



Report No.: ET-22120934E01

TEST REPORT

Applicant: Shenzhen Kerchan Star Technology Co., LTD

Address of Applicant: 7th Floor, Building B, Huafeng International Robot Industrial Park, Hangcheng Road, Bao'an District, Shenzhen

Manufacturer/Factory: Shenzhen Kerchan Technology Co., Limited

Address of Manufacturer/Factory: 5/F, Buliding B, shuangjinhui Industrial Park, Fu'yong, Baoan Shenzhen China.

Product Name: Wireless Charging Station

Model No.: AC198

Trade Mark: YORTOT

FCC ID: 2A7FC-AC198

Applicable standards: FCC CFR Title 47 Part 18

Date of Test: Dec.16, 2022 - Dec.22, 2022

Date of report issued: Jan.09, 2023

Test Result : PASS

Remark:

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

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full without prior written permission of the company.

The report would be invalid without specific stamp of test institute and the signatures of compiler and approver

Prepared By

Shenzhen ETR Standard Technology Co., Ltd.

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Report Revision History		
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Contents

Page

1	TEST SUMMARY	4
2	GENERAL INFORMATION	5
2.1	GENERAL DESCRIPTION OF EUT	5
2.2	TEST MODE	6
2.3	DESCRIPTION OF SUPPORT UNITS	6
2.4	DEVIATION FROM STANDARDS.....	6
2.5	ABNORMALITIES FROM STANDARD CONDITIONS	6
2.6	TEST FACILITY.....	6
2.7	TEST LOCATION.....	6
3	TEST INSTRUMENTS LIST	7
4	TEST RESULTS AND MEASUREMENT DATA	8
4.1	CONDUCTED EMISSIONS	8
4.2	RADIATED EMISSION MEASUREMENT	11
5	TEST SETUP PHOTO	17
6	EUT CONSTRUCTIONAL DETAILS.....	17

1 Test Summary

Test Item	Section in CFR 47	Result	Test by
AC Power Line Conducted Emission	18.307(b)	Pass	Qiao Li
Radiated Emission	18.305(b)	Pass	Qiao Li

Remarks:

1. Pass: The EUT complies with the essential requirements in the standard.
2. Test according to FCC MP-5

Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9KHz-30MHz	± 3.98 dB	(1)
Radiated Emission	30MHz-1000MHz	± 4.30 dB	(1)
Radiated Emission	1GHz-18GHz	± 4.35 dB	(1)
Radiated Emission	18GHz-40GHz	± 4.59 dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.02 dB	(1)

Note (1): The measurement uncertainty is for coverage factor of $k=2$ and a level of confidence of 95%.

2 General Information

2.1 General Description of EUT

Product Name:	Wireless Charging Station
Model No.:	AC198
Model of difference:	N/A
Test model:	AC198
Sample(s) Status:	Engineer sample
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	115~205KHz
Modulation type:	ASK
Antenna Type:	Induction coil Antenna
Power supply:	Input: DC 9V from adapter Output: wireless10W/7.5W/5W

2.2 Test mode

Test mode	Description	Remark
Mode 1	AC/DC Adapter + load (5W)	Pre-tested
Mode 2	AC/DC Adapter + load (7.5W)	Pre-tested
Mode 3	AC/DC Adapter + load (10W)	Record
Mode 4	/	/
Note: All test modes were pre-tested, but we only recorded the worst case in this report.		

2.3 Description of Support Units

Equipment	Model	S/N	Manufacturer
Load	/	/	/
/	/	/	/

2.4 Deviation from Standards

None.

2.5 Abnormalities from Standard Conditions

None.

2.6 Test Facility

Test laboratory:	Shenzhen ETR Standard Technology Co., Ltd.
CNAS Registration Number:	L11864
A2LA Certificate Number:	6640.01
FCC Designation Number:	CN1326
FCC Test Firm Registration:	183064

2.7 Test Location

All tests were performed at:	
Laboratory location:	No.103, No.10, Phase I, Zone 3, Xinxing Industrial Park, Xinhe, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	+86 755 85259392
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3 Test Instruments list

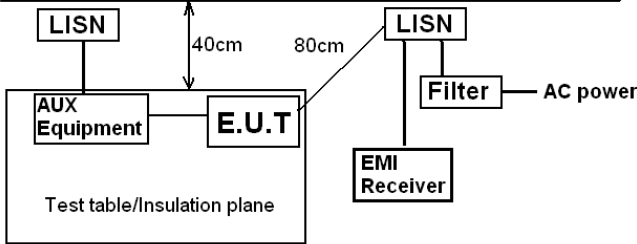
Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	Rohde&schwarz	ESPI7	100605	2022.3.09	2023.3.08
2	EMI Test Receiver	Rohde&schwarz	ESCI3	102696	2022.3.09	2023.3.08
3	Broadband antenna	schwarabeck	VULB9168	1064	2022.3.11	2024.3.10
4	amplifier	EMtrace	RP01A	50117	2022.3.09	2023.3.08
5	Artificial power network	schwarabeck	NSLK8127	8127483	2022.3.09	2023.3.08
6	Artificial power network	ETS	3186/2NM	1132	2022.3.09	2023.3.08
7	10dB attenuator	HUBER+SUHNER	10dB	/	2022.3.09	2023.3.08
8	Spectrum analyzer	KEYSIGHT	N9020A	MY55370280	2022.3.09	2023.3.08
9	loop antenna	schwarabeck	FMZB 1519 B	FMZB 1519 B	2022.3.11	2024.3.10

Note: the calibration interval of the above test instruments is 12 or 24 months and the calibrations are traceable to international system unit (SI).

Software Name	Manufacturer	Model	Version
Conducted test software	EZ-EMC	Farad	Ver.EMC-CON 3A1.1
Radiated test software	EZ-EMC	Farad	Ver.FA-03A2 RE

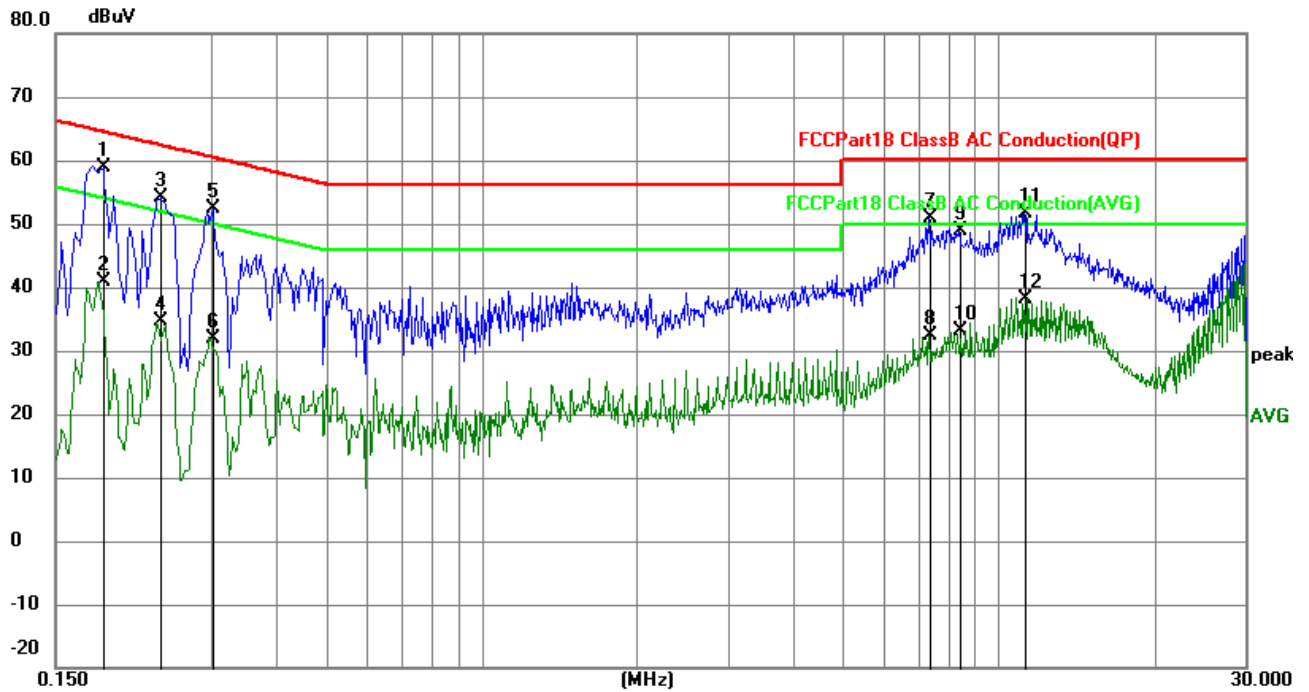
4 Test results and Measurement Data

4.1 Conducted Emissions

Test Requirement:	FCC Part18.307(b)						
Test Method:	FCC MP-5						
Test Frequency Range:	150KHz to 30MHz						
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:	<div><p style="text-align: center;">Reference Plane</p><p>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p></div>						
Test procedure:	<div><div>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.</div><div>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).</div><div>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 C63.10:2013 on conducted measurement.</div></div>						
Test Instruments:	Refer to section 3.0 for details						
Test mode:	Refer to section 2.2 for details						
Test environment:	Temp.:	20.3°C	Humid.:	42%	Press.:	1012mbar	
Test voltage:	AC 120V/60Hz						

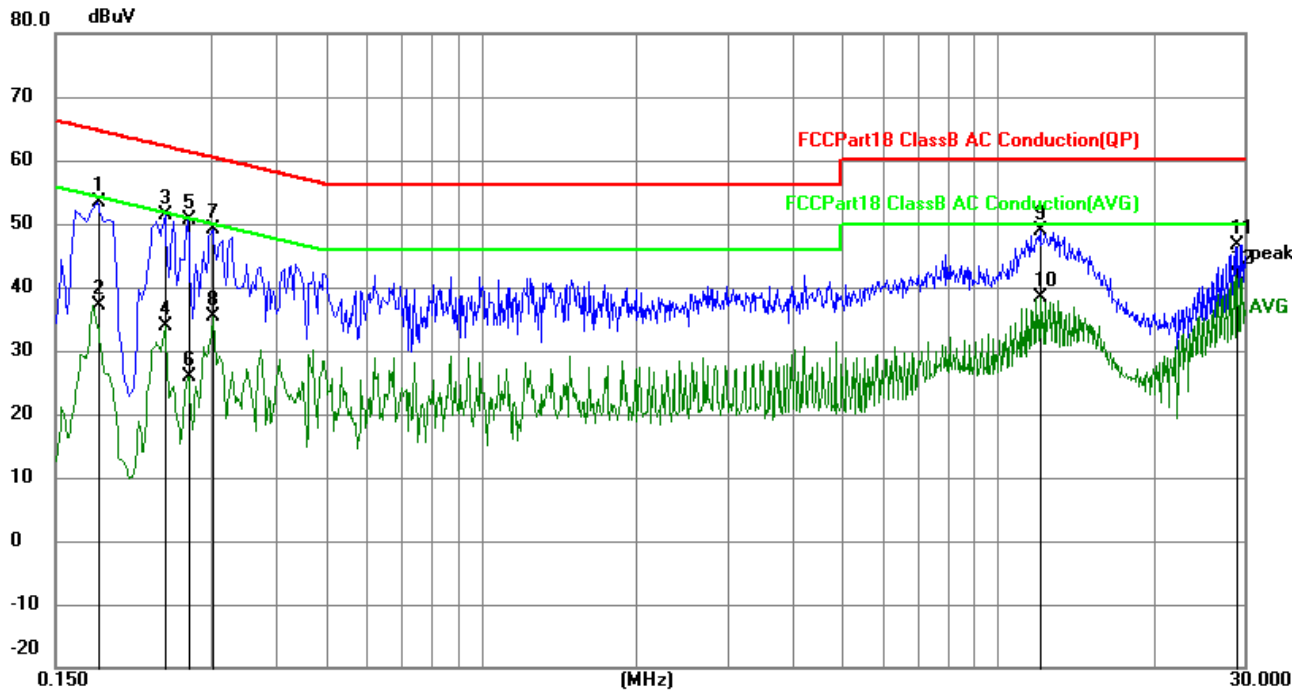
Measurement data

Line:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1860	48.35	10.47	58.82	64.21	-5.39	QP
2	0.1860	30.46	10.47	40.93	54.21	-13.28	AVG
3	0.2400	43.65	10.43	54.08	62.10	-8.02	QP
4	0.2400	24.13	10.43	34.56	52.10	-17.54	AVG
5	0.3030	41.91	10.39	52.30	60.16	-7.86	QP
6	0.3030	21.56	10.39	31.95	50.16	-18.21	AVG
7	7.3545	40.47	10.37	50.84	60.00	-9.16	QP
8	7.3545	22.11	10.37	32.48	50.00	-17.52	AVG
9	8.3850	38.48	10.38	48.86	60.00	-11.14	QP
10	8.3850	22.77	10.38	33.15	50.00	-16.85	AVG
11	11.2200	41.20	10.41	51.61	60.00	-8.39	QP
12	11.2200	27.63	10.41	38.04	50.00	-11.96	AVG

Neutral:

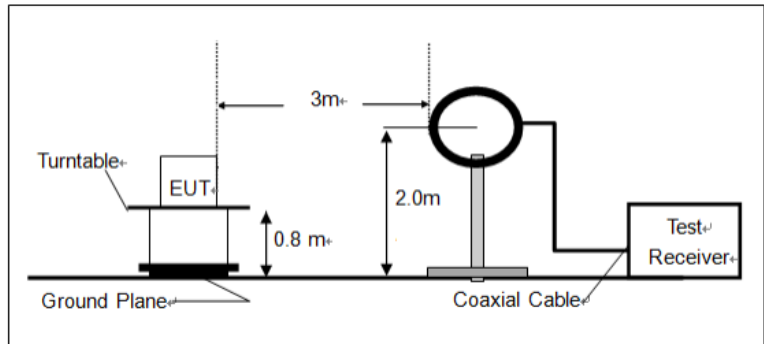
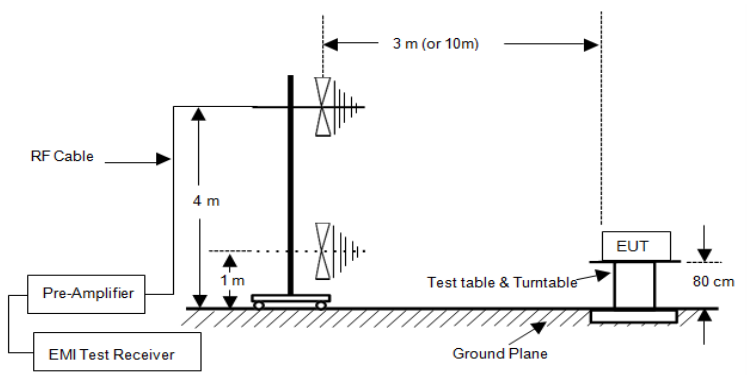


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1815	42.85	10.47	53.32	64.42	-11.10	QP
2	0.1815	26.75	10.47	37.22	54.42	-17.20	AVG
3	0.2445	40.86	10.43	51.29	61.94	-10.65	QP
4	0.2445	23.51	10.43	33.94	51.94	-18.00	AVG
5	0.2714	40.32	10.41	50.73	61.07	-10.34	QP
6	0.2714	15.47	10.41	25.88	51.07	-25.19	AVG
7	0.3030	38.70	10.39	49.09	60.16	-11.07	QP
8	0.3030	25.03	10.39	35.42	50.16	-14.74	AVG
9	12.0840	38.54	10.41	48.95	60.00	-11.05	QP
10	12.0840	28.03	10.41	38.44	50.00	-11.56	AVG
11	28.9230	35.93	10.68	46.61	60.00	-13.39	QP
12	28.9230	31.26	10.68	41.94	50.00	-8.06	AVG

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.

4.2 Radiated Emission measurement

Test Requirement:	FCC Part18.305 (b)				
Test Method:	FCC MP-5				
Test Frequency Range:	9kHz to 1000MHz				
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
Limit:	Frequency		Limit (uV/m)		Remark
	0.009MHz-1000MHz		15@300m		Quasi-peak Value
Test setup:	For radiated emissions from 9kHz to 30MHz				
					
	For radiated emissions from 30MHz to1GHz				
					
Test Procedure:	Sequence of testing 9 kHz to 30 MHz 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 0.8 m 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 3 meter.				

	<p>--- The EUT was set into operation.</p> <p>Premeasurement:</p> <p>--- The turntable rotates from 0° to 315° using 45° steps.</p> <p>--- The antenna height is 2.0 meter.</p> <p>--- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions Final measurement:</p> <p>--- Identified emissions during the premeasurement the software maximizes by rotating the turntable position (0° to 360°) and by rotating the elevation axes (0° to 360°).</p> <p>--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QPK detector.</p> <p>--- 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 premeasurement and the limit will be stored</p> <p>Sequence of testing 30 MHz to 1 GHz Setup:</p> <p>--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.</p> <p>--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.</p> <p>--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.</p> <p>--- Auxiliary equipment and cables were positioned to simulate normal operation conditions</p> <p>--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.</p> <p>--- The measurement distance is 3 meter.</p> <p>--- The EUT was set into operation. Premeasurement:</p> <p>--- The turntable rotates from 0° to 315° using 45° steps.</p> <p>--- The antenna is polarized vertical and horizontal.</p> <p>--- The antenna height changes from 1 to 4 meter.</p> <p>--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.</p> <p>Final measurement:</p> <p>--- The final measurement will be performed with minimum the six highest peaks.</p> <p>--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter.</p> <p>--- The final measurement will be done with QP detector with an EMI receiver.</p> <p>--- 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 premeasurement with marked maximum final measurements and the limit will be stored</p>					
Test Instruments:	Refer to section 3.0 for details					
Test mode:	Refer to section 2.2 for details					
Test environment:	Temp.:	21.1°C	Humid.:	40%	Press.:	1012mbar
Test voltage:	DC 9V from adapter with AC 120V/60Hz					
Test results:	Pass					

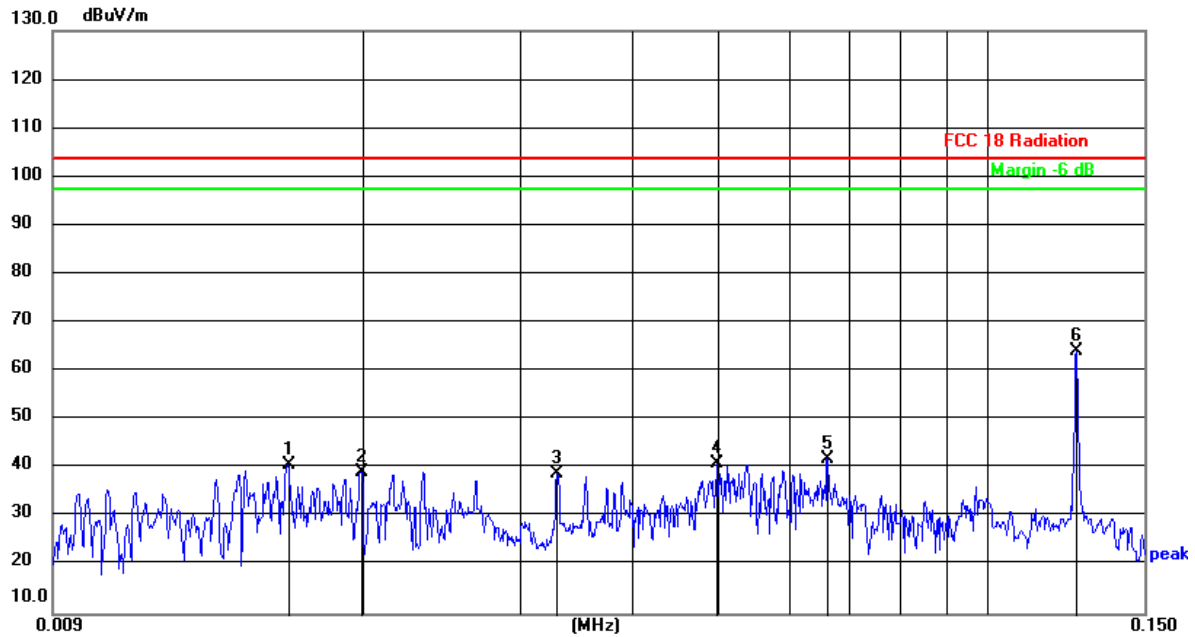
■ Measurement data:

Note:

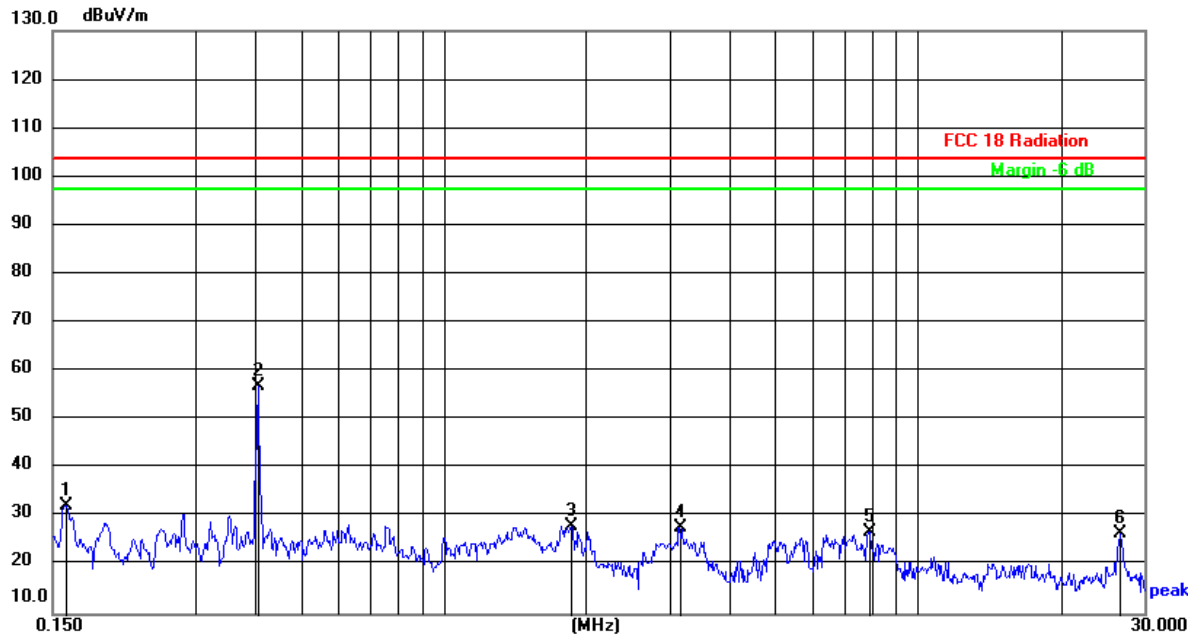
Emission level dBuV/m for 0.009~30MHz = $20\log(15) + 40\log(300/3)$

Emission level dBuV/m for 30~1000MHz = $20\log(15) + 20\log(300/3)$

Below 30MHz



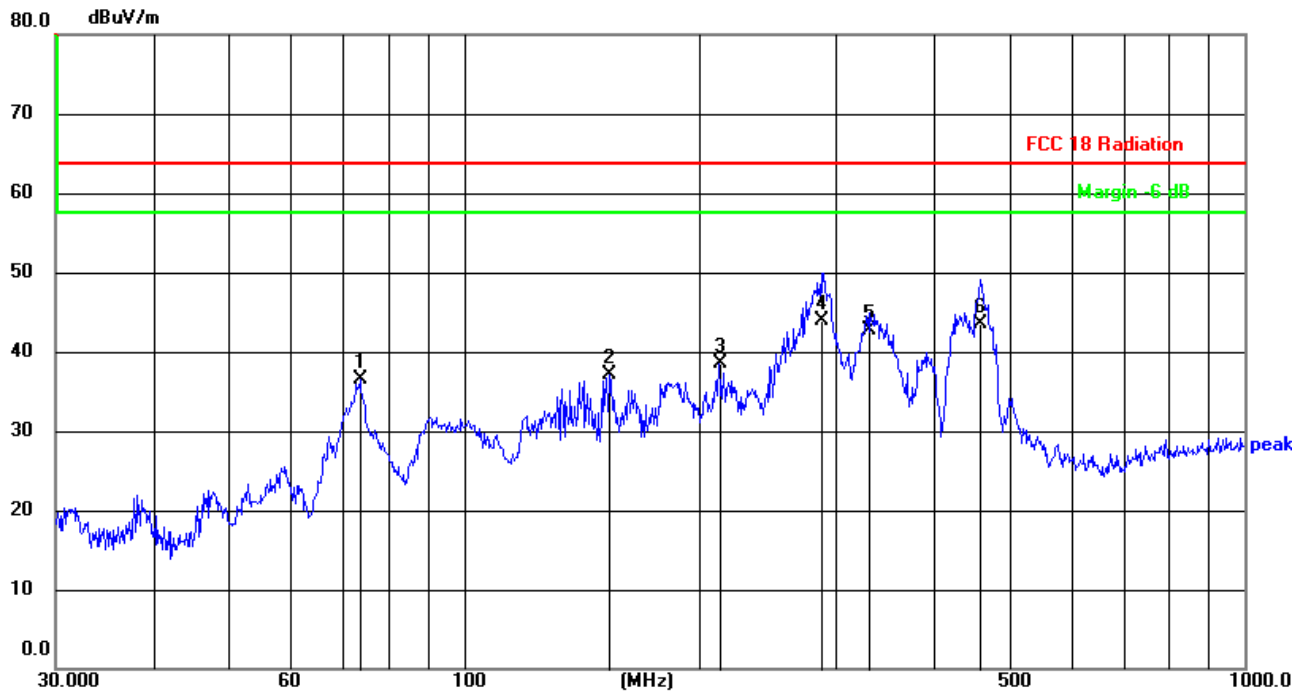
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0165	66.60	-25.88	40.72	103.50	-62.78	peak
2	0.0199	65.23	-25.88	39.35	103.50	-64.15	peak
3	0.0330	64.72	-25.88	38.84	103.50	-64.66	peak
4	0.0499	66.97	-25.88	41.09	103.50	-62.41	peak
5	0.0663	67.78	-25.88	41.90	103.50	-61.60	peak
6	0.1259	89.93	-25.90	64.03	103.50	-39.47	peak



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1598	58.40	-25.94	32.46	103.50	-71.04	peak
2	0.4061	83.04	-26.23	56.81	103.50	-46.69	peak
3	1.8581	55.43	-27.18	28.25	103.50	-75.25	peak
4	3.1397	55.26	-27.52	27.74	103.50	-75.76	peak
5	7.8934	55.72	-28.80	26.92	103.50	-76.58	peak
6	26.6992	60.55	-33.86	26.69	103.50	-76.81	peak

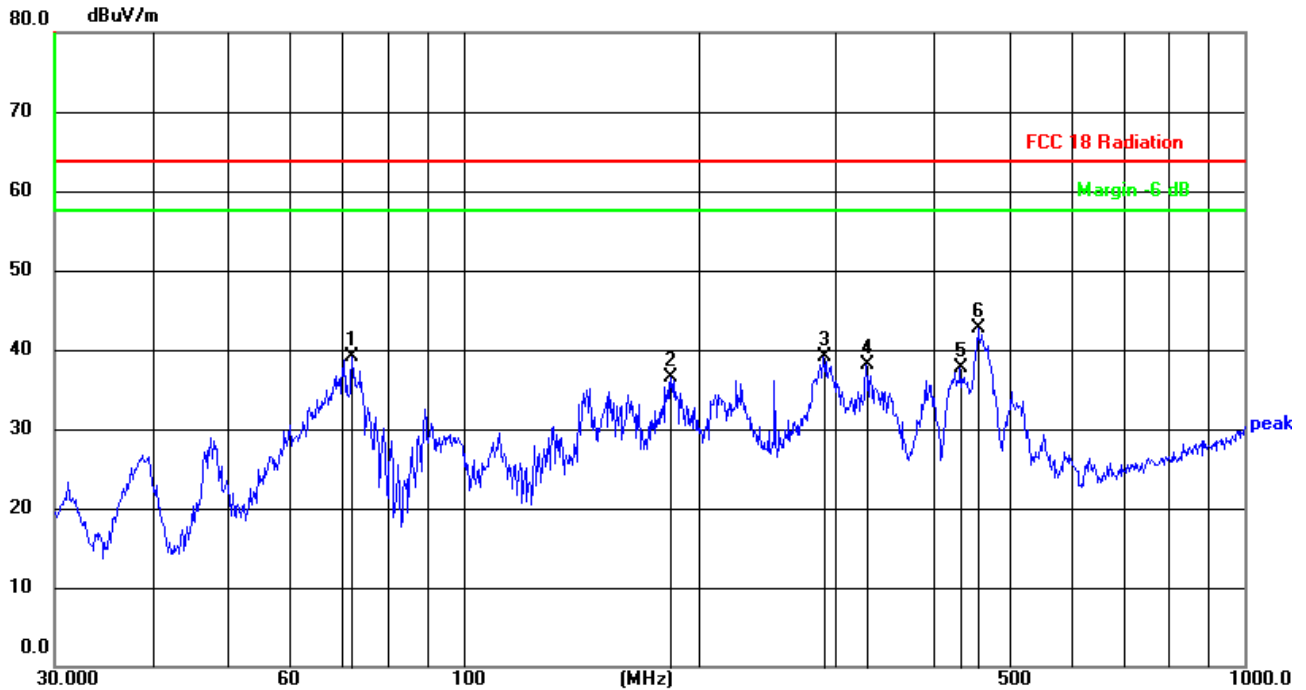
Below 1GHz

Horizontal:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	73.6170	57.08	-20.58	36.50	63.50	-27.00	QP
2	153.7385	55.66	-18.65	37.01	63.50	-26.49	QP
3	212.2695	57.01	-18.50	38.51	63.50	-24.99	QP
4	286.9823	62.46	-18.46	44.00	63.50	-19.50	QP
5	331.3546	60.47	-17.67	42.80	63.50	-20.70	QP
6	459.1144	58.19	-14.59	43.60	63.50	-19.90	QP

Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	72.0843	59.59	-20.49	39.10	63.50	-24.40	QP
2	184.4898	54.98	-18.41	36.57	63.50	-26.93	QP
3	289.0021	57.12	-17.95	39.17	63.50	-24.33	QP
4	327.8873	56.31	-18.16	38.15	63.50	-25.35	QP
5	432.5457	53.11	-15.43	37.68	63.50	-25.82	QP
6	455.9058	57.28	-14.63	42.65	63.50	-20.85	QP

Remark:

1. Final Level = Receiver Read level + Correction Factor (Antenna Factor + Cable Loss – Preamplifier Factor)
2. The emission levels of other frequencies are more than 20 dB below the limit and not show in test report.
3. “*”, means this data is the too weak instrument of signal is unable to test.

5 Test Setup Photo

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

6 EUT Constructional Details

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

-----End-----