



## FCC Test Report

Report No: FCS20200301007W01

Issued for

WakeCap Technologies, Inc

500 Westover Dr #11679 Sanford NC 27330 United States

Product Name:	Wakecap Asset
Brand Name:	N/A
Model Name:	WC-Asset
Series Model:	N/A
FCC ID:	2AVU5WC-ASSET
Test Standard:	FCC Part 15.247
Issued By: Flux Compliance Service Laboratory Add: Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan Tel: 769-27280901 Fax:769-27280901 <a href="http://www.FCS-lab.com">http://www.FCS-lab.com</a>	

## TEST RESULT CERTIFICATION

Applicant's Name .....: WakeCap Technologies, Inc

Address.....: 500 Westover Dr #11679 Sanford NC 27330 United States

Manufacture's Name .....: XinHai industry company limited

Address.....: 5th Floor building 4 AnLe BaoAn district 43# ShenZhen city,  
GuangDong province, China

### Product Description

Product Name .....: Wakecap Asset

Brand Name .....: N/A

Model Name.....: WC-Asset

Series Model .....: N/A

Test Standards .....: FCC Part15.247

Test Procedure.....: ANSI C63.10-2013

This device described above has been tested by Flux Compliance Service Laboratory, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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**Date of Test**.....:

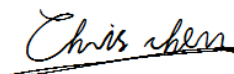
Date (s) of performance of tests : 1 Mar. 2020 to 5 Mar. 2020

Date of Issue .....: 5 Mar. 2020

Test Result .....: Pass

Tested by

:



(Chris Chen)

Reviewed by

:



(Jack Chen)

Approved by

:



( Andy yue)

Table of Contents	Page
<b>1. SUMMARY OF TEST RESULTS</b>	<b>6</b>
1.1 TEST FACTORY	7
1.2 MEASUREMENT UNCERTAINTY	7
<b>2. GENERAL INFORMATION</b>	<b>8</b>
2.1 GENERAL DESCRIPTION OF THE EUT	8
2.2 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	10
2.3 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS	11
2.4 EQUIPMENTS LIST	12
<b>3. 6DB BANDWIDTH</b>	<b>13</b>
3.1 LIMIT	13
3.2 TEST PROCEDURE	13
3.3 TEST SETUP	13
3.4 TEST RESULTS	14
<b>4 CONDUCTED OUTPUT POWER</b>	<b>16</b>
4.1 LIMIT	16
4.2 TEST PROCEDURE	16
4.3 TEST SETUP	16
4.5 TEST RESULTS	16
<b>5. POWER SPECTRAL DENSITY</b>	<b>19</b>
5.1 LIMIT	19
5.2 TEST PROCEDURE	19
5.3 TEST SETUP	19
5.5 TEST RESULTS	20
5.6 ORIGINAL TEST DATA	20
<b>6. BAND EDGE AND SPURIOUS(CONDUCTED)</b>	<b>22</b>
6.1 LIMIT	22
6.2 TEST PROCEDURE	22
6.3 TEST SETUP	22
6.5 TEST RESULTS	23
6.5 ORIGINAL TEST DATA	23
<b>7 RADIATED EMISSION MEASUREMENT</b>	<b>29</b>
<b>8 CONDUCTED EMISSION TEST</b>	<b>42</b>

Table of Contents	Page
<b>9. ANTENNA REQUIREMENT</b>	<b>44</b>
9.1 STANDARD REQUIREMENT	44
9.2 RESULT	44

**Revision History**

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	5 Mar. 2020	FCS20200301007W01	ALL	Initial Issue

## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:  
KDB 558074 D01 15.247 Meas Guidance v05r02

FCC Part 15.247, Subpart C			
Standard Section	Test Item	Judgment	Remark
FCC 15.247 (a) (2)	6dB Bandwidth	PASS	--
FCC 15.247 (b) (3)	Conducted Output Power	PASS	--
FCC 15.247 (e)	Power Spectral Density	PASS	--
FCC 15.247 (d)	Band-edge and Spurious Emissions (Conducted)	PASS	--
FCC 15.247 (d) FCC 15.209 FCC 15.205	Radiated Spurious Emissions	PASS	--
FCC 15.247 (d) FCC 15.209 FCC 15.205	Radiated Band Edge Compliance	PASS	--
FCC 15.207	Power Line Conducted Emission	N/A	--
FCC 15.203	Antenna requirement	PASS	--
15.205	Restricted Band Edge Emission	PASS	--

### NOTE:

- (1) "N/A" denotes test is not applicable in this Test Report
- (2) All tests are according to ANSI C63.10-2013

## 1.1 TEST FACTORY

Company Name:	Flux Compliance Service Laboratory
Address:	Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan
Telephone:	+86-769-27280901
Fax:	+86-769-27280901
FCC Test Firm Registration Number: 514908 Designation number: CN0127 A2LA accreditation number: 5545.01	

## 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately **95 %**.

No.	Item	Uncertainty
1	RF output power, conducted	$\pm 0.71$ dB
2	Unwanted Emissions, conducted	$\pm 2.988$ dB
3	Conducted Emission (9KHz-150KHz)	$\pm 4.13$ dB
4	Conducted Emission (150KHz-30MHz)	$\pm 4.74$ dB
5	All emissions, radiated (<1G) 30MHz-1000MHz	$\pm 5.2$ dB
6	All emissions, radiated 1GHz -18GHz	$\pm 4.66$ dB
7	All emissions, radiated 18GHz -40GHz	$\pm 4.31$ dB

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	Wakecap Asset
Trade Name	N/A
Model Name	WC-Asset
Series Model	N/A
Model Difference	N/A
Channel List	Please refer to the Note 2.2.
BT	Frequency:2402MHz-2480MHz Modulation: GFSK Data rate: 1Mbps Channel number: 40CH
Adapter	NA
Battery	DC 3V
Hardware version number	V1.0
Software version number	V1.0
Connecting I/O Port(s)	Please refer to the User's Manual

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



## 2. Channel list

Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	2402	11	2422	21	2442	31	2462
02	2404	12	2424	22	2444	32	2464
03	2406	13	2426	23	2446	33	2466
04	2408	14	2428	24	2448	34	2468
05	2410	15	2430	25	2450	35	2470
06	2412	16	2432	26	2452	36	2472
07	2414	17	2434	27	2454	37	2474
08	2416	18	2436	28	2456	38	2476
09	2418	19	2438	29	2458	39	2478
10	2420	20	2440	30	2460	40	2480

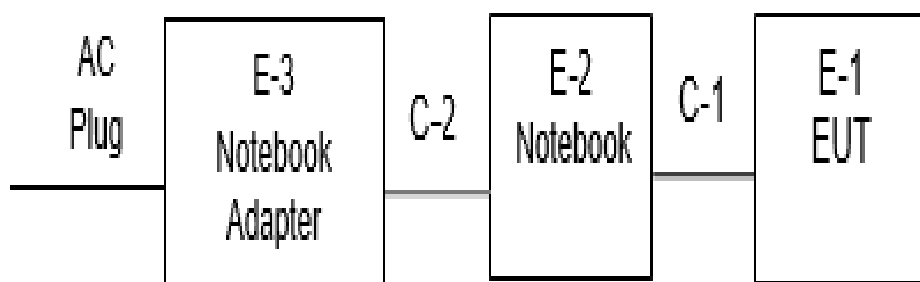
## 3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	N/A	Fusion One	PCB antenna	N/A	1.9 dBi	Antenna

## 2.2 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product

### Conducted Emission Test



Test software: the super terminal

The test software was used to control EUT work in continuous TX mode, and select test channel, Wireless mode as below table

Tested mode, channel , information		
Mode	Channel	Frequency (MHz)
GFSK	CH 01	2402
	CH 21	2442
	CH 40	2480
<p>Note</p> <p>(1) According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test,</p> <p>(2) During the test, the dutycycle&gt;98%, the test voltage was tuned from 85% to 115% of the Nominal rate supply votage, and found that the worst case was the nominal rated supply condition, So the report just shows that condition's data</p>		

## 2.3 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

### Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	110cm	N/A	N/A

### Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
1	Notebook	DELL	VOSTRO.3800	N/A	N/A
2	USB Cable	N/A	100cm	N/A	N/A
3	Adapter	HW	050KU	N/A	N/A

### Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

## 2.4 EQUIPMENTS LIST

### Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESRP 3	FCS-E001	2019.05.31	2020.05.30
Signal Analyzer	R&S	FSV40-N	FCS-E012	2019.06.05	2020.06.04
Active loop Antenna	ZHINAN	ZN30900C	FCS-E013	2019.10.09	2020.10.10
Bilog Antenna	SCHWARZBECK	VULB 9168	FCS-E002	2019.10.26	2020.10.25
Horn Antenna	SCHWARZBECK	BBHA 9120D	FCS-E003	2019.05.31	2020.05.30
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	FCS-E018	2019.05.31	2020.05.30
Pre-Amplifier(0.1M-3G Hz)	EMCI	EM330N	FCS-E004	2019.05.31	2020.05.30
Pre-Amplifier (1G-18GHz)	N/A	TSAMP-0518SE	FCS-E014	2019.10.03	2020.10.02
Pre-Amplifier (18G-40GHz)	TERA-MW	TRLA-0400	FCS-E019	2019.10.08	2020.10.07
Temperature & Humidity	HTC-1	victor	FCS-E005	2019.05.31	2020.05.30

### Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESPI	FCS-E020	2019.05.31	2020.05.30
LISN	R&S	ENV216	FCS-E007	2019.05.15	2020.05.14
LISN	ETS	3810/2NM	FCS-E009	2019.10.15	2020.10.14
Temperature & Humidity	HTC-1	victor	FCS-E008	2019.05.31	2020.05.30

### RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
Spectrum Analyzer	Keysight	N9020A	FCS-E015	2019.10.02	2020.10.01
Spectrum Analyzer	Agilent	E4447A	MY50180039	2019.11.08	2020.11.07
Spectrum Analyzer	R&S	FSV-40	101499	2019.10.10	2020.10.09

### 3. 6DB BANDWIDTH

#### 3.1 Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500 kHz

#### 3.2 Test Procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Set the spectrum analyzer as follows

RBW: 100kHz

VBW: 300kHz

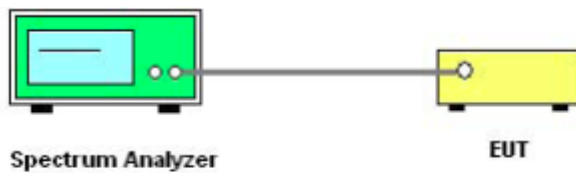
Detector Mode: Peak

Sweep time: auto

Trace mode Max hold

(3) Allow the trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

#### 3.3 Test setup

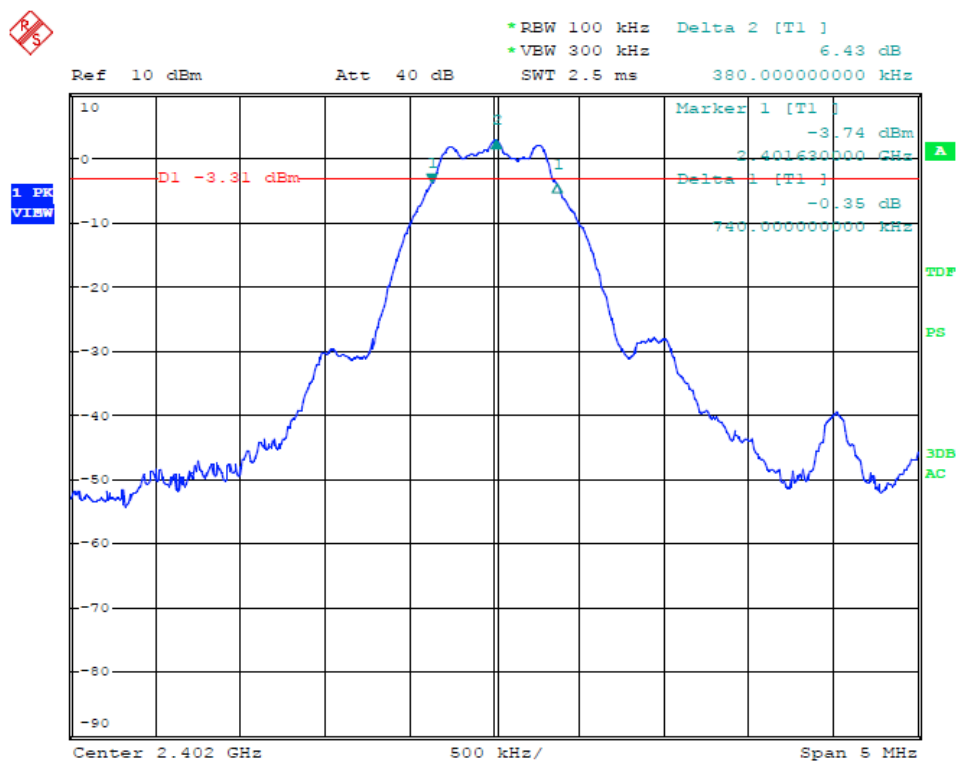


### 3.4 Test results

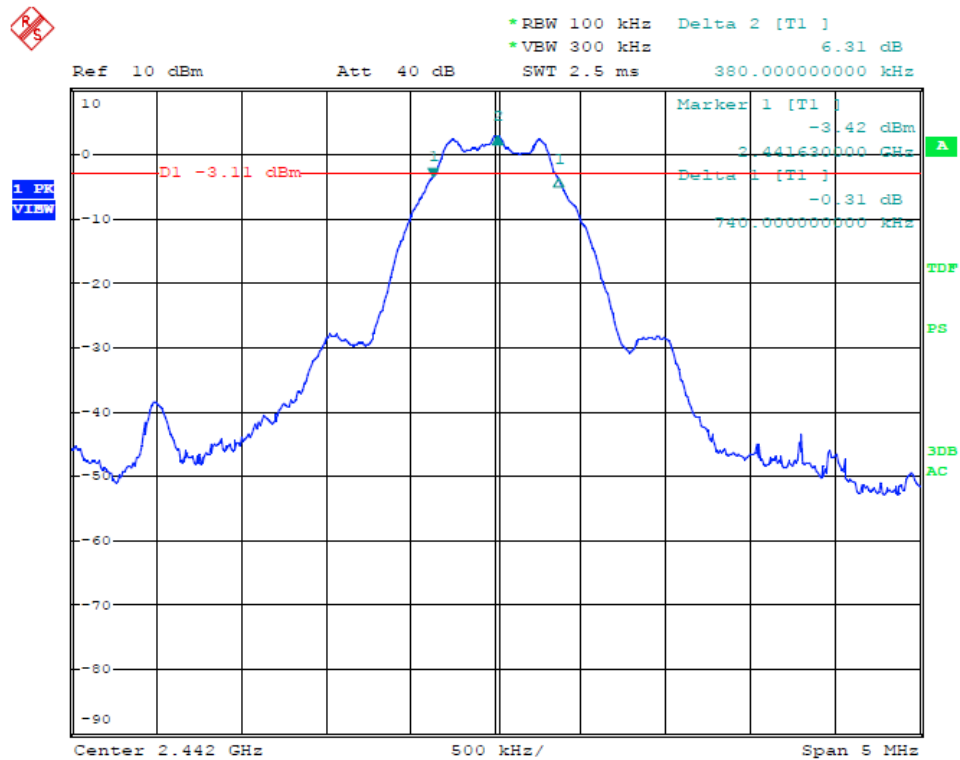
TestMode	Channel (MHz)	6dB Bandwidth (MHz)	Limit [MHz]	Verdict
GFSK	2402MHz	0.740	>0.5	Pass
GFSK	2442MHz	0.740	>0.5	Pass
GFSK	2480MHz	0.740	>0.5	Pass

### 3.5 Original Test Data

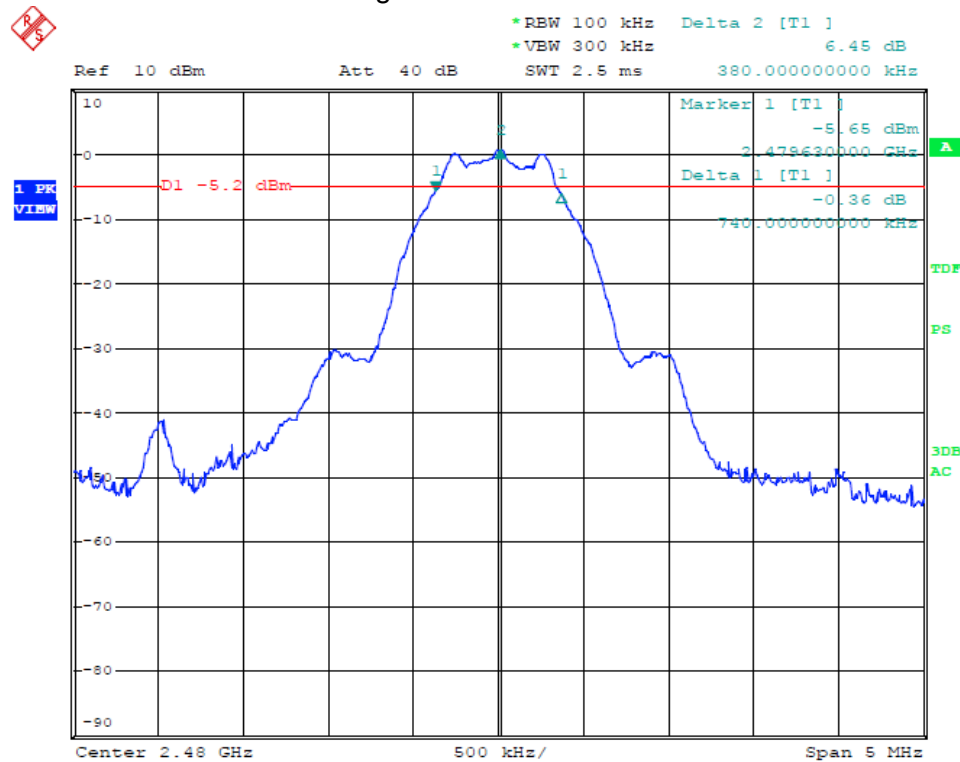
#### Low CH-2402MHz



### Middle CH – 2442MHz



### High CH – 2480MHz



## 4 CONDUCTED OUTPUT POWER

### 4.1 limit

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 4.2 test procedure

- Connect each EUT's antenna output to power sensor by RF cable and attenuator

### 4.3 TEST SETUP

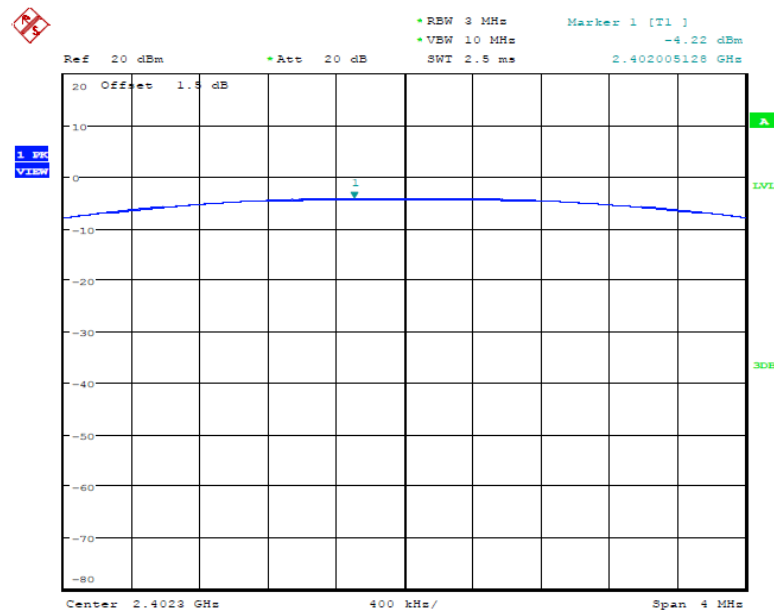


### 4.5 test results

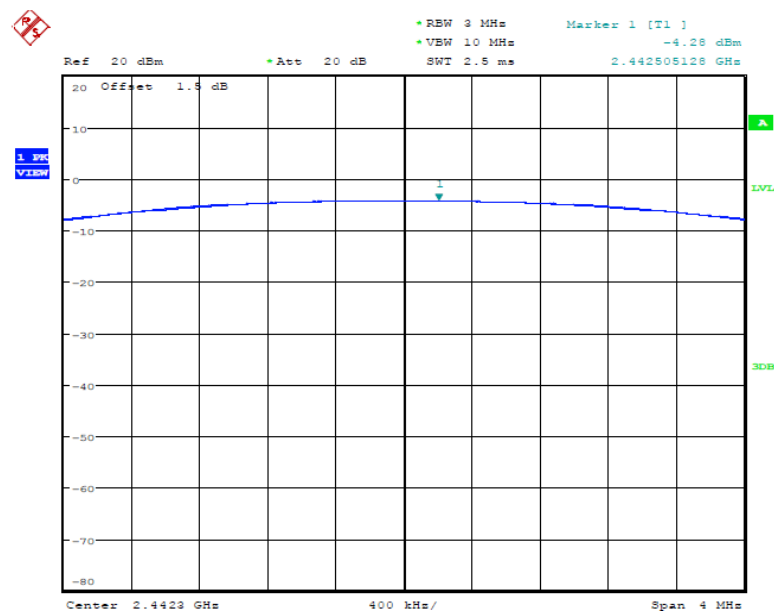
TestMode	Channel (MHz)	Result (dBm)	Limit (dBm)	Verdict
GFSK	2402MHz	-4.22	30	Pass
	2442MHz	-4.28	30	Pass
	2480MHz	-4.38	30	Pass



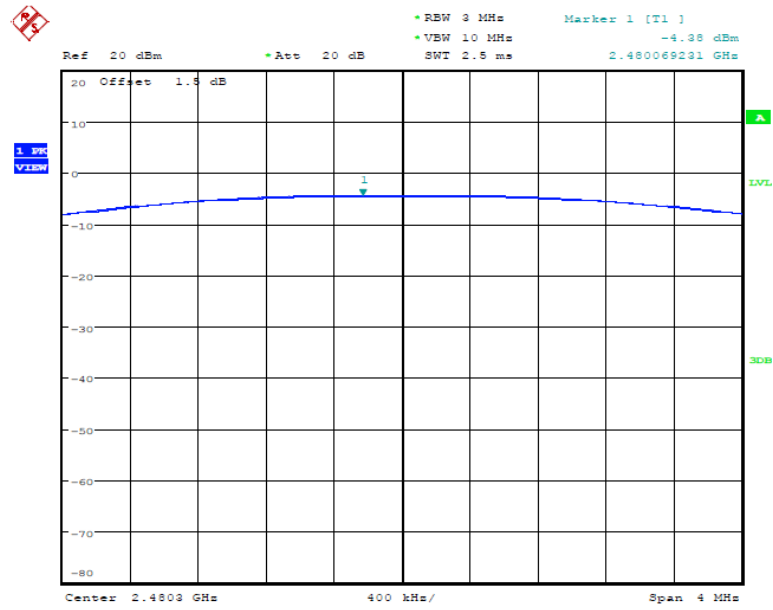
## Low CH-2402MHZ



## Middle CH-2442MHZ



# High CH-2480MHZ



## 5. POWER SPECTRAL DENSITY

### 5.1 LIMIT

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

### 5.2 TEST PROCEDURE

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Set the spectrum analyzer as follows:

Center frequency	DTS Channel center frequency
RBW:	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
VBW:	$\geq 3\text{RBW}$
Span	1.5 times the DTS bandwidth
Detector Mode:	RMS
Sweep time:	auto
Trace mode	Max hold

(3) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude level within the RBW

(4) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

### 5.3 TEST SETUP

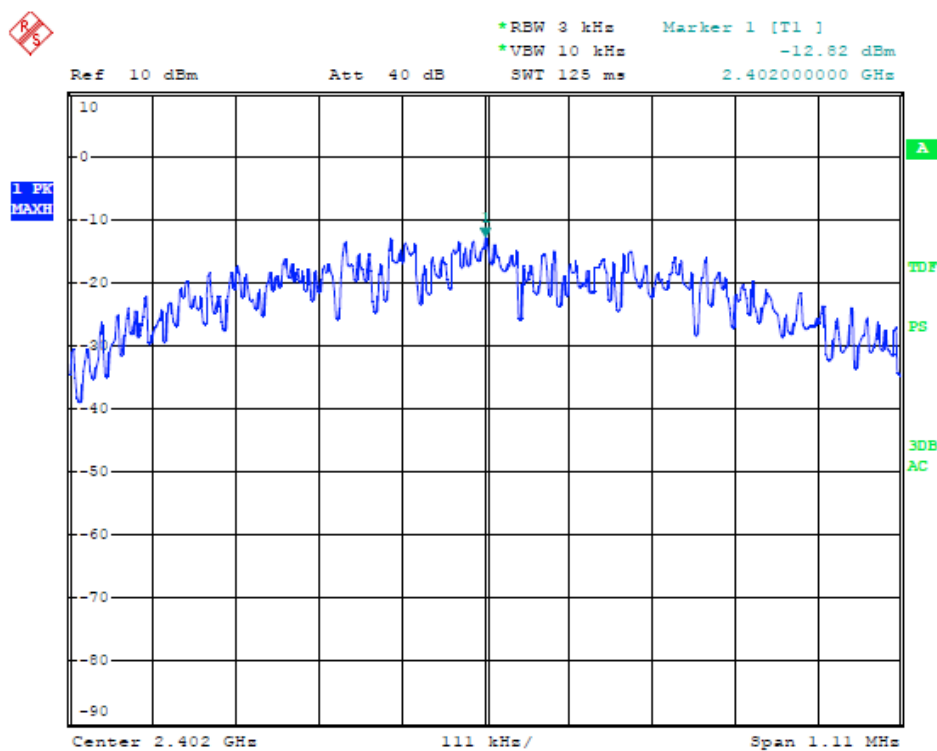


## 5.5 TEST RESULTS

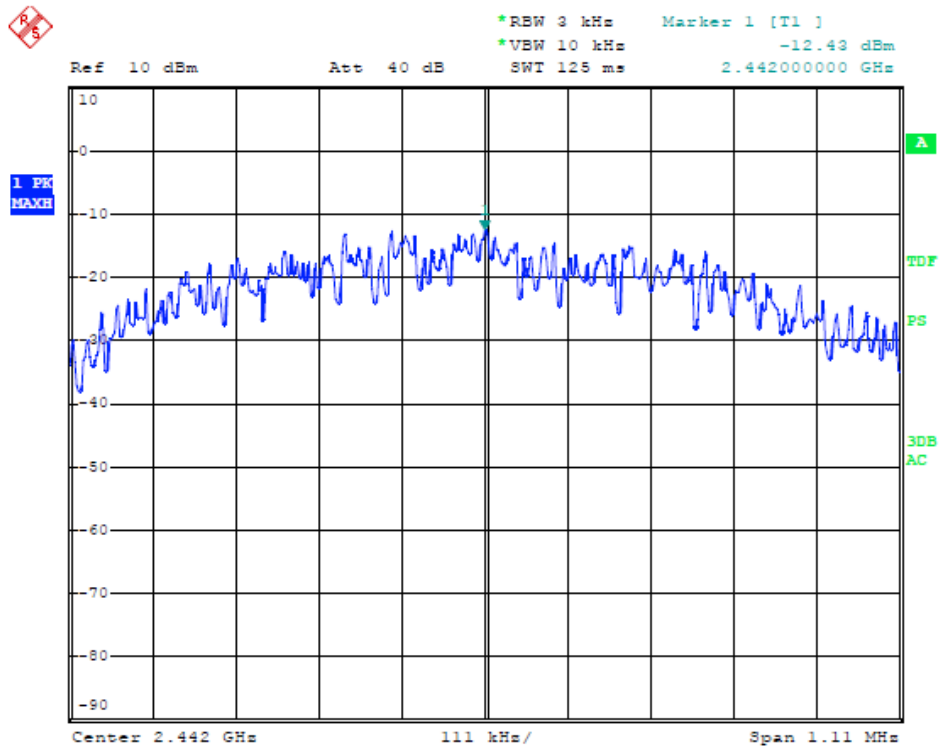
TestMode	Channel (MHz)	Result (dBm)	Limit (dBm/3KHz)	Verdict
GFSK	2402MHz	-12.82	8	Pass
	2442MHz	-12.43	8	Pass
	2480MHz	-14.68	8	Pass

## 5.6 original test data

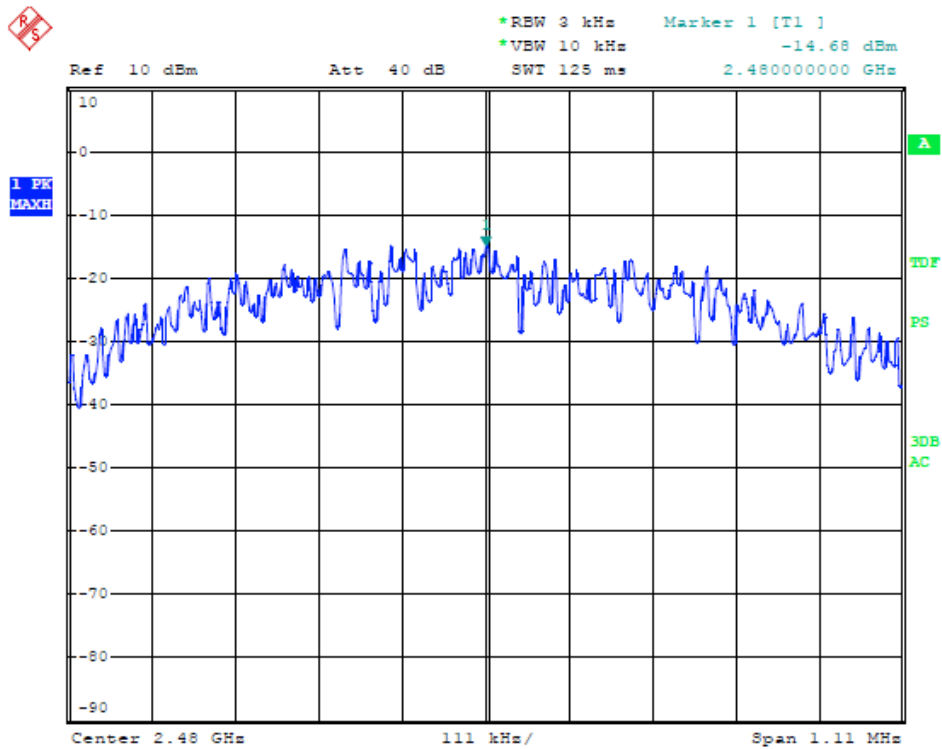
### Low CH-2402MHz



### Middle-2442MHz



### High CH-2480MHz



## 6. Band edge and spurious(conducted)

### 6.1 LIMIT

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

### 6.2 TEST PROCEDURE

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Establish a reference level by using the following procedure:

Center frequency	DTS Channel center frequency
RBW:	100kHz
VBW:	300kHz
Span	1.5times the DTS bandwidth
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

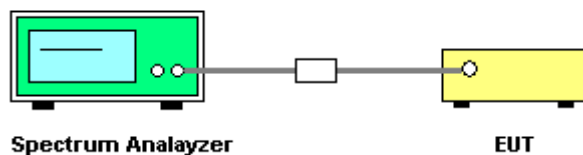
(3) Establish Allow the trace to stabilize, use the peak marker function to determine the maximum peak power level to establish the reference level.

(4) Set the spectrum analyzer as follows:

RBW:	100kHz
VBW:	300kHz
Span	Encompass frequency range to be measured
Number of measurement points	$\geq \text{span}/\text{RBW}$
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

(5) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude of all unwanted emissions outside of the authorized frequency band

### 6.3 TEST SETUP

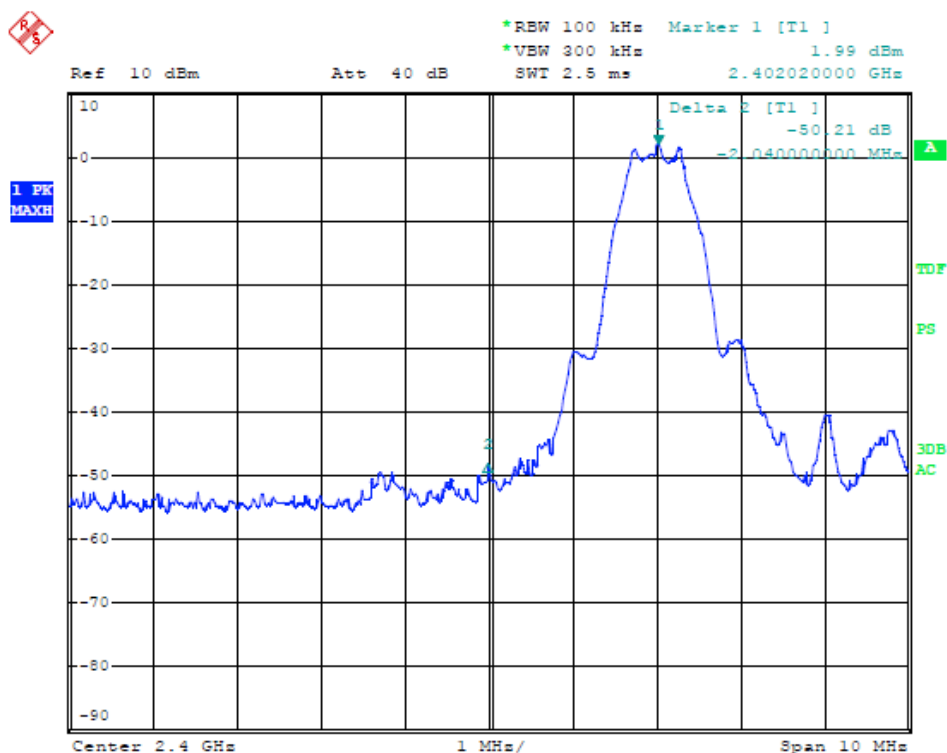


## 6.5 TEST RESULTS

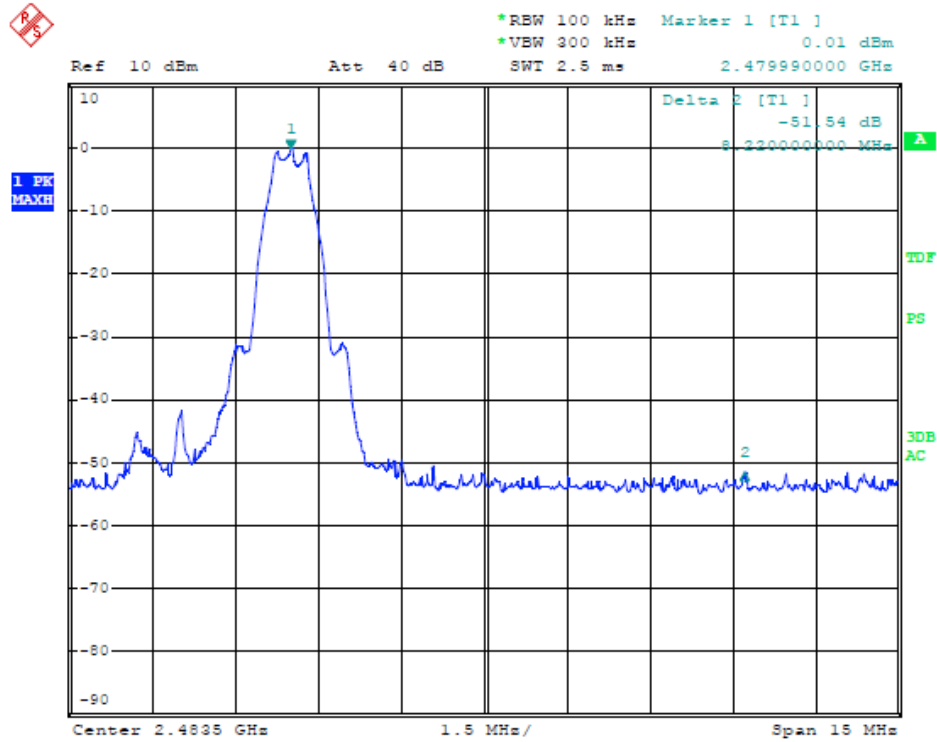
Eut set mode	CH or Frequency	Result
GFSK	CH1-2402MHz	Pass
	CH40-2480MHz	Pass

## 6.5 Original test data

### CH1-2402MHz

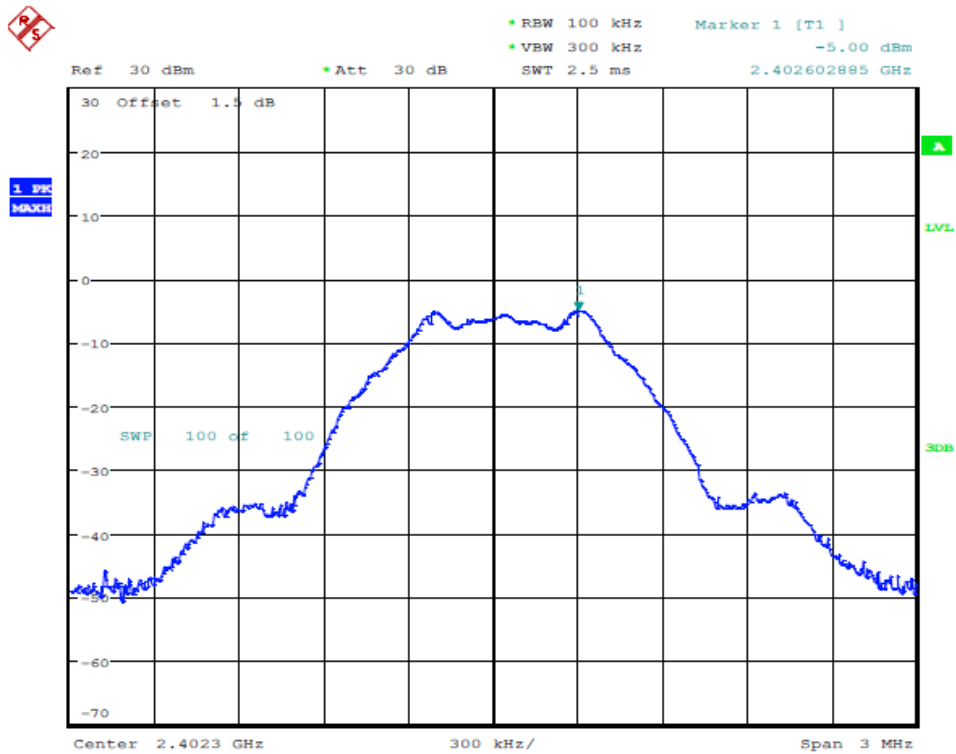


### CH40-2480MHz



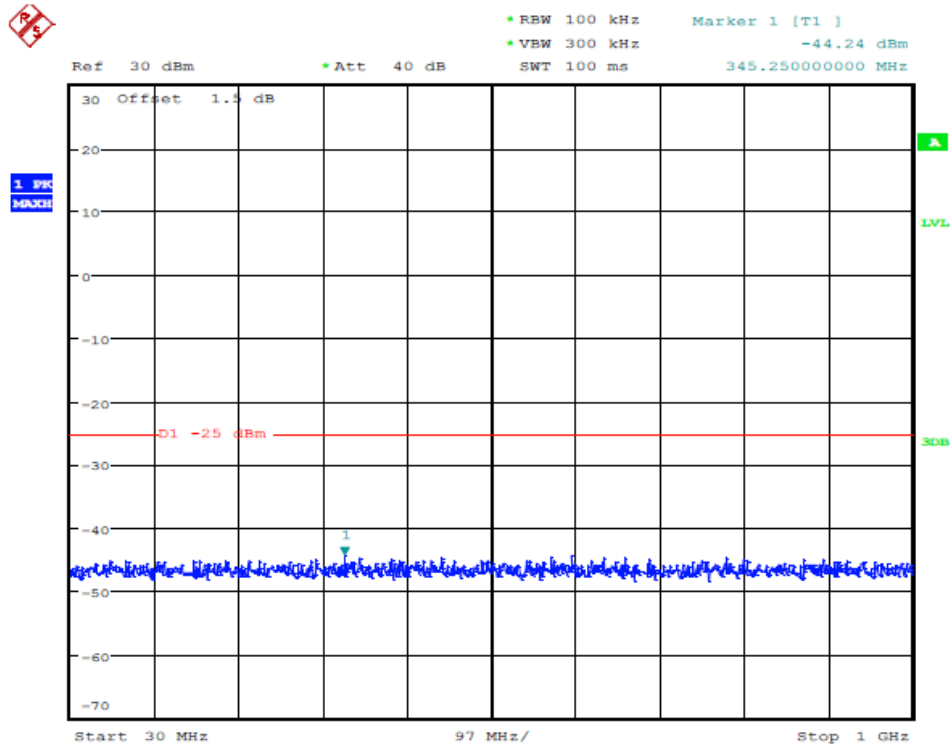
Spurious emissions (low ch-2402MHz)

Ref.

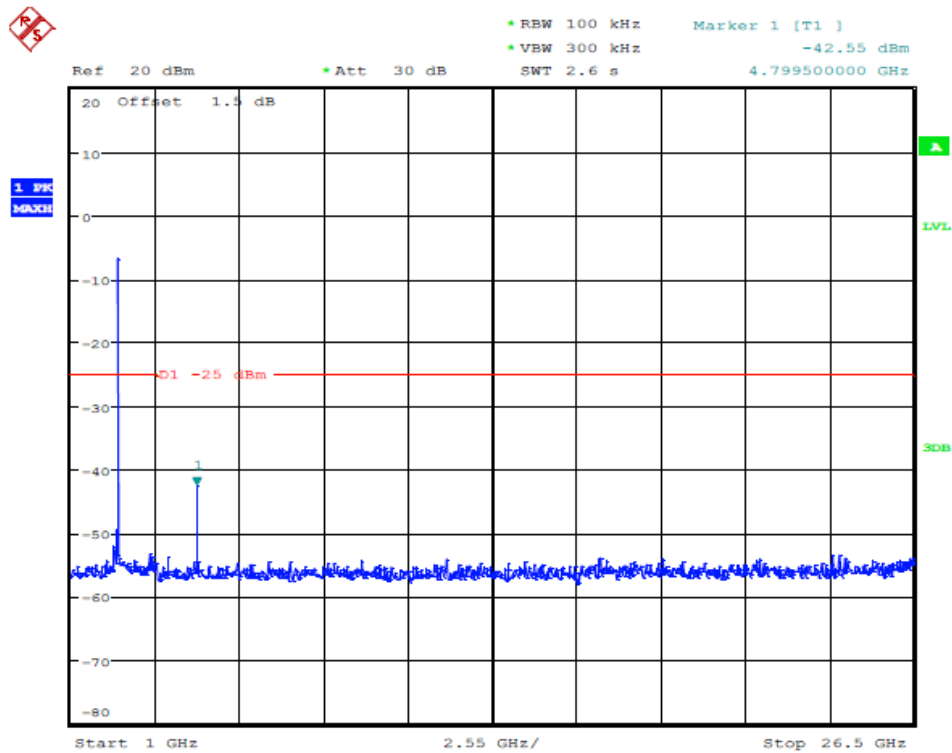




### 30MHz-1000MHz

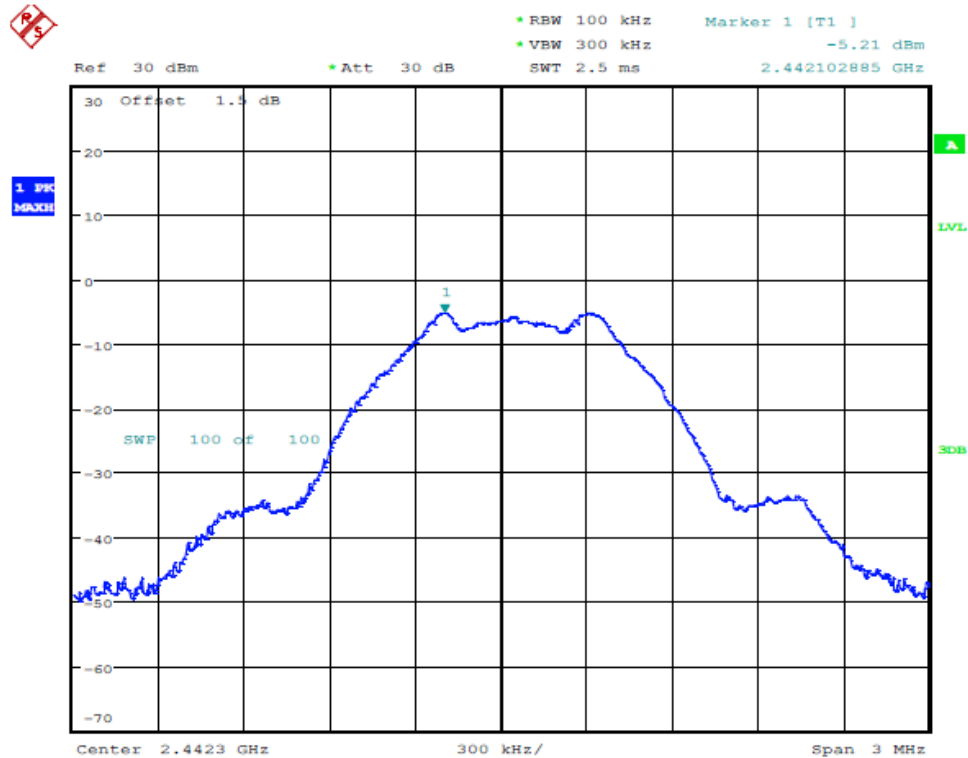


### 1GHz-26.5GHz

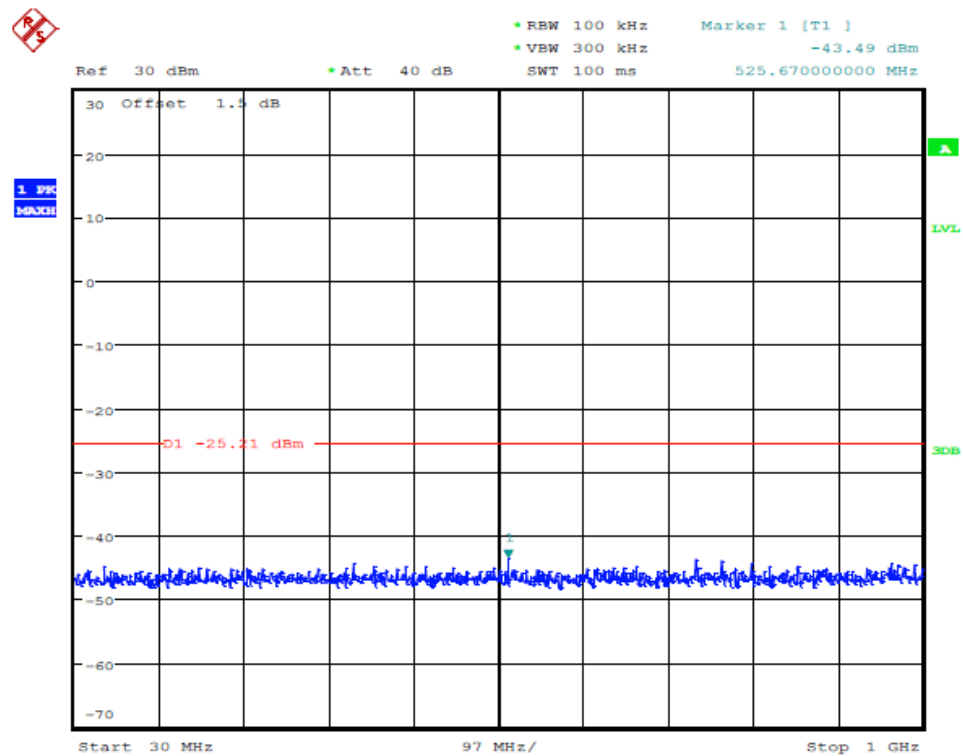


(Middle ch-2442MHz)

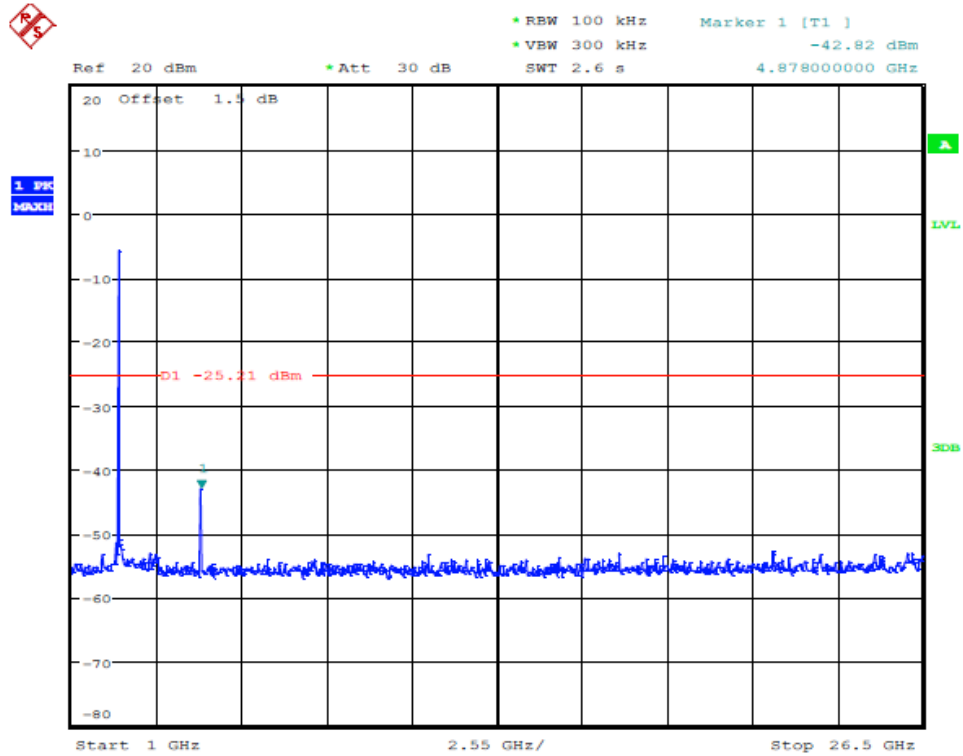
Ref.



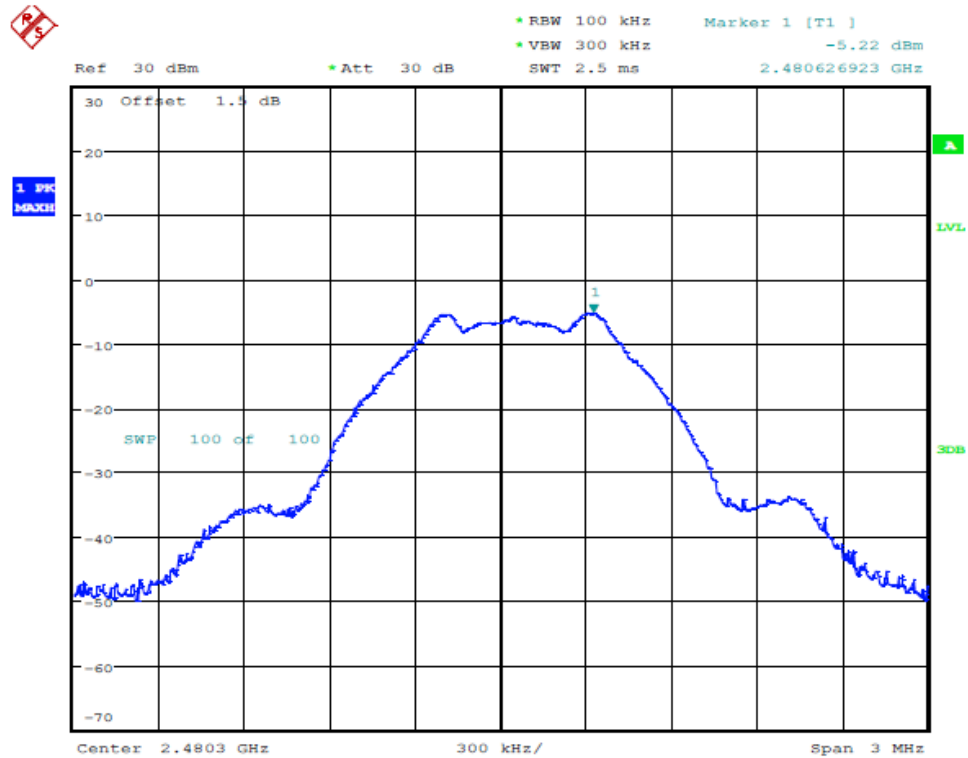
30MHz-1000MHz



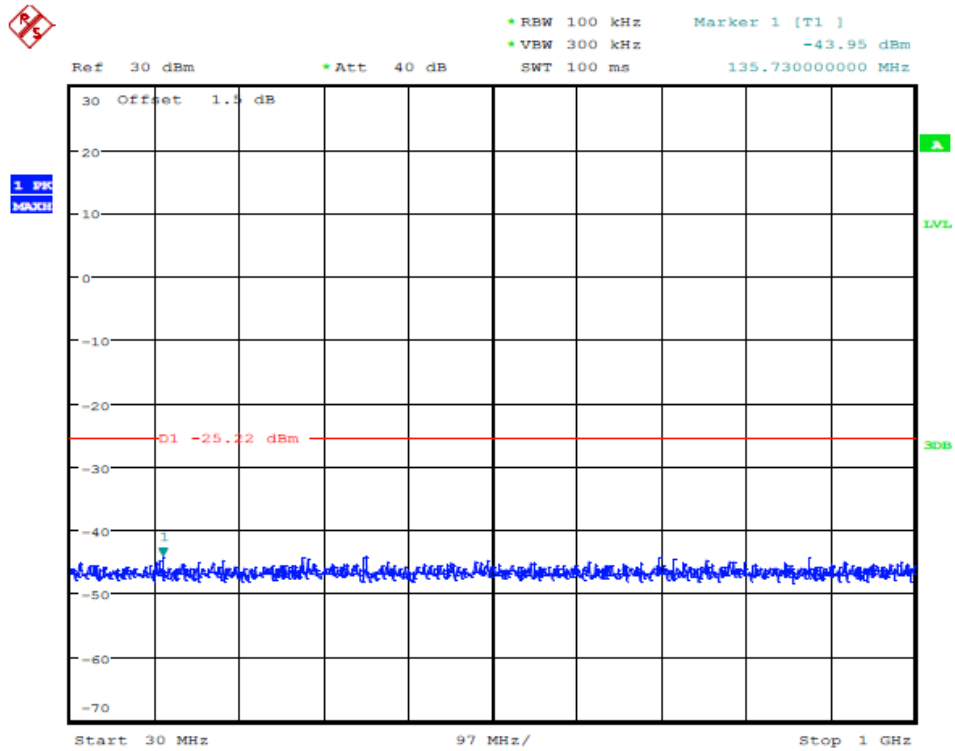
# 1GHz-26.5GHz



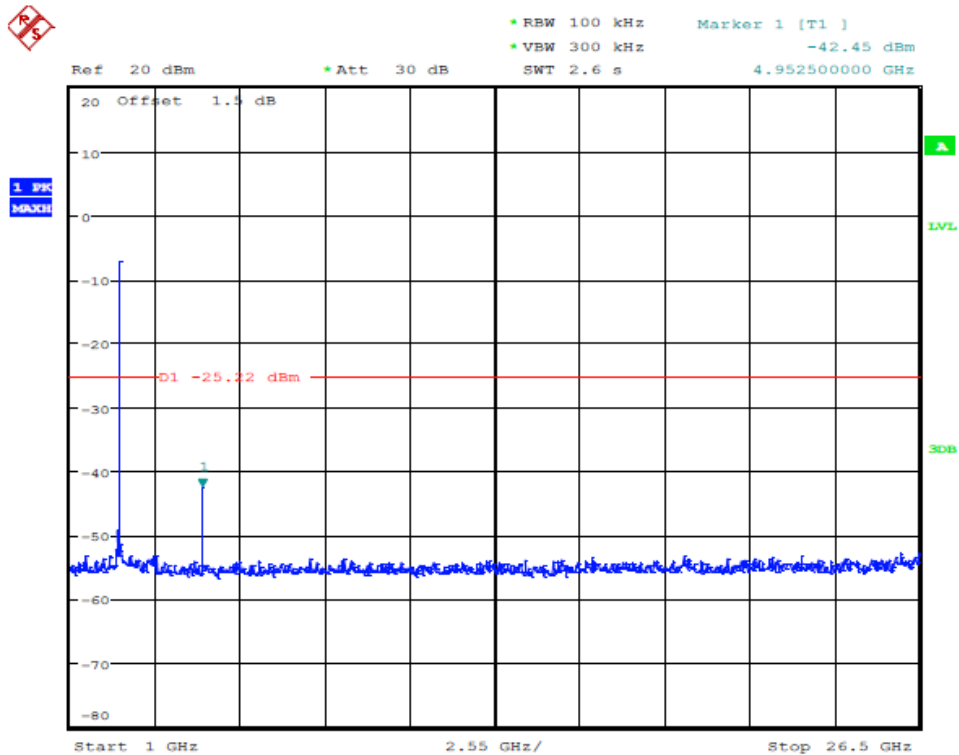
## (High ch-2480MHz) Ref.



### 30MHz-1000MHz



### 1GHz-26.5GHz



## 7 RADIATED EMISSION MEASUREMENT

### 7.1 RADIATED EMISSION LIMITS

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205(a)&209(a) limit in the table and according to ANSI C63.10-2013 below has to be followed

LIMITS OF RADIATED EMISSION MEASUREMENT (0.009MHz - 1000MHz)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (1GHz-25 GHz)

FREQUENCY (MHz)	(dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

For Radiated Emission

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/AV
Start Frequency	1000 MHz(Peak/AV)
Stop Frequency	10th carrier hamonic(Peak/AV)
RB / VB (emission in restricted band)	PK=1MHz / 1MHz, AV=1 MHz /10 Hz

For Band edge

Spectrum Parameter	Setting
Detector	Peak/AV
Start/Stop Frequency	Lower Band Edge: 2300 to 2403 MHz Upper Band Edge: 2479 to 2500 MHz
RB / VB (emission in restricted band)	PK=1MHz / 1MHz, AV=1 MHz / 10 Hz

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

## 7.2 TEST PROCEDURE

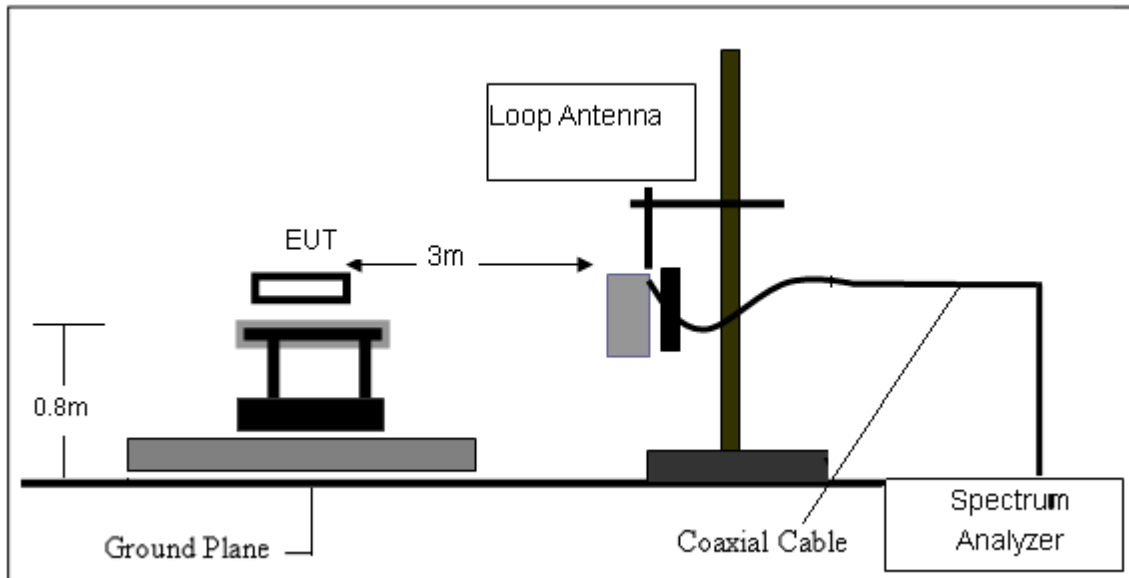
- The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- The EUT was placed on the top of a rotating table 0.8 meters (above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment shall be 0.8 m (above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then QuasiPeak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

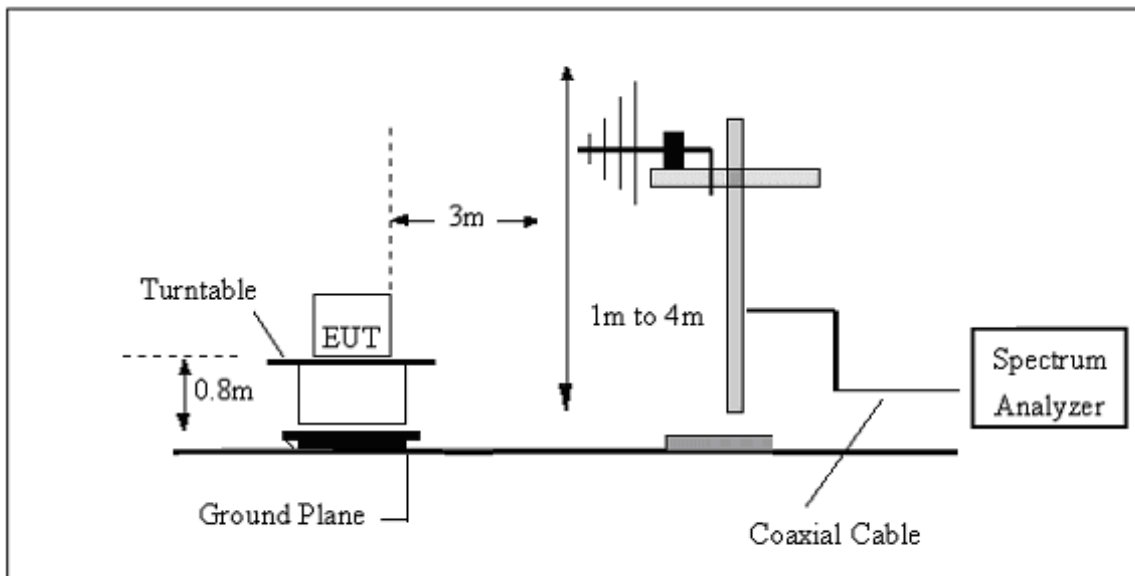
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

### 7.3 TESTSETUP

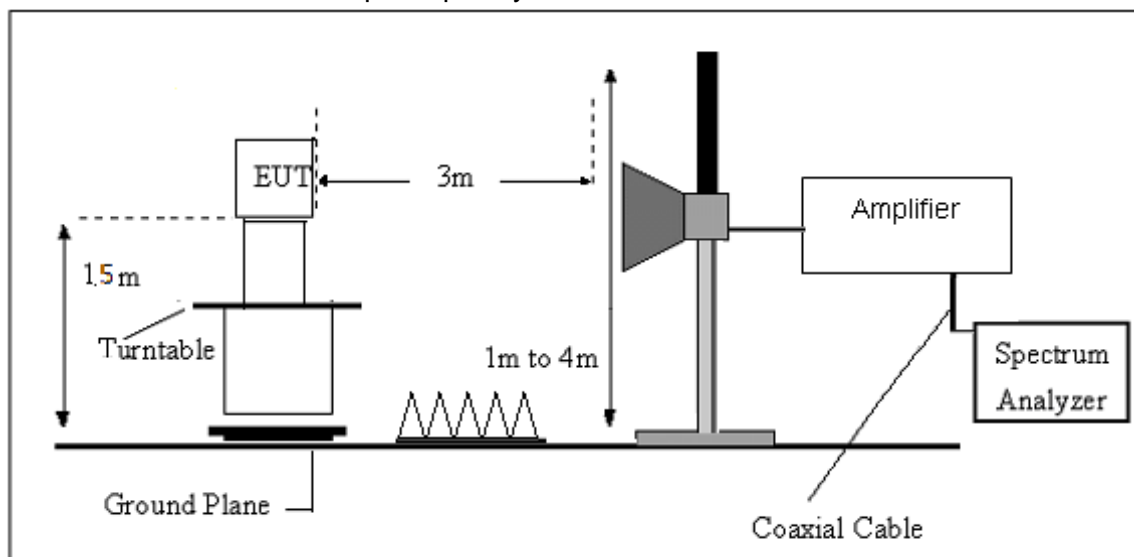
#### (A) Radiated Emission Test-Up Frequency Below 30MHz



#### (B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz





#### 7.4. TEST RESULTS

(9KHz-30MHz)

Temperature:	22.7°C	Relative Humidity:	61%
Test Voltage:	DC 3V from battery	Test Mode:	TX Mode

Freq.	Reading	Limit	Margin	State	Test Result
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F	
--	--	--	--	--	PASS
--	--	--	--	--	PASS

**Note:**

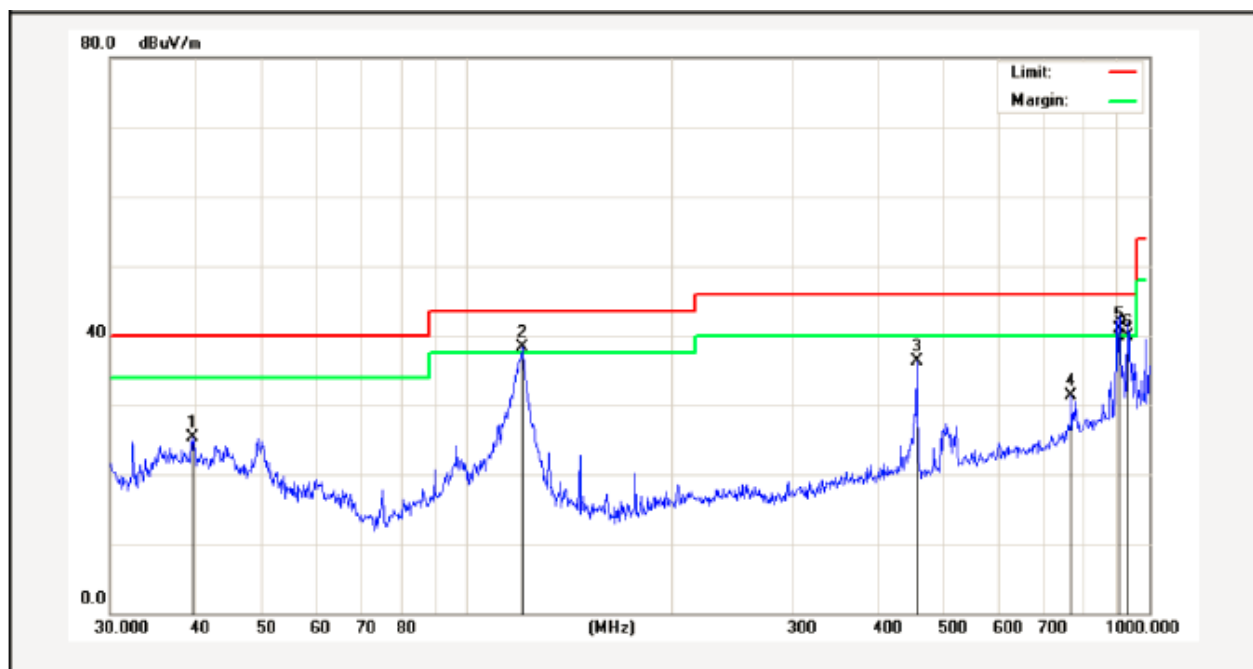
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =  $40 \log (\text{specific distance/test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

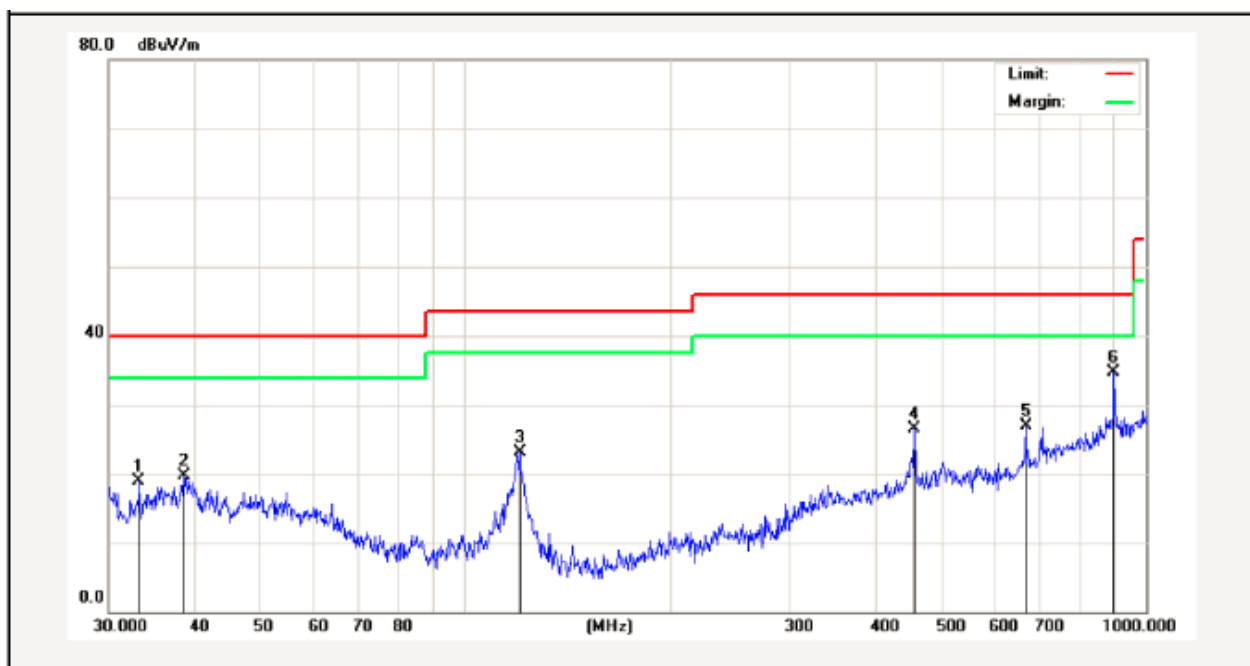
(30MHz-1000MHz)

Temperature:	22.7°C	Relative Humidity:	61%
Test Voltage:	DC 3V from battery	Phase:	Horizontal
Test Mode:	GFSK (Worst CH01)		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	39.5757	39.80	-14.53	25.27	40.00	-14.73	peak			
2	120.2766	54.68	-16.37	38.31	43.50	-5.19	peak			
3	455.9058	48.28	-11.91	36.37	46.00	-9.63	peak			
4	768.7481	37.78	-6.43	31.35	46.00	-14.65	peak			
5	903.3094	44.54	-3.71	40.83	46.00	-5.17	QP	100	0	
6	929.0082	43.28	-3.30	39.98	46.00	-6.02	QP	100	360	

Temperature:	22.7°C	Relative Humidity:	61%
Test Voltage:	DC 3V from battery	Phase:	Vertical
Test Mode:	GFSK (Worst CH01)		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	33.2112	35.33	-16.52	18.81	40.00	-21.19	peak			
2	38.6160	34.67	-14.90	19.77	40.00	-20.23	peak			
3	120.2766	44.42	-21.37	23.05	43.50	-20.45	peak			
4	457.5073	38.57	-12.11	26.46	46.00	-19.54	peak			
5	665.8035	36.26	-9.42	26.84	46.00	-19.16	peak			
6	896.9965	39.48	-4.81	34.67	46.00	-11.33	peak			

## (1GHz~25GHz) Restricted band and Spurious emission Requirements

Low channel: 2402 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1303.12	H	50.45	---	-4.20	46.25	---	74	54	-7.75
4804.00	H	49.58	---	-3.94	45.64	---	74	54	-8.36
5600.11	H	47.97	---	-2.83	45.14	---	74	54	-8.86
7206.00	H	44.50	---	0.52	45.02	---	74	54	-8.98
16814.00	H	41.16	---	6.73	47.89	---	74	54	-6.11
24020.00	H	39.37	---	8.11	47.48	---	74	54	-6.52
1304.09	V	50.91	---	-4.25	46.66	---	74	54	-7.34
4804.00	V	49.67	---	-3.94	45.73	---	74	54	-8.27
5604.23	V	49.02	---	-2.87	46.15	---	74	54	-7.85
7206.00	V	44.35	---	0.59	44.94	---	74	54	-9.06
16814.00	V	39.83	---	6.79	46.62	---	74	54	-7.38
24020.00	V	39.32	---	8.18	47.50	---	74	54	-6.50
Middle channel: 2442 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1301.67	H	49.79	---	-4.20	45.59	---	74	54	-8.41
4884.00	H	48.99	---	-3.98	45.01	---	74	54	-8.99
5601.01	H	49.58	---	-2.83	46.75	---	74	54	-7.25
7326.00	H	44.41	---	0.56	44.97	---	74	54	-9.03
17087.00	H	39.58	---	6.74	46.32	---	74	54	-7.68
24420.00	H	39.52	---	8.19	47.71	---	74	54	-6.29
1306.45	V	50.39	---	-4.25	46.14	---	74	54	-7.86
4884.00	V	50.37	---	-3.98	46.39	---	74	54	-7.61
5609.33	V	47.40	---	-2.87	44.53	---	74	54	-9.47
7326.00	V	45.10	---	0.57	45.67	---	74	54	-8.33
17087.00	V	41.03	---	6.79	47.82	---	74	54	-6.18
24420.00	V	38.80	---	8.16	46.96	---	74	54	-7.04

High channel: 2480 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1303.34	H	49.35	---	-4.20	45.15	---	74	54	-8.85
4960.00	H	48.21	---	-3.98	44.23	---	74	54	-9.77
5602.67	H	48.91	---	-2.83	46.08	---	74	54	-7.92
7440.00	H	45.13	---	0.52	45.65	---	74	54	-8.35
17360.00	H	40.45	---	6.74	47.19	---	74	54	-6.81
24800.00	H	39.24	---	8.17	47.41	---	74	54	-6.59
1309.82	V	51.20	---	-4.25	46.95	---	74	54	-7.05
4960.00	V	50.25	---	-3.98	46.27	---	74	54	-7.73
5610.45	V	48.39	---	-2.87	45.52	---	74	54	-8.48
7440.00	V	46.75	---	0.57	47.32	---	74	54	-6.68
17360.00	V	41.68	---	6.79	48.47	---	74	54	-5.53
24800.00	V	38.17	---	8.16	46.33	---	74	54	-7.67

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made (Peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector).

3) Average test would be performed if the peak readings were greater than the average limit.

4) Data of measurement shown “---” in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

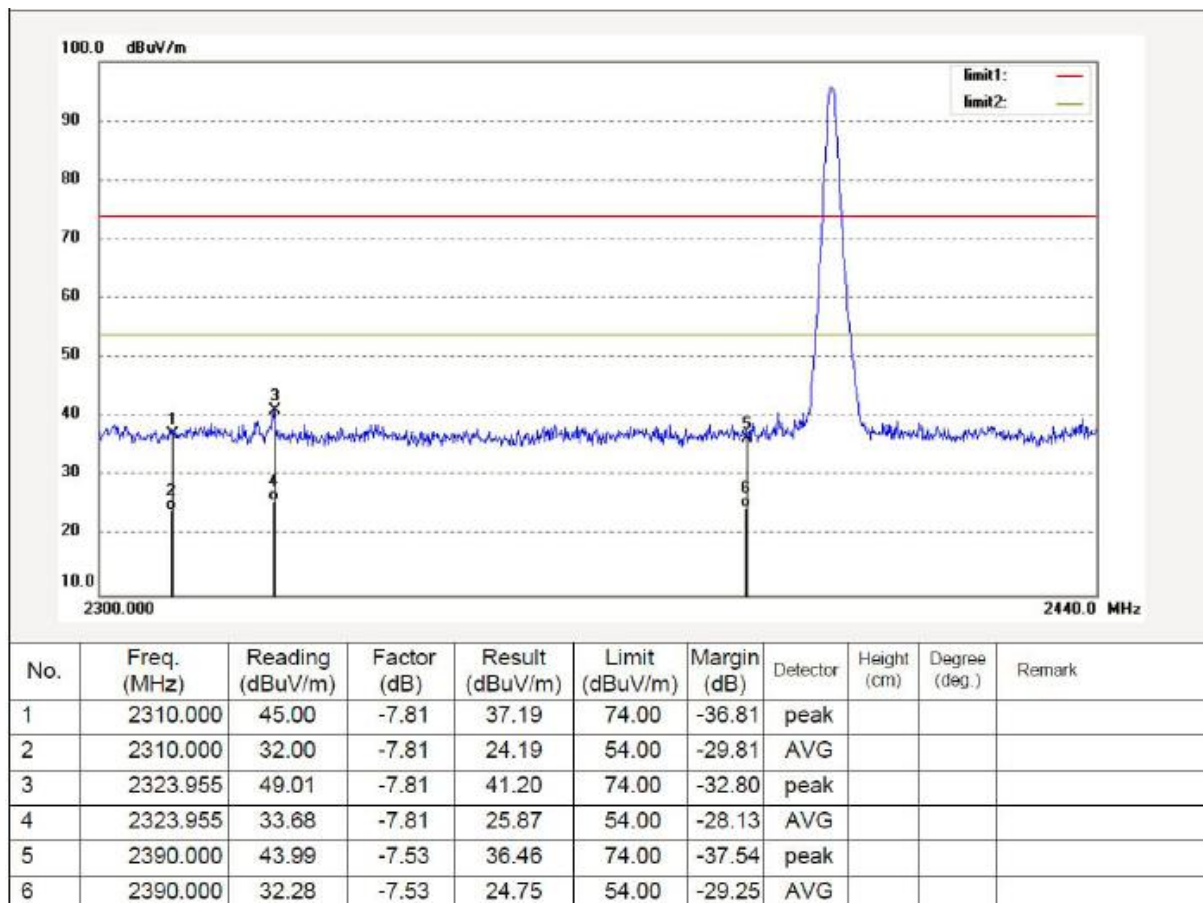
6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

## Radiated Band Edge data

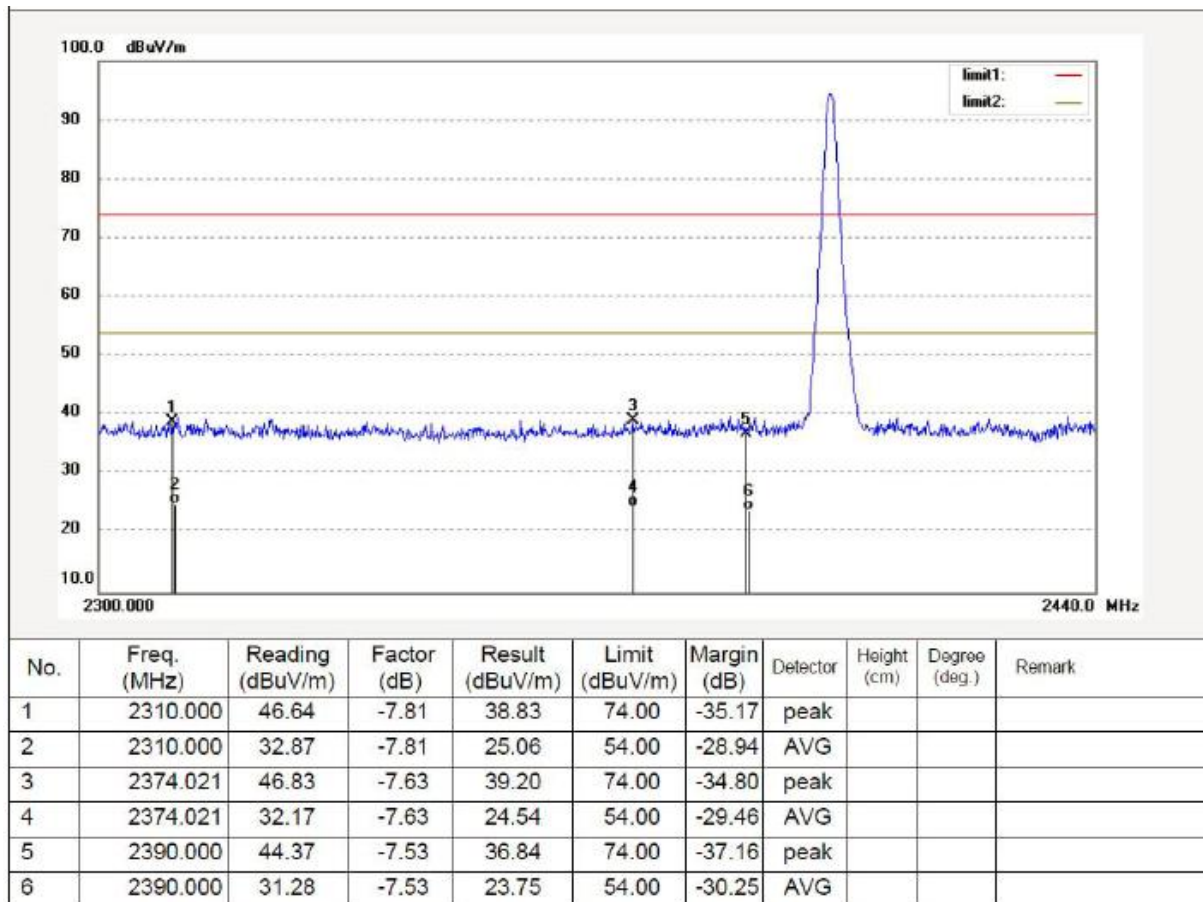
Remark: All restriction band have been tested, and only the worst case is shown in report

Low CH

Polarization: Horizontal



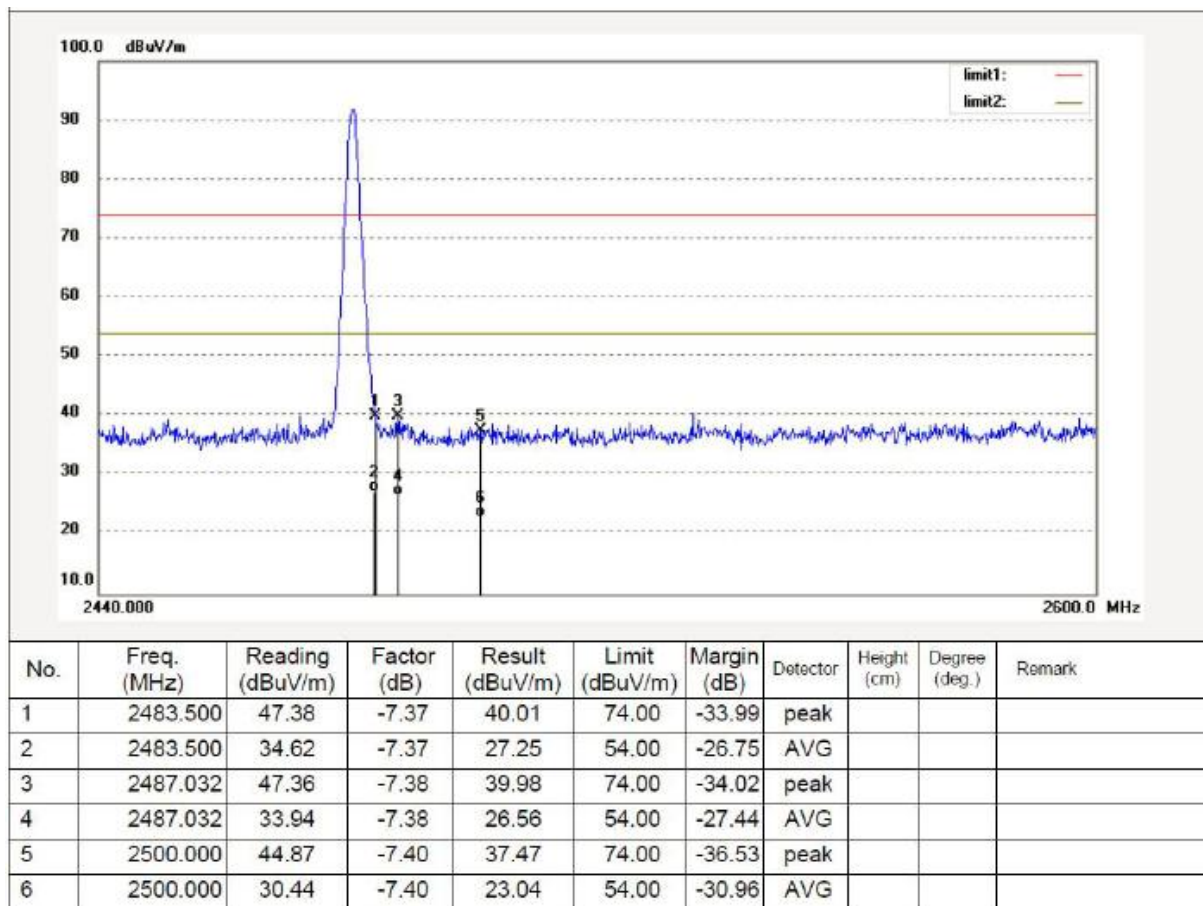
Polarization: Vertical





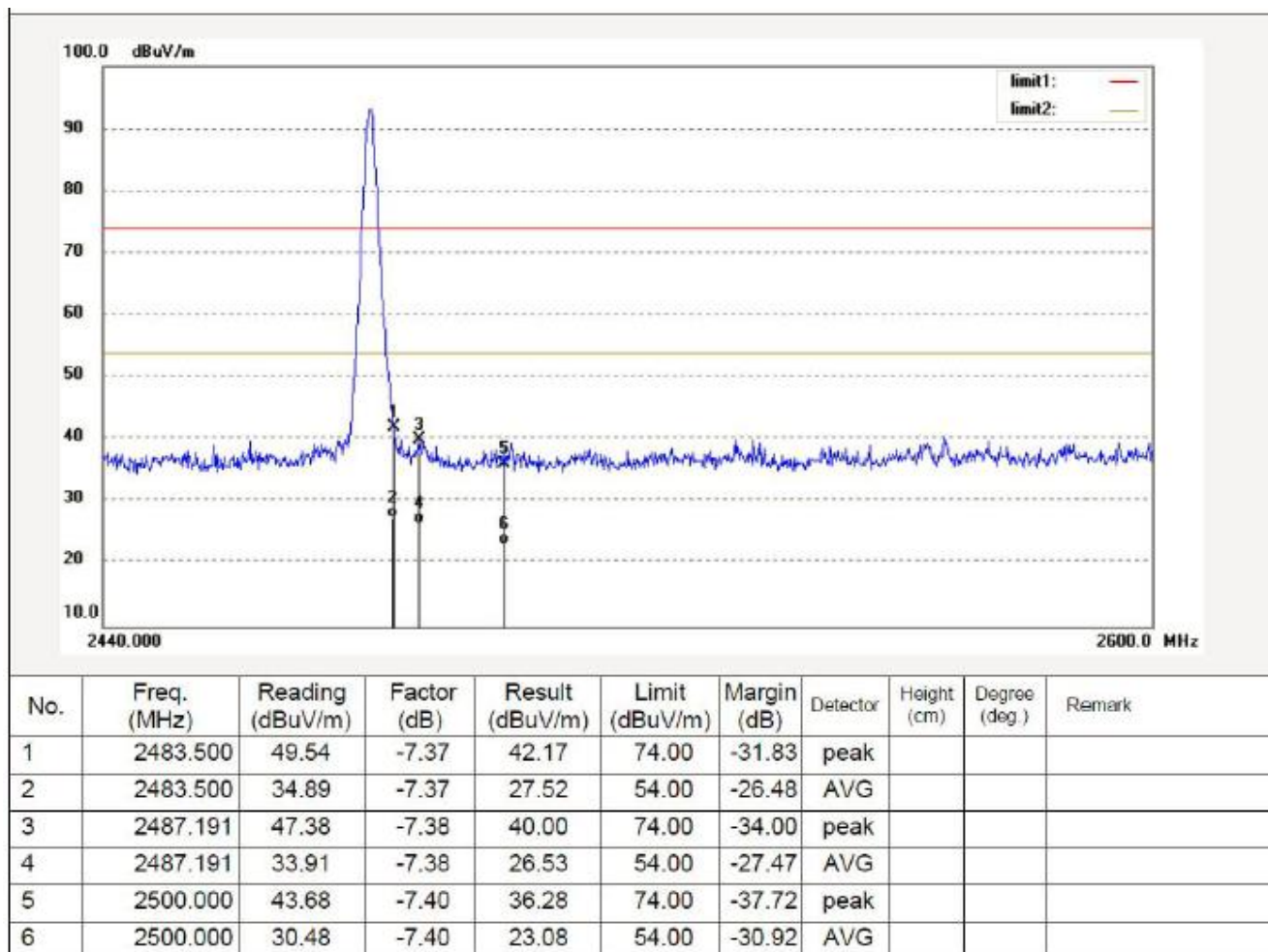
High CH

Polarization: Horizontal





Polarization: Vertical



## 8 CONDUCTED EMISSION TEST

### 8.1.1 POWER LINE CONDUCTED EMISSION LIMITS

Operating frequency band. In case the emission fall within the restricted band specified on Part 207(a) limit in the table below has to be followed.

FREQUENCY (MHz)	Conducted Emissionlimit (dBuV)	
	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

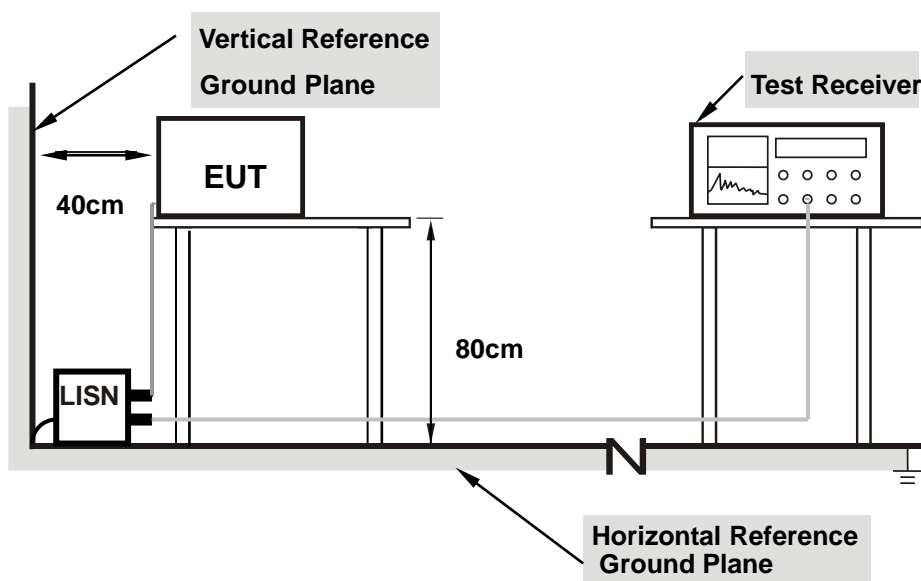
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

### 8.1.2 TEST PROCEDURE

- The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 8.1.3 TEST SETUP



**Note: 1.Support units were connected to second LISN.**

**2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes**

### 8.1.4 TEST RESULT

Temperature:	22.1 °C	Relative Humidity:	56%
Test Voltage:	/	Phase:	L/N
Test Mode:	/		
Test Result:	NA. because of the power supply by DC 3V		

## 9. ANTENNA REQUIREMENT

### 9.1 STANDARD REQUIREMENT

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 (b), 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.

### 9.2 RESULT

The antennas used for this product are PCB antenna and other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 1.9dBi.

\*\*\*\*\*END OF THE REPORT\*\*\*\*\*