Test Report

Product Name ： Cadence/Speed sensor
Model No. ： Cadence/Speed
FCC ID. ： RJICAD01

Applicant ： Holux Technology, Inc
Address ： No,1-1, Innovation Road I, Science-Based Industrial Park, Hsinchu 300, Taiwan, R.O.C.

Date of Receipt ： 2010/07/21
Issued Date ： 2010/08/05
Report No. ： 107300R-RFUSP30V01
Report Version ： V1.0

Test Report Certification

Issued Date : 2010/08/05
Report No. : 107300R-RFUSP30V01

QuieTek

Product Name	:	Cadence/Speed sensor
Applicant	:	Holux Technology, Inc
Address	:	No,1-1, Innovation Road I, Science-Based Industrial Park, Hsinchu 300, Taiwan, R.O.C.
Manufacturer	:	Holux Technology, Inc
Model No.	:	Cadence/Speed
Trade Name	:	HOLUX
FCC ID.	:	RJICAD01
EUT Voltage	:	DC 3V
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C Section 15.249: 2009
Test Result	:	Complied

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.

Documented By : Demi Chang
(Demi Chang / Engineering Adm. Specialist)

Reviewed By : Sheena Huang
(Sheena Huang / Engineer)

Approved By : Roy Wang
(Roy Wang / Manager)

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1. General Information

1.1. EUT Description

Product Name	Cadence/Speed sensor
Model No.	Cadence/Speed
Trade Name	HOLUX
Frequency Range	2403MHz~2480MHz
Antenna Gain	2dBi
Channel Number	78
Type of Modulation	GFSK
Channel Control	Manual
Antenna Type	Chip

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

Note:

1. This device is a Cadence/Speed sensor included only 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.

1.3. Test Mode

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	No
Radiated Emission	Yes
Band Edge	Yes

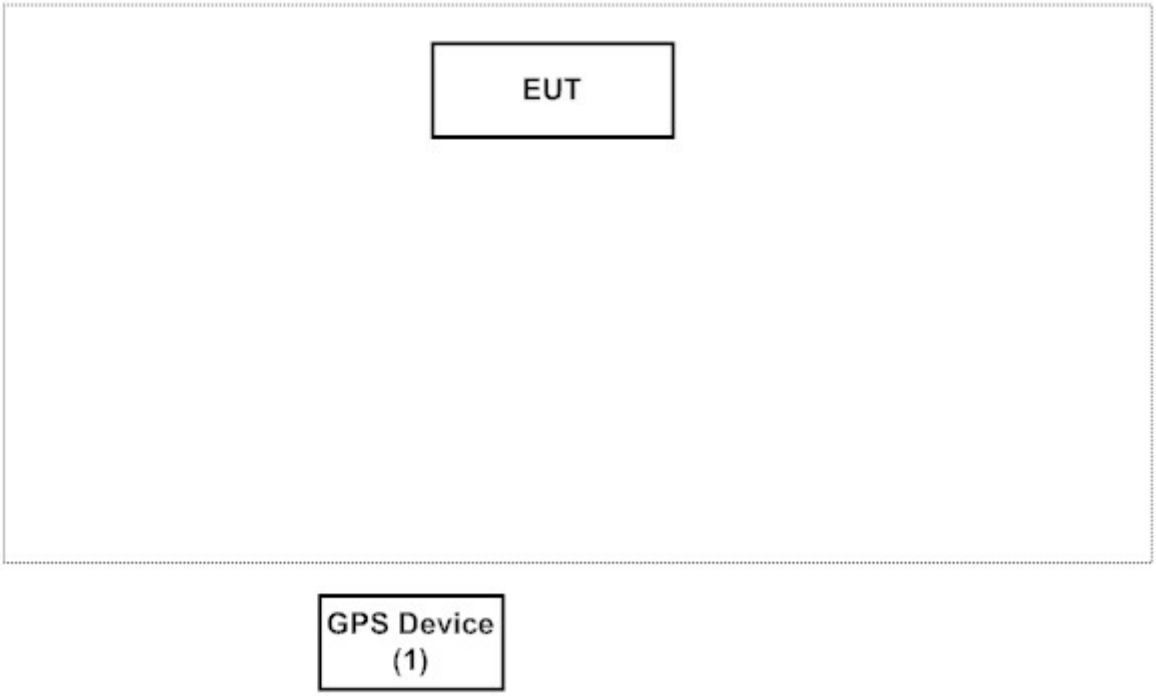
1.4. Tested System Details

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

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	GPS Device	Holux	FunTrek 130	N/A	--

1.5. Configuration of tested System

Connection Diagram



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

Testing Laboratory 1313

Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2010

NVLAP Lab Code : 200347-0

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. Radiated Emission

2.1. Test Equipment

The following test equipment are used during the test:

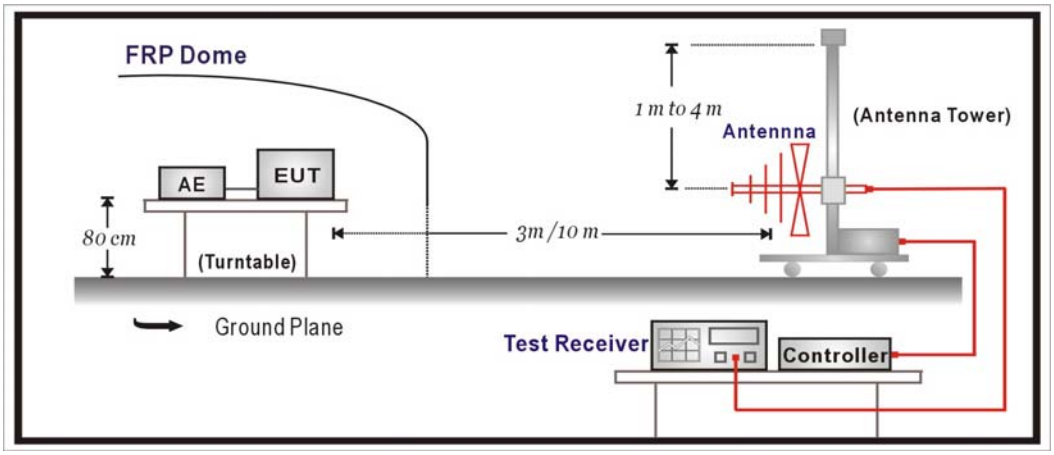
Radiated Emission/ CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Coaxial Cable	Huber+Suhner AG	Sucoflex 102	25623/2	2011/04/07
Horn Antenna	Schwarzback	BBHA 9120D	743	2011/03/14
Pre-Amplifier	MITEQ	AMF-4D-005180-24-10P	888003	2010/12/03
Spectrum Analyzer	Agilent	E4440A	MY46187335	2011/01/14

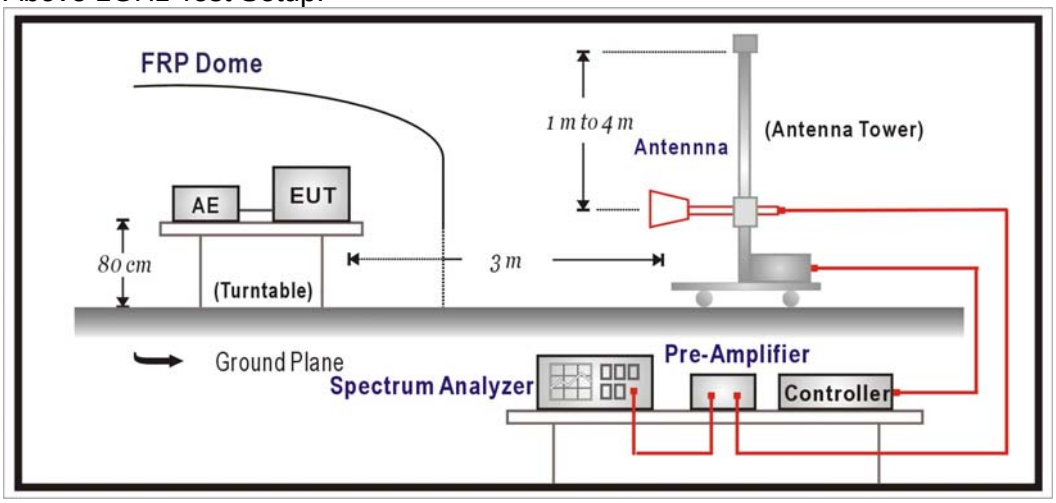
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
2. Mark “X” test instruments are used to measure the final test results.

2.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



2.3. 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.

2.4. 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.

2.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.209 and Paragraph 15.249: 2009

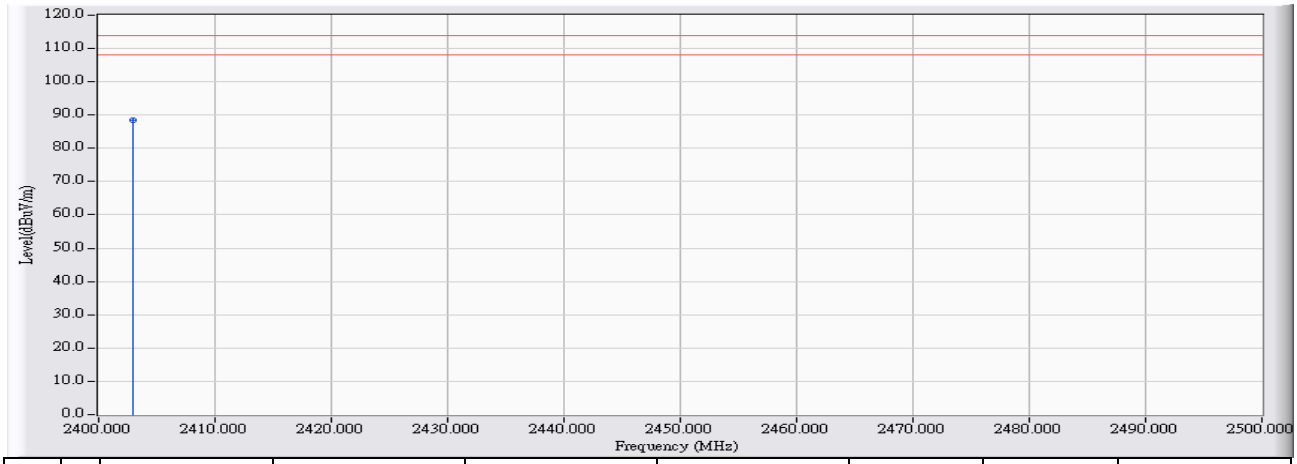
2.6. Uncertainty

The measurement uncertainty
30MHz～1GHz as ±3.19dB
1GHz～26.5GHz as ±3.9dB

2.7. Test Result

Fundamental：

Site : CB1	**Time : 2010/07/19 - 19:26**
Limit : FCC_SpartC_15.249_F_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - HORIZONTAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2403 MHz**

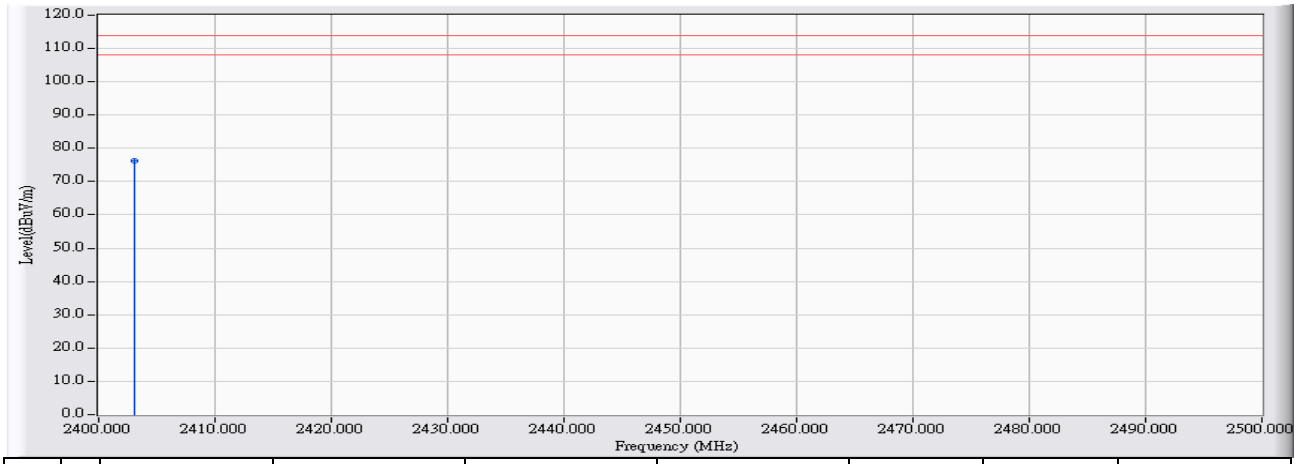


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2402.960	29.371	59.080	88.450	-25.550	114.000	PEAK

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 : 2010/07/19 - 19:37**
Limit : FCC_SpartC_15.249_F_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - VERTICAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2403 MHz**

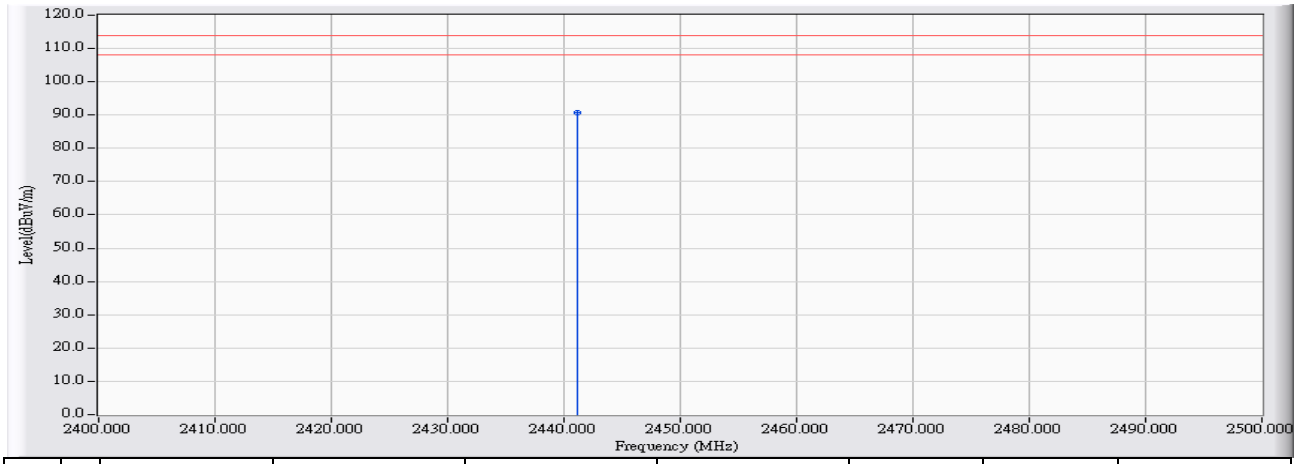


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2403.090	27.915	48.410	76.325	-37.675	114.000	PEAK

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 : 2010/07/19 - 19:27**
Limit : FCC_SpartC_15.249_F_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - HORIZONTAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2441 MHz**

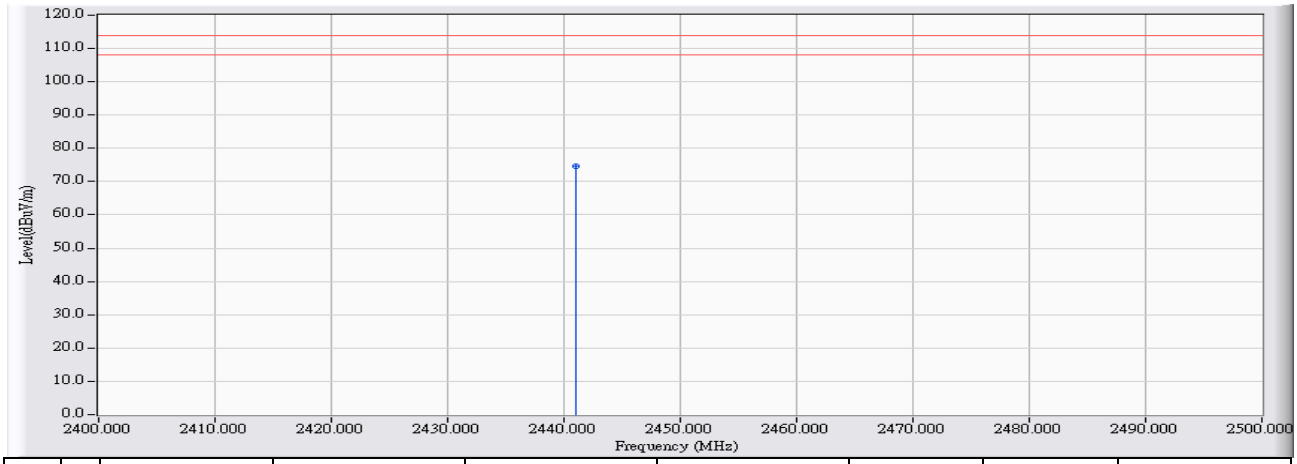


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2441.150	29.504	61.370	90.874	-23.126	114.000	PEAK

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 : 2010/07/19 - 19:29**
Limit : FCC_SpartC_15.249_F_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - VERTICAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2441 MHz**

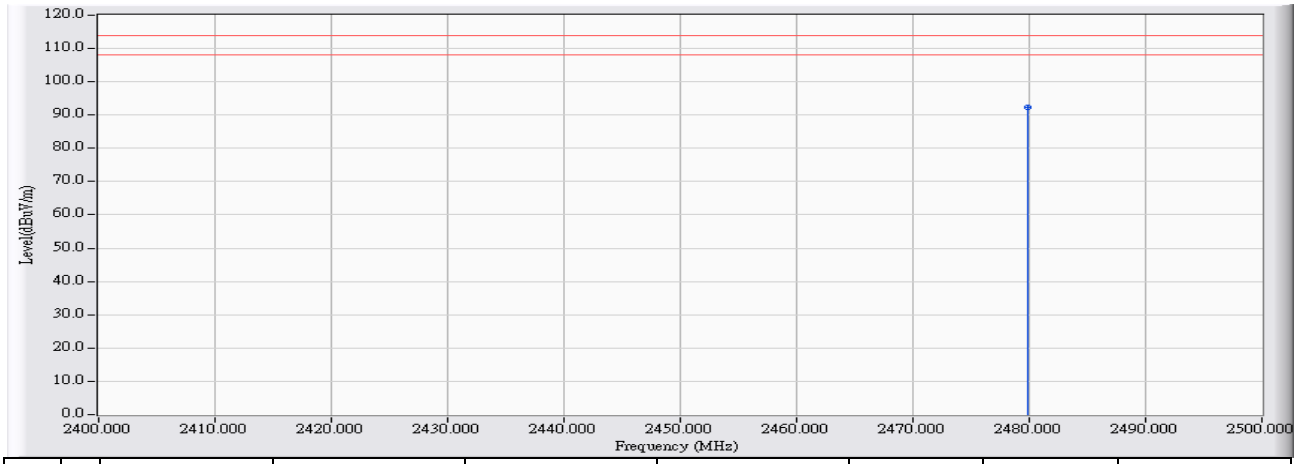


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2441.070	27.557	47.150	74.707	-39.293	114.000	PEAK

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 : 2010/07/19 - 19:27**
Limit : FCC_SpartC_15.249_F_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - HORIZONTAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2480 MHz**

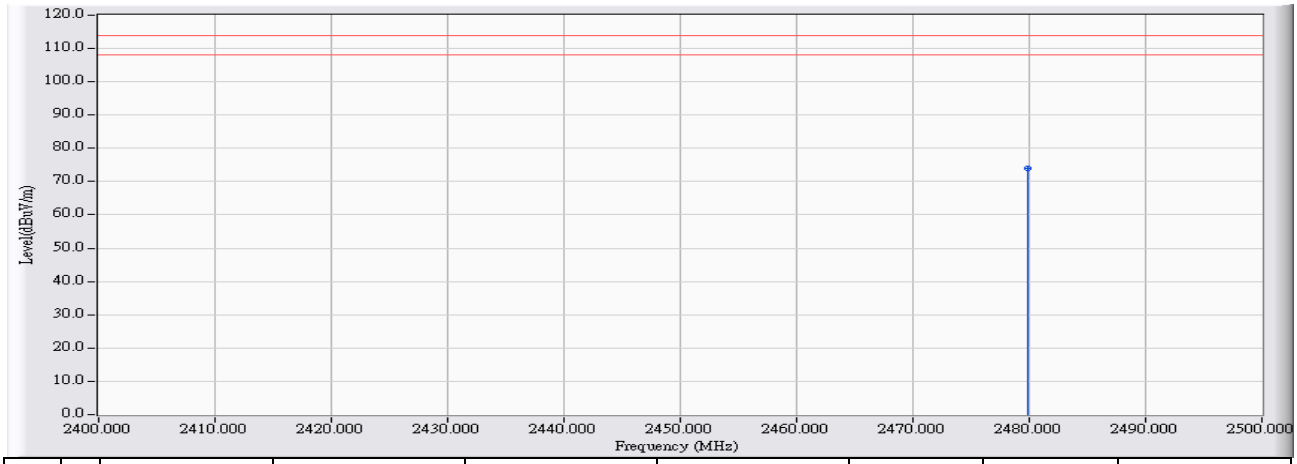


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2479.880	29.655	62.550	92.204	-21.796	114.000	PEAK

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 : 2010/07/19 - 19:28**
Limit : FCC_SpartC_15.249_F_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - VERTICAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2480 MHz**



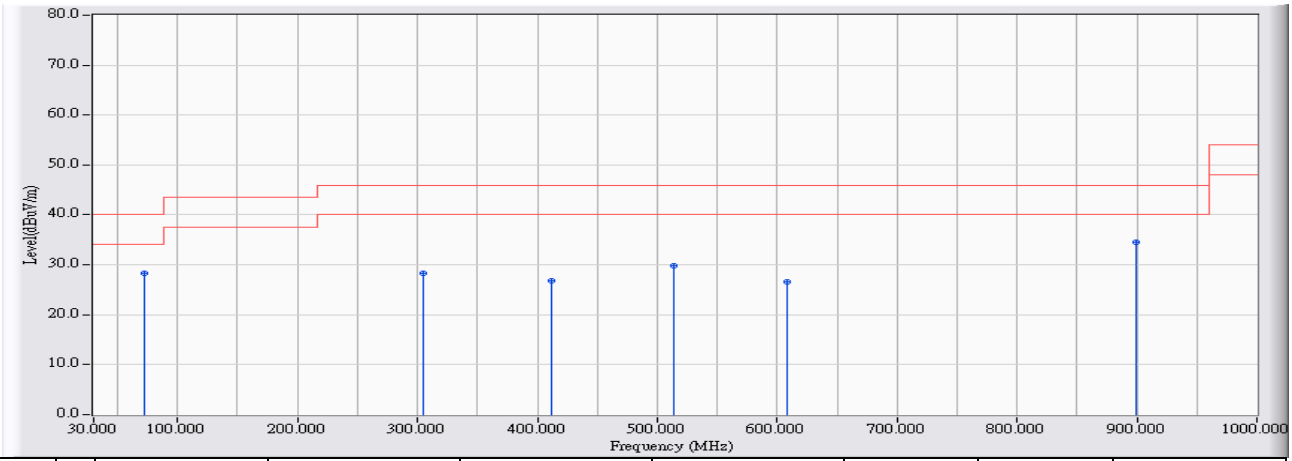
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2479.920	27.151	46.990	74.141	-39.859	114.000	PEAK

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 : 2010/07/21 - 20:44**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : Site 1_FCC_30-1G(2009) - HORIZONTAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2403 MHz**

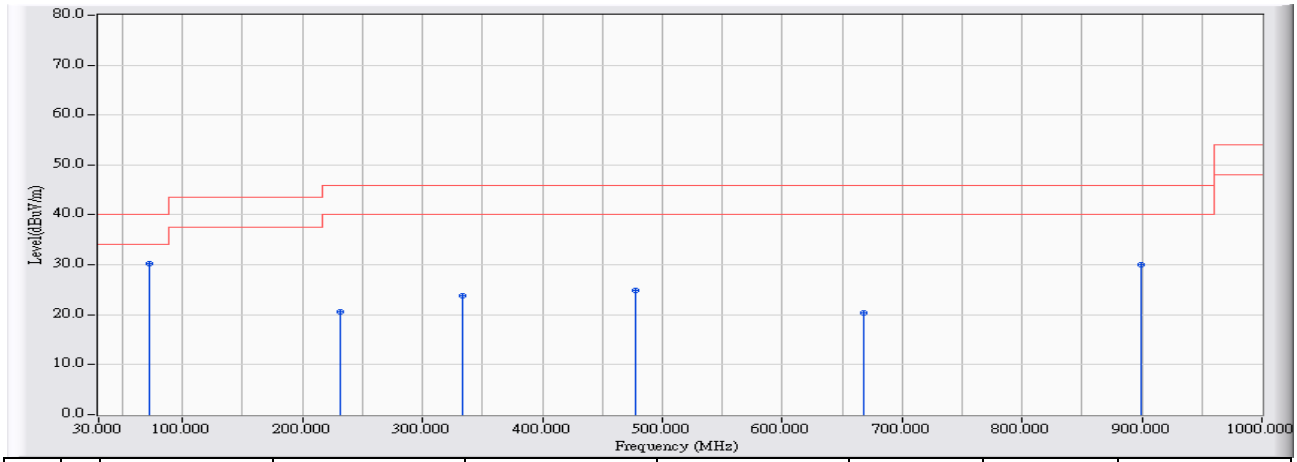


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		72.033	-15.385	43.742	28.357	-11.643	40.000	QUASIPEAK
2		304.833	-8.474	36.710	28.236	-17.764	46.000	QUASIPEAK
3		411.533	-5.898	32.662	26.763	-19.237	46.000	QUASIPEAK
4		513.383	-7.257	37.078	29.821	-16.179	46.000	QUASIPEAK
5		608.767	-3.388	29.981	26.593	-19.407	46.000	QUASIPEAK
6	*	899.767	-1.819	36.364	34.545	-11.455	46.000	QUASIPEAK

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 : 2010/07/21 - 20:51**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : Site 1_FCC_30-1G(2009) - VERTICAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2403 MHz**



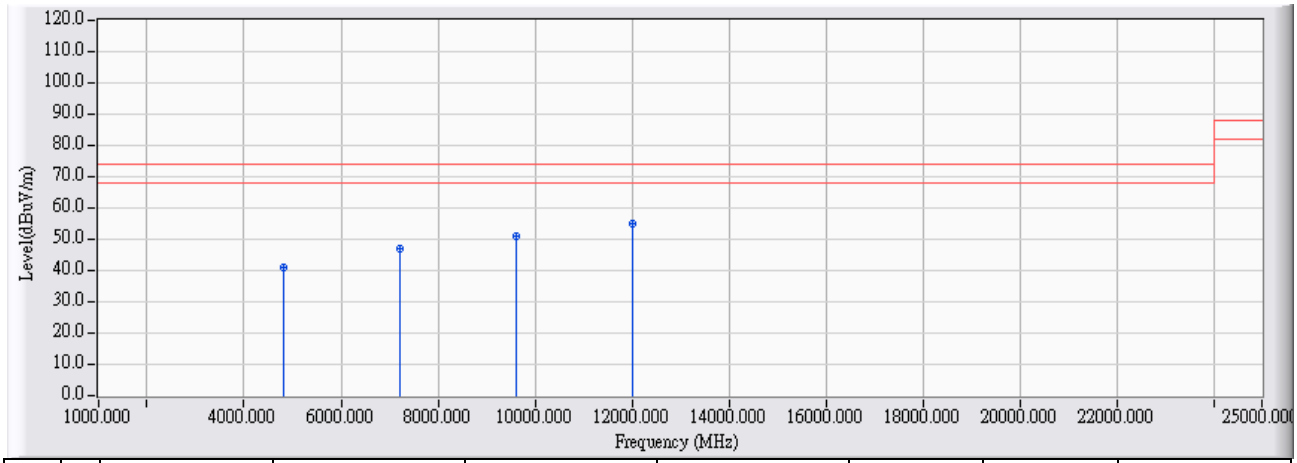
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	72.033	-15.507	45.685	30.178	-9.822	40.000	QUASIPEAK
2		232.083	-12.645	33.273	20.628	-25.372	46.000	QUASIPEAK
3		333.933	-11.690	35.438	23.748	-22.252	46.000	QUASIPEAK
4		477.817	-4.361	29.228	24.867	-21.133	46.000	QUASIPEAK
5		668.583	-3.350	23.694	20.343	-25.657	46.000	QUASIPEAK
6		899.767	-3.980	34.034	30.054	-15.946	46.000	QUASIPEAK

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 : 2010/07/21 - 10:48**
Limit : FCC_SpartC_15.249_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - HORIZONTAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2403 MHz**

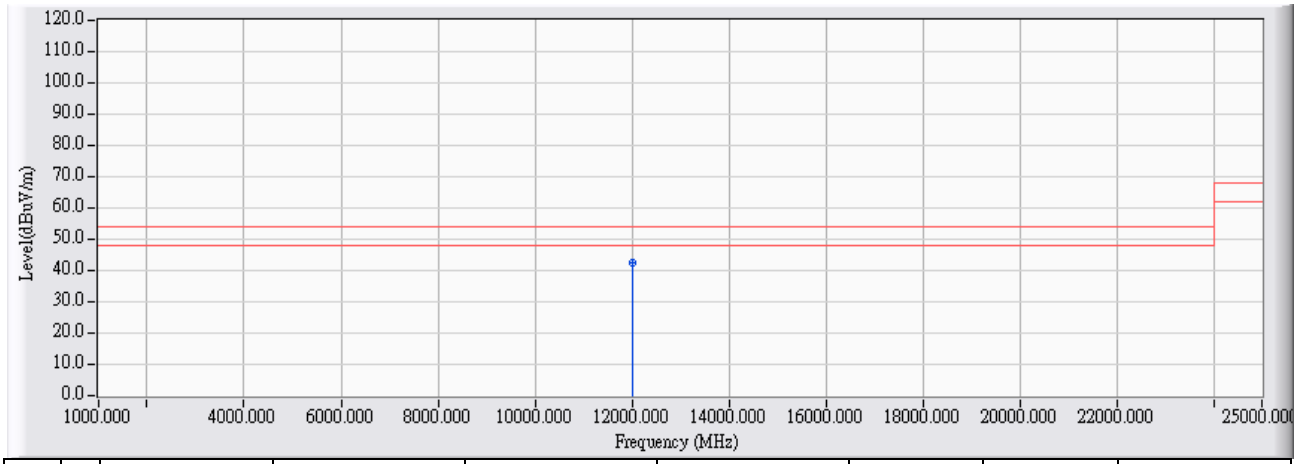


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4805.810	2.002	38.809	40.811	-33.159	73.970	PEAK
2		7209.050	9.756	37.145	46.902	-27.068	73.970	PEAK
3		9614.190	13.674	37.106	50.781	-23.189	73.970	PEAK
4	*	12012.040	18.802	36.057	54.859	-19.111	73.970	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 : 2010/07/21 - 10:52**
Limit : FCC_SpartC_15.249_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - HORIZONTAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2403 MHz**

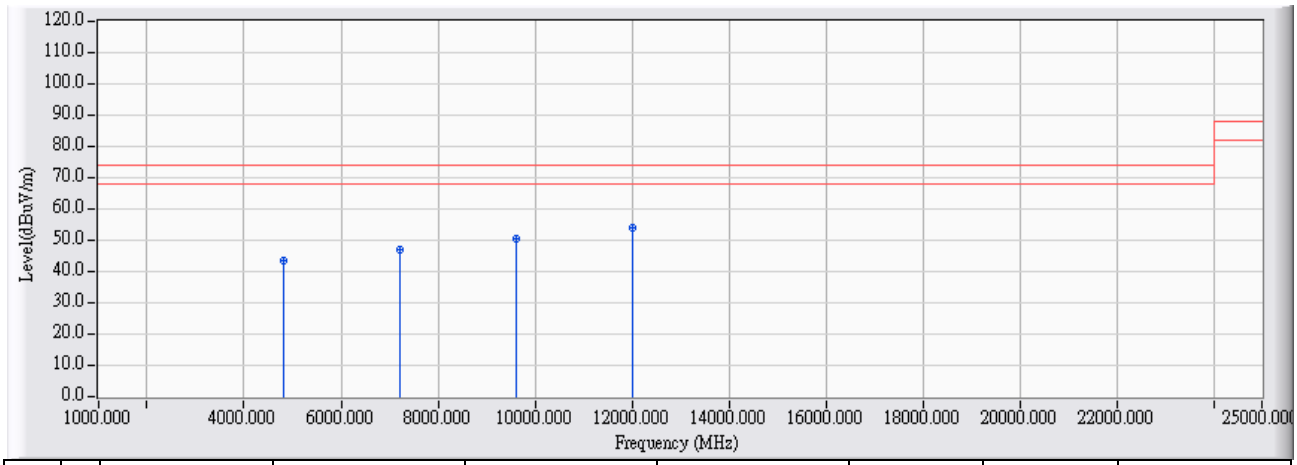


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	12019.340	18.780	23.939	42.718	-11.252	53.970	AVERAGE

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 : CB1	**Time : 2010/07/21 - 11:00**
Limit : FCC_SpartC_15.249_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - VERTICAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2403 MHz**

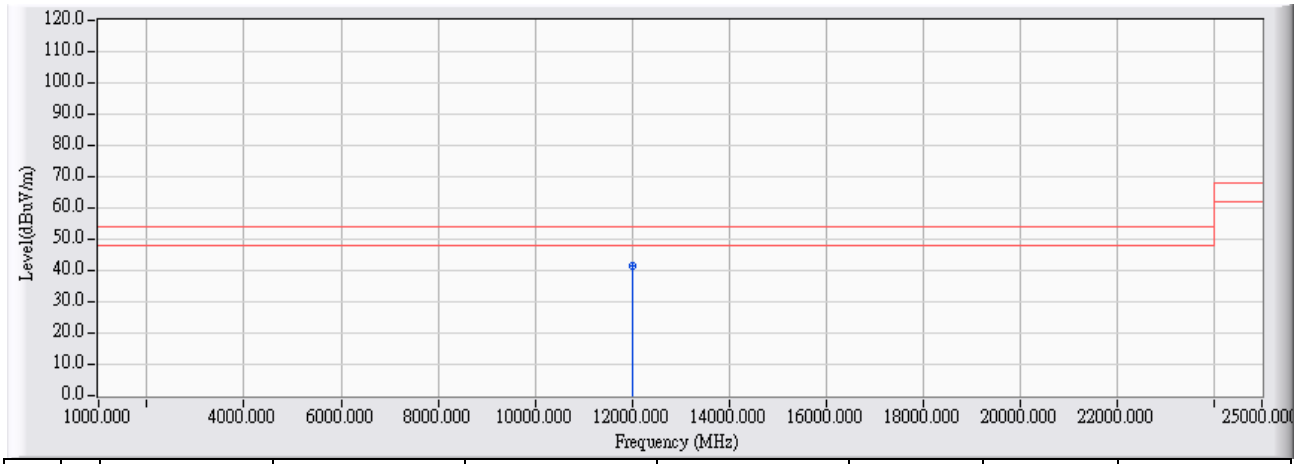


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4805.880	3.635	39.942	43.576	-30.394	73.970	PEAK
2		7212.370	9.411	37.474	46.885	-27.085	73.970	PEAK
3		9612.080	13.735	36.796	50.531	-23.439	73.970	PEAK
4	*	12013.320	17.434	36.585	54.019	-19.951	73.970	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 : 2010/07/21 - 11:01**
Limit : FCC_SpartC_15.249_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - VERTICAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2403 MHz**

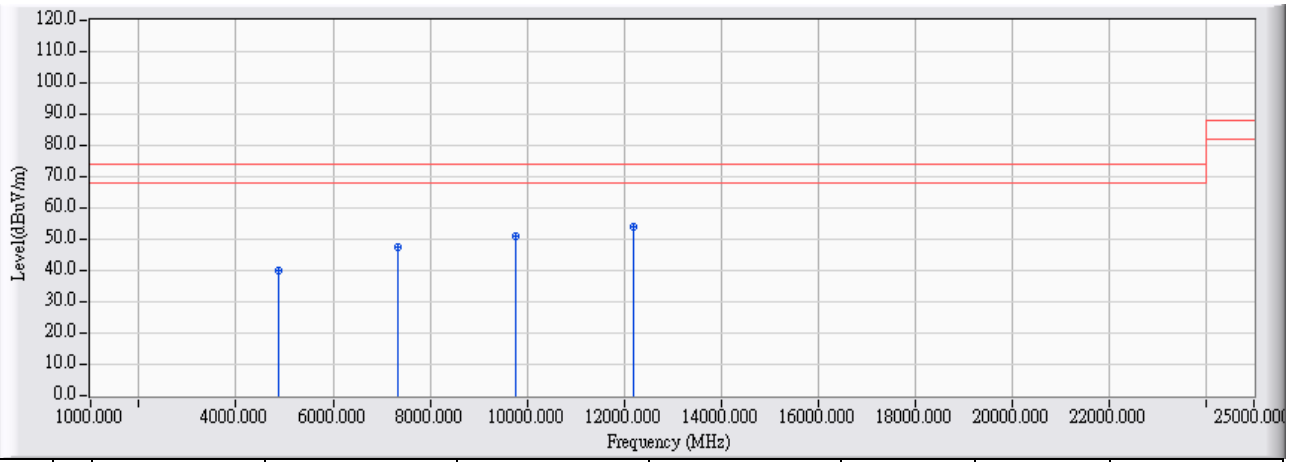


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	12018.500	17.429	23.977	41.406	-32.564	73.970	AVERAGE

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 : CB1	**Time : 2010/07/21 - 11:10**
Limit : FCC_SpartC_15.249_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - HORIZONTAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2441 MHz**

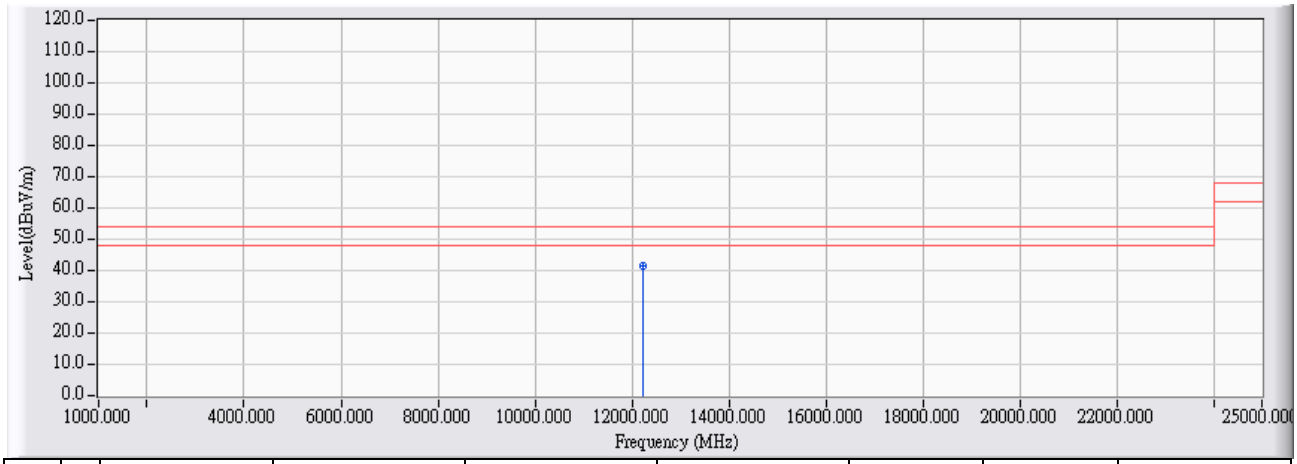


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4882.880	2.390	37.730	40.120	-33.850	73.970	PEAK
2		7328.960	10.314	37.131	47.444	-26.526	73.970	PEAK
3		9774.580	14.322	36.604	50.925	-23.045	73.970	PEAK
4	*	12214.590	18.006	35.980	53.985	-19.985	73.970	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 : 2010/07/21 - 11:11**
Limit : FCC_SpartC_15.249_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - HORIZONTAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2441 MHz**

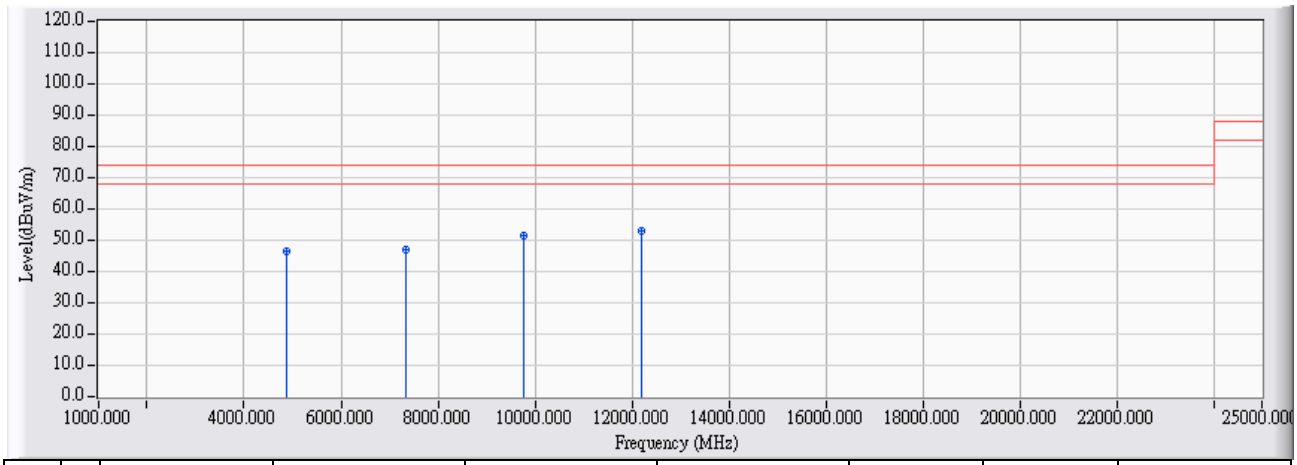


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	12218.020	17.993	23.612	41.604	-12.366	53.970	AVERAGE

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 : CB1	**Time : 2010/07/21 - 11:19**
Limit : FCC_SpartC_15.249_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - VERTICAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2441 MHz**

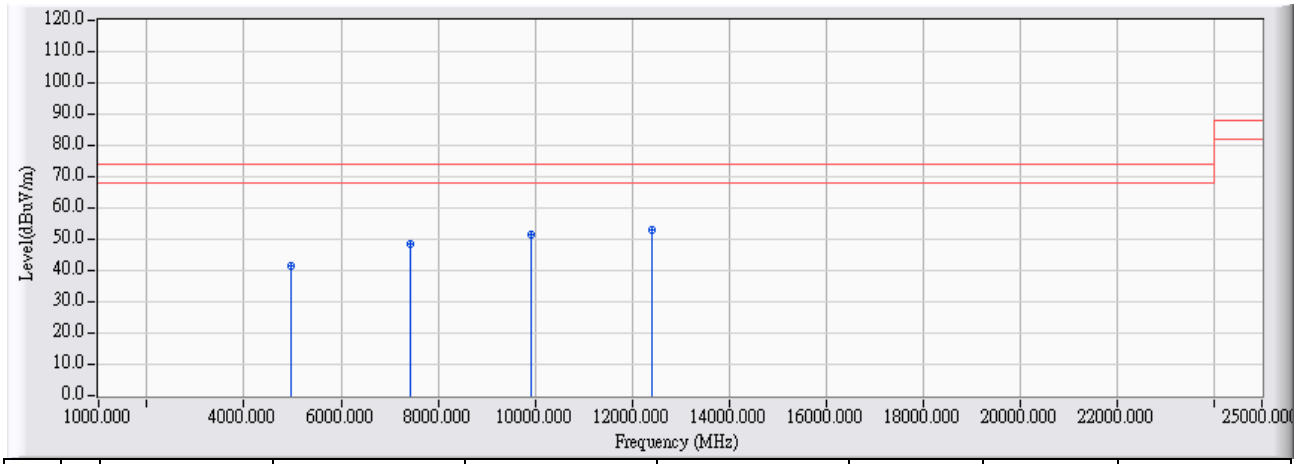


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4881.660	4.789	41.747	46.536	-27.434	73.970	PEAK
2		7328.750	9.640	37.411	47.050	-26.920	73.970	PEAK
3		9771.630	14.534	36.766	51.300	-22.670	73.970	PEAK
4	*	12215.190	17.065	35.748	52.814	-21.156	73.970	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 : 2010/07/21 - 11:28**
Limit : FCC_SpartC_15.249_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - HORIZONTAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2480 MHz**

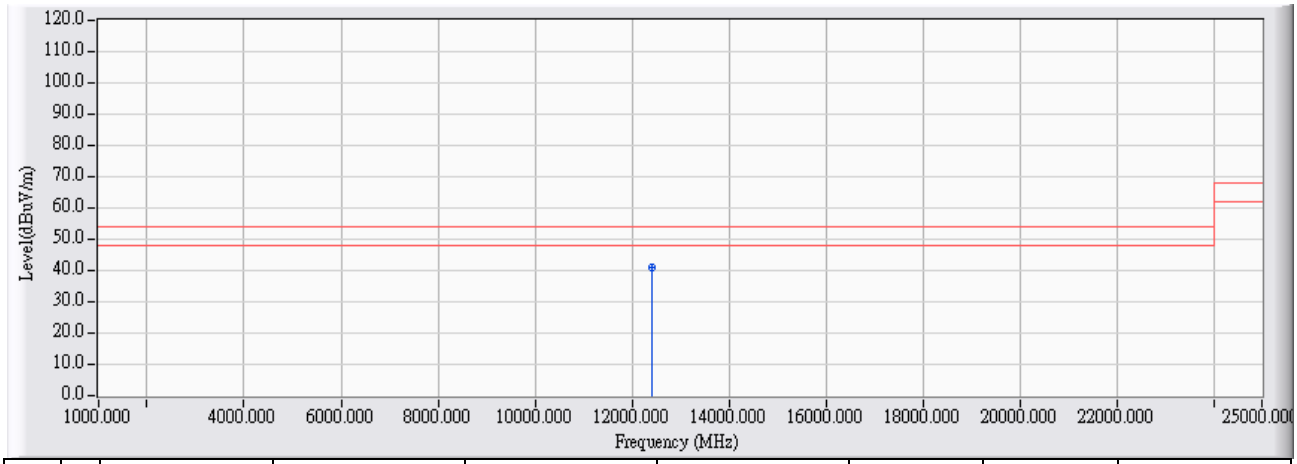


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4959.850	2.859	38.814	41.674	-32.296	73.970	PEAK
2		7443.680	10.849	37.684	48.533	-25.437	73.970	PEAK
3		9926.650	14.936	36.582	51.518	-22.452	73.970	PEAK
4	*	12406.890	17.241	35.862	53.103	-20.867	73.970	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 : 2010/07/21 - 11:29**
Limit : FCC_SpartC_15.249_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - HORIZONTAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2480 MHz**

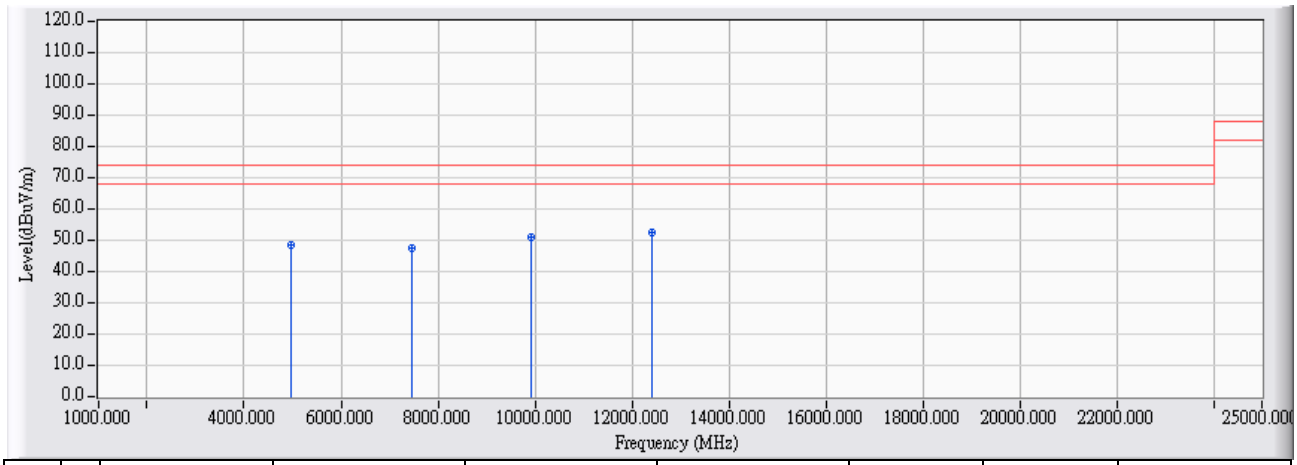


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	12407.330	17.239	23.885	41.124	-12.846	53.970	AVERAGE

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 : CB1	**Time : 2010/07/21 - 11:47**
Limit : FCC_SpartC_15.249_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - VERTICAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2480 MHz**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.190	5.259	43.242	48.500	-25.470	73.970	PEAK
2		7448.000	9.881	37.786	47.668	-26.302	73.970	PEAK
3		9926.650	15.311	35.908	51.219	-22.751	73.970	PEAK
4	*	12407.010	16.711	35.717	52.428	-21.542	73.970	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.

3. Band Edge

3.1. Test Equipment

The following test equipment are used during the test:

Band Edge / CB1

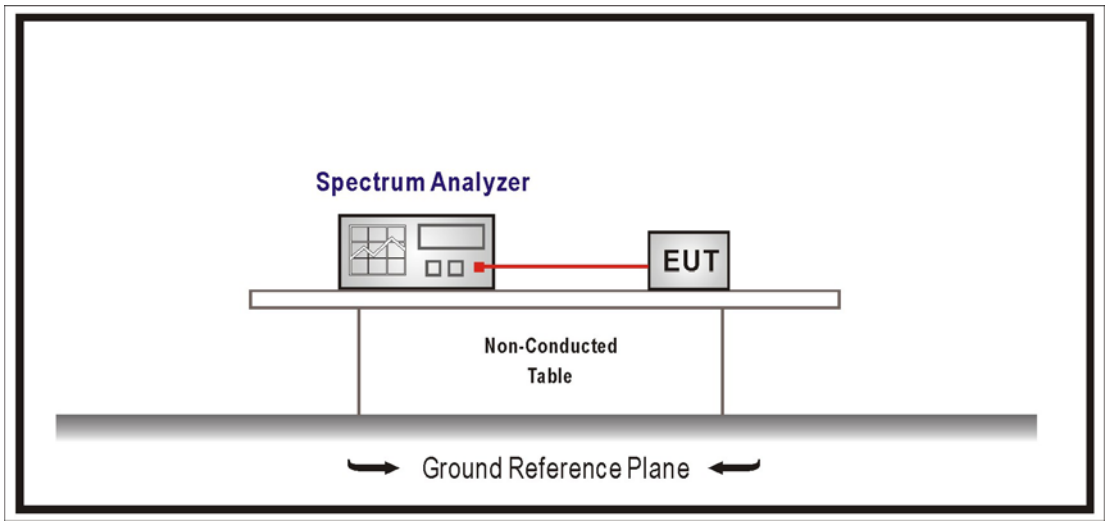
Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Horn Antenna	Schwarzback	BBHA 9120D	743	2011/03/14
Spectrum Analyzer	Agilent	E4440A	MY46187335	2011/01/14
Coaxial Cable	Huber+Suhner AG	Sucoflex 102	25623/2	2011/04/07

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

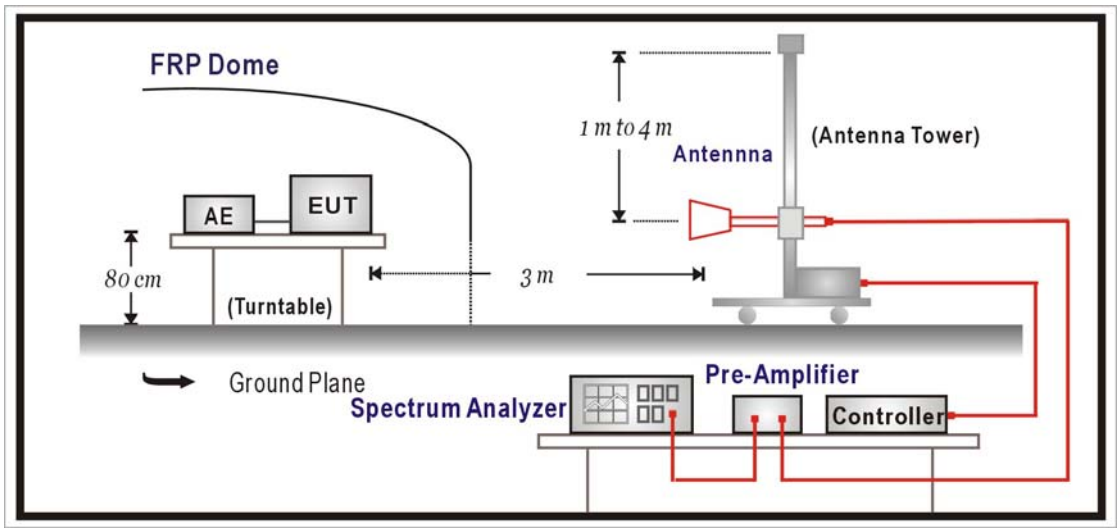
2. Mark “X” test instruments are used to measure the final test results.

3.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



3.3. 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)).

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 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.

3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.249: 2009

3.6. Uncertainty

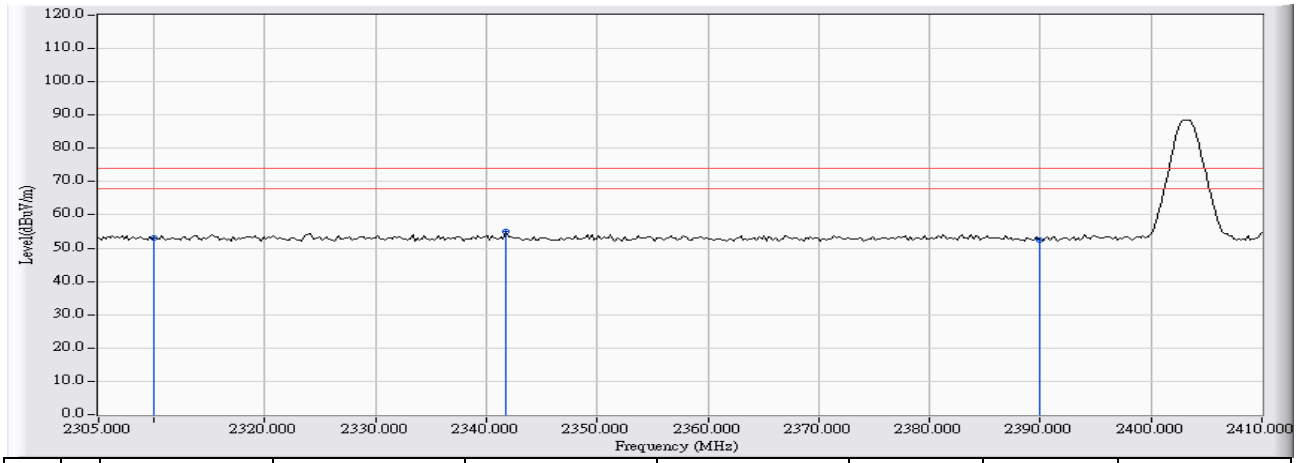
The measurement uncertainty

Conducted is defined as ± 1.27dB

Radiated is defined as ± 3.9dB

3.7. Test Result

Site : CB1	**Time : 2010/07/20 - 11:53**
Limit : FCC_SpartC_15.209_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - HORIZONTAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2403 MHz**

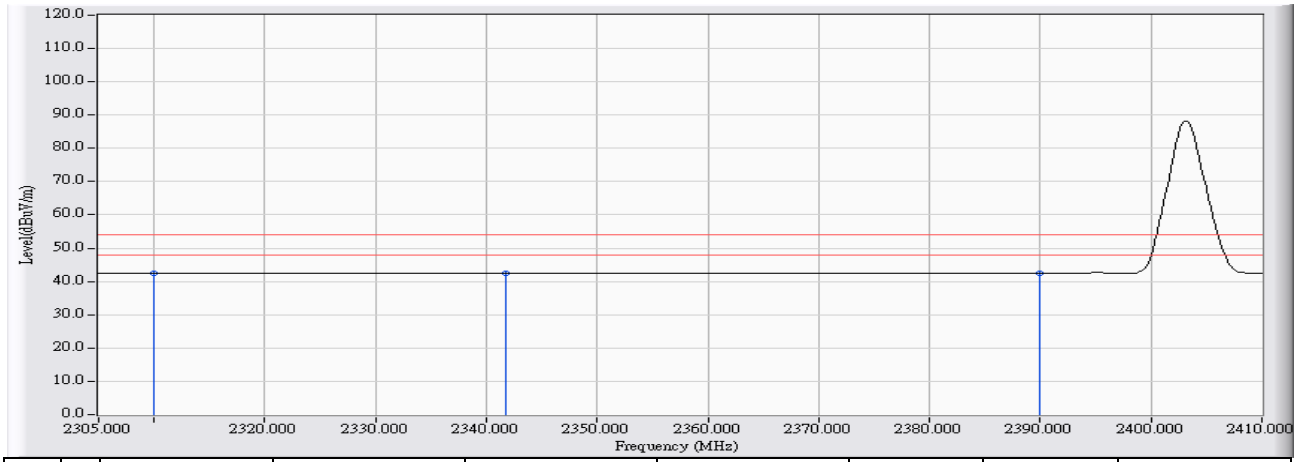


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	29.291	23.888	53.179	-20.821	74.000	PEAK
2	*	2341.750	29.305	25.688	54.994	-19.006	74.000	PEAK
3		2390.000	29.342	23.153	52.495	-21.505	74.000	PEAK

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 : 2010/07/20 - 11:56**
Limit : FCC_SpartC_15.209_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - HORIZONTAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2403 MHz**

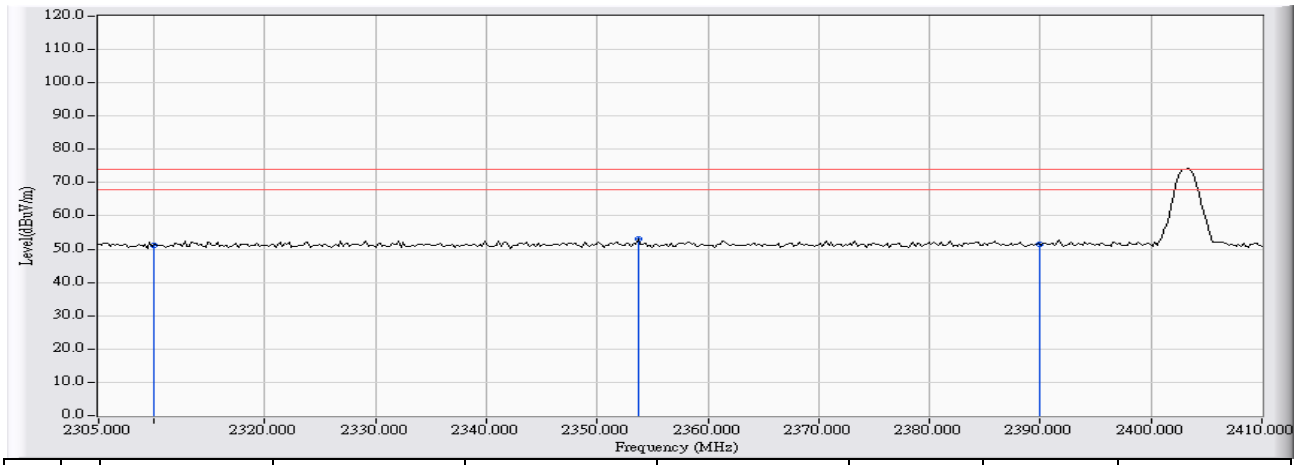


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2310.000	29.291	13.136	42.427	-11.573	54.000	AVERAGE
2		2341.750	29.305	13.096	42.402	-11.598	54.000	AVERAGE
3		2390.000	29.342	13.069	42.411	-11.589	54.000	AVERAGE

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 : CB1	**Time : 2010/07/20 - 12:03**
Limit : FCC_SpartC_15.209_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - VERTICAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2403 MHz**

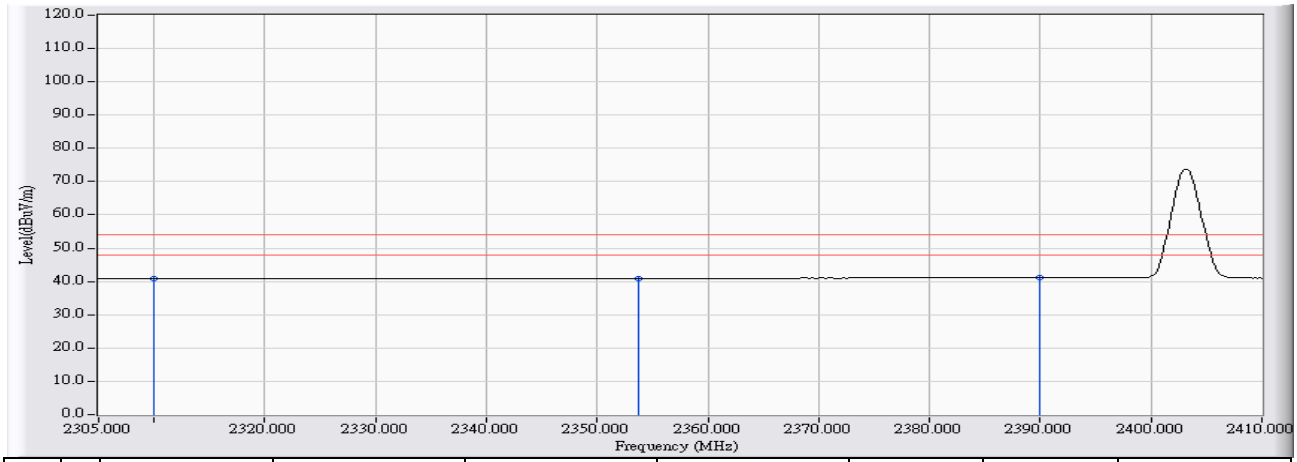


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	27.561	23.731	51.291	-22.709	74.000	PEAK
2	*	2353.720	27.767	25.372	53.139	-20.861	74.000	PEAK
3		2390.000	27.946	23.451	51.397	-22.603	74.000	PEAK

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 : 2010/07/20 - 13:03**
Limit : FCC_SpartC_15.209_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - VERTICAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2403 MHz**

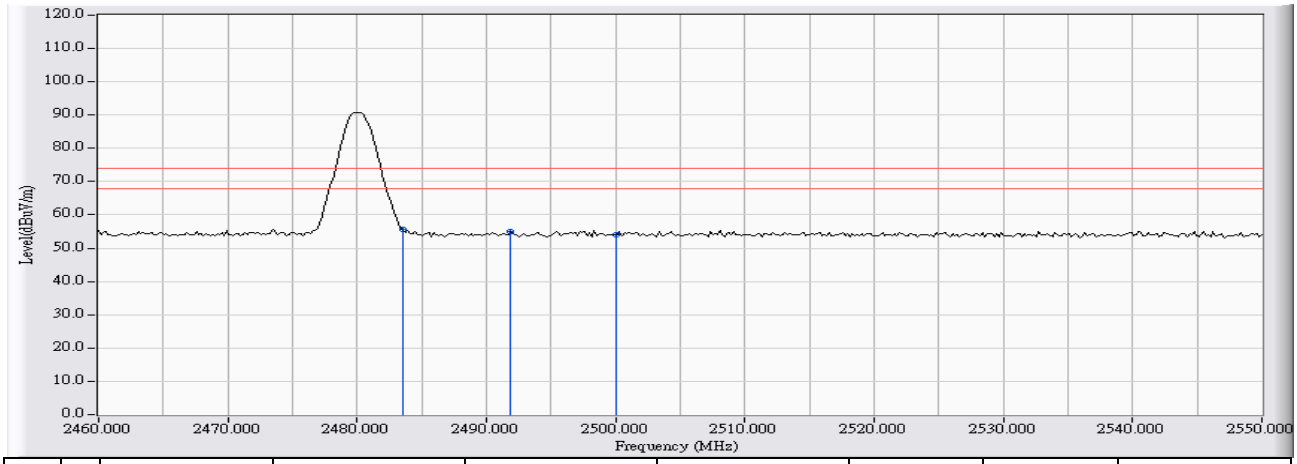


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	27.561	13.261	40.821	-13.179	54.000	AVERAGE
2		2353.720	27.767	13.186	40.953	-13.047	54.000	AVERAGE
3	*	2390.000	27.946	13.202	41.148	-12.852	54.000	AVERAGE

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 : CB1	**Time : 2010/07/20 - 13:15**
Limit : FCC_SpartC_15.209_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - HORIZONTAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2480 MHz**

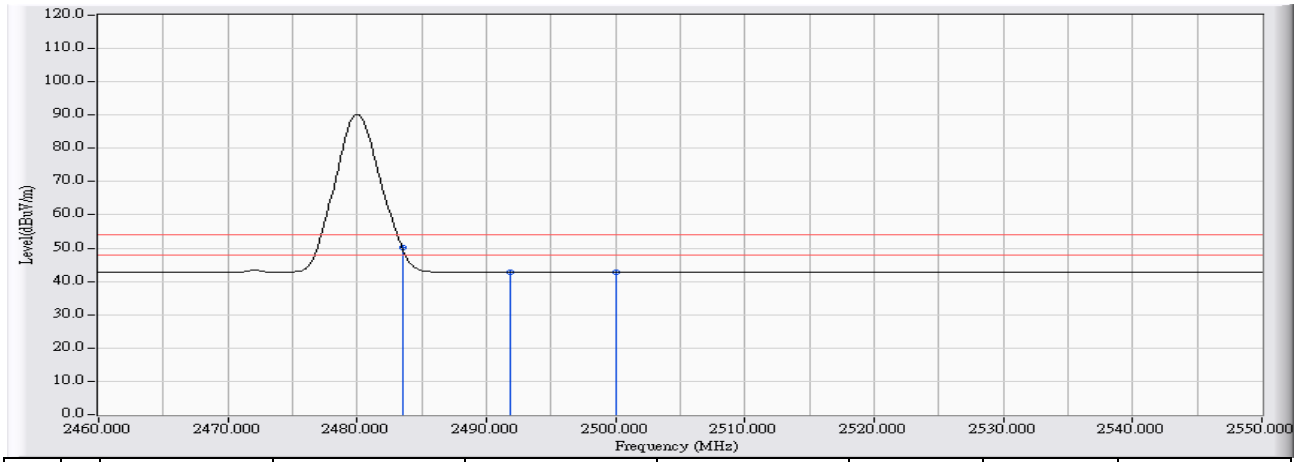


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2483.500	29.669	25.904	55.573	-18.427	74.000	PEAK
2		2491.860	29.702	25.315	55.017	-18.983	74.000	PEAK
3		2500.000	29.719	24.379	54.099	-19.901	74.000	PEAK

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 : 2010/07/20 - 13:19**
Limit : FCC_SpartC_15.209_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - HORIZONTAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2480 MHz**

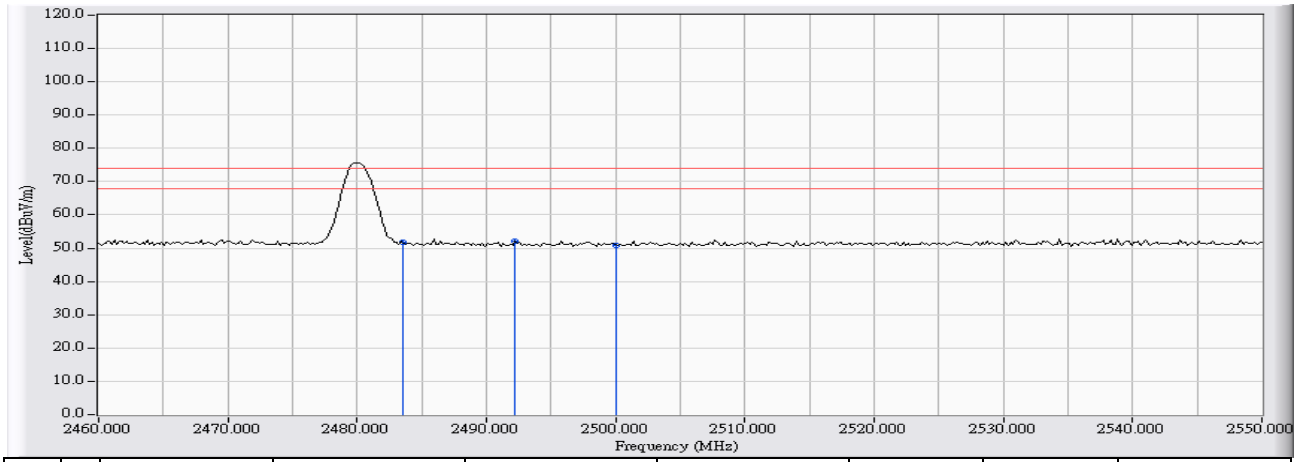


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2483.500	29.669	20.431	50.100	-3.900	54.000	AVERAGE
2		2491.860	29.702	13.113	42.815	-11.185	54.000	AVERAGE
3		2500.000	29.719	13.095	42.815	-11.185	54.000	AVERAGE

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 : CB1	**Time : 2010/07/20 - 13:29**
Limit : FCC_SpartC_15.209_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2010-07) - VERTICAL	**Power : DC 3V**
EUT : Cadence/Speed sensor	**Note : 2480 MHz**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2483.500	27.112	24.638	51.749	-22.251	74.000	PEAK
2	*	2492.220	27.015	25.064	52.079	-21.921	74.000	PEAK
3		2500.000	26.992	23.972	50.964	-23.036	74.000	PEAK