Data Sheet EMEA

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
- Digital/Analogue and 5-Tone
- 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 life[1]
- 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 housing[2]
- Robust and corrosion-proof side connector
- Rugged to MIL-STD 810

MOTOROLA SOLUTIONS

Specifications

GENERAL SPECIFICATIONS						
	R7 FULL KEYPAD MODEL (FKP)			R7 AND R7A NO KEYPAD MODEL (NKP)		
Band	**VHF**	**350 MHz**	**UHF**	**VHF**	**350 MHz**	**UHF**
Frequency	136-174 MHz	350-400 MHz	400-527 MHz	136-174 MHz	350-400 MHz[6]	400-527 MHz
High Power Output	5 W	4 W	4 W	5 W	4 W	4 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	20 / 15 hrs	19 / 14.5 hrs	19 / 14.5 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	22 / 17 hrs	21.5 / 16.5 hrs	21.5 / 16.5 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	26 / 19.5 hrs	25 / 19 hrs	25 / 19 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	29 / 22 hrs	28 / 21.5 hrs	28 / 21.5 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 (ETSI / TIA603E / ANSI C63.26, C63.4)	-36 dBm < 1 GHz -30 dBm > 1 GHz
Adjacent Channel Power (ETSI / TIA603E)	60 dB @ 12.5 kHz 70 dB @ 20 kHz / 25 kHz
Frequency Stability	± 0.5 ppm
Modulation limiting (ETSI / 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
Digital Sensitivity (5% BER)	0.14 µV
Conducted Spurious Emissions (ETSI / TIA603E)	< -57 dBm for < 1 GHz < -47 dBm for > 1 GHz
Intermodulation	65 dB (ETSI) / 70 dB (TIA603E)
Adjacent Channel Selectivity, (ETSI / 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 (ETSI / 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)

SERVICE COVERAGE

Included: 2 year hardware repair with 5 year technical support and software updates
Optional: 5 year hardware repair and 5 year accidental damage

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 Temperature[4]	-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

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 Fluids[2]									504.2	II	504.3	2.2.6 b

Features

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

	R7 FULL KEYPAD Premium	R7 FULL KEYPAD Capable	R7 NO KEYPAD Premium	R7 NO KEYPAD Capable	R7a NO KEYPA
GENERAL					
VHF 5 W, UHF / 350 MHz 4 W[6]	●	●	●	●	●[6]
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 GNSS	○	○	○	○	
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 Cancellation	●	●	●	●	
Single Microphone Noise Cancellation	●	●	●	●	●
SYSTEMS					
Dual Capacity Direct Mode	●	●	●	●	●
Conventional	●	●	●	●	●
IP Site Connect	●	●	●	●	●
Capacity Plus Single/Multi Site	●	●	●	●	●
Capacity Max	○	○	○	○	○

	R7 FULL KEYPAD Premium	R7 FULL KEYPAD Capable	R7 NO KEYPAD Premium	R7 NO KEYPAD Capable	R7a NO KEYPA
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	●	●	●	●	
Basic Privacy	●	●	●	●	●
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

To learn more, visit: **motorolasolutions.com/r7**

[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.

These models are available in Motorola Solutions EMEA 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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