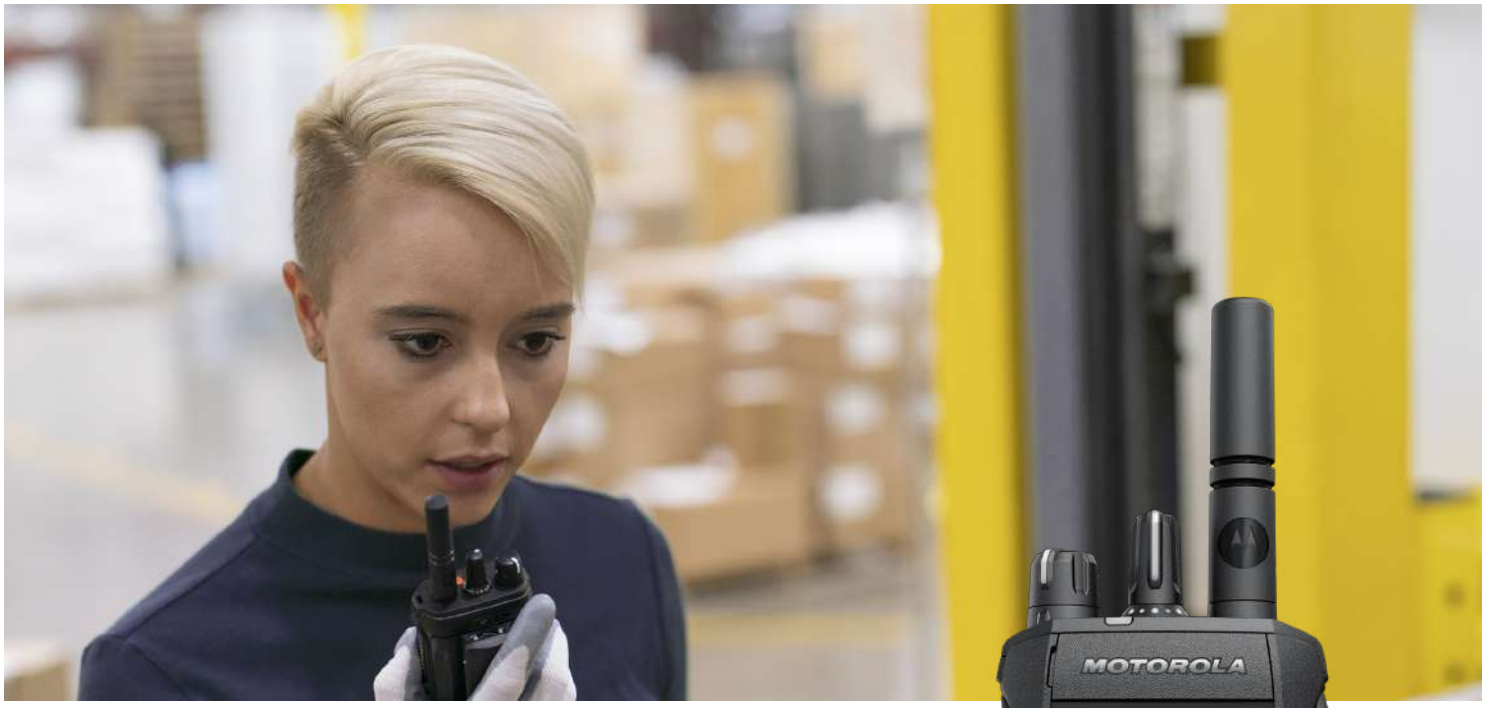

MOTOTRBO R7
PORTABLE TWO-WAY RADIOS

MOTOTRBO™ R7 is a digital portable two-way radio that offers loud, clear, and customisable audio in a rugged, dependable, and connected device. Its advanced audio processing ensures that your voice is always understood, while the rugged construction is ready for the toughest environments.

KEY FEATURES

- UHF/VHF
- Digital/Analogue and 5-Tone support
- 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 metres 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	UHF	VHF	UHF	VHF
Frequency	400-527 MHz	136-174 MHz	400-527 MHz	136-174 MHz
High Power Output	4 W	5 W	4 W	5 W
Low Power Output	1 W			
Channel Spacing	12.5 kHz, 20 kHz, 25 kHz			
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	AZ489FT7143	AZ489FT7144
IC Description	109U-89FT7143	109U-89FT7144	109U-89FT7143	109U-89FT7144
Power Supply (Nominal)	7.5 V			
MOTOTRBO R7 with 2200 mAh Slim IMPRES Li-Ion battery (PMNN4807)				
Dimensions (H x W x D)	132 x 56 x 35 mm		132 x 56 x 31 mm	
Weight[3]	316 g		289 g	
Digital / Analogue Battery Life[1]	19 / 14.5 hrs	20 / 15 hrs	19 / 14.5 hrs	20 / 15 hrs
Operating Temperature	-20 °C to 60 °C			
MOTOTRBO R7 with 2450 mAh Li-Ion battery (PMNN4808)				
Dimensions (H x W x D)	132 x 56 x 41 mm		132 x 56 x 37 mm	
Weight[3]	346 g		319 g	
Digital / Analogue Battery Life[1]	21.5 / 16.5 hrs	22 / 17 hrs	21.5 / 16.5 hrs	22 / 17 hrs
Operating Temperature	-20 °C to 60 °C			
MOTOTRBO R7 with 2850 mAh IMPRES Li-Ion battery (PMNN4809)				
Dimensions (H x W x D)	132 x 56 x 35mm		132 x 56 x 31mm	
Weight[3]	333 g		306 g	
Digital / Analogue Battery Life[1]	25 / 19 hrs	26 / 19.5 hrs	25 / 19 hrs	26 / 19.5 hrs
Operating Temperature	-20 °C to 60 °C			
MOTOTRBO R7 with 3200 mAh HazLoc IMPRES Li-Ion battery (PMNN4810)				
Dimensions (H x W x D)	132 x 56 x 41 mm		132 x 56 x 37 mm	
Weight[3]	366 g		339 g	
Digital / Analogue Battery Life[1]	28 / 21.5 hrs	29 / 22 hrs	28 / 21.5 hrs	29 / 22 hrs
Operating Temperature	-20 °C to 60 °C			

SPECIFICATIONS

TRANSMITTER SPECIFICATIONS	
Channel Spacing	12.5 kHz, 20 kHz, 25 kHz
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 @ 20 kHz / 25 kHz
Frequency Stability	+/-0.5 ppm

RECEIVER SPECIFICATIONS	
Analogue Sensitivity (12dB SINAD)	0.16 µV (typical)
Digital Sensitivity (5% BER)	0.14 µV (typical)
Intermodulation (TIA603D)	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 (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 metres

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/UL 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

BLUETOOTH SPECIFICATIONS	
Version	5.2
Range	Class 2, 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 @ 20 kHz / 25 kHz
Conducted Spurious Emissions (TIA603D)	-57 dBm

ENVIRONMENTAL SPECIFICATIONS	
Operating Temperature[4]	-30°C to 60°C
Storage Temperature	-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	-	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									504.2	II	504.3	2.2.6 b

FEATURE COMPATIBILITY

	R7 FKP	R7 NKP	R7a
GENERAL			
UHF Band 4 W, VHF Band 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	○	○	–
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	○	○	–
AUDIO			
Intelligent Audio in Analogue and Digital	•	•	•
IMPRES Audio	•	•	•
Automatic Acoustic Feedback Suppressor	•	•	•
Microphone Distortion Control	•	•	•
User-Selectable Audio Profile	•	•	•
Trill Enhancement	•	•	•
Advanced Dual Microphone Noise Suppression[6]	•	•	–
Single Microphone Noise Cancellation	–	–	•
SYSTEMS			
Dual Capacity Direct Mode	•	•	•
Conventional	•	•	•
IP Site Connect	•	•	•
Capacity Plus Single/Multi Site	•	•	•
Capacity Max	○	○	○

	R7 FKP	R7 NKP	R7a
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 metres for 2 hours)	•	•	•
IP66 (concentrated water jet pressure)	•	•	•
Rugged to MIL-STD 810	•	•	•
Disinfectant / Decontamination Resistant[2]	•	•	•
Sensor Integration	○	○	–
Integrated Accelerometer	•	•	–
Basic Privacy	•	•	•[7]
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[5]	○	○	–

• 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] Please check battery specifications for more detail on battery operating temperature.
[5] Pending aftermarket option board installation.
[6] Noise suppression method differs between accessories.
[7] Basic privacy is not available for TIA-certified R7a but is included as standard on non-TIA R7a models.

For more information, please visit
motorolasolutions.com/R7

MOTOTRBO R7

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