TEST REPORT

Applicant:	HANSHOW TECHNOLOGY CO.,LTD.
Address of Applicant:	Building 1(IF podium building and 4F) and Building 5 (7F) in Jiaxing Photovolta High-tech Park, No., 1288 Kanghe Rd., Xiuzhou District, Jiaxing, Zhejiang, China
Manufacturer/Factory:	HANSHOW TECHNOLOGY CO.,LTD.
Address of Manufacturer/Factory:	Building 1(IF podium building and 4F) and Building 5 (7F) in Jiaxing Photovolta High-tech Park, No., 1288 Kanghe Rd., Xiuzhou District, Jiaxing, Zhejiang, China

Equipment Under Test (EUT)

Product Name:	digital signage
Model No.:	Lumina Aqua 1010-X2, Lumina Aqua 1010-D2
FCC ID:	2AYMH-LUMINA-X2
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.249
Date of sample receipt:	August 29, 2022
Date of Test:	August 29, 2022-October 18, 2022
Date of report issued:	October 19, 2022
Test Result :	PASS *

* In the configuration tested, the EUT complied with the standards specified above

Authorized Signature:

Robinson Luo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*October 19, 2022*	*Original*

Prepared By: *Tiger Chen* ***Date:*** *October 19, 2022*

Project Engineer

Check By: *Robinson Liu* ***Date:*** *October 19, 2022*

Reviewer

3 Contents

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Field strength of the fundamental signal	15.249 (a)	Pass
Spurious emissions	15.249 (a) (d)/15.209	Pass
Band edge	15.249 (d)/15.205	Pass
20dB Occupied Bandwidth	15.215 (c)	Pass

Remarks:

1. Test according to ANSI C63.10:2013

2. Pass: The EUT complies with the essential requirements in the standard.

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz-30MHz	3.1dB	(1)
Radiated Emission	30MHz-200MHz	3.8039dB	(1)
Radiated Emission	200MHz-1GHz	3.9679dB	(1)
Radiated Emission	1GHz-18GHz	4.29dB	(1)
Radiated Emission	18GHz-40GHz	3.30dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	3.44dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

5 General Information

5.1 General Description of EUT

Product Name:	digital signage
Model No.:	Lumina Aqua 1010-X2, Lumina Aqua 1010-D2
Test Model No.:	Lumina Aqua 1010-X2
Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are appearance color and model name for commercial purpose.	
S/N:	N/A
Test sample(s) ID:	GTS202208000257-1
Sample(s) Status	Engineered sample
Operation Frequency:	2402MHz~2480MHz
Channel numbers:	79
Channel separation:	1MHz
Modulation type:	GFSK
Antenna Type:	PCB IFA Antenna
Antenna gain:	1.88dBi
Power supply:	DC 12V

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402MHz	21	2422MHz	41	2442MHz	61	2462MHz
2	2403MHz	22	2423MHz	42	2443MHz	62	2463MHz
3	2404MHz	23	2424MHz	43	2444MHz	63	2464MHz
4	2405MHz	24	2425MHz	44	2445MHz	64	2465MHz
5	2406MHz	25	2426MHz	45	2446MHz	65	2466MHz
6	2407MHz	26	2427MHz	46	2447MHz	66	2467MHz
7	2408MHz	27	2428MHz	47	2448MHz	67	2468MHz
8	2409MHz	28	2429MHz	48	2449MHz	68	2469MHz
9	2410MHz	29	2430MHz	49	2450MHz	69	2470MHz
10	2411MHz	30	2431MHz	50	2451MHz	70	2471MHz
11	2412MHz	31	2432MHz	51	2452MHz	71	2472MHz
12	2413MHz	32	2433MHz	52	2453MHz	72	2473MHz
13	2414MHz	33	2434MHz	53	2454MHz	73	2474MHz
14	2415MHz	34	2435MHz	54	2455MHz	74	2475MHz
15	2416MHz	35	2436MHz	55	2456MHz	75	2476MHz
16	2417MHz	36	2437MHz	56	2457MHz	76	2477MHz
17	2418MHz	37	2438MHz	57	2458MHz	77	2478MHz
18	2419MHz	38	2439MHz	58	2459MHz	78	2479MHz
19	2420MHz	39	2440MHz	59	2460MHz	79	2480MHz
20	2421MHz	40	2441MHz	60	2461MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2402MHz
The middle channel	2441MHz
The Highest channel	2480MHz

5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.

Per-test mode.

We have verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:

Axis	X	Y	Z
Field Strength(dBuV/m)	88.12	89.44	87.79

5.3 Description of Support Units

Manufacturer	Description	Model	Serial Number
N/A	ADAPTER	N/A	N/A

5.4 Deviation from Standards

None.

5.5 Abnormalities from Standard Conditions

None.

5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC—Registration No.: 381383**

Designation Number: CN5029

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files.

● **IC —Registration No.: 9079A**

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

● **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

5.7 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123- 128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

5.8 Additional Instructions

Test Software	Special test command provided by manufacturer
Power level setup	Default

6 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July 02, 2020	July 01, 2025
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	April 22, 2022	April 21, 2023
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	GTS640	March 21, 2022	March 20, 2023
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June 12, 2022	June 11, 2023
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June 23, 2022	June 22, 2023
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	April 22, 2022	April 21, 2023
9	Coaxial Cable	GTS	N/A	GTS211	April 22, 2022	April 21, 2023
10	Coaxial cable	GTS	N/A	GTS210	April 22, 2022	April 21, 2023
11	Coaxial Cable	GTS	N/A	GTS212	April 22, 2022	April 21, 2023
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	April 22, 2022	April 21, 2023
13	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 23, 2022	June 22, 2023
14	Band filter	Amindeon	82346	GTS219	June 23, 2022	June 22, 2023
15	Power Meter	Anritsu	ML2495A	GTS540	June 23, 2022	June 22, 2023
16	Power Sensor	Anritsu	MA2411B	GTS541	June 23, 2022	June 22, 2023
17	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	April 22, 2022	April 21, 2023
18	Splitter	Agilent	11636B	GTS237	June 23, 2022	June 22, 2023
19	Loop Antenna	ZHINAN	ZN30900A	GTS534	Nov. 30, 2021	Nov. 29, 2022
20	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	April 22, 2022	April 21, 2023
21	Breitband hornantenna	SCHWARZBECK	BBHA 9170	GTS579	Oct. 16, 2022	Oct. 15, 2023
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 16, 2022	Oct. 15, 2023
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 16, 2022	Oct. 15, 2023
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June 23, 2022	June 22, 2023
25	Amplifier(1GHz-26.5GHz)	HP	8449B	GTS601	April 22, 2022	April 21, 2023

RF Conducted Test:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	April 22, 2022	April 21, 2023
2	EMI Test Receiver	R&S	ESCI 7	GTS552	April 22, 2022	April 21, 2023
3	Spectrum Analyzer	Agilent	E4440A	GTS536	April 22, 2022	April 21, 2023
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	April 22, 2022	April 21, 2023
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	April 22, 2022	April 21, 2023
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	April 22, 2022	April 21, 2023
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	April 22, 2022	April 21, 2023
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	April 22, 2022	April 21, 2023

General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	April 25, 2022	April 24, 2023
2	Barometer	KUMAO	SF132	GTS647	July 26, 2022	July 25, 2023

7 Test results and Measurement Data

7.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible 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.

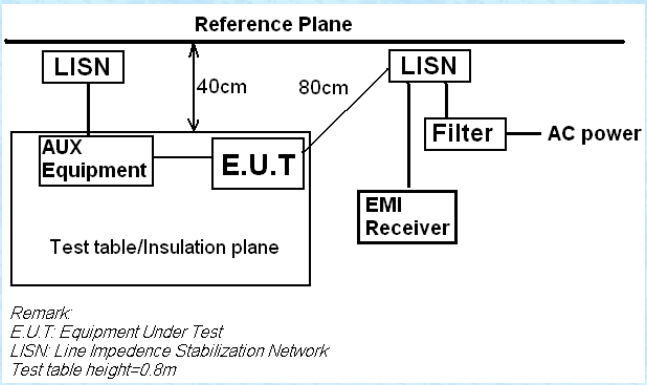
15.247(c) (1)(i) requirement:

(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.

EUT Antenna:

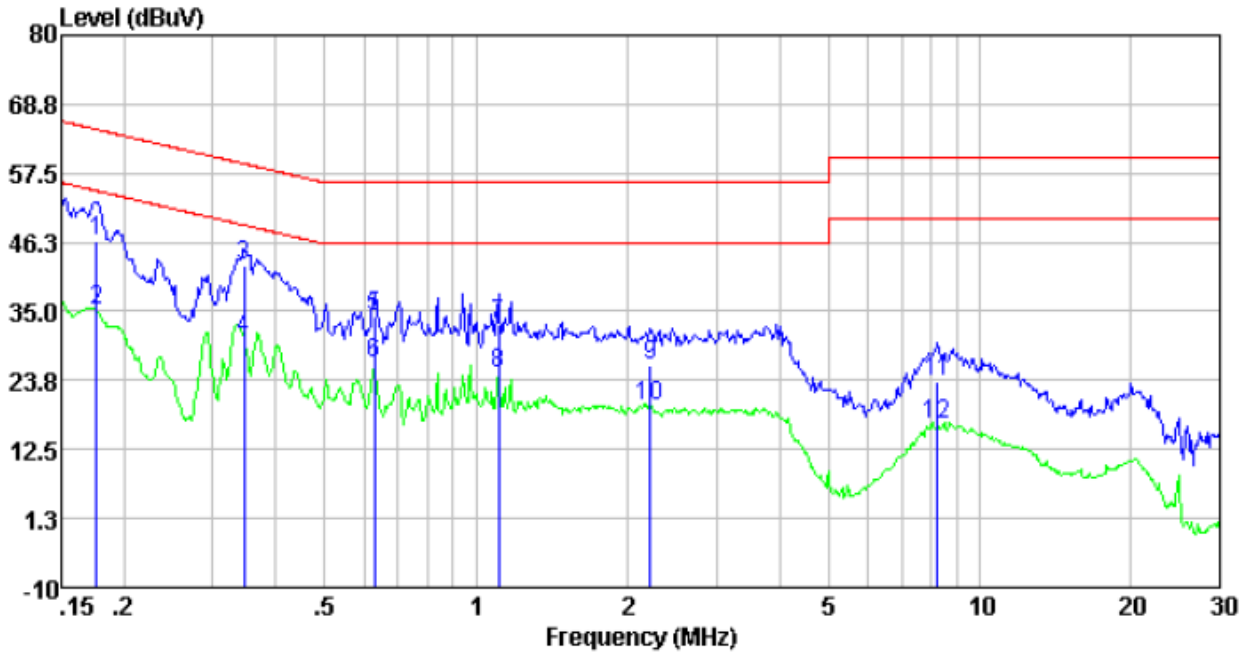
The antenna is PCB IFA antenna, reference to the appendix II for details.

7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Class / Severity:	Class B
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto
Limit:	Frequency range (MHz) / Limit (dBuV): 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 setup:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*
Test procedure:	1. The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.
Test environment:	Temp.: 25 °C / Humid.: 52% / Press.: 1 012mbar
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test voltage:	AC 120V, 60Hz
Test results:	Pass

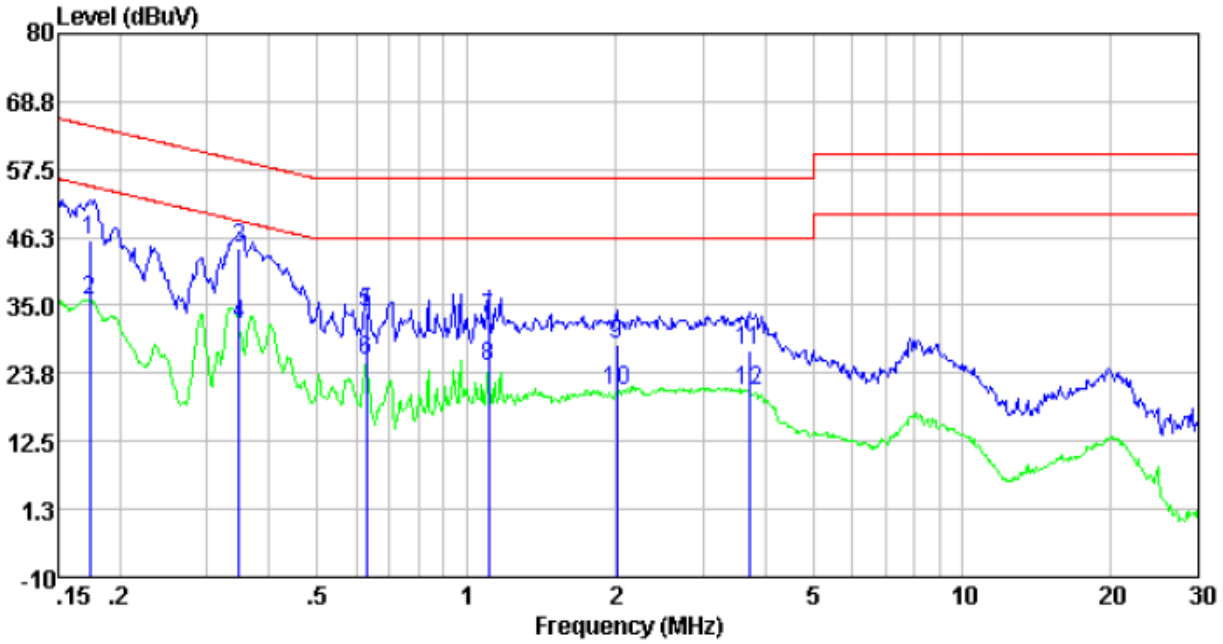
Measurement data:

Line:



Freq	Reading level	LISN/ISN factor	Cable loss	Level	Limit level	Over limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.18	36.20	10.09	0.01	46.30	64.68	-18.38	QP
0.18	25.14	10.09	0.01	35.24	54.68	-19.44	Average
0.35	32.44	9.97	0.01	42.42	59.05	-16.63	QP
0.35	20.65	9.97	0.01	30.63	49.05	-18.42	Average
0.63	24.11	9.96	0.02	34.09	56.00	-21.91	QP
0.63	16.40	9.96	0.02	26.38	46.00	-19.62	Average
1.11	22.95	9.94	0.03	32.92	56.00	-23.08	QP
1.11	14.97	9.94	0.03	24.94	46.00	-21.06	Average
2.21	16.47	9.82	0.05	26.34	56.00	-29.66	QP
2.21	9.63	9.82	0.05	19.50	46.00	-26.50	Average
8.24	13.78	9.65	0.10	23.53	60.00	-36.47	QP
8.24	6.79	9.65	0.10	16.54	50.00	-33.46	Average

Neutral:



Freq	Reading level	LISN/ISN factor	Cable loss	Level	Limit level	Over limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.17	35.80	10.11	0.01	45.92	64.77	-18.85	QP
0.17	25.65	10.11	0.01	35.77	54.77	-19.00	Average
0.35	34.58	9.96	0.01	44.55	59.00	-14.45	QP
0.35	22.02	9.96	0.01	31.99	49.00	-17.01	Average
0.63	23.88	9.96	0.02	33.86	56.00	-22.14	QP
0.63	15.92	9.96	0.02	25.90	46.00	-20.10	Average
1.11	22.94	9.95	0.03	32.92	56.00	-23.08	QP
1.11	14.81	9.95	0.03	24.79	46.00	-21.21	Average
2.01	18.46	9.86	0.04	28.36	56.00	-27.64	QP
2.01	10.85	9.86	0.04	20.75	46.00	-25.25	Average
3.72	18.18	9.28	0.06	27.52	56.00	-28.48	QP
3.72	11.38	9.28	0.06	20.72	46.00	-25.28	Average

7.3 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209
Test Method:	ANSI C63.10
Test Frequency Range:	9kHz to 25GHz
Test site:	Measurement Distance: 3m

Receiver setup:

Frequency	Detector	RBW	VBW	Remark
9kHz-150kHz	Quasi-peak	200Hz	300Hz	Quasi-peak Value
150kHz-30MHz	Quasi-peak	9kHz	10kHz	Quasi-peak Value
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	Peak	1MHz	10Hz	Average Value

Limit:
(Field strength of the fundamental signal)

Frequency	Limit (dBuV/m @3m)	Remark
2400MHz-2483.5MHz	94.00	Average Value
	114.00	Peak Value

Limit:
(Spurious Emissions)

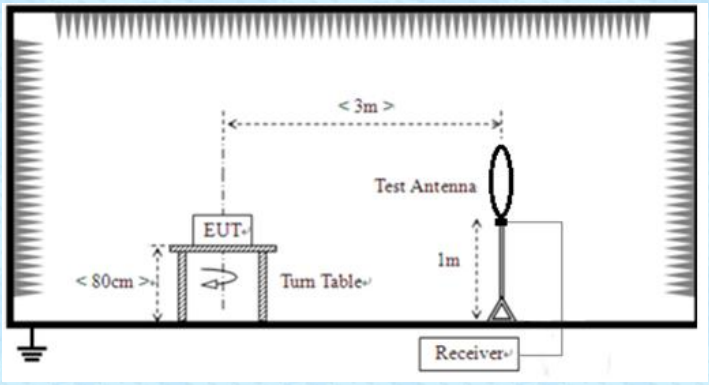
Frequency	Limit (uV/m)	Remark
0.009MHz-0.490MHz	2400/F(kHz) @300m	Quasi-peak Value
0.490MHz-1.705MHz	24000/F(kHz) @30m	Quasi-peak Value
1.705MHz-30.0MHz	30 @30m	Quasi-peak Value
30MHz-88MHz	100 @3m	Quasi-peak Value
88MHz-216MHz	150 @3m	Quasi-peak Value
216MHz-960MHz	200 @3m	Quasi-peak Value
960MHz-1GHz	500 @3m	Quasi-peak Value
Above 1GHz	500 @3m	Average Value
	5000 @3m	Peak Value

Limit:
(band edge)

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 Section 15.209, whichever is the lesser attenuation.

Test setup:

For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to1GHz

<table>
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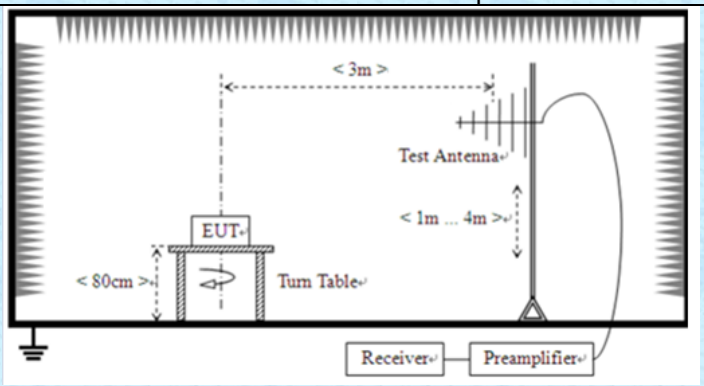
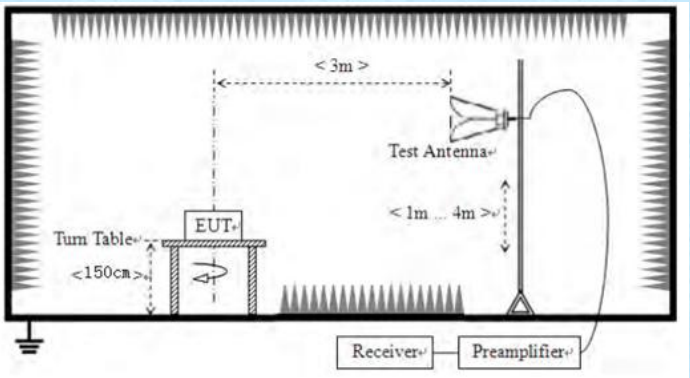


For radiated emissions above 1GHz


</td></tr>
<tr><td>Test Procedure:</td><td>1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 6.0 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 5.2 for details</td></tr>
<tr><td>Test environment:</td><td>Temp.: | 25 °C | Humid.: | 52% | Press.: | 1012mbar</td></tr>
<tr><td>Test results:</td><td>Pass</td></tr>
</table>

Measurement data:

7.3.1 Field Strength of The Fundamental Signal

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2402.00	97.81	27.28	2.91	38.56	89.44	114.00	-24.56	Horizontal
2402.00	91.56	27.28	2.91	38.56	83.19	114.00	-30.81	Vertical
2441.00	94.65	27.33	2.96	38.58	86.36	114.00	-27.64	Horizontal
2441.00	89.02	27.33	2.96	38.58	80.73	114.00	-33.27	Vertical
2480.00	96.76	27.38	2.99	38.59	88.54	114.00	-25.46	Horizontal
2480.00	92.23	27.38	2.99	38.59	84.01	114.00	-29.99	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2402.00	96.11	27.28	2.91	38.56	87.74	94.00	-6.26	Horizontal
2402.00	90.89	27.28	2.91	38.56	82.52	94.00	-11.48	Vertical
2441.00	93.46	27.33	2.96	38.58	85.17	94.00	-8.83	Horizontal
2441.00	88.63	27.33	2.96	38.58	80.34	94.00	-13.66	Vertical
2480.00	95.04	27.38	2.99	38.59	86.82	94.00	-7.18	Horizontal
2480.00	91.23	27.38	2.99	38.59	83.01	94.00	-10.99	Vertical

Note: RBW>20dB BW, VBW> RBW, PK detector is for PK value, AV detector is for AV value .

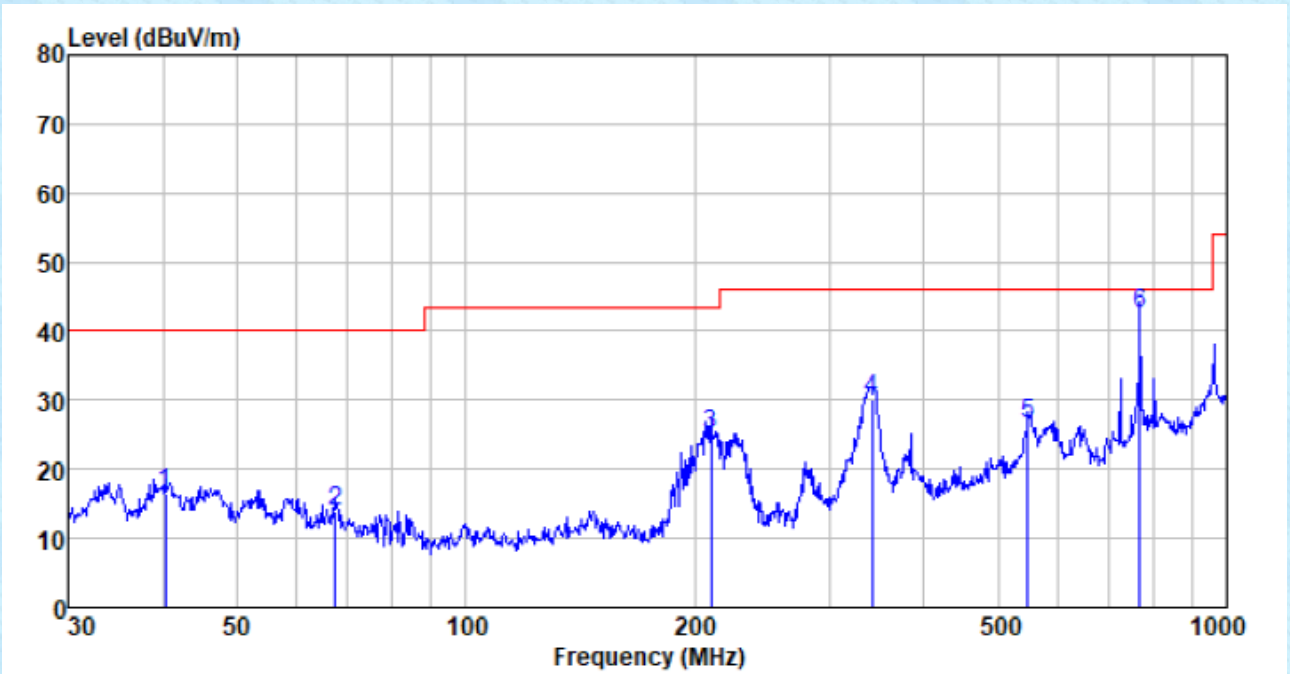
7.3.2 Spurious emissions

■ **Below 30MHz**

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o), the test result no need to reported.

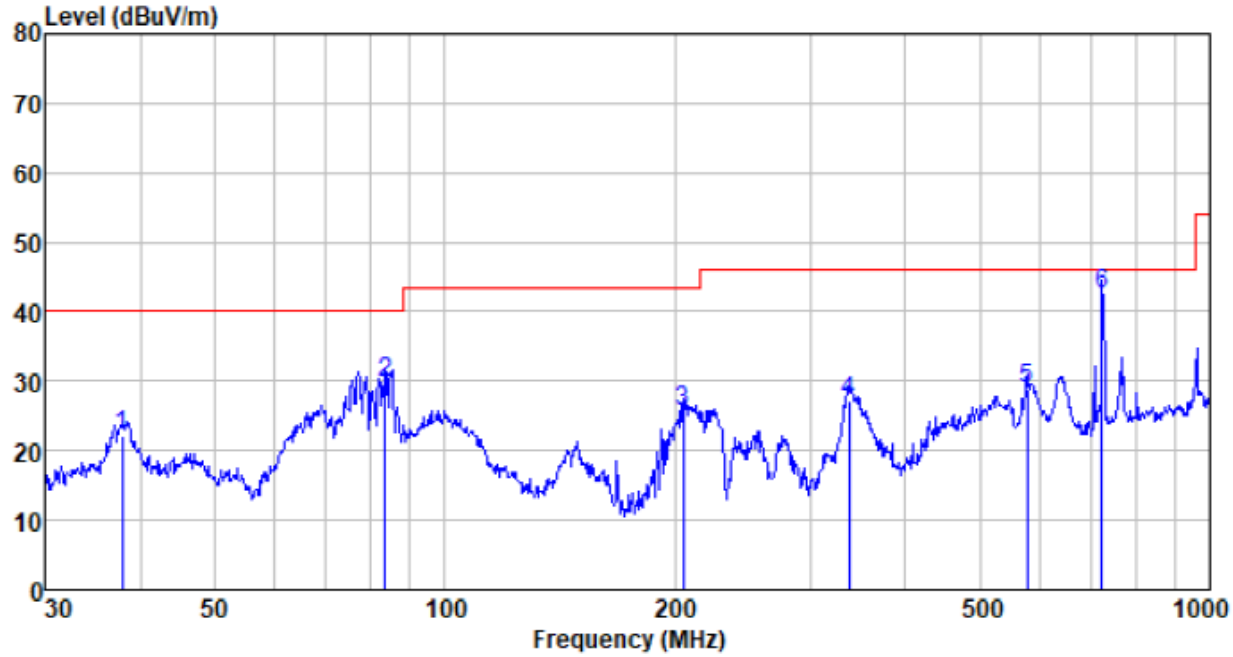
■ **Below 1GHz**

Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
40.276	37.76	13.49	0.68	35.31	16.62	40.00	-23.38	QP
67.438	37.65	11.01	0.92	35.82	13.76	40.00	-26.24	QP
210.048	50.00	9.77	1.90	36.64	25.03	43.50	-18.47	QP
341.979	50.41	13.90	2.64	36.95	30.00	46.00	-16.00	QP
547.098	41.65	18.44	3.51	37.14	26.46	46.00	-19.54	QP
768.748	53.20	22.13	4.35	37.29	42.39	46.00	-3.61	QP

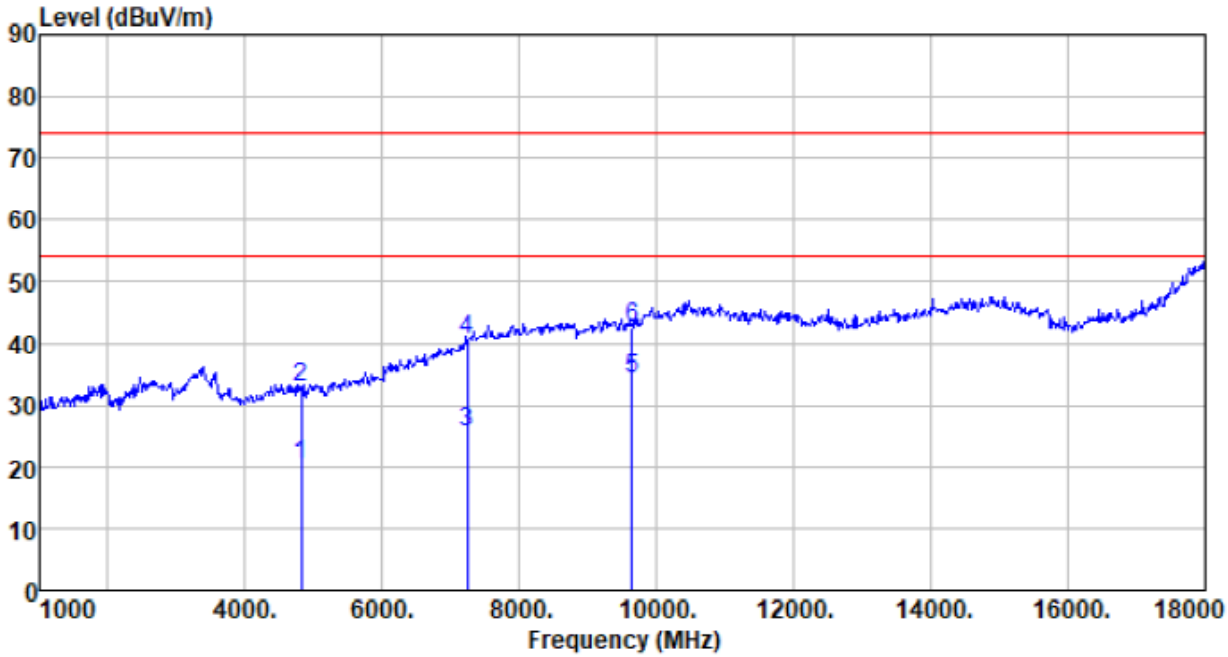
Vertical:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
37.812	43.63	13.16	0.65	35.18	22.26	40.00	-17.74	QP
83.522	55.81	8.79	1.06	35.97	29.69	40.00	-10.31	QP
204.955	50.83	9.48	1.87	36.62	25.56	43.50	-17.94	QP
337.216	47.81	13.74	2.61	36.95	27.21	46.00	-18.79	QP
576.644	43.45	18.93	3.63	37.16	28.85	46.00	-17.15	QP
721.726	54.42	21.23	4.17	37.26	42.56	46.00	-3.44	QP

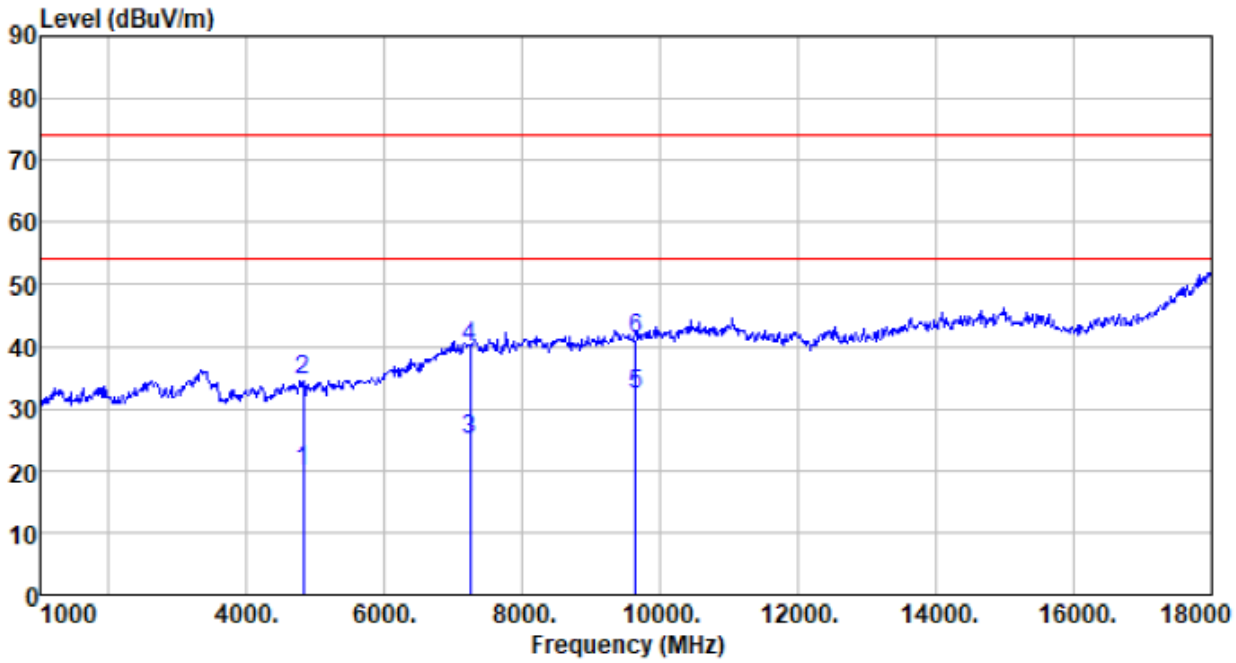
■ **Above 1GHz**

Test channel:	Lowest	Polarization:	Horizontal



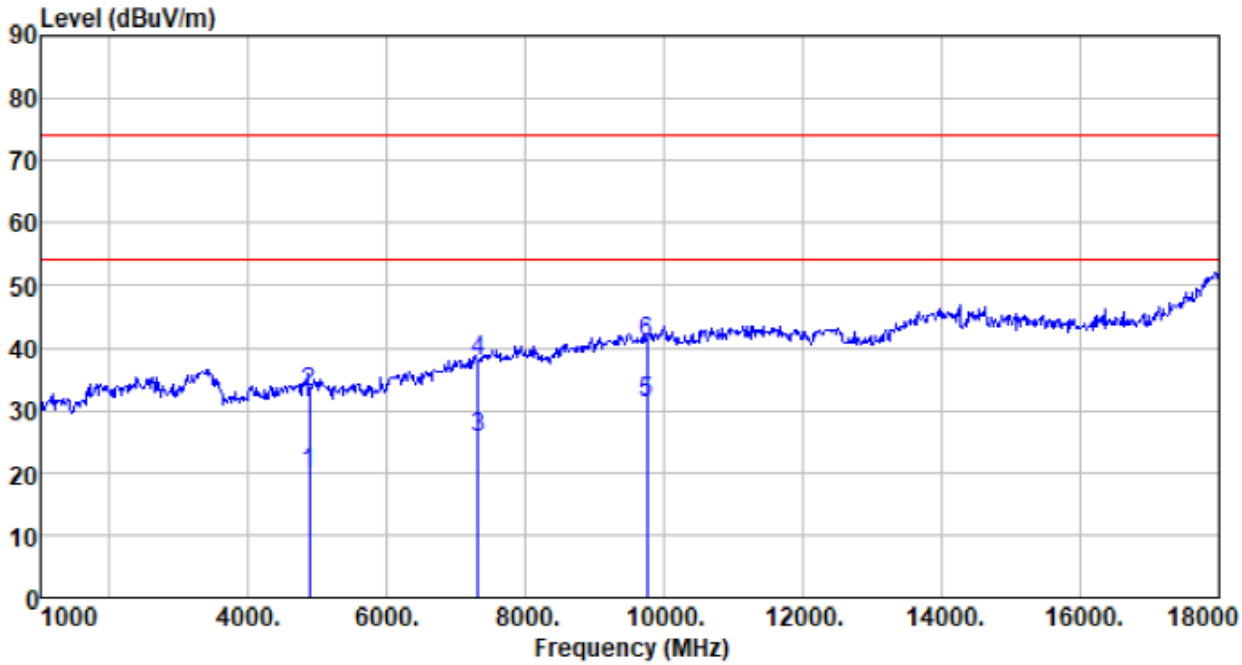
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4824.000	22.06	31.22	4.63	37.73	20.18	54.00	-33.82	Average
4824.000	34.90	31.22	4.63	37.73	33.02	74.00	-40.98	Peak
7236.000	18.28	36.25	6.52	35.62	25.43	54.00	-28.57	Average
7236.000	33.43	36.25	6.52	35.62	40.58	74.00	-33.42	Peak
9648.000	23.10	37.97	7.99	34.95	34.11	54.00	-19.89	Average
9648.000	31.40	37.97	7.99	34.95	42.41	74.00	-31.59	Peak

Test channel:	Lowest	Polarization:	Vertical



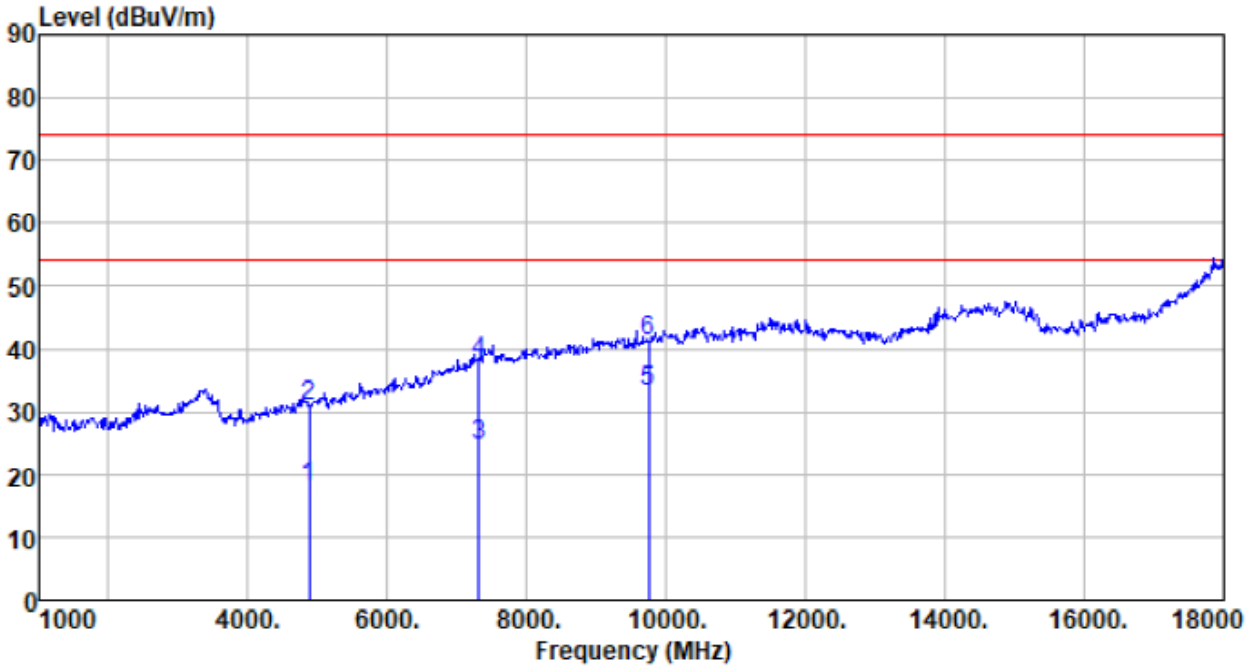
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4824.000	21.93	31.22	4.63	37.73	20.05	54.00	-33.95	Average
4824.000	36.49	31.22	4.63	37.73	34.61	74.00	-39.39	Peak
7236.000	17.91	36.25	6.52	35.62	25.06	54.00	-28.94	Average
7236.000	32.79	36.25	6.52	35.62	39.94	74.00	-34.06	Peak
9648.000	21.21	37.97	7.99	34.95	32.22	54.00	-21.78	Average
9648.000	30.21	37.97	7.99	34.95	41.22	74.00	-32.78	Peak

Test channel:	Middle	Polarization:	Horizontal



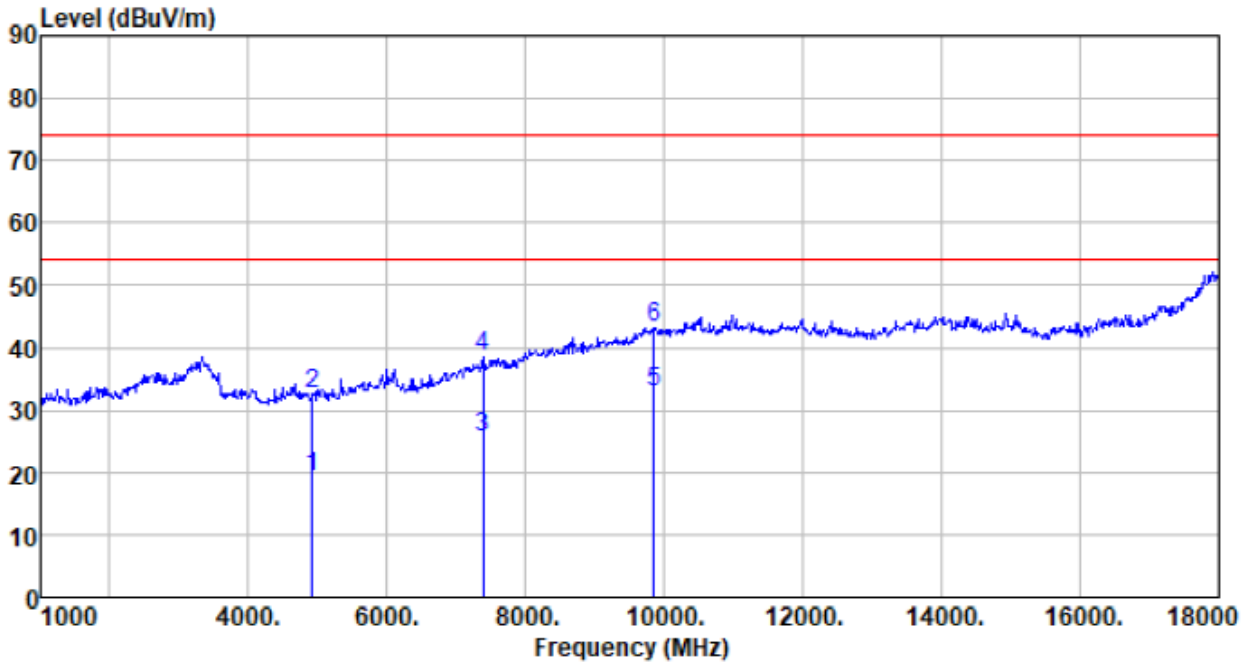
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4874.000	21.62	31.31	4.69	37.75	19.87	54.00	-34.13	Average
4874.000	34.76	31.31	4.69	37.75	33.01	74.00	-40.99	Peak
7311.000	18.12	36.39	6.61	35.60	25.52	54.00	-28.48	Average
7311.000	30.40	36.39	6.61	35.60	37.80	74.00	-36.20	Peak
9748.000	20.11	38.10	8.03	35.03	31.21	54.00	-22.79	Average
9748.000	29.91	38.10	8.03	35.03	41.01	74.00	-32.99	Peak

Test channel:	Middle	Polarization:	Vertical



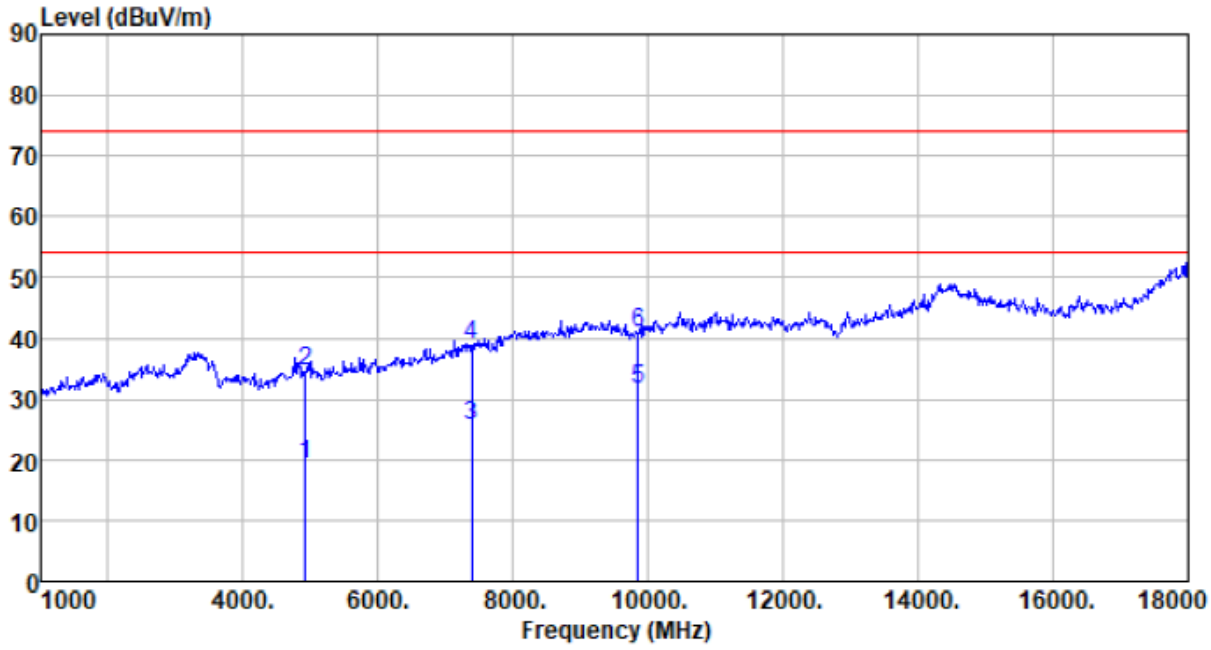
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4874.000	19.82	31.31	4.69	37.75	18.07	54.00	-35.93	Average
4874.000	32.47	31.31	4.69	37.75	30.72	74.00	-43.28	Peak
7311.000	17.30	36.39	6.61	35.60	24.70	54.00	-29.30	Average
7311.000	30.62	36.39	6.61	35.60	38.02	74.00	-35.98	Peak
9748.000	21.97	38.10	8.03	35.03	33.07	54.00	-20.93	Average
9748.000	30.10	38.10	8.03	35.03	41.20	74.00	-32.80	Peak

Test channel:	Highest	Polarization:	Horizontal



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4924.000	20.97	31.39	4.75	37.77	19.34	54.00	-34.66	Average
4924.000	34.10	31.39	4.75	37.77	32.47	74.00	-41.53	Peak
7386.000	17.77	36.57	6.71	35.58	25.47	54.00	-28.53	Average
7386.000	30.68	36.57	6.71	35.58	38.38	74.00	-35.62	Peak
9848.000	21.57	38.20	8.06	35.09	32.74	54.00	-21.26	Average
9848.000	31.86	38.20	8.06	35.09	43.03	74.00	-30.97	Peak

Test channel:	Highest	Polarization:	Vertical



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4924.000	20.84	31.39	4.75	37.77	19.21	54.00	-34.79	Average
4924.000	36.28	31.39	4.75	37.77	34.65	74.00	-39.35	Peak
7386.000	17.76	36.57	6.71	35.58	25.46	54.00	-28.54	Average
7386.000	31.28	36.57	6.71	35.58	38.98	74.00	-35.02	Peak
9848.000	20.36	38.20	8.06	35.09	31.53	54.00	-22.47	Average
9848.000	29.54	38.20	8.06	35.09	40.71	74.00	-33.29	Peak

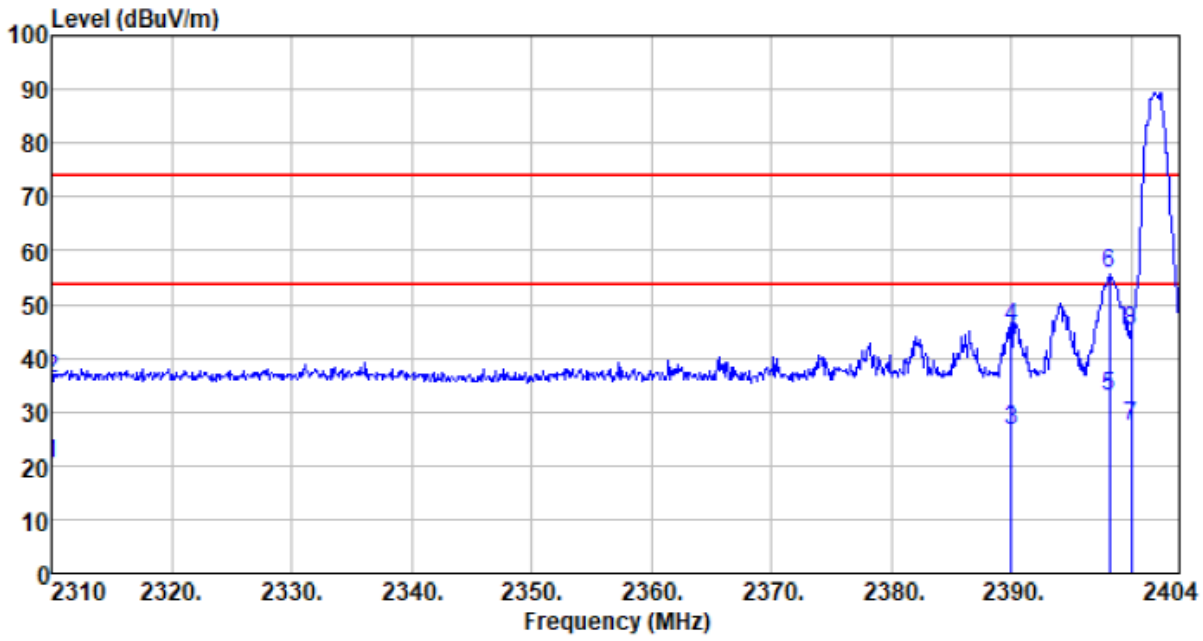
Remarks:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *For above 18GHz, no emission found.*

7.3.3 Bandedge emissions

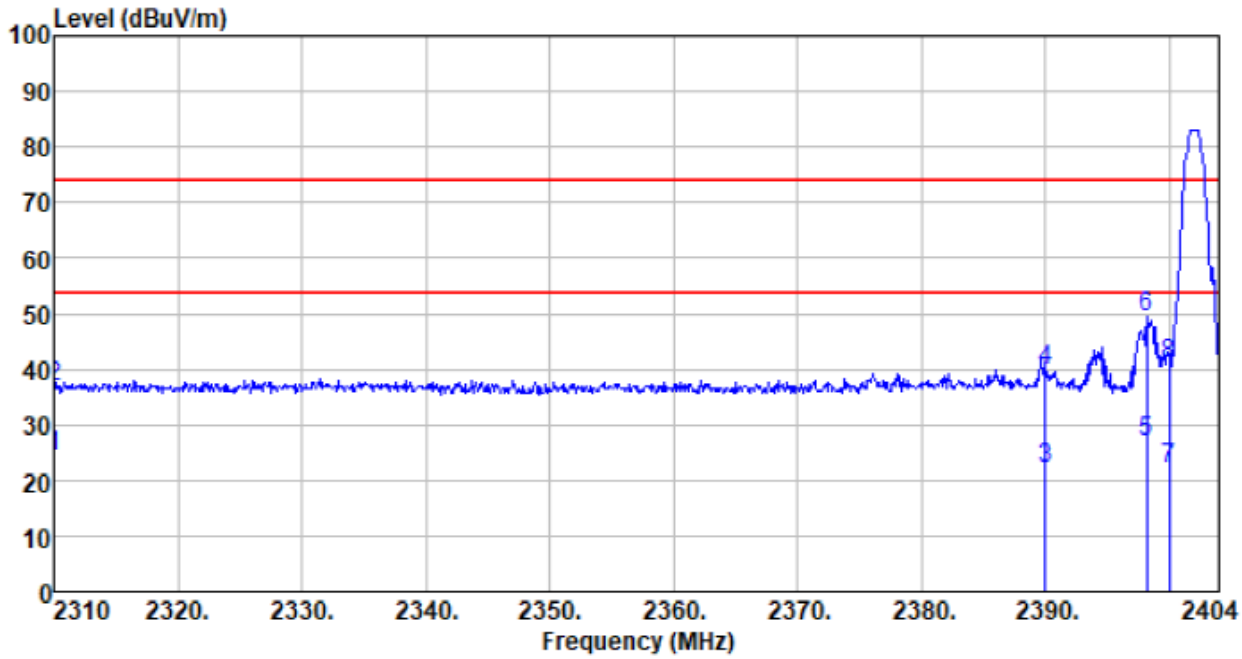
All of the restriction bands were tested, and only the data of worst case was exhibited.

Test channel:	Lowest	Polarization:	Horizontal



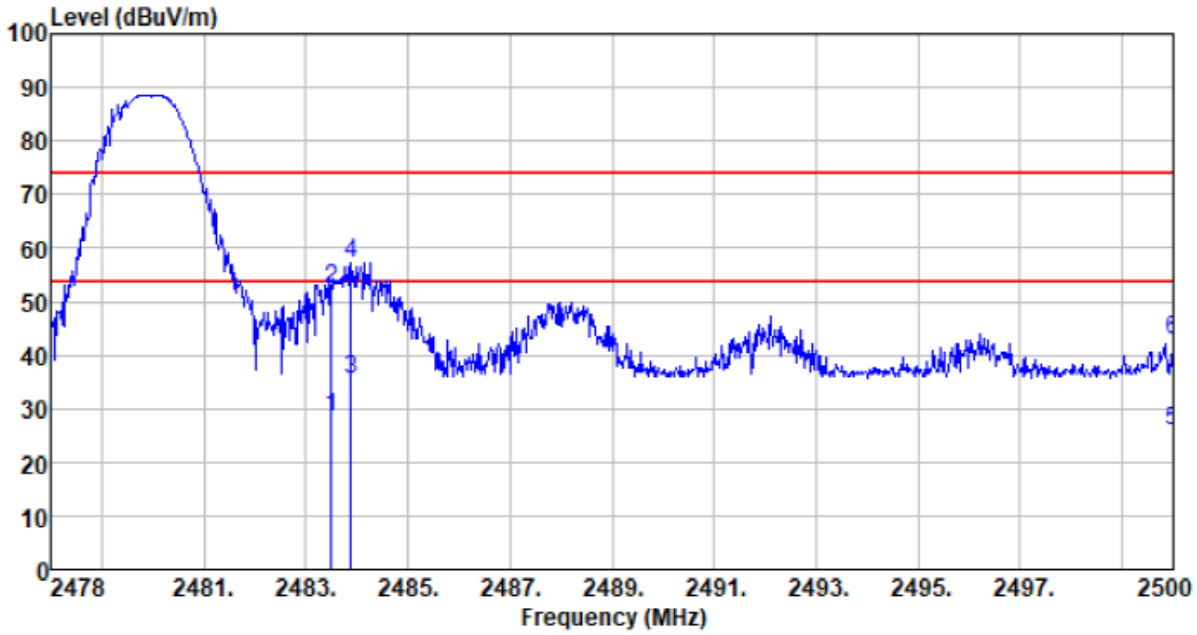
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	28.92	27.17	2.81	38.52	20.38	54.00	-33.62	Average
2310.000	44.69	27.17	2.81	38.52	36.15	74.00	-37.85	Peak
2390.000	35.05	27.27	2.91	38.56	26.67	54.00	-27.33	Average
2390.000	54.31	27.27	2.91	38.56	45.93	74.00	-28.07	Peak
2398.172	41.25	27.28	2.91	38.56	32.88	54.00	-21.12	Average
2398.172	63.92	27.28	2.91	38.56	55.55	74.00	-18.45	Peak
2400.000	35.62	27.28	2.91	38.56	27.25	54.00	-26.75	Average
2400.000	53.56	27.28	2.91	38.56	45.19	74.00	-28.81	Peak

Test channel:	Lowest	Polarization:	Vertical



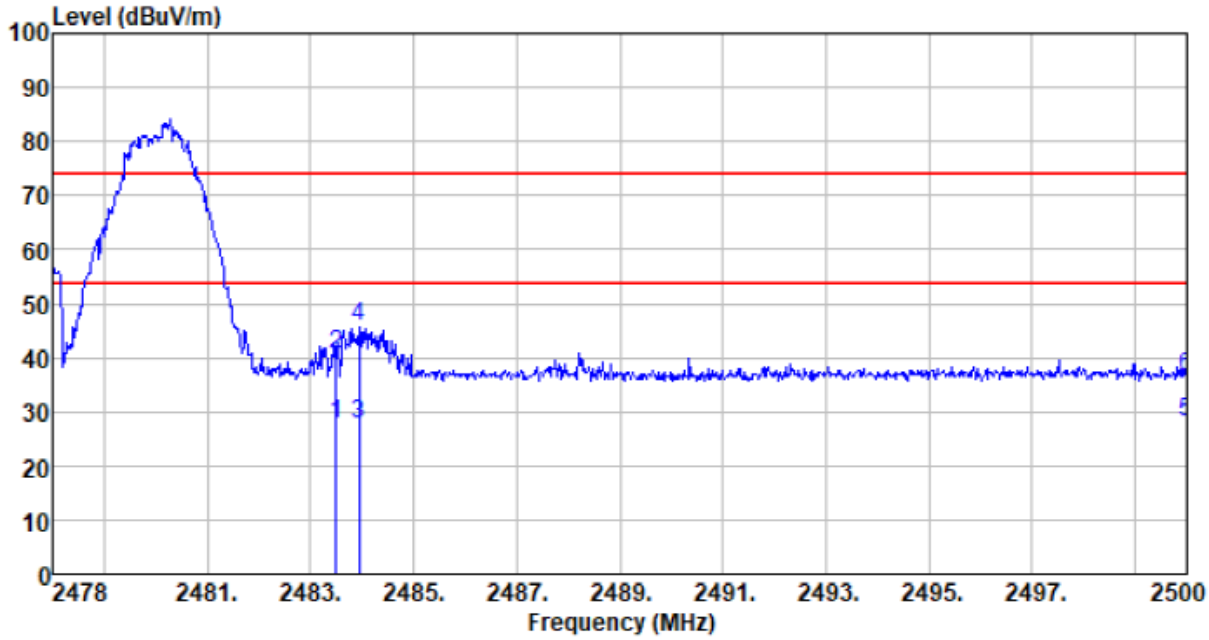
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	33.03	27.17	2.81	38.52	24.49	54.00	-29.51	Average
2310.000	45.60	27.17	2.81	38.52	37.06	74.00	-36.94	Peak
2390.000	30.70	27.27	2.91	38.56	22.32	54.00	-31.68	Average
2390.000	48.27	27.27	2.91	38.56	39.89	74.00	-34.11	Peak
2398.172	35.15	27.28	2.91	38.56	26.78	54.00	-27.22	Average
2398.172	57.71	27.28	2.91	38.56	49.34	74.00	-24.66	Peak
2400.000	30.61	27.28	2.91	38.56	22.24	54.00	-31.76	Average
2400.000	49.26	27.28	2.91	38.56	40.89	74.00	-33.11	Peak

Test channel:	Highest	Polarization:	Horizontal



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2483.500	36.65	27.38	2.99	38.59	28.43	54.00	-25.57	Average
2483.500	60.66	27.38	2.99	38.59	52.44	74.00	-21.56	Peak
2483.896	43.68	27.38	2.99	38.59	35.46	54.00	-18.54	Average
2483.896	65.57	27.38	2.99	38.59	57.35	74.00	-16.65	Peak
2500.000	34.10	27.40	3.01	38.60	25.91	54.00	-28.09	Average
2500.000	51.01	27.40	3.01	38.60	42.82	74.00	-31.18	Peak

Test channel:	Highest	Polarization:	Vertical

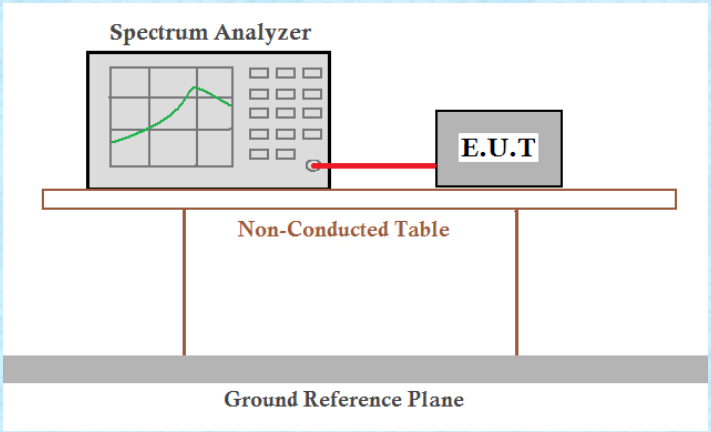


Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2483.500	35.81	27.38	2.99	38.59	27.59	54.00	-26.41	Average
2483.500	48.98	27.38	2.99	38.59	40.76	74.00	-33.24	Peak
2483.940	36.08	27.38	2.99	38.59	27.86	54.00	-26.14	Average
2483.940	54.11	27.38	2.99	38.59	45.89	74.00	-28.11	Peak
2500.000	36.27	27.40	3.01	38.60	28.08	54.00	-25.92	Average
2500.000	44.83	27.40	3.01	38.60	36.64	74.00	-37.36	Peak

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*

7.4 20dB Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.249/15.215
Test Method:	ANSI C63.10
Limit:	Operation Frequency range 2400MHz~2483.5MHz
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

Test channel	20dB bandwidth(MHz)	Result
Lowest	0.5378	Pass
Middle	0.5382	Pass
Highest	0.5376	Pass

Test plot as follows:

Lowest channel

Middle channel

Highest channel

8 Test Setup Photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

------End------