

# MOTOTRBO™ R5 portable two-way radios

MOTOTRBO R5 connects teams, helping boost efficiency and safety with loud, clear audio that cuts through background noise, plus intuitive status indications and controls so workers can focus on their tasks, all in a tough, compact device that's built to last.



## Key features

- VHF and UHF
- Wi-Fi 2.4/5.0 GHz
- WPA3 Wi-Fi security protocol compliant
- Bluetooth® Core Version 5.2
- Digital and analog signaling
- 1.5" 132 x 48 px display<sup>1</sup>
- Modern, intuitive user experience
- Wide suite of accessories
- Sleek and ergonomic form factor
- Automatic acoustic feedback suppression
- SINC+ Noise Suppression
- AI-trained Noise Suppression
- Intelligent Audio
- IMPRES™ audio and energy technology
- Programmable loudness up to 106 phons
- Wideband speaker
- Simple audio configuration
- Up to 32 hours battery life<sup>2</sup>
- IP67 dust-tight and waterproof
- Intrinsically safe option (UL TIA4950 / CSA C22.2)
- Robust side accessory connector
- Rugged to MIL-STD 810H
- 5 years of hardware repair and software updates with optional add-ons for enhanced cover

# Specifications

## GENERAL SPECIFICATIONS

|                        | R5 LIMITED KEYPAD MODEL (LKP)       |               | R5 NON-KEYPAD MODEL (NKP) |               |
|------------------------|-------------------------------------|---------------|---------------------------|---------------|
| Band                   | VHF                                 | UHF           | VHF                       | UHF           |
| Frequency              | 136-174 MHz                         | 400 - 512 MHz | 136-174 MHz               | 400 - 512 MHz |
| High Power Output      | 5 W                                 | 4 W           | 5 W                       | 4 W           |
| Low Power Output       | 1 W                                 |               |                           |               |
| Channel Spacing        | 12.5, 25 kHz                        |               |                           |               |
| Channel Capacity       | 256                                 |               | 64                        |               |
| Zone Capacity          | 50                                  |               | 4                         |               |
| Display                | 132 x 48 px 1.5" monochrome display |               | n/a                       |               |
| FCC Description        | AZ489FT7181                         | AZ489FT7182   | AZ489FT7181               | AZ489FT7182   |
| IC Description         | 109U-89FT7181                       | 109U-89FT7182 | 109U-89FT7181             | 109U-89FT7182 |
| Power Supply (Nominal) | 7.5 V                               |               |                           |               |

### MOTOTRBO R5 WITH SLIM IMPRES LI-ION IP67 2200 MAH BATTERY (PMNN4888)

|                                            |                                             |                 |                 |                 |
|--------------------------------------------|---------------------------------------------|-----------------|-----------------|-----------------|
| Dimensions (h x w x d)                     | 122 x 56 x 35 mm (4.82 x 2.2 x 1.37 inches) |                 |                 |                 |
| Weight                                     | 285 g                                       |                 | 269 g           |                 |
| Battery life <sup>2</sup> (digital/analog) | 21.5 / 16 hours                             | 20 / 15.5 hours | 21.5 / 16 hours | 20 / 15.5 hours |
| Operating temperature                      | -20 °C to 60 °C (-4 °F to 140 °F)           |                 |                 |                 |

### MOTOTRBO R5 WITH IMPRES LI-ION IP67 3200 MAH BATTERY (PMNN4889)

|                                            |                                            |               |               |               |
|--------------------------------------------|--------------------------------------------|---------------|---------------|---------------|
| Dimensions (h x w x d)                     | 122 x 56 x 41 mm (4.82 x 2.2 x 1.6 inches) |               |               |               |
| Weight                                     | 318 g                                      |               | 301 g         |               |
| Battery life <sup>2</sup> (digital/analog) | 32 / 24 hours                              | 30 / 23 hours | 32 / 24 hours | 30 / 23 hours |
| Operating temperature                      | -20 °C to 60 °C (-4 °F to 140 °F)          |               |               |               |

### MOTOTRBO R5 WITH IMPRES LI-ION IP67 TIA4950 3200 MAH BATTERY (PMNN4890)

|                                            |                                            |               |               |               |
|--------------------------------------------|--------------------------------------------|---------------|---------------|---------------|
| Dimensions (h x w x d)                     | 122 x 56 x 41 mm (4.82 x 2.2 x 1.6 inches) |               |               |               |
| Weight                                     | 332 g                                      |               | 315 g         |               |
| Battery life <sup>2</sup> (digital/analog) | 32 / 24 hours                              | 30 / 23 hours | 32 / 24 hours | 30 / 23 hours |
| Operating temperature                      | -20 °C to 60 °C (-4 °F to 140 °F)          |               |               |               |



# Specifications

## TRANSMITTER SPECIFICATIONS

|                                           |                                                                                                                                  |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| 4FSK Digital Modulation                   | 12.5 kHz Data: 7K60F1D and 7K60FXD,<br>12.5 kHz Voice: 7K60F1E and 7K60FXE<br>Combination of 12.5 kHz Voice<br>and Data: 7K60F1W |
| Digital Protocol                          | ETSI TS 102 361-1, -2, -3<br>DMR Tier II                                                                                         |
| Conducted/Radiated<br>Emissions (TIA603E) | -36 dBm, <1GHz, -30 dBm > 1GHz                                                                                                   |
| Adjacent Channel Power                    | 60 dB @ 12.5 kHz<br>70 dB @ 25 kHz                                                                                               |
| Frequency Stability                       | ±0.5 ppm                                                                                                                         |
| Modulation Limiting                       | ±2.5 kHz @ 12.5 kHz<br>±5.0 kHz @ 25 kHz                                                                                         |

## RECEIVER SPECIFICATIONS

|                                               |                                    |
|-----------------------------------------------|------------------------------------|
| Analog Sensitivity<br>(12dB SINAD)            | 0.16 µV                            |
| Digital Sensitivity (5% BER)                  | 0.14 µV                            |
| Intermodulation (TIA603E)                     | 70 dB                              |
| Adjacent Channel Selectivity,<br>(TIA603A)-1T | 60 dB @ 12.5 kHz<br>70 dB @ 25 kHz |
| Adjacent Channel Selectivity,<br>(TIA603E)-2T | 45 dB @ 12.5 kHz<br>70 dB @ 25 kHz |
| Spurious Rejection (TIA603E)                  | 70 dB                              |
| Frequency Stability                           | ±0.5 ppm                           |

## 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 | WPA3, WPA2                      |
| Maximum Number of SSIDs     | 128 (64 for NKP Models)         |

## SERVICE COVERAGE

Included: Hardware repair, technical support and software updates (5 years)

Optional: Accidental damage hardware repair (5 years)

## BLUETOOTH SPECIFICATIONS

|                          |                                                                                                                          |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Bluetooth Technology     | Bluetooth, Bluetooth Classic,<br>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),<br>Serial Port Profile (SPP), Personal Area<br>Network (PAN), Generic Attributes (GATT) |
| Simultaneous Connections | 1 audio accessory and up to 4 data devices                                                                               |

## AUDIO SPECIFICATIONS

|                                                                                              |                                      |
|----------------------------------------------------------------------------------------------|--------------------------------------|
| Digital Vocoder Type                                                                         | AMBE+2™                              |
| Hum and Noise                                                                                | -40 dB @ 12.5 kHz<br>-45 dB @ 25 kHz |
| Audio Response (TIA603E)                                                                     | +1, -3 dB                            |
| Audio Output Power (Rated/Max)                                                               | 1 W / 3 W                            |
| Audio Distortion at Rated Audio                                                              | ≤3%                                  |
| Maximum Speech Loudness,<br>Default (ISO532B)                                                | 101 phon @ 30 cm                     |
| Maximum Programmable Speech<br>Loudness (Digital) (User Selectable<br>Audio Profile Level 3) | 106 phon @ 30 cm                     |

## ENVIRONMENTAL SPECIFICATIONS

|                                    |                                             |
|------------------------------------|---------------------------------------------|
| Operating Temperature <sup>3</sup> | -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           | IP67                                        |
| Salt Fog                           | 5% NaCl for 8 hrs at 35 °C, 16 hrs standing |
| Packaging Test                     | MIL-STD 810D and E                          |

## HAZLOC CERTIFICATION

ANSI/TIA4950 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 when properly equipped with Motorola UL-Approved battery

## 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            |



# Feature Comparison

R5 is available with limited keypad (LKP) and non-keypad (NKP) versions.

|                                        | R5 LKP | R5 NKP         |
|----------------------------------------|--------|----------------|
| <b>GENERAL</b>                         |        |                |
| VHF 5 W, UHF 4 W                       | ●      | ●              |
| Limited keypad                         | ●      | —              |
| Monochrome display                     | ●      | —              |
| Analog and digital                     | ●      | ●              |
| Voice and text                         | ●      | ●              |
| Integrated Wi-Fi                       | ●      | ●              |
| Canned text messaging                  | ●      | ● <sup>4</sup> |
| Bluetooth audio                        | ●      | ●              |
| Bluetooth data                         | ●      | ●              |
| Voice operated transmit (VOX)          | ●      | ●              |
| Voice announcement                     | ●      | ●              |
| Home channel reminder                  | ●      | ●              |
| Late entry                             | ●      | ●              |
| Priority scan                          | ●      | ●              |
| <b>AUDIO</b>                           |        |                |
| Intelligent Audio in digital mode      | ●      | ●              |
| IMPRES audio                           | ●      | ●              |
| Received audio leveling                | ●      | ●              |
| Automatic acoustic feedback suppressor | ●      | ●              |
| Microphone distortion control          | ●      | ●              |
| User-selectable audio profile          | ●      | ●              |
| Trill enhancement                      | ●      | ●              |
| AI-trained noise suppression           | ●      | ●              |
| Single mic noise cancellation (SINC+)  | ●      | ●              |
| <b>SYSTEMS</b>                         |        |                |
| Dual Capacity Direct Mode              | ●      | ●              |
| Conventional                           | ●      | ●              |
| IP Site Connect                        | ○      | ○              |
| Capacity Plus single site              | ○      | ○              |
| Capacity Plus multi-site               | ○      | ○              |

|                                                        | R5 LKP | R5 NKP         |
|--------------------------------------------------------|--------|----------------|
| <b>MANAGEMENT</b>                                      |        |                |
| 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                        | ○      | ○              |
| <b>SAFETY</b>                                          |        |                |
| Emergency button                                       | ●      | ●              |
| Lone worker                                            | ●      | ●              |
| IP67                                                   | ●      | ●              |
| Rugged to MIL-STD 810                                  | ●      | ●              |
| Basic privacy                                          | ●      | ●              |
| Enhanced privacy                                       | ●      | ●              |
| Transmit Interrupt                                     | ●      | ●              |
| Digital emergency                                      | ●      | ●              |
| Emergency search tone                                  | ●      | ●              |
| Remote monitor                                         | ●      | ● <sup>5</sup> |
| Radio disable / enable                                 | ●      | ● <sup>5</sup> |
| Secure processor                                       | ●      | ●              |
| Hazloc certification                                   | ●      | ●              |
| <b>CUSTOMIZATION</b>                                   |        |                |
| Slim GCAI accessory port                               | ●      | ●              |
| Programmable buttons <sup>6</sup>                      | 5      | 3              |
| NFC / RFID tags<br>(Requires aftermarket installation) | ○      | ○              |

● Included    ○ Optional    — Not included

<sup>1</sup> Limited keypad model only.

<sup>2</sup> Typical battery life, 5/5/90 profile at maximum transmitter power with Bluetooth and Wi-Fi disabled. Actual observed runtimes may vary.

<sup>3</sup> Radio only. Battery minimum operating temperature -20 °C.

<sup>4</sup> R5 NKP models support canned text message send only.

<sup>5</sup> Decode only.

<sup>6</sup> Including emergency button which can also be programmed for other functions.

To learn more about MOTOTRBO, visit: [www.motorolasolutions.com/mototrbo](http://www.motorolasolutions.com/mototrbo)



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