



Test Report

Product Name : Outdoor Handheld GPS Device

Model No. : FunTrek 130

FCC ID. : RJIGM130XX

Applicant : Holux Technology, Inc

Address : No. 1-1, Innovation Road 1 Hsinchu City, 300 Taiwan

Date of Receipt : 2009/09/24

Issued Date : 2009/11/05

Report No. : 099477R-RFUSP30V01

Version : V1.0

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

Test Report Certification

Issued Date : 2009/11/05

Report No. : 099477R-RFUSP30V01



Product Name : Outdoor Handheld GPS Device
 Applicant : Holux Technology, Inc
 Address : No. 1-1, Innovation Road 1 Hsinchu City, 300 Taiwan
 Manufacturer : Holux Technology, Inc
 Model No. : FunTrek 130
 Trade Name : **HOLUX**
 FCC ID. : RJIGM130XX
 Rated Voltage : AC 120 V / 60 Hz
 EUT Voltage : DC 5V
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.249: 2008
 Test Result : Complied

The test results relate only to the samples tested.

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Documented By : Demi Chang
 (Demi Chang / Engineering Adm. Specialist)
 Reviewed By : Halu chung
 (Halu Chung / Assistant Engineer)
 Approved By : Roy Wang
 (Roy Wang / Manager)

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1. General Information

1.1. EUT Description

Product Name	Outdoor Handheld GPS Device
Model No.	FunTrek 130
Trade Name	HOLUX
Frequency Range	2402MHz~2478MHz
Antenna Gain	2dBi
Channel Number	77
Type of Modulation	GFSK
Channel Control	Auto
Antenna Type	Chip

Component	
USB Cable	Shielded, 1.1m
Power Adapter	BI, BI07-050100-AdU I/P: AC 100-240V, 50/60Hz, 0.5A O/P: DC 5V, 1A

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

Note:

1. This device is a Outdoor Handheld GPS Device included a 2.4GHz receiving function, and 2.4GHz transmitting function.
2. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.249.
3. Regards to the frequency band operation; the lowest , middle and highest frequency of channel were selected to perform the test, and then shown on this report.
4. This device is a composite device in accordance with Part 15 regulations. The function receiving was measured and made a test report that the report number is 099477R-ITUSP37V02 under Declaration of Conformity.

1.3. Test Mode

Due to the EUT is a hand-held device, QuieTek had tested three orthogonal axes(X,Y,Z) to find the highest emission which is relative to the limit by rotating the device. The final measurement will only be done in worst case scenario and be shown in the report.

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:

Pre-Test Mode	
EMI	Mode 1: Transmit
Final Test Mode	
TX	Mode 1: Transmit

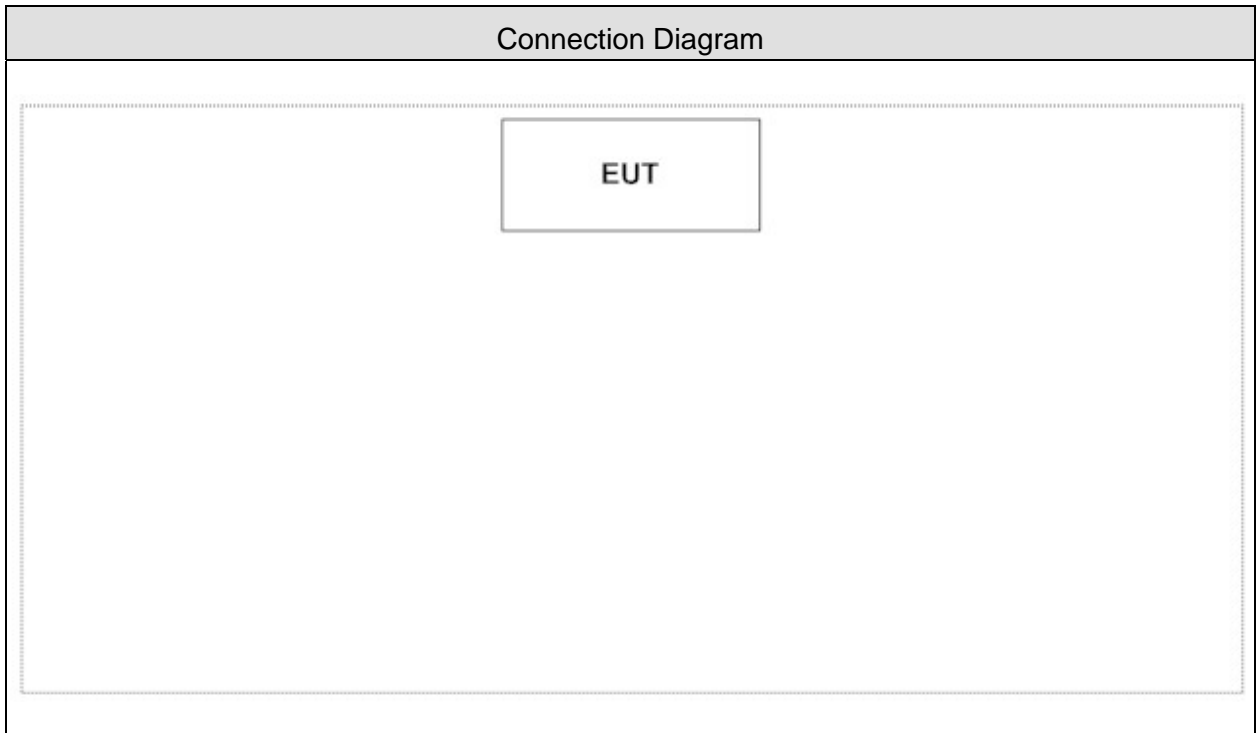
Emission	
Performed Item	Test
Conducted Emission	Yes
Radiated Emission	Yes
Band Edge	Yes

1.4. Tested System Details

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

N/A

1.5. Configuration of tested System



1.6. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.5
2	Turn on the power.
3	The RF signal's status will continue transmit through EUT.
4	Repeat the above procedure (3)

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 C 15.207 Conducted Emission	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.249 Band Edge	15 - 35	25
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.209 Radiated Emission	15 - 35	25
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000

Site Description:

January 24, 2005 File on
Federal Communications Commission
Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 365520



Accredited by TAF
Accreditation Number: 1313



Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2009



Site Name: Quietek Corporation

Site Address: No.75-1, Wang-Yeh Valley, Yung-Hsing,
Chiung-Lin, Hsin-Chu County,
Taiwan, R.O.C.

TEL : 886-3-592-8858 / FAX : 886-3-592-8859
E-Mail : service@quietek.com

2. Conducted Emission

2.1. Test Equipment

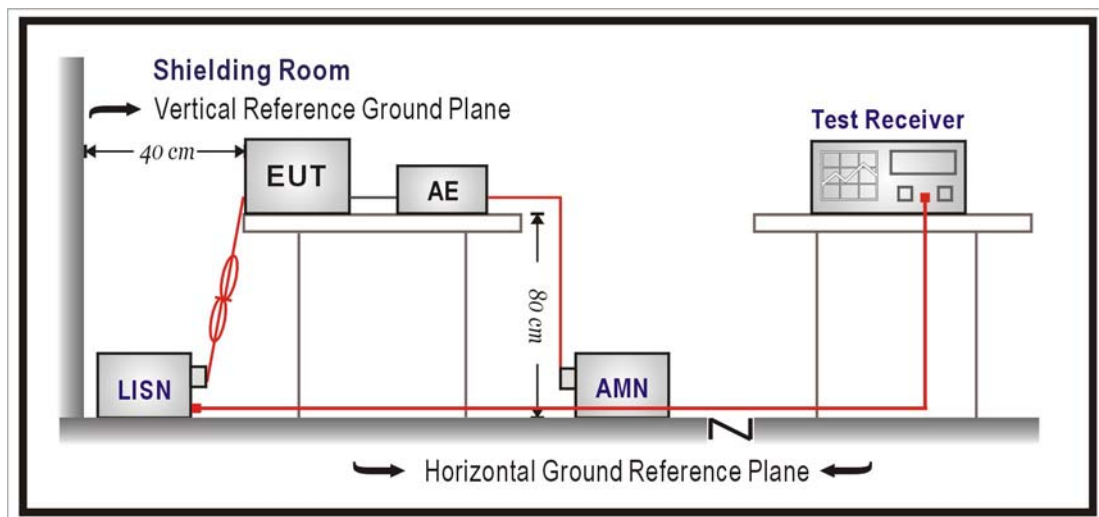
The following test equipment are used during the test:

Conducted Emission / SR2

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
4-Wire ISN	R & S	ENY 41	837032/001	2009/04/15
Artificial Mains Network	R & S	ENV4200	848411/010	2009/03/13
Double 2-Wire ISN	R & S	ENY 22	835354/008	2009/04/15
LISN	R & S	ESH3-Z5	825562/002	2009/03/31
Pulse Limiter	R & S	ZSH3Z2	357.8810.54	2009/07/19
Test Receiver	R & S	ESCS 30	100122	2009/02/21

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

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

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

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.) Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement. Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Specification

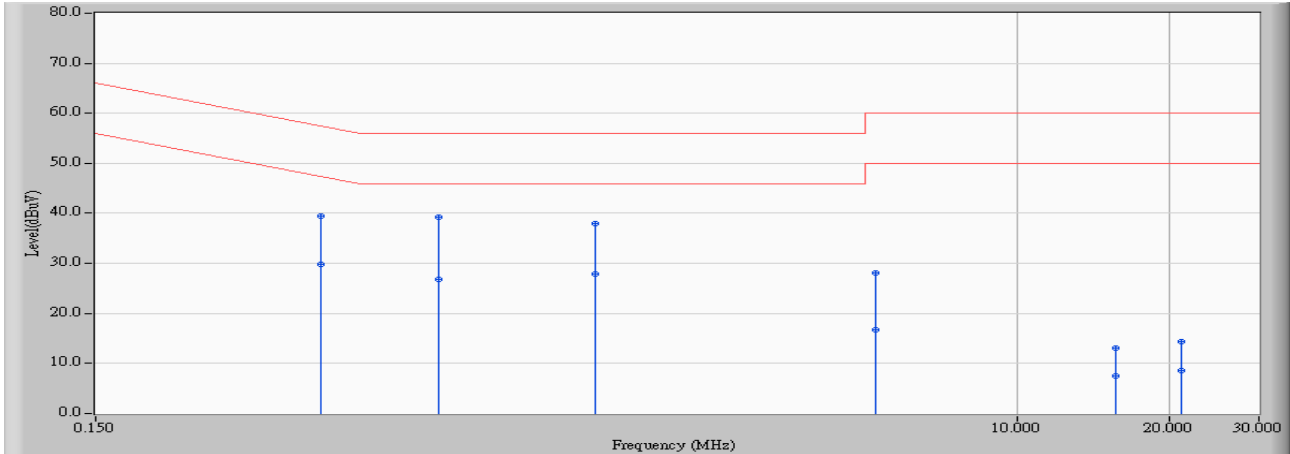
According to FCC Part 15 Subpart C Paragraph 15.207: 2008

2.6. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB.

2.7. Test Result

Site : SR2	Time : 2009/10/21 - 09:50
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-LISN(16A) - Line1	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit

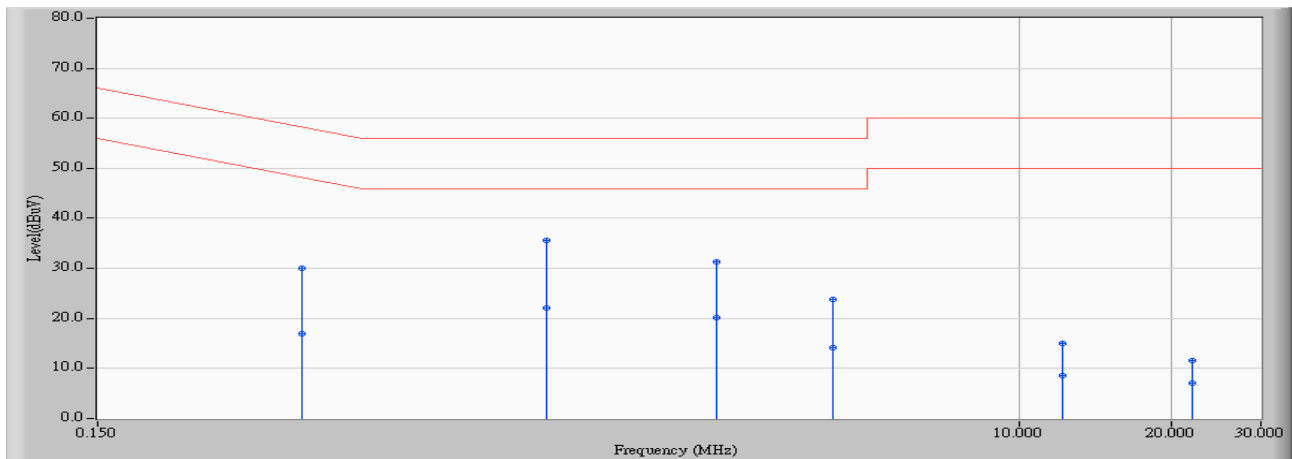


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.420	9.743	29.790	39.534	-17.924	57.457	QUASPEAK
2	0.420	9.743	20.140	29.884	-17.574	47.457	AVERAGE
3	* 0.716	9.795	29.390	39.185	-16.815	56.000	QUASPEAK
4	0.716	9.795	16.970	26.765	-19.235	46.000	AVERAGE
5	1.459	9.805	28.060	37.865	-18.135	56.000	QUASPEAK
6	1.459	9.805	18.060	27.865	-18.135	46.000	AVERAGE
7	5.224	9.849	18.280	28.129	-31.871	60.000	QUASPEAK
8	5.224	9.849	6.780	16.629	-33.371	50.000	AVERAGE
9	15.595	10.123	2.990	13.113	-46.887	60.000	QUASPEAK
10	15.595	10.123	-2.620	7.503	-42.497	50.000	AVERAGE
11	21.085	10.292	4.180	14.472	-45.528	60.000	QUASPEAK
12	21.085	10.292	-1.720	8.572	-41.428	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 : SR2	Time : 2009/10/21 - 09:59
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-LISN(16A) - Line2	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.380	9.721	20.410	30.131	-28.138	58.269	QUASPEAK
2	0.380	9.721	7.140	16.861	-31.408	48.269	AVERAGE
3	* 1.162	9.802	25.750	35.552	-20.448	56.000	QUASPEAK
4	1.162	9.802	12.210	22.012	-23.988	46.000	AVERAGE
5	2.521	9.815	21.420	31.235	-24.765	56.000	QUASPEAK
6	2.521	9.815	10.400	20.215	-25.785	46.000	AVERAGE
7	4.285	9.834	13.890	23.724	-32.276	56.000	QUASPEAK
8	4.285	9.834	4.300	14.134	-31.866	46.000	AVERAGE
9	12.193	10.136	4.900	15.036	-44.964	60.000	QUASPEAK
10	12.193	10.136	-1.460	8.676	-41.324	50.000	AVERAGE
11	21.912	10.451	1.220	11.671	-48.329	60.000	QUASPEAK
12	21.912	10.451	-3.350	7.101	-42.899	50.000	AVERAGE

Note:

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

3. Radiated Emission

3.1. Test Equipment

The following test equipment are used during the test:

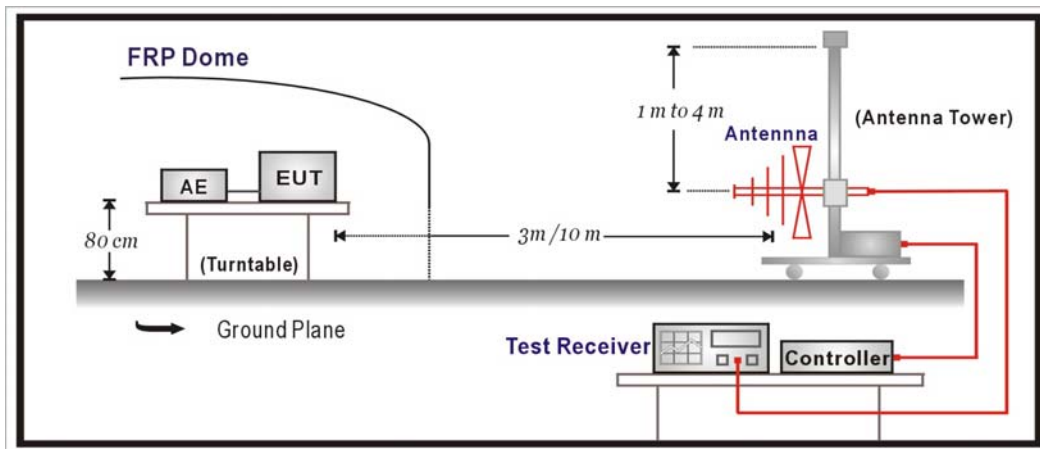
Radiated Emission / CB1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Horn Antenna	Schwarzback	9120D743	D69250	2009/03/16
Pre-Amplifier	HP	8449B	3008A01123	2008/11/15
Spectrum Analyzer	R & S	FSP40	100005	2009/08/25

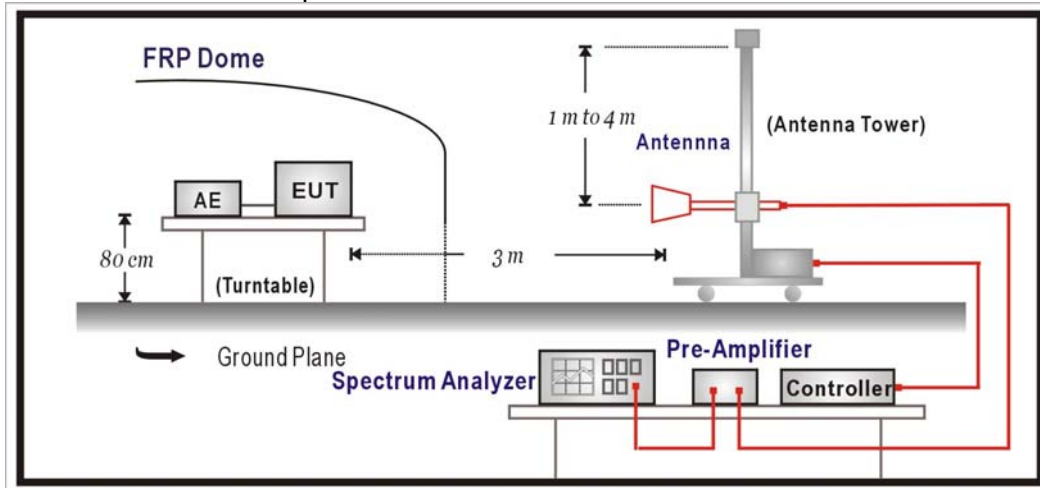
- Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
 2. "N/A" Ca1.Date is used to Pre-test, not final test.

3.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



3.3. Limits

➤ Fundamental and Harmonics Emission Limits

FCC Part 15 Subpart C Paragraph 15.249 Limits				
Fundamental Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	mV/m	dBuV/m	uV/m	dBuV/m
902-928	50	94	500	54
2400-2483.5	50	94	500	54
5725-5875	50	94	500	54

- Remarks :
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 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. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

➤ Spurious electric field strength limits

FCC Part 15 Subpart C Paragraph 15.209 Limits			
Frequency MHz	uV/m	dBuV/m	Measurement distance (meter)
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

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

3.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

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

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.

3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.209 and Paragraph 15.249: 2008

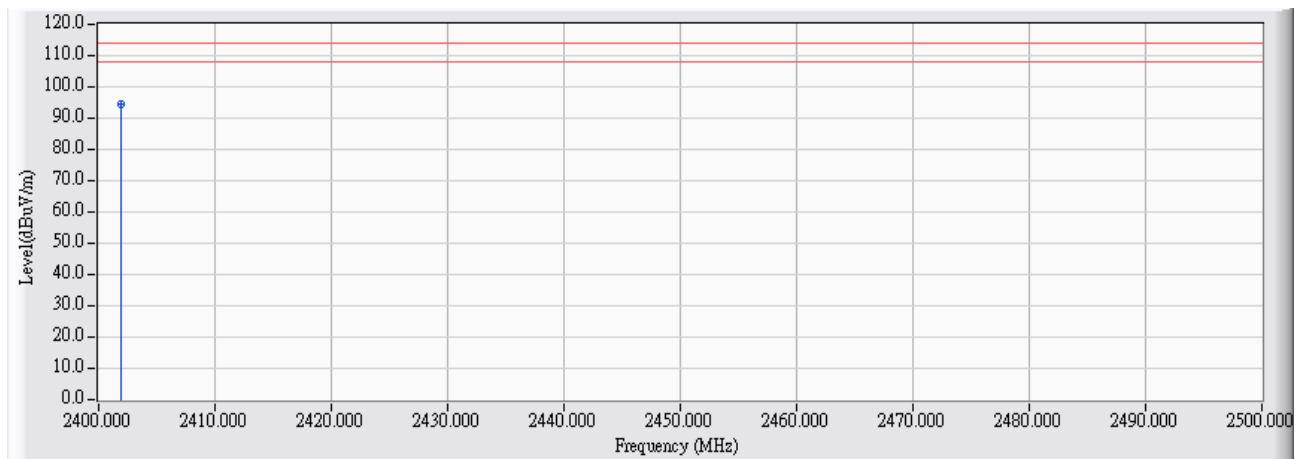
3.6. Uncertainty

The measurement uncertainty
 30MHz~1GHz as $\pm 3.19\text{dB}$
 1GHz~26.5GHz as $\pm 3.9\text{dB}$

3.7. Test Result

Fundamental :

Site : CB1	Time : 2009/10/30 - 17:45
Limit : FCC_SpartC_15.249_F_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit- 2402

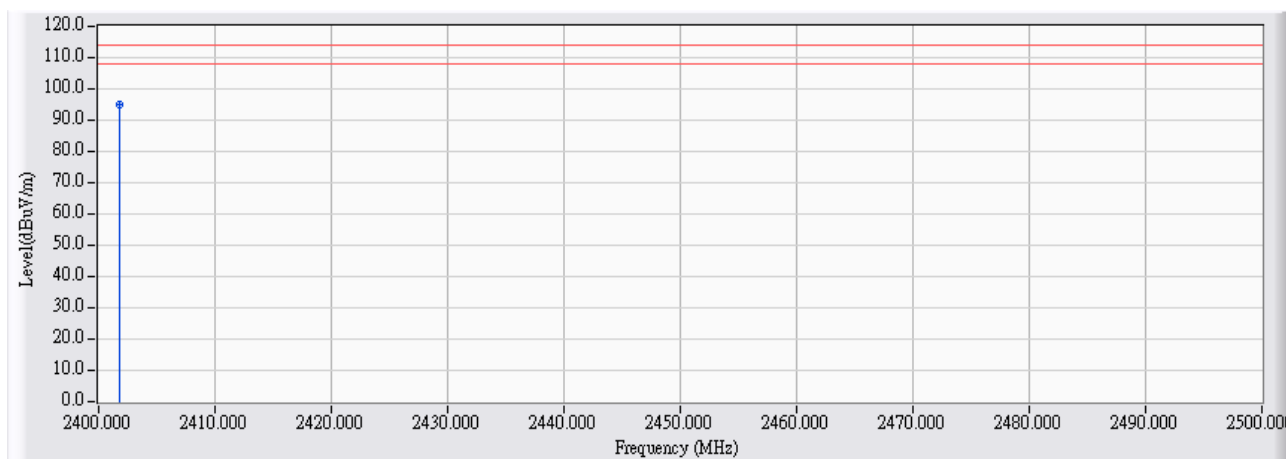


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2401.980	-5.893	100.297	94.405	-19.595	114.000	PEAK

Note:

1. All Readings below 1GHz are 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
4. 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.

Site : CB1	Time : 2009/10/30 - 17:46
Limit : FCC_SpartC_15.249_F_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit- 2402

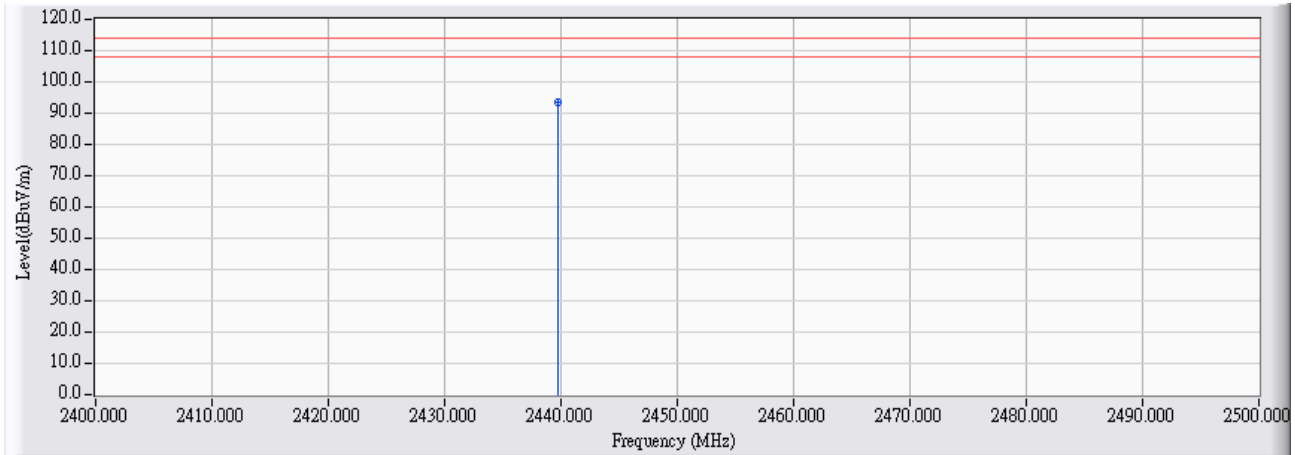


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2401.820	-6.195	101.397	95.202	-18.798	114.000	PEAK

Note:

1. All Readings below 1GHz are 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
4. 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.

Site : CB1	Time : 2009/10/30 - 17:46
Limit : FCC_SpartC_15.249_F_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit - 2440

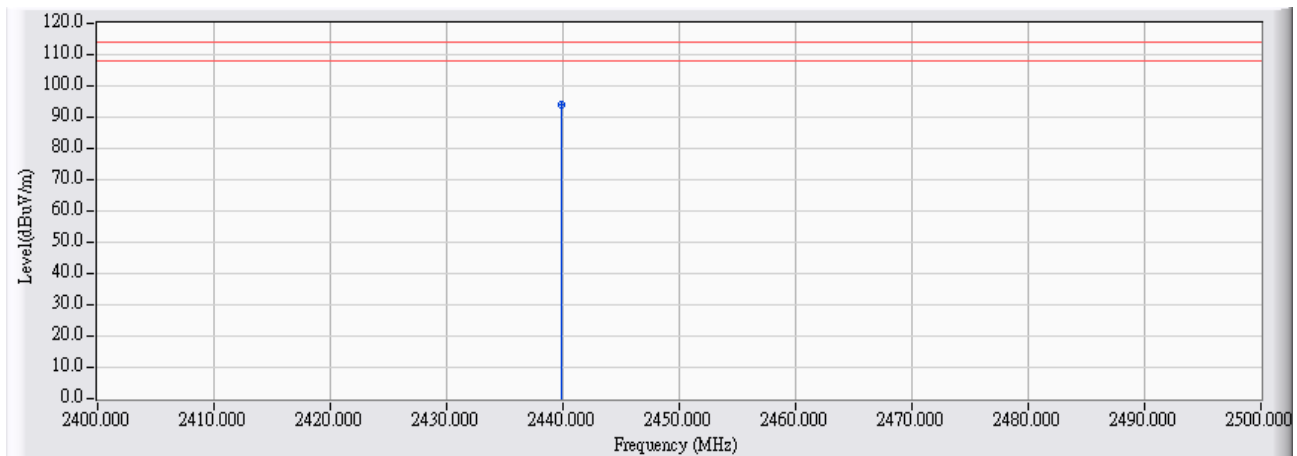


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2439.800	-5.710	99.225	93.515	-20.485	114.000	PEAK

Note:

1. All Readings below 1GHz are 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
4. 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.

Site : CB1	Time : 2009/10/30 - 17:48
Limit : FCC_SpartC_15.249_F_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit- 2440

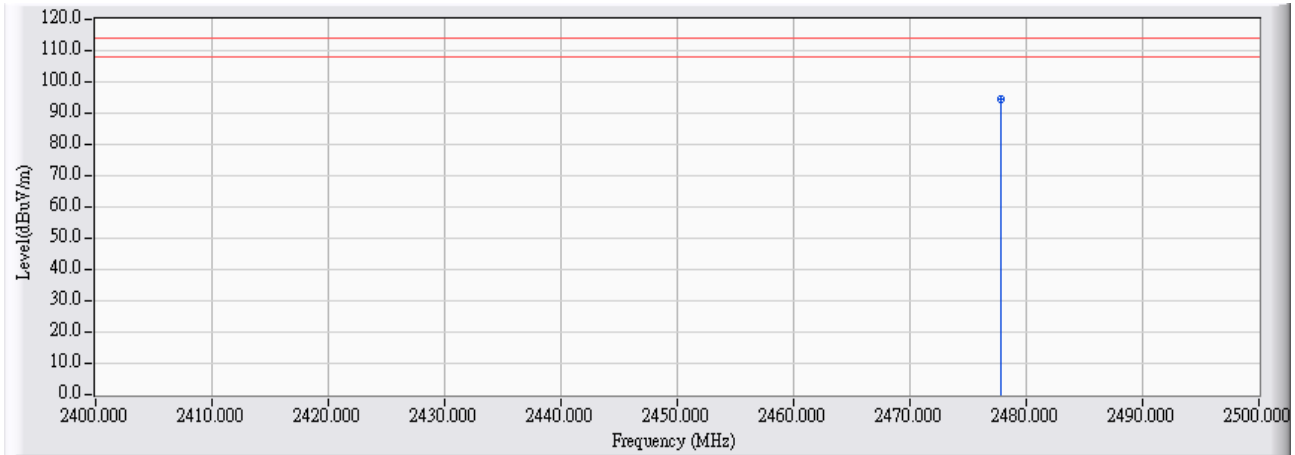


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2439.880	-6.393	100.275	93.882	-20.118	114.000	PEAK

Note:

1. All Readings below 1GHz are 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
4. 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.

Site : CB1	Time : 2009/10/30 - 17:49
Limit : FCC_SpartC_15.249_F_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit- 2478

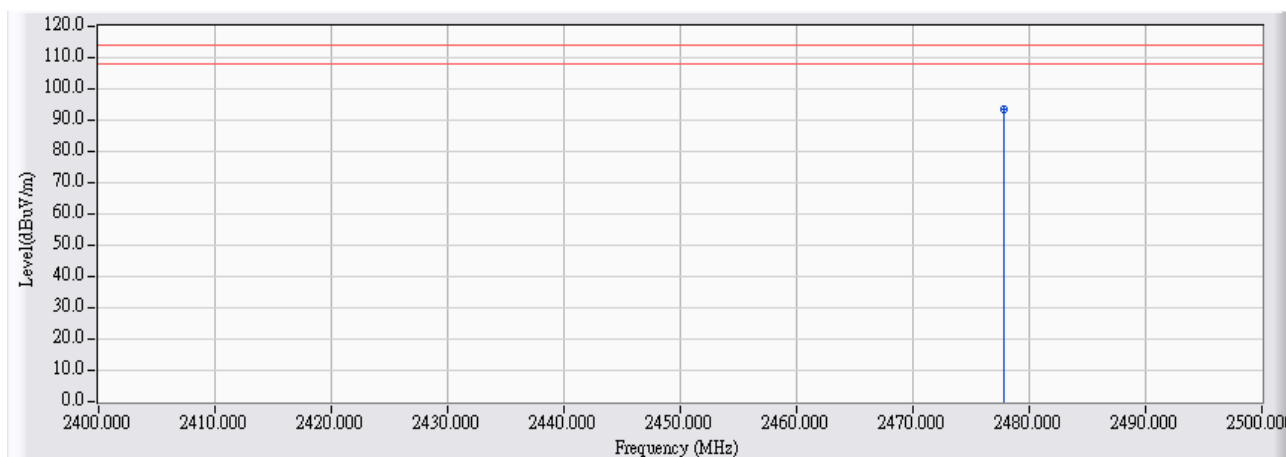


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2477.840	-5.524	99.950	94.425	-19.575	114.000	PEAK

Note:

1. All Readings below 1GHz are 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
4. 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.

Site : CB1	Time : 2009/10/30 - 17:49
Limit : FCC_SpartC_15.249_F_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit- 2478



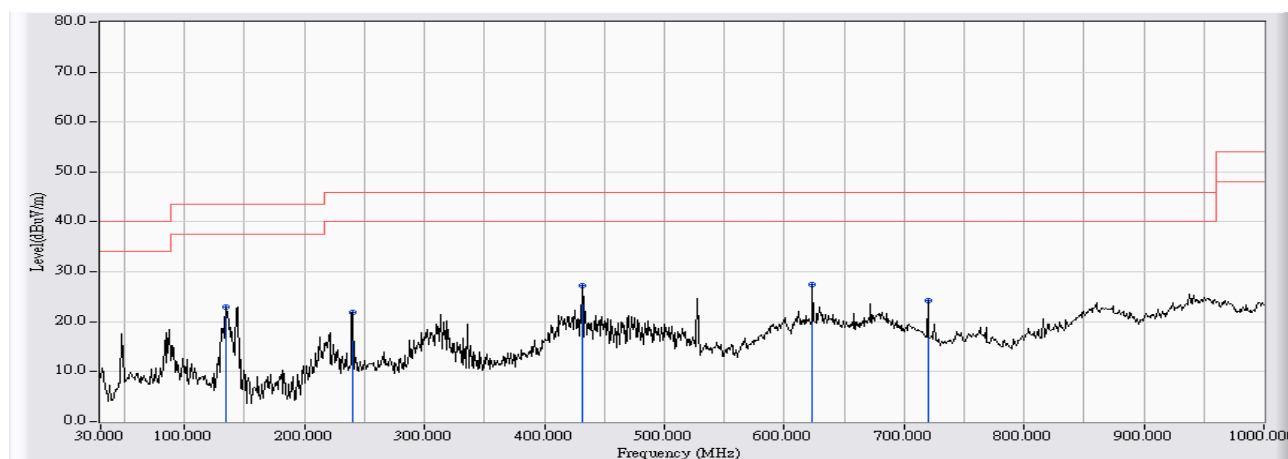
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2477.840	-6.587	100.209	93.622	-20.378	114.000	PEAK

Note:

1. All Readings below 1GHz are 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
4. 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.

30 MHz-1 GHz Spurious:

Site : CB1	Time : 2009/10/12 - 13:17
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_30-1G(2009) - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit-2440

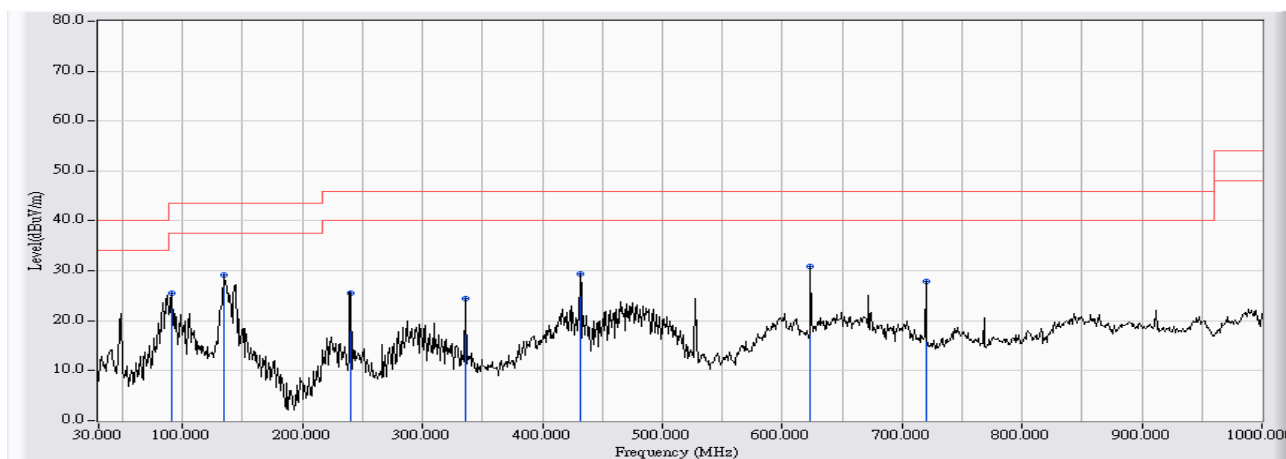


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	134.760	-15.706	38.633	22.926	-20.574	43.500	QUASPEAK
2	240.490	-13.657	35.501	21.843	-24.157	46.000	QUASPEAK
3	431.580	-6.377	33.646	27.268	-18.732	46.000	QUASPEAK
4	* 623.640	-3.531	31.078	27.547	-18.453	46.000	QUASPEAK
5	719.670	-5.730	29.904	24.174	-21.826	46.000	QUASPEAK

Note:

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

Site : CB1	Time : 2009/10/12 - 13:21
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_30-1G(2009) - VERTICAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit-2440



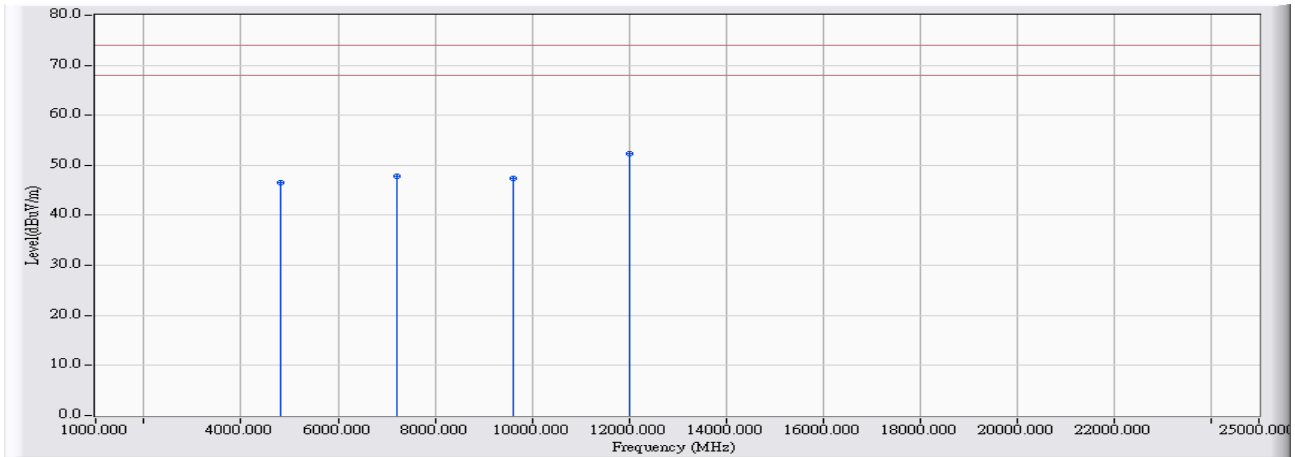
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	91.110	-13.418	39.010	25.592	-17.908	43.500	QUASPEAK
2	* 134.760	-11.843	41.040	29.197	-14.303	43.500	QUASPEAK
3	240.490	-13.634	39.195	25.560	-20.440	46.000	QUASPEAK
4	335.550	-11.515	36.035	24.521	-21.479	46.000	QUASPEAK
5	431.580	-6.929	36.282	29.353	-16.647	46.000	QUASPEAK
6	623.640	-5.481	36.392	30.910	-15.090	46.000	QUASPEAK
7	719.670	-7.178	35.124	27.946	-18.054	46.000	QUASPEAK

Note:

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

Above 1GHz Spurious :

Site : CB1	Time : 2009/10/12 - 15:20
Limit : FCC_SpartC_15.249_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit-2402

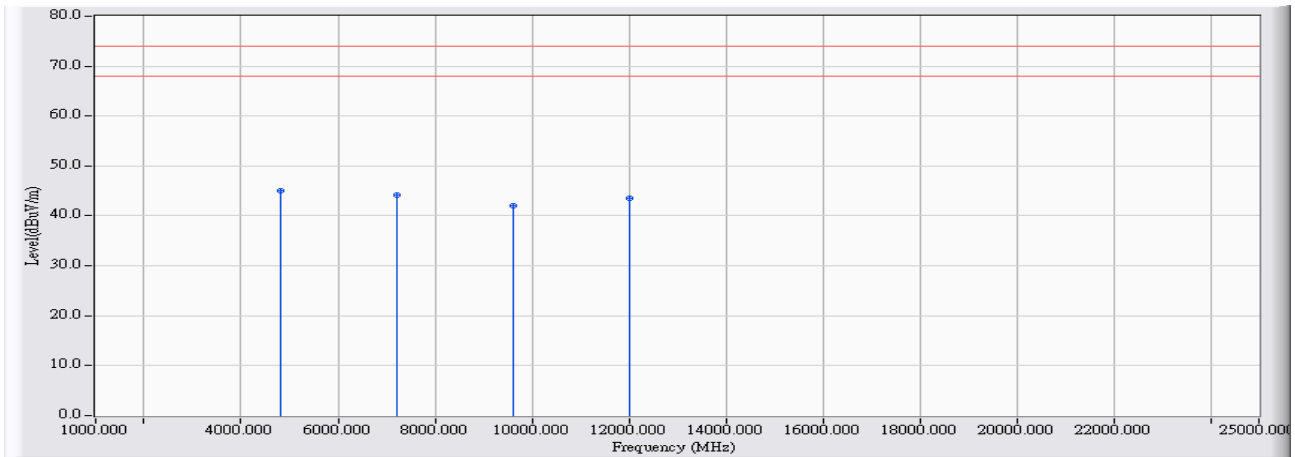


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4803.960	0.015	46.547	46.561	-27.439	74.000	PEAK
2	7205.930	5.692	42.032	47.724	-26.276	74.000	PEAK
3	9608.020	7.174	40.325	47.499	-26.501	74.000	PEAK
4	* 12009.980	11.933	40.479	52.412	-21.588	74.000	PEAK

Note:

1. All Readings below 1GHz are 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
4. 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.

Site : CB1	Time : 2009/10/12 - 15:26
Limit : FCC_SpartC_15.249_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit-2402

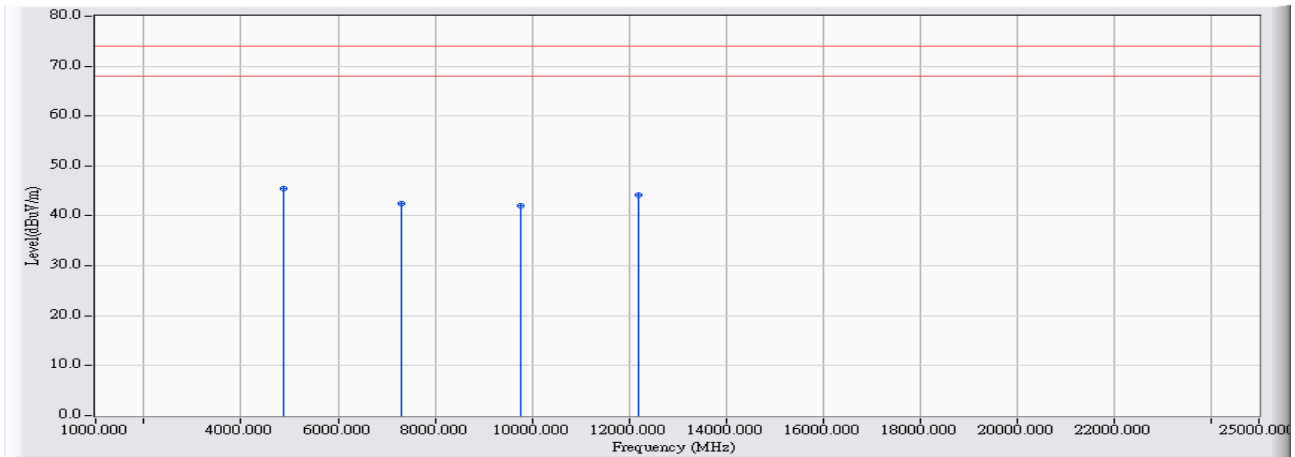


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4803.940	-0.108	45.182	45.074	-28.926	74.000	PEAK
2		7205.160	5.897	38.346	44.243	-29.757	74.000	PEAK
3		9607.980	7.410	34.678	42.088	-31.912	74.000	PEAK
4		12009.910	10.822	32.733	43.554	-30.446	74.000	PEAK

Note:

1. All Readings below 1GHz are 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
4. 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.

Site : CB1	Time : 2009/10/12 - 15:48
Limit : FCC_SpartC_15.249_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit-2440

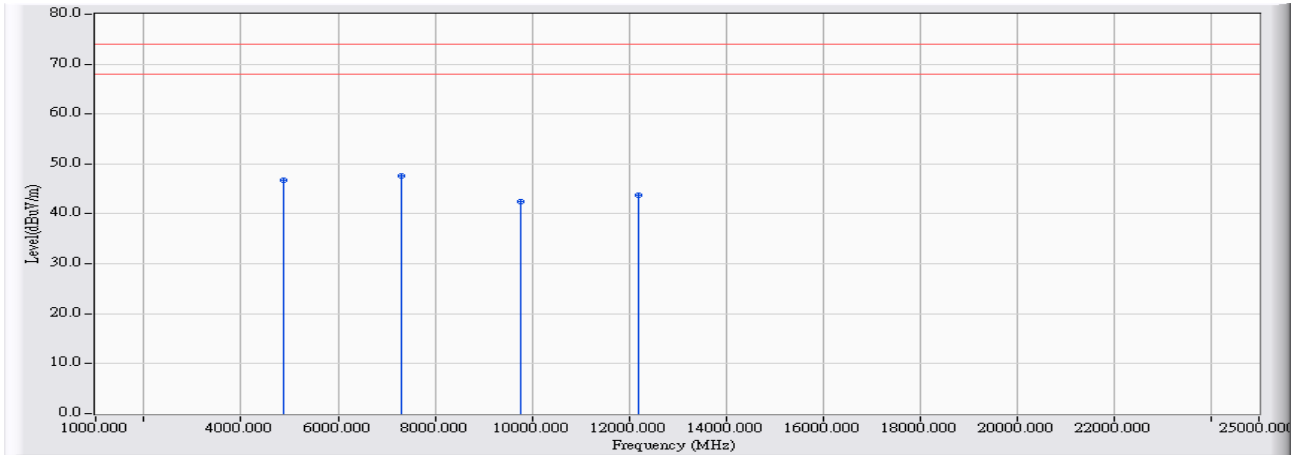


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4879.970	0.051	45.364	45.415	-28.585	74.000	PEAK
2		7319.790	6.467	35.924	42.391	-31.609	74.000	PEAK
3		9759.950	7.921	34.108	42.029	-31.971	74.000	PEAK
4		12200.050	11.334	32.757	44.091	-29.909	74.000	PEAK

Note:

1. All Readings below 1GHz are 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
4. 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.

Site : CB1	Time : 2009/10/12 - 15:53
Limit : FCC_SpartC_15.249_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit-2440

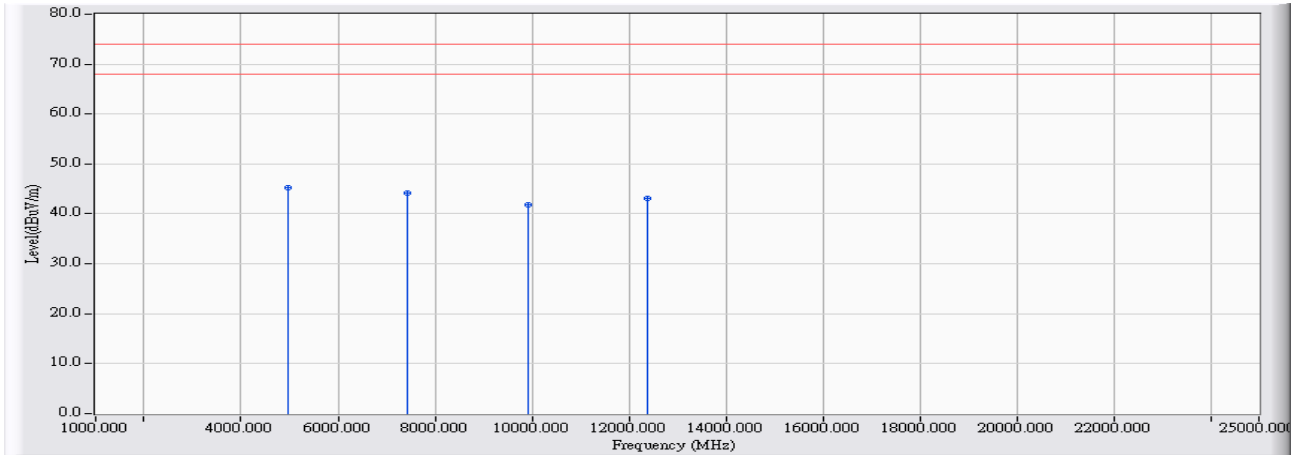


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4879.970	0.018	46.837	46.855	-27.145	74.000	PEAK
2	* 7319.800	6.213	41.493	47.706	-26.294	74.000	PEAK
3	9759.950	8.071	34.304	42.375	-31.625	74.000	PEAK
4	12200.050	10.249	33.441	43.690	-30.310	74.000	PEAK

Note:

1. All Readings below 1GHz are 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
4. 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.

Site : CB1	Time : 2009/10/12 - 16:04
Limit : FCC_SpartC_15.249_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit-2478

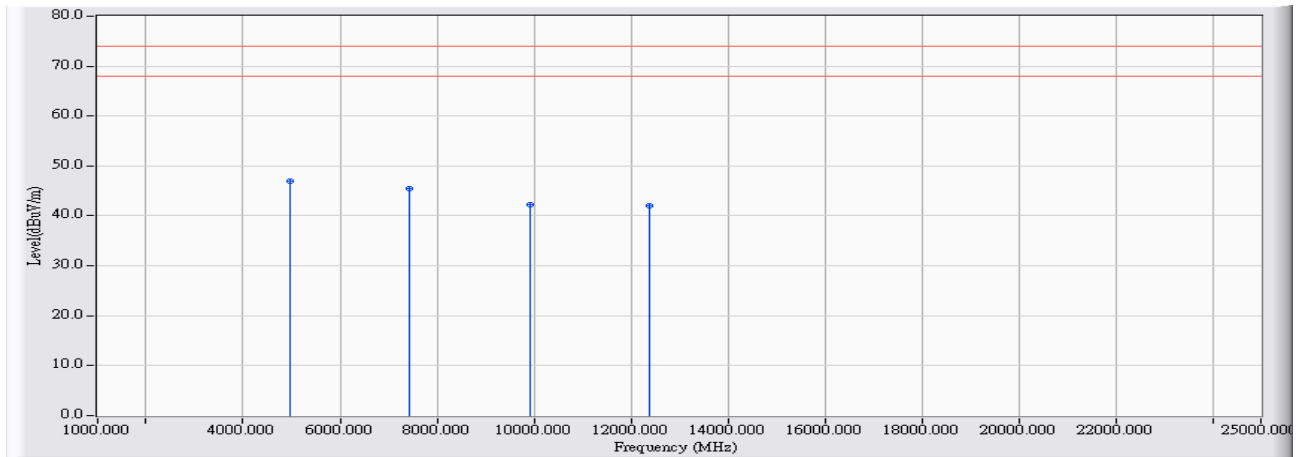


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4955.810	0.357	44.945	45.302	-28.698	74.000	PEAK
2		7433.960	7.367	36.830	44.197	-29.803	74.000	PEAK
3		9911.970	8.365	33.541	41.906	-32.094	74.000	PEAK
4		12390.120	10.143	33.016	43.158	-30.842	74.000	PEAK

Note:

1. All Readings below 1GHz are 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
4. 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.

Site : CB1	Time : 2009/10/12 - 16:11
Limit : FCC_SpartC_15.249_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : Mode 1: Transmit-2478



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4955.860	0.400	46.514	46.914	-27.086	74.000	PEAK
2		7433.960	6.651	38.719	45.370	-28.630	74.000	PEAK
3		9911.980	8.436	33.901	42.337	-31.663	74.000	PEAK
4		12390.120	9.072	32.869	41.941	-32.059	74.000	PEAK

Note:

1. All Readings below 1GHz are 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
4. 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.

4. Band Edge

4.1. Test Equipment

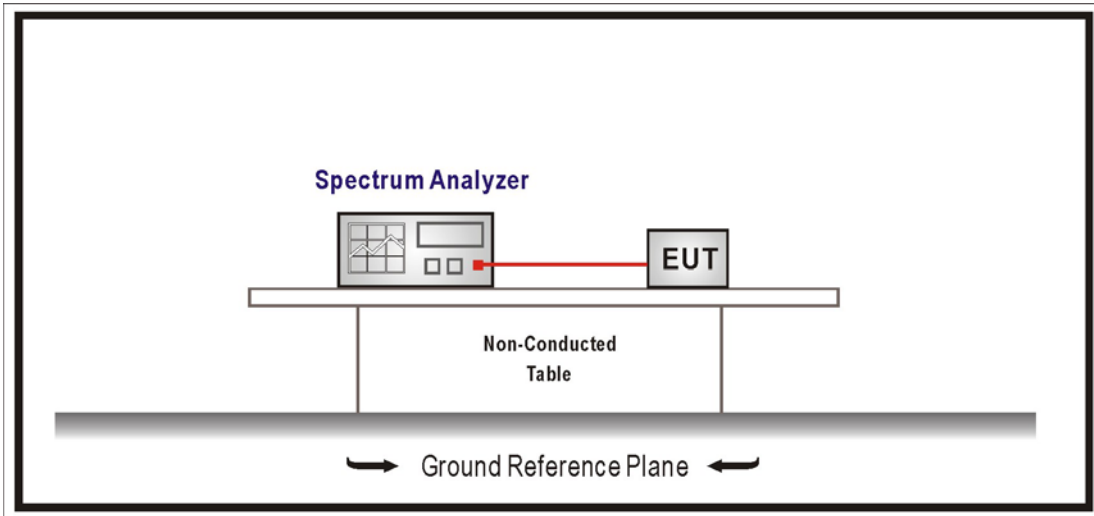
The following test equipment are used during the test:

RF Conducted Measurement:				
Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2009
2	No.1 OATS			Sep., 2009
RF Radiated Measurement:				
Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	X Spectrum Analyzer	R & S	FSP40 / 100005	Aug., 2009
2	X Pre-Amplifier	HP	8449B / 3008A01123	Feb., 2009
3	Loop Antenna	R & S	HFH2-Z2 / 833799/004	Sep., 2009
4	BiconiLog Antenna	Schwarzbeck	VULB 9166 / 1061	Sep., 2009
5	Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2009
6	X Horn Antenna	Schwarzbeck	BBHA 9120D / BBHA9120D312	Sep., 2009
7	No.1 OATS			Sep., 2009

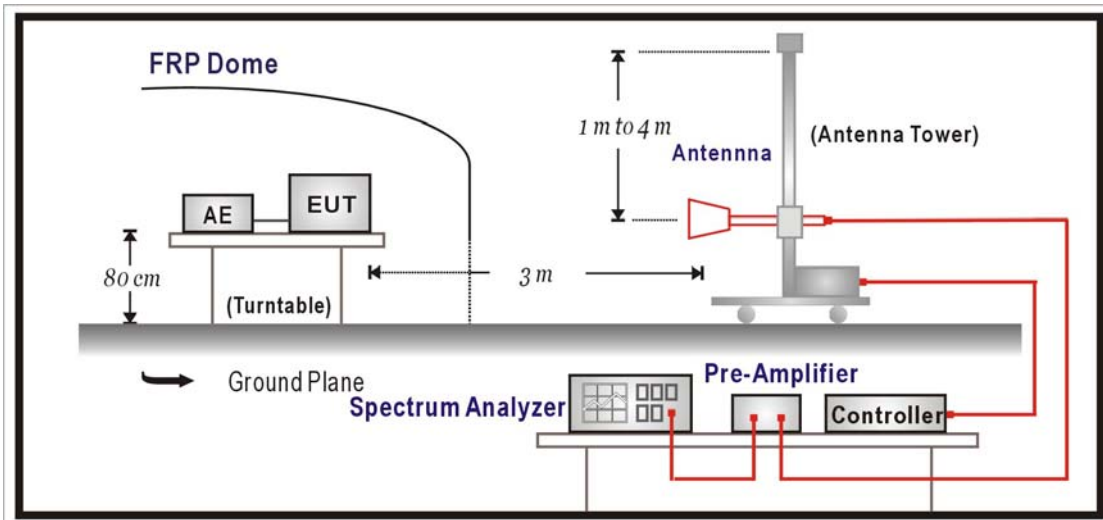
- Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
 2. Mark "X" test instruments are used to measure the final test results.

4.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



4.3. 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 50 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)).

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. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

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

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.

4.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.249: 2008

4.6. Uncertainty

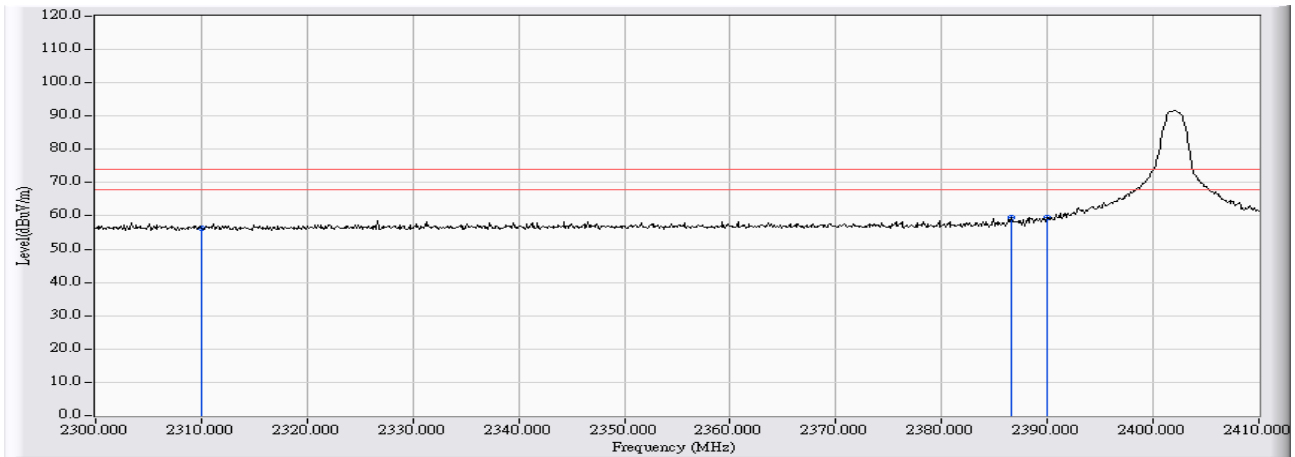
The measurement uncertainty

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

Radiated is defined as $\pm 3.9\text{dB}$

4.7. Test Result

Site : Site1	Time : 2009/10/19 - 16:19
Limit : FCC_SpartC_15.209_H_03M_PK	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : TX-2402

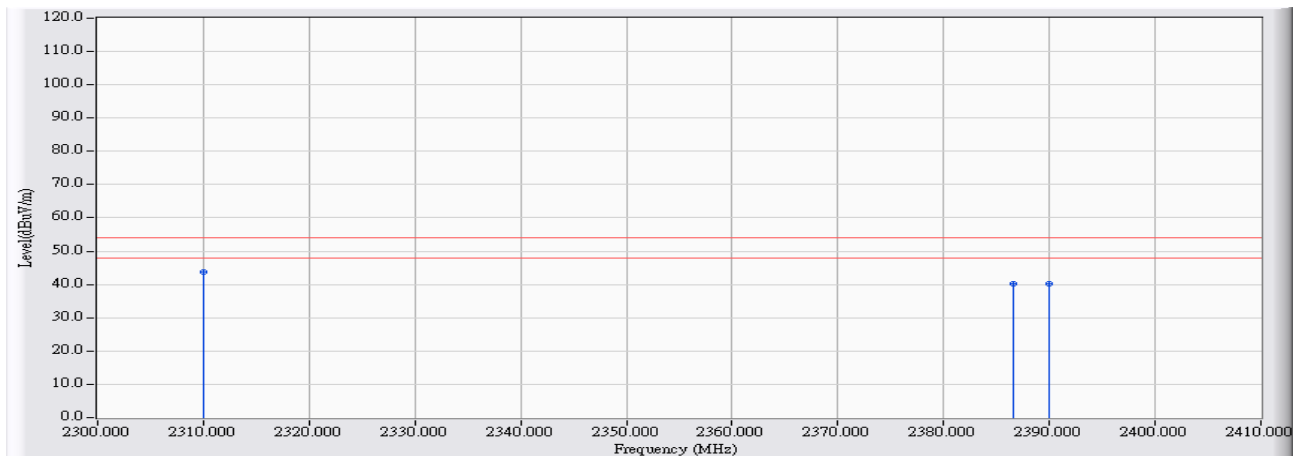


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2310.000	27.154	29.085	56.239	-17.731	74	PEAK
2	* 2386.570	27.532	32.062	59.594	-14.376	74	PEAK
3	2390.000	27.549	32.013	59.562	-14.408	74	PEAK

Note:

1. All Readings below 1GHz are 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.
4. 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.

Site : Site1	Time : 2009/10/19 - 17:24
Limit : FCC_SpartC_15.209_H_03M_AV	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : TX-2402

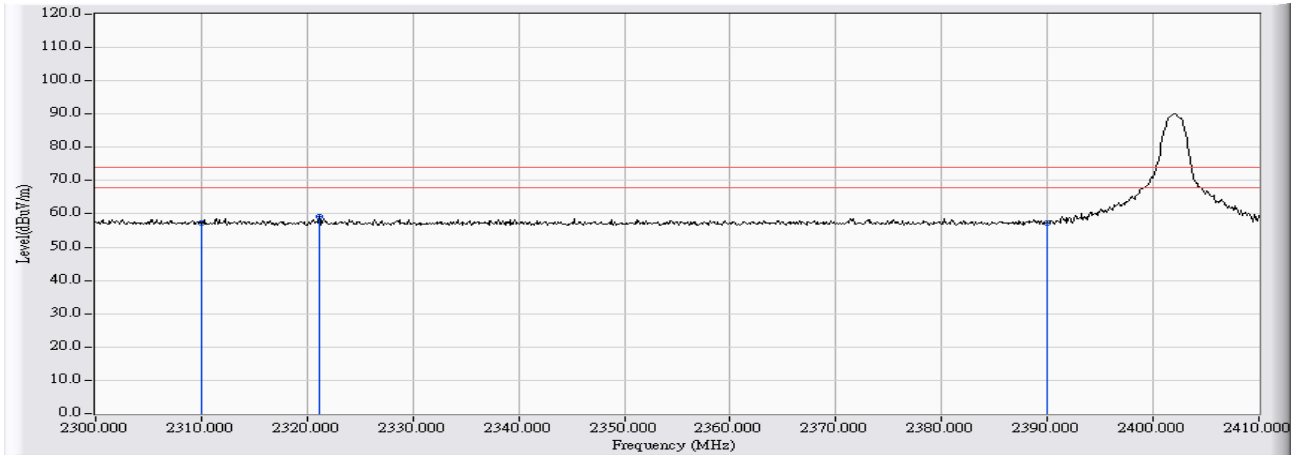


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2310.000	27.154	16.648	43.802	-10.168	54	AVERAGE
2		2386.570	27.532	12.591	40.123	-13.847	54	AVERAGE
3		2390.000	27.549	12.578	40.127	-13.843	54	AVERAGE

Note:

1. All Readings below 1GHz are 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.
4. 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.

Site : Site1	Time : 2009/10/19 - 17:30
Limit : FCC_SpartC_15.209_H_03M_PK	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : TX-2402

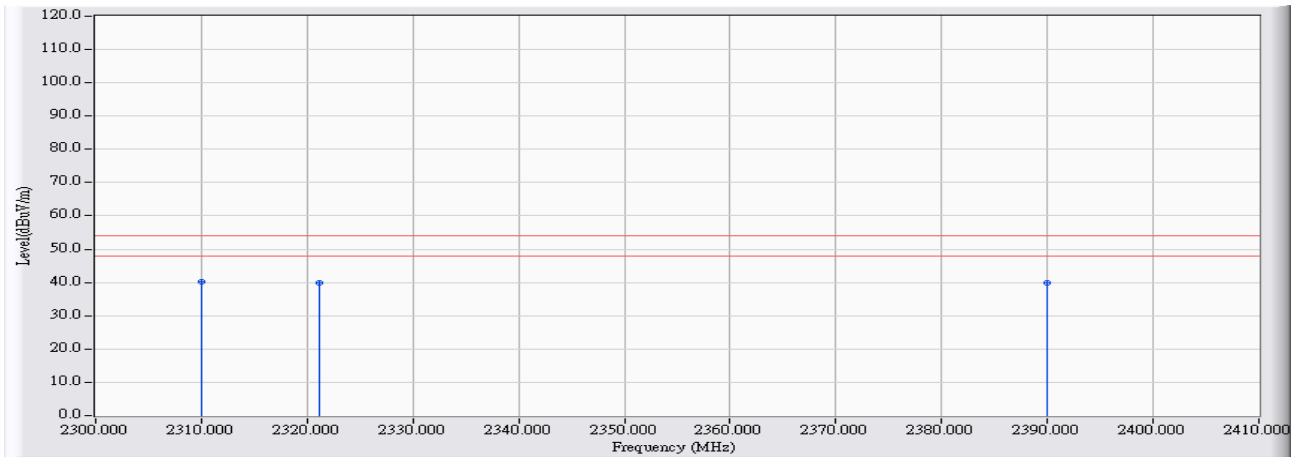


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2310.000	27.780	29.365	57.145	-16.825	74	PEAK
2	* 2321.120	27.722	31.382	59.104	-14.866	74	PEAK
3	2390.000	27.371	30.014	57.384	-16.586	74	PEAK

Note:

1. All Readings below 1GHz are 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.
4. 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.

Site : Site1	Time : 2009/10/19 - 17:34
Limit : FCC_SpartC_15.209_H_03M_AV	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : TX-2402

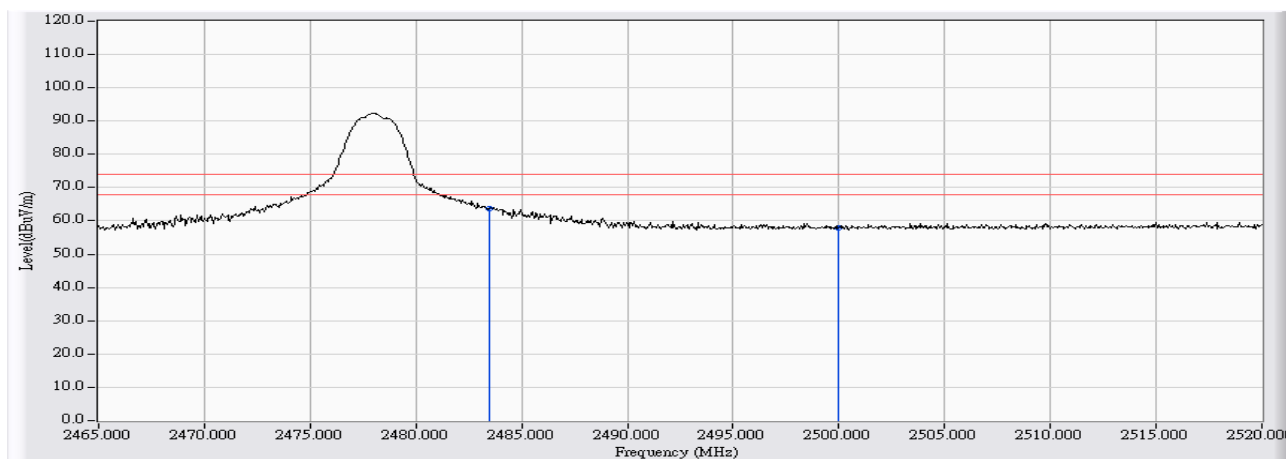


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2310.000	27.780	12.290	40.070	-13.900	54	AVERAGE
2		2321.120	27.722	12.318	40.040	-13.930	54	AVERAGE
3		2390.000	27.371	12.667	40.037	-13.933	54	AVERAGE

Note:

1. All Readings below 1GHz are 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.
4. 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.

Site : Site1	Time : 2009/10/19 - 17:59
Limit : FCC_SpartC_15.209_H_03M_PK	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : TX-2478

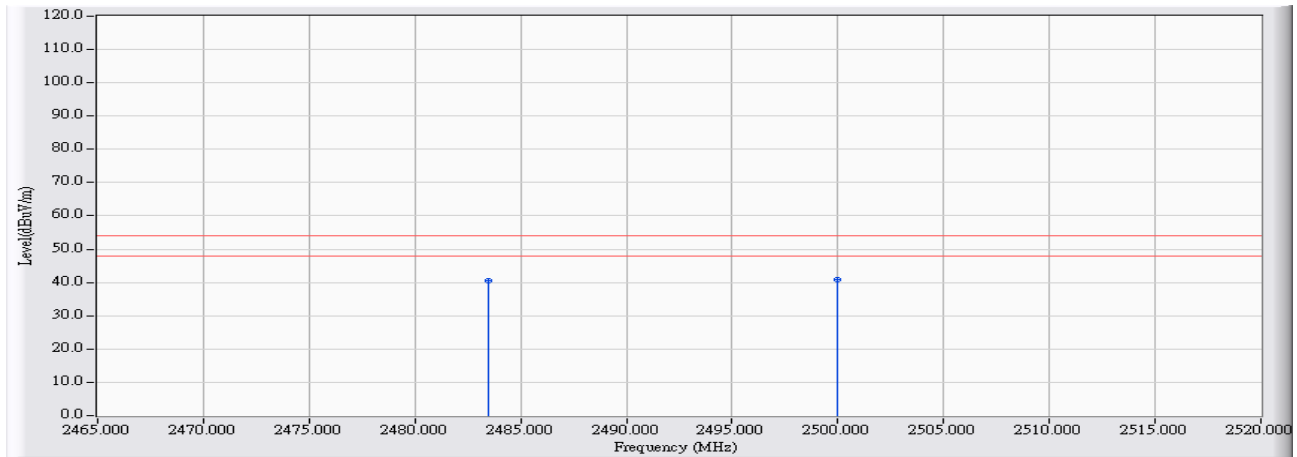


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2483.500	28.018	35.738	63.756	-10.214	74	PEAK
2		2500.000	28.097	29.910	58.007	-15.963	74	PEAK

Note:

1. All Readings below 1GHz are 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.
4. 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.

Site : Site1	Time : 2009/10/19 - 18:01
Limit : FCC_SpartC_15.209_H_03M_AV	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : TX-2478

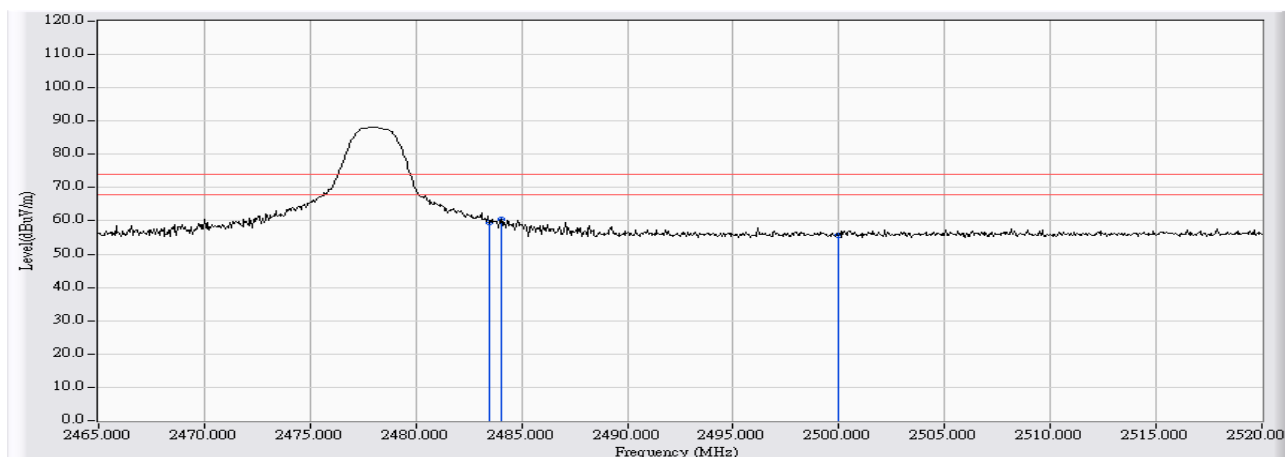


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2483.500	28.018	12.495	40.513	-13.457	54	AVERAGE
2	*	2500.000	28.097	12.629	40.726	-13.244	54	AVERAGE

Note:

1. All Readings below 1GHz are 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.
4. 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.

Site : Site1	Time : 2009/10/19 - 18:29
Limit : FCC_SpartC_15.209_H_03M_PK	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : TX-2478

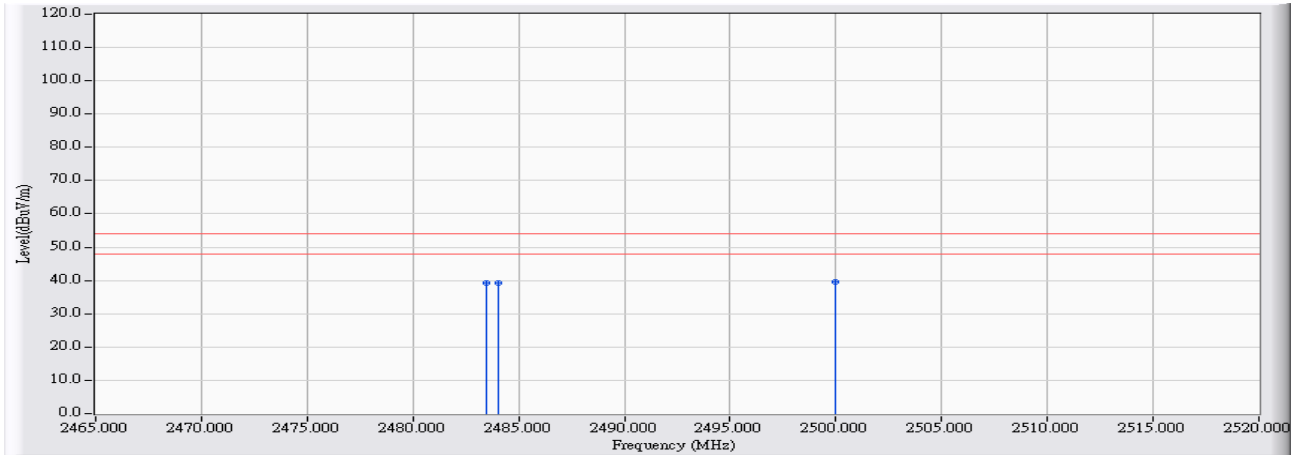


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2483.500	26.896	32.673	59.570	-14.400	74	PEAK
2	* 2484.030	26.894	33.693	60.586	-13.384	74	PEAK
3	2500.000	26.834	28.812	55.646	-18.324	74	PEAK

Note:

1. All Readings below 1GHz are 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.
4. 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.

Site : Site1	Time : 2009/10/19 - 18:31
Limit : FCC_SpartC_15.209_H_03M_AV	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V / 60Hz
EUT : Outdoor Handheld GPS Device	Note : TX-2478



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2483.500	26.896	12.487	39.384	-14.586	54	AVERAGE
2	2484.030	26.894	12.483	39.376	-14.594	54	AVERAGE
3	* 2500.000	26.834	12.658	39.492	-14.478	54	AVERAGE

Note:

1. All Readings below 1GHz are 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.
4. 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.