



Test Report

Product Name : GPS Bluetooth Receiver

Model No. : GPSBT560

FCC ID : TQ6GPSBT560

Applicant : Shanghai Flaircomm Technologies Inc

Address : No.5,Bibo Road,Keyuan Building,4F,Zhangjiang
Hi-Tech Park,Shanghai,201203 P.R.China

Date of Receipt : 2006/12/19

Issued Date : 2007/08/20

Report No. : 06CS033-RF-US-P06V01

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by CNLA, NVLAP, NIST or any agency of the Government.

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Test Report Certification

Issued Date : 2007/08/20

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Product Name : GPS Bluetooth Receiver

Applicant : Shanghai Flaircomm Technologies Inc

Address : No.5,Bibo Road,Keyuan Building,4F,Zhangjiang Hi-Tech
Park,Shanghai,201203 P.R.China

Manufacturer : Shanghai Flaircomm Technologies Inc

Model No. : GPSBT560

FCC ID : TQ6GPSBT560

Rated Voltage : AC 120 V / 60 Hz

EUT Voltage : DC 3.7V

Trade Name : Flaircomm

Applicable Standard : FCC CFR Title 47 Part 15 Subpart C: 2007
ANSI C63.4: 2003

Test Result : Complied

Performed Location : SuZhou EMC laboratory
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Hi-Tech Development Zone., SuZhou, China
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
FCC Registration number: 800392

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Laboratory Information

We , **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited by the following accreditation Bodies in compliance with ISO 17025, EN 45001 and Guide 25:

Taiwan R.O.C.	: BSMI, DGT, CNLA
Germany	: TUV Rheinland
Norway	: Nemko, DNV
USA	: FCC, NVLAP
Japan	: VCCI

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site : <http://tw.quietek.com/modules/myalbum/>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

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TEL : +86-512-6251-5088 / FAX : 86-512-6251-5098

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1. General Information

1.1. EUT Description

Product Name	GPS Bluetooth Receiver
Trade Name	Flaircomm
Model No.	GPSBT560
FCC ID	TQ6GPSBT560
Working Voltage	DC 3.7V
Frequency Range	2400 - 2483.5MHz
Channel Number	79
Type of Modulation	Frequency Hopping Spread Spectrum
Channel Control	Auto
Antenna type	Printed PCB
Antenna Gain	-3.5dBi

Component	
GPS Antenna	Manufacturer: INPAQ TECHNOLOGY Co., LTD M/N: PA1575MZ50
Travel Charge	Manufacturer: TPI Travel Charge M/N: TPCA-050050V Input: AC120~240V, 50/60Hz, 0.2A Output: DC5.0V, 500mA
Car Charge	M/N: TTX-06500 Input: 12V-24VDC Output: 5.0VDC, 500mA
Power Cord	Non-Shielded, 1.8m

Bluetooth Working Frequency of Each Channel:

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

1.2. Mode of Operation

Quietek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit

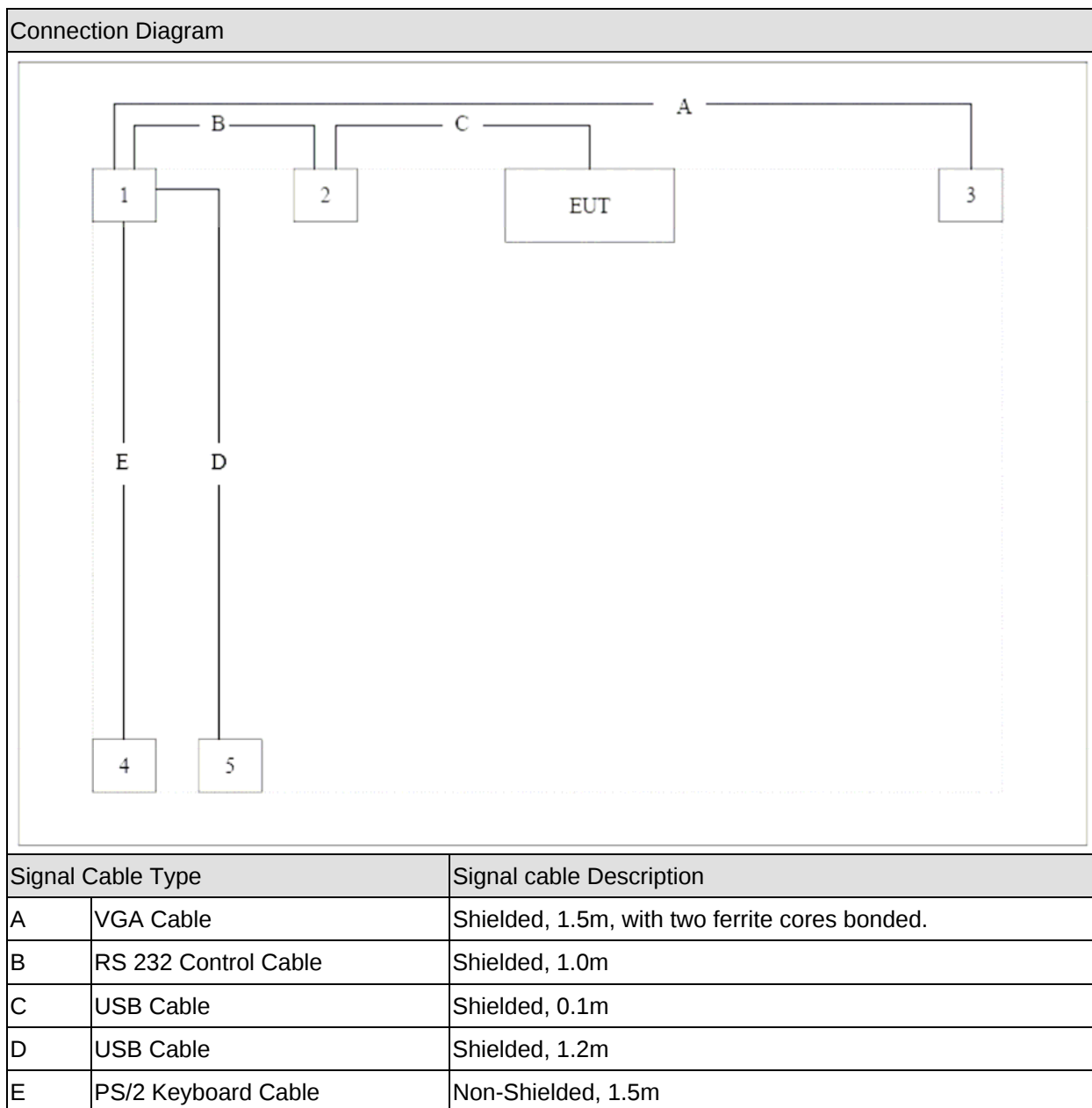
- Note: 1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. This device is a composite device in accordance with Part 15 Subpart B regulations. The function for the receiver was measured and made a test report that the report number is 06CS033-RF-US-P06V02, certified under Declaration of Conformity.

1.3. 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.	Power Cord
1	Notebook P.C.	HP	DC7600CMT	CPG5460DC6	Non-Shielded, 1.8m
2	Control Board	Flaircomm	N/A	N/A	N/A
3	LCD Monitor	CHIMEI	A170E-03	36C112338M41164	Non-Shielded, 1.8m
4	PS/2 Keyboard	MSI	MSK-102XBL	50200797	Power by PC
5	USB Mouse	DELL	M-UVDEL	N/A	Power by PC

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Connect the EUT to PC via a control board and a RS232 cable.
3	Execute the Blue Test program on the PC.
4	Setup the test channel and the test mode press ok to start the Continue Transmit.
5	Verify EUT operation properly.

2. Technical Test

2.1. Summary of Test Result

- ☒ No deviations from the test standards
- ☐ Deviations from the test standards as below description:

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2007 Section 15.207	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2007 Section 15.209	Yes	No
Peak Power Output	FCC CFR Title 47 Part 15 Subpart C: 2007 Section 15.247(b)(1)	Yes	No
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2007 Section 15.247(a)(1)	Yes	No
Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2007 Section 15.215(c), 15.247(d)	Yes	No
Channel Number	FCC CFR Title 47 Part 15 Subpart C: 2007 Section 15.247(a)(1)(iii)	Yes	No
Channel Separation	FCC CFR Title 47 Part 15 Subpart C: 2007 Section 15.247(a)(1)	Yes	No
Dwell Time	FCC CFR Title 47 Part 15 Subpart C: 2007 Section 15.247(a)(1)(iii)	Yes	No

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

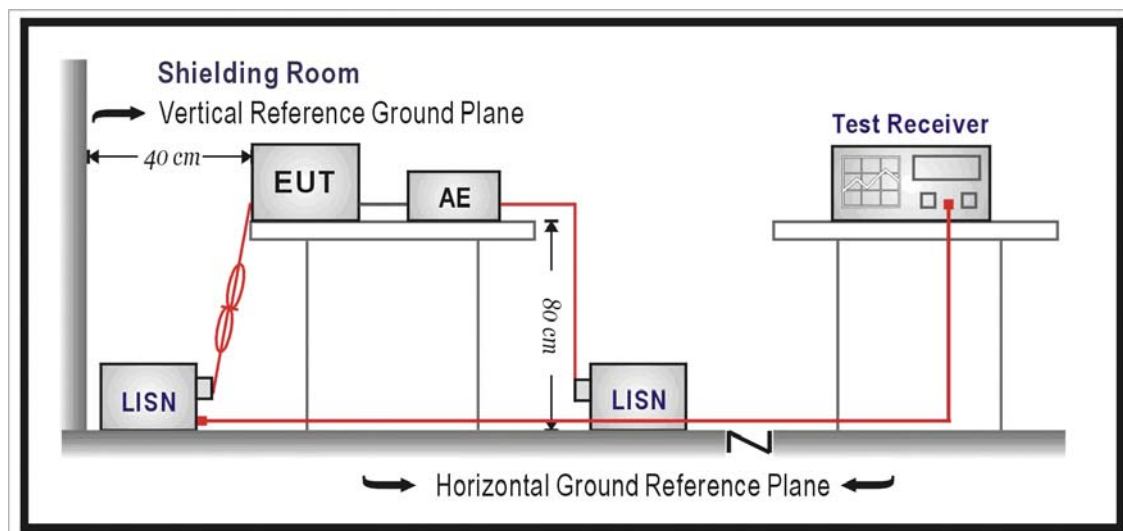
3. Conducted Emission

3.1. Test Equipment

Conducted Emission / SR-1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESCI	100176	2006/11/22
Two-Line V-Network	R&S	ENV216	100013	2006/11/20
Two-Line V-Network	R&S	ENV216	100014	2006/11/20
50ohm Coaxial Switch	ANRITSU	MP59B	6200464462	2006/11/25
50ohm Termination	SHX	50ohml	QT-IM001	2007/03/20
Coaxial Cable	Luthi	RG214	519358	2006/11/25
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH004	2007/03/31

3.2. Test Setup



3.3. Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
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.

3.4. Test Procedure

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

(Please refers to the block diagram of the test setup and photographs.)

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

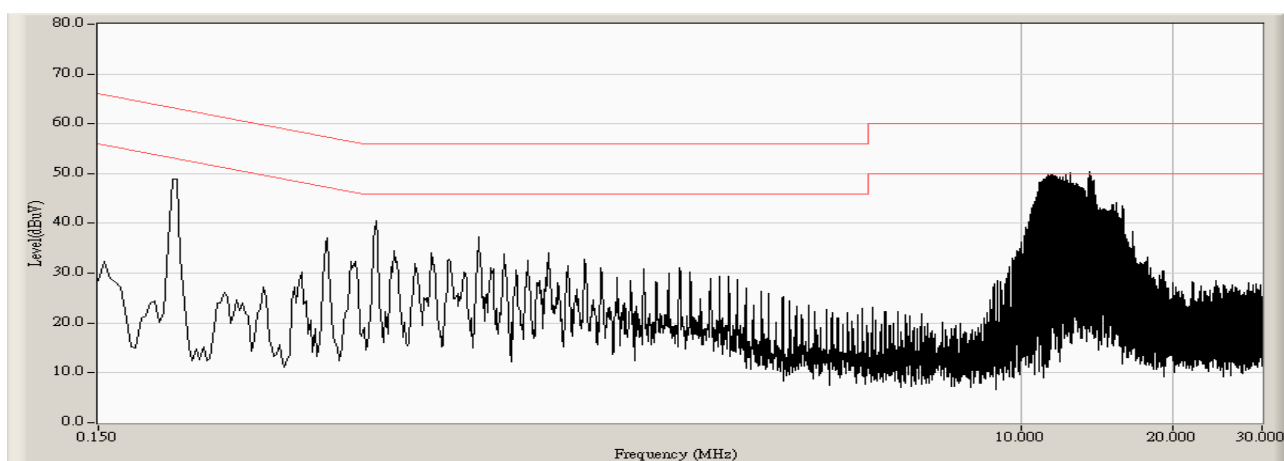
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

3.5. Uncertainty

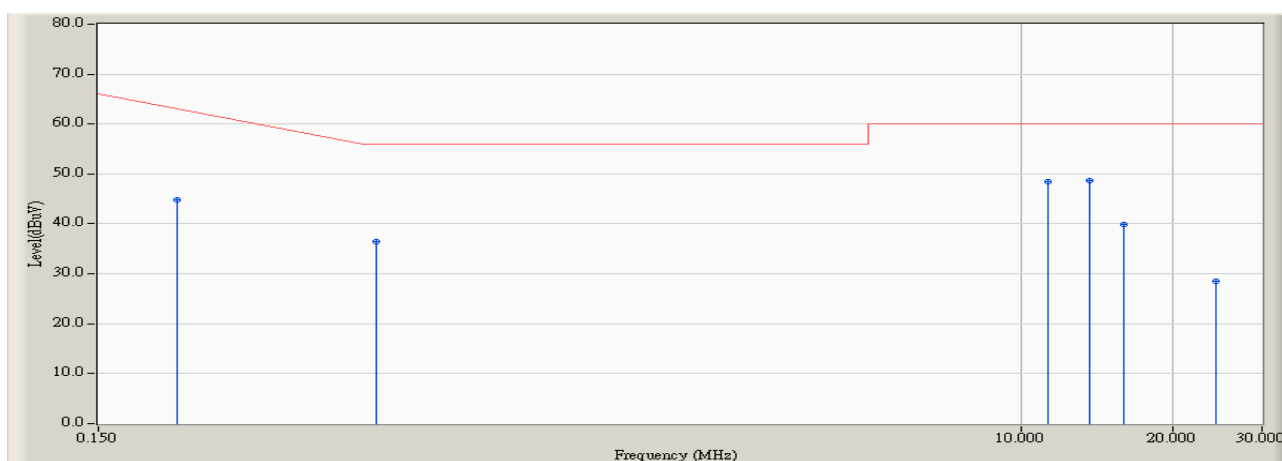
The measurement uncertainty is defined as ± 2.02 dB

3.6. Test Result

Engineer : Johnwang	
Site : SR-1 (Conducted Emission and Power Test)	Time : 2006/12/27 - 14:34
Limit : FCC_Part15_C_00M_QP	Margin : 10
EUT : GPS Bluetooth Receiver	Probe : ENV216 - Line1
Power : AC 120V/50Hz	Note : Mode 1: Transmit (2441MHz)



Engineer : Johnwang	
Site : SR-1 (Conducted Emission and Power Test)	Time : 2006/12/27 - 14:34
Limit : FCC_Part15_C_00M_QP	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : ENV216 - Line1
Power : AC 120V/50Hz	Note : Mode 1: Transmit (2441MHz)

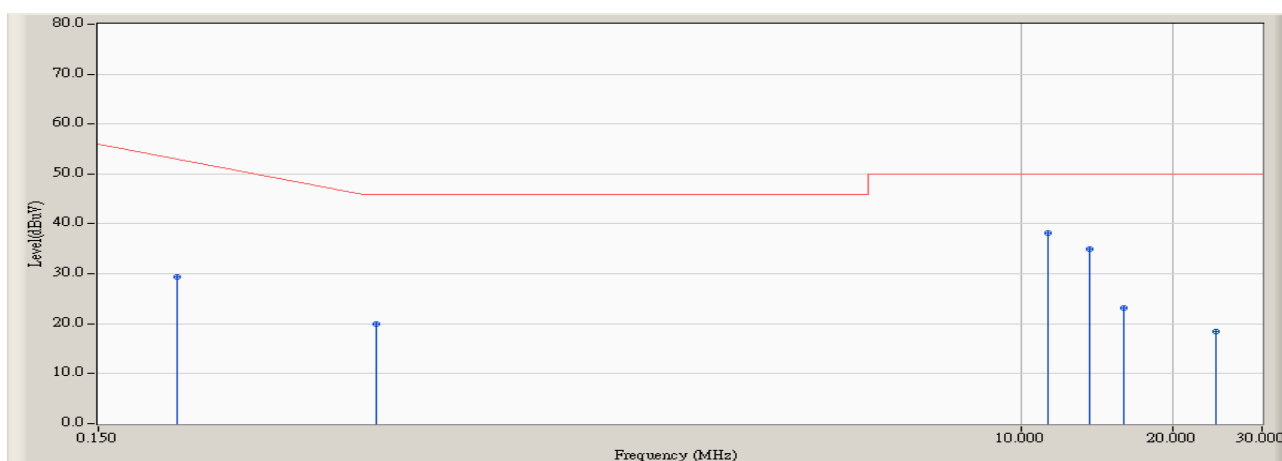


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.214	9.338	35.558	44.896	-19.275	64.171	QUASIPeAK
2		0.530	9.640	26.886	36.526	-19.474	56.000	QUASIPeAK
3		11.321	9.940	38.589	48.529	-11.471	60.000	QUASIPeAK
4	*	13.661	9.980	38.718	48.698	-11.302	60.000	QUASIPeAK
5		16.001	10.110	29.718	39.828	-20.172	60.000	QUASIPeAK
6		24.368	10.307	18.220	28.527	-31.473	60.000	QUASIPeAK

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

Engineer : Johnwang	
Site : SR-1 (Conducted Emission and Power Test)	Time : 2006/12/27 - 14:34
Limit : FCC_Part15_C_00M_AV	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : ENV216 - Line1
Power : AC 120V/50Hz	Note : Mode 1: Transmit (2441MHz)

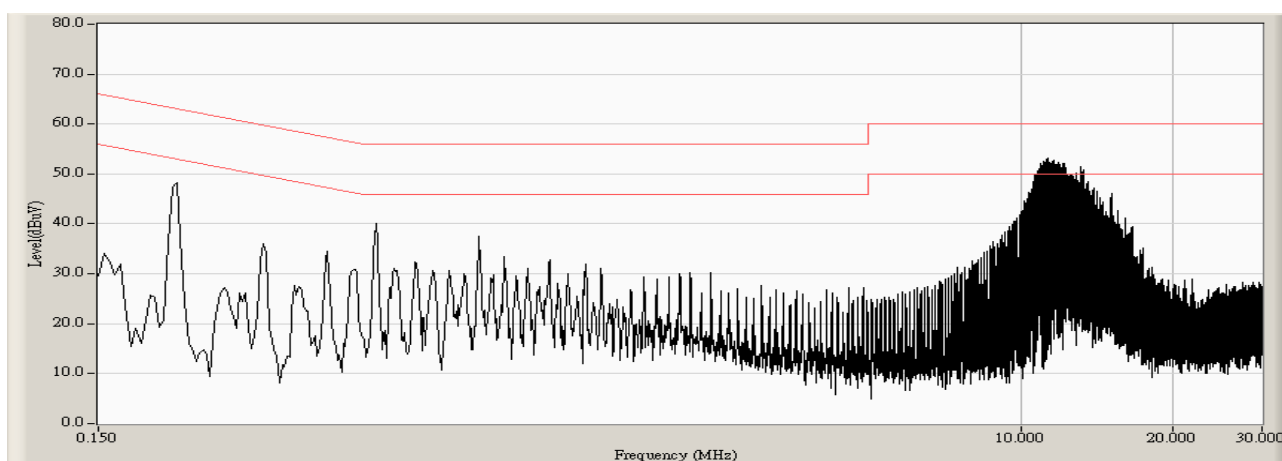


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.214	9.338	20.120	29.458	-24.713	54.171	AVERAGE
2		0.530	9.640	10.236	19.876	-26.124	46.000	AVERAGE
3	*	11.321	9.940	28.326	38.266	-11.734	50.000	AVERAGE
4		13.661	9.980	25.068	35.048	-14.952	50.000	AVERAGE
5		16.001	10.110	13.058	23.168	-26.832	50.000	AVERAGE
6		24.368	10.307	8.236	18.543	-31.457	50.000	AVERAGE

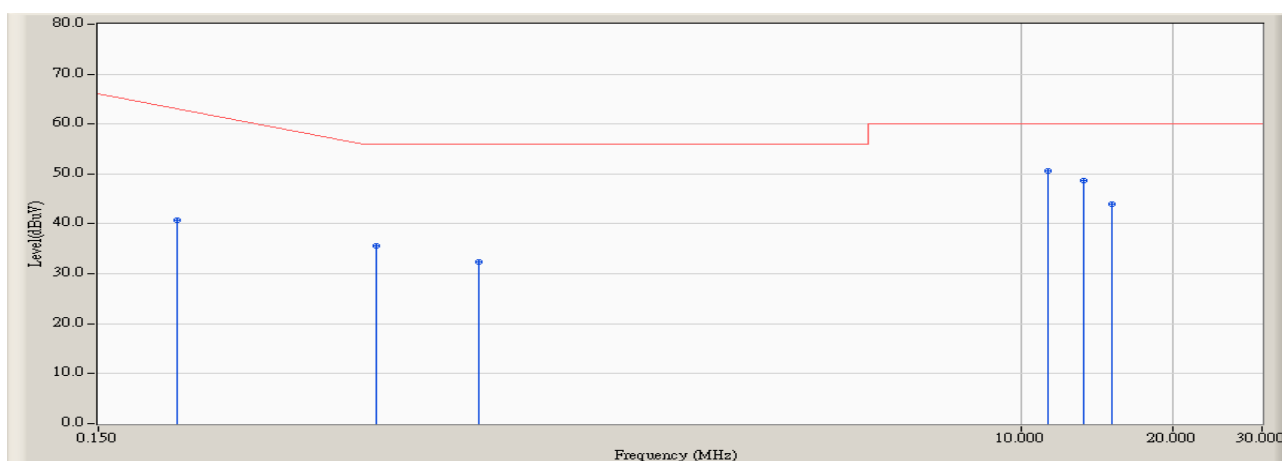
Note:

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

Engineer : Johnwang	
Site : SR-1 (Conducted Emission and Power Test)	Time : 2006/12/27 - 14:35
Limit : FCC_Part15_C_00M_QP	Margin : 10
EUT : GPS Bluetooth Receiver	Probe : ENV216 - Line2
Power : AC 120V/50Hz	Note : Mode 1: Transmit (2441MHz)



Engineer : Johnwang	
Site : SR-1 (Conducted Emission and Power Test)	Time : 2006/12/27 - 14:37
Limit : FCC_Part15_C_00M_QP	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : ENV216 - Line2
Power : AC 120V/50Hz	Note : Mode 1: Transmit (2441MHz)

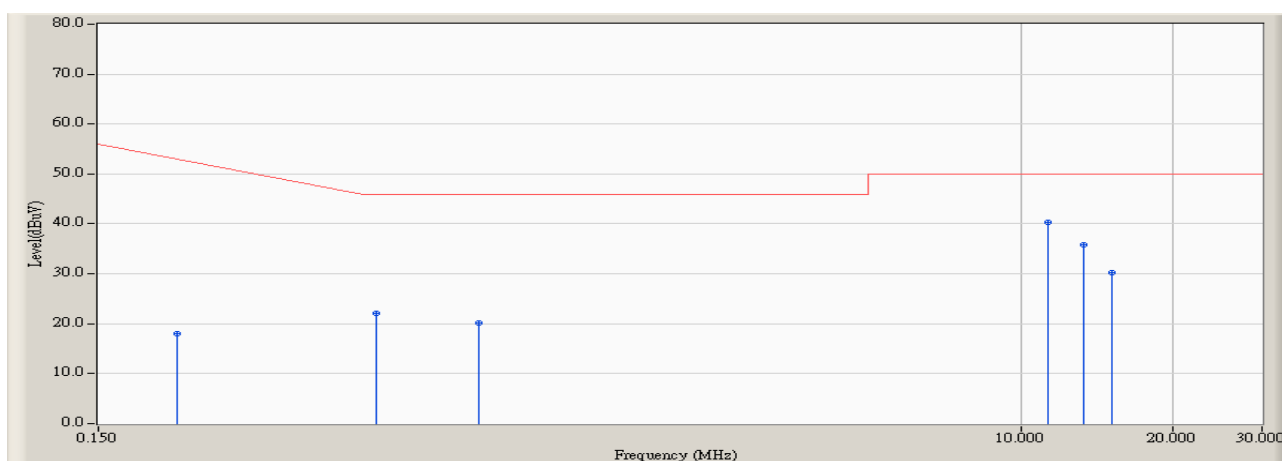


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.214	9.438	31.224	40.662	-23.509	64.171	QUASIPeAK
2		0.530	9.706	25.902	35.608	-20.392	56.000	QUASIPeAK
3		0.846	9.690	22.691	32.381	-23.619	56.000	QUASIPeAK
4	*	11.333	10.020	40.582	50.602	-9.398	60.000	QUASIPeAK
5		13.357	10.100	38.667	48.767	-11.233	60.000	QUASIPeAK
6		15.161	10.160	33.794	43.954	-16.046	60.000	QUASIPeAK

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

Engineer : Johnwang	
Site : SR-1 (Conducted Emission and Power Test)	Time : 2006/12/27 - 14:37
Limit : FCC_Part15_C_00M_AV	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : ENV216 - Line2
Power : AC 120V/50Hz	Note : Mode 1: Transmit (2441MHz)



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.214	9.438	8.630	18.068	-36.103	54.171	AVERAGE
2		0.530	9.706	12.305	22.011	-23.989	46.000	AVERAGE
3		0.846	9.690	10.558	20.248	-25.752	46.000	AVERAGE
4	*	11.333	10.020	30.258	40.278	-9.722	50.000	AVERAGE
5		13.357	10.100	25.667	35.767	-14.233	50.000	AVERAGE
6		15.161	10.160	20.047	30.207	-19.793	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

4. Radiated Emission

4.1. Test Equipment

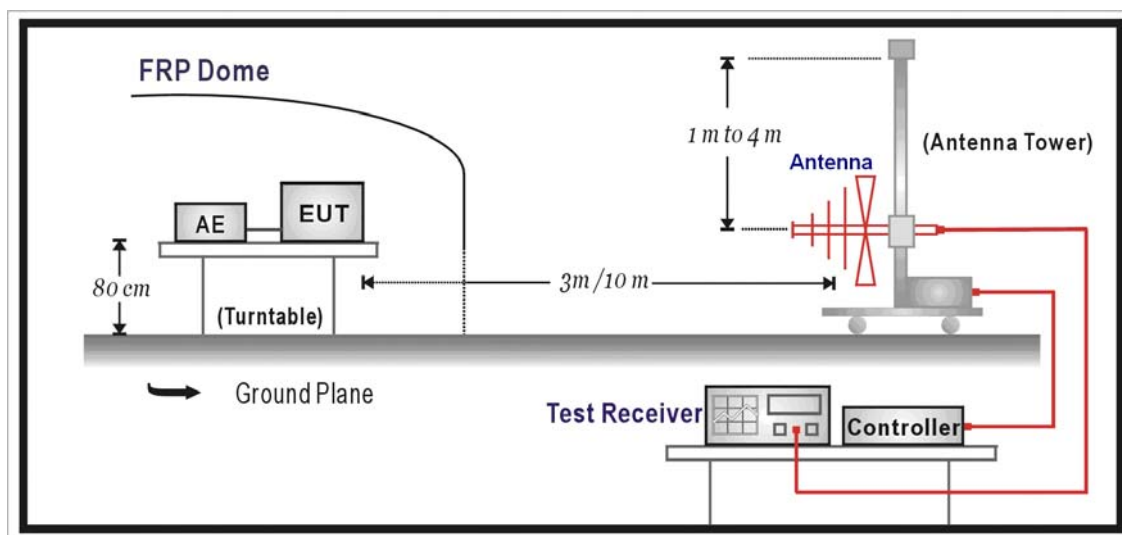
Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4408B	MY45102679	2006/11/20
EMI Test Receiver	R&S	ESCI	100573	2007/05/23
Preamplifier	Quietek	AP-025C	QT-AP003	2006/11/25
Preamplifier	Quietek	AP-180C	CHM-0602013	2006/11/25
Bilog Type Antenna	Schaffner	CBL6112B	2932	2006/11/22
*Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	496	2005/11/25
50ohm Coaxial Switch	ANRITSU	MP59B	6200447304	2006/11/25
Coaxial Cable	Huber+Suhner	AC2-C	04	2006/11/25
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH002	2007/03/30

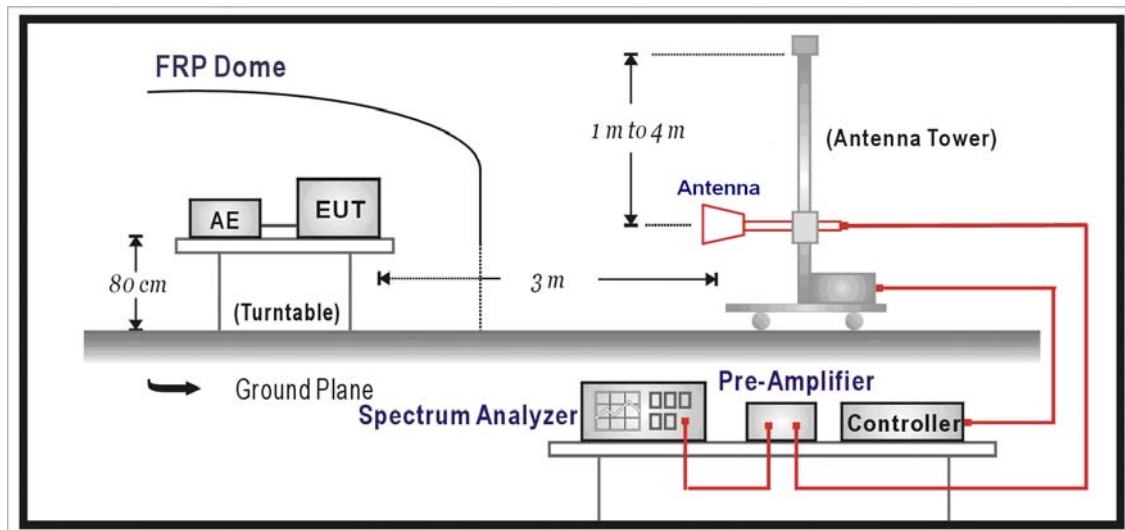
Note: "*" means the test device calibration period for two years.

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

FCC Part 15 Subpart C Paragraph 15.209 Limits (dBuV/m)		
Frequency (MHz)	Distance (m)	dBuV/m
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
3. $\text{RF Voltage (dBuV/m)} = 20 \log \text{RF Voltage (uV/m)}$

4.4. 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 and 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 on radiated measurement.

The additional latch filter below 1GHz was used to measure the level of harmonics radiated emission during field strength of harmonics measurement.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCI) is 120 kHz and above 1GHz is 1MHz.

The frequency range from 30MHz to 10th harmonic is checked.

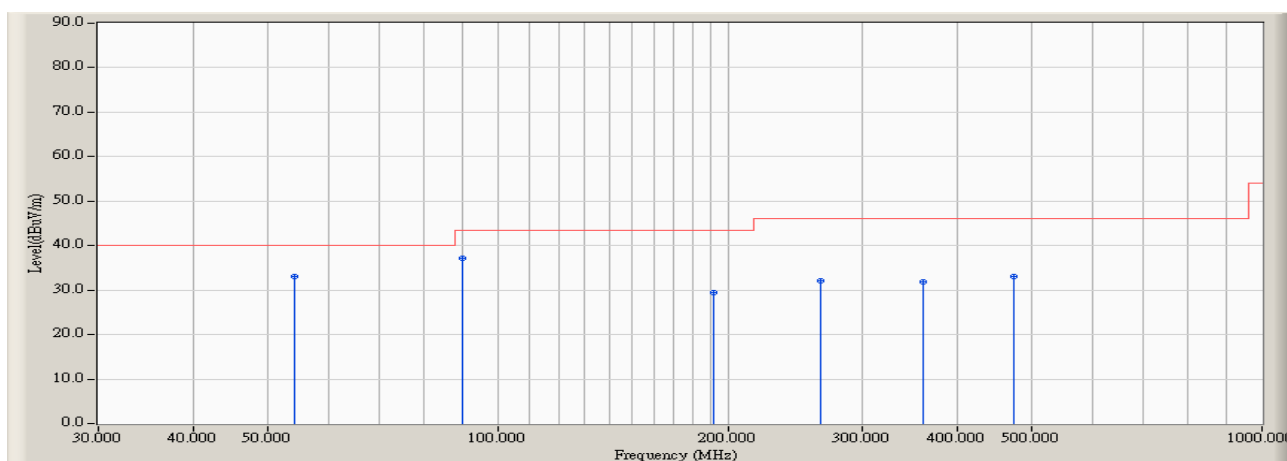
4.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB

under 1G is defined as ± 3.8 dB

4.6. Test Result

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 13:53
Limit : FCC_CLASS_C_03M_QP	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : CBL6141A_4278(30-2000MHz) - HORIZONTAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2402MHz)

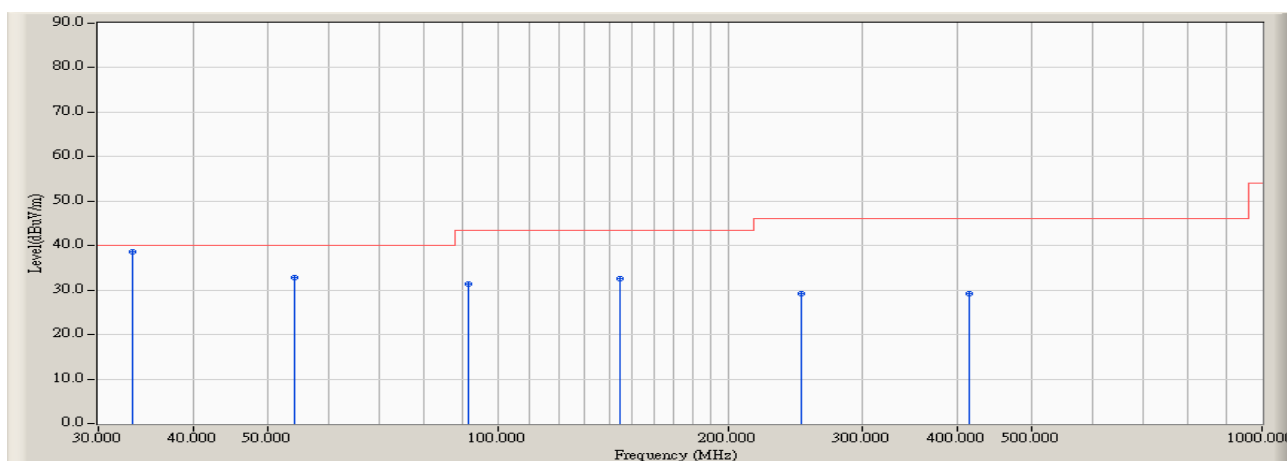


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		54.250	-13.047	46.218	33.171	-6.829	40.000	QUASIPeAK
2	*	89.817	-15.206	52.459	37.253	-6.247	43.500	QUASIPeAK
3		191.667	-13.654	43.185	29.531	-13.969	43.500	QUASIPeAK
4		264.417	-10.837	42.862	32.025	-13.975	46.000	QUASIPeAK
5		359.800	-8.230	40.128	31.898	-14.102	46.000	QUASIPeAK
6		472.967	-6.123	39.178	33.056	-12.944	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 13:57
Limit : FCC_CLASS_C_03M_QP	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : CBL6141A_4278(30-2000MHz) - VERTICAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2402MHz)

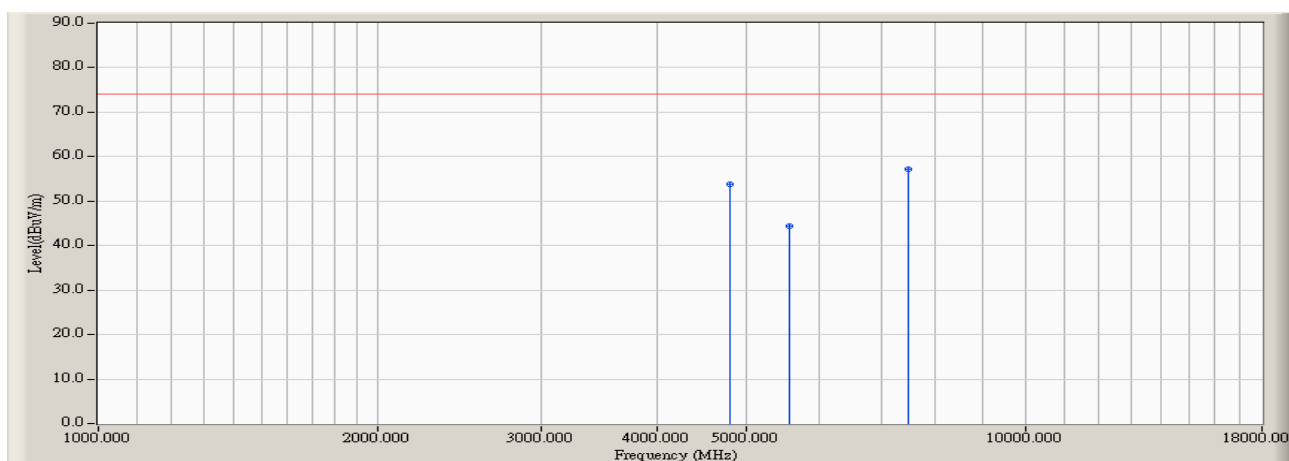


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	33.233	-2.851	41.570	38.720	-1.280	40.000	QUASIPeAK
2		54.250	-13.047	45.895	32.848	-7.152	40.000	QUASIPeAK
3		91.433	-15.001	46.380	31.379	-12.121	43.500	QUASIPeAK
4		144.783	-11.616	44.233	32.617	-10.883	43.500	QUASIPeAK
5		249.867	-11.089	40.304	29.215	-16.785	46.000	QUASIPeAK
6		414.767	-6.679	35.859	29.180	-16.820	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 10:42
Limit : FCC_Spart15.C_03M_PK	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2402MHz)

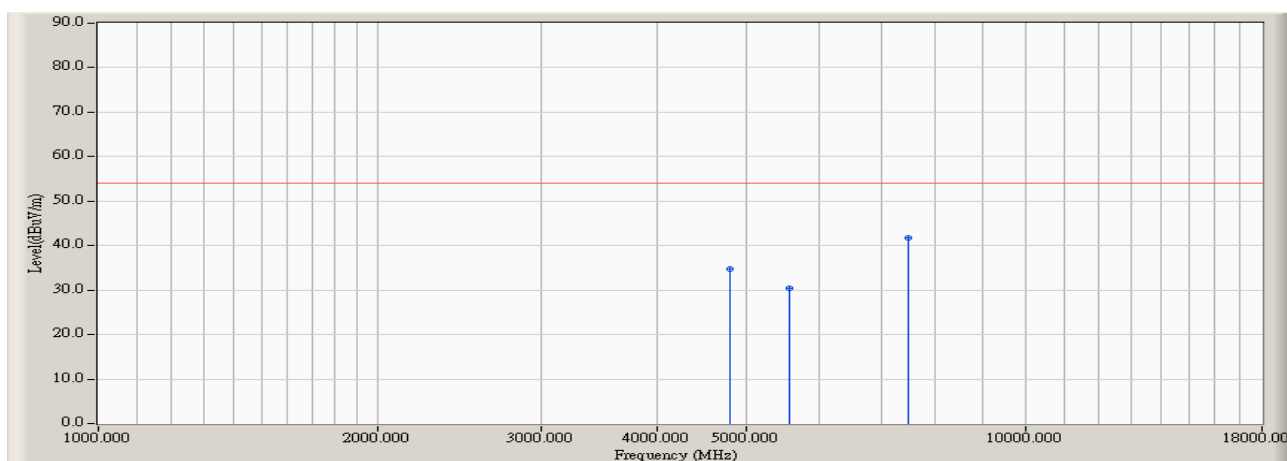


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4796.667	4.834	48.975	53.808	-20.192	74.000	PEAK
2		5561.667	6.794	37.511	44.304	-29.696	74.000	PEAK
3	*	7488.333	15.017	42.126	57.143	-16.857	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 10:42
Limit : FCC_Spart15.C_03M_AV	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2402MHz)

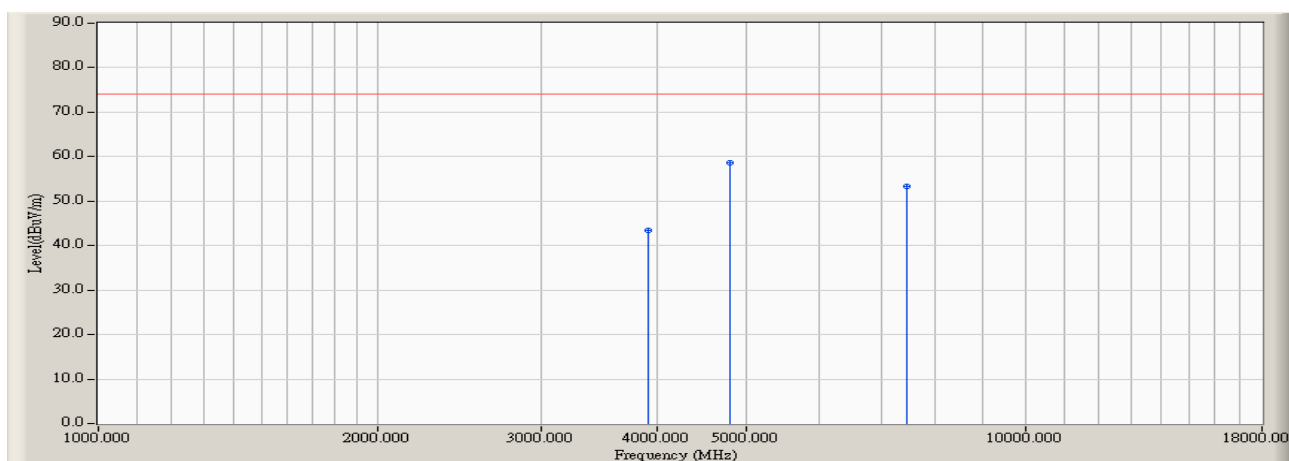


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4796.667	4.834	29.900	34.733	-19.267	54.000	AVERAGE
2		5561.667	6.794	23.620	30.413	-23.587	54.000	AVERAGE
3	*	7488.333	15.017	26.670	41.687	-12.313	54.000	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 10:46
Limit : FCC_Spart15.C_03M_PK	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : 9120D_(1G-18G) - VERTICAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2402MHz)

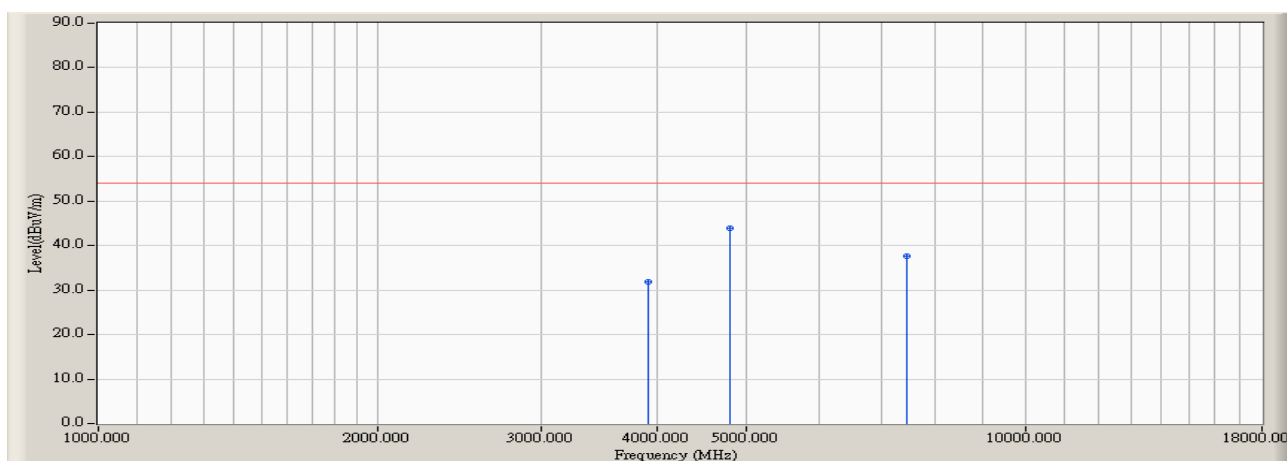


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		3918.333	2.366	41.140	43.507	-30.493	74.000	PEAK
2	*	4796.667	4.834	53.760	58.593	-15.407	74.000	PEAK
3		7460.000	15.090	38.203	53.293	-20.707	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 10:46
Limit : FCC_Spart15.C_03M_AV	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : 9120D_(1G-18G) - VERTICAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2402MHz)

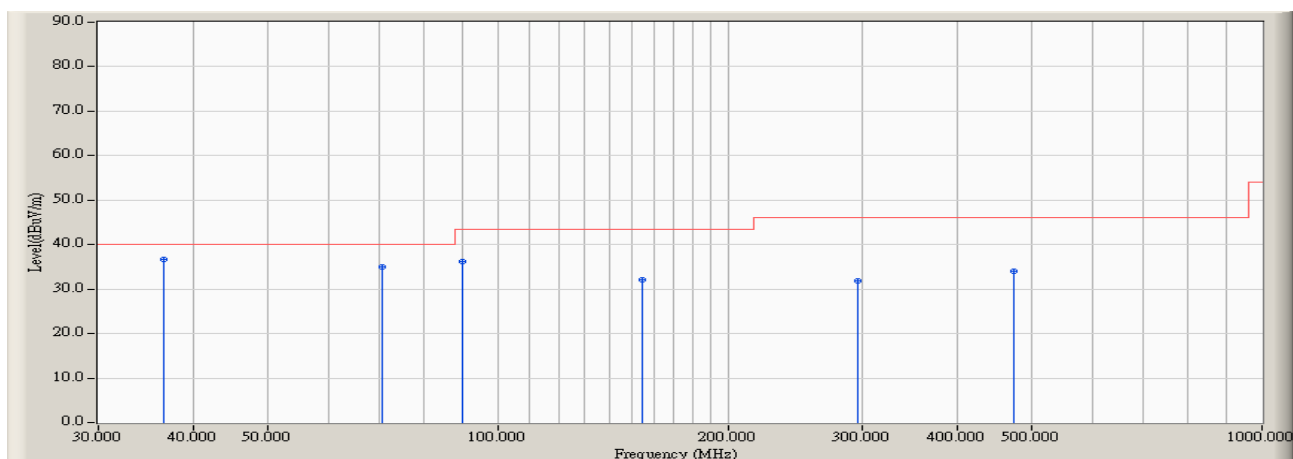


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		3918.333	2.366	29.570	31.937	-22.063	54.000	AVERAGE
2	*	4796.667	4.834	39.130	43.963	-10.037	54.000	AVERAGE
3		7460.000	15.090	22.600	37.690	-16.310	54.000	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 14:00
Limit : FCC_CLASS_C_03M_QP	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : CBL6141A_4278(30-2000MHz) - HORIZONTAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2441MHz)

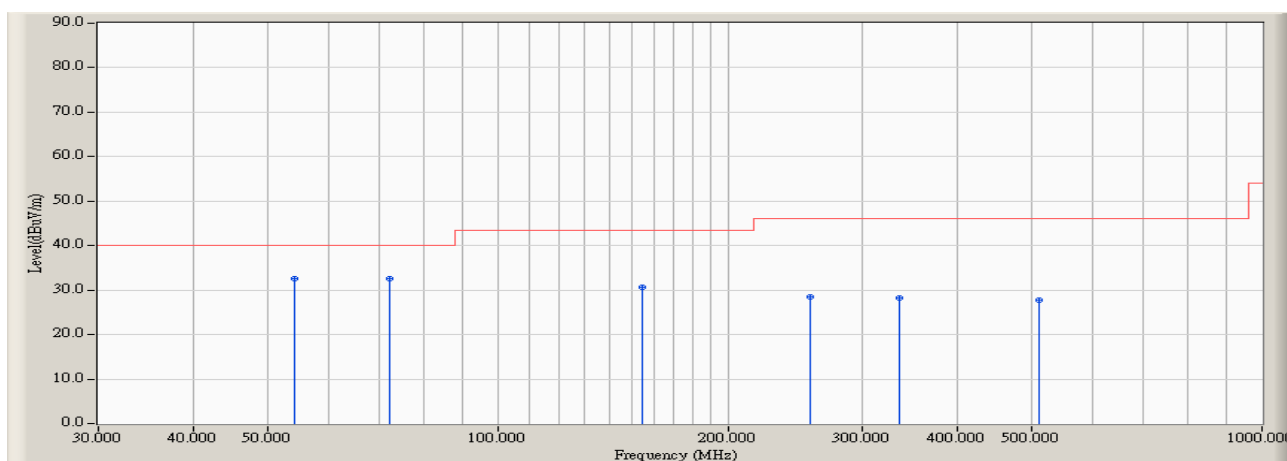


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	36.467	-4.518	41.170	36.652	-3.348	40.000	QUASIPeAK
2		70.417	-17.052	51.989	34.937	-5.063	40.000	QUASIPeAK
3		89.817	-15.206	51.504	36.298	-7.202	43.500	QUASIPeAK
4		154.483	-12.007	44.141	32.134	-11.366	43.500	QUASIPeAK
5		295.133	-10.466	42.283	31.817	-14.183	46.000	QUASIPeAK
6		472.967	-6.123	40.092	33.970	-12.030	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 14:05
Limit : FCC_CLASS_C_03M_QP	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : CBL6141A_4278(30-2000MHz) - VERTICAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2441MHz)

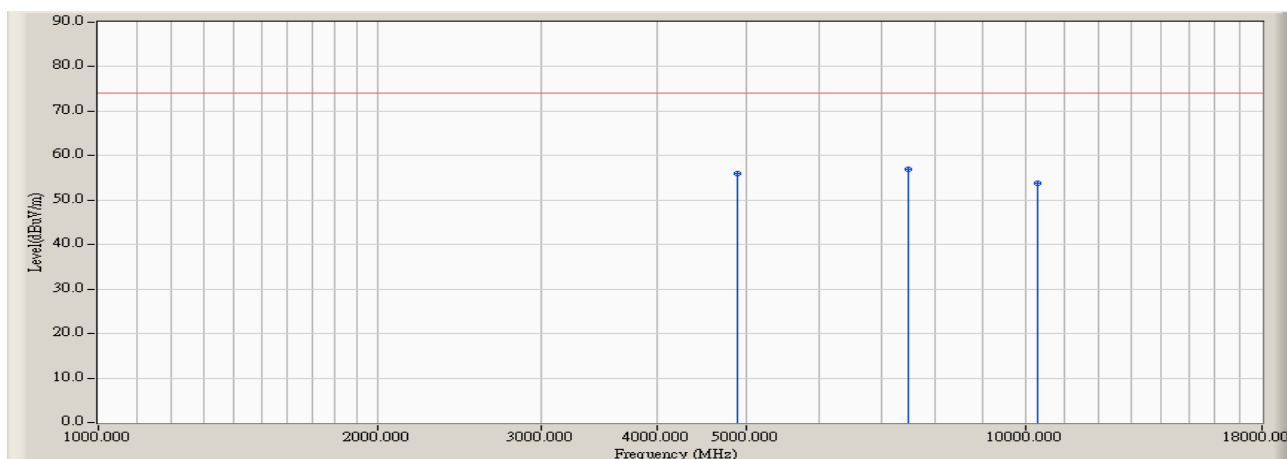


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		54.250	-13.047	45.617	32.570	-7.430	40.000	QUASIPeAK
2	*	72.033	-17.063	49.736	32.673	-7.327	40.000	QUASIPeAK
3		154.483	-12.007	42.753	30.746	-12.754	43.500	QUASIPeAK
4		256.333	-10.878	39.296	28.418	-17.582	46.000	QUASIPeAK
5		335.550	-8.735	36.945	28.210	-17.790	46.000	QUASIPeAK
6		511.767	-5.344	33.141	27.797	-18.203	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 10:57
Limit : FCC_Spart15.C_03M_PK	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2441MHz)

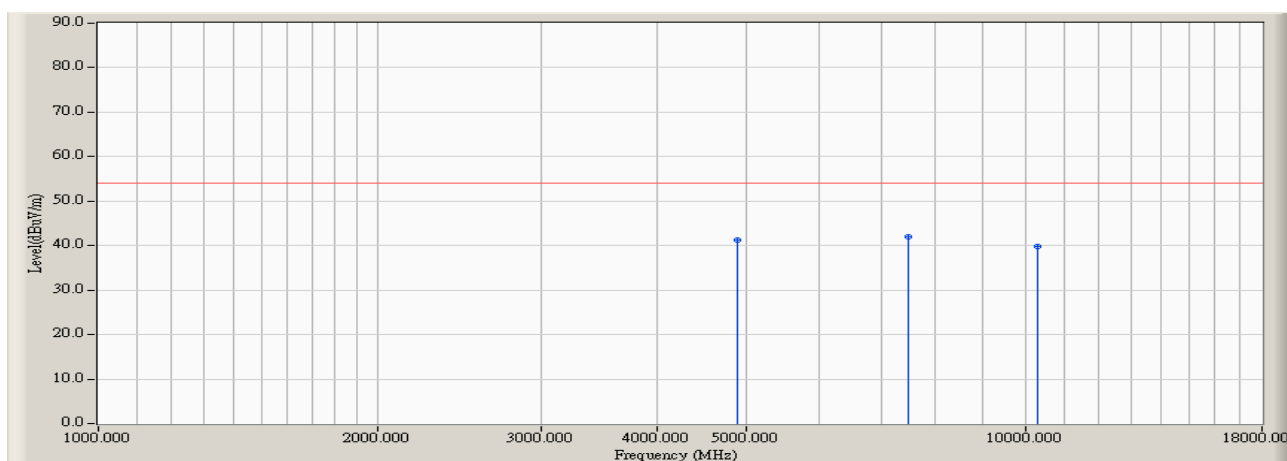


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4881.667	5.034	51.006	56.039	-17.961	74.000	PEAK
2	*	7488.333	15.017	41.859	56.876	-17.124	74.000	PEAK
3		10321.667	18.700	35.107	53.807	-20.193	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 10:57
Limit : FCC_Spart15.C_03M_AV	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2441MHz)

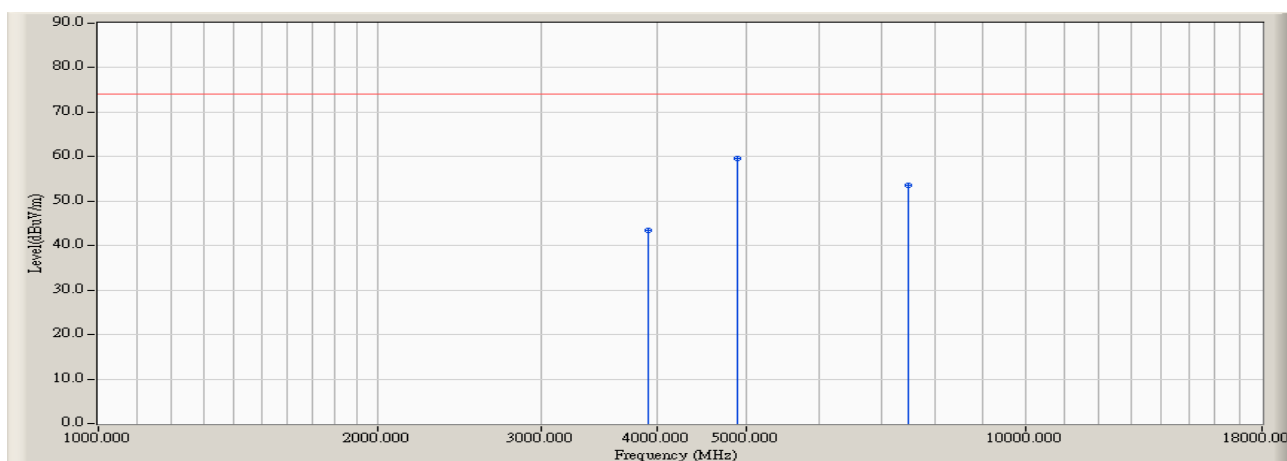


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4881.667	5.034	36.260	41.293	-12.707	54.000	AVERAGE
2	*	7488.333	15.017	26.910	41.927	-12.073	54.000	AVERAGE
3		10321.667	18.700	21.090	39.790	-14.210	54.000	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 11:02
Limit : FCC_Spart15.C_03M_PK	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : 9120D_(1G-18G) - VERTICAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2441MHz)

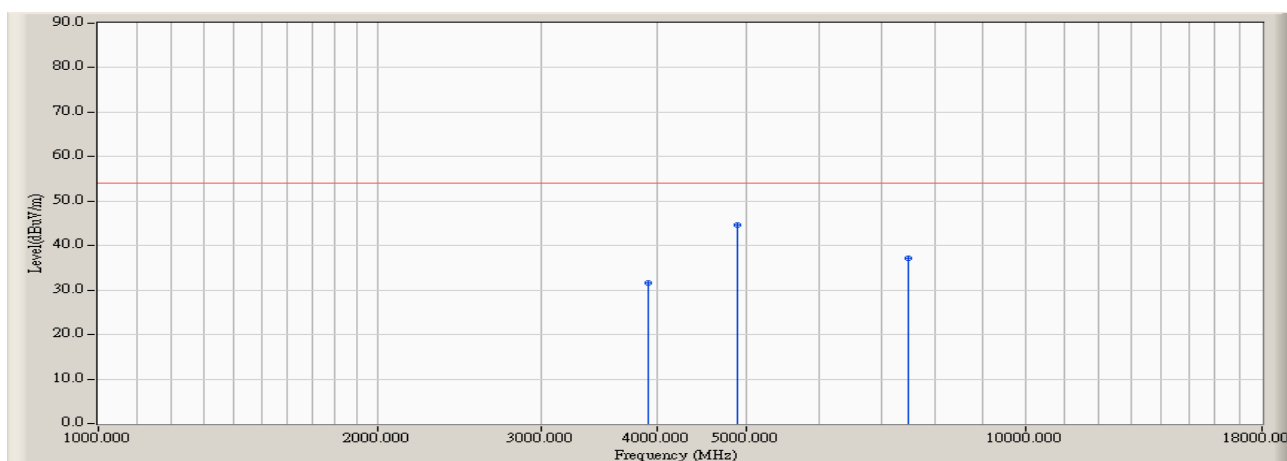


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		3918.333	2.366	40.968	43.335	-30.665	74.000	PEAK
2	*	4881.667	5.034	54.625	59.658	-14.342	74.000	PEAK
3		7488.333	15.017	38.479	53.496	-20.504	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 11:02
Limit : FCC_Spart15.C_03M_AV	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : 9120D_(1G-18G) - VERTICAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2441MHz)

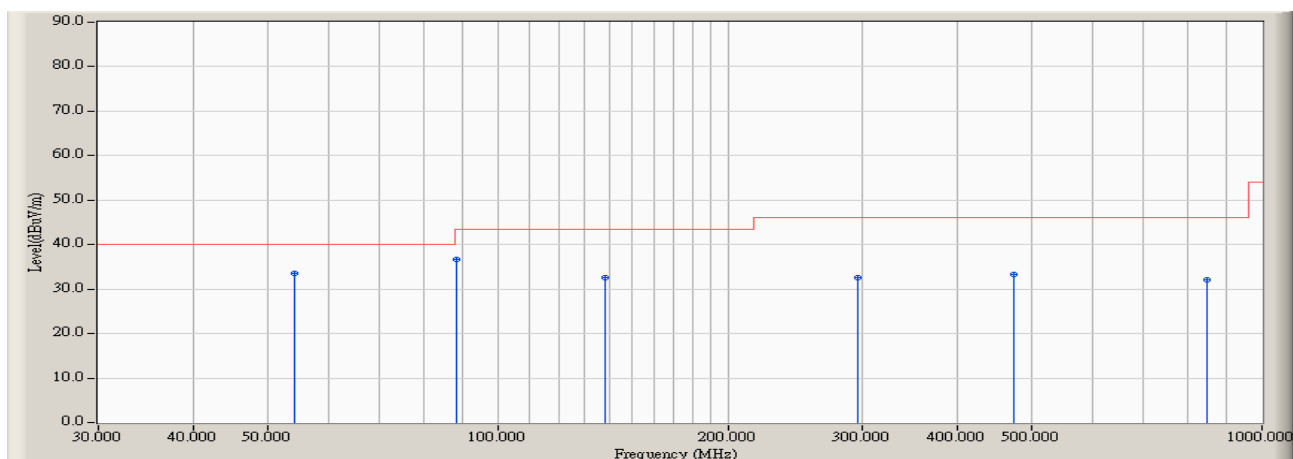


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		3918.333	2.366	29.200	31.567	-22.433	54.000	AVERAGE
2	*	4881.667	5.034	39.530	44.563	-9.437	54.000	AVERAGE
3		7488.333	15.017	22.170	37.187	-16.813	54.000	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 14:07
Limit : FCC_CLASS_C_03M_QP	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : CBL6141A_4278(30-2000MHz) - HORIZONTAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2480MHz)

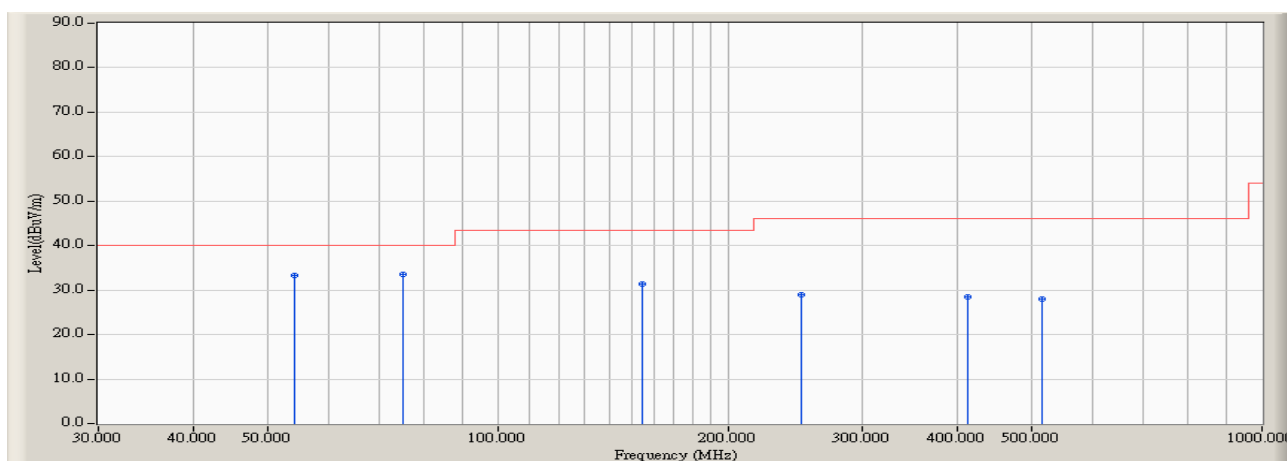


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	54.250	-13.047	46.657	33.610	-6.390	40.000	QUASIPeAK
2		88.200	-15.405	52.186	36.781	-6.719	43.500	QUASIPeAK
3		138.317	-11.841	44.374	32.533	-10.967	43.500	QUASIPeAK
4		295.133	-10.466	42.940	32.474	-13.526	46.000	QUASIPeAK
5		472.967	-6.123	39.456	33.334	-12.666	46.000	QUASIPeAK
6		848.033	0.272	31.744	32.015	-13.985	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 14:09
Limit : FCC_CLASS_C_03M_QP	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : CBL6141A_4278(30-2000MHz) - VERTICAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2480MHz)

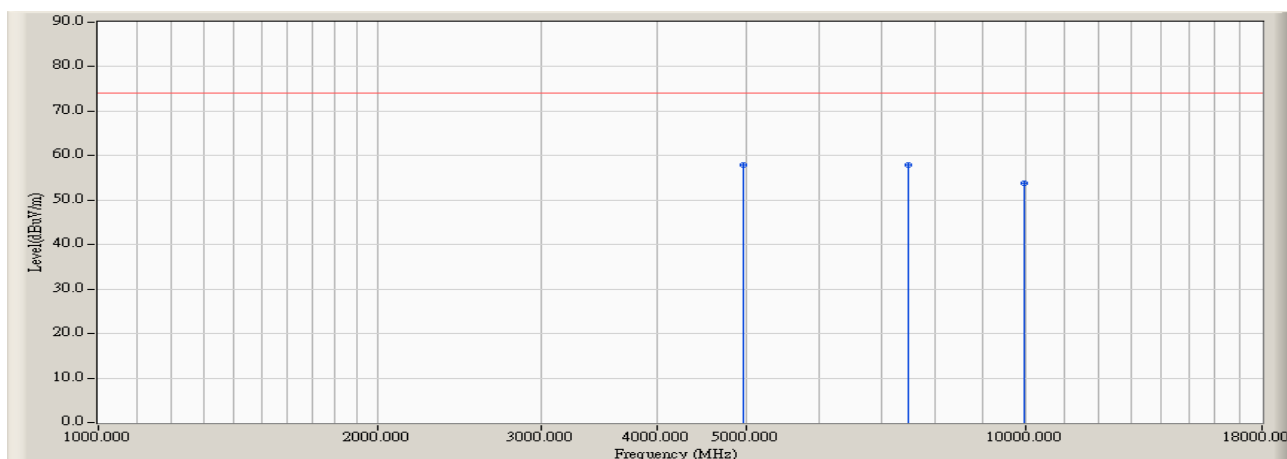


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		54.250	-13.047	46.248	33.201	-6.799	40.000	QUASIPeAK
2	*	75.267	-16.919	50.426	33.507	-6.493	40.000	QUASIPeAK
3		154.483	-12.007	43.321	31.314	-12.186	43.500	QUASIPeAK
4		249.867	-11.089	40.075	28.986	-17.014	46.000	QUASIPeAK
5		411.533	-6.653	35.068	28.415	-17.585	46.000	QUASIPeAK
6		515.000	-5.394	33.454	28.060	-17.940	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 11:07
Limit : FCC_Spart15.C_03M_PK	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2480MHz)

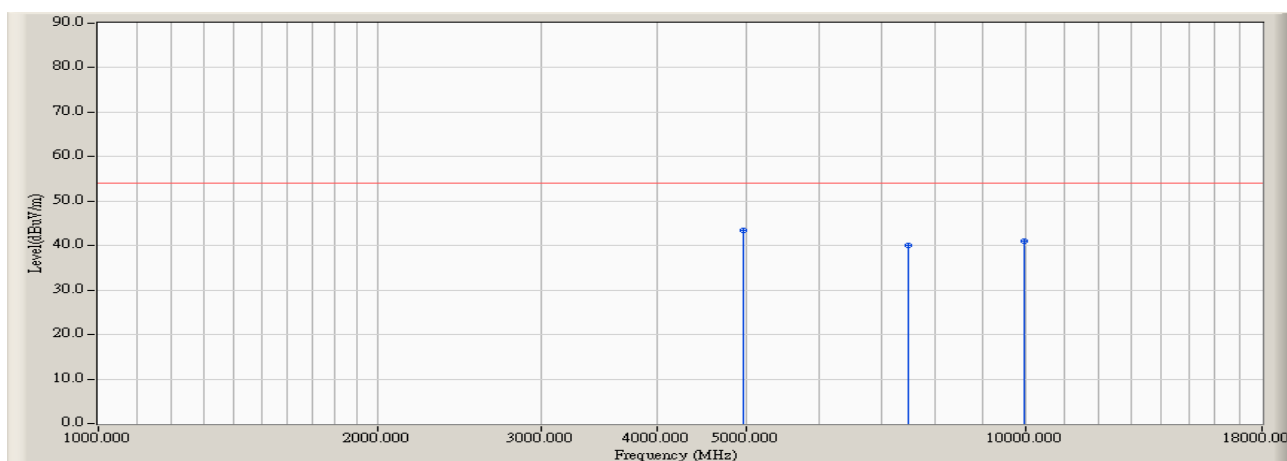


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4966.667	5.234	52.698	57.931	-16.069	74.000	PEAK
2		7488.333	15.017	42.814	57.831	-16.169	74.000	PEAK
3		9981.667	18.120	35.631	53.751	-20.249	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 11:07
Limit : FCC_Spart15.C_03M_AV	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2480MHz)

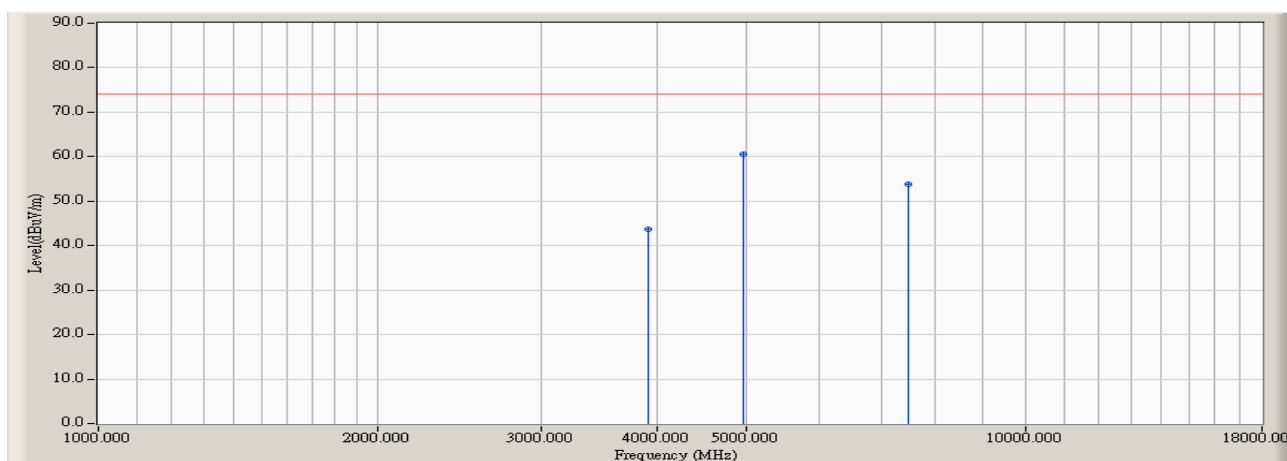


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4966.667	5.234	38.270	43.503	-10.497	54.000	AVERAGE
2		7488.333	15.017	25.030	40.047	-13.953	54.000	AVERAGE
3		9981.667	18.120	22.910	41.030	-12.970	54.000	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 11:14
Limit : FCC_Spart15.C_03M_PK	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : 9120D_(1G-18G) - VERTICAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2480MHz)

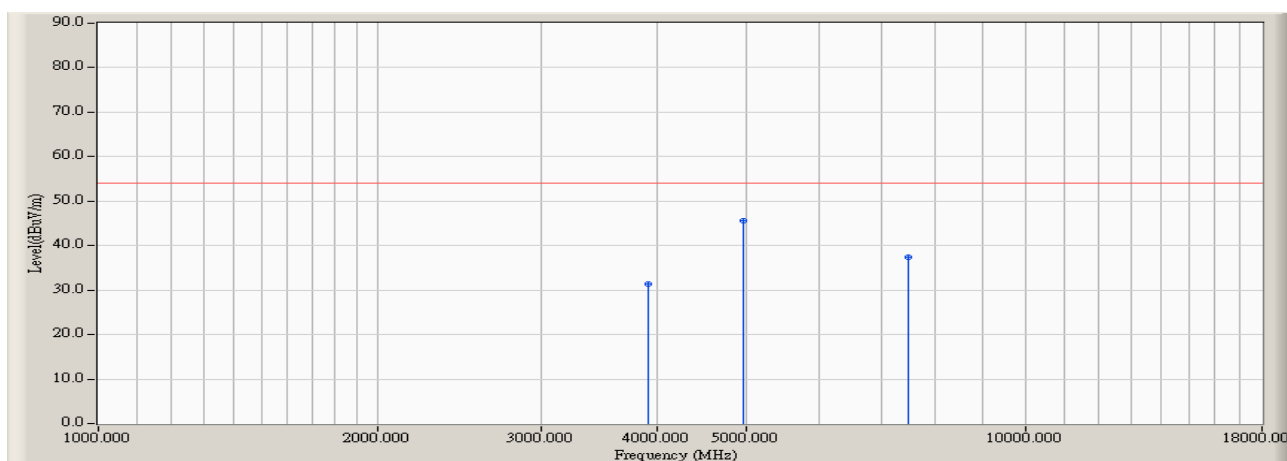


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		3918.333	2.366	41.201	43.568	-30.432	74.000	PEAK
2	*	4966.667	5.234	55.245	60.478	-13.522	74.000	PEAK
3		7488.333	15.017	38.862	53.879	-20.121	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2007/2/4 - 11:14
Limit : FCC_Spart15.C_03M_AV	Margin : 0
EUT : GPS Bluetooth Receiver	Probe : 9120D_(1G-18G) - VERTICAL
Power : AC 120V/60Hz	Note : Mode1: Transmit (2480MHz)

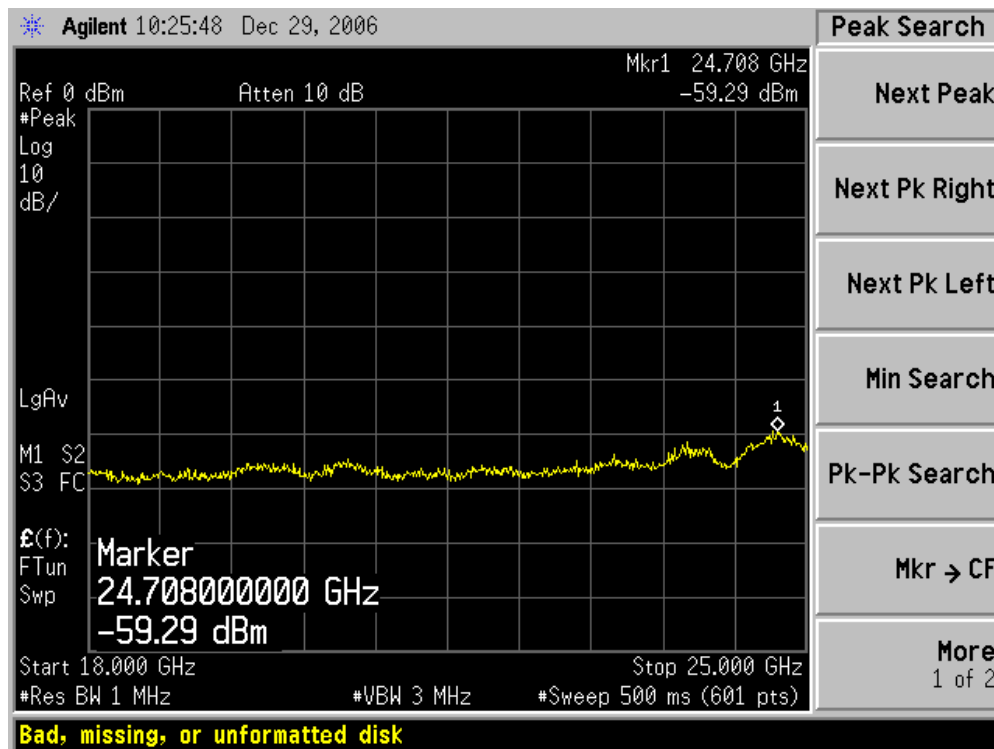


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		3918.333	2.366	29.030	31.397	-22.603	54.000	AVERAGE
2	*	4966.667	5.234	40.270	45.503	-8.497	54.000	AVERAGE
3		7488.333	15.017	22.280	37.297	-16.703	54.000	AVERAGE

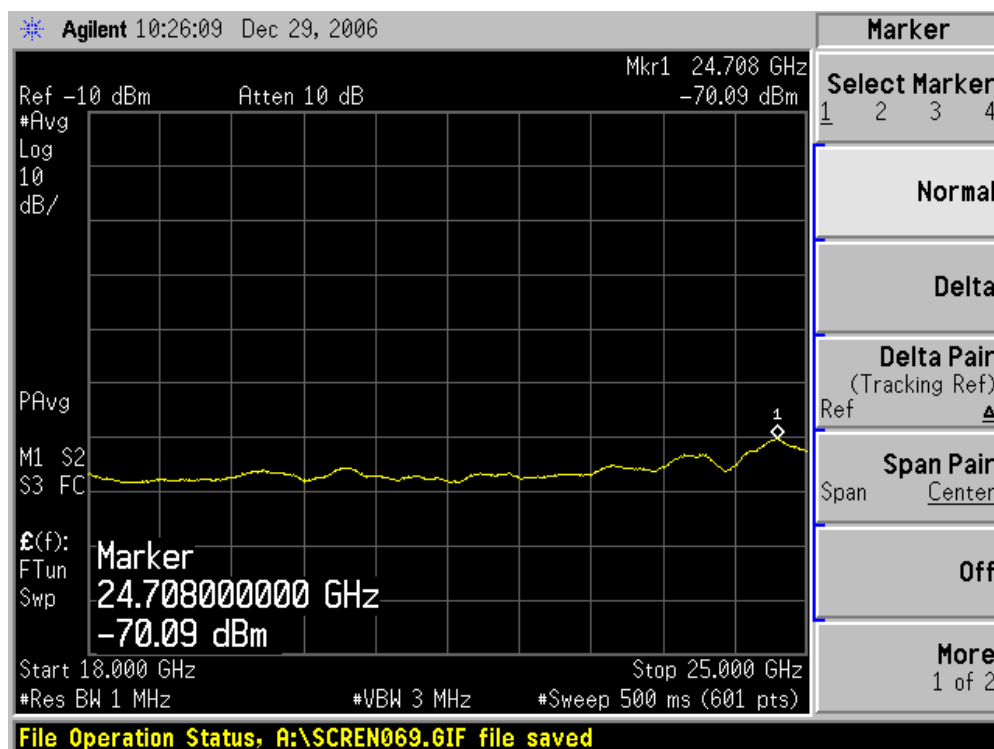
Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

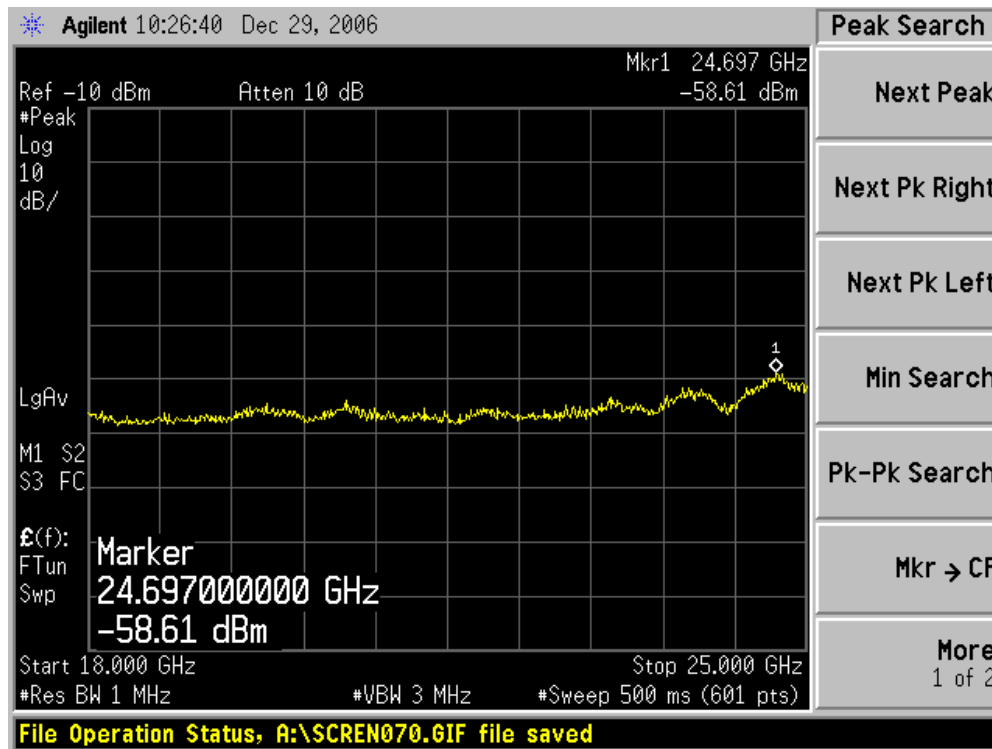
Conducted Spurious - Channel 00 (2402MHz) - Peak



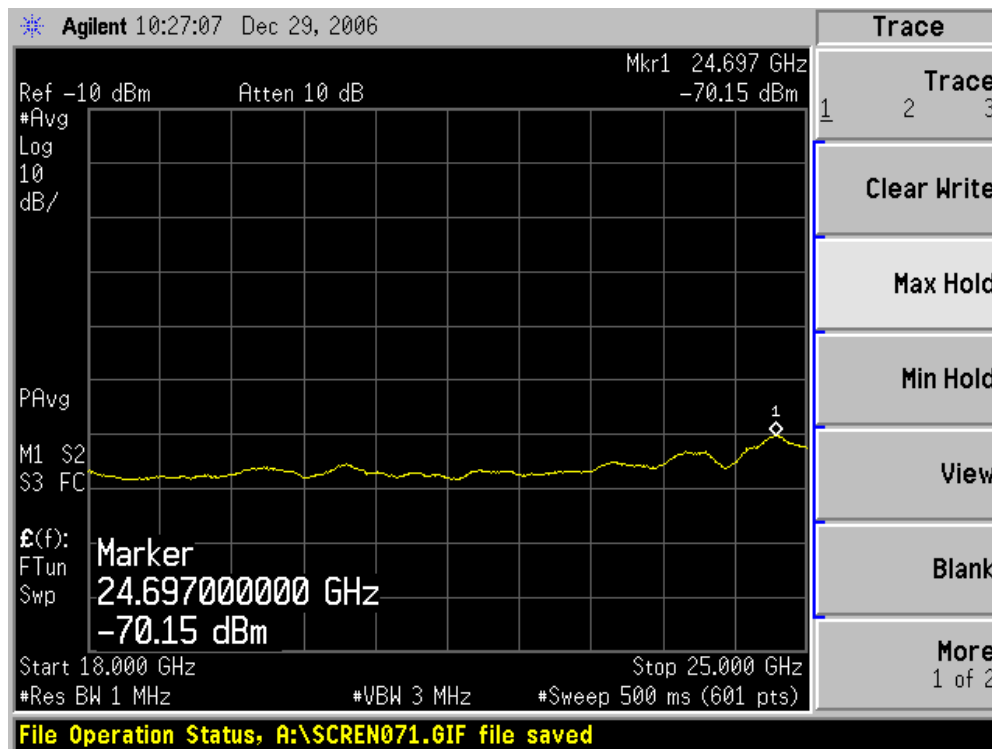
Conducted Spurious - Channel 00 (2402MHz) - Average



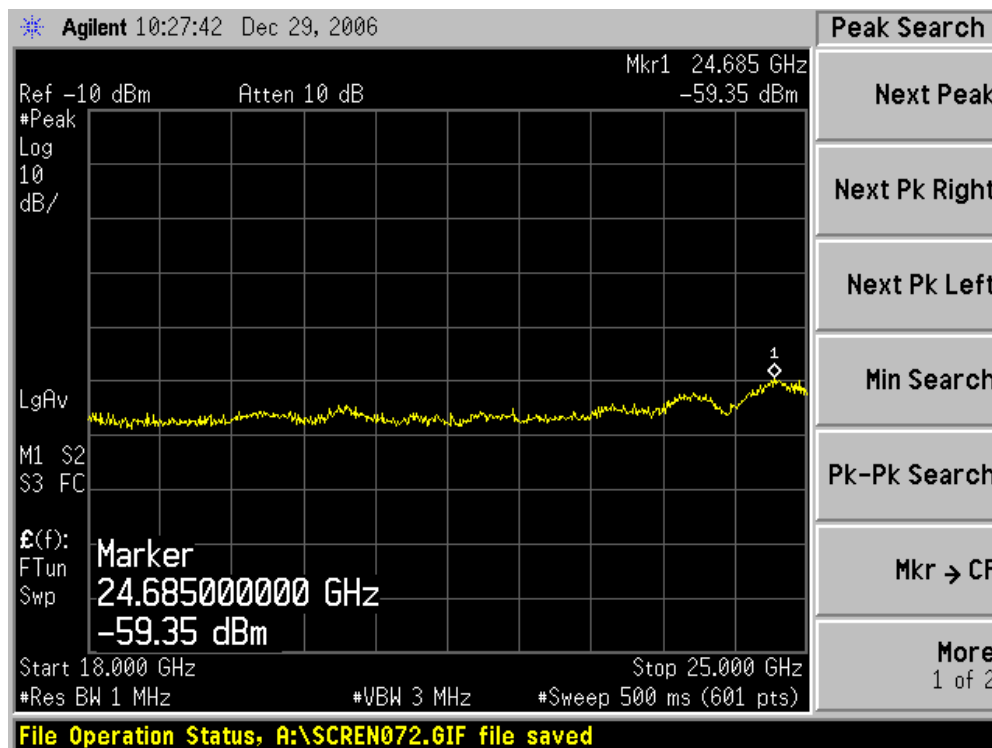
Conducted Spurious - Channel 39 (2441MHz) - Peak



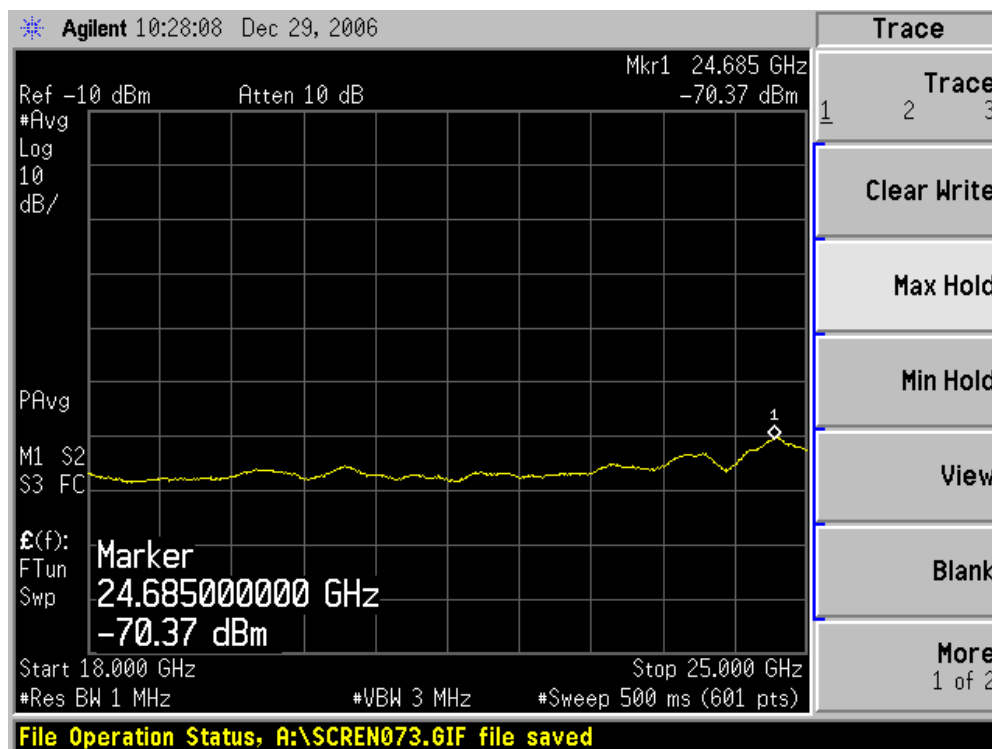
Conducted Spurious - Channel 39 (2441MHz) - Average



Conducted Spurious - Channel 78 (2480MHz) - Peak



Conducted Spurious - Channel 78 (2480MHz) - Average



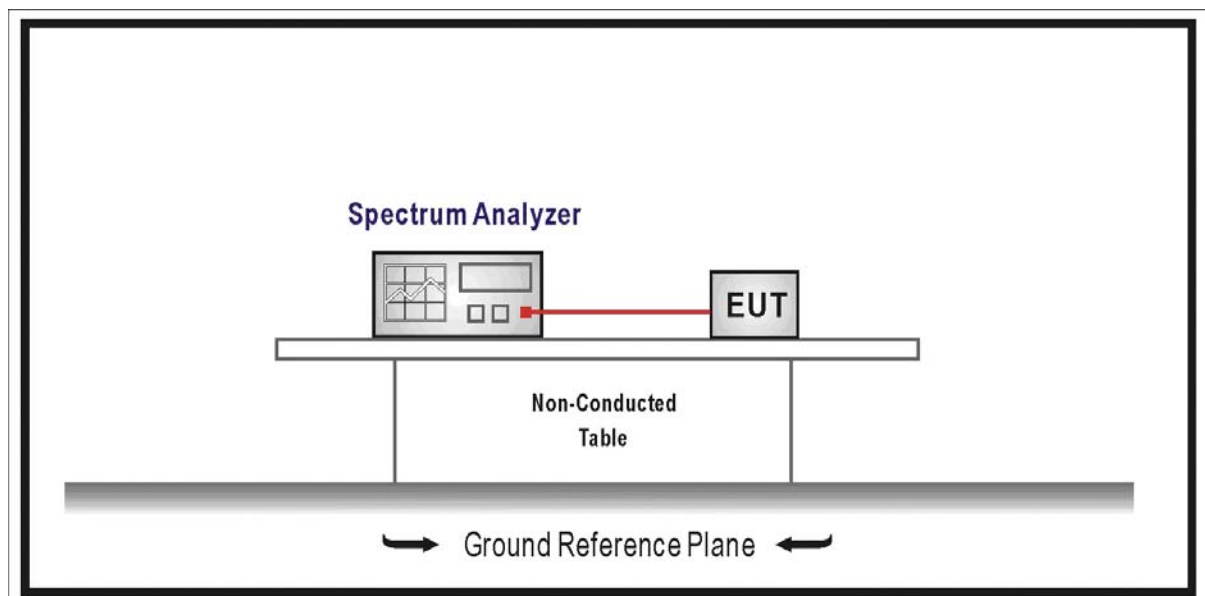
5. Peak Power Output

5.1. Test Equipment

Peak Power Output / AC-3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2007/06/11
Coaxial Cable	Huber+Suhner	AC3-RF	08	2006/11/25
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH003	2007/03/31

5.2. Test Setup



5.3. Limit

The maximum peak power shall be less 1Watt (30dBm).

The conducted output power limit is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of standard FCC part 15.247, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values above, by the amount in dB that the directional gain of the antenna exceeds dBi.

5.4. Test Procedure

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer.
- c) Add a correction factor to the display, and then test.

5.5. Uncertainty

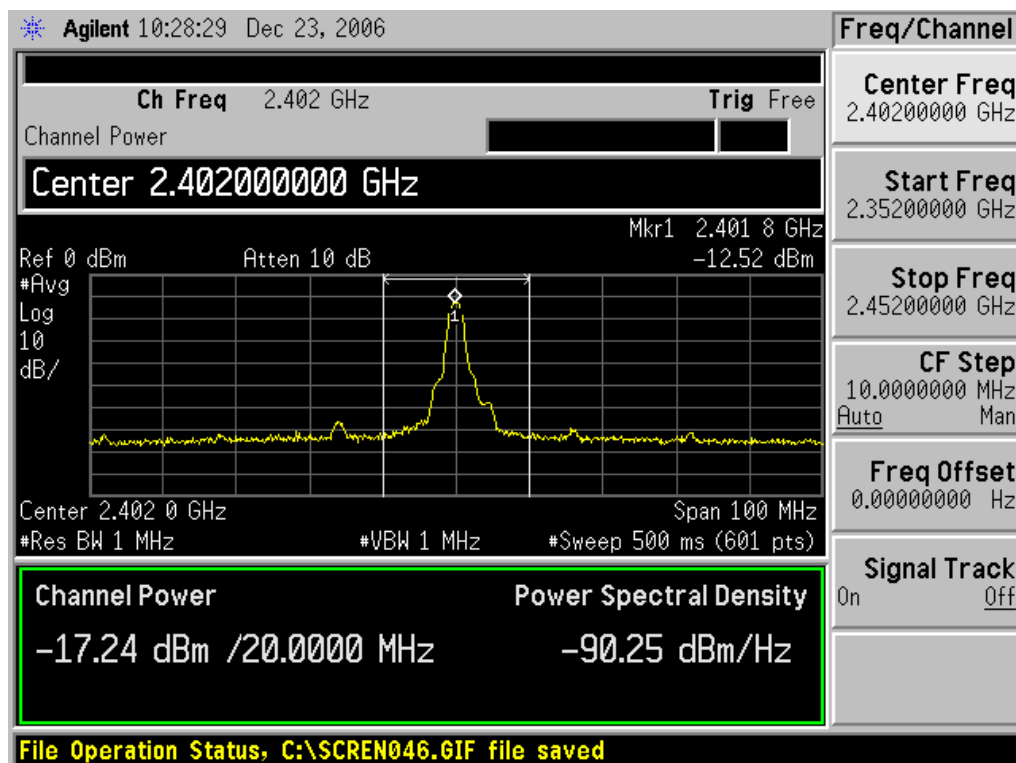
The measurement uncertainty is defined as ± 1.27 dB

5.6. Test Result

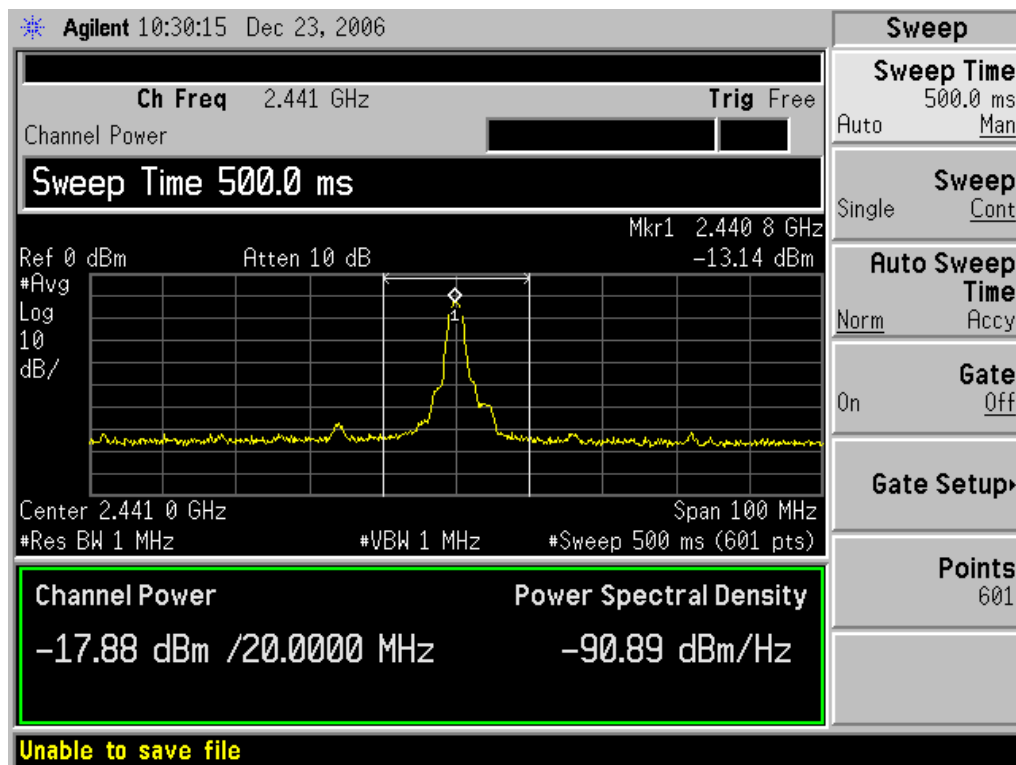
Product	:	GPS Bluetooth Receiver
Test Item	:	Peak Power Output
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmit

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit (dBm)	Result
00	2402.00	-17.24	1 Watt= 30 dBm	Pass
39	2441.00	-17.88	1 Watt= 30 dBm	Pass
78	2480.00	-18.88	1 Watt= 30 dBm	Pass

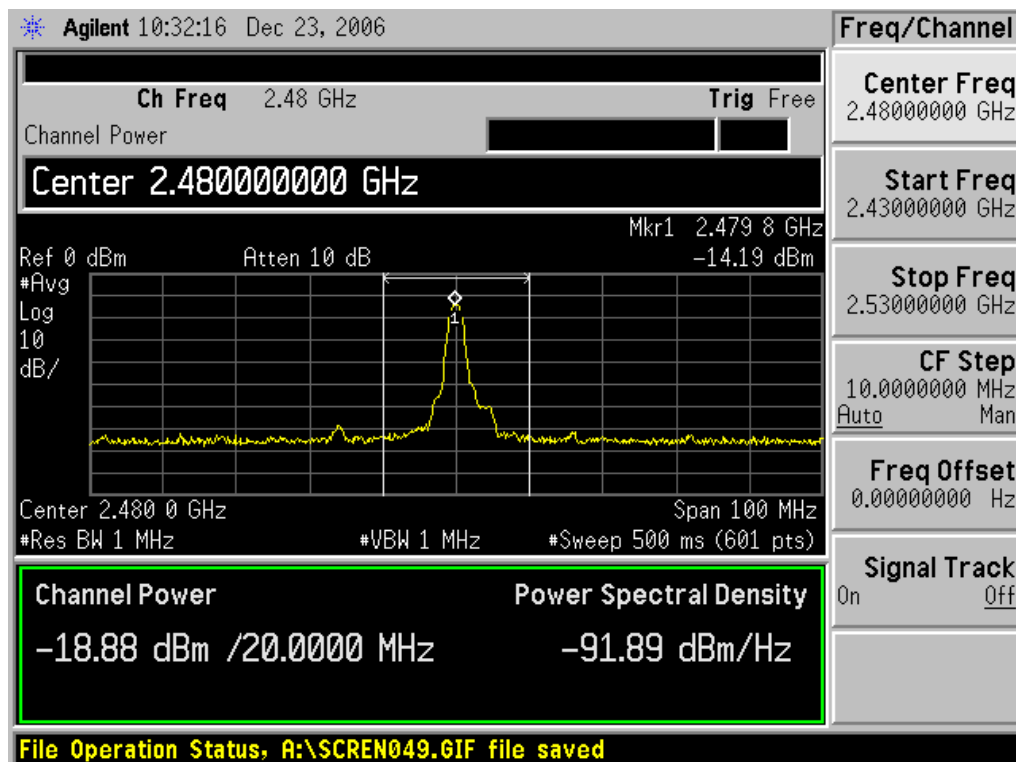
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



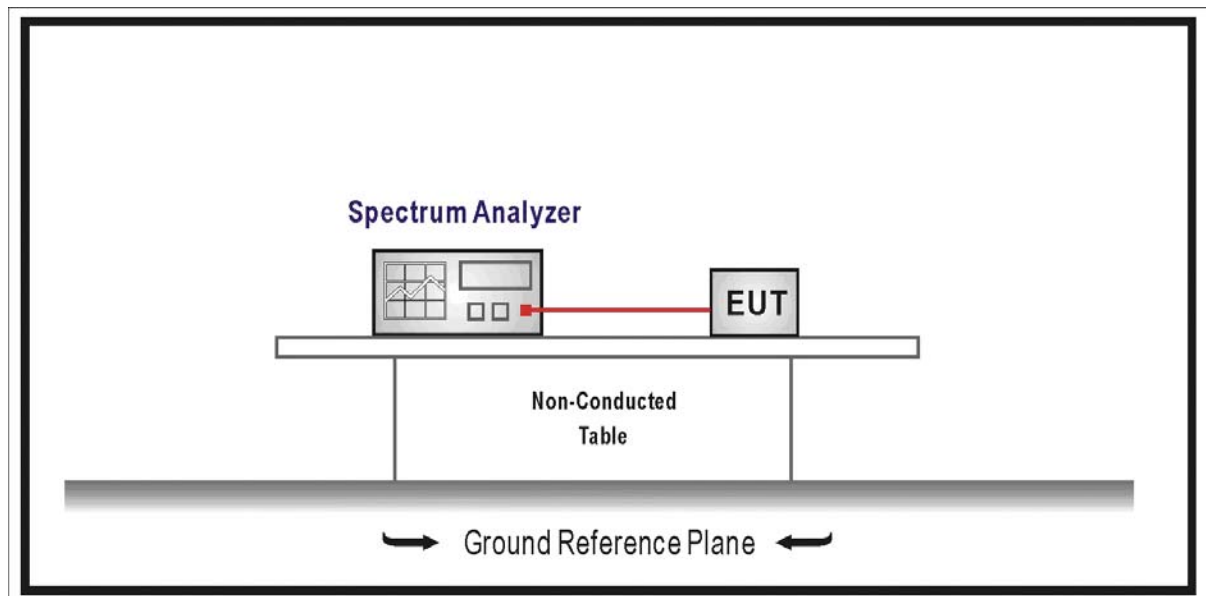
6. Occupied Bandwidth

6.1. Test Equipment

Occupied Bandwidth / AC-3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2007/06/11
Coaxial Cable	Huber+Suhner	AC3-RF	08	2006/11/25
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH003	2007/03/31

6.2. Test Setup



6.3. Limit

N/A

6.4. Test Procedure

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer.
- c) Add a correction factor to the display, and then test.

6.5. Uncertainty

The measurement uncertainty is defined as ± 100 Hz

6.6. Test Result

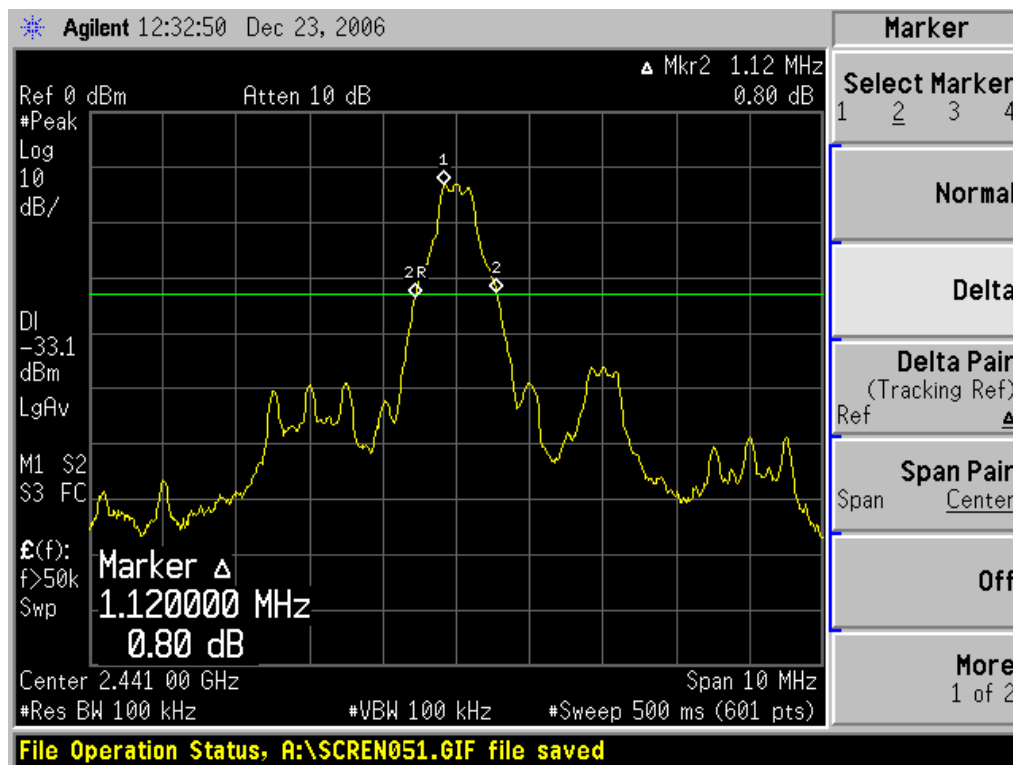
Product	:	GPS Bluetooth Receiver
Test Item	:	Occupied Bandwidth
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmit

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1100	N/A	Pass
39	2441	1120	N/A	Pass
78	2480	1100	N/A	Pass

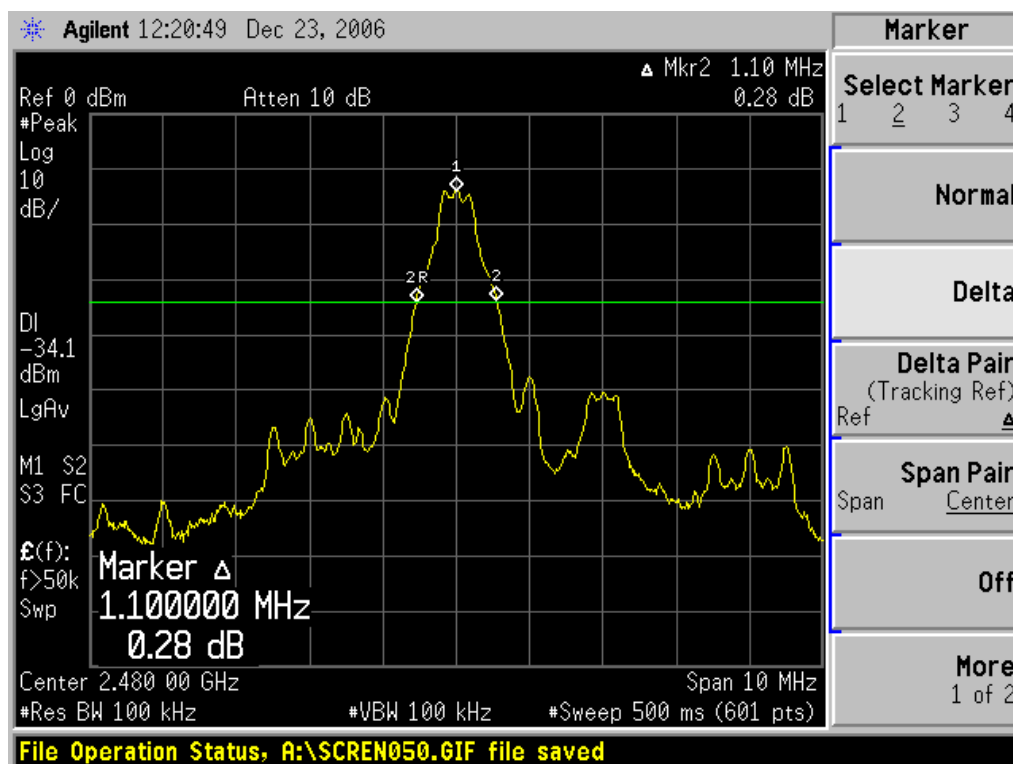
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



7. Band Edge

7.1. Test Equipment

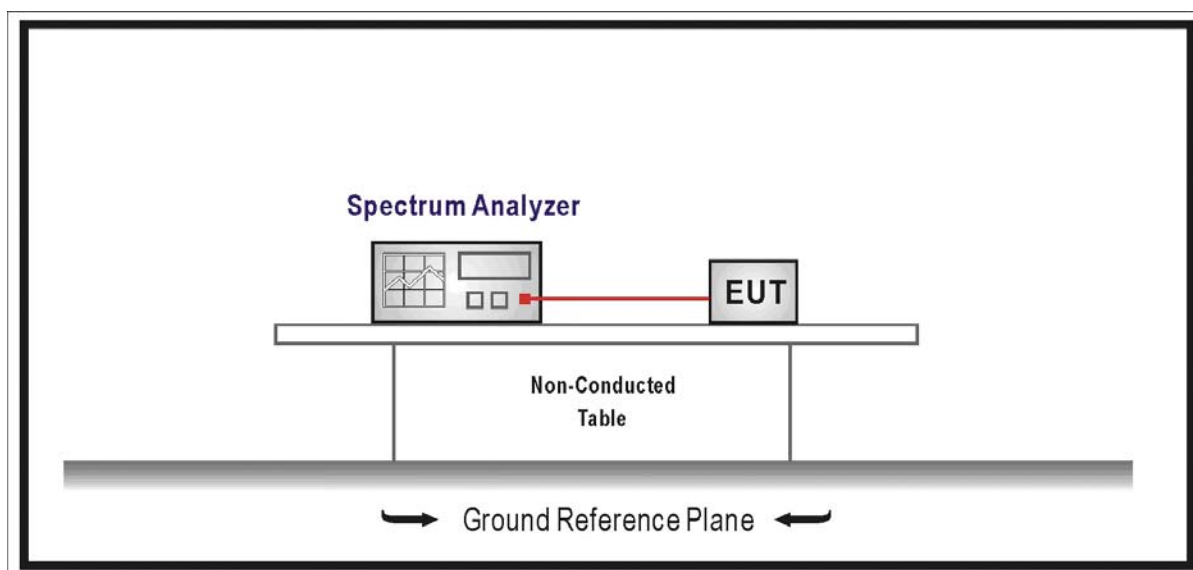
Band Edge / AC-2

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4408B	MY45102679	2006/11/20
Preamplifier	Quietek	AP-180C	CHM-0602013	2006/11/25
Bilog Type Antenna	Schaffner	CBL6112B	2932	2006/11/22
*Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	496	2005/11/25
50ohm Coaxial Switch	ANRITSU	MP59B	6200447304	2006/11/25
Coaxial Cable	Huber+Suhner	AC2-C	04	2006/11/25
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH002	2007/03/30

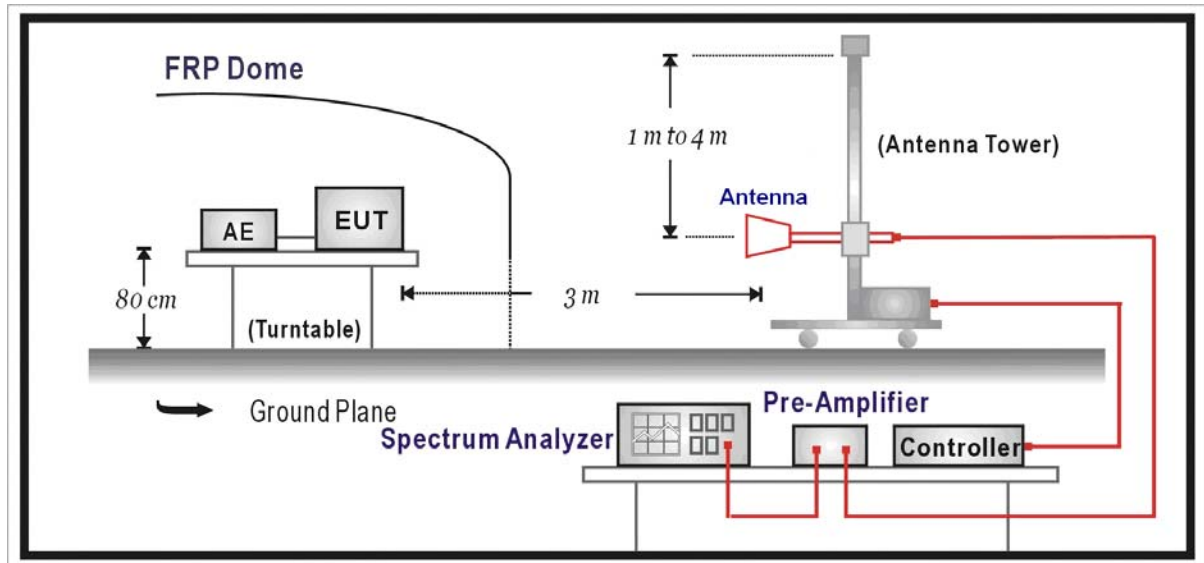
Note: "*" means the test device calibration period for two years.

7.2. Test Setup

RF Conducted Measurement



RF Radiated Measurement



7.3. Limit

For 15.215(C) requirement:

Intentional radiators operating under the alternative provisions to the general emission limits as contained in 15.217 through 15.257 and in Subpart E of FCC part 15, must be designed to ensure that 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

For 15.247(d) requirement:

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)).

7.4. Test Procedure

For RF Conducted Measurement:

- Place the EUT on a bench and set it in transmitting mode.
- Connect a low loss RF cable from the antenna port to a spectrum analyzer.

c) Add a correction factor to the display, and then test.

For RF Radiated Measurement:

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 and 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 on radiated measurement.

The additional latch filter below 1GHz was used to measure the level of harmonics radiated emission during field strength of harmonics measurement.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCI) is 120 kHz and above 1GHz is 1MHz.

7.5. Uncertainty

For RF Conducted Measurement:

The measurement uncertainty is defined as ± 1.27 dB

For RF Radiated Measurement:

The measurement uncertainty above 1G is defined as ± 3.9 dB

under 1G is defined as ± 3.8 dB

7.6. Test Result

Product	:	GPS Bluetooth Receiver
Test Item	:	Band Edge
Test Site	:	AC-2
Test Mode	:	Mode 1: Transmit

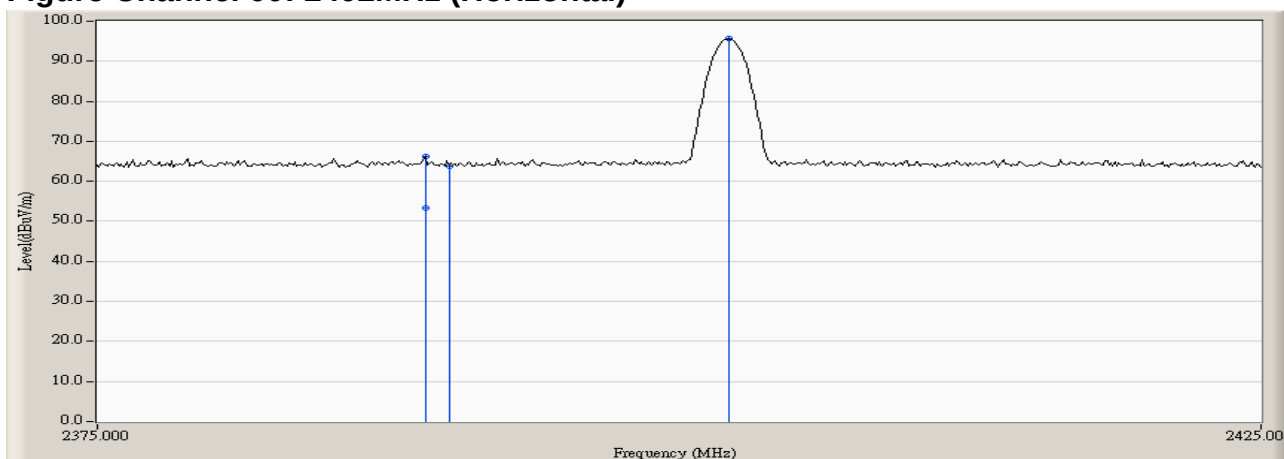
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
00	<2400	>20	Pass

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
00 (Peak)	2390.000	29.232	66.282	74.00	N/A	Pass
00 (Average)	2390.000	16.290	53.340	N/A	54.00	Pass

Figure Channel 00: 2402MHz (Horizontal)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	:	GPS Bluetooth Receiver
Test Item	:	Band Edge
Test Site	:	AC-2
Test Mode	:	Mode 1: Transmit

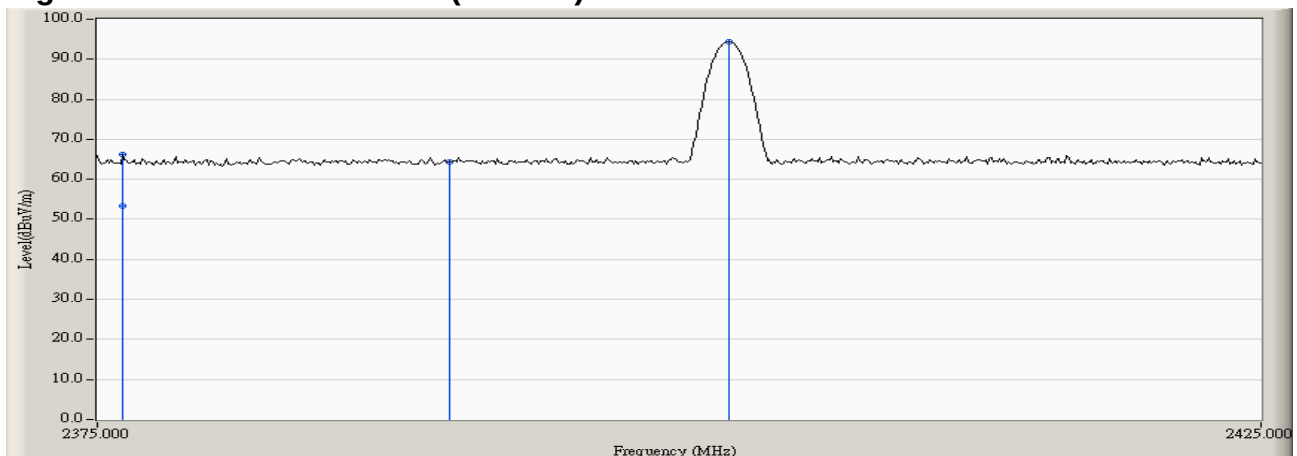
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
00	<2400	>20	Pass

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
00 (Peak)	2390.000	27.246	64.296	74.00	N/A	Pass
00 (Average)	2390.000	16.240	53.290	N/A	54.00	Pass

Figure Channel 00: 2402MHz (Vertical)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	:	GPS Bluetooth Receiver
Test Item	:	Band Edge
Test Site	:	AC-2
Test Mode	:	Mode 1: Transmit

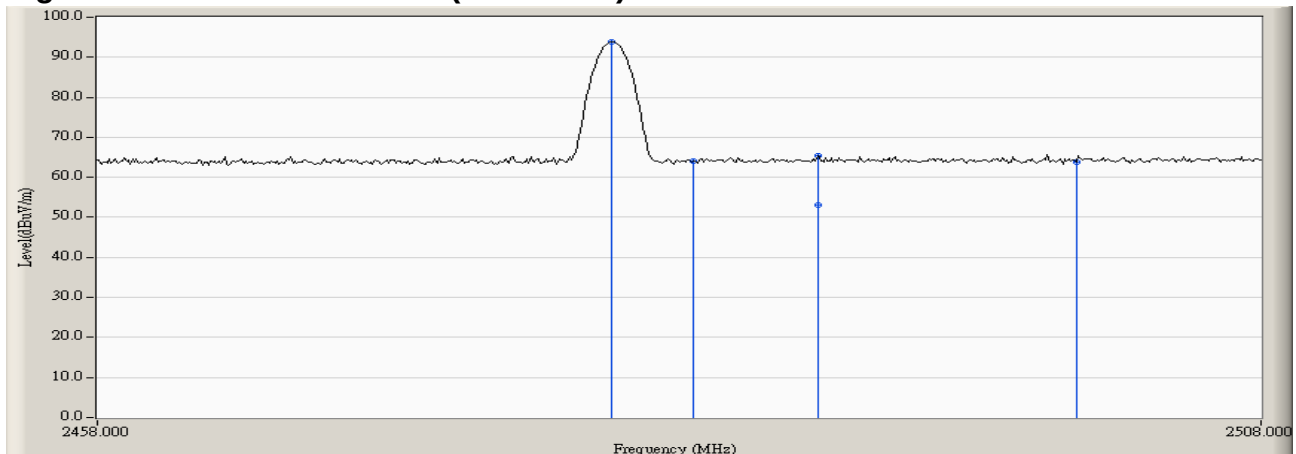
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
78	>2483.5	>20	Pass

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
78(Peak)	2483.500	27.117	64.167	74.00	N/A	Pass
78(Average)	2483.500	16.120	53.170	N/A	54.00	Pass

Figure Channel 78: 2480MHz (Horizontal)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	:	GPS Bluetooth Receiver
Test Item	:	Band Edge
Test Site	:	AC-2
Test Mode	:	Mode 1: Transmit

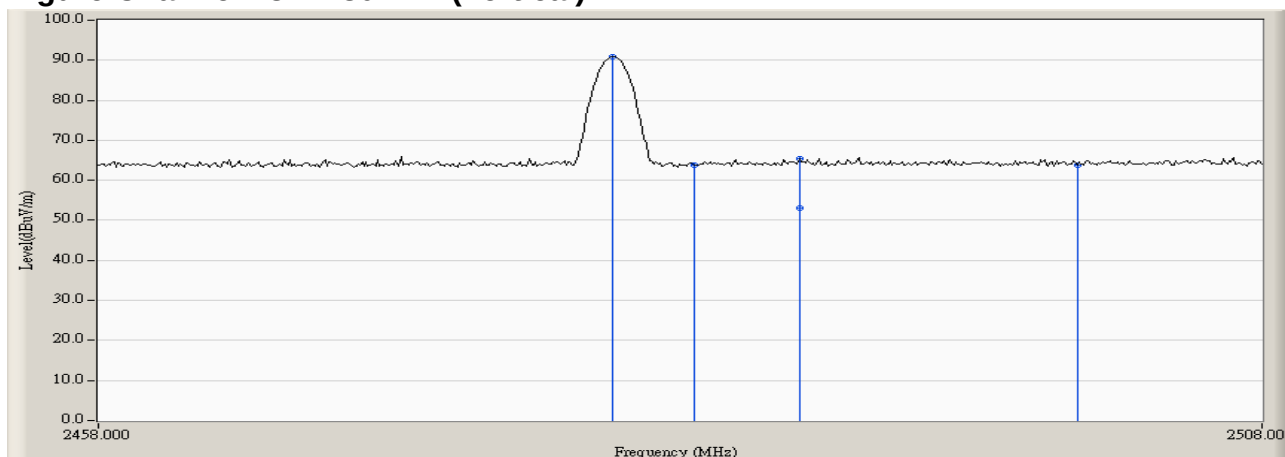
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
78	>2483.5	>20	Pass

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
78(Peak)	2483.500	26.786	63.836	74.00	N/A	Pass
78(Average)	2483.500	16.020	53.070	N/A	54.00	Pass

Figure Channel 78: 2480MHz (Vertical)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

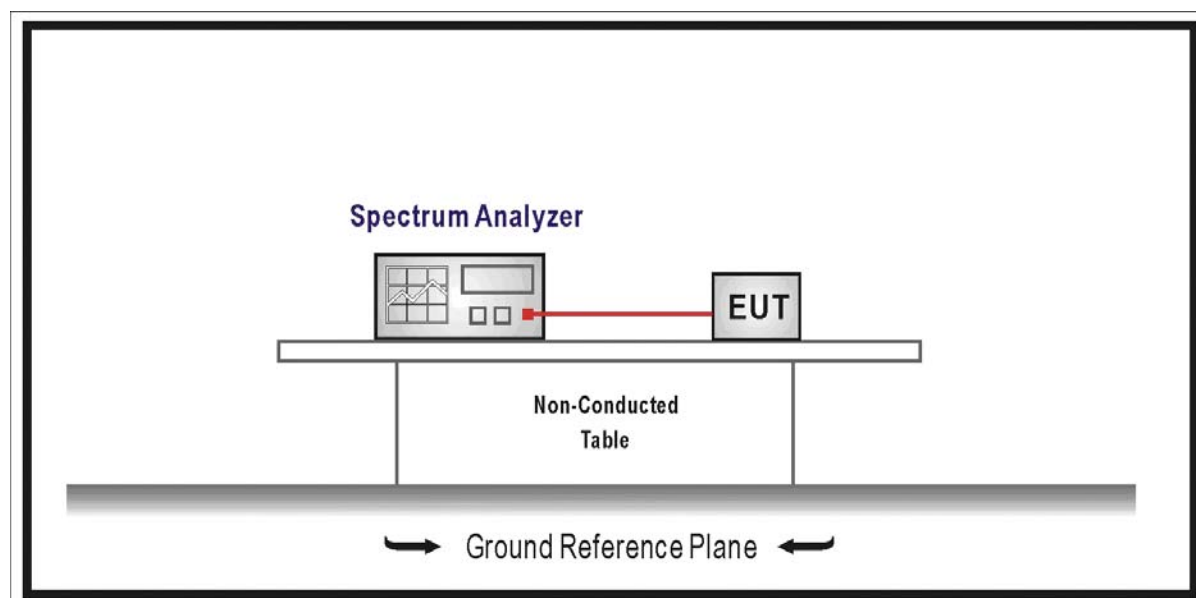
8. Channel Number

8.1. Test Equipment

Channel Number / AC-3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2007/06/11
Coaxial Cable	Huber+Suhner	AC3-RF	08	2006/11/25
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH003	2007/03/31

8.2. Test Setup



8.3. Limit

Frequency hopping systems operating in the 2400-2483.5 MHz bands shall use at least 15 hopping frequencies.

8.4. Test Procedure

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer.
- c) Add a correction factor to the display, and then test.

8.5. Uncertainty

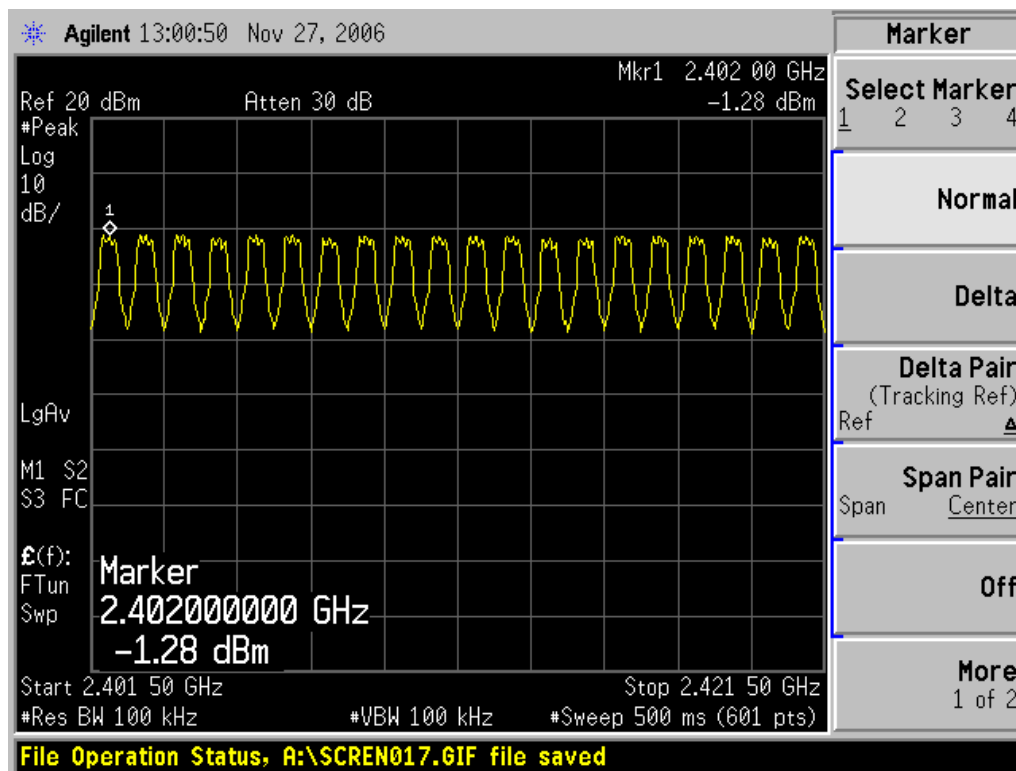
The measurement uncertainty is defined as ± 200 kHz

8.6. Test Result

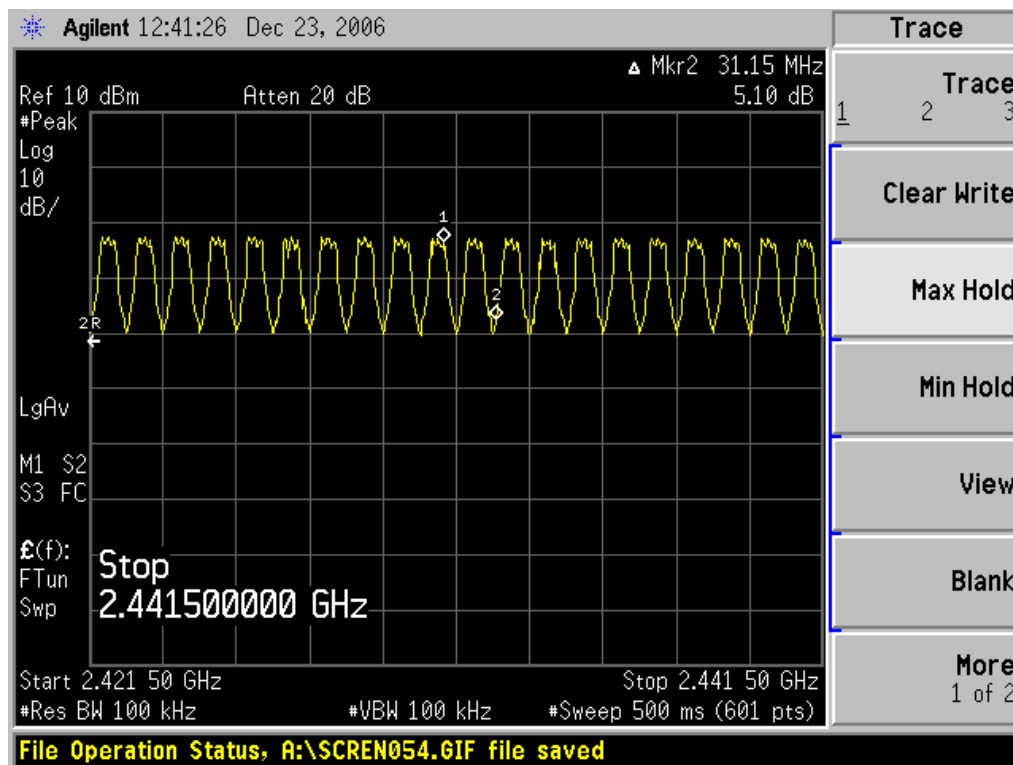
Product	:	GPS Bluetooth Receiver
Test Item	:	Channel Number
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmit

Frequency Range (MHz)	Measurement (Hopping Channel)	Required Limit (Hopping Channel)	Result
2402 ~ 2480	79	>15	Pass

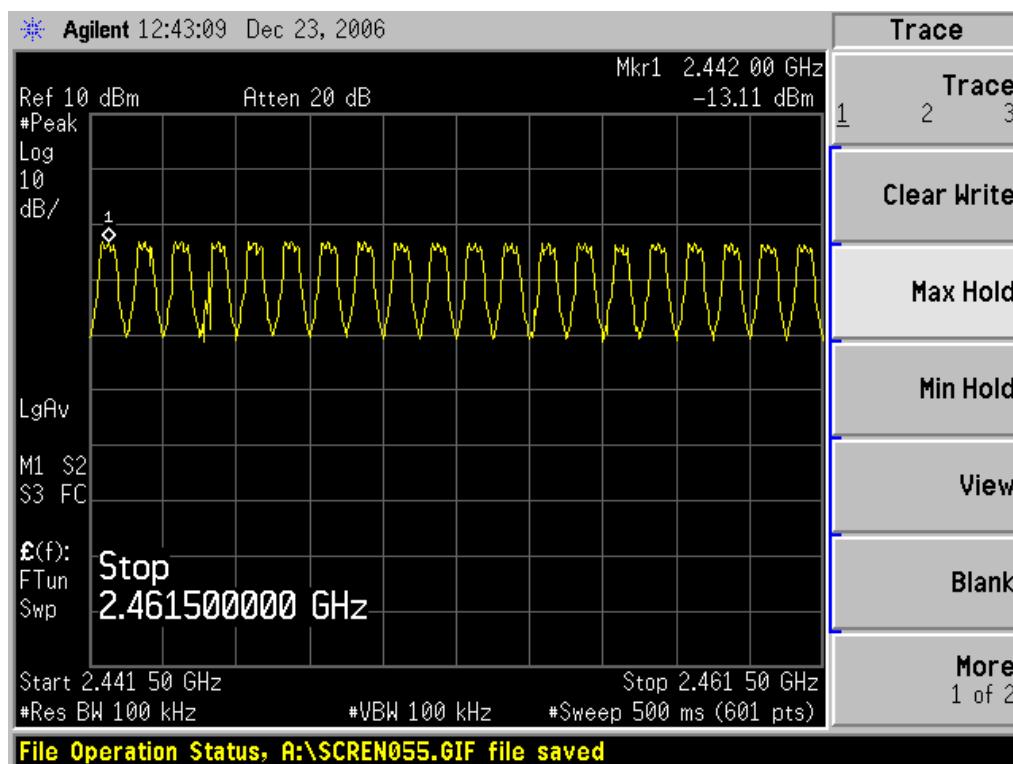
Frequency Range (2402~2421MHz)



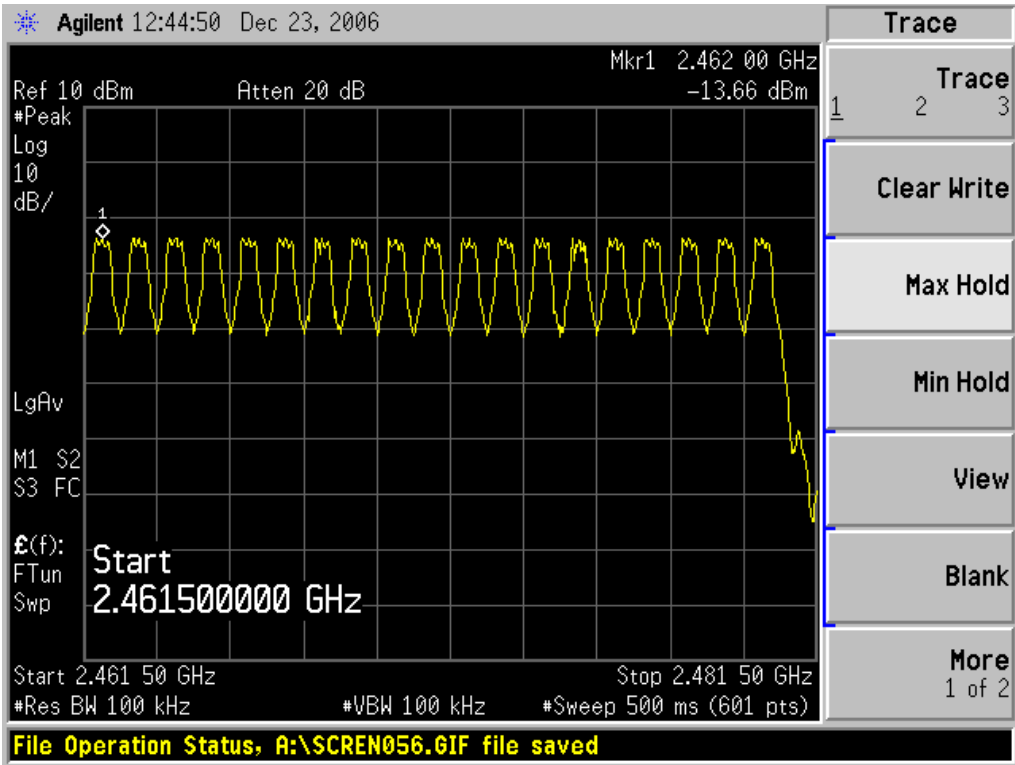
Frequency Range (2422~2441MHz)



Frequency Range (2442~2461MHz)



Frequency Range (2462~2480MHz)



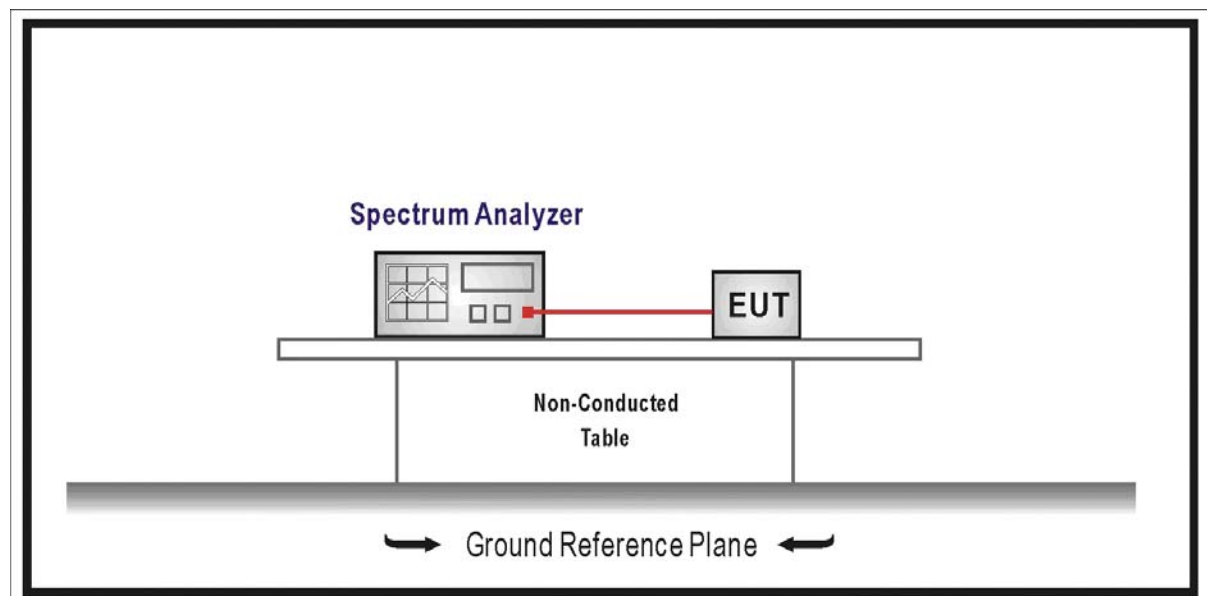
9. Channel Separation

9.1. Test Equipment

Channel Separation / AC-3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2007/06/11
Coaxial Cable	Huber+Suhner	AC3-RF	08	2006/11/25
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH003	2007/03/31

9.2. Test Setup



9.3. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 KHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

9.4. Test Procedure

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer.
- c) Add a correction factor to the display, and then test.

9.5. Uncertainty

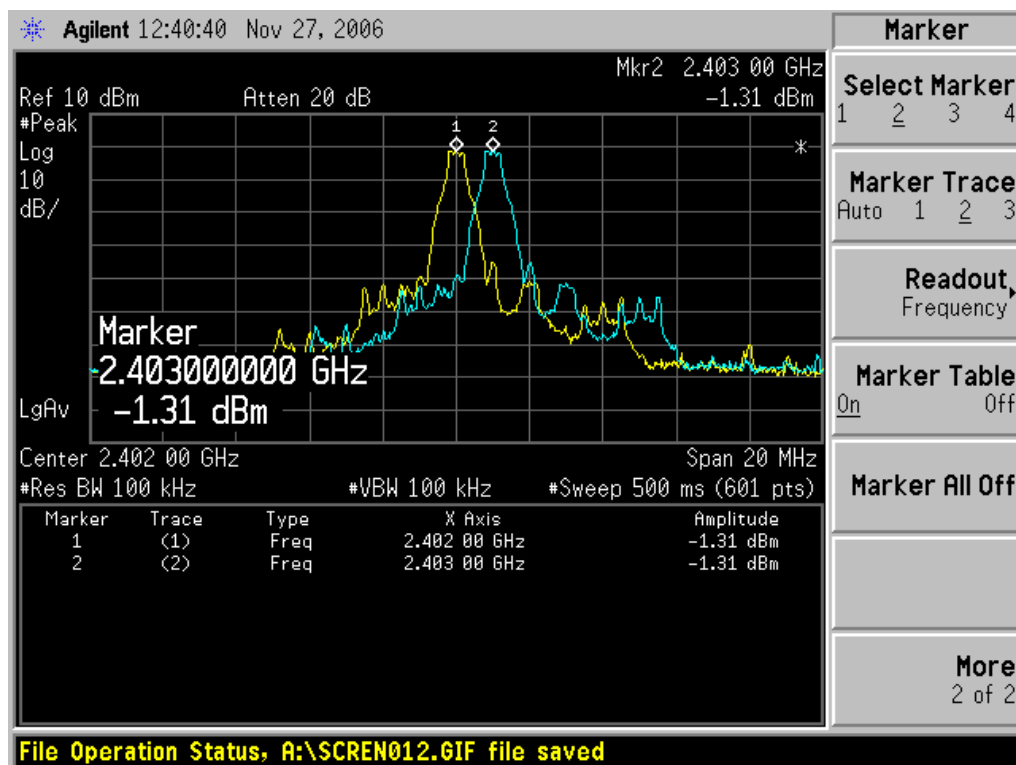
The measurement uncertainty is defined as ± 150 kHz

9.6. Test Result

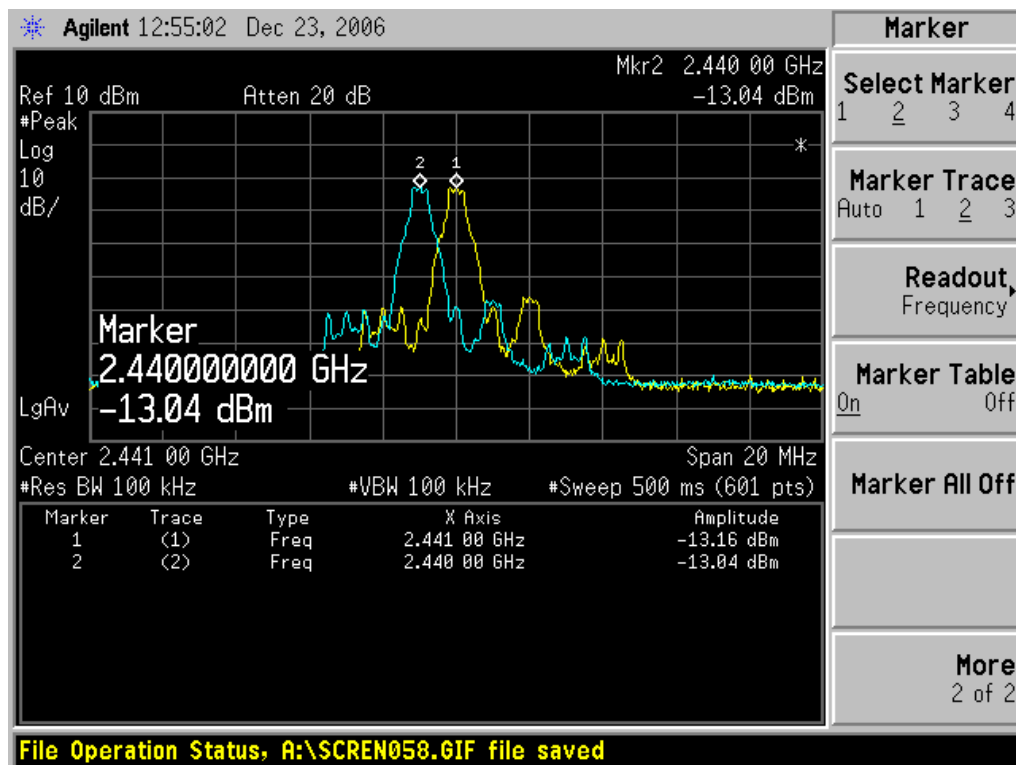
Product	:	GPS Bluetooth Receiver
Test Item	:	Channel Separation
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmit

Frequency (MHz)	Measurement Level (MHz)	Required Limit	Result
2402	1.00	>25 kHz or 2/3 * 20 dB BW	Pass
2441	1.00	>25 kHz or 2/3 * 20 dB BW	Pass
2480	1.00	>25 kHz or 2/3 * 20 dB BW	Pass

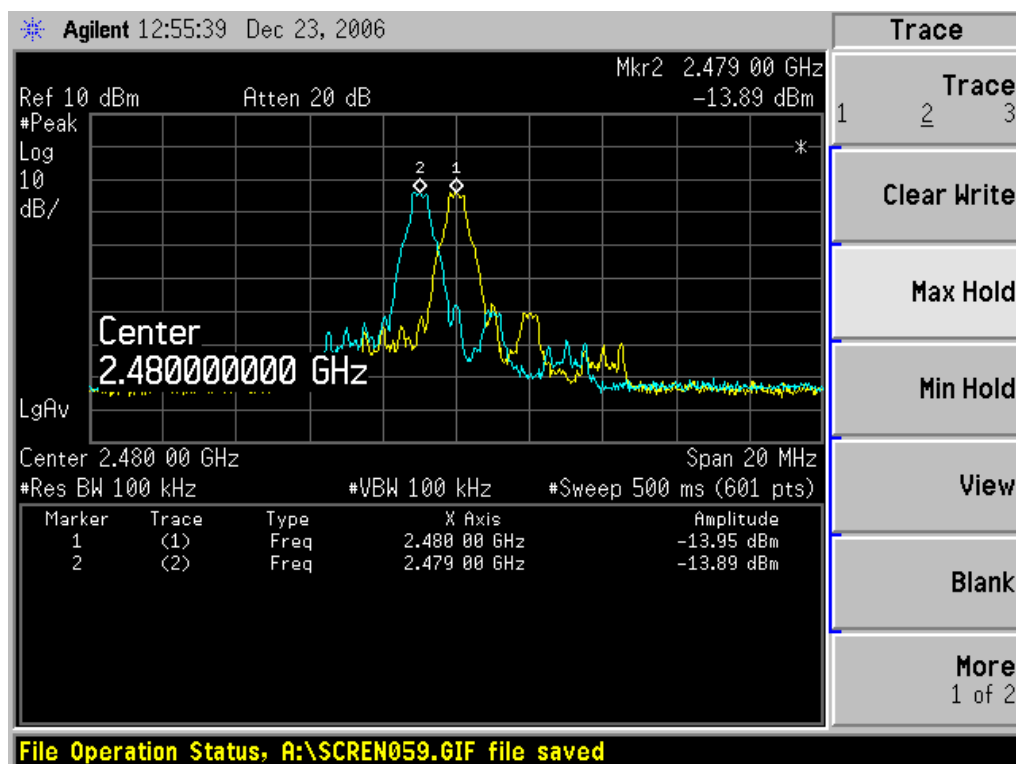
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



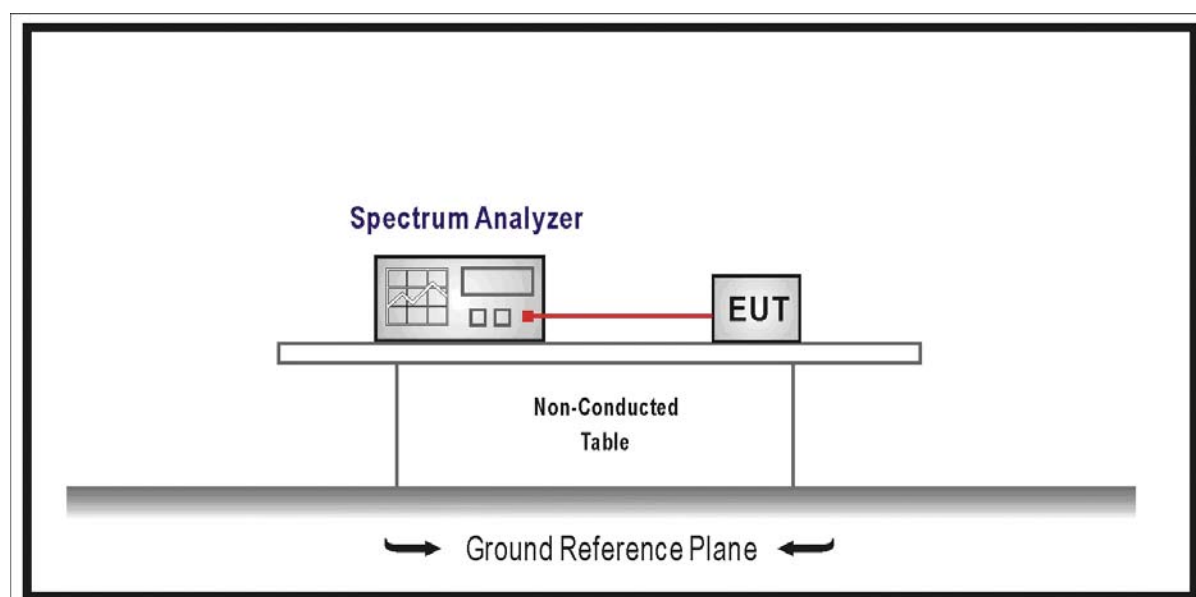
10. Dwell Time

10.1. Test Equipment

Dwell Time / AC-3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2007/06/11
Coaxial Cable	Huber+Suhner	AC3-RF	08	2006/11/25
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH003	2007/03/31

10.2. Test Setup



10.3. Limit

The dwell time shall be the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

10.4. Test Procedure

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer.
- c) Add a correction factor to the display, and then test.

10.5. Uncertainty

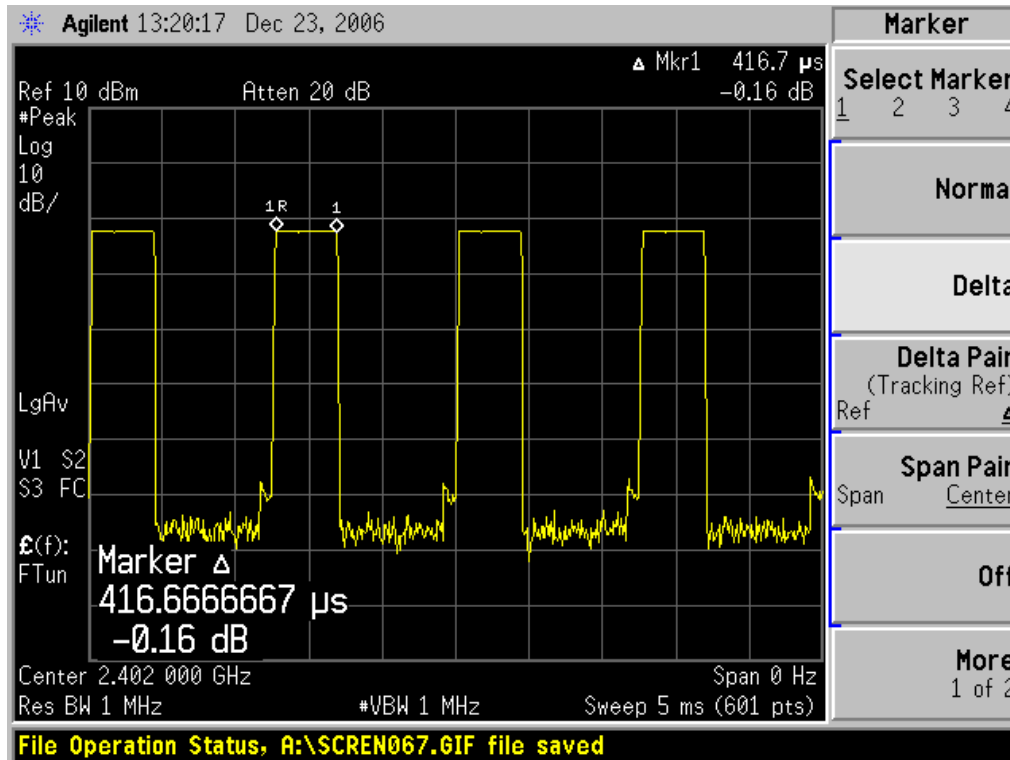
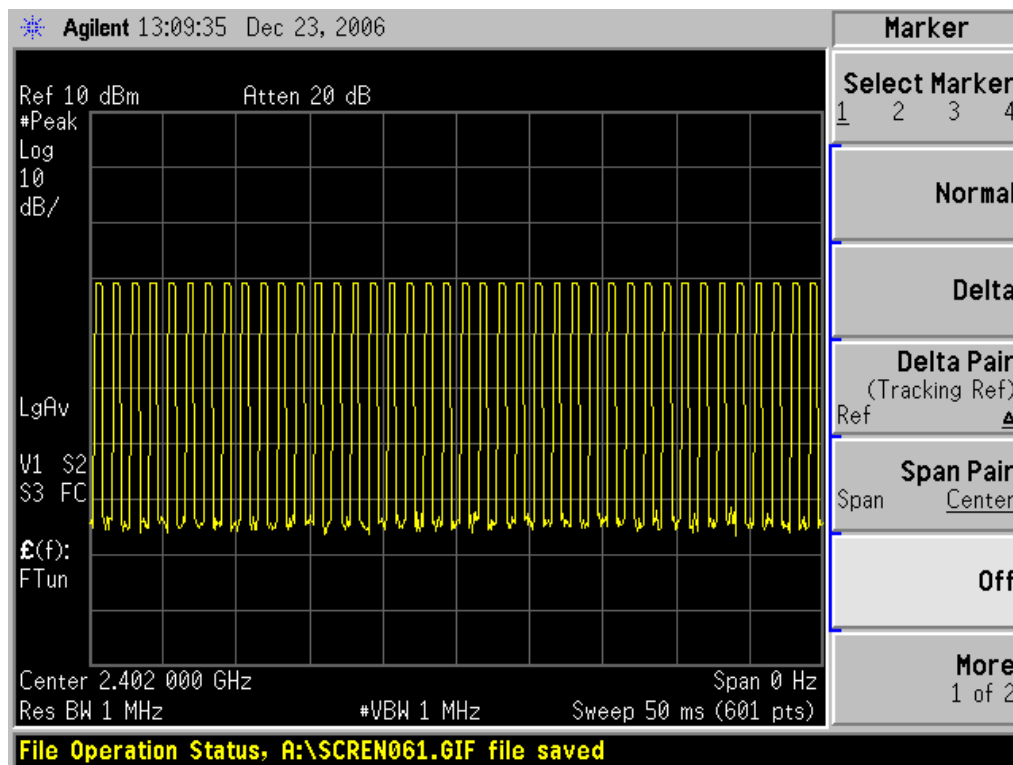
The measurement uncertainty is defined as ± 25 ms

10.6. Test Result

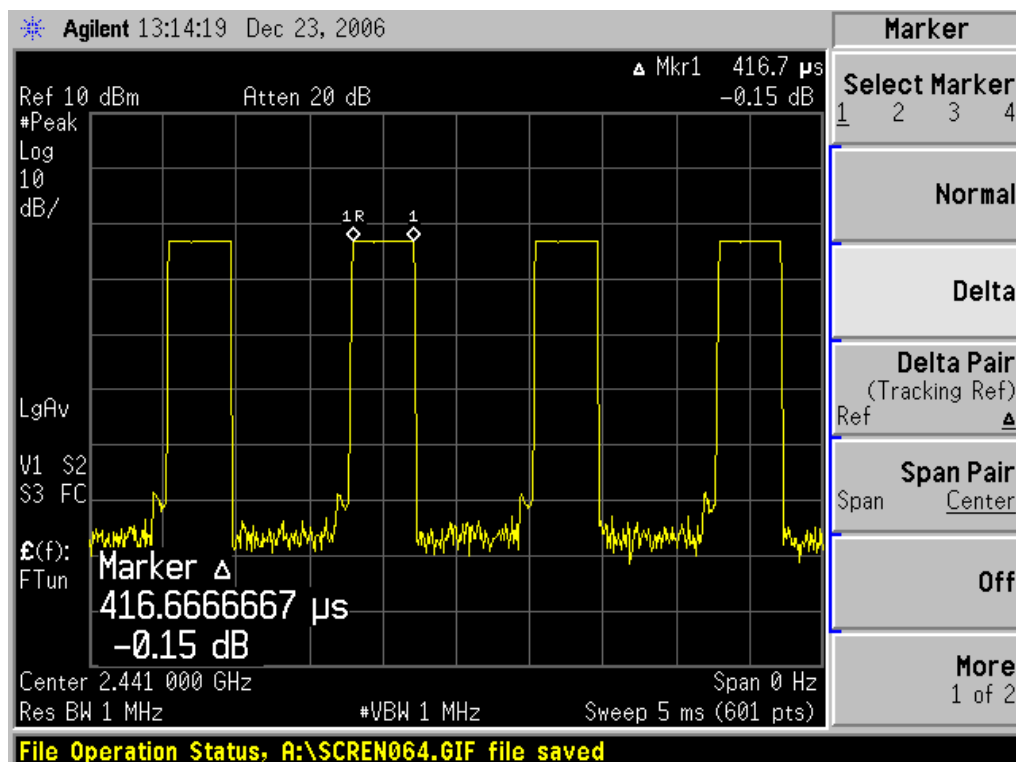
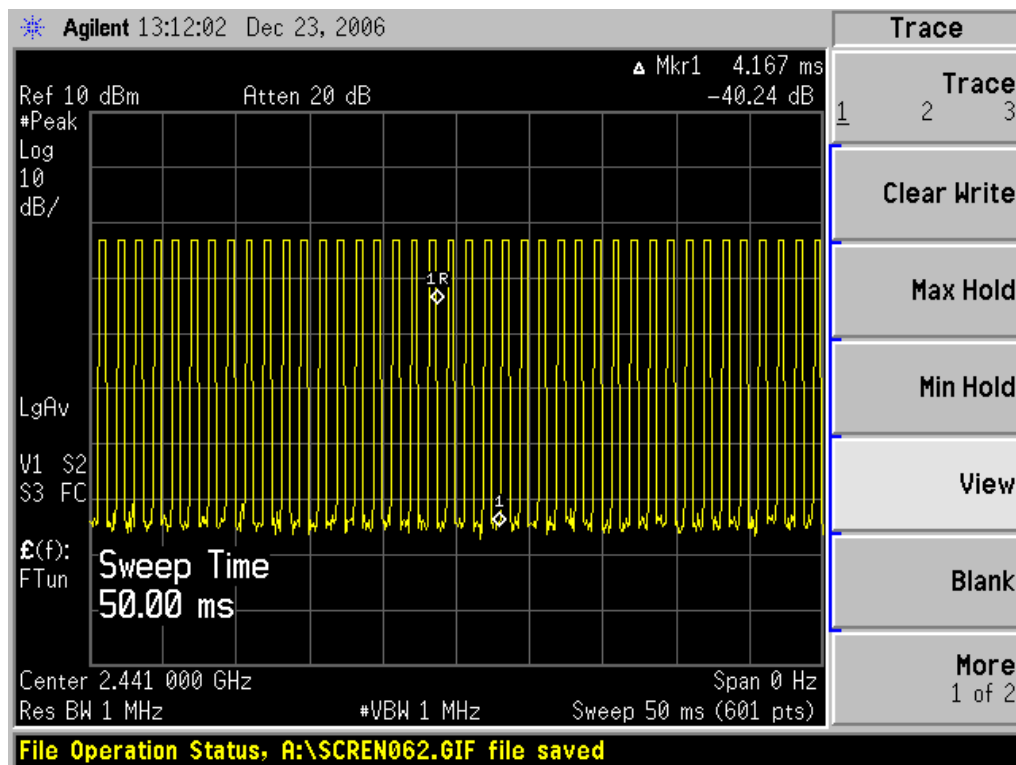
Product	:	GPS Bluetooth Receiver
Test Item	:	Dwell Time
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmit

Frequency (MHz)	Measurement Level (ms)	Required Limit (sec.)	Result
2402	130.844	< 0.4	Pass
2441	133.536	< 0.4	Pass
2480	133.536	< 0.4	Pass

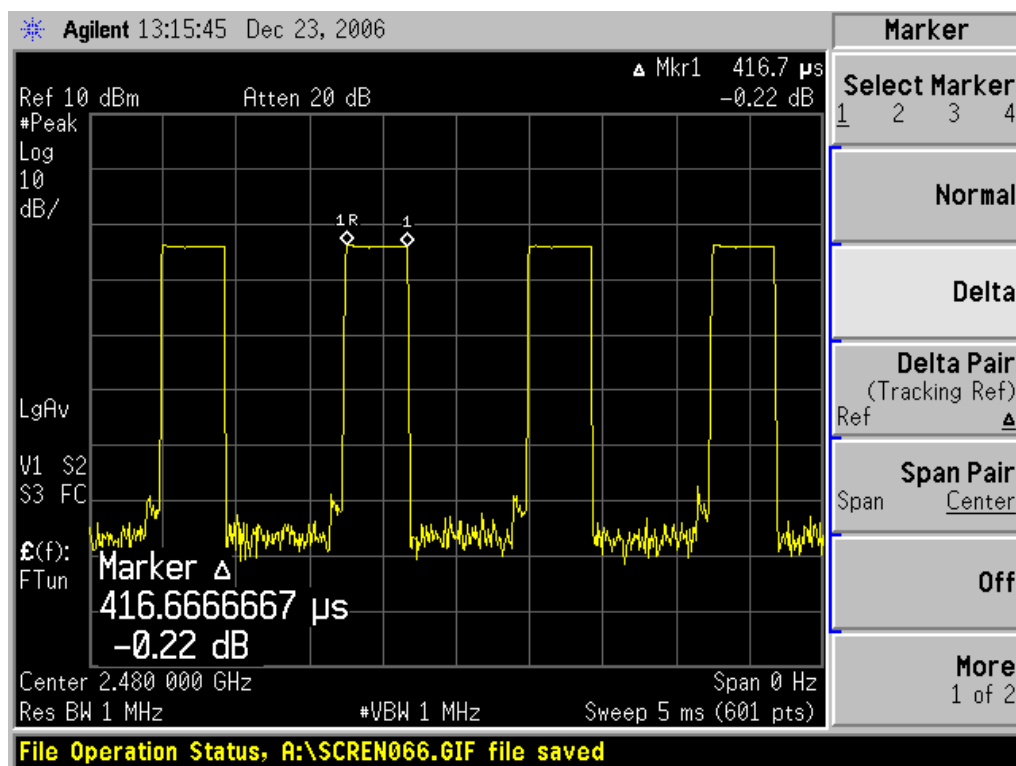
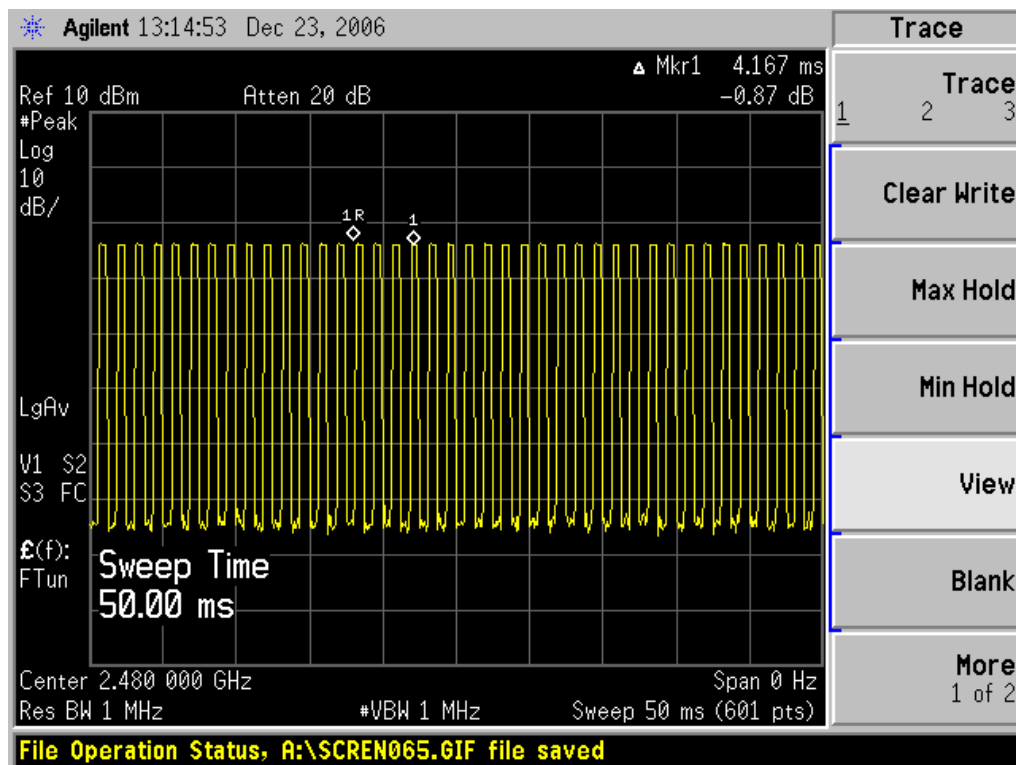
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



Occupancy Time of Frequency Hopping System

Test Time Period: $0.4 \times 79 = 31.6\text{sec}$, Hopping Times Within 1sec: $40/50\text{msec} = 800 \text{ hops/sec}$.

A) 2402MHz The Maximum Occupancy Time Within 31.6sec: $(408.3 \mu\text{s} \times 800) / (79 \times 31.6) = 130.844\text{msec}$

B) 2441MHz The Maximum Occupancy Time Within 31.6sec: $(416.7 \mu\text{s} \times 800) / (79 \times 31.6) = 133.536\text{msec}$

C) 2480MHz The Maximum Occupancy Time Within 31.6sec: $(416.7 \mu\text{s} \times 800) / (79 \times 31.6) = 133.536\text{msec}$

Test Result: The Average Occupancy Time of Each Highest , Middle and Lowest Channel Is Less Than 0.4sec , And Corresponds to The Standard

PS: (1) From Bluetooth Specification , It Hops 1640 Times in 1sec • The Average Occupancy Time of Each 79 Channels is $1640/79$ Times , Therefore , We Calculate The Maximum Occupancy Time (worse cars)As Below:

A) 2402Mhz The Occupancy Time of Each Pulse is 0.4msec , The Maximum Occupancy Time within 31.6sec is $0.4\text{msec} \times 1640 / 79 \times 31.6 = 289.056\text{msec}$

B) 2441MHz The Occupancy Time of Each Pulse is 0.4msec , The Maximum Occupancy Time within 31.6sec is $0.4\text{msec} \times 1640 / 79 \times 31.6 = 289.056\text{msec}$

C) 2480MHz The Occupancy Time of Each Pulse is 0.4msec , The Maximum Occupancy Time within 31.6sec is $0.4\text{msec} \times 1640 / 79 \times 31.6 = 289.056\text{msec}$

Test Result: The Maximum Occupancy Time of Each Highest , Middle and Lowest Channel Is Less Than 0.4sec , And Corresponds to The Standard