Test Report

Product Name	ThereGate
Model No	TG800Z
FCC ID.	X35-TG800Z

Applicant	There Corporation Oy
Address	Rantakatu 2A Vaasa 65100 Finland

Date of Receipt	June 23, 2009
Issue Date	Jan. 19, 2010
Report No.	096355R-RFUSP05V01
Report Version	V1.0

Test Report Certification

Issue Date: Jan. 19, 2010
Report No.: 096355R-RFUSP05V01

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

Product Name	ThereGate
Applicant	There Corporation Oy
Address	Rantakatu 2A Vaasa 65100 Finland
Manufacturer	DONG GUAN G-COM COMPUTER CO., LTD.
Model No.	TG800Z
EUT Rated Voltage	AC 100-240V /50-60Hz
EUT Test Voltage	AC 120V/ 60Hz
Trade Name	ThereGate
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.
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Testing Laboratory
0914

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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	ThereGate
Trade Name	ThereGate
Model No.	TG800Z
FCC ID.	X35-TG800Z
Frequency Range	2412-2462MHz for 802.11b/g/n-20BW, 2422-2452MHz for 802.11n-40BW
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: 7.2-300Mbps
Type of Modulation	802.11b:DSSS DBPSK, DQPSK, CCK 802.11g/n:OFDM BPSK, QPSK, 16QAM, 64QAM
Antenna Type	Dipole
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto
Power Adapter	MFR: Powertron, M/N: PA1030-1HU Input: AC 100-240V, 50-60Hz, 0.8A Output: DC 5V, 4.0A Cable Out: Non-Shielded, 1.8m

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	Invax	NB0122-D (Left) NB0122-E (Right)	2.7dBi in 2.4 GHz

Note: The antenna of EUT is conform 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		

802.11n-40MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2422 MHz	Channel 02:	2427 MHz	Channel 03:	2432 MHz	Channel 04:	2437 MHz
Channel 05:	2442 MHz	Channel 06:	2447 MHz	Channel 07:	2452 MHz		

Note:

1. The EUT is an ThereGate with a built-in 2.4GHz WLAN transceiver.
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 1Mbps 、802.11g is 6Mbps、802.11n(20M-BW) is 7.2Mbps and 、802.11n(40M-BW) is 15Mbps)
4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices
5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

1.2. Operational Description

The EUT is an ThereGate with 11 channels. 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 802.11g).

The device provided of eight kinds of transmitting speed in one antenna to transmit. 7.2,14.4,21.7,28.9,43.3,57.8,65 and 72.2Mbps in 802.11n(20M-BW) in 802.11n(20M-BW) mode and 15,30,45,60,90,120,135 and 150 Mbps (40M-BW) the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11n).

The device provided of eight kinds of transmitting speed in Two antenna simultaneous transmit . 14.4,28.8,43.4,57.8,86.6,115.6,130 and 144.4Mbps in 802.11n(20M-BW) mode and 30,60,90,120,180,240,270 and 300 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 and two antennas to support 2(Transmit) * 2(Receive) MIMO technology.

This ThereGate, compliant with IEEE 802.11b and IEEE 802.11g/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 Direst Sequence Spread Spectrum (DSSS) and Orthogonal Frequency Division Multiplexing (OFDM) radio transmission, the ThereGate Wired Equivalent Protection (WEP) algorithm is used. In addition, its standard compliance ensures that it can communicate with any IEEE 802.11b and IEEE 802.11g/n network.

Test Mode:	Mode 1: Transmitter (802.11b 1Mbps)
	Mode 2: Transmitter (802.11g 6Mbps)
	Mode 3: Transmitter (802.11n MCS0 7.2Mbps 20M-BW)-ANT 1
	Mode 4: Transmitter (802.11n MCS8 14.4Mbps 20M-BW)-ANT 1+2
	Mode 5: Transmitter (802.11n MCS0 15Mbps 40M-BW)-ANT 1
	Mode 6: Transmitter (802.11n MCS8 30Mbps 40M-BW)-ANT 1+2

Note:

802.11b、802.11g are tested by Chain A.

802.11n(20M-BW)、802.11n(40M-BW) are tested by Chain A(1TX) and Chain A + B(2TX)

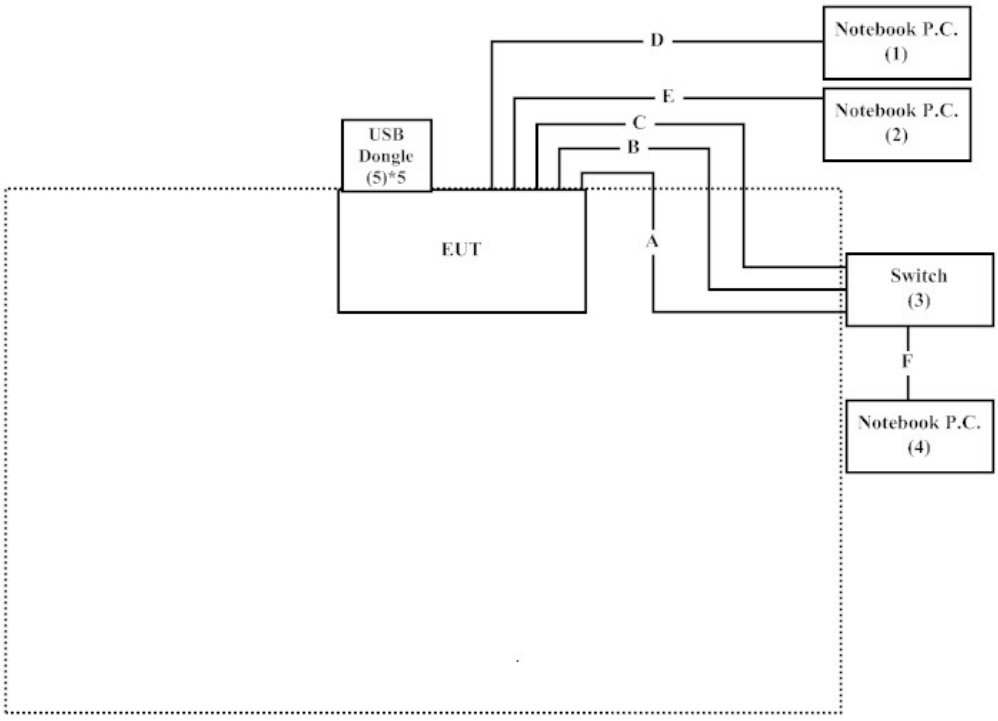
1.3. Tested System Details

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 P.C.	DELL	PP04X	2D2ZM1S	Non-Shielded, 1.8m
2.	Notebook P.C.	DELL	PP04X	C8YYM1S	Non-Shielded, 1.8m
3.	Switch	D-Link	DGS-1008D	F37S276000079	Non-Shielded, 1.8m
4.	Notebook P.C.	DELL	PP04X	7607342512	Non-Shielded, 1.8m
5.	USB Dongle	G-COM	N/A	N/A	N/A

Signal Cable Type		Signal cable Description
A	LAN Cable	Non-Shielded, 7.0m
B	LAN Cable	Non-Shielded, 7.0m
C	LAN Cable	Non-Shielded, 7.0m
D	LAN Cable	Non-Shielded, 7.0m
E	LAN Cable	Non-Shielded, 7.0m
F	LAN Cable	Non-Shielded, 7.0m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

(1) Connect Notebook using LAN cable.
(2) Execute program "TFTPD32 (Ver 3.28)" to link EUT.
(3) Connect Notebook using RS-232 cable.
(4) Exercise uses the Hyper Terminal.
(5) Configure the test mode, the test channel, and the data rate.
(6) Press "OK" to start the continuous transmission.
(7) Remove notebook and LAN & RS232 cable, Setup the EUT as shown in Section 1.4
(8) 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://tw.quietek.com/tw/emc/accreditations/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/

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Accreditation on NVLAP
NVLAP Lab Code: 200533-0

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E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

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0914

2. Conducted Emission

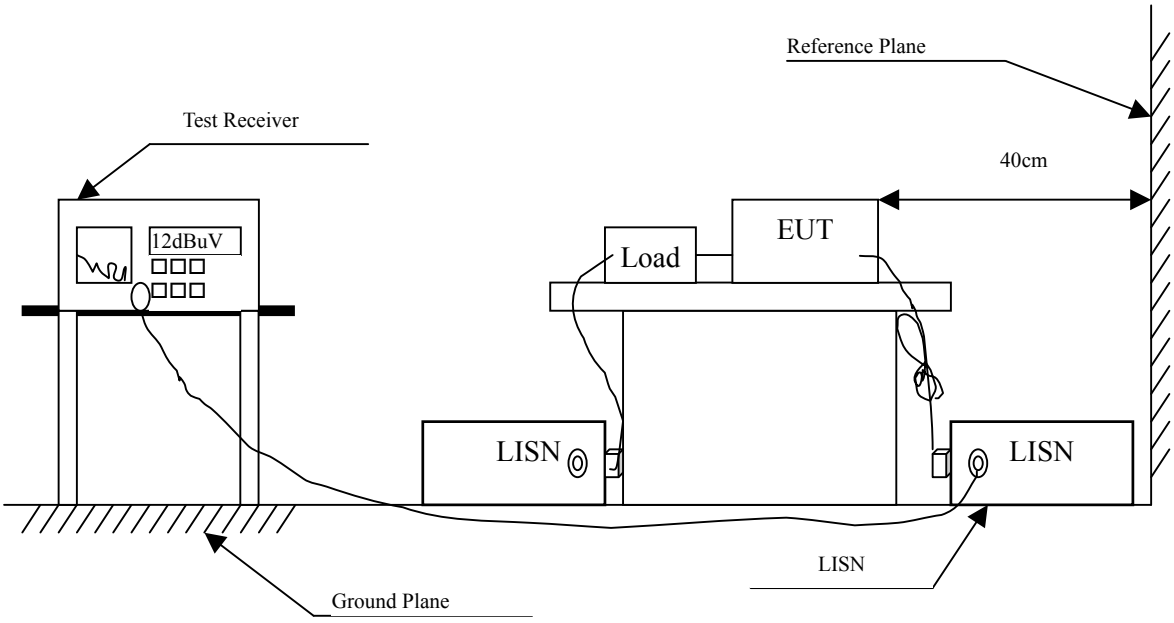
2.1. Test Equipment

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, 2009	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2009	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2009	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2009	
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 : ThereGate
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 6: Transmitter (802.11n MCS8 30Mbps 40M-BW)-ANT 1+2 (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.189	9.714	40.990	50.704	-14.182	64.886
0.326	9.650	35.490	45.140	-15.831	60.971
0.455	9.640	31.960	41.600	-15.686	57.286
1.755	9.680	15.580	25.260	-30.740	56.000
6.494	9.740	18.060	27.800	-32.200	60.000
17.841	9.980	17.130	27.110	-32.890	60.000
Average					
0.189	9.714	20.240	29.954	-24.932	54.886
0.326	9.650	22.960	32.610	-18.361	50.971
0.455	9.640	20.020	29.660	-17.626	47.286
1.755	9.680	1.580	11.260	-34.740	46.000
6.494	9.740	2.490	12.230	-37.770	50.000
17.841	9.980	5.360	15.340	-34.660	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

Product : ThereGate
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 6: Transmitter (802.11n MCS8 30Mbps 40M-BW)-ANT 1+2 (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.205	9.713	41.730	51.443	-12.986	64.429
0.392	9.650	31.190	40.840	-18.246	59.086
0.775	9.669	20.950	30.619	-25.381	56.000
1.677	9.680	20.110	29.790	-26.210	56.000
5.416	9.710	16.080	25.790	-34.210	60.000
16.548	10.000	15.110	25.110	-34.890	60.000
Average					
0.205	9.713	22.750	32.463	-21.966	54.429
0.392	9.650	17.820	27.470	-21.616	49.086
0.775	9.669	6.680	16.349	-29.651	46.000
1.677	9.680	4.450	14.130	-31.870	46.000
5.416	9.710	0.500	10.210	-39.790	50.000
16.548	10.000	3.420	13.420	-36.580	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

The following test equipments are used during the radiated emission tests:

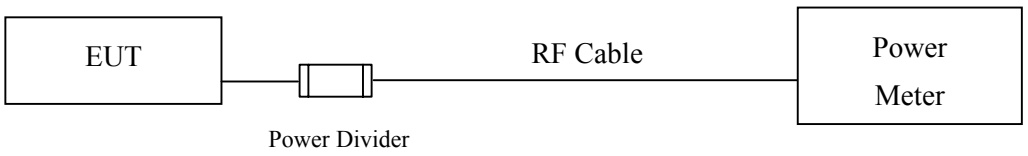
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2009
X	Power Sensor	Anritsu	MA2411B/0846193	Jun, 2009
X	8-WAY Power Divider	JFW	50PD-647/526770 0916	Apr., 2009

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 : ThereGate
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps)

Cable Loss=0.5dB		Peak Power Output				
Channel No.	Frequency (MHz)	Data Rate				Required Limit
		1	2	5.5	11	
1	2412.00	17.97	--	--	--	1Watt= 30 dBm
6	2437.00	22.88	22.85	22.83	22.8	1Watt= 30 dBm
11	2462.00	20.09	--	--	--	1Watt= 30 dBm

Note:

1. Peak Power Output Value =Reading value on peak power meter + cable loss

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

Cable Loss=0.5dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate								Required Limit
		6	9	12	18	24	36	48	54	
1	2412.00	22.06	--	--	--	--	--	--	--	1Watt= 30 dBm
6	2437.00	25.20	25.18	25.16	25.14	25.12	25.1	25	24.98	1Watt= 30 dBm
11	2462.00	21.71	--	--	--	--	--	--	--	1Watt= 30 dBm

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

Product : ThereGate
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n MCS0 7.2Mbps 20M-BW)-ANT 1

Ant A

Cable Loss=0.5dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate								Required Limit
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	
1	2412.00	21.86	--	--	--	--	--	--	--	1Watt= 30 dBm
6	2437.00	25.39	25.36	25.33	25.3	25.26	25.24	25.21	25.19	1Watt= 30 dBm
11	2462.00	21.75	--	--	--	--	--	--	--	1Watt= 30 dBm

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

Product : ThereGate
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmitter (802.11n MCS8 14.4Mbps 20M-BW)-ANT 1+2

Ant A+ Ant B

Cable Loss=0.5dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate								Required Limit
		14.4	28.8	43.4	57.8	86.6	115.6	130	144.4	
1	2412.00	21.30	--	--	--	--	--	--	--	1Watt= 30 dBm
6	2437.00	25.34	25.32	25.3	25.28	25.26	25.24	25.22	25.19	1Watt= 30 dBm
11	2462.00	21.85	--	--	--	--	--	--	--	1Watt= 30 dBm

Note:
1. Peak Power Output Value =Reading value on peak power meter + cable loss
2. Peak Power Output Value =Ant A + Ant B

Product : ThereGate
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmitter (802.11n MCS0 15Mbps 40M-BW)-ANT 1

Ant A

Cable Loss=0.5dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate								Required Limit
		15	30	45	60	90	120	135	150	
1	2422.00	19.74	--	--	--	--	--	--	--	1Watt= 30 dBm
4	2437.00	22.86	22.85	22.83	22.81	22.79	22.76	22.74	22.71	1Watt= 30 dBm
7	2452.00	19.75	--	--	--	--	--	--	--	1Watt= 30 dBm

Note:
1. Peak Power Output Value =Ant A + Ant B

Product : ThereGate
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 6: Transmitter (802.11n MCS8 30Mbps 40M-BW)-ANT 1+2

Ant A + Ant B

Cable Loss=0.5dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate								Required Limit
		30	60	90	120	180	240	270	300	
1	2422.00	21.45	--	--	--	--	--	--	--	1Watt= 30 dBm
4	2437.00	26.29	26.25	26.23	26.21	26.19	26.17	26.15	26.13	1Watt= 30 dBm
7	2452.00	22.31	--	--	--	--	--	--	--	1Watt= 30 dBm

Note:
1. Peak Power Output Value =Reading value on peak power meter + cable loss
2. Peak Power Output Value =Ant A + Ant B

4. Radiated Emission

4.1. Test Equipment

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

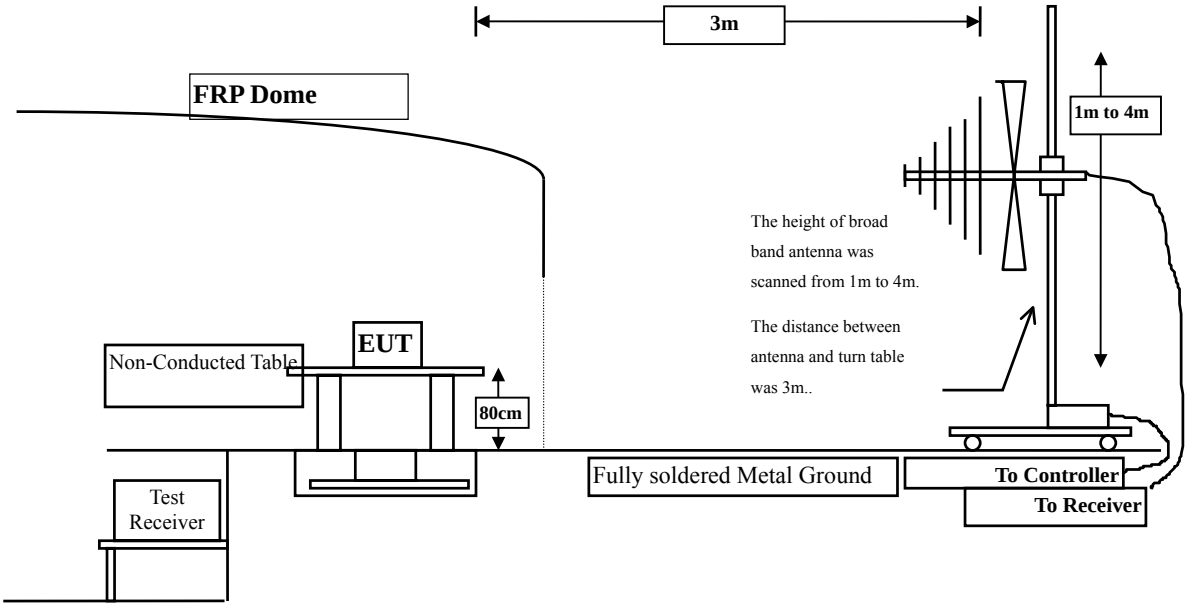
Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2009
	X	Pre-Amplifier	AGILENT	8447D/2944A09549	Sep., 2009
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2009
	X	Spectrum Analyzer	Advantest	R3162/91700283	Oct., 2009
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2009
	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.

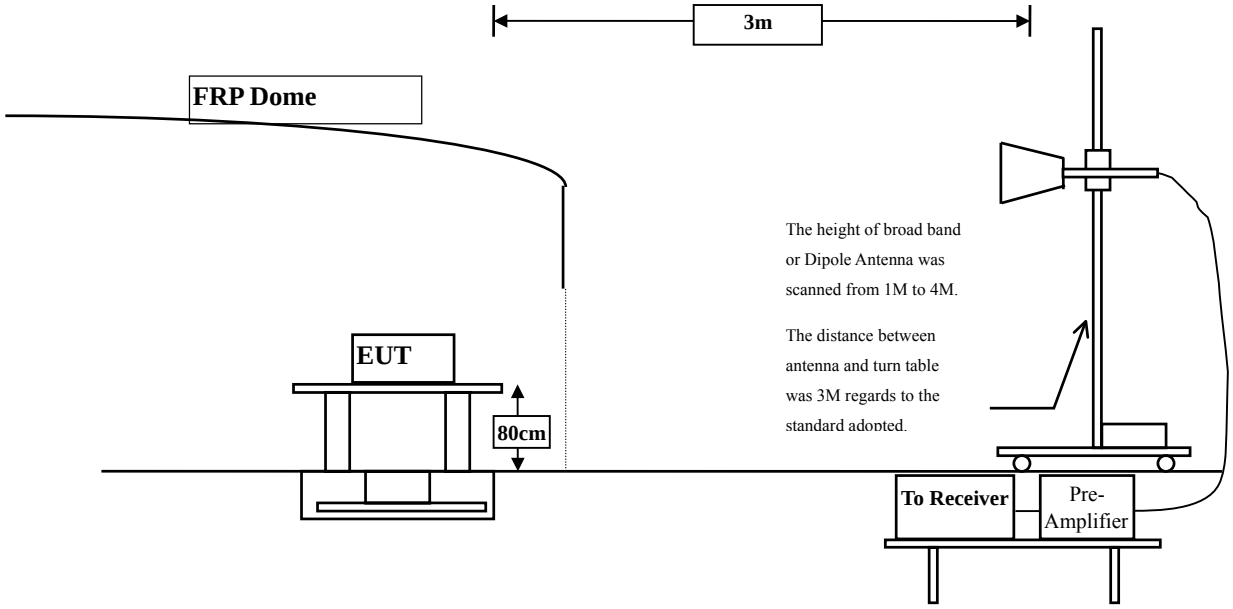
2. The test instruments marked with "X" are used to measure the final test results.

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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	5.362	46.490	51.851	-22.149	74.000
7236.000	11.867	43.380	55.247	-18.753	74.000
9648.000	15.856	42.850	58.706	-15.294	74.000
Average Detector:					
7236.000	11.867	31.320	43.187	-10.813	54.000
9648.000	15.856	31.510	47.366	-6.634	54.000
Vertical					
Peak Detector:					
4824.000	5.362	48.340	53.701	-20.299	74.000
7236.000	11.867	42.830	54.697	-19.303	74.000
9648.000	15.856	43.370	59.226	-14.774	74.000
Average Detector:					
7236.000	11.867	31.180	43.047	-10.953	54.000
9648.000	15.856	31.620	47.476	-6.524	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	5.465	52.630	58.096	-15.904	74.000
7311.000	12.030	46.714	58.744	-15.256	74.000
9748.000	16.070	44.330	60.400	-13.600	74.000
Average					
Detector:					
4874.000	5.465	47.754	53.220	-0.780	54.000
7311.000	12.030	39.250	51.280	-2.720	54.000
9748.000	16.070	31.590	47.660	-6.340	54.000
Vertical					
Peak Detector:					
4874.000	5.465	50.580	56.046	-17.954	74.000
7311.000	12.030	44.790	56.820	-17.180	74.000
9748.000	16.070	44.150	60.220	-13.780	74.000
Average					
Detector:					
4874.000	5.465	45.852	51.318	-2.682	54.000
7311.000	12.030	36.450	48.480	-5.520	54.000
9748.000	16.070	31.300	47.370	-6.630	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4924.000	5.578	50.060	55.637	-18.363	74.000
7386.000	12.211	45.130	57.342	-16.658	74.000
9848.000	16.292	42.520	58.812	-15.188	74.000
Average					
Detector:					
4924.000	5.578	45.070	50.647	-3.353	54.000
7386.000	12.211	35.730	47.942	-6.058	54.000
9848.000	16.292	30.760	47.052	-6.948	54.000
Vertical					
Peak Detector:					
4924.000	5.578	49.750	55.327	-18.673	74.000
7386.000	12.211	43.400	55.612	-18.388	74.000
9848.000	16.292	40.600	56.892	-17.108	74.000
Average					
Detector:					
4924.000	5.578	44.990	50.567	-3.433	54.000
7386.000	12.211	30.560	42.772	-11.228	54.000
9848.000	16.292	30.670	46.962	-7.038	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (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	5.362	44.140	49.501	-24.499	74.000
7236.000	11.867	41.660	53.527	-20.473	74.000
9648.000	15.856	43.480	59.336	-14.664	74.000
Average Detector:					
9648.000	15.856	31.270	47.126	-6.874	54.000
Vertical					
Peak Detector:					
4824.000	5.362	45.160	50.521	-23.479	74.000
7236.000	11.867	42.850	54.717	-19.283	74.000
9648.000	15.856	43.610	59.466	-14.534	74.000
Average Detector:					
7236.000	11.867	30.770	42.637	-11.363	54.000
9648.000	15.856	31.420	47.276	-6.724	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (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	5.465	51.770	57.236	-16.764	74.000
7311.000	12.030	44.960	56.990	-17.010	74.000
9748.000	16.070	43.420	59.490	-14.510	74.000
Average					
Detector:					
4874.000	5.465	39.830	45.296	-8.704	54.000
7311.000	12.030	33.520	45.550	-8.450	54.000
9748.000	16.070	30.880	46.950	-7.050	54.000
Vertical					
Peak Detector:					
4874.000	5.465	50.800	56.266	-17.734	74.000
7311.000	12.030	41.620	53.650	-20.350	74.000
9748.000	16.070	41.360	57.430	-16.570	74.000
Average					
Detector:					
4874.000	5.465	38.880	44.346	-9.654	54.000
9748.000	16.070	30.850	46.920	-7.080	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (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	5.578	44.550	50.127	-23.873	74.000
7386.000	12.211	42.680	54.892	-19.108	74.000
9848.000	16.292	41.400	57.692	-16.308	74.000
Average					
Detector:					
7386.000	12.211	30.740	42.952	-11.048	54.000
9848.000	16.292	31.500	47.792	-6.208	54.000
Vertical					
Peak Detector:					
4924.000	5.578	45.130	50.707	-23.293	74.000
7386.000	12.211	42.690	54.902	-19.098	74.000
9848.000	16.292	42.230	58.522	-15.478	74.000
Average					
Detector:					
7386.000	12.211	30.660	42.872	-11.128	54.000
9848.000	16.292	30.580	46.872	-7.128	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n MCS0 7.2Mbps 20M-BW)-ANT 1 (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	9.582	37.320	46.902	-27.098	74.000
7236.000	14.401	38.570	52.971	-21.029	74.000
9648.000	19.795	36.670	56.465	-17.535	74.000
Average Detector:					
9648.000	19.795	22.790	42.585	-11.415	54.000
Vertical					
Peak Detector:					
4824.000	8.462	36.870	45.332	-28.668	74.000
7236.000	15.412	36.920	52.332	-21.668	74.000
9648.000	19.005	36.200	55.205	-18.795	74.000
Average Detector:					
9648.000	19.005	22.490	41.495	-12.505	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n MCS0 7.2Mbps 20M-BW)-ANT 1 (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
4874.000	9.473	36.930	46.403	-27.597	74.000
7311.000	14.540	48.790	63.329	-10.671	74.000
9748.000	20.024	38.980	59.005	-14.995	74.000
Average Detector:					
7311.000	14.540	34.080	48.619	-5.381	54.000
9748.000	20.024	24.940	44.965	-9.035	54.000
Vertical Peak Detector:					
4874.000	8.882	42.700	51.581	-22.419	74.000
7311.000	15.283	43.870	59.153	-14.847	74.000
9748.000	19.228	37.600	56.829	-17.171	74.000
Average Detector:					
7311.000	15.283	29.880	45.163	-8.837	54.000
9648.000	19.005	24.540	43.545	-10.455	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n MCS0 7.2Mbps 20M-BW)-ANT 1 (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4924.000	9.487	36.770	46.256	-27.744	74.000
7386.000	14.798	34.830	49.628	-24.372	74.000
9848.000	20.005	36.390	56.396	-17.604	74.000
Average					
Detector:					
9848.000	20.005	22.590	42.596	-11.404	54.000
Vertical					
Peak Detector:					
4924.000	9.415	36.480	45.894	-28.106	74.000
7386.000	15.269	37.350	52.619	-21.381	74.000
9848.000	19.191	37.810	57.001	-16.999	74.000
Average					
Detector:					
9848.000	19.191	22.530	41.721	-12.279	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmitter (802.11n MCS8 14.4Mbps 20M-BW)-ANT 1+2 (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	9.582	36.920	46.502	-27.498	74.000
7236.000	14.401	36.400	50.801	-23.199	74.000
9648.000	19.795	36.320	56.115	-17.885	74.000
Average Detector:					
9648.000	19.795	22.630	42.425	-11.575	54.000
Vertical					
Peak Detector:					
4824.000	8.462	36.790	45.252	-28.748	74.000
7236.000	15.412	36.480	51.892	-22.108	74.000
9648.000	19.005	36.800	55.805	-18.195	74.000
Average Detector:					
9648.000	19.005	22.480	41.485	-12.515	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmitter (802.11n MCS8 14.4Mbps 20M-BW)-ANT 1+2 (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
4874.000	9.473	37.190	46.663	-27.337	74.000
7311.000	14.540	35.330	49.869	-24.131	74.000
9748.000	20.024	37.380	57.405	-16.595	74.000
Average Detector:					
9748.000	20.024	22.860	42.885	-11.115	54.000
Vertical Peak Detector:					
4874.000	8.882	37.100	45.981	-28.019	74.000
7311.000	15.283	35.600	50.883	-23.117	74.000
9748.000	19.228	37.060	56.289	-17.711	74.000
Average Detector:					
9748.000	19.228	22.760	41.989	-12.011	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmitter (802.11n MCS8 14.4Mbps 20M-BW)-ANT 1+2 (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4924.000	9.487	40.900	50.386	-23.614	74.000
7386.000	14.798	34.920	49.718	-24.282	74.000
9848.000	20.005	36.810	56.816	-17.184	74.000
Average					
Detector:					
9848.000	20.005	22.660	42.666	-11.334	54.000
Vertical					
Peak Detector:					
4924.000	9.415	40.690	50.104	-23.896	74.000
7386.000	15.269	35.200	50.469	-23.531	74.000
9848.000	19.191	36.980	56.171	-17.829	74.000
Average					
Detector:					
9848.000	19.191	22.830	42.021	-11.979	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmitter (802.11n MCS0 15Mbps 40M-BW)-ANT 1 (2422MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4844.000	9.536	38.080	47.616	-26.384	74.000
7266.000	14.459	37.770	52.229	-21.771	74.000
9688.000	19.847	36.840	56.687	-17.313	74.000
Average Detector:					
9688.000	19.847	22.770	42.617	-11.383	54.000
Vertical					
Peak Detector:					
4844.000	8.627	37.540	46.167	-27.833	74.000
7266.000	15.363	35.910	51.274	-22.726	74.000
9688.000	19.057	36.360	55.417	-18.583	74.000
Average Detector:					
9688.000	19.057	22.640	41.697	-12.303	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmitter (802.11n MCS0 15Mbps 40M-BW)-ANT 1 (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
4874.000	9.473	39.380	48.853	-25.147	74.000
7311.000	14.540	41.420	55.959	-18.041	74.000
9748.000	20.024	36.720	56.745	-17.255	74.000
Average Detector:					
7311.000	14.540	23.780	38.319	-15.681	54.000
9748.000	20.024	22.970	42.995	-11.005	54.000
Vertical Peak Detector:					
4874.000	8.882	37.980	46.861	-27.139	74.000
7311.000	15.283	36.120	51.403	-22.597	74.000
9748.000	19.228	36.580	55.809	-18.191	74.000
Average Detector:					
9748.000	19.228	22.680	41.909	-12.091	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmitter (802.11n MCS0 15Mbps 40M-BW)-ANT 1 (2452 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4904.000	9.518	37.470	46.988	-27.012	74.000
7356.000	14.741	38.120	52.860	-21.140	74.000
9808.000	20.066	36.550	56.616	-17.384	74.000
Average					
Detector:					
9808.000	20.066	22.750	42.816	-11.184	54.000
Vertical					
Peak Detector:					
4904.000	9.235	37.290	46.524	-27.476	74.000
7356.000	15.318	35.210	50.528	-23.472	74.000
9808.000	19.266	37.080	56.346	-17.654	74.000
Average					
Detector:					
9808.000	19.266	23.020	42.286	-11.714	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 6: Transmitter (802.11n MCS8 30Mbps 40M-BW)-ANT 1+2 (2422MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4844.000	9.536	38.150	47.686	-26.314	74.000
7266.000	14.459	36.060	50.519	-23.481	74.000
9688.000	19.847	36.370	56.217	-17.783	74.000
Average					
Detector:					
9688.000	19.847	22.660	42.507	-11.493	54.000
Vertical					
Peak Detector:					
4844.000	8.627	37.510	46.137	-27.863	74.000
7266.000	15.363	35.980	51.344	-22.656	74.000
9688.000	19.057	36.550	55.607	-18.393	74.000
Average					
Detector:					
9688.000	19.057	22.840	41.897	-12.103	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 6: Transmitter (802.11n MCS8 30Mbps 40M-BW)-ANT 1+2 (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
4874.000	9.473	43.220	52.693	-21.307	74.000
7311.000	14.540	41.100	55.639	-18.361	74.000
9748.000	20.024	36.790	56.815	-17.185	74.000
Average Detector:					
7311.000	14.540	23.610	38.149	-15.851	54.000
9748.000	20.024	23.010	43.035	-10.965	54.000
Vertical Peak Detector:					
4874.000	8.882	40.800	49.681	-24.319	74.000
7311.000	15.283	36.150	51.433	-22.567	74.000
9748.000	19.228	36.850	56.079	-17.921	74.000
Average Detector:					
9748.000	19.228	22.510	41.739	-12.261	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 : ThereGate
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 6: Transmitter (802.11n MCS8 30Mbps 40M-BW)-ANT 1+2 (2452 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4904.000	9.518	40.320	49.838	-24.162	74.000
7356.000	14.741	37.560	52.300	-21.700	74.000
9808.000	20.066	36.720	56.786	-17.214	74.000
Average					
Detector:					
9808.000	20.066	23.090	43.156	-10.844	54.000
Vertical					
Peak Detector:					
4904.000	9.235	38.440	47.674	-26.326	74.000
7356.000	15.318	35.970	51.288	-22.712	74.000
9808.000	19.266	37.160	56.426	-17.574	74.000
Average					
Detector:					
9808.000	19.266	22.490	41.756	-12.244	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 : ThereGate
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
368.236	-3.298	42.168	38.870	-7.130	46.000
449.880	-0.661	38.342	37.681	-8.319	46.000
480.250	-0.460	41.220	40.760	-5.240	46.000
600.500	4.290	32.010	36.300	-9.700	46.000
752.330	3.890	36.690	40.580	-5.420	46.000
863.928	4.473	30.734	35.207	-10.793	46.000
Vertical					
355.000	-5.147	36.220	31.073	-14.927	46.000
496.000	-1.600	37.230	35.630	-10.370	46.000
550.220	-0.321	38.990	38.669	-7.331	46.000
718.136	1.700	32.323	34.023	-11.977	46.000
961.122	6.060	34.788	40.848	-13.152	54.000
1000.000	6.220	34.527	40.747	-13.253	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 : ThereGate
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (802.11g 6Mbps)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
263.267	-8.085	37.952	29.867	-16.133	46.000
319.639	-6.470	30.155	23.685	-22.315	46.000
374.068	-2.917	27.580	24.663	-21.337	46.000
624.830	4.217	28.131	32.349	-13.651	46.000
749.238	3.825	20.371	24.195	-21.805	46.000
1000.000	5.730	35.392	41.122	-12.878	54.000
Vertical					
263.267	-4.783	38.750	33.967	-12.033	46.000
374.068	-3.817	28.291	24.474	-21.526	46.000
500.421	-1.580	26.981	25.401	-20.599	46.000
624.830	1.272	24.471	25.743	-20.257	46.000
747.295	2.020	31.559	33.579	-12.421	46.000
1000.000	6.220	38.872	45.092	-8.908	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 : ThereGate
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n MCS0 7.2Mbps 20M-BW)-ANT 1(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
263.267	-8.085	40.922	32.837	-13.163	46.000
374.068	-2.917	33.338	30.421	-15.579	46.000
508.196	0.039	25.509	25.548	-20.452	46.000
624.830	4.217	27.330	31.548	-14.452	46.000
782.285	4.532	21.527	26.058	-19.942	46.000
1000.000	5.730	38.898	44.628	-9.372	54.000
Vertical					
263.267	-4.783	38.593	33.810	-12.190	46.000
374.068	-3.817	31.837	28.020	-17.980	46.000
500.421	-1.580	26.995	25.415	-20.585	46.000
624.830	1.272	26.043	27.315	-18.685	46.000
747.295	2.020	35.455	37.475	-8.525	46.000
996.112	6.200	38.312	44.512	-9.488	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 : ThereGate
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmitter (802.11n MCS8 14.4Mbps 20M-BW)-ANT 1+2(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
263.267	-8.085	40.347	32.262	-13.738	46.000
374.068	-2.917	30.264	27.347	-18.653	46.000
508.196	0.039	25.589	25.628	-20.372	46.000
624.830	4.217	27.709	31.927	-14.073	46.000
747.295	3.800	23.368	27.168	-18.832	46.000
1000.000	5.730	42.209	47.939	-6.061	54.000
Vertical					
263.267	-4.783	38.293	33.510	-12.490	46.000
374.068	-3.817	28.698	24.881	-21.119	46.000
500.421	-1.580	28.161	26.581	-19.419	46.000
624.830	1.272	26.113	27.385	-18.615	46.000
749.238	2.040	31.285	33.325	-12.675	46.000
1000.000	6.220	40.633	46.853	-7.147	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 : ThereGate
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmitter (802.11n MCS0 15Mbps 40M-BW)-ANT 1(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
263.267	-8.085	41.177	33.092	-12.908	46.000
374.068	-2.917	32.586	29.669	-16.331	46.000
508.196	0.039	24.652	24.691	-21.309	46.000
624.830	4.217	29.366	33.584	-12.416	46.000
751.182	3.860	21.699	25.559	-20.441	46.000
1000.000	5.730	39.404	45.134	-8.866	54.000
Vertical					
263.267	-4.783	38.355	33.572	-12.428	46.000
374.068	-3.817	25.560	21.743	-24.257	46.000
500.421	-1.580	25.674	24.094	-21.906	46.000
624.830	1.272	24.594	25.866	-20.134	46.000
747.295	2.020	30.585	32.605	-13.395	46.000
1000.000	6.220	39.093	45.313	-8.687	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 : ThereGate
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 6: Transmitter (802.11n MCS8 30Mbps 40M-BW)-ANT 1+2(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
263.267	-8.085	41.093	33.008	-12.992	46.000
374.068	-2.917	30.262	27.345	-18.655	46.000
508.196	0.039	23.410	23.449	-22.551	46.000
624.830	4.217	27.166	31.384	-14.616	46.000
749.238	3.825	22.079	25.903	-20.097	46.000
1000.000	5.730	38.023	43.753	-10.247	54.000
Vertical					
263.267	-4.783	38.291	33.508	-12.492	46.000
374.068	-3.817	28.480	24.663	-21.337	46.000
500.421	-1.580	23.297	21.717	-24.283	46.000
624.830	1.272	26.244	27.516	-18.484	46.000
747.295	2.020	30.624	32.644	-13.356	46.000
996.112	6.200	38.475	44.675	-9.325	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

The following test equipments are used during the radiated emission tests:

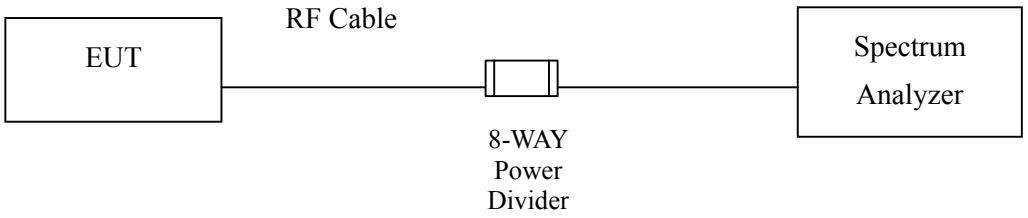
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Nov, 2009
	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2009
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2009
X	8-WAY Power	JFW	50PD-647 / 526770 0916	Apr., 2009

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

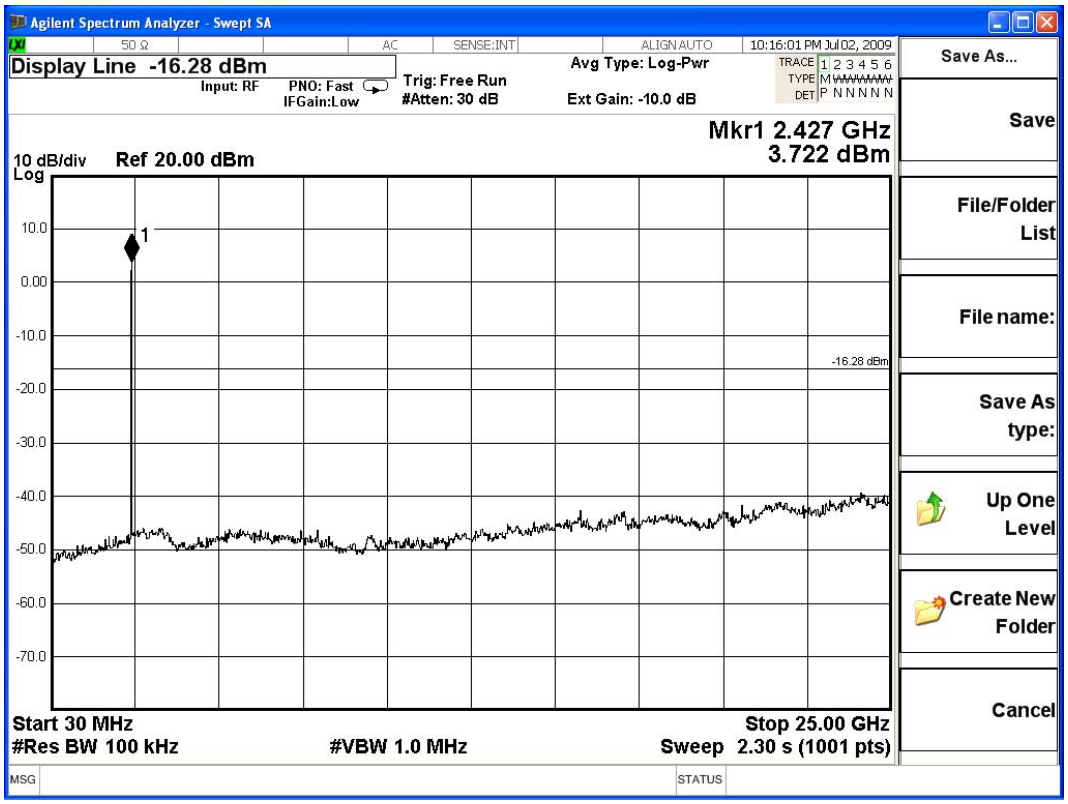
The measurement uncertainty

Conducted is defined as ± 1.27dB

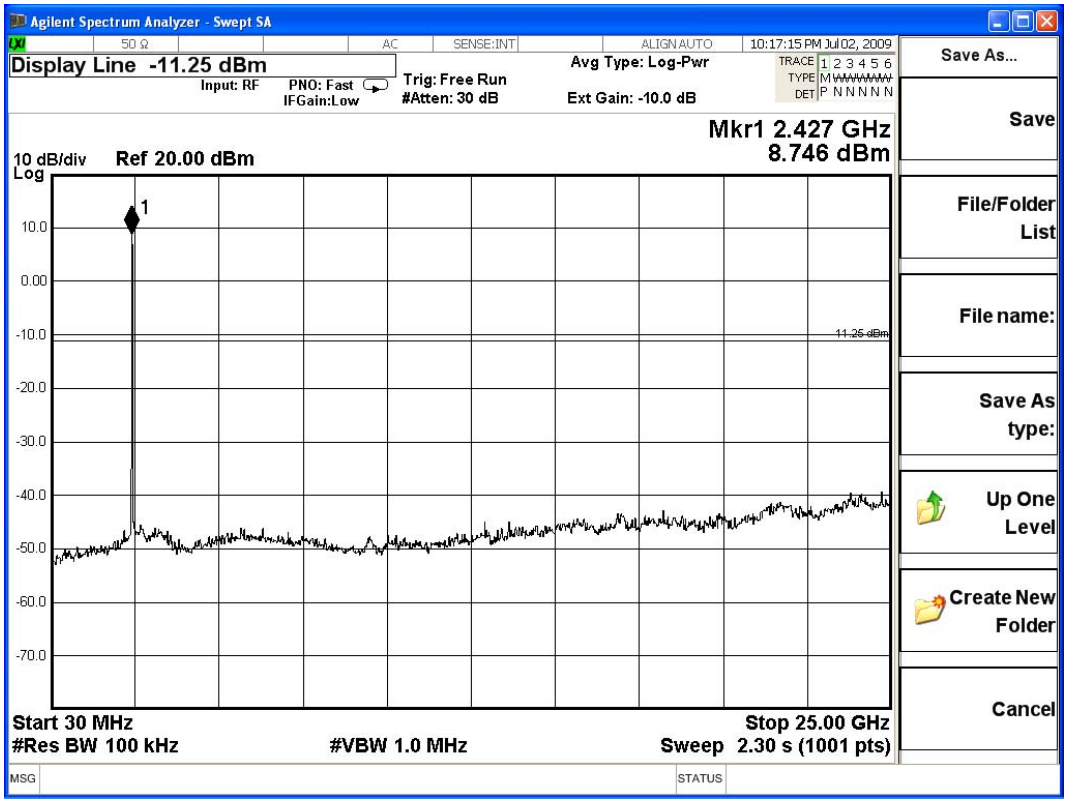
5.6. Test Result of RF antenna conducted test

Product : ThereGate
Test Item : RF antenna conducted test
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps)

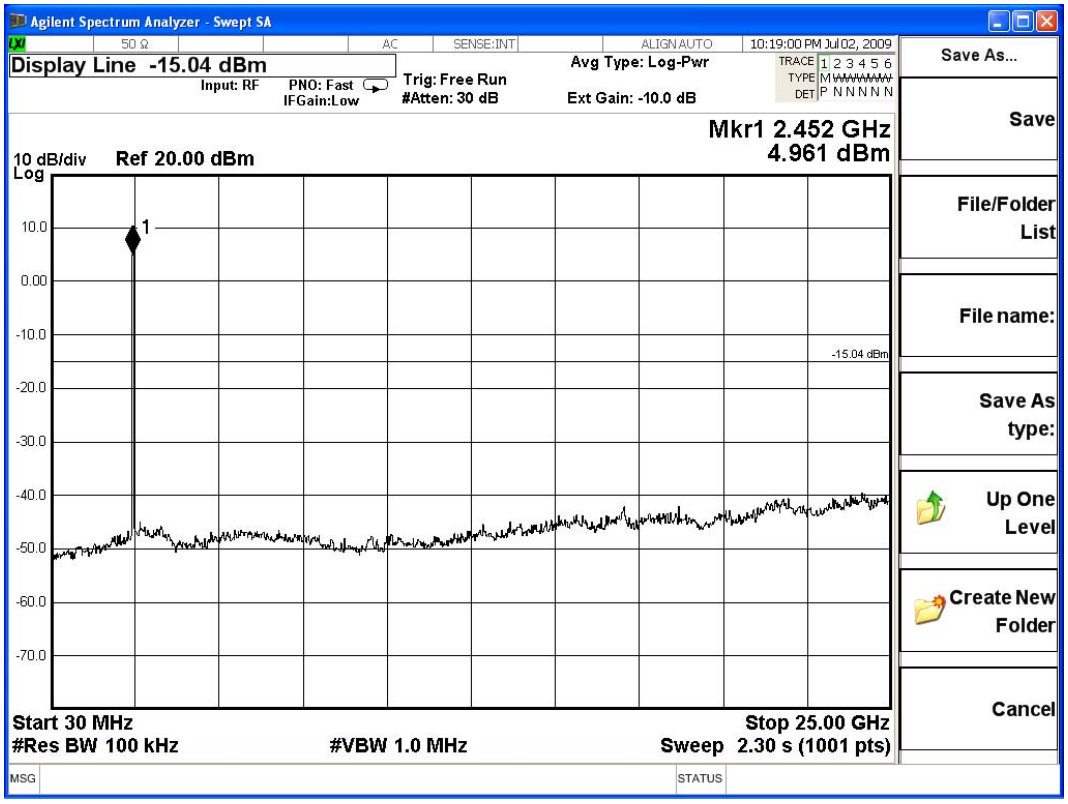
Channel 01 (2412MHz) 30-25GHz



Channel 06 (2437MHz) 30-25GHz

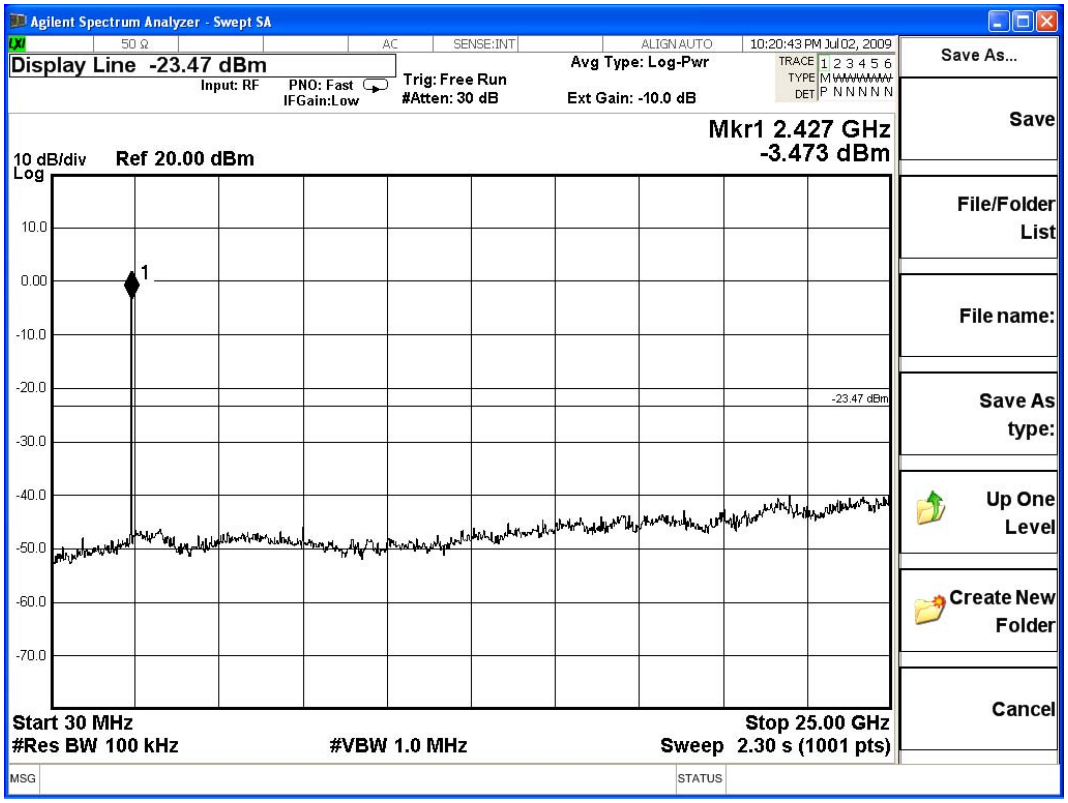


Channel 11 (2462MHz) 30-25GHz

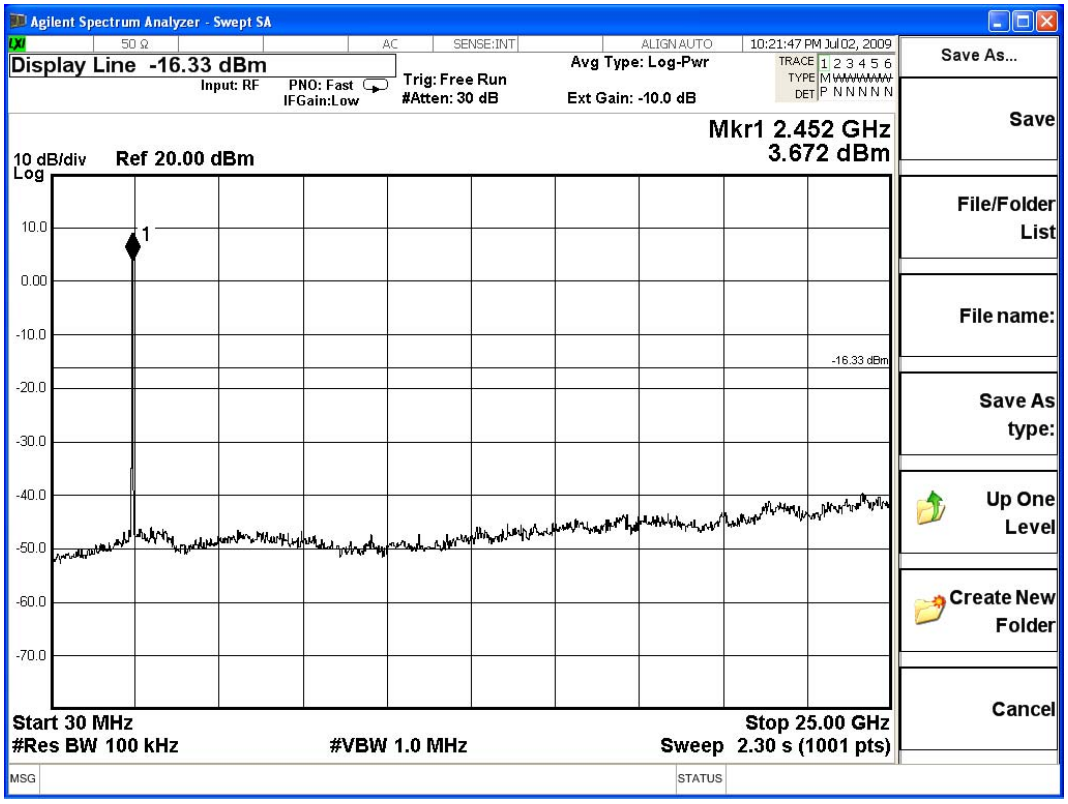


Product : ThereGate
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (802.11g 6Mbps)

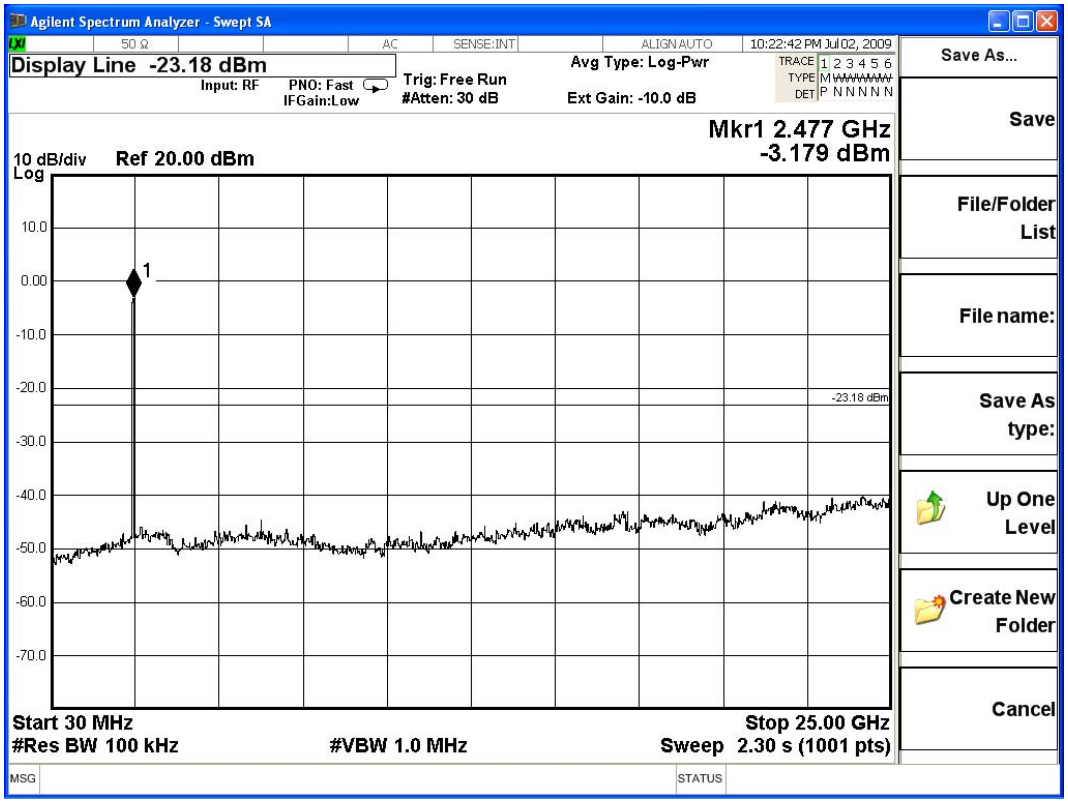
Channel 01 (2412MHz) 30-25GHz



Channel 06 (2437MHz) 30-25GHz

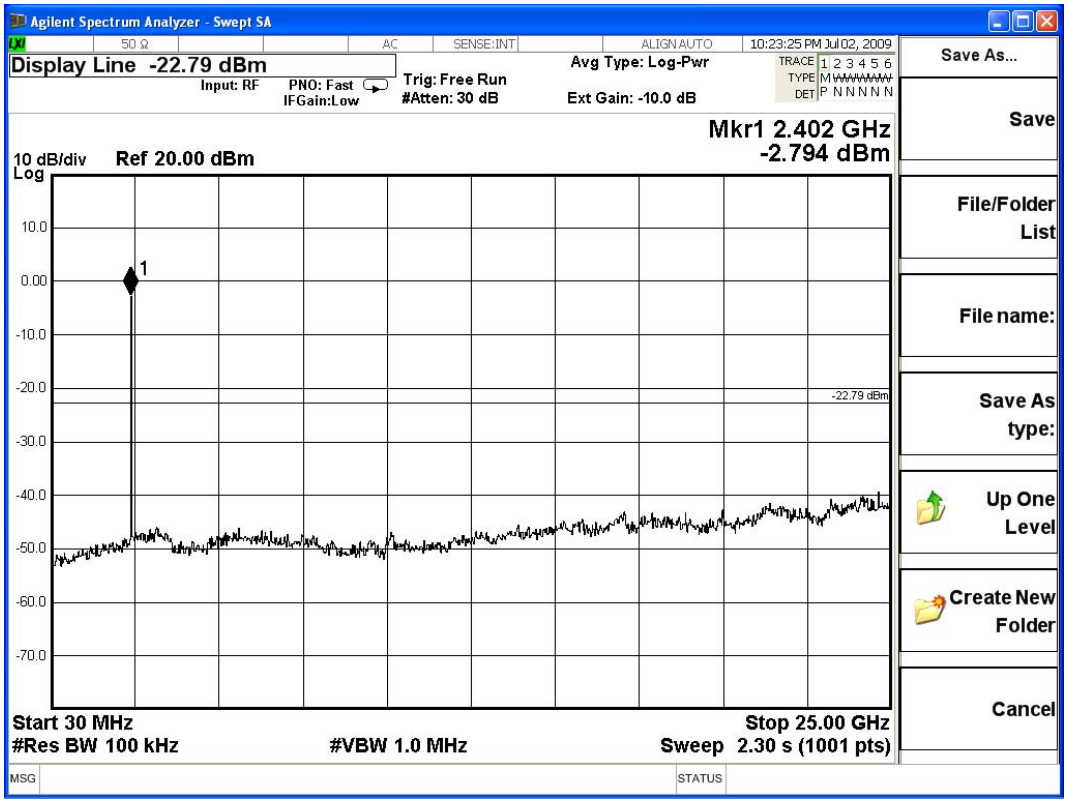


Channel 11 (2462MHz) 30-25GHz

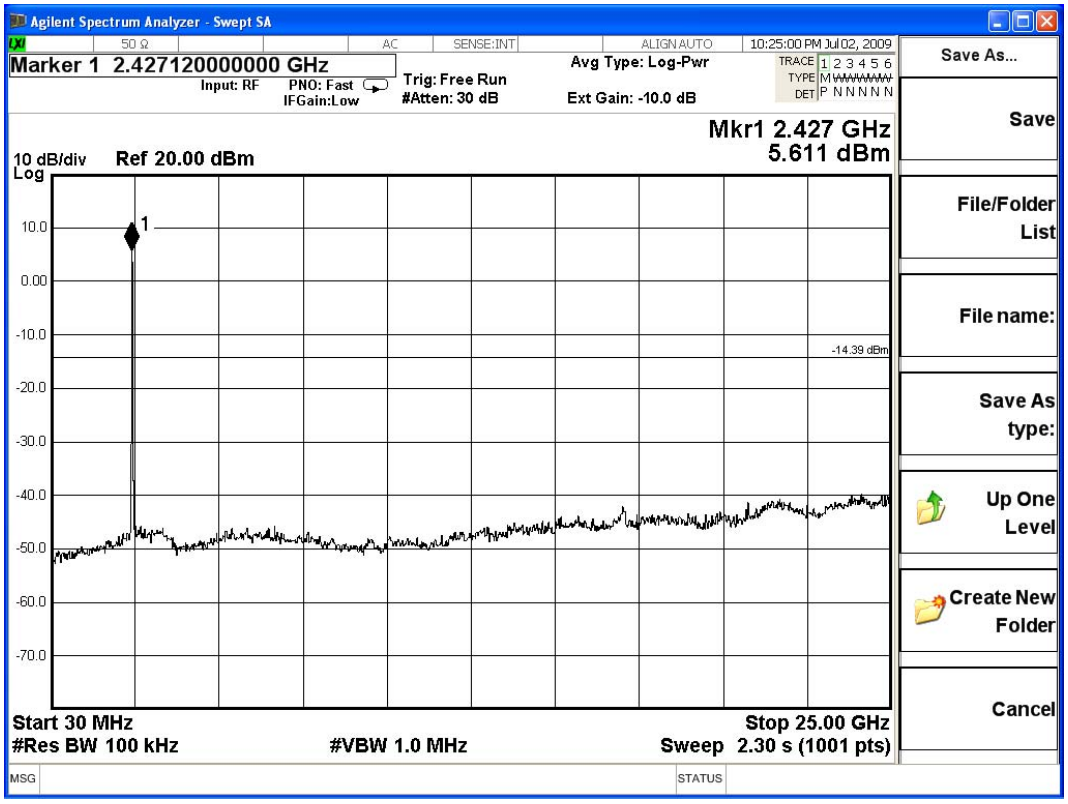


Product : ThereGate
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n MCS0 7.2Mbps 20M-BW)-ANT 1

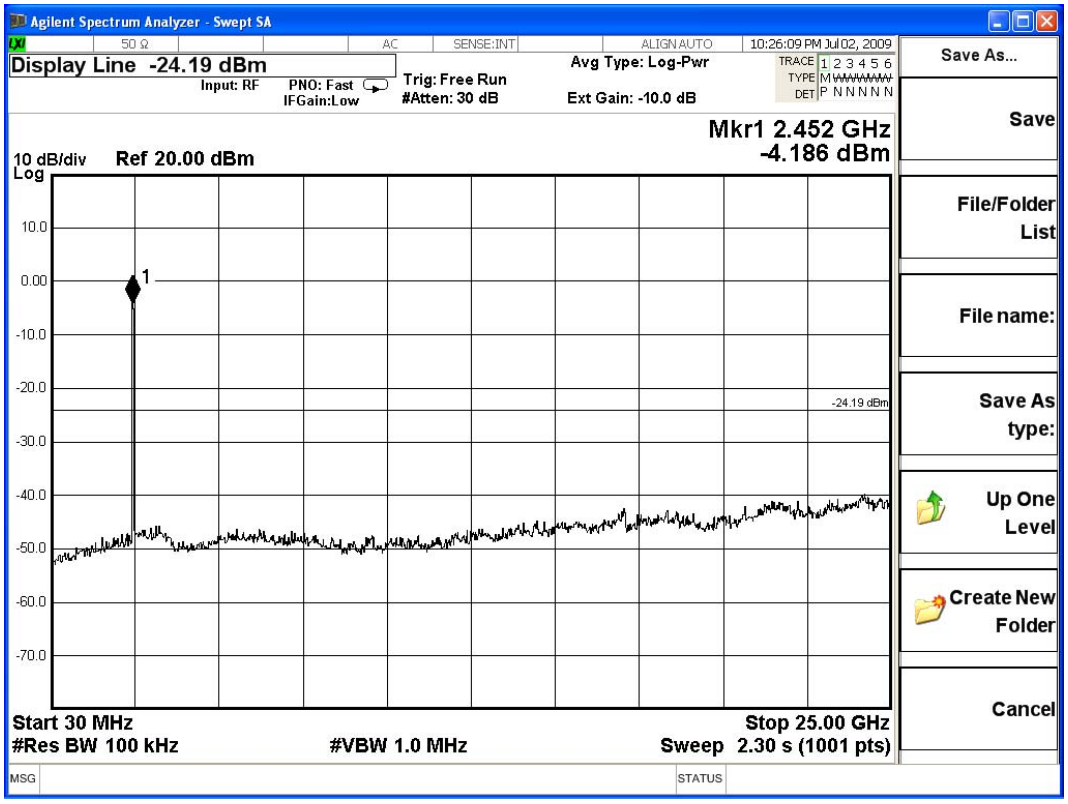
Channel 01 (2412MHz) 30-25GHz



Channel 06 (2437MHz) 30-25GHz

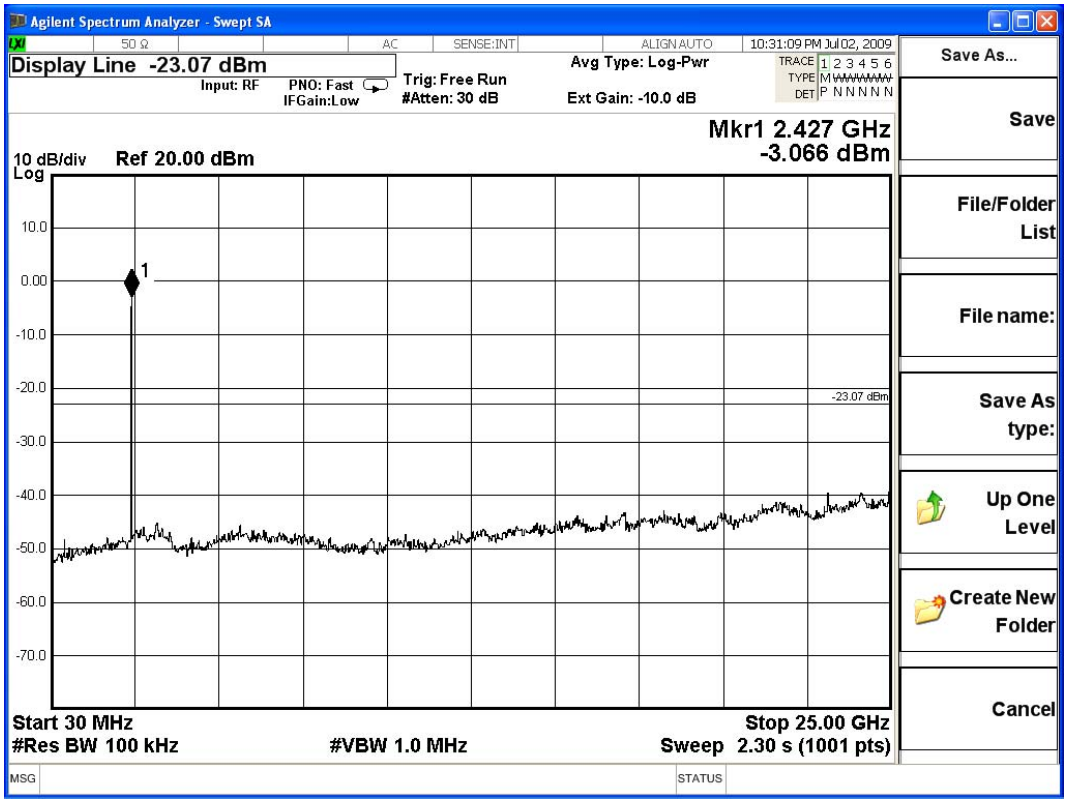


Channel 11 (2462MHz) 30-25GHz

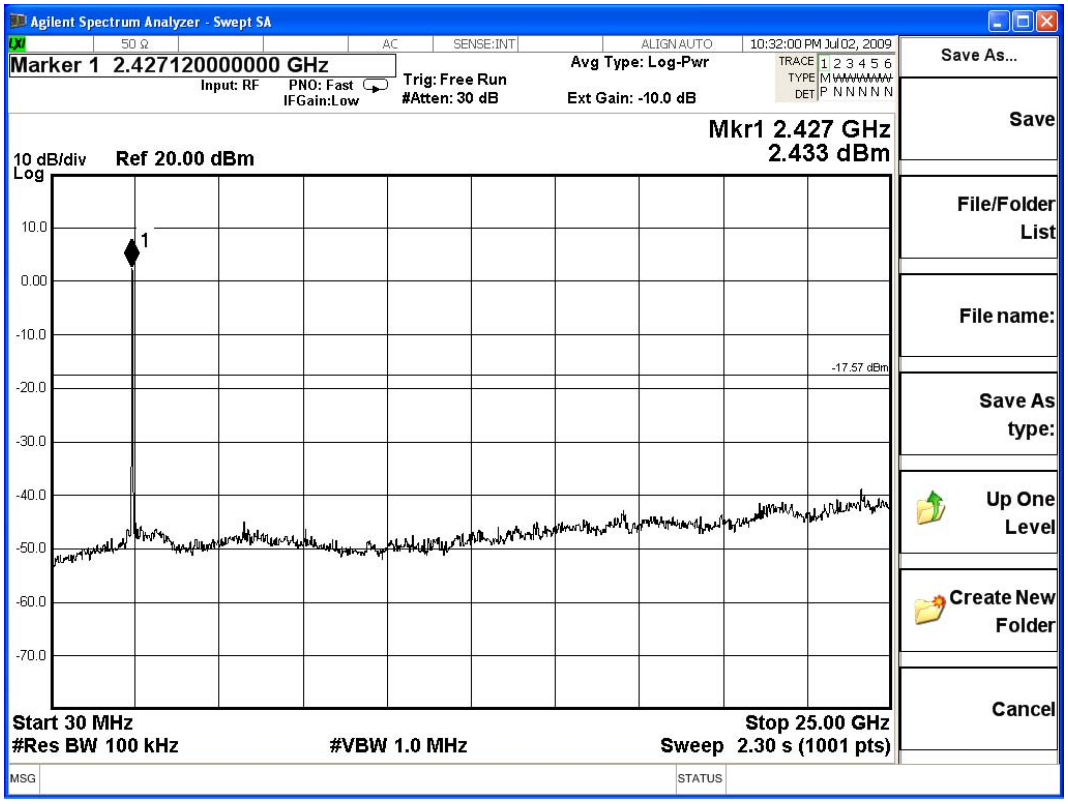


Product : ThereGate
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 4: Transmitter (802.11n MCS8 14.4Mbps 20M-BW)-ANT 1+2

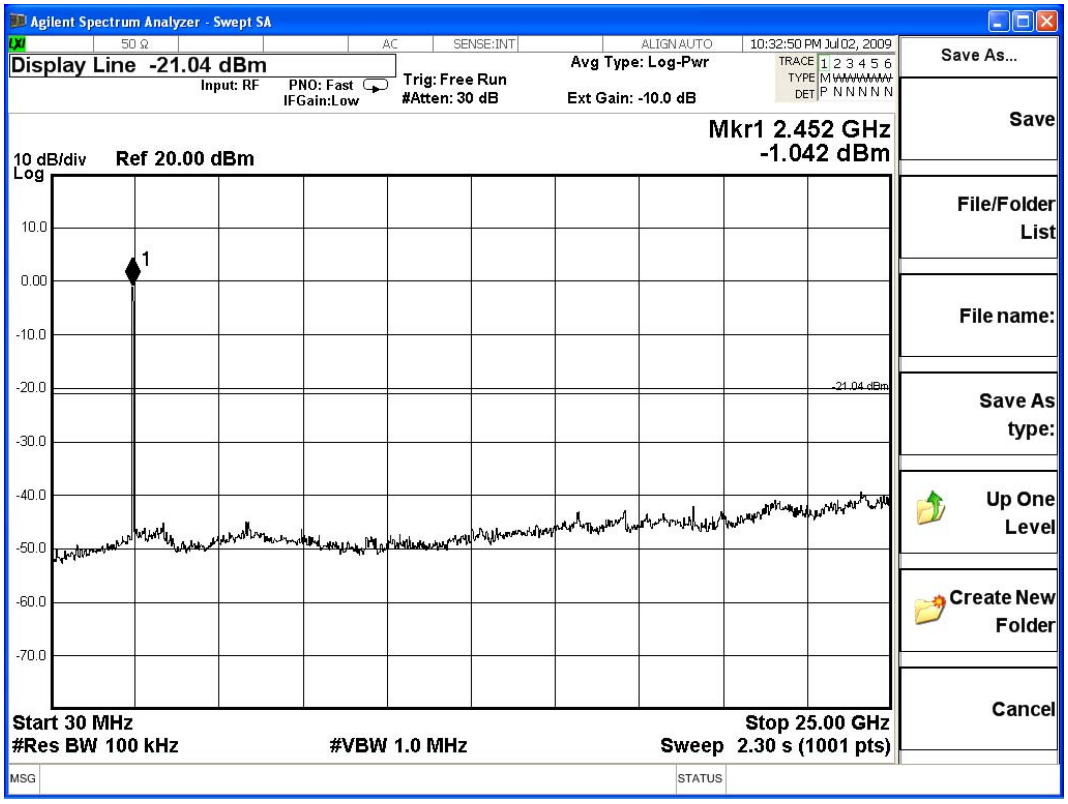
Channel 01 (2412MHz) 30-25GHz



Channel 06 (2437MHz) 30-25GHz

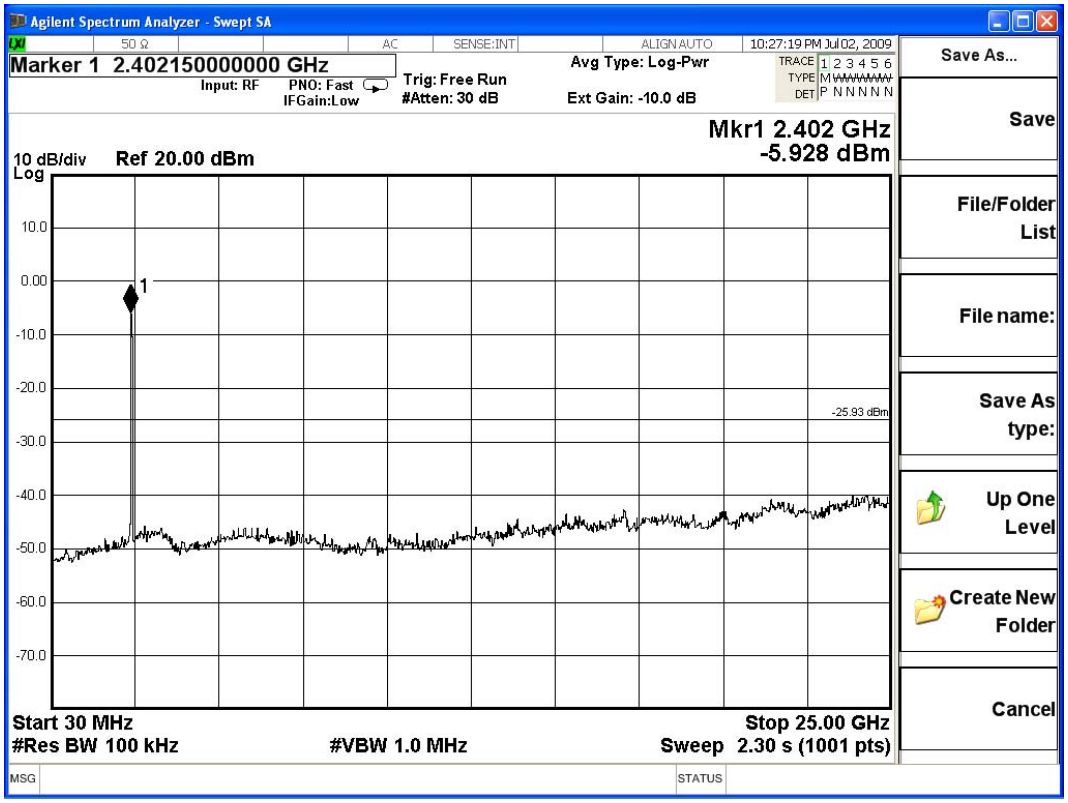


Channel 11 (2462MHz) 30-25GHz

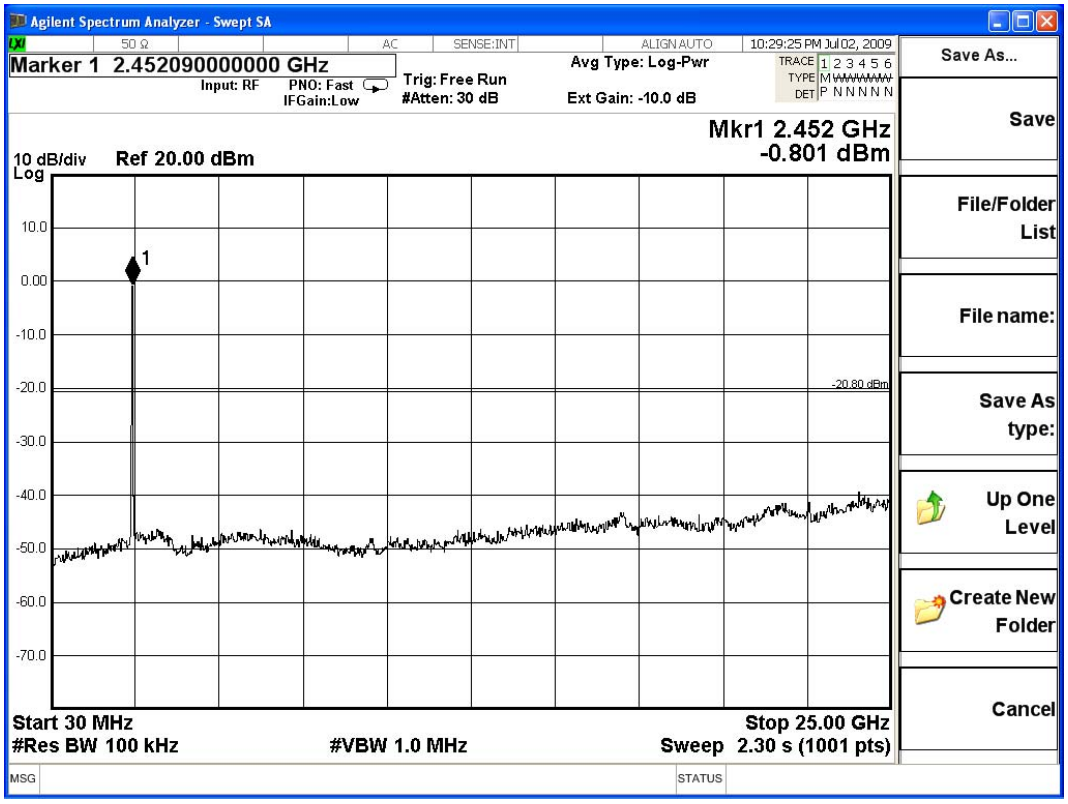


Product : ThereGate
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 5: Transmitter (802.11n MCS0 15Mbps 40M-BW)-ANT 1

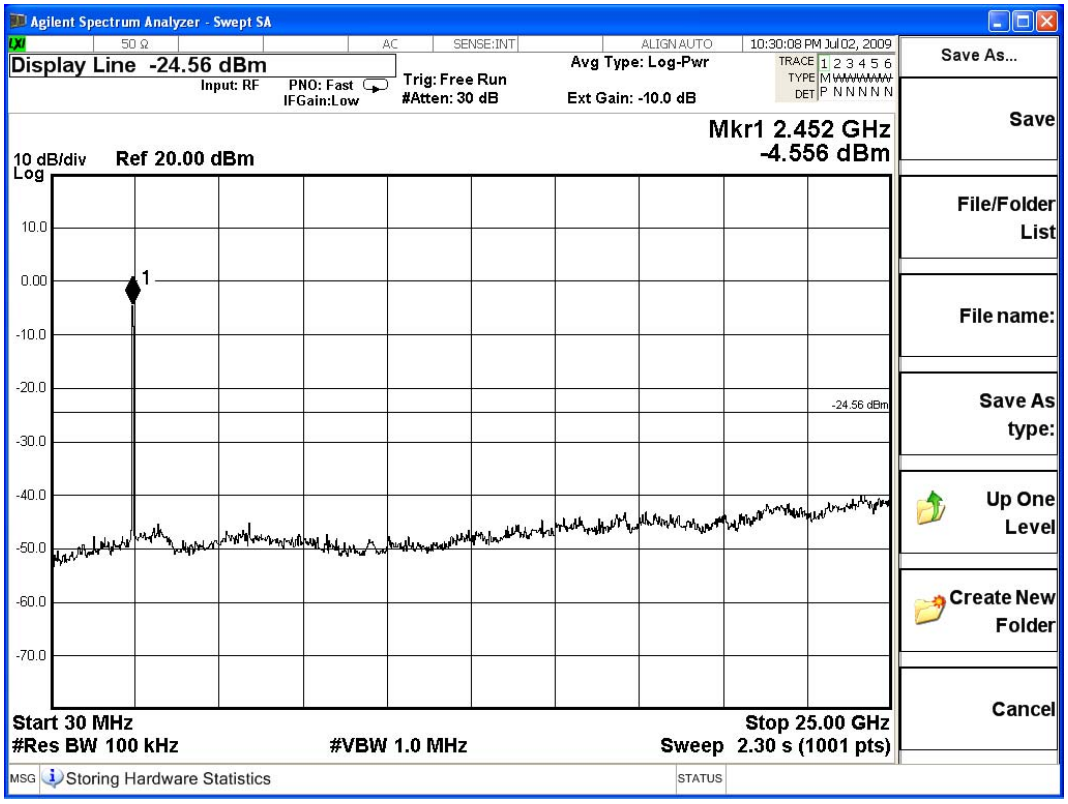
Channel 01 (2422MHz) 30-25GHz



Channel 04 (2437MHz) 30-25GHz

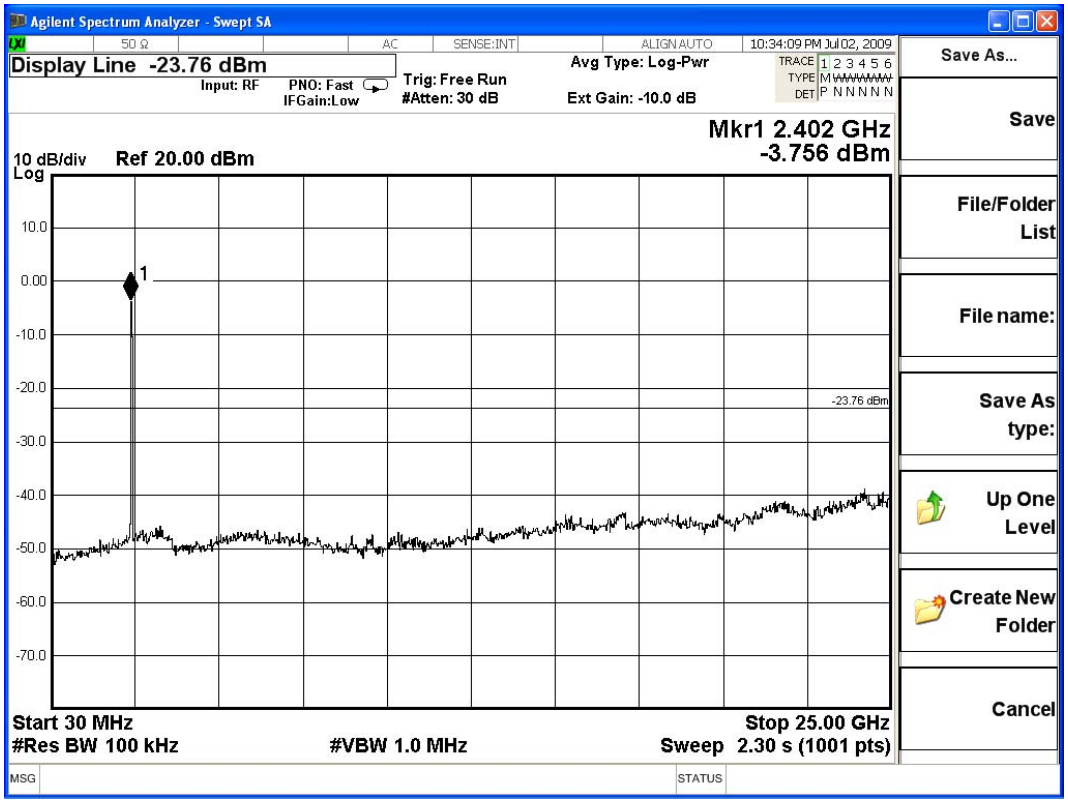


Channel 07 (2452MHz) 30-25GHz

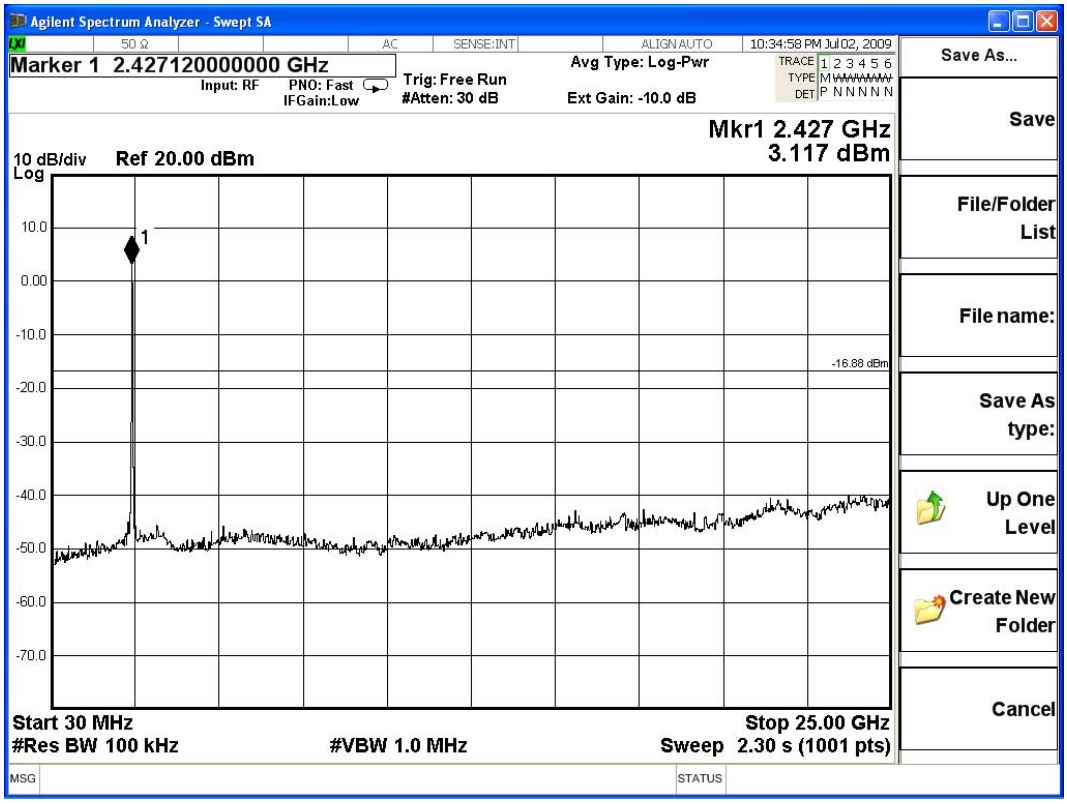


Product : ThereGate
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 6: Transmitter (802.11n MCS8 30Mbps 40M-BW)-ANT 1+2

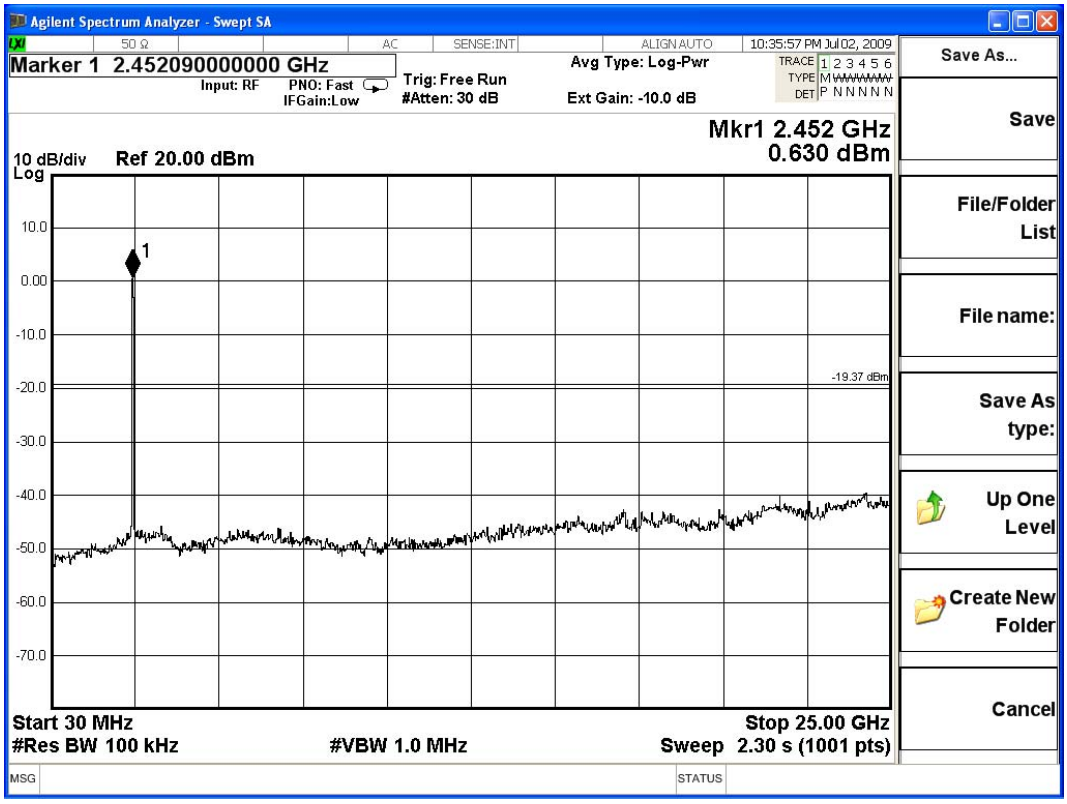
Channel 01 (2422MHz) 30-25GHz



Channel 04 (2437MHz) 30-25GHz



Channel 07 (2452MHz) 30-25GHz



6. Band Edge

6.1. Test Equipment

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

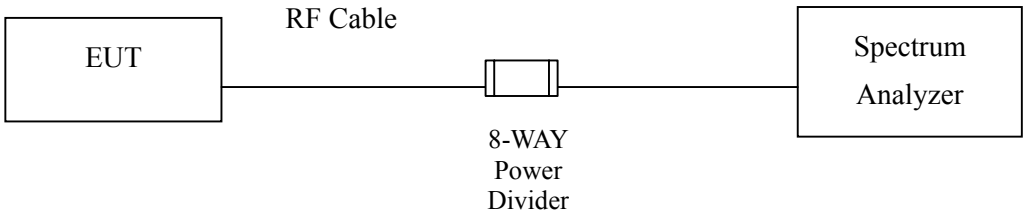
Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2009
	X	Pre-Amplifier	AGILENT	8447D/2944A09549	Sep., 2009
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2009
	X	Spectrum Analyzer	Advantest	R3162/91700283	Oct., 2009
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2009
	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.

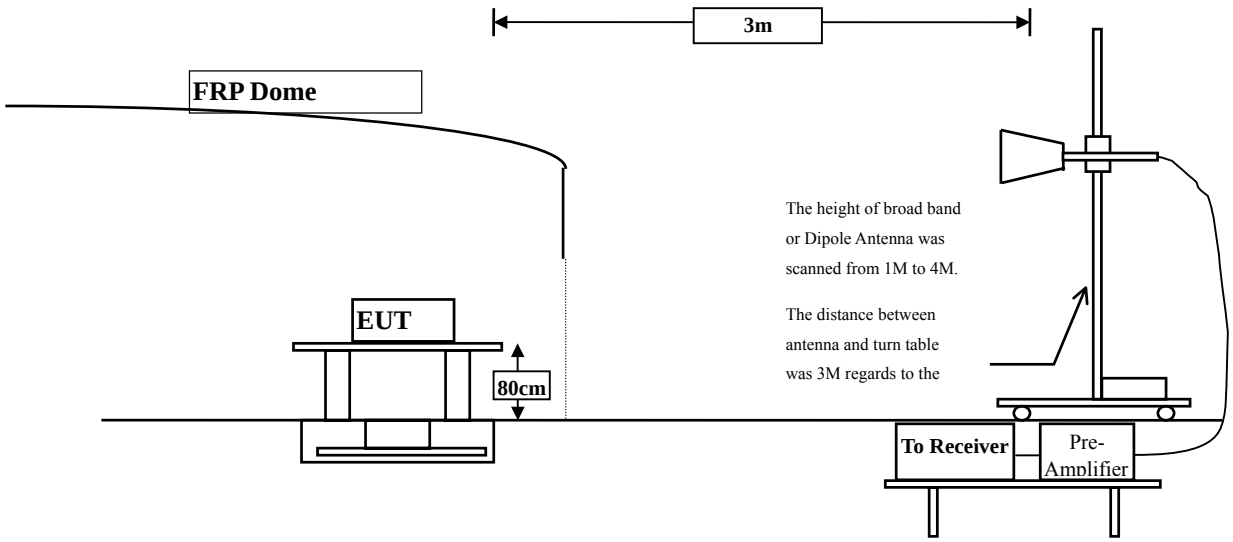
2. The test instruments marked by "X" are used to measure the final test results.

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 : ThereGate
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps)-Channel 1

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	-0.175	111.649	111.474	Peak
Horizontal	2412	-0.175	108.584	108.409	Average
Vertical	2412	-0.175	109.551	109.376	Peak
Vertical	2412	-0.175	106.675	106.500	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	2390.0	111.474	48.97	62.504	Peak
Horizontal	2390.0	108.409	58.12	50.289	Average
Vertical	2390.0	109.376	48.97	60.406	Peak
Vertical	2390.0	106.500	58.12	48.38	Average

Note:

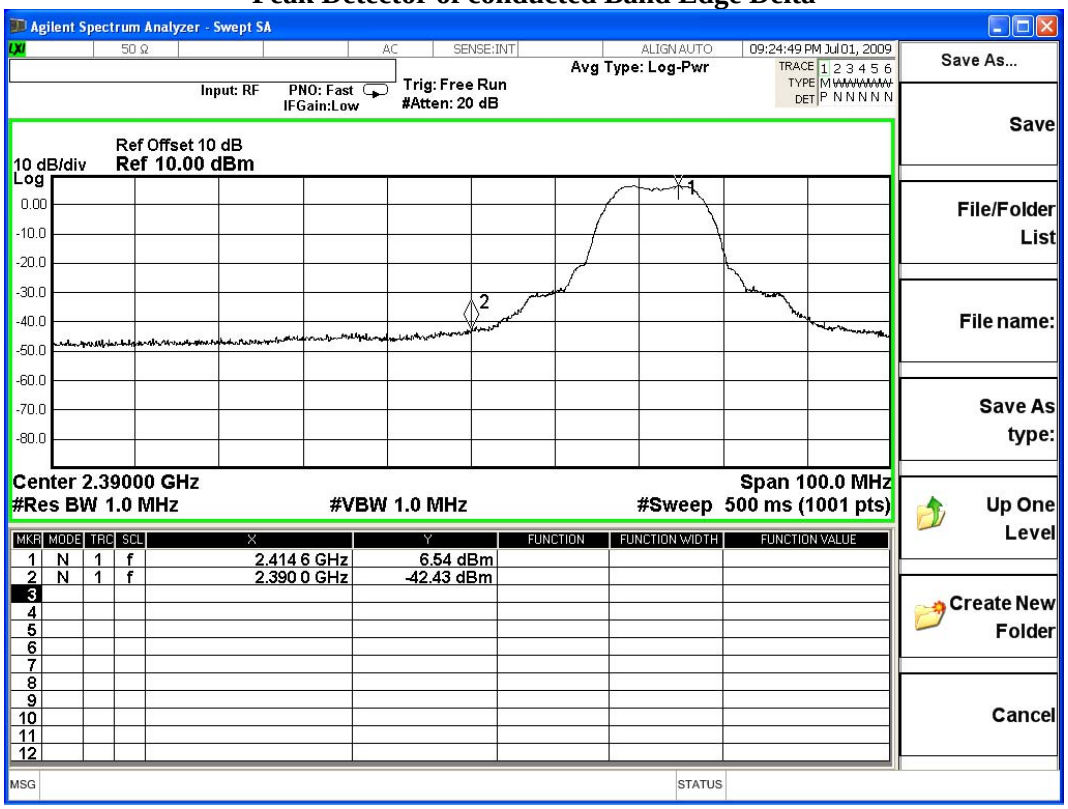
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

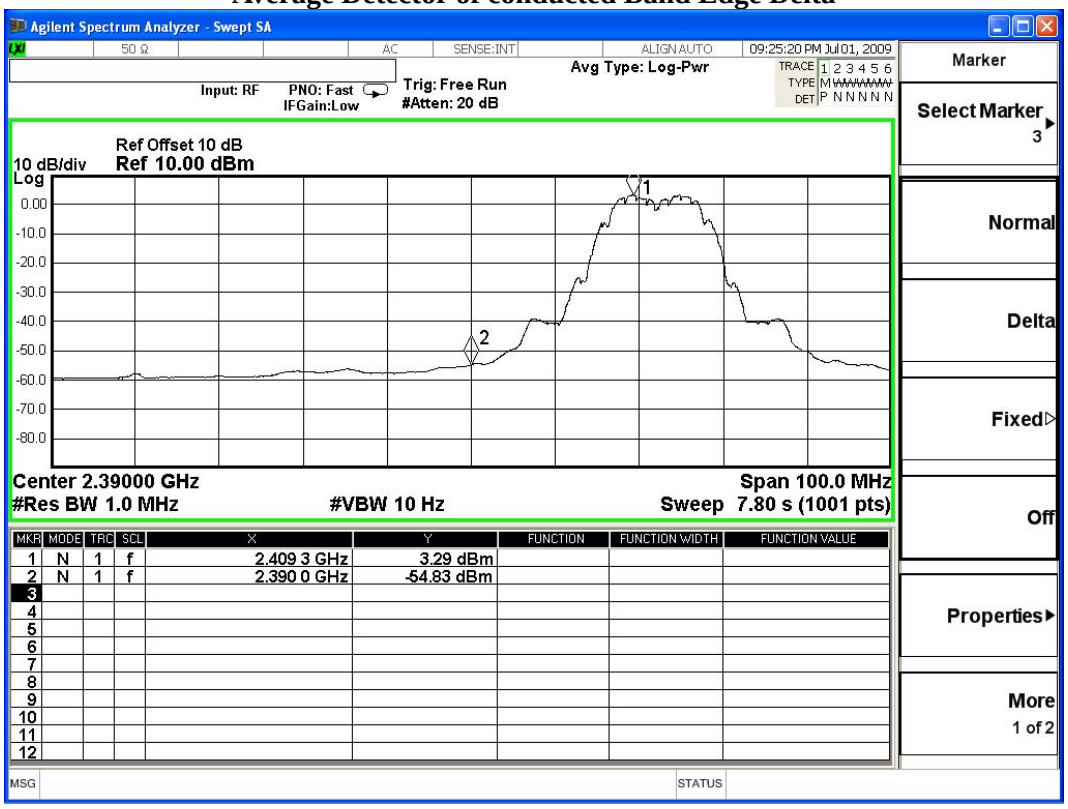
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : ThereGate
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps) -Channel 11

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dB(uV)]	Emission Level [dB(uV/m)]	Detector
Horizontal	2462	0.040	112.836	112.876	Peak
Horizontal	2462	0.040	110.203	110.243	Average
Vertical	2462	0.040	102.148	102.188	Peak
Vertical	2462	0.040	99.282	99.322	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	2485.5	112.876	49.3	63.576	Peak
Horizontal	2483.5	110.243	58.62	51.623	Average
Vertical	2485.5	102.188	49.3	52.888	Peak
Vertical	2483.5	99.322	58.62	40.702	Average

Note:

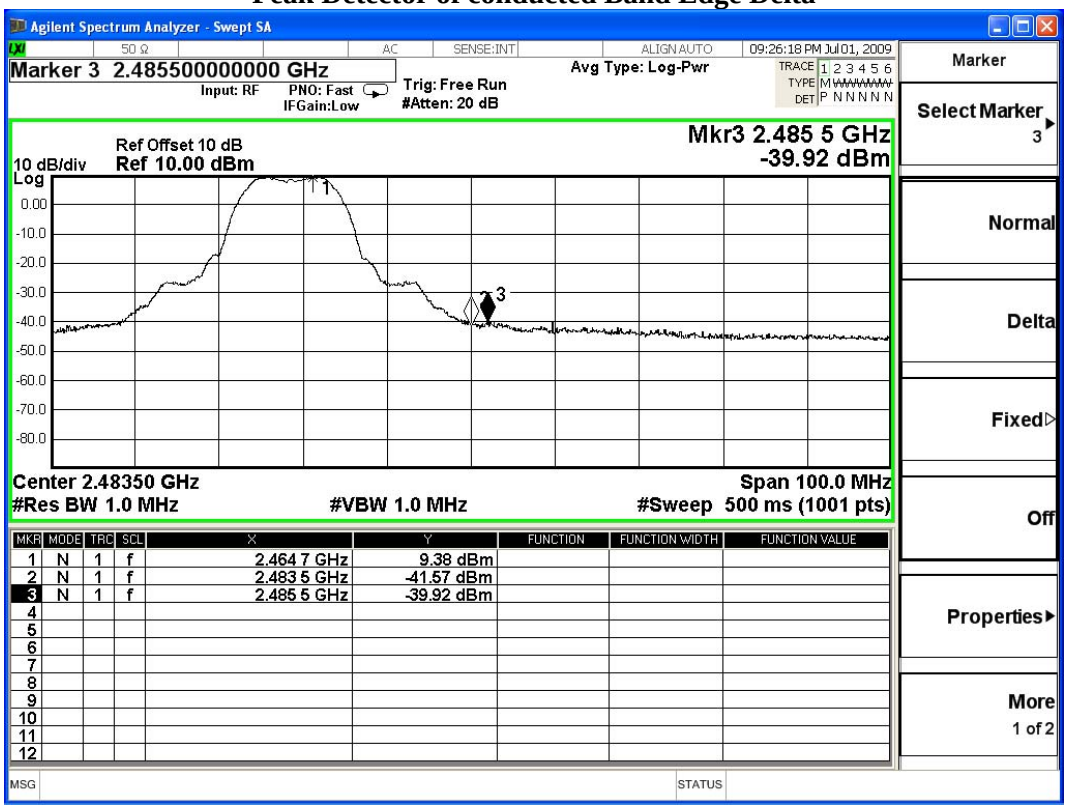
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

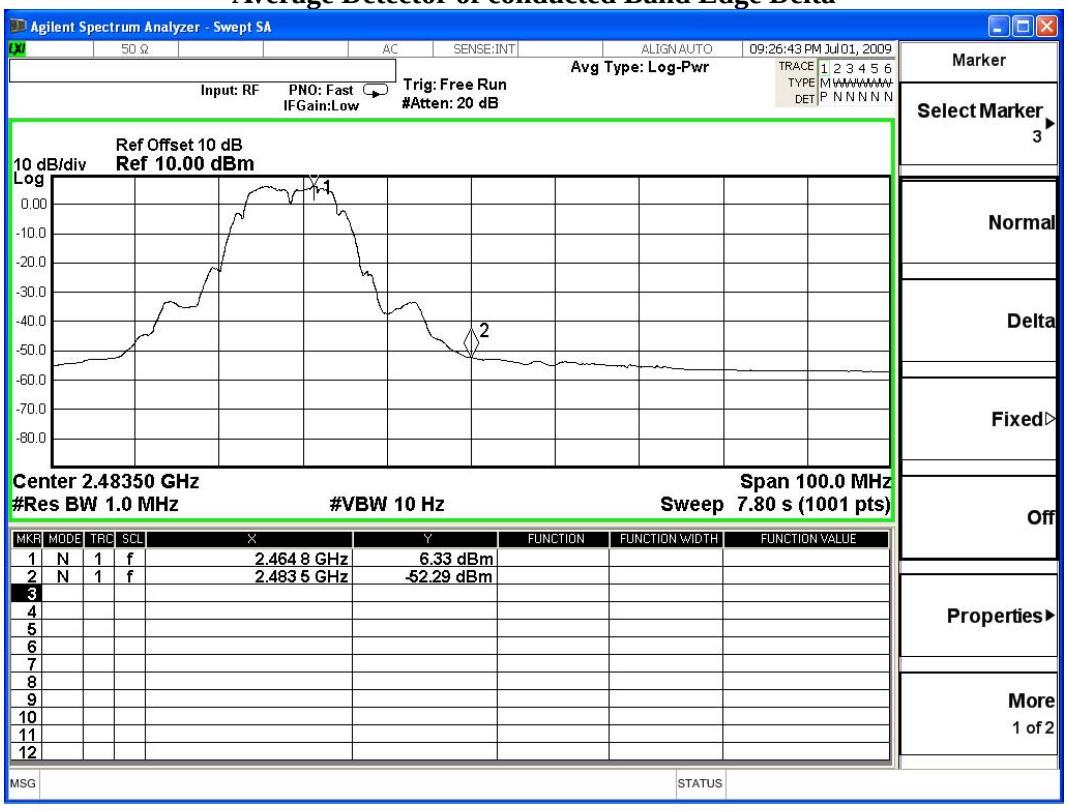
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : ThereGate
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (802.11g 6Mbps) -Channel 1

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	-0.175	112.056	111.881	Peak
Horizontal	2412	-0.175	99.968	99.793	Average
Vertical	2412	-0.175	101.894	101.719	Peak
Vertical	2412	-0.175	90.951	90.776	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	2389.5	111.881	39.35	72.531	Peak
Horizontal	2390.0	99.793	48.94	50.853	Average
Vertical	2389.5	101.719	39.35	62.369	Peak
Vertical	2390.0	90.776	48.94	41.836	Average

Note:

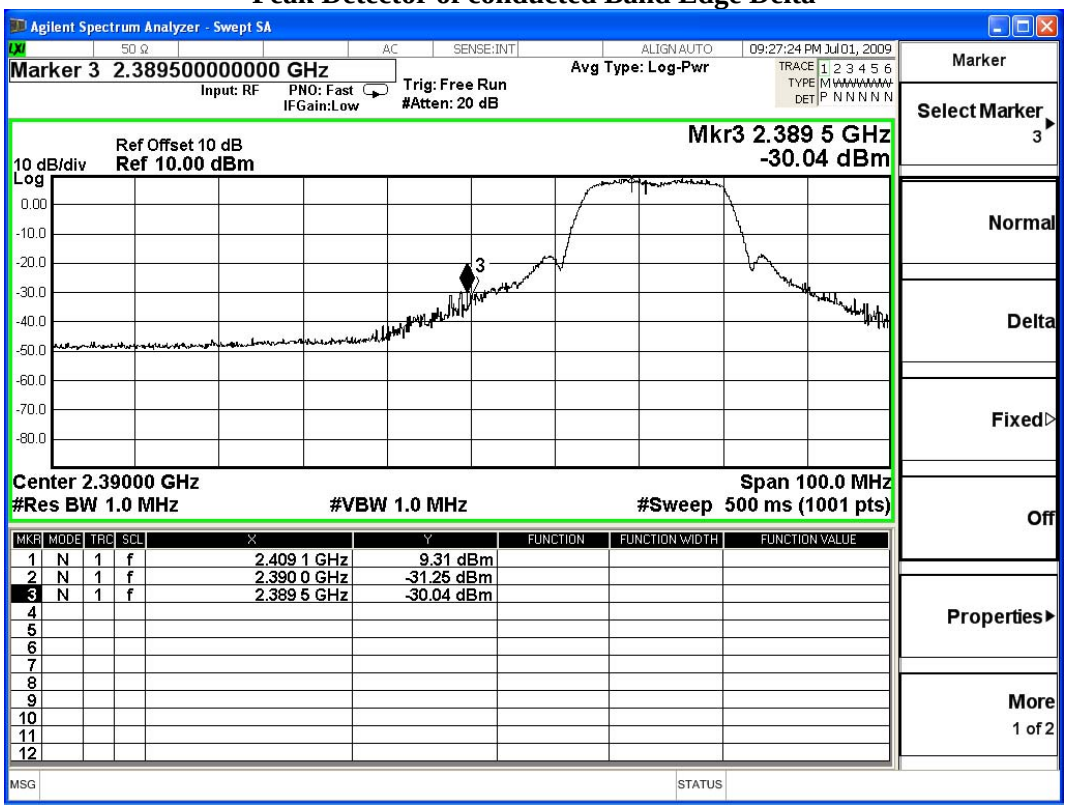
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

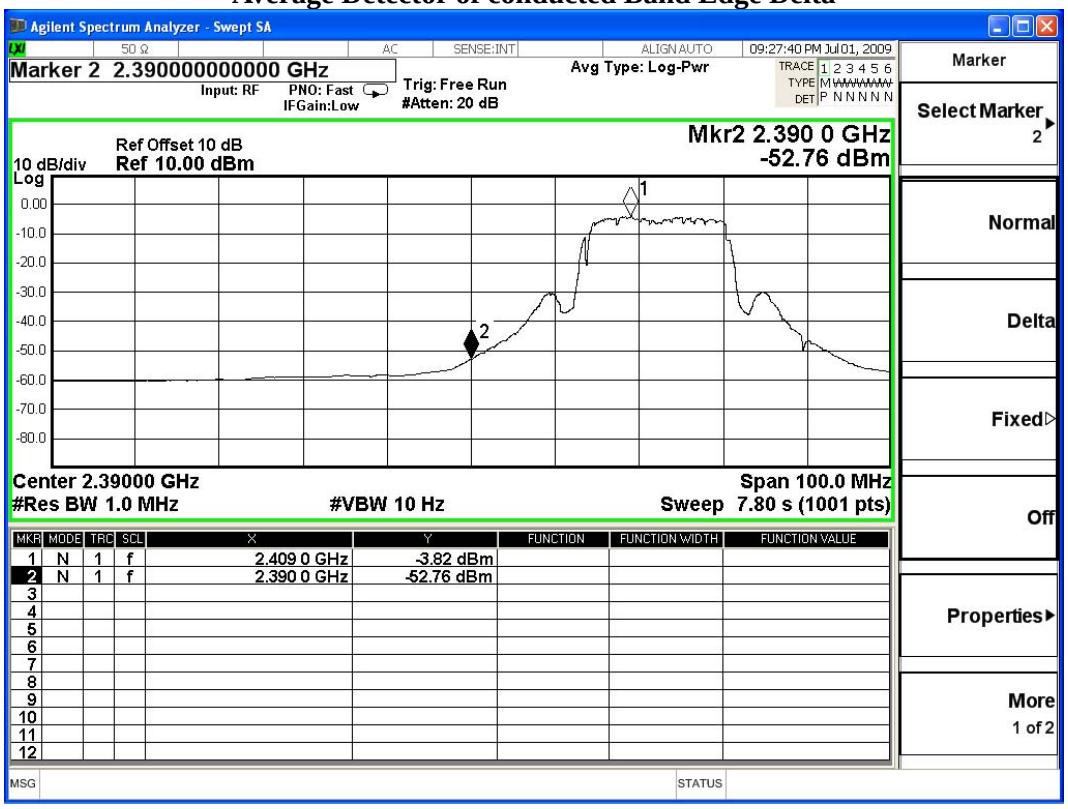
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : ThereGate
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (802.11g 6Mbps) -Channel 11

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Reading Level [dB(uV)]	Correction Factor [dB/m]	Emission Level [dB(uV/m)]	Detector
Horizontal	2462	0.040	110.694	110.734	Peak
Horizontal	2462	0.040	100.441	100.481	Average
Vertical	2462	0.040	103.626	103.666	Peak
Vertical	2462	0.040	91.504	91.544	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	2484.5	110.734	41.75	68.948	Peak
Horizontal	2483.5	100.481	48.41	52.071	Average
Vertical	2484.5	103.666	41.75	61.916	Peak
Vertical	2483.5	91.544	48.41	43.134	Average

Note:

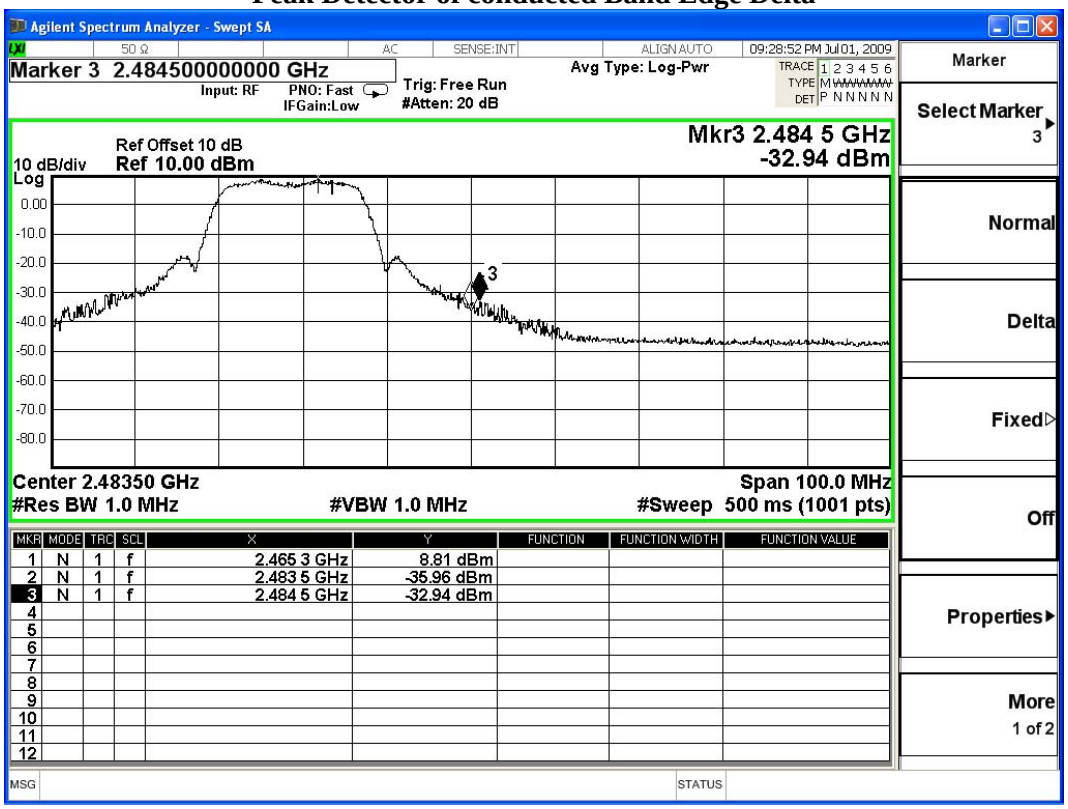
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

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