Report No.: ET-23030247E01

TEST REPORT

Applicant's name:	Aether Mindtech Solutions Private Limited
Address:	5th Floor, Unit 2A/1, Octave Block,Salarpuria Sattva Knowledge City, InOrbit mall main road, Madhapur, Hyderabad, Telangana. India. 500081
Manufacture's Name:	Aether Mindtech Solutions Private Limited
Address:	5th Floor, Unit 2A/1, Octave Block,Salarpuria Sattva Knowledge City, InOrbit mall main road, Madhapur, Hyderabad, Telangana. India. 500081
Product name:	Evolv28
Model/Type reference:	Evolv28
Trademark:	N/A
Standards:	FCC Part 15 Subpart B
Test methods	ANSI C63.4-2014
Date of testing:	Mar.06, 2023-Mar.28, 2023
Date of issue:	Aug.17, 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.

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

Xinhe, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Compiled by:	Reviewed by:	Approved by:
Carr kong	Carr kong	Smith chen
Project Engineer	Project Manager	Authorized Signature

Report Revision History		
Report No.	Description	Issue Date
ET-23030247E01	Original	Aug.17, 2023

Table of Contents

1 Summary of Test Result

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

2 General description

2.1 Description of EUT

Product name:	Evolv28
Model name:	Evolv28
Different of series model:	N/A
Test model：	Evolv28
Power supply:	DC3.7V or DC 5V From USB port
Power supply of test:	DC3.7V or DC 5V
EUT Highest Frequency	2.4GHz

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	Charging
Mode 1	Working
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 of test

Equipment	Model	S/N	Manufacturer
/	/	/	/

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:	Ti Testing & Certification Group Co., Ltd. Shenzhen Branch
Laboratory location:	103, Building B, Ganghongji Hi-tech Intelligent Industrial Park, 1008 Songbai Road, Nanshan District, Shenzhen
CNAS Registration No.:	L17117
Telephone:	0086-0755-23100751

3.2 Environmental conditions

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

Temperature:	15ºC~35ºC
Humidity	20%~75%
Atmospheric pressure	98kPa~101kPa

3.3 Measurement uncertainty

Measurement Uncertainty for a Level of Confidence of 95 %, U=2xUc(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	ESCI7	100605	2023.3.02	2024.3.01
2	EMI Test Receiver	Rohde&schwarz	ESCI3	102696	2023.3.02	2024.3.01
3	Loop Antenna	schwarabeck	FMZB 1519 B	FMZB 1519 B	2022.3.11	2024.3.10
4	Broadband antenna	schwarabeck	VULB9168	1064	2022.3.11	2024.3.10
5	Horn antenna	schwarabeck	BBHA9120D	9120D-1145	2022.3.11	2024.3.10
6	amplifier	EMtrace	RP01A	50117	2023.3.02	2024.3.01
7	Artificial power network	schwarabeck	NSLK8127	8127483	2023.3.02	2024.3.01
8	Artificial power network	ETS	3186/2NM	1132	2023.3.02	2024.3.01
9	10dB attenuator	HUBER+SUHNER	10dB	/	2023.3.02	2024.3.01
10	amplifier	Space-Dtronics	EWLAN0118G-P40	19113001	2023.3.02	2024.3.01
11	Spectrum analyzer	KEYSIGHT	N9020A	MY55370280	2023.3.02	2024.3.01

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 C63.4-2014
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.

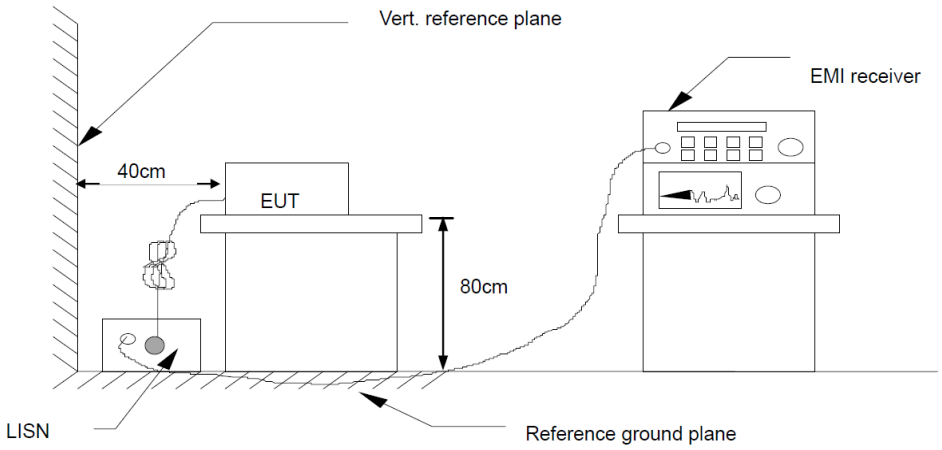
Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

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



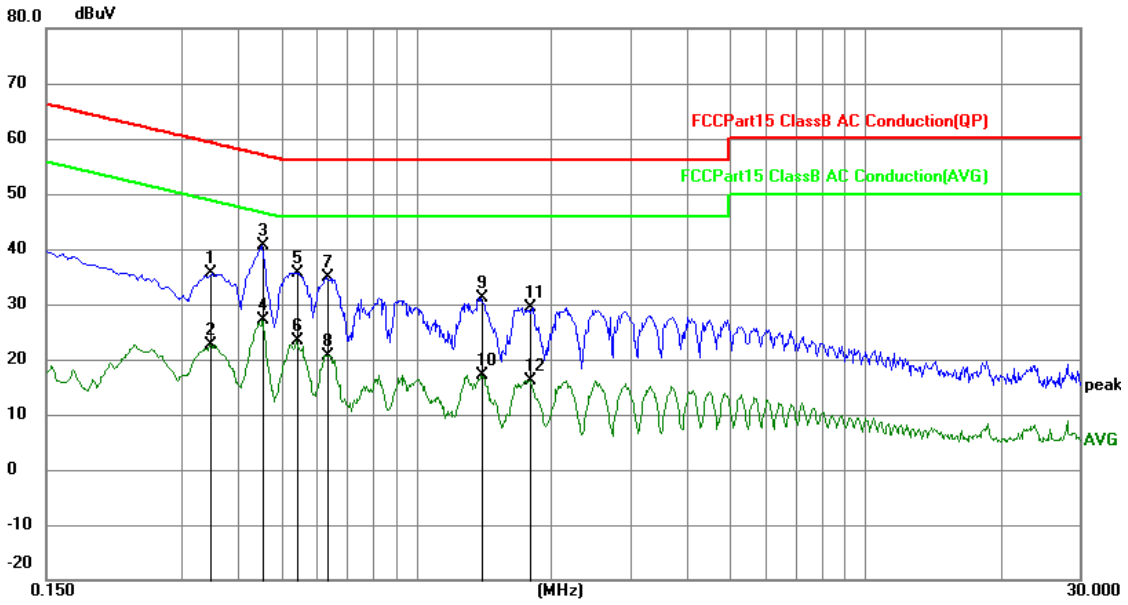
5.1.4 EUT OPERATING CONDITIONS

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.

5.1.5 Test Result

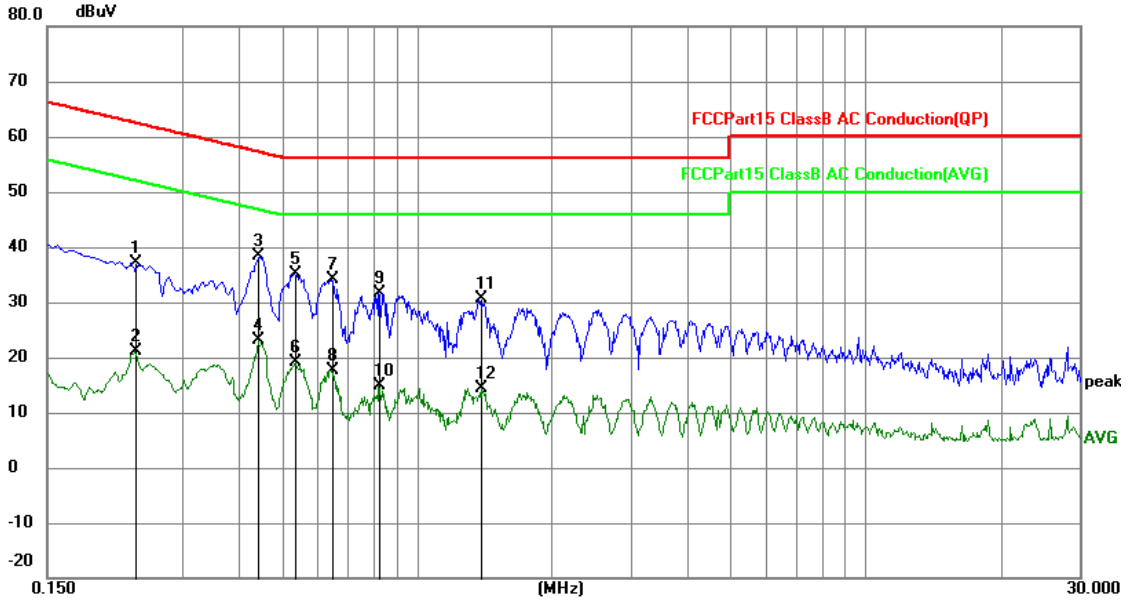
Level = Reading+ Factor
Factor= LISN Factor + Cable Loss+ Attenuator Factor

Test mode:	Mode 1	Phase:	L
Temperature:	24.6°C	Humidity:	51%RH
Pressure:	101kPa	Test voltage:	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3480	25.73	9.88	35.61	59.01	-23.40	QP
2	0.3480	12.75	9.88	22.63	49.01	-26.38	AVG
3	0.4560	30.77	9.93	40.70	56.77	-16.07	QP
4	0.4560	17.31	9.93	27.24	46.77	-19.53	AVG
5	0.5415	25.75	9.94	35.69	56.00	-20.31	QP
6	0.5415	13.38	9.94	23.32	46.00	-22.68	AVG
7	0.6360	24.82	9.94	34.76	56.00	-21.24	QP
8	0.6360	10.79	9.94	20.73	46.00	-25.27	AVG
9	1.4010	21.22	9.91	31.13	56.00	-24.87	QP
10	1.4010	7.18	9.91	17.09	46.00	-28.91	AVG
11	1.7835	19.58	9.88	29.46	56.00	-26.54	QP
12	1.7835	6.36	9.88	16.24	46.00	-29.76	AVG

Test mode:	Mode 1	Phase:	N
Temperature:	24.6°C	Humidity:	51%RH
Pressure:	101kPa	Test voltage:	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2355	27.37	9.82	37.19	62.25	-25.06	QP
2	0.2355	11.41	9.82	21.23	52.25	-31.02	AVG
3	0.4425	28.57	9.92	38.49	57.01	-18.52	QP
4	0.4425	13.30	9.92	23.22	47.01	-23.79	AVG
5	0.5370	25.23	9.94	35.17	56.00	-20.83	QP
6	0.5370	9.16	9.94	19.10	46.00	-26.90	AVG
7	0.6450	24.19	9.94	34.13	56.00	-21.87	QP
8	0.6450	7.71	9.94	17.65	46.00	-28.35	AVG
9	0.8250	21.74	9.96	31.70	56.00	-24.30	QP
10	0.8250	4.83	9.96	14.79	46.00	-31.21	AVG
11	1.3920	20.61	9.91	30.52	56.00	-25.48	QP
12	1.3920	4.42	9.91	14.33	46.00	-31.67	AVG

5.2 Radiated emission

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.4-2014</td></tr>
<tr><td>Test Frequency Range:</td><td>5th harmonic of the highest frequency or 40 GHz, whichever is lower.</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>Value</th></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average</td></tr>
</table>
</td></tr>
</table>

5.2.1 Limits

Limits of radiated emission measurement

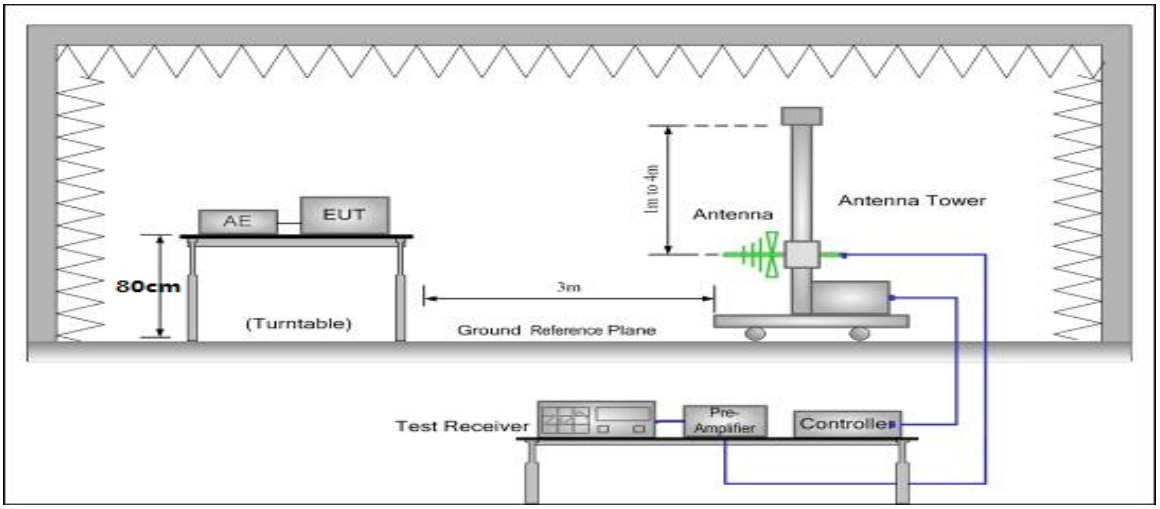
Frequency (MHz)	Class B device (at 3m) dBμV/m	Class A device (at 3m) dBμV/m	Detector
30-88	40	49	QP
88-216	43.5	53.5	QP
216-960	46	56.4	QP
960-1000	54	59.5	QP
Above 1000	54	59.5	AV
Above 1000	74	79.5	PK

5.2.2 Test Procedures

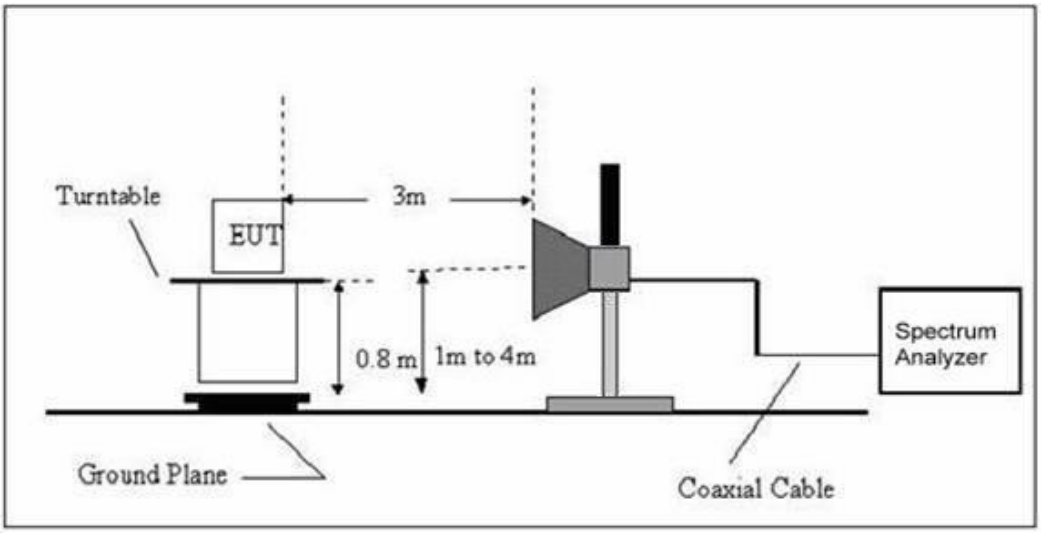
The radiated emission tests were performed in the 3 meters.
The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
The height of the test antenna shall vary between 1m to 4m. Both horizontal 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

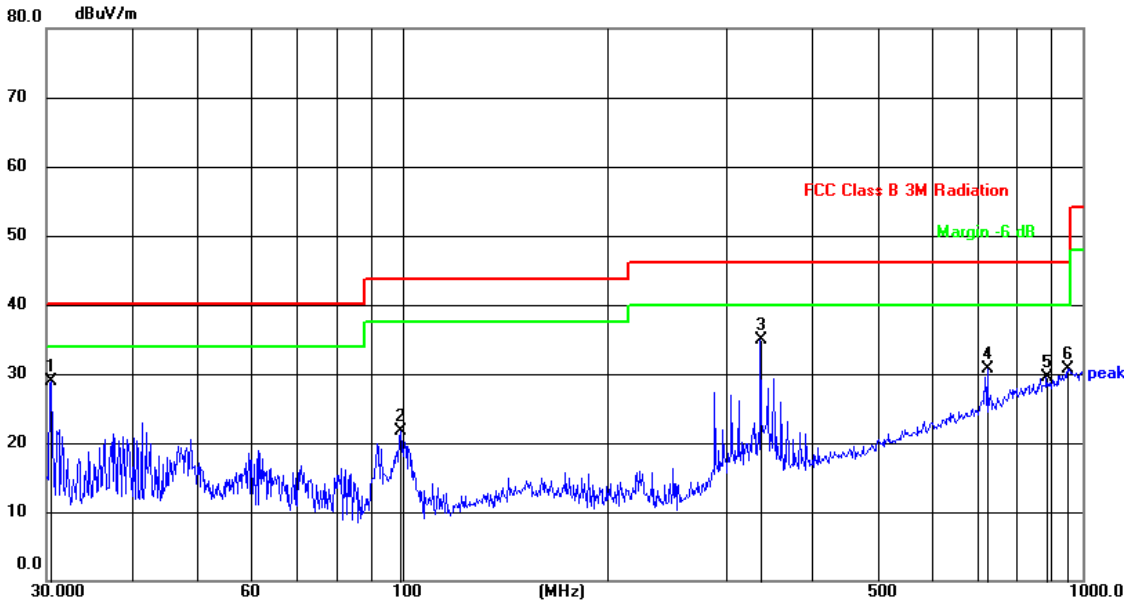
The EUT was configured for testing in a typical fashion (as a customer would normally use it). Test mode Refer to section 2.2 for details and only show the worst case.

5.2.5 Test Result

Level = Reading + Factor
Factor= Antenna Factor + Cable Factor – Preamplifier Factor

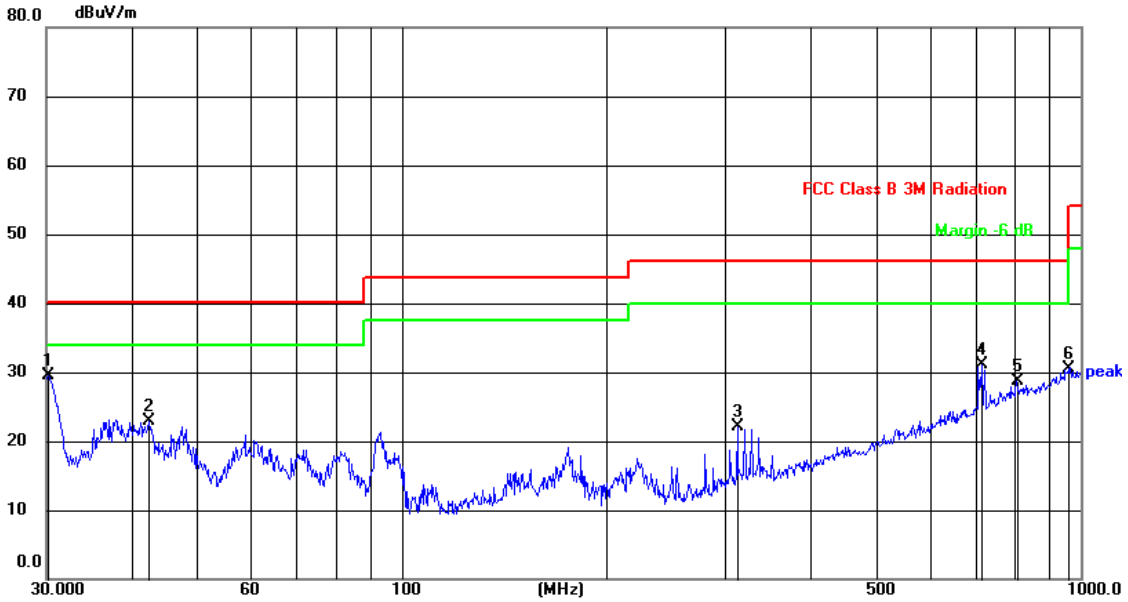
Below 1GHz

Test mode:	Mode 2	Test polarization:	Horizontal
Temperature:	24.4°C	Humidity:	51%RH
Pressure:	101kPa	Test voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.4238	51.53	-22.69	28.84	40.00	-11.16	QP
2	99.5281	46.87	-25.22	21.65	43.50	-21.85	QP
3	336.0352	54.30	-19.34	34.96	46.00	-11.04	QP
4	724.2611	39.33	-8.63	30.70	46.00	-15.30	QP
5	884.5029	35.14	-5.70	29.44	46.00	-16.56	QP
6	952.0937	34.54	-3.79	30.75	46.00	-15.25	QP

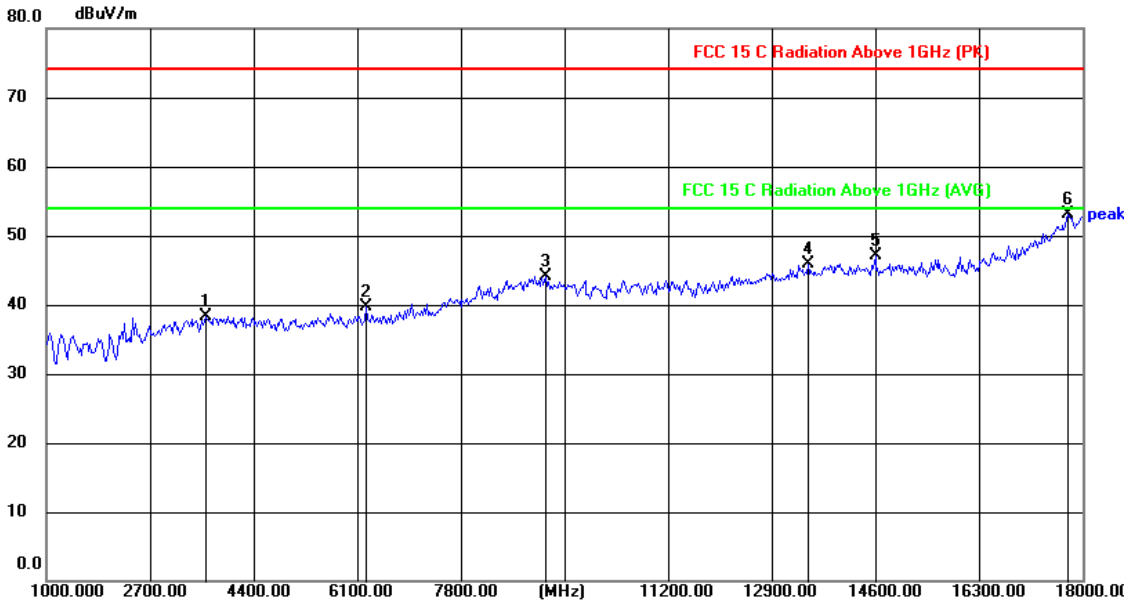
Test mode:	Mode 2	Test polarization:	Vertical
Temperature:	24.4°C	Humidity:	51%RH
Pressure:	101kPa	Test voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.2111	52.17	-22.73	29.44	40.00	-10.56	QP
2	42.4508	43.96	-21.06	22.90	40.00	-17.10	QP
3	312.1794	41.94	-19.78	22.16	46.00	-23.84	QP
4	716.6820	39.79	-8.78	31.01	46.00	-14.99	QP
5	804.6028	35.18	-6.48	28.70	46.00	-17.30	QP
6	958.7943	34.30	-3.73	30.57	46.00	-15.43	QP

Above 1GHz

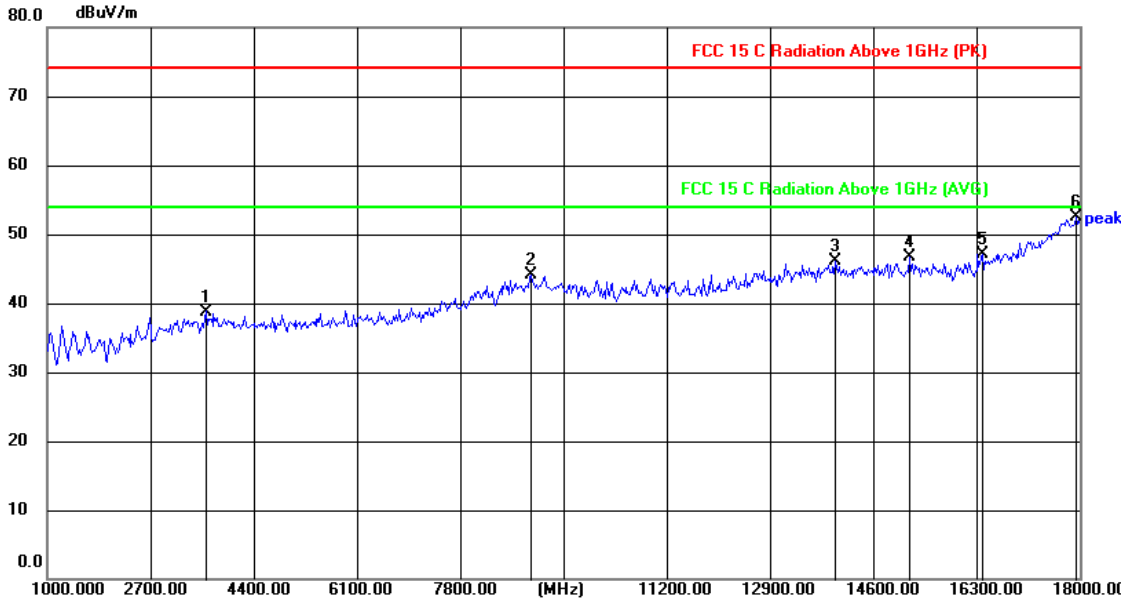
Test mode:	Mode 2	Test polarization:	Horizontal
Temperature:	23.8°C	Humidity:	54%RH
Pressure:	101kPa	Test voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3613.750	49.44	-11.15	38.29	74.00	-35.71	peak
2	6248.750	46.00	-6.32	39.68	74.00	-34.32	peak
3	9202.500	44.91	-0.76	44.15	74.00	-29.85	peak
4	13495.000	43.03	2.82	45.85	74.00	-28.15	peak
5	14600.000	43.28	3.90	47.18	74.00	-26.82	peak
6	17766.250	45.35	7.69	53.04	74.00	-20.96	peak

Remark: The PK value is lower than the AV limit, so the AV value meets the requirements.

Test mode:	Mode 2	Test polarization:	Vertical
Temperature:	23.8°C	Humidity:	54%RH
Pressure:	101kPa	Test voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3613.750	49.95	-11.15	38.80	74.00	-35.20	peak
2	8968.750	44.47	-0.45	44.02	74.00	-29.98	peak
3	13983.750	42.55	3.56	46.11	74.00	-27.89	peak
4	15195.000	42.75	3.88	46.63	74.00	-27.37	peak
5	16406.250	43.56	3.54	47.10	74.00	-26.90	peak
6	17936.250	44.09	8.42	52.51	74.00	-21.49	peak

Remark: The PK value is lower than the AV limit, so the AV value meets the requirements.