

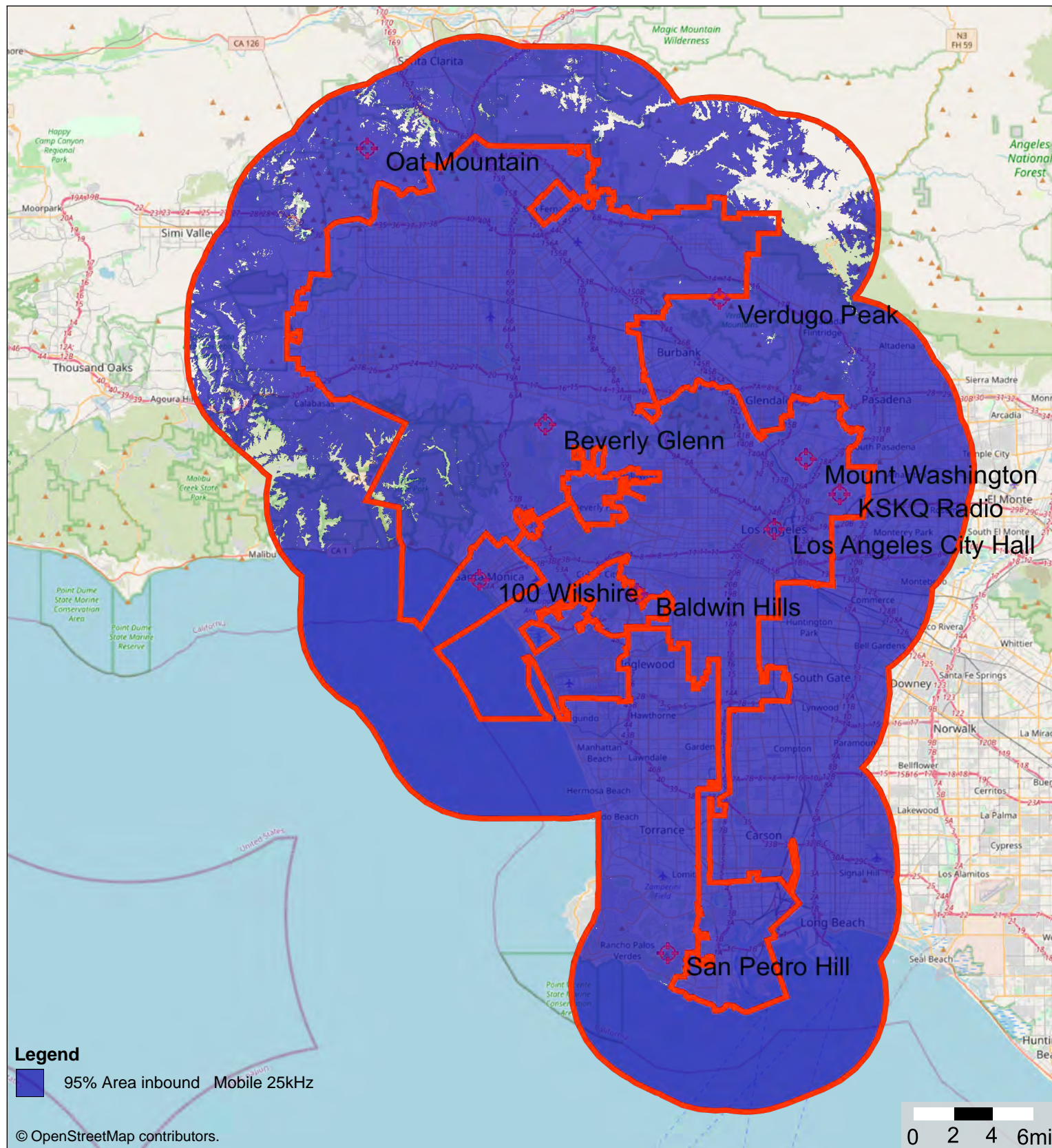


Los Angeles Fire Department - 800MHz Analog VRS

This map is not guaranteed and is subject to change based upon as-built configuration.

MOTOROLA
SOLUTIONS

Information Only: 25kHz APX Mobile Inbound



Printed: 7/29/2021
System version: 2.8.7

35W APX 8500 Mobile
All-Band Roof Mount

Solution: CA_LAFD
Project: 2021 LAFD Analog
Design: Design 16
fh786

This map is intended solely for the equipment configuration stated above.
Coverage can vary significantly if different configurations are used.

7.2.3 Mobile – 25kHz Outbound



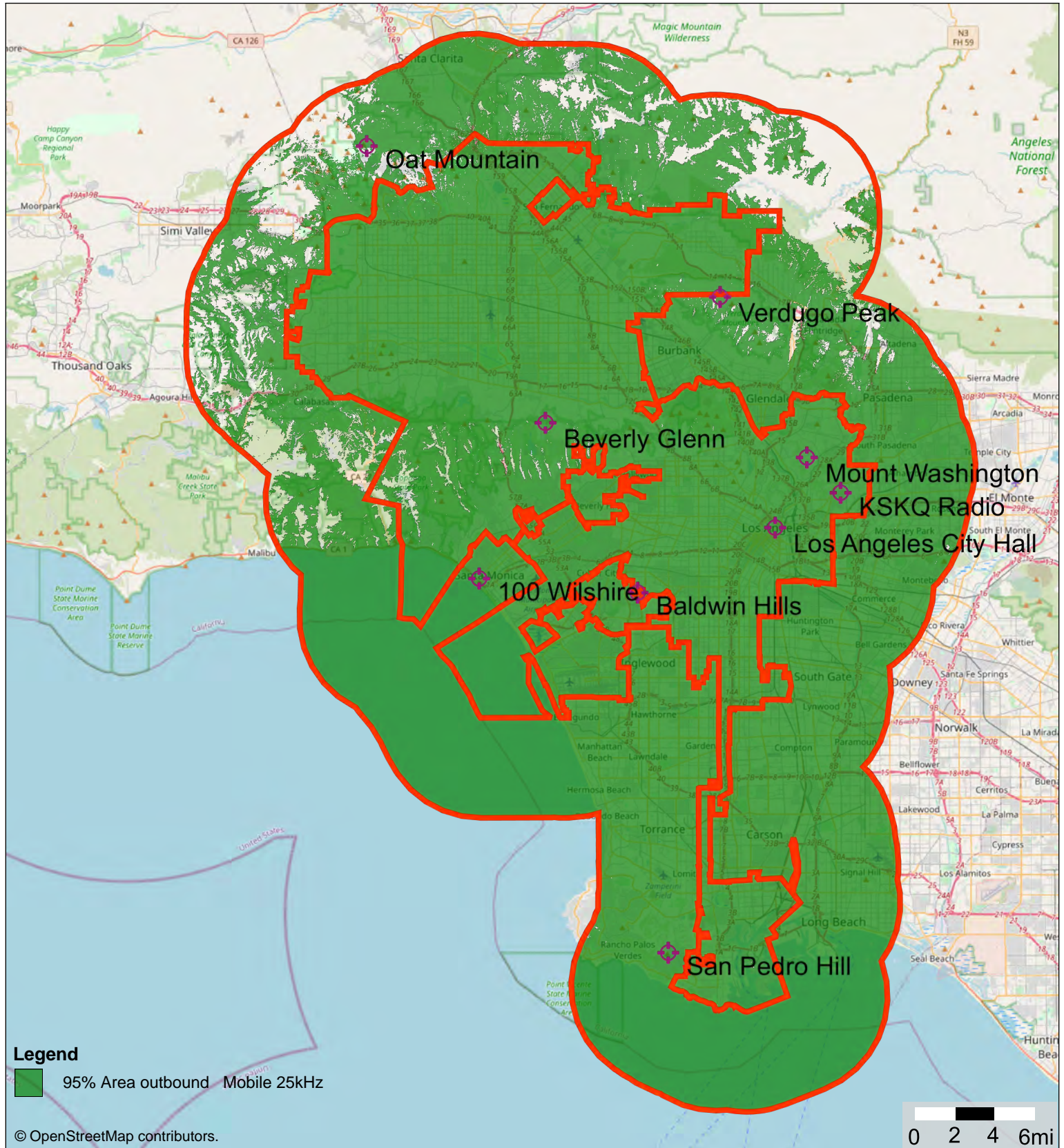


Los Angeles Fire Department - 800MHz Analog VRS

This map is not guaranteed and is subject to change based upon as-built configuration.

MOTOROLA
SOLUTIONS

Information Only: 25kHz APX Mobile Outbound



Printed: 7/29/2021
System version: 2.8.7

35W APX 8500 Mobile
All-Band Roof Mount

Solution: CA_LAFD
Project: 2021 LAFD Analog
Design: Design 16
fh786

This map is intended solely for the equipment configuration stated above.
Coverage can vary significantly if different configurations are used.

7.2.4 Portable – 12.5kHz Inbound



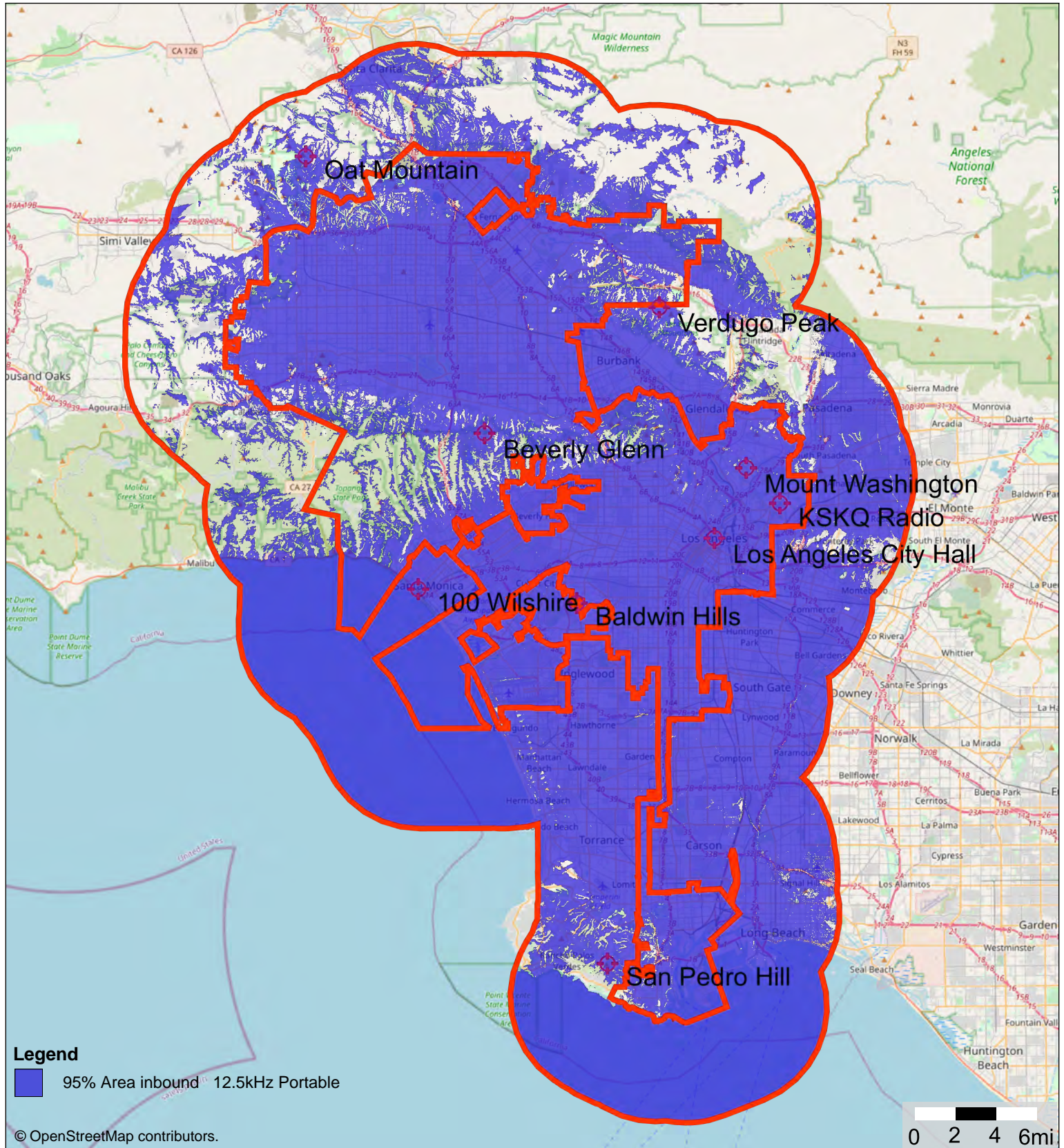


Los Angeles Fire Department - 800MHz Analog VRS

This map is subject to change based upon as-built configuration.

MOTOROLA
SOLUTIONS

Information Only: 12.5kHz APX Portable Inbound



Printed: 7/29/2021
System version: 2.8.7

3W APX8000HXE w. XE Antenna
Belt Clip w. XE RSM
Portable on Street

Solution: CA_LAFD
Project: 2021 LAFD Analog
Design: Design 14 12.5kHz
fh786

This map is intended solely for the equipment configuration stated above.
Coverage can vary significantly if different configurations are used.

7.2.5 Portable – 12.5kHz Outbound



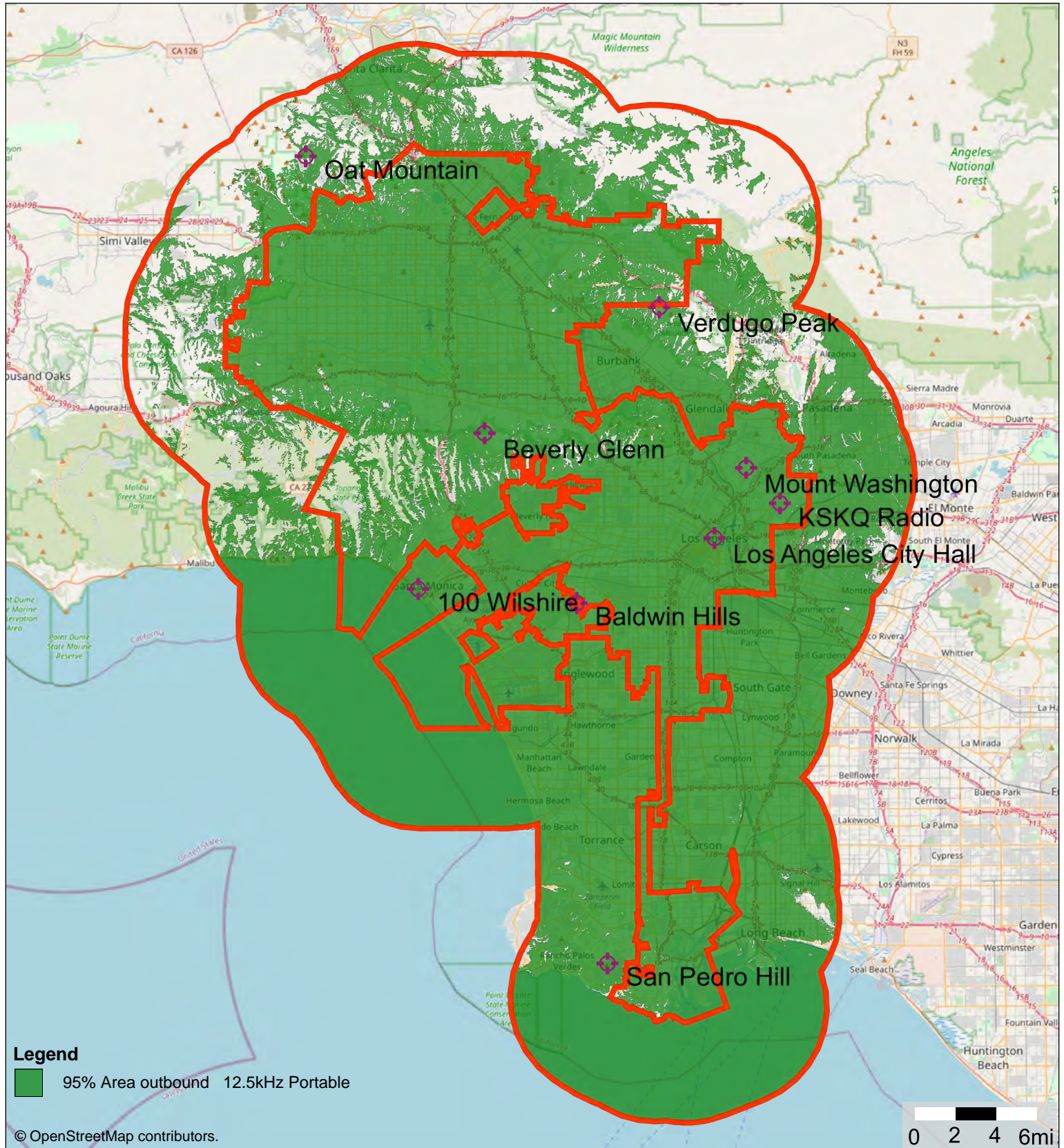


Los Angeles Fire Department - 800MHz Analog VRS

This map is subject to change based upon as-built configuration.

MOTOROLA
SOLUTIONS

Information Only: 12.5kHz APX Portable Outbound



Printed: 7/29/2021
System version: 2.8.7

3W APX8000HXE w. XE Antenna
Belt Clip w. XE RSM
Portable on Street

Solution: CA_LAFD
Project: 2021 LAFD Analog
Design: Design 14 12.5KHz
fh786

This map is intended solely for the equipment configuration stated above.
Coverage can vary significantly if different configurations are used.

7.2.6 Mobile – 12.5kHz Inbound



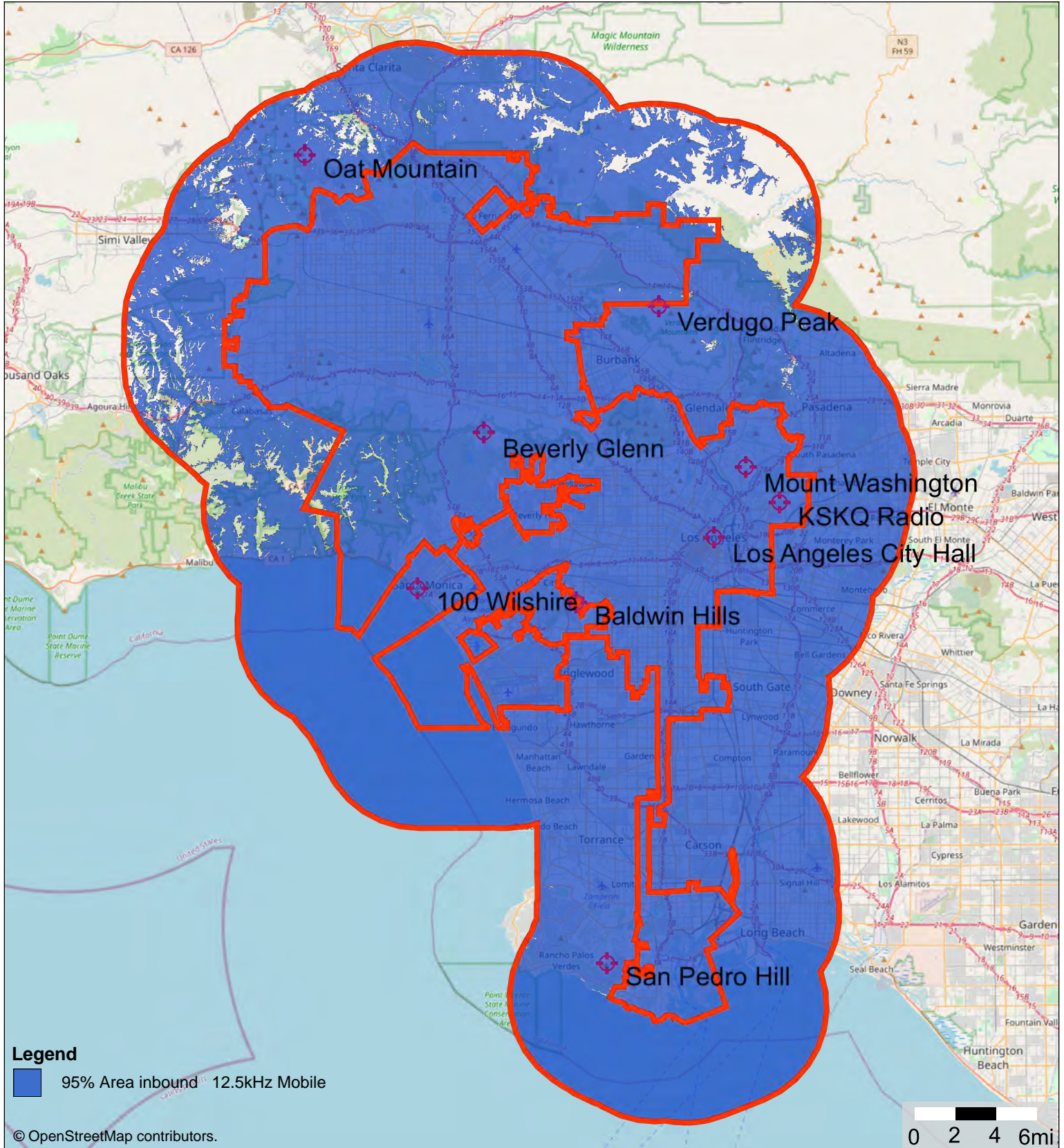


Los Angeles Fire Department - 800MHz Analog VRS

This map is subject to change based upon as-built configuration.

MOTOROLA
SOLUTIONS

Information Only: 12.5kHz APX Mobile Inbound



Printed: 7/29/2021
System version: 2.8.7

35W APX 8500 Mobile
All-Band Roof Mount

Solution: CA_LAFD
Project: 2021 LAFD Analog
Design: Design 14 12.5kHz
fh786

This map is intended solely for the equipment configuration stated above.
Coverage can vary significantly if different configurations are used.

7.2.7 Mobile – 12.5kHz Outbound



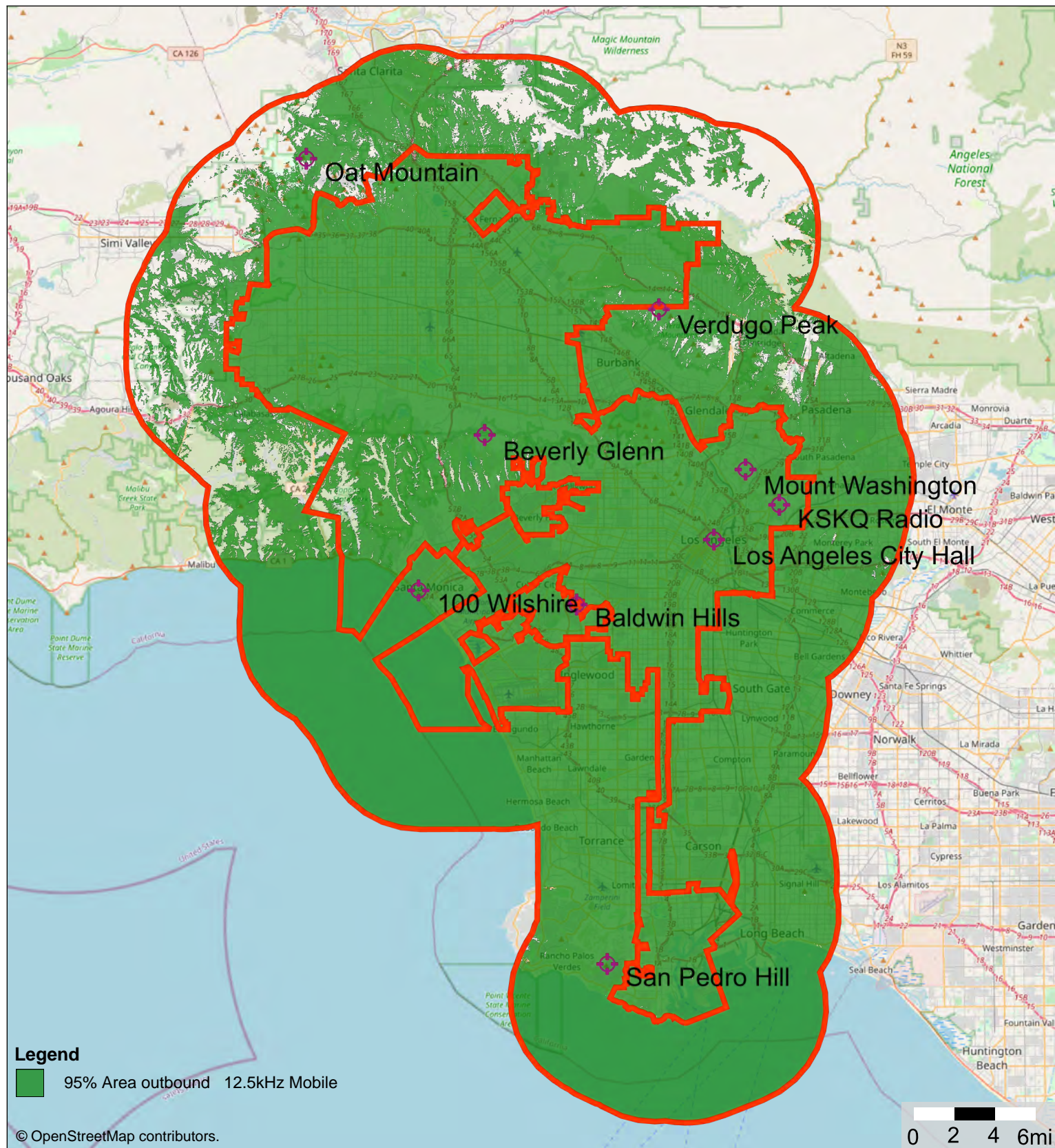


Los Angeles Fire Department - 800MHz Analog VRS

This map is subject to change based upon as-built configuration.

MOTOROLA
SOLUTIONS

Information Only: 12.5kHz APX Mobile Outbound



Printed: 7/29/2021
System version: 2.8.7

35W APX 8500 Mobile
All-Band Roof Mount

Solution: CA_LAFD
Project: 2021 LAFD Analog
Design: Design 14 12.5kHz
fh786

This map is intended solely for the equipment configuration stated above.
Coverage can vary significantly if different configurations are used.

7.3 BASELINE COVERAGE TEST(S) GRID MAP – INBOUND PORTABLE ON STREET – 25HKZ



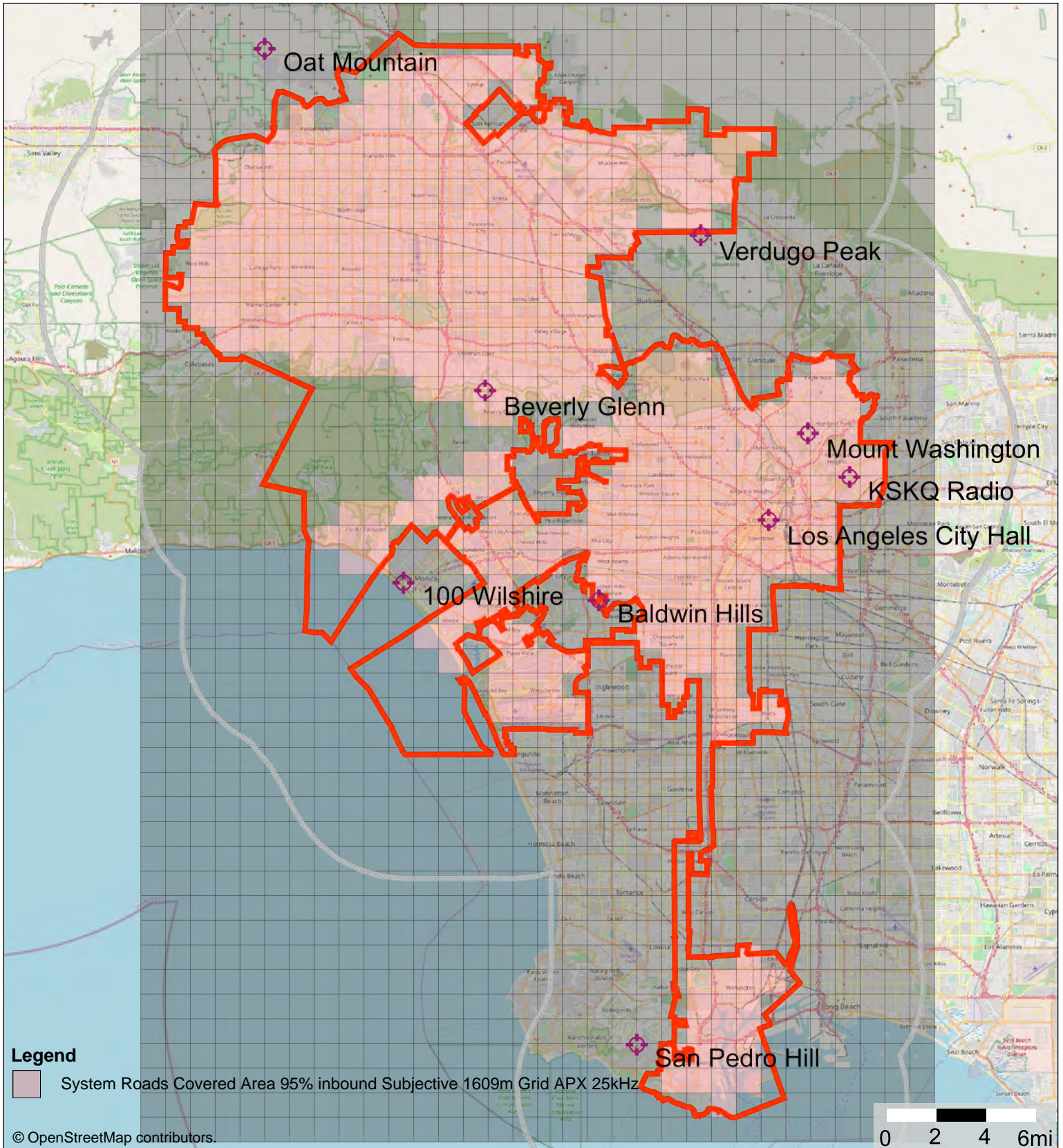


MOTOROLA
SOLUTIONS

Los Angeles Fire Department - 800MHz Analog VRS

This map is subject to change based upon as-built configuration.

CATP Grid Map - On-Roads
DAQ3.0 - 25kHz APX Portable Inbound



Printed: 7/29/2021
System version: 2.8.7

3W APX8000HXE w. XE Antenna
Belt Clip w. XE RSM
Portable on Street

Solution: CA_LAFD
Project: 2021 LAFD Analog
Design: Design 12 Alex_CATP_IB_Subj
fhd786

This map is intended solely for the equipment configuration stated above.
Coverage can vary significantly if different configurations are used.

7.4 GUARANTEED CATP GRID MAP – INBOUND PORTABLE ON STREET – 25HKZ



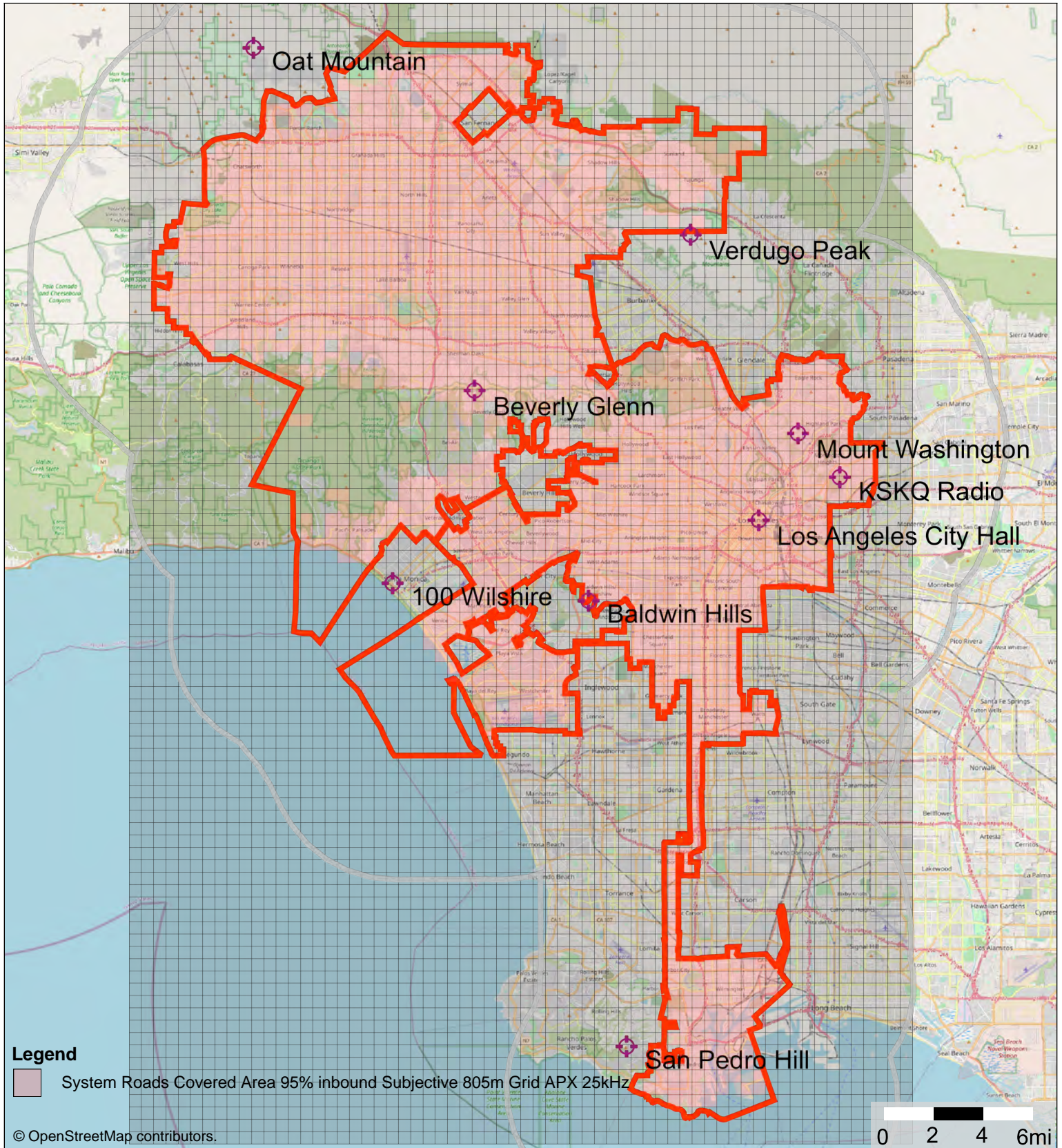


MOTOROLA
SOLUTIONS

Los Angeles Fire Department - 800MHz Analog VRS

This map is subject to change based upon as-built configuration.

CATP Grid Map - On-Roads
DAQ3.0 - 25kHz APX Portable Inbound



Printed: 9/02/2021
System version: 2.8.8

3W APX8000HXE w. XE Antenna
Belt Clip w. XE RSM
Portable on Street

Solution: CA_LAFD
Project: 2021 LAFD Analog
Design: Design 18 CATP_IB_Sub_5mi
fh786

This map is intended solely for the equipment configuration stated above.
Coverage can vary significantly if different configurations are used.

SECTION 8

DESIGN ASSUMPTIONS

This City Contract's with Motorola and this Proposal is based on a firm-fixed price, not time and materials. To manage risk both for Motorola and for LAFD / the City Motorola has made the following assumptions.

- Existing sites and/or other equipment locations will have adequate space available for the system as described.
 - Motorola's proposal is based on the assumption that existing equipment will be replaced with new equipment that is of the same size or smaller and, unless otherwise described in the proposal, will be placed in the current existing equipment locations. Motorola is assuming that existing equipment that will be replaced will be removed and will not remain at the location and therefore no additional space will be required.
- Existing sites and/or other equipment locations will have adequate electrical power and site grounding suitable to support the requirements of the system as described.
 - Motorola's proposal is based on the assumption that each site is adequately powered to support the existing system and that power and grounding is sufficient for the new system. As described in the proposal, if a site has enough power and grounding capacity to include all 20 channels (18 current, plus 2 new), then this will be done at the time of installation. If the site does not have sufficient power for the expanded capacity at this time, then only the existing, currently supported channels will be installed, but the system will be ready for the new channels, when the power and grounding are sufficient to support them.
- Existing towers will have adequate space and size to support the antenna network requirements of the system as described.
 - Motorola's proposal is based on the assumption that existing tower space and loading capacity will support the new system, as described, since the proposed antennas that will replace existing antennas are of the same or lesser weight than the existing antennas and that the existing antennas will be removed by Motorola as part of the installation of the new antennas.
- Tower stress analysis or upgrades are not required.
 - Motorola will conduct Tower Loading Studies to verify, but this proposal is based upon the assumption that current tower space and loading is sufficient to support the proposed new antennas as they will replace existing antenna and be of the same or less weight as the antenna being replaced.
- Additional site and/or location upgrades or modifications are not in-scope.
 - Motorola's proposal is based on the assumption that all sites are adequately built to accommodate the existing radio system and that the new system, as proposed, will not require additional space, power or environmental improvements, beyond those that are specifically included in the proposal. Additional site improvements that may be required, even for the current radio system, are not in scope and are the City's responsibility.
- Approved FCC licensing will be provided by the City.
 - The City, as the licensee, is responsible for all FCC license filings. Motorola will provide information (e.g. contour maps, antenna patterns) as needed to support FCC license filings.
- Local, State and/or Federal permits will be provided by the City.

- As may be required for the installation and operation of the proposed equipment, Motorola assumes the City will file for and provide any required permits.
- All required interconnections and backhaul infrastructure will be provided by the City.
 - Motorola assumes that the City will provide Motorola with adequate network access as described in the proposal to each of the included sites using existing network infrastructure, such as interconnections and backhaul. Any additions and or changes that may be required to the existing interconnections and backhaul infrastructure will be the responsibility of the City.
 - Motorola will configure the Cisco MPLS routers on the Microwave network to accommodate the proposed system.
- Motorola will provide a single delivery point for receipt, inventory and storage of equipment prior to delivery to the sites. Warehousing has been included for a time period up to two years from delivery.
 - Motorola assumes that all equipment will first be delivered to a single warehouse where all equipment will be delivered for receipt, inventory and storage and used as a central distribution site for remote site installations.
- Ethernet network connectivity is available at all voter, remote and dispatch site locations.
 - Motorola assumes that Ethernet network access will be available at each site/location in accordance with the Backhaul Requirements section of this Proposal.
- All work to be performed during normal business hours.
 - Motorola assumes that all work will be performed during normal business hours, Monday – Friday between 0700 – 1500.



SECTION 9

EQUIPMENT LISTS

9.1 VRS CORE EQUIPMENT LIST

Qty.	Nomenclature	Description
1	SQM01SUM0323	ASTRO MASTER SITE
1	CA03515AC	ADD: NEW PRIMARY ZONE CORE
1	CA03512AB	ADD: REDUNDANCY
1	CA03508AA	ADD: CABINET
22	UA00156AA	ADD: CONSOLE LICENSES (QTY
1	CA03721AA	ADD: SLC8000 TS 16 PORT EXPANSION M
2	UA00136AA	ADD: UNIFIED NETWORK CONFIGURATOR (
2	UA00147AA	ADD: PROVISIONING MANAGER
10	CA01316AA	ADD: UNC ADDTL DEVICE LIC (QTY 10)
1	CA01416AH	ADD: SYS STATISTICS SVR AND HISTORI
1	UA00135AA	ADD: PROVISIONING MANAGER INTERFACE
2	UA00146AA	ADD: UNIFIED EVENT MANAGER (UEM)
1	UA00142AA	ADD: CADI SOFTWARE OPTION
1	UA00138AA	ADD: FLEXIBLE ATIA
1	UA00225AA	ADD: UEM ENHANCED NAVIGATION
1	UA00227AA	ADD: UEM SNMP ELEMENT MANAGEMENT TO
1	UA00139AA	ADD: NORTHBOUND INTERFACE
2	ZA00104AA	ENH: TECHNICAL ASSISTANCE, FORTY HR
50	T8742	MCAFFEE FOR WINDOWS CLIENT, A2019.2
1	DLN6455	CONFIGURATION/SERVICE SOFTWARE
1	DVN4046B	MASTER SYSTEM KEY STARTER KIT
1	T7776	ISSI 8000 / CSSI 8000 UPGRADE Softw
1	UA00005AA	ADD: ISSI Automatic Roaming License
2	CVN6565	SPARE CABINET ASTRO 7.9 & BEYOND
1	CLN1868	2930F 24-PORT SWITCH
1	DSTRAK88353M	GPS CLOCK, 10MHZ, RUBIDIUM, 48V INC



Qty.	Nomenclature	Description
1	DSTRAKP001134	AC POWER SUPPLY FOR 8835 GPS CLOCK
1	TT3903A	Z2 G5 MINI WORKSTATION NON RETURNAB
1	DSTG191B	TECH GLOBAL EVOLUTION SERIES 19INCH
1	DLN6692	PRINTER HP LASERJET 110V
2	T8126	FORTINET FIREWALL APPLIANCE
1	CLN1868	2930F 24-PORT SWITCH
1	SQM01SUM0206	ENHANCED TELEPHONE INTERCONNECT
6	CA01778AA	ADD: CAPACITY FOR 3 CALL LINES
1	DSQ24FR000000139550	MOTO BASE DL160 (RADIO ONLY)
1	TT3316	THREE LINE NON JITC COMPLIANT ADD-O
6	TT05501AA	LICENSING, ADDITIONAL 3 SIM. LINES,
2	TT3318	NEC AUDIO CODES M800 DIGITAL TELEPH
1	CVN7288	NON-JITC CONFIGURATION ANALOG/DIGIT
1	CVN6565	SPARE CABINET ASTRO 7.9 & BEYOND
1	DLN8006	FRU: DL380 G10 POWER SUPPLY
1	DLN8007	FRU: DL380 G10 FAN
1	DLN6942	1.2 TB HARD DRIVE
1	DLN6971	FRU: HPE 9.5MM SATA DVD-RW OPTICAL
1	DLN7018	DL 380 G9 ETHERNET CARD
1	DLN8013	FRU: DAS 4525 CHASSIS ONLY
1	DLN8014	FRU: DAS 4525 POWER SUPPLY
1	DLN8016	FRU: DAS 4125 JBOD MODULE
1	DLN8015	FRU: DAS 4525 CONTROLLER MODUL
1	DLN8017	FRU: 600GB HARD DRIVE, DAS 452
1	CKN6975	CABLE, DATA,CABLE, MINI-SAS HD TO M
1	T8492	SITE ROUTER & FIREWALL- AC
1	CA03445AA	ADD: MISSION CRITICAL HARDENING
1	CA03448AA	ADD: STATEFUL FIREWALL
1	CLN1868	2930F 24-PORT SWITCH



9.2 PRIME SITE EQUIPMENT LIST

Qty.	Nomenclature	Description
2	T8547	SITE ROUTER & FIREWALL- DC
2	CA03445AA	ADD: MISSION CRITICAL HARDENING
2	CA03448AA	ADD: STATEFUL FIREWALL
2	CLN1868	2930F 24-PORT SWITCH
1	T7038	GCP 8000 SITE CONTROLLER
2	CA01136AA	MCC 7500 CONVEN SITE OPER
1	CA03678AA	ADD: ASTRO SYSTEM RELEASE 2021.1
2	CA01194AA	ADD: IP BASED MULTISITE SITE CONTRO
1	CA01953AA	ADD: POWER EFFICIENCY PACKAGE
1	CA03111AA	ADD: CEC COMPLIANCE
1	CA01400AA	ADD: POWER CABLE, DC
2	CA01953AA	ADD: POWER EFFICIENCY PACKAGE
2	CA01953AA	ADD: POWER EFFICIENCY PACKAGE
2	CA01953AA	ADD: POWER EFFICIENCY PACKAGE
2	CA01953AA	ADD: POWER EFFICIENCY PACKAGE
2	CA01953AA	ADD: POWER EFFICIENCY PACKAGE
1	T8341	GRV 8000 COMPARATOR
2	CA03084AA	ADD: COMPARATOR
2	CA01949AC	ADD: ANALOG CONV ONLY SW
2	CA01952AC	ADD: ANALOG CONV SIMULCAST SW
2	CA02310AA	ADD: R&TTE CERTIFICATION
2	CA03111AA	ADD: CEC COMPLIANCE
1	CA01400AA	ADD: POWER CABLE, DC
1	T8341	GRV 8000 COMPARATOR
2	CA03084AA	ADD: COMPARATOR
2	CA01949AC	ADD: ANALOG CONV ONLY SW
2	CA01952AC	ADD: ANALOG CONV SIMULCAST SW
2	CA02310AA	ADD: R&TTE CERTIFICATION
2	CA03111AA	ADD: CEC COMPLIANCE

Qty.	Nomenclature	Description
1	CA01400AA	ADD: POWER CABLE, DC
2	CA03086AA	ADD: ANALOG SIDETALK-MDC MUTING
1	T8341	GRV 8000 COMPARATOR
2	CA03084AA	ADD: COMPARATOR
2	CA01949AC	ADD: ANALOG CONV ONLY SW
2	CA01952AC	ADD: ANALOG CONV SIMULCAST SW
2	CA02310AA	ADD: R&TTE CERTIFICATION
2	CA03111AA	ADD: CEC COMPLIANCE
1	CA01400AA	ADD: POWER CABLE, DC
2	CA03086AA	ADD: ANALOG SIDETALK-MDC MUTING
1	T8341	GRV 8000 COMPARATOR
2	CA03084AA	ADD: COMPARATOR
2	CA01949AC	ADD: ANALOG CONV ONLY SW
2	CA01952AC	ADD: ANALOG CONV SIMULCAST SW
2	CA02310AA	ADD: R&TTE CERTIFICATION
2	CA03111AA	ADD: CEC COMPLIANCE
1	CA01400AA	ADD: POWER CABLE, DC
2	CA03086AA	ADD: ANALOG SIDETALK-MDC MUTING
1	T8341	GRV 8000 COMPARATOR
2	CA03084AA	ADD: COMPARATOR
2	CA01949AC	ADD: ANALOG CONV ONLY SW
2	CA01952AC	ADD: ANALOG CONV SIMULCAST SW
2	CA02310AA	ADD: R&TTE CERTIFICATION
2	CA03111AA	ADD: CEC COMPLIANCE
1	CA01400AA	ADD: POWER CABLE, DC
2	CA03086AA	ADD: ANALOG SIDETALK-MDC MUTING
1	F4543	SITE MANAGER BASIC
1	VA00874	ADD: AUX I-O SERV FW CURR ASTRO REL
1	VA00905	ADD:24/48 VDC PS TO SM
3	V592	AAD TERM BLCK & CONN WI



Qty.	Nomenclature	Description
2	T8547	SITE ROUTER & FIREWALL- DC
2	CA03445AA	ADD: MISSION CRITICAL HARDENING
2	CA03448AA	ADD: STATEFUL FIREWALL
2	CLN1868	2930F 24-PORT SWITCH
1	T7038	GCP 8000 SITE CONTROLLER
2	CA01136AA	MCC 7500 CONVEN SITE OPER
1	CA03678AA	ADD: ASTRO SYSTEM RELEASE 2021.1
2	CA01194AA	ADD: IP BASED MULTISITE SITE CONTRO
1	CA01953AA	ADD: POWER EFFICIENCY PACKAGE
1	CA03111AA	ADD: CEC COMPLIANCE
1	CA01400AA	ADD: POWER CABLE, DC
2	CA01953AA	ADD: POWER EFFICIENCY PACKAGE
2	CA01953AA	ADD: POWER EFFICIENCY PACKAGE
2	CA01953AA	ADD: POWER EFFICIENCY PACKAGE
2	CA01953AA	ADD: POWER EFFICIENCY PACKAGE
2	CA01953AA	ADD: POWER EFFICIENCY PACKAGE
1	T8341	GRV 8000 COMPARATOR
2	CA03084AA	ADD: COMPARATOR
2	CA01949AC	ADD: ANALOG CONV ONLY SW
2	CA01952AC	ADD: ANALOG CONV SIMULCAST SW
2	CA02310AA	ADD: R&TTE CERTIFICATION
2	CA03111AA	ADD: CEC COMPLIANCE
1	CA01400AA	ADD: POWER CABLE, DC
2	CA03086AA	ADD: ANALOG SIDETALK-MDC MUTING
1	T8341	GRV 8000 COMPARATOR
2	CA03084AA	ADD: COMPARATOR
2	CA01949AC	ADD: ANALOG CONV ONLY SW
2	CA01952AC	ADD: ANALOG CONV SIMULCAST SW
2	CA02310AA	ADD: R&TTE CERTIFICATION
2	CA03111AA	ADD: CEC COMPLIANCE



Qty.	Nomenclature	Description
1	CA01400AA	ADD: POWER CABLE, DC
2	CA03086AA	ADD: ANALOG SIDETALK-MDC MUTING
1	T8341	GRV 8000 COMPARATOR
2	CA03084AA	ADD: COMPARATOR
2	CA01949AC	ADD: ANALOG CONV ONLY SW
2	CA01952AC	ADD: ANALOG CONV SIMULCAST SW
2	CA02310AA	ADD: R&TTE CERTIFICATION
2	CA03111AA	ADD: CEC COMPLIANCE
1	CA01400AA	ADD: POWER CABLE, DC
2	CA03086AA	ADD: ANALOG SIDETALK-MDC MUTING
1	T8341	GRV 8000 COMPARATOR
2	CA03084AA	ADD: COMPARATOR
2	CA01949AC	ADD: ANALOG CONV ONLY SW
2	CA01952AC	ADD: ANALOG CONV SIMULCAST SW
2	CA02310AA	ADD: R&TTE CERTIFICATION
2	CA03111AA	ADD: CEC COMPLIANCE
1	CA01400AA	ADD: POWER CABLE, DC
2	CA03086AA	ADD: ANALOG SIDETALK-MDC MUTING
1	T8341	GRV 8000 COMPARATOR
2	CA03084AA	ADD: COMPARATOR
2	CA01949AC	ADD: ANALOG CONV ONLY SW
2	CA01952AC	ADD: ANALOG CONV SIMULCAST SW
2	CA02310AA	ADD: R&TTE CERTIFICATION
2	CA03111AA	ADD: CEC COMPLIANCE
1	CA01400AA	ADD: POWER CABLE, DC
2	CA03086AA	ADD: ANALOG SIDETALK-MDC MUTING
1	DSTRAK91008EDC	PRIME/MASTER SITE REDUNDANT MODULAR
4	DSTRAK91061	FOUR PORT DDM
2	DSTRAK93007DC	DISTRIBUTION SHELF FOR 9100 DC
50	DSFSJ150ACABLE	CABLE: 1/4IN SUPERFLEX POLY JKT PER



Qty.	Nomenclature	Description
4	DSF1TNMHC	TYPE N MALE FOR 1/4 IN FSJ1-50A CAB
1	T8492	SITE ROUTER & FIREWALL- AC
1	CA03445AA	ADD: MISSION CRITICAL HARDENING
1	CA03448AA	ADD: STATEFUL FIREWALL
1	CLN1868	2930F 24-PORT SWITCH
1	T8492	SITE ROUTER & FIREWALL- AC
1	CA03445AA	ADD: MISSION CRITICAL HARDENING
1	CA03448AA	ADD: STATEFUL FIREWALL
1	CLN1868	2930F 24-PORT SWITCH

9.3 REMOTE SITE EQUIPMENT LIST (X9)

Qty.	Nomenclature	Description
1	T8547	SITE ROUTER & FIREWALL- DC
1	CA03445AA	ADD: MISSION CRITICAL HARDENING
1	CA03448AA	ADD: STATEFUL FIREWALL
1	T8547	SITE ROUTER & FIREWALL- DC
1	CA03445AA	ADD: MISSION CRITICAL HARDENING
1	CA03448AA	ADD: STATEFUL FIREWALL
2	CLN1868	2930F 24-PORT SWITCH
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST

Qty.	Nomenclature	Description
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE



Qty.	Nomenclature	Description
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	DSTRAK88353M	GPS CLOCK, 10MHZ, RUBIDIUM, 48V INC



Qty.	Nomenclature	Description
1	F4543	SITE MANAGER BASIC
1	VA00874	ADD: AUX I-O SERV FW CURR ASTRO REL
1	VA00905	ADD:24/48 VDC PS TO SM
3	V592	AAD TERM BLCK & CONN WI
2	TRN7343	SEVEN AND A HALF FOOT RACK
1	T8547	SITE ROUTER & FIREWALL- DC
1	CA03445AA	ADD: MISSION CRITICAL HARDENING
1	CA03448AA	ADD: STATEFUL FIREWALL
1	T8547	SITE ROUTER & FIREWALL- DC
1	CA03445AA	ADD: MISSION CRITICAL HARDENING
1	CA03448AA	ADD: STATEFUL FIREWALL
2	CLN1868	2930F 24-PORT SWITCH
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST



Qty.	Nomenclature	Description
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE



Qty.	Nomenclature	Description
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	T7039	GTR 8000 Base Radio
1	CA00855AA	ADD: 700/800 MHZ
1	CA01949AA	ADD: ANALOG ONLY CONV SW
1	CA01952AA	ADD: ANALOG CONVENTIONAL SIMULCAST
1	CA02310AA	ADD: R&TTE CERTIFICATION
1	CA03111AA	ADD: CEC COMPLIANCE
1	X153AW	ADD: RACK MOUNT HARDWARE
1	DSTRK88353M	GPS CLOCK, 10MHZ, RUBIDIUM, 48V INC
2	TRN7343	SEVEN AND A HALF FOOT RACK
1	CLN1868	2930F 24-PORT SWITCH
1	T8492	SITE ROUTER & FIREWALL- AC
1	CA03445AA	ADD: MISSION CRITICAL HARDENING
1	CA03448AA	ADD: STATEFUL FIREWALL
1	DLN6455	CONFIGURATION/SERVICE SOFTWARE
15	DSLDF450ACABLE	CABLE: 1/2IN LDF HELIAX POLY JKT PE



Qty.	Nomenclature	Description
2	DSL4TDMPSA	7-16 DIN MALE POSITIVE STOP FOR 1/2
2	DS221213	WEATHERPROOFING KIT
150	DSAVA550	AVA5-50, COAXIAL CABLE, CORRUGATED
2	DSA5DFD	D-CLASS 7-16 DIN FEMALE FOR AVA5-50
4	DSSG7812B2U	SG78-12B2U SUREGROUND GROUNDING KIT
1	DSL5SGRIP	L5SGRIP 7/8" SUPPORT HOIST GRIP
5	DS42396A2	STANDARD HANGER KIT FOR 1 5/8 CABLE
1	DSTSXD FMBF	RF SPD, 698-2700MHZ DC BLOCK HIGH P
1	DSGSAKITD	GROUND STRAP KIT – DIN
25	DSLDF450ACABLE	CABLE: 1/2IN LDF HELIAX POLY JKT PE
1	DSL4TNMPSA	TYPE N MALE POSITIVE STOP FOR 1/2 I
1	DSL4TDMPSA	7-16 DIN MALE POSITIVE STOP FOR 1/2
15	DSLDF450ACABLE	CABLE: 1/2IN LDF HELIAX POLY JKT PE
2	DSL4TDMPSA	7-16 DIN MALE POSITIVE STOP FOR 1/2
2	DS221213	WEATHERPROOFING KIT
150	DSAVA550	AVA5-50, COAXIAL CABLE, CORRUGATED
2	DSA5DFD	D-CLASS 7-16 DIN FEMALE FOR AVA5-50
4	DSSG7812B2U	SG78-12B2U SUREGROUND GROUNDING KIT
1	DSL5SGRIP	L5SGRIP 7/8" SUPPORT HOIST GRIP
5	DS42396A2	STANDARD HANGER KIT FOR 1 5/8 CABLE
1	DSTSXD FMBF	RF SPD, 698-2700MHZ DC BLOCK HIGH P
1	DSGSAKITD	GROUND STRAP KIT – DIN
25	DSLDF450ACABLE	CABLE: 1/2IN LDF HELIAX POLY JKT PE
1	DSL4TNMPSA	TYPE N MALE POSITIVE STOP FOR 1/2 I
1	DSL4TDMPSA	7-16 DIN MALE POSITIVE STOP FOR 1/2
15	DSLDF450ACABLE	CABLE: 1/2IN LDF HELIAX POLY JKT PE
1	DSL4TNMPSA	TYPE N MALE POSITIVE STOP FOR 1/2 I
1	DSL4TDMPSA	7-16 DIN MALE POSITIVE STOP FOR 1/2
5	DS221213	WEATHERPROOFING KIT
5	DSLDF450ACABLE	CABLE: 1/2IN LDF HELIAX POLY JKT PE



Qty.	Nomenclature	Description
2	DSL4TNMPSA	TYPE N MALE POSITIVE STOP FOR 1/2 I
150	DSAVA550	AVA5-50, COAXIAL CABLE, CORRUGATED
2	DSA5NFS	N FEMALE FOR AVA5-50 CABLE
4	DSSG7812B2U	SG78-12B2U SUREGROUND GROUNDING KIT
1	DSL5SGRIP	L5SGRIP 7/8" SUPPORT HOIST GRIP
150	DSLDF450ACABLE	CABLE: 1/2IN LDF HELIAX POLY JKT PE
1	DSL4TNMPSA	TYPE N MALE POSITIVE STOP FOR 1/2 I
1	DSL4TNFPSA	TYPE N FEMALE POSITIVE STOP FOR 1/2
4	DSSG1212B2U	SG12-12B2U, SUREGROUND 1/2", 48"
1	DSL4SGRIP	L4SGRIP SUPPORT HOIST GRIP 1/2" LDF
5	DS43211A	BUTTERFLY HANGER FOR 1/2 IN OR 3/8
5	DS42396A2	STANDARD HANGER KIT FOR 1 5/8 CABLE
1	DS1090501WA	RF SPD, 700-1000MHZ BROADBAND 15 VD
1	DS1090501WA	RF SPD, 700-1000MHZ BROADBAND 15 VD
25	DSFSJ150ACABLE	CABLE: 1/4IN SUPERFLEX POLY JKT PER
2	DSF1TNMHC	TYPE N MALE FOR 1/4 IN FSJ1-50A CAB
25	DSFSJ450BCABLE	FSJ4-50B 1/2" 50 OHM
2	DSF4PNMV2HC	TYPE N MALE FOR 1/2 IN FSJ4-50B CAB

9.4 REMOTE SITE RFDS & ANTENNA LIST

Qty.	Nomenclature	Description
2	DSDSCC8510D	10 CHANNEL CERAMIC CAVITY COMBINER
2	DSMWF8AMD	800MHZ HI PWR TX MILLED FILTER 851-
1	A07SYSSS16AM	794-824MHZ 16CH,7/800MHZTTA SYS,AC,
1	DSDS7C06P36TD	764-869MHZ, 5.9DB GAIN TRIPLE LOW P
2	DSDSCC8510D	10 CHANNEL CERAMIC CAVITY COMBINER
2	DSMWF8AMD	800MHZ HI PWR TX MILLED FILTER 851-
1	A07SYSSS16AM	794-824MHZ 16CH,7/800MHZTTA SYS,AC,
2	DSDS7C08PPYUD	764-869 MHZ 8 DB GAIN 4' PANEL LOW-
1	DSDS7C09P36UD	DS7C09P36U-D, 764-869MHZ SINGLE 9DB

Qty.	Nomenclature	Description
2	DSDSCC8510D	10 CHANNEL CERAMIC CAVITY COMBINER
2	DSMWF8AMD	800MHZ HI PWR TX MILLED FILTER 851-
1	A07SYSSS16AM	794-824MHZ 16CH,7/800MHZTTA SYS,AC,
2	DSDS7C08PPYU2D	764-869 MHZ 8 DB GAIN 4' PANEL LOW-
1	DSDS7C09P36UD	DS7C09P36U-D, 764-869MHZ SINGLE 9DB
2	DSDSCC8510D	10 CHANNEL CERAMIC CAVITY COMBINER
2	DSMWF8AMD	800MHZ HI PWR TX MILLED FILTER 851-
1	A07SYSSS16AM	794-824MHZ 16CH,7/800MHZTTA SYS,AC,
2	DSCC80708	OMNI, CORPORATE COLLINEAR, 8 DBD, 7
1	DSDS7C09P36UD	DS7C09P36U-D, 764-869MHZ SINGLE 9DB
2	DSDSCC8510D	10 CHANNEL CERAMIC CAVITY COMBINER
2	DSMWF8AMD	800MHZ HI PWR TX MILLED FILTER 851-
1	A07SYSSS16AM	794-824MHZ 16CH,7/800MHZTTA SYS,AC,
2	DSDS7C08PPYUD	764-869 MHZ 8 DB GAIN 4' PANEL LOW-
1	DSDS7C09P36UD	DS7C09P36U-D, 764-869MHZ SINGLE 9DB
2	DSDSCC8510D	10 CHANNEL CERAMIC CAVITY COMBINER
2	DSMWF8AMD	800MHZ HI PWR TX MILLED FILTER 851-
1	A07SYSSS16AM	794-824MHZ 16CH,7/800MHZTTA SYS,AC,
2	DSDS7C08PPYUD	764-869 MHZ 8 DB GAIN 4' PANEL LOW-
1	DSDS7C09P36UD	DS7C09P36U-D, 764-869MHZ SINGLE 9DB
2	DSDSCC8510D	10 CHANNEL CERAMIC CAVITY COMBINER
2	DSMWF8AMD	800MHZ HI PWR TX MILLED FILTER 851-
1	A07SYSSS16AM	794-824MHZ 16CH,7/800MHZTTA SYS,AC,
2	DSDS7C08PPYUD	764-869 MHZ 8 DB GAIN 4' PANEL LOW-
1	DSDS7C09P36UD	DS7C09P36U-D, 764-869MHZ SINGLE 9DB
2	DSDSCC8510D	10 CHANNEL CERAMIC CAVITY COMBINER
2	DSMWF8AMD	800MHZ HI PWR TX MILLED FILTER 851-
1	A07SYSSS16AM	794-824MHZ 16CH,7/800MHZTTA SYS,AC,
2	DSDS7C08PPYU4D	764-869 MHZ 8 DB GAIN 4' PANEL LOW-
1	DSDS7C09P36UD	DS7C09P36U-D, 764-869MHZ SINGLE 9DB



Qty.	Nomenclature	Description
2	DSDSCC8510D	10 CHANNEL CERAMIC CAVITY COMBINER
2	DSMWF8AMD	800MHZ HI PWR TX MILLED FILTER 851-
1	A07SYSSS16AM	794-824MHZ 16CH,7/800MHZTTA SYS,AC,
2	DSDS7C09P36UD	DS7C09P36U-D, 764-869MHZ SINGLE 9DB
1	DSDS7C09P36UD	DS7C09P36U-D, 764-869MHZ SINGLE 9DB

9.5 PRIME & REMOTE SITE DC POWER

Qty.	Nomenclature	Description
1	DST2S20844.00006	TRILOGY POWER SYSTEM WITH SMARTPACK
3	DS241119.105	FLATPACK2 HE RECTIFIER 3000W 48V,
5	DS331E23640800	BLIND PANEL FP2 HE BLACK G1
1	DSCBB080E	80A BATTERY BREAKER
1	DSCET3KVA.00000	MEDIA INVERTER 2I
2	DS275843	INVERTER, 1.5KVA, 120VAC, 48VDC INV
2	DS305467	BATTERY, 48V/170AH 12V170FS
1	DST2S20844.00004	TRILOGY POWER SYSTEM WITH SMARTPACK
8	DS241119.105	TRILOGY POWER SYSTEM WITH SMARTPACK
1	DS331E23640800	BLIND PANEL FP2 HE BLACK G1
1	DSCBB080E	80A BATTERY BREAKER
1	DSCET3KVA.00000	MEDIA INVERTER 2I
2	DS275843	INVERTER, 1.5KVA, 120VAC, 48VDC INV
1	DS505317	48V 1200AH BATTERY SET #DDMP100-25
1	DST2S20844.00004	TRILOGY POWER SYSTEM WITH SMARTPACK
8	DS241119.105	TRILOGY POWER SYSTEM WITH SMARTPACK
1	DS331E23640800	BLIND PANEL FP2 HE BLACK G1
1	DSCBB080E	80A BATTERY BREAKER
1	DSCET3KVA.00000	MEDIA INVERTER 2I
2	DS275843	INVERTER, 1.5KVA, 120VAC, 48VDC INV
1	DS505317	48V 1200AH BATTERY SET #DDMP100-25
1	DST2S20844.00004	TRILOGY POWER SYSTEM WITH SMARTPACK

Qty.	Nomenclature	Description
8	DS241119.105	TRILOGY POWER SYSTEM WITH SMARTPACK
1	DS331E23640800	BLIND PANEL FP2 HE BLACK G1
1	DSCBB080E	80A BATTERY BREAKER
1	DSCET3KVA.00000	MEDIA INVERTER 2I
2	DS275843	INVERTER, 1.5KVA, 120VAC, 48VDC INV
1	DS505317	48V 1200AH BATTERY SET #DDMP100-25
1	DST2S20844.00004	TRILOGY POWER SYSTEM WITH SMARTPACK
8	DS241119.105	TRILOGY POWER SYSTEM WITH SMARTPACK
1	DS331E23640800	BLIND PANEL FP2 HE BLACK G1
1	DSCBB080E	80A BATTERY BREAKER
1	DSCET3KVA.00000	MEDIA INVERTER 2I
2	DS275843	INVERTER, 1.5KVA, 120VAC, 48VDC INV
1	DS505317	48V 1200AH BATTERY SET #DDMP100-25
1	DST2S20844.00004	TRILOGY POWER SYSTEM WITH SMARTPACK
8	DS241119.105	TRILOGY POWER SYSTEM WITH SMARTPACK
1	DS331E23640800	BLIND PANEL FP2 HE BLACK G1
1	DSCBB080E	80A BATTERY BREAKER
1	DSCET3KVA.00000	MEDIA INVERTER 2I
2	DS275843	INVERTER, 1.5KVA, 120VAC, 48VDC INV
1	DS505317	48V 1200AH BATTERY SET #DDMP100-25
1	DST2S20844.00004	TRILOGY POWER SYSTEM WITH SMARTPACK
8	DS241119.105	TRILOGY POWER SYSTEM WITH SMARTPACK
1	DS331E23640800	BLIND PANEL FP2 HE BLACK G1
1	DSCBB080E	80A BATTERY BREAKER
1	DSCET3KVA.00000	MEDIA INVERTER 2I
2	DS275843	INVERTER, 1.5KVA, 120VAC, 48VDC INV
1	DS505317	48V 1200AH BATTERY SET #DDMP100-25
1	DST2S20844.00004	TRILOGY POWER SYSTEM WITH SMARTPACK
8	DS241119.105	TRILOGY POWER SYSTEM WITH SMARTPACK
1	DS331E23640800	BLIND PANEL FP2 HE BLACK G1



Qty.	Nomenclature	Description
1	DSCBB080E	80A BATTERY BREAKER
1	DSCET3KVA.00000	MEDIA INVERTER 2I
2	DS275843	INVERTER, 1.5KVA, 120VAC, 48VDC INV
1	DS505317	48V 1200AH BATTERY SET #DDMP100-25
1	DST2S20844.00004	TRILOGY POWER SYSTEM WITH SMARTPACK
8	DS241119.105	TRILOGY POWER SYSTEM WITH SMARTPACK
1	DS331E23640800	BLIND PANEL FP2 HE BLACK G1
1	DSCBB080E	80A BATTERY BREAKER
1	DSCET3KVA.00000	MEDIA INVERTER 2I
2	DS275843	INVERTER, 1.5KVA, 120VAC, 48VDC INV
1	DS505317	48V 1200AH BATTERY SET #DDMP100-25
1	DST2S20844.00004	TRILOGY POWER SYSTEM WITH SMARTPACK
8	DS241119.105	TRILOGY POWER SYSTEM WITH SMARTPACK
1	DS331E23640800	BLIND PANEL FP2 HE BLACK G1
1	DSCBB080E	80A BATTERY BREAKER
1	DSCET3KVA.00000	MEDIA INVERTER 2I
2	DS275843	INVERTER, 1.5KVA, 120VAC, 48VDC INV
1	DS505317	48V 1200AH BATTERY SET #DDMP100-25

9.6 COMMANDCENTRAL AXS DISPATCH EQUIPMENT LIST (MFC)

Qty.	Nomenclature	Description
7	TT3992A	COMPUTER, DL20 G10
1	DSB07000819	8-PORT CONSOLE CAT5 KVM SWITCH 1U R
7	DSB078101USB1	USB SINGLE SRVR INTERFACE UNIT VIRT
1	HKVN4728	LICENSE,AXS ASTRO 25 SYSTEM WI
1	HKVN4828	LICENSE, AXS CLUSTER TEMPORARY STAG
7	TT3992A	COMPUTER, DL20 G10
1	DSB07000819	8-PORT CONSOLE CAT5 KVM SWITCH 1U R
7	DSB078101USB1	USB SINGLE SRVR INTERFACE UNIT VIRT

Qty.	Nomenclature	Description
72	HKVN4729	AXS DISPATCH CLIENT LICENSE
72	HKVN4730	LICENSE,AXS TRUNKING SERVICES
72	HKVN4731	LICENSE,AXS ADVANCED CONVENTION
72	HKVN4733	LICENSE,AXS CHANNEL BASED IRR
72	HKVN4734	LICENSE,AXS MULTIPLE GUI WINDOWS
72	HKVN4737	LICENSE,AXS STANDARD LEVEL RADIO
72	HKVN4736	LICENSE,AXS AMBE+2 VOCODER ROY
72	HKVN4732	LICENSE,AXS SECURE VOICE SERVICES
72	B1956	COMMANDCENTRAL HUB, W/CLIENT PC
72	CA03553AA	ADD: AC LINE CORD, NORTH AMERICA
72	CA03547AA	ADD: BRACKET, MOUNTING 2RU
72	CA03572AA	ADD: CABLE RETENTION BRACKET
72	L3225A	CERTIFIED KEYBOARD FOR RSD SERVERS
72	L3226A	CERTIFIED OPTICAL WHEEL MOUSE FOR R
72	B1951	MICROPHONE, DESKTOP, USB
72	CA03412AA	ADD: USB CABLE, TYPE C TO TYPE C, 4
144	B1913	MCC SERIES HEADSET JACK
72	DSTWIN6328A	PROVIDES ONE DUAL PEDAL FOOTSWITCH
144	RLN6098	HDST MODULE BASE W/PTT, 15 FT CBL
144	RMN5150A	OVER-THE-HEAD, MONAURAL, NOISE-CANC
1	3082933N08	GR500 AC POWER CORD
1	FKN8696	CABLE – MCD 5000 DESKSET TO LOGGER
1	BKN2002	FRU: POWER CABLE, 24VDC
1	BLN1325	FRU: MOUNTING BRACKET KIT
1	BHN1024	FRU: COVER, FRONT
1	BHN6114	FRU: BRACKET, CABLE RETENTION
1	BPN1030	FRU, POWER SUPPLY WITH DC CORD
1	BLN1277	HEADSET JACK CIRCUIT BOARD FRU
1	3071113H01	CABLE ASSY, 16 PIN CONNECTOR
1	3071114H01	CABLE ASSY, EXTENDER

Qty.	Nomenclature	Description
2	SQM01SUM0292	CRYPTR
2	CA02066AA	AC Line Cord, North America
2	CA02954AA	ADD: SECURE OPERATION
2	CA03441AA	ADD:MCC7500E CRYPTR AES256
2	T8490	MCC7500 CRYPTR SOFTWARE CD UPGRADE
2	T8126	FORTINET FIREWALL APPLIANCE
1	T7038	GCP 8000 SITE CONTROLLER
1	CA03678AA	ADD: ASTRO SYSTEM RELEASE 2021.1
2	CA00303AA	ADD: QTY (1) SITE CONTROLLER
1	CA01136AA	MCC 7500 CONVEN SITE OPER
1	X153AW	ADD: RACK MOUNT HARDWARE
1	TRN7343	SEVEN AND A HALF FOOT RACK
2	DS1101990	SPD, SHIELDED RJ-45 JACK, SINGLE LI
2	DSTSJADP	RACK MOUNT GROUND BAR, 19 IN FOR TS
1	T8492	SITE ROUTER & FIREWALL- AC
1	CA03445AA	ADD: MISSION CRITICAL HARDENING
1	CA03448AA	ADD: STATEFUL FIREWALL
1	T8492	SITE ROUTER & FIREWALL- AC
1	CA03445AA	ADD: MISSION CRITICAL HARDENING
1	CA03448AA	ADD: STATEFUL FIREWALL
1	F4544	SITE MANAGER ADVANCED
1	VA00872	ADD: SDM ASTRO RTU FW CURR ASTRO RE
1	V266	ADD: 90VAC TO 260VAC PS TO SM
3	V592	AAD TERM BLCK & CONN WI
8	CLN1868	2930F 24-PORT SWITCH

9.7 COMMANDCENTRAL AXS DISPATCH EQUIPMENT LIST (OCD)

Qty.	Nomenclature	Description
5	TT3992A	COMPUTER, DL20 G10

Qty.	Nomenclature	Description
1	DSB07000819	8-PORT CONSOLE CAT5 KVM SWITCH 1U R
5	DSB078101USB1	USB SINGLE SRVR INTERFACE UNIT VIRT
1	HKVN4728	LICENSE,AXS ASTRO 25 SYSTEM WI
1	HKVN4828	LICENSE, AXS CLUSTER TEMPORARY STAG
5	TT3992A	COMPUTER, DL20 G10
1	DSB07000819	8-PORT CONSOLE CAT5 KVM SWITCH 1U R
5	DSB078101USB1	USB SINGLE SRVR INTERFACE UNIT VIRT
28	HKVN4729	AXS DISPATCH CLIENT LICENSE
28	HKVN4730	LICENSE,AXS TRUNKING SERVICES
28	HKVN4731	LICENSE,AXS ADVANCED CONVENTION
28	HKVN4733	LICENSE,AXS CHANNEL BASED IRR
28	HKVN4734	LICENSE,AXS MULTIPLE GUI WINDOWS
28	HKVN4737	LICENSE,AXS STANDARD LEVEL RADIO
28	HKVN4736	LICENSE,AXS AMBE+2 VOCODER ROY
28	HKVN4732	LICENSE,AXS SECURE VOICE SERVICES
28	B1956	COMMANDCENTRAL HUB, W/CLIENT PC
28	CA03553AA	ADD: AC LINE CORD, NORTH AMERICA
28	CA03547AA	ADD: BRACKET, MOUNTING 2RU
28	CA03572AA	ADD: CABLE RETENTION BRACKET
28	L3225A	CERTIFIED KEYBOARD FOR RSD SERVERS
28	L3226A	CERTIFIED OPTICAL WHEEL MOUSE FOR R
28	B1951	MICROPHONE, DESKTOP, USB
28	CA03412AA	ADD: USB CABLE, TYPE C TO TYPE C, 4
56	B1913	MCC SERIES HEADSET JACK
28	DSTWIN6328A	PROVIDES ONE DUAL PEDAL FOOTSWITCH
56	RLN6098	HDST MODULE BASE W/PTT, 15 FT CBL
56	RMN5150A	OVER-THE-HEAD, MONAURAL, NOISE-CANC
1	3082933N08	GR500 AC POWER CORD
1	FKN8696	CABLE – MCD 5000 DESKSET TO LOGGER
1	BKN2002	FRU: POWER CABLE, 24VDC



Qty.	Nomenclature	Description
1	BLN1325	FRU: MOUNTING BRACKET KIT
1	BHN1024	FRU: COVER, FRONT
1	BHN6114	FRU: BRACKET, CABLE RETENTION
1	BPN1030	FRU, POWER SUPPLY WITH DC CORD
1	BLN1277	HEADSET JACK CIRCUIT BOARD FRU
1	3071113H01	CABLE ASSY, 16 PIN CONNECTOR
1	3071114H01	CABLE ASSY, EXTENDER
2	SQM01SUM0292	CRYPTR
2	CA02066AA	AC Line Cord, North America
2	CA02954AA	ADD: SECURE OPERATION
2	CA03441AA	ADD:MCC7500E CRYPTR AES256
2	T8490	MCC7500 CRYPTR SOFTWARE CD UPGRADE
1	SQM01SUM0299	EDGE CONTROLLER SERVER
1	CA03120AA	ADD: EDGE CONTROLLER BASE SOFTWARE
1	CA03082AA	ADD: LXN OPEN RACK INSTALL KIT
1	SQM01SUM0205	GGM 8000 GATEWAY
1	CA01616AA	ADD: AC POWER
2	CLN1868	2930F 24-PORT SWITCH
2	T8126	FORTINET FIREWALL APPLIANCE
2	T8639	JUNIPER FIREWALL APPLIANCE
1	T7038	GCP 8000 SITE CONTROLLER
1	CA03678AA	ADD: ASTRO SYSTEM RELEASE 2021.1
2	CA00303AA	ADD: QTY (1) SITE CONTROLLER
1	CA01136AA	MCC 7500 CONVEN SITE OPER
1	X153AW	ADD: RACK MOUNT HARDWARE
1	TRN7343	SEVEN AND A HALF FOOT RACK
2	DS1101990	SPD, SHIELDED RJ-45 JACK, SINGLE LI
2	DSTSJADP	RACK MOUNT GROUND BAR, 19 IN FOR TS
1	T8492	SITE ROUTER & FIREWALL- AC
1	CA03445AA	ADD: MISSION CRITICAL HARDENING



Qty.	Nomenclature	Description
1	CA03448AA	ADD: STATEFUL FIREWALL
1	T8492	SITE ROUTER & FIREWALL- AC
1	CA03445AA	ADD: MISSION CRITICAL HARDENING
1	CA03448AA	ADD: STATEFUL FIREWALL
4	CLN1868	2930F 24-PORT SWITCH
1	FKN8696	CABLE – MCD 5000 DESKSET TO LOGGER
1	BLN1325	FRU: MOUNTING BRACKET KIT
1	BHN1024	FRU: COVER, FRONT
1	BHN6114	FRU: BRACKET, CABLE RETENTION
1	BLN1277	HEADSET JACK CIRCUIT BOARD FRU
1	3071113H01	CABLE ASSY, 16 PIN CONNECTOR
1	3071114H01	CABLE ASSY, EXTENDER
1	T8492	SITE ROUTER & FIREWALL- AC
1	CA03445AA	ADD: MISSION CRITICAL HARDENING
1	CA03448AA	ADD: STATEFUL FIREWALL
1	CLN1868	2930F 24-PORT SWITCH

9.8 LOGGING RECORDER SUB-SYSTEM

Qty.	Nomenclature	Description
1	SQM01SUM0205	GGM 8000 GATEWAY
1	CA01619AA	ADD: DC POWER
1	CLN1868	2930F 24-PORT SWITCH
1	B1948	MCC 7500E DISPATCH POSITION LICENSE
2	UA00653AA	ADD: BASIC CONSOLE OPERATION
2	UA00654AA	ADD: ASTRO 25 TRUNKING OPERATION
2	UA00655AA	ADD: ADVANCED CONVENTIONAL OPERATIO
2	UA00659AA	ADD: ADP/AES/DES-OFB ENCRYPTION
2	UA00658AA	ADD: SECURE OPERATION
2	UA00652AA	ADD: 160 RADIO RESOURCES LICENSE
2	UA00661AA	ADD: ENHANCED IRR

Qty.	Nomenclature	Description
1	B1949	MCC 7500E SOFTWARE DVD
2	DSTG191B	TECH GLOBAL EVOLUTION SERIES 19INCH
2	TT3903A	Z2 G5 MINI WORKSTATION NON RETURNAB
4	DDN2825	USB HEADSET BASE WITH PTT
2	DDN1574	USB HUB 7 PORT
2	T8742	MCAFFEE FOR WINDOWS CLIENT, A2019.2
1	T8806A	WINDOWS SUPP TRANS CONFIG, A2020.1/
1	T8639	JUNIPER FIREWALL APPLIANCE
1	CLN1868	2930F 24-PORT SWITCH
1	T8492	SITE ROUTER & FIREWALL- AC
1	CA03445AA	ADD: MISSION CRITICAL HARDENING
1	CA03448AA	ADD: STATEFUL FIREWALL
2	B1905	MCC 7500 ASTRO 25 SOFTWARE
2	B1933	MOTOROLA VOICE PROCESSOR MODULE
2	CA00288AB	ADD: MCC 7500 ARCHIVING INTERFACE S
2	CA00147AF	ADD: MCC 7500 SECURE OPERATION
2	CA00182AB	ADD: AES ALGORITHM
2	CA00140AA	ADD: AC LINE CORD, NORTH AMERICAN
2	T8742	MCAFFEE FOR WINDOWS CLIENT, A2019.2
6	SQM01SUM0205	GGM 8000 GATEWAY
6	CA01619AA	ADD: DC POWER
6	CA02086AA	ADD: HIGH DENSITY ENH CONV GATEWAY
1	B1948	MCC 7500E DISPATCH POSITION LICENSE
2	UA00653AA	ADD: BASIC CONSOLE OPERATION
2	UA00654AA	ADD: ASTRO 25 TRUNKING OPERATION
2	UA00655AA	ADD: ADVANCED CONVENTIONAL OPERATIO
2	UA00659AA	ADD: ADP/AES/DES-OFB ENCRYPTION
2	UA00658AA	ADD: SECURE OPERATION
2	UA00652AA	ADD: 160 RADIO RESOURCES LICENSE
2	UA00661AA	ADD: ENHANCED IRR



Qty.	Nomenclature	Description
1	B1949	MCC 7500E SOFTWARE DVD
2	DSTG191B	TECH GLOBAL EVOLUTION SERIES 19INCH
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1	CLN1868	2930F 24-PORT SWITCH
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2	CA00147AF	ADD: MCC 7500 SECURE OPERATION
2	CA00182AB	ADD: AES ALGORITHM
2	CA00140AA	ADD: AC LINE CORD, NORTH AMERICAN
2	T8742	MCAFFEE FOR WINDOWS CLIENT, A2019.2
6	SQM01SUM0205	GGM 8000 GATEWAY
6	CA01619AA	ADD: DC POWER
6	CA02086AA	ADD: HIGH DENSITY ENH CONV GATEWAY
2	89-270-0097	7000 platform Recorder Server (SVR7KH1-REC)
1	89-270-0102	7000 platform Database Server (SVR7KH1-DB)
2	89-270-0103	7000 platform Application Server (SVR7KH1-APP)
2	89-270-0118	Add on Media Storage 3x1.9TB SSD SATA 6 Gb/s, 2.5-inch, (RAID5, SSD-SD3R5)
1	89-270-0054	2 Post Rack Rail kit for 6000/7000 Series Servers
1	89-270-0108	Spare Parts Kit for 7000 Series H1/H2 platforms (Without Drive)
1	89-270-0067	San Disk - 960GB SSD SATA 6 Gb/s, 2.5-inch



Qty.	Nomenclature	Description
1	89-270-0109	Spare Part for 1.9TB SSD SATA 6 Gb/s, 2.5-inch
269	93-630-0003	Verint Public Safety Call Recording(Channel based)
120	93-630-0001	Verint Public Safety Recording Named Radio Talkgroup
1	93-630-0028	Motorola Radio P25 Interface Enabler
1	89-270-0097	7000 platform Recorder Server (SVR7KH1-REC)
1	89-270-0120	Add on Dual Port Intel I350-AE2 GbE I/O Module (Dual Port Mezzanine card)
1	89-270-0118	Add on Media Storage 3x1.9TB SSD SATA 6 Gb/s, 2.5-inch, (RAID5, SSD-SD3R5)
2	89-270-0054	2 Post Rack Rail kit for 6000/7000 Series Servers
3	89-270-0090	Add on USB contact closure to 32 Optically Isolated Inputs Digital Interface Adapter
1	89-270-0039	Add on 13 Slot PCI Expansion Chassis for 6000 - 7000 Series Platform
12	89-270-0020	Add on AudioCodes LD Card 24 analog Port (PCI)
269	93-630-0007	Verint Public Safety N+N Voice Recording Redundancy (Channel-based)
1	89-270-0097	7000 platform Recorder Server (SVR7KH1-REC)
1	89-270-0120	Add on Dual Port Intel I350-AE2 GbE I/O Module (Dual Port Mezzanine card)
1	89-270-0118	Add on Media Storage 3x1.9TB SSD SATA 6 Gb/s, 2.5-inch, (RAID5, SSD-SD3R5)
2	89-270-0054	2 Post Rack Rail kit for 6000/7000 Series Servers
2	89-270-0090	Add on USB contact closure to 32 Optically Isolated Inputs Digital Interface Adapter
1	89-270-0039	Add on 13 Slot PCI Expansion Chassis for 6000 - 7000 Series Platform
10	89-270-0020	Add on AudioCodes LD Card 24 analog Port (PCI)
1	93-630-0024	Verint Public Safety Recording Integration - Production
1136	93-630-0008	Verint Public Safety Data Center Redundancy (Channel-based)
2	89-270-0097	7000 platform Recorder Server (SVR7KH1-REC)
1	89-270-0102	7000 platform Database Server (SVR7KH1-DB)
1	89-270-0103	7000 platform Application Server (SVR7KH1-APP)

Qty.	Nomenclature	Description
2	89-270-0118	Add on Media Storage 3x1.9TB SSD SATA 6 Gb/s, 2.5-inch, (RAID5, SSD-SD3R5)
4	89-270-0054	2 Post Rack Rail kit for 6000/7000 Series Servers
179	93-630-0003	Verint Public Safety Call Recording(Channel based)
120	93-630-0001	Verint Public Safety Recording Named Radio Talkgroup
1	93-630-0028	Motorola Radio P25 Interface Enabler
1	89-270-0097	7000 platform Recorder Server (SVR7KH1-REC)
1	89-270-0120	Add on Dual Port Intel I350-AE2 GbE I/O Module (Dual Port Mezzanine card)
1	89-270-0118	Add on Media Storage 3x1.9TB SSD SATA 6 Gb/s, 2.5-inch, (RAID5, SSD-SD3R5)
2	89-270-0054	2 Post Rack Rail kit for 6000/7000 Series Servers
1	89-270-0090	Add on USB contact closure to 32 Optically Isolated Inputs Digital Interface Adapter
1	89-270-0039	Add on 13 Slot PCI Expansion Chassis for 6000 - 7000 Series Platform
7	89-270-0020	Add on AudioCodes LD Card 24 analog Port (PCI)
179	93-630-0007	Verint Public Safety N+N Voice Recording Redundancy (Channel-based)
1	89-270-0097	7000 platform Recorder Server (SVR7KH1-REC)
1	89-270-0120	Add on Dual Port Intel I350-AE2 GbE I/O Module (Dual Port Mezzanine card)
1	89-270-0118	Add on Media Storage 3x1.9TB SSD SATA 6 Gb/s, 2.5-inch, (RAID5, SSD-SD3R5)
2	89-270-0054	2 Post Rack Rail kit for 6000/7000 Series Servers
2	89-270-0090	Add on USB contact closure to 32 Optically Isolated Inputs Digital Interface Adapter
1	89-270-0039	Add on 13 Slot PCI Expansion Chassis for 6000 - 7000 Series Platform
7	89-270-0020	Add on AudioCodes LD Card 24 analog Port (PCI)
126	93-630-0005	Verint Public Safety Quality Management
99	93-630-0037	Verint Public Safety Offline Screen Interaction Recording



SECTION 10

STATEMENT OF WORK

10.1 STATEMENT OF WORK

Motorola Solutions will install and configure the proposed equipment. The following table describes the tasks involved with installation and configuration.

Tasks	Motorola Solutions	Customer
PROJECT INITIATION		
Contract Finalization and Team Creation		
Execute contract and distribute contract documents.	X	X
Assign a Project Manager as a single point of contact.	X	X
Assign resources.	X	X
Schedule project kickoff meeting.	X	X
Deliverable: Signed contract, defined project team, and scheduled project kickoff meeting.		
Project Administration		
Ensure that project team members attend all meetings relevant to their role on the project.	X	X
Set up the project in the Motorola Solutions information system.	X	
Record and distribute project status meeting minutes.	X	
Maintain responsibility for third-party services contracted by Motorola Solutions.	X	
Complete assigned project tasks according to the project schedule.	X	X
Submit project milestone completion documents.	X	
Upon completion of tasks, approve project milestone completion documents.		X
Conduct all project work Monday thru Friday, 7:30 a.m. to 5:00 p.m.).	X	
Deliverable: Completed and approved project milestones throughout the project.		
Project Kickoff		
Introduce team, review roles, and decision authority.	X	X
Present project scope and objectives.	X	
Review SOW responsibilities and project schedule.	X	X
Schedule Design Review.	X	X

Tasks	Motorola Solutions	Customer
Deliverable: Completed project kickoff and scheduled Design Review.		
Design Review		
Review the Customer's operational requirements.	X	X
Present the system design and operational requirements for the solution.	X	
Present installation plan.	X	
Present preliminary cutover plan and methods to document final cutover process.	X	
Present configuration and details of sites required by system design.	X	
Validate that sites can accommodate proposed equipment.		X
Provide approvals required to add equipment to proposed existing sites.		X
Review safety, security, and site access procedures.	X	
Finalize site acquisition and development plan.	X	
Present equipment layout plans and system design drawings.	X	
Provide backhaul performance specifications and demarcation points.	X	
Provide heat load and power requirements for new equipment.	X	
Provide information on existing system interfaces.		X
Provide frequency and radio information for each site.		X
Assume liability and responsibility for proving all information necessary for complete installation.		X
Assume responsibility for issues outside of Motorola Solutions' control.		X
Assist the City with completing required frequency coordination forms.	X	
Complete the required forms required for frequency coordination and licensing.		X
Ensure that frequency availability and licensing meet project requirements, and pay licensing and frequency coordination fees.		X
Review and update design documents, including System Description, Statement of Work, Project Schedule, and Acceptance Test Plan, based on Design Review agreements.	X	
Provide minimum acceptable performance specifications for customer provided hardware, software, LAN, WAN and internet connectivity.	X	
Conduct paper only intermodulation studies for the frequencies included in this design.	X	
Conduct Tower Loading Studies for all RF sites (not including City Hall East or 100 Wilshire)	X	
Rectify issues identified in the Tower Loading Study report.		X
Provide frequency and RFDS characteristics of any frequencies, other than the ones included in this project, to be included in the intermodulation study.		X



Tasks	Motorola Solutions	Customer
Provide exclusive use of a existing channel for baseline coverage study.		X
Conduct the first baseline coverage study in accordance with the Baseline Coverage Test Grid-Map included in this proposal. Modifications of the design at the direction of the City based on these results may result in a change order.	X	
Provide a comparison of predicted new system coverage against the baseline coverage study.	X	
Execute Change Order in accordance with all material changes to the Contract resulting from the Design Review.	X	
Deliverable: Finalized design documentation based upon “frozen” design, along with any relevant Change Order documentation.		
SITE PREPARATION AND DEVELOPMENT		
Site Access		
Provide site owners/managers with written notice to provide entry to sites identified in the project design documentation.		X
Maintain access roads in order to provide clear and stable entry to sites for heavy-duty construction vehicles, cement trucks and cranes. Ensure that sufficient space is available at the site for these vehicles to maneuver under their own power, without assistance from other equipment.		X
Obtain site licensing and permitting, including site lease/ownership, zoning, permits, regulatory approvals, easements, power, and telco connections.		X
Provide escorts for all site visits within 48 hours of notification.		X
Deliverable: Access, permitting, and licensing necessary to install system equipment at each site.		
Site Planning		
Provide necessary buildings, equipment shelters, and towers for installation of system equipment.		X
Provide the R56 requirements for space, power, grounding, HVAC, and connectivity requirements at each site.	X	
Ensure that proposed design does not require additional utility power above the existing system.	X	
Provide adequate electrical power in proper phase and voltage at sites.		X
Provide as-built structural and foundation drawings of the structures and site locations, along with geotechnical reports, in order to facilitate a structural analysis.		X
Perform structural analysis of tower structures to confirm that they are capable of supporting proposed and future antenna loads. Excluding 100 Wilshire & City Hall	X	
Confirm that there is adequate utility service to support the new equipment and ancillary equipment.	X	
Modify towers or other structures, or relocate sites in the system, to ensure that they are capable of supporting proposed and future antenna loads.		X
Conduct site walks to collect pertinent information (e.g. location of telco, power, structures, etc.)	X	X
Ensure that each site meets the R56 standards for space, grounding, power, HVAC, and connectivity requirements.		X
Conduct one three-point ground resistance test of each site.	X	

Tasks	Motorola Solutions	Customer
Prepare and submit Electromagnetic Energy (EME) plans for the site (as licensee) to demonstrate compliance with FCC RF Exposure Guidelines.		X
Pay for application fees, taxes, and recurring payments for lease/ownership of property.		X
Ensure that required rack space is available for installation of the new equipment.		X
Deliverable: Information and permitting requirements completed at each site.		
General Facility Improvements		
Provide adequate HVAC, grounding, lighting, cable routing, and surge protection based upon Motorola Solutions' Standards and Guidelines for Communication Sites (R56)		X
Ensure the resolution of environmental and hazardous material issues at each site including, but not limited to, asbestos, structural integrity (tower, rooftop, water tank, etc.), and other building risks.		X
Validate that electrical service will accommodate installation of system equipment, including isolation transformers, circuit breakers, surge protectors, and cabling.	X	
Provide obstruction-free area for the cable run between the demarcation point and system equipment.		X
Provide structure penetrations (wall or roof) for transmission equipment (e.g. antennas, microwave radios, etc.).		X
Supply interior building cable trays, raceways, conduits, and wire supports.		X
Pay for usage costs of power and generator fueling, both during the construction and installation effort, and on an ongoing basis.		X
Provide one-time mobilization of Installation crews.	X	
Install new DC Rectifiers and batteries at each prime and remote site. The DC system is only designed to support the newly provided equipment.	X	
Modify the DC design to ensure it does not consume more space than the old system.	X	
Transport removed site equipment to a location designated by Customer and within Customer's jurisdiction. Removed equipment is limited to old DC system, voters, transmitters, receivers, antennas, and line that are being replaced.	X	
Deliverable: Sites meet physical requirements for equipment installation.		
SYSTEM INSTALLATION		
Equipment Order and Manufacturing		
Create equipment order and reconcile to contract.	X	
Manufacture Motorola Solutions-provided equipment necessary for system based on equipment order.	X	
Procure non-Motorola Solutions equipment necessary for the system.	X	
Deliverable: Equipment procured and ready for shipment.		
System Staging		
Ship all RF equipment needed for staging to Motorola Solutions' Customer Center for Solutions Integration (CCSi).	X	

Tasks	Motorola Solutions	Customer
Provide information on existing system interfaces, room layouts, or other information necessary for the assembly to meet field conditions.		X
Set up and rack the solution equipment on a site-by-site basis, as it will be configured in the field at each of the sites.	X	
Cut and label the cables with to/from information to specify interconnection for field installation and future servicing needs.	X	
Complete the cabling/connecting of the subsystems to each other ("connectorization" of the subsystems).	X	
Assemble required subsystems to assure system functionality.	X	
Power up, load application parameters, program, and test all staged equipment.	X	
Confirm system configuration and software compatibility with the existing system.	X	
Inventory the equipment with serial numbers and installation references.	X	
Review and approve proposed Factory Acceptance Test Plan.		X
For up to 12 people, Pay for travel, lodging, meals, and all incidental expenses for Customer personnel and representatives to witness the Factory Acceptance Testing.	X	
For any additional attendees above 12, Pay for travel, lodging, meals, and all incidental expenses for Customer personnel and representatives to witness the Factory Acceptance Testing.		X
Perform factory functional acceptance tests of system features	X	
Conduct site and system level testing.	X	
Perform system burn-in 24 hours a day during staging to isolate and capture any defects.	X	
Deliverable: System staged and ready for shipment.		
Equipment Shipment and Storage		
Provide secure location for solution equipment.	X	X
Pack and ship solution equipment to the identified, or site locations.	X	
Receive solution equipment.	X	
Inventory solution equipment.	X	
Deliverable: Solution equipment received and ready for installation		
General Installation		
Generate a mutually agreed upon site installation schedule. With the understanding that LAFD operational situations will require, within reason, flexibility.	X	X
Deliver solution equipment to installation location.	X	
Coordinate receipt of and inventory solution equipment with designated contact.	X	
Install all proposed fixed equipment as outlined in the System Description based upon the agreed-upon floor plans, connecting audio, control, and radio transmission cables to connect equipment to the power panels or	X	



Tasks	Motorola Solutions	Customer
receptacles, and audio/control line connection points. Installation performed in accordance with R56 standards and state/local codes.		
Provide system interconnections that are not specifically outlined in the system design, including dedicated phone circuits, microwave links, or other types of connectivity.		X
Install and terminate all network cables between site routers and network demarcation points, including microwave, leased lines, and Ethernet.	X	
Ensure that Type 1 and Type 2 AC suppression is installed to protect installed equipment.		X
Connect installed equipment to the provided ground system.	X	
Label equipment, racks, and cables.	X	
Perform preliminary audit of installed equipment to ensure compliance with requirements and R56 standards.	X	
Note any required changes to the installation for inclusion in the "as-built" system documentation.	X	
Deliverable: Equipment installed.		
Antenna and Transmission Line Installation		
Install antennas, including supplying and installing new side arm mounts	X	
Install towertop amplifiers (as required in final design).	X	
Install transmission lines required for system.	X	
Provide structure penetrations for transmission equipment (e.g. antennas & microwave line.).		X
Perform sweep tests on transmission lines.	X	
Provide and install attachment hardware for supporting transmission lines on antenna support structure.	X	
Provide ground buss bar at the bottom of each antenna support structure. This will be identified at Design Review Site Walks.		X
Deliverable: Antenna and Transmission Line installed.		
ASTRO 25 Core and Remote Site Installation and Configuration		
Install fixed equipment contained in the equipment list and system description.	X	
Provide backhaul connectivity and associated equipment for all sites to meet latency, jitter and capacity requirements.		X
Configure ASTRO system to support the new RF sites.	X	
Verify site link performance, prior to the interconnection of the solution equipment to the link equipment.	X	
Integrate the RF sites into the system to ensure proper operation.	X	
Deliverable: ASTRO 25 core and remote site equipment installation completed.		
Console Installation and Configuration		
Identify ethernet connection to console and provide a demarcation point located within 25 feet of the console interface for MFC Consoles.		X



Tasks	Motorola Solutions	Customer
Identify ethernet connection to console and provide a demarcation point located within 300 feet of the console interface for OCD Consoles.	X	
Connect console to ethernet demarcation points.	X	
Install PC workstation w/ keyboard and mouse, and monitor.	X	
Provide analog audio source for existing Mt. Lukens Backup channels at either MFC or City Hall East.		X
Develop templates for console programming.	X	
Perform console programming and configuration.	X	
Deliverable: Console equipment installation completed.		
Logging Equipment Installation and Configuration		
Supply logging equipment.	X	
Install and configure logging equipment according to design featured in the Verint Logging Recorder Section.	X	
Provide interfaces to logging equipment.		X
Deliverable: Logging equipment installation completed.		
SYSTEM OPTIMIZATION AND TESTING		
R56 Site Audit		
Perform R56 site-installation quality-audits, verifying proper physical installation and operational configurations.	X	
Create site evaluation report to verify site meets or exceeds requirements, as defined in Motorola Solutions' R56 Standards and Guidelines for Communication Sites.	X	
Deliverable: R56 Standards and Guidelines for Communication Sites audits completed successfully.		
Solution Optimization		
Verify that all equipment is operating properly and that all electrical and signal levels are set accurately.	X	
Verify that all audio and data levels are at factory settings.	X	
Verify communication interfaces between devices for proper operation.	X	
Ensure that functionality meets manufacturers' specifications and complies with the final configuration established during design review or system staging.	X	
Deliverable: Completion of System Optimization.		
Functional & Coverage Acceptance Testing		
Verify the operational functionality and features of the solution supplied by Motorola Solutions, as contracted.	X	
Witness the functional testing.		X
Document all issues that arise during the acceptance tests.	X	



Tasks	Motorola Solutions	Customer
If any major task for the system as contractually described fails during the Customer acceptance testing or beneficial use, repeat that particular task after Motorola Solutions determines that corrective action has been taken.	X	
Resolve any minor task failures before Final System Acceptance.	X	
Document the results of the acceptance tests and present for review.	X	
Conduct the Coverage Acceptance Test Plan in accordance with the final design.	X	
Compile and present the Coverage Test Results	X	
Review and approve final acceptance test results.		X
Deliverable: Completion of functional testing and approval by Customer.		
PROJECT TRANSITION		
Training		
Finalize schedule for training coursework.	X	
Provide training facility.		X
Ensure that the training participants fulfill course prerequisites.		X
Conduct the training classes outlined in the Training Plan.	X	
Attend proposed training classes.		X
Deliverable: Training coursework completed.		
Cutover		
Finalize Cutover Plan.	X	X
Conduct cutover meeting with relevant personnel to address both how to mitigate technical and communication problem impacts to the users during cutover and during the general operation of the system.	X	
Notify the personnel affected by the cutover of the date and time planned for cutover.		X
Provide ongoing communication with users regarding the project and schedule.	X	X
Resolve punchlist items, documented during the Acceptance Testing phase, in order to meet all the criteria for final system acceptance.	X	
Assist Motorola Solutions with resolution of identified punchlist items by providing support, such as access to the sites, equipment and system, and approval of the resolved punchlist items.		X
Deliverable: Migration to new system completed, and punchlist items resolved.		
Transition to Warranty		
Review the items necessary for transitioning the project to warranty support and service.	X	
Motorola Solutions to provide services during year 1 warranty which align with the proposed services.	X	

Tasks	Motorola Solutions	Customer
Provide a Customer Support Plan detailing the warranty support associated with the contract equipment.	X	
Participate in the Transition Service/Project Transition Certificate (PTC) process.		X
Deliverable: Service information delivered and approved by Customer		
Finalize Documentation and System Acceptance		
Provide manufacturer's installation material, part list and other related material to Customer upon project completion.	X	
Provide an electronic as-built system manual on CD or other Customer preferred electronic media. The documentation will include the following: <ul style="list-style-type: none"> ▪ Site Block Diagrams ▪ RF Interconnect Diagrams ▪ Cable Tray Layouts ▪ Power Interconnect Diagrams ▪ Site Floor Plans. ▪ Site Equipment Rack Configurations. ▪ Antenna Network Drawings for RF Sites (where applicable). ▪ ATP Test Checklists. ▪ Functional Acceptance Test Plan Test Sheets and Results. ▪ Equipment Inventory List. ▪ Console Programming Template (where applicable). ▪ Maintenance Manuals (where applicable). ▪ Technical Service Manuals (where applicable). Drawings will be delivered in Adobe PDF format.	X	
Receive and approve documentation.		X
Execute Final Project Acceptance.	X	X
Deliverable: All required documents are provided and approved. Final Project Acceptance.		



SECTION 11

IMPLEMENTATION SCHEDULE

11.1 PROJECT SCHEDULE

The proposed project schedule is a working document and will be finalized during the contract design review period.



ID	<div><div></div><div></div></div>	Task Mode	Task Name	Duration	Start	Finish	Predecessors	1st Half, 2022					2nd Half, 2022					1st Half, 2023					2nd Half, 2023					1st Half, 2024					2nd Half, 2024					1st Half, 2025				
								F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1		<div></div>	LAFD - Voter, Transmitter, & Console Refresh	806 days	Tue 3/1/22	Tue 4/1/25																																				
2		<div></div>	Project Initiation	118 days	Tue 3/1/22	Thu 8/11/22																																				
3		<div></div>	Contract	6 days	Tue 3/1/22	Tue 3/8/22																																				
4		<div></div>	Contract Award	1 day	Tue 3/1/22	Tue 3/1/22																																				
5		<div></div>	Contract Administration	5 days	Wed 3/2/22	Tue 3/8/22	4																																			
6		<div></div>	Contract Design Review	60 days	Wed 3/9/22	Tue 5/31/22	3																																			
7		<div></div>	RF Infrastructure Design Review	60 days	Wed 3/9/22	Tue 5/31/22																																				
8		<div></div>	Dispatch Center Design Review	60 days	Wed 3/9/22	Tue 5/31/22																																				
9		<div></div>	Design Approval	0 days	Tue 5/31/22	Tue 5/31/22	7,8																																			
10		<div></div>	Initial Coverage Verification	20 days	Wed 6/1/22	Tue 6/28/22	6																																			
11		<div></div>	Conduct Coverage Baseline	20 days	Wed 6/1/22	Tue 6/28/22																																				
12		<div></div>	Tower Loading Studies	52 days	Wed 6/1/22	Thu 8/11/22	6																																			
13		<div></div>	Baldwin Hills	5 days	Wed 6/1/22	Tue 6/7/22																																				
14		<div></div>	Beverly Glenn	5 days	Wed 6/8/22	Tue 6/14/22	13																																			
15		<div></div>	KSKQ Radio	5 days	Wed 6/15/22	Tue 6/21/22	14																																			
16		<div></div>	Mount Washington	5 days	Wed 6/22/22	Tue 6/28/22	15																																			
17		<div></div>	Oat Mountain	2 days	Wed 6/29/22	Thu 6/30/22	16																																			
18		<div></div>	San Pedro Hill	5 days	Fri 7/1/22	Thu 7/7/22	17																																			
19		<div></div>	Verdugo Peak	5 days	Fri 7/8/22	Thu 7/14/22	18																																			
20		<div></div>	Generate Loading Report	20 days	Fri 7/15/22	Thu 8/11/22	19																																			
21		<div></div>	City to Rectify Identified Issues (Duration TBD)	0 days	Thu 8/11/22	Thu 8/11/22	20																																			
22		<div></div>	Ordering, Installation, & Testing	430 days	Wed 6/1/22	Tue 1/23/24	6																																			
23		<div></div>	Infrastructure Order Processing	15 days	Wed 6/1/22	Tue 6/21/22																																				
24		<div></div>	Process Equipment List	10 days	Wed 6/1/22	Tue 6/14/22																																				
25		<div></div>	Order Bridged	5 days	Wed 6/15/22	Tue 6/21/22	24																																			
26		<div></div>	Infrastructure Manufacturing & Staging	160 days	Wed 6/22/22	Tue 1/31/23	23																																			
27		<div></div>	Manufacture Motorola FNE	60 days	Wed 6/22/22	Tue 9/13/22																																				
28		<div></div>	Manufacture Non-Motorola Equipment	90 days	Wed 6/22/22	Tue 10/25/22																																				
29		<div></div>	Develop CCSi Configurations	20 days	Wed 6/22/22	Tue 7/19/22	23																																			
30		<div></div>	Ship FNE to CCSi	15 days	Wed 10/26/22	Tue 11/15/22	28,29																																			
31		<div></div>	Stage FNE Equipment	30 days	Wed 11/16/22	Tue 12/27/22	30																																			
32		<div></div>	CCSi Factory Acceptance Test Plan (FATP)	10 days	Wed 12/28/22	Tue 1/10/23	31																																			
33		<div></div>	Ship FNE Equipment to Field	10 days	Wed 1/11/23	Tue 1/24/23	32																																			
34		<div></div>	Receive & Inventory Equipment	5 days	Wed 1/25/23	Tue 1/31/23	33																																			
35		<div></div>	P25 Radio Site Installation	255 days	Wed 2/1/23	Tue 1/23/24	26,6,12																																			
36		<div></div>	Master Site Installation	30 days	Wed 2/1/23	Tue 3/14/23																																				
37		<div></div>	Deliver & Bolt Racks	15 days	Wed 2/1/23	Tue 2/21/23																																				
38		<div></div>	Cable Equipment	15 days	Wed 2/22/23	Tue 3/14/23	37																																			

Project: LAFD - Voter & Transm

Date: Tue 1/25/22

Task

Split

Milestone

Summary

Project Summary

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

External Tasks
































External Milestone

Deadline

Progress

Manual Progress

Page 1

























ID		Task Mode	Task Name	Duration	Start	Finish	Predecessors	f 1, 2022												Half 2, 2022												Half 1, 2023												Half 2, 2023												Half 1, 2024												Half 2, 2024												Half 1, 2025											
								F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M																																												
39			RF Sites Installation (Antenna & DC)	60 days	Wed 2/1/23	Tue 4/25/23	26																																																																																				
40			Prime Site	6 days	Wed 2/1/23	Wed 2/8/23																																																																																					
41			Deliver & Bolt Racks	4 days	Wed 2/1/23	Mon 2/6/23																																																																																					
42			Cable Equipment	1 day	Tue 2/7/23	Tue 2/7/23	41																																																																																				
43			Antenna Installation	2 days	Tue 2/7/23	Wed 2/8/23	41																																																																																				
44			100 Wilshire	6 days	Thu 2/9/23	Thu 2/16/23	40																																																																																				
45			Deliver & Bolt Racks	4 days	Thu 2/9/23	Tue 2/14/23																																																																																					
46			Cable Equipment	1 day	Wed 2/15/23	Wed 2/15/23	45																																																																																				
47			Antenna Installation	2 days	Wed 2/15/23	Thu 2/16/23	45																																																																																				
48			Baldwin Hills	6 days	Fri 2/17/23	Fri 2/24/23	44																																																																																				
49			Deliver & Bolt Racks	4 days	Fri 2/17/23	Wed 2/22/23																																																																																					
50			Cable Equipment	1 day	Thu 2/23/23	Thu 2/23/23	49																																																																																				
51			Antenna Installation	2 days	Thu 2/23/23	Fri 2/24/23	49																																																																																				
52			Beverly Glenn	6 days	Mon 2/27/23	Mon 3/6/23	48																																																																																				
53			Deliver & Bolt Racks	4 days	Mon 2/27/23	Thu 3/2/23																																																																																					
54			Cable Equipment	1 day	Fri 3/3/23	Fri 3/3/23	53																																																																																				
55			Antenna Installation	2 days	Fri 3/3/23	Mon 3/6/23	53																																																																																				
56			Los Angeles City Hall	6 days	Tue 3/7/23	Tue 3/14/23	52																																																																																				
57			Deliver & Bolt Racks	4 days	Tue 3/7/23	Fri 3/10/23																																																																																					
58			Cable Equipment	1 day	Mon 3/13/23	Mon 3/13/23	57																																																																																				
59			Antenna Installation	2 days	Mon 3/13/23	Tue 3/14/23	57																																																																																				
60			KSKQ Radio	6 days	Wed 3/15/23	Wed 3/22/23	56																																																																																				
61			Deliver & Bolt Racks	4 days	Wed 3/15/23	Mon 3/20/23																																																																																					
62			Cable Equipment	1 day	Tue 3/21/23	Tue 3/21/23	61																																																																																				
63			Antenna Installation	2 days	Tue 3/21/23	Wed 3/22/23	61																																																																																				
64			Mount Washington	6 days	Thu 3/23/23	Thu 3/30/23	60																																																																																				
65			Deliver & Bolt Racks	4 days	Thu 3/23/23	Tue 3/28/23																																																																																					
66			Cable Equipment	1 day	Wed 3/29/23	Wed 3/29/23	65																																																																																				
67			Antenna Installation	2 days	Wed 3/29/23	Thu 3/30/23	65																																																																																				
68			Oat Mountain	6 days	Fri 3/31/23	Fri 4/7/23	64																																																																																				

ID		Task Mode	Task Name	Duration	Start	Finish	Predecessors	f 1, 2022	Half 2, 2022	Half 1, 2023	Half 2, 2023	Half 1, 2024	Half 2, 2024	Half 1, 2025
	i							F M A M J	J A S O N D	J F M A M J	J A S O N D	J F M A M J	J A S O N D	J F M A M
77			Deliver & Bolt Racks	4 days	Tue 4/18/23	Fri 4/21/23								
78			Cable Equipment	1 day	Mon 4/24/23	Mon 4/24/23	77							
79			Antenna Installation	2 days	Mon 4/24/23	Tue 4/25/23	77							
80			Second Coverage Baseline	20 days	Wed 4/26/23	Tue 5/23/23	39							
81			Conduct New RFDS Coverage Baseline	20 days	Wed 4/26/23	Tue 5/23/23								
82			RF Sites Installation (Pilot Channel)	45 days	Wed 5/24/23	Tue 7/25/23	80							
83			100 Wilshire	5 days	Wed 5/24/23	Tue 5/30/23								
84			Deliver & Bolt Racks	4 days	Wed 5/24/23	Mon 5/29/23								
85			Cable Equipment	1 day	Tue 5/30/23	Tue 5/30/23	84							
86			Baldwin Hills	5 days	Wed 5/31/23	Tue 6/6/23	83							
87			Deliver & Bolt Racks	4 days	Wed 5/31/23	Mon 6/5/23								
88			Cable Equipment	1 day	Tue 6/6/23	Tue 6/6/23	87							
89			Beverly Glenn	5 days	Wed 6/7/23	Tue 6/13/23	86							
90			Deliver & Bolt Racks	4 days	Wed 6/7/23	Mon 6/12/23								
91			Cable Equipment	1 day	Tue 6/13/23	Tue 6/13/23	90							
92			Los Angeles City Hall	5 days	Wed 6/14/23	Tue 6/20/23	89							
93			Deliver & Bolt Racks	4 days	Wed 6/14/23	Mon 6/19/23								
94			Cable Equipment	1 day	Tue 6/20/23	Tue 6/20/23	93							
95			KSKQ Radio	5 days	Wed 6/21/23	Tue 6/27/23	92							
96			Deliver & Bolt Racks	4 days	Wed 6/21/23	Mon 6/26/23								
97			Cable Equipment	1 day	Tue 6/27/23	Tue 6/27/23	96							
98			Mount Washington	5 days	Wed 6/28/23	Tue 7/4/23	95							
99			Deliver & Bolt Racks	4 days	Wed 6/28/23	Mon 7/3/23								
100			Cable Equipment	1 day	Tue 7/4/23	Tue 7/4/23	99							
101			Oat Mountain	5 days	Wed 7/5/23	Tue 7/11/23	98							
102			Deliver & Bolt Racks	4 days	Wed 7/5/23	Mon 7/10/23								
103			Cable Equipment	1 day	Tue 7/11/23	Tue 7/11/23	102							
104			San Pedro Hill	5 days	Wed 7/12/23	Tue 7/18/23	101							
105			Deliver & Bolt Racks	4 days	Wed 7/12/23	Mon 7/17/23								
106			Cable Equipment	1 day	Tue 7/18/23	Tue 7/18/23	105							
107			Verdugo Peak	5 days	Wed 7/19/23	Tue 7/25/23	104							
108			Deliver & Bolt Racks	4 days	Wed 7/19/23	Mon 7/24/23								
109			Cable Equipment	1 day	Tue 7/25/23	Tue 7/25/23	108							
110			Site Optimization	24 days	Wed 7/26/23	Mon 8/28/23	82							
111			Master Site Optimization	4 days	Wed 7/26/23	Mon 7/31/23								
112			Site Link Verification	2 days	Wed 7/26/23	Thu 7/27/23								
113			Site Optimization	2 days	Fri 7/28/23	Mon 7/31/23	112							
114			RF Sites Optimization	20 days	Tue 8/1/23	Mon 8/28/23								
Project: LAFD - Voter & Transm Date: Tue 1/25/22			Task Split Milestone Summary	Project Summary Inactive Task Inactive Milestone Inactive Summary	Manual Task Duration-only Manual Summary Rollup Manual Summary	Start-only Finish-only External Tasks External Milestone	Deadline Progress Manual Progress							

ID		Task Mode	Task Name	Duration	Start	Finish	Predecessors	f 1, 2022					Half 2, 2022					Half 1, 2023					Half 2, 2023					Half 1, 2024					Half 2, 2024					Half 1, 2025																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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115			Prime Site	2 days	Tue 8/1/23	Wed 8/2/23	111																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					</

ID		Task Mode	Task Name	Duration	Start	Finish	Predecessors	Half 1, 2022					Half 2, 2022					Half 1, 2023				Half 2, 2023				Half 1, 2024					Half 2, 2024					Half 1, 2025													
					F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M					
153			RF Sites Installation (Second Mobilization)	45 days	Wed 9/20/23	Tue 11/21/23	145																																										
154			100 Wilshire	5 days	Wed 9/20/23	Tue 9/26/23																																											
155			Deliver & Rack Equipment	4 days	Wed 9/20/23	Mon 9/25/23																																											
156			Cable Equipment	1 day	Tue 9/26/23	Tue 9/26/23	155																																										
157			Baldwin Hills	5 days	Wed 9/27/23	Tue 10/3/23	154																																										
158			Deliver & Rack Equipment	4 days	Wed 9/27/23	Mon 10/2/23																																											
159			Cable Equipment	1 day	Tue 10/3/23	Tue 10/3/23	158																																										
160			Beverly Glenn	5 days	Wed 10/4/23	Tue 10/10/23	157																																										
161			Deliver & Rack Equipment	4 days	Wed 10/4/23	Mon 10/9/23																																											
162			Cable Equipment	1 day	Tue 10/10/23	Tue 10/10/23	161																																										
163			Los Angeles City Hall	5 days	Wed 10/11/23	Tue 10/17/23	160																																										
164			Deliver & Rack Equipment	4 days	Wed 10/11/23	Mon 10/16/23																																											
165			Cable Equipment	1 day	Tue 10/17/23	Tue 10/17/23	164																																										
166			KSKQ Radio	5 days	Wed 10/18/23	Tue 10/24/23	163																																										
167			Deliver & Rack Equipment	4 days	Wed 10/18/23	Mon 10/23/23																																											
168			Cable Equipment	1 day	Tue 10/24/23	Tue 10/24/23	167																																										
169			Mount Washington	5 days	Wed 10/25/23	Tue 10/31/23	166																																										
170			Deliver & Rack Equipment	4 days	Wed 10/25/23	Mon 10/30/23																																											
171			Cable Equipment	1 day	Tue 10/31/23	Tue 10/31/23	170																																										
172			Oat Mountain	5 days	Wed 11/1/23	Tue 11/7/23	169																																										
173			Deliver & Rack Equipment	4 days	Wed 11/1/23	Mon 11/6/23																																											
174			Cable Equipment	1 day	Tue 11/7/23	Tue 11/7/23	173																																										

ID		Task Mode	Task Name	Duration	Start	Finish	Predecessors	Half 1, 2022					Half 2, 2022					Half 1, 2023					Half 2, 2023					Half 1, 2024					Half 2, 2024					Half 1, 2025																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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191			Cable Equipment	1 day	Tue 12/12/23	Tue 12/12/23	190																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				

ID		Task Mode	Task Name	Duration	Start	Finish	Predecessors	f 1, 2022					Half 2, 2022					Half 1, 2023					Half 2, 2023					Half 1, 2024					Half 2, 2024					Half 1, 2025											
								F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M		
229			Cutover Dispatch	10 days	Wed 2/21/24	Tue 3/5/24	225																																										
230			Site Equipment Removal	20 days	Wed 3/6/24	Tue 4/2/24	228																																										
231			Dispatch Centers	8 days	Wed 3/6/24	Fri 3/15/24																																											
232			OCD Dispatch	3 days	Wed 3/6/24	Fri 3/8/24																																											
233			MFC Dispatch	5 days	Mon 3/11/24	Fri 3/15/24	232																																										
234			RF Remote Sites	20 days	Wed 3/6/24	Tue 4/2/24																																											
235			Prime Site	2 days	Wed 3/6/24	Thu 3/7/24																																											
236			100 Wilshire	2 days	Fri 3/8/24	Mon 3/11/24	235																																										
237			Baldwin Hills	2 days	Tue 3/12/24	Wed 3/13/24	236																																										
238			Beverly Glenn	2 days	Thu 3/14/24	Fri 3/15/24	237																																										
239			Los Angeles City Hall	2 days	Mon 3/18/24	Tue 3/19/24	238																																										
240			KSKQ Radio	2 days	Wed 3/20/24	Thu 3/21/24	239																																										
241			Mount Washington	2 days	Fri 3/22/24	Mon 3/25/24	240																																										
242			Oat Mountain	2 days	Tue 3/26/24	Wed 3/27/24	241																																										
243			San Pedro Hill	2 days	Thu 3/28/24	Fri 3/29/24	242																																										
244			Verdugo Peak	2 days	Mon 4/1/24	Tue 4/2/24	243																																										
245			Project Finalization	20 days	Wed 3/6/24	Tue 4/2/24	228																																										
246			Final Documentation	20 days	Wed 3/6/24	Tue 4/2/24																																											
247			Puchlist Resolution	20 days	Wed 3/6/24	Tue 4/2/24																																											
248			Service Transition	0 days	Tue 4/2/24	Tue 4/2/24	230,247																																										
249			Final System Acceptance	0 days	Tue 4/2/24	Tue 4/2/24	230,247																																										
250			LAFD Voter Replacement Warranty Period	260 days	Wed 4/3/24	Tue 4/1/25	249																																										
251			Warranty Period	260 days	Wed 4/3/24	Tue 4/1/25																																											


Project: LAFD - Voter & Transm
Date: Tue 1/25/22


Task


Split


Milestone

Summary











Project Summary


Inactive Task


Inactive Milestone

Inactive Summary











Manual Task


Duration-only


Manual Summary Rollup

Manual Summary











Start-only


Finish-only


External Tasks

External Milestone












Deadline


Progress

Manual Progress









SECTION 12

FUNCTIONAL ACCEPTANCE TEST PLAN

Los Angeles Fire Department - VRS Upgrade

800MHz Conventional Analog System

Pre-Design Review Draft

www.motorolasolutions.com/services/government



12.1 ANALOG CONVENTIONAL TESTS

12.1.1 Active Conventional Call During Transition to, and in Site Conventional Mode

1. DESCRIPTION

The Conventional Site Controller is an optional device that is installed at a console site. The CSC provides fallback capability for the console site and conventional channels colocated with this site when the link between a console site and the zone controller is lost. Such way of operating is called Site Conventional mode.

This test will demonstrate that the active conventional calls are transferred to the Conventional Site Controller (CSC) during Wide area to site conventional transition.

SETUP

RADIO-1 - CONVENTIONAL CHANNEL 1
RADIO-1 - SITE - CONVSITE 1

CONSOLE-1 - CONVENTIONAL CHANNEL 1
CONSOLE-1 - SITE - CONSITE 1
CONSOLE-2 - CONVENTIONAL CHANNEL 1
CONSOLE-2 - SITE - CONSITE 1

CSC - SITE CONVSITE 1

CCGW-1 - CONVENTIONAL CHANNEL 1
CCGW-1 - SITE - CONVSITE 1

Note: Configure the method to detect inbound radio transmission to VOX

VERSION #1.040

2. TEST

- Step 1. Initiate a call with RADIO-1 on CONVENTIONAL CHANNEL 1. Continue to transmit this call until the completion of the test.
- Step 2. Verify that CONSOLE-1 and CONSOLE-2 hear RADIO-1 audio.
- Step 3. Put CONVSITE 1 into site conventional mode by disconnecting the site link.
- Step 4. CONVSITE 1 transitions to site conventional mode. For a short period of time CONSOLE-1 and CONSOLE-2 stop hearing RADIO-1 audio. Verify that CONSOLE-1 and CONSOLE-2 join the call again and continue to hear audio from RADIO-1.
- Step 5. End the CONVENTIONAL CHANNEL 1 call on RADIO-1.
- Step 6. Verify from CONSOLE-1 or CONSOLE-2 that site conventional mode is active.
- Step 7. Initiate a call on CONVENTIONAL CHANNEL 1 from CONSOLE-1.
- Step 8. Verify that RADIO-1, RADIO-2 and CONSOLE-2 hear audio from CONSOLE-1 on CONVENTIONAL CHANNEL 1.
- Step 9. De-key CONSOLE-1 and key-up CONSOLE-2 on CONVENTIONAL CHANNEL 1. Verify that RADIO-1, RADIO-2 and CONSOLE-1 hear audio from CONSOLE-2 on CONVENTIONAL CHANNEL 1.
- Step 10. Return the system to normal operation by connecting the site link..

Pass_____ Fail_____



Analog Conventional Tests

12.1.2 Active Call During Transition to Wide Area Conventional Mode

1. DESCRIPTION

The Conventional Site Controller (CSC) is an optional device that is installed at a console site. The CSC provides fallback capability for the console site and conventional channels colocated with this site when the link between a console site and the zone controller is lost. Such way of operating is called Site Conventional mode.

This test demonstrates the ability for an active site conventional call to transition to wide conventional with minimal interruption. The active call will be interrupted for a short period.

Note: Configure the method to detect inbound radio transmission to VOX.

SETUP

RADIO-1 - CONVENTIONAL CHANNEL 1
RADIO-1 - SITE - CONVSITE-1

CONSOLE-1 - CONVENTIONAL CHANNEL 1
CONSOLE-1 - SITE - CONVSITE-1

CONSOLE-2 - CONVENTIONAL CHANNEL 1
CONSOLE-2 - SITE - CONSITE-1
CSC - SITE - CONVSITE-1

CCGW-1 - CONVENTIONAL CHANNEL 1
CCGW-1 - SITE - CONVSITE-1

VERSION #1.020

2. TEST

- Step 1. Disconnect the CONSITE 1 link and verify that CONSOLE-1 provides an indication that the CONVSITE-1 has entered into site conventional mode.
- Step 2. Initiate a conventional call on CONVENTIONAL CHANNEL 1 with RADIO-1.
- Step 3. Verify that CONSOLE-1 hears RADIO-1. Continue to transmit the call through the duration of the test.
- Step 4. Put CONVSITE 1 into wide area conventional mode by connecting the CONSITE 1 link.
- Step 5. Verify that the RADIO-1 call continues with a brief interruption while the CONVSITE 1 transitions into wide area conventional mode. (Note: CONSOLE-1 will briefly stop hearing RADIO-1, but then the call will resume once back into wide area conventional mode).
- Step 6. Verify that CONSOLE-1 continues to hear RADIO-1 after transitioning to wide area conventional mode.
- Step 7. End the CONVENTIONAL CHANNEL 1 call.

Pass____ Fail____



Analog Conventional Tests

12.1.3 Main / Alt Change Request

1. DESCRIPTION

The Main/Alternate feature provides a back-up station interface for a conventional channel. The console provides a single channel control window for the Main/Alternate channel pair. It also provides an interface indicating which interface is currently active (Main/Alternate), and allows the user to request that the active interface be changed to the other interface. The system will automatically switch to the inactive interface if the active interface fails (and the inactive has not failed). The channels comprising the Main/Alternate pair may be located at the same or different RF sites, but must be members of the same zone. The Main/Alternate conventional channel interfaces may be located on the same or on different CCGWs.

This test will demonstrate that the Main/ Alt change can be requested by Dispatch Console.

SETUP

SITE-1 - ZONE 1

CCGW-1 - CONVENTIONAL CHANNEL 1

CCGW-1 - CONVSITE 1

CCGW-2 - CONVSITE 1

CCGW-2 - CONVENTIONAL CHANNEL 2

MAIN - CONVENTIONAL CHANNEL 1

ALTERNATE - CONVENTIONAL CHANNEL 2

CONSOLE-1 - CONVENTIONAL CHANNEL 1 -
CONVSITE 1

VERSION #1.010

2. TEST

- Step 1. Verify that CONSOLE-1 shows the channel available with status of Main active
- Step 2. Send Main / Alt switch from CONSOLE-1.
- Step 3. Verify that the CONSOLE-1 shows the channel available with status of Alt active
- Step 4. Verify the Main / Alt switch from ZoneWatch and ATIA logs
- Step 5. Send Main / Alt switch from CONSOLE-1 (to set the Main active)

Pass_____ Fail_____



12.2 CONVENTIONAL TESTS

12.2.1 Conventional Comparator Force Vote Using Customer Service Software (CSS)

1. DESCRIPTION

The user has the ability to send a "Force Vote" command to a Conventional Comparator. Force voting allows the user to customize or test the audio paths of the system.

SETUP

RADIO-1 – CONVENTIONAL CHANNEL 1
RADIO-2 - CONVENTIONAL CHANNEL 1

VERSION #1.000

2. TEST

- Step 1. Using a client with CSS, enable the "Force Vote" command on one site and verify the "Force Vote" on CSS is active.
- Step 2. Initiate a call on CONVENTIONAL CHANNEL 1 using RADIO-1 and verify the audio is received from the force-voted site on RADIO-2.
- Step 3. In CSS, disable the "Force Vote" command on the site and verify the "Force Vote" on the CSS is deactivated.
- Step 4. Repeat steps 1-3 on all sites.

Pass_____ Fail_____



12.3 FAULT MANAGEMENT

12.3.1 Unified Event Manager - Base Views

1. DESCRIPTION

The Unified Event Manager (UEM) in its base configuration provides a number of views. The purpose of this test is to demonstrate the key views available from the UEM.

The Physical Summary and Detail View (Physical Map) and Service Summary and Detail View (Service Map) in previous releases are deprecated and are replaced by the Zone Map. Custom views can be saved and retrieved by other NM Client users.

SETUP

NMclient01 - UEM session up and running.

VERSION #1.010

2. TEST

- Step 1. Alarms View: In the navigation pane expand Fault Management and select Alarms. The view displays active alarms for managed resources, displaying impacted managed resources and specific objects on the managed resource along with selected alarm properties.
- Step 2. Alarm View Search: Customize the Active Alarms display by selecting the View option from the menu bar, then select Search. Perform a Managed Resource search for channels, site controllers and routers by entering "Contains" and ch, sc, and z00 respectively in the search fields to perform the three separate searches. For each of the three searches a filtered alarm view is displayed that contains alarms for the appropriate device in the search.
- Step 3. Network Events View: In the navigation pane expand Fault Management and select Network Events. The view displays recent events reported for managed resources, displaying impacted managed resources and specific object on the managed resource along with selected event properties. Alarming events are base for creating alarm objects.
- Step 4. Physical Summary View: In the navigation pane expand Zone Views and Physical, then select Physical Summary View. The Physical Summary View provides an aggregated alarm severity status of the devices located at all subnets in the Zone.
- Step 5. Service Summary View: In the navigation pane expand Zone Views and Service, then select Service Summary View. The Service Summary View provides a quick summary of the service status of sites in a Zone, including access to Channel status.
- Step 6. Zone Map: In the navigation pane, expand Zone Views and select Zone Map. The Zone Map view provides an aggregated alarm severity status of the devices located at discovered sites in the Zone.

- Step 7. Network Database: In the navigation pane select Network Database. The Network Database displays a list of all discovered Managed Resources and Sites. The display includes properties of each resource as well as overall severity of all objects and/or sub resources

Pass____ **Fail**____



Fault Management

12.3.2 Station Power Amp Failure Reports to the Unified Event Manager (UEM)

1. DESCRIPTION

This test will demonstrate that the Unified Event Manager (UEM) alarms view is able to capture information about various failures at the system and zone level.

A station will be keyed while the output is unloaded to simulate a power amp failure. The failures will be monitored on the UEM.

Note: For safety, either power down the station or TX Inhibit it before disconnecting or re-connecting the dummy load to prevent accidental keying of the station.

Note: This test should be done on a site with more than 2 channels. Failsoft will occur if the test is done on a 2 channel site.

SETUP

RADIO-1 - CHANNEL 1
RADIO-1 - SITE - SITE 1
RADIO-2 - CHANNEL 2
RADIO-2 - SITE - SITE 1
NMclient01 - UEM session up and running.

* All Radios should be "Site Locked"

VERSION #1.020

2. TEST

- Step 1. Verify that the power amp of the station to be tested has no active alarms against it.
- Step 2. Disconnect the dummy load/antenna from the station.
- Step 3. Make several talkgroup calls using RADIO-1 until the test station has been keyed.
- Step 4. Observe that an alarm indicating a Power Amp failure appears on the UEM alarms view.
- Step 5. Reconnect the dummy load/antenna disconnected in Step 3.
- Step 6. In approximately 5 minutes, observe the changes to the alarm on the UEM, indicating the module is restored to service.

Pass____ Fail____



Fault Management

12.3.3 Conventional Site Controller Fan Alarm reports to Unified Event Manager

1. DESCRIPTION

The Conventional Site Controller (CSC) is an optional device that is installed at a console site. The CSC provides fallback capability for the console site and conventional channels collocated with this site when the link between a console site and the zone controller is lost.

The Unified Event Manager (UEM) is the fault management application that is used to monitor the status of devices on the network. The Conventional Site Controller is monitored by the UEM in order to give the Network Manager a view to the status of the device. This test will demonstrate the Conventional Site Controller's ability to generate a fan fault message and to display it at the Unified Event Manager (UEM).

SETUP

CSC-1 - SITE - CONSITE 1

VERSION #1.030

2. TEST

- Step 1. Remove the fan assembly from the front of the selected test Conventional Site Controller.
- Step 2. From a Network Management client, verify that a "Major" alarm is displayed at the Unified Event Manager (UEM) indicating that the fan has failed.
- Step 3. Replace the fan assembly on the front of the selected test Conventional Site Controller.
- Step 4. From a Network Management client, verify that the "Major" alarm clears at the UEM.

Pass_____ Fail_____



Fault Management

12.3.4 Site Path Failure (Ethernet) Reports to the Unified Event Manager

1. DESCRIPTION

This test will demonstrate that the Unified Event Manager (UEM) alarms view is able to capture information about various failures at the system and zone level.

This test simulates a microwave/transport failure by removing a customer selected site data link and monitoring the alerts.

Note: If using a Simulcast site, this test refers to the Prime Site links. While failures would be seen at the subsite level if a Subsite link were failed, the site would not drop into Site Trunking.

SETUP

RADIO-1 - CHANNEL 1
RADIO-1 - SITE - SITE 1
NMclient01 - UEM session up and running.

* RADIO-1 should be "Site Locked"

VERSION #1.030

2. TEST

- Step 1. Remove the Ethernet cable(s) to the SITE 1 router(s) (If Simulcast, this refers to the Prime Site router(s)) at the site where RADIO-1 is affiliated. Be certain to remove the Ethernet cable from both routers if redundant site links are being utilized.
- Step 2. Observe the UEM reports CommFailure alarms for the devices at the affected site.
- Step 3. In addition, observe that the site is now in the Site Trunking mode.
- Step 4. Reconnect the Ethernet cable(s) disconnected in Step 1.
- Step 5. Observe the site returns to the Wide Area Trunking mode.
- Step 6. Observe the topology and alarms/events that appear in the UEM, indicating the site is in recovery and after a period of time has recovered.

Pass____ Fail____



12.4 FAULT MANAGEMENT - JUNIPER

12.4.1 Ethernet Site Link Round Trip Delay Fault Reports to the Unified Event Manager - Juniper

1. DESCRIPTION

When the average round trip IPTD(delay) statistic exceeds the IPTD Fault Threshold for an Ethernet Site/Interzone Link, an event is sent to the Unified Event Manager (UEM).

NOTE: This test is only valid if it is executed on a real Ethernet Site/Interzone Link that has 10ms or more of round trip delay. 10ms is the minimum configurable value.

SETUP

No prior setup is necessary.

Note: This test will not be practical to run in staging because the link delays would not exceed the threshold in most cases even at the minimum settings. This test, if used, should be reserved for execution in the field under real conditions.

VERSION #1.010

2. TEST

- Step 1. On both routers at each end of the Ethernet Site/Interzone Link(ie Core & Site Router for a site link), configure the IPTD(delay) threshold for the minimum value of 10ms. (Follow step 2 procedure)
- Step 2. In the UNC, right-click on each router and select SetTWAMP Round Trip Delay Threshold and Enable Trap from the Saved Commands. After selecting the Saved Commands option, navigate using the Up button and double clicking on folders within the folder list to get to: LibraryManager>System > Motorola > Juniper router>TWAMP. This folder contains additional folders specific for the link type so choose the proper one.
- Step 3. After the end of next full measurement interval(approximately 30 minutes) check for the event reporting. In UEM, select Fault Management > Events.
- Step 4. Verify Unified Event Manager displays an event for the configured routers indicating that the IPTD Fault Threshold has been exceeded, including the IPTD(delay) value.
- Step 5. Using the procedure in Step #1, set the trap threshold to the appropriate value for the Ethernet Site/Interzone link. This value is determined during system planning and provisioning of the customer backhaul network. The default value is 40ms.

Pass____ Fail____

12.5 PUBLIC SAFETY LTE TO ASTRO SYSTEM

12.5.1 ASTRO to Public Safety LTE (PS-LTE) Group Calls

1. DESCRIPTION

This test verifies that an ASTRO to PS-LTE PTT call is successful when there are no previously active sessions.

SETUP

RADIO-1 - CHANNEL 1
RADIO-2 - CHANNEL 1
PS-LTE HANDSET-1 - CHANNEL 1
PS-LTE HANDSET-2 - CHANNEL 1

Idle system – no recent calls made.

VERSION #1.020

2. TEST

- Step 1. Initiate a group call from RADIO-1 and transmit audio.
- Step 2. Verify that PS-LTE HANDSET-1 and PS-LTE HANDSET-2 receive the RADIO-1 call.
- Step 3. Dekey RADIO-1. Initiate a group call from RADIO-2 within 5 seconds.
- Step 4. Verify that PS-LTE HANDSET-1 and PS-LTE HANDSET-2 receive the RADIO-2 call.

Pass_____ Fail_____



Public Safety LTE to ASTRO System

12.5.2 Public Safety LTE (PS-LTE) PTT Gateway forwards Emergency Calls

1. DESCRIPTION

This test will demonstrate that an PS-LTE PTT gateway forwards ASTRO emergency calls.

SETUP

RADIO-1 - CHANNEL 1
RADIO-2 - CHANNEL 1
CONSOLE-1 – CHANNEL 1
PS-LTE HANDSET-2 - CHANNEL 1
PS-LTE HANDSET-2 - CHANNEL 1

Idle system – no recent calls made.

VERSION #1.040

2. TEST

- Step 1. Put RADIO-1 into Emergency mode, then key RADIO-1 to initiate an Emergency call.
- Step 2. Verify that RADIO-2 and CONSOLE-1 hear RADIO-1's Emergency call, and that PS-LTE HANDSET-1 and PS-LTE HANDSET-2 hear the call as non-Emergency audio.
- Step 3. Dekey RADIO-1. Acknowledge and knockdown the Emergency on CONSOLE-1 and end the Emergency on RADIO-1. Setup an Emergency call on CONSOLE-1.
- Step 4. Verify that RADIO-1 and RADIO-2 hear CONSOLE-1's Emergency call, and that PS-LTE HANDSET-1 and PS-LTE HANDSET-2 hear the call as non-Emergency audio.

Pass_____ Fail_____

