TEST REPORT

Report No.	CISRR25041009301
Project No.	CISR250410093
FCC ID	2BOV2-M502SM
Applicant	Dongguan Pengxuan E-commerce Co.,Ltd.
Address	Room 202-03, Building 1, No. 16 Lucituo Xinfu Street, Wanjiang Subdistrict, Dongguan City, Guangdong Province, China
Manufacturer	Dongguan Nanxuan E-commerce Co.,Ltd.
Address	Room1106,11thFloor,ZhongshengBusinessBuilding,No.108HongfuRoad,Nancheng District, Dongguan City, Guangdong Province, China
Product Name	M502SM
Trade Mark	NPET
Model/Type reference	M502SM
Listed Model(s)	N/A
Standard	Part 15 Subpart C Section 15.249
Test date	April 10, 2025 to April 15, 2025
Issue date	April 18, 2025
Test result	**Complied**

Lucas Huang

Prepared by: Lucas Huang

Genry Long

Approved by: Genry Long

The test results relate only to the tested samples.

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1. REPORT VERSION

Version No.	Issue date	Description
00	April 19, 2025	Original

2. SUMMARY OF TEST RESULT

Report clause	Test Item	Standard Requirement	Result
5.1	Antenna Requirement	15.203/15.247 (c)	PASS
5.2	AC Conducted Emission	15.207	PASS
5.3	20 dB Bandwidth	15.215 (c)	PASS
5.4	Radiated Band Edge Emission	15.205/15.209	PASS
5.5	Radiated Spurious Emission (below 1GHz)	47 CFR 15.247(d), 15.209, 15.205	Pass
5.6	Radiated Spurious Emission (Above 1GHz)	47 CFR 15.247(d), 15.209, 15.205	Pass

Note:

– The measurement uncertainty is not included in the test result.

3. SUMMARY

3.1. Product Description

Main unit information:	
Product Name:	M502SM
Trade Mark:	NPET
Model No.:	M502SM
Listed Model(s):	N/A
Model difference:	N/A
Power supply:	Input: DC 5V
Hardware version:	N/A
Software version:	N/A
Accessory unit (AU) information:	
Battery information:	DC 3.7V

3.2. Radio Specification Description

Technology:	2.4G
Modulation:	GFSK
Operation frequency:	2404MHz~2472MHz
Channel number:	3
Antenna type:	PCB Antenna
Antenna gain:	2.08dBi

Channel list:

CH1	2404
CH2	2438
CH3	2472

3.3. Modification of EUT

No modifications are made to the EUT during all test items.

3.4. Testing Site

Laboratory Name	Shenzhen Bangce Testing Technology Co., Ltd.
Laboratory Location	101, building 10, Yunli Intelligent Park, Shutianpu community, Matian Street, Guangming District, Shenzhen, Guangdong, China
FCC registration number	736346

3.5. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS (dBuV/m) = RA (dBuV) + AF (dB/m) + CL (dB) – AG (dB)

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

3.6. DISTURBANCE Calculation

The AC mains conducted disturbance is calculated by adding the 10dB Pulse Limiter and Cable Factor and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

CD (dBuV) = RA (dBuV) + PL (dB) + CL (dB)

Where CD = Conducted Disturbance	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	PL = 10 dB Pulse Limiter Factor

4. TEST CONFIGURATION

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

4.1. Test frequency list

Channel	Frequency (MHz)
CH-L	2404
CH-M	2438
CH-H	2472

4.2. Test mode

No	Test mode	Description
TM1	TX mode	Keep the EUT in continuously transmitting mode with GFSK modulation at lowest, middle and highest channel.
TM2	Link mode	Keep the EUT in Bluetooth linking mode with AE.
TM3	Charging mode	Keep the EUT in charging status

4.3. Support unit used in test configuration and system

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The following peripheral devices and interface cables were connected during the measurement:

Item	Equipment name	Trade Name	Model No.
1	PC	Lenovo	ThinkPad
2	Adapter	Guangdong Sangu Technology Co. ltd	SG-0501000AU

4.4. Test sample information

Type	sample no.
Engineer sample	CISR250410093--S01
Normal sample	CISR250410093--S01

4.5. Testing environmental condition

Type	Requirement	Actual
Temperature:	15~35°C	25°C
Relative Humidity:	25~75%	50%
Air Pressure:	860~1060mbar	1000mbar

4.6. Statement of the measurement uncertainty

No.	Test Items	Measurement Uncertainty
1	AC Conducted Emission	1.63dB
2	20dB Bandwidth	0.002%
3	Radiated Band Edge Emission	3.76dB for 30MHz-1GHz 3.80dB for above 1GHz
4	Radiated Spurious Emission	3.76dB for 30MHz-1GHz 3.80dB for above 1GHz

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

4.7. Equipment Used during the Test

AC Conducted Emission

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	Rohde&schwarz	ESCI7	100853	2025-01-08	2026-01-07
2	Artificial power network	Schwarzbeck	NSLK8127	8127-01096	2025-01-08	2026-01-07
3	8-wire Impedance Stabilization Network	Schwarzbeck	NTFM 8158	8158-00337	2025-01-08	2026-01-07
4	Artificial power network	Schwarzbeck	ENV216	/	2025-01-08	2026-01-07

20 dB Bandwidth

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	MXG RF Signal Generator	Agilent	N5181A	MY50145362	2025-01-08	2026-01-07
2	Spectrum analyzer	R&S	FSV-40N	102130	2025-01-08	2026-01-07
3	Vector Signal Generator	Agilent	N5182A	MY50142364	2025-01-08	2026-01-07
4	Power Meter	WCS	WCS-PM	WCSPM230405A	2025-01-08	2026-01-07

Radiated Band Edge Emission
Radiated Spurious Emission

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	Rohde&schwarz	ESCI7	100853	2025-01-08	2026-01-07
2	Amplifier	Tonscend	TAP9K3G40	AP23A8060270	2025-01-08	2026-01-07
3	Prime amplifier	Tonscend	TAP01018050	AP23A8060280	2025-01-08	2026-01-07

4	9*6*6 anechoic chamber	SKET	9.3*6.3*6	N/A	2024-09-02	2027-09-01
5	Spectrum analyzer	Agilent	N9020A	MY50530263	2025-01-08	2026-01-07
6	Spectrum analyzer	R&S	FSV-40N	102130	2025-01-08	2026-01-07
7	Bilog Antenna	Schwarzbeck	VULB 9163	1463	2023-01-09	2026-01-08
8	Horn Antenna	SCHWARZBECK	BBHA 9120 D	2487	2023-01-09	2026-01-08
9	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	/	2023-01-09	2026-01-08
10	RF Cable	Tonscend	Cable 1	/	2025-01-08	2026-01-07
11	RF Cable	Tonscend	Cable 2	/	2025-01-08	2026-01-07
12	RF Cable	SKET	Cable 3	/	2025-01-08	2026-01-07
13	L.I.S.N.#1	Schwarzbeck	NSLK812 7	/	2025-01-08	2026-01-07
14	L.I.S.N.#2	ROHDE&SCHWA RZ	ENV216	/	2025-01-08	2026-01-07
15	Horn Antenna	SCHWARZBECK	BBHA917 0	1130	2023-01-09	2026-01-08
16	Preamplifier	Tonscend	TAP1804 0048	AP21C806126	2025-01-08	2026-01-07
17	Variable-frequency power source	Pinhong	PH1110	/	2025-01-08	2026-01-07
18	6dB Attenuator	SKET	DC-6G	/	2025-01-08	2026-01-07
19	Antenna tower	SKT	Bk-4AT-BS	AT202104010 1-V1	2025-01-08	2026-01-07

5. TEST CONDITIONS AND RESULTS

5.1. Antenna Requirement

Standard Applicable	**FCC CFR Title 47 Part 15 Subpart C Section 15.203:** An intentional radiator shall be designed to ensure that no antenna other than that furnished by the response-ble party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. **FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1) (I):** (i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.
Description	The EUT antenna is PCB antenna (2.08dBi), the directional gain of the antenna less than 6dBi. It comply with the standard requirement. In case of replacement of broken antenna the same antenna type must be used.Antenna structure please refer to the EUT internal photographs antenna photo.

Remark: The antenna gain is provided by the customer , if the data provided by the customer is not accurate, Shenzhen Bangce Testing Technology Co., Ltd. does not assume any responsibility.

5.2. AC Conducted Emission

Test Requirement:	Refer to 47 CFR 15.207(a), Except as shown in paragraphs (b)and (c)of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN).
Test Limit:	

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

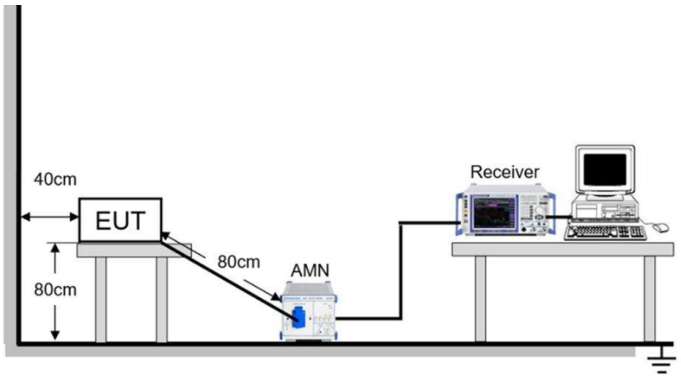
*Decreases with the logarithm of the frequency.

Test Method:	ANSI C63.10-2020 section 6.2
Procedure:	1. The EUT was setup according to ANSI C63.10 requirements. 2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. 3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. 4. The peripheral devices are also connected to the main power through a LISN. (Refer to the block diagram of the test setup and photographs) 5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source. 6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length. 7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz. 8. During the above scans, the emissions were maximized by cable manipulation.

Operating Environment:					
Temperature :	22.5 °C	Humidity:	56.7 %	Atmospheric Pressure:	103 kPa

Pre test mode:	TM1, TM2, TM3
Final test mode:	TM1, TM2, TM3

Test Setup Diagram



Test Result

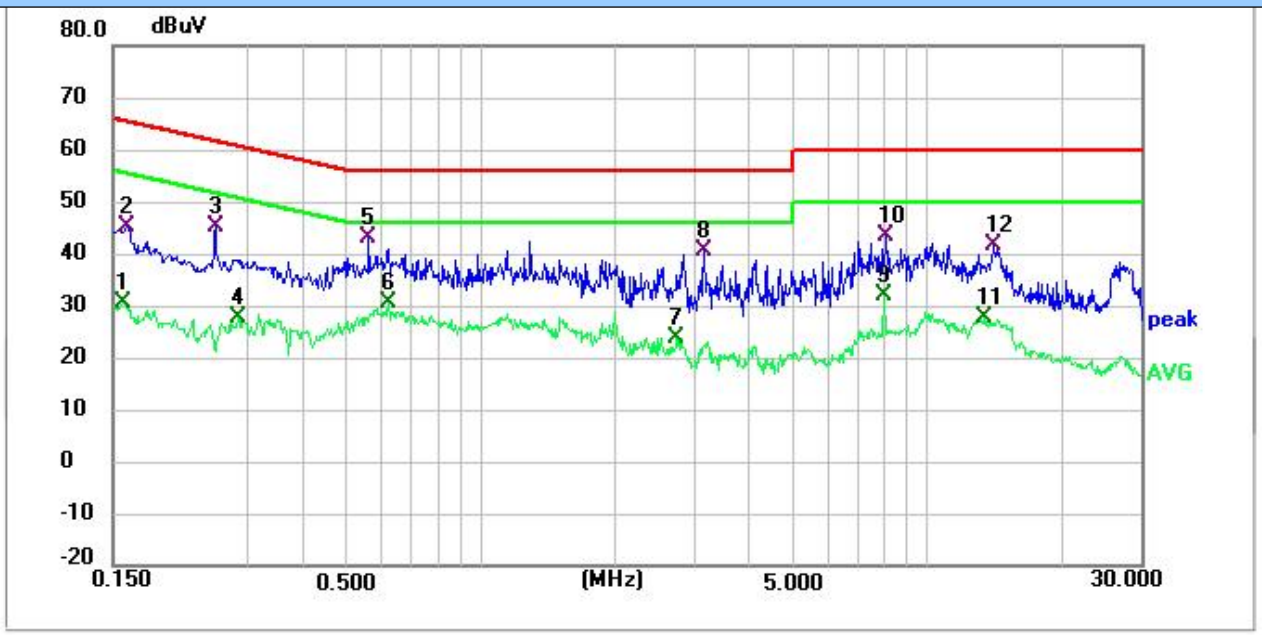
Pass

Test Data

Note:

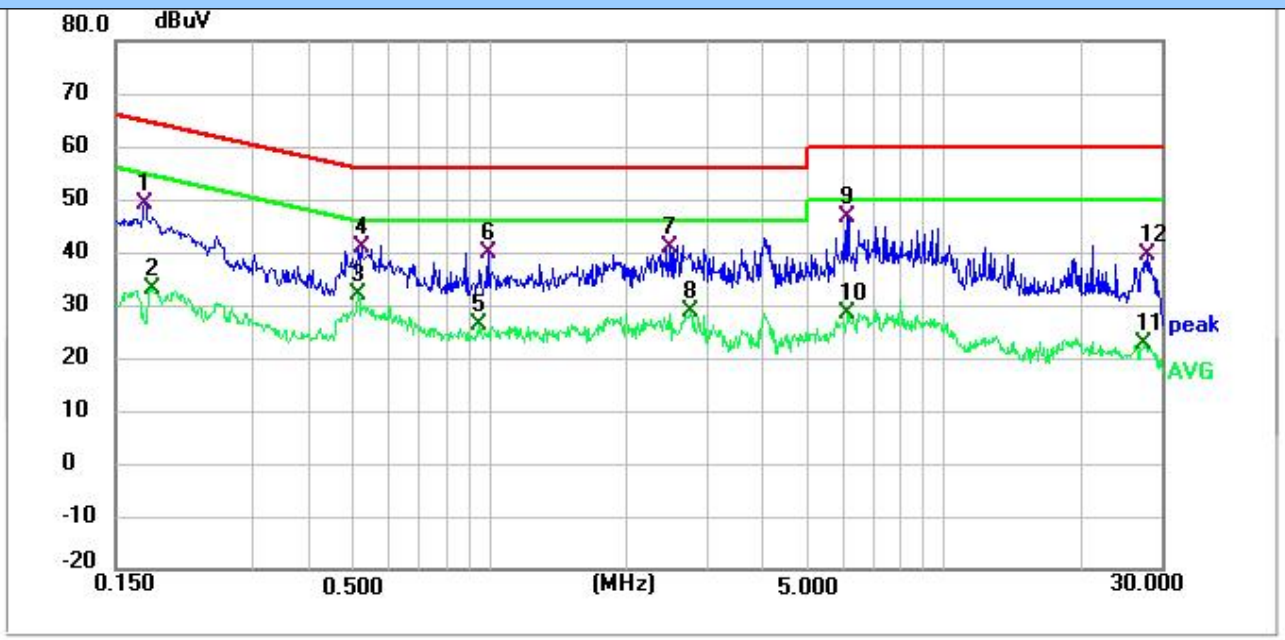
Have pre-scan all test mode, found TM3 mode which it was worst case, so only show the worst case's data on this report.

Mode3 / Line: Line



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.158	20.08	10.32	30.40	55.57	-25.17	AVG
2	0.162	34.84	10.32	45.16	65.36	-20.20	QP
3	0.254	34.68	10.33	45.01	61.63	-16.62	QP
4	0.286	17.50	10.34	27.84	50.64	-22.80	AVG
5 *	0.562	32.82	10.39	43.21	56.00	-12.79	QP
6	0.622	19.99	10.40	30.39	46.00	-15.61	AVG
7	2.746	12.88	10.91	23.79	46.00	-22.21	AVG
8	3.166	29.34	11.04	40.38	56.00	-15.62	QP
9	8.002	18.98	13.04	32.02	50.00	-17.98	AVG
10	8.086	30.19	13.06	43.25	60.00	-16.75	QP
11	13.458	12.10	15.42	27.52	50.00	-22.48	AVG
12	14.106	26.02	15.76	41.78	60.00	-18.22	QP

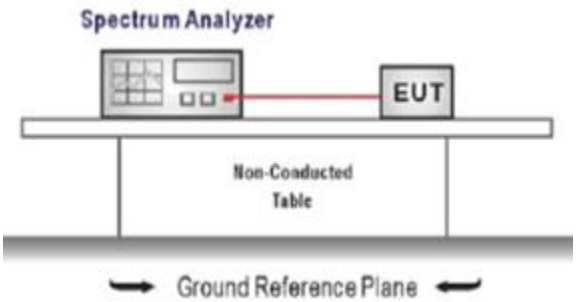
Mode3 / Line: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.174	38.91	10.32	49.23	64.77	-15.54	QP
2	0.181	22.63	10.32	32.95	54.44	-21.49	AVG
3	0.514	21.65	10.38	32.03	46.00	-13.97	AVG
4	0.522	30.54	10.38	40.92	56.00	-15.08	QP
5	0.950	15.73	10.42	26.15	46.00	-19.85	AVG
6	0.994	29.53	10.43	39.96	56.00	-16.04	QP
7	2.478	30.20	10.84	41.04	56.00	-14.96	QP
8	2.778	17.69	10.93	28.62	46.00	-17.38	AVG
9 *	6.150	34.23	12.36	46.59	60.00	-13.41	QP
10	6.150	16.20	12.36	28.56	50.00	-21.44	AVG
11	27.482	7.68	15.07	22.75	50.00	-27.25	AVG
12	27.974	24.49	15.02	39.51	60.00	-20.49	QP

Note:
1). Result = Reading +Correct (Insertion Loss + Cable Loss + Attenuator Factor)
2). Margin = Result - Limit

5.3. 20 dB Bandwidth

Limit:	--
Test configuration:	
Test procedure:	1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement. 2. Set to the maximum power setting and enable the EUT transmit continuously 3. Use the following spectrum analyzer settings: Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel RBW ≥ 1% of the 20 dB bandwidth, VBW ≥ RBW Sweep = auto, Detector function = peak, Trace = max hold 4. Measure and record the results in the test report.

Operating Environment:					
Temperature:	22.2 °C	Humidity:	56.3 %	Atmospheric Pressure:	103 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

Test Setup Diagram

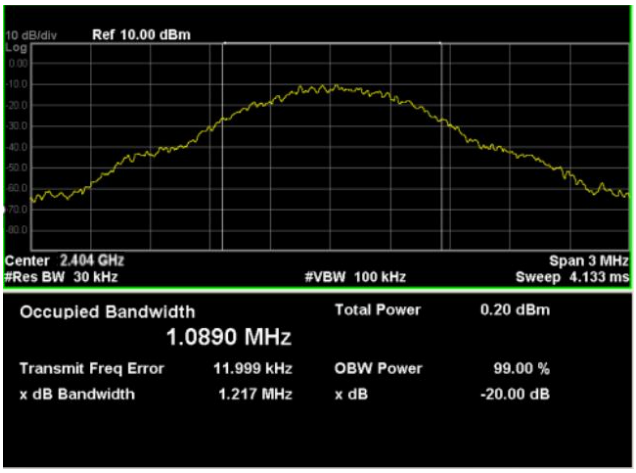
Test Result

Pass

Test Data

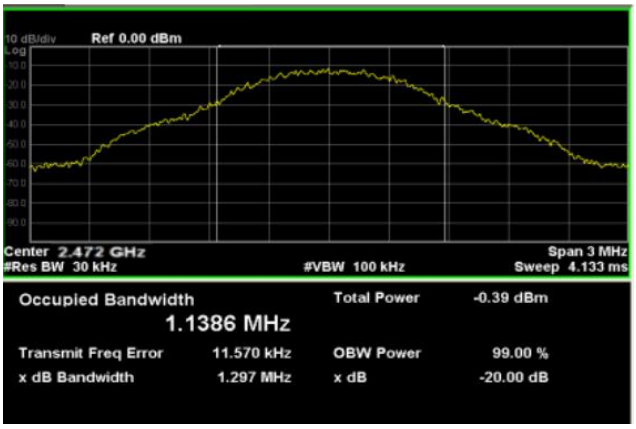
Test Result of 20dB Bandwidth Measurement		
Test Frequency(MHz)	20dB Bandwidth(MHz)	Limit(MHz)
2404	1.0890	Non-Specified
2438	1.1312	Non-Specified
2472	1.1386	Non-Specified

20dB Bandwidth



2404MHz

2438MHz



2472MHz

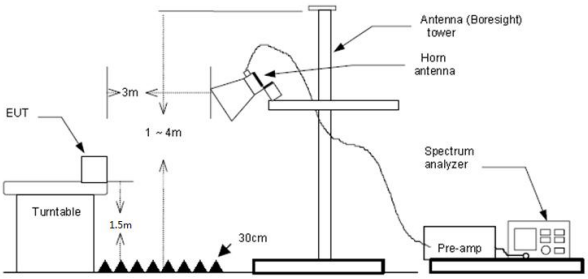
5.4. Radiated Band edge Emission

Limit:

FFCC CFR Title 47 Part 15 Subpart C Section 15.249 (d):

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.

Test configuration:

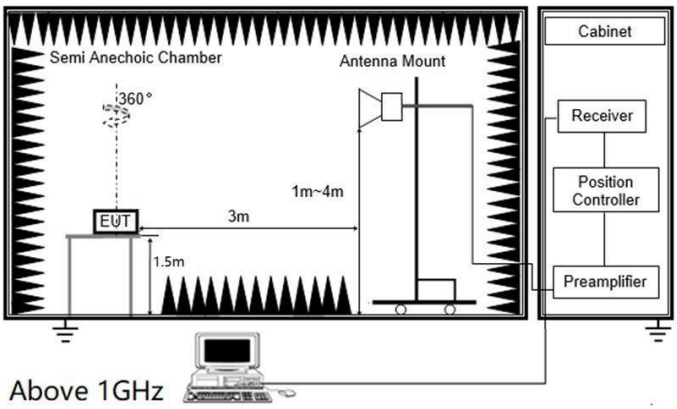


Test procedure:

1. The EUT was setup and tested according to ANSI C63.10 .
2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT waspositioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. Thisis repeated for both horizontal and vertical polarization of the antenna. In order to find themaximum emission, all of the interface cables were manipulated according to ANSI C63.10 on radiated measurement.
5. Use the following spectrum analyzer settings:
   a) Span shall wide enough to fully capture the emission being measured
   b) Set RBW=100kHz for <1GHz, VBW=3*RBW, Sweep time=auto, Detector=peak, Trace=max hold
   c) Set RBW=1MHz, VBW=3MHz for >1GHz, Sweep time=auto, Detector=peak, Trace=max hold for Peak measurement
   d) Set RBW=1MHz, VBW=3MHz for >1GHz, Sweep time=auto, Detector=Average, Trace=RMS for Average measurement

Operating Environment:					
Temperature:	22.2 °C	Humidity:	56.5 %	Atmospheric Pressure:	103 kPa
Pre test mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

Test Setup Diagram



Test Result

Pass

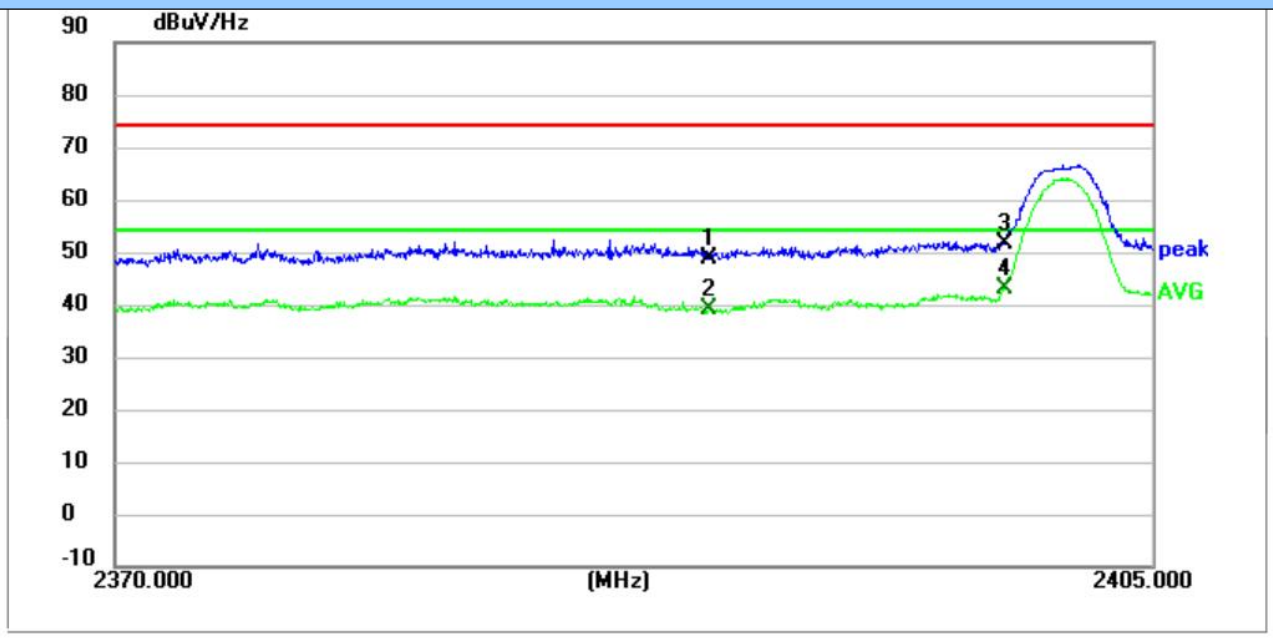
Test Data

Note:

1) Level= Reading + Factor; Factor =Antenna Factor+ Cable Loss- Preamp Factor
2) Margin = Limit - Level
3) Average measurement was not performed if peak level is lower than average limit
4) Have pre-scan all test mode, found TM1 mode which it was worst case, so only show the worst case’s data on this report.
5) The other emission levels were very low against the limit.

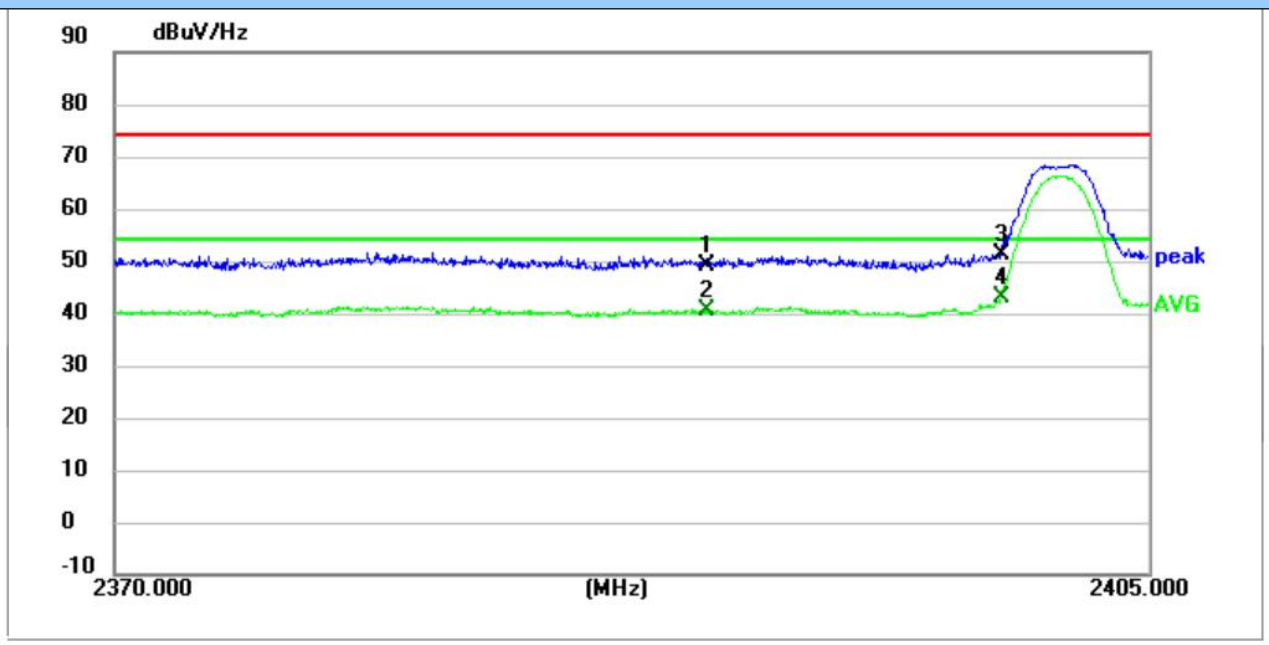
Have pre-scan all test mode, found TM1 mode which it was worst case, so only show the worst case’s data on this report.

Mode1 / Polarization: Horizontal / CH: L



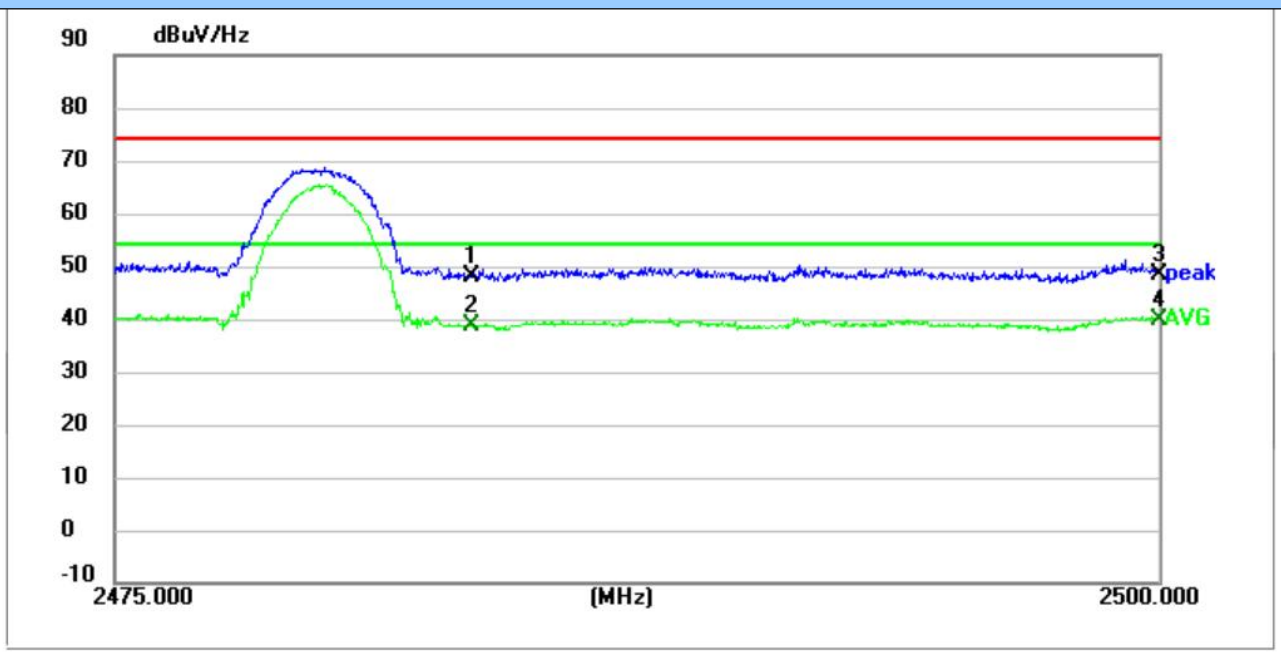
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/Hz)	Limit (dBuV/Hz)	Margin (dB)	Detector
1	2390.0000	46.58	2.34	48.92	74.00	25.08	peak
2	2390.0000	36.64	2.34	38.98	54.00	15.02	AVG
3	2400.0000	49.10	2.38	51.48	74.00	22.52	peak
4 *	2400.0000	40.65	2.38	43.03	54.00	10.97	AVG

Mode1 / Polarization: Vertical / CH: L



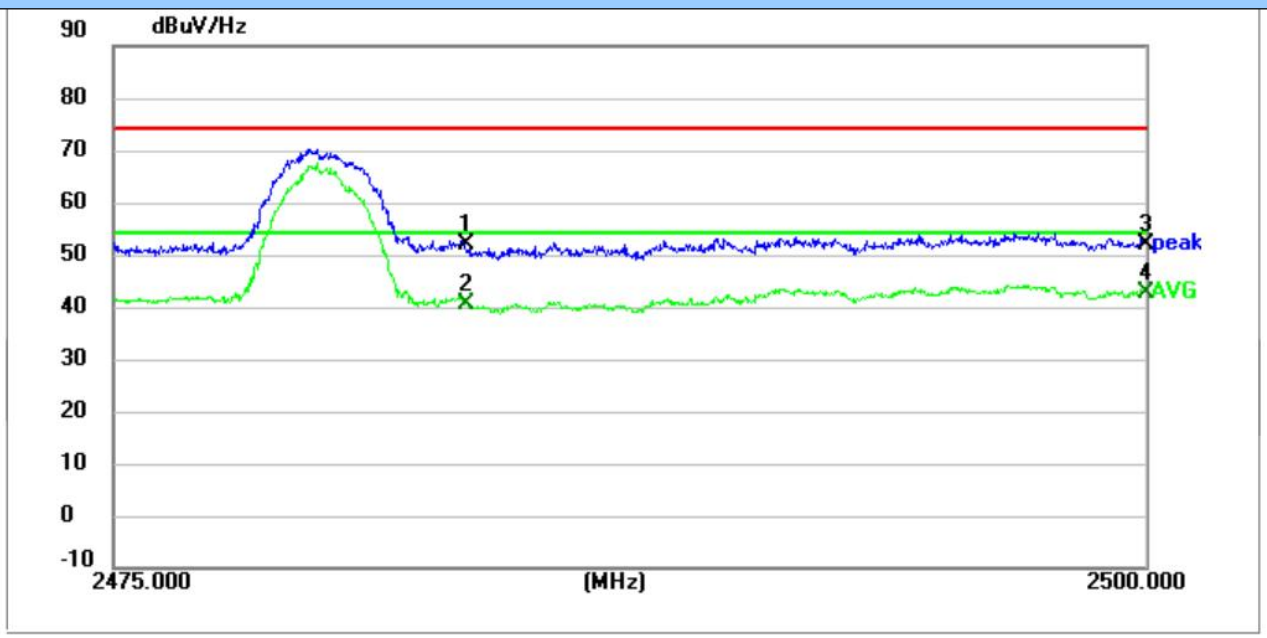
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/Hz)	Limit (dBuV/Hz)	Margin (dB)	Detector
1	2390.0000	46.76	2.34	49.10	74.00	24.90	peak
2	2390.0000	38.04	2.34	40.38	54.00	13.62	AVG
3	2400.0000	49.02	2.38	51.40	74.00	22.60	peak
4 *	2400.0000	40.67	2.38	43.05	54.00	10.95	AVG

Mode1 / Polarization: Horizontal / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/Hz)	Limit (dBuV/Hz)	Margin (dB)	Detector
1	2483.5000	45.37	2.66	48.03	74.00	25.97	peak
2	2483.5000	36.04	2.66	38.70	54.00	15.30	AVG
3	2500.0000	45.60	2.80	48.40	74.00	25.60	peak
4 *	2500.0000	37.09	2.80	39.89	54.00	14.11	AVG

Mode1 / Polarization: Vertical / CH: H

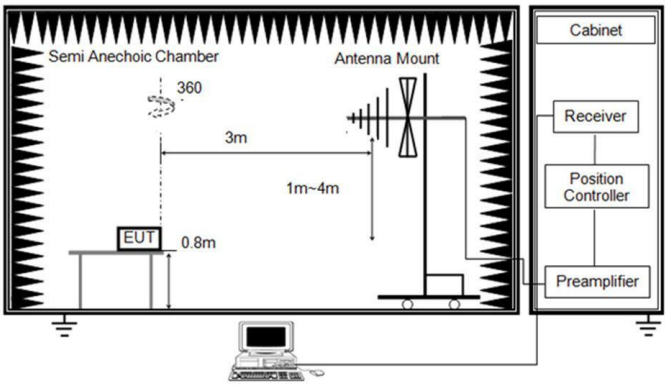


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/Hz)	Limit (dBuV/Hz)	Margin (dB)	Detector
1	2483.5000	49.37	2.66	52.03	74.00	21.97	peak
2	2483.5000	37.71	2.66	40.37	54.00	13.63	AVG
3	2500.0000	49.34	2.80	52.14	74.00	21.86	peak
4 *	2500.0000	39.95	2.80	42.75	54.00	11.25	AVG

5.5. Radiated Spurious Emission (below 1GHz)

<table>
<tr><td>Test Requirement:</td><td colspan="5">Refer to 47 CFR 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)).`</td></tr>
<tr><td>Test Limit:</td><td colspan="5">
<table>
<tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr>
<tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr>
<tr><td>1.705-30.0</td><td>30</td><td>30</td></tr>
<tr><td>30-88</td><td>100 **</td><td>3</td></tr>
<tr><td>88-216</td><td>150 **</td><td>3</td></tr>
<tr><td>216-960</td><td>200 **</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>3</td></tr>
</table>
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.
In the emission table above, the tighter limit applies at the band edges.
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
</td></tr>
<tr><td>Test Method:</td><td colspan="5">ANSI C63.10-2020 section 6.6.4</td></tr>
<tr><td>Procedure:</td><td colspan="5">1. The EUT was setup and tested according to ANSI C63.10.
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings
a) Span shall wide enough to fully capture the emission being measured;
b) RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;
If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.</td></tr>
<tr><td colspan="6">Operating Environment:</td></tr>
<tr><td>Temperature :</td><td>22.2 °C</td><td>Humidity:</td><td>56.5 %</td><td>Atmospheric Pressure:</td><td>103 kPa</td></tr>
<tr><td colspan="2">Pre test mode:</td><td colspan="4">TM1, TM2, TM3</td></tr>
<tr><td colspan="2">Final test mode:</td><td colspan="4">TM1, TM2, TM3</td></tr>
</table>

Test Setup Diagram



Below 1 GHz and above 30 MHz

Test Result

Pass

Test Data

Note:

1) Level= Reading + Factor/Transd; Factor/Transd =Antenna Factor+ Cable Loss- Preamp Factor
2) Margin = Limit – Level
3) Average measurement was not performed if peak level is lower than average limit(54 dBuV/m) for above 1GHz.
4) The other emission levels were very low against the limit.
5) This test was performed with EUT in X, Y, Z position and the worse case was found when EUT in X position.

For 9 kHz ~ 30 MHz

The EUT was pre-scanned this frequency band, found the radiated level 20dB lower than the limit, so don't show data on this report.

For 30 MHz ~ 1000 MHz

Have pre-scan all test mode, found TM1 mode CH00 which it was worst case, so only show the worst case's data on this report.

Mode1 / Polarization: Horizontal / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	36.6372	53.08	-31.52	21.56	40.00	18.44	QP
2	72.8465	62.00	-33.53	28.47	40.00	11.53	QP
3	139.3610	68.17	-34.14	34.03	43.50	9.47	QP
4	226.0994	63.20	-29.16	34.04	46.00	11.96	QP
5 *	316.5890	64.62	-26.67	37.95	46.00	8.05	QP
6	726.8052	53.05	-16.59	36.46	46.00	9.54	QP

Mode1 / Polarization: Vertical / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	40.7014	57.51	-30.56	26.95	40.00	13.05	QP
2	112.1303	64.09	-30.93	33.16	43.50	10.34	QP
3	222.9500	61.81	-29.28	32.53	46.00	13.47	QP
4	333.6865	60.64	-26.17	34.47	46.00	11.53	QP
5 *	616.3716	58.14	-18.81	39.33	46.00	6.67	QP
6	833.3170	54.03	-16.19	37.84	46.00	8.16	QP

Note:
1) For 9 kHz ~ 30 MHz Measurement
The EUT was pre-scanned this frequency band, found the radiated level 20dB lower than the limit, so don't show data on this report.
2) Level= Reading + Factor; Factor =Antenna Factor+ Cable Loss- Preamp Factor
3) Margin = Limit – Level

5.6. Radiated Spurious Emission (Above 1GHz)

Test Requirement:

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)).`

Test Limit:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100 **	3
88-216	150 **	3
216-960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.
In the emission table above, the tighter limit applies at the band edges.
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

Test Method:

ANSI C63.10-2020 section 6.6.4

Procedure:

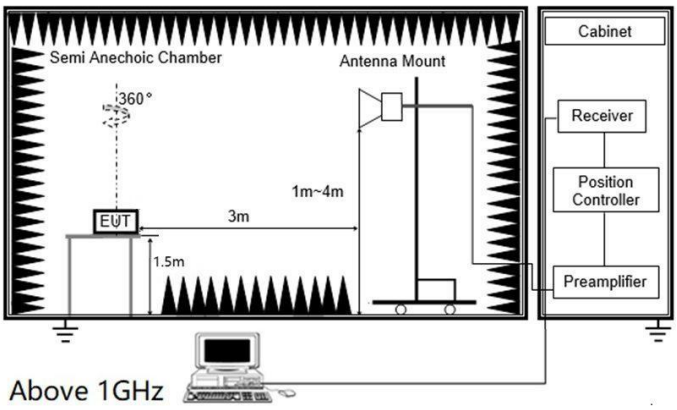
1. The EUT was setup and tested according to ANSI C63.10.
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings
a) Span shall wide enough to fully capture the emission being measured;
b) Set RBW=1MHz, VBW=3MHz for >1GHz, Sweep time=auto, Detector=peak, Trace=max hold for Peak measurement
For average measurement: use duty cycle correction factor method (DCCF)Averager level = Peak level + DCCF

Operating Environment:

Temperature:	22.2 °C	Humidity:	56.5 %	Atmospheric Pressure:	103 kPa

Pre test mode:	TM1, TM2, TM3
Final test mode:	TM1, TM2, TM3

Test Setup Diagram



Test Result

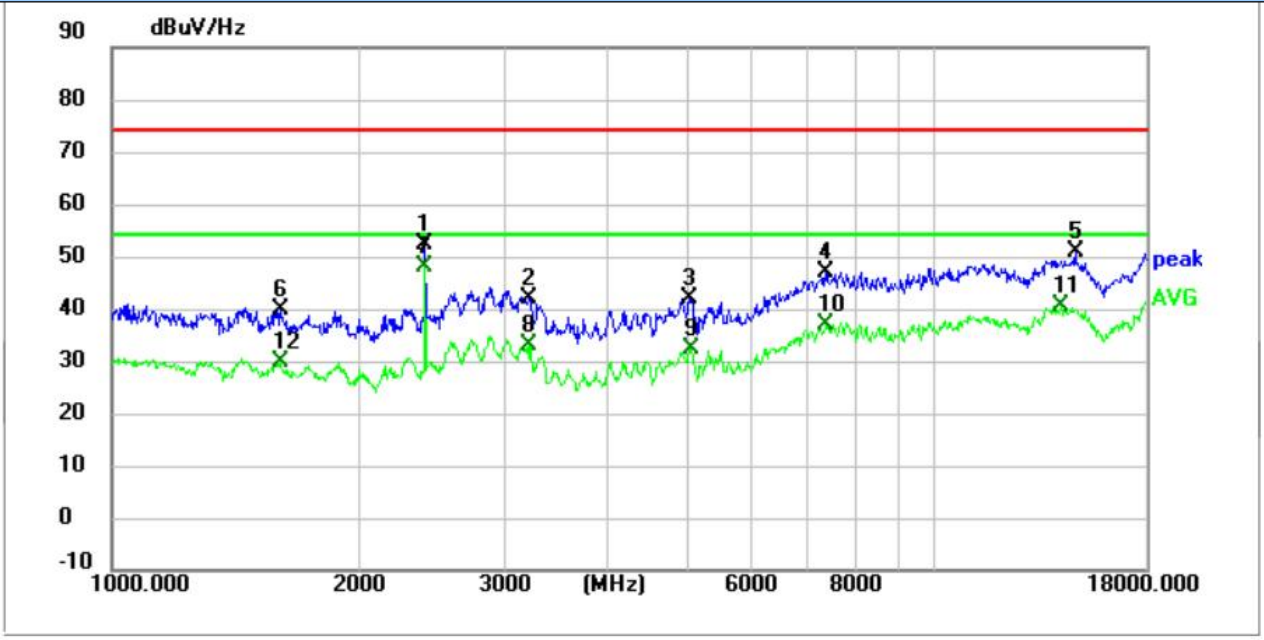
Pass

Test Data

For 1 GHz ~ 18 GHz

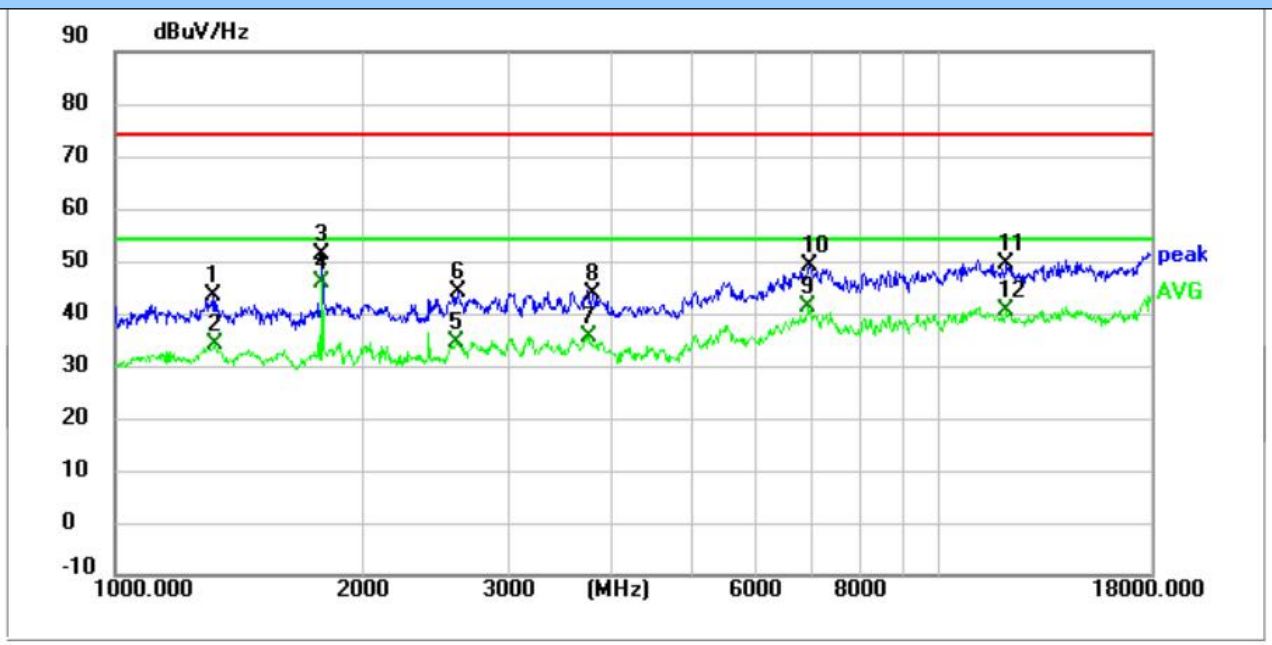
Have pre-scan all test mode, found TM1 mode which it was worst case, so only show the worst case's data on this report.

Mode1 / Polarization: Horizontal / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/Hz)	Limit (dBuV/Hz)	Margin (dB)	Detector
1	2404.2000	49.77	2.38	52.15	74.00	21.85	peak
2	3215.1000	35.46	6.59	42.05	74.00	31.95	peak
3	5029.0000	29.35	12.75	42.10	74.00	31.90	peak
4	7358.0000	24.98	22.13	47.11	74.00	26.89	peak
5	14804.0000	61.70	-10.68	51.02	74.00	22.98	peak
6	1605.2000	40.93	-1.21	39.72	74.00	34.28	peak
7 *	2404.2000	45.60	2.38	47.98	54.00	6.02	AVG
8	3215.1000	26.37	6.59	32.96	54.00	21.04	AVG
9	5056.2000	19.27	13.03	32.30	54.00	21.70	AVG
10	7385.2000	15.00	22.12	37.12	54.00	16.88	AVG
11	14217.5000	51.23	-10.54	40.69	54.00	13.31	AVG
12	1605.2000	31.12	-1.21	29.91	54.00	24.09	AVG

Mode1 / Polarization: Vertical / CH: L

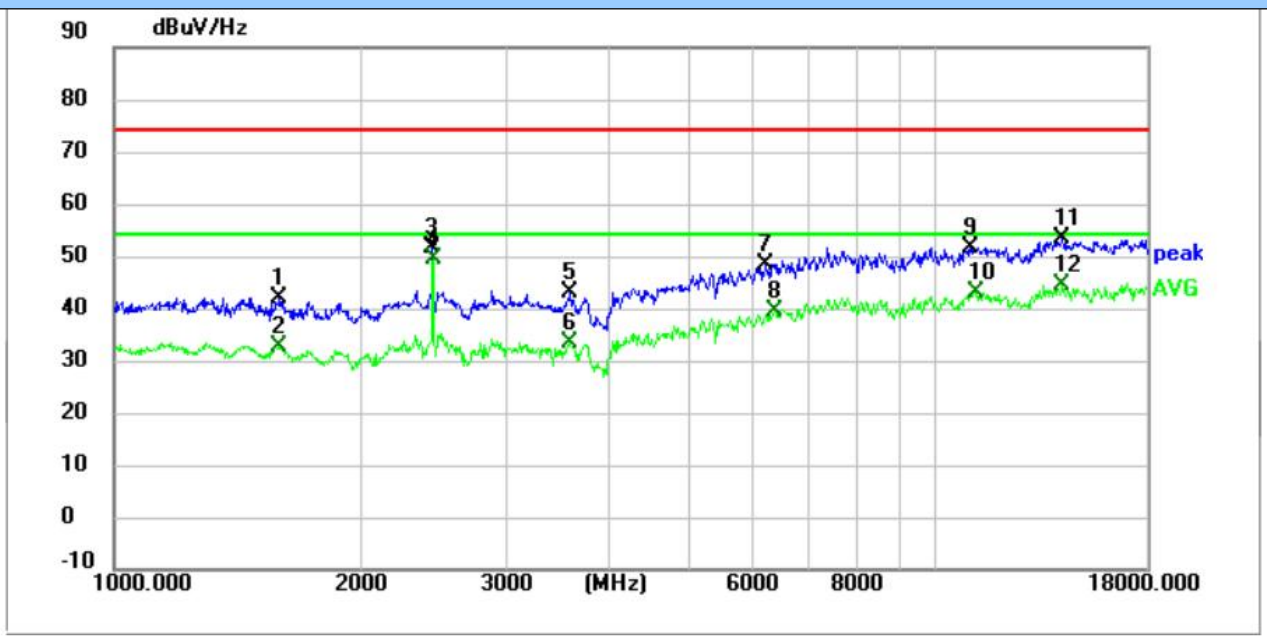


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/Hz)	Limit (dBuV/Hz)	Margin (dB)	Detector
1	1316.2000	44.85	-1.62	43.23	74.00	30.77	peak
2	1321.3000	35.86	-1.62	34.24	54.00	19.76	AVG
3	1785.4000	51.39	-0.27	51.12	74.00	22.88	peak
4 *	1785.4000	46.05	-0.27	45.78	54.00	8.22	AVG
5	2598.0000	30.55	4.00	34.55	54.00	19.45	AVG
6	2604.8000	40.05	4.06	44.11	74.00	29.89	peak
7	3748.9000	28.67	6.80	35.47	54.00	18.53	AVG
8	3810.1000	36.91	6.86	43.77	74.00	30.23	peak
9	6934.7000	20.29	20.86	41.15	54.00	12.85	AVG
10	6961.9000	28.24	21.03	49.27	74.00	24.73	peak
11	12065.3000	21.58	27.75	49.33	74.00	24.67	peak
12	12065.3000	12.94	27.75	40.69	54.00	13.31	AVG

Test channel:2404MHz

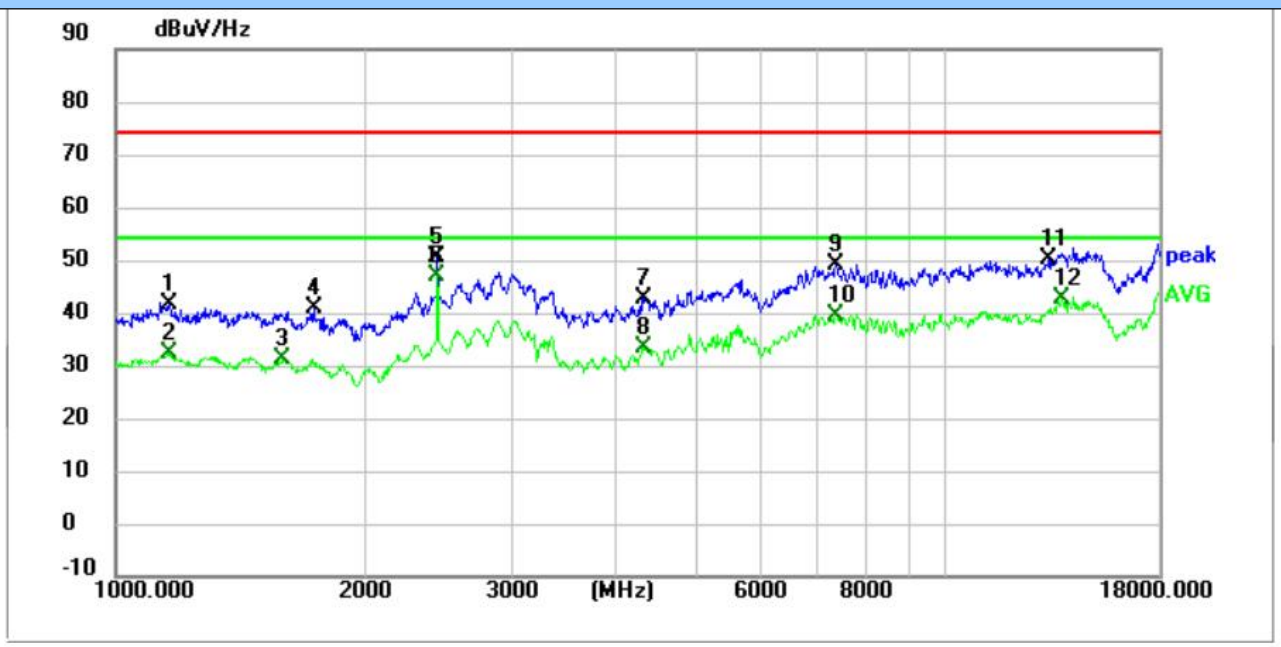
Freq. (MHz)	Reading (dBuv)	Ant. Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	Level (dBuv)	Limit (dBuV/m)	Margin (dB)	Remark	Polarity
2404.00	92.43	29.18	4.02	38.35	-5.15	87.28	114	26.72	Peak	Horizontal
2404.00	80.69	29.18	4.02	38.35	-5.15	75.54	94	18.46	Average	Horizontal
2404.00	81.91	29.18	4.02	38.35	-5.15	76.76	114	37.24	Peak	Vertical
2404.00	67.60	29.18	4.02	38.35	-5.15	62.45	94	31.55	Average	Vertical

Mode1 / Polarization: Horizontal / CH: M



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/Hz)	Limit (dBuV/Hz)	Margin (dB)	Detector
1	1591.6000	43.36	-1.25	42.11	74.00	31.89	peak
2	1591.6000	34.09	-1.25	32.84	54.00	21.16	AVG
3	2441.6000	49.24	2.39	51.63	74.00	22.37	peak
4 *	2443.3000	47.08	2.39	49.47	54.00	4.53	AVG
5	3590.8000	36.54	6.34	42.88	74.00	31.12	peak
6	3590.8000	27.17	6.34	33.51	54.00	20.49	AVG
7	6203.7000	31.69	16.58	48.27	74.00	25.73	peak
8	6349.9000	21.81	17.61	39.42	54.00	14.58	AVG
9	10994.3000	23.67	28.06	51.73	74.00	22.27	peak
10	11149.0000	15.02	28.13	43.15	54.00	10.85	AVG
11	14212.4000	63.75	-10.53	53.22	74.00	20.78	peak
12	14212.4000	55.01	-10.53	44.48	54.00	9.52	AVG

Mode1 / Polarization: Vertical / CH: M

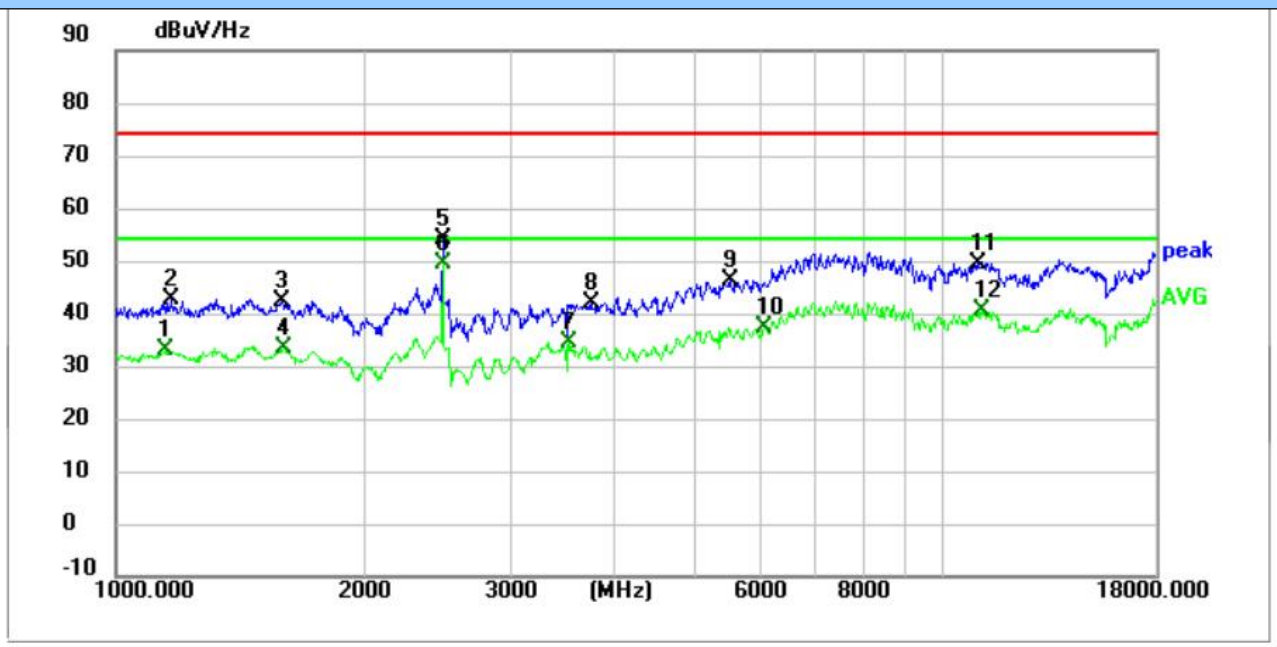


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/Hz)	Limit (dBuV/Hz)	Margin (dB)	Detector
1	1163.2000	43.11	-1.65	41.46	74.00	32.54	peak
2	1163.2000	33.98	-1.65	32.33	54.00	21.67	AVG
3	1591.6000	32.51	-1.25	31.26	54.00	22.74	AVG
4	1734.4000	41.61	-0.63	40.98	74.00	33.02	peak
5	2441.6000	48.12	2.39	50.51	74.00	23.49	peak
6 *	2441.6000	44.69	2.39	47.08	54.00	6.92	AVG
7	4337.1000	34.62	8.07	42.69	74.00	31.31	peak
8	4337.1000	25.43	8.07	33.50	54.00	20.50	AVG
9	7368.2000	26.89	22.13	49.02	74.00	24.98	peak
10	7386.9000	17.46	22.12	39.58	54.00	14.42	AVG
11	13326.7000	61.80	-11.62	50.18	74.00	23.82	peak
12	13775.5000	53.69	-11.18	42.51	54.00	11.49	AVG

Test channel:2438MHz

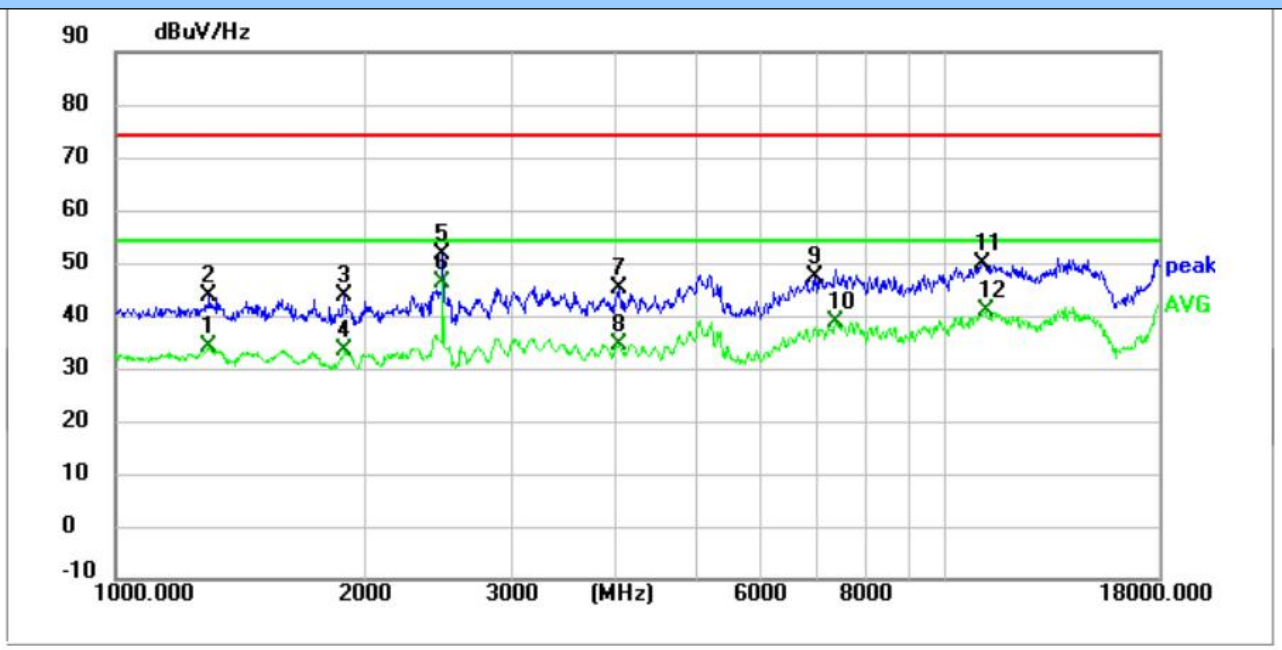
Freq. (MHz)	Reading (dBuv)	Ant. Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	Level (dBuv)	Limit (dBuV/m)	Margin (dB)	Remark	Polarity
2438.00	90.64	29.23	4.02	38.2	-4.95	85.69	114	28.31	Peak	Horizontal
2438.00	81.38	29.23	4.02	38.2	-4.95	76.43	94	17.57	Average	Horizontal
2438.00	82.97	29.23	4.02	38.2	-4.95	78.02	114	35.98	Peak	Vertical
2438.00	68.38	29.23	4.02	38.2	-4.95	63.43	94	30.57	Average	Vertical

Mode1 / Polarization: Horizontal / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/Hz)	Limit (dBuV/Hz)	Margin (dB)	Detector
1	1148.9824	34.59	-1.70	32.89	54.00	21.11	AVG
2	1169.1022	44.45	-1.64	42.81	74.00	31.19	peak
3	1584.1201	43.54	-1.27	42.27	74.00	31.73	peak
4	1593.3132	34.58	-1.24	33.34	54.00	20.66	AVG
5	2480.5621	51.54	2.64	54.18	74.00	19.82	peak
6 *	2480.5621	46.65	2.64	49.29	54.00	4.71	AVG
7	3520.3847	28.37	6.19	34.56	54.00	19.44	AVG
8	3751.7490	35.19	6.80	41.99	74.00	32.01	peak
9	5512.5447	31.46	14.86	46.32	74.00	27.68	peak
10	6064.8154	21.64	15.72	37.36	54.00	16.64	AVG
11	11006.8377	21.30	28.10	49.40	74.00	24.60	peak
12	11102.7906	12.49	28.05	40.54	54.00	13.46	AVG

Mode1 / Polarization: Vertical / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/Hz)	Limit (dBuV/Hz)	Margin (dB)	Detector
1	1294.1000	35.55	-1.61	33.94	54.00	20.06	AVG
2	1299.2000	45.39	-1.61	43.78	74.00	30.22	peak
3	1892.5000	43.68	-0.06	43.62	74.00	30.38	peak
4	1892.5000	33.41	-0.06	33.35	54.00	20.65	AVG
5	2482.4000	49.11	2.66	51.77	74.00	22.23	peak
6 *	2482.4000	43.44	2.66	46.10	54.00	7.90	AVG
7	4032.8000	37.84	7.30	45.14	74.00	28.86	peak
8	4032.8000	27.18	7.30	34.48	54.00	19.52	AVG
9	6958.5000	26.30	21.03	47.33	74.00	26.67	peak
10	7386.9000	16.78	22.12	38.90	54.00	15.10	AVG
11	11070.8000	21.92	28.06	49.98	74.00	24.02	peak
12	11150.7000	12.80	28.12	40.92	54.00	13.08	AVG

Test channel:2472MHz

Freq. (MHz)	Reading (dBuv)	Ant. Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	Level (dBuv)	Limit (dBuV/m)	Margin (dB)	Remark	Polarity
2472.00	94.36	29.2	4.02	38.3	-5.08	89.28	114	24.72	Peak	Horizontal
2472.00	80.99	29.2	4.02	38.3	-5.08	75.91	94	18.09	Average	Horizontal
2472.00	83.13	29.2	4.02	38.3	-5.08	78.05	114	35.95	Peak	Vertical
2472.00	67.75	29.2	4.02	38.3	-5.08	62.67	94	31.33	Average	Vertical

Note:
1) Level= Reading + Factor; Factor =Antenna Factor+ Cable Loss- Preamp Factor
2) Margin = Limit – Level
3) Average measurement was not performed if peak level is lower than average limit (54dBuV/m) for above 1GHz.

6. TEST SETUP PHOTOS

Please refer to report for Test CISRR250410093 of the EUT.

7. EXTERNAL AND INTERNAL PHOTOS

7.1 External photos

Please refer to report for Test CISRR250410093 of the EUT.

7.2 Internal photos

Please refer to report for Test CISRR250410093 of the EUT.

------End of the report------