

# APX™ 900

## SINGLE-BAND P25 PORTABLE TWO-WAY RADIO

### FEATURES AND BENEFITS

- Dual-Knob Solution
- Available in VHF, UHF (R1 and R2), 700/800 MHz, and 900 MHz bands
- Modes of Operation:
  - Clear or digital-encrypted ASTRO® 25 Trunked Operation
  - Analog MDC-1200 and Digital P25
  - Conventional System Configurations
- Narrow and wide bandwidth digital receiver (6.25 kHz equivalent / 12.5 kHz / 25 kHz)<sup>1</sup>
- Embedded digital signaling (ASTRO and ASTRO 25)
- Intelligent Priority Scan
- Available in models 2 and 3
- Radio Profiles
- Unified Call List
- User-programmable Voice Announcement
- Instant Recall
- Meets Applicable MIL-STD-810C, D, E, F and G
- Full Portfolio of Accessories, including IMPRES batteries, chargers and audio devices<sup>2</sup>

### STANDARD FEATURES

- Operational-Critical Wireless Bluetooth® 4.0 (LE)<sup>3</sup>
- Emergency Find Me
- ASTRO 25 Integrated Voice & Data
- Integrated GPS/GLONASS for Outdoor Location-Tracking

- Single-Key Advanced Digital Privacy (ADP) Encryption
- IP68 submersion (2 meters, 2 hours)
- IMPRES Battery (PMNN4491B)
- Embedded digital signaling (ASTRO and ASTRO 25)
- Text Messaging
- Software key

### PROGRAMMING

- Utilizes Windows 7, 8 and 10 Customer Programming Software (CPS) with Radio Management

### OPTIONAL FEATURES

- AES 256-bit Software Encryption (AES-256)
- Enhanced Data
- Enhanced Noise Suppressor (Highly Recommended)
- Multi-Key
- Programming Over Project 25 (OTAP)
- RFID Volume Knob (Accessory only)
- Mission Critical Geofence
- P25 Authentication
- Digital Tone Signaling
- UL-certified



Product shown with optional stubby antenna

### TRANSMITTER- TYPICAL PERFORMANCE SPECIFICATIONS

	VHF	UHF Range 1	UHF Range 2	700/800 MHz	900 MHz
Frequency Range/Bandsplits	136-174 MHz	380-480 MHz	450-520 MHz	764-776 MHz 794-806 MHz 806-824 MHz 851-870 MHz	896-902 MHz 935-941 MHz
Channel Spacing <sup>4</sup>	12.5/20/25 kHz	12.5/20/25 kHz	12.5/20/25 kHz	12.5/20/25 kHz	12.5 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Rated RF Output Power (Adjustable) <sup>5</sup>	1-5 W	1-5 W	1-5 W	700 MHz: 1-2.5 W 800 MHz: 1-3 W	1-2.5 W
Frequency Stability <sup>5</sup> (-30 °C to +85 °C; +25 °C Ref.)	±1.0 ppm	±1.0 ppm	±1.0 ppm	±1.0 ppm	±1.0 ppm
Modulation Limiting (12.5/20/25 kHz)	± 2.5/4/5 kHz	± 2.5/4/5 kHz	± 2.5/4/5 kHz	± 2.5/4/5 kHz	± 2.5 kHz
Audio Response <sup>5</sup>	+1, -3 dB	+1, -3 dB	+1, -3 dB	+1, -3 dB	+1, -3 dB
Emissions <sup>5</sup> (conducted and radiated)	-75 dBc	-75 dBc	-75 dBc	-75 dBc	-75 dBc
FM Hum & Noise (12.5/25 kHz)	-45/-47 dB	-45/-47 dB	-45/-47 dB	-45/-47 dB	-45 dB
Audio Distortion <sup>5</sup>	1.00%	1.00%	1.00%	1.00%	1.00%

### RECEIVER- TYPICAL PERFORMANCE SPECIFICATIONS

	VHF	UHF Range 1	UHF Range 2	700/800 MHz	900 MHz
Frequency Range/Bandsplits	136-174 MHz	380-480 MHz	450-520 MHz	764-776 MHz 851-870 MHz	935-941 MHz
Channel Spacing <sup>4</sup>	12.5/20/25 kHz	12.5/20/25 kHz	12.5/20/25 kHz	12.5/20/25 kHz	12.5 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Audio Output Power at Rated <sup>5</sup>	500 mW	500 mW	500 mW	500 mW	500 mW
Frequency Stability (-30 °C to +85 °C; +25 °C Ref.)	±1.0 ppm	±1.0 ppm	±1.0 ppm	±1.0 ppm	±1.0 ppm
Analog Sensitivity <sup>7</sup> 12 dB SINAD	0.216 µV	0.234 µV	0.234 µV	0.250 µV	0.237 µV
Digital Sensitivity <sup>8</sup> 1% BER	0.277 µV	0.307 µV	0.307 µV	0.400 µV	0.330 µV
5% BER	0.188 µV	0.207 µV	0.207 µV	0.250 µV	0.224 µV
Selectivity <sup>5</sup> (12.5/25 kHz)	-70/-76 dB	-67/-76 dB	-67/-76 dB	-67/-76 dB	-67 dB
Intermodulation	79.5 dB	77.0 dB	77.0 dB	75.0 dB	75.0 dB
Spurious Rejection	-79.3 dB	-80.3 dB	-80.3 dB	-76.6 dB	-76.0 dB
FM Hum & Noise (12.5/25 kHz)	-45/-51 dB	-45/-50 dB	-46/-52 dB	-47/-53 dB	-47 dB
Audio Distortion <sup>4</sup>	1.00%	1.00%	1.00%	1.00%	1.00%

### FCC EMISSION DESIGNATORS

FCC Emission Designators	11K0F3E, 16K0F3E, 8K10F1D, 8K10F1E, 8K10F1W
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### REGULATORY INFORMATION

	FCC ID	Industry Canada
VHF	AZ489FT7098	109U-89FT7098
UHF Range 1	AZ489FT7097	109U-89FT7097
UHF Range 2	AZ489FT7099	109U-89FT7099
700/800 MHz	AZ489FT7096	109U-89FT7096
900 MHz	AZ489FT7100	109U-89FT7100





RADIO MODEL		
	MODEL 2	MODEL 3
Display	Full bitmap color LCD display, 3 lines of text x 14 characters, 1 line of icons, 1 menu line x 2 menus, White backlight	
Keypad	Backlit keypad, 2 soft keys, 4-direction navigation key, Home and Back buttons	Backlit keypad, 2 soft keys, 4-direction navigation key, 4x3 keypad, Home and Back buttons
Channel Capacity	512	
FLASHport Memory	2 GB	
VHF	H92KDF9PW6AN	H92KDH9PW7AN
UHF Range 1	H92QDF9PW6AN	H92QDH9PW7AN
UHF Range 2	H92SDF9PW6AN	H92SDH9PW7AN
700/800 MHz	H92UCF9PW6AN	H92UCH9PW7AN
900 MHz	H92WCF9PW6AN	H92WCH9PW7AN
Buttons & Switches	PTT button • Two-knob (volume + channel/talkgroup) • Orange emergency button • 3 programmable side buttons	

**POWER SUPPLY**

One rechargeable IMPRES Li-Ion 2100 mAh, slim high density battery IP68 (PMNN4491B), with alternate battery options available.

BATTERIES FOR APX 900					
BATTERY CAPACITY / TYPE	DIMENSIONS (H X W X D)	WEIGHT	BATTERY PART NUMBER	BATTERY CAPACITY	
IMPRES Standard Li-Ion 2100 mAh, slim high density battery (IP68)	113 x 52 x 18 mm	135 g	PMNN4491B	2100 mAh	
IMPRES Hi-Cap Li-Ion 3000 mAh battery, low voltage (IP68)	113 x 52 x 23 mm	155 g	PMNN4493A	3000 mAh	
IMPRES Hi-Cap Li-Ion 2900 mAh low voltage battery (IP68, UL-rated <sup>®</sup> )	113 x 52 x 23 mm	210 g	PMNN4489A	2900 mAh	

**PORTABLE MILITARY STANDARDS 810 C, D, E, F AND 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	501.1	I, II	501.2	I/A1, II/A1	501.3	I/A1, II/A1	501.4	I/Hot, II/Basic Hot	501.5	I/A1, II/A2
Low Temperature	502.1	I	502.2	I/C3, II/C1	502.3	I/C3, II/C1	502.4	I/C3, II/C1	502.5	I/C3, II/C1
Temperature Shock	503.1	I	503.2	I/A1C3	503.3	I/A1C3	503.4	I	503.5	I/C
Solar Radiation	505.1	II	505.2	I	505.3	I	505.4	I	505.5	I/A1
Rain	506.1	I, II	506.2	I, II	506.3	I, II	506.4	I, III	506.5	I, III
Humidity	507.1	II	507.2	II	507.3	II	507.4	1 Proc	507.5	II/Aggravated
Salt Fog	509.1	I	509.2	I	509.3	I	509.4	1 Proc	509.5	1 Proc
Blowing Dust	510.1	I	510.2	I	510.3	I	510.4	I	510.5	I
Blowing Sand	1 Proc	1 Proc	510.2	II	510.3	II	510.4	II	510.5	II
Vibration	514.2	VIII/F, Curve-W	514.3	I/10, II/3	514.4	I/10, II/3	514.5	I/24	514.6	I/24
Shock	516.2	I, III	516.3	I, VI	516.4	I, VI	516.5	I, VI	516.6	I, VI
Shock (Drop)	516.2	II	516.2	IV	516.4	IV	516.5	IV	516.6	IV

**BLUETOOTH**

Version	Bluetooth 4.0 (LE)
Encryption	SSP Pairing 128-bit AES-CDM Encryption for voice, data and signaling
Connections	Up to 6 data + 1 audio

**DIMENSIONS: RADIO WITH BATTERY**

	STD BATTERY	HI-CAP BATTERY
Length	5.1 in (130 mm)	5.1 in (130 mm)
Width	2.2 in (55 mm)	2.2 in (55 mm)
Thickness	1.4 in (36 mm)	1.6 in (41 mm)
Weight	11 oz (315 g)	12 oz (347 g)

**GPS/GNSS SPECIFICATIONS**

Constellations	GPS and GLONASS
Tracking Sensitivity	-154 dBm
Accuracy <sup>9</sup>	<10 m (95%)
Cold / Hot Start	<60 / <5 s (95%)
Mode of Operation	Autonomous (non-assisted) GPS

**ENCRYPTION**

Supported Encryption Algorithms	Advanced Digital Privacy (ADP) AES 256-bit Software Encryption (AES-256)
Encryption Keys per Radio	48
Encryption Frame Re-sync Interval	P25 CAI 360 ms
Encryption Keying	Key Loader
Vector Generator	National Institute of Standards and Technology (NIST) approved random number generator
Encryption Type	Digital
Key Storage	Non-volatile Memory
Key Erasure	Keyboard Command
Standards	FIP 140-2 Level 1; FIPS 197

**ENVIRONMENTAL SPECIFICATIONS**

Operating Temperature	-30 °C to +60 °C
Storage Temperature <sup>10</sup>	-40 °C to +85 °C
Humidity	Per MIL-STD
ESD	IEC 801-2 KV
Water and Dust Intrusion	IP68 (2 meters, 2 hours)
Housing Color Availability	Black only

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

1 Per the FCC Narrowbanding rules, new products submitted for FCC certification after January 1, 2011 are restricted from being granted certification at 25 kHz for United States - State and Local Markets only.  
2 Chargers and batteries for APX 1000 will interoperate with APX 900  
3 Compatible with BT 2.1, HSP, PAN, DUN and SPP Profiles in off-the-shelf Bluetooth accessories and Bluetooth 4.x  
4 Check your regional regulatory agency for availability of different channels bandwidths  
5 Measured in the analog mode per TIA / EIA 603 under nominal conditions  
6 When used with an UL-approved intrinsically safe radio  
7 Measured conductively in analog mode per TIA / EIA 603 under nominal conditions.  
8 Measured conductively in digital mode per TIA / EIA IS 102.CAAA under nominal conditions.  
9 Accuracy specs are for long-term tracking (95th percentile, >5 satellites visible at a nominal -130 dBm signal strength).  
10 Temperatures listed are for radio. Battery storage is recommended at 25 °C, ±5 °C to ensure best performance.

For more information, please visit [motorolasolutions.com/apx](http://motorolasolutions.com/apx)



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