FCC Test Report

Product Name ： SkyCaddie

Model No. ： Touch

FCC ID. ： X8F-SCTOUCH

Applicant ： SkyHawke Technologies, LLC

Address ： 274 Commerce Park Drive, Ridgeland, Mississippi 39157 USA

Date of Receipt ： 2014/02/17

Issued Date ： 2014/12/31

Report No. ： 1490372R-RFUSP01V00-B

Report Version ： V1.0

Test Report Certification

Issued Date : 2014/12/31
Report No. : 1490372R-RFUSP01V00-B

QuieTek

Product Name	:	SkyCaddie
Applicant	:	SkyHawke Technologies, LLC
Address	:	274 Commerce Park Drive, Ridgeland, Mississippi 39157 USA
Manufacturer	:	Holux Technology, Inc.
Model No.	:	Touch
FCC ID.	:	X8F-SCTOUCH
EUT Voltage	:	Mode 1: DC 3.7V (Power by Battery) Mode 2: AC100-240V, 50-60Hz Mode 3: DC 5V (Power by PC)
Trade Name	:	SkyCaddie / SkyGolf
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2013
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 : Fonbo Fang

(Fonbo Fang / Engineering Adm. Assistant)

Reviewed By : Ken Huang

(Ken Huang / Assistant Engineer)

Approved By : Roy Wang

(Roy Wang / Director)

Laboratory Information

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

Taiwan R.O.C.	**:**	**TAF, Accreditation Number: 3024** **NCC, Certificate No: NCC-RCB-07**
USA	**:**	**FCC, Registration Number: 365520**
Canada	**:**	**IC, Submission No: 150981**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site:http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site :
http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

HsinChu Testing Laboratory:
No.75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C.
TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com

LinKou Testing Laboratory:
No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451, Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789 E-Mail : service@quietek.com

TABLE OF CONTENTS

1. General Information

1.1. EUT Description

Product Name	SkyCaddie
Trade Name	SkyCaddie / SkyGolf
Model No.	Touch
Frequency Range/Channel Number	2402~2480MHz / 40 Channels
Type of Modulation	Bluetooth 4.0(GFSK)
Antenna Type	Chip Antenna
Antenna Gain	0.2dBi

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00	2402 MHz	Channel 10	2422 MHz	Channel 20	2442 MHz	Channel 30	2462 MHz
Channel 01	2404 MHz	Channel 11	2424 MHz	Channel 21	2444 MHz	Channel 31	2464 MHz
Channel 02	2406 MHz	Channel 12	2426 MHz	Channel 22	2446 MHz	Channel 32	2466 MHz
Channel 03	2408 MHz	Channel 13	2428 MHz	Channel 23	2448 MHz	Channel 33	2468 MHz
Channel 04	2410 MHz	Channel 14	2430 MHz	Channel 24	2450 MHz	Channel 34	2470 MHz
Channel 05	2412 MHz	Channel 15	2432 MHz	Channel 25	2452 MHz	Channel 35	2472 MHz
Channel 06	2414 MHz	Channel 16	2434 MHz	Channel 26	2454 MHz	Channel 36	2474 MHz
Channel 07	2416MHz	Channel 17	2436 MHz	Channel 27	2456 MHz	Channel 37	2476 MHz
Channel 08	2418 MHz	Channel 18	2438 MHz	Channel 28	2458 MHz	Channel 38	2478 MHz
Channel 09	2420 MHz	Channel 19	2440 MHz	Channel 29	2460 MHz	Channel 39	2480 MHz

Note:

1. This device is a SkyCaddie including a 2.4GHz Bluetooth 4.0 function and BT 2.0 function.
2. 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.
3. This device is a Bluetooth 4.0 in accordance with Part 15 regulations. The function receiving was measured and made a test report that the report number is 1480253R-RFUSP01V00 under Declaration of Conformity and The function BT 2.0 was measured and made a test report that the report number is 1480253R-RFUSP01V00-A under Declaration of Conformity.

1.2. Test Mode

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

Pre-Test Mode	
Test Mode	Mode 1: Transmit (Power by Battery) Mode 2: Transmit (Power by Adapter) Mode 3: Transmit (Power by PC)
Final Test Mode	
Test Mode	Mode 1: Transmit (Power by Battery) Mode 2: Transmit (Power by Adapter) Mode 3: Transmit (Power by PC)

Test Items	Mode	Modulation	Channel	Antenna	Result
Conducted Emission	2/3	GFSK	19	0	Complies
Peak Power Output	2	GFSK	0/19/39	0	Complies
Radiated Emission	1/2/3	GFSK	0/19/39	0	Complies
RF antenna conducted test	2	GFSK	0/19/39	0	Complies
Radiated Emission Band Edge	2	GFSK	0/39	0	Complies
Occupied Bandwidth	2	GFSK	0/19/39	0	Complies
Power Density	2	GFSK	0/19/39	0	Complies

1.3. Tested System Details

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

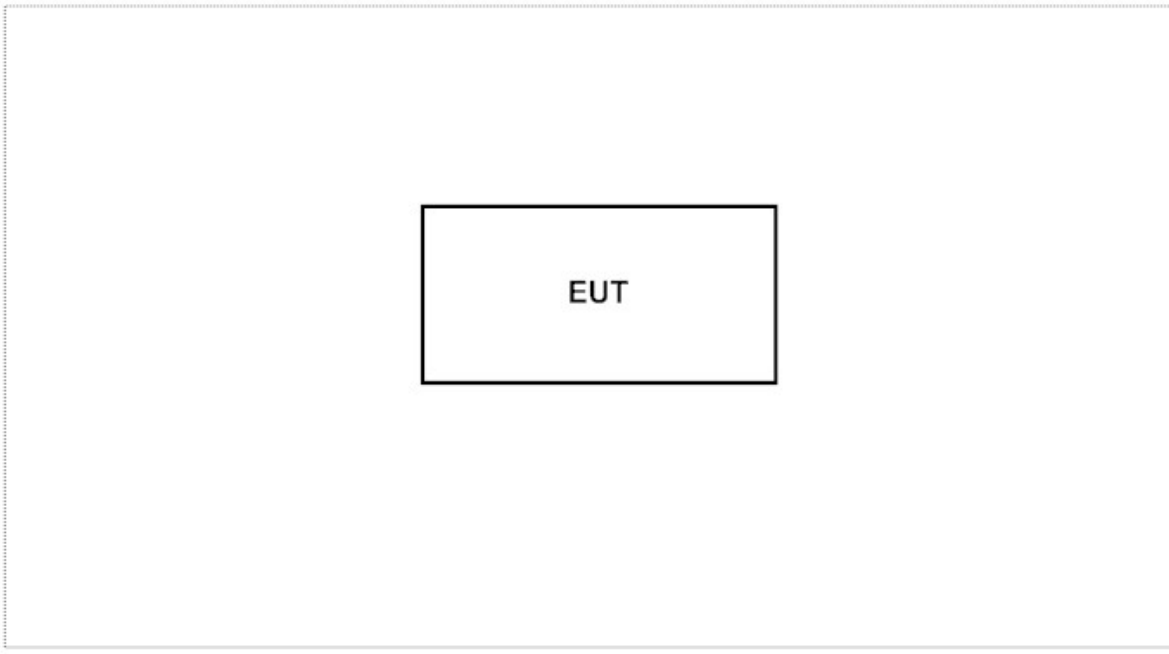
Test Mode	Mode 1: Transmit (Power by Battery) Mode 2: Transmit (Power by Adapter)

N/A

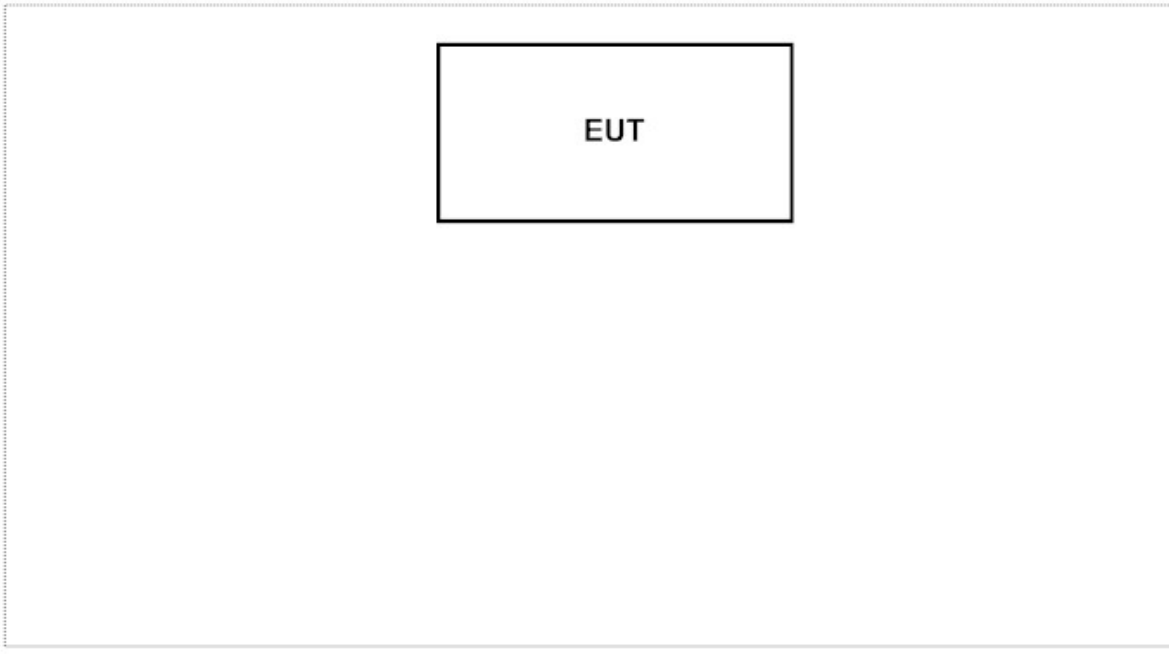
Test Mode		Mode 3: Transmit (Power by PC)				
Product		Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Notebook PC	ACER	PAV70	LUSEW0D0371105FE221601	DoC	Non-Shielded, 2.5m one ferrite core bonded
2	USB 2.0 Flash Memory	Apacer	AH223	N/A	DoC	--
3	Microphone & Earphone	Fujiei	SBZ-38	N/A	DoC	--
4	USB Mouse	Logitech	M-UV83	35005917	DoC	--

1.4. Configuration of tested System

Test Mode	Mode 1: Transmit (Power by Battery)
Connection Diagram	

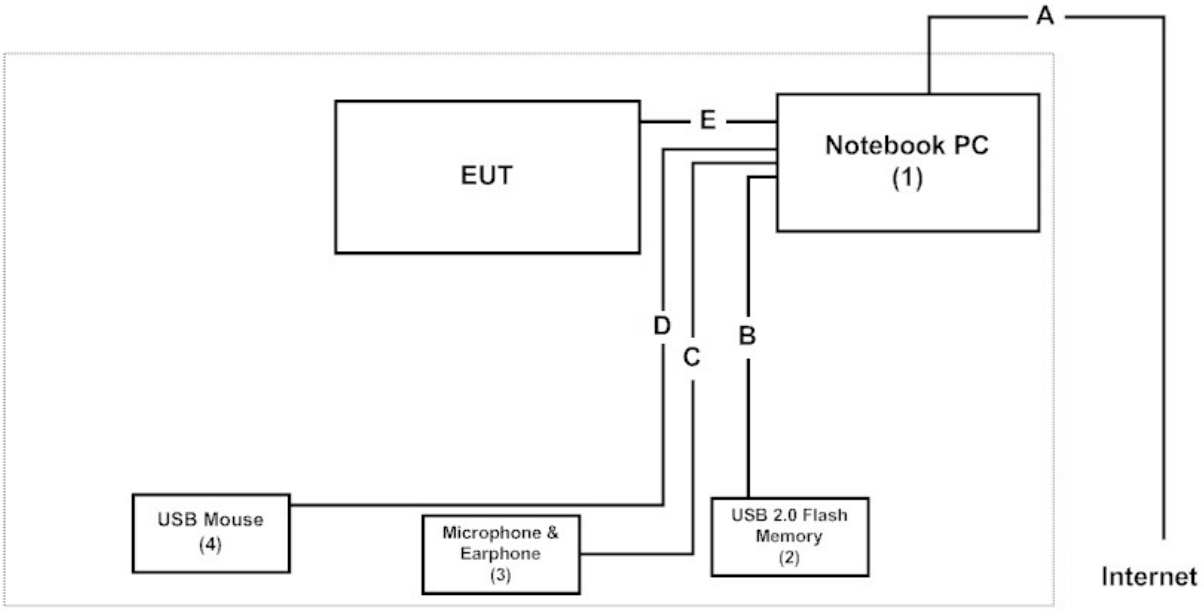


Test Mode	Mode 2: Transmit (Power by Adapter)
Connection Diagram	



Test Mode	Mode 3: Transmit (Power by PC)

Connection Diagram



Signal Cable Type		Signal cable Description
A	LAN Cable	Non-Shielded, 3m
B	USB 2.0 Flash Memory Cable	Shielded, 1m
C	Microphone & Earphone Cable	Non-Shielded, 1.2m
D	USB Mouse Cable	Shielded, 1.8m
E	USB Cable	Shielded, 1m

1.5. EUT Exercise Software

1	Setup the EUT as shown in Section 1.4.
2	Execute the setting with the fixture.
3	Configure the test mode, the test channel to start the continuous transmit.
4	Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 C 15.207 Conducted Emission	15 - 35	20
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Peak Power Output	15 - 35	23
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Radiated Emission	15 - 35	25
Humidity (%RH)		25 - 75	54
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Band Edge	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Occupied Bandwidth	15 - 35	24
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 RF antenna conducted test	15 - 35	24
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Power Density	15 - 35	24
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000

2. Conducted Emission

2.1. Test Equipment

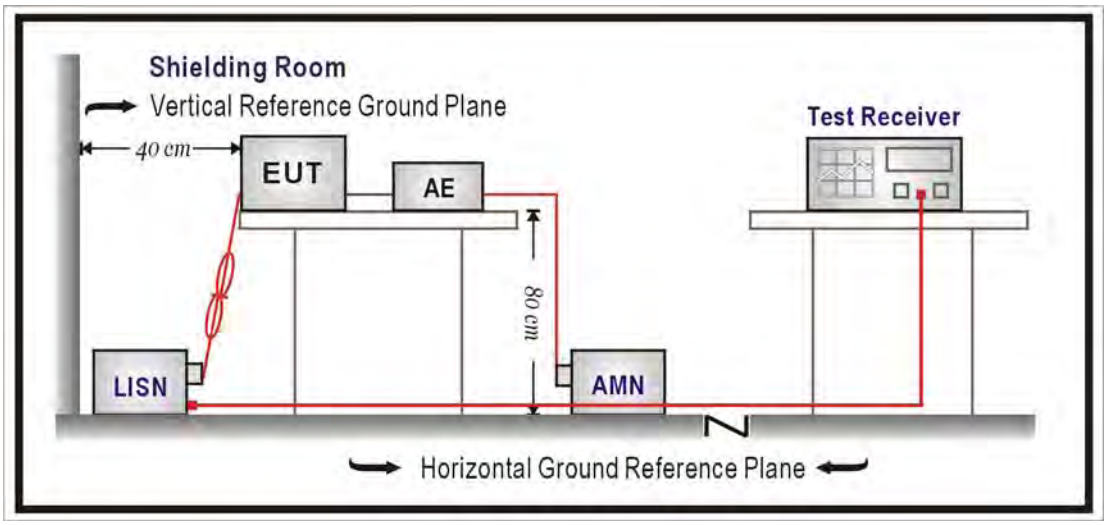
The following test equipments are used during the test:

Conducted Emission / SR3

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
LISN	R&S	ENV216	100096	2015/08/10
LISN	R&S	ESH3-Z5	836679/022	2015/12/15
Test Receiver	R&S	ESCS 30	825442/017	2016/12/23

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

2.2. Test Setup



2.3. Limits

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

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

2.4. Test Procedure

The EUT was setup according to ANSI C63.10 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

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

2.5. Test Specification

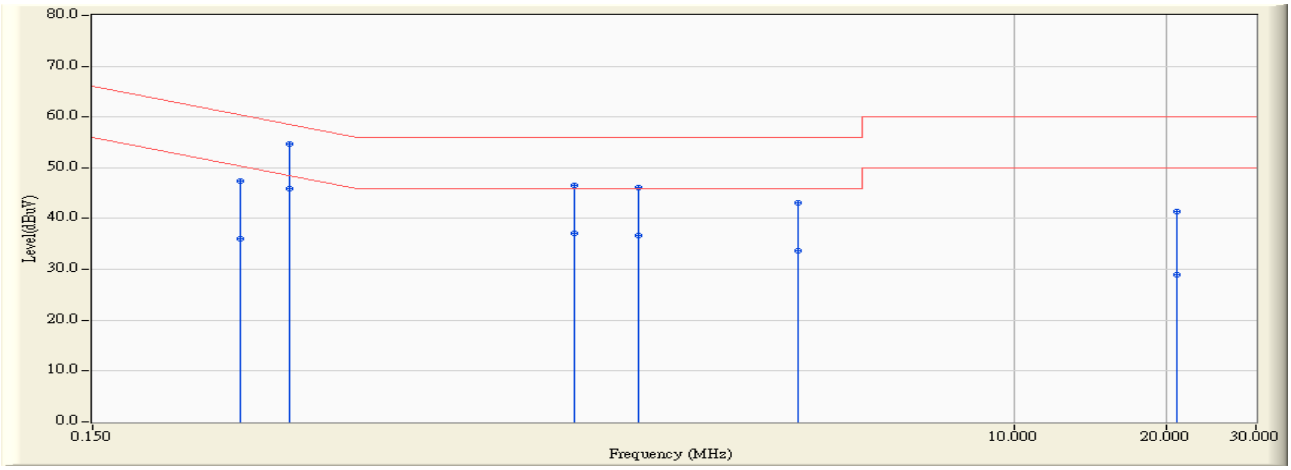
According to FCC Part 15 Subpart C Paragraph 15.207: 2013

2.6. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB.

2.7. Test Result

Site : SR3	**Time : 2014/12/26 - 11:28**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR3_LISN(16A)-4_0811 - Line1	**Power : AC 120V 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter) GFSK-802.11n(40M)-2440MHz**

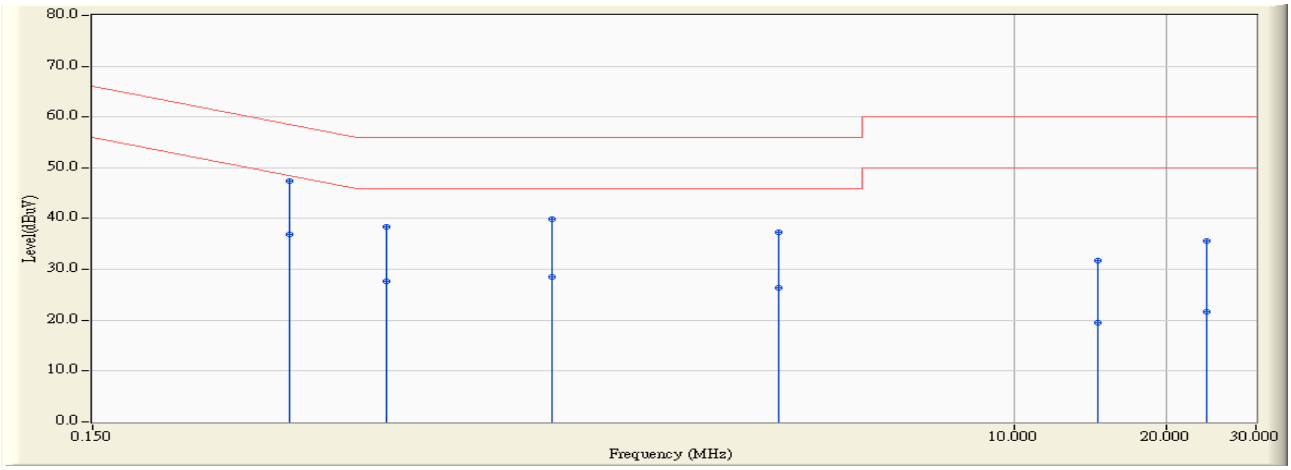


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.295	9.725	37.580	47.306	-13.090	60.396	QUASIPEAK
2		0.295	9.725	26.360	36.086	-14.310	50.396	AVERAGE
3		0.369	9.772	44.960	54.731	-3.798	58.529	QUASIPEAK
4	*	0.369	9.772	36.190	45.961	-2.568	48.529	AVERAGE
5		1.345	9.950	36.640	46.590	-9.410	56.000	QUASIPEAK
6		1.345	9.950	27.080	37.030	-8.970	46.000	AVERAGE
7		1.798	9.950	36.180	46.130	-9.870	56.000	QUASIPEAK
8		1.798	9.950	26.690	36.640	-9.360	46.000	AVERAGE
9		3.736	10.027	33.060	43.087	-12.913	56.000	QUASIPEAK
10		3.736	10.027	23.600	33.627	-12.373	46.000	AVERAGE
11		20.873	10.122	31.260	41.382	-18.618	60.000	QUASIPEAK
12		20.873	10.122	18.770	28.892	-21.108	50.000	AVERAGE

Note:

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

Site : SR3	**Time : 2014/12/26 - 11:33**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR3_LISN(16A)-4_0811 - Line2	**Power : AC 120V 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter) GFSK-802.11n(40M)-2440MHz**

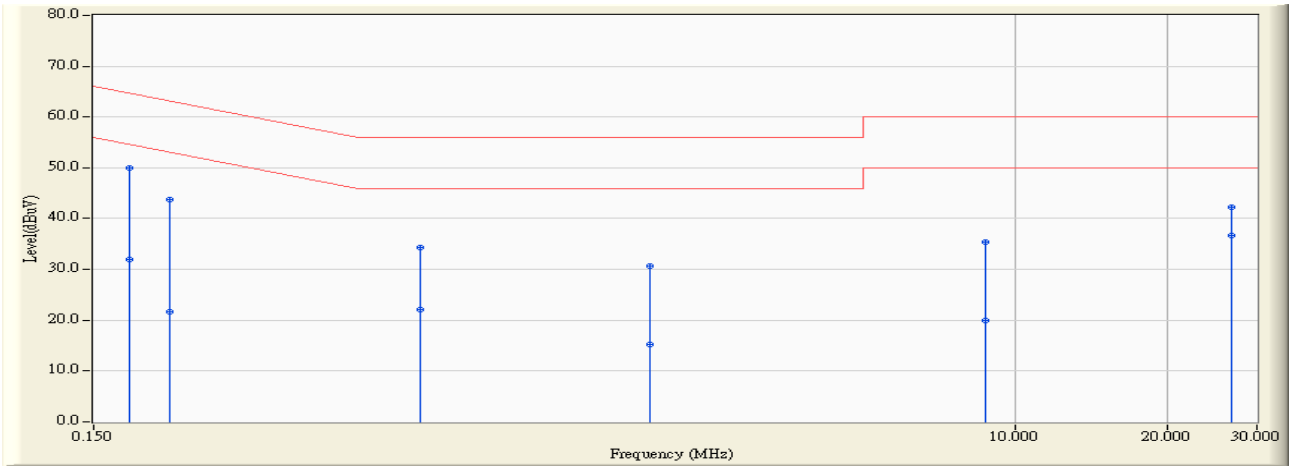


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.369	9.770	37.680	47.450	-11.079	58.529	QUASIPEAK
2		0.369	9.770	27.200	36.970	-11.559	48.529	AVERAGE
3		0.572	9.861	28.560	38.421	-17.579	56.000	QUASIPEAK
4		0.572	9.861	17.910	27.771	-18.229	46.000	AVERAGE
5		1.216	9.952	29.960	39.912	-16.088	56.000	QUASIPEAK
6		1.216	9.952	18.680	28.632	-17.368	46.000	AVERAGE
7		3.408	10.024	27.360	37.384	-18.616	56.000	QUASIPEAK
8		3.408	10.024	16.270	26.294	-19.706	46.000	AVERAGE
9		14.627	10.254	21.540	31.794	-28.206	60.000	QUASIPEAK
10		14.627	10.254	9.200	19.454	-30.546	50.000	AVERAGE
11		23.990	10.404	25.180	35.584	-24.416	60.000	QUASIPEAK
12		23.990	10.404	11.230	21.634	-28.366	50.000	AVERAGE

Note:

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

Site : SR3	**Time : 2014/12/26 - 11:42**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR3_LISN(16A)-4_0811 - Line1	**Power : DC 5V (Power by PC)**
EUT : SkyCaddie	**Note : Mode 3: Transmit (Power by PC)** **GFSK-802.11n(40M)-2440MHz**

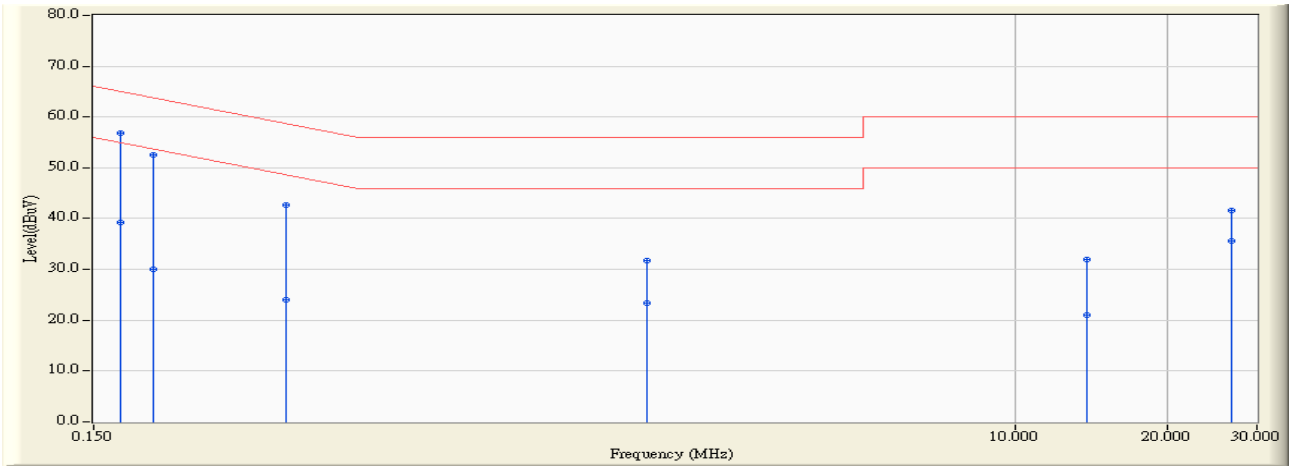


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.177	9.652	40.320	49.972	-14.653	64.625	QUASIPEAK
2		0.177	9.652	22.290	31.942	-32.683	64.625	AVERAGE
3		0.212	9.650	34.020	43.670	-19.457	63.127	QUASIPEAK
4		0.212	9.650	12.020	21.670	-41.457	63.127	AVERAGE
5		0.662	9.744	24.580	34.324	-21.676	56.000	QUASIPEAK
6		0.662	9.744	12.410	22.154	-33.846	56.000	AVERAGE
7		1.884	9.825	20.920	30.745	-25.255	56.000	QUASIPEAK
8		1.884	9.825	5.310	15.135	-40.865	56.000	AVERAGE
9		8.689	10.081	25.340	35.421	-24.579	60.000	QUASIPEAK
10		8.689	10.081	9.800	19.881	-40.119	60.000	AVERAGE
11		26.666	10.183	32.140	42.323	-17.677	60.000	QUASIPEAK
12	*	26.666	10.183	26.560	36.743	-23.257	60.000	AVERAGE

Note:

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

Site : SR3	**Time : 2014/12/26 - 11:45**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR3_LISN(16A)-4_0811 -	**Power : DC 5V (Power by PC)**
EUT : SkyCaddie	**Note : Mode 3: Transmit (Power by PC)** **GFSK-802.11n(40M)-2440MHz**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.170	9.653	47.280	56.933	-8.050	64.983	QUASIPEAK
2		0.170	9.653	29.670	39.323	-15.660	54.983	AVERAGE
3		0.197	9.651	42.800	52.451	-11.291	63.741	QUASIPEAK
4		0.197	9.651	20.470	30.121	-23.621	53.741	AVERAGE
5		0.361	9.742	32.860	42.602	-16.105	58.707	QUASIPEAK
6		0.361	9.742	14.380	24.122	-24.585	48.707	AVERAGE
7		1.869	9.824	21.940	31.764	-24.236	56.000	QUASIPEAK
8		1.869	9.824	13.450	23.274	-22.726	46.000	AVERAGE
9		13.814	10.135	21.880	32.015	-27.985	60.000	QUASIPEAK
10		13.814	10.135	10.980	21.115	-28.885	50.000	AVERAGE
11		26.662	10.183	31.460	41.643	-18.357	60.000	QUASIPEAK
12		26.662	10.183	25.490	35.673	-14.327	50.000	AVERAGE

Note:

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

3. Peak Power Output

3.1. Test Equipment

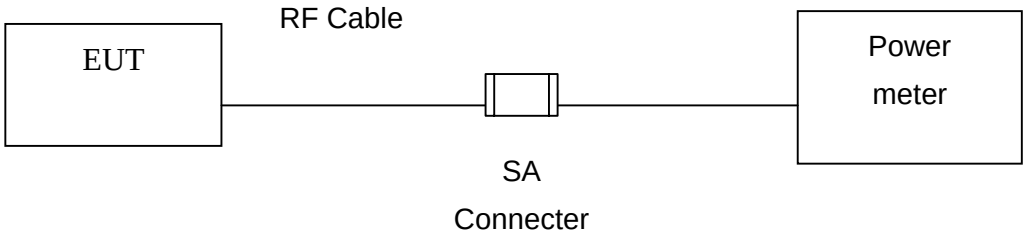
The following test equipment is used during the test:

Peak Power Output / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Power Meter	Agilent	N1911A	MY45101353	2015/10/31
Power Sensor	Agilent	N1921A	MY45241670	2015/10/31

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

3.2. Test Setup



3.3. Test procedures

The EUT was setup according to ANSI C63.10; tested according to DTS test procedure of KDB558074 V03R02 for compliance to FCC 47CFR 15.247 requirements.

3.4. Limits

The maximum peak power shall be less 1 Watt.

3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247

3.6. Test Result

Product	SkyCaddie		
Test Item	Peak Power Output		
Test Mode	Mode 2: Transmit (Power by Adapter)		
Date of Test	2014/12/29	Test Site	SR7

GFSK

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
00	2402	4.21	30	Pass
19	2440	5.70	30	Pass
39	2480	7.15	30	Pass

4. Radiated Emission

4.1. Test Equipment

The following test equipments are used during the test:

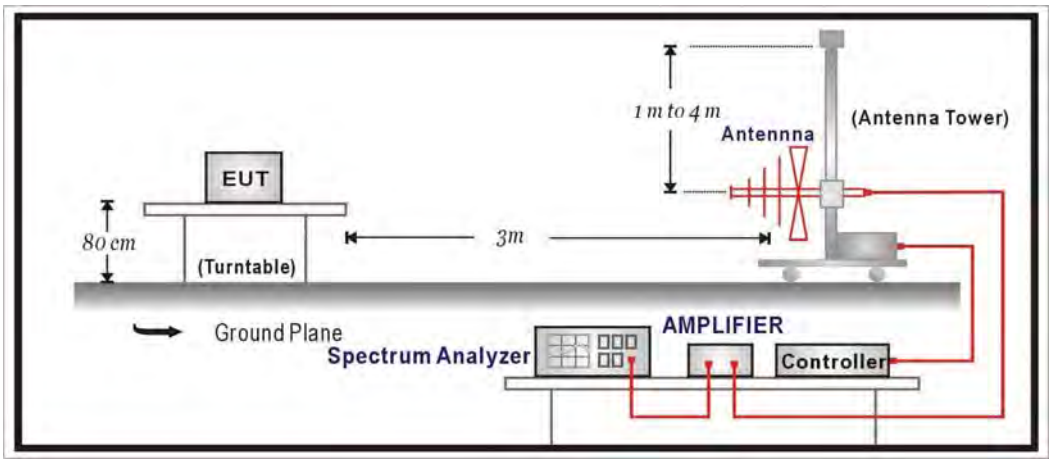
Radiated Emission / CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Bilog Antenna	SCHAFFNER	CBL6112B	2895(CB1)	2015/08/14
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120	D743	2015/02/12
Pre-Amplifier	Quietek	AMF-4D.	888003	2015/06/02
Pre-Amplifier	QuieTek	AP-025C	CHM-0706049	2015/02/06
Spectrum Analyzer	Agilent	E4440A	MY46187335	2015/01/12
k Type Cable	Huber Suhner	Sucoflex 102	25623/2	2015/02/10
Bilog Antenna	SCHAFFNER	CBL6112B	2895(CB1)	2015/08/14

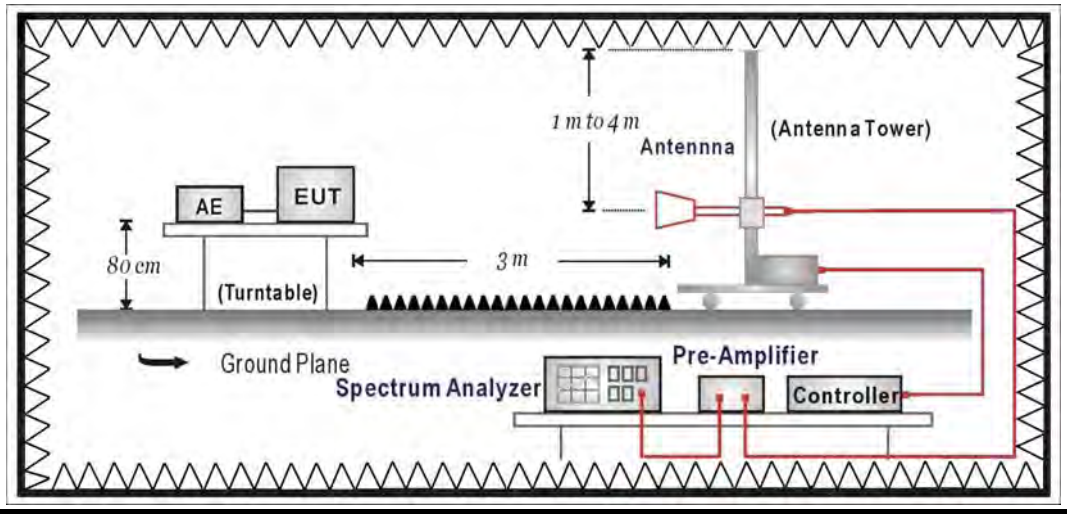
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m	dBuV/m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks : 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.

4.4. Test Procedure

The EUT was setup according to ANSI C63.10 and tested according to DTS test procedure of KDB558074 V03R02 for compliance to FCC 47CFR 15.247 requirements.
The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10 on radiated measurement.
On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit. The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

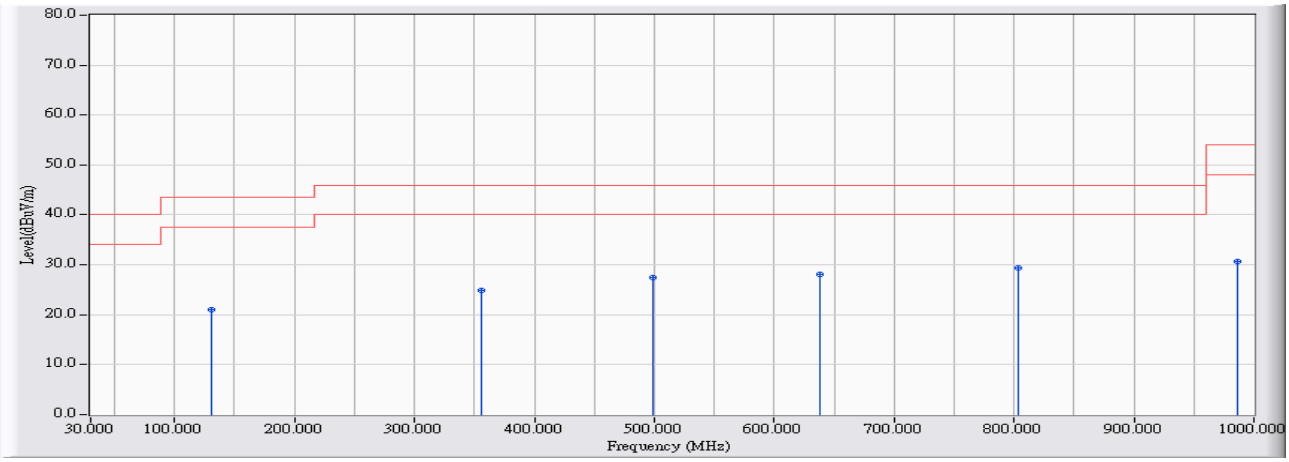
4.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247

4.6. Test Result

30MHz-1GHz Spurious

Site : CB1	**Time : 2014/12/29 - 21:27**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	**Power : DC 3.7V (Power by Battery)**
EUT : SkyCaddie	**Note : Mode 1: Transmit (Power by Battery)_2440MHz**

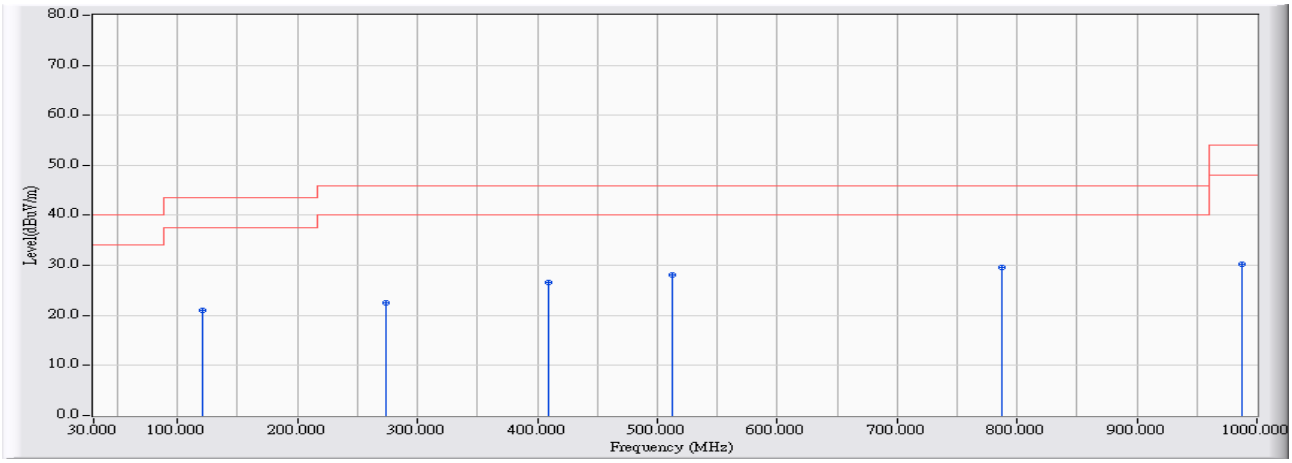


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		130.448	10.459	10.572	21.031	-22.469	43.500	QUASIPEAK
2		355.332	14.081	10.734	24.815	-21.185	46.000	QUASIPEAK
3		499.258	17.168	10.352	27.520	-18.480	46.000	QUASIPEAK
4		637.687	17.675	10.410	28.085	-17.915	46.000	QUASIPEAK
5	*	803.102	19.222	10.208	29.430	-16.570	46.000	QUASIPEAK
6		986.507	20.178	10.444	30.623	-23.377	54.000	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 : 2014/12/29 - 21:31**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	**Power : DC 3.7V (Power by Battery)**
EUT : SkyCaddie	**Note : Mode 1: Transmit (Power by Battery)_2440MHz**

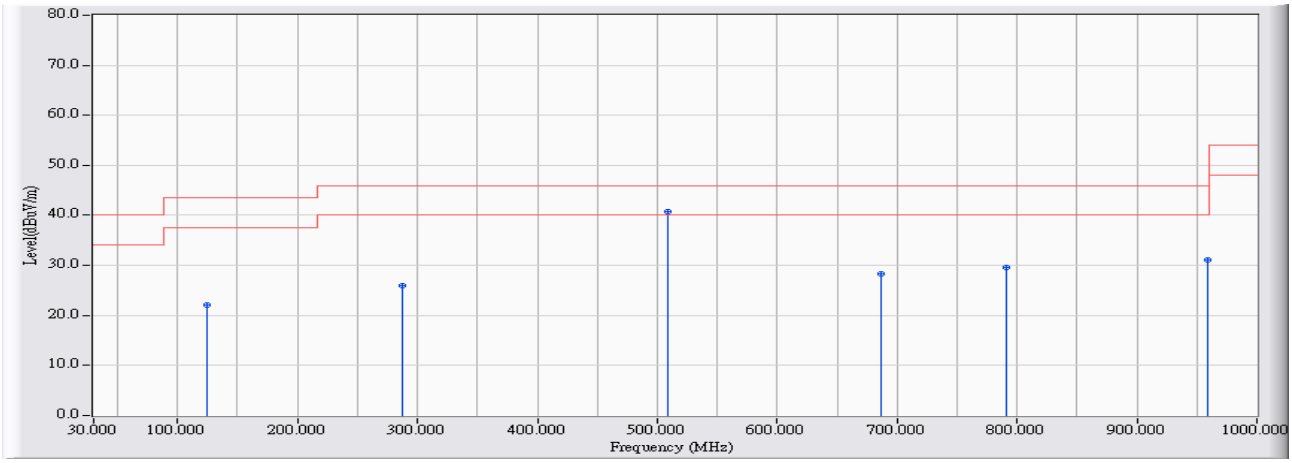


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		120.453	10.802	10.323	21.125	-22.375	43.500	QUASIPEAK
2		273.874	12.298	10.208	22.506	-23.494	46.000	QUASIPEAK
3		408.805	15.333	11.236	26.569	-19.431	46.000	QUASIPEAK
4		512.751	17.221	10.807	28.028	-17.972	46.000	QUASIPEAK
5	*	787.609	19.062	10.465	29.528	-16.472	46.000	QUASIPEAK
6		988.006	20.191	10.149	30.340	-23.660	54.000	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 : 2014/12/29 - 21:35**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_2440MHz**

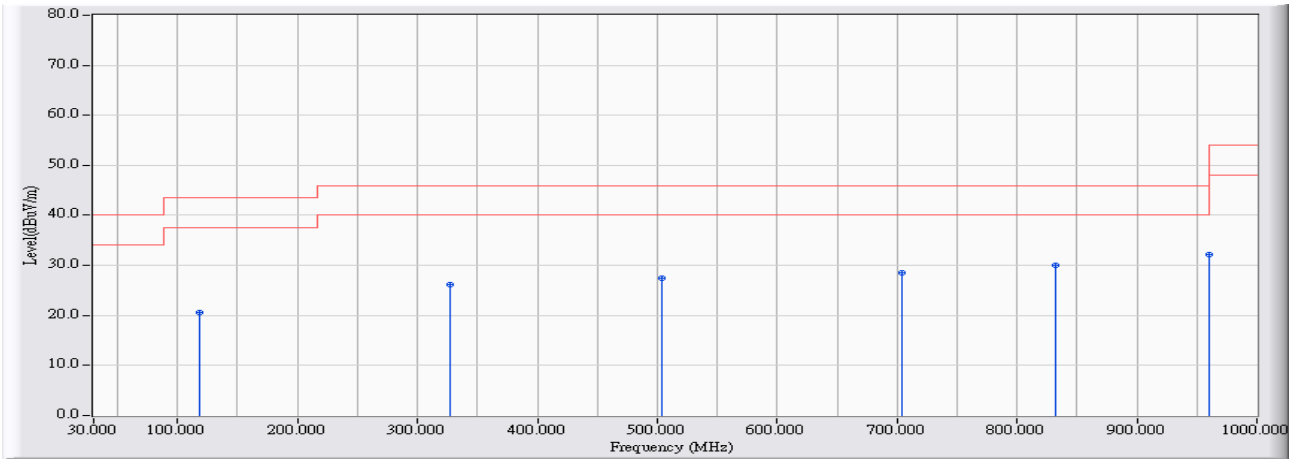


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		124.951	10.648	11.403	22.051	-21.449	43.500	QUASIPEAK
2		287.867	12.541	13.322	25.863	-20.137	46.000	QUASIPEAK
3	*	508.753	17.210	23.622	40.831	-5.169	46.000	QUASIPEAK
4		687.161	17.927	10.408	28.335	-17.665	46.000	QUASIPEAK
5		791.108	19.105	10.500	29.605	-16.395	46.000	QUASIPEAK
6		959.521	19.958	11.208	31.166	-14.834	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 : 2014/12/29 - 21:39**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_2440MHz**

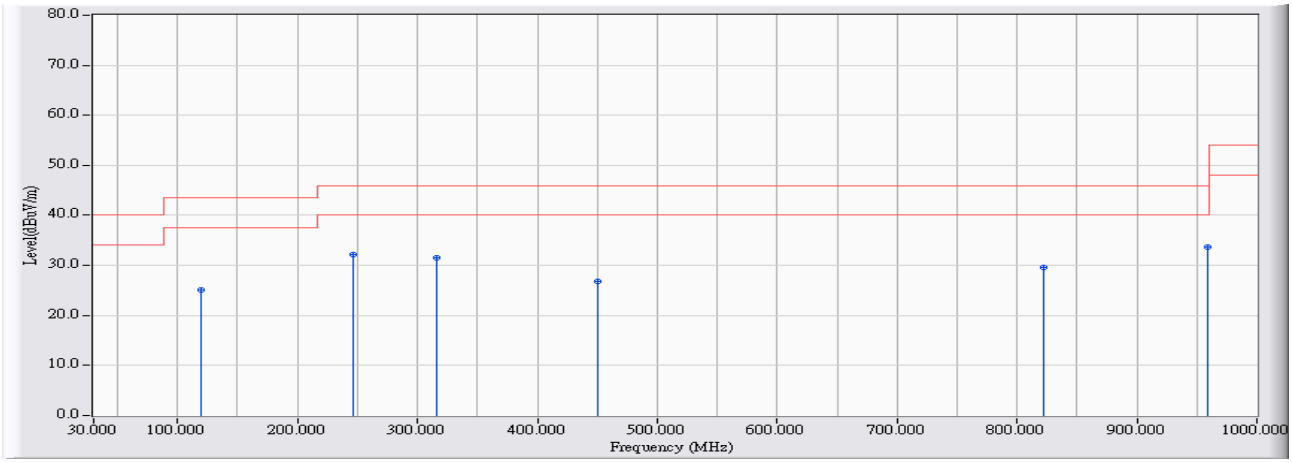


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		117.955	10.718	9.863	20.581	-22.919	43.500	QUASIPEAK
2		326.847	13.397	12.685	26.082	-19.918	46.000	QUASIPEAK
3		503.756	17.195	10.208	27.402	-18.598	46.000	QUASIPEAK
4		703.653	18.037	10.412	28.449	-17.551	46.000	QUASIPEAK
5	*	832.087	19.297	10.825	30.122	-15.878	46.000	QUASIPEAK
6		960.021	19.962	12.249	32.211	-21.789	54.000	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 : 2014/12/29 - 21:45**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	**Power : DC 5V (Power by PC)**
EUT : SkyCaddie	**Note : Mode 3: Transmit (Power by PC)_2440MHz**

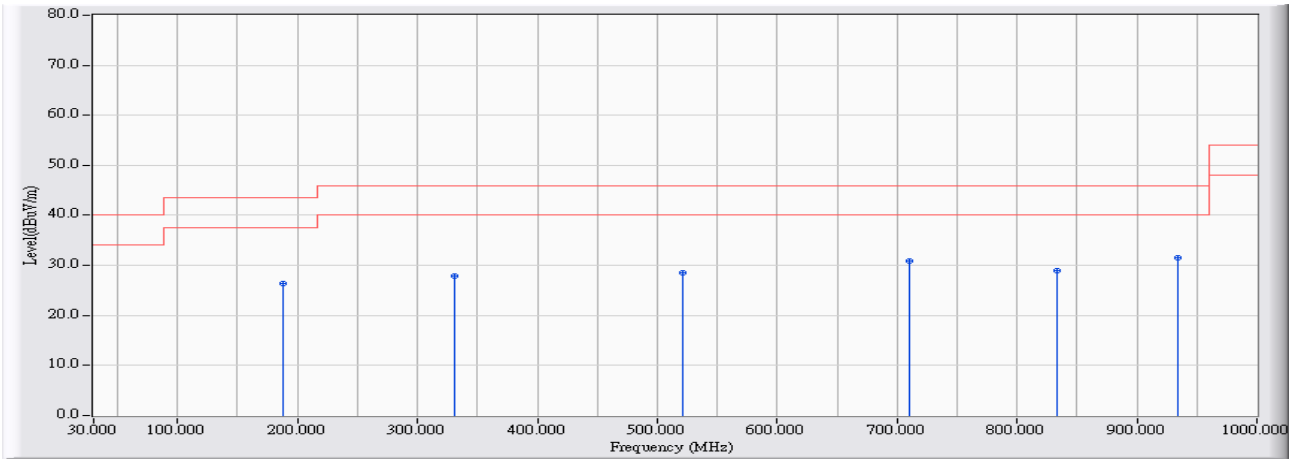


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		119.954	10.802	14.248	25.050	-18.450	43.500	QUASIPEAK
2		246.888	11.652	20.459	32.111	-13.889	46.000	QUASIPEAK
3		316.352	13.145	18.438	31.583	-14.417	46.000	QUASIPEAK
4		449.784	16.164	10.729	26.893	-19.107	46.000	QUASIPEAK
5		822.092	19.271	10.299	29.570	-16.430	46.000	QUASIPEAK
6	*	959.521	19.958	13.669	33.627	-12.373	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 : 2014/12/29 - 21:50**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	**Power : DC 5V (Power by PC)**
EUT : SkyCaddie	**Note : Mode 3: Transmit (Power by PC)_2440MHz**



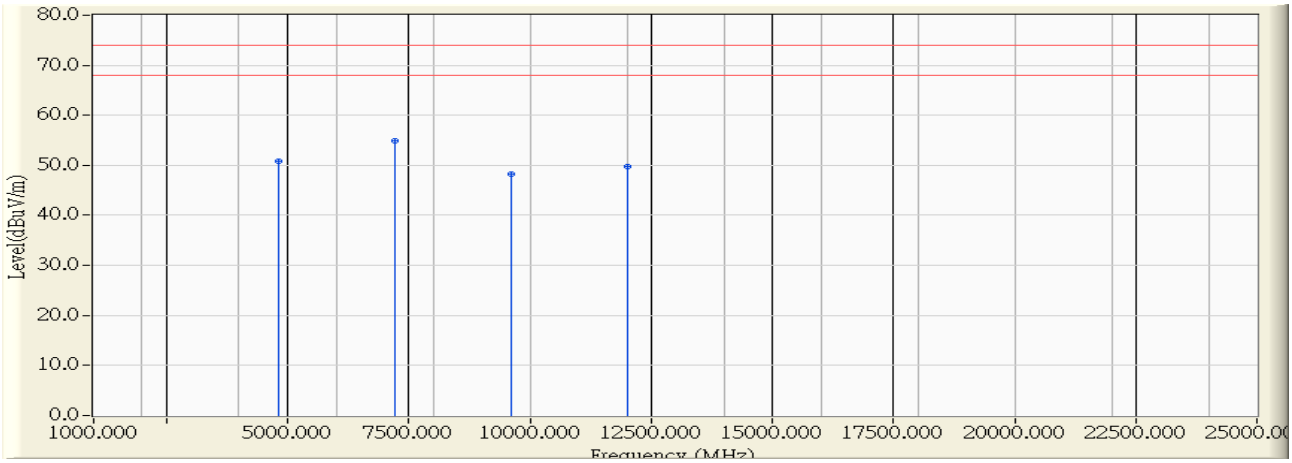
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		188.418	8.220	18.239	26.459	-17.041	43.500	QUASIPEAK
2		330.345	13.481	14.431	27.912	-18.088	46.000	QUASIPEAK
3		521.247	17.246	11.296	28.543	-17.457	46.000	QUASIPEAK
4		710.649	18.122	12.834	30.956	-15.044	46.000	QUASIPEAK
5		833.586	19.301	9.633	28.934	-17.066	46.000	QUASIPEAK
6	*	934.034	19.750	11.853	31.603	-14.397	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

Harmonic & Spurious:

Site : CB1	**Time : 2014/12/27 - 15:43**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2402MHz**

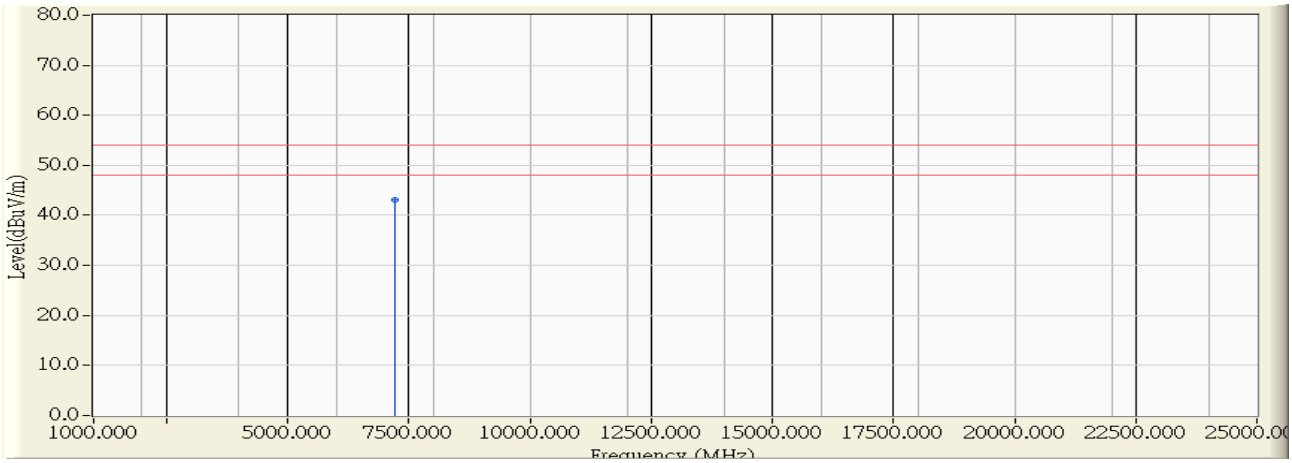


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4803.760	-0.582	51.350	50.767	-23.233	74.000	PEAK
2	*	7206.820	5.456	49.370	54.826	-19.174	74.000	PEAK
3		9606.220	9.175	39.040	48.215	-25.785	74.000	PEAK
4		12018.090	11.119	38.540	49.659	-24.341	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	**Time : 2014/12/27 - 15:43**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2402MHz-**

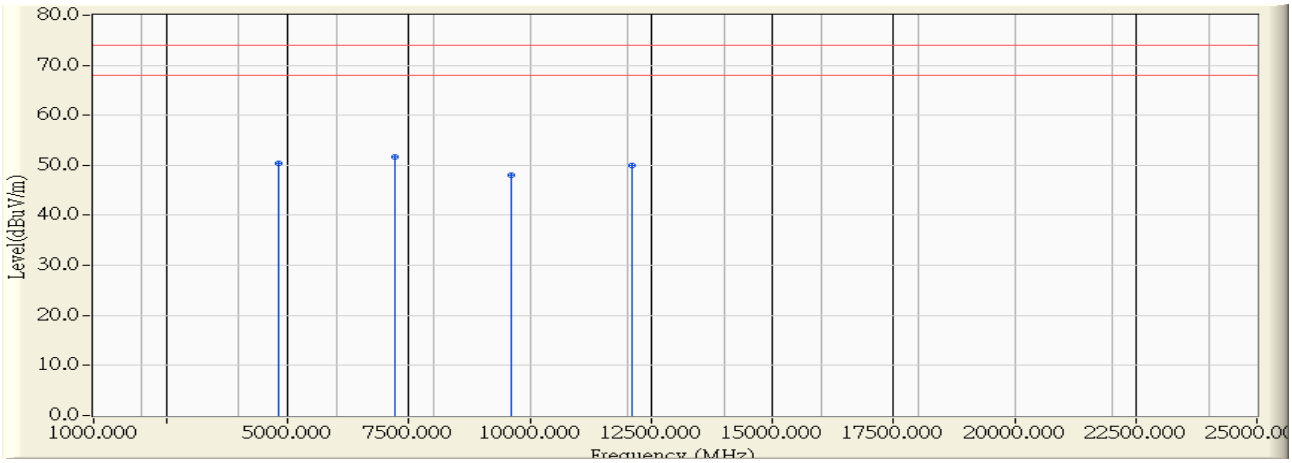


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	7205.990	5.454	37.580	43.034	-10.966	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	**Time : 2014/12/27 - 16:04**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2402MHz-**

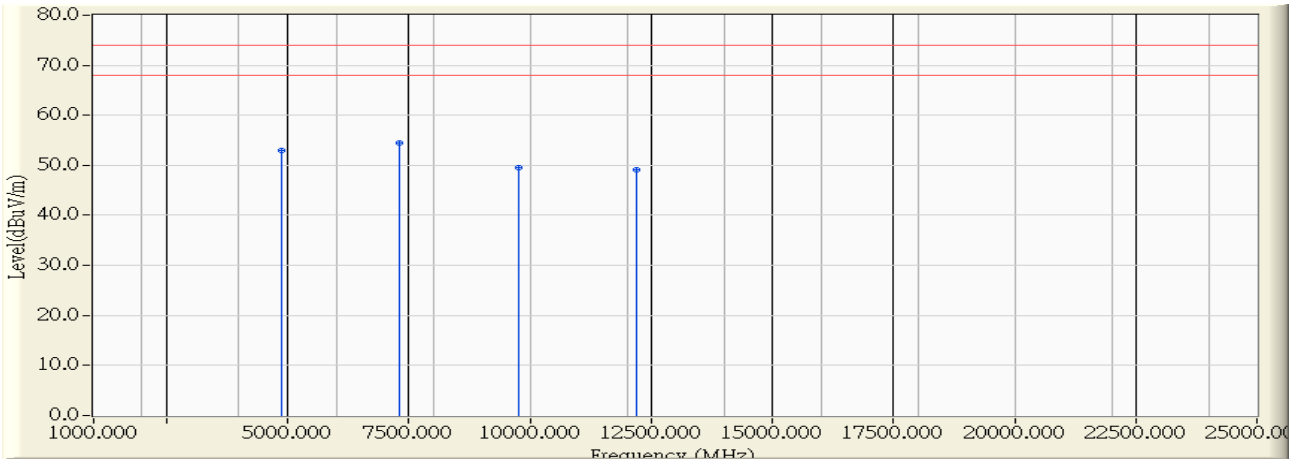


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4804.210	-0.581	50.930	50.348	-3.652	54.000	PEAK
2		7206.590	5.455	46.330	51.785	-22.215	74.000	PEAK
3		9604.690	9.165	38.780	47.946	-26.054	74.000	PEAK
4		12117.300	11.074	38.960	50.034	-23.966	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	**Time : 2014/12/27 - 16:14**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2440MHz-**

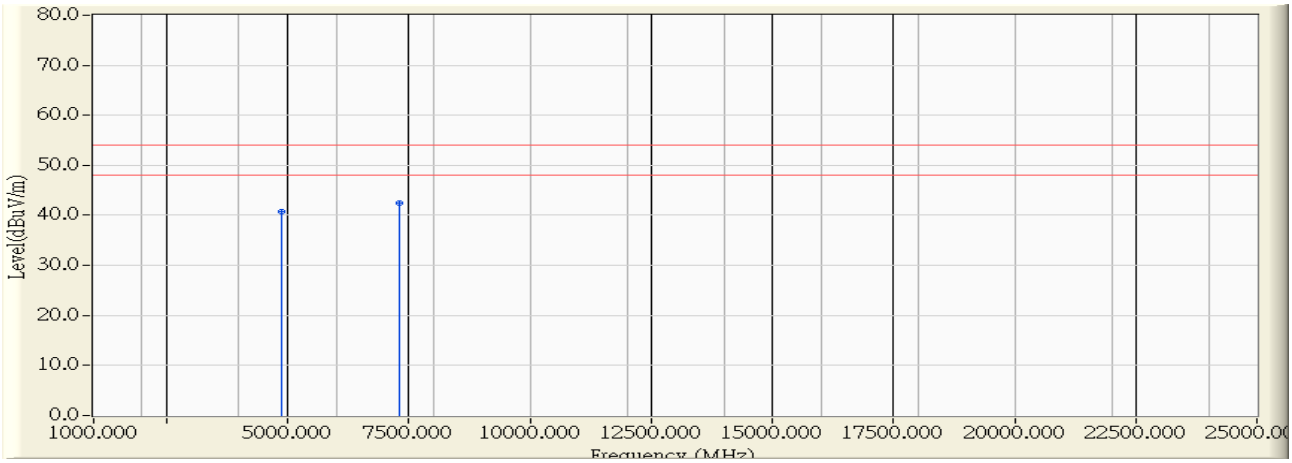


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4879.480	-0.398	53.340	52.942	-21.058	74.000	PEAK
2	*	7319.240	5.698	48.840	54.539	-19.461	74.000	PEAK
3		9754.070	10.132	39.380	49.513	-24.487	74.000	PEAK
4		12209.690	11.032	37.990	49.022	-24.978	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	**Time : 2014/12/27 - 16:14**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2440MHz-**

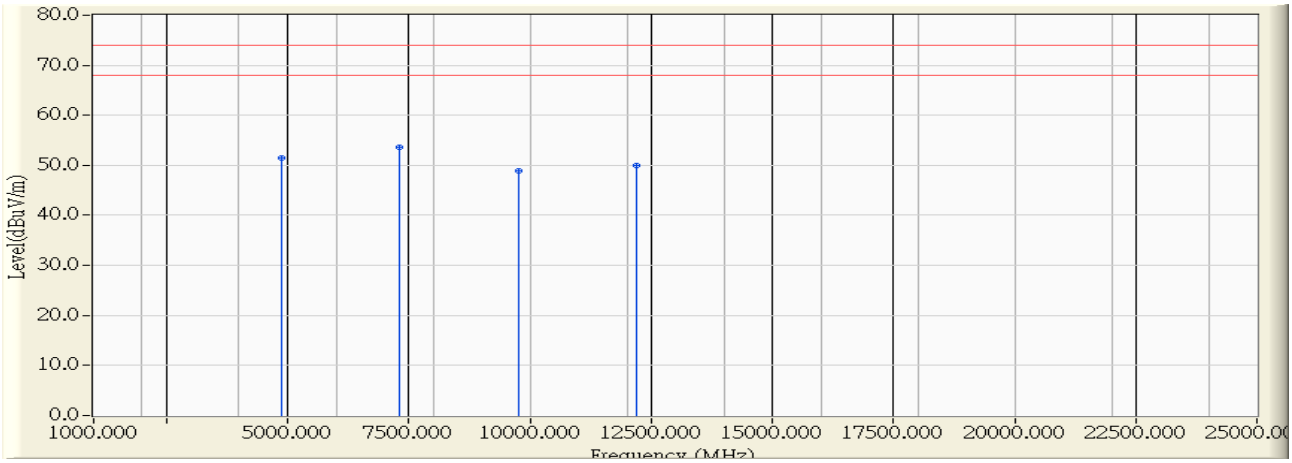


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4879.960	-0.397	41.050	40.653	-13.347	54.000	AVERAGE
2	*	7319.850	5.700	36.850	42.550	-11.450	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	**Time : 2014/12/27 - 16:27**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2440MHz-**

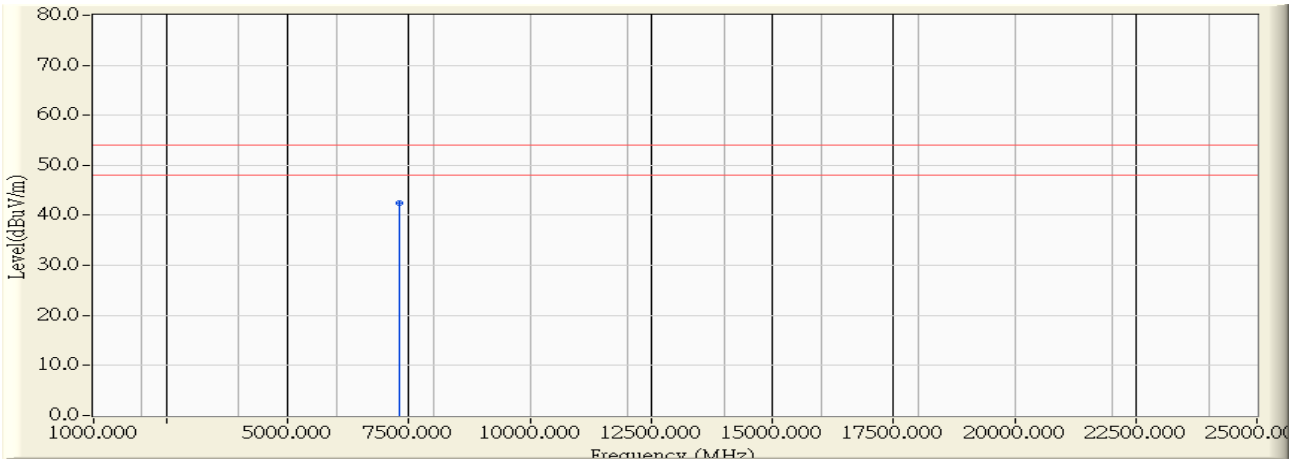


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4880.450	-0.396	51.920	51.524	-22.476	74.000	PEAK
2	*	7319.930	5.700	48.010	53.710	-20.290	74.000	PEAK
3		9757.060	10.151	38.670	48.822	-25.178	74.000	PEAK
4		12206.460	11.032	38.980	50.013	-23.987	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	**Time : 2014/12/27 - 16:28**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2440MHz-**

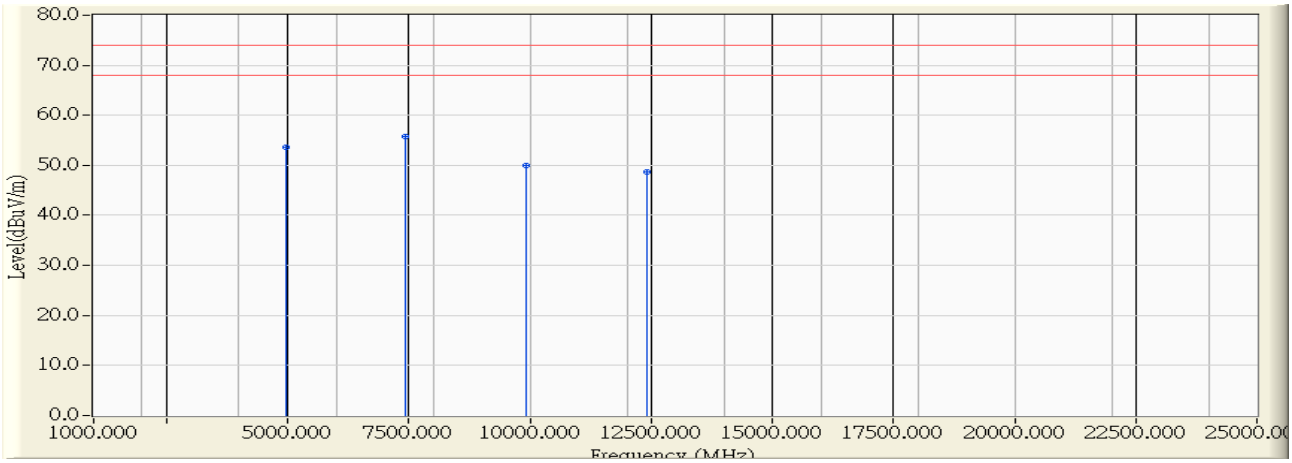


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	7319.930	5.700	36.740	42.440	-11.560	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	**Time : 2014/12/27 - 16:45**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2480MHz-**

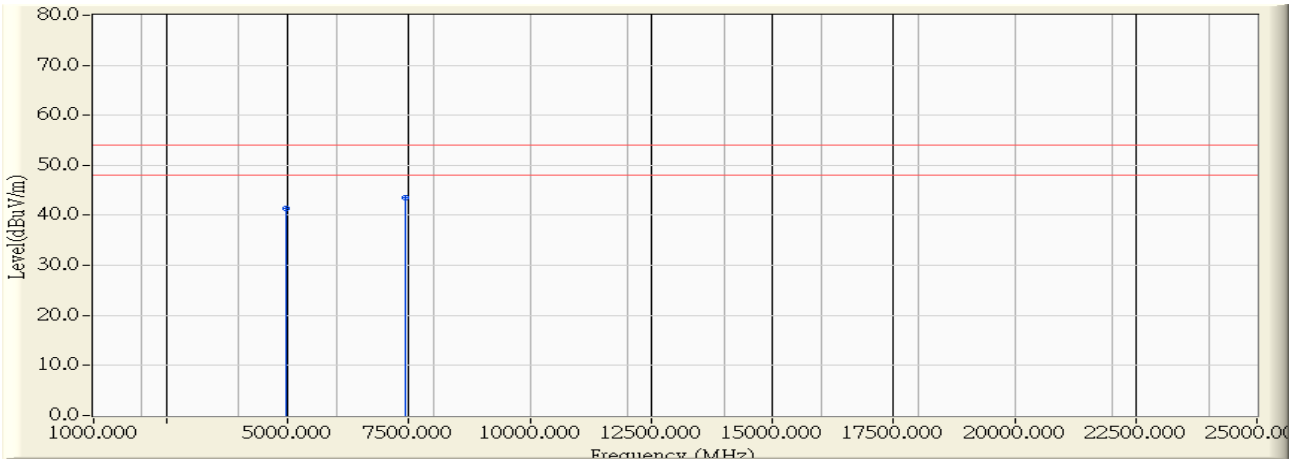


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4959.440	-0.203	53.790	53.587	-20.413	74.000	PEAK
2	*	7439.150	5.958	49.800	55.758	-18.242	74.000	PEAK
3		9926.470	11.249	38.620	49.869	-24.131	74.000	PEAK
4		12400.510	10.945	37.660	48.604	-25.396	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	**Time : 2014/12/27 - 16:45**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2480MHz-**

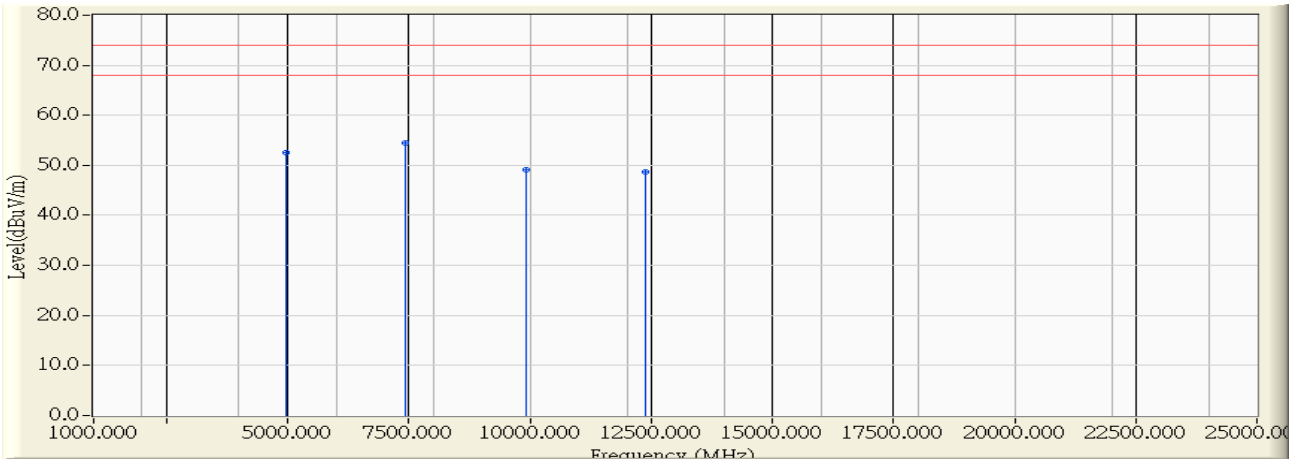


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.000	-0.202	41.600	41.398	-12.602	54.000	AVERAGE
2	*	7440.000	5.960	37.680	43.640	-10.360	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	**Time : 2014/12/27 - 16:58**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2480MHz-**

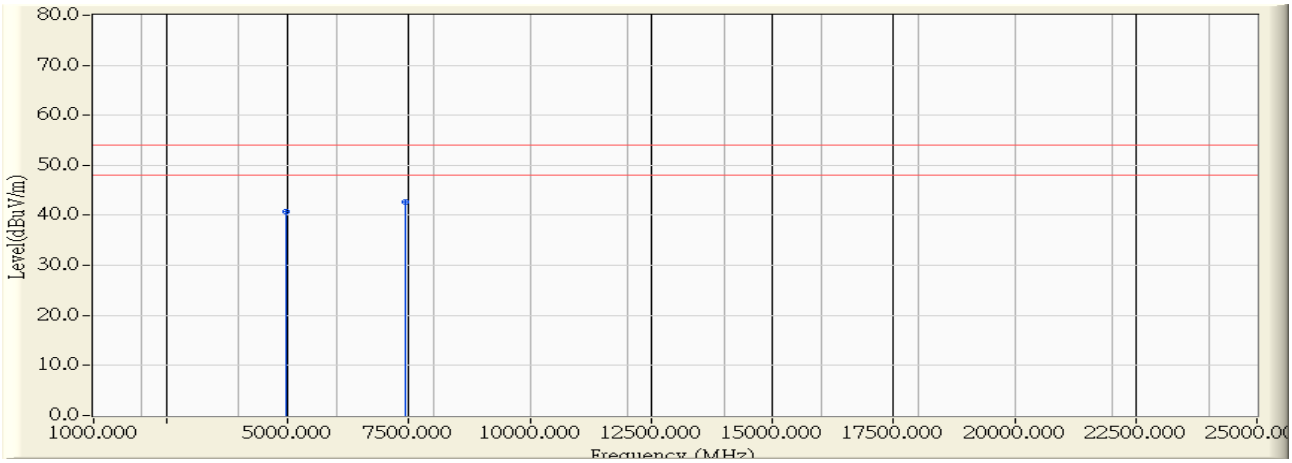


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4959.400	-0.203	52.710	52.507	-21.493	74.000	PEAK
2	*	7439.120	5.958	48.450	54.408	-19.592	74.000	PEAK
3		9928.360	11.261	37.890	49.151	-24.849	74.000	PEAK
4		12398.200	10.946	37.730	48.676	-25.324	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	**Time : 2014/12/27 - 16:59**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2480MHz-**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.000	-0.202	40.880	40.678	-13.322	54.000	AVERAGE
2	*	7440.000	5.960	36.660	42.620	-11.380	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

5. RF antenna conducted test

5.1. Test Equipment

The following test equipment is used during the test:

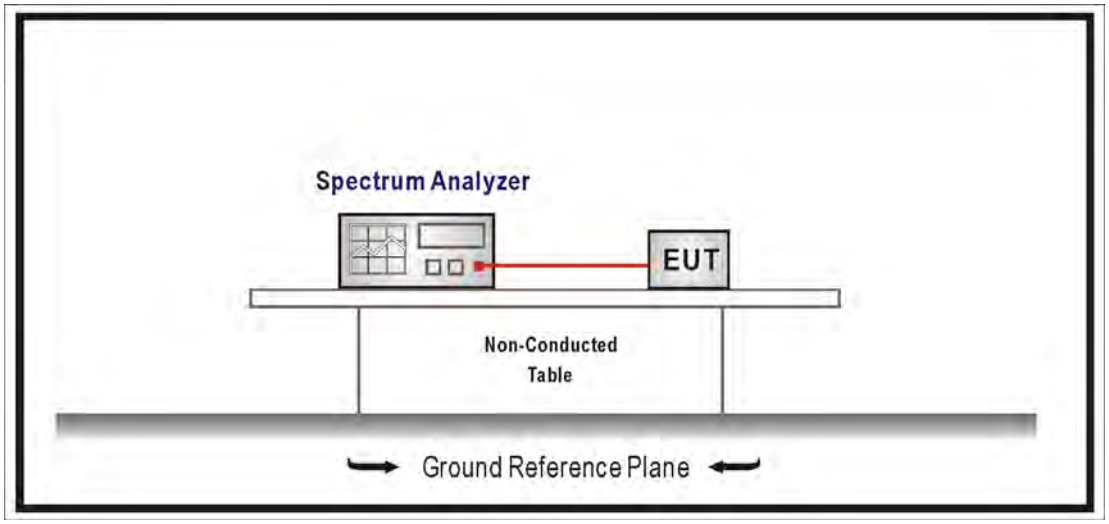
RF antenna conducted test / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2015/07/14

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

5.2. Test Setup

RF Conducted Measurement:



5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on an RF conducted or radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT was setup according to ANSI C63.10 and tested according to DTS test procedure of KDB558074 V03R02 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

5.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247

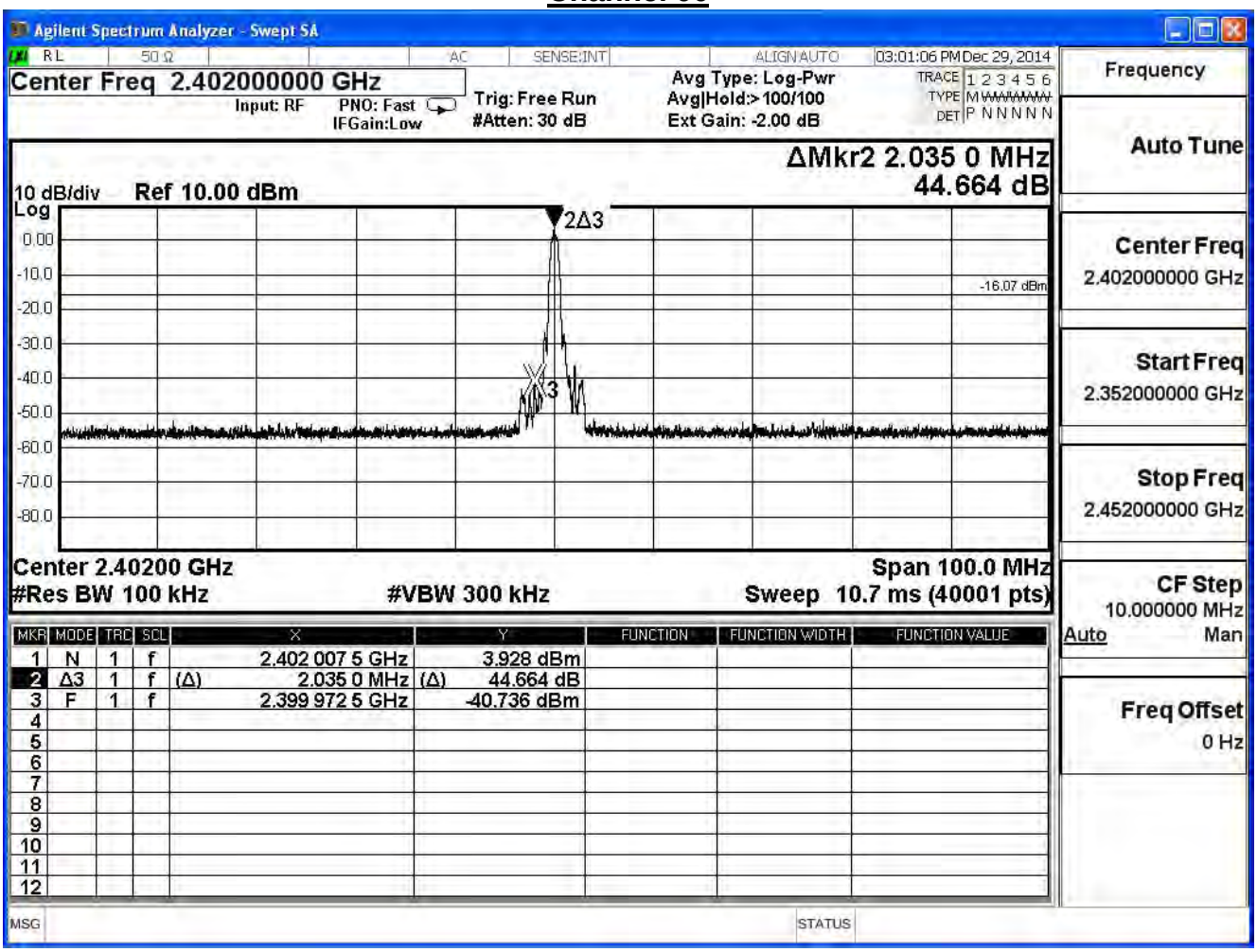
5.6. Test Result

Product	SkyCaddie		
Test Item	RF antenna conducted test		
Test Mode	Mode 2: Transmit (Power by Adapter)		
Date of Test	2014/12/29	Test Site	SR7

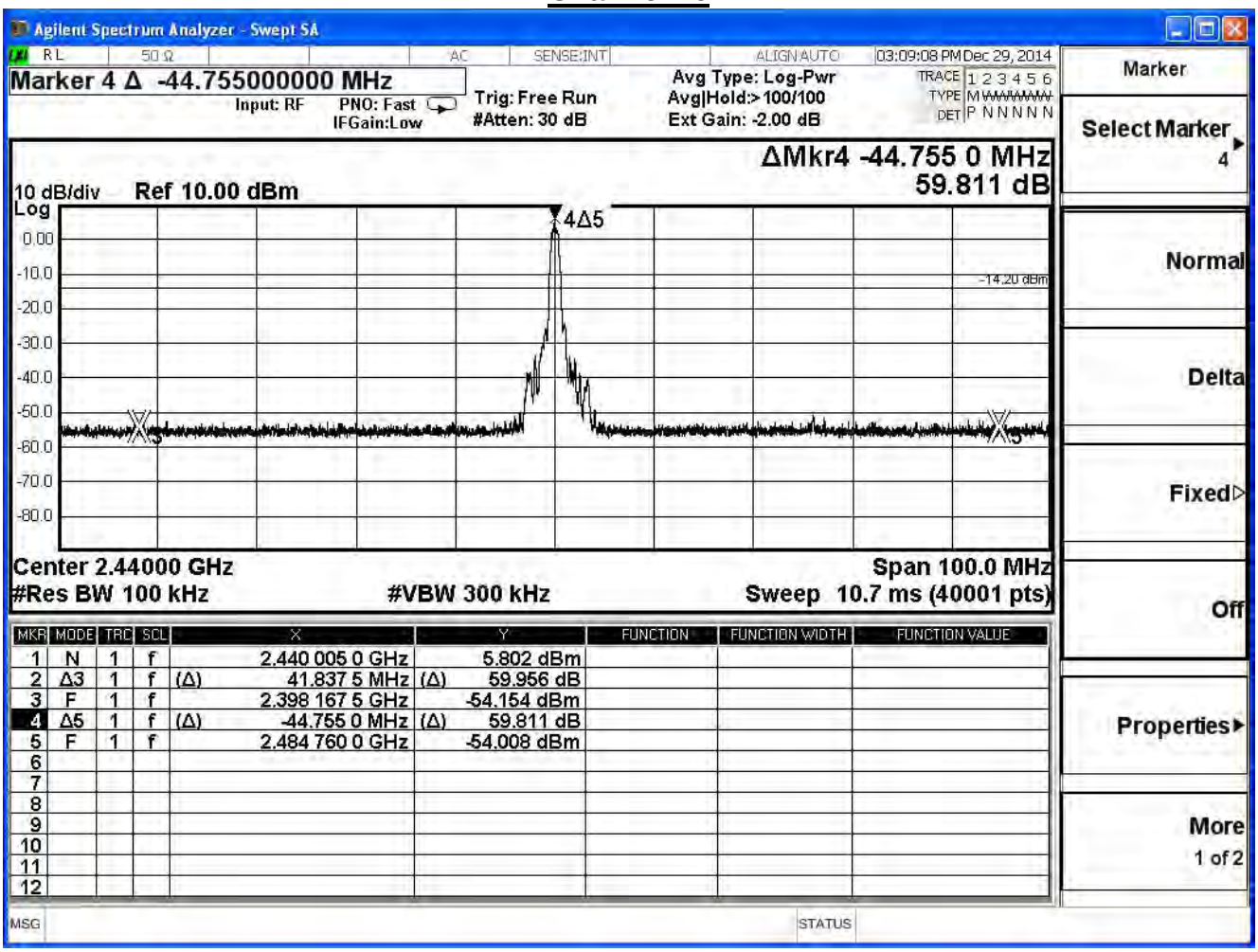
GFSK

Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dBc)	Result
00	2402	44.664	≧20	Pass
19	2440	59.811	≧20	Pass
39	2480	55.490	≧20	Pass

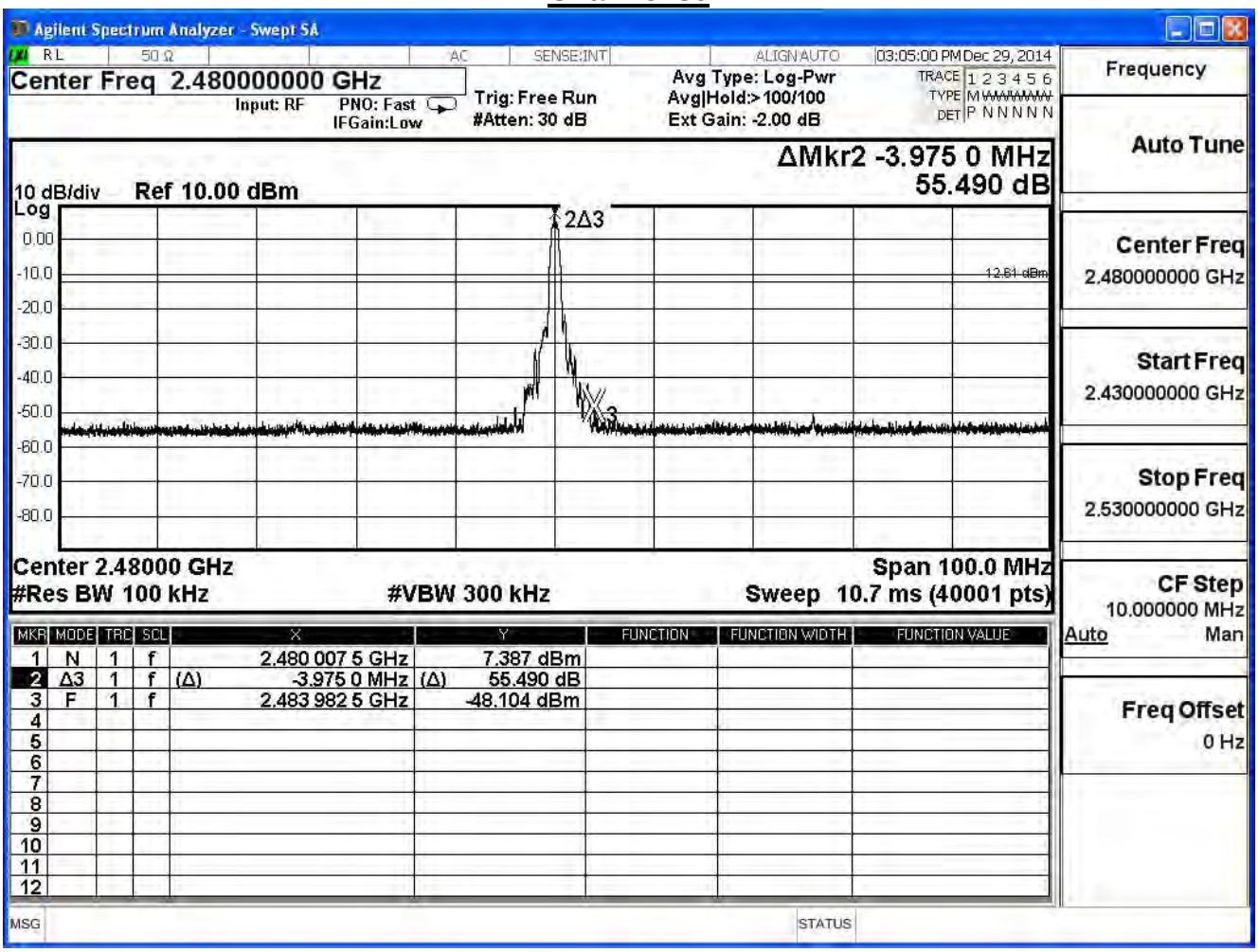
Channel 00



Channel 19

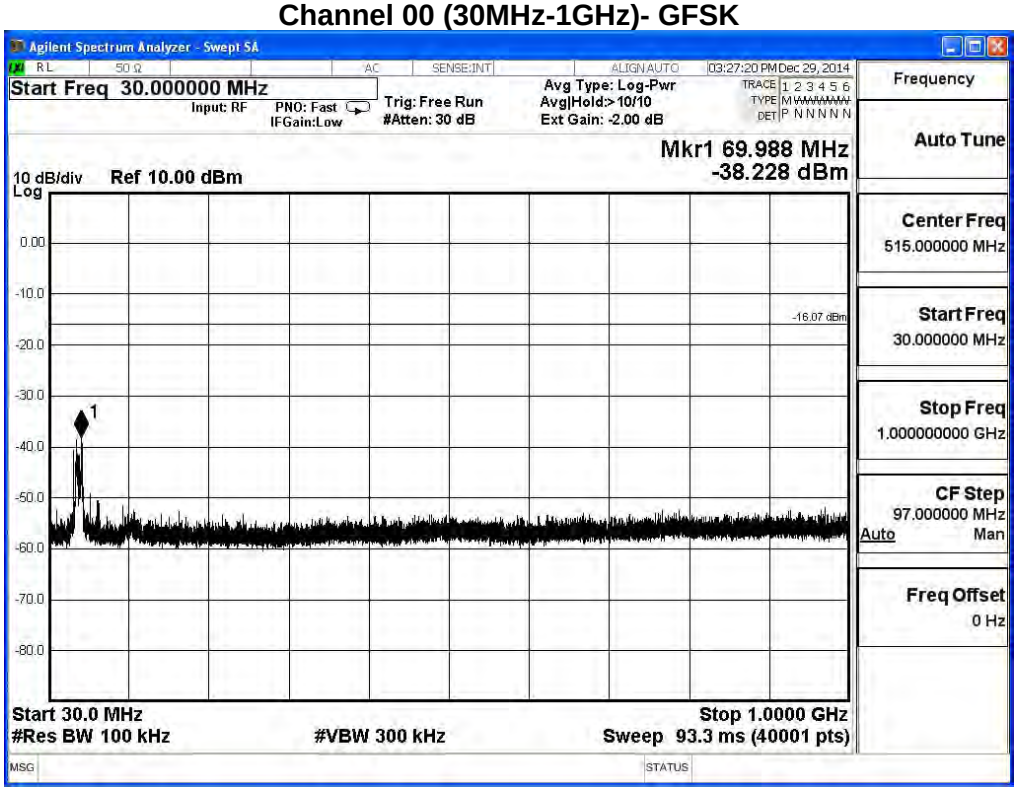

Agilent Spectrum Analyzer - Swept SA
Marker 4 Δ -44.755000000 MHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ext Gain: -2.00 dB
03:09:08 PM Dec 29, 2014
ΔMkr4 -44.755 0 MHz
59.811 dB
10 dB/div
Log
Ref 10.00 dBm
-14.20 dBm
Center 2.44000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 100.0 MHz
Sweep 10.7 ms (40001 pts)
1 N 1 f 2.440 005 0 GHz 5.802 dBm
2 Δ3 1 f (Δ) 41.837 5 MHz (Δ) 59.956 dB
3 F 1 f 2.398 167 5 GHz -54.154 dBm
4 Δ5 1 f (Δ) -44.755 0 MHz (Δ) 59.811 dB
5 F 1 f 2.484 760 0 GHz -54.008 dBm
Marker
Select Marker
Normal
Delta
Fixed
Off
Properties
More
1 of 2

Channel 39

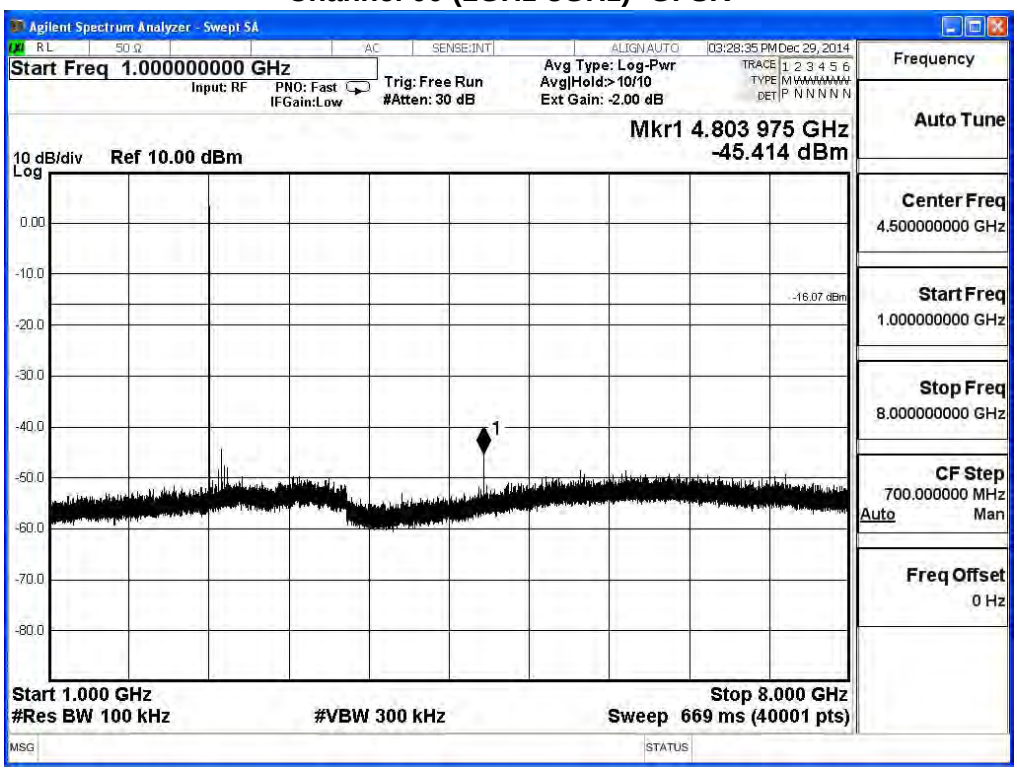

Agilent Spectrum Analyzer - Swept SA
RL
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:05:00 PM Dec 29, 2014
Center Freq 2.480000000 GHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ext Gain: -2.00 dB
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
ΔMkr2 -3.975 0 MHz
55.490 dB
10 dB/div
Log
Ref 10.00 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
2Δ3
12.61 dBm
Center 2.48000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 100.0 MHz
Sweep 10.7 ms (40001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 2.480 007 5 GHz 7.387 dBm
2 Δ3 1 f (Δ) -3.975 0 MHz (Δ) 55.490 dB
3 F 1 f 2.483 982 5 GHz -48.104 dBm
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.430000000 GHz
Stop Freq
2.530000000 GHz
CF Step
10.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

Product	SkyCaddie		
Test Item	RF antenna conducted test		
Test Mode	Mode 2: Transmit (Power by Adapter)		
Date of Test	2014/12/29	Test Site	SR7

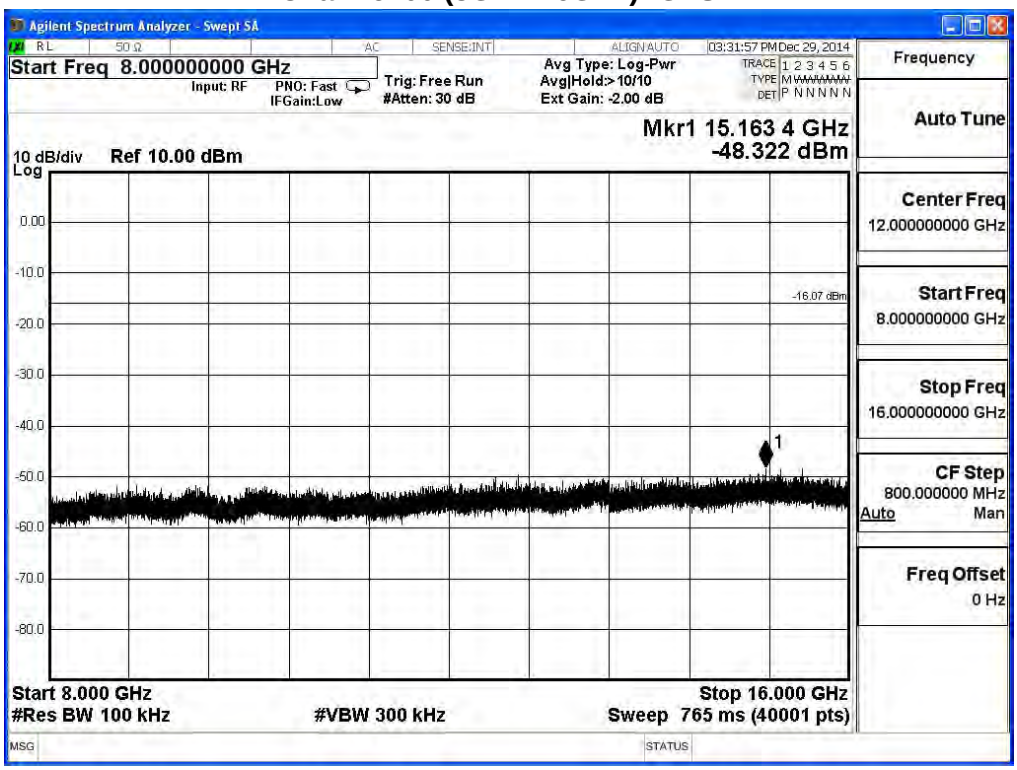
Channel 00 (30MHz-1GHz)- GFSK



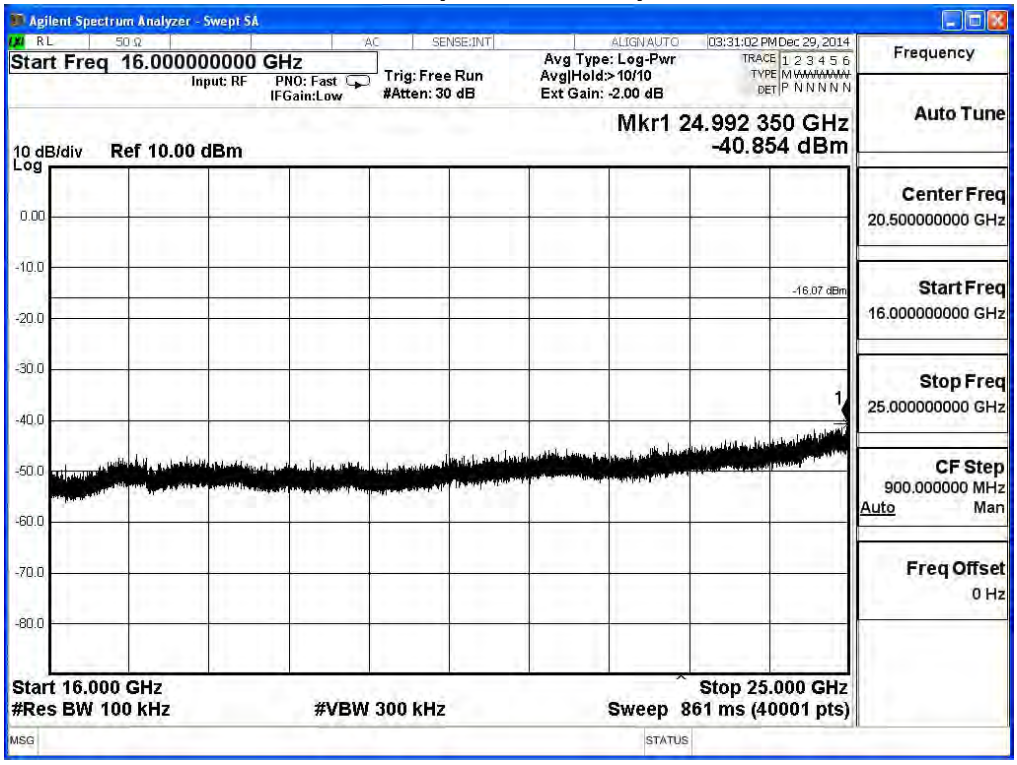
Channel 00 (1GHz-8GHz)- GFSK



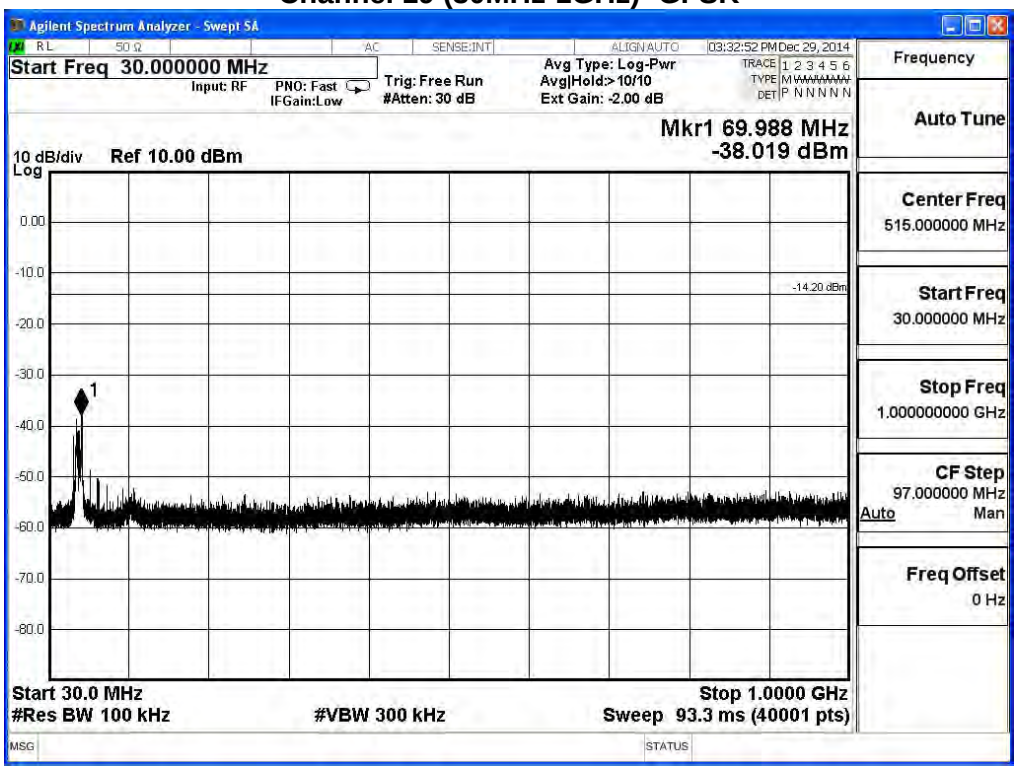
Channel 00 (8GHz-16GHz)- GFSK



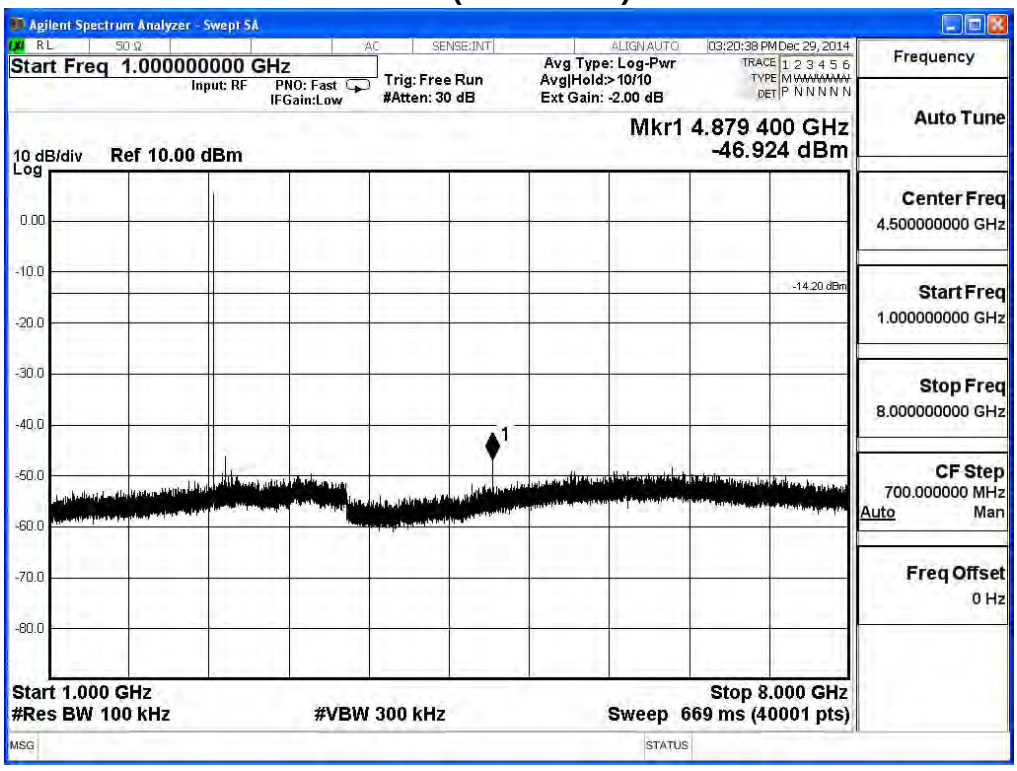
Channel 00 (16GHz-25GHz)- GFSK



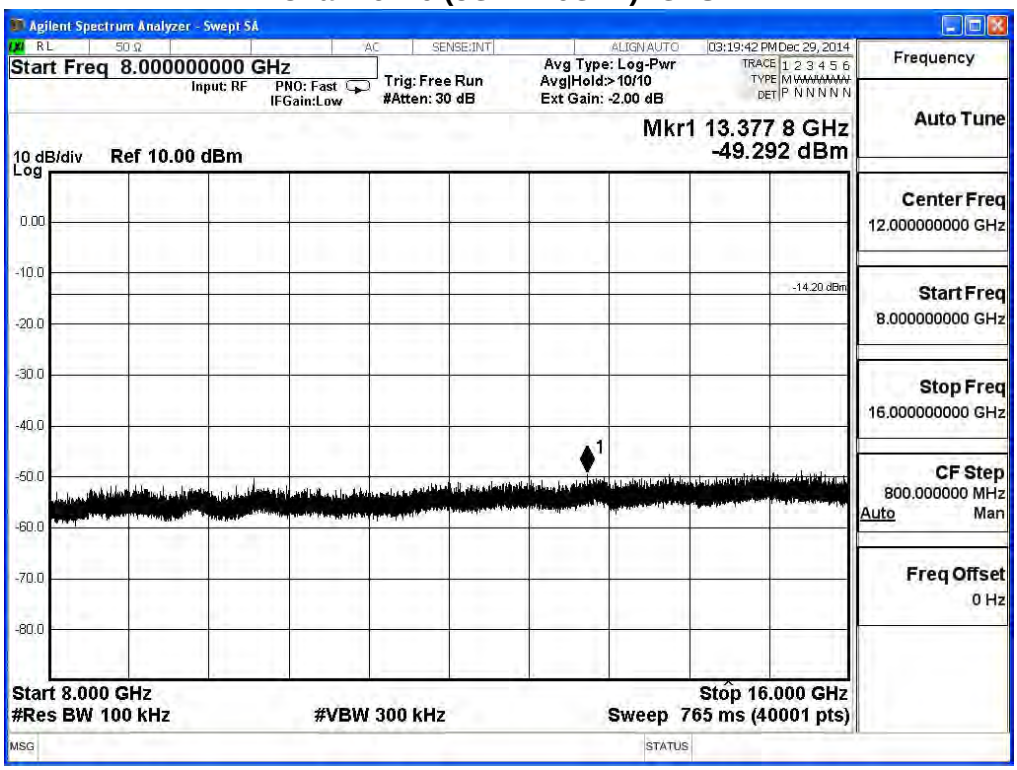
Channel 19 (30MHz-1GHz)- GFSK



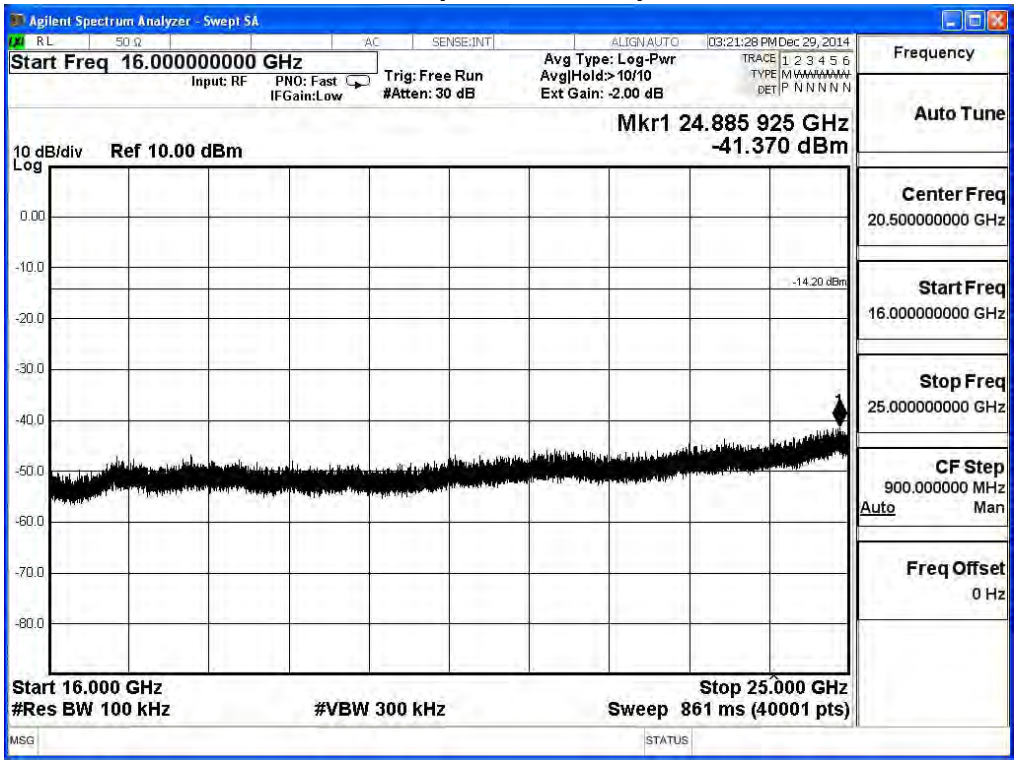
Channel 19 (1GHz-8GHz)- GFSK



Channel 19 (8GHz-16GHz)- GFSK

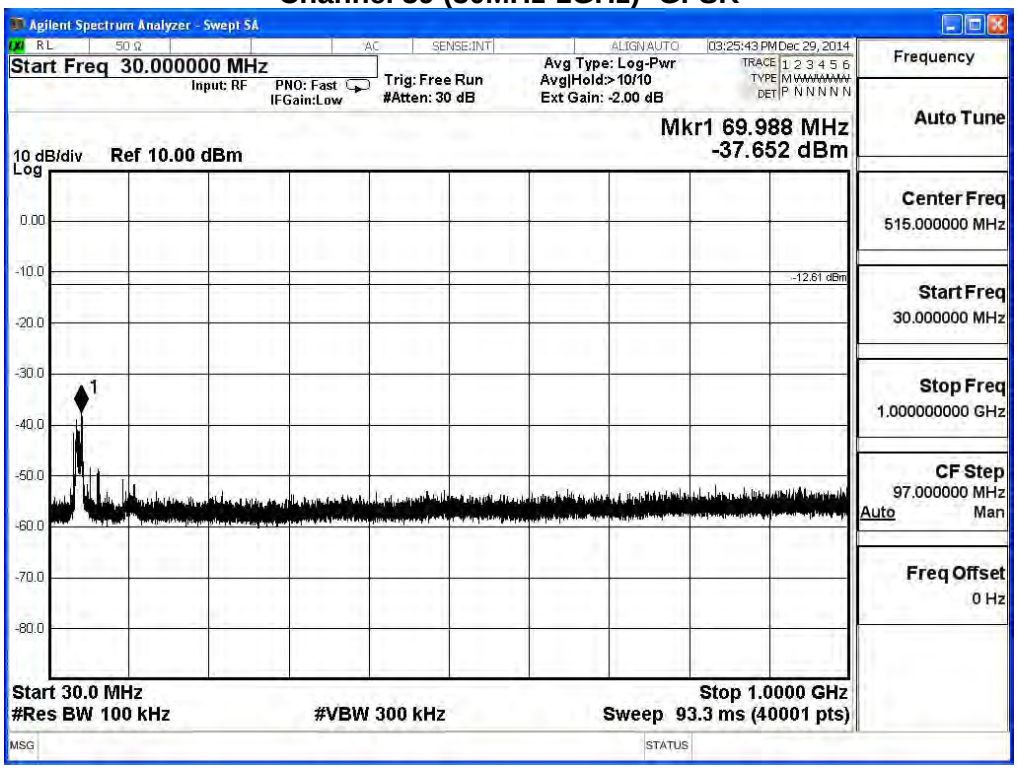


Channel 19 (16GHz-25GHz)- GFSK

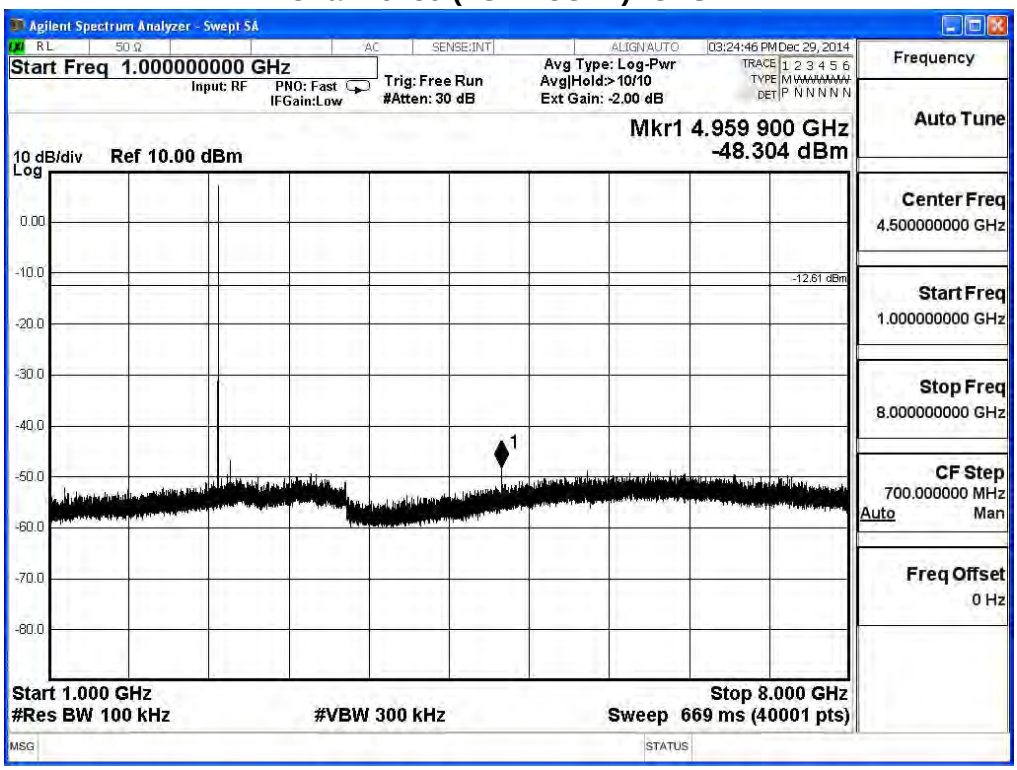


Product	SkyCaddie		
Test Item	RF antenna conducted test		
Test Mode	Mode 2: Transmit (Power by Adapter)		
Date of Test	2014/12/29	Test Site	SR7

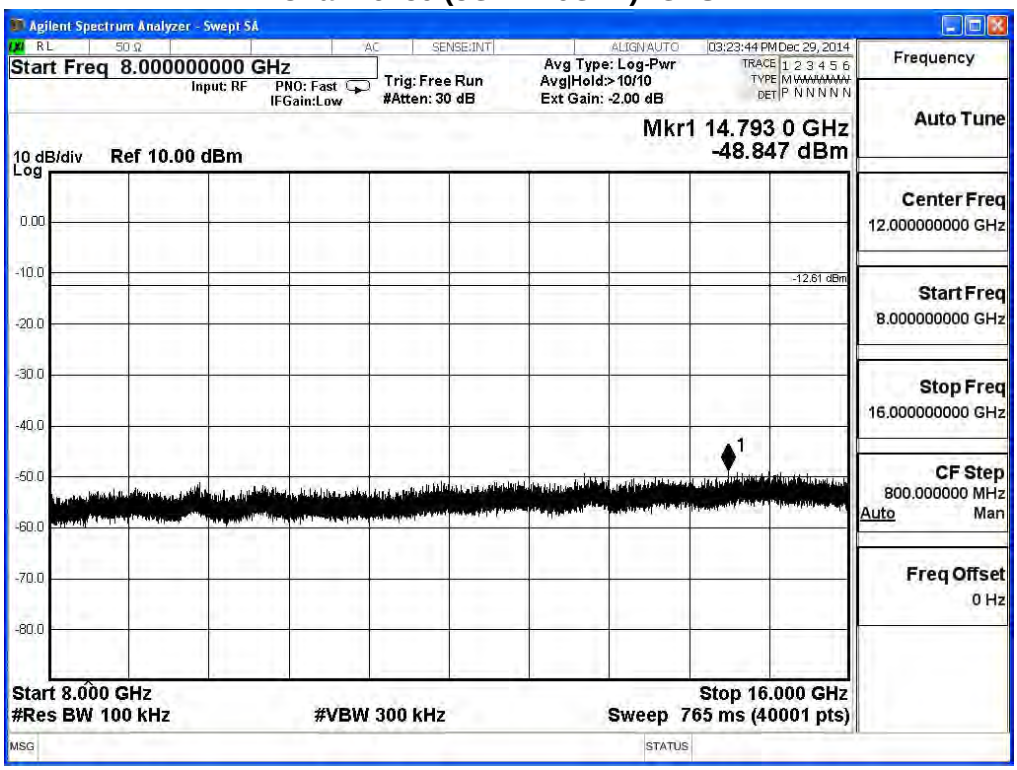
Channel 39 (30MHz-1GHz)- GFSK



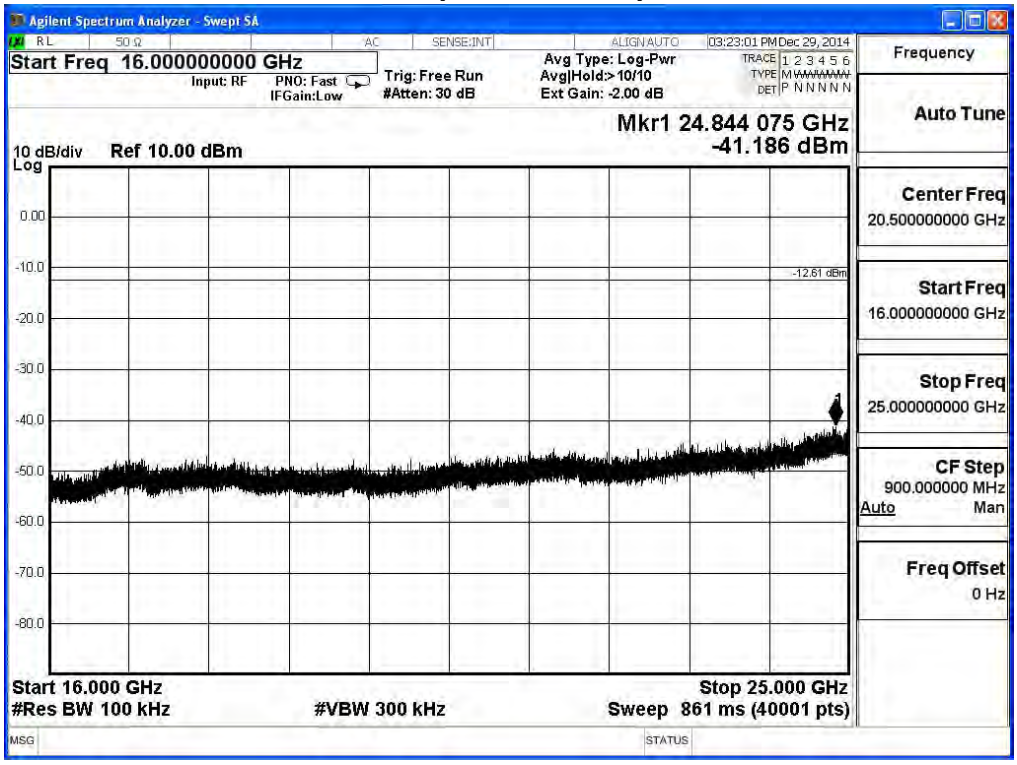
Channel 39 (1GHz-8GHz)- GFSK



Channel 39 (8GHz-16GHz)- GFSK



Channel 39 (16GHz-25GHz)- GFSK



6. Band Edge

6.1. Test Equipment

The following test equipments are used during the test:

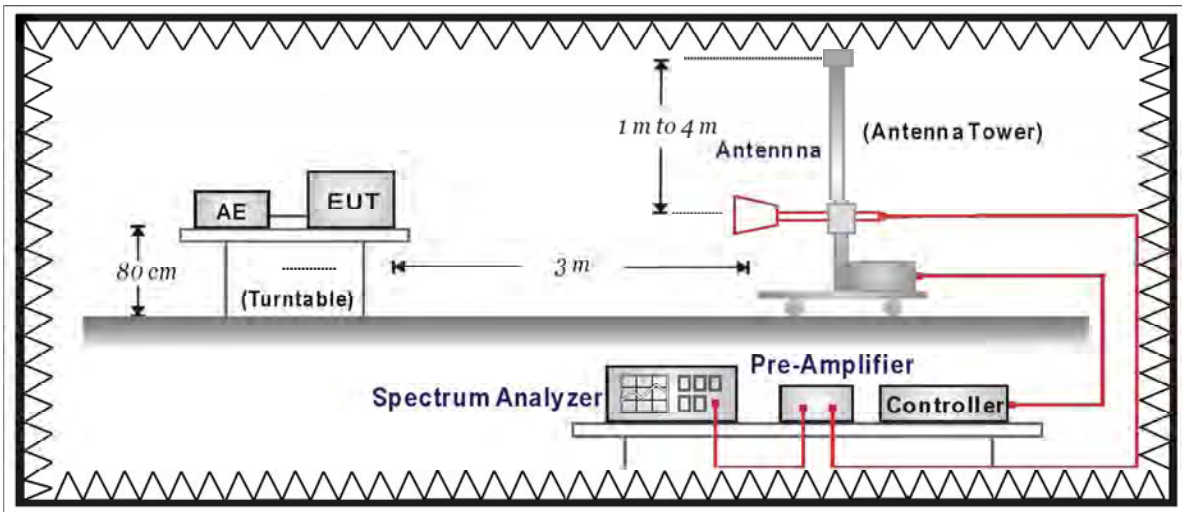
Band Edge / CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120	D743	2015/02/12
Spectrum Analyzer	Agilent	E4440A	MY46187335	2015/01/12
k Type Cable	Huber Suhner	Sucoflex 102	25623/2	2015/02/10

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

6.2. Test Setup

RF Radiated Measurement:



6.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

6.4. Test Procedure

The EUT was setup according to ANSI C63.10 and tested according to DTS test procedure of KDB558074 V03R02 for compliance to FCC 47CFR 15.247 requirements.

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

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

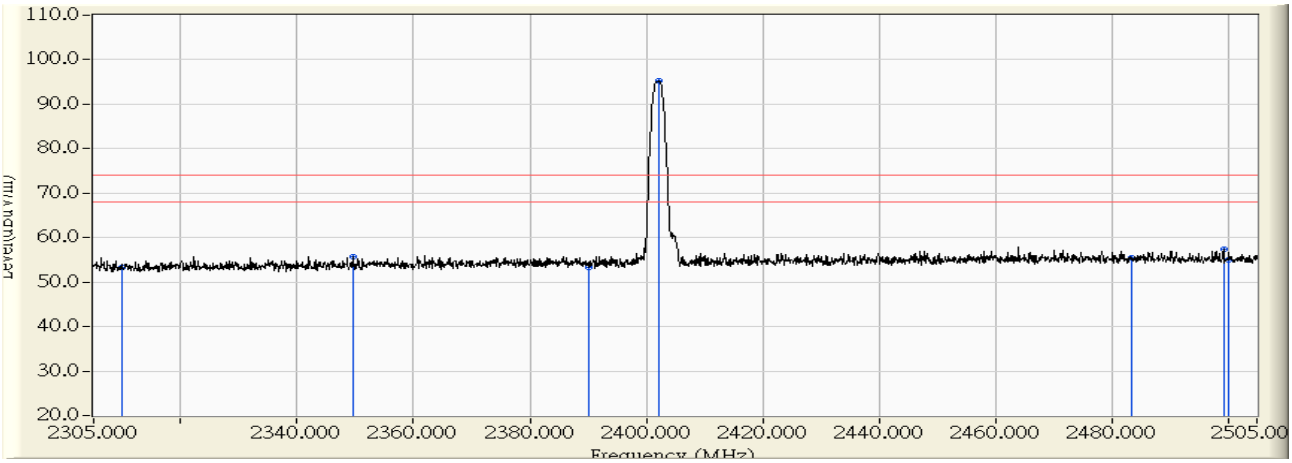
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10 on radiated measurement.

6.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247

6.6. Test Result

Site : CB1	**Time : 2014/12/26 - 17:16**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2402MHz**

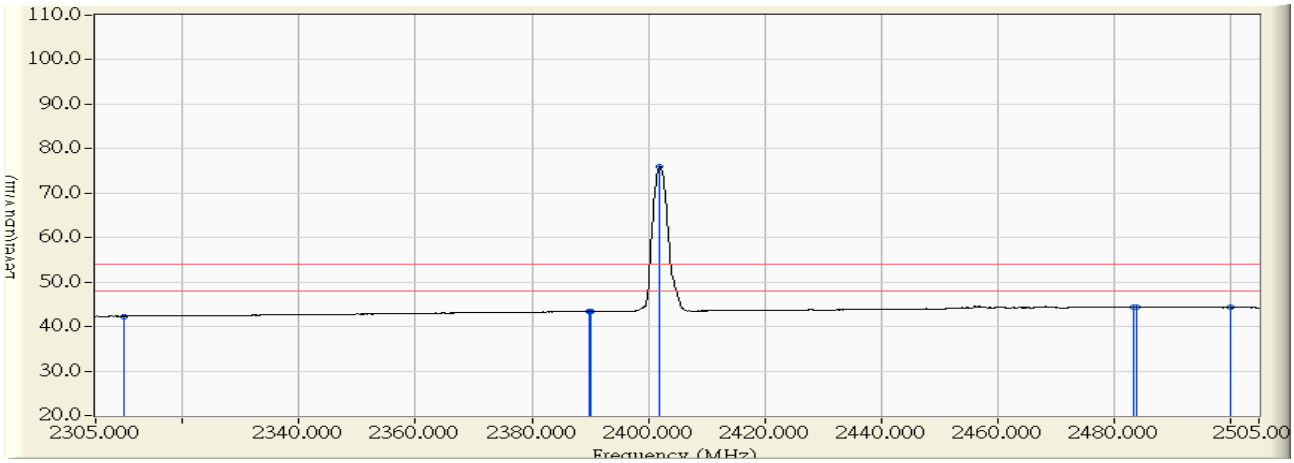


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	30.411	22.928	53.339	-20.661	74.000	PEAK
2		2349.500	30.821	24.772	55.593	-18.407	74.000	PEAK
3		2390.000	31.241	22.108	53.349	-20.651	74.000	PEAK
4	*	2402.300	31.369	63.907	95.275	21.275	74.000	PEAK
5		2483.500	31.980	23.399	55.378	-18.622	74.000	PEAK
6		2499.300	31.937	25.406	57.343	-16.657	74.000	PEAK
7		2500.000	31.934	23.088	55.023	-18.977	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB1	**Time : 2014/12/26 - 17:17**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2402MHz**

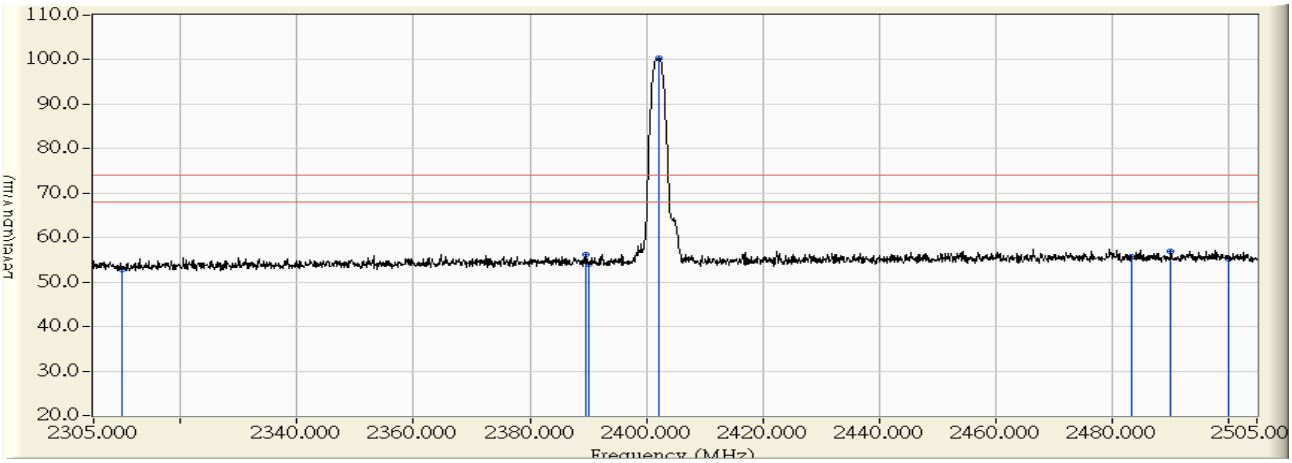


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	30.411	11.899	42.310	-11.690	54.000	AVERAGE
2		2389.800	31.239	12.127	43.366	-10.634	54.000	AVERAGE
3		2390.000	31.241	12.144	43.385	-10.615	54.000	AVERAGE
4	*	2402.000	31.365	44.554	75.919	21.919	54.000	AVERAGE
5		2483.500	31.980	12.337	44.316	-9.684	54.000	AVERAGE
6		2483.900	31.978	12.312	44.290	-9.710	54.000	AVERAGE
7		2500.000	31.934	12.336	44.271	-9.729	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB1	**Time : 2014/12/26 - 17:22**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2402MHz**

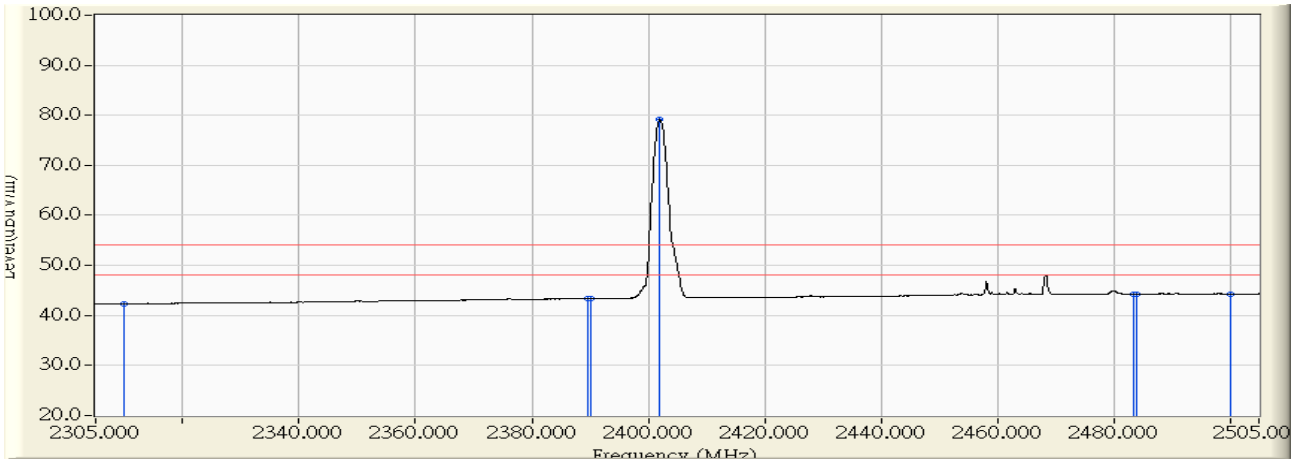


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	30.411	22.433	52.844	-21.156	74.000	PEAK
2		2389.700	31.238	25.035	56.273	-17.727	74.000	PEAK
3		2390.000	31.241	22.857	54.098	-19.902	74.000	PEAK
4	*	2402.200	31.367	68.881	100.248	26.248	74.000	PEAK
5		2483.500	31.980	23.719	55.698	-18.302	74.000	PEAK
6		2490.200	31.962	25.050	57.011	-16.989	74.000	PEAK
7		2500.000	31.934	23.238	55.173	-18.827	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB1	**Time : 2014/12/26 - 17:24**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2402MHz**

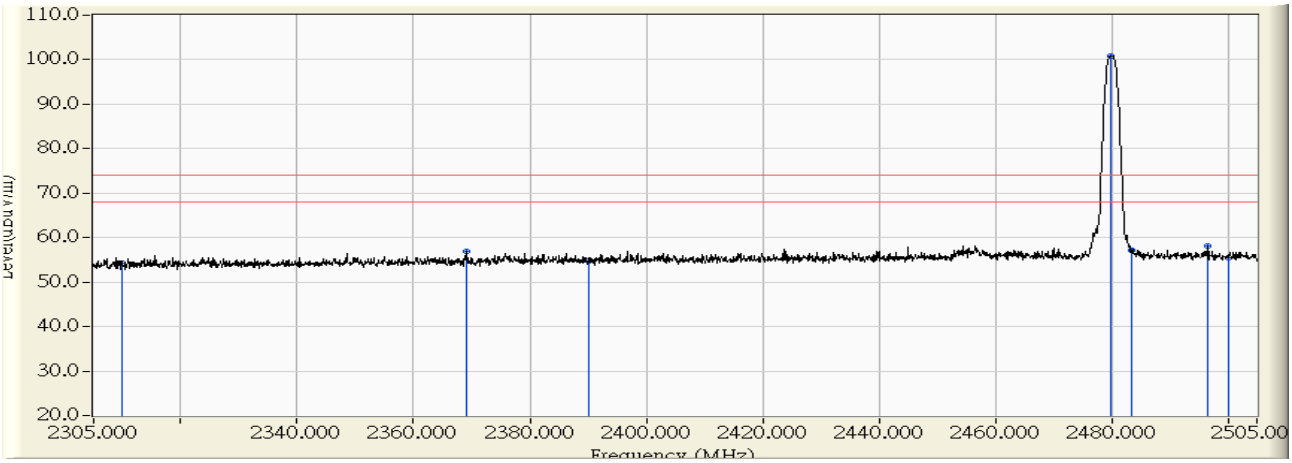


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	30.411	11.900	42.311	-11.689	54.000	AVERAGE
2		2389.500	31.236	12.122	43.358	-10.642	54.000	AVERAGE
3		2390.000	31.241	12.125	43.366	-10.634	54.000	AVERAGE
4	*	2402.000	31.365	47.730	79.095	25.095	54.000	AVERAGE
5		2483.500	31.979	12.319	44.298	-9.702	54.000	AVERAGE
6		2483.900	31.978	12.307	44.285	-9.715	54.000	AVERAGE
7		2500.000	31.934	12.310	44.245	-9.755	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB1	**Time : 2014/12/26 - 17:27**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_GFSK-2480MHz**

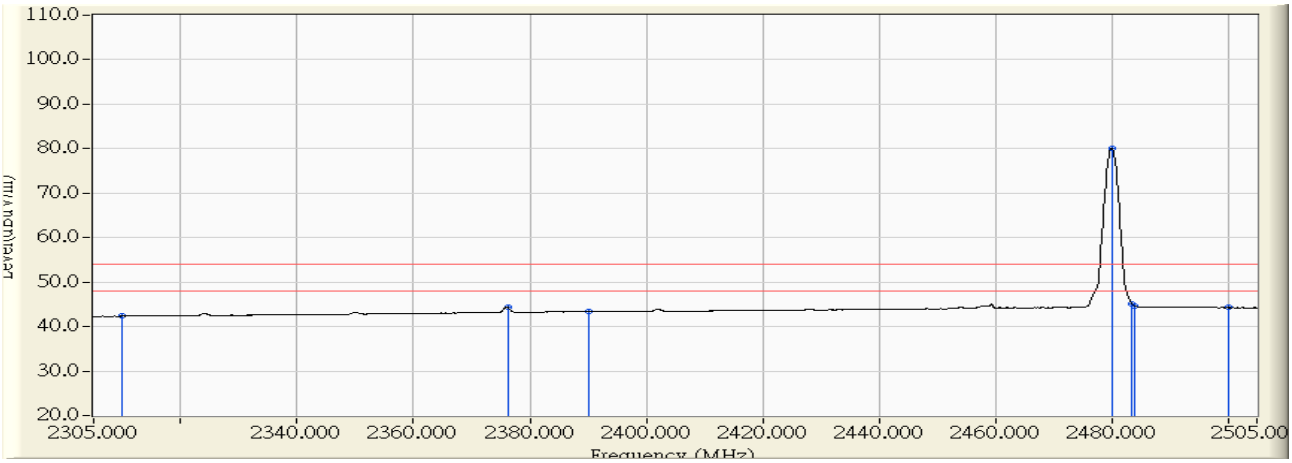


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	30.411	23.865	54.276	-19.724	74.000	PEAK
2		2369.000	31.024	25.974	56.997	-17.003	74.000	PEAK
3		2390.000	31.241	23.399	54.640	-19.360	74.000	PEAK
4	*	2479.800	31.989	68.835	100.825	26.825	74.000	PEAK
5		2483.500	31.980	25.154	57.133	-16.867	74.000	PEAK
6		2496.600	31.944	26.175	58.119	-15.881	74.000	PEAK
7		2500.000	31.934	23.610	55.545	-18.455	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB1	**Time : 2014/12/26 - 17:28**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_GFSK-2480MHz**

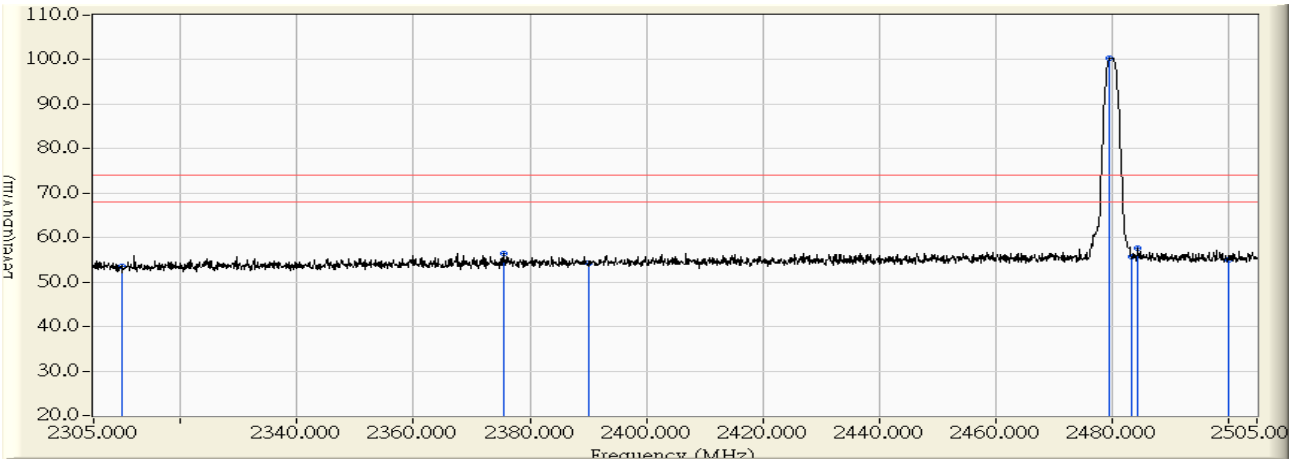


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	30.411	11.924	42.335	-11.665	54.000	AVERAGE
2		2376.200	31.098	13.275	44.373	-9.627	54.000	AVERAGE
3		2390.000	31.241	12.127	43.368	-10.632	54.000	AVERAGE
4	*	2480.000	31.989	48.058	80.047	26.047	54.000	AVERAGE
5		2483.500	31.980	13.158	45.137	-8.863	54.000	AVERAGE
6		2483.900	31.978	12.713	44.691	-9.309	54.000	AVERAGE
7		2500.000	31.934	12.339	44.274	-9.726	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB1	**Time : 2014/12/26 - 17:32**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2480MHz**

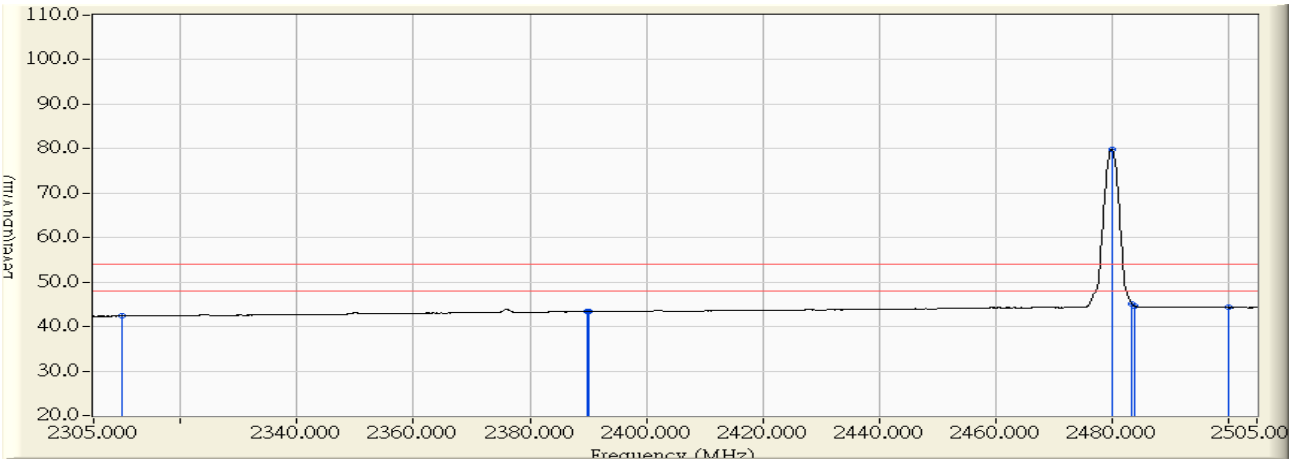


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	30.411	23.232	53.643	-20.357	74.000	PEAK
2		2375.600	31.091	25.255	56.347	-17.653	74.000	PEAK
3		2390.000	31.241	22.938	54.179	-19.821	74.000	PEAK
4	*	2479.700	31.989	68.475	100.465	26.465	74.000	PEAK
5		2483.500	31.980	23.622	55.601	-18.399	74.000	PEAK
6		2484.500	31.977	25.600	57.577	-16.423	74.000	PEAK
7		2500.000	31.934	23.028	54.963	-19.037	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB1	**Time : 2014/12/26 - 17:33**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : AC 120V / 60Hz**
EUT : SkyCaddie	**Note : Mode 2: Transmit (Power by Adapter)_ GFSK-2480MHz**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	30.411	11.919	42.330	-11.670	54.000	AVERAGE
2		2389.800	31.239	12.142	43.381	-10.619	54.000	AVERAGE
3		2390.000	31.241	12.171	43.412	-10.588	54.000	AVERAGE
4	*	2480.000	31.989	47.848	79.837	25.837	54.000	AVERAGE
5		2483.500	31.980	13.152	45.131	-8.869	54.000	AVERAGE
6		2483.900	31.978	12.673	44.651	-9.349	54.000	AVERAGE
7		2500.000	31.934	12.325	44.260	-9.740	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

7. Occupied Bandwidth

7.1. Test Equipment

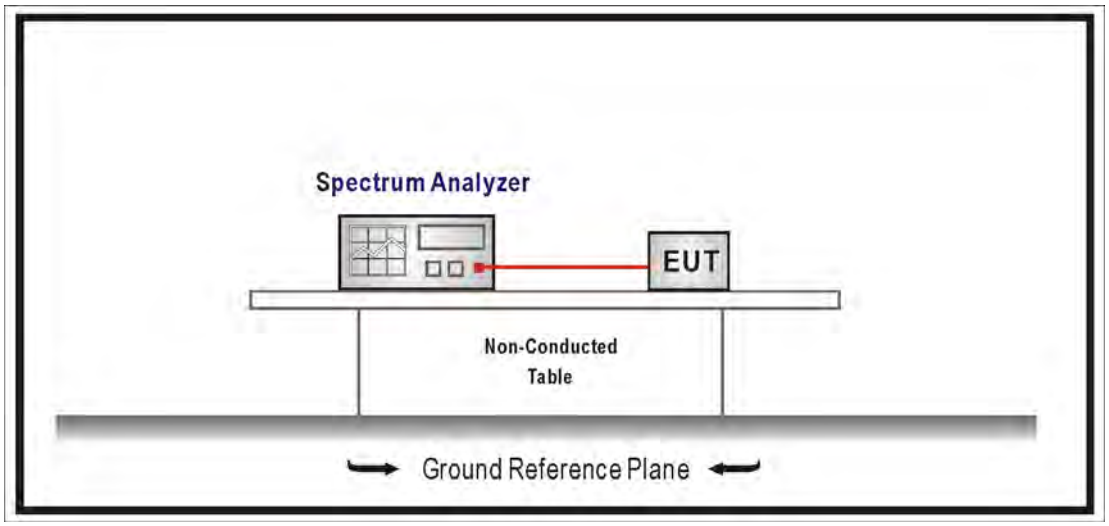
The following test equipment is used during the test:

Occupied Bandwidth / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2015/07/14

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

7.2. Test Setup



7.3. Limits

The 6 dB bandwidth must be greater than 500 kHz.

7.4. Test Procedures

The EUT was setup according to ANSI C63.10; tested according to DTS test procedure of KDB558074 V03R02 for compliance to FCC 47CFR 15.247 requirements.

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

7.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247

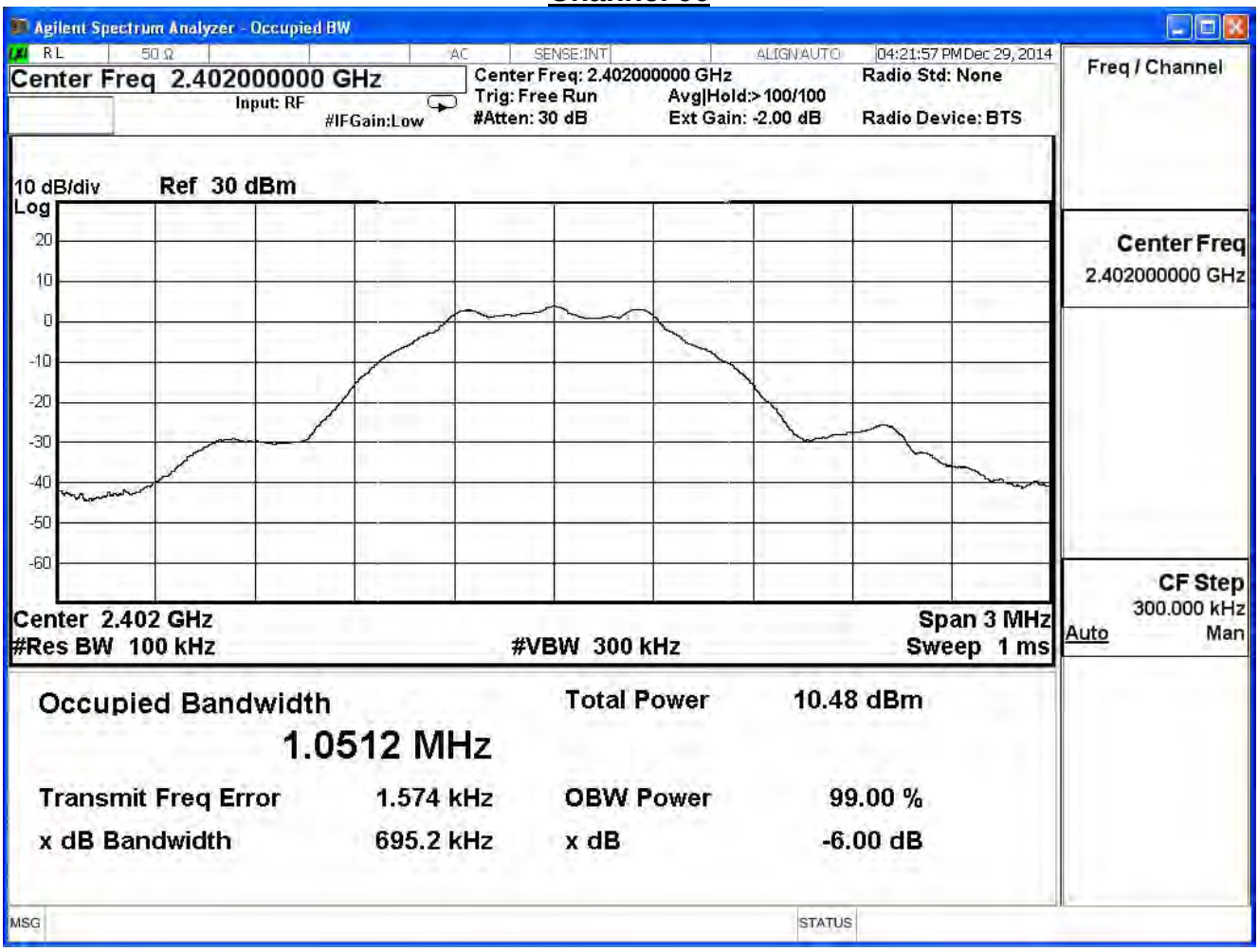
7.6. Test Result

Product	SkyCaddie		
Test Item	Occupied Bandwidth		
Test Mode	Mode 2: Transmit (Power by Adapter)		
Date of Test	2014/12/29	Test Site	SR7

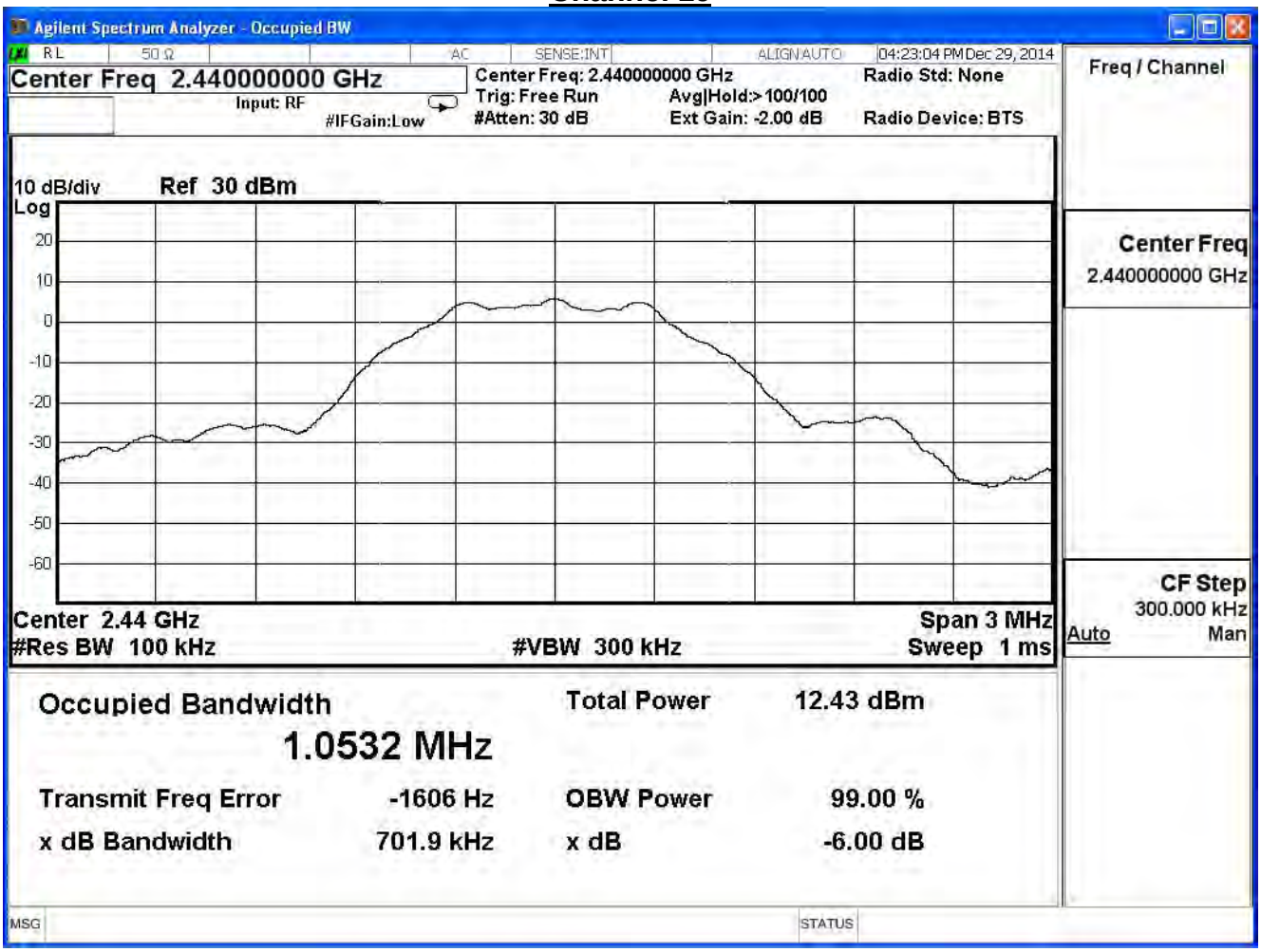
GFSK

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
00	2402	0.695	≧0.5	Pass
19	2440	0.701	≧0.5	Pass
39	2480	0.701	≧0.5	Pass

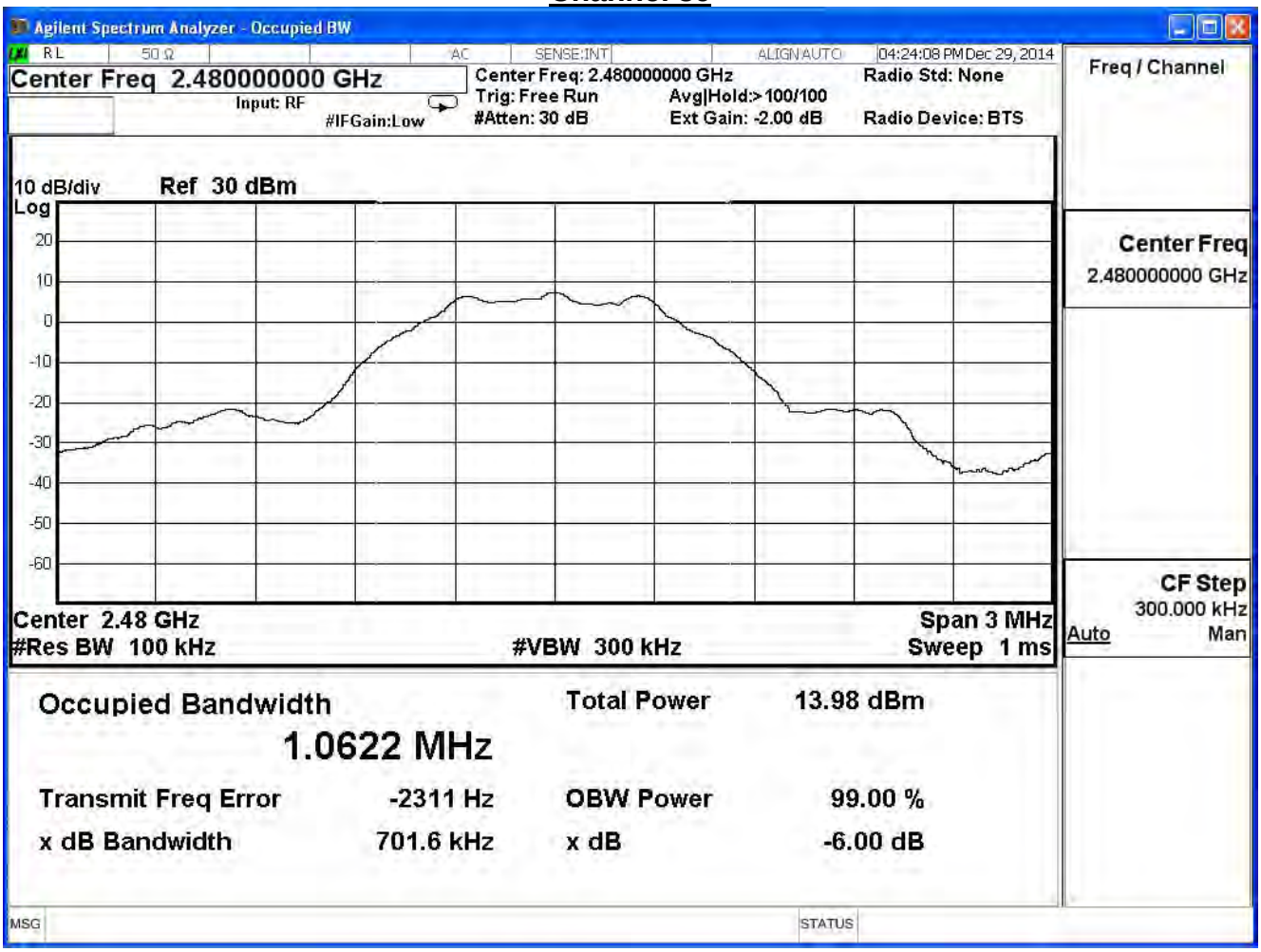
Channel 00



Channel 19


Agilent Spectrum Analyzer - Occupied BW
RL
50 Ω
AC
SENSE:INT
ALIGN AUTO
04:23:04 PM Dec 29, 2014
Center Freq 2.440000000 GHz
Input: RF
#IFGain:Low
Center Freq: 2.440000000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 30 dB
Ext Gain: -2.00 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 30 dBm
20
10
0
-10
-20
-30
-40
-50
-60
Center Freq
2.440000000 GHz
Center 2.44 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 3 MHz
Sweep 1 ms
CF Step
300.000 kHz
Auto
Man
Occupied Bandwidth
1.0532 MHz
Total Power
12.43 dBm
Transmit Freq Error
-1606 Hz
OBW Power
99.00 %
x dB Bandwidth
701.9 kHz
x dB
-6.00 dB
MSG
STATUS

Channel 39


Agilent Spectrum Analyzer - Occupied BW
RL
50 Ω
AC
SENSE:INT
ALIGN AUTO
04:24:08 PM Dec 29, 2014
Center Freq 2.480000000 GHz
Input: RF
#IFGain:Low
Center Freq: 2.480000000 GHz
Trig: Free Run
#Atten: 30 dB
Avg|Hold:>100/100
Ext Gain: -2.00 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 30 dBm
20
10
0
-10
-20
-30
-40
-50
-60
Center Freq
2.480000000 GHz
Center 2.48 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 3 MHz
Sweep 1 ms
CF Step
300.000 kHz
Auto
Man
Occupied Bandwidth
1.0622 MHz
Total Power
13.98 dBm
Transmit Freq Error
-2311 Hz
OBW Power
99.00 %
x dB Bandwidth
701.6 kHz
x dB
-6.00 dB
MSG
STATUS

8. Power Density

8.1. Test Equipment

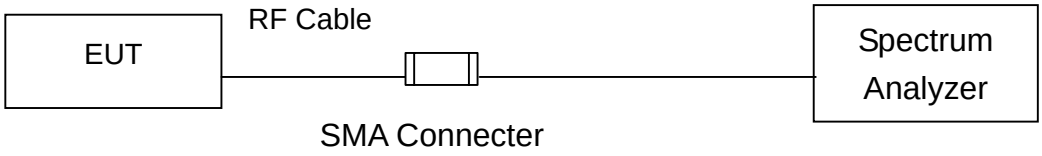
The following test equipment is used during the test:

Power Density / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2015/07/14

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

8.2. Test Setup



8.3. Limits

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

8.4. Test Procedures

The EUT was setup according to ANSI C63.10; tested according to DTS test procedure of KDB558074 V03R02 for compliance to FCC 47CFR 15.247 requirements.

8.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247

8.6. Uncertainty

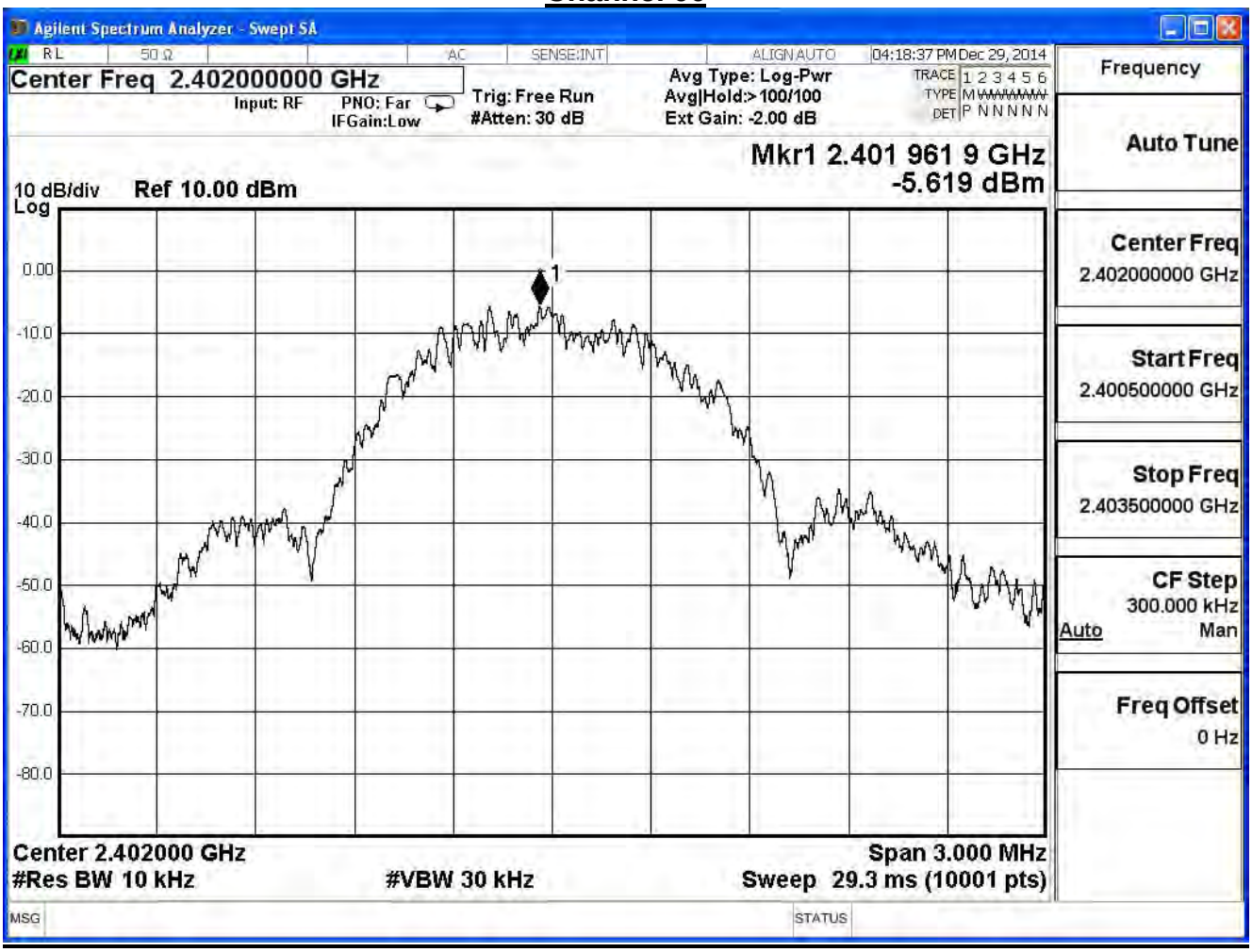
The measurement uncertainty is defined as ±1.27dB.

8.7. Test Result

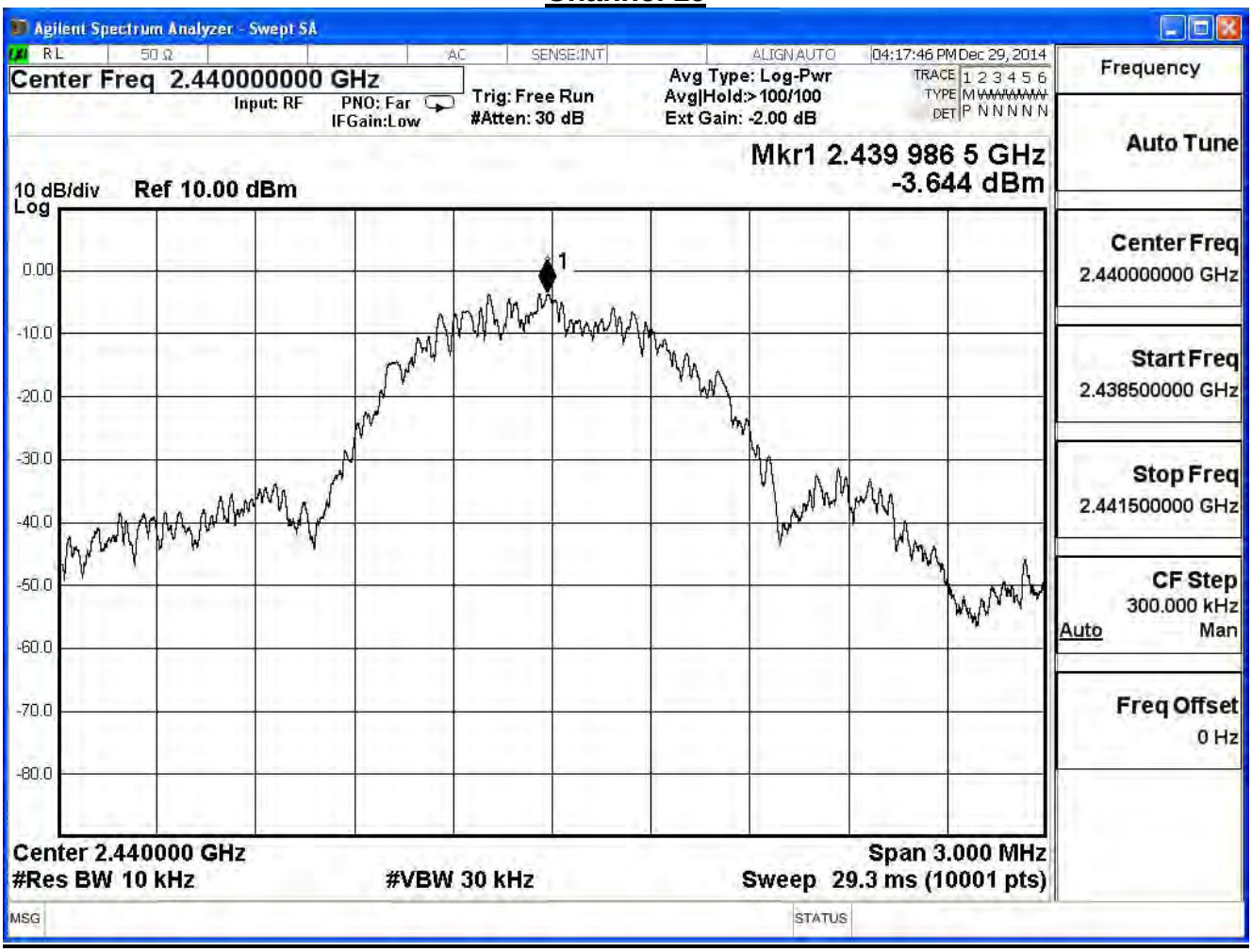
Product	SkyCaddie		
Test Item	Power Density		
Test Mode	Mode 2: Transmit (Power by Adapter)		
Date of Test	2014/12/29	Test Site	SR7

Channel No.	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
0	2402	-5.619	≦8	Pass
19	2440	-3.644	≦8	Pass
39	2480	-2.046	≦8	Pass

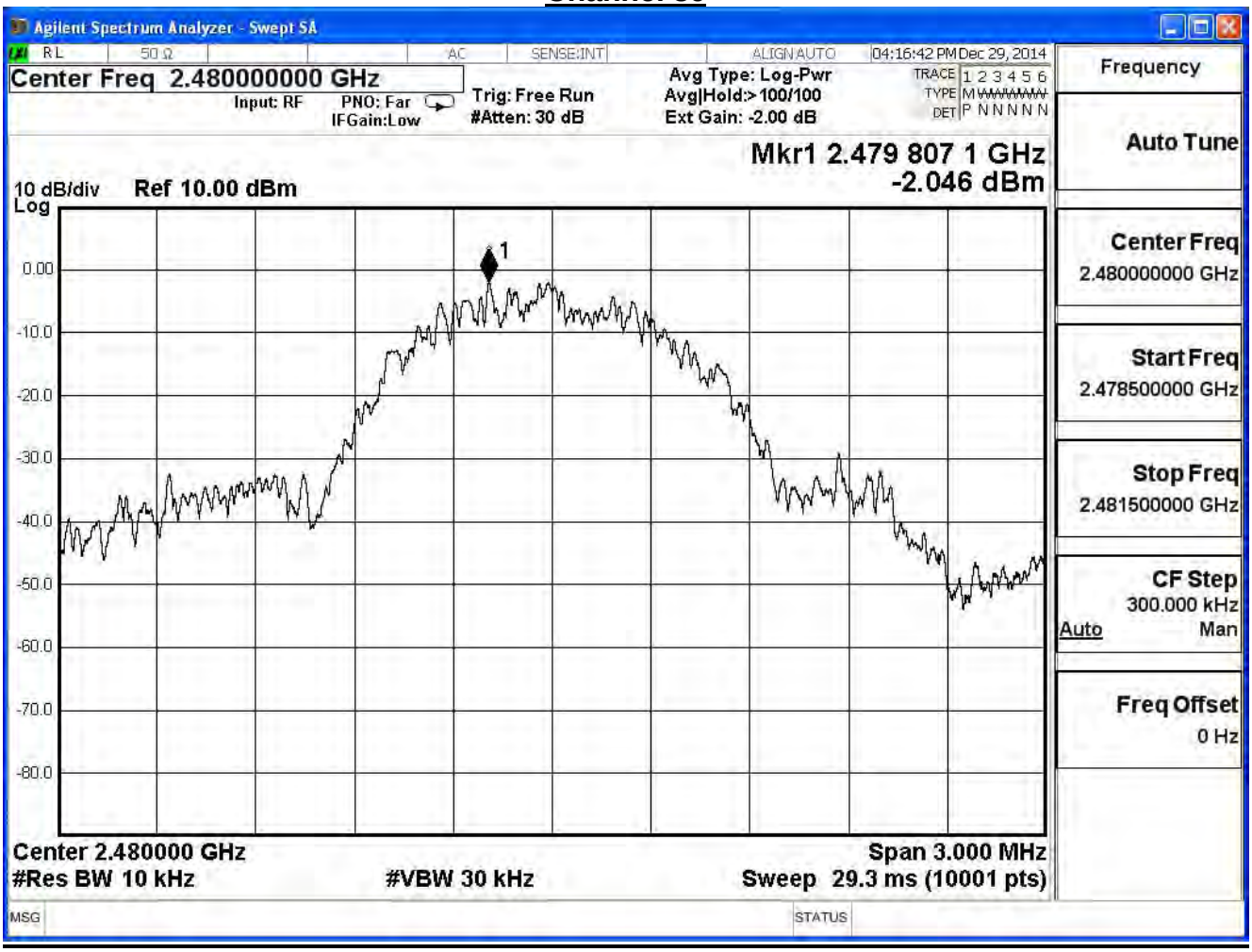
Channel 00



Channel 19


Agilent Spectrum Analyzer - Swept SA
RL
50 Ω
AC
SENSE:INT
ALIGN AUTO
04:17:46 PM Dec 29, 2014
Center Freq 2.440000000 GHz
Input: RF
PNO: Far
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ext Gain: -2.00 dB
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 2.439 986 5 GHz
-3.644 dBm
10 dB/div
Log
Ref 10.00 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.440000 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 3.000 MHz
Sweep 29.3 ms (10001 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
2.440000000 GHz
Start Freq
2.438500000 GHz
Stop Freq
2.441500000 GHz
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz

Channel 39


Agilent Spectrum Analyzer - Swept SA
RL
50 Ω
AC
SENSE:INT
ALIGN AUTO
04:16:42 PM Dec 29, 2014
Center Freq 2.480000000 GHz
Input: RF
PNO: Far
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ext Gain: -2.00 dB
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 2.479 807 1 GHz
-2.046 dBm
10 dB/div
Log
Ref 10.00 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.480000 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 3.000 MHz
Sweep 29.3 ms (10001 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.481500000 GHz
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz