Lab Code: 200167-0

FCC PART 15 SUBPART E
INDUSTRY CANADA RSS-210, ISSUE 7, JUNE 2007

MEASUREMENT AND TEST REPORT

For

Colubris Networks Inc.

200 West Street
Waltham, MA 02451, USA

FCC ID: RTPWCB-200
IC ID: 4891A-0100166

Report Type: ☑ Original Report	**Product type:** Wireless Client Bridge
Test Engineer:	Oscar Au 
Report Number:	S0712068
Testing Date(s):	2007-06-21 and 2007-06-22
Report Date:	2007-12-21
Reviewed By:	Daniel Deng, RF Engineering Lead 
Prepared By: (00)	**Bay Area Compliance Laboratories Corp. (BACL)** 1274 Anvilwood Ave. Sunnyvale, CA 94089 Tel: (408) 732-9162 Fax: (408) 732 9164

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

This Bay Area Compliance Laboratories Corp. measurement and test report has been prepared on behalf of *Colubris Networks Inc.* and their device model:*WCB-200 Wireless Client Bridge FCC ID: RTPWCB-200, IC: 4891A-0100166*, which will be referred to as the EUT in the rest of this report. The EUT is a Wireless 802.11 a/b/g Client Bridge. The EUT operates in the frequency bands of 2.412 - 2.462 GHz, 5.180 - 5.240 GHz, 5.745 - 5.805 GHz, 5.260 - 5.320 GHz and 5.500 - 5.700 GHz and is powered by AC/DC adapter. The EUT employs DFS for the 5.250-2.350 GHz and 5.5-5.7 GHz bands the testing of which is covered in the DFS report submitted along with this application. The EUT's firmware is programmed at the point of manufacture for client only functionality. Testing was done with the following two identical antennae:

Item Number	Antenna Information	
WTS WLAN Tri-Band antenna	Model number:	WTS2450-RPSMA
	Manufacturer:	Centurion
	Frequency Range:	2.4-2.5 GHz, and 4.9-5.875 GHz
	Connector Type/ Maximum Gain	RP-SMA / 2.5 dBi @ 2.45 GHz, 3.4 dBi @ 5.875 GHz
	Pattern:	Vertical / omni directional
	Measurement:	Length: 95.9 mm (L) x 9.3 mm (D)

EUT Photo

WCB-200

Additional EUT photos in Exhibit C

Mechanical Description

The EUT is of metallic construction with approximate dimensions of 140 mm (L) x 125 mm (W) x 33 mm (H) and weighs approximately 455 g.

** The test data gathered is from production sample, with serial numbers: B043-01224 & B051-00350, provided by the manufacturer.*

Objective

This supplemental testing report is prepared on behalf of *Colubris Networks, Inc.* in accordance with Part 2, Subpart J, Part 15, Subparts A, B and E of the Federal Communication Commissions rules. Please see Curtis-Straus report EF0640-2 report for testing and results pertaining to the FCC part 15.247 requirements.

The objective is to determine compliance with new UNII bands with FCC rules for Maximum Output Power, Antenna Requirements, 26 dB Bandwidth, peak power spectral density, Peak excursion, Band Edges Measurement, Conducted and Radiated Spurious Emissions.

Related Submittal(s)/Grant(s)

None.

Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the values range from $\pm$2.0 for Conducted Emissions tests and $\pm$4.0 dB for Radiated Emissions tests are the most accurate estimates pertaining to uncertainty of EMC measurements at BACL.

Detailed instrumentation measurement uncertainties can be found in BACL report QAP-018.

Test Facility

The test site used by BACL Corp. to collect radiated and conducted emissions measurement data is located at its facility in Sunnyvale, California, USA.

The test sites at BACL have been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission, Industry Canada, and Voluntary Control Council for Interference has the reports on file and is listed under FCC registration number: 90464, IC registration number: 3062A, and VCCI Registration Number: C-2463 and R-2698. The test site has been approved by the FCC, IC, and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200167-0). The current scope of accreditations can be found at http://ts.nist.gov/ts/htdocs/210/214/scopes/2001670.htm

SYSTEM TEST CONFIGURATION

Justification

The host system was configured for testing according to ANSI C63.4-2003.

The EUT was tested in the testing mode to represent *worst*-case results during the final qualification test.

EUT Exercise Software was provided by Colubris Networks Inc.

Special Accessories

There were no special accessories were required, included, or intended for use with EUT during these tests.

Equipment Modifications

No modifications were made to the EUT.

Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Dell	Laptop	Inspiron 1300	CN-OT9369-48643-52P-4582

Power Supply (AC-DC adaptor)

Manufacturer	Description	Model	Serial Number
FSP Group, Inc	AC-DC adaptor	FSP015-1AD201A	H00003459

SUMMARY OF TEST RESULTS

Results reported relate only to the product tested.

FCC Rules	Description of Test	Result
CFR47 §15.407 (f) §2.1091	RF Exposure	Compliant
CFR47 §15.203	Antenna Requirement	Compliant
CFR47 § 15.207 (a)	Conducted Emissions	Compliant
CFR47 § 15.407 (b)	Unwanted Emissions	Compliant
CFR47 §15.209 & §15.407(b) & §15.205	Spurious Radiated Emissions	Compliant
CFR47 §15.407 (a)(2)	99% & 26 dB Bandwidth	Compliant
CFR47 §15.407 (a)	Maximum Peak Output Power	Compliant
CFR47 §15.407 (a)	Power Spectral Density	Compliant
CFR47 § 15.407 (a)(6)	Peak Excursion	Compliant
CFR47§15.407 (g)	Frequency Stability	Compliant

IC Rules	Description of Test	Result
RSS-Gen §7.1.4	Antenna Requirement	Compliant
RSS-210 §A9.2	99% Bandwidth	Compliant
RSS210 § A8.4, A9.2	Peak Output Power Measurement	Compliant
RSS-210 §A9.2	Power Spectral Density	Compliant
RSS210 § A9.3	Out of Band Emission	Compliant
RSS-210 §2.7, §A9.3	Restricted Bands & Spurious Radiated Emissions	Compliant
RSS-Gen §6(a)	Receiver Spurious Emissions	Compliant
RSS-Gen §5.5 RSS-102	RF Exposure	Compliant
RSS-Gen §7.2.2	Transmitter and Receiver AC Power Lines Conducted Emission Limits	Compliant

CFR47 §15.203, RSS-Gen §7.1.4 - ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

And according to § 15.407 (a)(2), if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to RSS-Gen§7.1.4, a transmitter can only be sold or operated with antennas with which it was certified. A transmitter may be certified with multiple antenna types. An antenna type comprises antennas having similar in-band and out-of-band radiation patterns. Testing shall be performed using the highest-gain antenna of each combination of transmitter and antenna type for which certification is being sought, with the transmitter output power set at the maximum level. Any antenna of the same type and having equal or lesser gain as an antenna that had been successfully tested for certification with the transmitter, will also be considered certified with the transmitter, and may be used and marketed with the transmitter. The manufacturer shall include with the application for certification a list of acceptable antenna types to be used with the transmitter.

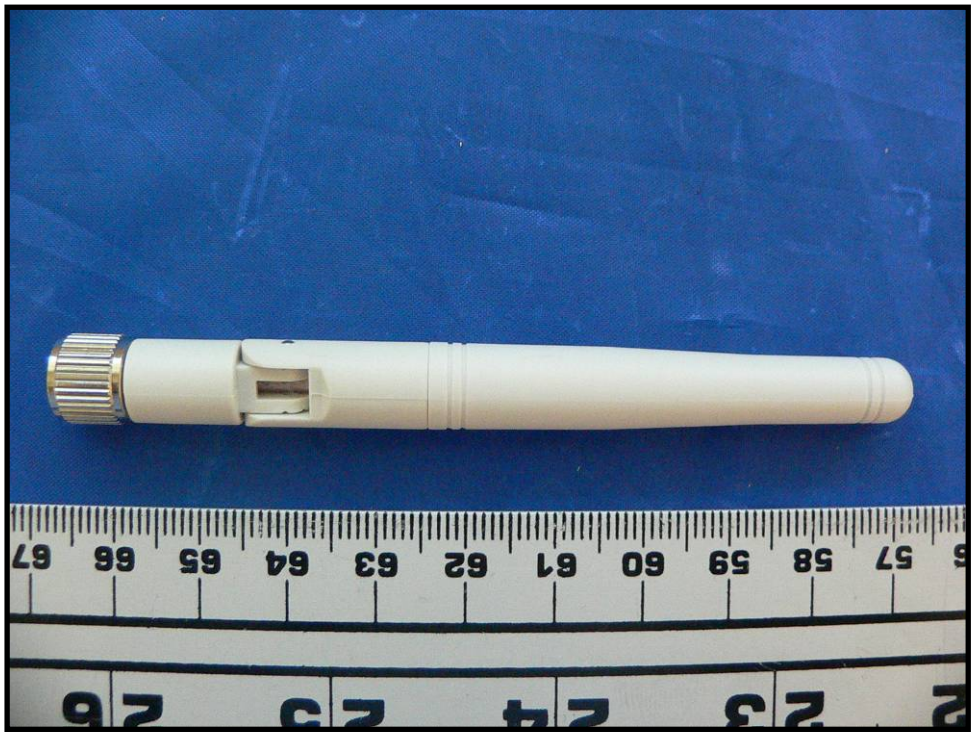
When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on measurement or on data from the antenna manufacturer. Any antenna gain in excess of 6 dBi (6 dB above isotropic gain) shall be added to the measured RF output power before using the power limits specified in RSS-210 or RSS-310 for devices of RF output powers of 10 milliwatts or less. For devices of output powers greater than 10 milliwatts, except devices subject to RSS-210 Annex 8 or RSS-210 Annex 9, the total antenna gain shall be added to the measured RF output power before using the specified power limits. For devices subject to RSS-210 Annex 8 or Annex 9, the antenna gain shall not be added.

Result:

The two identical antennae, model: WTS2450-RPSMA for this device is a omni-directional antenna with the gain of 2.6 dBi for 5.25 GHz and 3.4 dBi for 5.875 GHz that uses a reverse polarity SMA connector thus complying with the 15.203 unique coupling requirements.

☒ **Compliant** ☐ **N/A**

Please refer to the following antenna photo for details.



Antenna Photo

Frequency	2.4 – 2.5 GHz 4.9 – 5.875 GHz
Gain	2.1 dBi (2.45 GHz) 2.4 dBi (4.9 GHz) 2.6 dBi (5.25 GHz) 3.4 dBi (5.875 GHz)
Polarization	Vertical, Omnidirectional
Nominal Impedance	50 ohms
VSWR	2:1 max across all bands
Size	95.9 mm (180° straight) or 75.4 mm (90° bent) x 9.3 mm dia.

CFR47§ 15.407(f), § 2.1091 and RSS-Gen §5.5 & RSS-102 - RF EXPOSURE

Applicable Standard

According to CFR47 §15.407, U-NII devices are subject to the radio frequency radiation exposure requirements specified in §1.1307(b), §2.1091 and §2.1093 of this chapter, as appropriate. All equipment shall be considered to operate in a "general population/uncontrolled" environment. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

According to RSS-Gen §5.5 Exposure of Humans to RF Fields, before equipment certification is granted, the applicable requirements of RSS-102 shall be met.

According to CFR47 §1.1310 and §2.1091 RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*($180/f^2$)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

Frequency Range (MHZ)	**Electric Field (V/M rms)**	**Magnetic Field (A/m rms)**	**Power Density (W/m2)**	**Time Averaging (min)**
0.003 – 1	280	2.19	-	6
1 – 10	280 / f	2.19 / f	-	6
10 – 30	28	2.19 / f	-	6
30 – 300	28	0.073	2*	6
300 - 1500	$1.585\ f^{0.5}$	$0.0042\ f^{0.5}$	f / 150	6
1500 – 15 000	61.4	0.163	10	6
15 000 – 150 000	61.4	0.163	10	$616000 / f^{1.2}$
150 000 – 300 000	$f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000 / f^{1.2}$

MPE Prediction

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$S = PG/4\pi R^2$

Where: S = power density
P = power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal (dBm):	14.52
Maximum peak output power at antenna input terminal (mW):	28.31
Prediction distance (cm):	20
Prediction frequency (MHz):	5300
Maximum Antenna Gain, typical (dBi):	3.4
Maximum Antenna Gain (numeric):	2.19
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.0123
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

Maximum peak output power at antenna input terminal (dBm):	15.31
Maximum peak output power at antenna input terminal (mW):	33.96
Prediction distance (cm):	20
Prediction frequency (MHz):	5580
Maximum Antenna Gain, typical (dBi):	3.4
Maximum Antenna Gain (numeric):	2.19
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.0148
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

Test Result

The power density level at 20 cm is 0.023 mW/cm^2 and 0.0148 mW/cm^2 , which are both below the uncontrolled exposure limit of 1.0 mW/cm^2 at 5250-5350 MHz and 5400-5725 MHz.

CFR47§15.207, RSS-Gen §7.2.2 - CONDUCTED EMISSIONS

CFR47 §15.207 & RSS-Gen 7.2.2 Conducted limits:

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-peak	Average
0.15-0.5 0.5-5 5-30	66 to 56 * 56 60	56 to 46 * 46 50

** Decreases with the logarithm of the frequency.*

Test Setup

The measurement was performed at shield room, using the setup per ANSI C63.4 – 2003 measurement procedure. The specification used was Class B limits.

External I/O cables were draped along the edge of the test table and bundle when necessary.

The EUT was connected with LISN-1.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
R&S	Receiver, EMI Test	ESCI 1166.5950K03	100337	2007-03-08
Fischer Custom Communication	LISN, Artificial Mains	FCC-LISN-50-50-2-M-H	6013	2006-03-31 (2 yrs)

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Procedure

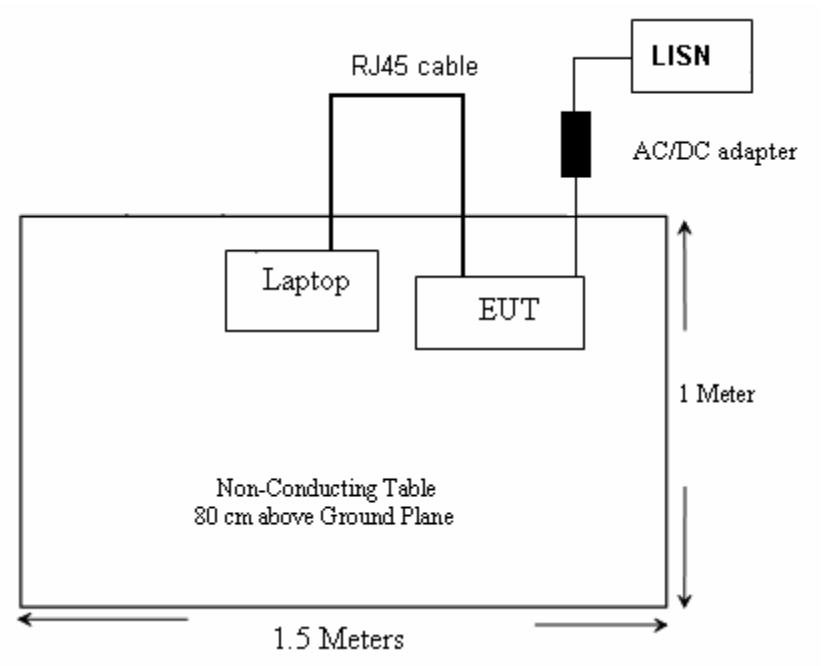
During the conducted emissions test, the power cord of the EUT was connected to the mains outlet of the LISN-1.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the peak detection mode, quasi-peak and average. Quasi-Peak readings are distinguished with a "QP". Average readings are distinguished with an "Ave".

Test Setup Diagram

Conducted Emissions



Environmental Conditions

Temperature:	20 ° C
Relative Humidity:	40 %
ATM Pressure:	101.5 kPa

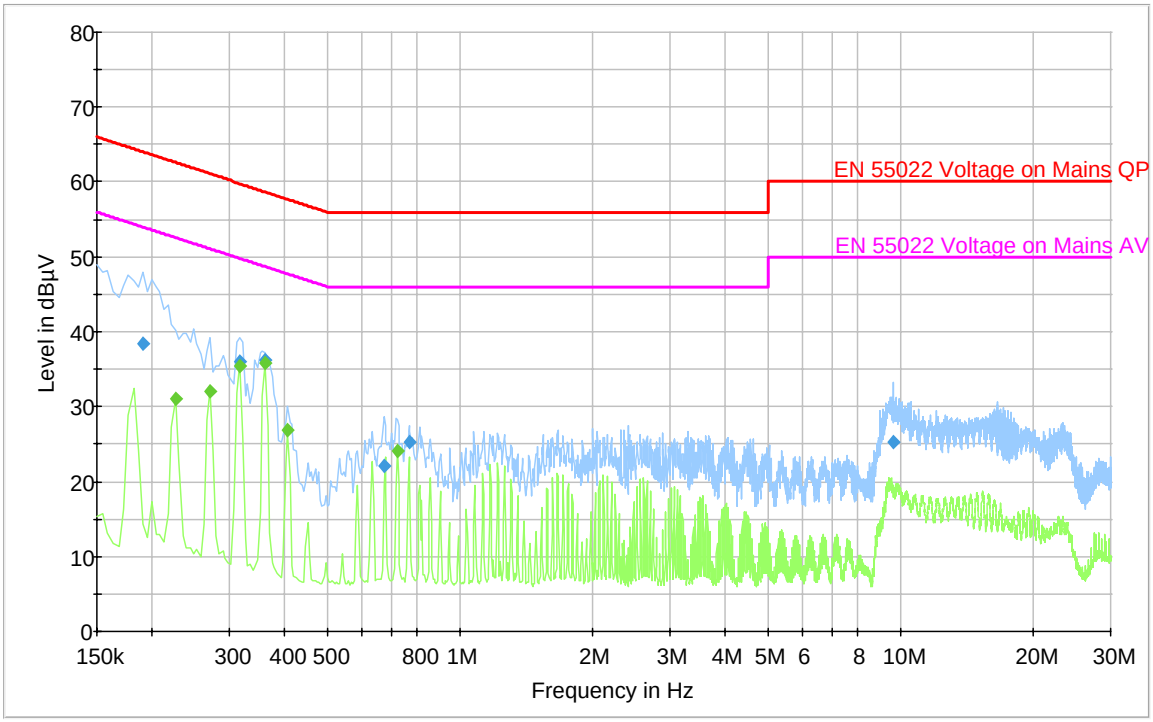
**The testing was performed by Oscar Au from 2007-06-21*

Summary of Test Results

According to the recorded data in following table, the EUT complied with the FCC and IC standards' conducted emissions limits, with the *worst* margin reading of:

Connection: AC/DC Adapter			
Margin (dB)	**Frequency (MHz)**	**Conductor Mode (Hot/Neutral)**	**Range (MHz)**
-13.0	0.36150	Hot	0.150 MHz to 30 MHz

120V/60 Hz Hot:



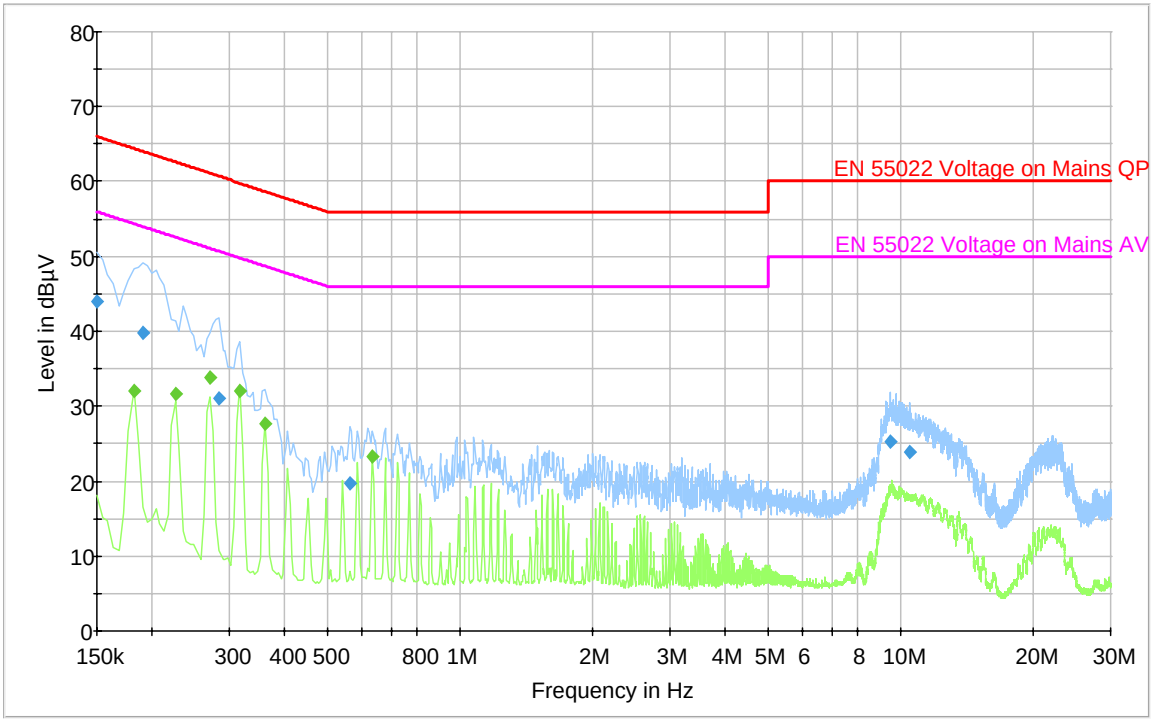
Final Measurement Quasi-Peak Detector

Frequency (MHz)	Quasi-Peak (dBµV)	Conductor (Hot/Neutral)	Limit (dBµV)	Margin (dB)
0.361500	36.1	Hot	58.7	-22.6
0.316500	36.1	Hot	59.8	-23.7
0.190500	38.5	Hot	64.0	-25.5
0.766500	25.2	Hot	56.0	-30.8
0.672000	22.1	Hot	56.0	-33.9
9.663000	25.3	Hot	60.0	-34.7

Final Measurement Average Detector

Frequency (MHz)	Quasi-Peak (dBµV)	Conductor (Hot/Neutral)	Limit (dBµV)	Margin (dB)
0.361500	35.7	Hot	48.7	-13.0
0.316500	35.4	Hot	49.8	-14.4
0.271500	32.0	Hot	51.1	-19.1
0.406500	26.8	Hot	47.7	-20.9
0.226500	31.1	Hot	52.6	-21.5
0.721500	24.1	Hot	46.0	-21.9

120V/60 Hz Neutral:



Final Measurement Quasi-Peak Detector

Frequency (MHz)	Quasi-Peak (dBµV)	Conductor (Hot/Neutral)	Limit (dBµV)	Margin (dB)
0.150000	43.9	Neutral	66.0	-22.1
0.190500	39.8	Neutral	64.0	-24.2
0.285000	31.0	Neutral	60.7	-29.7
9.474000	25.2	Neutral	60.0	-34.8
10.468500	23.9	Neutral	60.0	-36.1
0.564000	19.7	Neutral	56.0	-36.3

Final Measurement Average Detector

Frequency (MHz)	Quasi-Peak (dBµV)	Conductor (Hot/Neutral)	Limit (dBµV)	Margin (dB)
0.271500	33.8	Neutral	51.1	-17.3
0.316500	32.1	Neutral	49.8	-17.7
0.226500	31.6	Neutral	52.6	-21.0
0.361500	27.6	Neutral	48.7	-21.1
0.181500	32.1	Neutral	54.4	-22.3
0.631500	23.3	Neutral	46.0	-22.7

CFR47 §15.407(b)(3), RSS210 § A9.3 (3) – UNDESIRABLE EMISSIONS; SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

§15.407 (b), undesirable emission limits: except as shown in paragraph (b)(6) of this section, the peak emission outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

§15.407 (b) (3), for transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of −27 dBm/MHz.

RSS210 A9.3 (3) for transmitters operating in the 5470-5725 MHz band, all emissions outside the 5470-5725 MHz band shall not exceed -27 dBm/MHz e.i.r.p.

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in §2.1057.

Measurement Procedure

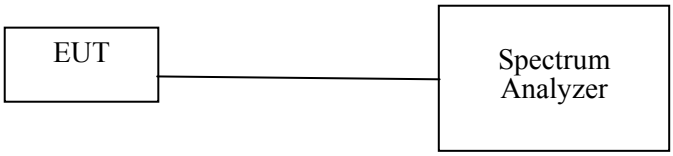
The RF output of the EUT was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1 MHz. sufficient scans were taken to show any out of band emissions up to 10th harmonic.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2007-04-26

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Setup Diagram



Environmental Conditions

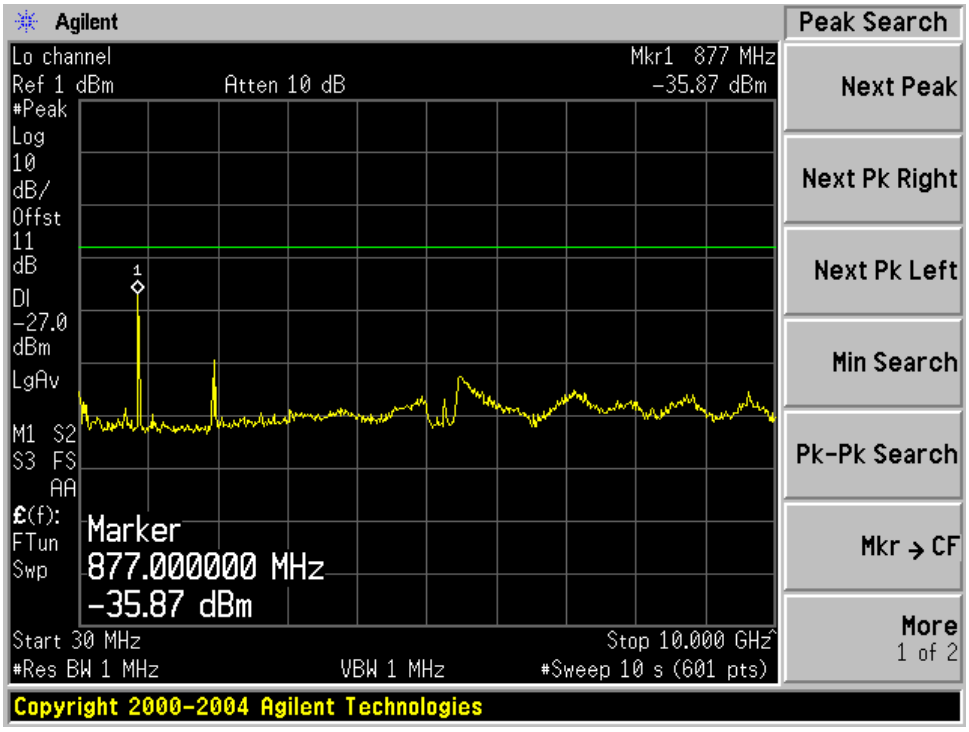
Temperature:	20 ° C
Relative Humidity:	40 %
ATM Pressure:	101.5 kPa

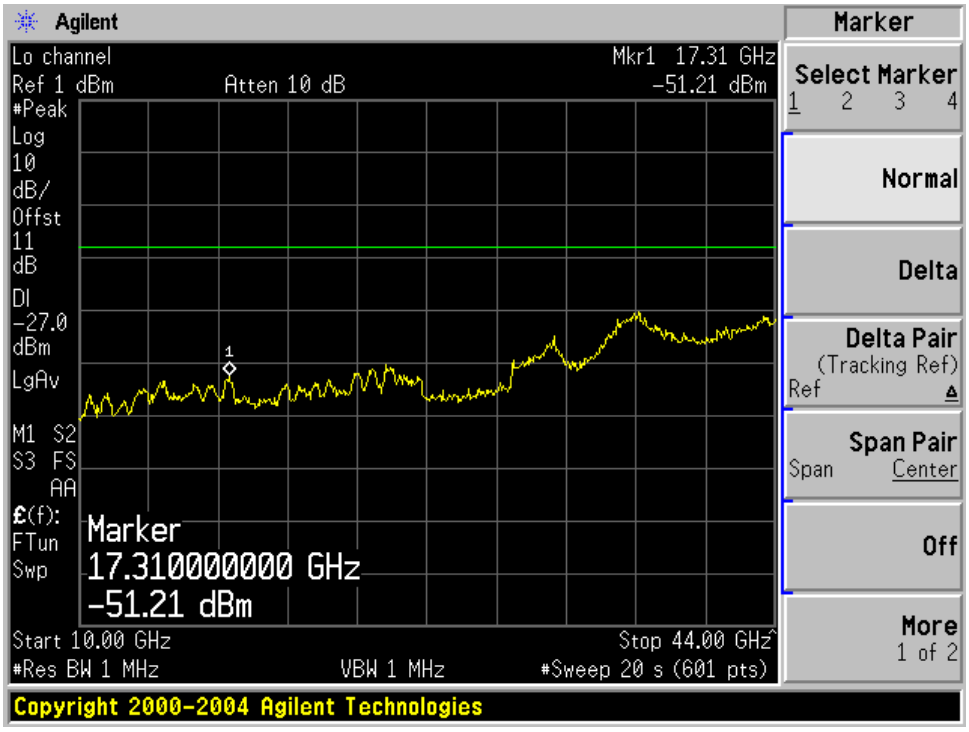
** The testing was performed by Oscar Au from 2007-06-21.*

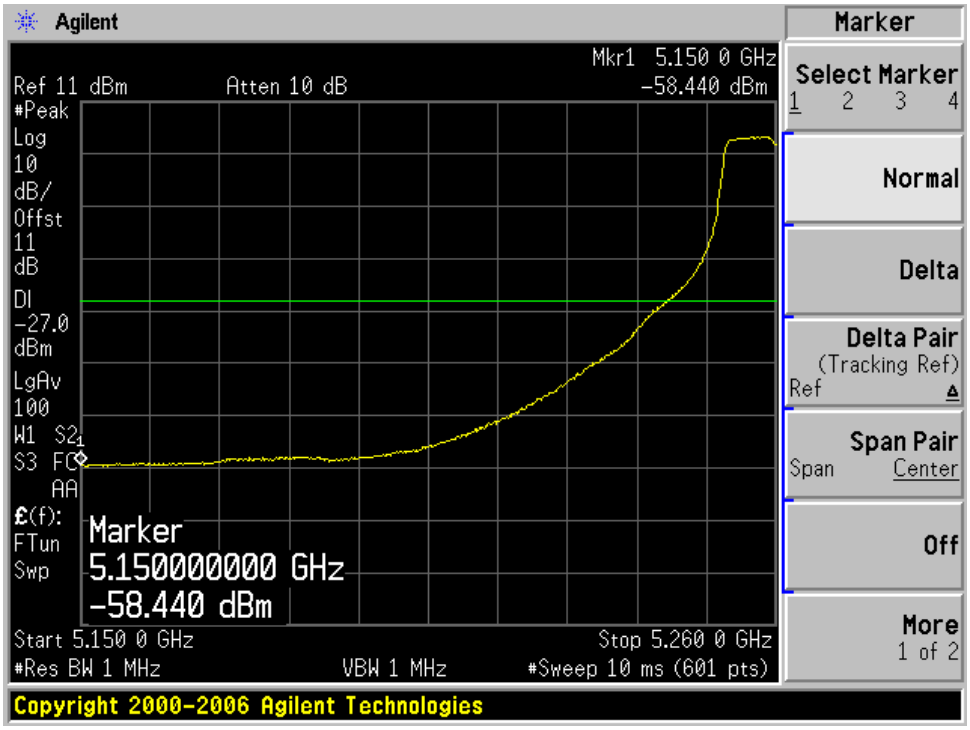
Measurement Result

Please refer to following pages for plots of spurious emissions.

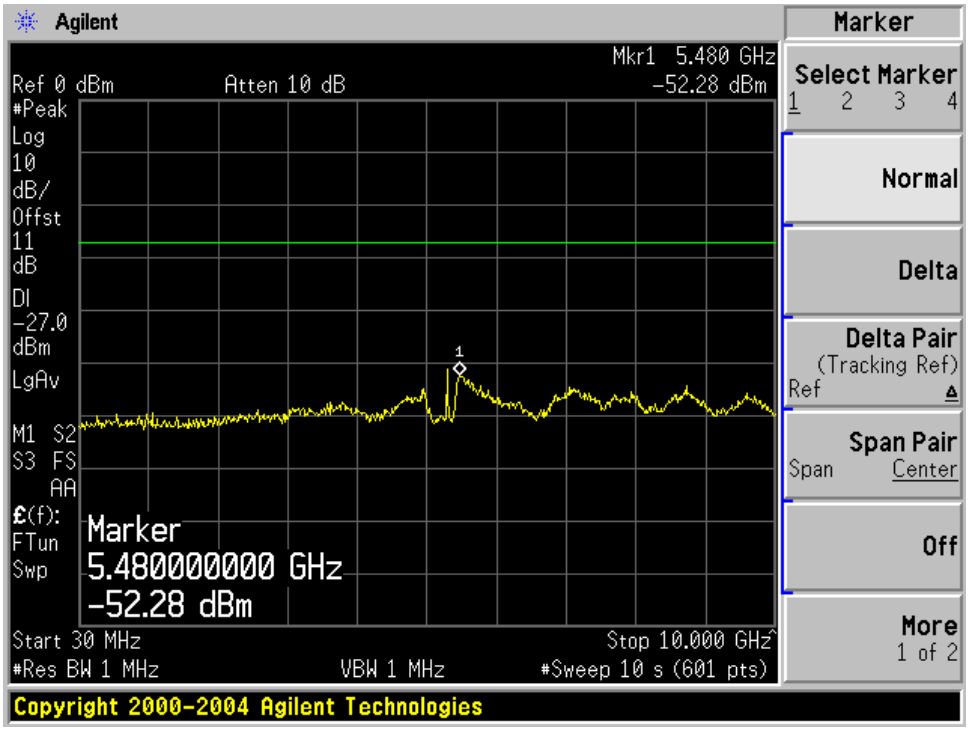
5260 MHz (Low Channel)

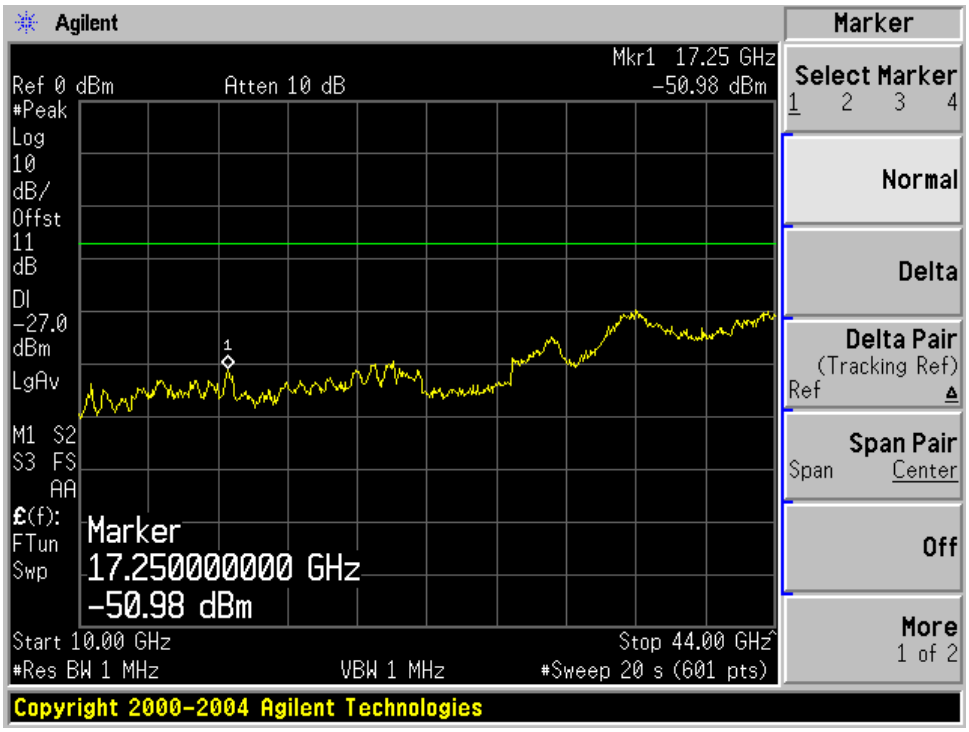




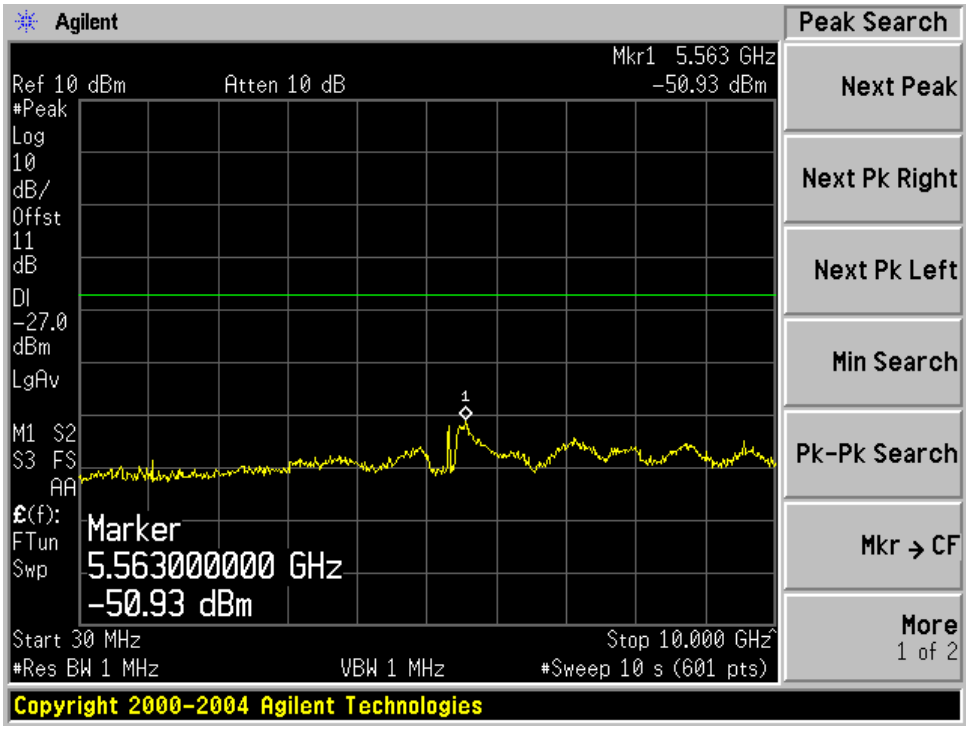


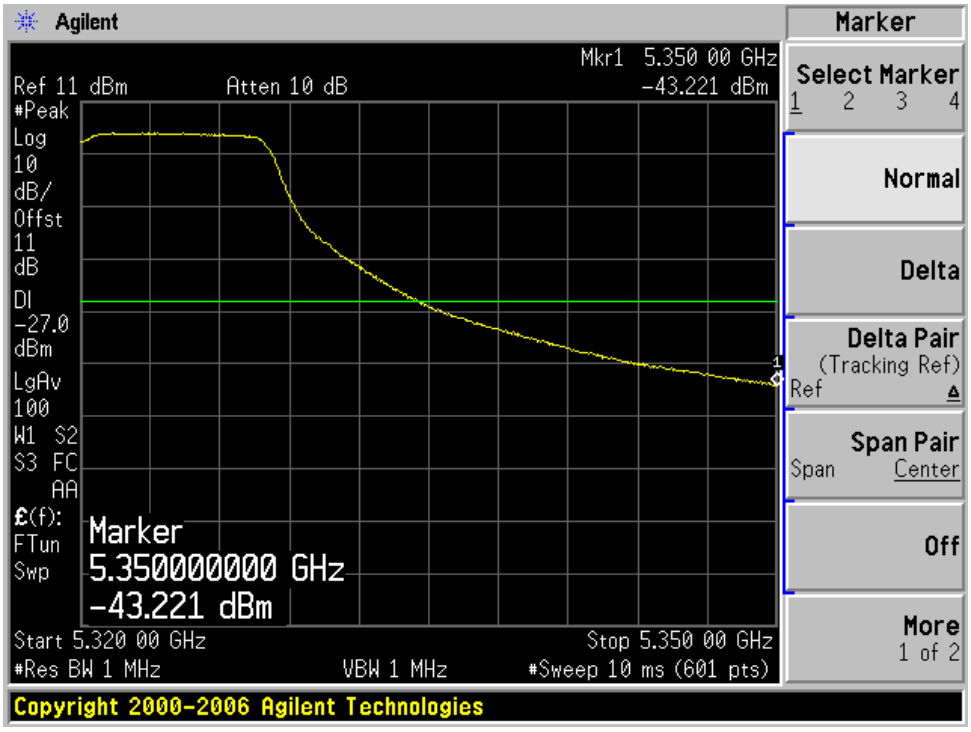
5300 MHz (Middle Channel)



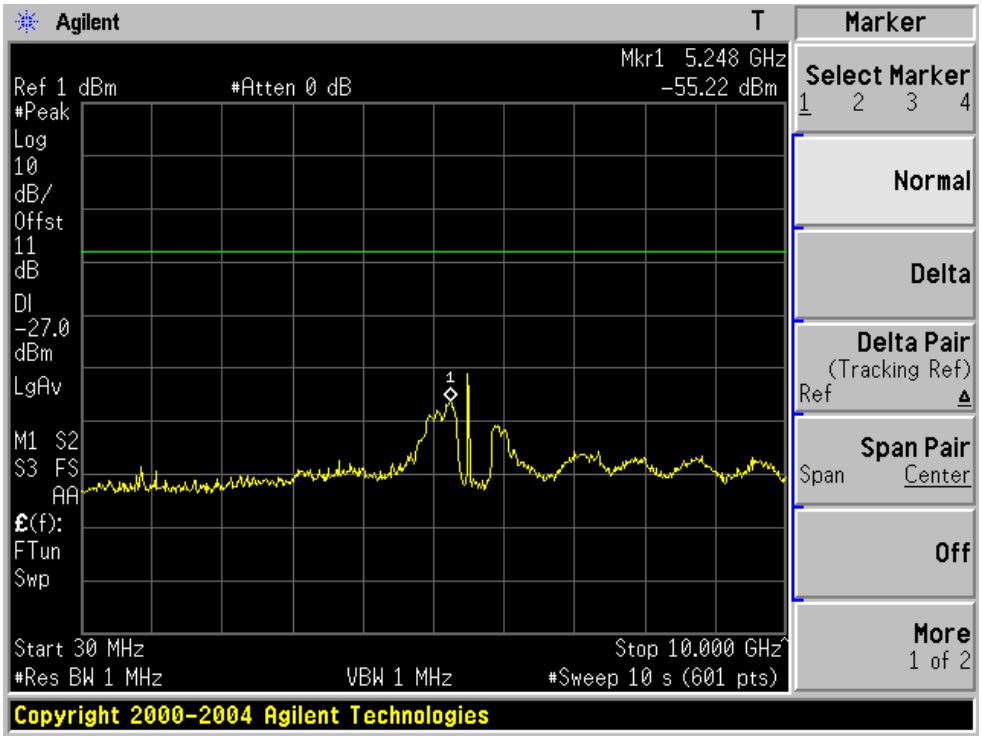


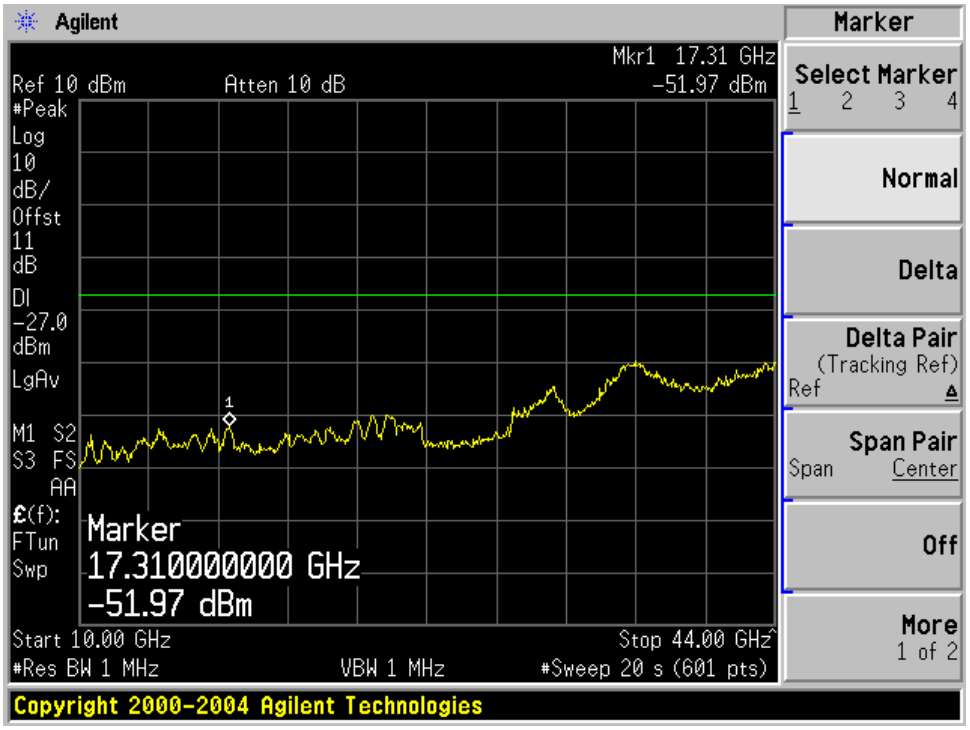
5320 MHz (High Channel)

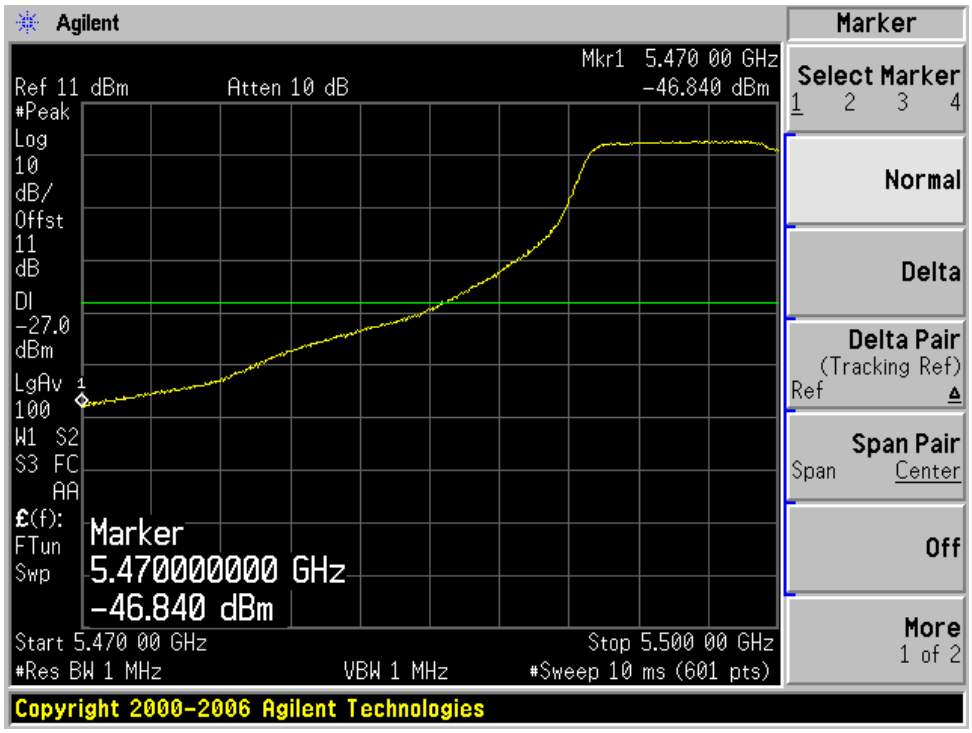


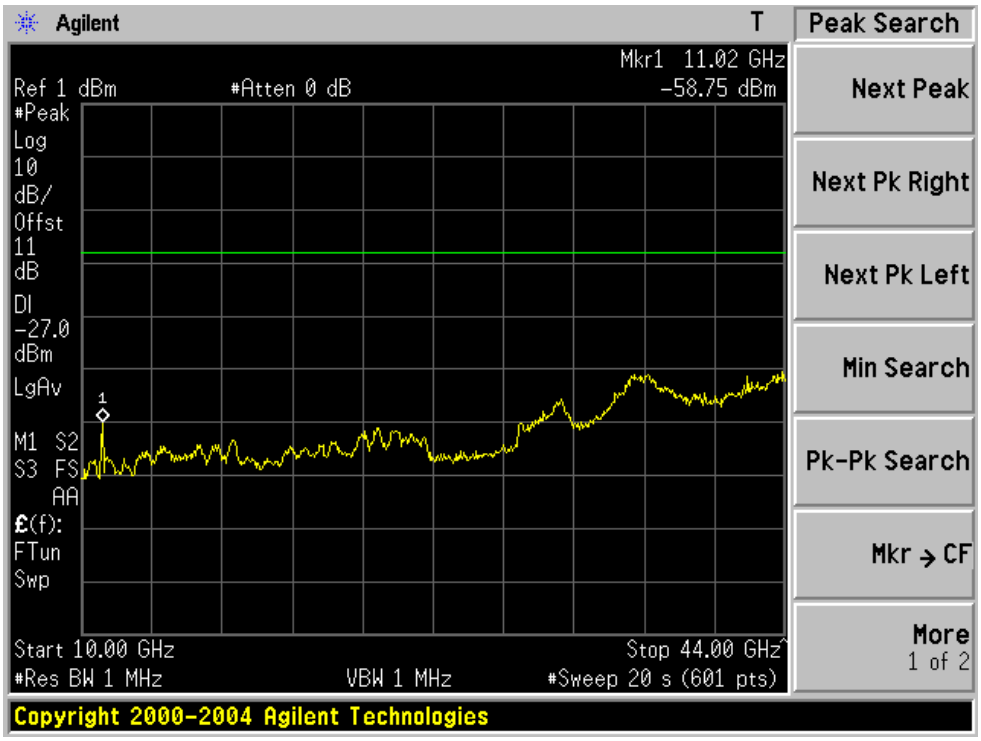


(5500 MHz) Low Channel

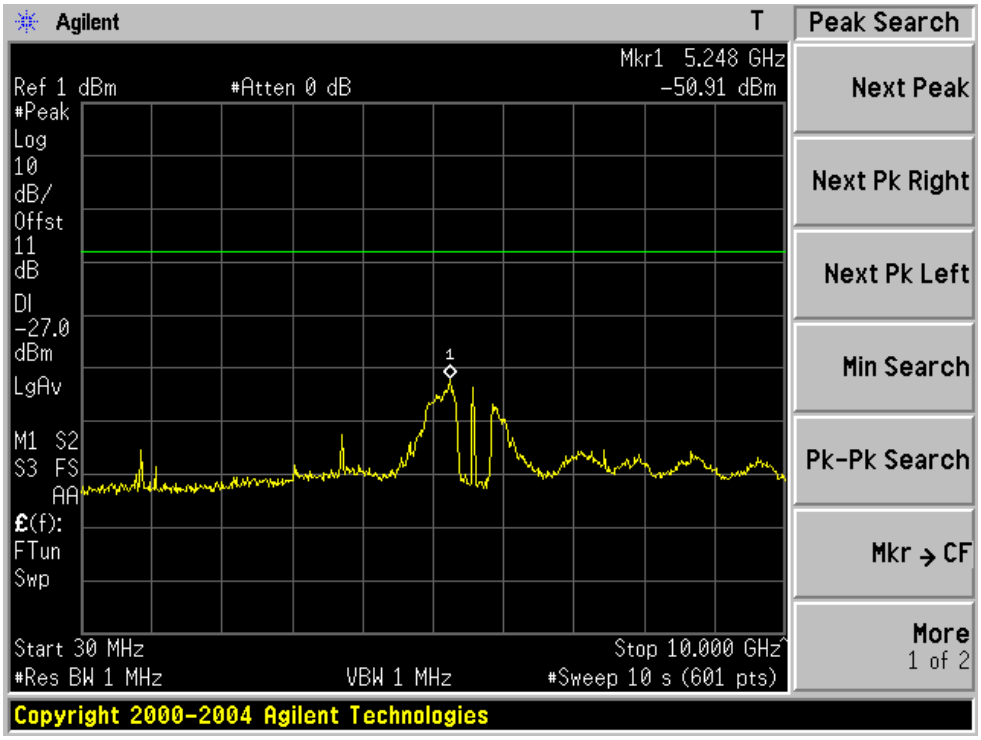


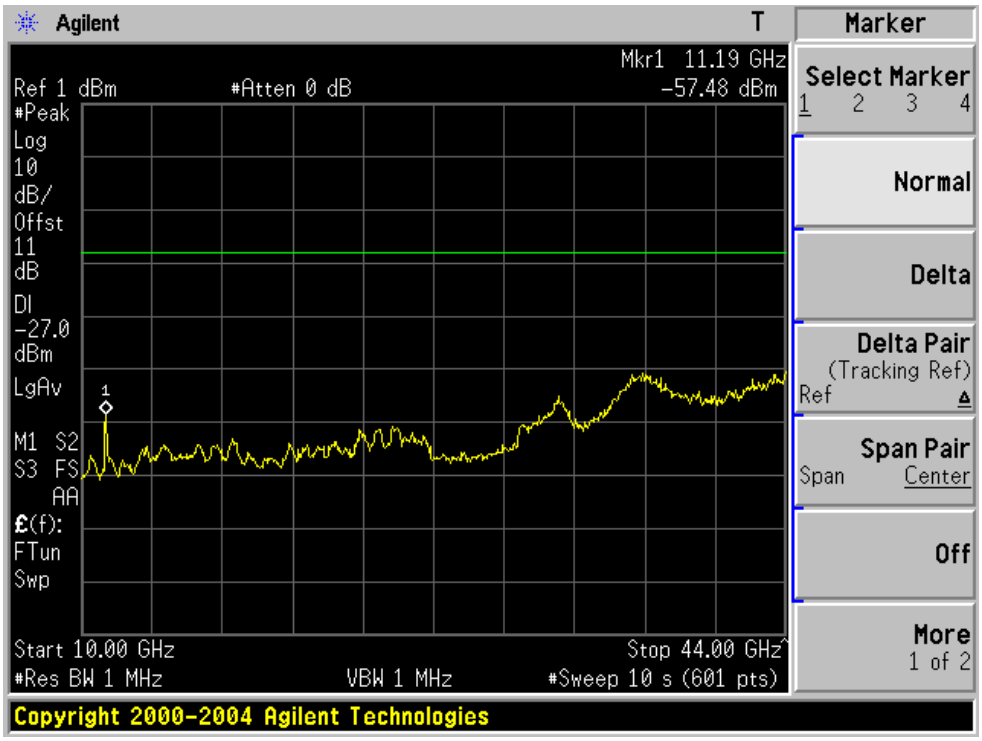

Agilent
Marker
Mkr1 17.31 GHz
Ref 10 dBm
Atten 10 dB
-51.97 dBm
#Peak
Log
10
dB/
Offst
11
dB
Dl
-27.0
dBm
LgAv
M1 S2
S3 FS
AA
£(f):
FTun
Swp
Marker
17.310000000 GHz
-51.97 dBm
Start 10.00 GHz
Stop 44.00 GHz
#Res BW 1 MHz
VBW 1 MHz
#Sweep 20 s (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span
Center
Off
More
1 of 2
Copyright 2000-2004 Agilent Technologies


Agilent
Marker
Mkr1 5.470 00 GHz
Ref 11 dBm
Atten 10 dB
-46.840 dBm
#Peak
Log
10
dB/
Offst
11
dB
Dl
-27.0
dBm
LgAv
100
W1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
5.470000000 GHz
-46.840 dBm
Start 5.470 00 GHz
Stop 5.500 00 GHz
#Res BW 1 MHz
VBW 1 MHz
#Sweep 10 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span
Center
Off
More
1 of 2
Copyright 2000-2006 Agilent Technologies

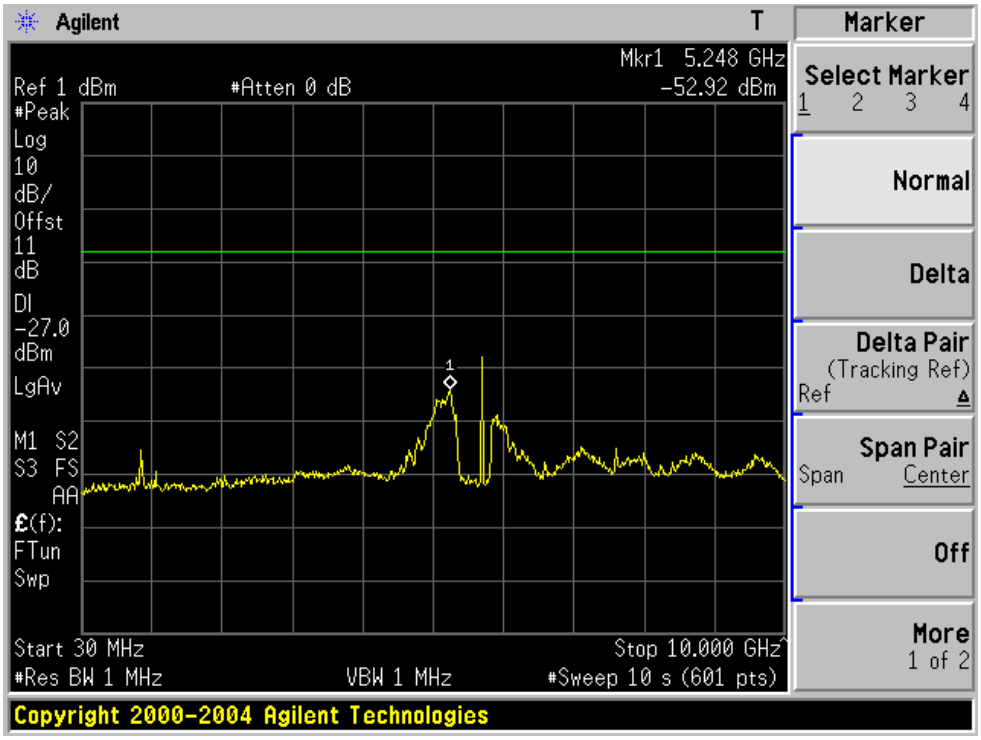


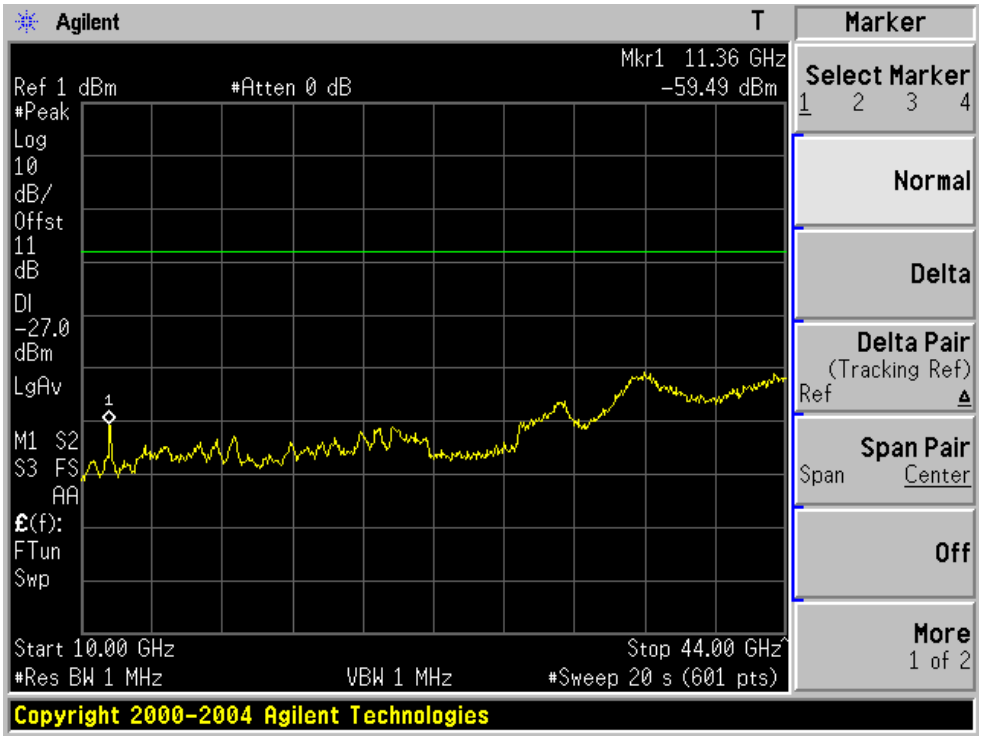
5580 MHz (Middle Channel)

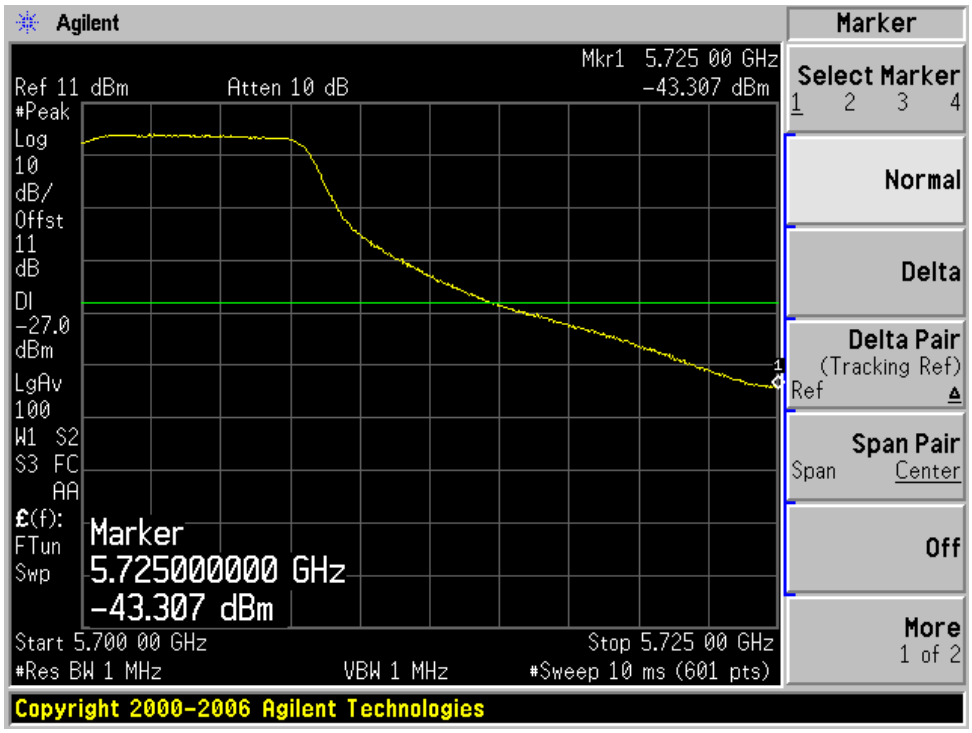




5700 MHz (High Channel)




Agilent
T
Marker
Mkr1 11.36 GHz
-59.49 dBm
Ref 1 dBm
#Atten 0 dB
#Peak
Log
10
dB/
Offst
11
dB
Dl
-27.0
dBm
LgAv
M1 S2
S3 FS
AA
£(f):
FTun
Swp
Start 10.00 GHz
#Res BW 1 MHz
VBW 1 MHz
Stop 44.00 GHz
#Sweep 20 s (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2004 Agilent Technologies


Agilent
Marker
Mkr1 5.725 00 GHz
-43.307 dBm
Ref 11 dBm
Atten 10 dB
#Peak
Log
10
dB/
Offst
11
dB
Dl
-27.0
dBm
LgAv
100
W1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
5.725000000 GHz
-43.307 dBm
Start 5.700 00 GHz
#Res BW 1 MHz
VBW 1 MHz
Stop 5.725 00 GHz
#Sweep 10 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2006 Agilent Technologies

CFR47 §15.205 & §15.209, §15.407, RSS-210 §2.7, §A9.3 - RADIATED SPURIOUS EMISSIONS, RESTRICTED BANDS AND UNWANTED EMISSION FREQUENCIES

Applicable Standard

As per CFR47 §15.209(a): Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table

Frequency (MHz)	Field Strength (micro volts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

As Per 15.205(a) except as show in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	960 – 1240	4. 5 – 5. 15
0.495 – 0.505	16.69475 – 16.69525	1300 – 1427	5. 35 – 5. 46
2.1735 – 2.1905	25.5 – 25.67	1435 – 1626.5	7.25 – 7.75
4.125 – 4.128	37.5 – 38.25	1645.5 – 1646.5	8.025 – 8.5
4.17725 – 4.17775	73 – 74.6	1660 – 1710	9.0 – 9.2
4.20725 – 4.20775	74.8 – 75.2	1718.8 – 1722.2	9.3 – 9.5
6.215 – 6.218	108 – 121.94	2200 – 2300	10.6 – 12.7
6.26775 – 6.26825	123 – 138	2310 – 2390	13.25 – 13.4
6.31175 – 6.31225	149.9 – 150.05	2483.5 – 2500	14.47 – 14.5
8.291 – 8.294	156.52475 – 156.52525	2690 – 2900	15.35 – 16.2
8.362 – 8.366	156.7 – 156.9	3260 – 3267	17.7 – 21.4
8.37625 – 8.38675	162.0125 –167.17	3.332 – 3.339	22.01 – 23.12
8.41425 – 8.41475	167.72 – 173.2	3 3458 – 3 358	23.6 – 24.0
12.29 – 12.293	240 – 285	3.600 – 4.400	31.2 – 31.8
12.51975 – 12.52025	322 – 335.4		36.43 – 36.5
12.57675 – 12.57725	399.9 – 410		Above 38.6
13.36 – 13.41	608 – 614		

As per §15.407 (b) (1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.

(2) For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15–5.25 GHz band.

(3) For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of −27 dBm/MHz.

As per RSS-210 A9.3 Out-of-band Emission Limits (1) For transmitters operating in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p.

(3) For transmitters operating in the band 5470-5725 MHz, all emissions outside that band shall not exceed -27 dBm/MHz e.i.r.p.

Test Setup

The radiated emissions tests were performed in the 5-meter semi-anechoic chamber , using the setup in accordance with ANSI C63.4-2003. The specification used was the FCC 15 Subpart C and E limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundle when necessary.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Sonoma Instruments	Pre amplifier	317	260408	2007-03-02
Ducommun Tech	Pre amplifier (1-18GHz)	ALN-09173030-01	990297-01	2007-03-10
Sunol Science Corp	Combination Antenna	JB3 Antenna	A020106-3	2006-02-14
Agilent	Spectrum Analyzer	E4446A	US44300386	2007-04-26
A.R.A	Antenna Horn	DRG-118/A	1132	2006-08-17

*** Statement of Traceability:** BACL attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

Test Procedure

For the radiated emissions test, the EUT, and all support equipment power cords was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 mete, and the EUT is placed on a turntable, which is 0.8 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

The spectrum analyzer or receiver is set as:

Below 1000MHz:

RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 1000MHz:

(1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto

(2) Average: RBW = 1MHz / VBW = 10Hz / Sweep = Auto

Corrected Amplitude & Margin Calculation

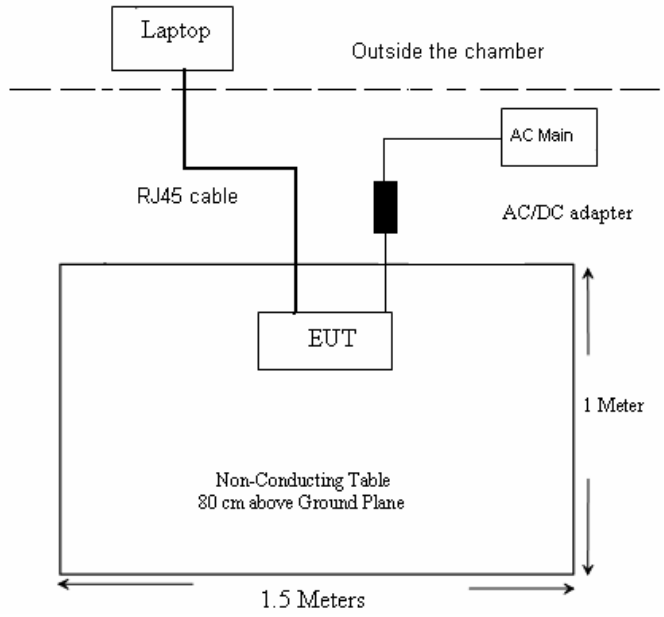
The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corrected Amplitude = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit.
The equation for margin calculation is as follows:

Margin = Corrected Amplitude - Limit

Test Setup Diagram



Environmental Conditions

Temperature:	22° C
Relative Humidity:	56 %
ATM Pressure:	104.1 kPa

** The testing was performed by Oscar Au from 2007-06-21*

Summary of Test Results

According to the data hereinafter, the EUT complied with the FCC Title 47, Part 15 section 15.205, 15.209 and Subpart E , RSS-210/RSS-Gen, and had the worst margin of:

Unintentional Emissions, (30-1000 MHz):

Mode: Receiver			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Range (MHz)**
-10.4	810.1225	Vertical	30 MHz to 1000 MHz

Out of Band Emissions:

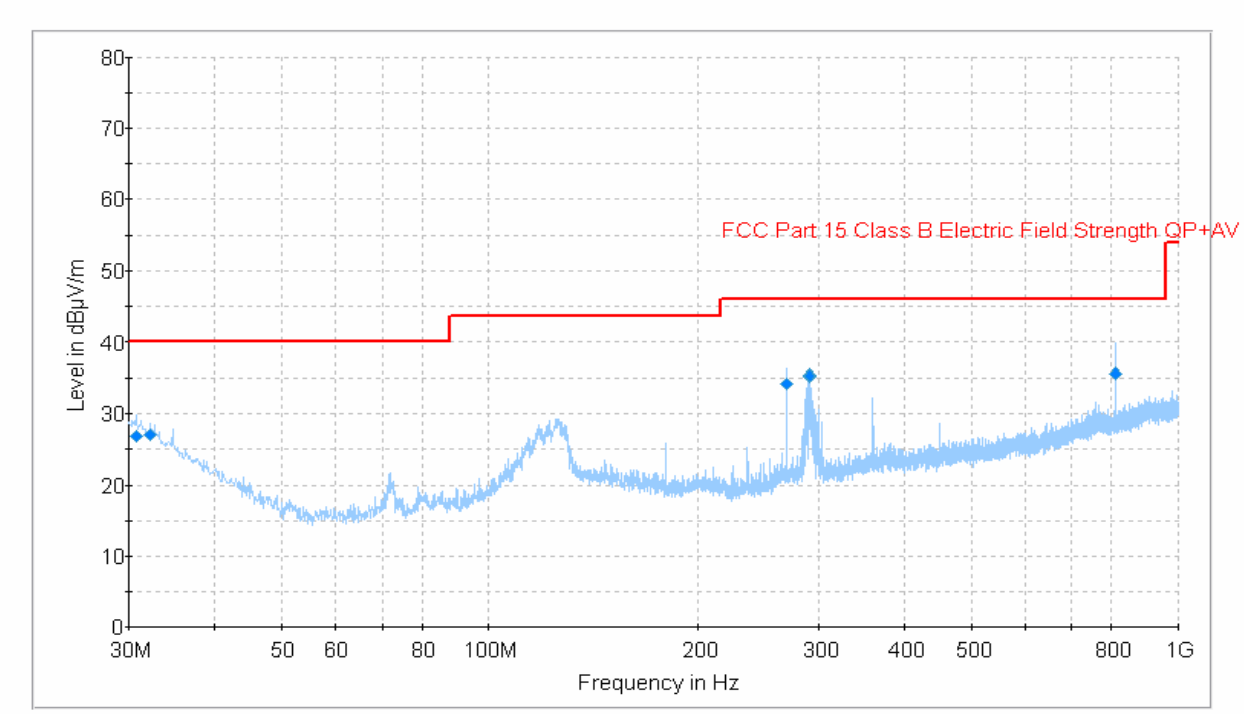
Mode: 802.11 a (5250 – 5350 MHz)			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Channel, Range (GHz)**
-15.1	10520	Vertical	Low, 1 GHz – 25GHz
-11.5	10600	Vertical	Middle, 1 GHz – 25GHz
-14.1	10640	Vertical	High, 1 GHz – 25GHz

Mode: 802.11 a (5470 – 5725 MHz)			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Channel, Range (GHz)**
-8.35	14587.18	Vertical	Low, 1 GHz – 25GHz
-7.46	14064.58	Horizontal	Middle, 1 GHz – 25GHz
-16.05	11403.71	Vertical	High, 1 GHz – 25GHz

Please refer to the following plots and tables for detailed test results

Radiated Emissions Test plot & data:

Primary scan 30MHz -1GHz



Frequency (MHz)	Corrected Quasi Peak (dBµV/m)	Antenna Height (cm)	Polarity (H/V)	Turntable position (deg)	Correction Value (dB)	Limit (dBµV/m)	Margin (dB)
810.1225	35.6	100	H	120	6.4	46	-10.4
290.5663	35.5	100	H	42	-0.5	46	-10.5
291.2938	35.2	100	H	101	-0.5	46	-10.8
270.075	34.2	100	H	120	-0.9	46	-11.8
32.30375	27.1	100	V	17	4.1	40	-12.9
30.7275	26.8	100	V	54	5.4	40	-13.2

802.11a: 5250 – 5350 MHz, Measured at 3 meters

5260 MHz (Low Channel)

Frequency (MHz)	Reading (dBµV)	Azimuth Degrees	Ant. Height (m)	Ant. Polar. H / V	Factor (dB)	Cable Loss (dB)	Pre-Amp (dB)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comments
10520	33.3	80	1.3	V	38.7	5.8	39.0	38.9	54	-15.1	Ave
10520	28.6	150	1.4	H	38.7	5.8	39.0	34.2	54	-19.8	Ave
10520	47.5	80	1.3	V	38.7	5.8	39.0	53.1	74	-20.9	Peak
10520	41.2	150	1.4	H	38.7	5.8	39.0	46.8	74	-27.2	Peak

5300 MHz (Middle Channel)

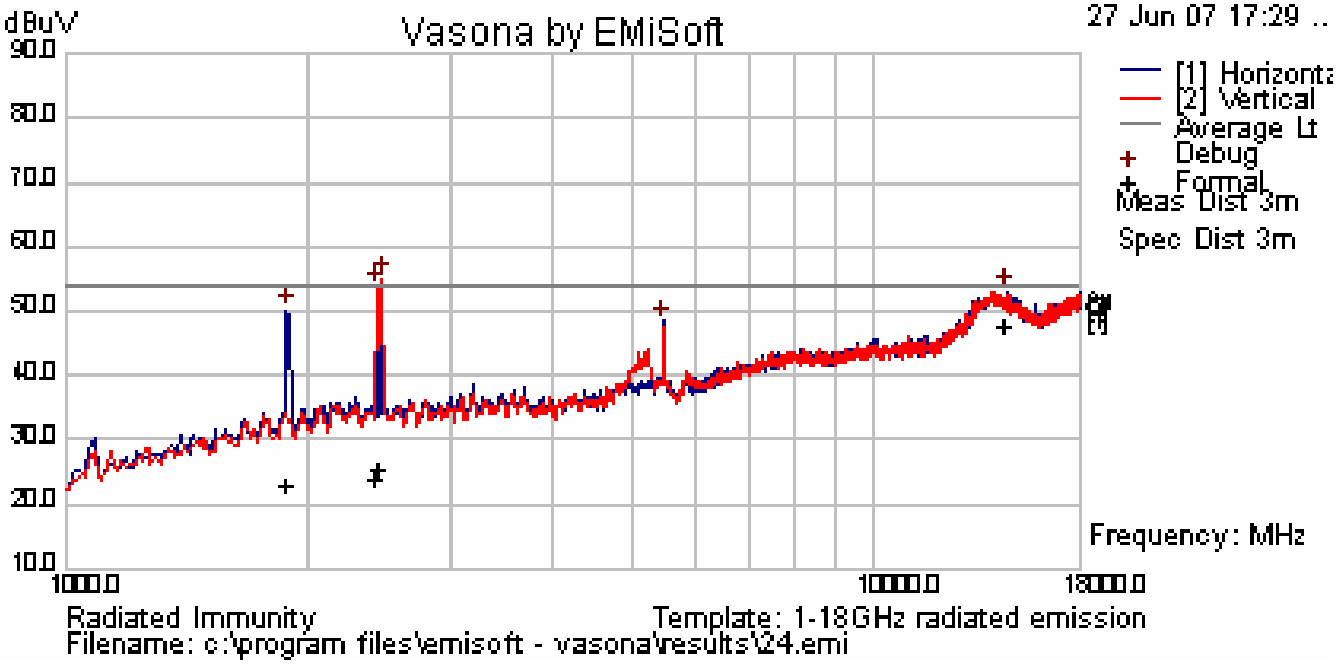
Frequency (MHz)	Reading (dBµV)	Azimuth Degrees	Ant. Height (m)	Ant. Polar. H / V	Factor (dB)	Cable Loss (dB)	Pre-Amp (dB)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comments
10600	36.8	90	1.3	V	38.7	5.9	39.0	42.5	54	-11.5	Ave
10600	31.2	100	1.3	H	38.7	5.9	39.0	36.9	54	-17.1	Ave
10600	49.3	90	1.3	V	38.7	5.9	39.0	55.0	74	-19.0	Peak
10600	45.3	100	1.3	H	38.7	5.9	39.0	51.0	74	-23.0	Peak

5320 MHz (High Channel)

Frequency (MHz)	Reading (dBµV)	Azimuth Degrees	Ant. Height (m)	Ant. Polar. H / V	Factor (dB)	Cable Loss (dB)	Pre-Amp (dB)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comments
10640	34.2	110	1.4	V	38.7	5.9	39.0	39.9	54	-14.1	Ave
10640	29.5	130	1.3	H	38.7	5.9	39.0	35.2	54	-18.8	Ave
10640	48.6	110	1.4	V	38.7	5.9	39.0	54.3	74	-19.7	Peak
10640	42.3	130	1.3	H	38.7	5.9	39.0	48.0	74	-26.0	Peak

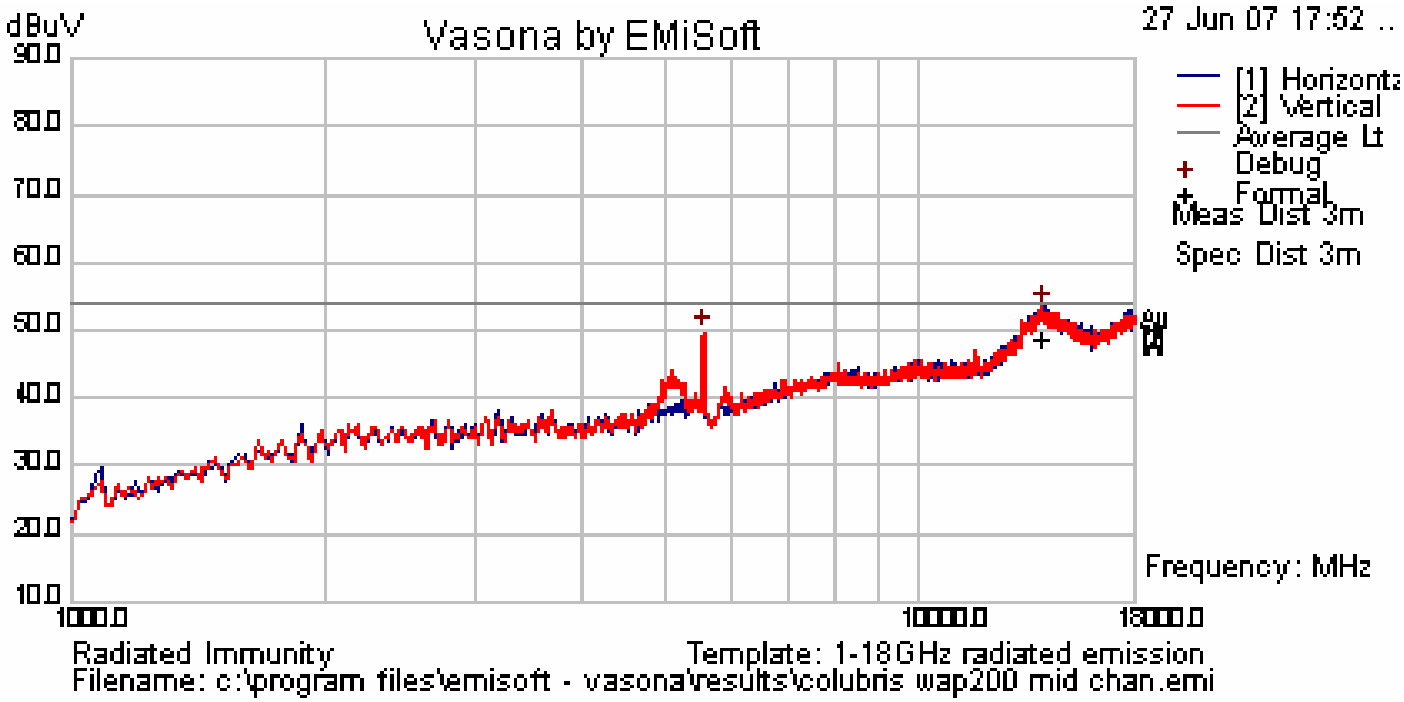
802.11a: 5470 – 5725 MHz, Measured at 3 meters

5500 MHz (Low channel)



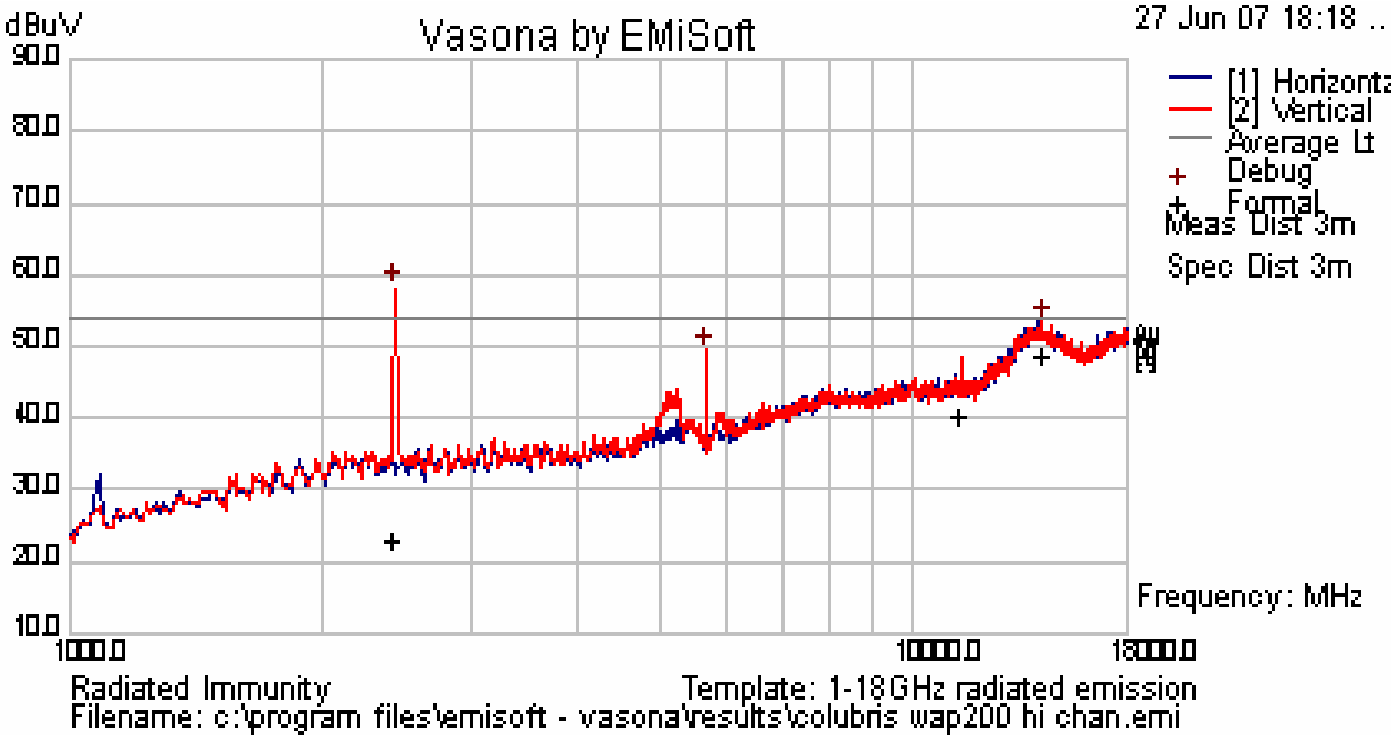
Frequency (MHz)	Reading (dBµV)	Azimuth Degrees	Ant. Height (m)	Ant. Polar. H / V	Factor (dB)	Cable Loss (dB)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comments
14587.18	24.82	263	176	V	6.15	14.68	45.65	54	-8.35	Ave
2463.506	59.51	0	200	V	-10.09	5.73	55.15	74	-18.85	Peak
2431.691	58.34	0	100	V	-10.05	5.69	53.98	74	-20.02	Peak
14585.15	32.33	0	300	H	6.15	14.68	53.16	74	-20.84	Peak
1880.225	54.95	0	100	H	-9.62	4.93	50.26	74	-23.74	Peak
2461.719	27.29	127	128	H	-10.09	5.73	22.93	54	-31.07	Ave
2430.523	25.87	223	100	H	-10.05	5.69	21.51	54	-32.49	Ave
1880.808	25.58	74	131	H	-9.62	4.93	20.89	54	-33.11	Ave

5580 MHz (Mid channel)



Frequency (MHz)	Reading (dBµV)	Azimuth Degrees	Ant. Height (m)	Ant. Polar. H / V	Factor (dB)	Cable Loss (dB)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comments
14064.58	25.03	348	190	H	7.12	14.39	46.54	54	-7.46	Ave
14065.5	31.88	0	300	H	7.12	14.39	53.39	74	-20.61	Peak

5700 MHz (High channel)



Frequency (MHz)	Reading (dBµV)	Azimuth Degrees	Ant. Height (m)	Ant. Polar. H / V	Factor (dB)	Cable Loss (dB)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comments
2431.691	62.45	0	300	V	-10.05	5.69	58.09	74	-15.91	Peak
11403.71	22.91	232	109	V	2.15	12.89	37.95	54	-16.05	Ave
14245.79	32.22	0	300	V	6.77	14.48	53.48	74	-20.52	Peak
2432.076	25.17	208	110	V	-10.05	5.69	20.82	54	-33.18	Ave

CFR47 §15.407 and RSS-210 §A9.2 – 26 dB & 99% BANDWIDTH

Applicable Standard

For power limit determination only.

Measurement Procedure

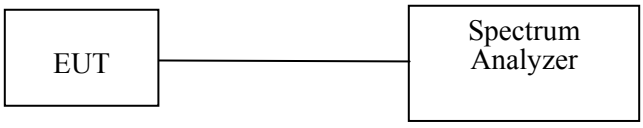
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 26 dB from the reference level. Record the frequency difference as the emissions bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Equipment List

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2007-04-26

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Setup Diagram



Environmental Conditions

Temperature:	20° C
Relative Humidity:	40 %
ATM Pressure:	101.5 kPa

** The testing was performed by Oscar Au from 2007-06-21.*

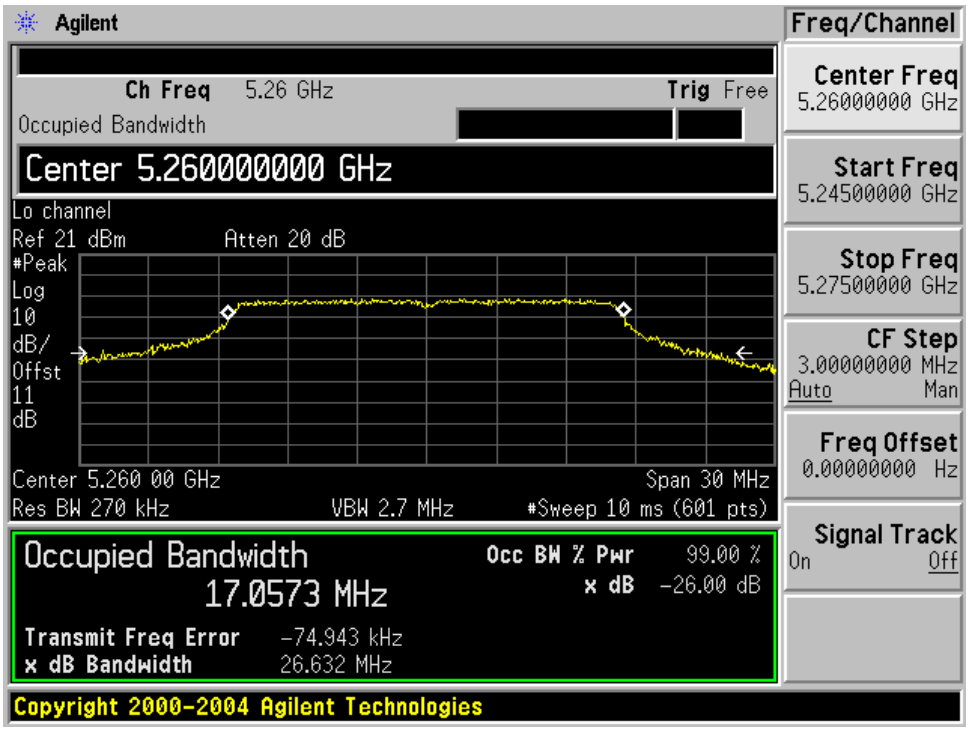
Channel	Frequency (MHz)	26 dB BW (MHz)	99% dB BW (MHz)
802.11a			
Low	5260	26.632	17.0573
Middle	5300	25.207	17.0767
High	5320	25.041	17.1076

Channel	Frequency (MHz)	26 dB BW (MHz)	99% dB BW (MHz)
802.11a			
Low	5500	22.722	16.5157
Middle	5580	23.956	16.7526
High	5700	23.675	16.7732

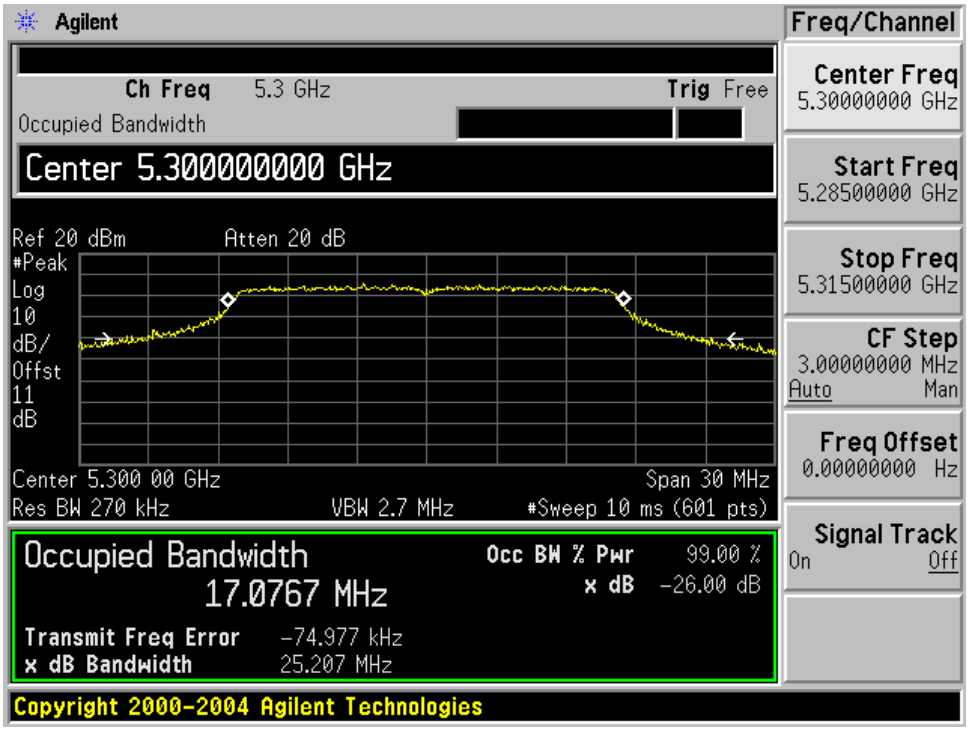
Test Results:

Please refer to the following plots for detailed test results

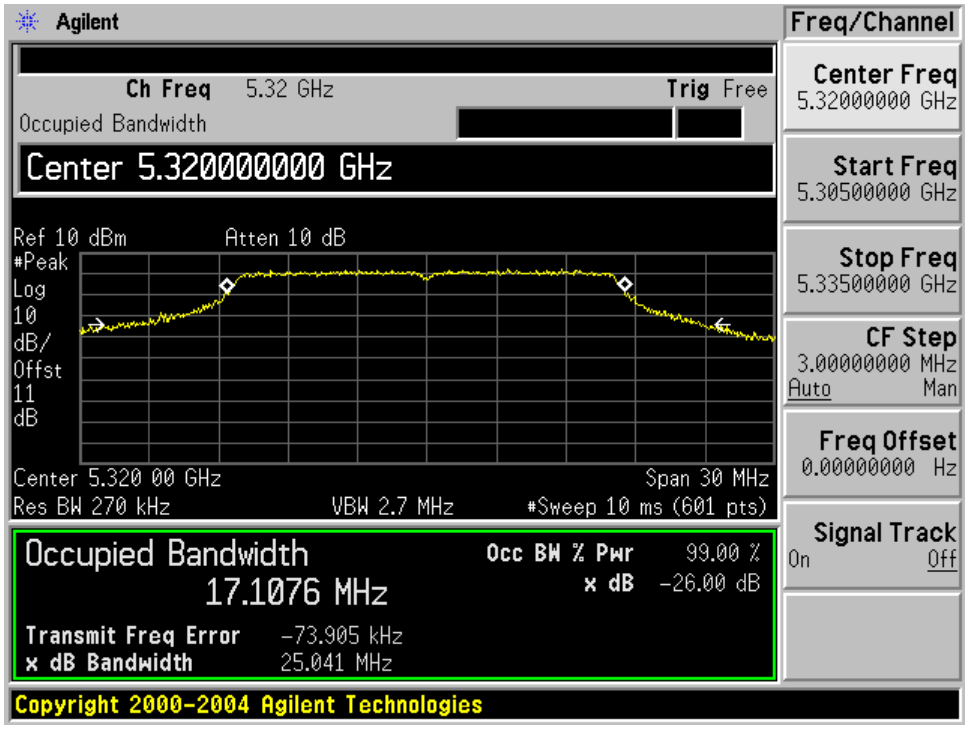
5260 MHz (Low Channel)



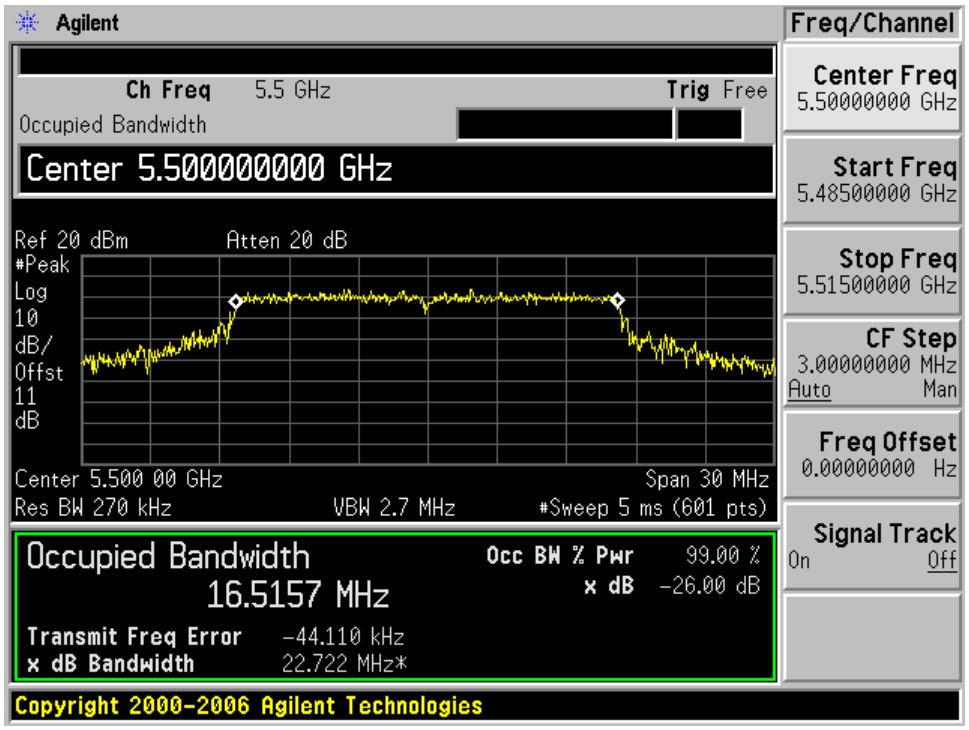
5300 MHz (Middle Channel)



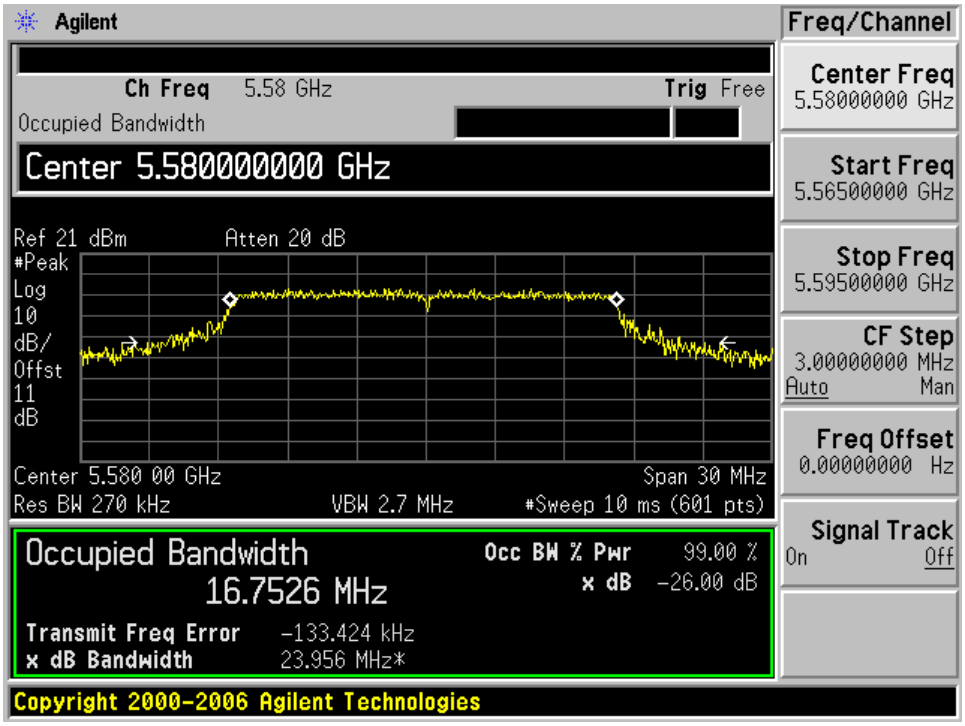
5320 MHZ (High Channel)



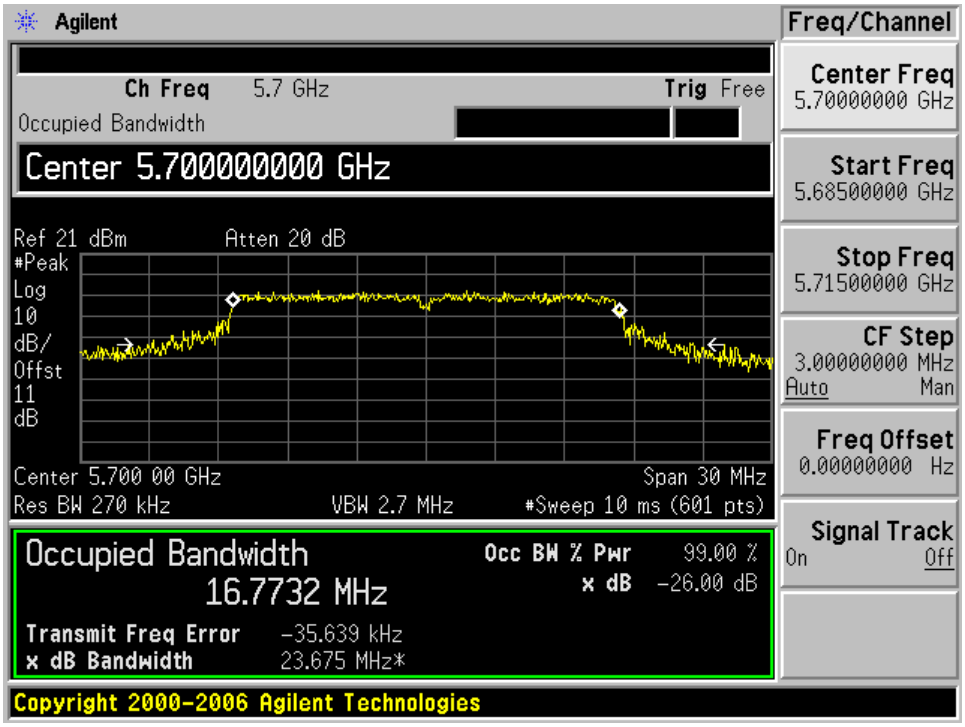
5500 MHz (Low Channel)



5580 MHz (Middle Channel)



5700 MHz (High Channel)



CFR47 §15.407 (a) (2), RSS210 §A9.2 – TRANSMITTER MAXIMUM POWER

Applicable Standard

According to CFR47 §15.407 (a)(2) For the 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to RSS210 §A9.2, For the bands 5250-5350 MHz and 5470-5725 MHz, the maximum conducted output power shall not exceed 250 mW or 11 + 10 log10 B, dBm, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

Measurement Procedure

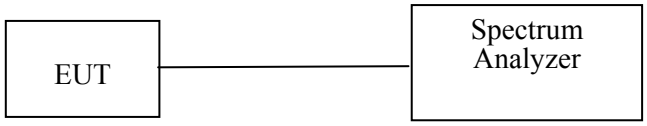
1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a spectrum analyzer.
3. Add a correction factor to the display.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	Spectrum analyzer	E4446A	US44300386	2007-04-26

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Setup Diagram



Environmental Conditions

Temperature:	20 ° C
Relative Humidity:	44 %
ATM Pressure:	101.5 kPa

** The testing was performed by Oscar Au from 2007-06-21.*

Test Result

5250-5350 MHz Band

Frequency (MHz)	Power (dBm)	11 + 10logB (dBm)(FCC)	Limit (dBm)	Result
5260	12.21	25.2540	23.98	Compliant
5300	14.52	25.10152	23.98	Compliant
5320	11.46	24.9866	23.98	Compliant

Frequency (MHz)	Power (dBm)	11 + 10logB (dBm) (IC)	Limit (dBm)	Result
5260	12.21	23.3191	23.3191	Compliant
5300	14.52	23.3240	23.3240	Compliant
5320	11.46	23.3319	23.3319	Compliant

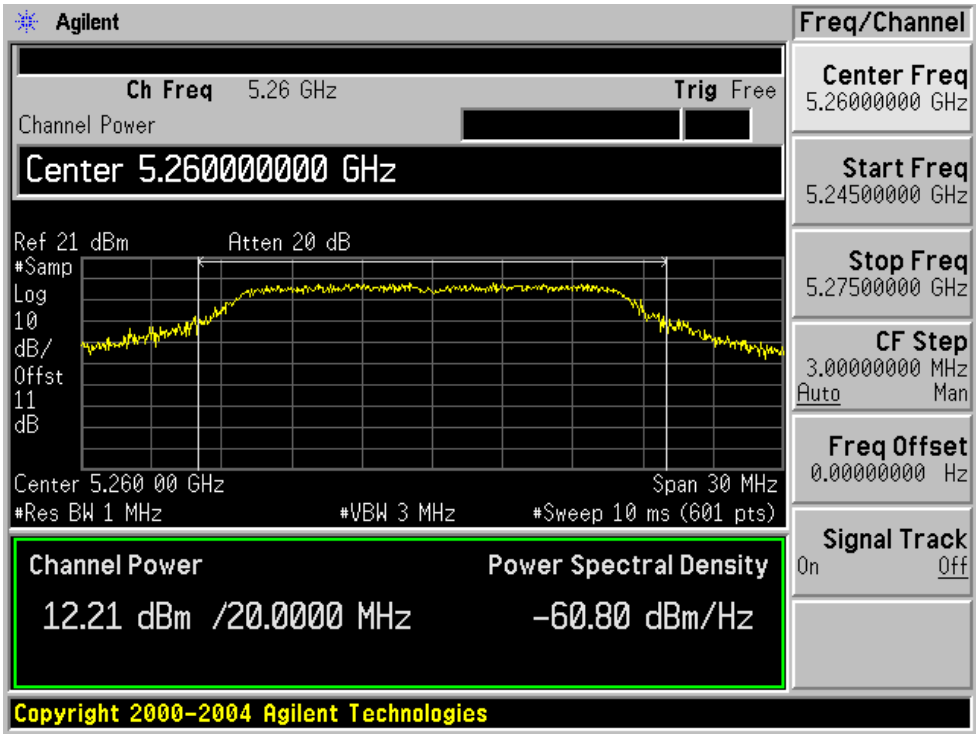
5470-5725 MHz Band

Frequency (MHz)	Power (dBm)	11 + 10logB (dBm)(FCC)	Limit (dBm)	Result
5500	14.87	24.56447	23.98	Compliant
5580	15.31	24.79414	23.98	Compliant
5700	14.55	24.7429	23.98	Compliant

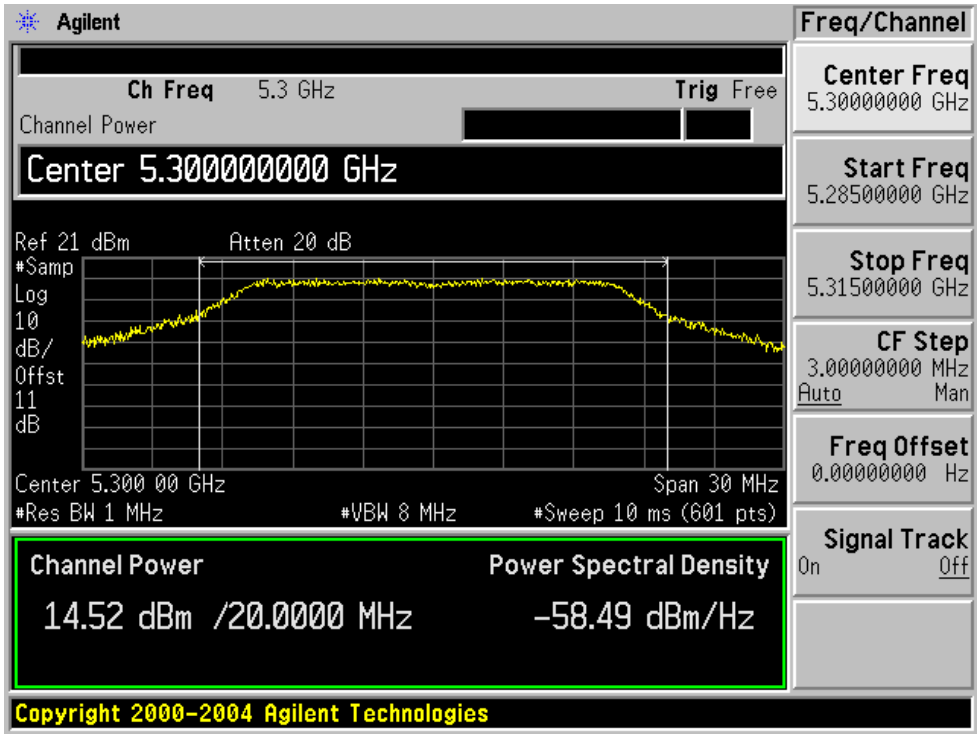
Frequency (MHz)	Power (dBm)	11 + 10logB (dBm) (IC)	Limit (dBm)	Result
5500	14.87	23.17897	23.17897	Compliant
5580	15.31	23.24082	23.24082	Compliant
5700	14.55	23.24616	23.24616	Compliant

Please refer to the following plots for detailed test results

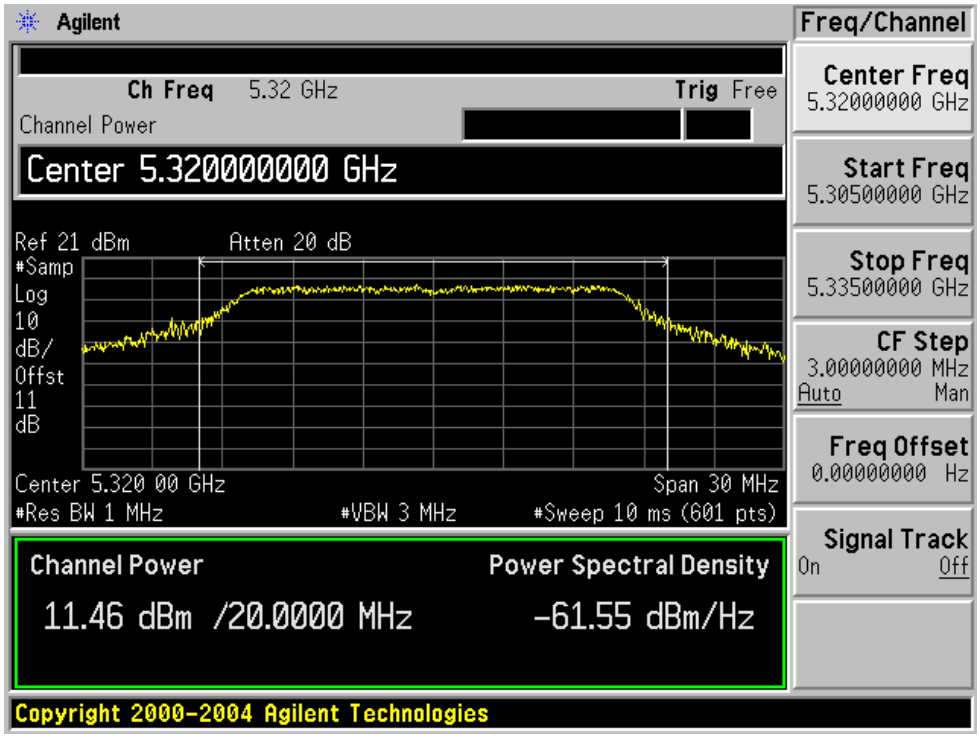
5260 MHz (Low Channel)



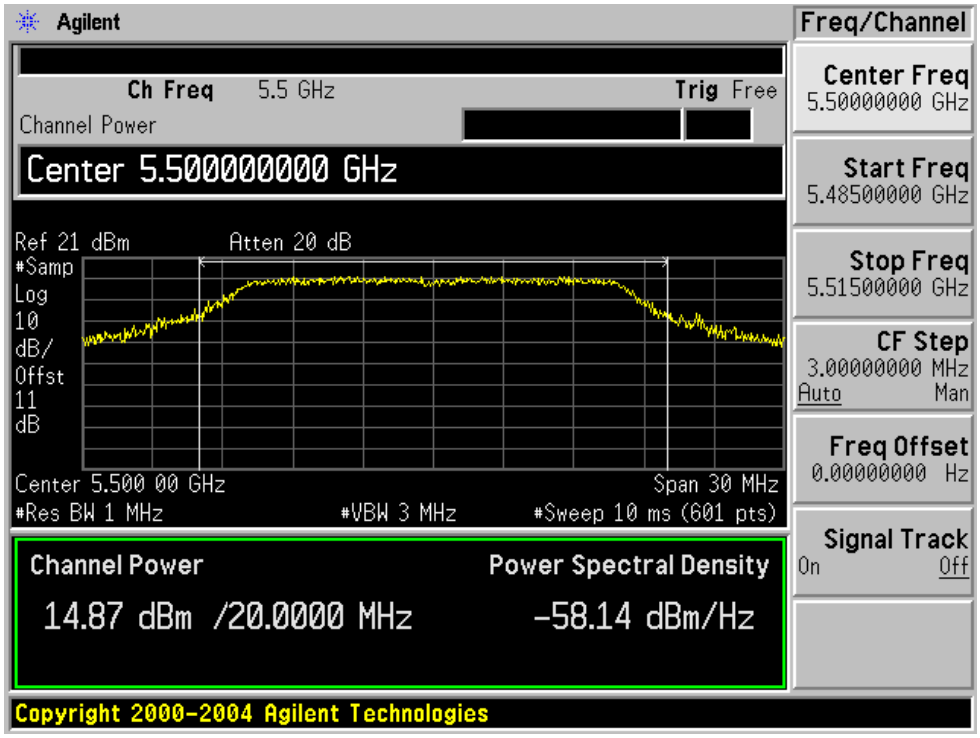
5300 MHz (Middle Channel)



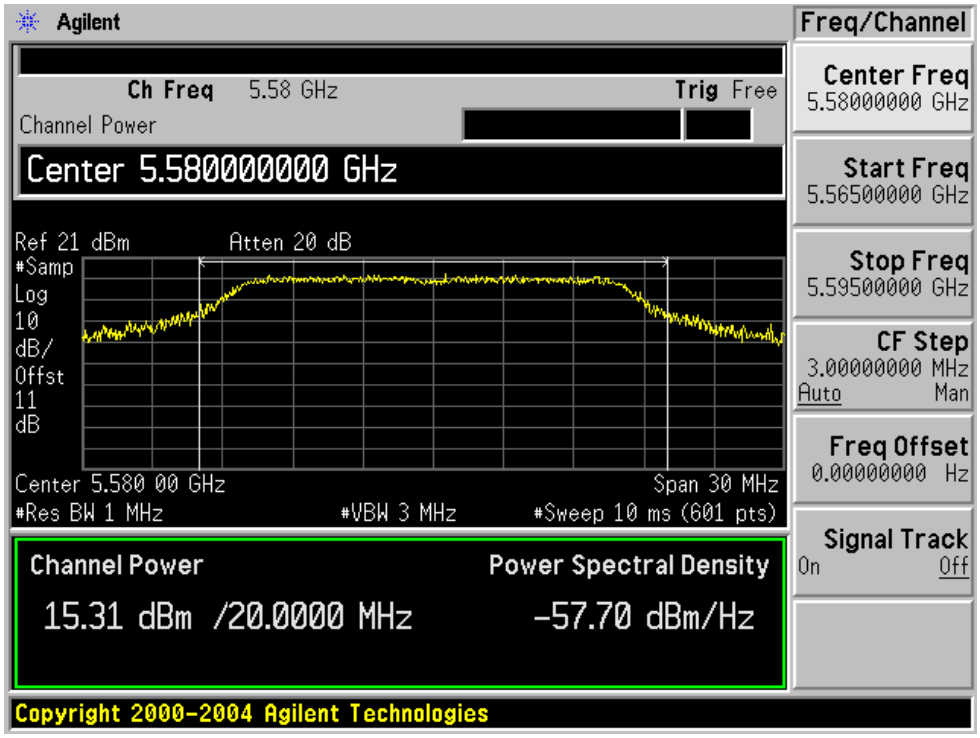
5320 MHz (High Channel)



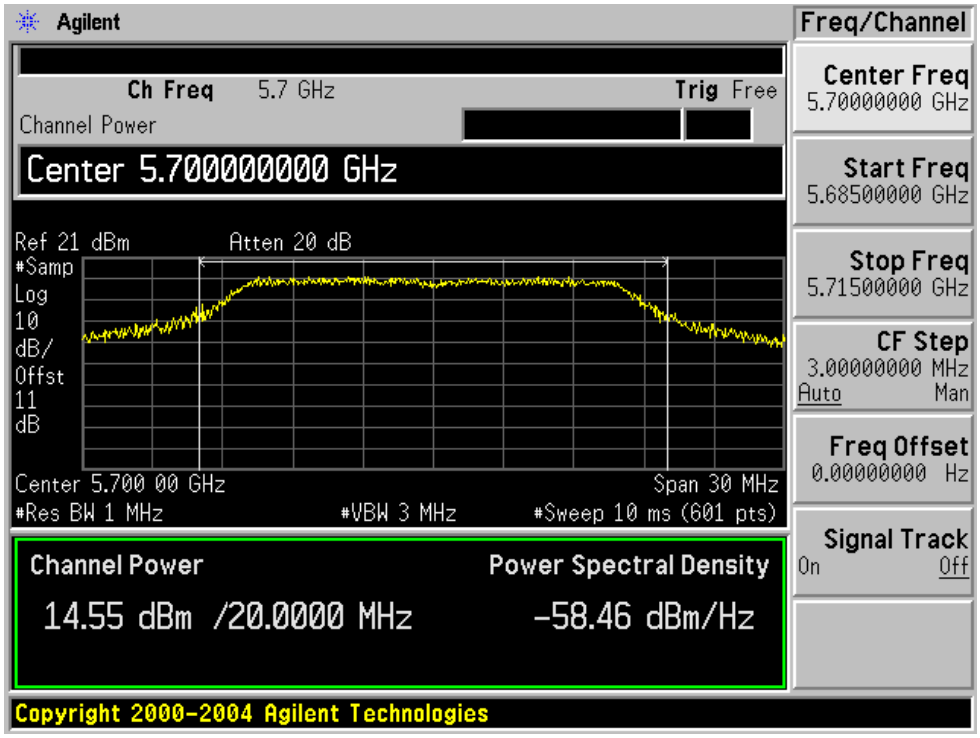
5500 MHz (Low Channel)



5580 MHz (Middle Channel)



5700 MHz (High Channel)



CFR47 §15.407 (a) (2), RSS210 § A9.2 (2) – PEAK POWER SPECTRAL DENSITY

Applicable Standard

According to CFR47§15.407 (a)(2) For the band 5.47 – 5.725 GHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to RSS210 §9.2 (2), for the band 5470-5725 MHz, the power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

Measurement Procedure

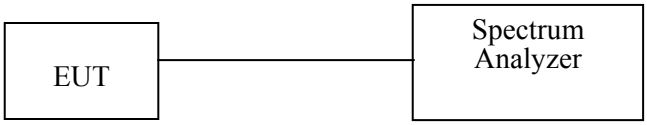
1. Using sample detector and power averaging mode, set RBW=1 MHz and VBW > 1 MHz.
2. PSD is the highest level found across the emission in any 1-MHz band after 100 sweeps of averaging.
3. When the emission bandwidth is less than 1 MHz, a measurement bandwidth equal to the emission bandwidth is used in accordance with section 15.407(a)(5).

Equipment Lists

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	Spectrum analyzer	E4446A	US44300386	2007-04-26

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Setup Diagram



Environmental Conditions

Temperature:	20 ° C
Relative Humidity:	40 %
ATM Pressure:	101.5 kPa

**The testing was performed by Oscar Au from 2007-06-21.*

Result:

5250-5350 MHz Band

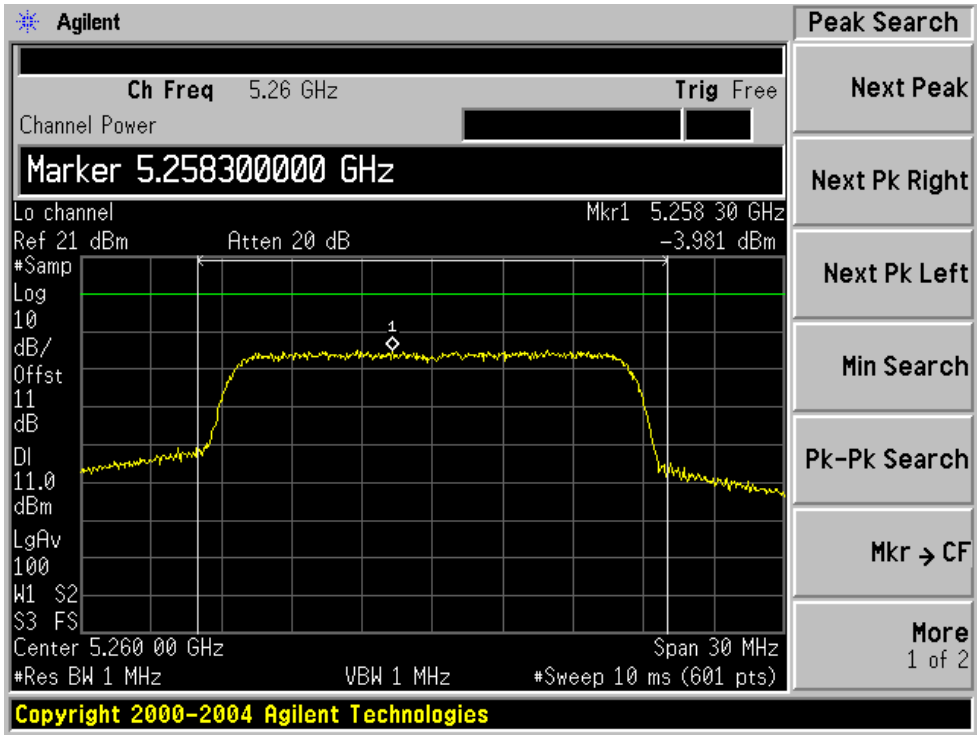
Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
5260	-3.981	11	Pass
5300	0.976	11	Pass
5320	-1.857	11	Pass

5470-5725 MHz Band

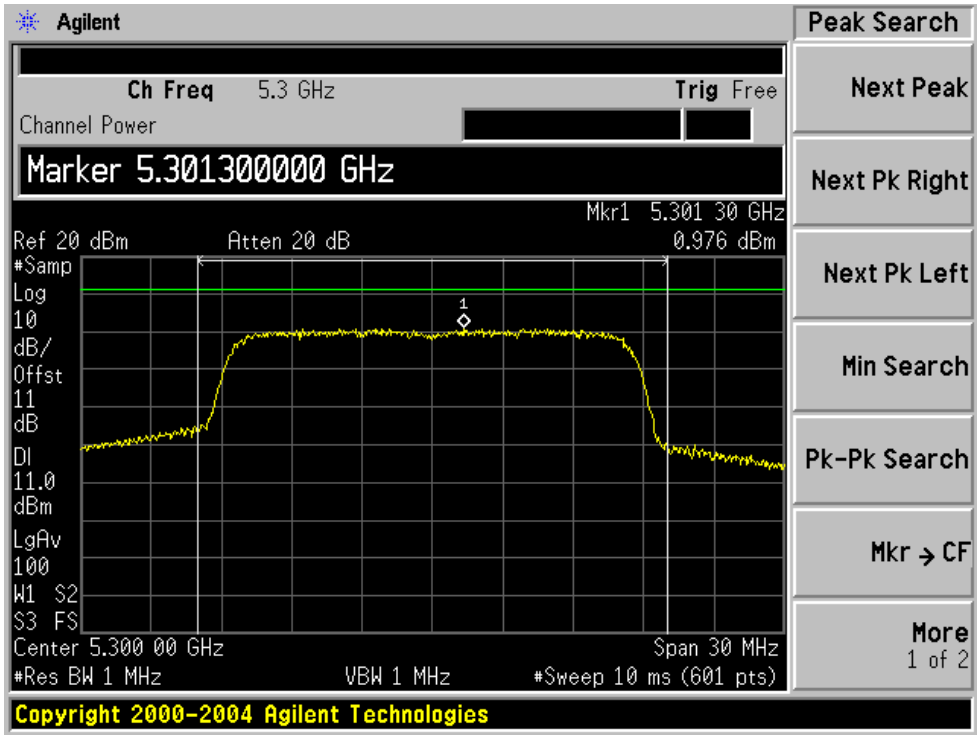
Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
5500	2.943	11	Pass
5580	2.132	11	Pass
5700	0.249	11	Pass

Please refer to the following plots for detailed test results

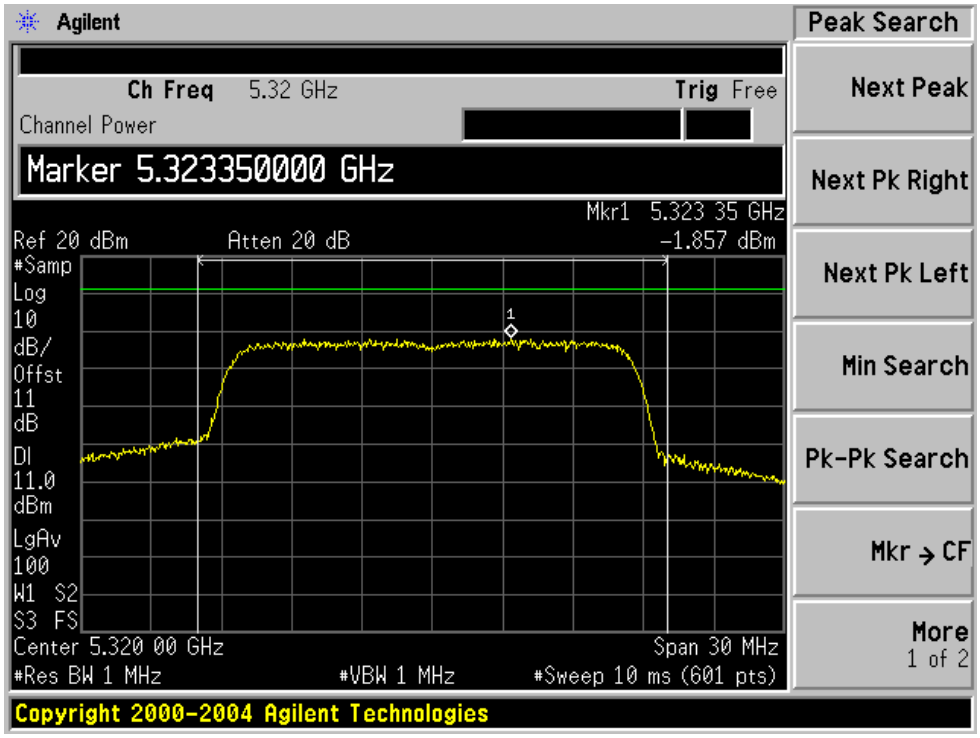
5260 MHz (Low Channel)



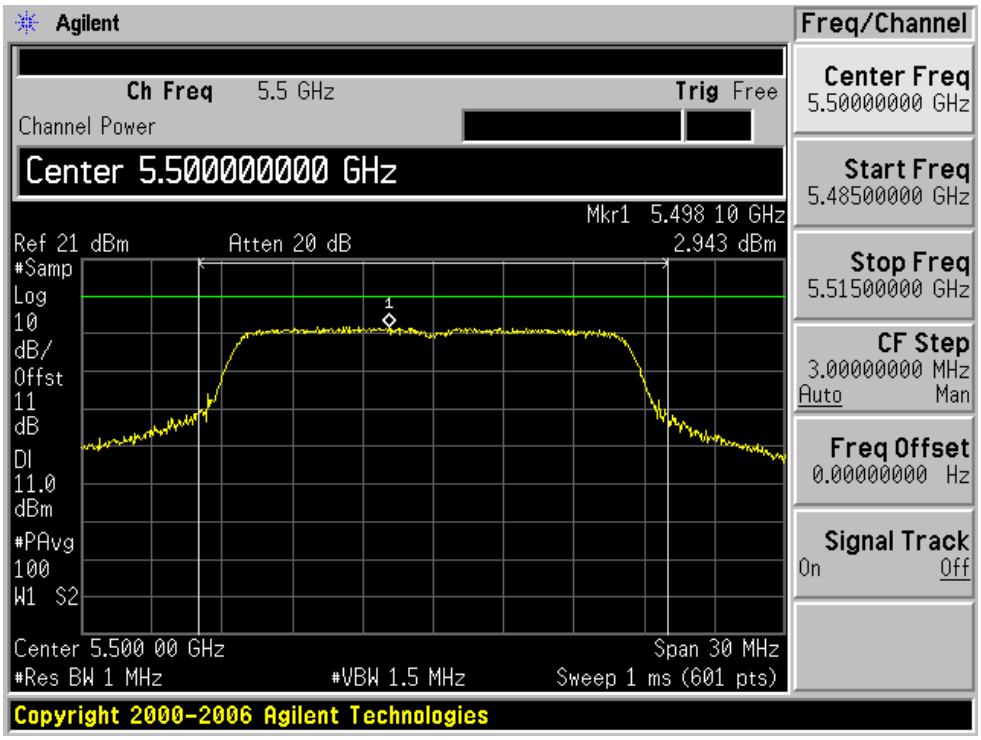
5300 MHz (Middle Channel)



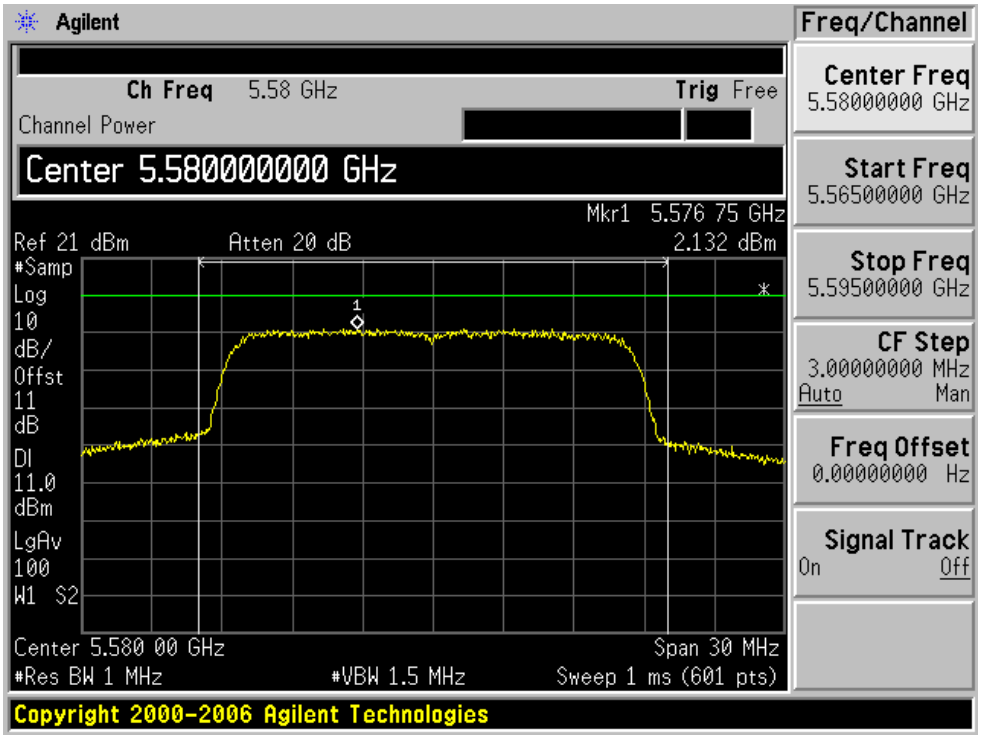
5320 MHz (High Channel)



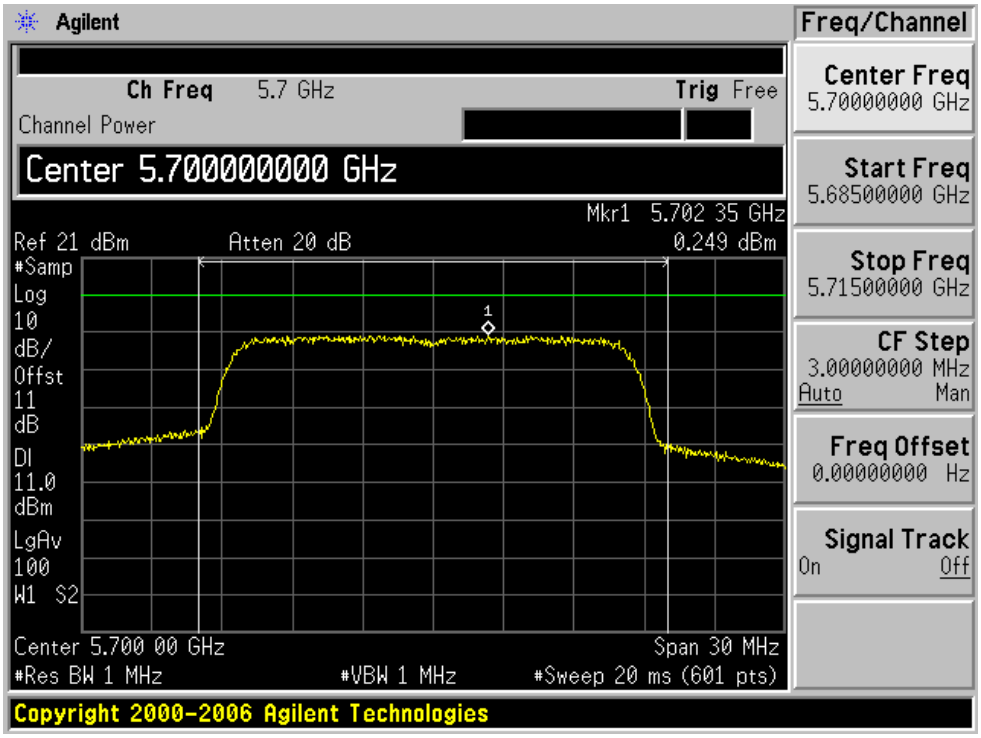
5500 MHz (Low Channel)



5580 MHz (Middle Channel)



5700 MHz (High Channel)



CFR47§15.407(a) (6) – PEAK EXCURSION

Applicable Standard

According to CFR47§15.407 (a) (6), the ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

Measurement Procedure

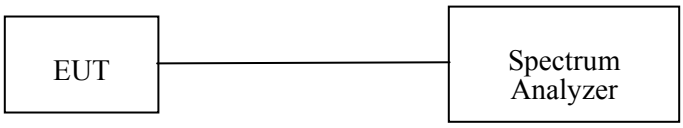
1. Set the SA span to view the entire emission bandwidth. The largest difference between the following two traces must be less than or equal to 13 dB for all frequencies across the emission bandwidth.
2. For the first trace, set RBW = 1MHz and VBW greater or equal to 3MHz utilizing the peak detector and max-hold function.
3. Second trace is created using the setting as described in method # 3 as used in measuring conducted peak output power under FCC Public Notice for U-NII devices August 30, 2002.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Spectrum analyzer	E4446A	US44300386	2007-04-26

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Setup Diagram



Environmental Conditions

Temperature:	20° C
Relative Humidity:	40 %
ATM Pressure:	101.5 kPa

** The testing was performed by Oscar Au from 2007-06-21.*

Result:

5250-5350 MHz Band

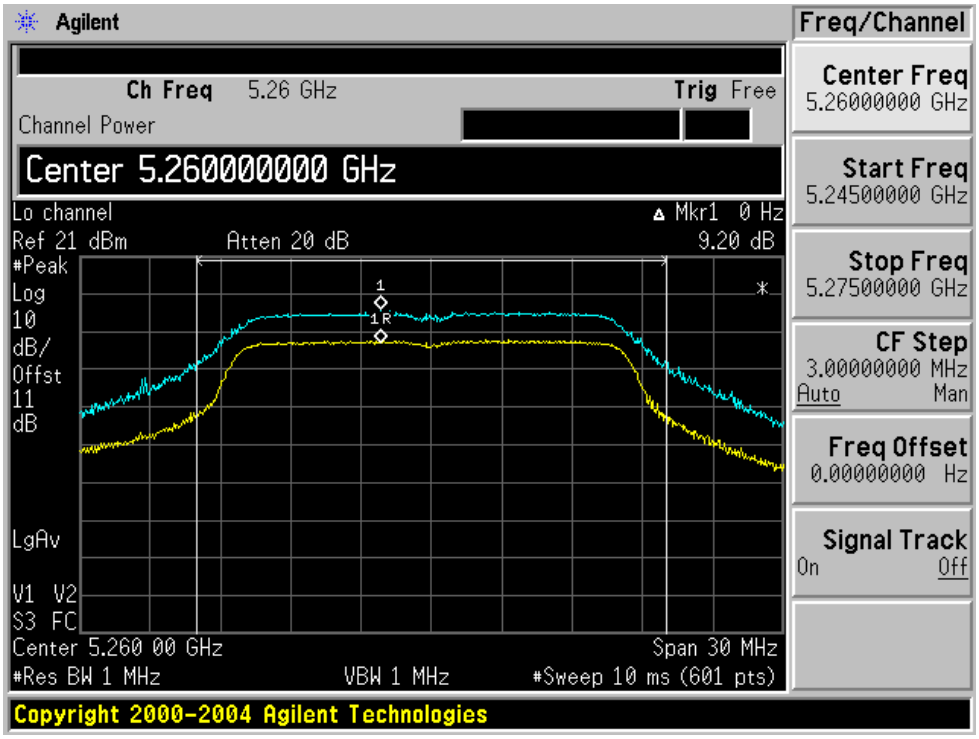
Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
5260	9.2	13	Compliant
5300	8.55	13	Compliant
5320	7.47	13	Compliant

5470-5725 MHz Band

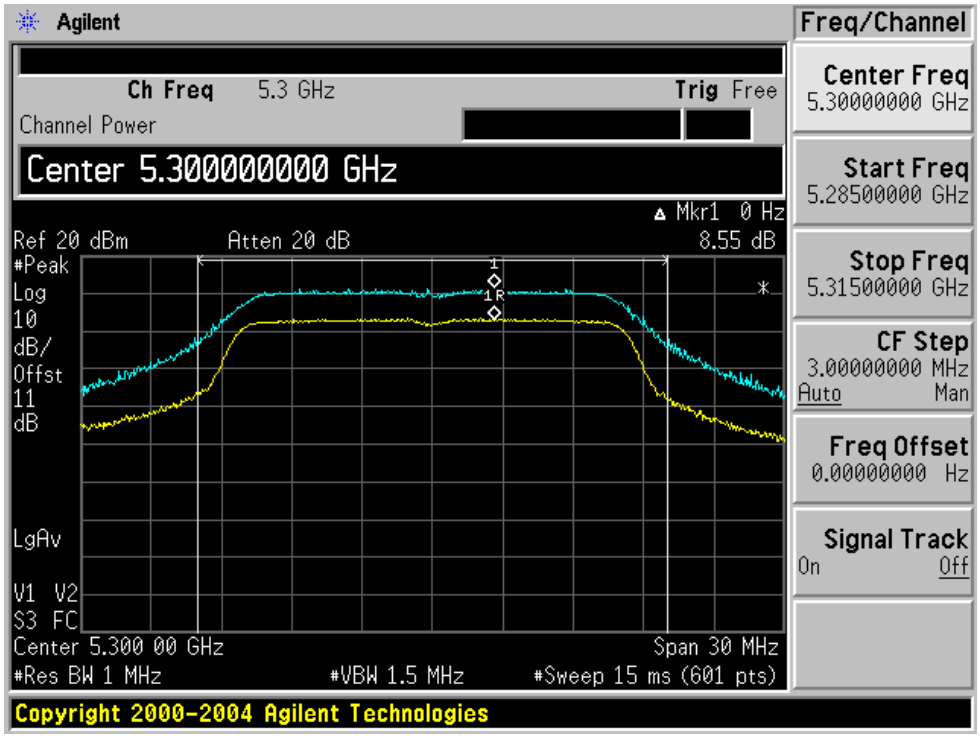
Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
5500	9.88	13	Compliant
5580	6.38	13	Compliant
5700	8.88	13	Compliant

Please refer to the following plots for test result details

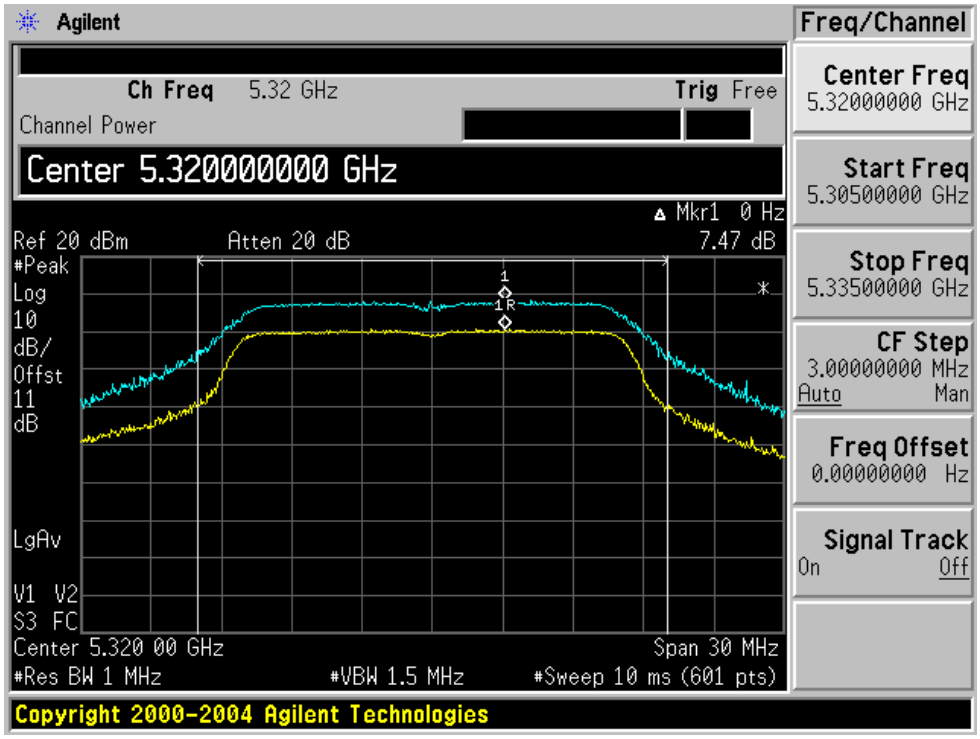
5260 MHz (Low Channel)



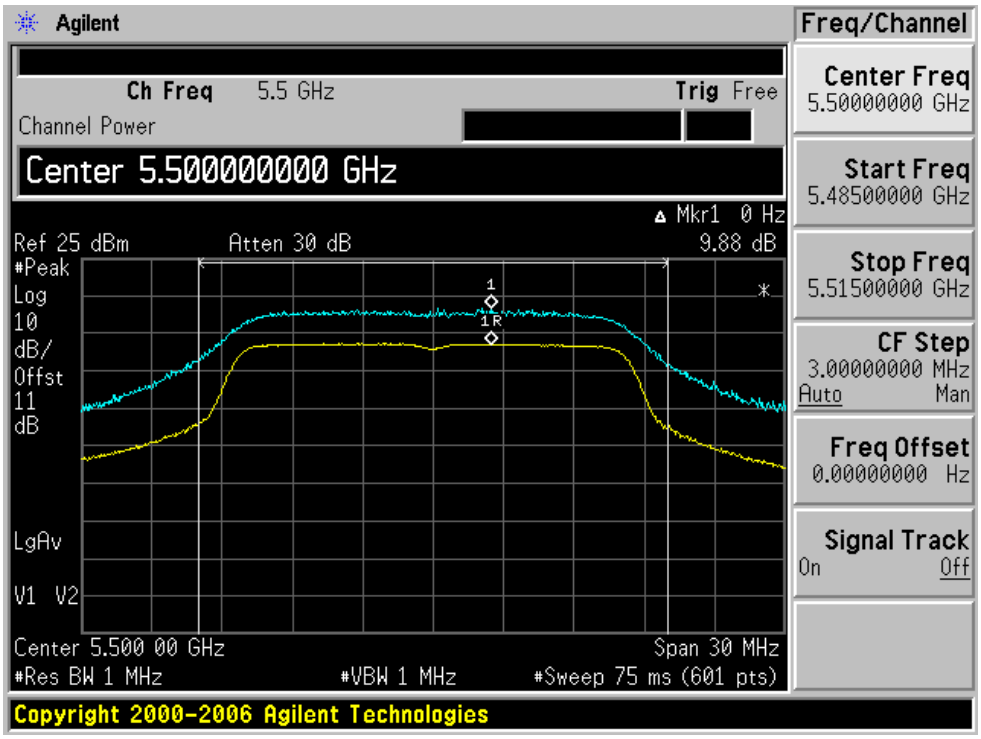
5300 MHz (Middle Channel)



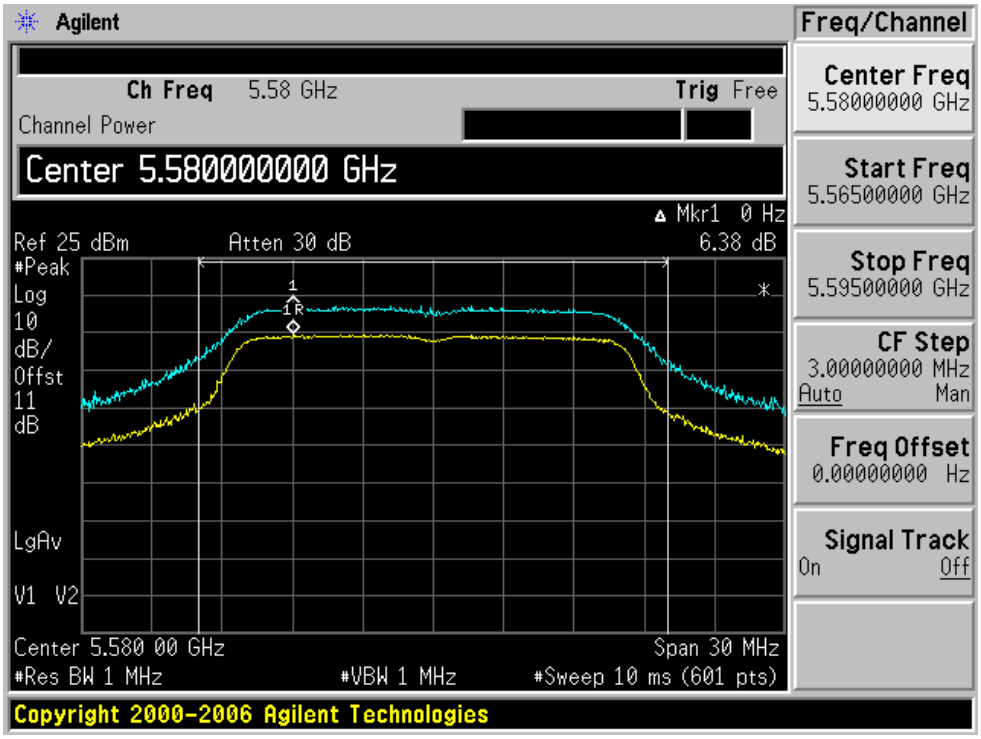
5320 MHz (High Channel)



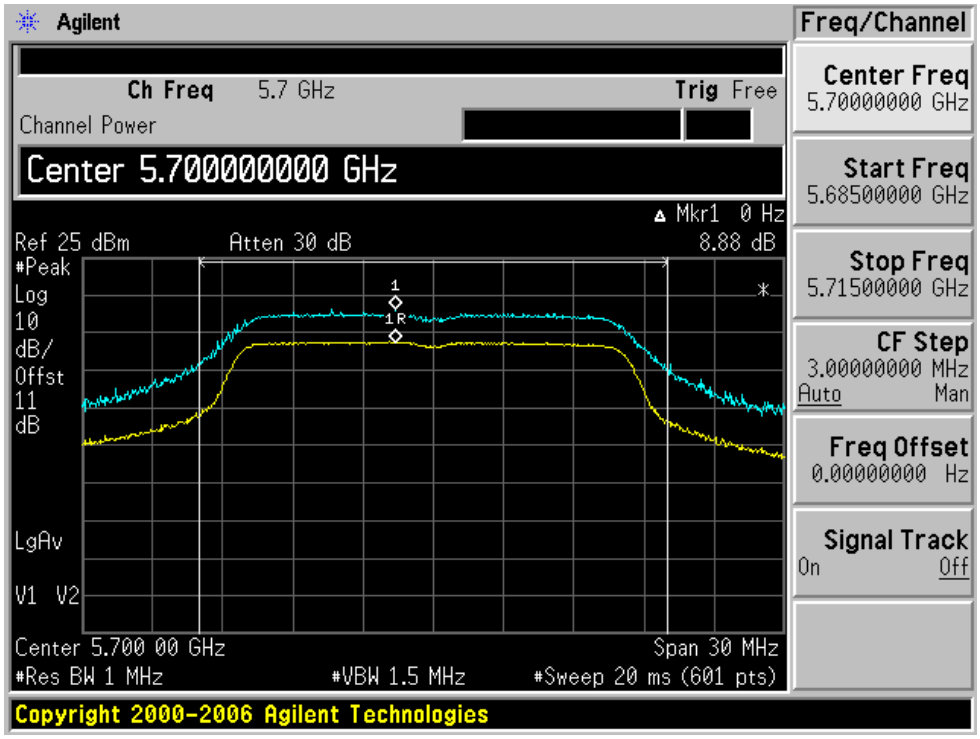
5500 MHz (Low Channel)



5580 MHz (Middle Channel)



5700 MHz (High Channel)



RSS-210 § 2.6 – RECEIVER SPURIOUS RADIATED EMISSIONS

Applicable Standard

All spurious emission shall comply with the limits of Table 1. RBW shall be 100 kHz for spurious emission measurements below 1.0GHz, and 1.0MHz for measurements above 1.0GHz.

Table 1 - Spurious Emission Limits for Receivers

Spurious Frequency (MHz)	Field Strength (microvolt/m at 3 metres)
30-88	100
88-216	150
216-960	200
Above 960	500

EUT Setup

The radiated emission tests were performed in the open area 3-meter test site, using the setup in accordance with the ANSI C63.4-2003. The specification used was the RSS210 limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundle when necessary.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Sonoma	Amplifier, Pre	317	260407	2006-03-20
R&S	Receiver, EMI Test	ESCI 1166.5950K03	100044	2007-02-07
Sunol Science	30Mhz ~ 2 GHz Antenna	JB1	A03105-3	2006-03-15

Statement of Traceability: BACL attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

Test Procedure

For the radiated emissions test, the Host PC system power cord was connected to the AC floor outlet since the power supply used in the EUT did not provide an accessory power outlet.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dBµV of specification limits), and are distinguished with a "**Qp**" in the data table.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corrected Amplitude = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dB below the maximum limit for Subpart C. The equation for margin calculation is as follows:

Margin = Corrected Amplitude –Limit

Environmental Conditions

Temperature:	20° C
Relative Humidity:	30%
ATM Pressure:	101.1 kPa

**The testing was performed by Oscar Au on 2007-06- 22*

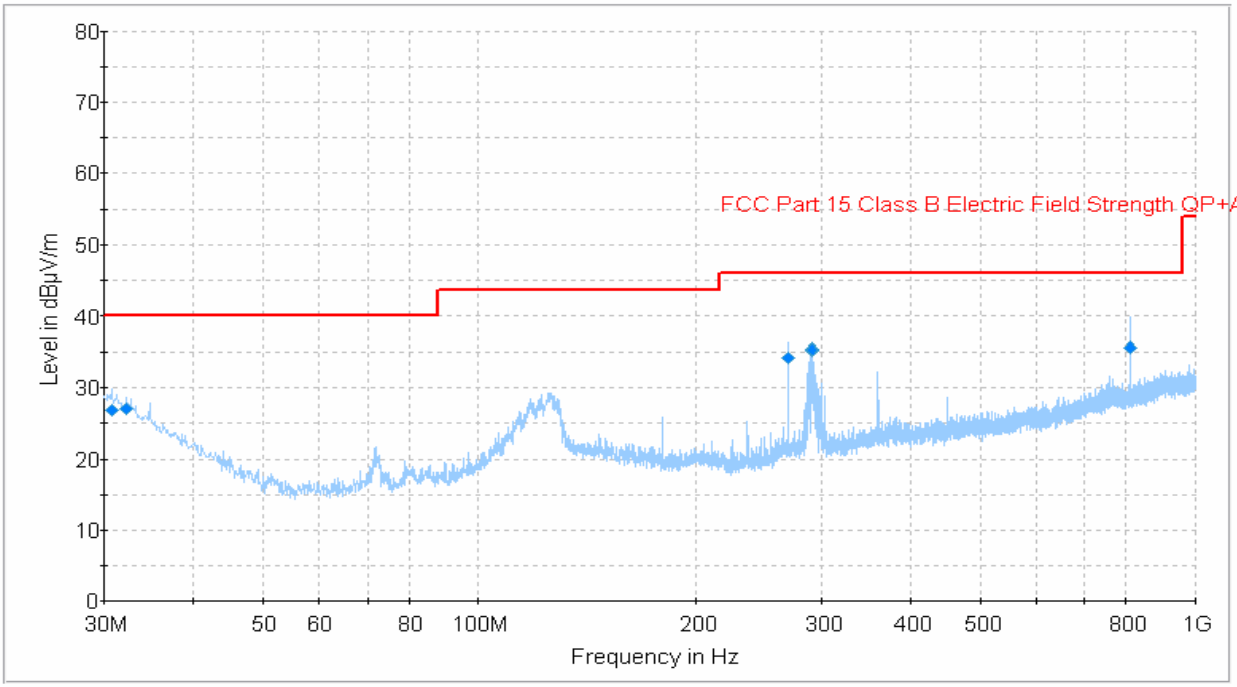
Summary of Test Results

According to the data hereinafter, the EUT complied with the RSS-210, and had the worst margin of:

Mode: Receiver (measured at 3 meters)			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Range (MHz)**
-1.5	745.658750	Horizontal	30 MHz to 1000 MHz

Radiated Emissions Test plot & data:

Primary scan 30MHz -1GHz (RX Spurious Emissions)



Frequency (MHz)	Quasi - Peak (dBµV/m)	Antenna Height (cm)	Polarity (H/V)	Turntable Position (deg)	Correction Value (dB)	Limit (dBµV/m)	Margin (dB)
810.1225	35.6	100	H	120	6.4	46	-10.4
290.5663	35.5	100	H	42	-0.5	46	-10.5
291.2938	35.2	100	H	101	-0.5	46	-10.8
270.075	34.2	100	H	120	-0.9	46	-11.8
32.30375	27.1	100	V	17	4.1	40	-12.9
30.7275	26.8	100	V	54	5.4	40	-13.2

CFR47§15.407(g) – FREQUENCY STABILITY

Standard Applicable

According to §15.407 (g), manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation.

Please refer to use manual for all conditions.

CFR47 §15.407(h), RSS210 §A9.4 – TRANSMIT POWER CONTROL (TPC) AND DYNAMIC FREQUENCY SELECTION (DFS)

Standard Applicable

According to CFR47 §15.407 (h), RSS210 A9.4, (1) Transmit power control (TPC). U-NII devices operating in the 5.25–5.35 GHz band and the 5.47–5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

(2) Radar Detection Function of Dynamic Frequency Selection (DFS). U-NII devices operating in the 5.25–5.35 GHz and 5.47–5.725 GHz bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems. The minimum DFS detection threshold for devices with a maximum e.i.r.p. of 200 mW to 1 W is −64 dBm. For devices that operate with less than 200 mW e.i.r.p. the minimum detection threshold is −62 dBm. The detection threshold is the received power averaged over 1 microsecond referenced to a 0 dBi antenna. The DFS process shall be required to provide a uniform spreading of the loading over all the available channels.

(i) Operational Modes. The DFS requirement applies to the following operational modes:

(A) The requirement for channel availability check time applies in the master operational mode.

(B) The requirement for channel move time applies in both the master and slave operational modes.

(ii) Channel Availability Check Time. A U-NII device shall check if there is a radar system already operating on the channel before it can initiate a transmission on a channel and when it has to move to a new channel. The U-NII device may start using the channel if no radar signal with a power level greater than the interference threshold values listed in paragraph (h)(2) of this part, is detected within 60 seconds.

(iii) Channel Move Time. After a radar's presence is detected, all transmissions shall cease on the operating channel within 10 seconds. Transmissions during this period shall consist of normal traffic for a maximum of 200 ms after detection of the radar signal. In addition, intermittent management and control signals can be sent during the remaining time to facilitate vacating the operating channel.

(iv) Non-occupancy Period. A channel that has been flagged as containing a radar system, either by a channel availability check or in-service monitoring, is subject to a non-occupancy period of at least 30 minutes. The non-occupancy period starts at the time when the radar system is detected.

Please refer to DFS test report.