

TEST REPORT

Report No.: SHE21100025-02FE

Date: 2021-11-17

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Applicant : Home Tech Innovation, Inc
Address of Applicant : 1035 Cambridge St, Suite 11A, Cambridge, MA 02141
Product Name : Suvie Starch Cooker
Brand Name : Suvie
Model Name : S020S
FCC ID : 2AT2K-S020S
Standards : 47 CFR Part 15 Subpart B
Date of Receipt : 2021-10-25
Date of Test : 2021-10-27
Date of Issue : 2021-11-17

Remark:

This report details the results of the testing carried out on one sample, the results contained in this report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

Prepared by:

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Reviewed
by:

Oliver Xiang

(Oliver Xiang)

Approved by:

Guoyou Chi

(Authorized signatory: Guoyou Chi)

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1 General Information

1.1 Testing Laboratory Information

Company Name	ICAS Testing Technology Service (Shanghai) Co., Ltd.
Address	No.1298, Pingan Road, Minhang District, Shanghai, China
Telephone	0086 21-51682999
Fax	0086 21-54711112
Homepage	www.icasiso.com

1.2 Applicant Information

Applicant Company Name	Home Tech Innovation, Inc
Address	1035 Cambridge St, Suite 11A, Cambridge, MA 02141
Contact Person	Kevin Incorvia
Telephone	+1 617 800 5336
Email	kincorvia@suvie.com
Manufacturer	Home Tech Innovation, Inc
Manufacturer Address	1035 Cambridge St, Suite 11A, Cambridge, MA 02141

1.3 EUT Description

Product Name	Suvie Starch Cooker
Under Test Model Name	S020S
Series Model Name	/
Description of Model name differentiation	/
Hardware Version	S020S1.0.1
Software Version	fw
Wireless Description	WIFI 2.4GHz (802.11 b, g, n20,n40) ; Bluetooth: BR EDR ; BLE4.0 ; NFC

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2 Summary of Test Result

2.1 Test Standards

No.	Identity	Document Title
1	FCC 47 CFR Part 15 Subpart B	Unintentional Radiators
2	ANSI C63.4-2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

Remark: All test items were verified and recorded according to the standards and without any addition/deviation/exclusion during the test.

2.2 Test Result

No.	Description	FCC Rule	Result
1	AC Conducted Emission	15.107	PASS
2	Radiated Emission	15.109	PASS

2.3 Test Uncertainty

Measurement	Uncertainty
Conducted emission (9kHz-30MHz)	1.71 dB
Radiated emission (30MHz-1GHz)	3.42 dB
Radiated emission (1GHz-18GHz)	4.20 dB

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16 4 2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

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3 General Test Configurations

3.1 Test Environments

During the measurement, the environmental conditions complied with the range listed as below.

Ambient Temperature	15°C to 35°C
Ambient Relative Humidity	25% to 75%
Ambient Pressure	86kPa to 106kPa

3.2 Test Equipment List

Instrument	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
EMI Test Receiver	Rohde & Schwarz	ESPI3	100173	2021-06-10	2022-06-09
V-network	SCHWARZBECK	NSLK 8127	8127-902	2021-06-10	2022-06-09
Spectrum Analyzer	Rohde & Schwarz	FSV40N	101450	2021-06-10	2022-06-09
EMI Test Receiver	Rohde & Schwarz	ESR 7	101911	2021-06-10	2022-06-09
Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1775	2021-06-08	2022-06-07
Broadband Antenna	SCHWARZBECK	VULB9163	9163-1037	2021-06-08	2022-06-07
Radio Communication Tester	Rohde & Schwarz	CMW500	116330	2021-08-13	2022-08-12
EMC chamber 9*6*6 (L*W*H)	CHANGNING	966	N/A	2020-06-09	2023-06-08
Shielded Enclosure 8*5*4 (L*W*H)	CHANGNING	854	N/A	2020-06-09	2023-06-08
Test Software	BL	BL410_E	N/A	N/A	N/A

3.3 Test Enclosure List

Instrument	Manufacturer	Model	Serial No.	Length
/	/	/	/	/

3.4 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Test Mode No.	Description
Traffic Test Mode	
1	Charge + Monitor display + 2.4G WIFI Link + BT Link + WIFI Link + NFC

Remark: To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively. The test data of the worst-case condition was recorded in this report. Test Mode 1 is the worst mode in this report.

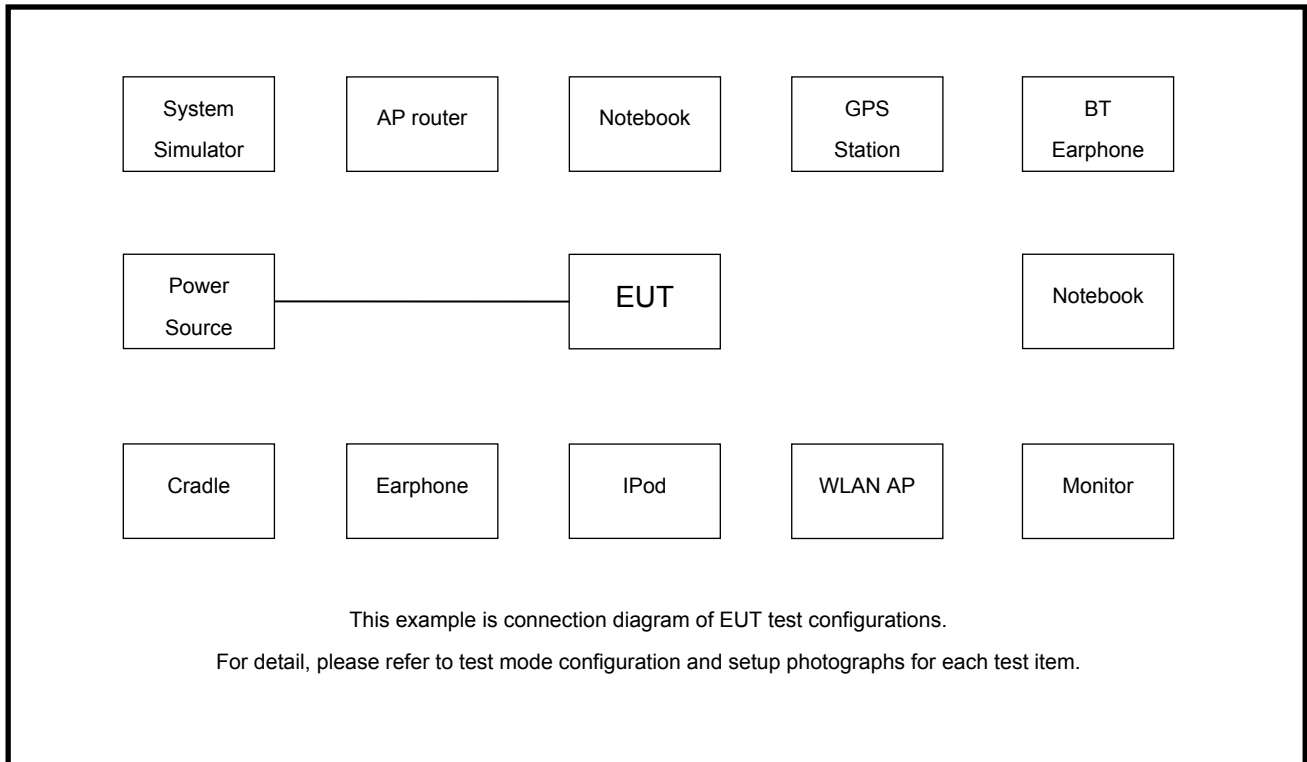
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3.5 Connection Diagram of Test System



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4 Test Result

4.1 Test of Conducted Emission Measurement

4.1.1 Limits of Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

<Class B Limit>

Frequency of emission	Conducted limited(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.

4.1.2 Measuring Instruments

The measuring equipment is listed in the section 3.2 of this test report.

4.1.3 Test Procedure

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

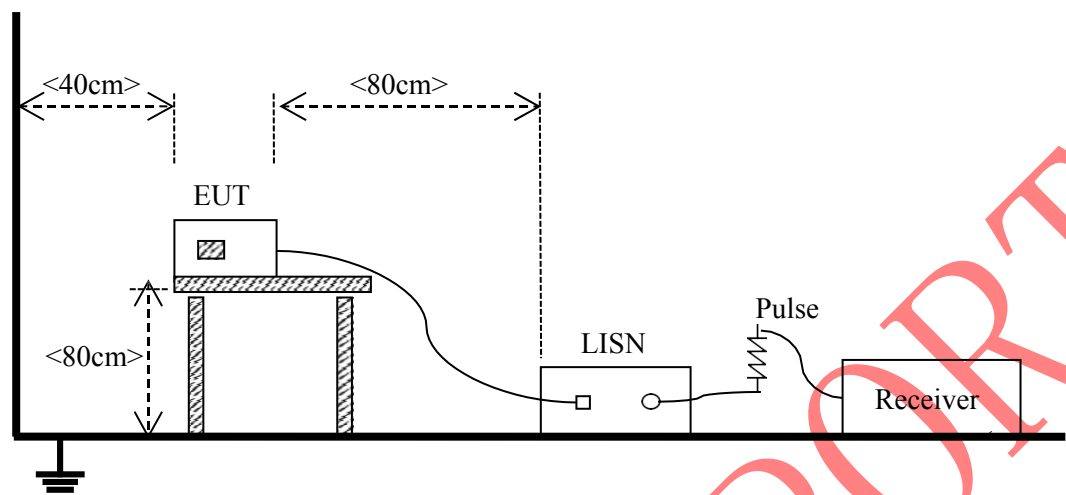
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4.1.4 Test Setup



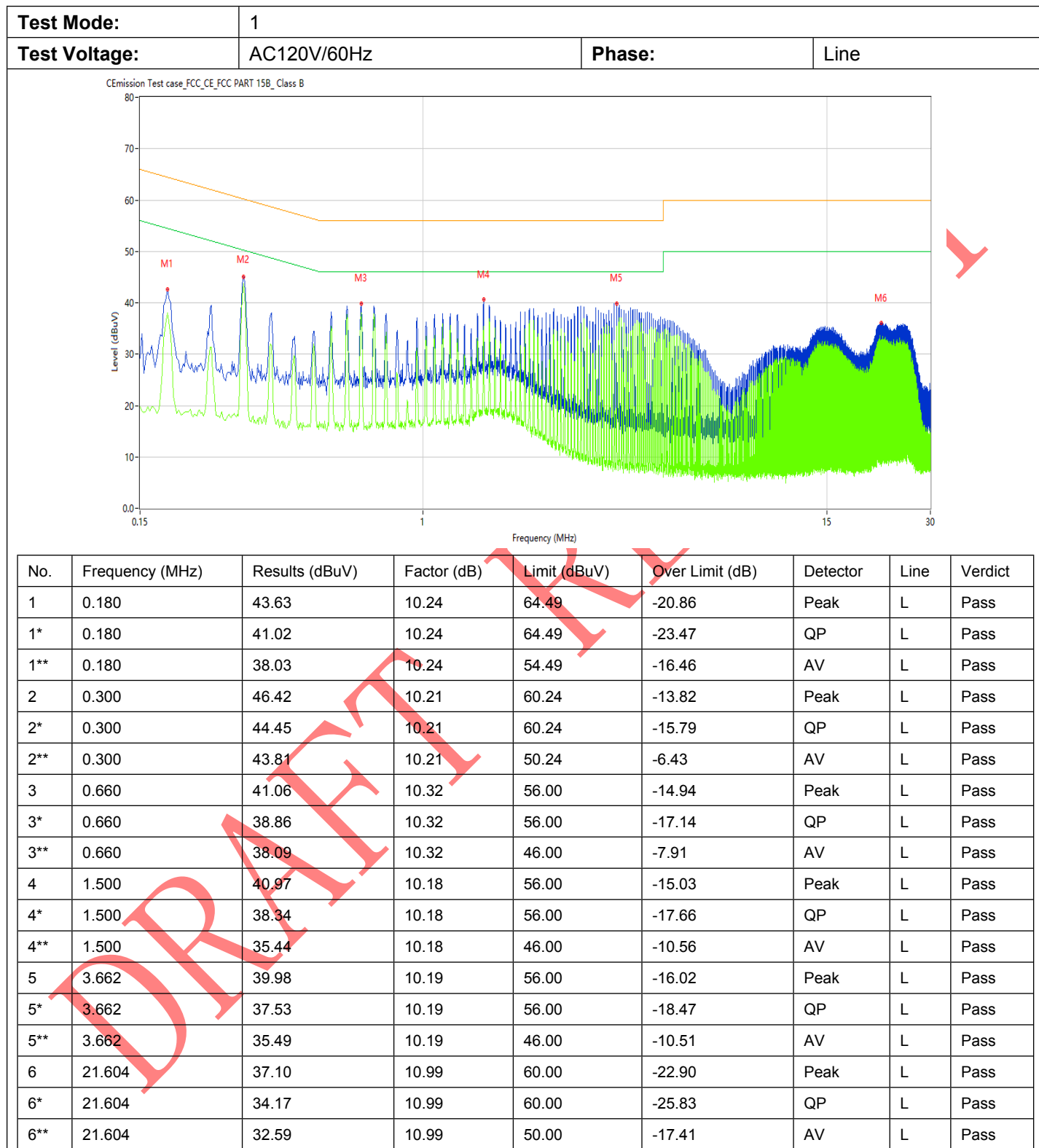
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4.1.5 Test Result of Conducted Emission



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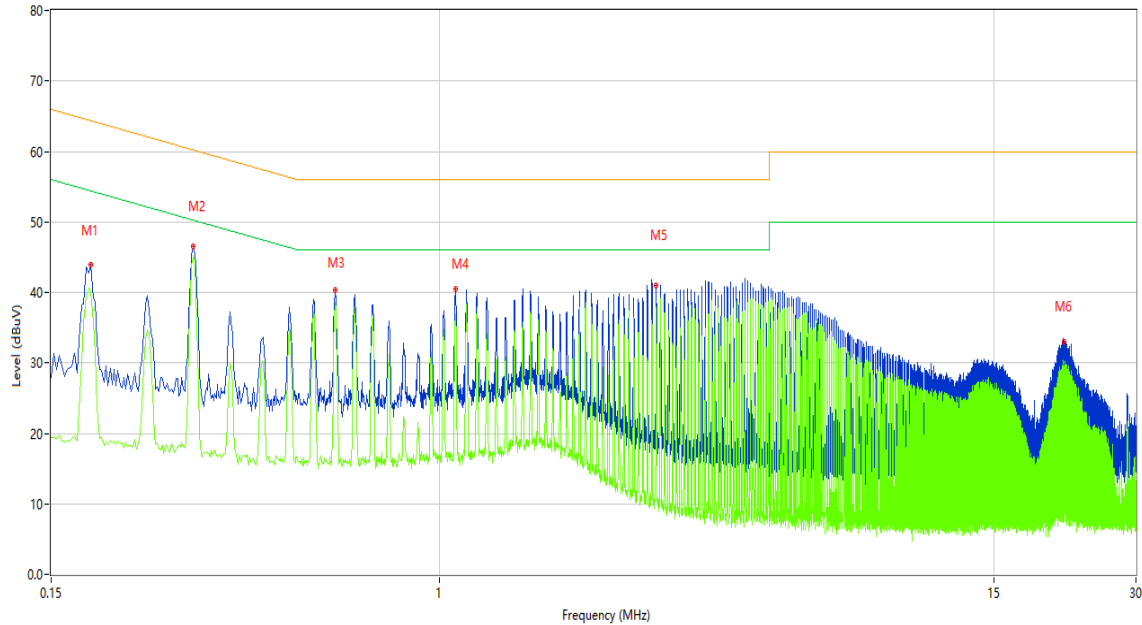
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Test Mode:	1		
Test Voltage:	AC120V/60Hz	Phase:	Neutral

CEmission Test case_FCC_CE_FCC PART 15B_Class B



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.182	44.55	10.24	64.39	-19.84	Peak	N	Pass
1*	0.182	42.07	10.24	64.39	-22.32	QP	N	Pass
1**	0.182	40.14	10.24	54.39	-14.25	AV	N	Pass
2	0.300	47.14	10.21	60.24	-13.10	Peak	N	Pass
2*	0.300	45.66	10.21	60.24	-14.58	QP	N	Pass
2**	0.300	45.30	10.21	50.24	-4.94	AV	N	Pass
3	0.600	41.01	10.31	56.00	-14.99	Peak	N	Pass
3*	0.600	38.75	10.31	56.00	-17.25	QP	N	Pass
3**	0.600	38.58	10.31	46.00	-7.42	AV	N	Pass
4	1.080	40.72	10.20	56.00	-15.28	Peak	N	Pass
4*	1.080	38.33	10.20	56.00	-17.67	QP	N	Pass
4**	1.080	36.82	10.20	46.00	-9.18	AV	N	Pass
5	2.880	41.85	10.16	56.00	-14.15	Peak	N	Pass
5*	2.880	40.57	10.16	56.00	-15.43	QP	N	Pass
5**	2.880	37.84	10.16	46.00	-8.16	AV	N	Pass
6	21.122	33.70	10.98	60.00	-26.30	Peak	N	Pass
6*	21.122	31.29	10.98	60.00	-28.71	QP	N	Pass
6**	21.122	29.51	10.98	50.00	-20.49	AV	N	Pass

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4.2 Test of Radiated Emission Measurement

4.2.1 Limits of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

<FCC Class B Limit>

Frequency (MHz)	Field Strength (uV/m)		Field Strength (dBuV/m)		Measurement distance (meters)
30-88	100		40		3
88-216	150		43.5		3
216-960	200		46		3
Above 960	500		54		3
Above 1000	AV	PK	AV	PK	3
	500	5000	54	74	

<IC Class B Limit>

Frequency (MHz)	Field Strength (dBuV/m)		Measurement distance (meters)
30-88	40		3
88-216	43.5		3
216-230	46		3
230-960	47		3
Above 960	54		3
Above 1000	AV	PK	3
	54	74	

4.2.2 Measuring Instruments

The measuring equipment is listed in the section 3.2 of this test report.

4.2.3 Test Procedure

1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.

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5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dB μ V/m) = 20 log Emission level (μ V/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

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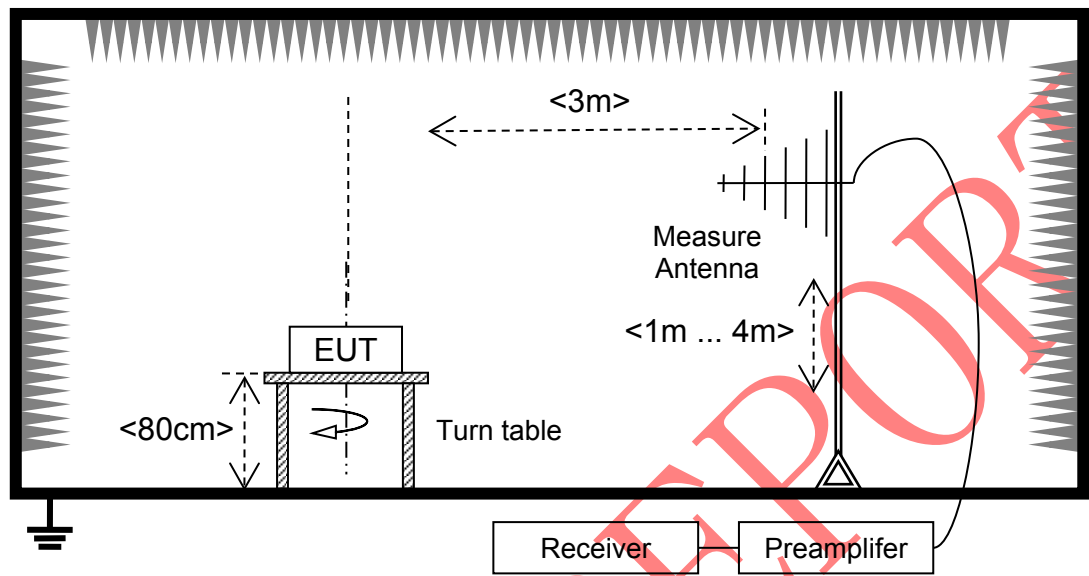
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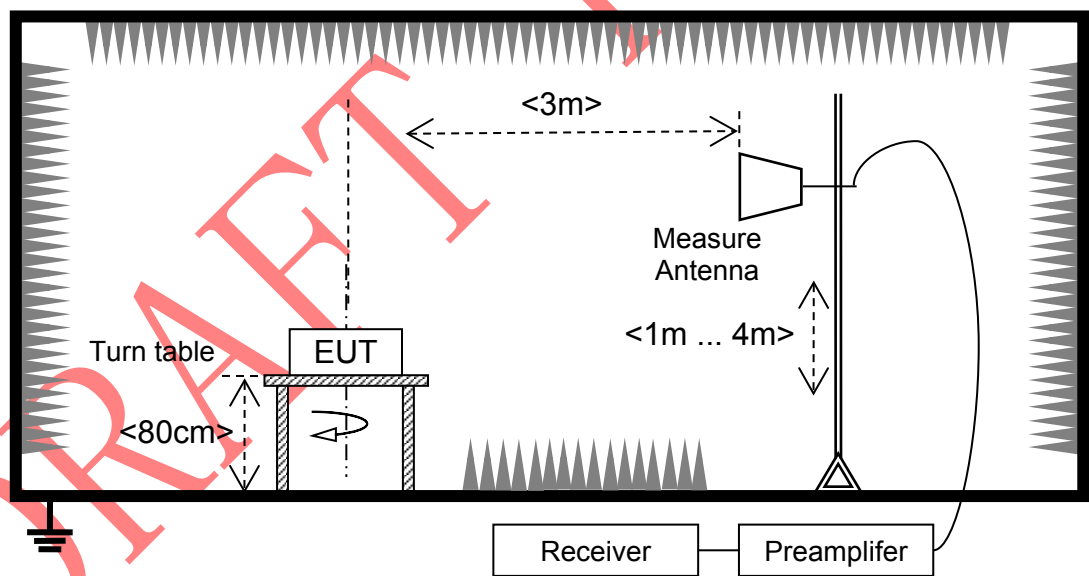
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4.2.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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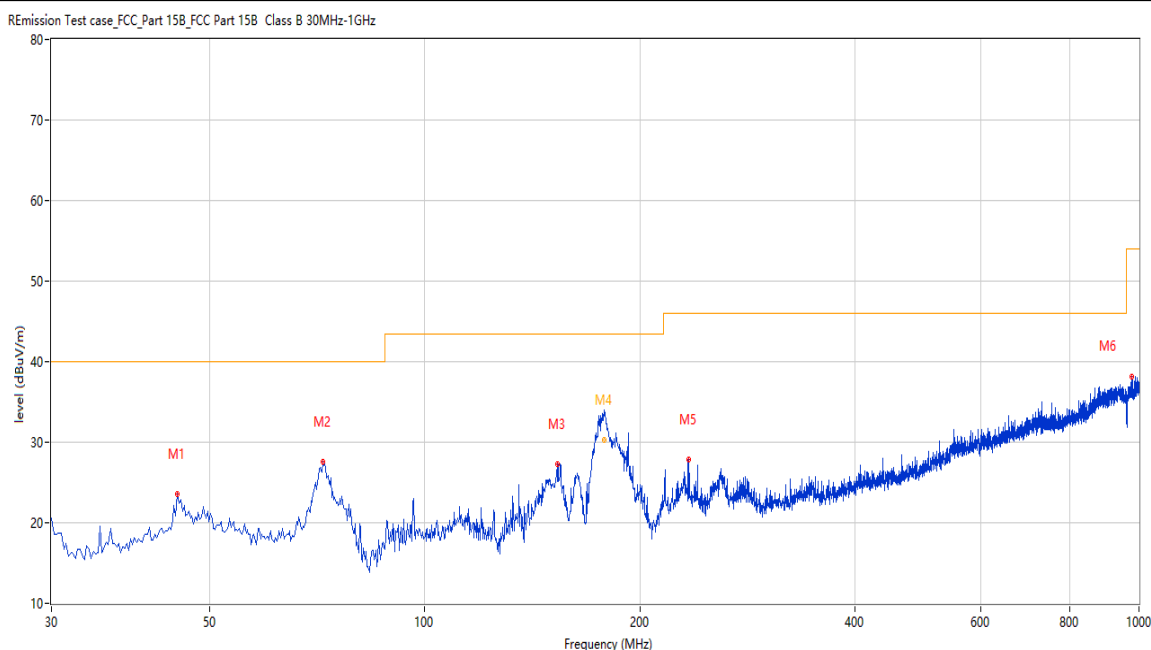
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4.2.5 Test Result of Radiated Emission

Test Mode:	1	Frequency Range:	30M-1GHz	Test Limit
Test Voltage:	AC120V/60Hz	Polarization:	Horizontal	FCC



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	45.031	23.61	-19.46	40.0	-16.39	Peak	0.00	300	Horizontal	Pass
2	71.942	27.58	-24.20	40.0	-12.42	Peak	296.50	100	Horizontal	Pass
3	153.159	27.31	-23.90	43.5	-16.19	Peak	69.60	200	Horizontal	Pass
4	178.051	34.30	-22.54	43.5	-9.20	Peak	87.10	117	Horizontal	Pass
4*	178.051	30.28	-22.54	43.5	-13.22	QP	87.10	117	Horizontal	Pass
5	233.892	27.91	-19.66	46.0	-18.09	Peak	64.30	100	Horizontal	Pass
6	978.180	38.08	-2.99	54.0	-15.92	Peak	252.80	200	Horizontal	Pass

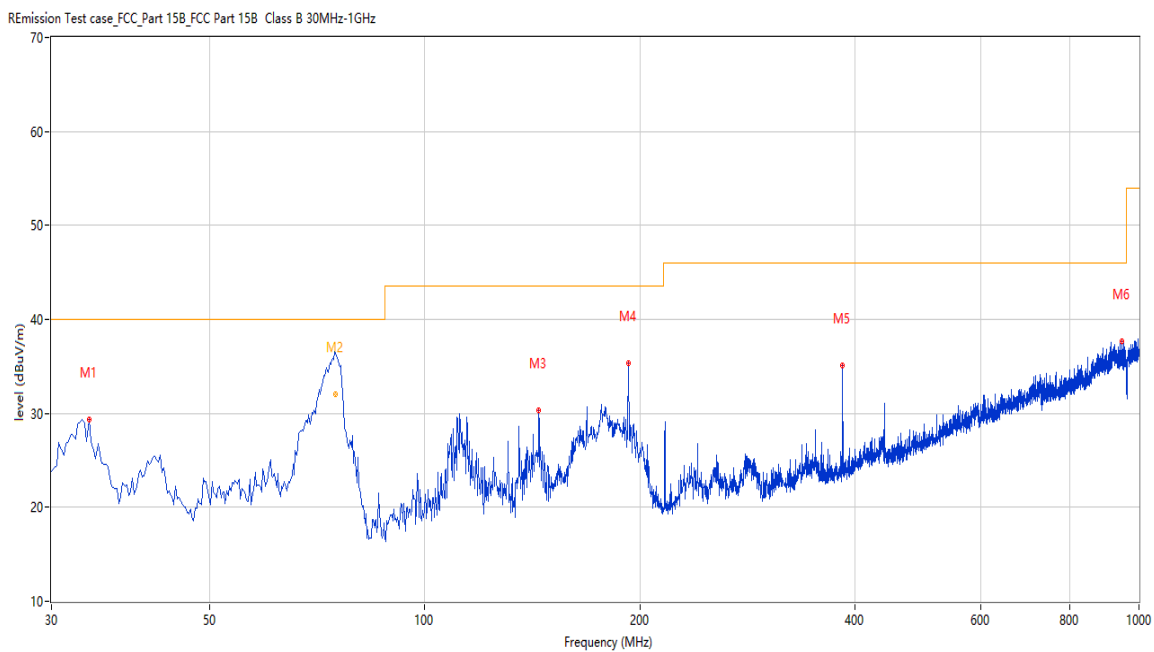
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Test Mode:	1	Frequency Range:	30M-1GHz	Test Limit
Test Voltage:	AC120V/60Hz	Polarization:	Vertical	FCC



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	33.879	29.40	-22.57	40.0	-10.60	Peak	85.30	200	Vertical	Pass
2	74.902	36.94	-25.09	40.0	-3.06	Peak	253.70	161	Vertical	Pass
2*	74.902	32.10	-25.09	40.0	-7.90	QP	253.70	161	Vertical	Pass
3	144.431	30.37	-24.12	43.5	-13.13	Peak	0.00	200	Vertical	Pass
4	192.677	35.33	-20.63	43.5	-8.17	Peak	199.70	200	Vertical	Pass
5	384.689	35.14	-15.51	46.0	-10.86	Peak	150.50	100	Vertical	Pass
6	945.451	37.70	-3.21	46.0	-8.30	Peak	0.10	200	Vertical	Pass

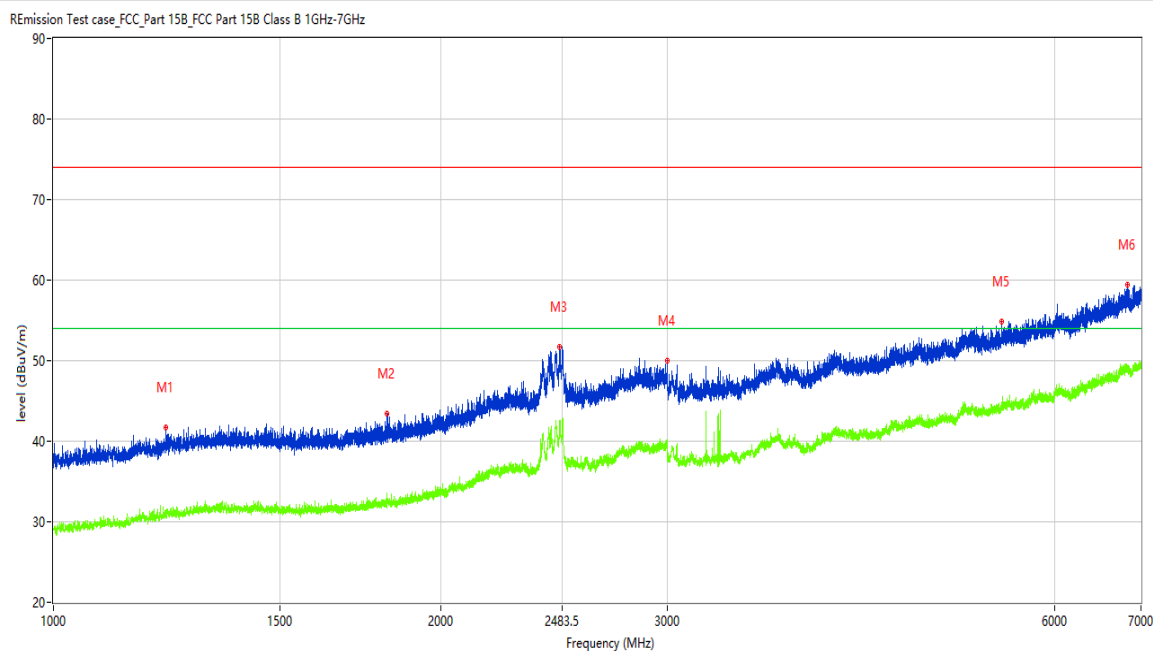
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Test Mode:	1	Frequency Range:	1-7GHz
Test Voltage:	AC120V/60Hz	Polarization:	Horizontal



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1222.722	41.67	-13.29	74.0	-32.33	Peak	241.20	100	Horizontal	Pass
1**	1222.722	30.71	-13.29	54.0	-23.29	AV	241.20	100	Horizontal	Pass
2	1815.898	43.36	-12.25	74.0	-30.64	Peak	147.60	100	Horizontal	Pass
2**	1815.898	33.53	-12.25	54.0	-20.47	AV	147.60	100	Horizontal	Pass
3	2473.566	51.72	-2.18	74.0	-22.28	Peak	186.60	100	Horizontal	Pass
3**	2473.566	41.74	-2.18	54.0	-12.26	AV	186.60	100	Horizontal	Pass
4	2997.750	49.93	-3.05	74.0	-24.07	Peak	225.80	100	Horizontal	Pass
4**	2997.750	40.00	-3.05	54.0	-14.00	AV	225.80	100	Horizontal	Pass
5	5459.693	54.83	0.97	74.0	-19.17	Peak	269.20	100	Horizontal	Pass
5**	5459.693	44.84	0.97	54.0	-9.16	AV	269.20	100	Horizontal	Pass
6	6838.020	59.39	5.07	74.0	-14.61	Peak	192.30	100	Horizontal	Pass
6**	6838.020	49.24	5.07	54.0	-4.76	AV	192.30	100	Horizontal	Pass

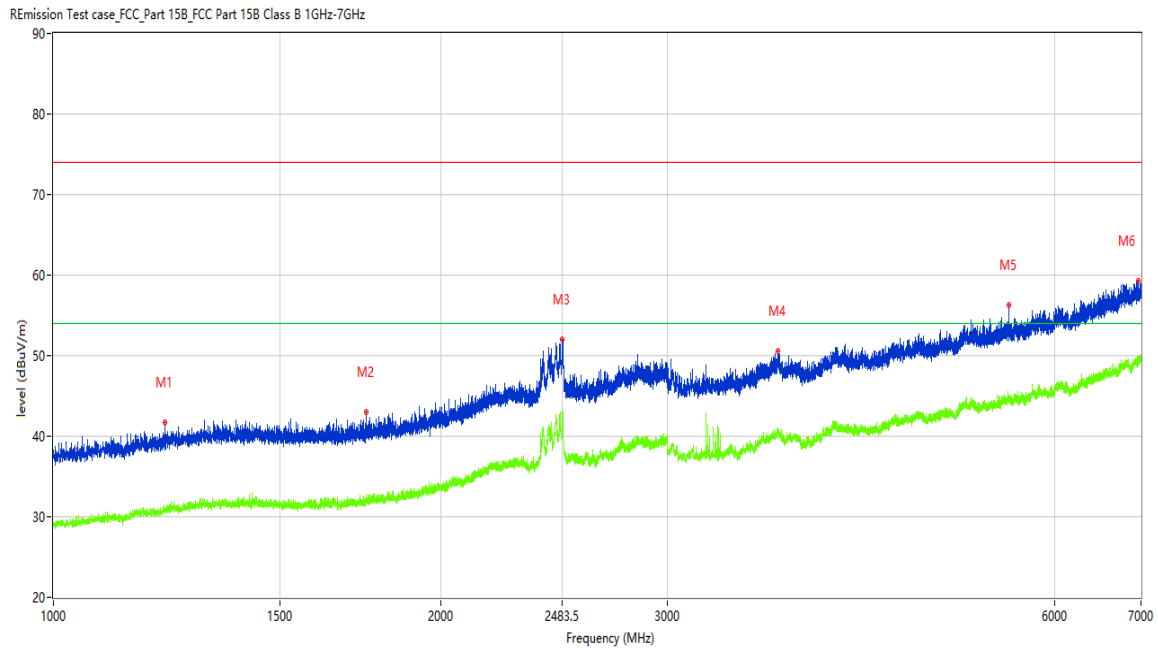
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Test Mode:	1	Frequency Range:	1-7GHz
Test Voltage:	AC120V/60Hz	Polarization:	Vertical



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1221.472	41.70	-13.29	74.0	-32.30	Peak	119.40	100	Vertical	Pass
1**	1221.472	30.90	-13.29	54.0	-23.10	AV	119.40	100	Vertical	Pass
2	1750.656	42.94	-12.50	74.0	-31.06	Peak	326.30	100	Vertical	Pass
2**	1750.656	32.68	-12.50	54.0	-21.32	AV	326.30	100	Vertical	Pass
3	2486.314	51.99	-1.91	74.0	-22.01	Peak	310.90	100	Vertical	Pass
3**	2486.314	42.57	-1.91	54.0	-11.43	AV	310.90	100	Vertical	Pass
4	3656.418	50.52	-1.60	74.0	-23.48	Peak	353.90	100	Vertical	Pass
4**	3656.418	40.92	-1.60	54.0	-13.08	AV	353.90	100	Vertical	Pass
5	5524.684	56.34	1.44	74.0	-17.66	Peak	74.70	100	Vertical	Pass
5**	5524.684	44.96	1.44	54.0	-9.04	AV	74.70	100	Vertical	Pass
6	6969.004	59.33	5.32	74.0	-14.67	Peak	220.50	100	Vertical	Pass
6**	6969.004	49.36	5.32	54.0	-4.64	AV	220.50	100	Vertical	Pass

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5 Photographs of the EUT and Test Set-Up

5.1 Photographs of the EUT

Front of the sample



Rear of the sample



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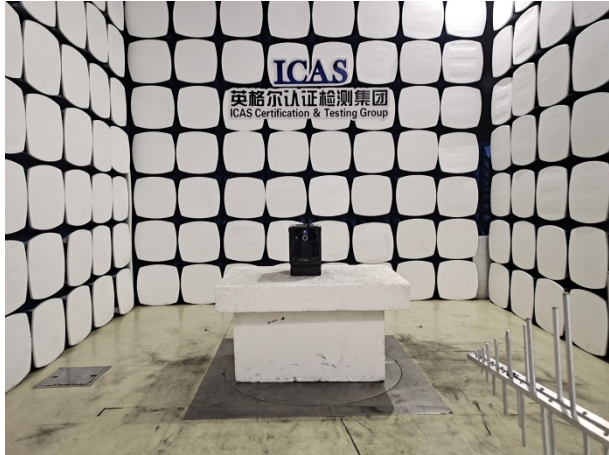
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5.2 Photographs of the Test Set-up

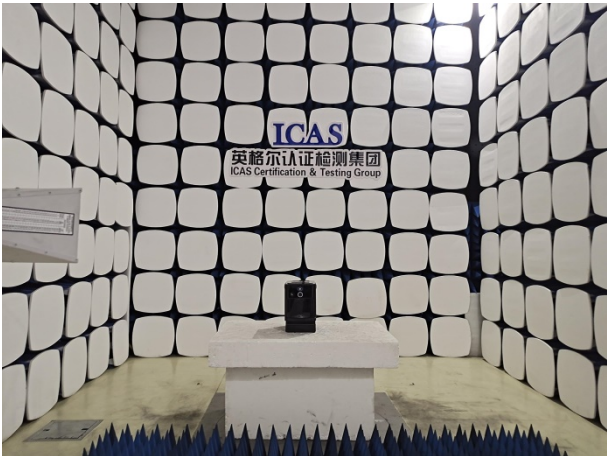
Conducted Emission test set-up, TM1



Radiated Emission test set-up for 30M-1GHz, TM1



Radiated Emission test set-up for above 1GHz, TM1



End of the report