

Test Report

Verified code: 151009

Report No.: E202211175126-2

Customer: Queclink Wireless Solutions Co., Ltd.

Address: No.30, Lane 500, Xinlong Road, Minhang District, Shanghai, China 201101

Sample Name: GNSS Tracker

Sample Model: GV58CEU

Receive Sample Date: Nov.18,2022

Test Date: Nov.21,2022 ~ Nov.28,2022

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

Test Result: Pass

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Approved by: Xiao Liang



GUANGZHOU GRG METROLOGY & TEST CO., LTD

Issued Date: 2022-12-14

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E202211175126-2	Original Issue	2022-12-01

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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	N/A ¹⁾
§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⁾Test is not applicable to this Equipment. This EUT is no AC mains power ports.

²⁾The antenna is ceramic antenna. The max gain of antenna is 3.4dBi.which accordance 15.203.is considered sufficient to comply with the provisions of this section.

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

2. GENERAL DESCRIPTION OF EUT

2.1 APPLICANT

Name: Queclink Wireless Solutions Co., Ltd.
Address: No.30, Lane 500, Xinlong Road, Minhang District, Shanghai, China 201101

2.2 MANUFACTURER

Name: Queclink Wireless Solutions Co., Ltd.
Address: No.30, Lane 500, Xinlong Road, Minhang District, Shanghai, China 201101

2.3 FACTORY

Name: Queclink Wireless Solutions Co., Ltd.
Address: No.30, Lane 500, Xinlong Road, Minhang District, Shanghai, China 201101

2.4 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment: GNSS Tracker
Model No.: GV58CEU
Adding Model: /
Trade Name: Queclink
FCC ID: YQD-GV58CEU
Power supply: Input power: DC 8-32V
DC 3.7V power supplied by battery
Battery Specification: Model: PL402030
Nominal Voltage: 3.7Vdc
Rated Capacity: 190mAh 0.703Wh
Frequency Band: 2402MHz-2480MHz
Transmit Power: GFSK for 1Mbps: 4.33dBm
GFSK for 2Mbps: 4.32dBm
Modulation type: GFSK for 1Mbps
GFSK for 2Mbps
Channel space: 2MHz
Antenna Specification: Ceramic antenna with 3.4dBi gain (Max.)
Temperature Range: -30°C~+70°C
Hardware Version: R101V1.02
Software Version: A01V23
Sample No: E202211175126-0001
Note: /

2.5 CHANNELLIST

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
Notebook	DELL	Latitude3490	5GSXKP2	/

No.	Cable Type	Qty.	Shielded Type	Ferrite Core(Qty.)	Length
1	USB cable	1	No	0	Unshielded 1m

2.8 CONFIGURATION OF SYSTEM UNDER TEST



Test software:

Software version	Test level
QCOM_V1.0	Default

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2.9 DUTY CYCLE

Environment: 23.7°C/53%RH/101.0kPa

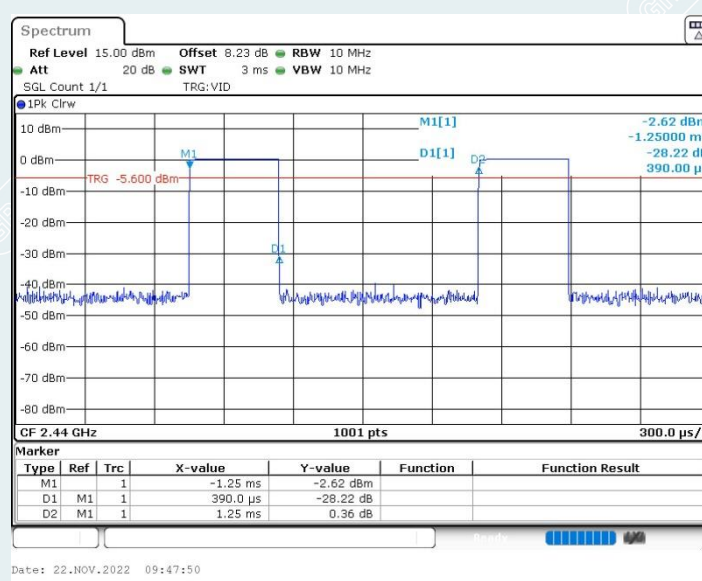
Tested By: Qin Tingting

Voltage: DC 3.7V

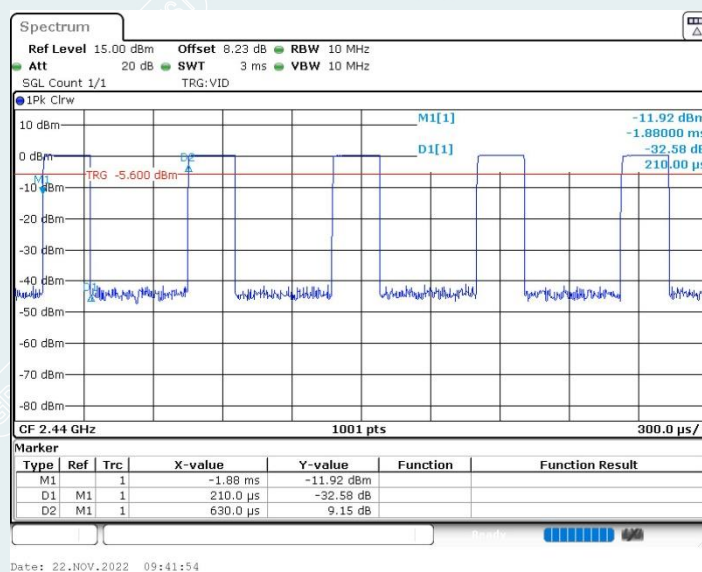
Date: 2022-11-22

Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	DC [%]	T [s]
BLE_1M	Ant1	2440	0.39	1.25	31.20	0.00039
BLE_2M	Ant1	2440	0.21	0.63	33.33	0.00021

BLE_1M_2440MHz



BLE_2M_2440MHz



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.

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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,
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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	5.1dB ¹⁾
		30MHz~200MHz	4.5dB ¹⁾
		200MHz~1000MHz	4.4dB ¹⁾
		1GHz~18GHz	5.6dB ¹⁾
		18GHz~26.5GHz	3.7dB ¹⁾
	Vertical	9kHz~30MHz	5.1dB ¹⁾
		30MHz~200MHz	4.4dB ¹⁾
		200MHz~1000MHz	4.5dB ¹⁾
		1GHz~18GHz	5.6dB ¹⁾
		18GHz~26.5GHz	3.7dB ¹⁾
Conduction Emission		150kHz~30MHz	3.4dB ¹⁾

Measurement	Uncertainty
RF frequency	6.0×10^{-6}
RF power conducted	0.8dB
Power spectral density conducted	0.8dB
Occupied channel bandwidth	0.4dB
Unwanted emission, conducted	0.7dB
Humidity	6%
Temperature	2°C

Note:

¹⁾ This uncertainty represents an expanded uncertainty expressed at approximately the 95%.
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				
EMI TEST RECEIVER	R&S	ESCI	100783	2023-08-28
LISN(EUT)	R&S	ENV216	101543	2023-09-13
Test S/W	EZ	CCS-3A1-CE		
Radiated Spurious Emission&Restricted bands of operation				
Test S/W	EZ	CCS-03A1		
Test Receiver	R&S	ESR7	102444	2023-09-02
Preamplifier	EMEC	EM330	I00426	2023-03-05
Bi-log Antenna	Schwarzbeck	CBL6143A	26039	2024/10/23
LoopAntenna	TESEQ	HLA6121	52599	2023-04-02
Spectrum Analyzer	KEYSIGHT	N9010A	MY52221469	2023-06-29
Horn Antenna	Schwarzbeck	BBHA9120D	02143	2023-10-15
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	BBHA 9170-497	2023-10-14
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	1321.3008K30-10 4381-rH	2022-12-10
BT/WIFI System	Tonscend	JS0806		
Maximum Peak Output Power				
Pulse power sensor	Anritsu	MA2411B	1126150	2023-03-01
Power meter	Anritsu	ML2495A	1204003	2023-02-28

Note: The calibration cycle of the above instruments is 12 months except for the Bi-log Antenna which is 24 months

6. CONDUCTED EMISSION MEASUREMENT

6.1 LIMITS

Frequency range	Limits (dB μ V)	
	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.

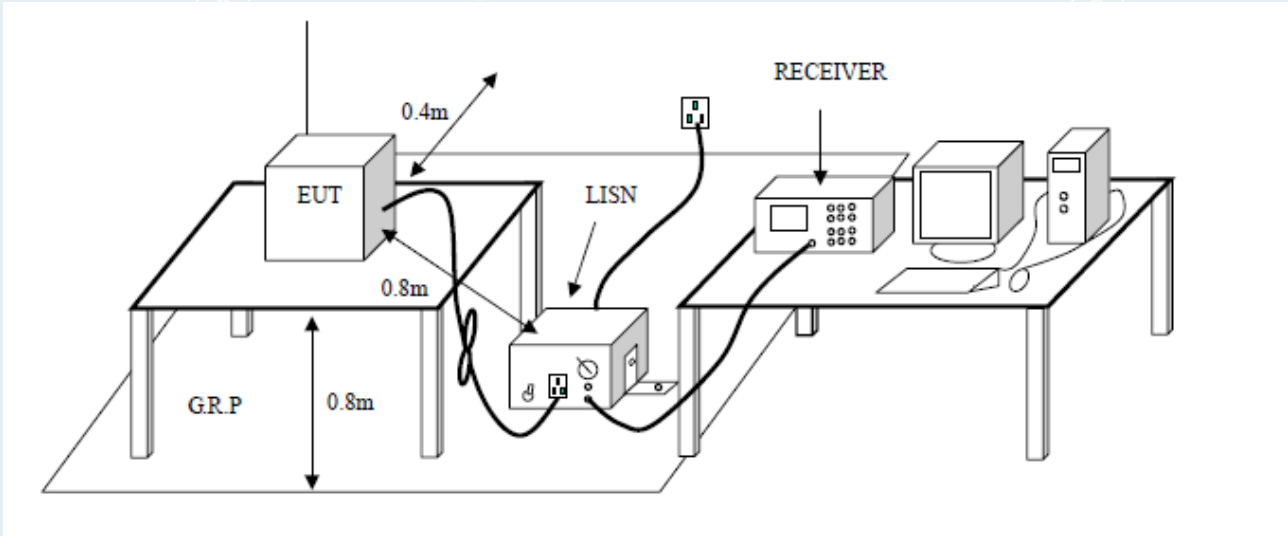
– I/O cables that are connected to a peripheral shall be bundled in the centre. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1 m.

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

Test is not applicable to this Equipment. This EUT is no AC mains power ports.

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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 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 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 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

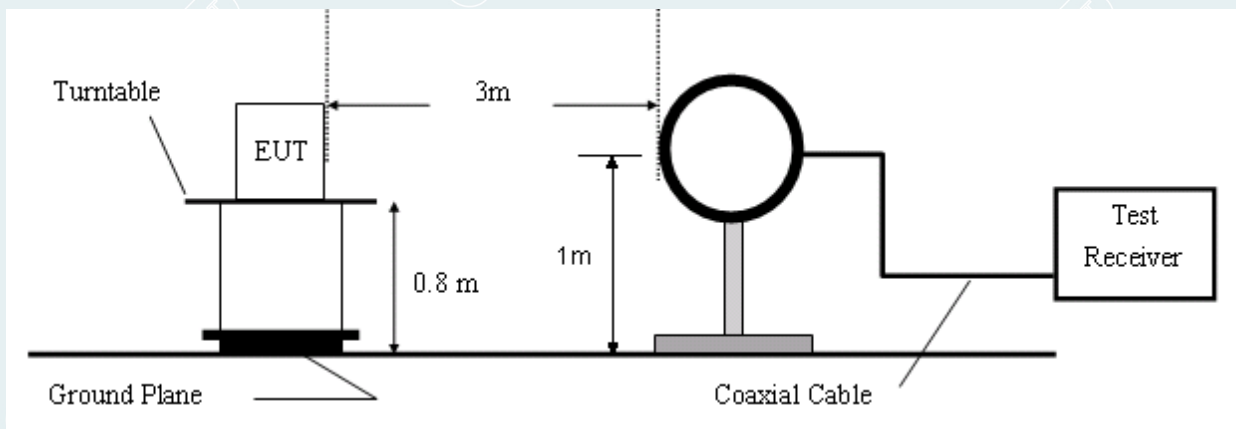


Figure 1. 9kHz to 30MHz radiated emissions test configuration

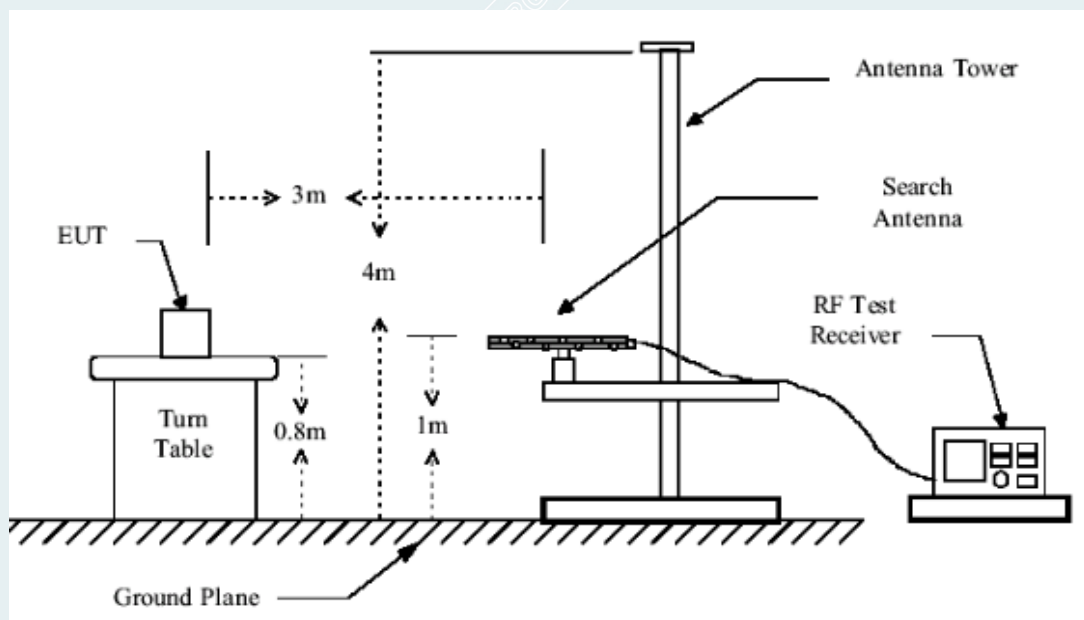


Figure 2. 30MHz to 1GHz radiated emissions test configuration

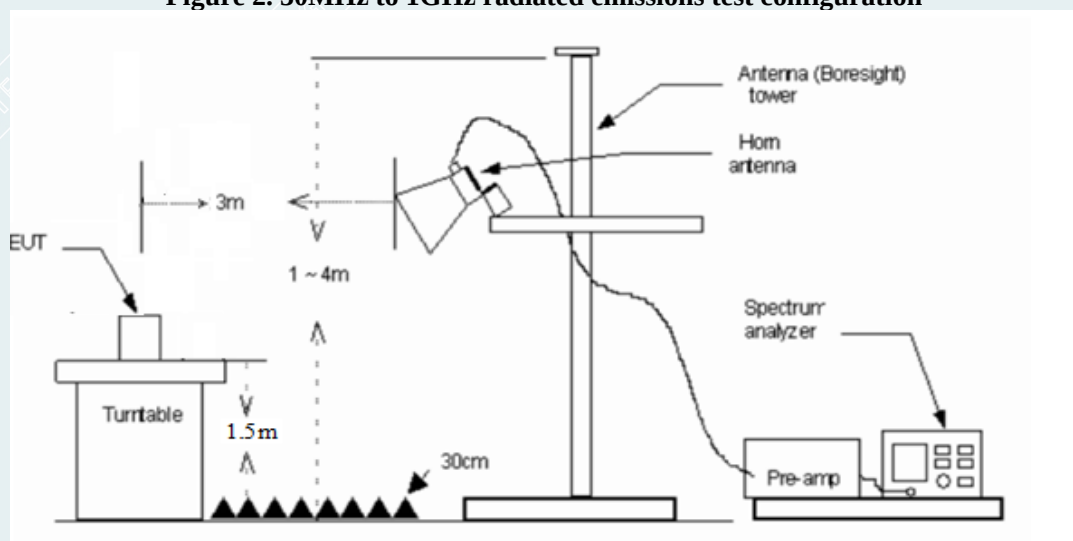


Figure 3. 1GHz to 18GHz radiated emissions test configuration

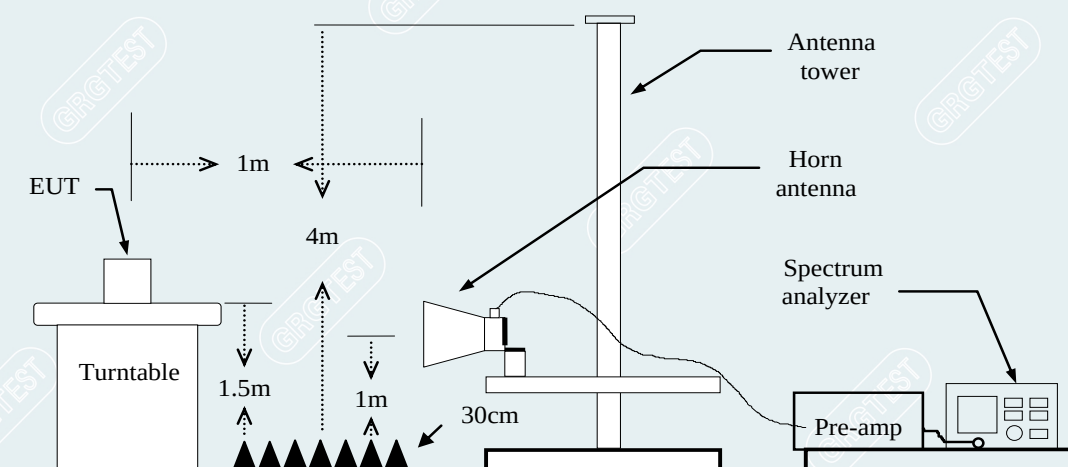


Figure 4. 18GHz to 26.5GHz radiated emissions test configuration

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

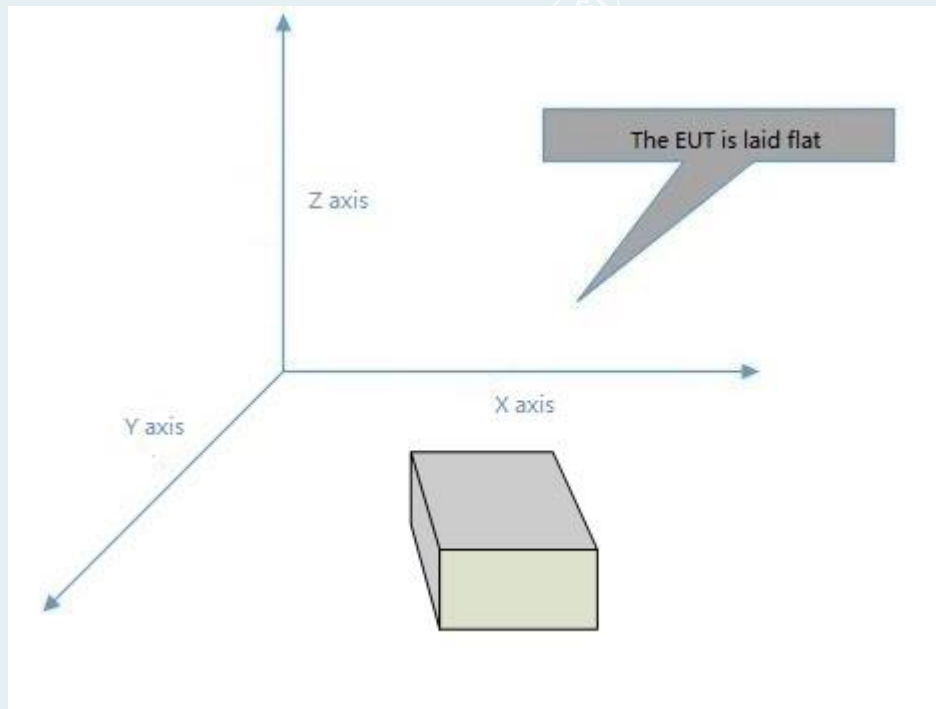
= Quasi-peak Reading

AVG

= Average Reading

7.5 TEST RESULT

The test are under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X axis. So the data shown the X axis only.

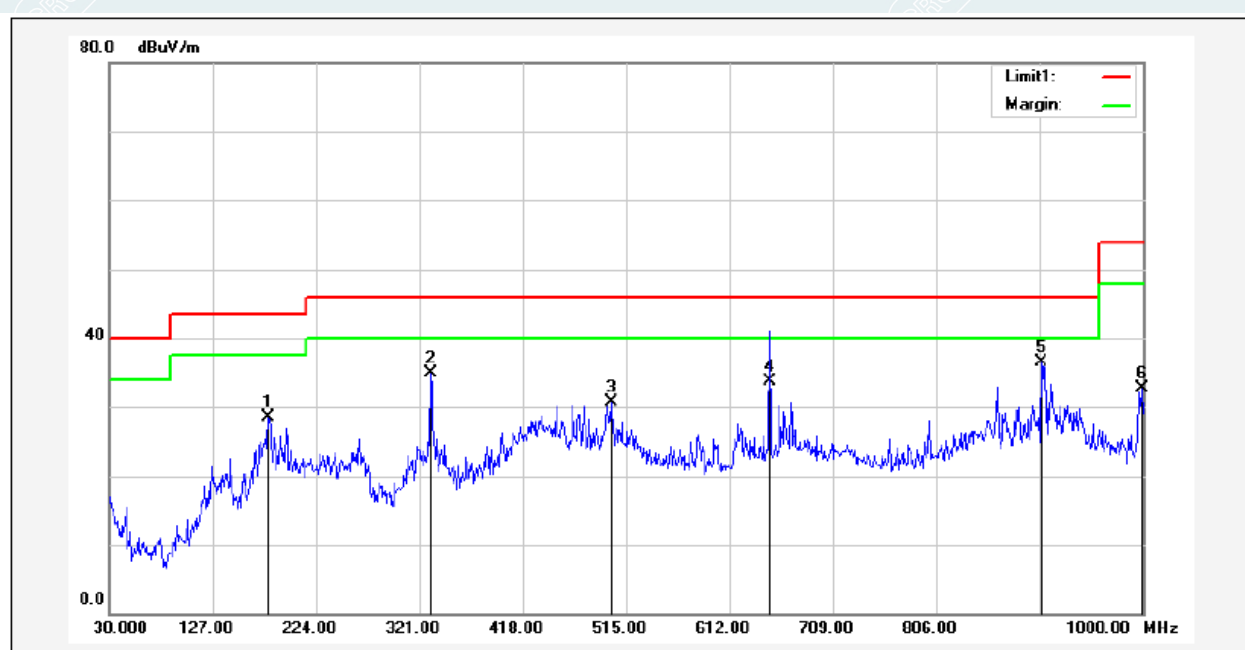


The configuration DC 12V ,DC 24 and DC 3.7V were tested respectively, but only the worst configuration(DC 3.7V) shown here.

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

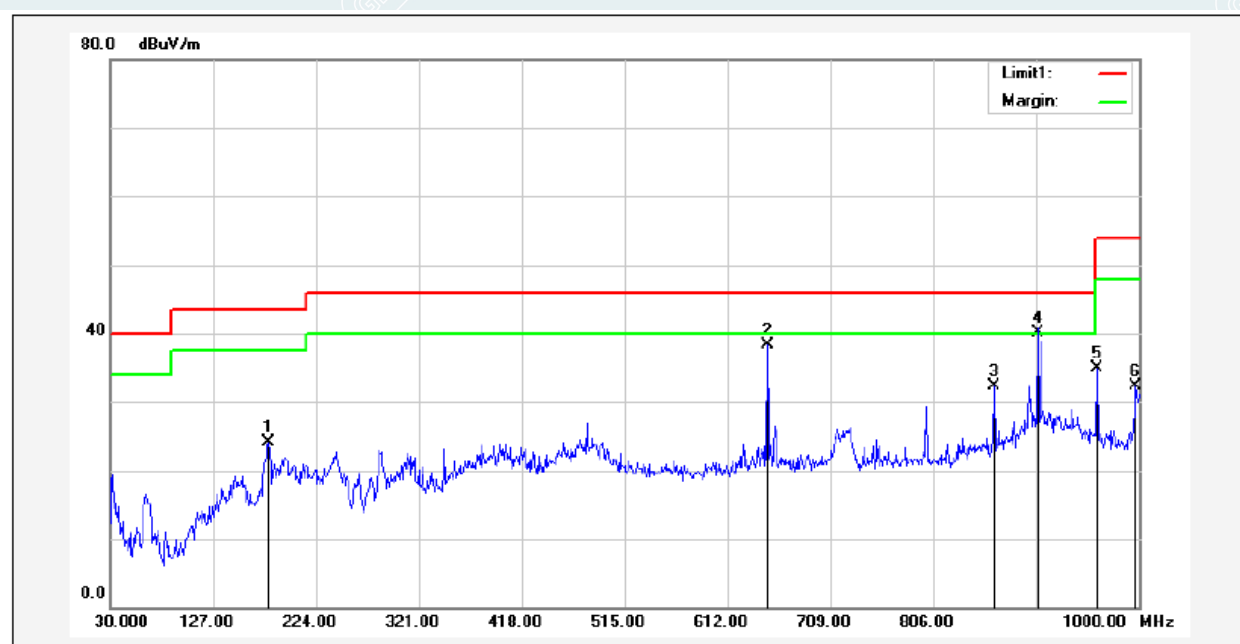
Below 1GHz

EUT Name	GNSS Tracker	Model	GV58CEU
Environmental Conditions	25.1°C/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_1M (2402MHz)	Polarity	Vertical
Tested By	Huang Xinlong	Tested Date	2022-11-23



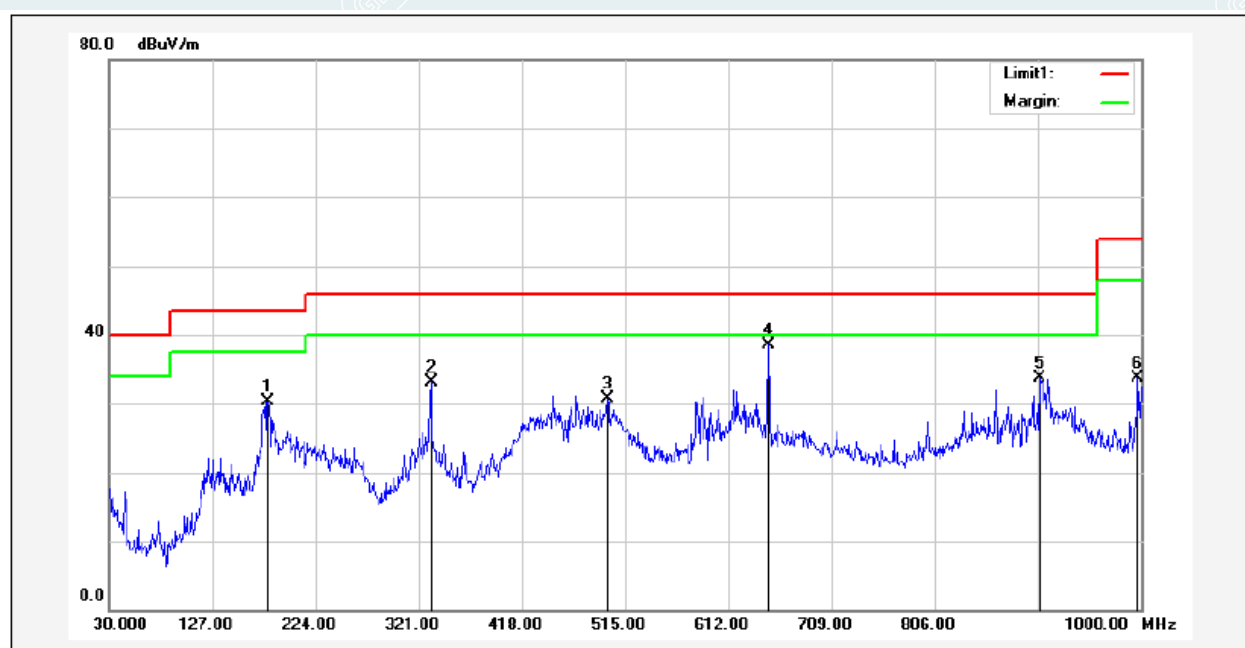
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	179.3800	56.08	-27.55	28.53	43.50	-14.97	355	200	QP
2	331.6700	57.69	-22.82	34.87	46.00	-11.13	254	100	QP
3	501.4200	48.90	-18.26	30.64	46.00	-15.36	91	100	QP
4	649.8300	49.78	-15.98	33.80	46.00	-12.20	95	100	QP
5*	904.9400	49.57	-13.15	36.42	46.00	-9.58	360	200	QP
6	999.0300	44.71	-12.02	32.69	54.00	-21.31	1	100	QP

EUT Name	GNSS Tracker	Model	GV58CEU
Environmental Conditions	25.1℃/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_1M (2402MHz)	Polarity	Horizontal
Tested By	Huang Xinlong	Tested Date	2022-11-23



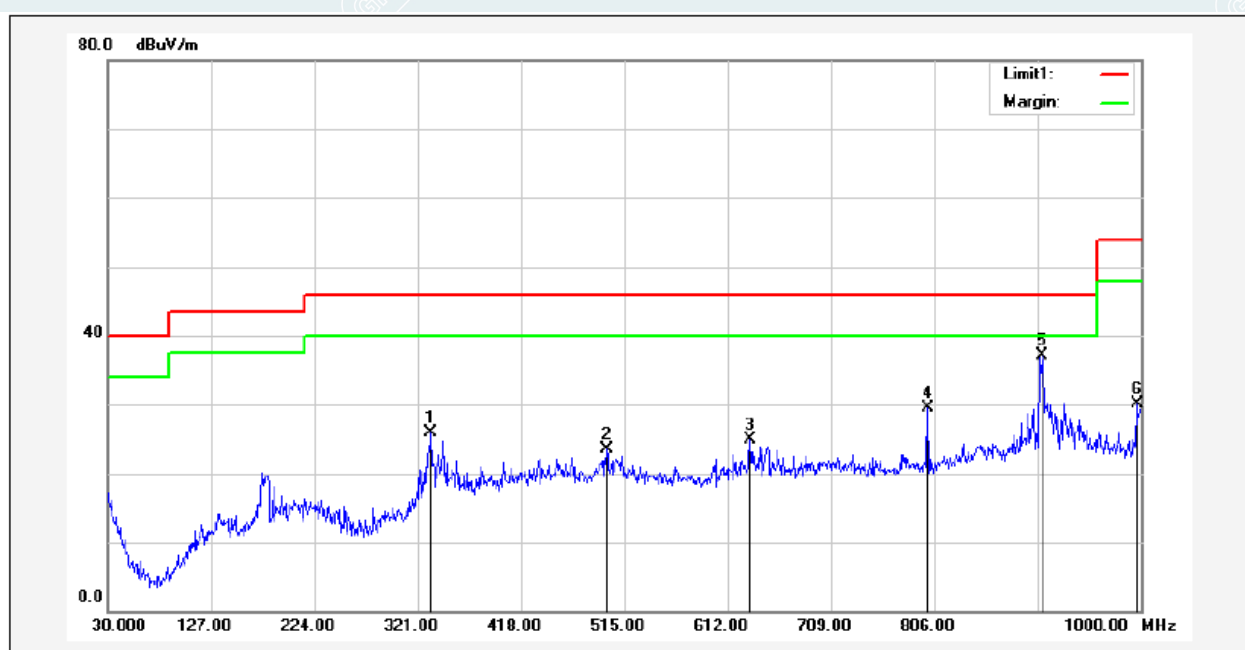
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	179.3800	51.70	-27.55	24.15	43.50	-19.35	155	200	QP
2	649.8300	54.32	-15.98	38.34	46.00	-7.66	330	200	QP
3	863.2300	45.94	-13.58	32.36	46.00	-13.64	334	200	QP
4*	904.9400	53.25	-13.15	40.10	46.00	-5.90	349	100	QP
5	960.2300	47.51	-12.56	34.95	54.00	-19.05	192	100	QP
6	997.0900	44.34	-12.05	32.29	54.00	-21.71	332	100	QP

EUT Name	GNSS Tracker	Model	GV58CEU
Environmental Conditions	25.1°C/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_1M (2440MHz)	Polarity	Vertical
Tested By	Huang Xinlong	Tested Date	2022-11-23



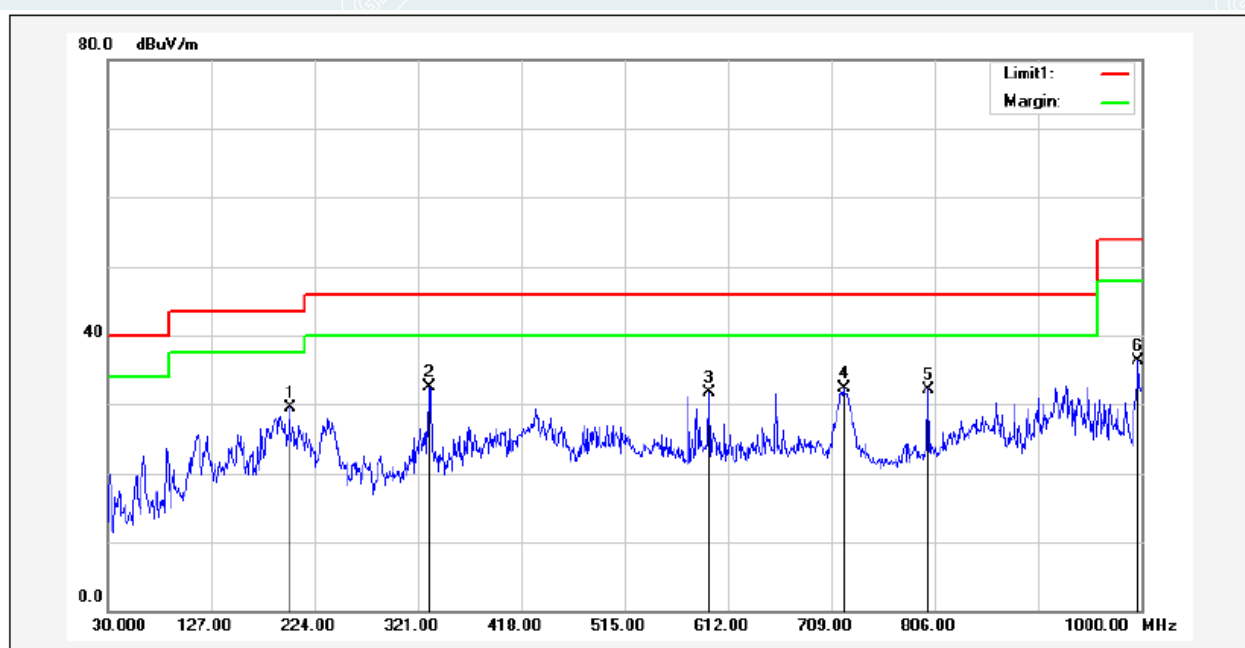
No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	179.3800	57.94	-27.55	30.39	43.50	-13.11	0	164	QP
2	332.6400	55.96	-22.80	33.16	46.00	-12.84	249	100	QP
3	498.5100	49.03	-18.34	30.69	46.00	-15.31	89	100	QP
4*	649.8300	54.51	-15.98	38.53	46.00	-7.47	332	100	QP
5	904.9400	46.82	-13.15	33.67	46.00	-12.33	338	200	QP
6	997.0900	45.82	-12.05	33.77	54.00	-20.23	357	100	QP

EUT Name	GNSS Tracker	Model	GV58CEU
Environmental Conditions	25.1℃/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_1M (2440MHz)	Polarity	Horizontal
Tested By	Huang Xinlong	Tested Date	2022-11-23



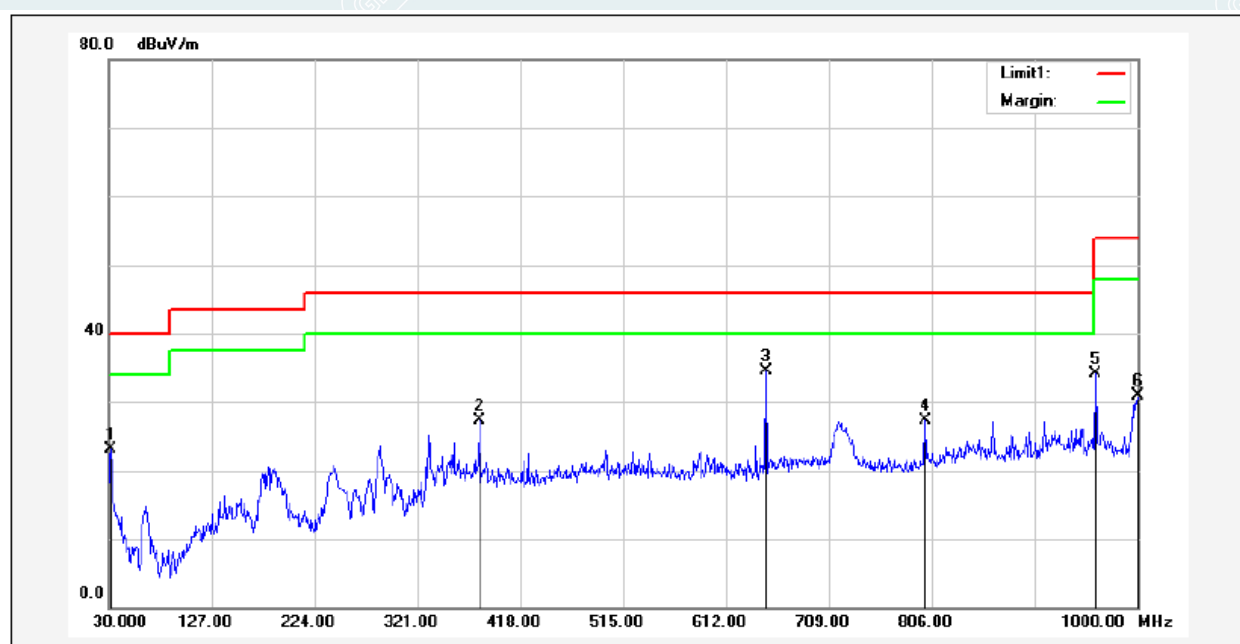
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	333.6100	48.70	-22.78	25.92	46.00	-20.08	253	200	QP
2	498.5100	41.78	-18.34	23.44	46.00	-22.56	176	100	QP
3	633.3400	41.02	-16.14	24.88	46.00	-21.12	342	200	QP
4	800.1800	43.55	-14.12	29.43	46.00	-16.57	69	200	QP
5*	906.8800	50.18	-13.13	37.05	46.00	-8.95	336	200	QP
6	996.1200	42.23	-12.07	30.16	54.00	-23.84	189	200	QP

EUT Name	GNSS Tracker	Model	GV58CEU
Environmental Conditions	25.1°C/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_1M (2480MHz)	Polarity	Vertical
Tested By	Huang Xinlong	Tested Date	2022-11-23



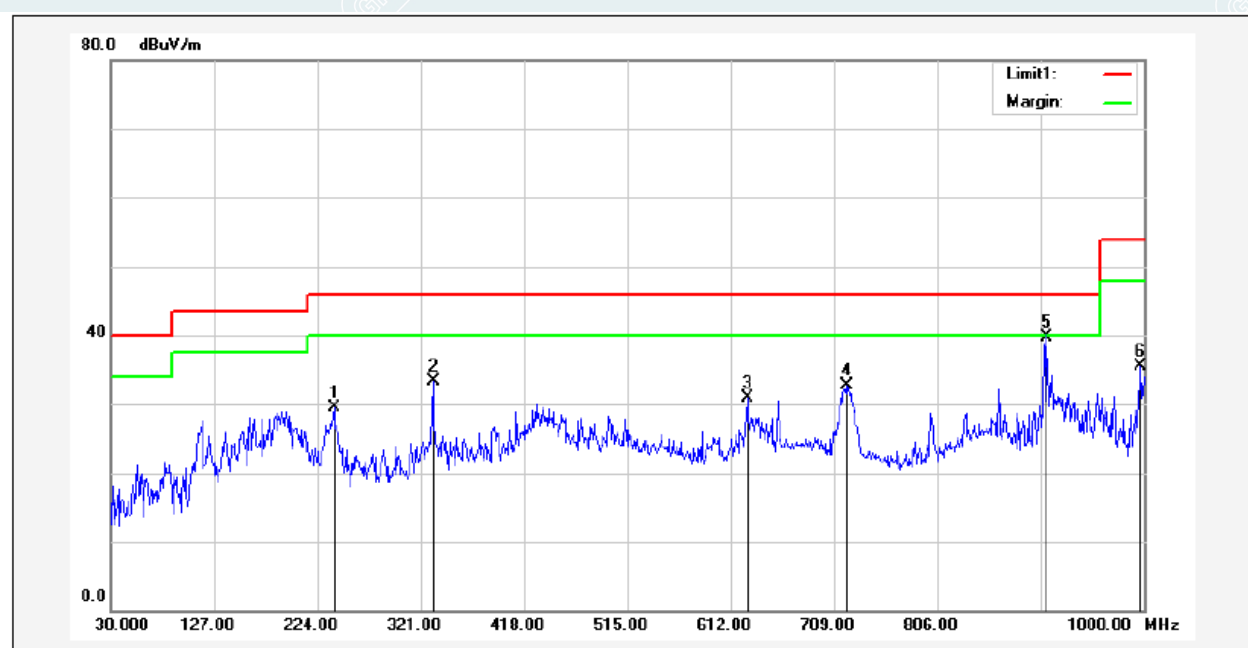
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	200.7200	55.97	-26.51	29.46	43.50	-14.04	243	100	QP
2*	331.6700	55.26	-22.82	32.44	46.00	-13.56	32	100	QP
3	594.5400	48.25	-16.47	31.78	46.00	-14.22	172	100	QP
4	720.6400	46.92	-14.71	32.21	46.00	-13.79	0	104	QP
5	800.1800	46.32	-14.12	32.20	46.00	-13.80	210	100	QP
6	997.0900	48.37	-12.05	36.32	54.00	-17.68	195	100	QP

EUT Name	GNSS Tracker	Model	GV58CEU
Environmental Conditions	25.1℃/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_1M (2480MHz)	Polarity	Horizontal
Tested By	Huang Xinlong	Tested Date	2022-11-23



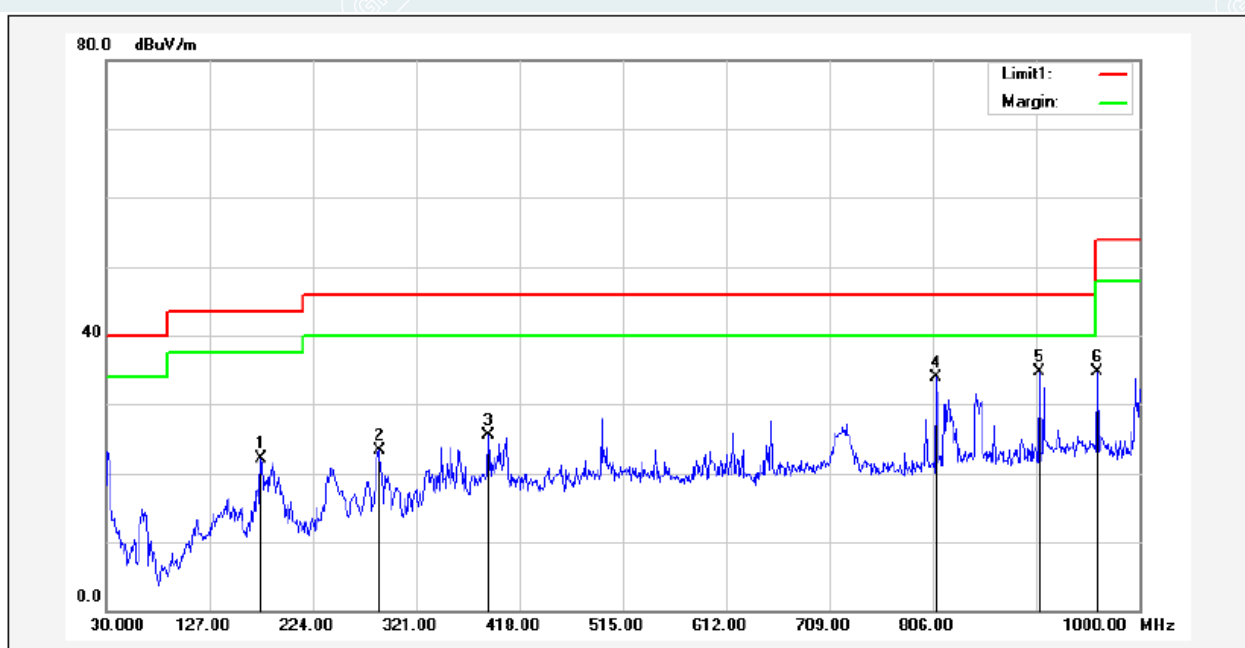
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	31.9400	40.86	-17.79	23.07	40.00	-16.93	130	100	QP
2	379.2000	48.31	-20.97	27.34	46.00	-18.66	330	100	QP
3*	649.8300	50.40	-15.98	34.42	46.00	-11.58	321	100	QP
4	800.1800	41.42	-14.12	27.30	46.00	-18.70	324	100	QP
5	960.2300	46.64	-12.56	34.08	54.00	-19.92	186	100	QP
6	1000.0000	42.93	-12.01	30.92	54.00	-23.08	214	100	QP

EUT Name	GNSS Tracker	Model	GV58CEU
Environmental Conditions	25.1°C/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_2M (2402MHz)	Polarity	Vertical
Tested By	Huang Xinlong	Tested Date	2022-11-23



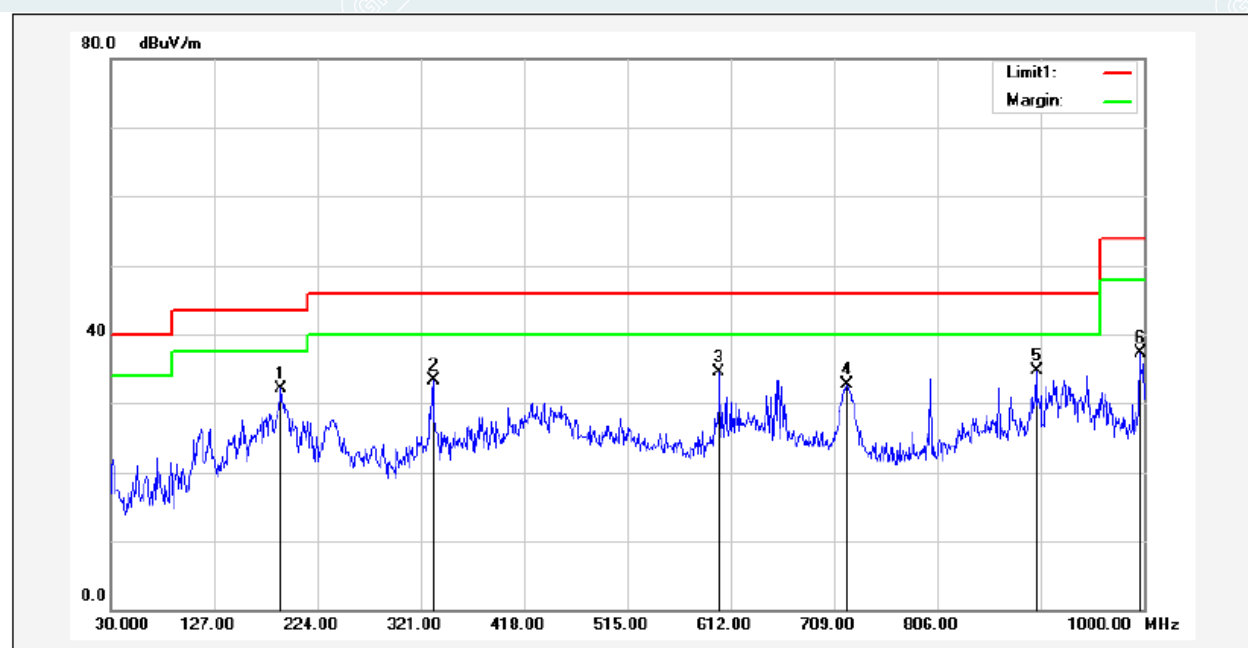
No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	239.5200	54.49	-25.05	29.44	46.00	-16.56	69	100	QP
2	332.6400	56.09	-22.80	33.29	46.00	-12.71	174	100	QP
3	627.5200	47.19	-16.19	31.00	46.00	-15.00	319	100	QP
4	720.6400	47.43	-14.71	32.72	46.00	-13.28	0	123	QP
5*	908.8200	52.91	-13.11	39.80	46.00	-6.20	276	200	QP
6	997.0900	47.58	-12.05	35.53	54.00	-18.47	191	100	QP

EUT Name	GNSS Tracker	Model	GV58CEU
Environmental Conditions	25.1℃/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_2M (2402MHz)	Polarity	Horizontal
Tested By	Huang Xinlong	Tested Date	2022-11-23



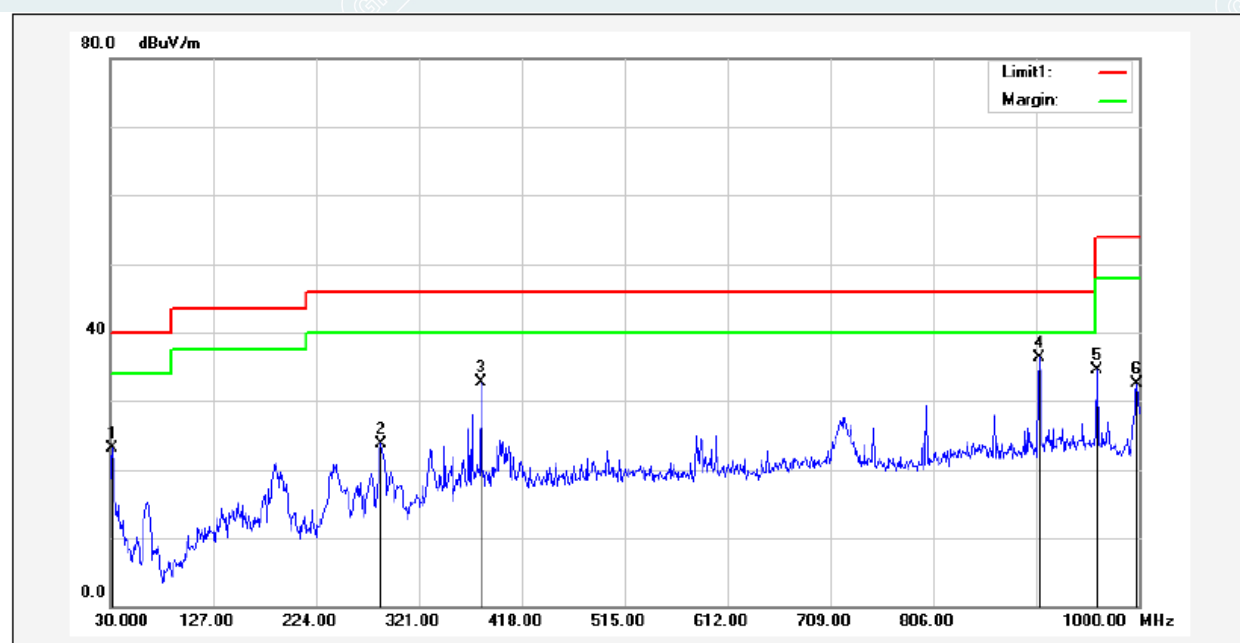
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	175.5000	49.71	-27.60	22.11	43.50	-21.39	1	200	QP
2	286.0800	47.33	-23.94	23.39	46.00	-22.61	266	100	QP
3	388.9000	45.93	-20.51	25.42	46.00	-20.58	282	100	QP
4	808.9100	47.87	-14.04	33.83	46.00	-12.17	112	100	QP
5*	905.9100	47.86	-13.13	34.73	46.00	-11.27	310	200	QP
6	960.2300	47.17	-12.56	34.61	54.00	-19.39	186	100	QP

EUT Name	GNSS Tracker	Model	GV58CEU
Environmental Conditions	25.1℃/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_2M (2440MHz)	Polarity	Vertical
Tested By	Huang Xinlong	Tested Date	2022-11-23



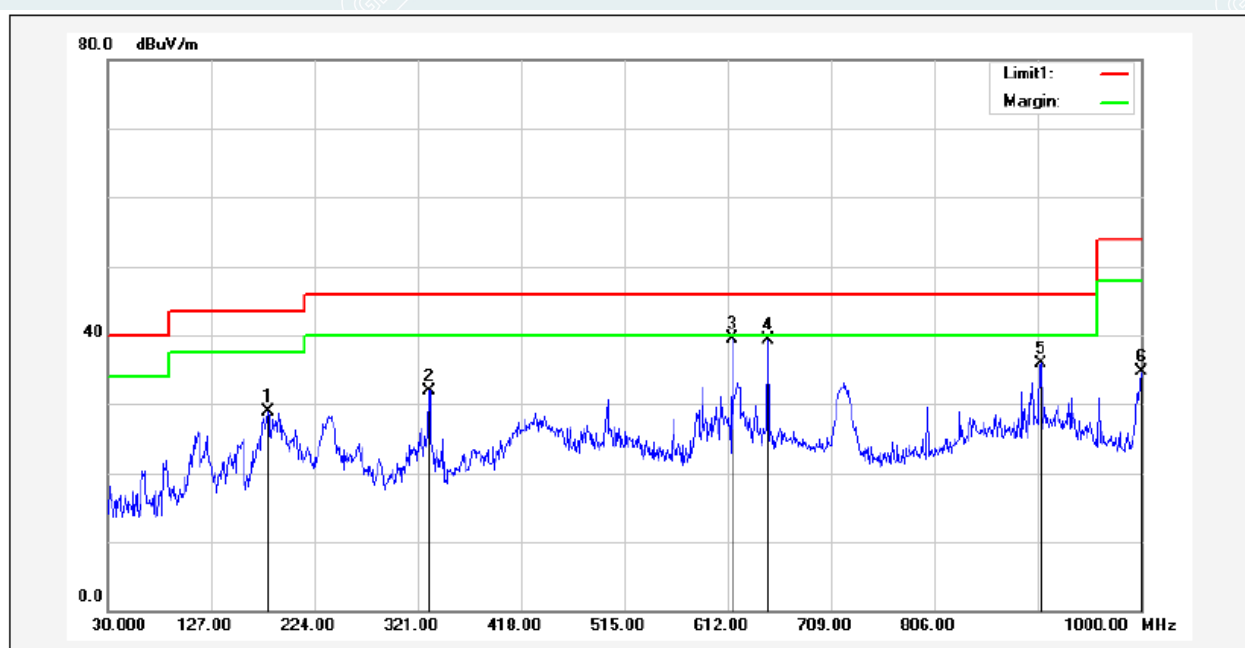
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	190.0500	59.26	-27.13	32.13	43.50	-11.37	273	100	QP
2	332.6400	56.02	-22.80	33.22	46.00	-12.78	231	100	QP
3	601.3300	50.95	-16.43	34.52	46.00	-11.48	319	100	QP
4	720.6400	47.42	-14.71	32.71	46.00	-13.29	352	100	QP
5*	899.1200	47.87	-13.21	34.66	46.00	-11.34	224	200	QP
6	996.1200	49.45	-12.07	37.38	54.00	-16.62	204	200	QP

EUT Name	GNSS Tracker	Model	GV58CEU
Environmental Conditions	25.1℃/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_2M (2440MHz)	Polarity	Horizontal
Tested By	Huang Xinlong	Tested Date	2022-11-23



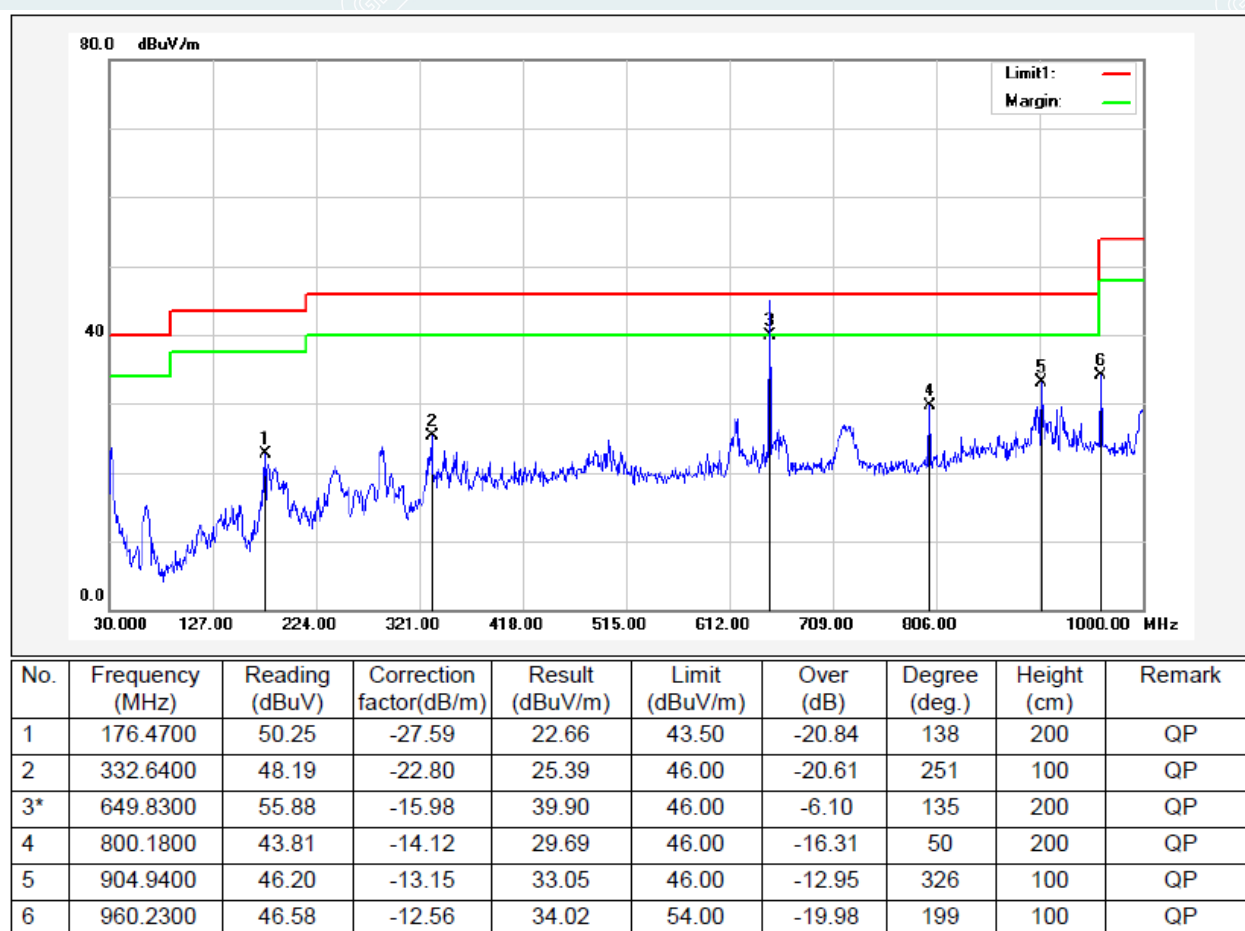
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	31.9400	40.91	-17.79	23.12	40.00	-16.88	150	100	QP
2	285.1100	47.76	-23.96	23.80	46.00	-22.20	230	100	QP
3	379.2000	53.67	-20.97	32.70	46.00	-13.30	13	200	QP
4*	905.9100	49.40	-13.13	36.27	46.00	-9.73	239	100	QP
5	960.2300	47.00	-12.56	34.44	54.00	-19.56	183	100	QP
6	998.0600	44.51	-12.04	32.47	54.00	-21.53	156	200	QP

EUT Name	GNSS Tracker	Model	GV58CEU
Environmental Conditions	25.1°C/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_2M (2480MHz)	Polarity	Vertical
Tested By	Huang Xinlong	Tested Date	2022-11-23



No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	180.3500	56.53	-27.53	29.00	43.50	-14.50	0	163	QP
2	331.6700	54.79	-22.82	31.97	46.00	-14.03	316	100	QP
3*	615.8800	55.89	-16.30	39.59	46.00	-6.41	308	100	QP
4	649.8300	55.35	-15.98	39.37	46.00	-6.63	0	121	QP
5	905.9100	48.96	-13.13	35.83	46.00	-10.17	0	175	QP
6	1000.0000	46.74	-12.01	34.73	54.00	-19.27	0	101	QP

EUT Name	GNSS Tracker	Model	GV58CEU
Environmental Conditions	25.1°C/57%RH/101.0kPa	Test Voltage	DC 3.7V
Test Mode	TX/ BLE_2M (2480MHz)	Polarity	Horizontal
Tested By	Huang Xinlong	Tested Date	2022-11-23

**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-18GHz:

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: 24.1°C/58%RH/101.0kPa

Tested By:Zhang Zishan

Voltage: DC 3.7V

Date: 2022-11-22

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1199.5249	69.54	45.60	-23.94	74.00	28.40	100	300	Horizontal
2	1332.7916	70.07	46.97	-23.10	74.00	27.03	100	300	Horizontal
3	1666.5833	67.47	44.39	-23.08	74.00	29.61	200	289	Horizontal
4	2657.4572	64.61	46.17	-18.44	74.00	27.83	100	267	Horizontal
5	4802.1003	58.84	46.23	-12.61	74.00	27.77	100	345	Horizontal
6	17713.0891	46.06	57.95	11.89	74.00	16.05	200	247	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	17713.0891	11.89	34.58	46.47	54.00	7.53	200	247	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	1195.5244	72.11	47.18	-24.93	74.00	26.82	200	360	Vertical
2	1664.333	69.80	47.38	-22.42	74.00	26.62	200	236	Vertical
3	2661.4577	63.76	46.05	-17.71	74.00	27.95	200	224	Vertical
4	3990.1238	60.70	45.63	-15.07	74.00	28.37	100	211	Vertical
5	6658.5823	55.93	50.10	-5.83	74.00	23.90	100	244	Vertical
6	17705.5882	47.24	60.35	13.11	74.00	13.65	100	211	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	17698.6703	13.11	33.86	46.97	54.00	7.03	142	43.3	Vertical

Mode: TX/ BLE_1M
Middle Frequency (2440MHz)
Environment: 24.1℃/58%RH/101.0kPa
Tested By: Zhang Zishan

Voltage: DC 3.7V
Date: 2022-11-22

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1194.0243	70.44	46.39	-24.05	74.00	27.61	200	287	Horizontal
2	1330.2913	66.90	43.83	-23.07	74.00	30.17	200	232	Horizontal
3	1989.3737	68.66	47.48	-21.18	74.00	26.52	100	189	Horizontal
4	2310.1638	65.52	46.43	-19.09	74.00	27.57	100	165	Horizontal
5	2659.2074	64.01	45.57	-18.44	74.00	28.43	100	153	Horizontal
6	17669.9587	45.95	57.90	11.95	74.00	16.10	100	281	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	17669.9587	11.95	34.67	46.62	54.00	7.38	100	281	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	1197.7747	72.38	47.40	-24.98	74.00	26.60	100	181	Vertical
2	1666.5833	69.20	46.85	-22.35	74.00	27.15	200	252	Vertical
3	2658.4573	65.10	47.35	-17.75	74.00	26.65	200	219	Vertical
4	3322.5403	64.23	47.87	-16.36	74.00	26.13	100	125	Vertical
5	6647.3309	54.40	48.63	-5.77	74.00	25.37	100	321	Vertical
6	17679.3349	46.02	59.03	13.01	74.00	14.97	200	116	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	17679.3349	13.01	34.48	47.49	54.00	6.51	200	116	Vertical

Mode: TX/ BLE_1M
Highest Frequency (2480MHz)
Environment: 24.1℃/58%RH/101.0kPa
Tested By: Zhang Zishan

Voltage: DC 3.7V
Date: 2022-11-22

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1199.775	71.24	47.31	-23.93	74.00	26.69	100	114	Horizontal
2	1998.1248	68.05	46.88	-21.17	74.00	27.12	100	181	Horizontal
3	2543.4429	66.05	47.53	-18.52	74.00	26.47	100	211	Horizontal
4	2840.9801	64.25	47.75	-16.50	74.00	26.25	100	260	Horizontal
5	3331.9165	64.13	47.01	-17.12	74.00	26.99	100	289	Horizontal
6	17681.2102	46.90	58.95	12.05	74.00	15.05	100	202	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1198.7748	72.26	47.26	-25.00	74.00	26.74	200	194	Vertical
2	1328.291	69.02	46.35	-22.67	74.00	27.65	100	194	Vertical
3	1664.083	69.91	47.48	-22.43	74.00	26.52	100	248	Vertical
4	1988.6236	67.94	47.11	-20.83	74.00	26.89	100	281	Vertical
5	2997.2497	63.95	47.57	-16.38	74.00	26.43	200	194	Vertical
6	17698.0873	45.59	58.77	13.18	74.00	15.23	100	169	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	17698.0873	13.18	33.41	46.59	54.00	7.41	100	169	Vertical

Mode: TX/ BLE_2M

Lowest Frequency (2402MHz)

Environment: 24.1℃/58%RH/101.0kPa

Tested By:Zhang Zishan

Voltage: DC 3.7V

Date: 2022-11-22

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1195.7745	67.33	43.32	-24.01	74.00	30.68	200	332	Horizontal
2	1330.2913	67.91	44.84	-23.07	74.00	29.16	200	246	Horizontal
3	1663.0829	64.19	41.08	-23.11	74.00	32.92	100	178	Horizontal
4	2658.2073	65.11	46.68	-18.43	74.00	27.32	100	48	Horizontal
5	3328.166	58.96	41.82	-17.14	74.00	32.18	100	172	Horizontal
6	17658.7073	46.79	58.65	11.86	74.00	15.35	100	182	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	17658.7073	11.86	34.54	46.40	54.00	7.60	100	182	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	1194.7743	71.64	46.72	-24.92	74.00	27.28	200	164	Vertical
2	1327.0409	67.91	45.21	-22.70	74.00	28.79	200	175	Vertical
3	1666.5833	69.23	46.88	-22.35	74.00	27.12	100	243	Vertical
4	2656.7071	65.42	47.65	-17.77	74.00	26.35	100	243	Vertical
5	4798.3498	60.69	47.80	-12.89	74.00	26.20	100	238	Vertical
6	17608.076	46.62	59.29	12.67	74.00	14.71	100	193	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	17608.076	12.67	34.50	47.17	54.00	6.83	100	193	Vertical

Mode: TX/ BLE_2M
Middle Frequency (2440MHz)
Environment: 24.1°C/58%RH/101.0kPa
Tested By: Zhang Zishan

Voltage: DC 3.7V
Date: 2022-11-22

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1200.025	64.48	40.55	-23.93	74.00	33.45	100	126	Horizontal
2	1328.5411	65.29	42.23	-23.06	74.00	31.77	100	284	Horizontal
3	1664.8331	66.67	43.57	-23.10	74.00	30.43	100	261	Horizontal
4	1987.1234	67.97	46.79	-21.18	74.00	27.21	100	169	Horizontal
5	2666.4583	63.22	44.80	-18.42	74.00	29.20	100	158	Horizontal
6	17694.3368	45.77	57.92	12.15	74.00	16.08	100	152	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	17694.3368	12.15	33.51	45.66	54.00	8.34	100	152	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	1164.5206	71.74	47.49	-24.25	74.00	26.51	100	167	Vertical
2	1329.7912	68.87	46.25	-22.62	74.00	27.75	200	168	Vertical
3	1665.0831	69.96	47.56	-22.40	74.00	26.44	100	244	Vertical
4	2665.9582	62.95	45.29	-17.66	74.00	28.71	100	200	Vertical
5	3316.9146	60.90	44.53	-16.37	74.00	29.47	200	212	Vertical
6	17656.8321	46.48	59.28	12.80	74.00	14.72	100	289	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	17656.8321	12.80	34.44	47.24	54.00	6.76	100	289	Vertical

Mode: TX/ BLE_2M

Highest Frequency (2480MHz)

Environment: 24.1°C/58%RH/101.0kPa

Tested By: Zhang Zishan

Voltage: DC 3.7V

Date: 2022-11-22

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1195.5244	68.79	44.77	-24.02	74.00	29.23	100	213	Horizontal
2	1330.7913	65.14	42.06	-23.08	74.00	31.94	100	28	Horizontal
3	1664.333	65.82	42.72	-23.10	74.00	31.28	100	71	Horizontal
4	2659.7075	64.22	45.79	-18.43	74.00	28.21	100	213	Horizontal
5	5000.8751	55.15	43.68	-11.47	74.00	30.32	100	118	Horizontal
6	17671.834	46.27	58.23	11.96	74.00	15.77	100	193	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	17671.834	11.96	33.45	45.41	54.00	8.59	100	193	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	1194.0243	72.49	47.59	-24.90	74.00	26.41	200	157	Vertical
2	1665.8332	69.57	47.19	-22.38	74.00	26.81	100	245	Vertical
3	2659.9575	65.60	47.87	-17.73	74.00	26.13	100	245	Vertical
4	3995.7495	61.68	46.59	-15.09	74.00	27.41	100	194	Vertical
5	5310.2888	57.49	46.22	-11.27	74.00	27.78	100	280	Vertical
6	17639.955	45.92	58.64	12.72	74.00	15.36	100	291	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	17639.955	12.72	33.21	45.93	54.00	8.07	100	291	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: 24.7°C/59%RH/101.0kPa

Tested By: Zhang Zishan

Voltage: DC 3.7V

Date: 2022-11-24

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18969	51.95	40.13	-11.82	83.54	43.41	150	17	Horizontal
2	19634.975	50.74	39.45	-11.29	83.54	44.09	150	110	Horizontal
3	21606.125	49.17	39.41	-9.76	83.54	44.13	150	158	Horizontal
4	22856.05	49.20	40.49	-8.71	83.54	43.05	150	110	Horizontal
5	23608.725	48.61	39.91	-8.70	83.54	43.63	150	48	Horizontal
6	25936.025	47.43	39.43	-8.00	83.54	44.11	150	172	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	18489.175	51.95	39.82	-12.13	83.54	43.72	150	108	Vertical
2	19663.875	51.86	40.66	-11.20	83.54	42.88	150	141	Vertical
3	21084.65	50.35	40.36	-9.99	83.54	43.18	150	94	Vertical
4	23284.875	48.59	39.97	-8.62	83.54	43.57	150	47	Vertical
5	24042.65	48.68	40.36	-8.32	83.54	43.18	150	235	Vertical
6	25884.175	47.79	39.94	-7.85	83.54	43.60	150	79	Vertical

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

Mode: TX/ BLE_1M
Middle Frequency (2440MHz)
Environment: 24.7°C/59%RH/101.0kPa
Tested By: Zhang Zishan

Voltage: DC 3.7V
Date: 2022-11-24

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19019.575	52.22	40.44	-11.78	83.54	43.10	150	260	Horizontal
2	19487.925	52.22	40.78	-11.44	83.54	42.76	150	80	Horizontal
3	20428.025	51.60	41.02	-10.58	83.54	42.52	150	210	Horizontal
4	22039.2	50.28	40.55	-9.73	83.54	42.99	150	140	Horizontal
5	22727.7	50.34	41.53	-8.81	83.54	42.01	150	290	Horizontal
6	26429.875	47.20	40.02	-7.18	83.54	43.52	150	200	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	18478.975	52.35	40.20	-12.15	83.54	43.34	150	140	Vertical
2	20191.725	52.27	41.50	-10.77	83.54	42.04	150	320	Vertical
3	21299.7	50.26	40.38	-9.88	83.54	43.16	150	240	Vertical
4	22890.475	49.86	41.18	-8.68	83.54	42.36	150	30	Vertical
5	25638.95	48.12	40.59	-7.53	83.54	42.95	150	280	Vertical
6	26352.1	47.33	40.22	-7.11	83.54	43.32	150	310	Vertical

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

Mode: TX/ BLE_1M
Highest Frequency (2480MHz)
Environment: 24.7°C/59%RH/101.0kPa
Tested By: Zhang Zishan

Voltage: DC 3.7V
Date: 2022-11-24

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18952	52.51	40.68	-11.83	83.54	42.86	150	250	Horizontal
2	19490.475	51.96	40.53	-11.43	83.54	43.01	150	16	Horizontal
3	21336.675	50.08	40.13	-9.95	83.54	43.41	150	156	Horizontal
4	22985.675	49.22	40.57	-8.65	83.54	42.97	150	343	Horizontal
5	24696.3	48.30	40.73	-7.57	83.54	42.81	150	234	Horizontal
6	26063.1	48.53	40.61	-7.92	83.54	42.93	150	109	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	18673.2	52.77	40.77	-12.00	83.54	42.77	150	33	Vertical
2	20353.65	51.00	40.42	-10.58	83.54	43.12	150	33	Vertical
3	21185.375	50.69	40.73	-9.96	83.54	42.81	150	188	Vertical
4	22908.325	49.12	40.44	-8.68	83.54	43.10	150	141	Vertical
5	24822.1	47.47	40.09	-7.38	83.54	43.45	150	79	Vertical
6	26427.325	47.16	40.16	-7.00	83.54	43.38	150	344	Vertical

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

Mode: TX/ BLE_2M
Lowest Frequency (2402MHz)
Environment: 24.7°C/59%RH/101.0kPa
Tested By: Zhang Zishan

Voltage: DC 3.7V
Date: 2022-11-24

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18943.075	51.95	40.12	-11.83	83.54	43.42	150	345	Horizontal
2	19991.125	51.79	40.72	-11.07	83.54	42.82	150	127	Horizontal
3	21708.125	50.31	40.55	-9.76	83.54	42.99	150	282	Horizontal
4	22978.45	49.08	40.43	-8.65	83.54	43.11	150	47	Horizontal
5	24715.85	48.17	40.61	-7.56	83.54	42.93	150	143	Horizontal
6	26332.125	47.74	40.45	-7.29	83.54	43.09	150	14	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	18917.15	52.69	40.84	-11.85	83.54	42.70	150	64	Vertical
2	20173.875	51.33	40.54	-10.79	83.54	43.00	150	344	Vertical
3	22124.625	49.60	40.06	-9.54	83.54	43.48	150	2	Vertical
4	22905.35	49.38	40.70	-8.68	83.54	42.84	150	32	Vertical
5	24765.575	47.56	40.15	-7.41	83.54	43.39	150	64	Vertical
6	26376.325	47.30	40.25	-7.05	83.54	43.29	150	344	Vertical

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

Mode: TX/ BLE_2M
Middle Frequency (2440MHz)
Environment: 24.7°C/59%RH/101.0kPa
Tested By: Zhang Zishan

Voltage: DC 3.7V
Date: 2022-11-24

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19035.725	52.99	41.22	-11.77	83.54	42.32	150	284	Horizontal
2	19613.3	51.82	40.52	-11.30	83.54	43.02	150	239	Horizontal
3	20583.575	51.19	40.77	-10.42	83.54	42.77	150	360	Horizontal
4	21698.35	50.34	40.58	-9.76	83.54	42.96	150	32	Horizontal
5	23087.25	48.94	40.28	-8.66	83.54	43.26	150	126	Horizontal
6	24853.975	47.52	40.08	-7.44	83.54	43.46	150	111	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	18889.95	51.95	40.08	-11.87	83.54	43.46	150	126	Vertical
2	20225.725	51.32	40.58	-10.74	83.54	42.96	150	126	Vertical
3	21115.675	50.20	40.22	-9.98	83.54	43.32	150	157	Vertical
4	22647.8	49.18	40.25	-8.93	83.54	43.29	150	265	Vertical
5	24767.7	48.27	40.86	-7.41	83.54	42.68	150	157	Vertical
6	26373.775	47.35	40.30	-7.05	83.54	43.24	150	110	Vertical

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

Mode: TX/ BLE_2M
Highest Frequency (2480MHz)
Environment: 24.7°C/59%RH/101.0kPa
Tested By: Zhang Zishan

Voltage: DC 3.7V
Date: 2022-11-24

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18936.7	52.27	40.43	-11.84	83.54	43.11	150	109	Horizontal
2	19543.175	52.14	40.77	-11.37	83.54	42.77	150	14	Horizontal
3	21540.675	49.68	39.86	-9.82	83.54	43.68	150	109	Horizontal
4	22983.55	49.27	40.62	-8.65	83.54	42.92	150	314	Horizontal
5	24312.525	48.82	40.75	-8.07	83.54	42.79	150	329	Horizontal
6	26134.925	47.70	39.96	-7.74	83.54	43.58	150	206	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	18868.275	52.19	40.31	-11.88	83.54	43.23	150	79	Vertical
2	19613.3	51.85	40.60	-11.25	83.54	42.94	150	126	Vertical
3	22511.375	49.46	40.30	-9.16	83.54	43.24	150	142	Vertical
4	24645.725	47.68	40.10	-7.58	83.54	43.44	150	33	Vertical
5	25168.9	47.45	40.43	-7.02	83.54	43.11	150	281	Vertical
6	26352.95	47.30	40.19	-7.11	83.54	43.35	150	345	Vertical

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

8. 6dB BANDWIDTH

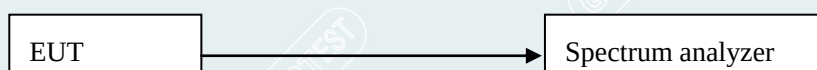
8.1 LIMITS

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: 23.7°C/53%RH/101.0kPa
 Tested By: Qin Tingting

Voltage: DC 3.7V
 Date: 2022-11-22

BLE_1M

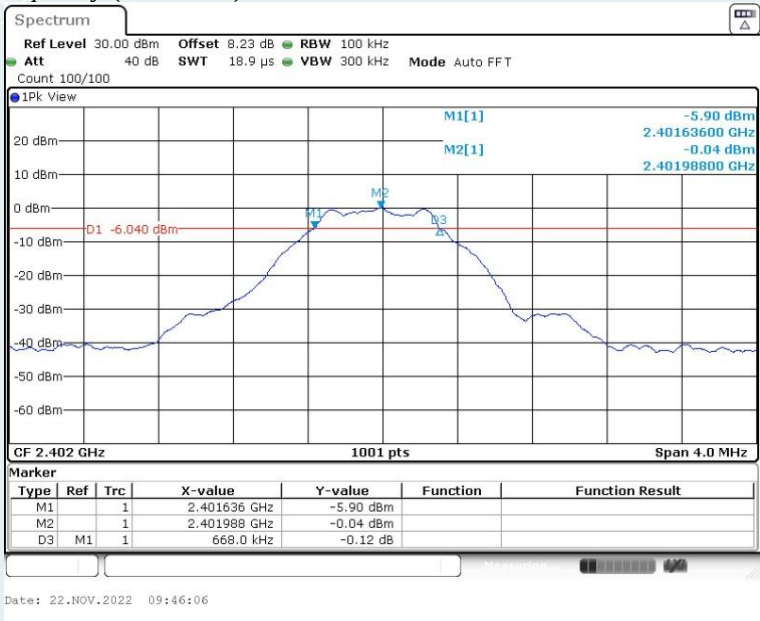
Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Lowest	2402	668	≥ 500	PASS
Middle	2440	676		PASS
Highest	2480	664		PASS

BLE_2M

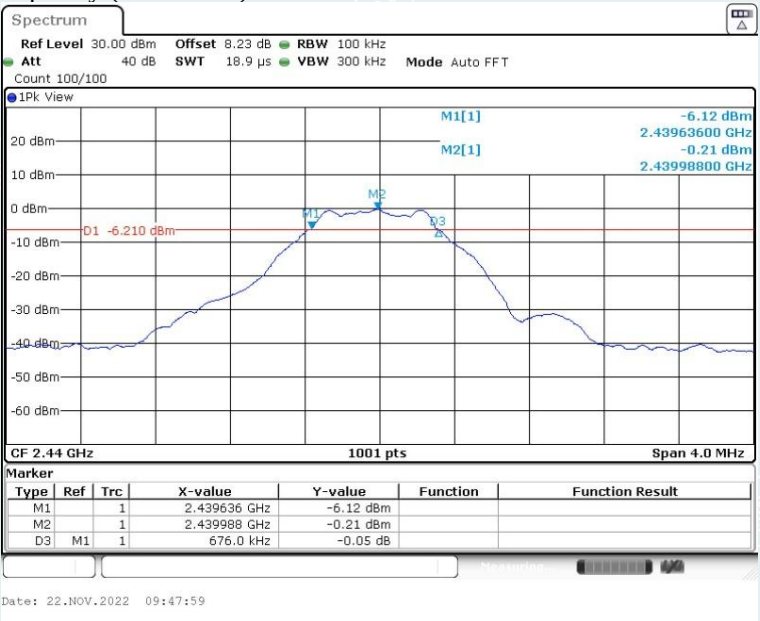
Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Lowest	2402	1132	≥ 500	PASS
Middle	2440	1128		PASS
Highest	2480	1136		PASS

BLE_1M

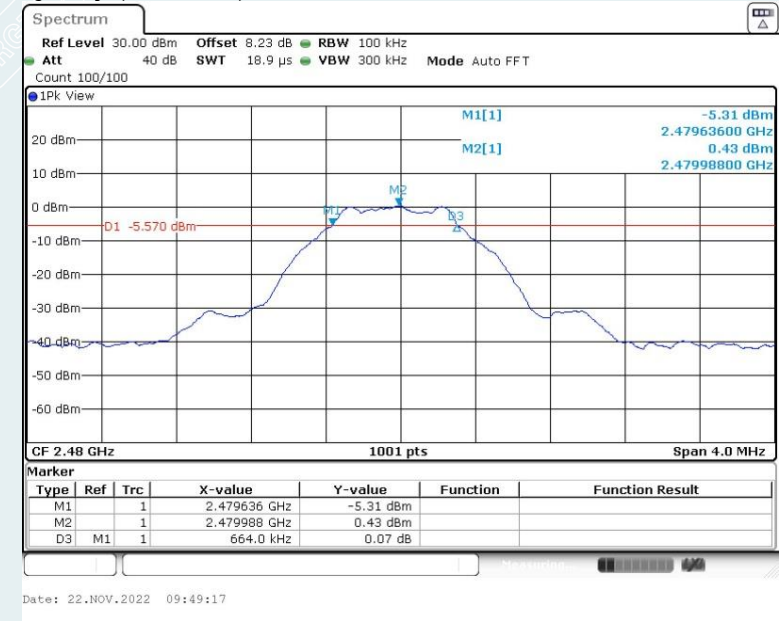
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)

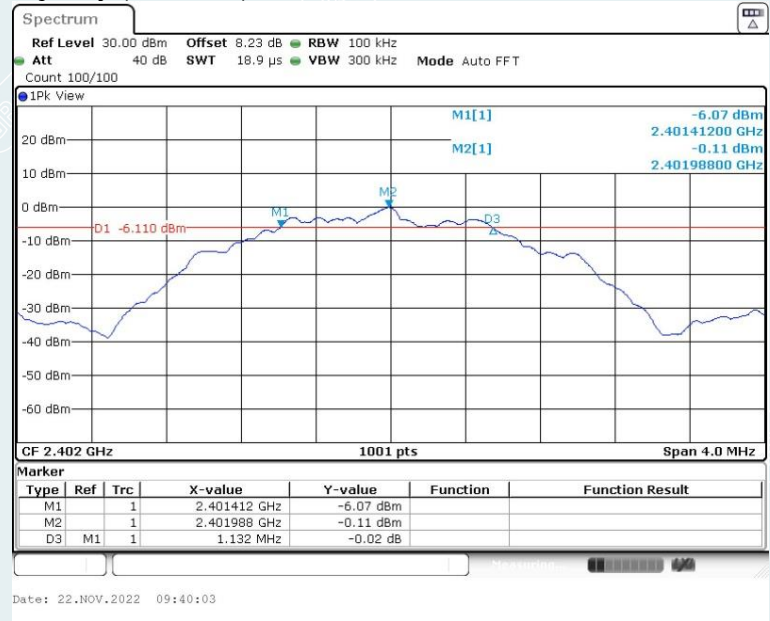


Highest Frequency (2480MHz)

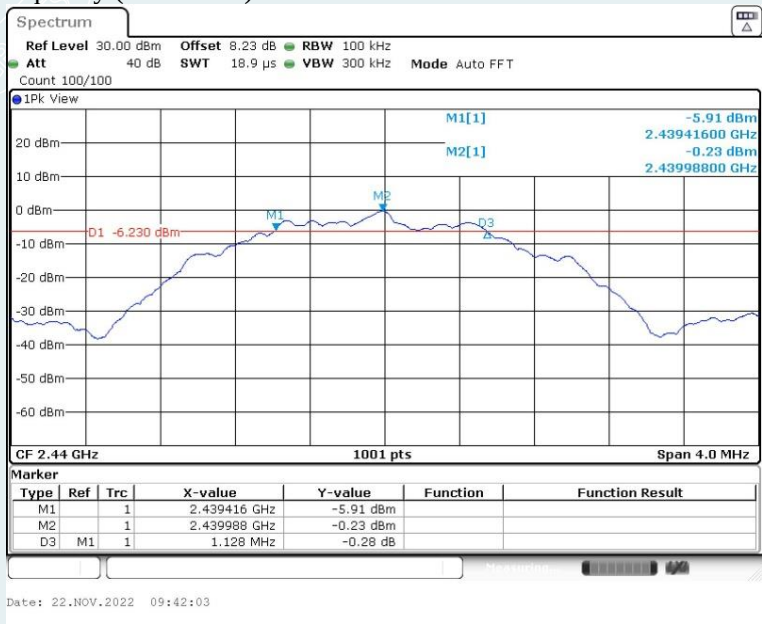


BLE_2M

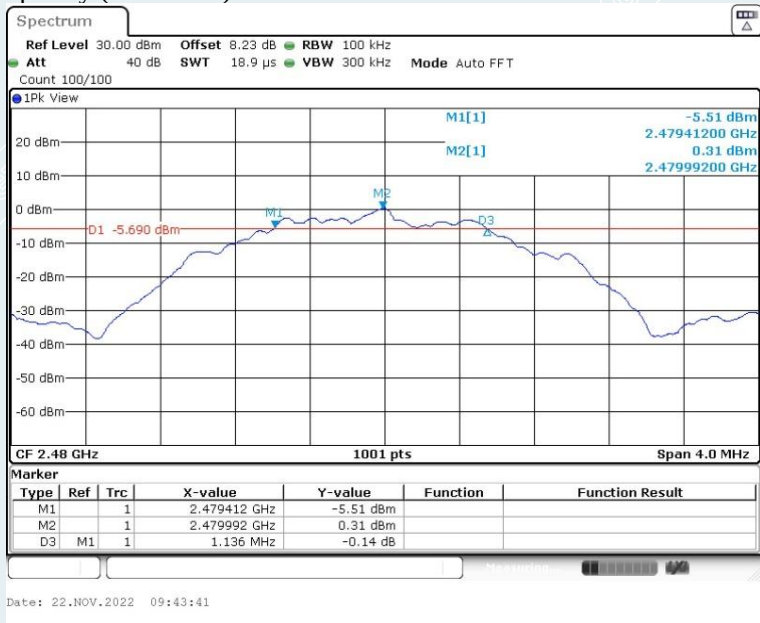
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



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: 23.7°C/53%RH/101.0kPa
Tested By: Qin Tingting

Voltage: DC 3.7V
Date: 2022-11-22

BLE_1M

Channel	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Peak/Average	Result
Lowest	2402	3.30	1W (30dBm)	Peak	Pass
Middle	2440	3.76			Pass
Highest	2480	4.33			Pass

BLE_2M

Channel	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Peak/Average	Result
Lowest	2402	3.29	1W (30dBm)	Peak	Pass
Middle	2440	3.76			Pass
Highest	2480	4.32			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: 23.7°C/53%RH/101.0kPa
 Tested By: Qin Tingting

Voltage: DC 3.7V
 Date: 2022-11-22

BLE_1M

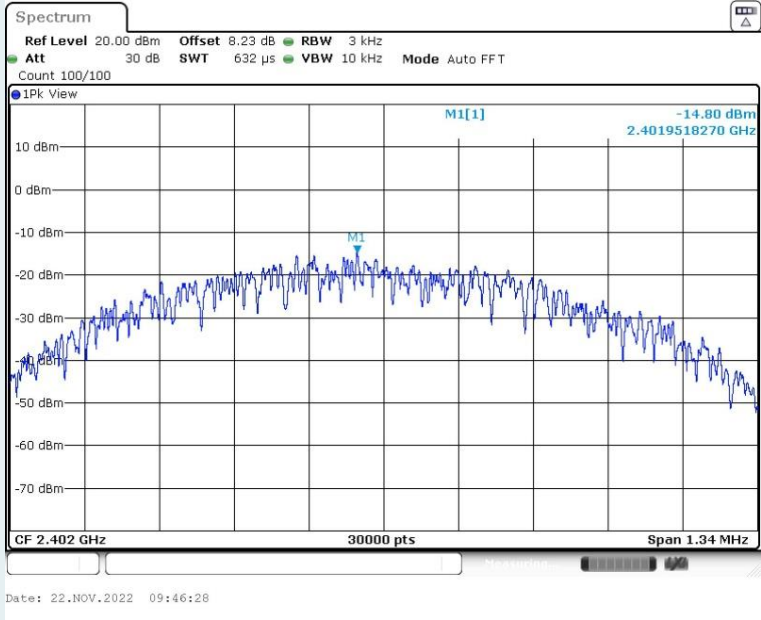
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Test Result
Lowest	2402	-14.80	8.00	PASS
Middle	2440	-14.98		PASS
Highest	2480	-14.39		PASS

BLE_2M

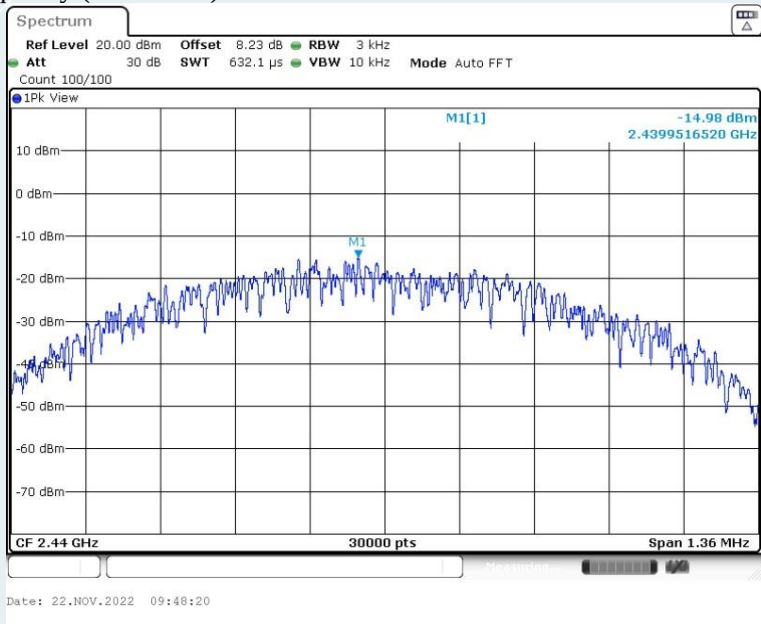
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Test Result
Lowest	2402	-18.31	8.00	PASS
Middle	2440	-18.11		PASS
Highest	2480	-17.61		PASS

BLE_1M

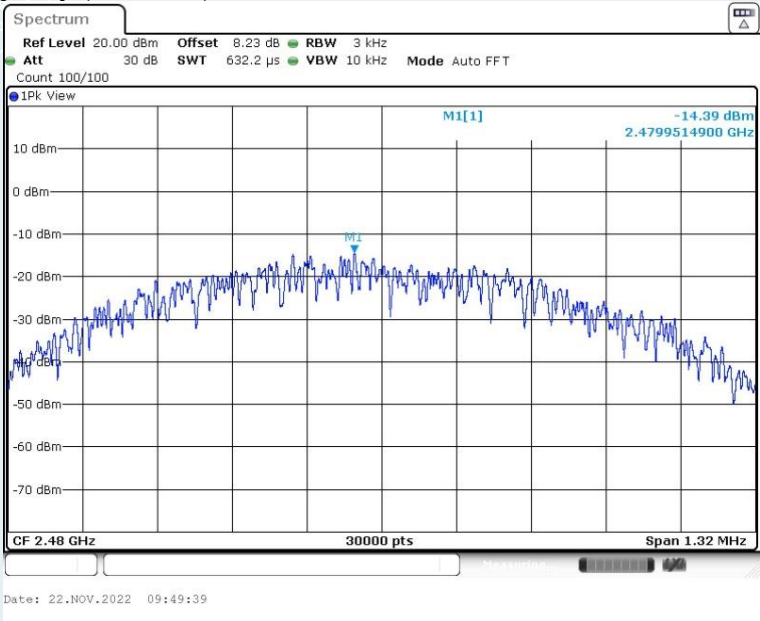
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)

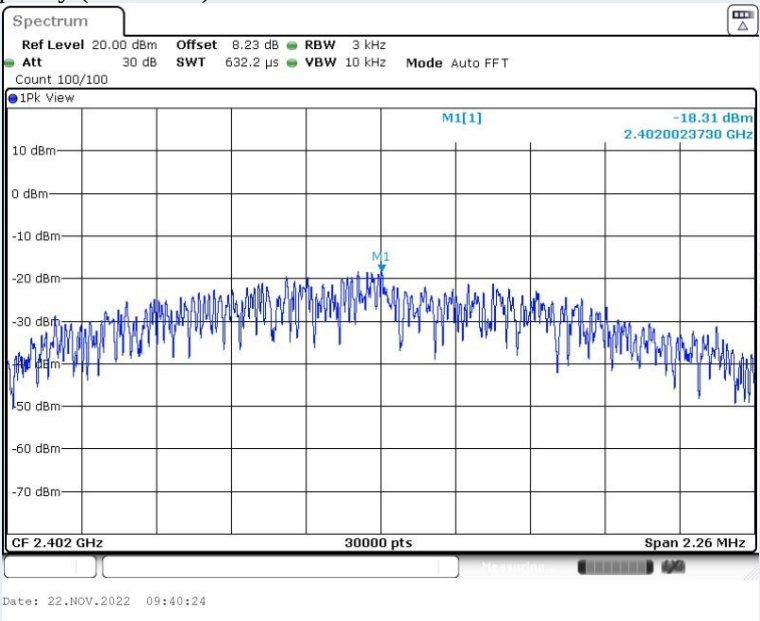


Highest Frequency (2480MHz)

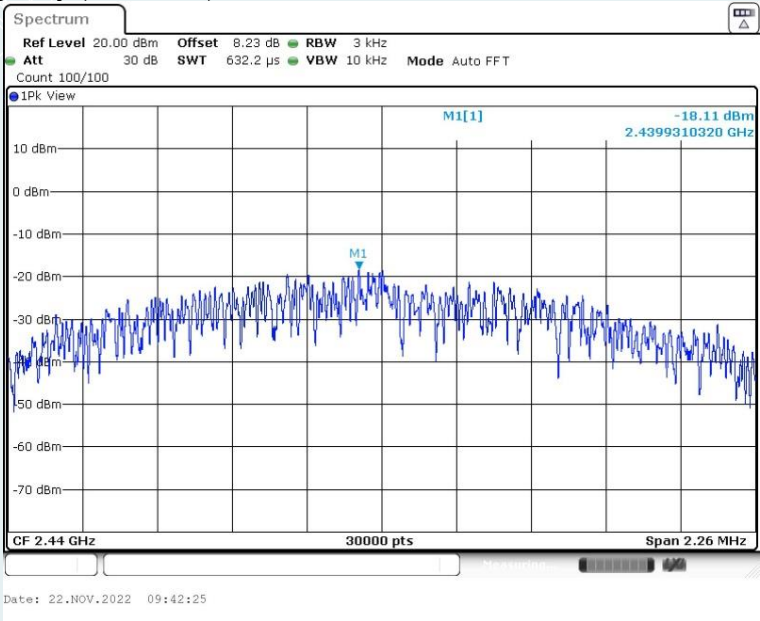


BLE_2M

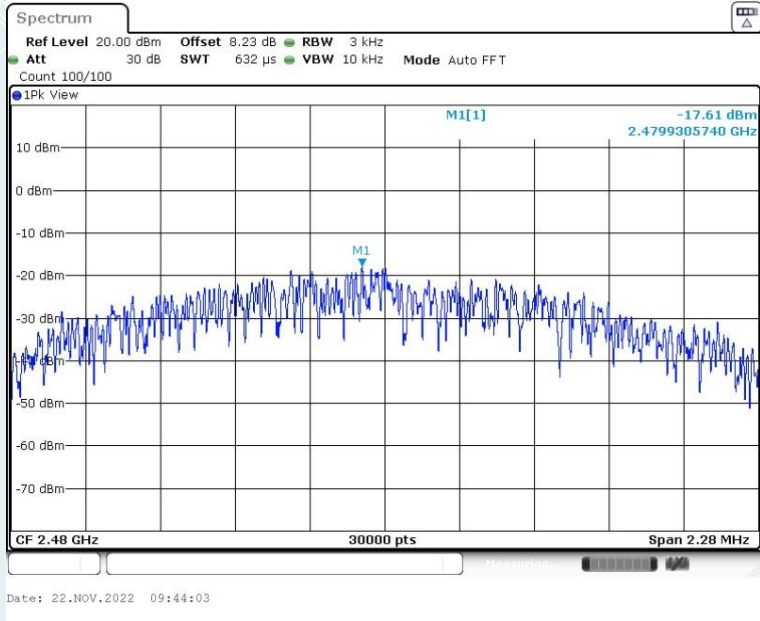
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



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

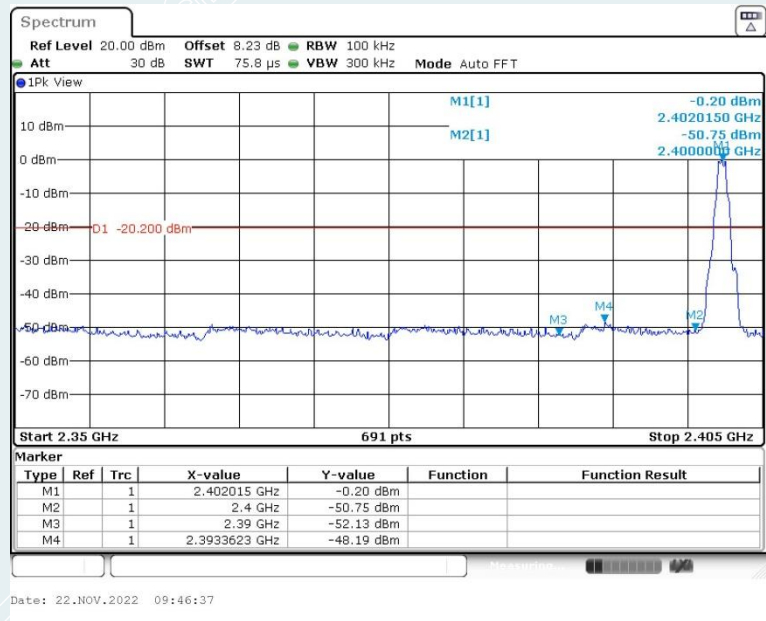
Environment: 23.7°C/53%RH/101.0kPa
Tested By: Qin Tingting

Voltage: DC 3.7V
Date: 2022-11-22

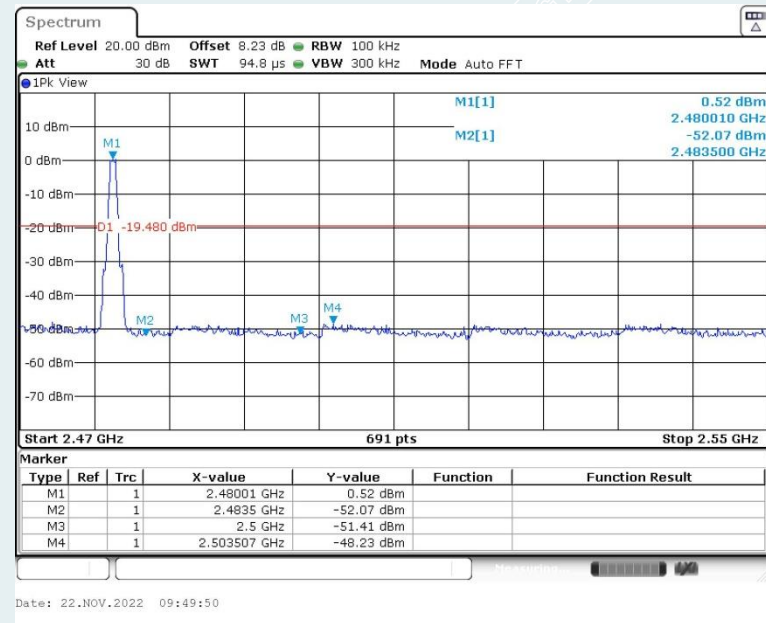
Band edge measurements

BLE_1M

Lowest Frequency (2402MHz)
2.35GHz-2.405GHz

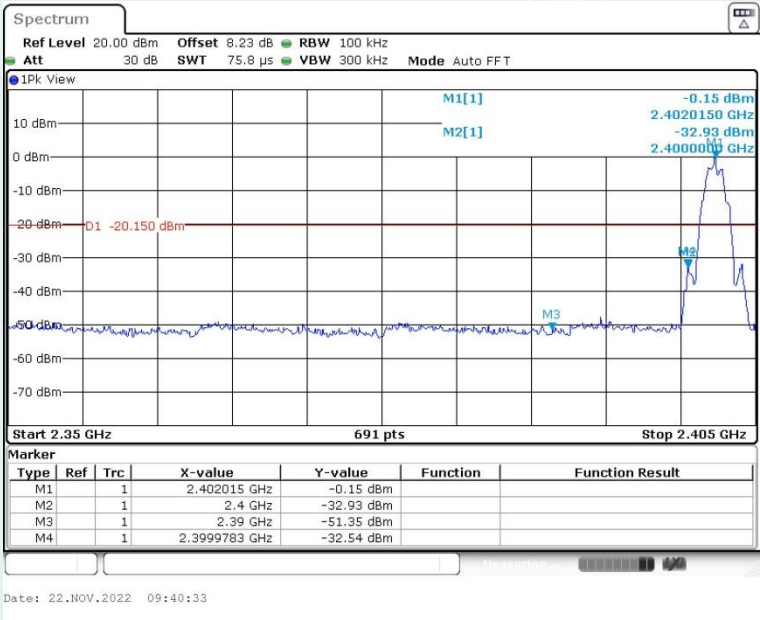


Highest Frequency (2480MHz)
2.47GHz-2.55GHz

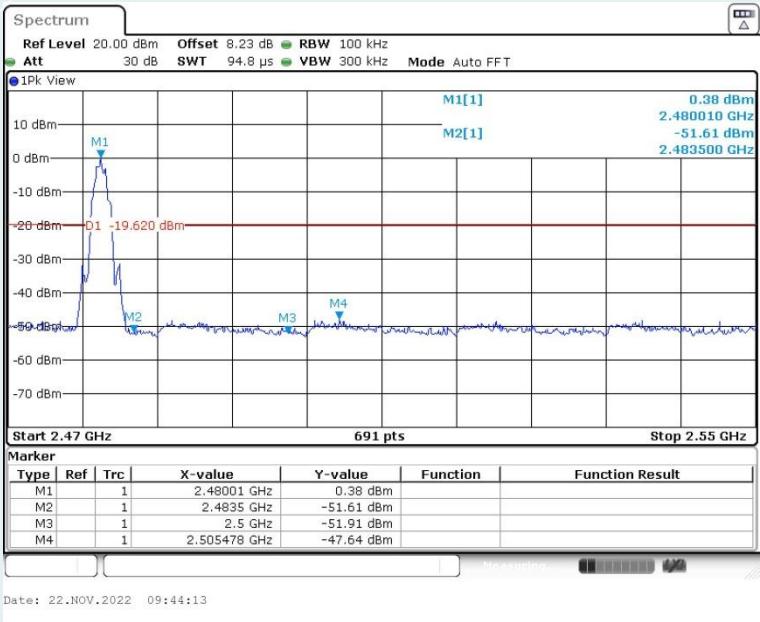


BLE_2M

Lowest Frequency (2402MHz)
2.35GHz-2.405GHz

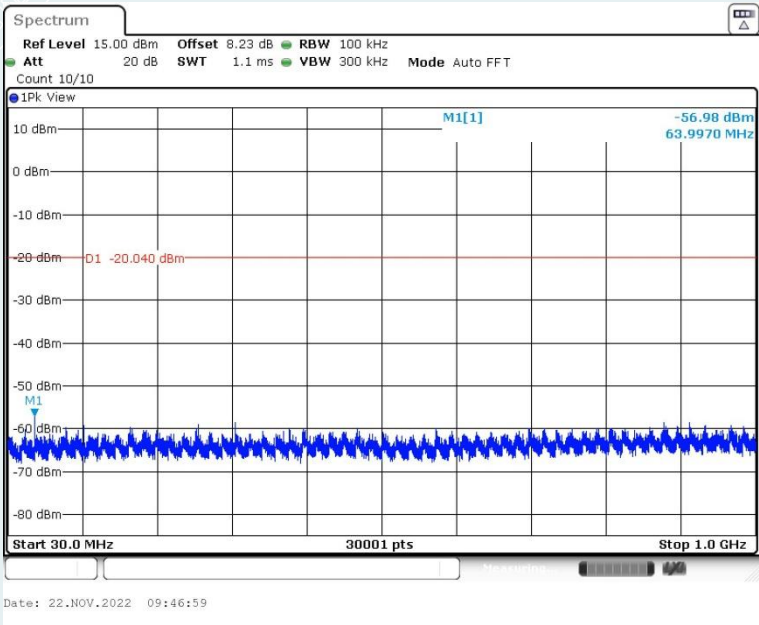


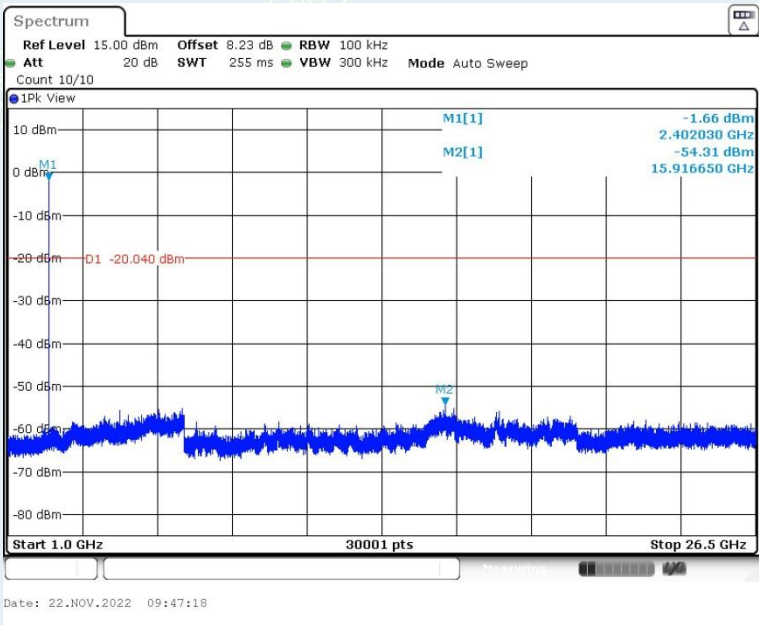
Highest Frequency (2480MHz)
2.47GHz-2.55GHz



Conducted Spurious Emission
BLE_1M

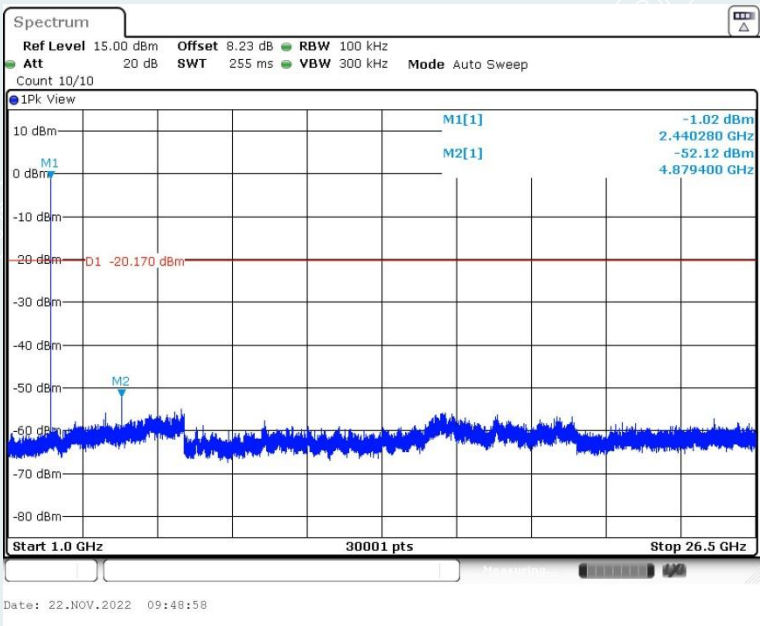
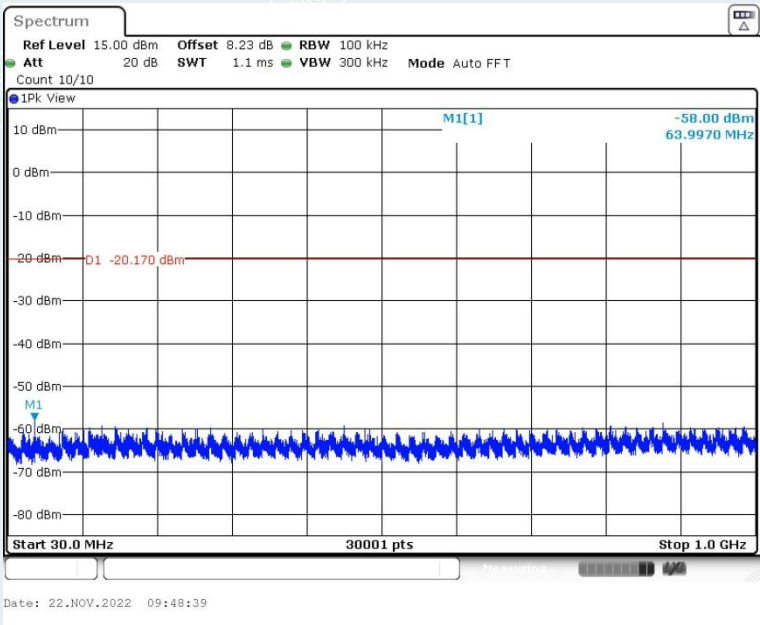
Lowest Frequency (2402MHz)



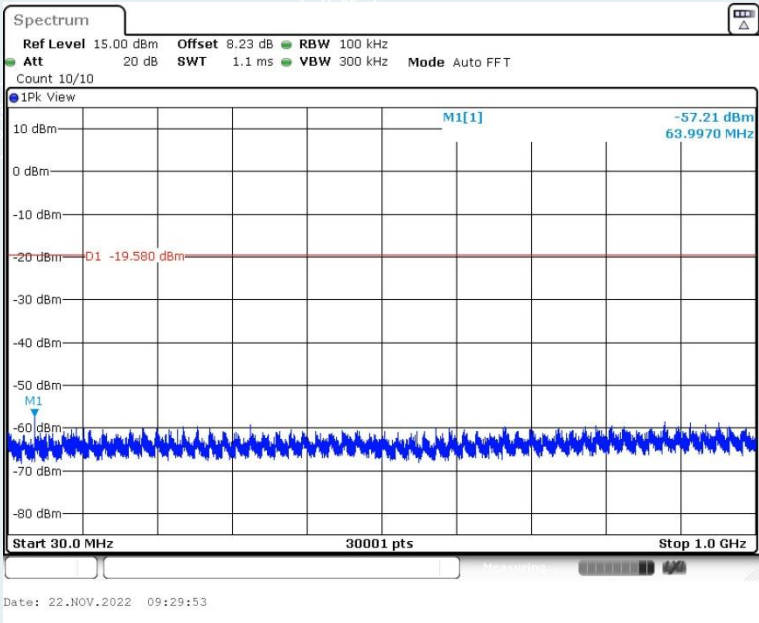


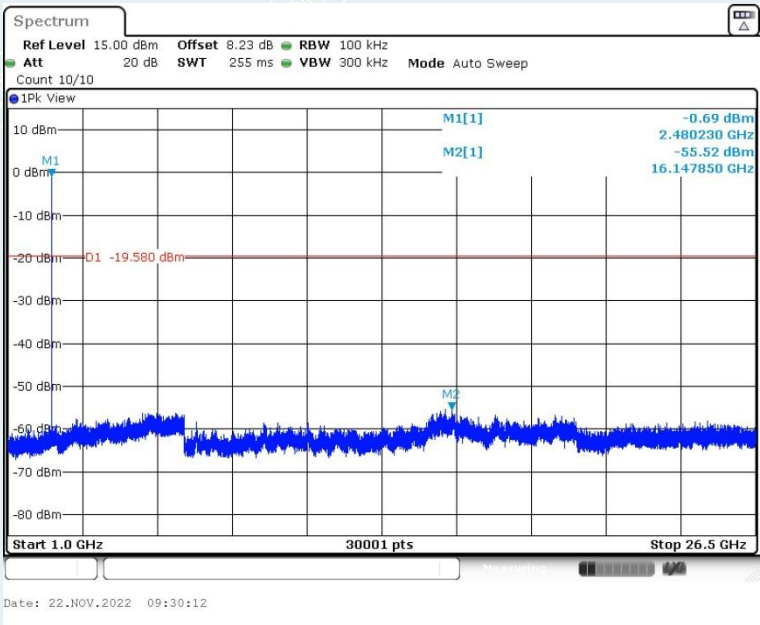
Middle Frequency (2440MHz)





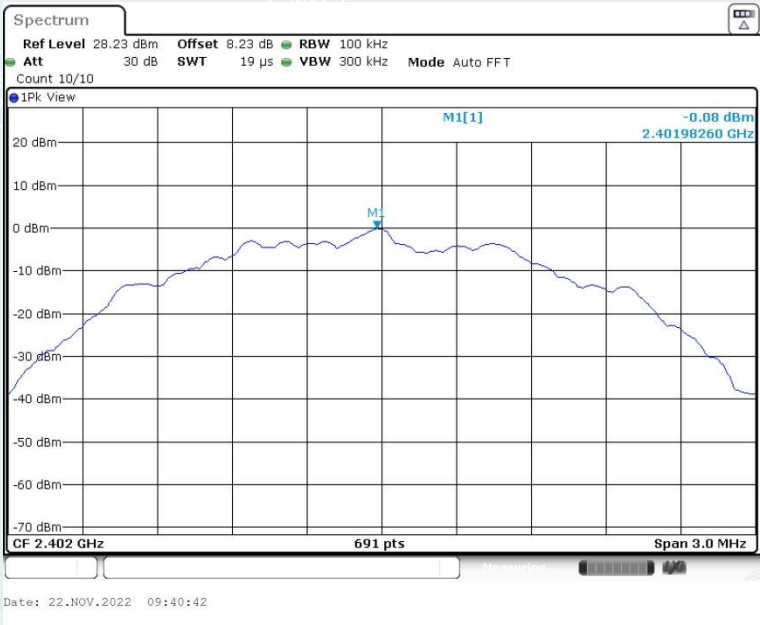
Highest Frequency (2480MHz)

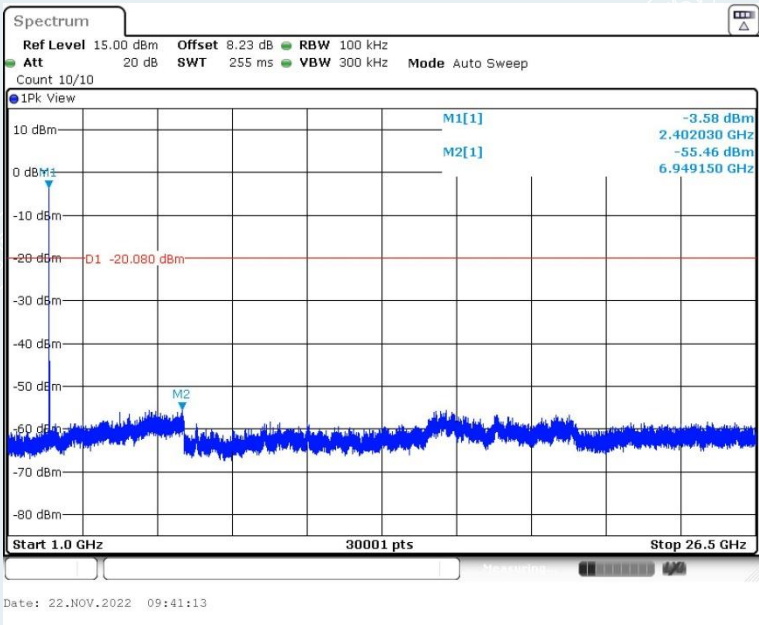
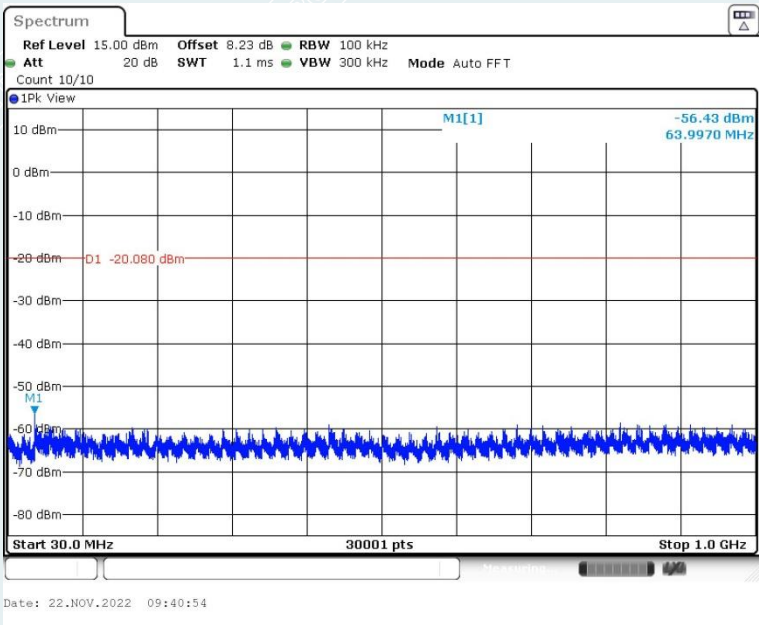




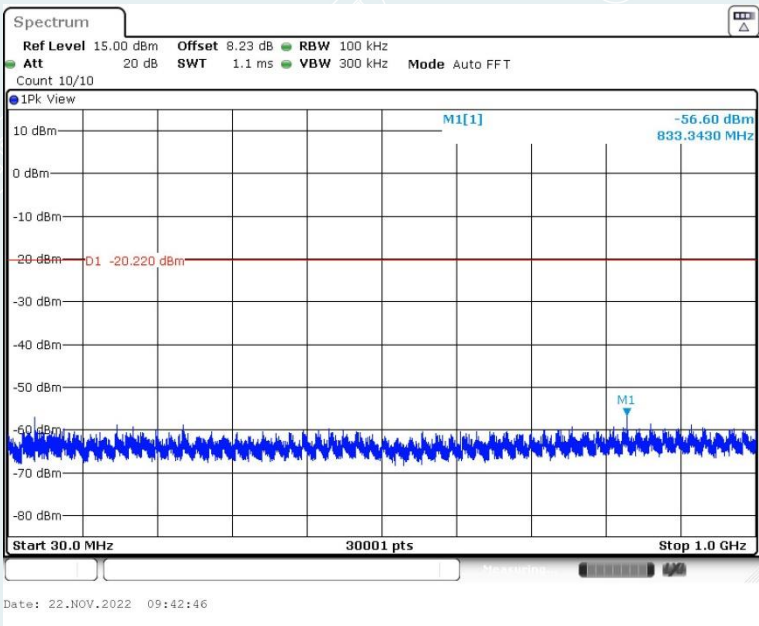
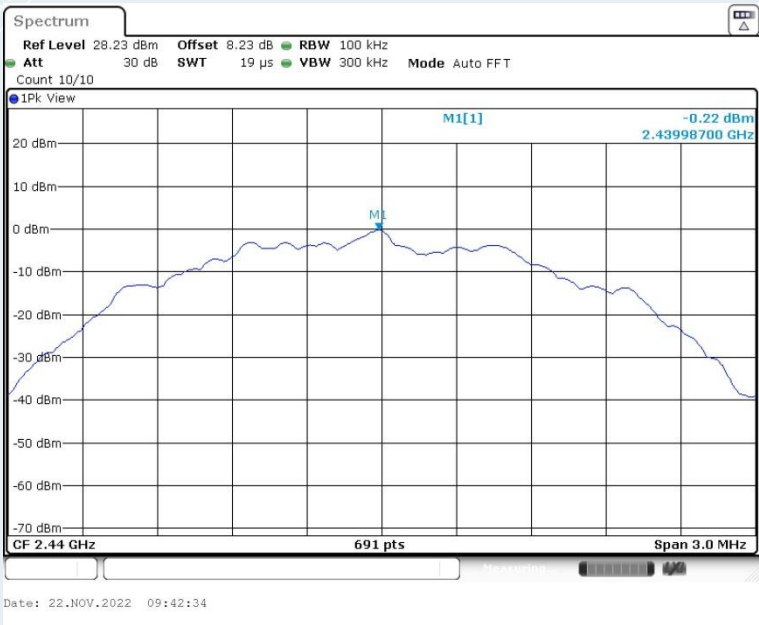
BLE_2M

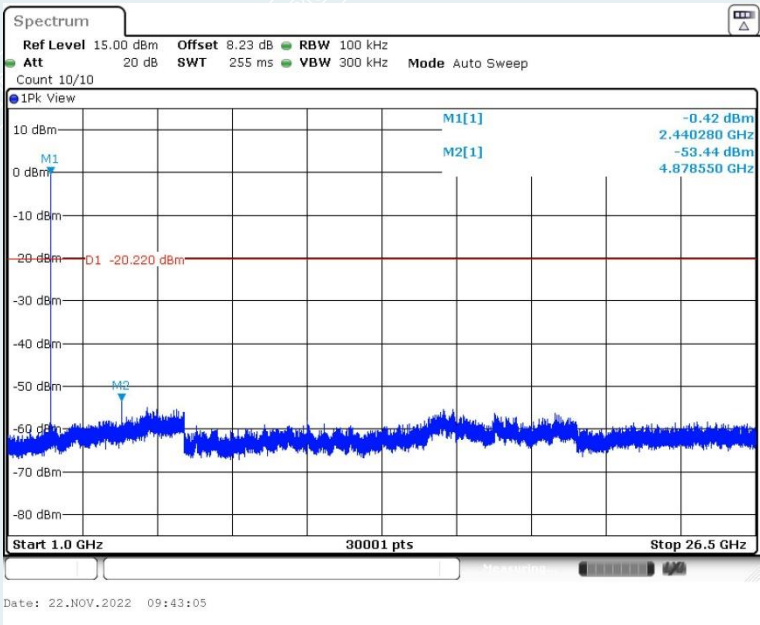
Lowest Frequency (2402MHz)



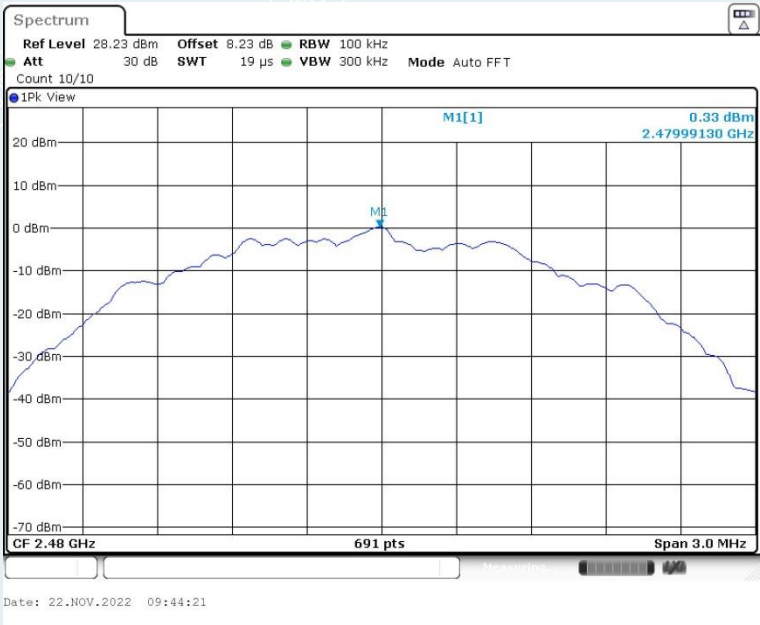


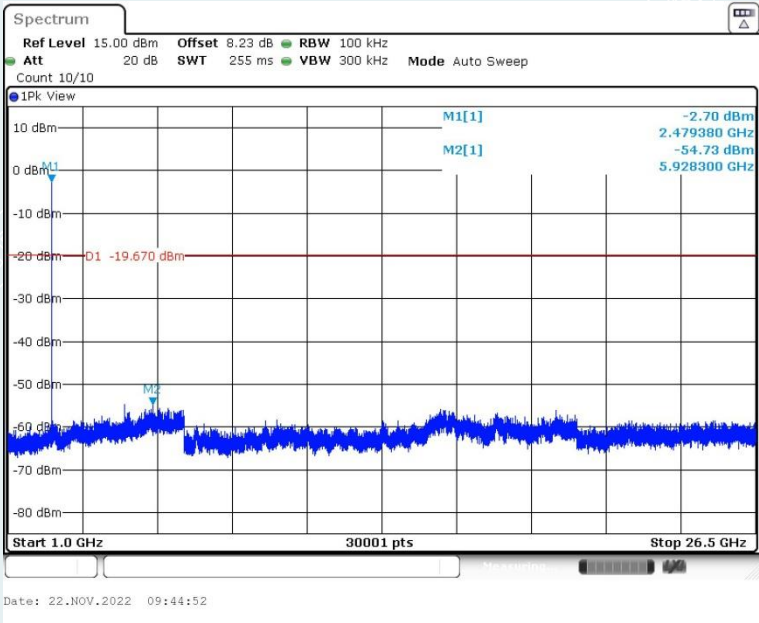
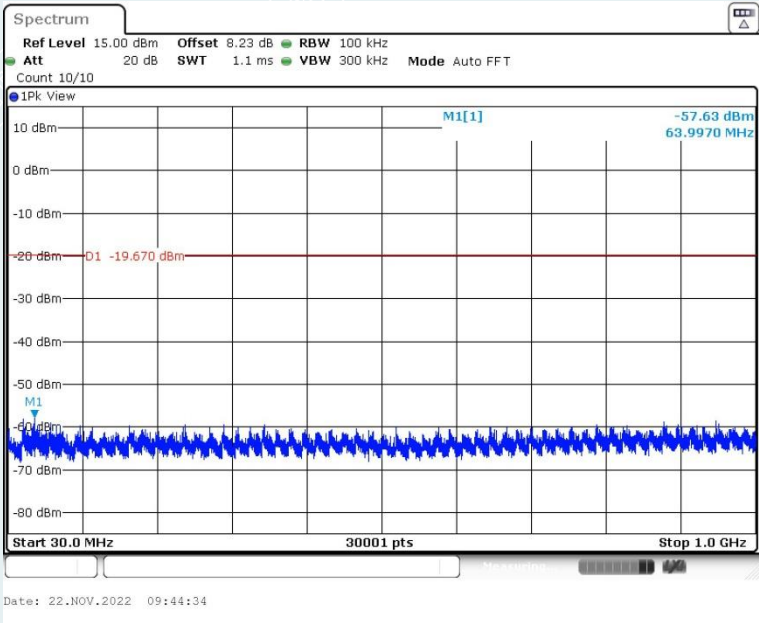
Middle Frequency (2440MHz)





Highest Frequency (2480MHz)





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

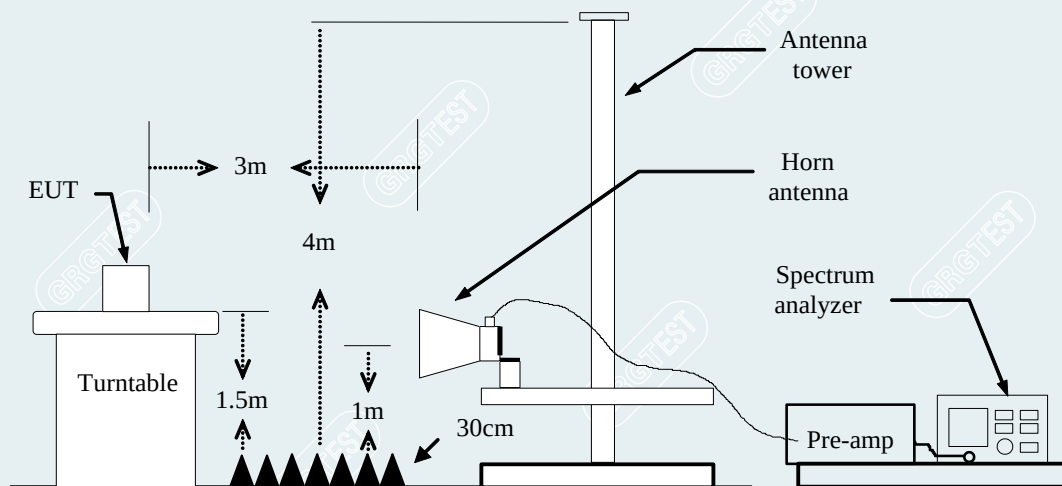
12.2 TEST PROCEDURES

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.

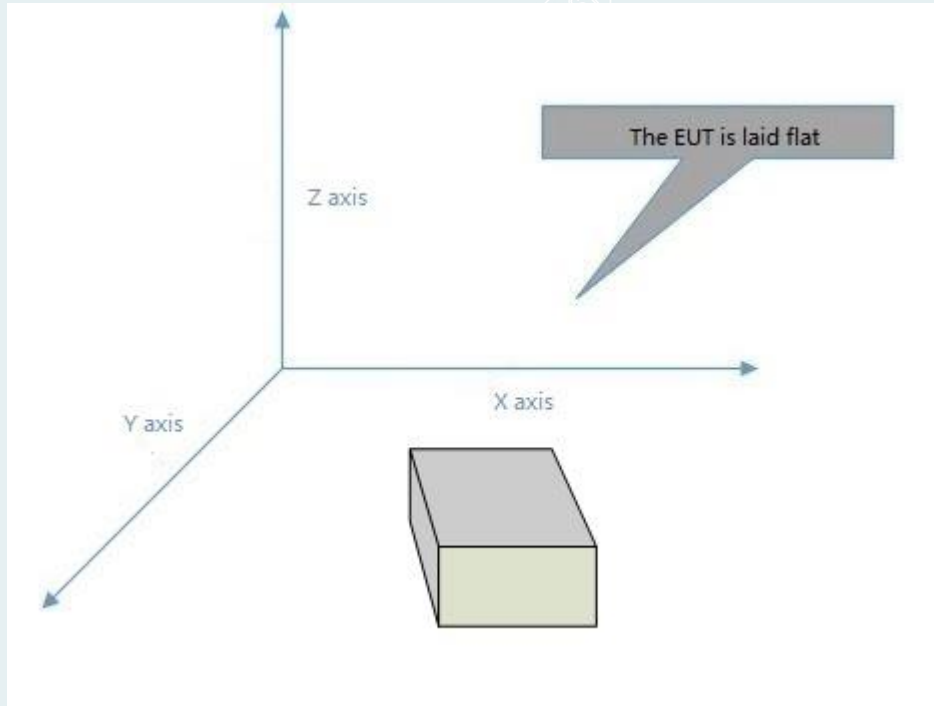
If the EUT is configured to transmit with duty cycle $\geq 98\%$, set $VBW \leq RBW/100$ (i.e., 10kHz) but not less than 10 Hz. If the EUT duty cycle is $< 98\%$, set $VBW \geq 1/T$, Where T is defined in section 2.9.
- 5) Repeat the procedures until all the PEAK and AVERAGE versus polarization are measured.

12.3 TEST SETUP



12.4 TEST RESULTS

The test are under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X axis. So the data shown the X axis only.



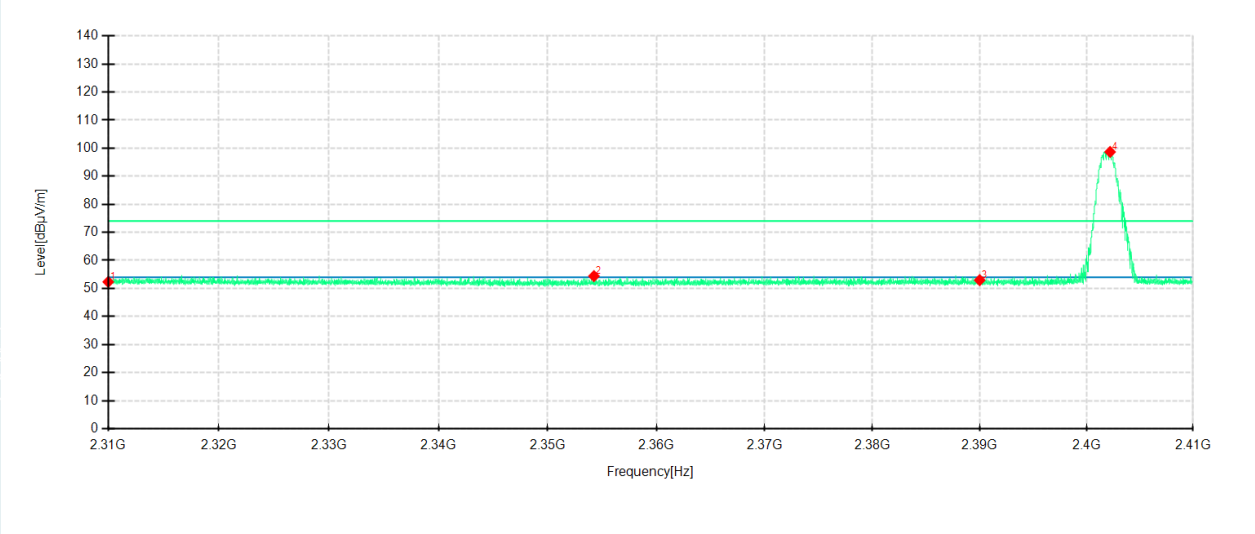
The configuration DC 12V ,DC 24 and DC 3.7V were tested respectively, but only the worst configuration(DC 3.7V) shown here.

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

Equipment:	GNSS Tracker	Test Date	2022-11-24
Model No.:	GV58CEU	Test Engineer:	Zhang Zishan
Test Voltage:	DC 3.7V	Environmental Conditions	24.8℃/58%RH/101.0kPa

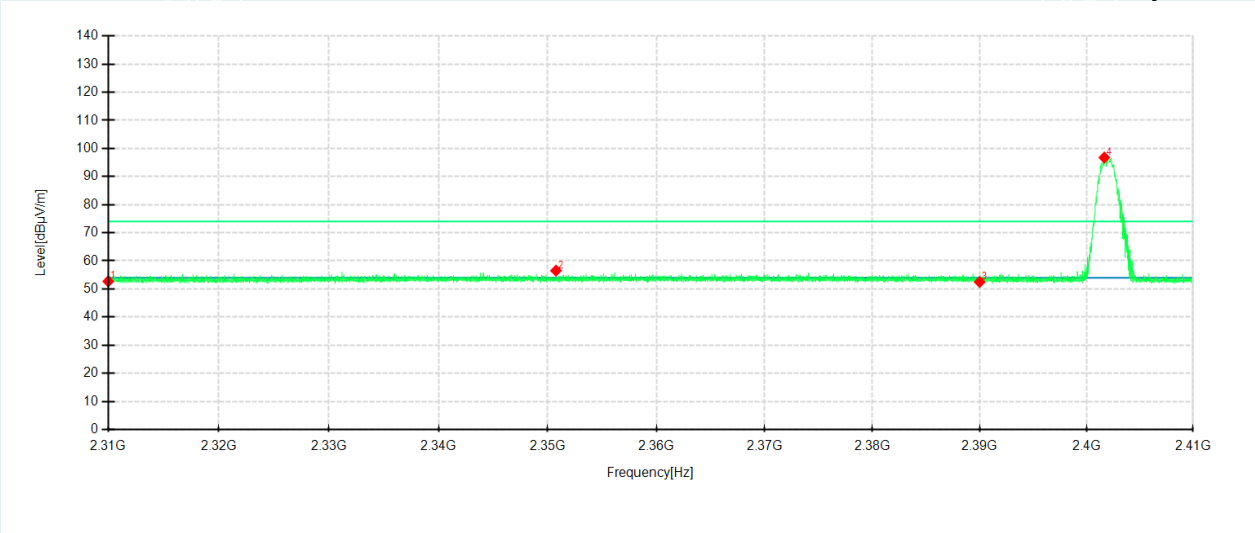
BLE 1M
Lowest Frequency
Frequency 2402MHz
Detector mode: Peak

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	42.98	52.33	9.35	74.00	21.67	200	132	Horizontal	/
2	2354.2544	45.82	54.39	8.57	74.00	19.61	200	189	Horizontal	/
3	2390	44.03	52.96	8.93	74.00	21.04	100	172	Horizontal	/
4	2402.2092	89.62	98.66	9.04	74.00	-24.66	100	215	Horizontal	No limit
1	2310	42.77	52.70	9.93	74.00	21.30	200	218	Vertical	/
2	2350.7641	46.33	56.54	10.21	74.00	17.46	200	355	Vertical	/
3	2390	42.41	52.48	10.07	74.00	21.52	200	172	Vertical	/
4	2401.6692	86.76	96.76	10.00	74.00	-22.76	100	186	Vertical	No limit

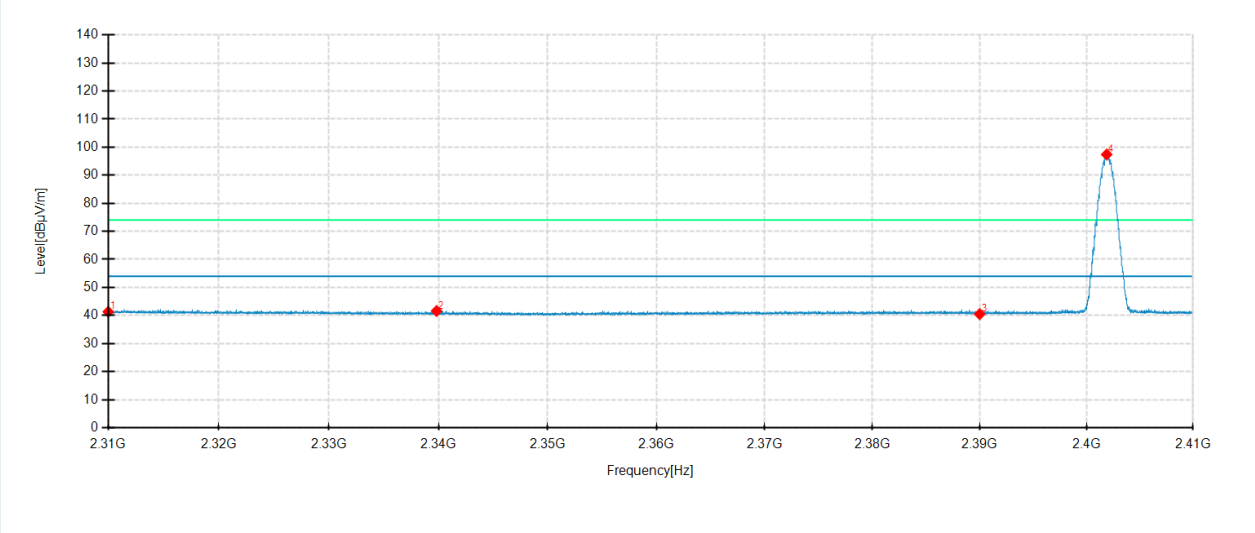
----- The following blanks -----

Lowest Frequency

Frequency 2402MHz

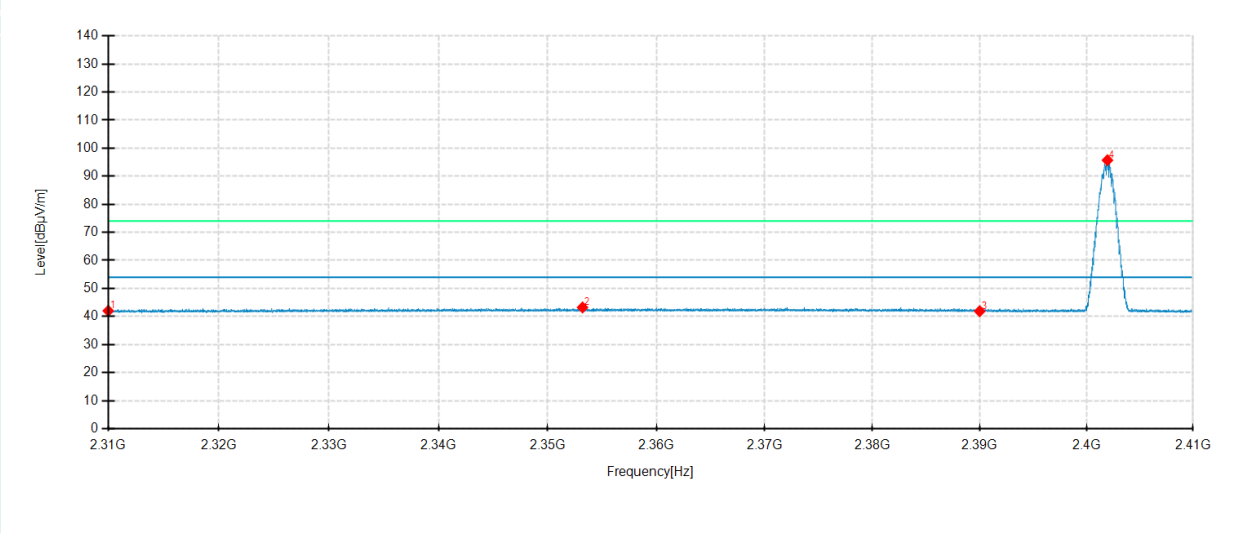
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



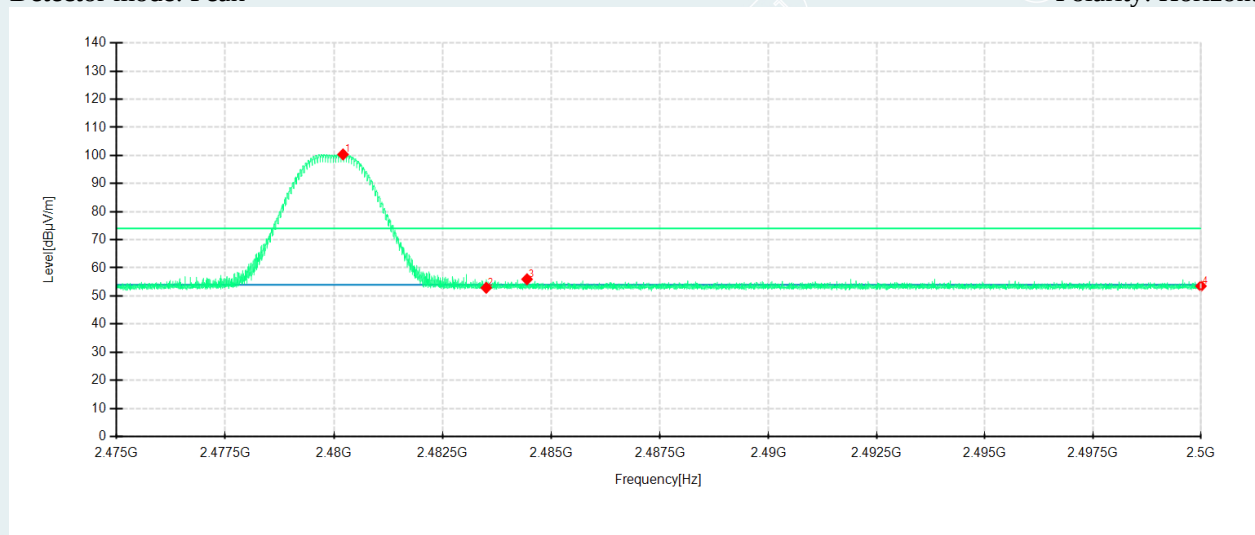
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310	31.97	41.32	9.35	54.00	12.68	100	174	Horizontal	/
2	2339.823	32.86	41.59	8.73	54.00	12.41	200	87	Horizontal	/
3	2390	31.56	40.49	8.93	54.00	13.51	100	174	Horizontal	/
4	2401.8892	88.36	97.40	9.04	54.00	-43.40	100	218	Horizontal	No limit
1	2310	32.10	42.03	9.93	54.00	11.97	200	263	Vertical	/
2	2353.2043	33.02	43.23	10.21	54.00	10.77	200	174	Vertical	/
3	2390	31.81	41.88	10.07	54.00	12.12	200	297	Vertical	/
4	2401.9592	85.72	95.71	9.99	54.00	-41.71	100	186	Vertical	No limit

Highest Frequency

Frequency 2480MHz

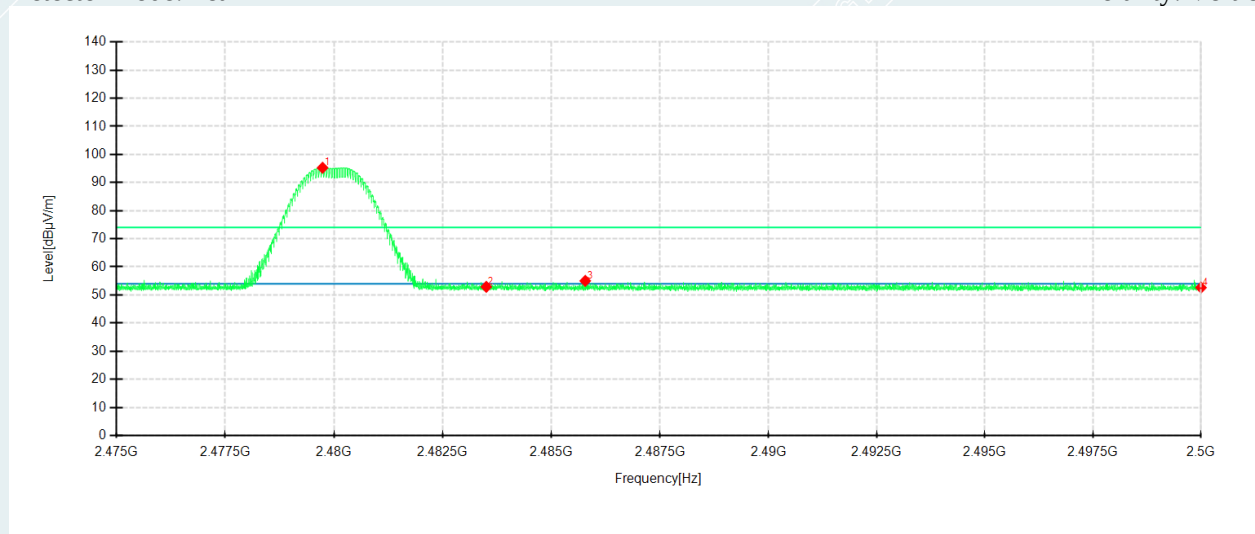
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



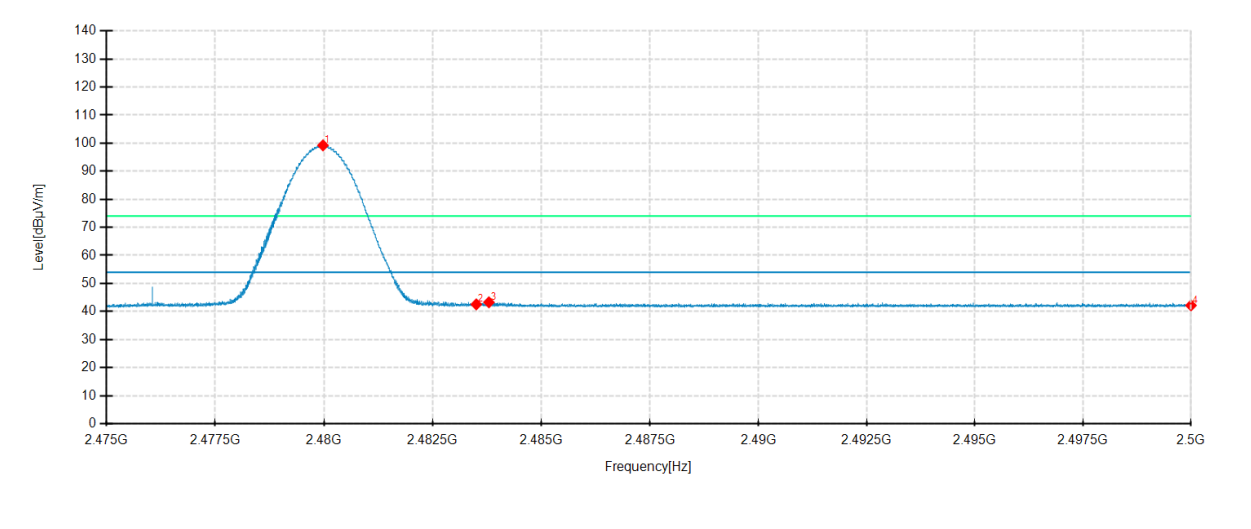
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2480.2055	90.51	100.36	9.85	74.00	-26.36	100	326	Horizontal	No limit
2	2483.5	42.99	52.91	9.92	74.00	21.09	100	288	Horizontal	/
3	2484.4384	46.02	55.95	9.93	74.00	18.05	100	236	Horizontal	/
4	2500	43.26	53.51	10.25	74.00	20.49	100	172	Horizontal	/
1	2479.7355	86.00	95.26	9.26	74.00	-21.26	100	187	Vertical	No limit
2	2483.5	43.62	52.90	9.28	74.00	21.10	200	172	Vertical	/
3	2485.7786	45.73	55.02	9.29	74.00	18.98	200	172	Vertical	/
4	2500	43.27	52.62	9.35	74.00	21.38	100	130	Vertical	/

Highest Frequency

Frequency 2480MHz

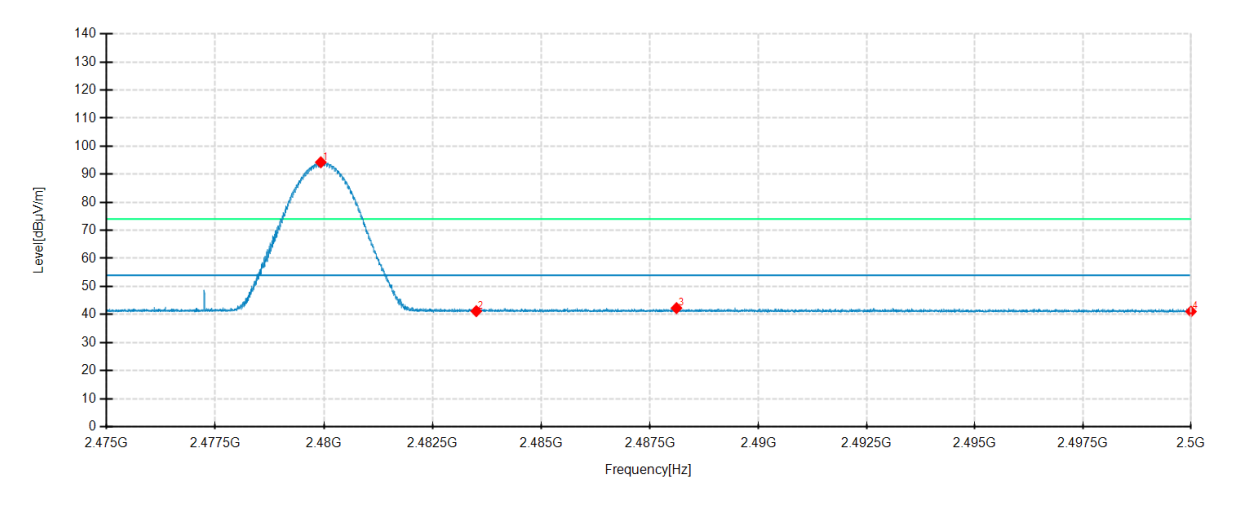
Detector mode: Average

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	2479.9755	89.36	99.21	9.85	54.00	-45.21	100	329	Horizontal	No limit
2	2483.5	32.61	42.53	9.92	54.00	11.47	200	189	Horizontal	/
3	2483.7909	33.35	43.27	9.92	54.00	10.73	100	205	Horizontal	/
4	2500	31.91	42.16	10.25	54.00	11.84	200	189	Horizontal	/
1	2479.9255	84.99	94.26	9.27	54.00	-40.26	100	188	Vertical	No limit
2	2483.5	31.91	41.19	9.28	54.00	12.81	200	331	Vertical	/
3	2488.1113	32.98	42.28	9.30	54.00	11.72	200	286	Vertical	/
4	2500	31.71	41.06	9.35	54.00	12.94	100	62	Vertical	/

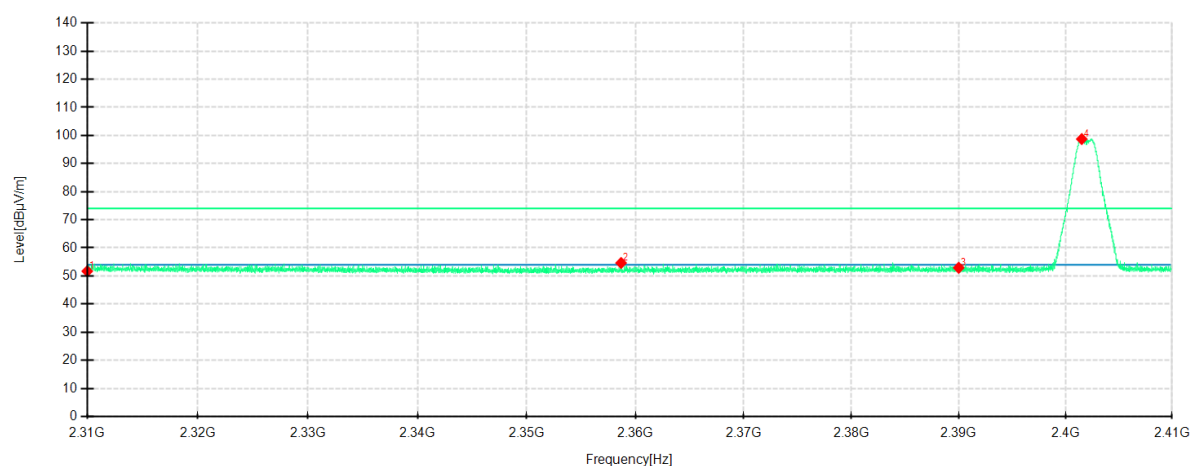
BLE 2M

Lowest Frequency

Frequency 2402MHz

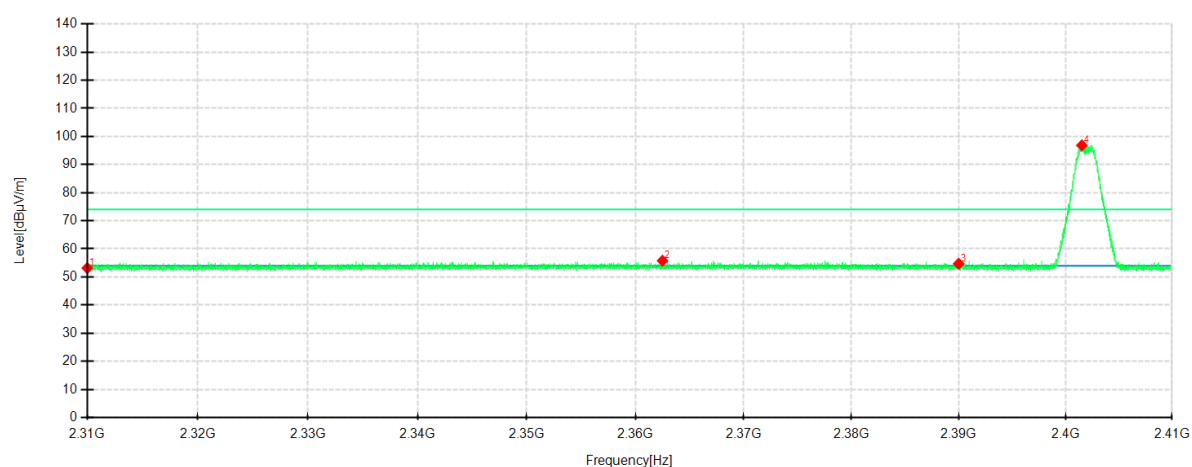
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



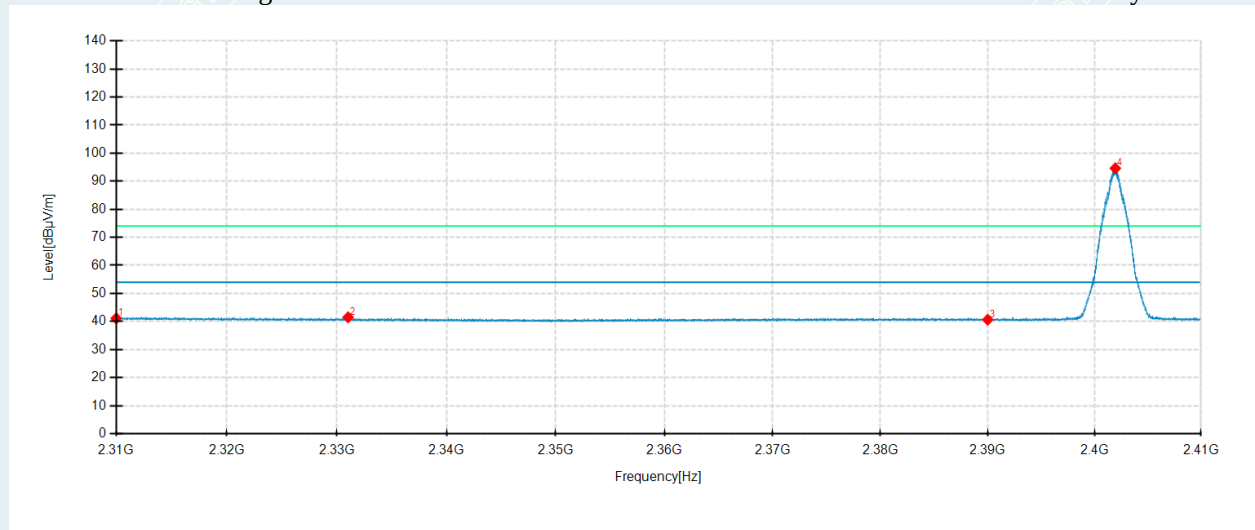
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310	42.34	51.69	9.35	74.00	22.31	100	273	Horizontal	/
2	2358.6849	46.03	54.63	8.60	74.00	19.37	200	158	Horizontal	/
3	2390	43.99	52.92	8.93	74.00	21.08	100	357	Horizontal	/
4	2401.5192	89.69	98.72	9.03	74.00	-24.72	100	217	Horizontal	No limit
1	2310	43.23	53.16	9.93	74.00	20.84	100	73	Vertical	/
2	2362.5053	45.62	55.79	10.17	74.00	18.21	200	229	Vertical	/
3	2390	44.64	54.71	10.07	74.00	19.29	100	187	Vertical	/
4	2401.5292	86.83	96.83	10.00	74.00	-22.83	100	187	Vertical	No limit

Lowest Frequency

Frequency 2402MHz

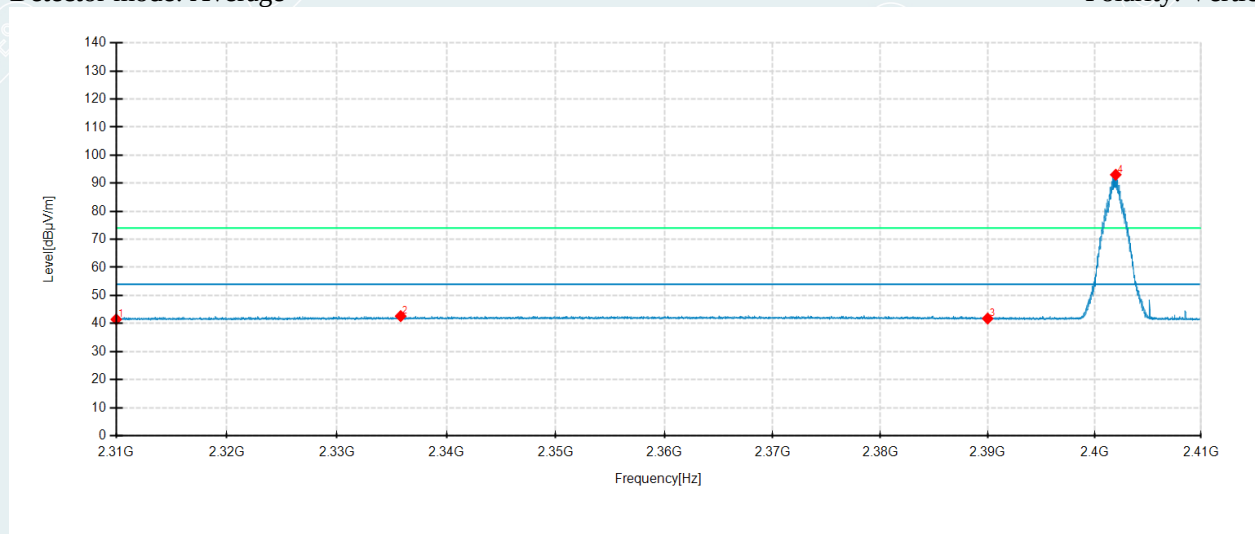
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



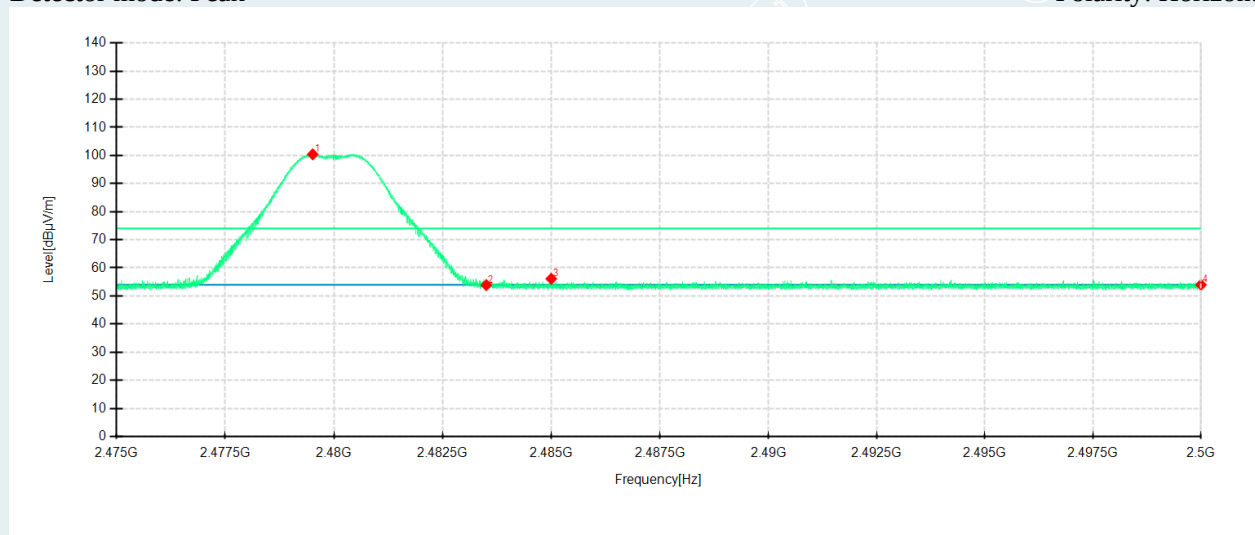
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310	31.76	41.11	9.35	54.00	12.89	200	187	Horizontal	/
2	2331.0221	32.57	41.49	8.92	54.00	12.51	200	187	Horizontal	/
3	2390	31.69	40.62	8.93	54.00	13.38	100	297	Horizontal	/
4	2401.9492	85.58	94.62	9.04	54.00	-40.62	100	217	Horizontal	No limit
1	2310	31.54	41.47	9.93	54.00	12.53	200	333	Vertical	/
2	2335.8126	32.51	42.62	10.11	54.00	11.38	200	288	Vertical	/
3	2390	31.69	41.76	10.07	54.00	12.24	100	188	Vertical	/
4	2401.9892	83.04	93.03	9.99	54.00	-39.03	100	188	Vertical	No limit

Highest Frequency

Frequency 2480MHz

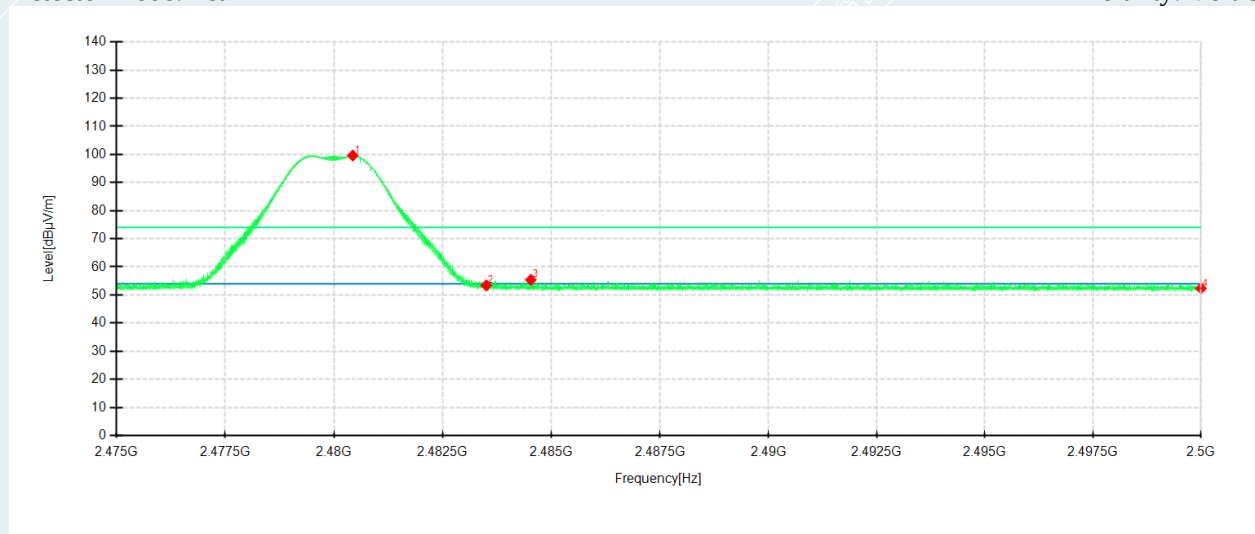
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



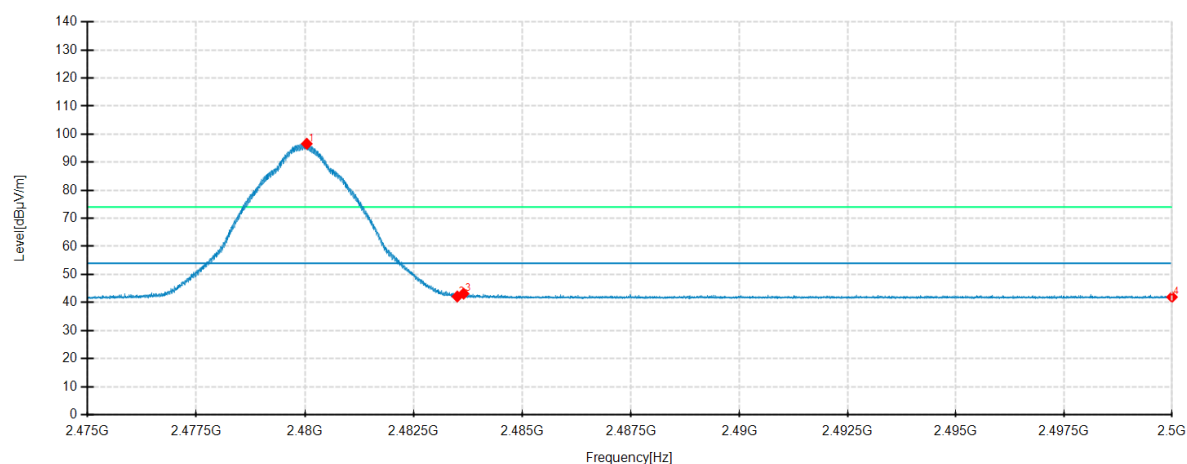
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.5105	90.57	100.40	9.83	74.00	-26.40	100	331	Horizontal	No limit
2	2483.5	43.94	53.86	9.92	74.00	20.14	100	172	Horizontal	/
3	2484.996	46.16	56.11	9.95	74.00	17.89	100	227	Horizontal	/
4	2500	43.72	53.97	10.25	74.00	20.03	200	54	Horizontal	/
1	2480.4305	90.35	99.62	9.27	74.00	-25.62	100	188	Vertical	No limit
2	2483.5	44.11	53.39	9.28	74.00	20.61	200	239	Vertical	/
3	2484.526	46.09	55.38	9.29	74.00	18.62	100	188	Vertical	/
4	2500	43.00	52.35	9.35	74.00	21.65	100	188	Vertical	/

Highest Frequency

Frequency 2480MHz

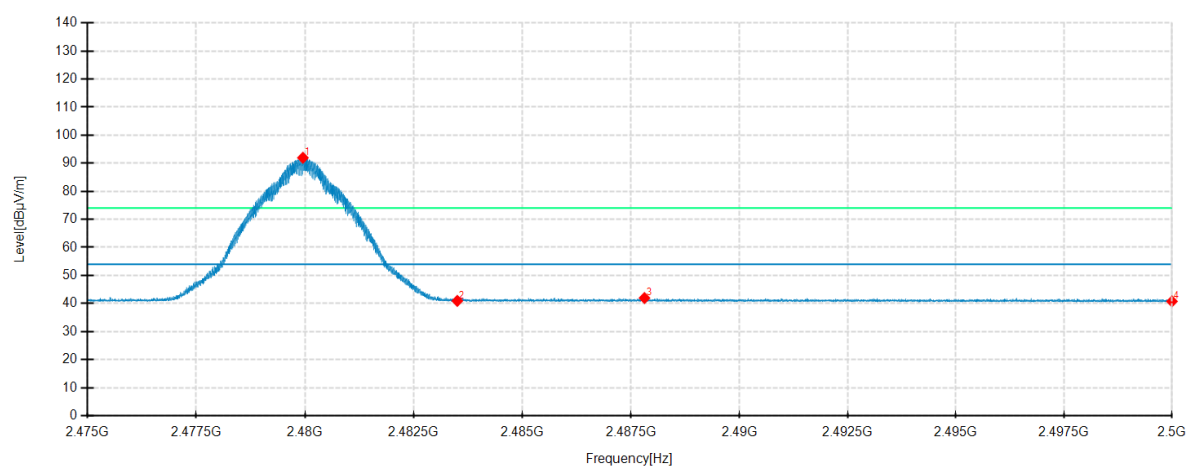
Detector mode: Average

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	2480.0405	86.73	96.58	9.85	54.00	-42.58	100	331	Horizontal	No limit
2	2483.5	32.20	42.12	9.92	54.00	11.88	100	331	Horizontal	/
3	2483.6459	33.22	43.14	9.92	54.00	10.86	200	188	Horizontal	/
4	2500	31.69	41.94	10.25	54.00	12.06	200	188	Horizontal	/
1	2479.9505	82.67	91.94	9.27	54.00	-37.94	100	187	Vertical	No limit
2	2483.5	31.64	40.92	9.28	54.00	13.08	100	187	Vertical	/
3	2487.8113	32.64	41.94	9.30	54.00	12.06	100	187	Vertical	/
4	2500	31.40	40.75	9.35	54.00	13.25	200	342	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 E202211175126-4-Test Photo.

APPENDIX B. PHOTOGRAPH OF THE EUT

Please refer to the attached document E202211175126-5-EUT Photo.

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