



PTC 220-Locomotive Radio

Designed for reliable communication with the back office through base stations; and directly with the wayside radio through a 220 MHz RF link.

Model # 65020

High Performance Radio For PTC Applications

Designed for reliable communication with the back office through base stations, and, directly with the wayside radio through a 220 MHz RF link.

Key Features

- Meets relevant railroad standards.
- Operates in the 217- 222 MHz frequency band to support of I-ETMS communications.
- 50 W PEP Transmitter output power.
- 20-channel simultaneous receive.
- Support multiple waveforms including both 16 kbps and 32 kbps.
- Support channel bandwidths up to 100 kHz.

Benefits

- Drop-in replacement for MCC 63020 Locomotive.
- Exchange data seamlessly across railroads with ITCnet® interoperable radio.
- Increased message capacity and efficiency on existing 220 MHz band.
- Increased computing resources for additional features and applications.
- Increased capacity for future growth.

Standards, and Regulatory Specifications

- AAR
- ITC/ITCM
- AREMA—Environmental and EMC
- FCC (PART 2, PART 15, PART 80, PART 90)



General

Frequency Range: 217.6-222 MHz

Frequency Stability: ±1.5ppm over operating temperature range

Channel spacing: 25 kHz

Temperature range:

- Operating: -40°C to +70°C
- Storage: -55°C to +85°C

Humidity: Operating: 0% to 95%; non-condensing Test per S-5702, clause 3.2.3.2

DC Input Voltage Range:

- 50-100VDC
- 74VDC Nominal Range
- Damage limit: 120VDC

DC Current Drain (74VDC input):

- Transmit: 4A (peak) max into 50Ω load
- 1.8A typical
- Receiver: 0.5A max while receiving

Maintenance port [1] —M12-8 female

USB [1]: USB 3.0

DC Power Connector: MS 3102 A 18-4P or equivalent

Size: LSI rack compatible, 5xMCU max

Weight: 18.0 lbs. (8.16 kg)

Antenna Connector: 2 Type N female

- TX/RX1 (transmit/primary receive)
- RX2 (diversity - RX only)

GNSS Receiver

- Antenna power 3.3V or 5.0V, 50mA max
- Antenna connector TNC female

External interface:

- Ethernet [3]: LAN1, LAN2, Maintenance
- 10/100 megabit compliant
- Data Network port [2] - M12-8 female
- Maintenance port [1] - M12-8 female
- Antenna connector TNC female

Display: Activity/Diagnostic LEDs on Front Panel



Transmitter

RF Power Output: 50W PEP: Adjustable 15W to 50W PEP

Output Impedance: 50Ω | Operating VSWR: <3:1

Modulation Waveforms:

- 16 kbps $\pi/4$ -DQPSK
- 32 kbps $\pi/4$ -DQPSK
- 32 kbps $\pi/8$ -D8PSK
- 32 kbps $\pi/8$ -D16APSK

Occupied Bandwidth:

- Meets 47CFR90.210(f)
- Five aggregated 5 kHz channels

Conducted Spurious Emissions: -25dBm max

Max Duty Cycle Rating: 30%

Emission Designators:

- 16 kbps $\pi/4$ -DQPSK
- 32 kbps $\pi/4$ -DQPSK

Regulatory Approvals:

- FCC IF BIB65020
- IC 1300A-65020

Receiver

Maximum Usable Sensitivity, Static BER<10-4:

- 16 kbps $\pi/4$ -DQPSK: -111dBm
- 32 kbps $\pi/4$ -DQPSK: -108dBm
- 16 kbps $\pi/8$ -D8PSK: -101.4dBm
- 16 kbps $\pi/8$ -16DAPSK: -99.0dBm

Adjacent Channel Sensitivity: 70dB @ 25kHz offset

Spurious Response Rejection: 65dB

Intermodulation Response Rejection: 65dB

High Input Level: (-7dBm): BER>10-4

Blocking, 1MHz Offset:

- 16 kbps $\pi/4$ -DQPSK: 80dBm
- 32 kbps $\pi/4$ -DQPSK: 77dBm


Simultaneous Receiver Channels: 20

Diversity Support: Yes

Contact Us For Details

Contact our account management team for more information

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