



Report No.: ET-22110894E

TEST REPORT

Applicant's name: Shenzhen iTime Ecommerce Co., Ltd.
Address: 705, 7th Floor, Building B, Huaifeng International Robot Industrial Park, Shenzhen
Manufacture's Name: Shenzhen Kerchan Technology Co., Limited
Address: 5/F, Buliding B, Shuangjinhui Industrial Park, Fu'yong, Baoan Shenzhen China
Product name: Radio Alarm Clock
Model/Type reference: A20
Trademark: ONLAKE
FCC ID: 2A9NW-A20
Standards: FCC Part 15 Subpart B
Test methods: ANSI C63.4-2014
Date of testing: Nov.25, 2022- Dec.06, 2022
Date of issue: Dec.07, 2022
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.

Address: No.103, No.10, Phase I, Zone 3, Xinxing Industrial Park,

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Compiled by:

Reviewed by:

Approved by:

Project Engineer

Project Manager

Authorized Signature



Report Revision History

Report No.	Description	Issue Date
ET-22110894E	Original	Dec.07, 2022



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1 Summary of Test Result

Item	Description of Test	Result	Test by
1	Conducted emission	Pass	Carr Kang
2	Radiated emission	Pass	Qiao Li

2 General description

2.1 Description of EUT

Product name:	Radio Alarm Clock
Model name:	A20
Series Model:	N/A
Different of series model:	N/A
Power supply:	DC 5V
Power supply of test:	AC 120V/60Hz
EUT Highest Frequency	Above 108MHz

2.2 Test mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test mode	Description
Mode 1	Working
Mode 2	/
Mode 3	/
Mode 4	/
Note: The test modes were carried out for all operation modes. The final test mode of the EUT was the worst test mode for EMI, and its test data is showed.	

2.3 EUT test setup

See photographs of the test setup in the report for the actual setup and connections between EUT and support equipment.

2.4 Ancillary equipment

Equipment	Model	S/N	Manufacturer
ADAPTER	5V/2A	/	HUAWEI
/	/	/	/
/	/	/	/
/	/	/	/



3 Test Facilities and Accreditations

3.1 Test laboratory

Test laboratory:	Shenzhen ETR Standard Technology Co., Ltd.
Laboratory location:	No.103, No.10, Phase I, Zone 3, Xinxing Industrial Park, Xinhe, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
CNAS Registration No.:	L11864
Telephone:	+86 755 85259392

Note: Instrument and equipment calibration laboratory:

Test laboratory:	CCIC (Shenzhen) Metrology & Testing Service Co.,Ltd
Laboratory location:	Minlida Industrial Park, Honghualing Industrial District, Taoyuan Street(Xili), Nanshan District, Shenzhen
CNAS Registration No.:	L3103
Telephone:	0086-0755-86139118
Fax:	0086-0755-86139110

3.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15°C~35°C
Humidity	20%~75% (30%~60% for ESD)
Atmospheric pressure	98kPa~101kPa

3.3 Measurement uncertainty

Measurement Uncertainty for a Level of Confidence of 95 %, $U=2 \times U_c(y)$

Conducted emission(150kHz~30MHz)	± 3.02 dB
Radiated emission(30MHz~1GHz)	± 4.30 dB
Radiated emission (above 1GHz)	± 4.35 dB
Temperature	± 1 degree
Humidity	± 5 %

3.4 Test software

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



4 List of test equipment

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	20224.3.10
4	Horn antenna	schwarabeck	BBHA9120D	9120D-1145	2022.3.11	2024.3.10
5	amplifier	EMtrace	RP01A	50117	2022.3.09	2023.3.08
6	Artificial power network	schwarabeck	NSLK8127	8127483	2022.3.09	2023.3.08
7	10dB attenuator	HUBER+SUHNER	10dB	/	2022.3.09	2023.3.08
8	amplifier	Space-Dtronics	EWLAN0118 G-P40	19113001	2022.3.09	2023.3.08
9	Spectrum analyzer	KEYSIGHT	N9020A	MY55370280	2022.3.09	2023.3.08
10	Loop antenna	schwarabeck	FMZB 1519 B	FMZB 1519 B	2022.3.11	2024.3.10
11	MXG Vector Signal generator	Agilent	N5182A	/	2022.11.09	2023.11.08

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

5 Test Results and test data

5.1 Conducted emission

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

5.1.1 Limits

Frequency (MHz)	Class A (dBμV)		Class B (dBμV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79	66	66 - 56 *	56 - 46 *
0.5 -5	73	60	56	46
5 -30	73	60	60	50

Note 1: the tighter limit applies at the band edges.

Note 2: the limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

5.1.2 Test Procedures

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

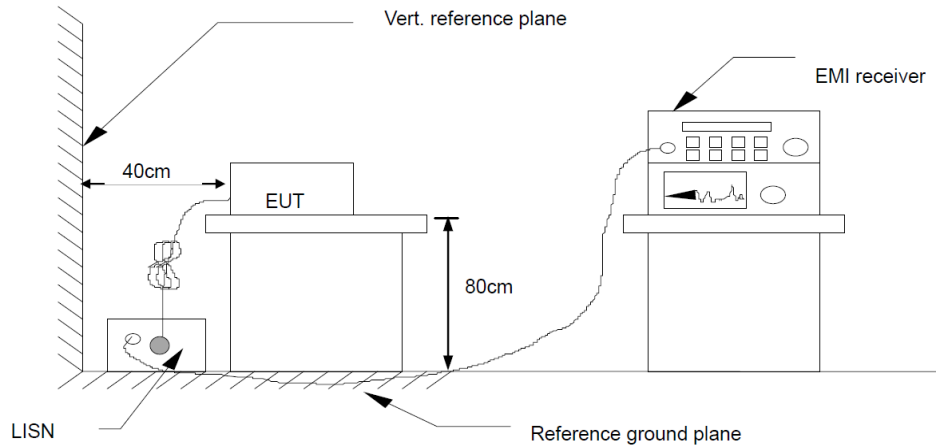
Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

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

LISN is at least 80 cm from nearest part of EUT chassis.

For the actual test configuration, please refer to the related Item – photographs of the test setup.

5.1.3 Test Setup



5.1.4 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). Test mode Refer to section 2.2 for details and only show the worst case.

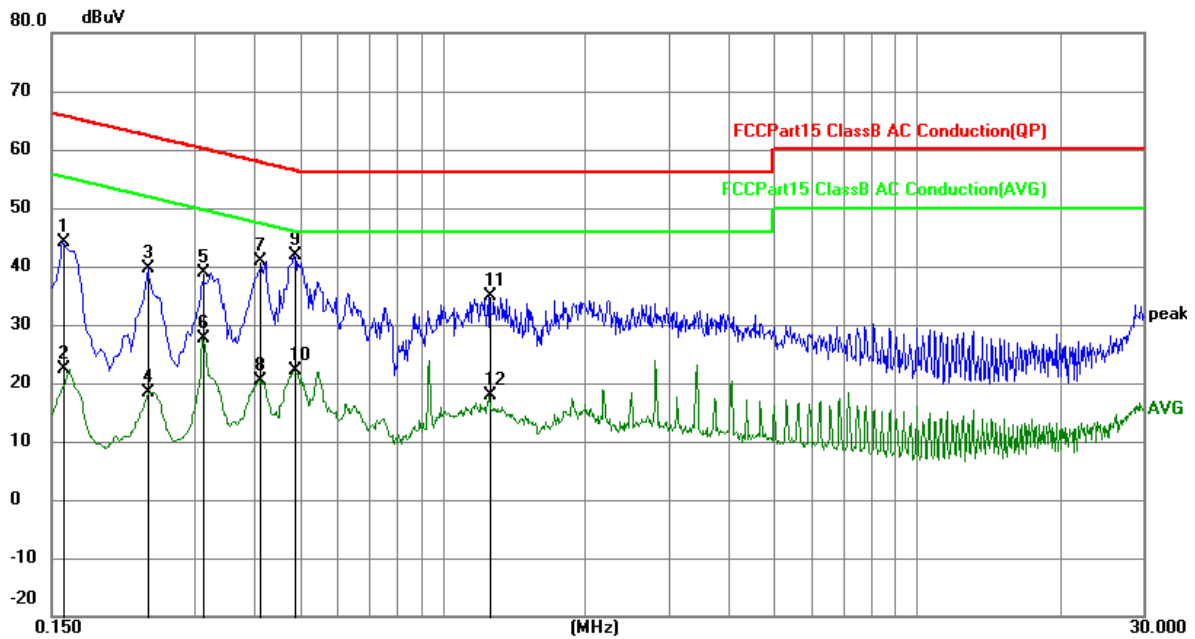
We pretest AC 120V and AC 230V, the worst voltage was AC 120V and the data recording in the report.

5.1.5 Test Result

Level = Reading+ Factor

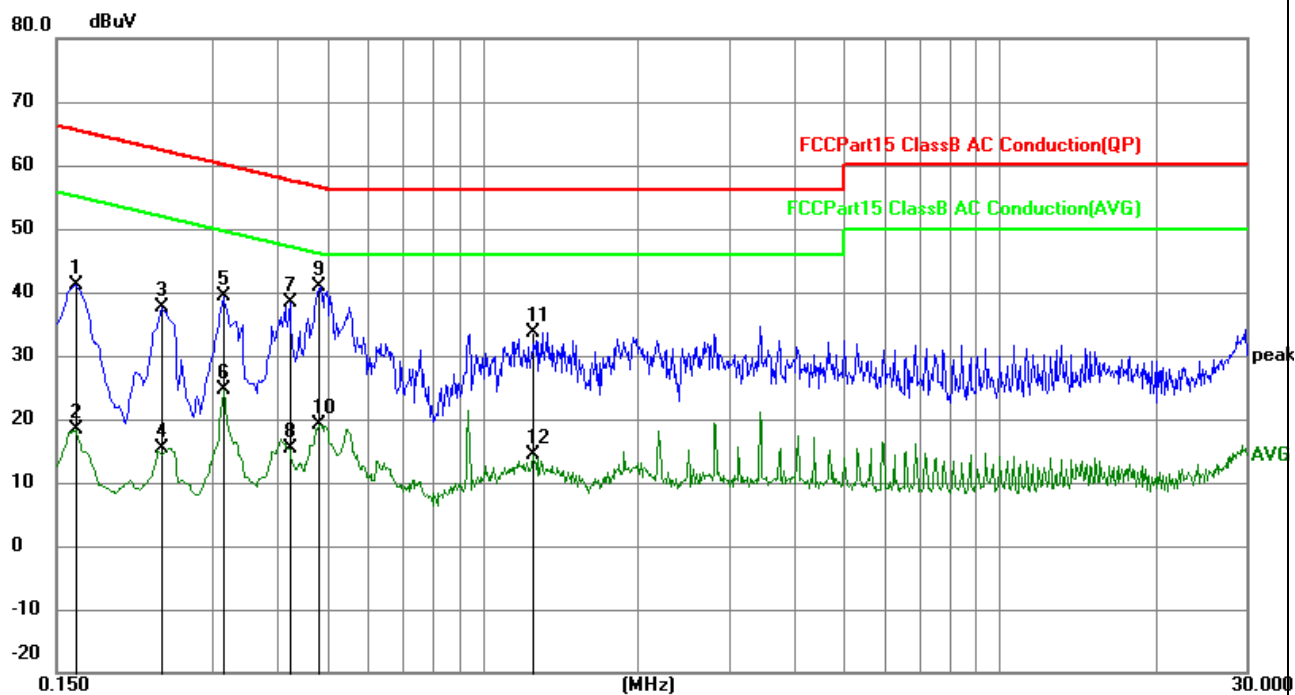
Factor= LISN Factor + Cable Loss+ Attenuator Factor

Test mode:	Mode 1	Phase:	L
Temperature:	22.1°C	Humidity:	40%RH
Pressure:	101kPa	Test voltage:	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1590	33.77	10.48	44.25	65.52	-21.27	QP
2	0.1590	11.84	10.48	22.32	55.52	-33.20	AVG
3	0.2400	29.25	10.43	39.68	62.10	-22.42	QP
4	0.2400	8.06	10.43	18.49	52.10	-33.61	AVG
5	0.3120	28.61	10.39	39.00	59.92	-20.92	QP
6	0.3120	17.21	10.39	27.60	49.92	-22.32	AVG
7	0.4110	30.47	10.37	40.84	57.63	-16.79	QP
8	0.4110	10.13	10.37	20.50	47.63	-27.13	AVG
9	0.4875	31.46	10.36	41.82	56.21	-14.39	QP
10	0.4875	11.80	10.36	22.16	46.21	-24.05	AVG
11	1.2569	24.51	10.29	34.80	56.00	-21.20	QP
12	1.2569	7.55	10.29	17.84	46.00	-28.16	AVG

Test mode:	Mode 1	Phase:	N
Temperature:	22.1°C	Humidity:	40%RH
Pressure:	101kPa	Test voltage:	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1635	30.75	10.48	41.23	65.28	-24.05	QP
2	0.1635	7.80	10.48	18.28	55.28	-37.00	AVG
3	0.2400	27.17	10.43	37.60	62.10	-24.50	QP
4	0.2400	4.94	10.43	15.37	52.10	-36.73	AVG
5	0.3165	28.89	10.39	39.28	59.80	-20.52	QP
6	0.3165	14.25	10.39	24.64	49.80	-25.16	AVG
7	0.4215	27.98	10.37	38.35	57.42	-19.07	QP
8	0.4215	4.89	10.37	15.26	47.42	-32.16	AVG
9	0.4830	30.59	10.36	40.95	56.29	-15.34	QP
10	0.4830	8.85	10.36	19.21	46.29	-27.08	AVG
11	1.2525	23.29	10.29	33.58	56.00	-22.42	QP
12	1.2525	3.97	10.29	14.26	46.00	-31.74	AVG

5.2 Radiated emission

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	30MHz to 6000MHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average

5.2.1 Limits

Limits of radiated emission measurement

Frequency (MHz)	Class B device (at 3m) dBμV/m	Class A device (at 3m) dBμV/m	Detector
30-88	40	49	QP
88-216	43.5	53.5	QP
216-960	46	56.4	QP
960-1000	54	59.5	QP
Above 1000	54	59.5	AV
Above 1000	74	79.5	PK

5.2.2 Test Procedures

The radiated emission tests were performed in the 3 meters.

The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.

The height of the test antenna shall vary between 1m to 4m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

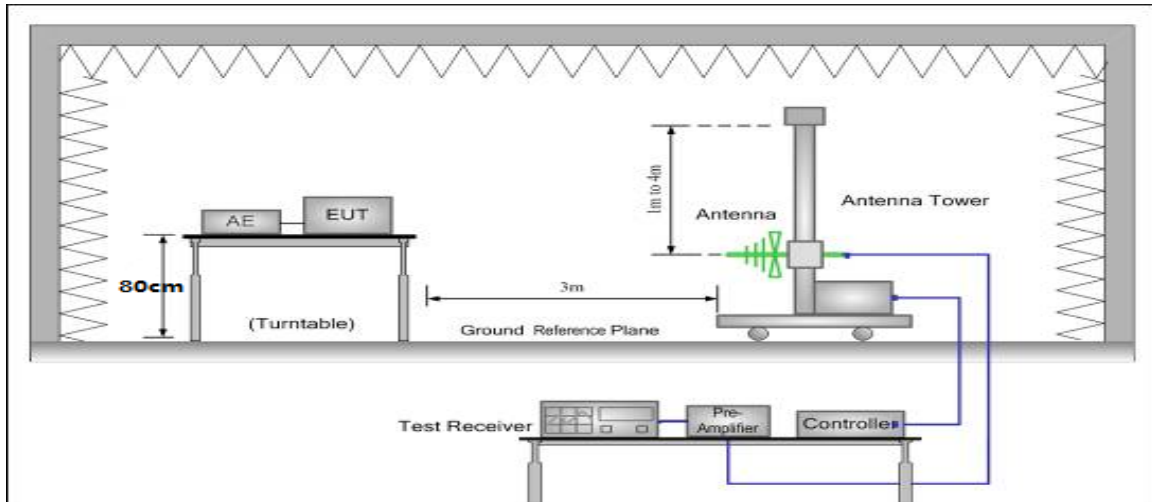
If the peak mode measured value compliance with and lower than quasi peak mode limit, the EUT shall be deemed to meet QP limits and then no additional QP mode measurement performed.

If the peak mode measured value compliance with and lower than average mode limit, the EUT shall be deemed to meet average limits and then no additional average mode measurement performed.

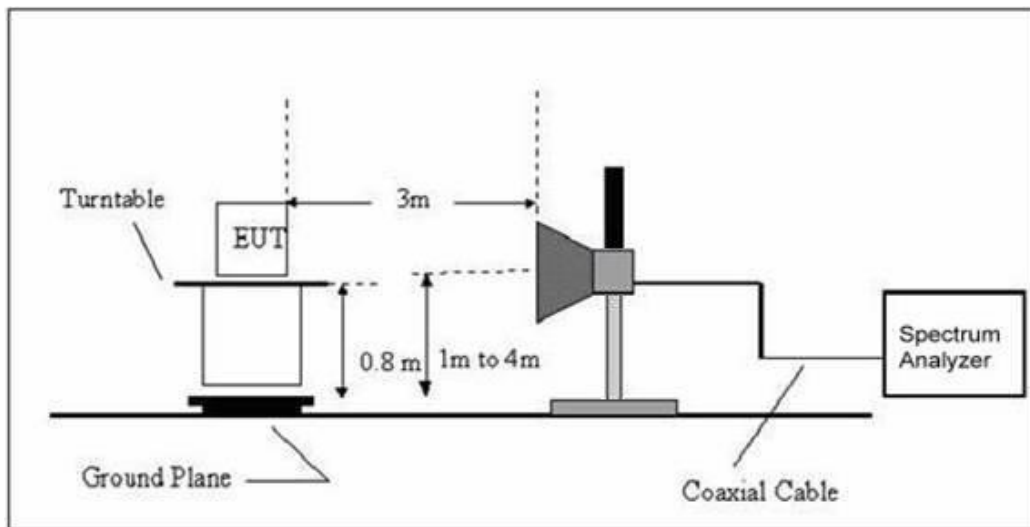
For the actual test configuration, please refer to the related item – EUT test photos.

5.2.3 Test Setup

Radiated emission test-up frequency for below 1GHz



Radiated emission test-up frequency for above 1GHz



5.2.4 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). Test mode Refer to section 2.2 for details and only show the worst case.

We pretest AC 120V and AC 230V, the worst voltage was AC 120V and the data recording in the report.

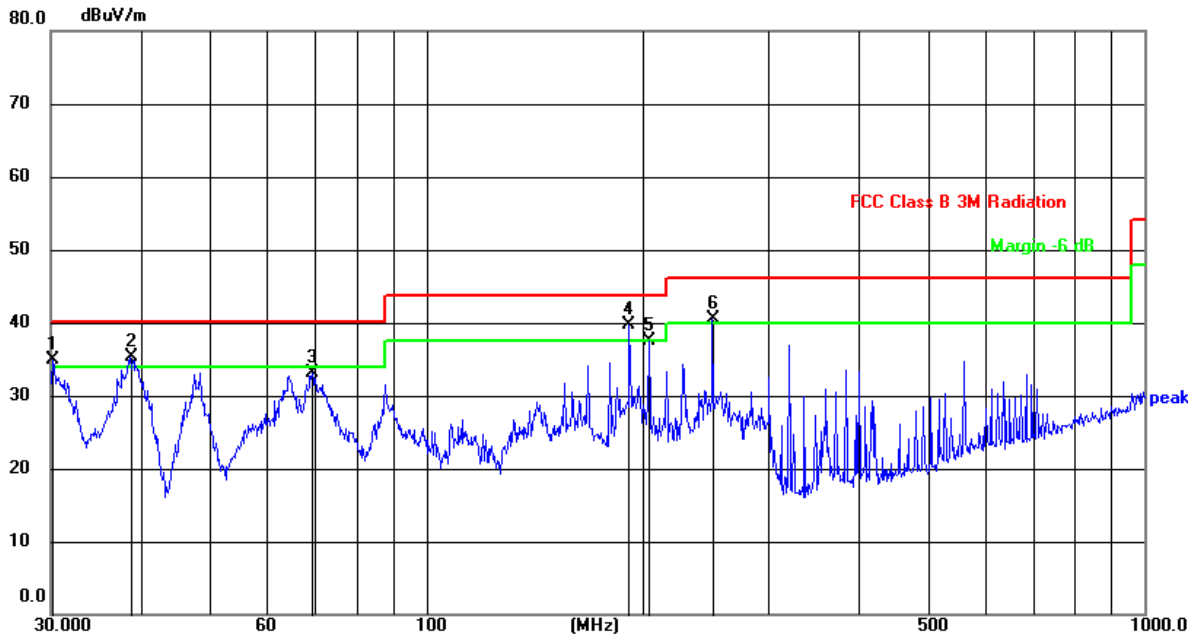
5.2.5 Test Result

Level = Reading + Factor

Factor= Antenna Factor + Cable Factor – Preamplifier Factor

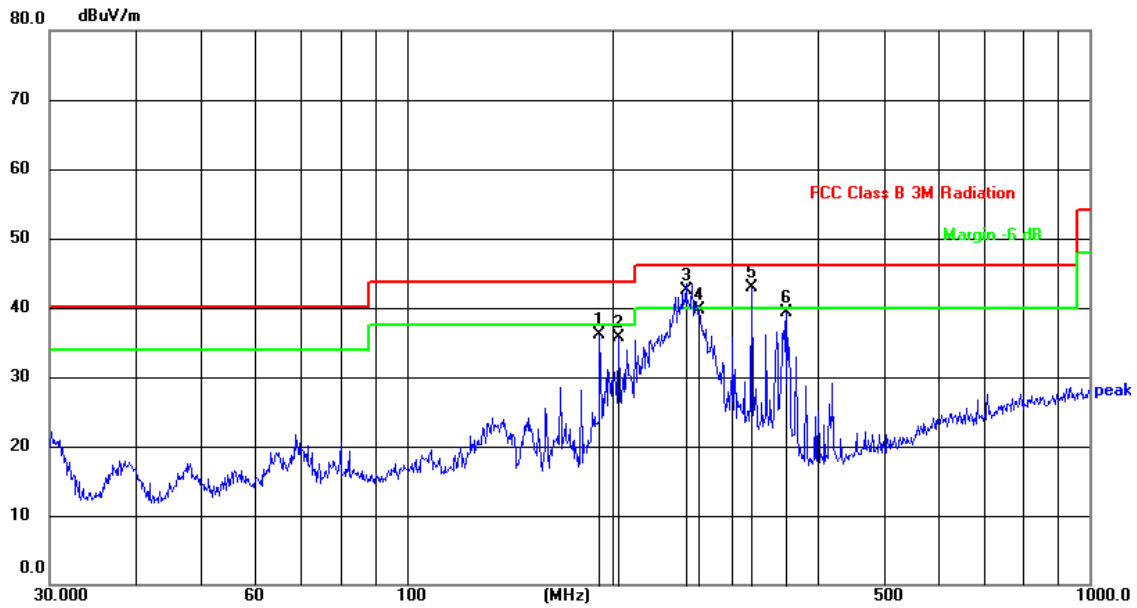
Below 1GHz

Test mode:	Mode 1	Test polarization:	Horizontal
Temperature:	22.9°C	Humidity:	49%RH
Pressure:	101kPa	Test voltage:	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.2111	56.40	-21.51	34.89	40.00	-5.11	QP
2	38.7518	56.10	-20.76	35.34	40.00	-4.66	QP
3	69.3568	53.70	-20.55	33.15	40.00	-6.85	QP
4	191.7450	58.21	-18.55	39.66	43.50	-3.84	QP
5	204.2377	56.20	-18.75	37.45	43.50	-6.05	QP
6	250.3012	58.63	-18.20	40.43	46.00	-5.57	QP

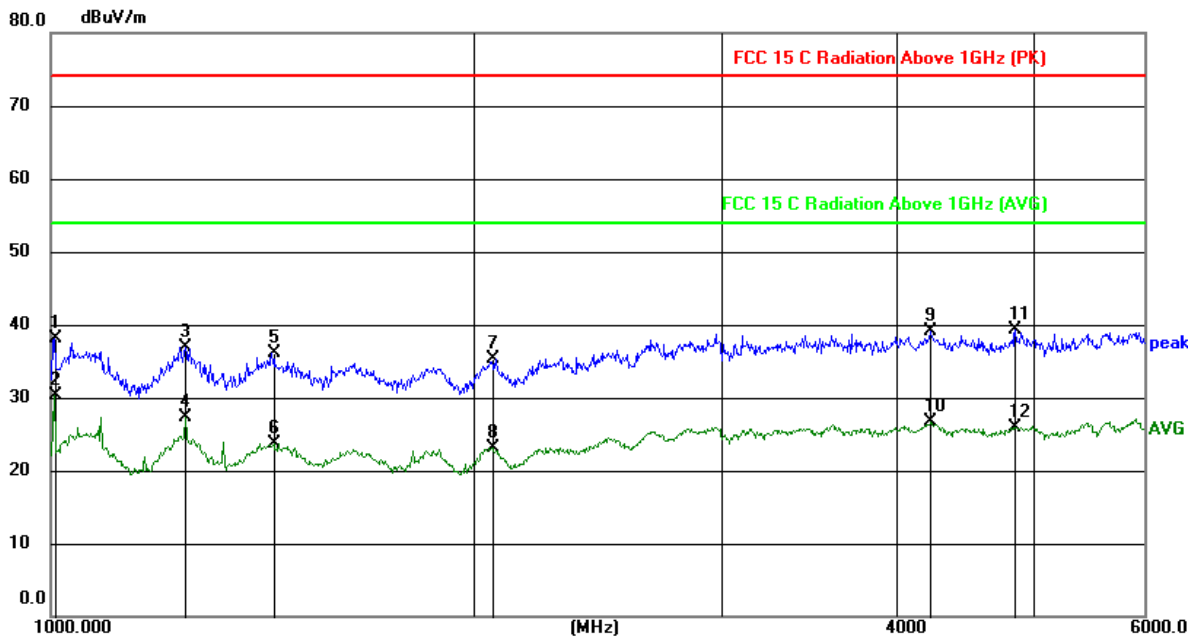
Test mode:	Mode 1	Test polarization:	Vertical
Temperature:	22.9°C	Humidity:	49%RH
Pressure:	101kPa	Test voltage:	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	191.7450	54.12	-18.06	36.06	43.50	-7.44	QP
2	204.2376	54.30	-18.54	35.76	43.50	-7.74	QP
3	256.5210	60.67	-18.10	42.57	46.00	-3.43	QP
4	268.4852	58.01	-18.21	39.80	46.00	-6.20	QP
5	319.9368	61.04	-18.12	42.92	46.00	-3.08	QP
6	360.4476	56.17	-16.80	39.37	46.00	-6.63	QP

Above 1GHz

Test mode:	Mode 1	Test polarization:	Horizontal
Temperature:	22.9°C	Humidity:	47%RH
Pressure:	101kPa	Test voltage:	AC 120V/60Hz

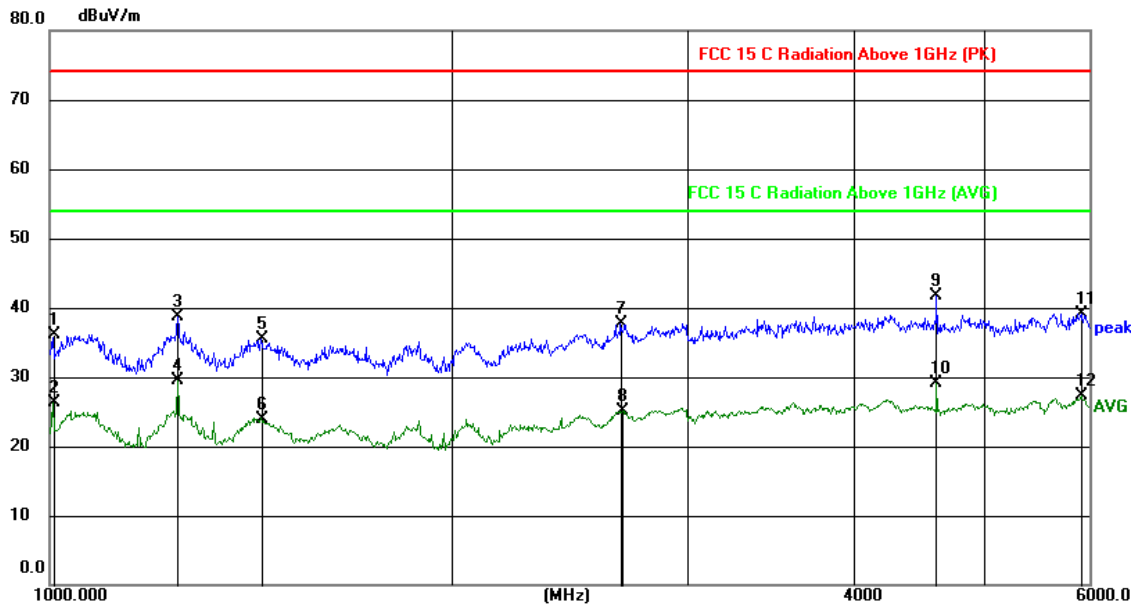


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1005.390	53.66	-15.51	38.15	74.00	-35.85	peak
2	1005.390	45.90	-15.51	30.39	54.00	-23.61	AVG
3	1246.558	52.55	-15.63	36.92	74.00	-37.08	peak
4	1246.558	42.96	-15.63	27.33	54.00	-26.67	AVG
5	1441.262	51.92	-15.75	36.17	74.00	-37.83	peak
6	1441.262	39.49	-15.75	23.74	54.00	-30.26	AVG
7	2062.401	51.00	-15.79	35.21	74.00	-38.79	peak
8	2062.401	38.91	-15.79	23.12	54.00	-30.88	AVG
9	4230.695	49.73	-10.68	39.05	74.00	-34.95	peak
10	4230.695	37.44	-10.68	26.76	54.00	-27.24	AVG
11	4856.567	49.05	-9.82	39.23	74.00	-34.77	peak
12	4856.567	35.80	-9.82	25.98	54.00	-28.02	AVG

Remark:

Above 6GHz Frequency, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Test mode:	Mode 1	Test polarization:	Vertical
Temperature:	22.9°C	Humidity:	47%RH
Pressure:	101kPa	Test voltage:	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1005.390	51.66	-15.51	36.15	74.00	-37.85	peak
2	1005.390	41.82	-15.51	26.31	54.00	-27.69	AVG
3	1246.558	54.37	-15.63	38.74	74.00	-35.26	peak
4	1246.558	45.23	-15.63	29.60	54.00	-24.40	AVG
5	1438.682	51.33	-15.74	35.59	74.00	-38.41	peak
6	1438.682	39.74	-15.74	24.00	54.00	-30.00	AVG
7	2674.269	51.01	-13.36	37.65	74.00	-36.35	peak
8	2683.869	38.39	-13.33	25.06	54.00	-28.94	AVG
9	4610.659	51.88	-10.16	41.72	74.00	-32.28	peak
10	4610.659	39.34	-10.16	29.18	54.00	-24.82	AVG
11	5914.609	46.52	-7.35	39.17	74.00	-34.83	peak
12	5914.609	34.59	-7.35	27.24	54.00	-26.76	AVG

Remark:

Above 6GHz Frequency, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.



6 Test Setup Photo

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

7 EUT Constructional Details

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

-----End-----