FCC TEST REPORT

FCC ID	: I4S-PVI5300
Applicant	: Peavey Electronics Corporation
Address	: 5022 Hartley Peavey Drive, Meridian, Mississippi, United States, 39302
Manufacturer	: Shenzhen Uniwisdom Technologies Co., Ltd
Address	: Bldg.91-94 3rd Industrial Zone,Lisonglang,Gongming Town,Bao'an District,Shenzhen,P.R.China

Equipment Under Test (EUT) :

Product Name	: Power Mixer Amplifier
Model No.	: PVi5300

Standards	: FCC CFR47 Part 15 Section 15.247:2010
Date of Test	: Feb. 19~Mar.11, 2013
Date of Issue	: Mar. 12, 2013
Test Result	**: PASS**

Remark:

* The sample described above has been tested to be in compliance with the requirements of ANSI C63.4:2003. The test results have been reviewed and comply with the rules listed above and found to meet their essential requirements.

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company.

The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

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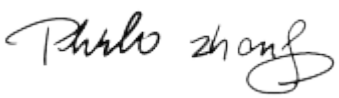
Compiled by:

Zero Zhou / Project Engineer

Approved by:



Philo Zhong / Manager

2 Test Summary

Test Items	Test Requirement	Result
Spurious Radiated Emissions	15.205(a) 15.209 15.247(d)	PASS
Band edge Emissions	15.247(d)	PASS
Spurious RF Conducted Emissions from out of band	15.247(d)	PASS
Duty Cycle	15.35	PASS
Conducted Emissions	15.207	PASS
20dB Bandwidth	15.215c 15.247(a)(1)	PASS
Maximum Peak Output Power	15.247(b)(1)	PASS
Frequency Separation	15.247(a)(1)	PASS
Number of Hopping Frequency	15.247(a)(1)(iii)	PASS
Dwell time	15.247(a)(1)(iii)	PASS
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	1.1307(b)(1)	PASS

3 Contents

Page

4 General Information

4.1 General Description of E.U.T.

Product Name	: Power Mixer Amplifier
Model No.	: PVi5300
Model Description	: N/A
Operation Frequency	: 2402MHz ~ 2480MHz,79 channels in total,separated by 1MHz
Type of Modulation	: GFSK, Pi/4DQPSK, 8DPSK
Oscillator	: Crystal 16MHz
Antenna installation	: PCB Printed Antenna

4.2 Details of E.U.T.

Technical Data	: AC 120V 50/60Hz, 40 Watts Nominal AC 230V 50/60Hz, 40 Watts Nominal
Adapter manufacturer	: N/A
M/N	: N/A

4.3 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: 7760A**

  Waltek Services(Shenzhen) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration 7760A, July 12, 2012.

- **FCC – Registration No.: 880581**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581, May 26, 2011.

4.4 Test Location

All the tests were performed at:
Waltek Services(Shenzhen) Co., Ltd. at 1/F, Fukangtai Building, West Baima Rd.,Songgang Street, Baoan District, Shenzhen, China

5 Equipment Used during Test

5.1 Equipments List

Conducted Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	100947	Aug. 13,2012	Aug. 13,2013
2.	LISN	R&S	ENV216	101215	Aug. 13,2012	Aug. 13,2013
3.	Cable	Top	TYPE16(3.5M)	-	Aug.14,2012	Aug. 14,2013
3m Semi-anechoic Chamber for Radiation Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMC Analyzer	Agilent	E7405A	MY45114943	Aug. 13,2012	Aug. 13,2013
2.	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	Aug. 13,2012	Aug. 13,2013
3.	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Aug. 13,2012	Aug. 13,2013
4.	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Aug. 13,2012	Aug. 13,2013
5.	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	399	Aug. 13,2012	Aug. 13,2013
6.	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Feb .23,2012	Feb .23,2013
7.	Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-148	Aug. 13,2012	Aug. 13,2013
8.	10m Coaxial Cable with N- plug	SCHWARZBECK	AK 9515 H	-	Aug. 13,2012	Aug. 13,2013
9.	10m 50 Ohm Coaxial Cable with N-plug	Top	TYPE16(13M)	-	Aug. 13,2012	Aug. 13,2013

5.2 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	± 1 x 10^{-6}
Bandwidth	± 1.5 x 10^{-6}
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Temperature	± 1 °C
DC Source	±0.05%
Radiated Emissions test	± 5.03 dB (Bilog antenna 30M~1000MHz)
	± 4.74 dB (Horn antenna 1000M~25000MHz)
Conducted Spurious Emissions test	± 0.5 dB (9KHz~1000MHz)
	± 1 dB(1000M~26500MHz)
Conducted Emissions test	± 3.64 dB (AC mains 150KHz~30MHz)

5.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

6 Conducted Emission

Test Requirement:	FCC CFR 47 Part 15 Section 15.207
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class:	Class B
Limit:	66-56 dBμV between 0.15MHz & 0.5MHz 56 dBμV between 0.5MHz & 5MHz 60 dBμV between 5MHz & 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

6.1 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C

Humidity: 51 % RH

Atmospheric Pressure: 1012 mbar

EUT Operation:

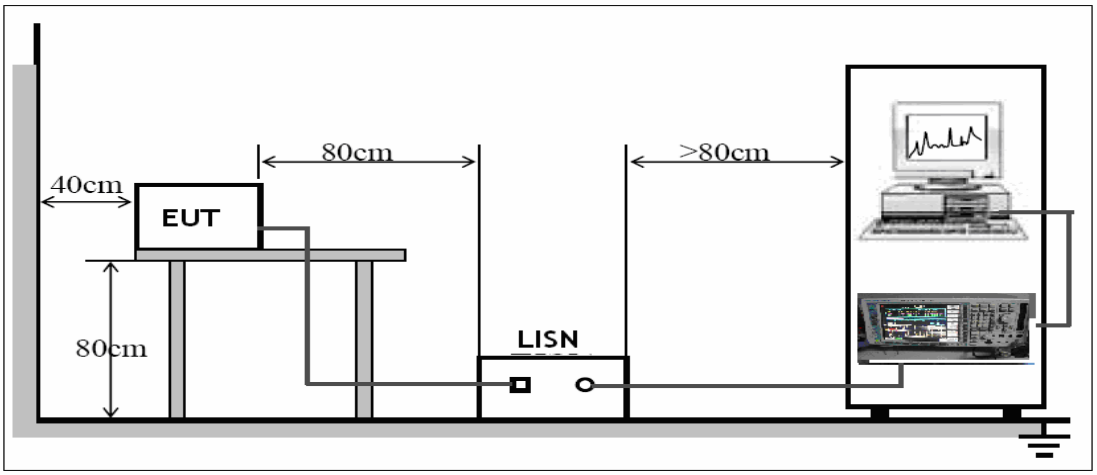
The EUT was tested in working mode. The worst data were shown as follow.

The EUT was tested according to ANSI C63.4:2003. The frequency spectrum from 150kHz to 30MHz was investigated.

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

6.2 EUT Setup

The EUT was placed on the test table in shielding room.

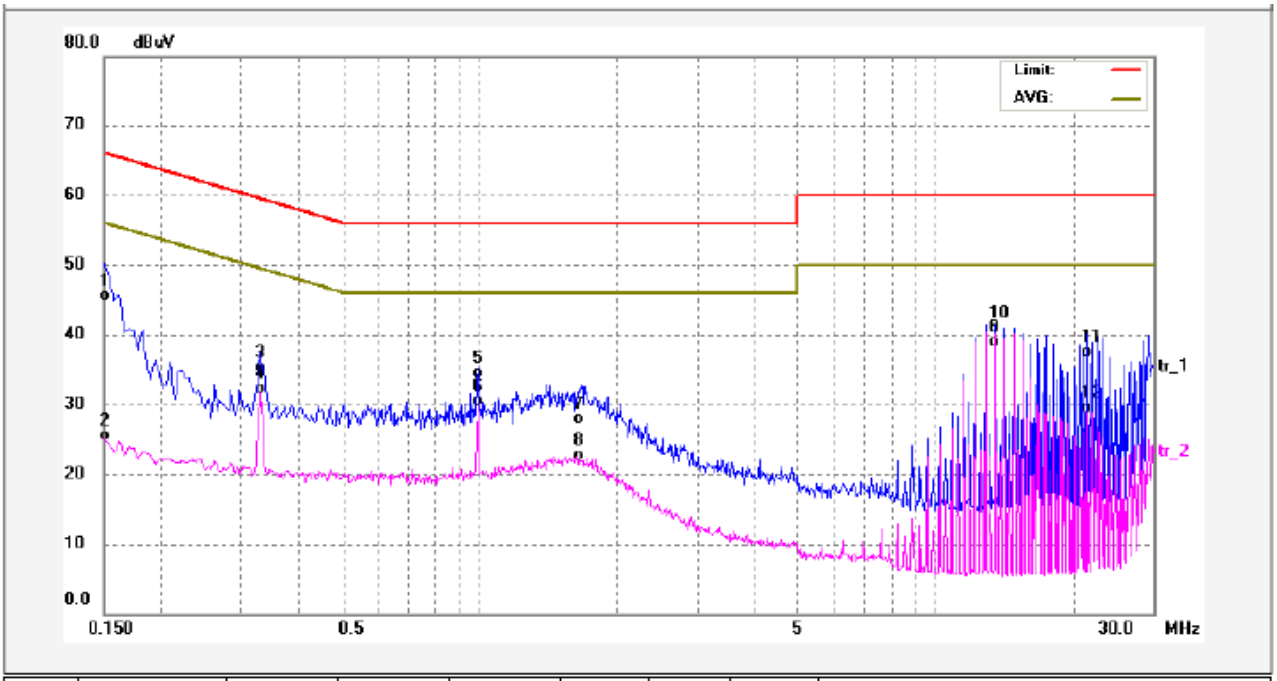


6.3 Conducted Emission Test Result

An initial pre-scan was performed on the live and neutral lines.

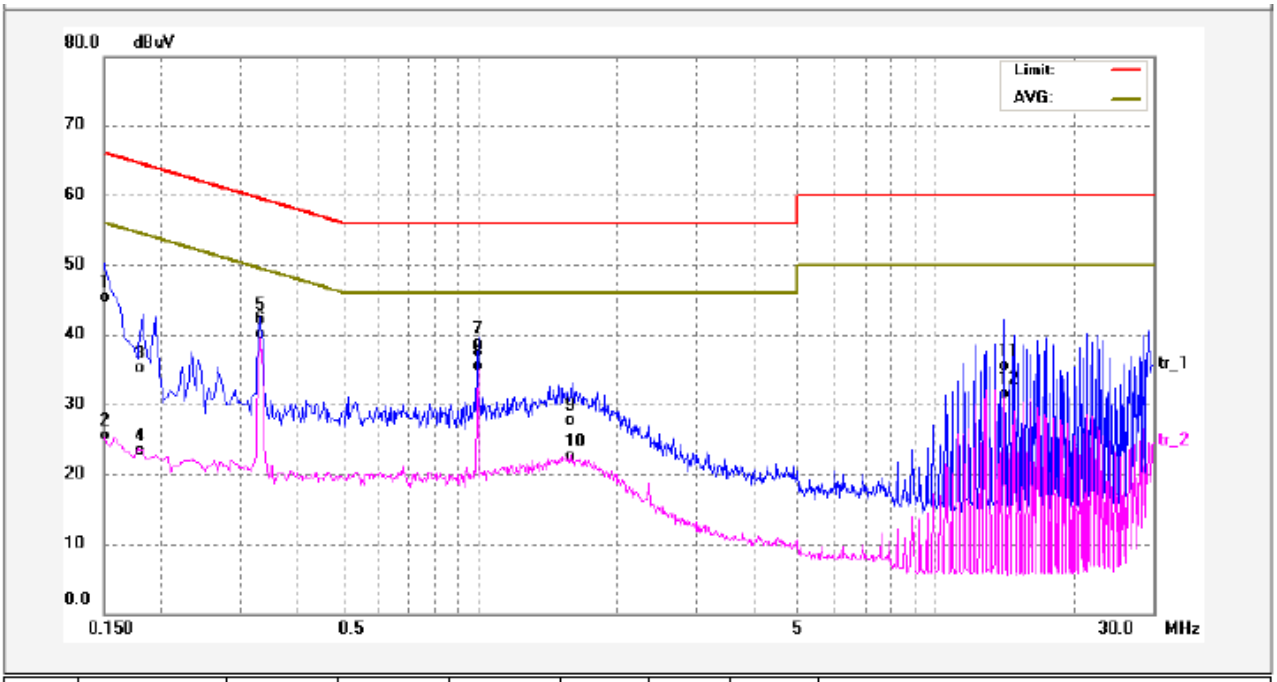
Test Mode: BT linking

Live line:



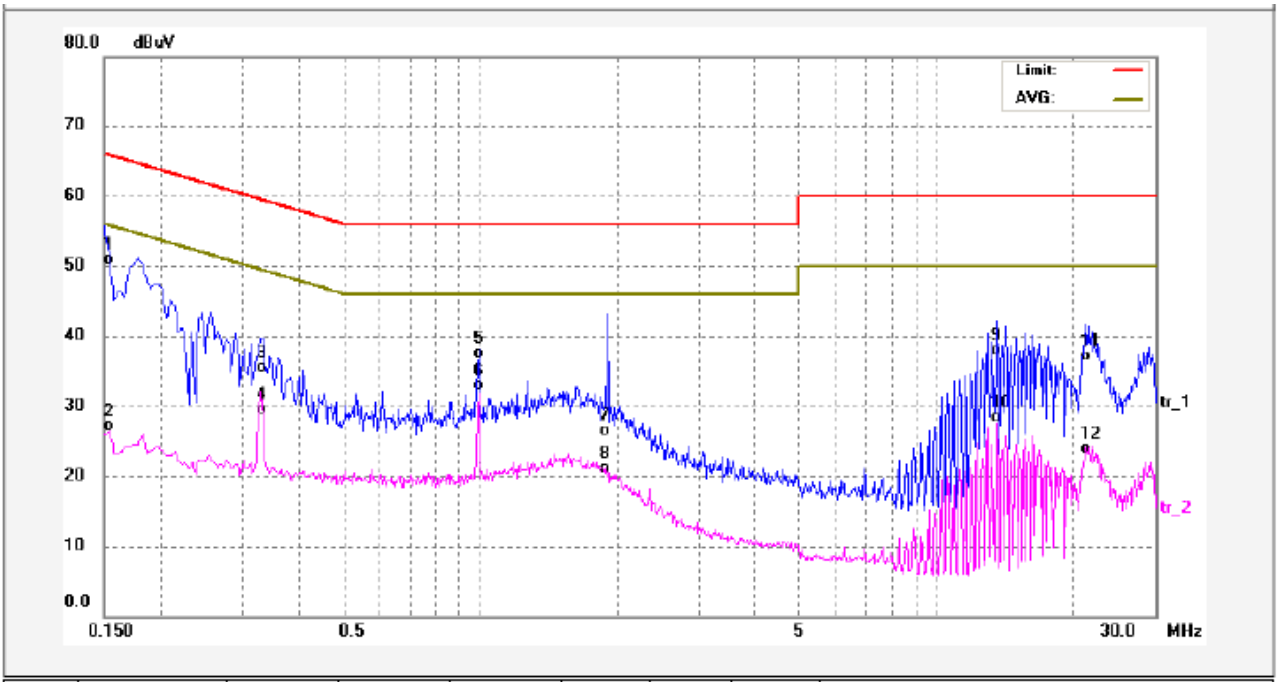
No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	33.54	11.17	44.71	65.99	-21.28	QP	
2	0.1500	13.54	11.17	24.71	55.99	-31.28	AVG	
3	0.3300	23.21	11.30	34.51	59.45	-24.94	QP	
4	0.3300	20.20	11.30	31.50	49.45	-17.95	AVG	
5	0.9900	22.61	11.19	33.80	56.00	-22.20	QP	
6	0.9900	18.42	11.19	29.61	46.00	-16.39	AVG	
7	1.6740	15.96	11.19	27.15	56.00	-28.85	QP	
8	1.6740	10.63	11.19	21.82	46.00	-24.18	AVG	
9	13.5220	26.70	11.42	38.12	60.00	-21.88	QP	
10	13.5220	28.69	11.42	40.11	50.00	-9.89	AVG	
11	21.4260	25.27	11.51	36.78	60.00	-23.22	QP	
12	21.4260	17.12	11.51	28.63	50.00	-21.37	AVG	

Neutral line:



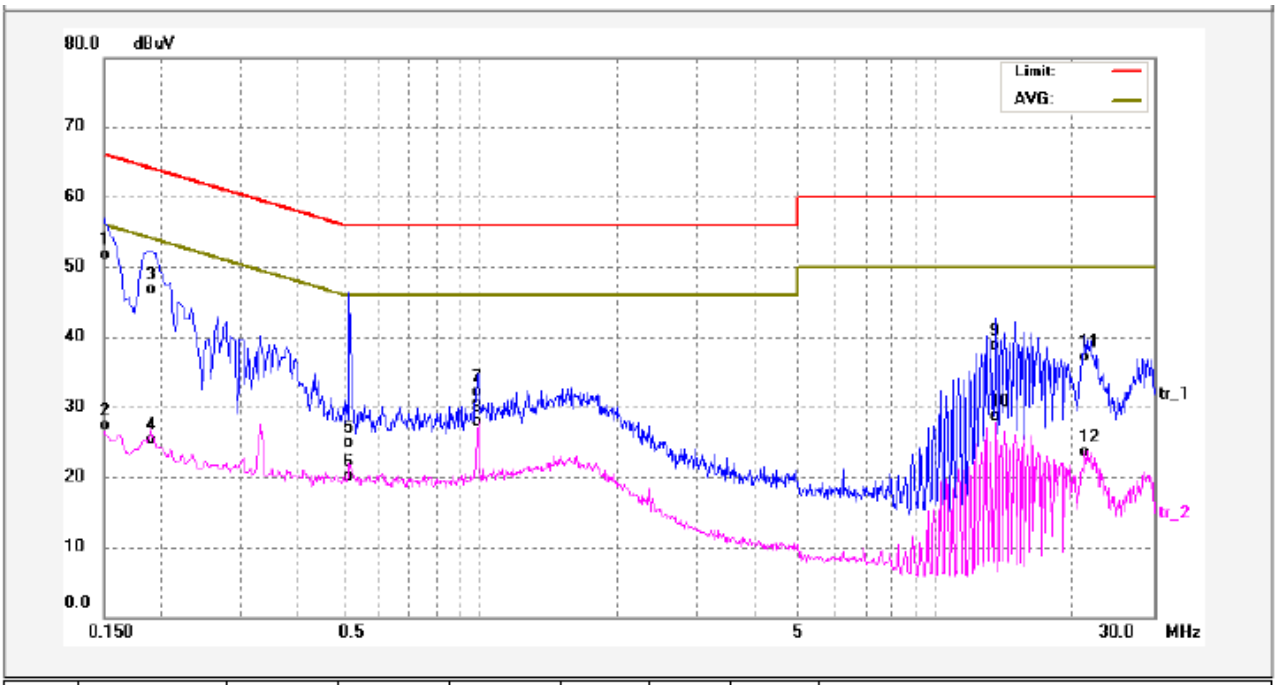
No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	33.28	11.17	44.45	65.99	-21.54	QP	
2	0.1500	13.59	11.17	24.76	55.99	-31.23	AVG	
3	0.1819	23.02	11.25	34.27	64.39	-30.12	QP	
4	0.1819	11.19	11.25	22.44	54.39	-31.95	AVG	
5	0.3300	30.05	11.30	41.35	59.45	-18.10	QP	
6	0.3300	28.04	11.30	39.34	49.45	-10.11	AVG	
7	0.9900	26.71	11.19	37.90	56.00	-18.10	QP	
8	0.9900	23.57	11.19	34.76	46.00	-11.24	AVG	
9	1.5940	15.77	11.19	26.96	56.00	-29.04	QP	
10	1.5940	10.51	11.19	21.70	46.00	-24.30	AVG	
11	14.1740	23.25	11.44	34.69	60.00	-25.31	QP	
12	14.1740	19.33	11.44	30.77	50.00	-19.23	AVG	

Test Mode: SD playing
Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	38.98	11.17	50.15	65.99	-15.84	QP	
2	0.1500	15.09	11.17	26.26	55.99	-29.73	AVG	
3	0.3339	23.39	11.30	34.69	59.35	-24.66	QP	
4	0.3339	17.39	11.30	28.69	49.35	-20.66	AVG	
5	0.9900	25.55	11.19	36.74	56.00	-19.26	QP	
6	0.9900	20.93	11.19	32.12	46.00	-13.88	AVG	
7	1.8980	14.48	11.20	25.68	56.00	-30.32	QP	
8	1.8980	9.13	11.20	20.33	46.00	-25.67	AVG	
9	13.5300	25.77	11.42	37.19	60.00	-22.81	QP	
10	13.5300	16.17	11.42	27.59	50.00	-22.41	AVG	
11	21.2180	24.80	11.51	36.31	60.00	-23.69	QP	
12	21.2180	11.63	11.51	23.14	50.00	-26.86	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	39.66	11.17	50.83	65.99	-15.16	QP	
2	0.1500	15.29	11.17	26.46	55.99	-29.53	AVG	
3	0.1900	34.58	11.27	45.85	64.03	-18.18	QP	
4	0.1900	13.20	11.27	24.47	54.03	-29.56	AVG	
5	0.5180	12.80	11.31	24.11	56.00	-31.89	QP	
6	0.5180	7.90	11.31	19.21	46.00	-26.79	AVG	
7	0.9860	20.02	11.19	31.21	56.00	-24.79	QP	
8	0.9860	15.94	11.19	27.13	46.00	-18.87	AVG	
9	13.5300	26.43	11.42	37.85	60.00	-22.15	QP	
10	13.5300	16.54	11.42	27.96	50.00	-22.04	AVG	
11	21.2139	24.72	11.51	36.23	60.00	-23.77	QP	
12	21.2139	11.21	11.51	22.72	50.00	-27.28	AVG	

7 Spurious Radiated Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.247

Test Method: DA 00-705

Test Result: PASS

Frequency Range: 16MHz to 25GHz

Measurement Distance: 3m

Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

7.1 EUT Operation :

Operating Environment:

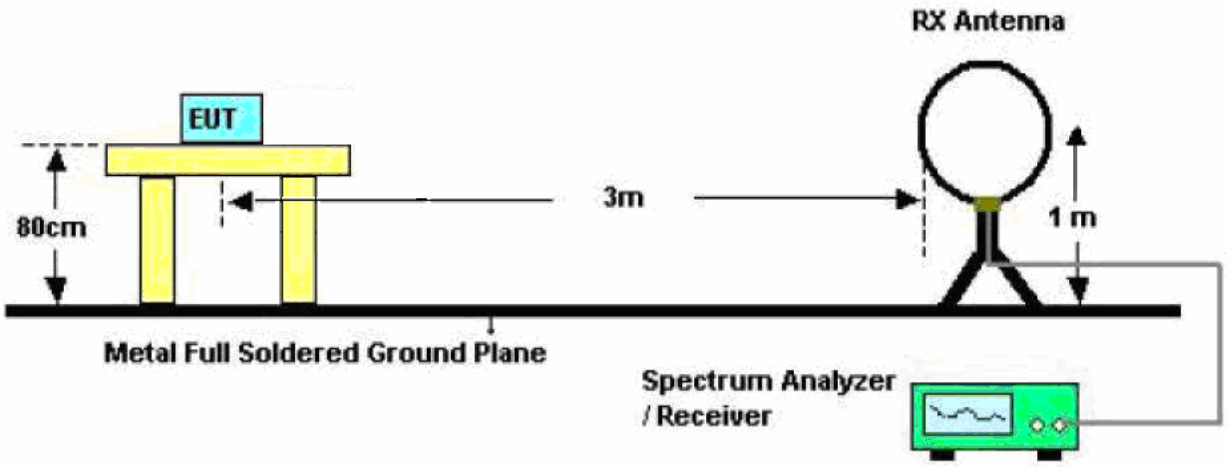
Temperature: 25.5 °C

Humidity: 51 % RH

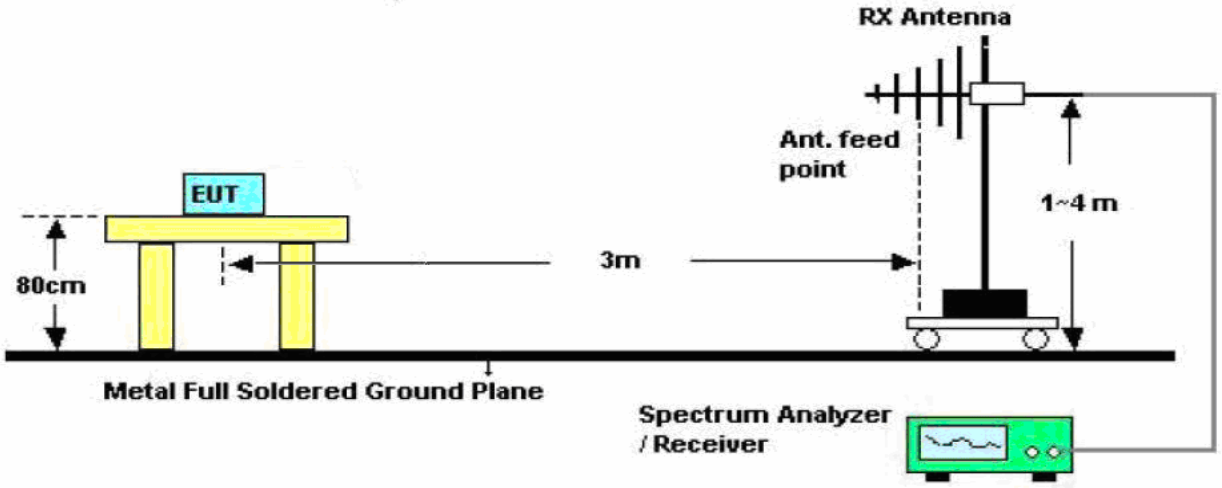
Atmospheric Pressure:1012 mbar

7.2 Test Setup

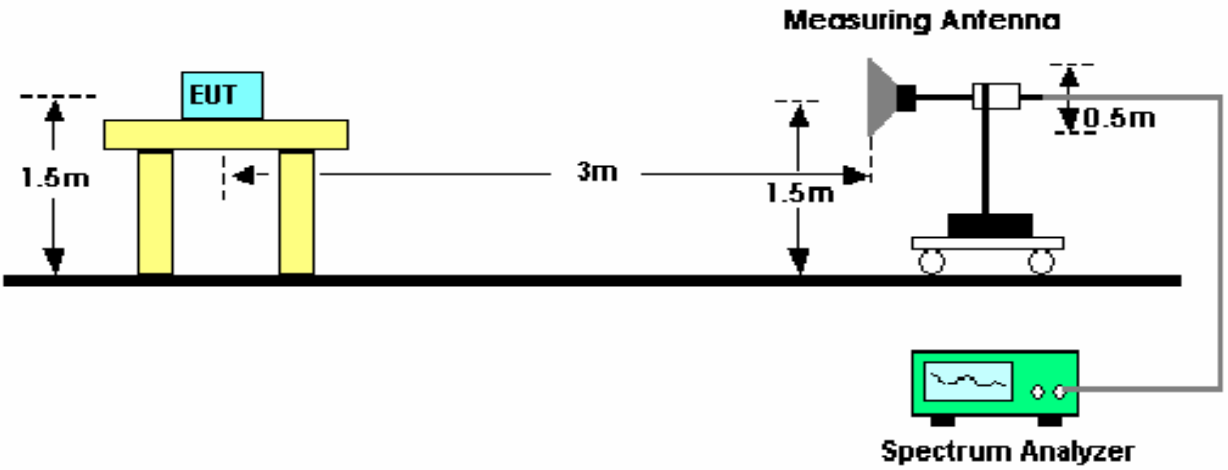
The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4: 2003.
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



7.3 Spectrum Analyzer Setup

According to FCC Part15 Rules, the system was tested 16MHz to 25000MHz.

Below 30MHz

Sweep Speed .....Auto
IF Bandwidth.....10KHz
Video Bandwidth.....10KHz
Resolution Bandwidth.....10KHz

30MHz ~ 1GHz

Sweep Speed .....Auto
IF Bandwidth.....120 KHz
Video Bandwidth.....100KHz
Quasi-Peak Adapter Bandwidth .....120 KHz
Quasi-Peak Adapter Mode .....Normal
Resolution Bandwidth.....100KHz

Above 1GHz

Sweep Speed .....Auto
IF Bandwidth.....120 KHz
Video Bandwidth.....3MHz
Quasi-Peak Adapter Bandwidth .....120 KHz
Quasi-Peak Adapter Mode .....Normal
Resolution Bandwidth.....1MHz

7.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum 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 the measurements for all frequencies are complete.
7. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.

7.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Limit

7.6 Summary of Test Results

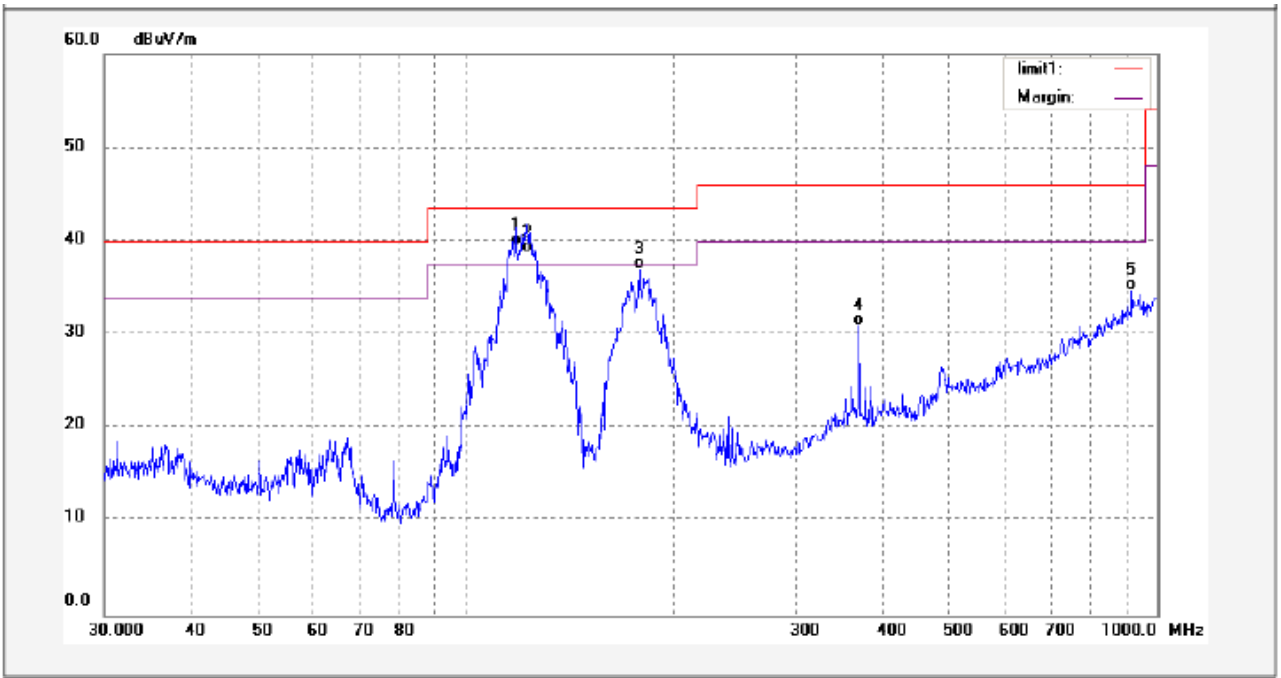
Test Frequency :Below 30MHz

All emissions were more than 20 dB below the limit and therefore not reported.

Test Frequency : 30MHz ~ 1000MHz

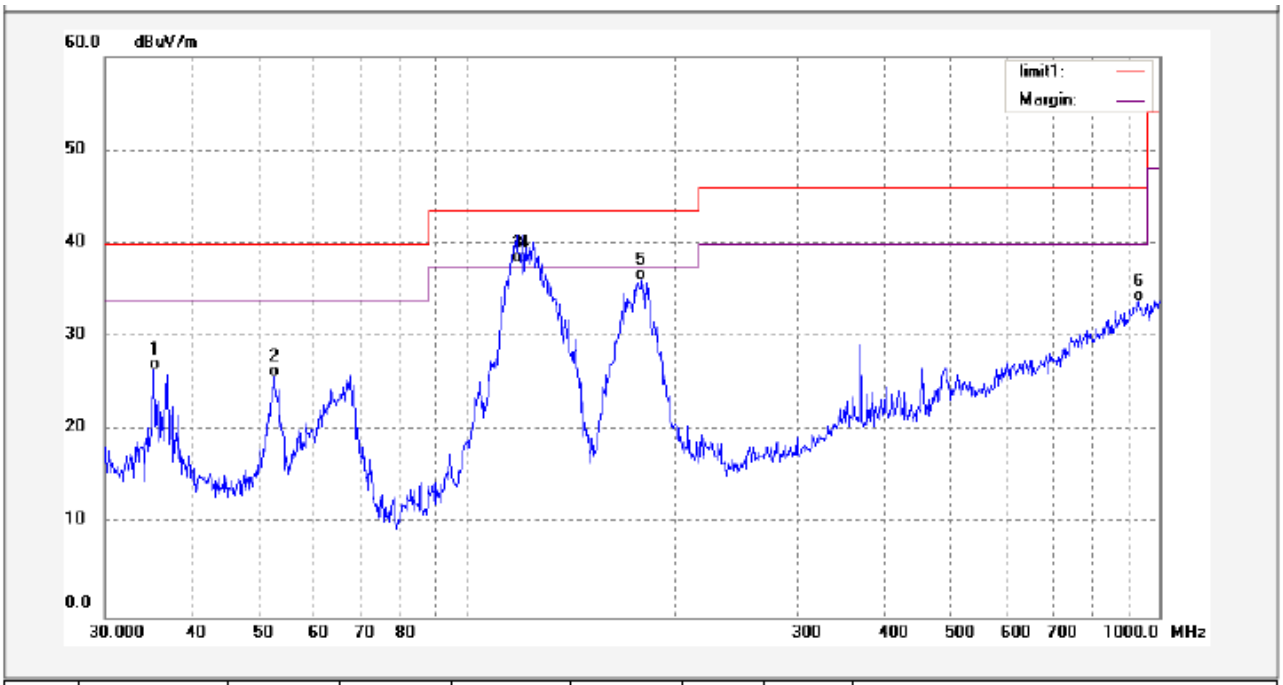
Test Mode: BT linking

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	118.0957	27.27	12.18	39.45	43.50	-4.05	QP	
2	122.3189	26.96	11.75	38.71	43.50	-4.79	QP	
3	178.1426	24.13	12.78	36.91	43.50	-6.59	QP	
4	369.9658	10.37	20.54	30.91	46.00	-15.09	QP	
5	919.1315	3.06	31.62	34.68	46.00	-11.32	QP	

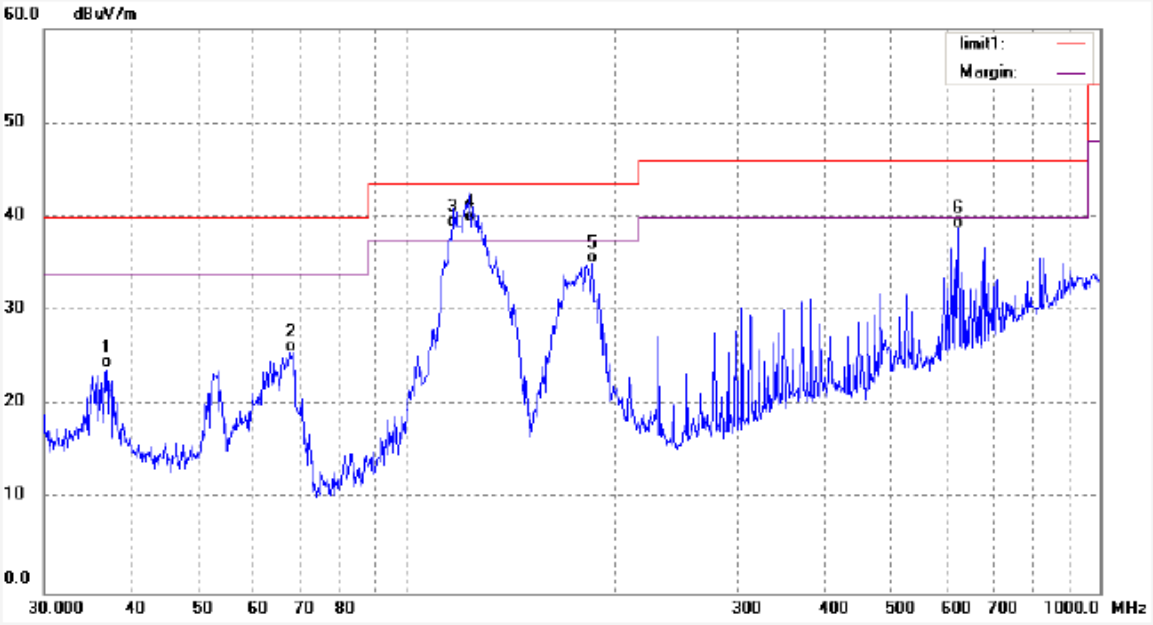
Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	35.2626	10.16	16.37	26.53	40.00	-13.47	QP	
2	52.6345	11.44	14.35	25.79	40.00	-14.21	QP	
3	118.0957	25.67	12.18	37.85	43.50	-5.65	QP	
4	120.6118	25.94	11.87	37.81	43.50	-5.69	QP	
5	178.7697	23.16	12.88	36.04	43.50	-7.46	QP	
6	935.4214	1.98	31.89	33.87	46.00	-12.13	QP	

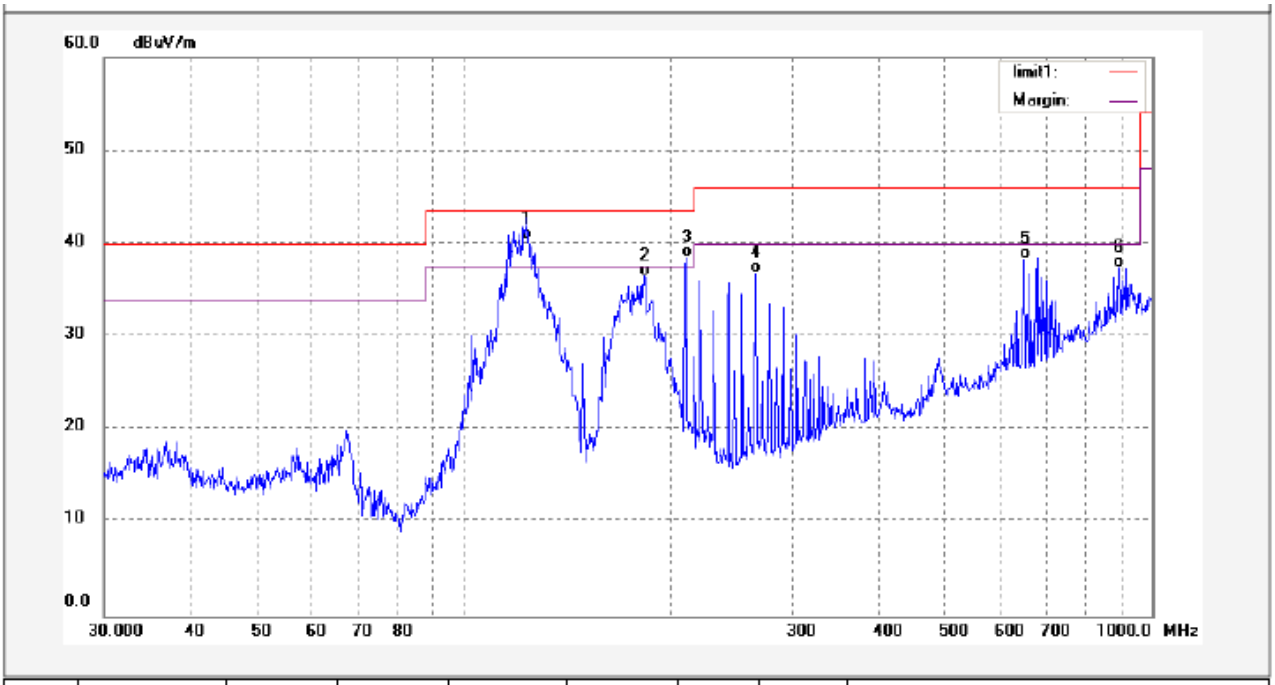
Test Mode: SD playing

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	36.9106	7.38	16.47	23.85	40.00	-16.15	QP	
2	67.7856	15.21	10.41	25.62	40.00	-14.38	QP	
3	116.8574	26.56	12.35	38.91	43.50	-4.59	QP	
4	123.1815	27.70	11.70	39.40	43.50	-4.10	QP	
5	185.1626	20.98	14.08	35.06	43.50	-8.44	QP	
6	624.4897	12.77	26.02	38.79	46.00	-7.21	QP	

Antenna polarization: Horizontal

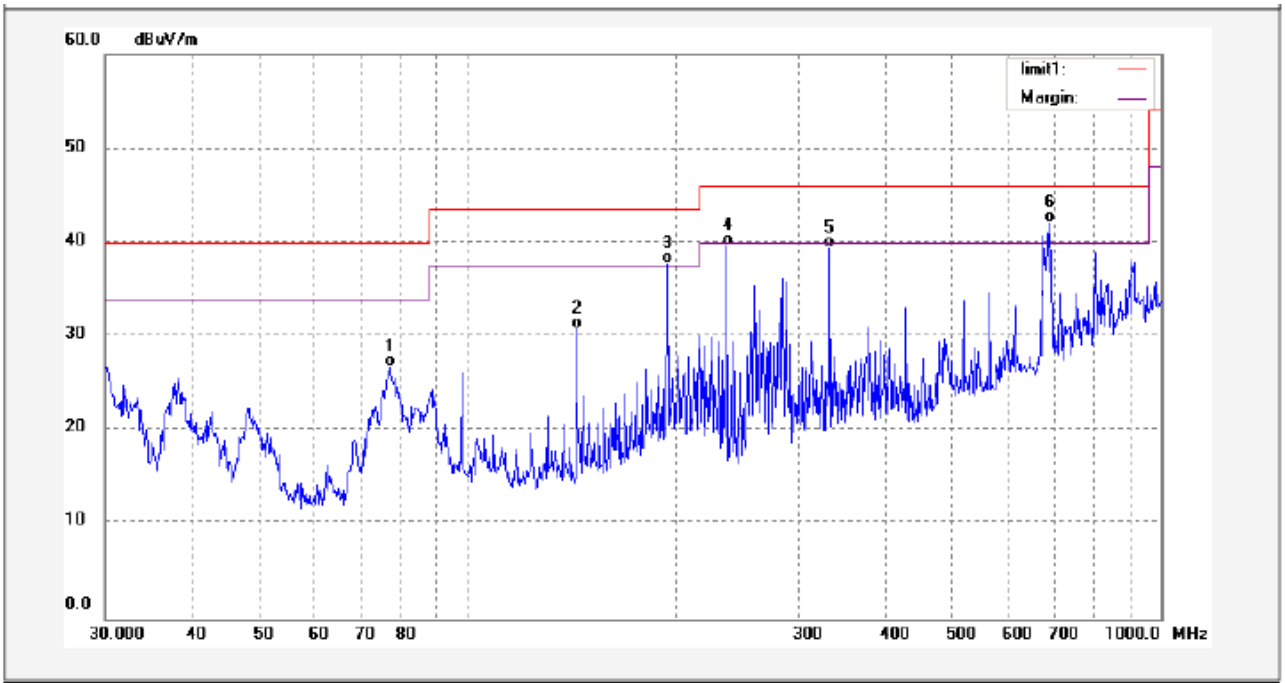


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	123.1815	28.77	11.70	40.47	43.50	-3.03	QP	
2	182.5785	22.93	13.58	36.51	43.50	-6.99	QP	
3	210.8690	23.66	14.85	38.51	43.50	-4.99	QP	
4	265.9035	20.42	16.41	36.83	46.00	-9.17	QP	
5	651.3831	12.36	25.99	38.35	46.00	-7.65	QP	
6	896.8011	6.57	30.83	37.40	46.00	-8.60	QP	

Test mode: transmitting at lower channel

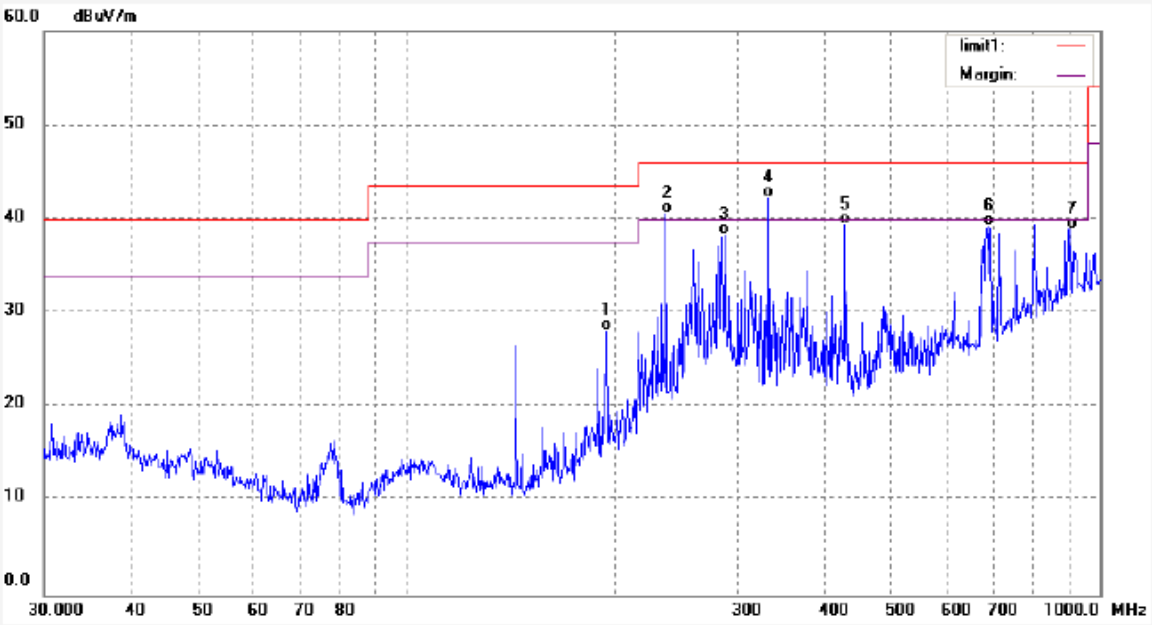
Remark: the EUT was pretested at the upper, middle and lower channel, and the worse case was the low Channel, so the data show was the lower channel only.

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	77.1963	17.54	9.17	26.71	40.00	-13.29	QP	
2	143.7760	19.47	11.39	30.86	43.50	-12.64	QP	
3	194.4985	22.86	14.81	37.67	43.50	-5.83	QP	
4	236.7928	24.03	15.66	39.69	46.00	-6.31	QP	
5	332.9536	19.97	19.47	39.44	46.00	-6.56	QP	
6	689.0510	15.79	26.26	42.05	46.00	-3.95	QP	

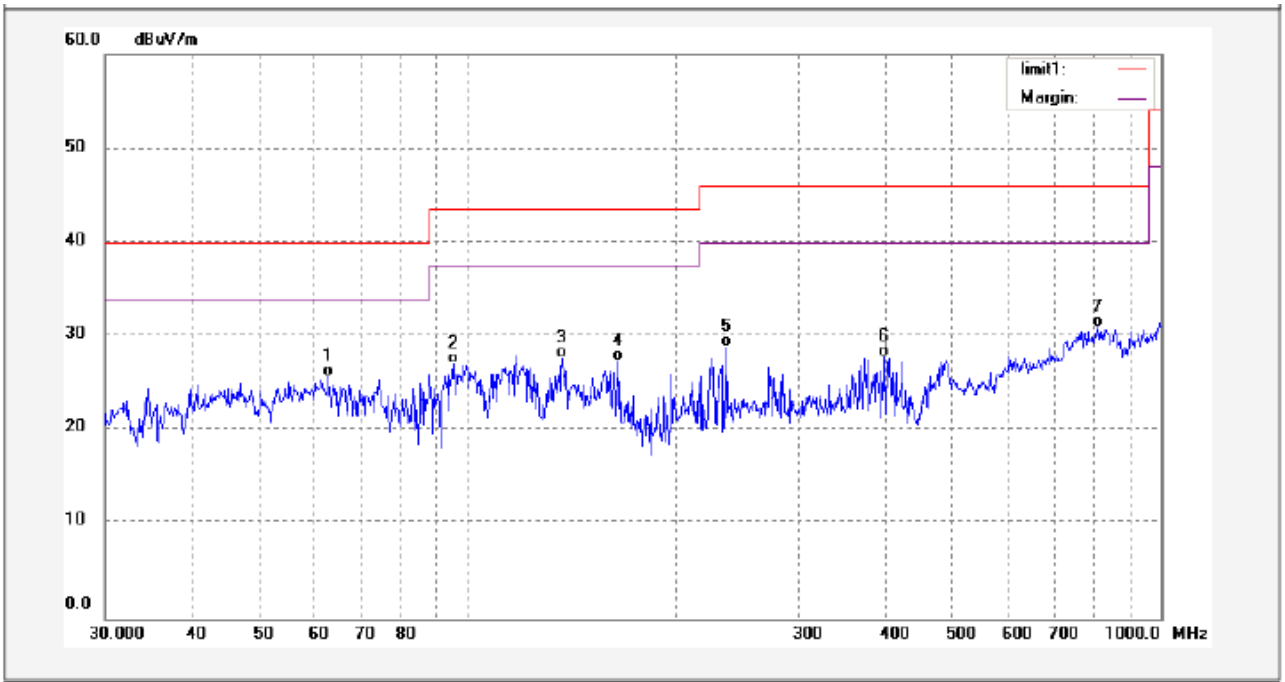
Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	194.4985	13.38	14.81	28.19	43.50	-15.31	QP	
2	236.7928	24.92	15.66	40.58	46.00	-5.42	QP	
3	288.2840	21.62	16.64	38.26	46.00	-7.74	QP	
4	332.9536	22.79	19.46	42.25	46.00	-3.75	QP	
5	428.7960	18.83	20.50	39.33	46.00	-6.67	QP	
6	689.0510	13.02	26.26	39.28	46.00	-6.72	QP	
7	909.4941	7.61	31.38	38.99	46.00	-7.01	QP	

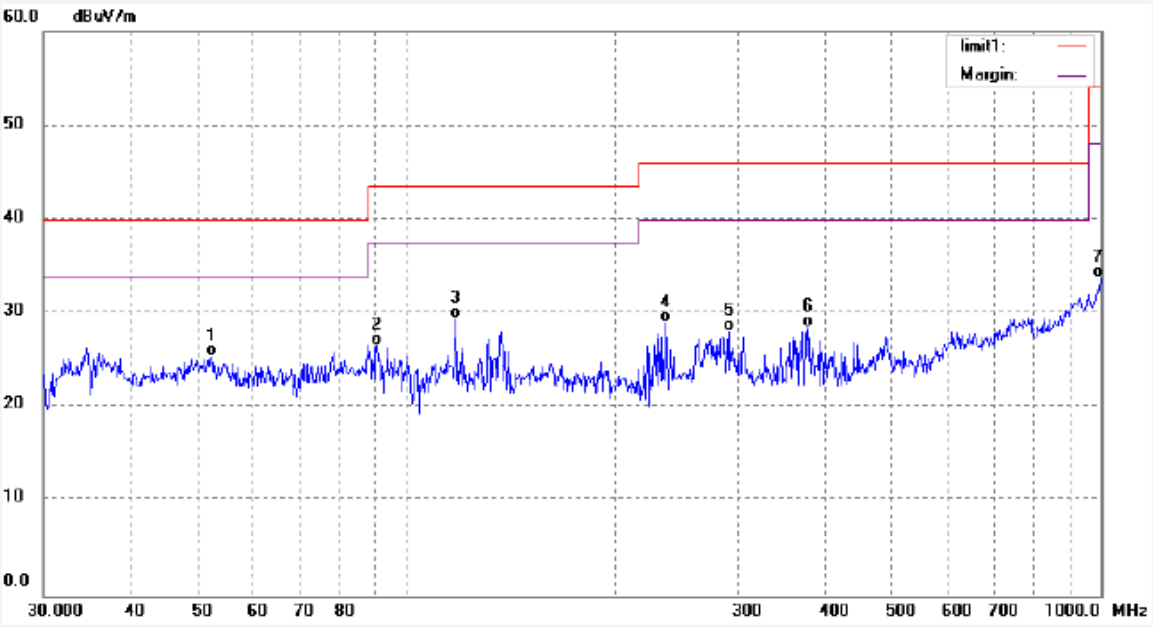
Test mode: receiving whole band

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	62.9639	14.06	11.64	25.70	40.00	-14.30	QP	
2	95.3130	13.89	13.21	27.10	43.50	-16.40	QP	
3	136.8746	15.72	11.94	27.66	43.50	-15.84	QP	
4	164.8911	15.44	11.94	27.38	43.50	-16.12	QP	
5	236.7926	13.26	15.66	28.92	46.00	-17.08	QP	
6	399.6981	6.91	20.91	27.82	46.00	-18.18	QP	
7	812.7744	1.83	29.22	31.05	46.00	-14.95	QP	

Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	52.4498	11.00	14.39	25.39	40.00	-14.61	QP	
2	90.7379	14.80	11.88	26.68	43.50	-16.82	QP	
3	117.6814	17.25	12.24	29.49	43.50	-14.01	QP	
4	236.7926	13.42	15.66	29.08	46.00	-16.92	QP	
5	291.3387	11.43	16.75	28.18	46.00	-17.82	QP	
6	379.1779	8.52	20.05	28.57	46.00	-17.43	QP	
7	1000.0000	1.22	32.55	33.77	54.00	-20.23	QP	

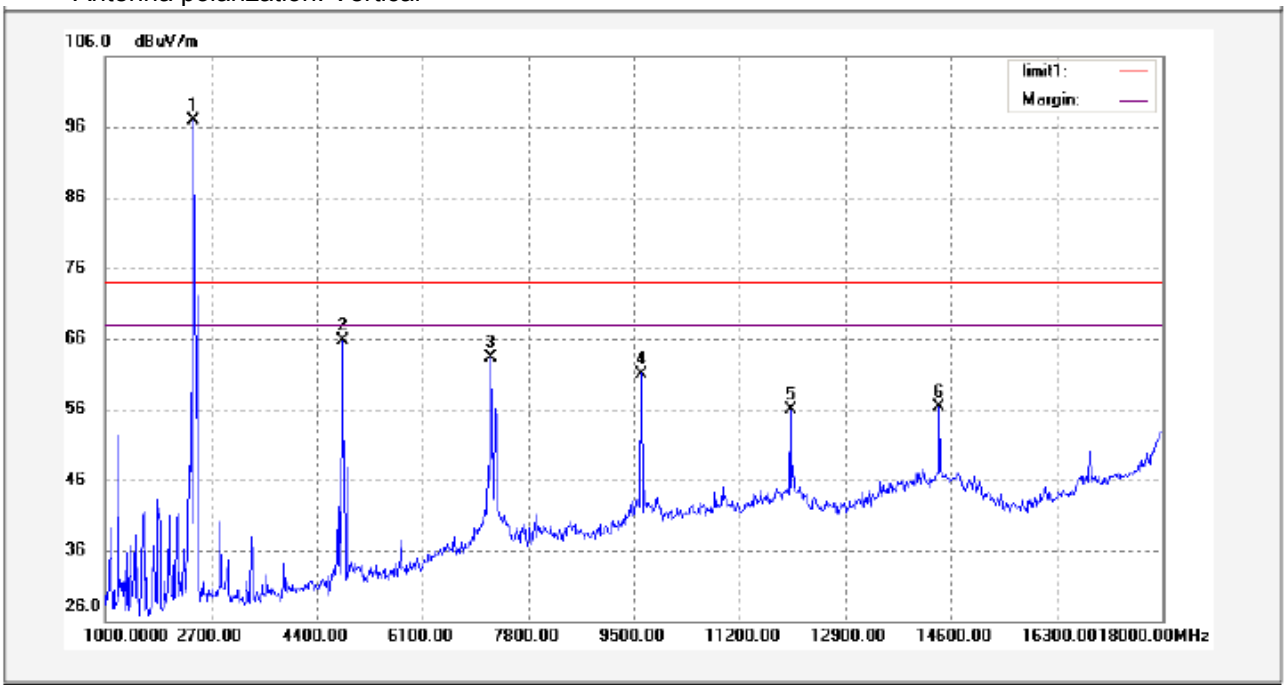
Test Frequency: 1GHz ~ 18GHz

All emissions were more than 20 dB below the limit and therefore not reported.

AV = Peak +20Log$_{10}$(duty cycle) =PK+(-9)=PK-9 [refer to section 8 for more detail]

Test mode: transmitting at lower channel

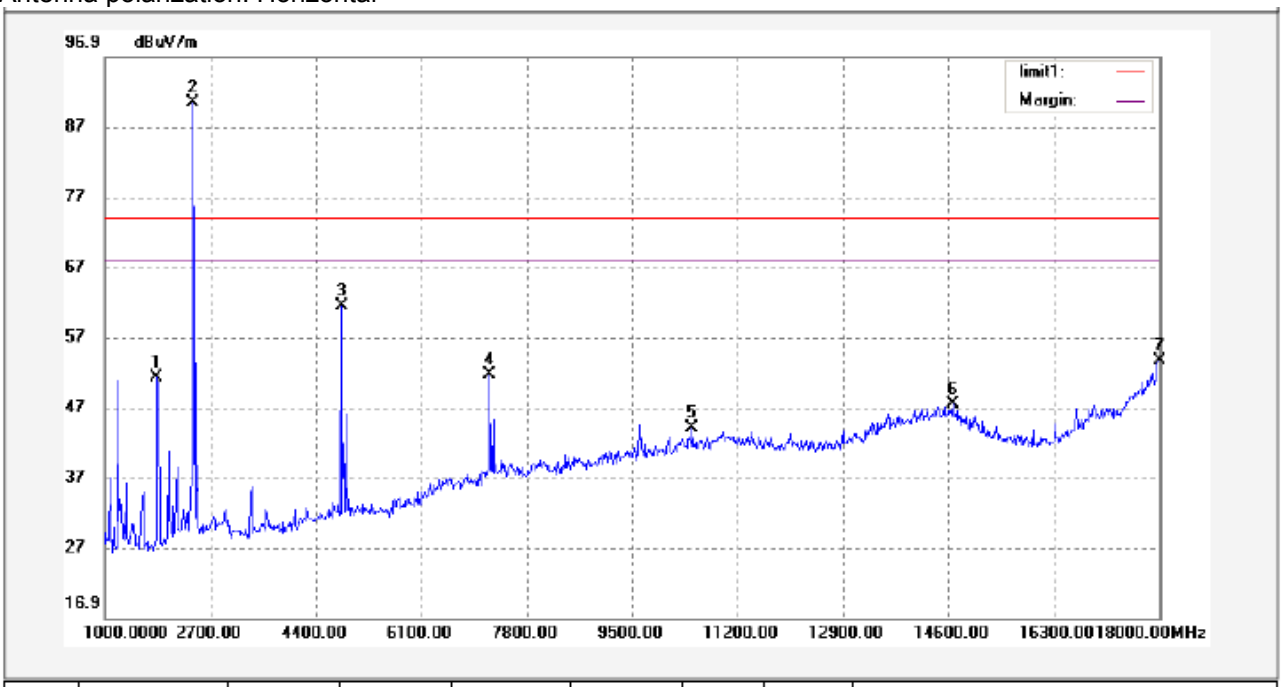
Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2402.000	112.61	-15.61	97.00	74.00	23.00	peak	
2	4808.000	77.70	-11.97	65.73	74.00	-8.27	peak	
3	7205.000	70.54	-7.21	63.33	74.00	-10.67	peak	
4	9619.000	66.70	-5.70	61.00	74.00	-13.00	peak	
5	12016.000	60.45	-4.47	55.98	74.00	-18.02	peak	
6	14413.000	55.94	0.41	56.35	74.00	-17.65	peak	

No.	Freq. (MHz)	Duty Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2402.000	-9	88	54.00	34.00	AV	
2	4808.000	-9	52.73	54.00	-2.73	AV	
3	7205.000	-9	51.33	54.00	-2.33	AV	
4	9619.000	-9	52	54.00	-2.00	AV	
5	12016.000	-9	46.98	54.00	-7.02	AV	
6	14413.000	-9	47.35	54.00	-6.65	AV	

Antenna polarization: Horizontal



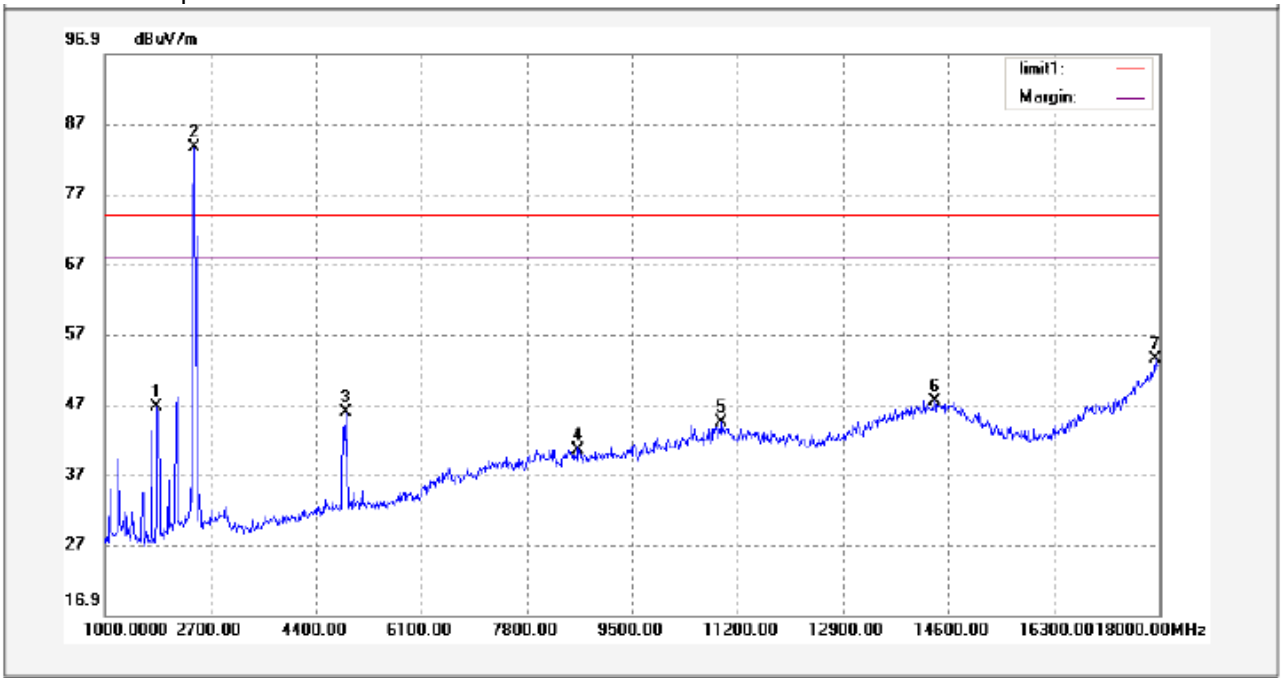
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1833.000	68.78	-17.50	51.28	74.00	-22.72	peak	
2	2402.000	106.06	-15.59	90.47	74.00	16.47	peak	
3	4808.000	73.29	-11.97	61.32	74.00	-12.68	peak	
4	7205.000	58.74	-7.21	51.53	74.00	-22.47	peak	
5	10469.000	48.17	-4.26	43.91	74.00	-30.09	peak	
6	14668.000	47.04	0.33	47.37	74.00	-26.63	peak	
7	18000.000	46.60	7.08	53.68	74.00	-20.32	peak	

No.	Freq. (MHz)	Duty Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1833.000	-9	42.28	54.00	-11.72	AV	
2	2402.000	-9	81.47	54.00	27.47	AV	
3	4808.000	-9	52.32	54.00	-1.68	AV	
4	7205.000	-9	42.53	54.00	-11.47	AV	
5	10469.000	-9	34.91	54.00	-19.09	AV	
6	14668.000	-9	38.37	54.00	-15.63	AV	
7	18000.000	-9	44.68	54.00	-9.32	AV	

Test Frequency: 1GHz ~ 18GHz

Test mode: transmitting at middle channel

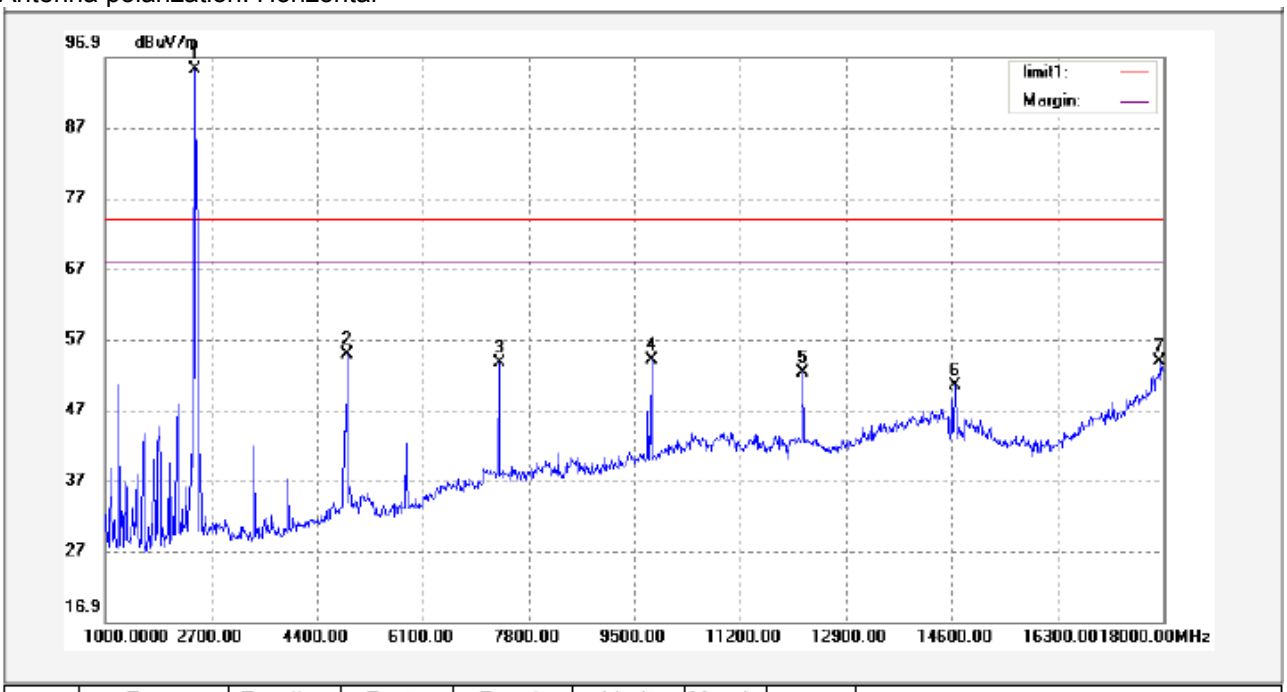
Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1833.000	64.03	-17.50	46.53	74.00	-27.47	peak	
2	2440.000	99.26	-15.70	83.56	74.00	9.56	peak	
3	4893.000	57.78	-11.91	45.87	74.00	-28.13	peak	
4	8633.000	46.98	-6.62	40.36	74.00	-33.64	peak	
5	10945.000	47.94	-3.48	44.46	74.00	-29.54	peak	
6	14379.000	47.16	0.34	47.50	74.00	-26.50	peak	
7	17932.000	47.43	6.06	53.49	74.00	-20.51	peak	

No.	Freq. (MHz)	Duty Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1833.000	-9	37.53	54.00	-16.47	AV	
2	2440.000	-9	74.56	54.00	20.56	AV	
3	4893.000	-9	36.87	54.00	-17.13	AV	
4	8633.000	-9	31.36	54.00	-22.64	AV	
5	10945.000	-9	35.46	54.00	-18.54	AV	
6	14379.000	-9	38.5	54.00	-15.5	AV	
7	17932.000	-9	44.49	54.00	-9.51	AV	

Antenna polarization: Horizontal

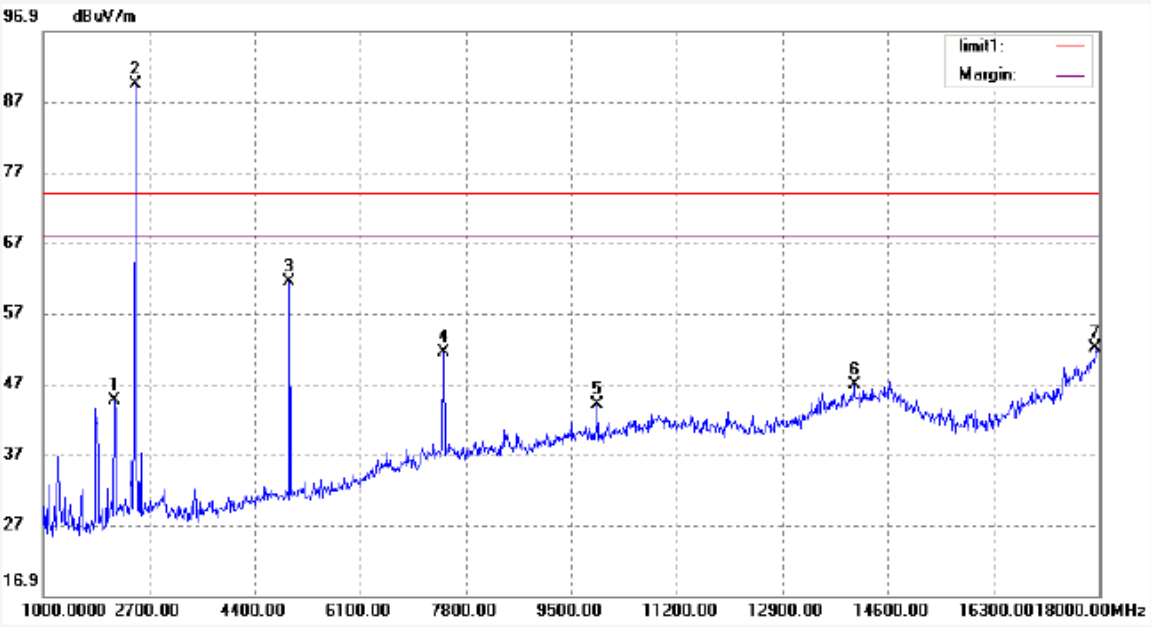


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2440.000	110.86	-15.70	95.16	74.00	21.16	peak	
2	4893.000	66.66	-11.91	54.75	74.00	-19.25	peak	
3	7324.000	60.72	-7.13	53.59	74.00	-20.41	peak	
4	9772.000	59.20	-5.28	53.92	74.00	-20.08	peak	
5	12203.000	56.60	-4.40	52.20	74.00	-21.80	peak	
6	14651.000	50.12	0.37	50.49	74.00	-23.51	peak	
7	17949.000	47.52	6.31	53.83	74.00	-20.17	peak	

No.	Freq. (MHz)	Duty Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2440.000	-9	86.16	54.00	32.16	AV	
2	4893.000	-9	45.75	54.00	-8.25	AV	
3	7324.000	-9	44.59	54.00	-9.41	AV	
4	9772.000	-9	44.92	54.00	-9.08	AV	
5	12203.000	-9	43.2	54.00	-10.8	AV	
6	14651.000	-9	41.49	54.00	-12.51	AV	
7	17949.000	-9	44.83	54.00	-9.17	AV	

Test mode: transmitting at upper channel

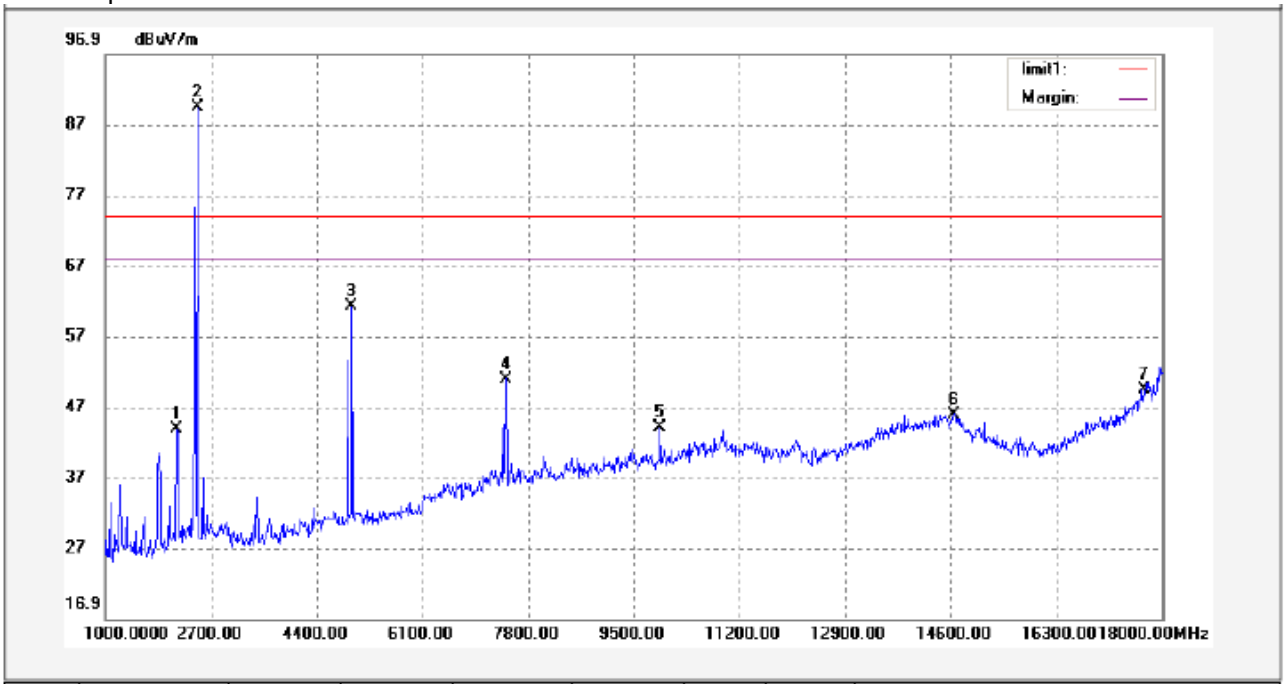
Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2139.000	59.93	-15.41	44.52	74.00	-29.48	peak	
2	2478.000	105.16	-15.68	89.48	74.00	15.48	peak	
3	4961.000	73.12	-11.77	61.35	74.00	-12.65	peak	
4	7443.000	58.25	-6.91	51.34	74.00	-22.66	peak	
5	9925.000	49.12	-5.15	43.97	74.00	-30.03	peak	
6	14056.000	47.36	-0.52	46.84	74.00	-27.16	peak	
7	17949.000	45.63	6.31	51.94	74.00	-22.06	peak	

No.	Freq. (MHz)	Duty Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2139.000	-9	35.52	54.00	-18.48	AV	
2	2478.000	-9	80.48	54.00	26.48	AV	
3	4961.000	-9	52.35	54.00	-1.65	AV	
4	7443.000	-9	42.34	54.00	-11.66	AV	
5	9925.000	-9	34.97	54.00	-19.03	AV	
6	14056.000	-9	37.84	54.00	-16.16	AV	
7	17949.000	-9	42.94	54.00	-11.06	AV	

Antenna polarization: Horizontal

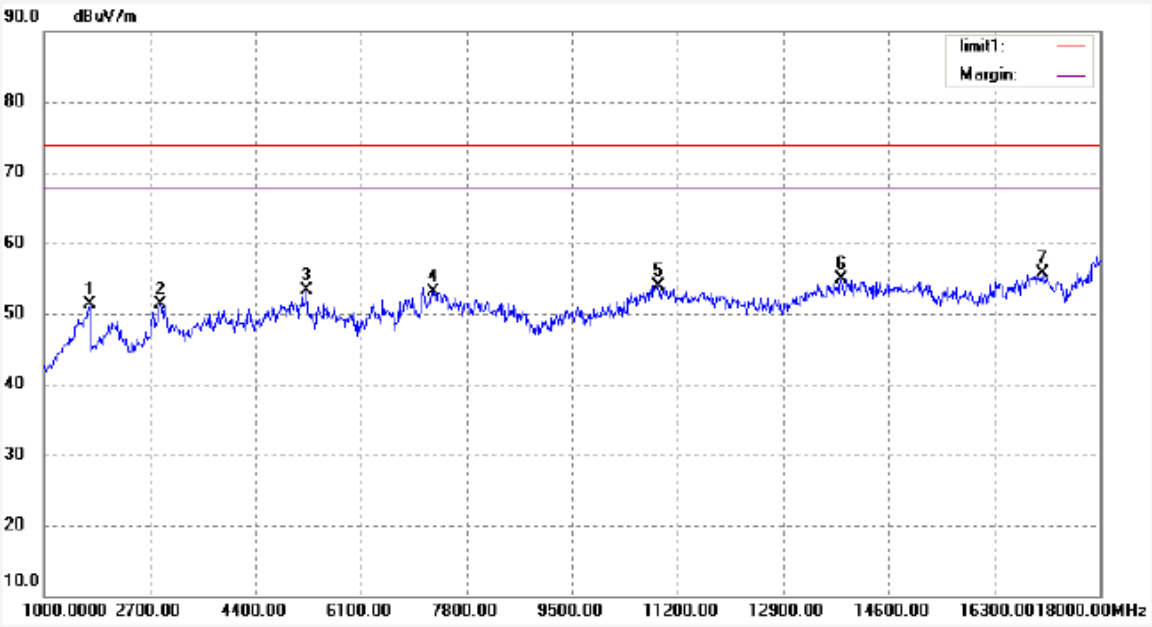


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2139.000	59.20	-15.41	43.79	74.00	-30.21	peak	
2	2478.000	105.16	-15.68	89.48	74.00	15.48	peak	
3	4961.000	72.89	-11.77	61.12	74.00	-12.88	peak	
4	7443.000	57.81	-6.91	50.90	74.00	-23.10	peak	
5	9925.000	49.20	-5.15	44.05	74.00	-29.95	peak	
6	14651.000	45.53	0.37	45.90	74.00	-28.10	peak	
7	17711.000	45.65	3.71	49.36	74.00	-24.64	peak	

No.	Freq. (MHz)	Duty Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2139.000	-9	34.79	54.00	-19.21	AV	
2	2478.000	-9	80.48	54.00	26.48	AV	
3	4961.000	-9	52.12	54.00	-1.88	AV	
4	7443.000	-9	41.9	54.00	-12.1	AV	
5	9925.000	-9	35.05	54.00	-18.95	AV	
6	14651.000	-9	36.9	54.00	-17.1	AV	
7.	17711.000	-9	40.36	54.00	-13.64	AV	

Test mode: receiving whole band

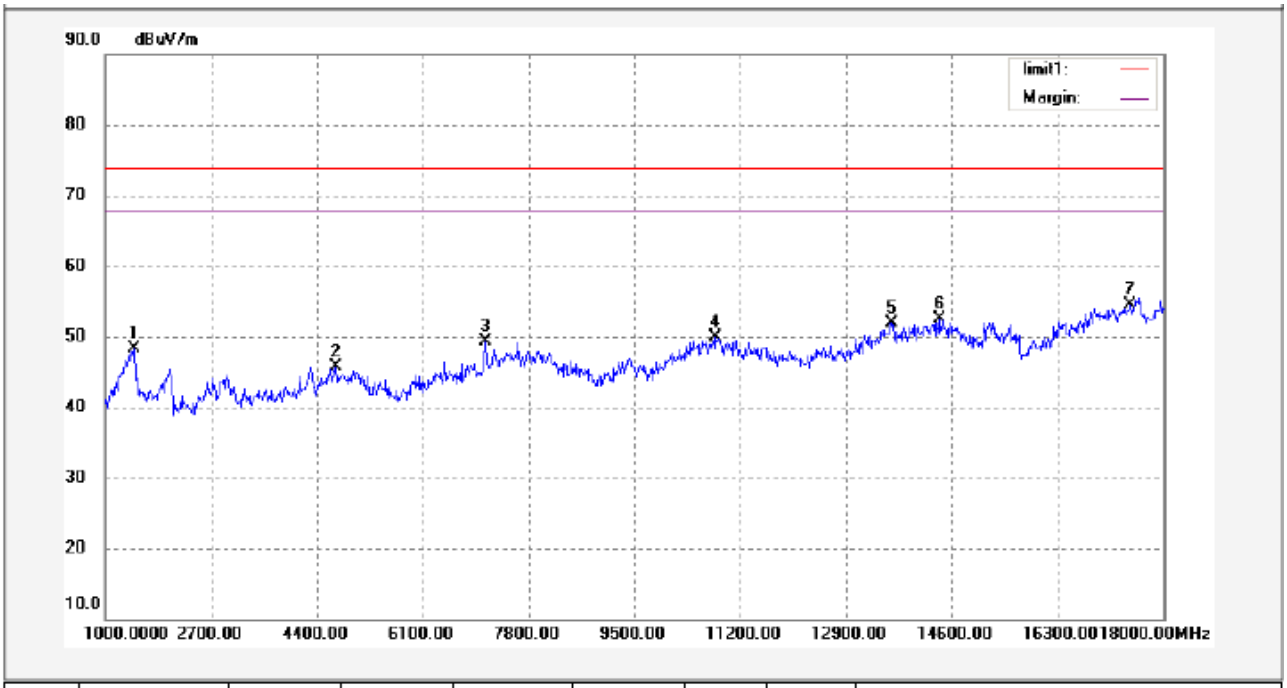
Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1731.000	64.10	-12.89	51.21	74.00	-22.79	peak	
2	2870.000	59.15	-7.93	51.22	74.00	-22.78	peak	
3	5233.000	55.88	-2.56	53.32	74.00	-20.68	peak	
4	7256.000	48.96	4.11	53.07	74.00	-20.93	peak	
5	10894.000	42.58	11.35	53.93	74.00	-20.07	peak	
6	13835.000	38.58	16.31	54.89	74.00	-19.11	peak	
7	17082.000	35.18	20.54	55.72	74.00	-18.28	peak	

No.	Freq. (MHz)	Duty Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1731.000	-9	42.21	54.00	-11.79	AV	
2	2870.000	-9	42.22	54.00	-11.78	AV	
3	5233.000	-9	44.32	54.00	-9.68	AV	
4.	7256.000	-9	44.07	54.00	-9.93	AV	
5.	10894.000	-9	44.93	54.00	-9.07	AV	
6.	13835.000	-9	45.89	54.00	-8.11	AV	
7.	17082.000	-9	46.72	54.00	-7.28	AV	

Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1459.000	61.19	-12.94	48.25	74.00	-25.75	peak	
2	4706.000	49.24	-3.46	45.78	74.00	-28.22	peak	
3	7103.000	45.83	3.44	49.27	74.00	-24.73	peak	
4	10809.000	38.91	11.02	49.93	74.00	-24.07	peak	
5	13631.000	36.22	15.63	51.85	74.00	-22.15	peak	
6	14396.000	34.15	18.38	52.53	74.00	-21.47	peak	
7	17473.000	31.71	22.70	54.41	74.00	-19.59	peak	

No.	Freq. (MHz)	Duty Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1459.000	-9	39.25	54.00	-14.75	AV	
2	4706.000	-9	36.78	54.00	-17.22	AV	
3	7103.000	-9	40.27	54.00	-13.73	AV	
4.	10809.000	-9	40.93	54.00	-13.07	AV	
5.	13631.000	-9	42.85	54.00	-11.15	AV	
6.	14396.000	-9	43.53	54.00	-10.47	AV	
7.	17473.000	-9	45.41	54.00	-8.59	AV	

Test Frequency :Above 18GHz

All emissions were more than 20 dB below the limit and therefore not reported.

8 Spurious RF Conducted Emissions from out of band

Test Requirement: FCC Part 15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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, provided the transmitter demonstrates compliance with the peak conducted power limits.

Test Mothed: DA 00-705

Test Status: TX mode

8.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set to span from the lowest frequency generated in the device up to and including the tenth harmonic of the highest fundamental frequency.
3. Set RBW = 100kHz and VBW = 300kHz.Sweep =auto.
4. mark the worst point and record.

8.2 Test Result

Test Frequency: Below 30MHz

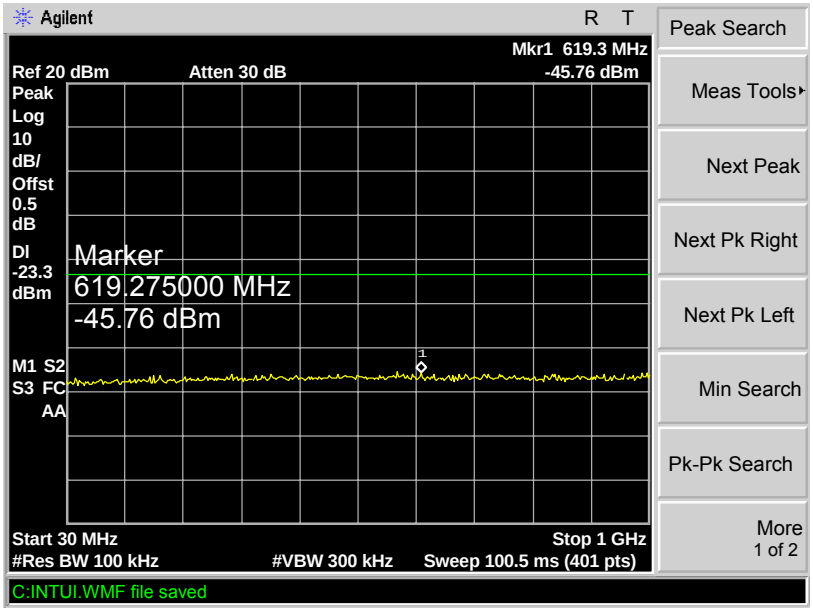
Remark: All emissions were more than 20 dB below the limit and therefore not reported.

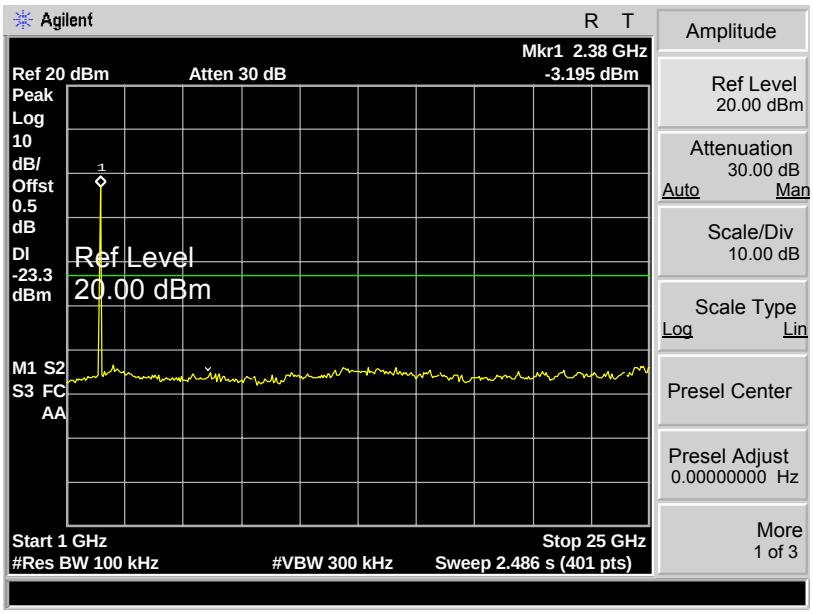
Test Frequency: 30MHz ~ 25GHz

Test result plots shown as follows:

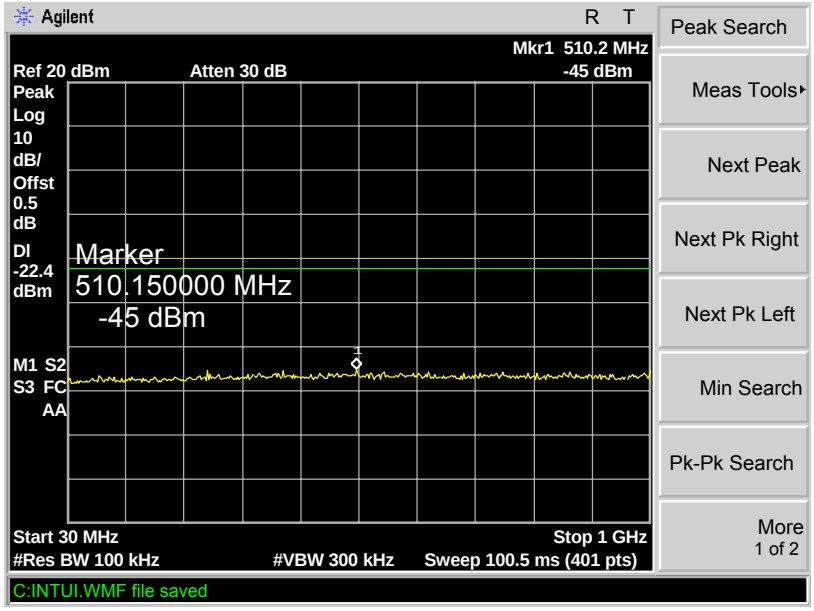
Modulation:GFSK

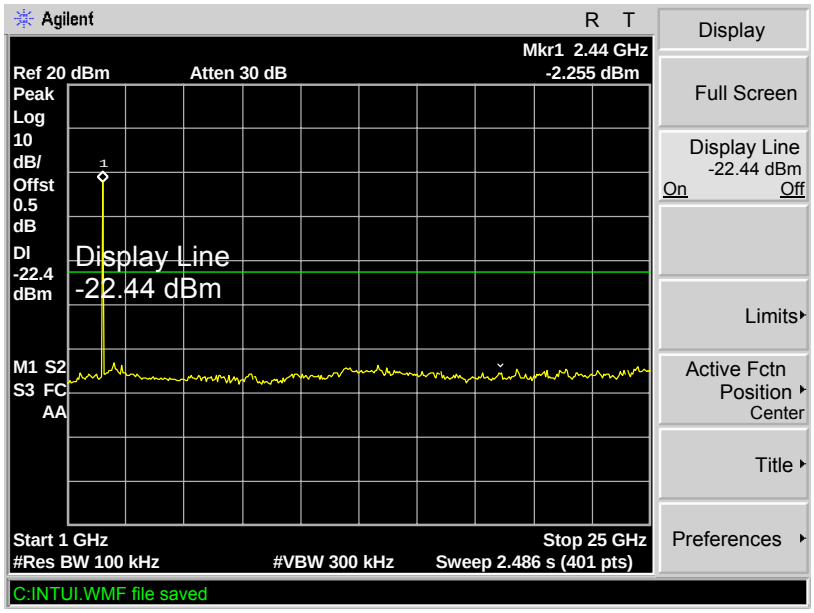
Lower Channel



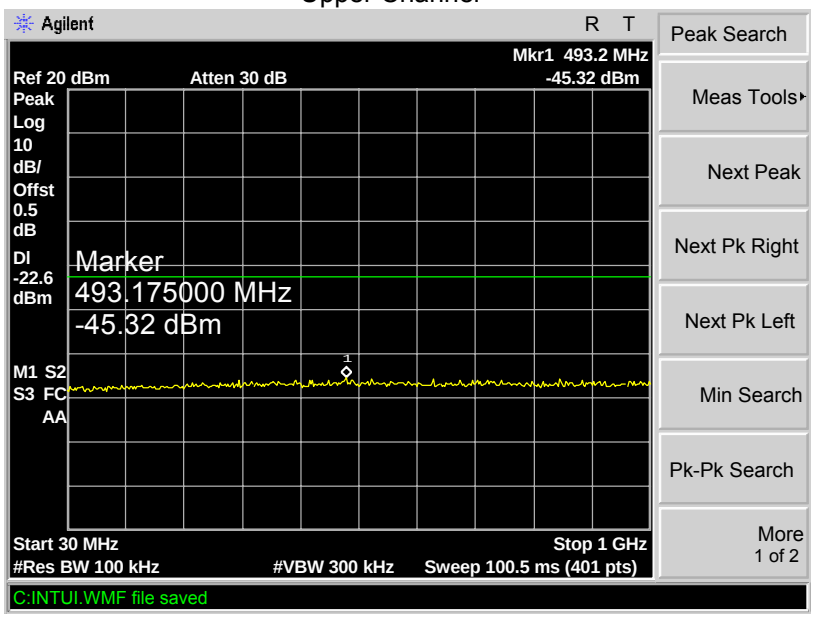


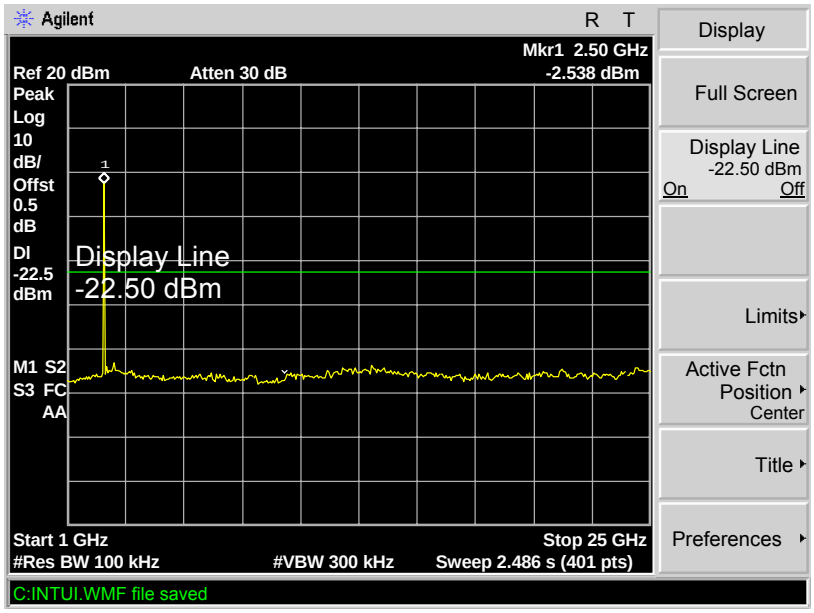
Middle Channel





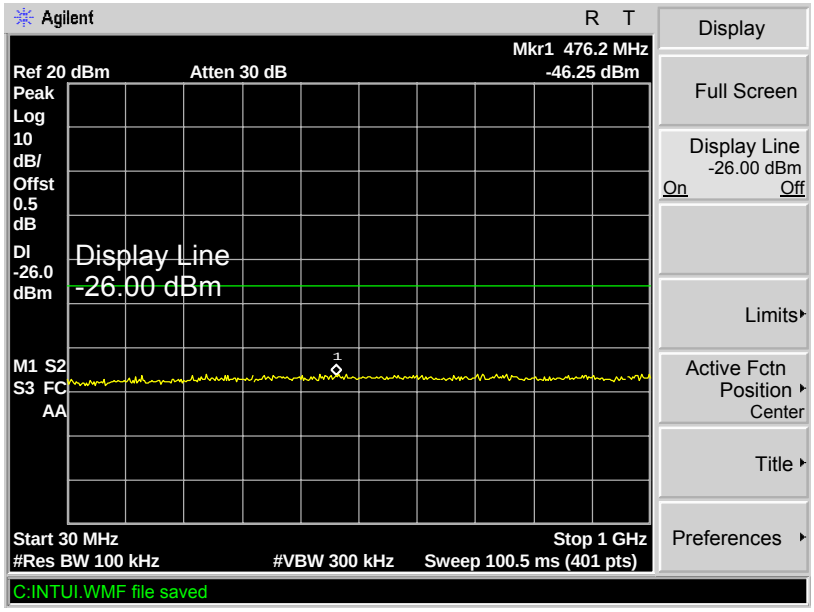
Upper Channel

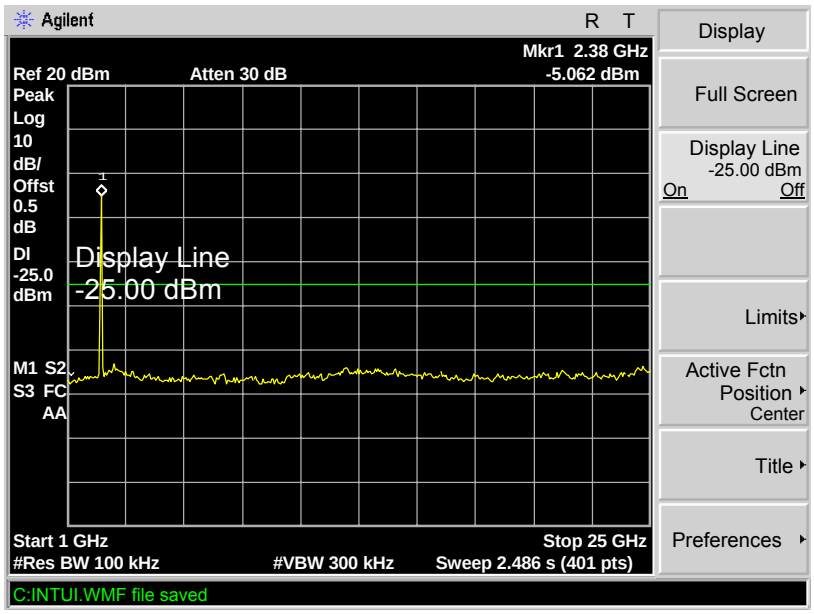




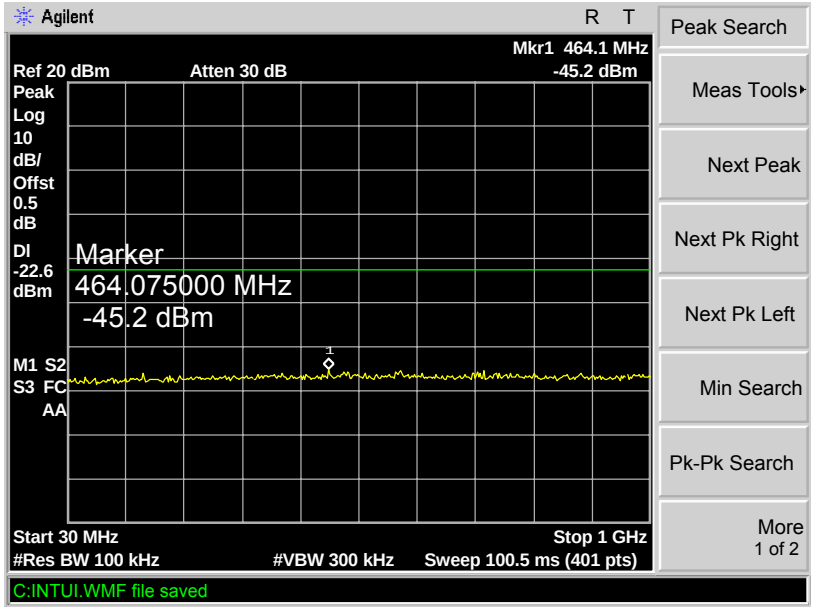
Modulation: Pi/4DQPSK

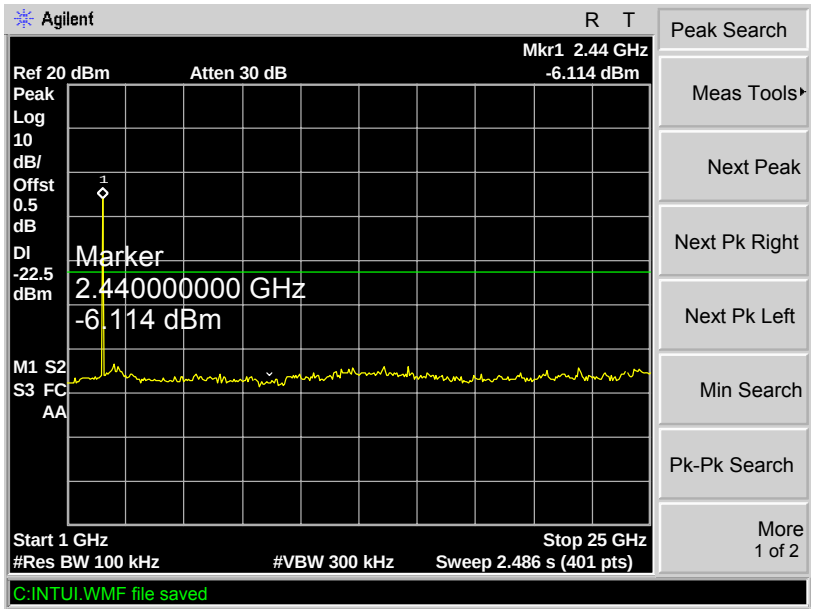
Lower Channel



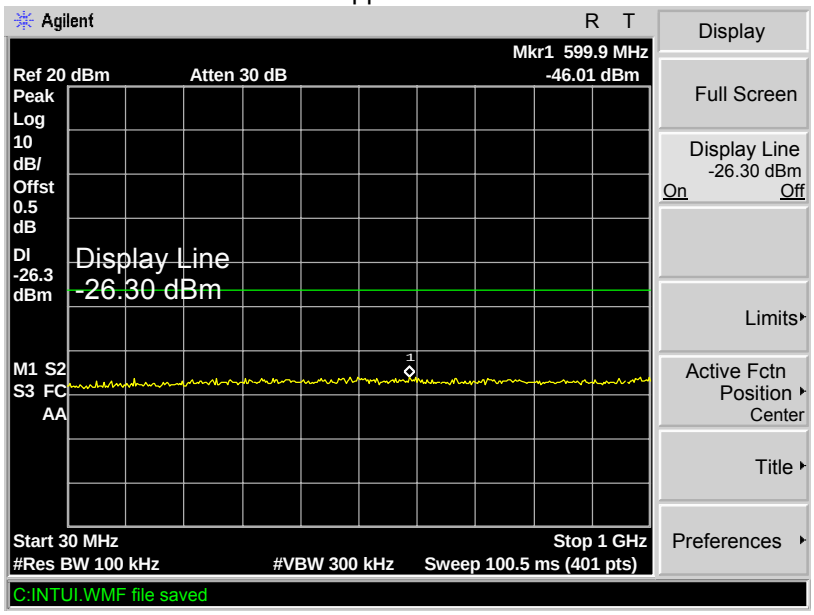


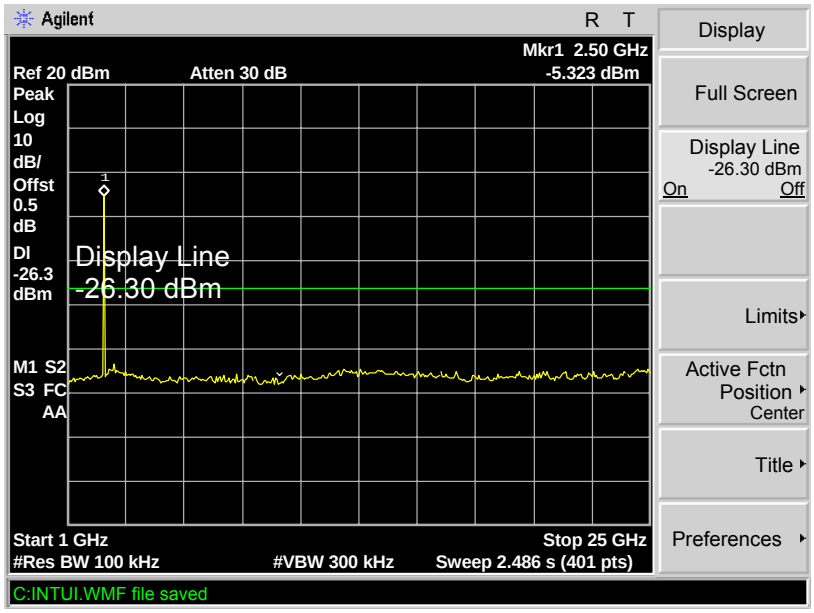
Middle Channel





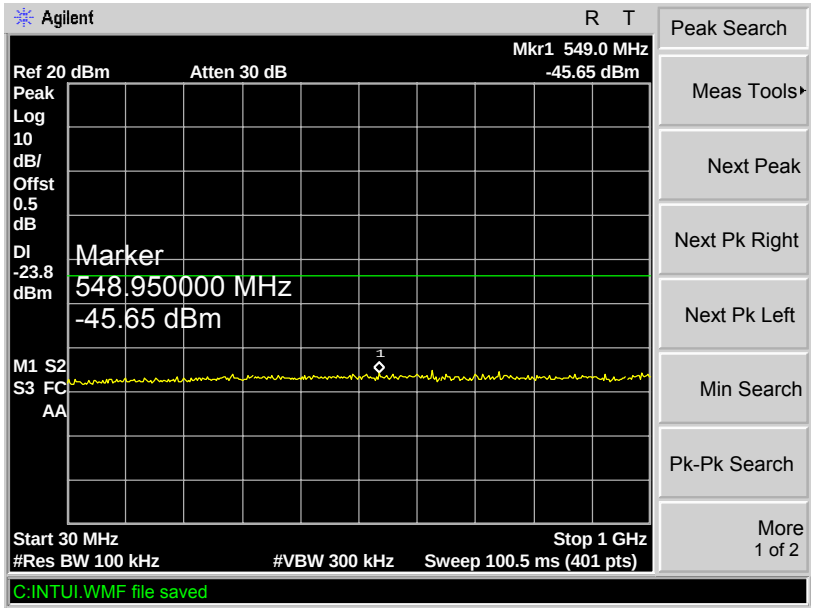
Upper Channel

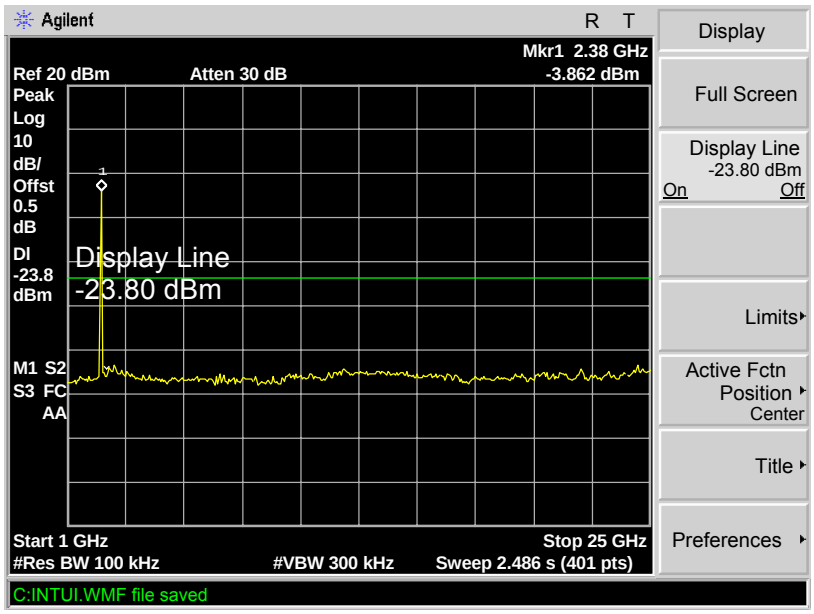




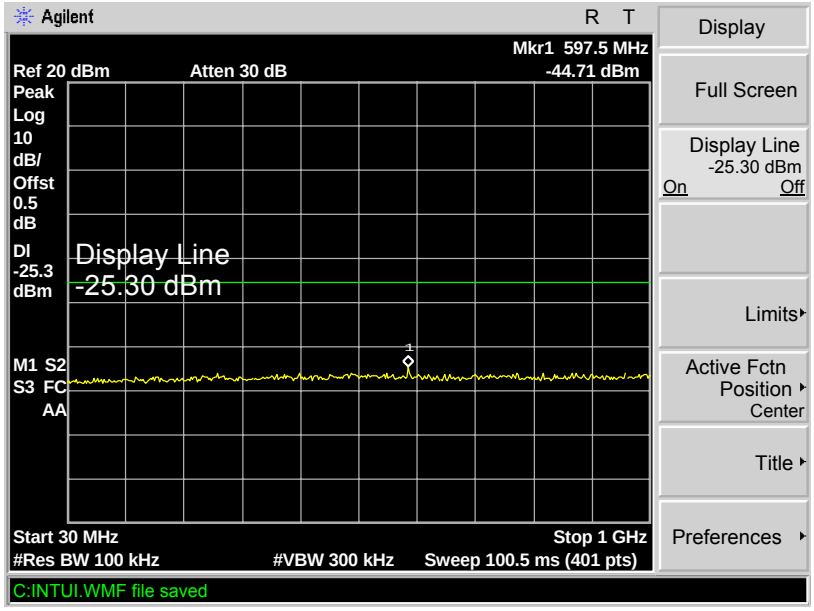
Modulation: 8DPSK

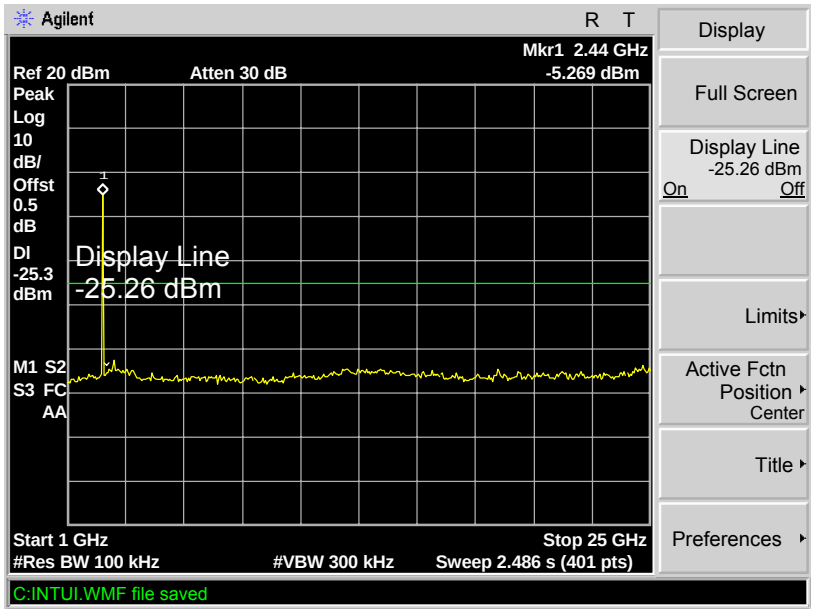
Lower Channel



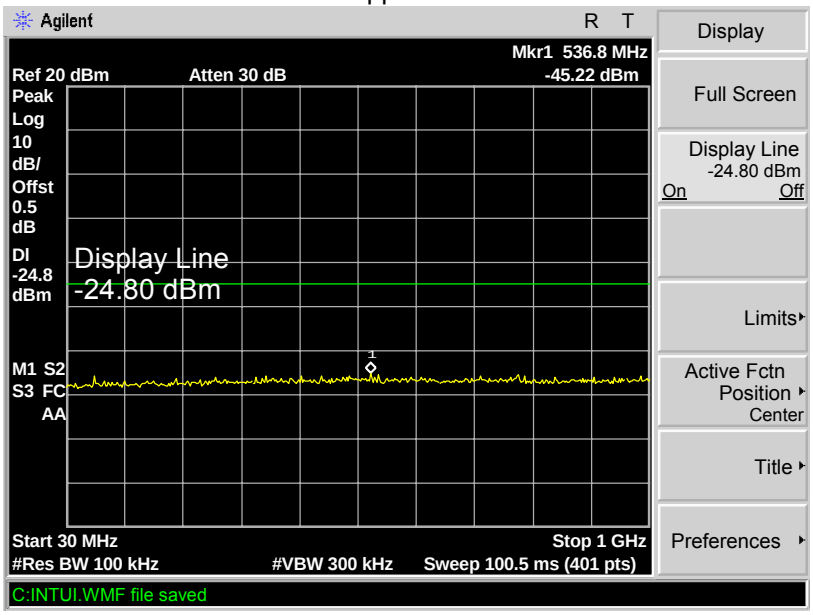


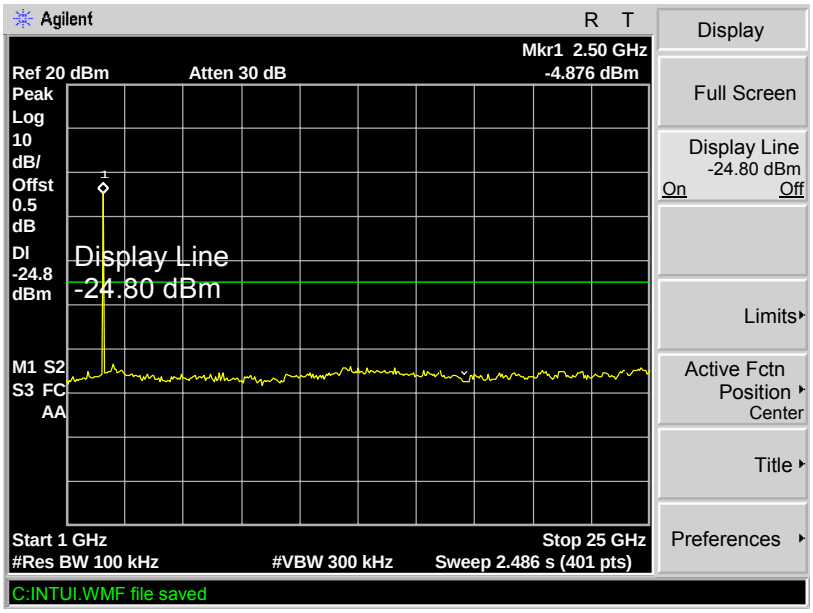
Middle Channel





Upper Channel





9 Duty Cycle

Test Requirement: FCC Part 15.35

Test Mothed: ANSI C63.4:2003

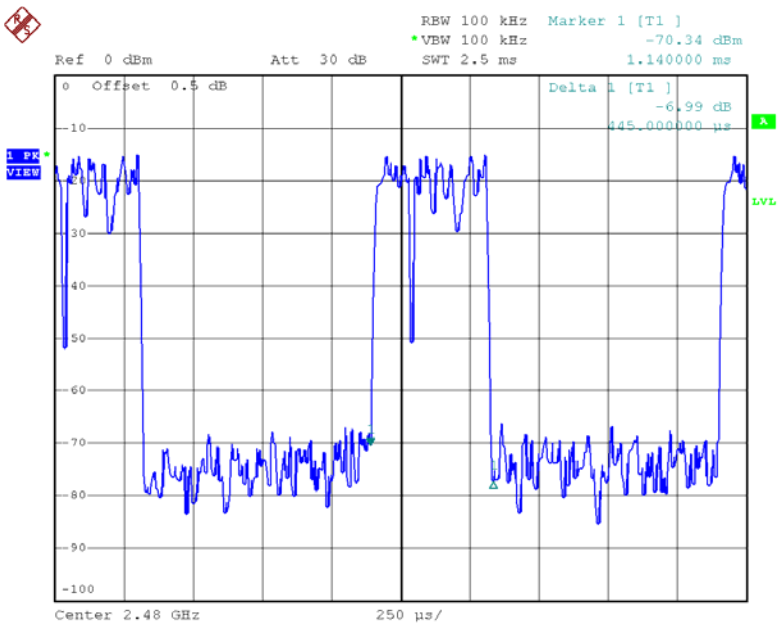
Test Status: TX mode.

9.1 Test Procedure

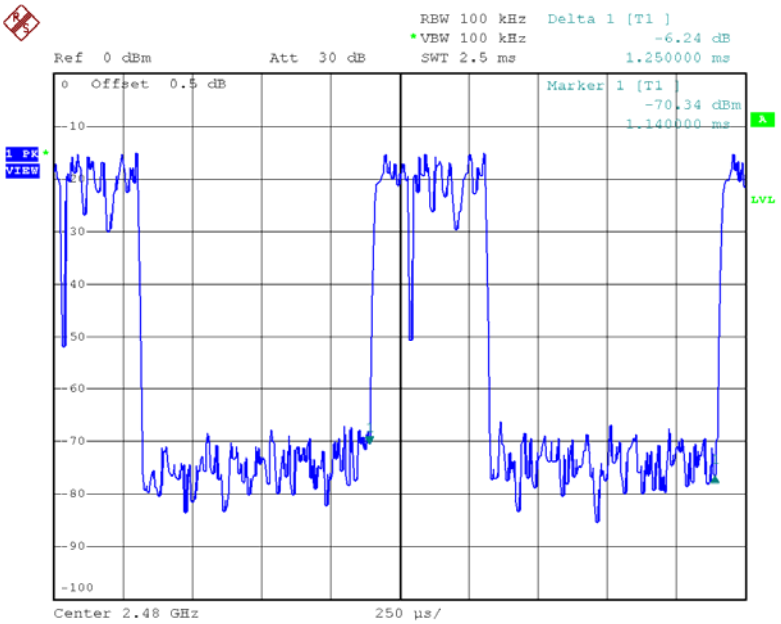
1. The EUT was placed on a turntable which is 0.8m above ground plane
2. Set EUT as normal wrking mode
3. Set SPA center frequency = fundamental frequency, RBW = 100 kHz, VBW = 100 kHz, Span = 0 Hz, Adjacent sweep time.

9.2 Test Result

(a) transmission period is 0.445ms



(b)Single pulse time is 1.25ms



The EUT is auto. operation for transmitter，it is declared by the manufacturer as a duty cycle ratio of less than 100%.

The EUT's work time : T_{on} =pulse time=0.445 ms

The EUT's work period :$T=T_{ON}+T_{OFF}$= transmission period =1.25 ms

The EUT's duty cycle : $D = T_{on} /T$ = 0.445/1.25*100% =35.6%

Duty Cycle Correction Factor(dB)=20 * Log_{10}(Duty Cycle)=20* Log_{10}(35.6 %)

= -9dB

10 Band Edge Measurement

Test Requirement:	Section 15.247(d) In addition, radiated emissions which fall in the restricted bands. as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).
Test Method:	DA 00-705
Limit:	40.0 dBuV/m between 30MHz & 88MHz; 43.5 dBuV/m between 88MHz & 216MHz; 46.0 dBuV/m between 216MHz & 960MHz; 54.0 dBuV/m above 960MHz. 74.0 dBuV/m for peak above 1GHz 54.0 dBuV/m for AVG above 1GHz

10.1 Test Procedure

1. The EUT was placed on a turntable which is 0.8m above ground plane

2. Measurement Distance is 3m

3. Detector: For Peak value:

RBW = 1 MHz for f ≥ 1 GHz

VBW ≥ RBW; Sweep = auto

Detector function = peak

Trace = max hold

For AVG value:

RBW = 1 MHz for f ≥ 1 GHz

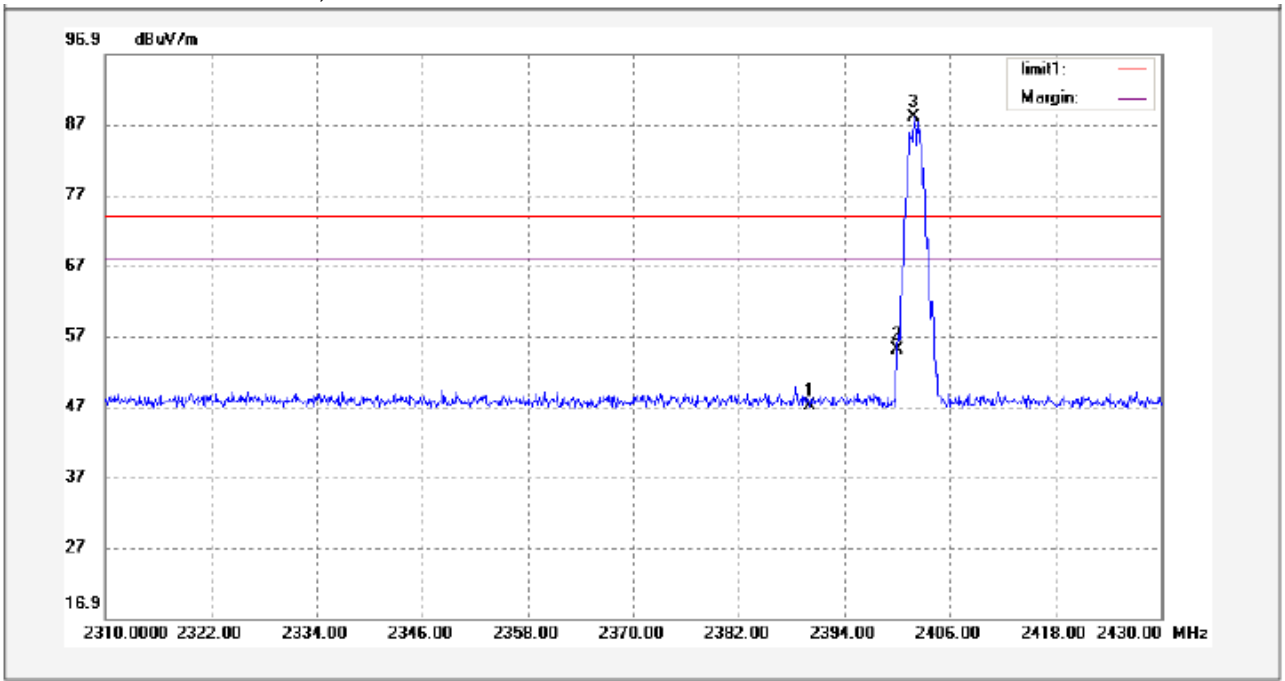
VBW = 10Hz; Sweep = auto

Detector function = AVG

Trace = max hold

10.2 Test Result:

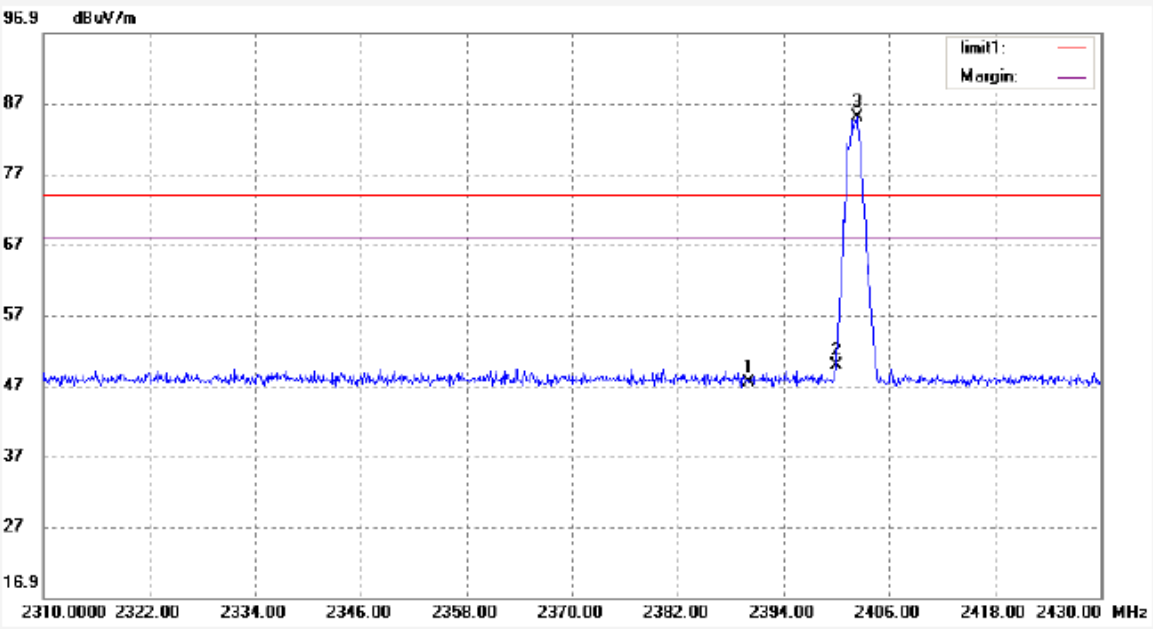
Lower Channel – Peak, Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2390.000	44.53	2.53	47.06	74.00	-26.94	peak	
2	2400.000	52.47	2.52	54.99	74.00	-19.01	peak	
3	2401.920	85.53	2.52	88.05	74.00	14.05	peak	

No.	Freq. (MHz)	Duty Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2390.000	-9	38.06	54.00	-15.94	AV	
2	2400.000	-9	45.99	54.00	-8.01	AV	
3	2401.920	-9	79.05	54.00	25.05	AV	

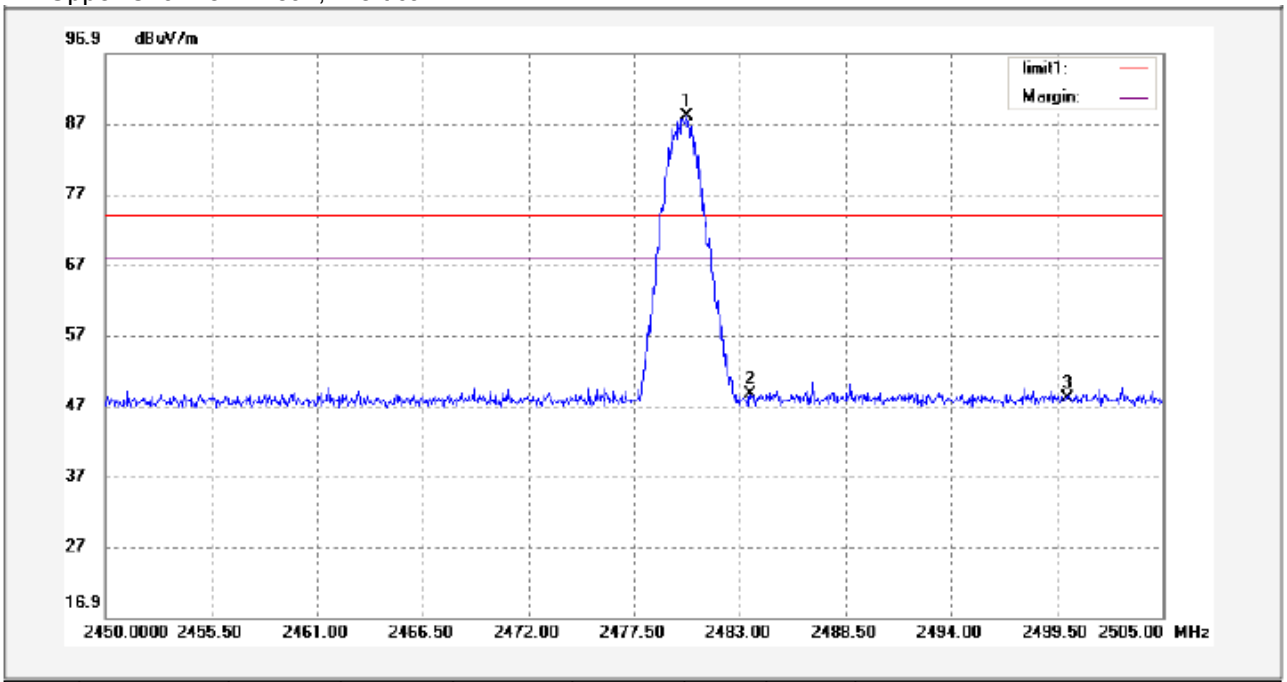
Lower Channel – Peak, Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2390.000	44.94	2.53	47.47	74.00	-26.53	peak	
2	2400.000	47.36	2.52	49.88	74.00	-24.12	peak	
3	2402.400	82.41	2.51	84.92	74.00	10.92	peak	

No.	Freq. (MHz)	Duty Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2390.000	-9	38.47	54.00	-15.53	AV	
2	2400.000	-9	40.88	54.00	-13.12	AV	
3	2402.400	-9	75.92	54.00	21.92	AV	

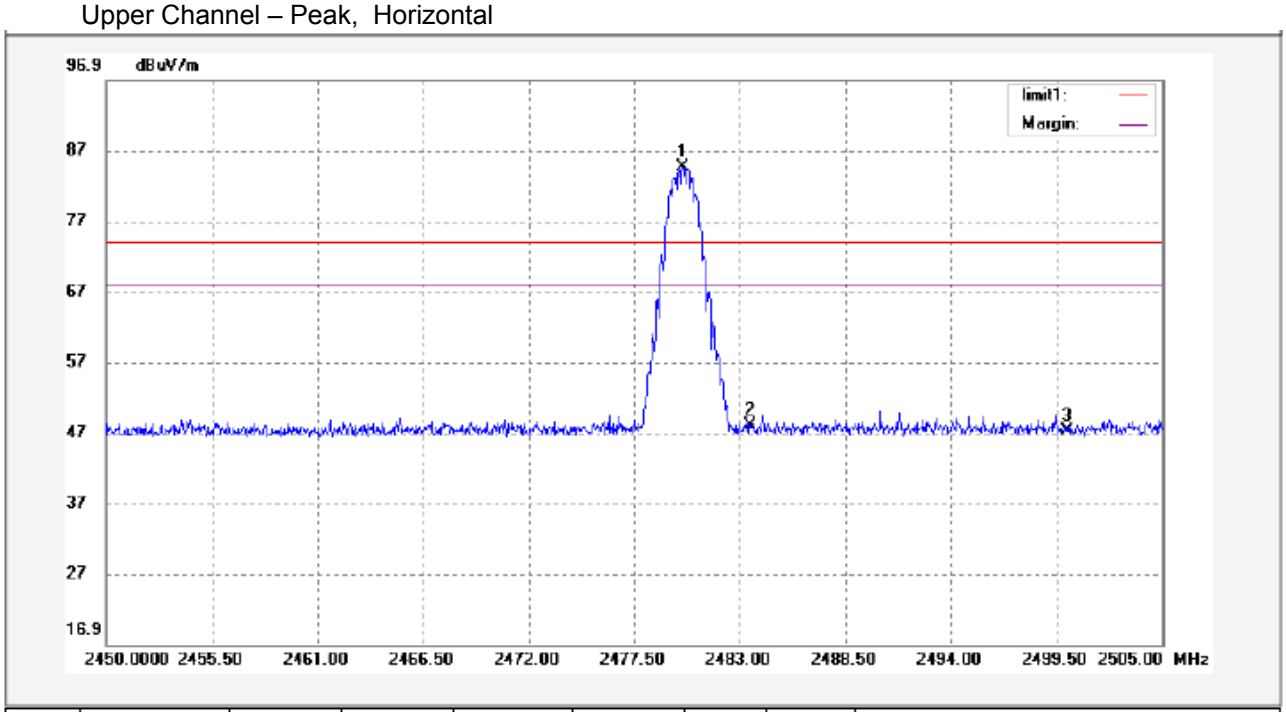
Upper Channel – Peak, Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2480.250	85.34	2.58	87.92	74.00	13.92	peak	
2	2483.500	45.93	2.60	48.53	74.00	-25.47	peak	
3	2500.000	45.41	2.65	48.06	74.00	-25.94	peak	

No.	Freq. (MHz)	Duty Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2480.250	-9	78.92	54.00	24.92	AV	
2	2483.500	-9	39.53	54.00	-14.47	AV	
3	2500.00	-9	39.06	54.00	-14.94	AV	

Upper Channel – Peak, Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2480.030	81.95	2.58	84.53	74.00	10.53	peak	
2	2483.500	45.33	2.60	47.93	74.00	-26.07	peak	
3	2500.000	44.57	2.65	47.22	74.00	-26.78	peak	

No.	Freq. (MHz)	Duty Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2478.050	-9	75.53	54.00	21.53	AV	
2	2483.500	-9	38.93	54.00	-15.07	AV	
3	2500.000	-9	38.22	54.00	-15.78	AV	

11 20 dB Bandwidth Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: DA 00-705

Test Mode: Test in fixing operating frequency at low, Middle, high channel.

11.1 Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;

2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

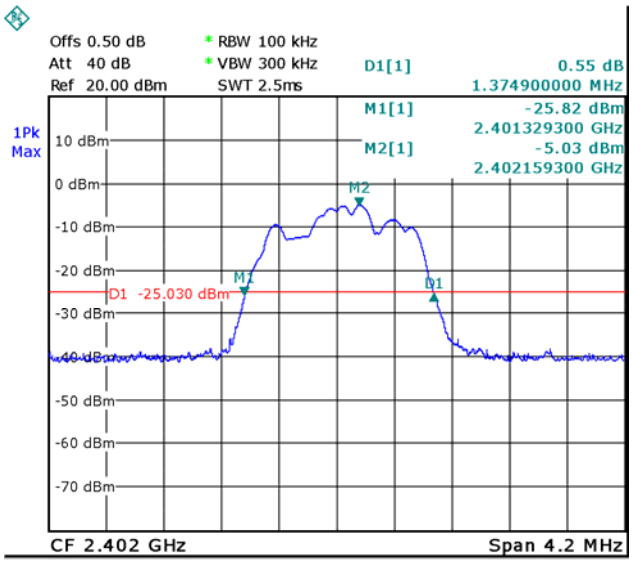
11.2 Test Result:

Modulation	Test Channel	Bandwidth(MHz)
GFSK	Lower	1.3749
	Middle	1.3665
	Upper	1.3749
Pi/4DQPSK	Lower	1.4461
	Middle	1.4551
	Upper	1.4551
8DPSK	Lower	1.4451
	Middle	1.4501
	Upper	1.4641

Test result plot as follows:

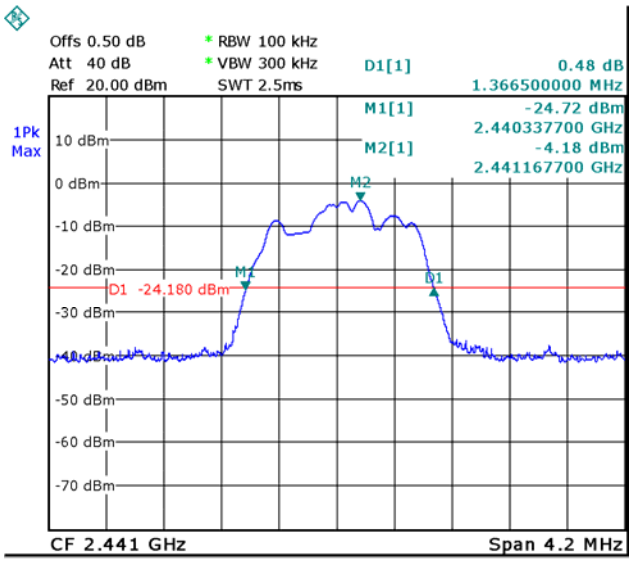
Modulation:GFSK

Lower Channel



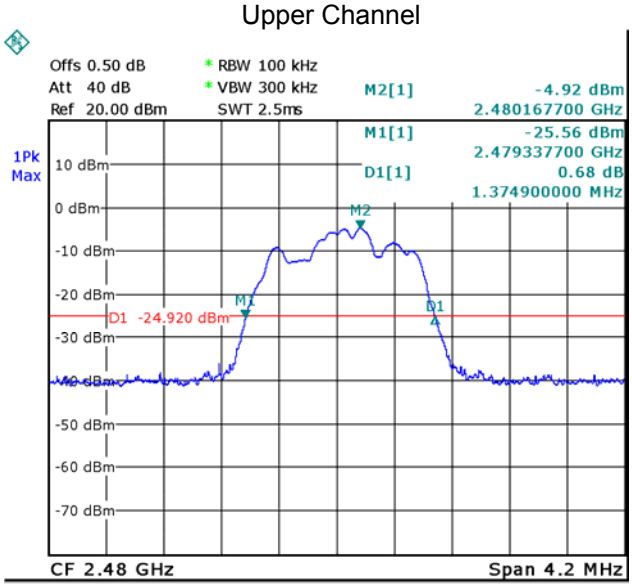
Date: 31.JAN.2013 12:53:30

Middle Channel



Date: 31.JAN.2013 12:51:17

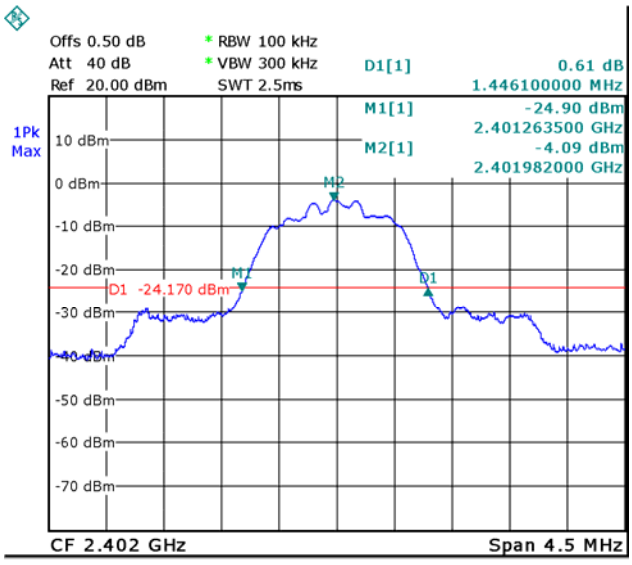
Upper Channel



Date: 31.JAN.2013 12:49:10

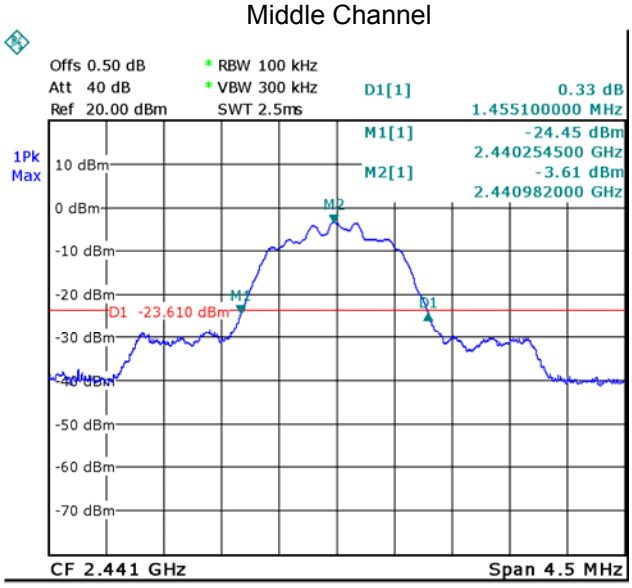
Modulation: Pi/4DQPSK

Lower Channel



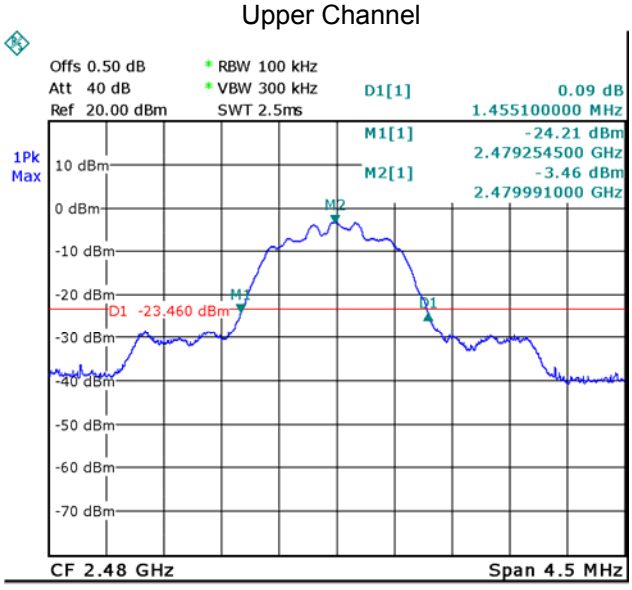
Date: 1.FEB.2013 13:53:25

Middle Channel



Date: 1.FEB.2013 13:52:04

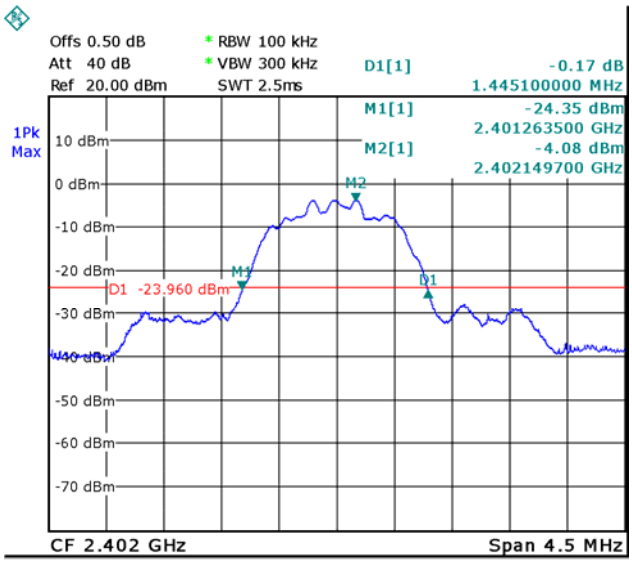
Upper Channel



Date: 1.FEB.2013 13:50:25

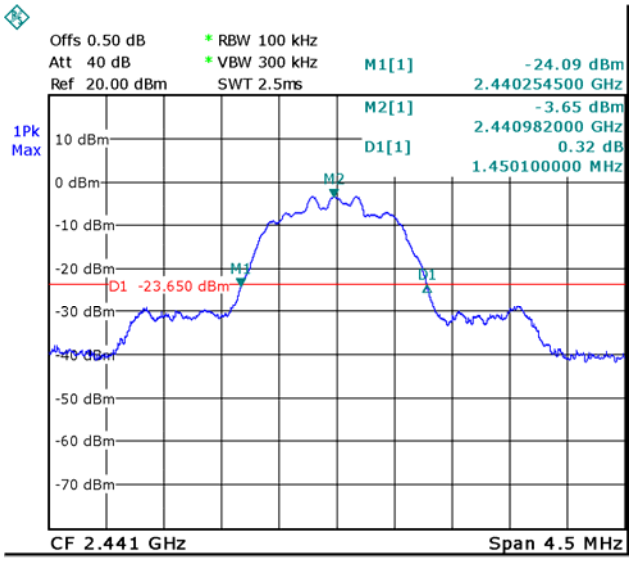
Modulation: 8DPSK

Lower Channel



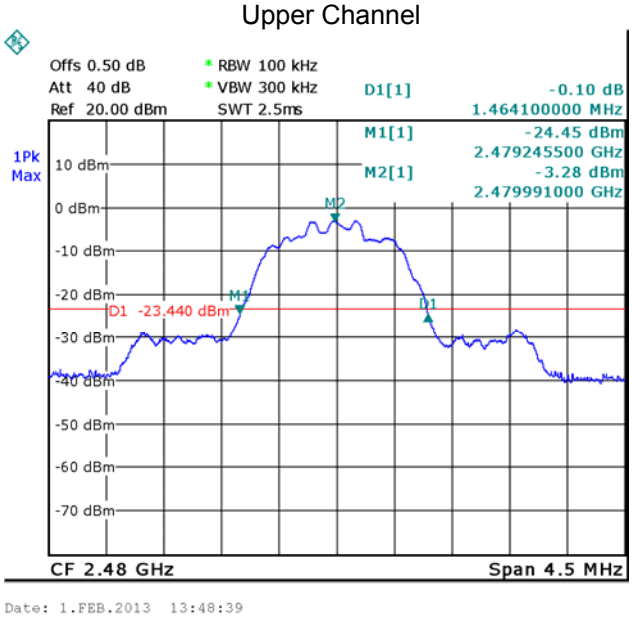
Date: 1.FEB.2013 13:43:57

Middle Channel



Date: 1.FEB.2013 13:46:53

Upper Channel



12 Maximum Peak Output Power

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: DA 00-705

Test Limit: Regulation 15.247 (b)(1), 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.

Refer to the result "Number of Hopping Frequency" of this document. The 1watts (30 dBm) limit applies.

Test mode: Test in fixing frequency transmitting mode.

12.1 Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set the spectrum analyzer: RBW = 1 MHz. VBW = 3 MHz. Sweep = auto; Detector Function = Peak.

3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

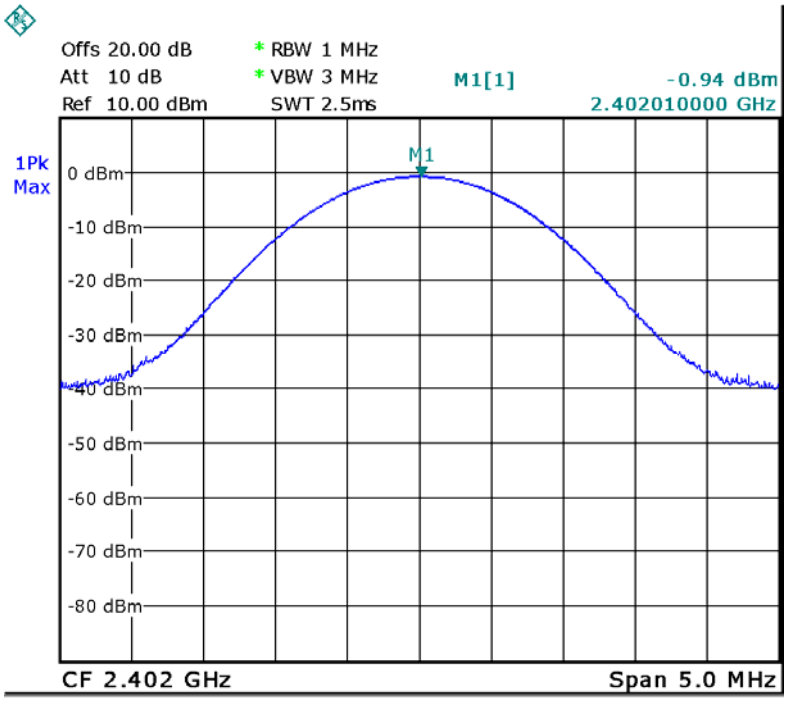
12.2 Test Result:

Modulation	Test Channel	Output Power (dBm)	Limit (dBm)
GFSK	Lower	-0.94	30
	Middle	1.23	30
	Upper	4.08	30
Pi/4DQPSK	Lower	-1.61	30
	Middle	1.23	30
	Upper	4.08	30
8DPSK	Lower	-1.35	30
	Middle	1.52	30
	Upper	4.19	30

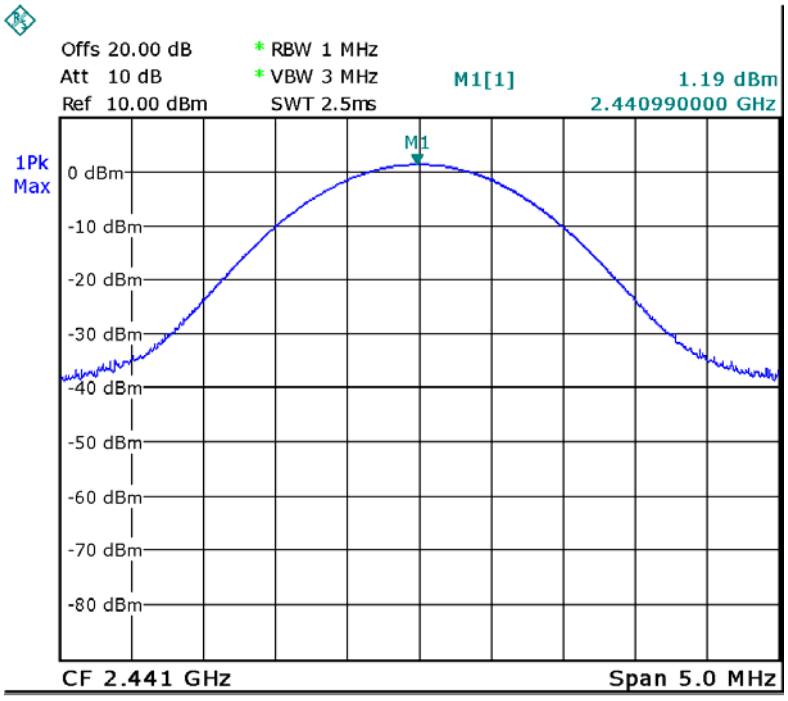
Test result plot as follows:

Modulation:GFSK

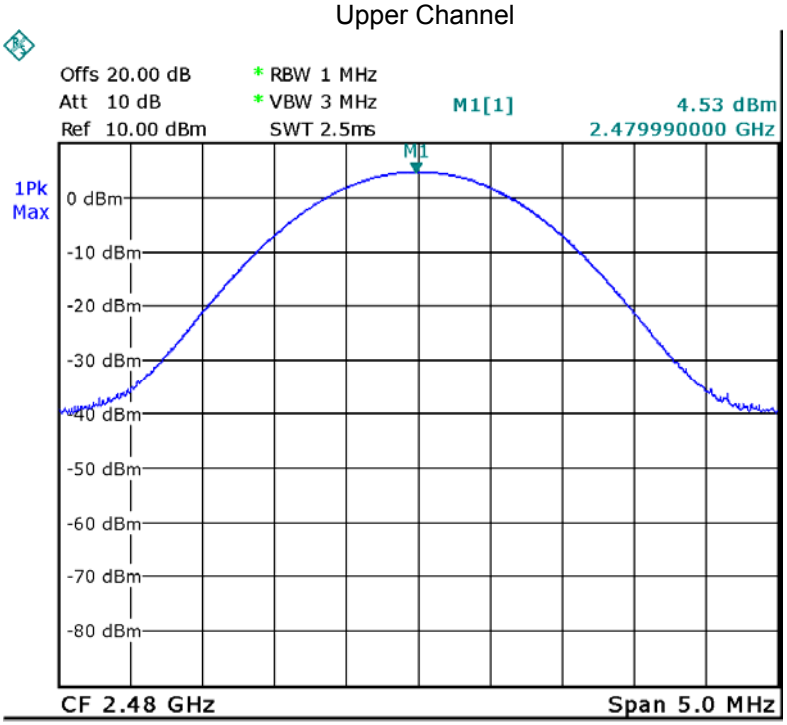
Lower Channel



Middle Channel

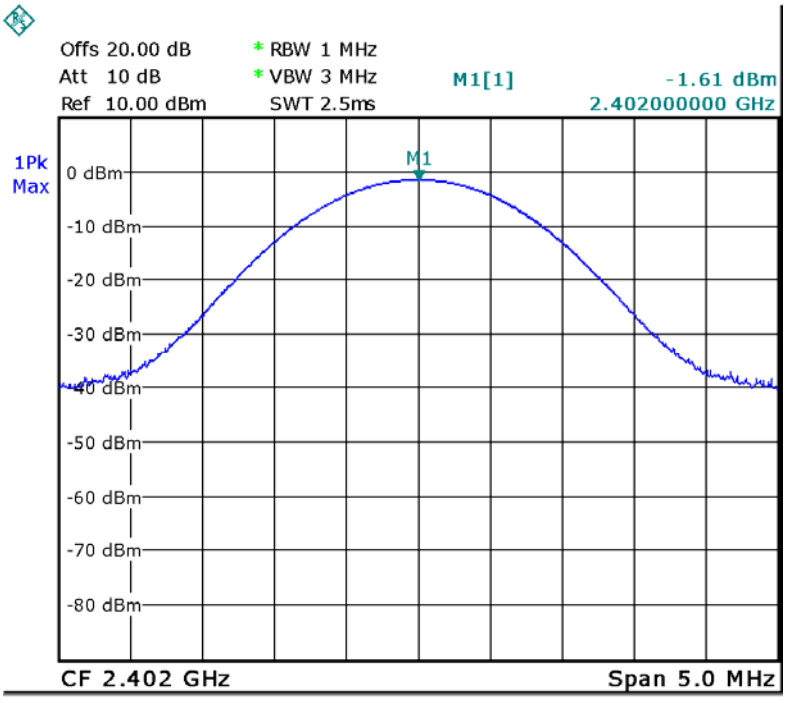


Upper Channel

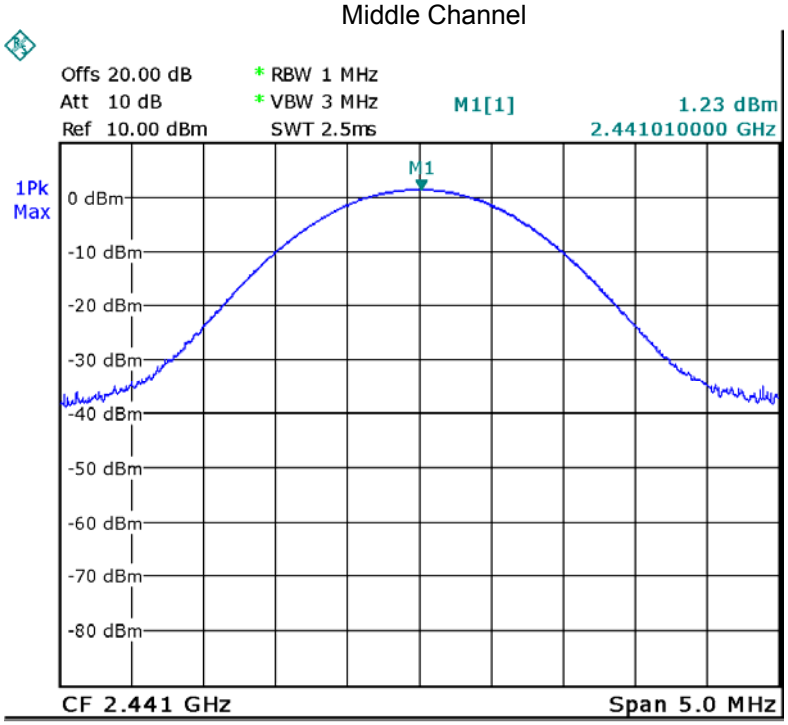


Modulation: Pi/4DQPSK

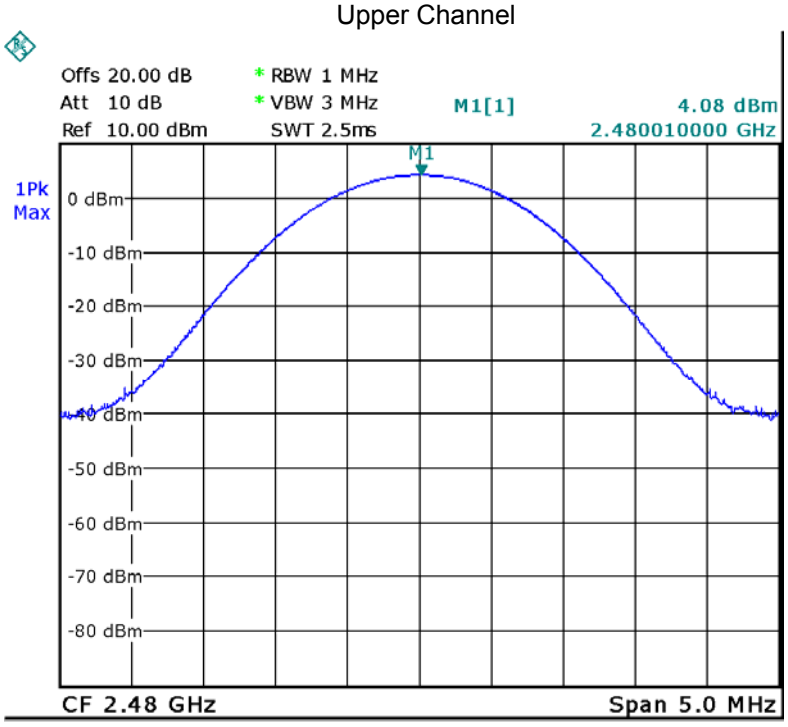
Lower Channel



Middle Channel

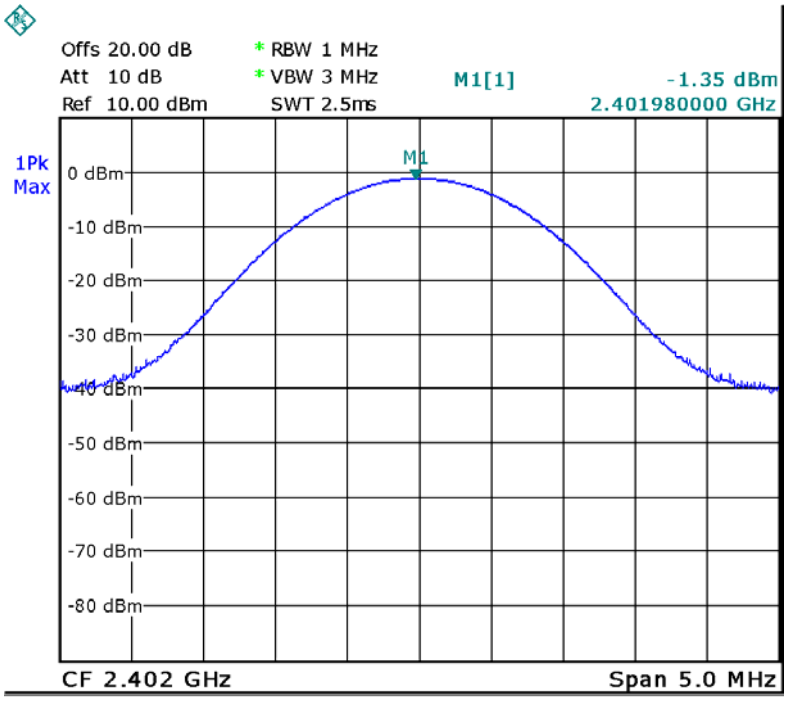


Upper Channel

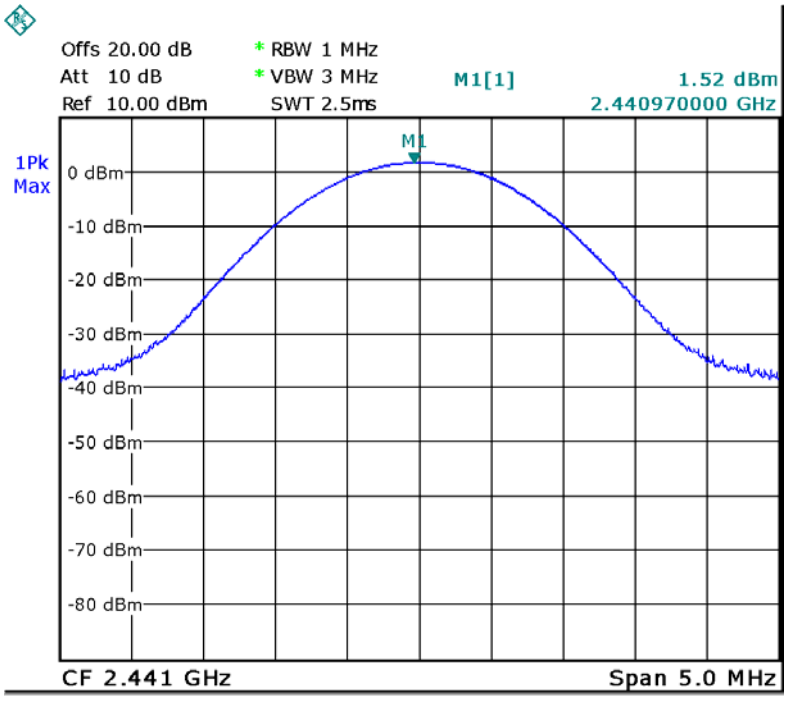


Modulation: 8DPSK

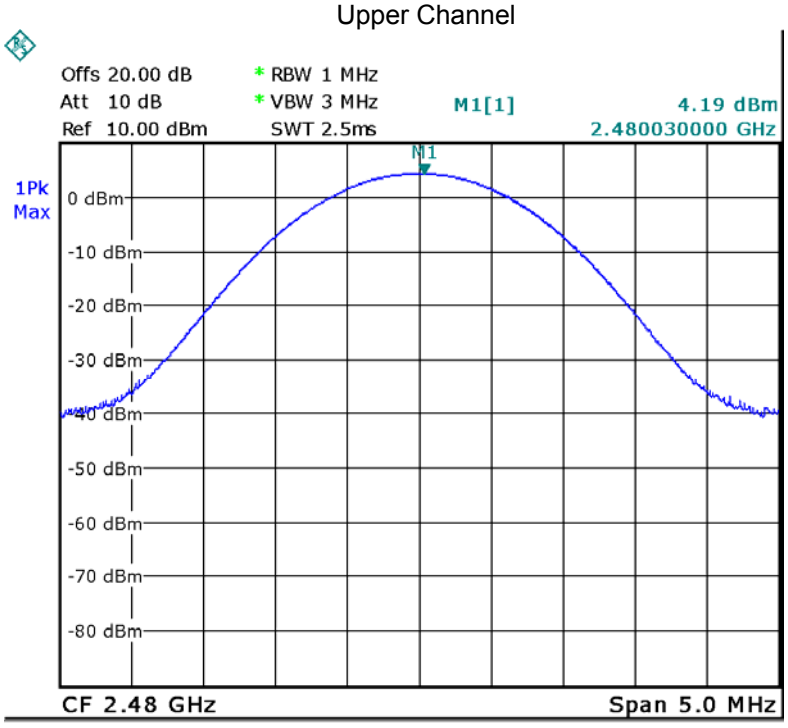
Lower Channel



Middle Channel



Upper Channel



13 Hopping Channel Separation

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: DA 00-705

Test Limit: Regulation 15.247(a)(1) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB 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 1W.

Test Mode: Test in hopping transmitting operating mode.

13.1 Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set the spectrum analyzer: RBW = 100KHz. VBW = 300KHz , Span = 5MHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.

3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

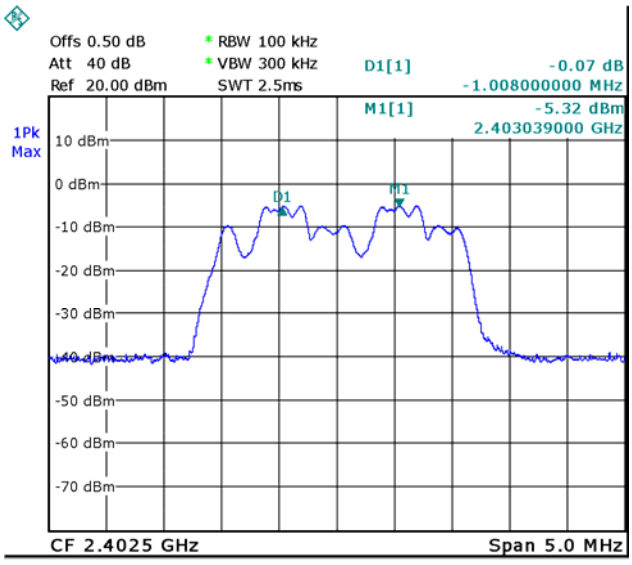
13.2 Test Result:

Modulation	Test Channel	Separation (MHz)
GFSK	Lower	1.008
	Middle	1.008
	Upper	1.008
Pi/4DQPSK	Lower	1.008
	Middle	1.018
	Upper	1.005
8DPSK	Lower	1.008
	Middle	1.008
	Upper	1.008

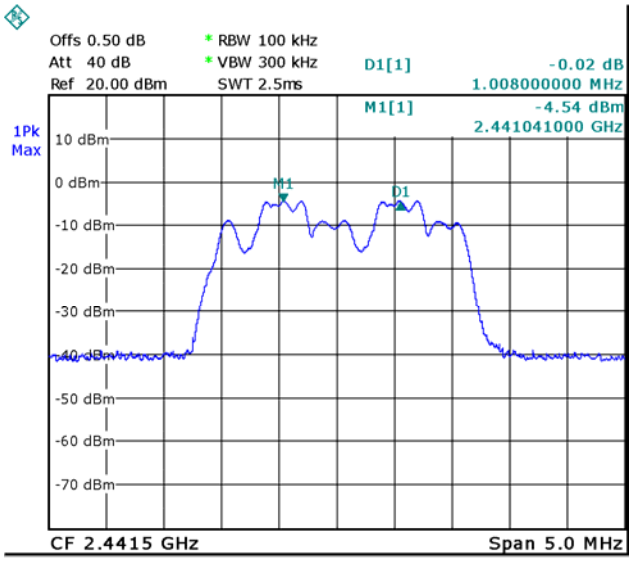
Test result plot as follows:

Modulation:GFSK

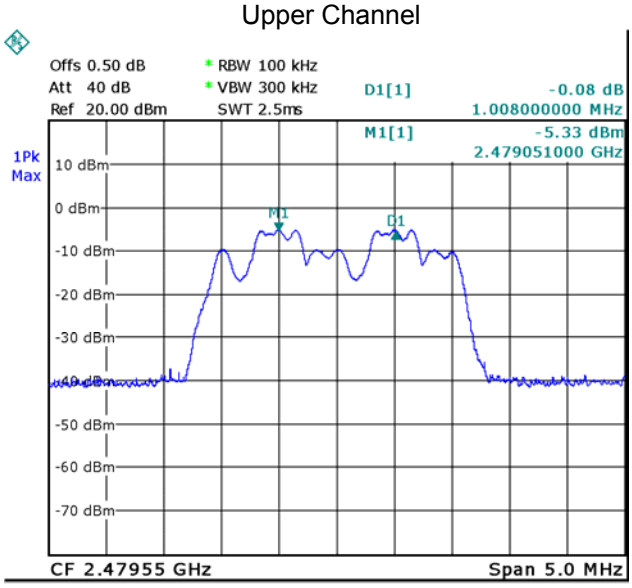
Lower Channel



Middle Channel

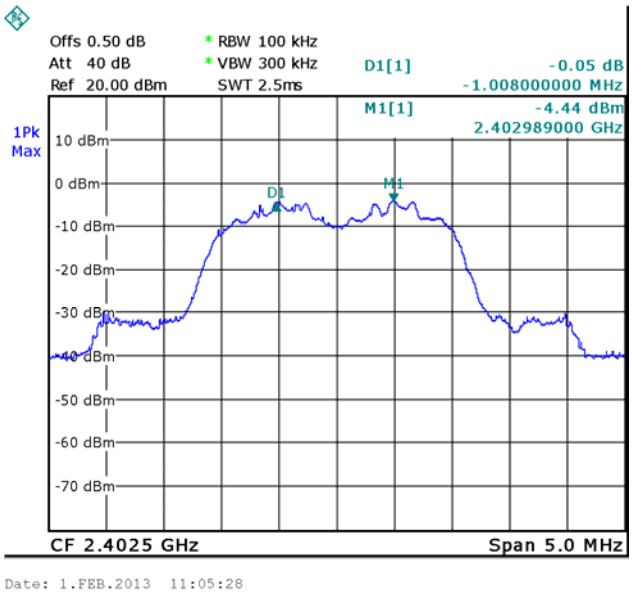


Upper Channel

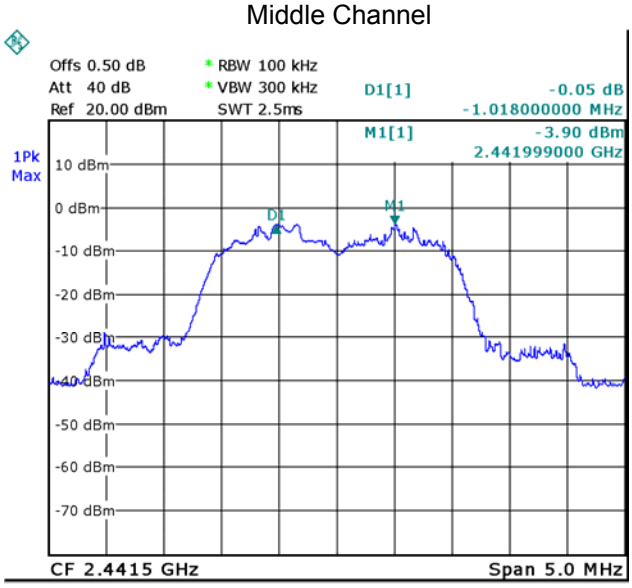


Modulation: Pi/4DQPSK

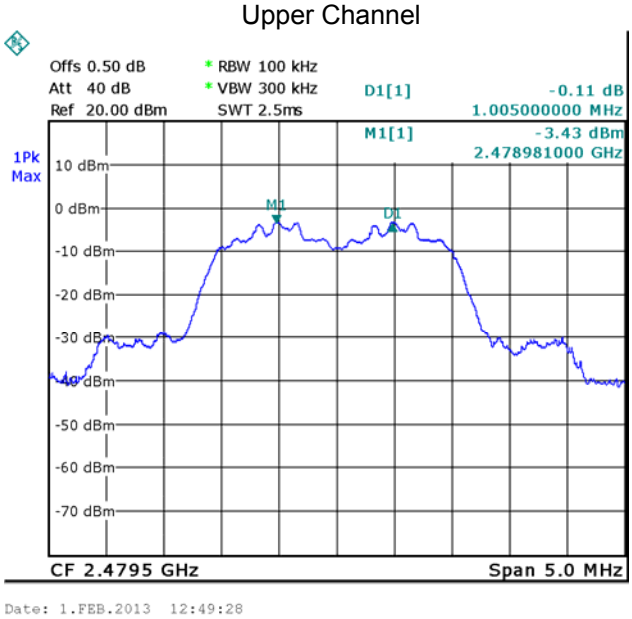
Lower Channel



Middle Channel

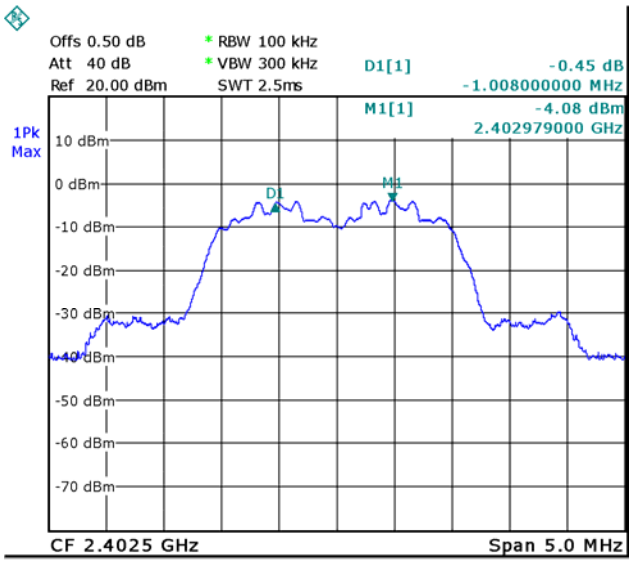


Upper Channel



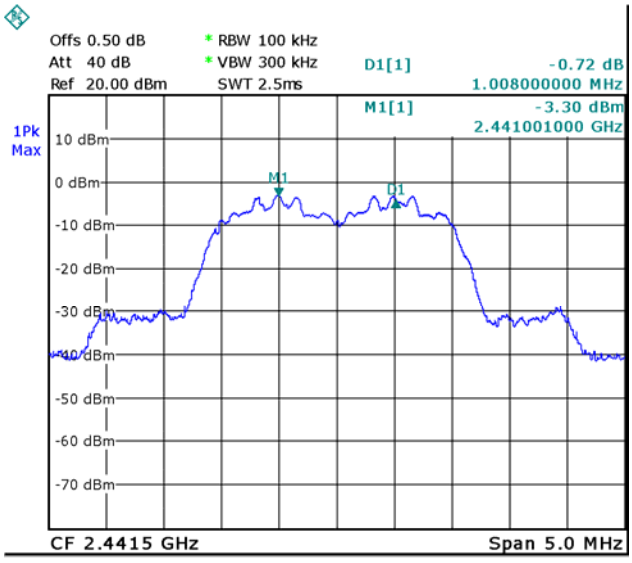
Modulation: 8DPSK

Lower Channel



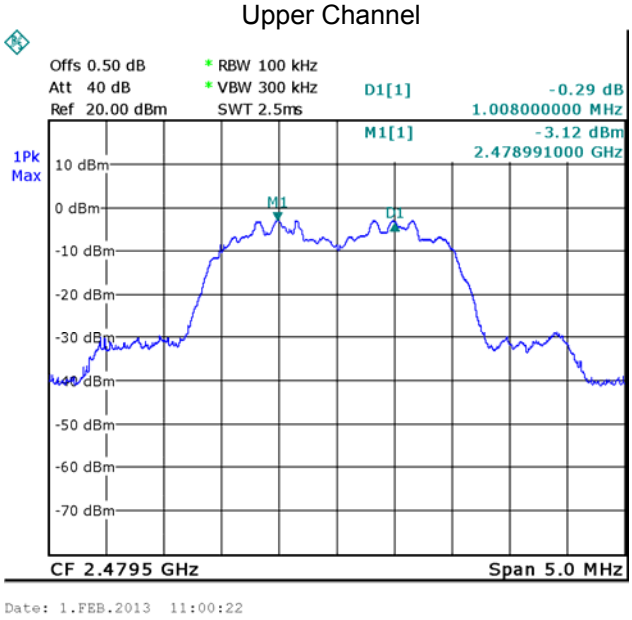
Date: 1.FEB.2013 10:57:05

Middle Channel



Date: 1.FEB.2013 10:58:34

Upper Channel



14 Number of Hopping Frequency

Test Requirement:	FCC CFR47 Part 15 Section 15.247
Test Method:	DA 00-705
Test Limit:	Regulation 15.247 (a)(1)(iii) Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.
Test Mode:	Test in hopping transmitting operating mode.

14.1 Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set the spectrum analyzer: RBW = 1MHz. VBW = 3MHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.

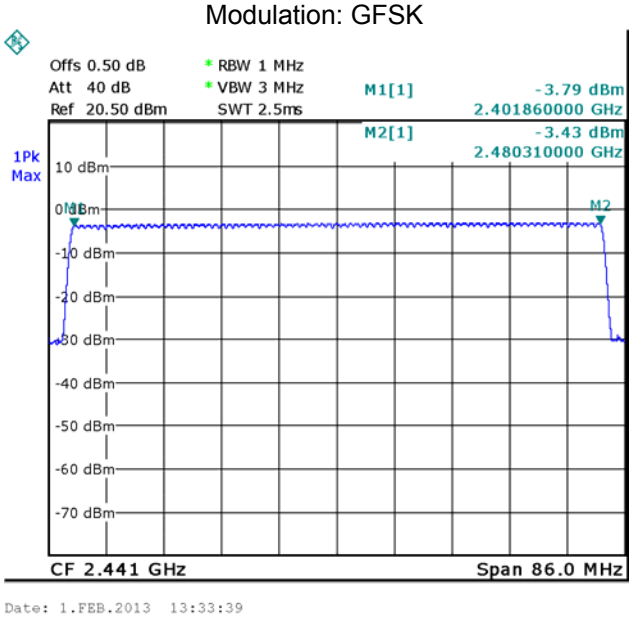
3. Allow the trace to stabilize. It may prove necessary to break the span up to sections. in order to clearly show all of the hopping frequencies. The limit is specified in one of the subparagraphs of this Section.

4. Set the spectrum analyzer: Centre Frequency = 2.441GHz, Span = 86MHz. Sweep=auto;

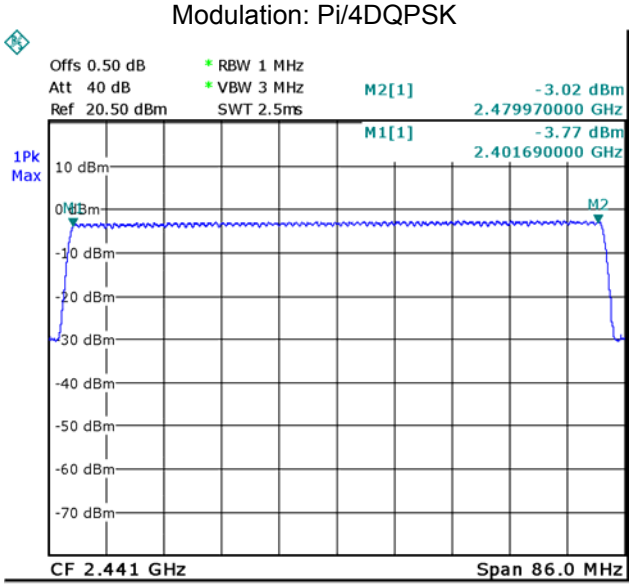
14.2 Test Result:

Total Channels are 79 Channels.

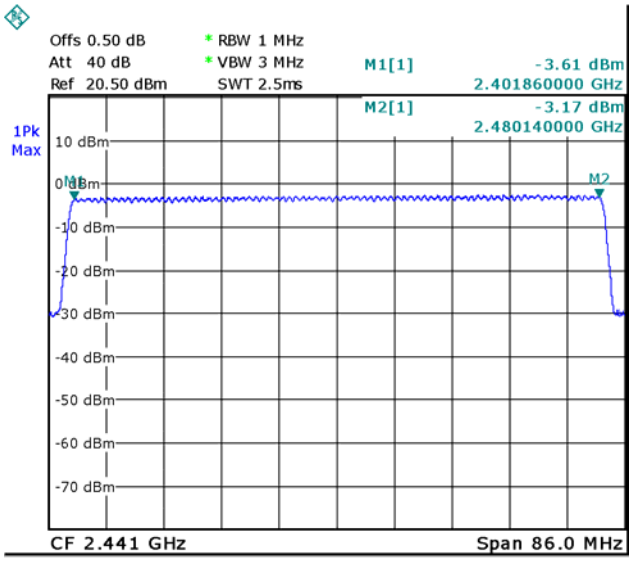
Modulation: GFSK



Modulation: Pi/4DQPSK



Modulation: 8DPSK



15 Dwell Time

Test Requirement:	FCC CFR47 Part 15 Section 15.247
Test Method:	DA 00-705
Test Limit:	Regulation 15.247(a)(1)(iii) Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. 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. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.
Test Mode:	Test in hopping transmitting operating mode.

15.1 Test Procedure:

1.Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2.Set spectrum analyzer span = 0. centered on a hopping channel;

3.Set RBW = 1MHz and VBW = 3MHz.Sweep = as necessary to capture the entire dwell time per hopping channel.

4.Use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g.. data rate. modulation format. etc.). repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

15.2 Test Result:

Dwell time = Pulse wide x (Hopping rate / Number of channels) x Period
The test period: T= 0.4(s) * 79 = 31.6 (s)
DH5 Packet permit maximum 1600 / 79 / 6 hops per second in each channel (5 time slots RX, 1 time slot TX).
DH3 Packet permit maximum 1600 / 79 / 4 hops per second in each channel (3 time slots RX, 1 time slot TX).

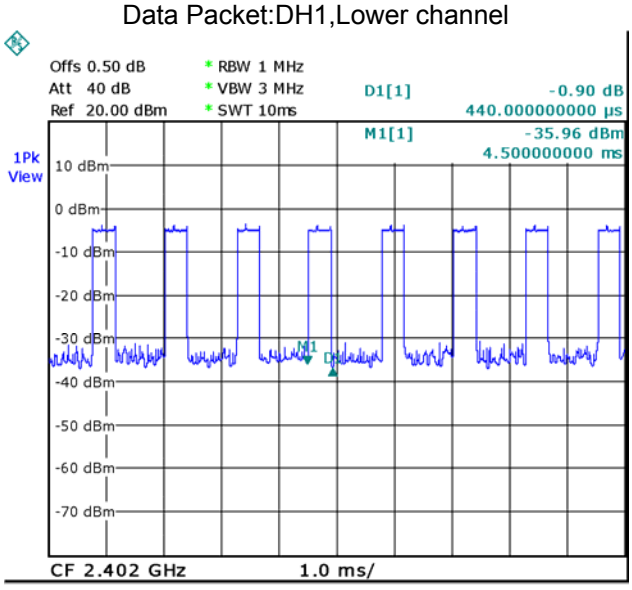
DH1 Packet permit maximum 1600 / 79 / 2 hops per second in each channel (1 time slot RX, 1 time slot TX). So, the Dwell Time can be calculated as follows:

Data Packet	Dwell Time(s)
DH5	1600/79/6*31.6*(MkrDelta)/1000
DH3	1600/79/4*31.6*(MkrDelta)/1000
DH1	1600/79/2*31.6*(MkrDelta)/1000
Remark	Mkr Delta is single pulse time.

Modulation	Frequency	Data Packet	Mkr Delta(ms)	Dwell Time(s)	Limits(s)
GFSK	Lower channel	DH1	0.440	0.1408	0.400
	Middle channel		0.420	0.1344	0.400
	Upper channel		0.440	0.1408	0.400
	Lower channel	DH3	1.680	0.2688	0.400
	Middle channel		1.680	0.2688	0.400
	Upper channel		1.700	0.2720	0.400
	Lower channel	DH5	2.940	0.3136	0.400
	Middle channel		2.980	0.3179	0.400
	Upper channel		2.940	0.3136	0.400
Pi/4DQPSK	Lower channel	DH1	0.480	0.1536	0.400
	Middle channel		0.520	0.1664	0.400
	Upper channel		0.480	0.1536	0.400
	Lower channel	DH3	1.720	0.2752	0.400
	Middle channel		1.740	0.2784	0.400
	Upper channel		1.740	0.2784	0.400
	Lower channel	DH5	2.960	0.3157	0.400
	Middle channel		3.020	0.3221	0.400
	Upper channel		3.000	0.3200	0.400
8DPSK	Lower channel	DH1	0.460	0.1472	0.400
	Middle channel		0.460	0.1472	0.400
	Upper channel		0.440	0.1408	0.400
	Lower channel	DH3	1.820	0.2912	0.400
	Middle channel		1.760	0.2816	0.400
	Upper channel		1.700	0.2720	0.400
	Lower channel	DH5	3.020	0.3221	0.400
	Middle channel		3.020	0.3221	0.400
	Upper channel		2.980	0.3179	0.400

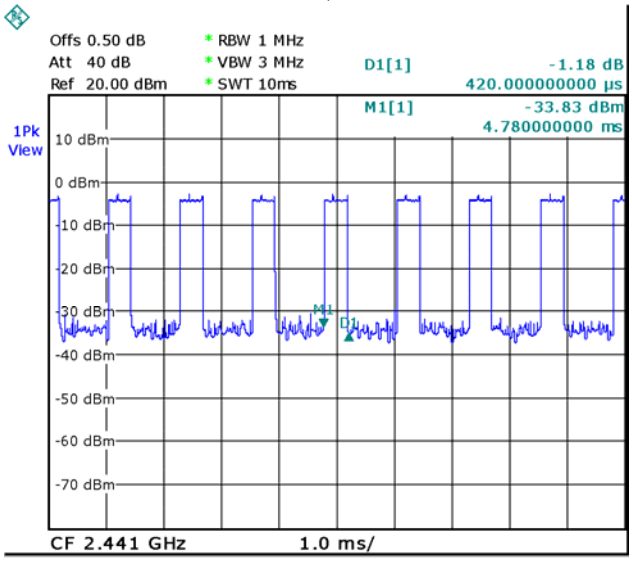
Modulation:GFSK

Data Packet:DH1,Lower channel



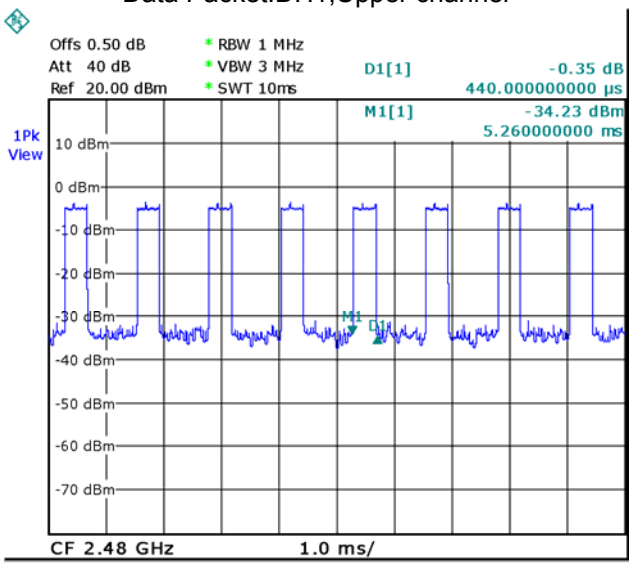
Date: 31.JAN.2013 13:33:36

Data Packet:DH1,Middle channel

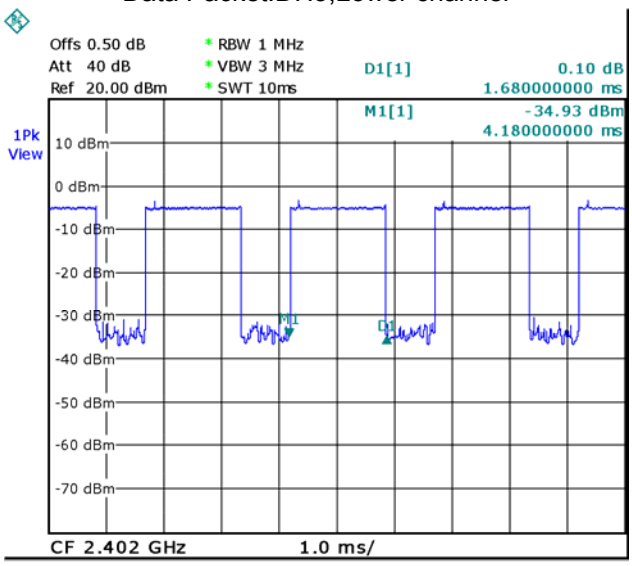


Date: 31.JAN.2013 13:35:08

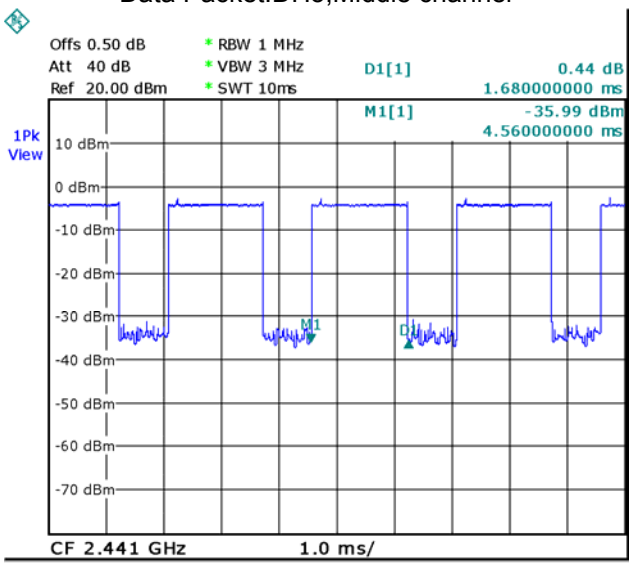
Data Packet:DH1,Upper channel



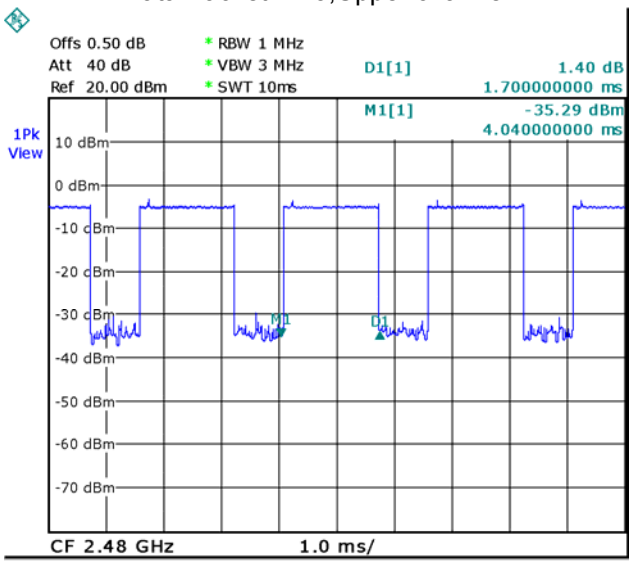
Data Packet:DH3,Lower channel



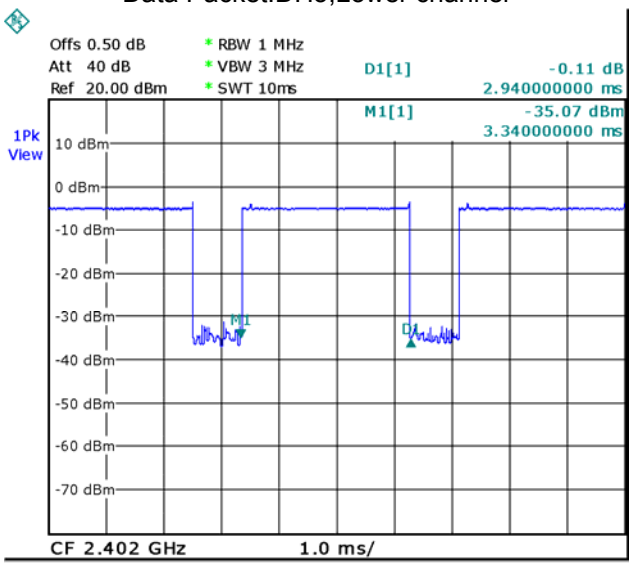
Data Packet:DH3,Middle channel



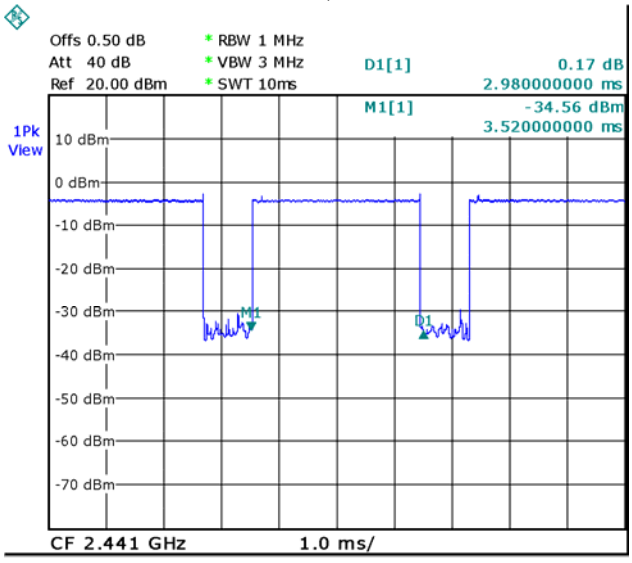
Data Packet:DH3,Upper channel



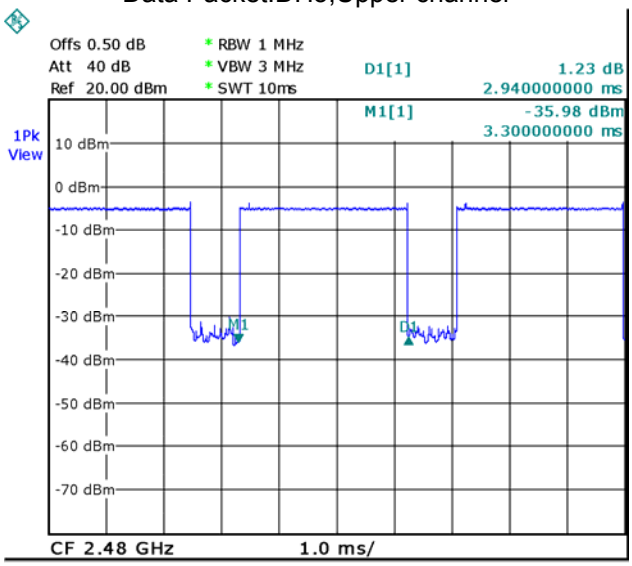
Data Packet:DH5,Lower channel



Data Packet:DH5,Middle channel

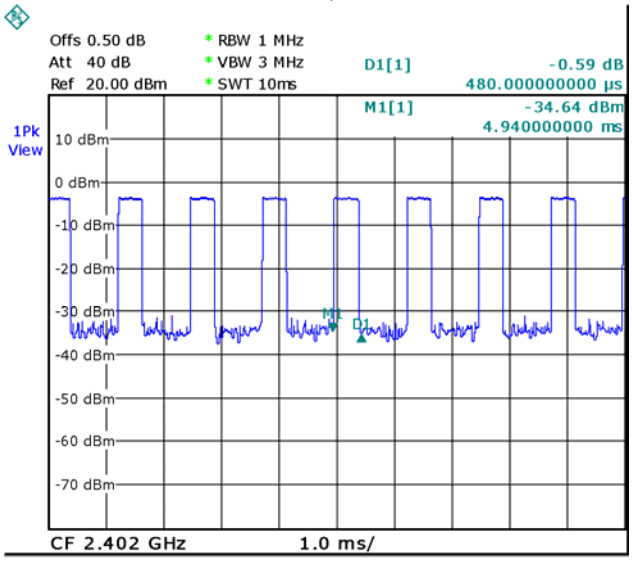


Data Packet:DH5,Upper channel

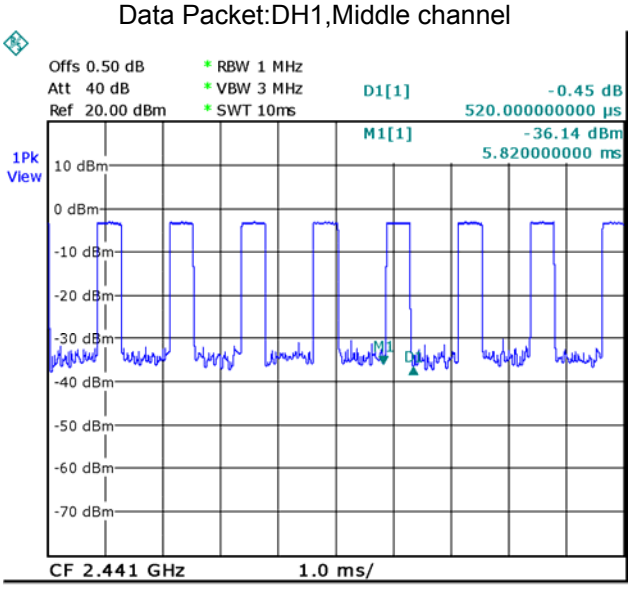


Modulation: Pi/4DQPSK

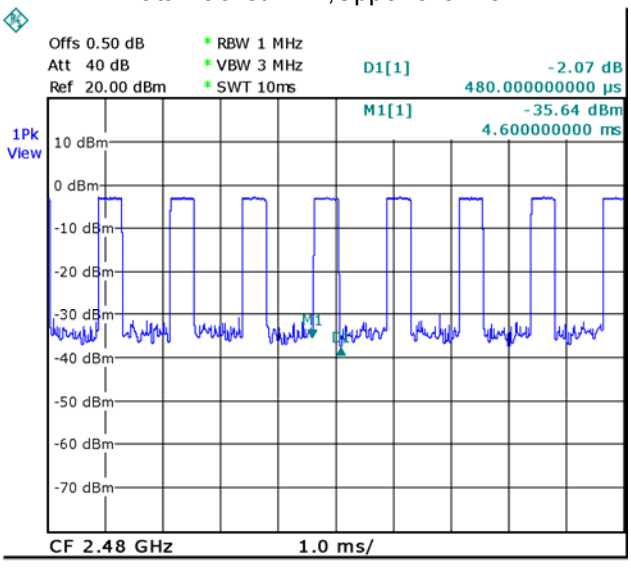
Data Packet:DH1,Lower channel



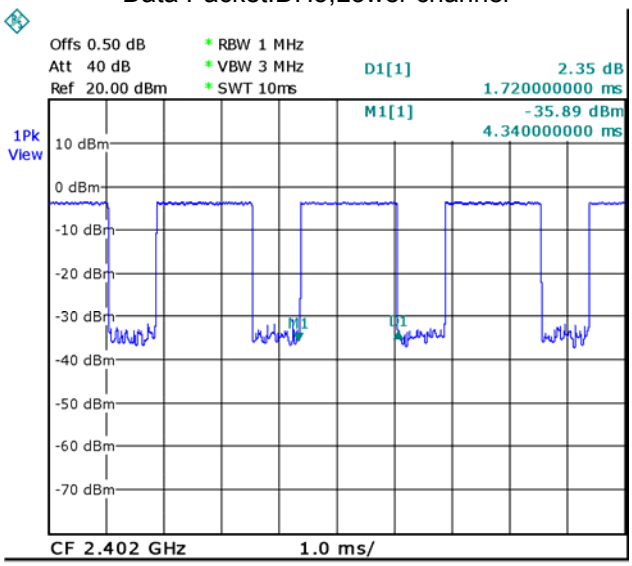
Data Packet:DH1,Middle channel



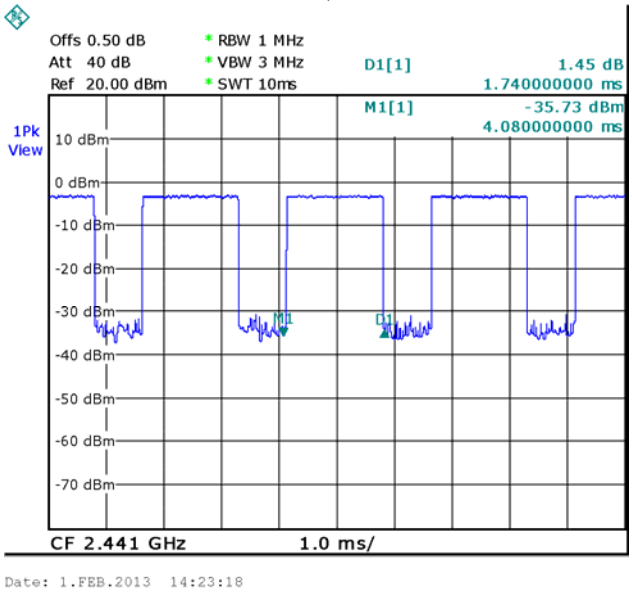
Data Packet:DH1,Upper channel



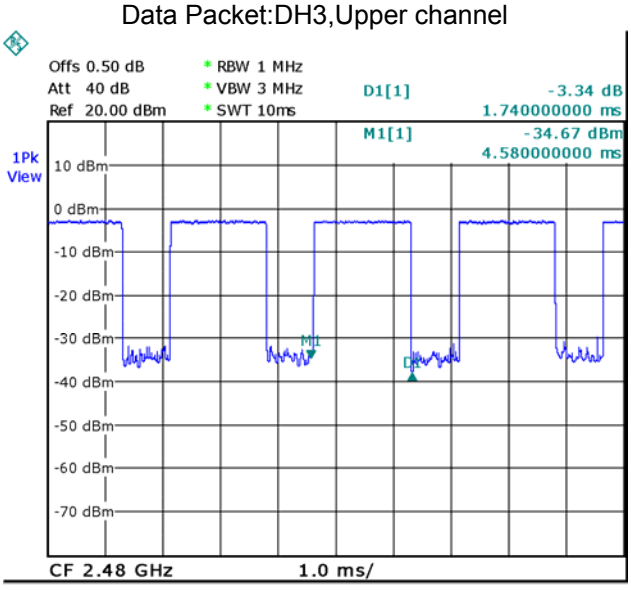
Data Packet:DH3,Lower channel



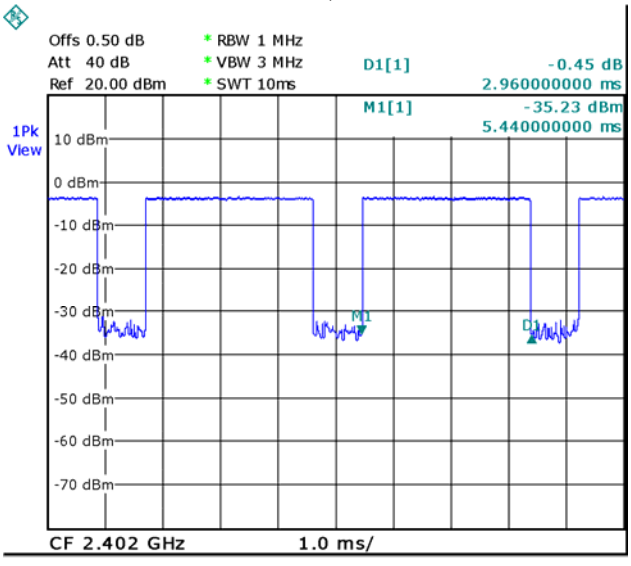
Data Packet:DH3,Middle channel



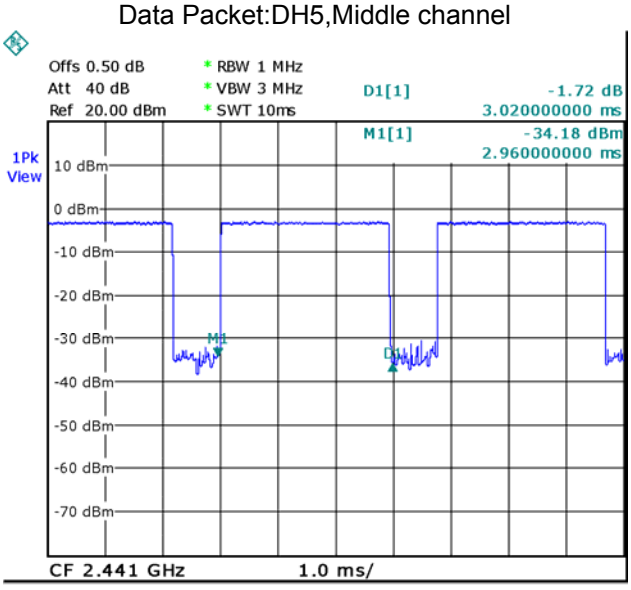
Data Packet:DH3,Upper channel



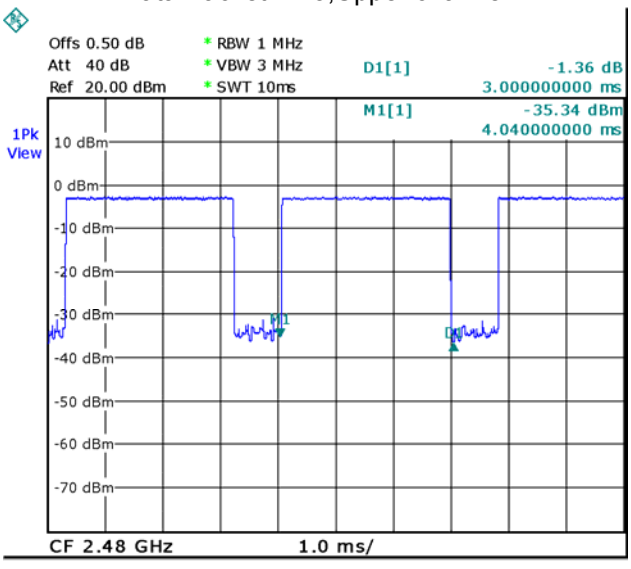
Data Packet:DH5,Lower channel



Data Packet:DH5,Middle channel

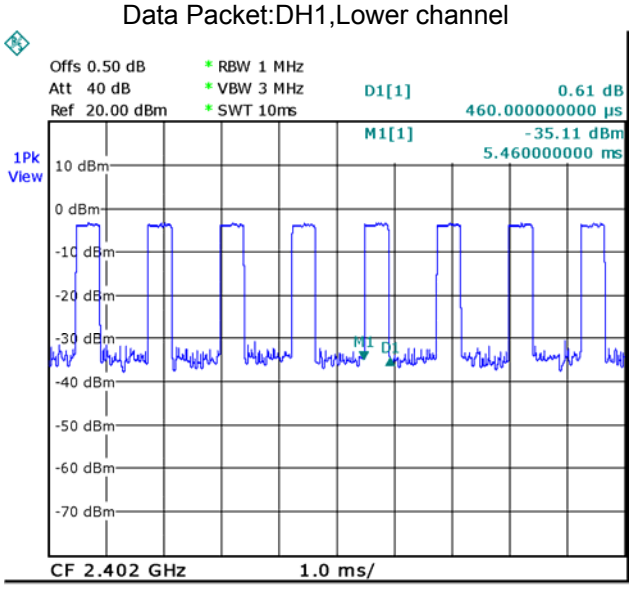


Data Packet:DH5,Upper channel

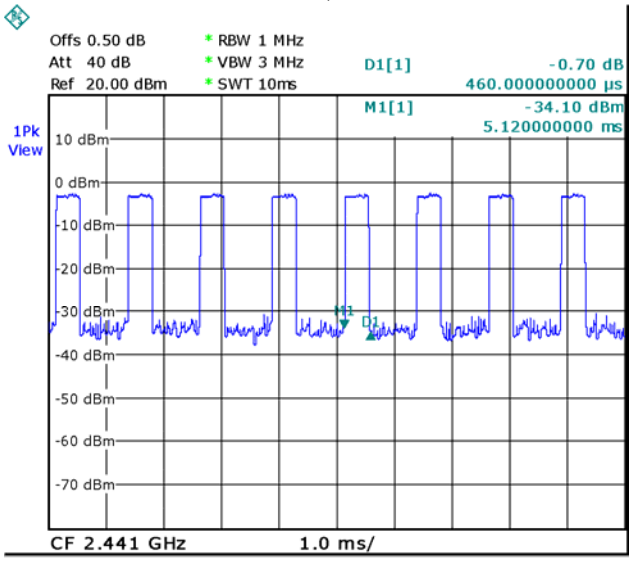


Modulation: 8DPSK

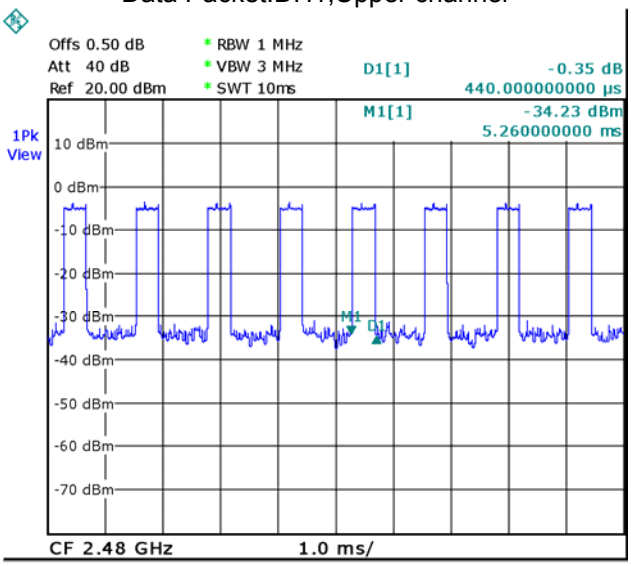
Data Packet:DH1,Lower channel



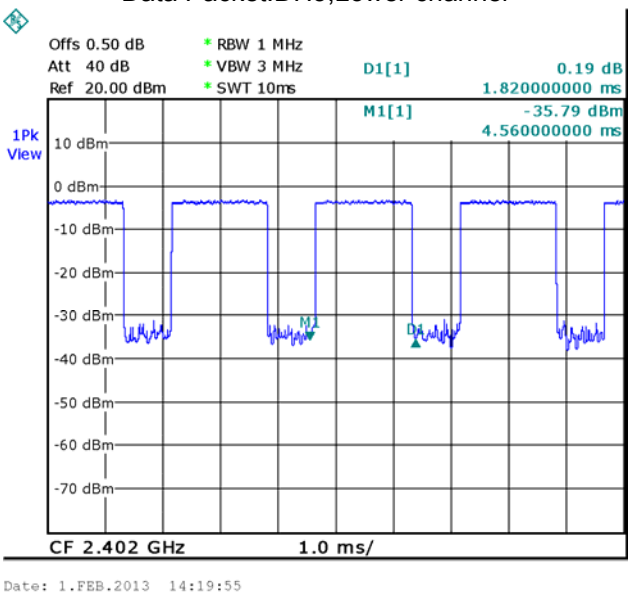
Data Packet:DH1,Middle channel



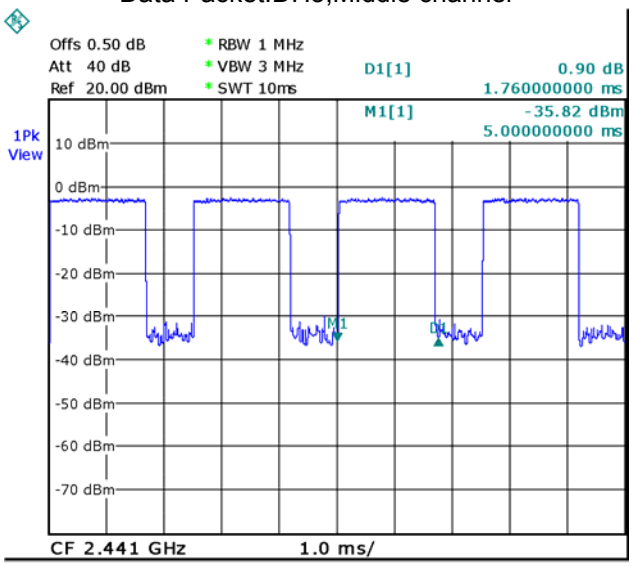
Data Packet:DH1,Upper channel



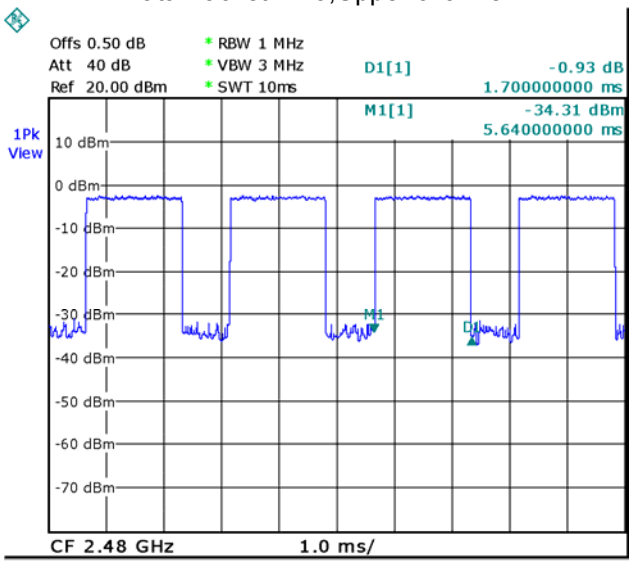
Data Packet:DH3,Lower channel



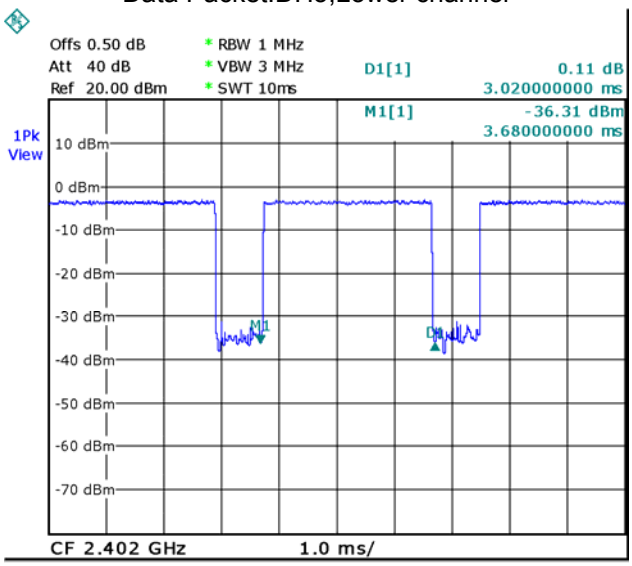
Data Packet:DH3,Middle channel



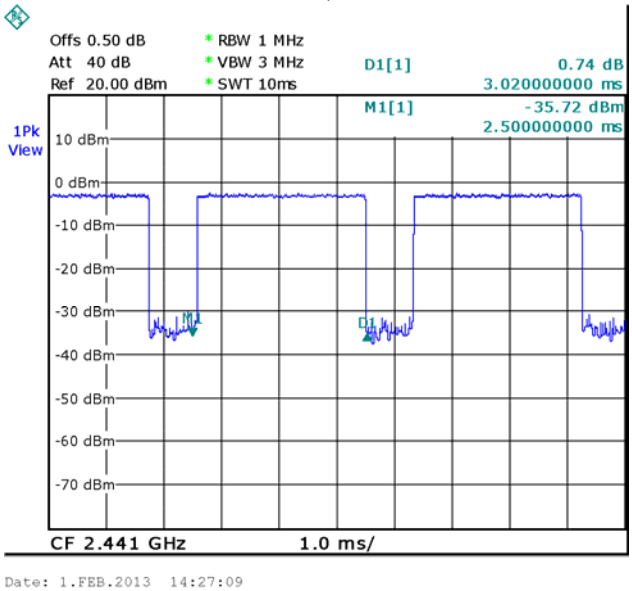
Data Packet:DH3,Upper channel



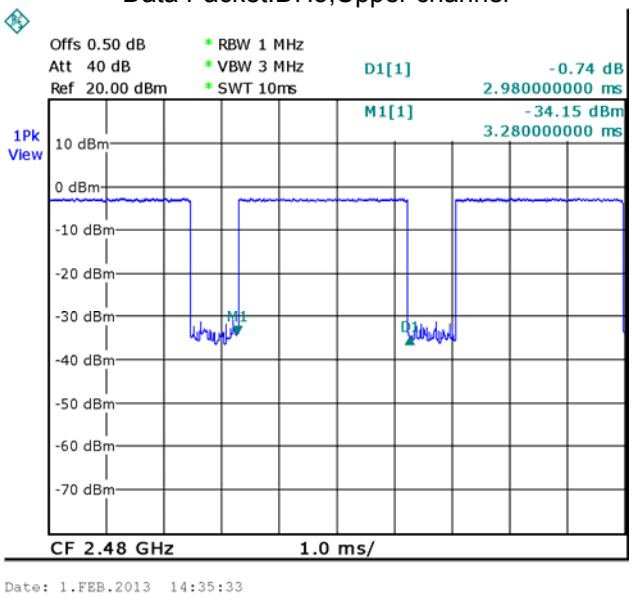
Data Packet:DH5,Lower channel



Data Packet:DH5,Middle channel



Data Packet:DH5,Upper channel



16 Antenna Requirement

According to the FCC Part 15 Paragraph 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. This product has a PCB printed antenna, fulfill the requirement of this section.

17 RF Exposure

Test Requirement: FCC Part 1.1307

Test Mode: The EUT work in test mode(Tx).

17.1 Requiments:

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

17.2 The procedures / limit

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

17.3 MPE Calculation Method

$$\text{E (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd \text{ (W/m²)} = \frac{E^2}{377}$$

E = Electric field (V/m)
P = Peak RF output power (W)
G = EUT Antenna numeric gain (numeric) ,$Gain_{numeric}=10^{(dBi/10)}$
d = Separation distance between radiator and human body (m)
The formula can be changed to

$$\boldsymbol{Pd} = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

Modulation	Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)
GFSK	0	1	4.53	2.8	0.00056	1
Pi/4DQPSK	0	1	4.08	2.6	0.00051	1
8DPSK	0	1	4.19	2.6	0.00051	1

18 Photographs – Test Setup

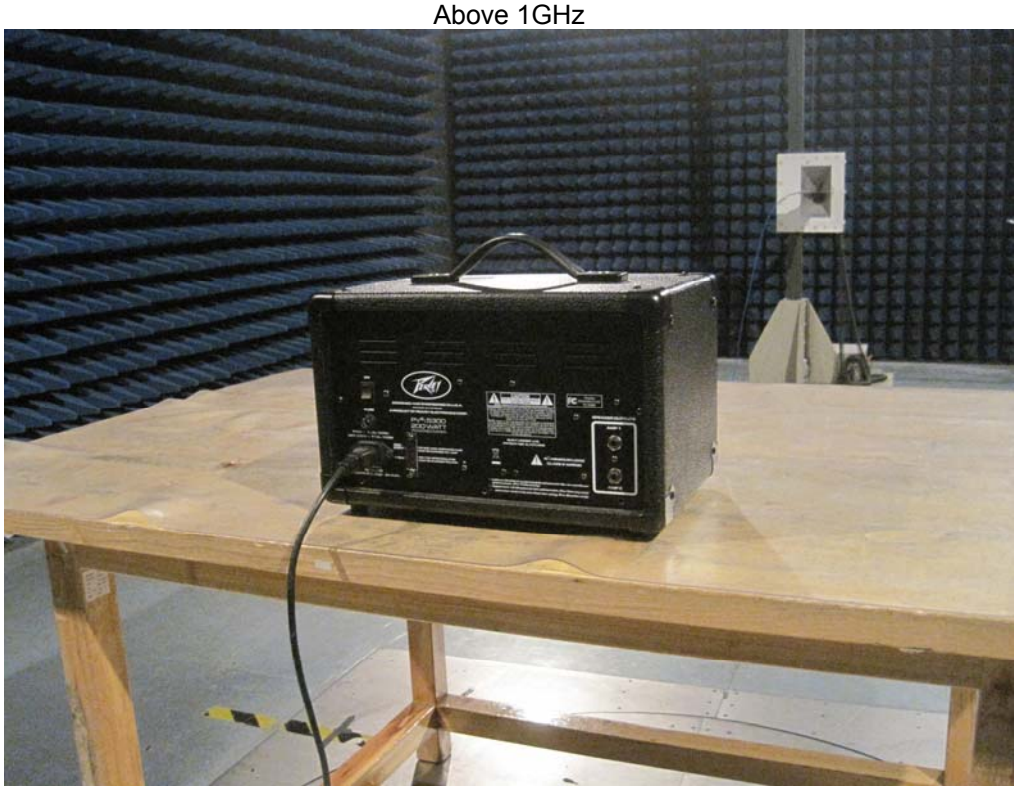
18.1 Conducted Emissions

18.2 Radiated Emissions

Below 30MHz

From 30-1000MHz

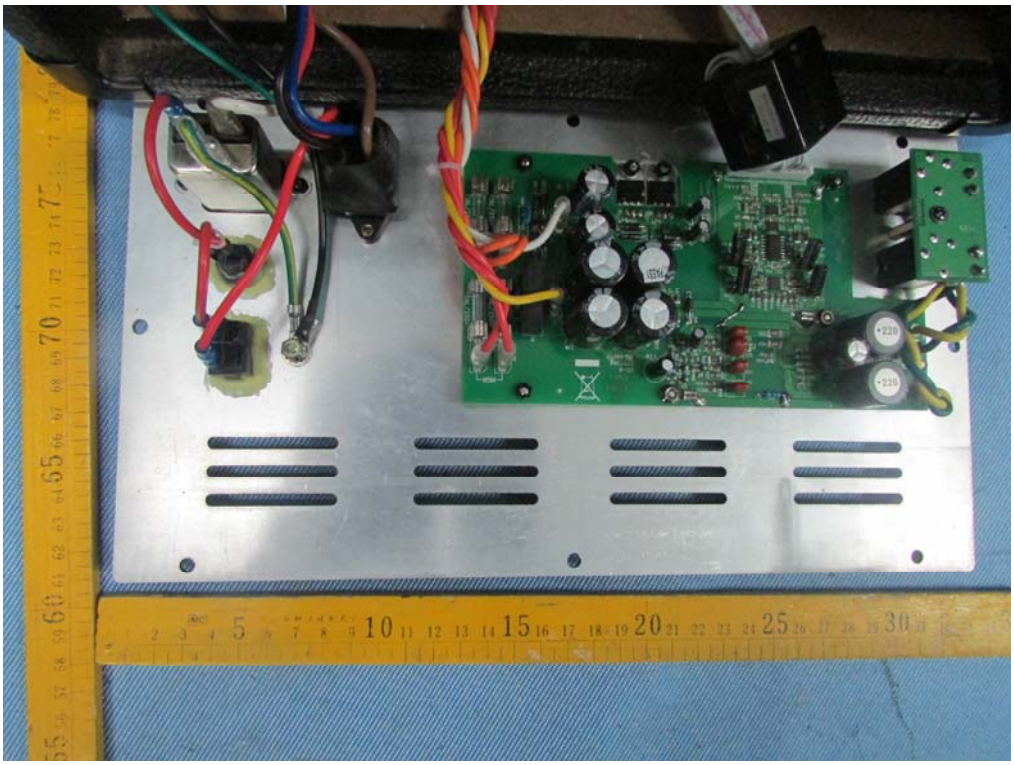
Above 1GHz

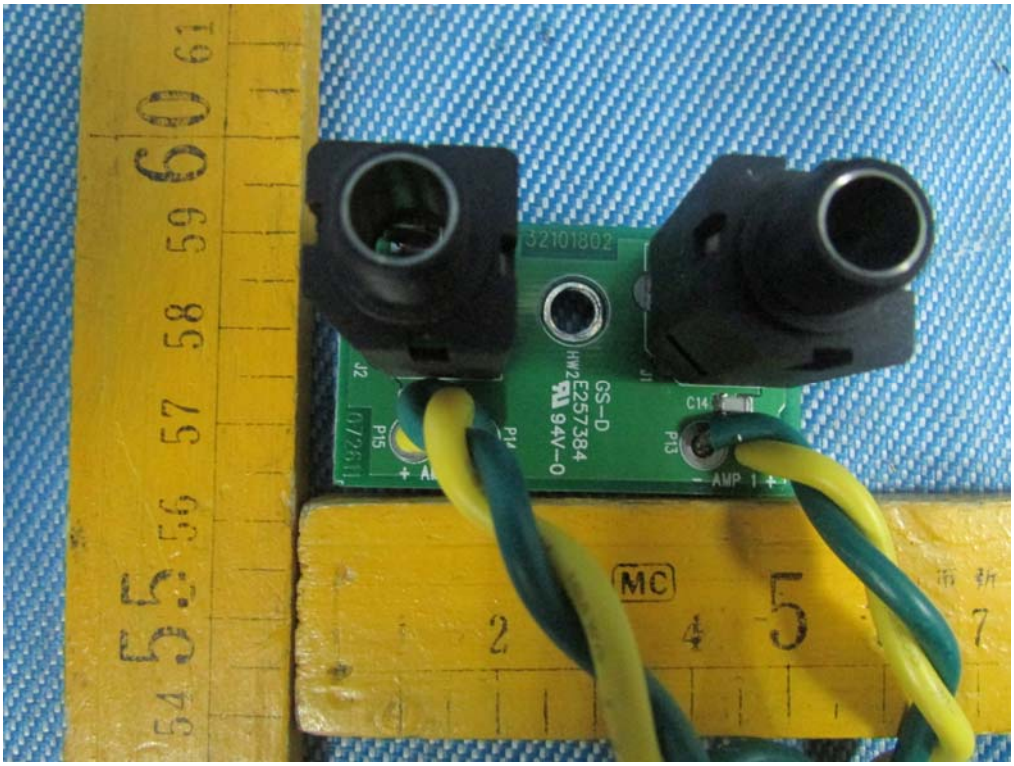


19 Photographs - Constructional Details

19.1 EUT – External View

19.2 EUT- Internal View




32101802
GS-D
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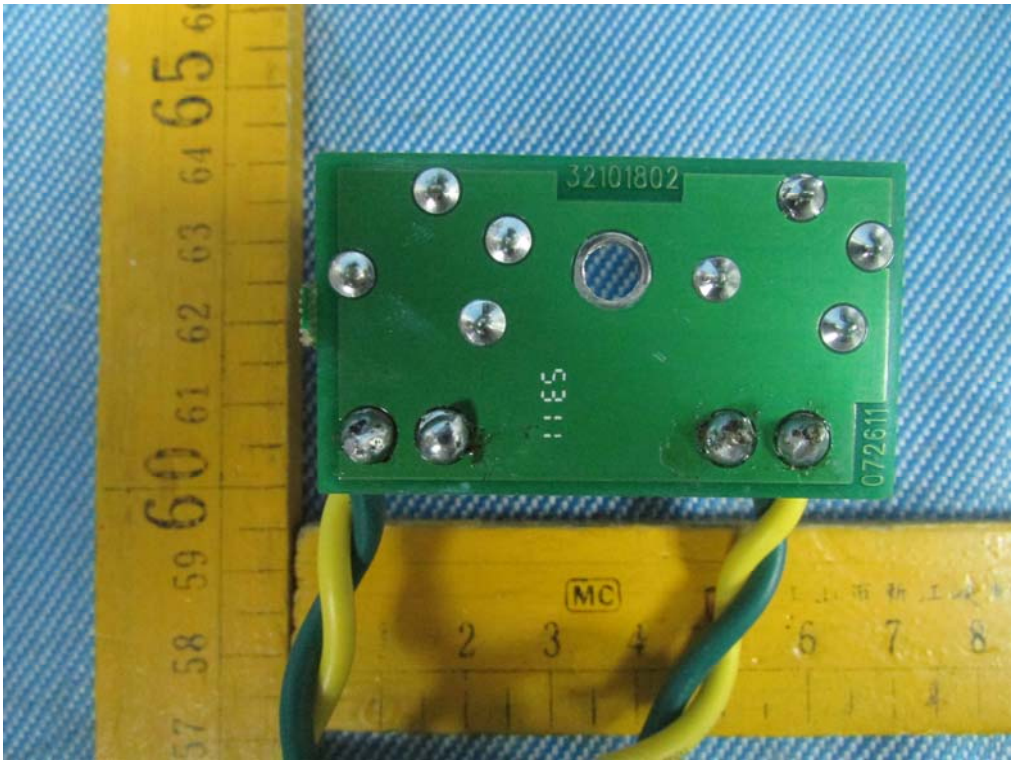
94V-0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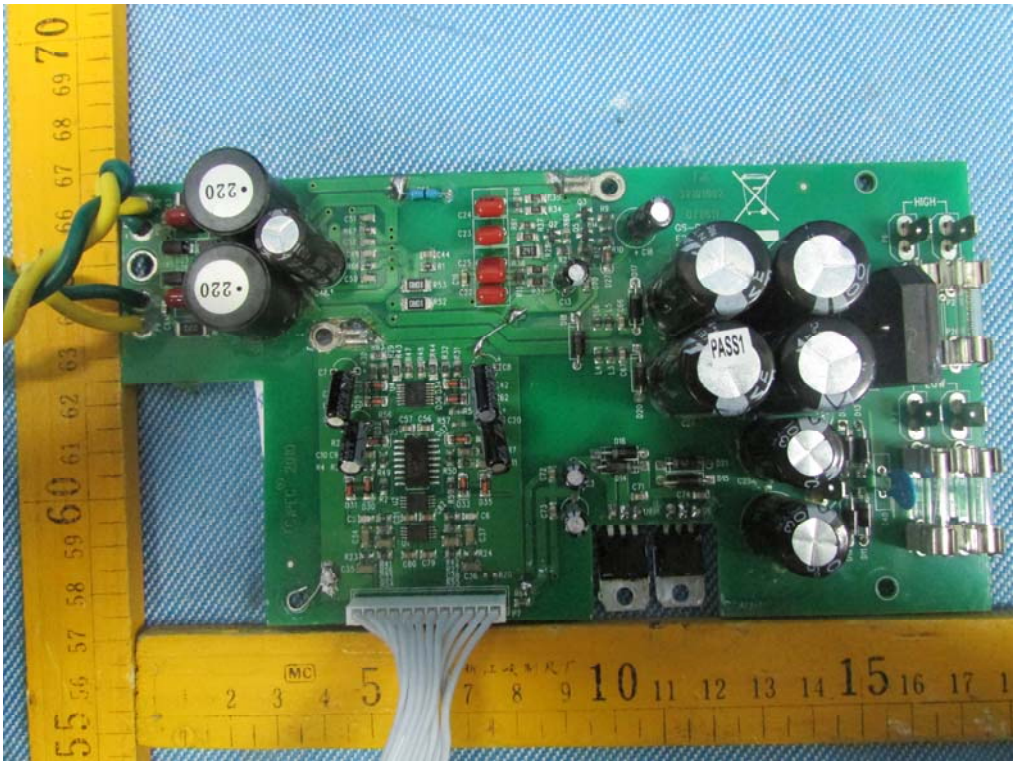
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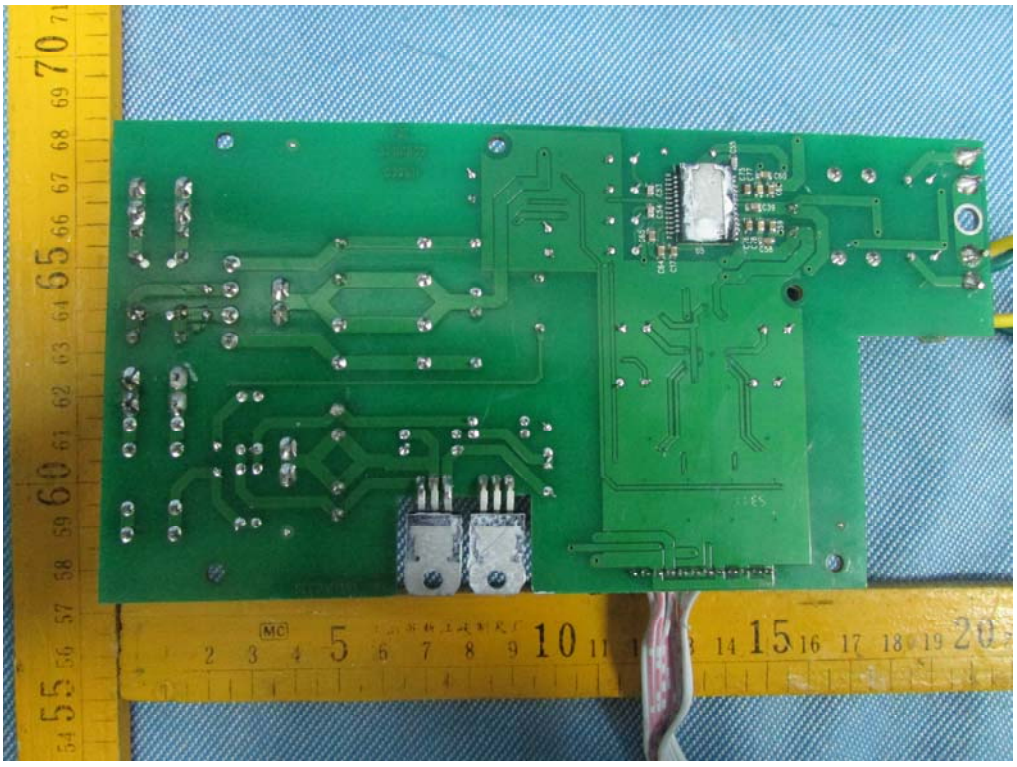
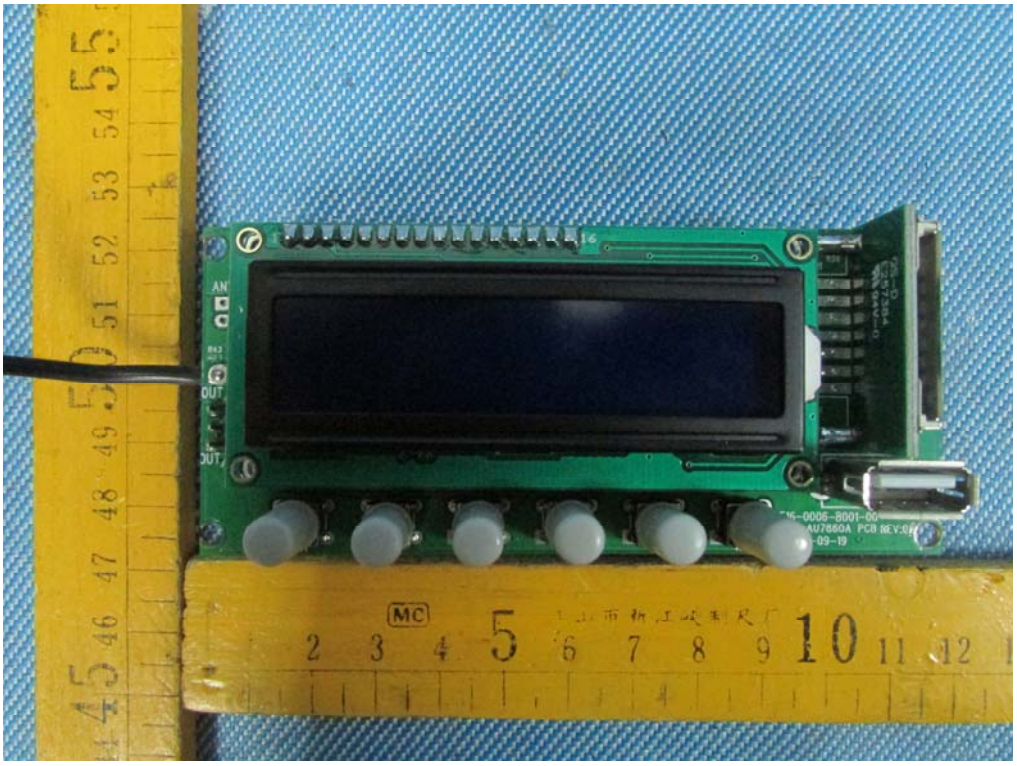
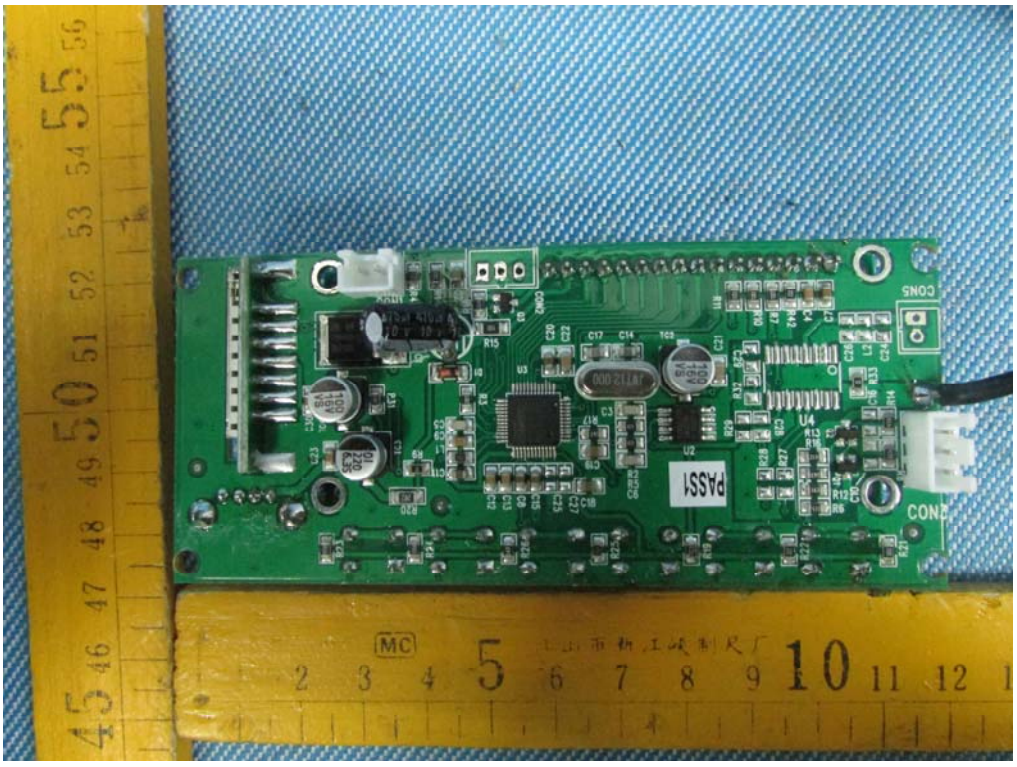
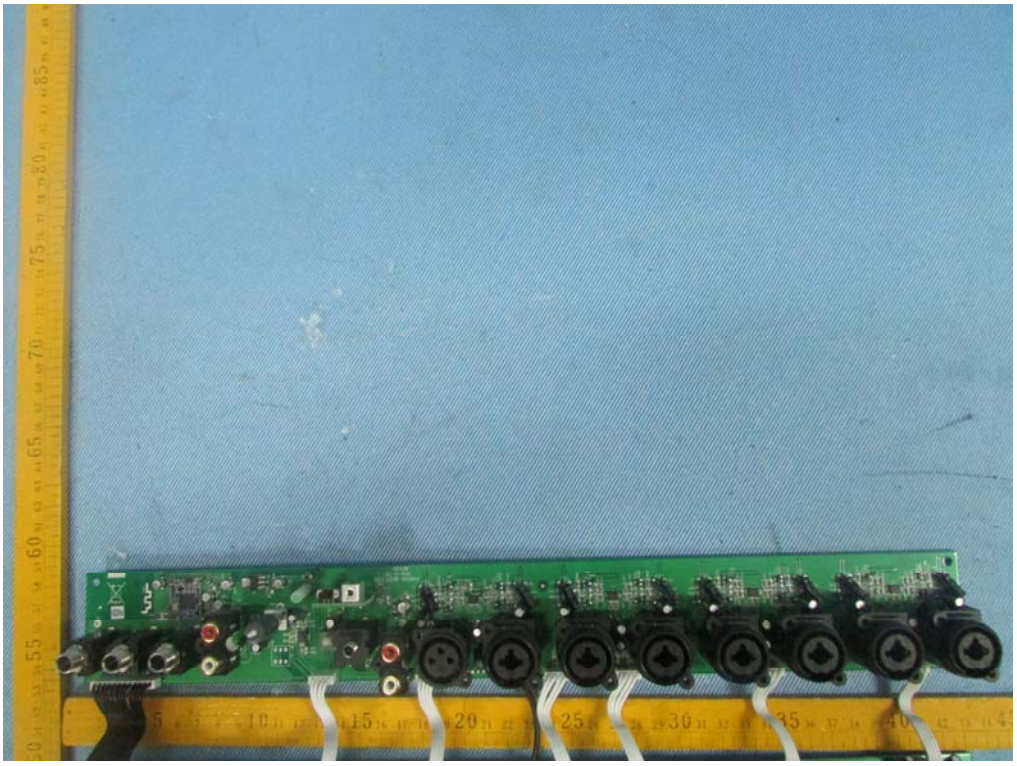
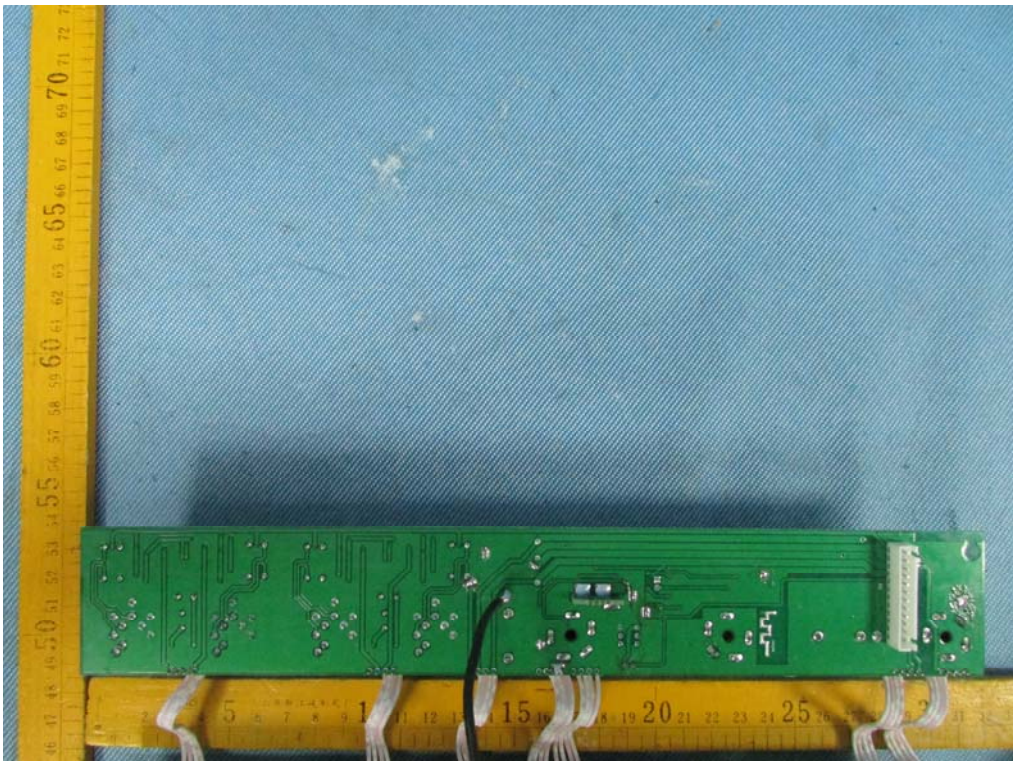
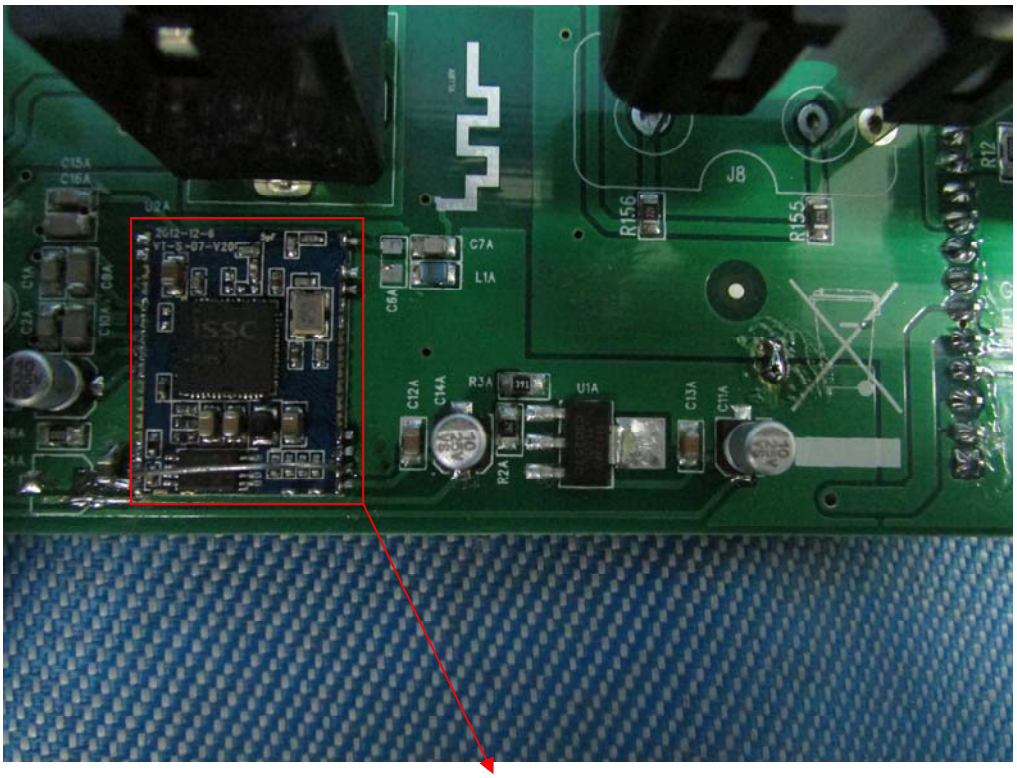





MC
PASS!



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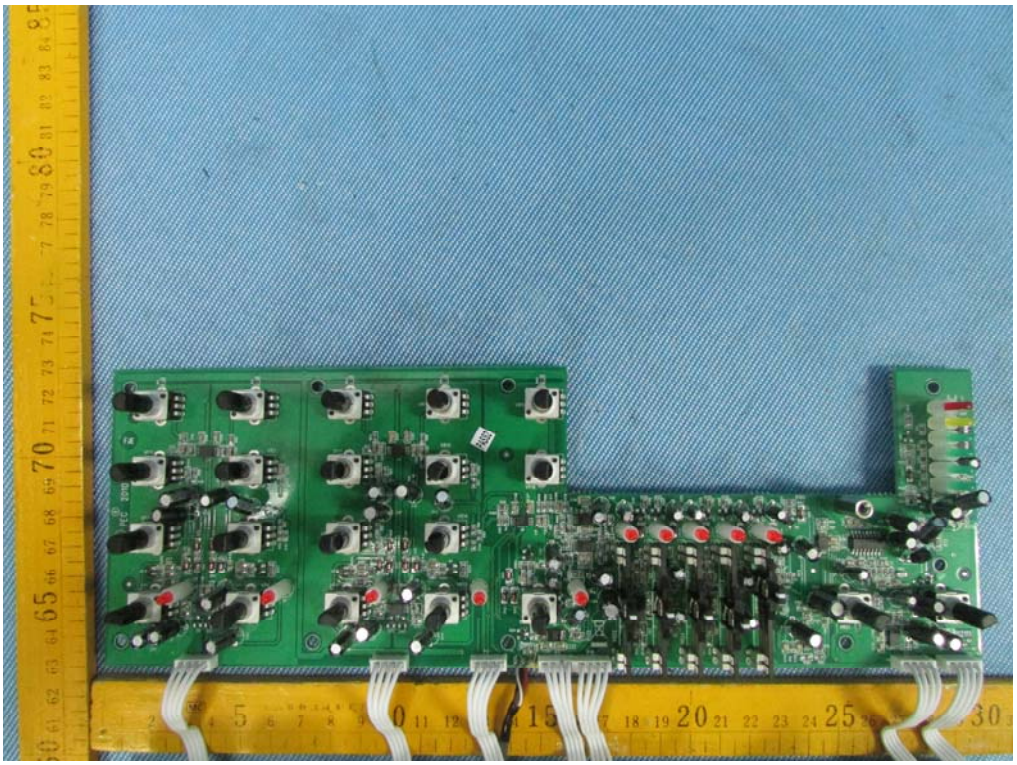

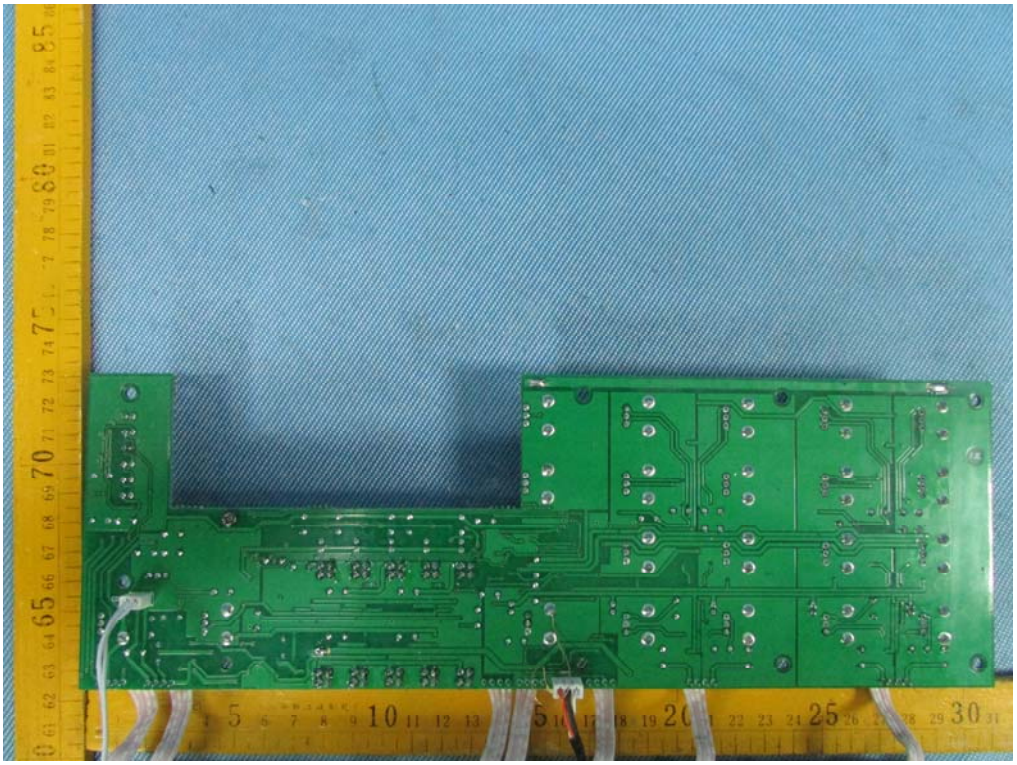

=End of test report==