APX N50

SINGLE-BAND P25 PORTABLE TWO-WAY RADIO

SIMPLE. RELIABLE. SECURE

Staying connected and being able to collaborate, whenever, wherever, is a prerequisite for mobile workers.

Our APX N50 is a slim yet rugged pick-up-and-go radio that's designed to give first responders, public-safety support and administrative staff secure communications that they can rely on in the field to stay organized and effectively respond to whatever the day throws at them.

Remarkably small and sleek and tough enough for all day use in harsh environments. ViQi Basic Voice Control, large controls and display make it simple to use on the go. This is a radio that optimizes speed and space. Whatever the environment, users can hear and be heard with loud and clear audio. Advanced microphones and exclusive speaker design combined with leading APX audio algorithms automatically filter background noise and adjust volume levels to the environment, keeping hands free and focus optimized.

The APX N50 works reliably across a variety of frequencies, modes and protocols. It connects seamlessly with accessories and other devices via Bluetooth® or Wi-Fi, and can even switch between radio coverage and Wi-Fi with SmartConnect. Hardware encryption algorithms, batch radio programming tools, and a portfolio of services and tech support keep communications secure and ensure devices always have the latest features.

MOTOROLA SOLUTIONS

Intuitive hard controls, protected against accidental activation

New antenna technology improves comfort and wearability

2 microphones capture audio from any direction

Distinctive buttons for PTT, emergency and ViQi, and two additional programmable side buttons

Custom speaker for exceptional loud and clear communications

Programmable buttons for one-touch quick access

11.2 in
285 mm

6.1 in
156 mm

5.3 in
135 mm

2.2 in
55 mm

1.3 in
33 mm

2.6 in
66 mm

MOTOROLA

Zone B
TAC2

TMS   12:32PM
Craig Smith
Zone | Chan | Info

FEATURES

OPERATION MODES

Digital Trunking: 9600 Baud APCO P25 phase 1 FDMA and phase 2 TDMA

Digital Conventional: APCO 25

Analog Digital: 3600 Baud SmartNet®, SmartZone®, Omnilink®

Analog Conventional: MDC 1200

ASTRO® 25 Integrated Voice and Data

SmartConnect via W-iFi[3]

FREQUENCY BANDS

7/800 MHz

VHF

Up to 1000 channels[1]

Up to 65 Zones[1]

ADDITIONAL CONNECTIVITY

Bluetooth (Version 4.2)

Wi-Fi 802.11 a/b/g/n/ac, 2.4 and 5 GHz Bands[1]

AUDIO FEATURES[2]

3 W Speaker with Adaptive Equalization

3 Microphones (2 Internal HDR, 1 Wind Mitigation)

Adaptive Dual-sided Operation

Adaptive Noise Suppression Intensity[1]

Adaptive Gain Control[1]

Adaptive Windporting[1]

Noise Sensing Volume Control[1]

Receive Volume Leveling[1]

IMPRES Audio Accessory Compatibility

MANAGEMENT

Customer Programming Software (CPS)

Radio Management (RM)

LOCATION-TRACKING

Built-in GNSS (GPS, GLONASS)

SENSORS

Accelerometer (Man Down/Fall Alert)[1]

SECURITY

256-bit AES[1]

Single-key ADP encryption

Software Key

P25 Authentication[1]

Multikey for 48 Keys and Multi-algorithm[1]

Over-The-Air Rekeying (OTAR)[1]

HAZLOC
(WHEN USED WITH DIV1 BATTERY)

Class I - Division 1 Groups C, D; Division 2 Groups A, B, C, D

Class II - Division 1 Groups E, F, G; Division 2 Groups F, G

Class III - Hazardous Locations

MESSAGING

Canned Messages

VOICE INTERACTION

Customizable Voice Announcements

ViQi Basic Voice Control in US English: Voice Actions with Predetermined Commands[1]

ENERGY

Standard 2850 mAh Battery

Optional UL Div 1 3200 mAh Battery

IMPRES 2 Smart Battery Technology

OTHER FEATURES

Radio Profiles

Enhanced Data[1]

Multicast Voting Scan[1]

Man Down/Fall Alert[1]

DVRS PSU[1]

Digital Tone Signaling[1]

APX Personnel Accountability[1]

Instant Recall

Geofence[1]

Stun Kill[1]

Data Modem Tethering[1]

Group Services[1]

INGRESS PROTECTION

IP6x Dust

IPx8 submersion (2 m, 2 hr)

USER INTERFACE

2.4" Mission-critical Display: 240x320 TFT 65k Color Transflective Display

PTT Button: 1.22 x 0.47 in (31 x 12 mm)

16-position Channel Selector

Power/Volume Knob

Orange Emergency Button

3 Programmable Side Buttons (1-dot, 2-dot, purple/3-dot)

2 Programmable Front Buttons

DIMENSIONS

Radio with Standard Battery, no Antenna

Height: 5.3 in (135 mm)

Width: 2.2 in (55 mm)

Depth: 1.3 in (33 mm)

Weight: 13.1 oz (370 g)

Footnotes
1 Optional Feature
2 If using an audio accessory, a compatible audio accessory must be selected to leverage optional audio features.
3 Check with your Motorola Solutions representative for SmartConnect region availability and additional requirements.

PERFORMANCE

TRANSMITTER

	Note	700 MHz	800 MHz	VHF
Frequency Range / Bandsplits	-	762-776, 792-806 MHz	806-825, 851-870 MHz	136-174 MHz
Channel Spacing	-	12.5 / 20 / 25 kHz	12.5 / 20 / 25 kHz	12.5 / 20 / 25 kHz
Maximum Frequency Separation	-	Full Bandsplit	Full Bandsplit	Full Bandsplit
Rated RF Output Power (Adjustable)	1	1-2.5 W	1-3 W	1-5 W
Frequency Stability (-30 °C to +60 °C; +25 °C Ref.)	1	±1.0 ppm	±1.0 ppm	±1.0 ppm
Modulation Limiting (12.5 / 20 / 25 kHz Channel)	1	±2.5 / ±4 / ±5 kHz	±2.5 / ±4 / ±5 kHz	±2.5 / ±4 / ±5 kHz
Emissions (Conducted and Radiated)	1	-75 dBc	-75 dBc	-75 dBc
Audio Response	1	+1, -3 dB	+1, -3 dB	+1, -3 dB
FM Hum and Noise (12.5 / 25 kHz Channel)	-	-45 / -47 dB	-45 / -47 dB	-47 / -47 dB
Audio Distortion (12.5 / 25 kHz Channel)	1	1.00%	1.00%	1.00%

RECEIVER

	Note	700 MHz	800 MHz	VHF
Frequency Range / Bandsplits	-	762-776, 799-806 MHz	851-870 MHz	136-174 MHz
Channel Spacing	-	12.5 / 20 / 25 kHz	12.5 / 20 / 25 kHz	12.5 / 20 / 25 kHz
Maximum Frequency Separation	-	Full Bandsplit	Full Bandsplit	Full Bandsplit
Audio Output Power at Rated	1	0.5 W	0.5 W	0.5 W
Analog Sensitivity (12 dB SINAD)	2	0.25 µV	0.25 µV	0.216 µV
Digital Sensitivity (1% BER)	3	0.4 µV	0.4 µV	0.277 µV
Digital Sensitivity (5% BER)	3	0.25 µV	0.25 µV	0.188 µV
Selectivity (12.5 / 25 kHz Channel)	1	-61.3 / -75.2 dB	-61.3 / -75.2 dB	-62.3 / -78.2 dB
Intermodulation Rejection	-	-75 dB	-75 dB	-79.0 dB
Spurious Rejection	-	-76.6 dB	-76.6 dB	-80.5 dB
FM Hum and Noise (12.5 / 25 kHz Channel)	-	-47 / -53 dB	-47 / -53 dB	-45 / -51 dB
Audio Distortion	1	1.00%	1.00%	1.00%

IMPRES™ 2 BATTERIES

	Footnote	Part No	Capacity	Availability
Standard	-	PMNN4813	2850 mAh	Included
HAZLOC	4	PMNN4815	3200 mAh	Optional

ENCRYPTION

Supported Encryption Algorithms	ADP, AES-256, DES, DES-XL, DES-OFB, DVP-XL, Localized Algorithm
Encryption Algorithm Capacity	8
Encryption Keys per Radio	1024 Keys, Programmable for 48 Common Key References (CKR) upgradable to 64 CKRs, or 16 Physical Identifiers (PID)
Encryption Keying	Local Key Loader and Over-the-Air Rekeying (OTAR)
Synchronization	XL - Counter Addressing OFB - Output Feedback
Vector Generator	NIST-Approved Random Number Generator
Encryption Type	Digital and SecureNet, TLS1.2, SRTP
Key Storage	Tamper-protected Volatile or Non-volatile Memory
Key Erasure	Keyboard Command and Tamper Detection
Standards	FIPS 140-3 Level 1 and Level 3, FIPS 197
Device Certificates	x.509v3 ECC-P384, x.509v3 RSA-2048
Cipher Suites FIPS 140-2 Level 1	TLS_RSA_WITH_AES_256_GCM_SHA384 SRTP_AEAD_AES_256_GCM1

LOCATION TRACKING

	Footnote	
Constellations	-	GPS and GLONASS
Tracking Sensitivity	7	-159 dBm (GPS)
Accuracy	5	<10m (95%)
Cold Start	5	<60 Seconds (95%)
Hot Start	5	<5 Seconds (95%)
Mode	-	Autonomous (non-assisted) GPS

WIRELESS

WiFi		
Standards Supported	-	802.11a/ b/g/n/ac
Frequency Range	-	2400-2472, 5180-5825 MHz
Security	-	Supports WPA-2, WPA, WEP
Capacity	-	Up to 20 SSIDs
Bluetooth		
Version	-	4.2 (LE)
Frequency Range	-	2402 - 2480 MHz
Security	-	SSP Pairing
		128-bit AES-CDM Encryption for voice, data and signaling

AUDIO

	Standard	Upgrade
Audio Output Power at Rated	0.5 W	1 W
Audio Output Power at Max	2 W	3 W
Audio Response (EIA)	+1, -3 dB	+1, -3 dB
Speech Loudness at 12 in (300 mm)	98 phon	102 Phon
Audio Features	Adaptive Dual-sided Operation Adaptive Equalization Adaptive Gain Control IMPRES Audio	Adaptive Noise Suppression Intensity Adaptive Windporting Receive Volume Leveling Noise Sensing Volume Control

ENVIRONMENTAL AND REGULATORY

MIL-STD 810

	MIL-STD 810C		MIL-STD 810D		MIL-STD 810E		MIL-STD 810F		MIL-STD 810G/H	
	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/A1
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/A1, C3	503.3	I/A1, C3	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
Submersion	512.1	I	512.2	I	512.3	I	512.4	I	512.5	I
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, V	516.3	I, V, VI	516.4	I, V, VI	516.5	I, V, VI	516.6	I, V, VI
Shock (Drop)	516.2	II	516.3	IV	516.4	IV	516.5	IV	516.6	IV

ENVIRONMENTAL

	Footnote	
Operating Temperature	6	-30 to +60 ºC (-22 to +140 ºF)
Storage Temperature	6	-40 to +85 ºC (-40 to +185 ºF)
Humidity	-	Per MIL-STD 810
ESD	-	IEC 61000-4-2
Dust Resistance	-	IP6X
Water Resistance (Submersion)	-	IPX8 (2 meters, 2 hours)

REGULATORY

	Model Number	FCC ID	IC ID
7/800 MHz	H25UCF9PW6AN	AZ489FT7161	109U-89FT7161
VHF	H25KDF9PW6AN	AZ489FT7162	109U-89FT7162
LMR	8K10F1D, 8K10F1E, 8K10F1W, 11K0F3E, 16K0F3E, 20K0F1E		
Bluetooth	860KF1D, 1M15G1D, 1M19G1D, 1M05F1D		
Wi-Fi	7/800 MHz: 13M5G1D, 16M9D1D, 17M8D1D, 17M0D1D, 17M1D1D, 17M8D1D		
	VHF: 13M5G1D, 16M9D1D, 17M8D1D, 16M8D1D, 16M9D1D, 17M0D1D, 17M7D1D, 17M8D1D		

1. Measured in the analog mode per TIA / EIA 603 under nominal conditions. Selectivity reflects newer 2-tone test method as defined in revision D TIA603-D issued in 2010.

2. Measured conductively in analog mode per TIA / EIA 603 under nominal conditions.

3. Measured conductively in digital mode per TIA / EIA IS 102.CAAA under nominal conditions.

4. Listed by UL to the standards ANSI/TIA 4950-A and CAN/CSA C22.2 NO. 157-92 Classification Rating: Class I, Division 1, Groups C, D; Class II, Division 1, Group E, F, G; Class III, Hazardous (Classified) Locations. ANSI/ISA 12.12.01-2015 and CAN/CSA C22.2 No. 213-15; Class I, Division 2, Groups A, B, C, D; T3C

5. Measured conductively with >6 satellites visible at a nominal -130 dBm signal strength. Specs provided are 95th percentile values.

6. Temperatures listed are for radio specifications. For battery, please refer to motorolasolutions.com/batterycare to ensure best or optimum battery operation.

7. Use of other GNSS constellations may vary in tracking sensitivity.

All specifications are subject to change without notice.

For more information on APX N50, please visit: **motorolasolutions.com/APXN50**

MOTOROLA SOLUTIONS