EXHIBITS

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EXHIBIT 1: Letter Requesting Confidentiality under Sec. 0.457(d)

- refer to separate Word attachment

EXHIBIT 2: Product Description and Operation Overview

General Overview

The N2-4XE1 is a point to point Wireless Extension operating in the 5.3/5.7 GHz UNII band as authorized in rule sections 15.401 through 15.407.The unit is enclosed in a weather proof outdoor enclosure and is intended to provide data links over distances up to 10 km.The radio in the unit operates full duplex, transmitting and receiving data at the rate of 8.448 Mbps. The radio is modulated using BPSK.

The product uses two separate 100 MHz bands within the U-NII frequency spectrum. Within these bands,the N2-4XE1 series operates in one of many independent channels providing for frequency reuse and network flexibility.

Synthesized RF channel selection is field configurable,as are the power output options for the selection of antenna sizes..

Frequency Band: Full-duplex operation in the UNII band

Frequency Range: 5,250 -5,350 MHz and 5,725 -5,825 MHz

Digital Interface

Capacity Options:4xE1
ITU-T/E1
Type:Based on 4 E-1 inputs
Line rate:4 x 2.048 Mb/s
Line Code:HDB3
Interface:75 unbalanced or optional 120 unbalanced
Connectors:BNC (75)or RJ-48C (120)

	5.3 GHz RX(Low Band)	**5.7 GHz TX (High Band)**
Frequency Range:	5,250 -5,350 MHz	5,725 -5,825 MHz
Output power:	0 dBm	0 dBm
	+4 dBm	+4 dBm
	+8 dBm	+8 dBm
	+12 dBm	+12 dBm

A description of the theory of operation and product configuration is found in an attachment to this application and report.

System Interconnection

- refer to attachment *fccbloc.pdf*

EXHIBIT 3: Information for which Confidentiality is Requested

Schematics

EXHIBIT 4: Product Photographs

-refer to separate jpg attachments

EXHIBIT 5: User Manual and FCC ID Label

-refer to separate .pdf attachment

EXHIBIT 6: RF Hazard Information Per Sec. 1.1307

For transmitters operating in the 5250-5825 MHz frequency range, paragraph 1.1310 limits maximum permissible exposure (MPE) to 1 mW/cm2 for uncontrolled environments.

The maximum distance from the antenna at which MPE is met or exceeded is calculated from the equation relating field strength in V/m, transmit power in watts, transmit antenna gain, and separation distance in meters:

E,V/m = (√(30*P*G))/d

Power density, mW/m2 = E^2/3770

E for MPE 1mW/m2 = 61.4 V/m

Simplifying and rearranging terms:

d = (√(30*P*G))/61.4 Converting to decibels:

20 log d = 10 log 30 + 10 log P watts + G dBi -35.8 dB

20 log d = 14.77 + PdBm - 30 dB -35.8 + GdBi

20 log d = P dBm + G dBi -51 ; d = 10^(PdBm+GdBi-51)/20

EUT 26 dB bandwidth: 11.4 MHz

Maximum allowed EUT output power: 17 dBm + 10 log(11.4) = 27.6 dBm

Defacto EIRP limit: 27.6 dBm + 23 dBi = 50.6 dBm EIRP

EUT design maximum output: 12 dBm
Maximum EIRP = 12+23 = 35 dBm EIRP

MPE for 35 EIRP = 10^(27.7-51)/20 = 16 cm

Instructions will be placed in the user manual instructing installers and users to maintain a minimum distance of 20 cm during operation of the EUT.

EXHIBIT 7: Report of Measurements

FCC CERTIFICATION INFORMATION

The following information is in accordance with FCC Rules, 47CFR Part 2.

2.1033(b)1 **Applicant:** Wireless Inc.
5452 Betsy Ross Drive
Santa Clara CA 95054-1101

2.1033(b)2 **FCC ID**: EV9N2-4XE1-5G7

2.1033(b)3 **Installation instructions** are found in attached document.

2.1033(b)4 A **brief description of the circuit functions** is found in attached document

2.1033(b)5 **Block diagram** is found in attached document

2.1033(b)6 **Report of measurements** is found below.

2.1033(b)7 **Product photographs** are attached in JPEG format.

2.1033(b)8 The EUT is operated with **accessory devices** described below and in the attachments submitted.

2.1033(b) 9 NOT APPLICABLE

2.1033(b)10 - 12 NOT APPLICABLE

15.203 The Wireless UNII radio will be professionally installed. At present, there are four antennas specified for use with the radio:

Gabriel	SSP2-52ARI	28.5 dBi dish
MTI Technology	MT 30102	23 dBi flat panel array
Radiowaves	SP1-5.2NL	26 dBi dish
Gabriel	DFPD.5-52	18 dBi flat panel array

SUMMARY OF TEST RESULTS

15.407 General Technical Requirements

The UNII requirements for maximum power, peak power spectral density, minimum 26 dB emissions bandwidth, and maximum EIRP are interdependent variables. In addition, the level of transmitter spectral re-growth at the UNII band edges will limit the power output that may be transmitted into a particular antenna, since the emission limit is -17dBm/MHz and /or -27dBm/MHz EIRP, dependent on both antenna gain and power input.

The Wireless UNII radio has user programmable output power levels from 0 - 12 dBm.

The **26 dB channel bandwidth** is 11.4 MHz.

A number of antennas can be used with the point-to-point UNII radio, with gains that vary
between 18.5 dBi and 34 dBi.

15.407(a)3 Power limits

17 dBm + 10 log (11.7) = **27.6 dBm max. for 5.725 - 5.825 GHZ band**

Peak power spectral density: = 17 dBm/MHz

Defacto EIRP limit: 27.6 dBm + 23 dBi = 50.6 dBm EIRP

Maximum Power, dBm, into antenna

	23 dBi Mti Panel	**18 dBi Gabriel panel**	**26 dBi Radiowaves dish**	**28.5dBi Gabriel dish**
fo MHz	Max P, dBm	Max P, dBm	Max P, dBm	Max P, dBm
5807.3	4*	12	4*	0*
5733.6	12	12	12	12
all others	12	12	12	12

* limited by EIRP restrictions in 15.407(b)2

RF Output Power Measurements

Ref: 15.407(a)2

Measurement equipment used:

HP EPM-441A Power meter
HP ECP-E26A power sensor

Test set-up:

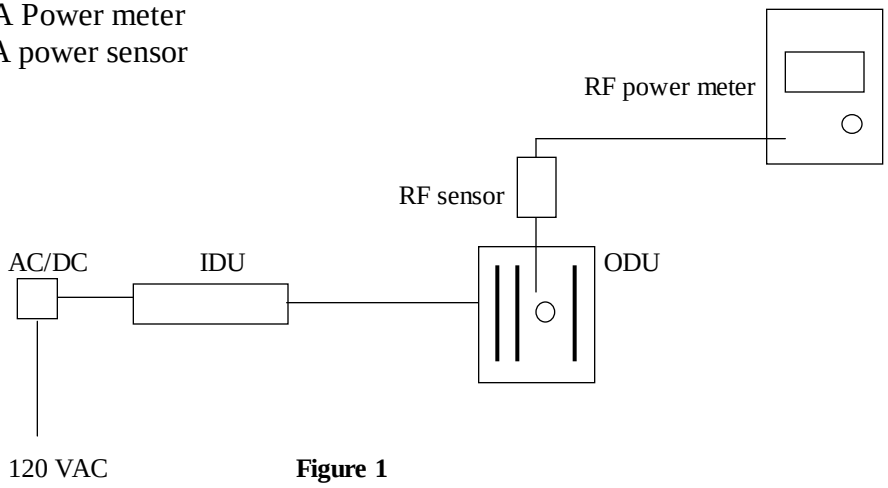


Figure 1

Test Procedures

1. Set the IDU to the desired channel and to maximum output power setting
2. RF Output = Meter reading dBm + 30 dB

Test Results: Power Output, Max

Chanel	**Frequency, MHz**	**Pout, dBm**
1	5733.6	12.6
5	5776.6	13.2
8	5807.4	13.2

Antenna Conducted Output (For determining bandedge EIRP)

Ref: 15.407(b)2

Measurement equipment used:

HP 8565E spectrum analyzer
30 dB attenuator

Test set-up:

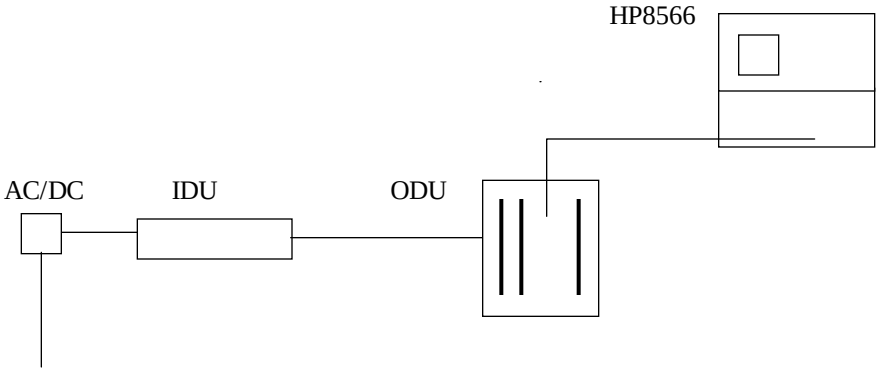


Figure 2

Test Procedures

1. Set EUT to lowest operating channel.
1. Set spectrum analyzer to TX output center frequency, RES BW = 100 kHz, VID BW = 300 Hz - 3 kHz.
3. Use analyzer MKR funtion to measure output at bandedge and 10 MHz from bandedge
4. Nomalize to 1 MHz: Reading, dBm + 10log(1MHz/meas BW)
5. Add antenna gain and compare to -17dBm/MHz and /or -27dBm/MHz EIRP
6. Plot spectrum analyzer data
7. Repeat steps 1-6 for highest channel

Test Results

Refer to attached documents *bandedgeX.jpg*

Worst-case out of band emission:

Channel 1: -43.3 dBm at 5723.08 GHz (-17 dBm EIRP/MHz limit)
Channel 8: -45.5 dBm at 5858.5 GHz (-27 dBm EIRP/MHz limit)

Peak Power Spectral Density

Ref: 15.407(b)2

Measurement equipment used:

HP 8565E spectrum analyzer
30 dB attenuator

Test set-up: Refer to Figure 2

Test Procedures

1. Set EUT to lowest operating channel.
2. Set spectrum analyzer to TX output center frequency, RES BW = 1MHz, VID BW = 1MHz.
3. Using MKR PEAK to find the peak power spectral density
4. Repeat for middle channel and highest channel

Test Results

Measured peak power density is below 13.3 dBm. Refer to attached documents *psdX.jpg*

Chanel	Frequency, MHz	PSD dBm/MHz	Limit, dBm/MHz
1	5733.6	12.5	17
5	5776.6	13.17	17
8	5807.4	13.17	17

Peak Excursion of Modulation Envelope

Ref: 15.407(a)6

The EUT employs BPSK modulation, which is constant envelope. Measured power is therefore equivalent to peak power of the envelope. Comparison with PSD data shows that the difference between peak excursion of the modulation envelope and peak power is less than 1 dB.

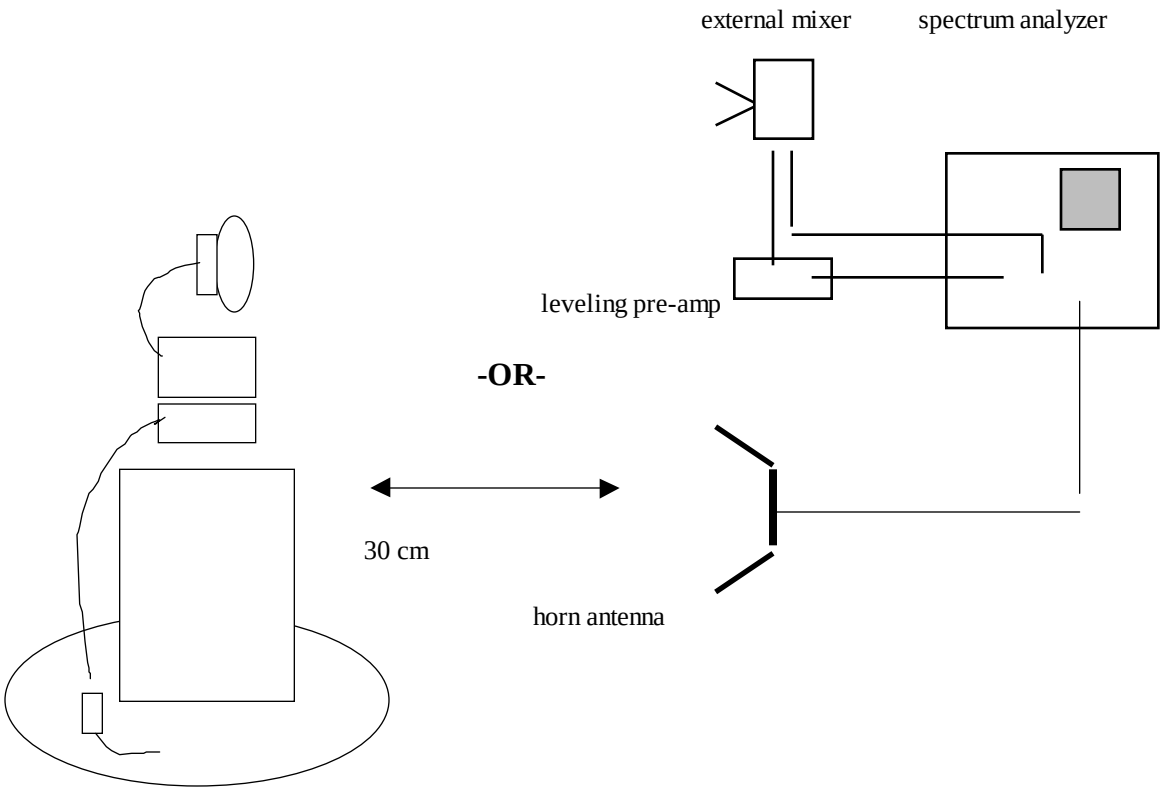
Field Strength of Spurious and Harmonic Radiation

Ref: 15.407(c)6

Measurement Equipment Used:

HP 8566 Spectrum Analyzer
HP 11975A Preamplifier, 2 - 8 GHz (used with HP11970 external mixers)
Antenna Research Associates MWH 1826/B, 18 - 26.5 GHz
HP 11970K Harmonic mixer, 18 - 26.5 GHz
HP 11970A Harmonic mixer, 26.5 - 40 GHz
HP 11970Q Harmonic mixer, 33 - 50 GHz
HP 11970V Harmonic mixer, 50 - 75 GHz
HP 11970W Harmonic mixer, 75 - 110 GHz
Low loss antenna cable (0.7 dB/ft @ 24 GHz)

Test Set-Up



Test Method
With the transmitter operating at full power, the EUT was rotated 360° and the search antenna was raised and lowered in both polarities, all in an attempt to maximize the levels of the received emission for each harmonic and spurious emission up to 40 GHz.

Test Results

No emissions above instrumentation noise floor were detected. Tests were performed for each of the 4 antennas at a LOW, MID, and HIGH channel.

Antenna conducted measurements confirmed there are no harmonic emissions generated by this transmitter above the noise floor of the spectrum analyzer (-51 dBm or lower). Using the relationship between field strength, output power and distance

EV/m = (•(30*PW*G))/d meters (E volts/m, P watts, G numeric gain over isotropic)

Assuming G=1, converting volts to microvolts and watts to milliwatts, simplifying and combining terms, and using a distance of d = 3m

E@3m, dBuV/m = (95.24 + PdBm) dBuV/m = 95.24- 51dBm = **44.24 dBuV/m**

!5.205, 15.209 limit: 54 dBuV/m @ 3m