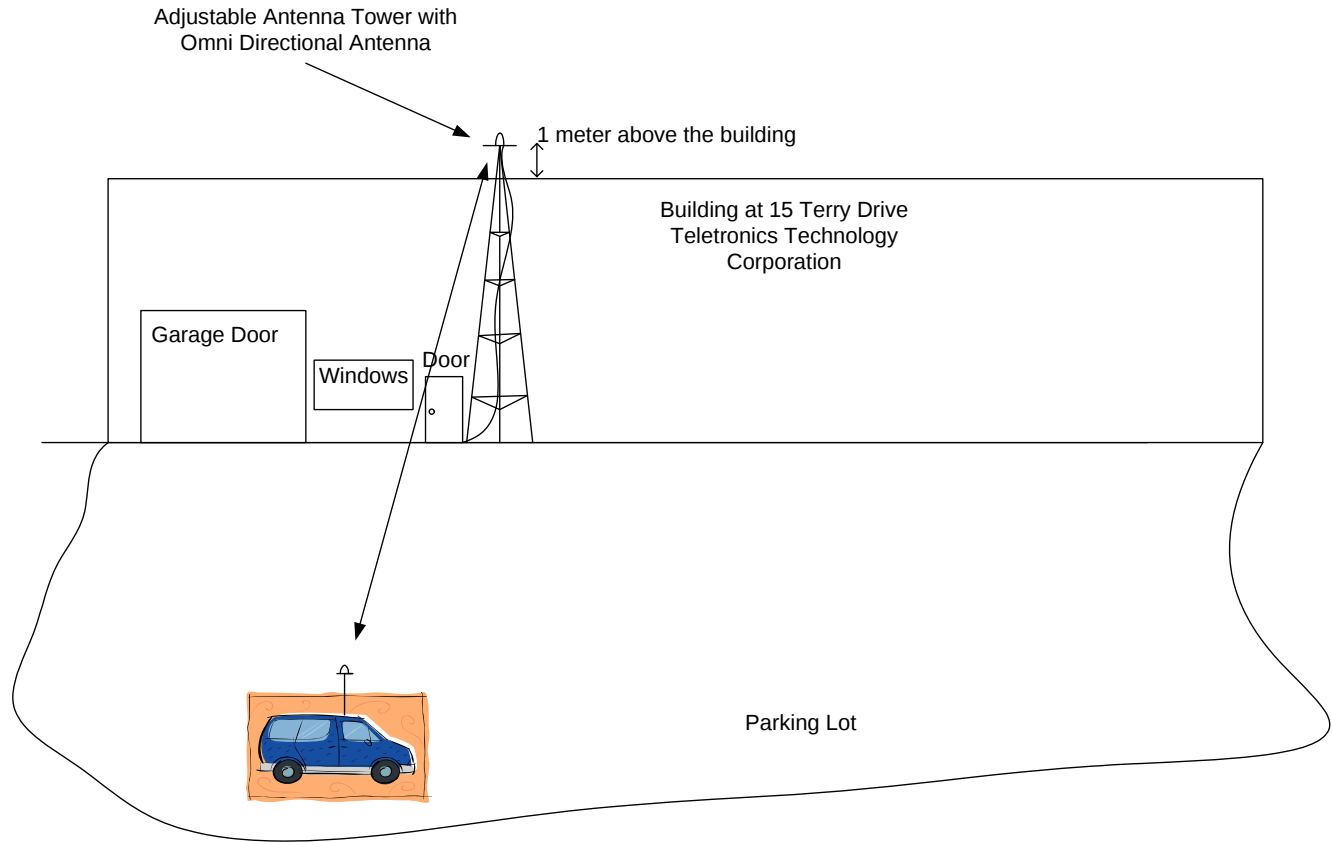


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The nXCVR 20X0 series of IP transceivers are designed for air-to-ground and ground-to-air wireless OFDM-based communications. The transceivers work together to perform the function of a router, transparently interconnecting up to 32 wireless networks into a hub and spoke configuration. Bandwidth is shared among all the remote networks, each network receiving one or more timeslots for transmitting and receiving packets between itself and the hub transceiver. Timeslots are statically allocated by the user during the network configuration process.

The transceivers include a 10/100/1000BASE-T Ethernet interface as the primary routed interface, multiple serial ports for external device control, a high-speed RISC processor and a power-efficient RF transmitter and receiver module. The transceivers incorporate the latest modulation and power-efficient technologies to provide maximum transmission and reception distance under harsh environmental conditions.

The transceivers are OFDM modulation-based and have a fixed **signal bandwidth of 16.5 MHz**. The nXCVR-20X0 data rate is dependent on the received RF signal power.

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The 20X0 IP transceivers exceed the IEEE 802.11a standard for processing speed, waveform compliance, and RF output power and support Simple Network Management Protocol (SNMP) for remote management.

The nXCVR-20X0 series of transceivers provide the following I/O connectors that include one GPS antenna connector, a power connector and two RF antenna connectors.

The wiring interfaces are summarized below and are described in detail in the following sections:

- **Diagnostic serial/Fast Ethernet port:** A serial console port on J1 provides access to the transceiver chassis for configuration and troubleshooting. A single 100BASE-T Ethernet port on J1 can be used for management, software updates and statistics gathering.
- **Gigabit Ethernet port:** J2 is a gigabit Ethernet port that supports 10/100/1000BASE-T. This port transfers packet data into and out of the transceiver.
- **General I/O port:** J3 is used for the following I/O functions:
 - Antenna control: controls an antenna (for example, for beam steering) (*for future use*)
 - Inertial measurement unit: acquires vehicle inertial data (*for future use*)
 - Differential test output: outputs a Bit Error Rate (BER) test pattern or PCM clock and data
 - General-purpose output: an Opto-isolated output (switch closure)
 - IEEE 1588 PTP one pulse per second output: synchronized to the PTP time
 - Key load: loads encryption key data into the transceiver (*for future use*)
- **GPS antenna port:** J4 is used to connect to a GPS antenna. Active and passive antennas are supported.
- **RF antenna port, input:** RF2 connects to the receive antenna. Impedance is 50 Ohms.
- **RF antenna port, output:** RF1 connects to the transmit antenna. Impedance is 50 Ohms.
- **Power port:** JP1 is the input connector for +28VDC.

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Figure 1 nXCVR-2030B Photograph

Table 1 Performance Characteristics

General	
Size	4.14"W x 5.00"D x 3.75" H (105.2 mm x 127 mm x 95.25 mm)
Weight	3lbs. 6 oz. (1534g)
Connectors	MDM, SMA, MS and TNC styles
Compliance	MIL-STD-461
Status information	LED1-LED6, various port and system status indicators
General purpose output current	50 mA maximum over full temperature range
General purpose output isolation voltage	1500 Vrms
Ethernet	
Protocols	IP, TCP, UDP, SNMP
Ethernet ports	Two ports: one 100BASE-T, one 10/100/1000BASE-T, IPv4
Interface type	Electrical (copper wiring)
IEEE 1588 time	Boundary clock VI
Routing	Static routing
Communication	Unicast, broadcast, multicast
Time reference	IEEE 1588 grandmaster, slave or GPS
RF Characteristics	
Transmit power	40 W peak
Receive power	+10 dBm (maximum)
Receiver sensitivity	-82 dBm typical
Center frequencies	
nXCVR-2020B:	Tunable from 2200-2300 MHz
nXCVR-2030B:	Tunable from 2300-2400 MHz
Center frequency stability	±.002%
RF port impedance	50 Ohms
Electrical	
Power input	+28 ± 6 VDC
Supply current	3 Amp @ 28 V (estimated)
Power consumption	84 W maximum (estimated)
Grounding	Isolated power, signal and chassis grounds

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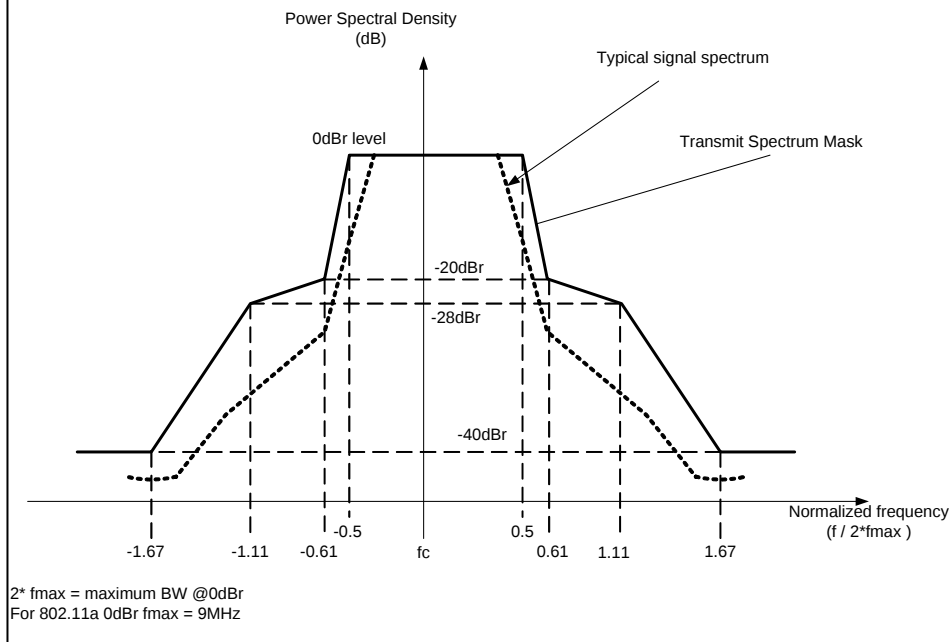
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Environmental	
Operating temperature	-40° C to +85° C. Note: Baseplate temperature must be maintained within the above specified temperature range. Do not operate the unit without a properly installed heat sink.
Storage temperature	-55° C to +100° C
Random vibration	15 grms, 20 to 2,000 Hz, 10 minutes, any axis
Acceleration	25 g indefinite duration, any axis
Shock	15g, half-sine, 11 mS, 6 shocks, any axis
Humidity	5-95% RH, non-condensing
Altitude	0 to 70,000 ft. (for up to 200,000 ft. contact TTC)
EMI/EMC	Per MIL-STD-461

Transmit Spectrum Mask

(illustration is not to scale)



Spectrum Mask (16.5 MHz)