MOTOTRBO R7
PORTABLE TWO-WAY RADIOS

MOTOTRBO™ R7 is a digital portable two-way radio that offers game-changing audio capabilities in a rugged, future-ready device. Its advanced audio processing ensures that your communications are loud and clear, while its rugged construction is ready for harsh environments, and advanced connectivity options get your workforce ready for tomorrow.

KEY FEATURES

- UHF, VHF, 800/900 MHz
- Wi-Fi 2.4/5.0 GHz
- WPA3 Wi-Fi security protocol compliant
- Bluetooth 5.2
- 2.4" 320 x 240 px. QVGA display
- Modern, intuitive user experience
- Full suite of accessories
- Sleek and ergonomic form factor

- Automatic Acoustic Feedback Suppression
- Adaptive Dual Microphone Noise Suppression
- Intelligent Audio
- IMPRES™ technology
- Programmable loudness up 107 phons
- Wideband speaker and microphones
- Simple audio configuration
- Up to 28 hours of battery life[1]

- IP68 (waterproof up to 2 meters for 2 hours)
- IP66 (concentrated water jet pressure)
- Intrinsically safe option (UL TIA-4950)
- Disinfectant and decontamination substance resistant housing[2]
- Robust and corrosion-proof side connector
- Rugged to MIL-STD 810
- 5 years of hardware repair, technical support, software updates and premium features

[1] Typical battery life, 5/5/90 profile at maximum transmitter power with GNSS, Bluetooth, Wi-Fi and Option Board applications disabled. Actual observed runtimes may vary.
[2] Please refer to the MOTOTRBO R7 user manual for a list of approved disinfectants and decontamination substances.

MOTOROLA SOLUTIONS

SPECIFICATIONS

GENERAL SPECIFICATIONS						
	FULL KEYPAD MODEL (FKP)			**NO KEYPAD MODEL (NKP)**		
Band	UHF	VHF	800 / 900	UHF	VHF	800 / 900
Frequency	400-527 MHz	136-174 MHz	806-825 MHz, 851-870 MHz, 896-902 MHz, 935-941 MHz	400-527 MHz	136-174 MHz	806-825 MHz, 851 -870 MHz, 896-902 MHz, 935-941 MHz
High Power Output	4 W	5 W	2.5 W	4 W	5 W	2.5 W
Low Power Output	1 W					
Channel Spacing	12.5 kHz, 20 kHz, 25 kHz[1]					
Channel Capacity	1000 Channels			64 Channels		
Display	2.4" 320 x 240 px. QVGA display, with up to 10 lines of text			N/A		
FCC Description	AZ489FT7143	AZ489FT7144	AZ489FT7169	AZ489FT7143	AZ489FT7144	AZ489FT7169
IC Description	109U-89FT7143	109U-89FT7144	109U-89FT7169	109U-89FT7143	109U-89FT7144	109U-89FT7169
Power Supply (Nominal)	7.5 V					
MOTOTRBO R7 with 2200 mAh Slim IMPRES Li-Ion battery (PMNN4807)						
Dimensions (H x W x D)	5.2 x 2.2 x 1.4 in. (131.8 x 56 x 34.7 mm)			5.2 x 2.2 x 1.2 in. (131.8 x 56 x 31.3 mm)		
Weight[2]	11 oz (316 g)			10 oz (289 g)		
Digital / Analog Battery Life[3]	19 / 14.5 hrs	20 / 15 hrs	19/15.5 hrs	19 / 14.5 hrs	20 / 15 hrs	19/15.5 hrs
Operating Temperature	-4 °F to 140 °F (-20 °C to 60 °C)					
MOTOTRBO R7 with 2850 mAh IMPRES Li-Ion battery (PMNN4809)						
Dimensions (H x W x D)	5.2 x 2.2 x 1.4 in. (131.8 x 56 x 34.7 mm)			5.2 x 2.2 x 1.2 in. (131.8 x 56 x 31.3 mm)		
Weight[2]	12 oz (333 g)			11 oz (306 g)		
Digital / Analog Battery Life[3]	25 / 19 hrs	26 / 19.5 hrs	25/20.5 hrs	25 / 19 hrs	26 / 19.5 hrs	25/20.5 hrs
Operating Temperature	-4 °F to 140 °F (-20 °C to 60 °C)					
MOTOTRBO R7 with 3200 mAh HazLoc IMPRES Li-Ion battery (PMNN4810)						
Dimensions (H x W x D)	5.2 x 2.2 x 1.6 in. (131.8 x 56 x 40.7 mm)			5.2 x 2.2 x 1.5 in. (131.8 x 56 x 37.3 mm)		
Weight[2]	13 oz (366 g)			12 oz (339 g)		
Digital / Analog Battery Life[3]	28 / 21.5 hrs	29 / 22 hrs	27.5/22 hrs	28 / 21.5 hrs	29 / 22 hrs	27.5 / 22 hrs
Operating Temperature	-4 °F to 140 °F (-20 °C to 60 °C)					

[1] 25 kHz channels not available in USA.
[2] Radio weight information is exclusive of General Option Board and antenna.
[3] Typical battery life, 5/5/90 profile at maximum transmitter power with GNSS, Bluetooth, Wi-Fi and Option Board applications disabled. Actual observed runtimes may vary.

Specifications are subject to change without notice. All specifications shown are typical values.

SPECIFICATIONS

TRANSMITTER SPECIFICATIONS

Channel Spacing	12.5 kHz, 25 kHz[1]
4FSK Digital Modulation	• 12.5 kHz Data Only: 7K60F1D & 7K60FXD • 12.5 kHz Data & Voice: 7K60F1E & 7K60FXE • Combination of 12.5 kHz Voice and Data: 7K60F1W
Digital Protocol	• ETSI TS 102 361-1, -2, -3, -4 • DMR Tier II, III
Conducted/Radiated Emissions (TIA603D)	• -36 dBm < 1 GHz • -30 dBm > 1 GHz
Adjacent Channel Power	• 60 dB @ 12.5 kHz • 70 dB @ 25 kHz[1]
Frequency Stability	+/-0.5 ppm

RECEIVER SPECIFICATIONS

Analog Sensitivity (12dB SINAD)	0.16 µV (0.21uV for 800/900 band)
Digital Sensitivity (5% BER)	0.14 µV (0.18uV for 800/900 band)
Intermodulation (TIA603D)	70 dB
Adjacent Channel Selectivity, (TIA603A)-1T	• 60 dB @ 12.5 kHz • 70 dB @ 25 kHz[1]
Adjacent Channel Selectivity, (TIA603D)-2T	• 45 dB @ 12.5 kHz • 70 dB @ 25 kHz[1]
Spurious Rejection (TIA603D)	70 dB

GNSS SPECIFICATIONS

Constellation Support	GPS, GLONASS, BEIDOU, GALILEO
Time To First Fix, Cold Start	≤ 60 seconds
Time To First Fix, Hot Start	≤10 seconds
Horizontal Accuracy	< 5 meters

WI-FI SPECIFICATIONS

Frequency Range	2.4 GHz, 5 GHz
Standards Supported	Wi-Fi 5 / IEEE 802.11a/b/g/n/ac
Security Protocol Supported	WPA-3, WPA-2
Maximum Number of SSIDs	128 (64 for NKP Models)

HAZLOC CERTIFICATION

ANSI/TIA 4950 and CAN/CSA C22.2 No. 157-92 as intrinsically safe for use in Class I, II, III, Division 1, Groups C, D, E, F, G, Division 2, Groups A, B, C, D

SERVICE COVERAGE

Included: Hardware repair, technical support, software updates and premium features (5 years)	
Optional: Accidental damage (5 years)	

BLUETOOTH SPECIFICATIONS

Version	5.2
Range	Class 2, 33 ft (10 m)
Supported Profiles	Bluetooth Headset Profile (HSP), Serial Port Profile (SPP), Personal Area Network (PAN), Generic Attributes (GATT), In-door location (Bluetooth LE Passive Scanning)
Simultaneous Connections	1 audio accessory and up to 4 data devices

AUDIO SPECIFICATIONS

Digital Vocoder Type	AMBE+2
Audio Response (TIA603D)	+1, -3 dB
Audio Output Power (Rated/Max)	1 W / 3 W
Audio Distortion at Rated Audio	≤1.5%
Maximum Speech Loudness by Default (ISO5326)	102 phon @ 30 cm
Maximum Programmable Speech Loudness (Extra Loud Mode, Level 3)	107 phon @ 30cm
Hum and Noise	• -40 dB @ 12.5 kHz • -45 dB @ 25 kHz[1]
Conducted Spurious Emissions (TIA603D)	-57 dBm

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature[2]	-22 °F to 140 °F (-30 °C to 60 °C)
Storage Temperature	-40 °F to 185 °F (-40 °C to 85 °C)
Thermal Shock	Per MIL-STD
Humidity	Per MIL-STD
Electrostatic Discharge	IEC 61000-4-2 Level 4
Dust and Water Intrusion	IP68 (Submersion up to 2m, 2hrs) IP66 for high pressure-water resistance per IEC 60529
Salt Fog	5% NaCl for 8 hrs at 35 °C, 16 hrs standing
Packaging Test	MIL-STD 810D and E

MILITARY STANDARDS (MIL-STD 810)

	MIL-STD 810C		MIL-STD 810D		MIL-STD 810E		MIL-STD 810F		MIL-STD 810G		MIL-STD 810H	
	METHOD	PROCEDURE	METHOD	PROCEDURE	METHOD	PROCEDURE	METHOD	PROCEDURE	METHOD	PROCEDURE	METHOD	PROCEDURE
Low Pressure	500.1	I	500.2	II	500.3	II	500.4	II	500.6	II	500.6	II
High Temp	501.1	I, II	501.2	I/A1, II/A1	501.3	I/A1, II/A1	501.4	I/Hot, II/Hot	501.6	I/A1, II/A1	501.7	I/A1, II/A1
Low Temp	502.1	I	502.2	I, II	502.3	I, II	502.4	I, II	502.6	I, II	502.7	I, II
Temp Shock	503.1	I	503.2	A1/C3	503.3	A1/C3	503.4	I	503.6	I-C	503.7	I-C
Solar Radiation	505.1	II	505.2	I/A1	505.3	I/A1	505.4	I/A1	505.6	I/A1	505.7	I/A1
Rain	506.1	I, II	506.2	I, II	506.3	I, II	506.4	I, III	506.6	I, III	506.6	I, III
Humidity	507.1	II	507.2	II	507.3	II	507.4	-	507.6	II/Aggravated	507.6	II/Aggravated
Salt Fog	509.1	I	509.2	I	509.3	I	509.4	-	509.6	-	509.7	-
Blowing Dust & Sand	510.1	I / -	510.2	I, II	510.3	I, II	510.4	I, II	510.6	I, II	510.7	I, II
Vibration	514.2	VIII/CatF, XI	514.3	I/Cat10, II/Cat3	514.4	I/Cat10, III/Cat3	514.5	I/Cat24, II/Cat5	514.7	I/Cat24, II/Cat5	514.8	I/Cat24, II/Cat5
Shock	516.2	I, II	516.3	I, IV	516.4	I, IV	516.5	I, IV	516.7	I, IV	516.8	I, IV
Contamination by Fluids[3]									504.2	II	504.3	2.2.6 b

[1] 25 kHz channels not available in USA.

[2] Radio only. Battery requires -20 °C minimal operating temperature.

[3] Please refer to the MOTOTRBO R7 user manual for a list of approved disinfectants and decontamination substances.

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FEATURE COMPATIBILITY

	R7 FKP	R7 NKP
GENERAL		
UHF Band 4 W, VHF Band 5 W	•	•
Full Keypad	•	–
Color Screen	•	–
Analog and Digital	•	•
Voice and Data	•	•
Integrated Wi-Fi	○	○
Canned Text Messaging	•	•
Freeform Text Messaging	•	–
Text to Speech	○	○
Work Order Ticketing	•	–
Indoor Location Tracking	○	○
Event-Driven Location Update	○	○
Outdoor Location Tracking	○	○
Bluetooth Audio	○	○
Bluetooth Data	○	○
Voice Announcement	•	•
Home Channel Reminder	•	•
Option Board	○	○
Late Entry	•	•
Priority Scan	•	•
Real-Time Clock	•	•
Audio Recording/Playback	○	○
Secure Linux Operating System	•	•
M-Radio Control App	○	○
AUDIO		
Intelligent Audio in Analog and Digital	•	•
IMPRES Audio	•	•
Automatic Acoustic Feedback Suppressor	•	•
Microphone Distortion Control	•	•
User-Selectable Audio Profile	•	•
Trill Enhancement	•	•
Advanced Dual Microphone Noise Suppression[1]	•	•
Single Microphone Noise Cancellation	–	–
SYSTEMS		
Dual Capacity Direct Mode	•	•
Conventional	•	•
IP Site Connect	•	•
Capacity Plus Single/Multi Site	○	○
Capacity Max	○	○

	R7 FKP	R7 NKP
MANAGEMENT		
CPS 2.0 and Radio Management	•	•
Over-the-Air Programming	•	•
Over-the-Air Software Update	•	•
IMPRES Energy	○	○
IMPRES Battery Management	○	○
Over-the-Air Battery Management	○	○
SAFETY		
Sensor Integration	○	○
Integrated Accelerometer	•	•
Man Down / Fall Alert[2]	○	○
Lone Worker	•	•
Basic Privacy	•	•
Enhanced Privacy	○	○
Transmit Interrupt	○	○
Digital Emergency	•	•
Emergency Search Tone	•	•
Remote Monitor	•	•
Radio Disable / Enable	•	•
IP68 (waterproof up to 2 meters for 2 hours)	•	•
IP66 (concentrated water jet pressure)	•	•
Rugged to MIL-STD 810	•	•
Secure Processor	•	•
Digital Certificates	•	•
CUSTOMIZATION		
GCAI-Mini Accessory Port	•	•
6 Programmable Buttons	•	–
4 Programmable Buttons	–	•
Day/Night Screen Mode	•	–
Action List	•	–
Emergency Button	•	•
Label Recess	•	•
Option Board	○	○

• Included
○ Optional
– Not Included

[1] Noise suppression method differs between accessories.

[2] Is available in both NKP & FKP in NA.

Specifications are subject to change without notice. All specifications shown are typical values.

For more information, please visit
motorolasolutions.com/R7

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