

Test Report

Verified code: 509992

Report No.: E202207126727-1

Customer: Shenzhen Yunmai Technology Co., Ltd

Address: Room A, Floor 19, Chiwan Headquarters Building, NO.8 chiwan Sixth Road, Nanshan District, Shenzhen, China

Sample Name: Yunmai Smart Scale3

Sample Model: YMBS-S282

Receive Sample Date: Jul.14,2022

Test Date: Jul.26,2022 ~ Jul.28,2022

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

Test Result: Pass

Prepared by: Huang Lifang

Reviewed by: Jiang Tao

Approved by: Xiao Liang

GUANGZHOU GRG METROLOGY & TEST CO., LTD

Issued Date: 2022-09-05

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E202207126727-1	Original Issue	2022-07-29

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1. TEST RESULT SUMMARY

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

Note:

1)The antenna is PCB antenna. The max gain of antenna is 0.67dBi.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: Shenzhen Yunmai Technology Co., Ltd
Address: Room A, Floor 19, Chiwan Headquarters Building, NO.8 chiwan Sixth Road, Nanshan District, Shenzhen, China

2.2 MANUFACTURER

Name: Shenzhen Yunmai Technology Co., Ltd
Address: Room A, Floor 19, Chiwan Headquarters Building, NO.8 chiwan Sixth Road, Nanshan District, Shenzhen, China

2.3 FACTORY

Name: Shenzhen Yunmai Technology Co., Ltd
Address: Room A, Floor 19, Chiwan Headquarters Building, NO.8 chiwan Sixth Road, Nanshan District, Shenzhen, China

2.4 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment: Yunmai Smart Scale3
Model No.: YMBS-S282
Adding Model: /
Models discrepancy: /
Trade Name: Yunmai
FCC ID: 2AX9A-S282
Power supply: 3.7Vdc power supplied by Rechargeable Li-ion battery;
Rated input : DC 5V, 0.5A from adapter.
PTK 603040
Battery Specification: Nominal Voltage: 3.7Vdc
Rated Capacity: 600mAh, 2.22Wh
Frequency Band: 2402MHz to 2480MHz
Transmit Power: BLE_1MHz: -5.41dBm
Modulation type: GFSK
Channel space: 2MHz
Antenna Specification: PCB antenna with 0.67dBi gain (Max.)
Temperature Range: -5°C~+40°C
Hardware Version: YMTZC_D_YS281_en-int_INT_HV1.0_FV1.12_R
Software Version: YM-YS281-MAIN-V1.0
Sample No: E202207126727-0002, E202207126727-0003
Note: /

2.5 CHANNEL LIST

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

* is the test frequency

2.6 TEST OPERATION MODE

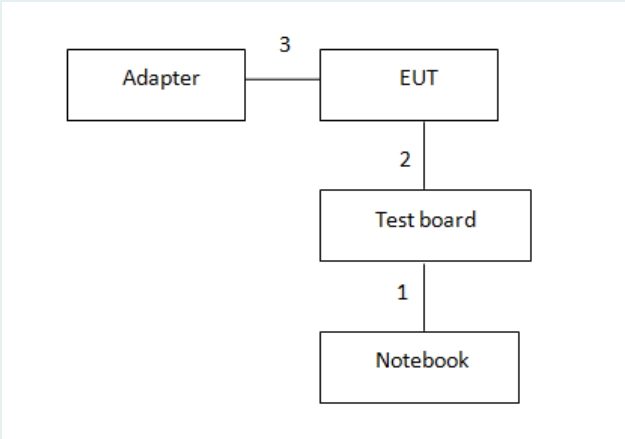
Mode No.	Description of the modes
1	Bluetooth BLE fixed frequency transmitting

2.7 LOCAL SUPPORTIVE

Name of equipment	Manufacturer	Model	Serial number	Note
Adapter	Aohai	A70-050200U-EU1	/	/
Test board	/	/	/	/
Notebook	LENOVO	TianYi 310-14ISK	MP18DLC6	/

No.	Cable Type	Qty.	Shielded Type	Ferrite Core(Qty.)	Length
1	USB cable	1	No	0	1.0m
2	DC cable	1	No	0	0.1m
3	Type-C cable	1	No	0	0.53m

2.8 CONFIGURATION OF SYSTEM UNDER TEST



Test software:

Software version	Test level
RFTester	0dBm

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2.9 DUTY CYCLE

Environment: 23.1°C/51%RH/101.0kPa

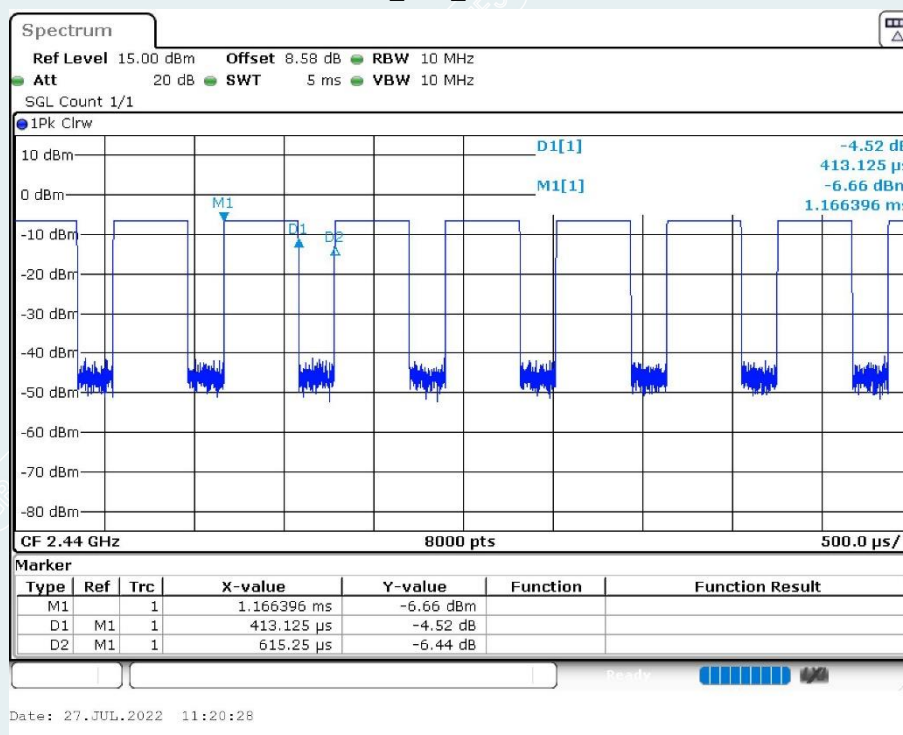
Tested By:Qin Tingting

Voltage: DC 3.7V

Date: 2022-07-27

Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	DC [%]	T [s]
BLE_1M	Ant1	2440	0.4131	0.6153	67.14	0.0004131

BLE_1M_2440 MHz



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3. 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

4. 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~200MHz	4.5dB
		200MHz~1000MHz	4.4dB
		1GHz~18GHz	5.6dB
		18GHz~26.5GHz	3.65dB
	Vertical	9kHz~30MHz	4.46dB
		30MHz~200MHz	4.5dB
		200MHz~1000MHz	4.4dB
		1GHz~18GHz	5.6dB
		18GHz~26.5GHz	3.65dB
Conduction Emission		150MHz~30MHz	3.40dB

Measurement	Uncertainty
RF frequency	6.0×10^{-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 $k=2$.

5. LIST OF USED TEST EQUIPMENT AT GRGT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Conducted Emissions				
EZ-EMC	EZ	CCS-3A1-CE	/	/
EMI Receiver	R&S	ESCI	100783	2022-09-13
LISN(EUT)	R&S	ENV216	101543	2022-09-14
Radiated Spurious Emission & Restricted bands of operation				
Test S/W	EZ	CCS-03A1		
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
Loop Antenna	TESEQ	HLA6121	52599	2023-04-02
Spectrum Analyzer	KEYSIGHT	N9020B	MY57120179	2022-08-08
Horn Antenna	Schwarzbeck	BBHA 9120D	02143	2022-10-22
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	BBHA 9170-497	2022-10-16
Amplifier	Tonscend	TAP01018048	AP20E8060075	2023-05-05
Amplifier	Tonscend	TAP184050	AP20E806071	2023-05-05
Test S/W	Tonscend	JS36-RE/2.5.1.5		
6dB Bandwidth & Conducted band edges and Spurious Emission & Power Spectral Density				
Spectrum Analyzer	R&S	FSV30	104381	2022-12-10
BT/WIFI System	Tonscend	JS1120-3		
Maximum Peak Output Power				
Pulse power sensor	Anritsu	MA2411B	1126150	2023-03-01
Power meter	Anritsu	ML2495A	1204003	2023-02-28

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

6. CONDUCTED EMISSION MEASUREMENT

6.1 LIMITS

Frequency range	Limits (dBμV)	
	Quasi-peak	Average
150kHz~0.5MHz	66~56	56~46
0.5MHz~5MHz	56	46
5MHz~30MHz	60	50

NOTE: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases in line with the logarithm of the frequency in the range of 150kHz to 0.5MHz.

6.2 TEST PROCEDURES

Procedure of Preliminary Test

Test procedures follow ANSI C63.10:2013.

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.

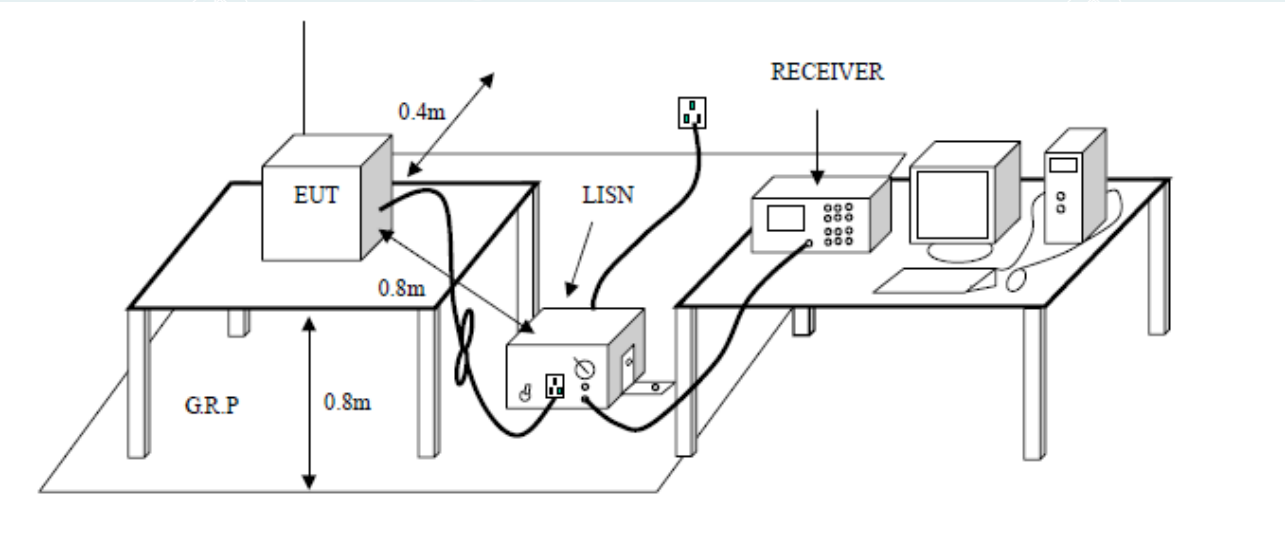
– Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.

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

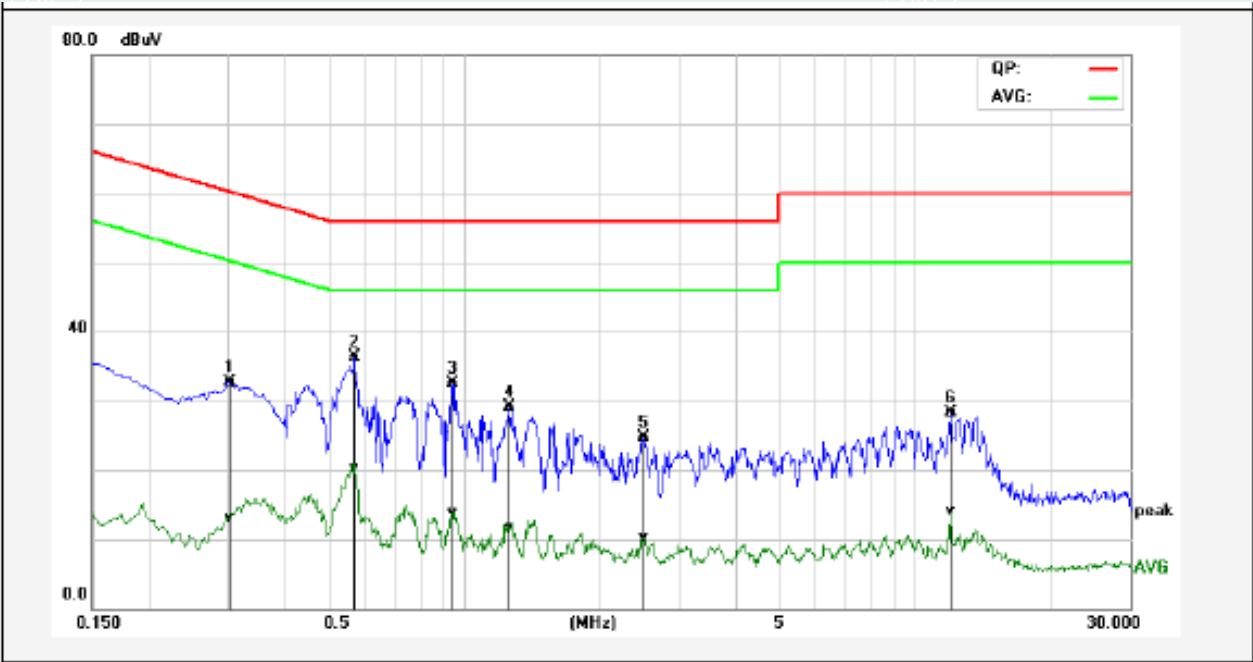
Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XXXX	32.69	25.65	11.52	44.21	37.17	65.78	55.79	-21.57	-18.62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

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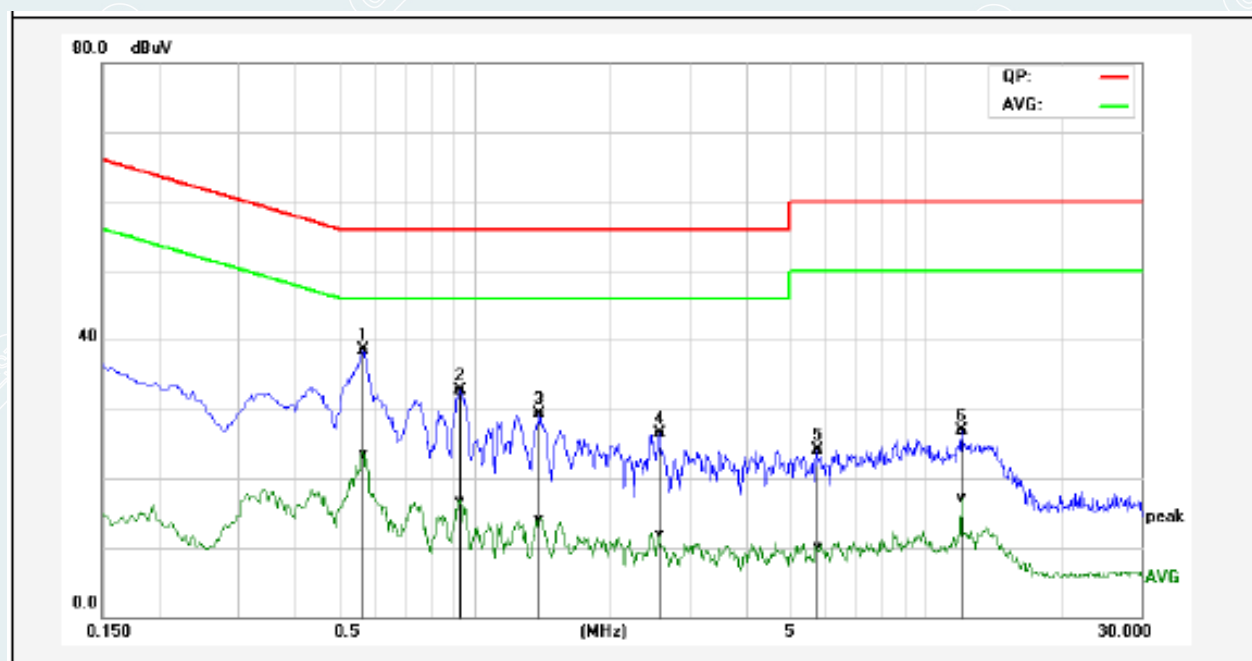
6.5 TEST RESULTS

EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	22.5°C/45%RH/101.0kPa	Test Mode	BLE 2402MHz
Tested By	Wang Xinyuan	Line	L1
Tested Date	2022-07-28	Test Voltage	AC120V/60Hz



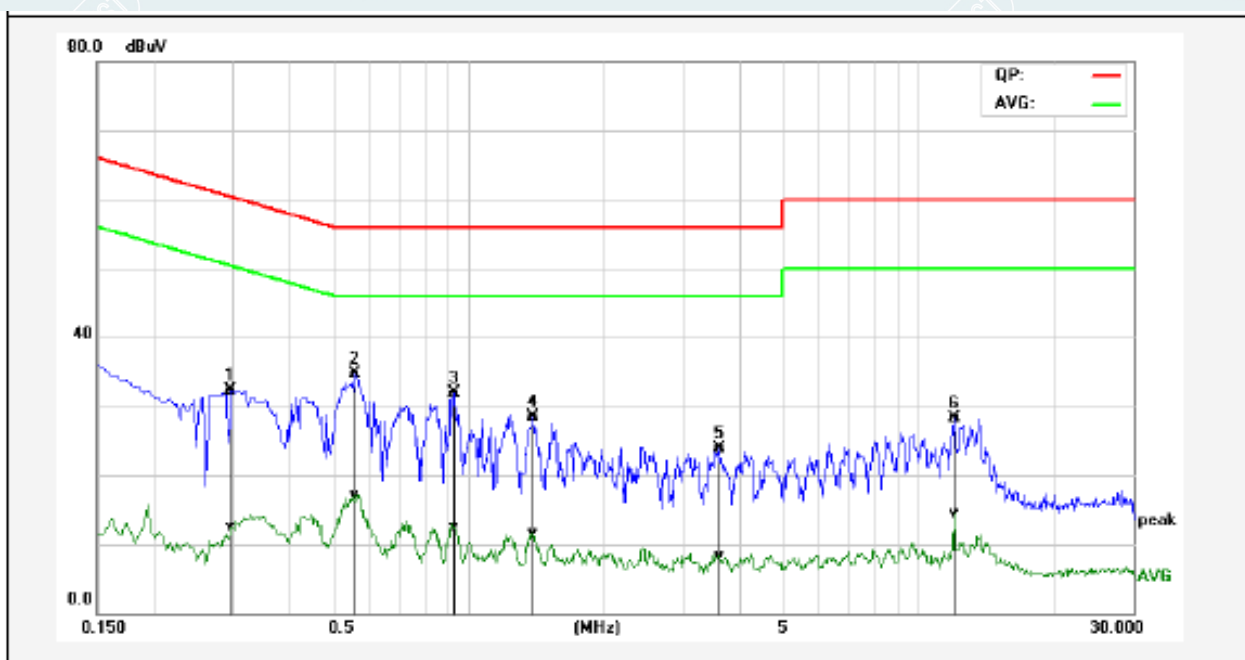
No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.3020	23.07	3.55	9.56	32.63	13.11	60.19	50.19	-27.56	-37.08	Pass
2*	0.5740	26.68	10.83	9.57	36.25	20.40	56.00	46.00	-19.75	-25.60	Pass
3	0.9460	22.85	4.27	9.59	32.44	13.86	56.00	46.00	-23.56	-32.14	Pass
4	1.2660	19.52	2.13	9.59	29.11	11.72	56.00	46.00	-26.89	-34.28	Pass
5	2.5020	15.06	0.67	9.61	24.67	10.28	56.00	46.00	-31.33	-35.72	Pass
6	12.0020	18.44	4.26	9.81	28.25	14.07	60.00	50.00	-31.75	-35.93	Pass

EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	22.5°C/45%RH/101.0kPa	Test Mode	BLE 2402MHz
Tested By	Wang Xinyuan	Line	N
Tested Date	2022-07-28	Test Voltage	AC120V/60Hz



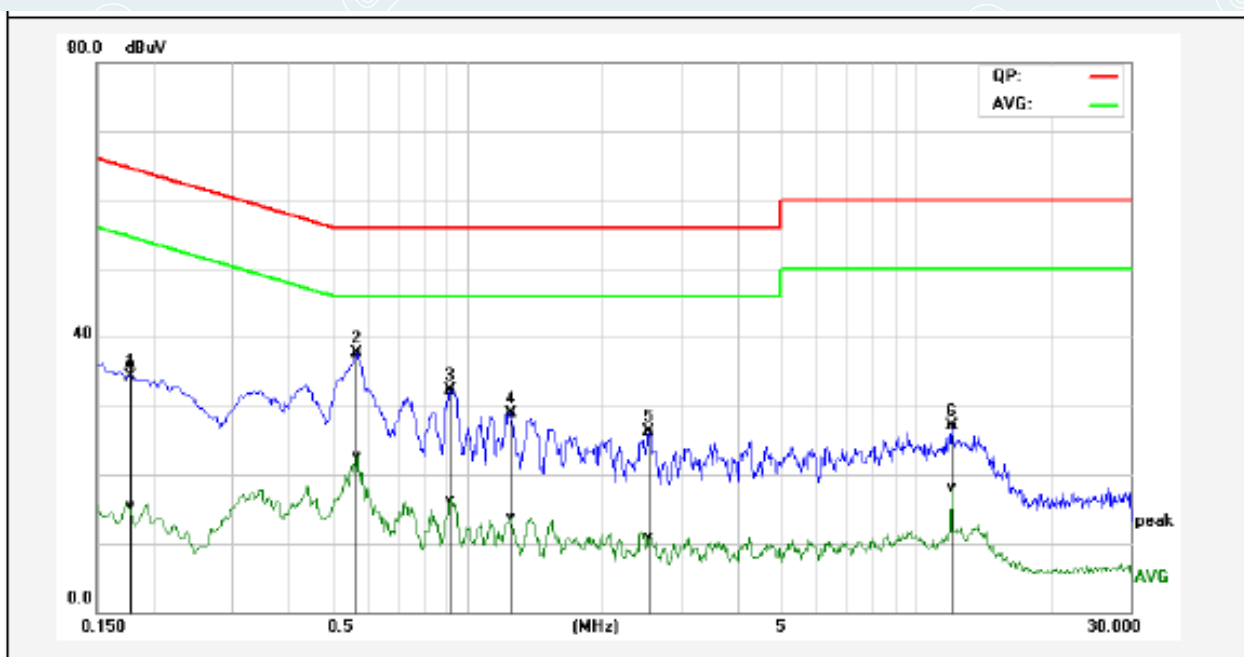
No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.5700	28.87	13.91	9.69	38.56	23.60	56.00	46.00	-17.44	-22.40	Pass
2	0.9380	23.13	7.10	9.64	32.77	16.74	56.00	46.00	-23.23	-29.26	Pass
3	1.3980	19.64	4.43	9.61	29.25	14.04	56.00	46.00	-26.75	-31.96	Pass
4	2.5700	16.86	2.28	9.60	26.46	11.88	56.00	46.00	-29.54	-34.12	Pass
5	5.7580	14.34	0.33	9.68	24.02	10.01	60.00	50.00	-35.98	-39.99	Pass
6	12.0020	17.01	7.29	9.84	26.85	17.13	60.00	50.00	-33.15	-32.87	Pass

EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	22.5°C/45%RH/101.0kPa	Test Mode	BLE 2440MHz
Tested By	Wang Xinyuan	Line	L1
Tested Date	2022-07-28	Test Voltage	AC120V/60Hz



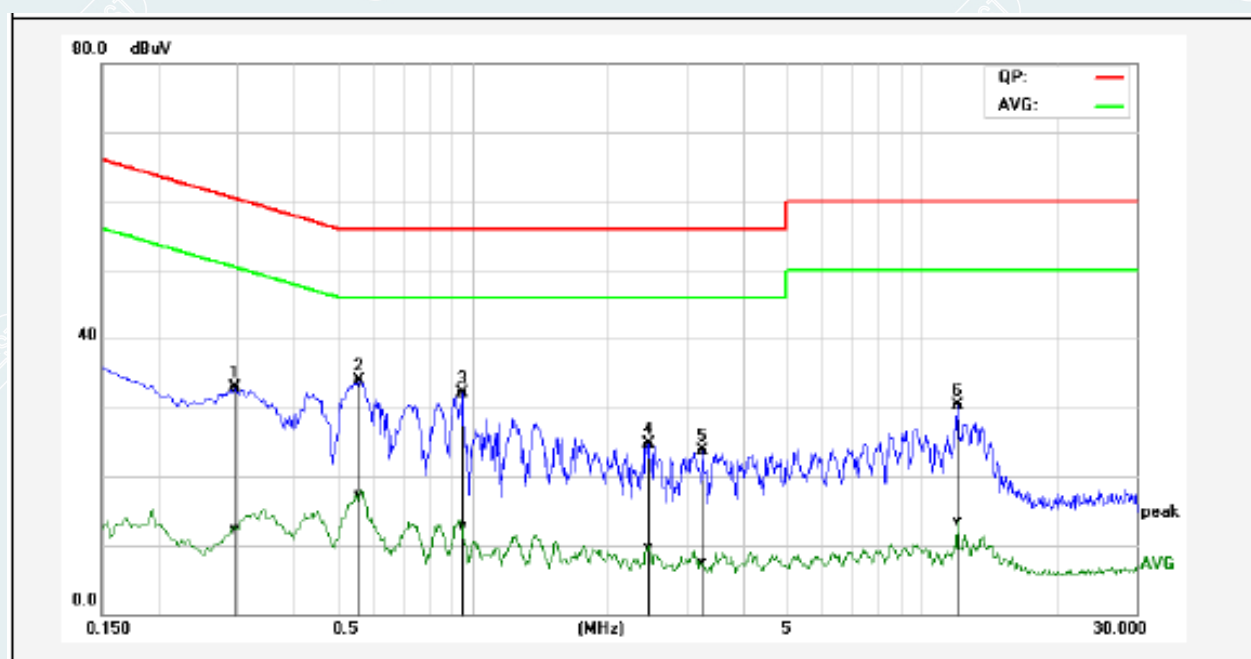
No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.2980	22.83	3.00	9.56	32.39	12.56	60.30	50.30	-27.91	-37.74	Pass
2*	0.5620	25.06	7.52	9.57	34.63	17.09	56.00	46.00	-21.37	-28.91	Pass
3	0.9380	22.30	3.00	9.59	31.89	12.59	56.00	46.00	-24.11	-33.41	Pass
4	1.3980	18.96	2.09	9.59	28.55	11.68	56.00	46.00	-27.45	-34.32	Pass
5	3.6220	14.17	-1.40	9.64	23.81	8.24	56.00	46.00	-32.19	-37.76	Pass
6	12.0020	18.49	4.73	9.81	28.30	14.54	60.00	50.00	-31.70	-35.46	Pass

EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	22.5°C/45%RH/101.0kPa	Test Mode	BLE 2440MHz
Tested By	Wang Xinyuan	Line	N
Tested Date	2022-07-28	Test Voltage	AC120V/60Hz



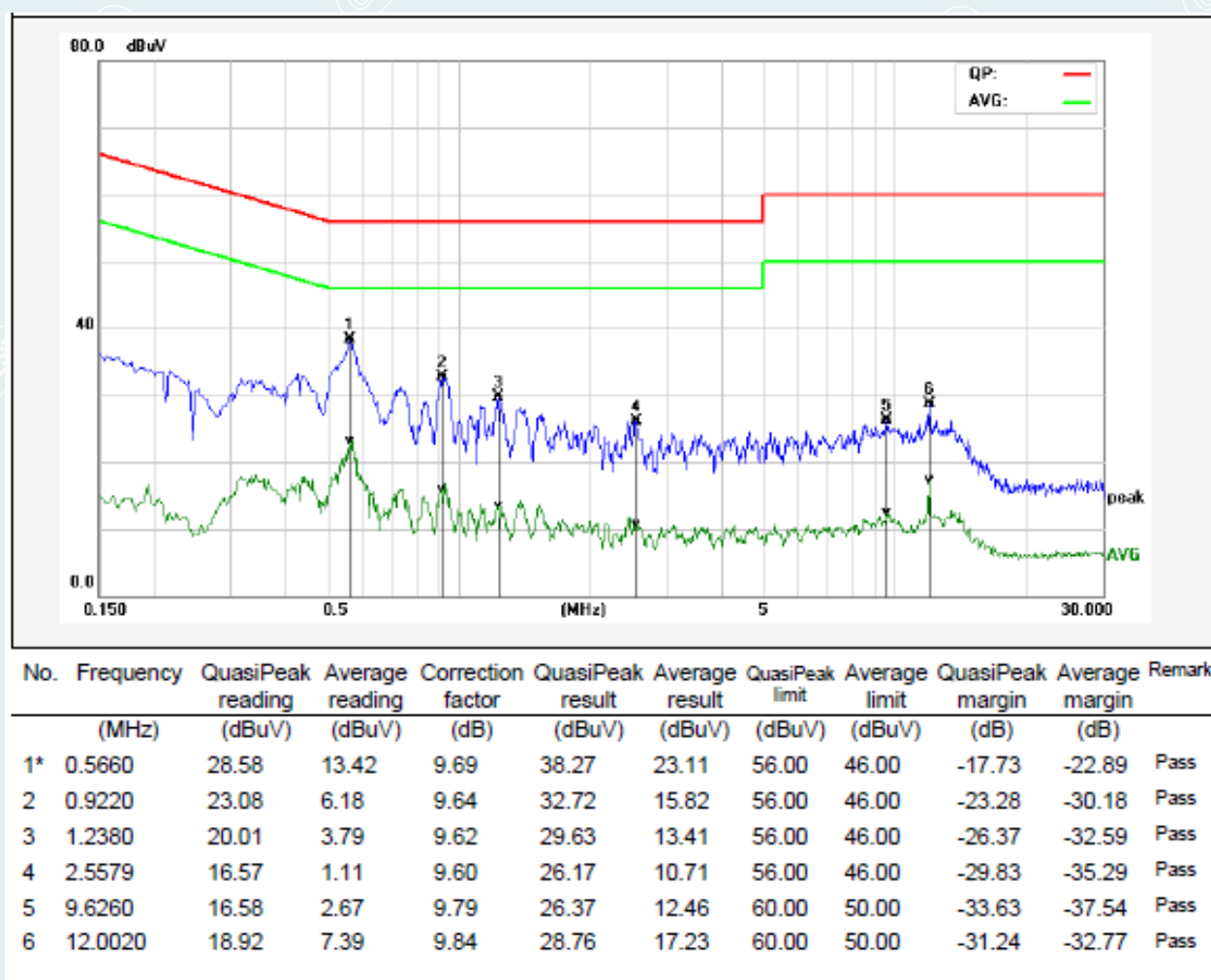
No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1796	26.53	5.88	9.54	36.07	15.42	64.50	54.50	-28.43	-39.08	Pass
2*	0.5700	28.09	13.08	9.69	37.78	22.77	56.00	46.00	-18.22	-23.23	Pass
3	0.9220	22.68	6.59	9.64	32.32	16.23	56.00	46.00	-23.68	-29.77	Pass
4	1.2540	19.21	4.04	9.62	28.83	13.66	56.00	46.00	-27.17	-32.34	Pass
5	2.5420	16.68	1.37	9.60	26.28	10.97	56.00	46.00	-29.72	-35.03	Pass
6	12.0020	17.33	8.36	9.84	27.17	18.20	60.00	50.00	-32.83	-31.80	Pass

EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	22.5°C/45%RH/101.0kPa	Test Mode	BLE 2480MHz
Tested By	Wang Xinyuan	Line	L1
Tested Date	2022-07-28	Test Voltage	AC120V/60Hz



No.	Frequency (MHz)	QuasiPeak reading (dBμV)	Average reading (dBμV)	Correction factor (dB)	QuasiPeak result (dBμV)	Average result (dBμV)	QuasiPeak limit (dBμV)	Average limit (dBμV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.2980	23.36	2.83	9.56	32.92	12.39	60.30	50.30	-27.38	-37.91	Pass
2*	0.5620	24.32	7.72	9.57	33.89	17.29	56.00	46.00	-22.11	-28.71	Pass
3	0.9500	22.45	3.19	9.59	32.04	12.78	56.00	46.00	-23.96	-33.22	Pass
4	2.4660	15.15	0.05	9.61	24.76	9.66	56.00	46.00	-31.24	-36.34	Pass
5	3.2740	14.13	-2.12	9.63	23.76	7.51	56.00	46.00	-32.24	-38.49	Pass
6	12.0020	20.40	3.66	9.81	30.21	13.47	60.00	50.00	-29.79	-36.53	Pass

EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	22.5°C/45%RH/101.0kPa	Test Mode	BLE 2480MHz
Tested By	Wang Xinyuan	Line	N
Tested Date	2022-07-28	Test Voltage	AC120V/60Hz



7. RADIATED SPURIOUS EMISSIONS

7.1 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 $\mu\text{V/m}$).

7.2 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 ° to 360 °) and by rotating the elevation axes (0 ° to 360 °).

--- 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 ° to 360 °.

--- 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 ° to 360 ° 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 10 Hz. If the EUT duty cycle is $< 98\%$, set $VBW \geq 1/T$, Where T is defined in section 2.9.

7.3 TEST SETUP

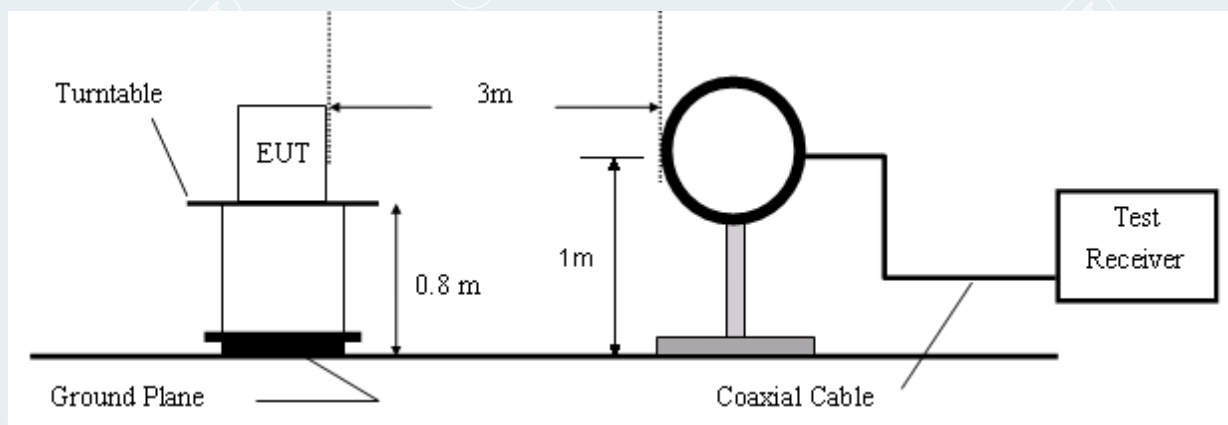


Figure 1. 9kHz to 30MHz radiated emissions test configuration

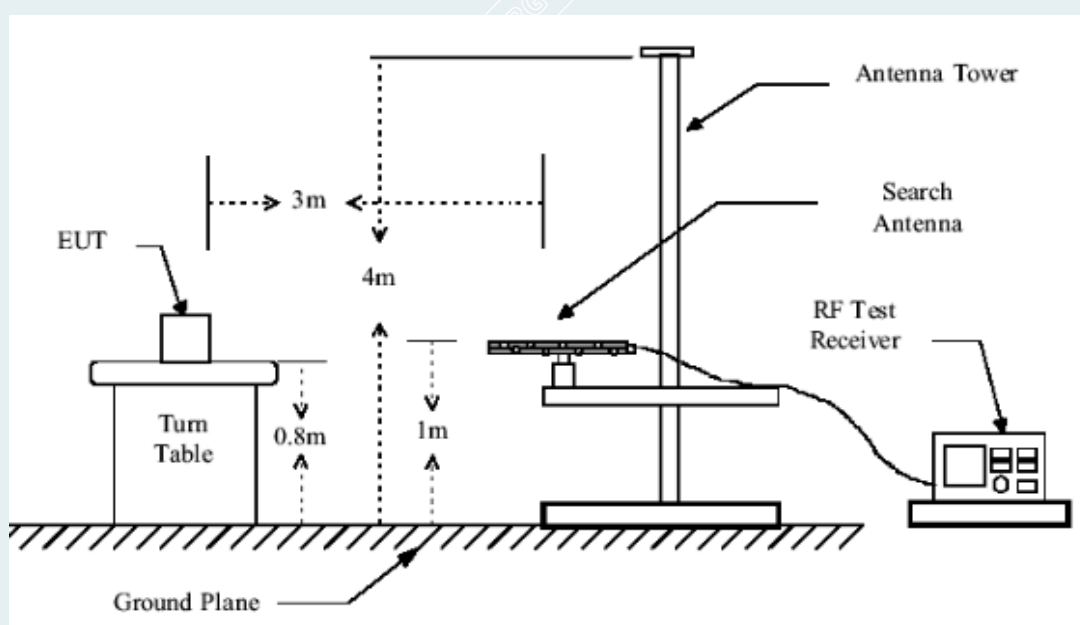


Figure 2. 30MHz to 1GHz radiated emissions test configuration

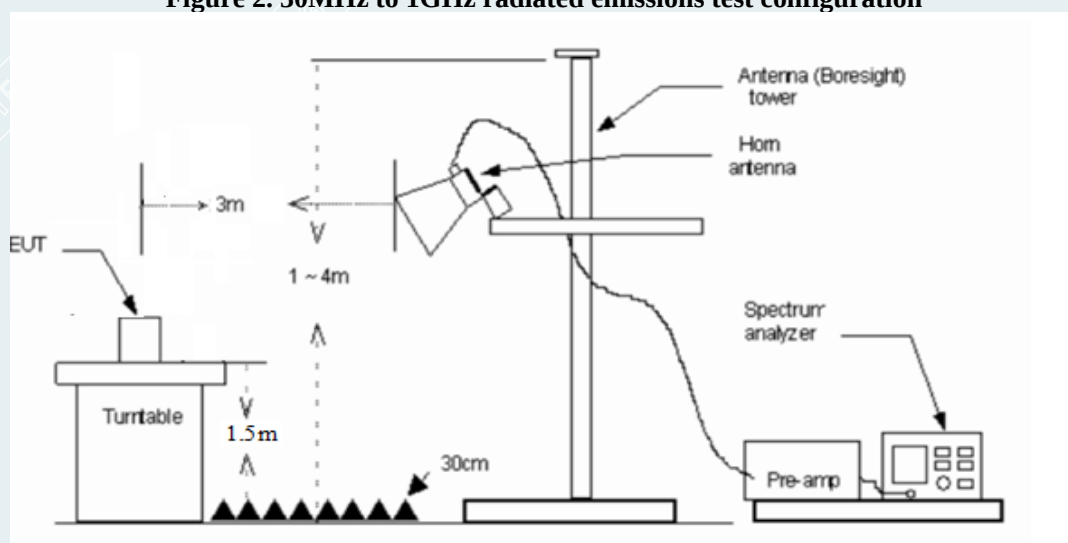


Figure 3. 1GHz to 18GHz radiated emissions test configuration

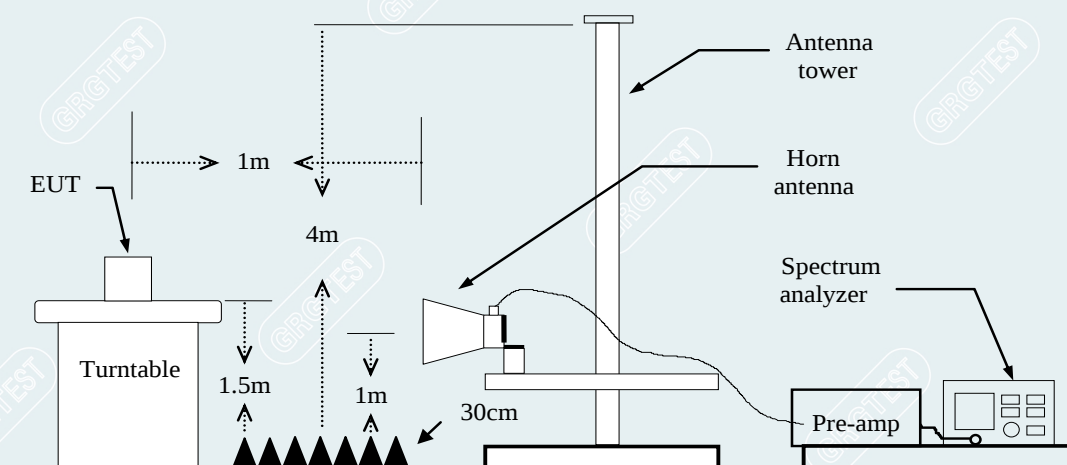


Figure 4. 18GHz to 26.5GHz radiated emissions test configuration

7.4 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

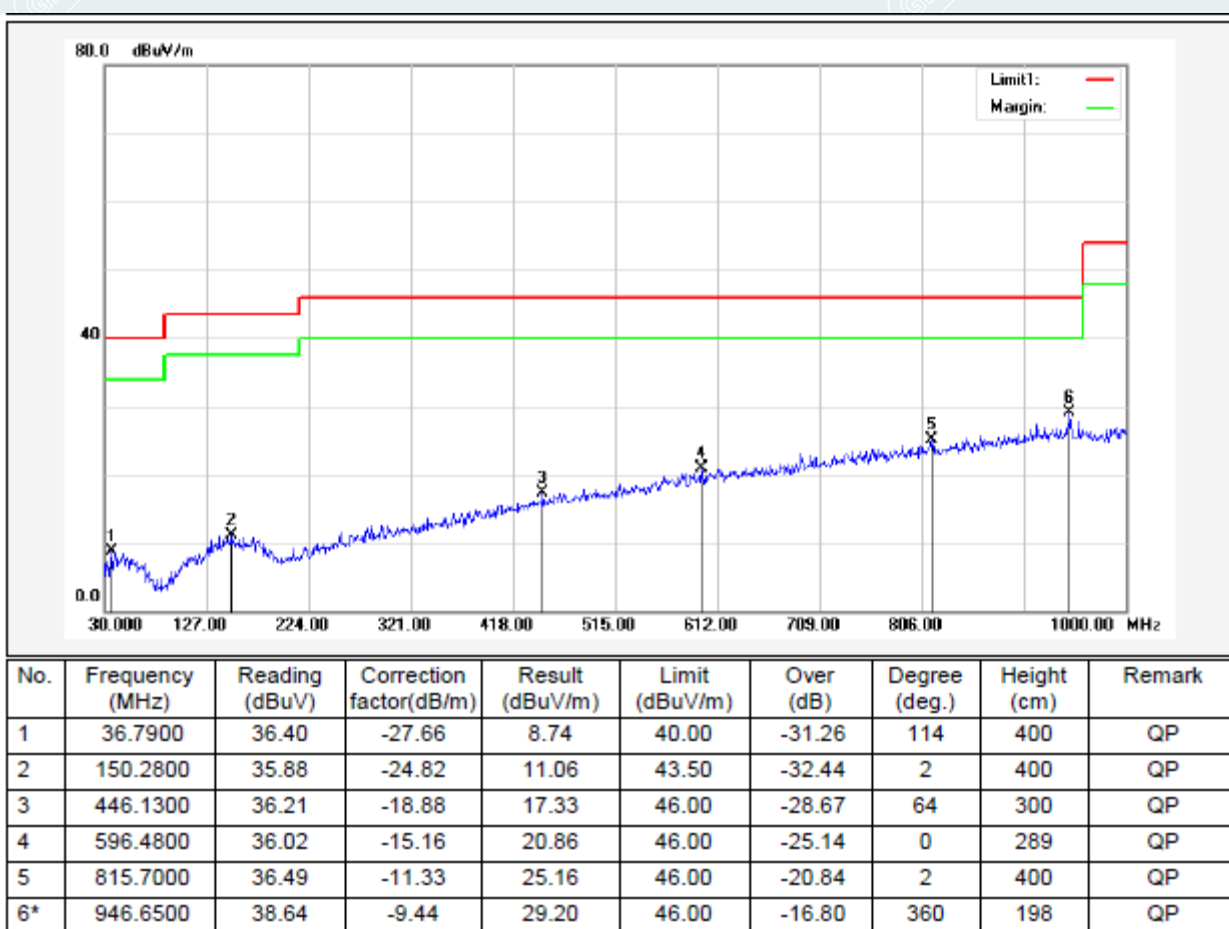
QP = Quasi-peak Reading

AVG = Average Reading

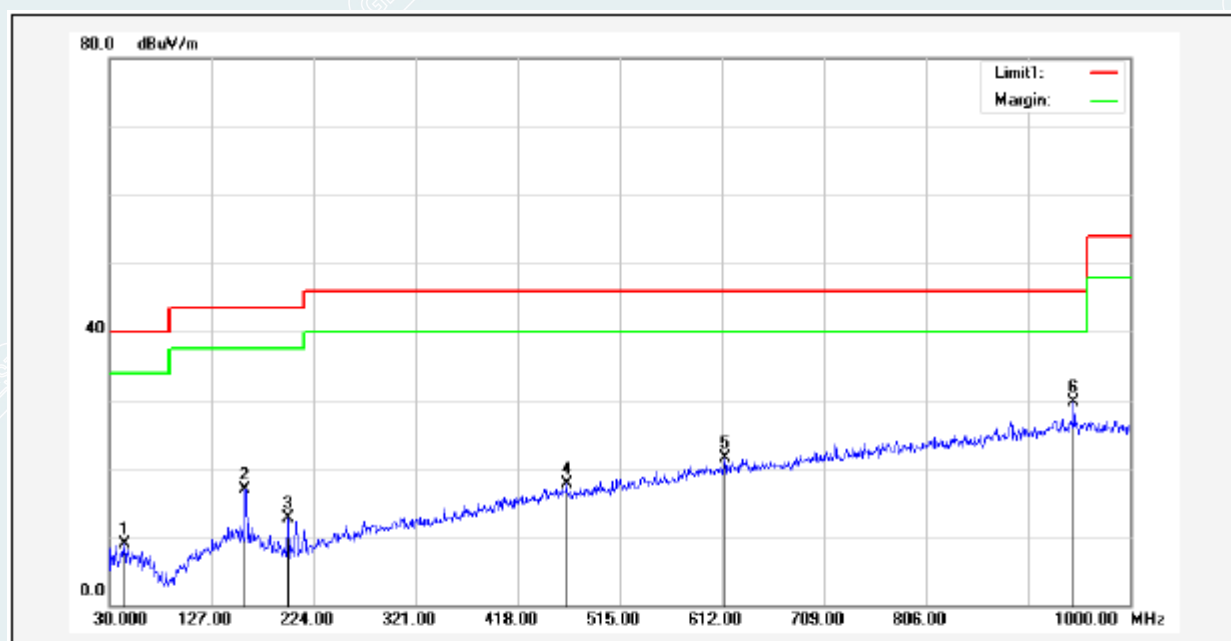
7.5 TEST RESULTS

Below 1GHz

EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	25.1°C/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_1M (2402MHz)	Polarity	Vertical
Tested By	Tang Shenghui	Tested Date	2022-07-26

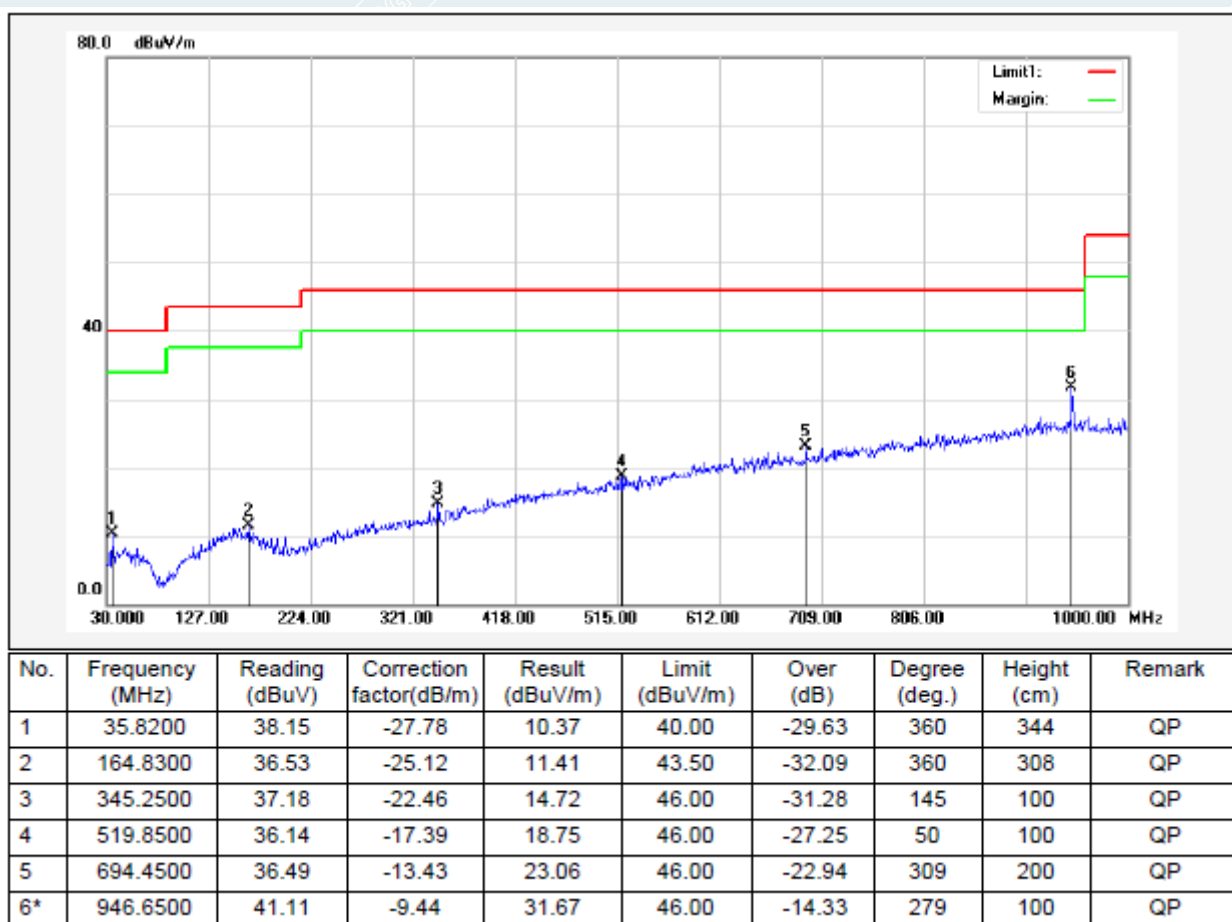


EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	25.1°C/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_1M (2402MHz)	Polarity	Horizontal
Tested By	Tang Shenghui	Tested Date	2022-07-26

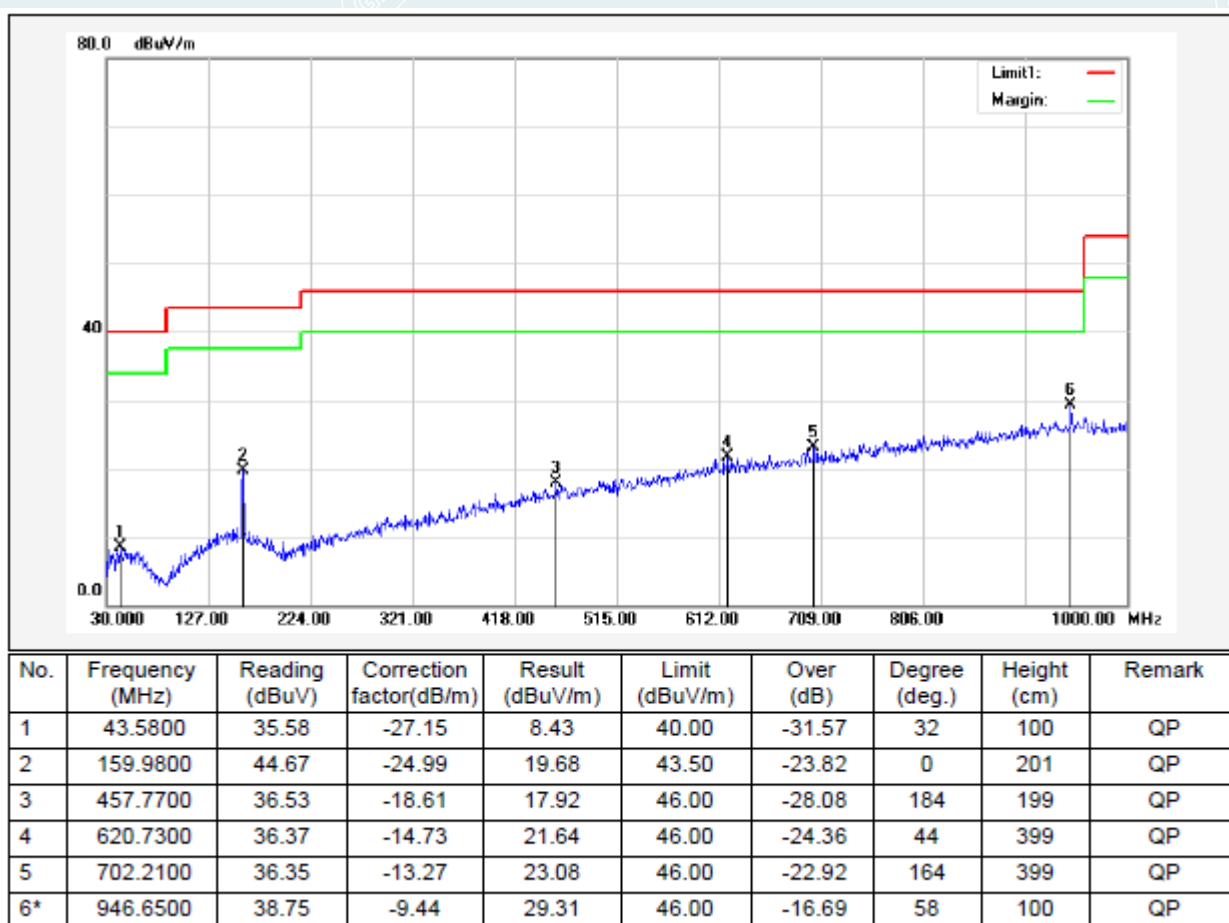


No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	44.5500	35.93	-27.11	8.82	40.00	-31.18	75	399	QP
2	159.0100	41.91	-24.97	16.94	43.50	-26.56	163	300	QP
3	199.7500	40.33	-27.72	12.61	43.50	-30.89	282	100	QP
4	464.5600	36.22	-18.49	17.73	46.00	-28.27	74	100	QP
5	614.9100	36.25	-14.82	21.43	46.00	-24.57	219	300	QP
6*	946.6500	39.10	-9.44	29.66	46.00	-16.34	183	100	QP

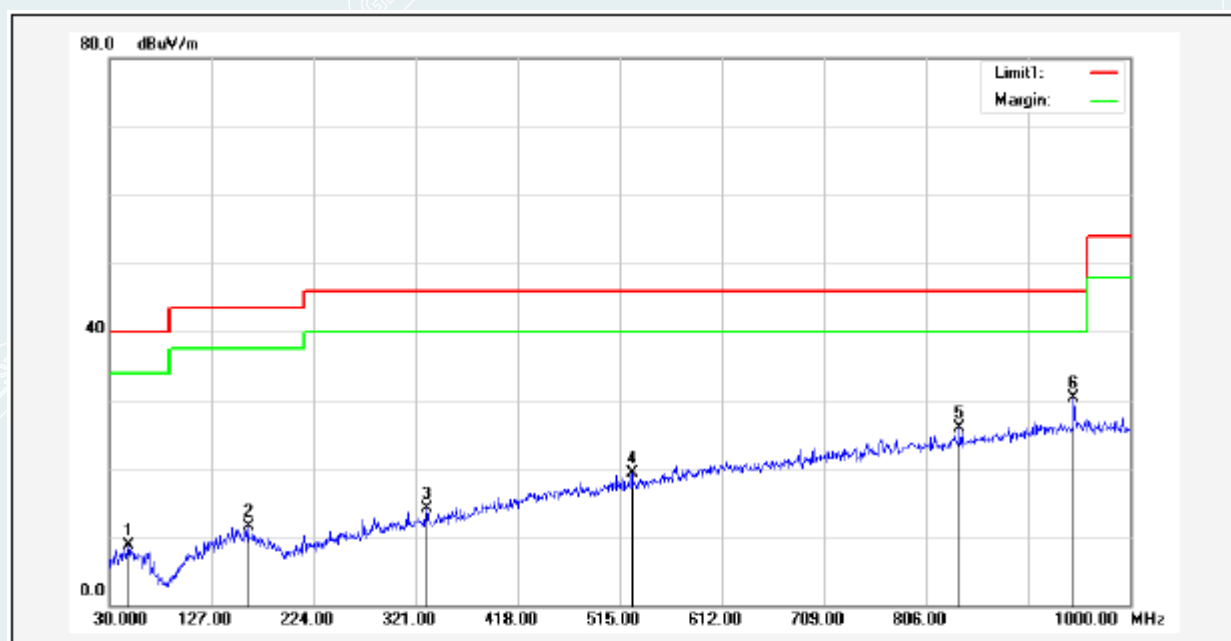
EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	25.1°C/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_1M (2440MHz)	Polarity	Vertical
Tested By	Tang Shenghui	Tested Date	2022-07-26



EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	25.1°C/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_1M (2440MHz)	Polarity	Horizontal
Tested By	Tang Shenghui	Tested Date	2022-07-26

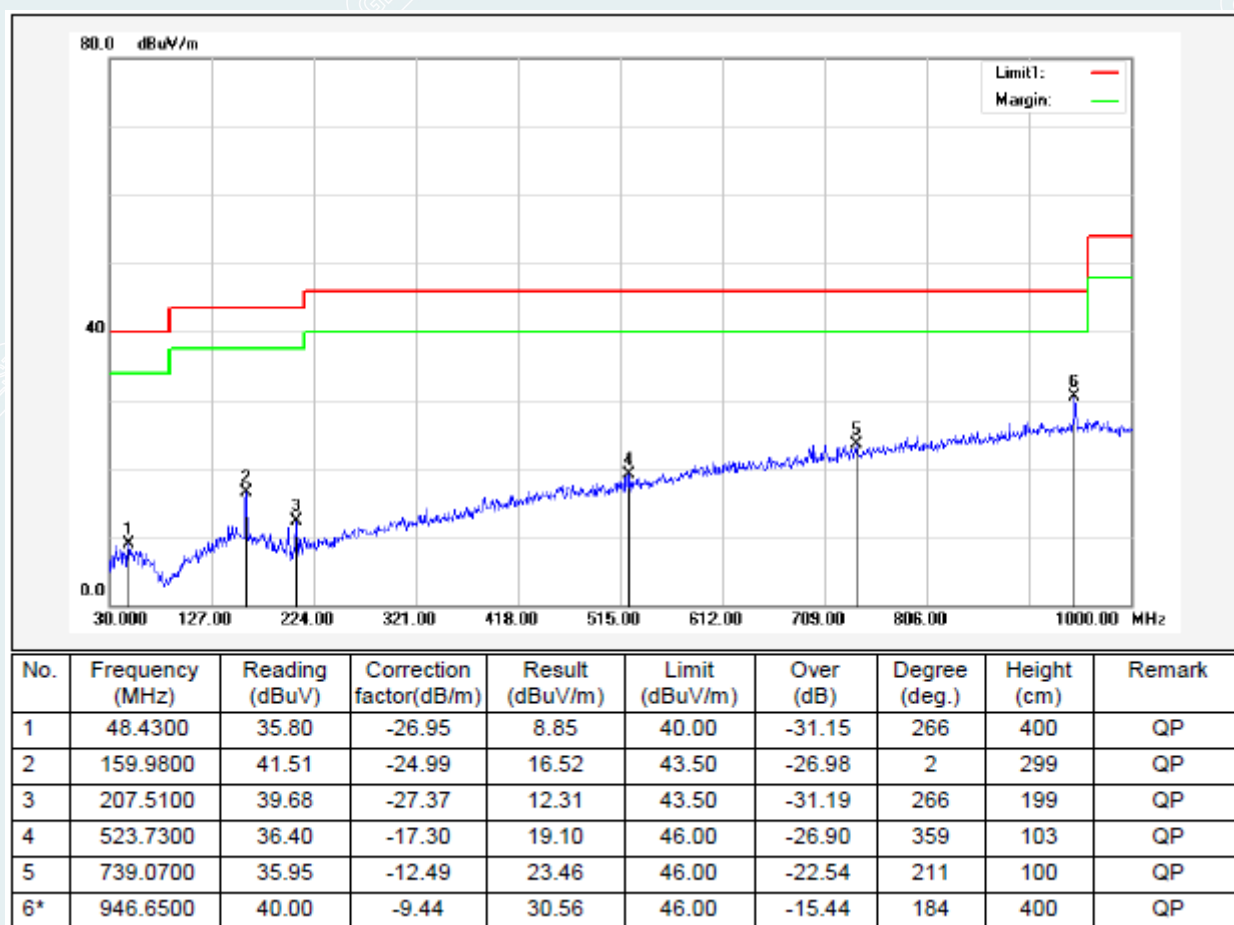


EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	25.1°C/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_1M (2480MHz)	Polarity	Vertical
Tested By	Tang Shenghui	Tested Date	2022-07-26

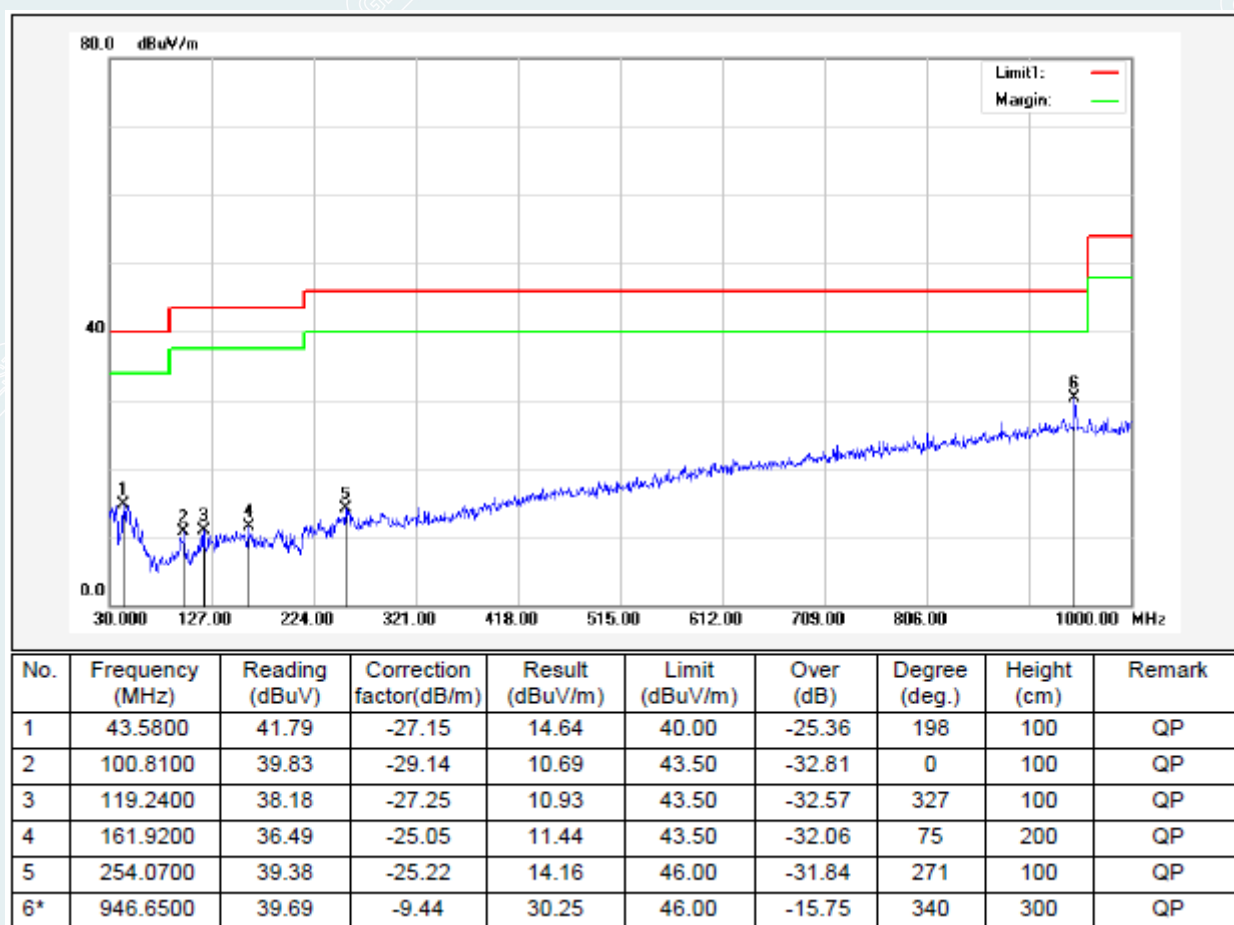


No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	48.4300	35.59	-26.95	8.64	40.00	-31.36	233	200	QP
2	161.9200	36.48	-25.05	11.43	43.50	-32.07	197	100	QP
3	331.6700	36.79	-22.78	14.01	46.00	-31.99	356	100	QP
4	526.6400	36.45	-17.23	19.22	46.00	-26.78	360	396	QP
5	838.0100	37.00	-11.07	25.93	46.00	-20.07	0	201	QP
6*	946.6500	39.74	-9.44	30.30	46.00	-15.70	0	240	QP

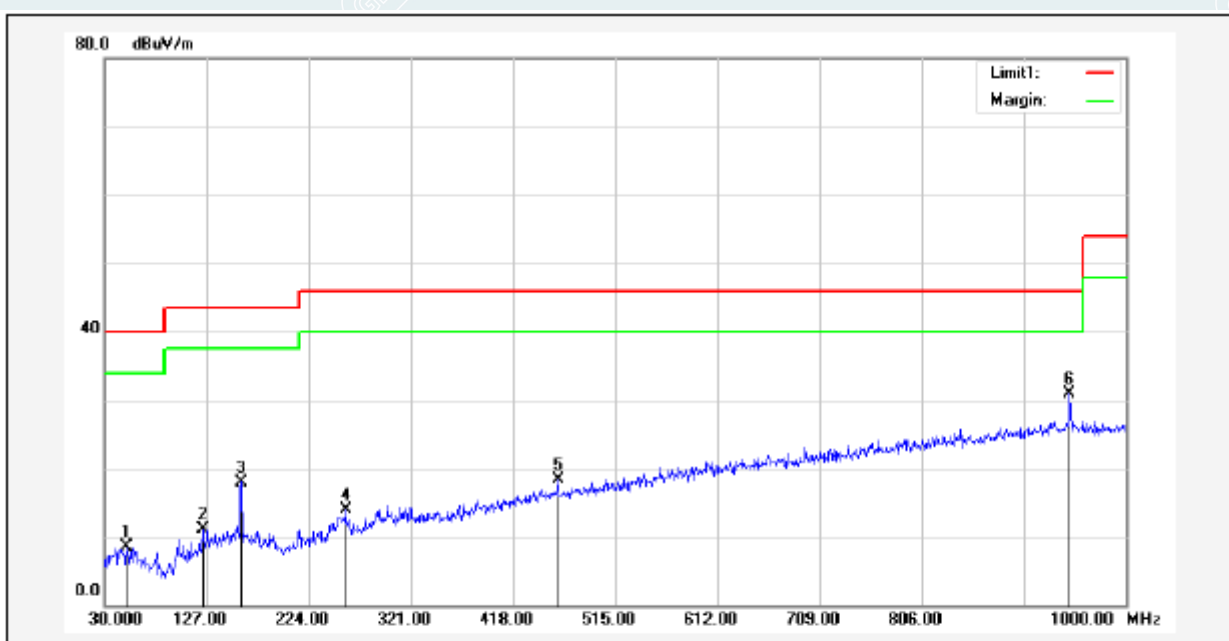
EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	25.1℃/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_1M (2480MHz)	Polarity	Horizontal
Tested By	Tang Shenghui	Tested Date	2022-07-26



EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	25.1℃/57%RH/101.0kPa	Test Voltage	AC 120V/60Hz
Test Mode	TX/ BLE_1M (2402MHz)	Polarity	Vertical
Tested By	Tang Shenghui	Tested Date	2022-07-26

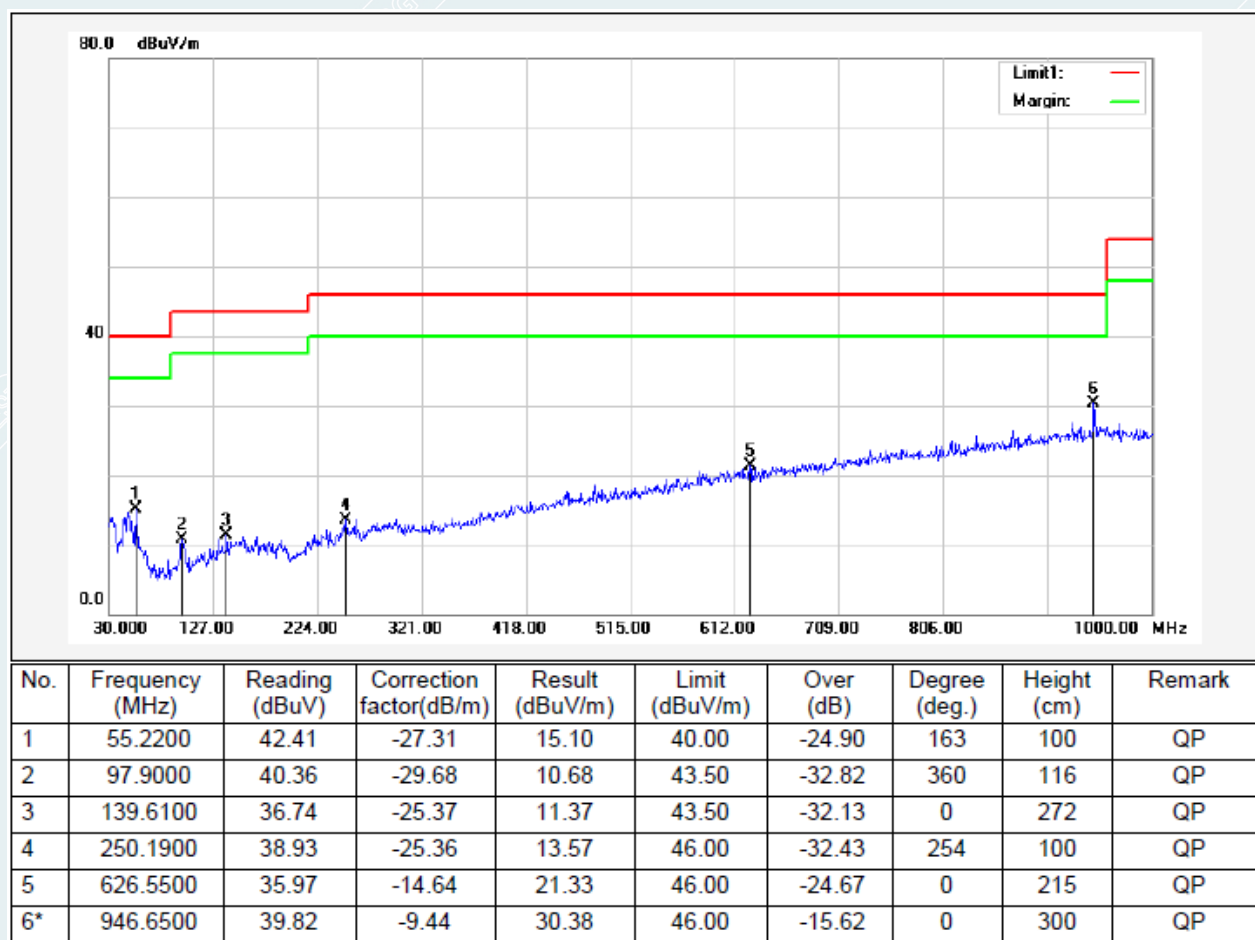


EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	25.1℃/57%RH/101.0kPa	Test Voltage	AC 120V/60Hz
Test Mode	TX/ BLE_1M (2402MHz)	Polarity	Horizontal
Tested By	Tang Shenghui	Tested Date	2022-07-26

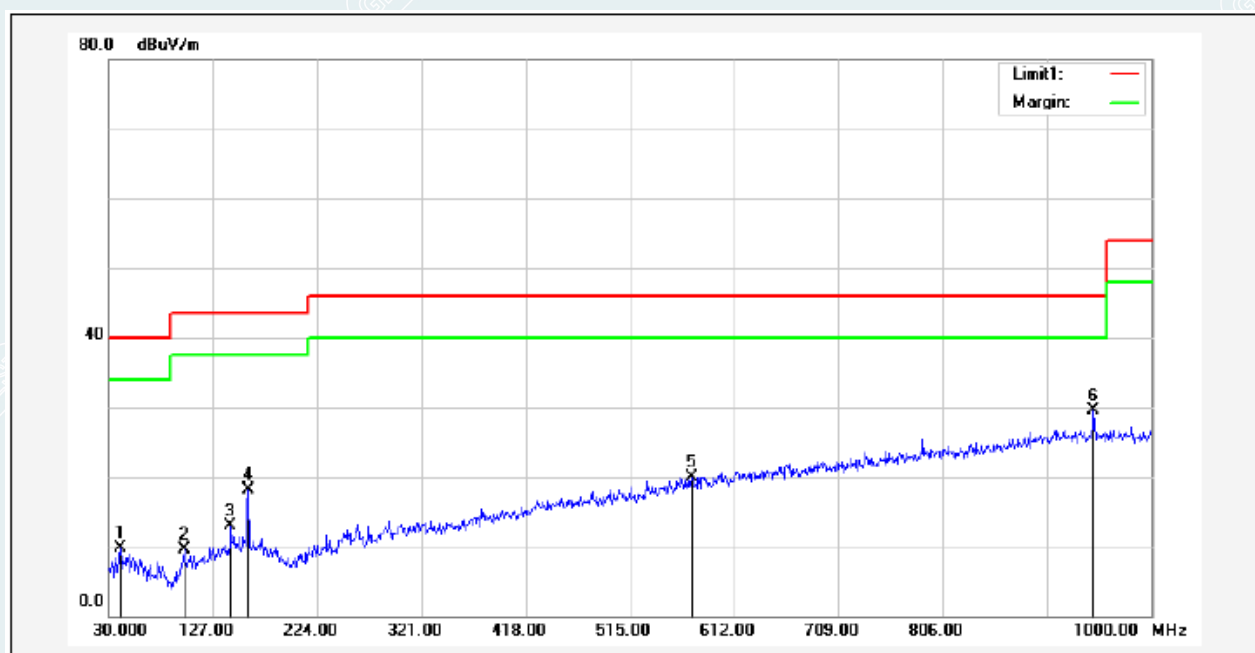


No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	51.3400	35.52	-26.99	8.53	40.00	-31.47	84	200	QP
2	123.1200	37.98	-26.87	11.11	43.50	-32.39	2	100	QP
3	159.9800	42.99	-24.99	18.00	43.50	-25.50	24	200	QP
4	258.9200	39.03	-25.04	13.99	46.00	-32.01	41	100	QP
5	460.6800	36.84	-18.57	18.27	46.00	-27.73	314	200	QP
6*	946.6500	40.36	-9.44	30.92	46.00	-15.08	93	399	QP

EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	25.1℃/57%RH/101.0kPa	Test Voltage	AC 120V/60Hz
Test Mode	TX/ BLE_1M (2440MHz)	Polarity	Vertical
Tested By	Tang Shenghui	Tested Date	2022-07-26

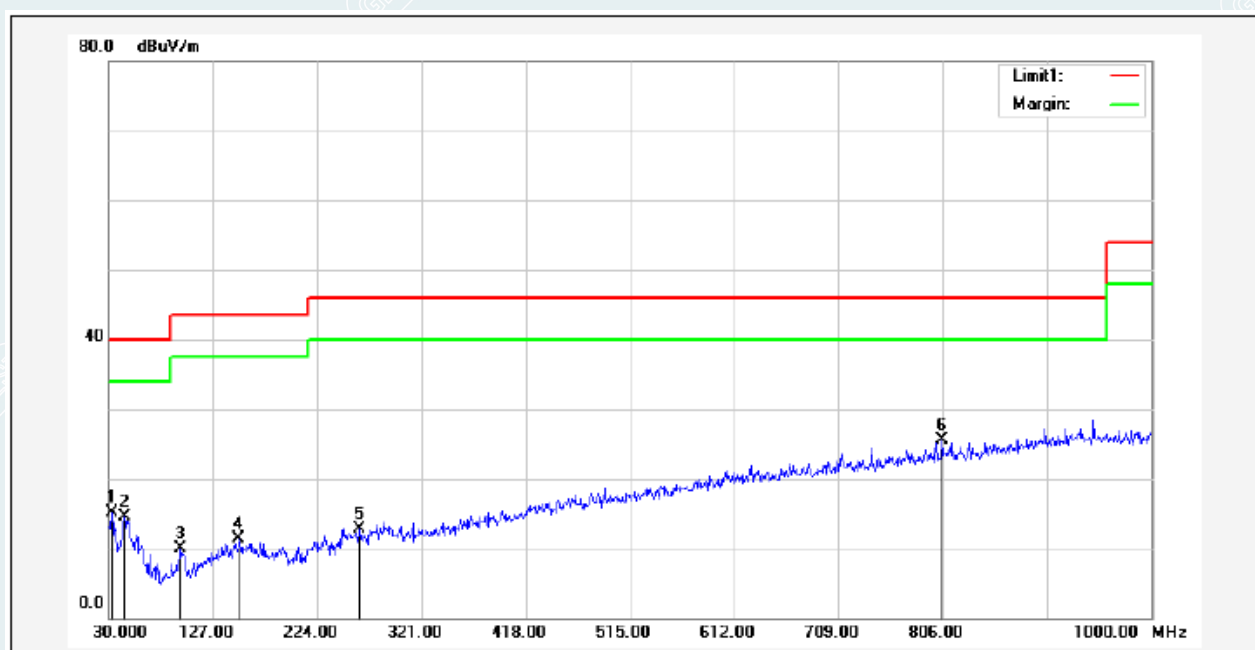


EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	25.1°C/57%RH/101.0kPa	Test Voltage	AC 120V/60Hz
Test Mode	TX/ BLE_1M (2440MHz)	Polarity	Horizontal
Tested By	Tang Shenghui	Tested Date	2022-07-26



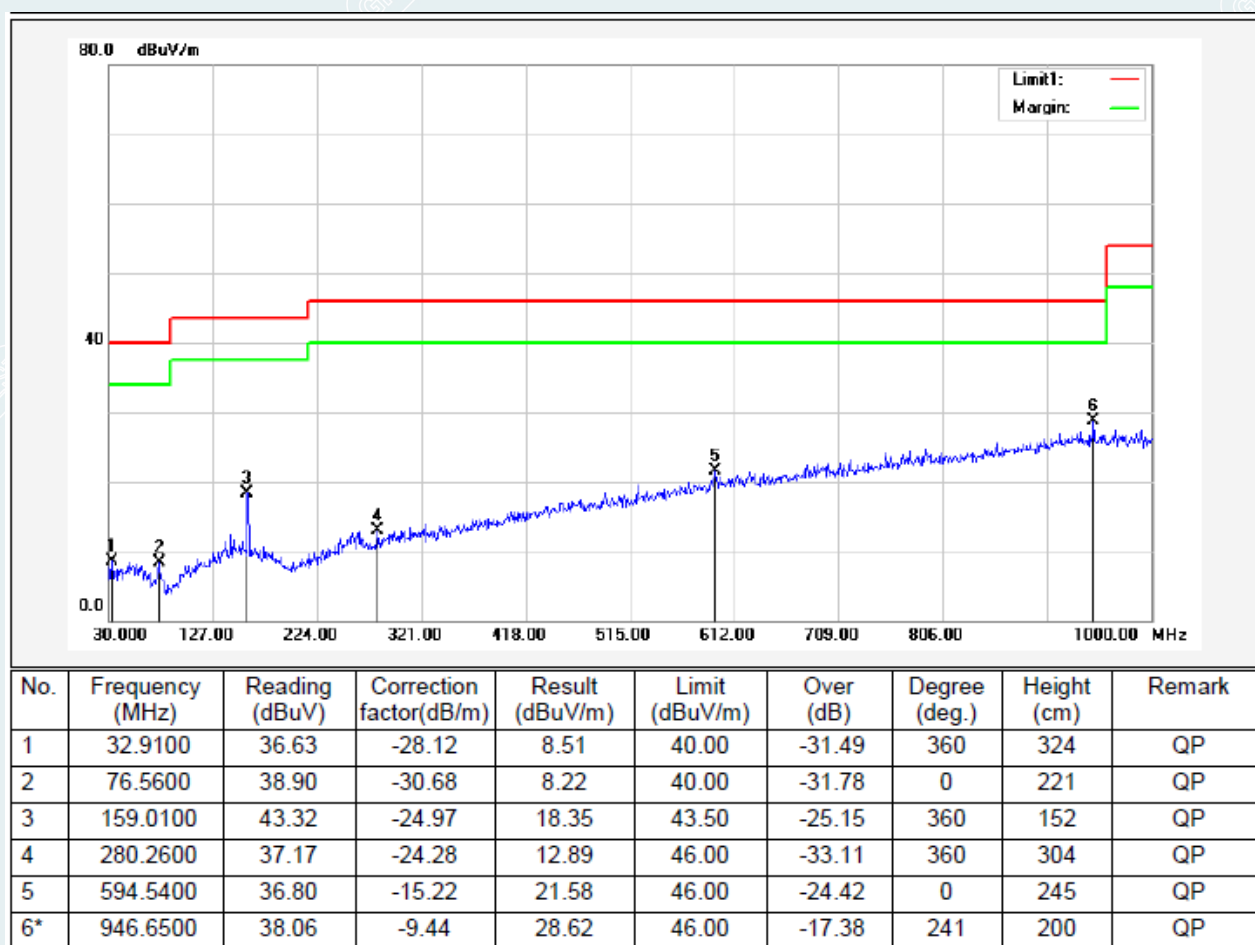
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	40.6700	37.04	-27.27	9.77	40.00	-30.23	45	399	QP
2	99.8400	38.79	-29.28	9.51	43.50	-33.99	187	299	QP
3	143.4900	38.06	-25.15	12.91	43.50	-30.59	0	201	QP
4	159.9800	43.16	-24.99	18.17	43.50	-25.33	358	200	QP
5	572.2300	35.82	-15.92	19.90	46.00	-26.10	0	202	QP
6*	946.6500	38.98	-9.44	29.54	46.00	-16.46	154	200	QP

EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	25.1°C/57%RH/101.0kPa	Test Voltage	AC 120V/60Hz
Test Mode	TX/ BLE_1M (2480MHz)	Polarity	Vertical
Tested By	Tang Shenghui	Tested Date	2022-07-26



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	43.25	-28.12	15.13	40.00	-24.87	97	100	QP
2	44.5500	41.63	-27.11	14.52	40.00	-25.48	119	100	QP
3	96.9300	39.77	-29.87	9.90	43.50	-33.60	271	199	QP
4	151.2500	36.17	-24.84	11.33	43.50	-32.17	3	199	QP
5	263.7700	37.65	-24.86	12.79	46.00	-33.21	166	100	QP
6*	805.0300	36.92	-11.46	25.46	46.00	-20.54	244	100	QP

EUT Name	Yunmai Smart Scale3	Model	YMBS-S282
Environmental Conditions	25.1°C/57%RH/101.0kPa	Test Voltage	AC 120V/60Hz
Test Mode	TX/ BLE_1M (2480MHz)	Polarity	Horizontal
Tested By	Tang Shenghui	Tested Date	2022-07-26

**Remark:**

- 1 No emission found between lowest internal used/generated frequency to 30MHz.
- 2 Radiated emissions measured in frequency range from 9kHz to 1GHz were made with an instrument using Quasi-peak detector mode.
- 3 The IF bandwidth of Receiver between 30MHz to 1GHz was 120kHz.

1GHz-18 GHz:

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: 23.5°C/55%RH/101.0kPa

Tested By: Zhang Zishan

Voltage: AC120V/60Hz

Date: 2022-07-27

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1295.0369	59.14	36.95	-22.19	74.00	37.05	200	136	Horizontal
2	2529.1911	59.00	41.08	-17.92	74.00	32.92	100	193	Horizontal
3	4335.1669	59.48	45.43	-14.05	74.00	28.57	200	350	Horizontal
4	8074.3843	49.37	46.45	-2.92	74.00	27.55	100	210	Horizontal
5	12173.6467	45.40	50.22	4.82	74.00	23.78	200	156	Horizontal
6	17953.1191	41.68	53.58	11.90	74.00	20.42	200	21	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	1351.5439	58.12	36.55	-21.57	74.00	37.45	200	27	Vertical
2	4331.4164	61.38	47.58	-13.80	74.00	26.42	100	240	Vertical
3	4802.1003	59.07	46.14	-12.93	74.00	27.86	100	263	Vertical
4	7194.8994	49.88	46.36	-3.52	74.00	27.64	200	351	Vertical
5	9435.8045	48.42	49.38	0.96	74.00	24.62	200	221	Vertical
6	17975.622	41.30	55.97	14.67	74.00	18.03	200	162	Vertical

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

Mode: TX/ BLE_1M
Middle Frequency (2440MHz)
Environment: 23.5℃/55%RH/101.0kPa
Tested By: Zhang Zishan

Voltage: AC120V/60Hz
Date: 2022-07-27

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1255.782	58.52	36.51	-22.01	74.00	37.49	100	324	Horizontal
2	2214.1518	57.75	39.74	-18.01	74.00	34.26	200	273	Horizontal
3	4333.2917	58.30	44.22	-14.08	74.00	29.78	100	99	Horizontal
4	4878.9849	55.16	43.03	-12.13	74.00	30.97	200	174	Horizontal
5	12040.5051	45.29	49.76	4.47	74.00	24.24	100	298	Horizontal
6	17941.8677	41.63	53.29	11.66	74.00	20.71	200	162	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	1385.7982	58.42	36.96	-21.46	74.00	37.04	100	110	Vertical
2	4337.0421	59.69	45.94	-13.75	74.00	28.06	100	269	Vertical
3	4878.9849	58.33	46.23	-12.10	74.00	27.77	100	263	Vertical
4	10845.9807	46.52	49.46	2.94	74.00	24.54	100	221	Vertical
5	14770.8464	42.71	50.39	7.68	74.00	23.61	200	274	Vertical
6	17966.2458	41.41	55.94	14.53	74.00	18.06	100	144	Vertical

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

Mode: TX/ BLE_1M

Highest Frequency (2480MHz)

Environment: 23.5°C/55%RH/101.0kPa

Tested By: Zhang Zishan

Voltage: AC120V/60Hz

Date: 2022-07-27

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1298.5373	58.95	36.75	-22.20	74.00	37.25	200	139	Horizontal
2	2211.9015	57.80	39.82	-17.98	74.00	34.18	200	52	Horizontal
3	4333.2917	60.73	46.65	-14.08	74.00	27.35	200	350	Horizontal
4	8123.1404	49.79	46.77	-3.02	74.00	27.23	200	0	Horizontal
5	14489.5612	44.20	50.86	6.66	74.00	23.14	200	120	Horizontal
6	17992.4991	41.55	53.74	12.19	74.00	20.26	200	350	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	2203.9005	57.77	38.86	-18.91	74.00	35.14	200	46	Vertical
2	4333.2917	61.96	48.18	-13.78	74.00	25.82	100	239	Vertical
3	4959.62	58.29	47.34	-10.95	74.00	26.66	100	273	Vertical
4	11031.629	45.91	49.76	3.85	74.00	24.24	200	351	Vertical
5	14753.9692	43.23	51.12	7.89	74.00	22.88	200	286	Vertical
6	17956.8696	41.88	56.27	14.39	74.00	17.73	200	115	Vertical

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- 3 Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 4 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.

18GHz to 26.5GHz

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: 23.5°C/55%RH/101.0kPa

Tested By: Zhang Zishan

Voltage: AC120V/60Hz

Date: 2022-07-27

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18410.125	54.73	42.45	-12.28	83.54	41.09	150	76	Horizontal
2	20341.325	53.56	42.87	-10.69	83.54	40.67	150	151	Horizontal
3	20938.875	53.43	43.29	-10.14	83.54	40.25	150	56	Horizontal
4	23289.125	52.24	43.52	-8.72	83.54	40.02	150	180	Horizontal
5	23880.725	51.14	42.61	-8.53	83.54	40.93	150	86	Horizontal
6	24893.075	50.56	43.16	-7.40	83.54	40.38	150	10	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	18176.8	54.34	41.93	-12.41	83.54	41.61	150	218	Vertical
2	20269.075	53.60	42.91	-10.69	83.54	40.63	150	236	Vertical
3	21527.075	53.57	43.84	-9.73	83.54	39.70	150	142	Vertical
4	22876.875	52.19	43.50	-8.69	83.54	40.04	150	47	Vertical
5	23301.45	51.49	42.87	-8.62	83.54	40.67	150	76	Vertical
6	25479.15	50.07	42.72	-7.35	83.54	40.82	150	199	Vertical

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

Mode: TX/ BLE_1M
Middle Frequency (2440MHz)
Environment: 23.5℃/55%RH/101.0kPa
Tested By: Zhang Zishan

Voltage: AC120V/60Hz
Date: 2022-07-27

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19010.65	54.52	42.73	-11.79	83.54	40.81	150	209	Horizontal
2	20396.575	53.65	43.04	-10.61	83.54	40.50	150	266	Horizontal
3	22676.275	51.99	43.10	-8.89	83.54	40.44	150	124	Horizontal
4	23922.8	51.19	42.68	-8.51	83.54	40.86	150	284	Horizontal
5	25290.025	50.53	43.35	-7.18	83.54	40.19	150	304	Horizontal
6	26223.325	50.39	42.87	-7.52	83.54	40.67	150	115	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	18625.175	54.63	42.60	-12.03	83.54	40.94	150	321	Vertical
2	18920.125	55.25	43.40	-11.85	83.54	40.14	150	123	Vertical
3	19985.6	54.36	43.39	-10.97	83.54	40.15	150	302	Vertical
4	22866.25	51.41	42.71	-8.70	83.54	40.83	150	86	Vertical
5	25166.775	50.01	42.99	-7.02	83.54	40.55	150	198	Vertical
6	26420.95	50.30	43.30	-7.00	83.54	40.24	150	151	Vertical

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

Mode: TX/ BLE_1M

Highest Frequency (2480MHz)

Environment: 23.5°C/55%RH/101.0kPa

Tested By: Zhang Zishan

Voltage: AC120V/60Hz

Date: 2022-07-27

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18838.525	54.59	42.69	-11.90	83.54	40.85	150	341	Horizontal
2	21479.9	53.07	43.20	-9.87	83.54	40.34	150	266	Horizontal
3	22761.275	52.10	43.34	-8.76	83.54	40.20	150	332	Horizontal
4	23855.65	51.15	42.60	-8.55	83.54	40.94	150	48	Horizontal
5	25261.975	50.81	43.66	-7.15	83.54	39.88	150	256	Horizontal
6	26277.725	50.06	42.66	-7.40	83.54	40.88	150	38	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	18872.525	55.48	43.60	-11.88	83.54	39.94	150	296	Vertical
2	20221.05	53.94	43.20	-10.74	83.54	40.34	150	353	Vertical
3	21634.6	52.84	43.18	-9.66	83.54	40.36	150	153	Vertical
4	22881.125	51.51	42.82	-8.69	83.54	40.72	150	267	Vertical
5	25043.525	51.29	44.14	-7.15	83.54	39.40	150	66	Vertical
6	25790.25	50.52	42.78	-7.74	83.54	40.76	150	234	Vertical

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8. 6dB BANDWIDTH

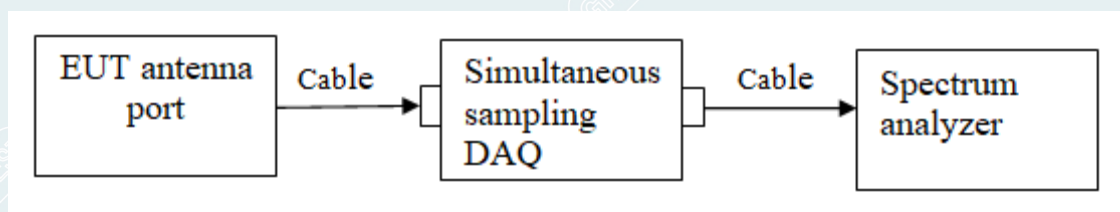
8.1 LIMITS

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

8.2 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.

8.3 TEST SETUP



8.4 TEST RESULTS

Environment: 23.1°C/51%RH/101.0kPa
Tested By:Qin Tingting

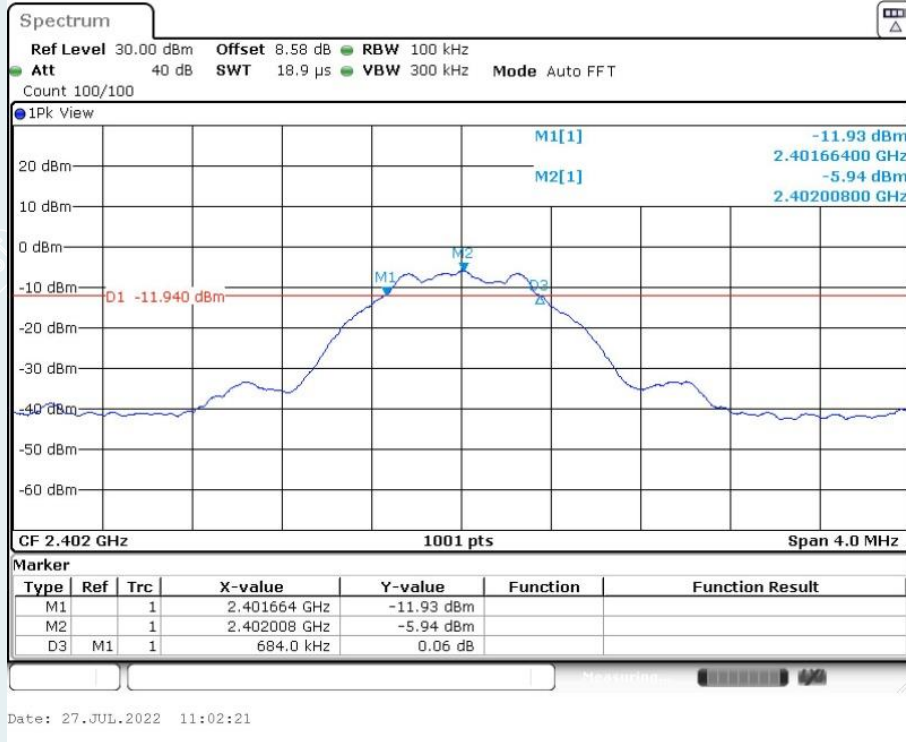
Voltage: AC 120V/60Hz
Date: 2022-07-27

BLE_1M

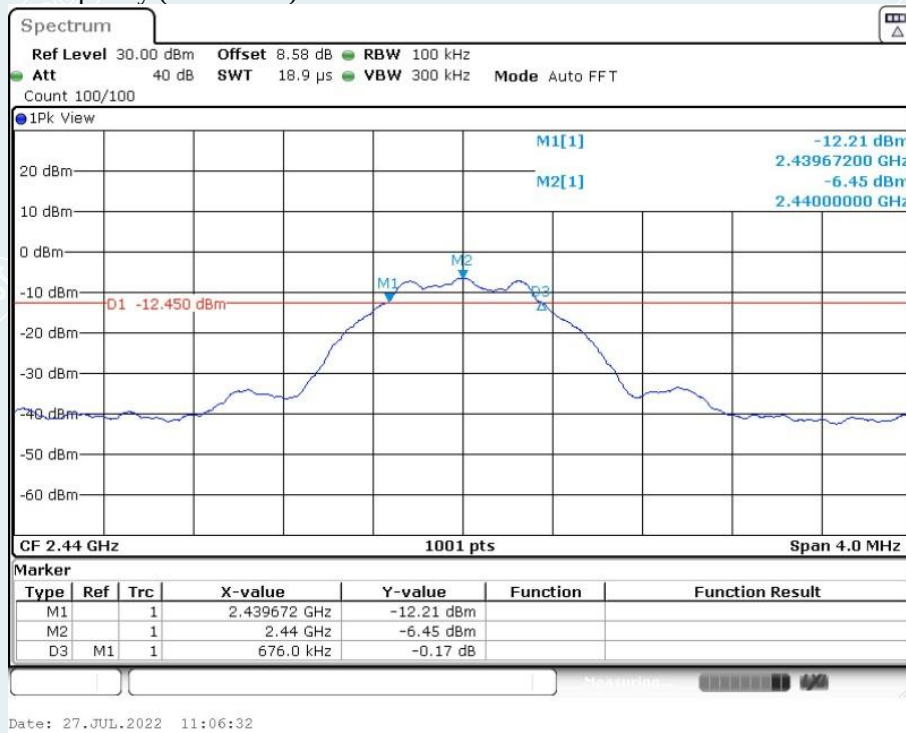
Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Lowest	2402	684	≥ 500	PASS
Middle	2440	676		PASS
Highest	2480	684		PASS

BLE_1M

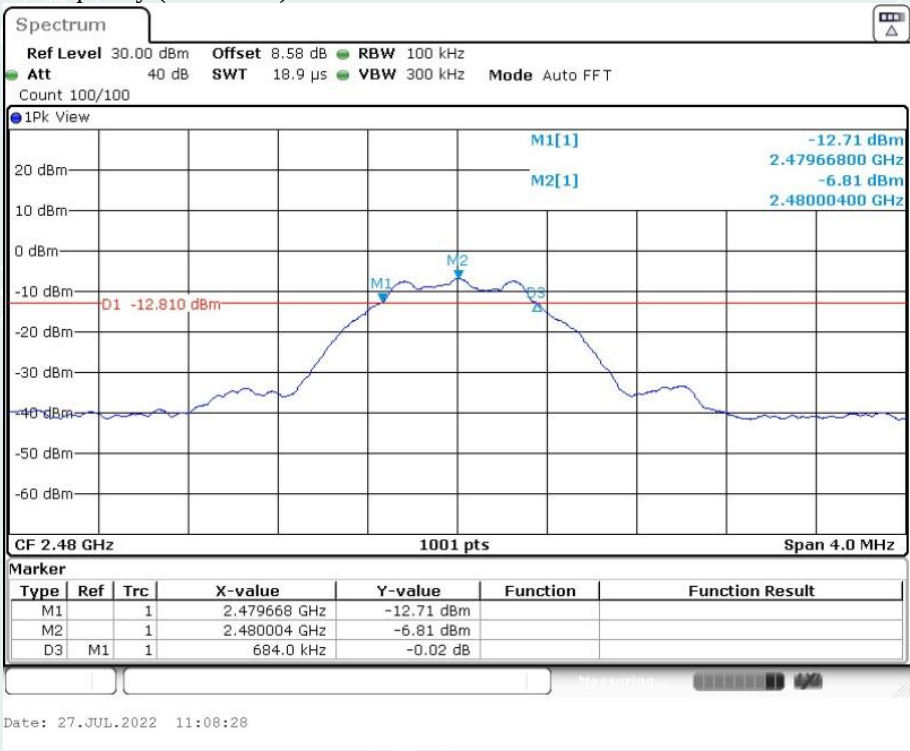
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



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

9. MAXIMUM PEAK OUTPUT POWER

9.1 LIMITS

The maximum Peak output power measurement is 1W

9.2 TEST PROCEDURES

- 1) RF output of EUT was connected to the broadband peak RF power meter by RF cable. 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.

9.3 TEST SETUP



9.4 TEST RESULTS

Environment: 23.1°C/51%RH/101.0kPa
Tested By:Qin Tingting

Voltage: AC 120V/60Hz
Date: 2022-07-27

BLE_1M

Channel	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Peak/Average	Result
Lowest	2402	-5.41	1W (30dBm)	Peak	Pass
Middle	2440	-5.58			Pass
Highest	2480	-5.65			Pass

10. POWER SPECTRAL DENSITY

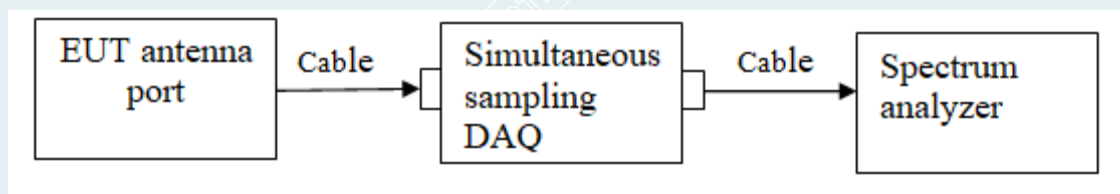
10.1 LIMITS

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz 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.

10.2 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 3kHz) and repeat.
- 4) Repeat above procedures until all frequencies measured were complete.

10.3 TEST SETUP



10.4 TEST RESULTS

Environment: 23.1°C/51%RH/101.0kPa
 Tested By:Qin Tingting

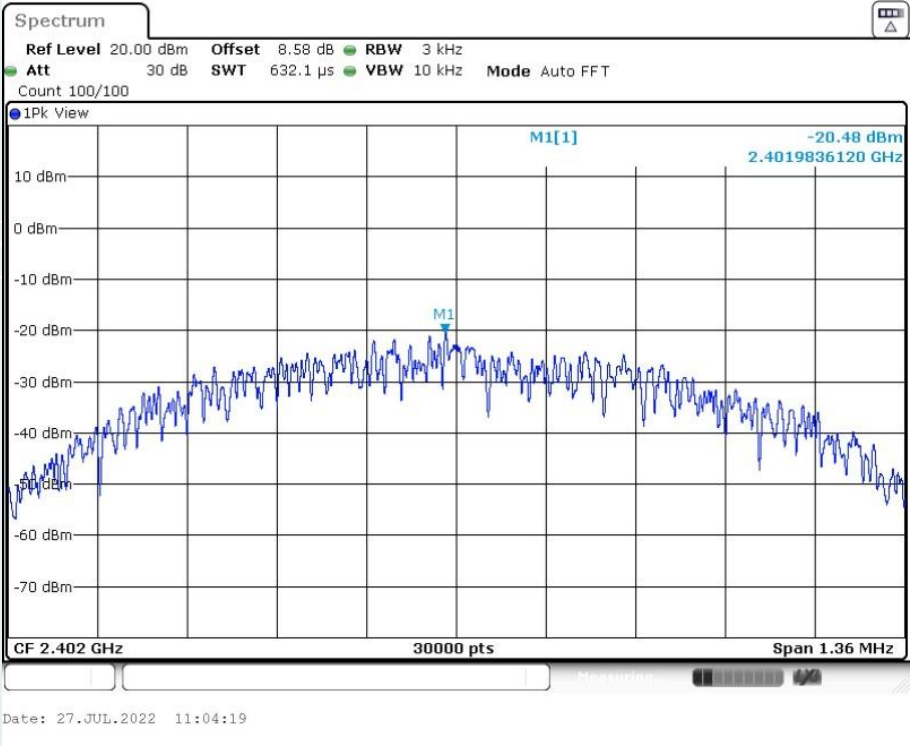
Voltage: AC 120V/60Hz
 Date: 2022-07-27

BLE_1M

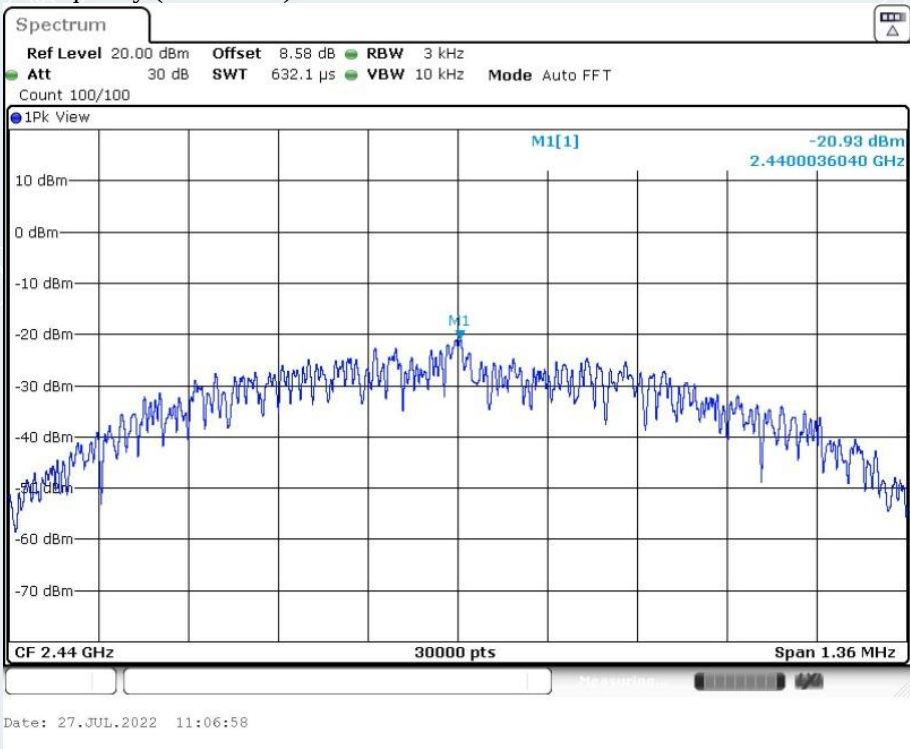
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Test Result
Lowest	2402	-20.48	8.00	PASS
Middle	2440	-20.93		PASS
Highest	2480	-20.74		PASS

BLE_1M

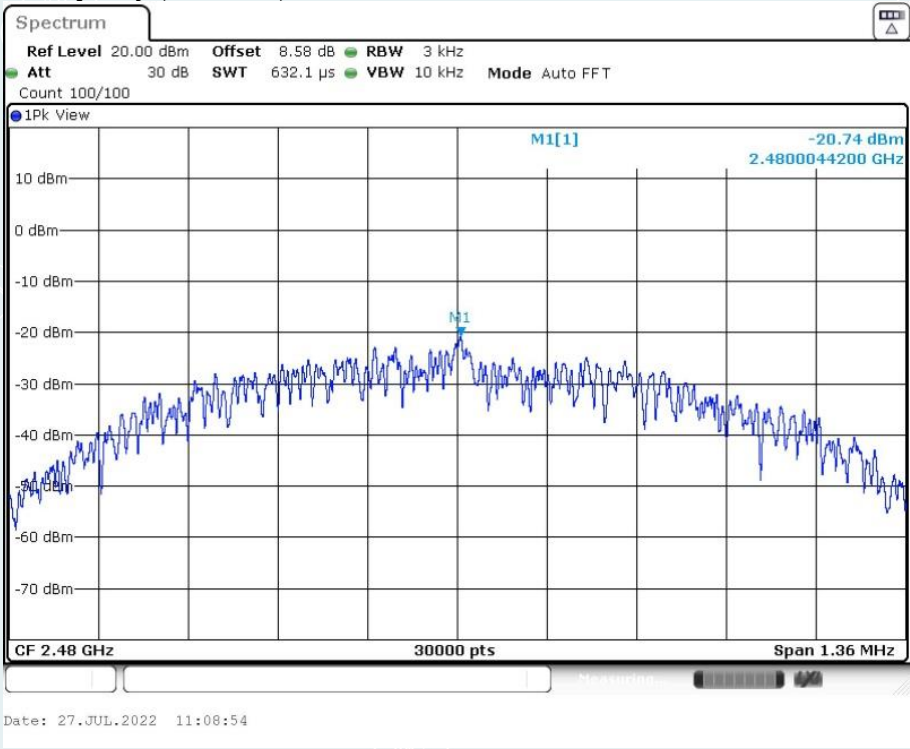
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



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11. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS

11.1 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.

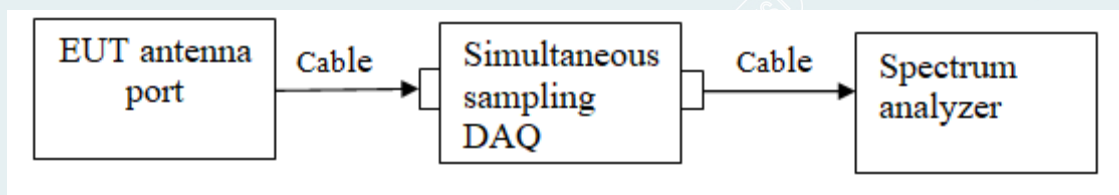
11.2 TEST PROCEDURES

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.

11.3 TEST SETUP



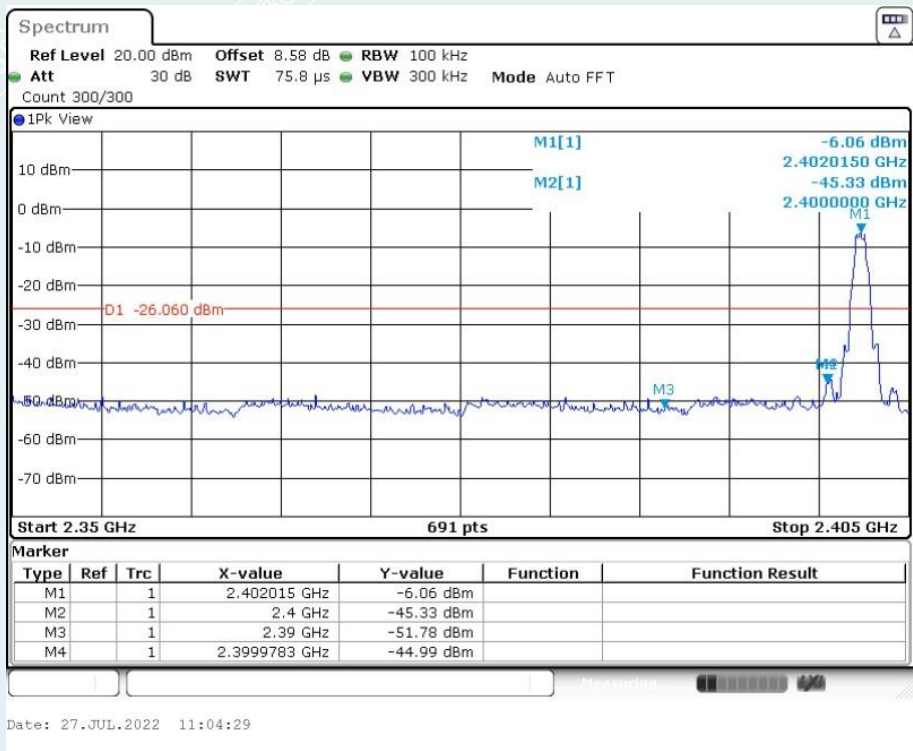
11.4 TEST RESULTS

Environment: 23.1℃/51%RH/101.0kPa
Tested By:Qin Tingting

Voltage: AC 120V/60Hz
Date: 2022-07-27

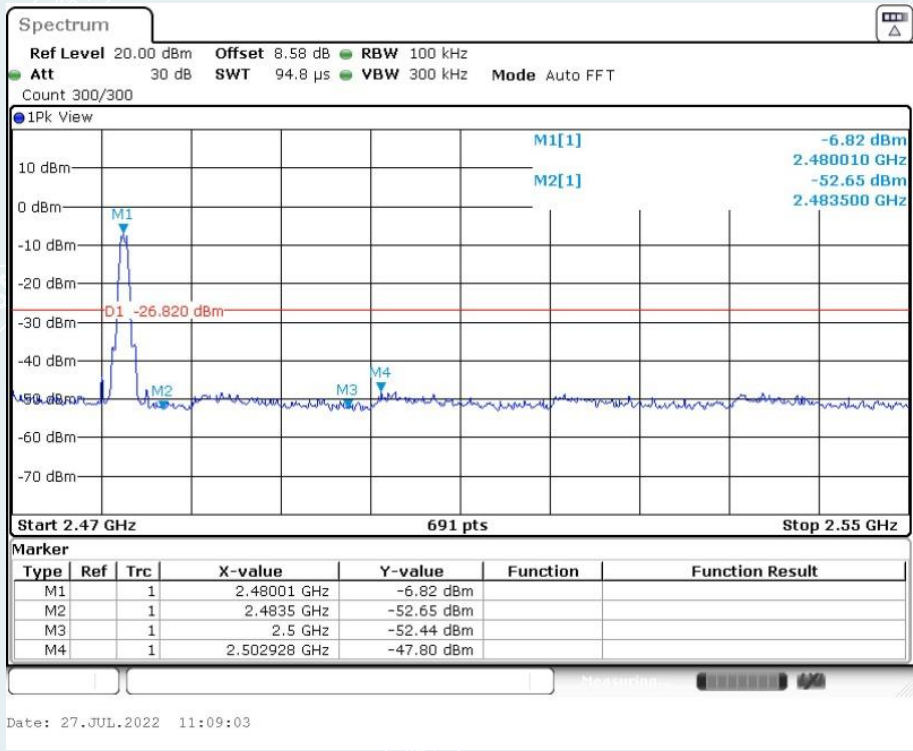
Band edge measurements
BLE_1M

Lowest Frequency (2402MHz)
2.35GHz-2.405GHz



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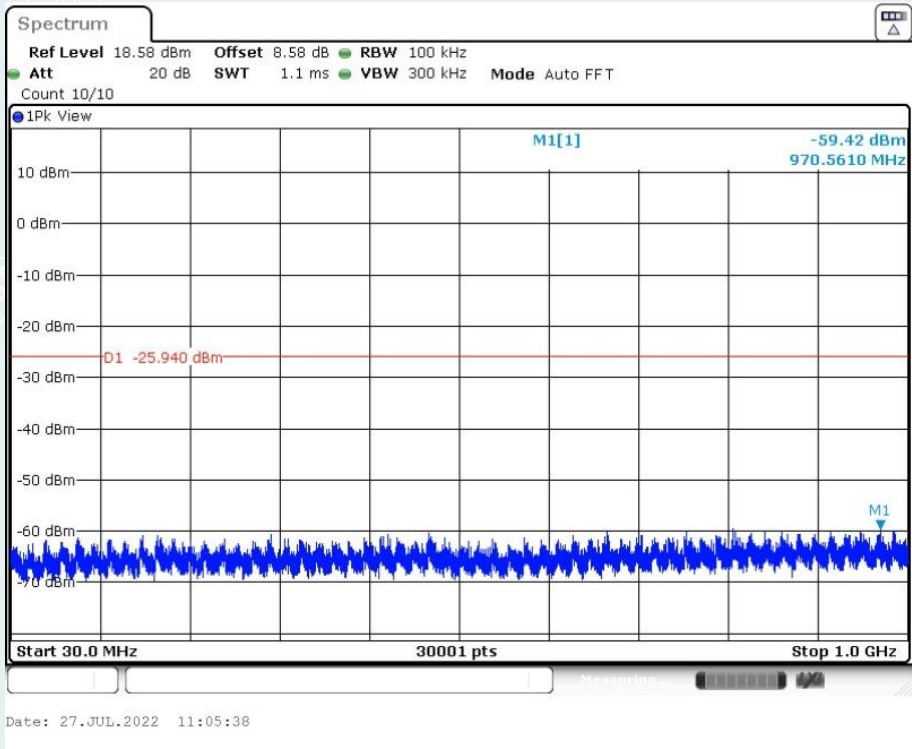
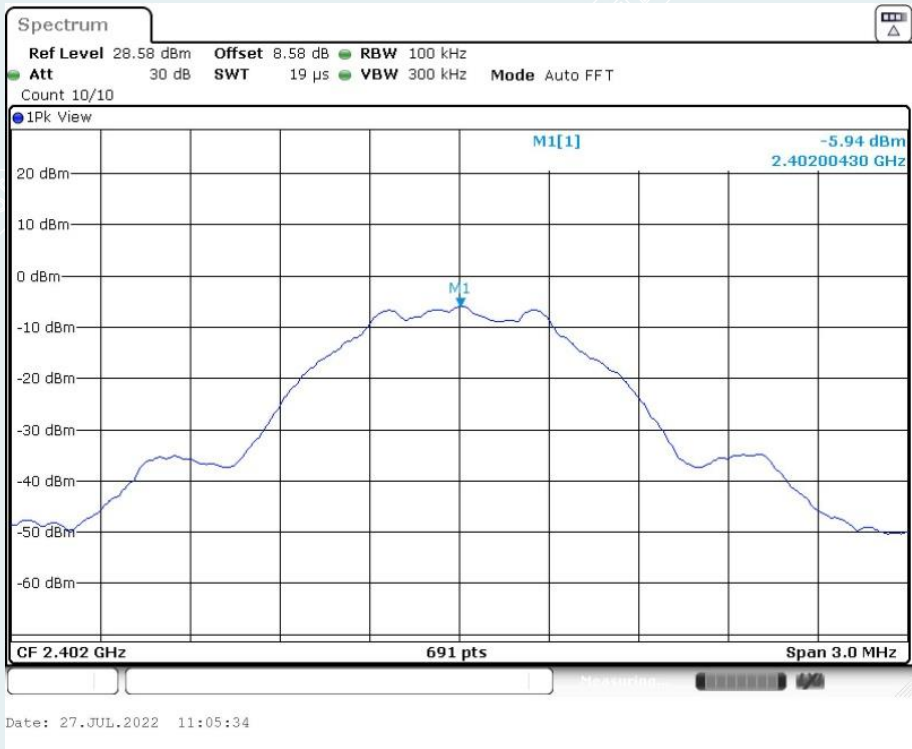
Highest Frequency (2480MHz)
2.47GHz-2.55GHz

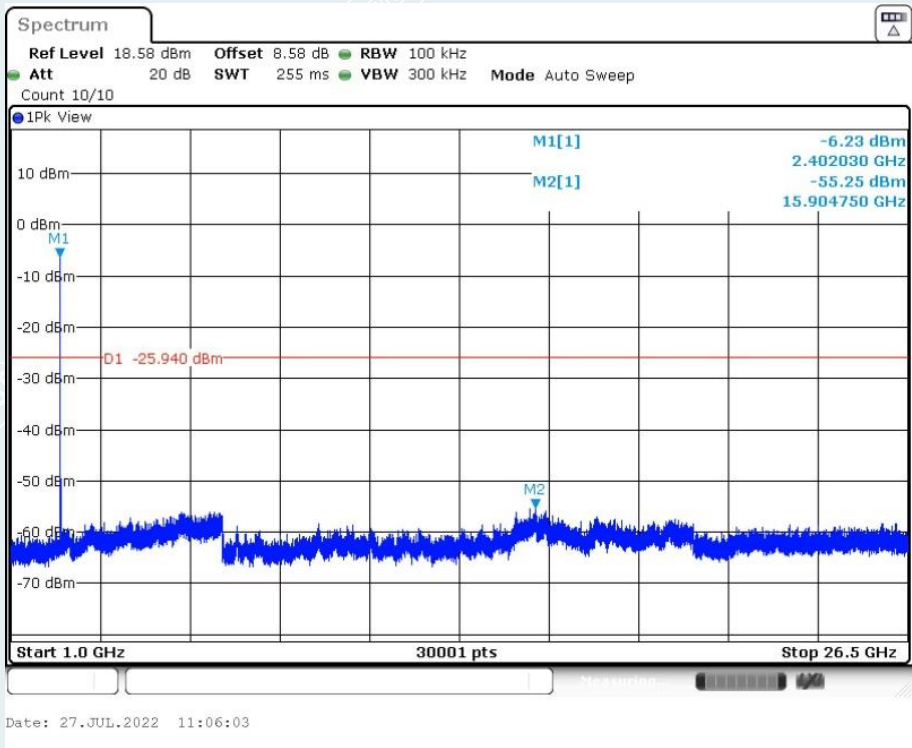


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Conducted Spurious Emission
BLE_1M

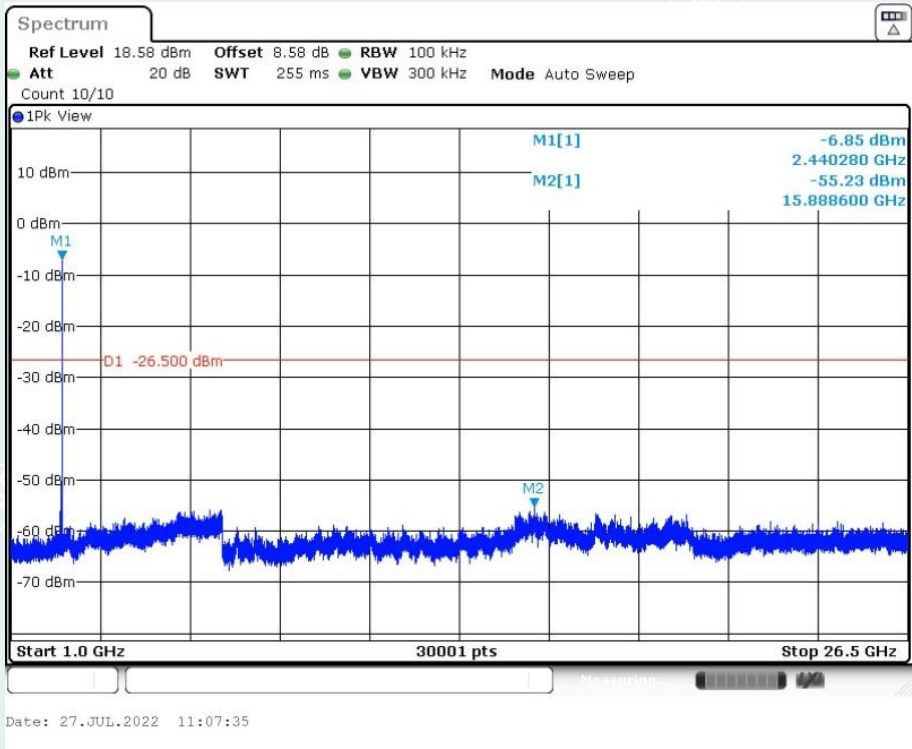
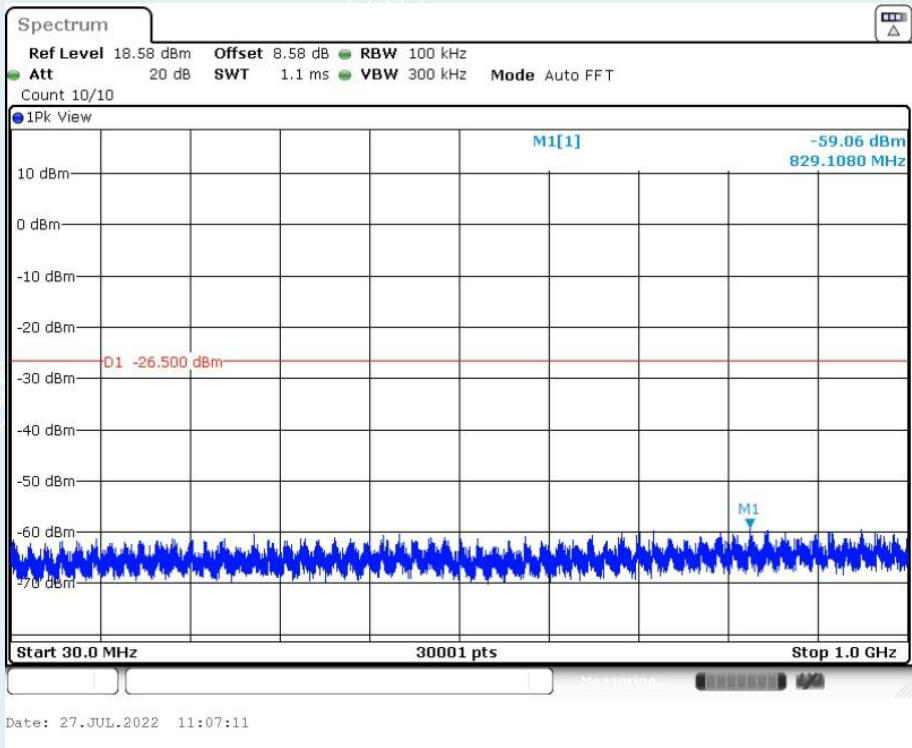
Lowest Frequency (2402MHz)



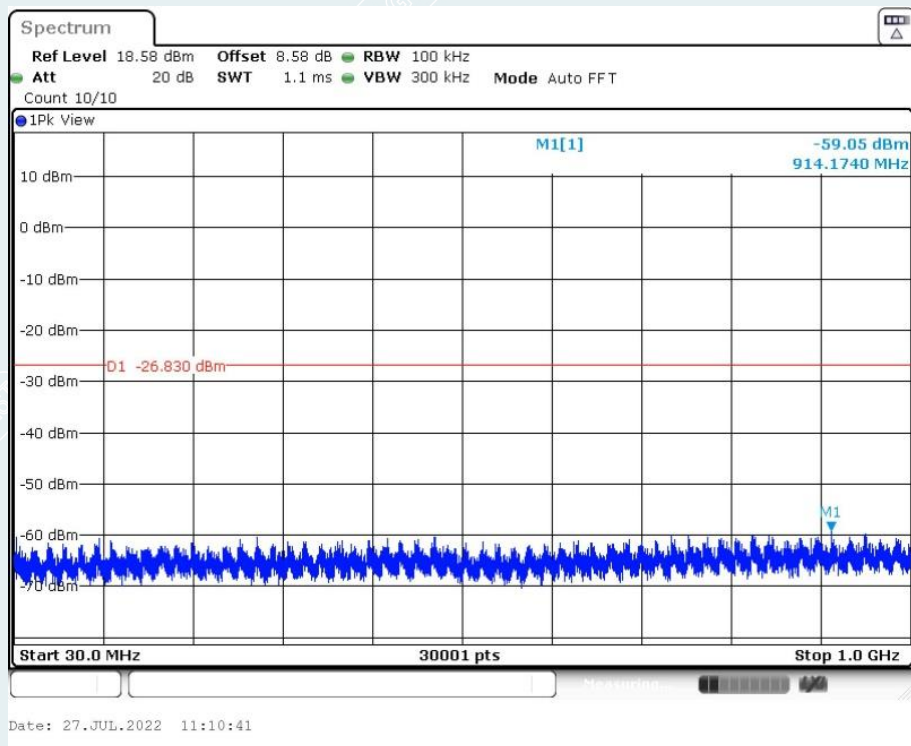
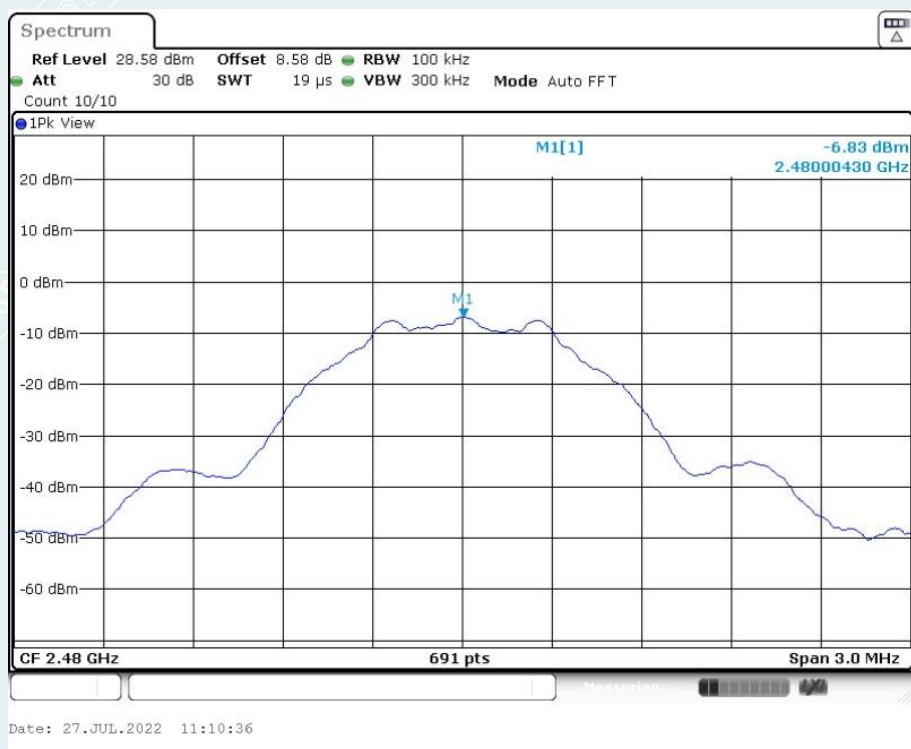


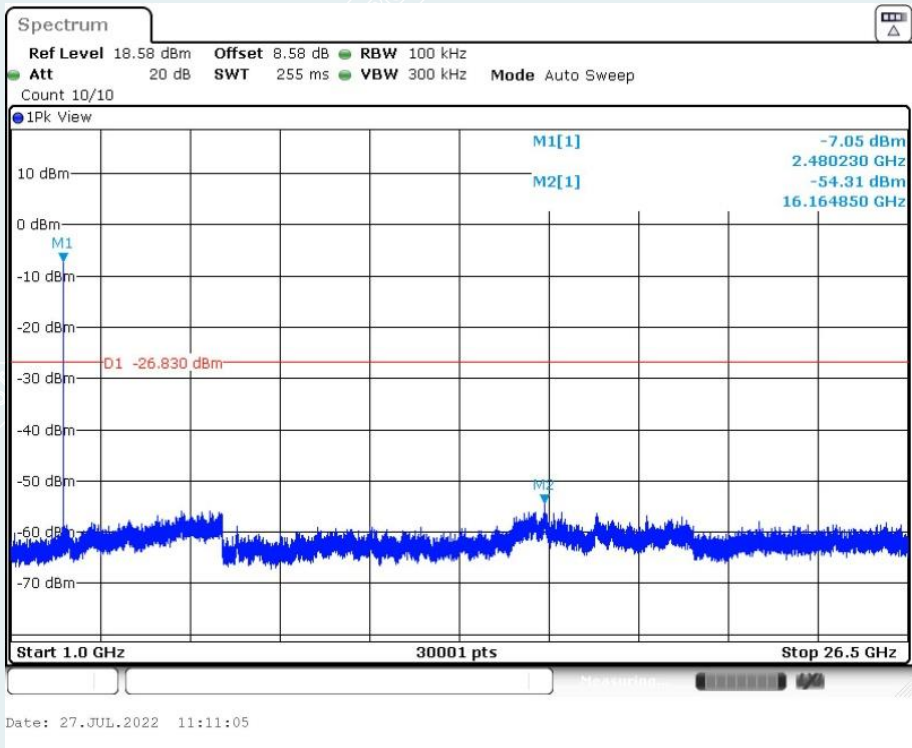
Middle Frequency (2440MHz)





Highest Frequency (2480MHz)





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12. RESTRICTED BANDS OF OPERATION

12.1 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
¹ 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(μ V/m)	Measurement distance(m)	Quasi-peak(dB μ 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

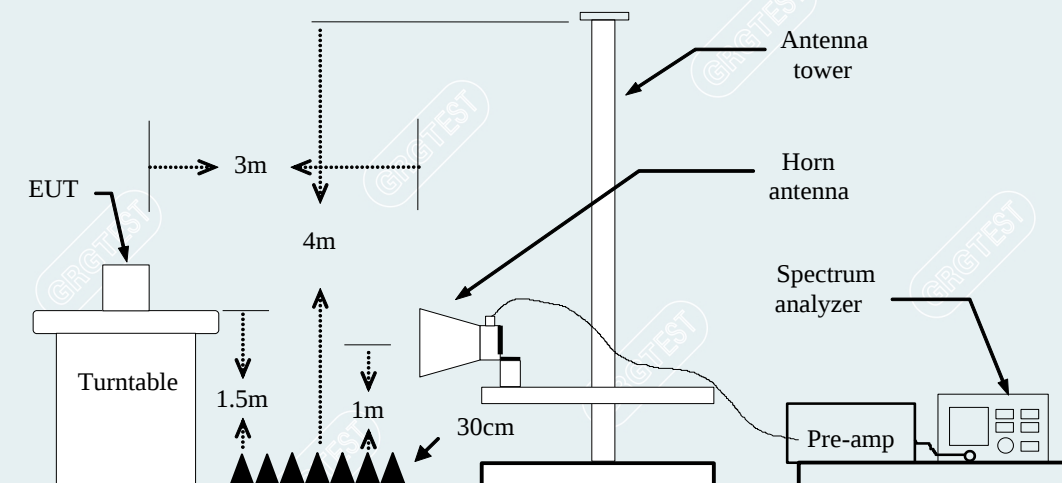
12.2 TEST PROCEDURES

Test procedures follow KDB 558074 D01 15.247 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: RBW=1MHz / VBW=1/T / Sweep=AUTO.

If the EUT is configured to transmit with duty cycle $\geq 98\%$, set $VBW \leq RBW/100$ (i.e., 10kHz) but not less than 10 Hz. If the EUT duty cycle is $< 98\%$, set $VBW \geq 1/T$, Where T is defined in section 2.9.
- 5) Repeat the procedures until all the PEAK and AVERAGE versus polarization are measured.

12.3 TEST SETUP

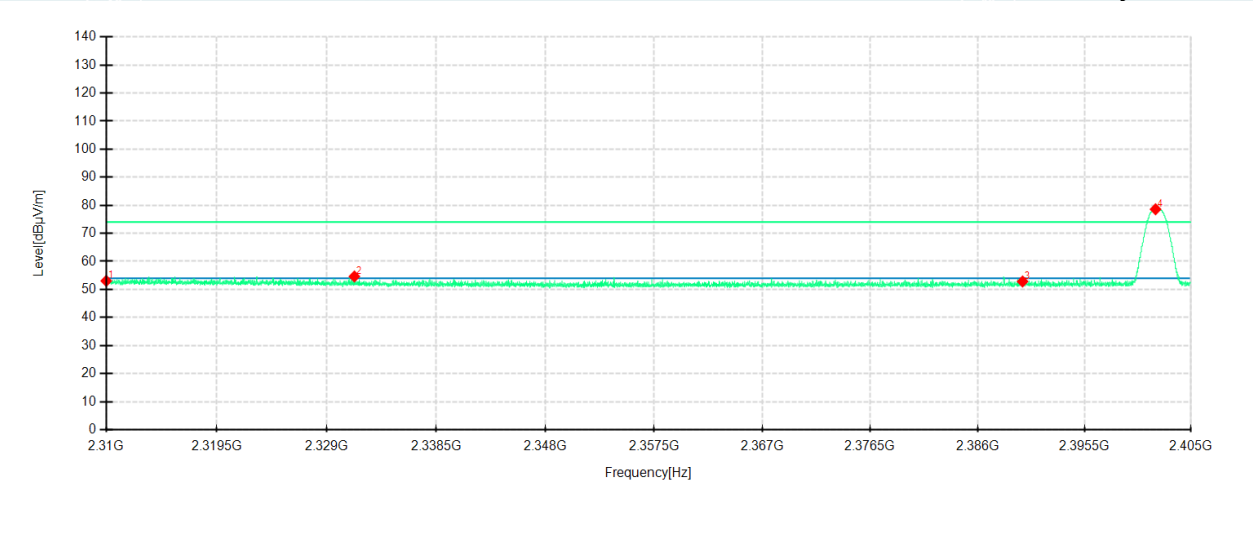


12.4 TEST RESULTS

Equipment:	Yunmai Smart Scale3	Test Date	2022-07-27
Model No.:	YMBS-S282	Test Engineer:	Zhang Zishan
Test Voltage:	AC120V/60Hz	Environment:	23.5℃/55%RH/101.0kPa

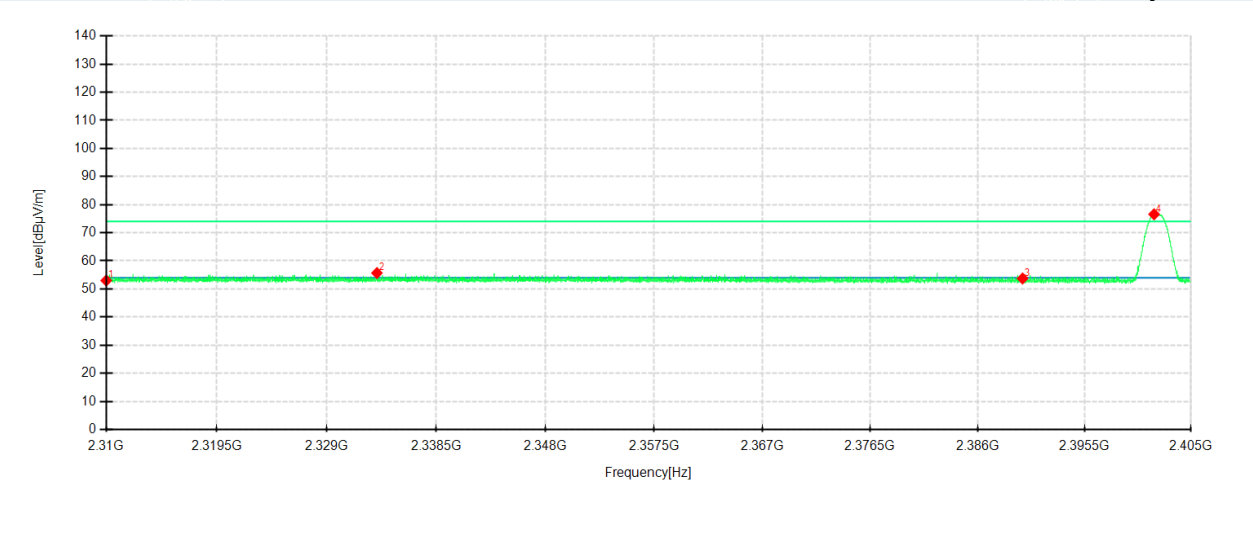
BLE 1M
Lowest Frequency
Frequency 2402MHz
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dB μ V/m	Level dB μ V/m	Factor dB	Limit dB μ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310	48.59	53.04	4.45	74.00	20.96	100	273	Horizontal	/
2	2331.396	50.79	54.63	3.84	74.00	19.37	100	104	Horizontal	/
3	2390	49.24	52.83	3.59	74.00	21.17	200	257	Horizontal	/
4	2401.836	74.91	78.58	3.67	74.00	-4.58	200	25	Horizontal	No limit
1	2310	47.97	53.00	5.03	74.00	21.00	100	116	Vertical	/
2	2333.352	50.67	55.69	5.02	74.00	18.31	100	256	Vertical	/
3	2390	49.00	53.73	4.73	74.00	20.27	100	250	Vertical	/
4	2401.704	71.95	76.58	4.63	74.00	-2.58	200	353	Vertical	No limit

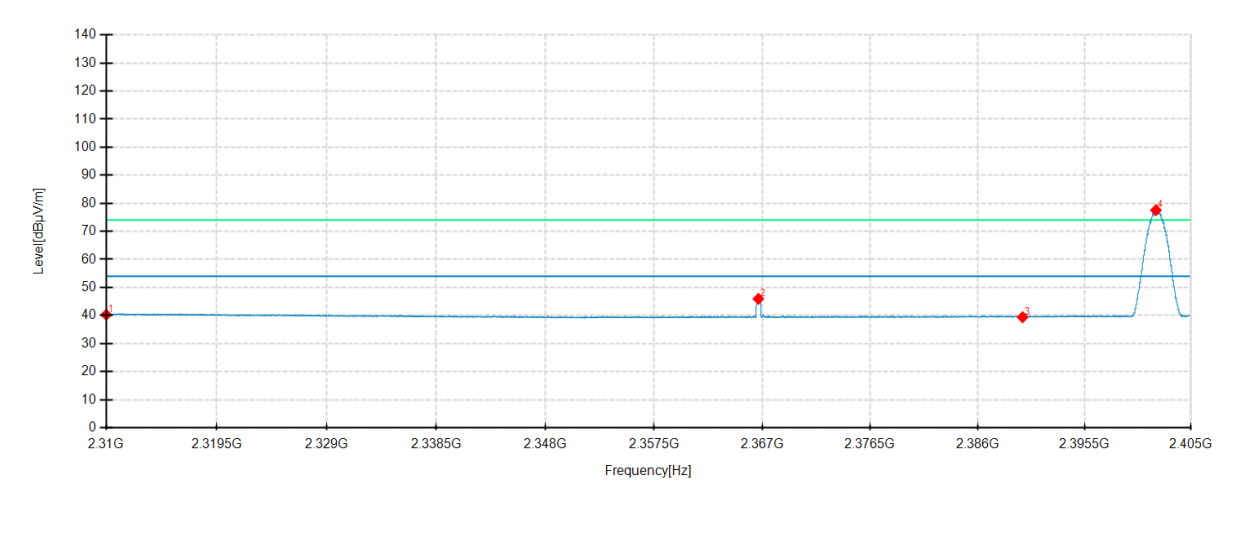
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Lowest Frequency

Frequency 2402MHz

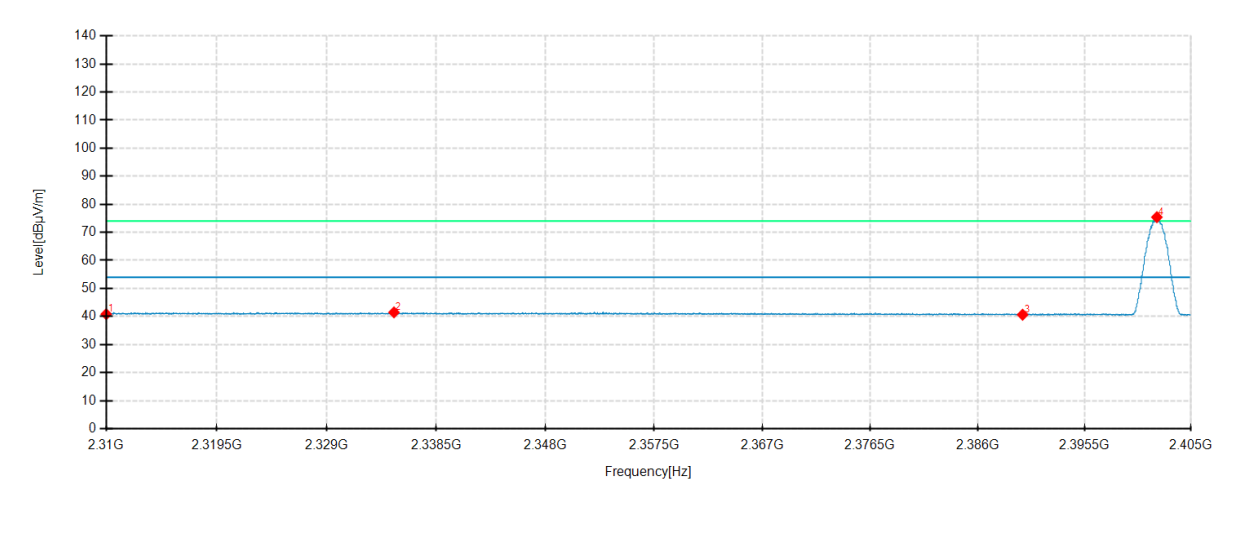
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

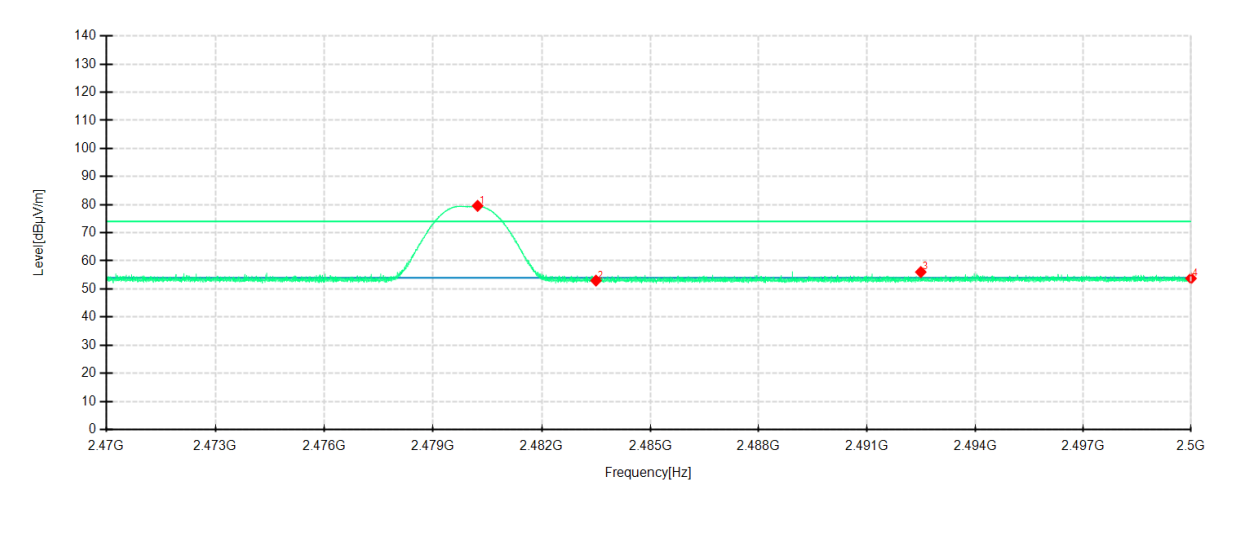
Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310	35.82	40.27	4.45	54.00	13.73	100	128	Horizontal	/
2	2366.652	42.48	45.91	3.43	54.00	8.09	200	104	Horizontal	/
3	2390	35.80	39.39	3.59	54.00	14.61	100	48	Horizontal	/
4	2401.872	73.86	77.53	3.67	54.00	-23.53	200	104	Horizontal	No limit
1	2310	35.80	40.83	5.03	54.00	13.17	200	195	Vertical	/
2	2334.828	36.45	41.47	5.02	54.00	12.53	100	104	Vertical	/
3	2390	35.90	40.63	4.73	54.00	13.37	200	85	Vertical	/
4	2401.956	70.77	75.40	4.63	54.00	-21.40	200	256	Vertical	No limit

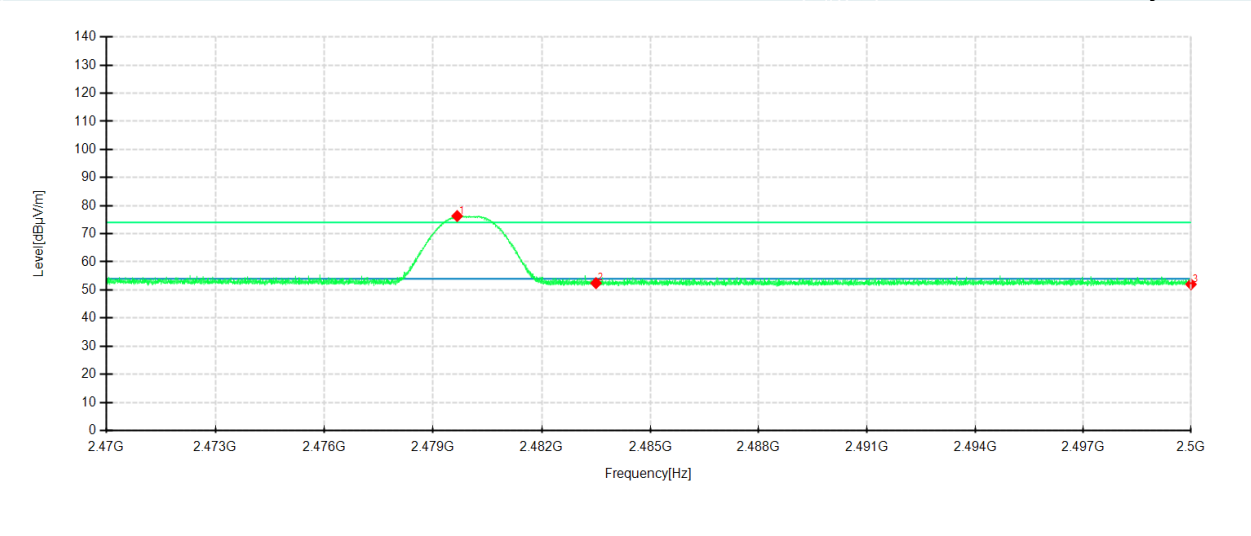
Highest Frequency
Frequency 2480MHz
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



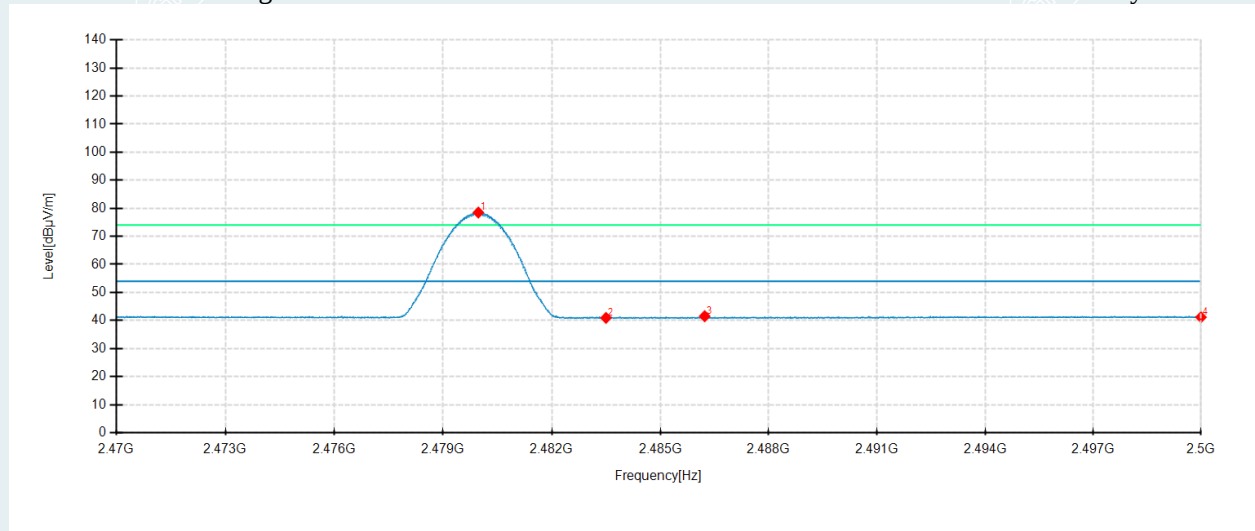
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2480.23	75.10	79.57	4.47	74.00	-5.57	100	127	Horizontal	No limit
2	2483.5	48.44	52.97	4.53	74.00	21.03	100	256	Horizontal	/
3	2492.494	51.33	56.02	4.69	74.00	17.98	100	256	Horizontal	/
4	2500	48.92	53.75	4.83	74.00	20.25	200	123	Horizontal	/
1	2479.666	72.41	76.30	3.89	74.00	-2.30	200	238	Vertical	No limit
2	2483.5	48.52	52.42	3.90	74.00	21.58	100	104	Vertical	/
3	2500	48.09	52.02	3.93	74.00	21.98	100	176	Vertical	/

Highest Frequency

Frequency 2480MHz

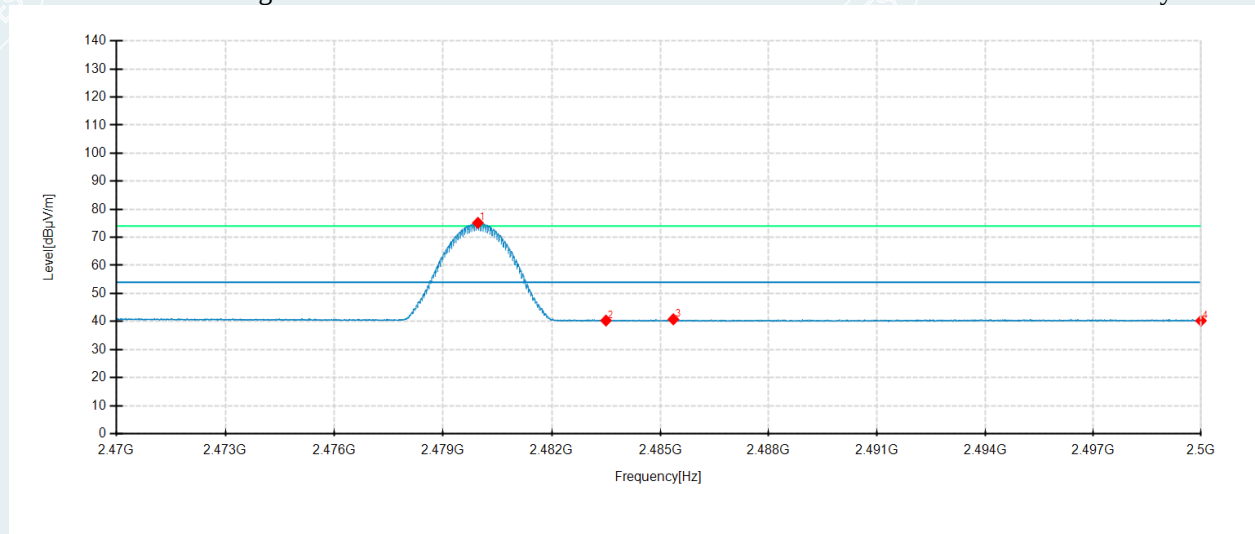
Detector mode: Average

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	2479.975	74.01	78.48	4.47	54.00	-24.48	100	128	Horizontal	No limit
2	2483.5	36.40	40.93	4.53	54.00	13.07	200	189	Horizontal	/
3	2486.23	36.94	41.52	4.58	54.00	12.48	100	257	Horizontal	/
4	2500	36.34	41.17	4.83	54.00	12.83	100	171	Horizontal	/
1	2479.963	71.27	75.16	3.89	54.00	-21.16	200	238	Vertical	No limit
2	2483.5	36.42	40.32	3.90	54.00	13.68	200	257	Vertical	/
3	2485.363	36.87	40.77	3.90	54.00	13.23	100	105	Vertical	/
4	2500	36.33	40.26	3.93	54.00	13.74	200	257	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 E202207126727-4-Test photo.

APPENDIX B. PHOTOGRAPH OF THE EUT

Please refer to the attached document E202207126727-5-EUT photo.

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