FCC TEST REPORT
for
STANLEY GMT Hardware Co., LTD.

Bluetooth Adapter
Model No.: TST-BT-02

Prepared for	:	STANLEY GMT Hardware Co., LTD.
Address	:	Floor 2, Building C, No. 7001, Zhong-Chun Road, Minhang District, Shanghai, China

Prepared By	:	Shenzhen Anbotek Compliance Laboratory Limited
Address	:	1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China Tel: (86) 755-26066544 Fax: (86) 755-26014772

Report Number	:	201401660F
Date of Test	:	Jan. 02~ 14, 2014
Date of Report	:	Jan. 14, 2014

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TEST REPORT

Applicant	:	STANLEY GMT Hardware Co., LTD.
Manufacturer	:	STANLEY GMT Hardware Co., LTD.
EUT	:	Bluetooth Adapter
Model No.	:	TST-BT-02
Serial No.	:	N/A
Trade Mark	:	STANLEY
Rating	:	DC 5-12V, 80 mA

Measurement Procedure Used:

FCC Part15 Subpart C, Paragraph 15.207, 15.247 & 15.209

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.
This report applies to above tested sample only and shall not be reproduced in part without
written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test : Jan. 02~ 14, 2014

Prepared by : Rock zeng

(Tested Engineer / Rock Zeng)

Reviewer : Amy Ding

(Project Manager / Amy Ding)

Approved & Authorized Signer : Tom Chen

1. GENERAL INFORMATION

1.1 Description of Device (EUT)

EUT	:	Bluetooth Adapter
Model Number	:	TST-BT-02
Test Power Supply	:	DC 5V
Frequency	:	2402~2480MHz
Antenna Specification	:	PCB Antenna:0 dBi
Modulation	:	GFSK, π/4DQPSK, 8DPSK
Applicant	:	STANLEY GMT Hardware Co., LTD.
Address	:	Floor 2, Building C, No. 7001, Zhong-Chun Road, Minhang District, Shanghai, China
Manufacturer	:	STANLEY GMT Hardware Co., LTD.
Address	:	Floor 2, Building C, No. 7001, Zhong-Chun Road, Minhang District, Shanghai, China
Factory	:	TOPSCOM TECHNOLOGY CO., LTD.
Address	:	No. 3, Tannan Road, Tanjia Industrial Village, Gongming Street, Guangming New District, Shenzhen City, China
Date of receiver	:	Jan. 02, 2014
Date of Test	:	Jan. 02~ 14, 2014

1.2 Auxiliary Equipment Used during Test

Controller	:	Manufacturer: GRT-Mars M/N: T185101 CE , FCC: DOC
Transformer	:	Manufacturer: GOLDSUPER M/N: T185000 CE , FCC: DOC

1.3 Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 463622
EMC Laboratory has been registed 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 463622, June 14, 2011.

IC-Registration No.: 46405-9469
EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 46405-9469, May 02, 2011.

Test Location
All Emissions tests were performed at
NINGBO EMTEK CO., LTD. at 1F Building 4, 1177#, Lingyun Road, Ningbo National Hi-Tech Zone, Ningbo, Zhejiang, China

1.4 Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.3dB
Conduction Uncertainty	:	Uc = 3.4dB

2. Test Procedure

GENERAL: This report shall NOT be reproduced except in full without the written approval of Shenzhen Anbotek Compliance Laboratory Limited. The EUT was transmitting a test signal during the testing.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2009 using a spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the EUT was 74.3oF with a humidity of 69%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

Example:
Freq (MHz) METER READING + ACF = FS
20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

ANSI STANDARD C63.4-2009 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation.
When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

3. Radiation Interference

3.1 Requirements (15.247, 15.209):

FIELD STRENGTH of Fundamental: @3M	FIELD STRENGTH of Harmonics	S15.209	
		30 - 88 MHz	40 dBuV/m
902-928 MHZ		88 - 216 MHz	43.5
2.4-2.4835 GHz		216 - 960 MHz	46
94 dBμV/m @3m	54 dBμV/m @3m	ABOVE 960 MHz	54dBuV/m

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

3.2 Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

All readings from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120kHz. All reading are above 1GHz, peak & average values with a resolution bandwidth of 1MHz. The EUT is tested in 9*6*6 Chamber.
The test results are listed in Section 3.3.

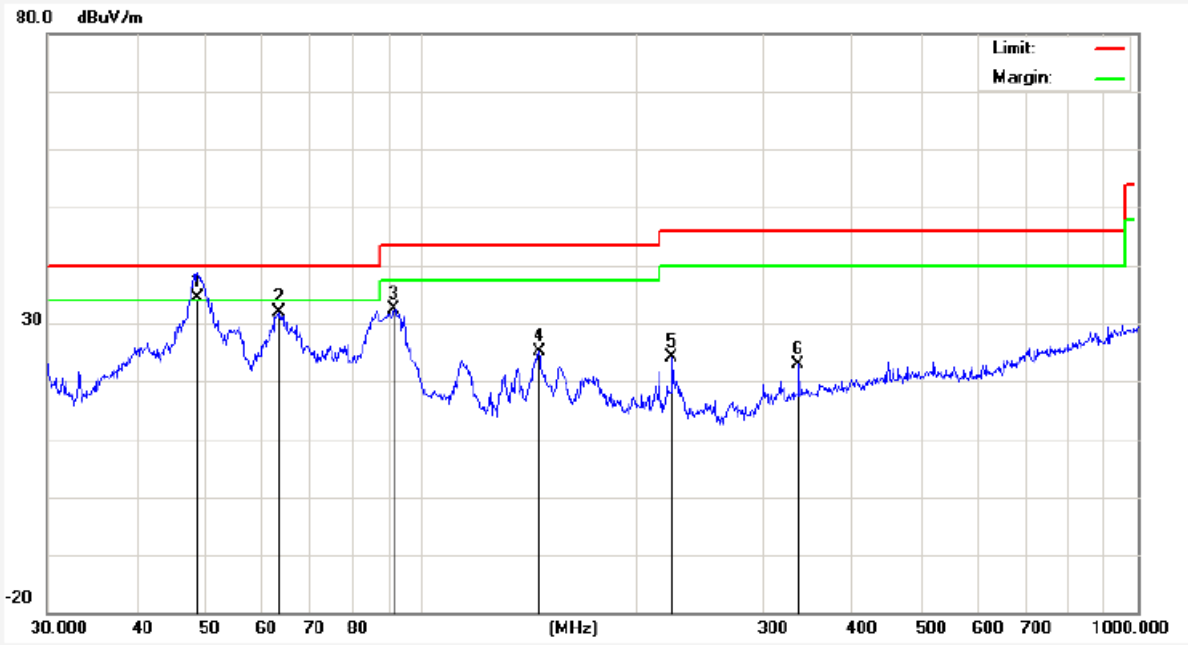
Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Rohde & Schwarz	ESU	1302.6005.26	05/28/2013	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.26	05/28/2013	1 Year
3.	Pre-Amlifier	HP	8447D	2944A07999	05/28/2013	1 Year
4.	Bilog Antenna	Schwarzbeck	VULB9163	142	05/28/2013	1 Year
5.	Loop Antenna	ARA	PLA-1030/B	1029	05/28/2013	1 Year
6.	Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170399	05/28/2013	1 Year
7.	Horn Antenna	Schwarzbeck	BBHA9120	D143	05/28/2013	1 Year

3.3 Test Results

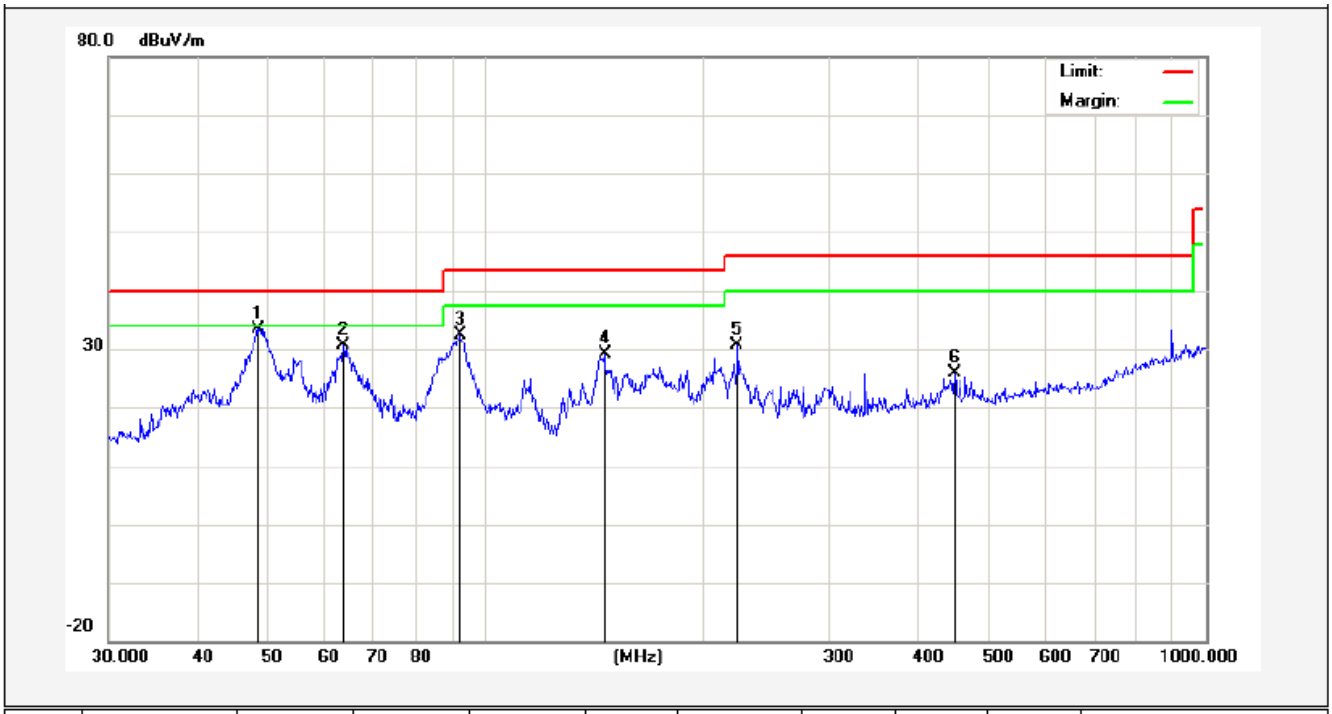
PASS.
Please refer the following pages.

Job No.:	**AT1401600F**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART 15C _3m**	**Power Source:**	**DC 5V**
Test item:	**Radiation Test (30~1000MHz)**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Test Mode:	**BT Mode**	**Distance:**	**3m**



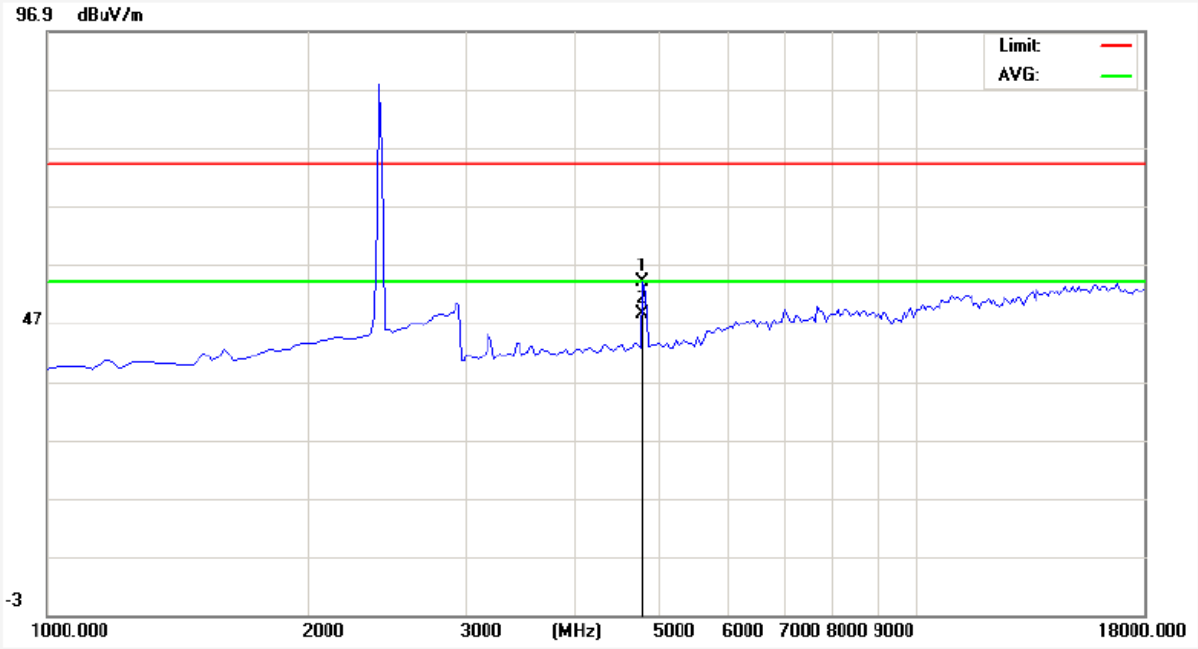
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	48.5219	48.77	-14.50	34.27	40.00	-5.73	QP	100	360	
2	63.3132	48.71	-16.77	31.94	40.00	-8.06	peak			
3	91.4949	54.80	-22.32	32.48	43.50	-11.02	peak			
4	145.8611	48.58	-23.40	25.18	43.50	-18.32	peak			
5	223.7334	43.77	-19.73	24.04	46.00	-21.96	peak			
6	336.0352	37.41	-14.49	22.92	46.00	-23.08	peak			

Job No.:	**AT1401600F**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART 15C _3m**	**Power Source:**	**DC 5V**
Test item:	**Radiation Test (30~1000MHz)**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Test Mode:	**BT Mode**	**Distance:**	**3m**



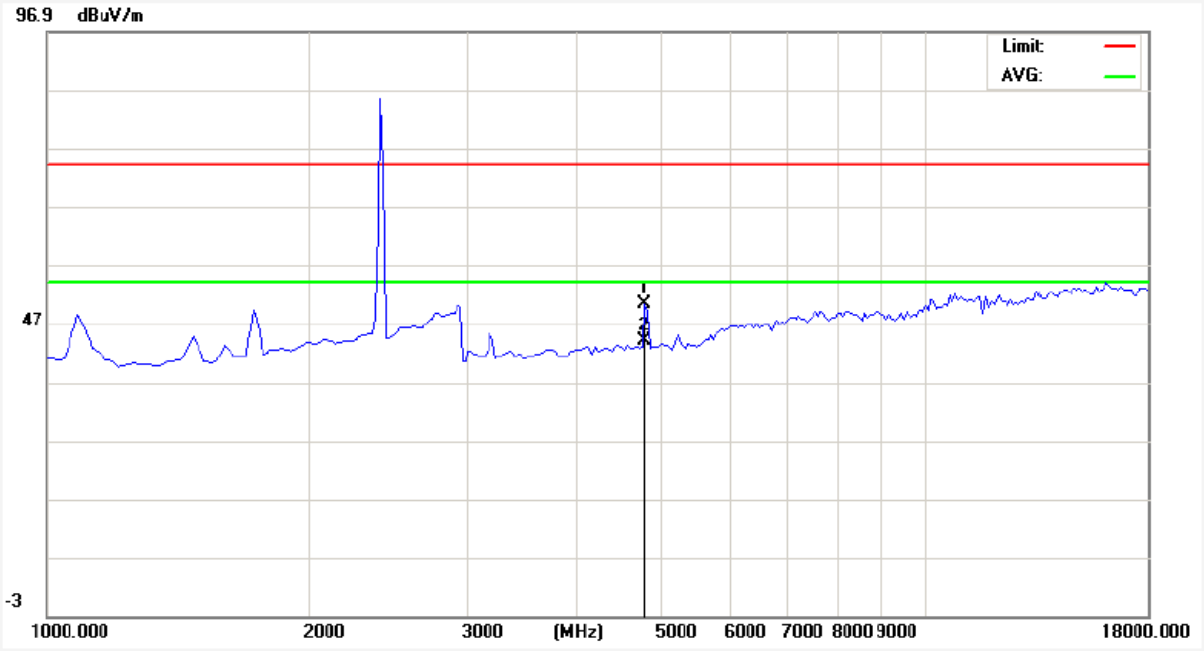
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	48.3318	47.91	-14.49	33.42	40.00	-6.58	peak			
2	63.5356	47.39	-16.86	30.53	40.00	-9.47	peak			
3	92.4624	49.24	-16.96	32.28	43.50	-11.22	peak			
4	146.3735	47.56	-18.40	29.16	43.50	-14.34	peak			
5	223.7334	45.66	-14.91	30.75	46.00	-15.25	peak			
6	447.9822	37.52	-11.57	25.95	46.00	-20.05	peak			

Job No.:	**AT1401600F**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART 15C_Class B_3m**	**Power Source:**	**DC 5V**
Test item:	**Radiation Test (Above 1GHz)**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Test Mode:	**TX(2402 MHz)**	**Distance:**	**3m**



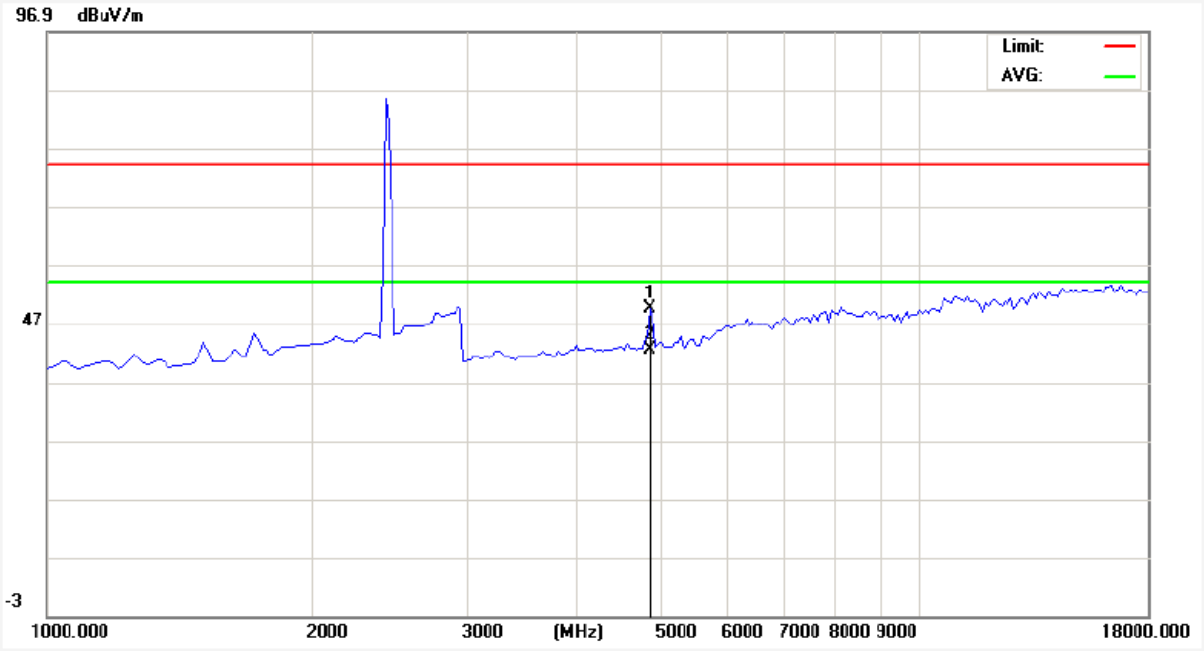
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	4825.000	50.67	3.34	54.01	74.00	-19.99	peak			
2	4825.000	45.29	3.34	48.63	54.00	-5.37	AVG			

Job No.:	**AT1401600F**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART 15C_Class B_3m**	**Power Source:**	**DC 5V**
Test item:	**Radiation Test (Above 1GHz)**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Test Mode:	**TX(2402 MHz)**	**Distance:**	**3m**



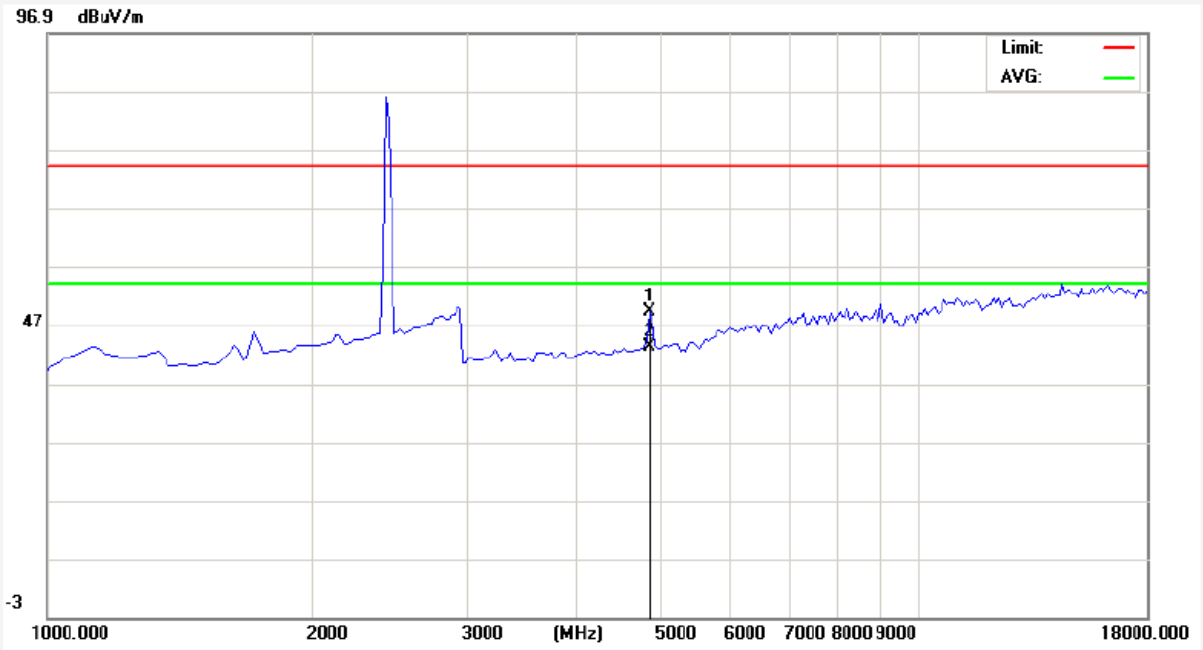
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	4825.000	46.83	3.34	50.17	74.00	-23.83	peak			
2	4825.000	40.69	3.34	44.03	54.00	-9.97	AVG			

Job No.:	**AT1401600F**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART 15C_Class B_3m**	**Power Source:**	**DC 5V**
Test item:	**Radiation Test (Above 1GHz)**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Test Mode:	**TX(2441 MHz)**	**Distance:**	**3m**



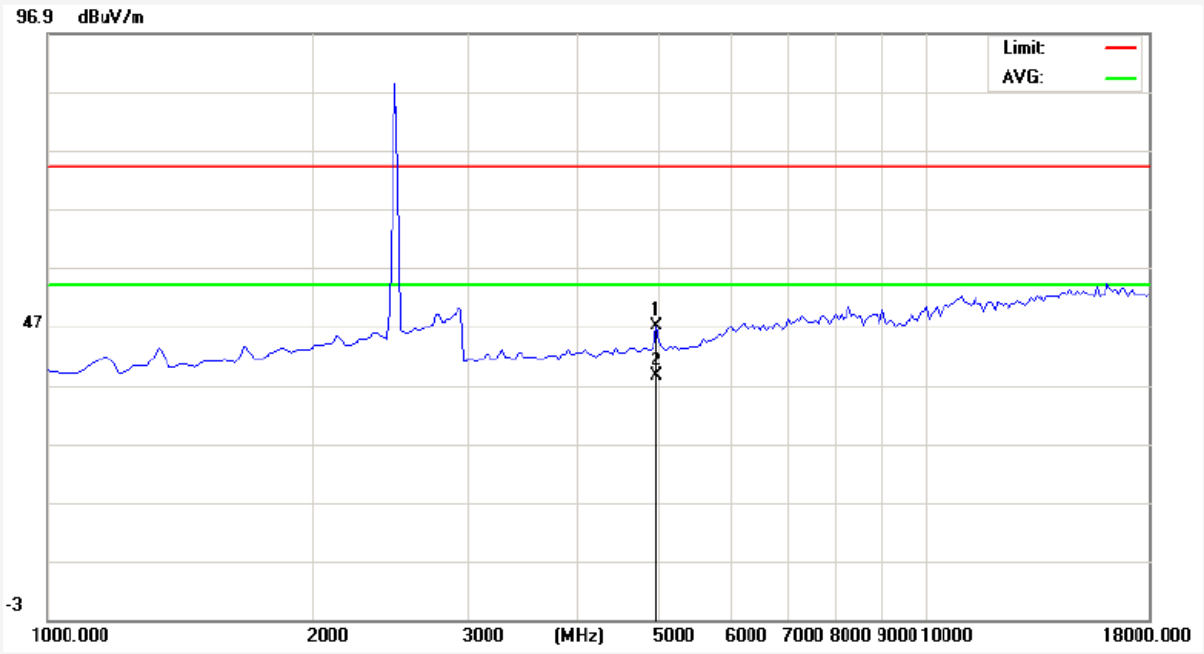
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	4867.500	46.15	3.41	49.56	74.00	-24.44	peak			
2	4867.500	39.18	3.41	42.59	54.00	-11.41	AVG			

Job No.:	**AT1401600F**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART 15C_Class B_3m**	**Power Source:**	**DC 5V**
Test item:	**Radiation Test (Above 1GHz)**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Test Mode:	**TX(2441 MHz)**	**Distance:**	**3m**



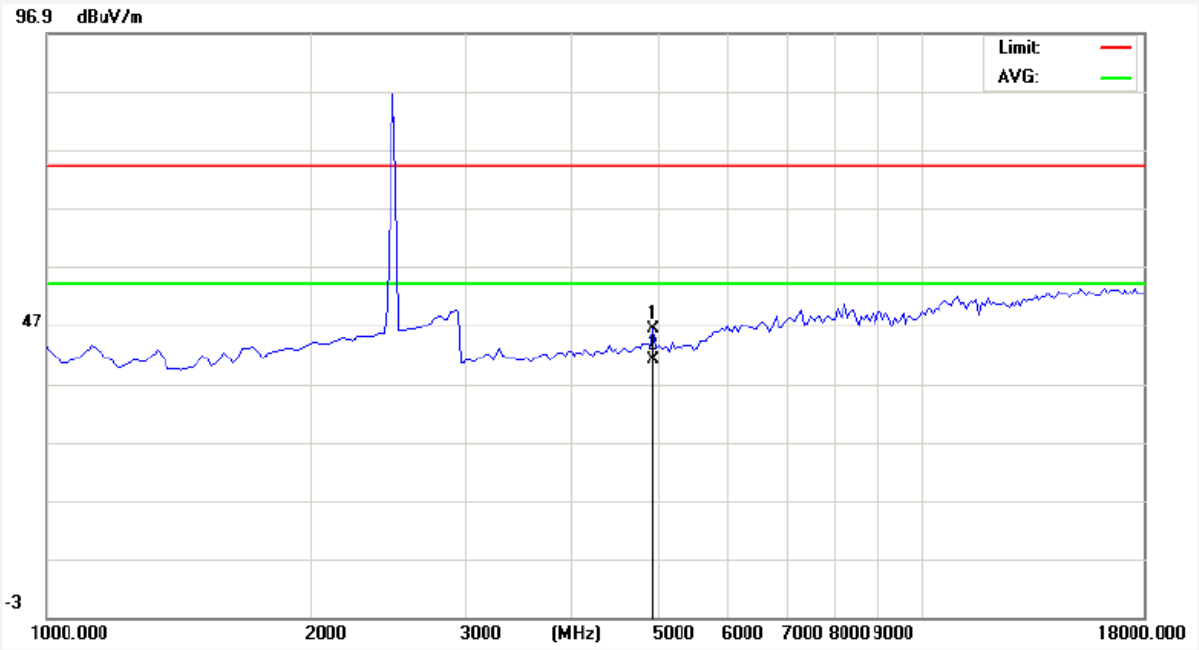
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	4867.500	45.83	3.41	49.24	74.00	-24.76	peak			
2	4867.500	39.82	3.41	43.23	54.00	-10.77	AVG			

Job No.:	**AT1401600F**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART 15C_Class B_3m**	**Power Source:**	**DC 5V**
Test item:	**Radiation Test (Above 1GHz)**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Test Mode:	**TX(2480 MHz)**	**Distance:**	**3m**



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	4952.500	43.40	3.57	46.97	74.00	-27.03	peak			
2	4952.500	35.08	3.57	38.65	54.00	-15.35	AVG			

Job No.:	**AT1401600F**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART 15C_Class B_3m**	**Power Source:**	**DC 5V**
Test item:	**Radiation Test (Above 1GHz)**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Test Mode:	**TX(2480 MHz)**	**Distance:**	**3m**



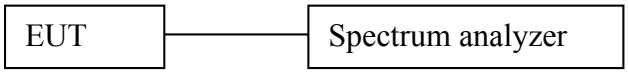
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	4952.500	42.74	3.57	46.31	74.00	-27.69	peak			
2	4952.500	37.36	3.57	40.93	54.00	-13.07	AVG			

4. CHANNEL SEPARATION TEST

4.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

4.2 Test SET-UP



4.3 Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Aug. 09, 2013	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Aug. 09, 2013	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 23, 2013	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Aug. 09, 2013	3 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 23, 2013	3 Year
6.	Pre-amplifier	SONOMA	310N	186860	Apr. 23, 2013	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A

4.4 Test Results

Test Item	:	Frequency Separation	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 5V	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

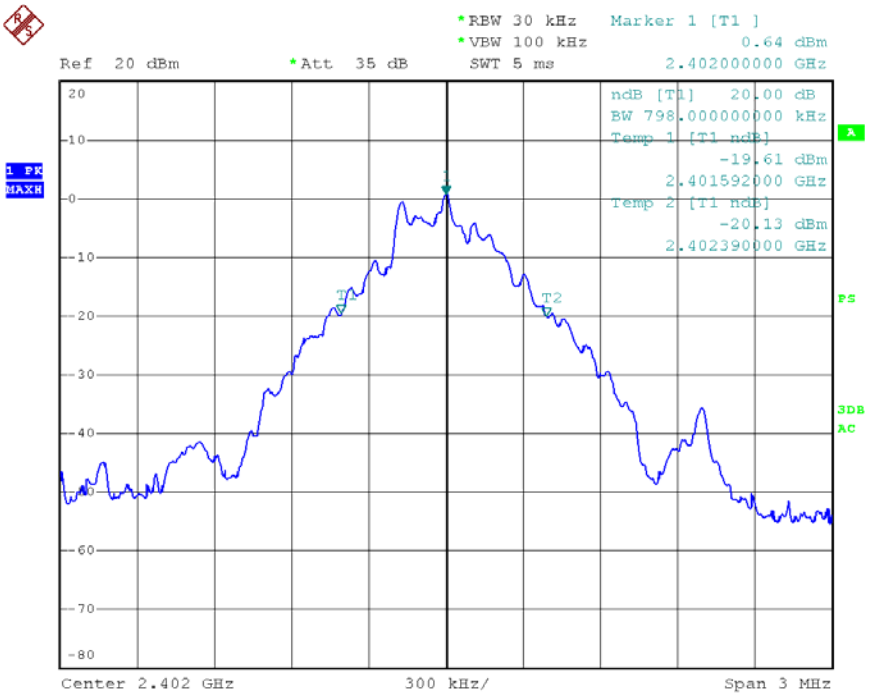
Channel	Frequency (MHz)	Separation Read Value (kHz)	Limit (kHz)	Modulation Mode
Low	2401	1002	798	GFSK
Mid	2441	1008	798	GFSK
High	2480	1008	804	GFSK
Low	2401	1002	828	π /4DQPSK
Mid	2441	1008	820	π /4DQPSK
High	2480	1002	820	π /4DQPSK
Low	2401	1002	828	8DPSK
Mid	2441	1008	820	8DPSK
High	2480	1002	820	8DPSK

Remark:

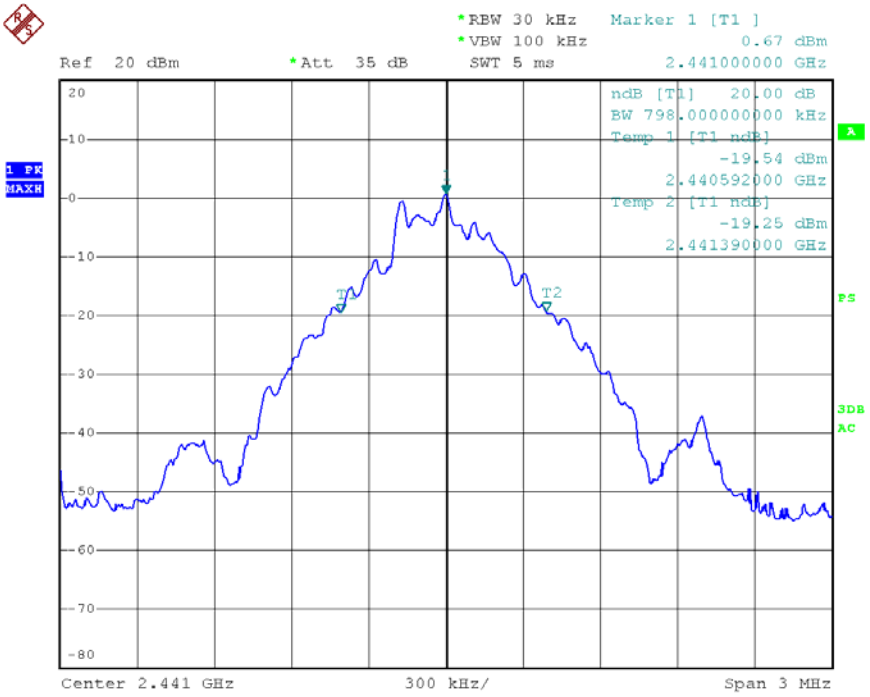
1. The limit of modulation (π /4DQPSK, 8DPSK) is 2/3 of 20dB BW;

Modulation Mode: GFSK

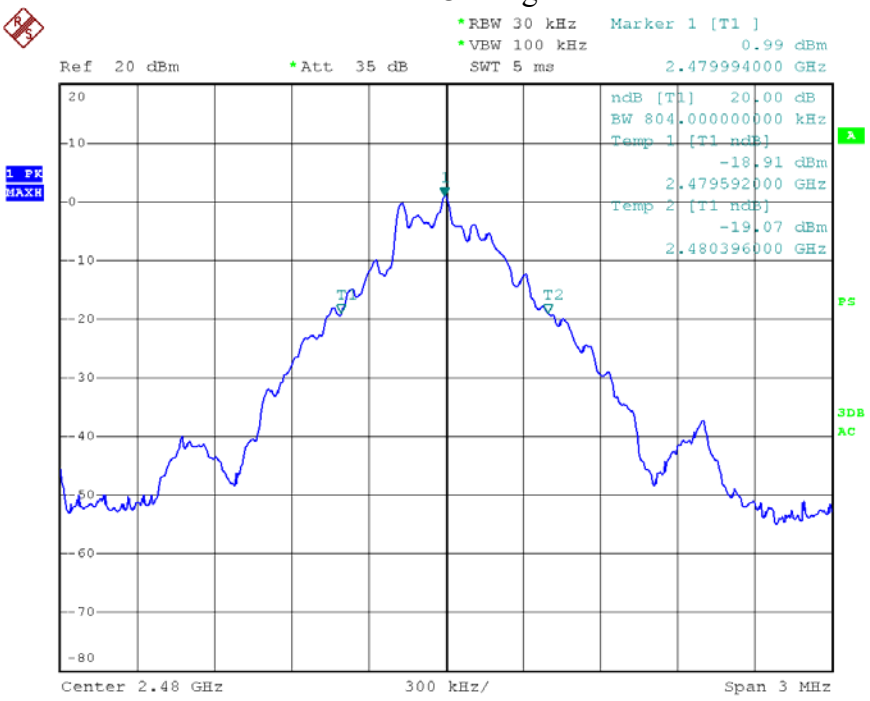
CH Low



CH Mid

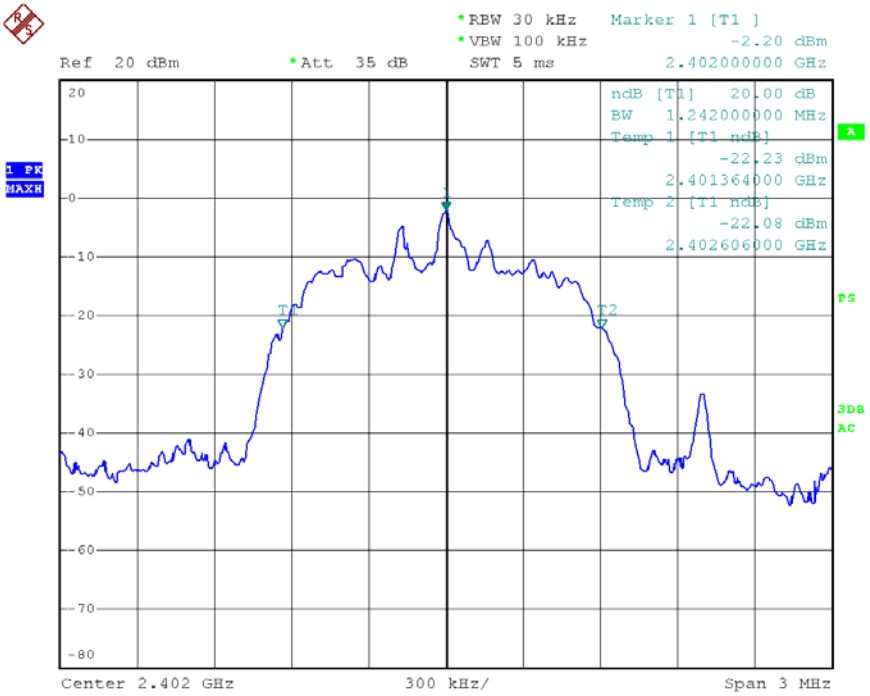


CH High

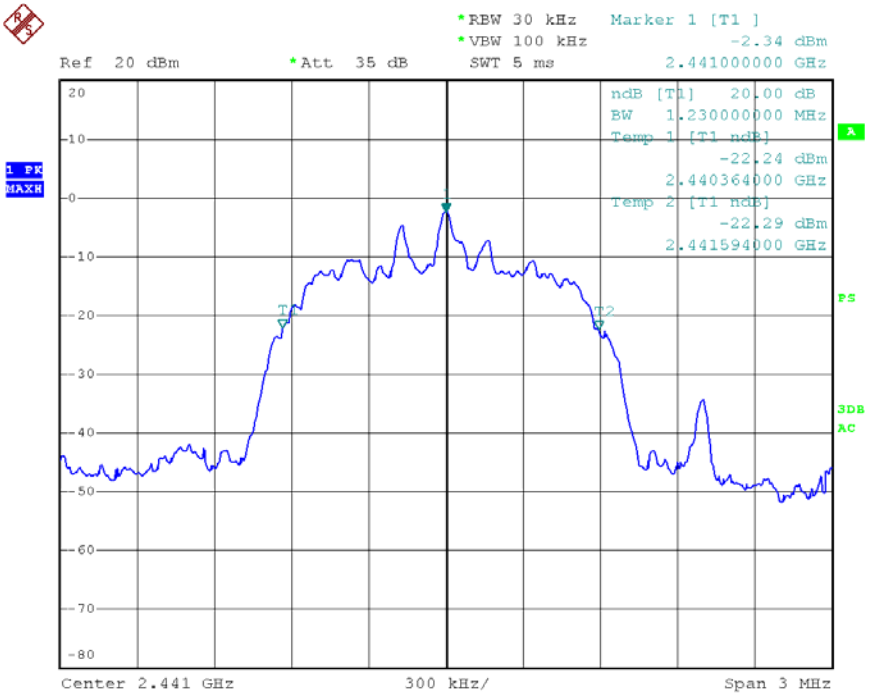


Modulation Mode: π/4DQPSK & 8DPSK

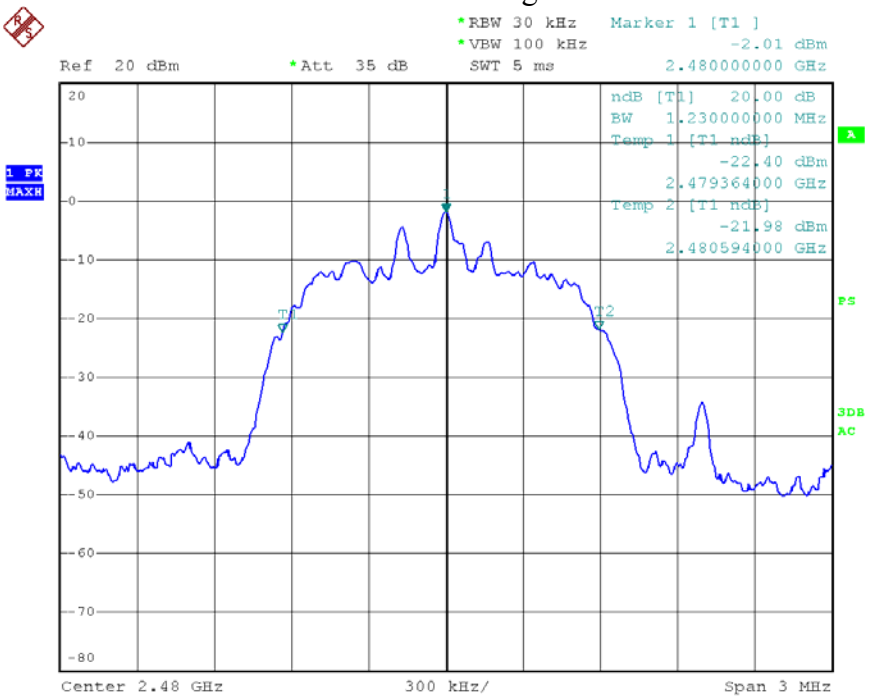
CH Low



CH Mid



CH High

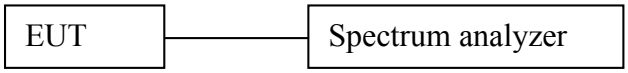

*RBW 30 kHz
*VBW 100 kHz
SWT 5 ms
Marker 1 [T1]
-2.01 dBm
2.480000000 GHz
Ref 20 dBm
*Att 35 dB
ndB [T1] 20.00 dB
BW 1.230000000 MHz
Temp 1 [T1 ndB]
-22.40 dBm
2.479364000 GHz
Temp 2 [T1 ndB]
-21.98 dBm
2.480594000 GHz
1 PK
MAXH
A
PS
3DB
AC
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
T1
T2
Center 2.48 GHz
300 kHz/
Span 3 MHz

5. 20DB BANDWIDTH TEST

5.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

5.2 Test SET-UP



5.3 Test Equipment

Same as the equipment listed in 4.3.

5.4 Test Results

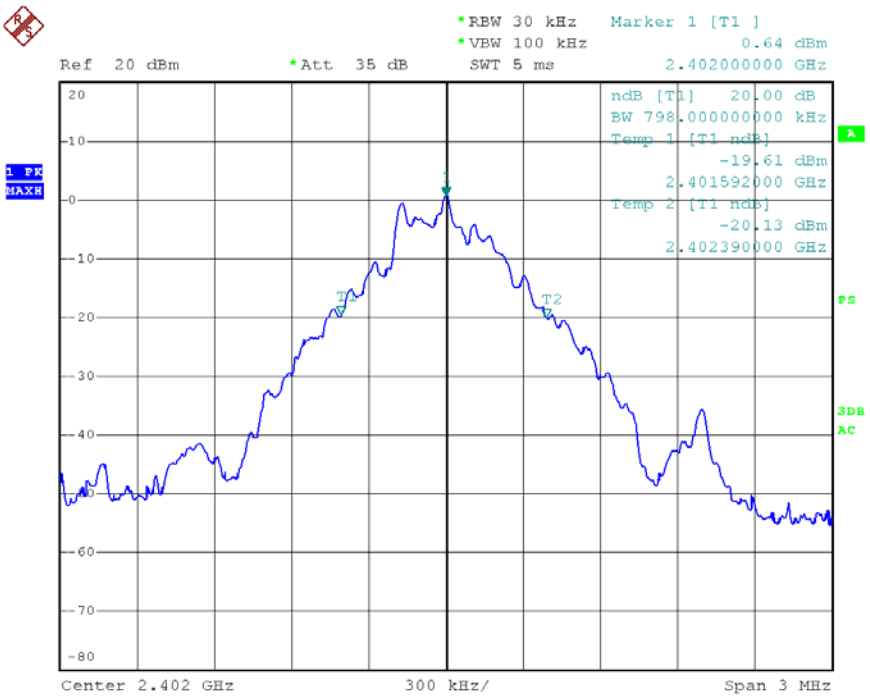
Test Item	:	20dB BW	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 5V	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

Channel	Frequency (MHz)	20dB Down BW(kHz)	Modulation Mode
Low	2401	798	GFSK
Mid	2441	798	GFSK
High	2480	804	GFSK
Low	2401	1242	π /4DQPSK
Mid	2441	1230	π /4DQPSK
High	2480	1230	π /4DQPSK
Low	2401	1242	8DPSK
Mid	2441	1230	8DPSK
High	2480	1230	8DPSK

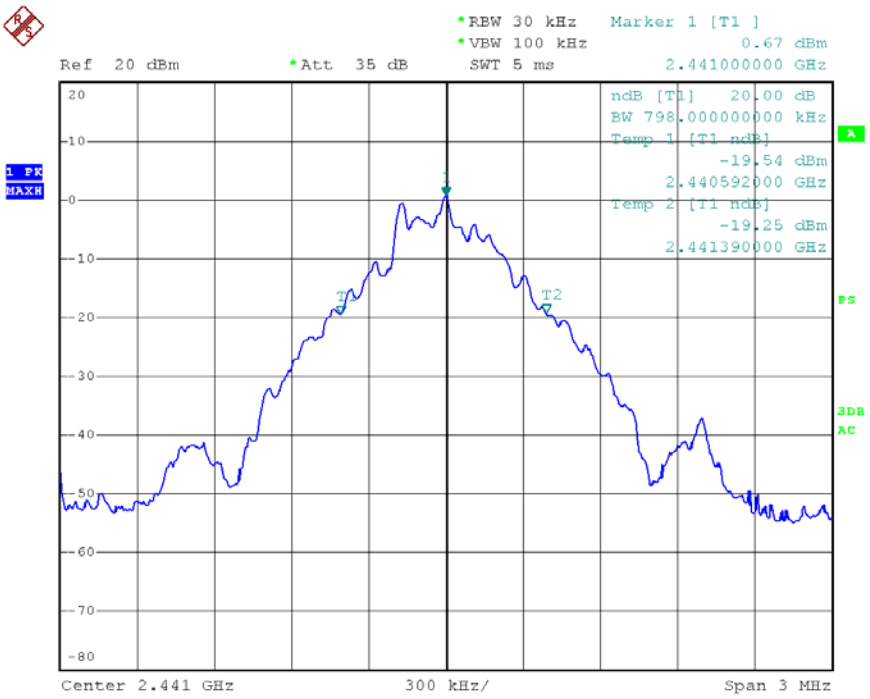
Remark: The results of modulations π /4DQPSK and 8DPSK are the same.

Modulation Mode: GFSK

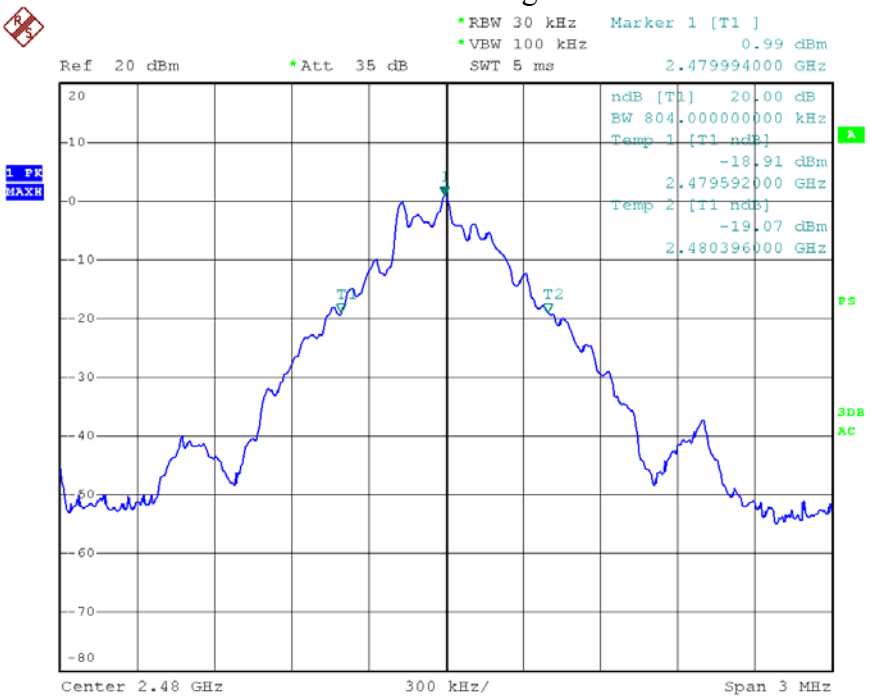
CH Low



CH Mid

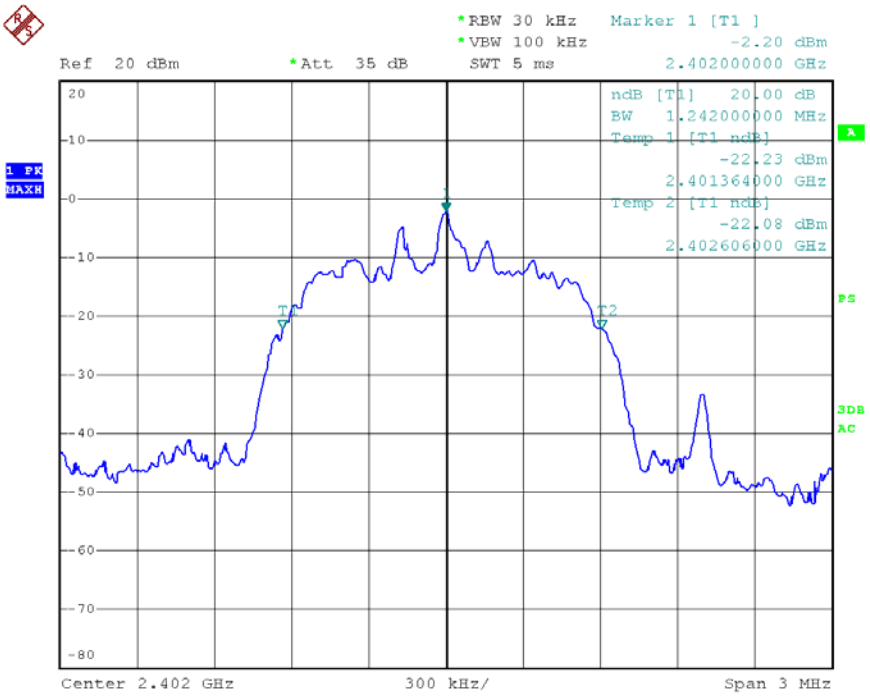


CH High

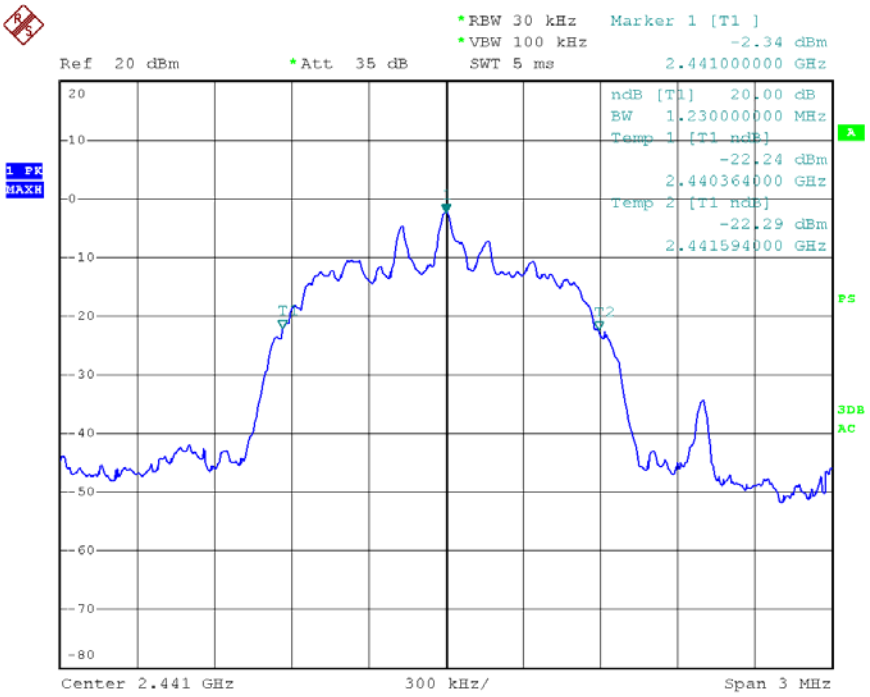


Modulation Mode: π/4DQPSK & 8DPSK

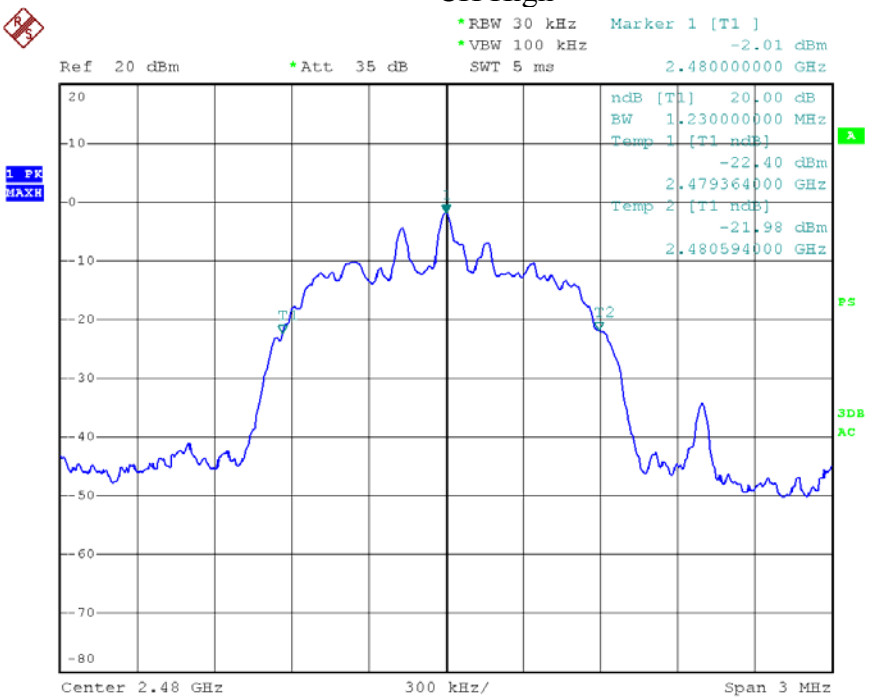
CH Low



CH Mid



CH High

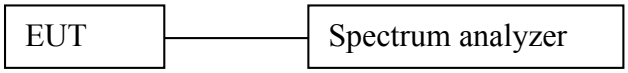


6. QUANTITY OF HOPPING CHANNEL TEST

6.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

6.2 Test SET-UP



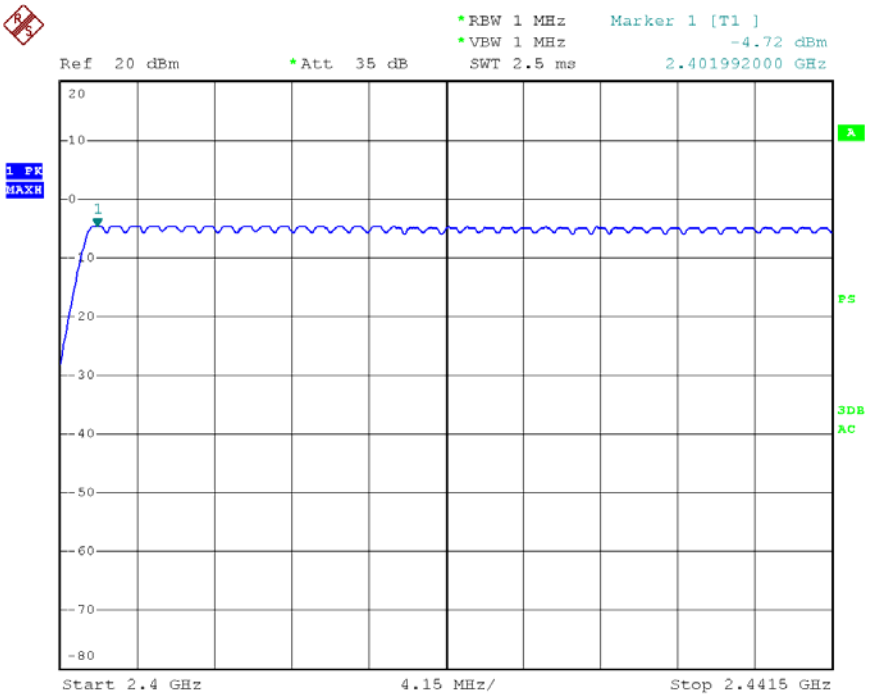
6.3 Test Equipment

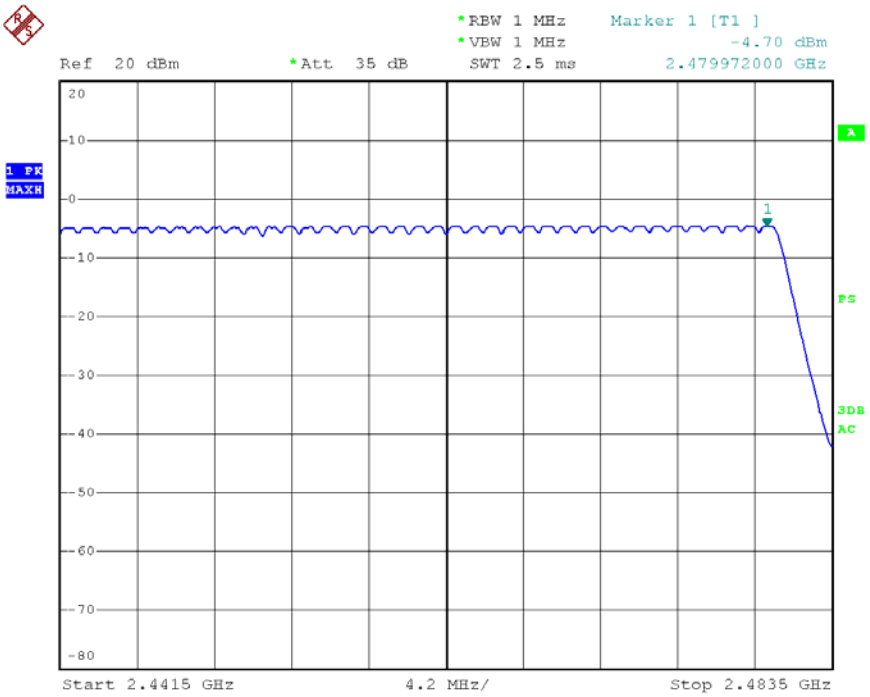
Same as the equipment listed in 4.3.

6.4 Test Results

Test Item	:	Number of Hopping Frequency	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 5V	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

Hopping Channel Frequency Range	Quantity of Hopping Channel	Quantity of Hopping Channel
2402-2480	79	＞15


*RBW 1 MHz
*VBW 1 MHz
SWT 2.5 ms
Marker 1 [T1]
-4.72 dBm
2.401992000 GHz
Ref 20 dBm
*Att 35 dB
1 PK
MAXH
A
PS
3DB
AC
Start 2.4 GHz
4.15 MHz/
Stop 2.4415 GHz

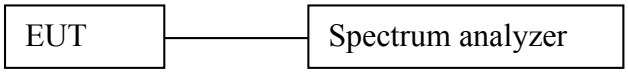

*RBW 1 MHz
*VBW 1 MHz
SWT 2.5 ms
Marker 1 [T1]
-4.70 dBm
2.479972000 GHz
Ref 20 dBm
*Att 35 dB
1 PK
MAXH
A
PS
3DB
AC
Start 2.4415 GHz
4.2 MHz/
Stop 2.4835 GHz

7. DWELL TIME TEST

7.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

7.2 Test SET-UP



7.3 Test Equipment

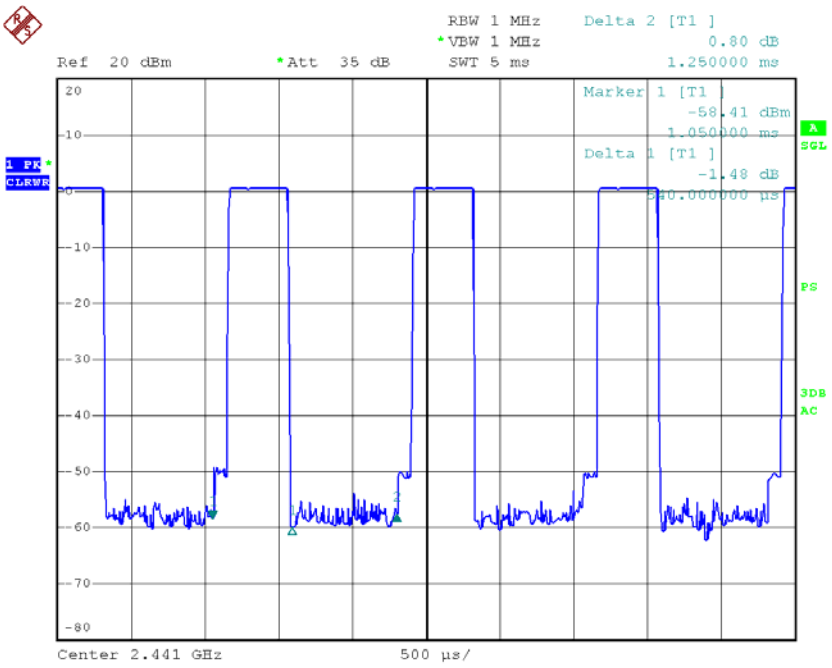
Same as the equipment listed in 4.3.

7.4 Test Results

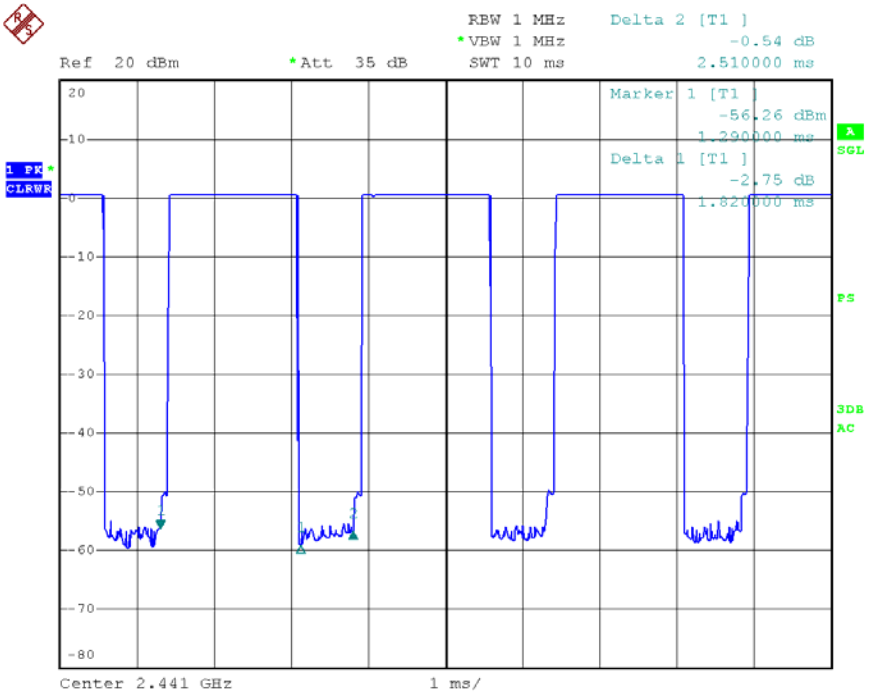
Test Item	:	Time of Occupancy	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 5V	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

Package Type	***Pulse width (ms)***	**Time slot length(ms)**	**Dwell time (ms)**	**Limit (s)**
DH1	0.540	time slot length *1600/2 /79 * 31.6	172.80	*0.4*
DH3	1.820	time slot length *1600/4 /79 * 31.6	291.20	*0.4*
DH5	3.100	time slot length *1600/6 /79 * 31.6	330.67	*0.4*

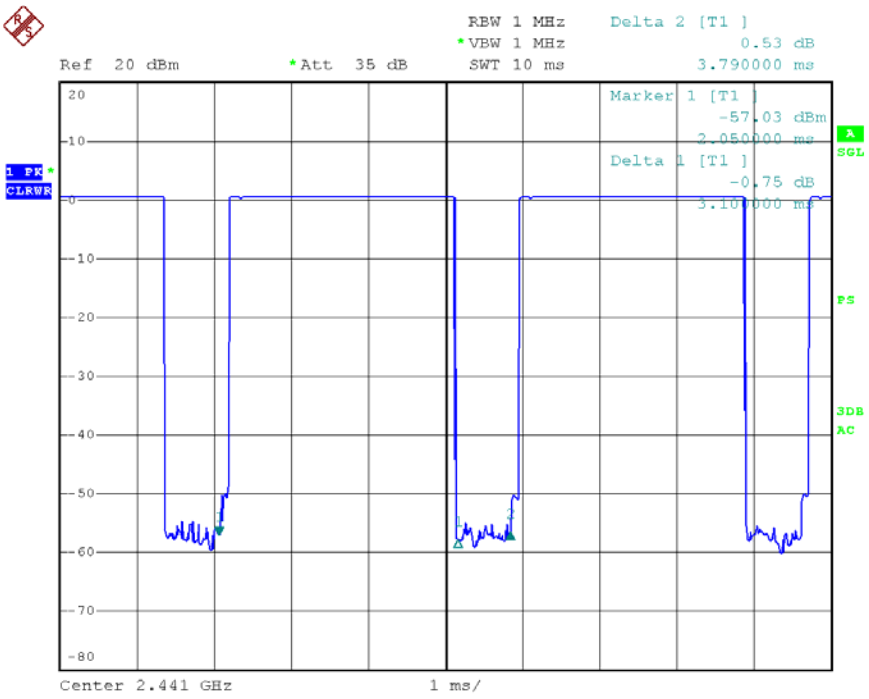
DH1


RBW 1 MHz
VBW 1 MHz
SWT 5 ms
Delta 2 [T1]
0.80 dB
1.250000 ms
Ref 20 dBm
Att 35 dB
Marker 1 [T1]
-58.41 dBm
1.050000 ms
Delta 1 [T1]
-1.48 dB
400.000000 µs
1 PK
CLRWR
SGL
PS
3DB
AC
Center 2.441 GHz
500 µs/

DH3


RBW 1 MHz
VBW 1 MHz
SWT 10 ms
Delta 2 [T1]
-0.54 dB
2.510000 ms
Ref 20 dBm
Att 35 dB
Marker 1 [T1]
-56.26 dBm
1.290000 ms
Delta 1 [T1]
-2.75 dB
1.820000 ms
1 PK
CLRWR
SGL
PS
3DB
AC
Center 2.441 GHz
1 ms/

DH5

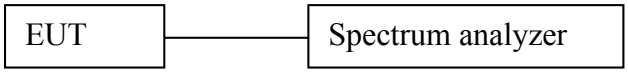

RBW 1 MHz
*VBW 1 MHz
SWT 10 ms
Delta 2 [T1]
0.53 dB
3.790000 ms
Ref 20 dBm
*Att 35 dB
Marker 1 [T1]
-57.03 dBm
2.050000 ms
Delta 1 [T1]
-0.75 dB
3.101000 ms
1 PK *
CLRWR
A
SGL
PS
3DB
AC
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.441 GHz
1 ms/

8. MAX IMUM PEAK OUTPUT POWER TEST

8.1 Measurement Procedure

a. Check the calibration of the measuring instrument(SA) using either an internal calibrator or a known signal from an external generator.
b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
c. The center frequency of the spectrum analyzer is set to the fundamental frequency and using proper RBW and VBW setting.
d. Measure the captured power within the band and recording the plot.
e. Repeat above procedures until all frequencies required were complete.

8.2 Test SET-UP



8.3 Test Equipment

Same as the equipment listed in 4.3.

8.4 Test Results

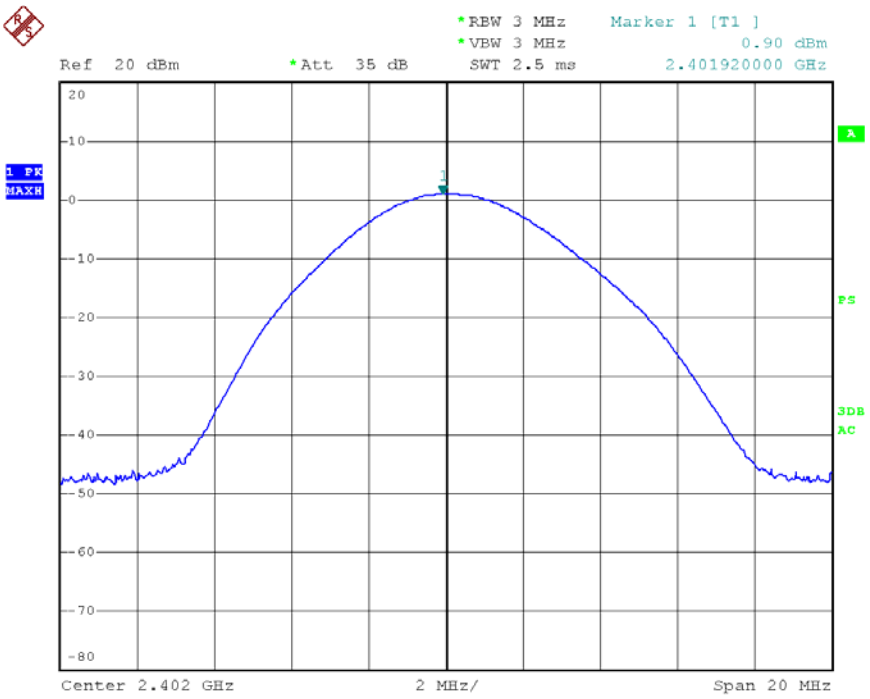
Test Item	:	Max. peak output power	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 5V	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

Channel Frequency (MHz)	Peak Power output(mW)	Peak Power output(dBm)	Peak Power Limit(mW)	Results	Modulation
2402	1.24	0.90	125	PASS	GFSK
2441	1.21	0.82	125	PASS	GFSK
2480	**1.33**	**1.21**	125	PASS	GFSK
2402	0.77	-1.19	125	PASS	π/4DQPSK
2441	0.71	-1.54	125	PASS	π/4DQPSK
2480	0.75	-1.26	125	PASS	π/4DQPSK
2402	0.77	-1.19	125	PASS	8DPSK
2441	0.71	-1.54	125	PASS	8DPSK
2480	0.75	-1.26	125	PASS	8DPSK

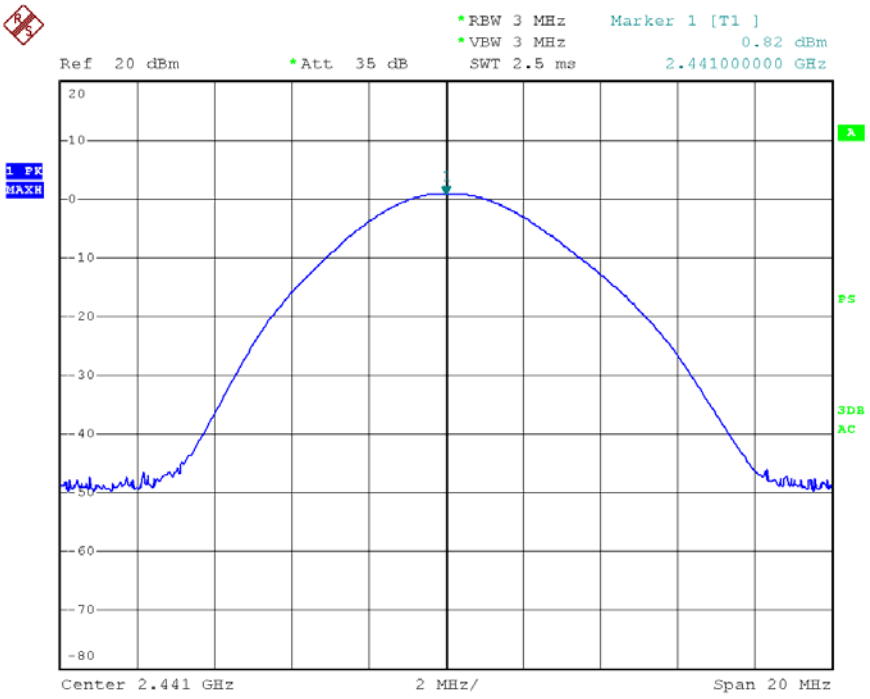
Remark: The results of modulations π/4DQPSK and 8DPSK are the same.

Modulation Mode: GFSK

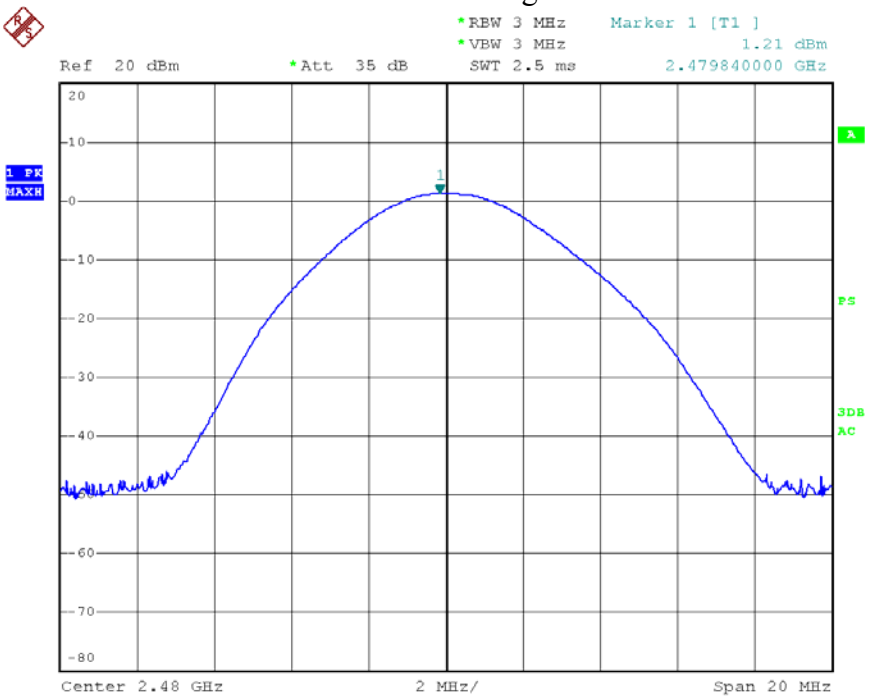
CH Low



CH Mid

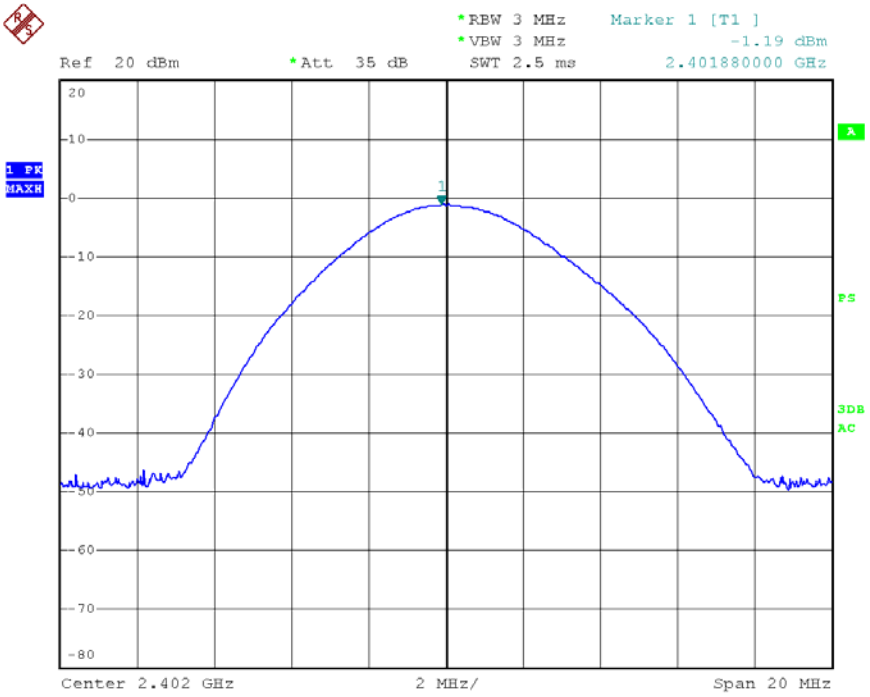


CH High

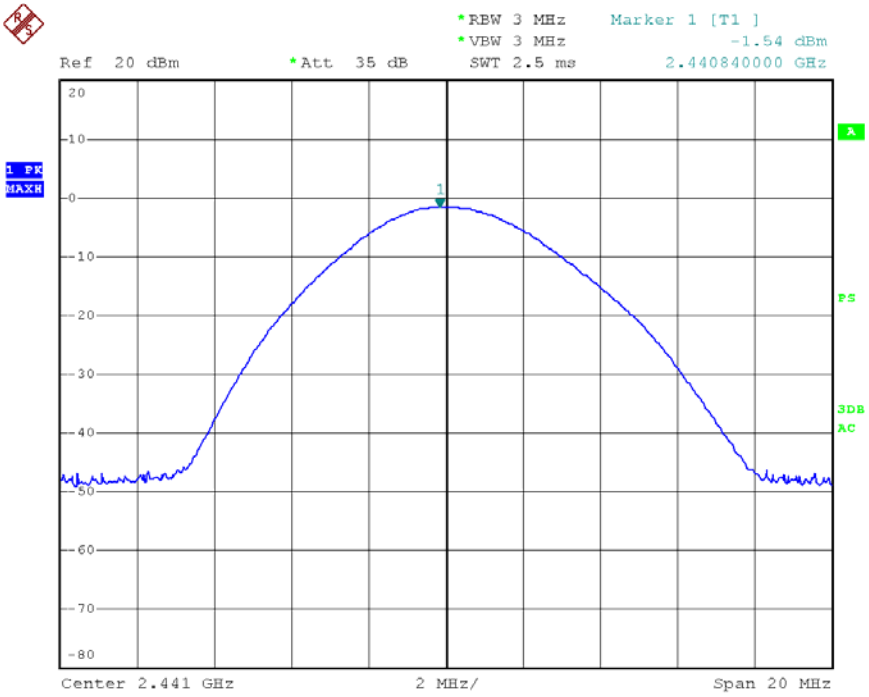


Modulation Mode: π/4DQPSK & 8DPSK

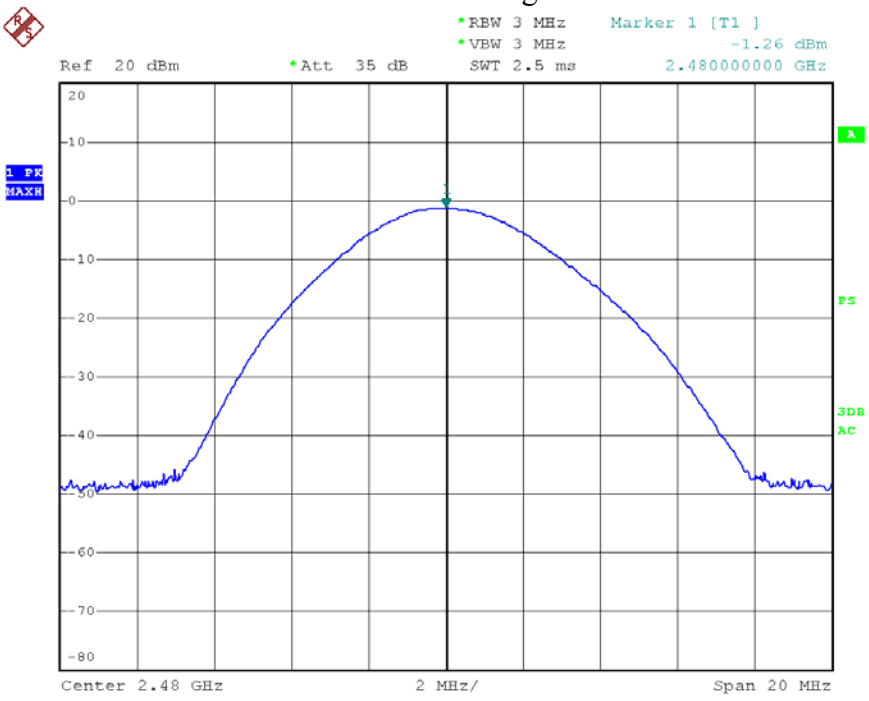
CH Low



CH Mid



CH High



9. BAND EDGE TEST

9.1 Measurement Procedure

1. The EUT was Operating in hopping mode or could be controlled its channel. Printed out test result from the spectrum by hard copy function.
2. The EUT was placed on a turn table which is 0.8m above ground plane.
3. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
4. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
5. Repeat above procedures until all frequency measured were complete.

9.2 Test SET-UP

Same as the radiated emission test.

9.3 Test Equipment

Same as the equipment listed in 4.3.

9.4 Test Results

Pass.

Please refer the following data.

Test Item	:	Band eadge	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 5V	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

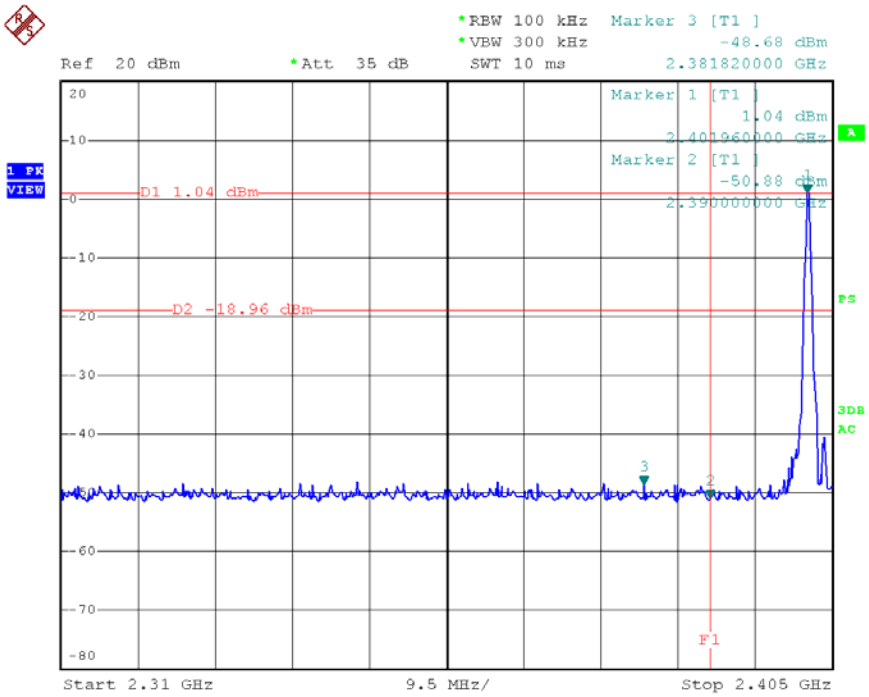
1. Conducted Test

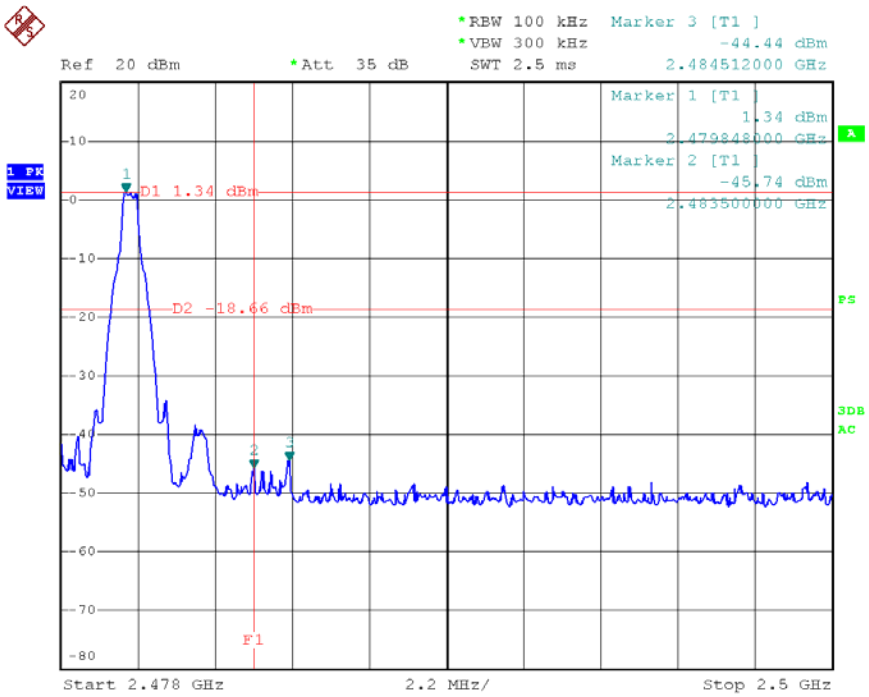
Frequency (MHz)	Peak Power Output(dBm)	Emission read Value(dBm)	Result of Band edge(dBc)	Band edge Limit(dBc)	Modulation
<2400	1.04	-48.68	49.72	>20dBc	GFSK
	-1.61	-45.16	43.55	>20dBc	π /4DQPSK
	-1.61	-45.16	43.55	>20dBc	8DPSK
>2483.5	1.34	-45.74	47.08	>20dBc	GFSK
	-1.74	-47.92	46.18	>20dBc	π /4DQPSK
	-1.74	-47.92	46.18	>20dBc	8DPSK

2. Radiated emission Test

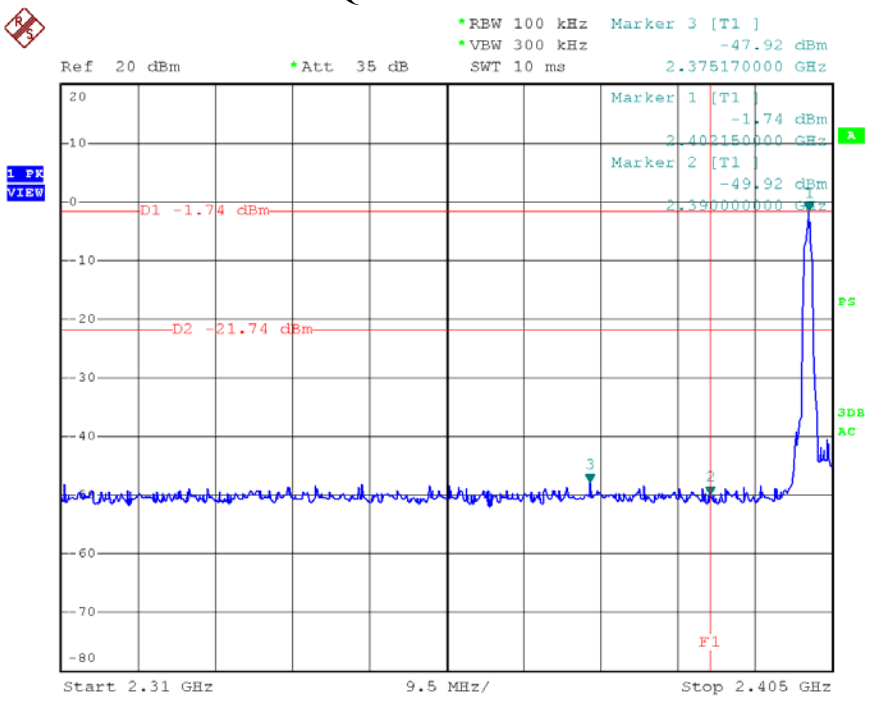
Frequency (MHz)	Antenna polarization (H/V)	Emission (dBuV/m)		Band edge Limit (dBuV/m)		Modulation
		PK	AV	PK	AV	
<2400	V	57.22	37.29	74.00	54.00	GFSK
	V	53.19	38.06	74.00	54.00	π /4DQPSK
	V	52.12	35.77	74.00	54.00	8DPSK
>2483.5	V	51.03	38.12	74.00	54.00	GFSK
	V	53.11	36.65	74.00	54.00	π /4DQPSK
	V	50.95	38.74	74.00	54.00	8DPSK

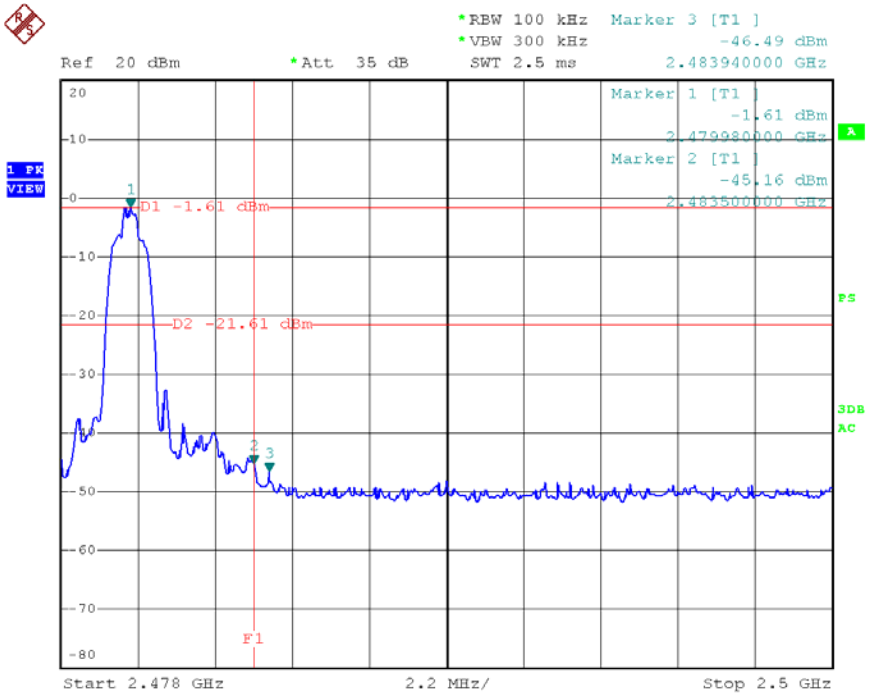
Modulation Mode: GFSK





Modulation Mode: π/4DQPSK & 8DPSK





10. ANTENNA APPLICATION

10.1 Antenna requirement

The EUT'S antenna is met the requirement of FCC part 15C section 15.203 and 15.247.

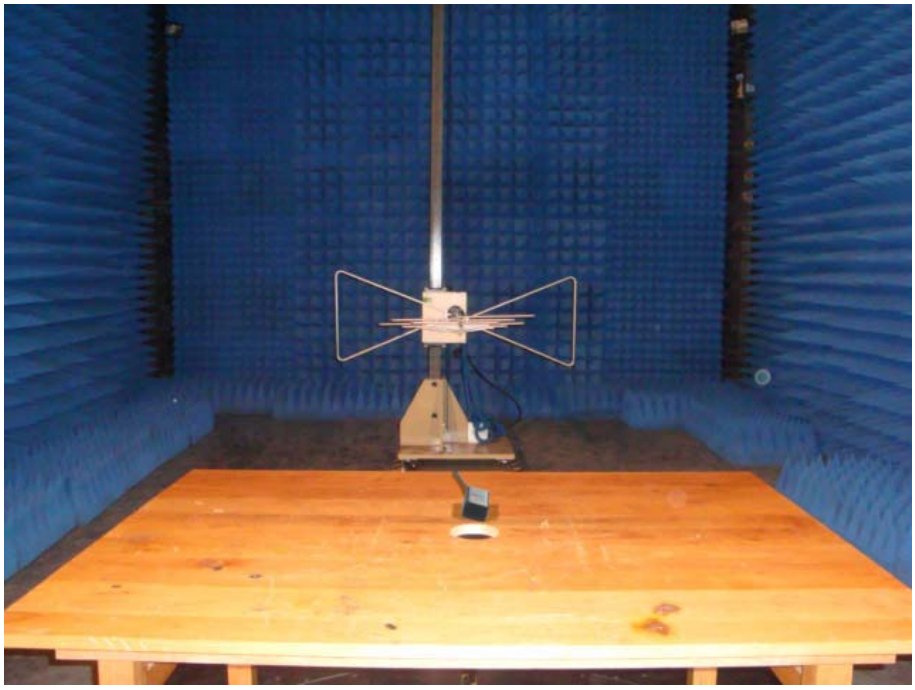
FCC part 15C section 15.247 requirements:
Systems operating in the 2402-2480MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

10.2 Result

The EUT's antenna used a chip antenna and integrated on PCB, The antenna's gain is 0dBi and meets the requirement.

11. PHOTOGRAPH

11.1 Photo of Radiation Emission Test



APPENDIX I (EXTERNAL PHOTOS)

Figure 1
The EUT-Front View

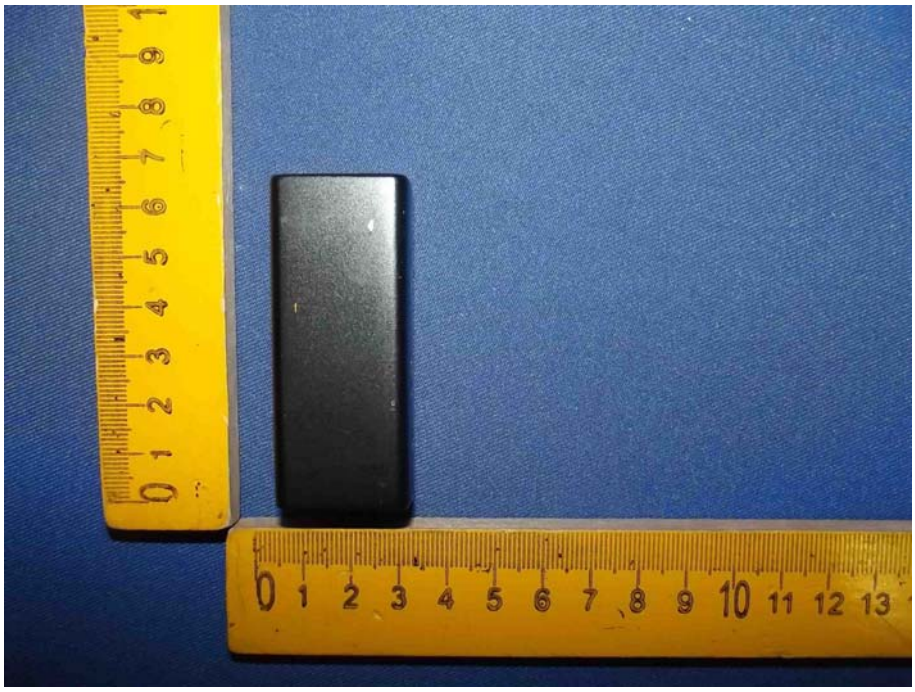


Figure 2
The EUT- Back View

Figure 3
The EUT- Side View

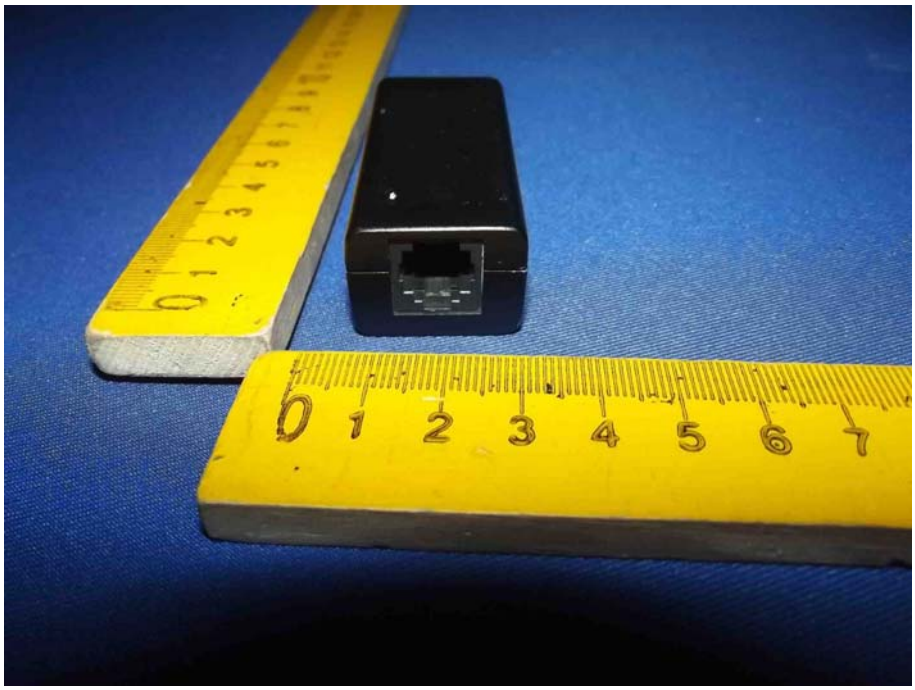


Figure 4
The EUT- Side View

APPENDIX Ⅱ (INTERNAL PHOTOS)

Figure 5
The EUT-Inside View

Figure 6
PCB of the EUT-Front View

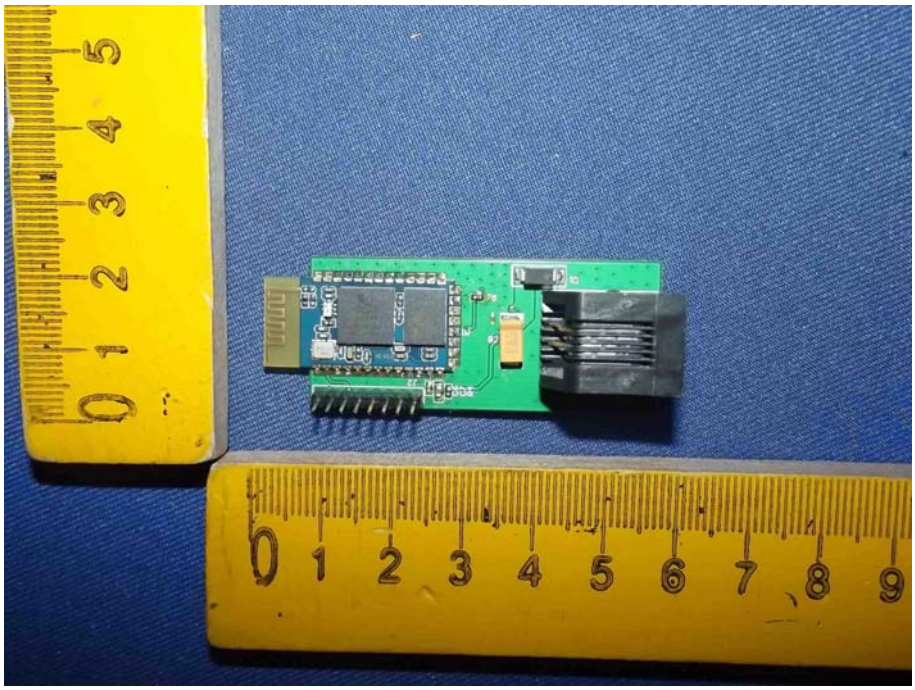


Figure 7
PCB of the EUT-Back View

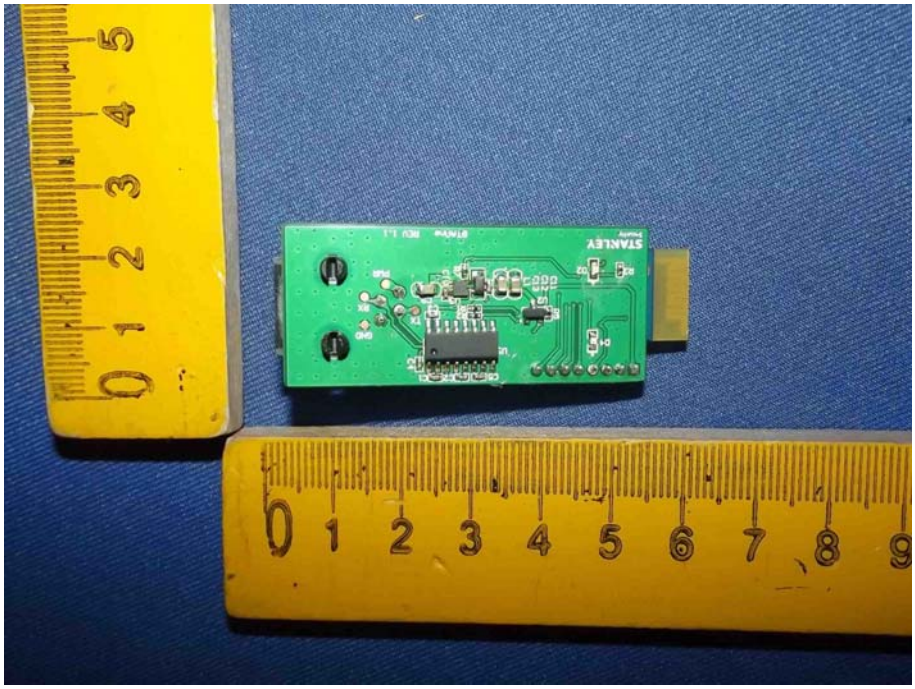


Figure 8
PCB of the EUT-Front View

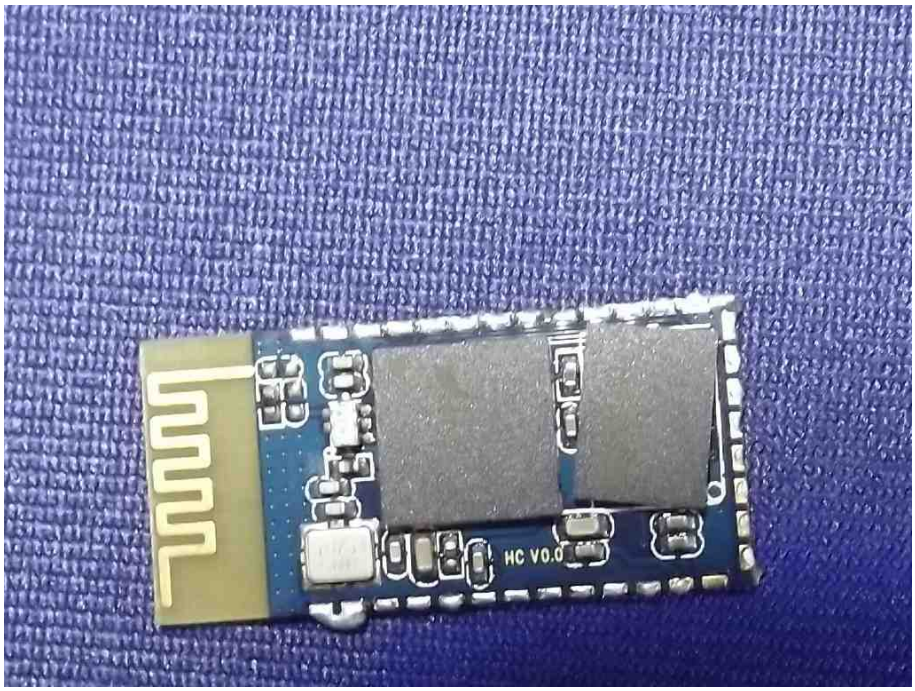


Figure 9
PCB of the EUT-Back View