



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
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	11/1	Testing Laboratory
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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
	Quielek
Product Name	Bluetooth 4.0 USB Donale
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 s The test report shall not be reprodu	samples tested. Iced except in full without the written approval of QuieTek Corporation.
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	(Demi Chang / Engineering Adm. Specialist)
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	(Quale Tang / Engineer)
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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.guietek.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:

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- 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
 imiddle 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.
- 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.

	·
ТХ	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-	DoC	Non-Shielded, 1.8m
				0CN-0AHL		
3	USB Keyboard	DELL	SK-8115	1437	DoC	
4	USB Mouse	Logitech	M-UV83	LZE35150307	DoC	
5	USB 2.0 Flash	Apacer	AH223	N/A	DoC	
	Memory					
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)		15 - 35	20
Humidity (%RH)	Conducted Emission	25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)		15 - 35	25
Humidity (%RH)	Pook Power Output (DSSS)	25 - 75	48
Barometric pressure (mbar)	reak rower Output (DSSS)	860 - 1060	950-1000
Temperature (°C)		15 - 35	25
Humidity (%RH)	POC PART 15 C 15.247	25 - 75	65
Barometric pressure (mbar)	Radialed Emission (DSSS)	860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247	15 - 35	24
Humidity (%RH)	RF antenna conducted test	25 - 75	49
Barometric pressure (mbar)	(DSSS)	860 - 1060	950-1000
Temperature (°C)		15 - 35	25
Humidity (%RH)	POC PART 15 C 15.247	25 - 75	48
Barometric pressure (mbar)	Ballu Euge (DSSS)	860 - 1060	950-1000
Temperature (°C)		15 - 35	25
Humidity (%RH)	PCC PART 15 C 15.247	25 - 75	48
Barometric pressure (mbar)	Occupied Bandwidth (DSSS)	860 - 1060	950-1000
Temperature (°C)		15 - 35	25
Humidity (%RH)	Power Density (DSSS)	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 Subpa	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 \pm 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	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV)	(dB)	(dBuV)	
1		0.150	9.654	40.410	50.064	-15.936	66.000	QUASIPEAK
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	QUASIPEAK
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	QUASIPEAK
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	QUASIPEAK
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	QUASIPEAK
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	QUASIPEAK
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



23.720

22.400

18.240

25.930

19.350

23.490

18.250

33.390

32.331

28.171

35.958

29.378

33.684

28.444

-19.271

-23.669

-17.829

-20.042

-16.622

-26.316

-21.556

52.661

56.000

46.000

56.000

46.000

60.000

50.000

AVERAGE

QUASIPEAK

QUASIPEAK

QUASIPEAK

AVERAGE

AVERAGE

AVERAGE

Note:

6

7

8

9

10

11

12

0.224

2.017

2.017

3.904

3.904

10.119

10.119

1. All Reading Levels are Quasi-Peak and average value.

9.670

9.931

9.931

10.029

10.029

10.195

10.195

- 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
Cur	1 00001	Output /	0111

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 \pm 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)

🗊 Agil	lent Spectrun	n Analyzer - (Channel Powe	ar -							
Cent	ter Freq	2.4020	00000 G out: RF #IFO	Hz Gain:Low	Center Fr Center Fr Trig: Free #Atten: 30	NSE:INT req: 2.40200 ≩ Run) dB	00000 GHz Avg Hold Ext Gain:	ALIGNAUTO :>10/10 -0.50 dB	09:00:04F Radio Std Radio Dev	M Oct 11, 2012 None Vice: BTS	Freq / Channel
10 dE	3/div	Ref 20 d	IBm								
Log 10 - 0 -											Center Freq 2.402000000 GHz
-10						0	-				
-20 -				~			-				
-30 -							-				
-40 -											
-50 -											
-00											
-701											CF Step
Cent #Res	ter 2.402 s BW 1 N	2 GHz /IHz			#VE	swism⊦	lz	1	Spai Swe	n 2.6 MHz ep 1 ms	260.000 kHz <u>Auto</u> Man
С	Channel Power Oper Spectral Density										
	-1.63 dBm/ 535.3 kHz -58.92 dBm/Hz										
MSG								STATU	s		



CH 19 (2440MHz)

💴 Agilent Spect	trum Analyzer - Ch	annel Power				
Center Fro	50 Ω 2 q 2.44000(Inpu Ref 20 dE	0000 GHz t: RF #IFGain:Low	AC SENSE:INT Center Freq: 2.4400 Trig: Free Run #Atten: 30 dB	ALIGNAUTO 00000 GHz Avg Hold:>10/10 Ext Gain: -0.50 dB	09:04:14 PM Oct 11, 2012 Radio Std: None Radio Device: BTS	Freq / Channel
Log 10 -10 -20 -30 -40 -60						Center Freq 2.440000000 GHz
-70 Center 2.4 #Res BW Chann	4 GHz 1 MHz el Power -1.91	dBm/ 536 kl	#VBW 3 MH Powe	r Spectral Dens -59.20 dB	Span 2.6 MHz Sweep 1 ms sity m/Hz	CF Step 260.000 kHz <u>Auto</u> Man
MSG				STATUS	3	



CH 39 (2480MHz)

🗾 Agilent Spectrum Analyzer - Channel Power				
Center Freq 2.480000000 GHz Input: RF #IFGain:Low 10 dB/div Ref 10 dBm	AC SENSE:INT Center Freq: 2.48000 Trig: Free Run #Atten: 30 dB	ALIGNAUTO 0000 GHz Avg Hold:>10/10 Ext Gain: -0.50 dB	09:11:38PM Oct 11, 2012 Radio Std: None Radio Device: BTS	Freq / Channel
Log 0 -10 -20 -30 -40 -60 -60				Center Freq 2.48000000 GHz
Center 2.48 GHz #Res BW 1 MHz Channel Power	#VBW 3 MH: Power	z Spectral Dens	Span 2.6 MHz Sweep 1 ms	CF Step 260.000 kHz <u>Auto</u> Man
-2.07 dBm/ 536.6	kHz	-59.37 dB	m/Hz	

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	Schwarzback	BBHA 9120D	743	2013/02/02
Guide Horn Antenna				
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:







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 $30MHz \sim 1GHz$ as $\pm 3.43dB$ $1GHz \sim 26.5Ghz$ as $\pm 3.65dB$

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



- 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



29.778

22.127

27.422

20.729

-18.578

-25.271

46.000

46.000

QUASIPEAK

QUASIPEAK

Note:

5

6

814.083

938.567

- 1. All Reading Levels are Quasi-Peak value.
- 2. " * ", means this data is the worst emission level.

-2.356

-1.399

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	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
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

- 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



- 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



- 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



- 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



- 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



- 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
	antonna	001100000	10017	0.01

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 1.27dB

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)

Imput: RF PNO: Far Input: RF AC SENSE:INT ALIGNAUTO 09:18:27 PM Oct 11, 2012 Frequency Marcon Input: RF PNO: Far IFGain: Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Avg Hold:>100/100 TRACE [1 2 3 4 5 6 TYPE MWWWWW DET P NNNNN Frequency Auto Tu OMkr1 2.41 MHz 55.439 dB Auto Tu 10 dB/div Ref 20.50 dBm 55.439 dB 10.5 10.5 1Δ2 Center Fr 2.400000000 G	💴 Agilent Spectri	um Analyzer - Swept SA				
Input: RF PRO: Far Ing. Fice Hail Ing. Fice Hail <td>Start Freq</td> <td>30 Ω 2.395000000 GHz</td> <td></td> <td>ALIGNAUTO 09:18 Avg Type: Log-Pwr Avg Hold > 100/100</td> <td>27 PM Oct 11, 2012 TRACE 1 2 3 4 5 6</td> <td>Frequency</td>	Start Freq	30 Ω 2.395000000 GHz		ALIGNAUTO 09:18 Avg Type: Log-Pwr Avg Hold > 100/100	27 PM Oct 11, 2012 TRACE 1 2 3 4 5 6	Frequency
Log 10.5 0.5000 0.5000 0.500 0.500 0.500 0.500 0.500 0.500 0.	10 dB/div F	Input: RF PNO: Far IFGain:Lor Ref 20.50 dBm	w #Atten: 30 dB	Ext Gain: -0.50 dB	2.41 MHz 55.439 dB	Auto Tune
-9.50	Log 10.5 0.500 -9.50			1Δ2		Center Freq 2.40000000 GHz
-19.5 -29.5 -39.5 -39.5	-19.5 -29.5 -39.5					Start Freq 2.395000000 GHz
-49.5 -59.5 -69.5 <th< td=""><td>-59.5</td><td>mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm</td><td>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</td><td></td><td>manna</td><td>Stop Freq 2.40500000 GHz</td></th<>	-59.5	mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		manna	Stop Freq 2.40500000 GHz
Start 2.395000 GHz Stop 2.405000 GHz CF Stop 2.405000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.00 ms (1001 pts) 1.000000 M MKB MODE TRC SCL X Y FUNCTION WIDTH FUNCTION VALUE Auto M	Start 2.3950 #Res BW 10 MKR MODE TRO	00 GHz 10 kHz #\ 501	/BW 300 kHz	Stop 2. Sweep 1.00 m	405000 GHz Is (1001 pts)	CF Step 1.000000 MHz Auto Man
1 Δ2 1 f (Δ) 2.41 MHz (Δ) 55.439 dB 2 F 1 f 2.399 53 GHz -54.014 dBm	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	f (Δ) 2.41 MHz f 2.399 53 GHz	(Δ) 55.439 dB -54.014 dBm			Freq Offset 0 Hz



Channel 39 (2480MHz)

D Agi	lent S	pect	rum	Analyzer - S	Swept SA			- 10 C	13		9.				
₩ Star	t Fr	eq	⁵⁰ Ω.	2 478000	000 GH	łz	AC	SE	NSE:INT	Avg	⊭ Type: Jalde	LIGNAUTO	09:15:22 TR	2PM Oct 11, 2012 ACE 1 2 3 4 5 6	Frequency
				Inj	put: RF I	PNO: Far FGain:Lov	v P	#Atten: 3	e Run D dB	Ext G	ain: -	0.50 dB			Auto Tune
10 dE	3/div		Ref	f 20.50 c	1Bm								Kr1 -3. 5	5/5 MHZ 5.229 dB	
10.5						1Δ2 —									Center Freq
0.500 -9.50						m ~			-						2.481500000 GHz
-19.5	_		_	/	ſ	<u>~</u>	$\left\{ + \right\}$		-		-			-	Start Fred
-29.5 -39.5							V	$\overline{)}$							2.478000000 GHz
-49.5	n	سم سم	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	/				Long Long	man	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m	m		m-mon	
-59.5 -69.5															2.485000000 GHz
Star	t 2.4	178	000	GHz					01			s	top 2.4	35000 GHz	CE Oton
#Res	s BV	N 1	00	kHz		#V	'BW :	300 kHz				Sweep	1.00 ms	(1001 pts)	700.000 kHz
MKR N		TRC 1	SCL f	(Δ)	× -3.5	75 MHz	(<u>∆</u>)	55.229	dB	UNCTION	FUN	CTION WIDTH	FUNC	FION VALUE	<u>Auto</u> Man
<u>2</u> 3 4		1		1	2.483 5	014 GHZ		-04.323 a	Bm		<u>)</u>]				Freq Offset
567			2	2							8				0 Hz
8 9			0 0								9 9				
10 11 12															
MSG												STATUS			

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)

🗊 Agilent Spectrum Analyzer - Swept SA	
X 50 Ω AC SENSE:INT ALIGN AUTO 09:17:17 PM Oct 11, 2012 Start Freq 30.000000 MHz Avg Type: Log-Pwr TRACE 12 3 4 5 6 Trig: Free Bur Avg Hadd: 0/00 Type Mutanature	Frequency
Input: RF PNO: Fast Tig. Free Kun Avgridid. 3/100 IFGain:Low #Atten: 30 dB Ext Gain: -0.50 dB DET P NNNNN ΔMkr1 -799 MHz 33.461 dB	Auto Tune
10.5 0.500 -9.50	Center Freq 12.515000000 GHz
-19.5 -29.5 -39.5 -39.5	Start Freq 30.000000 MHz
-49.5 -59.5 -69.5	Stop Freq 25.00000000 GHz
Start 30 MHz Stop 25.00 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.39 s (1001 pts)	CF Step 2.49700000 GHz
1 Δ2 1 f (Δ) -799 MHz (Δ) 33.461 dB 2 F 1 f 3.201 GHz -34.354 dBm	Freq Offset 0 Hz



2480MHz (30MHz-25GHz)

D Agi	ilent S	pect	rum	Analyzer -	Swept S	A												
<mark>W</mark> Star	t Fr	eq	50 ຊ 30	0.00000	DO MH	lz		م 		ENSE:I	NT	Avg	Type	ALIGNAUTO Log-Pwr	09:16:17 TR. T	PM Oct 11, 201	6	Frequency
10 dl	B/div		Ref	^{In} 20.50 (put: R⊦ dBm	PN IFG	0: Fast ain:Lov	· () v	#Atten: 3	0 dB		Ext G	ain:	0.50 dB	Mkr1 - 3:	B24 MH: 2.488 dE	N Z M	Auto Tune
10.5 0.500 -9.50			•	ΙΔ2 —													-	Center Freq 12.515000000 GHz
-19.5 -29.5 -39.5	10			¥2														Start Freq 30.000000 MHz
-49.5 -59.5 -69.5	مسلحاسير	_♪ 」 [,] →	~**	Mun	and the second second	ملعريهار	⋘⊥∿⊶	~**6	Law or a factor of the	Barrari	Murdensoder	ماسعهمي	P.s. Janes	*********	and the second statement			Stop Freq 25.00000000 GHz
Star #Re MKR	t 30 s BV MODEI	MH V 1 160	lz 00 SOL	kHz (Δ)	×	-824	#V	' BW (Δ)	300 kHz	dB	FUN	CTION	FUN	Sweep Iction width	Stop 2.39 s	25.00 GH (1001 pts	z ;)	CF Step 2.497000000 GHz <u>Auto</u> Man
2 3 4 5 6 7 8 9 10 11 11 12	F	1				3.301	I GHz		_32.658 d	Bm								Freq Offset 0 Hz
MSG														STATUS				

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	Schwarzback	BBHA 9120D	743	2013/02/02
Horn Antenna				
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**



Limits 6.3.

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

74.000

PEAK

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



Note:

3

2390.000

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.

29.970

- 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.

28.783

- 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.

58.753

-15.247

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	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
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

- 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	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
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

- 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	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
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

- 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	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
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

- 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	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
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

- 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	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
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

- 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	Correct Factor	Reading Level	Iding Level Measure Level		Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
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

- 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 ± 150 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

💯 Agilent Spectrum Analyzer - Occ	upied BW					
IX 50 Ω Center Freq 2.402000 Input: Input:	AC 000 GHz RF #IFGain:Low	ALIGNAU 0000 GHz Avg Held:>10/10 Ext Gain: -0.50 dB	TO 08:58:35 Radio Sto Radio De	PM Oct 11, 2012 I: None vice: BTS	Freq / Channel	
10 dB/div Ref 20 dBr	m					
		ΛΛΛΛ				Center Freq 2.402000000 GHz
-20 -30 -40	- M					
-50 -60 ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			 	white and the second	- Contractor of the second	CE Sten
Center 2.402 GHz #Res BW 24 kHz		#VBW 75 kH	z	Sp Sweep	an 5 MHz 8.333 ms	500.000 kHz Auto Man
Occupied Bandwi	Total P Z	ower 7	.51 dBm			
Transmit Freq Error	z OBW P	ower	99.00 %			
x dB Bandwidth	535.3 kH	z xdB		-6.00 dB		
MSG			ST	ATUS		

📭 Agilent Spectrum Analyzer - Occupied BW 50 Ω 09:03:02 PM Oct 11, 2012 NSE:INT ALIGN AUTO Freq / Channel Center Freq 2.440000000 GHz Center Freq: 2.440000000 GHz Radio Std: None Trig: Free Run Avg|Hold:>10/10 Input: RF #IFGain:Low #Atten: 30 dB Ext Gain: -0.50 dB Radio Device: BTS 10 dB/div Ref 20 dBm .og 10 **Center Freq** 2.440000000 GHz C M -10 -20 -30 -40 -50 л. Г -60 -70 **CF** Step 500.000 kHz Center 2.44 GHz Span 5 MHz Man Auto #Res BW 24 kHz Sweep 8.333 ms #VBW 75 kHz **Total Power** 7.27 dBm **Occupied Bandwidth** 1.0455 MHz -40286 Hz **Transmit Freq Error OBW Power** 99.00 % x dB Bandwidth 536.0 kHz x dB -6.00 dB STATUS MSG

📭 Agilent Spectrum Analyzer - Occupied BW 50 Ω 09:09:35 PM Oct 11, 2012 NSE:INT ALIGN AUTO Freq / Channel Center Freq 2.480000000 GHz Center Freq: 2.480000000 GHz Radio Std: None Trig: Free Run Avg|Hold:>10/10 Input: RF #IFGain:Low #Atten: 30 dB Ext Gain: -0.50 dB Radio Device: BTS 10 dB/div Ref 20 dBm .og 10 **Center Freq** 2.48000000 GHz C MAA -10 -20 -30 -40 -50 -60 -70 **CF** Step 500.000 kHz Center 2.48 GHz Span 5 MHz Man Auto #Res BW 24 kHz Sweep 8.333 ms #VBW 75 kHz **Total Power** 7.13 dBm **Occupied Bandwidth** 1.0467 MHz -41692 Hz **Transmit Freq Error OBW Power** 99.00 % x dB Bandwidth 536.6 kHz x dB -6.00 dB STATUS MSG

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				
Neter 4. All equipments that people collibrate are with collibration period of 4 years							

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 = 10log (3 kHz/100 kHz = -15.2 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 ± 1.27 dB.

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 19 🚺 Agilent Spectrum Analyzer - Swept SA 50 Ω LXI SENSE:INT ALIGN AUTO 09:02:15 PM Oct 11, 2012 Center Freq 2.440000000 GHz Frequency Avg Type: Log-Pwr TRACE 1 2 3 4 5 6 TYPE MWWWW DET P P P N N N Avg|Hold:>100/100 Ext Gain: -0.50 dB Trig: Free Run PNO: Far 😱 IFGain:Low Input: RF #Atten: 30 dB Auto Tune Mkr1 2.439 945 4 GHz 0.988 dBm 10 dB/div Log Ref 20.50 dBm **Center Freq** 10.5 2.440000000 GHz **●**¹. 0.500 Start Freq 2.438700000 GHz -9.50 -19.5 Stop Freq 2.441300000 GHz -29.5 CF Step -39.5 260.000 kHz Man Auto -49.5 Ą, **Freq Offset** -59.5 0 Hz -69.5 Center 2.440000 GHz Span 2.600 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.00 ms (1001 pts) MSG STATUS



			C			,					
Agi	ent Spectrun	n Analyzer - :	Swept SA		-	1.00.000 WE 1000					
	50	2 4000	00000 0	A	IC SE	NSE:INT		ALIGNAUTO	U9:07:11P	MOCT 11, 2012	Frequency
Cen	ter Freq	2.4800 Inj	put: RF P IFC	HZ NO: Far 😱 Gain:Low	Trig: Free #Atten: 30	eRun)dB	Avg Hold: Ext Gain:	-0.50 dB	TYP	E MWWWWW T P NNNNN	
10 dE	3/div Re	ef 20.50 d	dBm		a .	<u>.</u>		Mkr1 2.	479 945 0.81	64 GHz 10 dBm	Auto Tune
											Center Freg
10.5											2 48000000 GHz
					1						2.40000000 GH2
0.500						lenge of				<u> </u>	
						\sim	<				Start Freq
-9.50	4				y		M			s	2.478700000 GHz
							M				
-19.5							_	<u>\</u>			
			1					1			Stop Freq
-29.5			are a second					1			2.481300000 GHz
	1							J.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
-39.5	1								\		CF Step
	mark									\mathcal{A}	260.000 kHz
.19.5						-				White	<u>Auto</u> Man
40.0										" ` `J	
50 E											Frea Offset
-05.0											0 Hz
- CO <i>E</i>											
-69.5											
										s	
Cent	ter 2.480	000 GHz						212762	Span 2	.600 MHz	
#Res	s BW 100) kHz		#VBW	300 kHz			Sweep	1.00 ms ('	1001 pts)	
MSG								STATUS			

Channel 39