

# Test Report

Verified code: 721072

Report No.: E202112276794-14

Customer: NunoErin, LLC

Address: 533 Commerce Street, Jackson MS 39201 USA

Sample Name: Wall mount tablet

Sample Model: UCTBWM-15.6

Receive Sample Date: Dec.29,2021

Test Date: Dec.31,2021 ~ Apr.21,2022

Reference Document: CFR 47, FCC Part 15 Subpart C  
RADIO FREQUENCY DEVICES:Subpart C—Intentional Radiators

Test Result: Pass

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*Xiao Liang*

GUANGZHOU GRG METROLOGY & TEST CO., LTD

Issued Date: 2022-05-27

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E202112276794-14	Original Issue	2022-04-27

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**1. TEST RESULT SUMMARY**

<b>Technical Requirements</b>		
FCC 47 CFR Part 15 Subpart C 15.247 ANSI C63.10-2013 KDB 558074 D01 15.247 measurement guidance v05r02		
<b>Limit / Severity</b>	<b>Item</b>	<b>Result</b>
Section 15.203	Antenna Requirement	Pass
Section 15.207(a)	Conducted Emission	Pass
Section 15.247(d) & 15.209 & 15.205	Radiated Spurious Emission	Pass
Section 15.247(b)(3)	Maximum Peak Output Power	Pass
Section 15.247(e)	Power Spectral Density	Pass
Section 15.247(a)(2)	6dB bandwidth	Pass
Section 15.247(d)	Conducted band edges and Spurious Emission	Pass
Section 15.247 (d)&15.205 &15.209	Restricted bands of operation	Pass

The EUT has one antenna. The antenna is Internal antenna.

The max gain of antenna is 3dBi. which accordance 15.203. is considered sufficient to comply with the provisions of this section.

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## 2. GENERAL DESCRIPTION OF EUT

### 2.1 APPLICANT

Name: NunoErin, LLC  
Address: 533 Commerce Street, Jackson MS 39201 USA

### 2.2 MANUFACTURER

Name: Chengdu Vantron Technology Co., Ltd.  
Address: No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China 610045

### 2.3 FACTORY

Name: Chengdu Vantron Technology Co., Ltd.  
Address: No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China 610045

### 2.4 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment: Wall mount tablet  
Model No.: UCTBWM-15.6  
Adding Model: /  
Trade Name: NunoErin  
FCC ID: 2A5VA- UCTBWM156  
Rating: Input: 100-240V~ 50/60Hz 1.0A  
Frequency Band: 2402 ~ 2480MHz  
Transmit Power: GFSK: 1.98dBm  
Modulation type: GFSK  
Channel space: 2MHz  
Antenna Specification: Internal antenna with 3dBi gain (Max.)  
Temperature Range: 0°C ~ 50°C  
Hardware Version: V2.0  
Software Version: Android 10  
Sample No: E202112276794-0001

## 2.5 CHANNELIST

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	10	2422	20	2442	30	2462
01	2404	11	2424	21	2444	31	2464
02	2406	12	2426	22	2446	32	2466
03	2408	13	2428	23	2448	33	2468
04	2410	14	2430	24	2450	34	2470
05	2412	15	2432	25	2452	35	2472
06	2414	16	2434	26	2454	36	2474
07	2416	17	2436	27	2456	37	2476
08	2418	18	2438	28	2458	38	2478
09	2420	19	2440	29	2460	39	2480

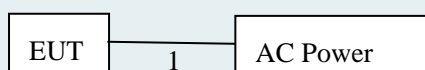
## 2.6 TEST OPERATION MODE

Mode No.	Description of the modes
1	Bluetooth BLE fixed frequency transmitting

## 2.7 LOCAL SUPPORTIVE

Name of Equipment	Manufacturer	Model	Serial Number	Note
/	/	/	/	/
Cable				
1	AC cable	/	/	Unshield 0.38m

## 2.8 CONFIGURATION OF SYSTEM UNDER TEST



### Test software:

Software version	Test level
Ampak RF testTool	Default



## 2.9 DUTY CYCLE

Environment: 23.1 °C/53%RH

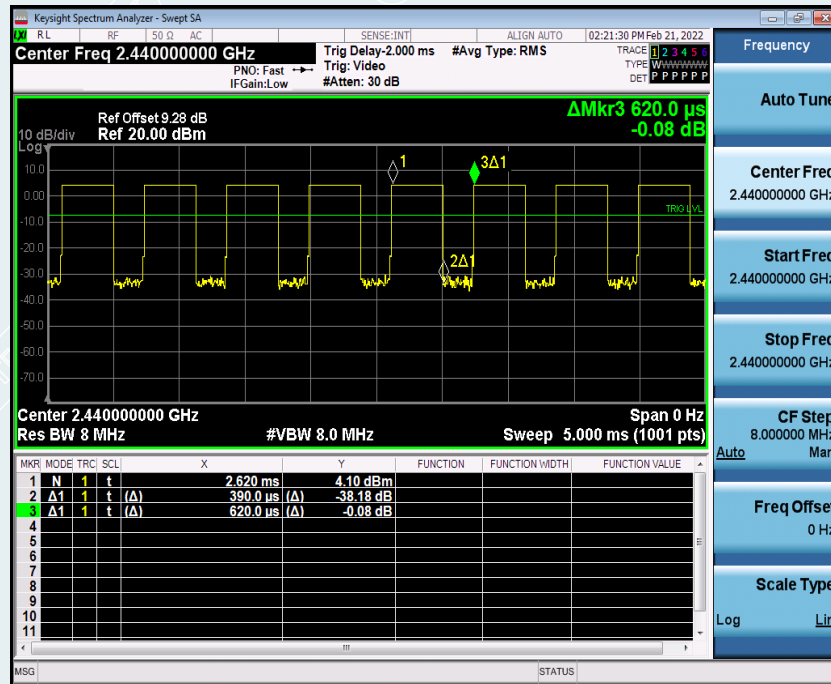
Tested By: Qin Tingting

Voltage: AC 120V/60Hz

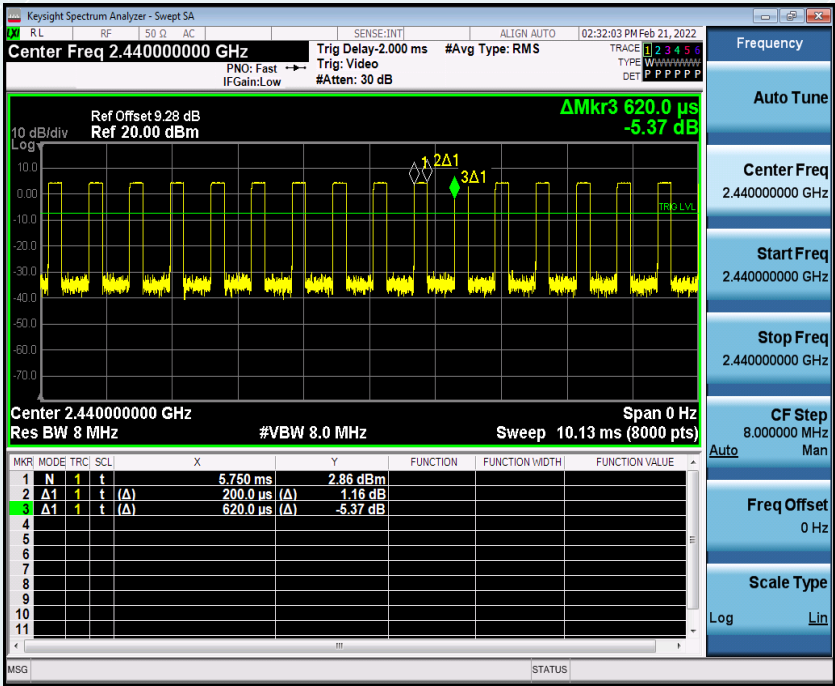
Date: 2022-02-21

Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	DC [%]	T [s]
BLE_1M	Ant1	2440	0.39	0.62	62.90	0.00039
BLE_2M	Ant1	2440	0.20	0.62	32.26	0.00020

BLE\_1M\_2440 MHz



BLE\_2M\_2440 MHz



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### 3. LABORATORY AND ACCREDITATIONS

#### 3.1 LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of Guangzhou GRG Metrology & Test Co., Ltd.

Add : No.1301 Guangang Road Xinlan Community, Guanlan Street, Longhua District  
Shenzhen, 518110, People's Republic of China

P.C. : 518110

Tel : 0755-61180008

Fax : 0755-61180008

#### 3.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

<b>USA</b>	A2LA(Certificate #2861.01)
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The measuring facility of laboratories has been authorized or registered by the following approval agencies.

<b>Canada</b>	ISED (Company Number: 24897, CAB identifier:CN0069)
<b>USA</b>	FCC (Registration Number: 759402, Designation Number:CN1198)

Copies of granted accreditation certificates are available for downloading from our web site,  
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### 3.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement		Frequency	Uncertainty
Radiated Emission	Horizontal	9kHz~30MHz	4.46dB
		30MHz~1000MHz	4.30dB
		1GHz~18GHz	5.60dB
		18GHz~26.5GHz	3.65dB
	Vertical	9kHz~30MHz	4.46dB
		30MHz~1000MHz	4.30dB
		1GHz~18GHz	5.60dB
		18GHz~26.5GHz	3.65dB

Measurement	Uncertainty
RF frequency	$6.0 \times 10^{-6}$
RF power conducted	0.78 dB
Occupied channel bandwidth	0.4 dB
Unwanted emission, conducted	0.68 dB
Humidity	6 %
Temperature	2 °C

This uncertainty represents an expanded uncertainty factor of  $k=2$ .

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**4. LIST OF USED TEST EQUIPMENT AT GRGT**

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
<b>Conducted Emissions</b>				
EZ-EMC	EZ	CCS-3A1-CE	/	/
EMI Receiver	R&S	ESCI	100783	2022-09-13
LISN(EUT)	R&S	ENV216	101543	2022-09-14
<b>Radiated Spurious Emission&amp;Restricted bands of operation</b>				
Test S/W	EZ	CCS-03A1		
Loop Antenna	TESEQ	HLA6121	52599	2023-04-02
Test Receiver	R&S	ESR7	102444	2022-09-21
Preamplifier	EMEC	EM330	I00426	2023-03-05
Bi-log Antenna	Schwarzbeck	VULB9160	VULB9160-3401	2022-10-27
Spectrum Analyzer	Agilent	N9020B	MY57120179	2022-08-08
Horn Antenna	Schwarzbeck	BBHA9120D(1201)	02143	2022-10-22
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	BBHA 9170-497	2022-10-16
Amplifier	Tonscend	TAP01018048	AP20E8060075	2022-05-09
Amplifier	Tonscend	TAP184050	AP20E806071	2022-05-17
Test S/W	Tonscend	JS32-RE/2.5.1.5		
<b>6 dB Bandwidth</b>				
Spectrum Analyzer	Agilent	N9010A	MY55370330	2022-11-08
<b>Output Power</b>				
Pulse power sensor	Anritsu	MA2411B	1126150	2023-03-01
Power meter	Anritsu	ML2495A	1204003	2023-02-28
<b>Conducted band edges and Spurious Emission</b>				
Spectrum Analyzer	Agilent	N9010A	MY55370330	2022-11-08
<b>Power Spectral Density</b>				
Spectrum Analyzer	Agilent	N9010A	MY55370330	2022-11-08

Note: The calibration interval of the above test instruments is 12 months.



## 5. RADIATED SPURIOUS EMISSIONS

### 5.1 LIMITS

In any 100kHz 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 20dB below that in the 100kHz 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 30dB instead of 20dB. Attenuation below the general limits specified in §15.209(a) is not required.

Frequency (MHz)	Quasi-peak( $\mu\text{V/m}$ )	Measurement distance(m)	Quasi-peak(dB $\mu\text{V/m}$ )@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30.0	30	30	69.5
30 ~ 88	100	3	40
88~216	150	3	43.5
216 ~ 960	200	3	46
Above 960	500	3	54

**NOTE:**

- (1) The emission limits for the ranges 9-90kHz and 110-490kHz are based on measurements employing a linear average detector.
- (2) The lower limit shall apply at the transition frequencies.
- (3) Above 18GHz test distance is 1m, so the Peak Limit=74+20\*log(3/1)=83.54 (dB $\mu\text{V/m}$ ).  
The Avg Limit=54+20\*log(3/1)=63.54 (dB $\mu\text{V/m}$ ).

### 5.2 TEST PROCEDURES

#### 1) Sequence of testing 9kHz to 30MHz

**Setup:**

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 0.8m height is used.
- If the EUT is a floor standing device, it is placed on the ground.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3meter.
- The EUT was set into operation.

**Pre measurement:**

- The turntable rotates from 0 ° to 360 °.
- The antenna height is 1.0 meter.
- The antenna is polarized X,Y and Z.
- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

**Final measurement:**

- Identified emissions during the pre measurement the software maximizes by rotating the turntable



position ( $0^{\circ}$  to  $360^{\circ}$ ) and by rotating the elevation axes ( $0^{\circ}$  to  $360^{\circ}$ ).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QP detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

## 2) Sequence of testing 30MHz to 1GHz

### Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

### Pre measurement:

--- The turntable rotates from  $0^{\circ}$  to  $360^{\circ}$ .

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 4 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

### Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of pre measurement the software maximize the peaks by changing turntable rotates from  $0^{\circ}$  to  $360^{\circ}$  and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

## 3) Sequence of testing 1GHz to 18GHz

### Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

**Pre measurement:**

- The turntable rotates from 0 ° to 360 °.
- The antenna is polarized vertical and horizontal.
- The antenna height scan range is 1 meter to 4 meter.
- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

**Final measurement:**

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of pre measurement the software maximize the peaks by changing turntable rotates from 0 ° to 360 ° and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.
- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

**4) Sequence of testing above 18GHz****Setup:**

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 1 meter.
- The EUT was set into operation.

**Pre measurement:**

- The antenna is moved spherical over the EUT in different polarisations of the antenna.

**Final measurement:**

- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the pre measurements with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

**NOTE:**

- (a). The frequency from 9kHz to 150kHz, Set RBW=300Hz (for Peak & AVG), VBW=300Hz (for Peak & AVG). The frequency from 150kHz to 30MHz, Set RBW=9kHz, VBW=9kHz, (for QP Detector).
- (b). The frequency from 30MHz to 1GHz, Set RBW=120kHz, VBW=300kHz, (for QP Detector).
- (c). The frequency above 1GHz, for Peak detector: Set RBW=1MHz, VBW=3MHz.
- (d). The frequency above 1GHz, for Avg detector: Set RBW=1MHz, if the EUT is configured to transmit with duty cycle  $\geq 98\%$ , set  $VBW \leq RBW/100$  (i.e., 10kHz) but not less than 10Hz. Where duty cycle is defined in section 2.9.

### 5.3 TEST SETUP

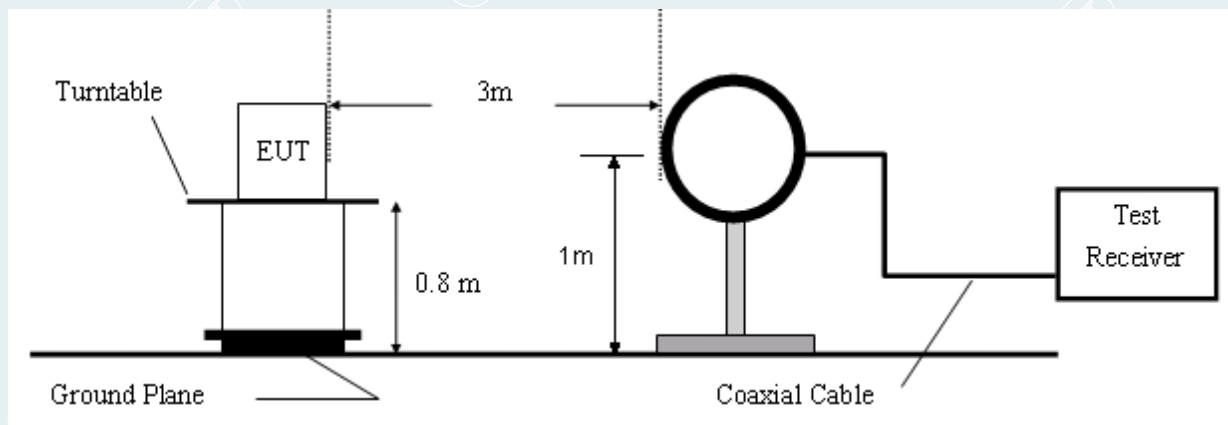


Figure 1. 9kHz to 30MHz radiated emissions test configuration

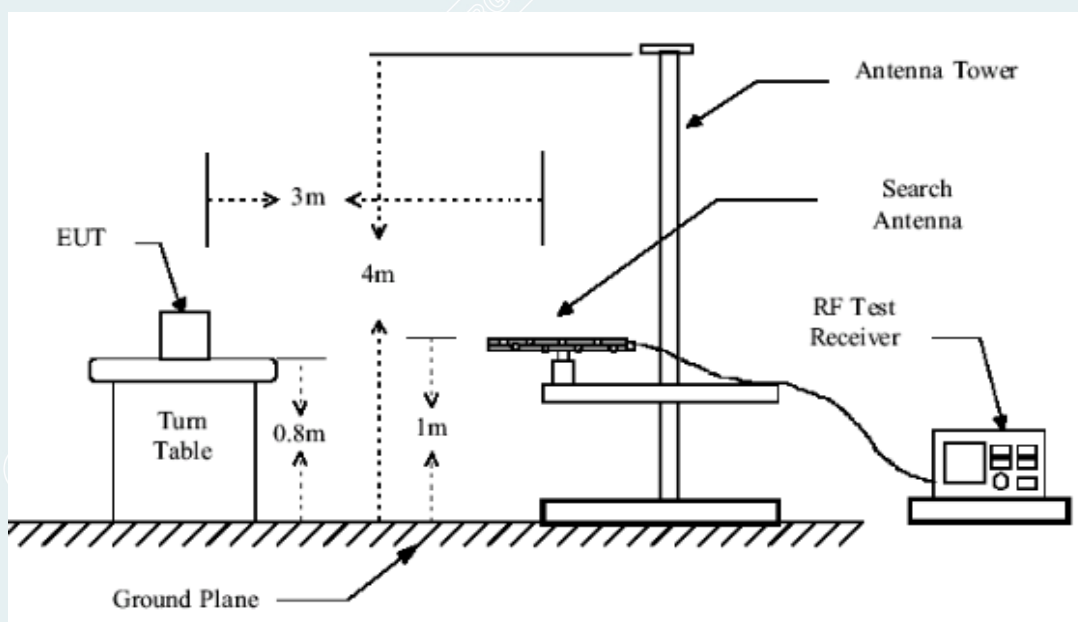


Figure 2. 30MHz to 1GHz radiated emissions test configuration

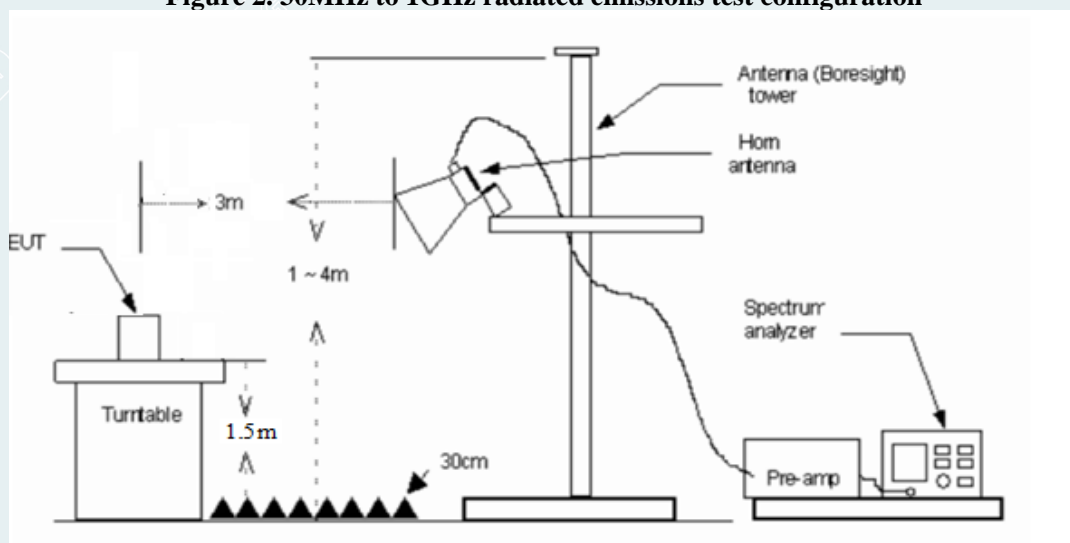


Figure 3. 1GHz to 18GHz radiated emissions test configuration

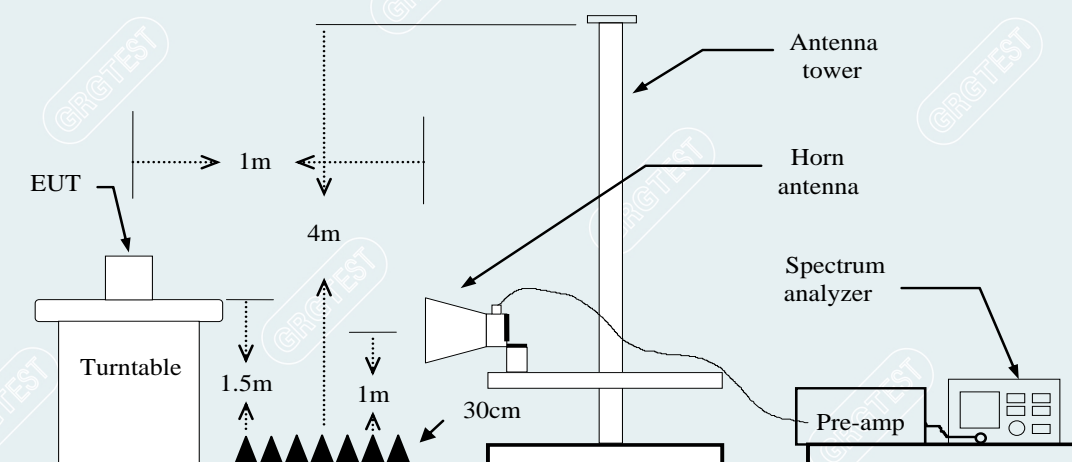


Figure 4. 18GHz to 26.5GHz radiated emissions test configuration

#### 5.4 DATA SAMPLE

##### 30MHz to 1GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	37.06	-15.48	21.58	40.00	-18.42	QP	Vertical

##### 1GHz to 18GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	65.45	-11.12	54.33	74.00	-19.67	Peak	Vertical
xxx	xxx	63.00	-11.12	51.88	54.00	-2.12	AVG	Vertical

##### Above 18GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	68.86	57.66	-11.20	83.54	25.88	peak	Vertical
xxx	xxx	68.89	-11.20	57.69	63.54	5.85	AVG	Vertical

Frequency (MHz) = Emission frequency in MHz

Ant.Pol. (H/V) = Antenna polarization

Reading (dBuV) = Uncorrected Analyzer / Receiver reading

Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain

Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)

Limit (dBuV/m) = Limit stated in standard

Margin (dB) = Remark Result (dBuV/m) – Limit (dBuV/m)

Peak = Peak Reading

QP = Quasi-peak Reading

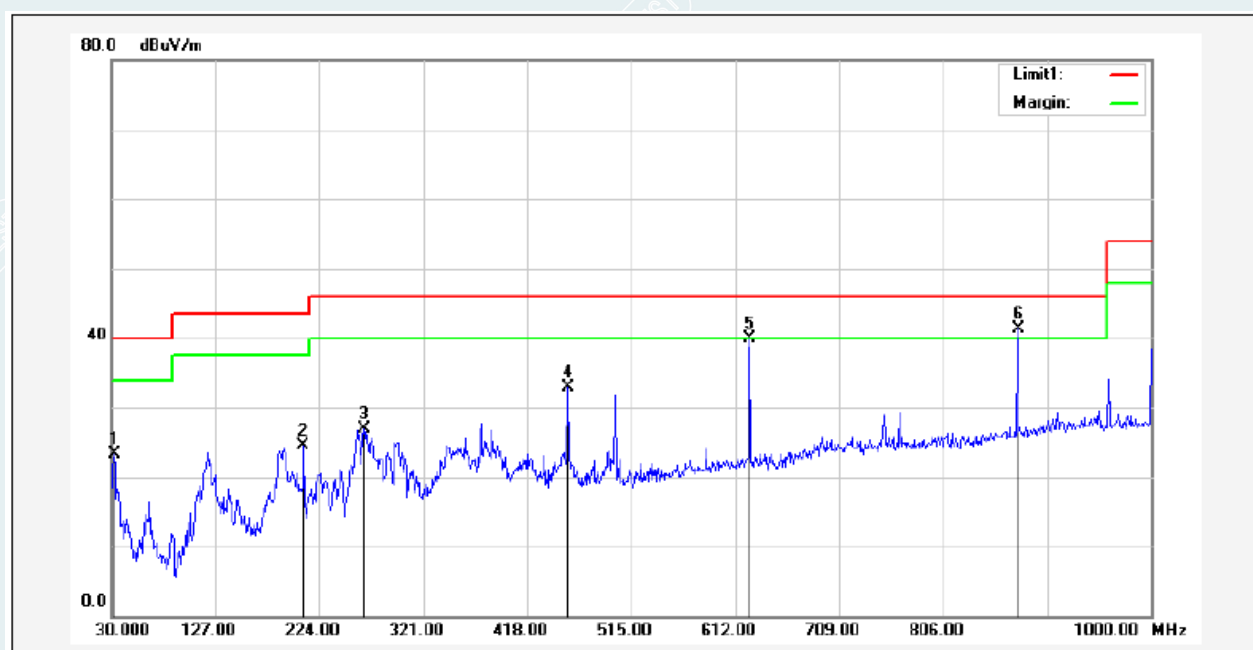
AVG = Average Reading

## 5.5 TEST RESULTS

### Below 1GHz

Recorded the worst case BLE/1M test results in the report.

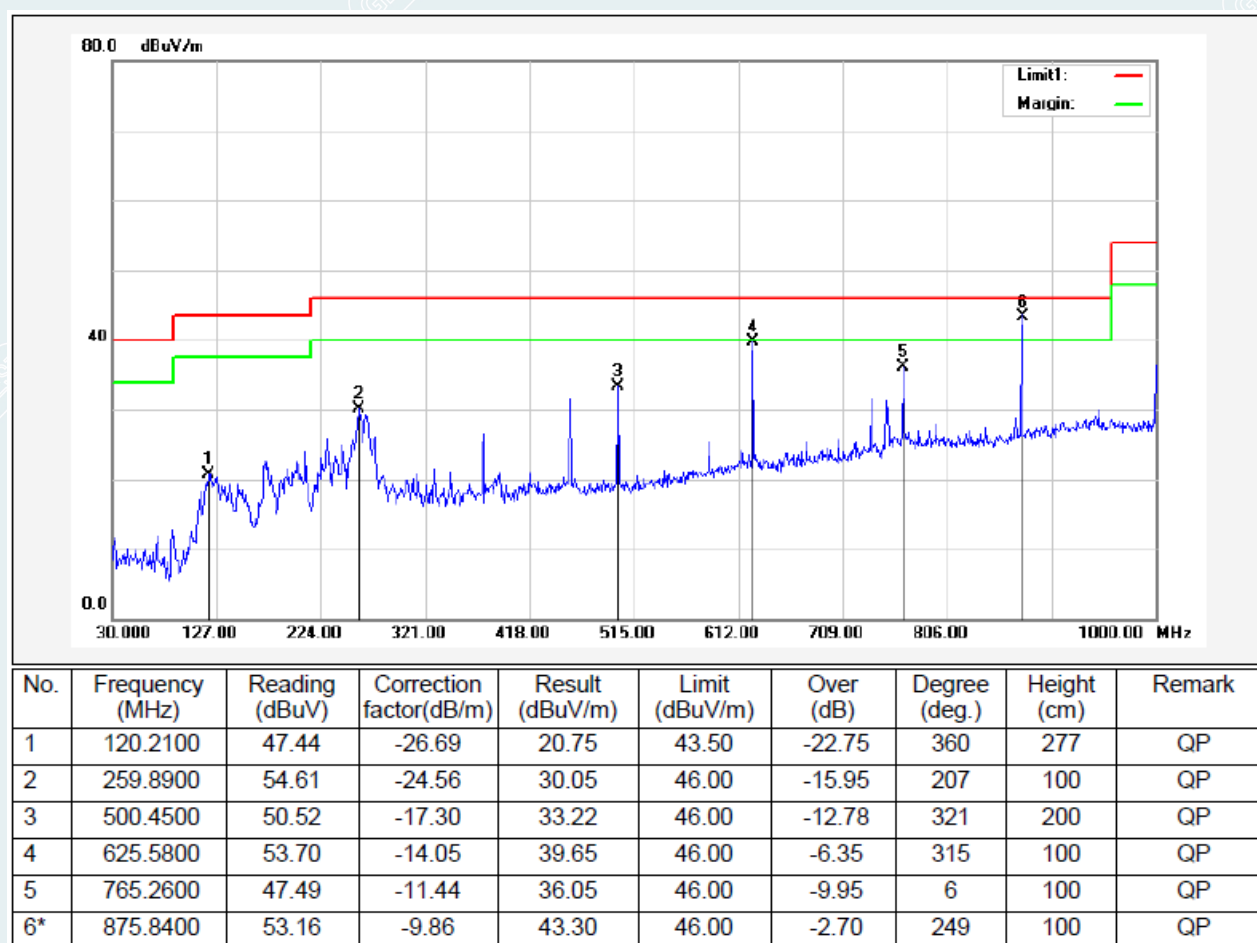
<b>EUT Name</b>	Wall mount tablet	<b>Model</b>	UCTBWM-15.6
<b>Environmental Conditions</b>	25.1℃ / 55 %RH	<b>Test Voltage</b>	AC 120V/60Hz
<b>Test Mode</b>	TX/1M (2402MHz)	<b>Polarity</b>	Vertical
<b>Tested By</b>	Tang Shenghui	<b>Tested Date</b>	2022-01-06



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	32.9100	50.94	-27.72	23.22	40.00	-16.78	33	100	QP
2	209.4500	51.29	-26.88	24.41	43.50	-19.09	196	100	QP
3	265.7100	51.29	-24.35	26.94	46.00	-19.06	251	100	QP
4	455.8300	50.98	-18.08	32.90	46.00	-13.10	360	160	QP
5	625.5800	54.04	-14.05	39.99	46.00	-6.01	33	100	QP
6*	875.8400	51.26	-9.86	41.40	46.00	-4.60	167	100	QP

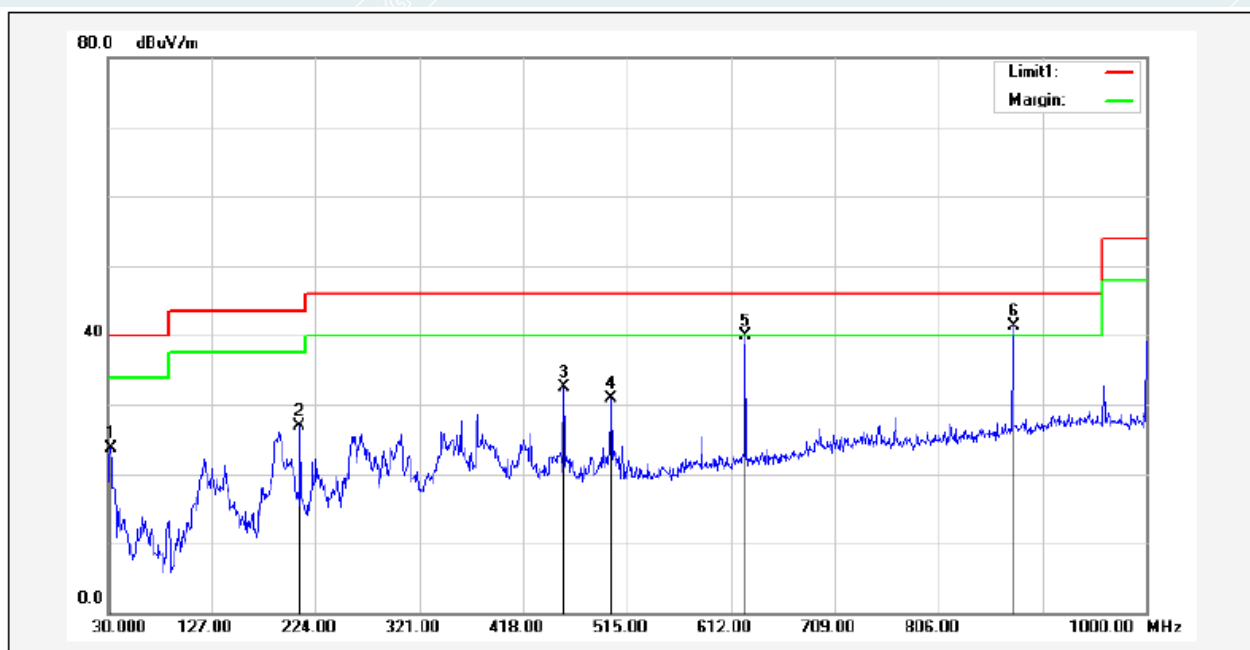


<b>EUT Name</b>	Wall mount tablet	<b>Model</b>	UCTBWM-15.6
<b>Environmental Conditions</b>	25.1°C / 55 %RH	<b>Test Voltage</b>	AC 120V/60Hz
<b>Test Mode</b>	TX/1M (2402MHz)	<b>Polarity</b>	Horizontal
<b>Tested By</b>	Tang Shenghui	<b>Tested Date</b>	2022-01-06



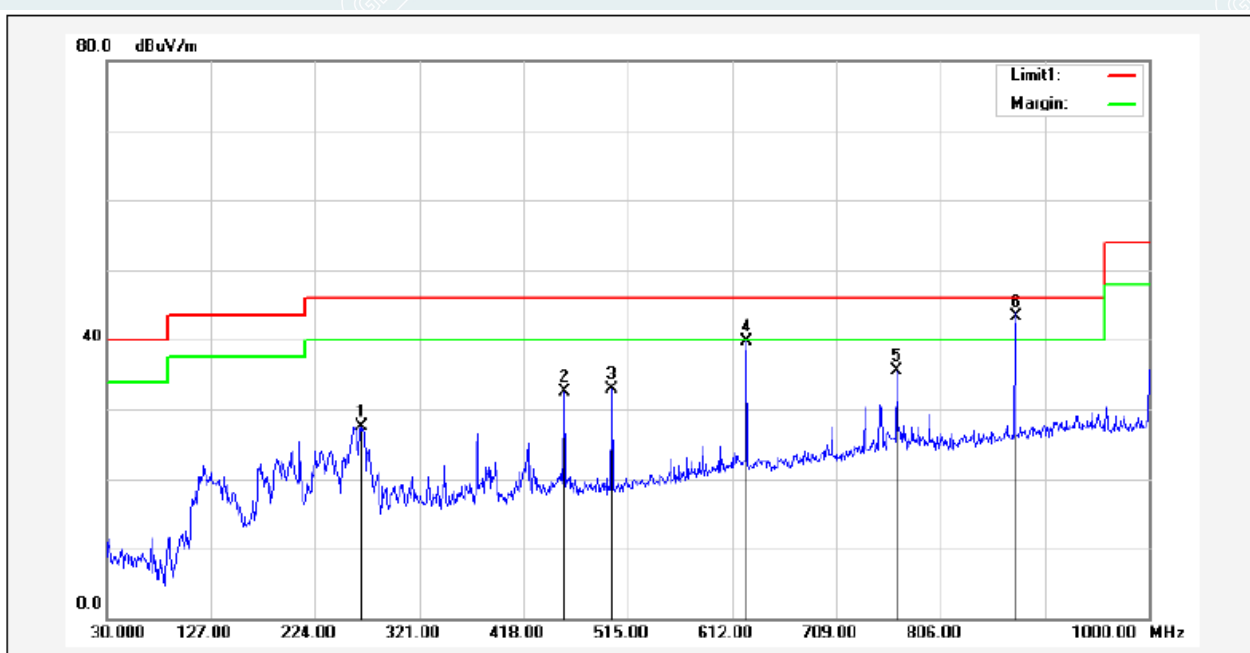


<b>EUT Name</b>	Wall mount tablet	<b>Model</b>	UCTBWM-15.6
<b>Environmental Conditions</b>	25.1℃ / 55 %RH	<b>Test Voltage</b>	AC 120V/60Hz
<b>Test Mode</b>	TX/1M (2440MHz)	<b>Polarity</b>	Vertical
<b>Tested By</b>	Tang Shenghui	<b>Tested Date</b>	2022-01-06



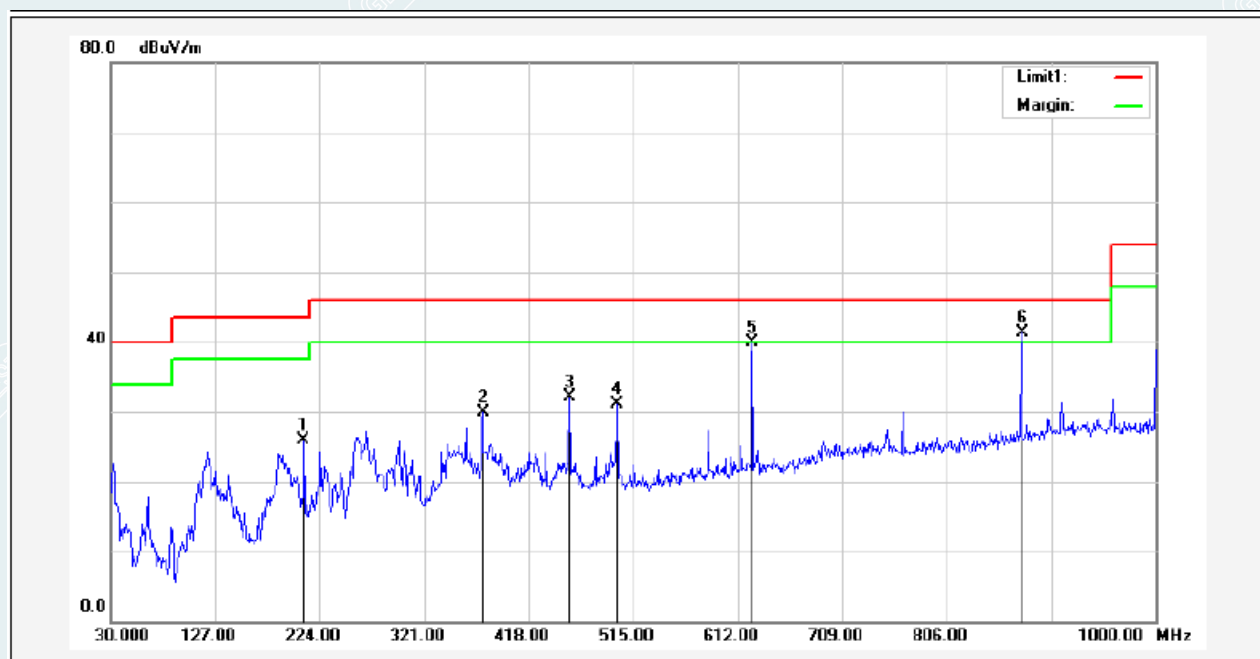
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	32.9100	51.49	-27.72	23.77	40.00	-16.23	315	100	QP
2	209.4500	53.82	-26.88	26.94	43.50	-16.56	200	100	QP
3	455.8300	50.65	-18.08	32.57	46.00	-13.43	331	200	QP
4	500.4500	48.22	-17.30	30.92	46.00	-15.08	200	100	QP
5	625.5800	53.89	-14.05	39.84	46.00	-6.16	33	100	QP
6*	875.8400	51.26	-9.86	41.40	46.00	-4.60	171	100	QP

<b>EUT Name</b>	Wall mount tablet	<b>Model</b>	UCTBWM-15.6
<b>Environmental Conditions</b>	25.1°C / 55 %RH	<b>Test Voltage</b>	AC 120V/60Hz
<b>Test Mode</b>	TX/1M (2440MHz)	<b>Polarity</b>	Horizontal
<b>Tested By</b>	Tang Shenghui	<b>Tested Date</b>	2022-01-06



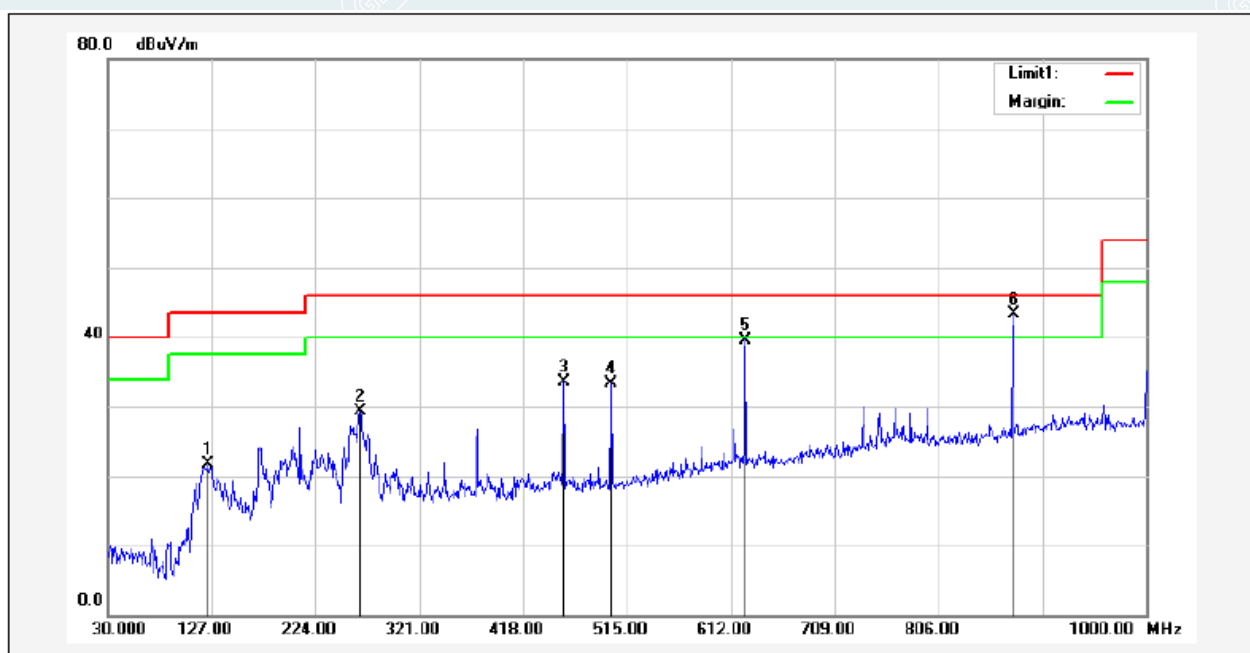
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	266.6800	51.83	-24.31	27.52	46.00	-18.48	192	100	QP
2	455.8300	50.55	-18.08	32.47	46.00	-13.53	360	284	QP
3	500.4500	50.27	-17.30	32.97	46.00	-13.03	315	200	QP
4	625.5800	53.76	-14.05	39.71	46.00	-6.29	317	100	QP
5	765.2600	46.89	-11.44	35.45	46.00	-10.55	0	102	QP
6*	875.8400	53.26	-9.86	43.40	46.00	-2.60	256	100	QP

<b>EUT Name</b>	Wall mount tablet	<b>Model</b>	UCTBWM-15.6
<b>Environmental Conditions</b>	25.1°C / 55 %RH	<b>Test Voltage</b>	AC 120V/60Hz
<b>Test Mode</b>	TX/1M (2480MHz)	<b>Polarity</b>	Vertical
<b>Tested By</b>	Tang Shenghui	<b>Tested Date</b>	2022-01-06



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	209.4500	52.87	-26.88	25.99	43.50	-17.51	194	200	QP
2	375.3200	50.76	-20.90	29.86	46.00	-16.14	0	152	QP
3	455.8300	50.18	-18.08	32.10	46.00	-13.90	360	251	QP
4	500.4500	48.36	-17.30	31.06	46.00	-14.94	207	100	QP
5	625.5800	53.98	-14.05	39.93	46.00	-6.07	31	100	QP
6*	875.8400	51.26	-9.86	41.40	46.00	-4.60	106	100	QP

<b>EUT Name</b>	Wall mount tablet	<b>Model</b>	UCTBWM-15.6
<b>Environmental Conditions</b>	25.1°C / 55 %RH	<b>Test Voltage</b>	AC 120V/60Hz
<b>Test Mode</b>	TX/1M (2480MHz)	<b>Polarity</b>	Horizontal
<b>Tested By</b>	Tang Shenghui	<b>Tested Date</b>	2022-01-06



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	124.0900	47.91	-26.30	21.61	43.50	-21.89	360	247	QP
2	265.7100	53.64	-24.35	29.29	46.00	-16.71	204	100	QP
3	455.8300	51.67	-18.08	33.59	46.00	-12.41	0	135	QP
4	500.4500	50.51	-17.30	33.21	46.00	-12.79	318	200	QP
5	625.5800	53.65	-14.05	39.60	46.00	-6.40	321	100	QP
6*	875.8400	53.16	-9.86	43.30	46.00	-2.70	108	100	QP

**Remark:**

- 1 No emission found between lowest internal used/generated frequency to 30MHz.
- 2 Measuring frequencies from 9kHz to the 1GHz.
- 3 Radiated emissions measured in frequency range from 30MHz to 1GHz were made with an instrument using Peak/Quasi-peak detector mode.
- 4 Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 The IF bandwidth of SPA between 30MHz to 1GHz was 120kHz.

**Above 1GHz:**

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

Mode: TX

Lowest Frequency (2402MHz)

Date: 2022-01-08

Tested By: Lu Qiang

Environment: 25°C/60%RH

Voltage: AC 120V/60Hz

BLE 1M

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1367.7960	69.18	45.53	-23.65	74.00	28.47	100	233	Horizontal
2	2280.9101	66.38	46.14	-20.24	74.00	27.86	200	216	Horizontal
3	3187.5234	58.44	42.33	-16.11	74.00	31.67	100	86	Horizontal
4	4110.1388	58.01	44.22	-13.79	74.00	29.78	200	248	Horizontal
5	7208.0260	50.58	47.37	-3.21	74.00	26.63	200	53	Horizontal
6	10836.6046	45.57	49.47	3.90	74.00	24.53	200	135	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1140.0175	72.37	47.72	-24.65	74.00	26.28	200	341	Vertical
2	1373.7967	69.90	46.28	-23.62	74.00	27.72	200	38	Vertical
3	1595.8245	66.53	43.62	-22.91	74.00	30.38	200	1	Vertical
4	2281.1601	66.50	46.26	-20.24	74.00	27.74	100	21	Vertical
5	3193.1491	63.29	47.31	-15.98	74.00	26.69	100	8	Vertical
6	4106.3883	57.27	43.44	-13.83	74.00	30.56	200	134	Vertical

----- The following blanks -----

Mode: TX  
Middle Frequency (2440MHz)  
Date: 2022-01-08  
Tested By: Lu Qiang

Environment: 25°C/60%RH  
Voltage: AC 120V/60Hz  
BLE 1M

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1367.7960	70.90	47.25	-23.65	74.00	26.75	200	22	Horizontal
2	1653.0816	61.99	39.47	-22.52	74.00	34.53	100	70	Horizontal
3	2277.6597	66.31	46.04	-20.27	74.00	27.96	100	193	Horizontal
4	3198.7748	58.82	42.96	-15.86	74.00	31.04	200	135	Horizontal
5	4108.2635	59.46	45.65	-13.81	74.00	28.35	200	248	Horizontal
6	7779.9725	49.18	47.30	-1.88	74.00	26.70	200	36	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1140.5176	68.44	43.80	-24.64	74.00	30.20	200	8	Vertical
2	1377.0471	67.02	43.42	-23.60	74.00	30.58	200	14	Vertical
3	1613.0766	66.74	43.92	-22.82	74.00	30.08	200	1	Vertical
4	2280.4101	69.21	48.97	-20.24	74.00	25.03	100	4	Vertical
5	3193.1491	64.23	48.25	-15.98	74.00	25.75	200	331	Vertical
6	6834.8544	51.32	46.64	-4.68	74.00	27.36	100	13	Vertical

----- The following blanks -----



Mode: TX  
Highest Frequency (2480MHz)  
Date: 2022-01-08  
Tested By: Lu Qiang

Environment: 25°C/60%RH  
Voltage: AC 120V/60Hz  
BLE 1M

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1368.7961	68.47	44.82	-23.65	74.00	29.18	100	152	Horizontal
2	1595.0744	62.60	39.69	-22.91	74.00	34.31	200	86	Horizontal
3	2281.4102	65.49	45.25	-20.24	74.00	28.75	200	201	Horizontal
4	3193.1491	57.87	41.89	-15.98	74.00	32.11	100	86	Horizontal
5	4100.7626	57.44	43.57	-13.87	74.00	30.43	100	241	Horizontal
6	7751.8440	49.20	47.25	-1.95	74.00	26.75	100	29	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1198.2748	68.57	44.04	-24.53	74.00	29.96	100	8	Vertical
2	1365.0456	70.98	47.32	-23.66	74.00	26.68	100	360	Vertical
3	1619.5774	65.45	42.68	-22.77	74.00	31.32	100	344	Vertical
4	2283.9105	65.52	45.30	-20.22	74.00	28.70	100	14	Vertical
5	3193.1491	61.67	45.69	-15.98	74.00	28.31	200	331	Vertical
6	4110.1388	57.06	43.27	-13.79	74.00	30.73	100	142	Vertical

----- The following blanks -----

Mode: TX  
 Lowest Frequency (2402MHz)  
 Date: 2022-01-08  
 Tested By: Lu Qiang

Environment: 25°C/60%RH  
 Voltage: AC 120V/60Hz  
 BLE 2M

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1368.5461	72.24	48.59	-23.65	74.00	25.41	200	210	Horizontal
2	2275.9095	66.36	46.08	-20.28	74.00	27.92	200	202	Horizontal
3	3193.1491	59.14	43.16	-15.98	74.00	30.84	100	92	Horizontal
4	3446.3058	65.26	49.68	-15.58	74.00	24.32	100	297	Horizontal
5	4104.5131	61.04	47.20	-13.84	74.00	26.80	200	224	Horizontal
6	7219.2774	51.00	47.66	-3.34	74.00	26.34	200	174	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1140.0175	73.11	48.46	-24.65	74.00	25.54	200	8	Vertical
2	1358.2948	68.28	44.58	-23.70	74.00	29.42	200	1	Vertical
3	1596.3245	67.03	44.12	-22.91	74.00	29.88	200	360	Vertical
4	2279.9100	69.77	49.52	-20.25	74.00	24.48	100	22	Vertical
5	3193.1491	63.76	47.78	-15.98	74.00	26.22	200	20	Vertical
6	3496.9371	63.03	47.65	-15.38	74.00	26.35	200	44	Vertical

----- The following blanks -----

Mode: TX  
Middle Frequency (2440MHz)  
Date: 2022-01-08  
Tested By: Lu Qiang

Environment: 25°C/60%RH  
Voltage: AC 120V/60Hz  
BLE 2M

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1368.5461	70.70	47.05	-23.65	74.00	26.95	200	69	Horizontal
2	2281.9102	67.06	46.83	-20.23	74.00	27.17	100	136	Horizontal
3	2439.4299	61.97	42.28	-19.69	74.00	31.72	100	30	Horizontal
4	3196.8996	58.56	42.66	-15.90	74.00	31.34	200	152	Horizontal
5	4106.3883	57.98	44.15	-13.83	74.00	29.85	200	224	Horizontal
6	7982.4978	49.28	47.69	-1.59	74.00	26.31	100	356	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1140.5176	71.18	46.54	-24.64	74.00	27.46	200	331	Vertical
2	1363.5454	66.96	43.29	-23.67	74.00	30.71	200	352	Vertical
3	1618.3273	66.49	43.71	-22.78	74.00	30.29	100	1	Vertical
4	2280.9101	66.76	46.52	-20.24	74.00	27.48	100	46	Vertical
5	3193.1491	63.32	47.34	-15.98	74.00	26.66	200	331	Vertical
6	7206.1508	50.03	46.84	-3.19	74.00	27.16	100	340	Vertical

----- The following blanks -----

Mode: TX  
 Highest Frequency (2480MHz)  
 Date: 2022-01-08  
 Tested By: Lu Qiang

Environment: 25°C/60%RH  
 Voltage: AC 120V/60Hz  
 BLE 2M

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1368.0460	70.15	46.50	-23.65	74.00	27.50	200	200	Horizontal
2	1595.8245	63.26	40.35	-22.91	74.00	33.65	200	86	Horizontal
3	2280.4101	67.07	46.83	-20.24	74.00	27.17	200	232	Horizontal
4	3191.2739	58.08	42.06	-16.02	74.00	31.94	200	54	Horizontal
5	3496.9371	61.11	45.73	-15.38	74.00	28.27	200	78	Horizontal
6	4104.5131	56.92	43.08	-13.84	74.00	30.92	200	128	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1140.2675	69.83	45.18	-24.65	74.00	28.82	200	14	Vertical
2	1361.0451	69.78	46.10	-23.68	74.00	27.90	100	46	Vertical
3	1596.5746	66.31	43.39	-22.92	74.00	30.61	100	357	Vertical
4	2281.4102	66.31	46.07	-20.24	74.00	27.93	200	176	Vertical
5	3200.6501	63.15	47.31	-15.84	74.00	26.69	200	339	Vertical
6	4108.2635	57.47	43.66	-13.81	74.00	30.34	200	201	Vertical

#### Remark:

- 1 Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2 The amplitude of 18GHz to 26.5GHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- 4 Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 5 Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “ N/A ” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

## 6. CONDUCTED EMISSION MEASUREMENT

### 6.1 LIMITS

Frequency range	Limits (dB $\mu$ V)	
	Quasi-peak	Average
150kHz~0.5MHz	66~56	56~46
0.5MHz~5MHz	56	46
5MHz~30MHz	60	50

### 6.2 TEST PROCEDURES

#### Procedure of Preliminary Test

For measurement of the disturbance voltage the equipment under test (EUT) is connected to the power supply mains and any other extended network via one or more artificial network(s). An EUT, whether intended to be grounded or not, and which is to be used on a table is configured as follows:

- Either the bottom or the rear of the EUT shall be at a controlled distance of 40 cm from a reference ground plane. This ground plane is normally the wall or floor of a shielded room. It may also be a grounded metal plane of at least 2 m by 2 m. This is physically accomplished as follows:

- 1) Place the EUT on a table of non-conducting material which is at least 80 cm high. Place the EUT so that it is 40 cm from the wall of the shielded room, or

- 2) place the EUT on a table of non-conducting material which is 40 cm high so that the bottom of the EUT is 40 cm above the ground plane;

- All other conductive surfaces of the EUT shall be at least 80 cm from the reference ground plane;

- The EUT are placed on the floor that one side of the housings is 40 cm from the vertical reference ground plane and other metallic parts;

- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 cm to 40 cm long, hanging approximately in the middle between the ground plane and the table.

- I/O cables that are connected to a peripheral shall be bundled in the centre. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1 m.

The test mode(s) described in Item 2.6 were scanned during the preliminary test. After the preliminary scan, we found the test mode described in Item 2.6 producing the highest emission level. The EUT configuration and cable configuration of the above highest emission levels were recorded for reference of the final test.

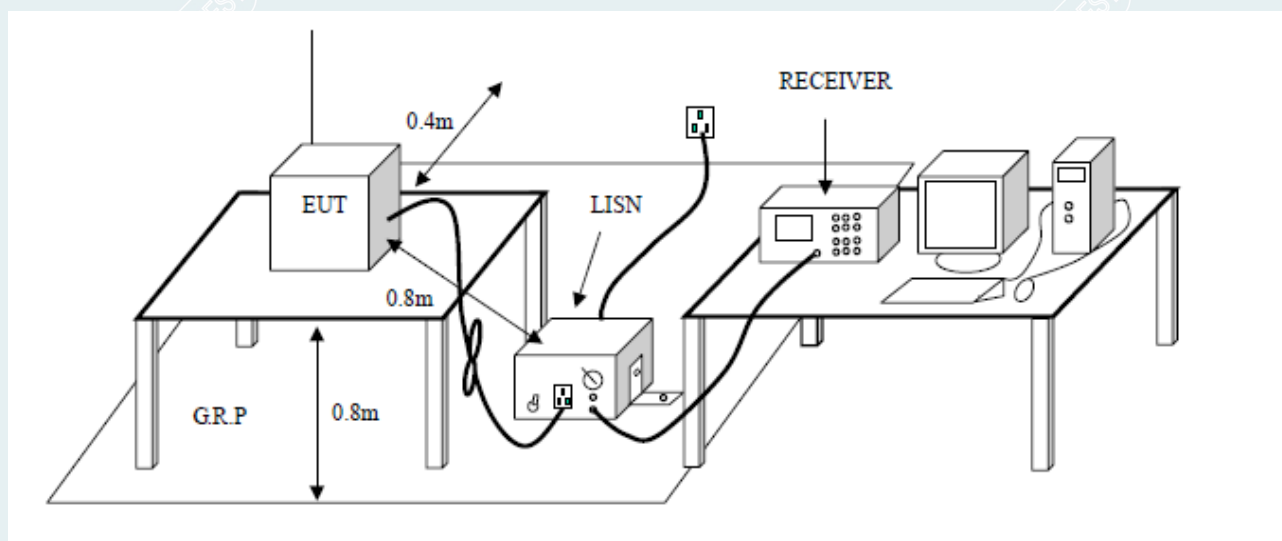
#### Procedure of Final Test

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test. A scan was taken on both power lines, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.



### 6.3 TEST SETUP



### 6.4 DATA SAMPLE

Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XXXX	32.69	25.65	11.52	44.21	37.17	65.78	55.79	-21.57	-18.62	Pass

Factor = Insertion loss of LISN + Cable Loss  
 Result = Quasi-peak Reading/ Average Reading + Factor  
 Limit = Limit stated in standard  
 Margin = Result (dBuV) – Limit (dBuV)

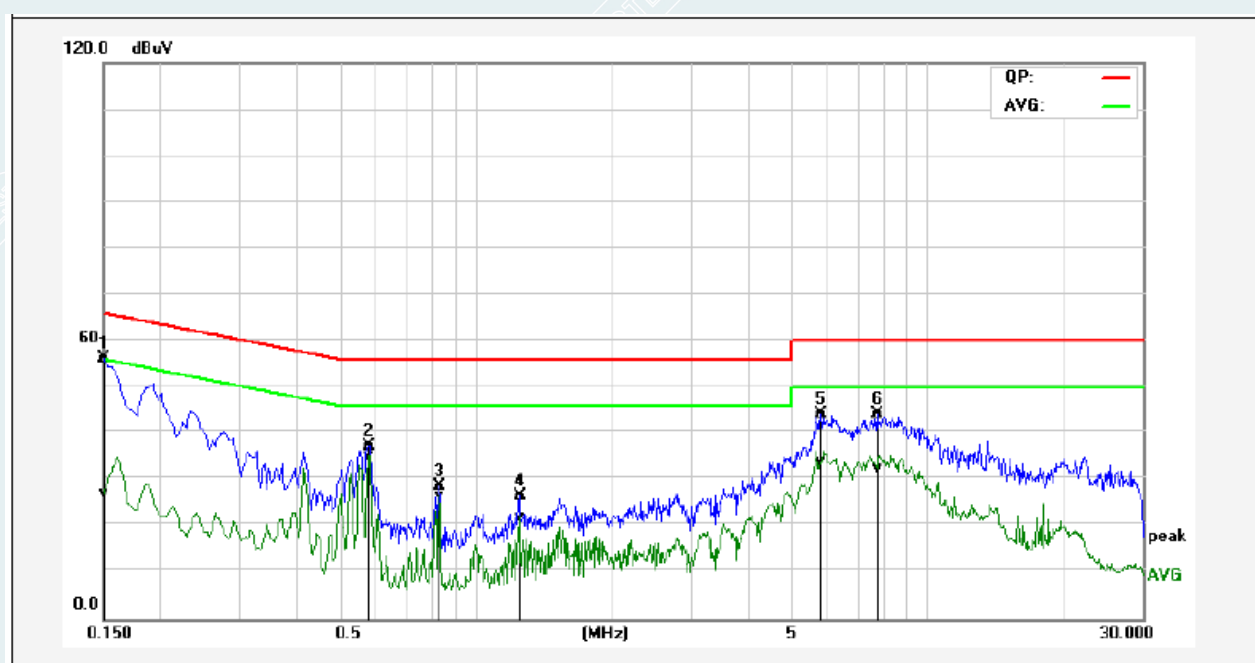


## 6.5 TEST RESULTS

Recorded the worst case BLE/1M 2402MHz test results in the report.

<b>EUT Name</b>	Wall mount tablet	<b>Model</b>	UCTBWM-15.6
<b>Environmental Conditions</b>	22.5°C/45%RH	<b>Test Mode</b>	BLE/1M 2402MHz
<b>Tested By</b>	Zeng Xianglong	<b>Line</b>	L
<b>Tested Date</b>	2022-02-14	<b>Test Voltage</b>	AC120V/60Hz

(The chart below shows the highest readings taken from the final data.)



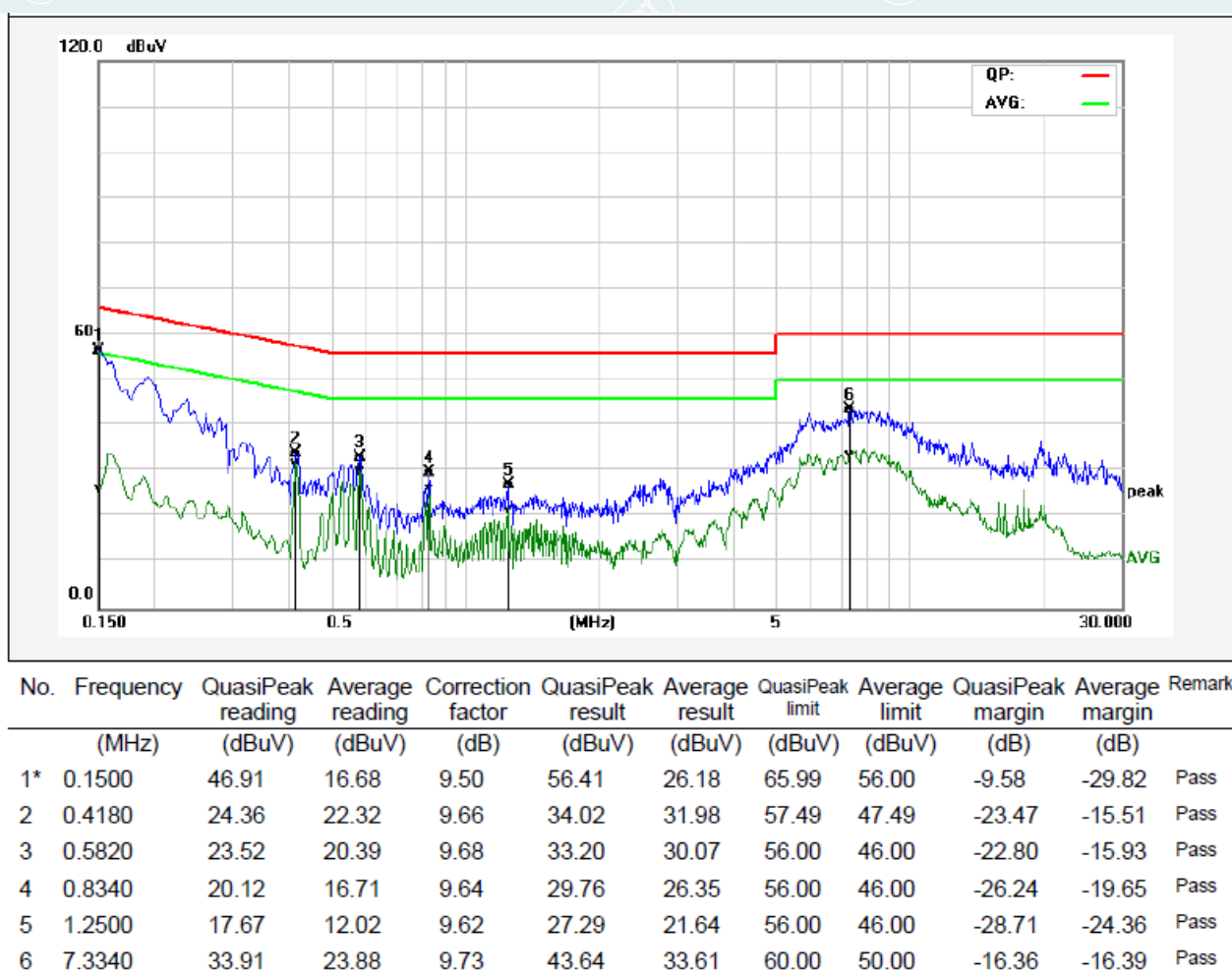
No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.1500	46.63	17.76	9.50	56.13	27.26	65.99	56.00	-9.86	-28.74	Pass
2	0.5820	27.77	25.67	9.68	37.45	35.35	56.00	46.00	-18.55	-10.65	Pass
3	0.8340	18.92	16.78	9.64	28.56	26.42	56.00	46.00	-27.44	-19.58	Pass
4	1.2500	16.94	12.40	9.62	26.56	22.02	56.00	46.00	-29.44	-23.98	Pass
5	5.8300	34.57	24.33	9.68	44.25	34.01	60.00	50.00	-15.75	-15.99	Pass
6	7.7300	34.44	22.81	9.74	44.18	32.55	60.00	50.00	-15.82	-17.45	Pass

**REMARKS:** L = Live Line

Pre-scan all mode and recorded the worst case results in this report (TX-Low Channel)

<b>EUT Name</b>	Wall mount tablet	<b>Model</b>	UCTBWM-15.6
<b>Environmental Conditions</b>	22.5°C/45%RH	<b>Test Mode</b>	BLE/1M 2402MHz
<b>Tested By</b>	Zeng Xianglong	<b>Line</b>	N
<b>Tested Date</b>	2022-02-14	<b>Test Voltage</b>	AC120V/60Hz

(The chart below shows the highest readings taken from the final data.)



**REMARKS:** N = Neutral Line.

Pre-scan all mode and recorded the worst case results in this report(TX-Low Channel)

## 7. 6dB BANDWIDTH

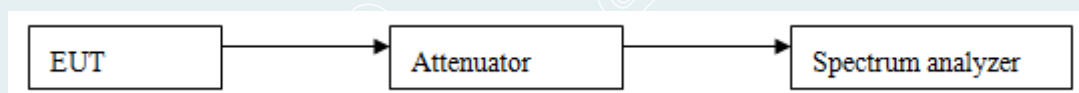
### 7.1 LIMITS

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

### 7.2 TEST PROCEDURES

- 1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
- 2) Set resolution bandwidth (RBW) = 100kHz. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW. Detector = Peak. Trace mode = max hold. Sweep = auto couple. Allow the trace to stabilize, record 6dB bandwidth value.
- 3) Repeat above procedures until all frequencies measured were complete.

### 7.3 TEST SETUP



### 7.4 TEST RESULTS

Environment: 23.1°C/53%RH  
 Tested By: Qin Tingting

Voltage: AC 120V/60Hz  
 Date: 2022-01-14

#### BLE\_1M

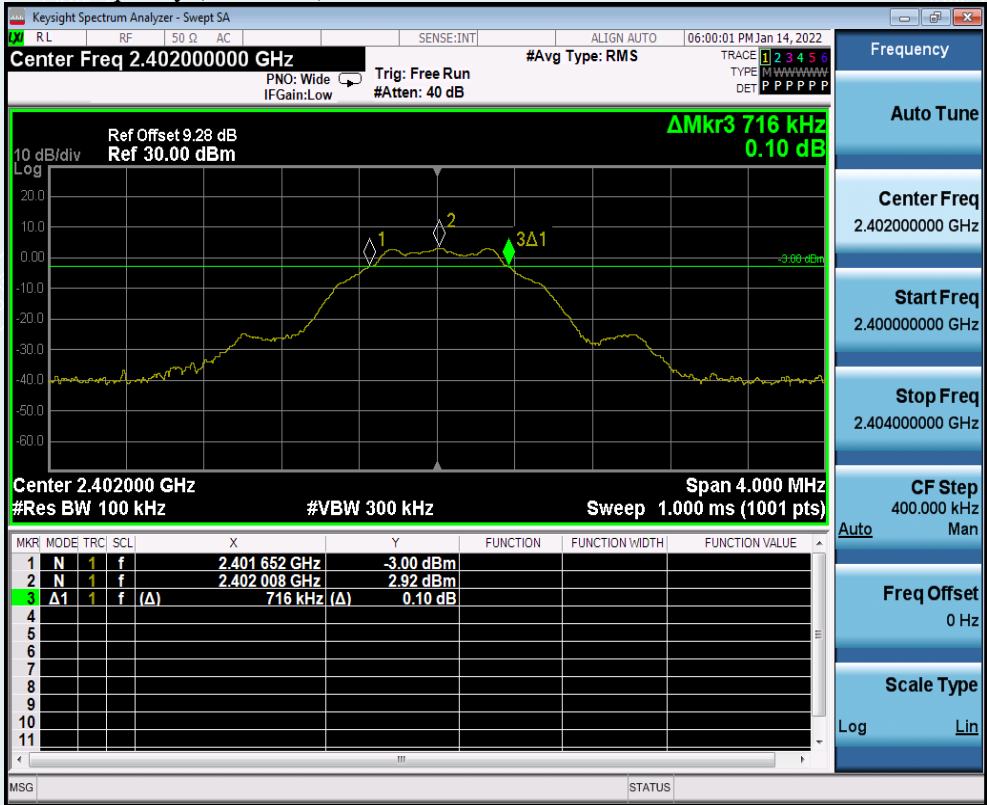
Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Lowest	2402	716	$\geq 500$	PASS
Middle	2440	708		PASS
Highest	2480	712		PASS

#### BLE\_2M

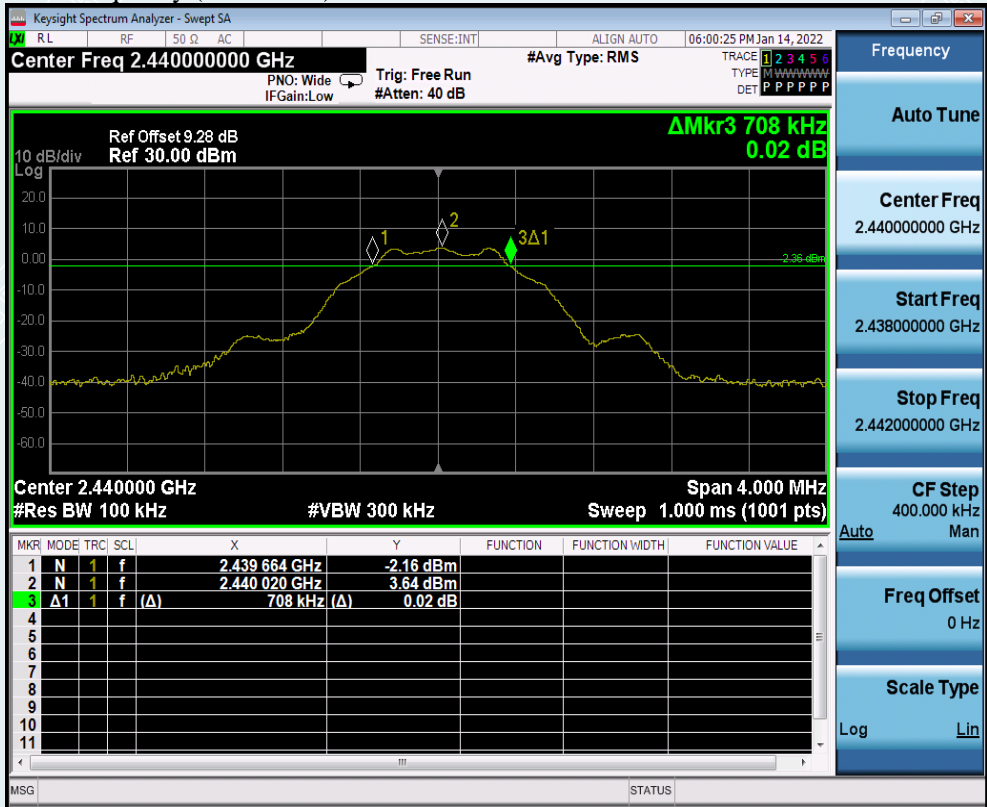
Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Lowest	2402	1100	$\geq 500$	PASS
Middle	2440	1096		PASS
Highest	2480	1100		PASS

BLE\_1M

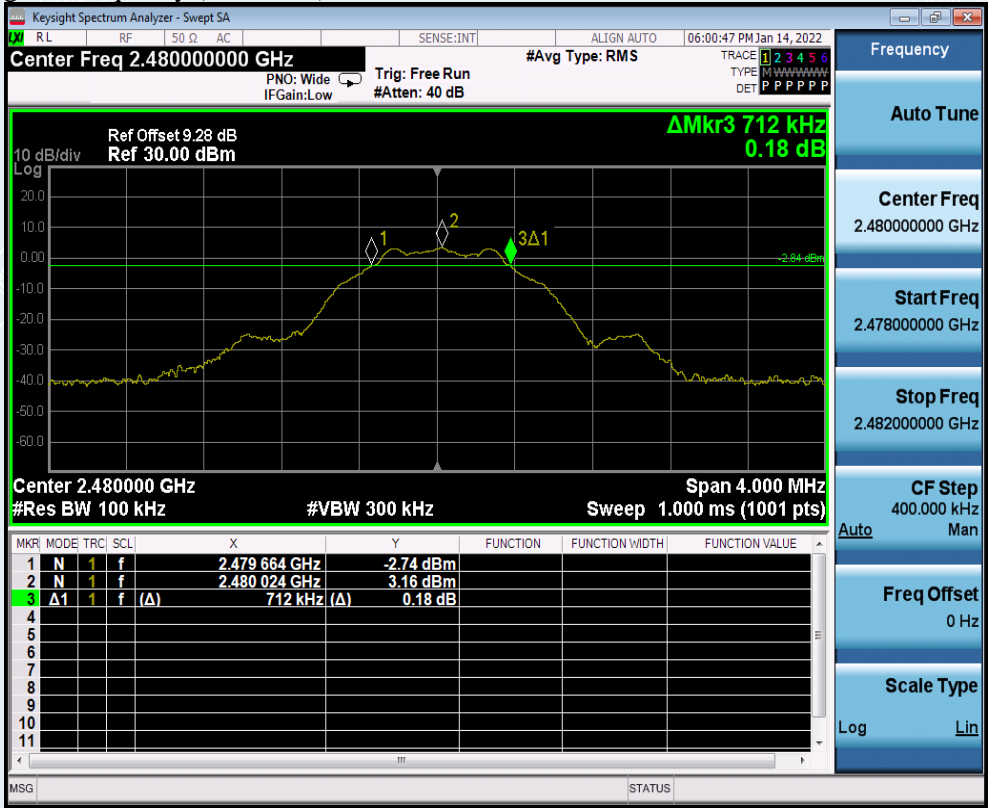
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



----- The following blanks -----

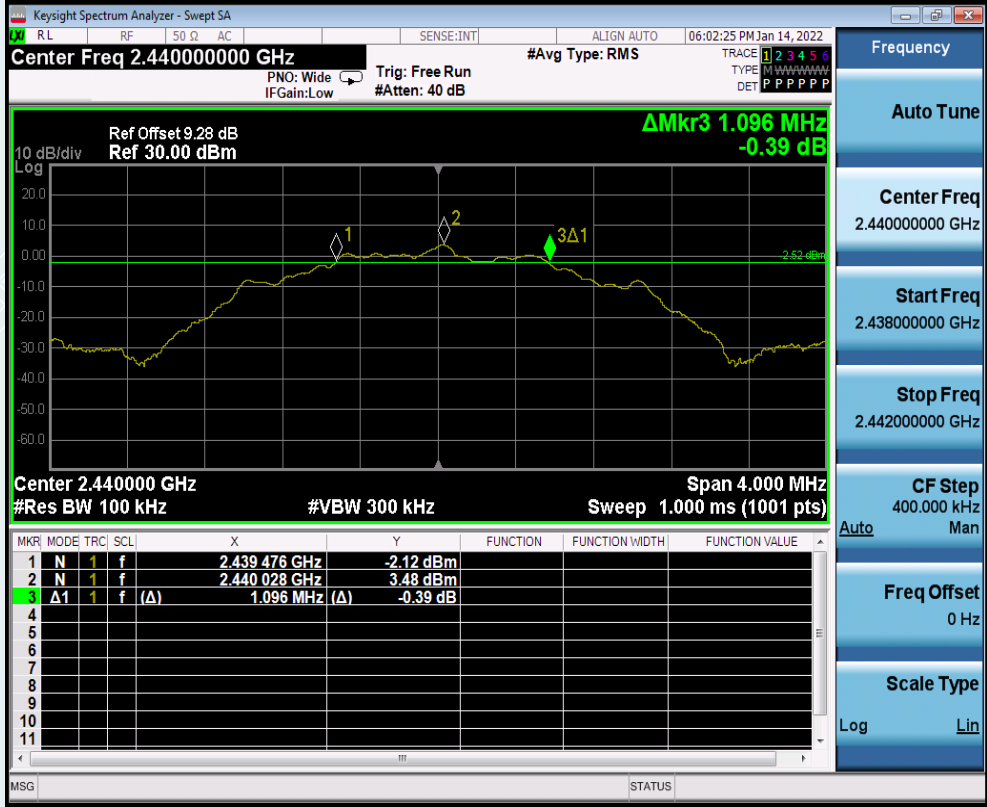


BLE\_2M

Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



----- The following blanks -----

## 8. MAXIMUM PEAK OUTPUT POWER

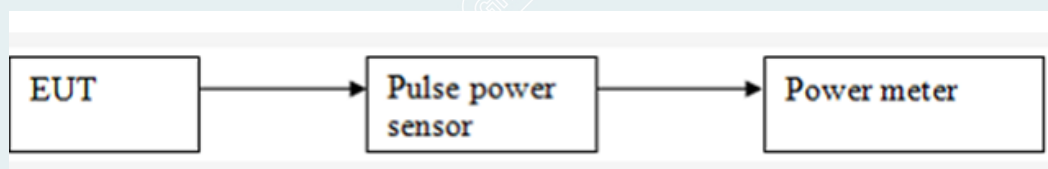
### 8.1 LIMITS

The maximum Peak output power measurement is 1W

### 8.2 TEST PROCEDURES

- 1) RF output of EUT was connected to the broadband peak RF power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 2) Set to the maximum power setting and enable the EUT transmit continuously.
- 3) Measure the conducted output power and record the results in the test report.

### 8.3 TEST SETUP



### 8.4 TEST RESULTS

Environment: 23.1°C/53%RH

Tested By: Qin Tingting

Voltage: AC 120V/60Hz

Date: 2022-02-21

#### BLE\_1M

Channel	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Peak/Average	Result
Lowest	2402	1.52	1W (30dBm)	Peak	Pass
Middle	2440	1.98			Pass
Highest	2480	1.41			Pass

#### BLE\_2M

Channel	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Peak/Average	Result
Lowest	2402	-1.70	1W (30dBm)	Peak	Pass
Middle	2440	-1.23			Pass
Highest	2480	-1.76			Pass

## 9. POWER SPECTRAL DENSITY

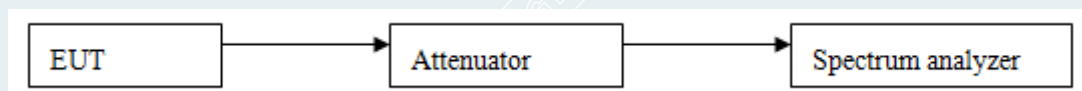
### 9.1 LIMITS

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

### 9.2 TEST PROCEDURES

- 1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
- 2) Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- 3) Set the analyzer span to 1.5 times the DTS bandwidth. Set the RBW to  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ . Set the VBW  $\geq [3 \times \text{RBW}]$ . Detector = peak. Sweep time = auto couple. Trace mode = max hold. Allow trace to fully stabilize. Use the peak marker function to determine the maximum amplitude level within the RBW. If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.
- 4) Repeat above procedures until all frequencies measured were complete.

### 9.3 TEST SETUP



### 9.4 TEST RESULTS

Environment: 23.1°C/53%RH  
 Tested By: Qin Tingting

Voltage: AC 120V/60Hz  
 Date: 2022-04-07

#### BLE\_1M

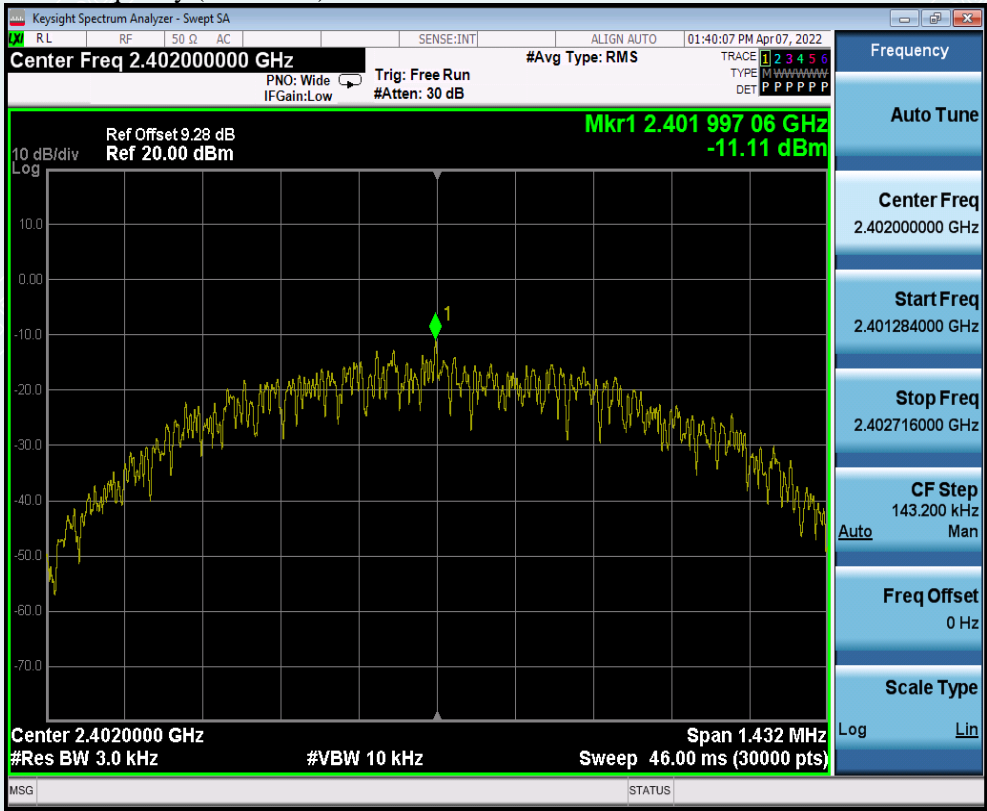
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Test Result
Lowest	2402	-11.11	8.00	PASS
Middle	2440	-10.19		PASS
Highest	2480	-10.59		PASS

#### BLE\_2M

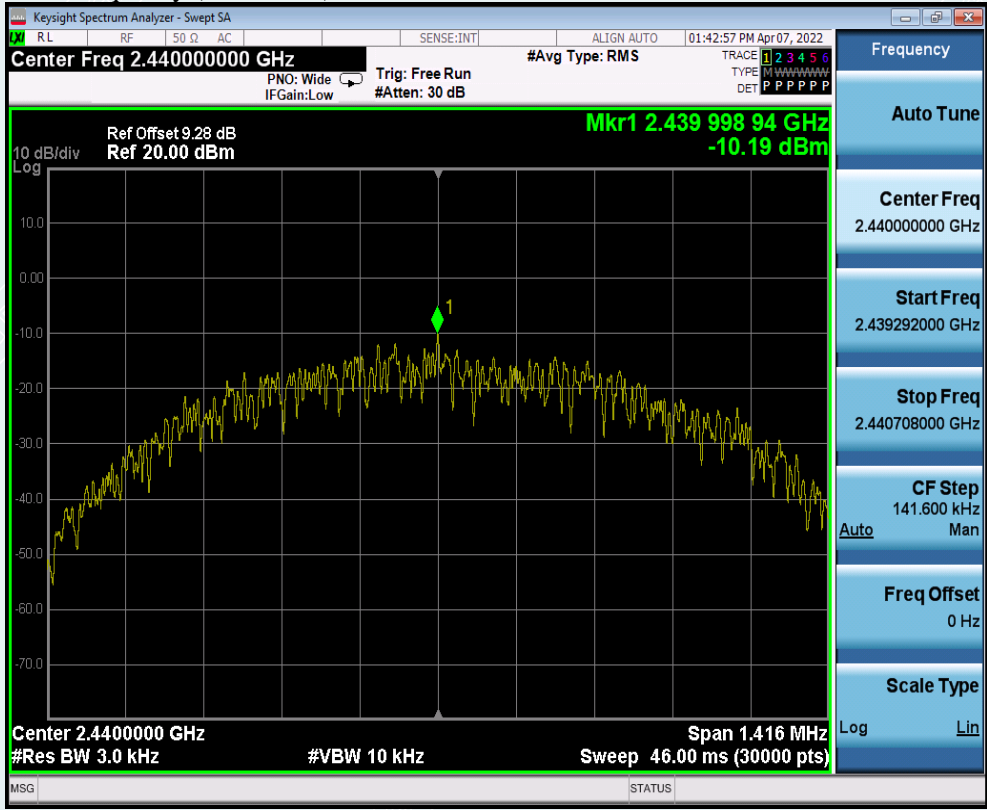
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Test Result
Lowest	2402	-14.45	8.00	PASS
Middle	2440	-13.48		PASS
Highest	2480	-13.64		PASS

BLE\_1M

Lowest Frequency (2402MHz)

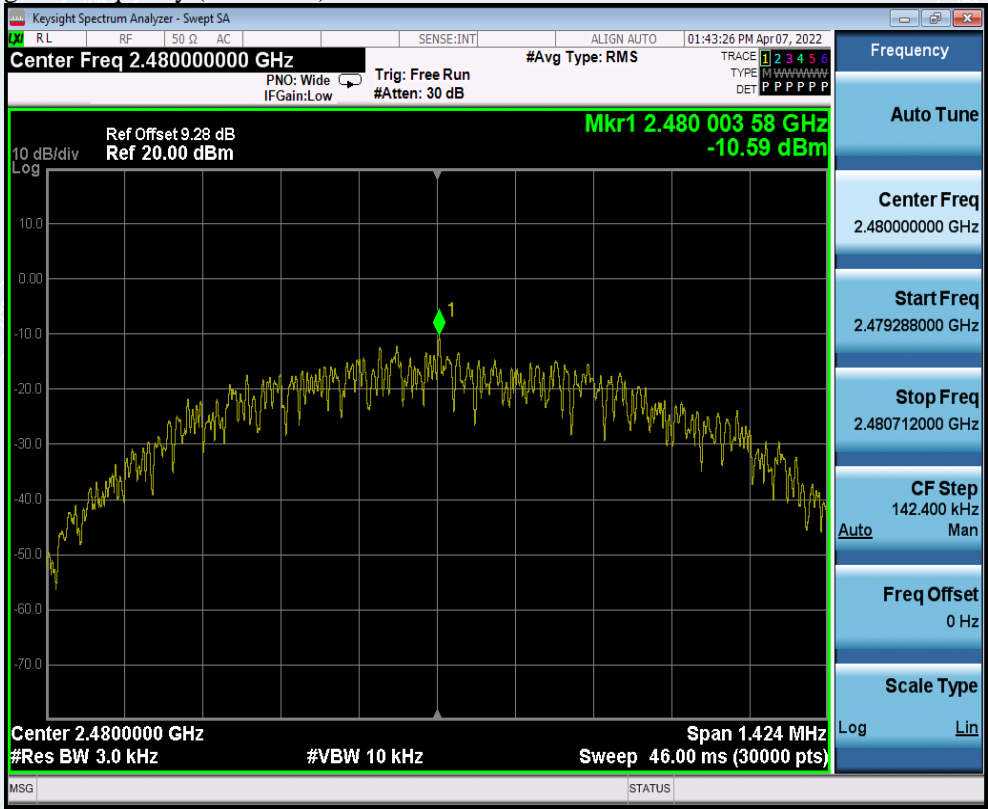


Middle Frequency (2440 MHz)





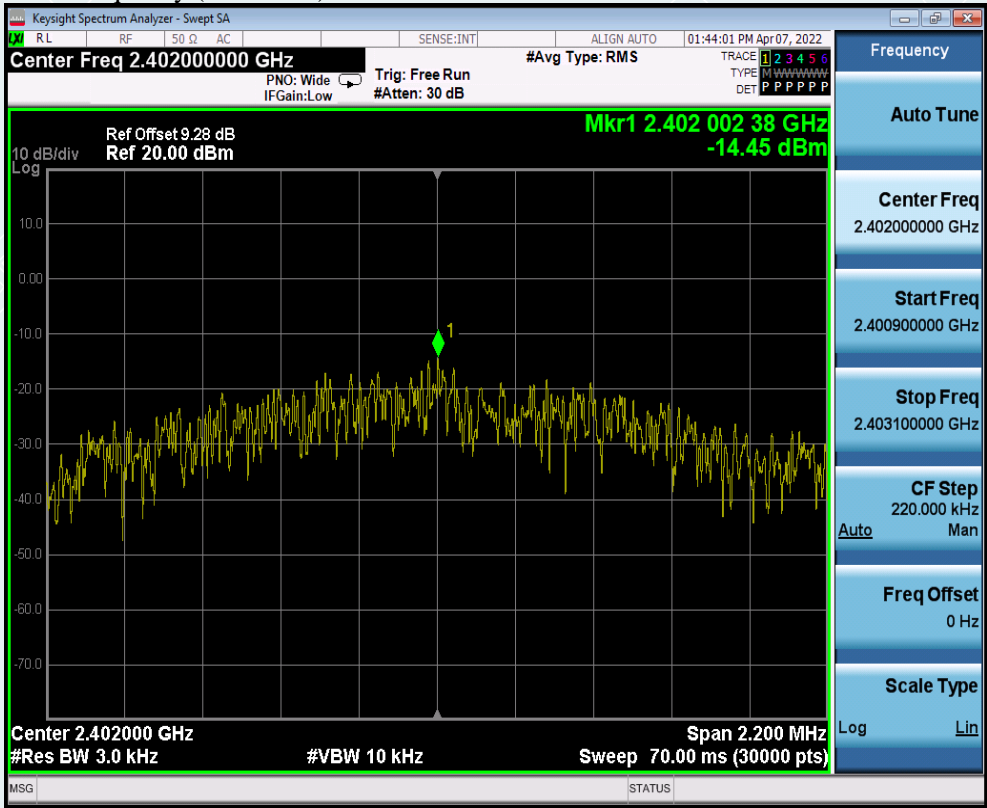
Highest Frequency (2480MHz)



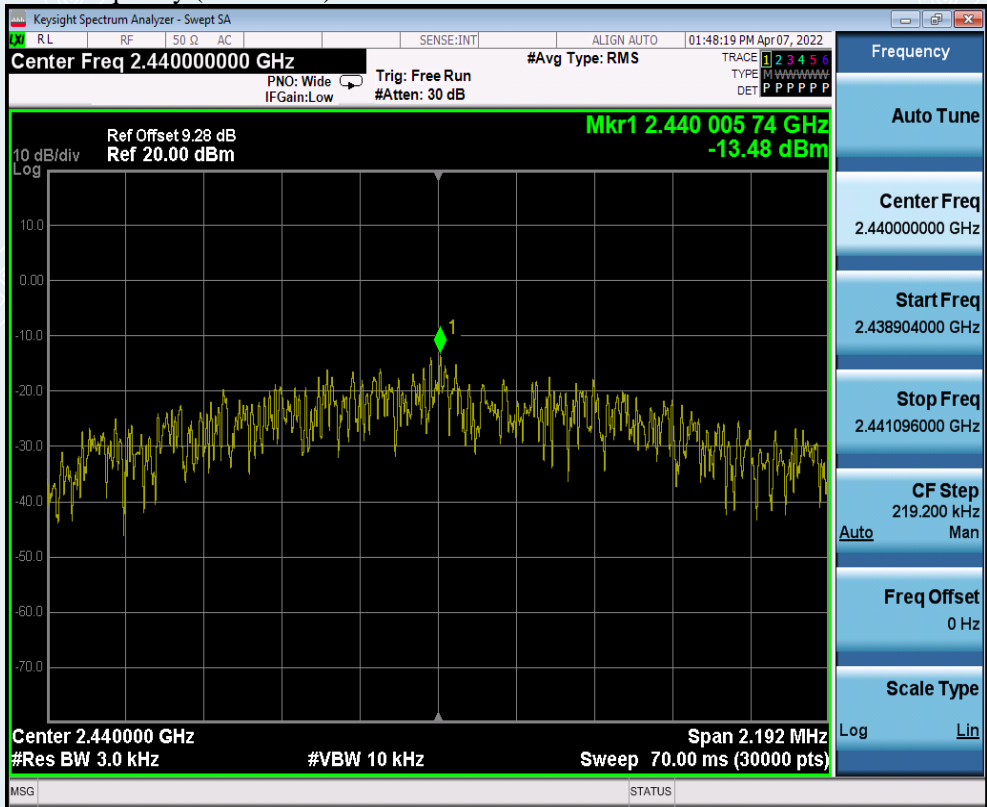
----- The following blanks -----

BLE\_2M

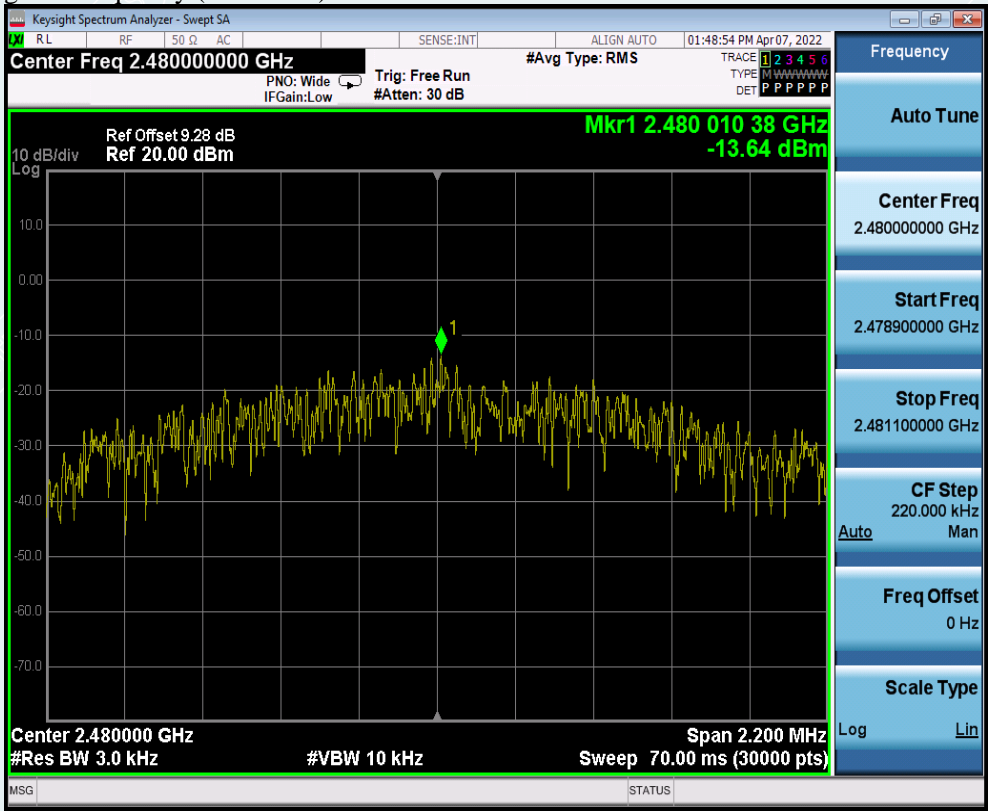
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



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## 10. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS

### 10.1 LIMITS

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.

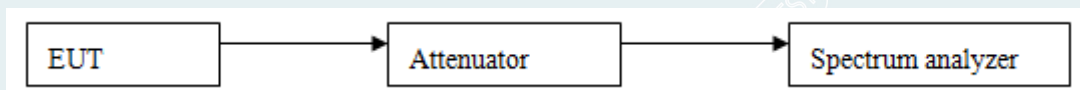
### 10.2 TEST PROCEDURES

Test procedures follow KDB 558074 D01 15.247 measurement guidance v05r02.

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

- 1) Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.
- 2) Set the spectrum analyzer: RBW = 100kHz; VBW = 300kHz, Frequency range = 30MHz to 26.5GHz; Sweep = auto; Detector Function = Peak. Trace = Max, hold.
- 3) Measure and record the results in the test report.
- 4) The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

### 10.3 TEST SETUP



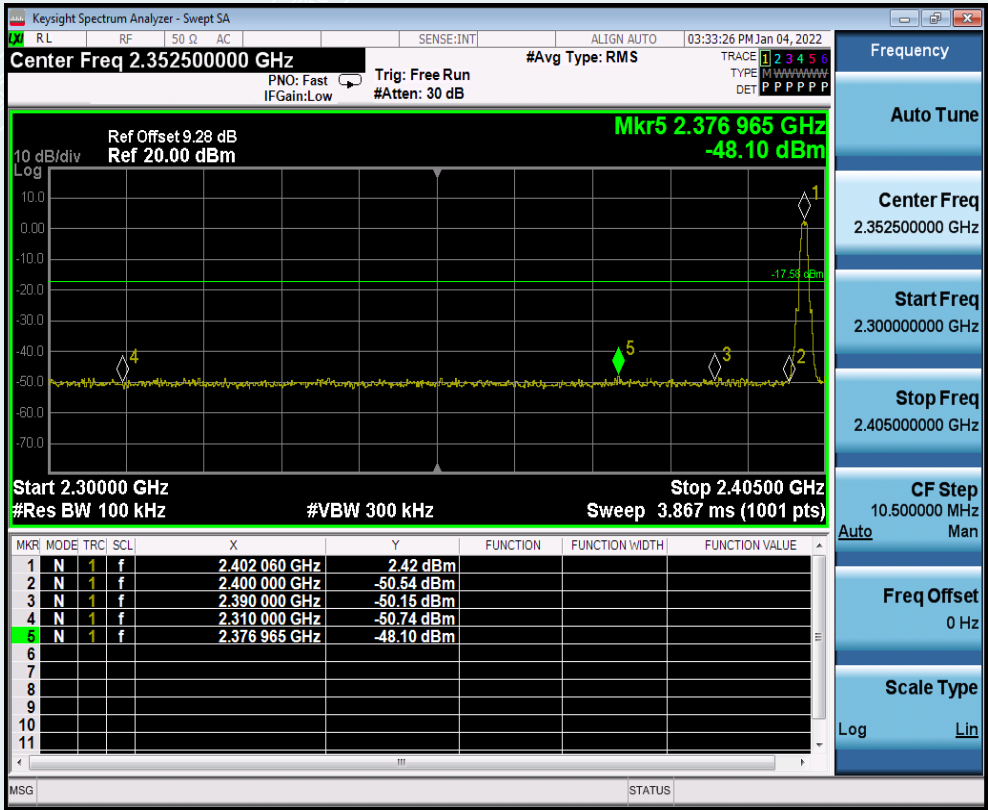
10.4 TEST RESULTS

Environment: 23.1℃/53%RH  
Tested By: Qin Tingting

Voltage: AC 120V/60Hz  
Date: 2022-01-04

BLE\_1M

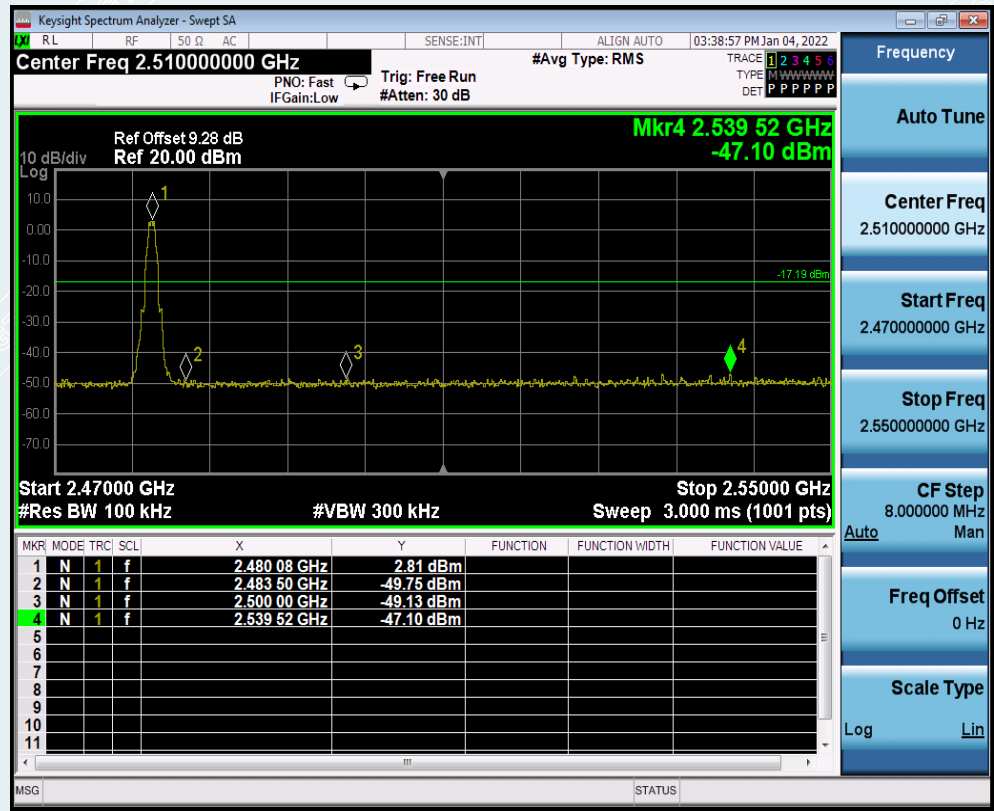
Lowest Frequency (2402MHz)  
2.30GHz-2.405GHz



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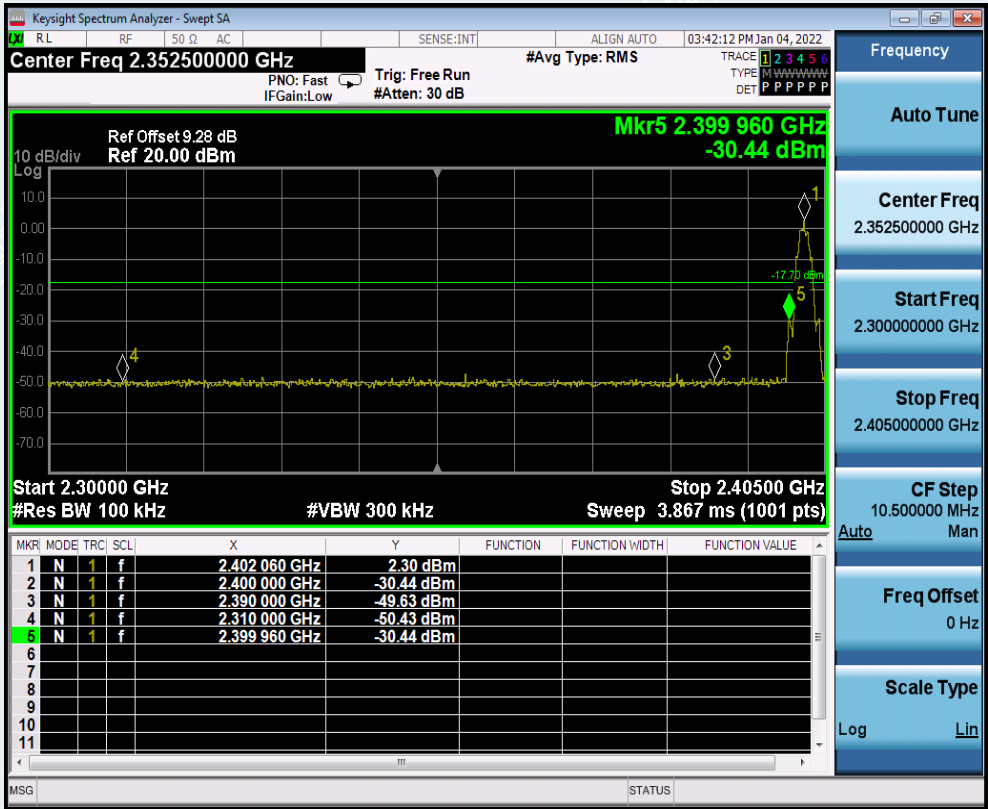
Highest Frequency (2480MHz)  
2.47GHz-2.55GHz



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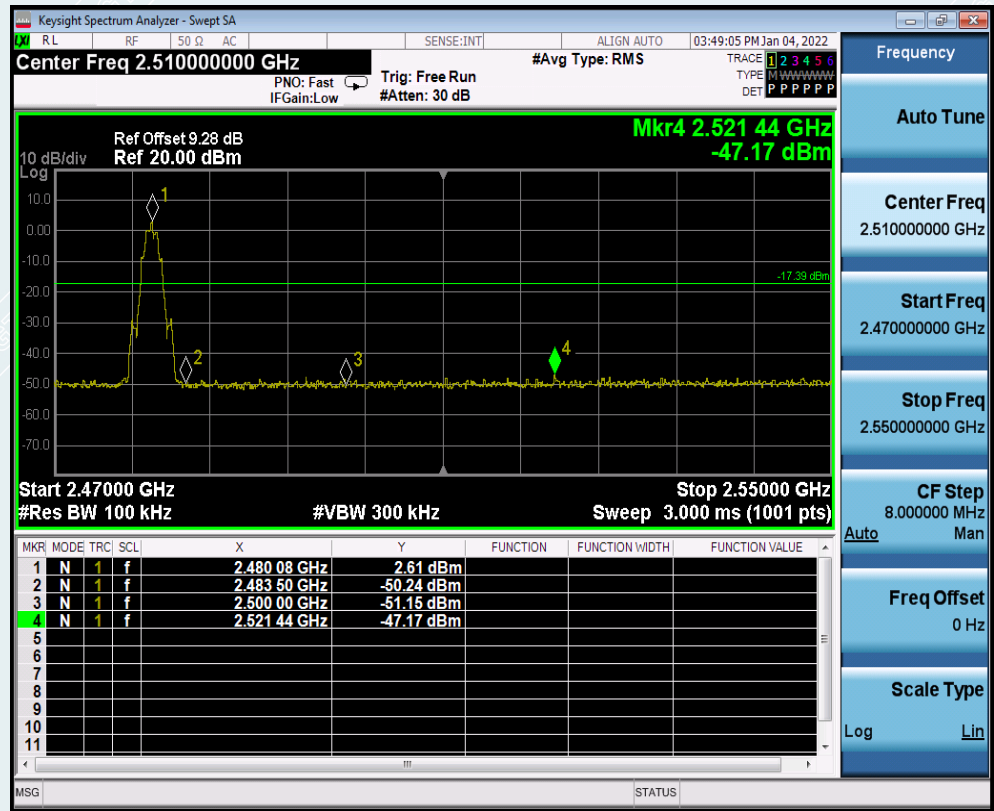
BLE\_2M

Lowest Frequency (2402MHz)  
2.30GHz-2.405GHz



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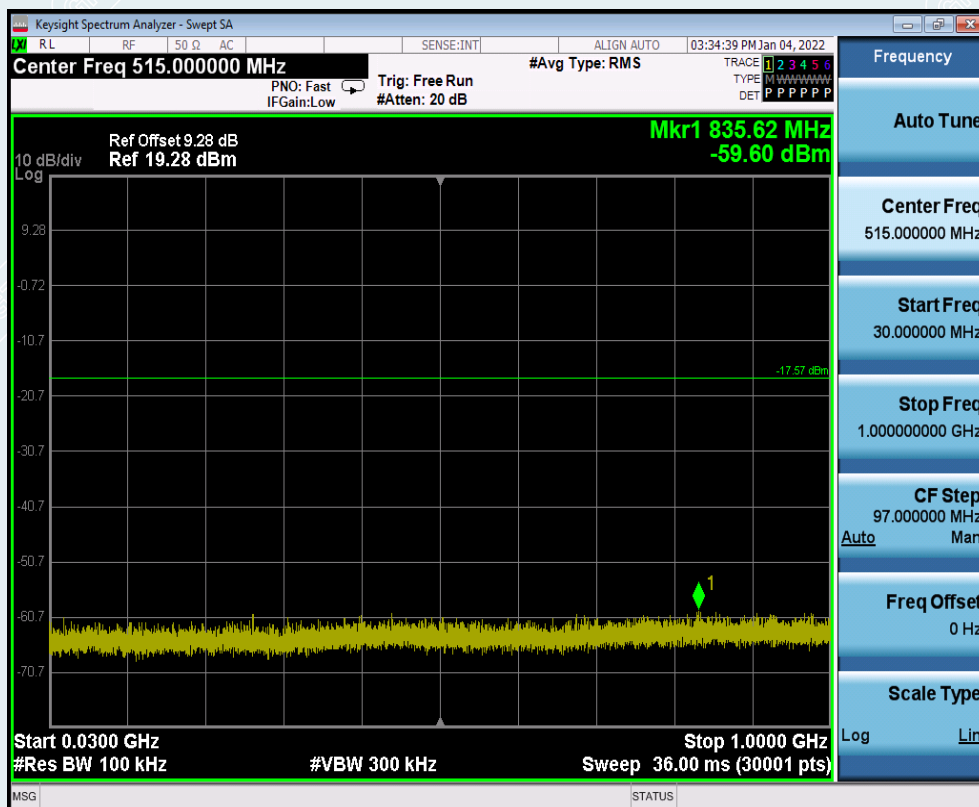
Highest Frequency (2480MHz)  
2.47GHz-2.55GHz

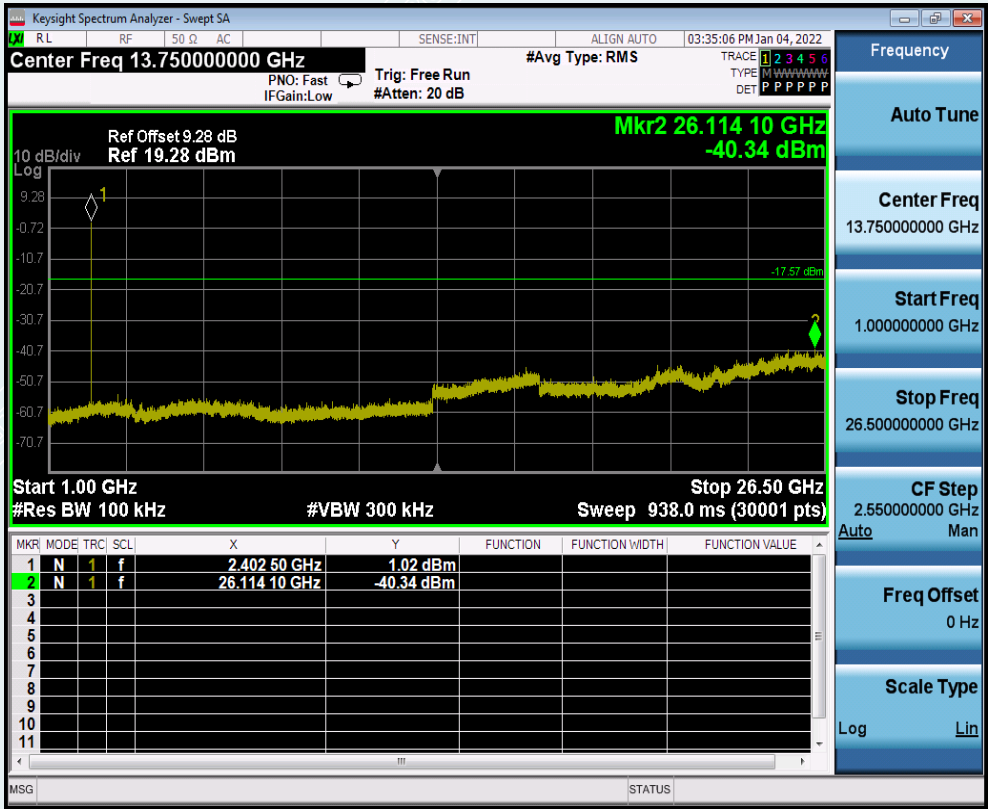


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# Spurious Emission BLE\_1M

Lowest Frequency (2402MHz)

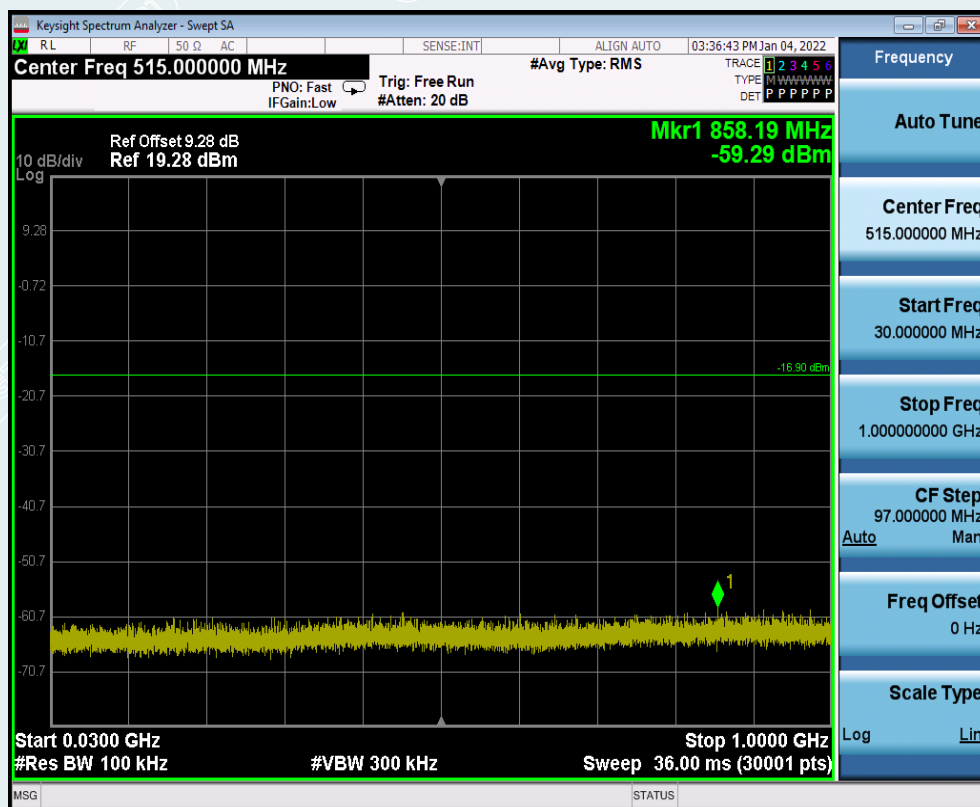


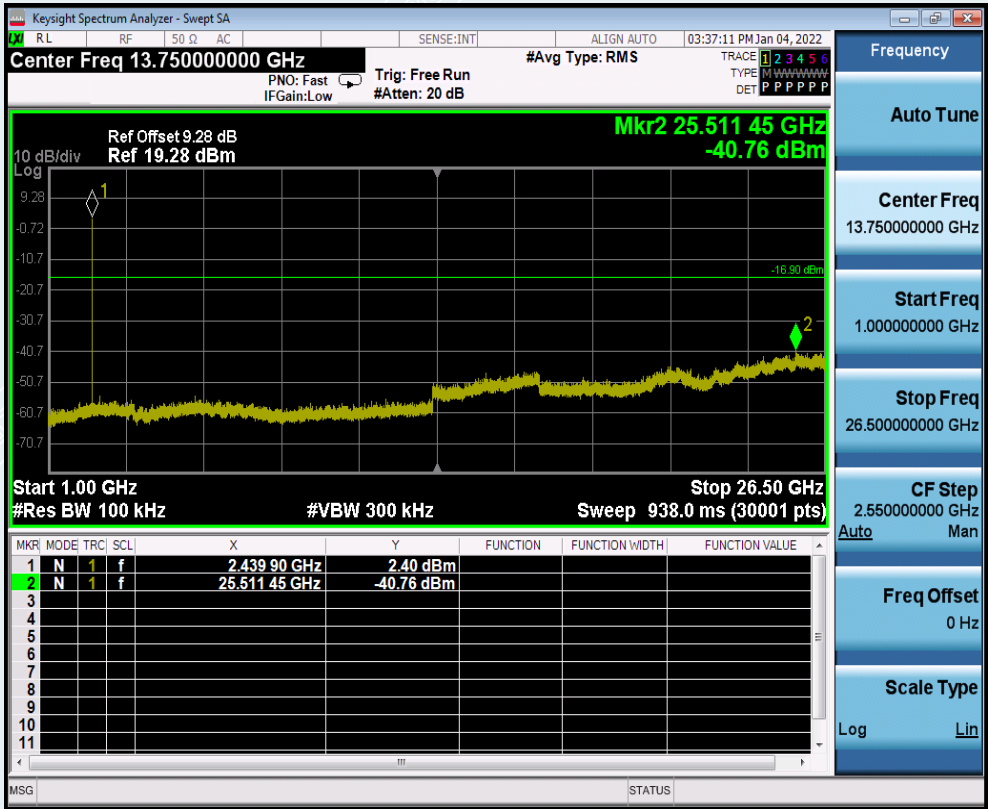


----- The following blanks -----



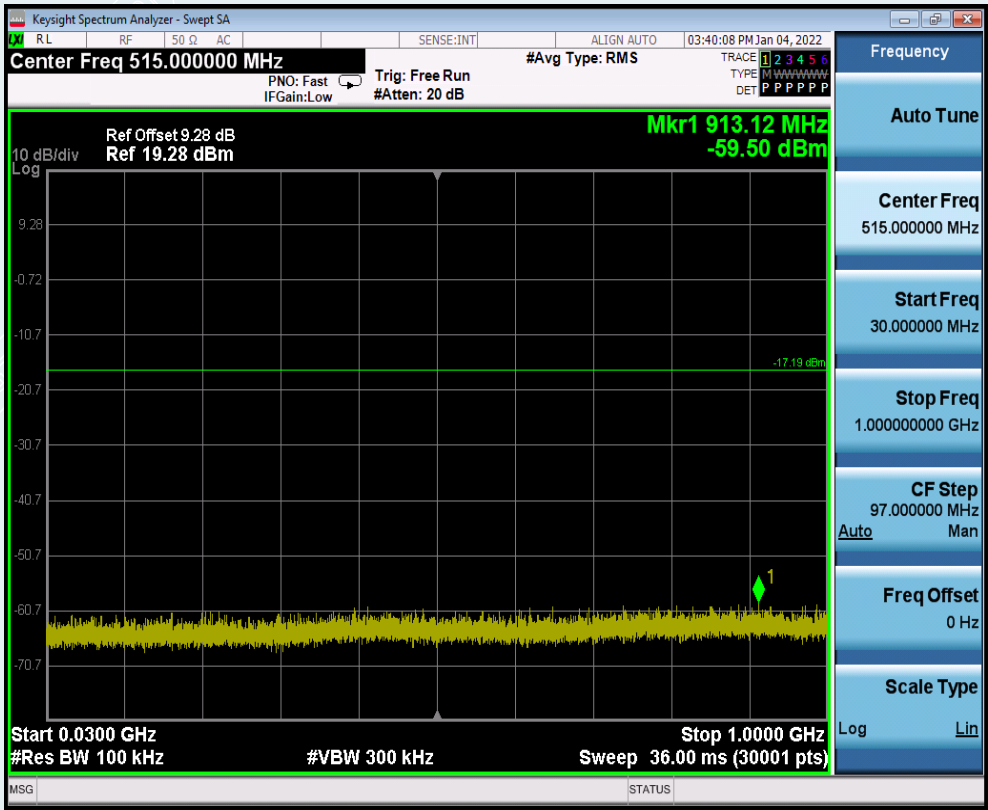
### Middle Frequency (2440MHz)

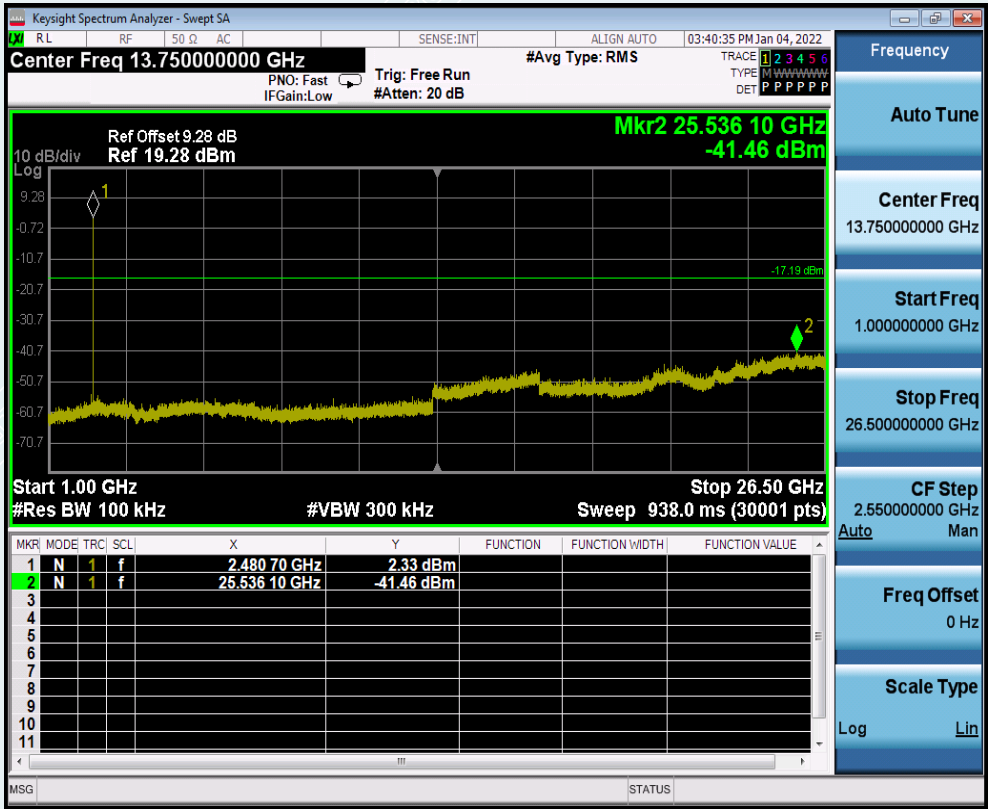




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Highest Frequency (2480MHz)

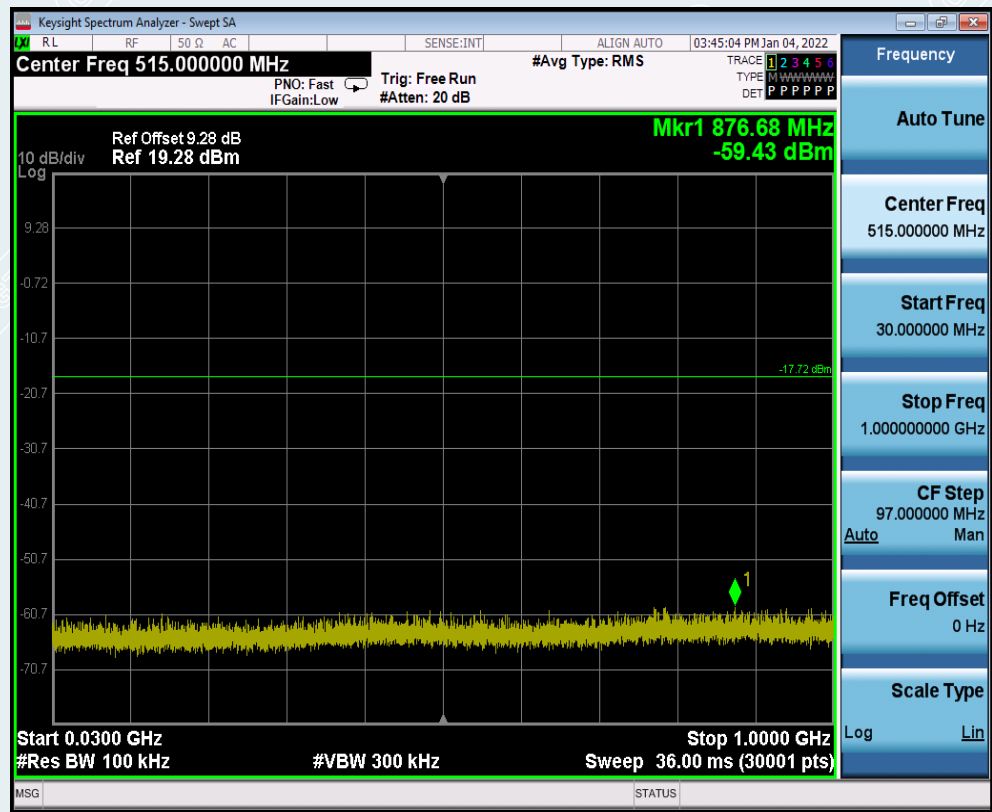




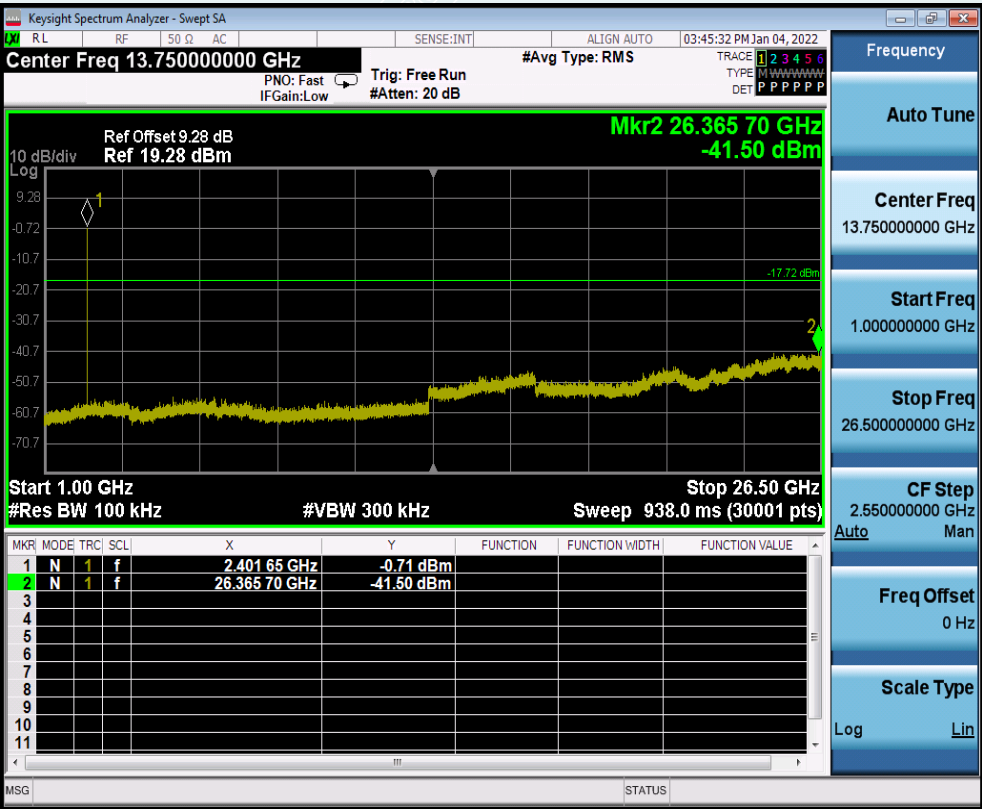
----- The following blanks -----

BLE\_2M

Lowest Frequency (2402MHz)

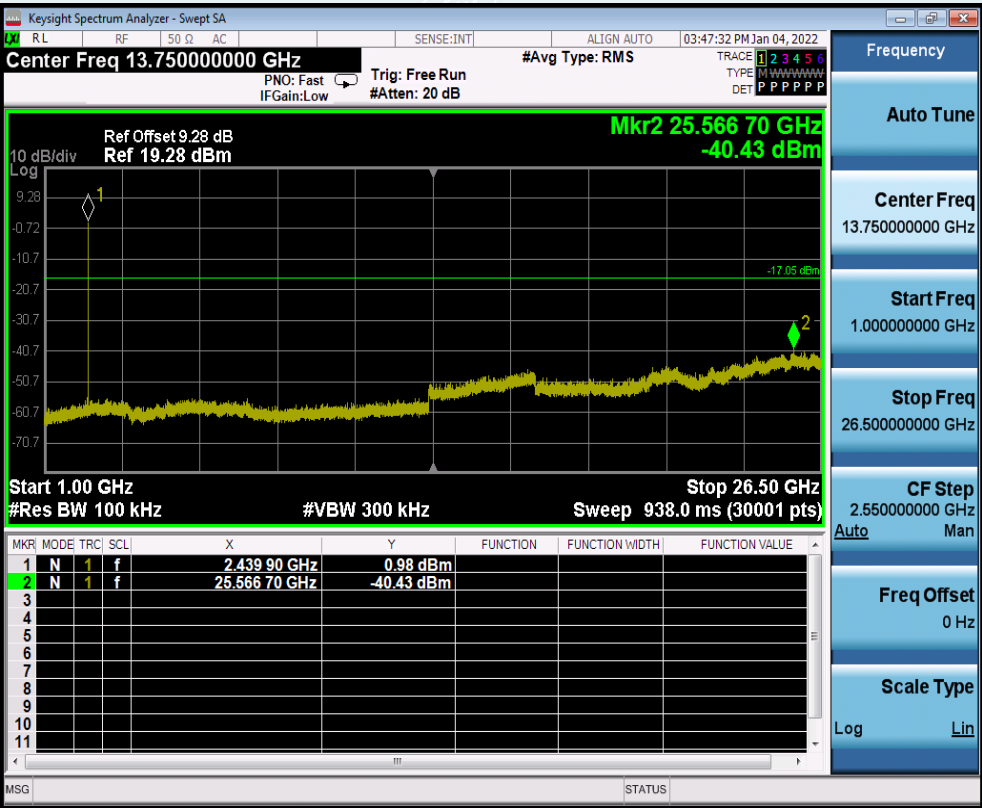
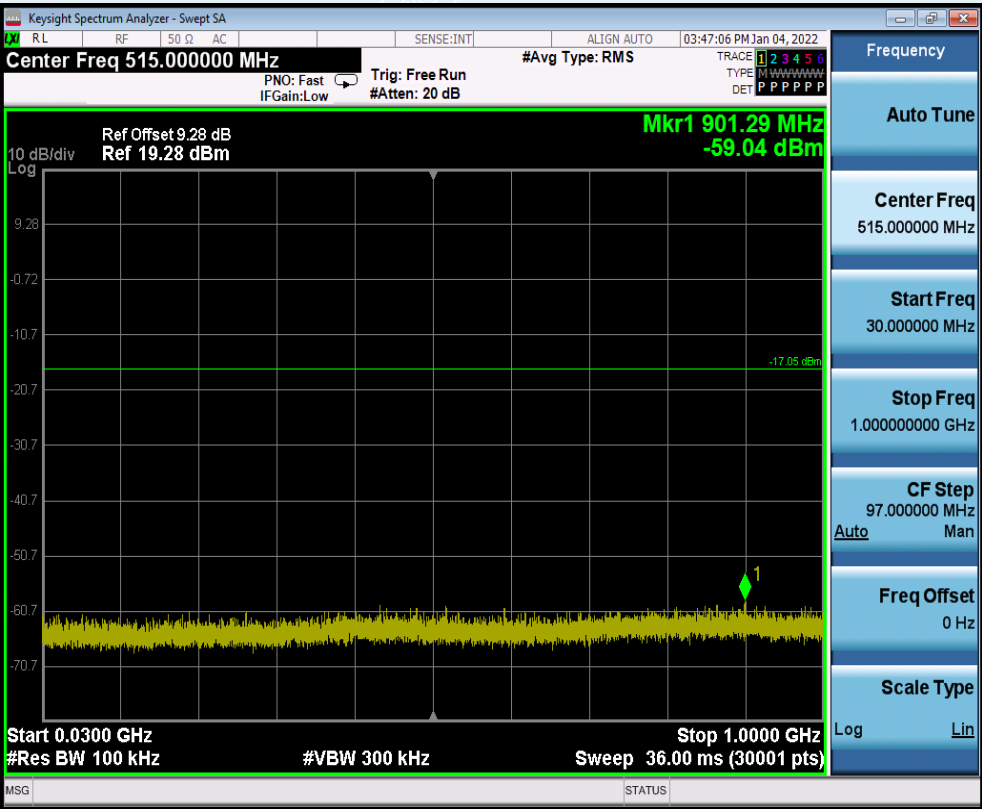




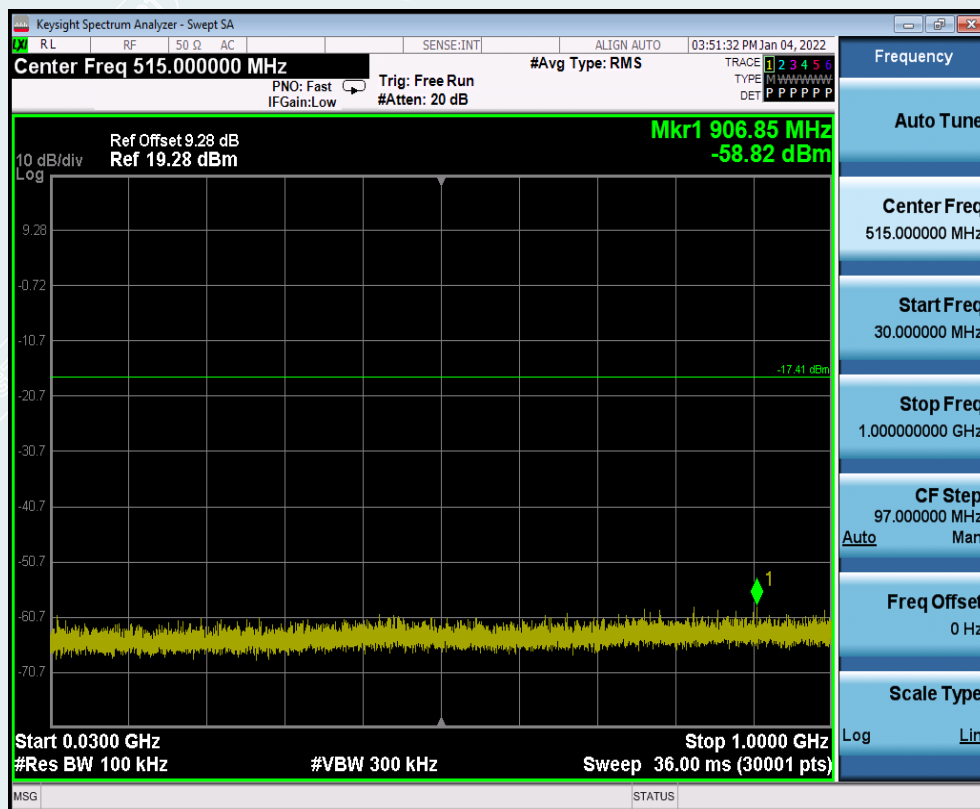


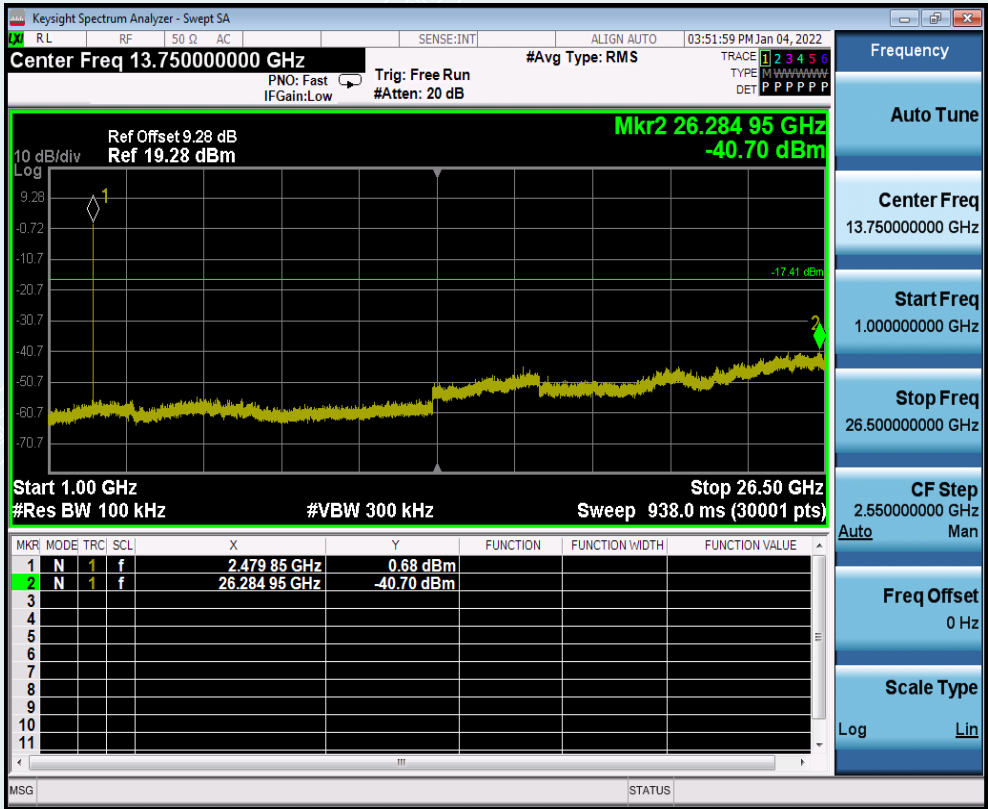
Middle Frequency (2440MHz)





## Highest Frequency (2480MHz)





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## 11. RESTRICTED BANDS OF OPERATION

### 11.1 LIMITS

Section 15.247(d) 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)).

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

Frequency (MHz)	Quasi-peak( $\mu$ V/m)	Measurement distance(m)	Quasi-peak(dB $\mu$ V/m)@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30.0	30	30	69.5
30 ~ 88	100	3	40
88~216	150	3	43.5
216 ~ 960	200	3	46
Above 960	500	3	54

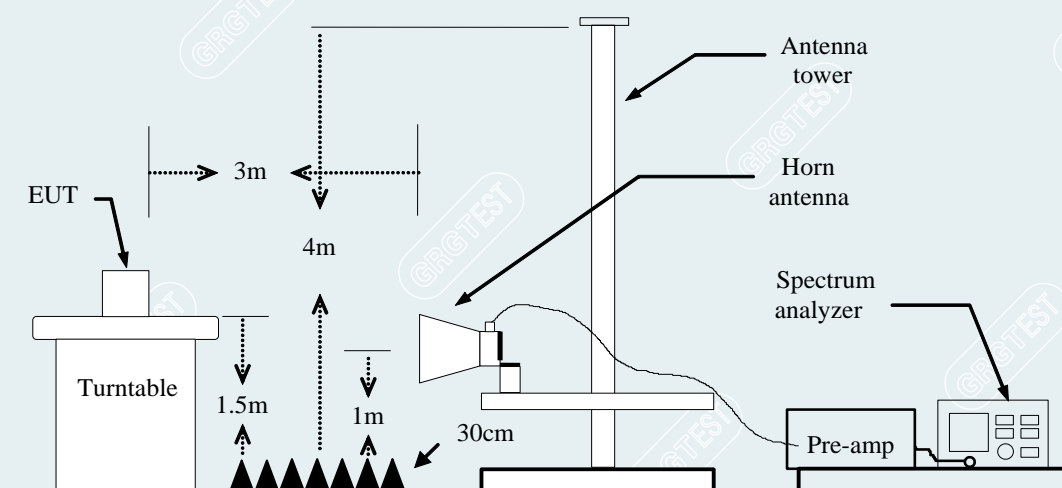


## 11.2 TEST PROCEDURES

Test procedures follow KDB 558074 D01 DTS Meas Guidance v05r02.

- 1) The EUT is placed on a turntable, which is 1.5m above the ground plane.
- 2) The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3) EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
- 4) Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
  - a) PEAK: RBW=1MHz / VBW=1MHz / Sweep=AUTO
  - b) AVERAGE: Set RBW=1MHz, if the EUT is configured to transmit with duty cycle  $\geq 98\%$ , set VBW  $\leq RBW/100$  (i.e., 10kHz) but not less than 10Hz, Where duty cycle is defined in section 2.9.
- 5) Repeat the procedures until all the PEAK and AVERAGE versus polarization are measured.

## 11.3 TEST SETUP



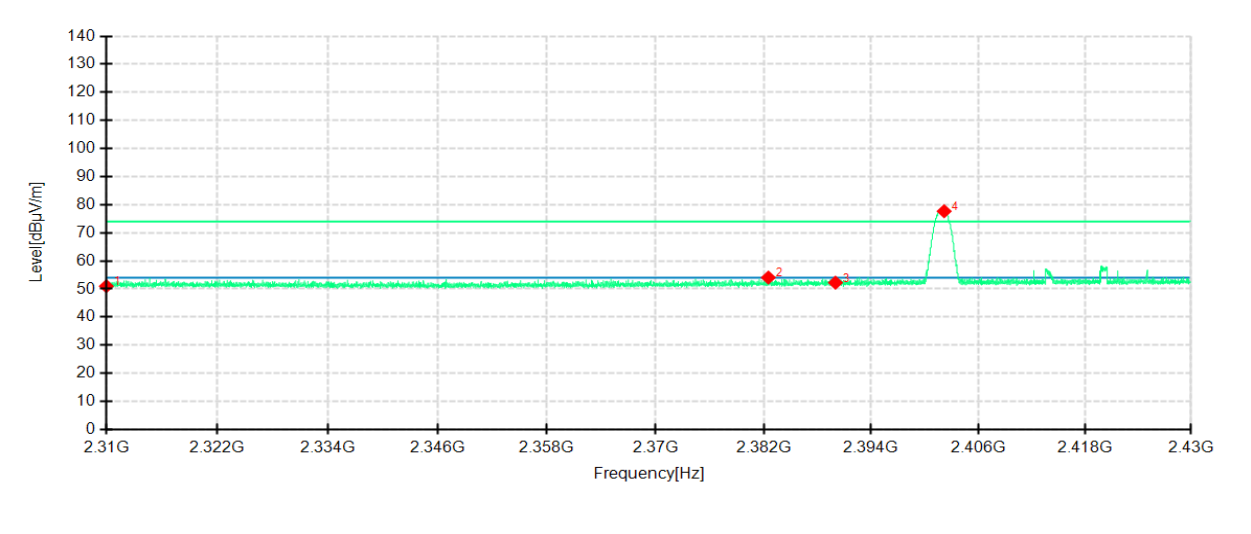
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11.4 TEST RESULTS

Equipment:	Wall mount tablet	Test Date	2022-01-08
Model No.:	UCTBWM-15.6	Test Engineer:	Lu Qiang
Test Voltage:	AC 120V/60Hz	Environment:	23.1°C/53%RH

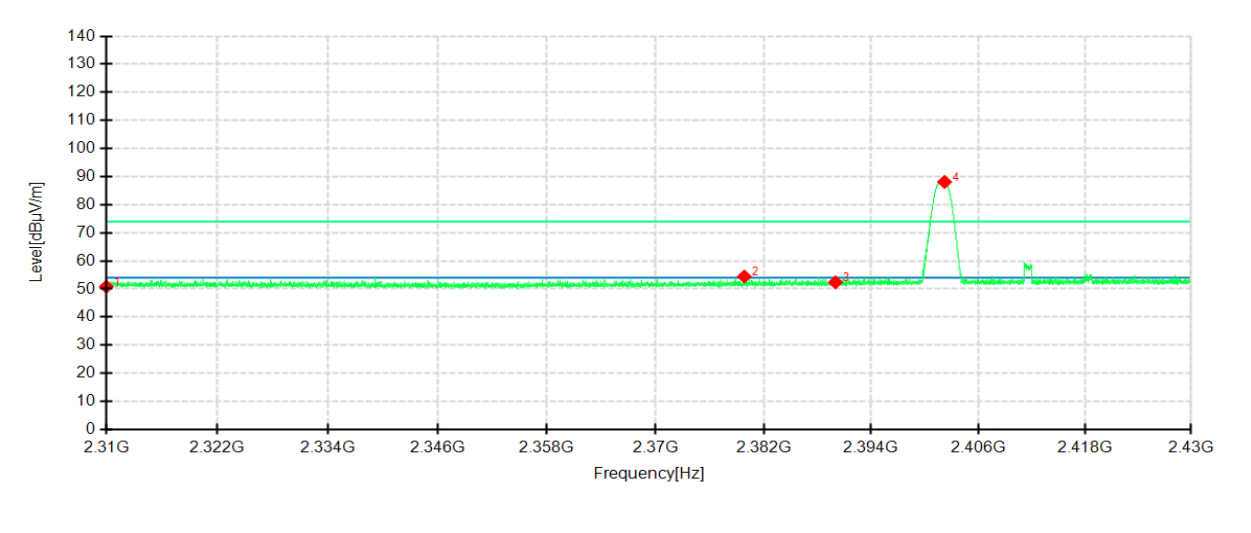
BLE 1M  
Lowest Frequency  
Frequency 2402MHz  
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical

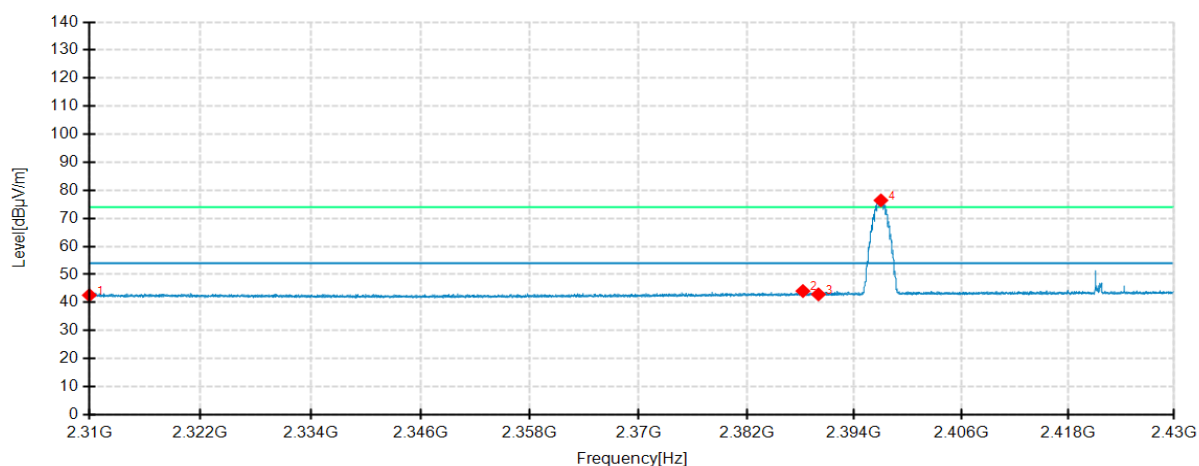


No.	Frequency MHz	Reading dB $\mu$ V/m	Level dB $\mu$ V/m	Factor dB	Limit dB $\mu$ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	47.52	51.00	3.48	74.00	23.00	200	37	Horizontal	/
2	2382.5250	50.40	54.08	3.68	74.00	19.92	200	218	Horizontal	/
3	2390.0000	48.43	52.24	3.81	74.00	21.76	200	218	Horizontal	/
4	2402.1600	73.68	77.67	3.99	74.00	-3.67	100	142	Horizontal	No limit
1	2310.0000	47.36	50.84	3.48	74.00	23.16	100	71	Vertical	/
2	2379.8550	50.79	54.43	3.64	74.00	19.57	100	17	Vertical	/
3	2390.0000	48.57	52.38	3.81	74.00	21.62	200	358	Vertical	/
4	2402.2050	84.11	88.10	3.99	74.00	-14.10	100	24	Vertical	No limit

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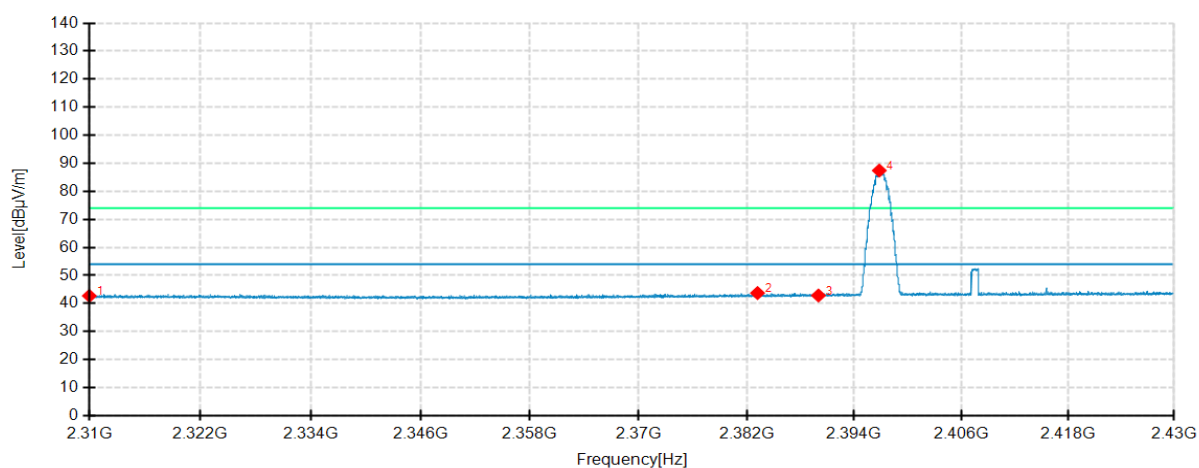
Lowest Frequency  
Frequency 2402MHz  
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



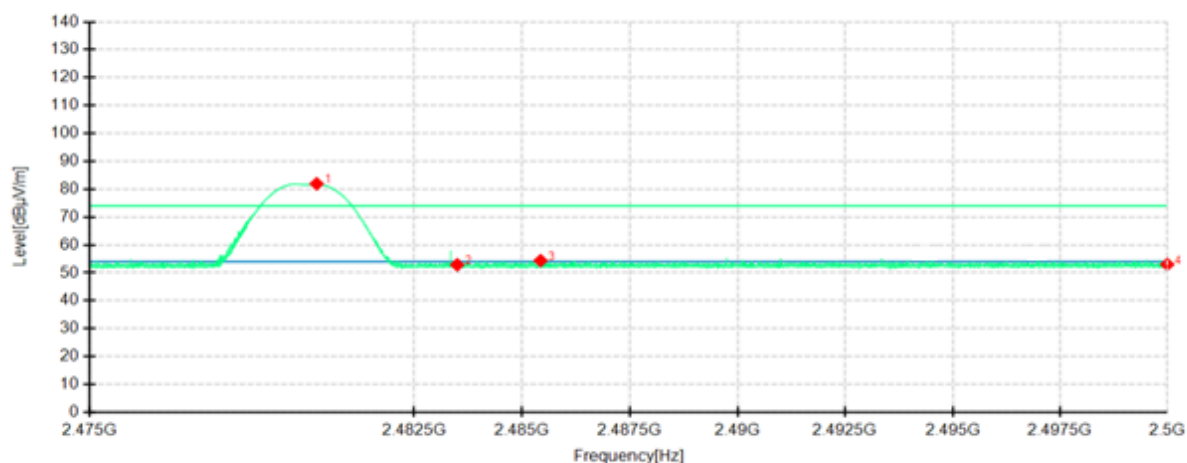
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	39.12	42.60	3.48	54.00	11.40	200	184	Horizontal	/
2	2388.2700	40.29	44.07	3.78	54.00	9.93	100	182	Horizontal	/
3	2390.0000	39.09	42.90	3.81	54.00	11.10	100	209	Horizontal	/
4	2396.9850	72.48	76.41	3.93	54.00	-22.41	100	142	Horizontal	No limit
1	2310.0000	39.24	42.72	3.48	54.00	11.28	100	22	Vertical	/
2	2383.2150	40.03	43.72	3.69	54.00	10.28	100	218	Vertical	/
3	2390.0000	39.04	42.85	3.81	54.00	11.15	200	163	Vertical	/
4	2396.8050	83.48	87.41	3.93	54.00	-33.41	100	22	Vertical	No limit

**Highest Frequency**

Frequency 2480MHz

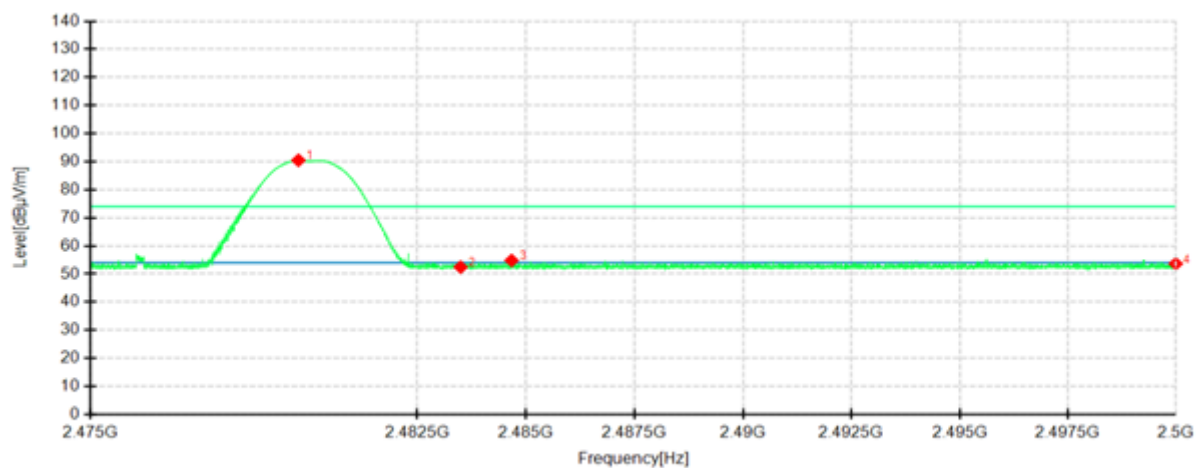
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2480.2469	77.60	81.92	4.32	74.00	-7.92	100	142	Horizontal	No limit
2	2483.5000	48.54	52.87	4.33	74.00	21.13	200	110	Horizontal	/
3	2485.4313	50.03	54.37	4.34	74.00	19.63	100	142	Horizontal	/
4	2500.0000	48.62	53.00	4.38	74.00	21.00	200	1	Horizontal	/
1	2479.7719	86.15	90.47	4.32	74.00	-16.47	100	32	Vertical	No limit
2	2483.5000	48.12	52.45	4.33	74.00	21.55	100	164	Vertical	/
3	2484.6719	50.48	54.81	4.33	74.00	19.19	100	157	Vertical	/
4	2500.0000	49.27	53.65	4.38	74.00	20.35	100	110	Vertical	/

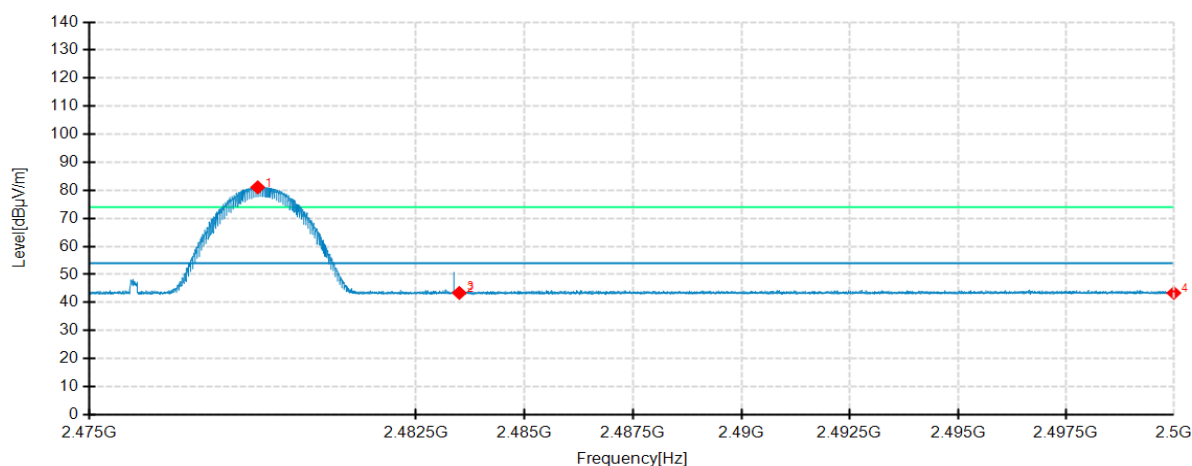


**Highest Frequency**

Frequency 2480MHz

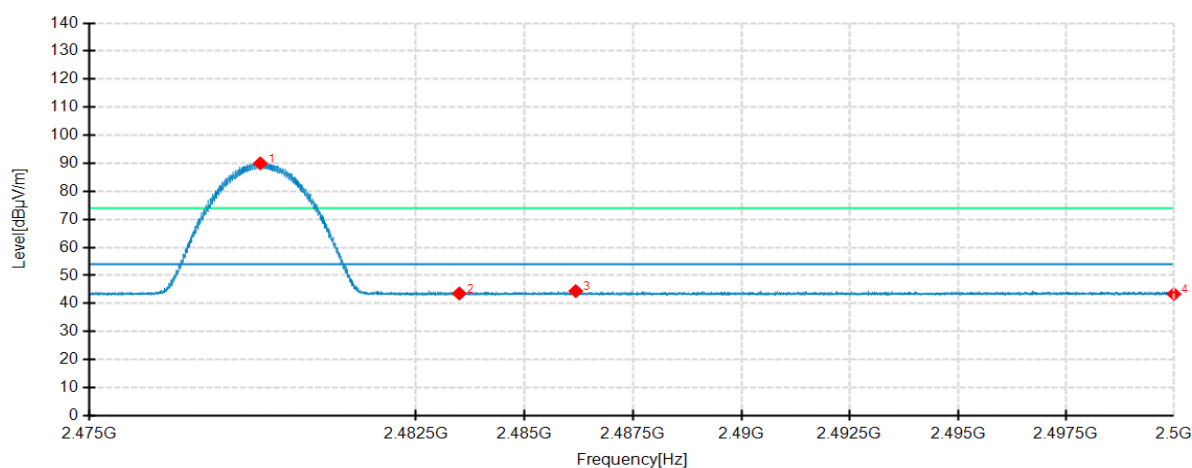
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2478.8656	76.75	81.07	4.32	54.00	-27.07	100	142	Horizontal	No limit
2	2483.5000	39.07	43.40	4.33	54.00	10.60	200	218	Horizontal	/
3	2483.5094	39.98	44.31	4.33	54.00	9.69	100	275	Horizontal	/
4	2500.0000	39.01	43.39	4.38	54.00	10.61	100	142	Horizontal	/
1	2478.9250	85.66	89.98	4.32	54.00	-35.98	100	37	Vertical	No limit
2	2483.5000	39.23	43.56	4.33	54.00	10.44	200	142	Vertical	/
3	2486.1813	40.08	44.42	4.34	54.00	9.58	200	355	Vertical	/
4	2500.0000	38.99	43.37	4.38	54.00	10.63	100	211	Vertical	/

Remark: Max field strength in 3m distance. No any other emission which falls in restricted bands can be detected and be reported.

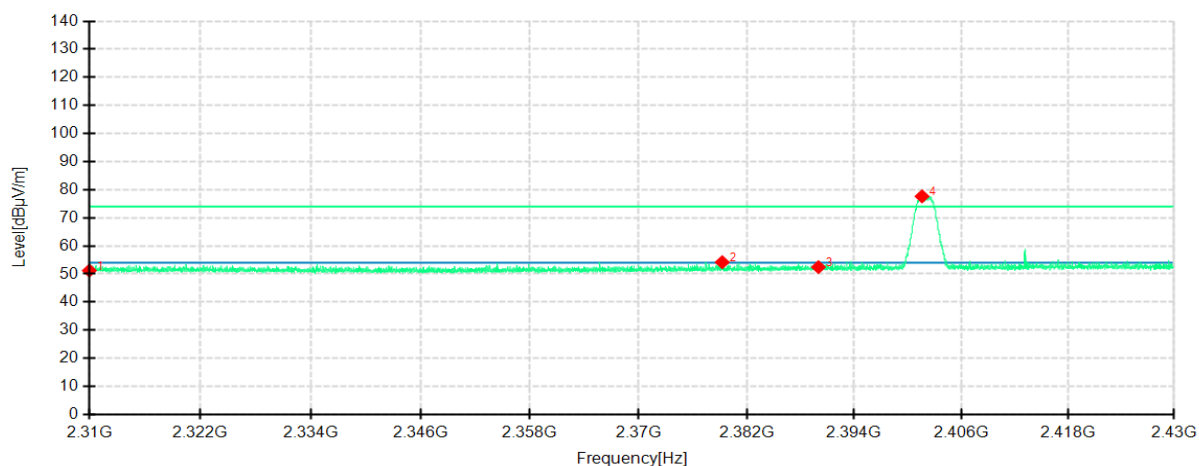
BLE 2M

Lowest Frequency

Frequency 2402MHz

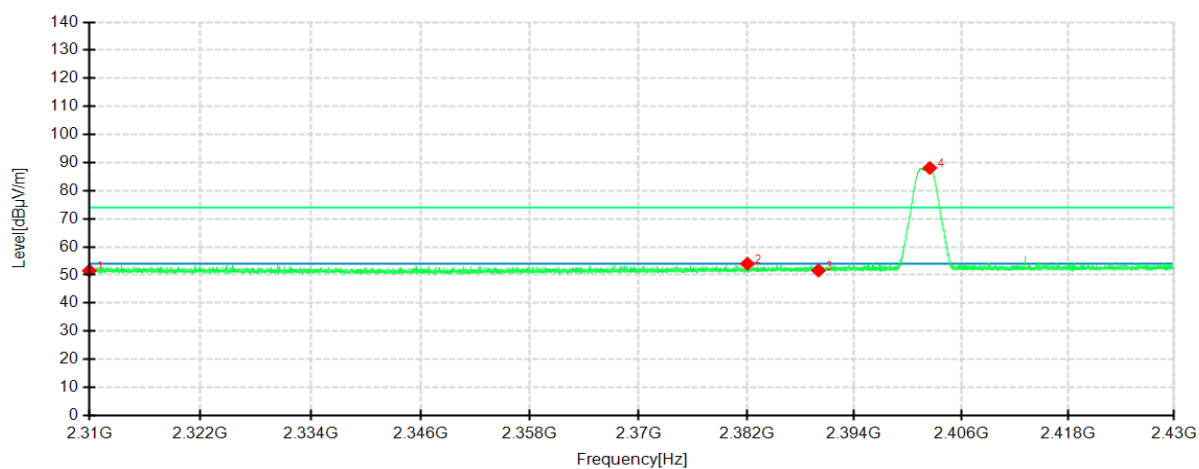
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

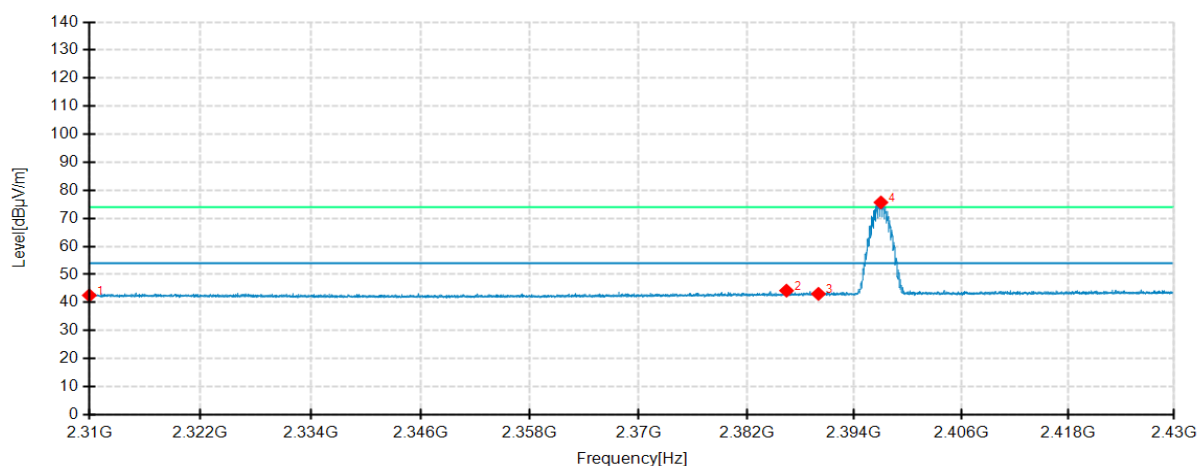
Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	47.74	51.22	3.48	74.00	22.78	200	109	Horizontal	/
2	2379.2850	50.56	54.19	3.63	74.00	19.81	100	142	Horizontal	/
3	2390.0000	48.64	52.45	3.81	74.00	21.55	200	204	Horizontal	
4	2401.5900	73.63	77.62	3.99	74.00	-3.62	100	142	Horizontal	No limit
1	2310.0000	48.04	51.52	3.48	74.00	22.48	200	278	Vertical	/
2	2382.0900	50.32	54.00	3.68	74.00	20.00	100	218	Vertical	/
3	2390.0000	47.78	51.59	3.81	74.00	22.41	100	130	Vertical	
4	2402.4600	84.10	88.09	3.99	74.00	-14.09	100	23	Vertical	No limit

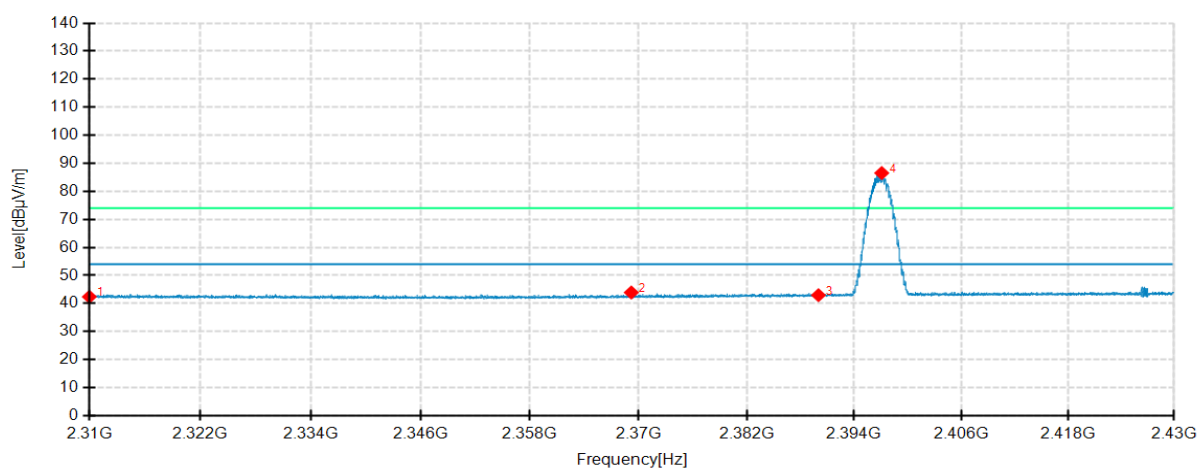
Lowest Frequency  
Frequency 2402MHz  
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

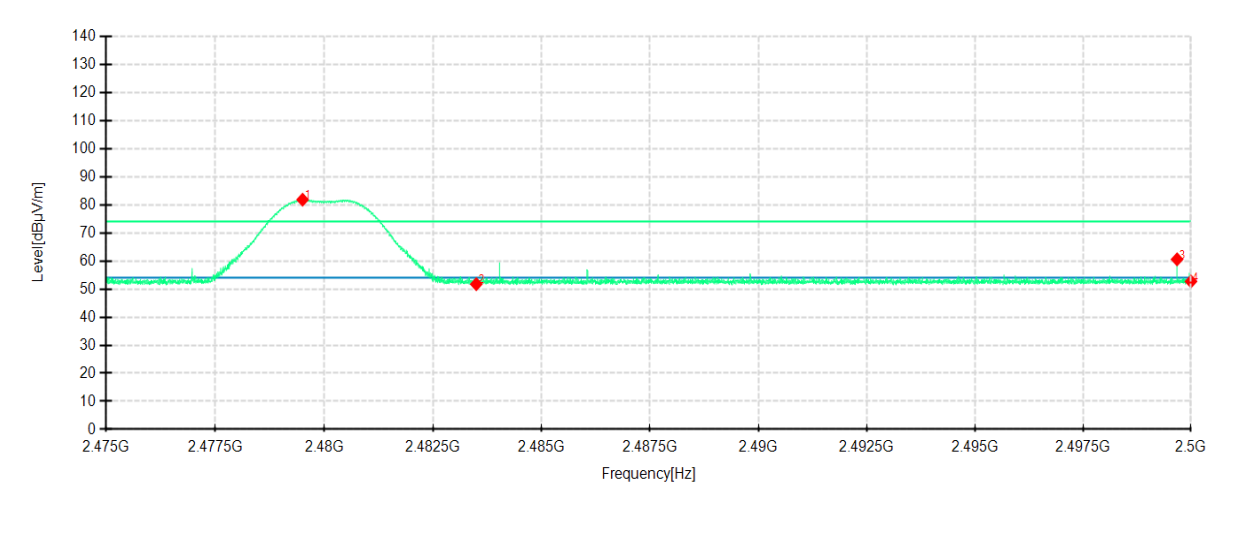
Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	39.06	42.54	3.48	54.00	11.46	200	7	Horizontal	/
2	2386.4400	40.47	44.22	3.75	54.00	9.78	200	185	Horizontal	/
3	2390.0000	39.27	43.08	3.81	54.00	10.92	200	25	Horizontal	/
4	2396.9850	71.74	75.67	3.93	54.00	-21.67	100	142	Horizontal	No limit
1	2310.0000	38.91	42.39	3.48	54.00	11.61	100	218	Vertical	/
2	2369.2050	40.45	43.91	3.46	54.00	10.09	100	63	Vertical	/
3	2390.0000	39.15	42.96	3.81	54.00	11.04	100	184	Vertical	/
4	2397.0750	82.59	86.52	3.93	54.00	-32.52	100	23	Vertical	No limit

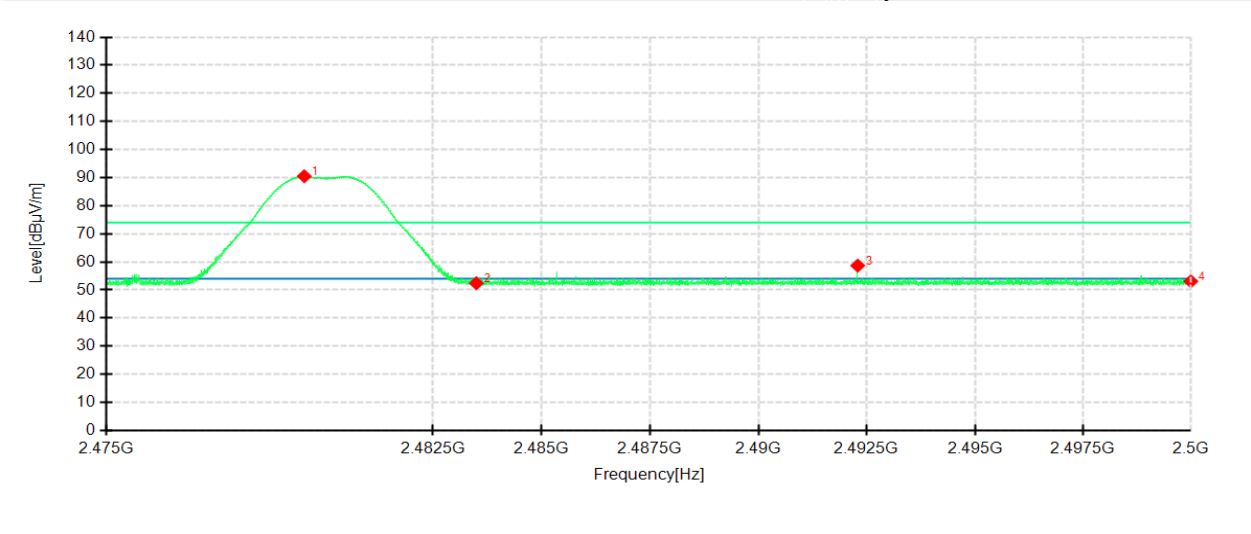
Highest Frequency  
Frequency 2480MHz  
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



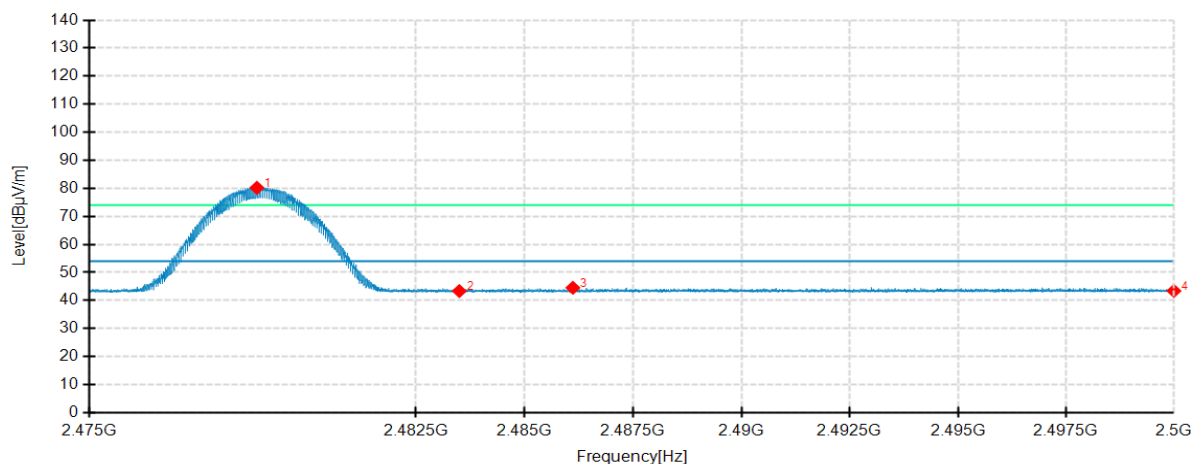
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.5063	77.45	81.77	4.32	74.00	-7.77	100	142	Horizontal	No limit
2	2483.5000	47.39	51.72	4.33	74.00	22.28	200	218	Horizontal	/
3	2499.6781	56.17	60.55	4.38	74.00	13.45	200	218	Horizontal	/
4	2500.0000	48.30	52.68	4.38	74.00	21.32	100	182	Horizontal	/
1	2479.5438	86.18	90.50	4.32	74.00	-16.50	100	29	Vertical	No limit
2	2483.5000	48.08	52.41	4.33	74.00	21.59	100	218	Vertical	/
3	2492.2938	54.32	58.68	4.36	74.00	15.32	200	142	Vertical	/
4	2500.0000	48.71	53.09	4.38	74.00	20.91	100	218	Vertical	/

**Highest Frequency**

Frequency 2480MHz

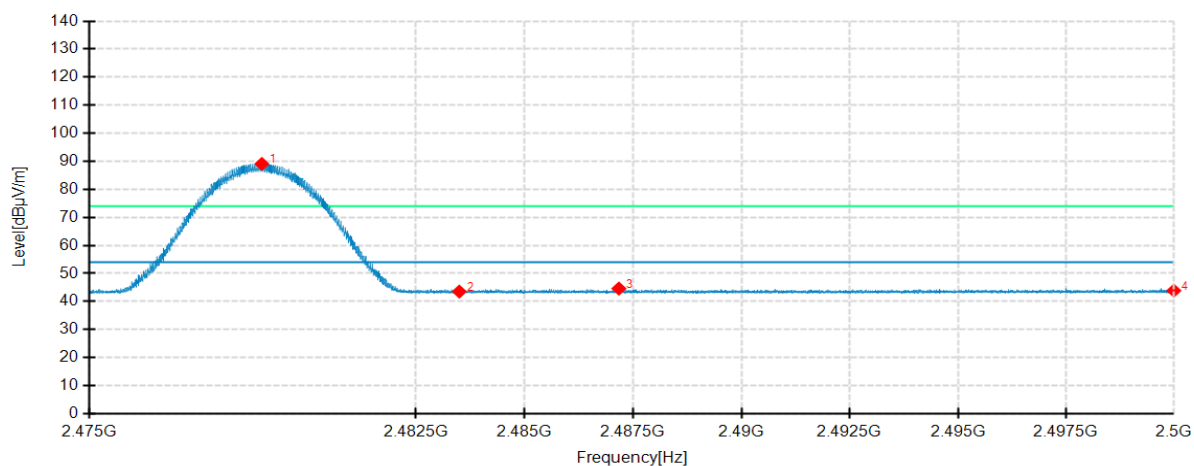
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2478.8469	75.86	80.18	4.32	54.00	-26.18	100	142	Horizontal	No limit
2	2483.5000	39.03	43.36	4.33	54.00	10.64	100	289	Horizontal	/
3	2486.1156	40.19	44.53	4.34	54.00	9.47	200	116	Horizontal	/
4	2500.0000	39.04	43.42	4.38	54.00	10.58	200	218	Horizontal	/
1	2478.9594	84.74	89.06	4.32	54.00	-35.06	100	31	Vertical	No limit
2	2483.5000	39.20	43.53	4.33	54.00	10.47	200	196	Vertical	/
3	2487.1750	40.27	44.61	4.34	54.00	9.39	100	204	Vertical	/
4	2500.0000	39.50	43.88	4.38	54.00	10.12	200	210	Vertical	/

Remark: Max field strength in 3m distance. No any other emission which falls in restricted bands can be detected and be reported.



#### **APPENDIX A. PHOTOGRAPH OF THE TEST CONNECTION DIAGRAM**

Please refer to the attached document E202112276794-Test Photo-15.6.

#### **APPENDIX B. PHOTOGRAPH OF THE EUT**

Please refer to the attached document E202112276794-EUT Photo-15.6.

----- End of Report -----