

FC

Test Report

Product Name	Notebook PC
Model No.	TAICHI31
FCC ID.	MSQTAICHI31

Applicant	ASUSTeK COMPUTER INC.
Address	4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

Date of Receipt	Oct. 02, 2012
Issued Date	Nov. 13, 2012
Report No.	12A070R-RFUSP43V01
Report Version	V1.0



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

Test Report Certification

Issued Date: Nov. 13, 2012

Report No.: 12A070R-RFUSP43V01



Product Name	Notebook PC
Applicant	ASUSTeK COMPUTER INC.
Address	4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.
Manufacturer	1. PEGATRON CORPORATION Taoyuan Mfg 2. Protek (Shanghai) Limited. 3. Tech-Com(Shanghai) Computer Co. Ltd. 4. Tech-Front (Chongqing) Computer Co.,Ltd. 5. Compal Information Technology (Kunshan) Co., Ltd 6. Digitek (Chongqing) Limited
Model No.	TAICHI31
FCC ID.	MSQTAICHI31
EUT Rated Voltage	19Vdc, 2.37A
EUT Test Voltage	AC 120V/60Hz
Trade Name	ASUS
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2010 ANSI C63.4: 2003
Test Result	Complied

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Documented By : 
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Approved By : 
(Manager / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Notebook PC
Trade Name	ASUS
Model No.	TAICHI31
FCC ID.	MSQTAICHI31
Frequency Range	2402 – 2480MHz
Channel Number	V3.0+HS, V2.1+EDR: 79CH V4.0: 40CH
Type of Modulation	V3.0+HS, V2.1+EDR: GFSK(1Mbps) / π / 4DQPSK(2Mbps) / 8DPSK(3Mbps) V4.0: GFSK (1Mbps)
Antenna Type	PIFA
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”
USB to D-SUB Adapter	1 set
USB to LAN Adapter	1 set
Power Adapter	MFR: Delta (ASUS), M/N: ADP-45AW A Input: AC 100-240V~1.2A, 50-60Hz Output: DC 19V, 2.37A Cable Out: Non-Shielded, 2.5m
Battery	ASUS, C41-TAICHI31 (+14.8V, 3500mAh, 51Wh)
Contain Module	Intel / 6235ANHMW

Antenna List

No.	Manufacturer	Model No.	Peak Gain
1	INPAQ	WA-F-LBLB-04-004	2.28dBi For 2.4GHz

Note:

- The antenna of EUT is conform to FCC 15.203

Center Frequency of Each Channel: (For V3.0+HS, V2.1+EDR)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00:	2402 MHz	Channel 20:	2422 MHz	Channel 40:	2442 MHz	Channel 60:	2462 MHz
Channel 01:	2403 MHz	Channel 21:	2423 MHz	Channel 41:	2443 MHz	Channel 61:	2463 MHz
Channel 02:	2404 MHz	Channel 22:	2424 MHz	Channel 42:	2444 MHz	Channel 62:	2464 MHz
Channel 03:	2405 MHz	Channel 23:	2425 MHz	Channel 43:	2445 MHz	Channel 63:	2465 MHz
Channel 04:	2406 MHz	Channel 24:	2426 MHz	Channel 44:	2446 MHz	Channel 64:	2466 MHz
Channel 05:	2407 MHz	Channel 25:	2427 MHz	Channel 45:	2447 MHz	Channel 65:	2467 MHz
Channel 06:	2408 MHz	Channel 26:	2428 MHz	Channel 46:	2448 MHz	Channel 66:	2468 MHz
Channel 07:	2409 MHz	Channel 27:	2429 MHz	Channel 47:	2449 MHz	Channel 67:	2469 MHz
Channel 08:	2410 MHz	Channel 28:	2430 MHz	Channel 48:	2450 MHz	Channel 68:	2470 MHz
Channel 09:	2411 MHz	Channel 29:	2431 MHz	Channel 49:	2451 MHz	Channel 69:	2471 MHz
Channel 10:	2412 MHz	Channel 30:	2432 MHz	Channel 50:	2452 MHz	Channel 70:	2472 MHz
Channel 11:	2413 MHz	Channel 31:	2433 MHz	Channel 51:	2453 MHz	Channel 71:	2473 MHz
Channel 12:	2414 MHz	Channel 32:	2434 MHz	Channel 52:	2454 MHz	Channel 72:	2474 MHz
Channel 13:	2415 MHz	Channel 33:	2435 MHz	Channel 53:	2455 MHz	Channel 73:	2475 MHz
Channel 14:	2416 MHz	Channel 34:	2436 MHz	Channel 54:	2456 MHz	Channel 74:	2476 MHz
Channel 15:	2417 MHz	Channel 35:	2437 MHz	Channel 55:	2457 MHz	Channel 75:	2477 MHz
Channel 16:	2418 MHz	Channel 36:	2438 MHz	Channel 56:	2458 MHz	Channel 76:	2478 MHz
Channel 17:	2419 MHz	Channel 37:	2439 MHz	Channel 57:	2459 MHz	Channel 77:	2479 MHz
Channel 18:	2420 MHz	Channel 38:	2440 MHz	Channel 58:	2460 MHz	Channel 78:	2480 MHz
Channel 19:	2421 MHz	Channel 39:	2441 MHz	Channel 59:	2461 MHz		

Center Frequency of Each Channel: (For V4.0)

Channel	Frequency	Channel	Frequency
Channel 00:	2402 MHz	Channel 20:	2442 MHz
Channel 01:	2404 MHz	Channel 21:	2444 MHz
Channel 02:	2406 MHz	Channel 22:	2446 MHz
Channel 03:	2408 MHz	Channel 23:	2448 MHz
Channel 04:	2410 MHz	Channel 24:	2450 MHz
Channel 05:	2412 MHz	Channel 25:	2452 MHz
Channel 06:	2414 MHz	Channel 26:	2454 MHz
Channel 07:	2416 MHz	Channel 27:	2456 MHz
Channel 08:	2418 MHz	Channel 28:	2458 MHz
Channel 09:	2420 MHz	Channel 29:	2460 MHz
Channel 10:	2422 MHz	Channel 30:	2462 MHz
Channel 11:	2424 MHz	Channel 31:	2464 MHz
Channel 12:	2426 MHz	Channel 32:	2466 MHz
Channel 13:	2428 MHz	Channel 33:	2468 MHz
Channel 14:	2430 MHz	Channel 34:	2470 MHz
Channel 15:	2432 MHz	Channel 35:	2472 MHz
Channel 16:	2434 MHz	Channel 36:	2474 MHz
Channel 17:	2436 MHz	Channel 37:	2476 MHz
Channel 18:	2438 MHz	Channel 38:	2478 MHz
Channel 19:	2440 MHz	Channel 39:	2480 MHz

Note:

1. The EUT is a Notebook PC with a built-in WiFi 、Bluetooth transceiver, this report for Bluetooth.
2. These tests were conducted on a sample for the purpose of demonstrating compliance of Bluetooth transmitter with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
5. At result of pretests, EUT support NB mode and PAD mode, only the worst case (NB mode) is shown in the report.

Test Mode	Mode 1: Transmit - 1Mbps (GFSK) Mode 2: Transmit - 3Mbps (8DPSK) Mode 3: Transmit - BLE (GFSK)
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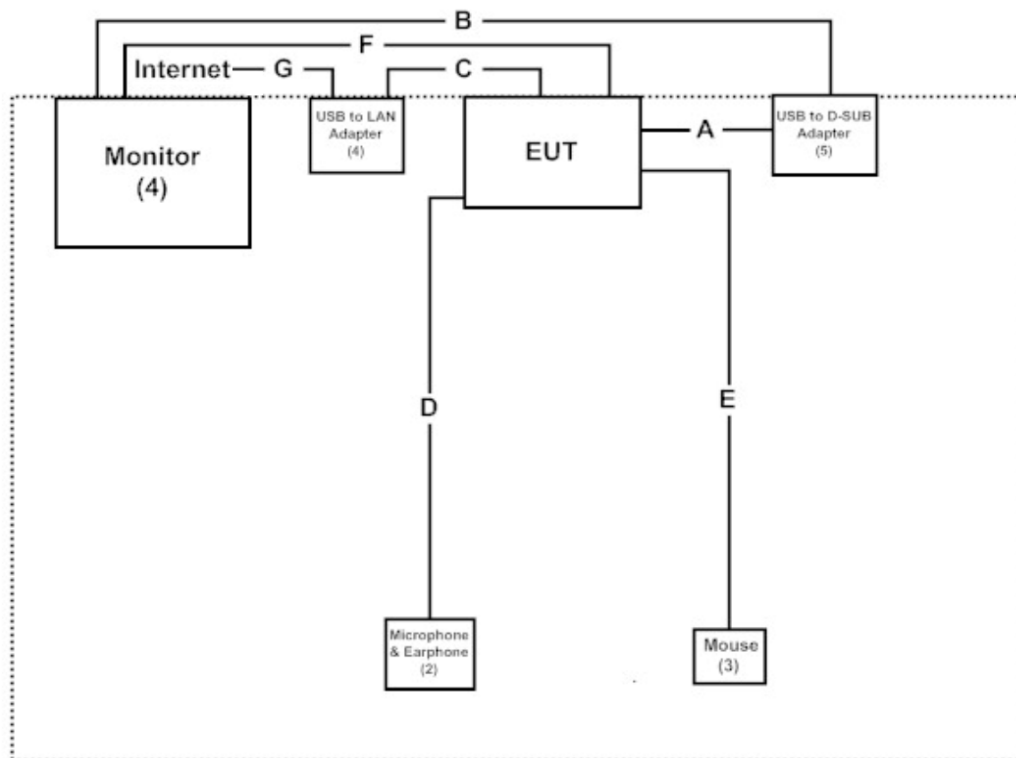
1.3. Tested System Details

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) USB Mouse	DELL	ST2320LF	CN-OM2NN6-72872-22I-CV9V	N/A
(2) Microphone & Earphone	PCHOME	N/A	N/A	N/A
(3) USB Mouse	DELL	MO56UOA	G0Y02ES8	N/A
(4) USB to D-SUB Adapter	ASUS	N/A	N/A	N/A
(5) USB to LAN Adapter	ASUS	N/A	N/A	N/A

Signal Cable Type	Signal cable Description
A USB to D-SUB Cable	Non-Shielded, 0.025m
B D-SUB Cable	Non-Shielded, 1.8m
C USB to LAN Cable	Non-Shielded, 0.08m
D Earphone & Microphone Cable	Non-Shielded, 1.8m
E Mouse Cable	Non-Shielded, 1.8m
F HDMI Cable	Non-Shielded, 1.7m
G RJ45 Cable	Non-Shielded, 2.0m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Execute software “ DRTU v1.5.5-0427 ”on the EUT.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press “OK” to start the continuous Transmit.
- (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	30-65
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
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Registration Number: 92195

Accreditation on NVLAP
NVLAP Lab Code: 200533-0

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FCC Accreditation Number: TW1014

2. Conducted Emission

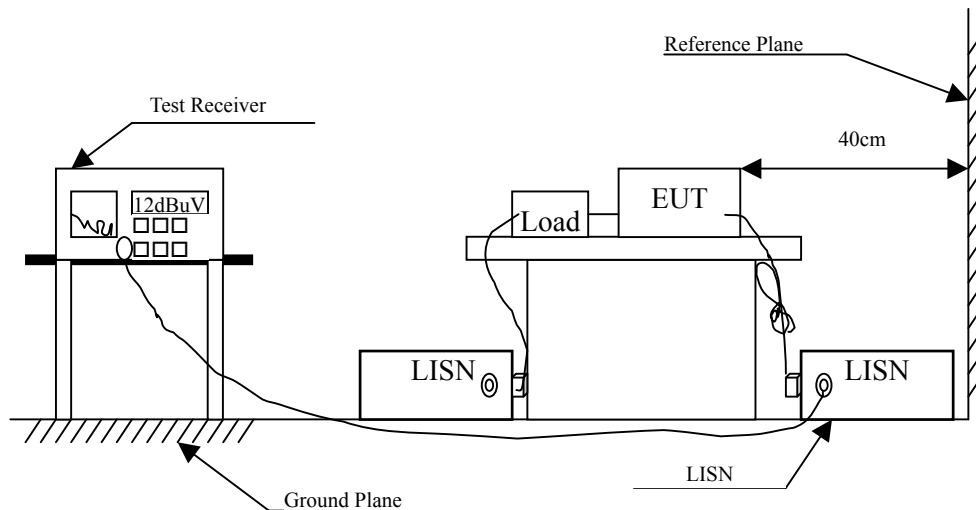
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2012	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2012	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2012	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2012	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2012	
	No.1 Shielded Room				

Note:

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

2.2. Test Setup



2.3. Limits

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

Remarks: In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT and Peripherals 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 refer 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 the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

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

The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : Notebook PC
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 1					
Quasi-Peak					
0.177	9.830	42.820	52.650	-12.579	65.229
0.193	9.830	41.130	50.960	-13.811	64.771
0.252	9.830	32.860	42.690	-20.396	63.086
0.439	9.830	27.750	37.580	-20.163	57.743
1.572	9.840	26.150	35.990	-20.010	56.000
3.572	9.860	21.570	31.430	-24.570	56.000
Average					
0.177	9.830	34.900	44.730	-10.499	55.229
0.193	9.830	19.010	28.840	-25.931	54.771
0.252	9.830	21.280	31.110	-21.976	53.086
0.439	9.830	22.150	31.980	-15.763	47.743
1.572	9.840	13.130	22.970	-23.030	46.000
3.572	9.860	11.970	21.830	-24.170	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 : Notebook PC
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.197	9.830	32.830	42.660	-21.997	64.657
0.263	9.830	24.570	34.400	-28.371	62.771
0.388	9.840	22.540	32.380	-26.820	59.200
1.994	9.860	17.610	27.470	-28.530	56.000
3.959	9.870	19.170	29.040	-26.960	56.000
11.377	10.097	18.250	28.347	-31.653	60.000
Average					
0.197	9.830	9.640	19.470	-35.187	54.657
0.263	9.830	6.590	16.420	-36.351	52.771
0.388	9.840	13.720	23.560	-25.640	49.200
1.994	9.860	11.960	21.820	-24.180	46.000
3.959	9.870	7.910	17.780	-28.220	46.000
11.377	10.097	15.650	25.747	-24.253	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 : Notebook PC
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 3: Transmit - BLE (GFSK) (2440MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.162	9.830	36.760	46.590	-19.067	65.657
0.197	9.830	30.840	40.670	-23.987	64.657
0.244	9.830	25.270	35.100	-28.214	63.314
0.443	9.830	25.690	35.520	-22.109	57.629
1.498	9.836	20.610	30.446	-25.554	56.000
10.408	9.999	15.710	25.709	-34.291	60.000
Average					
0.162	9.830	19.650	29.480	-26.177	55.657
0.197	9.830	6.870	16.700	-37.957	54.657
0.244	9.830	14.100	23.930	-29.384	53.314
0.443	9.830	20.590	30.420	-17.209	47.629
1.498	9.836	16.250	26.086	-19.914	46.000
10.408	9.999	10.080	20.079	-29.921	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 : Notebook PC
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 3: Transmit - BLE (GFSK) (2440MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.181	9.833	40.850	50.683	-14.431	65.114
0.232	9.830	33.440	43.270	-20.387	63.657
0.447	9.840	23.120	32.960	-24.554	57.514
1.404	9.850	19.010	28.860	-27.140	56.000
1.920	9.860	15.060	24.920	-31.080	56.000
10.588	10.072	17.540	27.612	-32.388	60.000
Average					
0.181	9.833	34.360	44.193	-10.921	55.114
0.232	9.830	11.160	20.990	-32.667	53.657
0.447	9.840	21.070	30.910	-16.604	47.514
1.404	9.850	14.260	24.110	-21.890	46.000
1.920	9.860	9.940	19.800	-26.200	46.000
10.588	10.072	11.750	21.822	-28.178	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

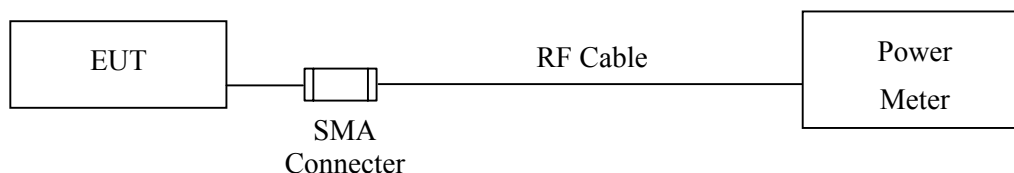
3. Peak Power Output

3.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2012
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2012

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

3.2. Test Setup



3.3. Limit

The maximum peak power shall be less 1Watt.

3.4. Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Peak Power Output

Product : Notebook PC
Test Item : Peak Power Output
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit - 1Mbps (GFSK)

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	4.67	1 Watt= 30 dBm	Pass
Channel 39	2441.00	5.13	1 Watt= 30 dBm	Pass
Channel 78	2480.00	4.96	1 Watt= 30 dBm	Pass

Product : Notebook PC
Test Item : Peak Power Output
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit - 3Mbps (8DPSK)

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	2.92	1 Watt= 30 dBm	Pass
Channel 39	2441.00	3.70	1 Watt= 30 dBm	Pass
Channel 78	2480.00	3.73	1 Watt= 30 dBm	Pass

Product : Notebook PC
Test Item : Peak Power Output
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit - BLE (GFSK)

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	4.83	1 Watt= 30 dBm	Pass
Channel 19	2440.00	5.04	1 Watt= 30 dBm	Pass
Channel 39	2480.00	4.88	1 Watt= 30 dBm	Pass

4. Radiated Emission

4.1. Test Equipment

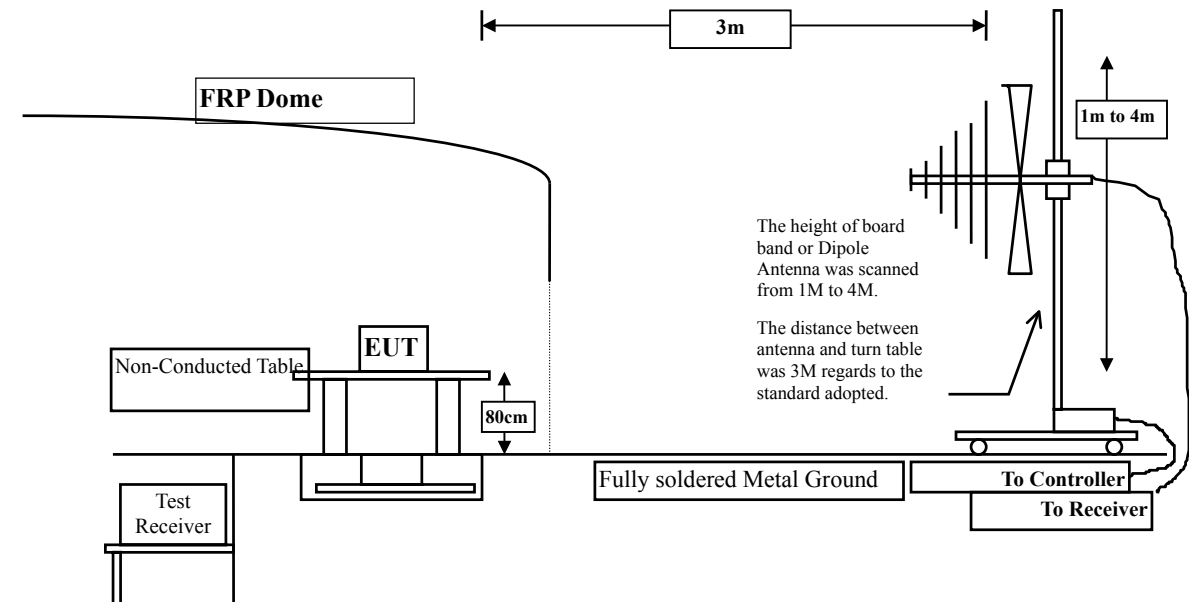
The following test equipments are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2012
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2012
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2012
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2012
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2012
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2012
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2012
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

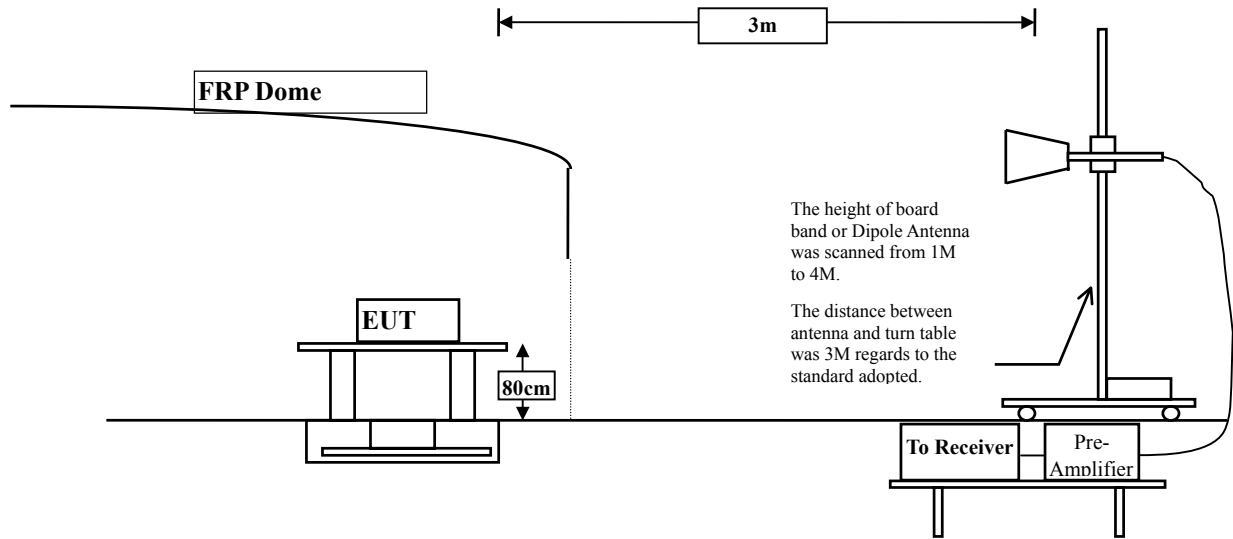
- Note:
1. All equipments are calibrated every one year.
 2. The test instruments marked by "X" are used to measure the final test results.

4.2. Test Setup

Below 1GHz



Above 1GHz



4.3. Limits

➤ General Radiated Emission 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 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:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 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.

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 on the Final Measurement.

The measurement frequency range from 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 : Notebook PC
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)(2402MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4804.000	3.327	37.940	41.267	-32.733	74.000
7206.000	10.136	37.500	47.636	-26.364	74.000
9608.000	13.706	36.390	50.096	-23.904	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4804.000	6.638	39.940	46.577	-27.423	74.000
7206.000	11.005	37.600	48.605	-25.395	74.000
9608.000	14.103	36.140	50.243	-23.757	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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Notebook PC
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)(2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4882.000	3.001	37.080	40.081	-33.919	74.000
7323.000	11.846	35.540	47.387	-26.613	74.000
9764.000	12.563	36.970	49.533	-24.467	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4882.000	5.713	39.950	45.664	-28.336	74.000
7323.000	12.727	35.230	47.958	-26.042	74.000
9764.000	13.028	37.290	50.318	-23.682	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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Notebook PC
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)(2480MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4960.000	2.760	37.690	40.450	-33.550	74.000
7440.000	12.567	35.600	48.166	-25.834	74.000
9920.000	13.456	36.280	49.736	-24.264	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4960.000	5.557	37.550	43.107	-30.893	74.000
7440.000	13.426	35.010	48.435	-25.565	74.000
9920.000	13.958	36.480	50.438	-23.562	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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Notebook PC
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK)(2402MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4804.000	3.327	38.950	42.277	-31.723	74.000
7206.000	10.136	36.300	46.436	-27.564	74.000
9608.000	13.706	36.500	50.206	-23.794	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4804.000	6.638	37.900	44.537	-29.463	74.000
7206.000	11.005	36.010	47.015	-26.985	74.000
9608.000	14.103	35.690	49.793	-24.207	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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Notebook PC
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4882.000	3.001	38.840	41.841	-32.159	74.000
7323.000	11.846	35.890	47.737	-26.263	74.000
9764.000	12.563	36.880	49.443	-24.557	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4882.000	5.713	36.600	42.314	-31.686	74.000
7323.000	12.727	36.110	48.838	-25.162	74.000
9764.000	13.028	36.830	49.858	-24.142	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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Notebook PC
Test Item : Harmonic Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2480MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4960.000	2.760	37.990	40.750	-33.250	74.000
7440.000	12.567	35.740	48.306	-25.694	74.000
9920.000	13.456	36.710	50.166	-23.834	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4960.000	5.557	37.130	42.687	-31.313	74.000
7440.000	13.426	35.970	49.395	-24.605	74.000
9920.000	13.958	36.720	50.678	-23.322	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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Notebook PC
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - BLE (GFSK)(2402MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4804.000	3.327	38.090	41.417	-32.583	74.000
7206.000	10.136	36.160	46.296	-27.704	74.000
9608.000	13.706	36.080	49.786	-24.214	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4804.000	6.638	37.690	44.327	-29.673	74.000
7206.000	11.005	36.250	47.255	-26.745	74.000
9608.000	14.103	36.150	50.253	-23.747	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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Notebook PC
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - BLE (GFSK) (2440MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4880.000	3.010	37.160	40.170	-33.830	74.000
7320.000	11.833	35.650	47.484	-26.516	74.000
9760.000	12.580	36.360	48.941	-25.059	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4880.000	5.738	37.800	43.538	-30.462	74.000
7320.000	12.703	35.640	48.343	-25.657	74.000
9760.000	13.052	36.140	49.192	-24.808	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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Notebook PC
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - BLE (GFSK) (2480MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4960.000	2.760	37.720	40.480	-33.520	74.000
7440.000	12.567	34.690	47.256	-26.744	74.000
9920.000	13.456	36.660	50.116	-23.884	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4960.000	5.557	38.690	44.247	-29.753	74.000
7440.000	13.426	34.840	48.265	-25.735	74.000
9920.000	13.958	36.580	50.538	-23.462	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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Notebook PC
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK) (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
260.860	-5.032	43.531	38.499	-7.501	46.000
431.580	-2.099	43.062	40.963	-5.037	46.000
458.740	0.833	38.969	39.802	-6.198	46.000
623.640	1.959	32.746	34.705	-11.295	46.000
745.860	3.308	26.233	29.541	-16.459	46.000
800.180	5.141	27.819	32.960	-13.040	46.000
Vertical					
239.520	-8.581	47.442	38.862	-7.138	46.000
390.840	-3.099	40.427	37.328	-8.672	46.000
458.740	-3.887	40.828	36.941	-9.059	46.000
623.640	-2.631	31.452	28.821	-17.179	46.000
800.180	2.801	25.670	28.471	-17.529	46.000
963.140	7.604	23.446	31.050	-22.950	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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Notebook PC
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
239.520	-6.851	47.951	41.101	-4.899	46.000
456.800	-0.067	39.361	39.294	-6.706	46.000
588.720	3.528	30.167	33.695	-12.305	46.000
720.640	3.511	27.382	30.893	-15.107	46.000
800.180	5.141	28.428	33.569	-12.431	46.000
916.580	6.144	25.188	31.332	-14.668	46.000
Vertical					
239.520	-8.581	47.317	38.737	-7.263	46.000
392.780	-3.536	40.569	37.033	-8.967	46.000
456.800	-4.697	42.174	37.477	-8.523	46.000
623.640	-2.631	31.676	29.045	-16.955	46.000
798.240	2.808	28.214	31.022	-14.978	46.000
965.080	7.932	24.311	32.243	-21.757	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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Notebook PC
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - BLE (GFSK) (2440MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
239.520	-6.851	46.880	40.030	-5.970	46.000
390.840	-1.849	40.857	39.008	-6.992	46.000
503.360	0.138	32.490	32.628	-13.372	46.000
623.640	1.959	31.043	33.002	-12.998	46.000
800.180	5.141	28.710	33.851	-12.149	46.000
906.880	5.848	25.505	31.353	-14.647	46.000
Vertical					
70.740	-6.151	39.470	33.319	-6.681	40.000
239.520	-8.581	48.312	39.732	-6.268	46.000
390.840	-3.099	42.782	39.683	-6.317	46.000
623.640	-2.631	30.259	27.628	-18.372	46.000
800.180	2.801	27.182	29.983	-16.017	46.000
965.080	7.932	26.097	34.029	-19.971	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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

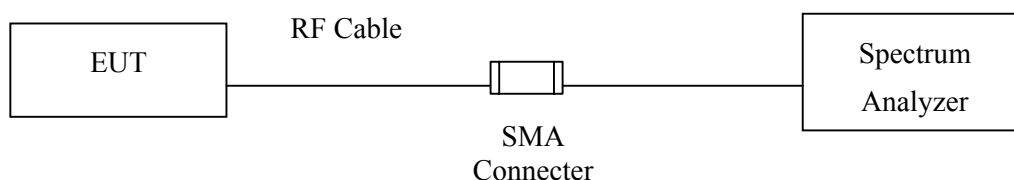
5. RF Antenna Conducted Test

5.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

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

5.2. Test Setup



5.3. Limits

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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 measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

5.4. Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

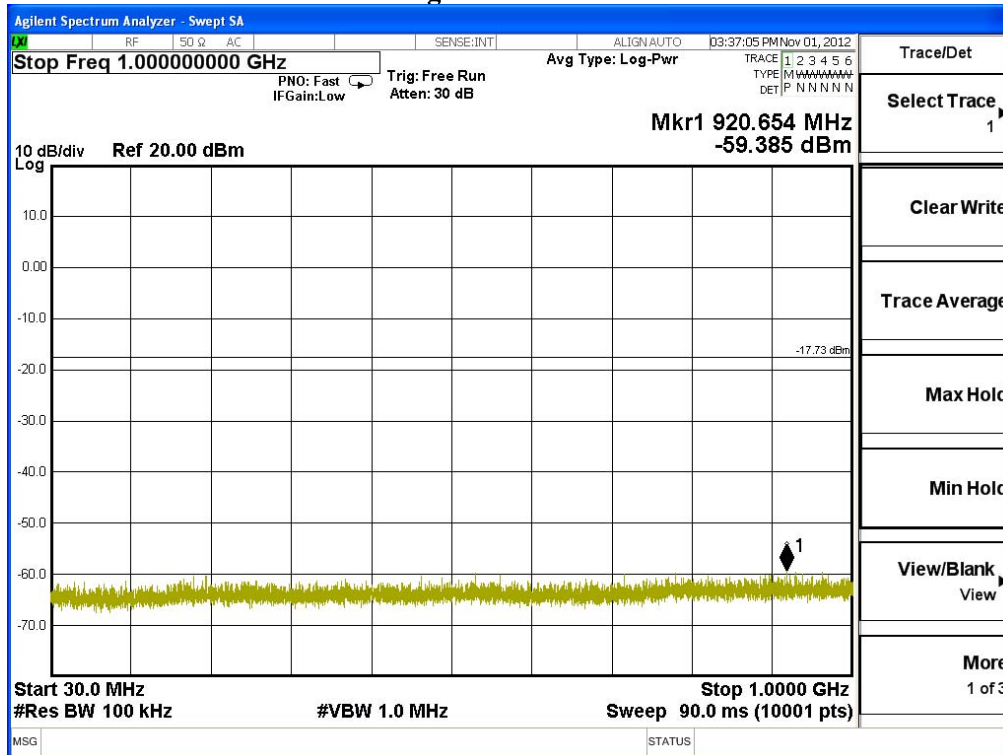
5.5. Uncertainty

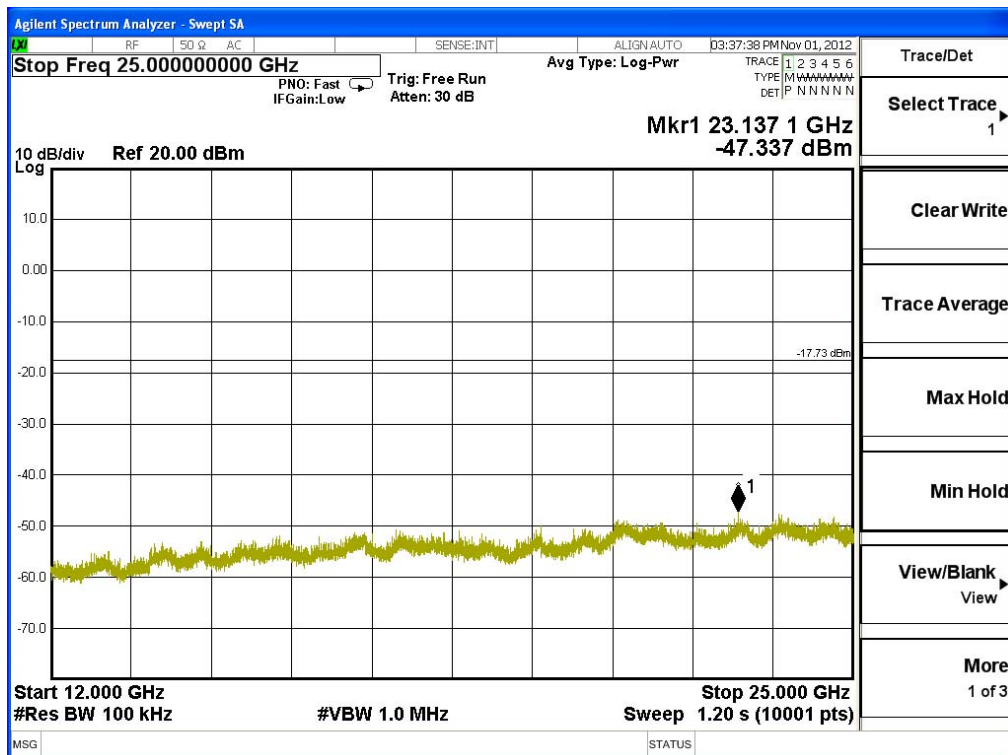
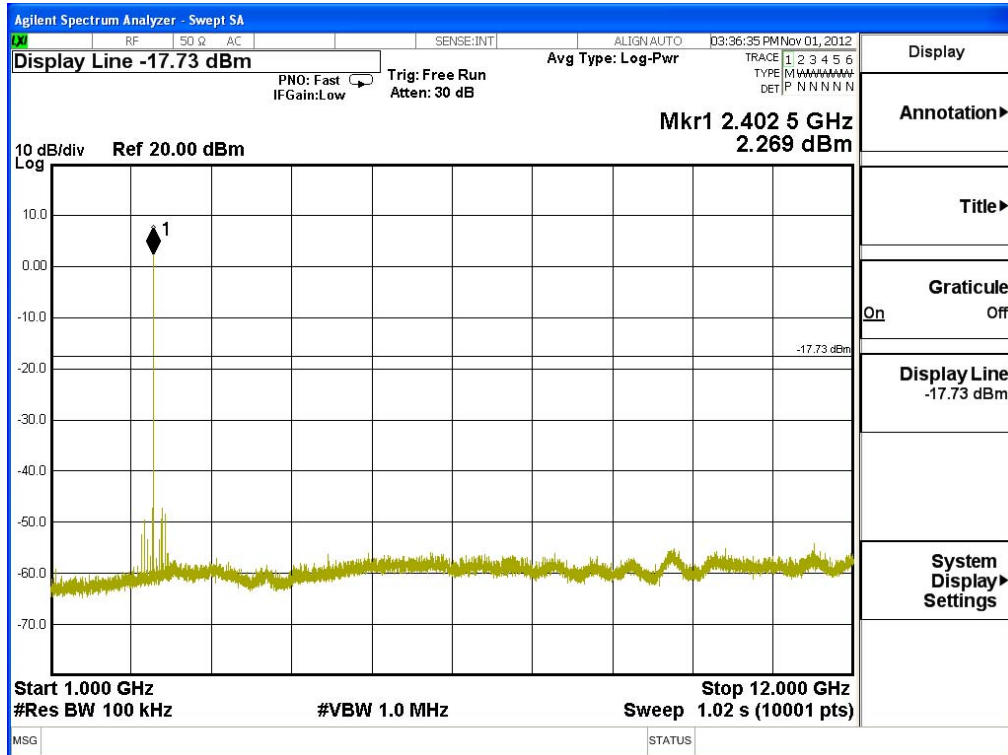
± 150Hz

5.6. Test Result of RF Antenna Conducted Test

Product : Notebook PC
 Test Item : RF Antenna Conducted Test
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)

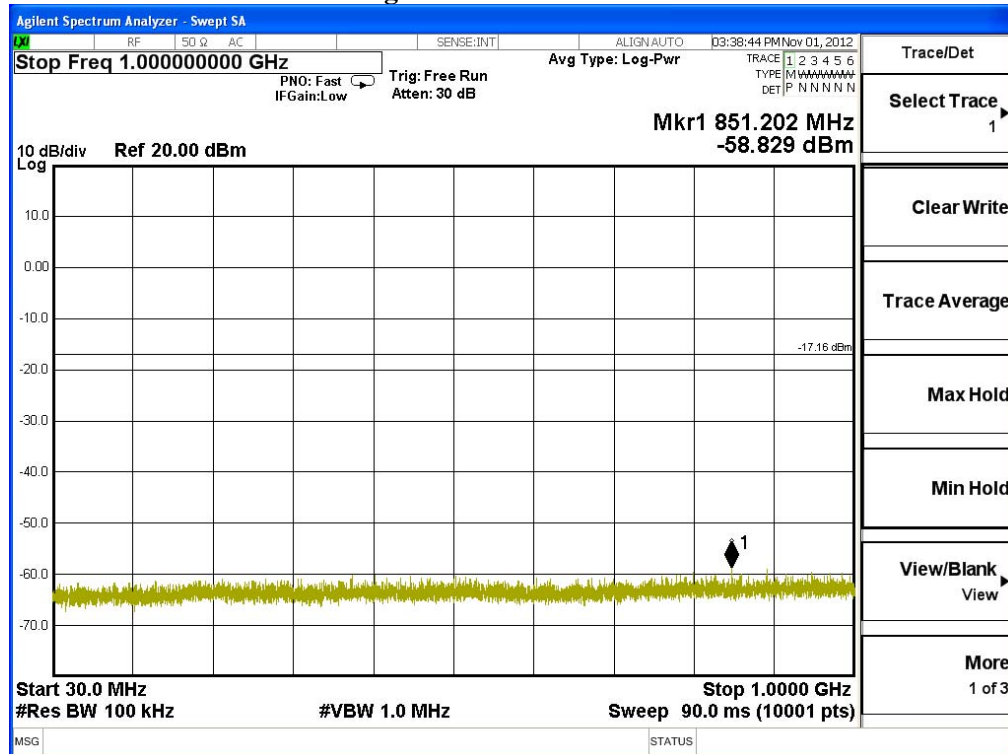
Figure Channel 00:

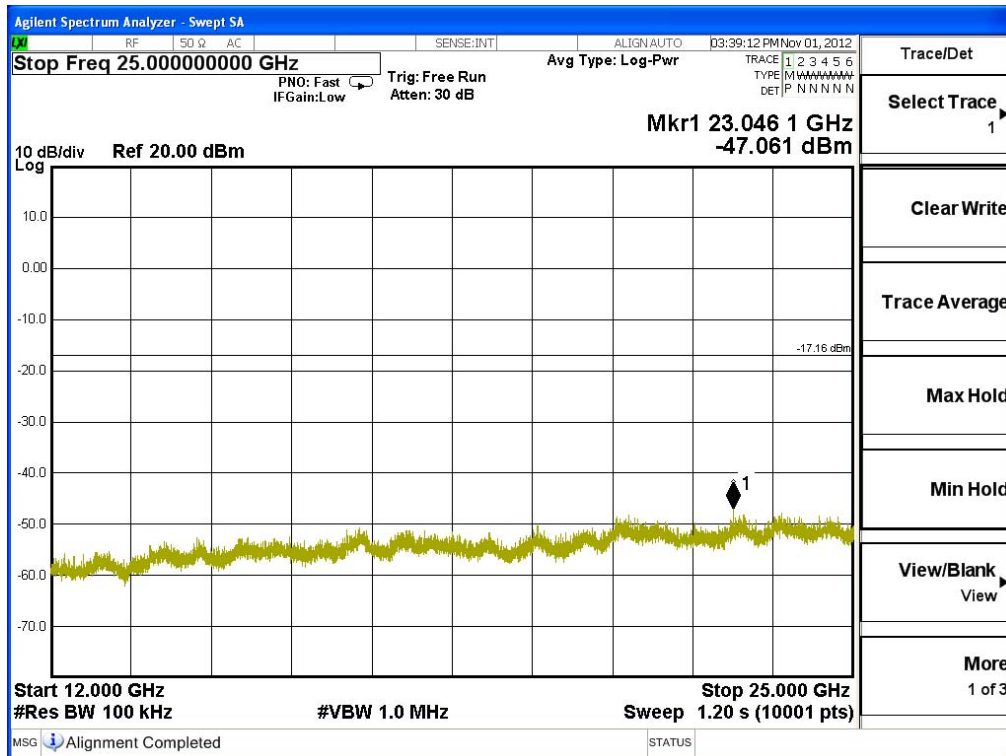
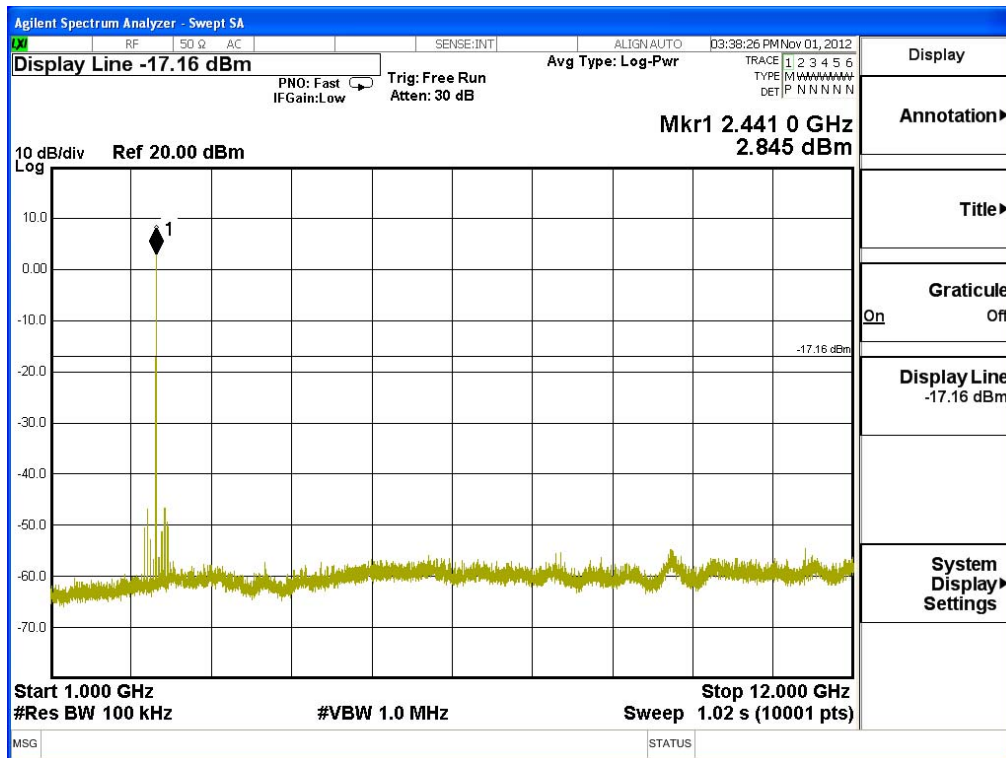




Product : Notebook PC
 Test Item : RF Antenna Conducted Test
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)

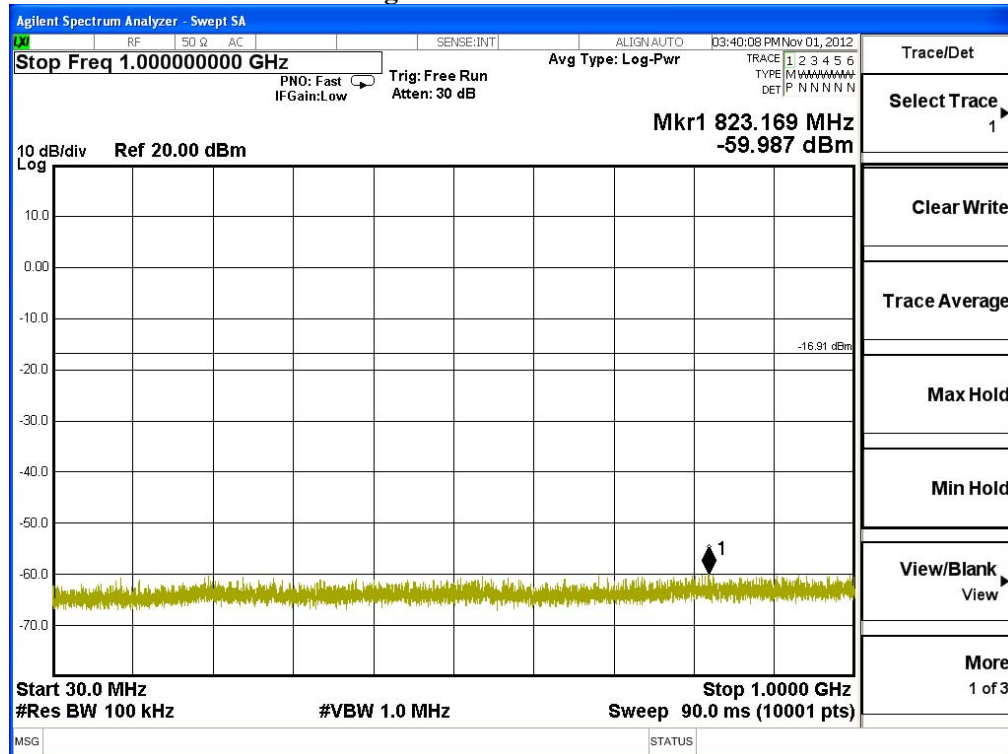
Figure Channel 39:

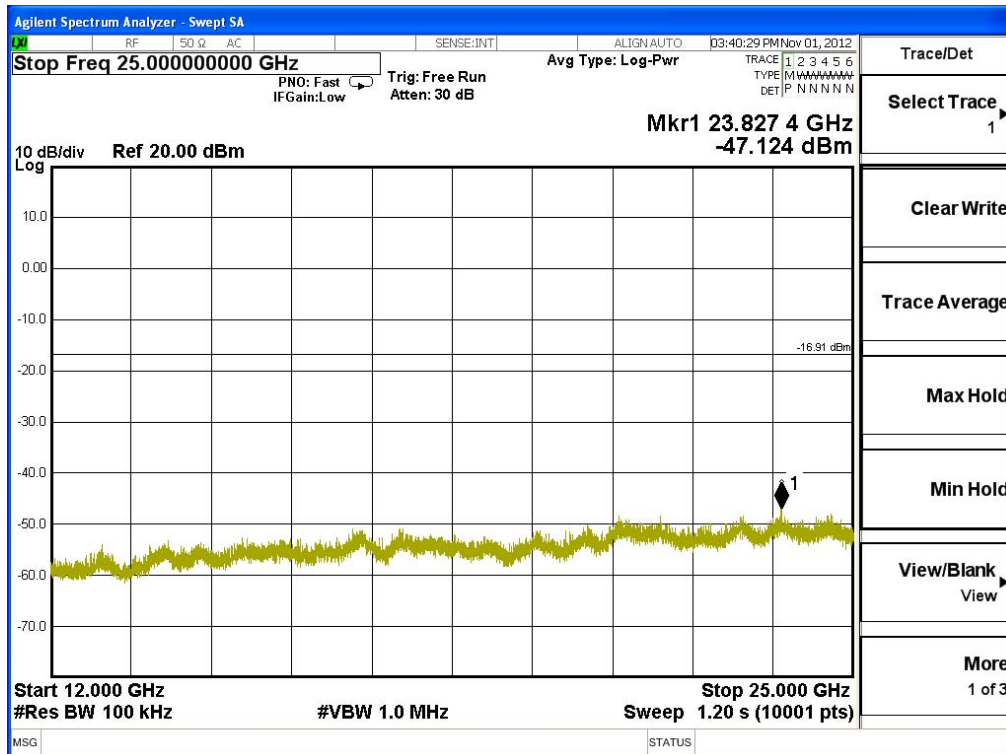
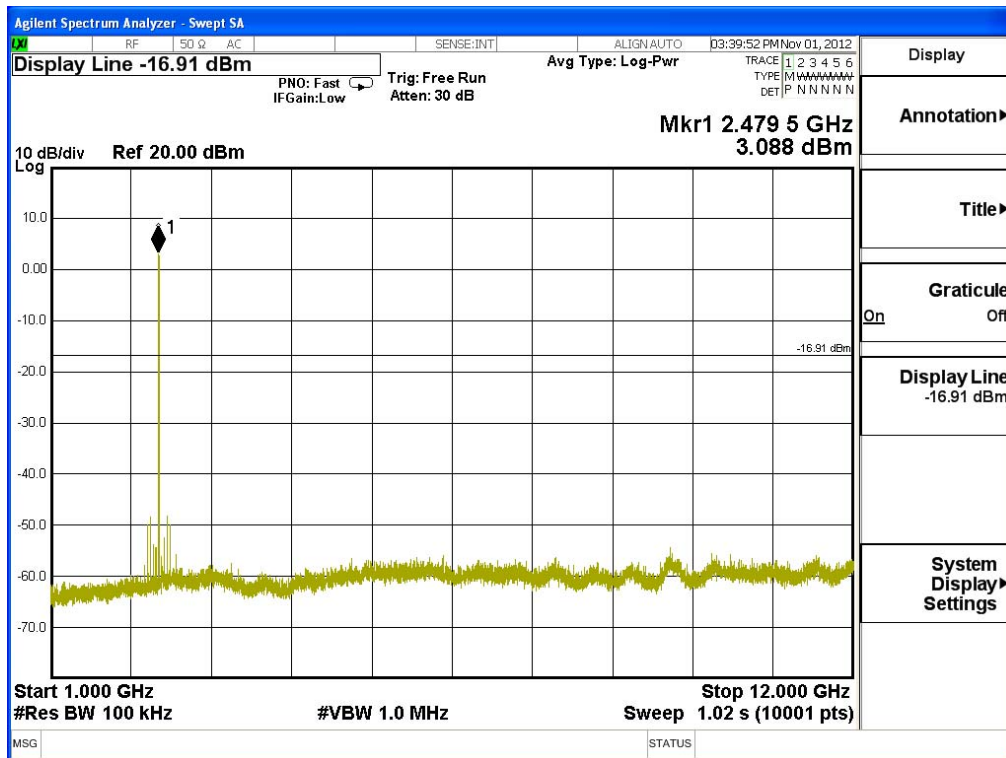




Product : Notebook PC
 Test Item : RF Antenna Conducted Test
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)

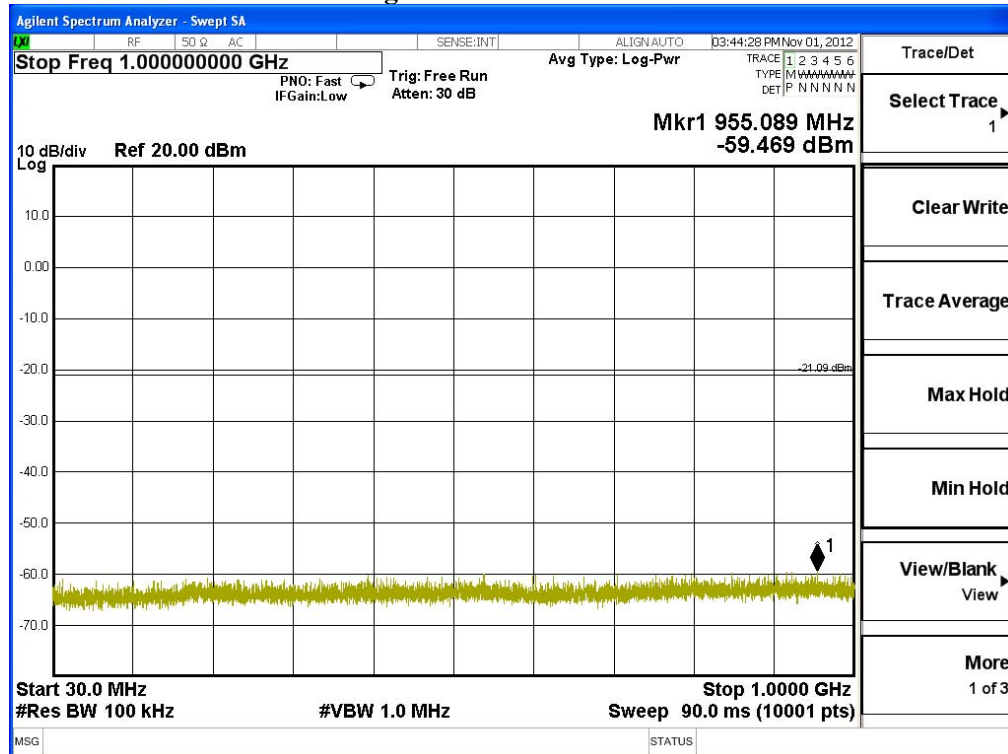
Figure Channel 78:

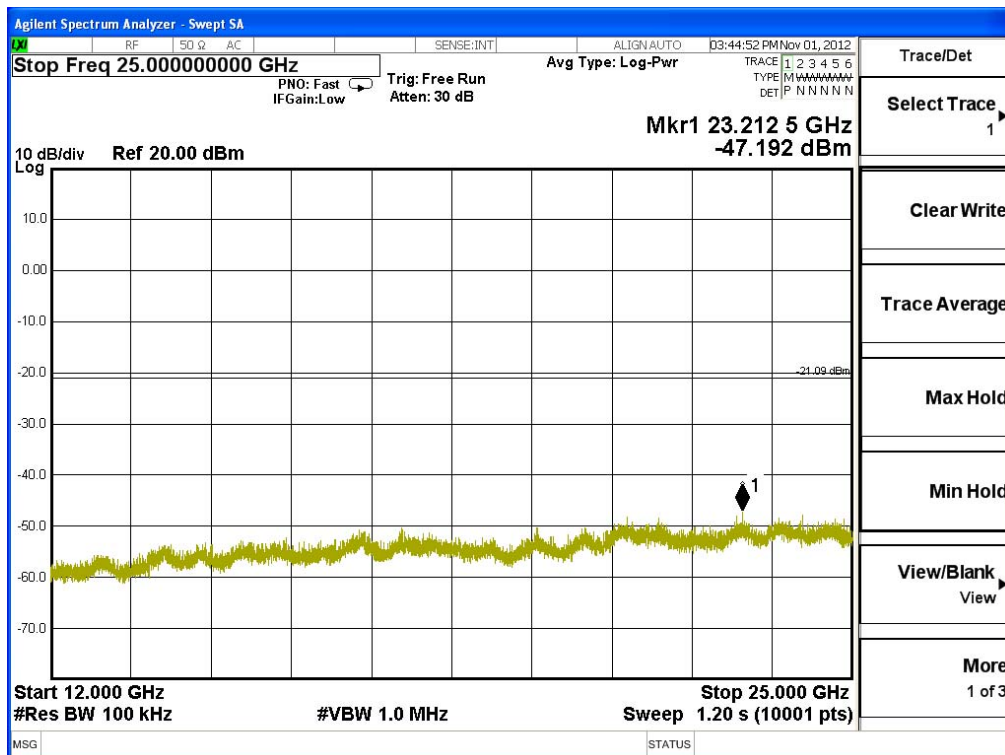
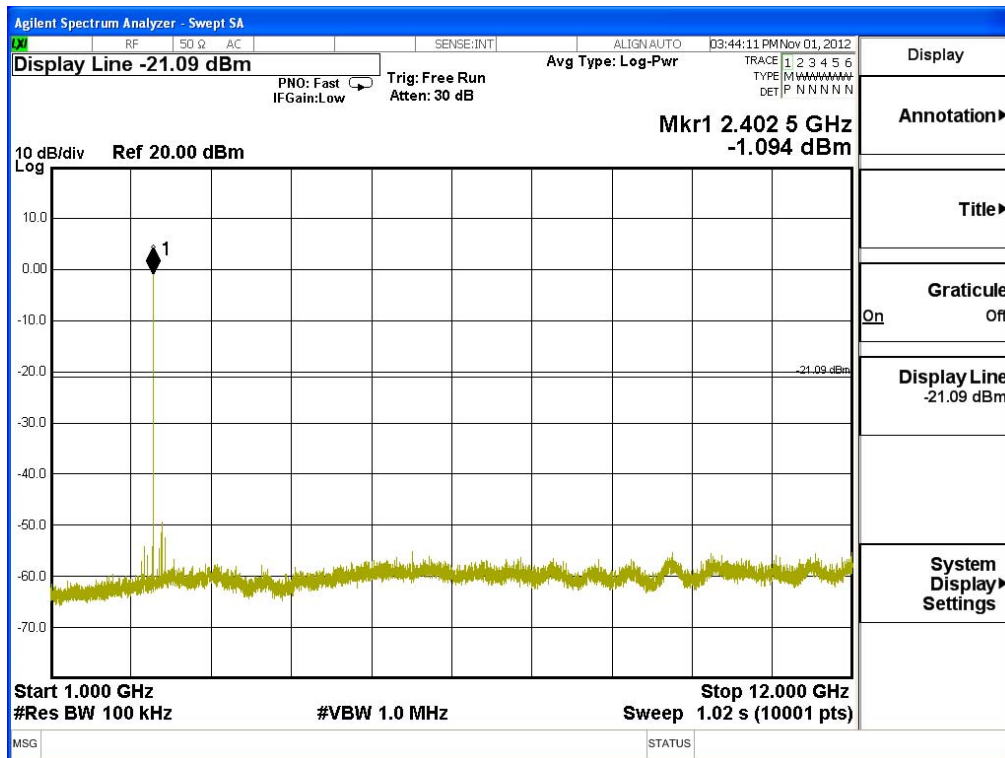




Product : Notebook PC
 Test Item : RF Antenna Conducted Test
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK)

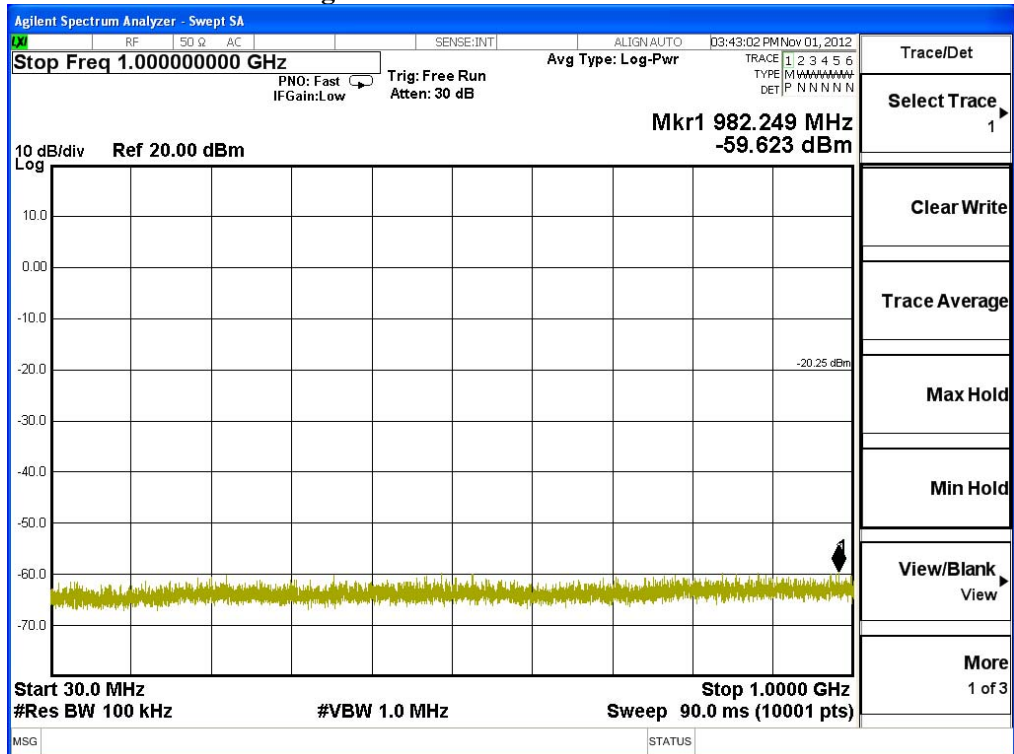
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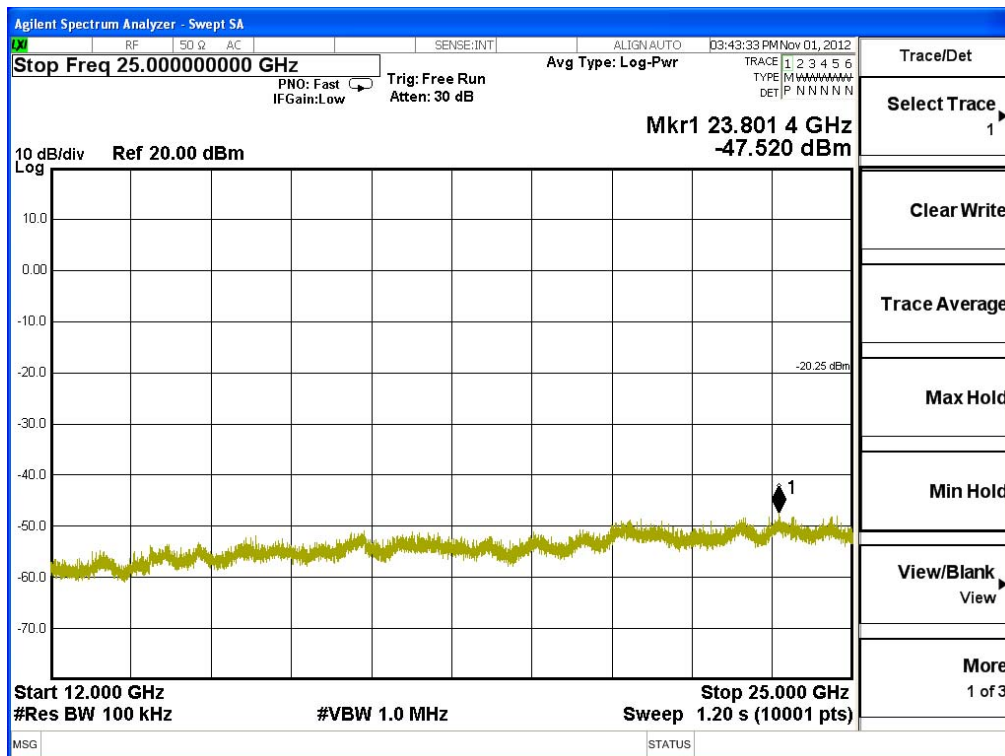
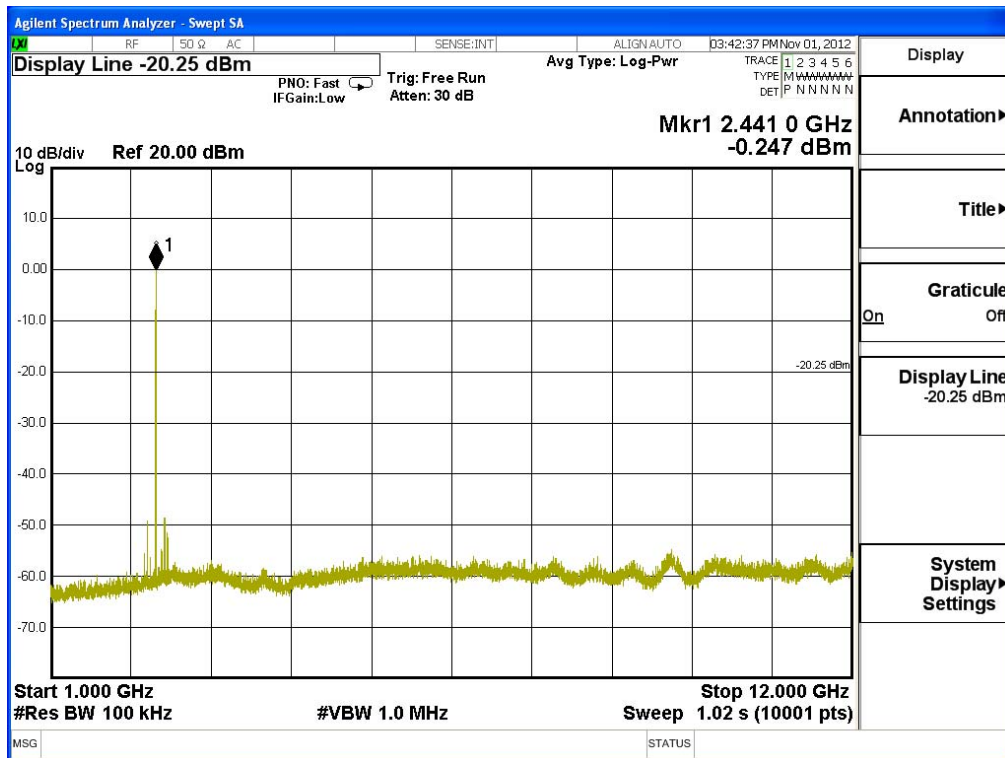




Product : Notebook PC
 Test Item : RF Antenna Conducted Test
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK)

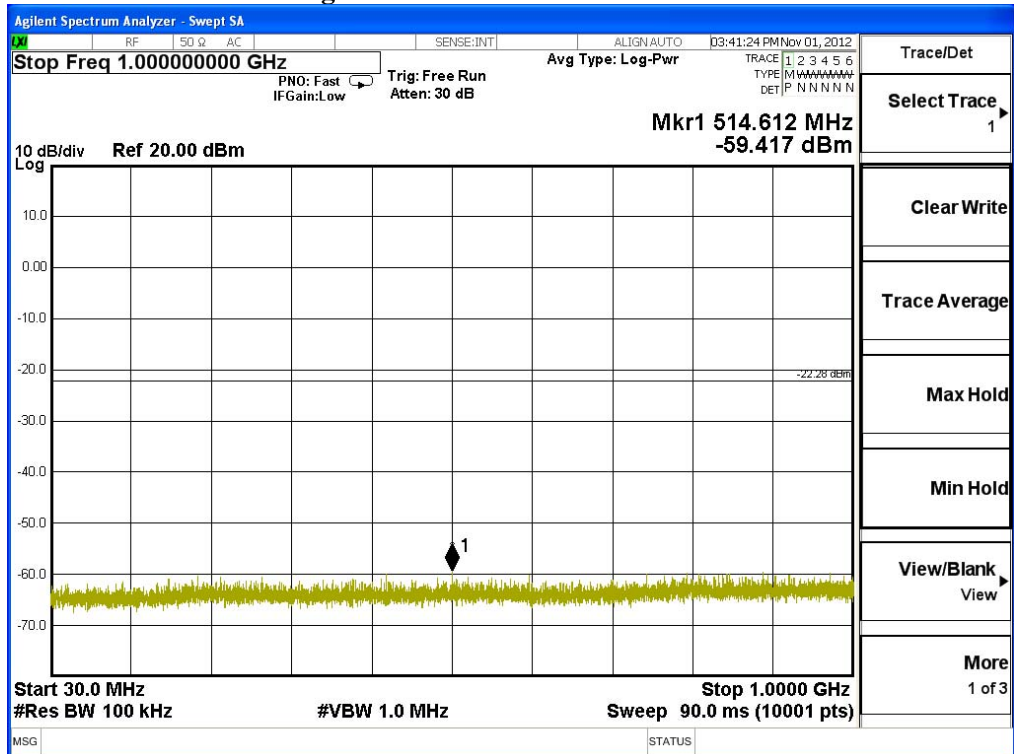
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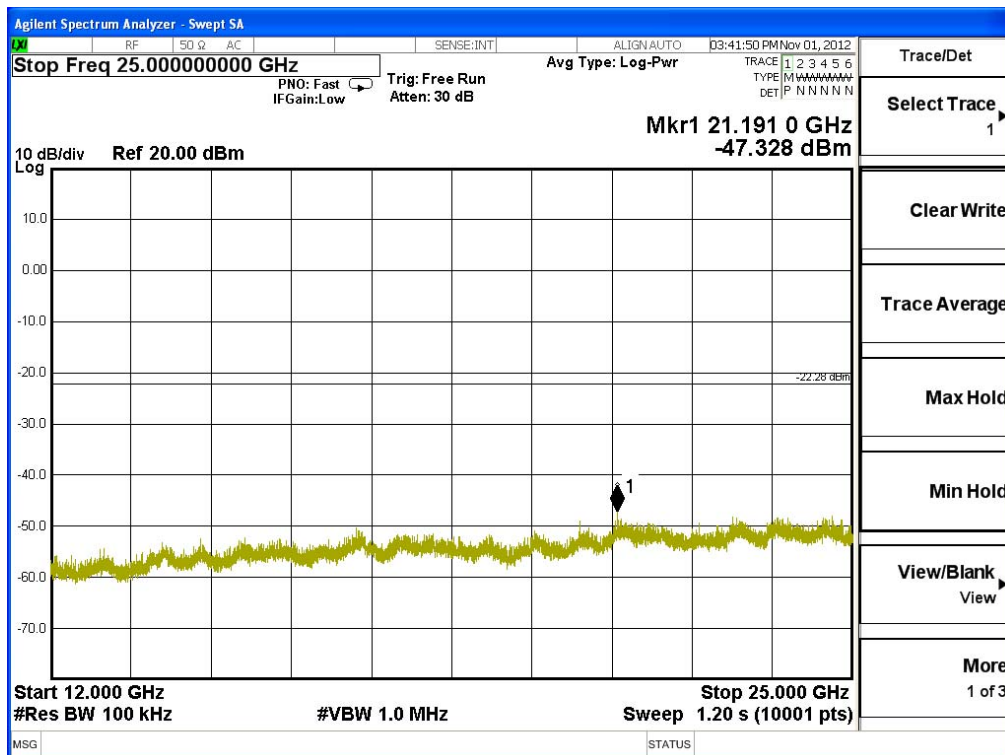
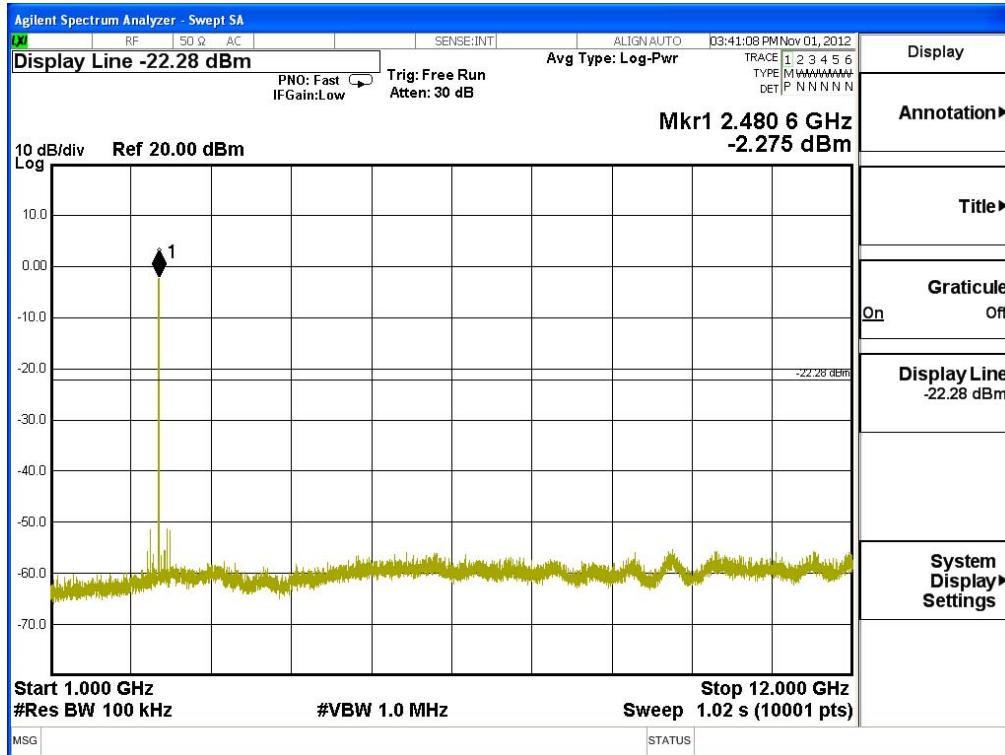




Product : Notebook PC
 Test Item : RF Antenna Conducted Test
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK)

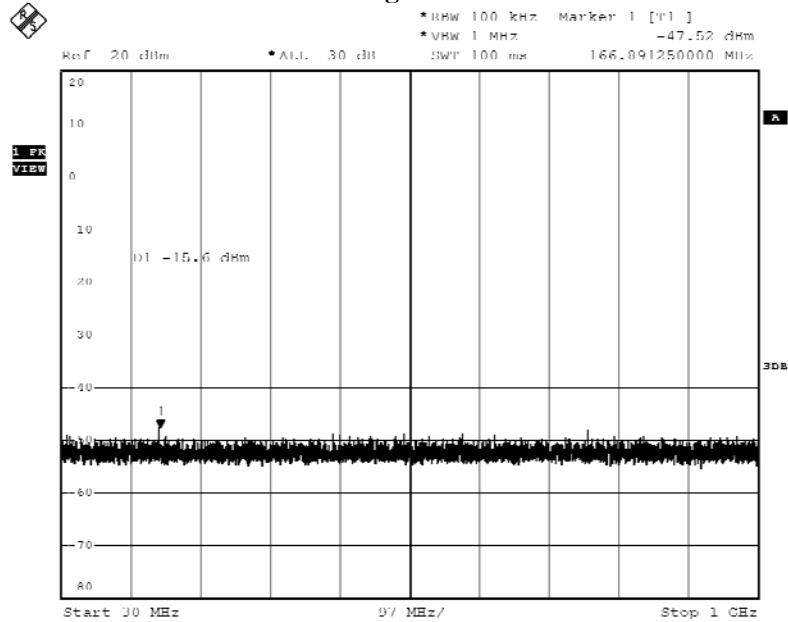
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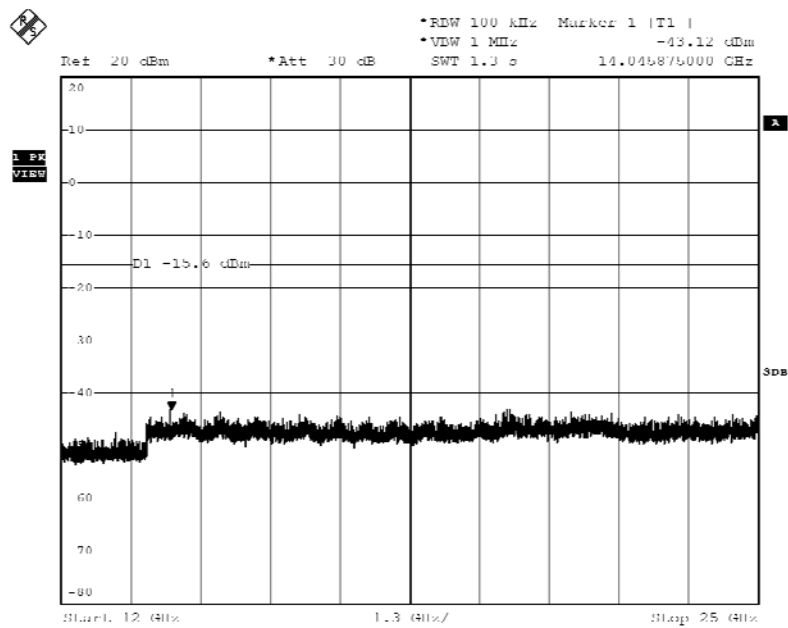
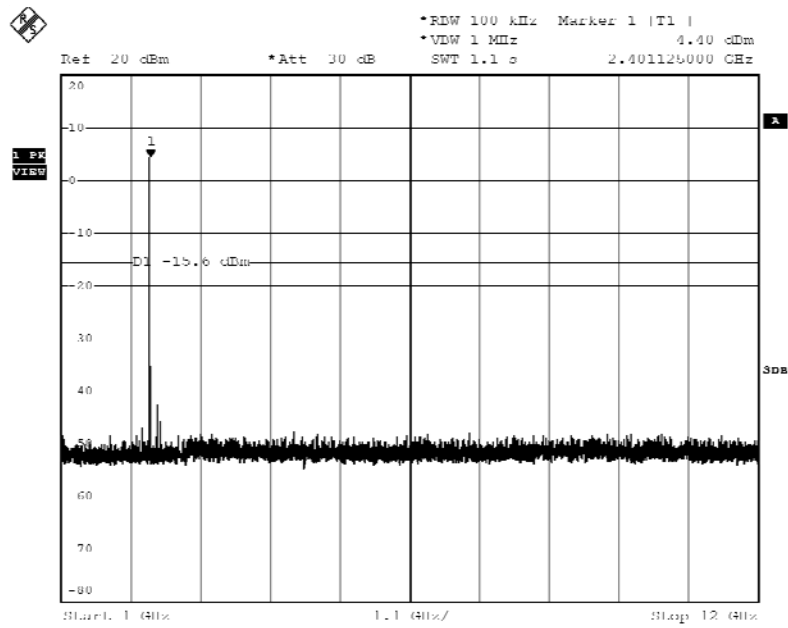




Product : Notebook PC
 Test Item : RF Antenna Conducted Test
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - BLE (GFSK)

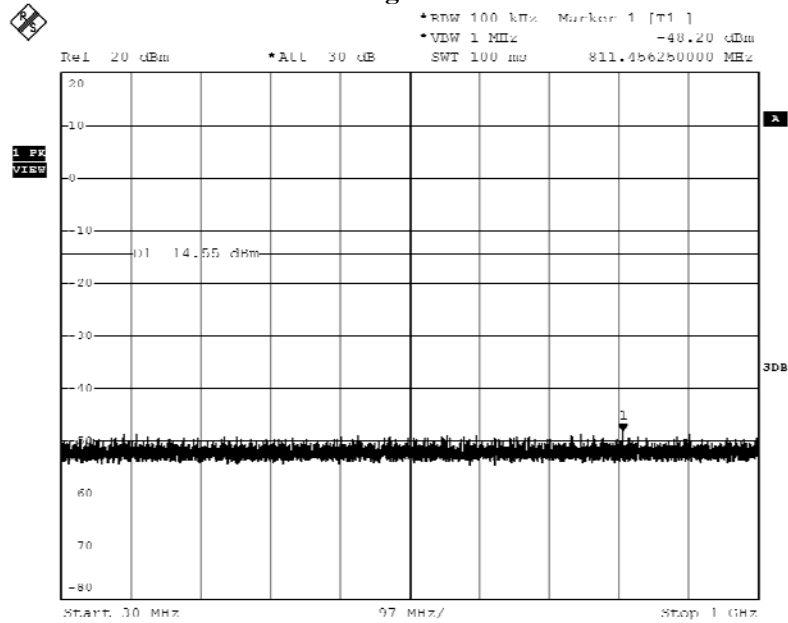
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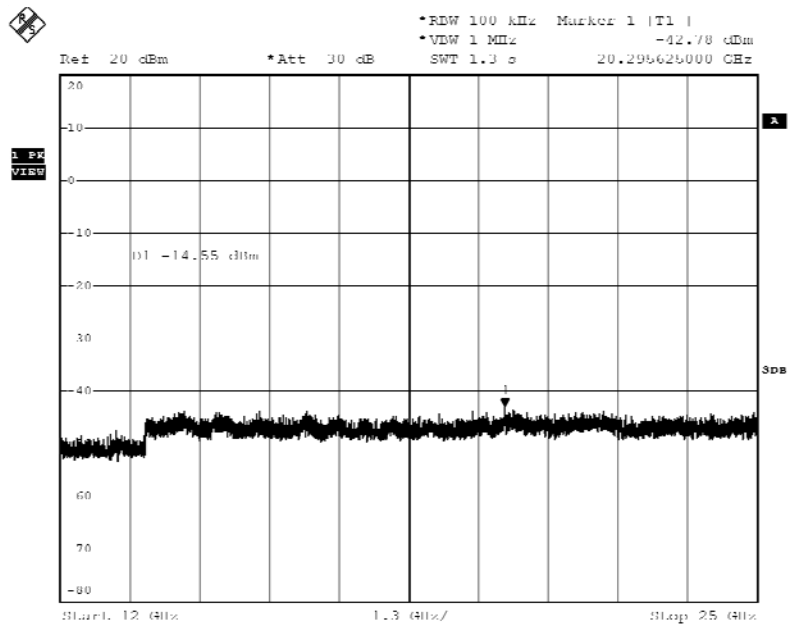
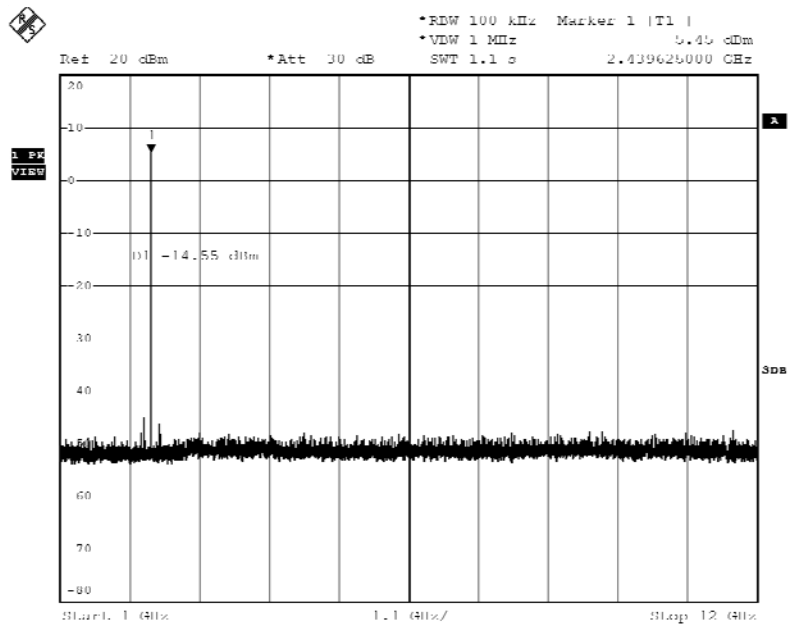




Product : Notebook PC
 Test Item : RF Antenna Conducted Test
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - BLE (GFSK)

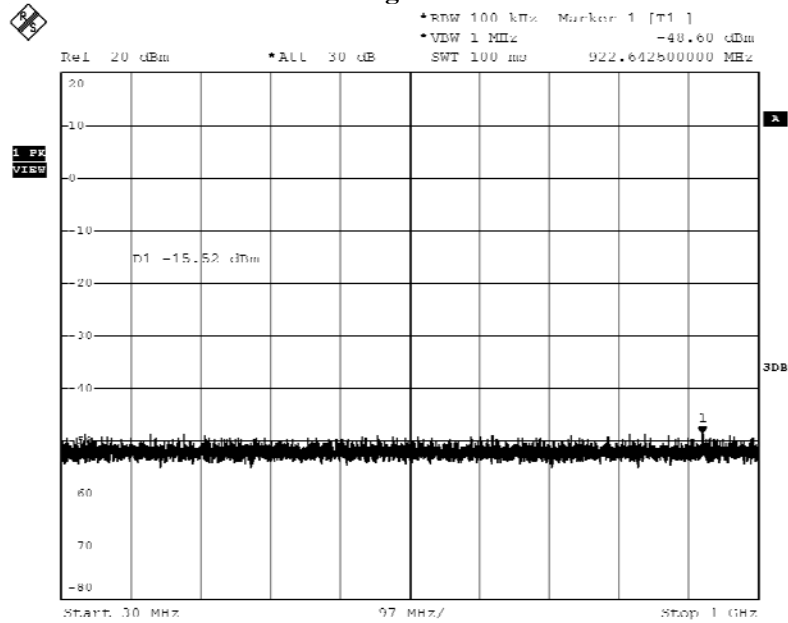
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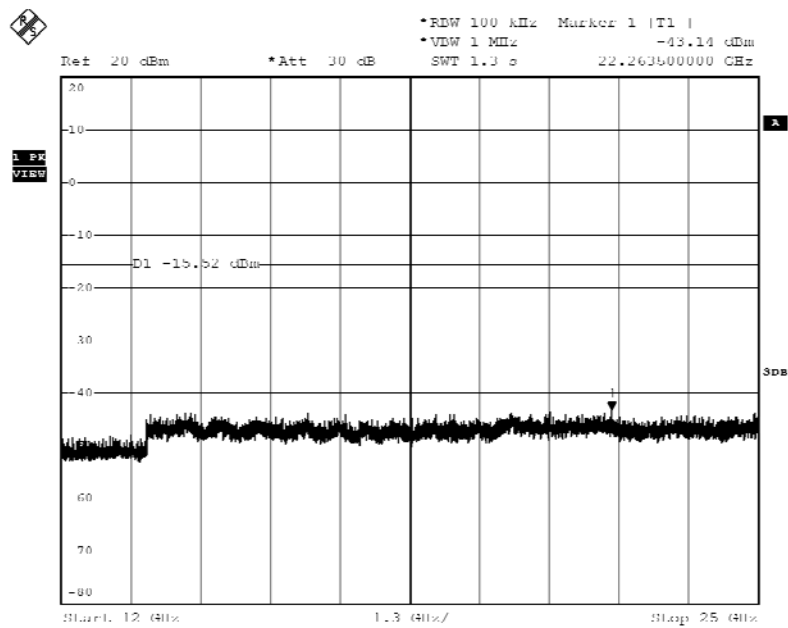
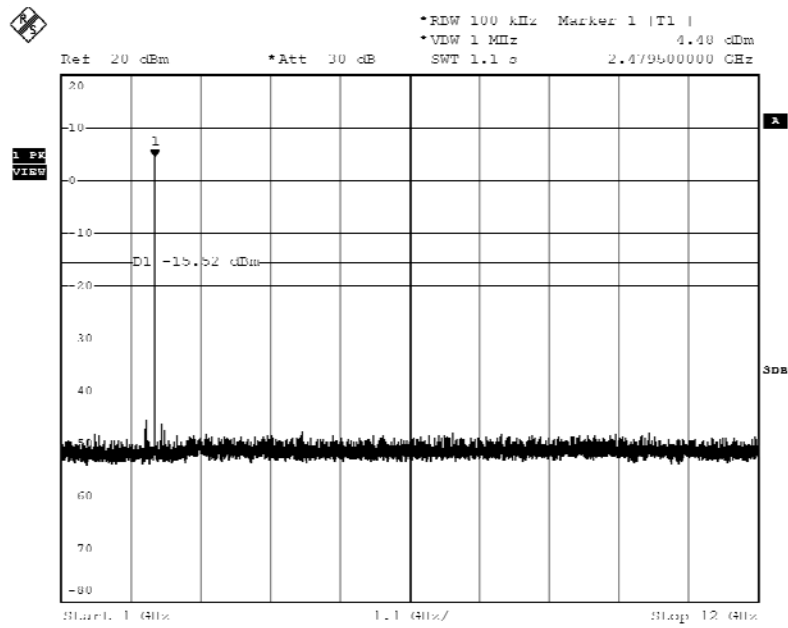




Product : Notebook PC
 Test Item : RF Antenna Conducted Test
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - BLE (GFSK)

Figure Channel 39:





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.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

RF Radiated Measurement:

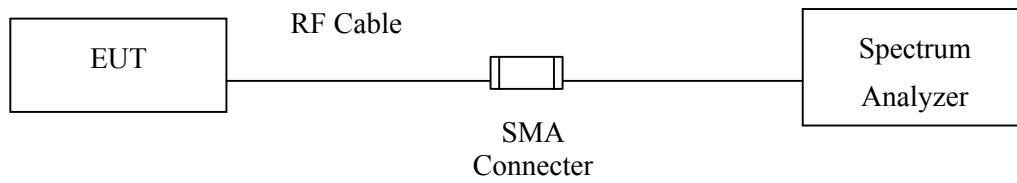
The following test equipments are used during the band edge tests:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2012
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2012
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2012
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2012
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2012
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2012
	X	Coaxial Cable	QuietTek	QTK-CABLE/ CAB5	Feb., 2012
	X	Controller	QuietTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

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

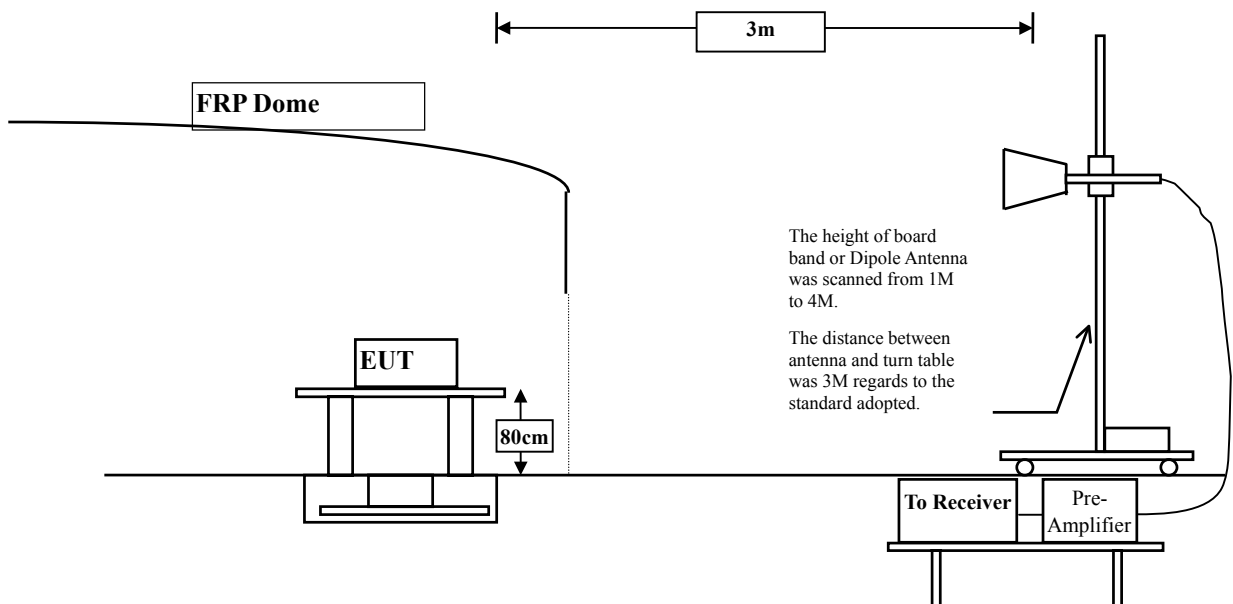
6.2. Test Setup

RF Conducted Measurement



RF Radiated Measurement:

Above 1GHz



6.3. Limit

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)).

6.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 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 can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz. The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

6.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

6.6. Test Result of Band Edge

Product : Notebook PC
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit - 1Mbps (GFSK)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2402	31.573	61.337	92.911	Peak
Horizontal	2402	31.573	57.596	89.17	Average
Vertical	2402	30.917	62.009	92.926	Peak
Vertical	2402	30.917	58.239	89.156	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)	Limit (dBuV/m)	Detector
Horizontal	2343.1	92.911	47.3	45.611	74.000	Peak
Horizontal	2362	89.17	54.99	34.18	54.000	Average
Vertical	2343.1	92.926	47.3	45.626	74.000	Peak
Vertical	2362	89.156	54.99	34.166	54.000	Average

Note:

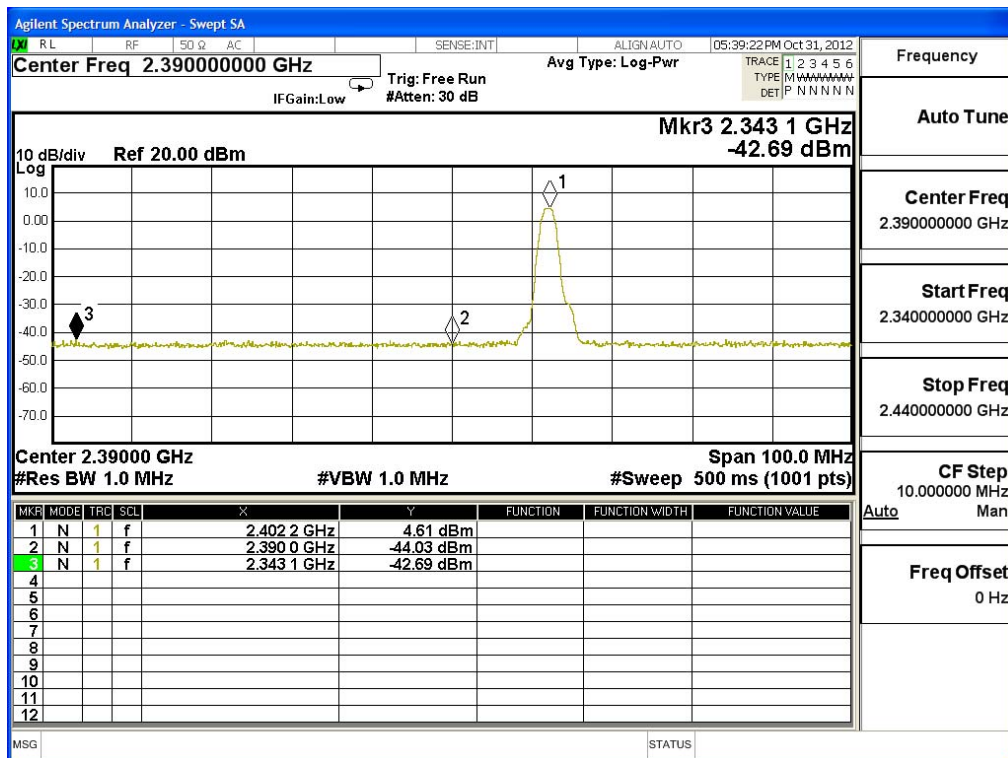
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

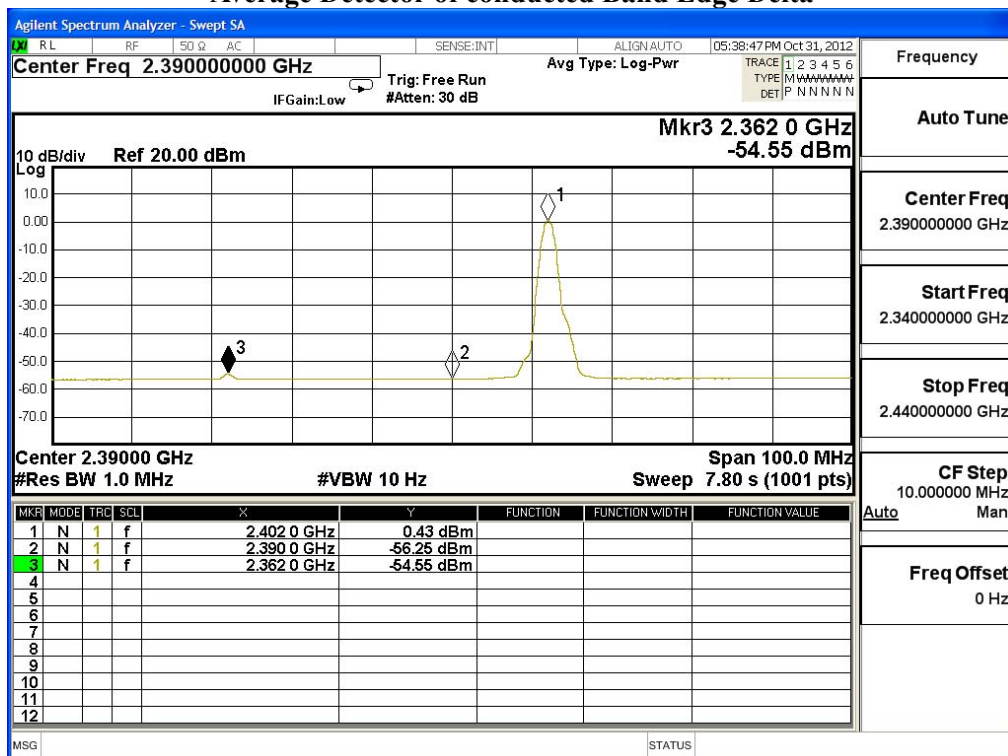
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : Notebook PC
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit - 1Mbps (GFSK)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dB(uV/m)]	Detector
Horizontal	2480	32.155	62.855	95.011	Peak
Horizontal	2480	32.155	59.063	91.219	Average
Vertical	2480	31.412	65.66	97.072	Peak
Vertical	2480	31.412	62.13	93.542	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)	Limit (dBuV/m)	Detector
Horizontal	2483.5	95.011	45.14	49.871	74.000	Peak
Horizontal	2483.5	91.219	50.34	40.879	54.000	Average
Vertical	2483.5	97.072	45.14	51.932	74.000	Peak
Vertical	2483.5	93.542	50.34	43.202	54.000	Average

Note:

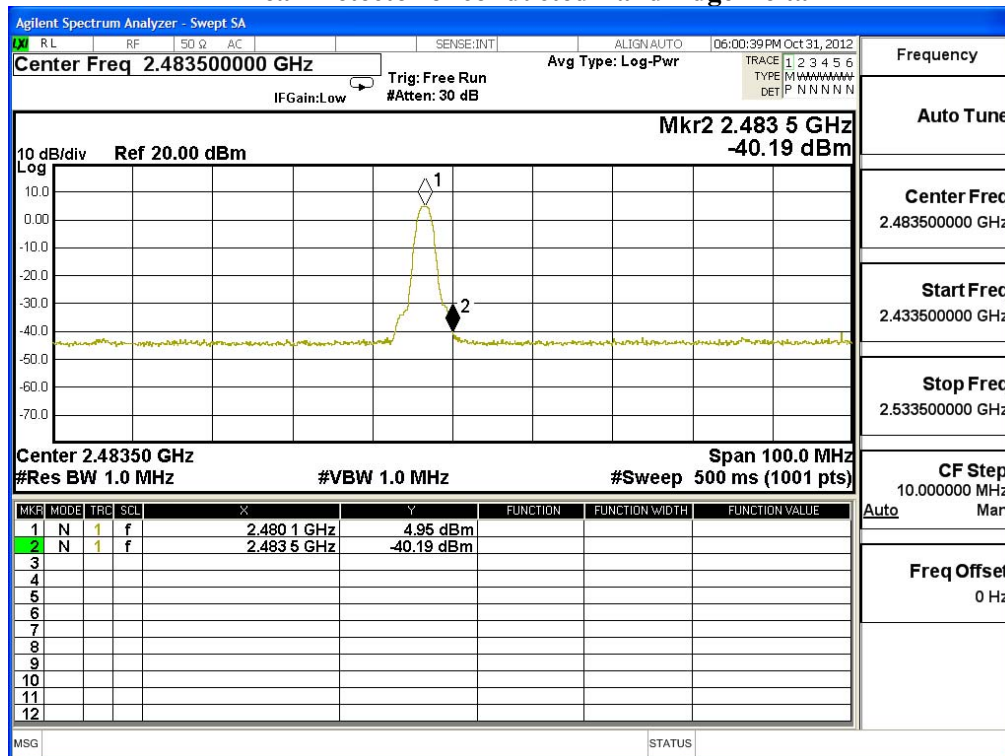
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

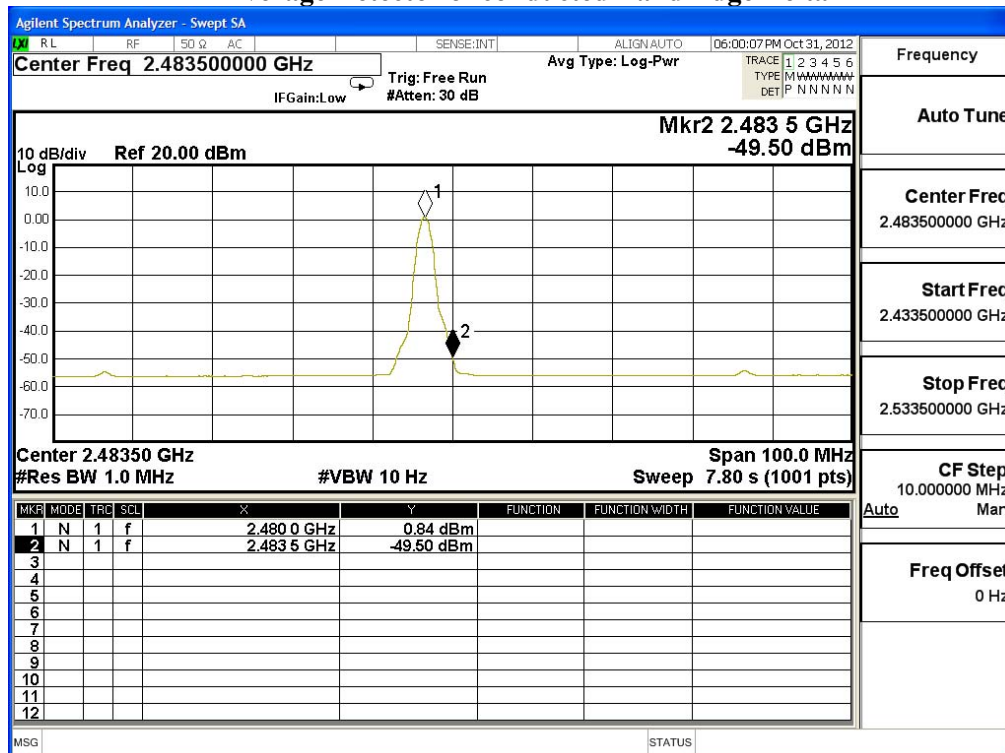
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : Notebook PC
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2402	31.573	59.03	90.604	Peak
Horizontal	2402	31.573	52.71	84.284	Average
Vertical	2402	30.917	59.29	90.207	Peak
Vertical	2402	30.917	52.96	83.877	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)	Limit (dBuV/m)	Detector
Horizontal	2345.9	90.604	45.07	45.534	74.000	Peak
Horizontal	2362	84.284	51.08	33.204	54.000	Average
Vertical	2345.9	90.207	45.07	45.137	74.000	Peak
Vertical	2362	83.877	51.08	32.797	54.000	Average

Note:

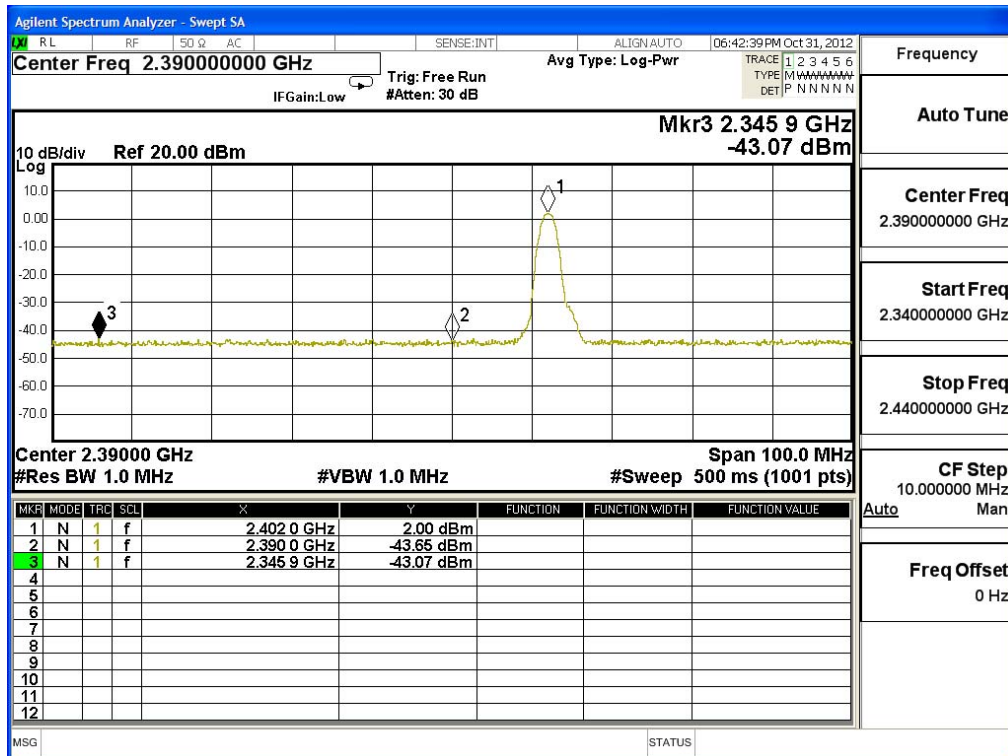
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = $F - \Delta$

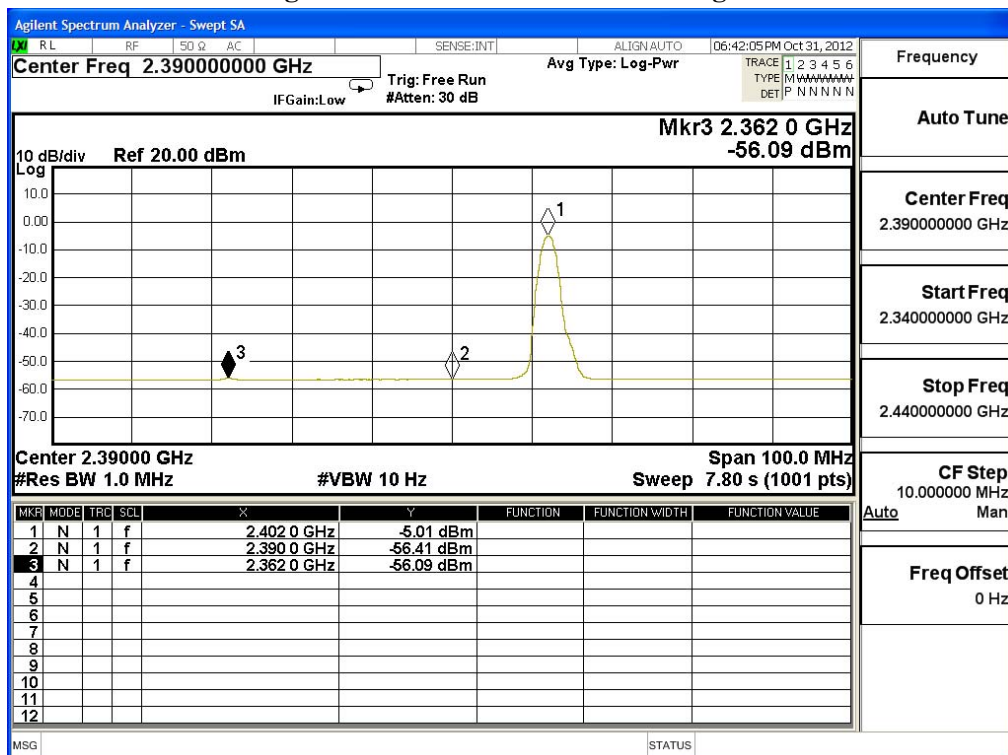
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : Notebook PC
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dB(uV/m)]	Detector
Horizontal	2480	32.155	61.51	93.666	Peak
Horizontal	2480	32.155	55.44	87.596	Average
Vertical	2480	31.412	63.94	95.352	Peak
Vertical	2480	31.412	57.65	89.062	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)	Limit (dBuV/m)	Detector
Horizontal	2483.5	93.666	39.85	53.816	74.000	Peak
Horizontal	2483.5	87.596	45.09	42.506	54.000	Average
Vertical	2483.5	95.352	39.85	55.502	74.000	Peak
Vertical	2483.5	89.062	45.09	43.972	54.000	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)