FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of

eComm Solutions Inc.

All-in-One Cycling Kit

Model Number: WUSA K230

FCC ID: YMWK23XX01

Prepared for : eComm Solutions Inc.
Suite 3F20, 5 Hsin-Yi Road Sec. 5, Taipei, Taiwan

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Ke Feng Rd., 52 Block,
Shenzhen Science & Industrial Park,
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Report Number : ACS-F13313
Date of Test : Sep.12~Oct.26, 2013
Date of Report : Nov.19, 2013

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TEST REPORT CERTIFICATION

Applicant	:	eComm Solutions Inc.
Manufacturer	:	Sheng-Chia Optical Co. Ltd.
EUT Description	:	All-in-One Cycling Kit
FCC ID	:	YMWK23XX01

(A) MODEL NO. : WUSA K230
(B) SERIAL NO. : N/A
(C)POWER SUPPLY : DC 5V From PC; DC 6V
(D)TEST VOLTAGE : DC 5V From PC Input 120V/ 60Hz

Tested for comply with:
FCC Rules and Regulations Part 15 Subpart C: 2012
Test procedure used:
ANSI C63.10:2009

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to confirm comply with all the FCC Part 15 Subpart C requirements. The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC and IC requirements. This report contains data that are not covered by the NVLAP accreditation.

This Report is made under FCC Part 2.1075. No modifications were required during testing to bring this product into compliance.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Sep.12~ Oct.26, 2013 Report of date: Nov.19, 2013

Prepared by : Julia Zhu
Julia Zhu / Assistant

Reviewed by :
Sunny Lu / Assistant Manager

AUDIX® 信華科技（深圳）有限公司
Audix Technology (Shenzhen) Co., Ltd.
EMC 部門報告專用章
Stamp only for EMC Dept. Report

Approved & Authorized Signer : Signature: David Jin 11.19
David Jin / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1.Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	**Standard**	**Results**
Power Line Conducted Emission Test	FCC Part 15: 15.207 ANSI C63.10 :2009	PASS
Radiated Emission Test	FCC Part 15: 15.209 FCC Part 15: 15.247(d) ANSI C63.10 :2009	PASS
Conducted Spurious Emissions	FCC Part 15: 15.247(a)(1) ANSI C63.10 :2009	PASS
Carrier Frequency Separation Test	FCC Part 15: 15.247(a)(1) ANSI C63.10 :2009	PASS
20dB Bandwidth Test	FCC Part 15: 15.215 ANSI C63.10 :2009	PASS
Number Of Hopping Frequency Test	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.10 :2009	PASS
Dwell Time Test	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.10 :2009	PASS
Maximum Peak Output Power Test	FCC Part 15: 15.247(b)(1)\ ANSI C63.10 :2009	PASS
Band Edge Compliance Test	FCC Part 15: 15.247(d) ANSI C63.10 :2009	PASS
N/A is an abbreviation for Not Applicable.		

2. GENERAL INFORMATION

2.1.Description of Device (EUT)

Product Name	:	All-in-One Cycling Kit
Model Number	:	WUSA K230
FCC ID	:	YMWK23XX01
Radio	:	Buletooth3.0+EDR
Operation frequency	:	2402MHz-2480MHz
Antenna	:	Integrated PCB Antenna, 0dBi PK gain
Modulation	:	GFSK, π/4 DQPSK, 8-DPSK Note:π/4DQPSK modulation is same type modulation with 8-DPSK, and according exploratory test, 8-DPSK will have worse emissions, so the final test were only performed with GFSK and 8-DPSK modulation.
Applicant	:	eComm Solutions Inc. Suite 3F20, 5 Hsin-Yi Road Sec. 5, Taipei, Taiwan
Manufacturer	:	Sheng-Chia Optical Co. Ltd. No 19, Lane 814, Hwa-Cheng Road, Hsin-Chuang, New Taipei City
Factory	:	G-Max Technology Inc. 3F, No.47, Wu-Shiun St, Ta-Wu-Luen Industrial Park, Keelung, Taiwan.
USB Cable	:	Shielded, Detachable, 1.5m
Date of Test	:	Sep.12~Oct.26, 2013
Date of Receipt	:	Sep.11, 2013
Sample Type	:	Prototype production

2.2.Test information

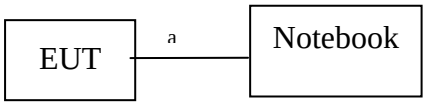
The test software “bluesuite.exe” was used to control EUT work in Continuous TX mode, and select test channel.

Tested mode, channel, and data rate information			
Mode	data rate (Mbps)	Channel	Frequency (MHz)
Tx Mode GFSK modulation	1	Low :CH 0	2402
	1	Middle: CH39	2441
	1	High: CH78	2480
Tx Mode 8-DPSK modulation	3	Low :CH 0	2402
	3	Middle: CH39	2441
	3	High: CH78	2480
Note: π/4DQPSK modulation is same type modulation with 8-DPSK, and according exploratory test, 8-DPSK will have worse emissions, so the final test were only performed with GFSK and 8-DPSK modulation.			

2.3.Tested Supporting System Details

No.	Description	ACS No.	Manufacturer	Model	Serial Number	Approved type
1.	Notebook	Test PC M	DELL	Studio 540	224XK2X	☑FCC DoC ☑BSMI ID:R33002
		Power Cord: Unshielded, Detachable, 1.8m Display Card: HD3450 (DVI+VGA+HDMI)				

2.4.Block Diagram of Test Setup



a: USB Cable

(EUT: All-in-One Cycling Kit)

2.5.Test Facility

Site Description

Name of Firm	:	Audix Technology (Shenzhen) Co., Ltd. No. 6, Ke Feng Rd., 52 Block, Shenzhen Science & Industrial Park,Nantou, Shenzhen, Guangdong, China
3m Anechoic Chamber	:	Certificated by FCC, USA Registration Number: 90454 Valid Date: Feb.22, 2015
3m & 10m Anechoic Chamber	:	Certificated by FCC, USA Registration Number: 794232 Valid Date: Oct.31, 2015
EMC Lab.	:	Certificated by Industry Canada Registration Number: IC 5183A-1 Valid Date: Jun.13, 2014
		Certificated by DAkkS, Germany Registration No: D-PL-12151-01-01 Valid Date: Feb.01, 2014
		Accredited by NVLAP, USA NVLAP Code: 200372-0 Valid Date: Mar.31, 2014

2.6.Measurement Uncertainty (95% confidence levels, k=2)

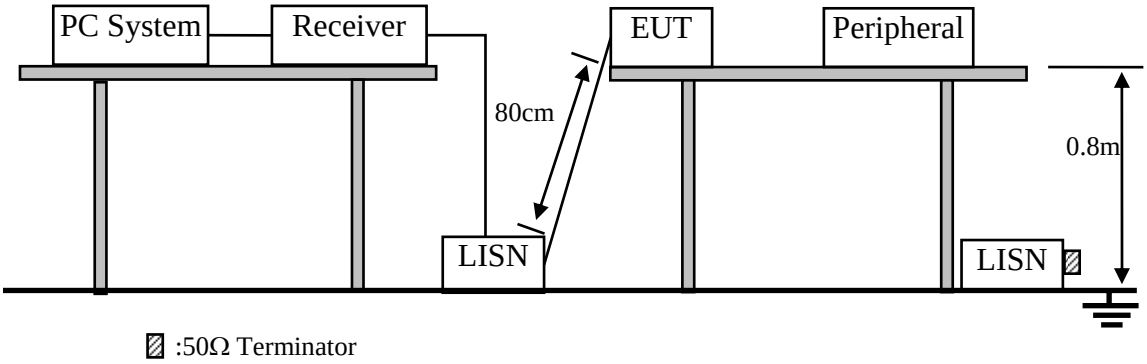
Test Item	Uncertainty
Uncertainty for Radiation Emission test in 3m chamber	3.22 dB(30~200MHz, Polarize: H)
	3.23 dB(30~200MHz, Polarize: V)
	3.49 dB(200M~1GHz, Polarize: H)
	3.39 dB(200M~1GHz, Polarize: V)
Uncertainty for Radiation Emission test in 3m chamber (1GHz-18GHz)	5.04dB (1~6GHz, Distance: 3m)
	5.06 dB (6~18GHz, Distance: 3m)
Uncertainty for Radiated Spurious Emission test in RF chamber	3.57 dB
Uncertainty for Conduction Spurious emission test	2.00 dB
Uncertainty for Output power test	0.73 dB
Uncertainty for Bandwidth test	83 kHz
Uncertainty for DC power test	0.038 %
Uncertainty for test site temperature and humidity	0.6℃
	3%

3. POWER LINE CONDUCTED EMISSION TEST

3.1.Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Oct.31, 12	1 Year
2.	L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	834066/011	Oct.31, 12	1 Year
3.	L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	May.08, 13	1 Year
4.	Terminator	Hubersuhner	50Ω	No. 1	May.08, 13	1 Year
5.	Terminator	Hubersuhner	50Ω	No. 2	May.08, 13	1 Year
6.	RF Cable	Fujikura	3D-2W	No.1	May.08, 13	1Year
7.	Coaxial Switch	Anritsu	MP59B	M50564	May.08, 13	1 Year
8.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	May.08, 13	1 Year

3.2.Block Diagram of Test Setup



3.3.Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.4.Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4.1. All-in-One Cycling Kit (EUT)

Model Number : EX6UNI-21
Serial Number : N/A

3.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.2.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 3.2.

3.5.2. Turned on the power of all equipment.

3.5.3. PC run test software to control EUT work in Tx mode.

3.6. Test Procedure

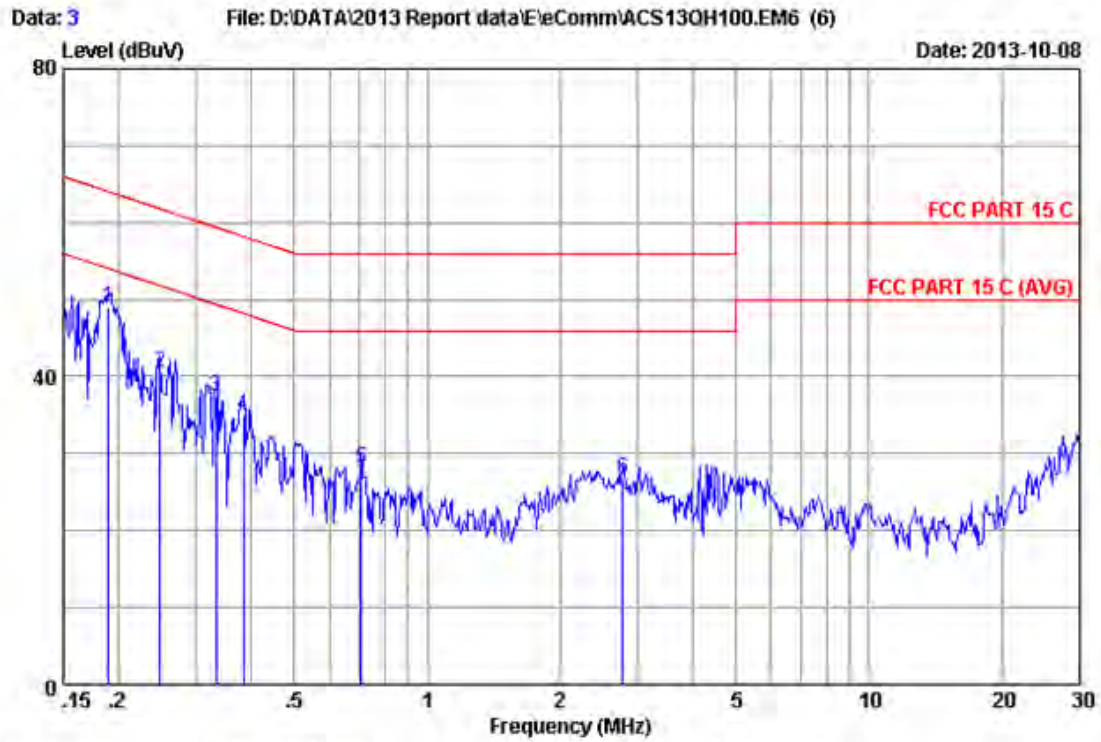
The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via PC connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2009 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS10) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.7. Power Line Conducted Emission Test Results

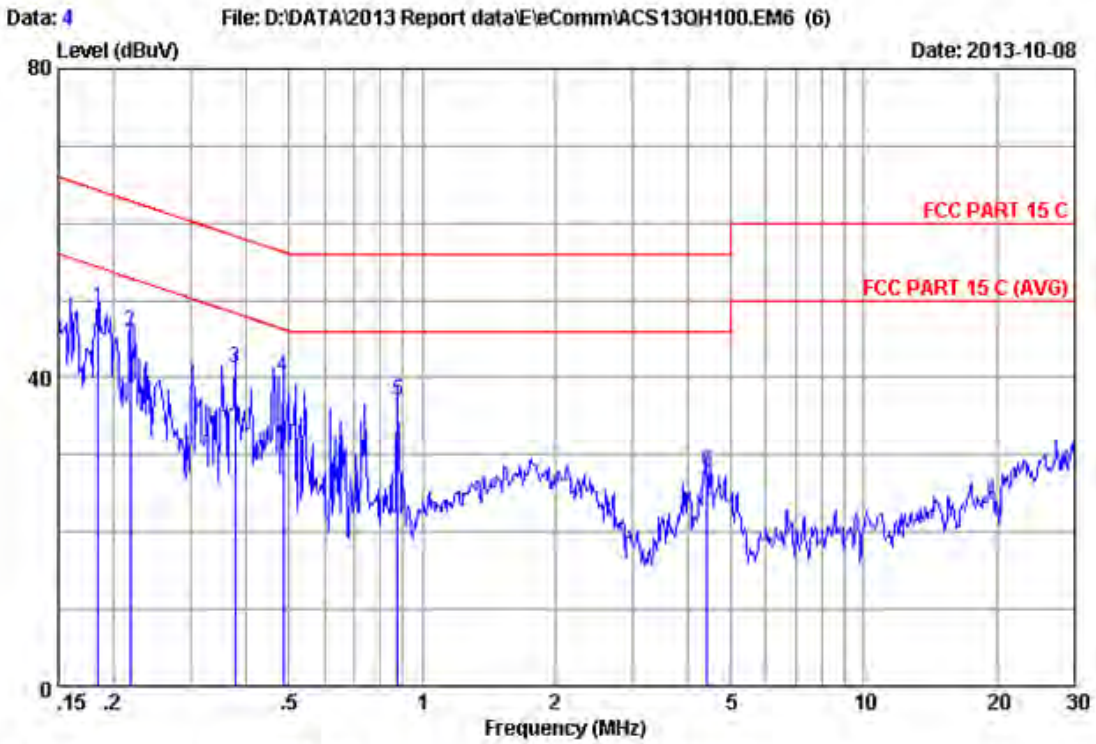
PASS. **(**All emissions not reported below are too low against the prescribed limits.)



Site no :1#conduction Data No :3
Dis./Ant. :** 2012 ESH2-Z5 LINE
Limit :FCC PART 15 C
Env./Ins. :22.2*C/55% Engineer :Eric
EUT :All-in-One Cycling Kit
Power Rating :DC 5V From PC Input AC 120V/60Hz
Test Mode :Tx Mode
M/N:WUSA K230

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.18938	0.19	0.01	48.78	48.98	64.06	15.08	QP
2	0.24814	0.19	0.01	40.40	40.60	61.82	21.22	QP
3	0.33208	0.19	0.01	37.24	37.44	59.40	21.96	QP
4	0.38315	0.19	0.02	34.70	34.91	58.21	23.30	QP
5	0.70842	0.20	0.03	27.94	28.17	56.00	27.83	QP
6	2.765	0.26	0.05	26.50	26.81	56.00	29.19	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
2.If the average limit is met when useing a quasi-peak detector.
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.



Site no :1#conduction Data No :4
Dis./Ant. :** 2012 ESH2-25 NEUTRAL
Limit :FCC PART 15 C
Env./Ins. :22.2*C/55% Engineer :Eric
EUT :All-in-One Cycling Kit
Power Rating :DC 5V From PC Input AC 120V/60Hz
Test Mode :Tx Mode
M/N:WUSA K230

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.18443	0.21	0.01	48.91	49.13	64.28	15.15	QP
2	0.21851	0.21	0.01	45.60	45.82	62.88	17.06	QP
3	0.37711	0.22	0.02	41.09	41.33	58.34	17.01	QP
4	0.48375	0.23	0.02	39.78	40.03	56.27	16.24	QP
5	0.88031	0.24	0.03	36.73	37.00	56.00	19.00	QP
6	4.407	0.33	0.06	27.52	27.91	56.00	28.09	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
2.If the average limit is met when useing a quasi-peak detector.
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.

4. RADIATED EMISSION MEASUREMENT

4.1.Test Equipment

Frequency rang: 30~1000MHz

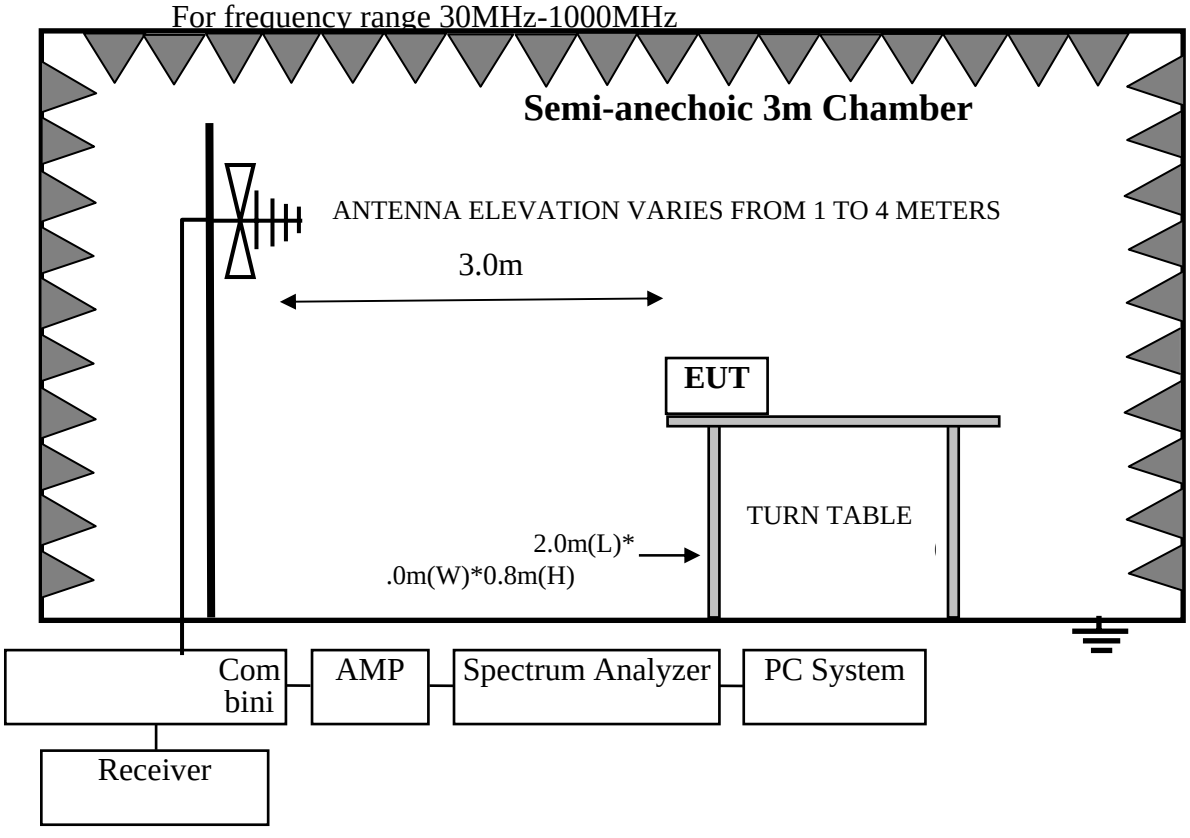
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	3#Chamber	AUDIX	N/A	N/A	Nov.24,12	1 Year
2	EMI Spectrum	Agilent	E4407B	MY41440292	May.08, 13	1 Year
3	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May.08, 13	1 Year
4	Amplifier	HP	8447D	2648A04738	May.08, 13	1 Year
5	Bilog Antenna	Schaffner	CBL6111C	2598	Mar.14,13	1 Year
6	RF Cable	MIYAZAKI	CFD400-NL	3# Chamber No.3	May.08, 13	1 Year
7	Coaxial Switch	Anritsu	MP59B	M74389	May.08, 13	1 Year

Frequency rang: above 1000MHz

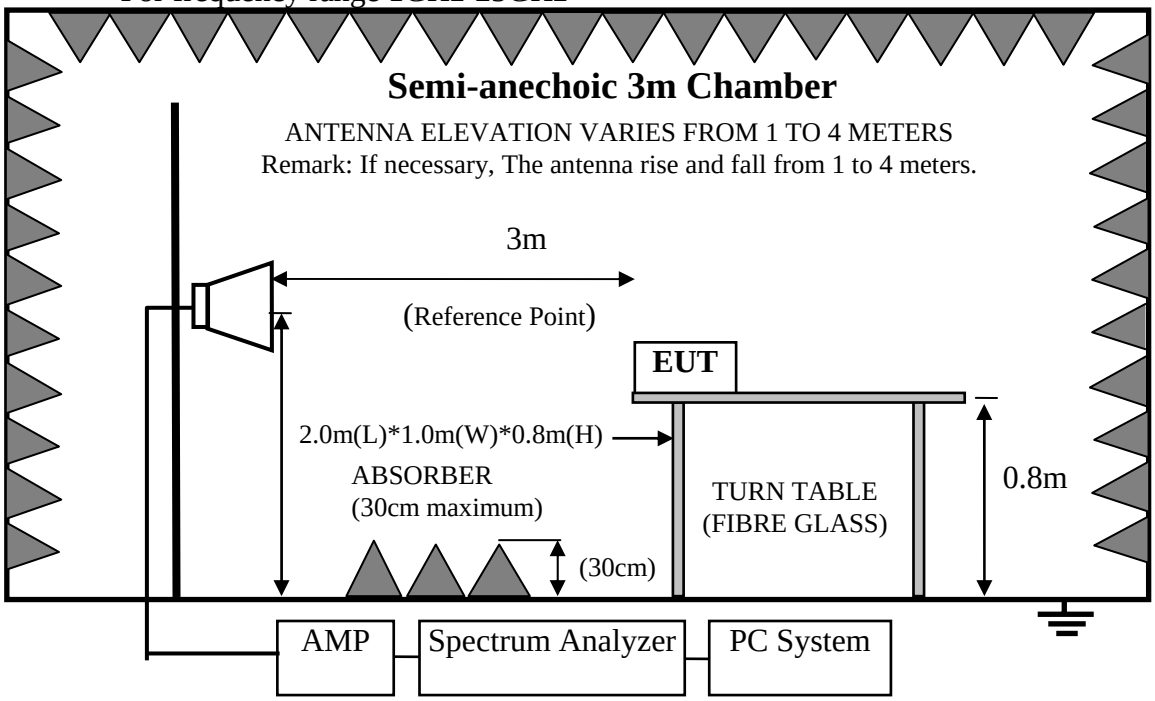
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4407B	MY41440292	May.08, 13	1 Year
2	Horn Antenna	EMCO	3115	9510-4580	May.28, 13	1 Year
3	Amplifier	Agilent	8449B	3008A00863	May.08, 13	1 Year
4	RF Cable	Hubersuhner	SUCOFLEX106	77980/6	May.08, 13	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX106	77977/6	May.08, 13	1 Year
6	Horn Antenna	EMCO	3116	00060089	Aug.28, 13	1 Year

4.2.Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range 1GHz-25GHz



4.3.Radiated Emission Limit Standard: FCC 15.209

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000MHz	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Remark： (1) Emission level dBμV = 20 log Emission level μV/m

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

(4) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

4.4.EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.4.1. All-in-One Cycling Kit (EUT)

Model Number	:	WUSA K230
Serial Number	:	N/A

4.5. Operating Condition of EUT

4.5.1. Setup the EUT and simulator as shown as Section 3.2.
4.5.2. Turned on the power of all equipment.
4.5.3. Let EUT work in Tx mode.

4.6. Test Procedure

The EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.10-2009 on radiated emission Test.

This test was performed with EUT in X, Y, Z position, and the worse case was found when EUT in X position as the test photo indicated.

The bandwidth of the EMI test receiver (R&S ESVS10) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's RBW is set at 1MHz and VBW is set at 3MHz for peak emissions measurement above 1GHz

This device is pulse Modulated, a duty cycle factor was used to calculated average level based measured peak level.

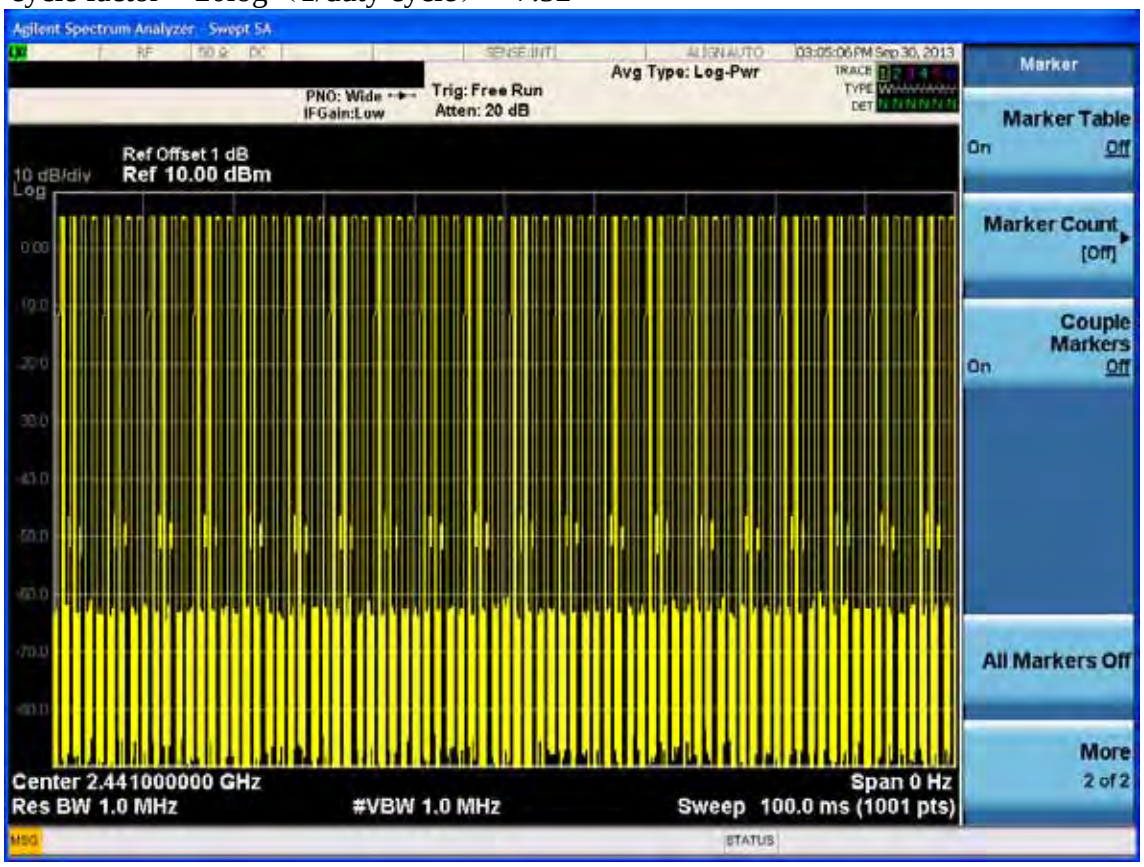
The frequency range from 30MHz to 10th harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

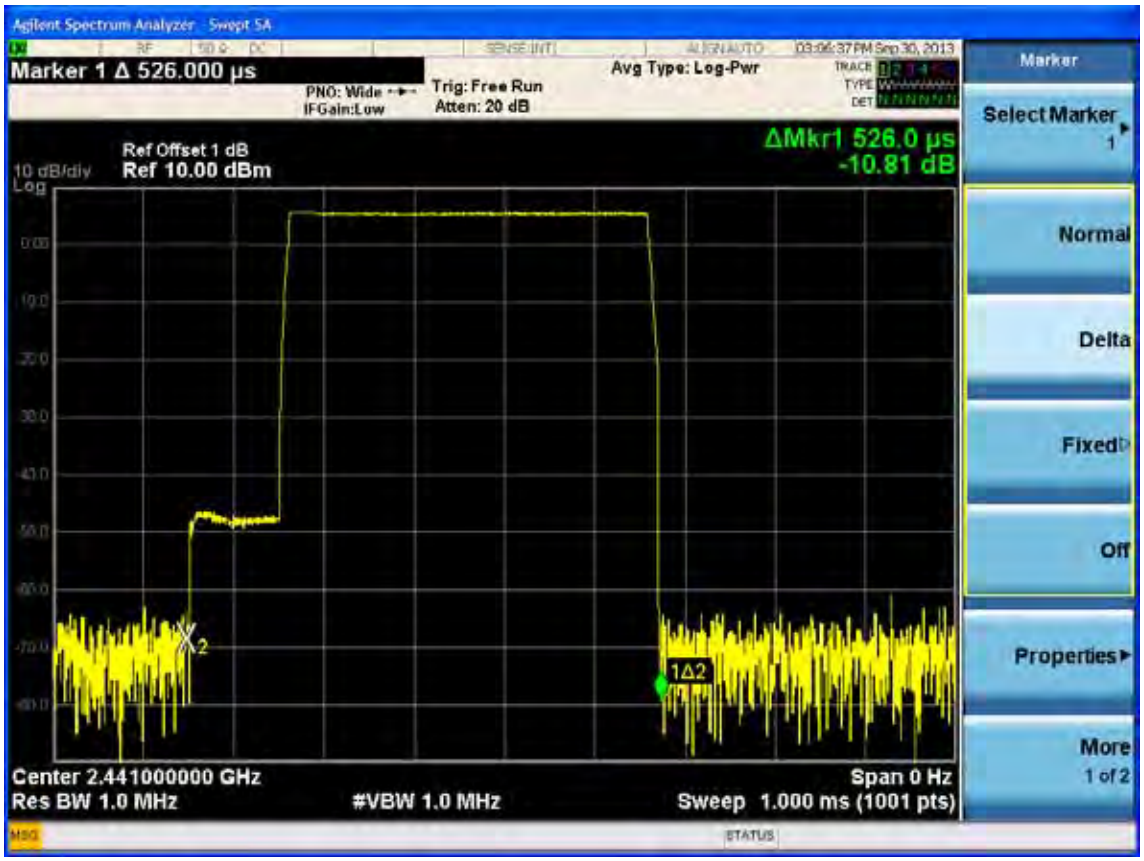
4.7. Radiated Emission Test Results

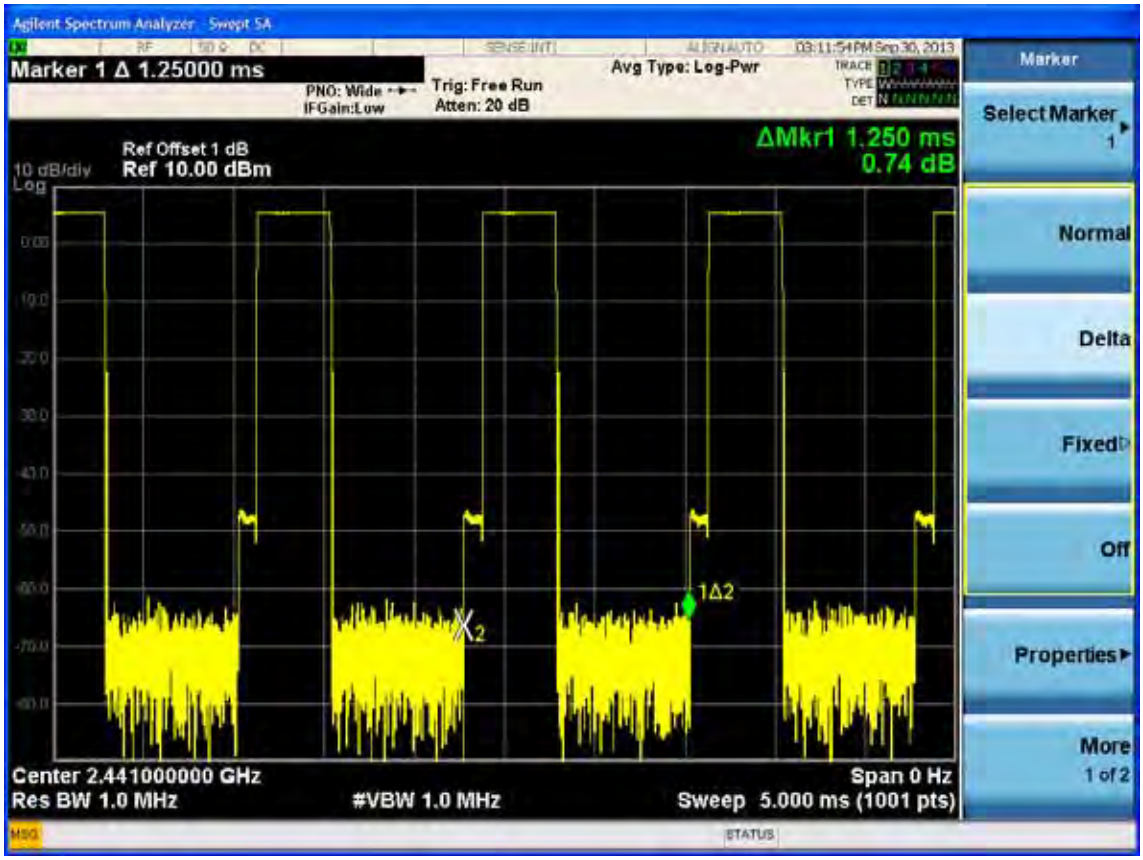
PASS.

All the emissions from 30MHz to 25GHz were comply with the 15.209 Limit.
Note: The duty cycle factor for calculate average level is 7.52dB, and average limit is 20dB below peak limit, so if peak measured level comply with average limit, the average level was deemed to comply with average limit.

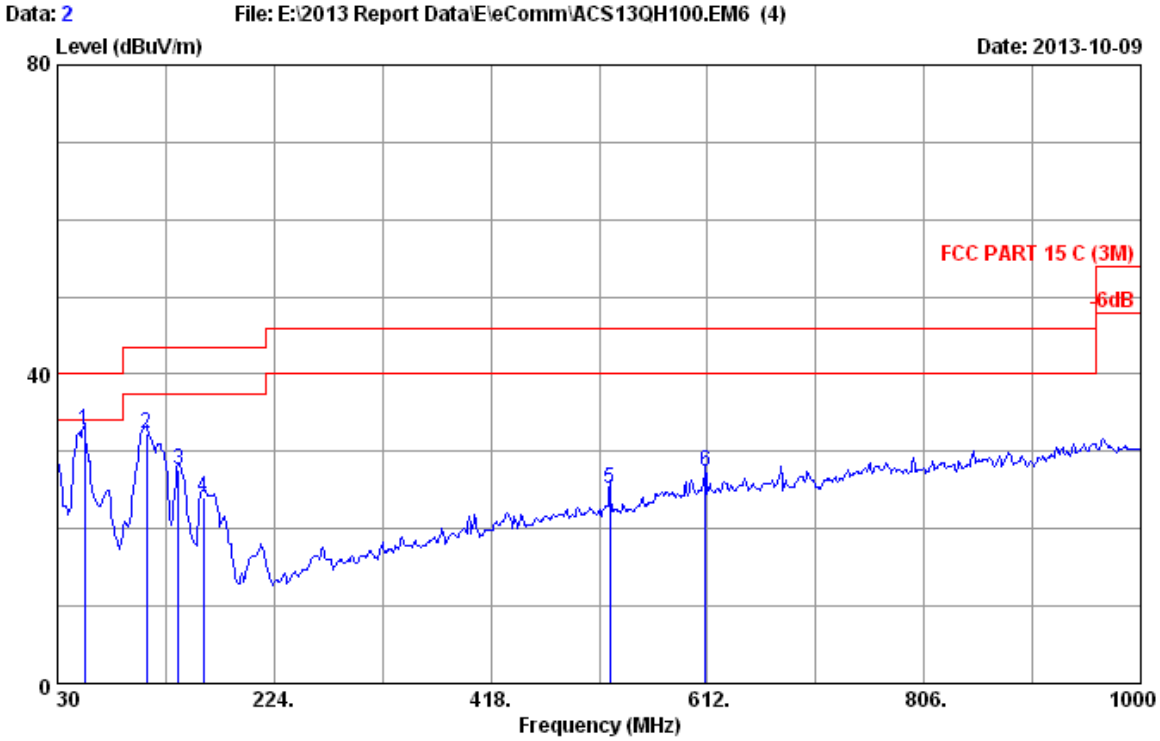
Duty cycle: 0.526ms /1.250ms *100% = 42.08%
Duty cycle factor = 20log（1/duty cycle）= 7.52






Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 1.25000 ms
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
03:11:54 PM Sep 30, 2013
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
ΔMkr1 1.250 ms
0.74 dB
1Δ2
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 5.000 ms (1001 pts)
Marker
Select Marker
Normal
Delta
Fixed
Off
Properties
More
1 of 2
MSG
STATUS

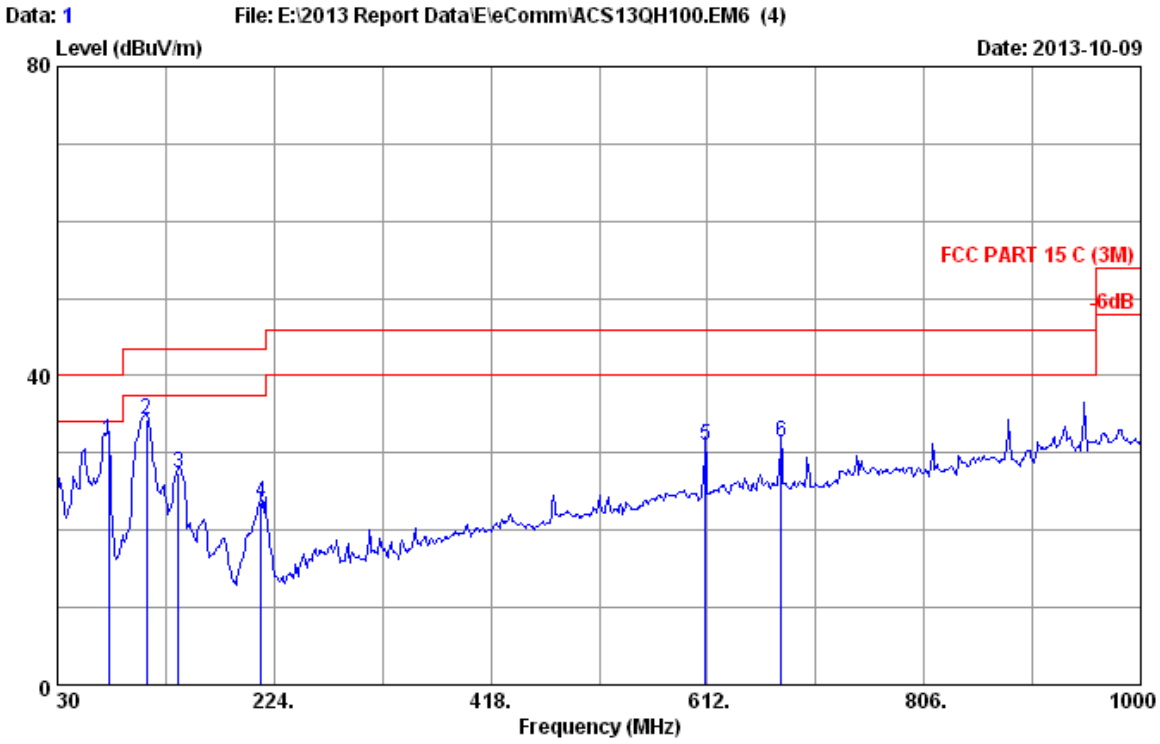
Frequency: 30MHz~1GHz



Site no. : 3m Chamber Data no. : 2
Dis. / Ant. : 3m 2013 CBL6111C 2598 Ant. pol. : HORIZONTAL
Limit : FCC PART 15 C (3M)
Env. / Ins. : 24*C/56% Engineer : Eric
EUT : All-in-One Cycling Kit
Power rating : DC 5V From PC Input AC 120V/60Hz
Test Mode : Tx Mode
M/N:WUSA K230

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	54.250	7.54	0.86	24.25	32.65	40.00	7.35	QP
2	109.540	11.40	1.24	19.76	32.40	43.50	11.10	QP
3	138.640	12.02	1.43	14.10	27.55	43.50	15.95	QP
4	160.950	11.02	1.57	11.58	24.17	43.50	19.33	QP
5	524.700	18.35	4.12	2.78	25.25	46.00	20.75	QP
6	610.060	19.70	4.55	3.06	27.31	46.00	18.69	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

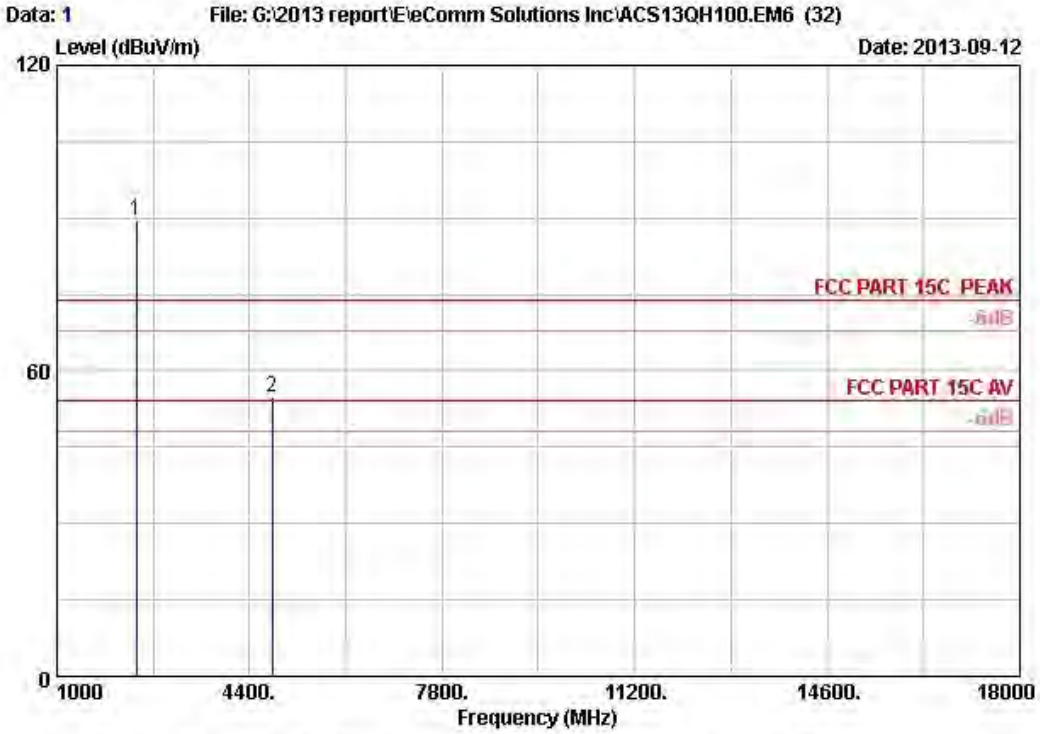


Site no. : 3m Chamber Data no. : 1
Dis. / Ant. : 3m 2013 CBL6111C 2598 Ant. pol. : VERTICAL
Limit : FCC PART 15 C (3M)
Env. / Ins. : 24*C/56% Engineer : Eric
EUT : All-in-One Cycling Kit
Power rating : DC 5V From PC Input AC 120V/60Hz
Test Mode : Tx Mode
M/N:WUSA K230

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	75.590	7.38	1.01	23.31	31.70	40.00	8.30	QP
2	109.540	11.40	1.24	21.63	34.27	43.50	9.23	QP
3	138.640	12.02	1.43	13.85	27.30	43.50	16.20	QP
4	212.360	10.06	1.97	11.68	23.71	43.50	19.79	QP
5	610.060	19.70	4.55	6.75	31.00	46.00	15.00	QP
6	677.960	20.72	4.89	5.80	31.41	46.00	14.59	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency: 1GHz~18GHz




```
Site no.      : 3m Chamber                Data no.   : 1
Dis. / Ant.   : 3m   2012 3115 (4580)     Ant. pol.  : HORIZONTAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                  Engineer   : Leo-Li
EUT           : All-in-One Cycling Kit
Power supply  : DC 5V From PC Input AC 120V/60Hz
Test mode     : Tx Mode  GFSK 2402MHz
                WUSA K230
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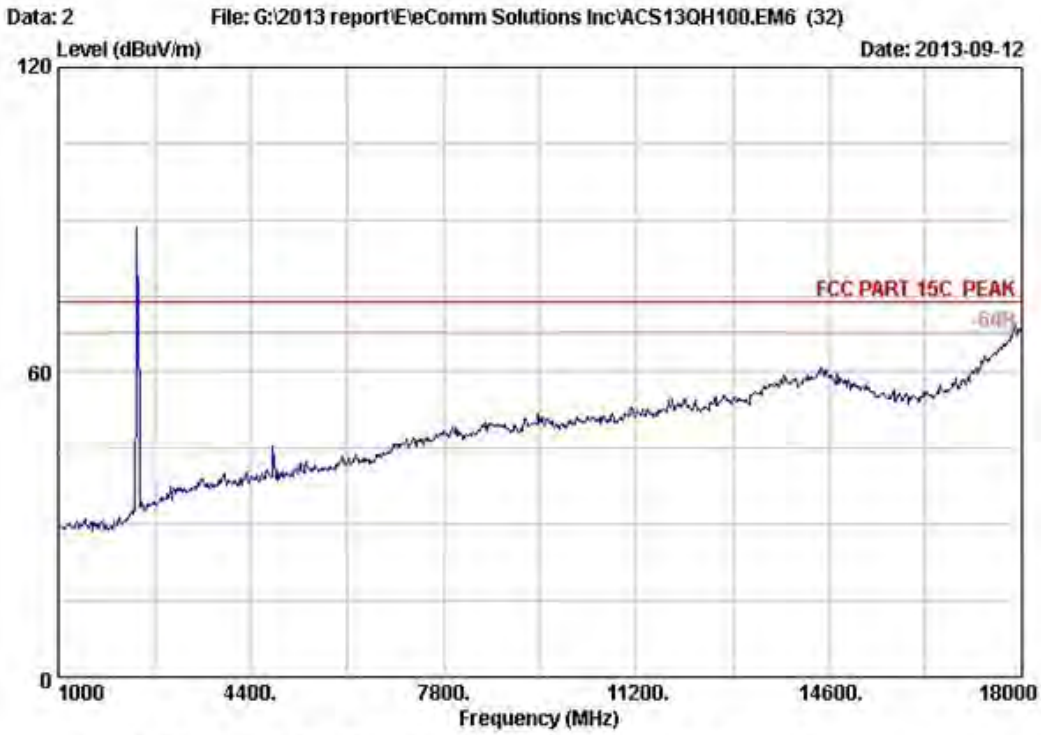
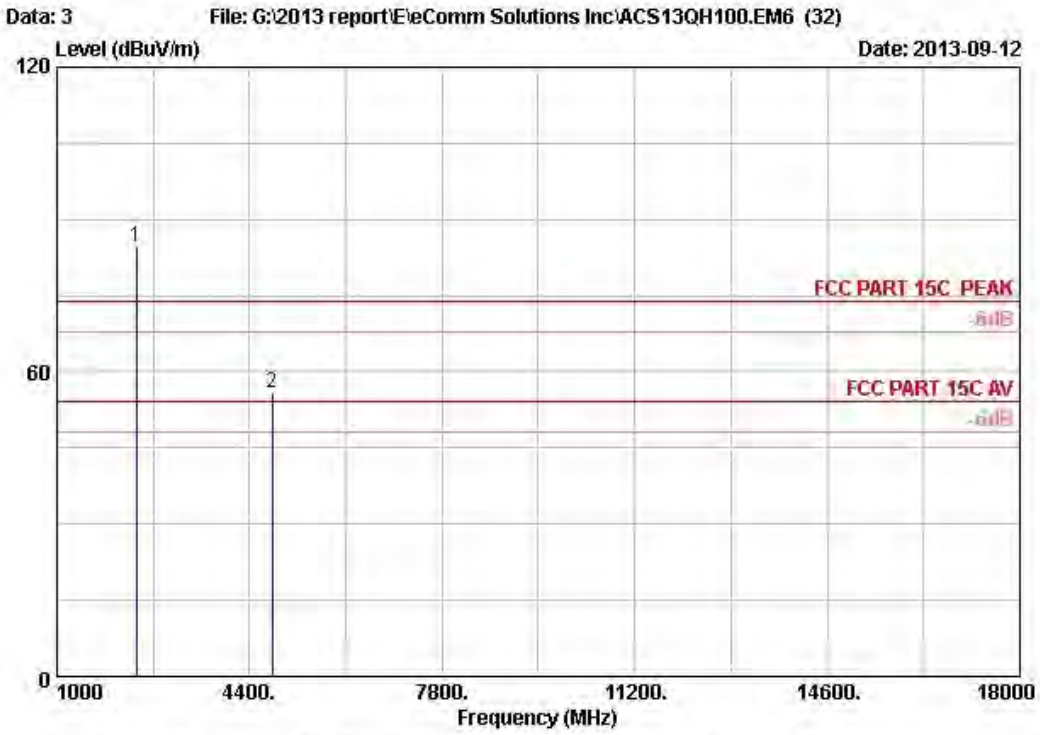
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.000	26.77	5.80	35.70	92.80	89.67	74.00	-15.67	Peak
2	4804.000	32.47	8.56	35.70	49.56	54.89	74.00	19.11	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency（MHz）	Peak level（dBuv/m）	Duty cycle factor (dB)	AV level (dBuv/m)	Limit(dBuv/m)	Conclusion
4804.000	54.89	7.52	47.37	54	Pass



Site no.	: 3m Chamber	Data no.	: 2
Dis. / Ant.	: 3m 2012 3115 (4580)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23*C/54%	Engineer	: Leo-Li
EUT	: All-in-One Cycling Kit		
Power supply	: DC 5V From PC Input AC 120V/60Hz		
Test mode	: Tx Mode GFSK 2402MHz		
	WUSA K230		

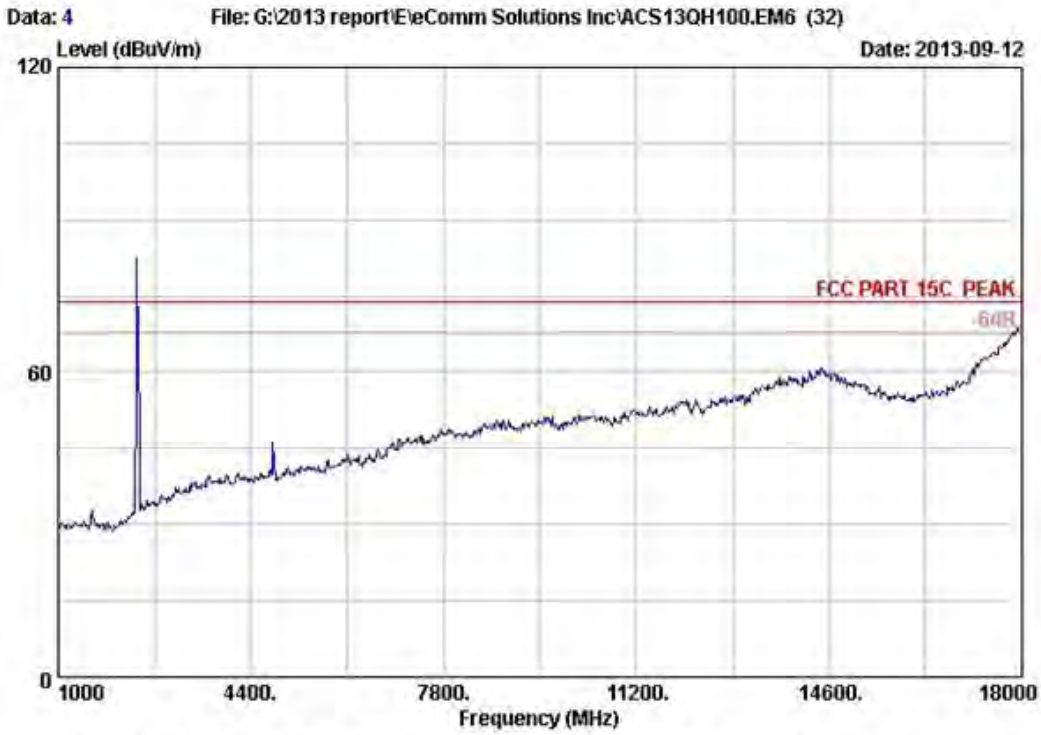


Site no. : 3m Chamber Data no. : 3
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-One Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode GFSK 2402MHz
WUSA K230

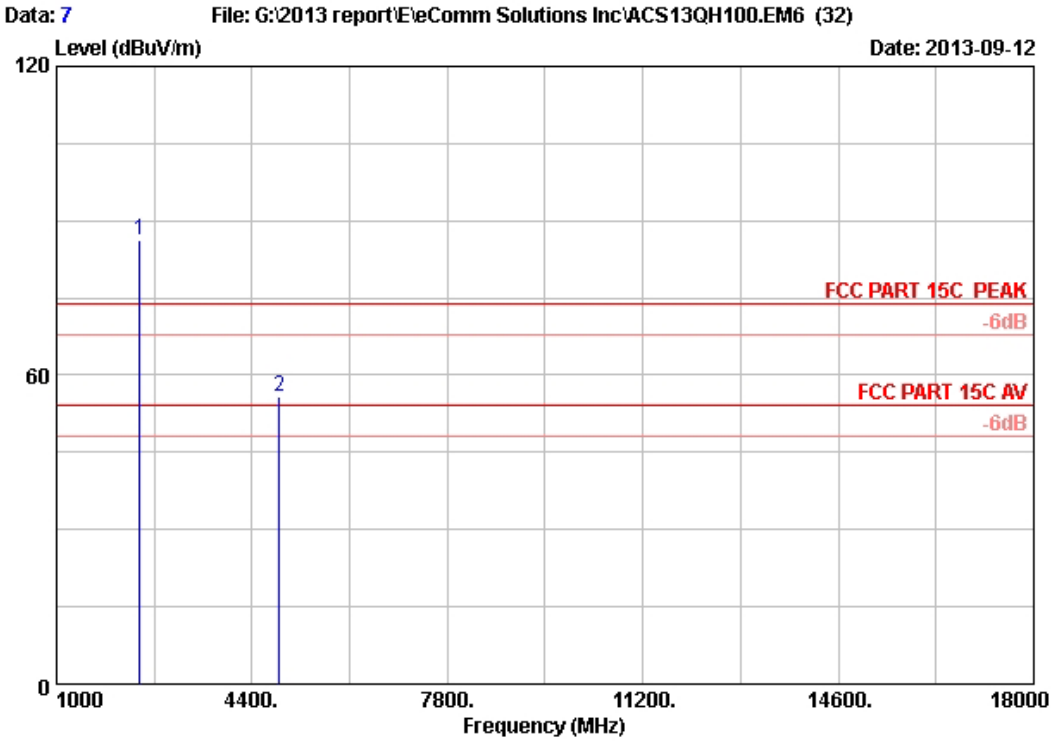
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.000	26.77	5.80	35.70	87.59	84.46	74.00	-10.46	Peak
2	4804.000	32.47	8.56	35.70	50.50	55.83	74.00	18.17	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency（MHz）	Peak level（dBuv/m）	Duty cycle factor (dB)	AV level (dBuv/m)	Limit(dBuv/m)	Conclusion
4804.000	55.83	7.52	48.31	54	Pass



Site no.	: 3m Chamber	Data no.	: 4
Dis. / Ant.	: 3m 2012 3115 (4580)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23*C/54%	Engineer	: Leo-Li
EUT	: All-in-One Cycling Kit		
Power supply	: DC 5V From PC Input AC 120V/60Hz		
Test mode	: Tx Mode GFSK 2402MHz		
	WUSA K230		

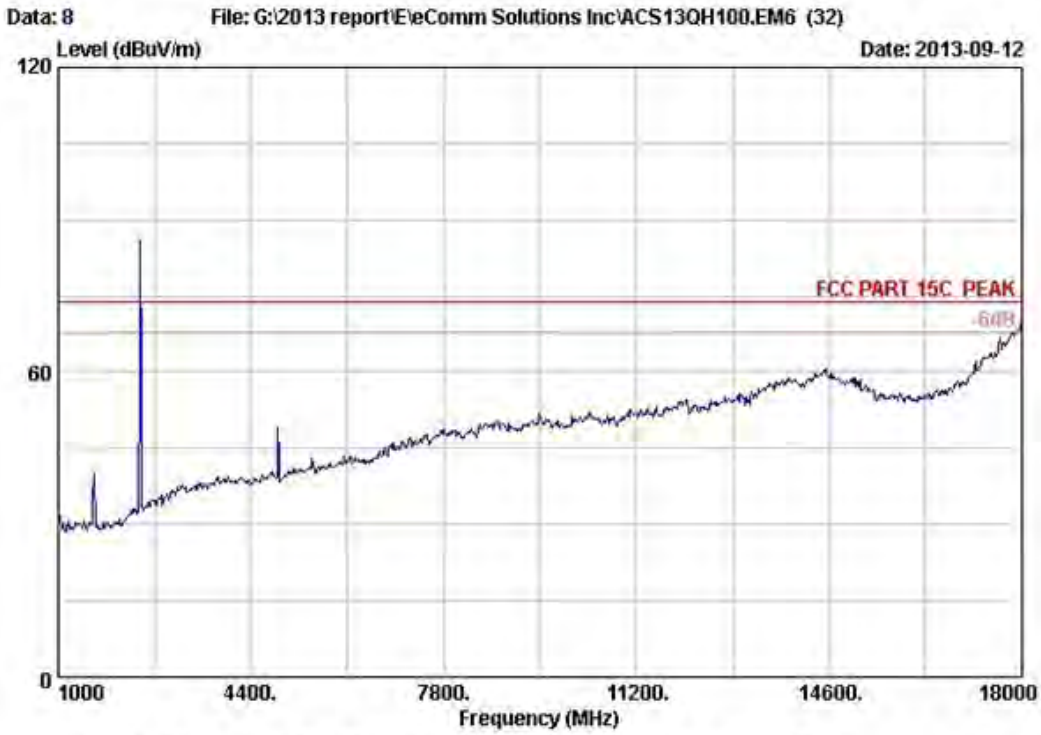


Site no. : 3m Chamber Data no. : 7
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-one Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode GFSK 2441MHz
WUSA K230

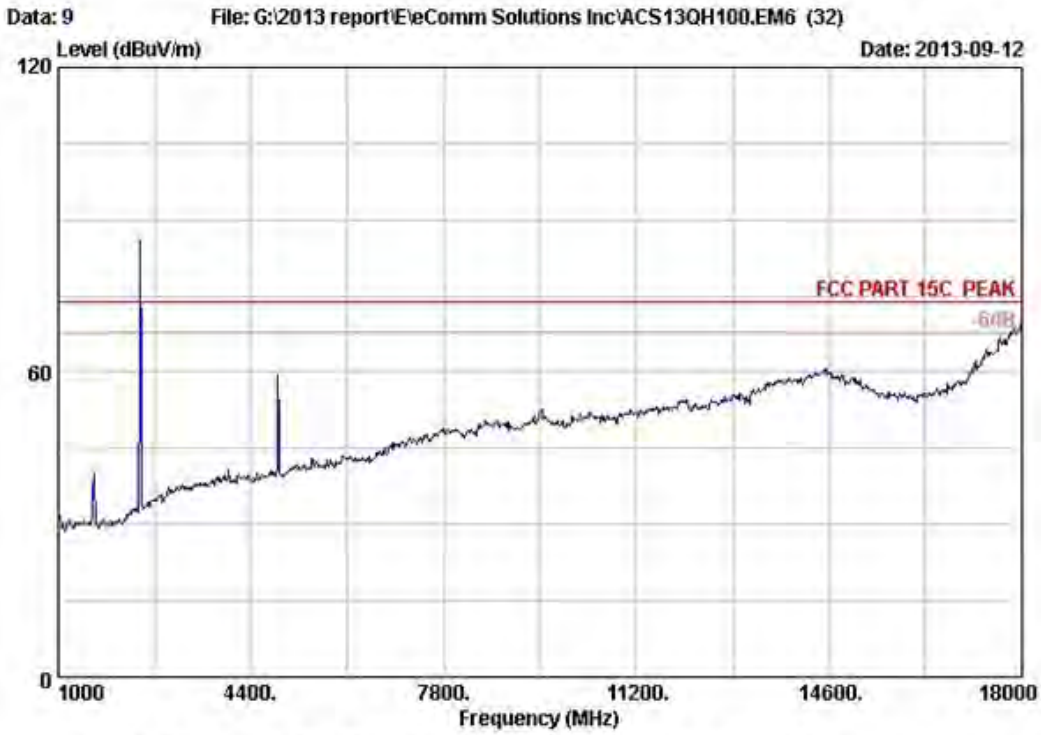
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2441.000	27.02	5.86	35.70	89.12	86.30	74.00	-12.30	Peak
2	4882.000	32.64	8.64	35.70	50.16	55.74	74.00	18.26	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

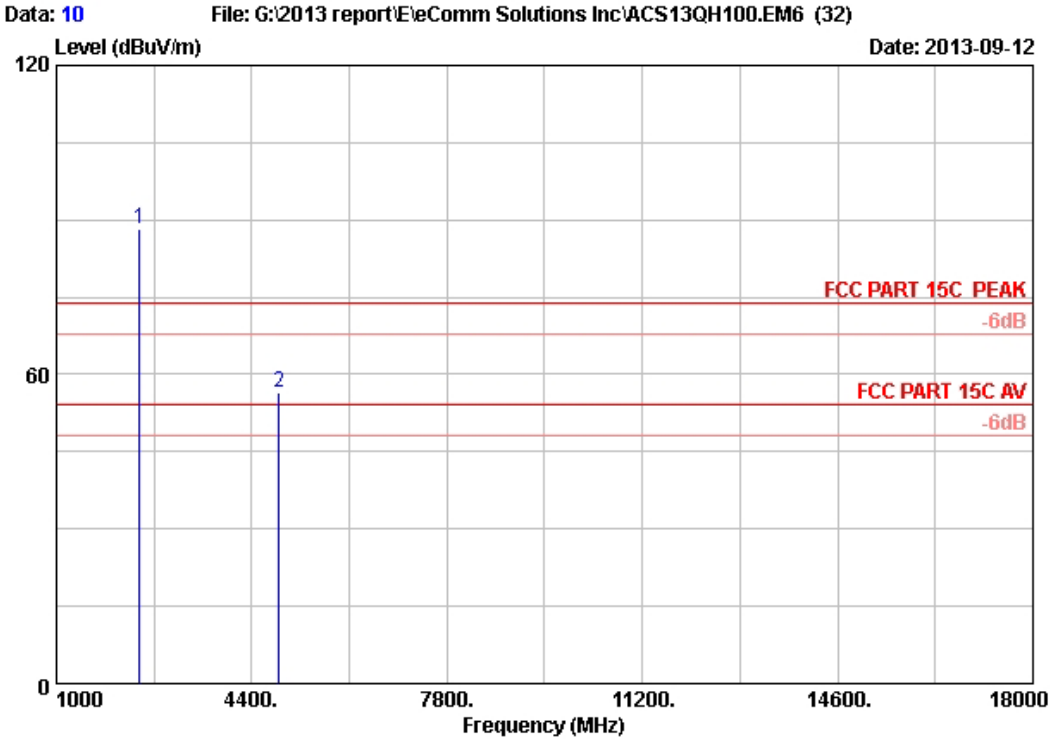
Frequency（MHz）	Peak level（dBuv/m）	Duty cycle factor (dB)	AV level (dBuv/m)	Limit(dBuv/m)	Conclusion
4882.000	55.74	7.52	48.22	54	Pass



Site no.	: 3m Chamber	Data no.	: 8
Dis. / Ant.	: 3m 2012 3115 (4580)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23*C/54%	Engineer	: Leo-Li
EUT	: All-in-One Cycling Kit		
Power supply	: DC 5V From PC Input AC 120V/60Hz		
Test mode	: Tx Mode GFSK 2441MHz		
	WUSA K230		



Site no.	: 3m Chamber	Data no.	: 9
Dis. / Ant.	: 3m 2012 3115 (4580)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23*C/54%	Engineer	: Leo-Li
EUT	: All-in-One Cycling Kit		
Power supply	: DC 5V From PC Input AC 120V/60Hz		
Test mode	: Tx Mode GFSK 2441MHz		
	WUSA K230		

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Site no.      : 3m Chamber                Data no.   : 10
Dis. / Ant.   : 3m   2012 3115 (4580)     Ant. pol.  : HORIZONTAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                  Engineer   : Leo-Li
EUT           : All-in-one Cycling Kit
Power supply  : DC 5V From PC Input AC 120V/60Hz
Test mode     : Tx Mode  GFSK 2441MHz
                WUSA K230
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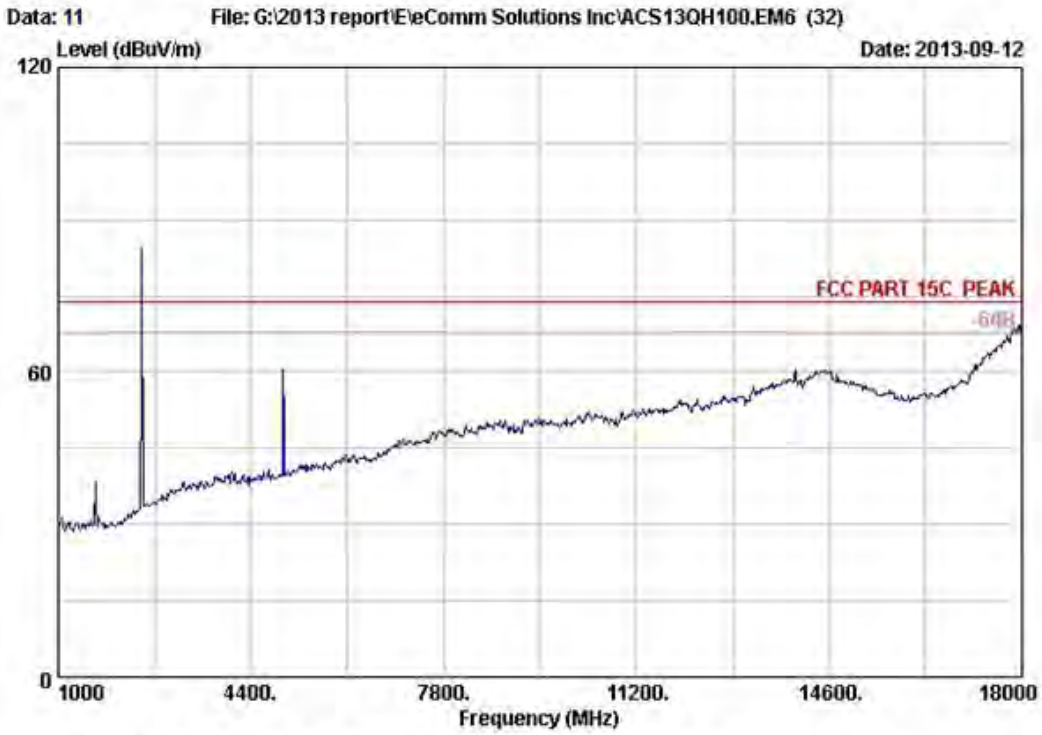
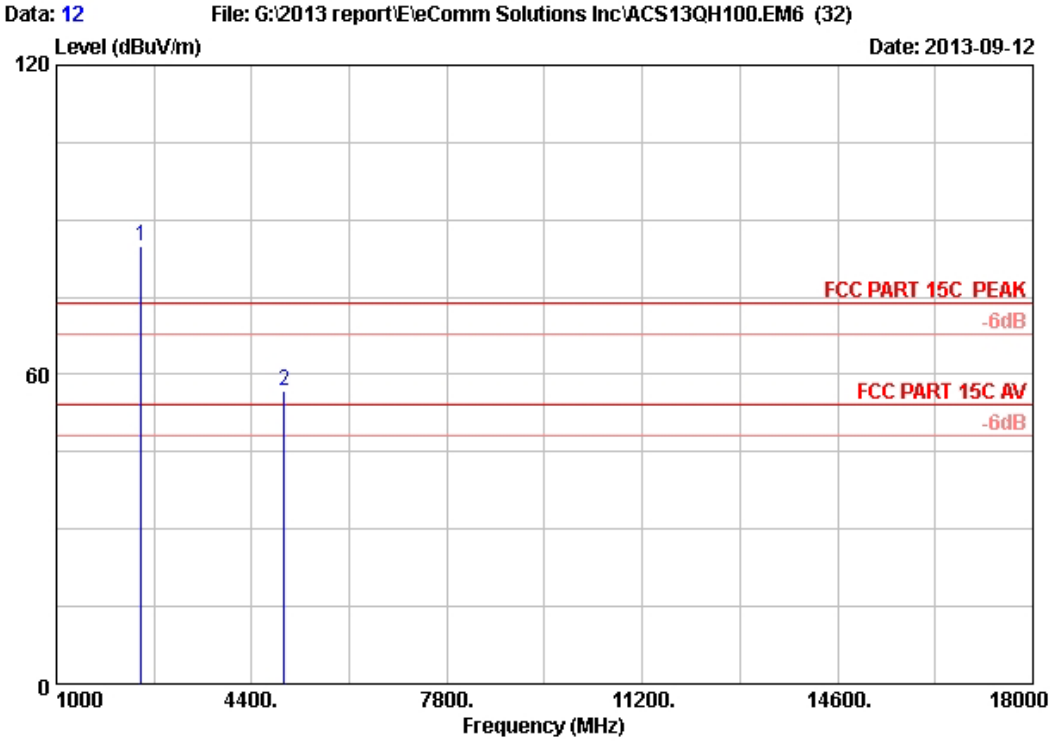
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2441.000	27.02	5.86	35.70	91.07	88.25	74.00	-14.25	Peak
2	4882.000	32.64	8.64	35.70	50.89	56.47	74.00	17.53	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency（MHz）	Peak level（dBuv/m）	Duty cycle factor (dB)	AV level (dBuv/m)	Limit(dBuv/m)	Conclusion
4882.000	56.47	7.52	48.95	54	Pass



Site no.	: 3m Chamber	Data no.	: 11
Dis. / Ant.	: 3m 2012 3115 (4580)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23*C/54%	Engineer	: Leo-Li
EUT	: All-in-One Cycling Kit		
Power supply	: DC 5V From PC Input AC 120V/60Hz		
Test mode	: Tx Mode GFSK 2480MHz		
	WUSA K230		

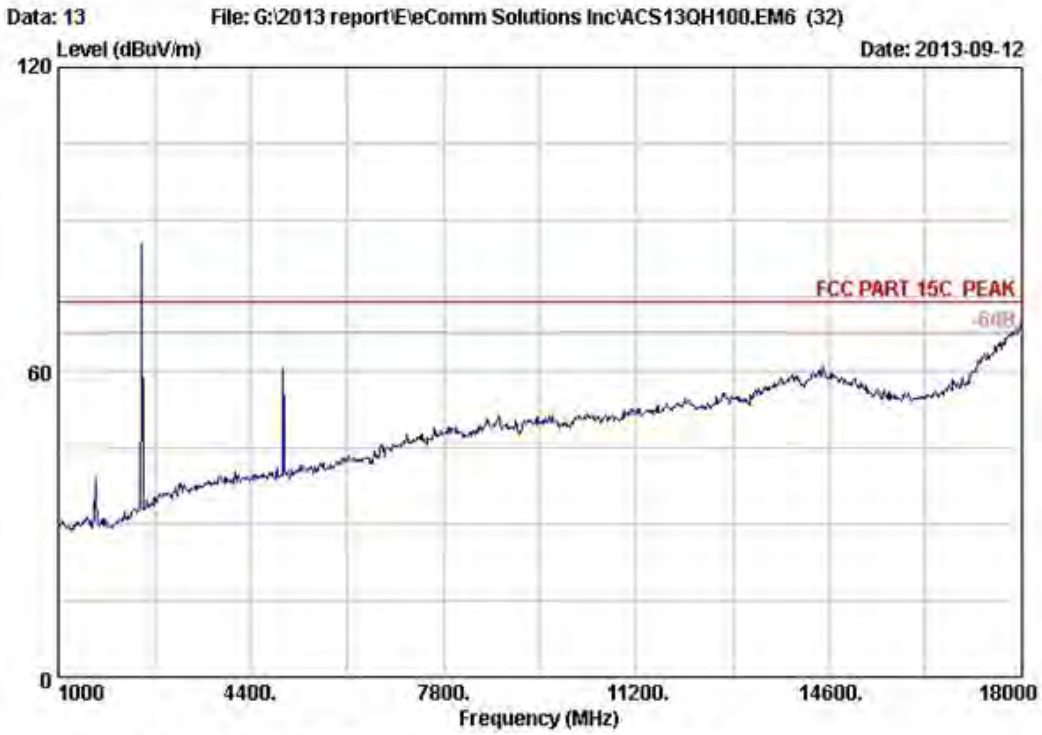


Site no. : 3m Chamber Data no. : 12
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-one Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode GFSK 2480MHz
WUSA K230

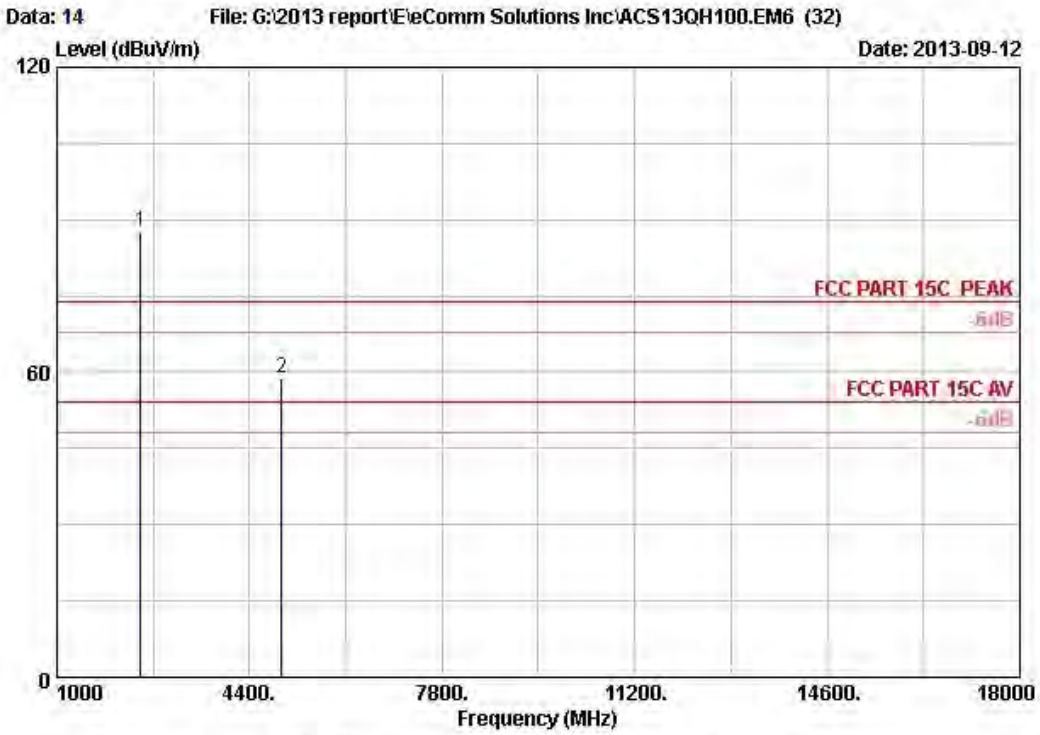
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.000	27.27	5.91	35.70	87.41	84.89	74.00	-10.89	Peak
2	4960.000	32.81	8.72	35.70	51.05	56.88	74.00	17.12	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency (MHz)	Peak level (dBuv/m)	Duty cycle factor (dB)	AV level (dBuv/m)	Limit(dBuv/m)	Conclusion
4960.000	56.88	7.52	49.36	54	Pass



Site no.	: 3m Chamber	Data no.	: 13
Dis. / Ant.	: 3m 2012 3115 (4580)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23*C/54%	Engineer	: Leo-Li
EUT	: All-in-One Cycling Kit		
Power supply	: DC 5V From PC Input AC 120V/60Hz		
Test mode	: Tx Mode GFSK 2480MHz		
	WUSA K230		

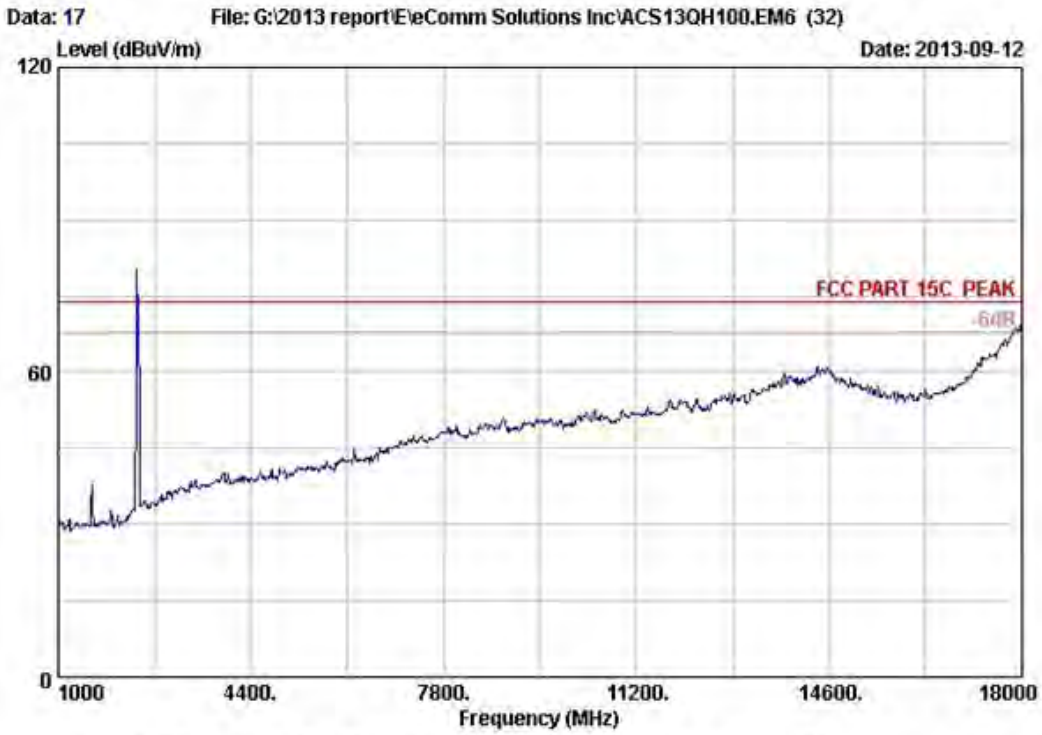


Site no. : 3m Chamber Data no. : 14
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-One Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode GFSK 2480MHz
WUSA K230

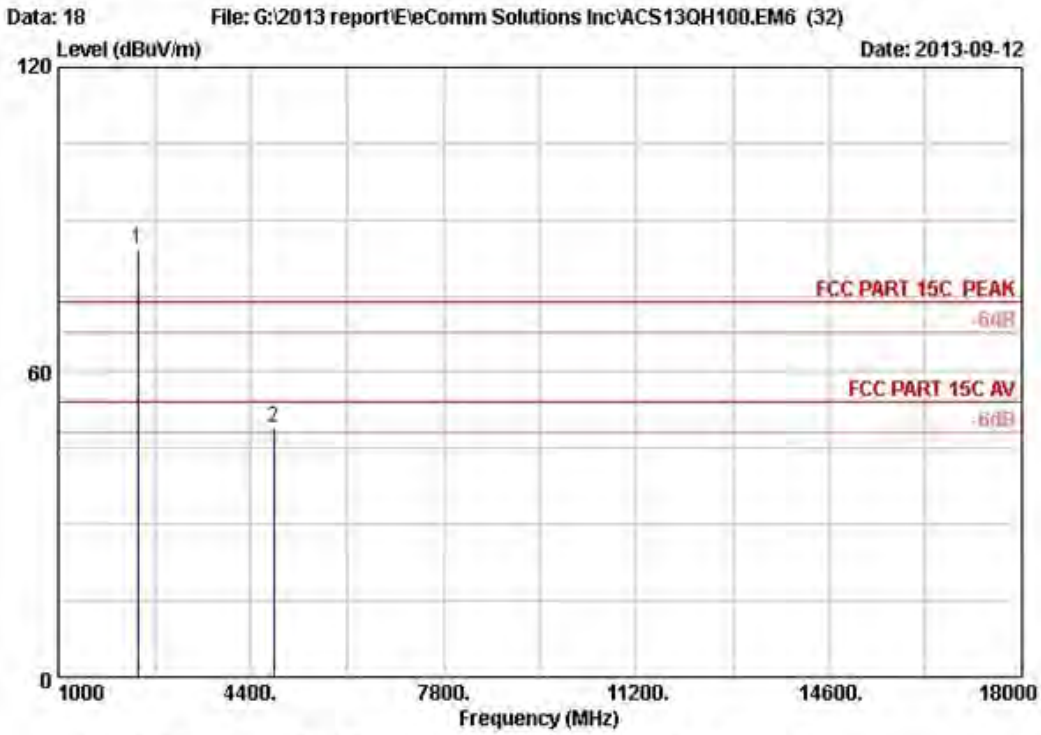
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.000	27.27	5.91	35.70	90.02	87.50	74.00	-13.50	Peak
2	4960.000	32.81	8.72	35.70	53.09	58.92	74.00	15.08	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency（MHz）	Peak level（dBuv/m）	Duty cycle factor (dB)	AV level (dBuv/m)	Limit(dBuv/m)	Conclusion
4960.000	58.92	7.52	51.4	54	Pass



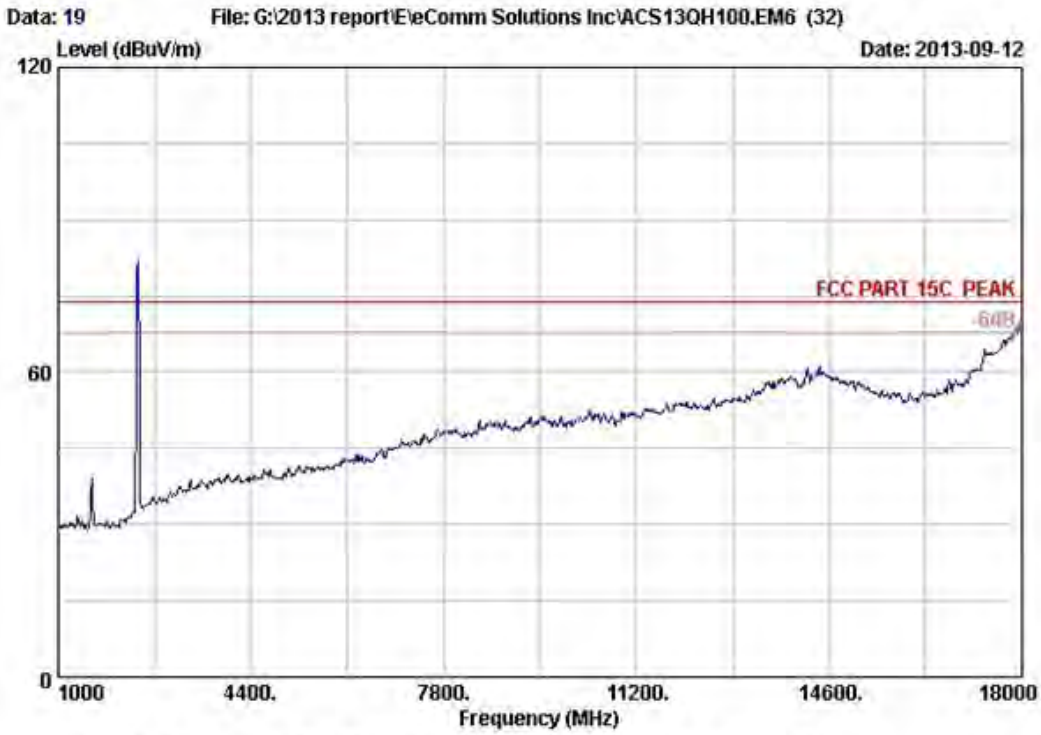
Site no.	: 3m Chamber	Data no.	: 17
Dis. / Ant.	: 3m 2012 3115 (4580)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23*C/54%	Engineer	: Leo-Li
EUT	: All-in-One Cycling Kit		
Power supply	: DC 5V From PC Input AC 120V/60Hz		
Test mode	: Tx Mode 8DFSK 2402MHz		
	WUSA K230		



Site no. : 3m Chamber Data no. : 18
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-One Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode 8DFSK 2402MHz
WUSA K230

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.000	26.77	5.80	35.70	87.34	84.21	74.00	-10.21	Peak
2	4804.000	32.47	8.56	35.70	43.88	49.21	74.00	24.79	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

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Site no.      : 3m Chamber                Data no.   : 19
Dis. / Ant.   : 3m   2012 3115 (4580)     Ant. pol.  : HORIZONTAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                  Engineer   : Leo-Li
EUT           : All-in-One Cycling Kit
Power supply  : DC 5V From PC Input AC 120V/60Hz
Test mode     : Tx Mode  8DFSK 2402MHz
                WUSA K230
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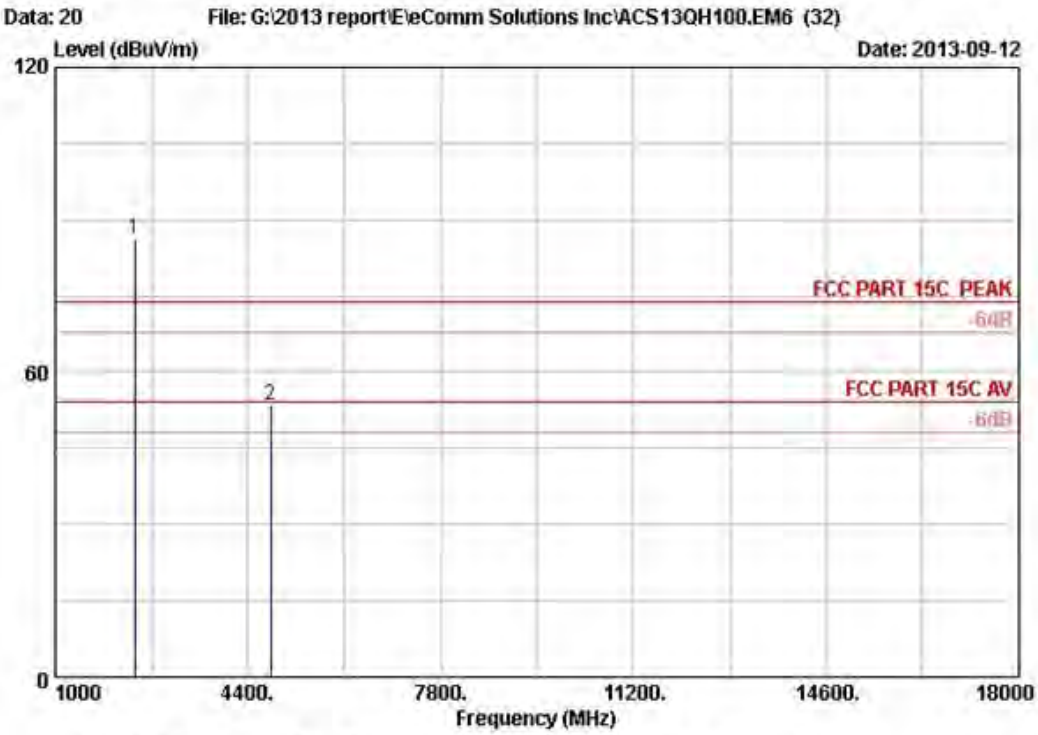
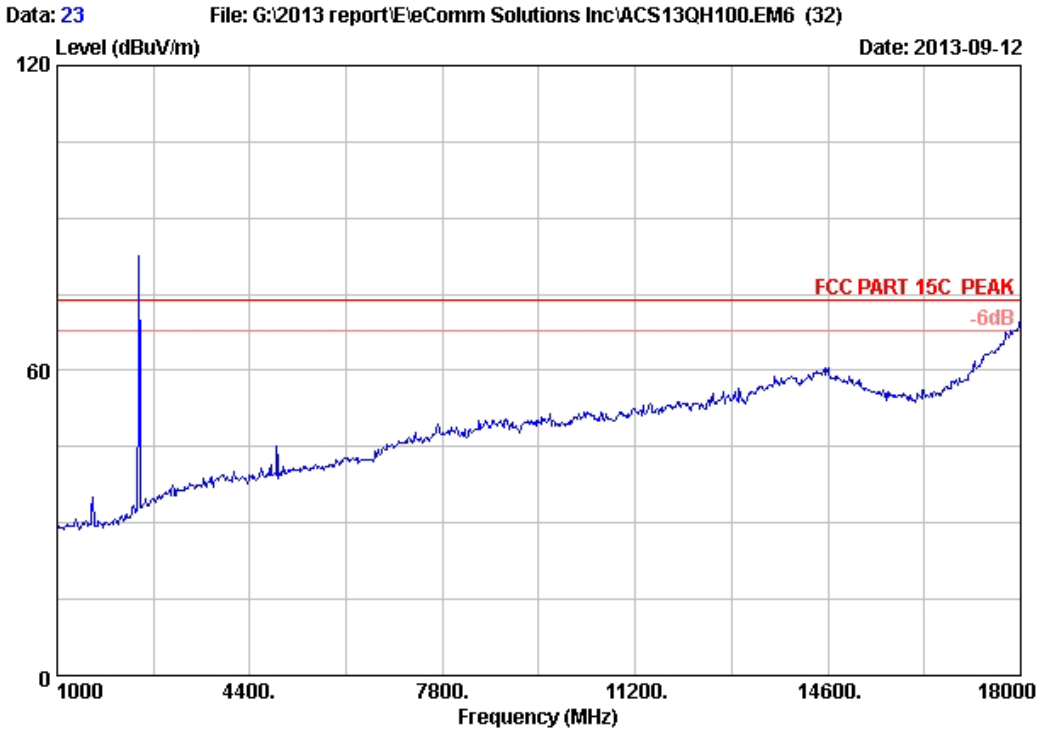


Site no. : 3m Chamber Data no. : 20
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-One Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode 8DFSK 2402MHz
WUSA K230

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.000	26.77	5.80	35.70	89.30	86.17	74.00	-12.17	Peak
2	4804.000	32.47	8.56	35.70	48.29	53.62	74.00	20.38	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

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Site no.      : 3m Chamber                Data no.   : 23
Dis. / Ant.   : 3m   2012 3115 (4580)     Ant. pol.  : VERTICAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                  Engineer   : Leo-Li
EUT           : All-in-one Cycling Kit
Power supply  : DC 5V From PC Input AC 120V/60Hz
Test mode     : Tx Mode  8DFSK 2441MHz
                WUSA K230
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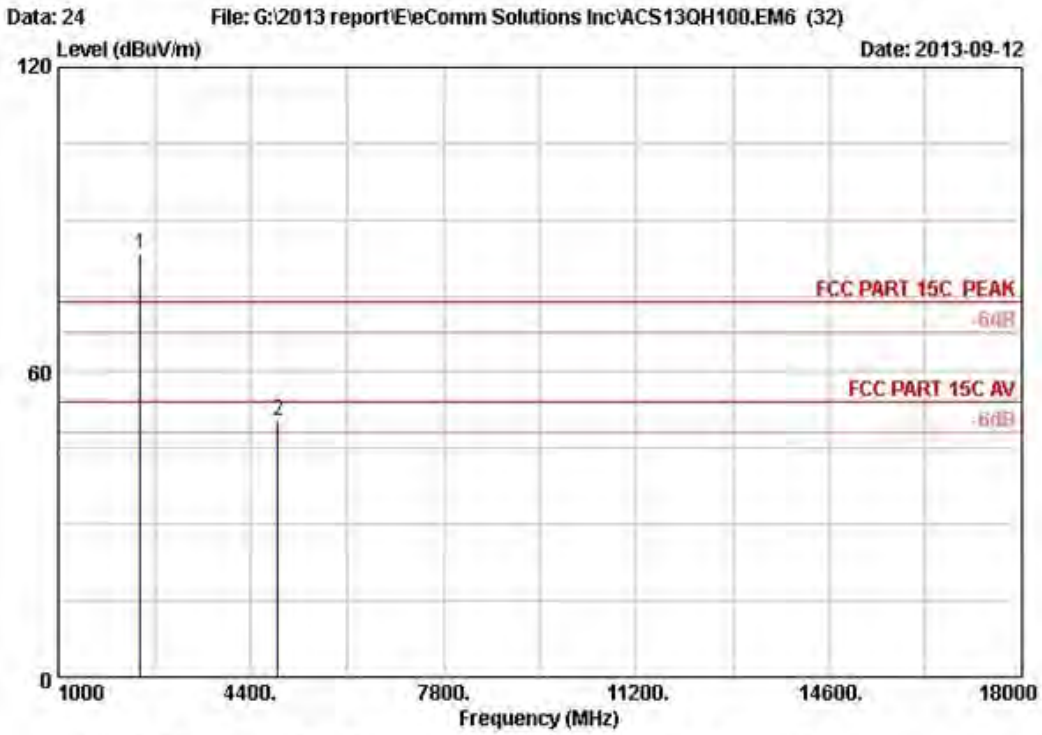
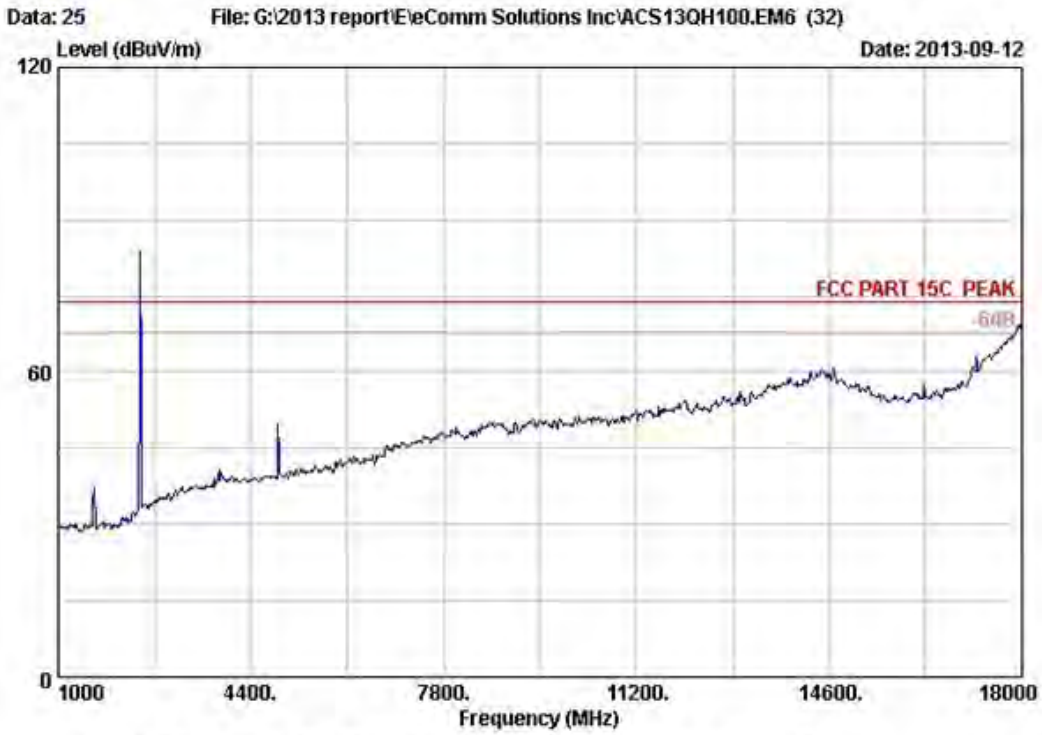


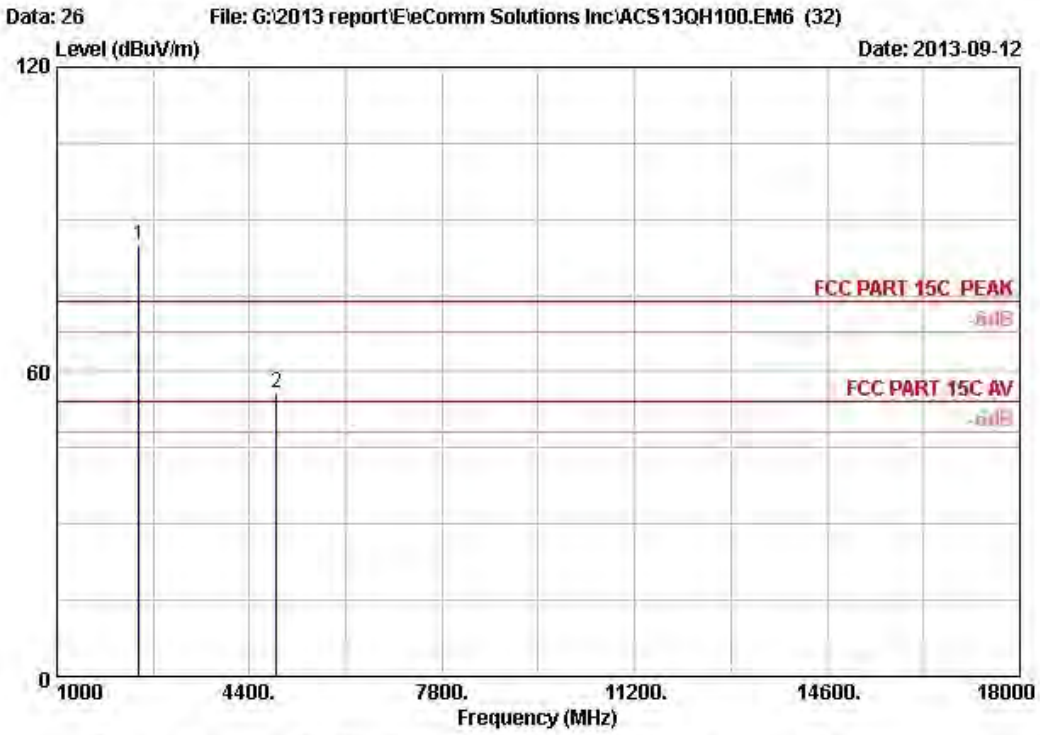
Site no. : 3m Chamber Data no. : 24
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-One Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode 8DFSK 2441MHz
WUSA K230

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2441.000	27.02	5.86	35.70	85.98	83.16	74.00	-9.16	Peak
2	4882.000	32.64	8.64	35.70	44.77	50.35	74.00	23.65	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no.	: 3m Chamber	Data no.	: 25
Dis. / Ant.	: 3m 2012 3115 (4580)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23*C/54%	Engineer	: Leo-Li
EUT	: All-in-One Cycling Kit		
Power supply	: DC 5V From PC Input AC 120V/60Hz		
Test mode	: Tx Mode 8DFSK 2441MHz		
	WUSA K230		

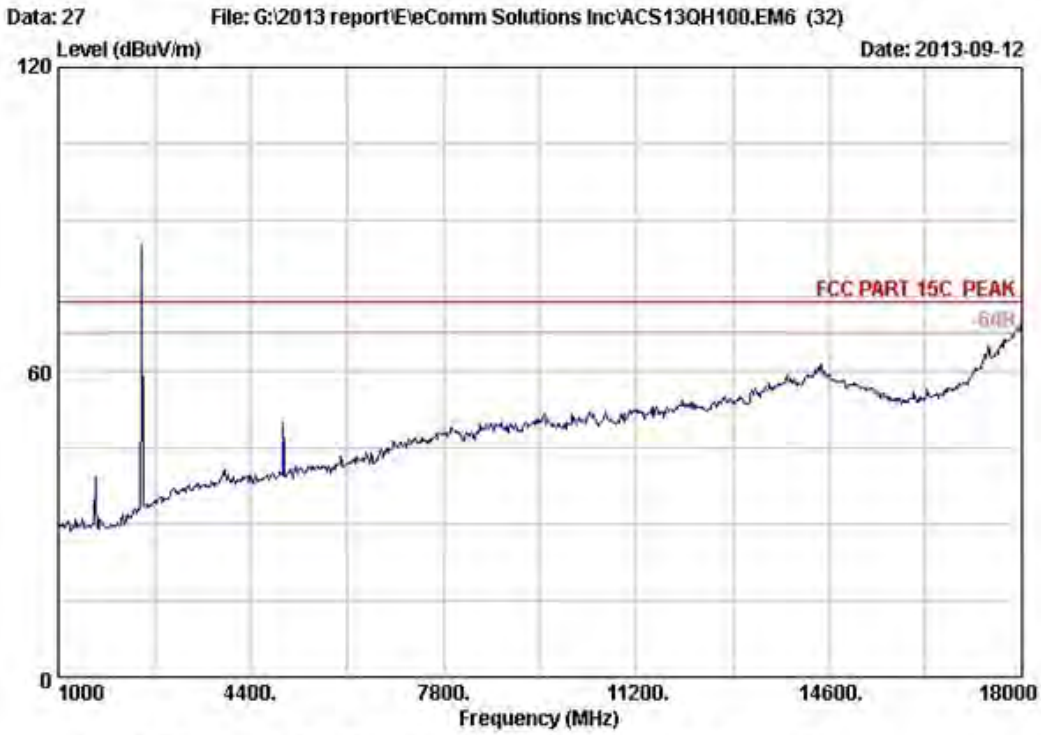


Site no. : 3m Chamber Data no. : 26
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-One Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode 8DFSK 2441MHz
WUSA K230

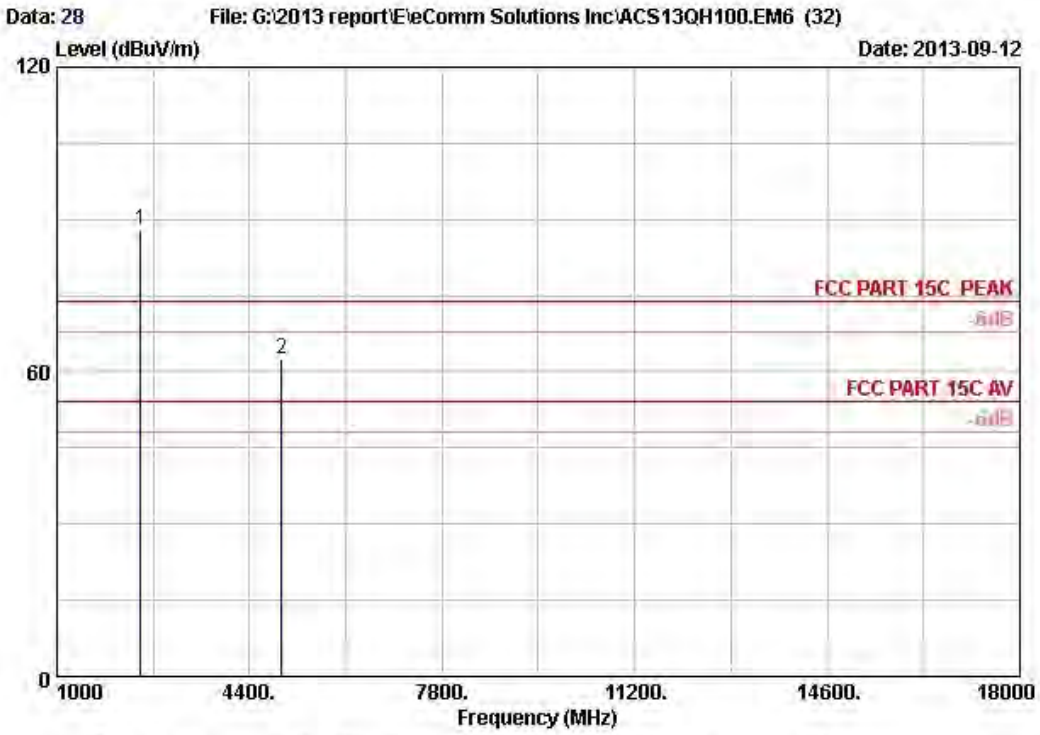
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2441.000	27.02	5.86	35.70	87.81	84.99	74.00	-10.99	Peak
2	4882.000	32.64	8.64	35.70	50.32	55.90	74.00	18.10	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency （MHz）	Peak level （dBuv/m）	Duty cycle factor (dB)	AV level (dBuv/m)	Limit(dBuv/m)	Conclusion
4882.000	55.90	7.52	48.38	54	Pass



Site no.	: 3m Chamber	Data no.	: 27
Dis. / Ant.	: 3m 2012 3115 (4580)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23*C/54%	Engineer	: Leo-Li
EUT	: All-in-One Cycling Kit		
Power supply	: DC 5V From PC Input AC 120V/60Hz		
Test mode	: Tx Mode 8DFSK 2480MHz		
	WUSA K230		

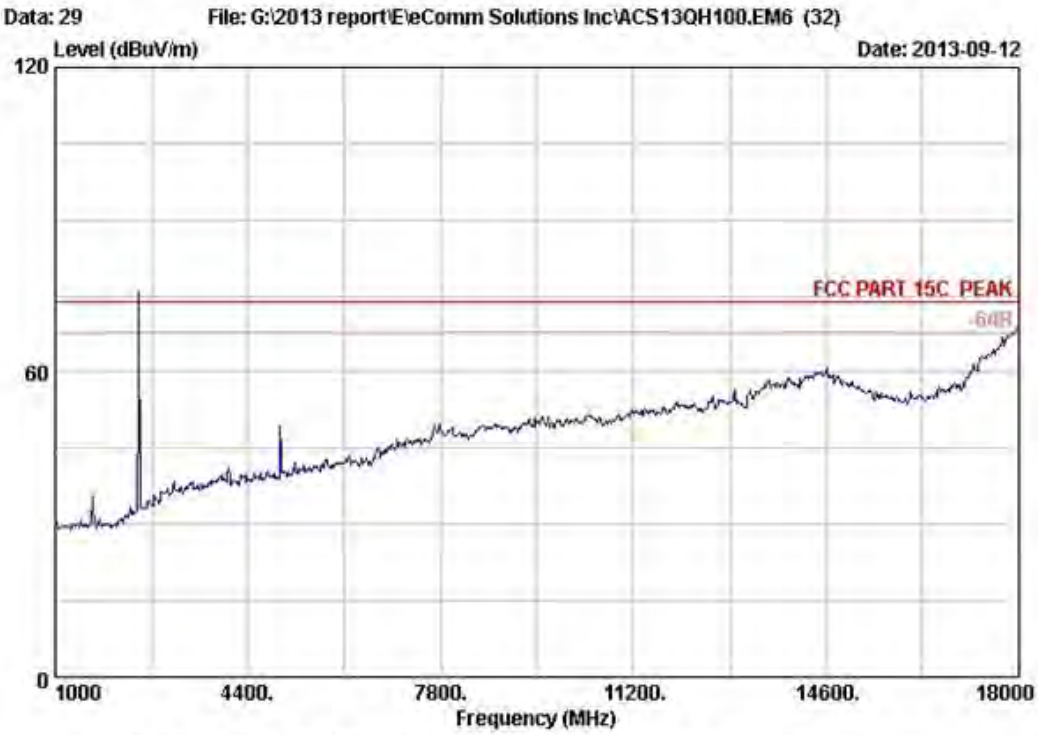


Site no. : 3m Chamber Data no. : 28
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-One Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode 8DFSK 2480MHz
WUSA K230

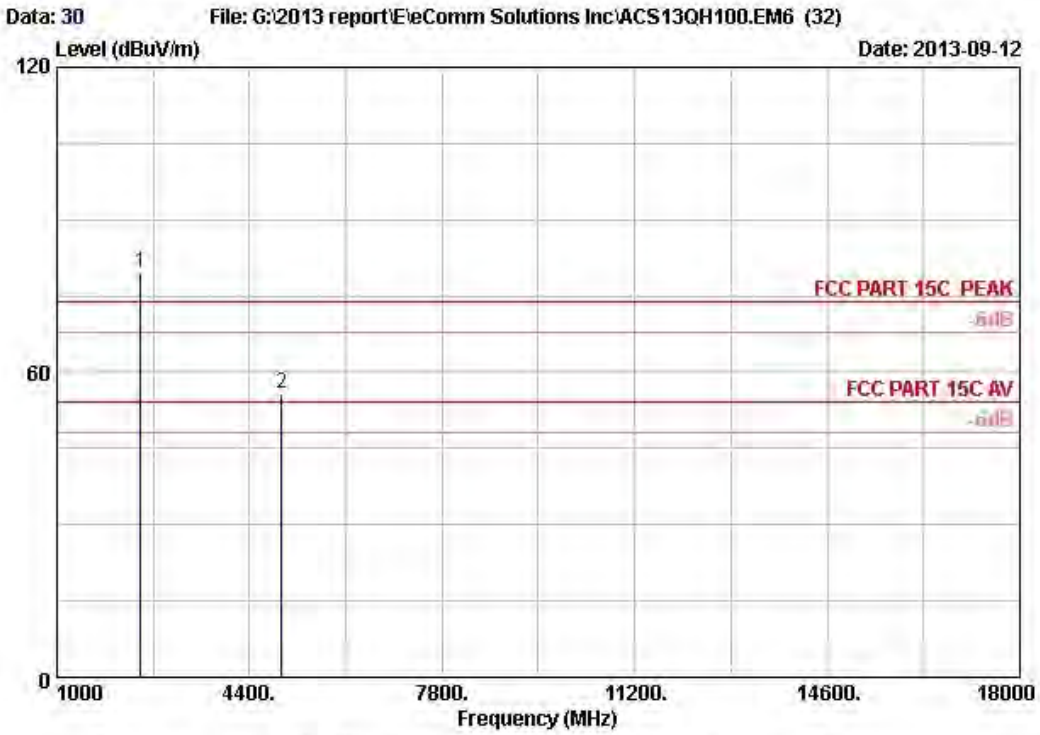
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.000	27.27	5.91	35.70	90.41	87.89	74.00	-13.89	Peak
2	4960.000	32.81	8.72	35.70	56.81	62.64	74.00	11.36	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency（MHz）	Peak level（dBuv/m）	Duty cycle factor (dB)	AV level (dBuv/m)	Limit(dBuv/m)	Conclusion
4804.000	54.89	7.52	47.37	54	Pass



Site no.	: 3m Chamber	Data no.	: 29
Dis. / Ant.	: 3m 2012 3115 (4580)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23*C/54%	Engineer	: Leo-Li
EUT	: All-in-One Cycling Kit		
Power supply	: DC 5V From PC Input AC 120V/60Hz		
Test mode	: Tx Mode 8DFSK 2480MHz		
	WUSA K230		



Site no. : 3m Chamber Data no. : 30
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-One Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode 8DFSK 2480MHz
WUSA K230

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.000	27.27	5.91	35.70	82.24	79.72	74.00	-5.72	Peak
2	4960.000	32.81	8.72	35.70	49.92	55.75	74.00	18.25	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency （MHz）	Peak level （dBuv/m）	Duty cycle factor (dB)	AV level (dBuv/m)	Limit(dBuv/m)	Conclusion
4960.000	55.75	7.52	48.23	54	Pass

5. CONDUCTED SPURIOUS EMISSIONS

5.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9030A	MY51380221	Oct.31, 12	1Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08,13	1 Year
3.	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08,13	1Year

5.2. Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

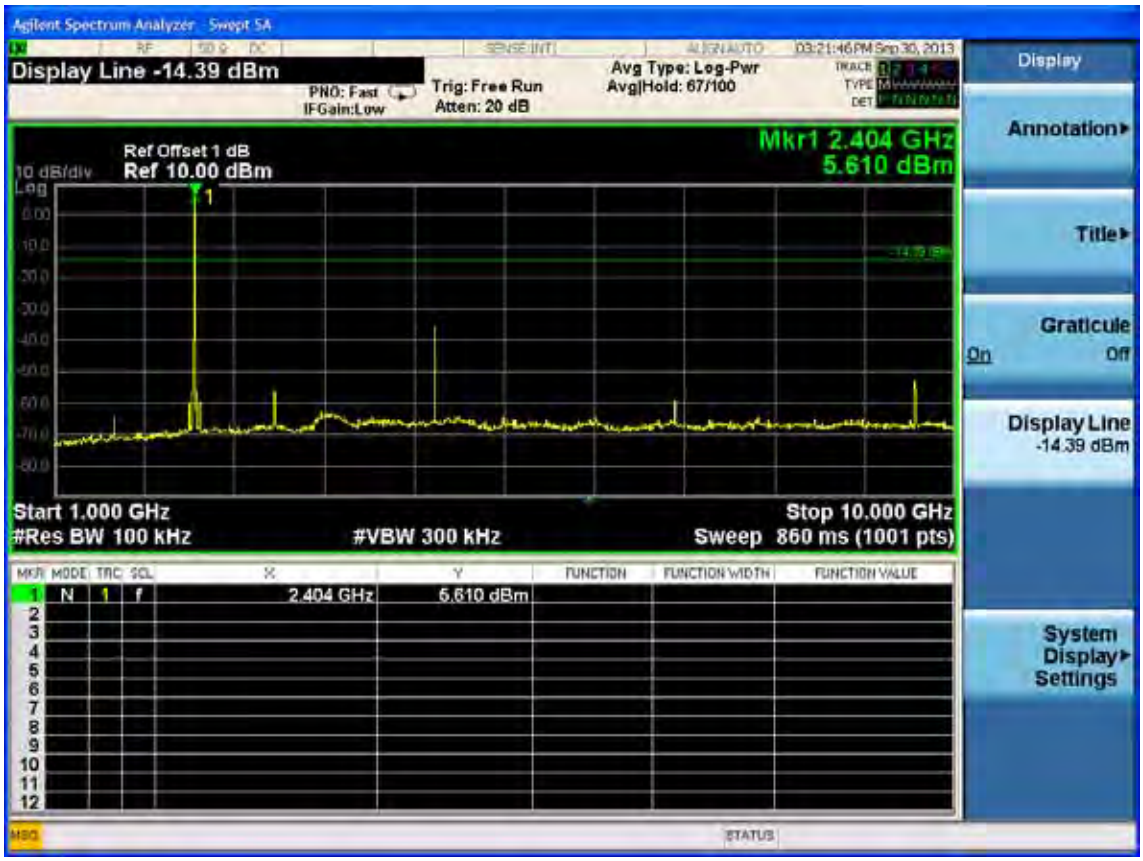
5.3. Test Procedure

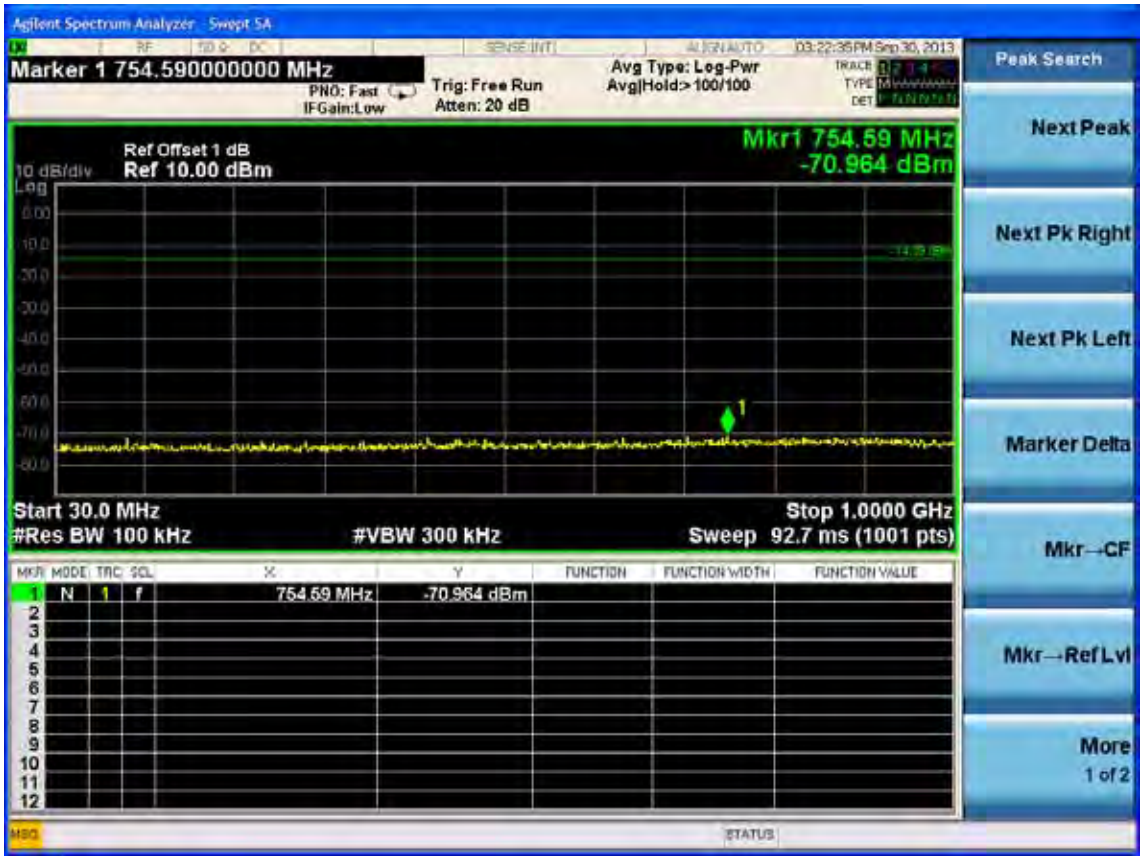
The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions detected.

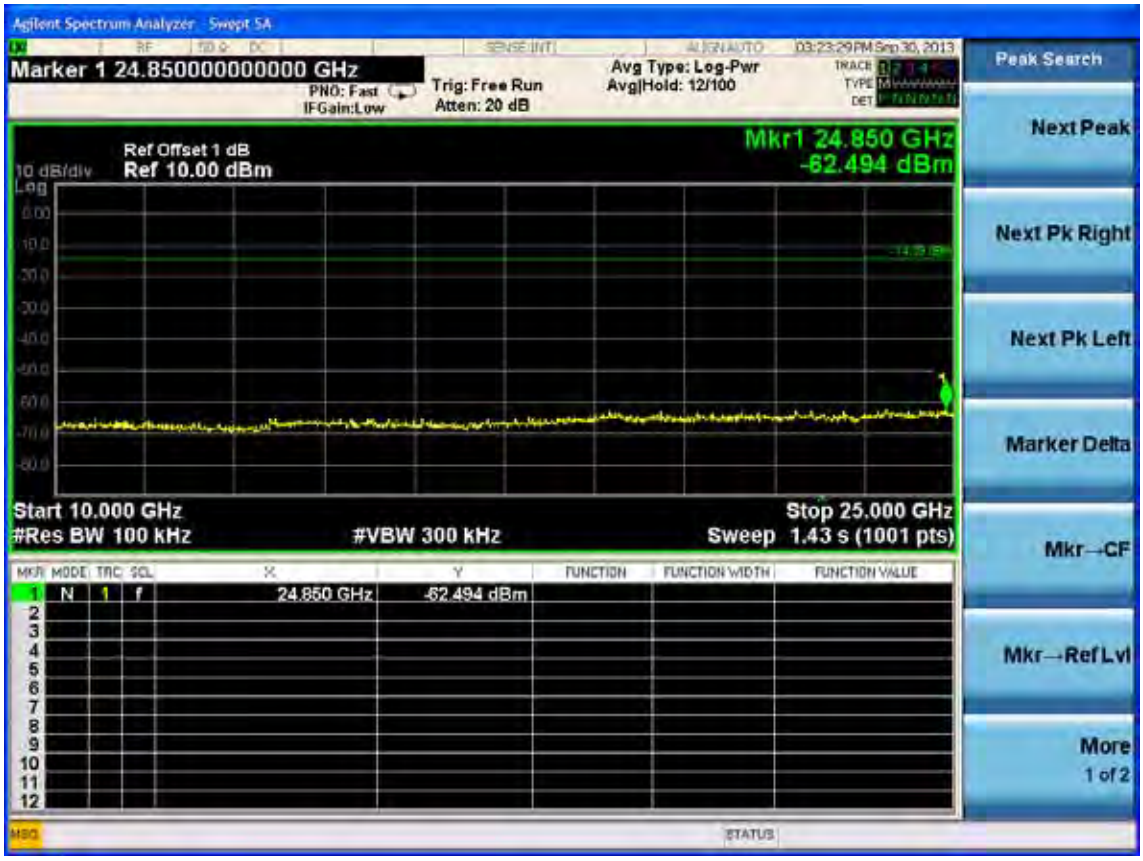
5.4. Test result

PASS (The testing data was attached in the next pages.)

Hopping Off
GFSK
2402MHz

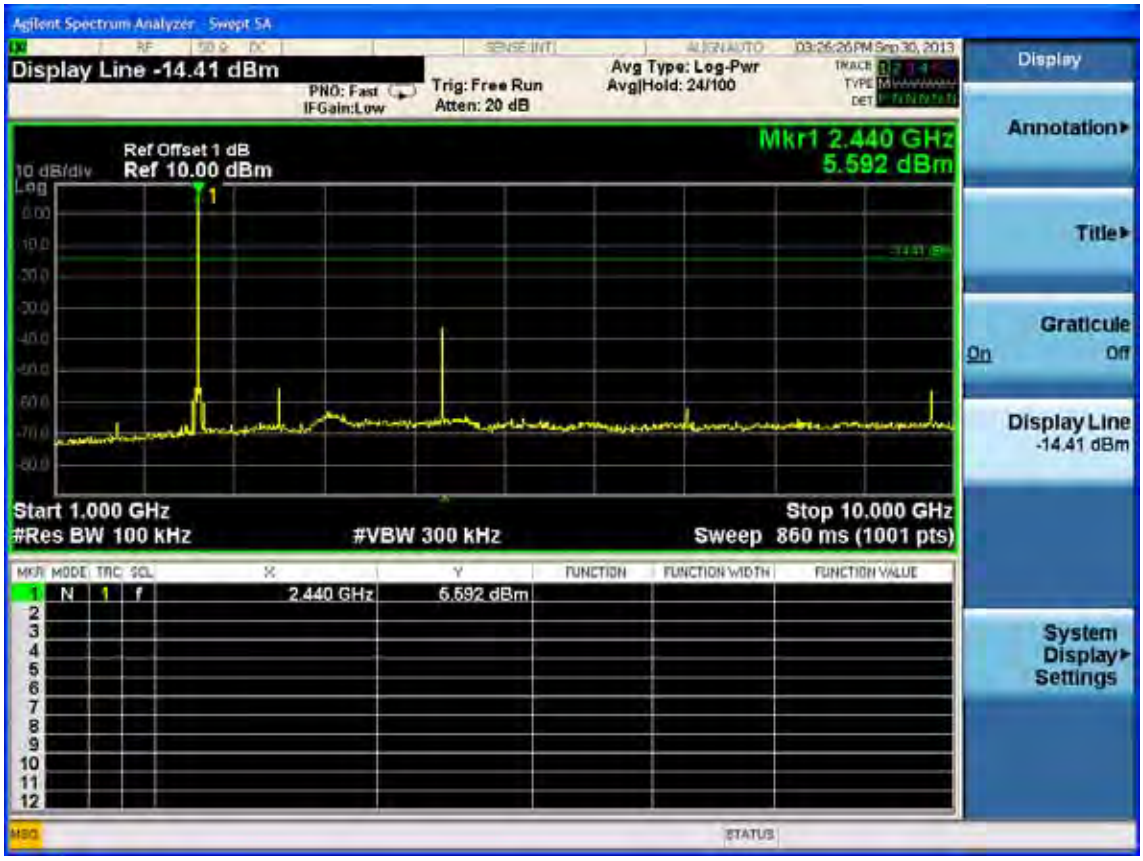


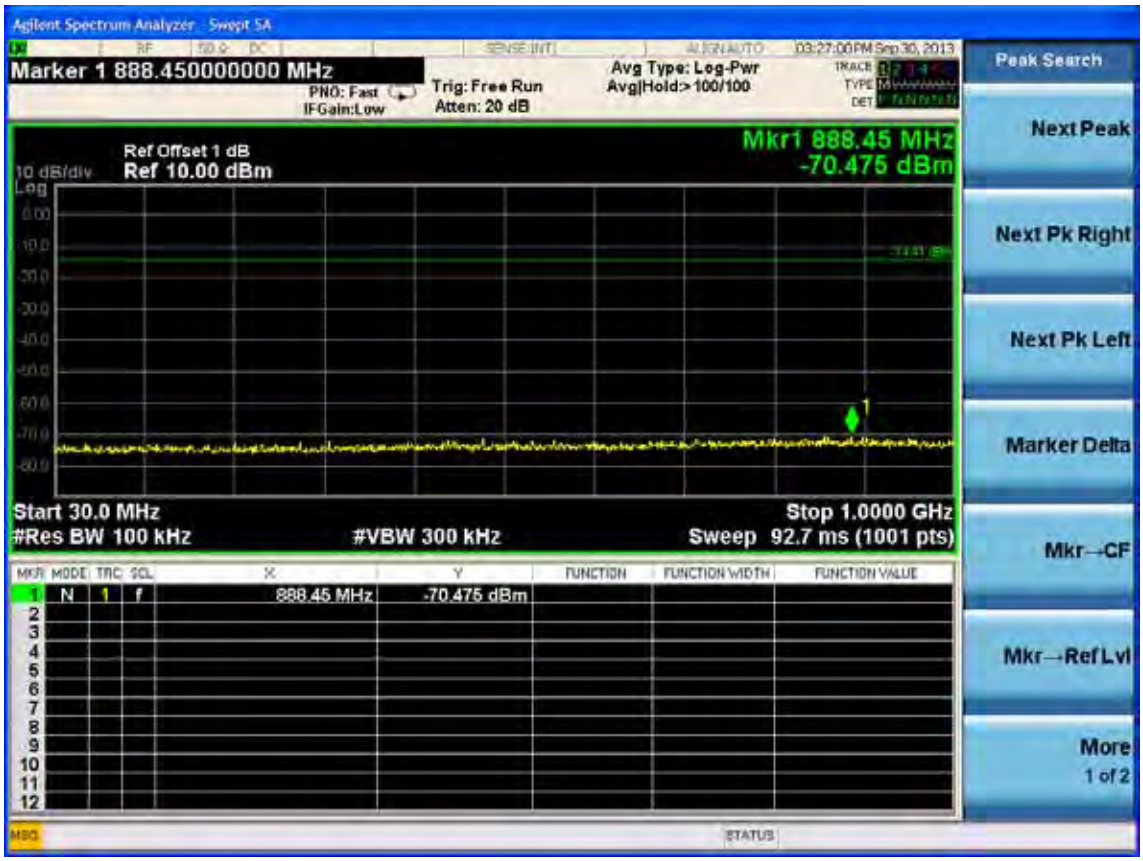


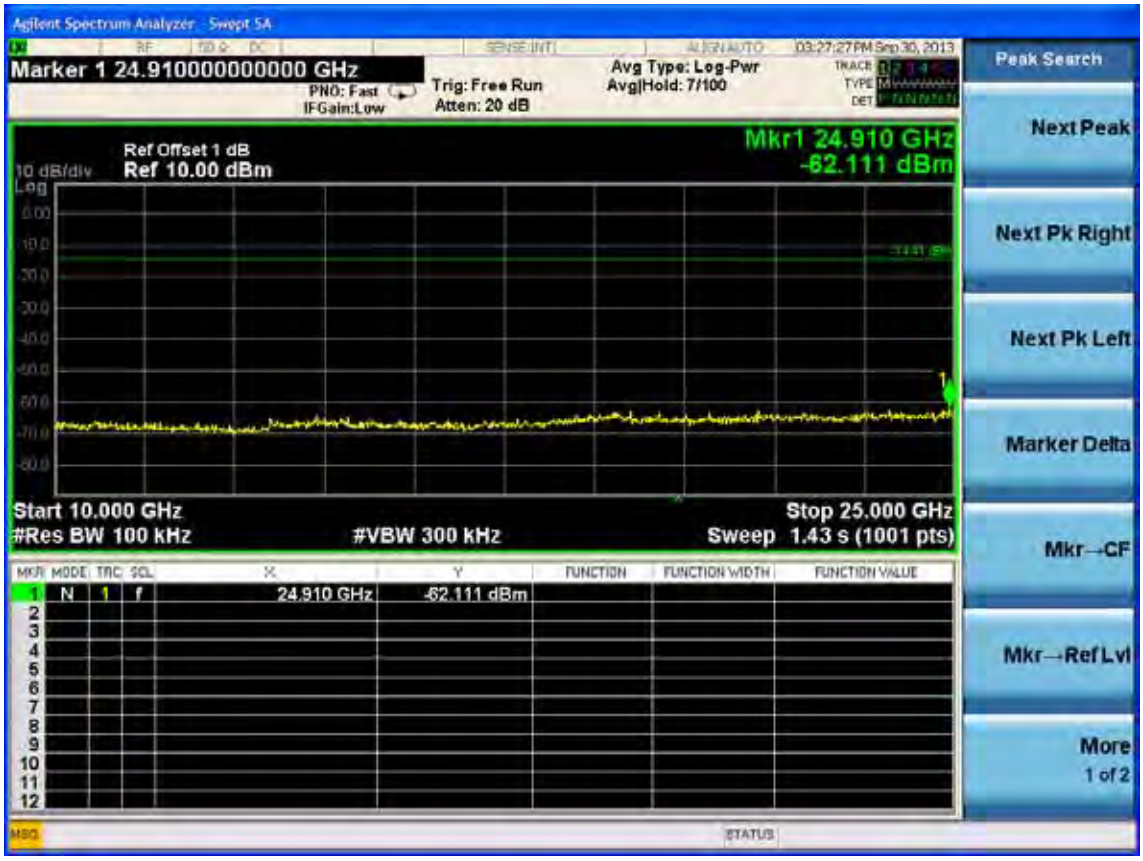

Agilent Spectrum Analyzer - Swept SA
Marker 1 24.850000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 12/100
03:23:29 PM Sep 30, 2013
Peak Search
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 24.850 GHz
-62.494 dBm
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.43 s (1001 pts)
1 N 1 f 24.850 GHz -62.494 dBm
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Marker 3 2.400000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
03:25:32 PM Sep 30, 2013
Marker
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr3 2.400 000 GHz
-36.651 dBm
Select Marker
3
Normal
Delta
Fixed
Off
Properties
More
1 of 2
Start 2.31000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.40500 GHz
Sweep 9.13 ms (1001 pts)
1 N 1 f 2.402 055 GHz 6.751 dBm
2 N 1 f 2.390 000 GHz -64.701 dBm
3 N 1 f 2.400 000 GHz -36.651 dBm
MSG
STATUS

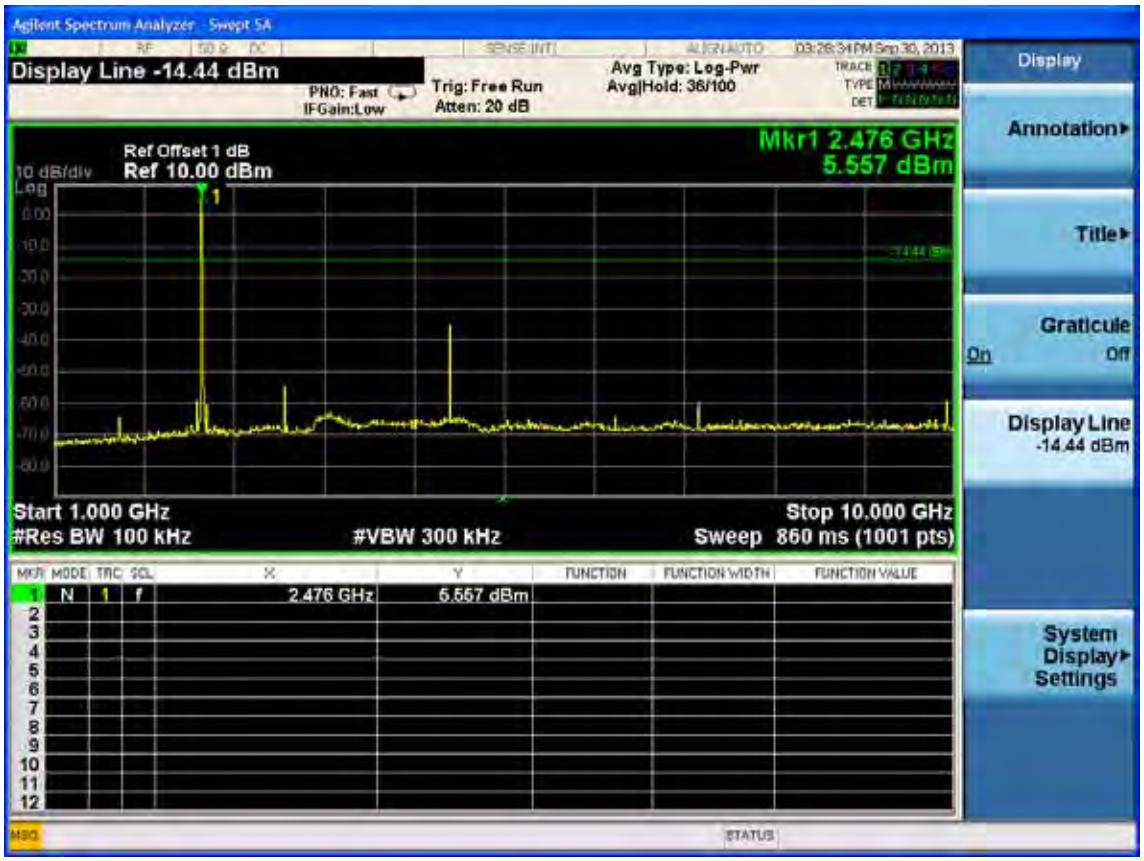
2441MHz

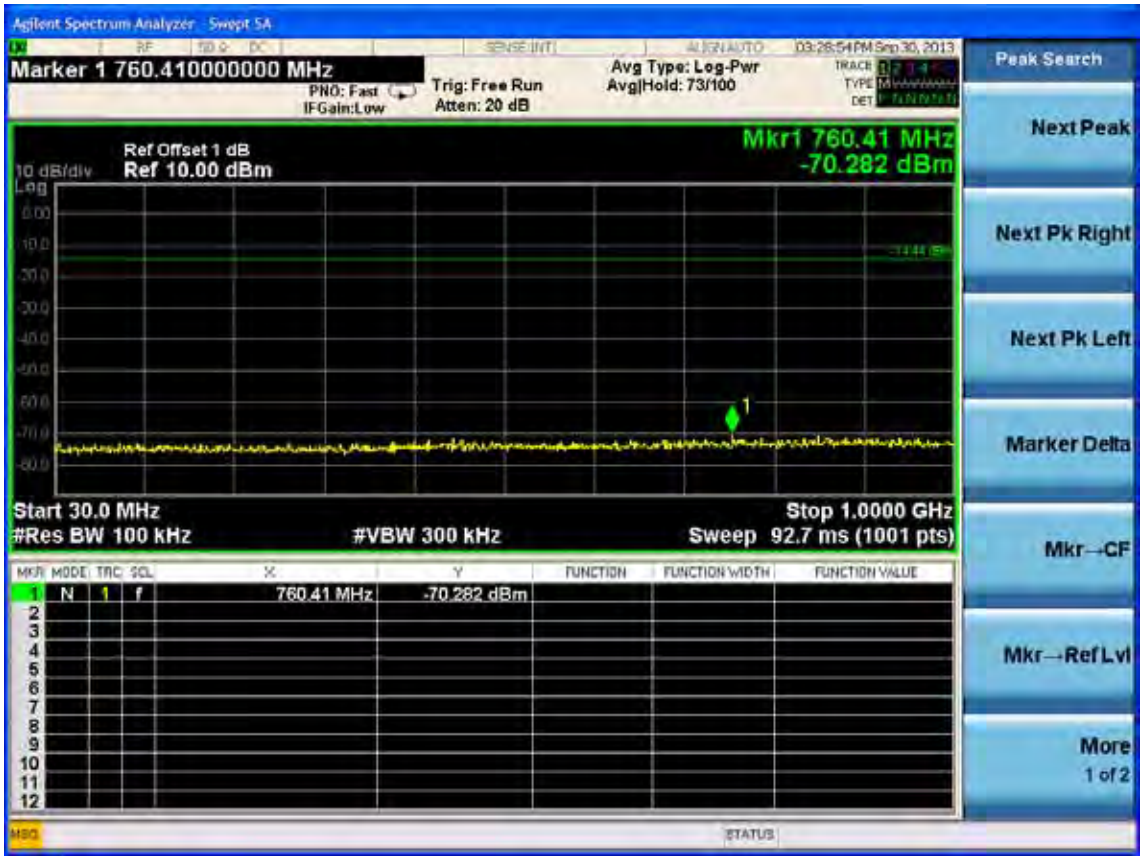

Agilent Spectrum Analyzer - Swept SA
Display Line -14.41 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 24/100
03:26:26 PM Sep 30, 2013
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr1 2.440 GHz
5.592 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 860 ms (1001 pts)
1 N 1 f 2.440 GHz 5.592 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-14.41 dBm
System
Display
Settings
MSG
STATUS

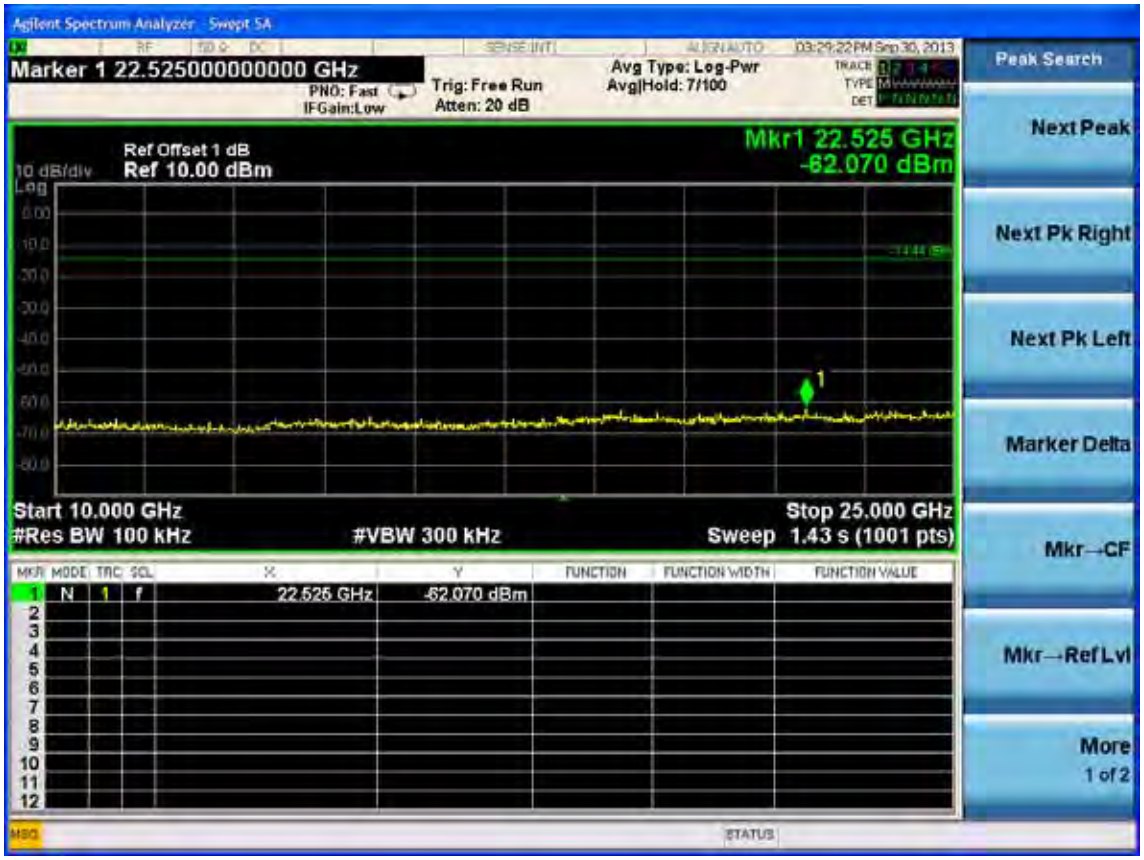

Agilent Spectrum Analyzer - Swept SA
Marker 1 888.450000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
03:27:00 PM Sep 30, 2013
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr1 888.45 MHz
-70.475 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.7 ms (1001 pts)
1 N 1 f 888.45 MHz -70.475 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

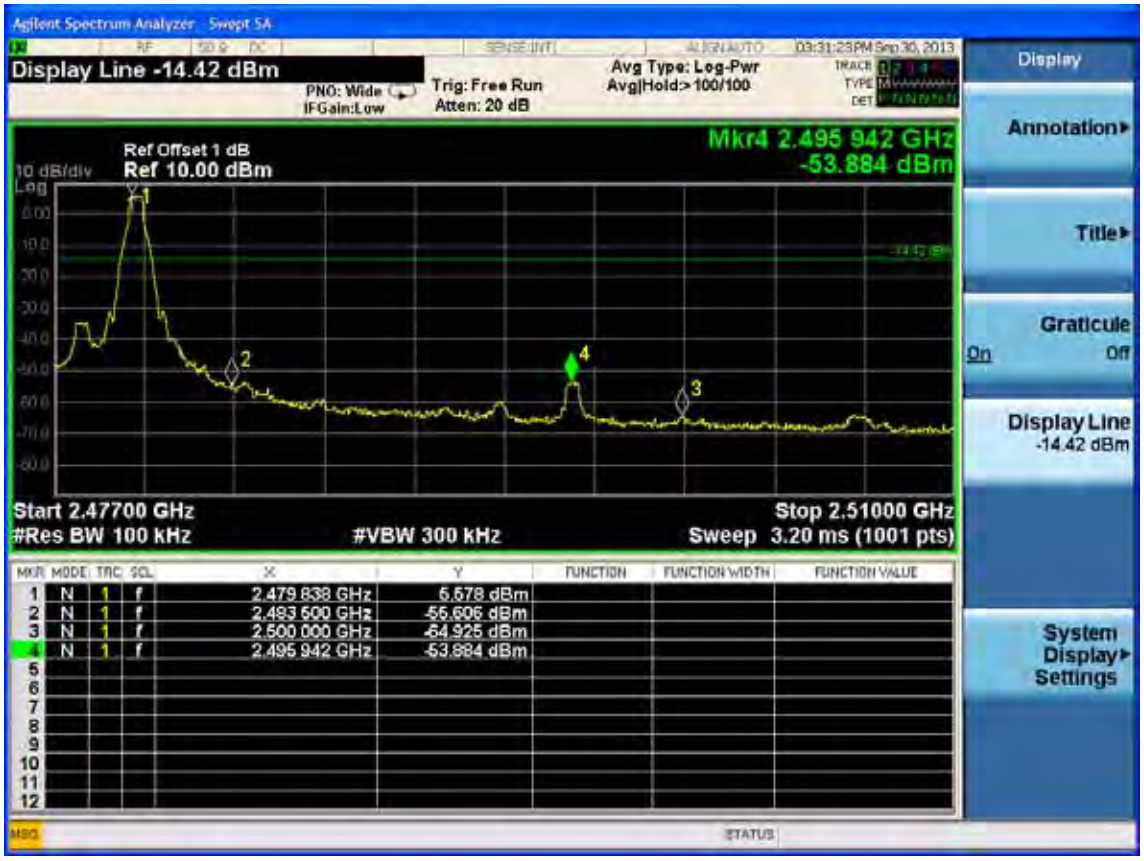

Agilent Spectrum Analyzer - Swept SA
Marker 1 24.910000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 7/100
03:27:27 PM Sep 30, 2013
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr1 24.910 GHz
-62.111 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.43 s (1001 pts)
1 N 1 f 24.910 GHz -62.111 dBm
MSG
STATUS

2480MHz


Agilent Spectrum Analyzer - Swept SA
Display Line -14.44 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 36/100
03:28:34 PM Sep 30, 2013
Display
Annotation
Title
Graticule
On
Off
Display Line
-14.44 dBm
System
Display
Settings
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr1 2.476 GHz
5.557 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 860 ms (1001 pts)
1 N 1 f 2.476 GHz 5.557 dBm
MSG
STATUS

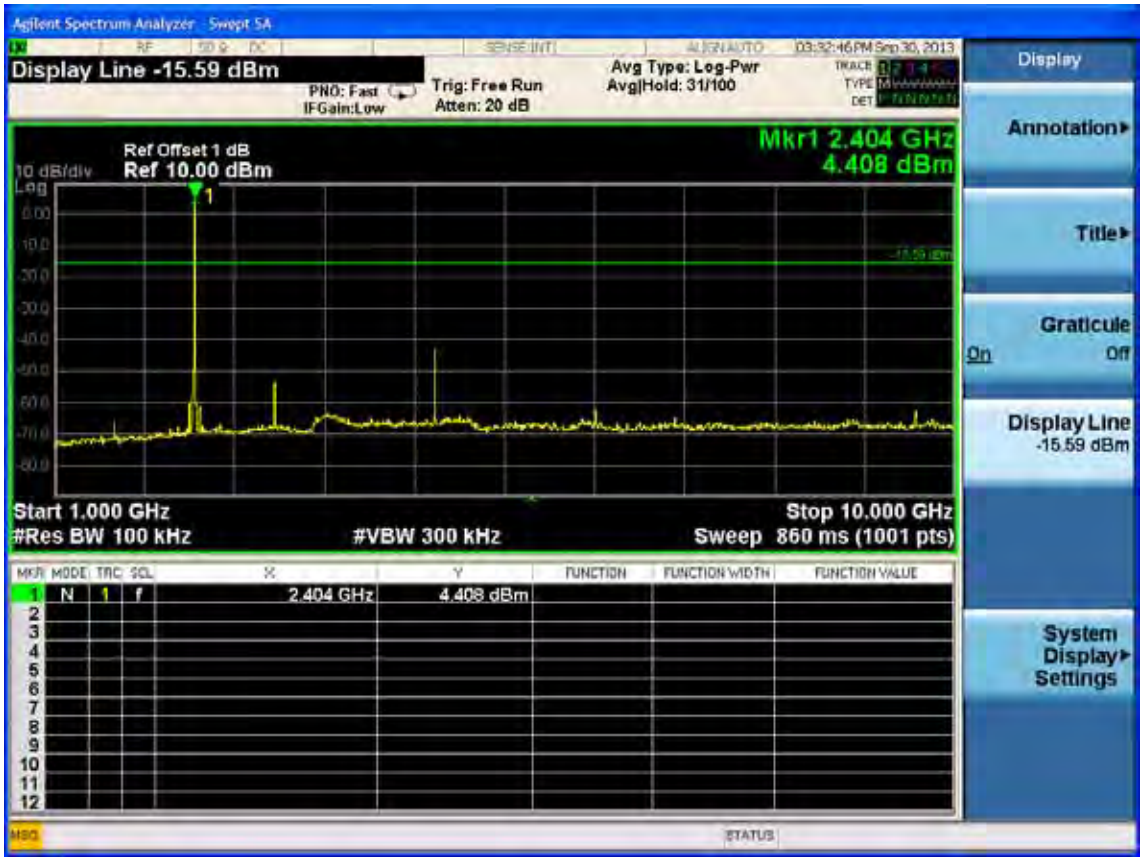

Agilent Spectrum Analyzer - Swept SA
Marker 1 760.410000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 73/100
03:26:54 PM Sep 30, 2013
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr1 760.41 MHz
-70.282 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.7 ms (1001 pts)
1 N 1 f 760.41 MHz -70.282 dBm
MSG
STATUS

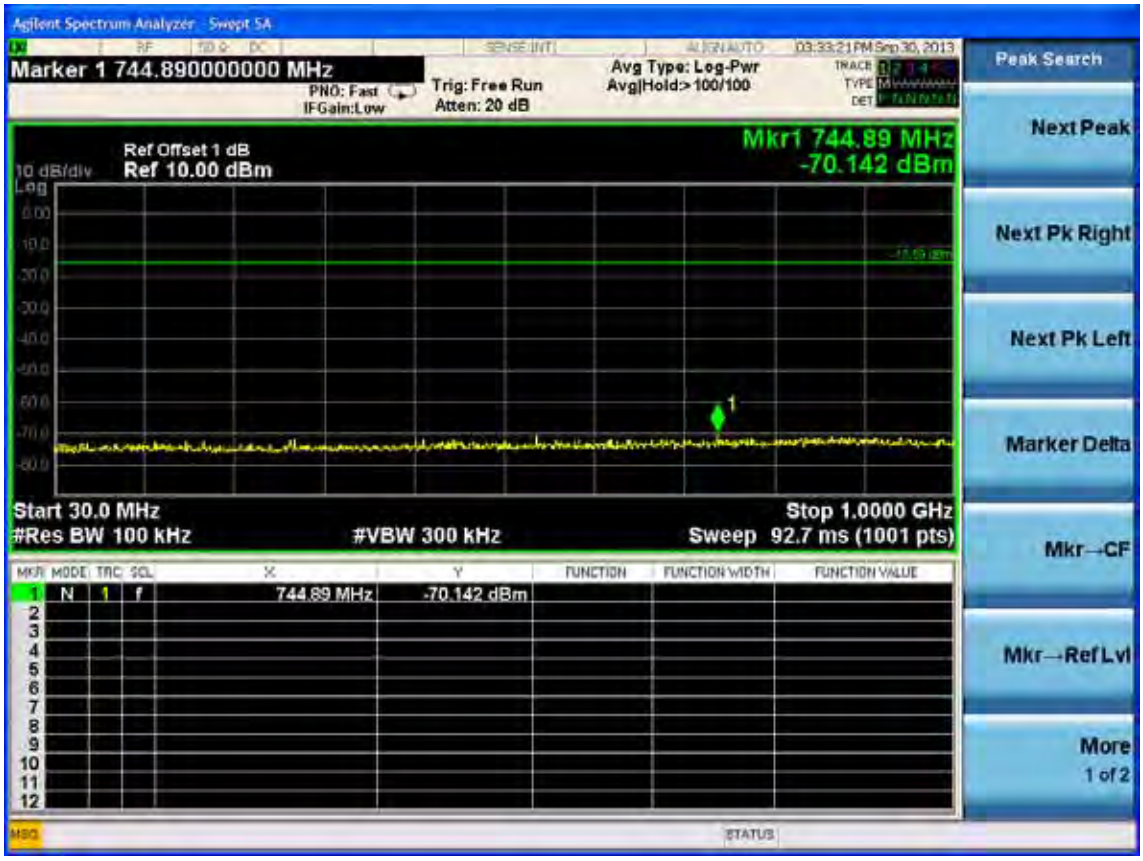

Agilent Spectrum Analyzer - Swept SA
Marker 1 22.525000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 7/100
03:29:22 PM Sep 30, 2013
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr1 22.525 GHz
-62.070 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.43 s (1001 pts)
1 N 1 f 22.525 GHz -62.070 dBm
MSG
STATUS

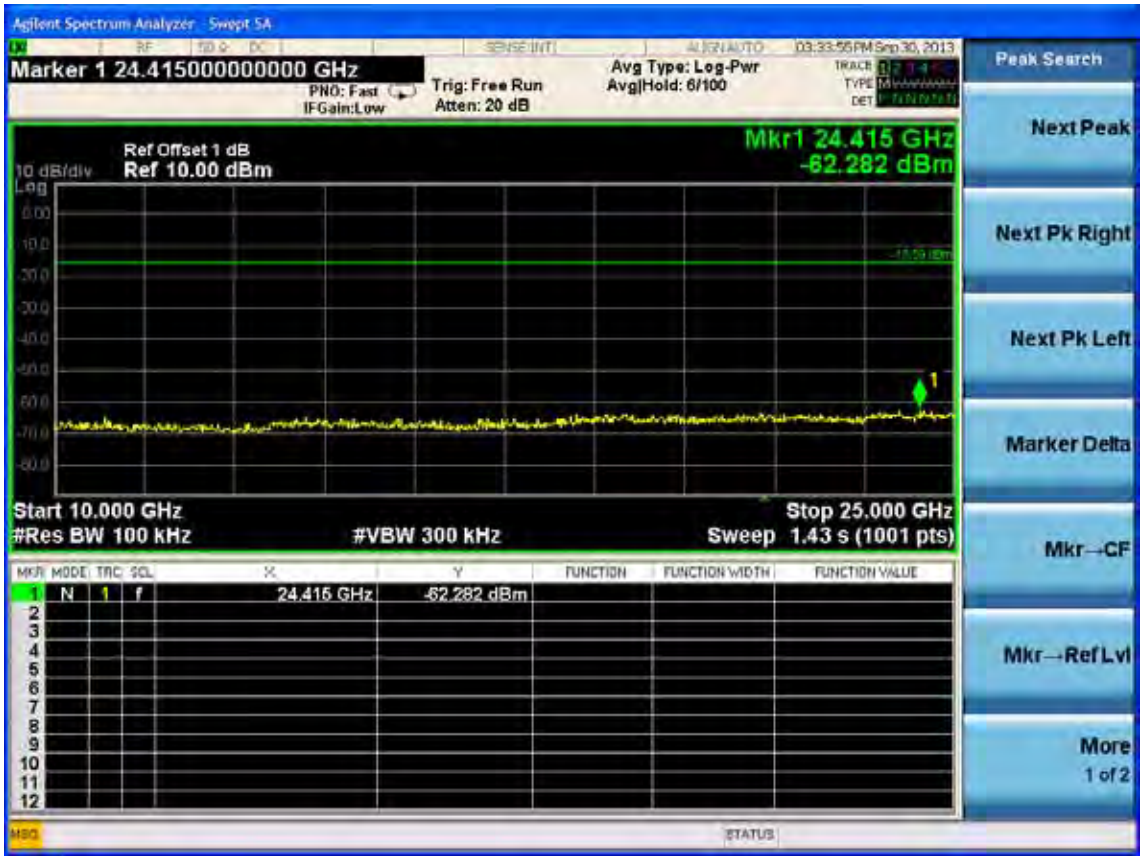


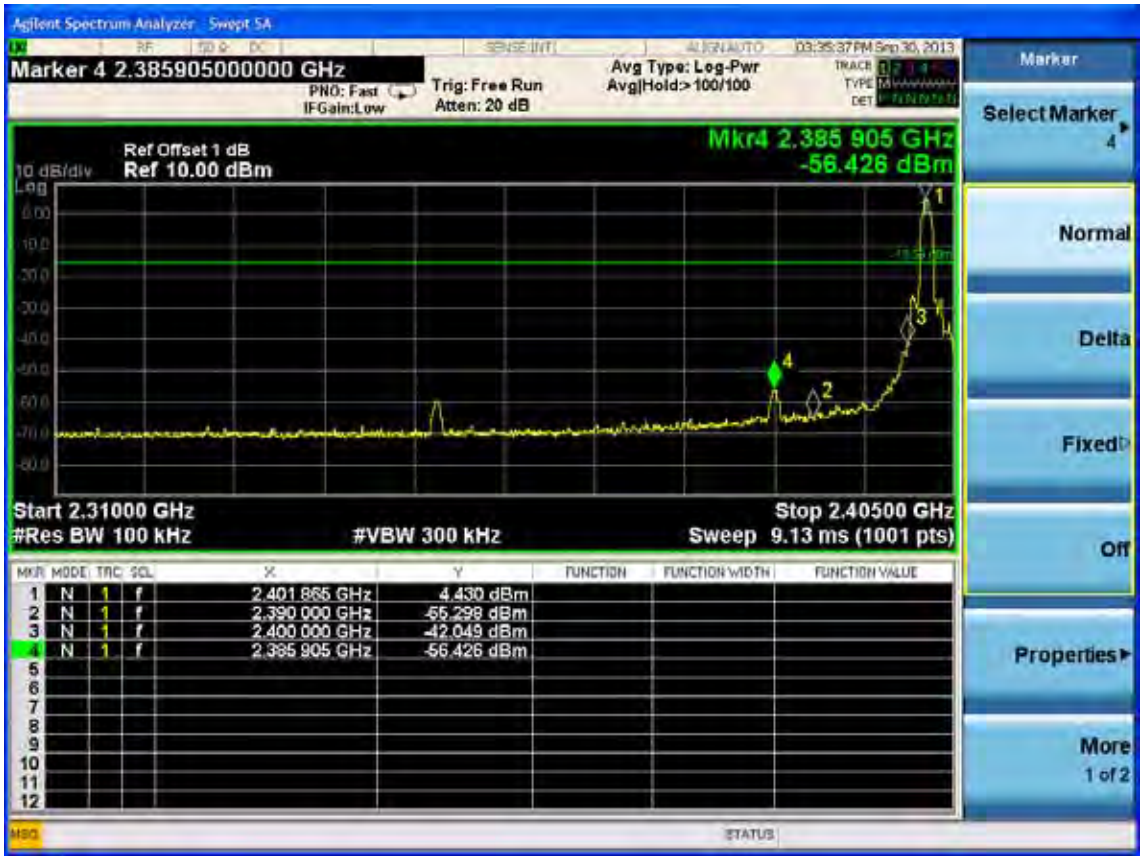
8-DPSK

2402MHz

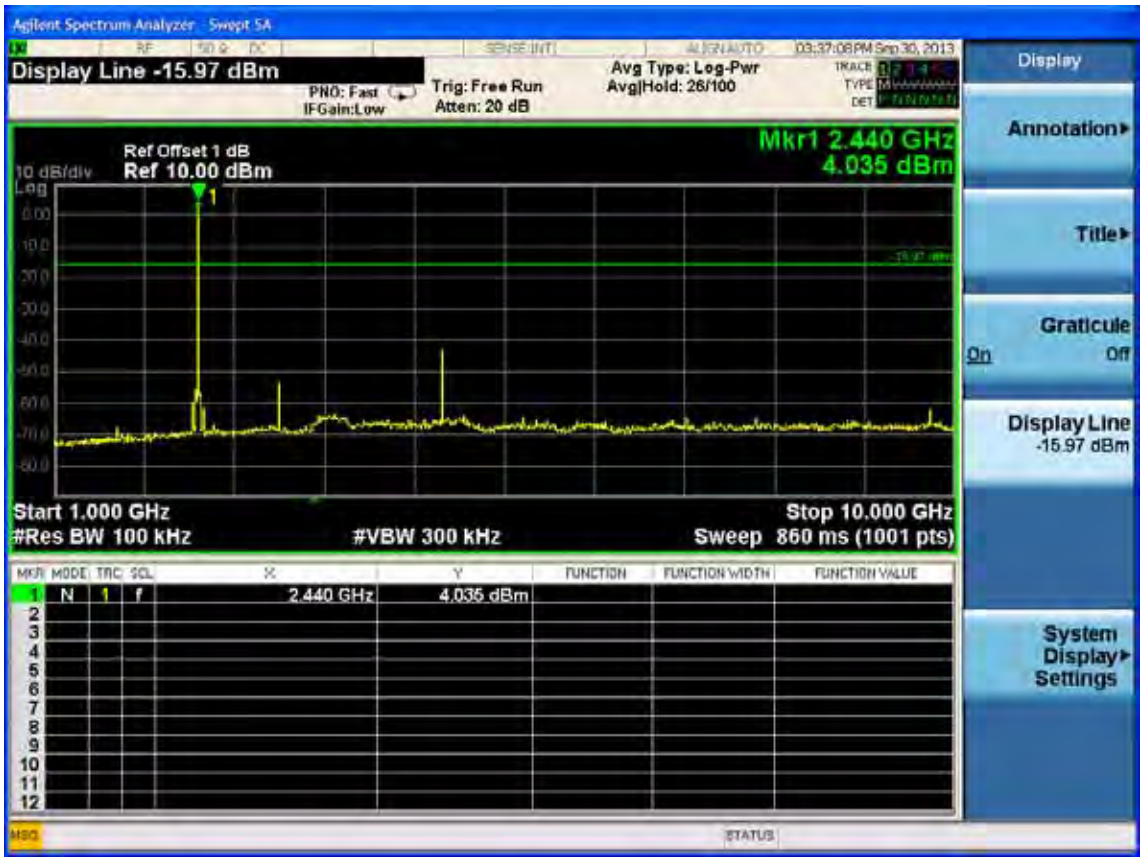


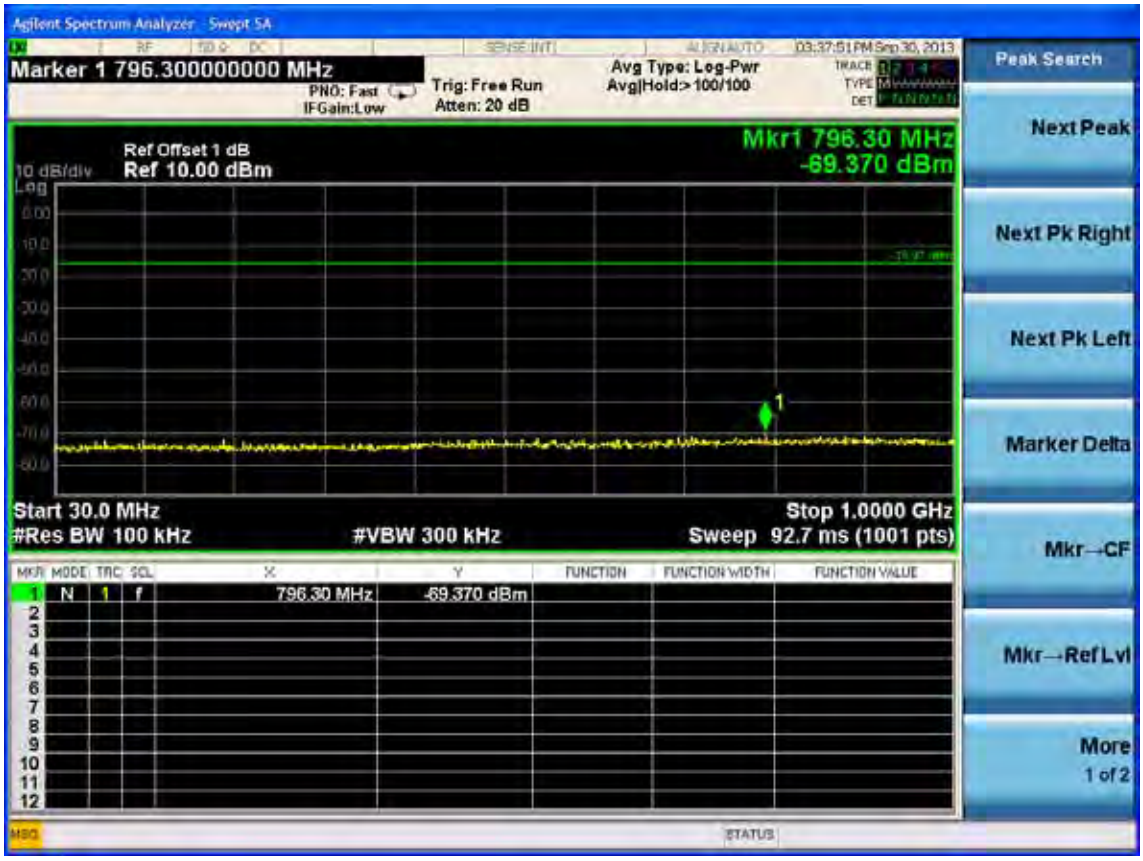

Agilent Spectrum Analyzer - Swept SA
Marker 1 744.890000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
03:33:21 PM Sep 30, 2013
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 744.89 MHz
-70.142 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.7 ms (1001 pts)
1 N 1 f 744.89 MHz -70.142 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

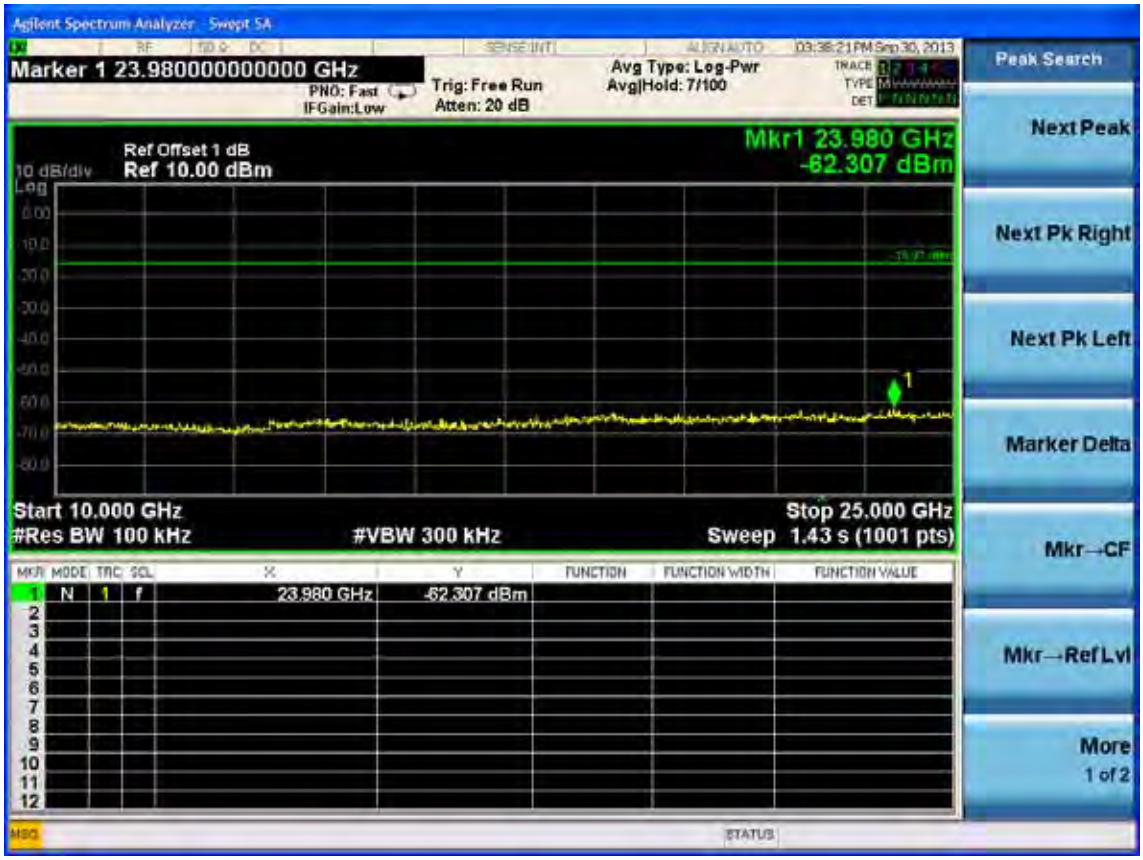

Agilent Spectrum Analyzer - Swept SA
Marker 1 24.415000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 6/100
03:33:55 PM Sep 30, 2013
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 24.415 GHz
-62.282 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.43 s (1001 pts)
1 N 1 f 24.415 GHz -62.282 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Marker 4 2.385905000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
03:35:37 PM Sep 30, 2013
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr4 2.385 905 GHz
-56.426 dBm
Start 2.31000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.40500 GHz
Sweep 9.13 ms (1001 pts)
1 N 1 f 2.401 865 GHz 4.430 dBm
2 N 1 f 2.390 000 GHz -55.298 dBm
3 N 1 f 2.400 000 GHz -42.049 dBm
4 N 1 f 2.385 905 GHz -56.426 dBm
Marker
Select Marker
4
Normal
Delta
Fixed
Off
Properties
More
1 of 2
MSG
STATUS

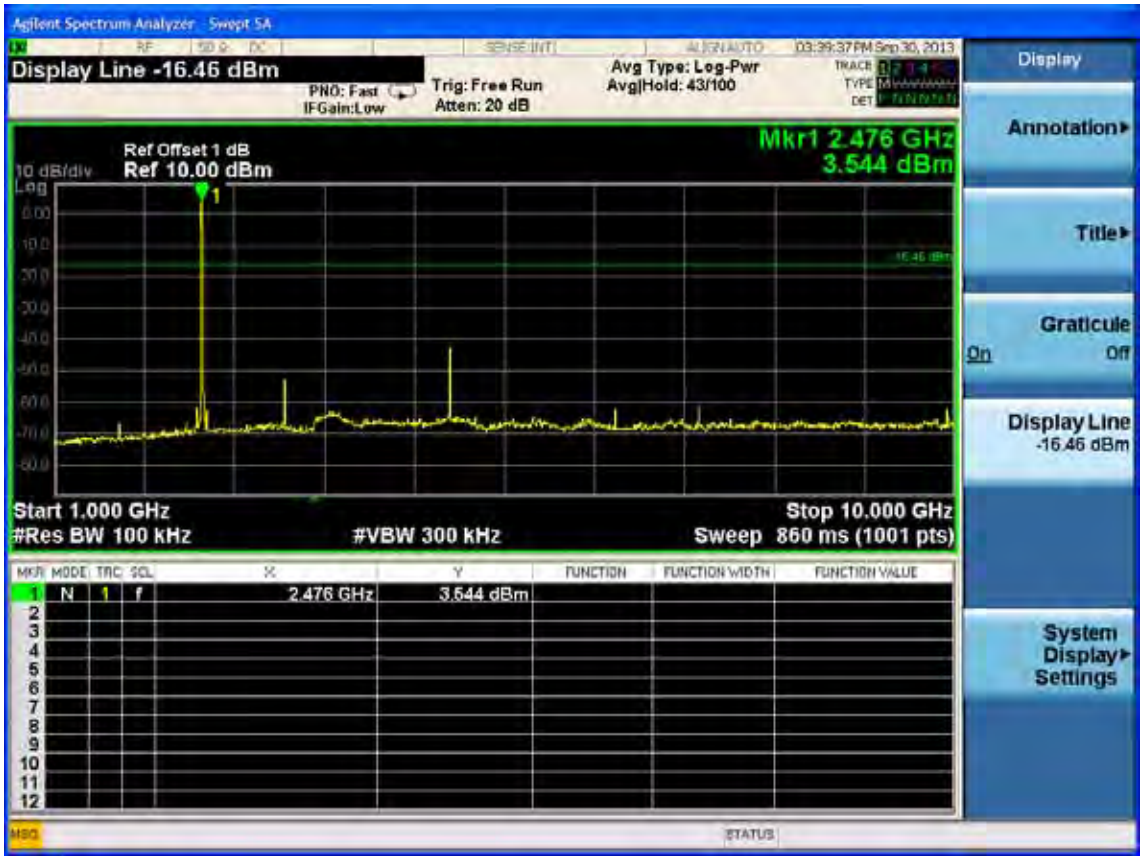
2441MHz

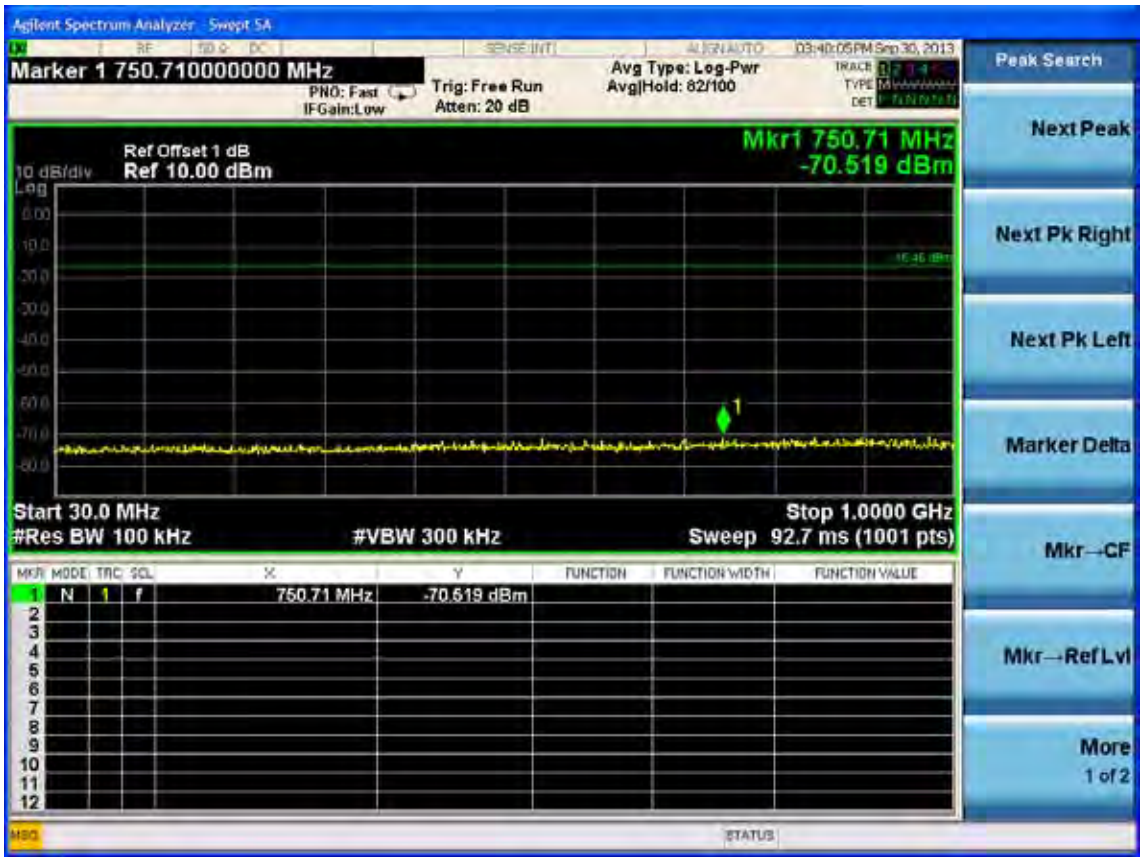

Agilent Spectrum Analyzer - Swept SA
Display Line -15.97 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 26/100
03:37:08 PM Sep 30, 2013
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr1 2.440 GHz
4.035 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 860 ms (1001 pts)
1 N 1 f 2.440 GHz 4.035 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-15.97 dBm
System
Display
Settings
MSG
STATUS

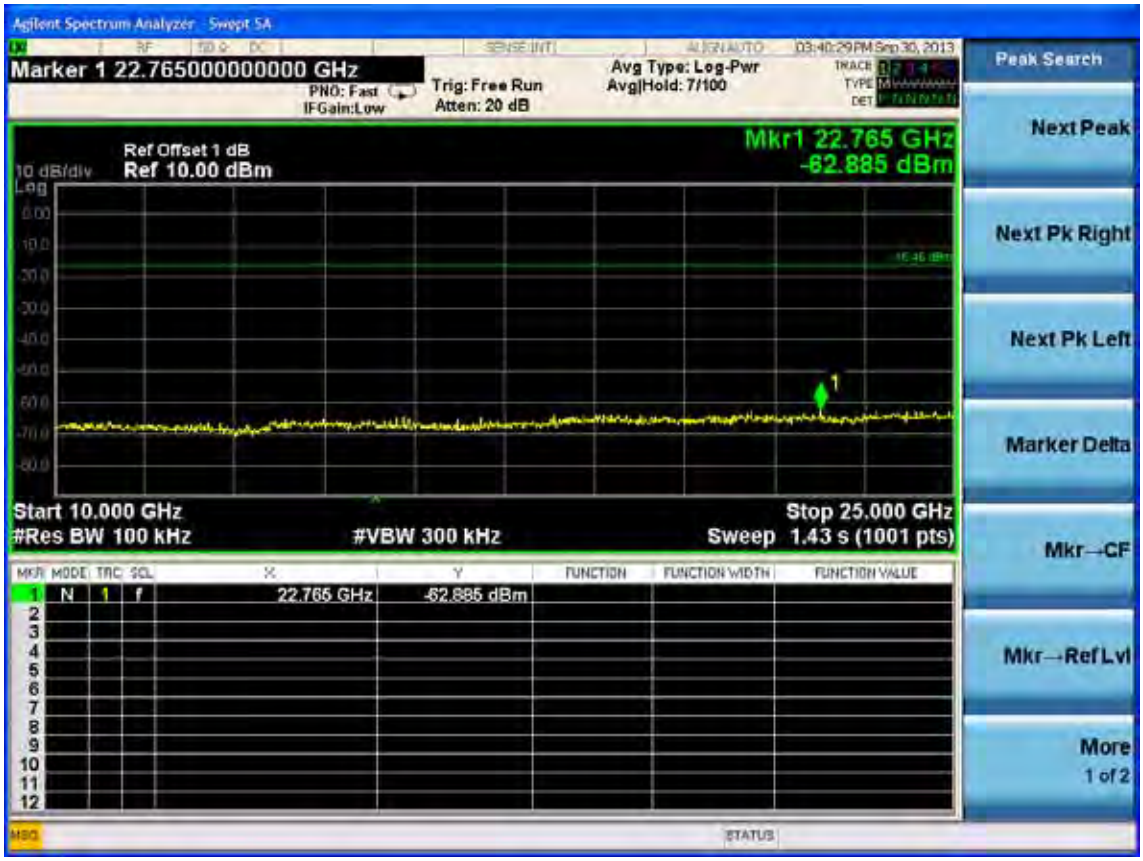

Agilent Spectrum Analyzer - Swept SA
Marker 1 796.300000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
03:37:51 PM Sep 30, 2013
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 796.30 MHz
-69.370 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.7 ms (1001 pts)
1 N 1 f 796.30 MHz -69.370 dBm
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Marker 1 23.980000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 7/100
03:38:21 PM Sep 30, 2013
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 23.980 GHz
-62.307 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.43 s (1001 pts)
1 N 1 f 23.980 GHz -62.307 dBm
MSG
STATUS

2480MHz

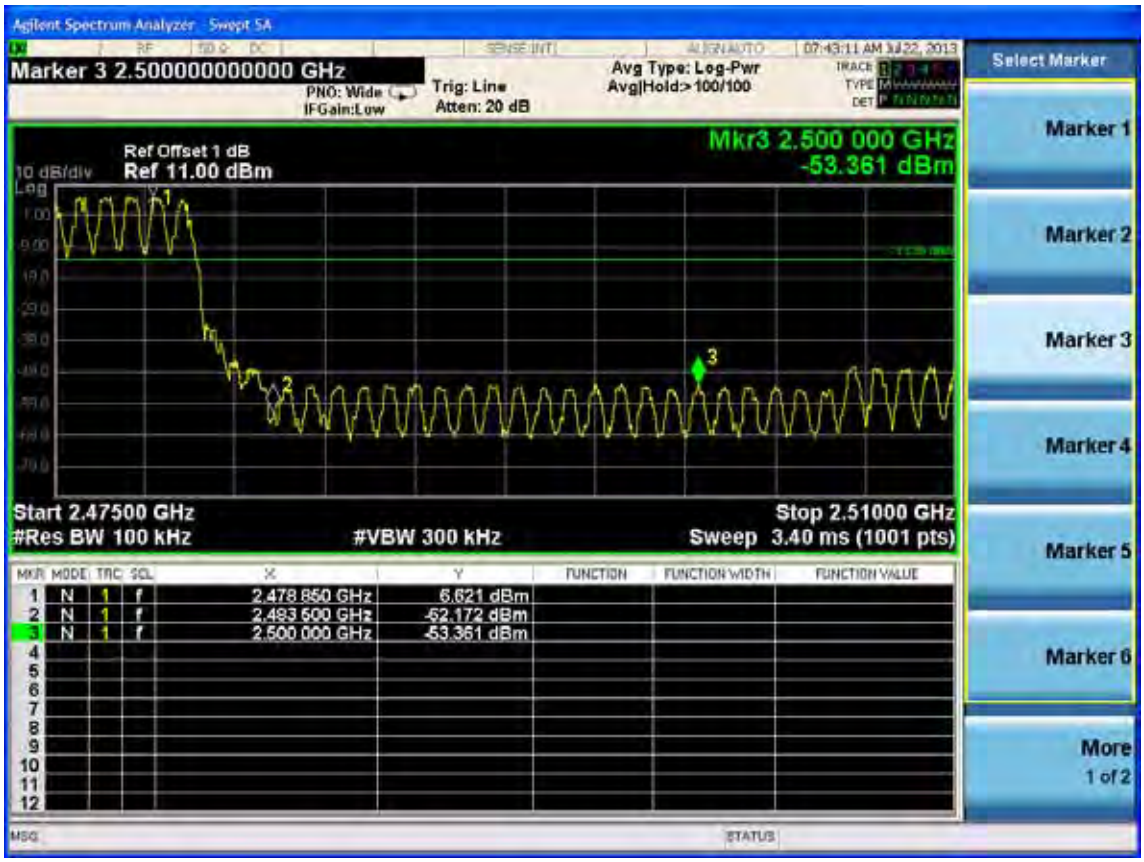

Agilent Spectrum Analyzer - Swept SA
Display Line -16.46 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 43/100
03:39:37 PM Sep 30, 2013
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr1 2.476 GHz
3.544 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 860 ms (1001 pts)
1 N 1 f 2.476 GHz 3.544 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-16.46 dBm
System
Display
Settings
MSG
STATUS

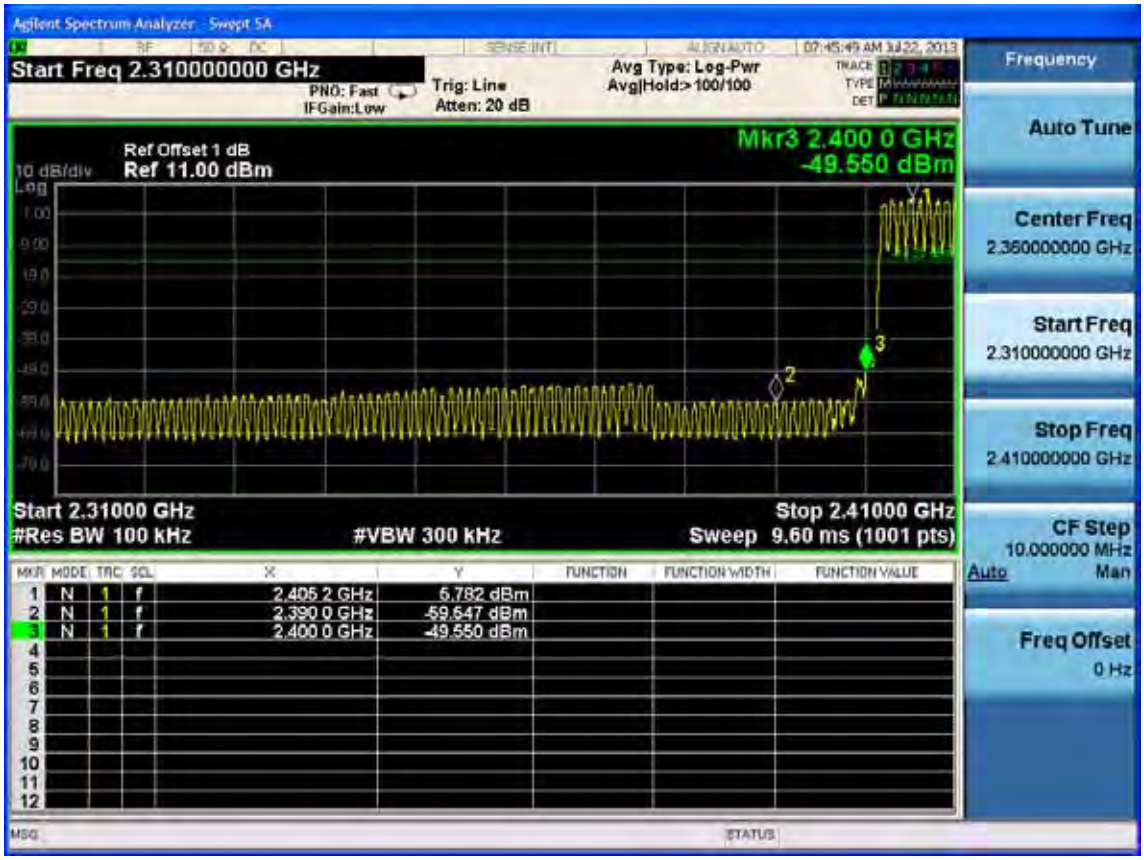

Agilent Spectrum Analyzer - Swept SA
Marker 1 750.710000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 82/100
03:40:05 PM Sep 30, 2013
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr1 750.71 MHz
-70.519 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.7 ms (1001 pts)
1 N 1 f 750.71 MHz -70.519 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Marker 1 22.765000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 7/100
03:40:29 PM Sep 30, 2013
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 22.765 GHz
-62.885 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.43 s (1001 pts)
1 N 1 f 22.765 GHz -62.885 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

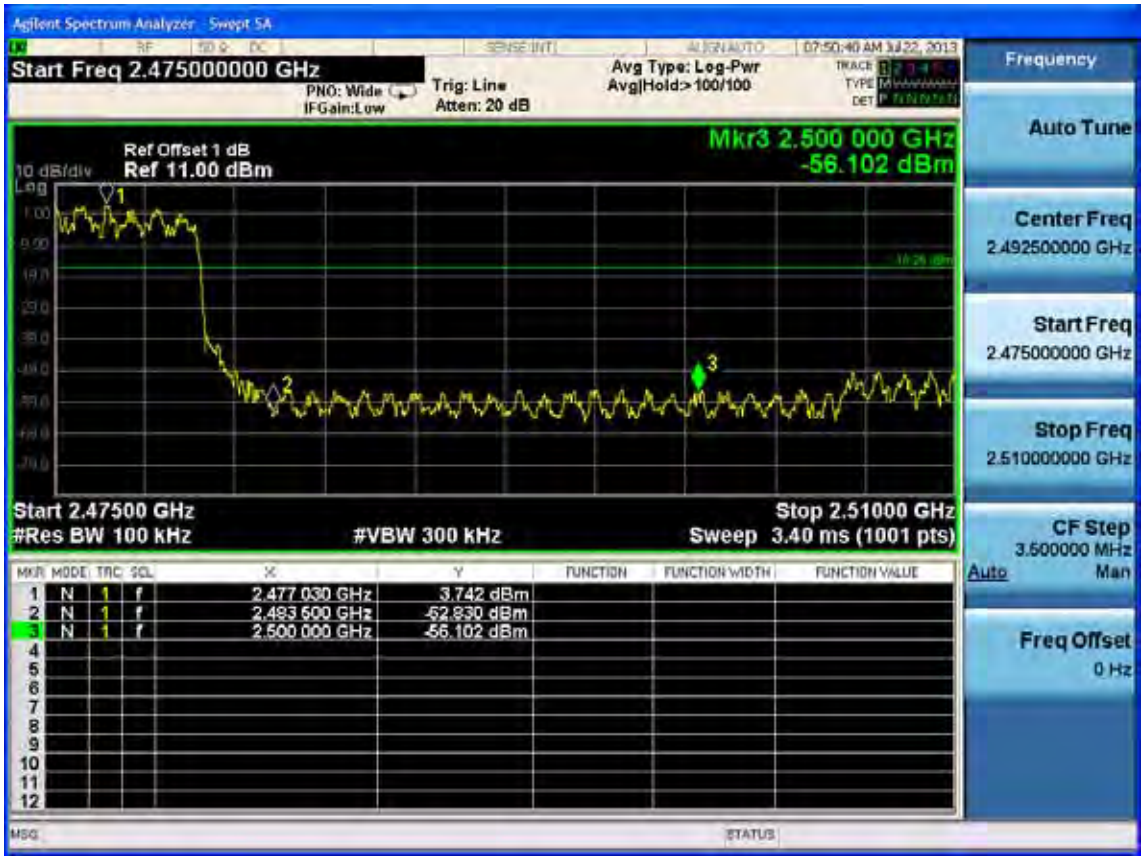

Agilent Spectrum Analyzer - Swept SA
Display Line -16.23 dBm
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
03:41:35 PM Sep 30, 2013
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr4 2.495 975 GHz
-56.275 dBm
Start 2.47700 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.51000 GHz
Sweep 3.20 ms (1001 pts)
1 N 1 f 2.479 838 GHz 3.767 dBm
2 N 1 f 2.483 500 GHz -54.404 dBm
3 N 1 f 2.500 000 GHz -67.231 dBm
4 N 1 f 2.495 975 GHz -56.275 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-16.23 dBm
System
Display
Settings
MSG
STATUS

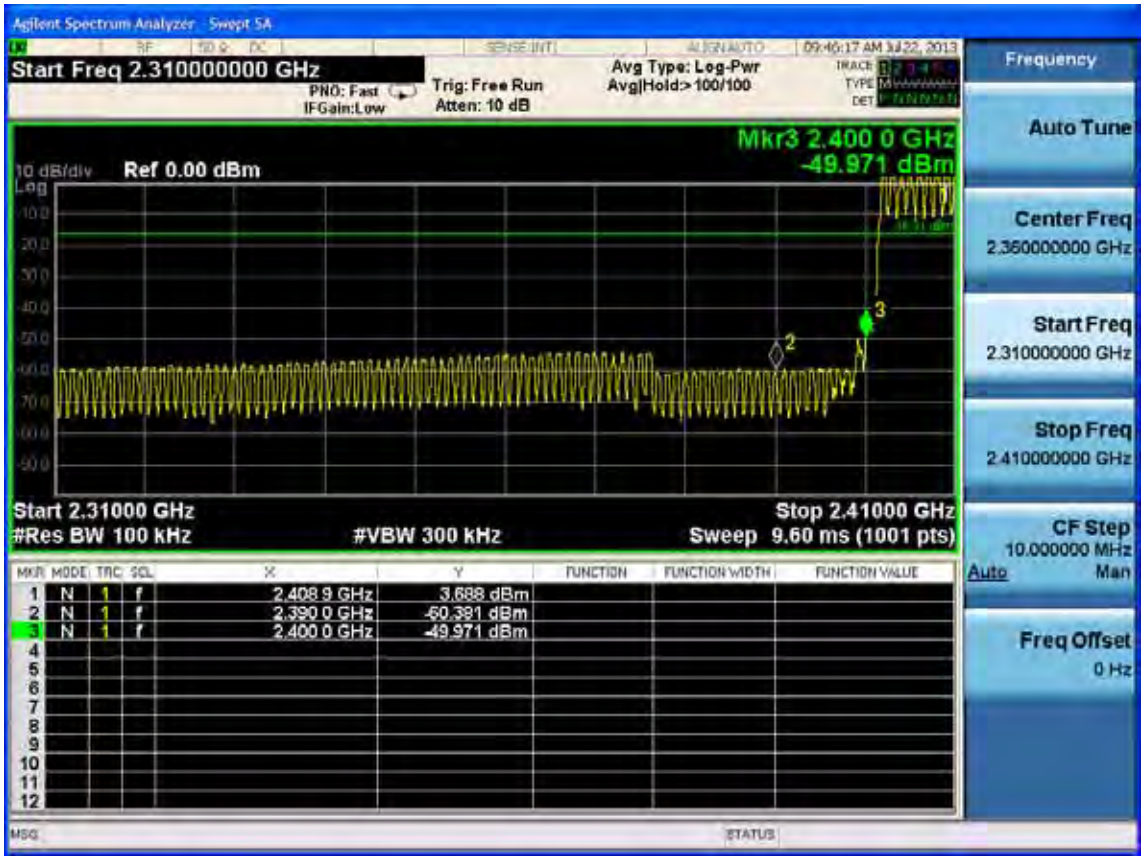
Hopping on GFSK





8-DPSK


Agilent Spectrum Analyzer - Swept SA
Start Freq 2.475000000 GHz
PNO: Wide
IFGain:Low
Trig: Line
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
07:50:40 AM Jul 22, 2013
Frequency
Auto Tune
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Log
Mkr3 2.500 000 GHz
-56.102 dBm
Center Freq
2.492500000 GHz
Start Freq
2.475000000 GHz
Stop Freq
2.510000000 GHz
Start 2.47500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.51000 GHz
Sweep 3.40 ms (1001 pts)
CF Step
3.500000 MHz
Auto
Man
Freq Offset
0 Hz
1 N 1 f 2.477 030 GHz 3.742 dBm
2 N 1 f 2.483 500 GHz -62.830 dBm
3 N 1 f 2.500 000 GHz -56.102 dBm
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Start Freq 2.310000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
09:46:17 AM Jul 22, 2013
Frequency
Auto Tune
10 dB/div
Ref 0.00 dBm
Log
Mkr3 2.400 0 GHz
-49.971 dBm
Center Freq
2.360000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.410000000 GHz
Start 2.31000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.41000 GHz
Sweep 9.60 ms (1001 pts)
CF Step
10.000000 MHz
Auto
Man
Freq Offset
0 Hz
1 N 1 f 2.408 9 GHz 3.688 dBm
2 N 1 f 2.390 0 GHz -60.381 dBm
3 N 1 f 2.400 0 GHz -49.971 dBm
MSG
STATUS

6. CARRIER FREQUENCY SEPARATION TEST

6.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A	MY51380221	Oct.31, 12	1Year

6.2.Limit

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

6.3.Test Results.

EUT: All-in-One Cycling Kit		
M/N: WUSA K230		
Test date: 2013-09-25	Pressure: 101.5±1.0 kpa	Humidity: 51.5±3.0%
Tested by: Leo-Li	Test site: RF Site	Temperature: 21.4±0.6℃

Test Mode	Channel separation	Conclusion
8-DPSK	1.0MHz	PASS
GFSK	1.0MHz	PASS


Agilent Spectrum Analyzer Swept SA
Marker 3 Δ -1.000000000 MHz
PNO: Wide
IFGain:Low
Trig: Line
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 1 dB
10 dB/div Ref 10.00 dBm
ΔMkr3 -1.000 MHz
-0.226 dB
Center 2.441000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 5.000 MHz
Sweep 2.53 ms (1001 pts)
1 Δ2 1 f (Δ) 1.000 MHz (Δ) 0.830 dB
2 F 1 f 2.441 000 GHz 3.095 dBm
3 Δ4 1 f (Δ) -1.000 MHz (Δ) -0.226 dB
4 F 1 f 2.441 000 GHz 3.185 dBm
Alignment Completed
Marker
Select Marker 3
Normal
Delta
Fixed
Off
Properties
More 1 of 2

7. 20 DB BANDWIDTH TEST

7.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9030A	MY51380221	Oct.31, 12	1Year

7.2.Limit

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

7.3.Test Results

EUT: All-in-One Cycling Kit		
M/N: WUSA K230		
Test date: 2013-09-25	Pressure: 101.5±1.0 kpa	Humidity: 51.5±3.0%
Tested by: Leo-Li	Test site: RF Site	Temperature: 21.4±0.6℃

Cable loss: 1 dB		Attenuator loss: 20 dB	
Test Mode	CH （MHz）	20dB bandwidth （KHz）	Limit (KHz)
GFSK	2402	835.1	N/A
	2441	836.1	N/A
	2480	830.9	N/A
8-DPSK	2402	1157.4	N/A
	2441	1152.3	N/A
	2480	1148.7	N/A
Conclusion：PASS			

GFSK

Test Frequency: 2402MHz

Test Frequency: 2441MHz

Test Frequency: 2480MHz

8-DPSK

Test Frequency: 2402MHz

Test Frequency: 2441MHz

Test Frequency: 2480MHz

8. NUMBER OF HOPPING FREQUENCY TEST

8.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A	MY51380221	Oct.31, 12	1Year

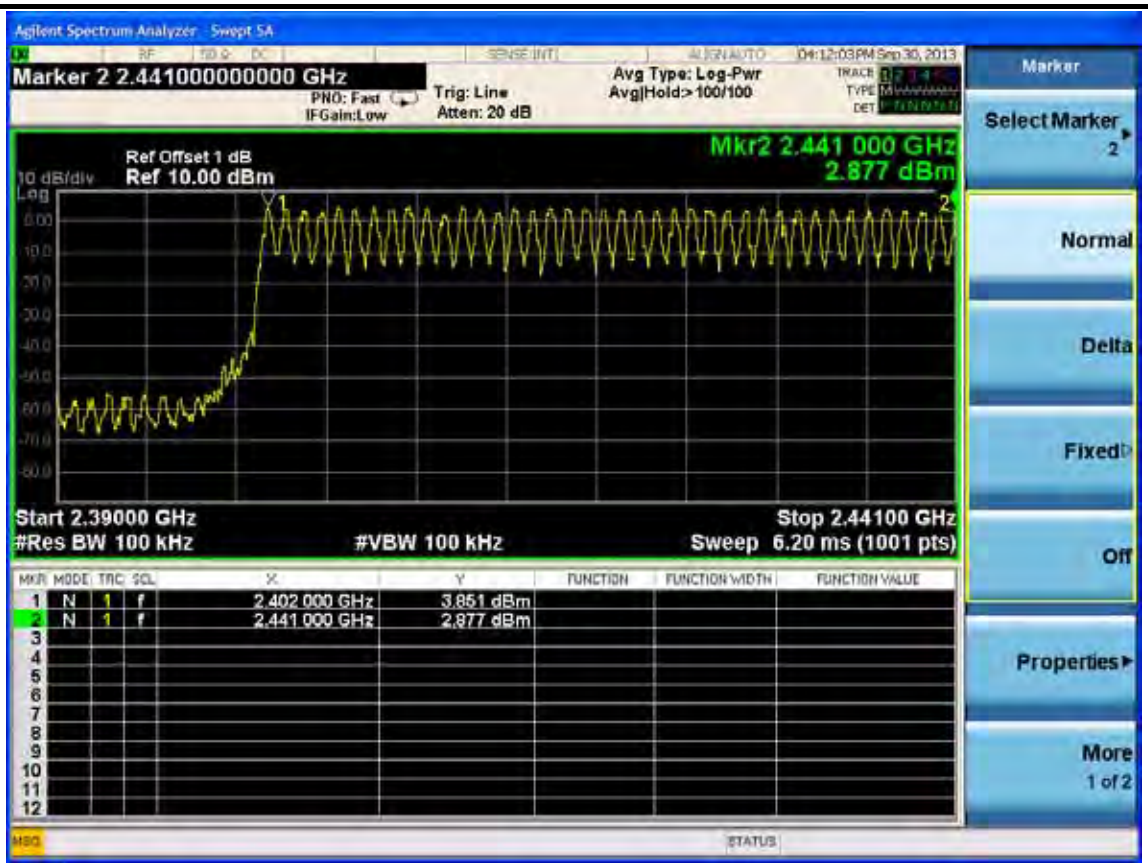
8.2.Limit

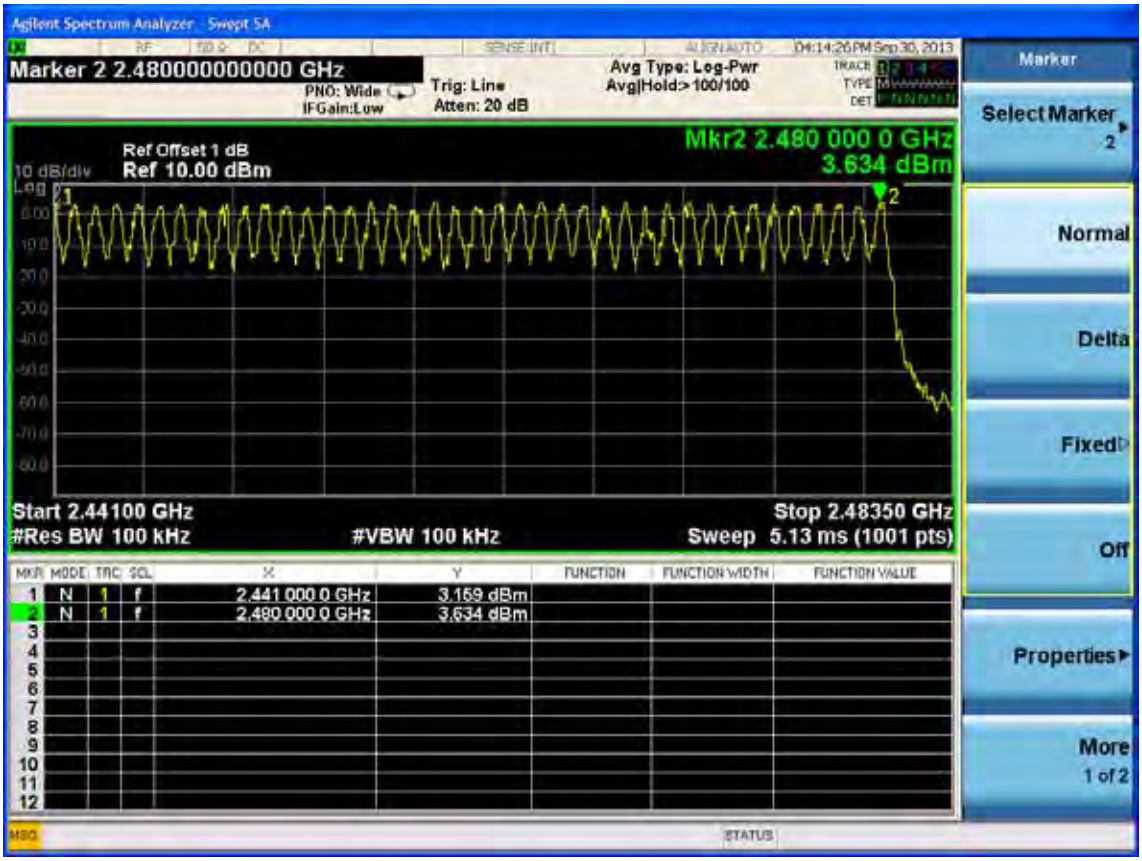
Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

8.3.Test Results

EUT: All-in-One Cycling Kit		
M/N: WUSA K230		
Test date: 2013-09-25	Pressure: 101.5±1.0 kpa	Humidity: 51.5±3.0%
Tested by: Leo-Li	Test site: RF Site	Temperature: 21.4±0.6℃

Test Mode	Number of channel	Limit	Conclusion
8-DPSK	79	>=15	PASS
GFSK	79	>=15	PASS


Agilent Spectrum Analyzer - Swept SA
Marker 2 2.441000000000 GHz
PNO: Fast
IFGain:Low
Trig: Line
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
04:12:03 PM Sep 30, 2013
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr2 2.441 000 GHz
2.877 dBm
Start 2.39000 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 2.44100 GHz
Sweep 6.20 ms (1001 pts)
1 N 1 f 2.402 000 GHz 3.851 dBm
2 N 1 f 2.441 000 GHz 2.877 dBm
Marker
Select Marker 2
Normal
Delta
Fixed
Off
Properties
More 1 of 2
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Marker 2 2.480000000000 GHz
PNO: Wide
IFGain:Low
Trig: Line
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
04:14:26 PM Sep 30, 2013
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr2 2.480 000 0 GHz
3.634 dBm
Start 2.44100 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 2.48350 GHz
Sweep 5.13 ms (1001 pts)
1 N 1 f 2.441 000 0 GHz 3.159 dBm
2 N 1 f 2.480 000 0 GHz 3.634 dBm
Marker
Select Marker 2
Normal
Delta
Fixed
Off
Properties
More 1 of 2
MSG
STATUS

9. DWELL TIME

9.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A	MY51380221	Oct.31, 12	1Year

9.2.Limit

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

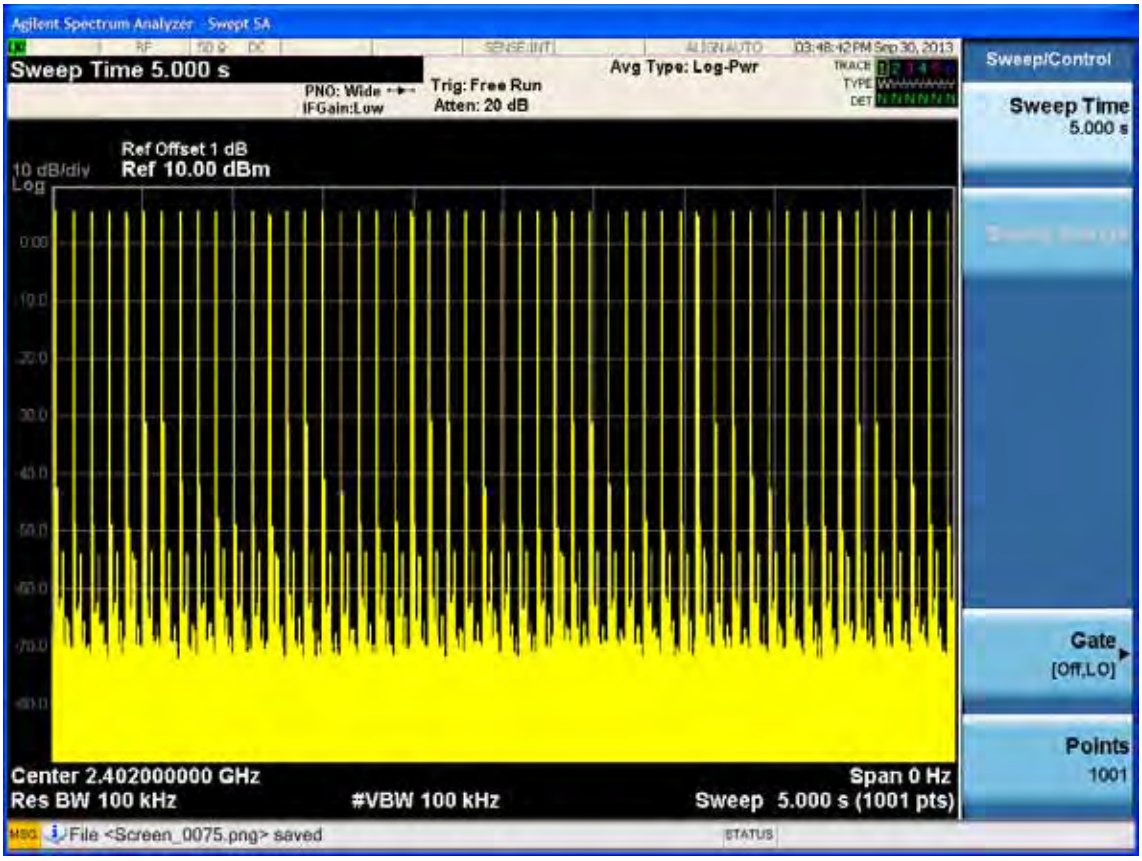
9.3.Test Results

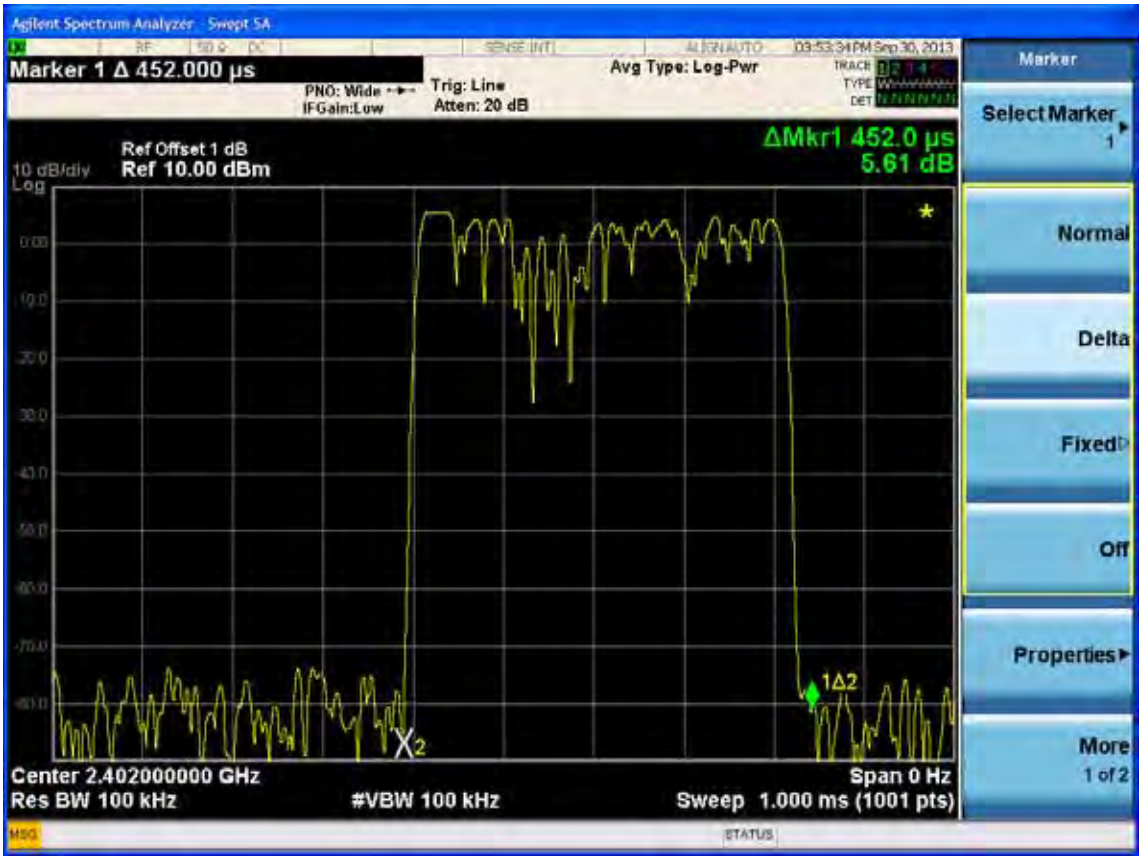
EUT: All-in-One Cycling Kit		
M/N: WUSA K230		
Test date: 2013-09-25	Pressure: 101.5±1.0 kpa	Humidity: 51.5±3.0%
Tested by: Leo-Li	Test site: RF Site	Temperature: 21.4±0.6℃

Mode		dwell time	Limit	Conclusion
GFSK	DH1	51hops/5s*0.4*79chanels*0.452ms =145.69ms	<400ms	PASS
	DH3	25hops/5s*0.4*79chanels*1.710ms =270.18ms	<400ms	PASS
	DH5	20hops/5s*0.4*79chanels*2.975s=376.04ms	<400ms	PASS
8-DPSK	DH1	51hops/5s*0.4*79chanels*0.457ms=143.30ms	<400ms	PASS
	DH3	25hops/5s*0.4*79chanels*1.713ms =270.65ms	<400ms	PASS
	DH5	20hops/5s*0.4*79chanels*2.960ms =374.14ms	<400ms	PASS

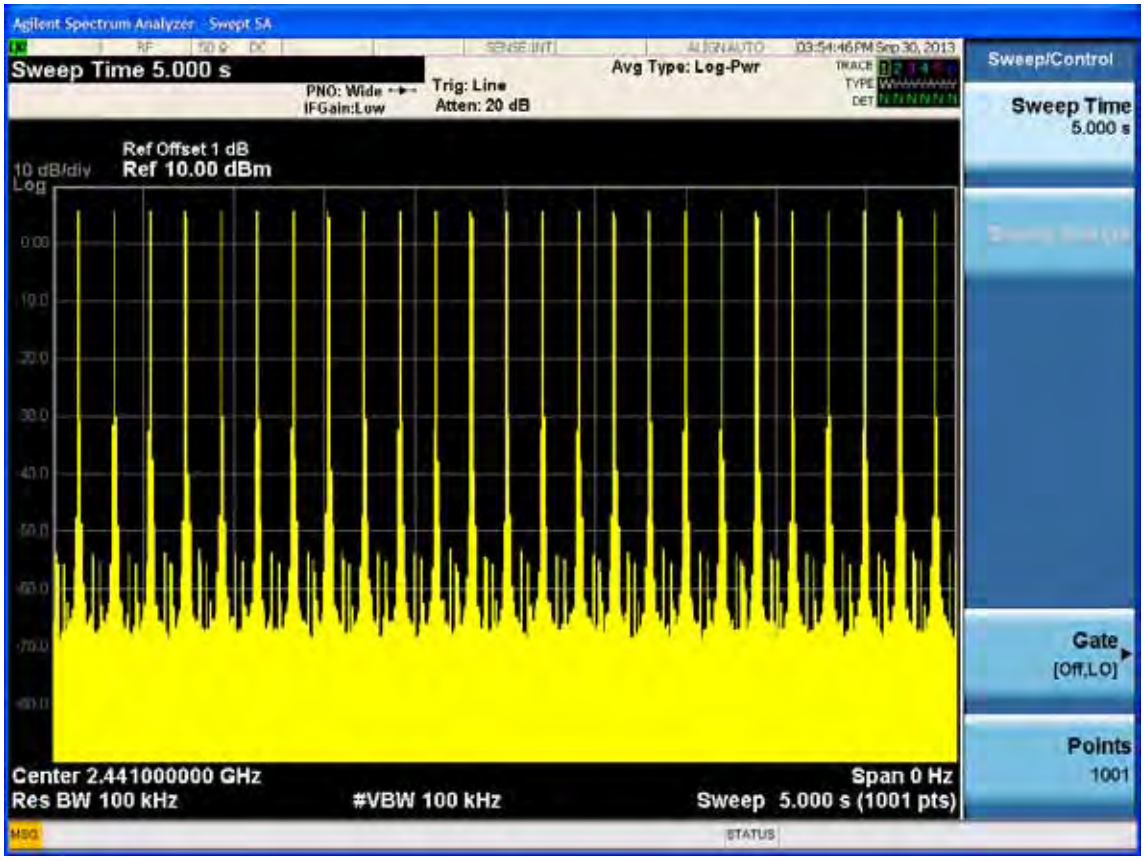
Note: All the lower levels were signal from receiver's, and should not considered in here.

Test Mode: GFSK
DH1



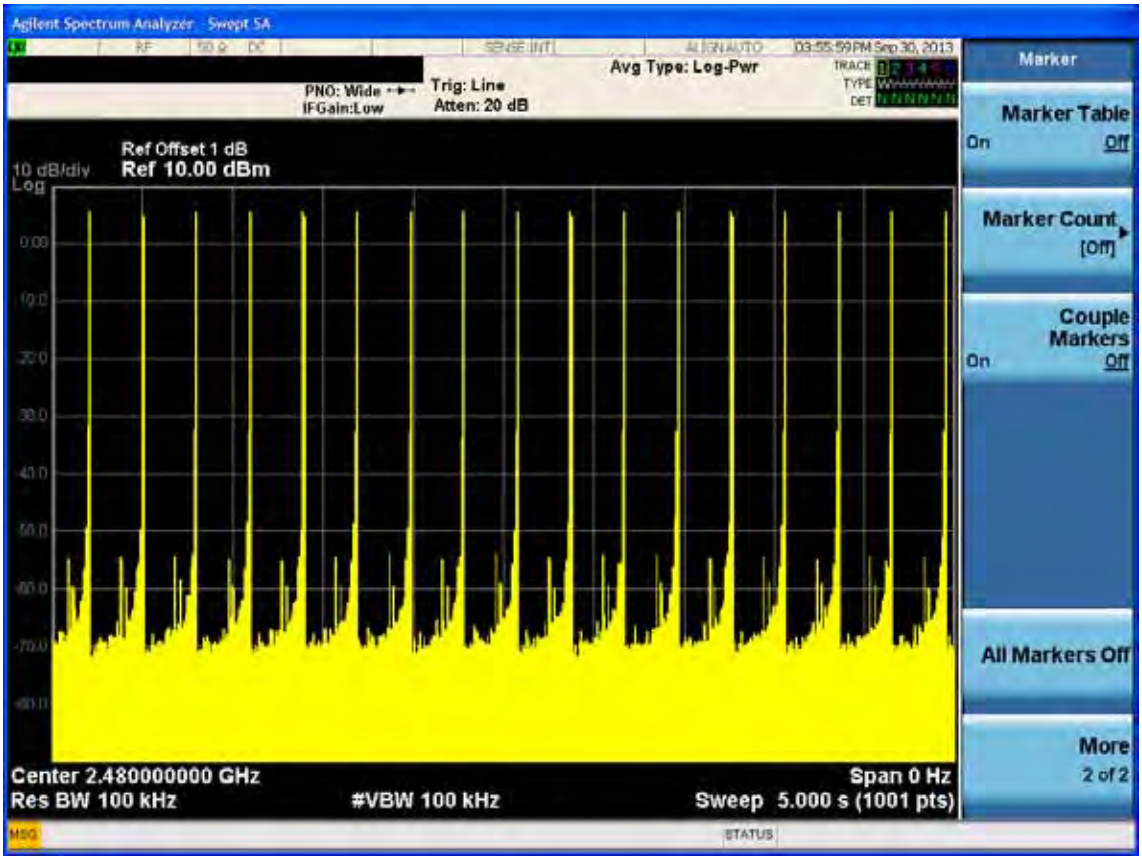


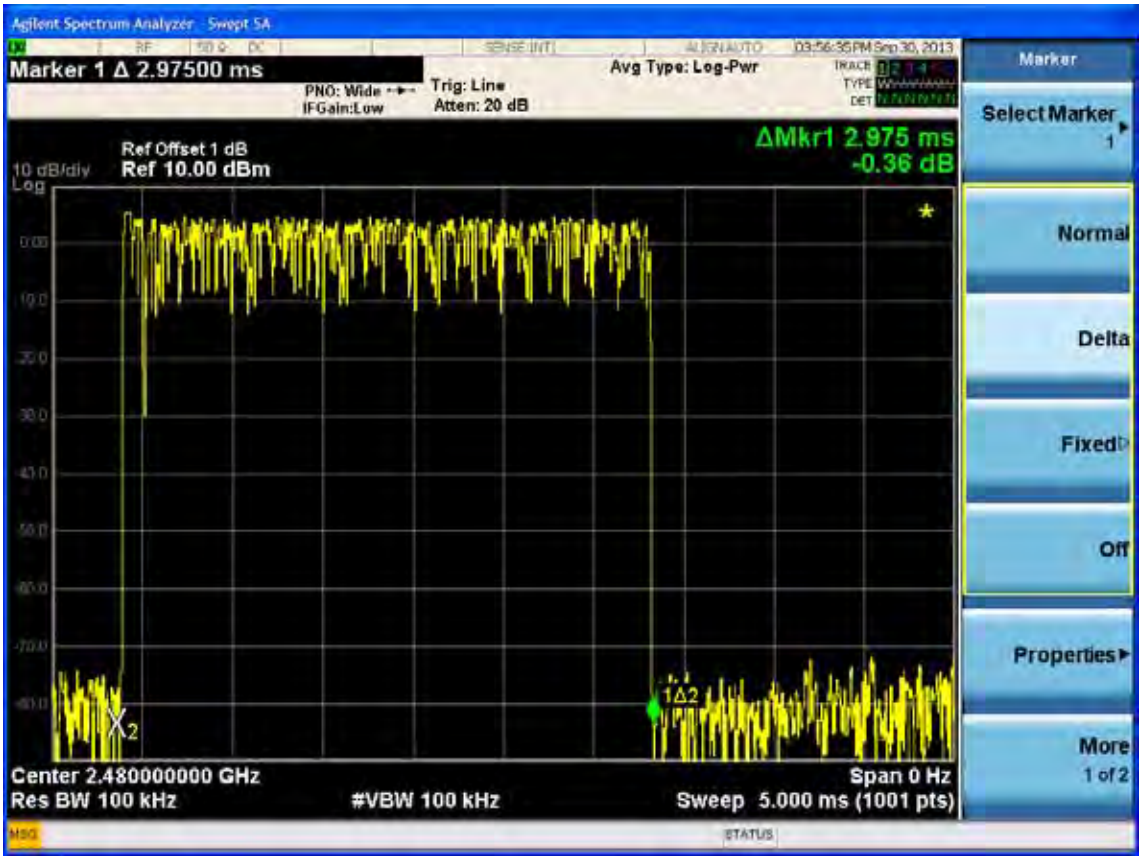
DH3


Agilent Spectrum Analyzer - Swept SA
Sweep Time 5.000 s
PNO: Wide
IFGain:Low
Trig: Line
Atten: 20 dB
Avg Type: Log-Pwr
03:54:46 PM Sep 30, 2013
Sweep/Control
Sweep Time
5.000 s
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
Gate
[Off,LO]
Points
1001
Center 2.441000000 GHz
Res BW 100 kHz
#VBW 100 kHz
Span 0 Hz
Sweep 5.000 s (1001 pts)

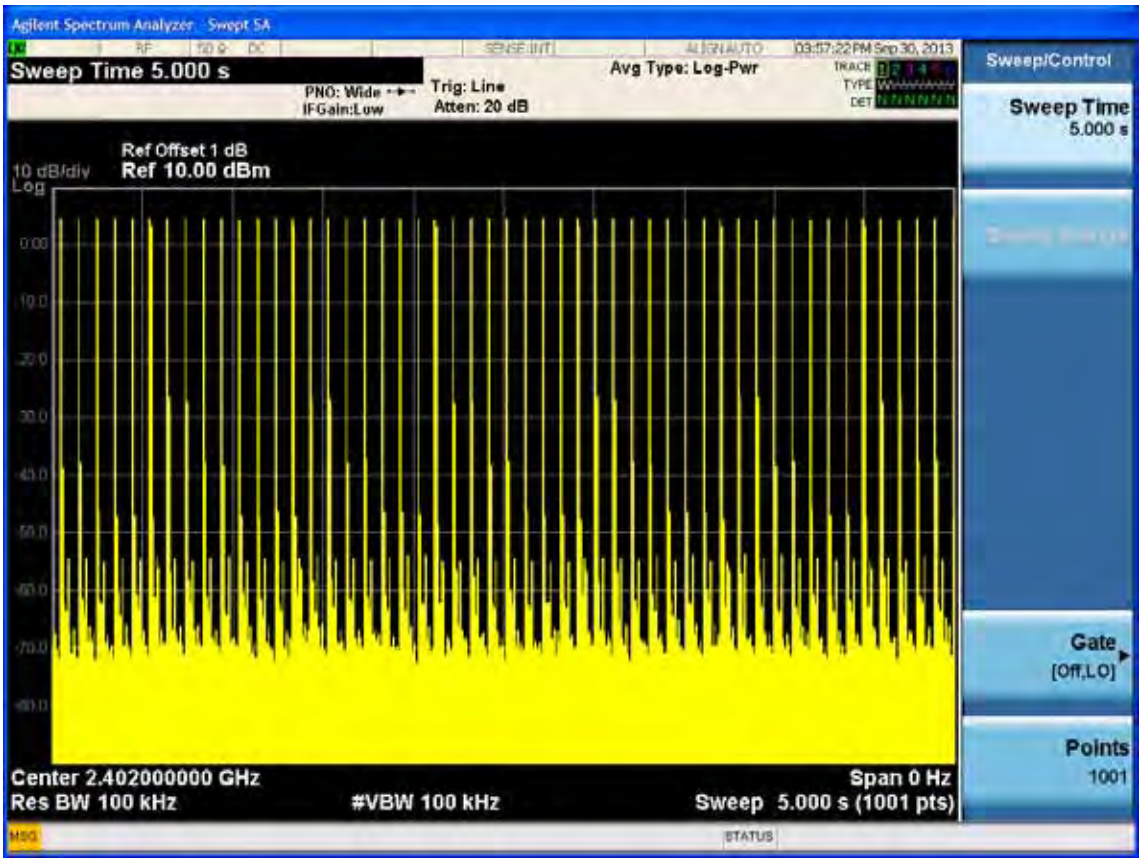

Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 1.71000 ms
PNO: Wide
IFGain:Low
Trig: Line
Atten: 20 dB
Avg Type: Log-Pwr
03:55:19 PM Sep 30, 2013
Marker
Select Marker
1
ΔMkr1 1.710 ms
0.41 dB
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
Normal
Delta
Fixed
Off
Properties
More
1 of 2
1Δ2
Center 2.441000000 GHz
Res BW 100 kHz
#VBW 100 kHz
Span 0 Hz
Sweep 3.000 ms (1001 pts)

DH5

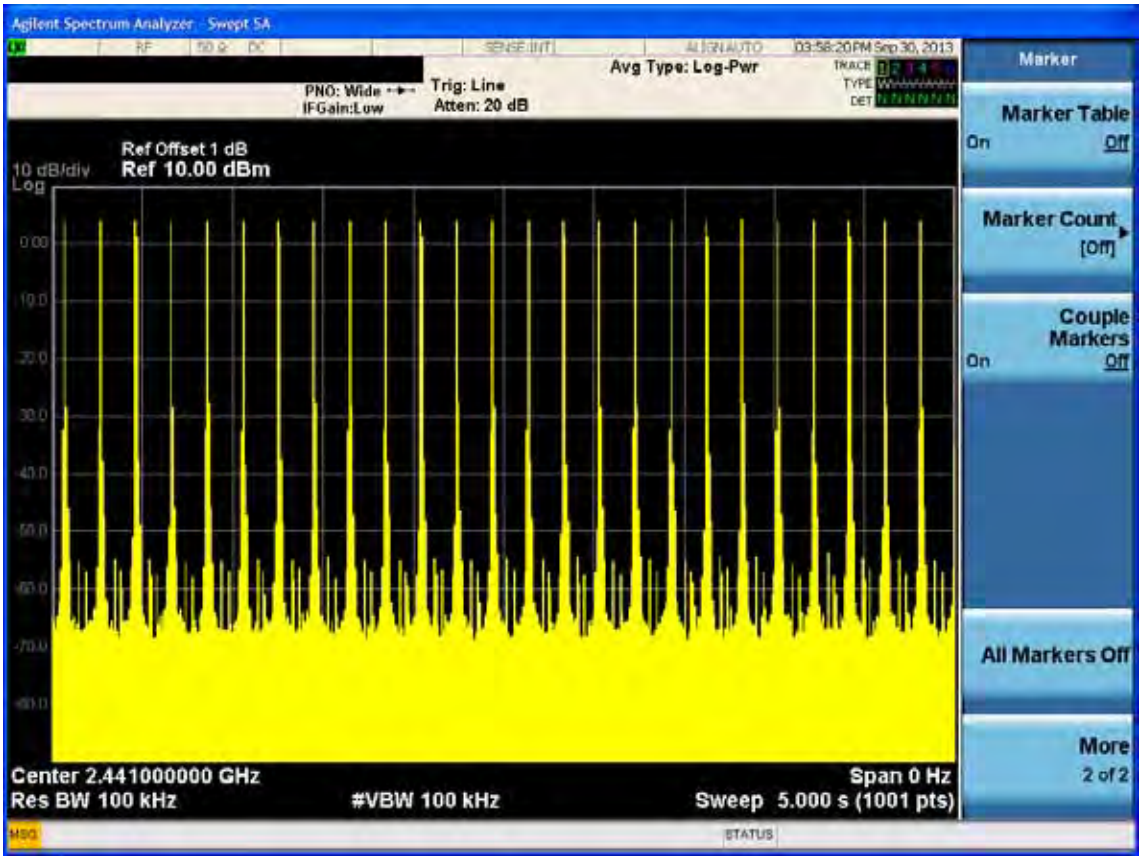

Agilent Spectrum Analyzer - Swept SA
Avg Type: Log-Pwr
PNO: Wide
IFGain:Low
Trig: Line
Atten: 20 dB
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
Center 2.480000000 GHz
Res BW 100 kHz
#VBW 100 kHz
Span 0 Hz
Sweep 5.000 s (1001 pts)
Marker
Marker Table
On Off
Marker Count
[Off]
Couple Markers
On Off
All Markers Off
More
2 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 2.97500 ms
Avg Type: Log-Pwr
PNO: Wide
IFGain:Low
Trig: Line
Atten: 20 dB
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
ΔMkr1 2.975 ms
-0.36 dB
Center 2.480000000 GHz
Res BW 100 kHz
#VBW 100 kHz
Span 0 Hz
Sweep 5.000 ms (1001 pts)
Marker
Select Marker
1
Normal
Delta
Fixed
Off
Properties
More
1 of 2

Test Mode: 8DPSK
DH1

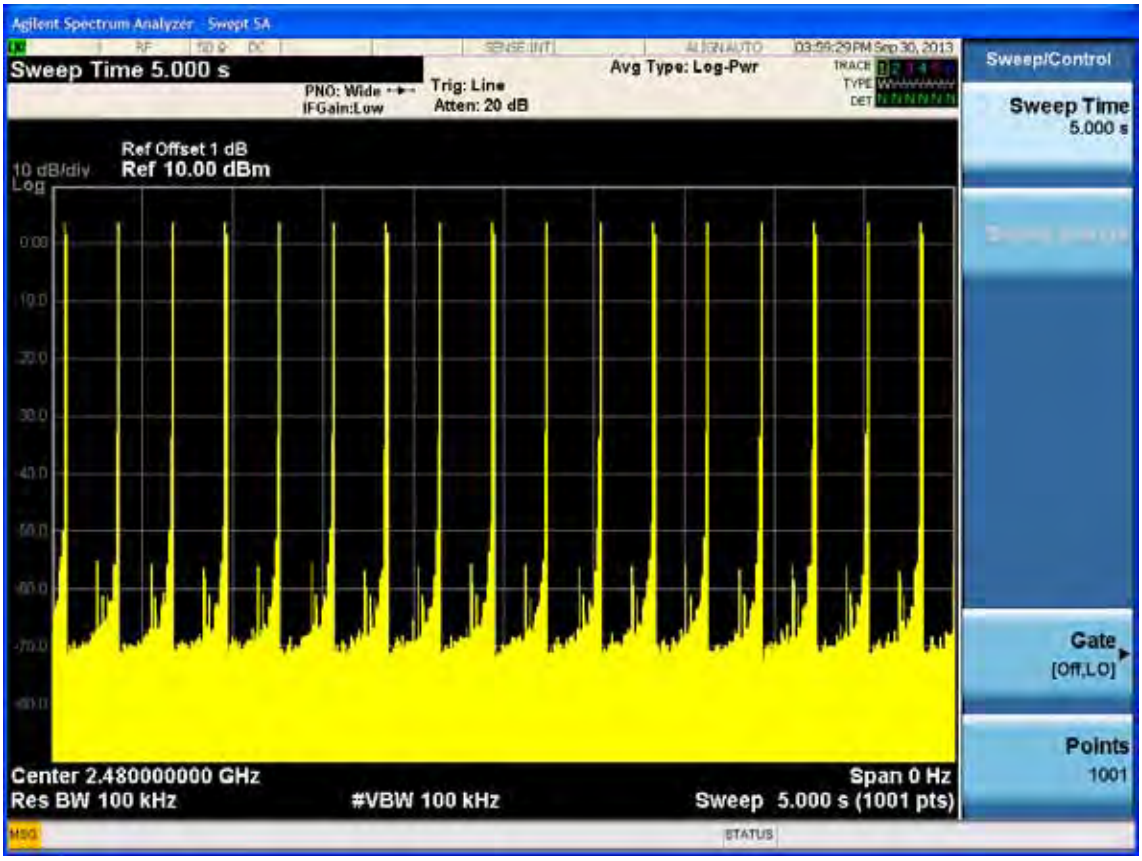


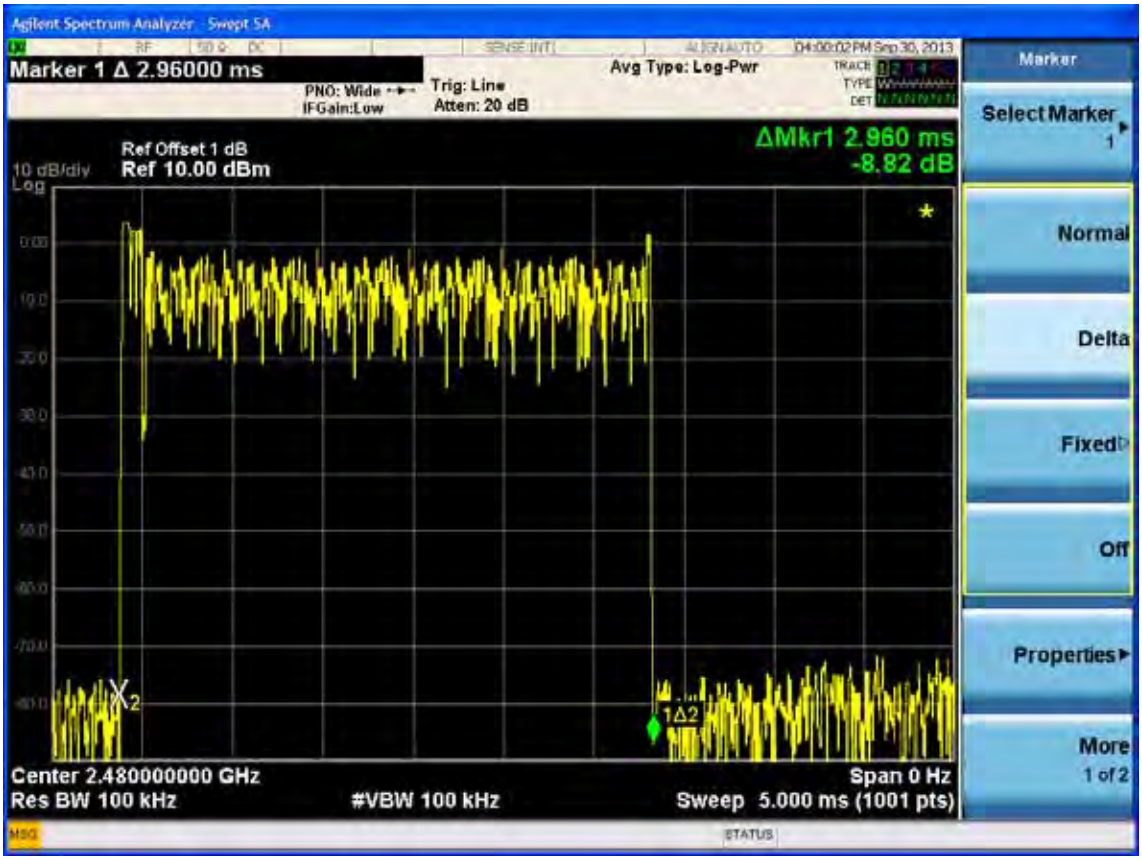
DH3


Agilent Spectrum Analyzer - Swept SA
Avg Type: Log-Pwr
03:58:20 PM Sep 30, 2013
PNO: Wide
IFGain:Low
Trig: Line
Atten: 20 dB
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
Center 2.441000000 GHz
Res BW 100 kHz
#VBW 100 kHz
Span 0 Hz
Sweep 5.000 s (1001 pts)
Marker
Marker Table
On Off
Marker Count
[Off]
Couple Markers
On Off
All Markers Off
More
2 of 2
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 1.71300 ms
Avg Type: Log-Pwr
03:58:58 PM Sep 30, 2013
PNO: Wide
IFGain:Low
Trig: Line
Atten: 20 dB
ΔMkr1 1.713 ms
0.33 dB
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
1Δ2
Center 2.441000000 GHz
Res BW 100 kHz
#VBW 100 kHz
Span 0 Hz
Sweep 3.000 ms (1001 pts)
Marker
Select Marker
1
Normal
Delta
Fixed
Off
Properties
More
1 of 2
MSG
STATUS

DH5


Agilent Spectrum Analyzer - Swept SA
Sweep Time 5.000 s
PNO: Wide
IFGain:Low
Trig: Line
Atten: 20 dB
Avg Type: Log-Pwr
03:59:29 PM Sep 30, 2013
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
Center 2.480000000 GHz
Res BW 100 kHz
#VBW 100 kHz
Span 0 Hz
Sweep 5.000 s (1001 pts)
Sweep/Control
Sweep Time
5.000 s
Gate
[Off,LO]
Points
1001


Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 2.96000 ms
PNO: Wide
IFGain:Low
Trig: Line
Atten: 20 dB
Avg Type: Log-Pwr
04:00:02 PM Sep 30, 2013
ΔMkr1 2.960 ms
-8.82 dB
Ref Offset 1 dB
10 dB/div
Log
Ref 10.00 dBm
Center 2.480000000 GHz
Res BW 100 kHz
#VBW 100 kHz
Span 0 Hz
Sweep 5.000 ms (1001 pts)
Marker
Select Marker
1
Normal
Delta
Fixed
Off
Properties
More
1 of 2

10. MAXIMUM PEAK OUTPUT POWER TEST

10.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	US44300459	May.08, 13	1 Year
2.	Amp	HP	8449B	3008A08495	May.08, 13	1 Year
3.	Antenna	EMCO	3115	9510-4580	May.08, 13	1Year
4.	HF Cable	Hubersuhne	Sucoflex104	-	May.08, 13	1 Year
5.	Power Meter	Anritsu	ML2487A	6K00002472	May.08, 13	1Year
6.	Power Sensor	Anritsu	MA2491A	033005	May.08, 13	1Year
7.	Spectrum Analyzer	Agilent	N9030A	MY5138022	May.08, 13	1 Year

10.2. Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

10.3. Test Procedure

1. Connected the EUT's antenna port to spectrum analyzer.
2. Set the RBW> Bandwidth of test Frequency and put the test Frequency, Set the Span large enough to capture the entire signal
3. Use a peak detector on max hold
4. Reading the value from the Spectrum analyzer

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

10.4.Test Results

EUT: All-in-One Cycling Kit			
M/N: WUSA K230			
Test date: 2013-09-25	Pressure: 101.4±1.0 kpa	Humidity: 53.7±3%	
Tested by: Leo-Li	Test site: RF site	Temperature: 20.2±0.6℃	
Cable loss: 1.5 dB		Attenuator loss: 20 dB	
Test Mode	CH (MHz)	Peak output Power （dBm）	Limit (dBm)
GFSK	2402	5.642	30
	2441	5.594	30
	2480	5.527	30
8-DPSK	2402	5.094	30
	2441	4.789	30
	2480	4.670	30
Conclusion: PASS			

GFSK

Test Frequency: 2402MHz

Test Frequency: 2441MHz

Test Frequency: 2480MHz

8-DPSK

Test Frequency: 2402MHz

Test Frequency: 2441MHz

Test Frequency: 2480MHz

11. BAND EDGE COMPLIANCE TEST

11.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	US44300459	May.08, 13	1 Year
2.	Amp	HP	8449B	3008A08495	May.08, 13	1 Year
3.	Antenna	EMCO	3115	9607-4877	May.08, 13	1Year
4.	HF Cable	Hubersuhne	Sucoflex104	-	May.08, 13	1 Year

11.2. Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

11.3. Test Produce

For upper band emissions that are up to two bandwidths(2MHz) away (2483.5MHz to 2485.5MHz） from the band-edge use below produce:

1. Choose a spectrum analyzer span that encompasses both the peak of the fundamental emission and the band-edge emission under investigation. Set the analyzer RBW to 100KHz and with a video bandwidth 300KHz. Record the peak levels of the fundamental emission and the relevant band-edge emission, Observe the stored trace and measure the amplitude delta between the peak of the fundamental and the peak of the band-edge emission. This is not a field strength measurement, it is only a relative measurement to determine the amount by which the emission drops at the band edge relative to the highest fundamental emission level.
2. Subtract the delta measured in step (1) from the maximum field strengths measured in clause 4 .The resultant field strengths are then used to determine band-edge compliance as required by Section 15.205

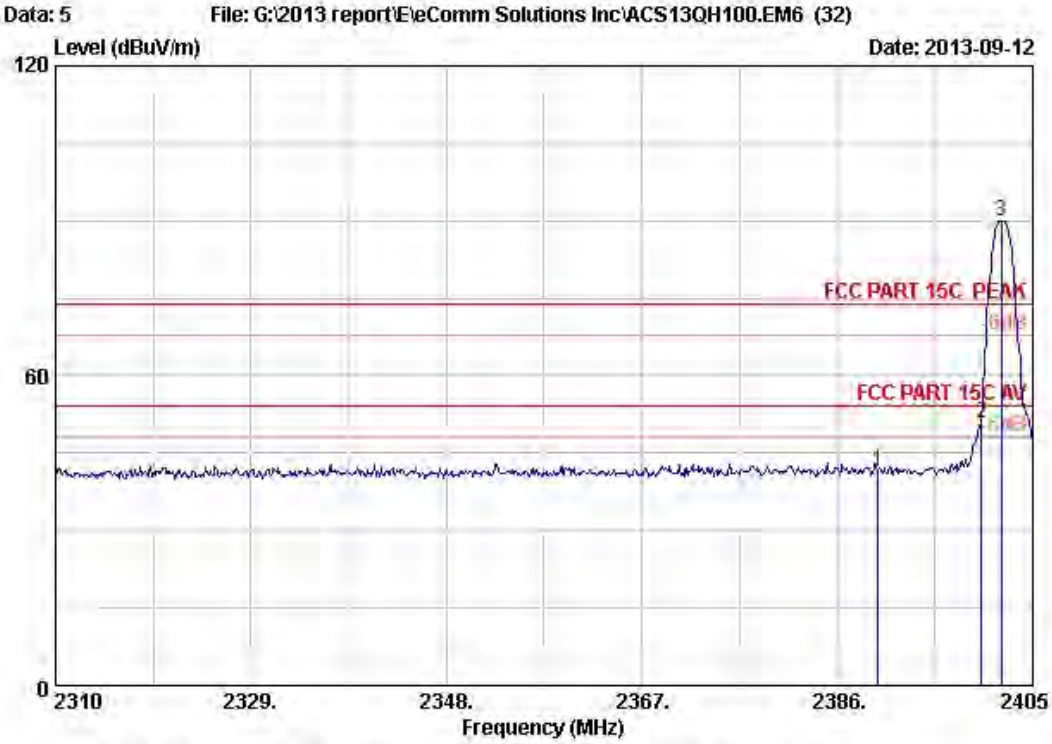
For emissions above two bandwidths away from the band-edge use below produce:

1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upperband-edges of the emission:
   (a) PEAK: RBW=1MHz ;VBW=3MHz, PK detector, Sweep=AUTO
   (b) This is pulse Modulation device a duty cycle factor was used to calculate average level based measured peak level.

11.4. Test Results

Pass (The testing data was attached in the next pages.)

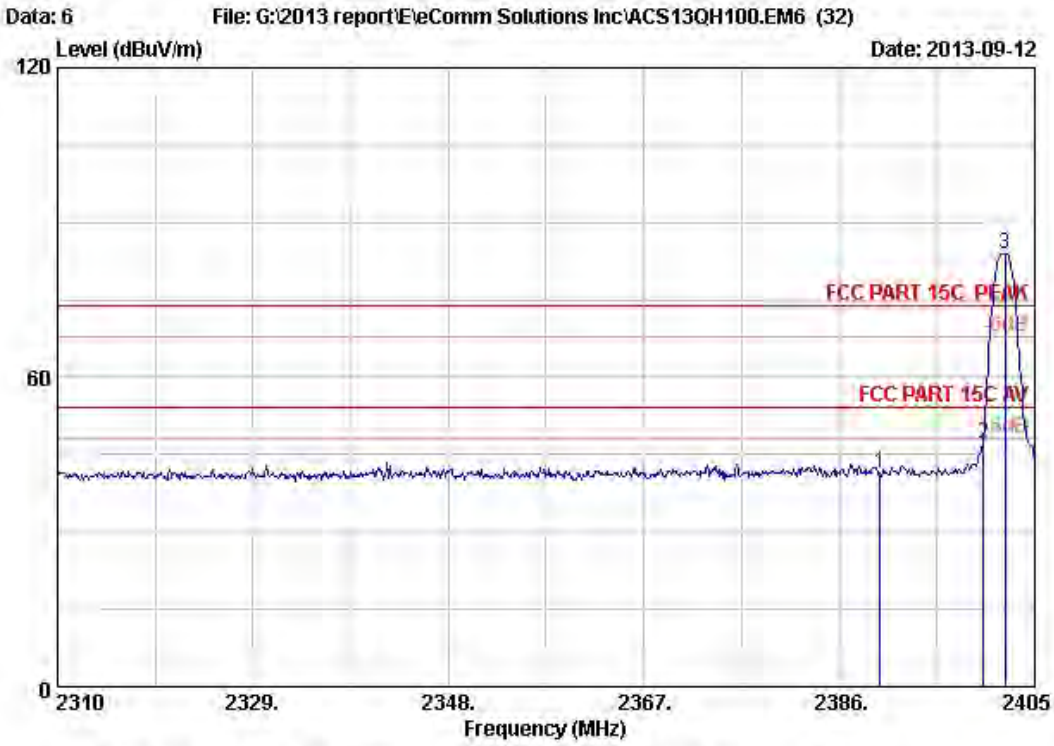
Note: If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.



Site no. : 3m Chamber Data no. : 5
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-one Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode GFSK 2402MHz
WUSA K230

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	26.70	5.78	35.70	44.76	41.54	74.00	32.46	Peak
2	2400.000	26.76	5.80	35.70	53.92	50.78	74.00	23.22	Peak
3	2401.960	26.77	5.80	35.70	93.04	89.91	74.00	-15.91	Peak

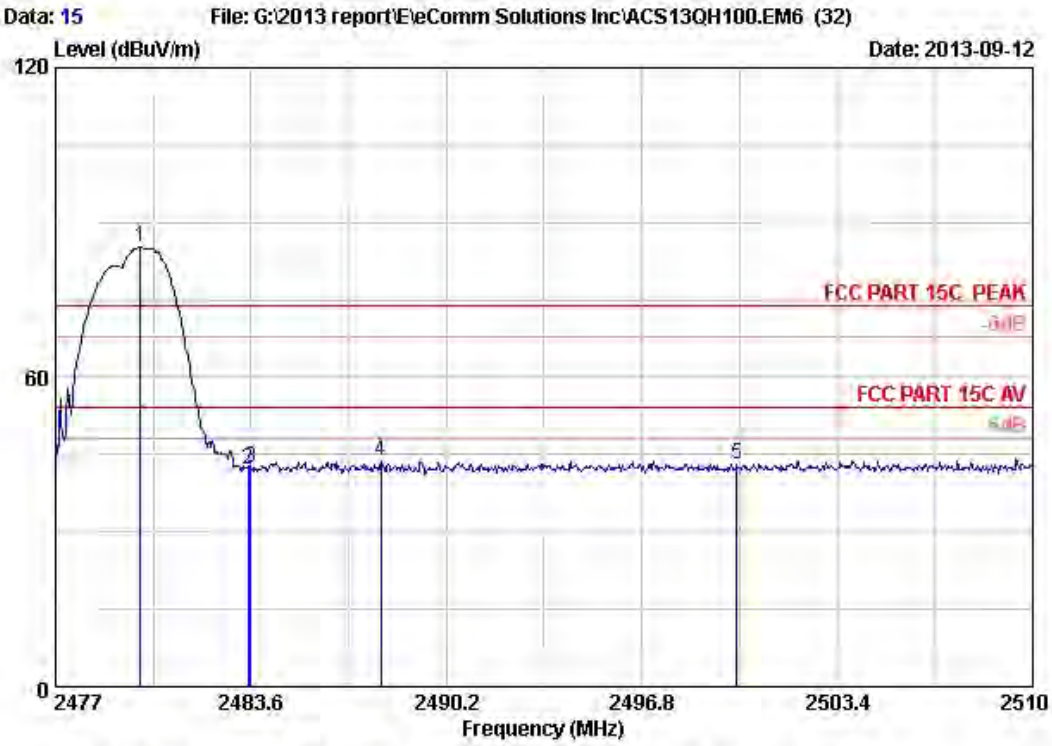
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 6
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-one Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode GFSK 2402MHz
WUSA K230

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	26.70	5.78	35.70	44.82	41.60	74.00	32.40	Peak
2	2400.000	26.76	5.80	35.70	50.27	47.13	74.00	26.87	Peak
3	2402.150	26.77	5.80	35.70	87.16	84.03	74.00	-10.03	Peak

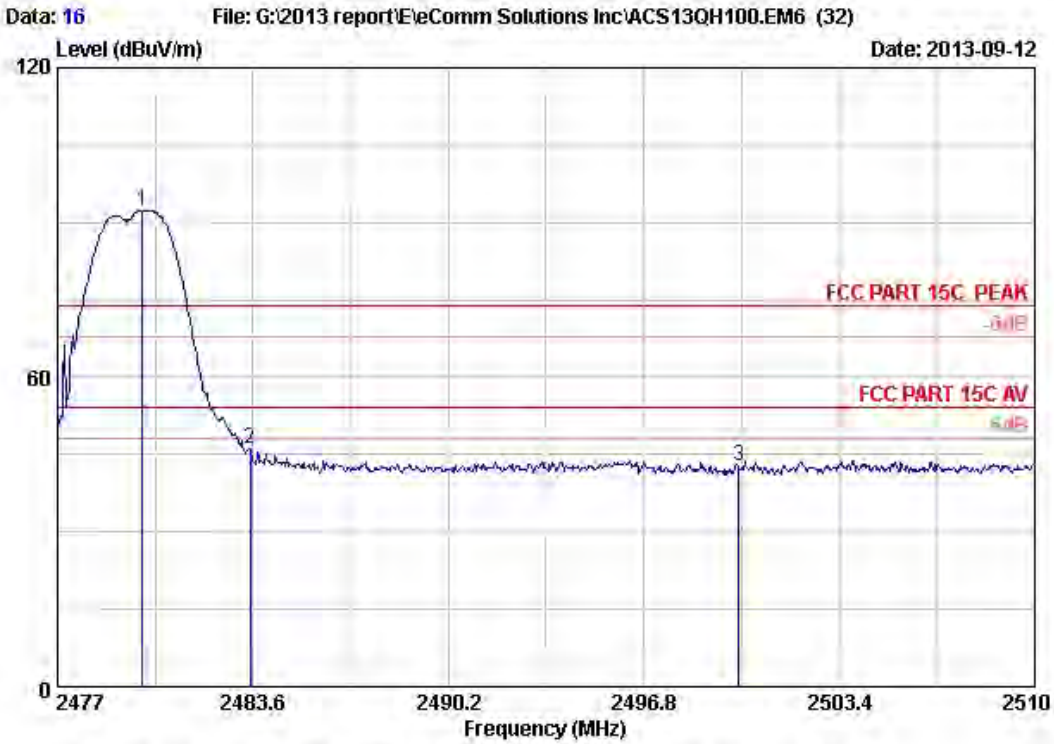
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 15
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-one Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode GFSK 2480MHz
WUSA K230

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.871	27.27	5.91	35.70	87.62	85.10	74.00	-11.10	Peak
2	2483.500	27.29	5.92	35.70	44.74	42.25	74.00	31.75	Peak
3	2483.600	27.30	5.92	35.70	45.09	42.61	74.00	31.39	Peak
4	2487.989	27.32	5.93	35.70	46.40	43.95	74.00	30.05	Peak
5	2500.000	27.40	5.94	35.70	45.55	43.19	74.00	30.81	Peak

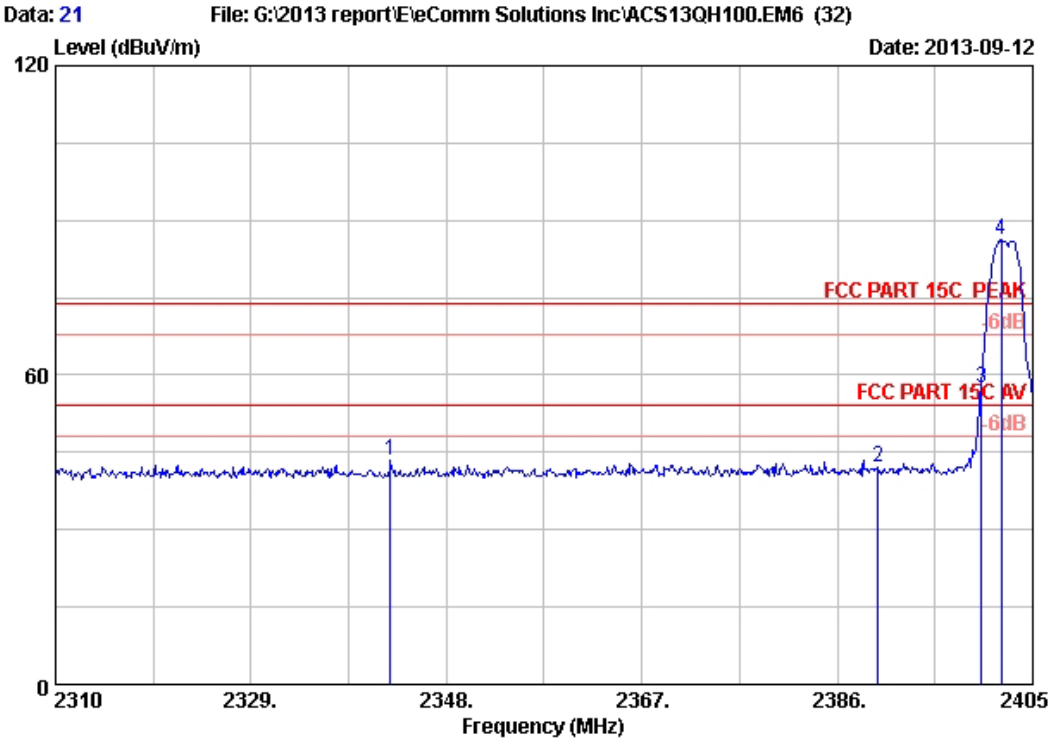
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 16
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-one Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode GFSK 2480MHz
WUSA K230

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.871	27.27	5.91	35.70	94.79	92.27	74.00	-18.27	Peak
2	2483.500	27.29	5.92	35.70	48.61	46.12	74.00	27.88	Peak
3	2500.000	27.40	5.94	35.70	45.19	42.83	74.00	31.17	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

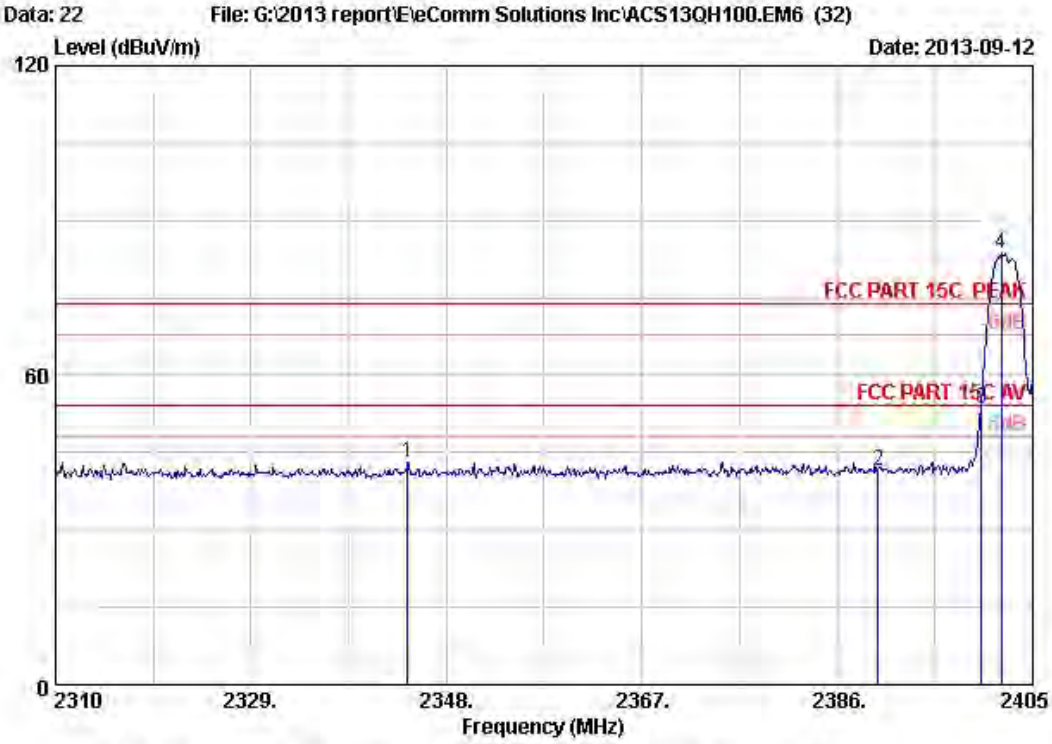


Site no. : 3m Chamber Data no. : 21
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-one Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode 8DFSK 2402MHz
WUSA K230

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2342.585	26.39	5.71	35.70	47.12	43.52	74.00	30.48	Peak
2	2390.000	26.70	5.78	35.70	45.28	42.06	74.00	31.94	Peak
3	2400.000	26.76	5.80	35.70	60.77	57.63	74.00	16.37	Peak
4	2401.960	26.77	5.80	35.70	89.49	86.36	74.00	-12.36	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency（MHz）	Peak level（dBuv/m）	Duty cycle factor (dB)	AV level (dBuv/m)	Limit(dBuv/m)	Conclusion
2400.000	57.63	7.52	50.11	54	Pass

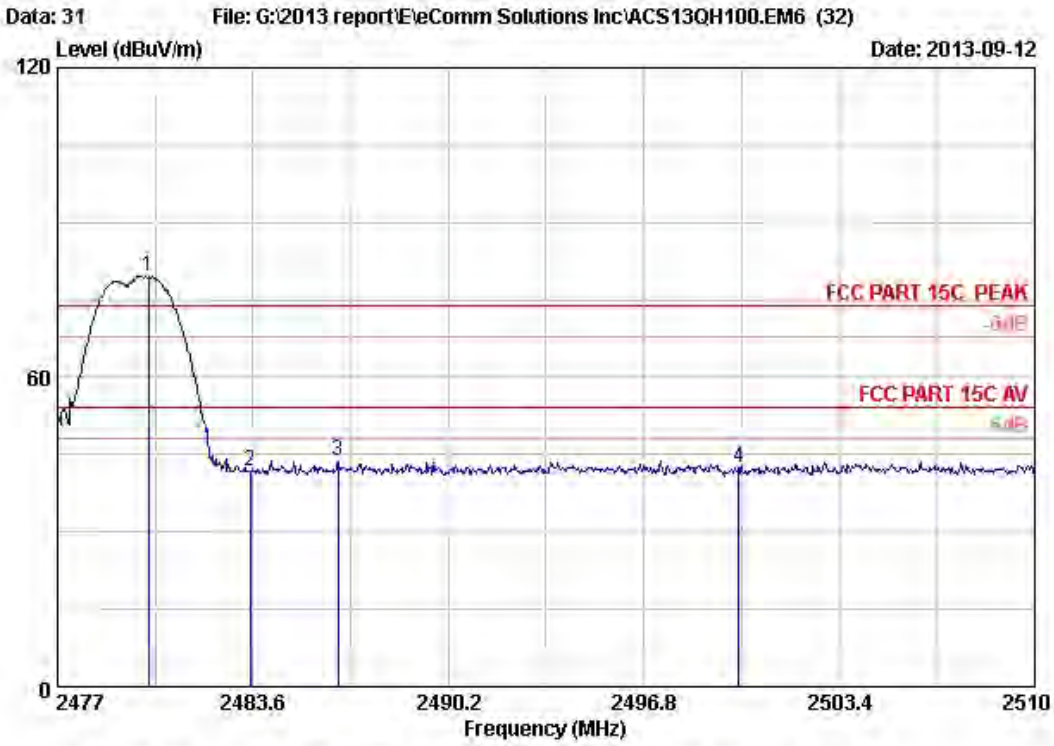


Site no. : 3m Chamber
Dis. / Ant. : 3m 2012 3115 (4580)
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54%
EUT : All-in-one Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode 8DFSK 2402MHz
WUSA K230

Data no. : 22
Ant. pol. : VERTICAL
Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2344.200	26.40	5.72	35.70	46.75	43.17	74.00	30.83	Peak
2	2390.000	26.70	5.78	35.70	44.70	41.48	74.00	32.52	Peak
3	2400.000	26.76	5.80	35.70	56.61	53.47	74.00	20.53	Peak
4	2401.960	26.77	5.80	35.70	86.62	83.49	74.00	-9.49	Peak

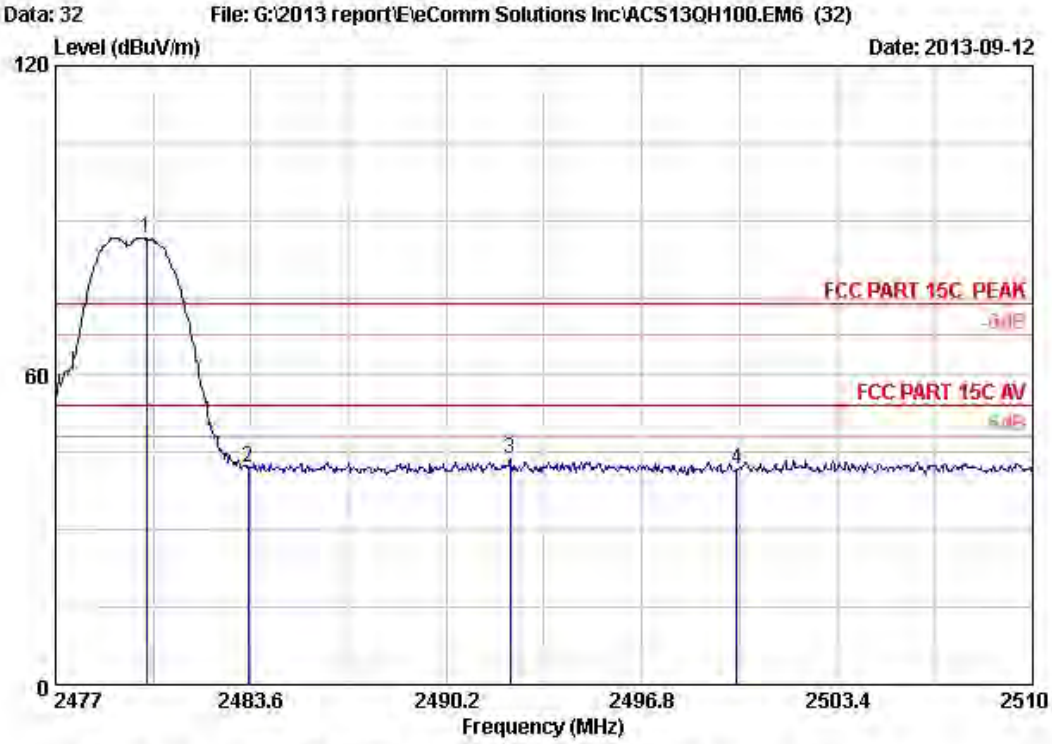
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 31
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-one Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode 8DFSK 2480MHz
WUSA K230

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.069	27.27	5.91	35.70	82.05	79.53	74.00	-5.53	Peak
2	2483.500	27.29	5.92	35.70	44.15	41.66	74.00	32.34	Peak
3	2486.471	27.31	5.92	35.70	46.35	43.88	74.00	30.12	Peak
4	2500.000	27.40	5.94	35.70	44.72	42.36	74.00	31.64	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 32
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : All-in-one Cycling Kit
Power supply : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx Mode 8DFSK 2480MHz
WUSA K230

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.069	27.27	5.91	35.70	89.26	86.74	74.00	-12.74	Peak
2	2483.500	27.29	5.92	35.70	44.59	42.10	74.00	31.90	Peak
3	2492.345	27.35	5.93	35.70	46.23	43.81	74.00	30.19	Peak
4	2500.000	27.40	5.94	35.70	44.18	41.82	74.00	32.18	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

12. DEVIATION TO TEST SPECIFICATIONS

[NONE]