

TEST REPORT

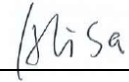
FCC Rules Part 15.247

Report Reference No..... : MTEB23080139-R

FCC ID..... : A4C-10012A

Compiled by

(position+printed name+signature): File administrators Alisa Luo



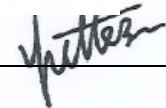
Supervised by

(position+printed name+signature): Test Engineer Sunny Deng



Approved by

(position+printed name+signature): Manager Yvette Zhou



Date of issue..... : **August 15,2023**

Representative Laboratory Name : **Shenzhen Most Technology Service Co., Ltd.**

Address : No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China.

Applicant's name : **RM ACQUISITION LLC**

Address : 8770 W. Bryn Mawr Avenue, Chicago, Illinois, United States, 60631

Test specification/ Standard : **FCC Rules Part 15.247**

TRF Originator..... : Shenzhen Most Technology Service Co., Ltd.

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Test item description : GPS Device

Trade Mark : 

Manufacturer : **SHEN ZHEN APICAL TECHNOLOGY CO., LTD**

Model/Type reference..... : TND750

Listed Models : N/A

Modulation Type : GFSK, $\pi/4$ DQPSK, 8DPSK

Operation Frequency..... : From 2402MHz to 2480MHz

Hardware Version..... : T85-MT8176-MIAN-01B-1

Software Version : O11019.TND750_p1_200413_50

DC3.7V by Battery

Rating : DC 5V(by Car Charger)

DC 5V (by USB Port)

Result..... : **PASS**

TEST REPORT

Equipment under Test : GPS Device

Model /Type : TND750

Listed Models : N/A

Remark : N/A.

Applicant : RM ACQUISITION LLC

Address : 8770 W. Bryn Mawr Avenue,Chicago,Illinois,United States,60631

Manufacturer : SHEN ZHEN APICAL TECHNOLOGY CO., LTD

Address : 9/F,B Building, Tingshua Unis Infoport, Langshan RD, North district, Hi-tech Industrial Park, Nanshan, Shenzhen

Test Result:	PASS
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1 Revision History

Revision	Issue Date	Revisions	Revised By
00	2023-08-15	Initial Issue	Alisa Luo

2 TEST STANDARDS

The tests were performed according to following standards:

[FCC Rules Part 15.247](#): Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

[ANSI C63.10-2013](#): American National Standard for Testing Unlicensed Wireless Devices

3 SUMMARY

3.1 General Remarks

Date of receipt of test sample	:	2023.08.09
Testing commenced on	:	2023.08.10
Testing concluded on	:	2023.08.15

3.2 Product Description

Product Name:	GPS Device
Model/Type reference:	TND750
Power Supply:	DC3.7V by Battery DC 5V(by Car Charger) DC 5V (by USB Port)
Testing sample ID:	MTYP02084
Bluetooth :	
Supported Type:	Bluetooth BR/EDR
Modulation:	GFSK, π /4DQPSK, 8DPSK
Operation frequency:	2402MHz~2480MHz
Channel number:	79
Channel separation:	1MHz
Antenna type:	PFC Antenna
Antenna gain:	1.61dBi

3.3 Equipment Under Test

Power supply system utilised

Power supply voltage	:	<input type="radio"/> 230V / 50 Hz	<input type="radio"/> 120V / 60Hz
		<input type="radio"/> 12 V DC	<input type="radio"/> 24 V DC
		<input checked="" type="radio"/> Other (specified in blank below)	

DC3.7V by Battery
DC 5V(by Car Charger)
DC 5V (by USB Port)

3.4 Short description of the Equipment under Test (EUT)

This is a GPS Device For more details, refer to the user's manual of the EUT.

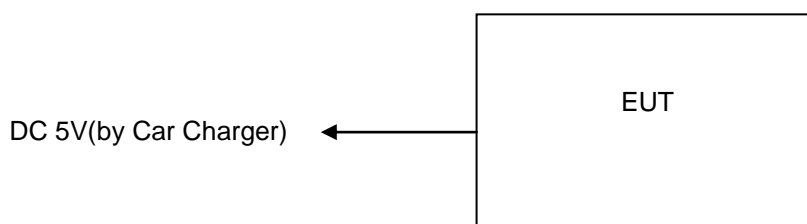
3.5 EUT operation mode

The Applicant provides communication tools software(Engineer mode) to control the EUT for staying in continuous transmitting (Duty Cycle more than 98%) and receiving mode for testing .There are 79 channels provided to the EUT and Channel 00/39/78 were selected to test.

Operation Frequency:

Channel	Frequency (MHz)
00	2402
01	2403
⋮	⋮
38	2440
39	2441
40	2442
⋮	⋮
77	2479
78	2480

3.6 Block Diagram of Test Setup



3.7 Test Item (Equipment Under Test) Description*

Short designation	EUT Name	EUT Description	Serial number	Hardware status	Software status
EUT A					
EUT B					

*: declared by the applicant. According to customers information EUTs A and B are the same devices.

3.8 Auxiliary Equipment (AE) Description

AE short designation	EUT Name (if available)	EUT Description	Serial number (if available)	Software (if used)
AE 1	Adapter	MDY-08-EH		
AE 2	-			

3.9 Antenna Information*

Short designation	Antenna Name	Antenna Type	Frequency Range	Serial number	Antenna Peak Gain
Antenna 1	---	PFC Antenna	2.4 – 2.5 GHz	---	1.61dBi
Antenna 2					

*: declared by the applicant.

3.10 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for the device filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

3.11 Modifications

No modifications were implemented to meet testing criteria.

3.12 EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- supplied by the manufacturer
- Supplied by the lab

<input checked="" type="radio"/>	ADAPTER	M/N:	MDY-08-EH
<input type="radio"/>		Manufacturer:	Xiaomi Communications Co.,Ltd

4 TEST ENVIRONMENT

4.1 Address of the test laboratory

Shenzhen Most Technology Service Co., Ltd.

No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China.
The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.4:2014 and CISPR 16-1-4:2010 SVSWR requirement for radiated emission above 1GHz.

Test Facility

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

FCC-Designation No.: CN1315

Shenzhen Most Technology Service 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.

A2LA-Lab Cert. No.: 6343.01

Shenzhen Most Technology Service Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Radiated Emission:

Temperature:	23 ° C
Humidity:	48 %
Atmospheric pressure:	950-1050mbar

AC Main Conducted testing:

Temperature:	24 ° C
Humidity:	45 %
Atmospheric pressure:	950-1050mbar

Conducted testing:

Temperature:	24 ° C
Humidity:	45 %
Atmospheric pressure:	950-1050mbar

4.3 Summary of measurement results

Test Specification clause	Test case	Test Mode	Test Channel	Recorded In Report		Test result
§15.247(d)	TX spuriousemissions radiated	GFSK Π/4DQPSK 8DPSK	<input checked="" type="checkbox"/> Lowest <input checked="" type="checkbox"/> Middle <input checked="" type="checkbox"/> Highest	GFSK	<input checked="" type="checkbox"/> Lowest <input checked="" type="checkbox"/> Middle <input checked="" type="checkbox"/> Highest	Compliant
§15.209(a)	TX spurious Emissions radiated Below 1GHz	GFSK Π/4DQPSK 8DPSK	<input checked="" type="checkbox"/> Lowest <input checked="" type="checkbox"/> Middle <input checked="" type="checkbox"/> Highest	GFSK	<input checked="" type="checkbox"/> Middle	Compliant
§15.107(a) §15.207	Conducted Emissions 9KHz-30 MHz	GFSK Π/4DQPSK 8DPSK	<input checked="" type="checkbox"/> Lowest <input checked="" type="checkbox"/> Middle <input checked="" type="checkbox"/> Highest	GFSK	<input checked="" type="checkbox"/> Middle	N/A

Remark:

1. The measurement uncertainty is not included in the test result.
2. We tested all test mode and recorded worst case in report

4.4 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Most Technology Service Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Most Technology Service Co., Ltd. is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10 dB	(1)
Radiated Emission	1~18GHz	4.32 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.12 dB	(1)

- (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.5 Equipments Used during the Test

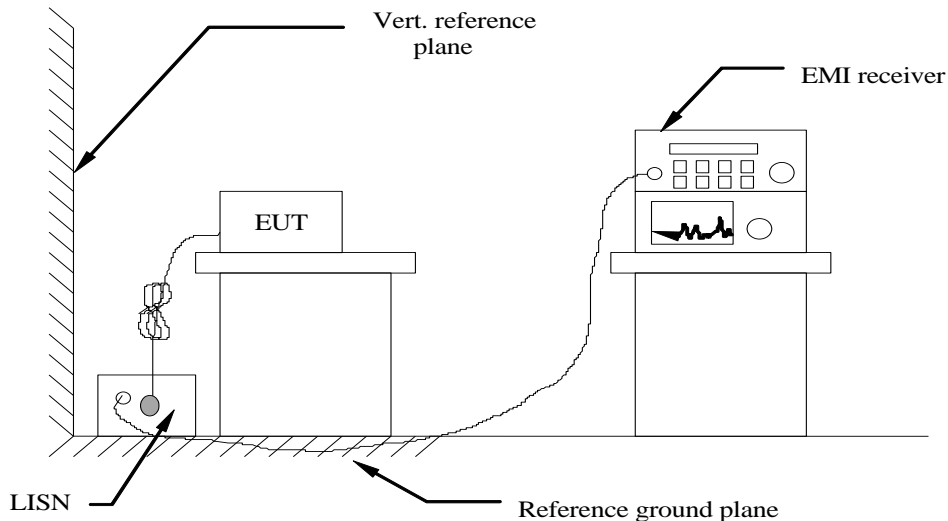
Item	Equipment	Manufacturer	Model No.	Serial No.	Firmware versions	Last Cal.	Cal. Interval
1.	L.I.S.N.	R&S	ENV216	100093	/	2023/03/17	1 Year
2	Three-phase artificial power network	Schwarzback Mess	NNLK8129	8129178	/	2023/03/17	1 Year
3.	Receiver	R&S	ESCI	100492	V3.0-10-2	2023/03/17	1 Year
4	Receiver	R&S	ESPI	101202	V3.0-10-2	2023/03/17	1 Year
5	Spectrum analyzer	Agilent	9020A	MT-E306	A14.16	2023/03/17	1 Year
6	Bilong Antenna	Sunol Sciences	JB3	A121206	/	2023/03/17	1 Year
7	Horn antenna	HF Antenna	HF Antenna	MT-E158	/	2023/03/17	1 Year
8	Loop antenna	Beijing Daze	ZN30900B	/	/	2023/03/17	1 Year
9	Horn antenna	R&S	OBH100400	26999002	/	2023/03/17	1 Year
10	Wireless Communication Test Set	R&S	CMW500	/	CMW-BASE-3.7.21	2023/03/17	1 Year
11	Spectrum analyzer	R&S	FSP	100019	V4.40 SP2	2023/03/17	1 Year
12	High gain antenna	Schwarzbeck	LB-180400KF	MT-E389	/	2023/03/17	1 Year
13	Preamplifier	Schwarzbeck	BBV 9743	MT-E390	/	2023/03/17	1 Year
14	Pre-amplifier	EMCI	EMC051845S E	MT-E391	/	2023/03/17	1 Year
15	Pre-amplifier	Agilent	83051A	MT-E392	/	2023/03/17	1 Year
16	High pass filter unit	Tonscend	JS0806-F	MT-E393	/	2023/03/17	1 Year
17	RF Cable(below1GHz)	Times	9kHz-1GHz	MT-E394	/	2023/03/17	1 Year
18	RF Cable(above 1GHz)	Times	1-40G	MT-E395	/	2023/03/17	1 Year
19	RF Cable (9KHz-40GHz)	Tonscend	170660	N/A	/	2023/03/17	1 Year

Note: The Cal.Interval was one year.

5 TEST CONDITIONS AND RESULTS

5.1 AC Power Conducted Emission

TEST CONFIGURATION



TEST PROCEDURE

- 1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10-2013.
- 2 Support equipment, if needed, was placed as per ANSI C63.10-2013
- 3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10-2013
- 4 The EUT received DC 12V power from adapter, the adapter received AC120V/60Hz and AC 240V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5 All support equipments received AC power from a second LISN, if any.
- 6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
- 8 During the above scans, the emissions were maximized by cable manipulation.

AC Power Conducted Emission Limit

For intentional device, according to § 15.207(a) AC Power Conducted Emission Limits is as following :

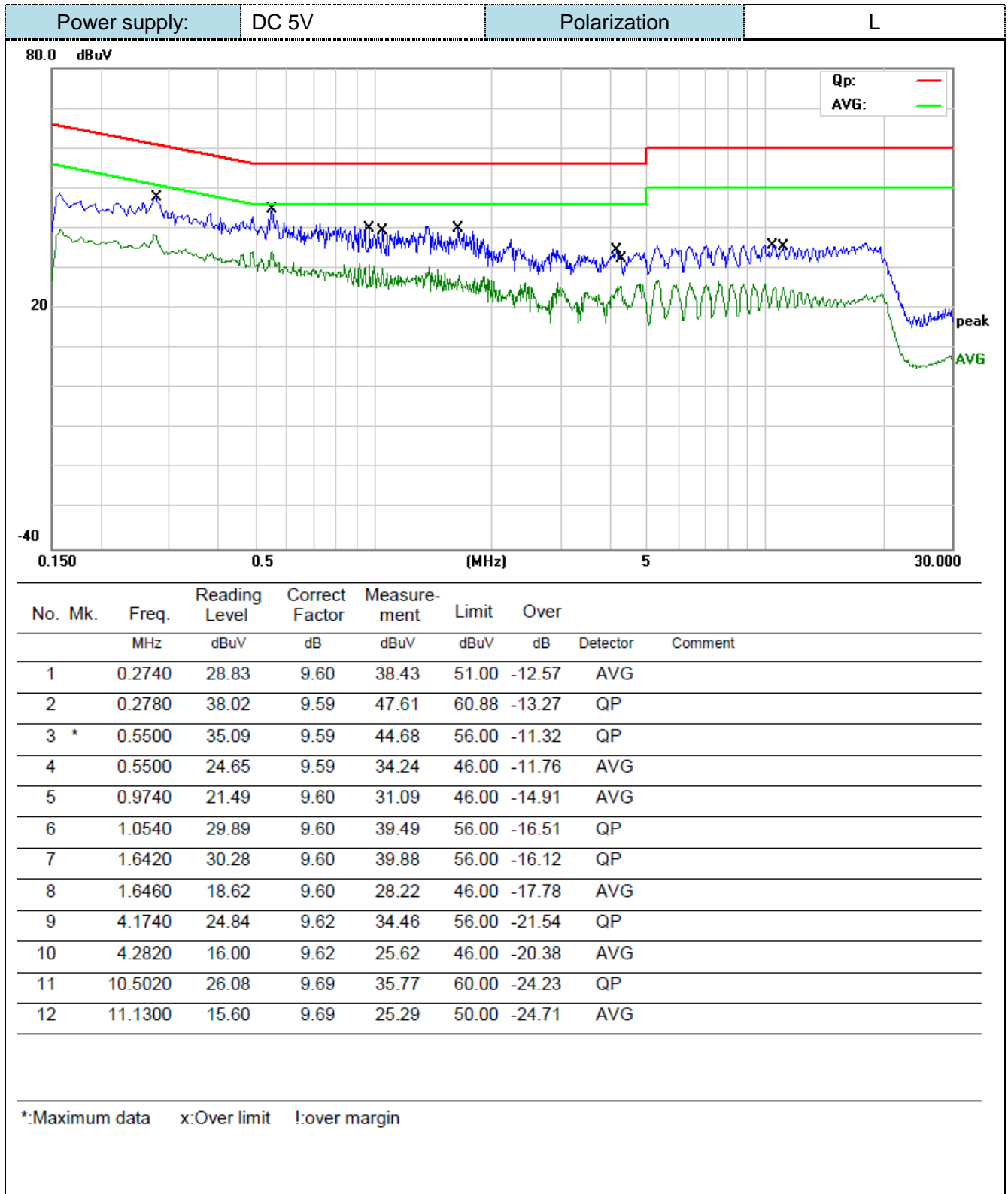
Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

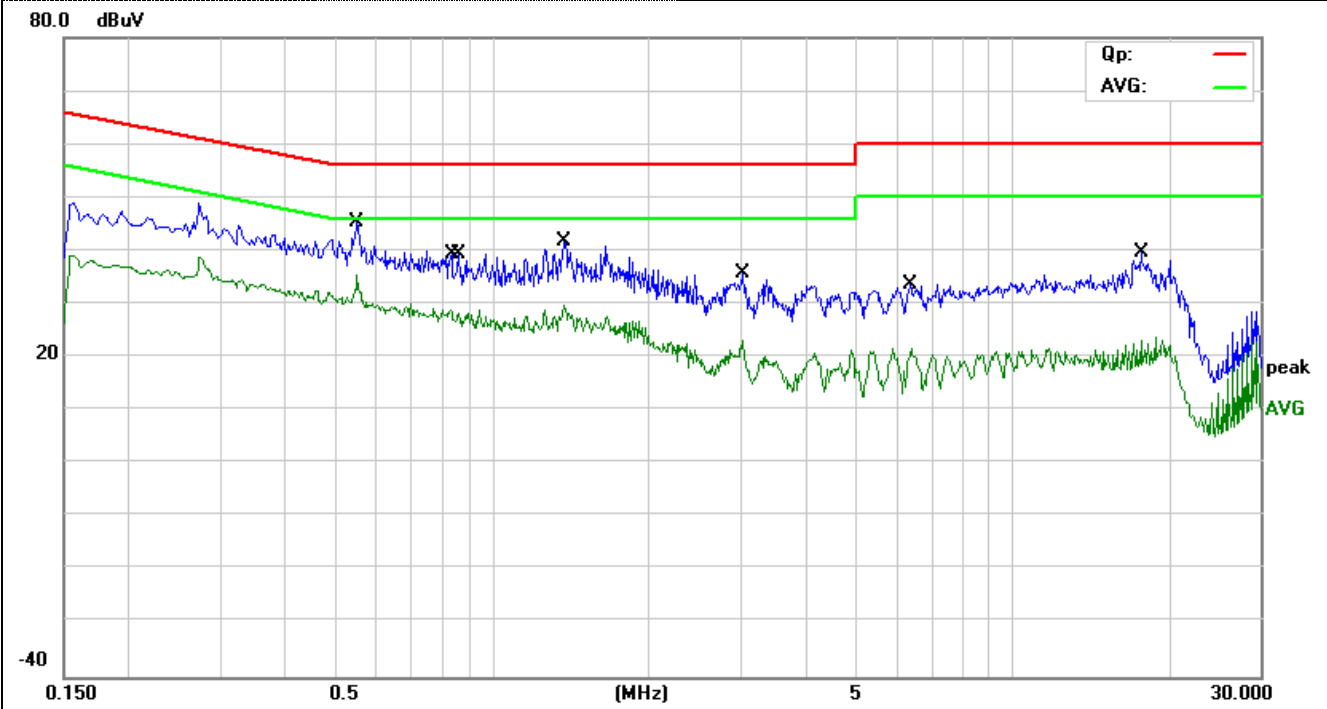
TEST RESULTS

Remark:

1. ALL modes were test at Low, Middle, and High channel; only the worst result of GFSK Middle Channel was reported as below:



Power supply: DC 5V Polarization: N



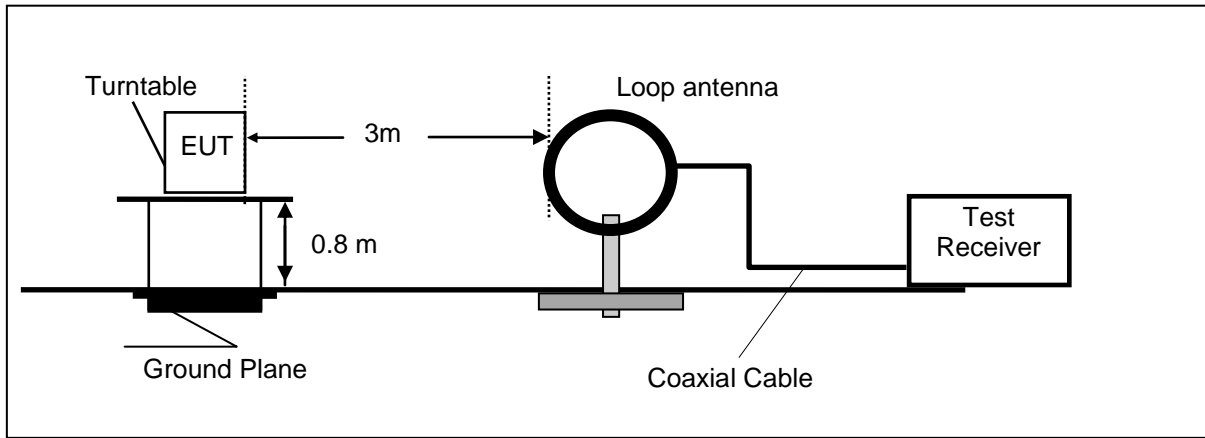
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.5500	35.65	9.59	45.24	56.00	-10.76	QP	
2	*	0.5500	25.83	9.59	35.42	46.00	-10.58	AVG	
3		0.8340	19.14	9.60	28.74	46.00	-17.26	AVG	
4		0.8620	29.86	9.60	39.46	56.00	-16.54	QP	
5		1.3700	18.73	9.60	28.33	46.00	-17.67	AVG	
6		1.3780	32.04	9.60	41.64	56.00	-14.36	QP	
7		3.0060	11.99	9.61	21.60	46.00	-24.40	AVG	
8		3.0340	26.23	9.61	35.84	56.00	-20.16	QP	
9		6.3580	23.99	9.64	33.63	60.00	-26.37	QP	
10		6.4140	11.99	9.64	21.63	50.00	-28.37	AVG	
11		17.7100	29.93	9.72	39.65	60.00	-20.35	QP	
12		17.7100	13.48	9.72	23.20	50.00	-26.80	AVG	

*:Maximum data x:Over limit !:over margin

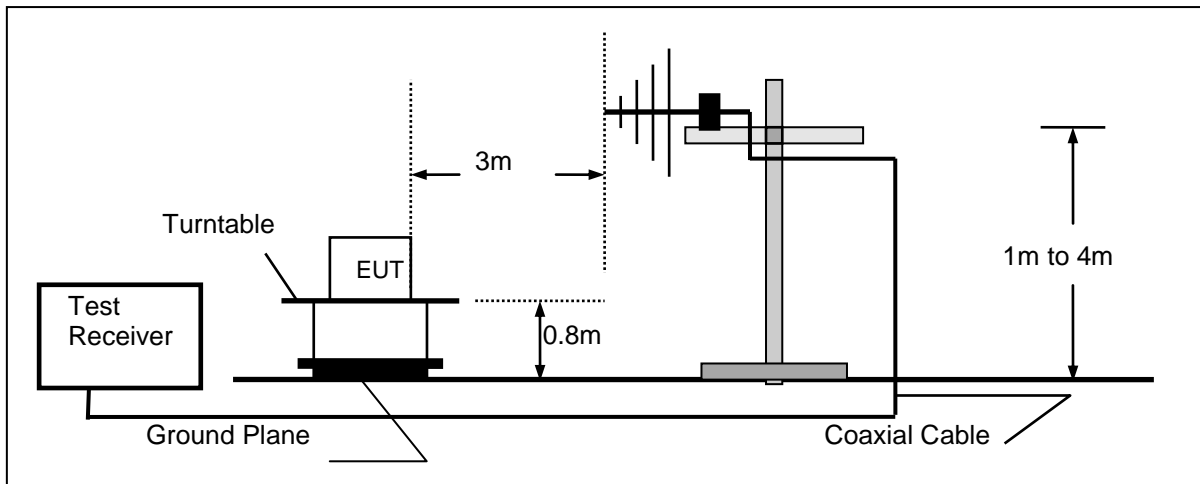
5.2 Radiated Emission

TEST CONFIGURATION

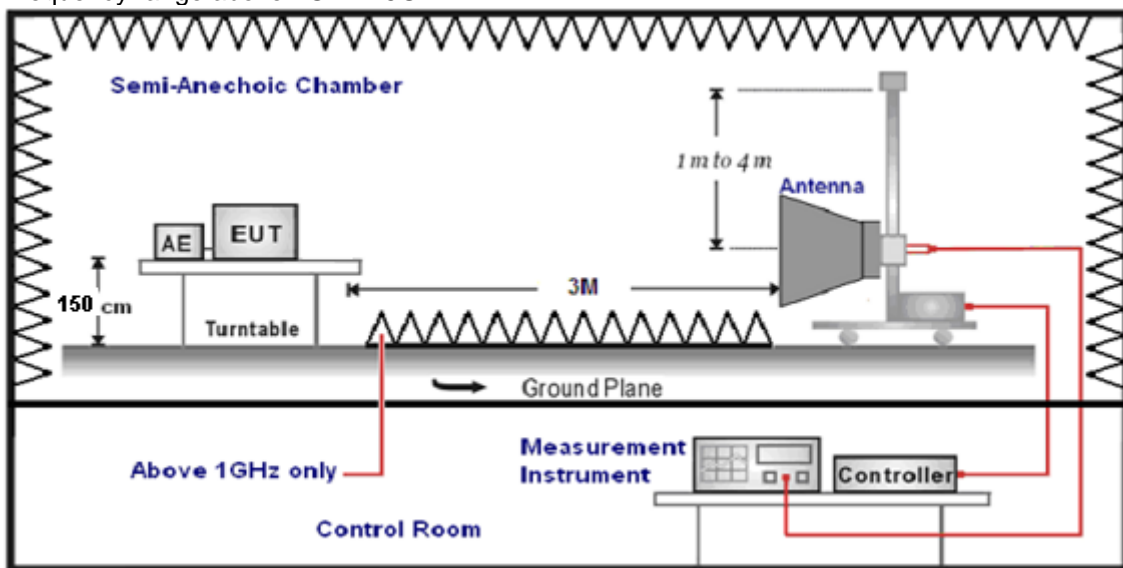
Frequency range 9 KHz – 30MHz



Frequency range 30MHz – 1000MHz



Frequency range above 1GHz-25GHz



TEST PROCEDURE

- The EUT was placed on a turn table which is 0.8m above ground plane when testing frequency range 9 KHz –1GHz;the EUT was placed on a turn table which is 1.5m above ground plane when testing frequency range 1GHz – 25GHz.
- Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT.
- And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- Repeat above procedures until all frequency measurements have been completed.
- Radiated emission test frequency band from 9KHz to 25GHz.
- The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Ultra-Broadband Antenna	3
1GHz-18GHz	Double Ridged Horn Antenna	3
18GHz-25GHz	Horn Antenna	1

- Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz,Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz,Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz,Sweep time=Auto	QP
1GHz-40GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

Field Strength Calculation

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

$$FS = RA + AF + CL - AG$$

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

$$Transd=AF +CL-AG$$

RADIATION LIMIT

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission from intentional radiators at a distance of 3 meters shall not exceed the following table. According to § 15.247(d), in any 100kHz bandwidth outside the frequency band in which the EUT is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the100kHz bandwidth within the band that contains the highest level of desired power.

The pre-test have done for the EUT in three axes and found the worst emission at position shown in test setup photos.

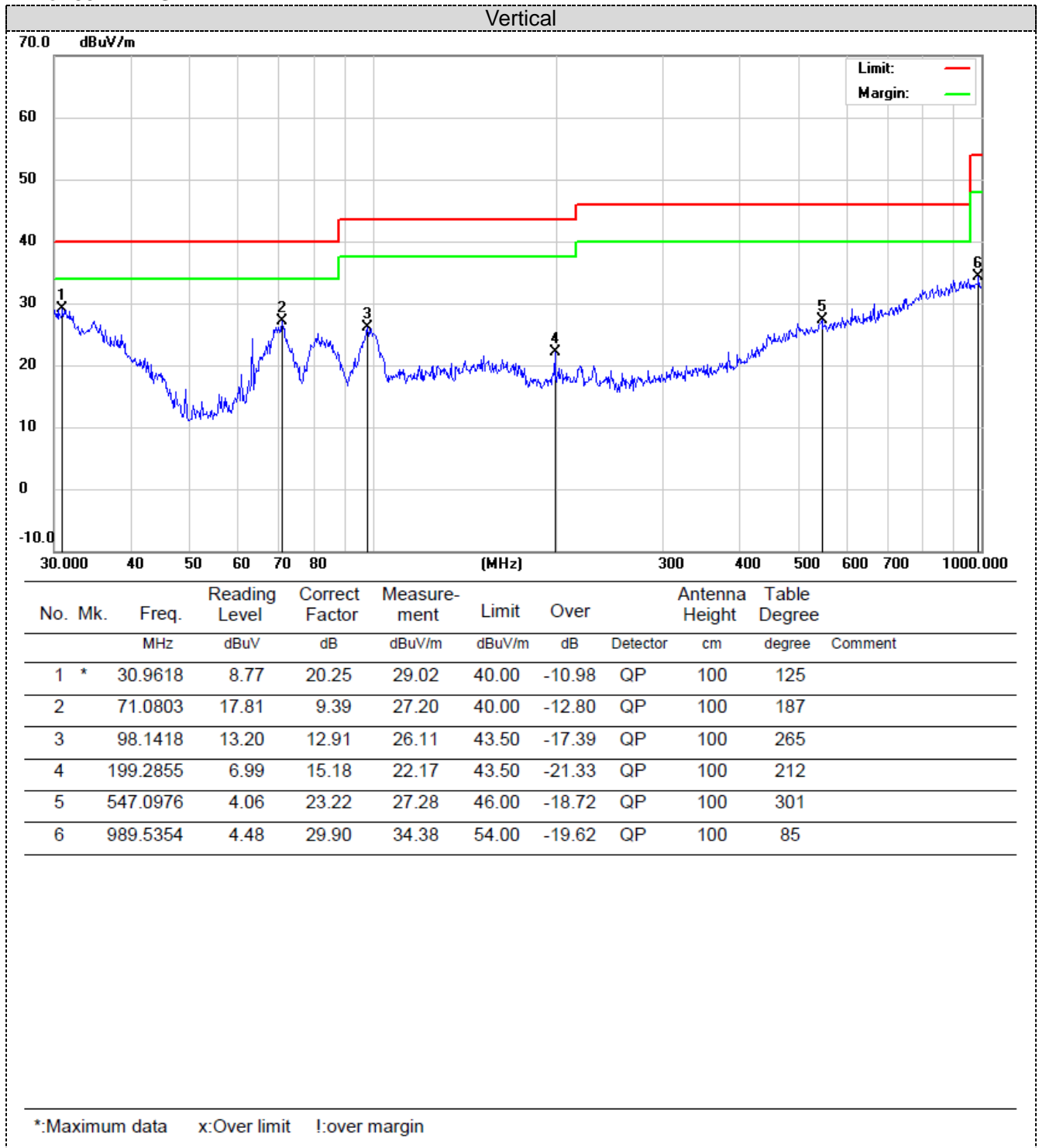
Frequency (MHz)	Distance (Meters)	Radiated (dBµV/m)	Radiated (µV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-30	3	20log(30)+ 40log(30/3)	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST RESULTS

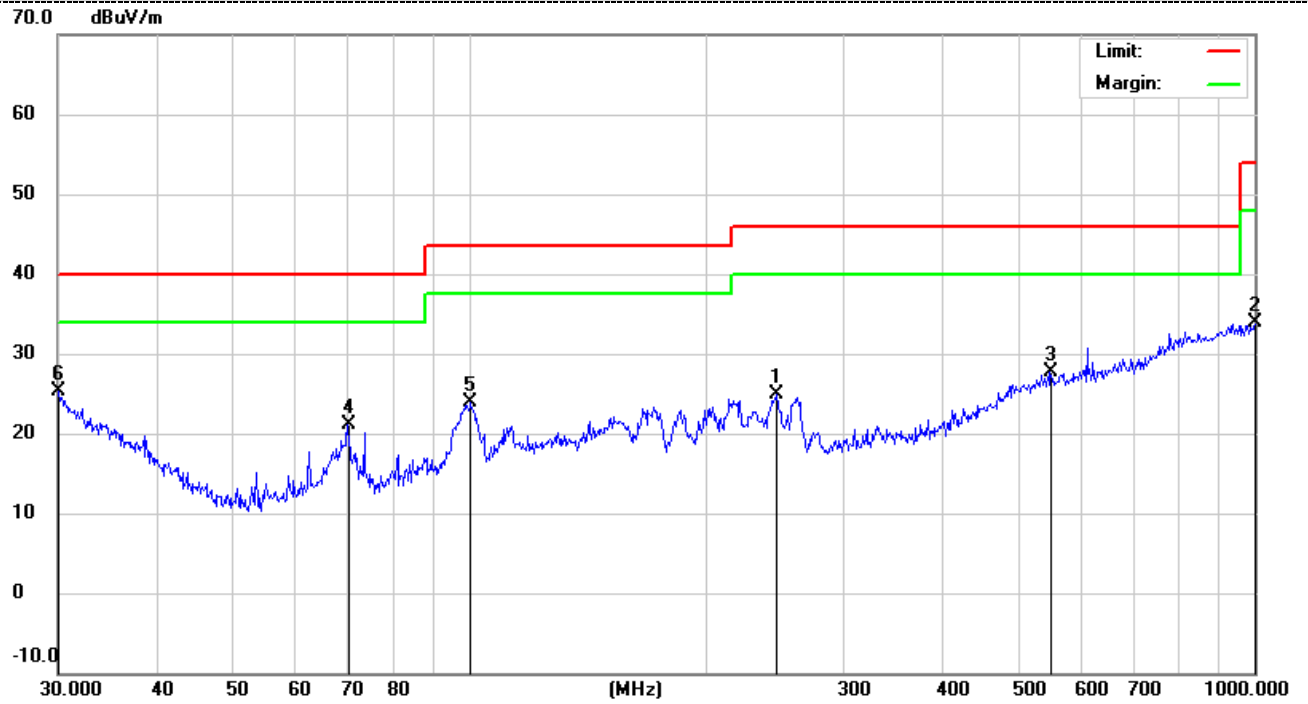
Remark:

1. This test was performed with EUT in X, Y, Z position and the worse case was found when EUT in X position.
2. We measured Radiated Emission at GFSK, $\pi/4$ DQPSK and 8DPSK mode from 9 KHz to 25GHz and recorded worst case at GFSK DH5 mode.
3. For below 1GHz testing recorded worst at GFSK DH5 middle channel.
4. Radiated emission test from 9 KHz to 10th harmonic of fundamental was verified, and no emission found except system noise floor in 9 KHz to 30MHz and not recorded in this report.
5. Remark: Result=Reading value+Factor

For 30MHz-1GHz



Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		246.8149	11.01	13.89	24.90	46.00	-21.10	200	48	
2		1000.000	3.98	30.00	33.98	54.00	-20.02	200	158	
3		549.0195	4.43	23.24	27.67	46.00	-18.33	200	265	
4		70.0903	11.76	9.31	21.07	40.00	-18.93	200	115	
5		100.5806	10.19	13.66	23.85	43.50	-19.65	200	101	
6	*	30.0000	4.43	20.90	25.33	40.00	-14.67	200	154	

*:Maximum data x:Over limit !:over margin

For 1GHz to 25GHz

Note: GFSK, $\pi/4$ DQPSK and 8DPSK all have been tested, only worse case GFSK is reported.

GFSK (above 1GHz)

Frequency(MHz):			2402		Polarity:		HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4804	52.13	PK	74	21.87	50.23	31.42	6.98	36.5	1.9
4804	46.79	AV	54	7.21	44.89	31.42	6.98	36.5	1.9
7206	55.55	PK	74	18.45	44.95	37.03	8.87	35.3	10.6
7206	41.52	AV	54	12.48	30.92	37.03	8.87	35.3	10.6

Frequency(MHz):			2402		Polarity:		VERTICAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4804	56.4	PK	74	17.6	54.5	31.42	6.98	36.5	1.9
4804	44.78	AV	54	9.22	42.88	31.42	6.98	36.5	1.9
7206	52.67	PK	74	21.33	42.07	37.03	8.87	35.3	10.6
7206	42.87	AV	54	11.13	32.27	37.03	8.87	35.3	10.6

Frequency(MHz):			2441		Polarity:		HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4882	57.83	PK	74	16.17	55.77	30.98	7.58	36.5	2.06
4882	44.14	AV	54	9.86	42.08	30.98	7.58	36.5	2.06
7323	53.98	PK	74	20.02	43.06	37.66	8.56	35.3	10.92
7323	43.16	AV	54	10.84	32.24	37.66	8.56	35.3	10.92

Frequency(MHz):			2441		Polarity:		VERTICAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4882	55.55	PK	74	18.45	53.49	30.98	7.58	36.5	2.06
4882	42.37	AV	54	11.63	40.31	30.98	7.58	36.5	2.06
7323	51.38	PK	74	22.62	40.46	37.66	8.56	35.3	10.92
7323	43.36	AV	54	10.64	32.44	37.66	8.56	35.3	10.92

Frequency(MHz):			2480		Polarity:		HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4960	58.47	PK	74	15.53	55.4	31.47	7.8	36.2	3.07
4960	47.64	AV	54	6.36	44.57	31.47	7.8	36.2	3.07
7440	56.63	PK	74	17.37	44.89	38.32	8.72	35.3	11.74
7440	42.3	PK	54	11.7	30.56	38.32	8.72	35.3	11.74

Frequency(MHz):			2480		Polarity:		VERTICAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4960	54.18	PK	74	19.82	51.11	31.47	7.8	36.2	3.07
4960	47.57	AV	54	6.43	44.5	31.47	7.8	36.2	3.07
7440	52.39	PK	74	21.61	40.65	38.32	8.72	35.3	11.74
7440	43.25	PK	54	10.75	31.51	38.32	8.72	35.3	11.74

REMARKS:

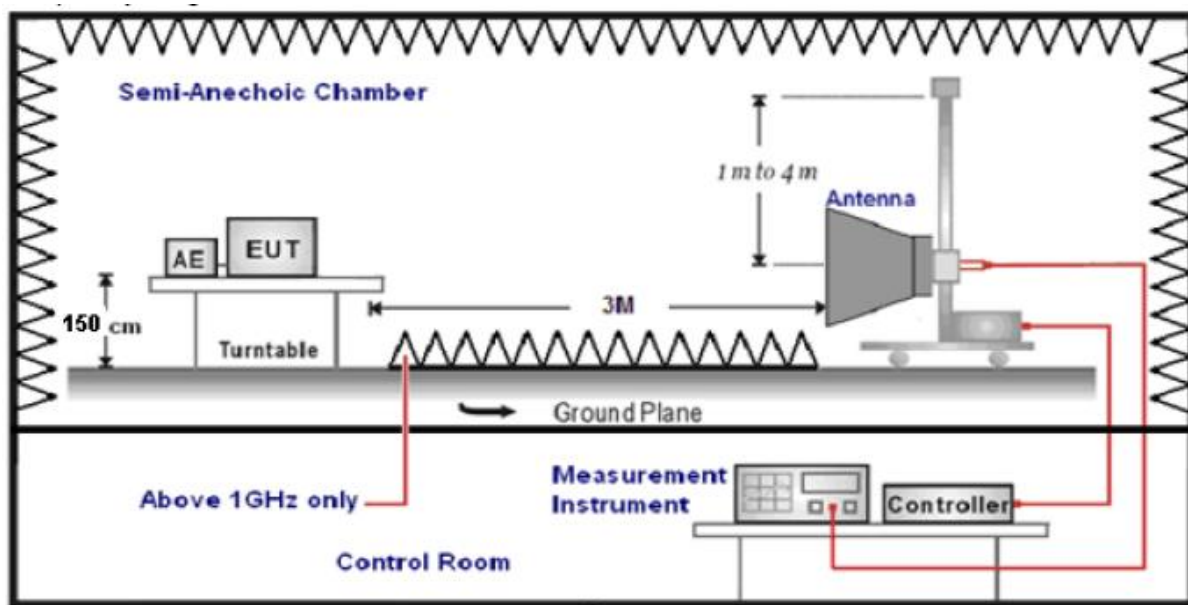
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) - Pre-amplifier
3. Margin value = Limit value - Emission level.
4. -- Mean the PK detector measured value is below average limit.
5. The other emission levels were very low against the limit.

5.3 Band Edge Compliance of RF Emission

TEST REQUIREMENT

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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

TEST CONFIGURATION



TEST PROCEDURE

1. The EUT was placed on a turn table which is 1.5m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed..
5. The distance between test antenna and EUT was 3 meter:
6. Setting test receiver/spectrum as following table states:

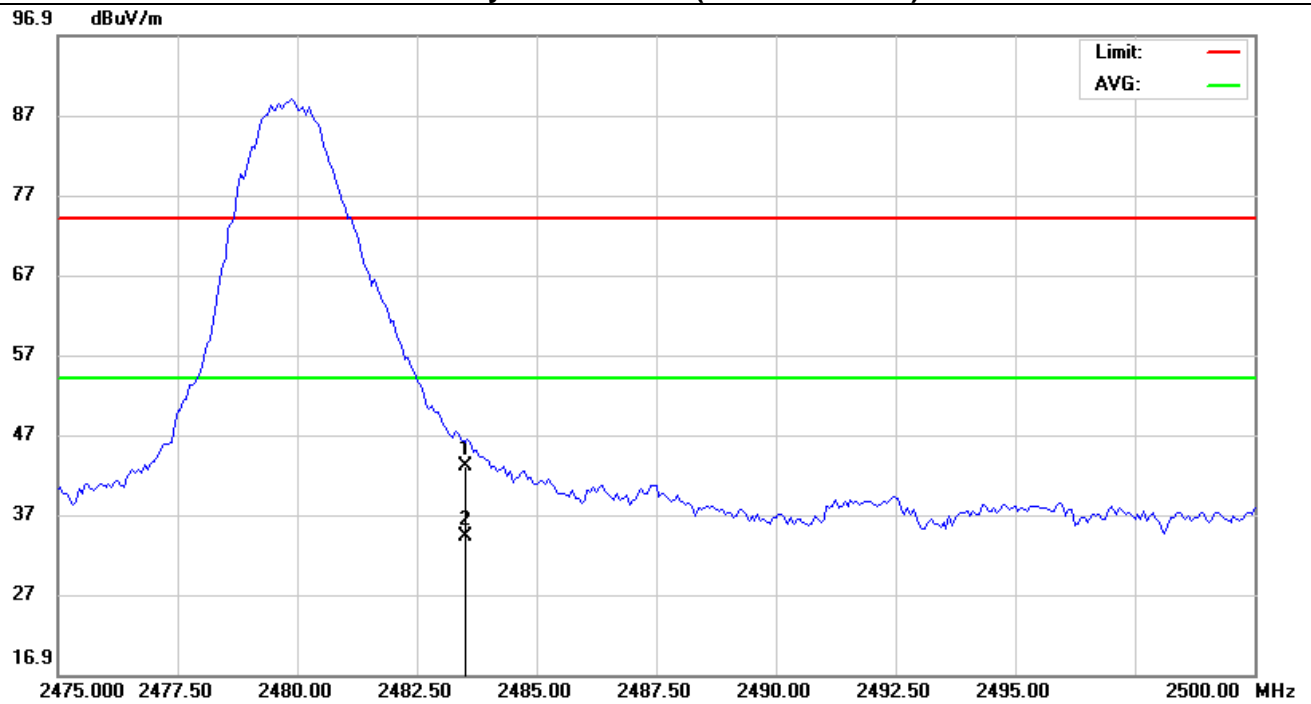
Test Frequency range	Test Receiver/Spectrum Setting	Detector
1GHz-40GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

LIMIT

Below -20dB of the highest emission level in operating band.
Radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)

Results of Band Edges Test (Radiated)
GFSK

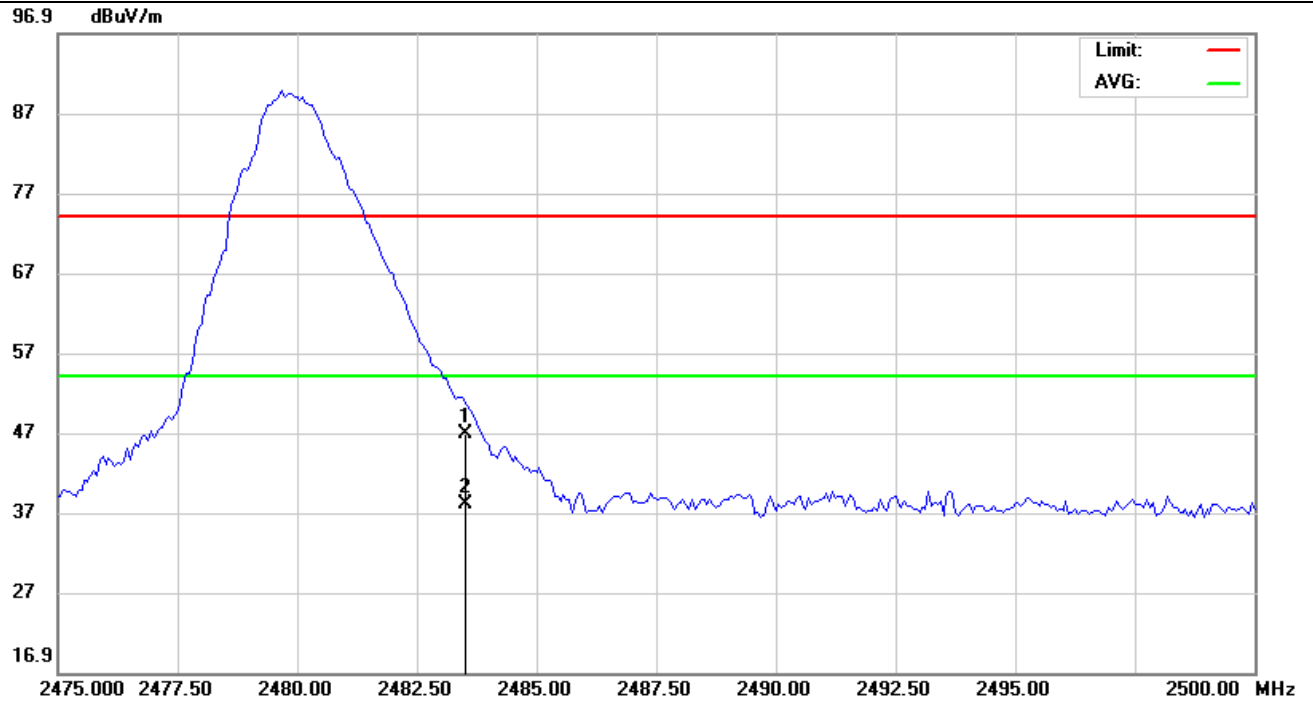
Polarity:HORIZONTAL(GFSK-2480MHz)



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		2483.500	51.22	-8.29	42.93	74.00	-31.07	peak			
2	*	2483.500	42.56	-8.29	34.27	54.00	-19.73	AVG			

*:Maximum data x:Over limit !:over margin

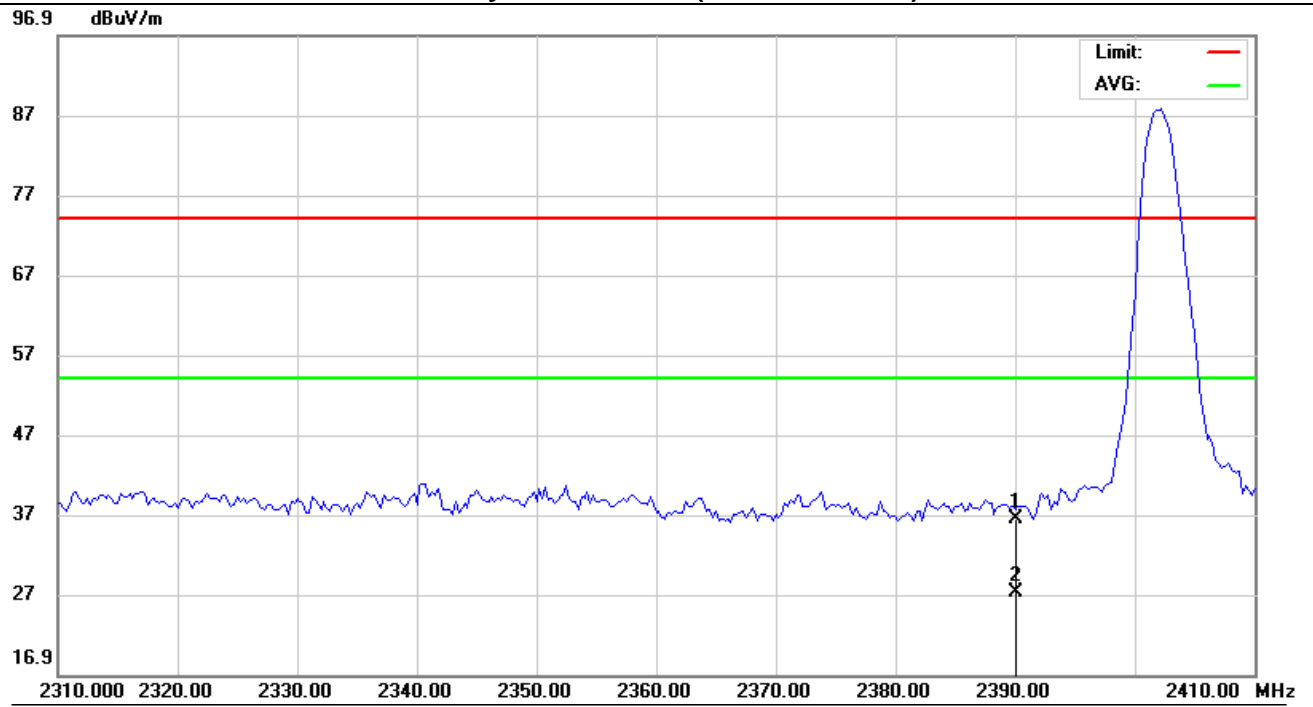
Polarity:VERTICAL(GFSK-2480MHz)



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		2483.500	55.02	-8.29	46.73	74.00	-27.27	peak			
2	*	2483.500	46.28	-8.29	37.99	54.00	-16.01	AVG			

*:Maximum data x:Over limit !:over margin

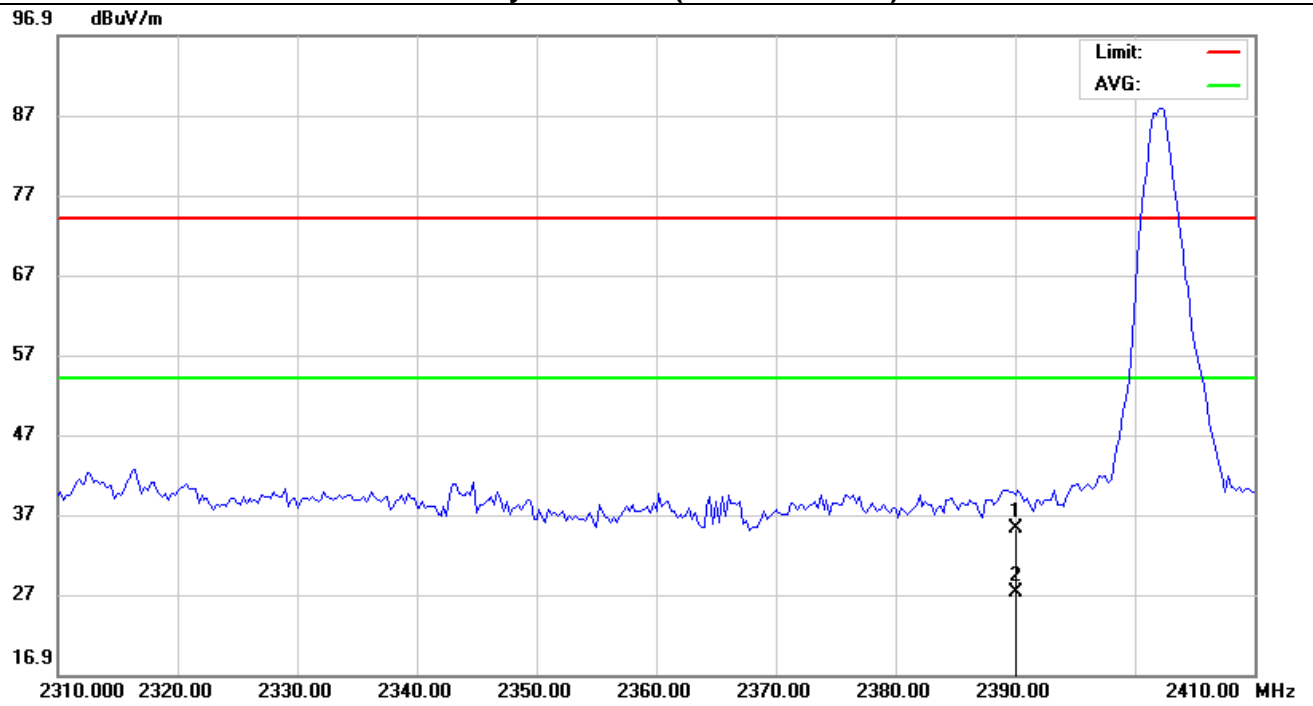
Polarity:HORIZONTAL(GFSK-2402MHz)



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		2390.000	44.75	-8.43	36.32	74.00	-37.68	peak			
2	*	2390.000	35.56	-8.43	27.13	54.00	-26.87	AVG			

*:Maximum data x:Over limit !:over margin

Polarity:VERTICAL(GFSK-2402MHz)

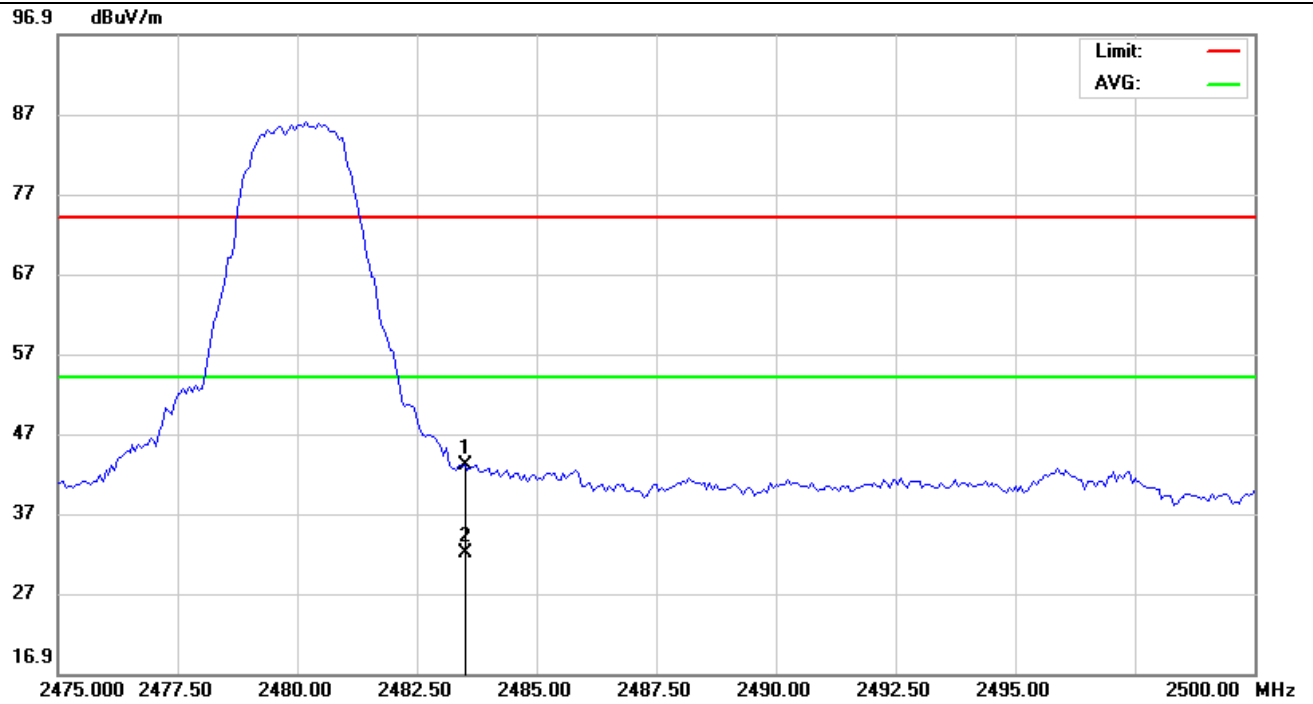


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		2390.000	43.65	-8.43	35.22	74.00	-38.78			peak
2	*	2390.000	35.60	-8.43	27.17	54.00	-26.83			AVG

*:Maximum data x:Over limit !:over margin

$\pi/4$ DQPSK

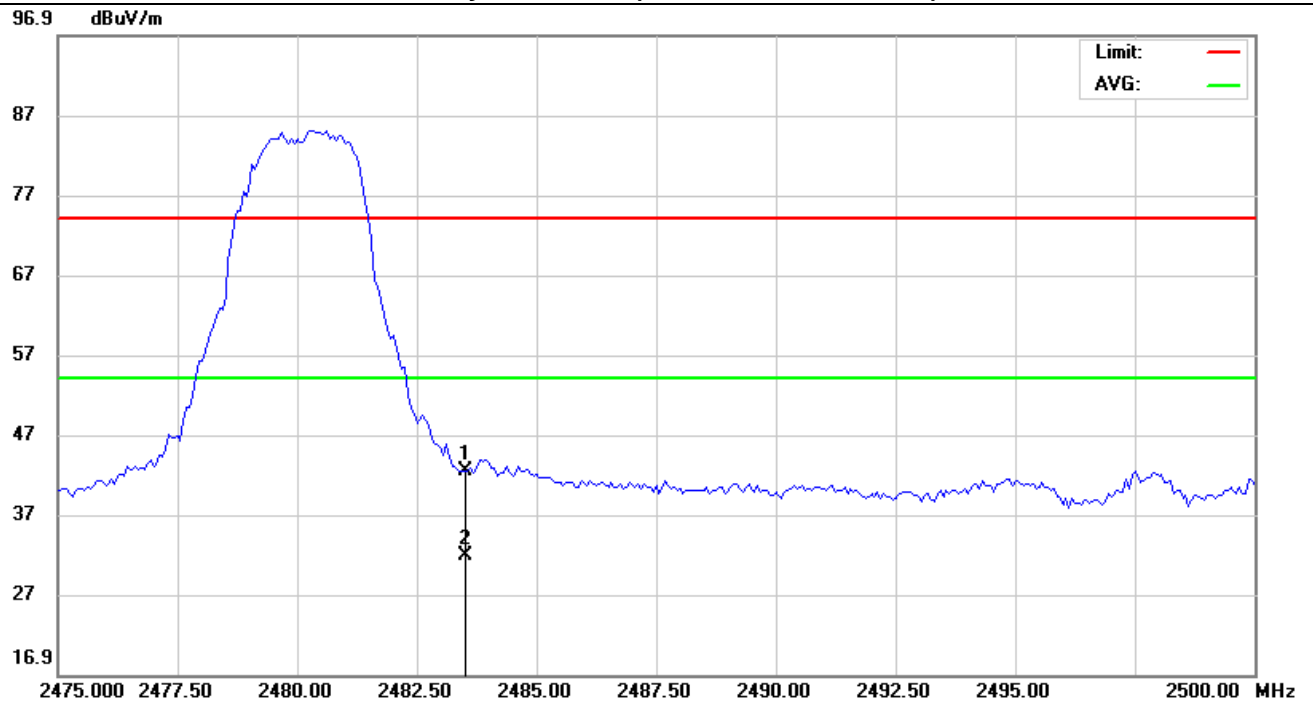
Polarity: HORIZONTAL($\pi/4$ DQPSK-2480MHz)



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		2483.500	51.38	-8.29	43.09	74.00	-30.91	peak			
2	*	2483.500	40.21	-8.29	31.92	54.00	-22.08	AVG			

*:Maximum data x:Over limit !:over margin

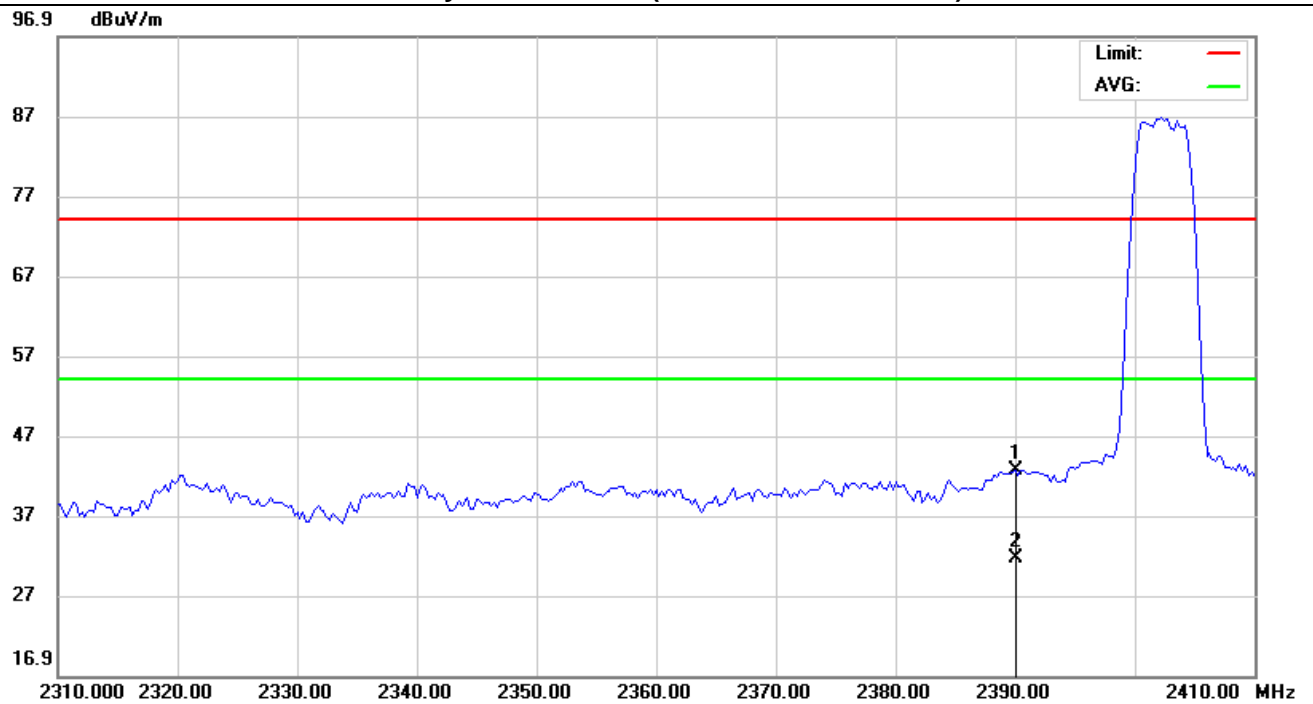
Polarity:VERTICAL($\pi/4$ DQPSK-2480MHz)



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		2483.500	50.64	-8.29	42.35	74.00	-31.65	peak			
2	*	2483.500	40.03	-8.29	31.74	54.00	-22.26	AVG			

*:Maximum data x:Over limit !:over margin

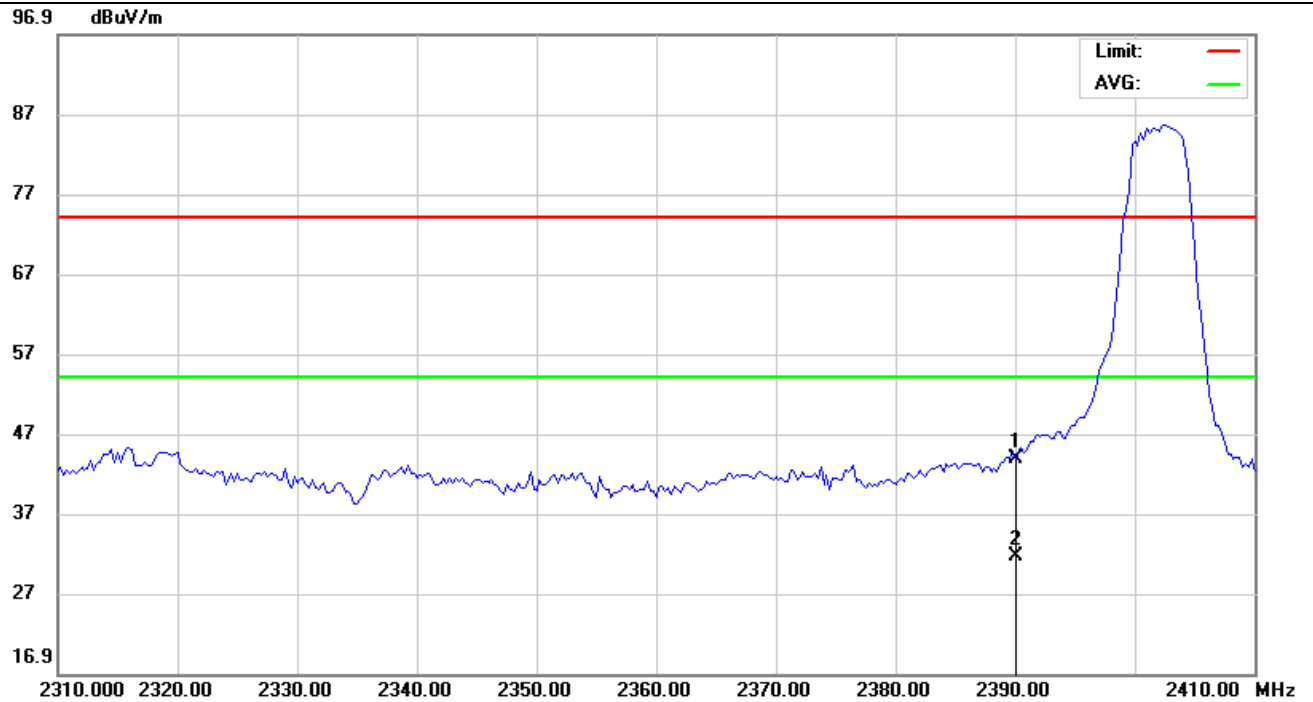
Polarity:HORIZONTAL($\pi/4$ DQPSK -2402MHz)



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2390.000	51.10	-8.43	42.67	74.00	-31.33			peak
2	*	2390.000	40.01	-8.43	31.58	54.00	-22.42			AVG

*:Maximum data x:Over limit !:over margin

Polarity:VERTICAL($\pi/4$ DQPSK -2402MHz)

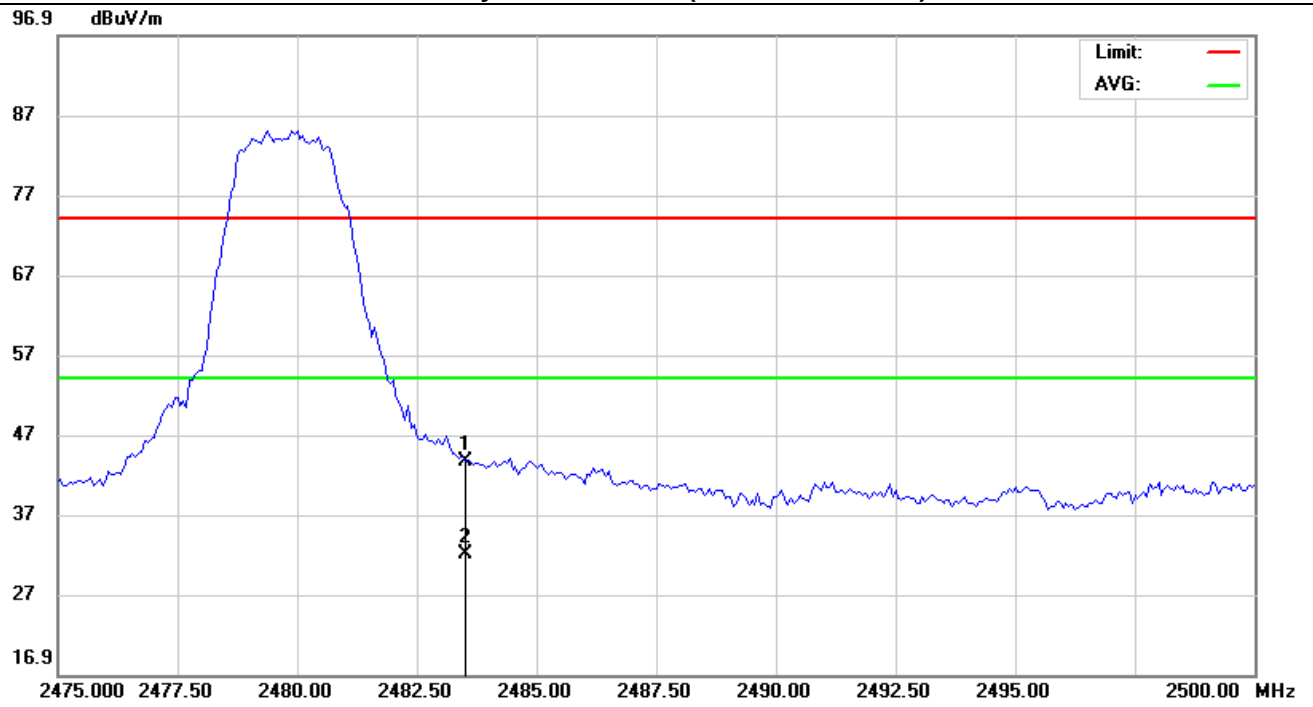


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2390.000	52.24	-8.43	43.81	74.00	-30.19			peak
2	*	2390.000	40.01	-8.43	31.58	54.00	-22.42			AVG

*:Maximum data x:Over limit !:over margin

8DPSK

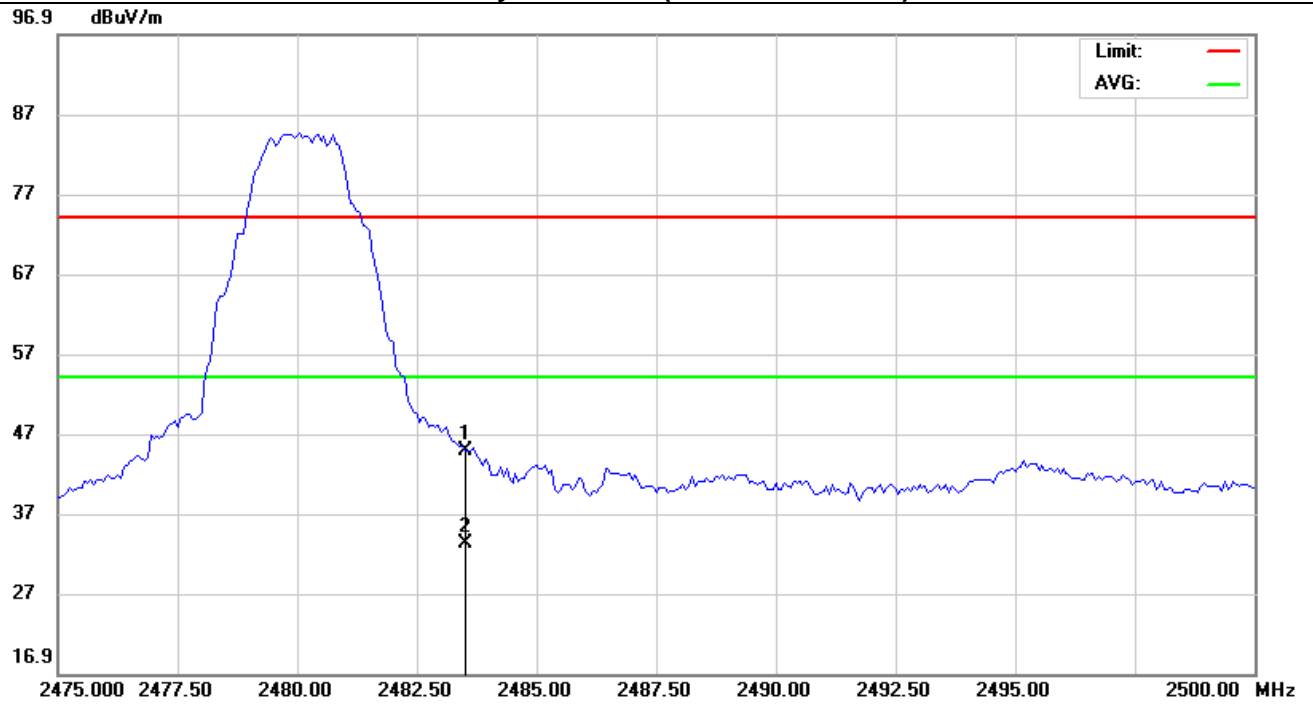
Polarity:HORIZONTAL(8DPSK-2480MHz)



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2483.500	51.88	-8.29	43.59	74.00	-30.41			peak
2	*	2483.500	40.20	-8.29	31.91	54.00	-22.09			AVG

*:Maximum data x:Over limit !:over margin

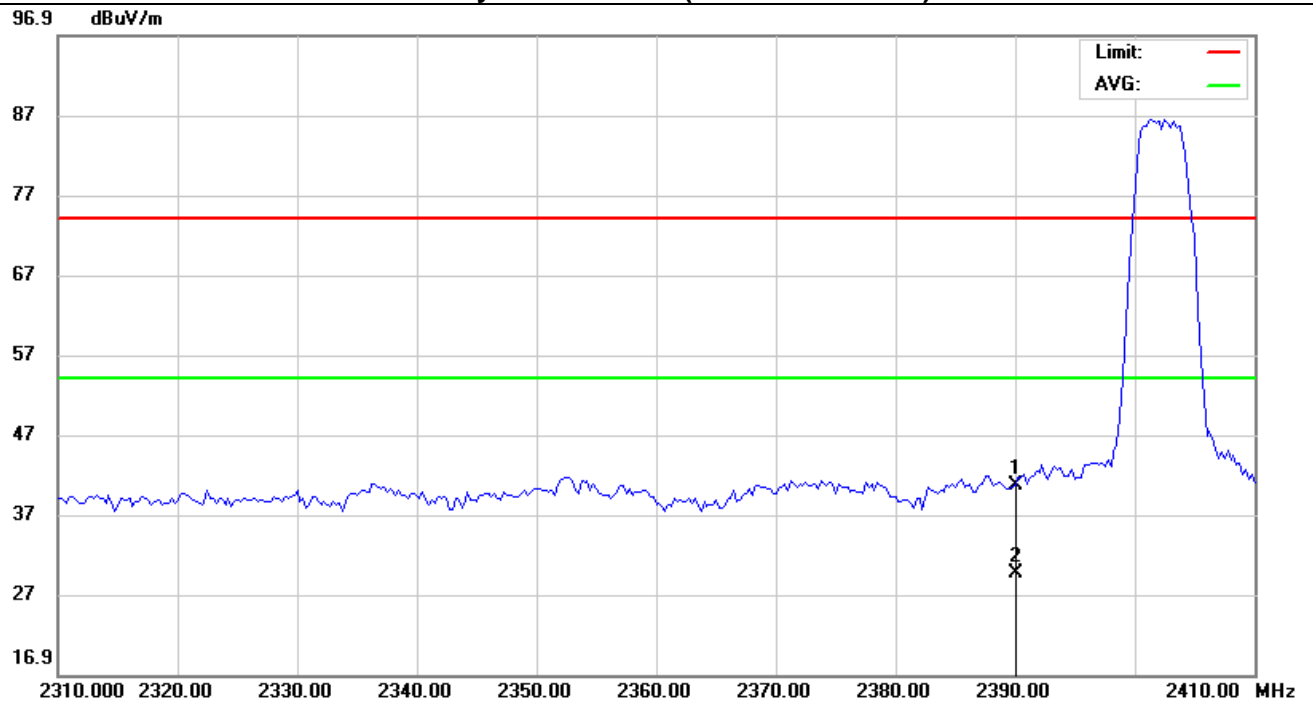
Polarity:VERTICAL(8DPSK -2480MHz)



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		2483.500	53.14	-8.29	44.85	74.00	-29.15	peak			
2	*	2483.500	41.41	-8.29	33.12	54.00	-20.88	AVG			

*:Maximum data x:Over limit !:over margin

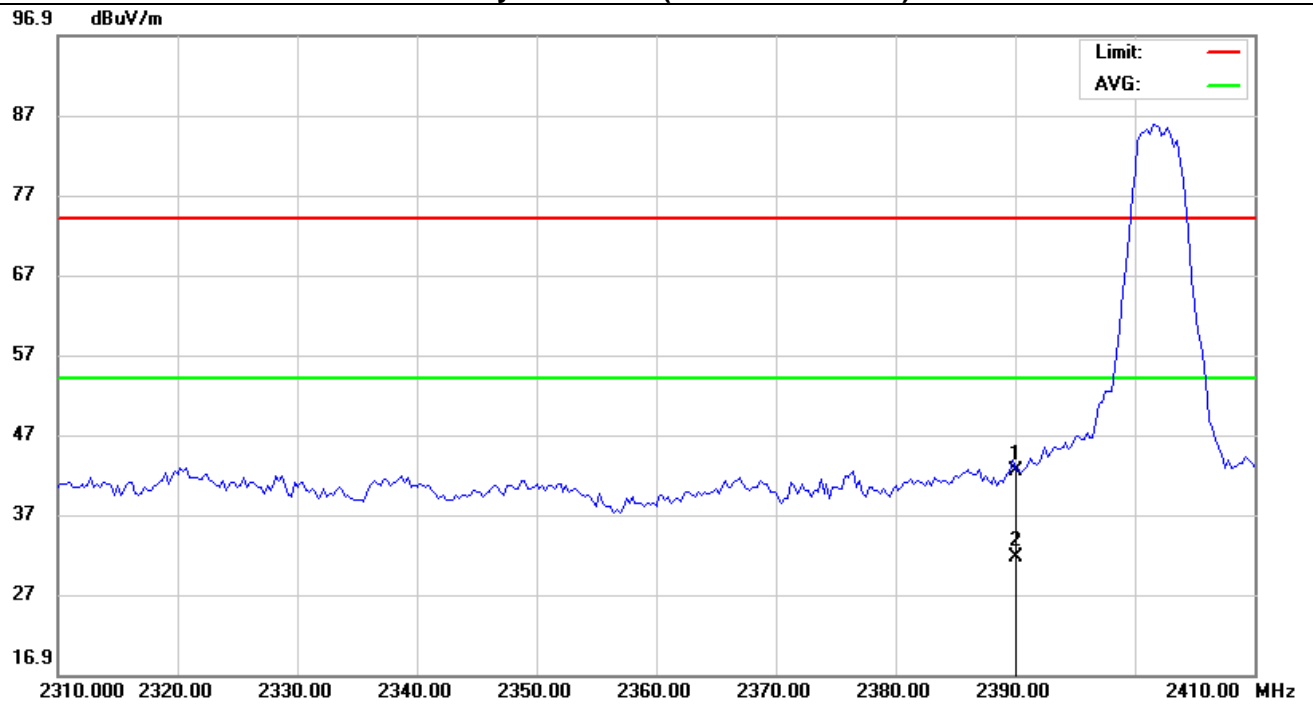
Polarity:HORIZONTAL(8DPSK -2402MHz)



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		2390.000	49.10	-8.43	40.67	74.00	-33.33	peak			
2	*	2390.000	38.03	-8.43	29.60	54.00	-24.40	AVG			

*:Maximum data x:Over limit l:over margin

Polarity:VERTICAL(8DPSK -2402MHz)



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2390.000	50.74	-8.43	42.31	74.00	-31.69			peak
2	*	2390.000	40.05	-8.43	31.62	54.00	-22.38			AVG

*:Maximum data x:Over limit !:over margin

5.4 Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 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.

And according to FCC 47 CFR Section 15.247 (c), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Refer to statement below for compliance

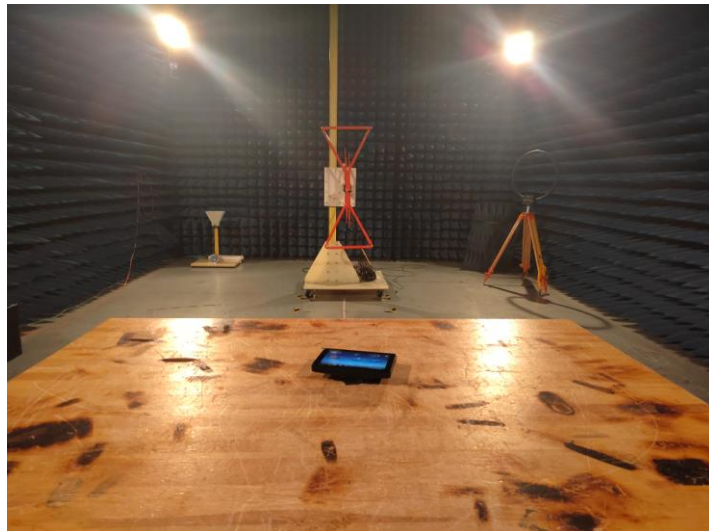
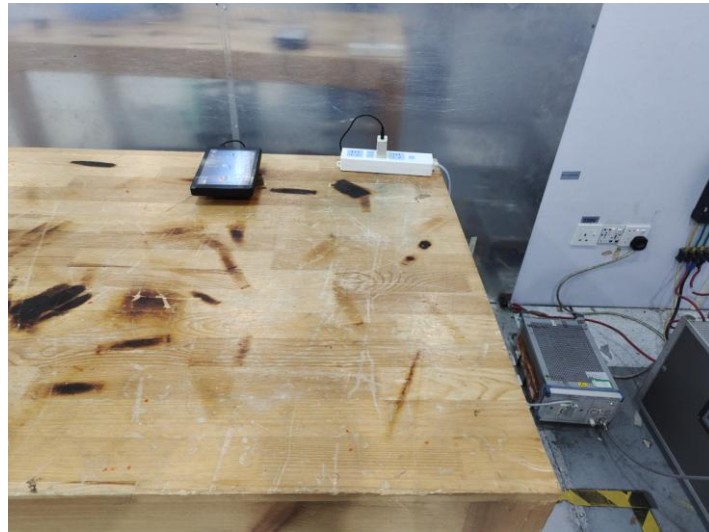
The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

The directional gains of antenna used for transmitting is 2dBi, and the antenna is an Internal antenna with ipex connector connect to PCB board and no consideration of replacement. Please see EUT photo for details.

Results: Compliance.

6 Test Setup Photos of the EUT



7 Photos of the EUT

See related photo report.

***** End of Report *****