

Bennie Dover Jackson Middle School

Technology

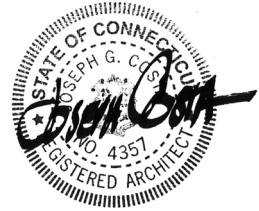
State Project No. 095-0091 MAG/EA

City Project # 2022-11

Project Manual

Phase 3 of 4

36 Waller Street, New London, CT



**PERKINS
— EASTMAN**

Procurement Submission Date:

February 10, 2022

PROJECT No. 79800.00

Project Manual for

Bennie Dover Jackson Middle School

Technology

Phase 3 of 4

36 Waller Street, New London, CT

PE Project No. 79800.00

Owner

City of New London
181 State Street New London, CT 06320d

Architect

Perkins Eastman
677 Washington Blvd.
Stamford, Connecticut 06901
Telephone: 203-251-7400

CODE COMPLIANCE REQUIREMENTS

In order to meet the needs of persons with disabilities, when applicable, all fixtures, furnishings and equipment items shall comply with current Connecticut State Building Code including ICC/ANSI A117.1-1998, Section 504 Rehabilitation Act 1973 including current ADA Standards for Accessible Design and Section 504 Regulations and the Americans with Disabilities Act Title II including the current ADA Standards for Accessible Design and ADA Regulations. Accessible knee and toe clearance shall comply with current ADA Standards for Accessible Design, Section 306. Compliance with the current Connecticut State Fire Safety Code and current O.S.H.A. – Title 29 / labor is also required. The items shall include, but are not limited to fixtures, furnishings, equipment, workstations (including built-ins), laboratory fume hoods, darkroom equipment, welding stations, shop equipment, etc.



TECHNOLOGY NARRATIVE

February 10, 2022

Re: Bennie Dover Jackson Middle School Alterations & Extension Project
36 Waller Street
New London, CT 06320
State Project # 095-0091 MAG/EA, Phase 3 of 4

Summary:

The following summarization defines the Technology systems, along with their intended functionality, which are planned to be specified into the above referenced project. The Technology Systems described within this section shall include Network Electronics, Telephone Handsets, UPS's, and Audio Visual Systems.

TECHNOLOGY SYSTEMS:

TE-01 Network Electronics:

All devices shall be procured via the State of CT, DAS contract #DAS-18PSX0202. All configurations shall be performed by the contractor awarded this project along with the BOE-IT department.

The Active Network Electronics have been specified as indicated by Owner. These devices shall support the data, security (access controls and video surveillance) and all current and future A/V application networks. Minimally, these devices shall be 10/100/1000 gigabit, Layer 3 protocol technology that will accommodate multiple VLANS, multicasting and routing capabilities. All of the Network devices shall be located within the TR's and MER and mounted onto the 19" racks.

TE-02 Telephone Handsets:

All devices shall be procured via the State of CT, DAS contract #DAS-18PSX0202. All configurations shall be performed by the contractor awarded this project along with the BOE-IT department.

The Telephone System has been specified per the owner and is the same manufacturer currently utilized by the New London BOE.

There are only handsets included within this project. The phone servers are pre-existing and are located within the current BOE central office.

All handsets shall be capable to send and receive outside phone calls, which can be configured with an access code to attain an outside call.

The voice system and all handsets within this system shall interface with the Public Address (PA) system to allow for secured access to the controls of the PA system via any handset on the telephone system. This configuration was specified within the base construction technology specifications.

TE-03 Uninterrupted Power Supplies (UPS's):

All devices shall be publicly bid.

UPS's shall be specified to provide continuous and conditioned power to the network electronics and servers during a power outage for a predetermined period of time so that the client can have ample time to power down the electronics or for standby power to initiate.

There is no Master Format written specification sections required for these items, they are listed within technology bid forms along with mandating unit pricing from the bidding contractor.

TE-04 Audio Visual Systems

All devices shall be publicly bid.

System shall consist of an Interactive Display, remote ceiling speakers, audio-video inputs, and associated cabling.

The Interactive Display Monitor shall be fixed to the instructional teaching wall with (2) two ceiling mounted speakers centered above the student seating spaces. These speakers shall include a priority override to shunt these speakers when an announcement from the Public-Address System is active.

The Interactive Display Monitors shall be mounted onto a fixed mounting bracket.

This system shall allow the instructor to transmit audio & visual content to the speakers & Interactive Display Monitor from the instructor's CPU, laptop and/or a discrete device (DVD or iPod).

Three (3) portable ADA assisted listening systems shall be provided as part of this project.

Display Monitors shall be located throughout the facility as indicated on the IT plans and shall display owner created content to students, faculty, and visitors.

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Reissued since previous issue date: N/A

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 CITY OF NEW LONDON
 36 Waller Street, New London, CT 06320
 State Project # 095-0091 MAG/EA
 PHASE 3 OF 4
 DATE: 02/10/2022

TECHNOLOGY ESTIMATE

	SYSTEM	ELIGIBLE	INELIGIBLE	TOTAL	PROCUREMENT
TE-01	LAN Network Switches	\$ 182,619.91	\$0.00	\$ 182,619.91	State DAS #18PSX0202
TE-02	Phone Handsets	\$ 51,619.81	\$0.00	\$ 51,619.81	State DAS #18PSX0202
TE-03	Uninterrupted Power Supplies	\$ 33,134.24	\$0.00	\$ 33,134.24	Public Bid
TE-04	Audio Visual Systems	\$ 697,179.93	\$0.00	\$ 697,179.93	Public Bid / Sole Source
Grand Total		\$ 964,553.89	\$ -	\$ 964,553.89	

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-01 LAN Network Switches

Specification: 27 2129

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	ELIGIBLE	INELIGIBLE	TOTAL
1	Cisco (Contract #18PSX0202)							
2	MER B-212C							
3	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1	\$ 6,452.11	\$ 6,452.11	\$0.00	\$ 6,452.11
4	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1	\$ 652.87	\$ 652.87	\$0.00	\$ 652.87
5	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1	\$ 1,345.11	\$ 1,345.11	\$0.00	\$ 1,345.11
6	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1	\$ 1,001.84	\$ 1,001.84	\$0.00	\$ 1,001.84
7	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	8	\$ 29.22	\$ 233.76	\$0.00	\$ 233.76
8	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1	\$ 4,425.17	\$ 4,425.17	\$0.00	\$ 4,425.17
9	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1	\$ 274.62	\$ 274.62	\$0.00	\$ 274.62
10	Cisco	MS210-48FP-HW	Meraki MS210-48FP 1G L2 Cld-Mngd 48x GigE 740W PoE Switch	5	\$ 4,185.43	\$ 20,927.15	\$0.00	\$ 20,927.15
11	Cisco	LIC-MS210-48FP-1YR	Meraki MS210-48FP Enterprise License and Support, 1 Year	5	\$ 218.51	\$ 1,092.55	\$0.00	\$ 1,092.55
12	Cisco	MA-CBL-40G-50CM	Meraki 40GbE QSFP Cable, 0.5 Meter	5	\$ 55.93	\$ 279.65	\$0.00	\$ 279.65
13	Cisco	MA-CBL-40G-3M	Meraki 40GbE QSFP Cable, 3 Meter	1	\$ 167.78	\$ 167.78	\$0.00	\$ 167.78
14	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1	\$ 55.93	\$ 55.93	\$0.00	\$ 55.93
15	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2	\$ 506.10	\$ 1,012.20	\$0.00	\$ 1,012.20
16	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140	\$ 2.50	\$ 350.00		\$ 350.00
17	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140	\$ 3.10	\$ 434.00		\$ 434.00
18	Specify	Specify	15' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	16	\$ 5.00	\$ 80.00		\$ 80.00
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	40	\$ 5.25	\$ 210.00		\$ 210.00
19	C-104A							
20	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1	\$ 6,452.11	\$ 6,452.11	\$0.00	\$ 6,452.11
21	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1	\$ 652.87	\$ 652.87	\$0.00	\$ 652.87
22	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1	\$ 1,345.11	\$ 1,345.11	\$0.00	\$ 1,345.11
23	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1	\$ 1,001.84	\$ 1,001.84	\$0.00	\$ 1,001.84
24	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	4	\$ 29.22	\$ 116.88	\$0.00	\$ 116.88
25	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1	\$ 4,425.17	\$ 4,425.17	\$0.00	\$ 4,425.17
26	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1	\$ 274.62	\$ 274.62	\$0.00	\$ 274.62
27	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1	\$ 55.93	\$ 55.93	\$0.00	\$ 55.93
28	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2	\$ 506.10	\$ 1,012.20	\$0.00	\$ 1,012.20
29	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	44	\$ 2.50	\$ 110.00		\$ 110.00
30	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	36	\$ 3.10	\$ 111.60		\$ 111.60
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	16	\$ 5.25	\$ 84.00		\$ 84.00
31	A-E109							
32	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1	\$ 6,452.11	\$ 6,452.11	\$0.00	\$ 6,452.11
33	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1	\$ 652.87	\$ 652.87	\$0.00	\$ 652.87
34	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1	\$ 1,345.11	\$ 1,345.11	\$0.00	\$ 1,345.11
35	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1	\$ 1,001.84	\$ 1,001.84	\$0.00	\$ 1,001.84

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-01 LAN Network Switches

Specification: 27 2129

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	ELIGIBLE	INELIGIBLE	TOTAL
36	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	6	\$ 29.22	\$ 175.32	\$0.00	\$ 175.32
37	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1	\$ 4,425.17	\$ 4,425.17	\$0.00	\$ 4,425.17
38	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1	\$ 274.62	\$ 274.62	\$0.00	\$ 274.62
39	Cisco	MS210-48FP-HW	Meraki MS210-48FP 1G L2 Cld-Mngd 48x GigE 740W PoE Switch	3	\$ 4,185.43	\$ 12,556.29	\$0.00	\$ 12,556.29
40	Cisco	LIC-MS210-48FP-1YR	Meraki MS210-48FP Enterprise License and Support, 1 Year	3	\$ 218.51	\$ 655.53	\$0.00	\$ 655.53
41	Cisco	MA-CBL-40G-50CM	Meraki 40GbE QSFP Cable, 0.5 Meter	3	\$ 55.93	\$ 167.79	\$0.00	\$ 167.79
42	Cisco	MA-CBL-40G-3M	Meraki 40GbE QSFP Cable, 3 Meter	1	\$ 167.78	\$ 167.78	\$0.00	\$ 167.78
43	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1	\$ 55.93	\$ 55.93	\$0.00	\$ 55.93
44	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2	\$ 506.10	\$ 1,012.20	\$0.00	\$ 1,012.20
45	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	93	\$ 2.50	\$ 232.50		\$ 232.50
46	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	93	\$ 3.10	\$ 288.30		\$ 288.30
47	Specify	Specify	15' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	14	\$ 5.00	\$ 70.00		\$ 70.00
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	40	\$ 5.25	\$ 210.00		\$ 210.00
48	B-309A Stack 1 of 2							
49	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1	\$ 6,452.11	\$ 6,452.11	\$0.00	\$ 6,452.11
50	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1	\$ 652.87	\$ 652.87	\$0.00	\$ 652.87
51	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1	\$ 1,345.11	\$ 1,345.11	\$0.00	\$ 1,345.11
52	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1	\$ 1,001.84	\$ 1,001.84	\$0.00	\$ 1,001.84
53	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	8	\$ 29.22	\$ 233.76	\$0.00	\$ 233.76
54	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1	\$ 4,425.17	\$ 4,425.17	\$0.00	\$ 4,425.17
55	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1	\$ 274.62	\$ 274.62	\$0.00	\$ 274.62
56	Cisco	MS210-48FP-HW	Meraki MS210-48FP 1G L2 Cld-Mngd 48x GigE 740W PoE Switch	5	\$ 4,185.43	\$ 20,927.15	\$0.00	\$ 20,927.15
57	Cisco	LIC-MS210-48FP-1YR	Meraki MS210-48FP Enterprise License and Support, 1 Year	5	\$ 218.51	\$ 1,092.55	\$0.00	\$ 1,092.55
58	Cisco	MA-CBL-40G-50CM	Meraki 40GbE QSFP Cable, 0.5 Meter	5	\$ 55.93	\$ 279.65	\$0.00	\$ 279.65
59	Cisco	MA-CBL-40G-3M	Meraki 40GbE QSFP Cable, 3 Meter	1	\$ 167.78	\$ 167.78	\$0.00	\$ 167.78
60	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1	\$ 55.93	\$ 55.93	\$0.00	\$ 55.93
61	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2	\$ 506.10	\$ 1,012.20	\$0.00	\$ 1,012.20
62	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140	\$ 2.50	\$ 350.00	\$0.00	\$ 350.00
63	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140	\$ 3.10	\$ 434.00	\$0.00	\$ 434.00
64	Specify	Specify	15' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	16	\$ 5.00	\$ 80.00	\$0.00	\$ 80.00
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	40	\$ 5.25	\$ 210.00		\$ 210.00
65	B-309A Stack 2 of 2							
66	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1	\$ 6,452.11	\$ 6,452.11	\$0.00	\$ 6,452.11
67	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1	\$ 652.87	\$ 652.87	\$0.00	\$ 652.87
68	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1	\$ 1,345.11	\$ 1,345.11	\$0.00	\$ 1,345.11
69	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1	\$ 1,001.84	\$ 1,001.84	\$0.00	\$ 1,001.84

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-01 LAN Network Switches

Specification: 27 2129

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	ELIGIBLE	INELIGIBLE	TOTAL
70	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	8	\$ 29.22	\$ 233.76	\$0.00	\$ 233.76
71	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1	\$ 4,425.17	\$ 4,425.17	\$0.00	\$ 4,425.17
72	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1	\$ 274.62	\$ 274.62	\$0.00	\$ 274.62
73	Cisco	MS210-48FP-HW	Meraki MS210-48FP 1G L2 Cld-Mngd 48x GigE 740W PoE Switch	5	\$ 4,185.43	\$ 20,927.15	\$0.00	\$ 20,927.15
74	Cisco	LIC-MS210-48FP-1YR	Meraki MS210-48FP Enterprise License and Support, 1 Year	5	\$ 218.51	\$ 1,092.55	\$0.00	\$ 1,092.55
75	Cisco	MA-CBL-40G-50CM	Meraki 40GbE QSFP Cable, 0.5 Meter	5	\$ 55.93	\$ 279.65	\$0.00	\$ 279.65
76	Cisco	MA-CBL-40G-3M	Meraki 40GbE QSFP Cable, 3 Meter	1	\$ 167.78	\$ 167.78	\$0.00	\$ 167.78
77	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1	\$ 55.93	\$ 55.93	\$0.00	\$ 55.93
78	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2	\$ 506.10	\$ 1,012.20	\$0.00	\$ 1,012.20
79	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140	\$ 2.50	\$ 350.00	\$0.00	\$ 350.00
80	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140	\$ 3.10	\$ 434.00	\$0.00	\$ 434.00
81	Specify	Specify	15' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	16	\$ 5.00	\$ 80.00	\$0.00	\$ 80.00
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	40	\$ 5.25	\$ 210.00		\$ 210.00
82	INSTALLATION & CONFIGURATION							
83	Specify	Specify	Installation & Configurations for all above	1	\$ 18,000.00	\$ 18,000.00	\$0.00	\$ 18,000.00
83	Specify	Specify	Installation of UPS's, PDU's and power up.	9	\$ 250.00	\$ 2,250.00	\$0.00	\$ 2,250.00
84	TOTAL					\$ 182,619.91	\$0.00	\$ 182,619.91

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-02 Phone Handsets

Specification: 27 2129

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	ELIGIBLE	INELIGIBLE	TOTAL
1	CISCO (Contract #18PSX0202)							
2	Cisco	CP-3905=	Cisco Unified SIP Phone 3905, Charcoal, Standard Handset PHW	39	\$ 63.57	\$ 2,479.23	\$0.00	\$ 2,479.23
3	Cisco	CON-SNT-CP3905	SNTC-8X5XNBD Cisco Unified SIP Phone 3905, Charcoal,	39	\$ 6.80	\$ 265.20	\$0.00	\$ 265.20
4	Cisco	CP-7861-K9=	Cisco UC Phone 7861 PHA	78	\$ 205.78	\$ 16,050.84	\$0.00	\$ 16,050.84
5	Cisco	CON-SNT-CP7861K9	SNTC-8X5XNBD Cisco UC Phone 7861	78	\$ 6.80	\$ 530.40	\$0.00	\$ 530.40
6	Cisco	CP-8832-K9	Cisco 8832 in Charcoal with accessories for North America PHC	4	898.44	\$ 3,593.76	\$0.00	\$ 3,593.76
7	Cisco	CON-SNT-CPK8832K	SNTC-8X5XNBD CISCO IP CONFERENCE PHONE 8832 IN CHAR	4	59.84	\$ 239.36	\$0.00	\$ 239.36
8	Cisco	CP-8832-POE	CISCO IP CONFERENCE PHONE 8832 POE ACCESSORIES FOR WORLDWIDE	4	0	\$ -	\$0.00	\$ -
9	Cisco	ISR4331-V/K9	CISCO ISR 4331 UC BUNDLE, PVD4-32, UC LICENSE	1	3,764.05	\$ 3,764.05	\$0.00	\$ 3,764.05
10	Cisco	CON-SNT-ISR4331V	SNTC-8X5XNBD CISCO ISR 4331 UC BUNDLE, PVD4-32, UC L	1	393.93	\$ 393.93	\$0.00	\$ 393.93
11	Cisco	SL-4330-IPB-K9	IP BASE LICENSE FOR CISCO ISR 4330 SERIES	1	0	\$ -	\$0.00	\$ -
12	Cisco	SL-4330-UC-K9	UNIFIED COMMUNICATION LICENSE FOR CISCO ISR 4330 SERIES	1	0	\$ -	\$0.00	\$ -
13	Cisco	PWR-4330-AC	AC POWER SUPPLY FOR CISCO ISR 4330	1	0	\$ -	\$0.00	\$ -
14	Cisco	CAB-AC	AC POWER CORD (NORTH AMERICA), C13, NEMA 5-15P, 2.1M	1	0	\$ -	\$0.00	\$ -
15	Cisco	PVD4-32	32-CHANNEL DSP MODULE	1	0	\$ -	\$0.00	\$ -
16	Cisco	MEM-FLSH-4G	4G FLASH MEMORY FOR CISCO ISR 4300 (SOLDERED ON MOTHERBOARD)	1	0	\$ -	\$0.00	\$ -
17	Cisco	MEM-43-4G	4G DRAM (1 X 4G) FOR CISCO ISR 4300	1	0	\$ -	\$0.00	\$ -
18	Cisco	SM-S-BLANK	REMOVABLE FACEPLATE FOR SM SLOT ON CISCO 2900,3900,4400 ISR	1	0	\$ -	\$0.00	\$ -
19	Cisco	SISR4300UK9-174	CISCO ISR 4300 SERIES IOS XE UNIVERSAL	1	0	\$ -	\$0.00	\$ -
20	Cisco	NIM-2FXS/4FXOP	2-PORT FXS/FXS-E/DID AND 4-PORT FXO NETWORK INTERFACE MODULE	1	913.78	\$ 913.78	\$0.00	\$ 913.78
21	Cisco	NIM-1MFT-T1/E1	1 PORT MULTIFLEX TRUNK VOICE/CLEAR-CHANNEL DATA T1/E1 MODULE	1	916.32	\$ 916.32	\$0.00	\$ 916.32
22	Cisco	PVD4-64	64-CHANNEL DSP MODULE	1	2,091.34	\$ 2,091.34	\$0.00	\$ 2,091.34
23	Cisco	A-FLEX-3	COLLABORATION FLEX PLAN 3.0 Line Notes: Initial Term - 12.00 Months Auto Renewal Term - 0 Months Billing Model - Prepaid Term Requested Start Date - 21-May-2022 Requested End Date - 20-May-2023	12	0	\$ -	\$0.00	\$ -
24	Cisco	SVS-FLEX-SUPT-BAS	BASIC SUPPORT FOR FLEX PLAN	12	0	\$ -	\$0.00	\$ -
25	Cisco	A-FLEX-NUPL-E	NU ON-PREMISES CALLING ENHANCED QTY- 82	12	272.42	\$ 3,269.04	\$0.00	\$ 3,269.04
26	Cisco	A-FLEX-NUPL-A	NU ON-PREMISES CALLING ACCESS QTY- 39	12	68.47	\$ 821.64	\$0.00	\$ 821.64
27	Cisco	A-FLEX-PL-VM	ON-PREMISES UNITY CONNECTION ADD-ON QTY- 121	12	190.91	\$ 2,290.92	\$0.00	\$ 2,290.92
28	Cisco	A-FLEX-SRST-E	SRST ENDPOINTS QTY- 121	12	0	\$ -	\$0.00	\$ -
29	Cisco	A-FLEX-P-ACC	ACCESS SMART LICENSE QTY- 39	12	0	\$ -	\$0.00	\$ -
30	Cisco	A-FLEX-P-ENH	ENHANCED SMART LICENSE QTY- 82	12	0	\$ -	\$0.00	\$ -
31	Cisco	A-FLEX-P-UCXN	UNITY CONNECTION SMART LICENSE 121	12	0	\$ -	\$0.00	\$ -
32	Cisco	A-FLEX-P-ER	EMERGENCY RESPONDER SMART LICENSE QTY- 121	12	0	\$ -	\$0.00	\$ -
33	Cisco	A-FLEX-SW-11.5-K9	ON-PREMISES & PARTNER HOSTED CALLING SW BUNDLE V11.5 (1)	12	0	\$ -	\$0.00	\$ -
34	Cisco	A-FLEX-JABBER-ADD	FLEX CISCO JABBER QTY- 82	12	0	\$ -	\$0.00	\$ -

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-02 Phone Handsets

Specifcation: 27 2129

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	ELIGIBLE	INELIGIBLE	TOTAL
35	Cisco	A-FLEX-FILESTG-ENT	FILE STORAGE ENTITLEMENT QTY- 1640	12	0	\$ -	\$0.00	\$ -
36	Cisco	A-FLEX-PROPACK-ENT	PRO PACK FOR CISCO CONTROL HUB ENTITLEMENT QTY- 82	12	0	\$ -	\$0.00	\$ -
37	Cisco	A-FLEX-MSG-NU-ENT	MESSAGING NAMED USER ENTITLEMENT QTY- 82	12	0	\$ -	\$0.00	\$ -
38	Cisco	A-FLEX-EXPWY-DSK-S	EXPRESSWAY DESKPHONE REGISTRATION - SMART LICENSING QTY- 82	12	0	\$ -	\$0.00	\$ -
39	Specify	Specify	Installation & Configuration Services for all above	1	\$ 14,000.00	\$ 14,000.00	\$0.00	\$ 14,000.00
40				TOTAL		\$ 51,619.81	\$0.00	\$ 51,619.81

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-03 Uninterrupted Power Supplies

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	ELIGIBLE	INELIGIBLE	TOTAL
1	APC	SRT5KRMXLT-5KTF	APC Smart-UPS SRT 5000VA RM 208V to 120V 2U Step-Down Transformer	5	\$ 4,045.80	\$ 20,229.02	\$0.00	\$ 20,229.02
2	APC	SRTRK2	APC Smart-UPS SRT 19" Rail Kit for Smart-UPS SRT 5/6/8/10kVA	5	\$ 137.84	\$ 689.22	\$0.00	\$ 689.22
3	APC	AP9630	UPS Network Management Card 2 - Remote monitoring and control of an individual UPS	5	\$ 239.00	\$ 1,195.00	\$0.00	\$ 1,195.00
4	APC	AP9631	UPS Network Management Card with PowerChute Network Shutdown & Env Monitoring	4	\$ 439.00	\$ 1,756.00	\$0.00	\$ 1,756.00
5	APC	AP9335TH	Temperature & Humidity Sensor	4	\$ 160.00	\$ 640.00	\$0.00	\$ 640.00
6	APC	AP9571A	PDU - 208V, 1 RU - - (1 per UPS for this Switch Stack)	5	\$ 225.00	\$ 1,125.00	\$0.00	\$ 1,125.00
7			Installation & Configuration Services for all above	1	\$ 7,500.00	\$ 7,500.00	\$0.00	\$ 7,500.00
8				TOTAL		\$ 33,134.24	\$0.00	\$ 33,134.24

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4
 State Project # 095-0091 MAG/EA
 DATE: 02/10/2022
 TE-04 Audio Visual Systems

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	ELIGIBLE	INELIGIBLE	TOTAL
CLASSROOM AV WITH 4 SPEAKERS								
1	VIVITEK	NovoTouch #EK753i	75" - 4K Interactive Display with Mounting Bracket	57	\$ 4,296.00	\$244,872.00	\$0.00	\$244,872.00
2	C2G	39873	HDMI, USB, 3.5mm Faceplate - A DEVICE	57	\$ 30.00	\$1,710.00	\$0.00	\$1,710.00
3	Frontrow	1000-00094	Ceiling Mounting Plenum Rated Enclosure	57	\$ 2,089.00	\$119,073.00	\$0.00	\$119,073.00
4	Frontrow	1000-00039	Teacher Microphone Kit compatible with ICR-01	57	\$ 300.00	\$17,100.00	\$0.00	\$17,100.00
5	Frontrow	1000-00040	Student Microphone Kit	57	\$ 300.00	\$17,100.00	\$0.00	\$17,100.00
6	Frontrow	202-05-102-00	Universal Drop-In Microphone Charger	57	\$ 66.81	\$3,808.17	\$0.00	\$3,808.17
7	Frontrow	1000-00153	Ceiling Option, Integrated 950CS Ceiling Sensor	57	\$ 167.32	\$9,537.24	\$0.00	\$9,537.24
8	Frontrow	1000-00153	Ceiling Sensor Kit	57	\$ 200.00	\$11,400.00	\$0.00	\$11,400.00
9	Frontrow	WP-A	Audio Out Wall Plate - A1 DEVICE	57	\$ 143.17	\$8,160.69	\$0.00	\$8,160.69
10	Frontrow	SP-C	Cut-In Speaker	120	\$ 334.07	\$40,088.40	\$0.00	\$40,088.40
11	Frontrow	1000-00013	Analog Page Override for Smart Reciever	57	\$ 20.99	\$1,196.43	\$0.00	\$1,196.43
12	Misc.	Misc.	Cable, Backboxes, Wiremold	57	\$ 800.00	\$45,600.00	\$0.00	\$45,600.00
13	Misc.	Misc.	Labor	57	\$ 2,000.00	\$114,000.00	\$0.00	\$114,000.00
MOBILE ASSISTED LISTENING SYSTEM								
14	Listen Tech	LS-88	LSS-88 Portable ListenIR iDSP System	3	\$ 1,778.00	\$5,334.00	\$0.00	\$5,334.00
MONITORS								
15	Samsung	DM65E	Monitor - 65" Display	4	\$ 2,400.00	\$9,600.00	\$0.00	\$9,600.00
16	Chief	XTM1U	Wall Mount for Monitors	4	\$ 650.00	\$2,600.00	\$0.00	\$2,600.00
17		Misc	Installation	1	\$ 46,000.00	\$46,000.00	\$0.00	\$46,000.00
18				TOTAL		\$ 697,179.93	\$ -	\$ 697,179.93

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-01 LAN Network Switches

Specification: 27 2129

State DAS Contract #18PSX0202

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	TOTAL
1	Cisco (Contract #18PSX0202)					
2	MER B-212C					
3	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1		
4	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1		
5	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1		
6	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1		
7	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	8		
8	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1		
9	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1		
10	Cisco	MS210-48FP-HW	Meraki MS210-48FP 1G L2 Cld-Mngd 48x GigE 740W PoE Switch	5		
11	Cisco	LIC-MS210-48FP-1YR	Meraki MS210-48FP Enterprise License and Support, 1 Year	5		
12	Cisco	MA-CBL-40G-50CM	Meraki 40GbE QSFP Cable, 0.5 Meter	5		
13	Cisco	MA-CBL-40G-3M	Meraki 40GbE QSFP Cable, 3 Meter	1		
14	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1		
15	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2		
16	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140		
17	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140		
18	Specify	Specify	15' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	16		
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	40		
19	C-104A					
20	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1		
21	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1		
22	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1		
23	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1		
24	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	4		
25	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1		
26	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1		
27	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1		
28	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2		
29	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	44		
30	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	36		
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	16		
31	A-E109					
32	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1		
33	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1		
34	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1		
35	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1		
36	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	6		
37	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1		
38	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1		
39	Cisco	MS210-48FP-HW	Meraki MS210-48FP 1G L2 Cld-Mngd 48x GigE 740W PoE Switch	3		
40	Cisco	LIC-MS210-48FP-1YR	Meraki MS210-48FP Enterprise License and Support, 1 Year	3		
41	Cisco	MA-CBL-40G-50CM	Meraki 40GbE QSFP Cable, 0.5 Meter	3		
42	Cisco	MA-CBL-40G-3M	Meraki 40GbE QSFP Cable, 3 Meter	1		
43	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1		
44	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2		
45	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	93		
46	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	93		
47	Specify	Specify	15' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	14		
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	40		
48	B-309A Stack 1 of 2					

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-01 LAN Network Switches

Specification: 27 2129

State DAS Contract #18PSX0202

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	TOTAL
49	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1		
50	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1		
51	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1		
52	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1		
53	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	8		
54	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1		
55	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1		
56	Cisco	MS210-48FP-HW	Meraki MS210-48FP 1G L2 Cld-Mngd 48x GigE 740W PoE Switch	5		
57	Cisco	LIC-MS210-48FP-1YR	Meraki MS210-48FP Enterprise License and Support, 1 Year	5		
58	Cisco	MA-CBL-40G-50CM	Meraki 40GbE QSFP Cable, 0.5 Meter	5		
59	Cisco	MA-CBL-40G-3M	Meraki 40GbE QSFP Cable, 3 Meter	1		
60	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1		
61	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2		
62	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140		
63	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140		
64	Specify	Specify	15' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	16		
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	40		
65	B-309A Stack 2 of 2					
66	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1		
67	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1		
68	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1		
69	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1		
70	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	8		
71	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1		
72	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1		
73	Cisco	MS210-48FP-HW	Meraki MS210-48FP 1G L2 Cld-Mngd 48x GigE 740W PoE Switch	5		
74	Cisco	LIC-MS210-48FP-1YR	Meraki MS210-48FP Enterprise License and Support, 1 Year	5		
75	Cisco	MA-CBL-40G-50CM	Meraki 40GbE QSFP Cable, 0.5 Meter	5		
76	Cisco	MA-CBL-40G-3M	Meraki 40GbE QSFP Cable, 3 Meter	1		
77	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1		
78	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2		
79	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140		
80	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140		
81	Specify	Specify	15' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	16		
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	40		
82	INSTALLATION & CONFIGURATION					
83	Specify	Specify	Installation & Configurations for all above	1		
83	Specify	Specify	Installation of UPS's, PDU's and power up.	9		
84					TOTAL	

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-02 Phone Handsets

Specification: 27 2129

State DAS Contract #18PSX0202

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	TOTAL
1			Wireless (Contract #18PSX0202)			
2	Cisco	CP-3905=	Cisco Unified SIP Phone 3905, Charcoal, Standard Handset PHW	36		
3	Cisco	CON-SNT-CP3905	SNTC-8X5XNBD Cisco Unified SIP Phone 3905, Charcoal,	36		
4	Cisco	CP-7861-K9=	Cisco UC Phone 7861 PHA	81		
5	Cisco	CON-SNT-CP7861K9	SNTC-8X5XNBD Cisco UC Phone 7861	81		
6	Cisco	CP-8832-K9	Cisco 8832 in Charcoal with accessories for North America PHC	4		
7	Cisco	CON-SNT-CPK8832K	SNTC-8X5XNBD CISCO IP CONFERENCE PHONE 8832 IN CHAR	4		
8	Cisco	CP-8832-POE	CISCO IP CONFERENCE PHONE 8832 POE ACCESSORIES FOR WORLDWIDE	4		
9	Cisco	ISR4331-V/K9	CISCO ISR 4331 UC BUNDLE, PVD4-32, UC LICENSE	1		
10	Cisco	CON-SNT-ISR4331V	SNTC-8X5XNBD CISCO ISR 4331 UC BUNDLE, PVD4-32, UC L	1		
11	Cisco	SL-4330-IPB-K9	IP BASE LICENSE FOR CISCO ISR 4330 SERIES	1		
12	Cisco	SL-4330-UC-K9	UNIFIED COMMUNICATION LICENSE FOR CISCO ISR 4330 SERIES	1		
13	Cisco	PWR-4330-AC	AC POWER SUPPLY FOR CISCO ISR 4330	1		
14	Cisco	CAB-AC	AC POWER CORD (NORTH AMERICA), C13, NEMA 5-15P, 2.1M	1		
15	Cisco	PVD4-32	32-CHANNEL DSP MODULE	1		
16	Cisco	MEM-FLSH-4G	4G FLASH MEMORY FOR CISCO ISR 4300 (SOLDERED ON MOTHERBOARD)	1		
17	Cisco	MEM-43-4G	4G DRAM (1 X 4G) FOR CISCO ISR 4300	1		
18	Cisco	SM-S-BLANK	REMOVABLE FACEPLATE FOR SM SLOT ON CISCO 2900,3900,4400 ISR	1		
19	Cisco	SISR4300UK9-174	CISCO ISR 4300 SERIES IOS XE UNIVERSAL	1		
20	Cisco	NIM-2FXS/4FXOP	2-PORT FXS/FXS-E/DID AND 4-PORT FXO NETWORK INTERFACE MODULE	1		
21	Cisco	NIM-1MFT-T1/E1	1 PORT MULTIFLEX TRUNK VOICE/CLEAR-CHANNEL DATA T1/E1 MODULE	1		
22	Cisco	PVD4-64	64-CHANNEL DSP MODULE	1		
23	Cisco	A-FLEX-3	COLLABORATION FLEX PLAN 3.0 Line Notes: Initial Term - 12.00 Months Auto Renewal Term - 0 Months Billing Model - Prepaid Term Requested Start Date - 21-May-2022 Requested End Date - 20-May-2023	12		
24	Cisco	SVS-FLEX-SUPT-BAS	BASIC SUPPORT FOR FLEX PLAN	12		
25	Cisco	A-FLEX-NUPL-E	NU ON-PREMISES CALLING ENHANCED QTY- 82	12		
26	Cisco	A-FLEX-NUPL-A	NU ON-PREMISES CALLING ACCESS QTY- 39	12		
27	Cisco	A-FLEX-PL-VM	ON-PREMISES UNITY CONNECTION ADD-ON QTY- 121	12		
28	Cisco	A-FLEX-SRST-E	SRST ENDPOINTS QTY- 121	12		
29	Cisco	A-FLEX-P-ACC	ACCESS SMART LICENSE QTY- 39	12		
30	Cisco	A-FLEX-P-ENH	ENHANCED SMART LICENSE QTY- 82	12		
31	Cisco	A-FLEX-P-UCXN	UNITY CONNECTION SMART LICENSE 121	12		
32	Cisco	A-FLEX-P-ER	EMERGENCY RESPONDER SMART LICENSE QTY- 121	12		
33	Cisco	A-FLEX-SW-11.5-K9	ON-PREMISES & PARTNER HOSTED CALLING SW BUNDLE V11.5 (1)	12		
34	Cisco	A-FLEX-JABBER-ADD	FLEX CISCO JABBER QTY- 82	12		
35	Cisco	A-FLEX-FILESTG-ENT	FILE STORAGE ENTITLEMENT QTY- 1640	12		
36	Cisco	A-FLEX-PROPACK-ENT	PRO PACK FOR CISCO CONTROL HUB ENTITLEMENT QTY- 82	12		
37	Cisco	A-FLEX-MSG-NU-ENT	MESSAGING NAMED USER ENTITLEMENT QTY- 82	12		
38	Cisco	A-FLEX-EXPWY-DSK-S	EXPRESSWAY DESKPHONE REGISTRATION - SMART LICENSING QTY- 82	12		
39	Specify	Specify	Installation & Configuration Services for all above	1		
40				TOTAL		

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-03 UPS's

Public Bid

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	TOTAL
1	APC	SRT5KRMXLT-5KTF	APC Smart-UPS SRT 5000VA RM 208V to 120V 2U Step-Down Transformer	5		
2	APC	SRTRK2	APC Smart-UPS SRT 19" Rail Kit for Smart-UPS SRT 5/6/8/10kVA	5		
3	APC	AP9630	UPS Network Management Card 2 - Remote monitoring and control of an individual UPS	5		
4	APC	AP9631	UPS Network Management Card with PowerChute Network Shutdown & Env Monitoring	4		
5	APC	AP9335TH	Temperature & Humidity Sensor	4		
6	APC	AP9571A	PDU - 208V, 1 RU - - (1 per UPS for this Switch Stack)	5		
7			Installation & Configuration Services for all above	1		
8				TOTAL		

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-04 Audio Visual Systems

Public Bid

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	TOTAL
CLASSROOM AV WITH 4 SPEAKERS						
1	VIVITEK	NovoTouch #EK753i	75" - 4K Interactive Display with Mounting Bracket	57		
2	C2G	39873	HDMI, USB, 3.5mm Faceplate - A DEVICE	57		
3	Frontrow	1000-00094	Ceiling Mounting Plenum Rated Enclosure	57		
4	Frontrow	1000-00039	Teacher Microphone Kit compatible with ICR-01	57		
5	Frontrow	1000-00040	Student Microphone Kit	57		
6	Frontrow	202-05-102-00	Universal Drop-In Microphone Charger	57		
7	Frontrow	1000-00153	Ceiling Option, Integrated 950CS Ceiling Sensor	57		
8	Frontrow	1000-00153	Ceiling Sensor Kit	57		
9	Frontrow	WP-A	Audio Out Wall Plate - A1 DEVICE	57		
10	Frontrow	SP-C	Cut-In Speaker	120		
11	Frontrow	1000-00013	Analog Page Override for Smart Reciever	57		
12	Misc.	Misc.	Cable, Backboxes, Wiremold	57		
13	Misc.	Misc.	Labor	57		
MOBILE ASSISTED LISTENING SYSTEM						
14	Listen Tech	LS-88	LSS-88 Portable ListenIR iDSP System	3		
MONITORS						
15	Samsung	DM65E	Monitor - 65" Display	4		
16	Chief	XTM1U	Wall Mount for Monitors	4		
17		Misc	Installation	1		
18				TOTAL		

ADVERTISEMENT TO BID

THE CITY OF NEW LONDON

The Purchasing Agent for the City of New London, CT will receive the following sealed Bids:

Proposal No. 2022-11: Bennie Dover Jackson Middle School – Technology Bids. State Project 095-0091 MAG/EA. The due date and time for the proposals is August 4, 2022 at 2:00 PM at 13 Masonic Street, New London, CT 06320. Any questions are due on July 1, 2022 by 4:00 P.M.

Non-Mandatory Pre-bid walk-thru July 14, 2022 at 10:00 A.M. Details will be issued via addendum.

Copies of the IFB documents may be downloaded from the following websites:

City of New London - <http://newlondonct.org/content/7429/7431/7445/8764.aspx>

State of Connecticut -CTSource <https://portal.ct.gov/DAS/CTSource/CTSource>

The City reserves the right to reject any and all bids, to waive minor irregularities in the bidding and to award the contract to other than the low bidder if deemed in the best interest of the City of New London.

Joshua Montague; Accounting/Purchasing Agent

ADVERTISEMENT TO BID

(blank)

Bennie Dover Jackson Middle School

PE Project 79800.00

State Project No. 095-0091 MAG/EA

00 11 16 ADVERTISEMENT TO BID

2

Construction Documents February 10, 2022

Phase 3 of 4

INVITATION TO BID

The City of New London invites qualified suppliers to submit bids to provide portions of the scope specified for the Bennie Dover Jackson Middle School, under Phase 3 of 4 Technology, OSCGR Project No. 095-0091 MAG/EA .

The portions of Technology scope for which Bids are requested include:

- TE-01 LAN Network Switches
- TE-02 Phone Handsets
- TE-03 Uninterrupted Power Supplies
- TE-04 Audio Visual Systems

Proposals from women and minority owned, as well as small businesses are encouraged.

Timeline:

July 14, 2022 10:00 AM - Non-mandatory pre-bid walk-thru

July 21, 2022 4:00 PM - Questions due

August 4, 2022 2:00PM - Sealed Proposals must be received

Bids shall be delivered to:

Joshua Montague
City of New London Purchasing
13 Masonic Street
New London, CT 06320

Delivered Proposals to include: (1) Original Hard Copy and (1) Digital Copy via thumb drive

Each sealed envelope must contain the words "2022-11 Bennie Dover Jackson Middle School-Technology Bids. State Project 095-0091 MAG/EA" in the lower left hand corner.

Bids will be logged on receipt, opened at the captioned time, and read aloud.
Work shall be completed in phases as outlined in the attached scheduled

INVITATION TO BID

Project Administration:

Owner's Representation Services are provided by: Colliers Project Leaders
135 New Road, Madison, CT 06443

The Architect is Perkins Eastman Architects

Technology Consultant is D'Agostino & Associates

Questions regarding this Project may be directed to: Joe Banks – Perkins Eastman
j.banks@perkinseastman.com
With CC: Kate Turner – Colliers Project Leaders
Kathleen.turner@collierseng.com
Joshua Montague-Accounting/Purchasing Agent
jmontague@newlondonct.org

Only questions submitted by email will be acknowledged. Questions shall be received no later than July 21, 2022 by 4:00 P.M.

Bidders will be held accountable for the requirements of all documents made available including subsequent issued Pre-Bid Notifications and Addenda, if any. Although efforts will be made to make bidders aware of all Pre-Bid Notifications and Addenda, bidders may contact Perkins Eastman Architects to verify that they have all Pre-Bid Notifications and Addenda.

Deliverables:

The Bid Documents include a Form of Bid which must be completed in its entirety

Bid Security in the form of a Bond or cashier's check in the amount of 5% of the Bid Amount is required to accompany the Bid.

Firm Requirements:

1. The proposal must include a project duration as noted in the Bid Form.
2. The Bid Amount must include all costs for the subject scope.
3. Proposals must be valid for 90 days
4. The Bidder is responsible for conducting necessary research, visiting the site and becoming familiar with the existing conditions. A site visit may be requested by any bidder
5. The Successful Bidder will be required to enter into a contract with the City of New London. Additional contract conditions may be required, depending upon the nature and extent of the services to be provided. The City of New London reserves the right to negotiate a change or modification to any of the proposed contractual conditions.
6. Performance and Payment Bonds will be required upon contract award for scope requiring installation by construction craft trades.

Bennie Dover Jackson Middle School

00 11 17 INVITATION TO BID

PE Project 79800.00
State Project No. 095-0091 MAG/EA

Construction Documents February 10, 2022
Phase 3 of 4

INVITATION TO BID

General Terms

1. The City reserves the right to reject any and all bids, to waive minor irregularities in the bidding and to award the contract to other than the low bidder if deemed in the best interest of the City of New London.
2. The City of New London may accept any portion of a proposal and change quantities subject to its best interest.
3. The City of New London reserves the right to accept other than the lowest cost proposal, and to negotiate the specified dollar amount, or any portion of that amount. The City of New London reserves the right to negotiate contract changes following the award.
4. If there is any conflict between these documents and the proposal, these documents shall control.
5. The City of New London reserves the right to cancel this IFB in writing or postpone the date and time for submitting proposals at any time prior to the proposal due date.
6. No proposer shall have a right to make a claim against the City of New London in the event the Town accepts a proposal or does not accept any proposals.
7. Nondiscrimination: Vendor will not discriminate against any employee or applicant for employment because of race, color, creed, religion, ancestry, sex, national origin, sexual preference, disability, age, marital status, or status with regard to public assistance or as a veteran.
8. This contract is not subject to state set-aside and contract compliance requirements. However the contractor must demonstrate good faith effort to employ minority and small business enterprises as subcontractors and suppliers of materials
9. Debarment and Suspension: The Contractor warrants and represents that neither it nor its principals, employees or agents who would perform services under this RFP are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation by any Federal or State department or agency.

End, Invitation to Bid

INVITATION TO BID

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Bennie Dover Jackson Middle School

PE Project 79800.00
State Project No. 095-0091 MAG/EA

00 11 17 INVITATION TO BID

1

Construction Documents February 10, 2022
Phase 3 of 4

INSTRUCTION TO BIDDERS

PART 1 - GENERAL

1.1 DEFINITIONS

- A. Bidding Documents include the Bidding Requirements and the proposed Contract Documents.
- B. The Bidding Requirements consist of:
 - 1. The Invitation to Bid
 - 2. The Instructions to Bidders
 - 3. The Bid Form
 - 4. Information Available to Bidders
- C. The proposed Contract Documents consist of:
 - 1. Agreement and General Conditions between Owner and General Contractor (Lump Sum) (“Agreement”)
 - 2. Drawings
 - 3. Specifications
 - 4. Addenda issued prior to execution of the Contract.
 - 5. Contract modifications.
- D. Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.
- E. A Bid is the complete and properly signed proposal to do the Work for the sums stipulated therein. A bid is considered complete if it is submitted according to the terms of the Bidding Documents, and is unconditional and unqualified.
- F. The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.
- G. An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.
- H. A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services for a portion of the Work identified in the Bidding Documents.
- I. A Bidder is a person or entity that submits a Bid.
- J. A Sub-bidder is a person or entity that submits a bid to a Bidder for materials, equipment or labor for a portion of the Work.

INSTRUCTION TO BIDDERS

- K. The Successful Bidder is the Bidder to whom the Owner makes an award.
- L. Definitions established in the Agreement or in the other Contract Documents are applicable to the Bidding Documents.

1.2 BIDDER'S REPRESENTATIONS

- A. By making a Bid, the Bidder represents that:
 - 1. The Bidder has carefully examined the Bidding Documents, the requirements in the Bidding Documents are clear, and the Bidder concurs with them. The Bid is made in full agreement with those requirements.
 - 2. The Bidder understands the requirements of the Bidding Documents to the extent that such documentation relates to the Work for which the Bid is submitted, and for other portions of the Project, if any, being bid concurrently or presently under construction.
 - 3. The Bidder and appropriate Sub-bidders have visited the site, become familiar with local conditions under which the Work is to be performed and have correlated the Bidder's personal observations with the requirements of the Bidding Documents.
 - 4. The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception or qualification.
 - 5. The Bidder has not colluded with any other person in regard to any Bid or sub-bid submitted.
 - 6. The Bidder and any Sub-bidders are not barred from bidding or performing work in any jurisdiction.
 - 7. The Bidder has reviewed the Agreement, it takes no exceptions thereto, and is prepared to execute it as is and with no modifications.

1.3 BIDDING DOCUMENTS

- A. Documents are available only in complete sets.
- B. Bidding Documents will be issued to Sub-bidders or others only when specifically offered in the Invitation to Bid.
- C. Bidders shall use complete sets of Bidding Documents in preparing Bids. The Owner and Architect assume no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- D. Copies of the Bidding Documents are made available for the sole purpose of obtaining Bids on the Work. No license or permission is granted for any other use of the Bidding Documents.

INSTRUCTION TO BIDDERS

1.4 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

- A. The Bidder shall carefully study and compare the Bidding Documents with each other, and with the site and local conditions. Request documents for other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is being submitted. If inconsistencies or ambiguities are discovered, the Bidder shall immediately report them to the Architect.
- B. Requests for clarification or interpretation of the Bidding Documents shall be made in writing. Oral requests will not be considered. The Invitation for Bids stipulates the last day that the Architect will accept requests for clarifications.
- C. Interpretations, clarifications, corrections and changes of the Bidding Documents will be made by written Addenda. Interpretations, clarifications, corrections and changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

1.5 SUBSTITUTIONS

- A. The materials, products and equipment described in the Bidding Documents establish the standard required for the function, dimension, appearance and quality to be met by any proposed substitution.
- B. No substitution will be considered prior to receipt of Bids unless the written request for approval has been received by the Owner by the date stipulated in the Invitation to Bid. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work including changes in the work of other contracts that incorporation of the proposed substitution would require shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Owner's decision of approval or disapproval of a proposed substitution shall be final.
- C. If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.
- D. No substitutions will be considered after the Contract award unless specifically provided in the Contract Documents.

1.6 ADDENDA

- A. Addenda will be delivered promptly by the issuing office to all registered Bidders.
- B. Addenda concerning technical matters will not be issued later than the day stipulated in the Invitation to Bid as the last day Addenda will be issued. The Owner reserves the right to issue an administrative Addendum at any time, withdrawing the request for Bids or postponing the date for receipt of Bids.
- C. Each Bidder shall confirm in writing, prior to submitting a Bid that the Bidder has received

INSTRUCTION TO BIDDERS

all Addenda issued. The Bidder shall list the Addenda in the Bid.

1.7 BIDDING PROCEDURES

- A. The form and style of Bids shall conform to the Bid Form, Section 004100, provided with the Bid Documents.
1. Bids shall be submitted on the Bid Form supplied with the Bidding Documents.
 2. Completely fill in all blanks on the bid form. Use typewriter or permanent ink.
 3. Express sums in both words and figures. In case of discrepancy between the two, the amount written in words shall govern.
 4. Interlineations, alterations and erasures must be clearly legible and initialed by the signer of the Bid.
 5. All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change."
 6. On each copy of the Bid, include the legal name of the Bidder and a statement that defines the circumstance of ownership and control. The name of each person signing the proposal shall be typed or printed below the signature. When an agent of the Bidder signs the proposal, include evidence of current power of attorney. In every case, the proposal shall show the present business address of the Bidder, at which address communications will be received and service of notices accepted.
 - a. If the Bidder is a corporation, the proposal shall be signed in the name of the corporation and sealed by a duly authorized officer of the corporation.
 - b. If the Bidder is a partnership, the proposal shall be signed in the name or title under which the organization is doing business by a partner or other authorized person whose official capacity shall be designated.
 - c. If the Bidder is an individual, he shall sign the proposal in person, stating the name or title, if any, under which he is doing business.
 - d. If the bidder is a Limited Liability Company ("LLC"), the proposal shall be signed in the name of the LLC by a member or other authorized person whose capacity shall be designated.
 8. Bids shall be notarized by a Notary Public.

1.8 BID SECURITY

- A. Bid Security in the amount of five percent (5%) of the Base Bid is required to be submitted in the form of a bid bond on AIA Document A310. The Owner may consider alternate forms of security in its sole discretion. The Bid Security shall be forfeited in the event the successful bidder refuses to perform the Work.

1.9 SUBMISSION OF BIDS

- A. All copies of the Bid and other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the attention of the Purchasing Agent and shall be identified with the Project name, the Bidder's name and address and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate

INSTRUCTION TO BIDDERS

mailing envelope labeled "SEALED BID ENCLOSED", and addressed as directed in the Invitation to Bid. Electronic copy of all documents to be included via thumb drive

- B. Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date for receipt of Bids will not be considered.
- C. The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.
- D. Oral, telephonic, facsimile or electronically mailed Bids are invalid and will not receive consideration.

1.10 MODIFICATION OR WITHDRAWAL OF BID

- A. A Bid may not be modified by the Bidder following the time and date designated for the receipt of Bids.
- B. A Bid submitted prior to the time and date designated for receipt of Bids, may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing and signed by the Bidder. Any change shall be so worded as not to reveal the amount of the original Bid.
- C. Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids provided that they are then fully in conformance with these Bidding Documents.

1.11 CONSIDERATION OF BIDS

- A. Proper and timely Bids will be opened in public and read aloud.
- B. The Owner reserve the right to:
 1. Reject any or all Bids
 2. Reject a Bid not accompanied by data required by the Bidding Documents
 3. Reject a Bid which is in any way incomplete or irregular.
 4. Waive any informalities or irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.
 5. Consider the Bidder's proposed use of New Haven resident contractors and work force in determining the award of the contract. (This assumes the project is in New Haven)

1.12 ACCEPTANCE OF BID

- A. It is the intent of the Owner to award a Contract to the lowest responsible Bidder offering the optimum combination of cost, service and schedule, provided that the apparent low Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available.
- B. The Owner shall have the right to accept Alternates in any order or combination, unless

INSTRUCTION TO BIDDERS

otherwise specifically provided in the Bidding Documents, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

- C. Bidders will be required to establish to the satisfaction of the Owner, the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.
- D. Prior to the award of the Contract, the Owner will notify the Bidder in writing if the Owner has reasonable objection to a person or entity proposed by the Bidder. If the Owner has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option (1) withdraw the Bid; or (2) submit an acceptable substitute person or entity. (Architect can object through Owner. No reason to put in here. Also, if the Owner's objection is reasonable, I see no reason to adjust the bid.)
- E. Persons and entities proposed by the Bidder and to whom the Owner has made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner.

1.13 PERFORMANCE BOND AND PAYMENT BOND REQUIREMENTS

- A. The Apparent Low Bidder will be required to furnish evidence of its ability to obtain satisfactory Performance and Labor and Materials Payment Bonds in the full amount of the Contract.
 - 1. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.
 - 2. If the Owner requires that bonds be secured from other than the Bidder's usual sources, changes in cost will be adjusted as provided in the Contract Documents.
 - 3. The successful Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to be commenced prior to the execution of the Contract, in response to a letter of intent, the successful Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds or other security will be furnished and delivered in accordance with this Subparagraph.
 - a. Unless otherwise provided, the bonds shall be written on the Performance Bond and Payment Bond forms furnished by the Owner. Both bonds shall have a penal sum equal to the Contract Sum. The required bonds shall be provided by a surety company or companies acceptable to the Owner, authorized to transact business within the State of Connecticut, and named in the current listing by the Department of the Treasury of approved sureties (Department Circular 570).
 - b. The bonds shall be dated on or after the date of the Contract.
 - c. The successful Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

END OF INSTRUCTIONS TO BIDDERS

Bennie Dover Jackson Middle School

00 20 00 INSTRUCTION TO BIDDERS

PE Project 79800.00

Construction Documents February 10, 2022

State Project No. 095-0091 MAG/EA

Phase 3 of 4

CITY QUALIFICATIONS

NCA/PB
Page 1 of 1

NON COLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)
County of _____) ss.

_____, being first duly sworn,
deposes and say that:

- (1) He is _____ of _____ herein referred to as the "Bidder" that has submitted the attached bid;
- (2) He is fully informed respecting the preparation and content of the attached Bid and of all pertinent circumstances respecting such Bid;
- (3) Such Bid is genuine and is not a collusive or sham Bid;
- (4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of New London, CT or any person interested in the proposed Contract; and
- (5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties of interest, including this affiant.
- (6) That no officer or employee or person whose salary is payable in whole or in part from the City of New London is directly or indirectly interested in this Bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.

Signed _____

Title _____

Subscribed and sworn before me this

_____ day of _____ 20__

(Notary Public)

My Commission expires _____

CITY QUALIFICATIONS

NCA/SC
Page 1 of 1

NON COLLUSION AFFIDAVIT OF SUBCONTRACTOR

State of _____)
County of _____) ss.

_____, being first duly sworn,
deposes and says that:

- (1) He is _____ of _____ herein referred to as the "Subcontractor";
- (2) He is fully informed respecting the preparation and content of the Subcontractor's Proposal submitted by the Subcontractor to _____, the Contractor for certain work in connection with the _____ Contract pertaining to the Project in New London, Connecticut;
- (3) Such Subcontractor's Proposal is genuine and is not a collusive or sham Bid;
- (4) Neither the said Subcontractors nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in said Subcontractor's Proposal or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of New London, CT or any person interested in the proposed Contract; and
- (5) The price or prices quoted in the attached Subcontractor's Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties of interest, including this affiant.
- (6) That no officer or employee or person whose salary is payable in whole or in part from the City of New London is directly or indirectly interested in this Bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.

Signed _____
Title _____

Subscribed and sworn before me this
_____ day of _____, 20____

(Notary Public)
My Commission expires _____

CITY QUALIFICATIONS

AFFIRMATIVE ACTION POLICY STATEMENT (must be submitted on your firm's letterhead)

It has always been the policy and will continue to be the strong commitment of _____ and all contractors and subcontractors who do business with this City to provide equal opportunities in employment to all qualified persons solely on the basis of job-related skills, ability and merit. _____ will continue to take Affirmative Action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, national origin, ancestry, mental disorder (present or past history thereof), age, physical disability (but not limited to blindness), marital status, mental retardation, and criminal record. Such action includes, but is not limited to, employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation and selection for training including apprenticeship. _____, and its subcontractors will continue to make good faith efforts to comply with all federal and state laws and policies which speak to equal employment opportunity.

The principles of Affirmative Action are addressed in the 13th, 14th, and 15th Amendments of the United States Constitution, Civil Rights Act of 1866, 1870, 1871, Equal Pay Act of 1963, Title VI and VII of - the 1964 United States Civil Rights Act, Presidential Executive Orders 11246, amended by 11375, (nondiscrimination under federal contracts), Act I, Sections 1 and 20 of the Connecticut Constitution, Governor Grasso's Executive Order Number 11, Governor O'Neill's Executive Order Number 9, the Connecticut Fair Employment Practices Law (Sec. 46a-60-69) of the Connecticut General Statutes, Connecticut Code of Fair Practices (46a-70-81), Deprivation of Civil Rights (46a-58(a)(d)), Public Accommodations Law (46a-63-64), Discrimination against Criminal Offenders (46a-80), definition of Blind (46a-51(1)), definition of Physically Disabled (46a-51(15)), definition. of Mentally Retarded (46a-51(13)), cooperation with the Commission on Human Rights and Opportunities (46 - 77), Sexual Harassment (46a-60(a)-8), Connecticut Credit Discrimination Law (36-436 through 439), Title I of the State and Local Fiscal Assistance Act of 1972.

This Affirmative Action Policy Statement re-affirms my personal commitment to the principles of Equal Employment Opportunity.

DATE

Signature of Authorized Signer

CITY QUALIFICATIONS

EEO CERT
Page 1 of 1CERTIFICATION OF BIDDER REGARDING
EQUAL EMPLOYMENT OPPORTUNITY

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 Part II, Section 203(b), (30 FR 12319, 12935). The implementing rules and regulations provide that any bidder or prospective contractor, or any of its proposed subcontractors, shall state whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicated that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven (7) calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

Bidder's Name _____

Address and Zip Code _____

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.
Yes () No () If answer is yes, identify the most recent contract.
2. Compliance reports were required to be filed in connection with such contract or subcontract
Yes () No () If answer is yes, identify the most recent contract.
3. Bidder has filed all compliance reports due under applicable instructions, including SF. 100.
Yes () No () Not Required ()
4. If answer to Item 3 is "No" please explain in detail on reverse side of this Certification.

Certification - The information above is true and complete to the best of my knowledge and belief. A willfully false statement is punishable by law (U.S. Code, Title 18, Section 1001).

Name and Title of Signer (Please Type)

Signature

Date

CITY QUALIFICATIONS

CERTIFICATION OF NON-SEGREGATED FACILITIES

This Bidder certifies that he does not maintain or provide his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any locations, under his control, where segregated facilities are maintained. The Bidder agrees that a breach of his certification will be a violation of the Equal Opportunity clause and any Contract resulting from acceptance of this Bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are, in fact, segregated on the basis of race, color, religion or national origin, because of habit, local custom or otherwise. The Bidder agrees that (except where he has obtained identical certification from proposed Subcontractors for specific time periods) he will obtain identical certifications from proposed Subcontractors prior to the award of Subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause; that he will retain such certifications in his files; and that he will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have already submitted identical certifications for the specific time periods):

"Notice to prospective subcontractors of requirements for non-segregated facilities. A certification of non-segregated facilities must be submitted prior to the award of a subcontract exceeding the Equal Opportunity Clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e. quarterly, semi-annually, or annually).

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. Paragraph 1001.

Date: _____

By: _____

Official Address: _____

Title: _____

CITY QUALIFICATIONS

EEO CERT
Page 1 of 1

CERTIFICATION OF BIDDER REGARDING
EQUAL EMPLOYMENT OPPORTUNITY

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 Part II, Section 203(b), (30 FR 12319, 12935). The implementing rules and regulations provide that any bidder or prospective contractor, or any of its proposed subcontractors, shall state whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicated that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven (7) calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

Bidder's Name _____

Address and Zip Code _____

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.
Yes () No () If answer is yes, identify the most recent contract.
2. Compliance reports were required to be filed in connection with such contract or subcontract
Yes () No () If answer is yes, identify the most recent contract.
3. Bidder has filed all compliance reports due under applicable instructions, including SF. 100.
Yes () No () Not Required ()
4. If answer to Item 3 is "No" please explain in detail on reverse side of this Certification.

Certification - The information above is true and complete to the best of my knowledge and belief. A willfully false statement is punishable by law (U.S. Code, Title 18, Section 1001).

Name and Title of Signer (Please Type)

Signature

Date



City of New London

Department of Finance - Purchasing Agent
13 Masonic Street
New London, CT 06320
phone(860)447-5215
fax (860)447-5297

Invitation for Bids

Specifications and Proposal Documents Attached

Bid No. 2022-11

Opening Date and Time: August 4, 2022 2:00 P.M.

Title: Bennie Dover Jackson Middle School- Technology. State Project 095-0091 MAG/EA

Special Instructions:

- **Non-mandatory walk-thru will be July 14, 2022 at 10:00 A.M. Details will be issued via addendum.**
- **Questions will be due no later than July 21, 2022 by 4:00 P.M.**
- **Responses must include one (1) hard copy and one (1) USB drive.**

The following information must appear in the lower left hand corner of the envelope:

Sealed Bid No.: 2022-11

Not to be opened until August 4, 2022 at 2:00PM

Mail or deliver Proposal to:

**13 Masonic Street
New London, CT 06320
Joshua Montague, Accounting/Purchasing Agent**

Bids shall not be accepted after the Opening Date and Time indicated above.

00 32 00 CITY QUALIFICATIONS

7

Bennie Dover Jackson Middle School

Construction Documents February 10, 2022

PE Project 79800.00

Phase 3 of 4

State Project No. 095-0091 MAG/EA

Affirmative Action – Equal Opportunity Employer



City of New London

Department of Finance - Purchasing Agent 13 Masonic Street New London, CT 06320
phone(860)447-5215 fax (860)447-5297

PLEASE RETURN THIS FORM IMMEDIATELY

Acknowledgement: Receipt of Invitation for Bids

**Bid No: 2022-11 Bennie Dover Jackson Middle School- Technology. State Project
095-0091 MAG/EA**

Please take a moment to acknowledge receipt of the attached documents. Your compliance with this request will help us to maintain proper follow-up procedures and will ensure that you receive any addendum that may be issued.

Date Issued: June 30, 2022

Date documents received: _____ / _____ /2022

Do you plan to submit a response Yes _____ No _____

Print or type the following information:

Company Name: _____

Address: _____

Telephone: _____ Fax: _____

E-mail: _____

Received by: _____

**E-mailed acknowledgements are requested.
E-mail jmontague@newlondonct.org**



City of New London

Department of Finance - Purchasing Agent 13 Masonic Street New London, CT 06320
phone(860)447-5215 fax (860)447-5297

Standard Invitation for Bids (IFB) and Contract Terms and Conditions

All Invitations for Bids issued by the City of New London (City) will bind Bidders to the terms and conditions listed below, unless specified otherwise in any individual Invitation for Bids.

Incorporated by reference into this contract are the provisions of Section 2-66 through 2-71 and Section 2-73 of the Code of Ordinances of the City of New London.

The contractor agrees to comply with the Code of Ordinances as they exist on the date of the contract and as they may be adopted or amended from time to time during the term of this contract and any amendments thereto.

Submission of Bids

1. Bids must be submitted on forms supplied by the City of New London. Telephone, facsimile or e-mail bids will not be accepted in response to an Invitation for Bids. An original and one (1) copy of the Proposal Form shall be returned to the Purchasing Agent.
2. The date and time bids are to be opened are given in each Invitation for Bids issued. Bids received after the specified date and time of the bid opening given in each Invitation for Bids will not be considered. Bid envelopes must clearly indicate the bid number as well as the date and time of the bid opening. The name and address of the bidder should appear in the upper left-hand corner of the envelope.
3. Incomplete proposal forms may result in the rejection of the bid. Amendments to bids received by the Purchasing Agent after the date and time specified for the bid opening shall not be considered. Bids shall be computer prepared, typewritten or handwritten in ink. Bids submitted in pencil shall be rejected. A person duly authorized to sign bids for the bidder shall sign all bids. Unsigned bids shall be rejected. The person signing the Proposal Form or their authorized designee must initial errors, alterations or corrections on both the original and copy of the Proposal Form to be returned. In the event an authorized designee initials a correction, there must be written authorization from the person signing the Proposal Form to the person initialing the erasure, alterations or corrections. Failure to do so shall result in rejection of the bid for those items erased, altered or corrected and not initialed.
4. Conditional bids are subject to rejection in whole or in part. A conditional bid is defined as one that limits, modifies, expands or supplements any of the terms and conditions and/or specifications of the Invitation for Bids.
5. Alternate bids will not be considered. An alternate bid is defined as one that is submitted in addition to the bidder's primary response to the Invitation for Bids.
6. Prices should be extended in decimal, not fraction, to be net and shall include delivery and transportation charges fully prepaid by the Contractor to the destination specified in the Invitation for Bids and subject only to cash discount.
7. Pursuant to Sections 12-412 and 12-412(1) of the Connecticut General Statutes, the City of New London is exempt from the payment of excise, transportation and sales taxes imposed by the Federal Government and/or the State. Such taxes must not be included in the bid prices.
8. In the event of a discrepancy between the unit price and the extension, the unit price shall govern.
9. By its submission the Bidder represents that the bid is not made in connection with any other Bidder submitting a bid for the same commodity or commodities and is in all respects fair and without collusion or fraud.

Bennie Dover Jackson Middle School

00 32 00 CITY QUALIFICATIONS

PE Project 79800.00

State Project No. 095-0091 MAG/EA

Affirmative Action – Equal Opportunity Employer

Construction Documents February 10, 2022

Phase 3 of 4

Standard Invitation for Bids (IFB) and Contract Terms and Conditions

10. All bids will be opened and read publicly and upon award are subject to public inspection.

Guaranty or Surety

11. Bid bonds, performance bonds, and labor and material bonds will be required as specified below. Guaranty or surety may be in the form of certified check. Bonds must meet the following requirements: Corporation – must be signed by an official of the corporation above their official title and the corporate seal must be affixed over the signature. Firm or Partnership - must be signed by all of the partners and indicate they are “doing business as”; Individual – must be signed by the owner and indicated as “Owner”. The surety company executing the bond or countersigning must be licensed in Connecticut and an official of the surety company must sign the bond with the corporate seal affixed over the signature. Signatures of two (2) witnesses for both the principal and the surety must appear on the bond. Power of attorney for the official signing the bond for the surety company must be submitted with the bond.

Bid Bond – Ten percent (10%) due at time of bid for all contract services and public works/construction projects that exceed twenty thousand dollars (20,000.00)

Performance Bond – One hundred percent (100%) of contract price for projects that exceed fifty thousand dollars (50,000.00).

Labor and Material Payment Bonds – One hundred percent (100%) of contract price for projects that exceed fifty thousand dollars (50,000.00).

Award

12. Award of this contract will be made to the lowest responsible, qualified bidder and will be based on net cost and City specifications. The City of New London reserves the right to award this contract to other than the low bidder and to make multiple awards if deemed in the best interest of the City.
13. The City of New London may reject any bidder in default of any prior contract or guilty of misrepresentation or any bidder with a member of its firm in default or guilty of misrepresentation.
14. The Purchasing Agent may correct inaccurate awards resulting from clerical or administrative errors.

Contract

15. The existence of a contract shall be determined in accordance with the requirements set forth above.
16. The Contractor shall not assign or otherwise dispose its contract or its right, title or interest, or its power to execute such contract to any other person, firm or corporation without the prior written consent of the City of New London.
17. Failure of a Contractor to deliver commodities or perform services as specified will constitute authority for the City of New London to purchase these commodities or services on the open market. The contractor agrees to promptly reimburse the City of New London for excess cost of these purchases. The purchases will be deducted from the contracted quantities.

Standard Invitation for Bids (IFB) and Contract Terms and Conditions (con't)

18. The Contractor agrees to hold the City of New London harmless from liability of any kind for the use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention furnished or used in the performance of the Contract. Guarantee its products against defective material or workmanship. Repair damages of any kind, for which it is responsible to the premises or equipment, to its own work or to the work of other contractors. Obtain and pay for all licenses, permits, fees etc., and to give all notices and comply with all requirements of the City of New London, the State of Connecticut and the U.S. Government.
19. Insurance requirements generally apply to contract services, professional services and public works improvement/construction projects. The Contractor will carry commercial general liability insurance to protect the City of New London from loss. The following minimum limits shall be met:

Bodily Injury and Property Damage – One million dollars (1,000,000.00) each occurrence
two million dollars (2,000,000.00) aggregate

Products or Completed Operations - One million dollars (1,000,000.00) each occurrence
two million dollars (2,000,000.00) aggregate

Professional Liability (Errors and Omissions) Coverage appropriate to the contractor's operations – Two million dollars (2,000,000.00) each occurrence

Commercial Automobile Coverage including owned, non-owned, leased and hired vehicles (if used on City of New London property) – One million dollars (1,000,000.00) combined single limit for each accident.

Workers' Compensation Coverage - Will be in accordance with State of Connecticut requirements at the time of bid.

Any deductible or self-insured retention must be disclosed and any claim payments falling within the deductible shall be the responsibility of the contractor.

The Contractor shall require all subcontractors to carry the same forms and minimum coverages that it is required to provide. Evidence of these coverages must be provided to the City of New London Purchasing Agent prior to the contractor or subcontractor coming onto the work site.

All insurance policies shall be endorsed to the City of New London, its officers and employees as additional insured, and shall not be reduced or cancelled without thirty (30) days prior written notice to the Purchasing Agent. In addition, the contractor's insurance shall be primary as respects the City of New London, and any other insurance maintained by the City of New London shall be excess and not contributing insurance with the contractor's insurance. All policies must also include a subrogation of waiver.

20. Notwithstanding any provision or language in this contract to the contrary, the Mayor may, without cause, terminate this contract upon approval by the City Council, whenever he/she determines that such termination is in
- Standard Invitation for Bids (IFB) and Contract Terms and Conditions (con't)**

the best interest of the City of New London. Any such termination shall be effected by delivery to the Contractor of a written notice of termination. The notice of termination shall be sent by registered mail to the Contractor address furnished to the City of New London for purposes of correspondence or by hand delivery. Upon receipt of such notice, the Contractor shall both immediately discontinue all services affected (unless the notice directs otherwise) and deliver to the City of New London all data, drawings, specifications, reports, estimates, summaries, and such other information and materials as may have been accumulated by the Contractor in performing its duties under this contract, whether completed or in progress. All such documents, information and materials shall become the property of the City of New London. In the event of such termination, the contractor shall be entitled to reasonable compensation as determined by the Mayor, however, no compensation for lost profits shall be allowed.

Delivery

21. All products and equipment delivered must be new unless otherwise stated in the proposal specifications.
22. All deliveries will be to the locations specified by the City of New London. The City of New London does not have a loading dock therefore all Contractors will be responsible for inside delivery without assistance from City of New London personnel.
23. Payment terms are net 45 days after receipt of goods or invoice, whichever is later, unless otherwise specified.
24. Charges against a Contractor shall be deducted from current obligations. Money paid to the City of New London shall be payable to the Treasurer, City of New London.

Saving Clause

25. The Contractor shall not be liable for losses or delays in the fulfillment of the terms of the contract due to wars, acts of public enemies, strikes, fires, floods, acts of God or any other acts not within the control of or reasonably prevented by the Contractor. The contractor will give written notice of the cause and probable duration of any such delay.

Advertising

26. Contractors may not reference sales to the City of New London for advertising and promotional purposes without prior approval of the City of New London.

Rights

27. The City of New London has sole and exclusive right and title to all printed material produced for the City of New London and the Contractor shall not copyright the printed matter produced under this contract.
28. The Contractor assigns to the City of New London all rights, title and interests in and to all causes of action it may have under Section 4 of the Clayton Act, 15 USC 15, or under Chapter 624 of the Connecticut General Statutes. This assignment occurs when the contractor is awarded the contract.
29. The Contractor agrees that it is in compliance with all applicable federal, state and local regulations, including but not limited to Connecticut General Statutes Section 7-148i. The Contractor also agrees that it will hold the City of New London harmless and indemnify the City of New London from any action which may arise out of any act by the Contractor concerning lack of compliance with these laws and regulations. All purchases will be in compliance with Sections 22a-194 to 22a-194g of the Connecticut General Statutes related to product packaging.
30. This contract is sub ect to the provisions of Executive Order Number Three of Governor Thomas J. Meskill promulgated June 16, 1971, the provision of Executive Order Number Seventeen of Governor Thomas J. Meskill promulgated February 15, 1973 and Section 16 of Public Act 91-58, nondiscrimination regarding sexual orientation, and the provisions of Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999 regarding Violence in the Workplace Prevention Policy.

BID FORM

TO: **Joshua Montague**
City of New London Purchasing
15 Masonic Street
New London, CT 06320

hereinafter called "Owner".

The undersigned, having examined the proposed contract documents for the Project Identified as:

OSCGR Project No. 095-0091 MAG/EA • Phase 3 of 4
Technology
Bennie Dover Jackson Middle School
36 Waller Street
New London, CT 06320

hereby proposes and agrees to furnish all goods with related labor, accessories, equipment, and appliances necessary to complete the Work as required by the proposed contract documents for that portion of the Phase 3 Scope. The Bidder may respond with any single complete category or any combination of complete categories. Bids containing partial responses within category, omitting line items may void the entire category. The Owner reserves the right to adjust quantities and delete items entirely if determined to be in its best interest. In determining the Award, the amounts entered on the Schedules of Values shall take precedence over the following stipulated BASE BID sums:

TE-01 LAN Network Switches:

_____ DOLLARS
AMOUNT IN WORDS

\$ _____
AMOUNT IN FIGURES

TE-02 Phone Handsets:

_____ DOLLARS
AMOUNT IN WORDS

\$ _____
AMOUNT IN FIGURES

TE-03 Uninterrupted Power Supplies

_____ DOLLARS
AMOUNT IN WORDS

\$ _____
AMOUNT IN FIGURES

TE-04 Audio Visual Systems

_____ DOLLARS
AMOUNT IN WORDS

\$ _____
AMOUNT IN FIGURES

BID FORM

No Alternates or Allowances have been specified.

Substitutions may be considered if determined to be in the best interest of the Owner based solely on the judgement of the Owner.

Unit Prices, may be considered by the Owner in assessing the optimum combination of service and value used to make the final award determination.

UNIT PRICES are a mandatory component of the Schedules of Values. Omissions of Unit Prices may disqualify the Bid as nonresponsive.

TIME OF COMPLETION

The Bidder agrees that it will provide a detail Proposal copied to electronic media within ten (10) days after receiving official notice of the acceptance of this bid, will accept a Purchase Order from the City of New London, and will complete the Work by

_____ (Date) or within _____ Calendar Days

ADDENDA

The undersigned acknowledges receipt of Addenda numbered:

BID BOND:

Enclosed with this Bid is Bid Security in the amount of not less than five percent (5%) of the Bidder's proposed Contract Sum.

INITIAL _____

PROPOSED SUBCONTRACTOR LIST:

Bidder shall name one and may name two subcontractors for each trade or sub-trade category below. Bidders naming themselves shall have proven capability to do such work.

Bidders furnishing "Goods Only," not requiring installation, shall acknowledge intent to comply with restrictions imposed on "drop shipments" and deliveries.

1. Installation (1) _____

(2) _____

2. Goods Only INITIAL _____

The undersigned agrees that each of the above-named subcontractors will be used for the work indicated at the amount stated, unless a substitution is permitted by the awarding authority.

SCHEDULES OF VALUES

The following Schedules identify Products and Quantities for each Category.

Provide the Unit Cost and Total Cost for each line item in order to make a complete offer.

This Project is Tax-Exempt under Terms of Regulation 18, Section 12-426 of the Connecticut Sales and Use Tax Act which exempts payment of tax covering all purchases of materials and supplies to be physically incorporated in, and to become a permanent part of the Work of this Contract.

BID FORM

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-01 LAN Network Switches

Specification: 27 2129

State DAS Contract #18PSX0202

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	TOTAL
1	Cisco (Contract #18PSX0202)					
2	MER B-212C					
3	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1		
4	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1		
5	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1		
6	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1		
7	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	8		
8	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1		
9	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1		
10	Cisco	MS210-48FP-HW	Meraki MS210-48FP 1G L2 Cld-Mngd 48x GigE 740W PoE Switch	5		
11	Cisco	LIC-MS210-48FP-1YR	Meraki MS210-48FP Enterprise License and Support, 1 Year	5		
12	Cisco	MA-CBL-40G-50CM	Meraki 40GbE QSFP Cable, 0.5 Meter	5		
13	Cisco	MA-CBL-40G-3M	Meraki 40GbE QSFP Cable, 3 Meter	1		
14	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1		
15	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2		
16	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140		
17	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140		
18	Specify	Specify	15' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	16		
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	40		
19	C-104A					
20	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1		
21	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1		
22	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1		
23	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1		
24	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	4		
25	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1		
26	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1		
27	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1		
28	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2		
29	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	44		
30	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	36		
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	16		
31	A-E109					
32	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1		
33	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1		
34	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1		
35	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1		
36	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	6		
37	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1		
38	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1		
39	Cisco	MS210-48FP-HW	Meraki MS210-48FP 1G L2 Cld-Mngd 48x GigE 740W PoE Switch	3		
40	Cisco	LIC-MS210-48FP-1YR	Meraki MS210-48FP Enterprise License and Support, 1 Year	3		
41	Cisco	MA-CBL-40G-50CM	Meraki 40GbE QSFP Cable, 0.5 Meter	3		
42	Cisco	MA-CBL-40G-3M	Meraki 40GbE QSFP Cable, 3 Meter	1		
43	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1		
44	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2		
45	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	93		
46	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	93		
47	Specify	Specify	15' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	14		
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	40		
48	B-309A Stack 1 of 2					

BID FORM

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-02 Phone Handsets

Specification: 27 2129

State DAS Contract #18PSX0202

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	TOTAL
1			Wireless (Contract #18PSX0202)			
2	Cisco	CP-3905=	Cisco Unified SIP Phone 3905, Charcoal, Standard Handset PHW	39		
3	Cisco	CON-SNT-CP3905	SNTC-8X5XNBD Cisco Unified SIP Phone 3905, Charcoal,	39		
4	Cisco	CP-7861-K9=	Cisco UC Phone 7861 PHA	78		
5	Cisco	CON-SNT-CP7861K9	SNTC-8X5XNBD Cisco UC Phone 7861	78		
6	Cisco	CP-8832-K9	Cisco 8832 in Charcoal with accessories for North America PHC	4		
7	Cisco	CON-SNT-CPK8832K	SNTC-8X5XNBD CISCO IP CONFERENCE PHONE 8832 IN CHAR	4		
8	Cisco	CP-8832-POE	CISCO IP CONFERENCE PHONE 8832 POE ACCESSORIES FOR WORLDWIDE	4		
9	Cisco	ISR4331-V/K9	CISCO ISR 4331 UC BUNDLE, PVD4-32, UC LICENSE	1		
10	Cisco	CON-SNT-ISR4331V	SNTC-8X5XNBD CISCO ISR 4331 UC BUNDLE, PVD4-32, UC L	1		
11	Cisco	SL-4330-IPB-K9	IP BASE LICENSE FOR CISCO ISR 4330 SERIES	1		
12	Cisco	SL-4330-UC-K9	UNIFIED COMMUNICATION LICENSE FOR CISCO ISR 4330 SERIES	1		
13	Cisco	PWR-4330-AC	AC POWER SUPPLY FOR CISCO ISR 4330	1		
14	Cisco	CAB-AC	AC POWER CORD (NORTH AMERICA), C13, NEMA 5-15P, 2.1M	1		
15	Cisco	PVD4-32	32-CHANNEL DSP MODULE	1		
16	Cisco	MEM-FLSH-4G	4G FLASH MEMORY FOR CISCO ISR 4300 (SOLDERED ON MOTHERBOARD)	1		
17	Cisco	MEM-43-4G	4G DRAM (1 X 4G) FOR CISCO ISR 4300	1		
18	Cisco	SM-S-BLANK	REMOVABLE FACEPLATE FOR SM SLOT ON CISCO 2900,3900,4400 ISR	1		
19	Cisco	SISR4300UK9-174	CISCO ISR 4300 SERIES IOS XE UNIVERSAL	1		
20	Cisco	NIM-2FXS/4FXOP	2-PORT FXS/FXS-E/DID AND 4-PORT FXO NETWORK INTERFACE MODULE	1		
21	Cisco	NIM-1MFT-T1/E1	1 PORT MULTIFLEX TRUNK VOICE/CLEAR-CHANNEL DATA T1/E1 MODULE	1		
22	Cisco	PVD4-64	64-CHANNEL DSP MODULE	1		
23	Cisco	A-FLEX-3	COLLABORATION FLEX PLAN 3.0 Line Notes: Initial Term - 12.00 Months Auto Renewal Term - 0 Months Billing Model - Prepaid Term Requested Start Date - 21-May-2022 Requested End Date - 20-May-2023	12		
24	Cisco	SVS-FLEX-SUPT-BAS	BASIC SUPPORT FOR FLEX PLAN	12		
25	Cisco	A-FLEX-NUPL-E	NU ON-PREMISES CALLING ENHANCED QTY- 82	12		
26	Cisco	A-FLEX-NUPL-A	NU ON-PREMISES CALLING ACCESS QTY- 39	12		
27	Cisco	A-FLEX-PL-VM	ON-PREMISES UNITY CONNECTION ADD-ON QTY- 121	12		
28	Cisco	A-FLEX-SRST-E	SRST ENDPOINTS QTY- 121	12		
29	Cisco	A-FLEX-P-ACC	ACCESS SMART LICENSE QTY- 39	12		
30	Cisco	A-FLEX-P-ENH	ENHANCED SMART LICENSE QTY- 82	12		
31	Cisco	A-FLEX-P-UCXN	UNITY CONNECTION SMART LICENSE 121	12		
32	Cisco	A-FLEX-P-ER	EMERGENCY RESPONDER SMART LICENSE QTY- 121	12		
33	Cisco	A-FLEX-SW-11.5-K9	ON-PREMISES & PARTNER HOSTED CALLING SW BUNDLE V11.5 (1)	12		
34	Cisco	A-FLEX-JABBER-ADD	FLEX CISCO JABBER QTY- 82	12		
35	Cisco	A-FLEX-FILESTG-ENT	FILE STORAGE ENTITLEMENT QTY- 1640	12		
36	Cisco	A-FLEX-PROPACK-ENT	PRO PACK FOR CISCO CONTROL HUB ENTITLEMENT QTY- 82	12		
37	Cisco	A-FLEX-MSG-NU-ENT	MESSAGING NAMED USER ENTITLEMENT QTY- 82	12		
38	Cisco	A-FLEX-EXPWY-DSK-S	EXPRESSWAY DESKPHONE REGISTRATION - SMART LICENSING QTY- 82	12		
39	Specify	Specify	Installation & Configuration Services for all above	1		
40				TOTAL		

BID FORM

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA
DATE: 02/10/2022

TE-02 Phone Handsets
Specification: 27 2129

State DAS Contract #18PSX0202

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	TOTAL
1	Wireless (Contract #18PSX0202)					
2	Cisco	CP-3905=	Cisco Unified SIP Phone 3905, Charcoal, Standard Handset PHW	39		
3	Cisco	CON-SNT-CP3905	SNTC-BX5XNBD Cisco Unified SIP Phone 3905, Charcoal,	39		
4	Cisco	CP-7861-K9=	Cisco UC Phone 7861 PHA	78		
5	Cisco	CON-SNT-CP7861K9	SNTC-BX5XNBD Cisco UC Phone 7861	78		
6	Cisco	CP-8832-K9	Cisco 8832 in Charcoal with accessories for North America PHC	4		
7	Cisco	CON-SNT-CPK8832K	SNTC-BX5XNBD CISCO IP CONFERENCE PHONE 8832 IN CHAR	4		
8	Cisco	CP-8832-POE	CISCO IP CONFERENCE PHONE 8832 POE ACCESSORIES FOR WORLDWIDE	4		
9	Cisco	ISR4331-V/K9	CISCO ISR 4331 UC BUNDLE, PVDMA-32, UC LICENSE	1		
10	Cisco	CON-SNT-ISR4331V	SNTC-BX5XNBD CISCO ISR 4331 UC BUNDLE, PVDMA-32, UC L	1		
11	Cisco	SL-4330-IPB-K9	IP BASE LICENSE FOR CISCO ISR 4330 SERIES	1		
12	Cisco	SL-4330-UC-K9	UNIFIED COMMUNICATION LICENSE FOR CISCO ISR 4330 SERIES	1		
13	Cisco	PWR-4330-AC	AC POWER SUPPLY FOR CISCO ISR 4330	1		
14	Cisco	CAB-AC	AC POWER CORD (NORTH AMERICA), C13, NEMA 5-15P, 2.1M	1		
15	Cisco	PVDMA-32	32-CHANNEL DSP MODULE	1		
16	Cisco	MEM-FLSH-4G	4G FLASH MEMORY FOR CISCO ISR 4300 (SOLDERED ON MOTHERBOARD)	1		
17	Cisco	MEM-43-4G	4G DRAM (1 X 4G) FOR CISCO ISR 4300	1		
18	Cisco	SM-S-BLANK	REMOVABLE FACEPLATE FOR SM SLOT ON CISCO 2900,3900,4400 ISR	1		
19	Cisco	SISR4300UK9-174	CISCO ISR 4300 SERIES IOS XE UNIVERSAL	1		
20	Cisco	NIM-2FXS/4FXOP	2-PORT FXS/FXS-E/DID AND 4-PORT FXO NETWORK INTERFACE MODULE	1		
21	Cisco	NIM-1MFT-T1/E1	1 PORT MULTIFLEX TRUNK VOICE/CLEAR-CHANNEL DATA T1/E1 MODULE	1		
22	Cisco	PVDMA-64	64-CHANNEL DSP MODULE	1		
23	Cisco	A-FLEX-3	COLLABORATION FLEX PLAN 3.0 Line Notes: Initial Term - 12.00 Months Auto Renewal Term - 0 Months Billing Model - Prepaid Term Requested Start Date - 21-May-2022 Requested End Date - 20-May-2023	12		
24	Cisco	SVS-FLEX-SUPT-BAS	BASIC SUPPORT FOR FLEX PLAN	12		
25	Cisco	A-FLEX-NUPL-E	NU ON-PREMISES CALLING ENHANCED QTY- 82	12		
26	Cisco	A-FLEX-NUPL-A	NU ON-PREMISES CALLING ACCESS QTY- 39	12		
27	Cisco	A-FLEX-PL-VM	ON-PREMISES UNITY CONNECTION ADD-ON QTY- 121	12		
28	Cisco	A-FLEX-SRST-E	SRST ENDPOINTS QTY- 121	12		
29	Cisco	A-FLEX-P-ACC	ACCESS SMART LICENSE QTY- 39	12		
30	Cisco	A-FLEX-P-ENH	ENHANCED SMART LICENSE QTY- 82	12		
31	Cisco	A-FLEX-P-UCXN	UNITY CONNECTION SMART LICENSE 121	12		
32	Cisco	A-FLEX-P-ER	EMERGENCY RESPONDER SMART LICENSE QTY- 121	12		
33	Cisco	A-FLEX-SW-11.5-K9	ON-PREMISES & PARTNER HOSTED CALLING SW BUNDLE V11.5 (1)	12		
34	Cisco	A-FLEX-JABBER-ADD	FLEX CISCO JABBER QTY- 82	12		
35	Cisco	A-FLEX-FILESTG-ENT	FILE STORAGE ENTITLEMENT QTY- 1640	12		
36	Cisco	A-FLEX-PROPACK-ENT	PRO PACK FOR CISCO CONTROL HUB ENTITLEMENT QTY- 82	12		
37	Cisco	A-FLEX-MSG-NU-ENT	MESSAGING NAMED USER ENTITLEMENT QTY- 82	12		
38	Cisco	A-FLEX-EXPWY-DSK-S	EXPRESSWAY DESKPHONE REGISTRATION - SMART LICENSING QTY- 82	12		
39	Specify	Specify	Installation & Configuration Services for all above	1		
40					TOTAL	

BID FORM

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-04 UPS's**Public Bid**

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	TOTAL
1	APC	SRT5KRMXLT-5KTF	APC Smart-UPS SRT 5000VA RM 208V to 120V 2U Step-Down Transformer	5		
2	APC	SRTRK2	APC Smart-UPS SRT 19" Rail Kit for Smart-UPS SRT 5/6/8/10kVA	5		
3	APC	AP9630	UPS Network Management Card 2 - Remote monitoring and control of an individual UPS	5		
4	APC	AP9631	UPS Network Management Card with PowerChute Network Shutdown & Env Monitoring	4		
5	APC	AP9335TH	Temperature & Humidity Sensor	4		
6	APC	AP9571A	PDU - 208V, 1 RU - - (1 per UPS for this Switch Stack)	5		
7			Installation & Configuration Services for all above	1		
8				TOTAL		

BID FORM

BENNIE DOVER JACKSON MIDDLE SCHOOL - PHASE 3 of 4

State Project # 095-0091 MAG/EA

DATE: 02/10/2022

TE-04 Audio Visual Systems**Public Bid**

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY	UNIT PRICE	TOTAL
CLASSROOM AV WITH 4 SPEAKERS						
1	VIVITEK	NovoTouch #EK753i	75" - 4K Interactive Display with Mounting Bracket	57		
2	C2G	39873	HDMI, USB, 3.5mm Faceplate - A DEVICE	57		
3	Frontrow	1000-00094	Ceiling Mounting Plenum Rated Enclosure	57		
4	Frontrow	1000-00039	Teacher Microphone Kit compatible with ICR-01	57		
5	Frontrow	1000-00040	Student Microphone Kit	57		
6	Frontrow	202-05-102-00	Universal Drop-In Microphone Charger	57		
7	Frontrow	1000-00153	Ceiling Option, Integrated 950CS Ceiling Sensor	57		
8	Frontrow	1000-00153	Ceiling Sensor Kit	57		
9	Frontrow	WP-A	Audio Out Wall Plate - A1 DEVICE	57		
10	Frontrow	SP-C	Cut-In Speaker	120		
11	Frontrow	1000-00013	Analog Page Override for Smart Reciever	57		
12	Misc.	Misc.	Cable, Backboxes, Wiremold	57		
13	Misc.	Misc.	Labor	57		
MOBILE ASSISTED LISTENING SYSTEM						
14	Listen Tech	LS-88	LSS-88 Portable ListenIR IDSP System	3		
MONITORS						
15	Samsung	DM65E	Monitor - 65" Display	4		
16	Chief	XTM1U	Wall Mount for Monitors	4		
17		Misc	Installation	1		
18				TOTAL		

STATEMENT OF QUALIFICATIONS

SBQ
Page 1 of 2

Statement of Bidder's Qualifications

All items and questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The bidder may submit any additional information it desires.

1. Name of Bidder _____
2. Bidder's Tax Identification No. _____
3. Permanent main office address _____

4. When organized _____
5. If corporation, where incorporated _____
6. Number of years have you been engaged in the contracting business under your present firm or trade name _____
7. Contracts on hand: (Schedule these showing amount of each contract and the appropriate anticipated dates of completion) _____

8. General character of work performed by your company _____

9. Have you ever failed to complete any work awarded to you? If so, where and why? _____

10. Have you ever defaulted on a contract? If so, where and why? _____

11. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed (use a separate sheet if necessary) _____

12. List your major equipment available for this Contract _____

13. List your experience in work similar to this project _____

STATEMENT OF QUALIFICATIONS

SBQ
Page 2 of 2

14. List the background and experience of the principal members of your organization, including officers _____

15. List the work to be done by Subcontractors and summarize the dollar value of each Subcontract

16. Credit available \$ _____

17. Give Bank reference _____

18. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner? _____

19. The undersigned hereby authorizes and requests any person, firm or corporation to furnish any information requested by the Owner in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated _____ (Name of Bidder)

By _____

Title _____

State of _____)
County of _____) ss.

_____ being duly sworn deposes and says that (s)he is _____
_____ of _____

_____, and that the answers to the foregoing items and questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this

_____ day of _____ 20

(Notary Public)

My Commission expires _____

SAMPLE PURCHASE ORDER



Department of Finance
 13 Masonic Street
 New London, CT 06320



* 2 0 2 2 XXXX *

Fiscal Year 2022 Page 1 of 1

Bill To FNADM
 Attn: Finance
 City of New London
 13 Masonic Street
 New London, CT 06320

Ship To FNADM
 Attn: Finance
 City of New London
 13 Masonic Street
 New London, CT 06320

Purchase Order Number **2022XXXX-001**
 Purchase Order Date **03/16/2022**
 Department **Finance - Administration**

Vendor 3329

VENDOR PHONE NUMBER	VENDOR EMAIL	VENDOR NUMBER	REQUISITION NUMBER	BUYER NAME	DELIVERY REFERENCE
8607276212		3329	22004258	Joshua Montague	

NOTES

The Above Purchase Order Number Must Appear On All Correspondence - Packing Sheets And Bills Of Lading
 Bennie Dover Middle School, state project #095-0091 MAG/EA

All Purchases for Furniture, Fixtures and Equipment (FF&E) and Technology for project #095-0091 MAG/EA, Bennie Dover Middle School, shall comply with the Manual and Drawings prepared by Colliers and its consultants title Construction Documents, Furniture, Fixtures and Equipment (FF&E) & Technology dated XXXXXXXX.

ITEM #	DESCRIPTION	QUANTITY	UOM	UNIT PRICE	EXTENDED PRICE
--------	-------------	----------	-----	------------	----------------

Approver Name: Joshua Montague

Approval Date: 03/16/2022

Purchasing Agent

Total Ext. Price \$60,320.70
Purchase Order Total \$60,320.70

Bennie Dover Jackson Middle School
 PE Project 79800.00
 State Project No. 095-0091 MAG/EA

00 42 68 SAMPLE PURCHASE ORDER
 1
 Construction Documents February 10, 2022
 Phase 3 of 4

SAMPLE PURCHASE ORDER

TERMS AND CONDITIONS UNDER WHICH THIS ORDER IS ISSUED

1. No conditions or agreements other than those stipulated herein are to govern this order unless expressly made in writing and mutually agreed to.
2. If this order is not priced, it shall not be filled at prices higher than those last quoted or charged the City of New London (the City), unless the prices shall have been authorized in writing by the City.
3. No invoice shall be delivered by the Seller to any employee of the City. All invoices shall be mailed to the Department as indicated on the Purchase order.
4. Delays in shipment shall be reported immediately by the Seller to the City. The City reserves the right to cancel this order if delivery is not made within a reasonable length of time.
5. Charges for freight, express cartage or packing will not be allowed or paid by the City unless expressly stated on the order.
6. All goods and services are subject to inspection and approval. If rejected they will be subject to your order and returned at your expense.
7. It shall be understood that the cash discount period will be, computed from the date of acceptance of materials or services or date of receipt of the invoice, whichever is later.
8. If this order includes any work on any premises other than those of Seller, the Seller, in accepting this order, agrees:
 - a. Not to transfer this order nor any part thereof to any person, firm or corporation without written consent of the City, but to give personal attention and superintendence to the work, and that the City shall be at liberty to place other contractors at work: on the premises during the continuance of the work under this order for the execution of such other branches of work as may be necessary and that are not included in this order.
 - b. To maintain such insurance as will protect the Seller from claims under Workman's Compensation or Employer's Liability Acts and from any other claim for personal injury or property damage which may arise by reason of the performance of any work under this order or to carry such risks itself to deliver to the City a certificate or other evidence of such insurance coverage satisfactory to it, and further to protect, indemnify and save the City harmless from any and all liabilities resulting from injuries to mechanics, laborers or any other persons whatsoever employed in the construction of said work or otherwise employed on or coming upon or near said premises and from and against damage to property adjacent thereto, and from and against any and all liabilities for damage or injury to any person or property whatsoever in any manner resulting from or caused by the performance of this order or any work resulting thereto or any portion of said work.
9. The Seller agrees to forever protect, indemnify and save the City harmless from and against all costs, damage, loss or expense which the City may incur or undergo in the event of any suit, claim or proceedings being brought to the City for the infringement of any letters patent of the United States of America by reason of the sale and/or use of any device, design or apparatus furnished by the Seller under this order.
10. In filling this order, the Seller automatically acknowledges that all goods used to fill this order are produced without violation of existing Federal and State laws regarding Labor, Wages and Hours and Materials.
11. Supplier agrees to comply with the provisions of the Occupational Safety and Health Act of 1970 and the standards and regulations issued thereunder and certifies that all items furnished under his Order will conform to and comply with said standards and regulations. Supplier further agrees to indemnify and hold harmless Buyer for all damages assessed against the Buyer as a result of Supplier's failure to comply with the Act and the standards issued thereunder and for the failure of items furnished under this order to so comply.
12. The contractor or subcontractor offers and agrees to assign the City of New London all right, title and interest in and to all causes of action it may have under Section 4 of the Clayton Act, 15 U.S.C. Sec. 15, or under Chapter 624 of the Connecticut General Statutes, arising out of the purchase of services, property or intangibles of any kind pursuant to a public purchase contract with contractor. The assignment shall be made and become effective at the time the City of New London awards or accepts such contract, without further acknowledgment by the parties.
13. All chemical products shall be packaged, transported, shipped in compliance with OSHA and D.O.T. standards relating to hazardous materials. These standards include but are not limited to: 29 CFR 1910.100 and 49 CFR 172.100. "The intent of this condition is to create an environmentally safe working area upon delivery, storage and package opening of such chemicals."

Bennie Dover Jackson Middle School

00 42 68 SAMPLE PURCHASE ORDER

PE Project 79800.00

Construction Documents February 10, 2022

State Project No. 095-0091 MAG/EA

Phase 3 of 4

DRAFT AIA® Document A251™ - 2007

General Conditions of the Contract for Furniture, Furnishings and Equipment

for the following PROJECT:

(Name, location, and brief description)

« Bennie Dover Jackson Middle School »
« 36 Waller Street »
« New London, CT 06320 »

THE OWNER:

(Name, legal status, address and other information)

« City of New London »« »
« 181 State Street »
« New London, CT 06320 »
« »

THE VENDOR:

(Name, legal status, address and other information)

THE ARCHITECT:

(Name, legal status, address and other information)

« Perkins Eastman Architects »« »
« 677 Washington Blvd »
« Stamford, CT 06901 »
« »

THE OWNER'S REPRESENTATIVE:

(Name, legal status, address and other information)

Colliers Project Leaders
135 New Road
Madison, CT 06443

Additional provisions:

1. Colliers International shall act as the Owner's Representative for the project and this Agreement and shall have final authority over decisions of and implementation of Owner's directives. Until and unless the Vendor receives written notice to the contrary from the Owner, all references in the Agreement of submission to, advice to, assistance to, or approval of Owner or request by the Owner shall mean submission, advice, assistance and approval of the Owner's Representative. In the event the Owner terminates the Owner's Representative under this Agreement, it will notify the Contractor and references to the Owner's Representative will be void. Owner may in its sole discretion, however, substitute Owner's Representative from time to time. Notwithstanding the above, the Owner's Representative shall not have authority to direct means and methods, provided however, that any contract with or

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.



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reporting to the Architect will also require, among other things, notice to Owner's Representative of errors, problems, changes, change orders, approvals, submittals and payment application.

2. Neither the Vendor nor its Subcontractors nor any material or equipment suppliers shall have the right to include any photographic, artistic or any other renderings, representations or references to the Project, its design, the drawings or the Project appearance in any of its marketing, promotional or professional material. Should such action or right be desired, the party will request, in writing, such permission from the Owner with all specifics of the disclosure or promotion. Any decision on the request shall be deemed final and is not subject to any claim or other dispute resolution.
3. To the extent there is a conflict between any provisions of any Exhibit to this Agreement or any related proposal rendered by the Vendor, the provisions of this Agreement shall prevail.
4. No special packaging requirements are included in this scope of work.
5. Vendor shall perform installation of furnishings in accordance with the schedule provided herein and attached or as may be adjusted and approved by Owner and Vendor. Installation costs shall be in accordance with Vendor's cost detail submitted in Vendor's response to Owner's Furniture Bid Package, whether installation takes place during or after normal working hours.
6. Invoices shall segregate costs for materials, installation charges, and shipping.
7. Vendor shall provide a minimum of a one-year warranty on all materials and labor. Warranty period shall begin upon installation and Owner's acceptance of all furnishings.

TABLE OF ARTICLES

1	GENERAL PROVISIONS
2	OWNER
3	VENDOR
4	TITLE AND RISK OF LOSS
5	DELIVERY AND INSTALLATION
6	ACCEPTANCE
7	WARRANTIES
8	PAYMENT
9	ARCHITECT
10	RELATED ACTIVITIES OF OWNER OR OF SEPARATE VENDORS
11	TIME
12	PROTECTION OF PERSONS AND PROPERTY
13	INSURANCE
14	MISCELLANEOUS PROVISIONS
15	CLAIMS AND DISPUTES

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 The Contract Documents. The Contract Documents are enumerated in the Agreement between the Owner and Vendor (hereinafter the Agreement), and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. Unless

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specifically enumerated in the Agreement, the Contract Documents do not include other documents such as the request for quotation or the Vendor's quotation.

§ 1.1.2 Modification. A Modification is (1) a written amendment to the Contract signed by both parties or (2) a written order for a minor change in the Work issued by the Architect.

§ 1.1.3 The Contract. The Contract Documents form the Contract for Furniture, Furnishings, Equipment and Installation. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Architect and the Vendor; (2) between the Owner and a sub-vendor; (3) between the Owner and the Architect or the Architect's consultants; or (4) between any persons or entities other than the Owner and the Vendor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.4 The Work. The term "Work" means the fabrication, shipping, warehousing, delivery, installation and all other labor, materials and activities required of the Vendor. The Work may constitute the whole or a part of the Project with regard to the furniture, furnishings and equipment required by the Contract Documents.

§ 1.1.5 The Project. The Project is the total construction and installation of which the Work performed under the Contract may be the whole or a part. Other vendors and contractors under separate agreements with the Owner may concurrently perform construction or other activities for the Project.

§ 1.1.6 The Drawings. The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.7 The Specifications. The Specifications are that portion of the Contract Documents consisting of the written requirements for furniture, furnishings, equipment, systems, quality and workmanship standards for the Work.

§ 1.1.8 Instruments of Service. Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Vendor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Vendor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.2 Unless otherwise stated in the Contract Documents, words that have well-known technical or furniture, furnishings and equipment industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.2.3 Terms capitalized in these General Conditions include those which are (1) specifically defined, (2) the titles of numbered articles and identified references to Sections in the document or (3) the titles of other documents published by the American Institute of Architects.

§ 1.3 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.3.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights until the Project is complete, at which time ownership of Instruments of Service and all copyrights transfer to Owner. The Vendor, sub-vendors and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

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§ 1.3.2 The Vendor, sub-vendors and suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Vendor, sub-vendors and suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.4 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 9.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Unless otherwise provided in the Contract Documents, the Owner shall provide

- .1 areas of the Project premises that the Vendor may utilize in the performance of the Work;
- .2 access to the premises for the Vendor at reasonable times;
- .3 suitable space for receipt, inspection, acceptance and staging of materials, furniture, furnishings and equipment;
- .4 temporary utilities and facilities on the premises and vertical transportation necessary for progress and execution of the Work; and
- .5 security normal for the Project premises.

§ 2.2.2 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall furnish any other information or services under the Owner's control and relevant to the Vendor's performance of the Work with reasonable promptness after receiving the Vendor's written request for such information or services.

ARTICLE 3 VENDOR

§ 3.1 GENERAL

§ 3.1.1 The Vendor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Vendor" means the Vendor or the Vendor's authorized representative.

§ 3.1.2 The Vendor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Vendor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract or by tests, inspections or approvals required or performed by persons or entities other than the Vendor.

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND INSPECTION OF PROJECT PREMISES BY VENDOR

§ 3.2.1 Execution of the Contract by the Vendor is a representation that the Vendor has visited the Project premises or, if the Project premises have not yet been constructed, has reviewed the documents pertaining thereto; has become familiar with local conditions under which the Work is to be performed and information relative to access to and use of the Project premises, as provided by the Owner under Section 2.2; and has correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Vendor shall, before starting each portion of the Work, (1) carefully study and compare the various Drawings and other Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.1; (2) take field measurements of any existing conditions related to that portion of the Work; and (3) observe any conditions of the

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access route or on the Project premises affecting the Work. These obligations are for the purpose of facilitating delivery, installation and trash and box removal by the Vendor and are not for the purpose of discovering errors, omissions or inconsistencies in the Contract Documents; however, the Vendor shall report promptly to the Architect any errors, inconsistencies or omissions discovered or made known to the Vendor as a request for information in such form as the Architect may require. It is recognized that the Vendor's review of the Contract Documents is made in the Vendor's capacity as a Vendor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Vendor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Vendor shall report promptly to the Architect any nonconformity discovered by or made known to the Vendor as a request for information in such form as the Architect may require.

§ 3.2.4 In addition to the Vendor's representations under Section 3.2.1, the Vendor shall, prior to shipment, delivery, installation and cleanup, visit and inspect the Project premises in order to confirm the conditions under which the Work is to be performed; verify the stage of completion of the premises and the Project; determine availability of facilities for access, delivery, transportation and staging area; determine the physical and environmental restrictions imposed by the Owner and the condition of the premises and separate vendors; and correlate these observations with the requirements of the Contract Documents. The Vendor shall promptly report to the Owner conditions observed during such inspection or thereafter that would impede the Vendor's performance of the Work.

§ 3.2.5 If the Vendor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Vendor's notices or requests for information pursuant to Sections 3.2.2, 3.2.3 and 3.2.4, the Vendor shall make Claims as provided in Article 15. If the Vendor fails to perform the obligations of Sections 3.2.2, 3.2.3, or 3.2.4, the Vendor shall pay such costs and damages to the Owner as would have been avoided if the Vendor had performed such obligations.

§ 3.3 SUPERVISION OF THE WORK

§ 3.3.1 The Vendor shall supervise and direct the Work, using the Vendor's best skill and attention. The Vendor shall be solely responsible for and have control over the means, methods, techniques, sequences and procedures of fabrication, shipment, delivery, installation, and cleanup for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters.

§ 3.3.2 The Vendor shall be responsible to the Owner for acts and omissions of the Vendor's employees, sub-vendors and their agents and employees, and other persons or entities performing or providing portions of the Work to, for or on behalf of, the Vendor or any of its sub-vendors.

§ 3.3.3 The Vendor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition for subsequent Work.

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Vendor shall provide and pay for labor, materials, furniture, furnishings and equipment, tools, installation equipment and machinery, delivery, trash removal and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated into the Work.

§ 3.4.2 The Vendor shall not make substitutions until after evaluation by the Architect and approval by the Owner.

§ 3.4.3 The Vendor shall enforce strict discipline and good order among the Vendor's employees and other persons carrying out the Work. The Vendor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 TAXES

The Vendor shall pay all required sales, consumer, use and similar taxes for the Work provided by the Vendor, the cost of which is included in the Contract Sum referenced herein.

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§ 3.6 PERMITS, FEES NOTICES, AND COMPLIANCE WITH LAWS

§ 3.6.1 Unless otherwise provided in the Contract Documents, the Vendor shall secure and pay for permits, fees, licenses and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required as of that date.

§ 3.6.2 The Vendor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.6.3 If the Vendor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Vendor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7 SUPERINTENDENT

The Vendor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project premises during performance of the Work. The superintendent shall represent the Vendor, and communications given to the superintendent shall be as binding as if given to the Vendor.

§ 3.8 VENDOR'S SCHEDULES

§ 3.8.1 The Vendor's schedule for performance of the Work shall not exceed time limits established in Vendor's schedule included herein as part of Vendor's response to the RFP included in Exhibit A. Revisions shall be made only to accommodate compliance with Contractor's construction schedule at appropriate intervals as required by the conditions of the Work and the Project, shall be related to the Project and related Work to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.8.2 The Vendor's progress schedule shall indicate dates for commencement and completion of phases of the Work, within the Contract Time, including dates for order placement, fabrication, shipping, delivery and installation. The schedule shall indicate other critical dates, such as deadlines for approval of submittals of colors, finishes, fabrics and other materials. The Vendor shall obtain and submit for the Owner's and the Architect's information written confirmation from sub-vendors of dates of fabrication and delivery.

§ 3.8.3

§ 3.8.4 The Vendor shall perform the Work in accordance with the most recent schedules submitted to and approved by the Owner and Architect.

§ 3.8.5 The Vendor shall cooperate with the Owner and Architect in coordinating the Vendor's progress schedule with those of separate Vendors and with the requirements of the Owner and Architect. The Vendor shall cooperate in determining mutually acceptable dates and times for delivery, installation and inspection of the Work, and use of services and facilities provided to the Vendor, all to be confirmed in writing within a reasonable time in advance of such dates and times.

§ 3.9 DOCUMENTS FOR THE OWNER'S RECORDS

The Vendor shall maintain for the Owner one copy of the Drawings, Specifications, Addenda and other Modifications, in good order and marked currently to indicate field changes and selections made during performance of the Work, and one copy of approved Shop Drawings, Product Data and similar required submittals. These shall be available to the Architect and shall be delivered to the Owner upon completion of the Work as a record of the Work installed.

§ 3.10 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.10.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Vendor or a sub-vendor to illustrate some portion of the Work.

§ 3.10.2 Product Data are manufacturer's illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Vendor to illustrate materials or equipment for some portion of the Work.

§ 3.10.3 Shop Drawings, Product Data and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Vendor proposes to conform to the information given and the design concept expressed in the Contract Documents. Informational submittals upon which the Architect is not expected to take

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responsive action may be so identified in the Contract Documents. The Architect may return without action submittals that are not required by the Contract Documents.

§ 3.10.4 The Vendor shall review for compliance with the Contract Documents, and approve and submit to the Architect, Shop Drawings, Product Data and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submitted schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate vendors.

§ 3.10.5 By submitting Shop Drawings, Product Data and similar submittals, the Vendor represents to the Owner and Architect that the Vendor has (1) reviewed and approved them, and (2) determined and verified materials, field measurements and field installation criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.10.6 The Vendor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data or similar submittals until the respective submittal has been approved by the Architect.

§ 3.10.7 The Work shall be in accordance with approved submittals, except that the Vendor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data or similar submittals unless the Vendor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work or (2) a Modification to the Contract has been approved authorizing the deviation. The Vendor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data or similar submittals by the Architect's approval.

§ 3.10.8 The Vendor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.10.9 Samples, once approved, constitute an express warranty that the goods will conform to the sample.

§ 3.10.10 When professional certification of performance criteria for furniture, furnishings and equipment is required by the Contract Documents, the Architect shall be entitled to rely upon the accuracy and completeness of such certifications.

§ 3.11 CLEANING UP

§ 3.11.1 The Vendor shall keep the premises and surrounding area free from accumulation of waste materials and other debris created by operations under the Contract. At completion of the Work, the Vendor shall remove waste materials and other debris created by the Vendor's activities, the Vendor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.11.2 If the Vendor fails to clean up as provided in the Contract Documents, the Owner may do so, and the Owner shall be entitled to reimbursement from the Vendor for the cost thereof.

§ 3.12 INDEMNIFICATION

§ 3.12.1 To the fullest extent permitted by law, the Vendor shall indemnify and hold harmless the Owner, Owner's Representative, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Vendor, a sub-vendor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 3.12.

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§ 3.12.2 In claims against any person or entity indemnified under this Section 3.12 by an employee of the Vendor, a sub-vendor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.12.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Vendor or a sub-vendor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 TITLE AND RISK OF LOSS

§ 4.1 Title to all furniture, furnishings and equipment shall be transferred to the Owner upon acceptance by the Owner pursuant to Section 6.2 or upon payment in full to the Vendor, whichever occurs first.

§ 4.2 The risk of loss, with respect to all furniture, furnishings and equipment provided by the Vendor, shall remain on the Vendor until acceptance by the Owner pursuant to Section 6.2 of the furniture, furnishings and equipment, or designated portion thereof.

§ 4.3 The Owner shall be under no obligation to insure furniture, furnishings or equipment that does not conform to the Contract Documents or that the Owner has rejected. Under such circumstances, the risk of loss shall remain with the Vendor.

ARTICLE 5 DELIVERY AND INSTALLATION

§ 5.1 The Vendor shall make delivery of all furniture, furnishings and equipment in accordance with the Vendor's progress schedule or at a time agreed upon by the Owner and Architect.

§ 5.2 The Vendor shall become fully informed of the conditions relating to delivery, installation and labor under which the Vendor's Work will be performed. The Vendor shall employ the labor, and means and methods of carrying out the Vendor's Work as the conditions require.

§ 5.3 Delivery and installation of all furniture, furnishings and equipment shall be made to the location of the Project, as specified in the Contract Documents. Installation of furniture, furnishings and equipment shall include testing as required by the Contract Documents.

§ 5.4 The Vendor shall consult with the Owner to identify a route to be used within the Project premises from the point of initial delivery at the Project premises to the place of final placement or installation. After its selection, the route shall be made available to the Vendor for delivery of furniture, furnishings and equipment as provided in Section 5.1 and Section 5.2.

§ 5.5 The Vendor shall, within a reasonable time prior to delivery, provide the Owner with schedules for access and arrange for the use of elevators and unloading facilities.

§ 5.6 When the Vendor considers installation of all or a designated portion of the furniture, furnishings or equipment required by the Contract Documents to be complete, the Vendor shall advise the Owner and Architect in writing.

ARTICLE 6 ACCEPTANCE

§ 6.1 Prior to the tender of delivery by the Vendor, the Owner may conduct a preliminary inspection of the furniture, furnishings and equipment upon delivery for the purpose of verifying the delivery of such furniture, furnishings or equipment, including quantities. Such preliminary inspections shall not constitute acceptance of, taking charge over or control of such furniture, furnishings or equipment. Any defects, damage, deficiencies or nonconformity discovered by the Owner shall be reported to the Vendor.

§ 6.2 Upon completion of installation pursuant to Section 5.6, the Owner, with the assistance of the Architect, shall conduct an acceptance inspection. If the Owner determines that the furniture, furnishings and equipment comply with the requirements of the Contract Documents, the Owner shall notify the Vendor that the furniture, furnishings and equipment have been accepted. If the Owner determines that all or any portion of the furniture, furnishings or equipment do not conform to the requirements of the Contract Documents, the Owner shall reject such nonconforming portion by notifying the Vendor in writing of such rejection.

§ 6.3 If the Owner rejects all or any portion of the delivery, the Owner shall notify the Vendor within a reasonable time, which shall not be more than 30 days after the date of the inspection performed pursuant to Section 6.2. The notice shall include the specific basis for the Owner's rejection.

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§ 6.4 If the Owner rejects all or any portion of the delivery, the Owner shall hold the rejected portion for a reasonable time to permit the Vendor to remove it from the Project premises.

§ 6.5 Upon rejection by the Owner, the Vendor shall have 30 days to provide acceptable evidence of arrangements to remedy the basis for rejection. If the Vendor remedies the basis for rejection, the Vendor shall notify the Owner in writing. The Owner shall have an additional period of time to conduct an acceptance inspection of the previously rejected furniture, furnishings or equipment. If the Owner agrees to accept the furniture, furnishings or equipment, the Owner shall so notify the Vendor in writing. If the Owner rejects the tender of such furniture, furnishings or equipment, the Owner shall notify the Vendor within a reasonable time, which shall not be more than 30 days. Such notice shall include the specific basis for rejection. Upon rejection, the Vendor shall remove the rejected furniture, furnishings or equipment from the Project premises.

§ 6.6 If furniture, furnishings or equipment that have been previously accepted are found not to comply with the requirements of the Contract Documents, the Owner shall be entitled to revoke acceptance so long as the Vendor does not suffer actual prejudice by virtue of the Owner's prior acceptance of such furniture, furnishings or equipment. Such revocation of acceptance shall be made by giving prompt notice to the Vendor. In such event, the Vendor shall proceed in accordance with Section 6.5.

§ 6.7 The provisions of this Article 6 do not preclude recovery of damages as provided by law.

ARTICLE 7 WARRANTIES

§ 7.1 The Vendor expressly warrants to the Owner and Architect that the Work complies with the requirements of the Contract Documents. The Vendor further warrants that the Owner shall receive the benefit of standard manufacturer's warranties and guarantees applicable to the Work.

§ 7.2 The Vendor provides to the Owner and Architect all warranties relating to the furniture, furnishings and equipment implied by law, including but not limited to the warranty of merchantability.

§ 7.3 The Vendor acknowledges that no exclusion of or limitation on warranties contained in any proposal, product literature or other submittal shall affect the warranties provided pursuant to Sections 7.1 and 7.2.

ARTICLE 8 PAYMENT

§ 8.1 Before the first application for payment, the Vendor shall submit to the Owner a quotation schedule showing the values allocated to each quotation for portions of the Work. The Vendor's quotation schedule shall be accompanied by a certified statement from the Vendor prepared in such form and supported by such data to substantiate its accuracy as the Owner may require. This schedule, when approved by the Owner, shall be submitted with each application for payment and shall be used as a basis for reviewing the Vendor's applications for payment.

§ 8.2 When payment is due pursuant to the payment terms of the Agreement, the Vendor shall submit to the Owner an itemized application for payment. Such application shall be notarized, if required by the Contract Documents, and supported by such data substantiating the Vendor's right to payment as the Owner may require, such as copies of bills of lading or requisitions from sub-vendors and equipment suppliers, including Waivers of Lien from Vendor and/or its suppliers as requested by Owner.

ARTICLE 9 ARCHITECT

§ 9.1 GENERAL

The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 9.2 ADMINISTRATION OF THE CONTRACT

§ 9.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during performance of the Work until final payment is due. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of the Contract.

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§ 9.2.2 The Architect will assist the Owner in coordinating schedules for fabrication, delivery and installation of the Work, but will not be responsible for failure of the Vendor or a sub-vendor to meet schedules for completion or to perform their respective duties and responsibilities in conformance with such schedules.

§ 9.2.3 The Architect will visit the Project premises at intervals appropriate to the stage of the Vendor's operations, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed; and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous inspections at the Project premises to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the means, methods, techniques, and sequences or procedures of fabrication, shipment, delivery or installation, or for the safety precautions and programs in connection with the Work, since these are solely the Vendor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 9.2.4 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Vendor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect shall not have control over, charge of, or responsibility for acts or omissions of the Vendor, sub-vendors, their agents or employees, or any other persons or entities performing portions of the Work.

§ 9.2.5 The Architect has authority to order minor changes in the Work not involving an adjustment in the Contract Sum or an extension of the completion time, and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Vendor. The Vendor shall carry out such written orders promptly.

§ 9.2.6 Unless otherwise provided, the Architect's authority shall not extend to the receipt, inspection or acceptance on behalf of the Owner of furniture, furnishings and equipment at the time of their delivery to the Project premises and subsequent installation. The Architect is not authorized to reject nonconforming Work, stop the Work or terminate the Contract.

§ 9.2.7 The Architect may recommend to the Owner rejection of Work that does not conform to the Contract Documents. A recommendation by the Architect made in good faith shall not give rise to a duty or responsibility of the Architect to the Owner, Vendor, sub-vendors, their agents or employees, or other persons or entities performing portions of the Work.

ARTICLE 10 RELATED ACTIVITIES OF OWNER OR OF SEPARATE VENDORS

§ 10.1 OWNER'S RIGHT TO PERFORM RELATED ACTIVITIES AND TO AWARD SEPARATE CONTRACTS

§ 10.1.1 The Owner reserves the right to perform activities related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other activities at the Project premises. If the Vendor claims that such action by the Owner involves delay or additional cost, the Vendor shall make such Claim as provided in Article 15.

§ 10.1.2 When separate contracts are awarded for different portions of the Project or other activities at the Project premises, the term "Vendor" in the Contract Documents in each case shall mean the vendor who executes each separate Owner-Vendor Agreement.

§ 10.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate vendor with the Work of the Vendor, who shall cooperate with them. The Vendor shall participate with other separate vendors and the Owner in reviewing their progress schedules. The Vendor shall make any revisions to the progress schedule deemed necessary after a joint review and mutual agreement. The progress schedules shall then constitute the schedules to be used by the Vendor, separate vendors and the Owner until subsequently revised.

§ 10.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs activities related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Vendor under the Contract, including, without excluding others, those stated in this Article 10, and in Article 3, Article 12 and Article 13 herein.

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§ 10.2 MUTUAL RESPONSIBILITY

§ 10.2.1 The Vendor shall afford the Owner and separate vendors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Vendor's activities with theirs as required by the Contract Documents.

§ 10.2.2 If part of the Vendor's Work depends for proper execution or results upon activities by the Owner or a separate vendor, the Vendor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects resulting from their activities that would impede the Vendor in achieving proper execution and results. If the Vendor fails to report discrepancies or defects reasonably discoverable, it shall be responsible for deficiencies or defects in its Work due to such deficiencies or defects.

§ 10.2.3 The Vendor shall reimburse the Owner for costs the Owner incurs that are payable to a separate vendor because of the Vendor's delays, improperly timed activities or other damage to the Work of a separate vendor. The Owner shall be responsible to the Vendor for costs the Vendor incurs because of the delays, improperly timed activities or damage to the Work caused by a separate vendor.

§ 10.2.4 The Vendor shall promptly remedy damage it wrongfully causes to property of the Owner or separate vendors as provided in Section 12.2.4.

§ 10.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Vendor, separate vendors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and, with the Architect's assistance, allocate the cost among those responsible.

ARTICLE 11 TIME**§ 11.1 DEFINITION OF DAY**

The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 11.2 PROGRESS AND COMPLETION

§ 11.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Vendor confirms that the completion date stated in the Contract Documents provides a reasonable period for performing the Work.

§ 11.2.2 The Vendor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the Project premises prior to the effective date of insurance required by Article 13 to be furnished by the Vendor and the Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 11.2.3 The Vendor shall proceed expeditiously with adequate forces and shall achieve completion by the mutually agreed upon completion date.

§ 11.3 DELAYS AND EXTENSIONS OF TIME

§ 11.3.1 If the Vendor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Vendor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes which the Architect determines may justify delay, the completion date shall be extended by mutual agreement between the Owner and the Vendor.

§ 11.3.2 CONFORMANCE TO AGREED-UPON SCHEDULES

§ 11.3.2.1 The Owner shall cooperate and coordinate its activities with the agreed-upon critical dates identified in the Vendor's progress schedule provided under Section 3.8.2.

§ 11.3.2.2 The Owner shall be responsible for costs the Vendor incurs, such as demurrage, warehousing, and storage or delivery charges, that are due to the Owner's failure to conform to the mutually agreed-upon progress schedule for the Work; to the Owner's failure, without justification, to accept delivery or final installation of furniture, furnishings and equipment; or to any other delays for which the Owner is responsible.

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§ 11.3.3 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 11.3.4 This Section 11.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 12 PROTECTION OF PERSONS AND PROPERTY

§ 12.1 SAFETY PRECAUTIONS AND PROGRAMS

The Vendor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 12.2 SAFETY OF PERSONS AND PROTECTION OF PROPERTY

§ 12.2.1 The Vendor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials, furniture, furnishings and equipment to be incorporated therein, whether in storage on or off the Project premises, under care, custody or control of the Vendor or sub-vendors; and
- .3 other property at the Project premises or adjacent thereto, including property of the Owner, separate vendors or other persons, whether or not completed or installed.

§ 12.2.2 The Vendor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 12.2.3 When use or storage of flammable, volatile or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Vendor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 12.2.4 The Vendor shall promptly remedy damage and loss to property, other than damage to the Work, caused in whole or in part by the Vendor or anyone directly or indirectly employed by the Vendor, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Vendor.

ARTICLE 13 INSURANCE

§ 13.1 VENDOR'S LIABILITY INSURANCE

§ 13.1.1 The Vendor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Vendor from claims set forth below which may arise out of or result from the Vendor's operations and completed operations under the Contract and for which the Vendor may be legally liable, whether such operations be by the Vendor, by a sub-vendor, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Vendor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Vendor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to, or destruction of, tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations;
- .8 Claims involving contractual liability insurance applicable to the Vendor's obligations under Section 3.12.1; and
- .9 Claims for products liability and completed-operations insurance.

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§ 13.1.2 The insurance required by Section 13.1.1 shall be written for not less than the limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and with respect to the Contractor's completed operations coverage, until the expiration of the period specified in the Contract Documents.

§ 13.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by Section 13.1.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage including coverage for completed operations shall be submitted with the final application for payment and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 13.1.2. The Vendor shall provide information concerning reduction of coverage on account of revised limits or claims paid under the general aggregate, or both, with reasonable promptness.

ARTICLE 14 MISCELLANEOUS PROVISIONS

§ 14.1 GOVERNING LAW

This Agreement shall be considered to be for sale of goods and shall be governed by the Uniform Commercial Code (UCC) as adopted in the place where the Project is located. The Contract shall be governed by the law of the place where the Project is located, except, that if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 9.6.

§ 14.2 SUCCESSORS AND ASSIGNS

The Owner and Vendor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 **Definition.** A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Vendor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.1 **Notice of Claims.** Claims by either party must be initiated by written notice to the other party within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.2 **Continuing Contract Performance.** Pending final resolution of a Claim, the Vendor shall proceed diligently with performance of the Contract, and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.3 **Claims for Consequential Damages.** The Vendor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Vendor for principal office expenses, including the compensation of personnel stationed there; for losses of financing, business and reputation; and for loss of profit, except anticipated profit arising directly from the Work. Nothing contained in this Section 15.1.3 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 RESOLUTION OF CLAIMS AND DISPUTES

Claims, including those alleging an error or omission by the Architect, shall be referred initially to the Architect and the Owner's Representative. An initial recommendation in writing by the Owner's Representative, followed by negotiation of the parties, shall be required as a condition precedent to mediation, arbitration or litigation of all Claims between the Vendor and Owner arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Architect with no recommendation having been made by the Architect.

§ 15.3 MEDIATION

§ 15.3.1 Any Claim arising out of or related to the Contract, except Claims relating to aesthetic effect and except those waived as provided for in Section 15.1.3, shall, after recommendation by the Architect or 30 days after submission of the Claim to the Architect, be subject to mediation as a condition precedent to arbitration or the institution of legal or equitable proceedings by either party.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation, which, unless the parties mutually agree otherwise, shall be administered in accordance with the American Arbitration Association Construction Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of a demand for arbitration, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 ARBITRATION

§ 15.4.1 Any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be in accordance with the American Arbitration Association Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on such Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation; (2) the arbitrations to be consolidated substantially involve common questions of law or fact; and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of a Claim not described in the written consent.

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§ 15.4.4.3 The Owner and Vendor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Vendor under this Agreement.



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Bennie Dover Jackson Middle School

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PE Project 79800.00

Construction Documents February 10, 2022

State Project No. 095-0091 MAG/EA

Phase 3 of 4

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SECTION 00 73 43

CONNECTICUT PREVAILING WAGE RATE REQUIREMENTS

Connecticut Department of Administrative Services Website Link to information regarding Prevailing Wage Rate Requirements.



DEPARTMENT OF ADMINISTRATIVE SERVICES (DAS)
Office of School Construction Grants & Review (OSCG&R)

PREVAILING WAGE RATE INFORMATION

FORM SCG-6001

Information regarding Prevailing Wage Rate requirements can be accessed through the following website link:

<https://www.ctdol.state.ct.us/wgwkstnd/prevailwage.htm>

If you have questions regarding wages and workplace standards refer to the State of Connecticut Department of Labor (DOL) website:

<http://www.ctdol.state.ct.us> or call 860-263-6000

SECTION 00 85 13

DIGITAL FILES TERMS OF USE FORM

The undersigned Receiving Entity (“RE”) owning, occupying, performing work, furnishing materials or providing services in connection with the above Project agrees to the following terms and conditions, which shall govern the undersigned’s access to, receipt and use, solely in connection with the Project, of Digital Files prepared by Perkins Eastman DPC Architects its consultants, and sub-consultants (“Perkins Eastman DPC”)

Complete and return Release Form.

Digital Files Terms of Use

Project:

Project No.:

The undersigned Receiving Entity (“RE”) owning, occupying, performing work, furnishing materials or providing services in connection with the above Project agrees to the following terms and conditions, which shall govern the undersigned’s access to, receipt and use, solely in connection with the Project, of Digital Files prepared by Perkins Eastman DPC Architects its consultants, and sub-consultants (“Perkins Eastman DPC”):

- 1. General:** Digital files furnished to RE in regard to the Project (“DIGITAL FILES”), including but not limited to Computer Aided Design (CAD) or Building Information Model (BIM) files may be used by RE for informational and reference purposes solely in connection with the RE’s ownership of, occupancy of or performance of its independent contractual obligations with respect to the Project, pursuant to these Terms of Use and subject to the limitations set forth herein. RE may use, duplicate, modify, distribute or share the DIGITAL FILES only as permitted under these Terms of Use.
- 2. Delivery of DIGITAL FILES:** DIGITAL FILES shall be made available to RE as a set containing a “live” file in native file format (e.g. .RVT, .DWG, .DGN, .XLS) and a corresponding Adobe PDF file, encapsulating a fixed-layout, 2D view of the live file that includes the text, fonts, images, and 2D vector graphics. Contemporaneously with delivery to RE of the DIGITAL FILES, RE shall be advised of the software and version used to author the DIGITAL FILES and RE agrees to use the same software and version for its use of the DIGITAL FILES. RE agrees to maintain for the duration of the Project and for five (5) years thereafter a record copy of DIGITAL FILE, as furnished. No ownership right is conveyed in the content provided by PERKINS EASTMAN DPC for the DIGITAL FILES or in the software used to generate the content of the DIGITAL FILES.
- 3. Format of Digital Files:** DIGITAL FILES, in the form of Autodesk Revit Building Information Model (BIM) files, will be formatted prior to transfer to RE in a manner so as to display certain information in pre-defined views (“PRE-DEFINED VIEWS”) in the Project Browser.
- 4. Reliance on Information Contained in DIGITAL FILES:** DIGITAL FILES furnished to RE prior to the completion of Construction Documents may not be relied upon for any purpose whatsoever, it being expressly acknowledged that the DIGITAL FILES are and remain subject to revision by PERKINS EASTMAN DPC during the process of creating Construction Documents for the Project, and any RE utilizing the DIGITAL FILES prior to such time does so entirely at its own risk. From and after the completion of Construction Documents, RE may rely on information displayed in the “PRE-DEFINED VIEWS” in the DIGITAL FILES but only to the extent such information is visible and identical to the two-dimensional copy of the completed Construction Documents displayed in the corresponding PDF file. All other information (i.e. that which differs from or is not rendered visible in the “PRE-DEFINED VIEWS” of the DIGITAL FILES and corresponding PDF file) shall be defined as “CONCEALED INFORMATION”. CONCEALED INFORMATION may include, but is not limited to dimensions, coordinates, quantities, specifications, descriptions, performance criteria, code criteria, program criteria, tool paths, and other metadata. PERKINS EASTMAN DPC makes no representation as to, and takes no responsibility for, the accuracy, completeness, or suitability of CONCEALED INFORMATION for any purpose. RE shall verify, independently of information contained in DIGITAL FILES, any and all information contained in or absent

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from in DIGITAL FILES related to, or affecting in any way whatsoever, RE's understanding of or duties to the Project, RE's scope of work or RE's scope of services. Except as and to the extent explicitly set forth in these Terms of Use, RE may make use of, but is not to rely upon, the DIGITAL FILES and the data and/or information contained therein in owning, occupying, operating or altering the Project or in preparing, producing or developing any of RE's documents for the Project or for use in connection with the preparation of schedules or cost estimates.

5. **Use of CONCEALED INFORMATION:** RE's use of CONCEALED INFORMATION is permitted solely for purposes related to its services for the Project, including, but not limited to facilitating the RE's authoring of its own digital file for its own Project-related purposes. However, use of CONCEALED INFORMATION by RE, or by anyone acting for or on behalf of RE, prior to or after the completion of Construction Documents, shall be at RE's sole risk and responsibility.
6. **Re-Transmission of DIGITAL FILES by RE to Third Parties:** RE may retransmit DIGITAL FILES to third parties under contract to the RE and involved in the Project as Contractors or Sub-Contractors. RE shall require all such third parties to whom it furnishes DIGITAL FILES to sign and deliver to RE (and RE shall forward a copy to PERKINS EASTMAN DPC) a copy of these Terms of Use prior to furnishing DIGITAL FILES to any such party. The copy shall clearly identify the name of the RE, the third party to whom the DIGITAL FILES are being retransmitted, their relationship to the Project, and the purpose of the retransmission.
7. **Ownership:** Except as otherwise provided for in PERKINS EASTMAN DPC's agreement with the Project Owner, all information and intellectual property contained in DIGITAL FILES authored by PERKINS EASTMAN DPC is protected by copyright and remains the property of PERKINS EASTMAN DPC.
8. **No Warranties:** The DIGITAL FILES are not a part of the Construction or Contract Documents for the Project and PERKINS EASTMAN DPC makes no representations or warranties, expressed or implied, regarding the DIGITAL FILES or the accuracy, integrity, machine readability, suitability or completeness of the DIGITAL FILES or the data and/or information contained therein.
9. **Confidentiality:** All information contained in DIGITAL FILES, including CONCEALED INFORMATION and all other data and information contained within the DIGITAL FILES, as well as any customization or organization schema contained therein are and shall be treated as Confidential Information. RE shall (i) maintain such Confidential Information in strict confidence; (ii) not, directly or indirectly, reveal, report, publish or disclose any such Confidential Information to any person, firm or other entity to which RE is not expressly authorized hereby or in writing by PERKINS EASTMAN DPC; and (iii) not use, directly or indirectly, any such Confidential Information in any way or for any purpose except as and to the extent necessary for the performance of RE's Work or services for the Project and in accordance with these Terms of Use. Information shall not, however, be deemed confidential, provided that such information (a) can be demonstrated to have been publicly available at the time of disclosure; (b) can be demonstrated to have been properly in RE's possession or otherwise readily available to RE from another source, which is not itself bound to maintain such information as confidential, at the time of disclosure; (c) becomes part of the public domain or publicly known by publication or otherwise, other than by an unauthorized act of RE or any other recipient of the Confidential Information; or (d) that is required to be disclosed in response to lawful process provided that in such circumstance RE shall give PERKINS EASTMAN DPC prompt notice of such process so PERKINS EASTMAN DPC has an opportunity to seek any appropriate judicial relief and RE shall take reasonable and lawful actions to avoid and/or minimize the disclosure of Confidential Information, including entering into appropriate confidentiality stipulations or agreements.

10. **Indemnity:** Notwithstanding anything to the contrary herein, to the fullest extent permitted by law, RE and its partners, affiliates, members, principals, shareholders, officers, directors, consultants, contractors, employees, agents, successors and assigns, shall, to the fullest extent permitted by law, defend, indemnify, and hold harmless PERKINS EASTMAN DPC and its respective agents, partners, principals, officers, shareholders, members, directors, consultants, employees, successors and assigns, from and against any and all losses, liabilities, demands, obligations, damages, penalties, actions, claims, changes, modifications, misuses, judgments, recoveries, costs or expenses (including but not limited to attorney's fees) whensoever asserted or occurring, whichever of them may suffer, incur, pay out, or which may be asserted against any of them, in whole or in part by reason of, in connection with, arising from, resulting from, or related to any use of the DIGITAL FILES and/or the information contained therein by the RE or any third party who receives the DIGITAL FILES from the RE. Such claims include without limitation, any claims which may arise due to deletions, omissions or variations of data due to mechanical or technical failure in connection with the transmission of the DIGITAL FILES or design changes which were not incorporated in the DIGITAL FILES.
11. **Cooperation:** If, as a result of its use of the DIGITAL FILES, RE becomes aware of any inconsistencies, discrepancies, errors, omissions or any other deficiencies or problems with the information contained in the DIGITAL FILES, RE shall promptly notify PERKINS EASTMAN DPC of same.
12. **Owner's Sole Benefit:** It is expressly acknowledged and agreed that PERKINS EASTMAN DPC's furnishing of DIGITAL FILES, whether before or after the completion of Construction Documents, is intended solely as an accommodation to and for the sole and exclusive benefit of the Project Owner and is not intended and shall not be deemed to be for the benefit of any other or third party or to create any contractual or quasi- contractual relationship between PERKINS EASTMAN DPC and any other or third party, including but not limited to RE or any other contractor or material supplier of any tier.
13. **Termination:** The rights granted hereby may be terminated by PERKINS EASTMAN DPC at any time with or without cause. PERKINS EASTMAN DPC will, in such event, notify RE of such termination in writing or via electronic mail, at which time RE shall immediately cease and desist from continuing to use the DIGITAL FILES. Within seven (7) days after the giving of such notice, RE shall destroy all physical copies and permanently erase all DIGITAL FILES from its computer systems and shall cause any third parties to which RE furnished the DIGITAL FILES to do the same.
14. **Applicable Law:** These Terms of Use and any disputes arising therefrom shall be governed by the internal laws of the State of New York, without giving effect to the choice of laws principles thereof. In the event of such dispute, the parties irrevocably consent to the exclusive jurisdiction of the state or federal court located in the County, City and State of New York.
15. **Acknowledgments:** By signing these Terms of Use, RE confirms that it has read, understood and agrees to the terms contained herein. The individual signing this document on behalf of the RE represents that s/he is duly authorized to bind the RE to the terms hereof. These Terms of Use, once executed and returned to PERKINS EASTMAN DPC, shall govern all future transfers of DIGITAL FILES, and need not be re-executed prior to each such transfer. RE further agrees that, before RE forwards DIGITAL FILES to third parties for their use in connection with the Project, RE shall first obligate each such third party to execute a copy of these Terms of Use, and shall deliver a duplicate original of such executed Terms of Use to PERKINS EASTMAN DPC.

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Acknowledged, agreed to and accepted by Receiving Entity:

[Receiving Entity Name]

Name Title

Date

Use Space Below for Retransmission by RE to Third Parties, and return copy to Perkins Eastman DPC

[Receiving Entity Name]

[Third Party Name]

Name

Title

Date

Name

Title

Date

[Third Party relationship to Project]

[Purpose for Retransmission]

SECTION 01 12 00

SUMMARY

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Contractor's use of site and premises.
4. Coordination with occupants.
5. Work restrictions.
6. Specification and Drawing conventions.
7. Code compliance.
8. Miscellaneous provisions.

- B. Related Sections include the following:

1. Division 00 Section "Bid Form" for Technology delivery and installation dates.

1.03 PROJECT INFORMATION

- A. Project Identification: Bennie Dover Jackson Middle School

1. Project Location: 36 Waller Street, 36 Waller Street, New London, CT.

- B. Owner: City of New London, CT.

1.04 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work includes the following:

1. Provide and install technology equipment for the education program.
2. All supports, bracing, anchors and fasteners required for secure attachment for technology installations and as recommended by manufacturers.

- B. The Vendor/Contractor(s) shall be responsible for scheduling all deliveries, uncrating delivery, installation, and placement of technology and security systems and equipment as shown on the contract documents in coordination and at the direction of the Owner or the Owner's designated representative.

- C. Type of Contract:

1. State of CT Contract.

1.05 WORK PHASES

- A. All delivery and installation of Work shall be completed by the dates indicated in the Bid Form.
- B. All schedules must be reviewed and coordinated with the Owner and CM.

1.06 COORDINATION REQUIREMENTS

- A. Each Vendor/Contractor is required to assign an in-house project manager for this project, and is required to prepare for all work, which will be fully coordinated with the Prime Vendor/Contractor(s), project CM and the Owner.
 - 1. The following documents will be required of the Contractor for preparation for the coordination and project planning meetings:
 - a. Contractor contact information.
 - b. List and contact information for any of the Contractor's subcontractors, vendors, or outside service providers.
 - c. A detailed schedule for preliminary meeting, selections, submittals, manufacturing, shipping, storing, delivery and installation for all technology .
 - d. The schedule, including these details, must be reviewed and coordinated with the Owner, CM and Architect.
 - e. An itemized tracking schedule/list for selection, ordering, manufacturing, shipping, storing, delivery and installation for all technology .
 - f. Identification of any potential delivery or installation off hour, weekend, or other overtime requirements. (Note: Any associated costs must be included in the Vendor/Contractor's bid Price). NOTE: off-hour deliveries or installations must be coordinated with the Owner and the CM.
- B. The Vendor/Contractor and each Subcontractor is required to coordinate all aspects of each product. Any discrepancies that may occur between the specification and the drawings should be brought to the attention of Owner, the prime Technology Vendor/Contractor, and the Architect. Likewise any size, material and/or color discrepancies that may occur should be brought to the attention of the prime Vendor/Contractor, Owner, and the Architect.
- C. Each Vendor/Contractor and Subcontractor must inform himself or herself fully of the conditions relating to the performance to the Work, and failure to do so will not relieve a successful bidder of the obligation to furnish all labor, material and equipment necessary to carry out the provisions of the Contract and to complete the Work for the consideration set forth in the bid.
- D. Each Vendor/Contractor and Subcontractor is required, before commencing work must familiarize themselves with the new facility, and they shall make all necessary investigations in order to inform themselves thoroughly as the character and magnitude of all work involved in the complete performance of the contract. Bidders shall consider the conditions and difficulties that may be encountered in the performance of the work.

A Pre-Construction / Pre-Installation conference shall be conducted prior to delivery and installation.

- E. Each Vendor/Contractor must familiarize themselves with ongoing phased construction
- F. Construction documents for referencing can be made available upon request.
- G. Products Ordered in Advance:
 - 1. General: The Vendor/Contractor is required to schedule all purchase orders with suppliers of products and equipment to maintain acceptable delivery dates, and to incorporate into the Contract scope of work. Costs for receiving, handling, storage, and installation will be included in the Bid/Proposal Contract Sum.
 - 2. It is the Vendor/Contractor's responsibility to assume all costs and responsibility to order products in advance and the Contractor will negotiate and guaranty prior to issuing all purchase orders. If necessary, the Contractor shall renegotiate purchase and execute final purchase order agreements to meet project delivery and installation schedules.

1.07 USE OF PREMISES

- A. General: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated by the Construction Manager. Do not disturb portions of the site beyond the are- as in which the Work is indicated.
- B. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - 1. Delivery and Storage Coordination: Coordinate deliveries with Owner and Contractor to minimize space and time requirements for storage of materials and equipment on-site.
- C. Existing Elevator Use: Use of elevators will be permitted, at Owner and Contractor agreed upon time. Elevators are to be maintained in a clean condition free of dirt, dust and debris.
 - 1. Do not load elevators beyond their rated weight capacity.
 - 2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.
- D. Existing Stair Usage: Use of existing stairs will be permitted, at Owner and Contractor agreed upon time. Stairs are to be maintained in a clean condition free of dirt, dust and debris.
 - 1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.

- E. The Owner reserves the right to request specific limitations on a Vendor/Contractor's use and access to the facility. The Contractor/Vendor must account for these restrictions in the bid amount, so as to anticipate delivery and installation sequencing that might be required when work is performed in an occupied building.

1.08 WORK RESTRICTIONS

- A. On-Site Work Hours: Work shall be generally performed inside the existing building during normal business working hours of 6:00 a.m. to 6:00 p.m., Monday through Friday, except otherwise indicated.
 - 1. Weekend Hours: Subject to approval of the Owner and Construction Manager.
 - 2. Night and Early Morning Hours: Subject to approval of the Owner, Construction Manager, and local authorities having jurisdiction.
 - 3. Hours for Utility Shutdowns: Subject to approval and assistance of Owner and Construction Manager.

1.09 CODE COMPLIANCE

- A. All items shall comply with current Connecticut State Building Code including ICC/ANCI A117.1-1998, Section 504 Rehabilitation Act 1973 including current ADA Standards for Accessible Design and Section 504 Regulations and the Americans with Disabilities Act Title II including the current ADA Standards for Accessible Design and ADA Regulations. Accessible knee and toe clearance shall comply with current ADA Standards for Accessible Design, Section 306.
- B. Compliance with the current Connecticut State Fire Safety Code and current O.S.H.A. – Title 29 / labor is also required.
- C. The items shall include, but are not limited to technology equipment.

1.10 MISCELLANEOUS PROVISIONS

- A. The Vendor/Contractor(s) shall be responsible for proper and timely disposal of all items.
Vendor/Contractors cost to be included in the Bid Proposal. Removals shall be daily.
- B. The Vendor/Contractor(s) shall be responsible for committing to a delivery schedule for all equipment that complies with the Owner's requirements, assumptions, coordination and schedule.

- C. The following describes the type of purchase for each of the components:

Technology	State of Ct Contract and Bid (all items listed are Basis of Design, see PRODUCT REQUIREMENTS) Items listed on 00 41 00.1
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D. PREINSTALLATION MEETING

1. After award of Contract and prior to the commencement of the Work, schedule and conduct meeting with owner and Architect.

E. Change orders may not exceed 20% total overhead and profit.

 PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 12 00

SECTION 01 25 00

SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. The form for Substitution Request is included immediately following this Section.
- C. Related Requirements:
 - 1. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.03 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by the Vendor.
 - 1. Substitutions for Cause: Changes proposed by the Vendor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.

1.04 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration to the Owner or Architect. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use Substitution Request form provided.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.

- d. Detailed comparison of sustainable aspects of proposed substitution with those of the Work specified. Substitution proposals will not be accepted if they will result in fewer High Performance Building credits or a shift of High Performance Building credits from one area of measurement to another.
 - e. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - f. Samples, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - j. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 3 days of receipt of a request for substitution from the Vendor. Architect will notify the Vendor of acceptance or rejection of proposed substitution within 10 days of receipt of request, or 5 days of receipt of additional information or documentation, whichever is later.

1.05 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.06 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.07 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

- B. Substitutions Submittal Period:
1. The Owner and Architect will consider requests for substitutions during the Bid period and accept before the Notice of Award.
- C. Conditions: Architect will consider Vendor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 2. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 3. Substitution request is fully documented and properly submitted.
 4. Requested substitution meets or exceeds specified Connecticut High Performance Building requirements
 5. Requested substitution will not adversely affect Master Project Construction Schedule.
 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
 7. Requested substitution is compatible with other portions of the Work.
 8. Requested substitution has been coordinated with other portions of the Work.
 9. Requested substitution provides specified warranty.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 25 00

SUBSTITUTION REQUEST

Project		Sub Request #	
		From	
To		Date	
		PE Project No.	
Re		Contract For	

Spec. Title		Description	
Section		Article/Paragraph	
Page			

Proposed Substitution			
Manufacturer		Address	
Phone Number		Date	
Trade Name		Model Number	

Attached data include product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also include a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

THE UNDERSIGNED CERTIFIES:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Proposed substitution does not negatively affect LEED credits.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by	
Signed by	
Firm	
Address	
Telephone	

PERKINS EASTMAN ARCHITECTS, DPC REVIEW AND ACTION:

- Substitution approved - Make submittals in accordance with Specification Section 01 33 00
- Substitution approved as noted - Make submittals in accordance with Specification Section 01 33 00
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials

Signed by: [Click here to enter text.](#)

Date: [Click here to enter a date.](#)

Supporting Data Attached: Drawings Product Data Samples Tests Reports [Click here to enter text.](#)



REQUEST FOR INTERPRETATION

Perkins Eastman
Architects DPC

Project		R.F.I. Number	
		From	
To		Date	
		PE Project No.	
Re		Contract For	

Spec. Section		Paragraph	
Drawing Ref.		Detail	

REQUEST:

Signed by		Date	

Forward to Architect: The Construction Manager is unable to respond to the Request for Interpretation.

Signed by		Date	
-----------	--	------	--

RESPONSE:

Attachments

Response from		To:	
Date Received		Date Returned	
Signed by		Date	

Copies: Owner Consultants File

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; warranties; and comparable products.
- B. Related Sections include the following:
 - 1. Division 01 Section "High Performance Building Requirements" for sustainable strategy requirements.
 - 2. Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.
 - 3. Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.03 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.04 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Detailed comparison of sustainable aspects of proposed comparable product with those of the Work specified. Comparable product requests will not be accepted if they will result in fewer High Performance Building credits or a shift of High Performance Building credits from one area of measurement to another.
 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Vendor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
 - b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.05 QUALITY ASSURANCE

- A. Compatibility of Options: If Vendor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 3. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 4. Coordinate with the Owner delivery and installation schedule and effect delivery of goods to take place at the times required for installation, unless otherwise specified.
- C. Storage:
1. Vendor will be responsible for storage and associated costs if Vendor decides to pre-purchase Technology and have it delivered prior to the dates stated for each of the phases. These costs shall be included in the submitted unit costs and no additional payment will be made by the Owner.
 2. Materials shall be stored in a secured manner in an environmentally controlled location, labeled and reserved for the specific use of this project.

3. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
4. Replacement of missing or damaged materials shall be the responsibility of the Vendor and at no cost to the Owner.

1.07 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Vendor of obligations under requirements of the Contract Documents. All Warranties shall be the Manufacturer's Standard Warranty.
 1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
- B. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.01 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
 6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
- B. Product Selection Procedures:
 1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
 2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
 3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
 4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.

5. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
 - a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Division 01 "Product Substitutions" for proposal of product.
7. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
 - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
 - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.
8. Connecticut High Performance Building Requirements: Where Specifications include sustainable requirements, these are essential criteria for product selection, along with other specified requirements.

2.02 COMPARABLE PRODUCTS

- A. Conditions: Architect will consider Vendor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Construction Manager or Architect will return requests without action, except to record noncompliance with these requirements:
 1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Proposed product meets or exceeds specified High Performance Building requirements.
 4. Evidence that proposed product provides specified warranty.
 5. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 6. Samples, if requested.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 60 00

SECTION 01 62 30

PRODUCT INSTALLATION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for technology product installation, placement, and final locations.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. See Division 1 General & Supplemental Conditions for temporary provisions required for product placement and installation.

1.3 UNUSED MATERIALS

- A. Return unused materials to manufacturer or supplier for credit to the Owner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine the Project Site 24 hours before first delivery, including loading area, freight delivery area, elevators, and staging area to ensure conditions are satisfactory for proper performance of the work. Existing damage to the building or debris that hinders delivery and performance shall immediately be called to the attention of the Owner in writing and verbal notification.
 - 1. Examine conditions under which the work is to be performed.
 - 2. Document any deficiencies in construction prior to Technology installation, which will provide a record of any post installation damage to the constructed building.
- B. Examine materials or equipment immediately on delivery and again before installation. Reject all damaged or defective items, in writing.
- C. Coordinate with the Owner with the proposed schedule and effect delivery of all goods to take place at the times they are required for delivery and installation so as to not adversely cause a delay, damage,

3.2 INSTALLATION OF TECHNOLOGY, GENERAL

- A. Comply with manufacturer's written installation instructions and recommendations.

- B. Secure Attachment: To ensure proper attachment of Technology items, where “items” are intended for attachment to wall, ceiling, overhead structure, and / or floor, Vendor shall provide information adequate for Architect to verify that items attached to wall, ceiling, and / or floor are attached securely. Architect’s review may be implemented during submittal process.
1. Contract shall provide struts, hangers, fasteners, hangers, safety harnesses, channels, bolts, screws, rods, etc. to securely attach items to existing structure as required to meet field conditions and meet applicable codes.
 2. Install components at heights and dimensions indicated. Where mounting heights are not indicated, refer to the Architect for final decision.

3.3 ADJUSTING

- A. Remove and replace components that are chipped, scratched, delaminated, or otherwise defective and do not match adjoining work or do not operate properly. Provide new matching units, installed as specified and without evidence of replacement.
- B. Adjust components to provide smooth operation of moving parts without binding, racking, vibration, noticeable friction, or other perceived defect.
- C. Return one (1) week after installation to confirm that all items are fully functioning to satisfaction of Owner and Architect, provide any further adjustments that might be necessary to complete installation and customer satisfaction.

3.4 CLEANING

- A. Remove all packing material and debris from project site daily.
- B. Repair and clean items of soil marks, dust, fingerprints, oil, grease, residue, etc, and all fabric loose threads, and other inappropriate materials.

3.5 REPAIR FINISHES

- A. Repair all factory finishes on site: To achieve uniform finish and appearance to the satisfaction of the Owner and the Architect.
- B. Match all existing for the following;
 1. Color
 2. Sheen
 3. Texture

3.6 PROTECTION

- A. Cover, ventilate, and protect installed goods from damage caused by weather moisture, heat, staining, dirt abrasions, or other conditions that may adversely affect appearance and/or use.
- B. Protect against deterioration of finish, warp, twisting, opening of joins and seams, delaminating, or other injury.

- C. Ensure that exposure to the following conditions is limited:
1. Excessive static or dynamic loading.
 2. Excessively high or low heat or humidity.
 3. Punctures.
 4. Abrasions.
 5. Soiling, staining, and/or corrosion.
 6. Combustion.
 7. Theft.
 8. Vandalism.

END OF SECTION 01 62 30

SECTION 01 73 00

EXECUTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Installation of the Work.
 - 2. Progress cleaning.
 - 3. Protection of installed construction.
- B. Unless noted otherwise in writing, each Contractor is responsible for all of the items specified in this Section as they pertain to the Work of that prime contractor's Contract. The Construction Manager may assign certain aspects of the Work specified in this Section to a single contractor.

1.03 QUALITY ASSURANCE

- A. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Comply with requirements specified in other Sections.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, and floors for suitable conditions where products and systems are to be installed.
 - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

- B. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 1. Description of the Work.
 2. List of detrimental conditions, including substrates.
 3. List of unacceptable installation tolerances.
 4. Recommended corrections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.02 PREPARATION

- A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

3.03 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
- D. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.04 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 1. Remove liquid spills promptly.

2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
 - D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
 - E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
 - F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
 - G. Waste Disposal: Remove waste from project site and dispose of legally.
 - H. During handling and installation, clean and protect work in progress and adjoining materials already in place.
 - I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- 3.05 PROTECTION OF INSTALLED CONSTRUCTION
- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
 - B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01 73 00

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Review procedures.
 - 2. Close-out procedures.
 - 3. Operation and maintenance manuals.
 - 4. Warranties.
 - 5. Final cleaning.

1.03 FINAL ACCEPTANCE

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
- B. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
- C. Submit an updated final statement, accounting for final additional changes to Contract Sum.
- D. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, endorsed and dated by the Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance, and shall be endorsed and dated by the Architect.
- E. Submit consent of surety to final payment.
- F. Re-inspection Procedure: The Architect and interior designer will re-inspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Architect, interior designer, and Owner.
- G. Upon completion of re-inspection, the Architect will determine if this is complete. If the Work is incomplete, the Architect will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
- H. If necessary, re-inspection will be repeated. Time will be assessed and back charged by the Owner to the Contractor for more than one re-inspection.

1.04 RECORD DOCUMENT SUBMITTALS

- A. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
- B. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
- C. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.
- D. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order. Identify miscellaneous records properly and bind or file, ready for continued use and reference. Submit to the Architect for the Owner's records.
- E. Operation and Maintenance Manuals: Bind properly indexed data in individual, heavy-duty, 2-inch, 3-ring, vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:
 - 1. Emergency instructions.
 - 2. Spare parts list.
 - 3. Copies of warranties.
 - 4. Wiring diagrams.
 - 5. Inspection procedures.
 - 6. Product catalogs and Product Data.
 - 7. Fixture lamping schedule.

1.05 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Construction Manager for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Construction Manager shall provide an Overall Project Warranties Binder which includes the project name; the name, address, and telephone numbers of each prime contractor, and an index of all warranties cross-referenced to the binder name and page number for each.
 - 2. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (216-by-279-mm) paper.

3. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 4. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.01 CLOSOUT PROCEDURES

- A. Operation and Maintenance Instructions: Arrange for each installer of all equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Provide instruction by manufacturer's representatives if installers are not experienced in operation and maintenance procedures. Include a detailed review of the following items:
1. Operation and Maintenance manuals.
 2. Record documents.
 3. Spare parts and materials.
 4. Tools.
 5. Lubricants.
 6. Identification systems.
 7. Hazards.
 8. Cleaning.
 9. Warranties.
 10. Maintenance agreements and similar continuing commitments.
 11. Inventory data on magnetic media.

3.02 FINAL CLEANING

- A. Cleaning: Employ experienced workers or professional cleaners for final cleaning.
- B. Remove all product shipping and inventory labels, tags, signage, etc clean any remaining residue to a condition expected as new, follow and comply with the specific manufacturers cleaning instructions and requirements.
- C. Remove all product protection wrappings, packing and shipping materials, etc and dispose all materials offsite at the expense of the Vendor/Contractor and any of their Subcontractors, complying with all applicable laws and codes.

- D. Remove all product boxes, containers, pallets, etc and legally and responsibly dispose all materials offsite at the expense of the Vendor/Contractor and any of their Subcontractors.
- E. Clean each surface of all units, products technology to the condition expected in a normal, commercial building cleaning and maintenance program. Follow and comply with the specific manufacturers cleaning instructions and requirements.

END OF SECTION 01 77 00

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing maintenance manuals, including the following:
 - 1. Maintenance manuals for the care and maintenance of products, materials, and finishes.
- B. Related Sections include the following:
 - 1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
 - 2. Division 01 Section "Closeout Procedures" for submitting operation and maintenance manuals.
 - 3. Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.03 SUBMITTALS

- A. Final Submittal: Submit one copy of maintenance manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.
 - 1. Correct or modify to comply with Architect's comments. Submit 3 copies of manual within 15 days of receipt of comments.

PART 2 - PRODUCTS

2.01 MANUALS, GENERAL

- A. Manual for Overall Project: Architect shall provide one manual for the overall project that includes:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Name and address of Project.
 - 4. Name, address, and telephone number of Construction Manager.
 - 5. Name, address, and telephone number of each prime Vendor.
 - 6. List of all materials provided by each prime Vendor in other manuals.
 - 7. Index of all materials provided in all other manuals, cross-referenced to each manual by manual name and page number.

- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
1. Subject matter included in manual.
 2. Name and address of Project.
 3. Name, address, and telephone number of Vendor.
- C. Table of Contents: List each product included in manual, identified by product name, and cross-referenced to Specification Section number in Project Manual.
- D. Manual Contents: Arrange contents alphabetically by equipment.
1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (216-by-279-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data, organize data in each binder into groupings and related components.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 3. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.02 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
1. Product name and model number.
 2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
 2. Types of cleaning agents to be used and methods of cleaning.

3. List of cleaning agents and methods of cleaning detrimental to product.
 4. Schedule for routine cleaning and maintenance.
 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.01 MANUAL PREPARATION

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- C. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
1. Do not use original Project Record Documents as part of operation and maintenance manuals.
 2. Comply with requirements of newly prepared Record Drawings in Division 01 Section "Project Record Documents".
- D. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 78 23

NETWORK EQUIPMENT & PHONES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Network Electronics – Cisco/Meraki
- B. VoIP Phones – Cisco/Meraki
- C. UPS and PDU Installation
- D. Patch Cords

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Related Drawings:
 - 1. IT – Technology Drawings

1.3 SUMMARY

- A. The new electronics specified within this section shall minimally support the data infrastructure, wireless devices, security systems, video distribution and the district wide Cisco, POE voice system and data systems.
- B. Phones shall be installed throughout the facility as indicated on the IT drawings.
- C. All electronics shall be furnished and installed / mounted into the locations indicated on the IT drawings. All configuration shall be included as part of this section.
- D. This procurement shall include all the equipment required for fully functional systems as described within this specification and drawing package.
- E. The installation integrator awarded this section shall be responsible for the following:
 - 1. It is the installation contractor's responsibility to obtain all network information from the district IT personnel to install these devices to seamlessly integrate this installation into the pre-existing LAN, WAN and MAN.
 - 2. Network Switches: Procure, deliver to specified Data Rooms, install into racks and startup test and configuration as described within this specification.

3. Servers, Storage and Core devices: Procure, deliver to MDF, install into racks and startup test and configuration as described within this specification.
 4. Provide and install a complete voice system and all devices, terminations, associated supporting devices, configuration of system, testing and training in accordance with this Bid package to provide a complete and functional system.
 5. Patching of every port on the networks switches shall be installed by the contractor awarded this section. All patching shall be coordinated with the security, Audio Visual sub-consultants as required to patch all of the devices into the network switches within each data room.
 6. Patching of every end device which is furnished and installed as part of this section shall be furnished and installed by the contractor awarded this section.
 7. UPS's and PDU's: These devices shall be procured and delivered to the facility by others. It is responsibility of the contractor awarded this section to:
 - a. Relocated these devices from the storage area to the designated data rooms.
 - b. Assemble all network management cards into the UPS's per manufacturers recommendations.
 - c. Install these devices onto the equipment racks.
 - d. Power up these devices and
 - e. Connect all network electronics to these devices as indicated within the technology IT drawings and within this section.
- F. Configuration of all devices specified – Active Electronics, as related to the Voice, Data, Wireless access points and Security systems - Including all associated VLANS and IP addressing as indicated within this section and by the district IT personnel.
- G. Rack placement of every device within this specification shall be coordinated with the technology consultant and the owner prior to installation.

1.4 APPLICABLE STANDARDS

- A. All of the work within the scope of this bid shall be performed in accordance with the applicable state, county and city laws and ordinances. The bidder shall be able to obtain all permits and licenses as required in addition to being a licensed contractor. All materials, supplies and equipment being furnished shall be installed in accordance with the latest version of the applicable standards of:
1. OSHA
 2. Uniform Building Code
 3. Americans with Disabilities Act (ADA)
 4. Components of the system shall be of the type approved by Safety and Regulatory Agencies including:
 - a. Underwriters' Laboratories (UL), Inc.
 - b. Federal Communications Commission (FCC).

- c. Agency approvals and UL Listing declare the system's design, components, and installation shall meet the highest standards.
- d. System installation shall comply with UL 681 and UL 611.
- 5. The equipment shall comply with Part 68 of the FCC Telephone Requirements Rules.
- 6. All circuits and equipment shall be installed and protected according to the National Electric Code and any applicable local requirements.

1.5 SUBMITTALS

- A. Pricing for all devices shown within Article 2.2 – BILL OF MATERIAL BOM must be filled out and submitted with this bid proposal and shall include all unit pricing and total pricing.
- B. Product Data: For each type of product indicated. Include dimensions and data on features, performance, electrical characteristics, ratings, and finishes.
- C. Product Data: Submit manufacturer's technical data, product specifications, installation instructions, and other pertinent information as applicable for each product or material specified.
- D. Samples of manufacturer's standard and extended warranties.
- E. All original licensing software.
- F. Cisco Certificates for the following:
 - 1. Routing & Switching: Patner Level or Above
 - 2. Voice\Collaboration: Patner Level or Above
- G. Equipment List: Include every piece of equipment by model number, manufacturer, serial number, location, and date of original installation.
- H. Shop Drawings: Shall be provided by the installation integrator and shall include:
 - 1. Functional Block Diagram: Show single-line interconnections between components including interconnections between components specified in this Section and those furnished under other Sections. Indicate methods used to achieve systems integration. Indicate control, signal, and data communication paths and identify programmable logic controllers, networks, and control interface devices and media to be used. Describe characteristics of network and other data communication lines.
 - 2. Device Address List: Coordinate with final system programming.
 - 3. System Wiring Diagrams: Include system diagrams unique to Project. Show connections for all devices, components, and auxiliary equipment. Include diagrams for equipment and for system with all terminals and interconnections

identified.

- I. In the event that the installation contractor does not furnish or does not supply sufficient documentation, the owner has the right to engage a separate contractor to attain any or all required documentation. All costs related with this event shall result in a back charge to the installation vendor via a change order.
- J. Operation and Maintenance Data: For devices listed within this specification.
 - 1. Lists of spare parts and replacement components recommended to be stored at the site for ready access.

1.6 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain all materials from one (1) source from a single approved manufacturer for each product required within this specification.
- B. Awarded integrator must hold the following certifications from Cisco:
 - 1. Routing & Switching: Partner Level or Above
 - 2. Voice/Collaboration: Partner Level or Above
- C. All devices procured and delivered, as part of this specification shall be new from the manufacturer. Refurbished devices will not be accepted for this project. The technology consultant will verify all devices prior to delivery and installation of all devices described within this specification.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Take care in handling products in accordance with manufacturer's instructions.
- B. Site delivery conditions: there is not a traditional loading dock where a truck can back up to unload heavy equipment. There is a receiving area in the rear of the school where a ramp and/or stairs is available to get from the driveway to the finished floor level.
- C. Store indoors in original undamaged packaging, in a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity. Store products upright in secure, protected area. Verify with manufacturer that site conditions are acceptable before receiving material.
- D. Environmental Conditions: Capable of withstanding the following environmental conditions without mechanical or electrical damage or degradation of operating capability:

1. Interior, Controlled Environment: System components installed in temperature-controlled interior environments shall be rated for continuous operation in ambient temperatures of 36 to 122 deg F (2 to 50 deg C) dry bulb and twenty to ninety percent (20 to 90%) relative humidity.

1.8 WARRANTY

- A. Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of any device and equipment related to operation, and equipment that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: Unless stated otherwise within product descriptions, The Manufacturer's standard one-year warranty from date of Substantial Completion shall be provided.

PART 2 - PRODUCTS

2.1 ACTIVE ELECTRONICS

- A. The selected manufacturer shall be **Cisco/Meraki** – San Jose, CA - USA.
- B. Other manufacturers will NOT be considered for this product. The district has standardized on this product and is expanding upon their existing data network.
- C. These active electronic devices shall be installed into 19 inch equipment, 2-post & 4-post racks which have been furnished and installed by others.

2.2 BILL OF MATERIAL – BOM

The following Bill of Materials are meant to assist the bidding integrator with the intent of the system build-outs. All material and parts not described but required for a fully functional systems(s) as stated within this section must be furnished, installed and configured as part of this project.

A. NETWORK SWITCHES

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY
1	Cisco (Contract #12PSX0202)			
2	MER B-212C			
3	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1
4	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1
5	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1
6	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1
7	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	8
8	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1
9	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1
10	Cisco	MS210-48FP-HW	Meraki MS210-48FP 1G L2 Cld-Mngd 48x GigE 740W PoE Switch	5
11	Cisco	LIC-MS210-48FP-1YR	Meraki MS210-48FP Enterprise License and Support, 1 Year	5
12	Cisco	MA-CBL-40G-50CM	Meraki 40GbE QSFP Cable, 0.5 Meter	5
13	Cisco	MA-CBL-40G-3M	Meraki 40GbE QSFP Cable, 3 Meter	1
14	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1
15	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2
16	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140
17	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140
18	Specify	Specify	15' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	16
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	40
19	C-104A			
20	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1
21	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1
22	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1
23	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1
24	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	4
25	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1
26	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1
27	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1
28	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2
29	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	44
30	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	36
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	16

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY
31	A-E109			
32	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1
33	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1
34	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1
35	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1
36	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	6
37	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1
38	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1
39	Cisco	MS210-48FP-HW	Meraki MS210-48FP 1G L2 Cld-Mngd 48x GigE 740W PoE Switch	3
40	Cisco	LIC-MS210-48FP-1YR	Meraki MS210-48FP Enterprise License and Support, 1 Year	3
41	Cisco	MA-CBL-40G-50CM	Meraki 40GbE QSFP Cable, 0.5 Meter	3
42	Cisco	MA-CBL-40G-3M	Meraki 40GbE QSFP Cable, 3 Meter	1
43	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1
44	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2
45	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	93
46	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	93
47	Specify	Specify	15' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	14
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	40
48	B-309A Stack 1 of 2			
49	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1
50	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1
51	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1
52	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1
53	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	8
54	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1
55	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1
56	Cisco	MS210-48FP-HW	Meraki MS210-48FP 1G L2 Cld-Mngd 48x GigE 740W PoE Switch	5
57	Cisco	LIC-MS210-48FP-1YR	Meraki MS210-48FP Enterprise License and Support, 1 Year	5
58	Cisco	MA-CBL-40G-50CM	Meraki 40GbE QSFP Cable, 0.5 Meter	5
59	Cisco	MA-CBL-40G-3M	Meraki 40GbE QSFP Cable, 3 Meter	1
60	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1
61	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2
62	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140
63	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140
64	Specify	Specify	15' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	16
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	40

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY
65	B-309A Stack 2 of 2			
66	Cisco	MS390-48UX2-HW	Meraki MS390 48m5G L3 UPOE Switch	1
67	Cisco	LIC-MS390-48E-1Y	Meraki MS390 48-port Enterprise License and Support, 1 Year	1
68	Cisco	MA-MOD-8X10G	Meraki MS390 8x10GE Module	1
69	Cisco	MA-PWR-1100WAC	Meraki MS390 1100W AC Power Supply	1
70	Cisco	CAB-C13-C14-2M	Cisco Power Cable Extension - C13 to C14 - 6.6 ft	8
71	Cisco	MS225-48FP-HW	Meraki MS225-48FP L2 Stck Cld-Mngd 48x GigE 740W PoE Switch	1
72	Cisco	LIC-MS225-48FP-1YR	Meraki MS225-48FP Enterprise License and Support, 1YR	1
73	Cisco	MS210-48FP-HW	Meraki MS210-48FP 1G L2 Cld-Mngd 48x GigE 740W PoE Switch	5
74	Cisco	LIC-MS210-48FP-1YR	Meraki MS210-48FP Enterprise License and Support, 1 Year	5
75	Cisco	MA-CBL-40G-50CM	Meraki 40GbE QSFP Cable, 0.5 Meter	5
76	Cisco	MA-CBL-40G-3M	Meraki 40GbE QSFP Cable, 3 Meter	1
77	Cisco	MA-CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Modules, 1 Meter	1
78	Cisco	MA-SFP-10GB-SR	Meraki 10G Base SR Multi-Mode	2
79	Specify	Specify	6' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140
80	Specify	Specify	10' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	140
81	Specify	Specify	15' Lengths - Category 6 Network Patch Cable RJ-45 Male to RJ-45 Male - Color Blue.	16
30	Specify	Specify	10' Lengths - Category 6A Network Patch Cable RJ-45 Male to RJ-45 Male - Color YELLOW - For WAP's.	40
82	INSTALLATION & CONFIGURATION			
83	Specify	Specify	Installation & Configurations for all above	1
83	Specify	Specify	Installation of UPS's, PDU's and power up.	9

B. VOICE HANDSETS

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY
1			Wireless (Contract #18PSX0202)	
2	Cisco	CP-3905=	Cisco Unified SIP Phone 3905, Charcoal, Standard Handset PHW	36
3	Cisco	CON-SNT-CP3905	SNTC-8X5XNBD Cisco Unified SIP Phone 3905, Charcoal,	36
4	Cisco	CP-7861-K9=	Cisco UC Phone 7861 PHA	81
5	Cisco	CON-SNT-CP7861K9	SNTC-8X5XNBD Cisco UC Phone 7861	81
6	Cisco	CP-8832-K9	Cisco 8832 in Charcoal with accessories for North America PHC	4
7	Cisco	CON-SNT-CPK8832K	SNTC-8X5XNBD CISCO IP CONFERENCE PHONE 8832 IN CHAR	4
8	Cisco	CP-8832-POE	CISCO IP CONFERENCE PHONE 8832 POE ACCESSORIES FOR WORLDWIDE	4
9	Cisco	ISR4331-V/K9	CISCO ISR 4331 UC BUNDLE, PVD4-32, UC LICENSE	1
10	Cisco	CON-SNT-ISR4331V	SNTC-8X5XNBD CISCO ISR 4331 UC BUNDLE, PVD4-32, UC L	1
11	Cisco	SL-4330-IPB-K9	IP BASE LICENSE FOR CISCO ISR 4330 SERIES	1
12	Cisco	SL-4330-UC-K9	UNIFIED COMMUNICATION LICENSE FOR CISCO ISR 4330 SERIES	1
13	Cisco	PWR-4330-AC	AC POWER SUPPLY FOR CISCO ISR 4330	1
14	Cisco	CAB-AC	AC POWER CORD (NORTH AMERICA), C13, NEMA 5-15P, 2.1M	1
15	Cisco	PVD4-32	32-CHANNEL DSP MODULE	1
16	Cisco	MEM-FLSH-4G	4G FLASH MEMORY FOR CISCO ISR 4300 (SOLDERED ON MOTHERBOARD)	1
17	Cisco	MEM-43-4G	4G DRAM (1 X 4G) FOR CISCO ISR 4300	1
18	Cisco	SM-S-BLANK	REMOVABLE FACEPLATE FOR SM SLOT ON CISCO 2900,3900,4400 ISR	1
19	Cisco	SISR4300UK9-174	CISCO ISR 4300 SERIES IOS XE UNIVERSAL	1
20	Cisco	NIM-2FXS/4FXOP	2-PORT FXS/FXS-E/DID AND 4-PORT FXO NETWORK INTERFACE MODULE	1
21	Cisco	NIM-1MFT-T1/E1	1 PORT MULTIFLEX TRUNK VOICE/CLEAR-CHANNEL DATA T1/E1 MODULE	1
22	Cisco	PVD4-64	64-CHANNEL DSP MODULE	1
23	Cisco	A-FLEX-3	COLLABORATION FLEX PLAN 3.0 Line Notes: Initial Term - 12.00 Months Auto Renewal Term - 0 Months Billing Model - Prepaid Term Requested Start Date - 21-May-2022 Requested End Date - 20-May-2023	12
24	Cisco	SVS-FLEX-SUPT-BAS	BASIC SUPPORT FOR FLEX PLAN	12
25	Cisco	A-FLEX-NUPL-E	NU ON-PREMISES CALLING ENHANCED QTY- 82	12
26	Cisco	A-FLEX-NUPL-A	NU ON-PREMISES CALLING ACCESS QTY- 39	12
27	Cisco	A-FLEX-PL-VM	ON-PREMISES UNITY CONNECTION ADD-ON QTY- 121	12
28	Cisco	A-FLEX-SRST-E	SRST ENDPOINTS QTY- 121	12
29	Cisco	A-FLEX-P-ACC	ACCESS SMART LICENSE QTY- 39	12
30	Cisco	A-FLEX-P-ENH	ENHANCED SMART LICENSE QTY- 82	12
31	Cisco	A-FLEX-P-UCXN	UNITY CONNECTION SMART LICENSE 121	12
32	Cisco	A-FLEX-P-ER	EMERGENCY RESPONDER SMART LICENSE QTY- 121	12
33	Cisco	A-FLEX-SW-11.5-K9	ON-PREMISES & PARTNER HOSTED CALLING SW BUNDLE V11.5 (1)	12
34	Cisco	A-FLEX-JABBER-ADD	FLEX CISCO JABBER QTY- 82	12
35	Cisco	A-FLEX-FILESTG-ENT	FILE STORAGE ENTITLEMENT QTY- 1640	12
36	Cisco	A-FLEX-PROPACK-ENT	PRO PACK FOR CISCO CONTROL HUB ENTITLEMENT QTY- 82	12
37	Cisco	A-FLEX-MSG-NU-ENT	MESSAGING NAMED USER ENTITLEMENT QTY- 82	12
38	Cisco	A-FLEX-EXPWY-DSK-S	EXPRESSWAY DESKPHONE REGISTRATION - SMART LICENSING QTY- 82	12
39	Specify	Specify	Installation & Configuration Services for all above	1

C. CONTRACTOR RESPONSIBILITY:

1. It is the installation contractor's responsibility to confirm all licenses required of these new handsets and their integration with the existing cisco call manager.
2. Any removal, substitution, or addition to the BOM is the responsibility of the installation contractor awarded this project.

2.3 UPS'S AND PDU'S

- A. The selected manufacturer shall be **American Power Conversion Corp., USA** in West Kingston, RI. Other manufacturers will be considered, providing equipment meets or exceeds the quality specified and they can provide equipment of the type, size and function required. Substitutions must be approved by the Owner prior to this Bid Submission.
- B. UPS & PDU's shall be solicited & procured via a separate bid package. Should the contractor of this section desire to bid on the UPS's & the PDU's, refer to Bid Form TE-04 Uninterrupted Power Supplies.
- C. The following indicates the devices and quantities to be installed and powered up. Procurement and delivery of these devices shall via a separate Bid Form.
 1. It is responsibility of the contractor awarded this section to:
 - a. Relocated these devices from the storage area to the designated data rooms.
 - b. Assemble all network management cards into the UPS's per manufacturers recommendations.
 - c. Install these devices onto the equipment racks.
 - d. Power up these devices and
 - e. Connect all network electronics to these devices as indicated within the technology IT drawings and within this section.

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY
1	APC	SRT5KRMXLT-5KTF	APC Smart-UPS SRT 5000VA RM 208V to 120V 2U Step-Down Transformer	5
2	APC	SRTRK2	APC Smart-UPS SRT 19" Rail Kit for Smart-UPS SRT 5/6/8/10kVA	5
3	APC	AP9630	UPS Network Management Card 2 - Remote monitoring and control of an individual UPS	5
4	APC	AP9631	UPS Network Management Card with PowerChute Network Shutdown & Env Monitoring	4
5	APC	AP9335TH	Temperature & Humidity Sensor	4
6	APC	AP9571A	PDU - 208V, 1 RU - - (1 per UPS for this Switch Stack)	5
7			Installation & Configuration Services for all above	1

2.4 PATCH CORDS

- A. All Category 6, and 6A (for WAP's) rated and fiber optic patch cords are to be procured, delivered, and installed as indicated under this portion of the specification.

- B. Copper patch cord lengths shall assume 3, 5 and 10 feet long – The lengths shall accommodate the distances from the switches to the patch panels.
 - 1. All Colors MUST be verified by the client prior to procurement.
 - 2. Each Ethernet port on every network switch shall receive a category 6 rated patch cord.
- C. Fiber patch cords lengths shall assume 15 feet long with SC connectors on one end and the required connector on opposite end to match the equipment being installed.
 - 1. Each SFP port on every switch shall receive a fiber optic patch cord.
 - 2. Fiber patch cords must minimally comply with OM4 standards.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine Data room conditions, ceiling and wall surfaces to assure they are in compliance with requirements and other conditions affecting installation and operation of all devices within this specification.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SYSTEM INSTALLATION

A. ACTIVE ELECTRONICS

- 1. The contractor awarded this section is responsible for the Warranty and Support on all CISCO Items is required.
- 2. Comply with all manufacturer's recommendations and best practices.
- 3. The contractor awarded this section shall deliver and unpack all devices specified within this document and dispose of all trash.
- 4. All device locations must be coordinated and verified by the owner prior to actual installation.
- 5. All devices within this specification must be installed per the manufacturers recommended insulation specifications.
- 6. All cabling shall be properly dressed in a neat fashion that is acceptable to the owner. This shall include Velcro & nylon ty-wraps secured to the furniture so that all cables are properly supported, protected from damage in an aesthetically pleasing fashion.
- 7. All configuration(s) required to obtain a fully functional system shall be included within this portion of work.
- 8. Network Installer awarded this section shall be responsible for the following:

- a. In addition to the specifications in this section, the installer will implement all configurations supplied by the owner, including, but not limited to-
 - 1) Management IP addresses
 - 2) VLAN configuration
 - 3) Quality of Service for VoIP and video services
 - 4) Multicast/IGMP configuration
 - 5) Routing configuration
 - 6) Network security configuration
- b. Physical installation and rack mounting of network equipment
- c. Physical installation of all associated modules, including- SFP+ transceivers, power supplies, stacking hardware, and SFP+ modules.
- d. Connection of network equipment to uninterrupted power supplies (UPS). Equipment with dual power supplies shall be connected to discrete UPS units.
- e. Firmware updates to the latest general release
- f. Installation of licenses, including Cisco DNA Advantage licenses and Essential licenses.
 - 1) All Main Equipment Room (MER) locations will receive Cisco DNA Advantage licensing.
 - 2) All Telecommunication Room (TR) locations will receive Cisco DNA Essentials licensing.
- g. Changing of all default passwords
- h. Configuration of network time protocol to a centralized time source provided by the owner.
- i. Disabling of legacy protocols such as Telnet and HTTP.
- j. Changing of default SNMP community string names.
- k. Configuration of management IP addressing for network devices.
- l. All network devices must be labeled and tagged with appropriate descriptions of their location in the building and in the system configuration.
- m. Network and security configuration is required per owner instructions and configuration guidelines. This includes but is not limited to- routing configuration for WAN connectivity, inter-VLAN routing configuration, network access control configuration, and syslog configuration.
- n. All switches will be stacked using Cisco Stackwise cables (see drawing for stack layout).
- o. Out of band management IP addresses will be configured on each switch, per owner IP addressing.
- p. All connections between the main equipment room (MER) and other wiring closets shall be configured using LACP port channel groups across 2x 10GbE connections over multimode fiber. Each SFP+ module will be installed in a discrete switch, providing redundancy in the event of a switching failure.
- q. Spanning tree will be configured per owner specifications.
- r. Testing and verification of network.

- s. Documentation and Visio drawing of network topology.
- t. Backup copies of configuration files on USB flash drive shall be furnished to the technology consultant for review and approvals and to the owner upon final acceptance.

B. VOIP INSTALLATION

1. The bidding vendor shall obtain information regarding the existing Cisco Call Manager from the district's IT personnel to ensure proper configurations of the phones and associated voice mail boxes are configured properly.
2. Voice messaging set up of every handset shall be performed by the contractor awarded this project.
3. The bidding vendor shall deliver and unpack all devices specified within this document and dispose of all trash.
4. All device locations must be coordinated and verified by the owner prior to actual installation.
5. All devices within this specification must be installed per the manufacturers recommended insulation specifications.
6. All devices within this specification must be connected to the existing network shall be part of this specification.
7. Configuration of each handset shall be the responsibility of the bidding integrator of this specification.
8. Configuration of all Voice mail shall be the responsibility of the bidding integrator of this specification.
9. Configuration of all connectivity to the service providers POTs line and T1 connections shall be the responsibility of the bidding integrator of this specification.
10. Installation must also include the installation, connection of the physical patch cable at the handset end.
11. Contractor must perform a startup test on each handset.
12. All cabling shall be properly dressed in a neat fashion that is acceptable to the owner. This shall include Velcro & nylon ty-wraps secured to the furniture so that all cables are properly supported, protected from damage in an aesthetically pleasing fashion.
13. All installation and configuration of devices within this specification shall be operational with the Local Area Network (LAN) as required by the VoIP system.
14. All configuration(s) required to obtain a fully functional system shall be included within this portion of work.
15. Backup copies of configuration files on USB flash drive shall be furnished to the technology consultant for review and approvals and to the owner upon final acceptance.
16. Comply with all manufacturer's recommendations and best practices.
17. The contractor awarded this section shall deliver and unpack all devices specified within this document and dispose of all trash.

18. All device locations must be coordinated and verified by the owner prior to actual installation.
19. All devices within this specification must be installed per the manufacturers recommended insulation specifications.
20. All cabling shall be properly dressed in a neat fashion that is acceptable to the owner. This shall include Velcro & nylon ty-wraps secured to the furniture so that all cables are properly supported, protected from damage in an aesthetically pleasing fashion.
21. All configuration(s) required to obtain a fully functional system shall be included within this portion of work.

3.3 GROUNDING

- A. All electronics shall be grounded within the racks per the manufacturer's recommendations.
- B. Grounding buss bars have been furnished and installed by others and are pre-existing.
- C. Ground system components and conductor and cable shields to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments shall be installed as part of this section.
- D. Signal Ground Terminal: Locate at main equipment rack or cabinet. Isolate from power system and equipment grounding. Provide 1-ohm ground. Measure, record, and report ground resistance.
- E. Install grounding electrodes of type, size, location, and quantity required.

3.4 FIELD QUALITY CONTROL

- A. Verify that accessories required for each unit have been properly installed, level and secured.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- C. Perform tests and inspections.
 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- D. Tests and Inspections:

1. Inspection: Verify that units and controls are properly installed, connected, and labeled, and that interconnecting wires and terminals are identified.
2. Pretesting: Align and adjust system and pretest components, wiring, and functions to verify that they comply with specified requirements.
3. Operational Tests: Perform operational system tests to verify that system complies with Specifications. Include all modes of system operation.

3.5 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service and initial system programming.
 1. Verify that electrical wiring installation complies with manufacturer's submittal and installation requirements.
 2. Complete installation and startup checks according to manufacturer's written instructions.

3.6 CLEANING

- A. Remove rubbish and debris: Installation contractor is not allowed you use the onsite dumpster and is responsible to discard their own debris off site.
- B. Clean installed items using methods and materials recommended in writing by manufacturer.

END OF SECTION 27 2129

AUDIO VIDEO SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Related Drawings:
 - 1. “IT” Drawings – Technology Plans

1.2 SUMMARY

- A. Furnish and install sound, video, and communication systems as shown on drawings and as specified herein, complete with all apparatus, equipment, power supplies, wiring, labor, and services necessary to ensure a complete working system. Verify completeness of equipment listed and correctness of type numbers. Furnish and install supplementary equipment needed to meet system requirements, without claim for added payment. Labor furnished shall be specialized and experienced in systems installation.
- B. Interconnection from/to all devices and teachers station outlets, testing, all configurations and training are part of this section.
- C. All areas shall receive new cabling as specified.
- D. This work includes, but is not limited to the following:
 - 1. The contractor awarded this project shall install a classroom AV system in its entirety, including all backboxes, cabling, interactive displays, wireless microphones, and speaker systems, within a single room at the start of the project to act as a mockup and demonstration room where the Owner, Technology Consultant, and Architect can review the installation and functionality of all devices prior to procurement of equipment or installation of these systems in remaining rooms.
 - 2. Furnish and install all back boxes, enclosures, and wire mold.
 - 3. Furnish and install all wire and cable.
 - 4. Furnish any additional items, not specifically mentioned herein, to meet system requirements as specified, without claim for additional payment. Such items may include hardware, transformers, line/distribution amplifiers, and other devices for proper installation, interface, isolation or gain structure.
 - 5. Submission of shop drawings prior to fabrication.
 - 6. Verification of dimensions and conditions at the job site.
 - 7. Installation in accordance with these specifications, manufacturer’s recommendations, and all applicable code requirements.
 - 8. Setup and adjustment of signal processing, system tests and adjustments, written report, demonstration for approval, participation in acceptance tests, and final adjustments as required.
 - 9. Coordination with the Lighting Contractor
 - 10. Coordination with the Tel/Data Contractor and other Low Voltage Contractors, including Public Address

11. Coordination with the Owner's IT department and installers
12. Performance standards, without claim for additional payment
13. System Documentation
14. Instruction of owner's operating personnel
15. Maintenance and services for two years
16. Guarantee all equipment and components for the specified period from the date of acceptance.

E. All work described within this section must be coordinated with other trades to ensure a successful installation.

F. Section Includes

1. Interactive Displays and accessories
2. Speakers and accessories
3. Assistive Listening Systems and Devices
4. Display Monitors
5. Mounting devices
6. A/V Cabling

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include dimensions and data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: From approved manufacturer for each type of device required. Include plan view locations, elevations, installation details, and accessories.

1. Functional Block Diagram: Show single-line interconnections between components for signal transmission and control. Show cable types and sizes.

C. Product Data: Submit manufacturer's technical data, product specifications, installation instructions, and other pertinent information as applicable for each product or material specified.

D. Operating and Maintenance instructions for each product.

E. Samples of Manufacturer's standard and extended Warranties.

F. Equipment List: Include every piece of equipment by model number, manufacturer, serial number, location, and date of original installation.

G. Operation and Maintenance Data: For Interactive Displays, monitors and speakers.

1. Lists of spare parts and replacement components recommended to be stored at the site for ready access.

1.4 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain all materials from one source from a single approved manufacturer for each different product required.

B. Certification: CE, FCC Class A

1.5 Delivery, Storage and Handling

- A. Take care in handling products in accordance with manufacturer's instructions.
- B. Store indoors in original undamaged packaging, in a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity. Store products upright in secure, protected area. Do not stack! Verify with manufacturer that site conditions are acceptable before receiving material.
- C. Environmental Conditions: Capable of withstanding the following environmental conditions without mechanical or electrical damage or degradation of operating capability:
1. Interior, Controlled Environment: System components installed in temperature-controlled interior environments shall be rated for continuous operation in ambient temperatures of 36 to 122 deg F (2 to 50 deg C) dry bulb and 20 to 90 percent relative humidity.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of any device and equipment related to operation, and equipment that fail in materials or workmanship within specified warranty period.
1. Warranty Period: Unless stated otherwise within product descriptions, a [Two] 2 year warranty from date of Substantial Completion shall be provided.
 2. Provide information on available extended warranties.

PART 2 - CLASSROOM AV PRODUCTS

2.1 INTERACTIVE DISPLAY BOARD & MOUNT

- A. INTERACTIVE DISPLAY BOARD
1. The selected manufacturer shall be **Vivitek NovoTouch** Series Interactive Touch Boards. Alternates shall not be accepted.
 2. The selected models shall be:
 - a. LK7530i
 3. Contractor shall utilize the included display mount with the Vivitek NovoTouch board to mount the display on the teaching wall, as shown on the IT drawings.

2.2 SPEAKERS, WIRELESS MICROPHONE, AND ASSISTED LISTENING SYSTEM

- A. The selected manufacturer shall be FRONT ROW. Other manufacturers will be considered, providing equipment meets or exceeds the quality specified and they can provide equipment of the type, size and function required. Substitutions must be approved by the Owner prior to this Bid Submission.
- B. The basis of design is the FRONT ROW ezROOM System.

- C. Each Front Row Plenum Enclosure shall include the following:
1. QTY (1) Front Row #1000-00094 Plenum Enclosure which shall include:
 - a. 2x2 plenum ceiling enclosure
 - b. Smart receiver ICR-01
 - c. Power Supply
 - d. US/CA Voice Commands
 - e. 4 Harness Cables
 - f. Cable Clamps
 - g. Nylon Bushing
 2. QTY (1) Front Row #CMPL-PWR Power Strip
 3. QTY (1) Front Row #1000-0004 Split Core Transformer for Analog Page Override
 4. QTY (1) Front Row Ceiling Sensor Kit #950CS
- D. Each classroom with a Front Row Plenum Enclosure shall receive the following:
1. QTY (1) Front Row teacher microphone #1000-00039
 2. QTY (1) Front Row student microphone #1000-00040
 3. QTY (1) Universal Drop-In Mic Charger #202-05-102-00
 4. QTY (2) #SPC 6.5", 8ohm ceiling speakers or wall mounted speakers equivalent if no drop ceiling is present.
- E. The Contractor shall provide all cabling, configuration, and devices for a fully functional system. System shall include the following functionality:
1. Speakers shall amplify audio from the AV input plates within the space and both microphones
 2. Speakers shall be muted on activation of the public address system
- F. The contractor awarded this project shall custom order the Front Row IR Microphone Sensor and ensure that it is configured to a different IR frequency than the IR touch technology on the interactive display board.
- G. Upon substantial completion of the Classroom AV installation deliver the following to the school:
1. QTY (3) Listen Tech #LS-88 Portable ListenIR iDSP Portable Assisted Listening Systems.

2.3 COMMERCIAL GRADE DISPLAY MONITOR(S)

- A. These displays shall be located throughout the facility as indicated within this specification.
- B. The selected manufacturer shall be Samsung. Other approved manufacturers will be considered, providing equipment meets or exceeds the quality specified and they can provide the equipment of the type, size, and function required. Substitution manufacturers shall include:
1. Sharp
 2. Sony
 3. Vizio
 4. LG

- C. The model specified within the Bill of Material within this section is the basis of design.
- D. Installation contractor shall confirm the mounting brackets will adequately mount the selected Monitors.
- E. All Monitors shall be installed into spaced as described within the technology plans.
- F. DISPLAY MONITOR MOUNT
 - 1. The selected manufacturer shall be **Chief**
 - 2. The selected model shall be:
 - a. XTM1U

2.4 TEACHER STATION AV INPUT/OUTPUT PLATES:

- A. The Teacher and interactive display AV plates are designated as “A” and “A1” on plans.
- B. Refer to plans for mounting backboxes, surface raceway, and conduit requirements.
- C. Each Teacher Station AV plate (“A” outlet on plans”) shall receive the following:
CONFIRM COLOR OF ALL FOLLOWING DEVICES WITH ARCHITECT
 - 1. QTY (1) C2G #39873, with C2G # 03728 – Confirm color with Architect.
- D. Each Interactive Display AV plate (“A1” plate on plans”) shall receive the following:
 - 1. QTY (1) 3.5mm connector , with mounting plate. This plate shall be used for mobile assisted listening systems and shall be configured to broadcast program audio from the classroom.
- E. AV cabling from A outlet shall terminate directly into interactive display. Include all termination devices as necessary for a fully functional system.

2.5 CABLING

All cabling shall be plenum rated.

- A. Audio Input Lines:
 - 1. Use cable with a foil shielded pair of stranded #22 AWG conductors, with a stranded shield drain wire. For single pair, use a miniature cable nominal outside diameter 0.135”. Use of a multi-pair cable is optional. Provide plenum rated cable.
 - a. Belden
 - b. Mohawk
 - c. West Penn
- B. Loudspeaker Wiring:
 - 1. Provide unshielded loudspeaker wiring for connection to loudspeakers and loudspeaker receptacles. For lines in rigid conduit or electrical tubing, use stranded or solid conductors. For lines in flexible conduit or electrical tubing and for all wiring to equipment within equipment racks, use only stranded conductors.
 - 2. Use color-coded #12 AWG conductors for all loudspeakers and except for 70 V ceiling-mounted loudspeakers and loudspeaker receptacles.

- a. Belden
 - b. West Penn
 - c. Approved Equal
 - 3. Use color-coded #14 AWG conductors for all loudspeaker receptacle wiring
 - a. Belden
 - b. West Penn
 - C. Category Wiring:
 - 1. Provide Category 6A, 8-conductor unshielded twisted pair cable with 23 AWG solid conductors and bandwidth of 500 Mhz for computer data and audio visual transport wiring.
 - a. Berk-Tek
 - b. Superior Essex
 - c. Belden
 - D. HDMI Wiring:
 - 1. HDMI cable shall be FSR Digital Ribbon Cable #DR-PCB-HxxM.
 - a. Length of this cable must conform the length of the intended use.
 - b. Acceptable alternate manufacturers:
 - 1) Chromis
 - 2) Liberty
 - c. The in-wall HDMI cabling shall be a plenum rated Active Optical Cable specified for use with the length of cable required in each room.
 - E. In Wall USB Cabling:
 - 1. Cabling shall be rated for USB 2.0
 - 2. Cable shall be plenum rated
 - 3. Basis of Design:
 - a. Comprehensive #USB2-AB-xxPROAP
 - b. Cable length per drawings
 - 4. Acceptable alternate manufacturers:
 - a. Liberty
 - F. All Audio Visual and associated cabling required for each system specified within this document is to be furnished, installed, terminated and tested as part of this section.
 - G. Wiring Method: Install cables in raceways unless otherwise indicated.
 - H. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.
- 2.6 BOM
- A. The following BOM is provided as reference of the major audio-visual devices required. All quantities must be verified against the provided IT drawings. All devices required for a fully functional systems as specified within this section and the IT drawings shall be furnished and installed by the audio-visual contractor awarded this section.

#	MFG	PART NO.	PRODUCT DESCRIPTION	QTY
CLASSROOM AV WITH 4 SPEAKERS				
1	VIVITEK	NovoTouch #EK753i	75" - 4K Interactive Display with Mounting Bracket	57
2	C2G	39873	HDMI, USB, 3.5mm Faceplate - A DEVICE	57
3	Frontrow	1000-00094	Ceiling Mounting Plenum Rated Enclosure	57
4	Frontrow	1000-00039	Teacher Microphone Kit compatible with ICR-01	57
5	Frontrow	1000-00040	Student Microphone Kit	57
6	Frontrow	202-05-102-00	Universal Drop-In Microphone Charger	57
7	Frontrow	1000-00153	Ceiling Option, Integrated 950CS Ceiling Sensor	57
8	Frontrow	1000-00153	Ceiling Sensor Kit	57
9	Frontrow	WP-A	Audio Out Wall Plate - A1 DEVICE	57
10	Frontrow	SP-C	Cut-In Speaker	120
11	Frontrow	1000-00013	Analog Page Override for Smart Receiver	57
12	Misc.	Misc.	Cable, Backboxes, Wiremold	57
13	Misc.	Misc.	Labor	57
MOBILE ASSISTED LISTENING SYSTEM				
14	Listen Tech	LS-88	LSS-88 Portable ListenIR iDSP System	3
MONITORS				
15	Samsung	DM65E	Monitor - 65" Display	4
16	Chief	XTM1U	Wall Mount for Monitors	4
17		Misc	Installation	1

PART 3 - EXECUTION

3.1 INSTALLATION

- A. The contractor awarded this project shall install a classroom AV system in its entirety, including all backboxes, cabling, interactive displays, wireless microphones, speaker systems, and control systems, within a single room at the start of the project to act as a mockup and demonstration room where the Owner, Technology Consultant, and Architect can review the installation and functionality of all devices prior to procurement of equipment or installation of these systems in remaining rooms.
- B. This specification shall include all installation and setup labor and configuration of all devices to furnish a complete, efficient and effective system.
- C. All cables, connectors and peripheral equipment's required to attain a fully functional system shall be furnished, installed and performed by the contractor awarded this project.
- D. Locate all apparatus requiring adjustments, cleaning or similar attention so that it will be accessible for such attention.
- E. Furnish and install brackets, braces and supports. Minimum fastening or support safety factor shall be at least three (3). Design shall be to the approval of the Architect.
- F. Provide custom color or finish for any equipment or materials supplied which are exposed to public view. Color and finish of all such equipment or materials shall be approved in writing by the Architect. This does not exclude equipment or materials where standard colors and finishes may be specified herein.
- G. Switches, connectors, jacks, receptacles, outlets, cables and cable terminations shall be logically and permanently marked. Custom panel nomenclature shall be engraved, etched or screened.

Markings for these items are detailed in the drawings to ensure consistency and clarity. Verify any changes in working type size and/or placement with the Systems Designer prior to marking.

- H. The equipment specified herein is designed to operate in environments of normal humidity, dust and temperature. Protect equipment and related wiring where extreme environmental conditions can occur.
- I. Secure equipment firmly in place, including control panels, loudspeakers, conduit, amplifiers, racks, and cables. Make fasteners and supports to support their loads with a safety factor of at least three.
- J. Take precautions to prevent electromagnetic and electrostatic hum. Install equipment to provide safe operation.
- K. Clearly, consistently, logically, and permanently mark connectors, jacks, relays, receptacles, cables, and cable terminations.

3.2 SECURE ATTACHMENT OF AUDIO-VISUAL ITEMS

- A. To ensure proper attachment of Fixtures, Furnishings & Equipment items, including and Technology items, where “items” are attached to wall, ceiling, overhead structure, and/or floor, Contractor shall provide information adequate for architect to verify items, attached to wall, ceiling, and/or floor are attached securely and per manufacturer’s recommendations. Architect’s review may be implemented during submittal process.
- B. Contractor shall provide struts, hangers, fasteners, safety harnesses, channels, bolts, screws, rods, etc. to securely attach items to existing structure as required to meet field conditions and meet applicable codes.

3.3 VERIFICATION TESTS

- A. Confirm that each individual wire and cable run is identified with a unique number. These numbers are affixed to both ends of each cable and are clearly visible. Provide a complete list of these numbers along with the termination location of each end of the wire run.
- B. Confirm that all system outputs are free of spurious signals including oscillations and radio frequency signals. A wide band oscilloscope shall be used to verify this condition.
- C. Confirm that the system is free of audible clicks, pops, and other noises when any operating control is activated, with or without input signal.
- D. For all microphone lines, tie lines, return lines and effect loudspeaker lines, confirm:
 1. Proper circuits appearing at each termination location.
 2. Proper circuits appearing at each jack bay position.
 3. Continuity of all conductors.
 4. Proper polarity is maintained.
 5. Absence of shorts between conductors within each circuit.
 6. Absence of shorts between circuit conductors and conduit.

- E. Confirm that speakers and mountings are free of buzzes and rattles when the speaker is swept with sine wave tones over its rated bandwidth at one-half its maximum rated power.
- F. For each installed data network cable or fiber optic cable confirm conformance to the specified TIA/EIA performance standards.

3.4 GROUNDING

- A. Audio system wiring shall conform to the following procedures:
 1. Audio equipment AC ground pins shall connect to AC isolated ground.
 2. Audio equipment chassis shall connect to AC isolated ground or rack frames.
 3. Audio shields between AC powered pieces of equipment shall be connected to ground at one end only. Capacitive terminate as required.
 4. Isolate all Systems wiring from racks, back boxes and conduit.
 5. AC isolated ground system shall be isolated from all other facility grounds.
- B. All metallic conduit, boxes and enclosures shall be grounded in accordance with the current National Electrical Code.
- C. Metallic enclosures containing active equipment shall be grounded with due regard for the minimization of electrical noise. This may include the provision of grounding conductors separate from the AC ground.

3.5 COMMISSIONING OF SYSTEMS AND EQUIPMENT

- A. Engage a factory-authorized service representative or technician who is familiar with this project to participate and assist, if necessary, in the functional performance testing of the equipment include in this Division with the Commissioning Agent.

3.6 EXAMINATION

- A. Examine room conditions, ceiling and wall surfaces to assure they are in compliance with requirements and other conditions affecting installation and operation of Interactive displays, monitors, and speakers.
- B. Examine pathway elements intended for cables. Check raceways and other elements for compliance with space allocations, installation tolerance, hazards to A/V cabling and other conditions affecting installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.7 FIELD QUALITY CONTROL

- A. Verify that accessories required for each unit have been properly installed.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- C. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

D. Tests and Inspections:

1. Inspection: Verify that units and controls are properly installed, connected, and labeled, and that interconnecting wires and terminals are identified.
2. Pretesting: Align and adjust system and pretest components, wiring, and functions to verify that they comply with specified requirements.
3. Operational Tests: Perform operational system tests to verify that system complies with Specifications. Include all modes of system operation.

3.8 CLEANING

- A. Remove rubbish and debris: Installation contractor is not allowed you use the onsite dumpster and is responsible to discard their own debris off site.
- B. Clean installed items using methods and materials recommended in writing by manufacturer.

3.9 DEMONSTRATION

- A. Bidding contractor shall engage a factory-authorized service representative to train the Owner's maintenance personnel to adjust, operate, and maintain each system described within this specification for the audio visual equipment. This training shall include (8) hours, in the blocks of hours that shall be described by the Owner.
- B. Upon approval of the above test report by the Architect and at a mutually agreeable time, demonstrate operation of each major component and of the complete installation. After demonstration, assist as required in acceptance testes.
- C. Listening Tests:
 1. Tests will include subjective evaluation by observers listening at various positions under various operating conditions of the system, intended to test its operation in conformance with its functional requirements.
- D. Equipment Tests:
 1. Perform any measurements of frequency response, distortion, noise or other characteristics and any operational tests deemed necessary by the Architect to determine conformity with these requirements.
 2. If the need for adjustment or modification becomes evident during demonstration and testing, continue working until the installation operates properly.
 3. Perform testing to demonstrate the Priority Override Function from the Public Address system.
- E. Final Adjustments:
 1. Make control adjustments as directed by the Architect. Make a record of these control settings. Provide covers, caps, or shaft locks for controls not used in system operation.

3.10 COMPLETION

- A. Warranty service shall commence from 2 years after acceptance. Warranty service shall be provided during standard business hours within 24 hours after notice of concern.
- B. Labor and materials provided under scope of project shall be covered under 2 year warranty. Devices shall be free of defects from installation of manufacturer. If an item requires replacement, this shall be provided at no additional cost to owner. If items are abused or rendered inoperable from misuse they shall not be covered under said warranty.
- C. A/V integrator shall provide “As Built” documents, 2 sets, to owner. This shall include equipment list, as installed, equipment manuals, and detailed drawings showing as installed wiring details.
 - 1. Provide a digital PDF copy of documentation on a USB Memory stick or CD/DVD for owner.
- D. Bidding contractor shall engage a factory-authorized service representative to train the Owner's maintenance personnel to adjust, operate, and maintain each system described within this specification for the audio-visual equipment. This training shall include forty (8) hours, in the blocks of hours that shall be described by the Owner. These services shall be considered as part of the contract and at no additional fees charged to owner.

END OF SECTION 27 4116.15

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APPENDIX A

PRODUCT DATA SHEETS

NovoTouch EK753i

True 75" 4K interactive displays with wireless collaboration and touch interaction for education and meeting rooms



Features

- 75" display with ultraHD 4K (3,840 x 2,160) resolution for outstanding details and stunning visuals
- Backlit D-LED (ADS panel) technology for brighter pictures, flawless colors, richer textures, and extra wide viewing angels (178°/178°)
- Preconfigured with NovoConnect wireless presentation and collaborative system for cable-free and hassle-free presenting in the classroom
- Connect up to 64 users simultaneously, and allow 4 people to present on one display to facilitate large group work
- High contrast ratio and fast response time deliverables crisp, readable content
- Interactive functionality with up to a 20-point finger touch capabilities (10-point writing, 20-point touch) for on-screen annotation, drawing and common gesture controls
- Simple wireless display and true fast collaboration solution thanks to 802.11n/ac dual-band 2.4/5GHz support
- Remote manager with IT management software with automatic discovery and configuration
- Full suite of connectivity ports including HDMI-In VGA-In, Audio-In/Out, LAN, RS232 and USB.
- Front bezel USB ports for quick connection to USB memory drives and data
- 4mm thick toughened glass for added protection against scratches or screen damage
- Powerful front-facing stereo audio speakers with up to 32W of total power (16Wx2) and multiple audio-in/out ports

Display	Type/Technology	Backlit D-LED (ADS Panel)	
	Panel Size	75"	
	Brightness	500 cd/m2	
	Contrast Ratio	4,000:1	
	Native Resolution	4K Ultra-HD (3840 x 2160)	
	Viewing Angle (H/V)	178°/178°	
	Aspect Ratio	16:9	
	Response Time (MS)	8ms	
	Refresh Rate (Hz)	60Hz	
	Estimated Life Time (Typ)	30,000 hours	
	Display Color (Bit)	1.07 billion (10-bit)	
	Installation Orientation	Landscape	
	Daily Operation (Hours/Days)	16/7	
Interactivity	Technology	Infrared Touch	
	Touch Points	Writing	10 Point (Standard)
		Touch	20 Point (Standard)
	Touch Resolution	32,768 x 32,768	
	Surface Protection	4mm Thick Toughened Glass (Level 7H on Mohs Scale of Mineral Hardness)	
Touch Tools	Finger, Stylus, Glove, Opaque Objects		
Operating System	System Version	Android™ v8.0	
	CPU	Multi-Core High-Performance ARM®CPU	
	GPU	4*Mali™ G51	
	RAM	3GB DDR3	
	Internal Storage	16GB (eMMC Flash) (About 9GB User Availability)	
Connectivity	Input	Display	HDMI v2.0 (x3) (HDCP v2.2 Compliant), VGA-In (x1)
		Audio	Audio-In (3.5mm) (x1)
	Output	Display	HDMI-Out v2.0 (x1) (HDCP v2.2 Compliant)
		Audio	Audio-Out (3.5mm) (x1), SPDIF-Out (x1)
	Internet	LAN (RJ45) (x1)	
	Control	RS232-In (x1)	
	Wireless	Wifi (USB Module)	IEEE 802.11 a/b/g/n/ac (2.4GHz/5GHz)
		I/R Receiver	Front (x1) (±25° Angle, >8m Distance)
	USB	Front	USB 2.0 (x2)
		Side	USB3.0 (x3), USB Type B (x2)(For Touch Port)
Bottom		USB 2.0 (x1)	
Default Apps	Wireless Collaboration	Screen mirroring (NovoConnect), Screen duplication over the corporate network (NT LiveScreen/ NT LiveReceiver), White board (Note), Screen login protection (Screen Lock), Screen Recording (NT Minutes), Video Conferencing, Over 50 Apps Built-In (NT App Store)	
Expansion	Window Module (Option)	Standard Intel 80pin OPS (Option)	
Audio	Speakers	16W (x2) (Stereo)	
Power	Power Supply (Internal)	AC 100 - 240V, 50/60Hz (4.0A)	
	Consumption	400W	
	Standby Mode	<0.5W (Standby)	
Physical Characteristics	Dimension (L x H x D)	1,709.39 x 1,020.05 x 91.2mm (67.3" x 40.1" x 3.6")	
	Weight	55.3kg (122lbs)	
	VESA Mounting (FPMPMI)	4 - M8 x 25mm, 800 x 400mm (31.5" x 15.7")	
	Color	Grey	
Accessories	Standard	AC Power Cord, VGA Cable, HDMI Cable, USB Cable, Audio Cable, Stylus (x2), Remote Control (W/Batteries), Wall Mount Kit, Wifi USB Module, Documentation Kit	
UPC	813097025043		

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HP 30 Charging Cart V2 - Overview

[Product description](#)[Product features](#)[Link to specifications page](#)

Product description

Figure 1: HP 30 Charging Cart V2



Product features

Specification	Description
Dimensions	123.57 x 62.99 x 106.68 cm (48.65 x 24.8 x 42.0 in)
Weight	118.5 kg (261.25 lbs)
Capacity	Up to 30 notebooks or tablets
Notebook size compatibility	Notebooks up to 39.62 cm (15.6 in) diagonal screen size
Notebook bay dimensions	Up to 31.5 x 43.51 x 6.1 cm (12.4 x 17.13 x 2.4 in) To increase the height of a bay, adjacent shelves can be removed.
Notebook weights	Assumed weight per notebook: 1.22 - 2.64 kg (2.68 - 5.82 lbs) Assumed weight per battery: 0.1 kg - 0.37 kg (0.22 - 0.81 lbs)



Link to specifications page

[Go to the HP 30 Charging Cart V2 specifications page.](#)

Additional support options



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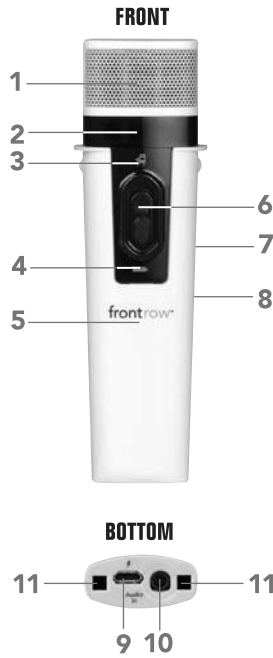
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ISM-02 JUNO PASS-AROUND MICROPHONE



- 1 Amazing Sound Quality**
Superb pick up and audio quality thanks to a high-isolation microphone suspension, broad frequency response, and low-distortion direct digital synthesis.
- 2 360° Emitter Diodes**
Lets students hold the Pass-Around Microphone the way it's most comfortable for them without worry of dropout.
- 3 Power Indicator**
SOLID GREEN.....Power On
OFF.....Power Off
- 4 Battery Indicator**
In Use
OFF.....Battery Charged
FLASHING RED.....Battery Low
When Charging
SOLID RED.....Charging
SOLID GREEN.....Fully Charged
- 5 Small and Lightweight**
At less than 15cm/6in tall and just 2.5 oz, the microphone is much easier for students to use.

- 6 Power/Push-to-talk Switch**
PRESS AND HOLD.....Push-to-talk
PRESS AND SLIDE UP.....Power On
- 7 Name Plate**
For adding a name or room number for easy identification.
- 8 Lithium Ion Battery**
3-year life expectancy, lightweight and rechargeable.
- 9 Charging/Programming Jack**
For charging via USB cable or for configuring settings.
- 10 Portable Audio Interface**
3.5mm audio input jack for wireless transmission from any secondary audio source such as a computer or MP3 player.
- 11 Charge Contacts**
For use with the optional IMC-01 microphone charger.
- 12 Comfortable Hands Free Option**
Easy, comfortable lavalier clip makes reading in front of class simple and lets the Pass-Around Microphone double as a lightweight teacher microphone.

- Adjustable Power**
Factory set to achieve complete coverage in a typical classroom with 7 hours of talk time. Increase talk time or expand coverage for very large rooms with a quick software adjustment.
- Programmable Channels**
Program the switch positions to 2 of 7 available channels.
- Digital Naming**
Assign custom names to microphones for easy identification on the Tower LCD or in the optional FrontRow Desktop Software.



SPECIFICATIONS

Transmission type: Infrared
Transmitting frequency: 2.1MHz, 2.3MHz, 2.4MHz, 2.8MHz, 3.3MHz, 3.6MHz programmable
Frequency response: 70Hz – 8kHz
Microphone: Unidirectional cardioid
Battery life: 7 hours (typical)
Battery type: Li-Ion, 3.7V, 850mAH
Operating range: 21.3m/70ft, line of sight (typical)
Size (wxhxd): 3.8 x 14.7 x 2.2cm/1.5 x 5.8 x 0.85in
Weight: 70.8g/2.5oz

USER CONTROLS

- on/off
- push-to-talk
- channel select

INPUTS/OUTPUTS

- 3.5mm aux input
- Charge/programming jack

ISM-02 ACCESSORIES



Li-Ion battery



micro USB cable

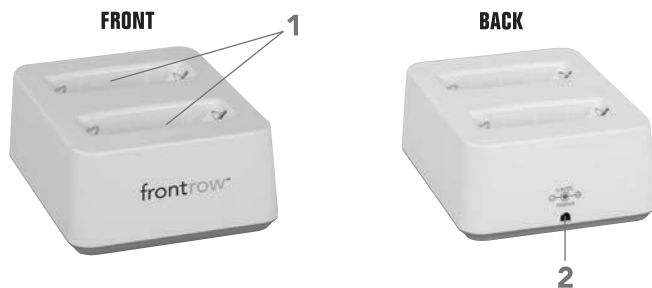


lavalier clip



Teacher Edition Software
(Windows or Mac OS)

IMC-01 JUNO PENDANT AND PASS-AROUND MICROPHONE CHARGER



- 1 Charging pockets**
Both charging pockets can be used to charge either the Juno Pendant Microphone or Pass-Around Microphone
- 2 Power jack**



SPECIFICATIONS

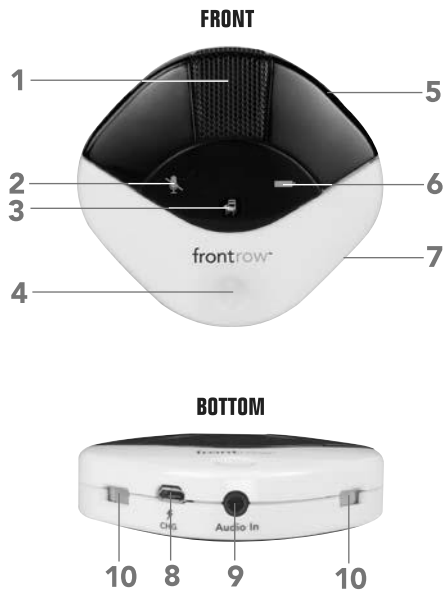
Size (wxhxd): 8.9 x 4.6 x 11.4cm/3.5 x 1.8 x 4.5in
Weight: 226.7g/8oz
Power supply: 5.9V dc

IMC-01 ACCESSORIES



power supply

ITM-02 JUNO PENDANT MICROPHONE

**1 Amazing Sound Quality**

Superb pick up and audio quality thanks to a high-isolation microphone suspension, broad frequency response, and low-distortion direct digital synthesis.

2 Mute Indicator

OFF Un-muted
SOLID RED. Muted

3 Power Indicator

SOLID GREEN Power On
OFF Standby

4 One-Touch Button

Controls all of the features of the Pendant Microphone. Use with voice command to activate the Juno lesson capture software and control your Juno Tower.

When the Pendant Microphone is in standby mode:

PRESS MOMENTARILY Awaken

When the Pendant Microphone is active:

PRESS MOMENTARILY . . . Mute / Un-mute
PRESS AND HOLD . . . Issue Voice Command

5 Superior Comfort

Lightweight (just 73.7g/2.6oz) with soft backing that provides comfort and reduces friction noise from contact with clothing, buttons or jewelry. Ergonomic lanyard suspension points keep the mic stable and help keep it from swinging away from the body when leaning over to help a student.

6 Battery Indicator**In Use**

OFF Battery Charged
FLASHING RED. Battery Low

When Charging

SOLID RED. Charging
SOLID GREEN Fully Charged

7 Lithium Ion Battery

3-year life expectancy, lightweight and rechargeable.

8 Charging/Programming Jack

For charging via USB cable or for configuring settings.

9 Portable Audio Interface

3.5mm audio input jack for wireless transmission from any secondary audio source such as a computer or MP3 player.

10 Charge Contacts

For use with the optional IMC-01 microphone charger.

Adjustable Power

Factory set to achieve complete coverage in a typical classroom with 7 hours of talk time. Increase talk time or expand coverage for very large rooms with a quick software adjustment.

Programmable Channels

Program the switch positions to 2 of 7 available channels.

Digital Naming

Assign custom names to microphones for easy identification on the Tower LCD and Desktop Software.

Data Transmission

Reports battery status to Desktop Software, visible from an interactive whiteboard.

**SPECIFICATIONS**

Transmission type: Infrared

Transmitting frequency: 2.1MHz, 2.3MHz, 2.4MHz, 2.8MHz, 3.3MHz, 3.6MHz programmable

Frequency response: 70Hz – 8kHz

Microphone: Unidirectional cardioid

Battery life: 7 hours (typical)

Battery type: Li-Ion, 3.7V, 850mAh

Operating range: 30.4m/100ft, line of sight (typical)

Size (wxhxd): 7.4 x 6.6 x 1.3cm/2.9 x 2.6 x 0.5in

Weight: 73.7g/2.6oz (with battery and lanyard)*

USER CONTROLS

- wake/mute/voice command button
- channel select

INPUTS/OUTPUTS

- 3.5mm aux input
- charge/programming jack

*Competitor models report weight without lanyard

ITM-02 ACCESSORIES

Li-ion battery



audio cable



micro USB cable



Teacher Edition Software
(Windows or Mac OS)

Smart-UPS On-Line 120/208 V

Provides online power protection for servers, voice/data networks, medical labs, and critical applications



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by Schneider Electric

HomeProducts & Services... Network and ServerSmart-UPS On-Line

APC Smart-UPS SRT 5000VA RM 208V to 120V 2U Step-Down Transformer



APC Smart-UPS SRT 5000VA RM 208V to 120V 2U Step-Down Transformer

SRT5KRMXLT-5KTF



★★★★★ 5.0 (3)

[Write a review](#)



High density, double-conversion on-line power protection with scalable runtime

Includes: Documentation CD, Rack mounting brackets, Rack mounting hardware, Rack mounting support rails, USB cable, User manual, Warranty card, Web/SNMP management

...

[View Product Overview](#)





User
Manual



Software &
Firmware



Product
FAQs



Replacement
Battery



Product
Registration



Troubleshoot
your UPS

SRT5KRMXLT-5KTF Features

Key Features

Run time for load W

3m

Max. Capacity Used

100%

Output power capacity

4.8kWatts / 5.0kVA

Rack Height

5U

Output Connections

(1) NEMA L6-30R (Battery Backup)

(2) NEMA L6-20R (Battery Backup)

(12) NEMA 5-20R (Battery Backup)

Nominal Output Voltage

120V, 208V

Nominal Input Voltage

208V

Input Connections

NEMA L6-30P



Cord Length

10ft (3.1meters)

APC Smart-UPS SRT 5000VA RM 208V to 120V 2U Step-Down Transformer

High density, double-conversion on-line power protection with scalable runtime

Includes: Documentation CD, Rack mounting brackets, Rack mounting hardware, Rack mounting support rails, USB cable, User manual, Warranty card, Web/SNMP management card

**Battery failure notification**

Provides early-warning fault analysis on batteries enabling timely preventive maintenance

Green mode

Patent-pending operating mode that bypasses unused electrical components in good power conditions to achieve very high operating efficiency without sacrificing any protection.

LCD graphics display

Text and mimic diagrams that display modes of operation, system parameters and alarms.

Rack/Tower convertible

Protects the initial investment in the UPS when migrating from tower to rack-mount environment.

Smart-UPS On-Line Features & Benefits

Serviceability

Audible alarms

Provides notification of changing utility power and UPS power conditions

Automatic self-test

Periodic battery self-test ensures early detection of a battery that needs to be replaced.

User-replaceable batteries

Increases availability by allowing a trained user to perform upgrades and replacements of the



batteries reducing Mean Time to Repair (MTTR)

Disconnected battery notification

Warns when a battery is not available to provide backup power.

Predictive failure notification.

Provides early-warning fault analysis ensuring proactive component replacement.

Adaptability

Flash upgradeable firmware

Install maintenance releases of firmware remotely using FTP.

Plug-and-Play external batteries

Ensures clean, uninterrupted power to the loads when adding extra runtime to the UPS.

Rack/Tower convertible

Protects the initial investment in the UPS when migrating from tower to rack-mount environment.

Protection

Resettable circuit breaker

Easy recovery from overloads; no need to replace a fuse. (Not available on Wall Tap SKUs)

Cold-start capable

Provides temporary battery power when the utility power is out.

Safety-agency approved

Ensures the product has been tested and approved to work safely with the connected service provider equipment and within the specified environment.

Input Power Factor Correction

Minimizes installation costs by enabling the use of smaller generators and cabling.

Power conditioning

Protects connected loads from surges, spikes, lightning, and other power disturbances.

Frequency and voltage regulation

Gives higher application availability by correcting poor frequency and voltage conditions without using the battery.

Generator compatible

Ensures clean, uninterrupted power to protected equipment when generator power is used.

Marketing features

Peace of mind that comes with full equipment compatibility and reliability of a leader

Provides pure sine wave output which is recommended by server manufacturers using active power factor corrected (PFC) power supplies. Safety agency tested and approved means that you can deploy Smart-UPS with confidence that they meet or exceed the industry's most rigorous standards.



Save time with easy and convenient remote/network accessibility.

Network manageable via serial, USB or Ethernet. Includes Powerchute® Software for convenient monitoring and control, safe operating system shutdown, and innovative energy management capabilities.

Avoids costly power problems by keeping your IT equipment and data protected and available .

Network grade power conditioning protects from damaging surges and disruptive noise. The double conversion architecture provides tight voltage regulation, frequency regulation ,and zero transfer time to battery during power events.

Low operating and maintenance costs with proven reliability and intelligent battery management .

Intelligent battery management, pioneered by APC, maximizes battery performance and life through intelligent, precision temperature compensated charging. Automatic self tests insure battery reliability and warn customers in advance of battery replacement. Convenient, easy to connect, hot-swappable battery modules provide battery replacement without powering down.

Manageability

InfraStruXure Manager Compatible

Enables centralized management via the APC InfraStruXure Manager.

LED status indicators

Quickly understand unit and power status with visual indicators.

Network manageable

Provides remote power management of the UPS over the network.

Serial connectivity

Provides management of the UPS via a serial port.

SmartSlot

Customize UPS capabilities with management cards.

Availability

Scalable runtime

Allows additional run time to be quickly added as needed.

Temperature-compensated battery charging

Prolongs battery life by regulating the charge voltage according to battery temperature.

Hot-swappable batteries

Ensures clean, uninterrupted power to protected equipment while batteries are being replaced

Intelligent battery management

Maximizes battery performance, life, and reliability through intelligent, precision charging.

Automatic internal bypass

Supplies utility power to the connected loads in the event of a UPS power overload or fault.

Automatic restart of loads after UPS shutdown

Automatically starts up the connected equipment upon the return of utility power.

Product Distribution

Antigua and Barbuda, Anguilla, Netherlands Antilles, Argentina, Aruba, Barbados, Bermuda, Bolivia, Bahamas, Belize, Canada, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, Grenada, Guatemala, Guyana, Honduras, Haiti, Jamaica, Saint Kitts And Nevis, Cayman Islands, Saint Lucia, Mexico, Nicaragua, Panama, Peru, Puerto Rico, Paraguay, El Salvador, Trinidad and Tobago, United States, Uruguay, Saint Vincent And The Grenadines, Venezuela, U.S. Virgin Islands

Technical Specifications



Print



Download

Output

Max Configurable Power (Watts)

4.8kWatts / 5.0kVA

Output Voltage Distortion

Less than 2 %

Output Frequency (sync to mains)

50/60 Hz +/- 3 Hz Sync to mains

Other Output Voltages

240

Load Crest Factor

3 : 1

Topology

Double conversion online

Waveform type

Sine wave

Bypass

Internal bypass (automatic and manual)

Input

Input frequency

40 - 70 Hz Auto-sensing



Input voltage range for main operations

100 - 275 Adjustable (half load), 160 - 275V

Number of Power Cords

1

Other Input Voltages

240

Batteries & Runtime**Battery type**

Lead-acid battery

Typical recharge time

1.5hour(s)

Nominal Battery Voltage

192 V

Replacement Battery

APCRBC140 [↗](#)

Expected Battery Life (years)

3 - 5

RBC Quantity

1

Battery Charge Power (Watts)

556 Watts

Extendable Run Time

1

Battery Volt-Amp-Hour Capacity

840

Extended Run Options

APC-Smart-UPS-SRT-5000VA-RM-208V-to-120V-2U-Step-Down-Transformer

Runtime

[View Runtime Graph](#)

[View Runtime Chart](#)

Efficiency

[View Efficiency Graph](#)

Communications & Management**Interface Port(s)**

RJ-45 10/100 Base-T, RJ-45 Serial, Smart-Slot, USB

Control panel

Multifunction LCD status and control console

Audible Alarm

Audible and visible alarms prioritized by severity

Emergency Power Off (EPO)

Yes

Available SmartSlot™ Interface Quantity

1

Surge Protection and Filtering

Surge energy rating

480Joules

Physical

Maximum Height

8.6inches (218MM, 21.8CM)

Maximum Width

17.0inches (432MM, 43.2CM)

Maximum Depth

28.3inches (719MM, 71.9CM)

Net Weight

217.99lbs. (98.88KG)

Shipping weight

259.99lbs. (117.93KG)

Shipping Height

23.0inches (584MM, 58.4CM)

Shipping Width

24.5inches (622MM, 62.2CM)

Shipping Depth

37.8inches (960MM, 96.0CM)

Color

Black

Units per Pallet

3.0

Environmental

Operating Temperature

32 - 104 °F (0 - 40 °C)



Operating Relative Humidity

0 - 95 (Non-condensing) %

Operating Elevation

0 - 10000ft (0 - 3048meters)

Storage Temperature

-15 - 45 °C

Storage Elevation

0 - 50000ft (0 - 15240meters)

Audible noise at 1 meter from surface of unit

55.0dBA

Online thermal dissipation

1047.0BTU/hr

Protection Class

IP20

Conformance

Approvals

CSA C22.2 No 107.3-05, ENERGY STAR V2.0 (USA), FCC part 15 class A, UL 1778

Standard warranty

3 years repair or replace (excluding battery) and 2 years for battery


Sustainable Offer Status

RoHS




Compliant

Documentation


Manuals and Warranties

 Installation guide Smart-UPS Online SRTRK3	PDF	1210 KB	08/24/20
Installation guide Smart-UPS Online SRTRK3			




 Smart-UPS On-Line Step-Down Transformer SRT5KRMTF User manual Smart-UPS On-Line Step-Down Transformer SRT5KRMTF	PDF	132 KB	06/30/20
 Installation Smart-UPS On-Line SRT5K/6K Installation Smart-UPS On-Line SRT5K/6K	PDF	886 KB	05/31/20
 Operation Smart-UPS On-Line 5/6 kVA 208/220/230/240 Vac TWR/RM 3U/4U Operation Manual Smart-UPS On-Line 5/6 kVA 208/220/230/240 Vac Tower/Rack-Mount 3U/4U	PDF	790 KB	03/09/20

Catalogs



 Smart-UPS On-Line SRT 2.2 kVA - 10 kVA Brochure 120V and 208V Models This is a brochure of the new Smart-UPS On-Line SRT 2.2 kVA - 10 kVA 120V and 208V models . It covers the feature/benefits, tech specs, runtimes and optional accessories.	PDF	7488 KB	05/18/20
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Agency Approvals

 NOM (Mexico) certification for APC Smart-UPS On-Line SRT 5 kVA XLT Certificado de Producto Nuevo de Conformidad con Norma Mexicana NMX	PDF	879 KB	06/30/20
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Bid Spec



 CSI 2004 Smart-UPS On-Line SRT 5 to 10kVA 208V Guide Specification Guide Specification	PDF	429 KB	08/19/20
 CSI 2004 Smart-UPS On-Line SRT 5 to 10kVA 208V Guide Specification Guide Specification	ZIP	70 KB	08/19/20

Drawings

Smart-UPS On-Line,Package with Step-Down Transformer, 5kVA

 SRT5KRMXLT-5KTF - APC Smart-UPS 5kVACAD 2U RM Step-Down Transformer + 192V Battery Pack		7426 KB	06/30/20
 SRT5KRMXLT-5KTF - APC Smart-UPS 5kVAPDF 2U RM Step-Down Transformer + 192V Battery Pack		1229 KB	06/30/20

Software & Firmware

Firmware Upgrades

Show more 

No	PowerNet MIB v4.3.2 SFPMIB432 Updated On 03/10/20	Download
----	--	--------------------------

PowerChute Network Shutdown

PowerChu	PowerChute Network Shutdown v4.3 for Virtualization (64-bit systems only) SFPCNS43-V Compatible With NutanixNutanix, VMware ESXi, Microsoft Hyper-V, Windows Server 2012, Windows Server 2016, VMware Virtual Appliance Updated On	Download
----------	--	--------------------------

Options

All categories 

[Show more](#) 

3WIRE WHIP

W/L6-30 41 FT

Breakers, Cordsets
and Accessories
for simplified power
distribution
management.

PDW41L6-30C**How to buy**

Services

All Sub-categories 

Service Pack 3
Year Warranty
Extension (for
new product
purchases)

Get an extension of
factory warranty
coverage beyond
the original factory
warranty term for
peace of mind and
protection from
failure

**WBEXTWAR3YR-
SP-05****\$599.00****Add To Cart****Show more** 

1 Year NBD 1P
Advantage Plan
for Smart-UPS
5K-7K

\$1,150.00

How to buy

Ratings & Reviews

Reviews

Write a review

Rating Snapshot

Select a row below to filter reviews.

5 ★		3
4 ★	<input type="text"/>	0
3 ★	<input type="text"/>	0
2 ★	<input type="text"/>	0
1 ★	<input type="text"/>	0

Average Customer Ratings

Overall  5.0

1-3 of 3 Reviews



Sort by: Most Relevant ▼

Show more ▼



Included components

Smart-UPS On-Line

APC Smart-UPS SRT 5000VA RM 208V APC Smart-UPS SRT 5000VA RM 208V

SRT5KRMXLT

Smart-UPS Accessories

APC Smart-UPS 5kVA 2U RM Step-Down
Transformer

APC Smart-UPS 5kVA 2U RM Step-Down
Transformer

SRT5KRMTF

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FIND A RESELLER

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2020, APC by Schneider Electric





A versatile UPS developed for unstable power conditions worldwide

Smart-UPS™ On-Line provides high-density, double-conversion online power protection for servers, voice/data networks, medical labs, and light industrial applications. The Smart-UPS On-Line is capable of supporting loads from 1 kVA to 10 kVA in a rack/tower convertible chassis. The 6 kVA, 8 kVA, and 10 kVA models feature unity output power factor enabling them to support power-hungry blade servers or heavily loaded equipment racks. When business-critical systems require runtime in hours, not minutes, Smart-UPS On-Line can be configured with multiple battery packs to meet aggressive runtime demands.

The included PowerChute™ Network Shutdown management software provides unattended graceful shutdown of network operating systems. Models 5 kVA to 10 kVA include an integrated network management card for remote management. The entire Smart-UPS On-Line family helps to provide value to customers with demanding power conditions, including a very wide input voltage window, extremely tight output voltage regulation, frequency regulation, internal bypass, and input power factor correction.

Smart-UPS On-Line

Industry-leading power factor maximizing UPS density
Rackmount and Tower SRT 1 kVA – 10 kVA



SRT5KXLT shown

Standard features

Best-in-class power density

More real power in watts, 0.82 to 0.9 pf on the 1, 1.5, 2.2 and 3 kVA models. 0.85 pf on 5 kVA and Unity on 6 kVA – 10 kVA units.

High-efficiency “Green Mode”

Achieves 97% efficiency, which helps save utility and cooling costs without compromising performance or reliability. Energy Star® compliant.

Graphical LCD display with multicolor backlight

Intuitive interface provides detailed and accurate information with ability to configure locally.

Intelligent battery management

Temperature-compensated charging extends life and advanced algorithms recommend replacement date. The UPS can inform the user which batteries need to be replaced and auto detect when additional battery packs are added.

Built-in energy meter

Measures energy use and displays UPS efficiency in various modes of operation for easy energy tracking.

Operate without battery

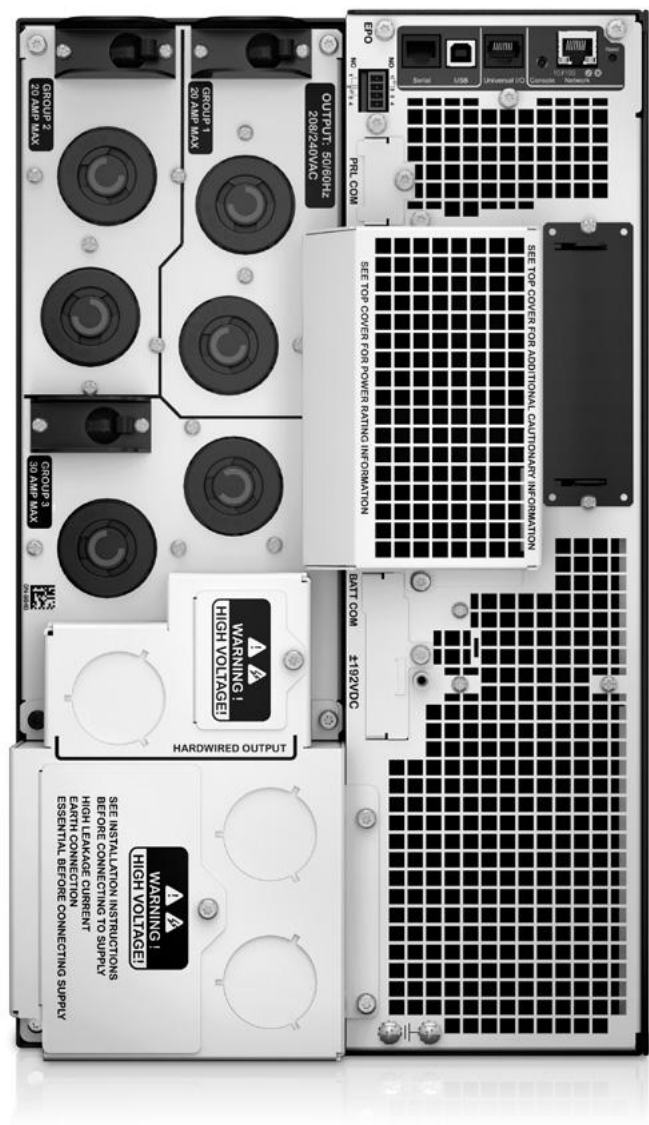
Ability to immediately protect equipment when power returns after a complete discharge of the battery.

Three-year warranty on electronics

Additional year of warranty protection for electronics provides peace of mind.

Smart-UPS On-Line

Proven performance with the world's largest installed base of single-phase, double-conversion products
Rackmount and Tower SRT 1 kVA – 10 kVA



SRT10KXLT shown

Additional features

Embedded network management card with environmental monitoring (5 kVA – 10 kVA models)

Remote monitoring and control of the UPS and the environment via Ethernet connection while freeing up the SmartSlot™ so customers can add accessories for additional communication options.

Switched outlet group(s)

Ability to control a group of output load receptacles independent from the main UPS. Enables:

- Rebooting hung device without cycling the entire UPS
- Sequenced turn on/off
- Shedding of noncritical loads based on a variety of parameters (battery time, runtime remaining, and overload)
- Scheduled time off to conserve energy

Emergency power off (EPO)

Remote UPS shutoff in the event of an emergency. The UPS can accept normally open (NO) or normally closed (NC) contacts.

Communication ports

Serial, USB, Ethernet, and SmartSlot for network accessory cards.

Communication protocols

Modbus Serial, USB PowerSummary, HTTP, SNMP, and Telnet.

Intuitive, easy-to-use LCD provides clear and accurate information in multiple languages



Backlight screens:

Amber: Indication of condition that requires attention

Red: Indication of UPS alarm that requires immediate attention

Standard features

LCD display screen

Accurately provides real-time status updates in your choice of basic or advanced menus.

UPS status (scrolling)

- Output voltage
- Input voltage
- Output frequency
- Run time
- Load
- Battery health

Control

- UPS and outlet group settings
- Bypass control

Configuration

- Output voltage, frequency
- Language, brightness, contrast
- Audible alarm
- IP address

Test and diagnostics

- Initiate battery and runtime calibration tests

About

- UPS serial number, battery part number
- Battery install and suggested replacement dates

Product accessories

Management cards

- AP9630: UPS network management card with PowerChute network shutdown
- AP9631: UPS network management card with PowerChute network shutdown & environmental monitoring
- AP9335TH: APC™ by Schneider Electric™ temperature & humidity sensor
- AP9635: UPS Network Management Card 2 w/ Environmental Monitoring, out of Band Access and Modbus
- AP9810: APC dry contact I/O accessory
- AP9624: UPS interface expander
- AP9613: dry contact I/O SmartSlot card

Battery packs

- SRT192BP: APC Smart-UPS SRT 192 V 5 kVA and 6 kVA battery pack
- SRT192RMBP: APC Smart-UPS SRT 192 V 5 kVA and 6 kVA RM battery pack
- SRT192BP2: APC Smart-UPS SRT 192 V 8 kVA and 10 kVA battery pack
- SRT192RMBP2: APC Smart-UPS SRT 192 V 8 kVA and 10 kVA RM battery pack
- SRT72BP: APC Smart-UPS SRT 72 V 2.2 kVA battery pack
- SRT72RMBP: APC Smart-UPS SRT 72 V 2.2 kVA RM battery pack
- SRT96BP: APC Smart-UPS SRT 96 V 3 kVA battery pack
- SRT96RMBP: APC Smart-UPS SRT 96 V 3 kVA RM battery pack
- SRT48BP: APC Smart-UPS SRT 48 V 1/1.5 kVA battery pack
- SRT48RMBP: APC Smart-UPS SRT 48 V 1/1.5 kVA RM battery pack
- SRT002: APC Smart-UPS SRT 15 ft.

extension cable for 192 VDC external battery packs 5/6 kVA UPS

- SRT003: APC Smart-UPS SRT 15 ft. extension cable for 192 VDC external battery packs 8/10 kVA UPS
- SRT009: APC Smart-UPS SRT 15 ft. extension cable for 72 VDC external battery pack 2.2 kVA UPS
- SRT010: APC Smart-UPS SRT 15 ft. extension cable for 96 VDC external battery pack 3 kVA UPS
- SRT013: APC Smart-UPS SRT 15 ft. extension cable for 48 VDC external battery pack 1/1.5 kVA UPS

Rail kits

- SRTRK2: APC Smart-UPS SRT 19 inch rail kit for Smart-UPS SRT 5/6/8/10 kVA
- SRTRK3: APC Smart-UPS SRT 2 post mounting rail kit for Smart-UPS SRT 1/1.5/2.2/3/5/6/8/10 kVA
- SRTRK4: APC Smart-UPS SRT 19 inch rail kit for Smart-UPS SRT 1/1.5/2.2/3 kVA

Backplate kit

- SRT001: APC Smart-UPS SRT 5 kVA output HW kit
- SRT004: APC Smart-UPS SRT 5 kVA PDU, 208 V (4) L6-20
- SRT005: APC Smart-UPS SRT 6 kVA PDU, 208 V (4) L6-20, (1) L6-30
- SRT008: APC Smart-UPS SRT 8/10 kVA PDU, 208 V (6) L6-30
- SRT011: APC Smart-UPS SRT 3 kVA PDU, 208 V (3) L6-30
- SRT012: APC Smart-UPS SRT 2.2/3 kVA input/output HW kit

Service bypass panels

- SBP5KRMT2U: APC service bypass panel — 200/208/240 V; 30 A; BBM; L6-30P input; (2) L6-30R (2) L6-20R output
- SBP6KRMT2U: APC service bypass panel — 200/208/240 V; 50 A; MBB; L6-30P/HW input; (1) L6-30R (2) L6-20R output
- SBP10KRMT4U: APC service bypass panel — 200/208/240 V; 100 A; MBB; hardwire input; (3) L6-30R (3) L6-20R output

Step-down transformers

- SRT5KTF: APC Smart-UPS SRT 5 kVA tower isolation/step-down transformer
- SRT5KRMTF: APC Smart-UPS 5 kVA 2U RM step-down transformer
- SRT10KRMTF: APC Smart-UPS SRT 10 kVA 4U RM step-down transformer

Other

- SURT013: SURT equipment cart

Replacement battery cartridge

- APCRBC140: RBC for SRT 5 kVA —10 kVA UPS
- APCRBC142: RBC for SRT 2.2 kVA UPS
- APCRBC152: RBC for SRT 3 kVA UPS
- APCRBC155: RBC for SRT 1/1.5 kVA UPS

Runtime estimates at half and full load (minutes)

UPS Half/Full Loads	SRT1000XLA (RM) (RM-NC) (450 W/900 W)	SRT1500XLA (RM) (RM-NC) (675 W/1350 W)	SRT2200XLA (RM) (RM-NC) (900 W/1,800 W)	SRT3000XLA (RM) (RM-NC) (1,350 W/2,700 W)	SRT3000XLT (RM) SRT3000XLW-IEC (RM) SRT3000RMXLT-NC (1,350 W/2,700 W)
Internal	27.4/10	16/4.4	10.3/3.3	10.4/3.1	11.4/3.8
(1) Battery pack	88/41	61/21	50.5/19.9	45.6/17.1	46.4/20.5
(2) Battery packs	156/73	91/42	90.5/37.2	80.8/31.1	83.3/38.1

UPS Half/Full Loads	SRT5KRMXLW-HW 2,250 W/4,500 W	SRT5KXLT (RM) SRT5KXLT-IEC (RM) 2,125 W/4,250 W	SRT6KXLT (RM) SRT6KXLT-IEC (RM) 3,000 W/6,000 W	SRT8KXLT (RM) SRT8KXLT-IEC (RM) 4,000 W/8,000 W	SRT10KXLT (RM) SRT10KXLT-IEC (RM) 5,000 W/10,000 W
Internal	11.8/4	12.6/4.4	8.3/2.3	14.4/5.2	11.4/3.7
(1) Battery pack	46.2/20.5	49/21.8	34.7/14.9	34.2/14.6	27.9/11.5
(2) Battery packs	83/38	87.8/40.4	62.9/28.3	55/24.4	45.1/19.7

Smart-UPS On-Line SRT 1000 VA and SRT 1500 VA 120 V

Technical specifications

Product features	SRT1000XLA - SRT1000RMXLA SRT1000RMXLA-NC (Pre-installed NMC, AP9631)	SRT1500XLA - SRT1500RMXLA SRT1500RMXLA-NC (Pre-installed NMC, AP9631)
Output		
Power rating	1000 VA/900 W	1500 VA/1350 W
Nominal output voltage	120 V	
Output frequency	50/60 Hz \pm 3 Hz (auto sense) 50/60 Hz \pm 0.1 Hz (user selectable)	
Topology	Double-conversion Online	
Online efficiency at full load (typical)	90% (ENERGY STAR)	
Green mode efficiency at full load (typical)	95%	
Output connections (switched groups)	(6) 5-15	(6) 5-15
Input		
Nominal input voltage	120 V	
Input voltage range full load (half load)	108 V – 150 VAC \pm 5V (50 – 150 VAC)	80 V – 150 VAC \pm 5V (50 – 150 VAC)
Input frequency	40 – 70 Hz auto-selecting	
Input connection	5-15P	
Batteries and runtime		
Battery type	Maintenance-free sealed lead-acid battery with suspended electrolyte, leak proof	
Typical backup time at 1/2 load (min.)	27	15.3
Typical backup time at full load (min.)	9.3	4.3
Replacement battery (quantity)	APCRBC155 (1)	
External battery pack (tower/rackmount)	SRT48BP/SRT48RMBP	
Communication and management		
Interface ports	Serial (RJ45), USB (Type A) and Smart-Slot	
Control panel	High resolution graphical LCD display	
Emergency power off (EPO)	Yes (NO/NC connections)	
Physical		
Rack height	3.35" (85 mm), 2U	
Maximum width (RM)	17" (432 mm)	
Maximum depth (RM)	20" (505 mm)	
Net weight	48.5 lb (22 kg)	
Conformance		
Regulatory Approvals	FCC Part 15 Class A, UL 1778-4, CSA C22.2 No.107.3-05	
Warranty	3 years electronics, 2 years battery	

Smart-UPS On-Line SRT 2200 VA and SRT 3000 VA 120 V

Technical specifications

Product features	SRT2200XLA - SRT2200RMXLA SRT2200RMXLA-NC (Pre-installed NMC, AP9631)	SRT3000XLA - SRT3000RMXLA SRT3000RMXLA-NC (Pre-installed NMC, AP9631)
Output		
Power rating	2200 VA/1800 W	3000 VA/2700 W
Nominal output voltage	120 V	
Output frequency	50/60 Hz \pm 3 Hz (auto sense) 50/60 Hz \pm 0.1 Hz (user selectable)	
Topology	Double-conversion Online	
Online efficiency at full load (typical)	91.5% (ENERGY STAR)	
Green mode efficiency at full load (typical)	97%	
Output connections (switched groups)	(6) 5-20, (1) L5-20	(8) 5-20, (1) L5-30
Input		
Nominal input voltage	60 V	
Input voltage range full load (half load)	108 V – 150 VAC \pm 5V (60 – 150 VAC \pm 5V)	
Input frequency	40 – 70 Hz auto-selecting	
Input connection	5-20P	L5-30P
Batteries and runtime		
Battery type	Maintenance-free sealed lead-acid battery with suspended electrolyte, leak proof	
Typical backup time at 1/2 load (min.)	10.3	10.3
Typical backup time at full load (min.)	3.3	3.2
Replacement battery (quantity)	APCRBC141 (1)	APCRBC152 (1)
External battery pack (tower/rackmount)	SRT72BP/SRT72RMBP	SRT96BP/SRT96RMBP
Communication and management		
Interface ports	Serial (RJ45), USB (Type A) and Smart-Slot	
Control panel	High resolution graphical LCD display	
Emergency power off (EPO)	Yes (NO/NC connections)	
Physical		
Rack height	3.35" (85 mm), 2U	3.35" (85 mm), 2U
Maximum width (RM)	17" (432 mm)	17" (432 mm)
Maximum depth (RM)	2" (59 mm)	25" (636 mm)
Net weight	55 lb (24.95 kg)	69 lb (31.3 kg)
Conformance		
Regulatory Approvals	FCC Part 15 Class A, UL 1778, CSA C22.2 No.107.3-05	
Warranty	3 years electronics, 2 years battery	

Smart-UPS On-Line SRT 3000 VA 208 V

Technical specifications

Product features	SRT3000XLW-IEC SRT3000RMXLW-IEC	SRT3000XLT - SRT3000RMXLT SRT3000RMXLT-NC (Pre-installed NMC, AP9631)
Output		
Power rating	3000 VA/2700 W	
Nominal output voltage	230 V (208 V, 220 V, 230 V, 240 V user selectable)	208 V (240 V user selectable)
Output frequency	50/60 Hz \pm 3 Hz (auto sense) 50/60 Hz \pm 0.1 Hz (user selectable)	
Topology	Double-conversion Online	
Online efficiency at full load (typical)	91% (ENERGY STAR)	
Green mode efficiency at full load (typical)	97%	
Output connections (switched groups)	(4) IEC 320 C13 (2) IEC 320 C19	(2) L6-20 (1) L6-30
Input		
Nominal input voltage	230 V (208 V, 220 V, 240 V user selectable)	208 V (240 V user selectable)
Input voltage range full load (half load)	160 – 275 V (100 – 275 V)	
Input frequency	40 – 70 Hz auto-selecting	
Input connection	IEC 60320 C20, Schuko CEE 7/EU1-16P, British BS1363A	L6-20P
Batteries and runtime		
Battery type	Maintenance-free sealed lead-acid battery with suspended electrolyte, leak proof	
Typical backup time at 1/2 load (min.)	11.8 min	11.4 min
Typical backup time at full load (min.)	4.0 min	3.8 min
Replacement battery (quantity)	APCRBC152 (1)	
External battery pack (tower/rackmount)	SRT96BP/SRT96RMBP	
Communication and management		
Interface ports	Serial (RJ45), USB (Type A) and Smart-Slot	
Control panel	High resolution graphical LCD display	
Emergency power off (EPO)	Yes (NO/NC connections)	
Physical		
Rack height	3.35" (85 mm), 2U	
Maximum width (RM)	17" (432 mm)	
Maximum depth (RM)	25" (636 mm)	
Net weight	69 lb (31 kg)	
Conformance		
Regulatory Approvals	CE, VDE, RCM, and EAC, IEC/EN 62040-1, IEC/EN 62040-2, UL-1778, FCC Part 15 Class A, CSA	UL-1778, FCC Part 15 Class A, CSA
Warranty	3 years electronics, 2 years battery	

Smart-UPS On-Line SRT 3000 VA 120/208 V

Technical specifications

Product features	SRT3000XLT-5KTF	SRT3000RMXLT-5KTF
Output		
Power rating	3000 VA/2700 W	
Nominal output voltage	120 V and 208 V (240 V user selectable)	
Output frequency	50/60 Hz \pm 3 Hz (auto sense) 50/60 Hz \pm 0.1 Hz (user selectable)	
Topology	Double-conversion Online	
Online efficiency at full load (typical)	91% (ENERGY STAR)	
Green mode efficiency at full load (typical)	97%	
Output connections (switched groups)	(8) 5-20, (4) L6-20, (1) L6-30, (1) L14-30	(12) 5-20, (2) L6-20
Input		
Nominal input voltage	208 V (240 V user selectable)	
Input voltage range full load (half load)	160 – 275 V (100 – 275 V)	
Input frequency	40 – 70 Hz auto-selecting	
Input connection	L6-20P	
Batteries and runtime		
Battery type	Maintenance-free sealed lead-acid battery with suspended electrolyte, leak proof	
Typical backup time at 1/2 load (min.)	11.4 min	
Typical backup time at full load (min.)	3.8 min	
Replacement battery (quantity)	APCRBC152 (1)	
External battery pack (tower/rackmount)	SRT96BP/SRT96RMBP	
Communication and management		
Interface ports	Serial (RJ45), USB (Type A) and Smart-Slot	
Control panel	High resolution graphical LCD display	
Emergency power off (EPO)	Yes (NO/NC connections)	
Physical		
Rack height	Tower	6.7" (170 mm) 4U
Maximum width (RM)	8.45" (215 mm)	17" (432 mm)
Maximum depth (RM)	26" (660 mm)	25" (636 mm)
Net weight	194 lb (87.82 kg)	164 lb (74.18 kg)
Conformance		
Regulatory Approvals	UL-1778, FCC Part 15 Class A, CSA	
Warranty	3 years electronics, 2 years battery	

Smart-UPS On-Line SRT 5 kVA and 6 kVA 208 V

Technical specifications

Product features	SRT5KRMXLW-HW	SRT5KXLT SRT5KRMXLT	SRT5KXLT-IEC SRT5KRMXLT-IEC	SRT6KXLT SRT6KRMXLT	SRT6KXLT-IEC SRT6KRMXLT-IEC
Output					
Power rating	5,000 VA/4,500 W	5,000 VA/4,250 W		6,000 VA/6,000 W	
Nominal output voltage	230 V (208, 220, 230, 240 V user selectable)	208 V (240 V user selectable)			
Output frequency	50/60 Hz \pm 3 Hz (auto sense) 50/60 Hz \pm 0.1 Hz (user selectable)				
Topology	Double-conversion Online				
Online efficiency at full load (typical)	94% (ENERGY STAR)				
Green mode efficiency at full load (typical)	98%				
Output connections	HW	(2) L6-20R (2) L6-30R	(4) IEC 320 C13 (4) IEC 320 C19	(4) L6-20R (2) L6-30R, HW	(6) IEC 320 C13 (4) IEC 320 C19, HW
Input					
Nominal input voltage	230 V (208, 220, 230, 240 V user selectable)	208 V (240 V user selectable)			
Input voltage range full load (half load)	160 – 275 V (100 – 275 V)				
Input frequency	40 – 70 Hz auto-selecting				
Input connection	Hardwire 3-wire (L1+L2/N+G)	L6-30P		Hardwire 3-wire (L1+L2+G)	
Batteries and runtime					
Battery type	Maintenance-free sealed lead-acid battery with suspended electrolyte, leak proof				
Typical backup time at 1/2 load (min.)	11.8 min.	12.6 min.		8.3 min.	
Typical backup time at full load (min.)	4 min.	4.4 min.		2.3 min.	
Replacement battery (quantity)	APCRBC140 (1)				
External battery pack (tower/rackmount)	SRT192BP/SRT192RMBP				
Communication and management					
Interface ports	RJ-45 with status LEDs (10/100 Base-T), serial (RJ45), USB (Type B), and SmartSlot				
Control panel	High-resolution graphical LCD display				
Emergency power off (EPO)	Yes (NO/NC connections)				
Embedded network management with environmental monitoring	Yes				
Physical					
Rack height	3 U			4 U	
Maximum height rackmount SKU	5.1" (130 mm)			6.85" (174 mm)	
Maximum width rackmount SKU	17" (432 mm)			17" (432 mm)	
Maximum depth rackmount SKU	28.32" (719 mm)			28.32" (719 mm)	
Net weight	123 lbs (55.8 kg)			135 lbs (61.25 kg)	
Conformance					
Regulatory Approvals	CE, VDE, UL-1778, FCC Part 15 Class A, cUL	UL-1778, FCC Part 15 Class A, cUL, NOM			
Warranty	3 years for electronics, 2 years for battery				

Smart-UPS On-Line SRT 5 kVA and 6 kVA 120/208 V

Technical specifications

Product features	SRT5KXLT-5KTF	SRT5RMKXLT-5KTF	SRT6KXLT-5KTF	SRT6RMKXLT-5KTF
Output				
Power rating	5,000 VA/4,250 W		6,000 VA/6,000 W	
Nominal output voltage	208 V (240 V user selectable)			
Output frequency	50/60 Hz \pm 3 Hz (auto sense) 50/60 Hz \pm 0.1 Hz (user selectable)			
Topology	Double-conversion Online			
Online efficiency at full load (typical)	94% (ENERGY STAR)			
Green mode efficiency at full load (typical)	98%			
Output connections	(8) 5-20, (4) L6-20, (2) L6-30, (1) L14-30	(12) 5-20, (2) L6-20, (1) L6-30	(8) 5-20, (4) L6-20, (3) L6-30, (1) L14-30, (1) Hardwire 3-wire (2PH + G)	(12) 5-20, (2) L6-20, (2) L6-30, (1) Hardwire 3-wire (2PH + G)
Input				
Nominal input voltage	208 V (240 V user selectable)			
Input voltage range full load (half load)	160 – 275 V (100 – 275 V)			
Input frequency	40 – 70 Hz auto-selecting			
Input connection	L6-30P		Hardwire 3-wire (L1+L2+G)	
Batteries and runtime				
Battery type	Maintenance-free sealed lead-acid battery with suspended electrolyte, leak proof			
Typical backup time at 1/2 load (min.)	12.6 min.		8.3 min.	
Typical backup time at full load (min.)	4.4 min.		2.3 min.	
Replacement battery (quantity)	APCRBC140 (1)			
External battery pack (tower/rackmount)	SRT192BP/SRT192RMBP			
Communication and management				
Interface ports	RJ-45 with status LEDs (10/100 Base-T), serial (RJ45), USB (Type B), and SmartSlot			
Control panel	High-resolution graphical LCD display			
Emergency power off (EPO)	Yes (NO/NC connections)			
Embedded network management with environmental monitoring	Yes			
Physical				
Rack height	Tower	5U	Tower	6U
Maximum height	17" (432 mm)	8.6" (219 mm)	17" (432 mm)	10.35" (263 mm)
Maximum width	10.2" (260 mm)	17" (432 mm)	11.95" (304 mm)	17" (432 mm)
Maximum depth	28.32" (719.4 mm)	28.32" (719.4 mm)	28.32" (719.4 mm)	28.32" (719.4 mm)
Net weight	248 lbs (112.62 kg)	218 lbs (98.98 kg)	260 lbs (118.07 kg)	230 lbs (104.43 kg)
Conformance				
Regulatory Approvals	UL-1778, FCC Part 15 Class A, cUL			
Warranty	3 years electronics, 2 years battery			

Smart-UPS On-Line SRT 8 kVA and 10 kVA 208 V

Technical specifications

Product features	SRT8KXLT SRT8KRMXLT	SRT8KXLT30 SRT8KRMXLT30	SRT8KXLT-IEC SRT8KRMXLT-IEC	SRT10KXLT SRT10KRMXLT	SRT10KXLT30 SRT10KRMXLT30	SRT10KXLT-IEC SRT10KRMXLT-IEC
Output						
Power rating	8,000 VA/8,000 W			10,000 VA/10,000 W		
Nominal output voltage	208 V (240 V user selectable)					
Output frequency	50/60 Hz \pm 3 Hz (auto sense) 50/60 Hz \pm 0.1 Hz (user selectable)					
Topology	Double-conversion Online					
Online efficiency at full load (typical)	94% (ENERGY STAR)			93% (ENERGY STAR)		
Green mode efficiency at full load (typical)	98.5%			99%		
Output connections	(4) L6-20R (2) L6-30R, HW	(6) L6-30R, HW	(6) IEC 320 C13 (4) IEC 320 C19, HW	(4) L6-20R (2) L6-30R, HW	(6) L6-30R, HW	(6) IEC 320 C13 (4) IEC 320 C19, HW
Input						
Nominal input voltage	208 V (240 V user selectable)					
Input voltage range full load (half load)	160 – 275 V (100 – 275 V)					
Input frequency	40 – 70 Hz auto-selecting					
Input connection	Hardwire 3-wire (L1+L2+G)					
Batteries and runtime						
Battery type	Maintenance-free sealed lead-acid battery with suspended electrolyte, leak proof					
Typical backup time at 1/2 load (min.)	14.4 min.			11.4 min.		
Typical backup time at full load (min.)	5.2 min.			3.7 min.		
Replacement battery (quantity)	APCRBC140 (2)					
External battery pack (tower/rackmount)	SRT192BP2/SRT192RMBP2					
Communication and management						
Interface ports	RJ-45 with status LEDs (10/100 Base-T), serial (RJ45), USB (Type B), and SmartSlot					
Control panel	High-resolution graphical LCD display					
Emergency power off (EPO)	Yes (NO/NC connections)					
Embedded network management with environmental monitoring	Yes					
Physical						
Rack height	6U					
Maximum height rackmount SKU	10.35" (263 mm)					
Maximum width rackmount SKU	17" (432 mm)					
Maximum depth rackmount SKU	28.15" (715 mm)					
Net weight	246 lbs (111.82 kg)					
Conformance						
Regulatory Approvals	UL-1778, FCC Part 15 Class A, CSA C22.2 No.107.3-05, NOM					
Warranty	3 years electronics, 2 years battery					

Smart-UPS On-Line SRT 8 kVA and 10 kVA 120/208 V

Technical specifications

Product features	SRT8KXLT-5KTF	SRT8KRMXLT-5KTF	SRT10KRMXLT-10KTF	SRT10KXLT-5KTF2	SRT10KRMXLT-5KTF2
Output					
Power rating	8,000V A/8,000 W			10,000 VA/10,000 W	
Nominal output voltage	208 V (240 V user selectable)				
Output frequency	50/60 Hz \pm 3 Hz (auto sense) 50/60 Hz \pm 0.1 Hz (user selectable)				
Topology	Double-conversion Online				
Online efficiency at full load (typical)	94% (ENERGY STAR)			93% (ENERGY STAR)	
Green mode efficiency at full load (typical)	98.5%			99%	
Output connections	(8) 5-20, (6) L6-20, (2) L6-30, (1) L14 30, (1) Hardwire 3-wire (2PH + G)	(12) 5-20, (4) L6-20, (1) L6-30, (1) Hardwire 3-wire (2PH + G)	(4) L6-20, (2) L6-30, (2) L5-20, (2) L14-30, (1) Hardwire 3-wire (2PH + G), (1) Hardwire 4-wire (2PH + N +G)	(16) 5-20, (4) L6-20, (6) L6-30, (2) L14-30, (1) Hardwire 3-wire (2PH + G)	(24) 5-20, (4) L6-30, (1) Hardwire 3-wire (2PH + G)
Input					
Nominal input voltage	208 V (240 V user selectable)				
Input voltage range full load (half load)	160 – 275 V (100 – 275 V)				
Input frequency	40 – 70 Hz auto-selecting				
Input connection	Hardwire 3-wire (L1+L2+G)				
Batteries and runtime					
Battery type	Maintenance-free sealed lead-acid battery with suspended electrolyte, leak proof				
Typical backup time at 1/2 load (min.)	14.4 min.			11.4 min.	
Typical backup time at full load (min.)	5.2 min.			3.7 min.	
Replacement battery (quantity)	APCRBC140 (2)				
External battery pack (tower/rackmount)	SRT192BP2/SRT192RMBP2				
Communication and management					
Interface ports	RJ-45 with status LEDs (10/100 Base-T), serial (RJ45), USB (Type B), and SmartSlot				
Control panel	High-resolution graphical LCD display				
Emergency power off (EPO)	Yes (NO/NC connections)				
Embedded network management with environmental monitoring	Yes				
Physical					
Rack height	Tower	8U	10U	Tower	10U
Maximum height	17" (432 mm)	13.85" (352 mm)	17.25" (438 mm)	17" (432 mm)	17.35" (441 mm)
Maximum width	15.45" (393 mm)	17" (432 mm)	17" (432 mm)	20.55" (523 mm)	17" (432 mm)
Maximum depth	28.15" (715 mm)	28.15" (715 mm)	29.5" (749 mm)	28.15" (715 mm)	28.15" (715 mm)
Net weight	371 lbs (168.4 kg)	341 lbs (154.76 kg)	466 lbs (211.58 kg)	496 lbs (225.22 kg)	436 lbs (197.94 kg)
Conformance					
Regulatory Approvals	UL-1778, FCC Part 15 Class A, CSA C22.2 No.107.3-05				
Warranty	3 years electronics, 2 years battery				



Schneider Electric

132 Fairgrounds Road
West Kingston, RI 02892
Phone: 401-789-5735

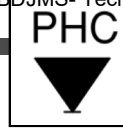
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Cisco Unified IP Conference Phone 8831

Product Overview

The Cisco® Unified IP Conference Phone 8831 enhances people-centric communications, combining superior high-definition (HD) audio performance and 360-degree coverage for all sizes of conference rooms and executive offices. It provides an audiophile sound experience with a full-duplex two-way wideband (G.722) audio hands-free speaker.



The IP Conference Phone 8831 is a simple, scalable solution that meets the challenges of the most diverse rooms. It provides flexible deployment options and expansion by using optional extension microphones that can be wired or wireless (Digital Equipment Cordless Telephone [DECT]) with a daisy-chain configuration of two units.

The IP Conference Phone 8831 has an industrial design with enhanced ergonomics that puts the user first. It offers a detached control panel so that the display may be easily viewed without having to move the entire unit. It also provides easy view of device mute status from all sides.

Supported on Cisco Unified Communications Manager and Business Edition systems, the IP Conference Phone 8831 delivers a more productive, acoustically pleasing, and secure communications experience across sites and participants.

Features and Benefits

The Cisco Unified IP Conference Phone 8831 offers many improvements. New features include:

- Superior wideband acoustics with the first two-element speaker in a conference phone; this feature allows the phone to capture the full voice spectrum without having to compromise with a single-element speaker
- Expanded room coverage with support for daisy chaining two units
- Support for optional DECT wireless extension microphone: sold separately
- Session Initiation Protocol (SIP) signaling
- Device authentication and signaling encryption using Transport Layer Security (TLS) with Advanced Encryption Standard 128 (AES-128)
- Media encryption using Secure Real-Time Transport Protocol (SRTP) with AES-128

Table 1 lists the features and benefits of the Cisco Unified IP Conference Phone 8831.

Table 1. Features and Benefits

Feature	Specification
Features	
Superior wideband acoustics	<ul style="list-style-type: none"> • 160 Hz to 20 kHz, +/-3 dB. • The latest in wideband codecs for maximum voice bandwidth. • Enhanced speech quality and speaker recognition.
Output	92-dB SPL peak output [*]
Expanded room coverage	<ul style="list-style-type: none"> • 160-degrees conical pattern provides even coverage of listening area. • Four Hemi-Cardioid microphones are perfectly spaced so that they combine to provide a 180-degree pick-up pattern around the device. Speech is captured at the same level at all points around the Cisco Unified IP Conference Phone 8831. • Ability to grow to fit a variety of room needs. <ul style="list-style-type: none"> ◦ Small Office (base unit) ◦ Standard Conference Room (base unit and 2 wired or wireless extension microphones) ◦ Boardroom (daisy chaining two base units) ◦ Large Boardroom (daisy chaining two base units and 2 wired or wireless extension microphones)
Microphone Accessory Options	
Wired microphone	This microphone extends the operational range of the Cisco Unified IP Conference Phone 8831 with even coverage around the periphery of the device with 7 feet of additional reach.
Wireless microphone	DECT wireless microphone for the Cisco Unified IP Conference Phone 8831 provides additional coverage with the added flexibility of 300 feet of range.
Power Features	
IEEE 802.3af line power	Local power supply is not required.
Cisco Power Cube 3	This power cube uses a standard Cisco Unified IP Phone Power Supply for non-Power over Ethernet (PoE) deployments. It is required for daisy chaining two units together.
Call-Control Support	
Cisco Unified Communications Manager	The phone supports Cisco Unified Communications Manager (Cisco UCM) Releases 8.5(1), 8.6(2), 9.0, and later.
Cisco Business Edition 3000	The phone is supported on the Cisco Business Edition 3000 Releases 8.6(1) and later.
Cisco Business Edition 6000	The phone is supported on the Cisco Business Edition 6000 Releases 8.6(5) and later.
Cisco Unified Communications Manager Express	The phone is supported with CME 10.0 and above. On IOS 15.4(1)T and later with Fast Track Support.
Cisco Hosted Collaboration Solution	The phone is supported with 8.6(2) and later (using supported UCM versions above).

^{*} Peak output measured in half-space environment.

Licensing

The Cisco Unified IP Conference Phone 8831 requires an Enhanced User Connect License (UCL) on Cisco UCM Versions 9.0 and later. For supported Cisco UCM versions before 9.0, a public space license is required.

Product Specifications

Table 2 lists the features and specifications of the Cisco Unified IP Conference Phone 8831.

Table 2. Features and Specifications of Cisco Unified IP Conference Phone 8831

Feature	Specification
Signaling protocol support	Session Initiation Protocol (SIP)
Codec support	G.711, G.729 (a and ab), G.722, and Internet Low Bitrate Codec (iLBC)

Feature	Specification
Calling feature support	<ul style="list-style-type: none"> • + Dialing (E.164) • Adjustable ringing and volume levels • Adjustable display brightness • Application launch pad • Auto-answer • Auto-detection of headset • Barge • Call forward • Call history lists • Call timer • Call waiting • Caller ID • Corporate directory • Conference • Direct transfer • Fast-dial service • Hold • Immediate divert • Join • Message-waiting indicator • Music on hold • Mute • Network profiles (automatic) • On- and off-network distinctive ringing • Personal directory • Predialing before sending • Privacy • Ring tone per line appearance • Shared line • Survivable Remote Site Telephony (SRST) • Time and date display • Transfer • Voicemail
Directories	<p>The Cisco Unified IP Conference Phone 8831 identifies incoming messages and categorizes them for users on the screen. This feature allows you to quickly and effectively return calls using direct dial-back capability. The corporate directory integrates with the Lightweight Directory Access Protocol Version 3 (LDAPv3) standard directory.</p>
Apps	<p>The Apps soft key allows you to enter the Applications menu, where you are able to adjust display contrast, select background images (if available), and select from a large number of unique ringer sounds through the User Preference menu. Network configuration preferences also can be set up (usually by the system administrator). Configuration can be either automatically or manually set up for Dynamic Host Control Protocol (DHCP), Trivial File Transfer Protocol (TFTP), Cisco Unified Communications Manager, and backup Cisco Unified Communications Manager instances.</p>
Help	<p>The online Help feature gives you information about the phone keys, buttons, and features. The pixel display allows for more flexible feature navigation and significantly expands the information viewed when using features such as Services, Information, Messages, and Directory. For example, the Directory button can show local and server-based directory information.</p>
Hold, Mute, and Redial keys	<p>The Mute key is a fixed key. When it is active, the LED flashes on the Cisco Unified IP Conference Phone 8831 as well as on the optional wired and wireless microphone kits. Hold and Redial are provided as soft keys associated with the screen, and are always at the same position for easy access.</p>
Wired control panel	<p>The panel allows easy control of the unit and viewing of the display without having to move the entire unit.</p>
Display	<p>The conference station has a large high-resolution, graphical 3.5-inch backlit display (396 x 162 pixels).</p>
Speakerphone	<p>The Cisco Unified IP Conference Phone 8831 offers full-duplex high-quality wideband speakerphone technology. Included are Automatic Gain Control, comfort-noise generation, silence suppression and voice activity detection, Echo Suppression, and dynamic noise reduction, which reduces noise by up to 9 dB from constant noise sources such as fans or heating, ventilation, and air conditioning (HVAC) systems.</p> <p>A two-way high-fidelity loudspeaker system provides superior speech clarity versus traditional conferencing systems.</p>

Feature	Specification
Volume control	The convenient Volume Control buttons on Cisco Unified IP Conference Phone 8831 provide for easy, decibel-level adjustments for the speakerphone and ringer.
Quality-of-service (QoS) options	The Cisco Unified IP Conference Phone supports DHCP and 802.1Q/p standards. The conference station can also be configured with an 801.1Q VLAN header containing the VLAN ID overrides configured by the Admin VLAN ID.
Multiple ring tones	User-adjustable ring tones are available.
Security	The Cisco Unified IP Conference Phone 8831 supports device authentication through 802.1.x supplicant (TLS) and SRTP.
Language support	<ul style="list-style-type: none"> Arabic (Arabic Area) Bulgarian (Bulgaria) Catalan (Spain) Chinese (China) Chinese (Hong Kong) Chinese (Taiwan) Croatian (Croatia) Czech (Czech Republic) Danish (Denmark) Dutch (Netherlands) English (United Kingdom) Estonian (Estonia) French (France) Finnish (Finland) German (Germany) Greek (Greece) Hebrew (Israel) Hungarian (Hungary) Italian (Italy) Japanese (Japan) Latvian (Latvia) Lithuanian (Lithuania) Korean (Korea Republic) Norwegian (Norway) Polish (Poland) Portuguese (Portugal) Portuguese (Brazil) Romanian (Romania) Russian (Russian Federation) Spanish (Columbia) Spanish (Spain) Slovak (Slovakia) Swedish (Sweden) Serbian (Republic of Serbia) Serbian (Republic of Montenegro) Slovenian (Slovenia) Thai (Thailand) Turkish (Turkey)
Configuration options	You can configure IP address assignment statically or through the DHCP client.

Specifications

Table 3 gives specifications of the Cisco Unified IP Conference Phone 8831, Table 4 provides temperature ratings, and Table 5 lists certifications for the conference station.

Table 3. System Specifications

Category	Specification
Dimensions (H x W x D)	Base: 10.38 x 10.38 x 2.0 in. (15.05 x 26.35 x 5.08 cm) Control panel: 5.75 x 5.0 x 1.0 in. (14.61 x 12.7 x 2.54 cm) Microphones: 3.5 x 2.5 x 0.5 in. (8.89 x 6.35 x 1.27 cm) Charger tray: 6.5 x 4.5 x 0.75 in. (16.51 x 11.43 x 1.90 cm)
Weight	Base 3.50 lbs. (1,587.0 grams) DCU 0.56 lbs. (253.0 grams) Wired Microphones 0.15 lbs. (66.8 grams) Wireless Microphones 0.14 lbs. (64.7 grams) Charger 0.42 lbs. (191.9 grams)
Display	3.25 x 1.5 in. (8.26 x 3.81 cm); 396 x 162 pixels.
Phone casing composition	Polycarbonate acrylonitrile butadiene styrene (ABS) textured plastic.
Power requirements	The Cisco Unified IP Conference Phone 8831 is an interoperable IEEE 802.3af PoE (Class 3 device); 48 VDC is required; it can be supplied locally at the desktop using an optional AC-to-DC power supply (CP-PWR-CUBE-3=). Use of the power supply also requires the use of one of the corresponding AC country cords listed in Table 7 later in this document. Use of a power supply (CP-PWR-CUBE-3=) is required when using the Cisco Unified IP Conference Phone 8831 in a daisy-chain configuration.

Table 4. Temperature

Category	Range
Operational temperature	23~104°F (-5°C~40°C)
Nonoperational temperature shock	-13~158 (-25~70°C)
Temperature altitude (operational)	77°F (25°C) ambient condition to 9843 ft (3000m)
Temperature altitude (nonoperational)	Ambient condition to 15,000 ft (4572m)
Temperature humidity (nonoperational)	95% relative humidity

Note that products with the CE marking in Table 5 indicate compliance with the 2006/95/EC and 2004/108/EC directives, which include the safety and EMC standards listed.

Table 5. Regulatory Standards Compliance: Safety and EMC

Specification	Description
Regulatory compliance	Products should comply with CE Marking per directives 2004/108/EC and 2006/95/EC
Safety	UL 60950-1 Second Edition Amd 1 CAN/CSA-C22.2 No. 60950-1 Second Edition Amd 1 EN 60950-1 Second Edition A11, A1, A12 IEC 60950-1 Second Edition Amd 1 AS/NZS 60950-1: 2011 GB4943 2011

Specification	Description
EMC: Emissions	FCC Part 15 Subpart B Class B AS/NZS 3548 CISPR22 Class B EN55022 Class B ICES-003 Class B VCCI Class B KN22 Class B CNS13438 Class B
EMC: Immunity	EN55024 CISPR24 EN300386 KN24
EMC: Radio DECT	FCC Part 15 Subpart D IC RSS-213 EN 301 406
Telecom	AUS AS/ACIF S004 - Hands-free Send Frequency Response

Ordering Information

Tables 6, 7, and 8 give ordering information for the phone and power cord, respectively.

Table 6. Ordering Information - Cisco Call Control

Product Name	Part Number
CP-8831-K9=	Cisco Unified IP Conference Phone 8831 base and control panel for North America
CP-8831-J-K9=	Cisco Unified IP Conference Phone 8831 base and control panel for Japan
CP-8831-EU-K9=	Cisco Unified IP Conference Phone 8831 base and control panel for APAC, EMEA, and Australia
CP-8831-LA-K9=	Cisco Unified IP Conference Phone 8831 base and control panel for Latin America
CP-8831-TW-K9=	Cisco Unified IP Conference Phone 8831 base and control panel for Taiwan
CP-8831-BR-K9=	Cisco Unified IP Conference Phone 8831 base and control panel for Brazil
CP-8831-NR-K9=	Cisco Unified IP Conference Phone 8831 base and control panel with no DECT radio support. Available worldwide. The DECT radio is disabled for regions where doing so is required for regulatory compliance
CP-8831-DC-K9=	Optional Cisco Unified IP Conference Phone 8831 Daisy Chain Kit for North America. Kit contains: <ul style="list-style-type: none"> • Cisco Unified IP Conference Phone 8831 Base Unit • Daisy Chain Cable (18 ft, 5.5 m)
CP-8831-DC-J-K9=	Optional Cisco Unified IP Conference Phone 8831 Daisy Chain Kit for Japan. Kit contains: <ul style="list-style-type: none"> • Cisco Unified IP Conference Phone 8831 Base Unit • Daisy Chain Cable (18 ft, 5.5 m)
CP-8831-DC-EU-K9=	Optional Cisco Unified IP Conference Phone 8831 Daisy Chain Kit for APAC, EMEA, and Australia. Kit contains: <ul style="list-style-type: none"> • Cisco Unified IP Conference Phone 8831 Base Unit • Daisy Chain Cable (18 ft, 5.5 m)
CP-8831-DC-LA-K9=	Optional Cisco Unified IP Conference Phone 8831 Daisy Chain Kit for Latin America. Kit contains: <ul style="list-style-type: none"> • Cisco Unified IP Conference Phone 8831 Base Unit • Daisy Chain Cable (18 ft, 5.5 m)
CP-8831-DC-TW-K9=	Optional Cisco Unified IP Conference Phone 8831 Daisy Chain Kit for Taiwan. Kit contains: <ul style="list-style-type: none"> • Cisco Unified IP Conference Phone 8831 Base Unit • Daisy Chain Cable (18 ft, 5.5 m)

Product Name	Part Number
CP-8831-DC-BR-K9=	Optional Cisco Unified IP Conference Phone 8831 Daisy Chain Kit for Brazil. Kit contains: <ul style="list-style-type: none"> • Cisco Unified IP Conference Phone 8831 Base Unit • Daisy Chain Cable (18 ft, 5.5 m)
CP-8831-DC-NR-K9=	Optional Cisco Unified IP Conference Phone 8831 Daisy Chain Kit with no DECT radio support. Kit contains: <ul style="list-style-type: none"> • Cisco Unified IP Conference Phone 8831 Base Unit • Daisy Chain Cable (18 ft, 5.5 m)

Table 7. Ordering Information – Third-Party SIP-Based Call Control

Product Name	Part Number
CP-8831-3PCC-K9=	Cisco Unified IP Conference Phone 8831 base and control panel for North America non Cisco call control platforms
CP-8831-3P-J-K9=	Cisco Unified IP Conference Phone 8831 base and control panel for Japan non Cisco call control platforms
CP-8831-3P-EU-K9=	Cisco Unified IP Conference Phone 8831 base and control panel for APAC, EMEA, and Australia non Cisco call control platforms
CP-8831-3P-LA-K9=	Cisco Unified IP Conference Phone 8831 base and control panel for Latin America non Cisco call control platforms
CP-8831-3P-TW-K9=	Cisco Unified IP Conference Phone 8831 base and control panel for Taiwan non Cisco call control platforms
CP-8831-3P-BR-K9=	Cisco Unified IP Conference Phone 8831 base and control panel for Brazil non Cisco call control platforms
CP-8831-3PD-K9=	Optional Cisco Unified IP Conference Phone 8831 Daisy Chain Kit for North America non Cisco call control platforms. Kit contains: <ul style="list-style-type: none"> • Cisco Unified IP Conference Phone 8831 Base Unit • Daisy Chain Cable (18 ft, 5.5 m)
CP-8831-3PD-J-K9=	Optional Cisco Unified IP Conference Phone 8831 Daisy Chain Kit for Japan non Cisco call control platforms. Kit contains: <ul style="list-style-type: none"> • Cisco Unified IP Conference Phone 8831 Base Unit • Daisy Chain Cable (18 ft, 5.5 m)
CP-8831-3PD-EU-K9=	Optional Cisco Unified IP Conference Phone 8831 Daisy Chain Kit for APAC, EMEA, and Australia non Cisco call control platforms. Kit contains: <ul style="list-style-type: none"> • Cisco Unified IP Conference Phone 8831 Base Unit • Daisy Chain Cable (18 ft, 5.5 m)
CP-8831-3PD-LA-K9=	Optional Cisco Unified IP Conference Phone 8831 Daisy Chain Kit for Latin America non Cisco call control platforms. Kit contains: <ul style="list-style-type: none"> • Cisco Unified IP Conference Phone 8831 Base Unit • Daisy Chain Cable (18 ft, 5.5 m)
CP-8831-3PD-TW-K9=	Optional Cisco Unified IP Conference Phone 8831 Daisy Chain Kit for Taiwan non Cisco call control platforms. Kit contains: <ul style="list-style-type: none"> • Cisco Unified IP Conference Phone 8831 Base Unit • Daisy Chain Cable (18 ft, 5.5 m)
CP-8831-3PD-BR-K9=	Optional Cisco Unified IP Conference Phone 8831 Daisy Chain Kit for Brazil non Cisco call control platforms. Kit contains: <ul style="list-style-type: none"> • Cisco Unified IP Conference Phone 8831 Base Unit • Daisy Chain Cable (18 ft, 5.5 m)

Table 8. Ordering Information - 8831 Accessories

Product Name	Part Number
CP-8831-MIC-WRLS=	Optional Cisco Unified IP Conference Phone 8831 Wireless Microphone Kit includes: <ul style="list-style-type: none"> • 2 DECT Wireless Microphones • Charging Station for Microphones • Power Supply • Batteries
CP-8831-MIC-WLS=	Optional Cisco Unified IP Conference Phone 8831 Wireless Microphone Kit (North America) includes: <ul style="list-style-type: none"> • 2 DECT Wireless Microphones

Product Name	Part Number
	<ul style="list-style-type: none"> • Charging Station for Microphones • Power Supply (designed for the usage of North America regions, etc.) • Batteries
CP-8831-MIC-WLS-E=	Optional Cisco Unified IP Conference Phone 8831 Wireless Microphone Kit (Europe) includes: <ul style="list-style-type: none"> • 2 DECT Wireless Microphones • Charging Station for Microphones • Power Supply (designed for the usage of European regions, etc.) • Batteries
CP-8831-MIC-WLS-A=	Optional Cisco Unified IP Conference Phone 8831 Wireless Microphone Kit (APAC) includes: <ul style="list-style-type: none"> • 2 DECT Wireless Microphones • Charging Station for Microphones • Power Supply (designed for the usage of Asia Pacific Regions, etc.) • Batteries
CP-8831-MIC-WLS-J=	Optional Cisco Unified IP Conference Phone 8831 Wireless Microphone Kit (Japan) includes: <ul style="list-style-type: none"> • 2 DECT Wireless Microphones • Charging Station for Microphones • Power Supply (designed for the usage of Japan, etc.) • Batteries
CP-8831-MIC-BATT=	Spare Batteries for Wireless Satellite Microphones. Includes 2 batteries.

Product Name	Part Number
CP-MIC-WIRED-S=	Optional Cisco Unified IP Conference Phone 8831 Wired Microphone Kit. Kit includes: <ul style="list-style-type: none"> • 2 Wired microphones
CP-8831-DCU-S=	Spare Cisco Unified IP Conference Phone 8831 Display Control Unit (DCU)
CP-8831-DC-CBL=	Optional Daisy Chain Cable for the Cisco Unified IP Conference Phone 8831. For Daisy Chaining 2 Cisco Unified IP Conference Phone 8831's together (18 ft, 5.5 m) * Not required if purchasing the Daisy Chain Kit (CP-8831-DC-*K9=)
CP-PWR-CUBE-3=	Cisco Power Cube 3

Table 9. Ordering Information - Power Cords

Product Name	Part Number
CP-PWR-CORD-AP=	Power cord for Asia Pacific regions such as Hong Kong and Malaysia.
CP-PWR-CORD-AR=	Power cord for Argentina
CP-PWR-CORD-AU=	Power cord for Australia and New Zealand
CP-PWR-CORD-BZ=	Power cord for Brazil
CP-PWR-CORD-CE=	Power Cord European
CP-PWR-CORD-CN=	Power Cord China
CP-PWR-CORD-JP=	Power Cord Japan
CP-PWR-CORD-NA=	Power Cord North America
CP-PWR-CORD-SW=	Power Cord Switzerland
CP-PWR-CORD-UK=	Power Cord United Kingdom

Warranty

Cisco Unified IP Phones and Conference Stations are covered by a Cisco standard 1-year replacement warranty.

Cisco Unified Communications Services

Cisco and our certified partners can help you deploy a secure, resilient Cisco Unified Communications solution, meeting aggressive deployment schedules and accelerating business advantage. Cisco's portfolio of services is based on proven methodologies for unifying voice, video, data, and mobile applications on fixed and mobile networks.

Cisco's unique lifecycle approach to services defines the requisite activities at each phase of the solution lifecycle. Customized planning and design services focus on creating a solution that meets your business needs. Award-winning technical support increases operational efficiency. Remote-management services simplify day-to-day operations, and optimization services enhance solution performance as your business needs change.

Cisco Capital

Financing to Help You Achieve Your Objectives

Cisco Capital can help you acquire the technology you need to achieve your objectives and stay competitive. We can help you reduce CapEx. Accelerate your growth. Optimize your investment dollars and ROI. Cisco Capital financing gives you flexibility in acquiring hardware, software, services, and complementary third-party equipment. And there's just one predictable payment. Cisco Capital is available in more than 100 countries. [Learn more.](#)

More Information

For additional details on the Cisco Unified IP Conference Phone 8831, go to <https://www.cisco.com/go/ipphones/8800>.




Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

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Cisco IP Phone 7800 Series

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The Cisco® IP Phone 7800 Series is a cost-effective, high-fidelity voice communications portfolio designed to improve your organization’s people-centric communications, while reducing your operating costs.

It combines an attractive new ergonomic design with “always-on” reliability and secure encrypted communications. The Cisco® IP Phone 7800 Series delivers advanced IP Telephony features and crystal clear wideband audio performance to deliver an easy-to-use, full-featured voice communications experience on Cisco on-premises and hosted infrastructure platforms and third party hosted call control.

The Cisco® IP Phone 7800 Series introduces four models to the Cisco IP Phone portfolio. From left-to-right (Figure 1), they are:

- Cisco IP Phone 7811 supporting one line (available in charcoal only)
- Cisco IP Phone 7821 supporting two lines (available in charcoal and white)
- Cisco IP Phone 7841 supporting four lines (available in charcoal and white)
- Cisco IP Phone 7861 supporting sixteen lines (available in charcoal and white)



Figure 1.
Cisco IP Phone 7800 Series

The line keys on each model are fully programmable. You can set up keys to support either lines, such as directory numbers, or call features like speed dialing. You can also boost productivity by handling multiple calls for each directory number, using the multi-call per-line appearance feature. Tri-color LEDs on the line keys support this feature and make the phone simpler and easy to use.

Fixed function keys on all models give you one-touch access to service, messaging, directory, hold/resume, transfer, and conference features. A full-duplex speakerphone lets you set up clear multi-party conferences for flexible, productive collaboration.

The Cisco IP Phone 7800 Series sets a new standard in usability and delivers a context-sensitive user experience. It features a high-resolution 3.5" (396x162) greyscale display with white backlighting on the IP Phone 7821, 7841 and 7861, and a 3.2" (384 x106) display without backlighting on IP Phone 7811, for easy reading. Localized language support, including right-to-left onscreen text, meets the needs of global users.

The Cisco IP Phone 7800 Series is also more energy-efficient and eco-friendly, to support your green initiatives. Each phone supports Power-over-Ethernet (PoE) Class 1 and Cisco's EnergyWise™, and is Energy Star certified. A standard power-save option is available on the IP Phone 7821, 7841 and 7861 to reduce power consumption during off-hours, save money and maximize energy efficiency.

The IP Phone 7800 Series portfolio is ideal for any mid-sized to large enterprise company that wants to update its phone system from a traditional analog or digital-based system to an IP Communications system. It's also an excellent choice if you're seeking to expand your voice communications support with your current Cisco Unified Communications solution. Small businesses who have interest in the Cisco IP Phone 7800 Series, but have investment in or are considering third party hosted call control services, are also candidates for the IP Phone 7800 Series.

Features and benefits

Table 1 lists features and benefits of the Cisco® IP Phone 7800 Series.

Table 1. Features and benefits

Features	Benefits
Hardware Features	
Ergonomic design	<ul style="list-style-type: none"> The phone offers an easy-to-use interface and provides a traditional telephony-like user experience.
Graphical display	<ul style="list-style-type: none"> White backlit, greyscale, 3.5" 396×162 pixel-based display on the IP Phone 7821, 7841 and 7861. Non-backlit, greyscale, 3.28" 384×106 pixel-based display on the IP Phone 7811. Provide scrollable access to calling features and text-based XML applications.
Handset	<ul style="list-style-type: none"> The handset is a standard wideband-capable audio handset (connects through an RJ-9 port) for the IP Phone 7821, 7841 and 7861. The default handset is a standard narrowband-capable audio handset (connects through an RJ-9 port) for the IP Phone 7811, and wideband on handset is available with purchase of additional wideband handset. The handset is Hearing Aid-Compatible (HAC) and meets Federal Communications Commission (FCC) loudness requirements for the Americans with Disabilities Act (ADA). You can achieve Section 508 loudness requirements by using industry-standard inline handset amplifiers such as Walker Equipment W-10 or CE-100 amplifiers. The dial pad is also ADA-compliant. The narrowband handset (for the IP Phone 7811) produces a magnetic field that attracts small metallic objects such as pins and staples. To avoid possible injuries do not keep small metallic objects close to the handset.

Features	Benefits
Headset	<ul style="list-style-type: none"> The analog headset jack is a standard wideband-capable RJ-9 audio port for the IP Phone 7821, 7841, and 7861.
Backlit Indicator	<ul style="list-style-type: none"> The phone supports backlit indicators for the audio path keys (handset, headset and speakerphone), select key, line keys, and message waiting. Headset key is not available on the IP Phone 7811.
Volume control	<ul style="list-style-type: none"> A volume-control toggle provides easy decibel-level adjustments of the handset, monitor speaker, and ringer.
Full duplex speakerphone	<ul style="list-style-type: none"> Full-duplex speakerphone allows gives you flexibility in placing and receiving calls. For added security, the audible Dual Tone Multifrequency (DTMF) tones are masked when the speakerphone mode is used.
Bezel	<ul style="list-style-type: none"> The IP Phone 7821, 7841 and 7861 include a default black bezel (replaceable), and an optional silver bezel is also available separately. The IP Phone 7811 is available with a black bezel.
Dual-position foot stand	<ul style="list-style-type: none"> The display is easy to view and the buttons and keys are easy to use. The two-position foot stand supports viewing angles of 30 degrees and 45 degrees; you can remove the foot stand for wall mounting, with mounting holes located on the base of the phone. (IP Phone 7821, 7841 and 7861) Only 1 foot-stand position (45 degrees) is supported on the IP Phone 7811.
Wall-mountable	<ul style="list-style-type: none"> The phone can be installed on a wall using optional wall-mount kit (available separately).
Electronic hook switch	<ul style="list-style-type: none"> The hookswitch can be controlled electronically with a third party headset connected to the auxiliary port for the IP Phone 7821, 7841, and 7861.
Keys	<ul style="list-style-type: none"> The phone has the following keys <ul style="list-style-type: none"> Line keys Soft-keys Two-way navigation and select keys Hold/Resume, Transfer and Conference keys Messaging, Service and Directory keys Standard key pads Volume control toggle key Speakerphone, headset and mute keys (Headset key is not available on the IP Phone 7811)
Ethernet cables	<ul style="list-style-type: none"> The IP Phone 7811, 7821, 7841, and 7861 <ul style="list-style-type: none"> Category 3/5/5e/6 for 10-Mbps cables with 4 pairs Category 5/5e/6 for 100-Mbps cables with 4 pairs The IP Phone 7841 <ul style="list-style-type: none"> Category 5/5e/6 for 1000-Mbps cables with 4 pairs
Power Features	
IEEE PoE class 1	<ul style="list-style-type: none"> The phone supports IEEE 802.3af PoE (Class 1); power consumption does not exceed 3.84 watts.
AC Power Adapter	<ul style="list-style-type: none"> Cisco power cube 3 (CP-PWR-CUBE-3=) and Cisco power adapter 3 (CP-PWR-ADPT-3) are used as standard Cisco IP Phone Power Supplies for non-PoE deployments.
Cisco power injector	<ul style="list-style-type: none"> The IP Phone 7811, 7821 and 7861 are compatible with Cisco Unified IP Phone Power Injector (CP-PWR-INJ), and 7841 is compatible with Cisco Aironet Power Injector (AIR-PWRINJ5=).

Features	Benefits
Call-Control Support	
Cisco Unified Communications Manager	<ul style="list-style-type: none"> • 8.5.1 • 8.6.2 • 9.1.2 • 10.x and later
Cisco Business Edition 6000	<ul style="list-style-type: none"> • 8.6.2 • 9.1.2 • 10.x and later
Cisco Hosted Collaboration Solution	<ul style="list-style-type: none"> • 8.6.2 and later (using supported UCM versions above)
Cisco Unified Survivable Remote Site Telephony	<ul style="list-style-type: none"> • 8.x and later

Licensing

The Cisco IP Phone 7811 and 7821 require a Basic User Connect License (UCL) in order to connect to Cisco Unified Communications Manager. The Cisco IP Phone 7841 and 7861 require an Enhanced User Connect License (UCL) in order to connect to Cisco Unified Communications Manager.

Product specifications

Table 2 lists the features and specifications of The Cisco® IP Phone 7800 Series.

Table 2. Features and specifications

Features	Specifications
Signaling protocol support	<ul style="list-style-type: none"> • Session Initiation Protocol (SIP)
Codec support	<ul style="list-style-type: none"> • G.711a/μ, G.722, G.729a, iLBC
Key call features support	<ul style="list-style-type: none"> • + Dialing (E.164) • Abbreviated dial • Adjustable ringing and volume levels • Adjustable display contrast • Agent greeting • Auto-answer • Auto-detection of headset (Not available on the IP Phone 7811) • Busy Lamp Field (BLF) (Not available on the IP Phone 7811) • Call back • Call forward • Call history • Call park • Call Pickup • Call timer • Call waiting • Caller ID

Features	Specifications
	<ul style="list-style-type: none"> • cBarge • Corporate directory • Conference • Cross Cluster Extension Mobility (EMCC) • Dial from the list • Direct transfer • Do not disturb • Extension Mobility (EM) • Forced access codes and client matter codes • Group call pickup • Hold/resume • Immediate divert • Intercom (Not available on the IP Phone 7811) • Join (Not available on the IP Phone 7811) • Message-waiting indicator • Meet me conference • Mobility • Music on hold • Mute • Network profiles (automatic) • On- and off-network distinctive ringing • Personal directory • Privacy • Private Line Automated Ringdown (PLAR) • Redial • Ring tone per line appearance • Shared line • Silent monitoring and recording • Speed dial • Time and date display • Transfer • Voicemail • Whisper coaching
Language support	<ul style="list-style-type: none"> • Arabic (Arabic Area) • Bulgarian (Bulgaria) • Catalan (Spain) • Chinese (China) - GB 2312 • Chinese (Hong Kong) • Chinese (Taiwan) • Croatian (Croatia) • Czech (Czech Republic) • Danish (Denmark) • Dutch (Netherlands) • English (United Kingdom) • Estonian (Estonia)

Features	Specifications
	<ul style="list-style-type: none"> • French (France) • Finnish (Finland) • German (Germany) • Greek (Greece) • Hebrew (Israel) • Hungarian (Hungary) • Italian (Italy) • Japanese (Japan) • Latvian (Latvia) • Lithuanian (Lithuania) • Korean (Korea Republic) • Norwegian (Norway) • Polish (Poland) • Portuguese (Portugal) • Portuguese (Brazil) • Romanian (Romania) • Russian (Russian Federation) • Spanish (Columbia) • Spanish (Spain) • Slovak (Slovakia) • Swedish (Sweden) • Serbian (Republic of Serbia) • Serbian (Republic of Montenegro) • Slovenian (Slovenia) • Thai (Thailand) • Turkish (Turkey)
Multiple ring tones	<ul style="list-style-type: none"> • The phone supports user-adjustable ring tones.
Directories	<ul style="list-style-type: none"> • The phone identifies incoming messages and categorizes them for users on the screen. This makes it fast and easy to return calls using direct dial-back capability. The corporate directory integrates with the Lightweight Directory Access Protocol (LDAP) standard directory.
Quality-of-service (QoS) options	<ul style="list-style-type: none"> • The phone supports CDP and 802.1Q/p standards, and can be configured with an 801.1Q VLAN header containing the VLAN ID overrides configured by the Admin VLAN ID.
Security	<ul style="list-style-type: none"> • Certificates • Image authentication • Device authentication • File authentication • Signaling authentication • Media encryption using Secure Real-Time Transfer Protocol (SRTP) using AES-128 • Signaling encryption using Transport Layer Security (TLS) Protocol using AES-128 or AES-256 • Encrypted configuration files • 802.1X authentication • Cryptography
Configuration options	<ul style="list-style-type: none"> • The user can configure IP address assignment statically or through the DHCP client.
Physical dimensions	<ul style="list-style-type: none"> • IP Phone 7811: 207 x 195 x 33mm (exclude foot stand)

Features	Specifications
(H×W×D)	<ul style="list-style-type: none"> • IP Phone 7821: 207 x 206 x 28mm (exclude foot stand) • IP Phone 7841: 207 x 206 x 28mm (exclude foot stand) • IP Phone 7861: 207 x 265 x 28mm (exclude foot stand)
Weight	<ul style="list-style-type: none"> • IP Phone 7811: 806g • IP Phone 7821: 867g • IP Phone 7841: 868g • IP Phone 7861: 1053g
Display	<ul style="list-style-type: none"> • IP Phone 7821, 7841, 7861: 3.5" 396×162 pixels • IP Phone 7811: 3.28" 384×106 pixels
Ethernet switch	<ul style="list-style-type: none"> • The phone has a 10/100BASE-T (The Cisco® IP Phone 7811, 7821 and 7861) or a10/100/1000BASE-T (The Cisco® IP Phone 7841) Ethernet connection through two RJ-45 ports, one for the LAN connection and the other for a downstream Ethernet device connection like a PC.
Phone casing composition	<ul style="list-style-type: none"> • Polycarbonate Acrylonitrile Butadiene Styrene (ABS) textured plastic.
Power requirements	<ul style="list-style-type: none"> • The phone is an interoperable IEEE 802.3af PoE (Class 1 device); 48 VDC is required; it can be supplied locally at the desktop using an optional AC-to-DC power supply (CP-PWR-CUBE-3=). Use of the power supply also requires the use of one of the corresponding AC country cords.
Operational temperature	<ul style="list-style-type: none"> • 32 to 104° F (0 to 40° C)
Nonoperational temperature shock	<ul style="list-style-type: none"> • 14 to 140° F (-10 to 60° C)
Humidity	<ul style="list-style-type: none"> • Operating 10% to 90%, non-condensing • Non-operating 10% to 95%, non-condensing
Cosmetic	<ul style="list-style-type: none"> • Cisco cosmetic class A
Certification and compliance	<ul style="list-style-type: none"> • Regulatory Compliance <ul style="list-style-type: none"> ◦ CE Markings per directives 2004/108/EC and 2006/95/EC • Safety <ul style="list-style-type: none"> ◦ UL 60950 Second Edition ◦ CAN/CSA-C22.2 No. 60950 Second Edition ◦ EN 60950 Second Edition (including A11 and A12) ◦ IEC 60950 Second Edition (including A11 and A12) ◦ AS/NZS 60950 ◦ GB4943 • EMC - Emissions <ul style="list-style-type: none"> ◦ 47CFR Part 15 (CFR 47) Class B ◦ AS/NZS CISPR22 Class B ◦ CISPR22: 2005 w/Amendment 1: 2005 Class B ◦ EN55022: 2006 w/Amendment 1: 2007 Class B ◦ ICES003 Class B ◦ VCCI Class B ◦ EN61000-3-2 ◦ EN61000-3-3 ◦ KN22 Class B • EMC - Immunity

Features	Specifications
	<ul style="list-style-type: none"> ◦ EN55024 ◦ CISPR24 ◦ EN60601-1-2 ◦ KN24 ◦ Armadillo Light • Telecom <ul style="list-style-type: none"> ◦ FCC Part 68 HAC ◦ CS-03-HAC ◦ AS/ACIF S004 ◦ AS/ACIF S040 ◦ NZ PTC 220 ◦ Industry Standards: TIA 810 and TIA 920 ◦ Industry Standards: IEEE 802.3 Ethernet, IEEE 802.3af and 802.3at

Ordering information

Table 3 gives ordering information for the phone and its accessories.

Table 3. Ordering information

Product Number	Description
CP-7811-K9=	• Cisco IP Phone 7811
CP-7821-K9=	• Cisco IP Phone 7821
CP-7841-K9=	• Cisco IP Phone 7841
CP-7861-K9=	• Cisco IP Phone 7861
CP-7821-W-K9=	• Cisco IP Phone 7821, White
CP-7841-W-K9=	• Cisco IP Phone 7841, White
CP-7861-W-K9=	• Cisco IP Phone 7861, White
CP-DX-HS-NB=	• Spare Narrowband Handset for Cisco IP Phone 7811
CP-DX-HS=	• Spare Wideband Handset for Cisco IP Phone 7800 Series
CP-DX-W-HS=	• Spare White Wideband Handset for Cisco IP Phone 7800 Series
CP-7800-HS-CORD=	• Spare Handset Cord for Cisco IP Phone 7800 Series
CP-DX-W-CORD=	• Spare White Handset Cord for Cisco IP Phone 7800 Series
CP-7800-HS-HOOK=	• Spare Handset Hook for Cisco IP Phone 7800 Series, 20 Pieces
CP-7811-WMK=	• Spare Wallmount Kit for Cisco IP Phone 7811
CP-7800-WMK=	• Spare Wallmount Kit for Cisco IP Phone 7800 Series

Product Number	Description
CP-7861-WMK=	• Spare Wallmount Kit for Cisco IP Phone 7861
CP-7811-FS=	• Spare Foot stand for Cisco IP Phone 7811
CP-7800-FS=	• Spare Foot stand for Cisco IP Phone 7800 Series
CP-7861-FS=	• Spare Foot stand for Cisco IP Phone 7861
CP-7821-B-BEZEL=	• Spare Black Bezel for Cisco IP Phone 7821
CP-7821-S-BEZEL=	• Spare Silver Bezel for Cisco IP Phone 7821
CP-7841-B-BEZEL=	• Spare Black Bezel for Cisco IP Phone 7841
CP-7841-S-BEZEL=	• Spare Silver Bezel for Cisco IP Phone 7841
CP-7861-B-BEZEL=	• Spare Black Bezel for Cisco IP Phone 7861
CP-7861-S-BEZEL=	• Spare Silver Bezel for Cisco IP Phone 7861
CP-PWR-CUBE-3	• Cisco Power Cube 3
CP-PWR-CORD-AP=	• Power Cord Asia Pacific
CP-PWR-CORD-AR=	• Power Cord Argentina
CP-PWR-CORD-AU=	• Power Cord Australia
CP-PWR-CORD-BZ=	• Power cord for Brazil
CP-PWR-CORD-CE=	• Power Cord European
CP-PWR-CORD-CN=	• Power Cord China
CP-PWR-CORD-JP=	• Power Cord Japan
CP-PWR-CORD-NA=	• Power Cord North America
CP-PWR-CORD-SW=	• Power Cord Switzerland
CP-PWR-CORD-UK=	• Power Cord United Kingdom
CP-PWR-ADPT-3-AR=	• Cisco Power Adapter 3 with Argentina Clip
CP-PWR-ADPT-3-AU=	• Cisco Power Adapter 3 with Australia Clip
CP-PWR-ADPT-3-BZ=	• Cisco Power Adapter 3 with Brazil Clip
CP-PWR-ADPT-3-CN=	• Cisco Power Adapter 3 with China Clip
CP-PWR-ADPT-3-EU=	• Cisco Power Adapter 3 with European Clip
CP-PWR-ADPT-3-IN=	• Cisco Power Adapter 3 with India Clip

Product Number	Description
CP-PWR-ADPT-3-KR=	<ul style="list-style-type: none"> • Cisco Power Adapter 3 with Korea Clip
CP-PWR-ADPT-3-NA=	<ul style="list-style-type: none"> • Cisco Power Adapter 3 with North America Clip
CP-PWR-ADPT-3-UK=	<ul style="list-style-type: none"> • Cisco Power Adapter 3 with United Kingdom Clip

Warranty

The Cisco® IP Phone 7800 Series are covered by a Cisco standard 1-year replacement warranty.

Cisco Unified Communications Services

Cisco and our certified partners can help you set up a secure, dependable Cisco Unified Communications solution, meeting aggressive deployment schedules and accelerating business advantage. Cisco's portfolio of services is based on proven methodologies for unifying voice, video, data, and mobile applications on fixed and mobile networks.

Our unique lifecycle approach to services defines what's needed at each phase of the solution lifecycle. Customized planning and design services help you create a solution that meets your business needs. Award-winning technical support helps you boost your operational efficiency. Remote management services simplify day-to-day operations. And optimization services let you modify and improve your network solution when business needs change.

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Information about Cisco's environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the "Environment Sustainability" section of Cisco's [Corporate Social Responsibility \(CSR\) Report](#).

Reference links to information about key environmental sustainability topics (mentioned in the "Environment Sustainability" section of the CSR Report) are provided in the following table:

Sustainability topic	Reference
Information on product material content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE compliance

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More information

For additional details on the Cisco® IP Phone 7800 Series, go to <https://www.cisco.com/go/ipphones/7800>.

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Cisco Unified SIP Phone 3905



Product Overview

The Cisco® Unified SIP Phone 3905 is a cost-effective, entry-level IP phone that addresses the need for basic voice communications with common Cisco Unified Communications features in an attractive design that is also budget-friendly. The phone can fill the communication needs of cubicle, retail, classroom, manufacturing floor and hallway, as well as various wall-mounted deployments.

The single-line Cisco Unified SIP Phone 3905 supports two calls per line. Fixed keys for redial, transfer, and hold/resume, along with a full-duplex speakerphone and two-line display, which comes standard, deliver a more productive, easier-to-use, and flexible endpoint experience. With its dual-port 10/100 Ethernet switch for network and PC connections, the Cisco Unified SIP Phone 3905 offers IT organizations a cost-effective solution to reduce cabling infrastructure and administration costs at the desktop.

The phone is also eco-friendly, taking advantage of reground and recyclable plastics to deliver a more earth-responsible solution.

Features and Benefits

Table 1 lists features and benefits of the Cisco Unified SIP Phone 3905.

Table 1. Features and Benefits

Feature	Benefit
Hardware	
Ergonomic design	The phone offers an easy-to-use interface and provides a traditional telephony-like user experience.
Display	A graphical monochrome display with a resolution of 128 x 32 pixels provides a scrollable two-line intuitive access to phone services and configuration.
Foot stand	A foldable single-position foot stand offers optimum display viewing and comfortable use of keys.
Wall mountable	You can fold the foot stand for wall mounting, with mounting holes located on the base of the phone.
Speakerphone	A full-duplex speakerphone allows for flexibility in placing and receiving calls.
Volume control	The volume control toggle makes it easy to adjust the volume of the handset, speakerphone, and ringer.
Ethernet switch	The phone has a 10/100BASE-T Ethernet connection through two RJ-45 ports, one for the LAN connection and the other for connecting a downstream Ethernet device such as a PC.

Feature	Benefit
Buttons	The phone has the following buttons: <ul style="list-style-type: none"> • Select, Back, and Two-Way Navigation • Redial, Transfer, and Hold/Resume • Standard dial pad • Mute, Volume Up/Down, and Speakerphone
Firmware	
Signaling protocol	Session Initiation Protocol (SIP) is supported.
Call features	<ul style="list-style-type: none"> • Adjustable volume levels • Auto barge • Call forward • Call pickup • Call waiting • Call transfer • Conference • Forced Authorization Codes (FAC) • Group call pickup • Message-waiting indicator • Music on hold • Private-line automatic ringdown (PLAR) • Redial • Shared line
Audio codec support	G.711a, G.711 μ , G.729, G.729a, and G.729ab.
Voice quality	Comfort-noise generation (CNG) and voice-activity-detection (VAD) programming is provided on a system basis.
Configuration options	<ul style="list-style-type: none"> • Dynamic Host Configuration Protocol (DHCP) client or static configuration • Support for online firmware upgrades using Trivial File Transfer Protocol (TFTP) • Domain Name System (DNS)
Provisioning and manufacturing	<ul style="list-style-type: none"> • Web server for configuration and statistics • Real-Time Control Protocol (RTCP) support and monitoring • Syslog

Cisco Unified Communications Manager Support

The Cisco Unified SIP Phone 3905 is supported on the Cisco Unified Communications Manager Version 7.1(5) or later, the Cisco Unified Communications Manager Business Edition 3000 Version 8.6, the Cisco Unified Communications Manager Business Edition 5000 Version 8.5 or later, and the Cisco Unified Communications Manager Business Edition 6000 Version 8.5 or later.

Licensing

Phone licensing depends on the call-control platform and its policies. For the Cisco Unified Communications Manager, the Cisco Unified SIP Phone 3905 requires appropriate User Connect Licensing (UCL). There are no special license-plus-phone bundles for tier 2 distributors. The phone is not supported on third-party call-control systems.

Product Specifications

Table 2 lists the specifications of the Cisco Unified SIP Phone 3905.

Table 2. Product Specifications

Protocols	SIP
Connectivity	10/100BASE-T wired Ethernet LAN port plus switched PC port.
Memory	<ul style="list-style-type: none"> • 4-MB flash memory • 32-MB synchronous dynamic RAM (SDRAM)
Language support	Arabic (Arabic area), Bulgarian (Bulgaria), Catalan (Spain), Chinese (China), Chinese (Hong Kong), Chinese (Taiwan), Croatian (Croatia), Czech (Czech Republic), Danish (Denmark), Dutch (Netherlands), English (United Kingdom; prompts only), Estonian (Estonia), French (France), Finnish (Finland), German (Germany), Greek (Greece), Hebrew (Israel), Hungarian (Hungary), Italian (Italy), Japanese (Japan), Korean (Korea Republic), Latvian, Lithuanian, Norwegian (Norway), Polish (Poland), Portuguese (Portugal), Portuguese (Brazil), Romanian (Romania), Russian (Russian Federation), Spanish (Spain), Slovak (Slovakia), Swedish (Sweden), Serbian (Republic of Serbia), Serbian (Republic of Montenegro), Slovenian (Slovenia), Thai (Thailand), and Turkish (Turkey) are supported, but in different phases.
Physical dimensions	8.07 x 5.91 x 2.11 in. (205 x 150 x 53.5 mm) (in slab mode with the foot stand folded)
Weight	20.96 oz (594.3g)
Power over Ethernet (PoE)	IEEE PoE 802.3af is supported, Class 1.
Local power	The phone can also be powered locally with one of the power adapters listed in Table 3.
Operational Temperature	32 to 104°F (0 ~ 40°C)
Relative Humidity	10 to 95% (noncondensing)
Storage Temperature	14 to 140°F (-10 to 60°C)
Cosmetic	Cisco Cosmetic Class B
Approvals and compliance	<p>Regulatory compliance:</p> <ul style="list-style-type: none"> • CE markings per directives 2004/108/EC and 2006/95/EC <p>Safety:</p> <ul style="list-style-type: none"> • UL 60950 Second Edition • CAN/CSA-C22.2 No. 60950 Second Edition • EN 60950 Second Edition • IEC 60950 Second Edition • AS/NZS 60950 • GB4943 <p>EMC:</p> <ul style="list-style-type: none"> • FCC Part 15 (CFR 47) Class B • ICES-003 Class B • EN55022 Class B • CISPR22 Class B • AS/NZS CISPR22 Class B • VCCI Class B • KN22 Class B • CISPR24 • EN55024 • EN61000-3-2 • EN61000-3-3 • KN 24 <p>Telecom:</p> <ul style="list-style-type: none"> • FCC Part 68 (47CFR) (HAC) • Canada-CS-03-HAC • Australia AS/ACIF S004, AS/ACIF S040 • New Zealand- PTC 220 Draft

Warranty Information

Find warranty information on Cisco.com at the [Product Warranties](#) page.

Ordering Information

Table 3 lists the ordering information for the Cisco Unified SIP Phone 3905. To place an order, visit the [Cisco Ordering Home Page](#). To download software, visit the [Cisco Software Center](#).

Table 3. Ordering Information

Product Name	Part Number
Cisco Unified SIP Phone 3905, Charcoal, Standard Handset	CP-3905=
Power Adapter for Cisco Unified SIP Phone 3905, Argentina	CP-3905-PWR-AR=
Power Adapter for Cisco Unified SIP Phone 3905, Australia	CP-3905-PWR-AU=
Power Adapter for Cisco Unified SIP Phone 3905, Brazil	CP-3905-PWR-BR=
Power Adapter for Cisco Unified SIP Phone 3905, Central Europe	CP-3905-PWR-CE=
Power Adapter for Cisco Unified SIP Phone 3905, China	CP-3905-PWR-CN=
Power Adapter for Cisco Unified SIP Phone 3905, India	CP-3905-PWR-IN=
Power Adapter for Cisco Unified SIP Phone 3905, Korea	CP-3905-PWR-KR=
Power Adapter for Cisco Unified SIP Phone 3905, North America	CP-3905-PWR-NA=
Power Adapter for Cisco Unified SIP Phone 3905, United Kingdom	CP-3905-PWR-UK=
Power Adapter for Cisco Unified SIP Phone 3905, South Africa	CP-3905-PWR-ZA=
Spare Handset for Cisco Unified SIP Phone 3905, Charcoal	CP-3905-HS=
Spare Handset Cord for Cisco Unified SIP Phone 3905, Charcoal	CP-3905-HS-CORD=

Cisco Services

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For More Information

For more information about the Cisco Unified SIP Phone 3905, visit <http://www.cisco.com/go/ipphones/3900> or contact your local Cisco account representative.



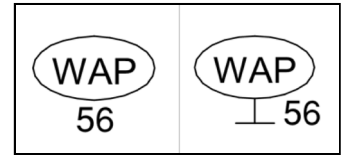
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MR56 Datasheet

High Performance 802.11ax Wireless

The Cisco Meraki MR56 is a cloud-managed 8x8:8 802.11ax access point that raises the bar for wireless performance and efficiency. Designed for next-generation deployments in offices, schools, hospitals, shops, and hotels, the MR56 offers high throughput, enterprise-grade security, and simple management.

The MR56 provides a maximum of 5.9 Gbps* aggregate frame rate with concurrent 2.4 GHz and 5 GHz radios. A dedicated third radio provides real-time WIDS/WIPS with automated RF optimization, and a fourth integrated radio delivers Bluetooth scanning and beaconing.

With the combination of cloud management, high performance hardware, multiple radios, and advanced software features, the MR56 makes an outstanding platform for the most demanding of uses—including high-density deployments and bandwidth or performance-intensive applications like voice and high-definition video.



MR56 and Meraki Cloud Management

Management of the MR56 is performed through the Meraki cloud, with an intuitive browser-based interface that enables rapid deployment without time-

consuming training or costly certifications. Because the MR56 is self-configuring and managed over the web, it can be deployed at a remote location in a matter of minutes, even without on-site IT staff.

24x7 monitoring via the Meraki cloud delivers real-time alerts if a network encounters problems. Remote diagnostic tools enable immediate troubleshooting over the web so that distributed networks can be managed with a minimum of hassle.

The MR56's firmware is automatically kept up to date via the cloud. New features, bug fixes, and enhancements are delivered seamlessly over the web. This means no manual software updates to download or missing security patches to worry about.

Product Highlights

- 8x8:8 MU-MIMO 802.11ax
- 5.9* Gbps dual-radio aggregate frame rate
- 24x7 real-time WIDS/WIPS and spectrum analytics via dedicated third radio
- Integrated Bluetooth Low Energy Beacon
- Integrated scanning radio
- Enhanced transmit power and receive sensitivity
- Integrated enterprise security and guest access
- Application-aware traffic shaping
- Optimized for voice and video
- Self-configuring, plug-and-play deployment
- Sleek design blends into office environments
- Full-time Wi-Fi location tracking via dedicated 3rd radio

Features

Dual-radio aggregate frame rate of up to 5.9 Gbps*

5 GHz 8x8:8 radio and 2.4 GHz 4x4:4 radio offer a combined dual-radio aggregate frame rate of 5.9 Gbps*, with up to 4,804 Mbps in the 5 GHz band and 1,147 Mbps in the 2.4 GHz band. Technologies like transmit beamforming and enhanced receive sensitivity allow the MR56 to support a higher client density than typical enterprise-class access points, resulting in better performance for more clients, from each AP.



* Refers to maximum over-the-air data frame rate capability of the radio chipset, and may exceed data rates allowed by IEEE 802.11ax operation.

Multi User Multiple Input Multiple Output (MU-MIMO)

With support for features of 802.11ax, the MR56 offers MU-MIMO and OFDMA for more efficient transmission to multiple clients. Especially suited to environments with numerous mobile devices, MU-MIMO enables multiple clients to receive data simultaneously. This increases the total network performance and improves the end user experience.

Dedicated third radio delivers 24x7 wireless security and RF analytics

The MR56's dedicated dual-band scanning and security radio continually assesses the environment, characterizing RF interference and containing wireless threats like rogue access points. There's no need to choose between wireless security, advanced RF analysis, and serving client data - a dedicated third radio means that all functions occur in real-time, without any impact to client traffic or AP throughput.

Bluetooth Low Energy Beacon and scanning radio

An integrated fourth Bluetooth radio provides seamless deployment of BLE Beacon functionality and effortless visibility of Bluetooth devices. The MR56 enables the next generation of location-aware applications while future proofing deployments, ensuring it's ready for any new customer engagement strategies.

Automatic cloud-based RF optimization

The MR56's sophisticated and automated RF optimization means that there is no need for the dedicated hardware and RF expertise typically required to tune a wireless network. The RF data collected by the dedicated third radio is continuously fed back to the Meraki cloud. This data is then used to automatically tune the channel selection, transmit power, and client connection settings for optimal performance under even the most challenging RF conditions.

Integrated enterprise security and guest access

The MR56 features integrated, easy-to-use security technologies to provide secure connectivity for employees and guests alike. Advanced security features such as AES hardware-based encryption and Enterprise authentication with 802.1X and Active Directory integration provide wired-like security while still being easy to configure. One-click guest isolation provides secure, Internet-only access for visitors. PCI compliance reports check network settings against PCI requirements to simplify secure retail deployments.

Enterprise Mobility Management (EMM) & Mobile Device Management (MDM) integration

Meraki Systems Manager natively integrates with the MR56 to offer automatic, context-aware security. Systems Manager's self-service enrollment helps to rapidly deploy MDM without installing additional equipment, and then dynamically tie firewall and traffic shaping policies to client posture.

Application-aware traffic shaping

The MR56 includes an integrated layer 7 packet inspection, classification, and control engine, enabling the configuration of QoS policies based on traffic type, helping to prioritize mission-critical applications while setting limits on recreational traffic like peer-to-peer and video streaming. Policies can be implemented per network, per SSID, per user group, or per individual user for maximum flexibility and control.

Voice and video optimizations

Industry standard QoS features are built-in and easy to configure. Wireless MultiMedia (WMM) access categories, 802.1p, and DSCP standards support all ensure important applications get prioritized correctly, not only on the MR56, but on other devices in the network. Unscheduled Automatic Power Save Delivery (U-APSD) and new Target Wait Time features in 802.11ax clients ensure minimal battery drain on wireless VoIP phones.

Self-configuring, self-maintaining, always up-to-date

When plugged in, the MR56 automatically connects to the Meraki cloud, downloads its configuration, and joins the appropriate network. If new firmware is required, this is retrieved by the AP and updated automatically. This ensures the network is kept up-to-date with bug fixes, security updates, and new features.

Advanced analytics

Drilling down into the details of network usage provides highly granular traffic analytics. Visibility into the physical world can be enhanced with journey tracking through location analytics. Visitor numbers, dwell time, repeat visit rates, and track trends can all be easily monitored in the dashboard and deeper analysis is enabled with raw data available via simple APIs.

Specifications

Category	Specifications
Radios	<ul style="list-style-type: none"> • 2.4 GHz 802.11b/g/n/ax client access radio • 5 GHz 802.11a/n/ac/ax client access radio • 2.4 GHz & 5 GHz dual-band WIDS/WIPS, spectrum analysis, & location analytics radio • 2.4 GHz Bluetooth Low Energy (BLE) radio with Beacon and BLE scanning support • Concurrent operation of all four radios • Supported frequency bands (country-specific restrictions apply) • Supported frequency bands (country-specific restrictions apply): <ul style="list-style-type: none"> ◦ 2.412-2.484 GHz ◦ 5.150-5.250 GHz (UNII-1) ◦ 5.250-5.350 GHz (UNII-2) ◦ 5.470-5.600, 5.660-5.725 GHz (UNII-2e) ◦ 5.725 -5.825 GHz (UNII-3)

Antenna	<ul style="list-style-type: none"> • Internal Antenna (5.4 dBi gain at 2.4 GHz, 6 dBi gain at 5 GHz)
802.11ax, 802.11ac Wave 2 and 802.11n Capabilities	<ul style="list-style-type: none"> • DL-OFDMA**, UL-OFDMA**, TWT support**, BSS Coloring** • 8 x 8 multiple input, multiple output (MIMO) with eight spatial streams on 5GHz • 4 x 4 multiple input, multiple output (MIMO) with four spatial streams on 2.4GHz • SU-MIMO, UL MU-MIMO** and DL MU-MIMO support • Maximal ratio combining (MRC) & beamforming • 20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80 MHz channels (802.11ax) • Up to 1024-QAM on both 2.4 GHz & 5 GHz bands • Packet aggregation
Power	<ul style="list-style-type: none"> • Power over Ethernet: 42.5 - 57 V (802.3at compliant) • Alternative: 12 V DC input • Power consumption: 30W max (802.3at) • Power over Ethernet injector and DC adapter sold separately
Interfaces	<ul style="list-style-type: none"> • 1x 100/1000/2.5G/5G BASE-T Ethernet (RJ45) • 1x DC power connector (5.5 mm x 2.5 mm, center positive)
Mounting	<ul style="list-style-type: none"> • All standard mounting hardware included • Desktop, ceiling, and wall mount capable • Ceiling tile rail (9/16, 15/16 or 1 1/2" flush or recessed rails), assorted cable junction boxes • Bubble level on mounting cradle for accurate horizontal wall mounting
Physical Security	<ul style="list-style-type: none"> • Two security screw options (included) (3.5 mm long and 2.5 mm diameter and 5 mm head) • Kensington lock hard point • Concealed mount plate with anti-tamper cable bay
Environment	<ul style="list-style-type: none"> • Operating temperature: 32 °F to 104 °F (0 °C to 40 °C) • Humidity: 5 to 95% non-condensing
Reliability	<ul style="list-style-type: none"> • Mean Time Between Failure (MTBF): 1,315,498hrs at +25°C operating temperature
Physical Dimensions	<ul style="list-style-type: none"> • 12.83" x 5.54" x 1.76" (32.6 cm x 14.079 cm x 4.47 cm), not including deskmount feet or mount plate • Weight: 35.27 oz (1 kg)
Security	<ul style="list-style-type: none"> • Integrated Layer 7 firewall with mobile device policy management • Real-time WIDS/WIPS with alerting and automatic rogue AP containment with Air Marshal

	<ul style="list-style-type: none"> • Flexible guest access with device isolation • VLAN tagging (802.1q) and tunneling with IPsec VPN • PCI compliance reporting • WEP***, WPA, WPA2-PSK, WPA2-Enterprise with 802.1X, WPA3 - Personal**, WPA3 - Enterprise**, WPA3 - Enhanced Open (OWE)** • EAP-TLS, EAP-TTLS, EAP-MSCHAPv2, EAP-SIM • TKIP and AES encryption • Enterprise Mobility Management (EMM) & Mobile Device Management (MDM) integration • Cisco ISE integration for Guest access and BYOD Posturing
Quality of Service	<ul style="list-style-type: none"> • Advanced Power Save (U-APSD) • WMM Access Categories with DSCP and 802.1p support • Layer 7 application traffic identification and shaping
Mobility	<ul style="list-style-type: none"> • PMK, OKC, & 802.11r for fast Layer 2 roaming • Distributed or centralized layer 3 roaming
Analytics	<ul style="list-style-type: none"> • Embedded location analytics reporting and device tracking • Global L7 traffic analytics reporting per network, per device, & per application
LED Indicators	<ul style="list-style-type: none"> • 1 power/booting/firmware upgrade status
Regulatory	<ul style="list-style-type: none"> • RoHS • For additional country-specific regulatory information, please contact Meraki sales
Warranty	<ul style="list-style-type: none"> • Lifetime hardware warranty with advanced replacement included
Ordering Information	<ul style="list-style-type: none"> • MR56-HW: Meraki MR56 Cloud Managed 802.11ax AP • MA-PWR-30W-XX: Meraki AC Adapter for MR Series (XX = US/EU/UK/AU) • MA-INJ-4-XX: Meraki Gigabit 802.3at Power over Ethernet Injector (XX = US/EU/UK/AU) • MA-INJ-5-XX: Meraki Multigigabit 802.3at Power over Ethernet Injector (XX = US/EU/UK/AU) • Note: Meraki access point license required.



** software features can be enabled via firmware updates

Compliance and Standards

Category	Standards
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IEEE Standards	<ul style="list-style-type: none"> • 802.11a, 802.11ac, 802.11ax, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11k, 802.11n, 802.11r, and 802.11u***
Safety Approvals	<ul style="list-style-type: none"> • CSA and CB 60950 & 62368 • Conforms to UL 2043 (Plenum Rating)
Radio Approvals	<ul style="list-style-type: none"> • Canada: FCC Part 15C, 15E, RSS-247 • Europe: EN 300 328, EN 301 893 • Australia/NZ: AS/NZS 4268 • Mexico: IFT, NOM-208 • Taiwan: NCC LP0002 • For additional country-specific regulatory information, please contact Meraki Sales
EMI Approvals (Class B)	<ul style="list-style-type: none"> • Canada: FCC Part 15B, ICES-003 • Europe: EN 301 489-1-17, EN 55032, EN 55024 • Australia/NZ: CISPR 22 • Japan: VCCI
Exposure Approvals	<ul style="list-style-type: none"> • Canada: FCC Part 2, RSS-102 • Europe: EN 50385, EN 62311, EN 62479 • Australia/NZ: AS/NZS 2772



*** feature can be enabled for required networks

Context and Comparisons

802.11ax, 802.11ac Wave 2 and 802.11n Capabilities

MR36	MR46	MR56
DL-OFDMA**, UL-OFDMA**, TWT support**, BSS coloring**	DL-OFDMA**, UL-OFDMA**, TWT support**, BSS coloring**	DL-OFDMA**, UL-OFDMA**, TWT support**, BSS coloring**
2 x 2 multiple input, multiple output (MIMO) with two spatial streams	4 x 4 multiple input, multiple output (MIMO) with four spatial streams	8 x 8 multiple input, multiple output (MIMO) with eight spatial streams on 5 GHz 4 x 4 multiple input, multiple output (MIMO) with eight spatial streams on 2.4 GHz
Maximal ratio combining (MRC) & beamforming	Maximal ratio combining (MRC) & beamforming	Maximal ratio combining (MRC) & beamforming

SU-MIMO, UL MU-MIMO** and DL MU-MIMO support	SU-MIMO, UL MU-MIMO** and DL MU-MIMO support	SU-MIMO, UL MU-MIMO** and DL MU-MIMO support
20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80 MHz channels (802.11ax)	20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80 MHz channels (802.11ax)	20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80MHz channels (802.11ax)
Up to 1024-QAM on both 2.4 GHz & 5 GHz bands	Up to 1024-QAM on both 2.4 GHz & 5 GHz bands	Up to 1024-QAM on both 2.4 GHz & 5 GHz bands
Packet aggregation	Packet aggregation	Packet aggregation

Power

MR36	MR46	MR56
Power over Ethernet: 37 - 57 V (802.af compliant)	Power over Ethernet: 42.5 - 57 V (802.3at compliant)	Power over Ethernet: 42.5 - 57 V (802.3at compliant)
Alternative: 12 V DC input	Alternative: 12 V DC input	Alternative: 12 V DC input
Power consumption: 15W max (802.3af)	Power consumption: 30W max	Power consumption: 30W max
Power over Ethernet injector and DC adapter sold separately	Power over Ethernet injector and DC adapter sold separately	Power over Ethernet injector and DC adapter sold separately

Interfaces

MR36	MR46	MR56
1x 10/100/1000 BASE-T Ethernet (RJ45)	1x 100/1000/2.5G BASE-T Ethernet (RJ45)	1x 100/1000/2.5G/5G BASE-T Ethernet (RJ45)
1x DC power connector (5.5 mm x 2.5 mm, center positive)	1x DC power connector (5.5 mm x 2.5 mm, center positive)	1x DC power connector (5.5 mm x 2.5 mm, center positive)

Physical Dimensions

MR36	MR46	MR56
9.84" x 4.72" x 1.42" (25 cm x 12 cm x 3.6 cm), not including desk mount feet or mount plate	12.05" x 5.06" x 1.74" (30.6 cm x 12.84 cm x 4.426 cm), not including desk mount feet or mount plate	12.83" x 5.54" x 1.76" (32.6 cm x 14.079 cm x 4.47 cm), not including deskmount feet or mount plate
Weight: 17.35 oz (492 g)	Weight: 28.22 oz (800 g)	Weight: 35.27 oz (1 kg)

RF Performance Table

2.4 GHz

Operating Band	Operating Mode	Data Rate	TX Power (conducted)
2.4 GHz	802.11b	1 Mb/s	26
		2 Mb/s	26
		5.5 Mb/s	26
		11 Mb/s	26
2.4 GHz	802.11g	6 Mb/s	26
		9 Mb/s	26
		12 Mb/s	26
		18 Mb/s	26
		24 Mb/s	24
		36 Mb/s	24
		48 Mb/s	24
		54 Mb/s	24
2.4 GHz	802.11n (HT20)	MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26

		MCS4	26
		MCS5	24
		MCS6	24
		MCS7	23.5
2.4 GHz	802.11ax (HE20)	MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26
		MCS4	26
		MCS5	25
		MCS6	25
		MCS7	23.5
		MCS8	22.5
		MCS9	22.5
		MCS10	20.5
		MCS11	20.5

5 GHz

Operating Band	Operating Mode	Data Rate	TX Power
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5 GHz	802.11a	6 Mb/s	26
		9 Mb/s	26
		12 Mb/s	26
		18 Mb/s	26
		24 Mb/s	26
		36 Mb/s	26
		48 Mb/s	25
		54 Mb/s	24.5
		5 GHz	802.11n (HT20)
MCS1	26		
MCS2	26		
MCS3	26		
MCS4	26		
MCS5	25		
MCS6	25		
MCS7	24.5		
5 GHz	802.11n (HT40)	MCS0	26
		MCS1	26
		MCS2	26

		MCS3	26
		MCS4	26
		MCS5	25
		MCS6	24.5
		MCS7	24
5 GHz	802.11ac (VHT20)	MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26
		MCS4	26
		MCS5	25
		MCS6	25
		MCS7	24.5
		MCS8	23.5
5 GHz	802.11ac (VHT40)	MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26
		MCS4	26

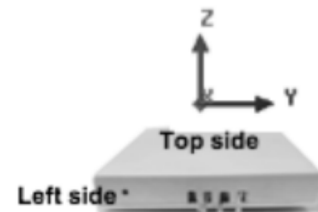
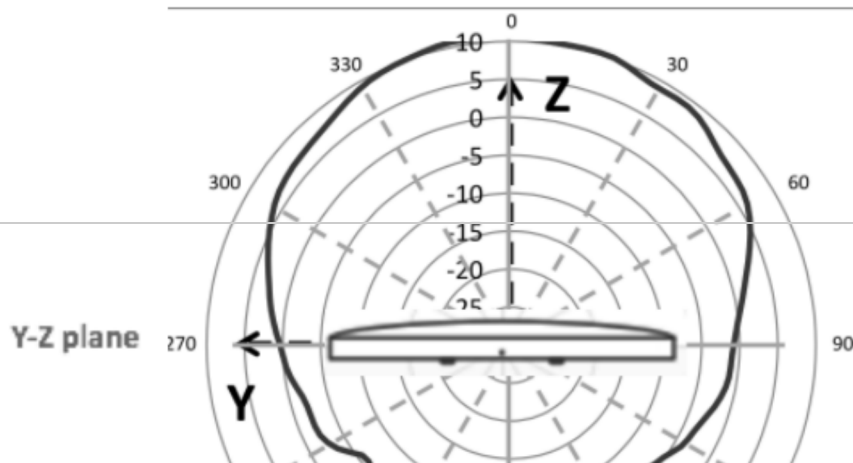
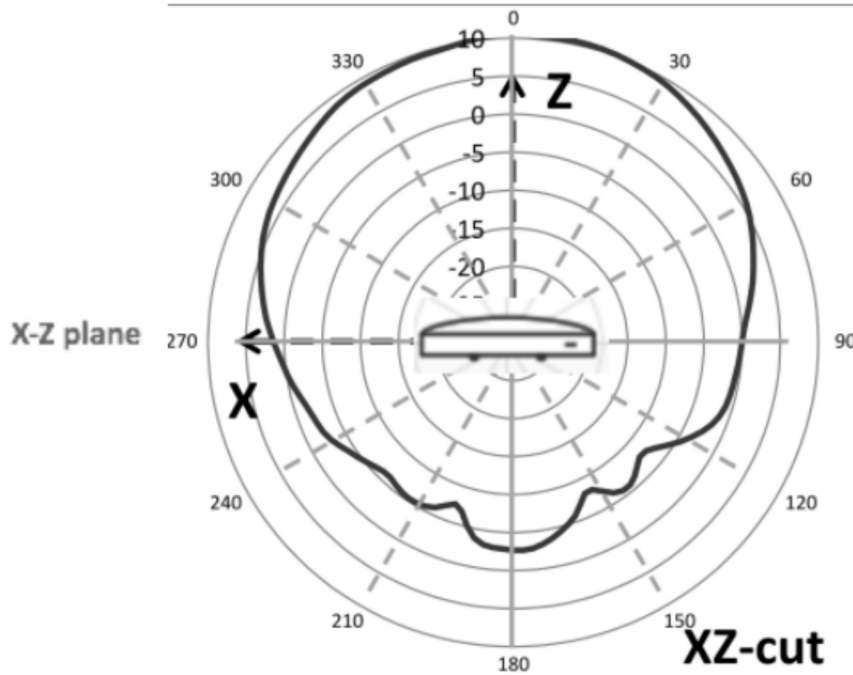
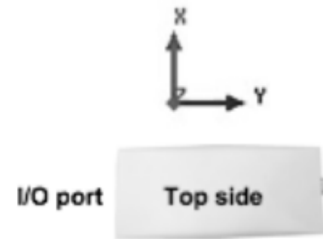
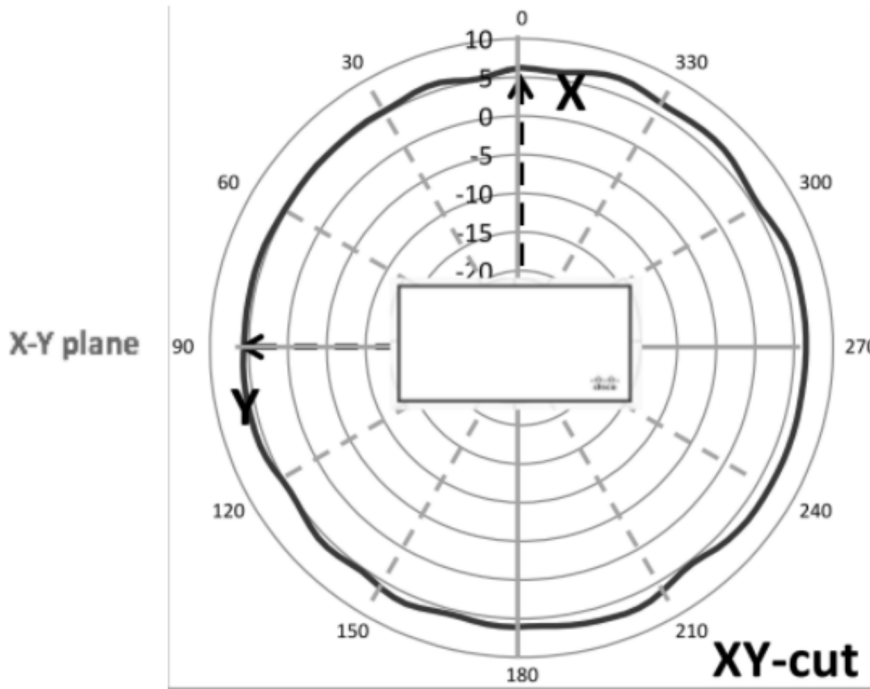
		MCS5	25
		MCS6	24.5
		MCS7	24
		MCS8	23
		MCS9	22.5
5 GHz	802.11ac (VHT80)	MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26
		MCS4	26
		MCS5	24
		MCS6	24
		MCS7	23
		MCS8	22
		MCS9	22
5 GHz	802.11ax (HE20)	MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26

		MCS4	26
		MCS5	25
		MCS6	25
		MCS7	24.5
		MCS8	23.5
		MCS9	23
		MCS10	21.5
		MCS11	21.5
5 GHz	802.11ax (HE40)	MCS0	25
		MCS1	26
		MCS2	26
		MCS3	26
		MCS4	26
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		MCS6	24.5
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		MCS9	22.5
		MCS10	21

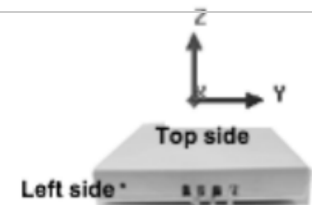
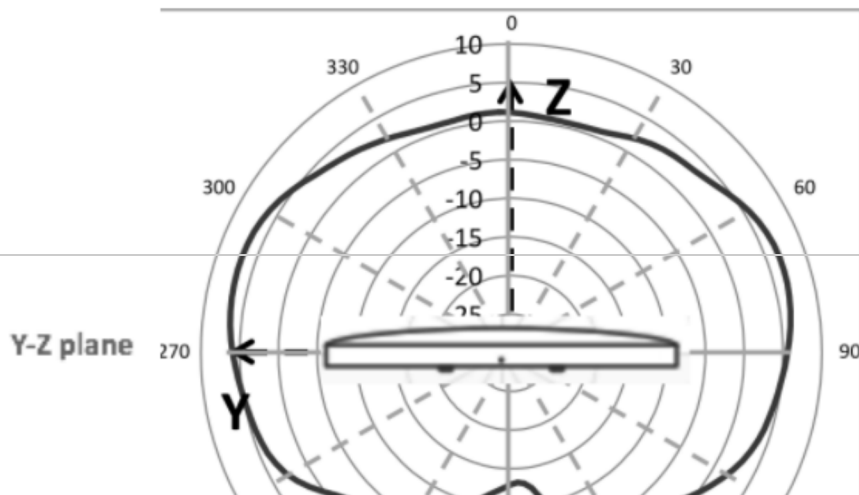
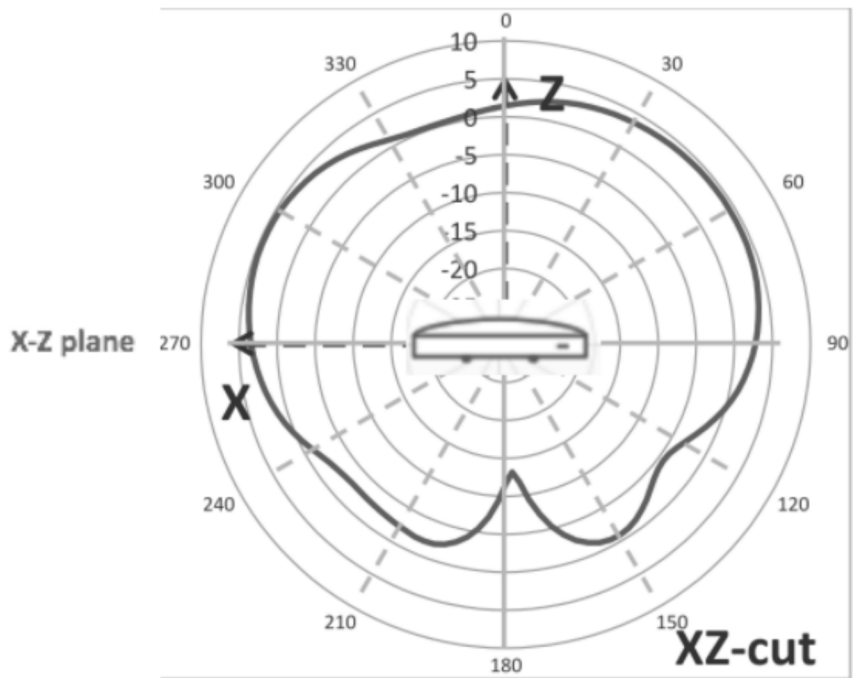
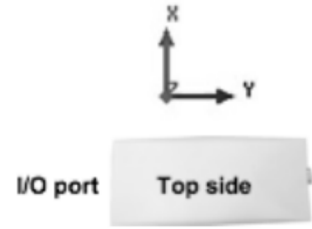
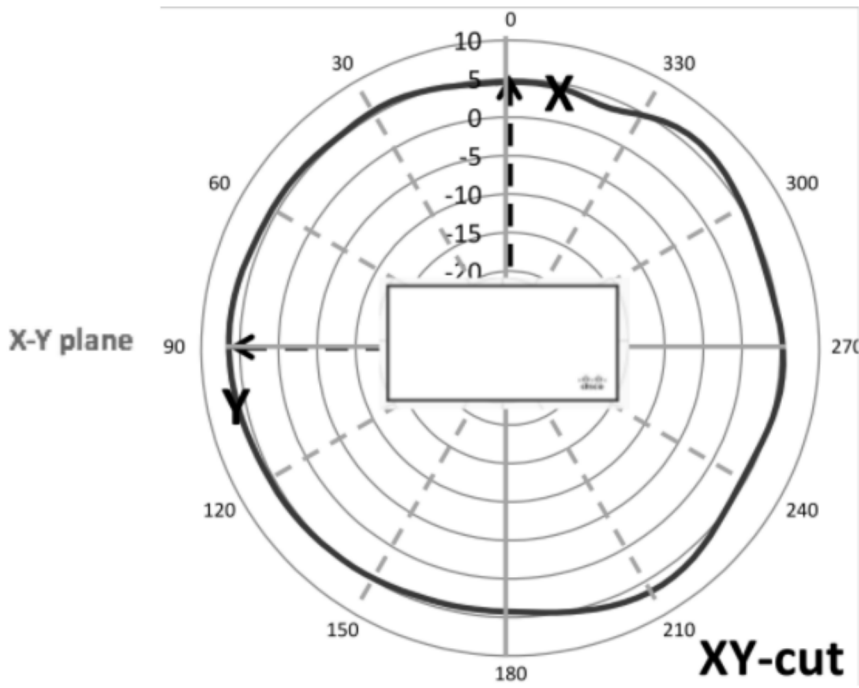
5 GHz	802.11ax (HE80)	MCS11	21
		MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26
		MCS4	26
		MCS5	24
		MCS6	24
		MCS7	23
		MCS8	22
		MCS9	22
		MCS10	20
MCS11	20		

Signal Coverage Patterns

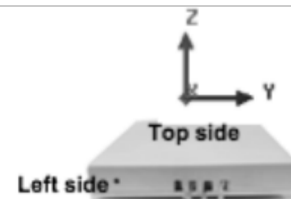
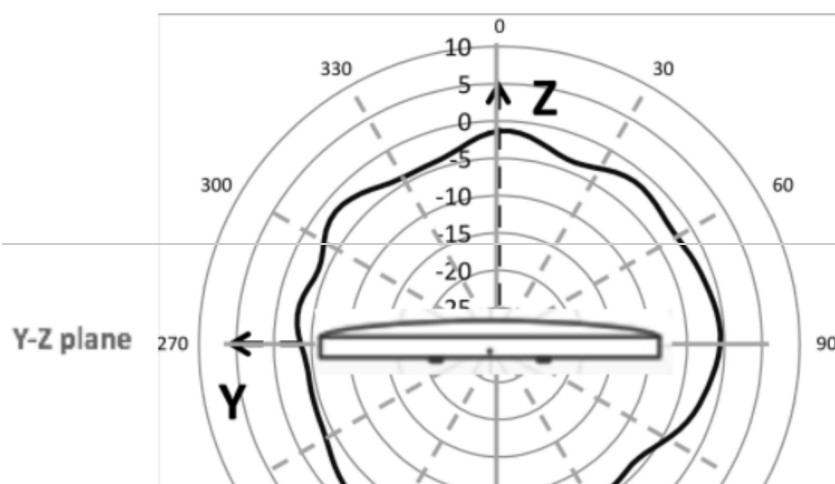
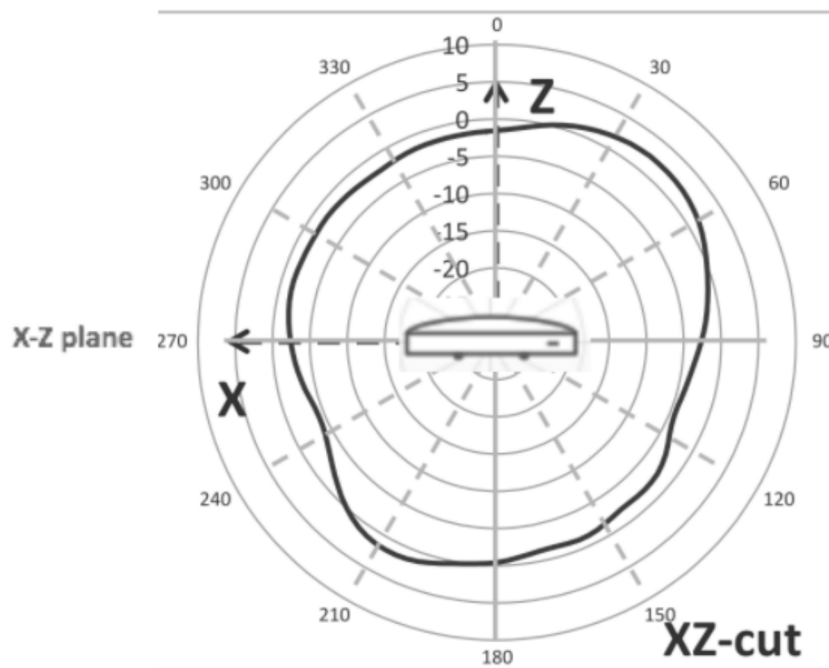
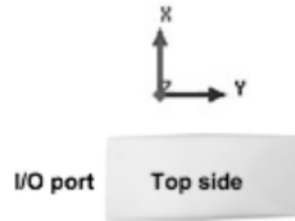
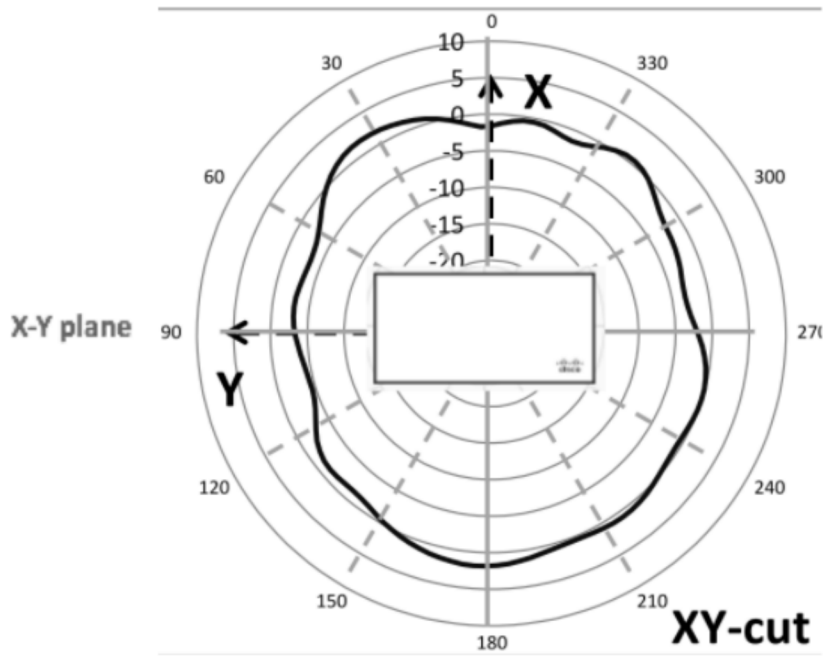
5 GHz - Wireless



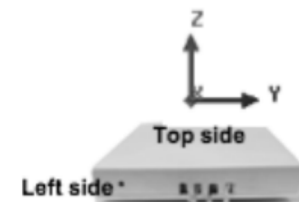
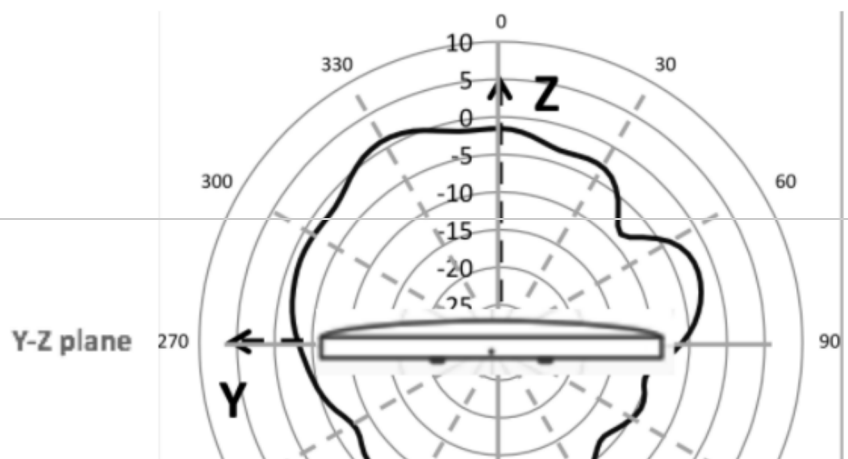
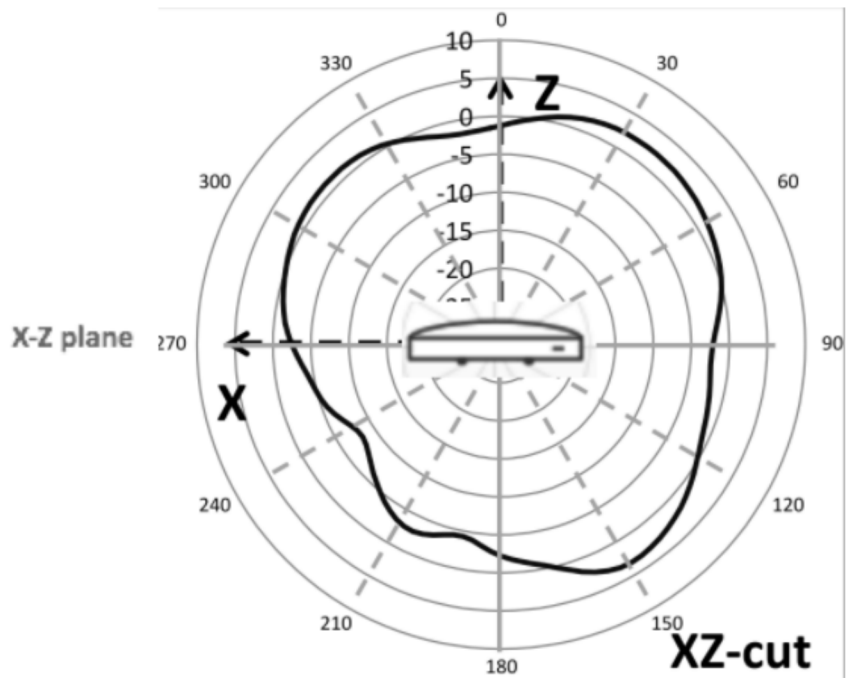
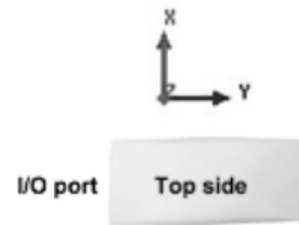
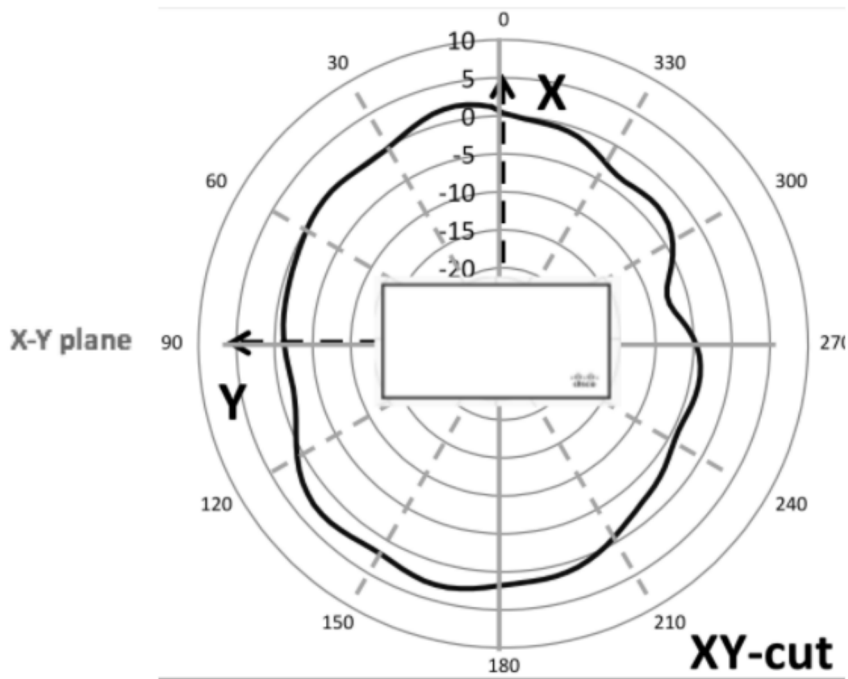
2.4 GHz - Wireless



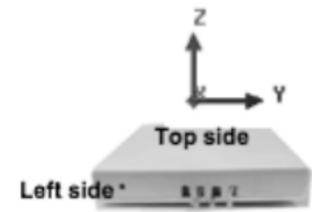
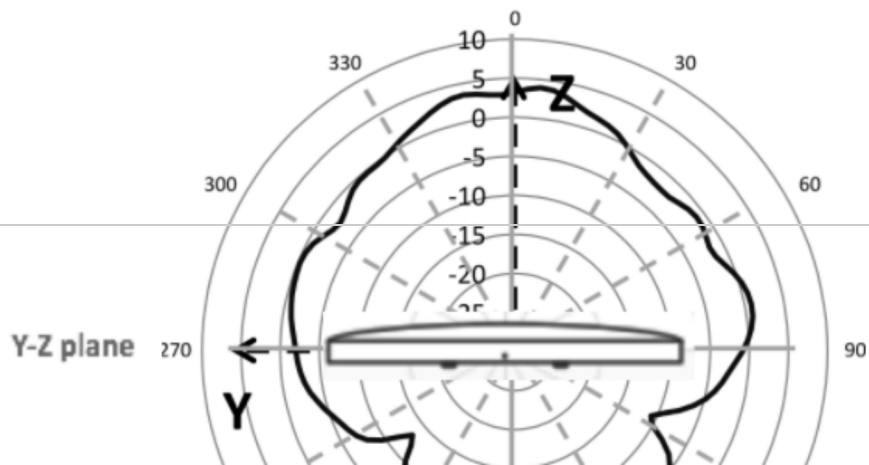
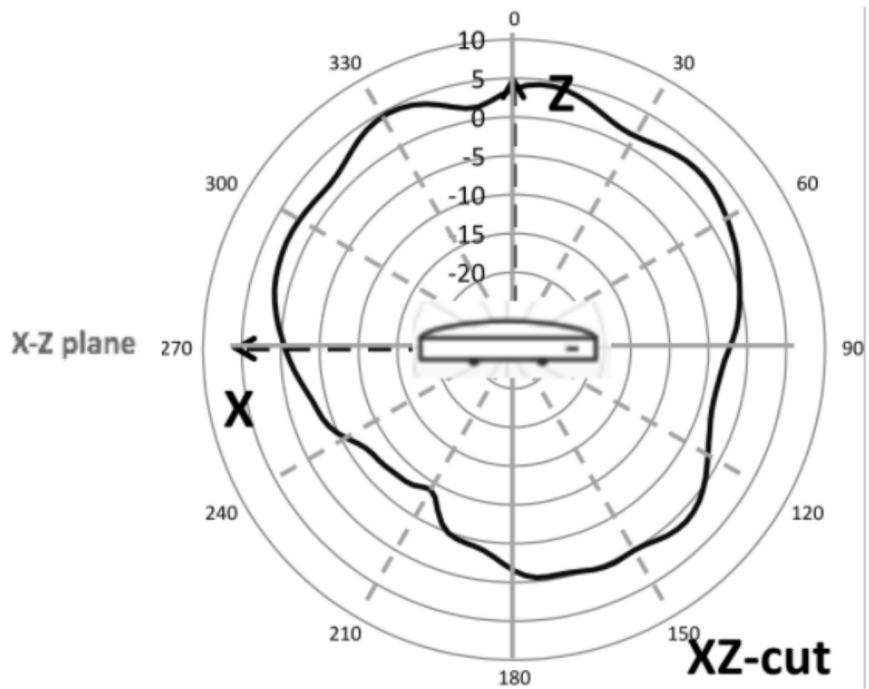
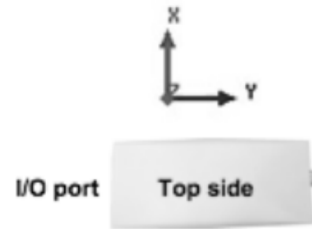
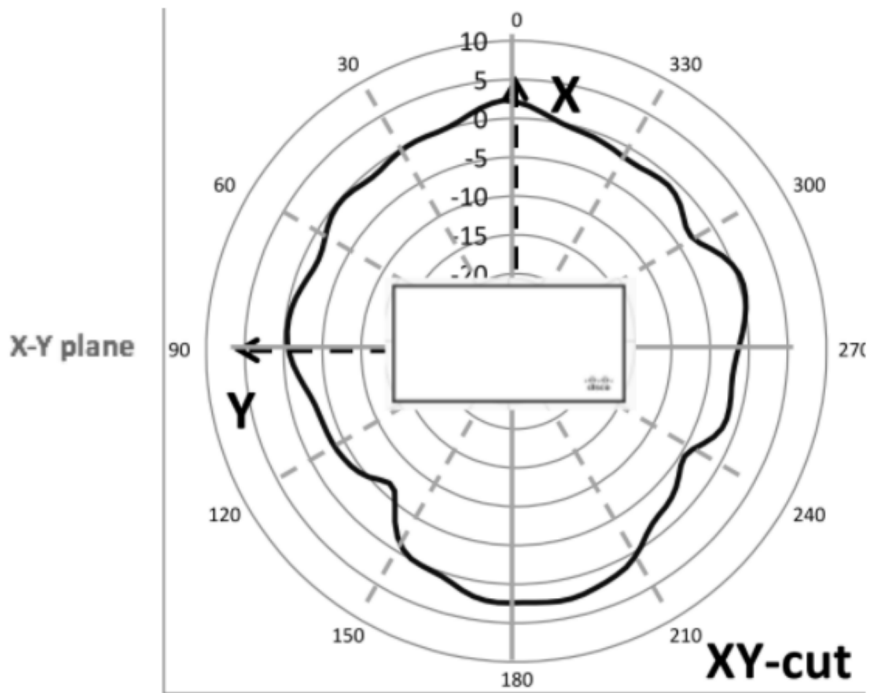
2.4GHz - Bluetooth



2.4 GHz - Scanning



5 GHz - Scanning



Installation Guide

For instructions on how to install and configure MR56 access points please refer to the [MR56 Installation Guide](#).



MR46 Datasheet

High Performance 802.11ax Wireless

The Cisco Meraki MR46 is a cloud-managed 4x4:4 802.11ax access point that raises the bar for wireless performance and efficiency. Designed for next-generation deployments in offices, schools, hospitals, shops, and hotels, the MR46 offers high throughput, enterprise-grade security, and simple management.

The MR46 provides a maximum of 3.5 Gbps* aggregate frame rate with concurrent 2.4 GHz and 5 GHz radios. A dedicated third radio provides real-time WIDS/WIPS with automated RF optimization, and a fourth integrated radio delivers Bluetooth scanning and beaconing.

With the combination of cloud management, high performance hardware, multiple radios, and advanced software features, the MR46 makes an outstanding platform for the most demanding of uses—including high-density deployments and bandwidth or performance-intensive applications like voice and high-definition video.



MR46 and Meraki Cloud Management

Management of the MR46 is performed through the Meraki cloud, with an intuitive browser-based interface that enables rapid deployment without time-

consuming training or costly certifications. Because the MR46 is self-configuring and managed over the web, it can be deployed at a remote location in a matter of minutes, even without on-site IT staff.

24x7 monitoring via the Meraki cloud delivers real-time alerts if a network encounters problems. Remote diagnostic tools enable immediate troubleshooting over the web so that distributed networks can be managed with a minimum of hassle.

The MR46's firmware is automatically kept up to date via the cloud. New features, bug fixes, and enhancements are delivered seamlessly over the web. This means no manual software updates to download or missing security patches to worry about.

Product Highlights

- 4x4:4 MU-MIMO 802.11ax
- 3.5* Gbps dual-radio aggregate frame rate
- 24x7 real-time WIDS/WIPS and spectrum analytics via dedicated third radio
- Integrated Bluetooth Low Energy Beacon
- Integrated scanning radio
- Enhanced transmit power and receive sensitivity
- Integrated enterprise security and guest access
- Application-aware traffic shaping
- Optimized for voice and video
- Self-configuring, plug-and-play deployment
- Sleek design blends into office environments
- Full-time Wi-Fi location tracking via dedicated 3rd radio

Features

Dual-radio aggregate frame rate of up to 3.5 Gbps*

5 GHz 4x4:4 radio and 2.4 GHz 4x4:4 radio offer a combined dual-radio aggregate frame rate of 3.5 Gbps*, with up to 2,402 Mbps in the 5 GHz band and 1,147 Mbps in the 2.4 GHz band. Technologies like transmit beamforming and enhanced receive sensitivity allow the MR46 to support a higher client density than typical enterprise-class access points, resulting in better performance for more clients, from each AP.



* Refers to maximum over-the-air data frame rate capability of the radio chipset, and may exceed data rates allowed by IEEE 802.11ax operation.

Multi User Multiple Input Multiple Output (MU-MIMO)

With support for features of 802.11ax, the MR46 offers MU-MIMO and OFDMA for more efficient transmission to multiple clients. Especially suited to environments with numerous mobile devices, MU-MIMO enables multiple clients to receive data simultaneously. This increases the total network performance and improves the end user experience.

Dedicated third radio delivers 24x7 wireless security and RF analytics

The MR46's dedicated dual-band scanning and security radio continually assesses the environment, characterizing RF interference and containing wireless threats like rogue access points. There's no need to choose between wireless security, advanced RF analysis, and serving client data - a dedicated third radio means that all functions occur in real-time, without any impact to client traffic or AP throughput.

Bluetooth Low Energy Beacon and scanning radio

An integrated fourth Bluetooth radio provides seamless deployment of BLE Beacon functionality and effortless visibility of Bluetooth devices. The MR46 enables the next generation of location-aware applications while future proofing deployments, ensuring it's ready for any new customer engagement strategies.

Automatic cloud-based RF optimization

The MR46's sophisticated and automated RF optimization means that there is no need for the dedicated hardware and RF expertise typically required to tune a wireless network. The RF data collected by the dedicated third radio is continuously fed back to the Meraki cloud. This data is then used to automatically tune the channel selection, transmit power, and client connection settings for optimal performance under even the most challenging RF conditions.

Integrated enterprise security and guest access

The MR46 features integrated, easy-to-use security technologies to provide secure connectivity for employees and guests alike. Advanced security features such as AES hardware-based encryption and Enterprise authentication with 802.1X and Active Directory integration provide wired-like security while still being easy to configure. One-click guest isolation provides secure, Internet-only access for visitors. PCI compliance reports check network settings against PCI requirements to simplify secure retail deployments.

Enterprise Mobility Management (EMM) & Mobile Device Management (MDM) integration

Meraki Systems Manager natively integrates with the MR46 to offer automatic, context-aware security. Systems Manager's self-service enrollment helps to rapidly deploy MDM without installing additional equipment, and then dynamically tie firewall and traffic shaping policies to client posture.

Application-aware traffic shaping

The MR46 includes an integrated layer 7 packet inspection, classification, and control engine, enabling the configuration of QoS policies based on traffic type, helping to prioritize mission-critical applications while setting limits on recreational traffic like peer-to-peer and video streaming. Policies can be implemented per network, per SSID, per user group, or per individual user for maximum flexibility and control.

Voice and video optimizations

Industry standard QoS features are built-in and easy to configure. Wireless MultiMedia (WMM) access categories, 802.1p, and DSCP standards support all ensure important applications get prioritized correctly, not only on the MR46, but on other devices in the network. Unscheduled Automatic Power Save Delivery (U-APSD) and new Target Wait Time features in 802.11ax clients ensure minimal battery drain on wireless VoIP phones.

Self-configuring, self-maintaining, always up-to-date

When plugged in, the MR46 automatically connects to the Meraki cloud, downloads its configuration, and joins the appropriate network. If new firmware is required, this is retrieved by the AP and updated automatically. This ensures the network is kept up-to-date with bug fixes, security updates, and new features.

Advanced analytics

Drilling down into the details of network usage provides highly granular traffic analytics. Visibility into the physical world can be enhanced with journey tracking through location analytics. Visitor numbers, dwell time, repeat visit rates, and track trends can all be easily monitored in the dashboard and deeper analysis is enabled with raw data available via simple APIs.

Specifications

Category	Specifications
Radios	<ul style="list-style-type: none"> • 2.4 GHz 802.11b/g/n/ax client access radio • 5 GHz 802.11a/n/ac/ax client access radio • 2.4 GHz & 5 GHz dual-band WIDS/WIPS, spectrum analysis, & location analytics radio • 2.4 GHz Bluetooth Low Energy (BLE) radio with Beacon and BLE scanning support • Concurrent operation of all four radios • Supported frequency bands (country-specific restrictions apply) • Supported frequency bands (country-specific restrictions apply): <ul style="list-style-type: none"> ◦ 2.412-2.484 GHz ◦ 5.150-5.250 GHz (UNII-1) ◦ 5.250-5.350 GHz (UNII-2) ◦ 5.470-5.600, 5.660-5.725 GHz (UNII-2e) ◦ 5.725 -5.825 GHz (UNII-3)

Antenna	<ul style="list-style-type: none"> Internal Antenna (5.4 dBi gain at 2.4 GHz, 6 dBi gain at 5 GHz)
802.11ax, 802.11ac Wave 2 and 802.11n Capabilities	<ul style="list-style-type: none"> DL-OFDMA**, UL-OFDMA**, TWT support**, BSS Coloring** 4 x 4 multiple input, multiple output (MIMO) with four spatial streams SU-MIMO, UL MU-MIMO** and DL MU-MIMO support Maximal ratio combining (MRC) & beamforming 20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80 MHz channels (802.11ax) Up to 1024-QAM on both 2.4 GHz & 5 GHz bands Packet aggregation
Power	<ul style="list-style-type: none"> Power over Ethernet: 42.5 - 57 V (802.3at compliant) Alternative: 12 V DC input Power consumption: 30W max (802.3at) Power over Ethernet injector and DC adapter sold separately
Interfaces	<ul style="list-style-type: none"> 1x 100/1000/2.5G BASE-T Ethernet (RJ45) 1x DC power connector (5.5 mm x 2.5 mm, center positive)
Mounting	<ul style="list-style-type: none"> All standard mounting hardware included Desktop, ceiling, and wall mount capable Ceiling tile rail (9/16, 15/16 or 1 1/2" flush or recessed rails), assorted cable junction boxes Bubble level on mounting cradle for accurate horizontal wall mounting
Physical Security	<ul style="list-style-type: none"> Two security screw options (included) (13.5 mm long and 2.5 mm diameter and 5 mm head) Kensington lock hard point Concealed mount plate with anti-tamper cable bay
Environment	<ul style="list-style-type: none"> Operating temperature: 32 °F to 104 °F (0 °C to 40 °C) Humidity: 5 to 95% non-condensing
Reliability	<ul style="list-style-type: none"> Mean Time Between Failure (MTBF): 1,406,652hrs at +25°C operating temperature
Physical Dimensions	<ul style="list-style-type: none"> 12.05" x 5.06" x 1.74" (30.6 cm x 12.84 cm x 4.43 cm), not including desk mount feet or mount plate Weight: 28.22 oz (800 g)
Security	<ul style="list-style-type: none"> Integrated Layer 7 firewall with mobile device policy management Real-time WIDS/WIPS with alerting and automatic rogue AP containment with Air Marshal Flexible guest access with device isolation

	<ul style="list-style-type: none"> • VLAN tagging (802.1q) and tunneling with IPsec VPN • PCI compliance reporting • WEP***, WPA, WPA2-PSK, WPA2-Enterprise with 802.1X, WPA3 - Personal**, WPA3 - Enterprise**, WPA3 - Enhanced Open (OWE)** • EAP-TLS, EAP-TTLS, EAP-MSCHAPv2, EAP-SIM • TKIP and AES encryption • Enterprise Mobility Management (EMM) & Mobile Device Management (MDM) integration • Cisco ISE integration for Guest access and BYOD Posturing
Quality of Service	<ul style="list-style-type: none"> • Advanced Power Save (U-APSD) • WMM Access Categories with DSCP and 802.1p support • Layer 7 application traffic identification and shaping
Mobility	<ul style="list-style-type: none"> • PMK, OKC, & 802.11r for fast Layer 2 roaming • Distributed or centralized layer 3 roaming
Analytics	<ul style="list-style-type: none"> • Embedded location analytics reporting and device tracking • Global L7 traffic analytics reporting per network, per device, & per application
LED Indicators	<ul style="list-style-type: none"> • 1 power/booting/firmware upgrade status
Regulatory	<ul style="list-style-type: none"> • RoHS • For additional country-specific regulatory information, please contact Meraki sales
Warranty	<ul style="list-style-type: none"> • Lifetime hardware warranty with advanced replacement included
Ordering Information	<ul style="list-style-type: none"> • MR46-HW: Meraki MR46 Cloud Managed 802.11ax AP • MA-PWR-30W-XX: Meraki AC Adapter for MR Series (XX = US/EU/UK/AU) • MA-INJ-4-XX: Meraki Gigabit 802.3at Power over Ethernet Injector (XX = US/EU/UK/AU) • MA-INJ-5-XX: Meraki Multigigabit 802.3at Power over Ethernet Injector (XX = US/EU/UK/AU) • Note: Meraki access point license required.



** software features can be enabled via future firmware updates

Compliance and Standards

Category	Standards
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IEEE Standards	<ul style="list-style-type: none"> 802.11a, 802.11ac, 802.11ax, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11k, 802.11n, 802.11r, and 802.11u***
Safety Approvals	<ul style="list-style-type: none"> CSA and CB 60950 & 62368 Conforms to UL 2043 (Plenum Rating)
Radio Approvals	<ul style="list-style-type: none"> Canada: FCC Part 15C, 15E, RSS-247 Europe: EN 300 328, EN 301 893 Australia/NZ: AS/NZS 4268 Mexico: IFT, NOM-208 Taiwan: NCC LP0002 For additional country-specific regulatory information, please contact Meraki Sales
EMI Approvals (Class B)	<ul style="list-style-type: none"> Canada: FCC Part 15B, ICES-003 Europe: EN 301 489-1-17, EN 55032, EN 55024 Australia/NZ: CISPR 22 Japan: VCCI
Exposure Approvals	<ul style="list-style-type: none"> Canada: FCC Part 2, RSS-102 Europe: EN 50385, EN 62311, EN 62479 Australia/NZ: AS/NZS 2772
EMC	<ul style="list-style-type: none"> EN 61000



*** feature can be enabled for required networks

Context and Comparisons

802.11ax, 802.11ac Wave 2 and 802.11n Capabilities

MR36	MR46	MR56
DL-OFDMA**, UL-OFDMA**, TWT support**, BSS coloring**	DL-OFDMA**, UL-OFDMA**, TWT support**, BSS coloring**	DL-OFDMA**, UL-OFDMA**, TWT support**, BSS coloring**
2 x 2 multiple input, multiple output (MIMO) with two spatial streams	4 x 4 multiple input, multiple output (MIMO) with four spatial streams	8 x 8 multiple input, multiple output (MIMO) with eight spatial streams on 5 GHz 4 x 4 multiple input, multiple output (MIMO) with

eight spatial streams on 2.4 GHz

Maximal ratio combining (MRC) & beamforming	Maximal ratio combining (MRC) & beamforming	Maximal ratio combining (MRC) & beamforming
SU-MIMO, UL MU-MIMO** and DL MU-MIMO support	SU-MIMO, UL MU-MIMO** and DL MU-MIMO support	SU-MIMO, UL MU-MIMO** and DL MU-MIMO support
20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80 MHz channels (802.11ax)	20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80 MHz channels (802.11ax)	20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80MHz channels (802.11ax)
Up to 1024-QAM on both 2.4 GHz & 5 GHz bands	Up to 1024-QAM on both 2.4 GHz & 5 GHz bands	Up to 1024-QAM on both 2.4 GHz & 5 GHz bands
Packet aggregation	Packet aggregation	Packet aggregation

Power

MR36	MR46	MR56
Power over Ethernet: 37 - 57 V (802.af compliant)	Power over Ethernet: 42.5 - 57 V (802.3at compliant)	Power over Ethernet: 42.5 - 57 V (802.3at compliant)
Alternative: 12 V DC input	Alternative: 12 V DC input	Alternative: 12 V DC input
Power consumption: 15W max (802.3af)	Power consumption: 30W max	Power consumption: 30W max
Power over Ethernet injector and DC adapter sold separately	Power over Ethernet injector and DC adapter sold separately	Power over Ethernet injector and DC adapter sold separately

Interfaces

MR36	MR46	MR56
1x 10/100/1000 BASE-T Ethernet (RJ45)	1x 100/1000/2.5G BASE-T Ethernet (RJ45)	1x 100/1000/2.5G/5G BASE-T Ethernet (RJ45)
1x DC power connector (5.5 mm x 2.5 mm, center positive)	1x DC power connector (5.5 mm x 2.5 mm, center positive)	1x DC power connector (5.5 mm x 2.5 mm, center positive)

Physical Dimensions

MR36	MR46	MR56
9.84" x 4.72" x 1.42" (25 cm x 12 cm x 3.6 cm), not including desk mount feet or mount	12.05" x 5.06" x 1.74" (30.6 cm x 12.84 cm x 4.426 cm), not including desk mount feet or mount plate	12.83" x 5.54" x 1.76" (32.6 cm x 14.079 cm x 4.47 cm), not including deskmount feet or mount

plate

Weight: 17.35 oz (492 g)

plate

Weight: 28.22 oz (800 g)

Weight: 35.27 oz (1 kg)

RF Performance Table

2.4 GHz

Operating Band	Operating Mode	Data Rate	TX Power (conducted)
2.4 GHz	802.11b	1 Mb/s	26.0
		2 Mb/s	26.0
		5.5 Mb/s	26.0
		11 Mb/s	26.0
2.4 GHz	802.11g	6 Mb/s	26.0
		9 Mb/s	26.0
		12 Mb/s	24.0
		18 Mb/s	24.0
		24 Mb/s	23.0
		36 Mb/s	23.0
		48 Mb/s	22.0
		54 Mb/s	22.0
2.4 GHz	802.11n (HT20)	MCS0	26.0

		MCS1	26.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	22.0
		MCS6	22.0
		MCS7	21.0
2.4 GHz	802.11ac (VHT20)	MCS0	26.0
		MCS1	26.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	22.0
		MCS6	22.0
		MCS7	21.0
		MCS8	20.0
2.4 GHz	802.11ax (HE20)	MCS0	26.0
		MCS1	26.0
		MCS2	24.0

		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	21.0
		MCS8	20.0
		MCS9	20.0
		MCS10	19.0
		MCS11	19.0
2.4 GHz	802.11ac (VHT40)	MCS0	24.0
		MCS1	24.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	22.0
		MCS8	20.5
		MCS9	20.0

2.4 GHz	802.11ax (HE40)	MCS0	24.0
		MCS1	24.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	21.5
		MCS8	20.5
		MCS9	20.0
		MCS10	18.5
		MCS11	18.5

5 GHz

Operating Band	Operating Mode	Data Rate	TX Power
5 GHz	802.11a	6 Mb/s	26.0
		9 Mb/s	26.0
		12 Mb/s	24.0
		18 Mb/s	24.0

		24 Mb/s	23.0
		36 Mb/s	23.0
		48 Mb/s	22.0
		54 Mb/s	22.0
5 GHz	802.11n (HT20)	MCS0	26.0
		MCS1	26.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	22.0
5 GHz	802.11n (HT40)	MCS0	24.0
		MCS1	24.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0

		MCS7	22.0
5 GHz	802.11ac (VHT20)	MCS0	26.0
		MCS1	26.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	22.0
		MCS8	21.0
5 GHz	802.11ac (VHT40)	MCS0	24.0
		MCS1	24.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	22.0
		MCS8	20.5

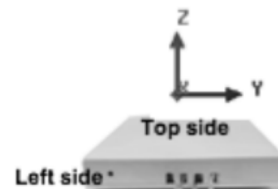
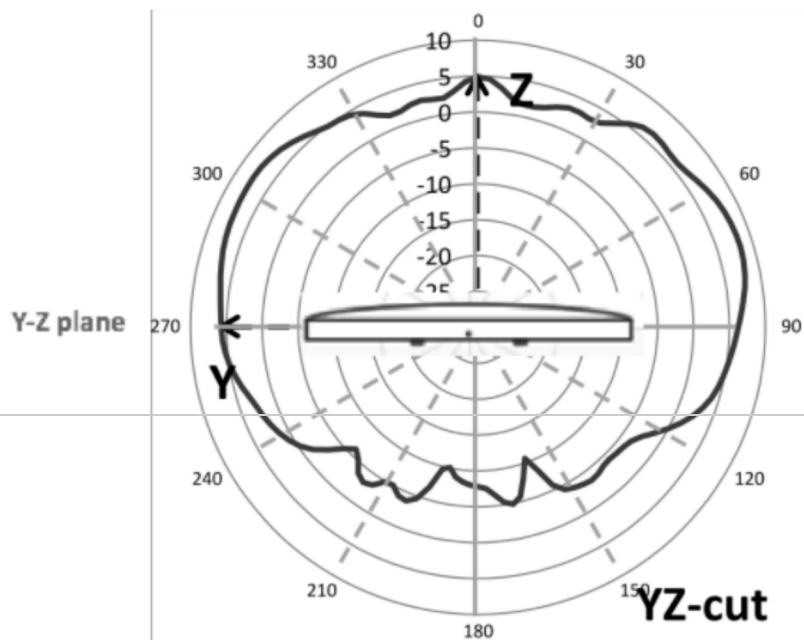
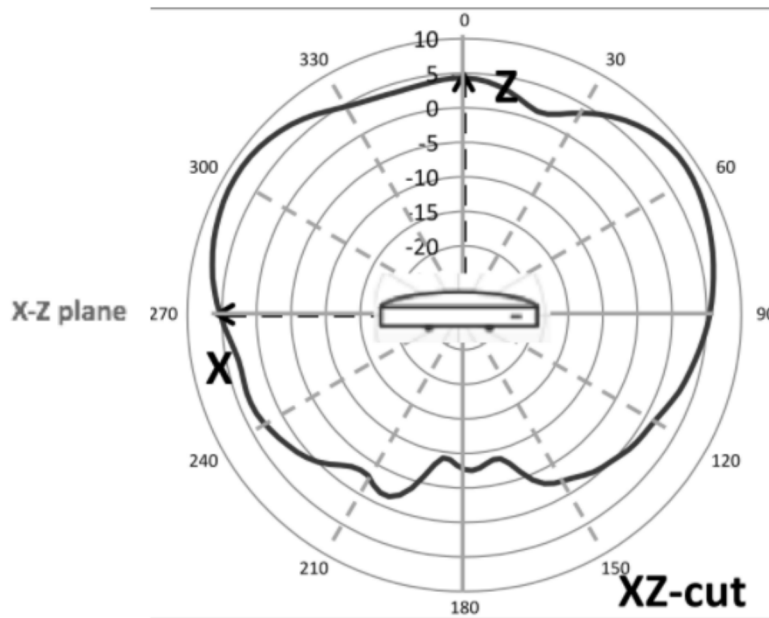
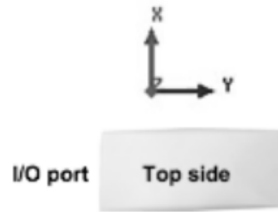
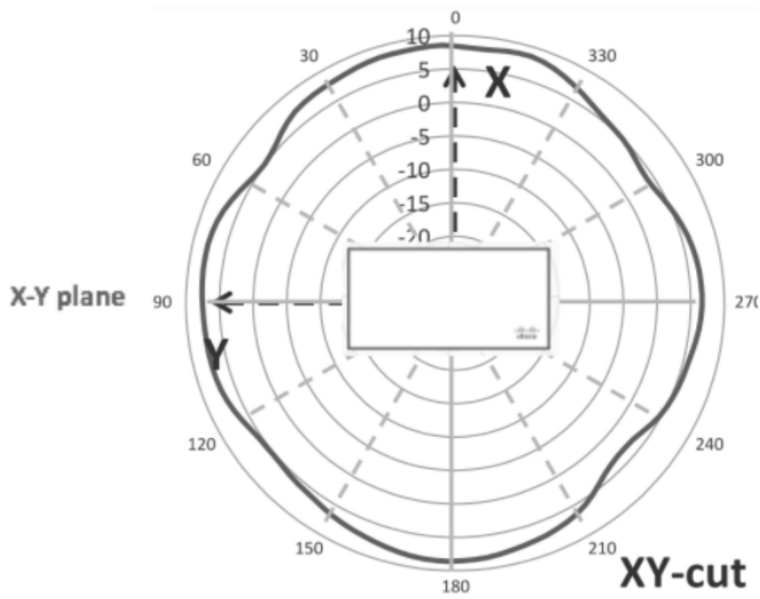
		MCS9	20.0
5 GHz	802.11ac (VHT80)	MCS0	24.0
		MCS1	24.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	22.0
		MCS6	22.0
		MCS7	20.0
		MCS8	19.0
		MCS9	19.0
5 GHz	802.11ax (HE20)	MCS0	26.0
		MCS1	26.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	22.0

		MCS8	21.0
		MCS9	21.0
		MCS10	19.0
		MCS11	19.0
5 GHz	802.11ax (HE40)	MCS0	24.0
		MCS1	24.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	21.5
		MCS8	20.5
		MCS9	20.0
		MCS10	18.5
		MCS11	18.5
5 GHz	802.11ax (HE80)	MCS0	24.0
		MCS1	24.0
		MCS2	24.0

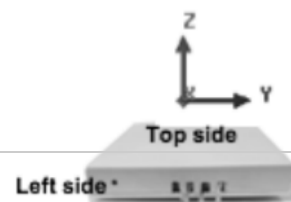
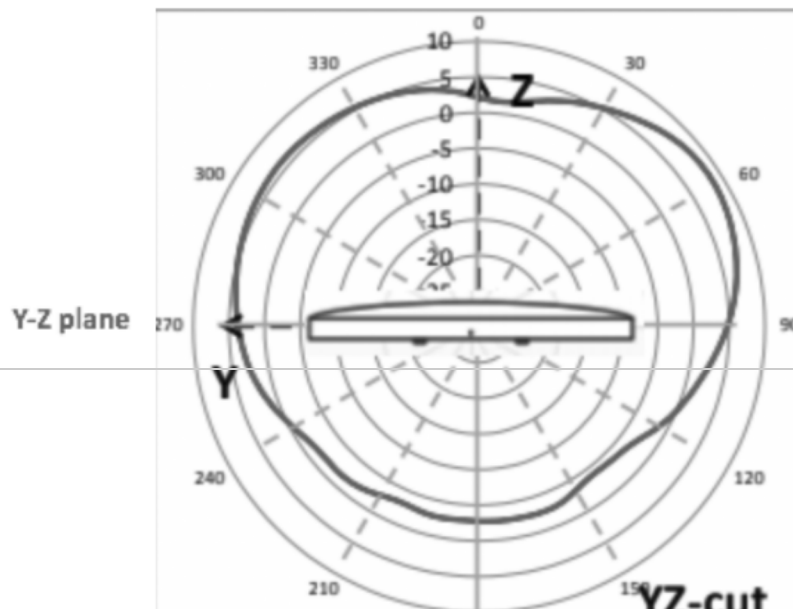
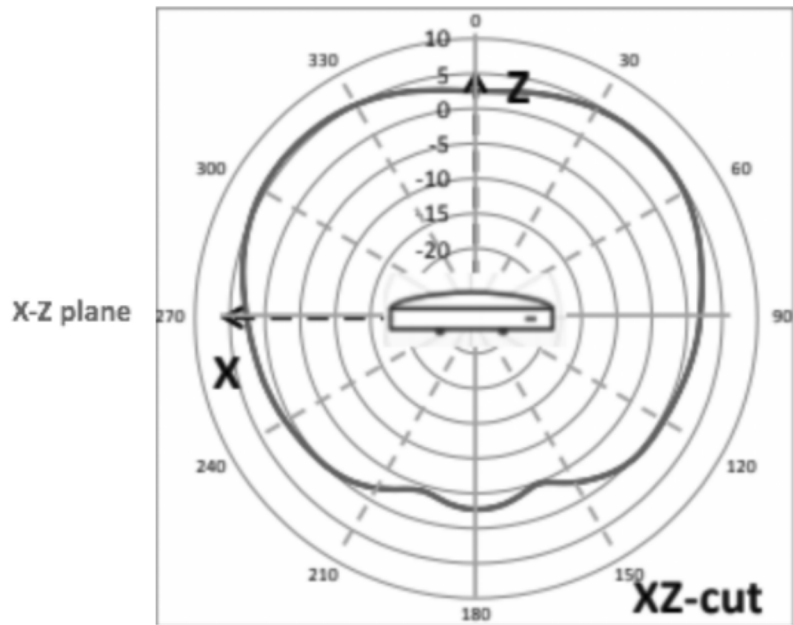
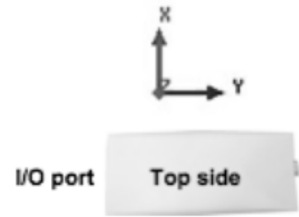
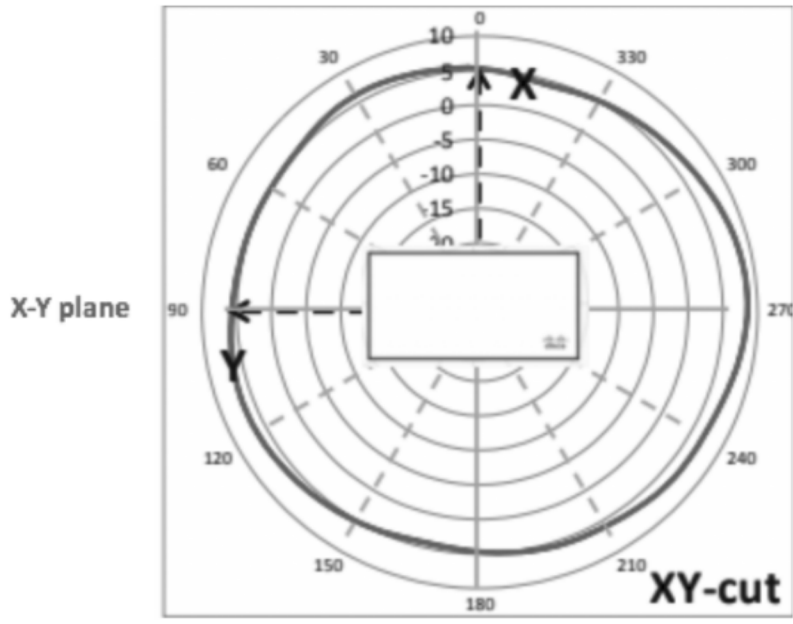
MCS3	24.0
MCS4	24.0
MCS5	22.0
MCS6	22.0
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MCS9	19.0
MCS10	17.0
MCS11	17.0

Signal Coverage Patterns

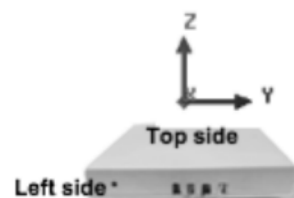
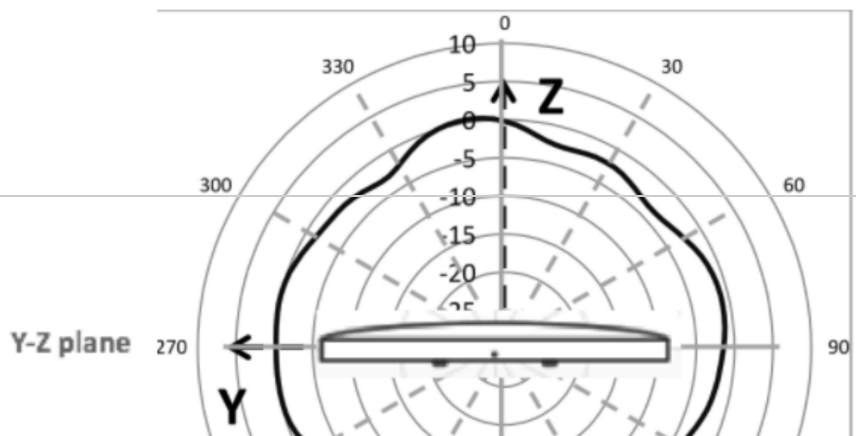
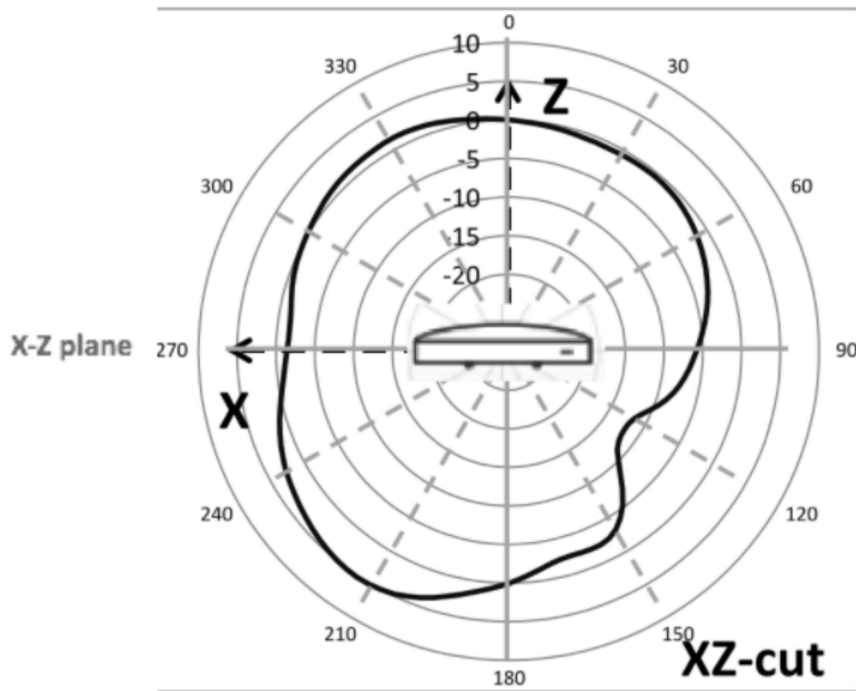
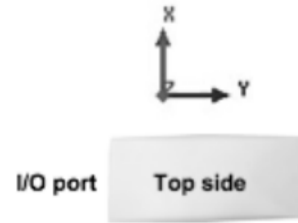
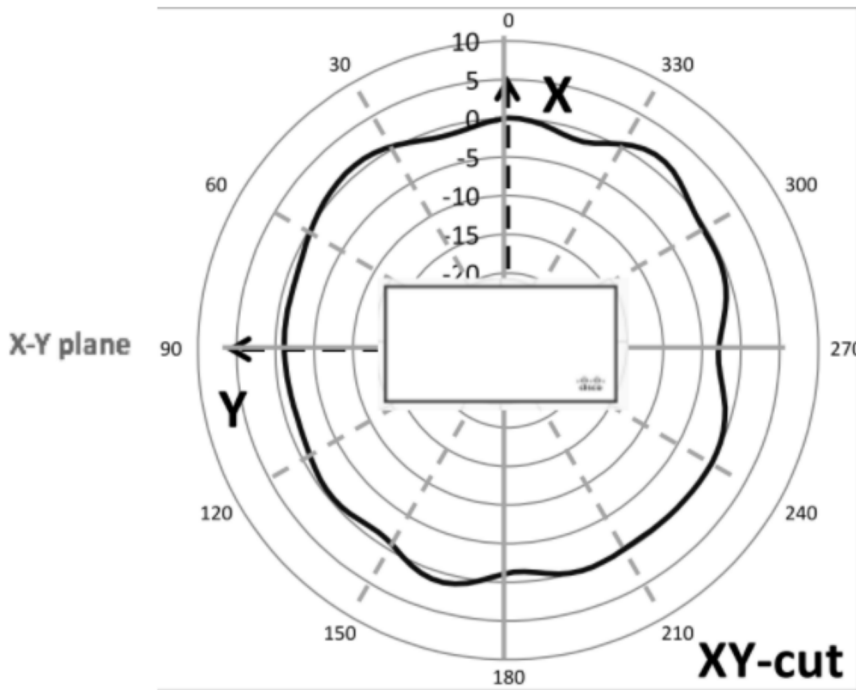
5 GHz - Wireless



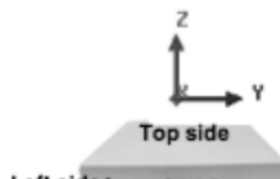
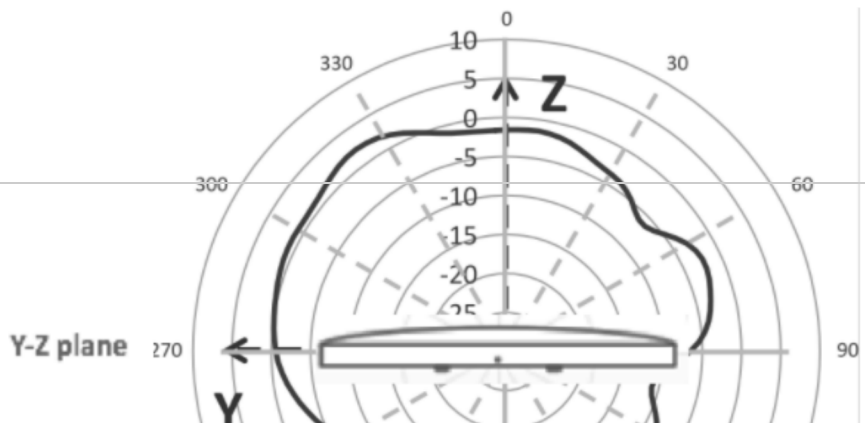
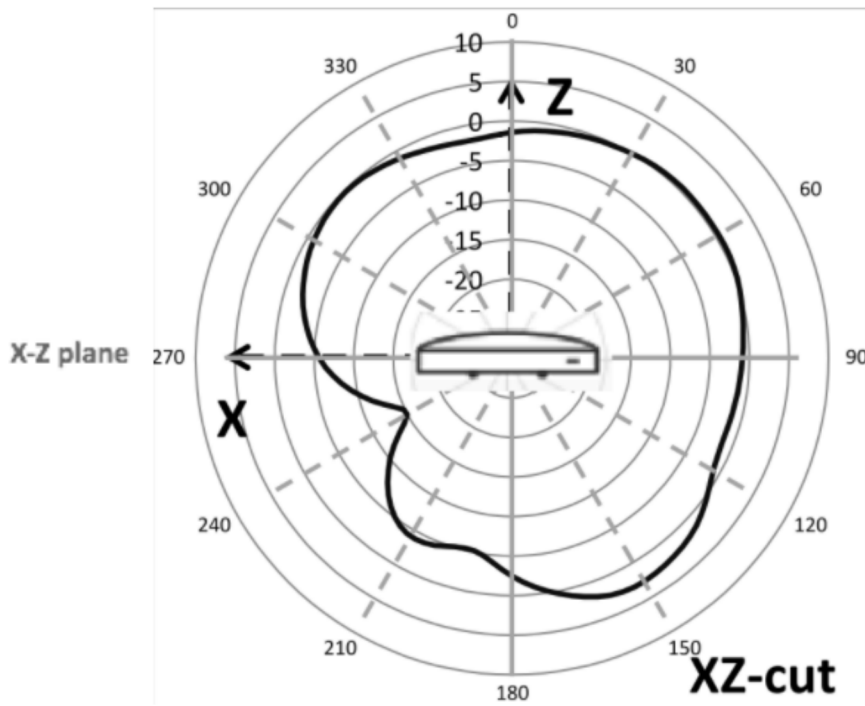
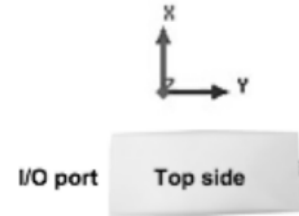
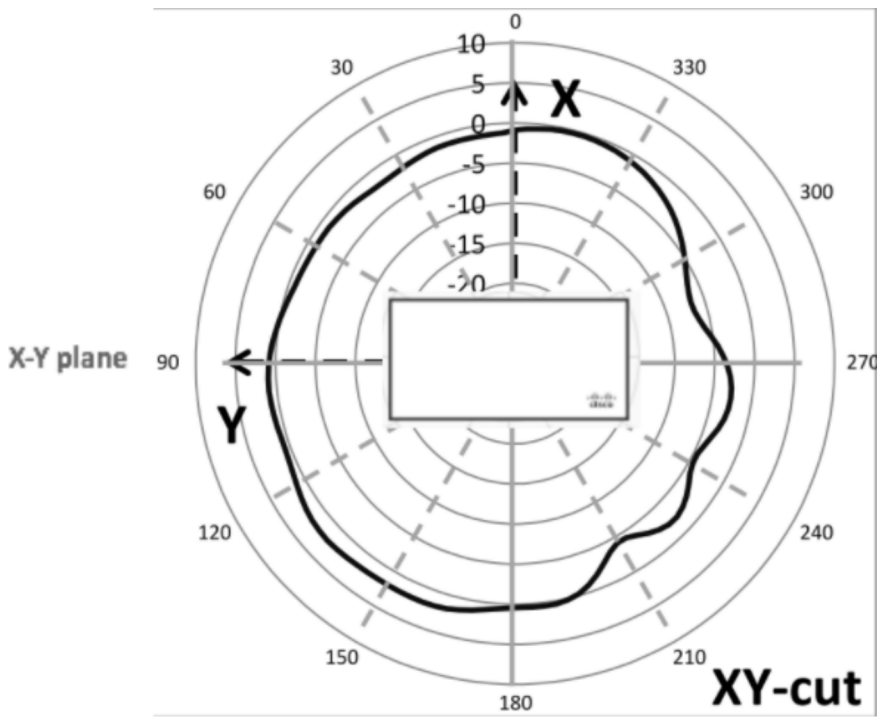
2.4 GHz - Wireless



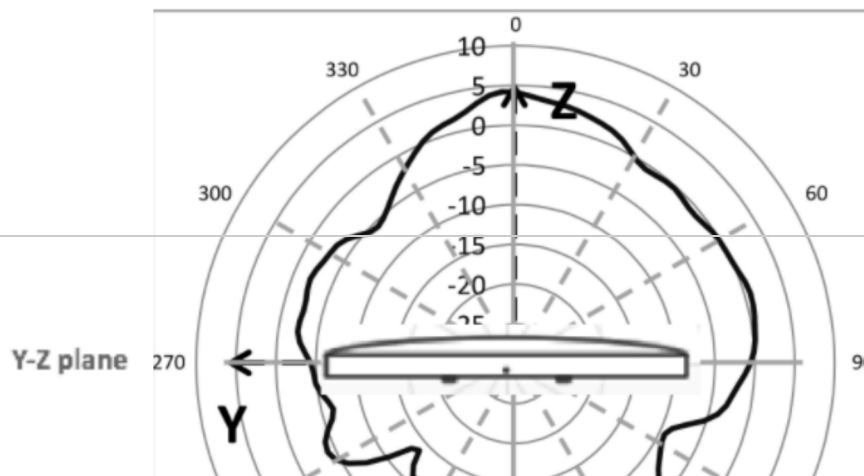
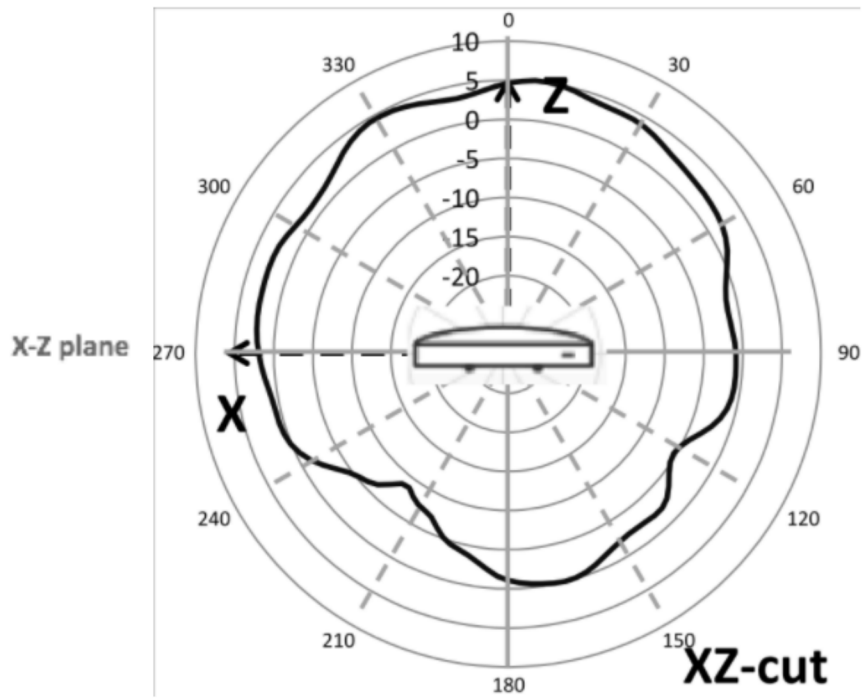
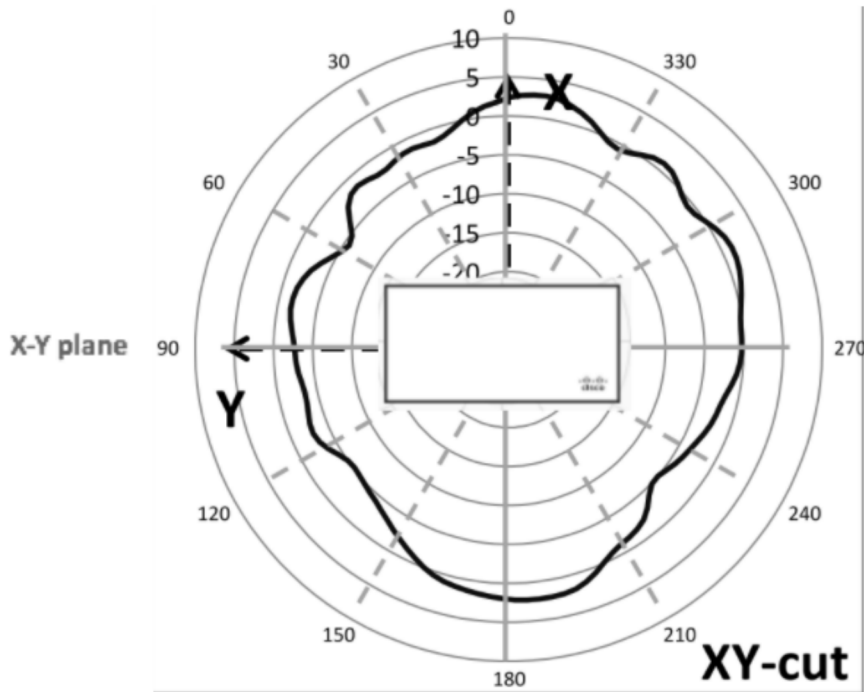
2.4GHz - Bluetooth



2.4 GHz - Scanning



5 GHz - Scanning



Installation Guide

For instructions on how to install and configure MR46 access points please refer to the [MR46 Installation Guide](#).



MS390 Datasheet

Overview

The Meraki MS390 addresses the most demanding enterprise applications by combining the simplicity of the Meraki dashboard with powerful switching hardware. To satisfy high-bandwidth applications and the deployment of high-speed 802.11ax/wifi-6 access points, the MS390 provides multigigabit ports, 480G stacking, and modular 10/40G uplinks. The MS390 delivers resiliency with fast stack convergence and StackPower. The MS390 provides Adaptive Policy using an over-the-wire tag which segments traffic into security groups to deliver scalable security. The MS390 is integrated under the Meraki dashboard to provide a simply powerful solution to the most demanding wired access applications.

Adaptive Policy provides simple & scalable security policies to segment traffic using Security Groups. Security Groups are created in the dashboard using natural language such as "IOT device" & "Guest." The security policy intent (e.g., Permit or Deny) is then simply provisioned between Security Groups which results in the segmentation of each group's traffic. By making security policy management intuitive and scalable relative to legacy IP-address based Access Control Lists, Adaptive Policy empowers operators to confidently secure their network traffic independent of future network changes.

By pooling & distributing power across MS390s using a series of StackPower cables, StackPower provides simple and resilient power distribution across the stack.



Models

Number of Ports	Model	Description
	MS390-24-HW	24-port GbE switch
	MS390-24P-HW	24-port GbE PoE+ switch

24 Ports	MS390-24U-HW	24-port GbE UPoE switch
	MS390-24UX-HW	24-port mGbE UPoE switch
48 Ports	MS390-48-HW	48-port GbE switch
	MS390-48P-HW	48-port GbE PoE+ switch
	MS390-48U-HW	48-port GbE UPoE switch
	MS390-48UX-HW	36-port 2.5GbE + 12-port mGbE UPoE switch
	MS390-48UX2-HW	48-port 5GbE UPOE switch

Features

Category	Features
Highlights	<ul style="list-style-type: none"> • Layer-3 • 40G or 10G modular uplink options on all models • mGig support • Dual Dedicated 120G Hardware Stacking Ports • PoE+ and UPoE Support • StackPower in a ring topology supporting upto 4 switches
Management	<ul style="list-style-type: none"> • Managed via Cisco Meraki Dashboard • Zero-touch remote provisioning (no staging needed) • Basic configuration capability via local management page • Detailed historical per-port and per-client usage statistics • Operating System, device, and hostname fingerprinting • Automatic firmware upgrades with scheduling control • SNMP and SYSLOG support for integration with other network management solutions*
Remote Diagnostics	<ul style="list-style-type: none"> • Email, SMS and Mobile push notification alerts¹ • Ping, traceroute, cable testing, and link failure detection with alerting • Remote packet capture • Dynamic and interactive network discovery and topology • Combined event and configuration change logs with instant search
Stacking	<ul style="list-style-type: none"> • Physically stack up to 8 switches with 480 Gbps of stacking bandwidth on all models • Virtual stacking supports thousands of switch ports in a single logical stack for unified management, monitoring, and configuration • Faster convergence

	<ul style="list-style-type: none"> StackPower in a ring topology supporting upto 4 switches
Ethernet Switching Capabilities	<ul style="list-style-type: none"> 802.1p Quality of Service, 8 queues (w/ 6 configurable for DSCP-to-CoS mapping) 802.1Q VLAN and trunking support for up to 4,094 VLANs (1000 active VLANs with STP enabled) Single Instance of 802.1s Multiple Spanning Tree Protocol (interoperable with RSTP, STP, PVST, RPVST) STP Enhancements: BPDU guard, Root guard, Loop guard, UDLD Broadcast storm control 802.1ab Link Layer Discovery Protocol (LLDP) and Cisco Discovery Protocol (CDP) 802.3ad Link aggregation with up to 8 ports per aggregate, Multichassis aggregates supported on stacked switches Port mirroring IGMP snooping for multicast filtering MAC Forwarding Entries: 32K
Layer 3	<ul style="list-style-type: none"> Static routing, OSPFv2 Multicast routing (PIM-ASM) Warm Spare (VRRP) DHCP Server, DHCP Relay
Security	<ul style="list-style-type: none"> Integrated multi-factor authentication for Dashboard management Role-based access control (RBAC) with granular device and configuration control Corporate wide password policy enforcement IEEE 802.1X RADIUS and MAB, hybrid authentication and RADIUS server testing Single-Host/Multi-Domain/Multi-Host/Multi Authentication Port security: Sticky MAC, MAC whitelisting DHCP snooping, detection and blocking, Dynamic ARP Inspection IPv4 and IPv6 ACLs Secure Connect * Adaptive Policy *



* Available in a future software release

MS390 Licensing

MS390 license structure includes two feature tiers: Enterprise and Advanced. The MS390 also introduces a new and simpler license to hardware mapping, specifically 24-port or 48-port licenses. As with all MS, every MS390 license is available in 1, 3, 5, 7, and 10 year terms.

MS390 License Structure	24-Port Model	48-port Model
Advanced Features	LIC-MS390-24A	LIC-MS390-48A

Enterprise Features

LIC-MS390-24E LIC-MS390-48E

The features available with advanced licensing are:

- Adaptive policy *
- Greater than 1,000 routes for OSPF



* Available in a future software release



In the Co-term licensing model (most existing Organizations), an Organization must either have all MS390 Enterprise or all MS390 Advanced licenses - they cannot be mixed. In the Per-device licensing model, a mix of Enterprise and Advanced can be added to a single Organization, but certain features may require all devices in a Network to have Advanced licenses, e.g. Adaptive Policy.

For more information on licensing, refer to [Meraki Licensing Models article](#).

Context and Comparisons

Description	24 Port Models			48 Port Models		
	MS350-24X	MS355-24X2	MS390-24UX	MS350-48FP	MS355-48X2	MS390-48UX2
1GbE RJ45	16	-	-	48	24	-
mGbE RJ45	8	24	24	-	24	48
10GbE SFP+	4	4	Modular	4	4	Modular
40GbE QSFP+	n/a	2	Modular	-	2	Modular
Hardware Stack Port	2x 40G	2x 100G	2x 120G	2x 40G	2x 100G	2x 120G
Management Interface	1	1	1	1	1	1
Hot Swap PS	Yes, Dual	Yes, Dual	Yes, Dual	Yes, Dual	Yes, Dual	Yes, Dual
Hot Swap Fans	Yes, 2x	Yes, 3x	Yes, 3x	Yes, 2x	Yes, 3x	Yes, 3x
Layer 3 Routing	Yes	Yes	Yes	Yes	Yes	Yes
UPoE Capable	Yes, 740W	Yes, 740W	Yes, 560W	No, 740W(only PoE/PoE+)	Yes, 740W	Yes, 645W
Max Switching Capacity	176 Gbps	640 Gbps	640 Gbps	176 Gbps	688 Gbps	640 Gbps
Max Stacking Bandwidth	160 Gbps	400 Gbps	480 Gbps	160 Gbps	400 Gbps	480 Gbps

Technical Breakdown

Interfaces Specifications

Model	Interfaces	Uplink 10/ 40GbE (SFP+, QSFP+)	120G Hardware Stack Port	Dedicated Management Interface	PoE/ UPoE Capabilities
MS390-24-HW	24 x 1GbE RJ45	Modular	2	1	n/a
MS390-24P-HW	24 x 1GbE RJ45	Modular	2	1	PoE
MS390-24U-HW	24 x 1GbE RJ45	Modular	2	1	UPoE
MS390-24UX-HW	24 x 100M/1G/2.5G/5G/ 10G RJ45	Modular	2	1	UPoE
MS390-48-HW	48 x 1GbE RJ45	Modular	2	1	n/a
MS390-48P-HW	48 x 1GbE RJ45	Modular	2	1	PoE
MS390-48U-HW	48 x 1GbE RJ45	Modular	2	1	UPoE
MS390-48UX-HW	36 x 100M/1G/2.5G + 12 x 100M/1G/2.5G/5G/10G	Modular	2	1	UPoE
MS390-48UX2-HW	48 x 100M/1G/2.5G/5G	Modular	2	1	UPoE



All models are available with modular uplinks that have been listed under the [Accessories](#) list. For supported SFP modules please refer the [SFP Datasheet](#).



Cabling Best Practices for Multi-Gigabit operations: While Category-5e cables can support multigigabit data rates upto 2.5/5 Gbps, external factors such as noise, alien crosstalk coupled with longer cable/cable bundle lengths can impede reliable link operation. Noise can originate from cable bundling, RFI, cable movement, lightning, power surges and other transient event. It is recommended to use Category-6a cabling for reliable multigigabit operations as it mitigates alien crosstalk by design.

Physical Specifications

Model	Dimensions (h x w x d)	Weight	Mount Type	Hot Swap Fans	Operating Temperature	Humidity
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	W/ Default Power Supply					
MS390-24-HW	1.73" x 17.5" x 17.7" (4.4 x 44.5 x 44.9cm)	16.03 lb (7.27 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
MS390-24P-HW	1.73" x 17.5" x 17.7" (4.4 x 44.5 x 44.9cm)	16.33 lb (7.4 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
MS390-24U-HW	1.73" x 17.5" x 19.2" (4.4 x 44.5 x 44.8cm)	16.63 lb (7.54 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
MS390-24UX-HW	1.73" x 17.5" x 20.2" (4.4 x 44.5 x 51.3cm)	18.18 lb (8.25 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
MS390-48-HW	1.73" x 17.5" x 17.7" (4.4 x 44.5 x 44.9cm)	16.43 lb (7.45 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
MS390-48P-HW	1.73" x 17.5" x 17.7" (4.4 x 44.5 x 44.9cm)	16.73 lb (7.59 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
MS390-48U-HW	1.73" x 17.5" x 19.2" (4.4 x 44.5 x 48.8cm)	17.03 lb (7.72 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
MS390-48UX-HW	1.73" x 17.5" x 22.2" (4.4 x 44.5 x 56.4cm)	20.50 lb (9.34 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
MS390-48UX2-HW	1.73" x 17.5" x 22.2" (4.4 x 44.5 x 56.4cm)	20.05 lb (9.09 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%

Performance

Model	Switching Capacity	Stacking Bandwidth	Forwarding rate
MS390-24-HW	208 Gbps	480 Gbps	154.76 Mpps

MS390-24P-HW	208 Gbps	480 Gbps	154.76 Mpps
MS390-24U-HW	208 Gbps	480 Gbps	154.76 Mpps
MS390-24UX-HW	640 Gbps	480 Gbps	476.19 Mpps
MS390-48-HW	256 Gbps	480 Gbps	190.48 Mpps
MS390-48P-HW	256 Gbps	480 Gbps	190.48 Mpps
MS390-48U-HW	256 Gbps	480 Gbps	190.48 Mpps
MS390-48UX-HW	580 Gbps	480 Gbps	431.54 Mpps
MS390-48UX2-HW	640 Gbps	480 Gbps	476.19 Mpps

Power Options and Specifications

Model	Default Power Supply	Hot Swap Power Supply	Available PoE W/ Primary PS	Available PoE W/ Secondary PS***	Power Load (idle/max)
MS390-24-HW	MA-PWR-350WAC**	Yes, Dual	n/a	n/a	79.2 / 99 W
MS390-24P-HW	MA-PWR-715WAC**	Yes, Dual	445W	720W	84.1 / 554.4 W
MS390-24U-HW	MA-PWR-1100WAC	Yes, Dual	830W	1440W	85.4 / 990.3 W
MS390-24UX-HW	MA-PWR-1100WAC	Yes, Dual	560W	1440W	162.7 / 809.9 W
MS390-48-HW	MA-PWR-350WAC**	Yes, Dual	n/a	n/a	83.9 / 109.9 W
MS390-48P-HW	MA-PWR-715WAC**	Yes, Dual	437W	1152W	92.6 / 555 W
MS390-48U-HW	MA-PWR-1100WAC	Yes, Dual	822W	1800W	145 / 844.9 W
MS390-48UX-HW	MA-PWR-1100WAC	Yes, Dual	490W	1590W	218.5 / 785.5 W
MS390-48UX2-HW	MA-PWR-1100WAC	Yes, Dual	645W	1745W	157.9 / 843.8 W



** Upgrade options to 715W and 1100W PSU are available.



*** The PoE values are provided considering the secondary PS to be the default power supply of the respective model.

What's included

Model	Package Contents
MS390-24-HW	1 x Power Supply (MA-PWR-350WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
MS390-24P-HW	1 x Power Supply (MA-PWR-715WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
MS390-24U-HW	1 x Power Supply (MA-PWR-1100WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
MS390-24UX-HW	1 x Power Supply (MA-PWR-1100WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
MS390-48-HW	1 x Power Supply (MA-PWR-350WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
MS390-48P-HW	1 x Power Supply (MA-PWR-715WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
MS390-48U-HW	1 x Power Supply (MA-PWR-1100WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
MS390-48UX-HW	1 x Power Supply (MA-PWR-1100WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
MS390-48UX2-HW	1 x Power Supply (MA-PWR-1100WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide

Optional Accessories

Accessory	Description	Supported Models
MA-PWR-350WAC	350W AC Power Supply	MS390-24-HW, MS390-48-HW
MA-PWR-715WAC	715W AC Power Supply	All Models
MA-PWR-1100WAC	1100W AC Power Supply	All Models
MA-MOD-2X40G	2 x 40G Uplink Module	All Models
MA-MOD-4X10G	4 x 10G Uplink Module	All Models
MA-MOD-8X10G	8 x 10G Uplink Module	All Models
MA-CBL-120G-50CM	Meraki 120G Stacking Cable, 0.5 Meter	All Models
MA-CBL-120G-1M	Meraki 120G Stacking Cable, 1 Meter	All Models
MA-CBL-120G-3M	Meraki 120G Stacking Cable, 3 Meter	All Models
MA-CBL-SPWR-30CM	Meraki MS390 30CM StackPower Cable	All Models

MA-CBL-SPWR-150CM	Meraki MS390 150CM StackPower Cable	All Models
MA-FAN-16K2	System Fan	All Models
MA-RCKMNT	Meraki MS390 Rack Mount Kit	All Models

Regulations and Compliance

Electromagnetic Compatibility	FCC Part 15 (CFR 47) Class A, ICES-003 Class A, CISPR22 Class A, CNS13438, EN 300 386 V1.6.1, EN 55022 Class A, EN 61000-3-2, EN61000-3-3, KN 32, TCVN 7189 Class A, EN 55032, CISPR 32 Class A, V-2/2015.04, V-3/2015.04, VCCI-CISPR 32 Class A, CISPR24, EN 300 386 V1.6.1, EN 55024, KN35, TCVN 7317
Certifications	
Safety	CAN/CSA-C22.2 No. 60950-1, UL 60950-1, EN 60950-1, IEC 60950-1, AS/NZS 60950.1
Environmental	Reduction of Hazardous Substances (RoHS)
Warranty	Full lifetime hardware warranty with next-day advanced replacement included

MTBF Rating

Model	MTBF at 25°C
MS390-24-HW	314,790
MS390-24P-HW	299,000
MS390-24U-HW	238,410
MS390-24UX-HW	214,760
MS390-48-HW	305,870
MS390-48P-HW	277,770
MS390-48U-HW	227,410
MS390-48UX-HW	202,160

MS390-48UX2-HW

198,647

Installation Guide

For instructions on how to install and configure the MS390 series switch please refer the [MS390 Series Installation Guide](#)



AP9635 shown

Manage your remote UPS with Certainty

UPS Network Management Card 2 now supports Modbus

Integrating your UPS into existing management systems is easier now with the addition of Modbus allowing you to remotely manage Single Phase Smart-UPS™ and Symmetra™ LX through your Building Management (BMS) or Industrial Automation systems. Be assured your UPS is ready to maintain access to your BMS (HVAC, lighting and building security) or maintain continuity of process in Industrial Automation.

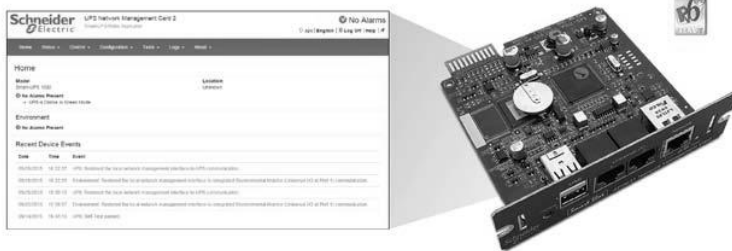
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UPS Network Management Card 2

Now with Modbus



Connect directly to your network

UPS Network Management Card 2 (NMC2) allows for secure remote monitoring and control of an individual UPS via Web browser, CLI, SNMP (v1/v2c/v3) or Modbus TCP. Modbus RS-485 is available with the AP9635. Embedded technology provides exceptional reliability and enables the UPS to remotely reboot hung equipment. Notification features inform you of problems as they occur. For protected servers, the included PowerChute™ Network Shutdown software provides graceful, unattended shutdown in the event of an extended power outage and is certified VMware Ready.

Manage your remote UPS with certainty

UPS Management

Notification: Be notified of problems ensuring crucial situations are dealt with in a timely manner.

Scheduling: Customize shutdown and reboot of connected equipment and UPS.

Data Logging: Identify problematic trends before they escalate or export logs for analysis.

Event Logging: Pinpoint timing and sequence of events leading up to an incident with event log.

StruxureWare Data Center Expert integration: Collect, organize and distribute critical alerts, and key information providing a unified view of complex physical infrastructure environments from anywhere on the network.

Network Management System (NMS) compatible: Make device information available to your preferred NMS by forwarding SNMP traps (events) or polling across SNMP (v1/v2c/v3) using the PowerNet MIB.

Reboot Equipment Remotely: Quickly reestablish availability over your network and save dispatching technicians to remote locations.

Smart Battery Management: Manage and maintain entire battery system with detailed battery information, even battery cartridge parameters, providing early fault warning. (SRT Smart-UPS only).

Flash Upgradeable Firmware: Convenient remote installation of UPS firmware updates.

PowerChute™ Network Shutdown Software included: Operating system shutdown with advanced integration support for VMware® ESX/ESXi & Microsoft® Hyper-V and SCVMM.

Enhanced Security

- Secure email authentication
- Secure access SSH (v2), HTTPS (TLS 1.2)
- Onboard firewall
- Secure file transfer (SCP)
- 2048 bit encryption key support (SSH/web)

User Management

User Account security: Optional 'strong password' and 'force password policy' configurations.

RADIUS support: Allows for centralized user management for easier user sign on when remotely managing multiple or multi site UPS.

Simultaneous multiple user login: Supports simultaneous NMC2 sessions.

UPS Network Management Cards support

For more information, please visit:

<http://www.apc.com/products/family/index.cfm?id=98>

To download the latest UPS Network Management Card firmware, go to:

<http://www.apc.com/tools/download/index.cfm>



UPS Network Management Card 2

Product Comparison

Connect directly to your network

Remotely manage your UPS on your existing network with Datacenter, Building Management or Industrial Automation Systems using the UPS Network Management Card 2. Remote management can save time and money with the ability to reboot hung devices restoring functionality without deploying personnel.



AP9630

UPS Network Management Card 2



AP9631

UPS Network Management Card 2
with Environmental Monitoring



AP9635

UPS Network Management Card 2 with
Environmental Monitoring,
Out of Band Management and Modbus

UPS Network Management Card 2 Comparison				
Features	Benefit	AP9630	AP9631	AP9635*
SNMP Management (v1/v2/v3)	Readily monitor and manage your UPS as one of your network devices over your preferred Enterprise Network Management System by forwarding SNMP traps (events) across SNMP (v1/v2c/v3) using the PowerNet MIB.	✓	✓	✓
Data Event Logging	Identify problematic trends and take appropriate action before they escalate, or export logs for analysis.	✓	✓	✓
IPv6 Support	Ready to support the next generation of IP networking with the trending Internet of Things (IoT) and Industrial IoT.	✓	✓	✓
Smart Battery Management (SRT Smart-UPS Only)	Manage and maintain entire battery system with detailed battery information, even battery cartridge parameters, providing early fault warning. Helps you plan preventive battery maintenance.	✓	✓	✓
User friendly Firmware Upgrade capability	Install maintenance releases of firmware remotely for your NMC or UPS* ensuring ongoing remote management of your UPS. *Refers to SMT, SMX, SRT models only.	✓	✓	✓
Modbus TCP Support	Integrate your UPS to existing networks with 3rd party Building Management System and Industrial Automation Systems.	✓	✓	✓
Two USB ports	Supports UPS NMC firmware upgrade; ability to upload language packs if supported by the application.		✓	✓
Temperature and (optional) Temperature & Humidity Monitoring AP9335T - included, AP9335TH - optional	Monitor temperature or temperature and humidity and take appropriate action when needed to ensure best possible performance from your UPS.		✓	✓
Optional Dry Contact I/O Accessory (AP9810) support	Monitor external triggers and initiate actions on external devices.		✓	✓
Modbus RS-485 Serial support	Integrate your UPS to existing networks with 3rd party Building Management System and Industrial Automation Systems.			✓
Out of Band Management via modem	Use dial in access via the analog modem to access the NMC2 control console.			✓
* AP9635 is the official replacement for AP9618				
Languages (User Interface and documentation) support: Simplified Chinese, English, French, German, Italian, Japanese, Korean, Portuguese, Russian, Spanish (for language support check apc.com)				



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SCP Contract Details

State Contracting Portal Contract Results

Administrative Services, Procurement Services Contract Detail Info For # 18PSX0202

Dates

Award Date	Start Date	End Date
04/11/2019	04/11/2019	04/10/2024

Description

Cisco Products and Services

Comments

Solicitation and Contract Conditions

Includes SBE/MBE Requirements	Qualified Partnership	DBE	Political Subdivisions	Agencies	CT R
No	No	No	Yes	Yes	

Contact(s)

Contact	Telephone	FAX	E-Mail
SusanneHawkins	(860) 713-5064	(860) 622-2941	susanne.hawkins@ct.gov

Common Documents

Date	Description
4/15/2019 7:41:10 AM	18PSX0202 Contract Award Document Complete.pdf Contract Document

2 Vendor(s)

Contract #	Cert	Vendor	Contact	C
18PSX0202AA Start: 04/11/2019 End: 04/10/2024	No	ePlus 45 Shawmut Road Canton, MA 02021 Peoplesoft ID: 0000064731	Steve Low Phone: (781) 615-1314 FAX: (781) 615-1401 E-Mail	
18PSX0202AB Start: 04/11/2019 End: 04/10/2024	No	Total Communications Inc. 333 Burnham Street East Hartford, CT 06108 Peoplesoft ID: 0000022988	Greg Strouth Phone: (860) 622-4128 E-Mail	

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