EXHIBIT 2: Product Description and Operation Overview

General Overview

The Aperto Networks upper U-NII band radio consists of a indoor unit (IDU) network interface and an outdoor unit (ODU) radio head. The IDU connects to the digital network via CAT5 cable. The IDU is connected to the ODU via shielded CAT5 cable for control and an RG6 with F connector for signal/data. (from user manual):

Table 3-A Subscriber Site Cable Requirements

Connection — Qty	Cable Type	Max. Length	Connectors
Ethernet (1)	Cat 5	330 ft (100 m)	RJ45 male
Radio Signal (1)	Quad Shield Coaxial	165 ft. (50 m) *	Male F type
Radio Control (1)	Shielded Cat 5	165 ft. (50 m) *	RJ45 male
* *These two cables run over the same path, and so will be of the same length.*			

Frequency Band: Full-duplex operation in the UNII band
Frequency Range: 5731 to 5819 MHz in 1 MHz steps and 6 MHz channel width
IDU Digital Interface: 10/100BaseT Ethernet
Modulation Type: QPSK, 16QAM

The radio can be configured as either customer premises equipment (CPE) or as a base station unit (BSU). The radios are identical, except that the CPE uses an integral antenna, and the BSU has an antenna connector for separately mounted antennas.

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

FCC CERTIFICATION INFORMATION

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

2.1033(b)1 **Applicant:** Aperto Networks
1637 South Main Street
Milpitas CA 95035

2.1033(b)2 **FCC ID**: PS6R3000-A1

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

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

2.1033(b)5 Block diagram is found in a separate document

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

2.1033(b)7 Product photographs are attached in separate document .

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, 15.204. The Aperto U-NII radio will be professionally installed. The following antennas were tested, and are the only antennas that will be used with this product. If different types antenna or antennas with different gains are to be used on future revisions of this product, these antennas will be tested and a class 2 permissive change will be submitted per paragraph 2.1043 of the Rules.

BSU: The flat panel BSU antenna achieves 15 dBi gain with a nominal 3dB azimuth beam width of 60° and an elevation beam width of 10° on both horizontal and vertical polarizations of its two spatially separated antennas.

CPE: The flat panel CPE antenna assembly is formed from a 4X4 patch array and a parasitic element riveted together ultrasonically with plastic standoffs. The antenna achieves 18 dBi gain with a nominal 3dB azimuth and elevation beam widths of 17° on both horizontal and vertical polarizations

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 Aperto UNII radio output power levels are set at the factory to **15 dBm**.

The **26 dB channel bandwidth** is 5.65 MHz.

15.407(a)3 Power limits

17 dBm + 10 log (5.65) = **24.5 dBm max. for 5.725 - 5.825 GHZ band**

Peak power spectral density: = **17 dBm/MHz**

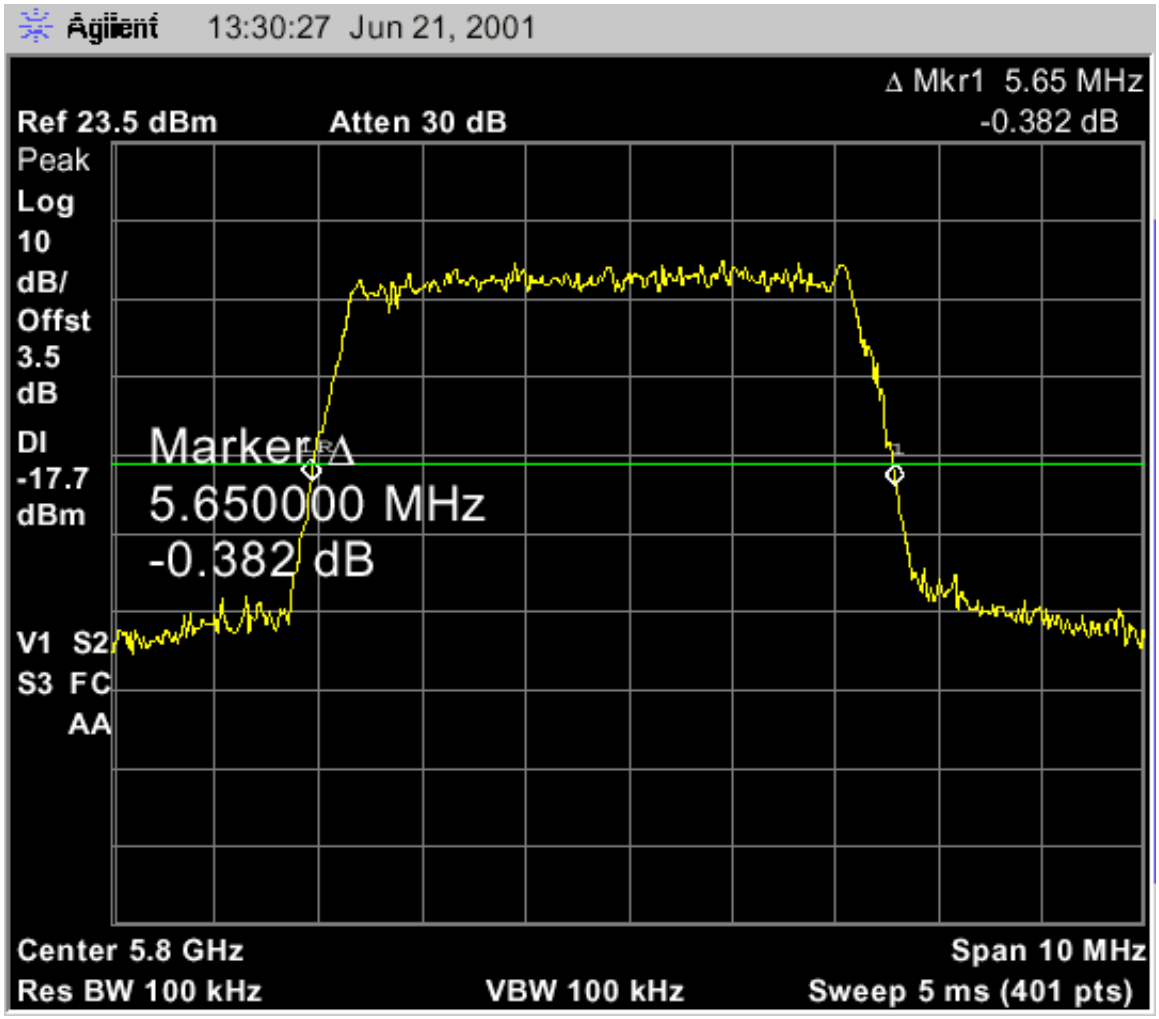
Defacto EIRP limit:

Point to Point (CPE): 24.5 dBm + 23 dBi = 47.5 dBm EIRP
Point to Multipoint (BSU): 24.5 dBm + 6 dBi = 30.5 dBm EIRP

Maximum Power, dBm, into antenna

	18 dBi CPE ant.	**15 dBi BSU ant.**
fo MHz	Max P, dBm	Max P, dBm
all channels	15	15

15.401(c) Emission Bandwidth



Analyzer setting: RBW=VBW=100 kHz, closest setting to 1% emission BW (=56.5 kHz)

The trace was captured using the VIEW function of the analyzer. The peak of the emission was determined and a display line was produced 26 dB below this peak.

Widest width of the emission at display line = Emission Bandwidth = 5.65 MHz

RF Output Power Measurements
Ref: 15.407(a)2

Measurement equipment used:

Agilent E4407B Spectrum analyzer
(s/n: US40420680, cal due: 9 May 2002)

Test set-up:

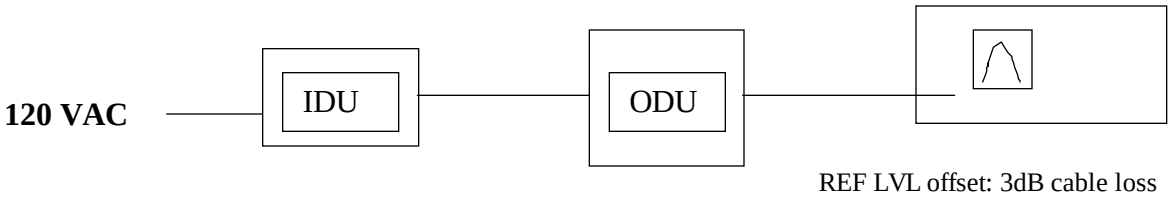


Figure 1

Test Procedures

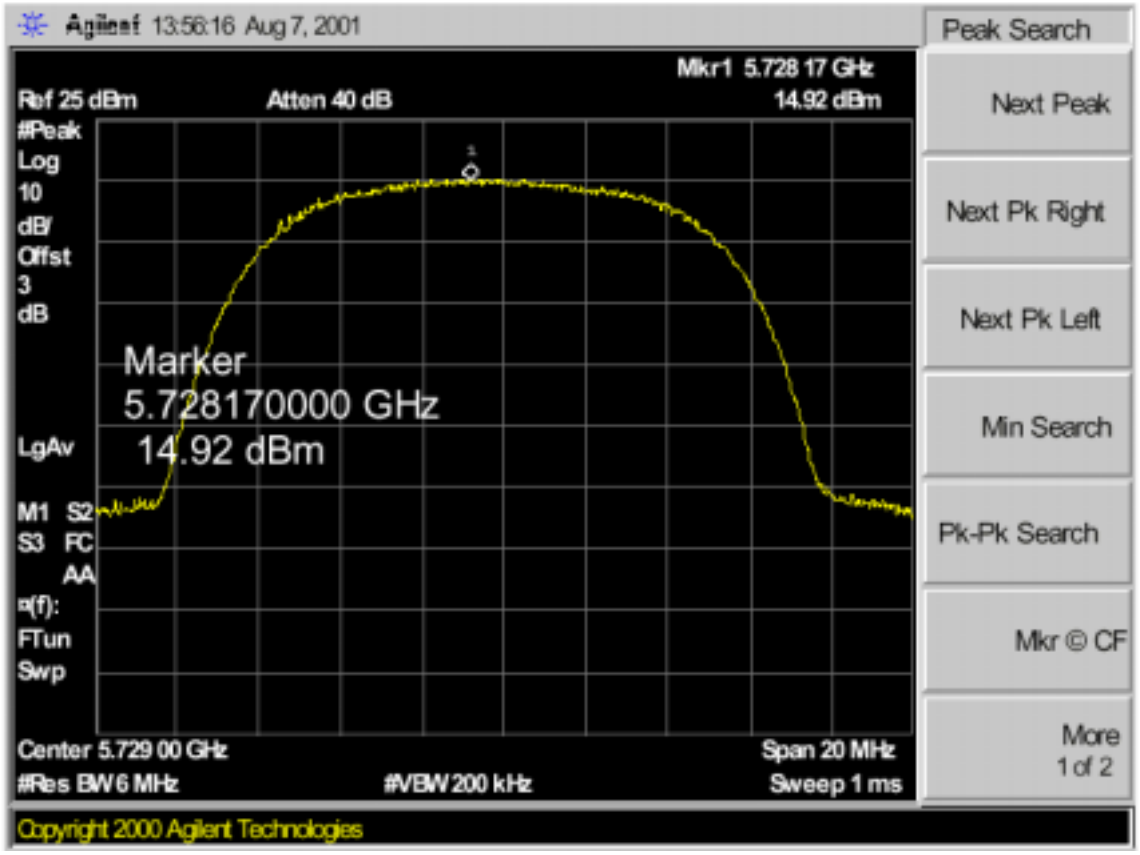
1 Set the IDU to the desired channel and to maximum output power setting
2. Set RES BW > Occupied bandwidth, VID BW = RES BW/30
3. Using MAX HOLD and PEAK SEARCH functions, determine maximum power

Test Results: Power Output, Max

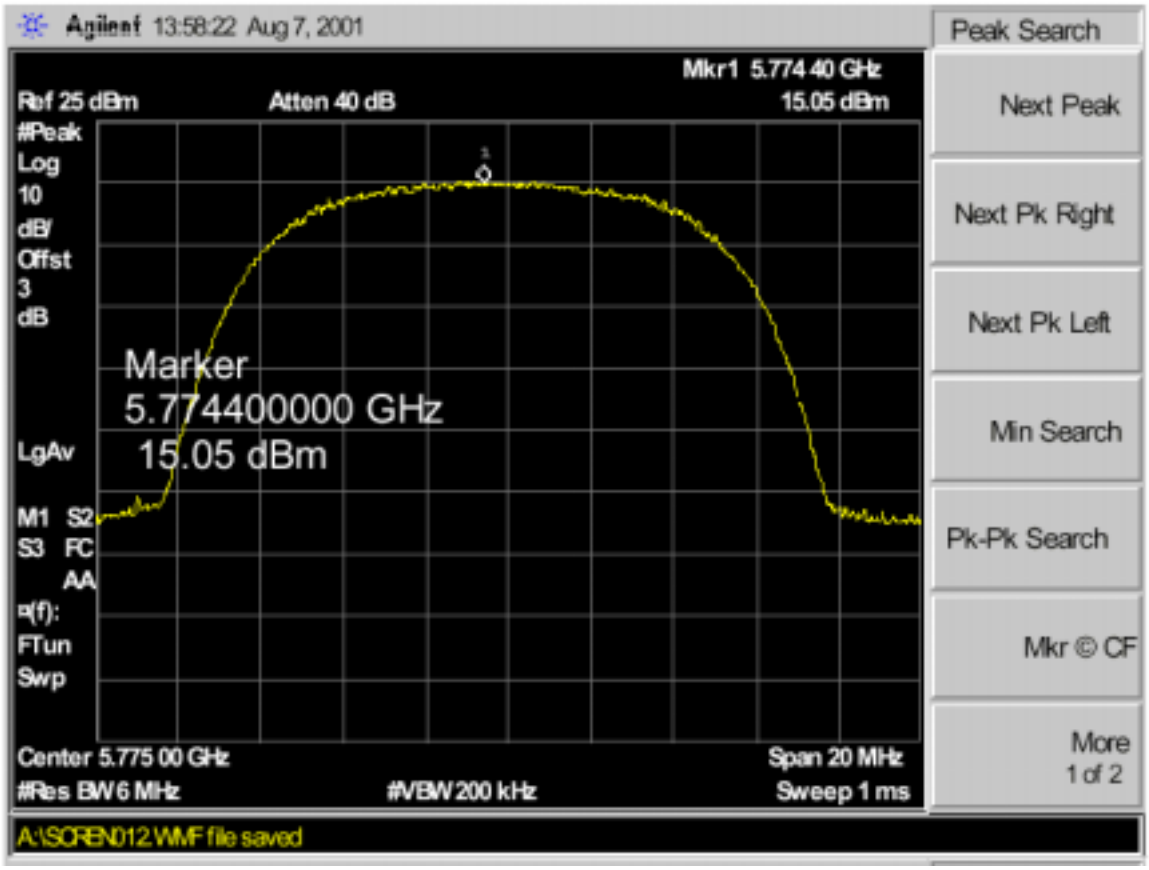
Chanel	**Frequency, MHz**	**Pout, dBm**
LOW	5731	14.92
MID	5775	15.05
HIGH	5819	15.02

RES BW = 6 MHz, VID BW = 200 kHz

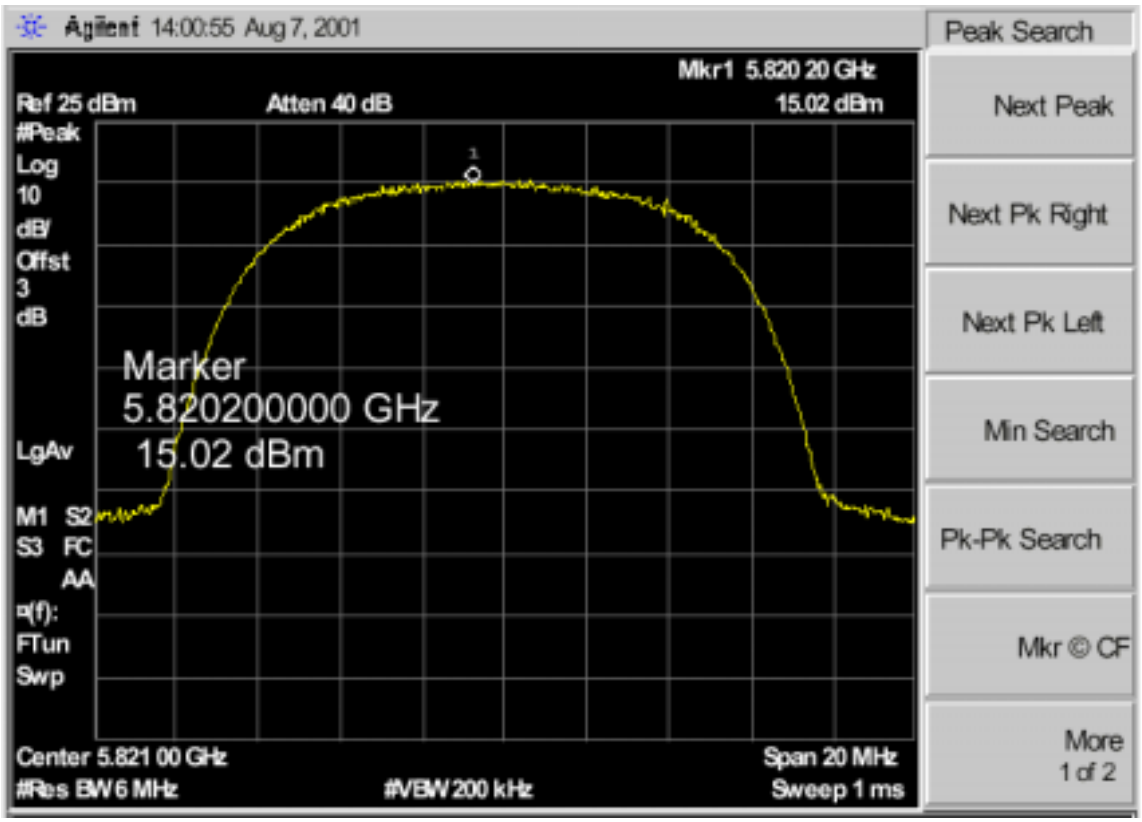
LOW Channel Power Output



MID Channel Output Power



HI Channel Output Power



Peak Power Spectral Density
Ref: 15.407(a)5

Measurement equipment used:

Agilent E4407B Spectrum analyzer

Test set-up: Refer to Figure 1

Test Procedures

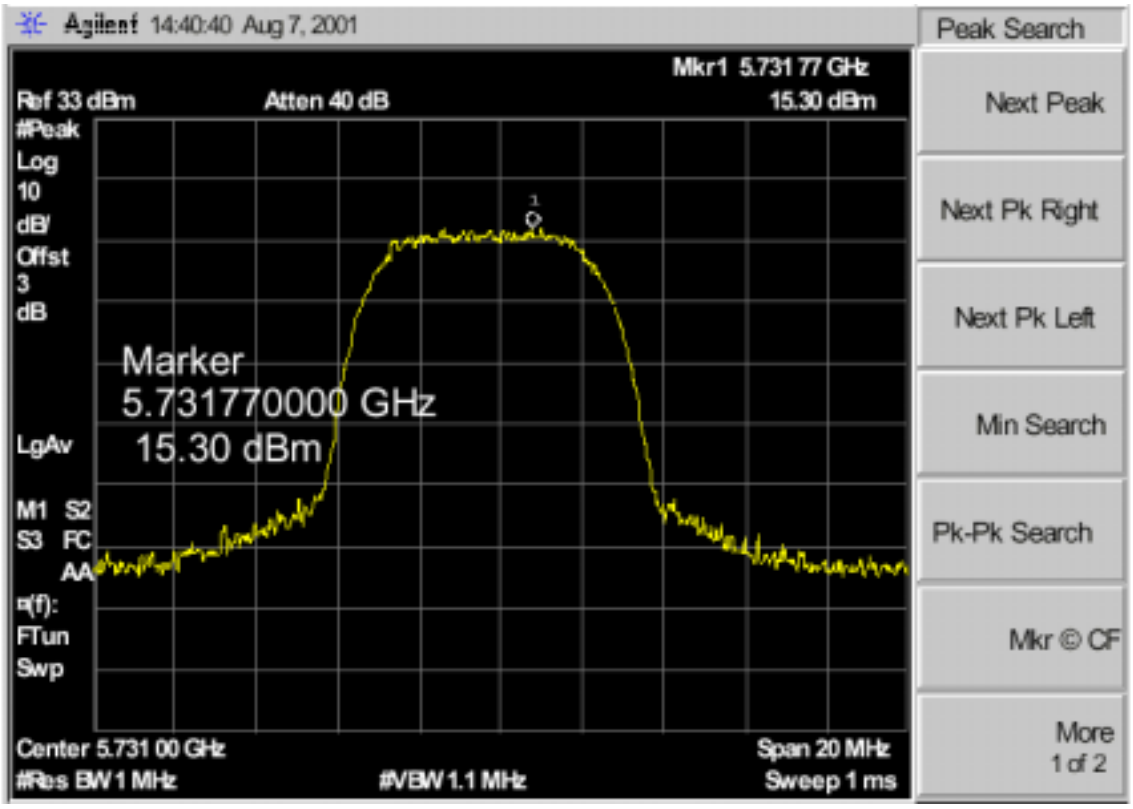
1. Set EUT to lowest operating channel.
2. Set spectrum analyzer to TX output center frequency, RES BW = 1MHz, VID BW > 1MHz. Use VIDEO AVERAGING.

3 Using MKR PEAK to find the peak power spectral density
4 Repeat for middle channel and highest channel

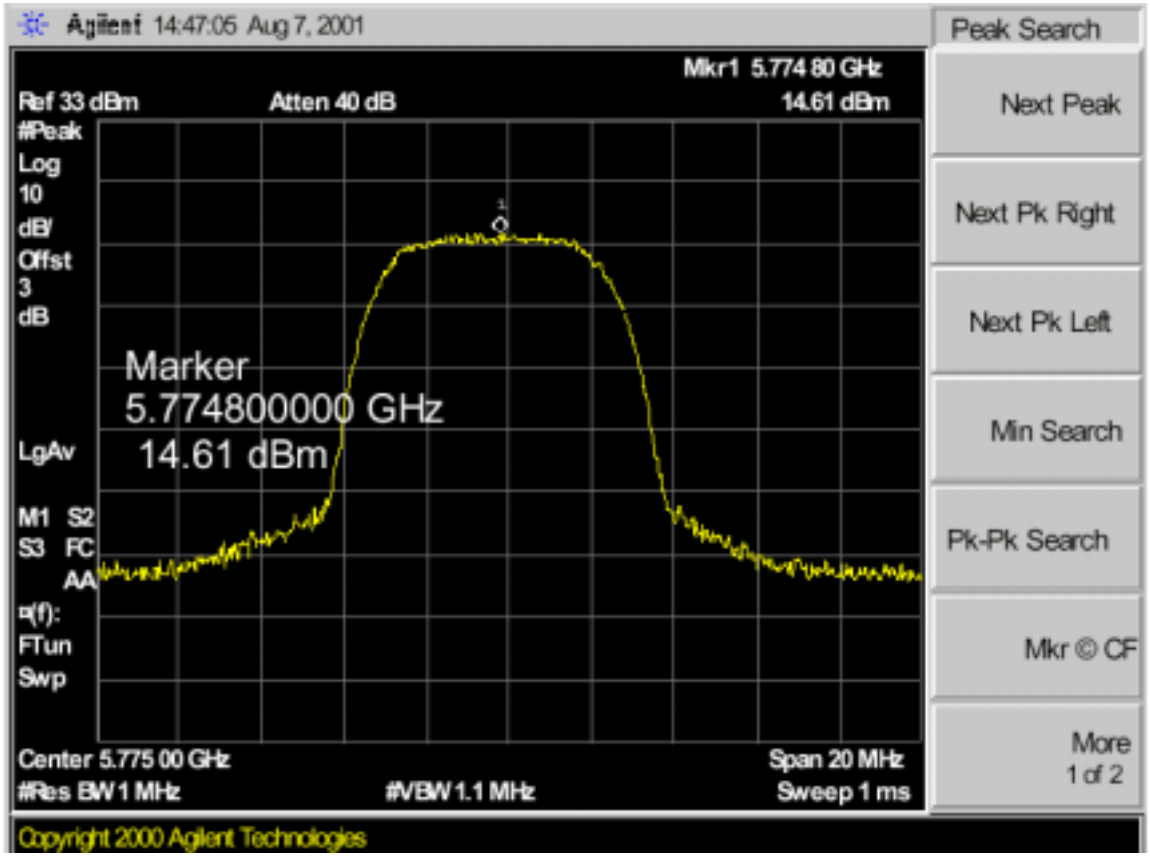
Test Results

Chanel	Frequency, MHz	PSD dBm/MHz	Limit, dBm/MHz
LOW	5731	15.3	17
MID	5775	14.6	17
HIGH	5819	15.1	17

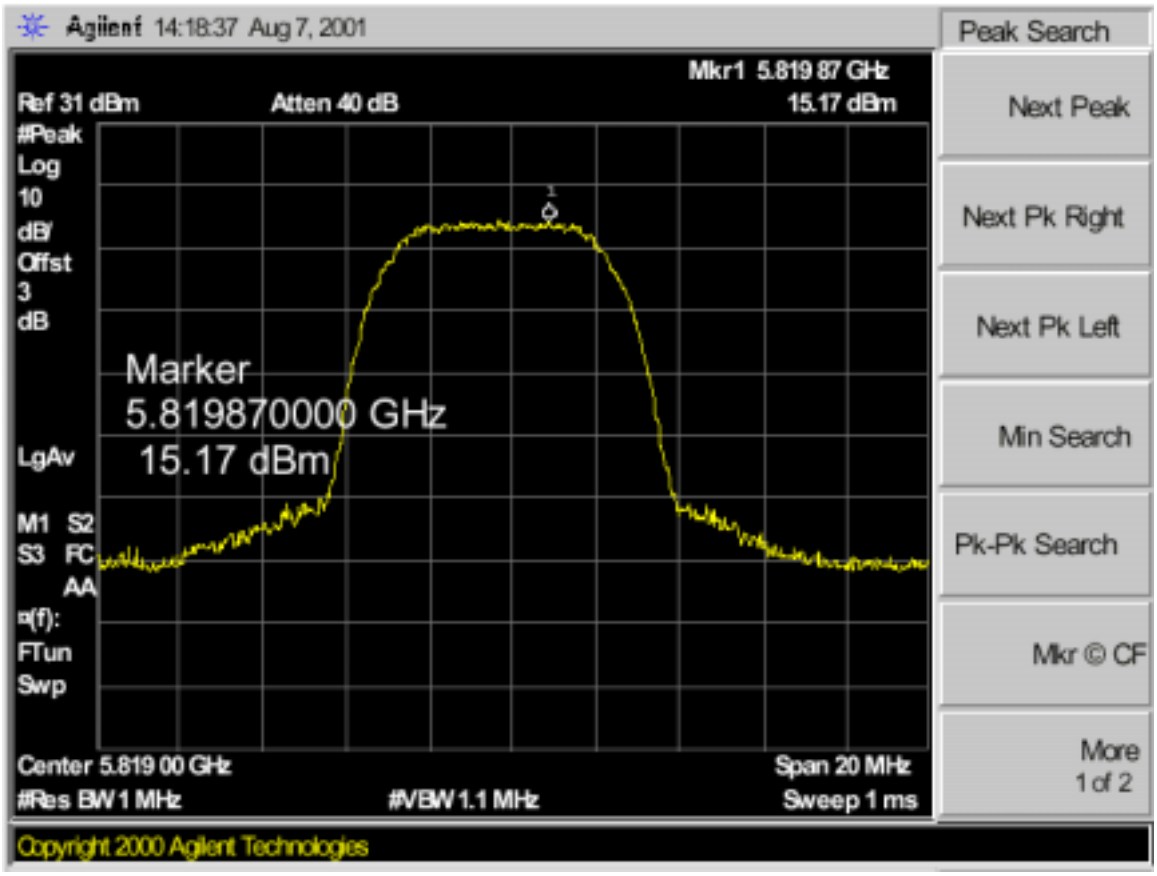
LOW channel PSD



MID Channel PSD



HIGH Channel PSD



Ratio: Peak Excursion Modulation Envelope to Peak Transmit Power
Ref: 15.407(a)6

Measurement equipment used:

Agilent E4407B Spectrum analyzer

Test set-up: Refer to Figure 1

Test Procedures

Set EUT to LOWest operating channel.

Record two spectrum analyzer traces:

1st Trace. RBW=VBW=1MHz with the detector to Peak Max Hold.

2nd Trace. RBW=1MHz and VBW= 30kHz with the detector to Peak Max Hold.

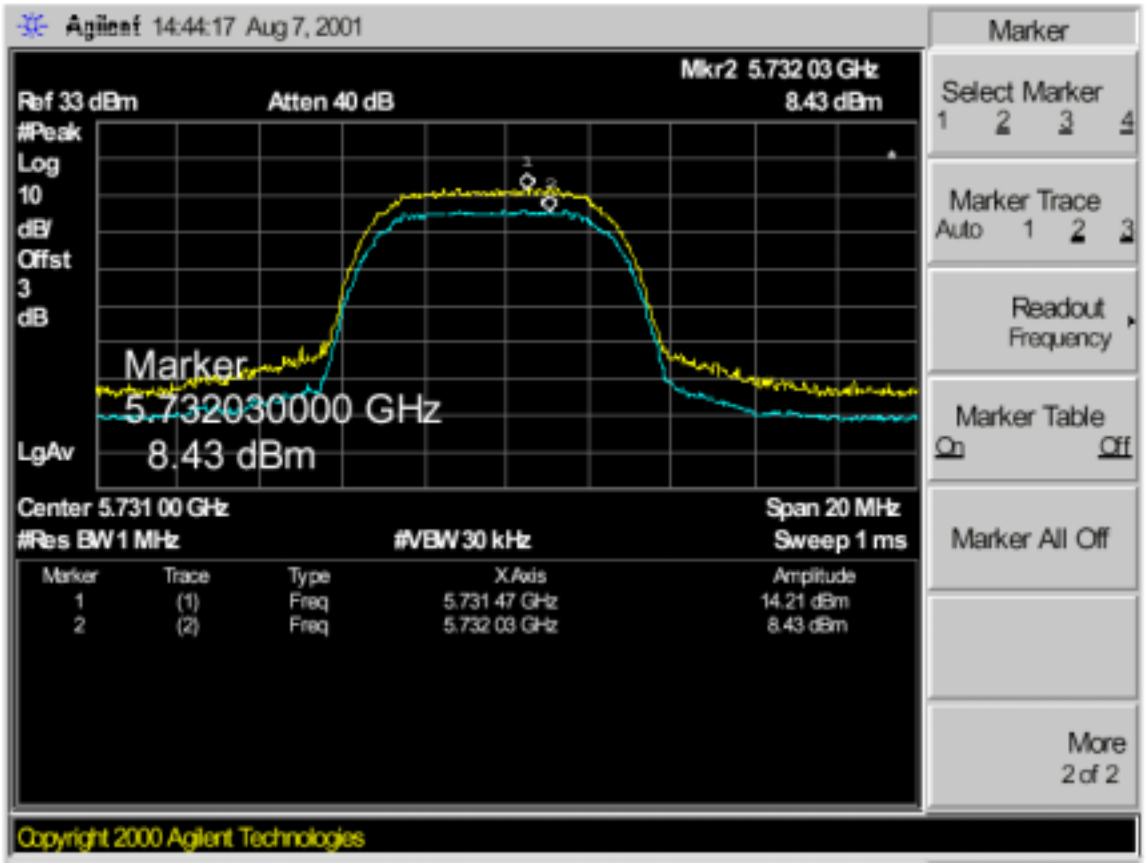
Repeat for MID and HIGH channel.

Test Results

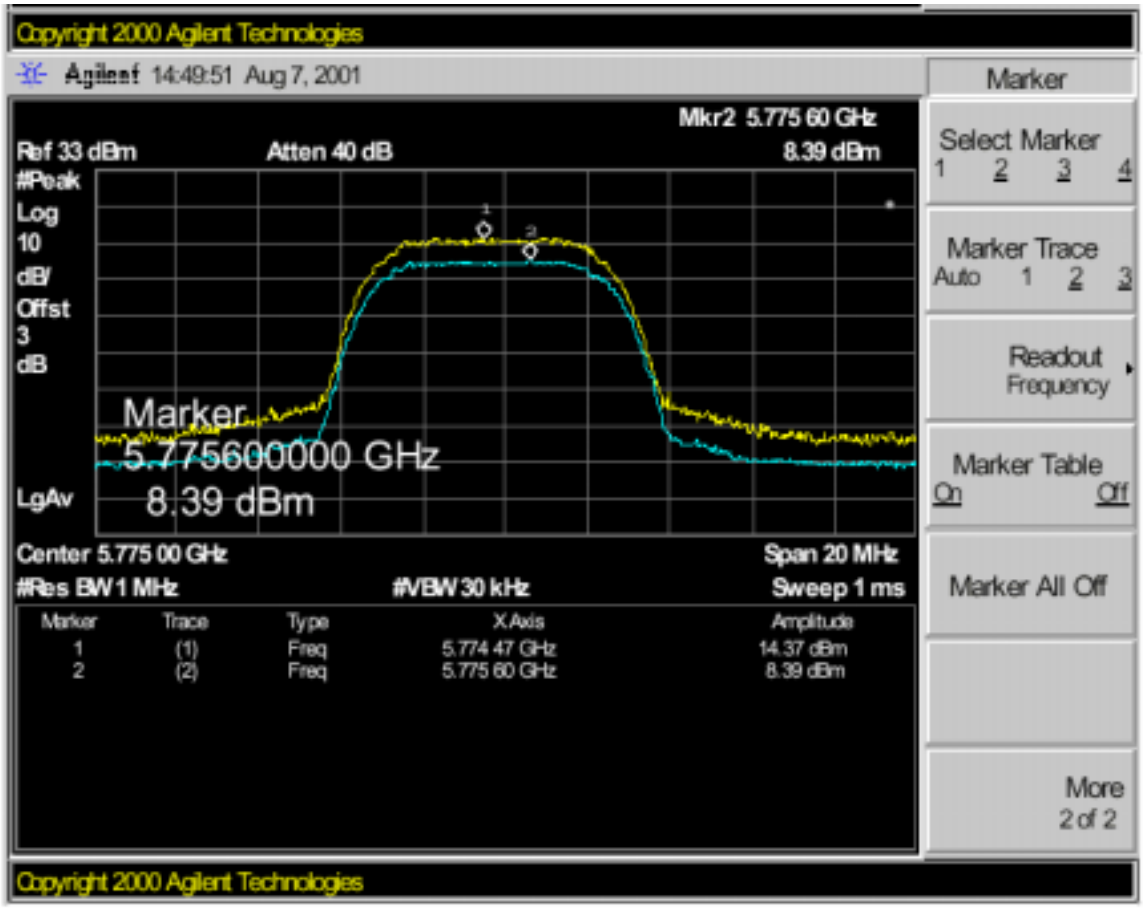
Refer to spectrum analyzer traces attached.

LOW channel: 14.2 dBm - 8.4 dBm = **6.2 dB**.	Below 13 dB maximum
MID channel: 14.4 dBm - 8.4 dBm = **6 dB**.	Below 13 dB maximum
HIGH channel: 14.95 dBm - 8.82 dBm = **6.15 dB**.	Below 13 dB maximum

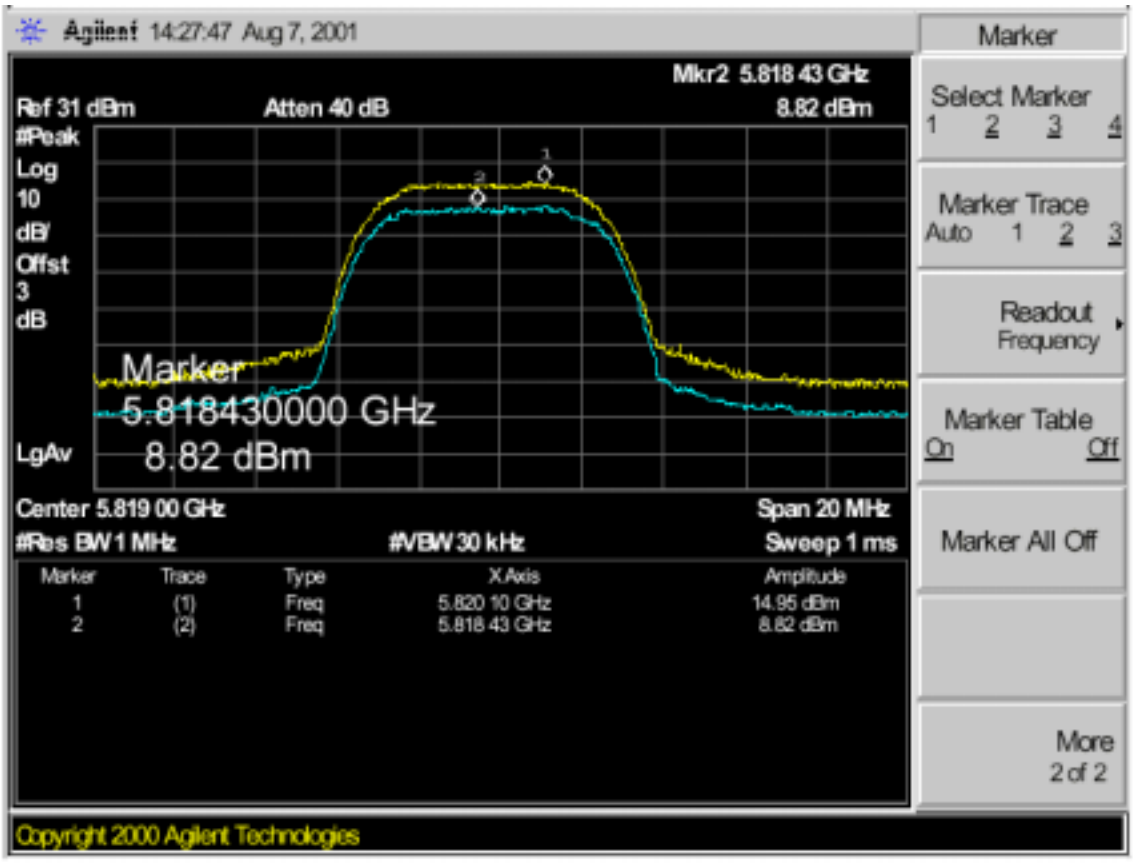
LOW Channel Peak Excursion



MID Channel Peak Excursion



HIGH Channel Peak Excursion



Antenna Conducted Output (For determining bandedge EIRP)

Ref: 15.407(b)2

Measurement equipment used:

Agilent E4407B Spectrum analyzer

Test Set-up

Refer to Fig. 1

Test Procedures

1. Set EUT to LOWest operating channel.
2. Set spectrum analyzer center frequency to TX output, RES BW = 1MHz,
3. VID BW = 1 MHz
4. Use analyzer MKR funtion to measure output at bandedge and 10 MHz from bandedge
5. Add antenna gain and compare to -17dBm/MHz and /or -27dBm/MHz EIRP
6. Plot spectrum analyzer data
7. Repeat steps 2-6 for HIGHest channel

Test Results

Refer to attached spectrum analyzer graphs.

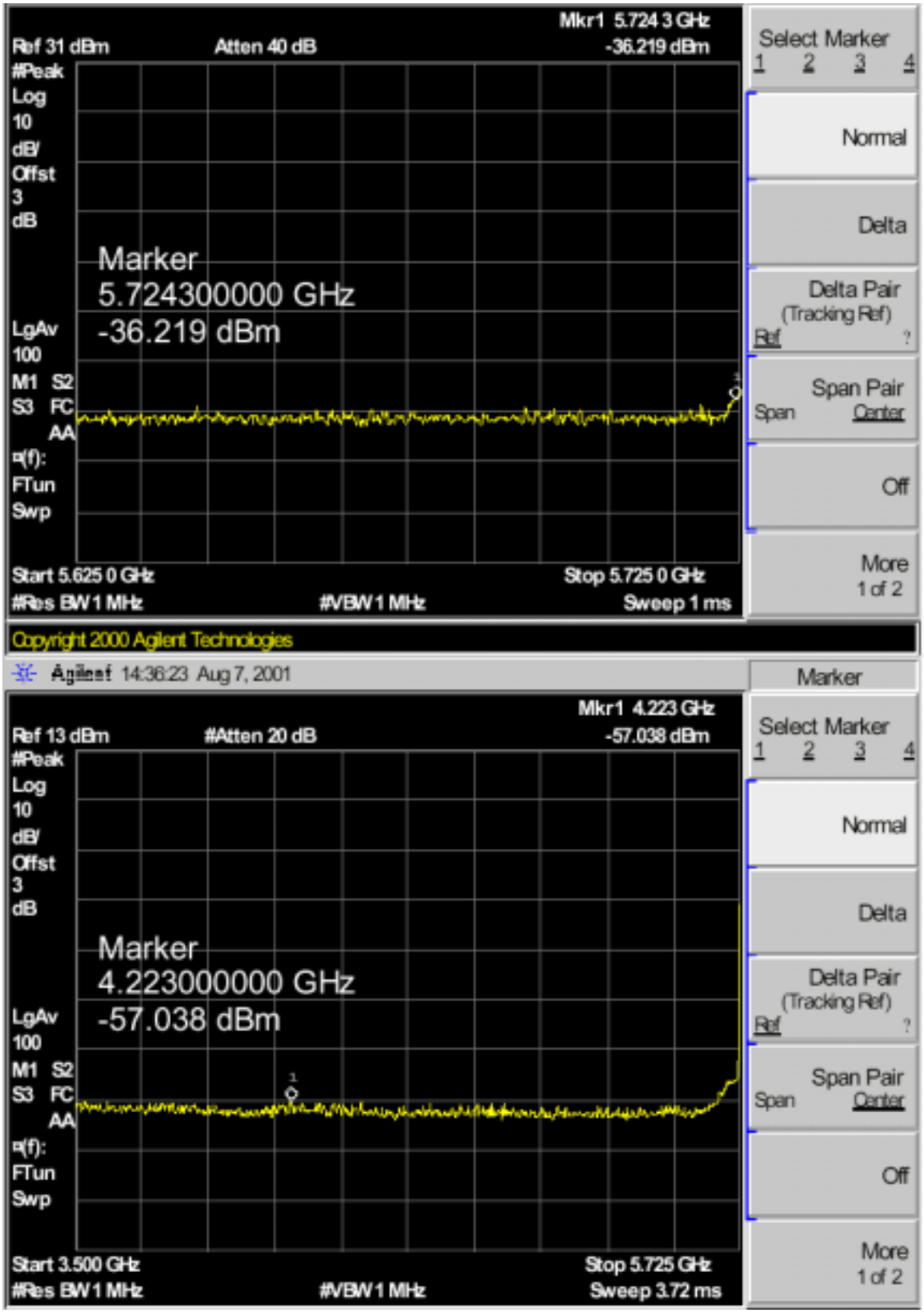
LOW Channel:

5724.3 MHz: -36.2 dBm + 18 dBi = -18.2 dBm/MHz EIRP, meets -17 dBm/MHz min.
Below 5725 MHz: -57.038 dBm+18 dBi = -39 dBm/MHz, meets -27dBm/MHz min

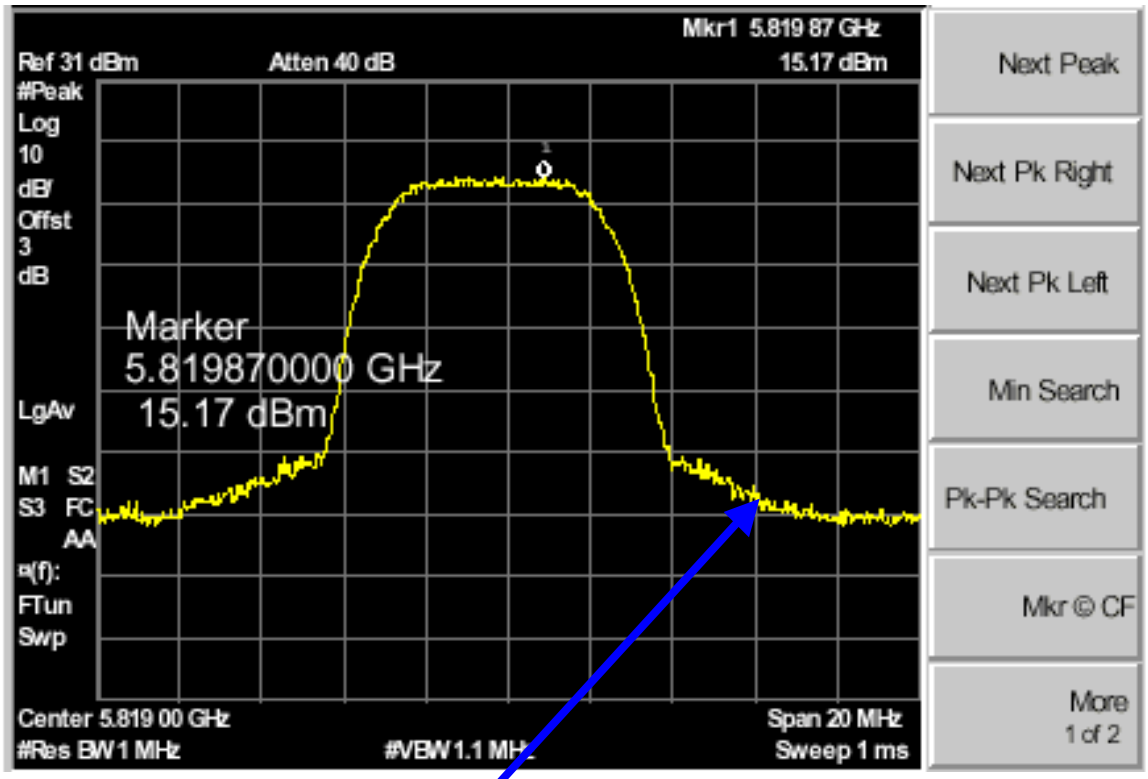
HIGH Channel

5825 MHz: -36 dBm + 18 dBi = -18 dBm/MHz EIRP, meets -17dBm/MHz min.
5864 MHz: -47.825 dBm + 18 dBi = -29.825 dBm/MHz EIRP, meets -27dBm/MHz min.

LOW Channel Bandedge

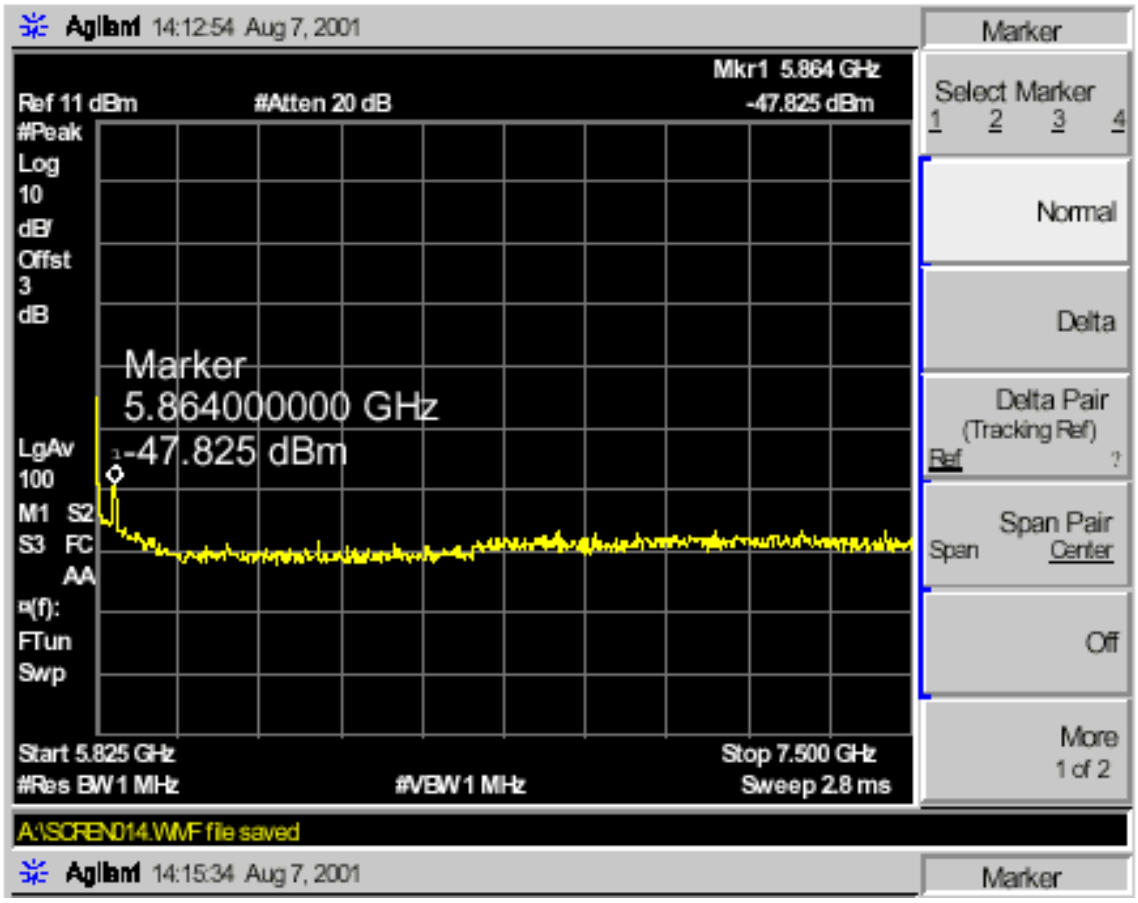


HIGH Channel Bandedge



-36 dBm at 5825 MHz

HIGH Channel Bandedge



Unwanted Emissions below 1 GHz
Ref: 15.407(b)6

15.207 AC Line Conducted Emissions

Measurement Equipment Used:

Rohde & Schwarz EMI Receiver ESHS-20
Fischer Custom Communication LISN, FCC-LISN-50/250-25-2

Test Set-Up

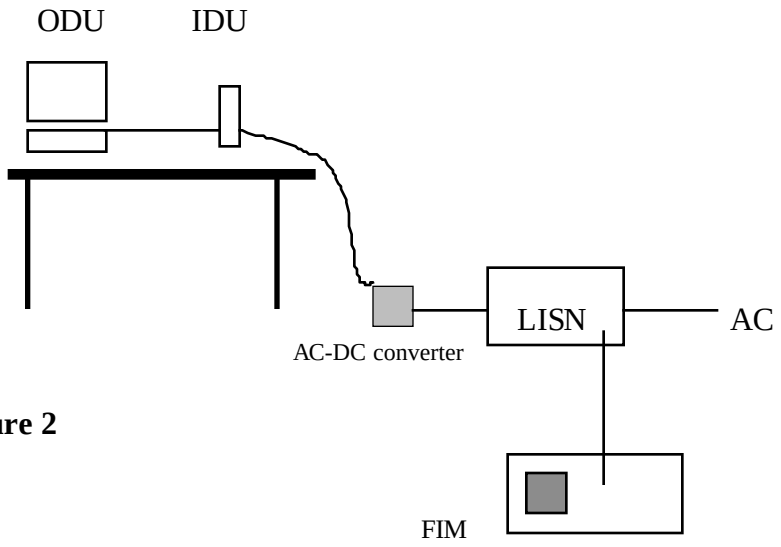


Figure 2

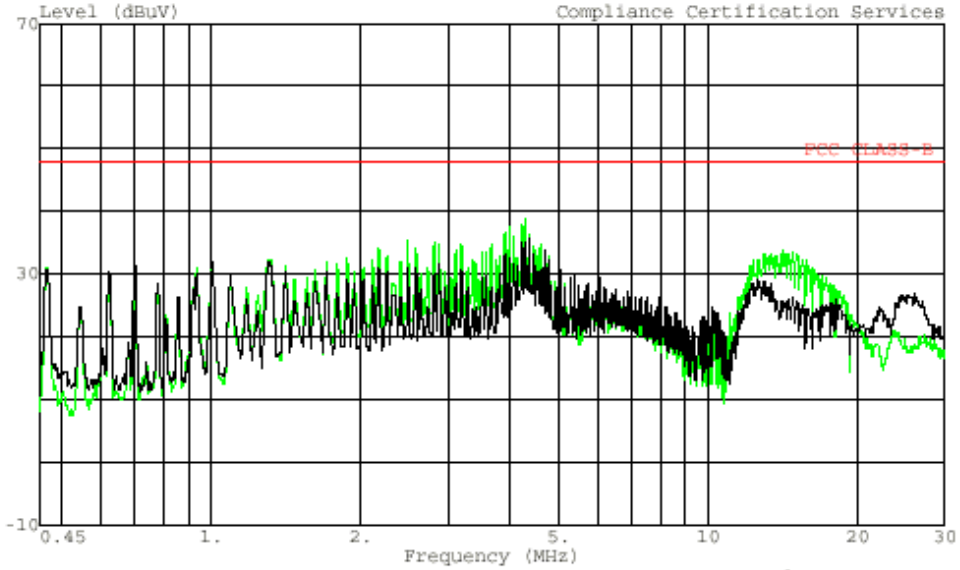
Test Procedure

1. The EUT was placed on a wooden table 40 cm from a vertical ground plane and approximately 80 cm above the horizontal ground plane on the floor. The EUT was set to transmit in normally.
2. Line conducted data was recorded for both NEUTRAL and HOT lines.

Meets requirements. Refer to attached data plot

561 F Monterey Road, Route 2
Morgan Hill, CA 95037-9001 USA
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 7 File#: APERTO.EMI Date: 07-24-2001 Time: 16:02:01



Trace: 3 Ref Trace:
Project No. :
Report No. : 010724-LC
Test Engr : KERWIN CORPUZ
Company : APERTO NETWORKS
EUT Description : 5.8 GHz SUBSCRIBER UNIT
Model : PWSR5800-US; S/N: R58R10118X000002
EUT Config. : EUT/MODEM/LAPTOP
Type of Test : FCC CLASS B
Mode of Operation: TX
: PEAK: L1(Green), L2(Black)
: 115Vac, 60Hz

15.109, 15.209 Radiated Emissions Below 1 GHz

Emissions in 30 - 1000 MHz range were from digital circuitry of IDU ethernet section only (15.109). A separate verification report has been submitted to the client.

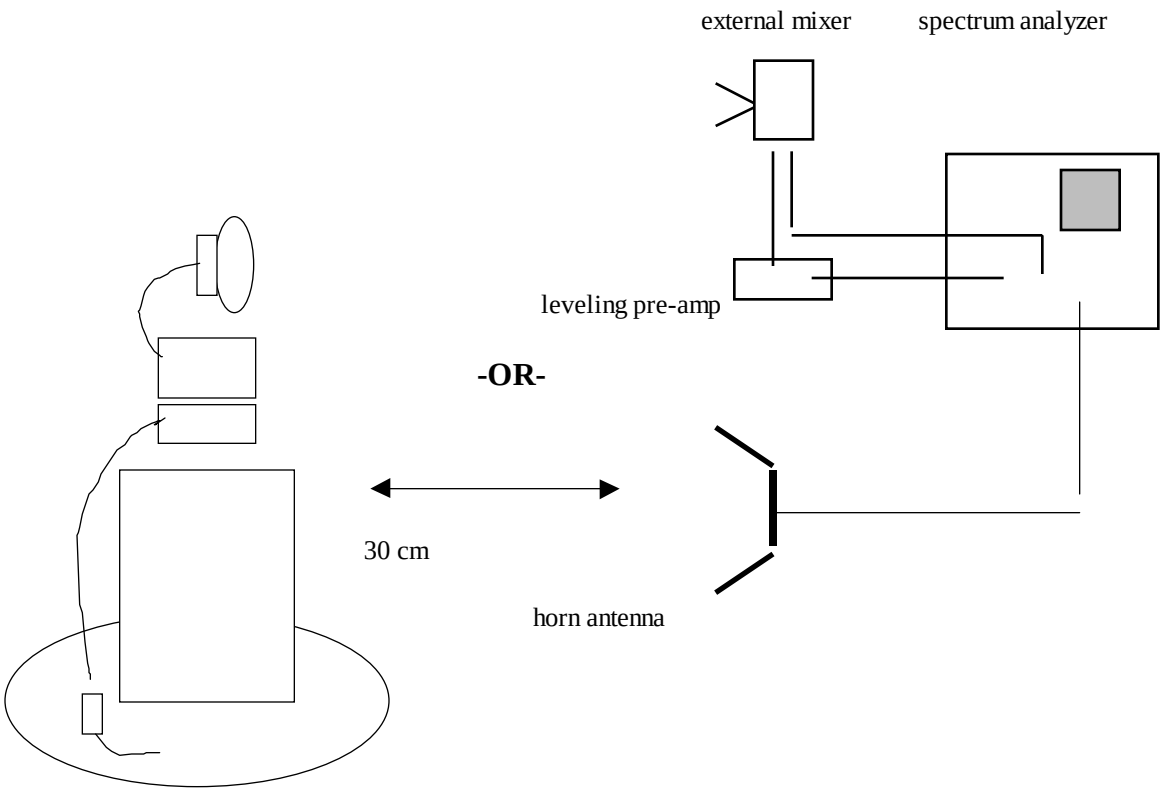
Field Strength of Spurious and Harmonic Radiation

Ref: 15.407(b)6

Measurement Equipment Used:

HP 8593A (up to 26.5 GHz)
HP 8566 Spectrum Analyzer (above 26.5 GHz)
HP 11975A Preamplifier, 2 - 8 GHz (used with HP11970 external mixers)
EMCO Double Ridge Waveguide Horn, 1 - 18 GHz
Antenna Research Associates MWH 1826/B, 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

1 - 26.5 GHz:

No emissions above instrumentation noise floor were detected. Tests were performed for base station and CPE at a LOW, MID, and HIGH channel. Refer to test results in separate document.

26.5 - 40 GHz

Testing was performed at 1 ft separation distance from both base station and CPE unit at LOW, MID, and HIGH channel. No emissions were detected in this frequency range.

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

15.407(c) Automatic Transmitter Shut-off when No Data Present

If the RF transmitter synthesizer loses lock (frequency error) or the output transmitter cannot level power (Pout control error), logic signals are sent to the digital board to shut down the unit. This also happens if power is not present.

15.407(d) Integral Antenna Requirement 5.15 – 5.25 GHz

NOT APPLICABLE

15.407(e) Indoor Operation Limitation 5.15 – 5.25 GHz

NOT APPLICABLE

15.407(f) RF Exposure Information

Worst case MPE Calculations : 15 dBm into 18 dBi Antenna (CPE):

RF Hazard Distance Calculation

mW/cm2 from Table1: 1.00

Max RF Power P, dBm	TX Antenna G, dBi	MPE Safe Distance, cm
15.0	**18.0**	**12.6**

Basis of Calculations:

E^2/3770 = S, mW/cm2
E, V/m = (Pwatts*Ggain*30)^.5/d, meters
d = ((Pwatts*G*30)/3770*S))^0.5 Pwatts*Ggain = 10^(PdBm-30+GdBi)/10)

NOTE: For mobile or fixed location transmitters, minimum separation distance is 20 cm, even if calculations indicate MPE distance is less

The user manual will require a minimum separation of 20 cm for this product for antennas that result in MPE less than 20 cm. Refer to user manual page, separate attachment.

15.407(g) Frequency Stability Under All Conditions of Normal Operations

The theory of operations describes the EUT frequency stability and how it ensures that the intentional output signals are maintained within the 5725 - 5825 MHz band of operation under all conditions of operation as specified in the user's manual.