

STA Confirmation Number: tbd

STA File Number: tbd

Call Sign: WG9XTU

Test Dates: Two weeks between August 2015 through December 2015

Teletronics Technology Corporation

Multipath Evaluation Test of the nXCVR-3140

The purpose of this test is to demonstrate the transmission link of the nXCVR-3140 Transceiver in an actual multipath environment among the buildings in the Newtown, PA Industrial park. In this test, the critical parameter is not distance but rather compatibility to an environment that an aircraft may experience on the tarmac or garage area. This test will be achieved on Company property and minimized to line of sight distances within the industrial park. The test will utilize the current Antenna Tower Height at 30 Ft. The Tower Omni Directional Antenna has a gain of 8.2 dBi with a cable loss of +15dB minimum.

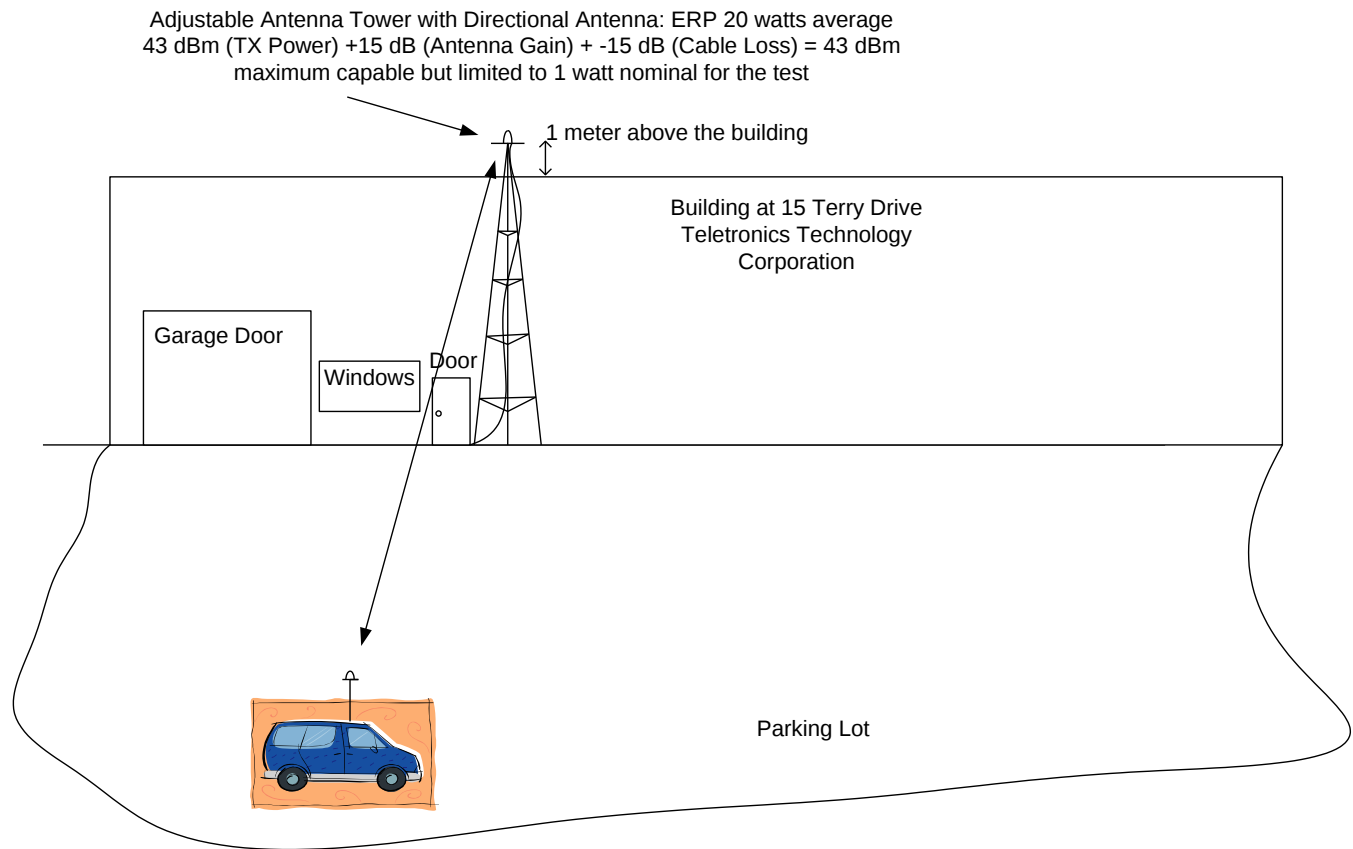


Figure 1 Test Area

The nXCVR-3140 IP transceiver is designed for air-to-ground and ground-to-air wireless communications using Burst SOQPSK modulation. This test will evaluate the system with in ground level multipath and the effects on the link margin. The modulation bandwidth will stay the same (12 MHz) and is selectable between 4400-4940 MHz. **All tests will be performed at one freq in each band, 4476.6 MHz (or another frequency specified with in the programmable band) and at limited power levels, with a goal of below 1 watt level.**

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Model designations are as follows:

nXCVR-3140, SOQPSK based, C-band (4400-4940 MHz), 20 Watts

The nXCVR-3140A-1 IP transceiver was developed under government funds as well as funding this specific test under Government contract # N00421-14-G-0009/0001.

The nXCVR-3140A-1 transceiver works as a wireless router, transparently connecting two or three radios in a point to point configuration up to 150 nautical miles in the 4400-4940 MHz frequency range. Bandwidth can be shared among the multiple users; each radio receives one or more timeslots for transmitting and receiving packets. Timeslots can be statically or dynamically allocated during network operation. The transceiver has a 100/1000BASE-T Ethernet interface for the primary routed interface and a second 100BASE-T interface that is primarily intended for diagnostics, upgrades and as an alternate management port. There are multiple serial ports for external device control, a high-speed Reduced Instruction Set Computing (RISC) processor and a power-efficient RF transmitter and receiver module.

The nXCVR-3140A-1's processor executes a real-time Linux operating system used to support the IP stack that controls the transceiver routing function.



Figure 2 nXCVR-3130 Photograph

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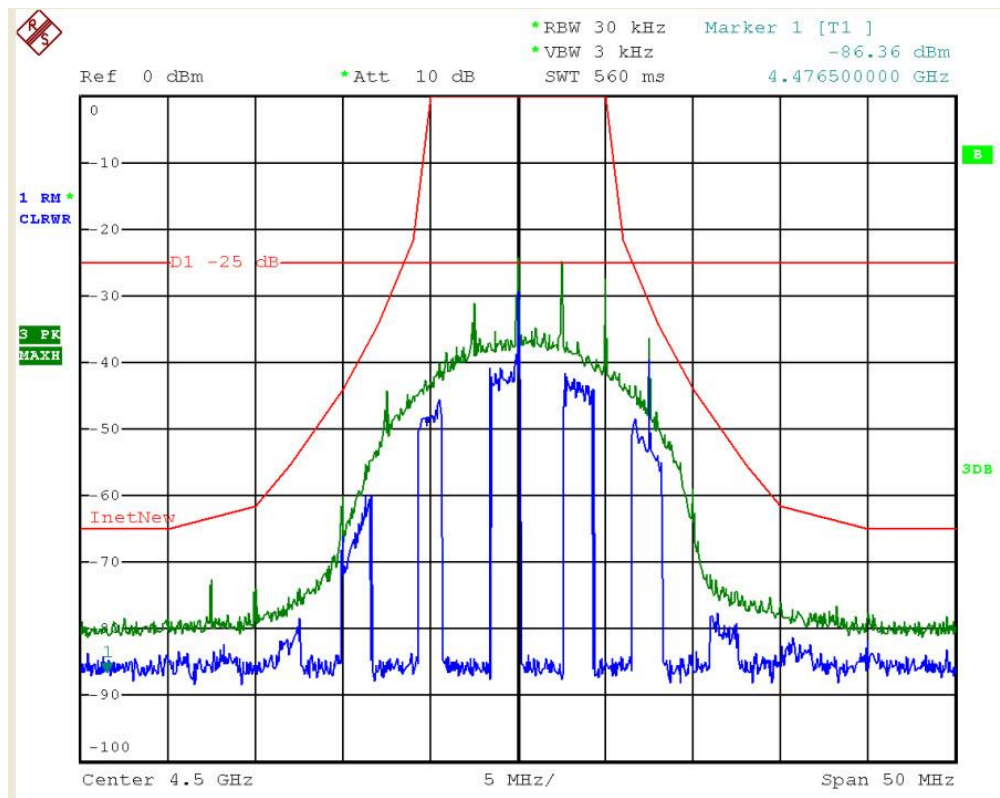


Figure 3 RF Spectrum & Mask

Table 1 Performance Characteristics

General	
Size	6.26" W x 6.60" D x 2.93" H (159 mm x 167.6 mm x 74.4 mm)
Weight	6.4 lbs. (2903 g)
Connectors	MDM, SMA, MS and TNC styles
Compliance	MIL-STD-461
Status information	LED1 - LED4, 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 100/1000BASE-T, IPv4

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Interface type	Electrical (copper wiring)
IEEE 1588 time	Boundary clock with standards support for 1588 Version 2
Routing	Static unicast and multicast routing
Communication	Unicast, broadcast, multicast
Time reference	IEEE 1588 slave
RF Characteristics	
Transmit power	20 W minimum
Receive power	+10 dBm maximum
Receiver sensitivity	-86 dBm typical
Center frequency	Tunable from 4400-4940 MHz
Center frequency stability	±.005%
RF port impedance	50 Ohms
Electrical	
Power input	+28 ± 6 VDC
Supply current	4 Amp @ 28 V typical
Power consumption	112 W maximum typical
Grounding	Isolated power, signal and chassis grounds
Environmental	
Operating temperature	-40° C to +85° C. Note: Base plate temperature must be maintained within this specific 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 80,000 ft.
EMI/EMC	Per MIL-STD-461