

Test Report

Report No.: MTi19072607-6E1

Date of issue: Aug. 14, 2019

Sample Description: Portable UVC LED Sterilizer

Model(s): Norya

Applicant: Beijing Clean Trust Technology Co., Ltd

Address: Room301, Building 3, Qingnian Road 27, Chaoyang District, Beijing, China

Date of Test: Oct. 16, 2018 to Nov. 07, 2018

Shenzhen Microtest Co., Ltd.
<http://www.mtitest.com>



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TEST REPORT

Applicant's name: Beijing Clean Trust Technology Co., Ltd

Address: Room301, Building 3, Qingnian Road 27, Chaoyang District,
Beijing, China

Manufacture's Name: Beijing Clean Trust Technology Co., Ltd

Address: Room301, Building 3, Qingnian Road 27, Chaoyang District,
Beijing, China

Product name: Portable UVC LED Sterilizer

Trademark: CleanTrust

Model name: Norya

Standards: FCC Part 15 Subpart B

Test methods: ANSI C63.4-2014

This device described above has been tested by Shenzhen Microtest Co., Ltd. and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Note: This report is updated the applicant, address, product name and model name. The test data of the EMC part is based on the original test report MTi181024E085, date 2018-11-07.

Tested by:

Aile An

Aile An

Nov. 07, 2018

Reviewed by:

Blue Zheng

Blue Zheng

Aug.14, 2019

Approved by:

Smith Chen

Smith Chen

Aug. 14, 2019

1 General description

1.1 Description of EUT

Product name:	Portable UVC LED Sterilizer
Model name:	Norya
Series Model	N/A
Different of series model:	N/A
Power supply:	DC 5V from adapter by AC 120V/60Hz or DC 3.7V from battery
Adapter information:	N/A

1.2 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	Normal working
Mode 2	Charging
<i>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.</i>	

1.3 EUT test setup

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

1.4 Ancillary equipment

Equipment	Model	S/N	Manufacturer
Adapter	5500	/	/



2 Summary of Test Result

Item	Description of Test	Result
FCC Part 15 Subpart B		
1	Conducted emission	Pass
2	Radiated emission	Pass

N/A: Mean not applicable.



3 Test Facilities and Accreditations

3.1 Test laboratory

Test Site	Shenzhen Microtest Co., Ltd.
Test Site Location	No.102A & 302A, East Block, Hengfang Industrial Park, Xingye Road, Xixiang, Bao'an District, Shenzhen, Guangdong, China
Telephone:	(86-755)88850135
Fax:	(86-755)88850136
CNAS Registration No.:	CNAS L5868
FCC Registration No.:	448573

3.2 Environmental conditions

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

Temperature:	20°C~30°C
Humidity	30%~70% (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)	± 2.5 dB
Radiated emission(30MHz~1GHz)	± 4.2 dB
Radiated emission (above 1GHz)	± 4.3 dB
Temperature	± 1 degree
Humidity	± 5 %

3.4 Test software

Software name	Manufacturer	Model	Version
EMI Measurement Software	Farad	EZ-EMC	V1.1.4.2



4 List of test equipment

Radiation emission							
Item	Equipment name	Equipment No.	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	MTI-E004	Rohde&schwarz	ESPI	1000314	2018/10/08	2019/10/07
2	Broadband antenna	MTI-E006	schwarabeck	VULB9163	872	2018/10/08	2019/10/07
3	Horn antenna	MTI-E007	schwarabeck	BBHA9120D	1201	2018/10/08	2019/10/07
4	amplifier	MTI-E014	America	8447D	3113A06150	2018/10/08	2019/10/07
5	amplifier	MTI-E034	Agilent	8449B	3008A02400	2018/10/08	2019/10/07
6	18-40GHz amplifier	MTI-E052	Chengdu step Micro Technology	ZLNA-18-40G-21	1608001	2018/10/08	2019/10/07
7	spectrum analyzer	MTI-E049	Rohde&schwarz	FSP-38	100019	2018/10/08	2019/10/07
8	15-40G Antenna	MTI-E053	Schwarzbeck	BBHA9170	BBHA9170582	2018/10/08	2019/10/07
9	Active Loop Antenna 9kHz - 30MHz	MTI-E051	Schwarzbeck	FMZB 1519 B	00044	2018/02/26	2019/02/25

Conduction emission							
Item	Equipment name	Equipment No.	Manufacturer	Model	Serial No.	Calibration date	Due date
1	Artificial power network	MTI-E037	Schwarzbeck	NSLK8127	NSLK8127#841	2018/10/08	2019/10/07
2	EMI Test Receiver	MTI-E003	Rohde&schwarz	ESCI	101368	2018/10/08	2019/10/07
3	Artificial power network	MTI-E058	Schwarzbeck	NSLK8127	NSLK8127#841	2018/10/08	2019/10/07

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

5.1 Conducted emission

5.1.1 Limits

Frequency (MHz)	Class A (dB μ V)		Class B (dB μ V)	
	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.

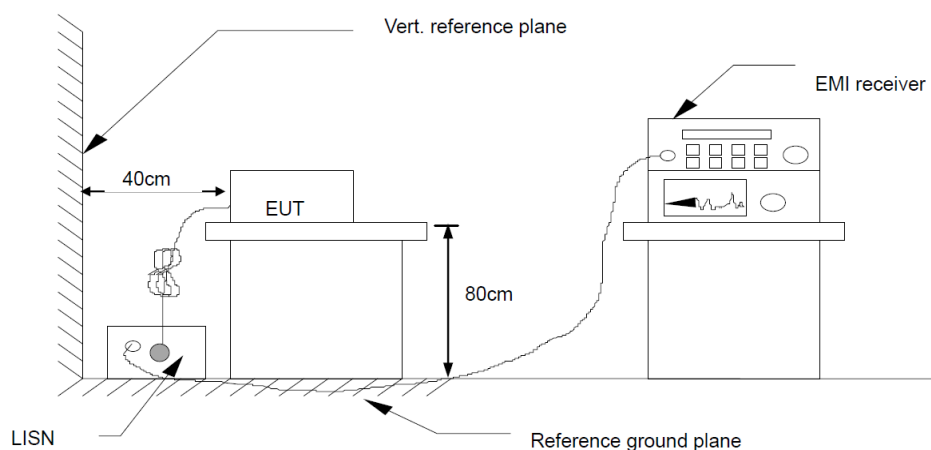
Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

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.

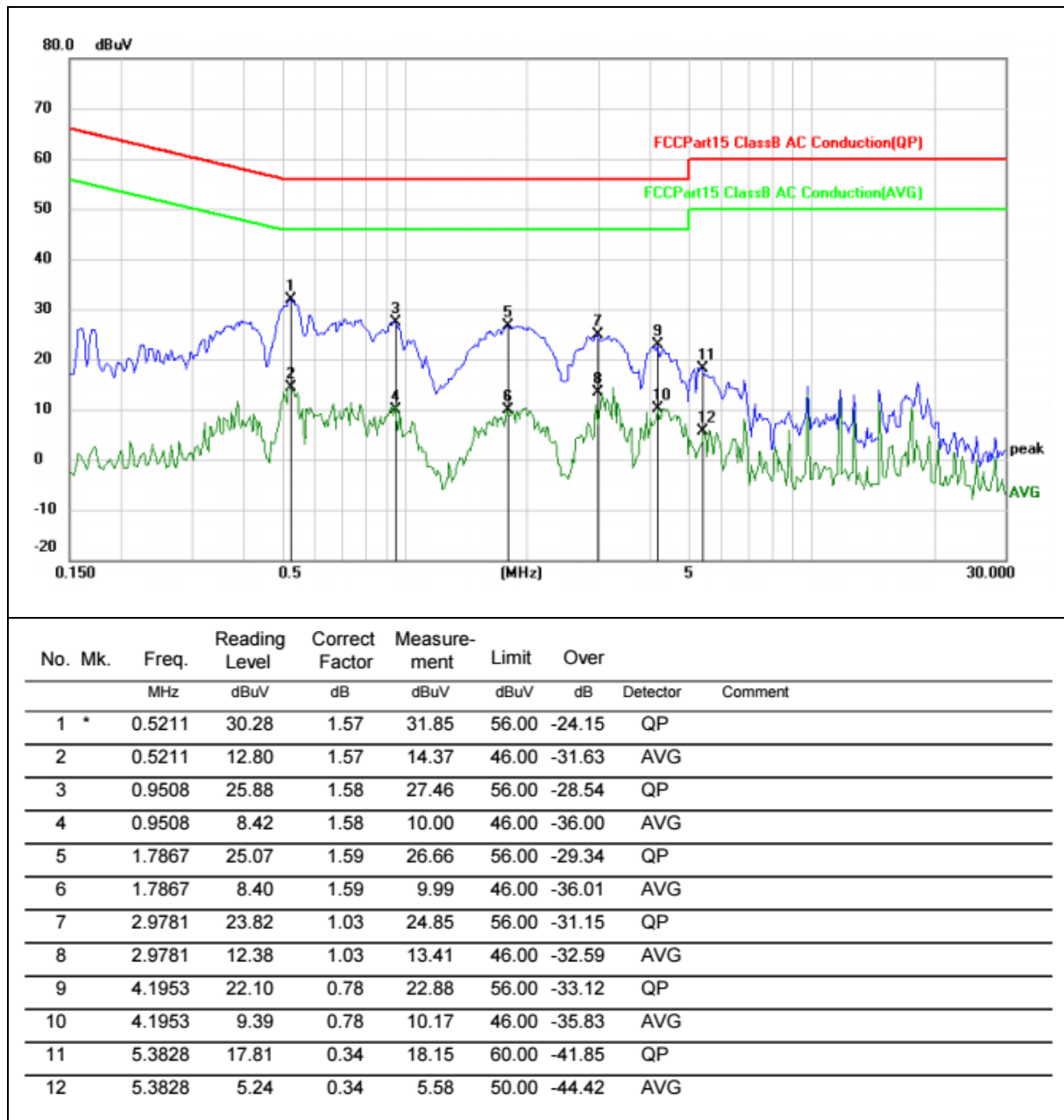
5.1.3 Test Setup



5.1.4 Test Result

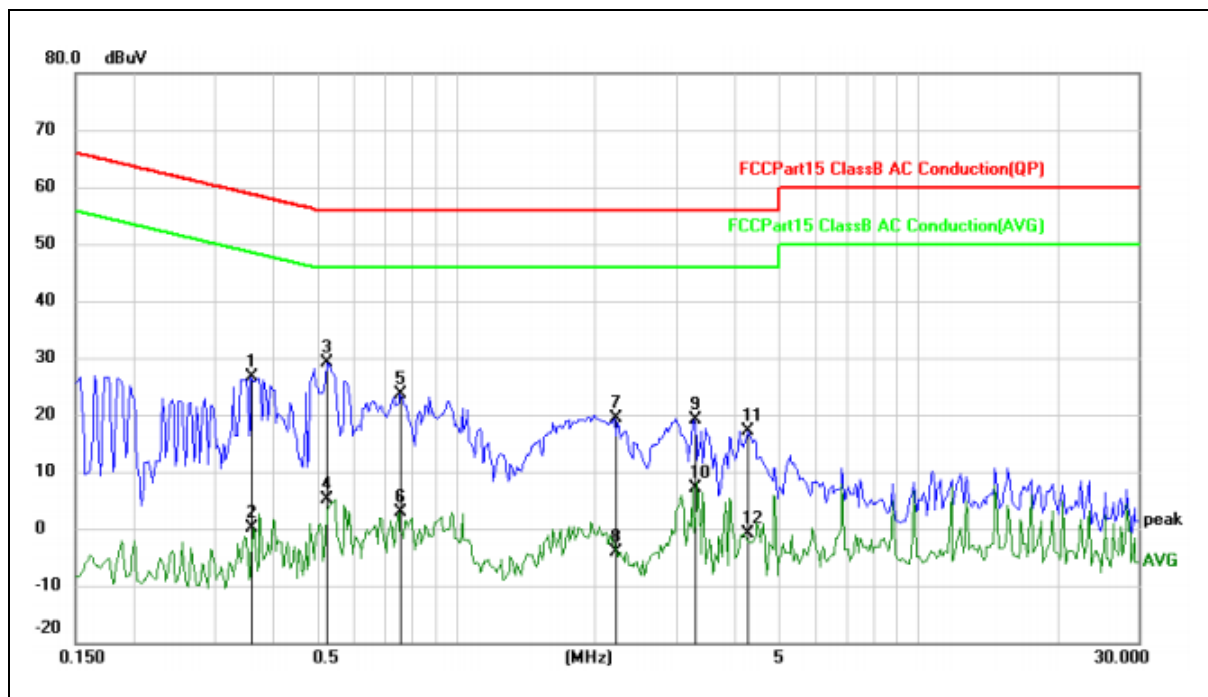


Temperature:	27°C	Relative Humidity:	65%
Pressure:	101kPa	Phase:	L
Test voltage:	DC 5V from adapter by AC 120V/60Hz	Test mode:	Mode 2





Temperature:	27°C	Relative Humidity:	65%
Pressure:	101kPa	Phase:	N
Test voltage:	DC 5V from adapter by AC 120V/60Hz	Test mode:	Mode 2



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB	dBuV	dBuV	dB		
1		0.3608	24.96	1.57	26.53	58.71	-32.18	QP	
2		0.3608	-1.56	1.57	0.01	48.71	-48.70	AVG	
3	*	0.5250	27.45	1.57	29.02	56.00	-26.98	QP	
4		0.5250	3.52	1.57	5.09	46.00	-40.91	AVG	
5		0.7555	22.02	1.57	23.59	56.00	-32.41	QP	
6		0.7555	1.43	1.57	3.00	46.00	-43.00	AVG	
7		2.2047	17.92	1.44	19.36	56.00	-36.64	QP	
8		2.2047	-5.58	1.44	-4.14	46.00	-50.14	AVG	
9		3.2852	18.04	0.98	19.02	56.00	-36.98	QP	
10		3.2852	6.22	0.98	7.20	46.00	-38.80	AVG	
11		4.2852	16.47	0.73	17.20	56.00	-38.80	QP	
12		4.2852	-1.54	0.73	-0.81	46.00	-46.81	AVG	

5.2 Radiated emission

5.2.1 Limits

Limits of radiated emission measurement

Frequency (MHz)	Class B device (at 3m) dB μ V/m	Class A device (at 3m) dB μ V/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.

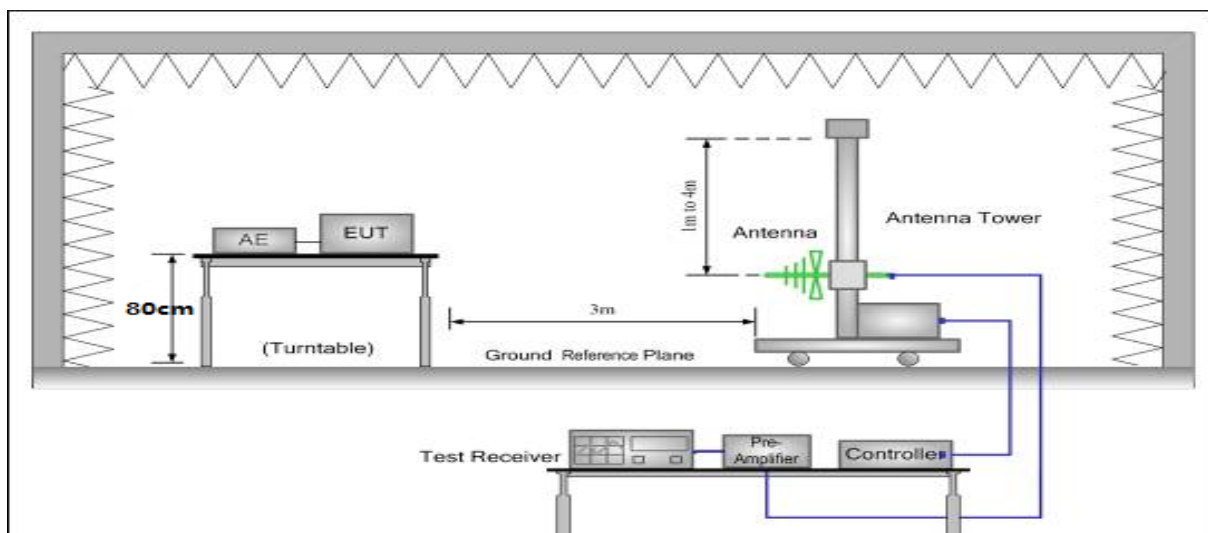
The height of the test antenna shall vary between 1m to 4m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

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

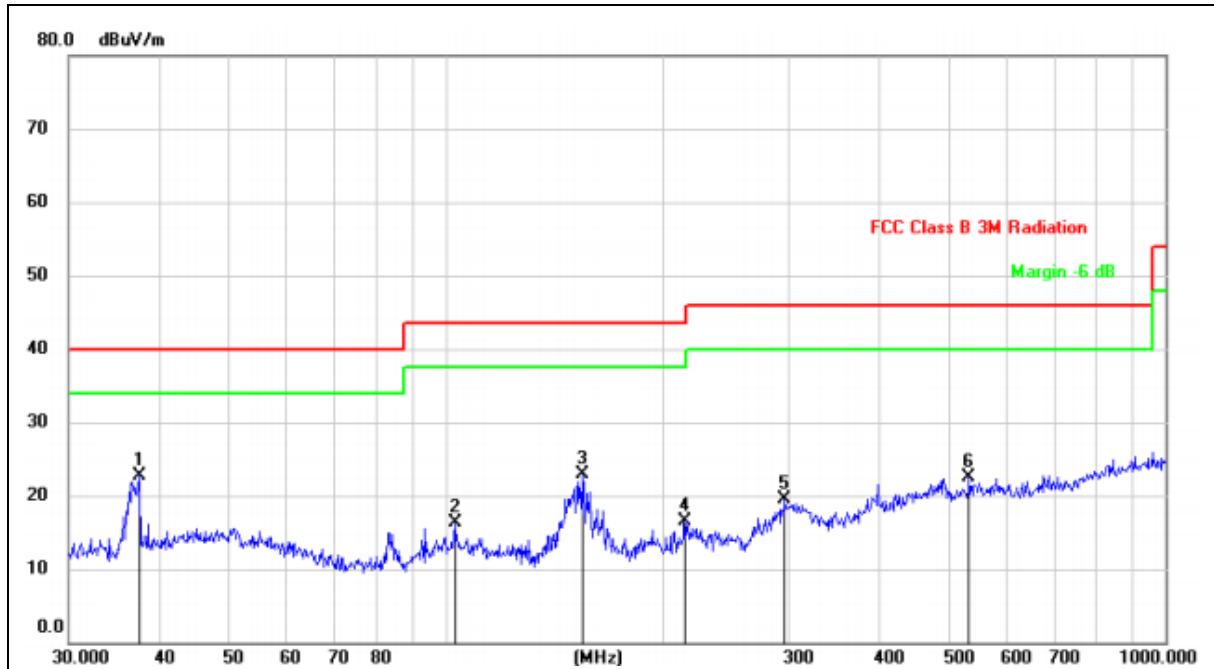


5.2.4 Test Result

Note: the highest working frequency of EUT is less than 108MHz.



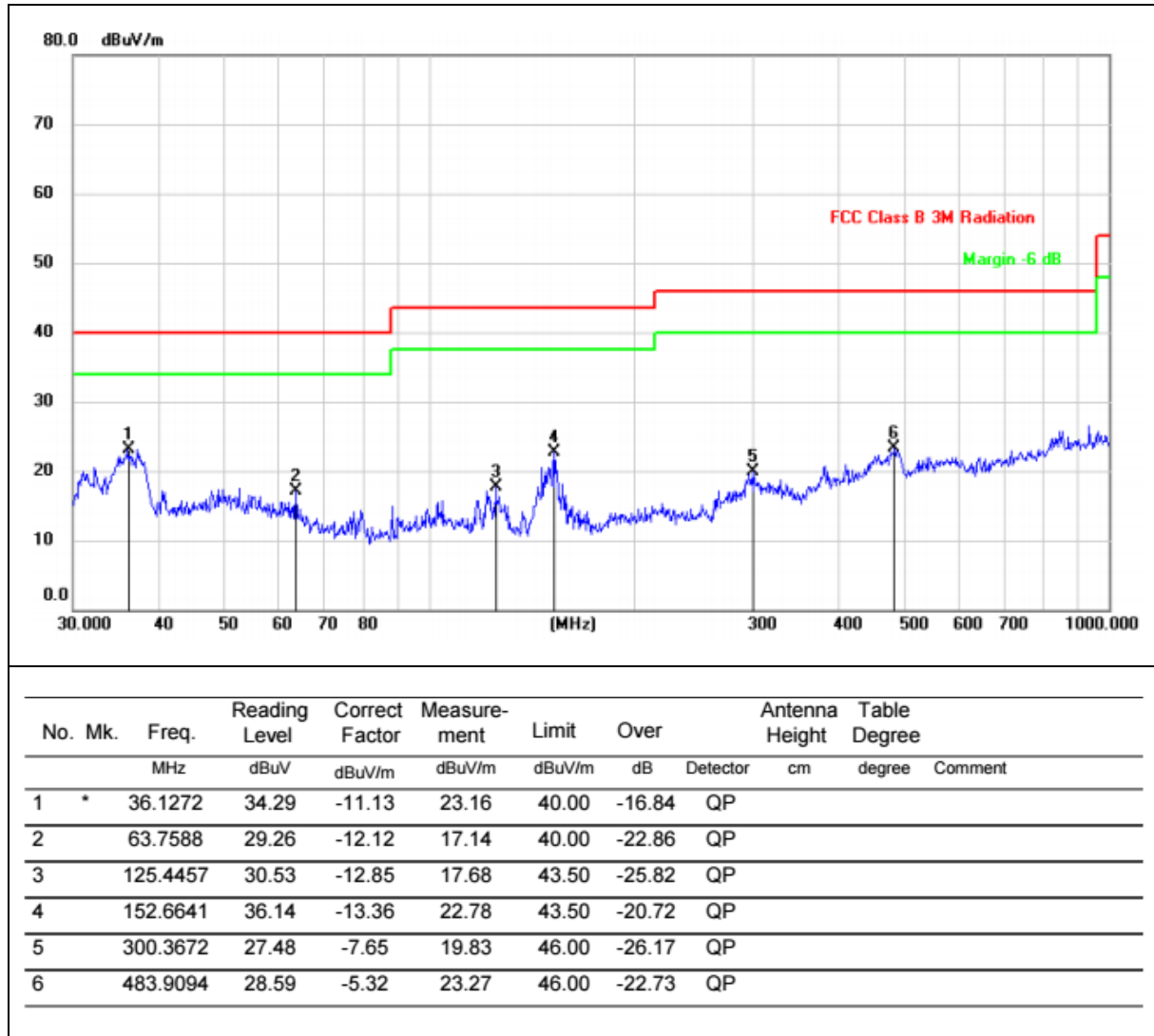
Temperature:	25°C	Relative Humidity:	55%
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 5V from adapter by AC 120V/60Hz	Test mode:	Mode 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	37.5479	33.27	-10.47	22.80	40.00	-17.20	QP		
2		103.0800	27.78	-11.44	16.34	43.50	-27.16	QP		
3		154.8204	37.19	-14.27	22.92	43.50	-20.58	QP		
4		214.5143	27.80	-11.23	16.57	43.50	-26.93	QP		
5		296.1836	28.26	-8.74	19.52	46.00	-26.48	QP		
6		533.8321	27.72	-5.17	22.55	46.00	-23.45	QP		



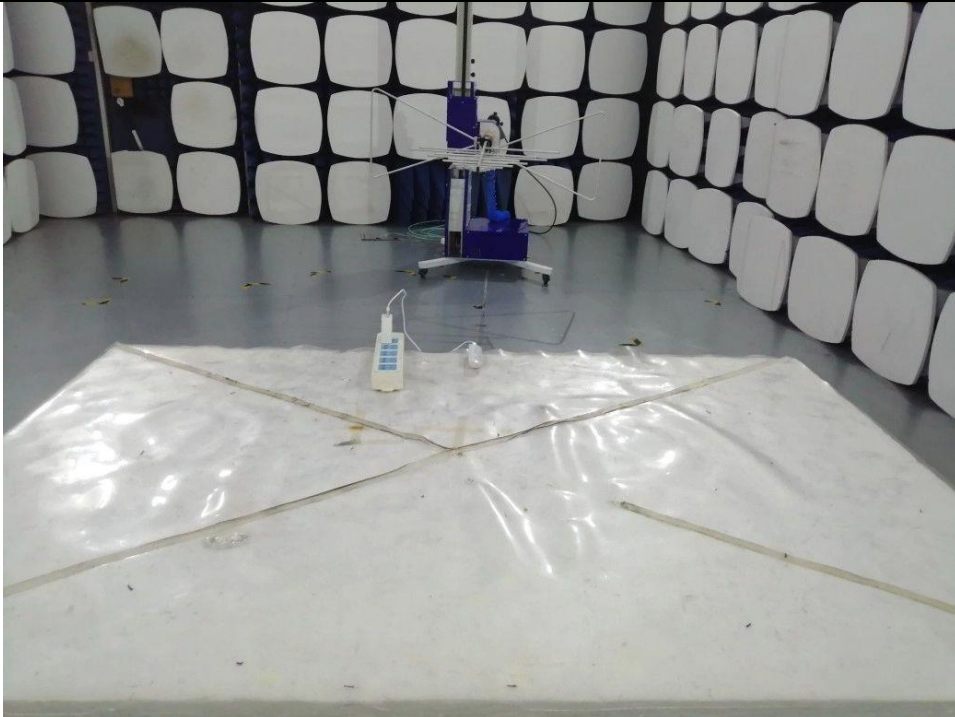
Temperature:	25℃	Relative Humidity:	55%
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 5V from adapter by AC 120V/60Hz	Test mode:	Mode 2





Photographs of the Test Setup

Radiated emission



Conducted emission



Photographs of the EUT

See the APPENDIX 1: EUT PHOTO in the report No.: MTi19072607-6E1-1

----End of Report----