Shenzhen EBO Technology Co., Ltd.

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Fax: +86-755-22639141

TEST REPORT

Application No.:	FCC&IC10-RTE08123RF
Applicant:	ARCHOS S.A.
Address of Applicant:	12 Rue Ampere ZI 91430 Igny, France
FCC ID:	SOV8000
IC ID:	5511A-8000
Fundamental Carrier Frequency :	2.402GHz to 2.480GHz
Equipment Under Test (EUT):	
EUT Name:	A10 Internet Tablet
Item No.:	8000
Serial No.:	Not supplied by client
Standards:	FCC PART 15 Subpart C: 2008
	RSS-210 Issue 7 August 2007
	RSS-Gen Issue 2 August 2007
Date of Receipt:	12 August. 2010
Date of Test:	13 August. 2010 to 10 September. 2010
Date of Issue:	13 September. 2010
Test Result :	**PASS***

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Kavin Yu
Manager

1 Test Summary

Test	Test Requirement	Standard Paragraph	Result
Conducted Emissions	FCC PART 15:2008	Section 15.207	PASS
	RSS-Gen:2007	Section 7.2.2	
Radiated Emissions	FCC PART 15:2008	Section 15.205/15.209	PASS
	RSS-210:2007 RSS-Gen:2007	A 8.5 Secion 7.2.3	
Maximum Peak Output Power	FCC PART 15:2008	Section 15.247 (b)	PASS
	RSS-210:2007	A 8.4(2)	
20 dB Occupied Bandwidth	FCC PART 15:2008	Section 15.247 (a)(1)	PASS
	RSS-210:2007	A 8.1(a)	
99% Occupied Bandwidth	RSS-Gen:2007	Section 4.6	PASS
Carrier Frequency Separation	FCC PART 15:2008	Section 15.247 (a)(1)	PASS
	RSS-210:2007	A 8.1(b)	
Number of Hopping Frequencies	FCC PART 15:2008	Section 15.247 (a)(1)(iii)	PASS
	RSS-210:2007	A 8.4(2)	
Time of Occupancy	FCC PART 15:2008	Section 15.247 (a)(1)(iii)	PASS
	RSS-210:2007	A 8.1(d)	
Band Edges and Conducted Spurious Emissions Measurement	FCC PART 15:2008	Section 15.247(d)	PASS
	RSS-210:2007	A 8.5	
Antenna requirement.	FCC PART 15:2008	Section 15.247 (b)	PASS
RF Exposure Compliance Requirement	FCC PART 15:2008	15.247(b)(4)& 1) c) D01 Mobile Portable RF Exposure v04	PASS
	RSS-102:2010	Section 2.5.1	

FCC ID: SOV 8000

IC ID: 5511A-8000

2 Contents

3 General Information

3.1 Client Information

Applicant:	ARCHOS S.A.
Address of Applicant:	12 Rue Ampere ZI 91430 Igny, France

3.2 General Description of E.U.T.

Equipment Under Test:	Wireless Data Transmission (Bluetooth)
Trade Name:	ARCHOS
Type Designation:	A10 Internet tablet
Model Number:	8000
Type of modulation:	GFSK, Pi/4QPSK,8DPSK
Number of Channels:	79
Operation Frequency:	2402 ~2480MHz
Antenna Designation:	Internal Antenna soldering on the PCB
Antenna Gain:	0dBi
Power Supply:	AC Adapter Model:KSAS0100500200D5 Input:AC 100-240V 50/60Hz 0.4A Output:DC 5.0V 2.0A
Date of Test:	13 August. 2010 to 10 September. 2010

Remark: A TDK ferrite core (model no.:ZCAT1730-0730) in the output port of the adapter, please refer to the external photo EUT for the details.

FCC ID: SOV 8000

IC ID: 5511A-8000

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	20	2422	40	2442	60	2480
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2402	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2447	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

Note:

Regards to the frequency band over 10MHz, the lowest, middle and highest frequency of channel were selected to perform the test, and then shown on this report.

So the there channel as follow:

Lowest channel: 2402MHz

Middle channel: 2447MHz

Highest channel: 2480 MHz

3.3 Test Supporting System Details

Equipment Name	Modle No.	Manufacturer	FCC Status
Notebook Computer	nc4000	HP	DOC
Monitor	TFT1780PS	AOV	DOC
Keyboard	JME7053	Lenovo	DOC
Mouse	N/A	Lenovo	DOC

3.4 Test Location

All tests were sub-contracted to:

ATC Lab Co., Ltd (Guangdong, China).

205#, Yingfeng Building, Ronggu Rd,Foshan, Guangdong, China（528305）

Phone:0757-23612690

Fax:0757-23612537

3.5 Test Facility

IC-Registration No.: 415467

ATC Lab Co., Ltd (Guangdong, China) EMC Laboratory has been registered and fully described in a report filed with the IC (Federal Communications Commission). The acceptance letter from the IC is maintained in our files. Registration 415467. Listing date October 10, 2008.

IC-Registration No.: 7949A

The 3m Alternate Test Site of ATC Lab Co., Ltd (Guangdong, China) has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7949A on Oct. 29th, 2008.

3.6 Measurement Uncertainty

of +/- 3×10^{-9} for Carrier Frequency Separation Measurement

of +/- 3×10^{-9} for Number of Hopping Frequencies Measurement

of +/- 3×10^{-9} for 20dB Bandwidth Measurement

of +/- 3×10^{-9} for Time of Occupancy (Dwell time) Measurement

of +/- 0.8 dB for Peak Output Power Measurement

of +/- 0.8 dB for Band Edge RF Conducted Measurement

of +/- 0.8 dB for Spurious RF Conducted Emission Measurement

of +/- 4.5 dB for Radiated Emissions

of +/- 2.3 dB for Conducted Emissions

3.7 Other Information Requested by the Customer

None

4 Equipment Used during Test

Conducted Emission

No.	Test Equipment	Manufacturer	Mo del No.	Serial No.	Cal. Due Date
GAL-EMC002	Shielding Room	ETS	N/A	N/A	2011-05-18
GAL-EMC003	Receiver	SCHAFFNER	SMR4503	11725	2011-07-08
GAL-EMC005	Line impedance stabilization network	EMCO	4825/2	1161	2011-07-08
GAL-EMC098	Line impedance stabilization network	EMCO	3810/2	2516	2011-07-08

RF in Chamber

No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Due Date
GAL-EMC001	Semi-anechoic Chamber	ETS	N/A	N/A	2011-05-25
GAL-EMC003	Receiver	SCHAFFNER	SMR4503	11725	2011-07-08
GAL-EMC007	Double-ridged Wave guide horn	ETS	3115	6587	2011-08-02
GAL-EMC008	Microwave system amplifier (0.5G-26.5G)	Agilent	83017A	MY39500438	2011-07-08
GAL-EMC017	Biconilog Antenna	ETS	3142C	00042672	2010-09-26
GAL-EMC055	Band-pass Filter	Micro-Tronic	BRM50702	S/N-030	2010-11-09
GAL-EMC056	Spectrum Analyzer 9KHz-30GHz	R&S	FSP30	100755	2010-11-02
GAL-EMC075	Double-ridged Wave guide horn	ETS	3160	00052486	2011-08-02

RF Conducted

No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Due Date
GAL-EMC056	Spectrum Analyzer 9KHz-30GHz	R&S	FSP30	100755	2010-11-02
GAL-EMC100	ATC－Lab	N/A	N/A	N/A	2010-11-02

5 Test Results

5.1 Conducted Emissions

Test Requirement: FCC Part15 B Section 15.207
RSS-Gen Section 7.2.2

Test Method: ANSI C63.4:2003

Frequency Range: 150KHz to 30MHz

Class/Severity: Class B

Detector: Peak for pre-scan (9 kHz resolution bandwidth)

Test Mode: Bluetooth mode (Notebook Active with the EUT in Bluetooth mode)

Test Voltage: 120Vac,60Hz

Test Date: 22 August. 2010

Temperature: 23℃

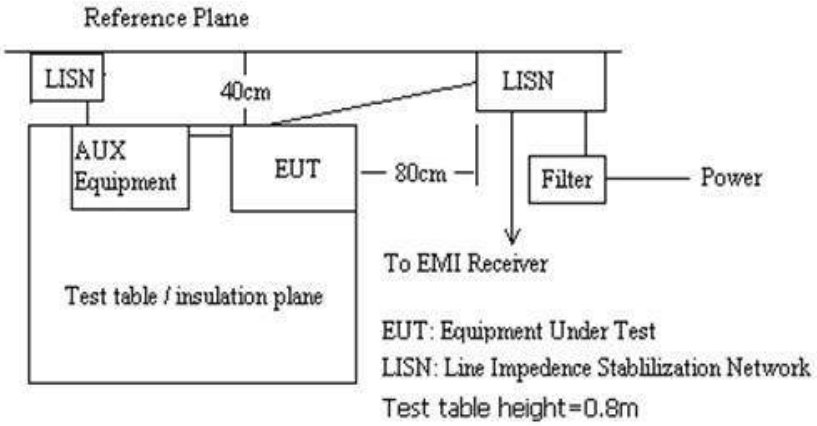
Humidity: 54%

Limit: (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

5.1.1 Test Setup



5.1.2 Test Procesure

The Device was conneted to the artifical main network via AC adapter and connect with Notebook computer(refer to section 3.3 for details),And test the EUT with actived in WIFI transmit mode.

5.1.3 Measurement Data

Measure the maximised peak emissions from the EUT for both the Live and Neutral Lines. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

PC Active with the EUT in transmit mode

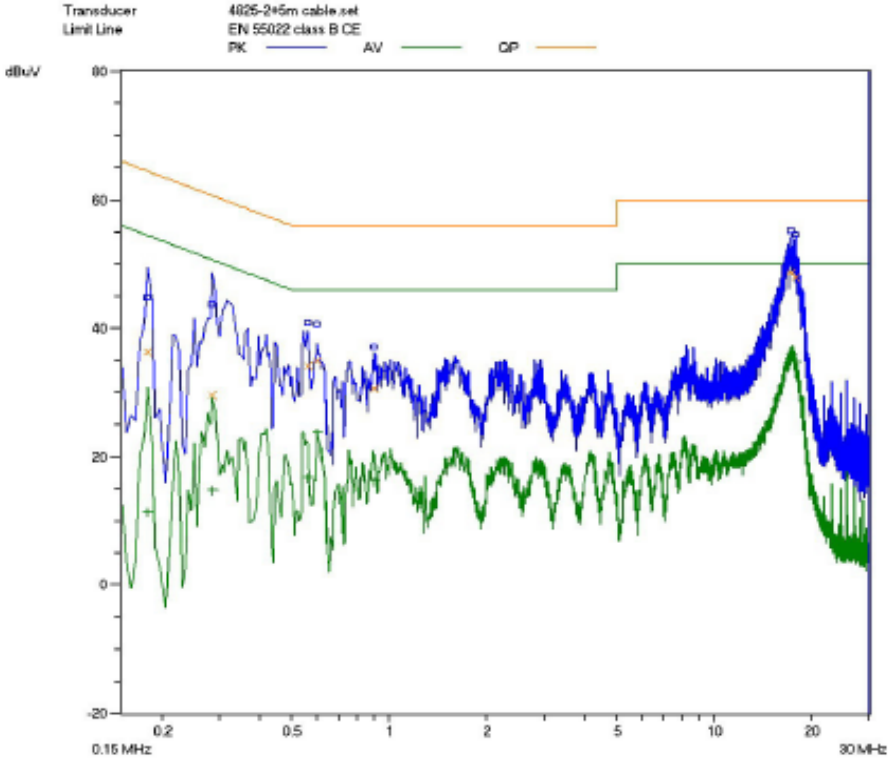
Frequency (MHz)	Line	Measured QP (dBuV)	QP Limit (dBuV)	Measured AV (dBuV)	AV Limit (dBuV)	Over Limit QP	Over Limit AV
0.1800	L	36.20	64.42	11.50	54.42	-28.22	-42.92
0.2850	L	29.70	60.63	14.80	50.63	-30.93	-35.83
0.3300	L	33.80	59.42	15.60	49.42	-25.62	-33.82
0.6000	L	34.20	56.00	23.70	46.00	-21.80	-22.30
17.2400	L	48.80	60.00	35.90	50.00	-11.20	-14.10
17.7200	L	48.00	60.00	34.80	50.00	-12.00	-15.20
0.2100	N	40.60	63.15	23.90	53.15	-22.55	-29.25
0.3300	N	38.10	59.42	25.20	49.42	-21.32	-24.22
0.3350	N	38.60	59.30	26.40	49.30	-20.70	-22.90
0.5900	N	35.80	56.00	22.90	46.00	-20.20	-23.10
16.6950	N	49.10	60.00	38.90	50.00	-10.90	-11.10
17.8500	N	45.70	60.00	35.20	50.00	-14.30	-14.80

Test result: The unit does meet the requirements.

Test result plot as follows:

Live Line

EUT / Ser.No.		A10
Frequency Range(s)		Range 1
Start Frequency		150 kHz
Stop Frequency		30 MHz
Step Frequency		5 kHz
Attenuator		Auto
Detector	(Pre)	AV CISPR
IF Bandwidth	(Pre)	9 kHz
Measure Time	(Pre)	10 ms
Detector	(Final)	QP
IF Bandwidth	(Final)	9 kHz
Measure Time	(Final)	1 s
Sub Ranges	(Final)	20

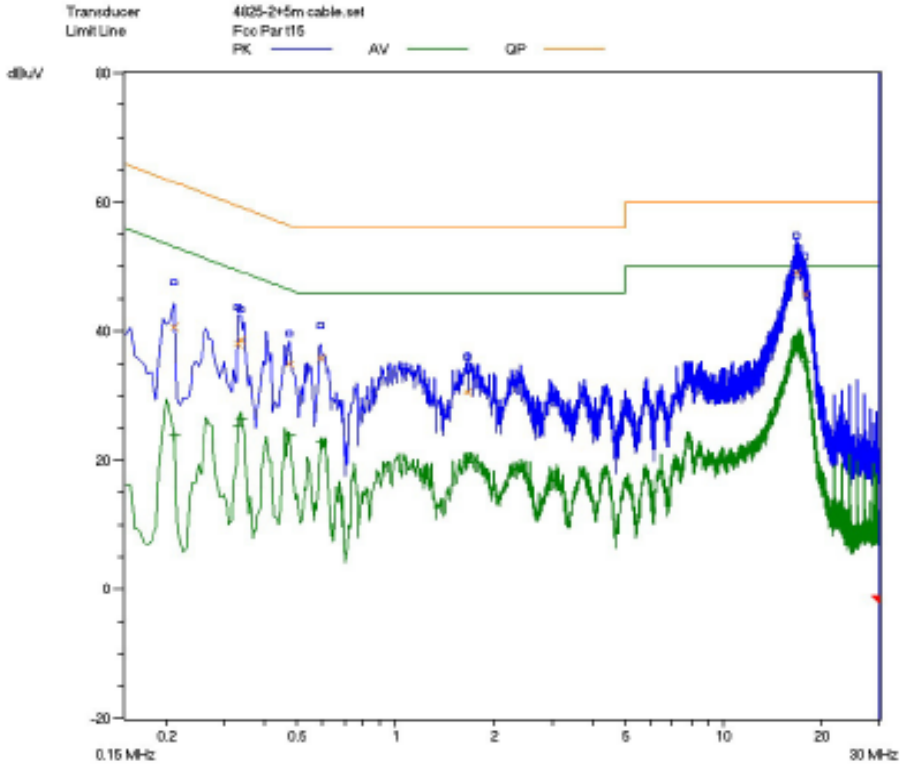


FCC ID: SOV 8000

IC ID: 5511A-8000

Nuetral Line

EUT / Ser.No.		A10
Frequency Range(s)		Range 1
Start Frequency		150 kHz
Stop Frequency		30 MHz
Step Frequency		5 kHz
Attenuator		Auto
Detector	(Pre)	AV CISPR
IF Bandwidth	(Pre)	9 kHz
Measure Time	(Pre)	10 ms
Detector	(Final)	QP
IF Bandwidth	(Final)	9 kHz
Measure Time	(Final)	1 s
Sub Ranges	(Final)	20



FCC ID: SOV 8000

IC ID: 5511A-8000

5.2 Radiated Emissions

Test Requirement: FCC Part15 C Section 15.247,15.209 and 15.205
RSS-210 A 8.5 and RSS-Gen Section 7.2.3

Test Method: ANSI C63.4:2003

Frequency Range: 30MHz to 25GHz

Receiver Setup: QP Detector (RBW=120 kHz,VBW=300kHz) for 30 to 1000 MHz RE testing
Peak Detector(RBW=1MHz,VBW=3MHz) for 1 to 25 GHz RE Peak value testing
Peak Detector(RBW=1MHz, VBW=10Hz) for 1 to 25 GHz RE AV value testing

Test Mode: Blue tooth transmit and receiver mode

Test Voltage: 120Vac,60Hz

Test Date: 15 August. 2010 to 20 August. 2010

Temperature: 22℃~25℃

Humidity: 48%~54%

Limit: The field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Test Procedure: Prescan on three orthogonal axes with the EUT and show the worst case measured results in the report.

Frequency of Emission	Field Strength	
(MHz)	(microvolts/meter)	dB (μV/m)
30 - 88	100	40(QP)
88 - 216	150	43.5(QP)
216 - 960	200	46(QP)
960 - 1000	500	54(QP)
Above 1000	500	54(AV) 74(PK)

5.2.1 Test Setup

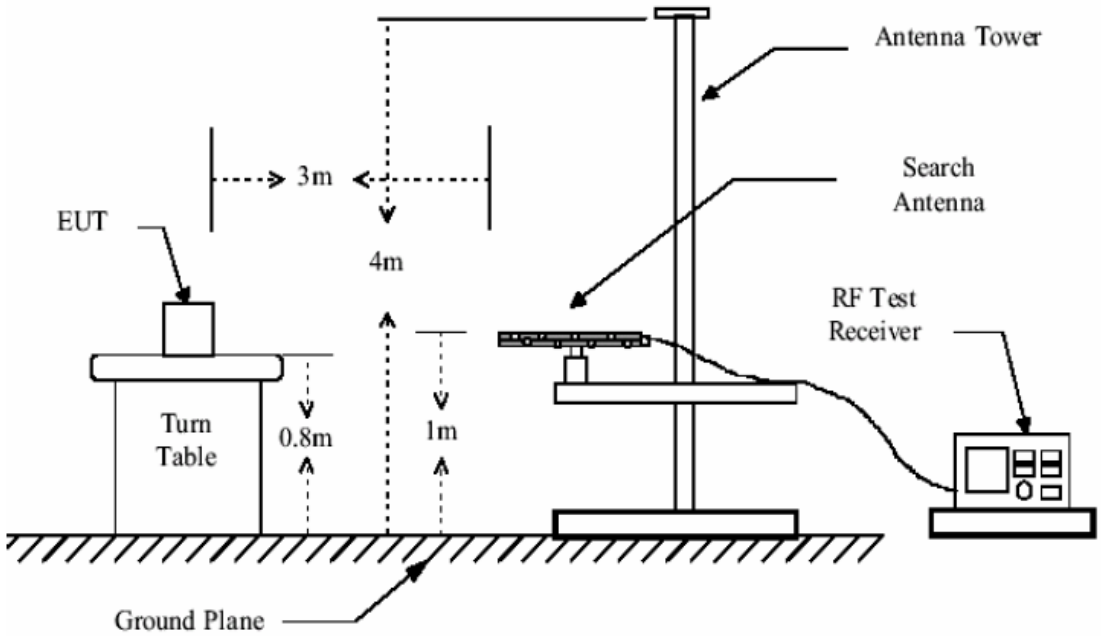


Figure1: 30MHz to 1GHz radiated emissions test setup

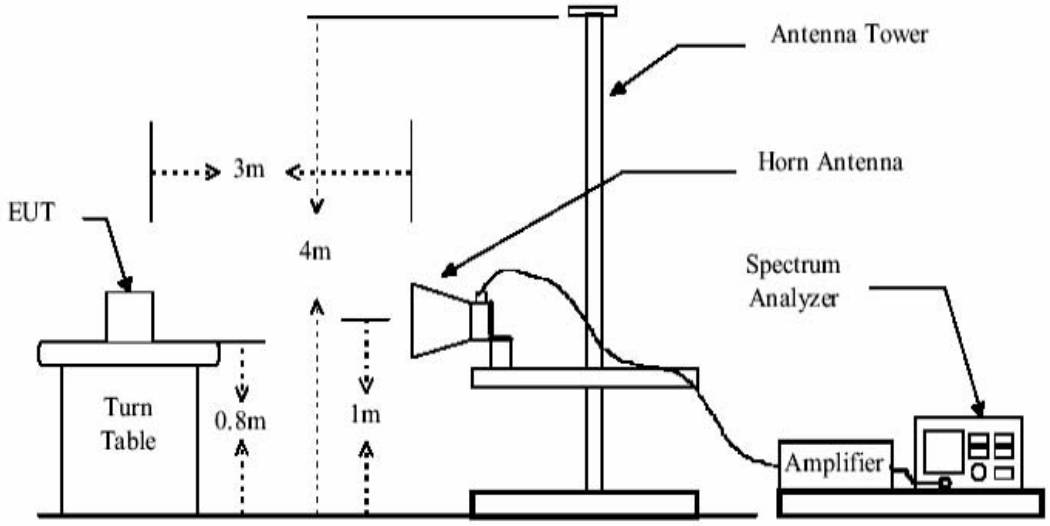


Figure 2: Above 1GHz radiated emissions test setup

FCC ID: SOV 8000

IC ID: 5511A-8000

5.2.2Test Prosesure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until all frequency measured were complete.

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain

5.2.3Measurement Data

Radiated Emission below 1GHz

Bluetooth function with receiving modes

Frequency (MHz)	Antenna Polarity	Reading (dBuV/m)	Ant./CL/ Amp.CF (dB)	Measured Level (dBuV/m)	QP Limit (dBuV/m)	Over Limit(dB)	Pass /Fail
Below 1GHz	H	—	—	—	—	Less than -30	Pass
Below 1GHz	V	—	—	—	—		Pass

Pre-scan the EUT in GFSK,Pi/4QPSK and 8DPSK with transmintting and find out the worst case is GFSK mode in transmitting.

Frequency (MHz)	Antenna Polarity	Reading (dBuV/m)	Ant./CL/ Amp.CF (dB)	Measured Level (dBuV/m)	QP Limit (dBuV/m)	Over Limit(dB)	Pass /Fail
35.780	H	9.02	18.70	27.72	40.00	-12.28	Pass
150.600	H	25.76	9.56	35.32	43.50	-8.18	Pass
236.500	H	26.63	10.60	37.23	46.00	-8.77	Pass
286.460	H	20.24	14.28	34.52	46.00	-11.48	Pass
625.200	H	-3.06	22.30	19.24	46.00	-26.76	Pass
826.400	H	-5.22	24.80	19.58	46.00	-26.42	Pass
36.420	V	0.12	18.70	18.82	40.00	-21.18	Pass
149.720	V	25.87	9.56	35.43	43.50	-8.07	Pass
218.640	V	27.89	9.40	37.29	46.00	-8.71	Pass
271.120	V	26.35	14.57	40.92	46.00	-5.08	Pass
589.640	V	14.74	20.90	35.64	46.00	-10.36	Pass
866.900	V	-2.40	24.60	22.20	46.00	-23.80	Pass

Radiated Emission Above 1GHz

Bluetooth with receiving modes

Peak Measurement

Frequency (MHz)	Antenna Polarity	Reading (dBuV/m)	Ant./CL/ Amp.CF (dB)	Measured Level (dBuV/m)	PK Limit (dBuV/m)	Over Limit(dB)	Pass /Fail
2402.000	H	36.24	-0.54	35.70	74.00	-38.30	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
2402.000	V	38.95	-0.54	38.41	74.00	-35.59	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Average Measurement

Frequency (MHz)	Antenna Polarity	Reading (dBuV/m)	Ant./CL/ Amp.CF (dB)	Measured Level (dBuV/m)	AV Limit (dBuV/m)	Over Limit(dB)	Pass /Fail
2402.000	H	28.82	-0.54	28.28	54.00	-25.72	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
2402.000	V	30.65	-0.54	30.11	54.00	-23.89	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Pre-scan the EUT in GFSK,Pi/4QPSK and 8DPSK with transmintting and find out the worst case is GFSK mode in transmitting.

Transmitting mode (GFSK mode Lowest channel=2402MHz)

Peak Measurement

Frequency (MHz)	Antenna Polarity	Reading (dBuV/m)	Ant./CL/ Amp.CF (dB)	Measured Level (dBuV/m)	PK Limit (dBuV/m)	Over Limit(dB)	Pass /Fail
1108.000	H	45.64	-5.10	40.54	74.00	-33.46	Pass
4804.000	H	42.13	6.10	48.23	74.00	-25.77	Pass
7206.000	H	41.65	11.80	53.45	74.00	-20.55	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
1234.000	V	45.72	-4.80	40.92	74.00	-33.08	Pass
4804.000	V	41.85	6.10	47.95	74.00	-26.05	Pass
7206.000	V	42.46	11.80	54.26	74.00	-19.74	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Average Measurement

Frequency (MHz)	Antenna Polarity	Reading (dBuV/m)	Ant./CL/ Amp.CF (dB)	Measured Level (dBuV/m)	AV Limit (dBuV/m)	Over Limit(dB)	Pass /Fail
1108.000	H	35.89	-5.10	30.79	54.00	-23.21	Pass
4804.000	H	29.64	6.10	35.74	54.00	-18.26	Pass
7206.000	H	30.16	11.80	41.96	54.00	-12.04	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
1234.000	V	32.78	-4.80	27.98	54.00	-26.02	Pass
4804.000	V	28.74	6.10	34.84	54.00	-19.16	Pass
7206.000	V	30.19	11.80	41.99	54.00	-12.01	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Transmitting mode (GFSK mode Middle channel=2447MHz)

Peak Measurement

Frequency (MHz)	Antenna Polarity	Reading (dBuV/m)	Ant./CL/ Amp.CF (dB)	Measured Level (dBuV/m)	PK Limit (dBuV/m)	Over Limit(dB)	Pass /Fail
1106.000	H	46.23	-5.10	41.13	74.00	-32.87	Pass
4894.000	H	42.12	6.10	48.22	74.00	-25.78	Pass
7341.000	H	42.01	11.92	53.93	74.00	-20.07	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
1106.000	V	46.78	-5.10	41.68	74.00	-32.32	Pass
4894.000	V	41.22	6.10	47.32	74.00	-26.68	Pass
7341.000	V	42.83	11.92	54.75	74.00	-19.25	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Average Measurement

Frequency (MHz)	Antenna Polarity	Reading (dBuV/m)	Ant./CL/ Amp.CF (dB)	Measured Level (dBuV/m)	AV Limit (dBuV/m)	Over Limit(dB)	Pass /Fail
1106.000	H	33.25	-5.10	28.15	54.00	-25.85	Pass
4894.000	H	29.14	6.10	35.24	54.00	-18.76	Pass
7341.000	H	30.12	11.92	42.04	54.00	-11.96	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
1106.000	V	33.06	-5.10	27.96	54.00	-26.04	Pass
4894.000	V	28.11	6.10	34.21	54.00	-19.79	Pass
7341.000	V	29.67	11.92	41.59	54.00	-12.41	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Transmitting mode (GFSK mode Highest channel=2480MHz)

Peak Measurement

Frequency (MHz)	Antenna Polarity	Reading (dBuV/m)	Ant./CL/ Amp.CF (dB)	Measured Level (dBuV/m)	PK Limit (dBuV/m)	Over Limit(dB)	Pass /Fail
1172.000	H	45.79	-5.00	40.79	74.00	-33.21	Pass
4960.000	H	42.26	6.10	48.36	74.00	-25.64	Pass
7440.000	H	42.07	12.10	54.17	74.00	-19.83	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
1230.000	V	45.36	-4.80	40.56	74.00	-33.44	Pass
4960.000	V	42.13	6.10	48.23	74.00	-25.77	Pass
7440.000	V	42.01	12.10	54.11	74.00	-19.89	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Average Measurement

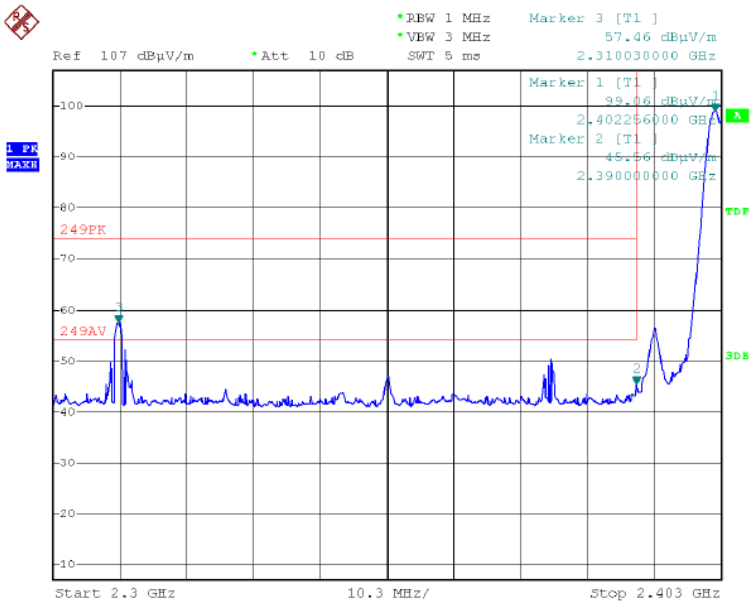
Frequency (MHz)	Antenna Polarity	Reading (dBuV/m)	Ant./CL/ Amp.CF (dB)	Measured Level (dBuV/m)	AV Limit (dBuV/m)	Over Limit(dB)	Pass /Fail
1172.000	H	32.36	-5.00	27.36	54.00	-26.64	Pass
4960.000	H	28.80	6.10	34.90	54.00	-19.10	Pass
7440.000	H	29.34	12.10	41.44	54.00	-12.56	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
1230.000	V	34.21	-4.80	29.41	54.00	-24.59	Pass
4960.000	V	28.96	6.10	35.06	54.00	-18.94	Pass
7440.000	V	30.10	12.10	42.20	54.00	-11.80	Pass
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Band Edge and Restriced band (Radiated measurement)

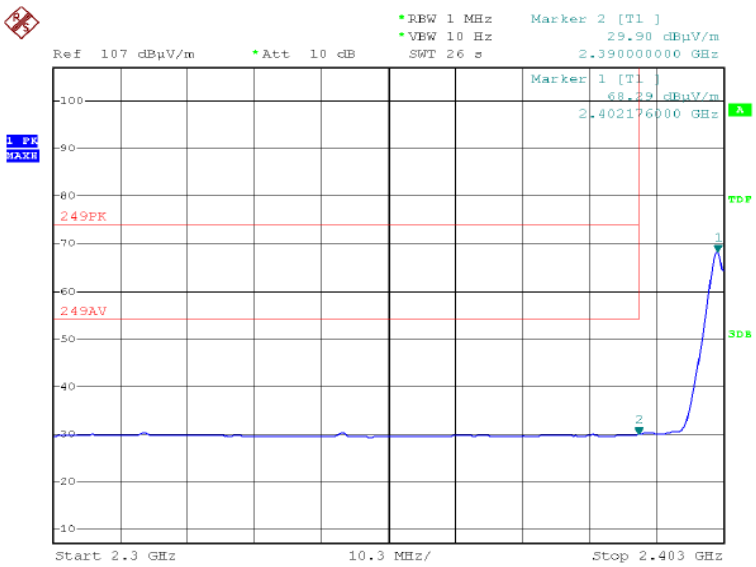
Pre-scan the EUT in GFSK,Pi/4QPSK and 8DPSK with transmintting mode and find out the worst case is 8DPSK mode in transmitting.

Transmitting with 8DPSK mode (Lowest channel=2402MHz)

Peak Measurement in Horizontal polarization



Average Measurement in Horizontal polarization

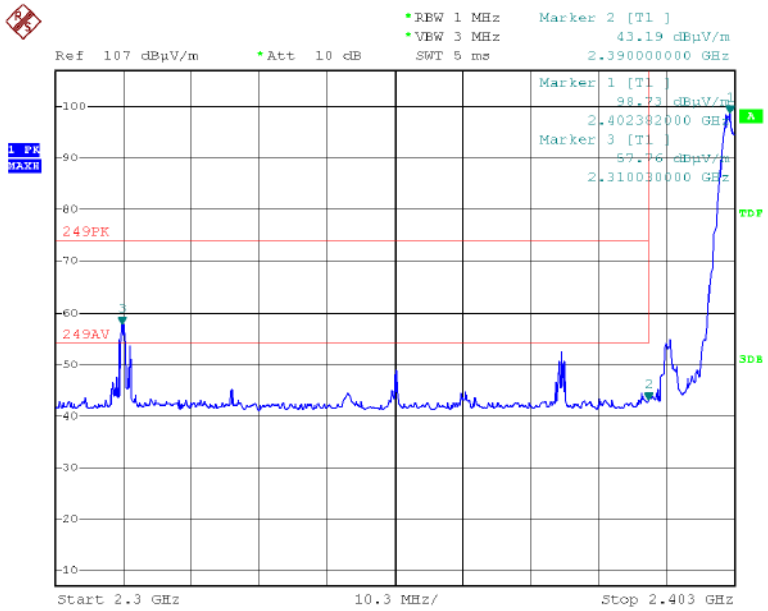


FCC ID: SOV 8000

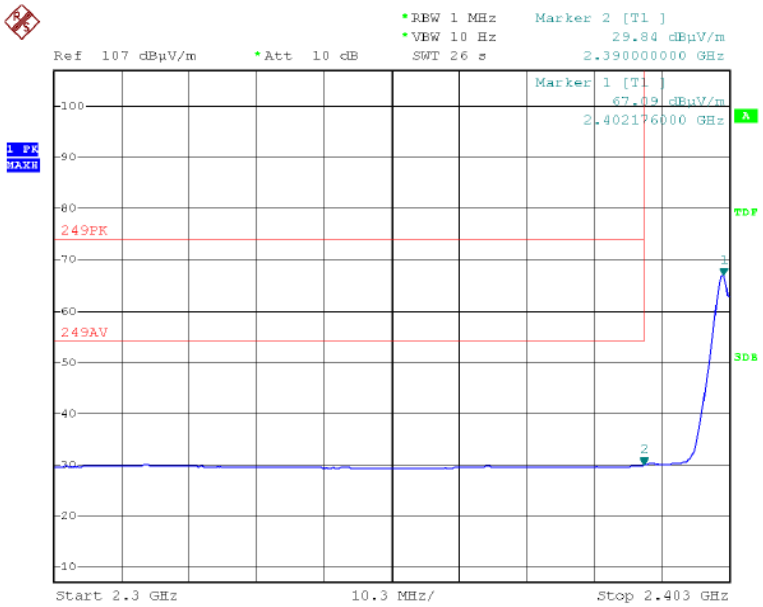
IC ID: 5511A-8000

Transmitting with 8DPSK mode (Lowest channel=2402MHz)

Peak Measurement in Vertical polarization



Average Measurement in Vertical polarization

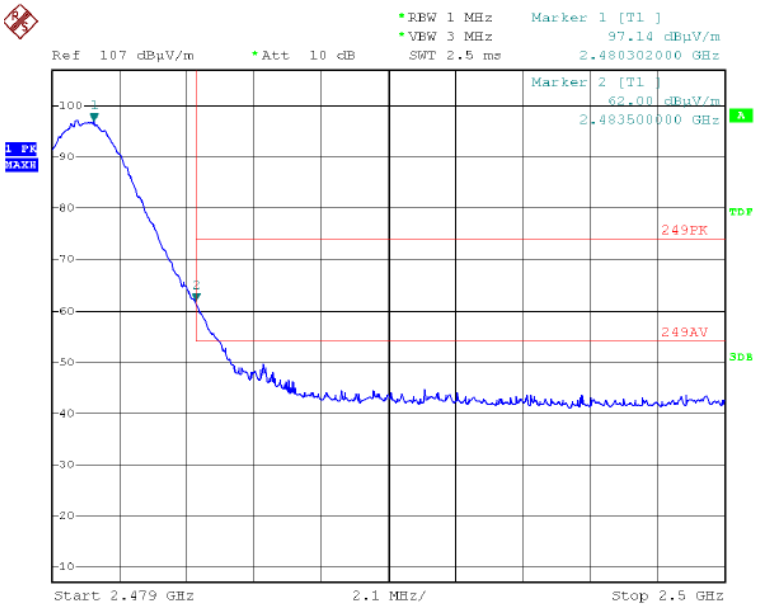


FCC ID: SOV 8000

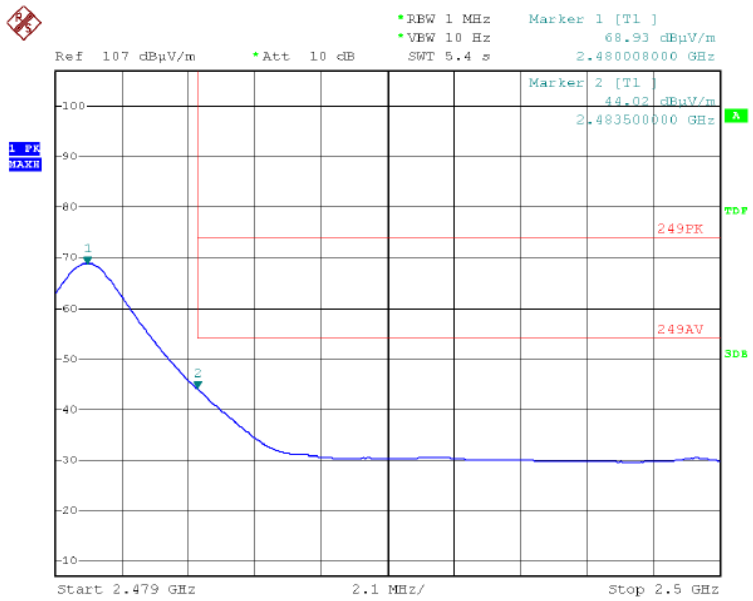
IC ID: 5511A-8000

Transmitting with 8DPSK mode (Highest channel=2480MHz)

Peak Measurement in Horizontal polarization



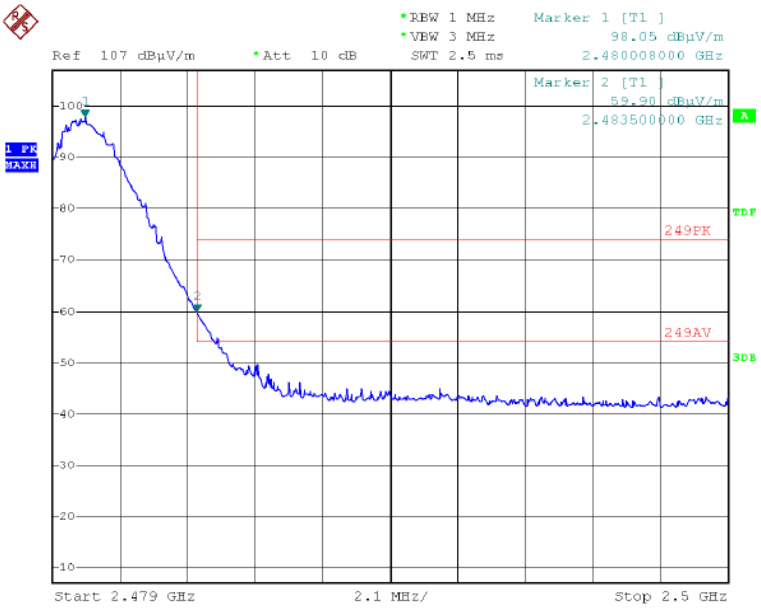
Average Measurement in Horizontal polarization



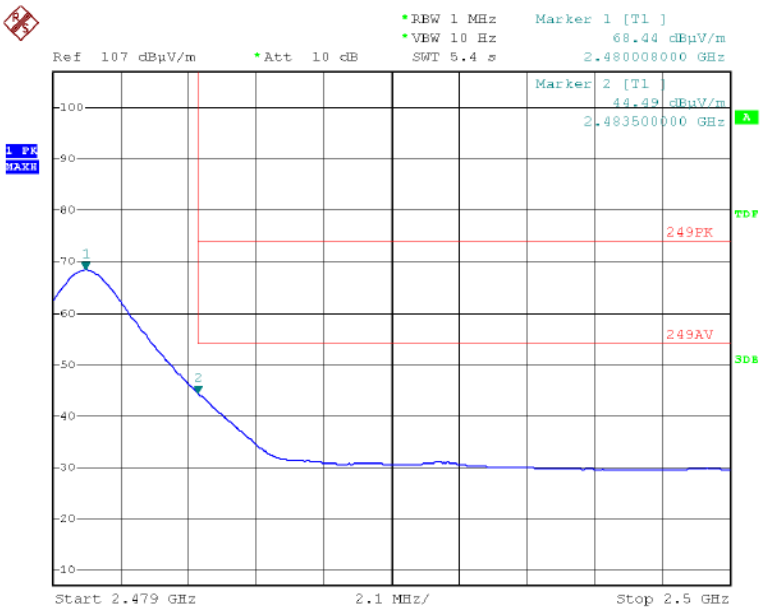
FCC ID: SOV 8000

IC ID: 5511A-8000

Peak Measurement in Vertical polarization



Average Measurement in Vertical polarization



FCC ID: SOV 8000

IC ID: 5511A-8000

Remark 1:

No any other emissions level which are attenuated less than 20dB below the limit According to 15.31(o), The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part. Hence there no other emissions have been reported.

Remark 2:

1). As shown in Section, for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

2). The test only perform the EUT in transmitting status since the test frequencies were over 1GHz only required transmitting status.

3) Pre-Scan has been conducted to determine the worst-case mode from all possible Combinations between available modulations, data rates and antenna ports, and found the EUT worse case mode: 8DPSK modulation mode.

4）For this intentional radiator operates below 25 GHz. The spectrum shall be investigated to the tenth harmonic of the highest fundamental frequency. And above the 4th harmonic of this intentional radiator, the disturbance is very low. So the test result only displays to 4th harmonic.

Remark 3:

Section 15.205 Restricted bands of operation.

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	([2])
13.36 - 13.41	322 - 335.4		

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions,or comply with 15.209 limits.

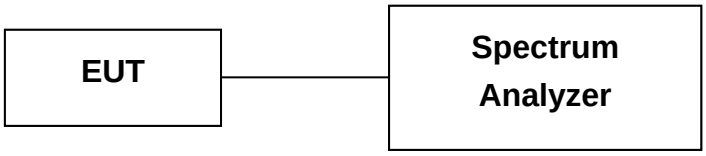
FCC ID: SOV 8000

IC ID: 5511A-8000

5.3 Maximun Peak Output Power

Test Requirement:	FCC 15.247(b) RSS-210 A 8.4(2)
Test Method:	ANSI C63.4:2003 and KDB DA00-705.
Method of Measurement:	The EUT was setup to ANSI C63.4, 2003, tested to FHSS test procedure of KDB DA00-705 for compliance to FCC 47CFR 15.247 requirements.
Detector:	RBW=3 MHz, VBW=10 MHz (Peak detector)
Test Mode:	Bluetooth in transmit mode without hopping
Test Voltage:	Pretest the EUT with voltage 120 ± 15%Vac,60Hz;and found out at 120Vac,60Hz is the worst case.
Test Date:	03 September. 2010
Temperature:	25℃
Humidity:	53%
Limit:	Regulation 15.247 (b) The Limit of Maximum Peak Output Power Measurement is 30dBm.

5.3.1Test Setup



5.3.2Measurement Data

For EUT communicating with GFSK Mode

Chanel Frequency (GHz)	Peak Output Power(dBm)	Cable Loss (dB)	Power level(dBm)	Limit (dBm)	Over Limit (dB)
2.402	-4.53	0.5	-4.03	30.00	-34.03
2.447	-5.60	0.5	-5.10	30.00	-35.10
2.480	-5.78	0.5	-5.28	30.00	-35.28

For EUT communicating with Pi/4QPSK Mode

Chanel Frequency (GHz)	Peak Output Power(dBm)	Cable Loss (dB)	Power level(dBm)	Limit (dBm)	Over Limit (dB)
2.402	-3.28	0.5	-2.78	30.00	-32.78
2.447	-3.40	0.5	-2.90	30.00	-32.90
2.480	-3.49	0.5	-2.99	30.00	-32.99

For EUT communicating with 8DPSK Mode

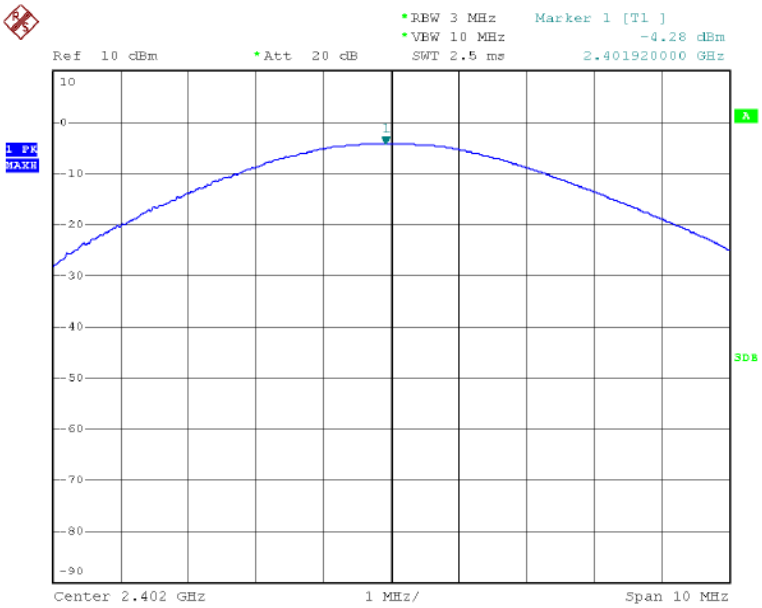
Chanel Frequency (GHz)	Peak Output Power(dBm)	Cable Loss (dB)	Power level(dBm)	Limit (dBm)	Over Limit (dB)
2.402	-3.70	0.5	-3.20	30.00	-33.20
2.447	-3.43	0.5	-2.93	30.00	-32.93
2.480	-4.86	0.5	-4.36	30.00	-34.36

Test result: The unit does meet the requirements.

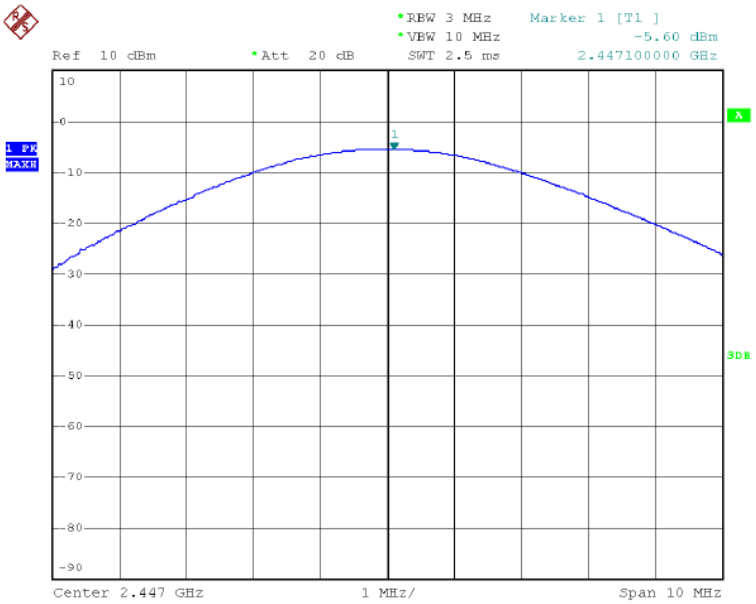
Test result plot as follows:

The EUT communicating with GFSK Mode

Lowest channel=2402MHz



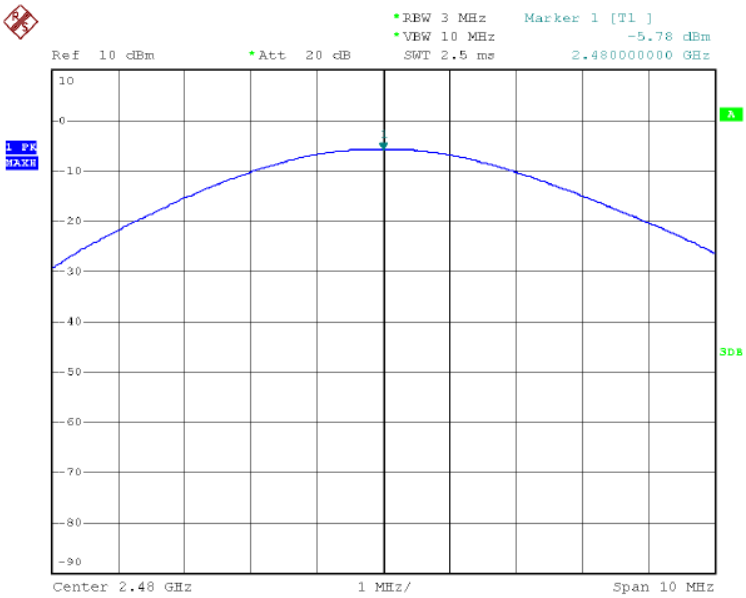
Middle channel=2447MHz



FCC ID: SOV 8000

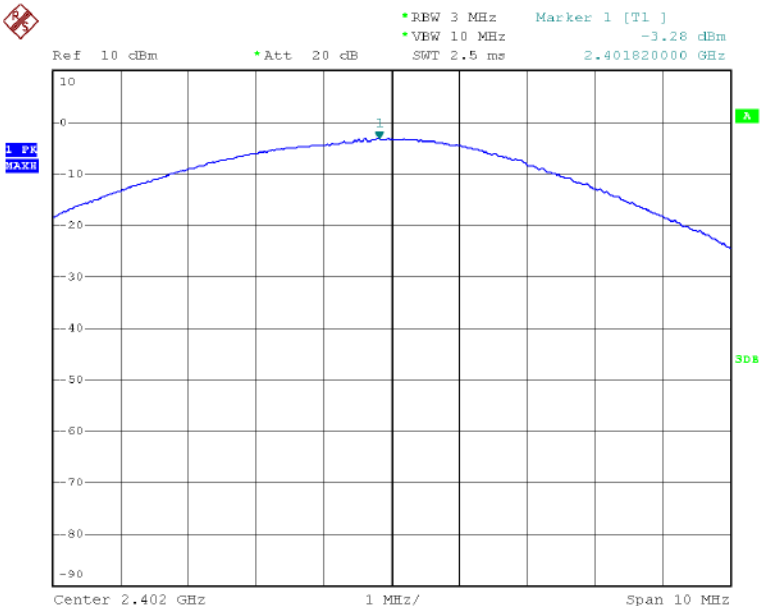
IC ID: 5511A-8000

Highest channel=2480MHz

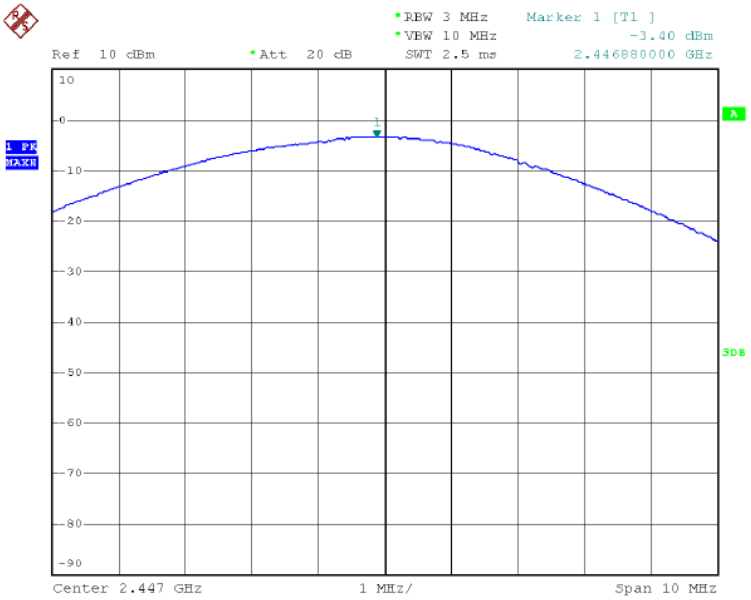


The EUT communicating with Pi/4QPSK Mode

Lowest channel=2402MHz



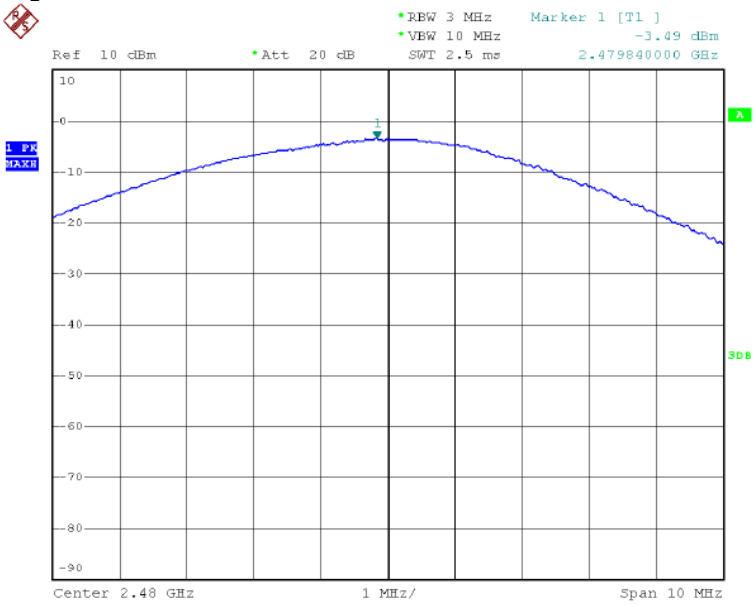
Middle channel=2447MHz



FCC ID: SOV 8000

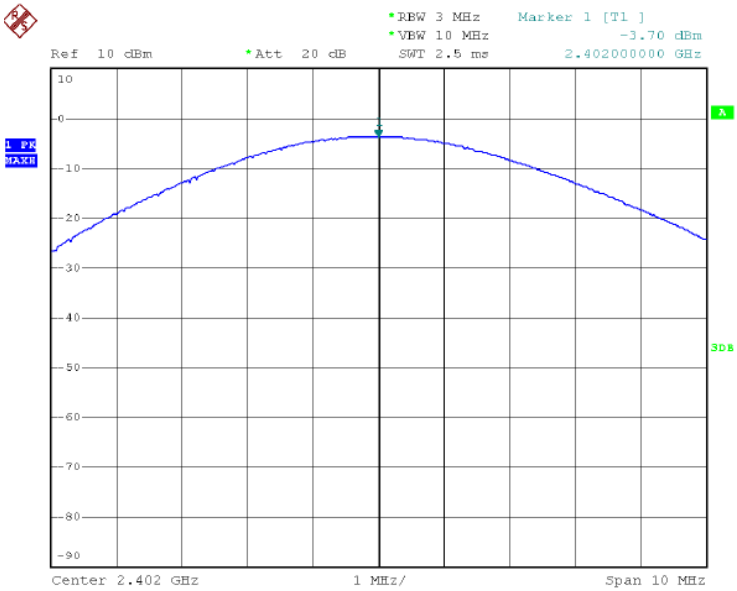
IC ID: 5511A-8000

Highest channel=2480MHz

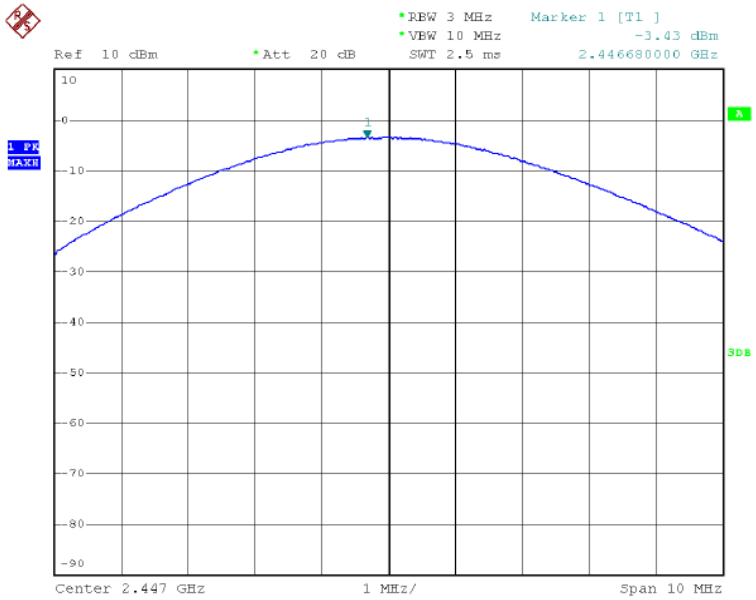


The EUT communicating with 8DPSK Mode

Lowest channel=2402MHz



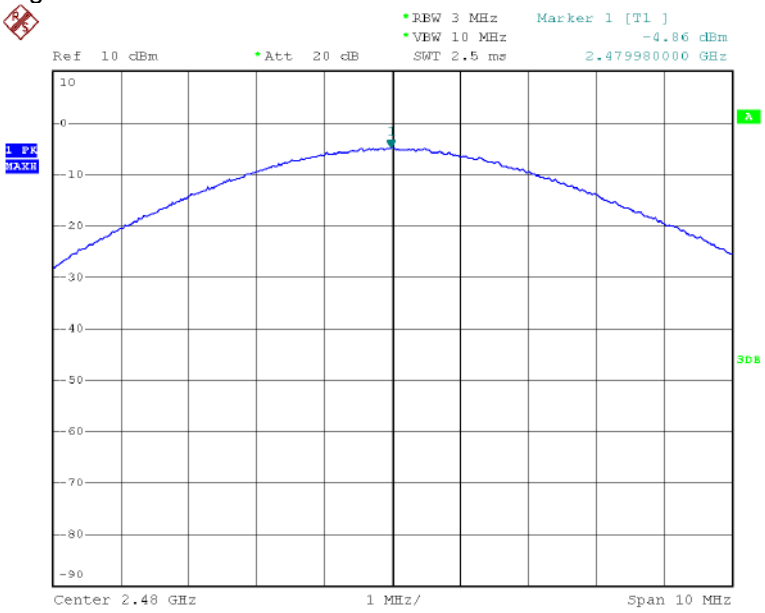
Middle channel=2447MHz



FCC ID: SOV 8000

IC ID: 5511A-8000

Highest channel=2480MHz



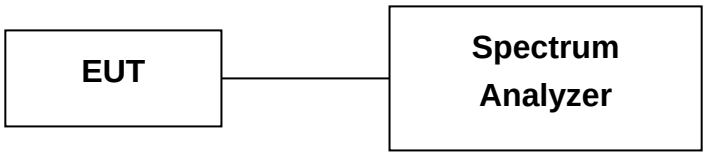
FCC ID: SOV 8000

IC ID: 5511A-8000

5.4 20dB Occupied Bandwidth

Test Requirement:	FCC 15.247(b) RSS-210 A 8.1(b)
Test Method:	ANSI C63.4:2003 and KDB DA00-705.
Method of Measurement:	The EUT was setup to ANSI C63.4, 2003, tested to FHSS test procedure of KDB DA00-705 for compliance to FCC 47CFR 15.247 requirements.
Detector:	RBW=30kHz, VBW=100kHz (Peak detector)
Test Mode:	Bluetooth in transmit mode without hopping
Test Voltage:	120Vac,60Hz
Test Date:	02 September. 2010
Temperature:	24℃
Humidity:	52%
Limit:	N/A

5.4.1 Test Setup



5.4.2 Measurement Data

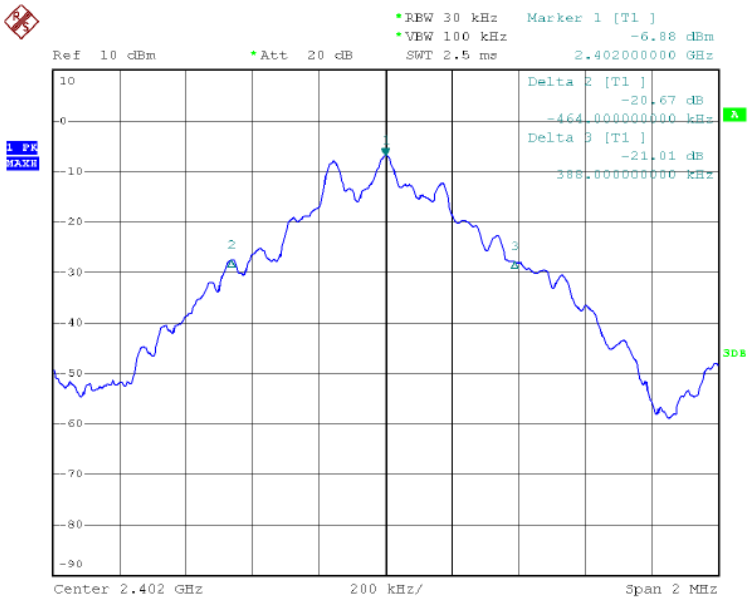
Chanel Frequency (GHz)	20 dB Occupy Bandwidth(MHz)		
	GFSK	Pi/4QPSK	8DPSK
2.402	0.852	0.744	1.120
2.447	0.836	0.764	1.124
2.480	0.764	0.732	1.134

Test result: The unit does meet the requirements.

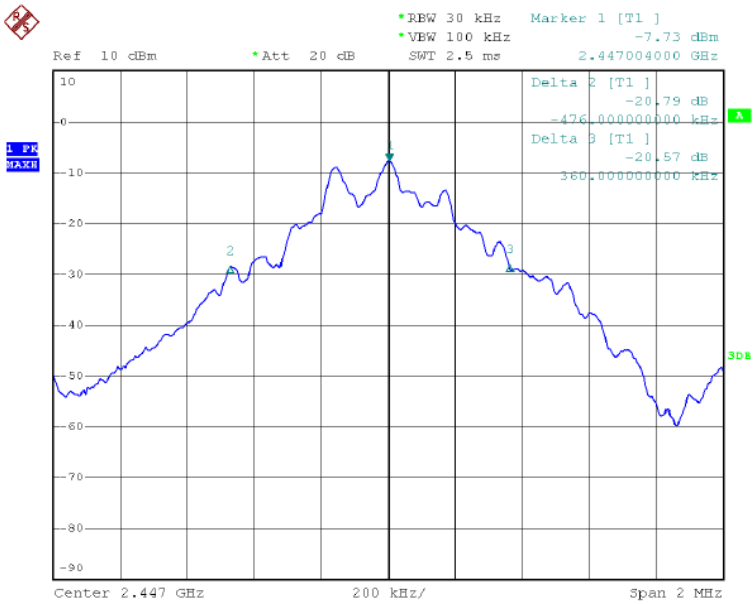
Test result plot as follows:

The EUT communicating with GFSK Mode

Lowest channel=2402MHz



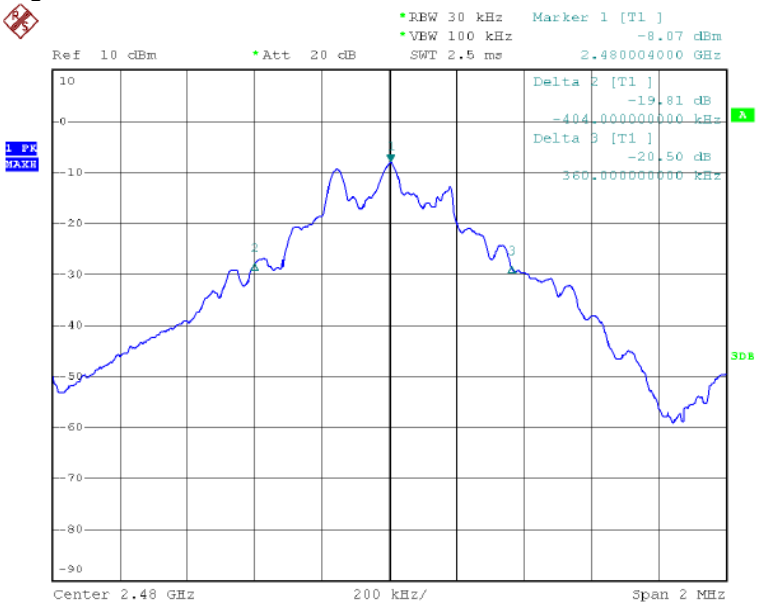
Middle channel=2447MHz



FCC ID: SOV 8000

IC ID: 5511A-8000

Highest channel=2480MHz

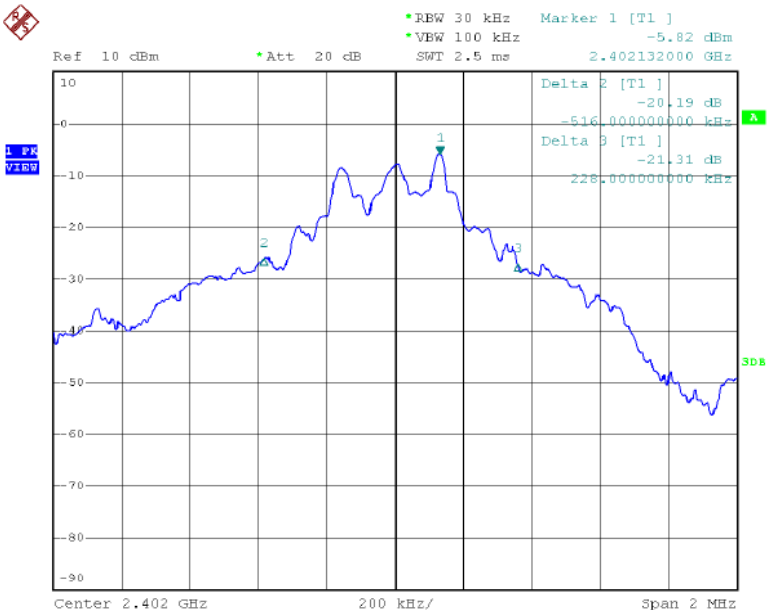


FCC ID: SOV 8000

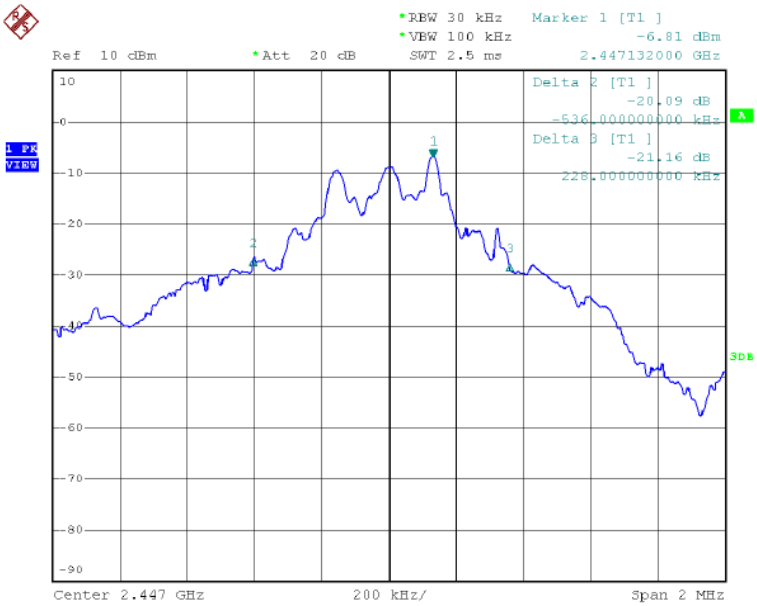
IC ID: 5511A-8000

The EUT communicating with Pi/4QPSK Mode

Lowest channel=2402MHz



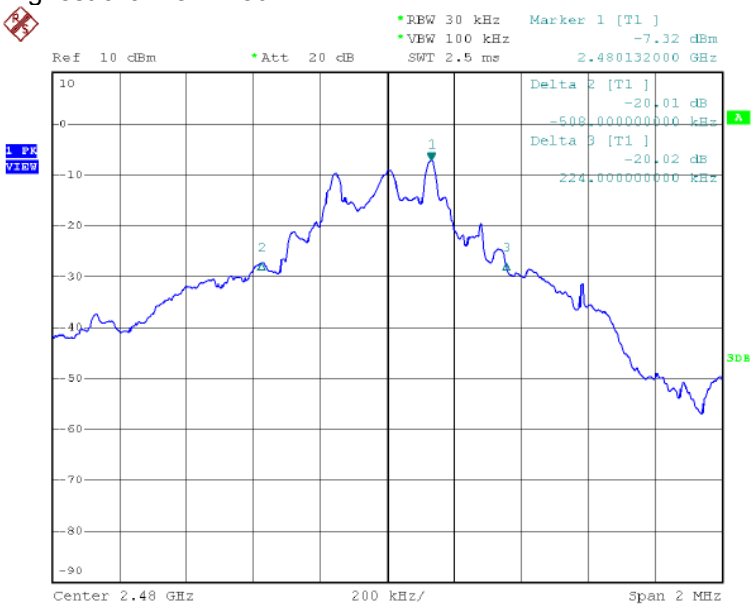
Middle channel=2447MHz



FCC ID: SOV 8000

IC ID: 5511A-8000

Highest channel=2480MHz

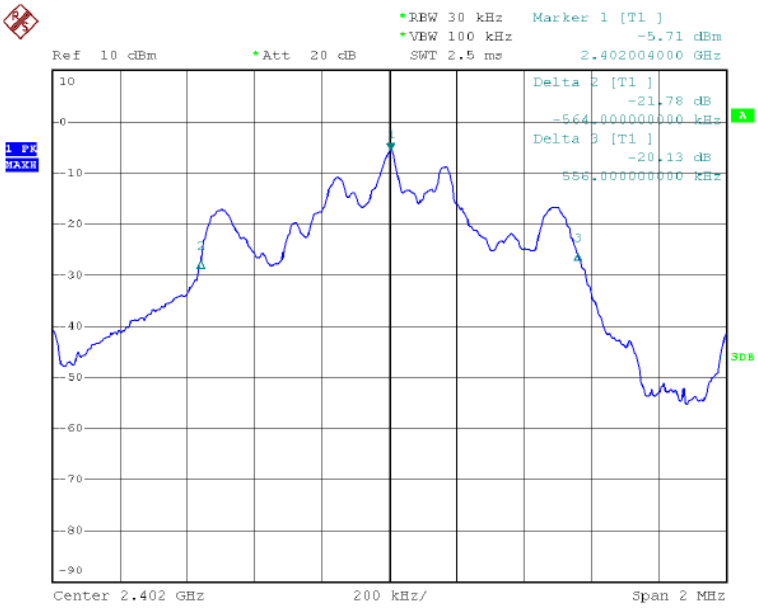


FCC ID: SOV 8000

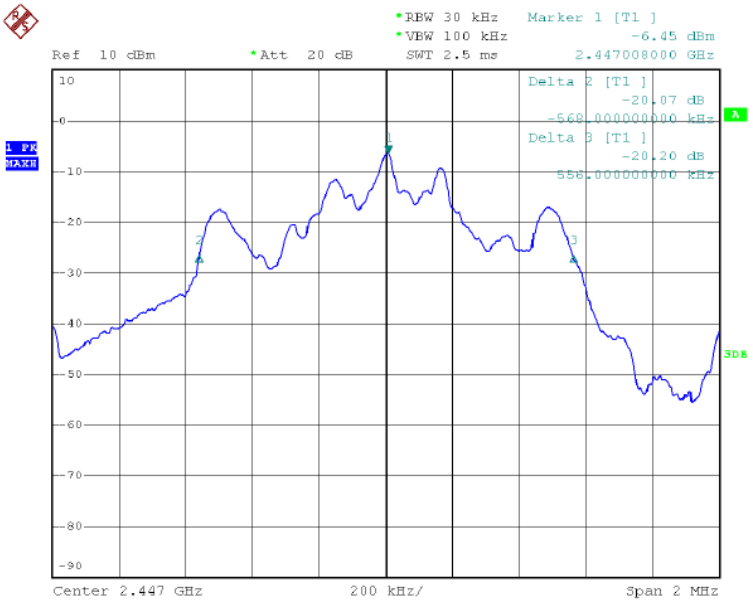
IC ID: 5511A-8000

The EUT communicating with 8DPSK Mode

Lowest channel=2402MHz



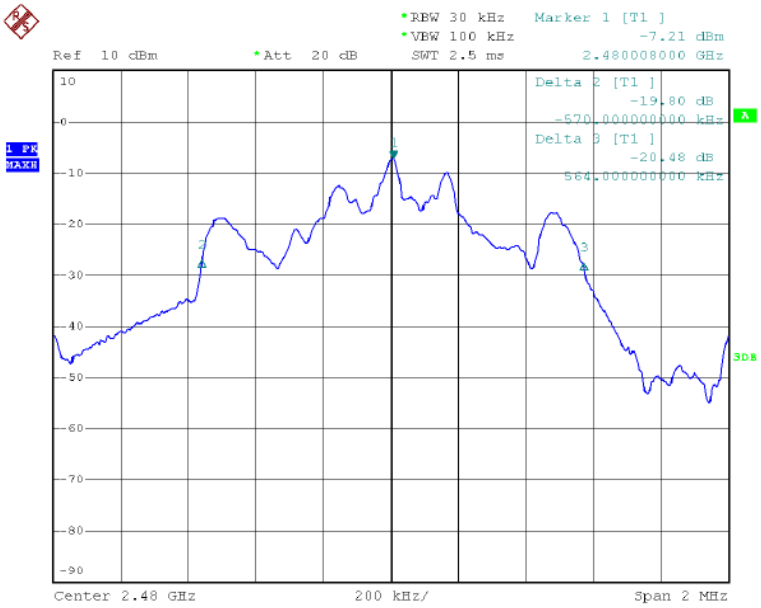
Middle channel=2447MHz



FCC ID: SOV 8000

IC ID: 5511A-8000

Highest channel=2480MHz



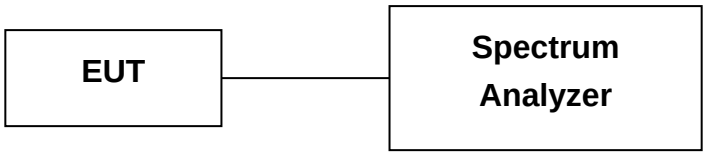
FCC ID: SOV 8000

IC ID: 5511A-8000

5.5 99% Occupied Bandwidth

Test Requirement: RSS-Gen Section 4.6.1
Test Method: ANSI C63.4:2003
Detector: RBW=30kHz, VBW=100kHz (Peak detector)
Test Mode: Bluetooth in transmit mode without hopping
Test Voltage: 120Vac,60Hz
Test Date: 02 September. 2010
Temperature: 24℃
Humidity: 52%
Limit: N/A

5.5.1 Test Setup



5.5.2 Measurement Data

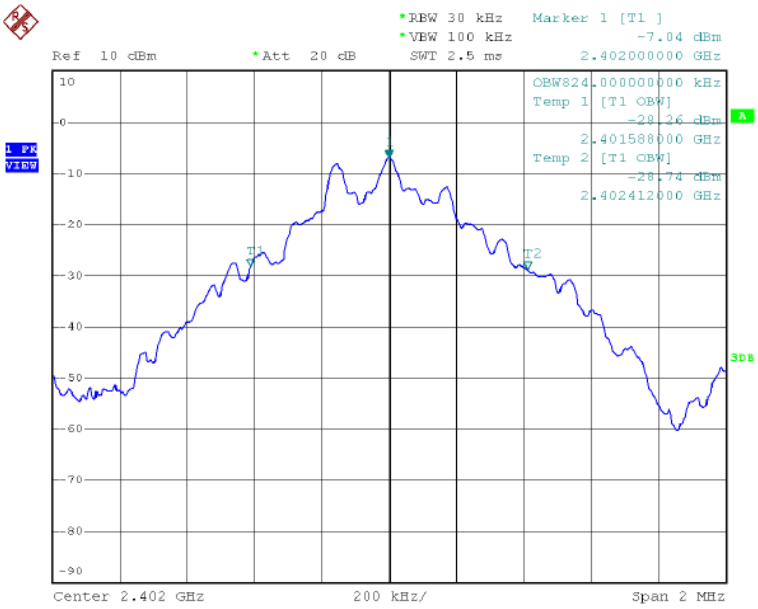
Chanel Frequency (GHz)	99%Occupy Bandwidth(MHz)		
	GFSK	Pi/4QPSK	8DPSK
2.402	0.824	0.944	1.084
2.447	0.824	0.968	1.088
2.480	0.832	0.948	1.088

Test result: The unit does meet the requirements.

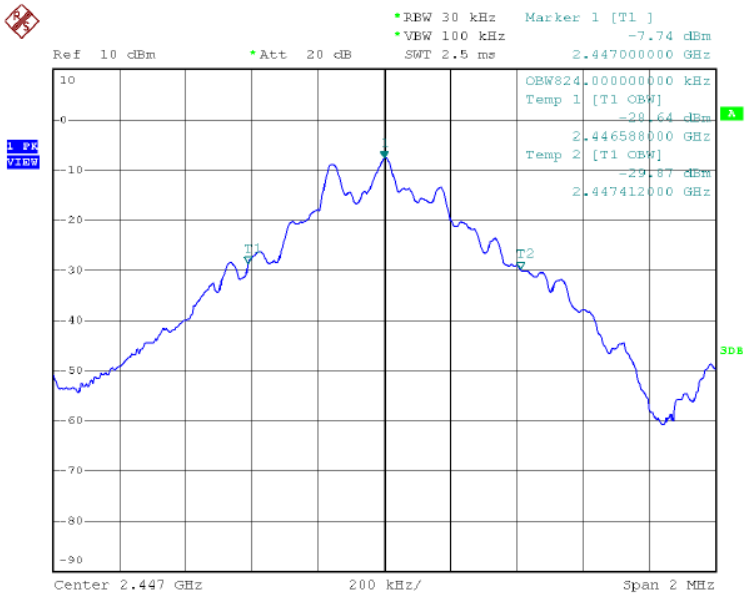
Test result plot as follows:

The EUT communicating with GFSK Mode

Lowest channel=2402MHz



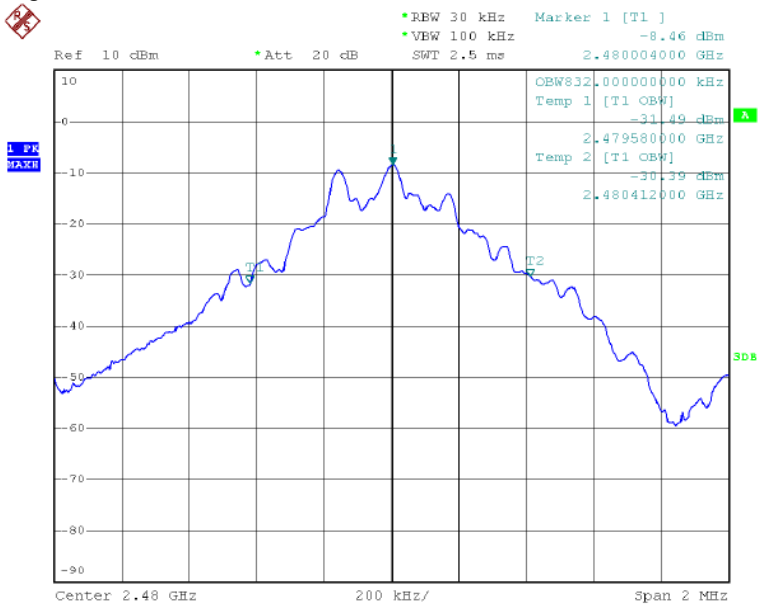
Middle channel=2447MHz



FCC ID: SOV 8000

IC ID: 5511A-8000

Highest channel=2480MHz

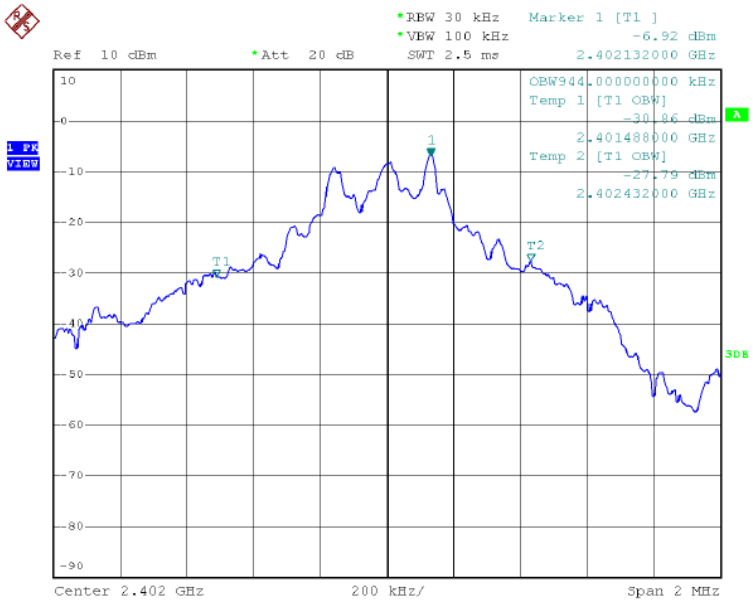


FCC ID: SOV 8000

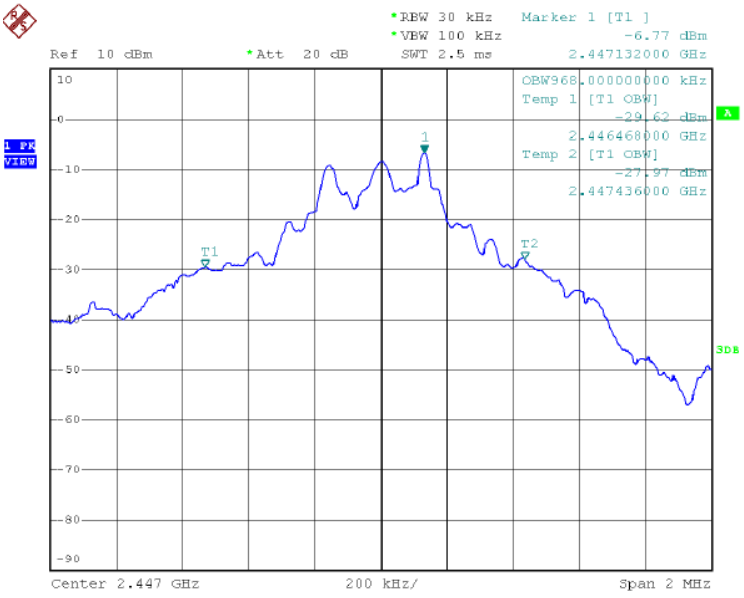
IC ID: 5511A-8000

The EUT communicating with Pi/4QPSK Mode

Lowest channel=2402MHz



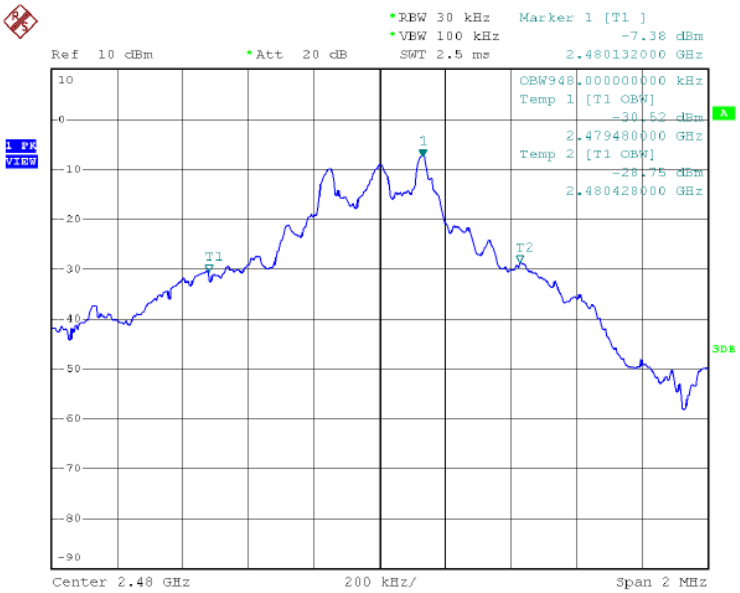
Middle channel=2447MHz



FCC ID: SOV 8000

IC ID: 5511A-8000

Highest channel=2480MHz

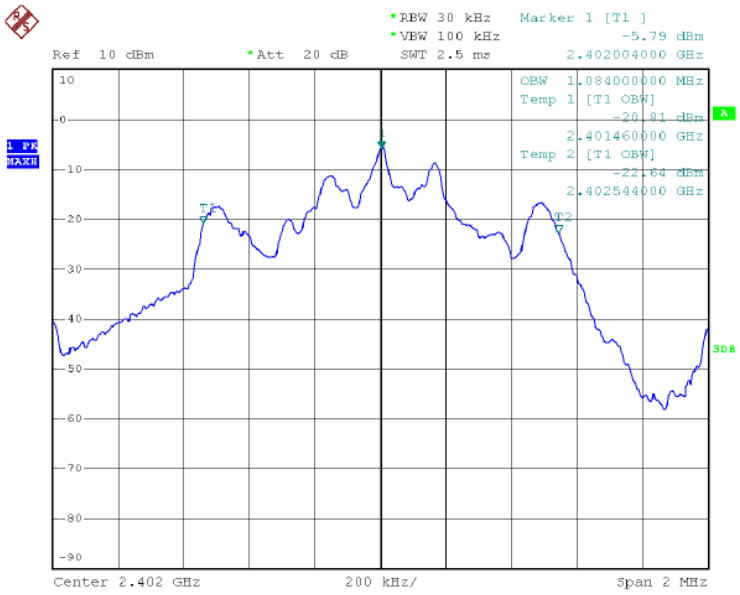


FCC ID: SOV 8000

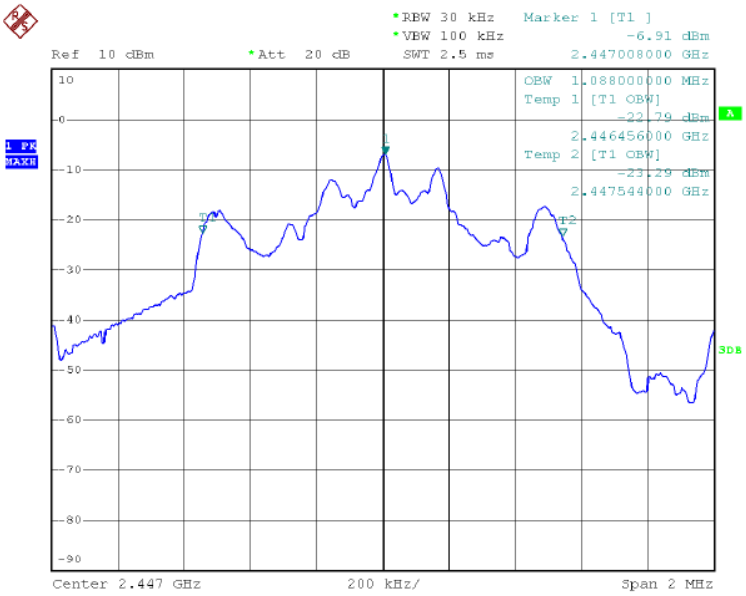
IC ID: 5511A-8000

The EUT communicating with 8DPSK Mode

Lowest channel=2402MHz



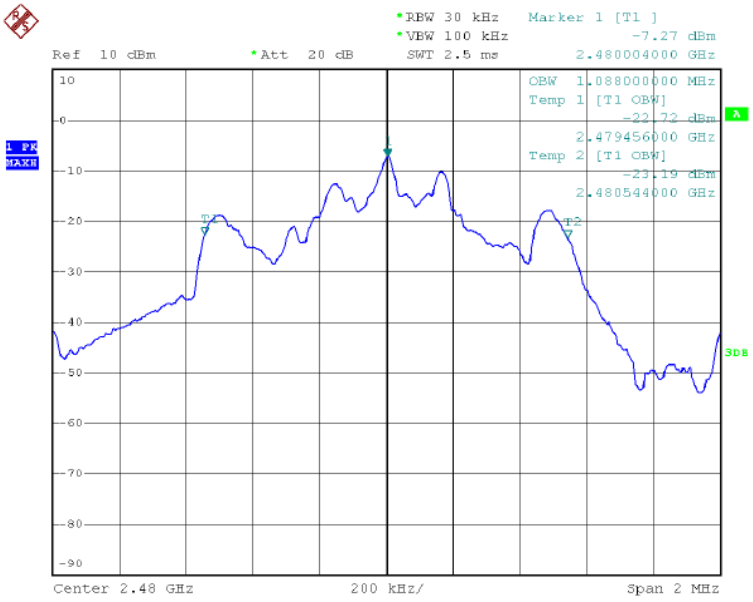
Middle channel=2447MHz



FCC ID: SOV 8000

IC ID: 5511A-8000

Highest channel=2480MHz



FCC ID: SOV 8000

IC ID: 5511A-8000

5.6 Carrier Frequency Separation

Test Requirement: FCC 15.247(a)(1)
RSS-210 A 8.1(b)

Test Method: ANSI C63.4:2003 and KDB DA00-705

Detector: RBW=30kHz,VBW=100 KHz (Peak detector)

Test Mode: Blue tooth transmit with hopping mode

Test Voltage: 120Vac,60Hz

Test Date: 10 September. 2010

Temperature: 24℃

Humidity: 51%

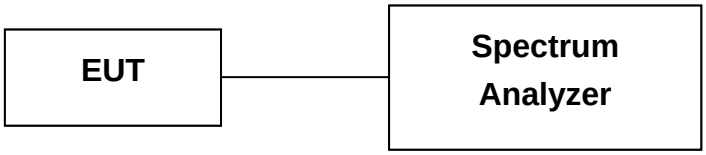
Limit: ≥0.025MHz or 2/3 of the 20dB bandwidth (whichever is greater)

According to section 5.4

Mode	20dB bandwidth (MHz) (worse case)	Limit(MHz) (Carrier Frequencies Separaion)
GFSK	0.852	0.568
Pi/4QPSK	0.764	0.509
8DPSK	1.134	0.756

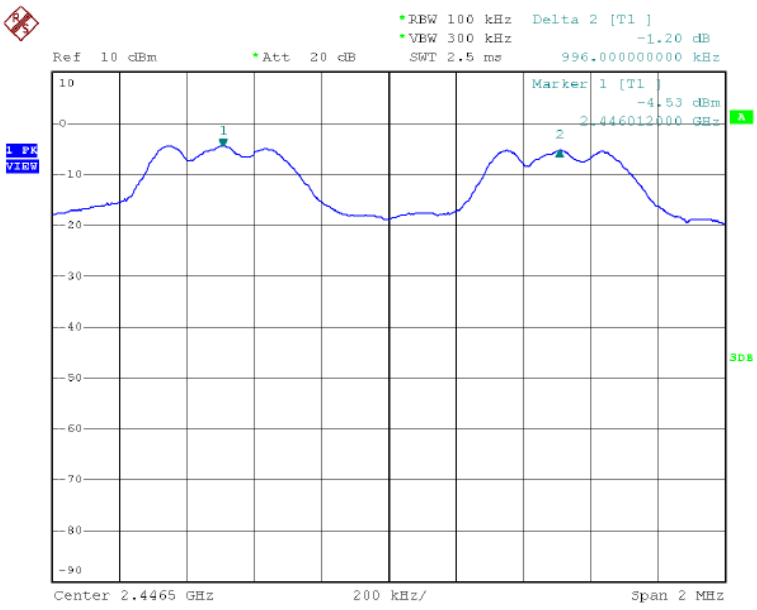
The limit is 0.756MHz.

5.6.1Test Setup



5.6.2Measurement Data

Pre-scan the EUT in GFSK,Pi/4QPSK and 8DPSK modes and find out the worst case is Pi/4QPSK mode.



The minimum value of Carrier Frequencies Separaion test is 0.996MHz>0.756MHz

Test result: The unit does meet the requirements.

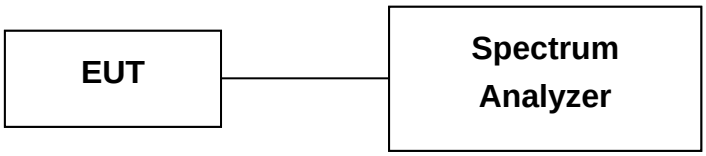
FCC ID: SOV 8000

IC ID: 5511A-8000

5.7 Number of Hopping Frequencies

Test Requirement:	FCC 15.247(b) RSS-210 A 8.4（2）
Test Method:	ANSI C63.4:2003 and KDB DA00-705.
Method of Measurement:	The EUT was setup to ANSI C63.4, 2003, tested to FHSS test procedure of KDB DA00-705 for compliance to FCC 47CFR 15.247 requirements.
Detector:	RBW=100kHz, VBW=300kHz (Peak detector)
Test Mode:	Bluetooth in transmit with hopping mode
Test Voltage:	120Vac,60Hz
Test Date:	10 September. 2010
Temperature:	24℃
Humidity:	53%
Limit:	At least 75 channels

5.7.1Test Setup



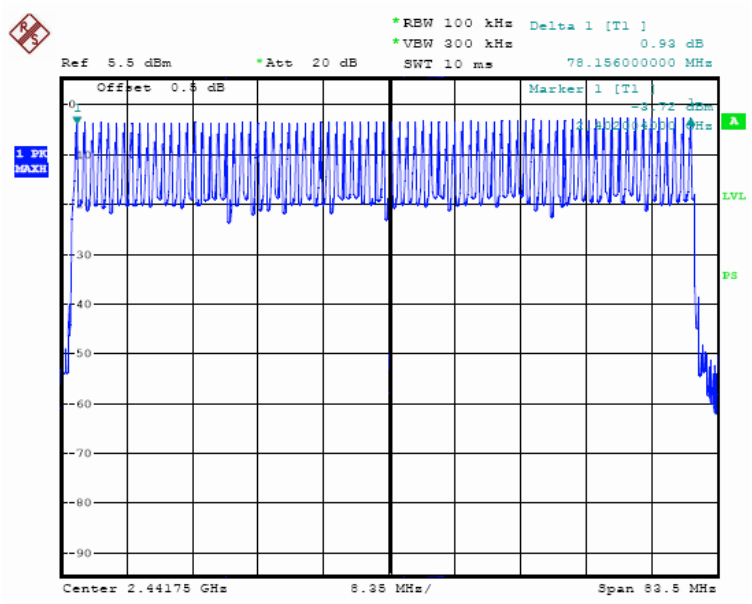
5.7.2Measurement Data

Pre-Scan has been conducted to determine the worst-case mode from all possible

Hopping channels numbers	Limit
79	75

Test result: The unit does meet the requirements.

Test result plot as follows:



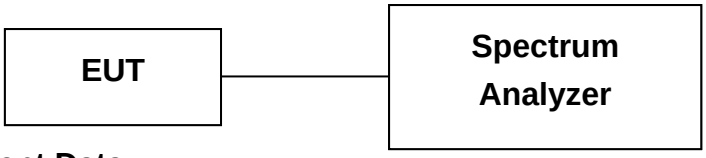
FCC ID: SOV 8000

IC ID: 5511A-8000

5.8 Time of Occupy (Dwell Time)

Test Requirement:	FCC 15.247(a)(1) RSS-210 A 8.1(d)
Test Method:	ANSI C63.4:2003 and KDB DA00-705.
Method of Measurement:	The EUT was setup to ANSI C63.4, 2003, tested to FHSS test procedure of KDB DA00-705 for compliance to FCC 47CFR 15.247 requirements.
Detector:	RBW=1MHz,VBW=3MHz (Peak detector); Span=0
Test Mode:	Blue tooth transmit mode with hopping
Test Voltage:	120Vac,60Hz
Test Date:	10 September. 2010
Temperature:	24℃
Humidity:	56%
Limit:	≤0.4Second

5.8.1Test Setup



5.8.2Measurement Data

Pre-Scan has been conducted to determine the worst-case mode from all possible,found that the duty cycle is same in the follow several types.

Packet	Dwell time(second)	Limti(second)
DH1,2-DH1,3-DH1	0.0528	0.4
DH3,2-DH3,3-DH3	0.0344	0.4
DH5,2-DH5,3-DH5	0.2448	0.4

The test period: T=0.4Second/channel ×79 channel=31.6 s

DH1, 2DH1,3DH1 time slot = 0.165ms×[1600/(2×79)] ×31.6=52.8 ms

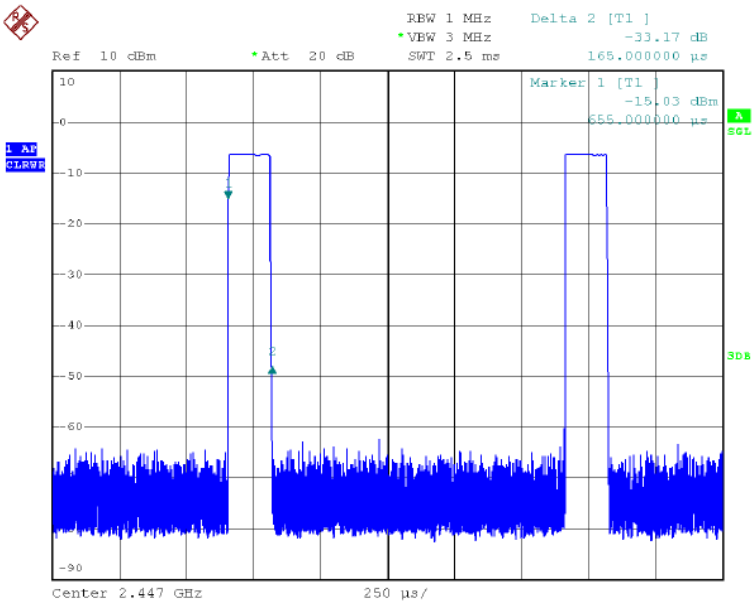
DH3, 2DH3,3DH3 time slot = 0.215ms×[1600/(4×79)] ×31.6=34.4 ms

DH5, 2DH5,3DH5 time slot = 2.295ms×[1600/(6×79)] ×31.6=244.8ms

Test result: The unit does meet the requirements.

Test result plots as follows:

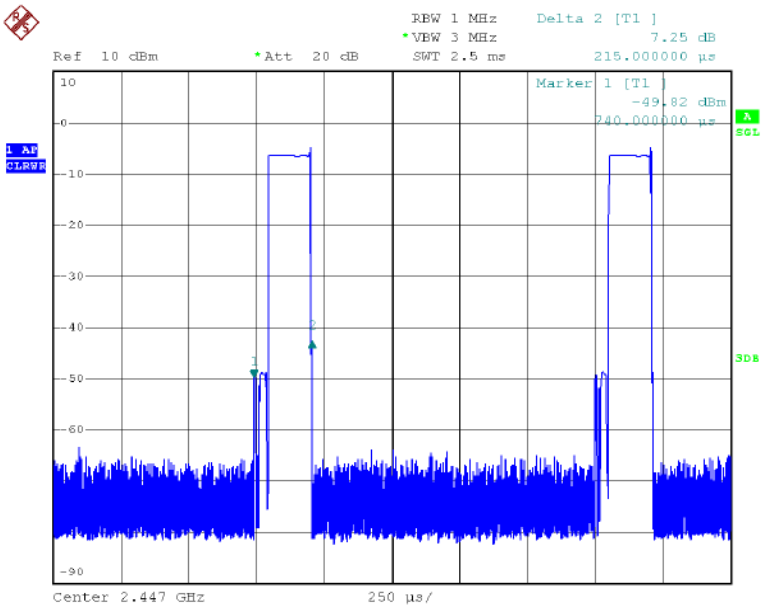
GFSK, Pi/4QPSK and 8DPSK mode with DH1,2-DH1,and 3-DH1 test packet.



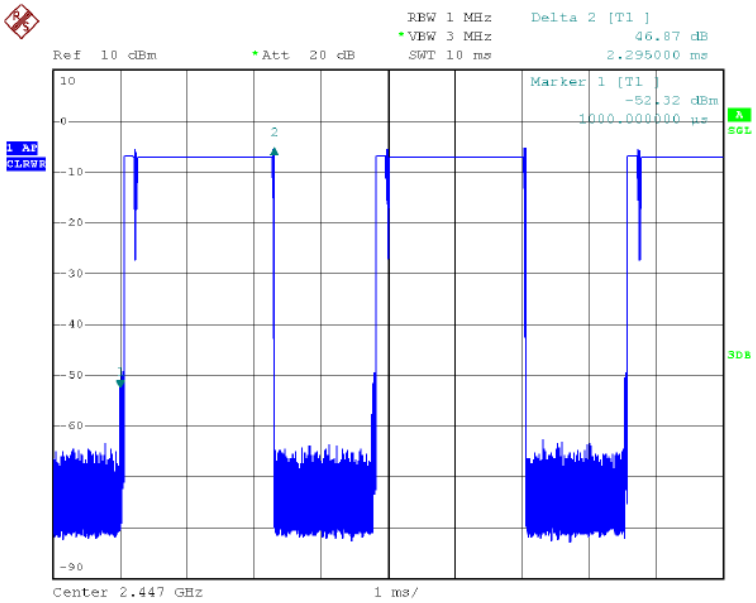
FCC ID: SOV 8000

IC ID: 5511A-8000

GFSK, Pi/4QPSK and 8DPSK mode with DH3,2-DH3,and 3-DH3 test packet.



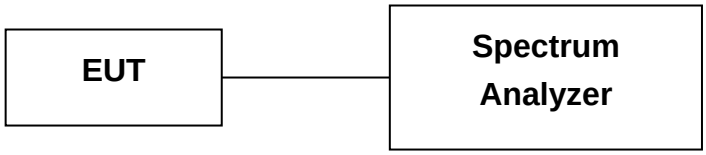
GFSK, Pi/4QPSK and 8DPSK mode with DH5,2-DH5,and 3-DH5 test packet.



5.9 Band Edge and Conduted spurious emissions Measurement

Test Requirement:	FCC Part15 C Section 15.247(d) RSS-210 A 8.5
Test Method:	ANSI C63.4; FCC Part15 C Section 15.247,KDB DA00-705 for FHSS System
Detector:	RBW=100 KHz, VBW=300 KHz (Peak detector)
Test Mode:	Bluetooth in transmit mode
Test Voltage:	120Vac,60Hz
Test Date:	27 August. 2010
Temperature:	25 ℃
Humidity:	56%
Limit:	RSS-210 A 8.5 In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

5.9.1 Test Setup



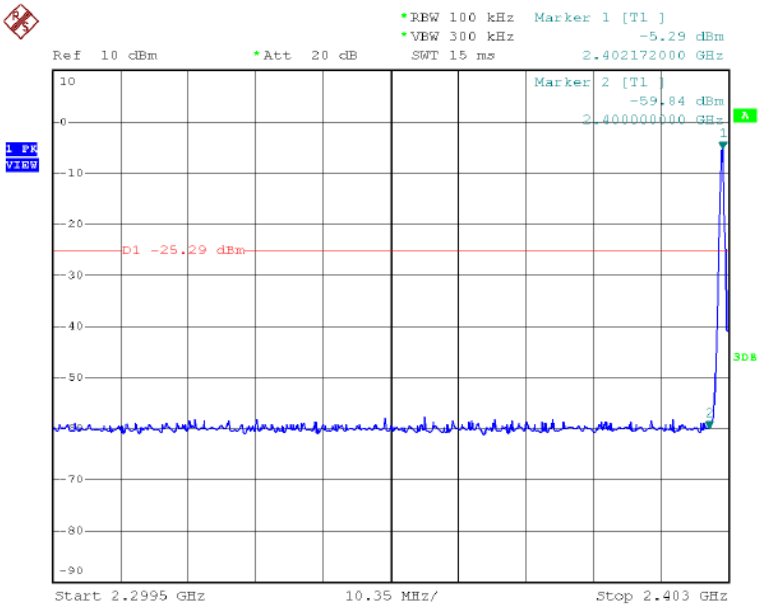
5.9.2 Measurement Data

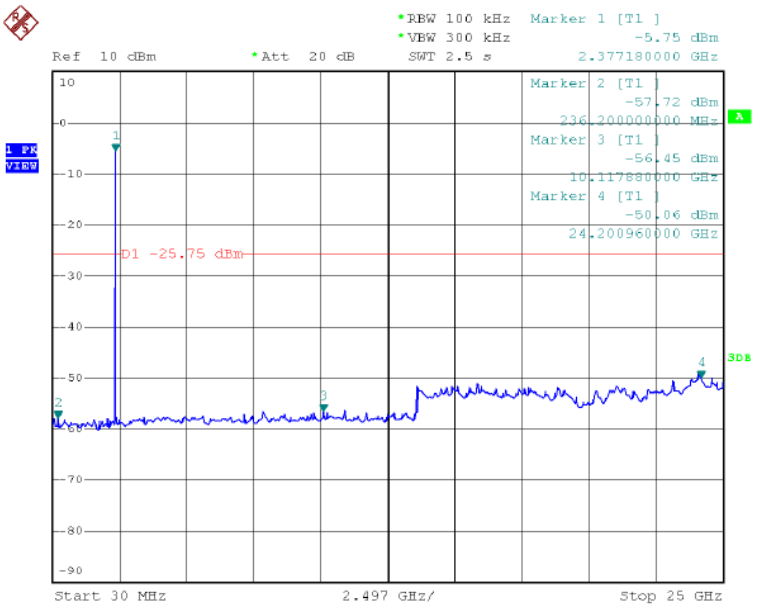
Pre-scan the EUT in hopping and without hopping modes and find out the worst case is without hopping mode.

Test result: The unit does meet the requirements.

Test result plot as follows:

Transmitting mode in lowest channel=2402MHz (GFSK)

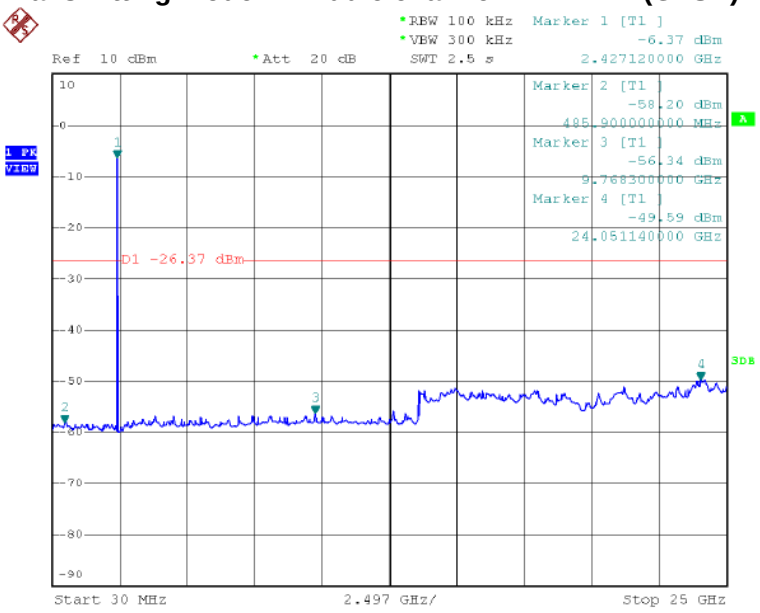




FCC ID: SOV 8000

IC ID: 5511A-8000

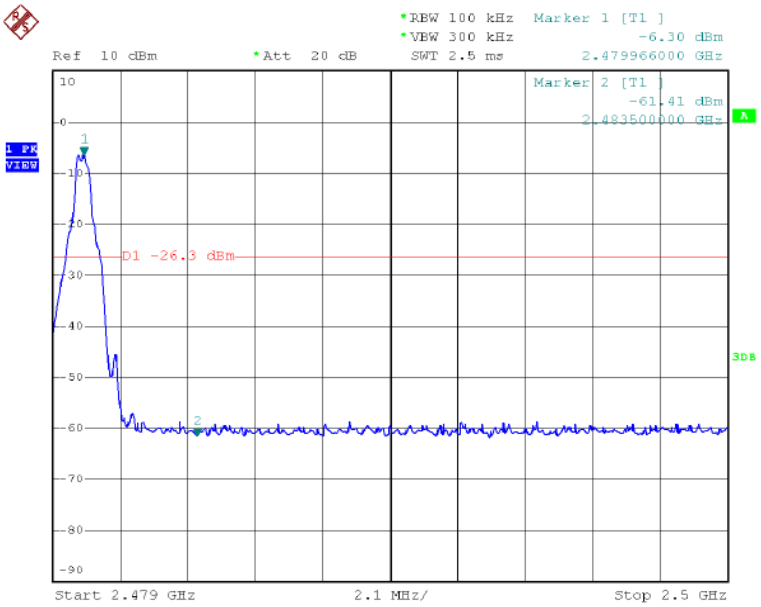
Transmitting mode in middle channel=2447MHz (GFSK)

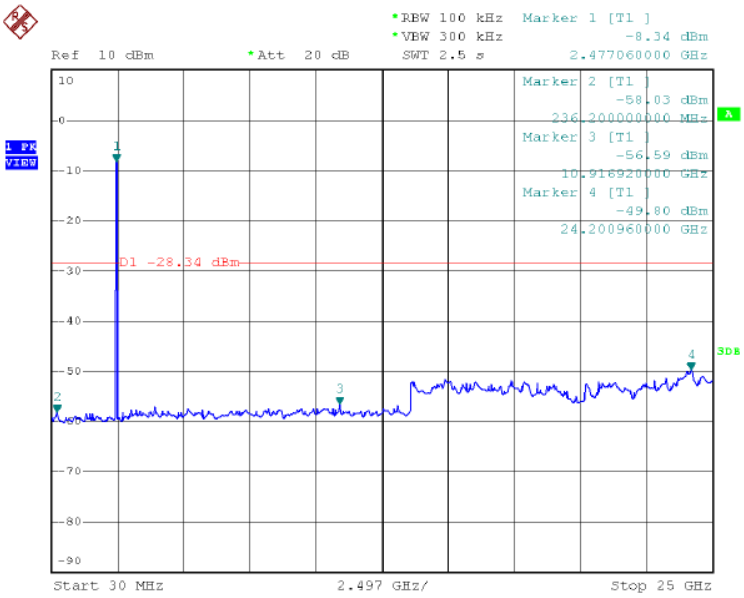


FCC ID: SOV 8000

IC ID: 5511A-8000

Transmitting mode in highest channel=2480MHz (GFSK)

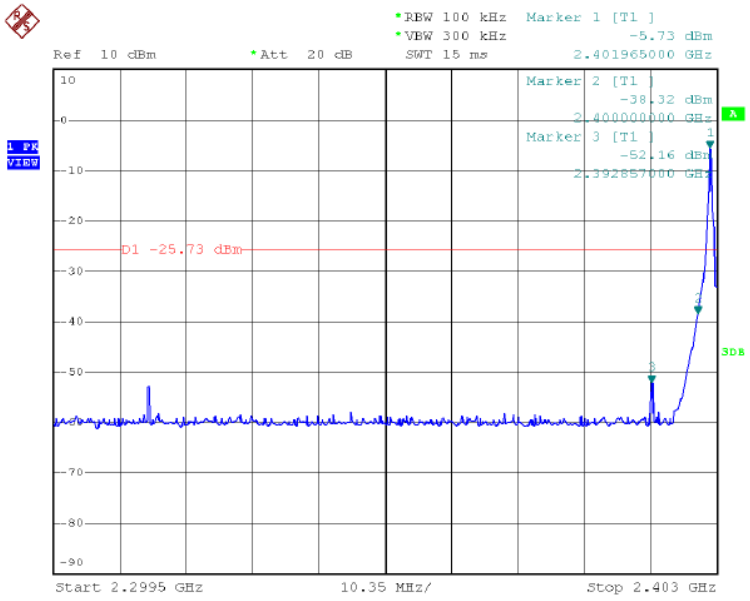


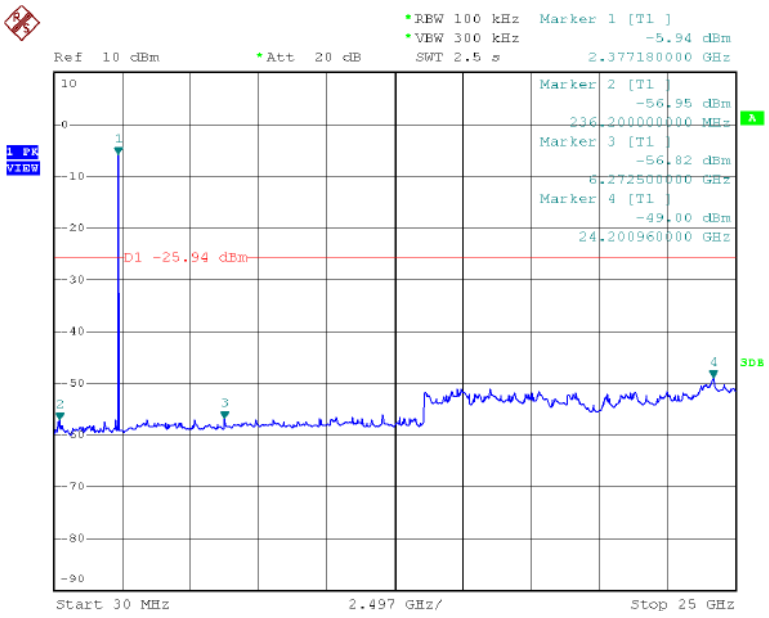


FCC ID: SOV 8000

IC ID: 5511A-8000

Transmitting mode in lowest channel=2402MHz (Pi/4QPSK)

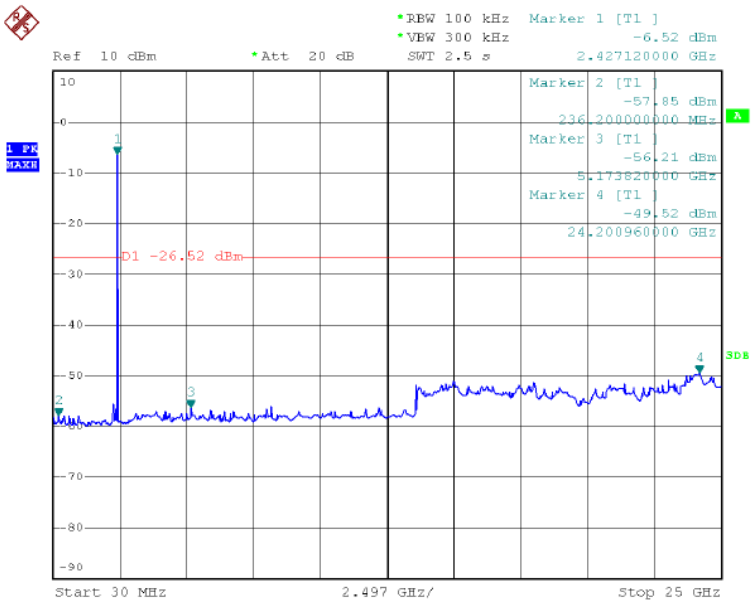




FCC ID: SOV 8000

IC ID: 5511A-8000

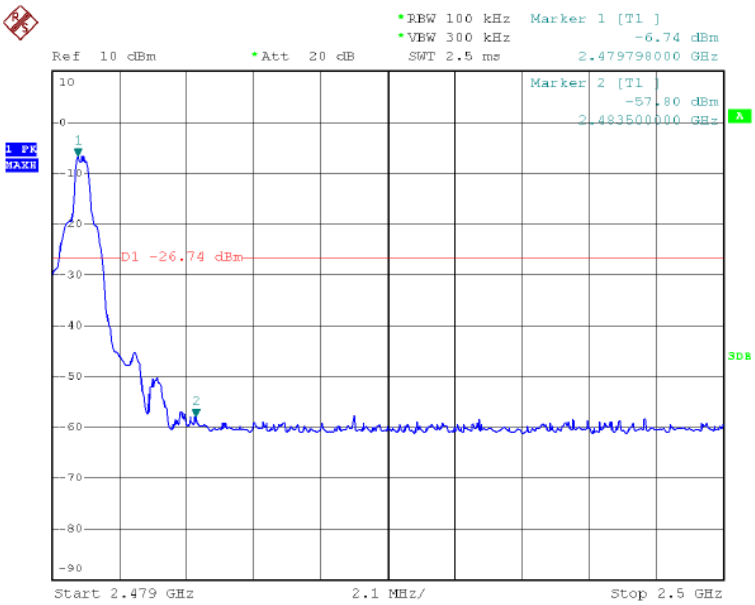
Transmitting mode in middle channel=2447MHz (Pi/4QPSK)

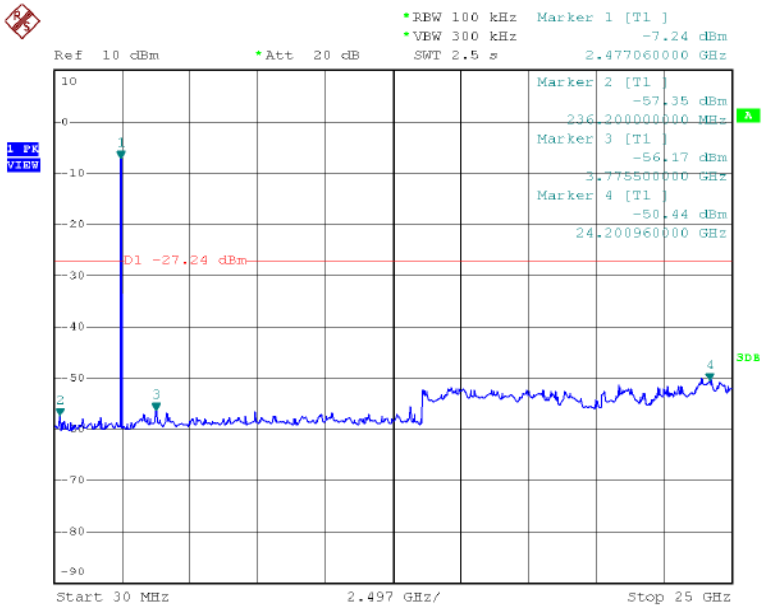


FCC ID: SOV 8000

IC ID: 5511A-8000

Transmitting mode in highest channel=2480MHz (Pi/4QPSK)

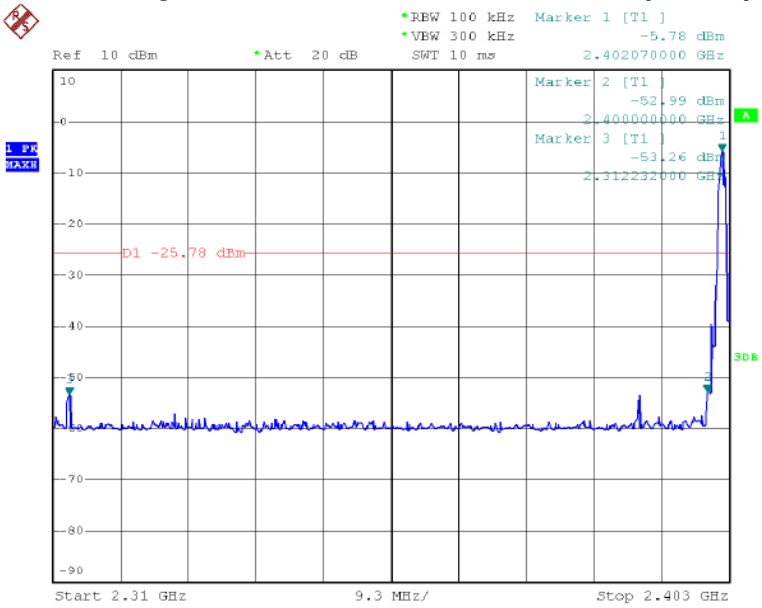


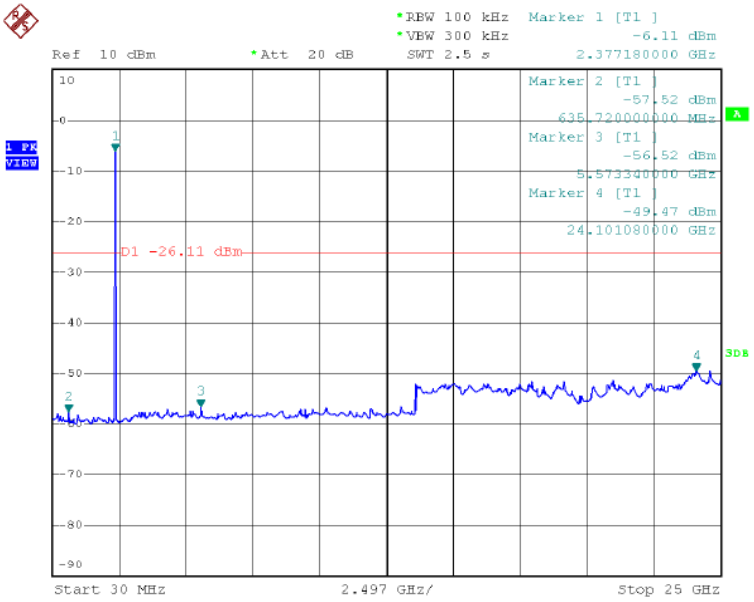


FCC ID: SOV 8000

IC ID: 5511A-8000

Transmitting mode in lowest channel=2402MHz (8DPSK)

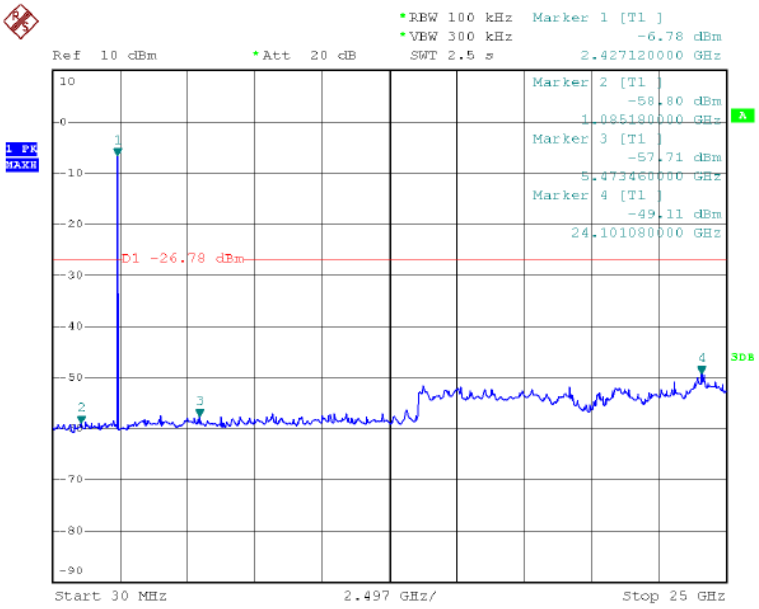




FCC ID: SOV 8000

IC ID: 5511A-8000

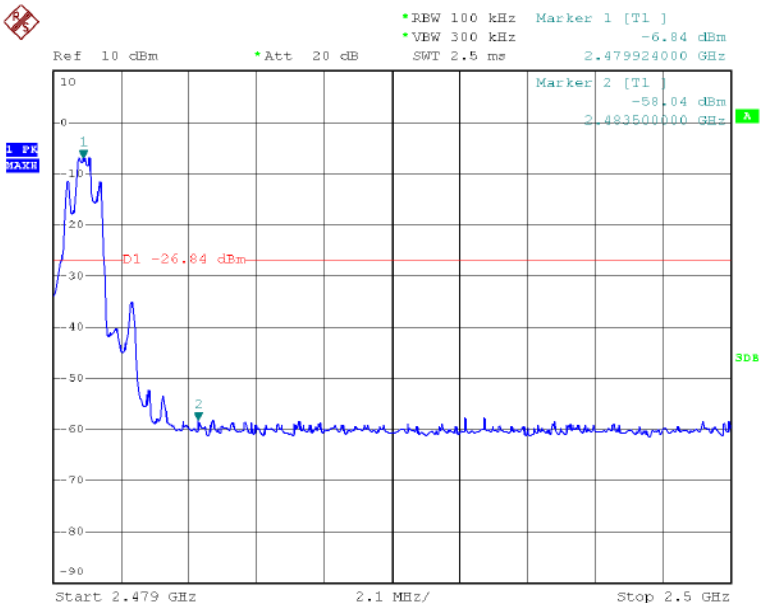
Transmitting mode in middle channel=2447MHz (8DPSK)

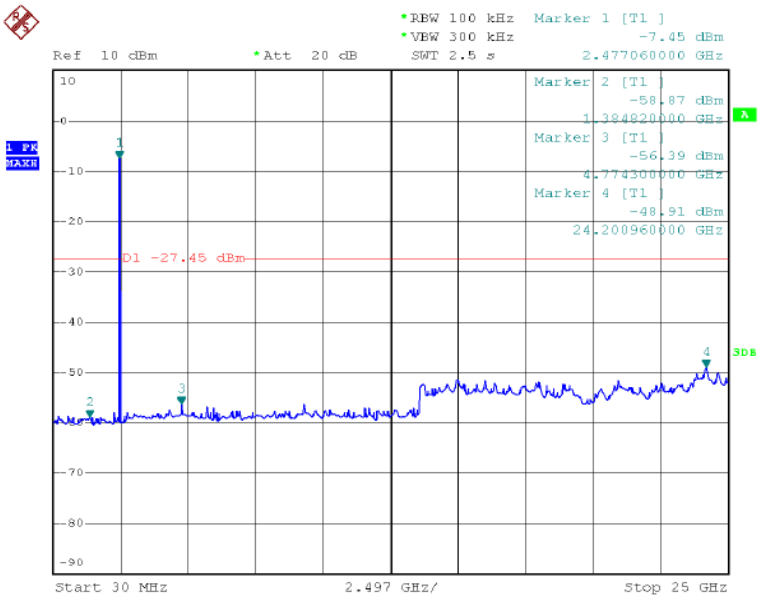


FCC ID: SOV 8000

IC ID: 5511A-8000

Transmitting mode in highest channel=2480MHz (8DPSK)





FCC ID: SOV 8000

IC ID: 5511A-8000

5.10 Antenna Requirement

Standard requirement

15.203 requirement:

For intentional device. According to 15.203. an intentional radiator shall be designed to Ensure that no antenna other than that furnished by the responsible party shall be used with the device.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz bands that are used exclusively for fixed. Pointto-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna

The antenna is soldering on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.

5.11 RF Exposure Compliance

Standard requirement

15.247(b)(4) requirement:

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section. if transmitting antennas of directional gain greater than 6 dBi are used. the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1). (b)(2). and (b)(3) of this section. as appropriate. by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RSS-102 Section 2.5.1 requirement:

above 2.2 GHz and up to 3 GHz inclusively, and with output power (i.e. the higher of the conducted or radiated (e.i.r.p.) source-based, time-averaged output power) that is less than or equal to 20 mW for general public use and 100 mW for controlled use;

EUT RF Exposure

The Max Conducted Peak Output Power is **-2.78dBm(0.527mW)** in the lowest channel (2.402GHz);

The best case gain of the antenna is 0dBi.

calculate the EIRP test result:

EIRP= 0.527mW ①

SAR requirement:

S= 60 / f(GHz) = 60/2.402 = 24.98 mW ② ;

① < 20mW < ②.

So the SAR report is not required.