The Market for Digital Two-Way Communication

Integrated, efficient, reliable communication is more critical to operational performance than ever before. Businesses and organizations whose workers must be mobile need a communication solution that makes it easy and affordable for them to stay in touch. MOTOTRBO delivers for such industries as:

- Local government/Public administration
- Local public safety
- Manufacturing
- Transportation/Delivery
- Construction
- Private security
- Resorts
- Energy and Utilities

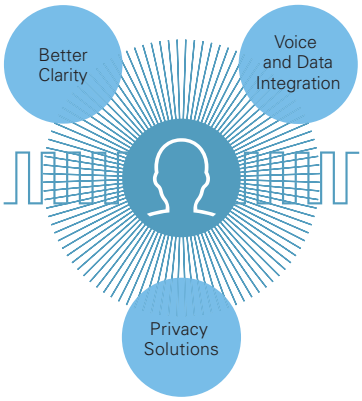
Your MOTOTRBO™ Opportunity

MOTOTRBO offers a private, standards-based system that can be tailored to meet the unique coverage and feature needs of group-oriented and dispatch environments. This versatile portfolio of cost-effective products and services provides a complete system—and a complete solution. With MOTOTRBO, businesses can achieve significant productivity gains while maximizing revenue.

Why Digital Two-Way Radio

Professional digital two-way radio systems operating on licensed spectrum offer capabilities that other mobile technologies cannot. These advantages make it the clear choice for mobile organizations that require an affordable, flexible, highly reliable solution—along with the power and range available only in licensed bands.

With two-way radio, you can tailor a solution to meet your customer's specific coverage and functionality needs. There's no need to rely on often unreliable and always-more-costly public networks. A two-way radio solution typically pays for itself in less than 18 months, as compared to cellular or public carrier solutions, which require ongoing monthly payments.



The Digital Difference

Analog two-way radio use proves itself every day in countless installations around the world. Today a new platform is available to help your customer achieve new levels of performance and productivity. Digital technology enables that breakthrough.

Many businesses need more than the fundamental services that analog two-way radio can deliver. Licensed channels are becoming crowded while your customers clamor for more capacity. In combination with voice, your customers may also need access to data to improve responsiveness and productivity. Digital two-way radio provides a powerful, flexible platform that can be adapted to meet these needs and more. With MOTOTRBO your customers can benefit from:

- **Expanded digital voice, data, and control capabilities** delivered over a given slice of RF spectrum. Professional customers recognize that mobile workers can be more productive if they have wireless access to applications such as Text Messaging Services and Location Services as well as voice. With digital two-way radio, you can get increased capacity and flexibility to support these applications.
- **Lower licensing and equipment costs**. Digital two-way radio solutions based on Time-Division Multiple-Access (TDMA) technology enable two virtual channels within a single 12.5 kHz licensed repeater channel. This provides twice the calling capacity for the price of one license. And because there's only one "real" channel, a second call doesn't require a second repeater.
- **Clearer voice communications** over a greater range. When signal strength drops off with distance, digital error-correction technology can accurately deliver both voice and data with virtually no loss over a far greater area.
- **Static and noise rejection**. Analog signals become distorted, producing audible static as signal strength degrades. By contrast, digital receivers simply reject anything they interpret as an error. In turn, this helps to enable users to hear better in noisy environments.
- **Enhanced battery life**. Each individual transmission only uses half the battery power of an analog system transmitting at the same wattage—so MOTOTRBO portable radios deliver far more uptime per battery charge.
- **Additional functionality**. Companies that manage vehicle fleets (such as taxis or buses) or direct mobile service personnel installing or repairing equipment are looking for ways to improve customer service. Dispatchers need to be able to easily locate human and equipment assets for faster customer response. With support for integrated applications such as MOTOTRBO Location Services, they'll have just what they need.
- **Easy migration**. Many businesses can't afford to completely replace an existing infrastructure. MOTOTRBO's ability to operate in both analog and digital modes enables a smooth, planned migration at your customer's pace—no sticker shock, no disruption. (Digital features are not available when operating in analog mode.)
- **Superior value**. All organizations want to get the most for their technology dollar—including a fast return on investment. With its affordable pricing and exceptional performance, the MOTOTRBO Professional Digital Two-Way Radio System is designed to be the industry's best answer—and an exceptional value.

The MOTOTRBO™ Technology Platform

We're now at the beginning of what will quickly become a large-scale migration to digital radio in professional applications. At the same time, regulatory pressures combined with real-world operating needs are driving radio manufacturers and users to communicate more information in a given slice of RF spectrum—in other words, to increase spectrum efficiency. Channels that historically carried a single call at a time are now being divided so they can carry two.

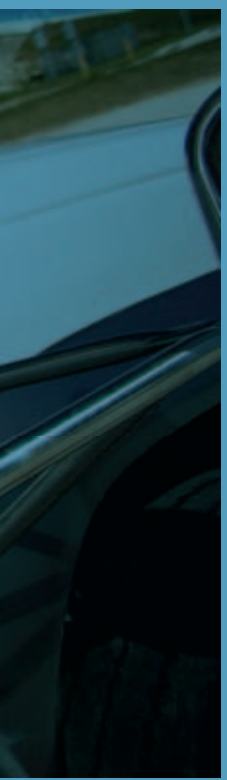
Two technologies exist to enable this "splitting" of channels, allowing multiple access on a single channel. Frequency-Division Multiple-Access (FDMA) splits the channel into two narrower sub-channels that can each carry separate calls. Time-Division Multiple-Access (TDMA) preserves the full channel width but divides it into alternating time slots that can each carry an individual call. 12.5 kHz FDMA is already being used in North America to accomplish the FCC-mandated split of 25 kHz channels into 12.5 kHz channels, and is currently the standard for mission-critical digital radio under Project 25 Phase 1. When it comes to further increasing efficiency within 12.5 kHz channels, Motorola believes that two-slot 12.5 kHz TDMA is the best technology for professional, business-critical applications.

FDMA uses a 12.5 kHz channel in half-duplex fashion, and as a result, only one party can talk on the channel at a time. To further increase the effective capacity of an existing 12.5 kHz channel via FDMA, you would have to slice the channel into two new and very narrow 6.25 kHz sub-channels, requiring changes to licensing requirements and making it unclear how the technology will fit into and perform in today's licensed bands.

On the other hand, TDMA can be used to divide a 12.5 kHz channel into two alternating time slots. In this way, two-slot TDMA can provide 6.25 kHz equivalent efficiency in an existing 12.5 kHz channel—with no changes to licensing requirements. That means that TDMA can give your customers two-for-one channel capacity, doubling the efficiency of their licensed repeater channels.

A Better Technology for the Professional Tier

The performance and flexibility of TDMA make it the only serious choice for professional two-way digital radio. Leveraging a TDMA platform, MOTOTRBO reduces overall equipment costs while supporting more users and more information in the same area and frequency. The spectrum efficiency gained with TDMA means that one digital repeater does the work of two analog repeaters—for greater system efficiency, and lower acquisition and operating costs.



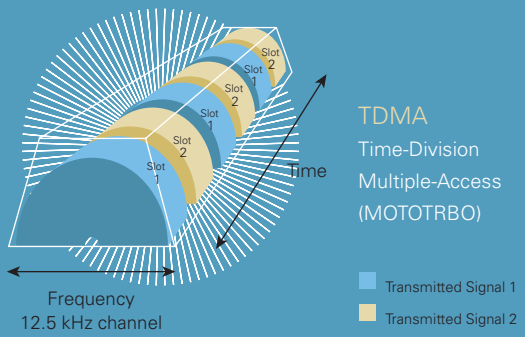
Two-Slot 12.5 kHz TDMA:

- Professional users can **decrease their spectrum congestion while doubling efficiency** of their licensed repeater channels. Two-slot TDMA allows two simultaneous conversations within a 12.5 kHz channel with a single repeater. One repeater can do the work of two—saving infrastructure acquisition, setup, and maintenance costs.
- MOTOTRBO's two-slot TDMA technology **supports both voice and data**, so customers can determine whether a given timeslot is used for voice calls or data calls in a manner that best fits their needs. While some customers may elect to use both timeslots to double the number of voice users that can be supported on the repeater channel, others may want to equip their voice users with mobile data, messaging, or location tracking capabilities: in either case, the benefits are realized within the existing repeater channel.
- 12.5 kHz TDMA fits seamlessly into existing licensed channel structures in UHF and VHF: there is **no need to obtain new licenses** to attain this increase in repeater capacity, and no added risk of interference with or from adjacent channels. The choice of 12.5 kHz TDMA digital technology makes it quick and easy to gain spectrum efficiency and improve your two-way radio communications.
- Your customers have a **future-ready, standards-based solution.** MOTOTRBO was designed to the European Telecommunications Standards Institute (ETSI) Digital Mobile Radio (DMR) Tier 2 standard, a globally recognized digital radio standard for professional applications in high power, licensed bands. MOTOTRBO also meets U.S. and Canadian regulatory 6.25 kHz efficiency goals.

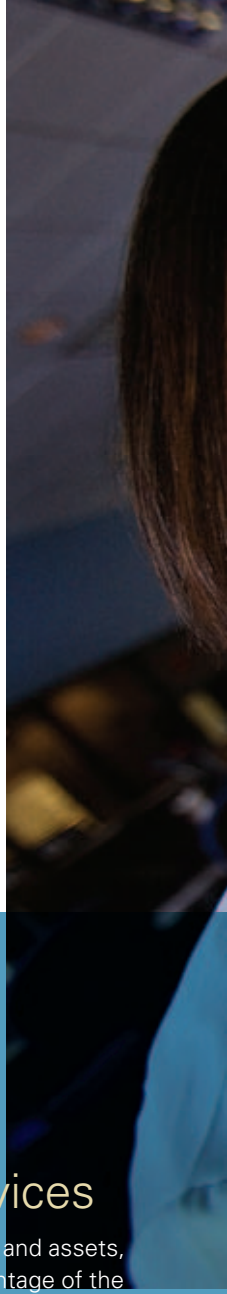
The Professional Digital Two-Way Radio System from the Industry Leader

Motorola invented the first portable two-way radio, and has more than 65 years of experience delivering wireless communications systems for government and industry. Motorola has emerged as a recognized leader in digital two-way radio technology, with proven solutions in the mission-critical, professional, and unlicensed tiers. With the introduction of MOTOTRBO, Motorola expands its digital solution range to the licensed professional tier, leveraging our unique depth of experience to offer your customers a new level of performance, features and value.

Increased Capacity Within Existing 12.5 kHz Repeater Channels



MOTOTRBO™ Integrated Data Enables Advanced Applications



MOTOTRBO is changing the way businesses communicate. With the applications available through Motorola, Motorola's Application Developer Program, and MOTOTRBO's well-documented and published interfaces, customers can build on their investment and add new high-value capabilities. Two key applications are available now:

MOTOTRBO Location Services

Location Services provides the ability to track people and assets, such as vehicles. This advanced approach takes advantage of the GPS modem and receiver integrated within both the portable and mobile radios, combined with the MOTOTRBO Location Services software applications.

GPS-equipped portable and mobile radios can be configured to transmit their geographical coordinates at pre-programmed intervals, on demand and in case of an emergency. MOTOTRBO Location Services software applications provide dispatchers with a real-time display of fleet activity on a customized, high-resolution, color-coded map. With MOTOTRBO Location Services, your customers can enjoy the benefits of location tracking with no monthly fees or cumbersome external GPS devices to install and maintain.

MOTOTRBO Application Developer Program

Third-party developers play an important role in supporting the market growth of the MOTOTRBO platform and in creating customized applications that will add value to customers in different vertical markets.

Developers will extend the capabilities of MOTOTRBO and provide niche solutions that will satisfy a broad range of customer needs. To encourage the development of a broad portfolio of customer-focused solutions and continuing innovation, Motorola will provide support to its Application Developer Program, giving accredited developers access to the protocol and Application Programming Interface (API) documentation as well as online support. So when you recognize an opportunity to customize an end user solution through the use of an application, contact the Motorola Application Developer Program manager for support.

MOTOTRBO Text Messaging Services

The MOTOTRBO Text Messaging Services allows communication between radios and dispatch systems, between radios and email-addressable devices, and to remote PC clients attached to radios.

The MOTOTRBO computer software application adds a PC-based, client/server software application for dispatch-oriented messaging to the system, which extends the capabilities of messaging to include communications between radios and dispatcher PCs. Furthermore, the dispatcher PC can act as a gateway to email, enabling messaging between email-addressable devices and radios.

MOTOTRBO™ System Components and Benefits

XPR™ 6500/6550
Display Portable Radios

1. Flexible, menu-driven interface with user-friendly icons or two lines of text for ease of reading text messages and navigating through the menus.
2. Tri-color LED indicator for clear, visible feedback of calling, scanning and monitoring features.
3. Emergency button alerts supervisor or dispatcher in an emergency situation. With XPR 6550, location coordinates can be sent to the dispatcher using Location Services application.
4. New accessory connector meets IP57 submersibility specifications and incorporates RF, USB and enhanced audio capability.
5. XPR 6550 includes integrated GPS module.
6. Large, easy-to-use navigation buttons allow easy access to intuitive menu-driven interfaces.
7. Meets IP57 specifications; submersible in 1 meter of fresh water up to 30 minutes.
8. Powerful, front projecting speaker that transmits TDMA digital audio or 12.5/25 kHz analog audio.
9. Three side and two front programmable buttons for easy access to favorite features. New features such as one-touch calling and quick text messaging are made even easier through programmable button access.
10. Large, textured push-to-talk button. Provides good tactile response and easy access, even when wearing gloves.
11. 160 channels.

Display Portable Radio Standard Package

- Display Portable Radio
- Antenna—Standard whip included with XPR 6500; Standard whip with GPS included with XPR 6550
- IMPRES™ Li-ion 1500 mAh Submersible Battery
- IMPRES™ Single Unit Charger
- 2.5" Belt Clip
- User Guide CD Kit (English and French Canadian)
- Two-year Standard Warranty plus one-year Repair Service Advantage (US only) / Extended Warranty (Canada only)

Additional Features

- Enhanced call management

  Encode/decode: call alert emergency, remote monitor, push-to-talk ID, radio check, private call, all call, radio disable
- Dual-mode analog/digital scan—facilitates a smooth migration from analog to digital
- Short free-form and quick text messaging
- Contacts list accommodates up to 256 contacts

XPR™ 6300/6350*
Non-Display Portable Radios

1. Tri-color LED indicator for clear, visible feedback of calling, scanning and monitoring features.
2. Emergency button to alert supervisor or dispatcher in an emergency situation. With XPR 6350, location coordinates can be sent to the dispatcher using the Location Services application.
3. New accessory connector meets IP57 submersibility specifications and incorporates RF, USB and enhanced audio capability.
4. XPR 6350 includes integrated GPS module.
5. Meets IP57 specifications; submersible in 1 meter of fresh water up to 30 minutes.
6. Powerful, front projecting speaker that transmits TDMA digital audio or 12.5/25 kHz analog audio.
7. Three side programmable buttons for easy access to favorite features. New features such as one-touch calling and quick text messaging are made even easier through programmable button access.
8. Large, textured push-to-talk button. Provides good tactile response and easy access, even when wearing gloves.
9. 32 channels.

*XPR 6350 coming soon.

Non-Display Portable Radio Standard Package

- Non-Display Portable Radio
- Antenna—Standard whip included with XPR 6300; Standard whip with GPS included with XPR 6350
- IMPRES™ Li-ion 1500 mAh Submersible Battery
- IMPRES™ Single Unit Charger
- 2.5" Belt Clip
- User Guide CD Kit (English and French Canadian)
- Two-year Standard Warranty plus one-year Repair Service Advantage (US only) / Extended Warranty (Canada only)

Additional Features

- Enhanced call management

  Encode/Decode: private call, call alert
  Encode only: emergency, push-to-talk ID
  Decode only: radio check, remote monitor, radio disable, all call

- Dual-mode analog and / or digital scan—facilitates a smooth migration from analog to digital
- Send quick text messaging via programmable buttons

MOTOTRBO™ System Components and Benefits

XPR™ 4500/4550
Display Mobile Radios

1. Accessory connector supports USB and enhanced audio capability.
2. Multi-colored LED indicators for clear, visible feedback of calling, scanning and monitoring features.
3. Large, easy-to-use volume knob.
4. XPR 4550 includes integrated GPS module.
5. 160 channels.
6. Powerful, front-projecting speaker that transmits 12.5 kHz TDMA digital audio or 12.5/25 kHz analog audio.
7. Large, easy-to-use navigation buttons allow easy access to intuitive, menu-driven interfaces.
8. Flexible, menu-driven interface with user-friendly icons or two lines of text for ease of reading text messages and navigating through the menus.
9. Four programmable buttons for easy access to favorite features. New features such as one-touch calling and text messaging are made even easier through programmable button access.
10. Compact and ergonomically friendly microphone.

Additional Features

- Enhanced call management

  Encode/decode: call alert, emergency, remote monitor, push-to-talk ID, radio check, private call, all call, radio disable
- XPR 4550 can transmit location coordinates with an emergency call
- Dual-mode analog and / or digital scan—facilitates a smooth migration from analog to digital
- Short free-form (requires keypad microphone) and quick Text Messaging Services
- Contacts list accommodates up to 256 contacts

Display Mobile Radio Standard Package

- Radio with Display Control Head
- Mounting Trunnion
- 10-Foot Power Cable
- Compact Microphone
- Replacement Button Kit: monitor, scan, backlight, emergency, talkaround, text message, contacts
- User and Installation Guide CD Kit (English and French Canadian)
- Two-year Standard Warranty plus one-year Repair Service Advantage (US only) / Extended Warranty (Canada only)

XPR™ 4300/4350*
Numeric Display Mobile Radios

1. Accessory connector supports USB and enhanced audio capability.
2. Multi-colored LED indicators for clear, visible feedback of calling, scanning and monitoring features.
3. Large, easy-to-use volume knob.
4. XPR 4350 includes integrated GPS module.
5. Large, easy-to-use channel navigation buttons.
6. Powerful, front-projecting speaker that transmits TDMA digital audio or 12.5/25 kHz analog audio.
7. 32 channels; channel number is easy to read on large, clear numeric two-digit display.
8. Two programmable buttons for easy access to favorite features. New features such as one-touch calling are made even easier through programmable button access.
9. Compact and ergonomically friendly microphone.

* XPR 4350 is coming soon.

Additional Features

- Enhanced call management

  Encode/Decode: private call, call alert
  Encode only: emergency, push-to-talk ID
  Decode only: radio check, remote monitor, radio disable, all call

- XPR 4350 can transmit location coordinates with an emergency call
- Dual-mode analog and / or digital scan—facilitates a smooth migration from analog to digital
- Send quick text messaging via programmable buttons

Numeric Display Mobile Radio Standard Package

- Radio with Numeric Display Control Head
- Mounting Trunnion
- 10-Foot Power Cable
- Compact Microphone
- Replacement Button Kit: monitor, scan
- User and Installation Guide CD Kit (English and French Canadian)
- Two-year Standard Warranty plus one-year Repair Service Advantage (US only) / Extended Warranty (Canada only)

MOTOTRBO™ System Components and Benefits

XPR™ 8300 Repeater

1. 100% continuous full duty cycle at 40 W.
2. Supports two simultaneous voice or data paths in digital TDMA mode.
3. Integrated power supply.
4. Operates in analog or digital mode—bright, clear, colored LEDs indicate mode.
5. LEDs clearly indicate transmit and receive modes in both channel slots.
6. Rack- or wall-mountable—desktop housing available as well.
7. Sturdy handles make installation and handling easier.
8. Automated battery back-up (battery sold separately).

Repeater Standard Package

- Repeater
- 120V AC Power Cord
- Installation Guide
- Two-year Standard Warranty

New Audio Accessory Connector Enables Enhanced Performance and Capabilities

Motorola digital technology enables breakthrough radio performance and features. And our new audio connector means MOTOTRBO™ accessories can offer your customers new performance and capabilities, too—now and in the future.

- Accessory programmable buttons can be programmed to any feature available in the radio, rather than being linked to radio programmable button programming. This allows the accessory programmable buttons to have independent programmable features.
- The new portable connector design meets IP57 submersibility requirements. This allows for use with submersible accessories such as the submersible remote speaker microphone.
- The new portable connector design incorporates the antenna signal within the audio connectors, which allows for easy use of accessories that require an RF signal, such as public safety speaker microphones.
- The new connector design also incorporates USB capability, which allows for the leveraging of USB technology for future accessory and application end-to-end solutions.
- The new audio accessory interface is the Motorola standard audio accessory interface for two-way mid and high-tier portable and mobile radios. Future accessory development will be based upon on this new connector interface.
- In addition, the connector incorporates the capability for enhanced audio functionality—industry unique technology that allows for communication between the radio and the audio accessory. Accessory identification is sent to the radio enabling the radio to help optimize speaker and microphone performance. This results in a more consistent audio experience across all audio accessory types.

MOTOTRBO™ Portable Radio Specifications

Display UHF

Non-GPS

XPR™ 6500

GPS

XPR™ 6550

Non-Display UHF

Non-GPS

XPR™ 6300

GPS

XPR™ 6350

General Specifications

	Display UHF XPR 6500 / XPR 6550	Non-Display UHF XPR 6300 / XPR 6350
Channel Capacity	160	32
Frequency	403-470 MHz	403-470 MHz
Dimensions (HxWxT) w/ LiIon non-FM Battery	131.5 x 63.5 x 35.2 mm	131.5 x 63.5 x 35.2 mm
Weight (with LiIon non-FM Battery) (with LiIon FM Battery) (with NiMH Battery)	12.7 oz (360 g) 13 oz (370 g) 15.2 oz (430 g)	11.63 oz (330 g) 11.98 oz (340 g) 14.09 oz (400 g)
Power Supply	7.2V nominal	7.2V nominal
FCC Description	AZ489FT4876	AZ489FT4876
IC Description	109U-89FT4876	109U-89FT4876
Average battery life at 5/5/90 duty cycle with battery saver enabled in carrier squelch and transmitter in high power.		
IMPRES 1500 mAh LiIon Battery	Analog: 9 hrs Digital: 13 hrs	Analog: 9 hrs Digital: 13 hrs
IMPRES FM 1400 mAh Battery	Analog: 8.5 hrs Digital: 12 hrs	Analog: 8.5 hrs Digital: 12 hrs
NiMH 1300 mAh Battery	Analog: 8 hrs Digital: 11 hrs	Analog: 8 hrs Digital: 11 hrs

Receiver

	Display UHF XPR 6500 / XPR 6550	Non-Display UHF XPR 6300 / XPR 6350
Frequencies	403-470 MHz	403-470 MHz
Channel Spacing	12.5 kHz/ 25 kHz	12.5 kHz/ 25 kHz
Frequency Stability (-30° C, +60° C, +25° C)	+/- 1.5 ppm (XPR 6500) +/- 0.5 ppm (XPR 6550)	+/- 1.5 ppm (XPR 6300) +/- 0.5 ppm (XPR 6350)
Analog Sensitivity (12 dB SINAD)	0.35 uV 0.22 uV (typical)	0.35 uV 0.22 uV (typical)
Digital Sensitivity	5% BER: 0.3 uV	5% BER: 0.3 uV
Intermodulation (TIA603C)	70 dB	70 dB
Adjacent Channel Selectivity TIA603 TIA603C	 60 dB @ 12.5 kHz, 70 dB @ 25 kHz 45 dB @ 12.5 kHz, 70 dB @ 25 kHz	 60 dB @ 12.5 kHz, 70 dB @ 25 kHz 45 dB @ 12.5 kHz, 70 dB @ 25 kHz
Spurious Rejection (TIA603C)	70 dB	70 dB
Rated Audio	500 mW	500 mW
Audio Distortion @ Rated Audio	3% (typical)	3% (typical)
Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz	-40 dB @ 12.5 kHz -45 dB @ 25 kHz
Audio Response	TIA603C	TIA603C
Conducted Spurious Emission (TIA603C)	-57 dBm	-57 dBm

Specifications subject to change without notice. All specifications shown are typical.
Radio meets applicable regulatory requirements.
Version 2 01/07

Transmitter

	Display UHF XPR 6500 / XPR 6550	Non-Display UHF XPR 6300 / XPR 6350
Frequencies	403-470 MHz	403-470 MHz
Channel Spacing	12.5 kHz/ 25 kHz	12.5 kHz/ 25 kHz
Frequency Stability (-30° C, +60° C, +25° C)	+/- 1.5 ppm (XPR 6500) +/- 0.5 ppm (XPR 6550)	+/- 1.5 ppm (XPR 6300) +/- 0.5 ppm (XPR 6350)
Power Output Low Power High Power	 1 W 4 W	 1 W 4 W
Modulation Limiting	+/- 2.5 kHz @ 12.5 kHz +/- 5.0 kHz @ 25 kHz	+/- 2.5 kHz @ 12.5 kHz +/- 5.0 kHz @ 25 kHz
FM Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz	-40 dB @ 12.5 kHz -45 dB @ 25 kHz
Conducted / Radiated Emission	-36 dBm < 1 GHz -30 dBm > 1 GHz	-36 dBm < 1 GHz -30 dBm > 1 GHz
Adjacent Channel Power	60 dB @ 12.5 kHz 70 dB @ 25 kHz	60 dB @ 12.5 kHz 70 dB @ 25 kHz
Audio Response	TIA603C	TIA603C
Audio Distortion	3%	3%
FM Modulation	12.5 kHz: 11K0F3E 25 kHz: 16K0F3E	12.5 kHz: 11K0F3E 25 kHz: 16K0F3E
4FSK Digital Modulation	12.5 kHz Data Only: 7K60FXD 12.5 kHz Data & Voice: 7K60FXE	12.5 kHz Data Only: 7K60FXD 12.5 kHz Data & Voice: 7K60FXE
Digital Vocoder Type	AMBE++	AMBE++
Digital Protocol	ETSI-TS102 361-1	ETSI-TS102 361-1

GPS

Accuracy specs are for long-term tracking (95th percentile values > 5 satellites visible at a nominal -130 dBm signal strength)		
TTFF (Time To First Fix) Cold Start	< 1 minute	< 1 minute
TTFF (Time To First Fix) Hot Start	< 10 seconds	< 10 seconds
Horizontal Accuracy	< 10 meters	< 10 meters

Military Standards

Applicable MIL–STD	810E		810F	
	Methods	Procedures	Methods	Procedures
Low Pressure	500.3	II	500.4	II
High Temperature	501.3	I/A, II/A1	501.4	I/Hot, II/Hot
Low Temperature	502.3	I/C3, II/C1	502.4	I/C3, II/C1
Temperature Shock	503.3	I/A, 1C3	503.4	I
Solar Radiation	505.3	I	505.4	I
Rain	506.3	I,II	506.4	I, III
Humidity	507.3	II	507.4	-
Salt Fog	509.3	I	509.4	I
Dust	510.3	I	510.4	I
Vibration	514.4	I/10, II/3	514.5	I/24
Shock	516.4	I, IV	516.5	I, IV

Environmental Specifications

Operating Temperature*	-30° C / +60° C
Storage Temperature	-40° C / +85° C
Thermal Shock	Per MIL-STD
Humidity	Per MIL-STD
ESD	IEC-801-2KV
Water Intrusion	IEC 60529 - IP57
Packaging Test	MIL-STD 810D and E

* With Lilon battery, operating temperature specification is -10° C / +60° C.
With NiMH battery, operating temperature specification is -20° C / +60° C.

Factory Mutual Approvals

MOTOTRBO XPR Portable series radios have been certified by FM Approvals in accordance with Canada and U.S. Codes as intrinsically safe for use in Class I, II, III, Division 1, Groups C,D,E,F,G, when properly equipped with a Motorola FM approved battery option. They are also approved for use in Class I, Division 2, Groups A, B, C, D.

FM C US APPROVED

Specifications subject to change without notice. All specifications shown are typical.
Radio meets applicable regulatory requirements.
Version 2 01/07

MOTOROLA ORIGINAL

MOTOTRBO™ Mobile Radio Specifications

Display UHF

Non-GPS

XPR™ 4500

GPS

XPR™ 4550

Numeric Display UHF

Non-GPS

XPR™ 4300

GPS

XPR™ 4350

General Specifications

	Display UHF XPR 4500 / XPR 4550	Numeric Display UHF XPR 4300 / XPR 4350
Channel Capacity	160	32
Typical RF Output Low Power High Power	 1-25 W 25-40 W	 1-25 W 25-40 W
Frequency	403-470 MHz	403-470 MHz
Dimensions (HxWxL)	2.01 x 6.89 x 8.11 in (51 x 175 x 206 mm)	2.01 x 6.89 x 8.11 in (51 x 175 x 206 mm)
Weight	4.0 lbs. (1.8 kg)	4.0 lbs. (1.8 kg)
Current Drain: Standby Rx @ Rated Audio Transmit	 0.81 A max 2 A max 1-25 W: 11.0 A max 25-40 W*: 14.5 A max	 0.81 A max 2 A max 1-25 W: 11.0 A max 25-40 W*: 14.5 A max
FCC Description	1-25 W: ABZ99FT4081 25-40 W*: ABZ99FT4080	1-25 W: ABZ99FT4081 25-40 W*: ABZ99FT4080
IC Description	1-25 W: 109AB-99FT4081 25-40 W*: 109AB-99FT4080	1-25 W: 109AB-99FT4081 25-40 W*: 109AB-99FT4080

Receiver

	Display UHF XPR 4500 / XPR 4550	Numeric Display UHF XPR 4300 / XPR 4350
Frequencies	403-470 MHz	403-470 MHz
Channel Spacing	12.5 kHz / 25 kHz	12.5 kHz / 25 kHz
Frequency Stability (-30° C, +60° C, +25° C)	+/- 1.5 ppm (XPR 4500) +/- 0.5 ppm (XPR 4550)	+/- 1.5 ppm (XPR 4300) +/- 0.5 ppm (XPR 4350)
Analog Sensitivity (12dB SINAD)	0.3 uV 0.22 uV (typical)	0.3 uV 0.22 uV (typical)
Digital Sensitivity	5% BER: 0.3 uV	5% BER: 0.3 uV
Intermodulation (TIA603C)	75 dB	75 dB
Adjacent Channel Selectivity TIA603 TIA603C	 65 dB @ 12.5 kHz, 75 dB @ 25 kHz 50 dB @ 12.5 kHz, 75 dB @ 25 kHz	 65 dB @ 12.5 kHz, 75 dB @ 25 kHz 50 dB @ 12.5 kHz, 75 dB @ 25 kHz
Spurious Rejection (TIA603C)	75 dB	75 dB
Rated Audio	3 W (Internal) 7.5 W (External - 8 ohms) 13 W (External - 4 ohms)	3 W (Internal) 7.5 W (External - 8 ohms) 13 W (External - 4 ohms)
Audio Distortion @ Rated Audio	3% (typical)	3% (typical)
Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz	-40 dB @ 12.5 kHz -45 dB @ 25 kHz
Audio Response	TIA603C	TIA603C
Conducted Spurious Emission (TIA603C)	-57 dBm	-57 dBm

*25-40 W model coming soon

Specifications subject to change without notice. All specifications shown are typical.
Radio meets applicable regulatory requirements.
Version 2 01/07

Transmitter

	Display UHF XPR 4500 / XPR 4550	Numeric Display UHF XPR 4300 / XPR 4350
Frequencies	403-470 MHz	403-470 MHz
Channel Spacing	12.5 kHz / 25 kHz	12.5 kHz / 25 kHz
Frequency Stability (-30° C, +60° C, +25° C)	+/- 1.5 ppm (XPR 4500) +/- 0.5 ppm (XPR 4550)	+/- 1.5 ppm (XPR 4300) +/- 0.5 ppm (XPR 4350)
Power Output Low Power High Power	 1-25 W 25-40 W	 1-25 W 25-40 W
Modulation Limiting	+/- 2.5 kHz @ 12.5 kHz +/- 5.0 kHz @ 25 kHz	+/- 2.5 kHz @ 12.5 kHz +/- 5.0 kHz @ 25 kHz
FM Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz	-40 dB @ 12.5 kHz -45 dB @ 25 kHz
Conducted / Radiated Emission	-36 dBm < 1 GHz -30 dBm > 1 GHz	-36 dBm < 1 GHz -30 dBm > 1 GHz
Adjacent Channel Power (TIA603C)	60 dB @ 12.5 kHz 70 dB @ 25 kHz	60 dB @ 12.5 kHz 70 dB @ 25 kHz
Audio Response	TIA603C	TIA603C
Audio Distortion	3%	3%
FM Modulation	12.5 kHz: 11K0F3E 25 kHz: 16K0F3E	12.5 kHz: 11K0F3E 25 kHz: 16K0F3E
4FSK Digital Modulation	12.5 kHz Data Only: 7K60FXD 12.5 kHz Data & Voice: 7K60FXE	12.5 kHz Data Only: 7K60FXD 12.5 kHz Data & Voice: 7K60FXE
Digital Vocoder Type	AMBE++	AMBE++
Digital Protocol	ETSI-TS102 361-1	ETSI-TS102 361-1

GPS

Accuracy specs are for long-term tracking (95th percentile values > 5 satellites visible at a nominal -130 dBm signal strength).	
TTFF (Time to First Fix) Cold Start	< 1 minute
TTFF (Time to First Fix) Hot Start	< 10 seconds
Horizontal Accuracy	< 10 meters

Military Standards

Applicable MIL-STD	810E		810F	
	Methods	Procedures	Methods	Procedures
Low Pressure	500.3	II	500.4	II
High Temperature	501.3	I/A, II/A1	501.4	I/Hot, II/Hot
Low Temperature	502.3	I/C3,II/C1	502.4	I/C3,II/C1
Temperature Shock	503.3	I/A1C3	503.4	I
Solar Radiation	505.3	I	505.4	I
Rain	506.3	I,II	506.4	I, III
Humidity	507.3	II	507.4	-
Salt Fog	509.3	I	509.4	I
Dust	510.3	I	510.4	I
Vibration	514.4	I/10, II/3	514.5	I/24
Shock	516.4	I, IV	516.5	I, IV

Environmental Specifications

Operating Temperature	-30° C / +60° C
Storage Temperature	-40° C / +85° C
Temperature Shock	Per MIL-STD
Humidity	Per MIL-STD
ESD	IEC 801-2 KV
Water and Dust Intrusion	IP54, MIL-STD

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Radio meets applicable regulatory requirements.
Version 2 01/07

MOTOTRBO™ Repeater Specifications

UHF

XPR™ 8300

General Specifications

	UHF – XPR 8300
Channel Capacity	1
Technical RF Output	25-40 W
Frequency	403-470 MHz
Dimensions (HxWxL)	5.22 x 19 x 11.67 in (132.6 x 482.6 x 296.5 mm)
Weight	31 lbs (14 kg)
Voltage Requirements	100-240 V AC (13.6 V DC)
Current Drain: Standby	1 A (1 A DC typical)
Transmit	3.8 A (11 A DC typical)
Operating Temperature Range	-30°C to +60°C
Max Duty Cycle	100%
FCC Description	ABZ99FT4025
IC Description	109AB-99FT4025

Receiver

	UHF – XPR 8300
Frequencies	403-470 MHz
Channel Spacing	12.5 kHz / 25 kHz
Frequency Stability (-30° C, +60° C, +25° C)	+/- 0.5 ppm
Analog Sensitivity (12 dB SINAD)	0.30 uV 0.22 uV (typical)
Digital Sensitivity	5% BER: 0.3 uV
Intermodulation (TIA603C)	75 dB
Adjacent Channel Selectivity TIA603 TIA603C	 65 dB @ 12.5 kHz, 75 dB @ 25 kHz 50 dB @ 12.5 kHz, 75 dB @ 25 kHz
Spurious Rejection	75 dB
Audio Distortion @ Rated Audio	3% (typical)
Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz
Audio Response	TIA603C
Conducted Spurious Emission	-57 dBm

Transmitter

	UHF – XPR 8300
Frequencies	403-470 MHz
Channel Spacing	12.5 kHz / 25 kHz
Frequency Stability (-30° C, +60° C, +25° C)	+/- 0.5 ppm
Power Output	25-40 W
Modulation Limiting	+/- 2.5 kHz @ 12.5 kHz +/- 5.0 kHz @ 25 kHz
FM Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz
Conducted / Radiated Emission	-36 dBm < 1 GHz -30 dBm > 1 GHz
Adjacent Channel Power (TIA603C)	60 dB @ 12.5 kHz 70 dB @ 25 kHz
Audio Response	TIA603C
Audio Distortion	3%
FM Modulation	12.5 kHz: 11K0F3E 25 kHz: 16K0F3E
4FSK Digital Modulation	12.5 kHz Data Only: 7K60FXD 12.5 kHz Data & Voice: 7K60FXE
Digital Vocoder Type	AMBE++
Digital Protocol	ETSI-TS102 361-1

Specifications subject to change without notice. All specifications shown are typical.
Radio meets applicable regulatory requirements.
Version 2 01/07

IMPRES™ Smart Energy System—A Unique Battery Charging and Reconditioning Solution

IMPRES Smart Energy system automates battery maintenance, optimizes cycle life and maximizes talk time—so you can offer a radio system that's charged and ready to go whenever your customers need it.

No manual battery maintenance—Forget tracking and recording battery use. IMPRES uses a unique communications protocol to facilitate adaptive reconditioning that diminishes the memory effect that results when batteries are continually charged before they're fully discharged. No guesswork, no time wasted reconditioning batteries prematurely.

Optimized cycle life—IMPRES batteries may be left in IMPRES chargers for extended periods without heat damage. So IMPRES is ideal for applications requiring that batteries be always in a ready state.

Chargers that communicate—IMPRES multi-unit chargers are available with a two-line display module. This informs your customers of battery capacity and voltage while charging, time remaining to complete the rapid recharge process (NiCad and NiMH only), current battery status, as well as each battery's serial number, kit number and chemistry.

Charger compatibility with non-IMPRES batteries—Yet another way MOTOTRBO enables easy migration from legacy systems.

Extended battery warranties—When used exclusively with IMPRES chargers, IMPRES batteries have six months more capacity warranty coverage than Motorola Premium batteries.

MOTOROLA ORIGINAL