BE BETTER EQUIPPED TO BE MISSION READY

APX™ 4500 PROJECT 25 MOBILE RADIO

A downed power line or the city transit system coming to a halt during rush hour, when the unexpected strikes, you must interoperate seamlessly and securely with other agencies and responders – often across multiple Project 25 (P25) systems. You need to instantly connect and be informed to make better decisions and respond effectively. While the advanced technology of APX™ radios expertly equips you for the unexpected, your organization may be challenged to improve operating expenses.

That's where the APX 4500 P25 mobile radio fits the bill perfectly. It delivers all the benefits of TDMA technology in a compact P25 capable mobile. The APX 4500 brings together powerful technology in an easy-to-use radio that's easy on your budget. It seamlessly unifies public works, utility, rural public safety and transportation users to first responders so they can communicate effectively in the moments that matter.

CONVENIENTLY SMALL, EASY TO INSTALL

The APX 4500 is designed to get the job done without getting in the way. A simplified dash mount design makes installation quick and easy, fitting into the existing XTL™ footprint so you can reuse mounting holes and cables.

Count on the APX 4500 to withstand wet, dusty and hazardous conditions, too. Its IP56 durability rating is the highest level of certification for uncompromising durability and world class quality in a mobile performer you can hose down.

KEEPS CREWS IN TOUCH, AND UP TO THE MINUTE

Safety runs in the APX family and the APX 4500 mobile is no exception. Like all our APX P25 radios trusted by responders worldwide, the APX 4500 mobile redefines safety. Your crews can count on quick, seamless interoperability and extended range – whether they are talking from the top of a pole or the bottom of a trench. You can depend on AES encryption for secure, tamperproof voice and data communications every time they connect.

With integrated GPS in the APX 4500, you can keep an eye on workers and assets you can't see, tracking their locations continuously. The O2 control head with color display is easy to read and operate in all lighting conditions, from bright sunlight to dark streets. The intelligent lighting on the O2 control head notifies your workers when a call is received, an emergency arises, or when they are out of range. Plus, an enlarged multifunction knob makes it easy to use talk-group and volume settings when they're wearing gloves.

Over-the-air programming on the APX 4500 keeps your crews current in the field. You can update the latest mobile without interrupting voice communications while they work.

SIZED RIGHT FOR YOUR BUDGET

The APX 4500 lets you reuse many accessories which utilize the O5 and O3 control heads on XTL radios, so you can maximize your investment while you benefit from the latest technology. Since the APX 4500 is P25 Phase 2 capable for twice the voice capacity, you can add more users without adding more frequencies or infrastructure. It is backwards and forwards compatible with all Motorola mission critical radio systems, so you can interoperate with confidence while you improve operating expenses.

APX™ 4500 SPECIFICATIONS

FEATURES AND BENEFITS:

Available in 700/800 MHz, VHF, UHFR1, UHFR2, and 900 MHz. Supports NPCS band (901-902 MHz and 940-941 MHz)

Channels: Standard 512

Trunking Standards supported:
- Clear or digital encrypted Trunked Operation
- Capable of SmartZone®, SmartZone Omnilink, SmartNet®

Analog MDC-1200 and Digital APCO P25 Conventional System Configurations

Narrow and wide bandwidth digital receiver (6.25kHz/12.5kHz/25kHz/30 kHz)

Embedded digital signaling (ASTRO and ASTRO 25)

Integrated Encryption Hardware

Software Key

ASTRO 25 Integrated Voice & Data

Intelligent lighting

Radio profiles

Unified Call List

Meets applicable MIL-STD 810C, D, E, F, G

Ships standard IP56

Utlizes Windows XP, Vista and Windows 7 and 8 Customer Programming Software (CPS)*
- Supports USB Communications
- Built in FLASHport™ support

Re-use of most XTL™ accessories, plus new IMPRES accessories

OPTIONAL FEATURES:

GPS Outdoor Location Tracking

AES Encryption

Programming over Project 25 (POP25)

Text Messaging

12 character RF ID asset tracking

Tactical OTAR

* CPS version R12.00.00 and greater ordered after June 2014 will only support Windows 7 and 8

APX 4500 CONTROL HEAD PORTFOLIO

O2 RUGGED CONTROL HEAD
- Large color display with intelligent lighting
- 3 lines of text 14 characters max / 1 line of icons / 1 line of menus
- Built in 7.5 watt speaker
- Multifunction volume/channel knob
- Night/day mode button

MOTOROLA

TRANSMITTER - TYPICAL PERFORMANCE SPECIFICATIONS

	700 MHz	800 MHz	VHF	UHF Range 1	UHF Range 2	900 MHz
Frequency Range/Bandsplits	764-776 MHz 794-806 MHz	806-824 MHz 851-870 MHz	136-174 MHz	380-470 MHz	450-520 MHz	896-902MHz 935-941MHz
Channel Spacing	25/12.5 kHz	25/12.5 kHz	30/25/12.5 kHz	25/12.5 kHz	25/12.5 kHz	12.5 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Rated RF Output Power Adj*	10-30 Watts	10-35 Watts	10-50 Watts	10-40 Watts	10-45 Watts (450-485 MHz) 10-40 Watts (485-512 MHz) 10-25 Watts (512-520 MHz)	1-30W 896-901MHz 935-940MHz 1-3W 901-902MHz 940-941MHz
Frequency Stability* (−30°C to +60°C; +25°C Ref.)	0.8 PPM	±0.8 PPM	±0.8 PPM	±0.8 PPM	±0.8 PPM	±0.8 PPM
Modulation Limiting*	±5 kHz / ±2.5 kHz	±5 kHz/±4 kHz (NPSPAC) /±2.5 kHz	±5 kHz / ±2.5 kHz	±5 kHz / ±2.5 kHz	±5 kHz / ±2.5 kHz	±2.5 kHz
Modulation Fidelity (C4FM) 12.5kHz Digital Channel	1.5%	1.5%	2.5%	1.1%	1.1%	1.5%
Emissions*	Conducted+ −75/−85 dBc / Radiated+ −20/−40 dBm	Conducted −75 dBc / Radiated −20 dBm	Conducted −85 dBc / Radiated −20 dBm	Conducted −85 dBc / Radiated −20 dBm	Conducted −85 dBc / Radiated −20 dBm	Conducted+ −70 dBc / Radiated+ −20 dBm
Audio Response*	+1, −3 dB (EIA)	+1, −3 dB (EIA)	+1, −3 dB (EIA)	+1, −3 dB (EIA)	+1, −3 dB (EIA)	+1, −3 dB (EIA)
FM Hum & Noise 25 & 20 kHz / 12.5 kHz	−50 dB / −48 dB	−50 dB / −48 dB	−53 dB / −52 dB	−53 dB / −50 dB	−53 dB / −50 dB	− / −45 dB
Audio Distortion* 25 & 20 kHz / 12.5 kHz	0.50% / 0.50%	0.50% / 0.50%	0.50% / 0.50%	0.50% / 0.50%	0.50% / 0.50%	− / 0.80 %

RECEIVER – TYPICAL PERFORMANCE SPECIFICATIONS

	700 MHz	800 MHz	VHF	UHF Range 1	UHF Range 2	900 MHz
Frequency Range/Bandsplits	764-776 MHz	851-870 MHz	136-174 MHz	380-470 MHz	450-520 MHz	935-941MHz
Channel Spacing	25/12.5 kHz	25/12.5 kHz	30/25/12.5 kHz	25/12.5 kHz	25/12.5 kHz	12.5 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Audio Output Power at 3% distortion*	7.5 W or 15 W ++	7.5 W or 15 W ++	7.5 W or 15 W ++	7.5 W or 15 W ++	7.5 W or 15 W ++	7.5 W or 15 W++
Frequency Stability* (−30°C to +60°C; +25°C Ref.)	±0.8 PPM	±0.8 PPM	±0.8 PPM	±0.8 PPM	±0.8 PPM	±0.8 PPM
Analog Sensitivity* 12 dB SINAD / Digital Sensitivity 5% BER	−121 dBm / −121.5 dBm	−121 dBm / −121.5 dBm	Pre-Amp −123 dBm / −123 dBm, Standard −119 dBm / −119 dBm	Pre-Amp −123 dBm / −123 dBm, Standard −119 dBm / −119 dBm	Pre-Amp −123 dBm / −123 dBm, Standard −119 dBm / −119 dBm	Standard −120dBm / −121dBm
Intermodulation 25 kHz / 12.5 kHz	82 dB / 82 dB	82 dB / 82 dB	84 dB / 85 dB, 86 dB / 86 dB	82 dB / 83 dB, 86 dB / 85 dB	82 dB / 83 dB, 86 dB / 85 dB	− / 82 dB
Spurious Rejection	91 dB	91 dB	95 dB	93 dB	93 dB	91 dB
Audio Distortion at rated*	2 %	2 %	2 %	2 %	2 %	2 %
Selectivity* 25 kHz / 12.5 kHz / 30 kHz	85 dB / 75 dB / —	85 dB / 75 dB / —	89 dB / 77 dB / 90 dB	83 dB / 72 dB / —	83 dB / 72 dB / —	— / 74dB / —

DIMENSIONS

	Inches	Millimeters
Mid Power Radio Transceiver	2 x 7 x 6.4	50.8 x 178 x 163
O2 Control Head	2.7 x 8.1 x 2.1	69 x 207 x 53
Mid Power Radio Transceiver and O2 Control Head - Dash Mount	2.7 x 8.1 x 8.8	69 x 207 x 223
Mid Power Radio Transceiver and O2 Control Head Weight	5.28 lbs	2.45 kg

RADIO MODELS

700/800 (763-870 MHz)	M24URS9PW1AN
VHF (136-174 MHz)	M24KSS9PW1AN
UHF Range 1 (380-470 MHz)	M24QSS9PW1AN
UHF Range 2 (450-520 MHz)	M24SSS9PW1AN

SIGNALING (ASTRO MODE)

Signaling Rate	9.6 kbps
Digital ID Capacity	10,000,000 Conventional / 48,000 Trunking
Digital Network Access Codes	4,096 network site addresses
ASTRO® Digital User Group Addresses	4,096 network site addresses
Project 25 – CAI Digital User Group Addresses	65,000 Conventional / 4,094 Trunking
Error Correction Techniques	Golay, BCH, Reed-Solomon codes
Data Access Control	Slotted CSMA: Utilizes infrastructure-sourced data status bits embedded in both voice and data transmissions.

GPS SPECIFICATIONS

Channels	12
Tracking Sensitivity	−153 dBm
Accuracy**	<10 meters (95%)
Cold Start	<60 seconds (95%)
Hot Start	<10 seconds (95%)
Mode of Operation	Autonomous (Non-Assisted) GPS

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POWER AND BATTERY DRAIN

Model Type	136-174 MHz, 380-470 MHz, 450-520 MHz, 764-870 MHz, 896-941MHz
Minimum RF Power Output	2-30 Watts (764-776 MHz), 2-30 Watts (794-806 MHz), 2-35 Watts (806-824 MHz), 2-35 Watts (851-870 MHz), 1-50 Watts (136-174 MHz). 1-40 Watts (380-470 MHz), 1-45 Watts (450-485 MHz), 1-40 Watts (485-512 MHz), 1-25 Watts (512-520 MHz), 1-30Watts (896-901MHz), 1-3Watts (901-902MHz), 1-30W (935-940MHz), 1-3Watts (940-941MHz)
Operation	13.8V DC ±20% Negative Ground
Standby at 13.8V	0.85A (764-870 MHz), 0.85A (136-174 MHz), 0.85A (380-470 MHz), 0.85A (450-520 MHz)
Receive Current at Rated Audio at 13.8V	3.2A (764-870 MHz), 3.2A (136-174 MHz), 3.2A (380-470 MHz), 3.2A (450-520 MHz)

Transmit Current (A) at Rated Power

136-174 MHz (10-50 Watt)	13A (50W)	8A (15W)	764-870 MHz (2***-35W)	12A (35W)	8A (15W)
380-470 MHz (10-40 Watt)	11A (40W)	8A (15W)	896-901MHz (1-30W)	10A (30W)	7A(15W)
380-470 MHz (10-40 Watt)	11A (45W)	8A (15W)	935-940MHz(1-30W)	10A (30W)	7A(15W)
			901-902MHz(1-3W)	5A (3W)	
			940-941MHz(1-3W)	5A (3W)	

MOBILE MILITARY STANDARDS 810 C, D, E , F, G

	MIL-STD 810C		MIL-STD 810D		MIL-STD 810E		MIL-STD 810F		MIL-STD 810G	
	Method	Proc./Cat.	Method	Proc./Cat.	Method	Proc./Cat.	Method	Proc./Cat.	Method	Proc./Cat.
Low Pressure	500.1	I	500.2	II	500.3	II	500.4	II	500.5	II
High Temperature Storage	501.1	I	501.2	I/A1	501.3	I/A1	501.4	I/Hot	501.5	I/A1
High Temperature Operation	501.1	II	501.2	II/A1	501.3	II/A1	501.4	II/Hot	501.5	II
Low Temperature Storage	502.1	I	502.2	I/C3	502.3	I/C3	502.4	I/C3	502.5	I/C3
Low Temperature Operation	502.1	I	502.2	II/C1	502.3	II/C1	502.4	II/C1	502.5	II
Temperature Shock	503.1	-	503.2	I/A1-C3	503.3	I/A1-C3	503.4	I/Hot-C3	503.5	I/C
Solar Radiation	505.1	II	505.2	I	505.3	I	505.4	I	505.5	I/A1
Rain Blowing	506.1	I	506.2	I	506.3	I	506.4	I	506.5	I
Rain Steady	506.1	II	506.2	II	506.3	II	506.4	III	506.5	III
Humidity	507.1	II	507.2	II	507.3	II	507.4	-	507.5	II-Aggravated
Salt Fog	509.1	-	509.2	-	509.3	-	509.4	-	509.5	1 Proc
Blowing Dust	510.1	I	510.2	I	510.3	I	510.4	I	510.5	I
Blowing Sand		-	510.2	II	510.3	II	510.4	II	510.5	II
Vibration Min. Integrity	514.2	VIII/F, Curve-W	514.3	I/10	514.4	I/10	514.5	I/24	514.6	I-Cat.24
Vibration Loose Cargo	514.2	XI	514.3	II/3	514.4	II/3	514.5	II/5	514.6	-
Shock Functional	516.2	I	516.3	I	516.4	I	516.5	I	516.6	I, V, VI

ENCRYPTION

Supported Encryption Algorithms	AES and ADP
Encryption Algorithm Capacity	Single
Encryption Keys per Radio	Module capable of storing 1024 keys. Programmable for 64 Common Key Reference (CKR) or 16 Physical Identifier (PID)
Encryption Frame Re-sync Interval	P25 CAI 300 mSec
Encryption Keying	Key Loader
Synchronization	XL – Counter Addressing, OFB – Output Feedback
Vector Generator	National Institute of Standards and Technology(NIST) approved random number generator
Encryption Type	Digital
Key Storage	Tamper protected volatile or non-volatile memory
Key Erasure	Keyboard command and tamper detection
Standards	FIPS 140-2 Level 3 FIPS 197

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-30ºC / +60ºC
Storage Temperature	-40ºC / +85ºC
Humidity	Per MIL-STD
ESD	IEC 801-2 KV
Water and Dust Intrusion	IP56, MIL-STD

TRANSMITTER CERTIFICATION

700/800 (764-775, 793-805, 806-824, 851-869 MHz)	AZ492FT7055
VHF (136-174 MHz)	AZ492FT4916
UHF R1 (380-470 MHz)	AZ492FT3826
UHF R2 (450-520 MHz)	AZ492FT4915
900 MHz (896-901, 901-902, 935-940, 940-941 MHz)	AZ492FT5865

FCC EMISSIONS DESIGNATORS

FCC Emissions Designators	8K10F1D, 8K10F1E, 8K10F1W, 11K0F3E, 16K0F3E, 20K0F1E, 10K0F3E (for AZ492FT5865 only)

* Measured in the analog mode per TIA/EIA 603 under nominal conditions
** Accuracy specs are for long-term tracking (95th percentile values >5 satellites visible at a nominal –130 dBm signal strength)
+ Specs includes performance for the non-GNSS/GNSS bands
++ Output power in to 8 and 3.2 Ohm external speakers respectively

Specifications subject to change without notice. All specifications shown are typical. Radio meets applicable regulatory requirements.

R3-1-2053C

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