TEST REPORT

Applicant:	Gateway Plastic Hardware & Lighting Co., Ltd
Address of Applicant:	Xinjiang Village Intersection, Changfu Road, Changning Town, Boluo County, Huizhou City, Guangdong Province. China
Manufacturer	Gateway Plastic Hardware & Lighting Co., Ltd
Address of Manufacturer:	Xinjiang Village Intersection, Changfu Road, Changning Town, Boluo County, Huizhou City, Guangdong Province. China

Equipment Under Test (EUT)

Product Name:	Wireless charging table lamp
Model No.:	LT2204304GW-WH, LT2204304GW-BK
FCC ID:	2AP9S-LT2204304GW
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C
Date of sample receipt:	May 05, 2023
Date of Test:	May 06-10, 2023
Date of report issued:	May 11, 2023
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	*February 09, 2023*	*Original*

Prepared By: ***Date:*** *May 11, 2023*

Project Engineer

Check By: ***Date:*** *May 11, 2023*

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
Radiated Emission	15.209	Pass
20dB Bandwidth	15.215	N/A

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

N/A: this's a Class II permissive change report, all of the changes are not effect to the RF performance, function and power, the conducted test data directly reference the original report .

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	30MHz-200MHz	3.8039dB	(1)
Radiated Emission	200MHz-1GHz	3.9679dB	(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:	Wireless charging table lamp
Model No.:	LT2204304GW-WH, LT2204304GW-BK
Test Model No.:	LT2204304GW-WH
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.	
Test sample(s) ID:	GTS2023050022-1
Sample(s) Status	Engineer sample
Operation Frequency:	110kHz~205kHz
Wireless Charging Power	5W
Modulation type:	FSK
Antenna Type:	Induction coil
Power supply:	Adapter Model: RKP-UL0503000DP-3 Input: AC 100-240V, 50/60Hz Output: 5Vdc, 3.0A

5.2 Test mode

Wireless charging mode	Keep the EUT in wireless charging status. Wireless output 5W mode is worse case and reported.

5.3 Description of Support Units

Manufacturer	Description	Model	S/N
YBZ	Intelligent wireless charging full function test module	001	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.
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 Other Information Requested by the Customer

None.

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
	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	April 21, 2023	April 20, 2024
4	Loop Antenna	ZHINAN	ZN30900A	GTS534	Nov. 29, 2022	Nov. 28, 2023
5	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	GTS640	March 20, 2023	March 19, 2023
6	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	April 21, 2023	April 20, 2024
7	Coaxial Cable	GTS	N/A	GTS213	April 21, 2023	April 20, 2024
8	Coaxial Cable	GTS	N/A	GTS211	April 21, 2023	April 20, 2024
9	Coaxial cable	GTS	N/A	GTS210	April 21, 2023	April 20, 2024

Conducted Emission						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May 14, 2022	May 13, 2025
2	EMI Test Receiver	R&S	ESCI 7	GTS552	April 23, 2023	April 22, 2024
3	ENV216 2-L-V-NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	GTS226	April 21, 2023	April 20, 2024
4	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

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 23, 2023	April 22, 2024
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

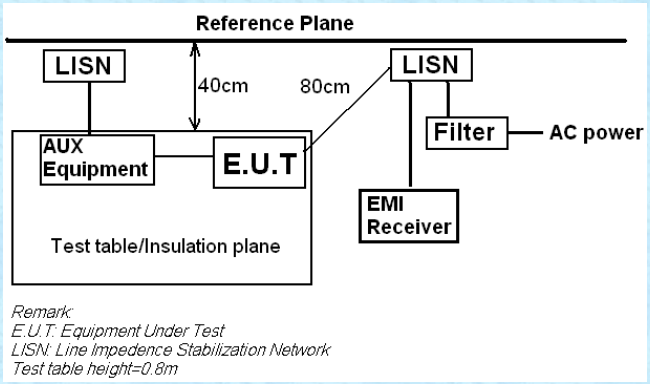
15.203 requirement:

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.

EUT Antenna:

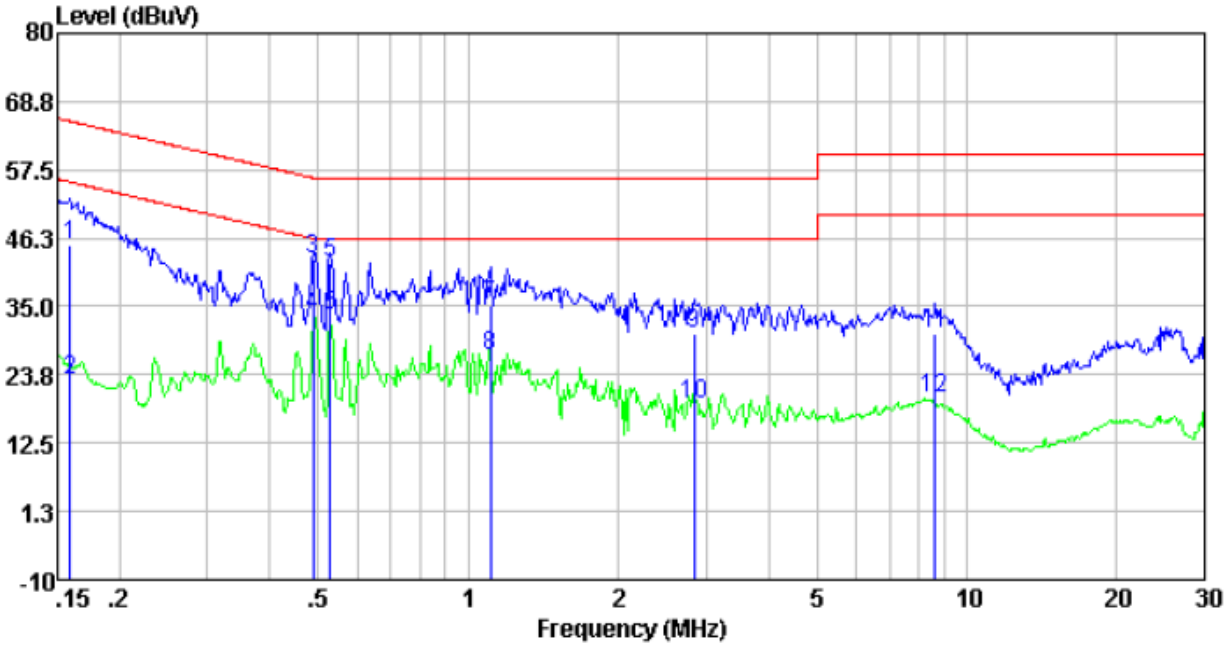
The ant is Induction coil antenna, reference to the appendix II for details.

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 E.U.T 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 Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details. Only show the worst cas (Charging with 5W wireless charging load).					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test voltage:	AC 120V, 60Hz					
Test results:	Pass					

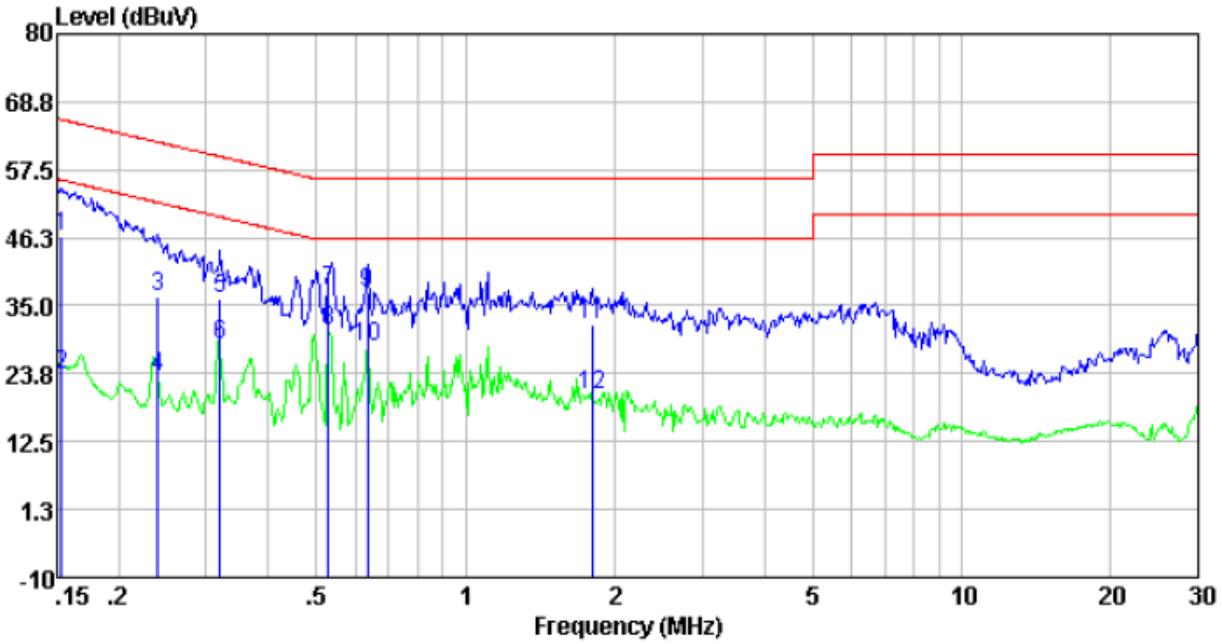
Measurement data:

Line:



Freq	Reading level	LISN/ISN factor	Cable loss	Level	Limit level	Over limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.16	35.15	10.11	0.01	45.27	65.52	-20.25	QP
0.16	12.92	10.11	0.01	23.04	55.52	-32.48	Average
0.49	32.86	9.96	0.01	42.83	56.19	-13.36	QP
0.49	23.50	9.96	0.01	33.47	46.19	-12.72	Average
0.53	32.17	9.96	0.01	42.14	56.00	-13.86	QP
0.53	23.57	9.96	0.01	33.54	46.00	-12.46	Average
1.11	25.25	9.94	0.03	35.22	56.00	-20.78	QP
1.11	16.85	9.94	0.03	26.82	46.00	-19.18	Average
2.84	20.76	9.75	0.05	30.56	56.00	-25.44	QP
2.84	8.94	9.75	0.05	18.74	46.00	-27.26	Average
8.64	20.72	9.64	0.10	30.46	60.00	-29.54	QP
8.64	10.22	9.64	0.10	19.96	50.00	-30.04	Average

Neutral:



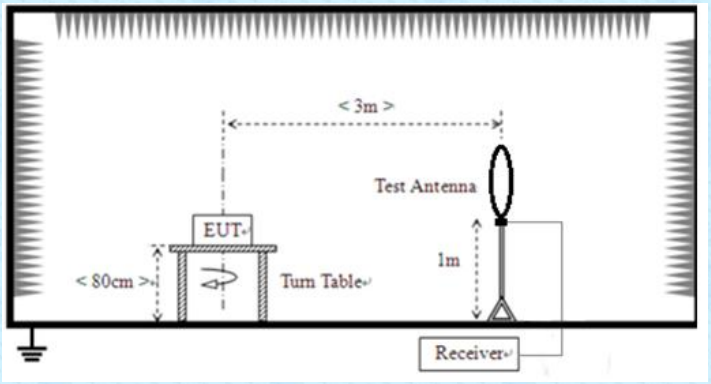
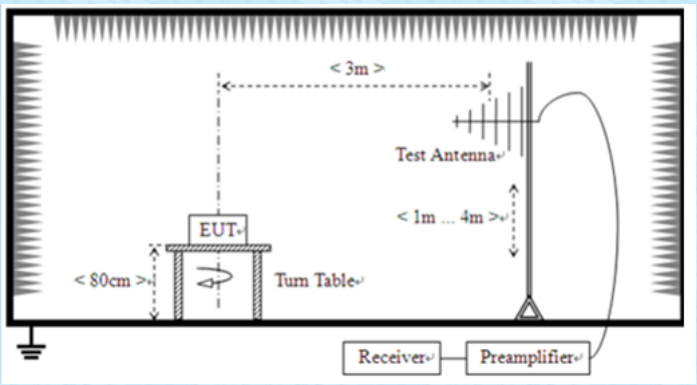
Freq	Reading level	LISN/ISN factor	Cable loss	Level	Limit level	Over limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.15	36.32	10.15	0.01	46.48	65.82	-19.34	QP
0.15	13.49	10.15	0.01	23.65	55.82	-32.17	Average
0.24	26.39	10.02	0.01	36.42	62.13	-25.71	QP
0.24	13.16	10.02	0.01	23.19	52.13	-28.94	Average
0.32	26.13	9.97	0.01	36.11	59.71	-23.60	QP
0.32	18.42	9.97	0.01	28.40	49.71	-21.31	Average
0.53	27.40	9.96	0.01	37.37	56.00	-18.63	QP
0.53	20.72	9.96	0.01	30.69	46.00	-15.31	Average
0.63	27.21	9.96	0.02	37.19	56.00	-18.81	QP
0.63	18.26	9.96	0.02	28.24	46.00	-17.76	Average
1.80	21.81	9.88	0.04	31.73	56.00	-24.27	QP
1.80	10.16	9.88	0.04	20.08	46.00	-25.92	Average

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

7.3 Radiated Emission Method

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td>9kHz to 1GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr>
<tr><td>9kHz - 30MHz</td><td>Quasi-peak</td><td>10kHz</td><td>30kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>AV</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr>
</table>
Remark: For the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission test in these three bands are based on measurements employing an average detector.
</td></tr>
<tr><td>Limit:
(Spurious Emissions)</td><td>
Limits for frequency below 30MHz
<table>
<tr><th>Frequency</th><th>Limit (uV/m)</th><th>Measurement Distance(m)</th><th>Remark</th></tr>
<tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td><td>Quasi-peak Value</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td><td>Quasi-peak Value</td></tr>
<tr><td>1.705-30</td><td>30</td><td>30</td><td>Quasi-peak Value</td></tr>
</table>
Limits for frequency Above 30MHz
<table>
<tr><th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr>
<tr><td>30MHz-88MHz</td><td>40.00</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.50</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.00</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.00</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.00</td><td>Average Value</td></tr>
<tr><td>74.00</td><td>Peak Value</td></tr>
</table>
Remark: 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 Procedure:</td><td>
1. The EUT was placed on the top of a rotating table 0.8 meters 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
</td></tr>
</table>

	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. 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the Y axis positioning which it is worse case, only the test worst case mode is recorded in the report.
Test setup:	Below 30MHz  30MHz ~ 1000MHz 
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details. Only show the worst cas (Charging with 5W wireless charging load).
Test environment:	Temp.: 25 °C | Humid.: 52% | Press.: 1012mbar
Test voltage:	AC 120V, 60Hz
Test results:	Pass

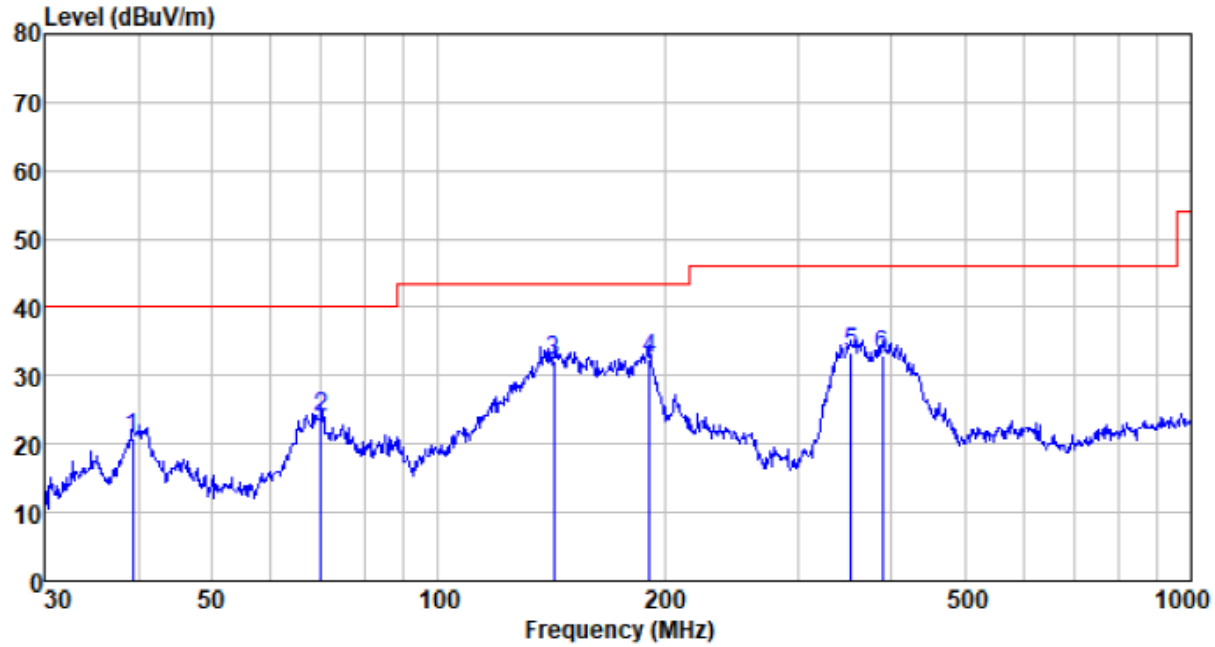
Measurement data:

Below 30MHz:

Note: this's a Class II permissive change report, the conducted test data directly reference the original report .

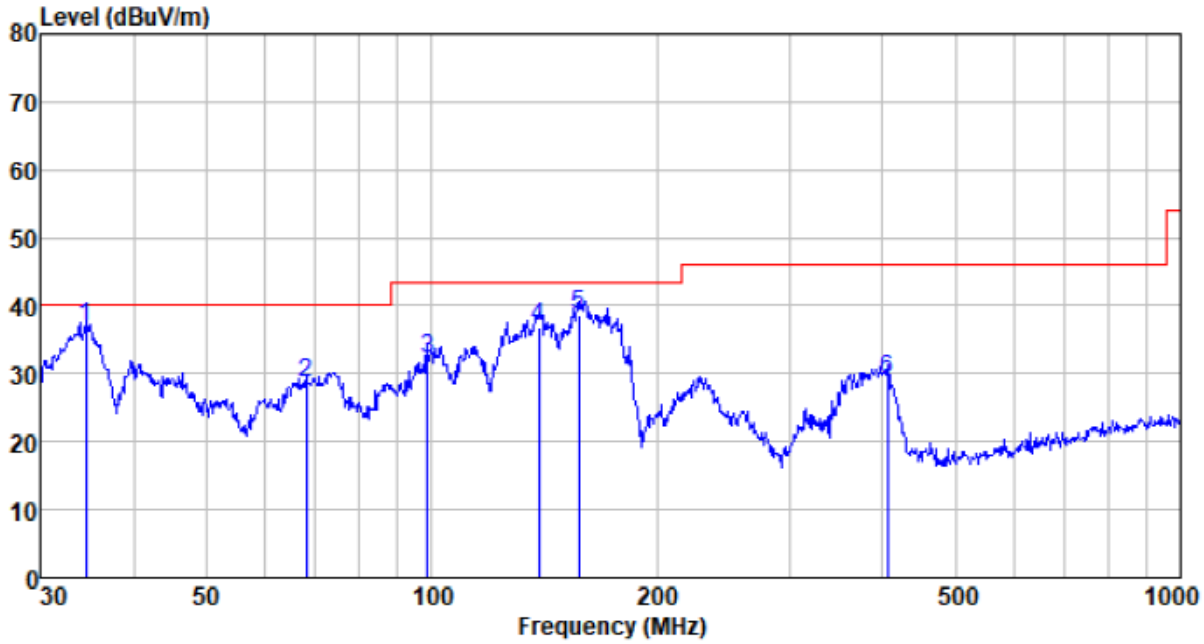
30MHz ~ 1GHz

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	
39.299	36.84	13.39	0.65	30.00	20.88	40.00	-19.12	QP
69.845	42.30	10.53	0.94	30.00	23.77	40.00	-16.23	QP
142.324	48.27	12.42	1.52	30.00	32.21	43.50	-11.29	QP
191.074	50.95	9.68	1.80	30.00	32.43	43.50	-11.07	QP
352.943	46.37	14.26	2.64	30.00	33.27	46.00	-12.73	QP
389.355	44.85	15.39	2.80	30.00	33.04	46.00	-12.96	QP

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
34.517	53.53	12.65	0.60	30.00	36.78	40.00	-3.22	QP
67.913	46.92	10.91	0.92	30.00	28.75	40.00	-11.25	QP
98.833	51.54	9.58	1.18	30.00	32.30	43.50	-11.20	QP
138.874	53.17	12.34	1.50	30.00	37.01	43.50	-6.49	QP
157.007	54.45	12.57	1.61	30.00	38.63	43.50	-4.87	QP
406.088	40.66	15.83	2.88	30.00	29.37	46.00	-16.63	QP

8 Test Setup Photo

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

9 EUT Constructional Details

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

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