

# Test Report

Verified code: 543977

Report No.: E202112276794-8

Customer: NunoErin, LLC

Address: 533 Commerce Street, Jackson MS 39201 USA

Sample Name: Tablet

Sample Model: UCTB-27

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

Prepared by: *Wen Wen*

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Approved by: *Xiao Liang*

GUANGZHOU GRG METROLOGY & TEST CO., LTD

Issued Date: 2022-05-31

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E202112276794-8	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 1.08dBi, 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: Tablet  
Model No.: UCTB-27  
Adding Model: /  
Trade Name: NunoErin  
FCC ID: 2A5VA-UCTB27  
Rating: Input: 100-240V~ 50/60Hz 1.2A  
Frequency Band: 2402 ~ 2480MHz  
Transmit Power: GFSK 1M: 4.56dBm, GFSK 2M: 4.62dBm  
Modulation type: GFSK  
Channel space: 2MHz  
Antenna Specification: Internal antenna with 1.08dBi gain (Max.)  
Temperature Range: 0°C ~ 50°C  
Hardware Version: V 2.0  
Software Version: Android 10  
Sample No: E202112276794-0002

## 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

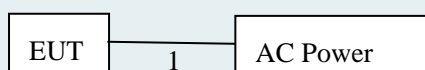
## 2.6 TEST OPERATION MODE

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 0.40m

## 2.8 CONFIGURATION OF SYSTEM UNDER TEST



### Test software:

Software version	Test level
Ampak RF testTool	Default



## 2.9 DUTY CYCLE

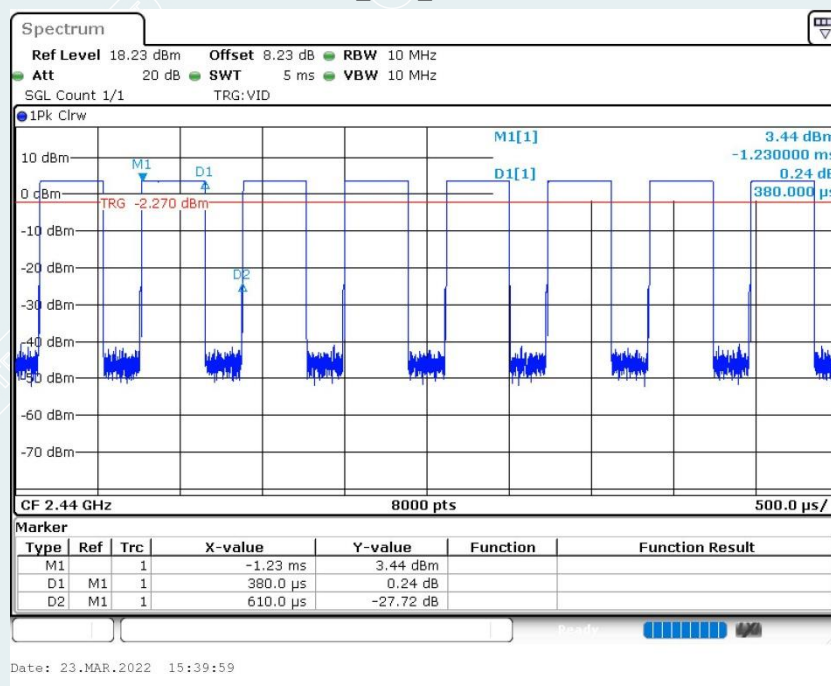
Environment: 23.1°C/53%RH

Tested By: Deng Weihao

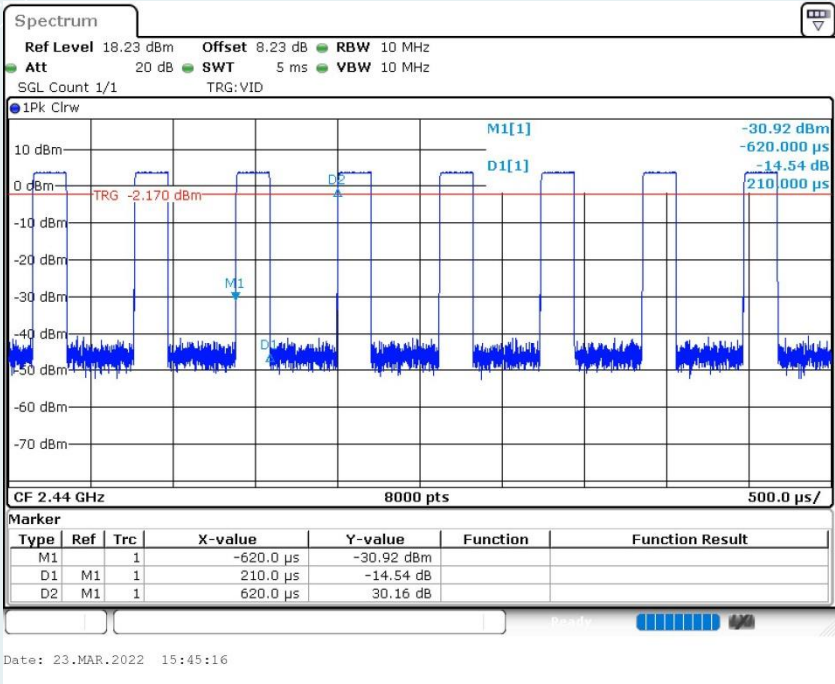
Voltage: AC 120V/60Hz

Date: 2022-03-23

Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	DC [%]	T [s]
BLE_1M	Ant1	2440	0.38	0.61	62.30	0.00038
BLE_2M	Ant1	2440	0.21	0.62	33.87	0.00021

**BLE\_1M\_2440MHz**

BLE\_2M\_2440MHz



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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 Guanguang 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.

**USA** A2LA(Certificate #2861.01)

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

**Canada** ISED (Company Number: 24897, CAB identifier:CN0069)

**USA** FCC (Registration Number: 759402, Designation Number:CN1198)

Copies of granted accreditation certificates are available for downloading from our web site,  
<http://www.grgtest.com>

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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	R&S	FSV30	104381	2022-12-10
<b>Output Power</b>				
Pulse power sensor	Anristu	MA2411B	1126150	2023-03-01
Power meter	Anristu	ML2495A	1204003	2023-02-28
<b>Conducted band edges and Spurious Emission</b>				
Spectrum Analyzer	R&S	FSV30	104381	2022-12-10
<b>Power Spectral Density</b>				
Spectrum Analyzer	R&S	FSV30	104381	2022-12-10

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)=83.5 (dB $\mu\text{V/m}$ ).  
The Avg Limit=54+20\*log(3/1)=63.5 (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. If the EUT duty cycle is  $< 98\%$ , set  $VBW \geq 1/T$ , Where T is defined in section 2.9.

### 5.3 TEST SETUP

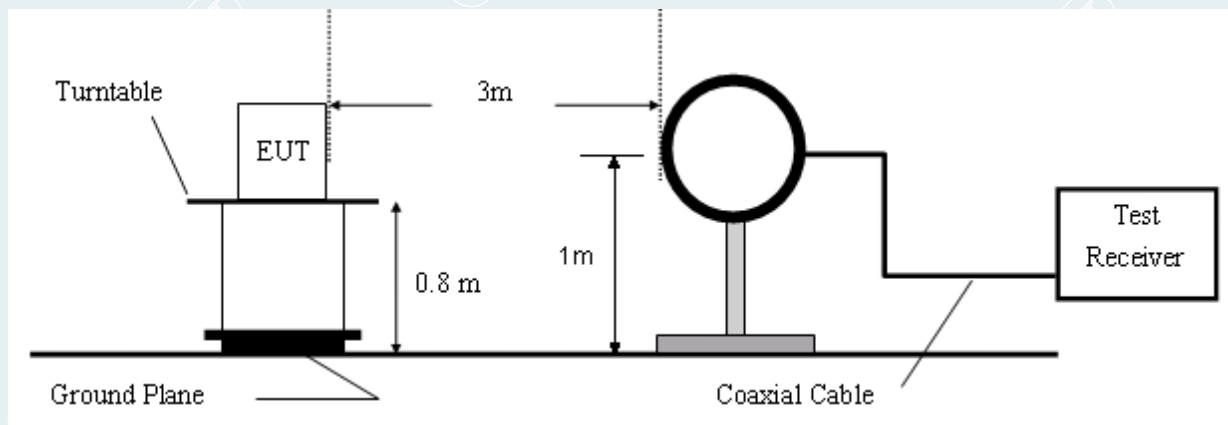


Figure 1. 9kHz to 30MHz radiated emissions test configuration

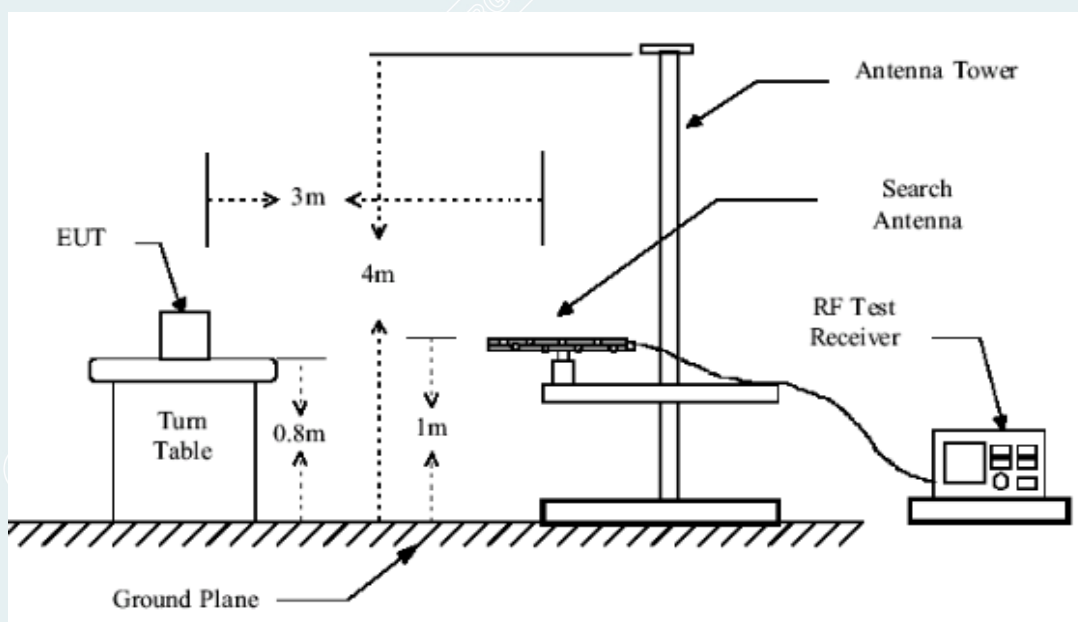


Figure 2. 30MHz to 1GHz radiated emissions test configuration

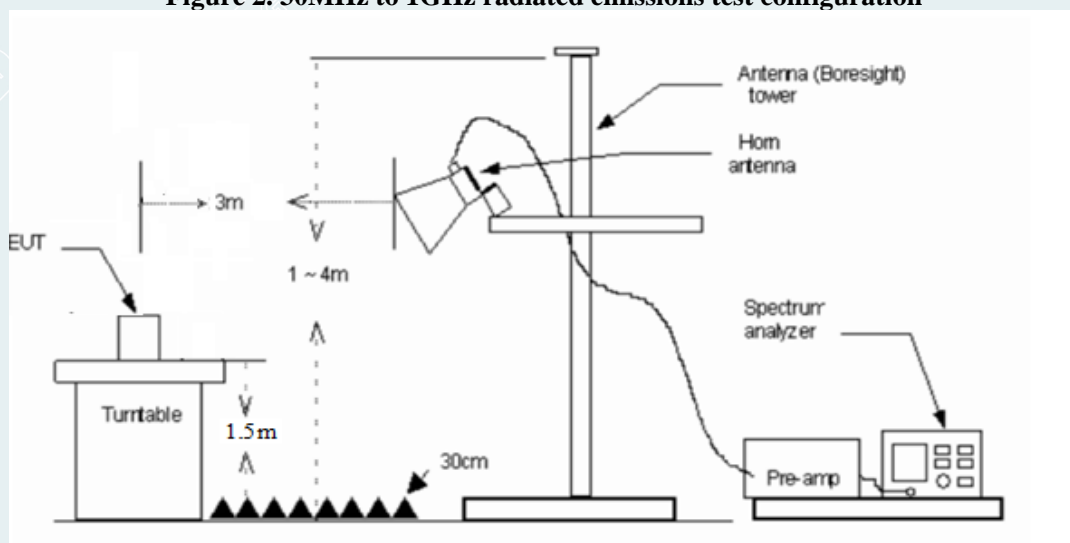


Figure 3. 1GHz to 18GHz radiated emissions test configuration

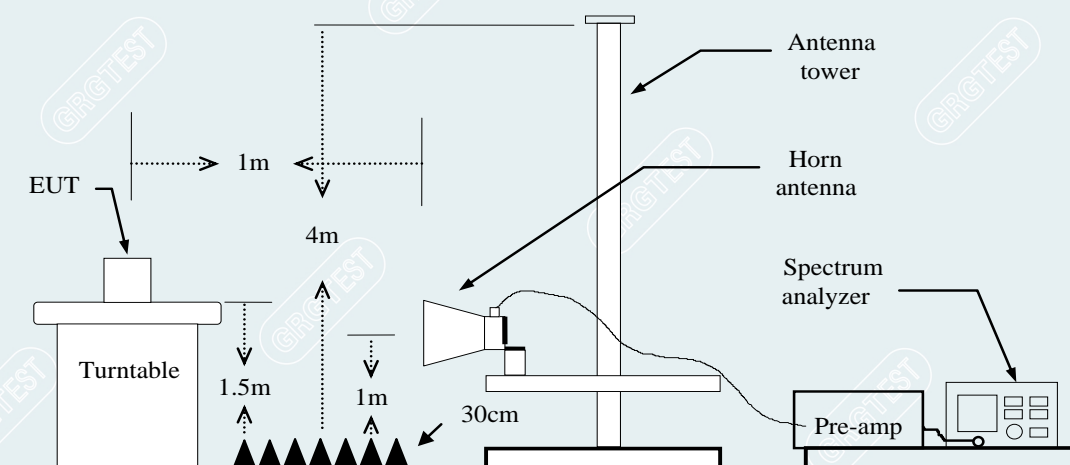


Figure 4. 18GHz to 26.5GHz radiated emissions test configuration

#### 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

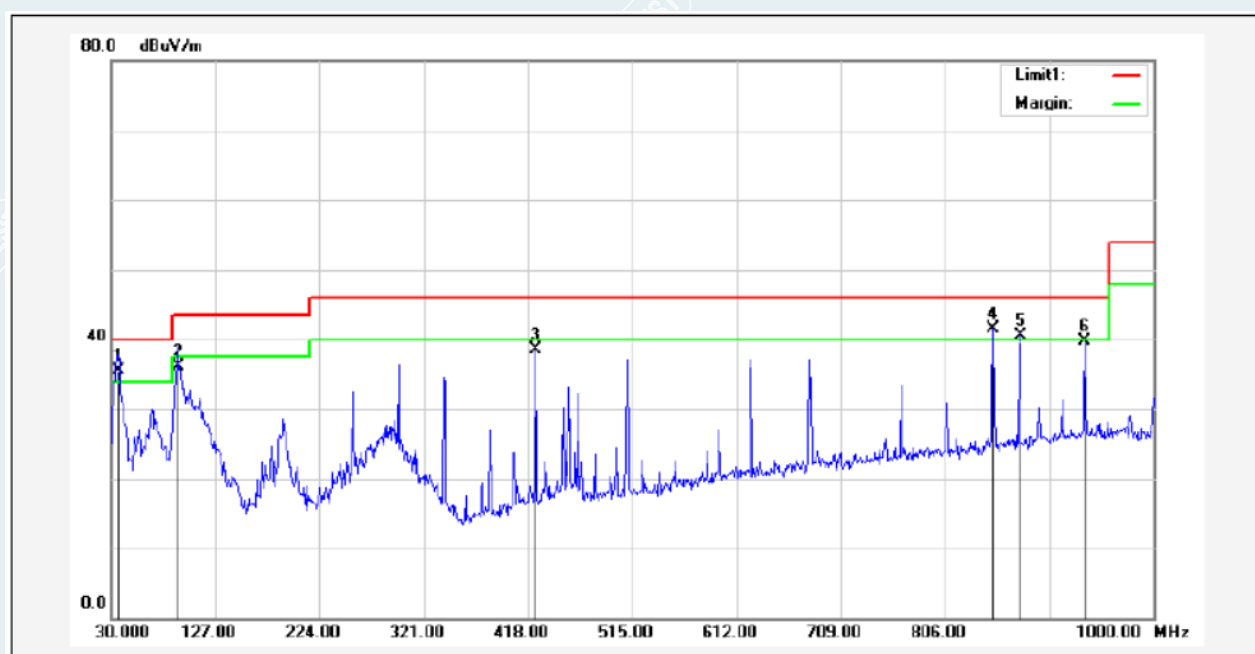
AVG = Average Reading

## 5.5 TEST RESULTS

### Below 1GHz

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

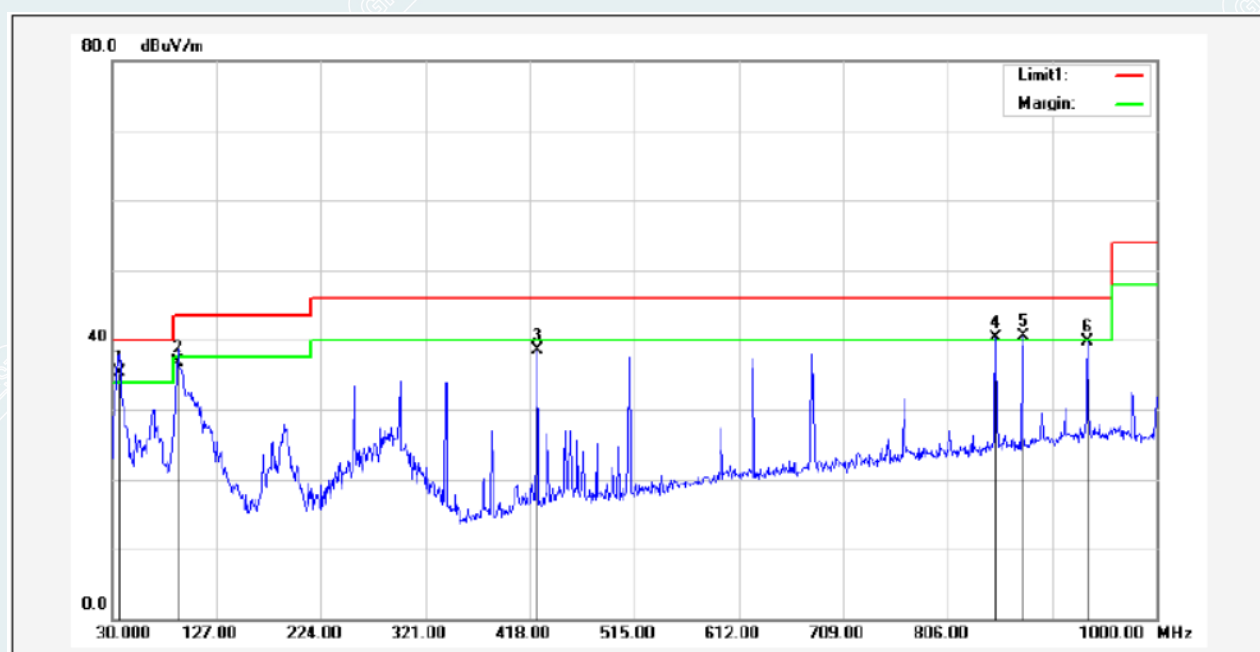
<b>EUT Name</b>	Tablet	<b>Model</b>	UCTB-27
<b>Environmental Conditions</b>	23.7°C / 54 %RH	<b>Test Voltage</b>	AC 120V/60Hz
<b>Test Mode</b>	TX/1M (2402MHz)	<b>Polarity</b>	Vertical
<b>Tested By</b>	Zeng Xianglong	<b>Tested Date</b>	2022-03-30



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1*	36.7900	63.16	-27.66	35.50	40.00	-4.50	301	100	QP
2	92.0800	66.95	-30.85	36.10	43.50	-7.40	292	100	QP
3	424.7900	58.15	-19.63	38.52	46.00	-7.48	227	100	QP
4!	850.6200	52.41	-10.91	41.50	46.00	-4.50	0	140	QP
5!	875.8400	51.10	-10.50	40.60	46.00	-5.40	2	100	QP
6	935.9800	49.25	-9.60	39.65	46.00	-6.35	188	100	QP



<b>EUT Name</b>	Tablet	<b>Model</b>	UCTB-27
<b>Environmental Conditions</b>	24.1℃ / 47 %RH	<b>Test Voltage</b>	AC 120V/60Hz
<b>Test Mode</b>	TX/1M (2402MHz)	<b>Polarity</b>	Horizontal
<b>Tested By</b>	Zeng Xianglong	<b>Tested Date</b>	2022-03-30



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1*	36.7900	62.96	-27.66	35.30	40.00	-4.70	2	101	QP
2	91.1100	67.76	-31.06	36.70	43.50	-6.80	360	101	QP
3	424.7900	58.10	-19.63	38.47	46.00	-7.53	230	101	QP
4!	850.6200	51.25	-10.91	40.34	46.00	-5.66	2	101	QP
5!	875.8400	50.98	-10.50	40.48	46.00	-5.52	359	101	QP
6	935.9800	49.37	-9.60	39.77	46.00	-6.23	183	101	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/BLE 1M

Lowest Frequency (2402MHz)

Environment: 25°C/60%RH

Tested By: Lu Qiang

Date: 2022-04-16

Voltage: AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1025.2532	75.08	50.76	-24.32	74.00	23.24	200	144	Horizontal
2	1373.5467	65.15	42.07	-23.08	74.00	31.93	200	138	Horizontal
3	1700.3375	61.39	38.55	-22.84	74.00	35.45	100	200	Horizontal
4	2275.1594	66.30	47.38	-18.92	74.00	26.62	100	137	Horizontal
5	3806.3508	55.61	39.69	-15.92	74.00	34.31	200	31	Horizontal
6	7899.9875	45.10	41.75	-3.35	74.00	32.25	100	195	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1020.3525	-24.32	65.64	41.32	54.00	12.68	200	313.7	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	1020.5026	71.60	47.21	-24.39	74.00	26.79	200	15	Vertical
2	1373.7967	71.43	49.93	-21.50	74.00	24.07	100	342	Vertical
3	2040.3800	64.04	44.10	-19.94	74.00	29.90	200	304	Vertical
4	2285.6607	70.69	51.67	-19.02	74.00	22.33	200	343	Vertical
5	3198.7748	60.52	43.03	-17.49	74.00	30.97	100	324	Vertical
6	7200.5251	46.73	43.39	-3.34	74.00	30.61	200	338	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1375.0194	-21.50	56.11	34.61	54.00	19.39	120	21.3	Vertical
2	2284.0836	-19.02	52.03	33.01	54.00	20.99	122	341.7	Vertical

Mode: TX /BLE 1M  
 Middle Frequency (2440MHz)  
 Environment: 25°C/60%RH  
 Tested By: Lu Qiang

Date: 2022-04-16  
 Voltage: AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1020.0025	62.92	38.69	-24.23	74.00	35.31	100	72	Horizontal
2	1368.2960	65.59	42.56	-23.03	74.00	31.44	200	142	Horizontal
3	1615.5769	61.55	39.01	-22.54	74.00	34.99	200	165	Horizontal
4	1700.5876	61.32	38.48	-22.84	74.00	35.52	100	203	Horizontal
5	2286.1608	65.26	46.19	-19.07	74.00	27.81	100	138	Horizontal
6	3804.4756	55.11	39.16	-15.95	74.00	34.84	200	32	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	1020.0025	71.47	47.06	-24.41	74.00	26.94	200	22	Vertical
2	1368.2960	73.33	51.81	-21.52	74.00	22.19	100	358	Vertical
3	1615.5769	63.62	40.38	-23.24	74.00	33.62	200	324	Vertical
4	1955.1194	63.92	42.63	-21.29	74.00	31.37	200	336	Vertical
5	2286.1608	71.33	52.31	-19.02	74.00	21.69	200	348	Vertical
6	3195.0244	60.66	43.21	-17.45	74.00	30.79	100	320	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2289.2928	-19.02	56.63	37.61	54.00	16.39	169	22.1	Vertical
2	1375.0691	-21.51	55.83	34.32	54.00	19.68	131	13.5	Vertical

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

Mode: TX /BLE 1M  
Highest Frequency (2480MHz)  
Environment: 25°C/60%RH  
Tested By: Chen Xiacong

Date: 2022-04-16  
Voltage: AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1373.7967	59.07	35.45	-23.62	74.00	38.55	100	242	Horizontal
2	2285.6607	59.96	39.76	-20.20	74.00	34.24	200	160	Horizontal
3	3198.7748	54.63	38.77	-15.86	74.00	35.23	200	35	Horizontal
4	4764.5956	50.80	41.25	-9.55	74.00	32.75	100	119	Horizontal
5	6786.0983	50.05	45.50	-4.55	74.00	28.50	200	52	Horizontal
6	8599.4499	47.01	46.73	-0.28	74.00	27.27	200	101	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	1374.0468	61.79	38.17	-23.62	74.00	35.83	200	4	Vertical
2	1615.0769	61.39	38.59	-22.80	74.00	35.41	200	360	Vertical
3	2040.3800	60.78	39.29	-21.49	74.00	34.71	200	1	Vertical
4	2275.1594	67.78	47.49	-20.29	74.00	26.51	200	21	Vertical
5	4102.6378	56.07	42.21	-13.86	74.00	31.79	200	338	Vertical
6	6171.0214	51.63	44.91	-6.72	74.00	29.09	100	68	Vertical

Mode: TX /BLE 2M  
 Lowest Frequency (2402MHz)  
 Environment: 25°C/60%RH  
 Tested By: Lu Qiang

Date: 2022-03-23  
 Voltage: AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1020.0000	64.87	40.20	-24.67	74.00	33.80	200	121	Horizontal
2	1368.2500	72.37	49.40	-22.97	74.00	24.60	100	113	Horizontal
3	1739.2500	66.75	45.32	-21.43	74.00	28.68	100	358	Horizontal
4	2280.0000	63.36	43.63	-19.73	74.00	30.37	200	13	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1368.3595	-22.97	67.17	44.20	54.00	9.80	100	53.9	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	1020.2500	74.53	49.86	-24.67	74.00	24.14	200	197	Vertical
2	1368.0000	75.84	52.87	-22.97	74.00	21.13	100	183	Vertical
3	1763.7500	75.56	54.12	-21.44	74.00	19.88	200	104	Vertical
4	2286.0000	69.66	49.94	-19.72	74.00	24.06	200	154	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1020.1786	-24.66	61.05	36.39	54.00	17.61	200	221.3	Vertical
2	1368.2462	-22.97	63.30	40.33	54.00	13.67	100	103.2	Vertical
3	1763.9352	-21.43	65.77	44.34	54.00	9.66	200	357.4	Vertical
4	2285.8400	-19.71	48.24	28.53	54.00	25.47	200	120.6	Vertical

Mode: TX/ BLE 2M  
 Middle Frequency (2440MHz)  
 Environment: 25°C/60%RH  
 Tested By: Lu Qiang

Date: 2022-03-23  
 Voltage: AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1020.2500	65.05	40.38	-24.67	74.00	33.62	200	133	Horizontal
2	1368.5000	71.01	48.04	-22.97	74.00	25.96	100	47	Horizontal
3	1746.0000	67.36	45.96	-21.40	74.00	28.04	200	269	Horizontal
4	2275.0000	63.78	44.04	-19.74	74.00	29.96	200	347	Horizontal
5	3193.1250	56.63	39.90	-16.73	74.00	34.10	100	28	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	1368.7500	74.30	51.33	-22.97	74.00	22.67	100	171	Vertical
2	1736.2500	72.50	51.06	-21.44	74.00	22.94	200	238	Vertical
3	2285.5000	69.60	49.88	-19.72	74.00	24.12	200	152	Vertical
4	2591.2500	72.06	54.31	-17.75	74.00	19.69	200	113	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1368.0930	-22.96	69.83	46.87	54.00	7.13	100	169.6	Vertical
2	1738.7762	-21.44	47.68	26.24	54.00	27.76	200	359.9	Vertical
3	2285.5800	-19.72	56.50	36.78	54.00	17.22	200	155.6	Vertical
4	2592.8566	-17.75	43.57	25.82	54.00	28.18	200	137.5	Vertical

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



Mode: TX/ BLE 2M  
 Highest Frequency (2480MHz)  
 Environment: 25°C/60%RH  
 Tested By: Lu Qiang

Date: 2022-03-23  
 Voltage: AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1020.2500	65.65	40.98	-24.67	74.00	33.02	200	128	Horizontal
2	1368.5000	72.71	49.74	-22.97	74.00	24.26	100	35	Horizontal
3	1445.2500	64.10	41.27	-22.83	74.00	32.73	100	3	Horizontal
4	1596.7500	61.04	38.91	-22.13	74.00	35.09	200	8	Horizontal
5	1746.2500	71.15	49.75	-21.40	74.00	24.25	100	80	Horizontal
6	2270.7500	60.14	40.40	-19.74	74.00	33.60	200	16	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	1020.2500	72.61	47.94	-24.67	74.00	26.06	200	191	Vertical
2	1368.0000	74.47	51.50	-22.97	74.00	22.50	200	357	Vertical
3	1700.5000	65.05	43.45	-21.60	74.00	30.55	100	146	Vertical
4	1746.0000	69.97	48.57	-21.40	74.00	25.43	200	94	Vertical
5	1763.7500	77.38	55.94	-21.44	74.00	18.06	200	104	Vertical
6	2040.7500	65.59	45.02	-20.57	74.00	28.98	200	191	Vertical
7	2274.7500	70.05	50.31	-19.74	74.00	23.69	200	189	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1367.6854	-22.97	66.08	43.11	54.00	10.89	200	4.6	Vertical
2	1765.2492	-21.43	44.10	22.67	54.00	31.33	200	1.6	Vertical
3	2275.3528	-19.73	48.67	28.94	54.00	25.06	200	237	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.

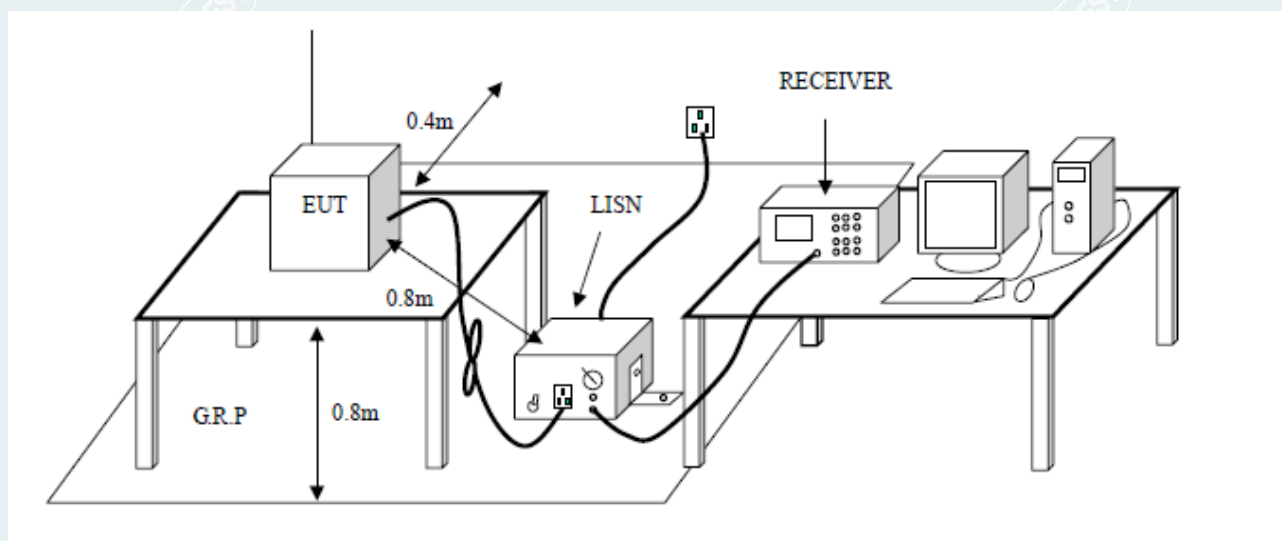
The test mode(s) described in Item 2.6 were scanned during the preliminary test. After the preliminary scan, we found the test mode described in Item 2.6 producing the highest emission level. The EUT configuration and cable configuration of the above highest emission levels were recorded for reference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

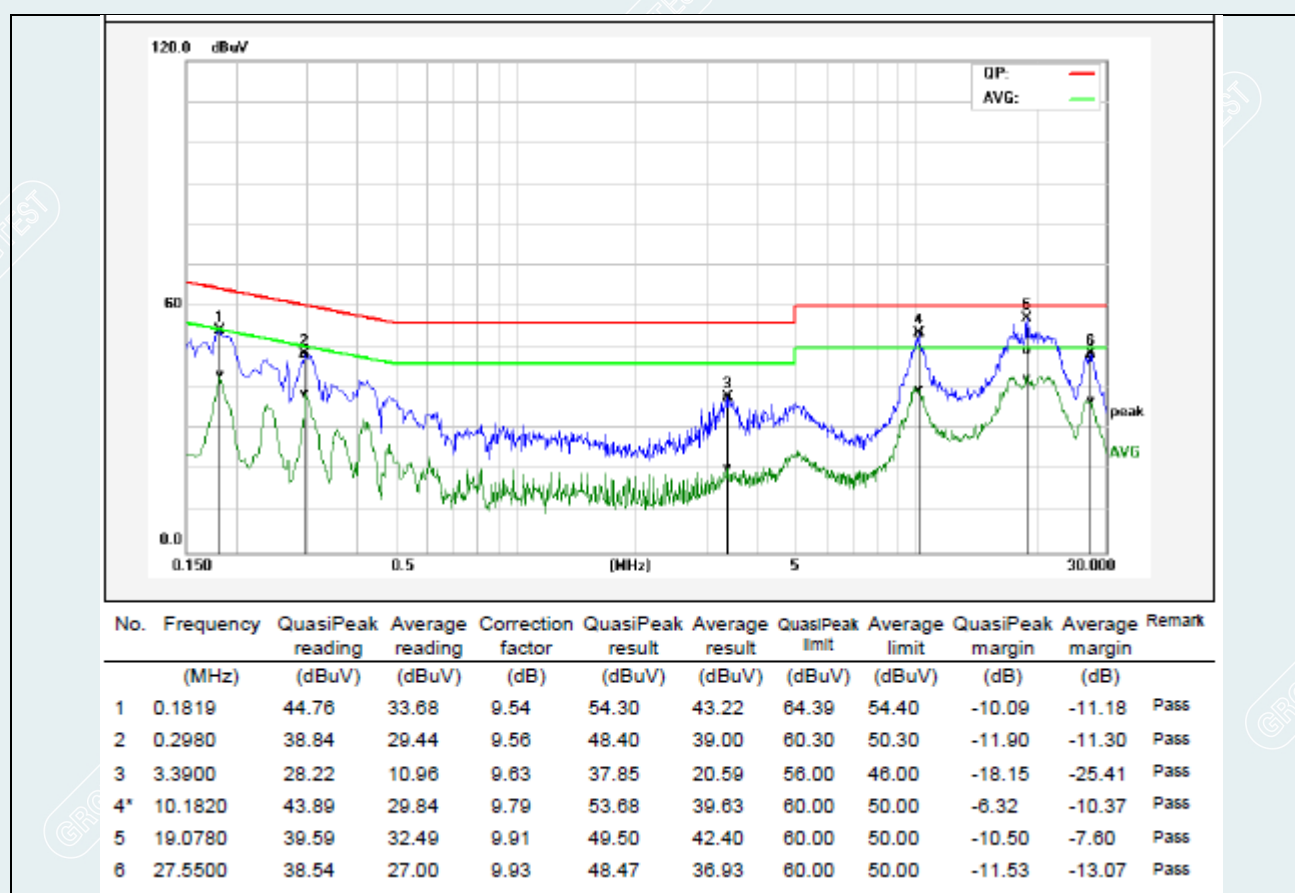
Factor = Insertion loss of LISN + Cable Loss  
 Result = Quasi-peak Reading/ Average Reading + Factor  
 Limit = Limit stated in standard  
 Margin = Result (dBuV) – Limit (dBuV)

## 6.5 TEST RESULTS

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

<b>EUT Name</b>	Tablet	<b>Model</b>	UCTB-27
<b>Environmental Conditions</b>	25.2°C/54%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.)

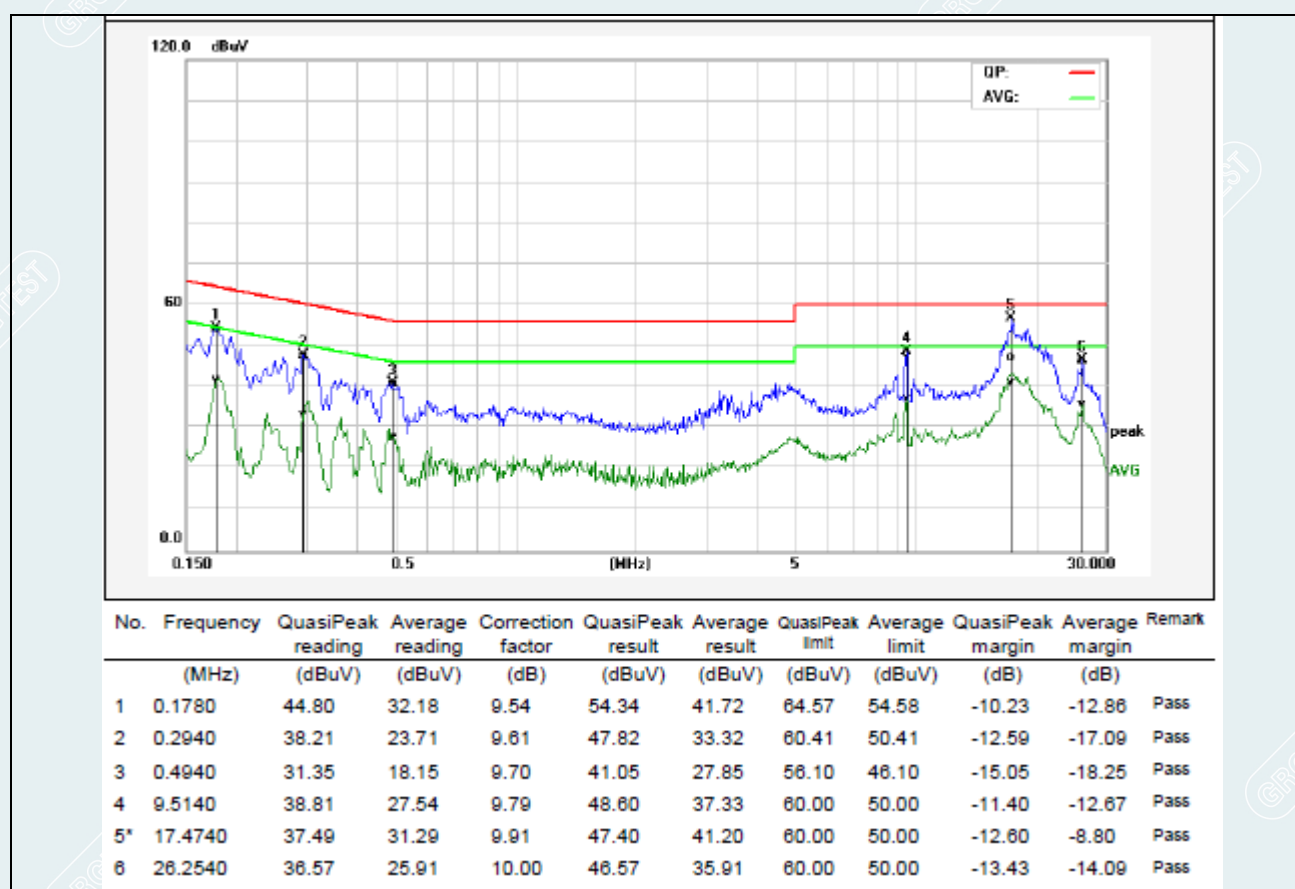


**REMARKS:** L = Live Line

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

<b>EUT Name</b>	Tablet	<b>Model</b>	UCTB-27
<b>Environmental Conditions</b>	25.2°C/54%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

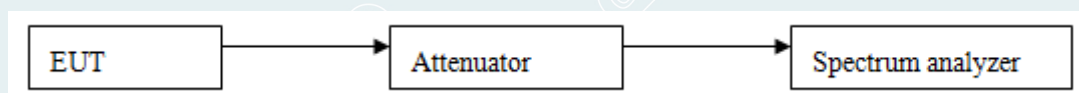
### 7.1 LIMITS

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: Deng Weihao

Voltage: AC 120V/60Hz  
 Date: 2022-03-23

#### BLE\_1M

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Lowest	2402	720	$\geq 500$	PASS
Middle	2440	712		PASS
Highest	2480	720		PASS

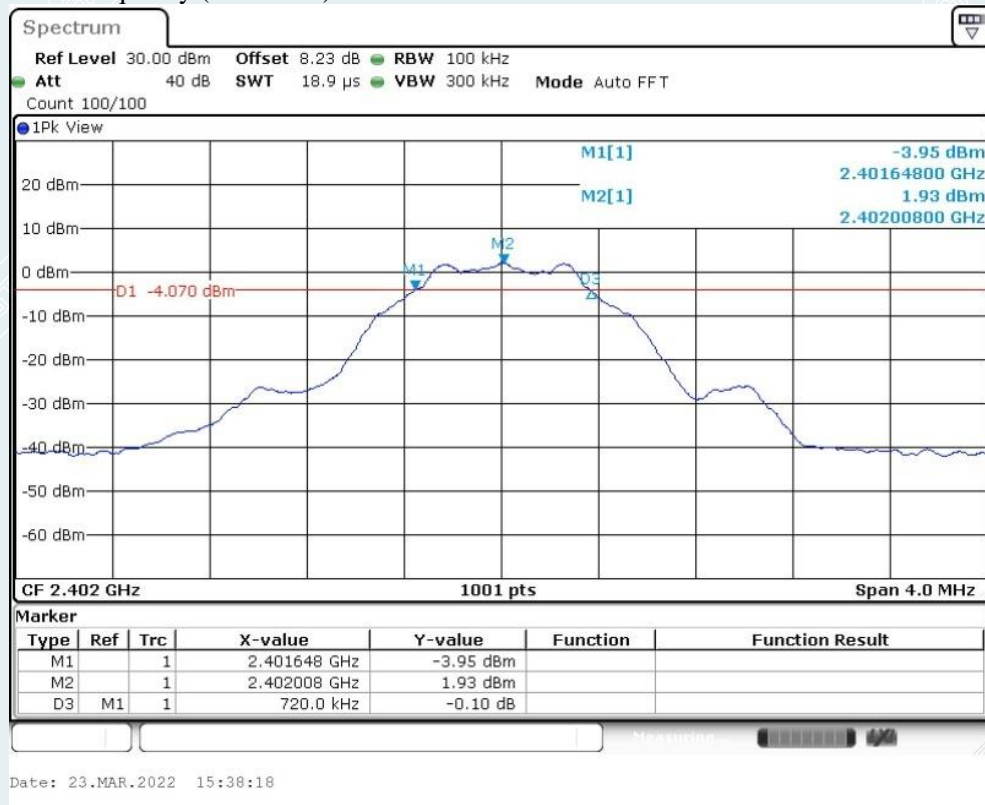
#### BLE\_2M

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Lowest	2402	1104	$\geq 500$	PASS
Middle	2440	1100		PASS
Highest	2480	1104		PASS

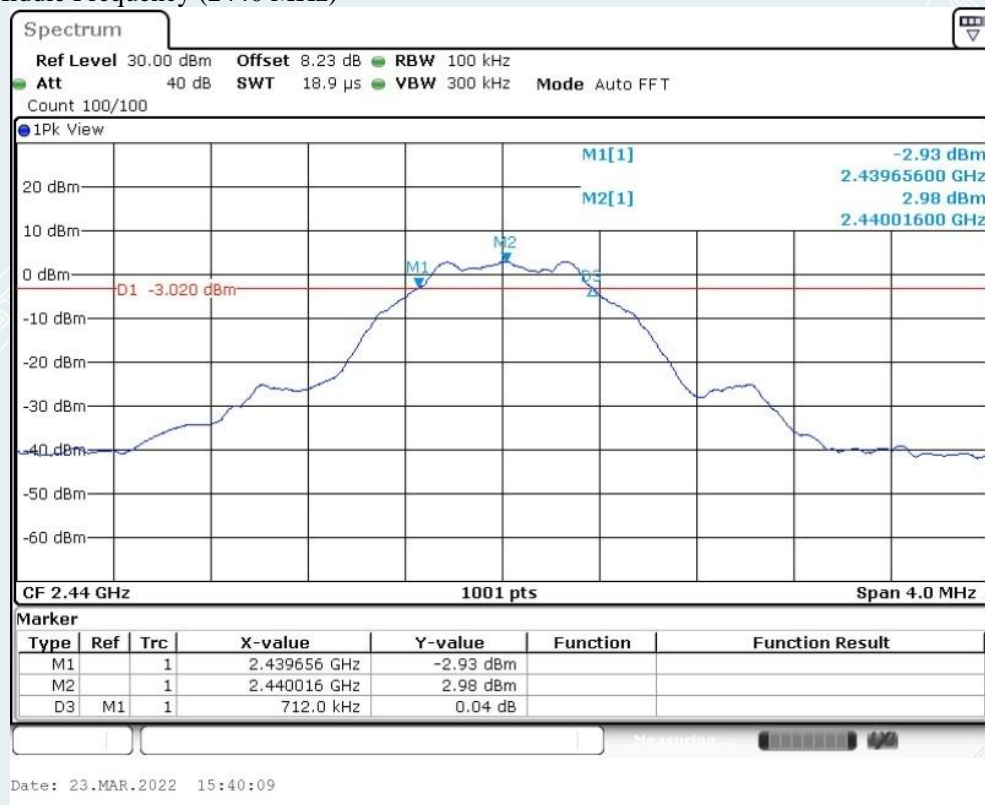


BLE\_1M

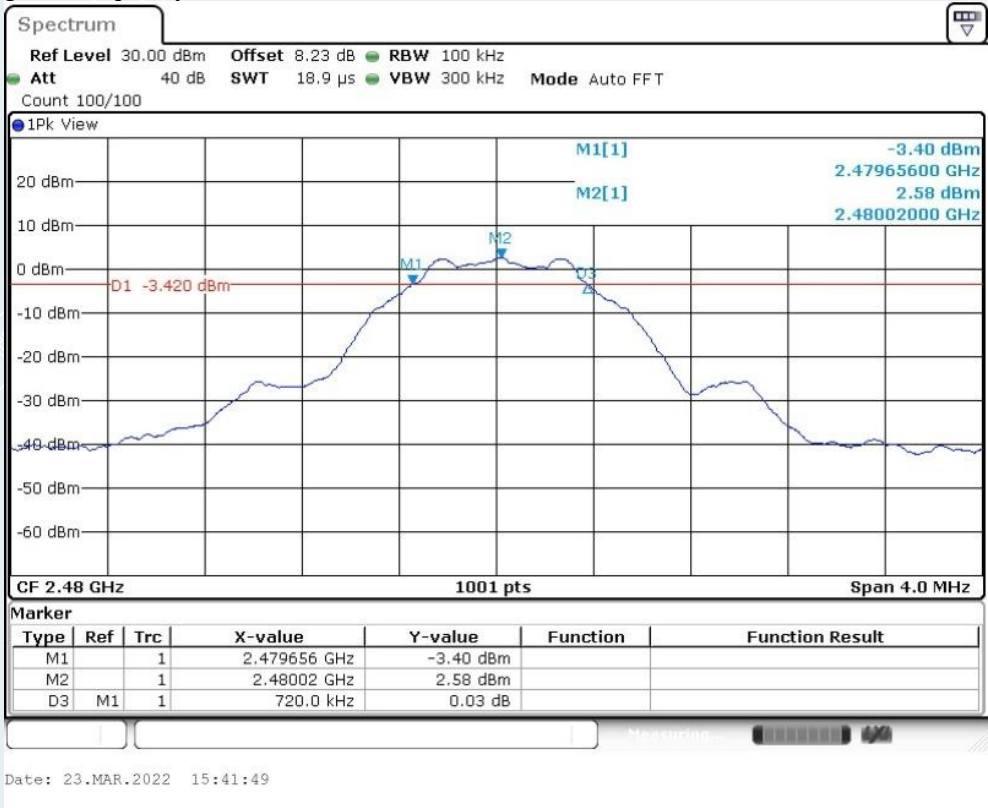
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



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