

MOTOTRBO™ R7 portable two-way radios

MOTOTRBO R7 digital portable radios offer game-changing audio capabilities in a rugged, dependable and connected device. Its advanced audio processing ensures that your communications are loud and clear, while its rugged construction is ready for the toughest environments.



Key features

- UHF/VHF/350 MHz/800 MHz
- Wi-Fi 2.4/5.0 GHz
- WPA3 Wi-Fi security protocol compliant
- Bluetooth® Core Version 5.2
- Digital and analogue signalling
- WAVE PTX™ Backup Client with Seamless Voice Handover
- 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 Cancellation
- AI-trained Noise Suppression
- Intelligent Audio
- IMPRES™ technology
- Programmable loudness up to 107 phons
- Wideband speaker and microphones
- Simple audio configuration
- Up to 28 hours of battery life¹
- IP68 (waterproof up to 2 m for 2 hours)
- IP66 (concentrated water jet pressure)
- Intrinsically safe option (UL TIA-4950)
- Disinfectant and decontamination substance resistant housing²
- Robust and corrosion-proof side connector
- Rugged to MIL-STD 810



Specifications

GENERAL SPECIFICATIONS

	R7 FULL KEYPAD MODEL (FKP)				R7 AND R7A NO KEYPAD MODEL (NKP)			
Band	VHF	350 MHz	UHF	800 MHz	VHF	350 MHz	UHF	800 MHz
Frequency	136-174 MHz	350-400 MHz	400-527 MHz	806-825 MHz, 851-870 MHz	136-174 MHz	350-400 MHz ⁶	400-527 MHz	806-825 MHz, 851-870 MHz
High Power Output	5 W	4 W	4 W	2.5 W	5 W	4 W	4 W	2.5 W
Low Power Output	1 W							
Channel Spacing	12.5 kHz, 20 kHz ⁶ , 25 kHz							
Channel Capacity	1,000 Channels				64 Channels			
Display	2.4" 320 x 240 px. QVGA display, with up to 10 lines of text				N/A			
Power Supply (Nominal)	7.5 V							

MOTOTRBO R7 WITH 2200 MAH SLIM IMPRES LI-ION BATTERY (PMNN4807)

Dimensions (h x w x d)	131.8 x 56 x 34.7 mm (5.2 x 2.2 x 1.4 in.)				131.8 x 56 x 31.3 mm (5.2 x 2.2 x 1.2 in.)			
Weight ³	316 g (11 oz)				289 g (10 oz)			
Digital / Analogue Battery Life ¹	20 / 15 hrs	19 / 14.5 hrs	19 / 14.5 hrs	19 / 15.5 hrs	20 / 15 hrs	19 / 14.5 hrs	19 / 14.5 hrs	19 / 15.5 hrs
Operating Temperature	-20 °C to 60 °C (-4 °F to 140 °F)							

MOTOTRBO R7 WITH 2450 MAH LI-ION BATTERY (PMNN4808)

Dimensions (h x w x d)	131.8 x 56 x 40.7 mm (5.2 x 2.2 x 1.6 in.)				131.8 x 56 x 37.3 mm (5.2 x 2.2 x 1.5 in.)			
Weight ³	346 g (12 oz)				319 g (11 oz)			
Digital / Analogue Battery Life ¹	22 / 17 hrs	21.5 / 16.5 hrs	21.5 / 16.5 hrs	21.5 / 17.5 hrs	22 / 17 hrs	21.5 / 16.5 hrs	21.5 / 16.5 hrs	21.5 / 17.5 hrs
Operating Temperature	-20 °C to 60 °C (-4 °F to 140 °F)							

MOTOTRBO R7 WITH 2850 MAH IMPRES LI-ION BATTERY (PMNN4809)

Dimensions (h x w x d)	131.8 x 56 x 34.7 mm (5.2 x 2.2 x 1.4 in.)				131.8 x 56 x 31.3 mm (5.2 x 2.2 x 1.2 in.)			
Weight ³	333 g (12 oz)				306 g (11 oz)			
Digital / Analogue Battery Life ¹	26 / 19.5 hrs	25 / 19 hrs	25 / 19 hrs	25 / 20.5 hrs	26 / 19.5 hrs	25 / 19 hrs	25 / 19 hrs	25 / 20.5 hrs
Operating Temperature	-20 °C to 60 °C (-4 °F to 140 °F)							

MOTOTRBO R7 WITH 3200 MAH HAZLOC IMPRES LI-ION BATTERY (PMNN4810)

Dimensions (h x w x d)	131.8 x 56 x 40.7 mm (5.2 x 2.2 x 1.6 in.)				131.8 x 56 x 37.3 mm (5.2 x 2.2 x 1.5 in.)			
Weight ³	366 g (13 oz)				339 g (12 oz)			
Digital / Analogue Battery Life ¹	29 / 22 hrs	28 / 21.5 hrs	28 / 21.5 hrs	27.5 / 22 hrs	29 / 22 hrs	28 / 21.5 hrs	28 / 21.5 hrs	27.5 / 22 hrs
Operating Temperature	-20 °C to 60 °C (-4 °F to 140 °F)							

HAZLOC CERTIFICATION

ANSI/TIA 4950 and CAN/CSA C22.2 No. 157-92 certified 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 when properly equipped with Motorola UL-Approved battery

MARITIME CERTIFICATION

R7 UHF models are maritime certified to EN 300 720 V2.1.1 and IEC / EN 60945:2002 standards for use on board vessels



Specifications

TRANSMITTER SPECIFICATIONS													
FM Modulation	12.5 kHz: 11K0F3E 20 / 25 kHz: 16K0F3E												
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 and DMR Tier III												
Conducted/Radiated Emissions (TIA603E / ANSI C63.26, C63.4)	-36 dBm < 1 GHz -30 dBm > 1 GHz												
Adjacent Channel Power (TIA603E)	60 dB @ 12.5 kHz 70 dB @ 20 kHz / 25 kHz												
Frequency Stability	± 0.5 ppm												
Modulation limiting (TIA603E)	± 2.5 kHz @ 12.5 kHz ± 4.0 kHz @ 20 kHz ± 5.0 kHz @ 25 kHz												
RECEIVER SPECIFICATIONS													
Analogue Sensitivity (12dB SINAD)	0.16 µV (0.21µV for 800 MHz models)												
Digital Sensitivity (5% BER)	0.14 µV (0.18µV for 800 MHz models)												
Conducted Spurious Emissions (TIA603E)	< -57 dBm for < 1 GHz < -47 dBm for > 1 GHz												
Intermodulation (TIA603E)	70 dB												
Adjacent Channel Selectivity, (TIA603A)-1T	60 dB @ 12.5 kHz 70 dB @ 20 kHz / 25 kHz												
Adjacent Channel Selectivity, (TIA603D)-2T	45 dB @ 12.5 kHz 70 dB @ 20 kHz / 25 kHz												
Spurious Rejection (TIA603E)	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 m												
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												
Roaming Protocol Supported	IEEE 802.11k/v/r												
Maximum Number of SSIDs	128 (64 for NKP Models)												
MILITARY STANDARDS													
	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 Fluids²									504.2	II	504.3	2.2.6 b	

SERVICE COVERAGE	
Included: Hardware repair, technical support, software updates and premium features (5 years)	
Optional: Accidental damage (5 years)	
BLUETOOTH SPECIFICATIONS	
Bluetooth Technology	Bluetooth, Bluetooth Classic, Bluetooth LE, Bluetooth Dual Mode
Core Version	Qualified against Bluetooth Core 5.2
Range	Class 2, 10 m (33 ft)
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 (TIA603E / ANSI C63.26)	+1, -3 dB
Audio Output Power (Rated/Max)	1 W / 3 W
Audio Distortion at Rated Audio	≤1.5%
Maximum Speech Loudness by Default (ISO532B)	102 phon @ 30 cm
Maximum Programmable Speech Loudness (Extra Loud Mode, Level 3)	107 phon @ 30 cm
Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 20 kHz / 25 kHz
ENVIRONMENTAL SPECIFICATIONS	
Operating Temperature⁴	-30 °C to 60 °C (-22 °F to 140 °F)
Storage Temperature	-40 °C to 85 °C (-40 °F to 185 °F)
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



Features

R7 is available with full keypad and no keypad versions. R7a is available only as no keypad versions.

	R7 FULL KEYPAD		R7 NO KEYPAD		R7a
	Enabled	Capable	Enabled	Capable	NO KEYPAD
GENERAL					
VHF 5 W, UHF / 350MHz 4 W, 800 MHz 2.5 W	●	●	●	●	●
Full Keypad	●	●	–	–	–
Colour Screen	●	●	–	–	–
Analogue 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 ⁷	●	●	●	●	–
Outdoor Location Tracking	●	○	●	○	–
Bluetooth Audio	●	○	●	○	–
Bluetooth Data	●	○	●	○	–
Voice Announcement	●	●	●	●	●
Home Channel Reminder	●	●	●	●	●
Late Entry	●	●	●	●	●
Priority Scan	●	●	●	●	●
Real-Time Clock	●	●	●	●	–
Audio Recording/Playback	○	○	○	○	–
Secure Linux Operating System	●	●	●	●	●
M-Radio Control App	○	○	○	○	–
WAVE PTX Backup Client ⁸	○	○	○	○	–
AUDIO					
Intelligent Audio in Analogue and Digital	●	●	●	●	●
IMPRES Audio	●	●	●	●	●
Received Audio Levelling	●	●	●	●	●
Automatic Acoustic Feedback Suppressor	●	●	●	●	●
Microphone Distortion Control	●	●	●	●	●
User-Selectable Audio Profile	●	●	●	●	●
Trill Enhancement	●	●	●	●	●
AI-trained Noise Suppression	●	●	●	●	●
Advanced Dual Microphone Noise Suppression ⁵	●	●	●	●	–
Single Microphone Noise Cancellation	–	–	–	–	●
SYSTEMS					
Dual Capacity Direct Mode	●	●	●	●	●
Conventional	●	●	●	●	●
IP Site Connect	●	●	●	●	●
Capacity Plus Single/Multi Site	●	●	●	●	●
Capacity Max	○	○	○	○	○

	R7 FULL KEYPAD		R7 NO KEYPAD		R7a
	Enabled	Capable	Enabled	Capable	NO KEYPAD
MANAGEMENT					
CPS 2.0 and Radio Management	●	●	●	●	●
Over-the-Air Programming (via DMR)	●	●	●	●	●
Over-the-Air Software Update (via Wi-Fi)	●	●	●	●	–
IMPRES Energy	○	○	○	○	○
IMPRES Battery Management	○	○	○	○	○
Over-the-Air Battery Management	○	○	○	○	○
SAFETY					
Emergency Button	●	●	●	●	●
Man Down / Fall Alert	●	○	●	○	–
Lone Worker	●	●	●	●	●
IP68 (waterproof up to 2 m for 2 hours)	●	●	●	●	●
IP66 (concentrated water jet pressure)	●	●	●	●	●
Rugged to MIL-STD 810	●	●	●	●	●
Disinfectant / Decontamination Resistant ²	●	●	●	●	●
Sensor Integration	○	○	○	○	–
Integrated Accelerometer	●	●	●	●	–
Enhanced Privacy	○	○	○	○	○
AES256 encryption	○	○	○	○	○
Transmit Interrupt	●	●	●	●	●
Digital Emergency	●	●	●	●	●
Emergency Search Tone	●	●	●	●	●
Remote Monitor	●	●	●	●	●
Radio Disable / Enable	●	●	●	●	●
Secure Processor	●	●	●	●	●
Digital Certificates	●	●	●	●	–
CUSTOMISATION					
GCAI-Mini Accessory Port	●	●	●	●	●
6 Programmable Buttons	●	●	–	–	–
4 Programmable Buttons	–	–	●	●	●
Day/Night Screen Mode	●	●	–	–	–
Action List	●	●	–	–	–
Label Recess	●	●	●	●	●
Option Board (requires aftermarket installation)	○	○	○	○	–
RFID/NFC tag (requires aftermarket installation)	○	○	○	○	–

● Included ○ Optional – Not Included

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.

³ Radio weight information is exclusive of General Option Board and antenna.

⁴ Radio only. Battery minimum operating temperature -20 °C.

⁵ Noise suppression method differs between accessories.

⁶ R7a does not support 350 MHz band. R7 FKP and R7 NKP 350 MHz models do not support 20 kHz channel spacing.

⁷ Requires GNSS (Global Navigation Satellite System) support to be enabled.

⁸ Requires WAVE PTX Backup Client subscription per radio and WAVE PTX MOTOTRBO LMR Interop add on for the system.

To learn more, visit: motorolasolutions.com/r7



These models are available in Motorola Solutions APAC region only. Availability varies and is subject to individual country law and regulations. All specifications shown are typical unless otherwise stated and are subject to change without notice.

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