Test Report

Product Name	SpectraGuard Sensor
Model No	SS-300-AT-C-50
FCC ID.	TOR-SS300ATC50

Applicant	AirTight Networks, Inc.
Address	339 N. Bernardo Avenue, Suite #200 Mountain View, CA United States 94043

Date of Receipt	Aug. 30, 2010
Issue Date	Sep. 17, 2010
Report No.	109037R-RFUSP28V01
Report Version	V1.0

Test Report Certification

Issue Date: Sep. 17, 2010
Report No.: 109037R-RFUSP28V01

Accredited by NIST (NVLAP)
NVLAP Lab Code: 200533-0

Product Name	SpectraGuard Sensor
Applicant	AirTight Networks, Inc.
Address	339 N. Bernardo Avenue, Suite #200 Mountain View, CA United States 94043
Manufacturer	Dong Guan G-Com Computer Co., Ltd.
Model No.	SS-300-AT-C-50
EUT Rated Voltage	AC 100-240V, 50/60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	AirTight Networks
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2009 ANSI C63.4: 2003
Test Result	Complied

NVLAP Lab Code: 200533-0

The test results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

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Tested By : Eason Hung
(Engineer / Eason Hung)

Approved By :
(Manager / Vincent Lin)

Testing Laboratory
0914

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	SpectraGuard Sensor
Trade Name	AirTight Networks
Model No.	SS-300-AT-C-50
FCC ID.	TOR-SS300ATC50
Frequency Range	802.11b/g/n-20MHz:2412-2462MHz, 802.11n-40MHz: 2422-2452MHz 802.11a/n-20MHz:5745-5825MHz, 802.11n-40MHz:5755-5795MHz
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7 802.11a/n-20MHz: 5, n-40MHz: 2
Data Speed	802.11b: 1-11Mbps, 802.11a/g: 6-54Mbps, 802.11n: 6.5-450Mbps
Channel separation	802.11b/g/n-20MHz: 5 MHz, 802.11a/n-20MHz: 20MHz 802.11n-40MHz: 40MHz
Type of Modulation	802.11b:DSSS DBPSK, DQPSK, CCK 802.11a/g/n: OFDM BPSK, QPSK, 16QAM, 64QAM
Antenna Type	PCB Antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto
Power Adapter	MFR: DVE, M/N: DSA-15P-12 US 120150 Input: AC 100-240V ~ 50/60Hz, 0.5A Output: DC 12V, 1.25A

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	WIESON	GY196HT0220-014	6.16dBi in 2.4GHz 6.30dBi in 5.0GHz

Note: The antenna of EUT is conforming to FCC 15.203.

802.11b/g/n-20MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

802.11a/n-20MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 149:	5745 MHz	Channel 153:	5765 MHz	Channel 157:	5785 MHz	Channel 161:	5805 MHz
Channel 165:	5825 MHz						

802.11n-40MHz (2.4G Band) Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 1:	2422 MHz	Channel 2:	2427 MHz	Channel 3:	2432 MHz	Channel 4:	2437 MHz
Channel 5:	2442 MHz	Channel 6:	2447 MHz	Channel 7:	2452 MHz		

802.11n-40MHz (5G Band) Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency
Channel 151:	5755 MHz	Channel 159:	5795 MHz

Note:

1. The EUT is a SpectraGuard Sensor with a built-in 2.4GHz and 5GHz WLAN transceiver, 802.11a/b/g/n all functions support 3(Transmit) × 3(Receive) technology.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 11Mbps、802.11g is 6Mbps、802.11n(20M-BW) is 21.6Mbps and 、802.11n(40M-BW) is 45Mbps)
4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11a/b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices

1.2. Operational Description

The EUT is a SpectraGuard Sensor with a built-in 2.4GHz and 5GHz WLAN card. This device provided four kinds of transmitting speed 1, 2, 5.5 and 11Mbps and the device of RF carrier is DBPSK, DQPSK and CCK (IEEE 802.11b). The device provided of eight kinds of transmitting speed 6, 9, 12, 18, 24, 36, 48 and 54Mbps the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11a/g).

The device provided of eight kinds of transmitting speed 21.6,43.2,65.1,86.7,129.9,173.4,195 and 216Mbps in 802.11n(20M-BW) mode and 45,90,135,180,270,360,405 and 450 Mbps(40M-BW) the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11n), the IEEE 802.11n is Multiple In, Multiple Out" (MIMO) technology.

The device adapts direct sequence spread spectrum modulation. The antenna provides diversity function to improve the receiving function and the antennas to support 3(Transmit) × 3(Receive) MIMO technology.

This SpectraGuard Sensor, compliant with IEEE 802.11b and IEEE 802.11a/g/n, is a high-efficiency Wireless LAN adapter. It allows your computer to connect to a wireless network and to share resources, such as files or printers without being bound to the network wires. Operation in 2.4GHz/5GHz Direst Sequence Spread Spectrum (DSSS) radio transmission, the SpectraGuard Sensor Wired Equivalent Protection (WEP) algorithm is used. In addition, its standard compliance ensures that it can communicate with any IEEE 802.11b and IEEE 802.11a/g/n network.

The Device no radar detection and no ad-hoc operation in the DFS band, another information please refer to users manual.

Test Mode:	Mode 1: Transmit (802.11b 11Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmit - 802.11a 6Mbps
	Mode 4: Transmit - 802.11n-20BW_21.6Mbps(2.4G Band)
	Mode 5: Transmit - 802.11n-40BW_45Mbps(2.4G Band)
	Mode 6: Transmit - 802.11n-20BW_21.6Mbps(5G Band)
	Mode 7: Transmit - 802.11n-40BW_45Mbps(5G Band)

NOTE: The power combiner is used for conducted test, the factor of combiner is 10dB and offset it in test instrument.

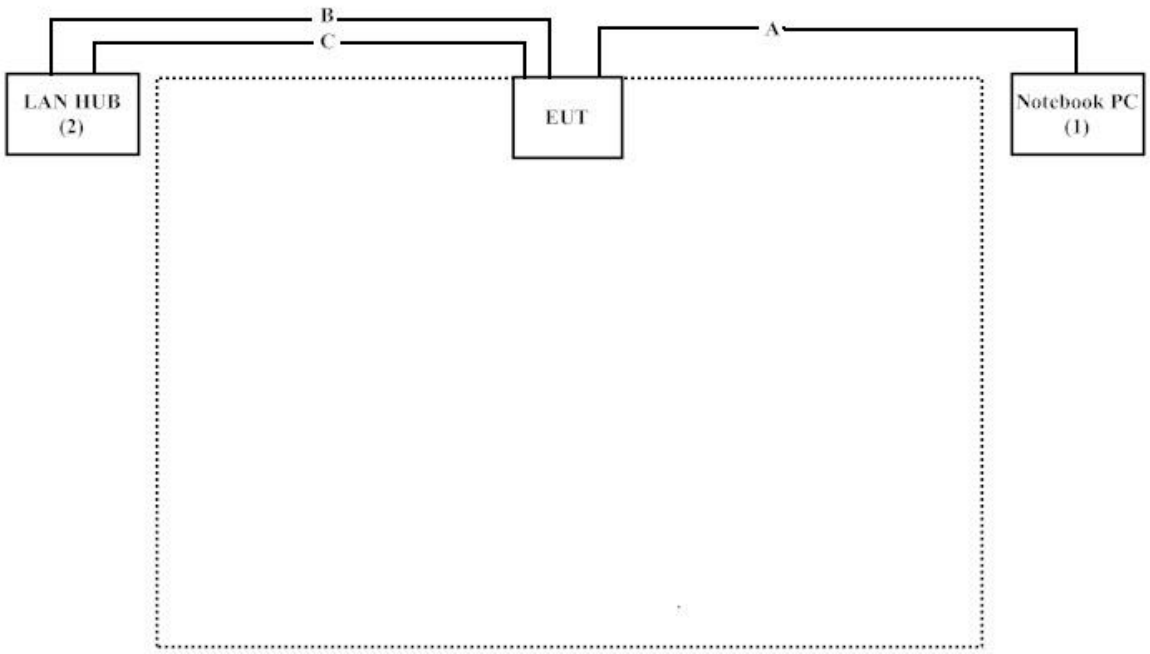
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	NOTEBOOK PC	DELL	D400	N/A	Non-Shielded,1.8m
2	LAN HUB	D-Link	DES-1008D	DR9R16C002163	Non-Shielded,1.8m

Signal Cable Type		Signal cable Description
A	LAN CABLE	Non-Shielded, 8m
B	LAN CABLE	Non-Shielded, 8m
C	LAN CABLE	Non-Shielded, 8m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

(1) Setup the EUT as shown in Section 1.4

(2) Execute the ART program (Version 07B30) on the EUT

(3) Configure the test mode, the test channel, and the data rate.

(4) Press “OK” to start the continuous Transmitter.

(5) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/

Site Description: File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 92195

Accreditation on NVLAP
NVLAP Lab Code: 200533-0

Site Name: Quietek Corporation
Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
Lin-Kou Shiang, Taipei,
Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

Testing Laboratory
0914

2. Conducted Emission

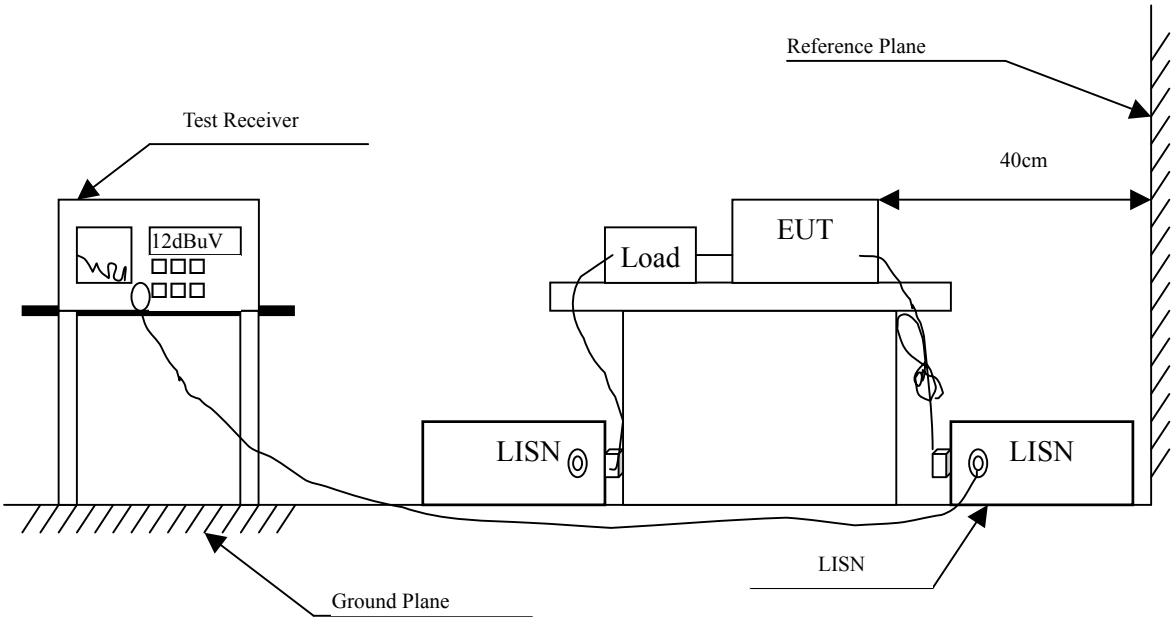
2.1. Test Equipment

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2010	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2010	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2010	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2010	
5	No.1 Shielded Room			N/A	

Note: All instruments are calibrated every one year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : SpectraGuard Sensor
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 5: Transmit - 802.11n-40BW_45Mbps(2.4G Band) (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.154	9.760	34.940	44.701	-21.185	65.886
0.212	9.698	34.580	44.278	-19.951	64.229
0.259	9.670	41.770	51.440	-11.446	62.886
0.302	9.650	35.670	45.320	-16.337	61.657
0.369	9.650	38.150	47.800	-11.943	59.743
0.490	9.640	31.950	41.590	-14.696	56.286
Average					
0.154	9.760	24.400	34.161	-21.725	55.886
0.212	9.698	26.050	35.748	-18.481	54.229
0.259	9.670	33.050	42.720	-10.166	52.886
0.302	9.650	12.890	22.540	-29.117	51.657
0.369	9.650	31.250	40.900	-8.843	49.743
0.490	9.640	16.410	26.050	-20.236	46.286

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : SpectraGuard Sensor
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 5: Transmit - 802.11n-40BW_45Mbps(2.4G Band) (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.158	9.756	31.535	41.290	-24.278	65.568
0.267	9.665	37.895	47.560	-13.651	61.211
0.310	9.650	41.680	51.330	-10.099	61.429
0.365	9.650	40.760	50.410	-9.447	59.857
0.427	9.641	36.450	46.091	-11.995	58.086
0.705	9.630	32.850	42.480	-13.520	56.000
Average					
0.158	9.756	32.330	42.085	-13.483	55.568
0.267	9.665	34.590	44.255	-8.402	52.657
0.310	9.650	30.410	40.060	-11.369	51.429
0.365	9.650	34.990	44.640	-5.217	49.857
0.427	9.641	18.790	28.431	-19.655	48.086
0.705	9.630	18.910	28.540	-17.460	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : SpectraGuard Sensor
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 7: Transmit - 802.11n-40BW_45Mbps(5G Band) (5755MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.166	9.746	30.230	39.975	-25.568	65.543
0.212	9.698	36.070	45.768	-18.461	64.229
0.259	9.670	42.550	52.220	-10.666	62.886
0.318	9.650	40.370	50.020	-11.180	61.200
0.365	9.650	40.130	49.780	-10.077	59.857
0.615	9.630	34.060	43.690	-12.310	56.000
Average					
0.166	9.746	3.610	13.355	-42.188	55.543
0.212	9.698	19.090	28.788	-25.441	54.229
0.259	9.670	20.970	30.640	-22.246	52.886
0.318	9.650	24.280	33.930	-17.270	51.200
0.365	9.650	32.010	41.660	-8.197	49.857
0.615	9.630	21.060	30.690	-15.310	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : SpectraGuard Sensor
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 7: Transmit - 802.11n-40BW_45Mbps(5G Band) (5755MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.154	9.760	33.890	43.651	-22.235	65.886
0.220	9.703	33.900	43.603	-20.397	64.000
0.267	9.675	42.820	52.495	-10.162	62.657
0.326	9.660	39.220	48.880	-12.091	60.971
0.673	9.650	32.590	42.240	-13.760	56.000
6.287	9.730	27.140	36.870	-23.130	60.000
Average					
0.154	9.760	23.680	33.441	-22.445	55.886
0.220	9.703	17.570	27.273	-26.727	54.000
0.267	9.675	18.970	28.645	-24.012	52.657
0.326	9.660	28.890	38.550	-12.421	50.971
0.673	9.650	15.830	25.480	-20.520	46.000
6.287	9.730	20.000	29.730	-20.270	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

3.1. Test Equipment

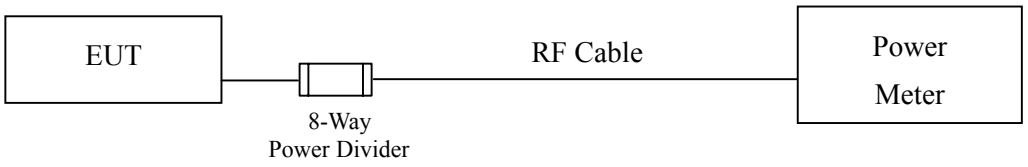
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2010
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2010
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.
3. The power combiner is used for measure 11n mode.

3.2. Test Setup

Conducted Measurement



3.3. Limits

The maximum peak power shall be less 1 Watt.

3.4. Test Procedure

The EUT was tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Peak Power Output

Product : SpectraGuard Sensor
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 11Mbps)

CHAIN A+B+C

Cable loss=0.5dB		Peak Power Output (dBm)					
Channel No.	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit
		1	2	5.5	11	11	
1	2412.00	--	--	--	20.67	26.62	1Watt= 30 dBm
6	2437.00	22.12	22.23	22.29	22.39	29.45	1Watt= 30 dBm
11	2462.00	--	--	--	20.71	26.72	1Watt= 30 dBm

Note: Peak Power Output Value =Reading value on peak power meter + cable loss

Product : SpectraGuard Sensor
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

CHAIN A+B+C

Channel No	Frequency (MHz)	Peak Power Output (dBm)										
		Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54	6		
01	2412	17.13	--	--	--	--	--	--	--	27.29	<30dBm	Pass
06	2437	19.67	19.33	19.25	19.14	19.25	19.44	19.31	19.21	29.46	<30dBm	Pass
11	2462	17.81	--	--	--	--	--	--	--	28.05	<30dBm	Pass

Note: Peak Power Output Value =Reading value on peak power meter + cable loss

Product : SpectraGuard Sensor
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit - 802.11a 6Mbps

CHAIN A+B+C

Channel No	Frequency (MHz)	Peak Power Output (dBm)										
		Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54	6		
149	5745	20.03	--	--	--	--	--	--	--	28.98	<30dBm	Pass
157	5785	21.24	21.2	21.03	20.95	20.87	21.08	21.12	21.1	29.45	<30dBm	Pass
165	5825	21.13	--	--	--	--	--	--	--	29.22	<30dBm	Pass

Note: Peak Power Output Value =Reading value on peak power meter + cable loss

Product : SpectraGuard Sensor
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit - 802.11n-20BW_21.6Mbps(2.4G Band)

CHAIN A+B+C

Channel No	Frequency (MHz)	Peak Power Output (dBm)										
		Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		21.6	43.2	65.1	86.7	129.9	173.4	195	216.6	21.6		
01	2412	16.15	--	--	--	--	--	--	--	26.58	<30dBm	Pass
06	2437	20.04	19.87	19.15	19.51	19.89	19.85	19.8	19.97	29.76	<30dBm	Pass
11	2462	16.86	--	--	--	--	--	--	--	27.28	<30dBm	Pass

Note: Peak Power Output Value =Reading value on peak power meter + cable loss

Product : SpectraGuard Sensor
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit - 802.11n-40BW_45Mbps(2.4G Band)

CHAIN A+B+C

Channel No	Frequency (MHz)	Peak Power Output (dBm)										
		Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		45	90	135	180	270	360	405	450	45		
03	2422	14.11	--	--	--	--	--	--	--	24.38	<30dBm	Pass
06	2437	20.39	20.22	20.05	20.13	19.95	19.91	19.87	19.77	29.56	<30dBm	Pass
09	2452	13.17	--	--	--	--	--	--	--	22.62	<30dBm	Pass

Note: Peak Power Output Value =Reading value on peak power meter + cable loss

Product : SpectraGuard Sensor
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 6: Transmit - 802.11n-20BW_21.6Mbps(5G Band)

CHAIN A+B+C

Channel No	Frequency (MHz)	Peak Power Output (dBm)										
		Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		21.6	43.2	65.1	86.7	129.9	173.4	195	216.6	21.6		
149	5745	20.55	--	--	--	--	--	--	--	29.26	<30dBm	Pass
157	5785	20.80	20.37	20.42	20.51	20.22	20.38	20.49	19.97	29.34	<30dBm	Pass
165	5825	20.70	--	--	--	--	--	--	--	29.03	<30dBm	Pass

Note: Peak Power Output Value =Reading value on peak power meter + cable loss

Product : SpectraGuard Sensor
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 7: Transmit - 802.11n-40BW_45Mbps(5G Band)

CHAIN A+B+C

Channel No	Frequency (MHz)	Peak Power Output (dBm)										
		Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		45	90	135	180	270	360	405	450	45		
151	5755	21.34	21.18	20.41	21.02	20.95	20.91	20.87	20.67	29.33	<30dBm	Pass
159	5795	21.37	--	--	--	--	--	--	--	29.20	<30dBm	Pass

Note: Peak Power Output Value =Reading value on peak power meter + cable loss

4. Radiated Emission

4.1. Test Equipment

The following test equipment are used during the radiated emission test:

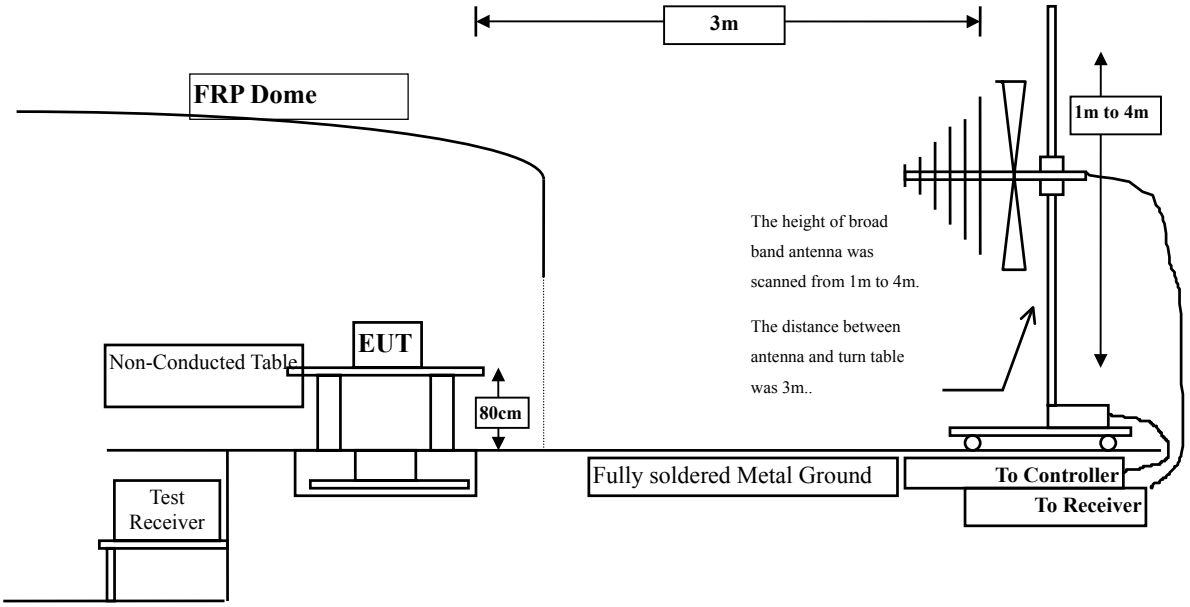
Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2010
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2010
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2010
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2010
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2010
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2010
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2010
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

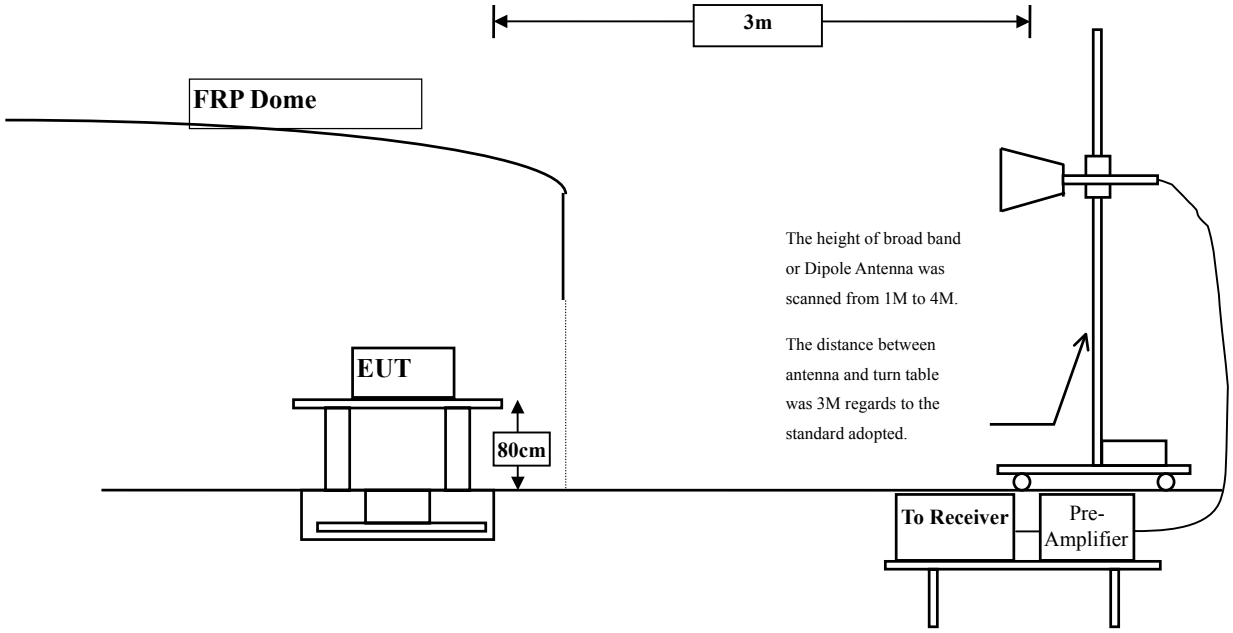
2. The test instruments marked with "X" are used to measure the final test results.

4.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks: E field strength (dBuV/m) = 20 log E field strength (uV/m)

4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.
The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.
The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.
Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.
The measurement is divided into the Preliminary Measurement and the Final Measurement.
The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.
The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.
The measurement frequency range form 30MHz - 10th Harmonic of fundamental was investigated.

4.5. Uncertainty

± 3.9 dB above 1GHz
± 3.8 dB below 1GHz

4.6. Test Result of Radiated Emission

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 11Mbps) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	48.061	51.221	-25.939	74.000
7236.000	10.650	38.785	49.435	-24.565	74.000
9648.000	13.337	36.900	50.237	-23.763	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	40.940	47.361	-26.639	74.000
7236.000	11.495	36.430	47.925	-26.075	74.000
9648.000	13.807	37.680	51.486	-22.514	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 11Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	47.050	50.087	-23.913	74.000
7311.000	11.795	40.750	52.544	-21.456	74.000
9748.000	12.635	42.060	54.695	-19.305	74.000
Average					
Detector:					
9748.000	12.635	34.592	47.227	-6.773	54.000
Vertical					
Peak Detector:					
4874.000	5.812	43.070	48.881	-25.119	74.000
7311.000	12.630	39.960	52.589	-21.411	74.000
9748.000	13.126	44.690	57.816	-16.184	74.000
Average					
Detector:					
9748.000	13.126	38.360	51.486	-2.514	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 11Mbps) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	44.270	47.127	-26.873	74.000
7386.000	12.127	40.010	52.138	-21.862	74.000
9848.000	12.852	41.630	54.483	-19.517	74.000
Average					
Detector:					
9848.000	12.852	35.980	48.832	-5.168	54.000
Vertical					
Peak Detector:					
4924.000	5.521	43.090	48.610	-25.390	74.000
7386.000	13.254	37.940	51.194	-22.806	74.000
9848.000	13.367	43.260	56.627	-17.373	74.000
Average					
Detector:					
9848.000	13.367	37.320	50.687	-3.313	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	37.150	40.411	-33.589	74.000
7236.000	10.650	37.220	47.870	-26.130	74.000
9648.000	13.337	36.270	49.606	-24.394	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	39.320	45.741	-28.259	74.000
7236.000	11.495	36.540	48.035	-25.965	74.000
9648.000	13.807	37.080	50.886	-23.114	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	2.918	44.270	47.187	-26.813	74.000
7311.000	11.728	37.820	49.547	-24.453	74.000
9748.000	12.404	41.500	53.904	-20.096	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.692	42.570	48.261	-25.739	74.000
7311.000	12.563	36.860	49.422	-24.578	74.000
9748.000	12.895	44.770	57.665	-16.335	74.000
Average					
Detector:					
9748.000	12.895	28.030	40.925	-13.075	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	41.770	44.627	-29.373	74.000
7386.000	12.127	35.940	48.068	-25.932	74.000
9848.000	12.852	37.400	50.253	-23.747	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	39.740	45.261	-28.739	74.000
7386.000	13.254	35.660	48.914	-25.086	74.000
9848.000	13.367	38.460	51.827	-22.173	74.000
Average					
Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5745 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
11490.000	17.106	44.550	61.657	-12.343	74.000
Average Detector:					
11490.000	17.106	30.500	47.607	-6.393	54.000
Vertical Peak Detector:					
11490.000	18.034	43.780	61.815	-12.185	74.000
Average Detector:					
11490.000	18.034	28.390	46.425	-7.575	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5785 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
11570.000	16.809	47.700	64.509	-9.491	74.000
Average Detector:					
11570.000	16.809	33.970	50.779	-3.221	54.000
Vertical Peak Detector:					
11570.000	17.698	47.380	65.078	-8.922	74.000
Average Detector:					
11570.000	17.698	33.900	51.598	-2.402	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5825 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
11650.000	16.158	47.940	64.098	-9.902	74.000
Average Detector:					
11650.000	16.158	33.580	49.738	-4.262	54.000
Vertical Peak Detector:					
11650.000	17.274	46.010	63.285	-10.715	74.000
Average Detector:					
11650.000	17.274	31.070	48.345	-5.655	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit - 802.11n-20BW_21.6Mbps(2.4G Band) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	40.240	43.501	-30.499	74.000
7236.000	10.650	36.940	47.590	-26.410	74.000
9648.000	13.337	36.260	49.596	-24.404	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	37.440	43.861	-30.139	74.000
7236.000	11.495	36.100	47.595	-26.405	74.000
9648.000	13.807	36.760	50.566	-23.434	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit - 802.11n-20BW_21.6Mbps(2.4G Band) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	2.918	45.590	48.507	-25.493	74.000
7311.000	11.728	35.440	47.167	-26.833	74.000
9748.000	12.404	38.390	50.794	-23.206	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.692	41.310	47.001	-26.999	74.000
7311.000	12.563	36.010	48.572	-25.428	74.000
9748.000	12.895	41.190	54.085	-19.915	74.000
Average					
Detector:					
9748.000	12.895	25.890	38.785	-15.215	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit - 802.11n-20BW_21.6Mbps(2.4G Band) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	44.350	47.207	-26.793	74.000
7386.000	12.127	37.260	49.388	-24.612	74.000
9848.000	12.852	38.480	51.333	-22.667	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	42.550	48.070	-25.930	74.000
7386.000	13.254	39.060	52.314	-21.686	74.000
9848.000	13.367	38.010	51.377	-22.623	74.000
Average					
Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit - 802.11n-40BW_45Mbps(2.4G Band) (2422MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4844.000	3.171	38.350	41.521	-32.479	74.000
7266.000	11.162	36.040	47.202	-26.798	74.000
9688.000	12.964	37.390	50.355	-23.645	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4844.000	6.178	37.550	43.728	-30.272	74.000
7266.000	11.982	35.540	47.522	-26.478	74.000
9688.000	13.507	36.410	49.918	-24.082	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit - 802.11n-40BW_45Mbps(2.4G Band) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	2.918	40.240	43.158	-30.842	74.000
7311.000	11.728	35.260	46.988	-27.012	74.000
9748.000	12.404	36.770	49.174	-24.826	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.692	37.650	43.341	-30.659	74.000
7311.000	12.563	35.590	48.152	-25.848	74.000
9748.000	12.895	36.760	49.655	-24.345	74.000
Average					
Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit - 802.11n-40BW_45Mbps(2.4G Band) (2452 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4904.000	2.914	38.420	41.335	-32.665	74.000
7356.000	11.995	35.810	47.804	-26.196	74.000
9808.000	12.475	36.440	48.915	-25.085	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4904.000	5.530	37.500	43.031	-30.969	74.000
7356.000	13.005	35.630	48.634	-25.366	74.000
9808.000	12.901	37.080	49.981	-24.019	74.000
Average					
Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 6: Transmit - 802.11n-20BW_21.6Mbps(5G Band) (5745MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11490.000	17.106	46.130	63.237	-10.763	74.000
Average					
Detector:					
11490.000	17.106	31.340	48.447	-5.553	54.000
Vertical					
Peak Detector:					
11490.000	18.034	44.680	62.715	-11.285	74.000
Average					
Detector:					
11490.000	18.034	29.190	47.224	-6.776	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 6: Transmit - 802.11n-20BW_21.6Mbps(5G Band) (5785 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
11570.000	16.809	48.770	65.579	-8.421	74.000
Average Detector:					
11570.000	16.809	33.410	50.219	-3.781	54.000
Vertical Peak Detector:					
11570.000	17.698	47.140	64.838	-9.162	74.000
Average Detector:					
11570.000	17.698	30.810	48.508	-5.492	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 6: Transmit - 802.11n-20BW_21.6Mbps(5G Band) (5825 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
11650.000	16.158	46.660	62.818	-11.182	74.000
Average Detector:					
11650.000	16.158	31.540	47.698	-6.302	54.000
Vertical Peak Detector:					
11650.000	17.274	44.970	62.245	-11.755	74.000
Average Detector:					
11650.000	17.274	29.800	47.075	-6.925	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 7: Transmit - 802.11n-40BW_45Mbps(5G Band) (5755MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11510.000	17.124	44.640	61.764	-12.236	74.000
Average					
Detector:					
11510.000	17.124	27.100	44.224	-9.776	54.000
Vertical					
Peak Detector:					
11510.000	18.081	43.950	62.031	-11.969	74.000
Average					
Detector:					
11510.000	18.081	27.460	45.541	-8.459	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 7: Transmit - 802.11n-40BW_45Mbps(5G Band) (5795 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
11590.000	16.701	47.000	63.700	-10.300	74.000
Average Detector:					
11590.000	16.701	29.150	45.850	-8.150	54.000
Vertical Peak Detector:					
11590.000	17.567	44.880	62.446	-11.554	74.000
Average Detector:					
11590.000	17.567	27.550	45.116	-8.884	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 11Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
30.000	2.120	31.712	33.832	-6.168	40.000
375.320	-1.209	35.657	34.448	-11.552	46.000
625.580	1.770	37.302	39.072	-6.928	46.000
749.740	3.320	30.790	34.110	-11.890	46.000
875.840	5.271	33.315	38.586	-7.414	46.000
1000.000	9.119	28.244	37.363	-16.637	54.000
Vertical					
161.920	-6.696	42.837	36.142	-7.358	43.500
375.320	-2.029	30.696	28.667	-17.333	46.000
499.480	-0.852	34.233	33.381	-12.619	46.000
677.960	0.527	32.533	33.060	-12.940	46.000
749.740	2.510	30.338	32.848	-13.152	46.000
934.040	5.792	27.098	32.890	-13.110	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
39.700	-3.616	34.785	31.169	-8.831	40.000
375.320	-1.209	34.707	33.498	-12.502	46.000
499.480	0.048	31.059	31.107	-14.893	46.000
625.580	1.770	37.411	39.181	-6.819	46.000
875.840	5.271	31.498	36.769	-9.231	46.000
1000.000	9.119	27.999	37.118	-16.882	54.000
Vertical					
161.920	-6.696	40.955	34.260	-9.240	43.500
379.200	-1.505	30.063	28.557	-17.443	46.000
499.480	-0.852	35.093	34.241	-11.759	46.000
674.080	-0.501	34.801	34.300	-11.700	46.000
968.960	8.191	21.885	30.076	-23.924	54.000
1000.000	4.329	23.419	27.748	-26.252	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5785MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
30.000	2.120	27.435	29.555	-10.445	40.000
456.800	-0.067	36.498	36.431	-9.569	46.000
586.780	3.436	33.844	37.280	-8.720	46.000
749.740	3.320	34.057	37.377	-8.623	46.000
850.620	5.982	34.386	40.368	-5.632	46.000
1000.000	9.119	30.695	39.814	-14.186	54.000
Vertical					
41.640	-1.809	34.699	32.890	-7.110	40.000
144.460	-6.257	40.772	34.515	-8.985	43.500
181.320	-9.512	42.969	33.457	-10.043	43.500
586.780	-5.884	39.009	33.125	-12.875	46.000
749.740	2.510	32.955	35.465	-10.535	46.000
1000.000	4.329	31.413	35.742	-18.258	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit - 802.11n-20BW_21.6Mbps(2.4G Band) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
43.580	-4.496	35.815	31.319	-8.681	40.000
117.300	-9.196	46.651	37.455	-6.045	43.500
499.480	0.048	32.943	32.991	-13.009	46.000
625.580	1.770	36.986	38.756	-7.244	46.000
873.900	5.200	32.858	38.058	-7.942	46.000
1000.000	9.119	27.768	36.887	-17.113	54.000
Vertical					
161.920	-6.696	41.984	35.289	-8.211	43.500
249.220	-7.634	36.879	29.245	-16.755	46.000
499.480	-0.852	34.947	34.095	-11.905	46.000
695.420	1.878	34.792	36.670	-9.330	46.000
749.740	2.510	31.204	33.714	-12.286	46.000
1000.000	4.329	30.208	34.537	-19.463	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit - 802.11n-40BW_45Mbps(2.4G Band) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
117.300	-9.196	45.706	36.510	-6.990	43.500
406.360	-2.500	41.318	38.818	-7.182	46.000
499.480	0.048	33.252	33.300	-12.700	46.000
625.580	1.770	36.912	38.682	-7.318	46.000
873.900	5.200	33.063	38.263	-7.737	46.000
1000.000	9.119	28.965	38.084	-15.916	54.000
Vertical					
161.920	-6.696	38.210	31.515	-11.985	43.500
404.420	-6.469	39.354	32.885	-13.115	46.000
499.480	-0.852	31.852	31.000	-15.000	46.000
625.580	-2.600	37.211	34.611	-11.389	46.000
883.600	2.566	32.587	35.152	-10.848	46.000
988.360	3.370	36.208	39.578	-14.422	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 6: Transmit - 802.11n-20BW_21.6Mbps(5G Band) (5785 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
30.000	2.120	27.998	30.118	-9.882	40.000
456.800	-0.067	34.143	34.076	-11.924	46.000
586.780	3.436	35.508	38.944	-7.056	46.000
782.720	4.325	32.857	37.182	-8.818	46.000
850.620	5.982	31.172	37.154	-8.846	46.000
1000.000	9.119	31.331	40.450	-13.550	54.000
Vertical					
39.700	-1.056	35.209	34.153	-5.847	40.000
97.900	-1.400	38.309	36.908	-6.592	43.500
181.320	-9.512	43.497	33.985	-9.515	43.500
586.780	-5.884	38.153	32.269	-13.731	46.000
782.720	3.035	32.256	35.291	-10.709	46.000
1000.000	4.329	31.444	35.773	-18.227	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : SpectraGuard Sensor
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 7: Transmit - 802.11n-40BW_45Mbps(5G Band) (5755MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
260.860	-5.032	35.584	30.552	-15.448	46.000
456.800	-0.067	36.706	36.639	-9.361	46.000
586.780	3.436	33.366	36.802	-9.198	46.000
782.720	4.325	34.929	39.254	-6.746	46.000
850.620	5.982	34.210	40.192	-5.808	46.000
1000.000	9.119	31.173	40.292	-13.708	54.000
Vertical					
249.220	-7.634	38.501	30.867	-15.133	46.000
499.480	-0.852	31.543	30.691	-15.309	46.000
716.760	-0.653	35.598	34.945	-11.055	46.000
782.720	3.035	32.837	35.872	-10.128	46.000
901.060	3.331	31.992	35.323	-10.677	46.000
1000.000	4.329	31.893	36.222	-17.778	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

5. RF antenna conducted test

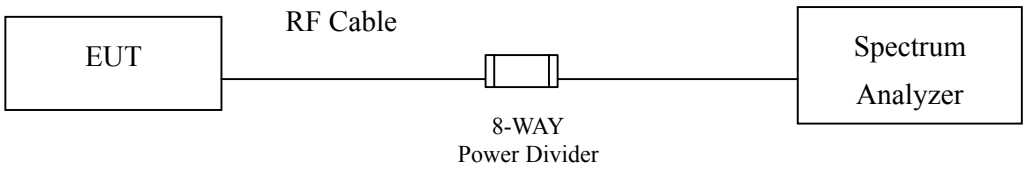
5.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.
3. The power combiner is used for measure 11n mode.

5.2. Test Setup

RF antenna Conducted Measurement:



5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT was tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

5.5. Uncertainty

The measurement uncertainty
Conducted is defined as ± 1.27dB

5.6. Test Result of RF antenna conducted test

Product : SpectraGuard Sensor
Test Item : RF antenna conducted test
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 11Mbps)

Channel 01 (2412MHz) 30MHz-25GHz

Channel 06 (2437MHz) 30MHz -25GHz

Channel 11 (2462MHz) 30MHz -25GHz

Product : SpectraGuard Sensor
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel 01 (2412MHz) 30MHz -25GHz

Channel 06 (2437MHz) 30MHz -25GHz

Channel 11 (2462MHz) 30MHz -25GHz

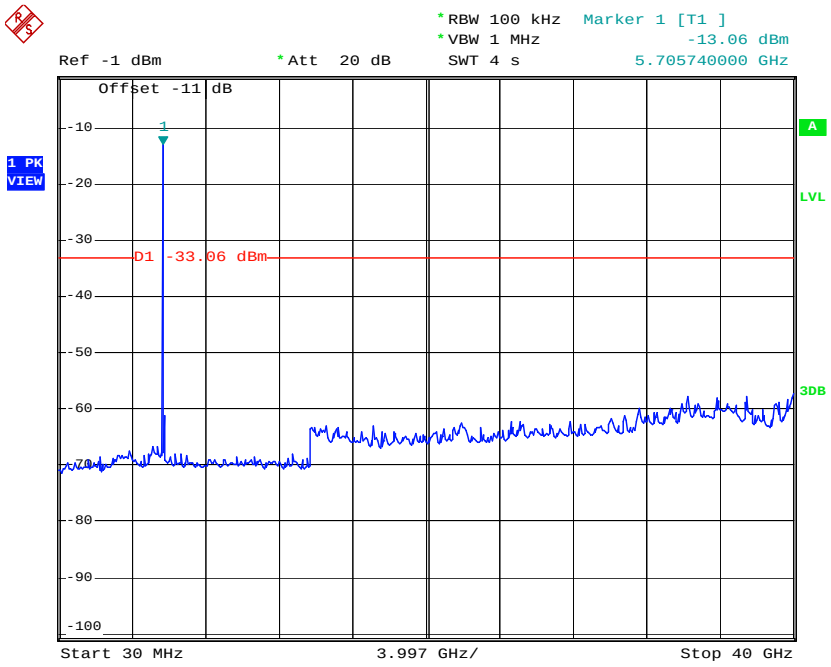
Product : SpectraGuard Sensor

Test Item : RF Antenna Conducted Spurious

Test Site : No.3 OATS

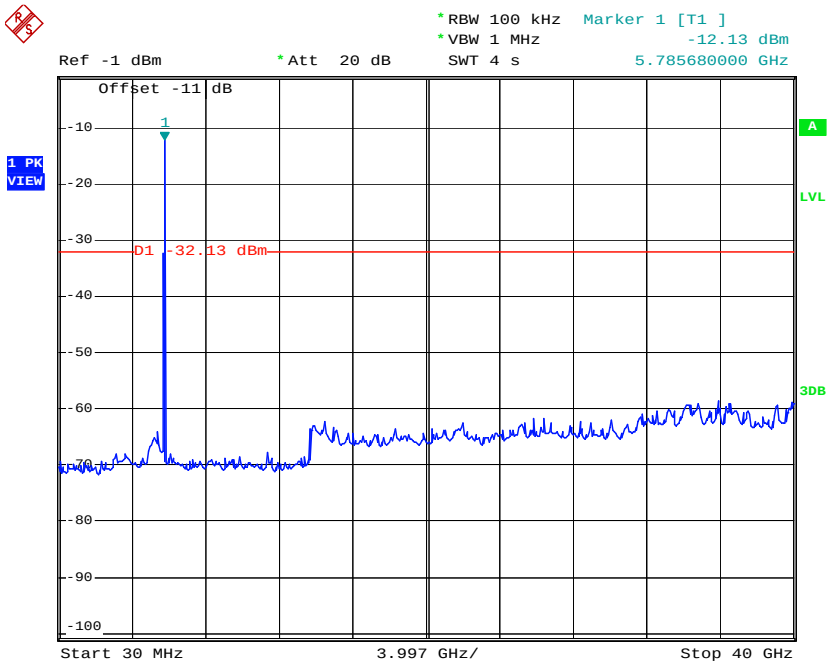
Test Mode : Mode 3: Transmit - 802.11a 6Mbps

Channel 149 (5745MHz) 30MHz -40GHz



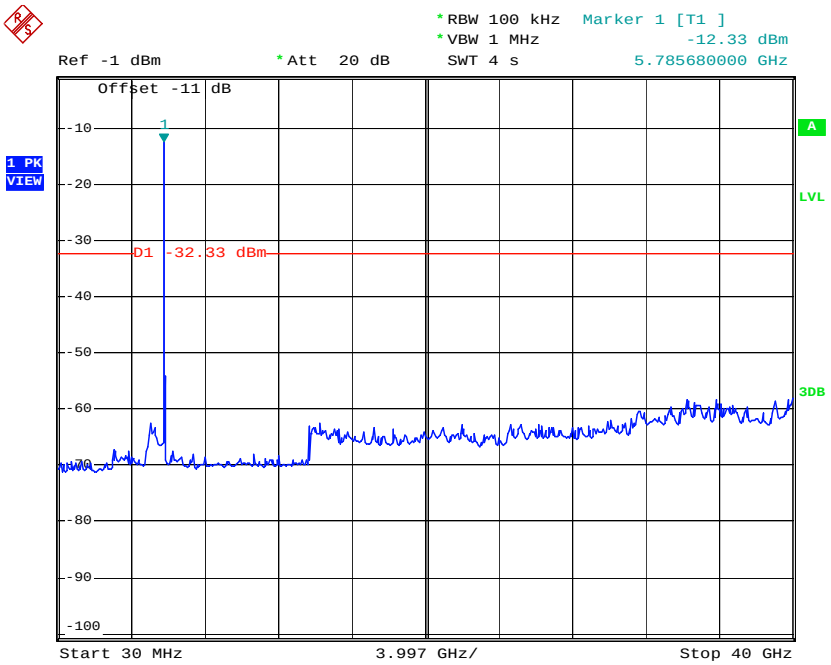
Date: 6.SEP.2010 16:05:35

Channel 157 (5785MHz) 30MHz -40GHz



Date: 6.SEP.2010 16:06:35

Channel 165 (5825MHz) 30MHz -40GHz



Date: 6.SEP.2010 16:07:23

Product : SpectraGuard Sensor
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit - 802.11n-20BW_21.6Mbps(2.4G Band)

Channel 01 (2412MHz) 30MHz -25GHz

Channel 06 (2437MHz) 30MHz -25GHz

Channel 11 (2462MHz) 30MHz -25GHz

Product : SpectraGuard Sensor
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit - 802.11n-40BW_45Mbps(2.4G Band)

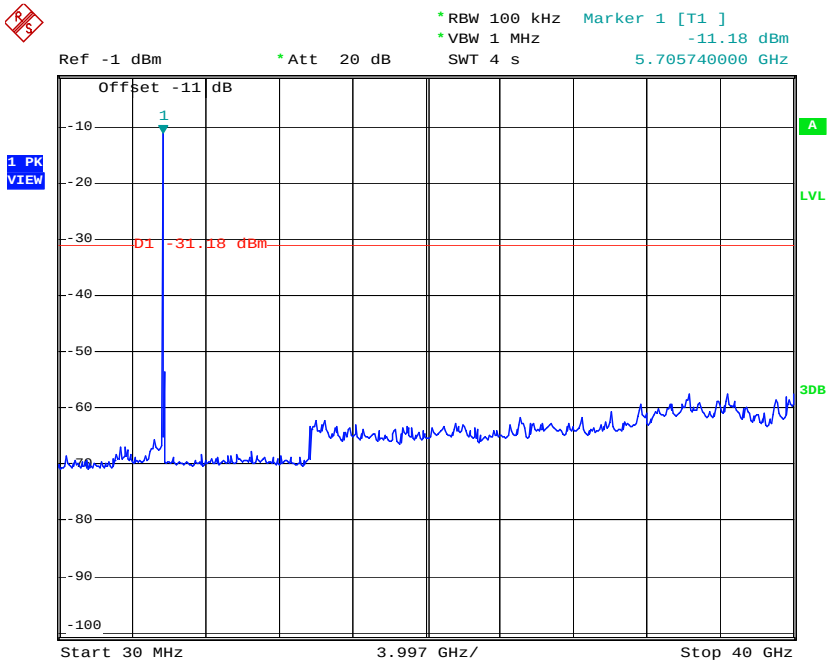
Channel 01 (2422MHz) 30MHz -25GHz

Channel 04 (2437MHz) 30MHz -25GHz

Channel 07 (2452MHz) 30MHz -25GHz

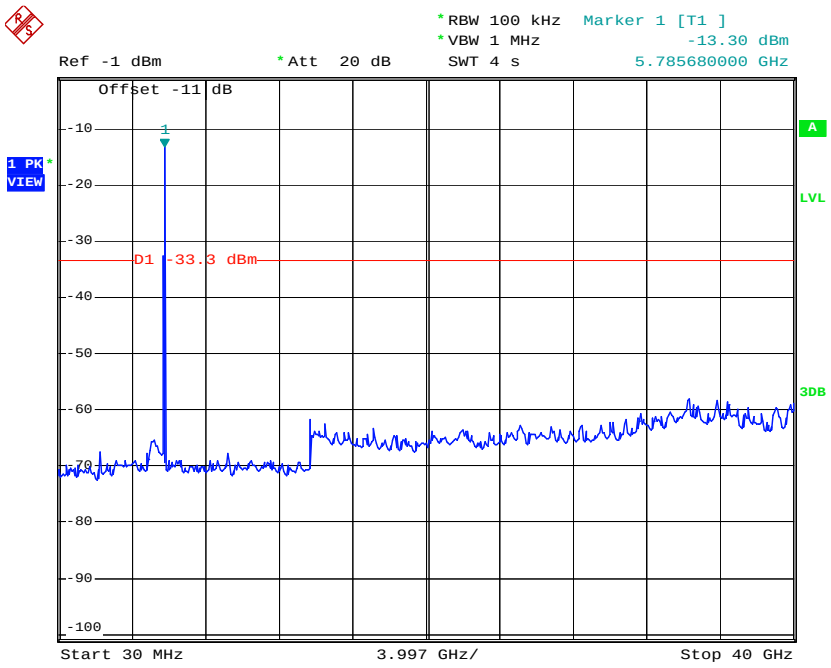
Product : SpectraGuard Sensor
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 6: Transmit - 802.11n-20BW_21.6Mbps(5G Band)

Channel 49 (5745MHz) 30MHz -40GHz



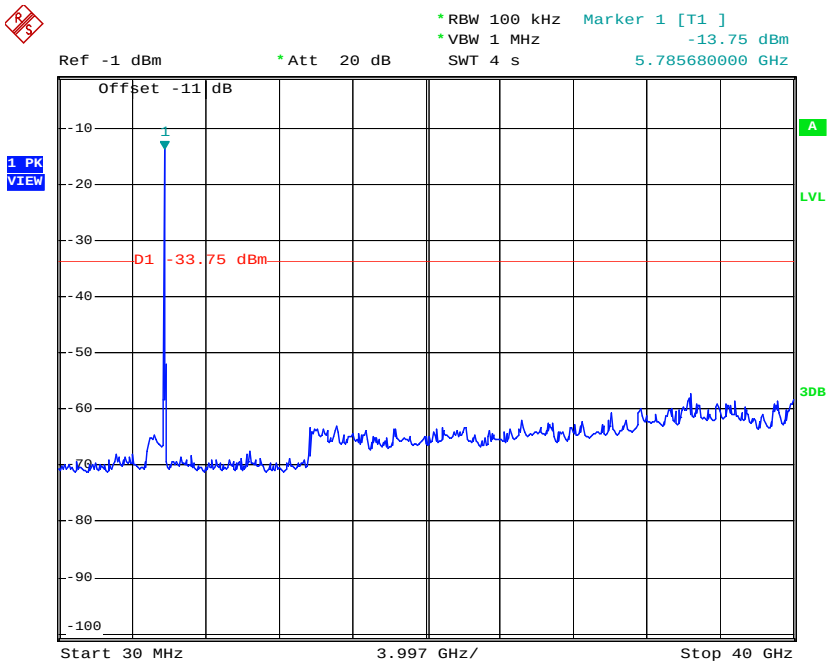
Date: 6.SEP.2010 16:09:25

Channel 157 (5785MHz) 30MHz -40GHz



Date: 6.SEP.2010 16:10:37

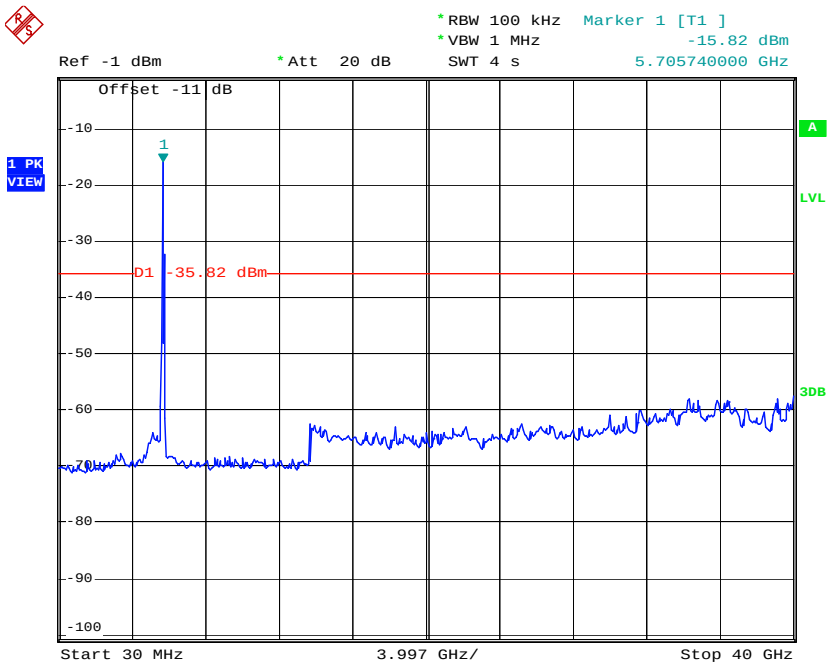
Channel 165 (5825MHz) 30MHz -40GHz



Date: 6.SEP.2010 16:12:53

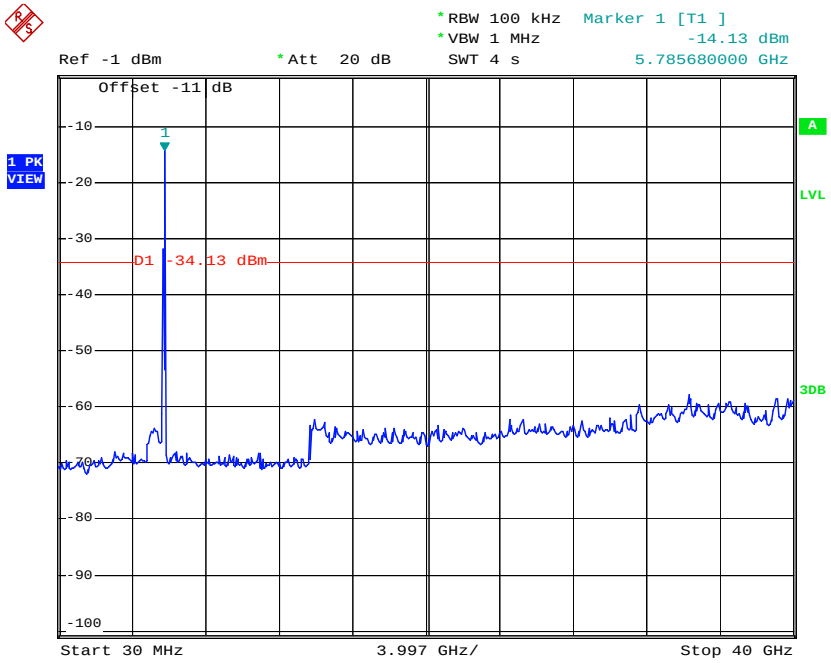
Product : SpectraGuard Sensor
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 7: Transmit - 802.11n-40BW_45Mbps(5G Band)

Channel 151 (5755MHz) 30MHz -40GHz



Date: 6.SEP.2010 16:14:15

Channel 159 (5795MHz) 30MHz -40GHz



Date: 6.SEP.2010 16:15:26

6. Band Edge

6.1. Test Equipment

RF Conducted Measurement

The following test equipments are used during the band edge tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.
3. The power combiner is used for measure 11n mode.

RF Radiated Measurement:

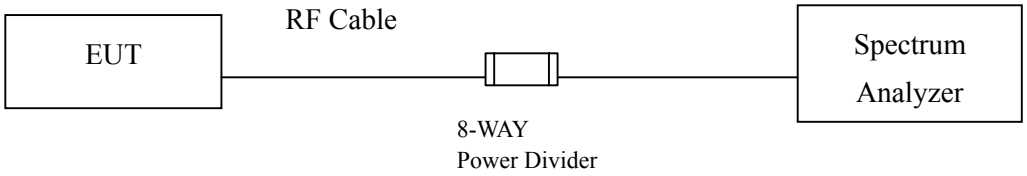
The following test equipments are used during the band edge tests:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2010
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2010
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2010
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2010
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2010
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2010
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2010
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

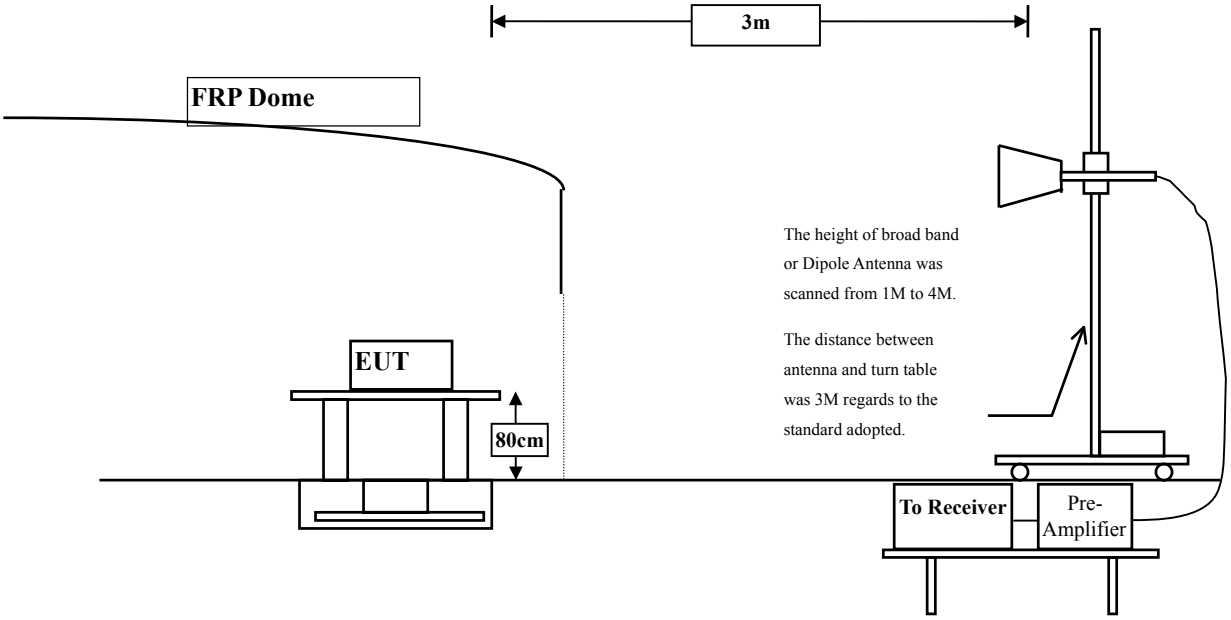
Note: 1. All instruments are calibrated every one year.
2. The test instruments marked by "X" are used to measure the final test results.

6.2. Test Setup

RF Conducted Measurement



RF Radiated Measurement:



6.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

6.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.
The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.

6.5. Uncertainty

± 3.9 dB above 1GHz
± 3.8 dB below 1GHz

6.6. Test Result of Band Edge

Product : SpectraGuard Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 11Mbps)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	31.639	80.07	111.708	Peak
Horizontal	2412	31.639	70.85	102.488	Average
Vertical	2412	29.854	82.2	113.149	Peak
Vertical	2412	29.854	73.58	104.529	Average

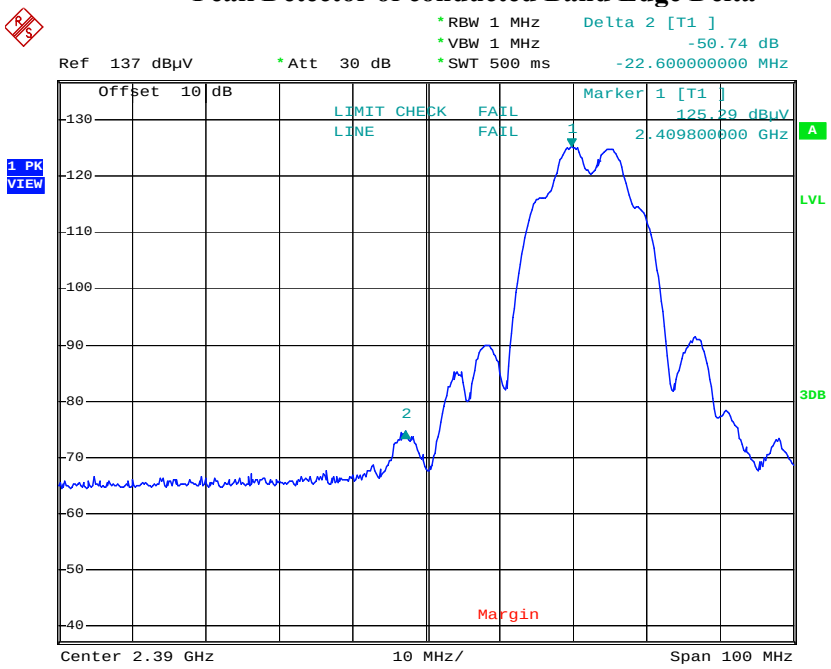
Note: 1: Spectrum Analyzer setting:
Peak detector: RBW=1MHz, VBW=1MHz
Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2387.2	111.708	50.74	60.968	Peak
Horizontal	2387.2	102.488	52.69	49.798	Average
Vertical	2387.2	113.149	50.74	62.409	Peak
Vertical	2387.2	104.529	52.69	51.839	Average

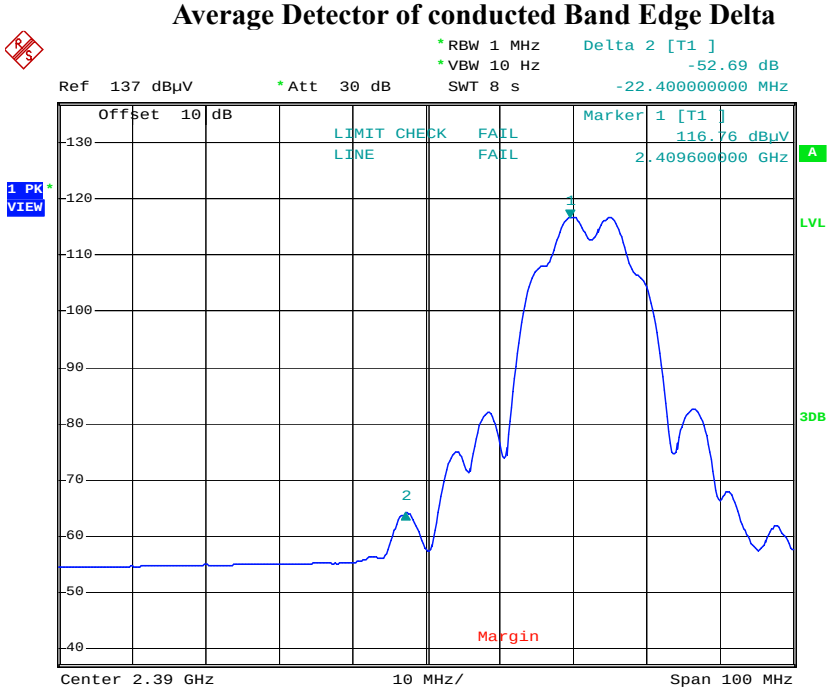
Note:
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:
Band Edge field Strength = F - Δ
F = Fundamental field Strength (Peak or Average)
Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Date: 23.AUG.2010 16:33:30

Average Detector of conducted Band Edge Delta



Date: 23.AUG.2010 16:33:55

Product : SpectraGuard Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 11Mbps)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	32.019	81.76	113.779	Peak
Horizontal	2462	32.019	72.75	104.769	Average
Vertical	2462	32.019	84.33	116.349	Peak
Vertical	2462	32.019	75.11	107.129	Average

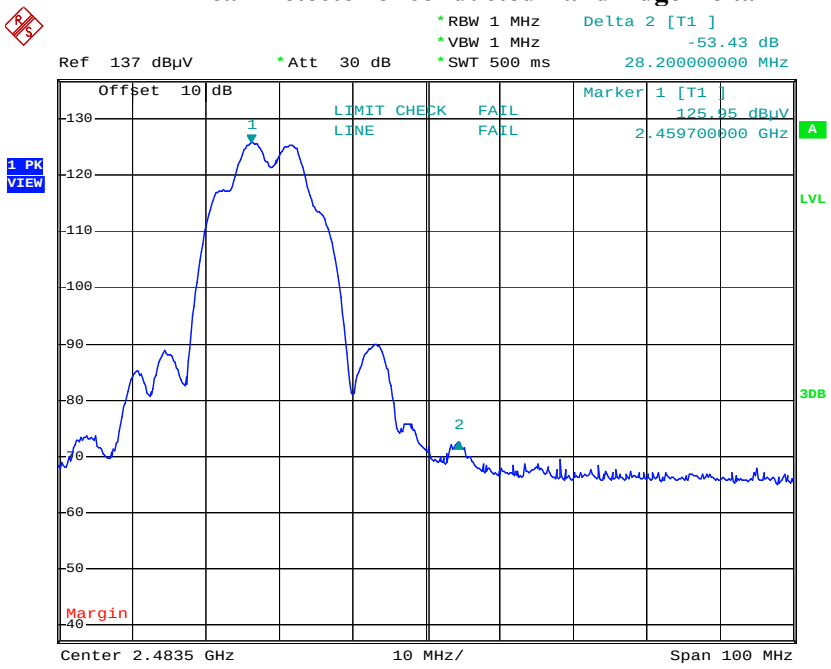
Note: 1:Spectrum Analyzer setting:
Peak detector: RBW=1MHz, VBW=1MHz
Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2487.9	113.779	53.43	63.039	Peak
Horizontal	2483.5	104.769	56.86	47.909	Average
Vertical	2487.9	116.349	53.43	65.609	Peak
Vertical	2483.5	107.129	56.86	50.269	Average

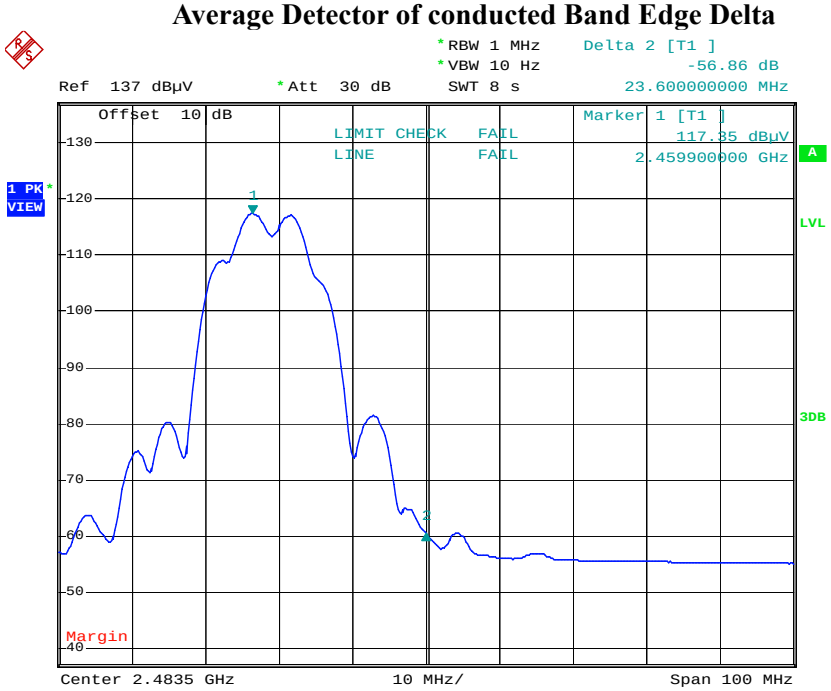
Note:
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:
Band Edge field Strength = F - Δ
F = Fundamental field Strength (Peak or Average)
Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Date: 23.AUG.2010 16:40:21

Average Detector of conducted Band Edge Delta



Date: 23.AUG.2010 16:41:01

Product : SpectraGuard Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	31.639	80.7	112.338	Peak
Horizontal	2412	31.639	69.92	101.558	Average
Vertical	2412	30.95	83.17	114.119	Peak
Vertical	2412	30.95	72.12	103.069	Average

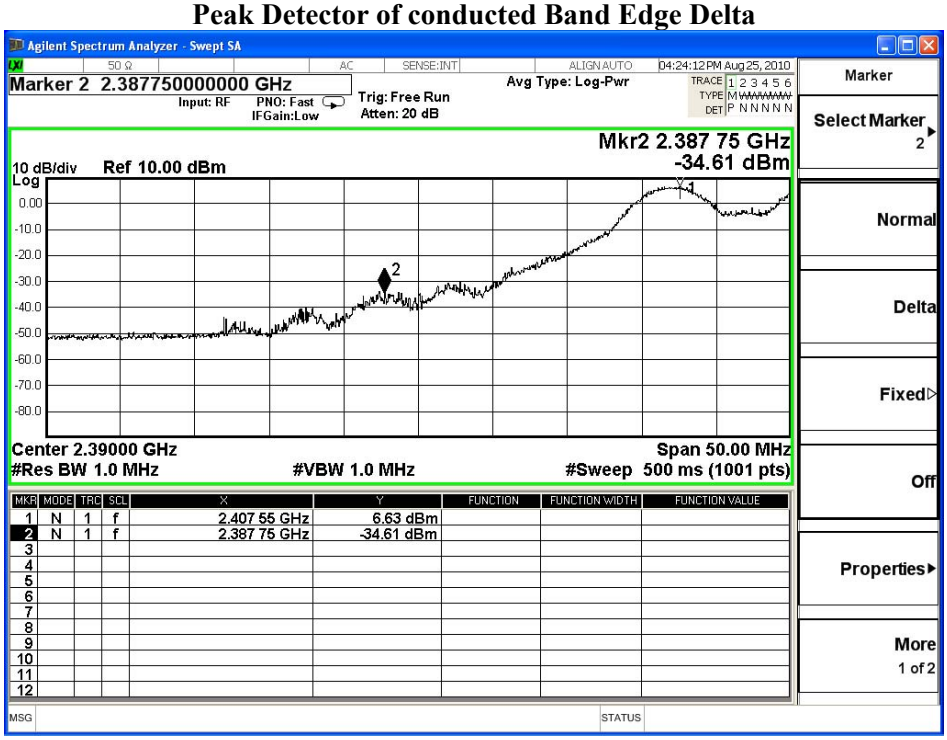
Note: 1:Spectrum Analyzer setting:
Peak detector: RBW=1MHz, VBW=1MHz
Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

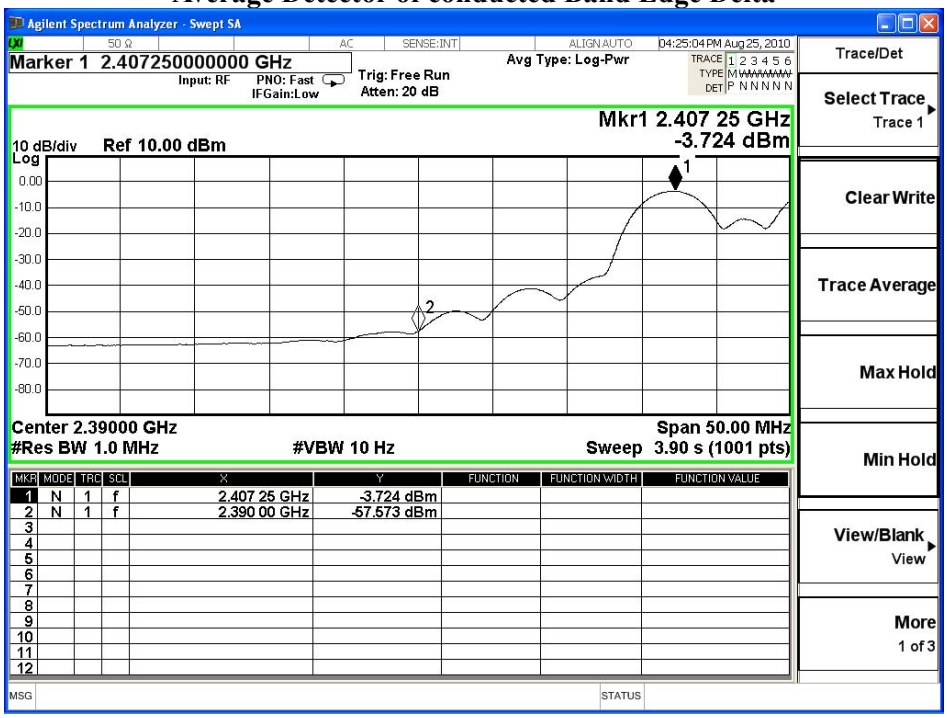
Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2387.75	112.338	41.24	71.098	Peak
Horizontal	2390	101.558	53.849	47.709	Average
Vertical	2387.75	114.119	41.24	72.879	Peak
Vertical	2390	103.069	53.849	49.22	Average

Note:
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:
Band Edge field Strength = F - Δ
F = Fundamental field Strength (Peak or Average)
Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : SpectraGuard Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	32.019	78.05	110.069	Peak
Horizontal	2462	32.019	67.03	99.049	Average
Vertical	2462	31.29	80.12	111.41	Peak
Vertical	2462	31.29	69.31	100.6	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2486.5	110.069	40.19	69.879	Peak
Horizontal	2485.5	99.049	53.27	45.779	Average
Vertical	2486.5	111.41	40.19	71.22	Peak
Vertical	2485.5	100.6	53.27	47.33	Average

Note:

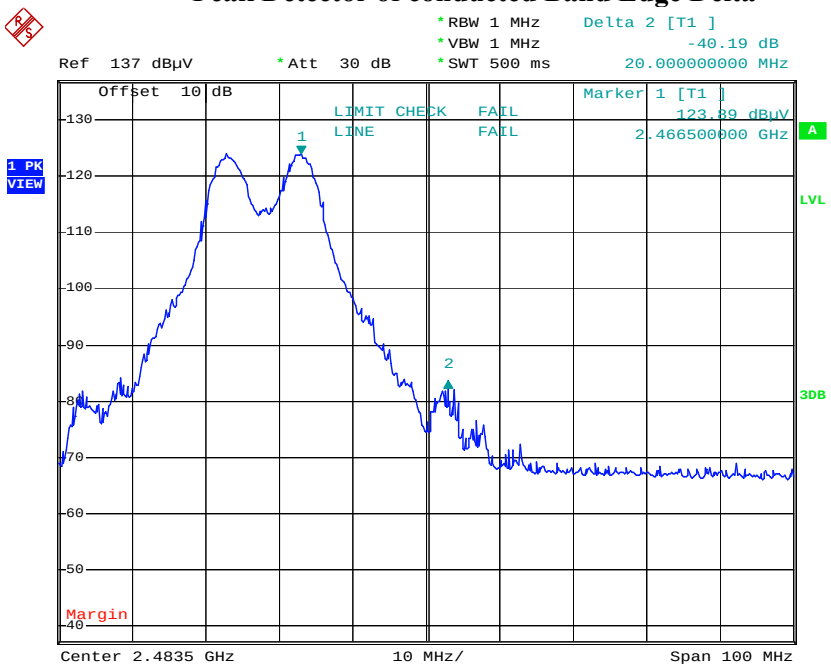
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

F = Fundamental field Strength (Peak or Average)

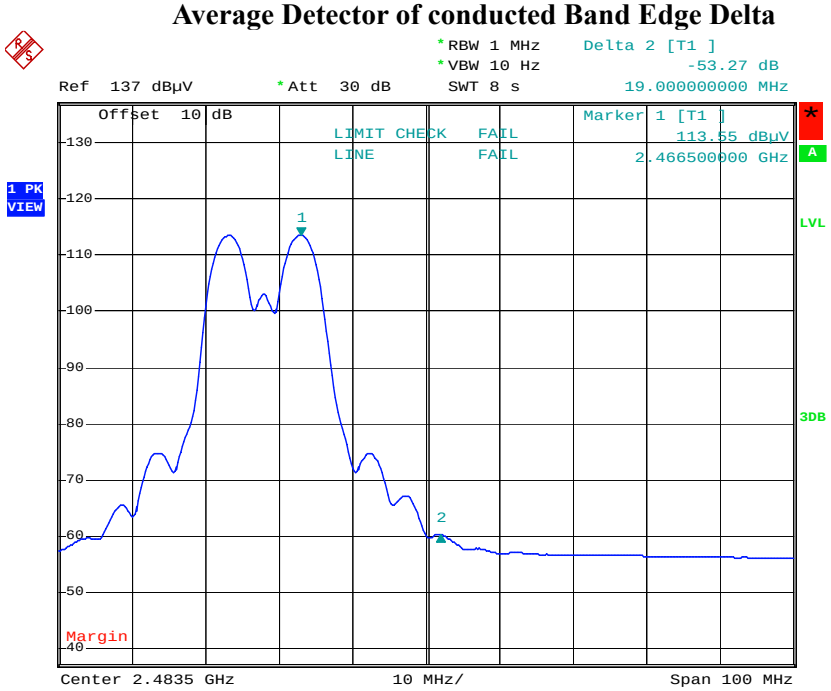
Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Date: 23.AUG.2010 17:28:25

Average Detector of conducted Band Edge Delta



Date: 23.AUG.2010 17:28:54

Product : SpectraGuard Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit - 802.11n-20BW_21.6Mbps(2.4G Band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	30.543	81	112.638	Peak
Horizontal	2412	30.543	67.29	98.928	Average
Vertical	2412	30.95	81.53	112.479	Peak
Vertical	2412	30.95	68.05	98.999	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2390	112.638	40.94	71.698	Peak
Horizontal	2390	98.928	46.041	52.887	Average
Vertical	2390	112.479	40.94	71.539	Peak
Vertical	2390	98.999	46.041	52.958	Average

Note:

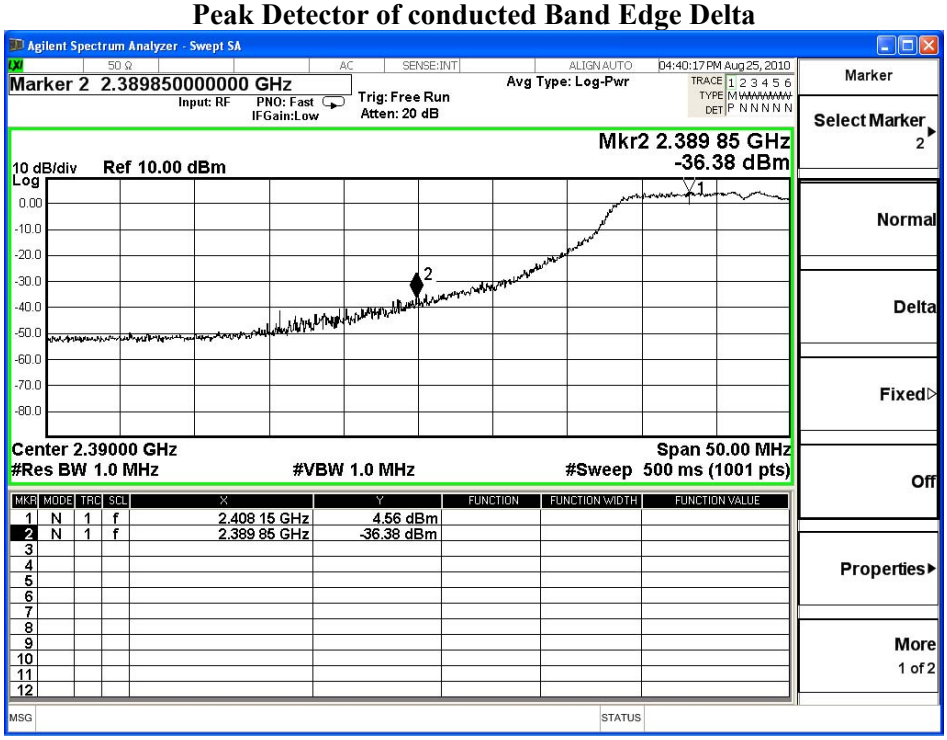
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

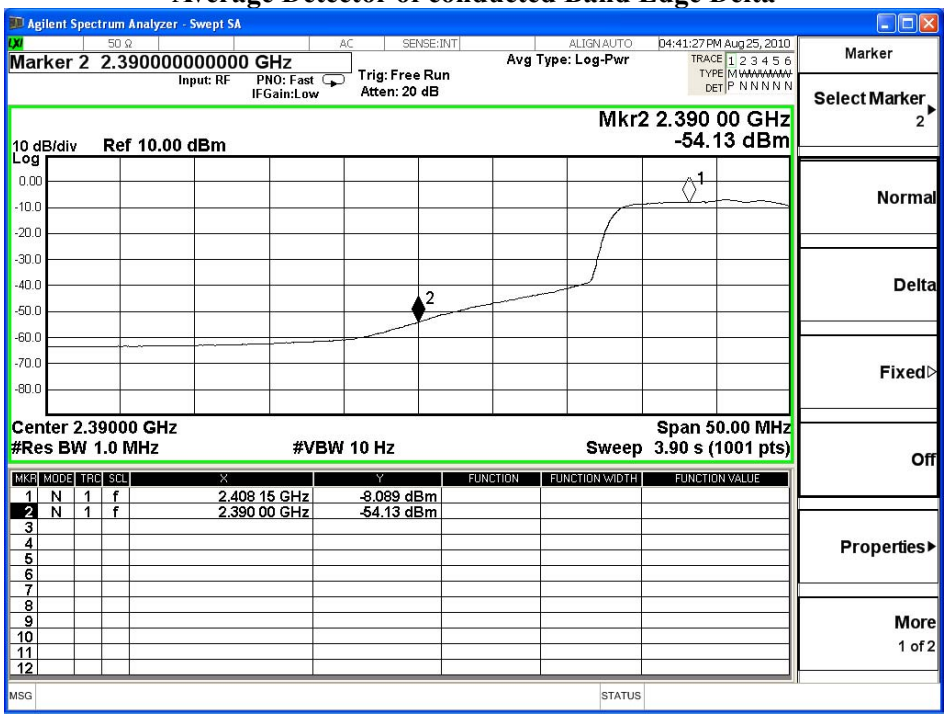
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : SpectraGuard Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit - 802.11n-20BW_21.6Mbps(2.4G Band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	32.019	79.94	111.959	Peak
Horizontal	2462	32.019	67.31	99.329	Average
Vertical	2462	31.29	79.6	110.89	Peak
Vertical	2462	31.29	66.1	97.39	Average

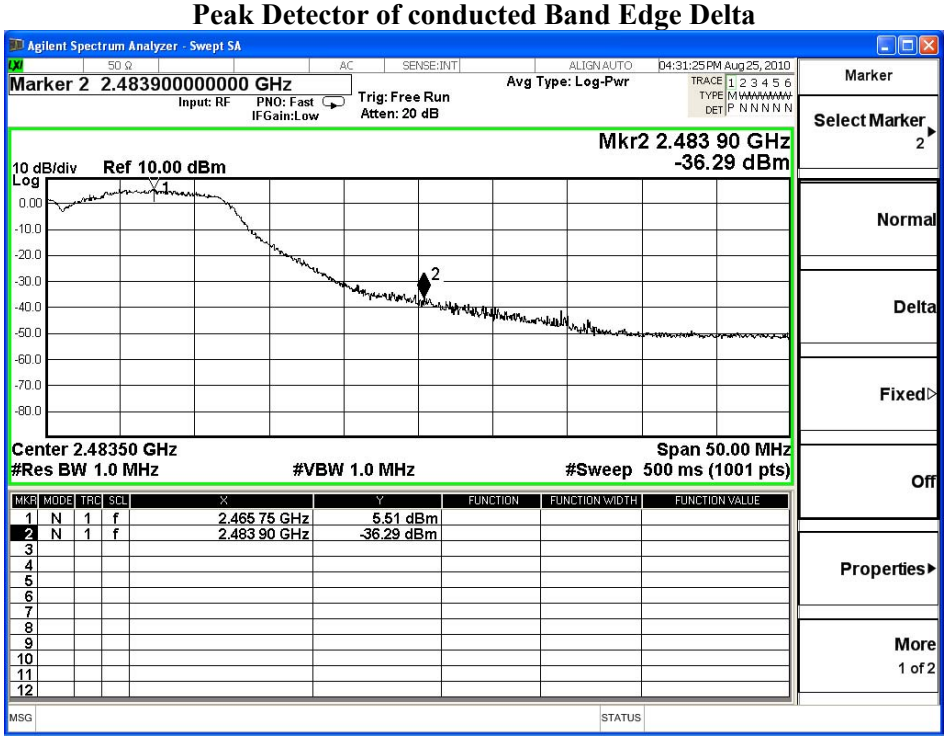
Note: 1:Spectrum Analyzer setting:
Peak detector: RBW=1MHz, VBW=1MHz
Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

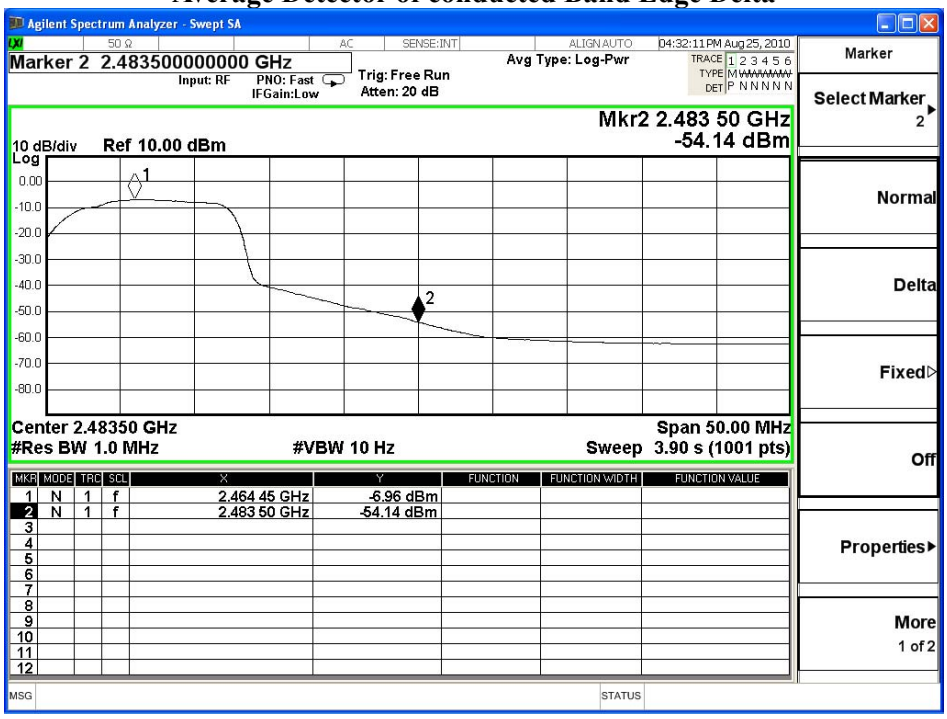
Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2483.9	111.959	41.8	70.159	Peak
Horizontal	2483.5	99.329	47.18	52.149	Average
Vertical	2483.9	110.89	41.8	69.09	Peak
Vertical	2483.5	97.39	47.18	50.21	Average

Note:
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:
Band Edge field Strength = F - Δ
F = Fundamental field Strength (Peak or Average)
Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : SpectraGuard Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit - 802.11n-40BW_45Mbps(2.4G Band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2422	31.715	74.32	106.035	Peak
Horizontal	2422	31.715	59.8	91.515	Average
Vertical	2422	31.017	76.59	107.607	Peak
Vertical	2422	31.017	61.4	92.417	Average

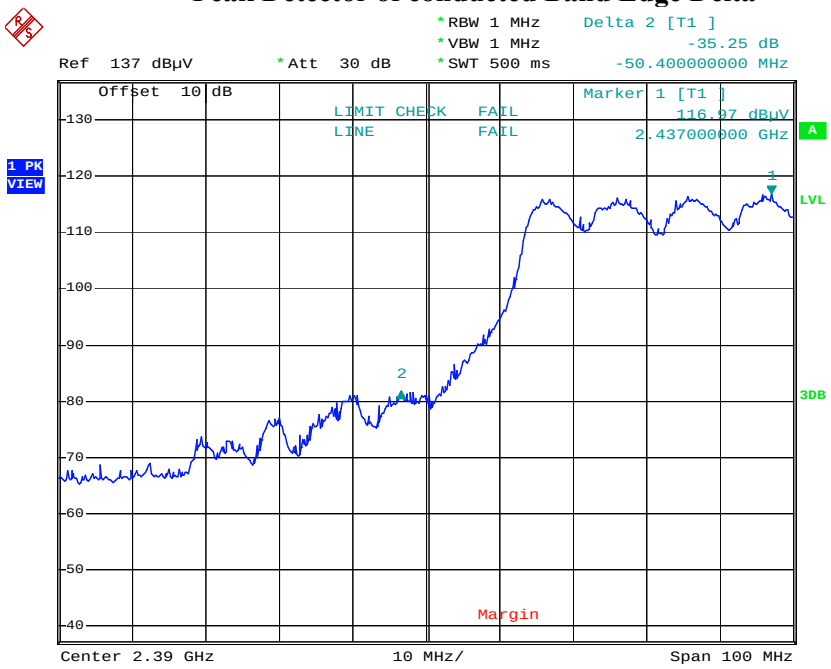
Note: 1:Spectrum Analyzer setting:
Peak detector: RBW=1MHz, VBW=1MHz
Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2386.6	106.035	35.25	70.785	Peak
Horizontal	2387.4	91.515	39.52	51.995	Average
Vertical	2386.6	107.607	35.25	72.357	Peak
Vertical	2387.4	92.417	39.52	52.897	Average

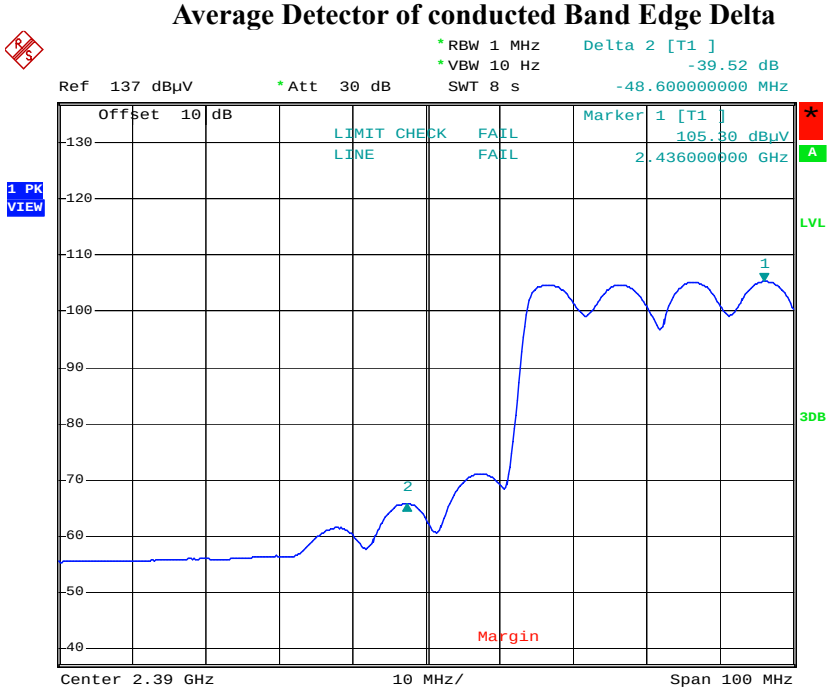
Note:
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:
Band Edge field Strength = F - Δ
F = Fundamental field Strength (Peak or Average)
Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Date: 23.AUG.2010 16:57:07

Average Detector of conducted Band Edge Delta



Date: 23.AUG.2010 16:57:54

Product : SpectraGuard Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit - 802.11n-40BW_45Mbps(2.4G Band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2452	31.944	72.96	104.904	Peak
Horizontal	2452	31.944	58.32	90.264	Average
Vertical	2452	31.222	75.13	106.352	Peak
Vertical	2452	31.222	60.23	91.452	Average

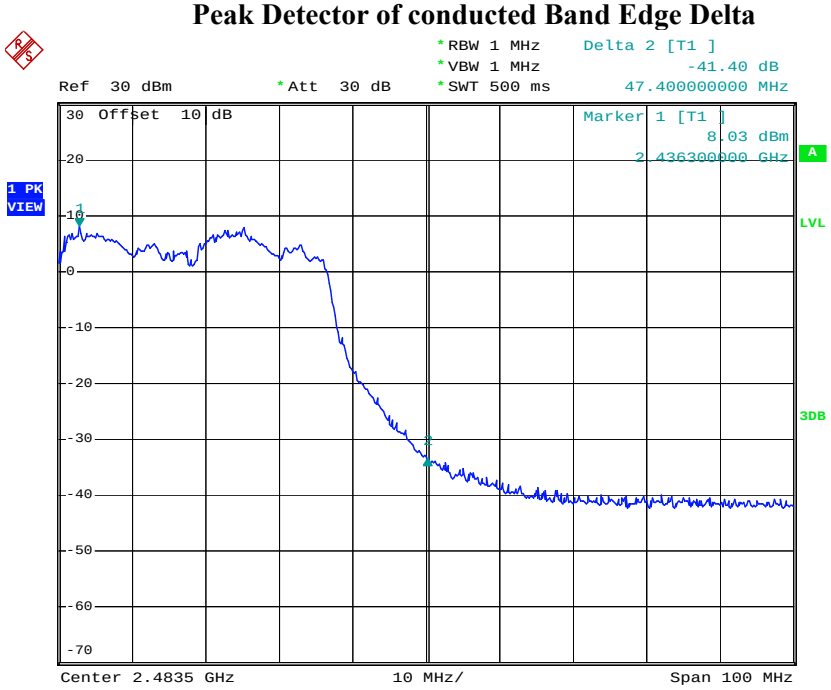
Note: 1:Spectrum Analyzer setting:
Peak detector: RBW=1MHz, VBW=1MHz
Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2483.7	104.904	41.4	63.504	Peak
Horizontal	2483.7	90.264	41.63	48.634	Average
Vertical	2483.7	106.352	41.4	64.952	Peak
Vertical	2483.7	91.452	41.63	49.822	Average

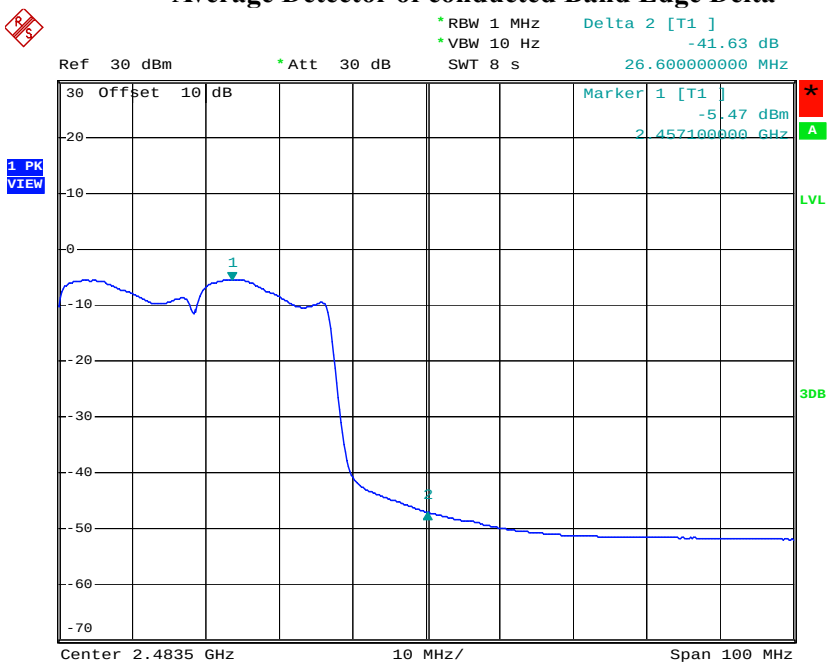
Note:
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:
Band Edge field Strength = F - Δ
F = Fundamental field Strength (Peak or Average)
Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Date: 23.AUG.2010 21:54:28

Average Detector of conducted Band Edge Delta



Date: 23.AUG.2010 21:55:30

Product : SpectraGuard Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit - 802.11a 6Mbps

Test Frequency (MHz)	Measurement Level Δ (dB)	Limit Δ (dB)	Result
5745	31.350	>20	PASS