ASTRO® 25 TWO-WAY RADIOS AT A GLANCE SAFETY REDEFINED

YOU ARE READY FOR THE NEXT CALL. WITH APX™, SO IS YOUR RADIO.

In an emergency, other first responders may be a few feet or several miles away. When every second counts, you need a radio you can rely on to get the job done. Since coordinating response and protecting lives is at the heart of every mission, every two-way radio transmission is crucial. Every radio has one job and one job only: to keep you safe.

ASTRO 25 is the leading Project (P25) standards-based system used by over 11,000 agencies around the world. With uncompromising real-world performance and legendary Motorola reliability, the ASTRO 25 solution continues to evolve, adding practical innovations and performance-driven capabilities that enable government agencies to protect the communities they work in and support neighboring communities through interoperability.

The APX P25 two-way radio series redefines safety in communication. APX puts the right device into the hands of the right user. Every feature and function is designed with its users in mind – from the rugged, easy to operate design to the loudest, clearest audio. The result is the ability to keep your people and community safer than ever before.

THE WORLD'S LEADING P25 PLATFORM

IMMEDIATE AND ASSURED VOICE IN AN EMERGENCY
When the emergency is critical, a call for help must get through. Motorola's ASTRO 25 system is a dedicated, communication system optimized to make sure the voice call gets through even during times of peak demand.

ACCESSIBILITY IN CHALLENGING ENVIRONMENTS
Tunnels, high rises and sub-basements create unique challenges for wireless communications, but ASTRO 25 is optimized to handle them. We offer unique solutions to minimize interference in specific environments.

RELIABLE VOICE AND DATA INTEGRATED AS ONE
Expanding your data usage while maintaining mission critical voice, ASTRO 25 provides reliable, always-available communications so multiple agencies can share voice and data communication simultaneously among their teams, deploy resources efficiently, maintain communication security and track personnel.

FUTURE READY PLATFORM
ASTRO 25 and APX radios are flexible and future- ready, adapting to your communications needs and evolving to support new technologies and applications, so you can be ready for the next call the moment it happens.

INTEROPERABILITY ON DEMAND
A variety of our APX radios work across P25 systems and digital and analog networks to achieve true interoperability. Some of these radios, such as the APX 8000/APX 8000XE, APX 7000/7500 offer not only this, but also the means to communicate seamlessly through any multiple frequency bands.

THE MOST COMPLETE LINEUP OF TWO-WAY RADIOS DESIGNED TO KEEP YOU SAFE

Agencies expect their investment to deliver maximum value and performance. From day one, every portable and mobile radio will meet your most demanding performance expectations.

ASTRO 25 PORTABLES

APX 8000		Providing unlimited mobility and seamless WiFi connectivity, the APX 8000 multi-band radio places instant interoperability into the hands of mission-critical first responders. • All-Band to enable communications across multiple agencies • WiFi for quicker wireless and codeplug updates • Adaptive Audio Engine to provide better audio experience in any environment
APX 8000XE		The APX 8000XE is redefining mission critical communications by delivering an intrinsically safe radio that combines unlimited mobility, loud audio and secure WiFi connectivity for safety personnel in extreme environments. • All-band to enable communications across multiple agencies • WiFi for quicker wireless and codeplug updates • Adaptive Audio Engine to provide better audio experience in any environment • 2m/4h submersion and intrinsically safe standard for extreme conditions
APX 7000L		Delivering simultaneous LMR voice with LTE data, the APX 7000L is an ideal solution for federal government first responders that require the most up-to-date information faster and more efficiently. • Provides simultaneous voice and data operation • Support for 4G LTE and FirstNet LTE Public Safety network providing access to nationwide wireless data coverage • Available in 800 MHz (3W) & VHF MHz only
APX 7000XE		Taking safety to the extreme, the APX 7000XE is specifically designed for extreme environments with exaggerated controls and dual-band interoperability in a rugged design. • Dual-Band to enable instant, interoperable communications • 2m/2h submersion and intrinsically safe standard for harsh conditions • Largest emergency button in the industry
APX 7000		Efficiently manage mission critical voice and data in any environment across multiple agencies. The APX 7000 dual-band radio can operate in any of 2 bands (700/800, VHF, UHF R1, or UHFR2 MHz frequencies). • Dual-Band to enable instant, interoperable communications • Largest Colored Front Display offered on the APX series • Dual 1 Watt Speakers to receive loud and clear audio
APX 6000XE		Designed for gloved users working in extreme environments with exaggerated ergonomics and rugged specifications, the APX 6000XE is ideal for agencies requiring advanced features in a smaller, single-band form factor. • Single band with extreme ergonomics and excellent audio • Extreme 1-sided noise reduction designed to locate the talker while canceling out ambient noise • Equipped with a unique speaker grill design that improves water runoff
APX 6000		Delivering outstanding performance in a lightweight form factor, the APX 6000 is built for agencies requiring a single band solution with advanced features. • Economical single band solution for federal, and state and local public safety users • Innovative T-grip design gives you a secure grip and better control • Available in 3 models (Top and Front display with full DTMF keypad, Top and Front display with limited keypad and Top Display Only)

ASTRO 25 PORTABLES		
APX 4000		Durable and compact with key features in an easy to use design, the APX 4000 is ideal for agencies requiring a budget friendly P25 Phase 2 solution. • Available in 2 models - Multi-function Single knob and Dedicated Dual Knob for volume and channel controls • Offered in black housing only
APX 3000		Allowing your teams to operate discreetly without attracting interest or creating a distraction, the APX 3000 P25 TDMA capable covert radio can help you communicate securely while blending into the surroundings. • Slim, compact radio that operates via accessories • Optional flexible antenna attaches to the body under clothing • Radio ships standard with a 3-wire surveillance kit (black or beige)
APX 1000		Engineered with a simplified control top to ensure ease of use, the APX 1000 is ideal for local government and public works users that require a budget friendly P25 Phase 2 solution. • Meets IP54 Environmental Specifications • Available in models 1.5, 2 and 3

ASTRO 25 MOBILES

APX 7500		Delivering interoperability on demand, the APX 7500 was designed for first responders who need best-in-class audio and intuitive technology. • Multi-band capable for better coordination among agencies • Complete portfolio of 5 control heads and 5 mounting options • Supports Dual Radio operation and integrates vehicle controls
APX 6500		A complete solution for mission critical responders, the APX 6500 was built for first responders that need advanced features in a single band form factor. • Single-band capable and supports dual radio operation with APX 7500 • Mid-power model fits into any existing XTL footprint, so you can reuse mounting holes and cables • RFID label helps you track mobile radio information without uninstalling

ASTRO 25 MOBILES

APX 4500		Durable with basic features, the APX 4500 is ideal for public works, utilities and natural resources customers requiring a rugged P25 mobile solution. • Compatible with rugged O2 Control Head, designed for extreme environments • Durable IP56 certified form factor • Leverage XTL accessories for O5 and O3 control heads to maximize your investment
APX 1500		Compact, easy-to-install dash mount design with basic features, the APX 1500 is ideal for local government and public works users needing a budget-friendly P25 mobile solution. • Flexible, space-saving design for easier installation • Compatible with O2 control head for intuitive operation • Standard APX features (ie. intelligent lighting, dual-mic noise suppression, ADP privacy)

ASTRO 25 CONTROL HEADS

O9		Compatible with APX 7500 and 6500 radios. Contains an extra large full color display with intelligent lighting, integrated full size DTMF keypad, large programmable one-touch buttons, dedicated siren controls, integrated response selector, and day/night mode capability.
O7		Compatible with APX 7500 and 6500 radios. Contains large color display with intelligent lighting, multiple control head configurations with O2 and O7, motorcycle configuration available, multifunction volume/channel knob, day/night mode, and available with Lighting and Siren Controls or DTMF keypad.
O5		Compatible with APX 7500 and 6500 radios. Provides tri-color display with intelligent lighting support, compatible with keypad microphone, can configure up to 4 O5 control head configurations, and available in motorcycle configuration.
O3		Compatible with APX 7500 and 6500 radios. Contains full integrated DTMF keypad, hand-held control head with intuitive user interface, and large color display with intelligent lighting. Compatible with Siren and Light Interface Module.
O2		Compatible with APX 7500, 6500, 4500, and 1500 radios. Provides XE ergonomics controls, multiple control head configuration with O2 and O7, motorcycle availability, multifunction control knob, intelligent lighting, with a built in 7.5 watt speaker.

ASTRO TWO-WAY PORTABLES

SELECT THE RIGHT PRODUCT TO ENSURE SAFETY AND RELIABILITY

Features	APX 8000	APX 8000XE	APX 7000L	APX 7000	APX 7000XE	APX 6000	APX 6000XE	APX 4000	APX 3000	APX 1000
Supported Frequencies										
VHF (136 - 174) Power Level 6W	●	●	●	●	●	●	●	●	●	●
UHFR1 (380 - 470) Power Level 5W	●	●		●	●	●	●	●	●	●
UHFR2 (450 - 520) Power level 6W	●	●		●	●	●	●	●	●	●
700/800 MHz (764 - 870) Power Level 3W	●	●	●	●	●	●	●	●	●	●
900 MHz (896 - 901, 935 - 940) Power Level 2.5W								●		●
Protocols and Systems Supported										
Multi-Band Capable	●	●	●	●	●					
Dynamic Dual Mode (FDMA/ TDMA)	●	●	●	●	●	●	●	●	●	●
Analog Conventional	●	●	●	●	●	●	●	●	●	●
P25 Phase I (FDMA) Conventional and Trunking	●	●	●	●	●	●	●	●	●	●
P25 Phase II (TDMA) Trunking	●	●	●	●	●	●	●	●	●	●
Smart Net/Smart Zone Analog and Digital Trunking	●	●	●	●	●	●	●	●	●	●
3600 and 9600	●	●	●	●	●	●	●	900 MHz Only	●	
MDC-1200 Analog Signaling	●	●	●	●	●	●	●	●	●	●
Standard Channels	3000	3000	3000	3000	3000	1000	1000	512	512	512
Encryption Capability										
Encryption Capability (Optional)	AES and DES	AES and DES	AES and DES	AES and DES	AES and DES	AES and DES	AES and DES	AES ONLY	AES and DES	
Multi-key	128	128	128	128	128	64	64	48	48	48
ADP	●	●	●	●	●	●	●	●	●	SW only
Radio Authentication	●	●	●	●	●	●	●	●	●	●
POP 25	●	●	●	●	●	●	●	●	●	●
P25 OTAR	●	●	●	●	●	●	●		●	
Applications										
Rugged	Std IP67, Delta T option	IS & Delta T Std	Std IP67, Delta T option	Std IP67, Delta T option	IS & Delta T Std	Std IP67, Delta T option	IS & Delta T Std	Std IP67, Delta T option	Standard IP67	Standard IP54
Models	1.5, 2.5, 3.5	1.5, 2.5, 3.5	1.5, 3.5	1.5, 3.5	1.5, 3.5	1.5, 2.5, 3.5	1.5, 2.5, 3.5	2 and 3	1	1.5, 2, and 3
Colors	Black, Yellow, Green	Black, Yellow, Green	Black	Black, Yellow, Green	Black, Yellow, Green	Black, Yellow, Green	Black, Yellow, Green	Black	Black	Black
Color Sleeves/Stickers				Sleeves Only Red, Orange, Blue		Sleeves Only Red, Orange, Blue		Metallic Display Stickers only		Metallic Display Stickers only
Mission Critical Wireless (Bluetooth)	●	●	●	●	●	●	●	●	●	
Option Board/Expanded Mem	●	●	●	●	●					
Mandown	●	●	●	●	●	●	●	●	●	
GPS	●	●	●	●	●	●	●	●	●	●
Integrated Voice and Data	●	●	●	●	●	●	●	●	●	●
Enhanced Data	●	●	●	●	●	●	●	●	●	
Voice Announcement	●	●	●	●	●	●	●	●	●	●

ASTRO TWO-WAY MOBILES

SELECT THE RIGHT PRODUCT TO ENSURE SAFETY AND RELIABILITY

Features	APX 7500	APX 6500	APX 4500	APX 1500
Control Heads				
Control Heads	O2, O3, O5, O7, O9	O2, O3, O5, O7, O9	O2	O2
Max. # of Control Heads	4	2	1	1
Rugged (IP Rating)	IP54	IP54	IP56	IP54
Protocols and Systems Supported				
Multi-Band Capable	●			
Dynamic Dual Mode Capable (FDMA/TDMA)	●	●	●	●
Analog Conventional	●	●	●	●
P25 Phase I (FDMA) Conventional and Trunking	●	●	●	●
P25 Phase II (TDMA) Trunking	●	●	●	●
SmartNet/SmartZone Analog and Digital Trunk	●	●	●	●
3600 and 9600	●	●	3600 or 9600	9600 Only
MDC-1200 Analog Signaling	●	●	●	●
Standard Channels	3000	1000	512	512
Mounting Options				
Dash Mount	●	●	●	●
Remote Mount	●	●	●	
Motorcycle	●			
Control Station	●	●	●	●
Consolette	●			
Encryption Capability				
Encryption Capability (Optional)	AES and DES	AES and DES	AES Only	ADP
Multi-key	128	64	48	
ADP	●	●	●	●
POP 25	●	●	●	●
P25 OTAR	●	●		
Applications				
Integrated Voice and Data	●	●	●	●
Enhanced Data	●	●	●	
Integrated GPS - Outdoor Location	●	●	●	●
Radio Authentication	●	●	●	●
Voice Announcement	●	●	●	●
Dual Radio Capability	●	●		

ADVANCED SOFTWARE FEATURES

DIGITAL TONE SIGNALING – Instantly alerts large groups of on-duty and off-duty responders over their APX radio to reduce response time.

LEX L10 COLLABORATION – Uses the LEX L10 Mission Critical LTE Handheld to remotely manage the zone, channel, volume and monitor signal strength and battery of the APX portable radio using Mission Critical Bluetooth.

WIFI – Quickly update codeplug, firmware and FLASHport features using the high-speed of WiFi 802.11n with WEP, WPA and WPA-2 security, while maintaining voice communications.

INTELLIGENT LIGHTING – Uses color alerts to notify you of the radio mode, potential emergencies or specific events.

RADIO PROFILES – Radios can be configured to adjust audio level, lighting and tones through user selected or automated options. Whether on surveillance or working in bright sunlight, you can customize settings as needed.

EXTREME AUDIO PROFILE – Intelligent 2-microphone noise reduction software and the latest AMBE vocoder dynamically adjusts for changing high noise environments.

TEXT MESSAGING – Offers a freeform or canned messaging solution so you can efficiently and discreetly send and receive messages to and from subscribers or dispatch operators.

UNIFIED CALL LIST – Consolidates all call lists underneath one unified list so you can easily access all information associated with a particular contact.

VOICE ANNOUNCEMENT – Allows you to navigate through channels/ talk-groups and zones in the radio while an audible, pre-recorded voice file provides a description of the selected channel or zone.

P25 TDMA CAPABLE – Provides twice the voice capacity, so you can add more users to your system without the need for additional frequencies or infrastructure.

MULTIBAND OPERATION – Multiple frequency bands supported with best-in-class transceiver specifications and performance.

SEAMLESS SCAN – Seamless scanning of multiple protocols including FDMA and TDMA systems and multiple RF bands.

ENHANCED DATA – Utilizing TDMA technology, this feature offers greater capacity and reliability of the slotting mechanism where fewer collisions occur.

SITE SELECTABLE ALERT – Continuous tones sent to alert sites of mining detonation activity, evacuation of sites, or vehicle stops.

ADVANCED HARDWARE FEATURES

GPS LOCATION – Integrated GPS receiver can transmit the outdoor location of an individual or vehicle to map-based location software.

MISSION CRITICAL WIRELESS BLUETOOTH – A unique Bluetooth® solution that provides an encrypted link to high performance accessories and applications to support different mission critical environments. Supports commercial off the shelf (COTS) and personal area network (PAN) devices.

MAN DOWN – Unique accelerometer that senses the physical position of the user to communicate updated information to incident command/ dispatch. Contains an audible beach with a unique critical emergency tone that will repeat itself until the emergency is manually deactivated.

RADIO AUTHENTICATION – Providing an extra, secure level of verification every time a radio registers onto a system.

FUTURE READY

MEMORY – Equipped with 64 MB of industrial grade internal memory and a removable memory MicroSD card slot. The removable memory card allows future expandability for growing technology needs.

PROGRAMMING OVER PROJECT 25 – Motorola's POP25 solution allows subscriber radios to be programmed over the air via the ASTRO 25 systems while remaining in the field without interruption.

ASTRO 25 TWO-WAY RADIO APPLICATIONS

Highlighting the most reliable and efficient application solution for ASTRO subscriber radio products to meet each customer's need.

APX™ P25 PERSONNEL ACCOUNTABILITY

Created and designed for fire safety personnel and battalion officers, APX P25 Personnel Accountability is an integrated solution that provides a cohesive report and improves responder safety. A NIMS compliant based solution, APX Accountability allows for better roll call integration, integrated graphical user interface (GUI) and Personnel Accountability Report (PAR) timers based on when agencies arrive on scene and when key events have occurred on scene.

USER-FRIENDLY GUI

Partnering with Systems Definition Inc., we developed a new, streamlined GUI that integrates multiple tasks on a single screen. Now, incident commanders can manage all of their tasks – conducting roll call, monitoring PAR checks and issuing evacuation notifications – from the convenience of one user-friendly screen.

ROLL CALL ALERT

With advanced features such as roll-call accountability, you no longer have to acknowledge your status with a voice-based response. Simply open the roll call window from the laptop at incident command to initiate an accountability roll call. Each responder acknowledges the Incident Commander's request for PAR from their APX series portable radios; they simply press the PTT button to acknowledge. Incident command receives confirmation of who has acknowledged the roll call and a count of those yet to respond. As a result, they not only have better accountability of personnel but the solution significantly reduces cycle time on PAR checks throughout the incident.

MAN DOWN ALERT

An optional, automatic Man Down alert on APX series P25 portable two-way radios adds another valuable level of safety. The on-board accelerometer in the radio monitors an individual's movement and orientation. If a responder is motionless or in a horizontal position for a predetermined amount of time, the APX portable radio will automatically transmit an emergency alert, notifying incident command that the responder is in distress.

APX™ RADIO MANAGEMENT

The APX CPS Management application can program up to 16 radios at one time and track which radios have been successfully programmed, providing a clear view of the entire radio fleet and a codeplug history for each radio.

ACCESS AND SHARE CODEPLUGS

When codeplug updates occur, the radio codeplug database can be stored on a network server allowing remote programmers to access and program radios and share a codeplug template across multiple radios. Changes to codeplug templates can be automatically applied to all affected radios while radio programming jobs can be scheduled ahead of time giving you more flexibility and operational efficiency.

MINIMIZE DOWNTIME

Save time and fuel by programming radios either via a USB port on a local or remote PC, or with Over-the-Air-Programming (OTAP) on a Project 25 system. With USB programming, a Device Programmer application resides on a PC and you can connect up to 16 radios via a USB hub to expedite the programming. To read/write multiple radios through a single computer or USB hub, the radios must be programmed with a unique IP address the first time they are read/written.

No application knowledge or application interaction is necessary by the user to program a radio with the Device Programmer application. The user simply plugs the radio into a USB port and the application automatically reads and writes the updates from the server to the radio.

Radio Management batch programming of APX radios via OTAP can only occur with a Motorola ASTRO® 25 Project 25 system, which has voice priority over data, so a user's call, emergency notifications or critical communications will not be interrupted with OTAP. Should an OTAP session be interrupted with communications, programming will resume after the call without the need to restart, expediting the process.

APX™ BATTERY MANAGEMENT

A radio is only as good as the battery that powers it. So when a battery fails and communication is lost, it impacts every aspect of your organization from serving customers to saving lives. But monitoring and maintaining the status of a large fleet of batteries can be time-consuming, inefficient and potentially overwhelming.

That's why we created our proprietary IMPRES™ Battery Management technology. It saves you the guesswork, complexity and costs of managing hundreds even thousands of radio batteries and chargers wherever they're located, and make it easier for your employees to do their work safely and successfully.

HOW DOES IT WORK?

Our IMPRES Battery Management software automatically collects critical data from IMPRES batteries when they are inserted into an IMPRES charger including battery age, capacity, charge and recondition history, the dates manufactured and put into service. This software analyzes battery data and tells you how "healthy" a battery is and when it needs to be changed, so you can quickly and efficiently determine when to remove a poor-performing battery, purchase a new one or redeploy it to less demanding, users, and even identify missing batteries.

VIEW CURRENT REPORTS OR CREATE CUSTOM ONES

Use existing reports or customize new ones to see the most relevant information for your organization. Data is stored in your database and can be exported to an Excel file or printed. IMPRES Battery Management software records and organizes a variety of data so you can:

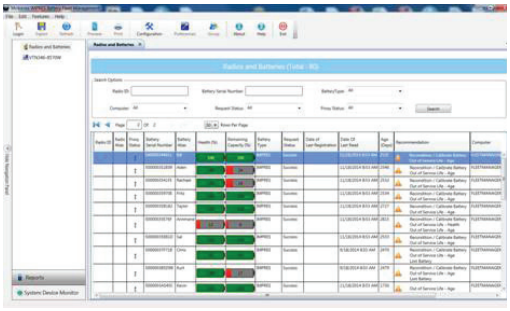
- See a status snapshot of your entire battery fleet
- Evaluate whether batteries are meeting your performance criteria
- Determine when batteries are nearing their end-of-life
- Decide exactly when to buy new batteries
- Get a lost battery report
- Optimize your charger utilization
- Monitor all devices in the system

IMPRES BATTERY MANAGEMENT DELIVERS BATTERY-CRITICAL INFORMATION

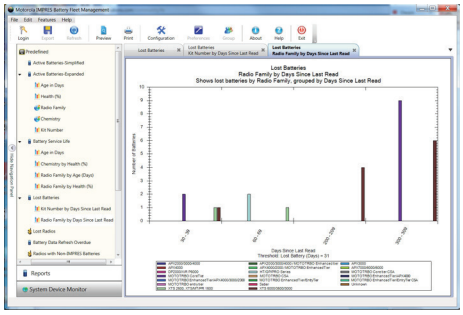
- Tells you when batteries are below an acceptable capacity
- Helps ensure users have enough capacity for a full work shift
- Alerts you to low capacity batteries so you can remove them
- Eliminates unexpected downtime and work interruptions
- Avoids the expense of throwing batteries away prematurely
- Confirms chargers are optimally distributed and used

EACH SOFTWARE LICENSE SUPPORTS:

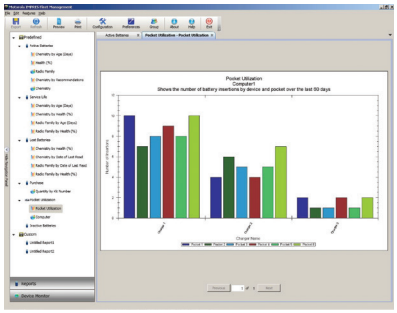
- 1 System Administrator Server
- 19 Remote Clients
- 25 IMPRES Chargers or IMPRES Battery Readers per client
- 25,000 IMPRES Batteries (the total number of batteries for the entire system cannot exceed 25,000)



Active battery report



Lost battery by location



Charger pocket utilization

DIGITAL VEHICULAR REPEATER SYSTEM (DVRS)

Digital Vehicular Repeater Systems (DVRS) from Futurecom is a radio system component that provides repeater capability between portable subscribers and RF base station infrastructure, extending radio coverage of your network.

Installed in the trunk of a car, fire truck, or other vehicles, the DVRS extends your ASTRO 25 network when portable users are outside of your vehicle, inside of a building or in any marginal coverage area.
The DVRS also supports fixed mounting and is transportable.

FEATURES AND BENEFITS

- Flexible Coverage
- In-Band/Cross-Band
- Intelligent Activation
- End-to-End Encryption
- Portable ID Pass-Through
- Flash Upgradable
- Power Output 1-10W
- Compatible with XTL 5000, XLT 2500, APX 7500 and APX 6500 Remote Mount
- P25 Digital/Analog Operation
- Available in VHF, UHF, 700 MHz and 800 MHz

Vehicle Radio Extender (VRX) 1000 from Futurecom is an alternative radio system component to the Digital Vehicle Repeater Systems (DVRS) delivering extended ASTRO25 network to portable radios in areas where coverage isn't the most reliable. The compact and durable design allows for ease of installation in patrol cars and utility trucks.

The 3W simplex radio extender is available in 700/800 MHz, VHF and UHF frequencies and compatible with P25 APX 7500, APX6500 and APX 4500 mobile radios.

FEATURES AND BENEFITS

- Flexible Coverage
- IP54 Rated
- Power Output .5-3W
- Compatible with APX 7500, APX 6500, APX 4500 Remote Mount
- P25 Analog Operation
- Simplex Operation
- Available in VHF, UHF, 700/800 MHz
- In-Band/Cross-Band

All specifications subject to change without notice. Motorola Solutions, Inc. 1301 E. Algonquin Road, Schaumburg, Illinois 60196 U.S.A. **motorolasolutions.com**

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