



Test Report

Product Name : Bluetooth 4.0 USB Dongle
Model No. : USB-BT400
FCC ID. : MSQ-USBBT400

Applicant : ASUSTeK COMPUTER INC.

Address : 4F, No. 150, LI-TE RD., PEITOU, TAIPEI, TAIWAN R.O.C.

Date of Receipt : 2012/09/20
Issued Date : 2012/10/16
Report No. : 129393R-RFUSP42V01
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.

Test Report Certification

Issued Date : 2012/10/16

Report No. : 129393R-RFUSP42V01



Product Name : Bluetooth 4.0 USB Dongle
 Applicant : ASUSTeK COMPUTER INC.
 Address : 4F, No. 150, LI-TE RD., PEITOU, TAIPEI, TAIWAN R.O.C.
 Manufacturer : KunShan CC&C Technologies Co. Ltd.
 Model No. : USB-BT400
 FCC ID. : MSQ-USBBT400
 EUT Voltage : DC 5V (Power by PC)
 Trade Name : ASUS
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2011
 ANSI C63.4: 2009
 Test Result : Complied

The test results relate only to the samples tested.

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 (Quale Tang / Engineer)

Approved By : Roy Wang
 (Roy Wang / Manager)

Laboratory Information

We, **Quietek Corporation**, are an independent RF consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025 specified testing scopes:

Taiwan R.O.C.	:	TAF, Accreditation Number: 1313
Germany	:	TUV Rheinland, Certificate No.: 10011438-2-2010
USA	:	FCC, Registration Number: 365520
Canada	:	IC, Submission No: 150981

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/>

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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1. General Information

1.1. EUT Description

Product Name	Bluetooth 4.0 USB Dongle
Trade Name	ASUS
Model No.	USB-BT400
Frequency Range	2402~2480MHz
Channel Number	40
Type of Modulation	GFSK
Date Rate	1Mbps
Channel Control	Auto
Antenna Type	PCB antenna
Antenna Gain	0.6dBi

Bluetooth LE 4.0:

40 channels are provided to this EUT:

CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

Note:

1. This device is a Bluetooth 4.0 USB Dongle included a 2.4GHz transmitting function, and 2.4GHz receiving function.
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart C Paragraph 15.247.
3. Regards to the frequency band operation; the lowest , middle and highest frequency of channel were selected to perform the test, and then shown on this report.
4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
5. The function of the Bluetooth basic and EDR was measured and made a test report of the report number: 129393R-RFUSP43V01.
6. This device is a composite device in accordance with Part 15 regulations. The receiving function receiving was tested and its test report number is 129393R-RFUSP37V02 under Declaration of Conformity.

1.3. Test Mode

QuieTek has verified the construction and function in typical operation. The preliminary tests were performed in different data rate, and to find the worst condition, which was shown in this test report. The following table is the final test mode.

TX	Mode 1: Transmit
----	------------------

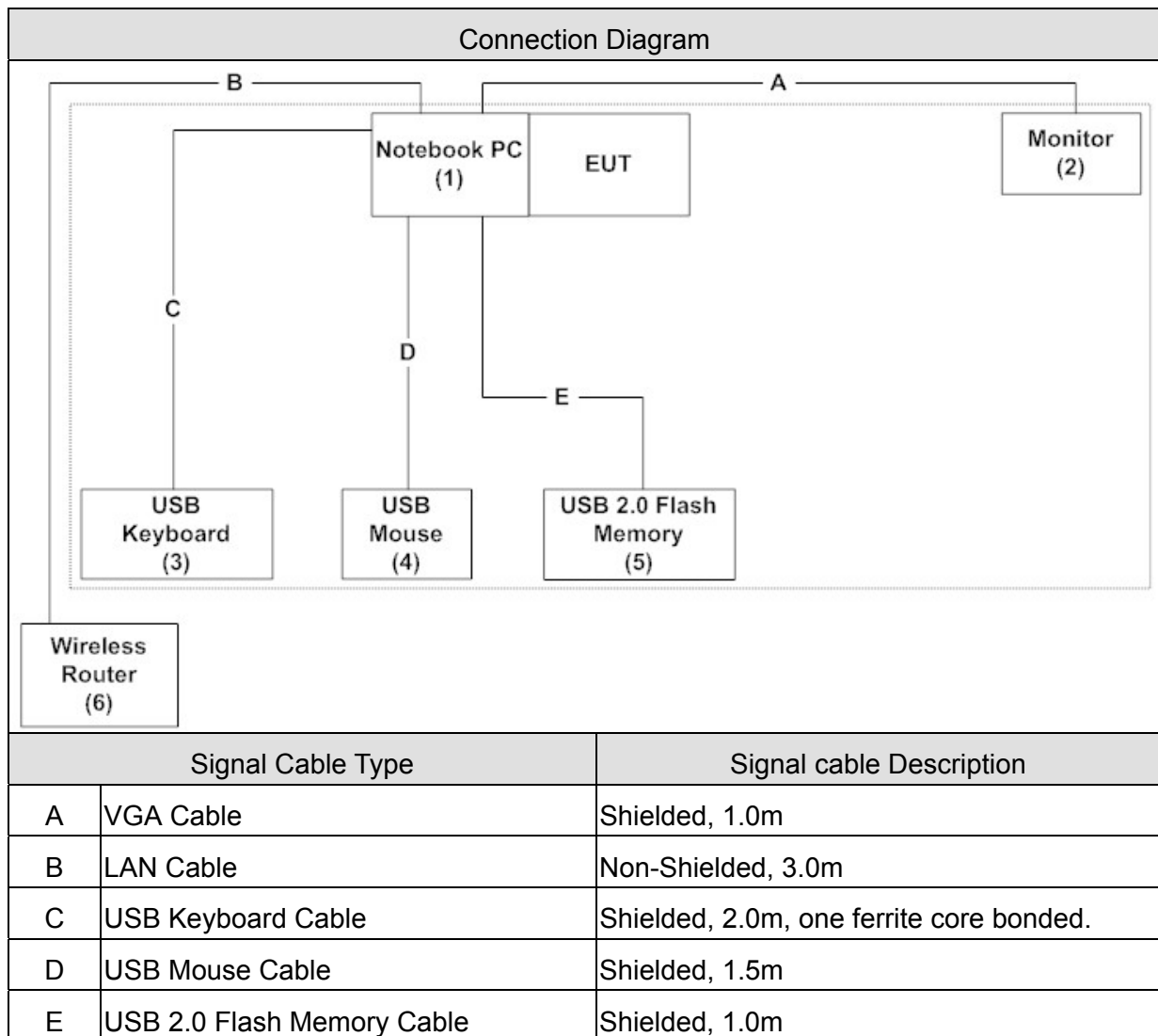
Test Items	Channel	Result
Conducted Emission	0/19/39	Complies
Peak Power Output	0/19/39	Complies
Radiated Emission (Under 1GHz)	19	Complies
Radiated Emission (Above 1GHz)	0/19/39	Complies
RF antenna conducted test	0/39	Complies
Radiated Emission Band Edge	0/39	Complies
Occupied Bandwidth	0/19/39	Complies
Power Density	0/19/39	Complies

1.4. Tested System Details

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

	Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Notebook PC	DELL	PP26L	66TLZ1S	DoC	Non-Shielded, 1.8m
2	Monitor	DELL	U2410f	CN-0J257M-72872-0CN-0AHL	DoC	Non-Shielded, 1.8m
3	USB Keyboard	DELL	SK-8115	1437	DoC	--
4	USB Mouse	Logitech	M-UV83	LZE35150307	DoC	--
5	USB 2.0 Flash Memory	Apacer	AH223	N/A	DoC	--
6	Wireless Router	ASUS	RT-N10	92IEG0123503	DoC	Non-Shielded, 1.5m

1.5. Configuration of tested System



1.6. EUT Exercise Software

1	Setup the EUT as shown in Section 1.5
2	Execute the Bluetool_MI_1.4.3.0 which is installed on the Notebook
3	Configure the test mode, the test channel to start the continuous Transmitter
4	Verify that the EUT works properly.

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 C 15.207 Conducted Emission	15 - 35	20
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Peak Power Output (DSSS)	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Radiated Emission (DSSS)	15 - 35	25
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 RF antenna conducted test (DSSS)	15 - 35	24
Humidity (%RH)		25 - 75	49
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Band Edge (DSSS)	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Occupied Bandwidth (DSSS)	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Power Density (DSSS)	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000

2. Conducted Emission

2.1. Test Equipment

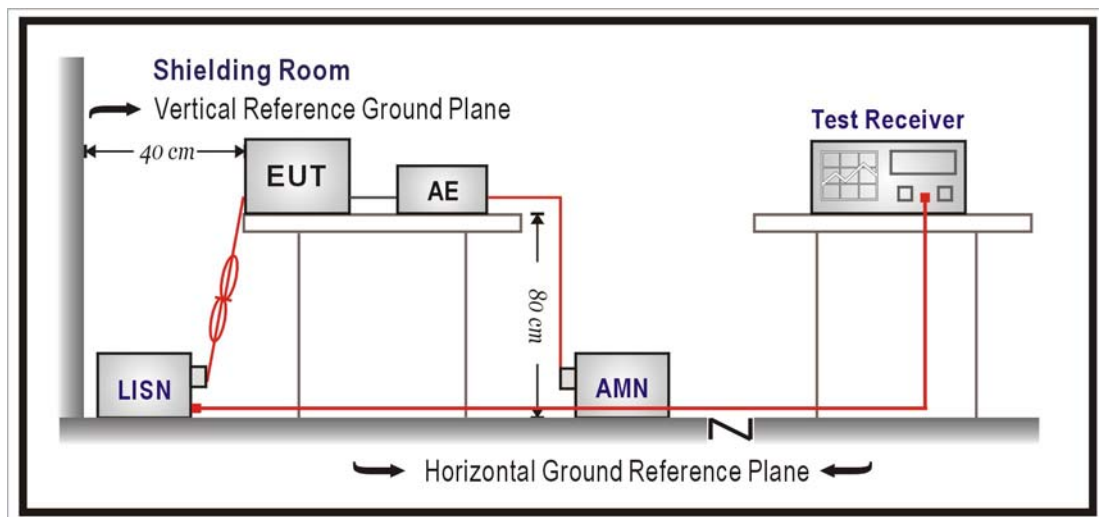
The following test equipments are used during the test:

Conducted Emission / SR3

Instrument	Manufacturer	Model No.	Serial No	Next Cal.
LISN	R&S	ENV216	100096	2013/08/12
LISN	R&S	ESH3-Z5	836679/022	2013/02/06
Test Receiver	R&S	ESCS 30	825442/017	2013/01/01

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	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 was setup according to ANSI C63.4: 2009 and tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

2.5. Test Specification

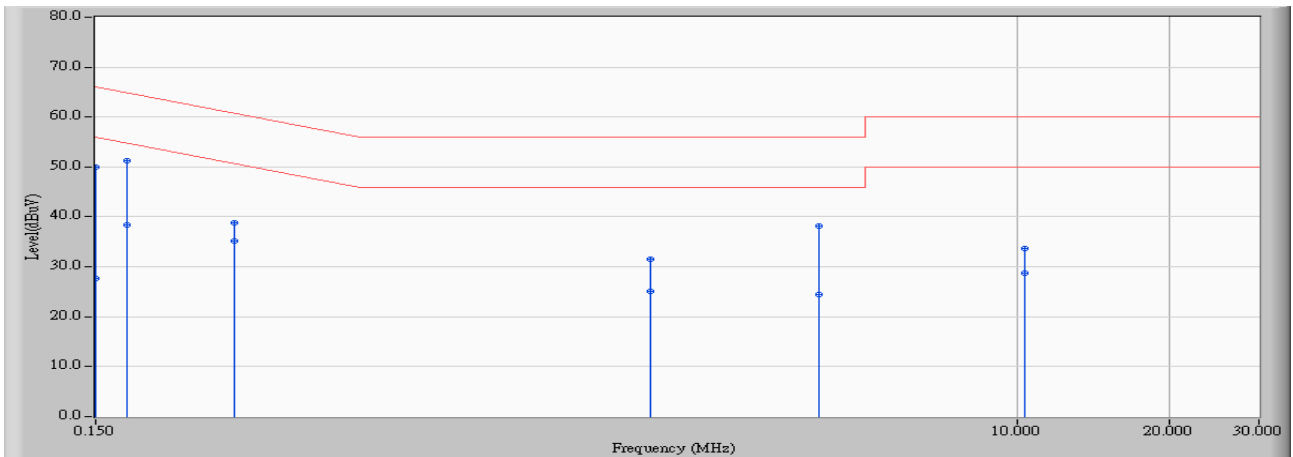
According to FCC Part 15 Subpart C Paragraph 15.207: 2011

2.6. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB.

2.7. Test Result

Site : SR3	Time : 2012/10/04 - 21:13
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR3_LISN(16A)-1_0907 - Line1	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2440MHz

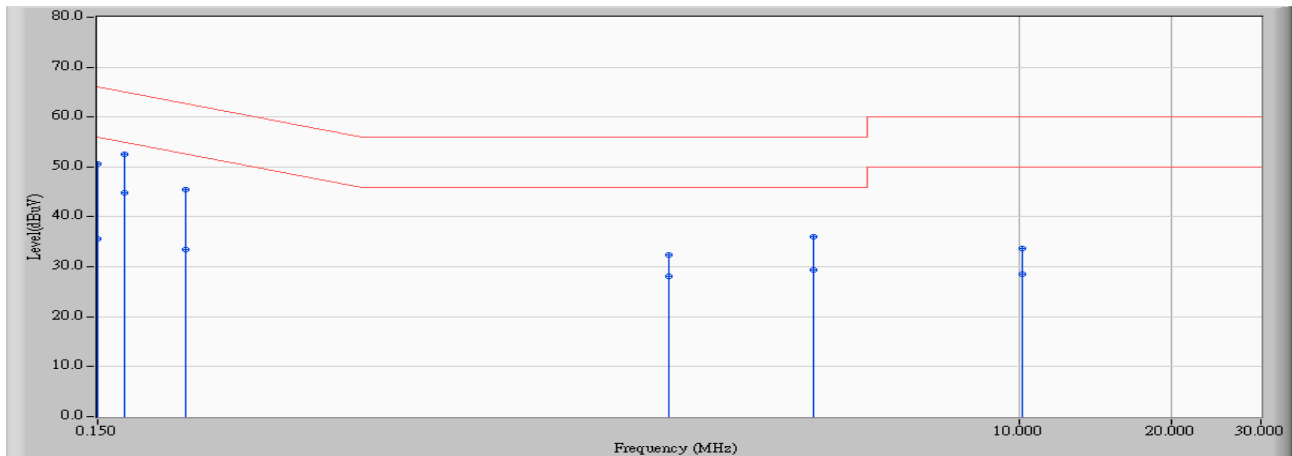


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.150	9.654	40.410	50.064	-15.936	66.000	QUASPEAK
2	0.150	9.654	17.940	27.594	-28.406	56.000	AVERAGE
3	* 0.173	9.656	41.620	51.276	-13.518	64.794	QUASPEAK
4	0.173	9.656	28.630	38.286	-16.508	54.794	AVERAGE
5	0.283	9.669	29.100	38.769	-21.964	60.733	QUASPEAK
6	0.283	9.669	25.580	35.249	-15.484	50.733	AVERAGE
7	1.880	9.912	21.610	31.522	-24.478	56.000	QUASPEAK
8	1.880	9.912	15.190	25.102	-20.898	46.000	AVERAGE
9	4.048	10.015	28.100	38.116	-17.884	56.000	QUASPEAK
10	4.048	10.015	14.340	24.356	-21.644	46.000	AVERAGE
11	10.341	10.138	23.560	33.699	-26.301	60.000	QUASPEAK
12	10.341	10.138	18.680	28.819	-21.181	50.000	AVERAGE

Note:

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

Site : SR3	Time : 2012/10/04 - 21:16
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR3_LISN(16A)-1_0907 - Line2	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2440MHz



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.150	9.664	40.980	50.644	-15.356	66.000	QUASPEAK
2	0.150	9.664	26.040	35.704	-20.296	56.000	AVERAGE
3	0.170	9.666	42.900	52.566	-12.418	64.983	QUASPEAK
4	* 0.170	9.666	35.130	44.796	-10.188	54.983	AVERAGE
5	0.224	9.670	35.780	45.450	-17.211	62.661	QUASPEAK
6	0.224	9.670	23.720	33.390	-19.271	52.661	AVERAGE
7	2.017	9.931	22.400	32.331	-23.669	56.000	QUASPEAK
8	2.017	9.931	18.240	28.171	-17.829	46.000	AVERAGE
9	3.904	10.029	25.930	35.958	-20.042	56.000	QUASPEAK
10	3.904	10.029	19.350	29.378	-16.622	46.000	AVERAGE
11	10.119	10.195	23.490	33.684	-26.316	60.000	QUASPEAK
12	10.119	10.195	18.250	28.444	-21.556	50.000	AVERAGE

Note:

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

3. Peak Power Output

3.1. Test Equipment

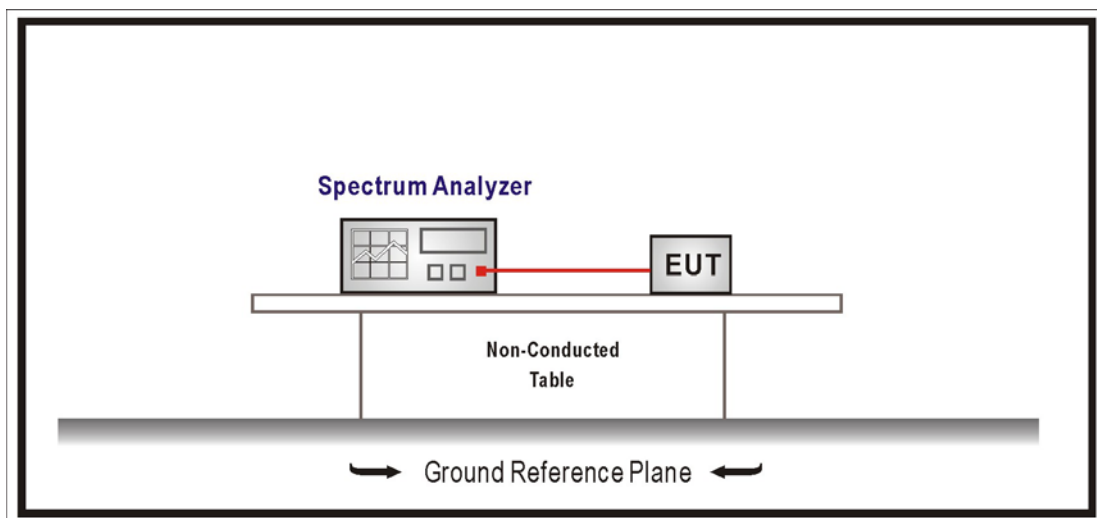
The following test equipments are used during the test:

Peak Power Output / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2013/02/19

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

3.2. Test Setup



3.3. Test procedures

The EUT was tested according to DTS test procedure of Jan. 2012 KDB558074, Section 5.2.1.2 Measurement Procedure PK2 for compliance to FCC 47CFR 15.247 requirements.

3.4. Limits

The maximum peak power shall be less 1 Watt.

3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2011

3.6. Uncertainty

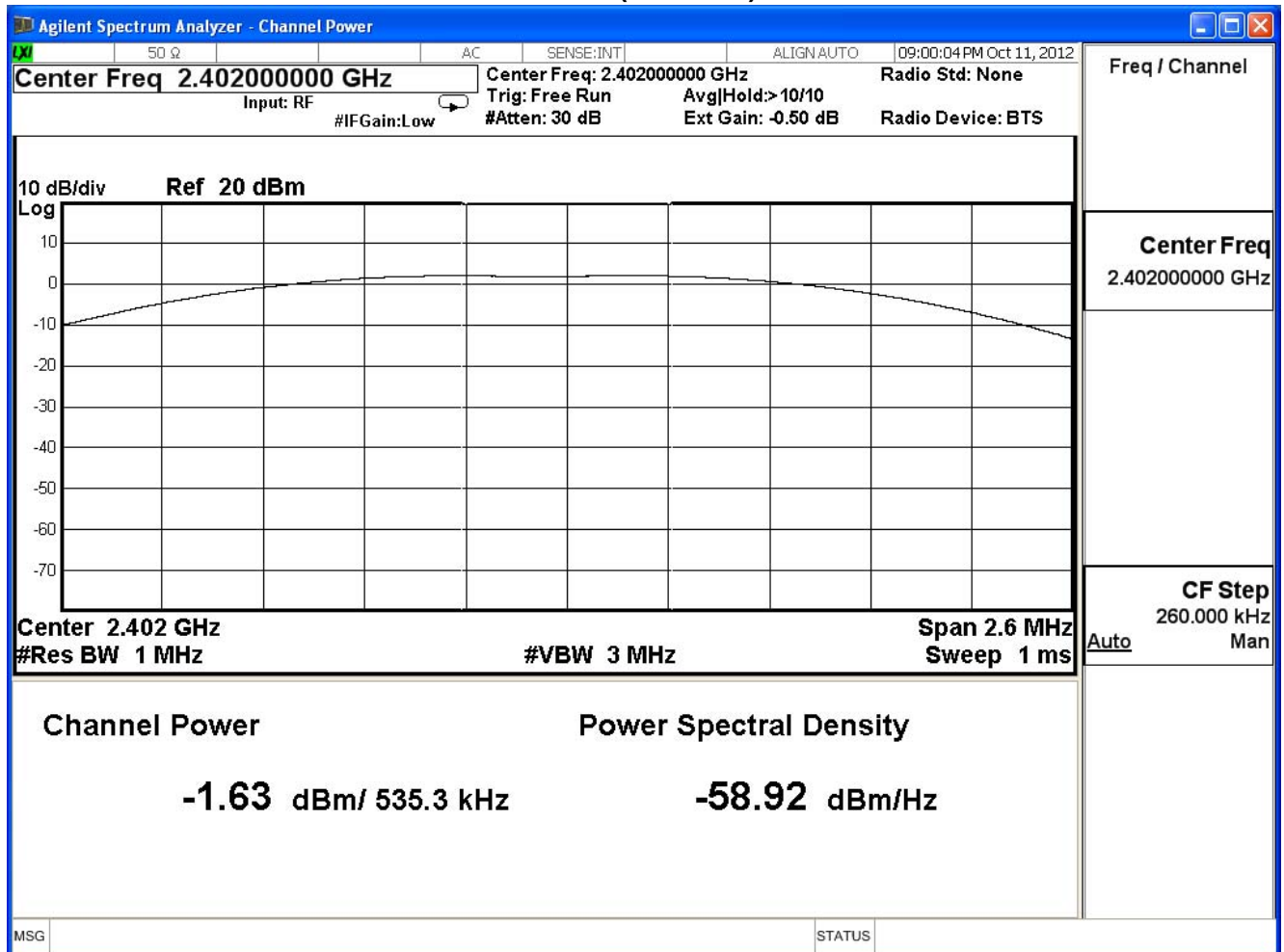
The measurement uncertainty is defined as ± 1.27 dB.

3.7. Test Result

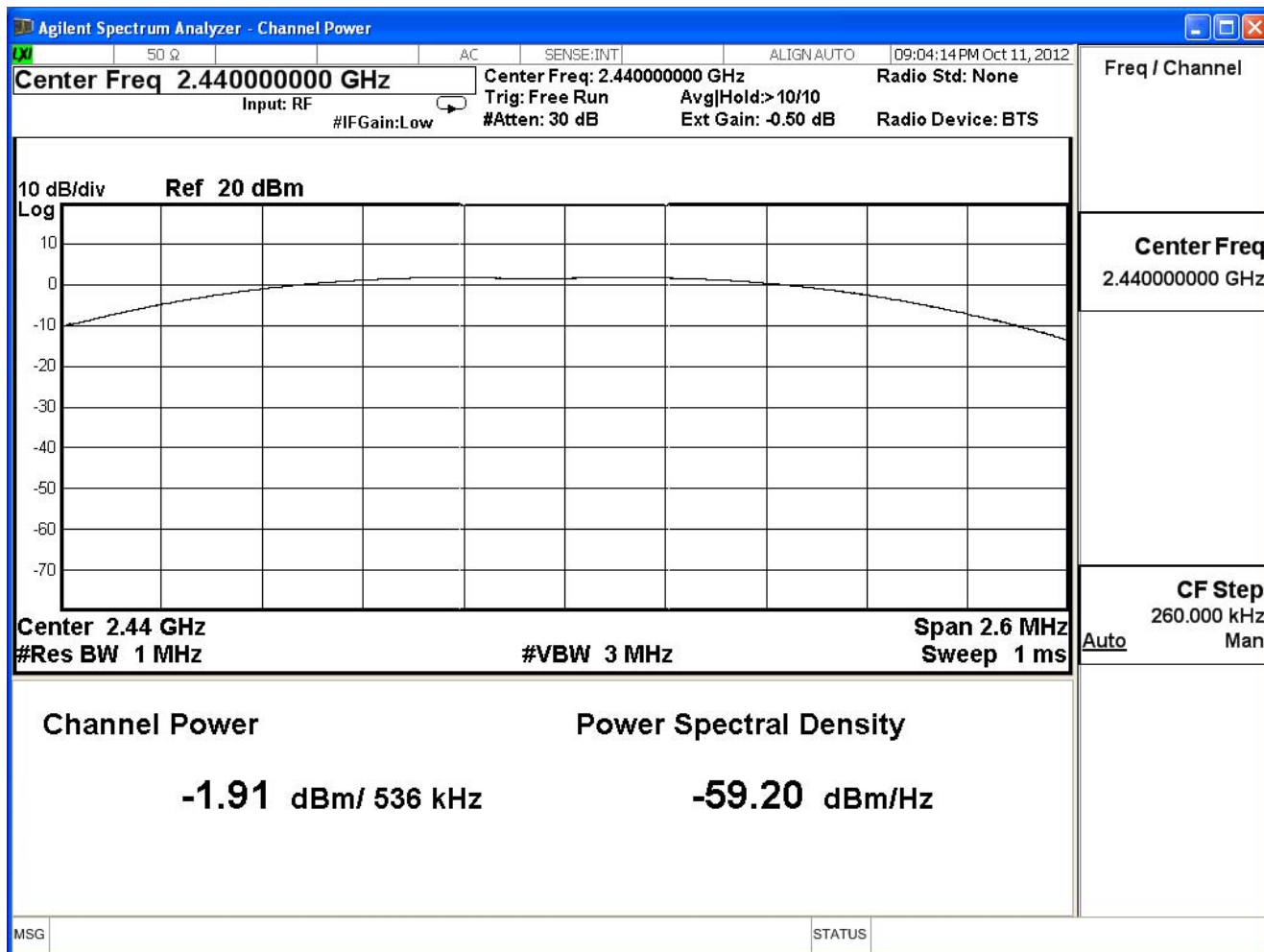
Product	Bluetooth 4.0 USB Dongle		
Test Item	Peak Power Output		
Test Mode	Transmit		
Date of Test	2012/10/11	Test Site	SR7

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
00	2402	-1.63	1Watt= 30 dBm	Pass
19	2440	-1.91	1Watt= 30 dBm	Pass
39	2480	-2.07	1Watt= 30 dBm	Pass

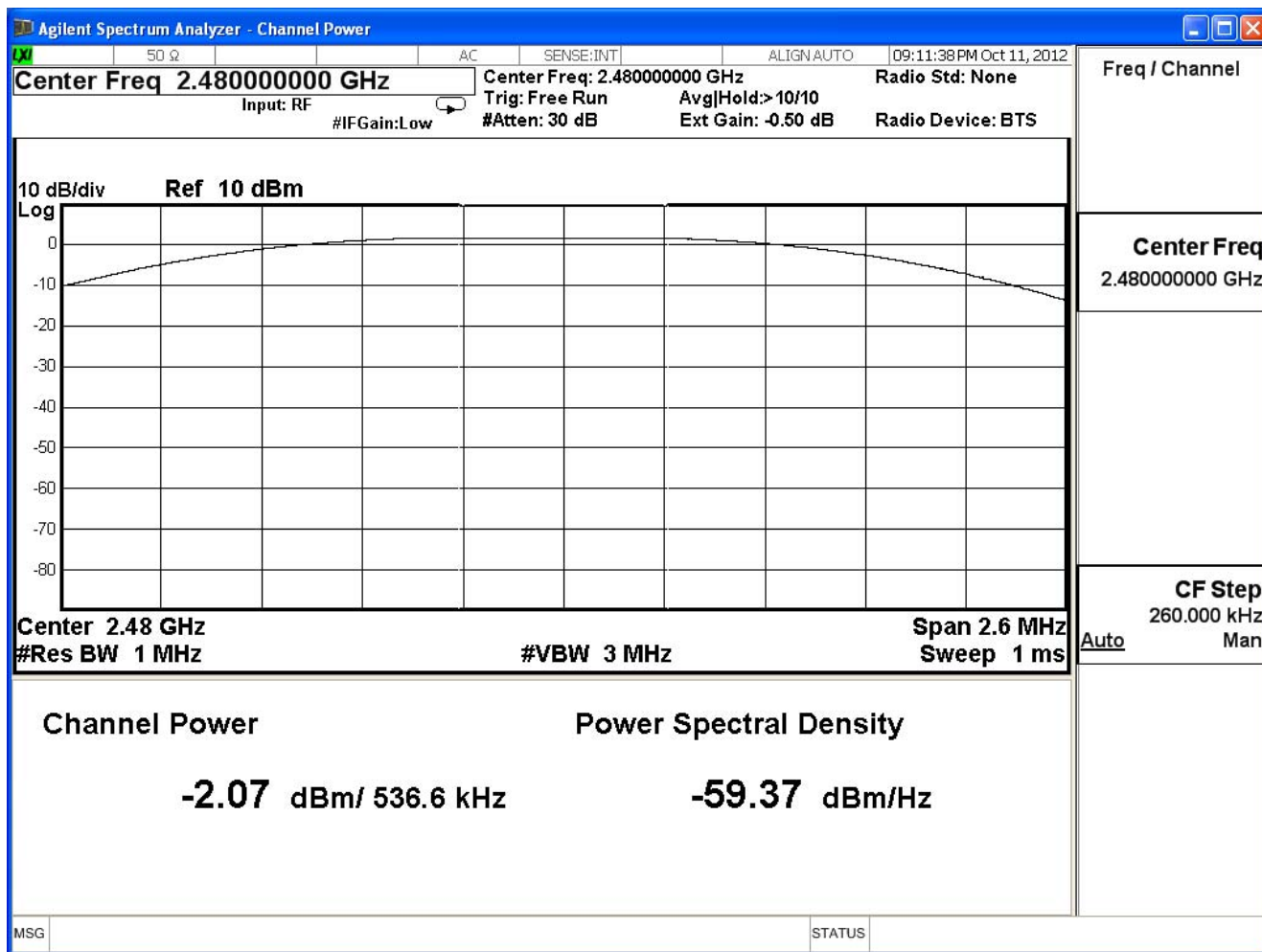
CH 00 (2402MHz)



CH 19 (2440MHz)



CH 39 (2480MHz)



4. Radiated Emission

4.1. Test Equipment

The following test equipments are used during the test:

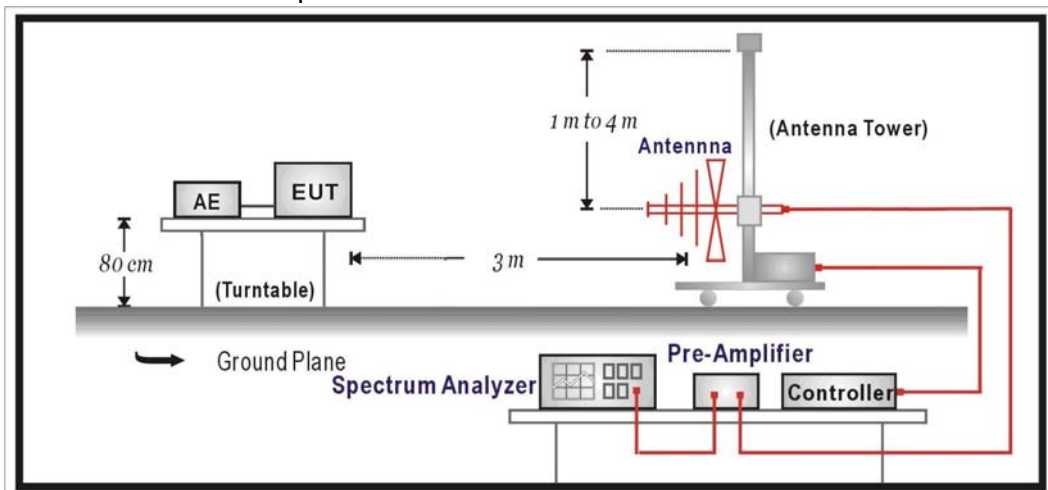
Radiated Emission / CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Bilog Antenna	SCHAFFNER	CBL6112B	2895	2013/08/14
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120D	743	2013/02/02
Pre-Amplifier	MITEQ	AMF-4D-005180-24-10P	888003	2012/12/05
Pre-Amplifier	Quietek	AP-025C	CHM-0706049	2013/03/01
Spectrum Analyzer	Agilent	E4440A	MY46187335	2013/02/07
Coaxial Cable	Huber+Suhner AG	Sucoflex 102	25623/2	2013/03/04

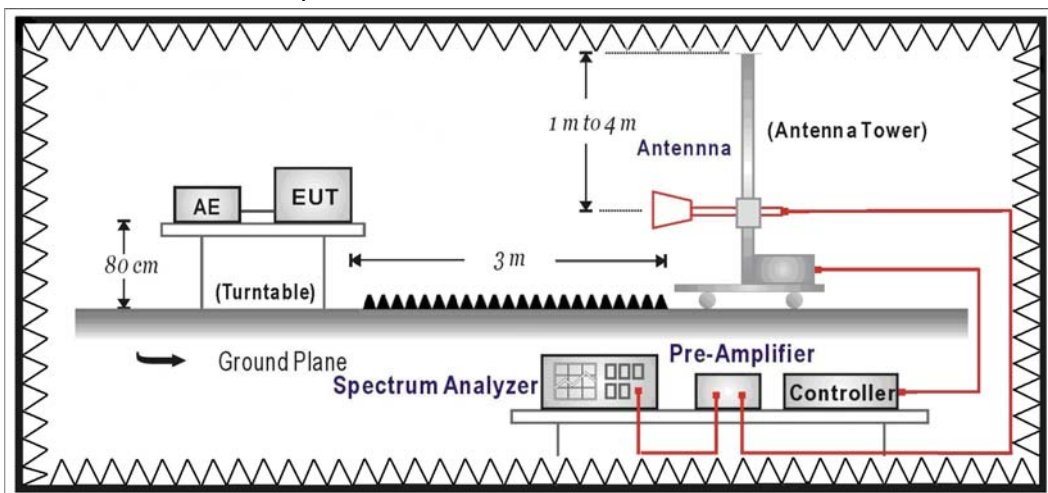
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



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 Limits		
Frequency MHz	uV/m	dBuV/m
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: 2009 and tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements. 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 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: 2009 on radiated measurement.

On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit. The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

4.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2011

4.6. Uncertainty

The measurement uncertainty

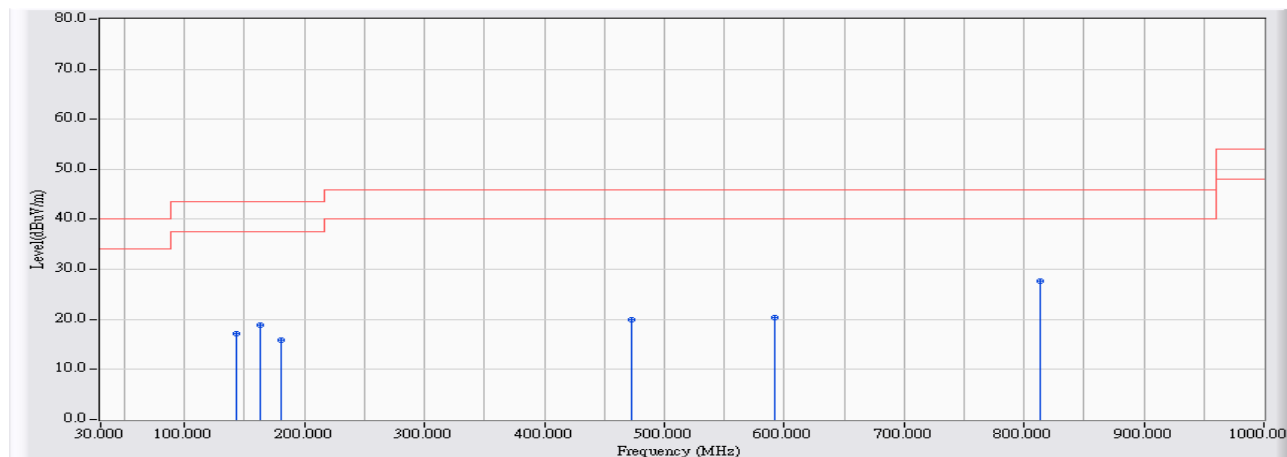
30MHz~1GHz as ±3.43dB

1GHz~26.5Ghz as ±3.65dB

4.7. Test Result

30MHz-1GHz Spurious

Site : CB1	Time : 2012/10/04 - 14:01
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-1_0901 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2440MHz

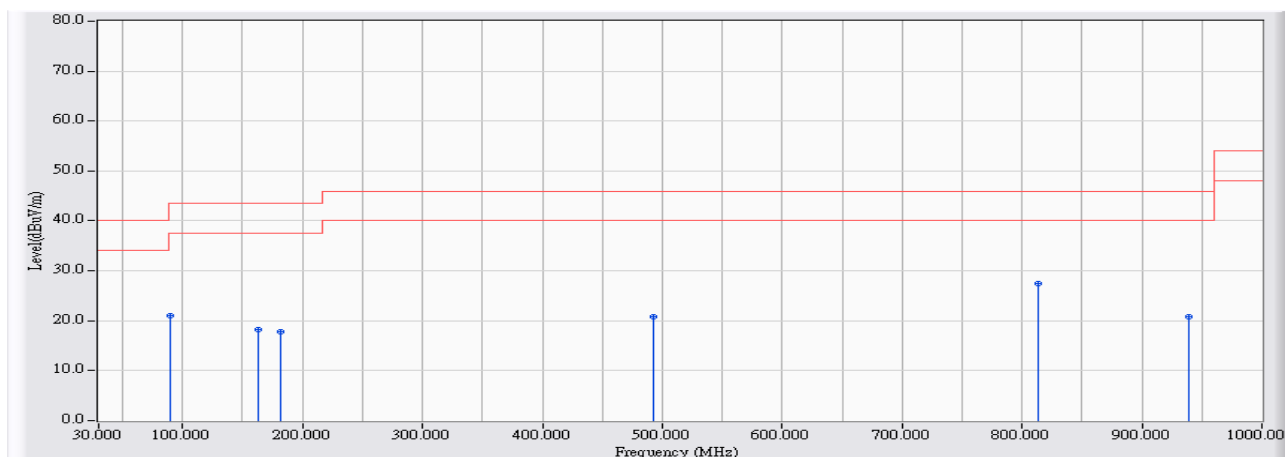


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	143.167	-12.683	29.791	17.108	-26.392	43.500	QUASPEAK
2	162.567	-13.671	32.556	18.884	-24.616	43.500	QUASPEAK
3	180.350	-14.421	30.355	15.934	-27.566	43.500	QUASPEAK
4	472.967	-5.771	25.646	19.875	-26.125	46.000	QUASPEAK
5	592.600	-4.199	24.482	20.282	-25.718	46.000	QUASPEAK
6	* 814.083	-2.356	30.122	27.766	-18.234	46.000	QUASPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB1	Time : 2012/10/04 - 14:01
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-1_0901 - VERTICAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2440MHz



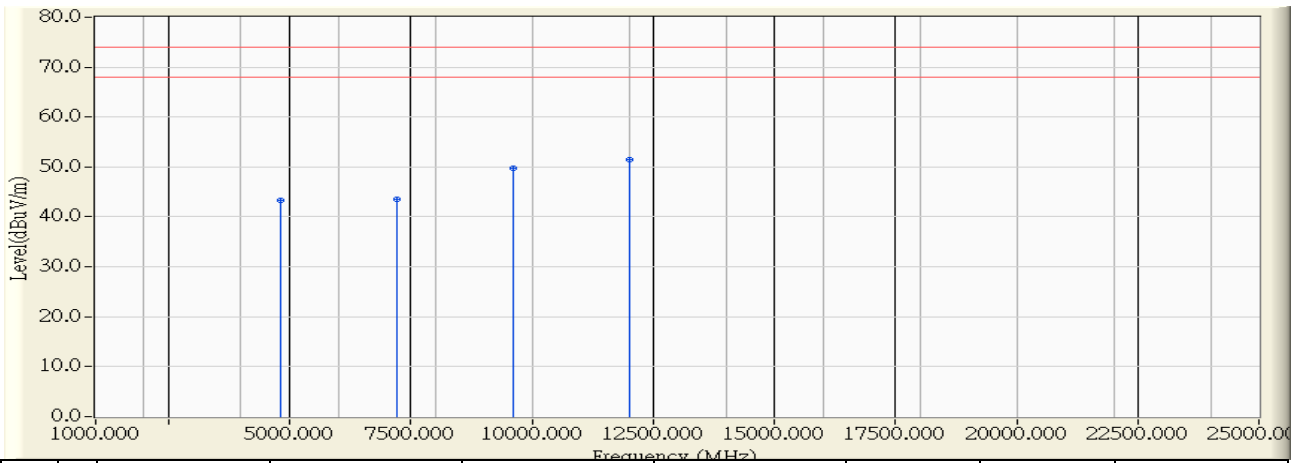
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	89.817	-15.187	36.099	20.912	-22.588	43.500	QUASPEAK
2	162.567	-13.671	31.891	18.219	-25.281	43.500	QUASPEAK
3	181.967	-14.428	32.252	17.825	-25.675	43.500	QUASPEAK
4	492.367	-5.362	26.063	20.702	-25.298	46.000	QUASPEAK
5	* 814.083	-2.356	29.778	27.422	-18.578	46.000	QUASPEAK
6	938.567	-1.399	22.127	20.729	-25.271	46.000	QUASPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Harmonic & Spurious:

Site : CB1	Time : 2012/10/04 - 19:20
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2402MHz

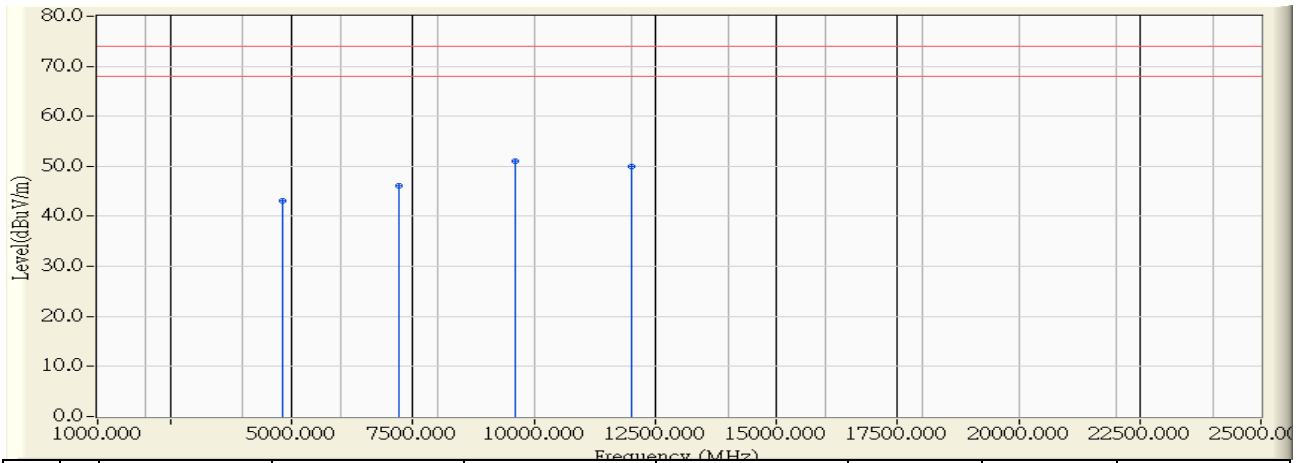


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4804.480	-0.854	44.080	43.226	-30.774	74.000	PEAK
2	7205.980	5.424	38.020	43.444	-30.556	74.000	PEAK
3	9609.350	8.951	40.710	49.661	-24.339	74.000	PEAK
4	* 12007.640	11.546	39.960	51.506	-22.494	74.000	PEAK

Note:

1. All readings 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.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2012/10/04 - 19:37
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2402MHz

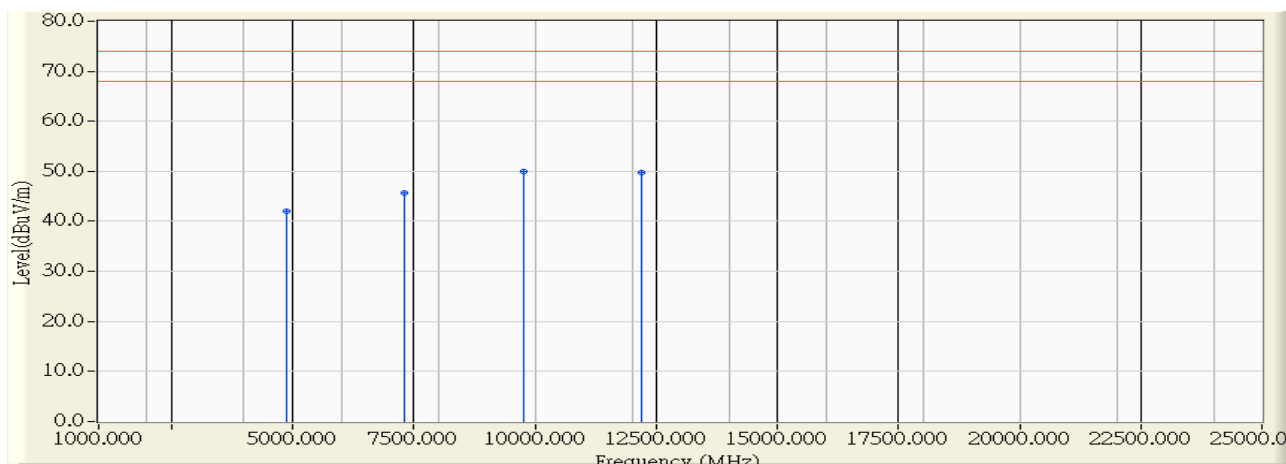


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4804.260	-0.854	43.880	43.025	-30.975	74.000	PEAK
2	7205.590	5.423	40.640	46.063	-27.937	74.000	PEAK
3	* 9607.630	8.938	42.110	51.048	-22.952	74.000	PEAK
4	12009.050	11.545	38.530	50.075	-23.925	74.000	PEAK

Note:

1. All readings 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.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2012/10/04 - 19:42
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2440MHz

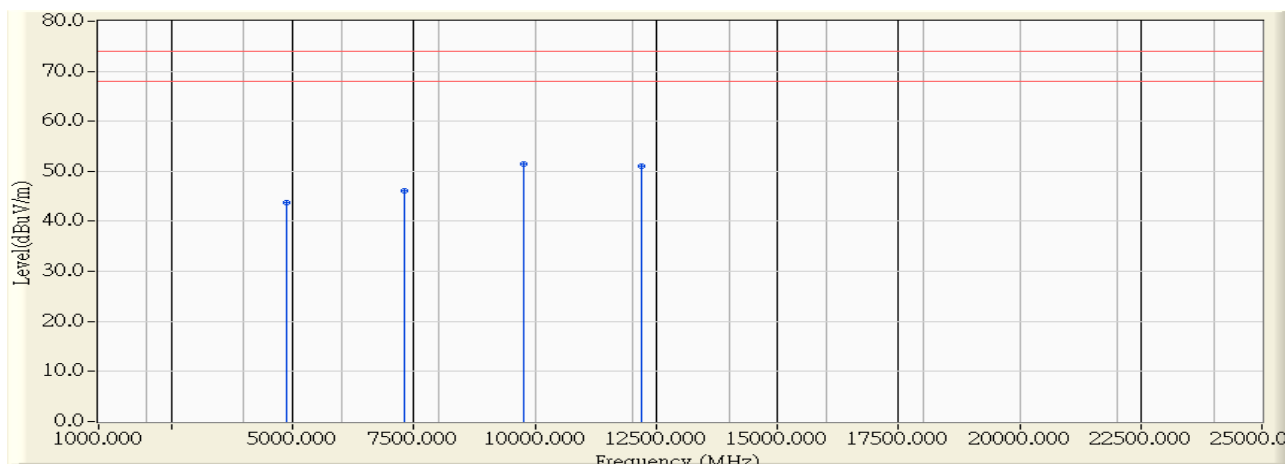


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4879.450	-0.658	42.760	42.102	-31.898	74.000	PEAK
2	7320.010	5.699	39.910	45.609	-28.391	74.000	PEAK
3	* 9758.610	10.032	39.860	49.892	-24.108	74.000	PEAK
4	12199.980	11.476	38.240	49.716	-24.284	74.000	PEAK

Note:

1. All readings 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.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2012/10/04 - 19:44
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2440MHz

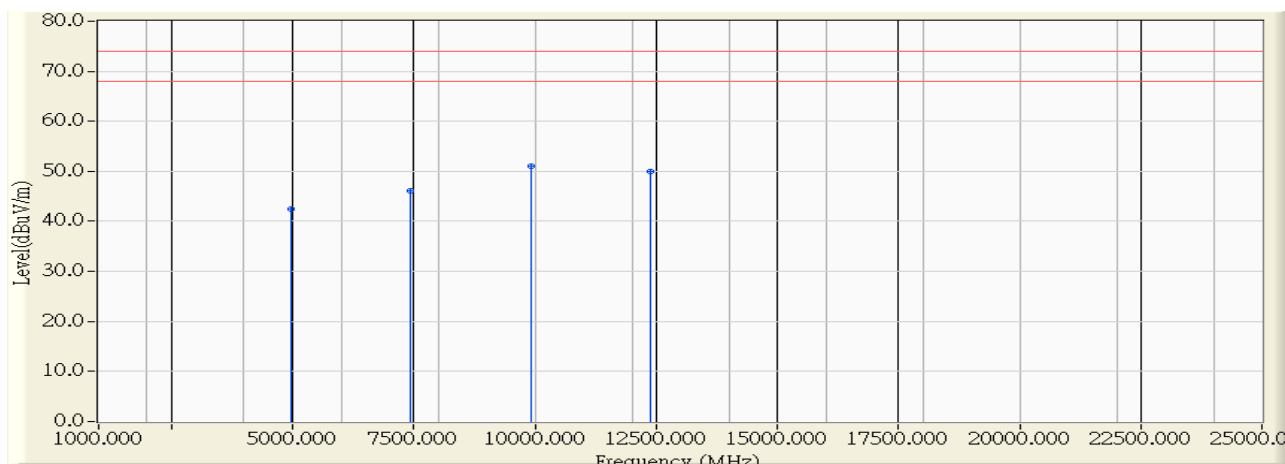


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4880.530	-0.655	44.480	43.825	-30.175	74.000	PEAK
2	7319.680	5.698	40.520	46.218	-27.782	74.000	PEAK
3	* 9759.790	10.041	41.340	51.381	-22.619	74.000	PEAK
4	12200.740	11.476	39.590	51.066	-22.934	74.000	PEAK

Note:

1. All readings 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.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2012/10/04 - 19:51
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2480MHz

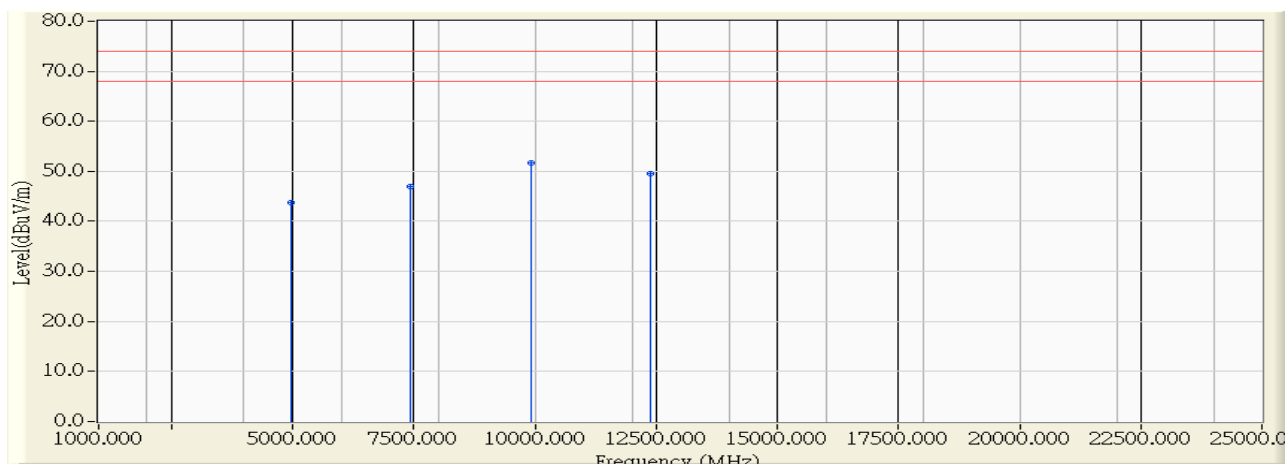


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4959.810	-0.446	42.880	42.433	-31.567	74.000	PEAK
2	7438.600	5.985	40.188	46.173	-27.827	74.000	PEAK
3	* 9918.640	11.192	39.940	51.132	-22.868	74.000	PEAK
4	12399.010	11.405	38.650	50.056	-23.944	74.000	PEAK

Note:

1. All readings 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.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2012/10/04 - 19:55
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2480MHz



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4960.420	-0.445	44.190	43.745	-30.255	74.000	PEAK
2	7444.030	5.998	40.930	46.928	-27.072	74.000	PEAK
3	* 9921.860	11.216	40.550	51.766	-22.234	74.000	PEAK
4	12399.150	11.405	38.040	49.446	-24.554	74.000	PEAK

Note:

1. All readings 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.
7. The Emission above 13GHz were not included is because their levels are too low.

5. RF antenna conducted test

5.1. Test Equipment

The following test equipments are used during the test:

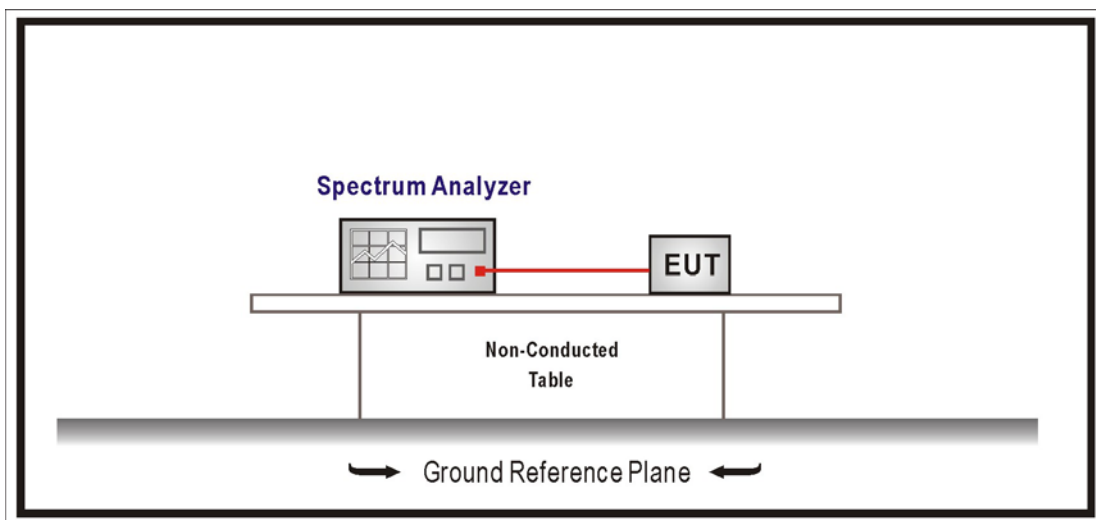
RF antenna conducted test / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2013/02/19

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

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 an RF conducted or 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 setup according to ANSI C63.4: 2009 and tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

5.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2011

5.6. Uncertainty

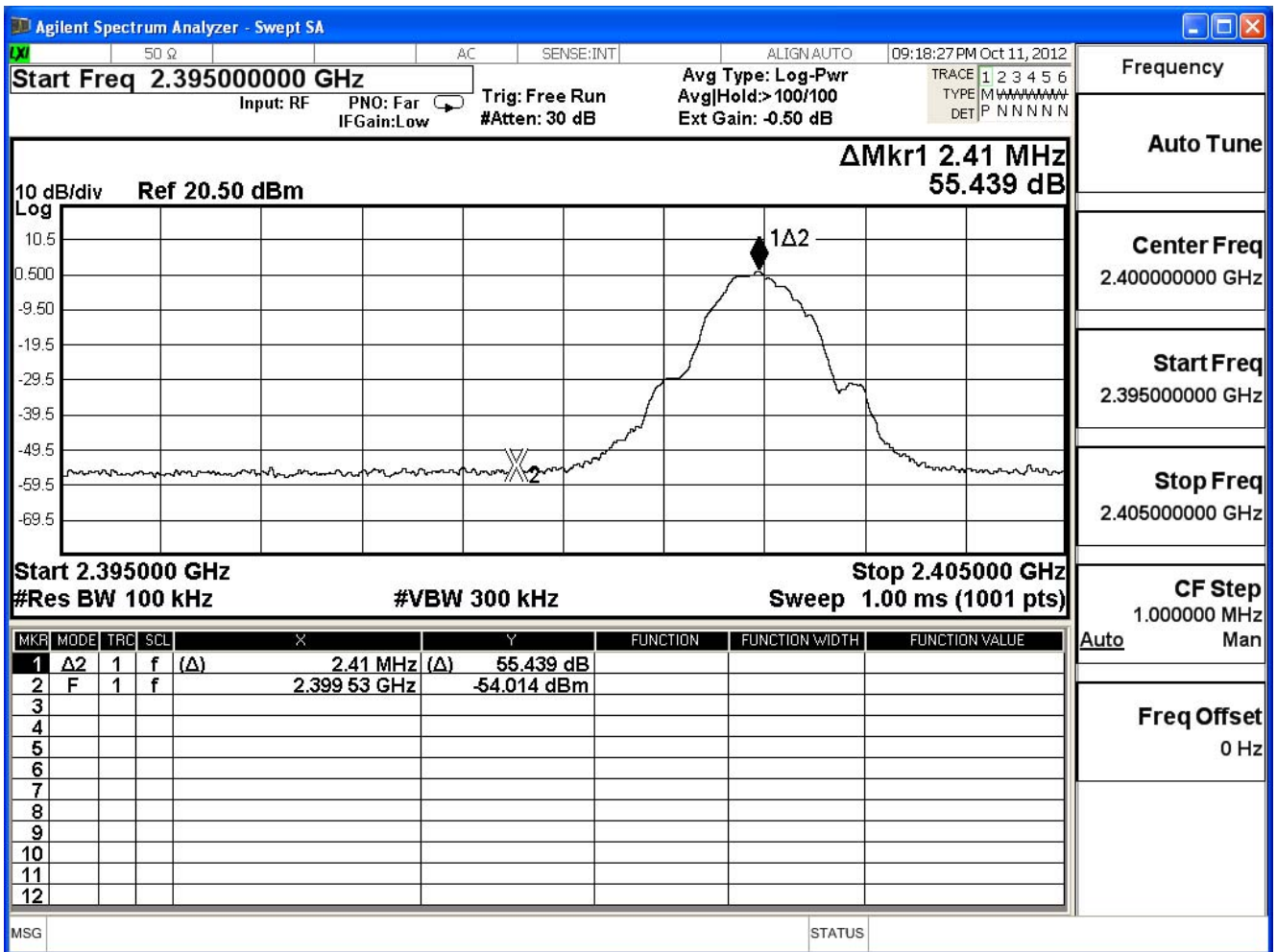
Conducted is defined as $\pm 1.27\text{dB}$

5.7. Test Result

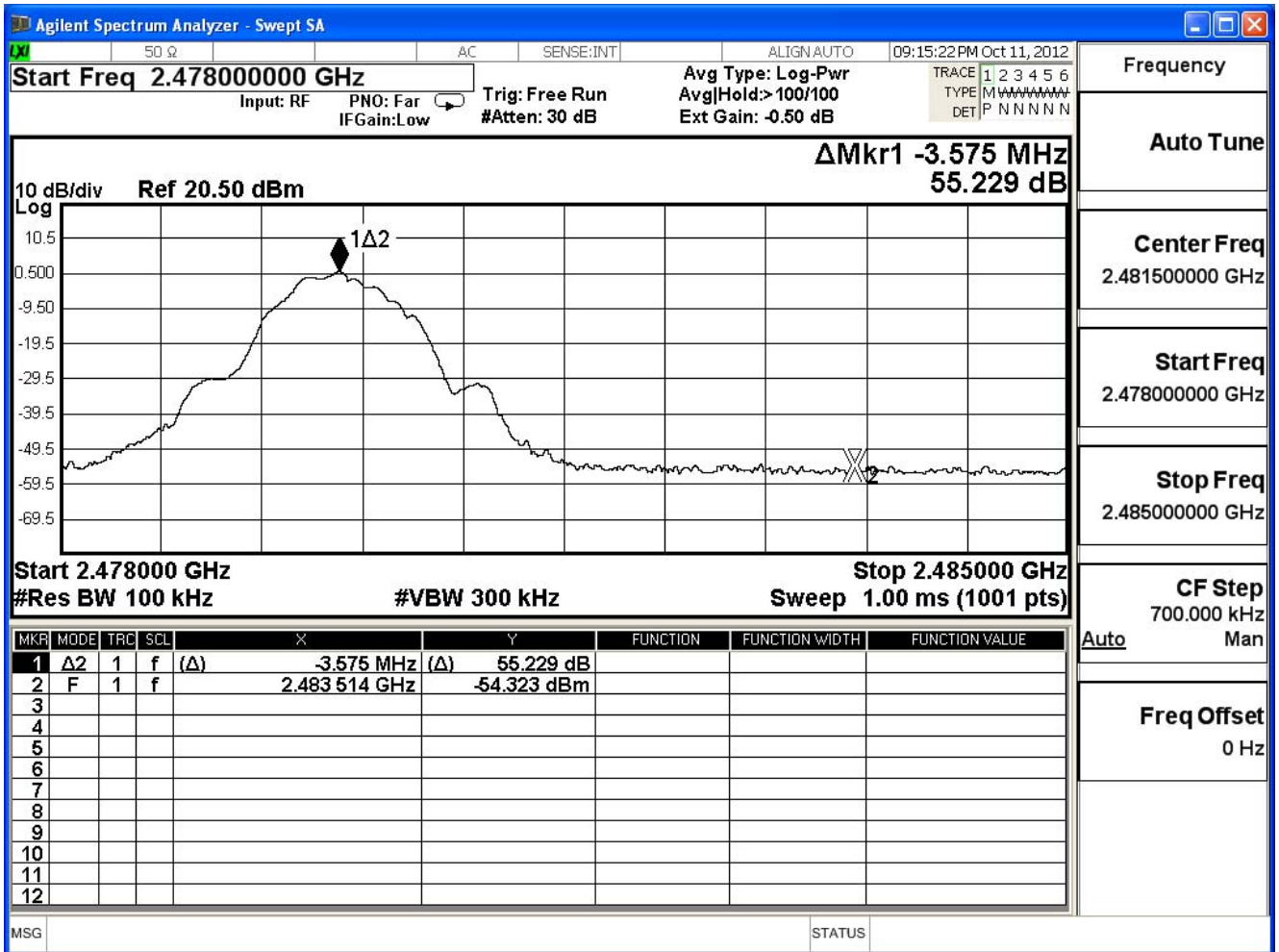
Product	Bluetooth 4.0 USB Dongle		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2012/10/11	Test Site	SR7

Antenna Gain: 0dBi				
Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
00	2402	55.439	≥ 20	Pass
39	2480	55.229	≥ 20	Pass

Channel 00 (2402MHz)

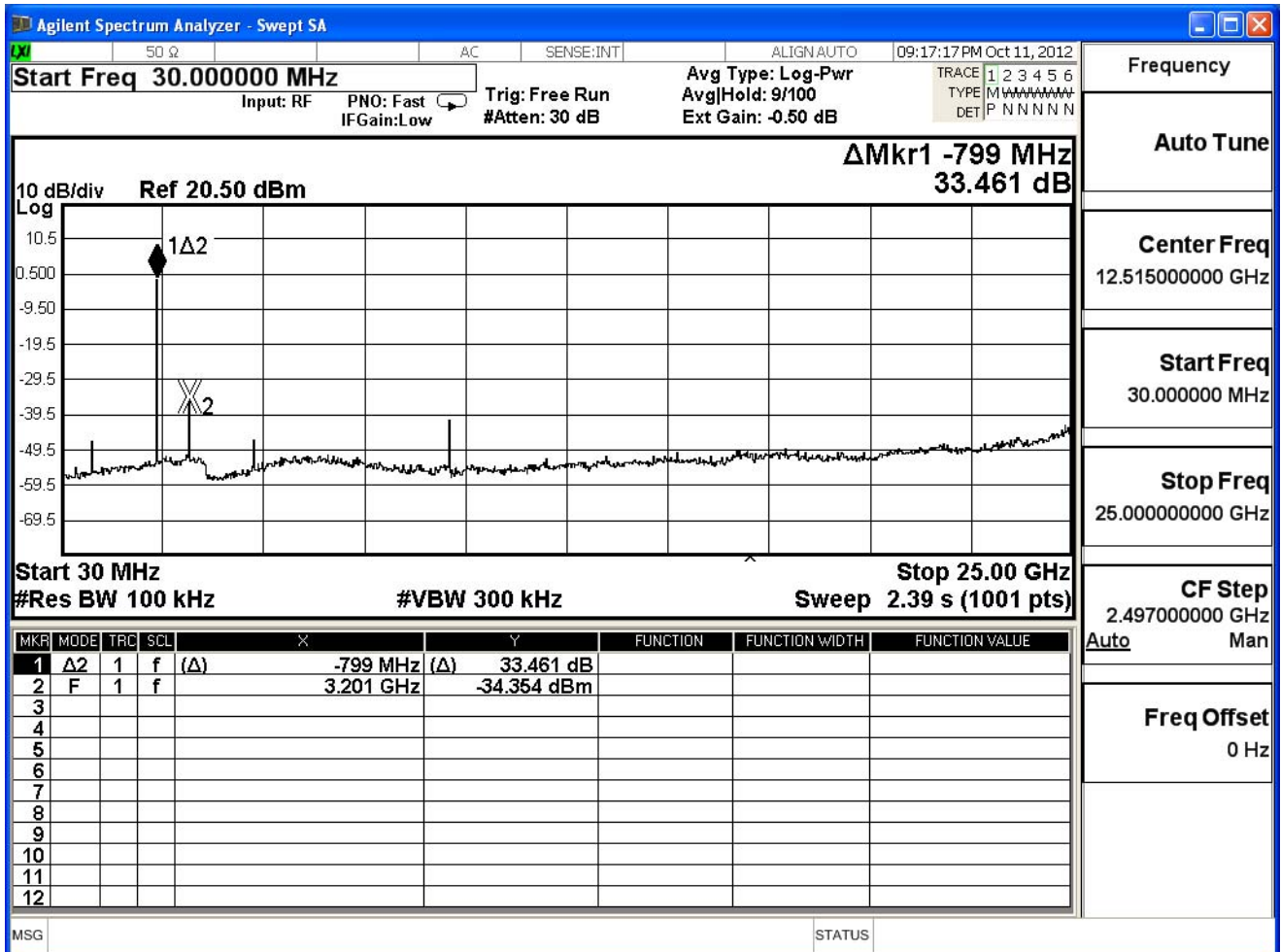


Channel 39 (2480MHz)

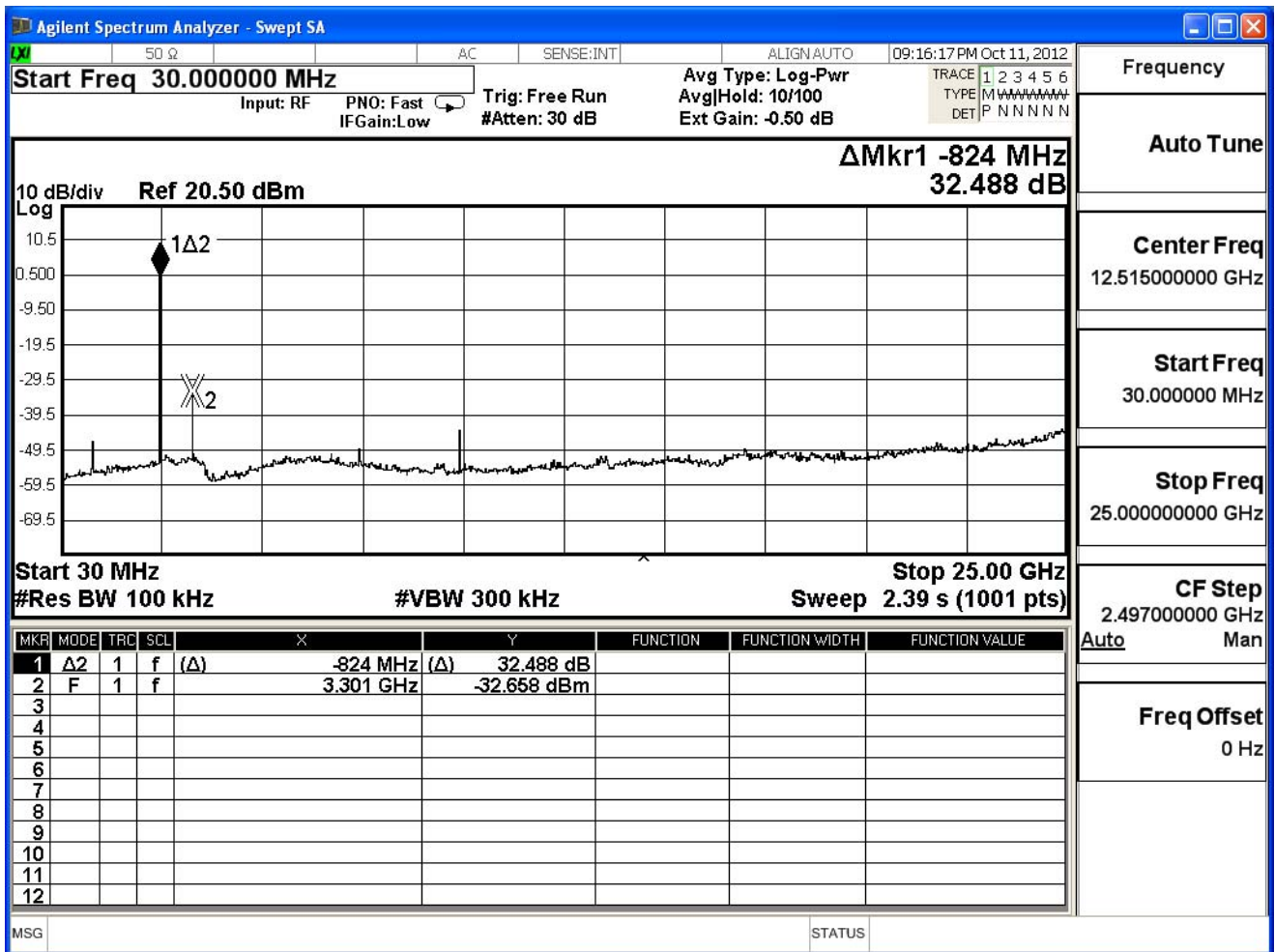


Product	Bluetooth 4.0 USB Dongle		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2012/10/11	Test Site	SR7

2402MHz (30MHz-25GHz)



2480MHz (30MHz-25GHz)



6. Radiated Emission Band Edge

6.1. Test Equipment

The following test equipments are used during the test:

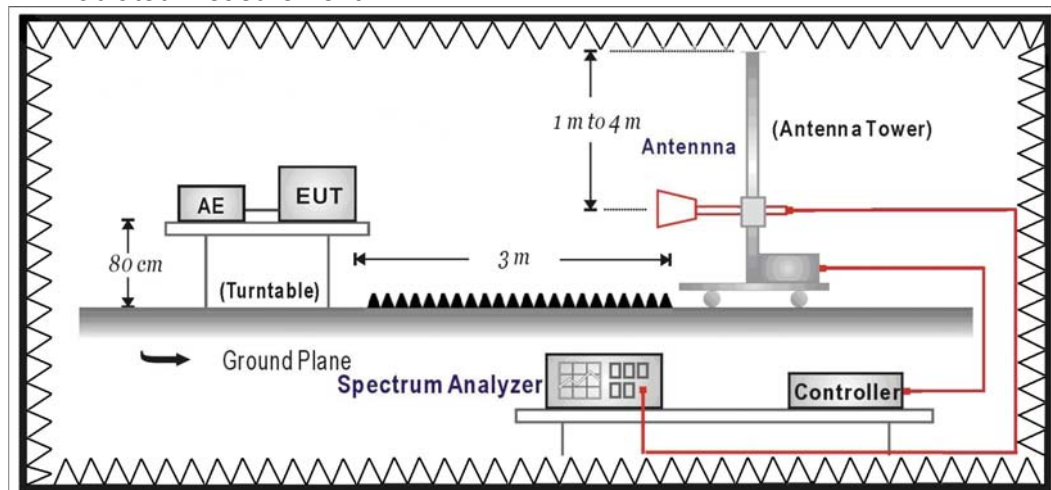
Radiated Emission Band Edge / CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120D	743	2013/02/02
Spectrum Analyzer	Agilent	E4440A	MY46187335	2013/02/07
Coaxial Cable	Huber+Suhner AG	Sucoflex 102	25623/2	2013/03/04

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

6.2. Test Setup

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: 2009 and tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements. 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: 2009 on radiated measurement.

6.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2011

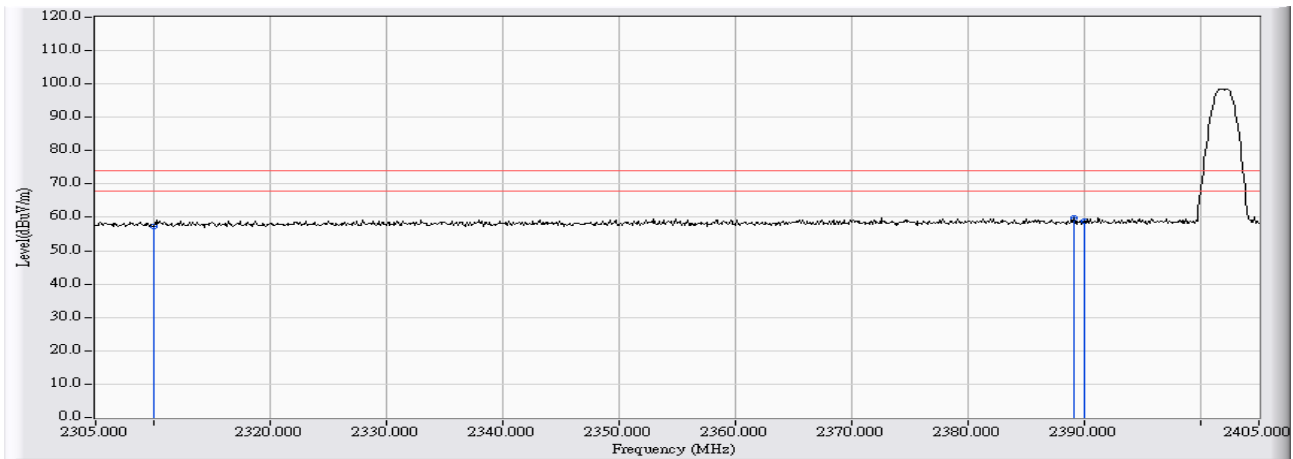
6.6. Uncertainty

The measurement uncertainty
 ± 3.9 dB above 1GHz

6.7. Test Result

Radiated is defined as

Site : CB1	Time : 2012/10/02 - 17:45
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2402MHz

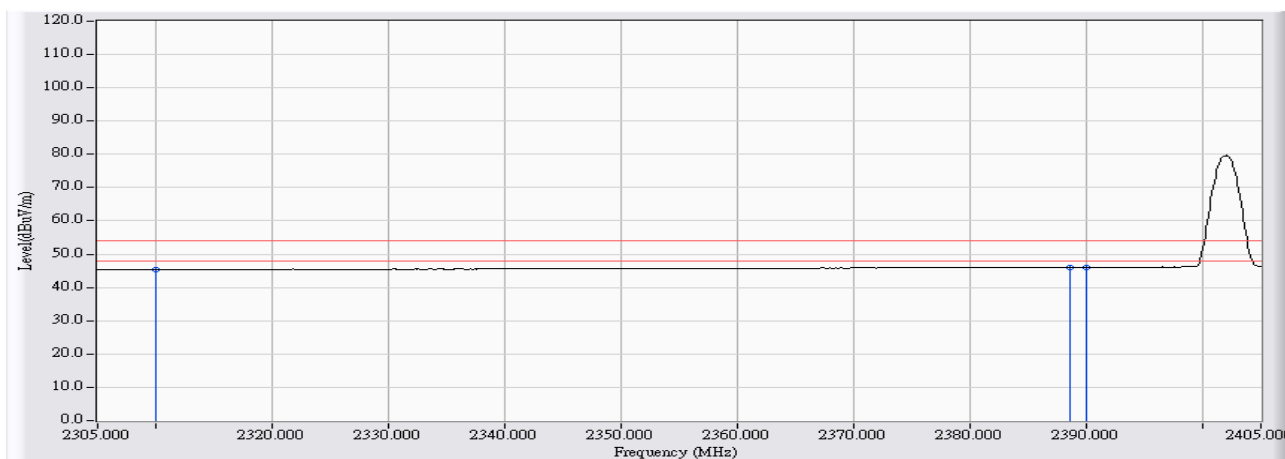


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2310.000	28.462	28.936	57.398	-16.602	74.000	PEAK
2	* 2389.100	28.780	31.051	59.831	-14.169	74.000	PEAK
3	2390.000	28.783	29.970	58.753	-15.247	74.000	PEAK

Note:

1. All readings 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.

Site : CB1	Time : 2012/10/02 - 17:45
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2402MHz

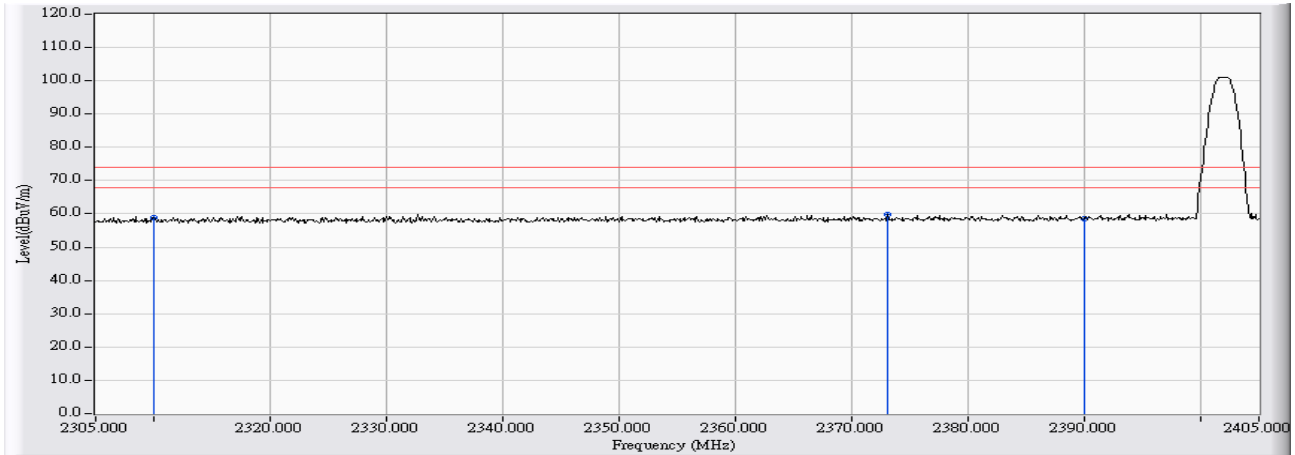


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2310.000	28.462	16.902	45.364	-8.636	54.000	AVERAGE
2	* 2388.600	28.778	17.289	46.067	-7.933	54.000	AVERAGE
3	2390.000	28.783	17.280	46.063	-7.937	54.000	AVERAGE

Note:

1. All readings 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.

Site : CB1	Time : 2012/10/02 - 17:47
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2402MHz

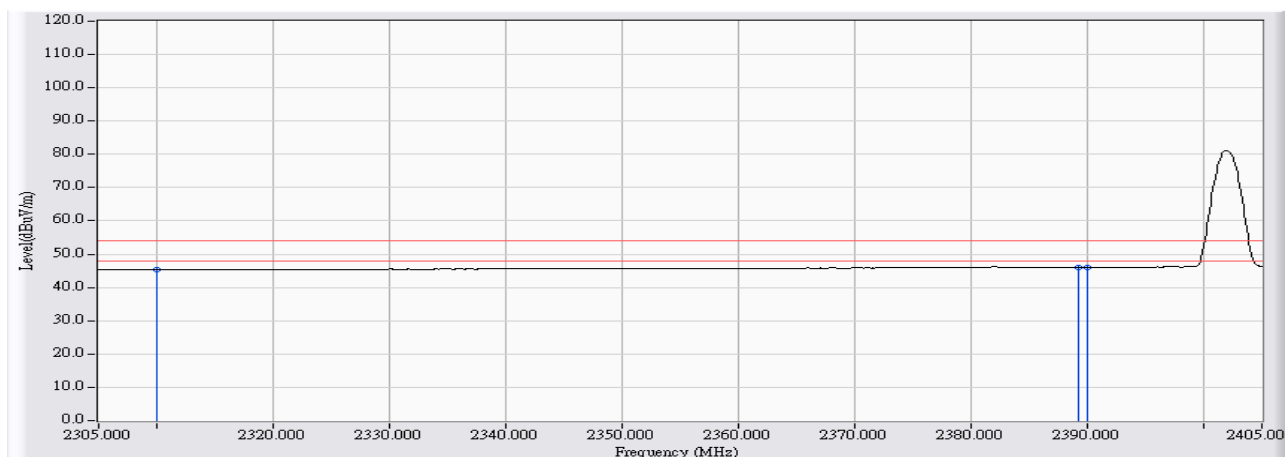


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2310.000	28.462	30.287	58.749	-15.251	74.000	PEAK
2	* 2373.100	28.716	31.050	59.765	-14.235	74.000	PEAK
3	2390.000	28.783	29.694	58.477	-15.523	74.000	PEAK

Note:

1. All readings 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.

Site : CB1	Time : 2012/10/02 - 17:48
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2402MHz

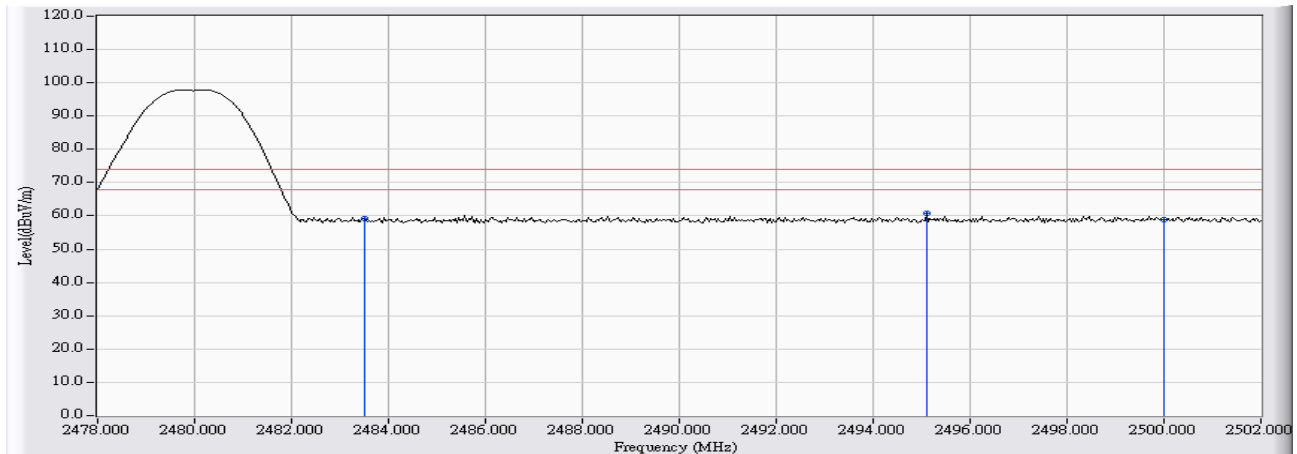


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2310.000	28.462	16.883	45.345	-8.655	54.000	AVERAGE
2	2389.200	28.780	17.265	46.045	-7.955	54.000	AVERAGE
3	* 2390.000	28.783	17.295	46.078	-7.922	54.000	AVERAGE

Note:

1. All readings 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.

Site : CB1	Time : 2012/10/02 - 17:30
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2480MHz

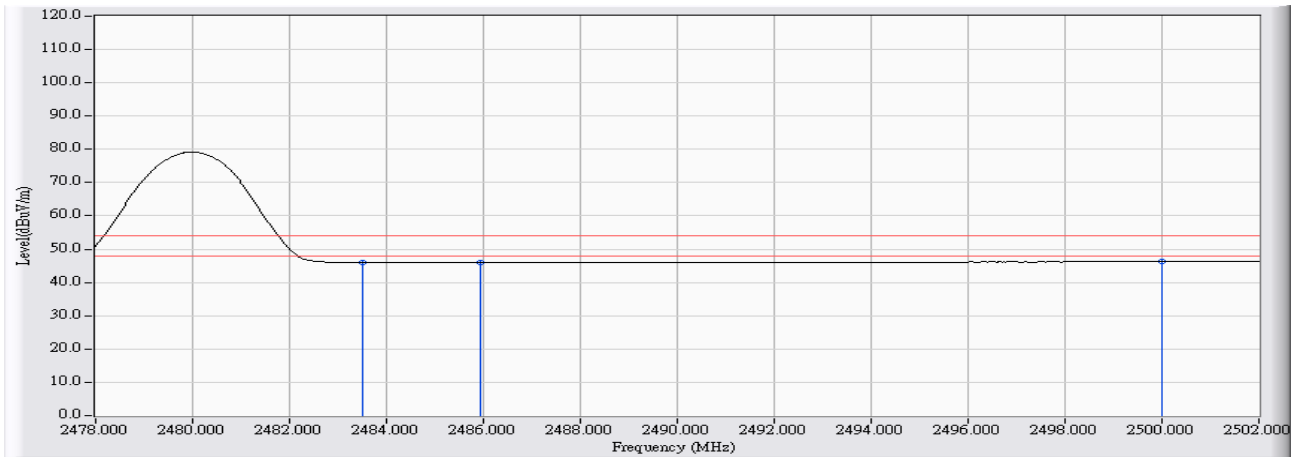


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2483.500	28.936	30.122	59.058	-14.942	74.000	PEAK
2	* 2495.100	28.947	31.911	60.857	-13.143	74.000	PEAK
3	2500.000	28.951	29.778	58.729	-15.271	74.000	PEAK

Note:

1. All readings 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.

Site : CB1	Time : 2012/10/02 - 17:30
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2480MHz

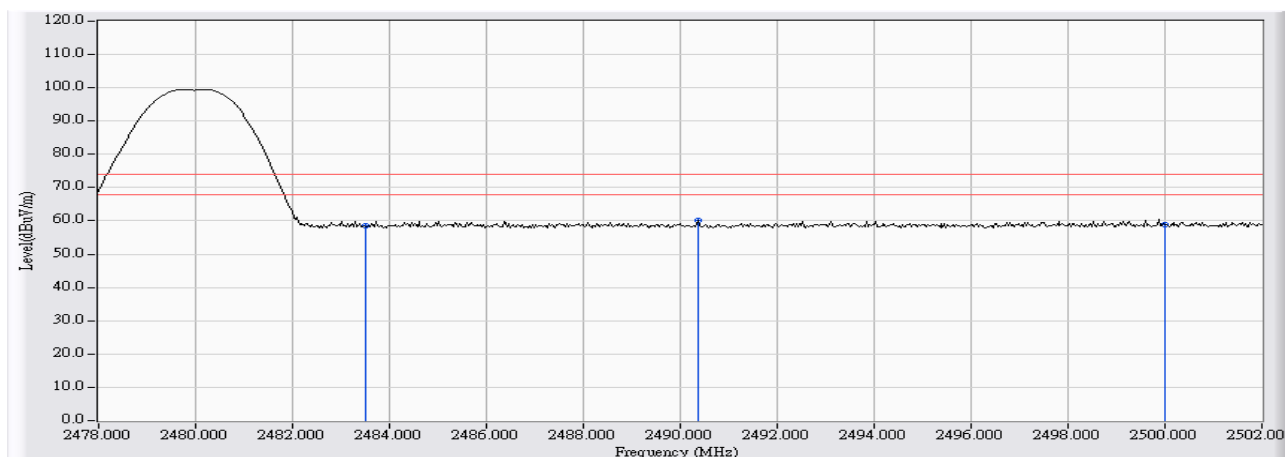


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2483.500	28.936	17.083	46.019	-7.981	54.000	AVERAGE
2	2485.950	28.938	17.116	46.054	-7.946	54.000	AVERAGE
3	* 2500.000	28.951	17.415	46.366	-7.634	54.000	AVERAGE

Note:

1. All readings 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.

Site : CB1	Time : 2012/10/02 - 17:33
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2480MHz

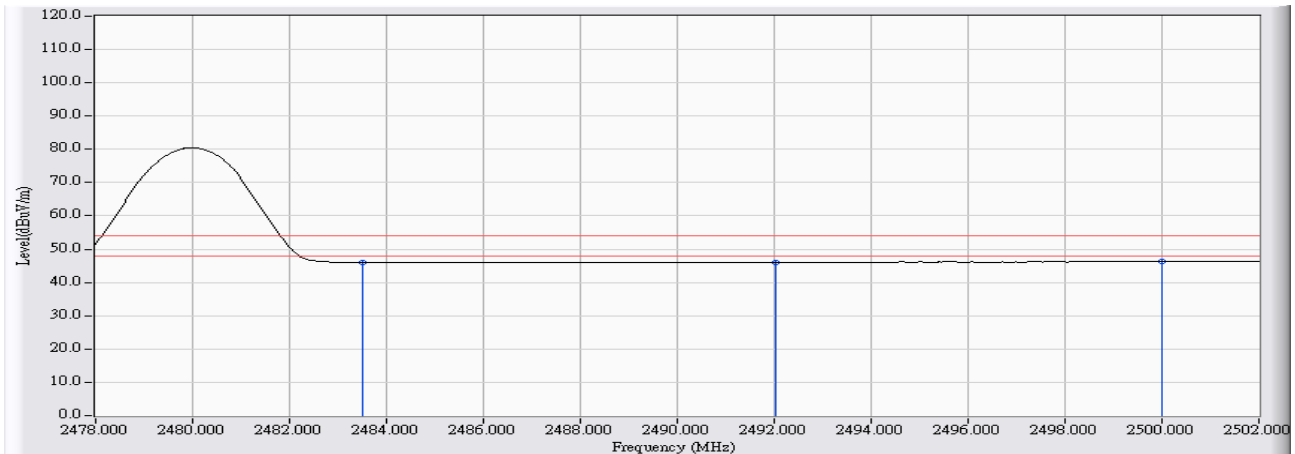


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2483.500	28.936	29.486	58.422	-15.578	74.000	PEAK
2	* 2490.360	28.942	31.224	60.166	-13.834	74.000	PEAK
3	2500.000	28.951	29.875	58.826	-15.174	74.000	PEAK

Note:

1. All readings 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.

Site : CB1	Time : 2012/10/02 - 17:33
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : DC 5V (Power by PC)
EUT : Bluetooth 4.0 USB Dongle	Note : Mode 1: Transmit_BT4.0_2480MHz



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2483.500	28.936	17.142	46.078	-7.922	54.000	AVERAGE
2	2492.040	28.944	17.148	46.092	-7.908	54.000	AVERAGE
3	* 2500.000	28.951	17.467	46.418	-7.582	54.000	AVERAGE

Note:

1. All readings 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.

7. Occupied Bandwidth

7.1. Test Equipment

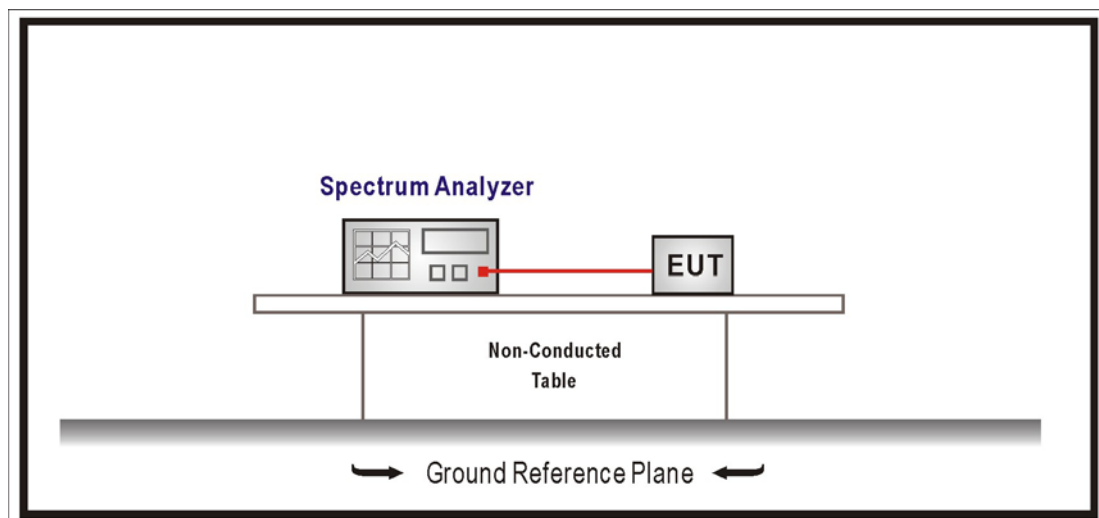
The following test equipments are used during the test:

Occupied Bandwidth / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2013/02/19

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

7.2. Test Setup



7.3. Test Procedures

The EUT was setup according to ANSI C63.4: 2009; tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 1% of EBW, Span greater than RBW.

7.4. Limits

The 6 dB bandwidth must be greater than 500 kHz.

7.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2011

7.6. Uncertainty

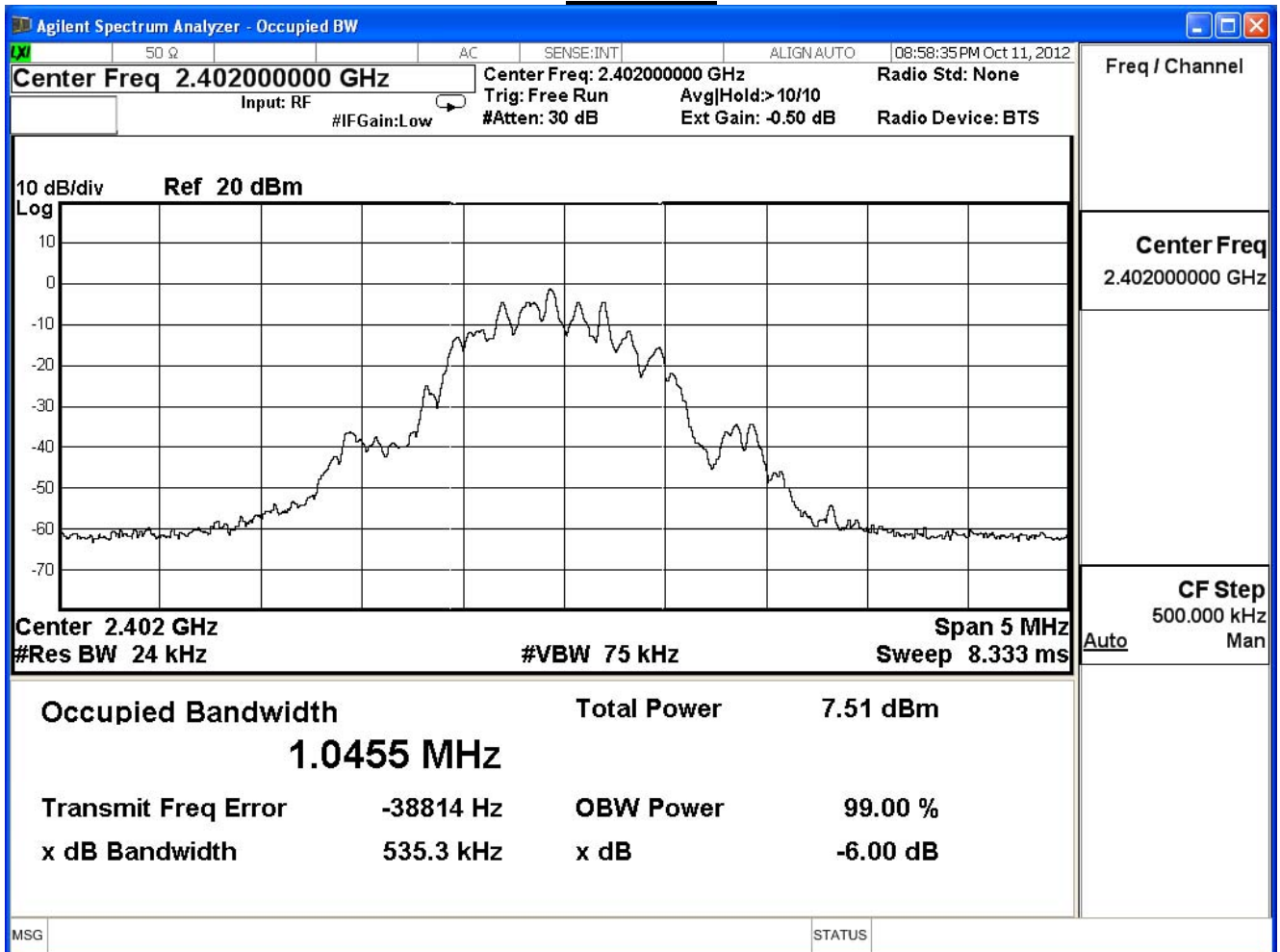
The measurement uncertainty is defined as $\pm 150\text{Hz}$

7.7. Test Result

Product	Bluetooth 4.0 USB Dongle		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2012/10/11	Test Site	SR7

Channel No.	Frequency (MHz)	Measurement Level (MHz)	Required Limit (MHz)	Result
00	2402	0.535	≥ 0.5	Pass
19	2440	0.536	≥ 0.5	Pass
39	2480	0.536	≥ 0.5	Pass

Channel 00



Channel 19



Channel 39



8. Power Density

8.1. Test Equipment

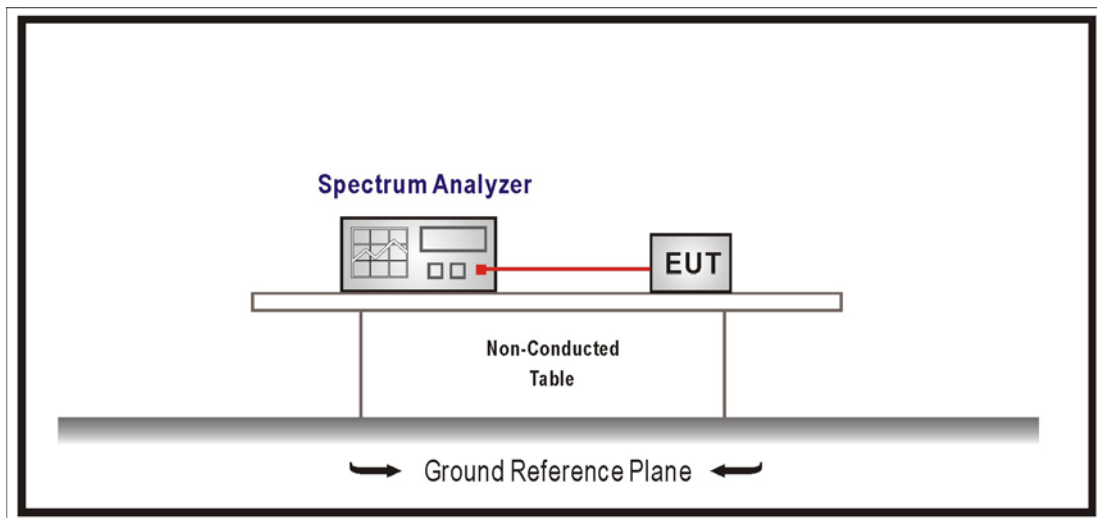
The following test equipment are used during the test:

Power Density / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2013/02/19

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

8.2. Test Setup



8.3. Limits

The peak power spectral density conducted from the intentional radiated to the antenna shall not be greater than +8dBm in any 3kHz band during any time interval of continuous transmission.

8.4. Test Procedures

The EUT was setup according to ANSI C63.4: 2009; tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW= 100 kHz, Set VBW= 300 kHz, Sweep time=Auto, Set detector=Peak detector.

Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3\text{ kHz}/100\text{ kHz}) = -15.2\text{ dB}$.

8.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2011

8.6. Uncertainty

The measurement uncertainty is defined as $\pm 1.27\text{dB}$.

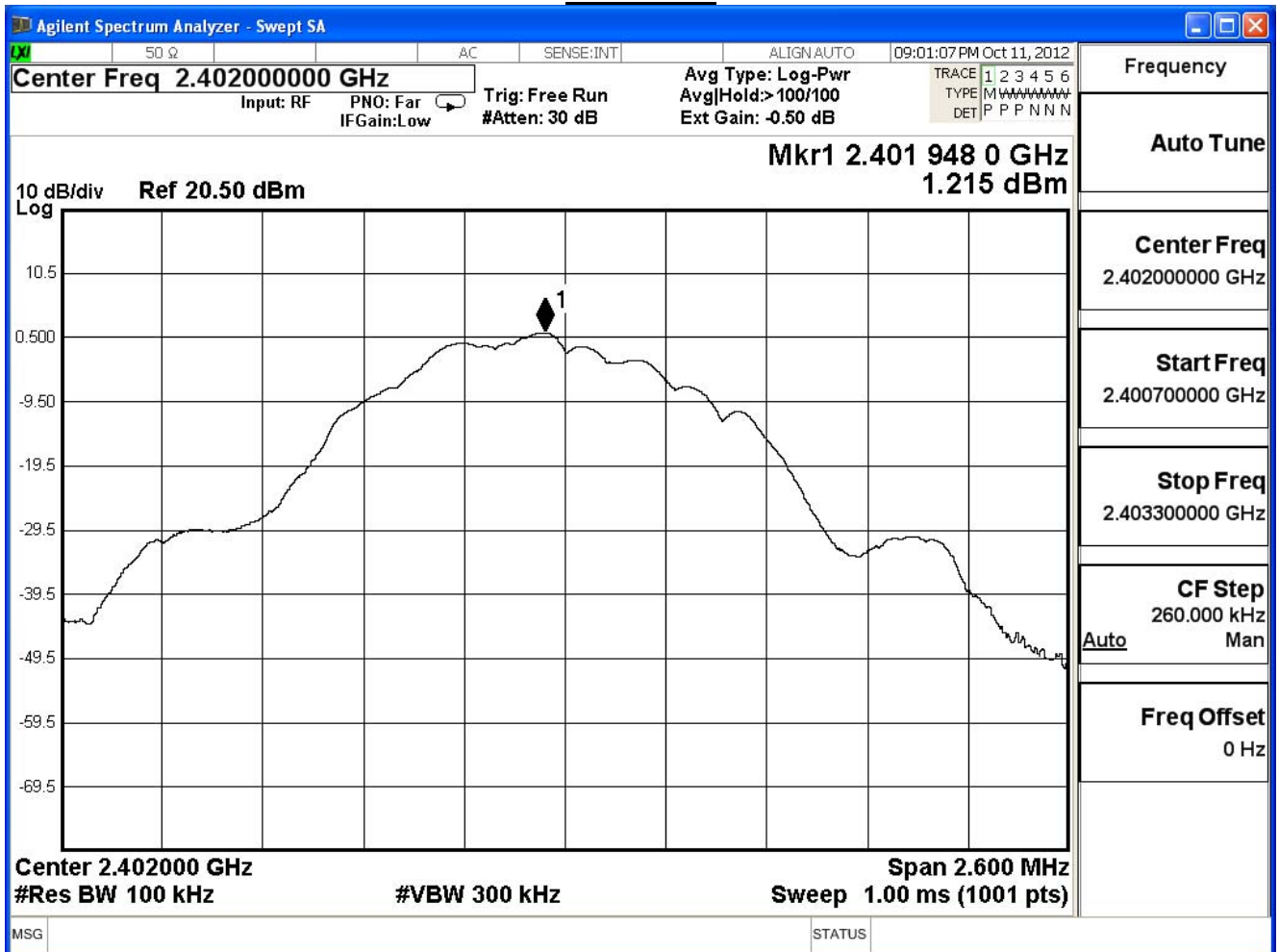
8.7. Test Result

Product	Bluetooth 4.0 USB Dongle		
Test Item	Power Density		
Test Mode	Mode 1: Transmit		
Date of Test	2012/10/11	Test Site	SR7

Channel No.	Frequency (MHz)	Reading Level(dBm)	Measure Level (dBm)	Limit (dBm)	Result
00	2402	1.215	-13.985	≤8	Pass
19	2440	0.988	-14.212	≤8	Pass
39	2480	0.810	-14.390	≤8	Pass

Note: Measure Level (dBm) = Reading Level (dBm) + BWCF = Reading Level (dBm) -15.2 (dB)
 Bandwidth correction factor (BWCF) = 10log (3kHz.100kHz)

Channel 00



Channel 19



Channel 39

