

TEST REPORT

Applicant: Shenzhen Xihou Technology Co., Ltd

Address of Applicant: 4F, Building 3, Xialingpai Industrial Zone, Dalang Subdistrict, Longhua District, Shenzhen, China

Manufacturer: Shenzhen Xihou Technology Co., Ltd

Address of Manufacturer: 4F, Building 3, Xialingpai Industrial Zone, Dalang Subdistrict, Longhua District, Shenzhen, China

Equipment Under Test (EUT)

Product Name: Security Camera

Model No.: VSWFIR400, VSWF299PIR, VSWFPT8, VSWF4KPIRUB
VSWFIR500, VSWF4KPIR, VSWFPTZ8, VSWFPTZ9

Applicable standards: FCC CFR Title 47 Part 15 Subpart B

Date of sample receipt: December 08, 2020

Date of Test: December 09-24, 2020

Date of report issued: December 24, 2020

Test Result : PASS *

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

Authorized Signature:



Robinson Luo
Laboratory Manager

This 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.

2 Version

Version No.	Date	Description
00	December 24, 2020	Original

Prepared By:



Date:

December 24, 2020

Project Engineer

Check By:



Date:

December 24, 2020

Reviewer

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4 Test Summary

Test Item	Test Requirement	Test Method	Class / Severity	Result
Conducted Emission	FCC Part15.107	ANSI C63.4	Class B	PASS
Radiated Emissions #	FCC Part15.109 &15.31	ANSI C63.4	Class B	PASS

Remarks:

1. Pass: The EUT complies with the essential requirements in the standard.
2. # Refer to FCC Part 15.33 (b)(1) conditional testing procedure :

The highest frequency generated or used in the EUT	Test frequency range of Radiated emission
<108MHz	30MHz ~ 1GHz
108MHz ~ 500MHz	30MHz ~ 2GHz
500MHz ~ 1GHz	30MHz ~ 5GHz
>1GHz	30MHz ~ 5th harmonic of the highest frequency or 40 GHz, whichever is lower.

Note: the EUT Internal clock frequency above 108MHz.

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	30MHz-200MHz	3.8039dB	(1)
Radiated Emission	200MHz-1GHz	3.9679dB	(1)
Radiated Emission	1GHz-18GHz	4.29dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	3.44dB	(1)

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

5 General Information

5.1 General Description of EUT

Product Name:	Security Camera
Model No.:	VSWFIR400, VSWF299PIR, VSWFPT8, VSWF4KPIRUB VSWFIR500, VSWF4KPIR, VSWFPTZ8, VSWFPTZ9
Test Model No.:	VSWFIR400
Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are appearance color and model name for commercial purpose.	
Test sample(s) ID:	GTSL202012000082-2
Sample(s) Status:	Normal sample
Power Supply:	Battery: DC 3.7V, 19.24Wh, 5200mAh USB: DC 5V/1A

5.2 Test mode and Test voltage

Test mode:	
Charging mode	Keep the EUT in charging status
REC mode	Keep the EUT in video record mode
Test voltage:	
AC 120V/60Hz	

5.3 Description of Support Units

Manufacturer	Description	Model	Serial Number
APPLE	USB Charger	A1399	N/A
Kingston	SD card	SD/2GB	N/A

5.4 Deviation from Standards

None.

5.5 Abnormalities from Standard Conditions

None.

5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC —Registration No.: 381383**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383.

- **IC —Registration No.: 9079A**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A.

- **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

5.7 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 02 2020	July. 01 2025
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 25 2020	June. 24 2021
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 25 2020	June. 24 2021
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 25 2020	June. 24 2021
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 25 2020	June. 24 2021
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 25 2020	June. 24 2021
9	Coaxial Cable	GTS	N/A	GTS211	June. 25 2020	June. 24 2021
10	Coaxial cable	GTS	N/A	GTS210	June. 25 2020	June. 24 2021
11	Coaxial Cable	GTS	N/A	GTS212	June. 25 2020	June. 24 2021
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 25 2020	June. 24 2021
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 25 2020	June. 24 2021
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 25 2020	June. 24 2021
15	Band filter	Amindeon	82346	GTS219	June. 25 2020	June. 24 2021
16	Power Meter	Anritsu	ML2495A	GTS540	June. 25 2020	June. 24 2021
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 25 2020	June. 24 2021
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 25 2020	June. 24 2021
19	Splitter	Agilent	11636B	GTS237	June. 25 2020	June. 24 2021
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 25 2020	June. 24 2021
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 18 2020	Oct. 17 2021
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 18 2020	Oct. 17 2021
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 18 2020	Oct. 17 2021
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 25 2020	June. 24 2021

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.15 2019	May.14 2022
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 25 2020	June. 24 2021
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 25 2020	June. 24 2021
4	ENV216 2-L-V-NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	GTS226	June. 25 2020	June. 24 2021
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Thermo meter	KTJ	TA328	GTS233	June. 25 2020	June. 24 2021
8	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	June. 25 2020	June. 24 2021
9	ISN	SCHWARZBECK	NTFM 8158	GTD565	June. 25 2020	June. 24 2021

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 25 2020	June. 24 2021
2	Barometer	ChangChun	DYM3	GTS255	June. 25 2020	June. 24 2021

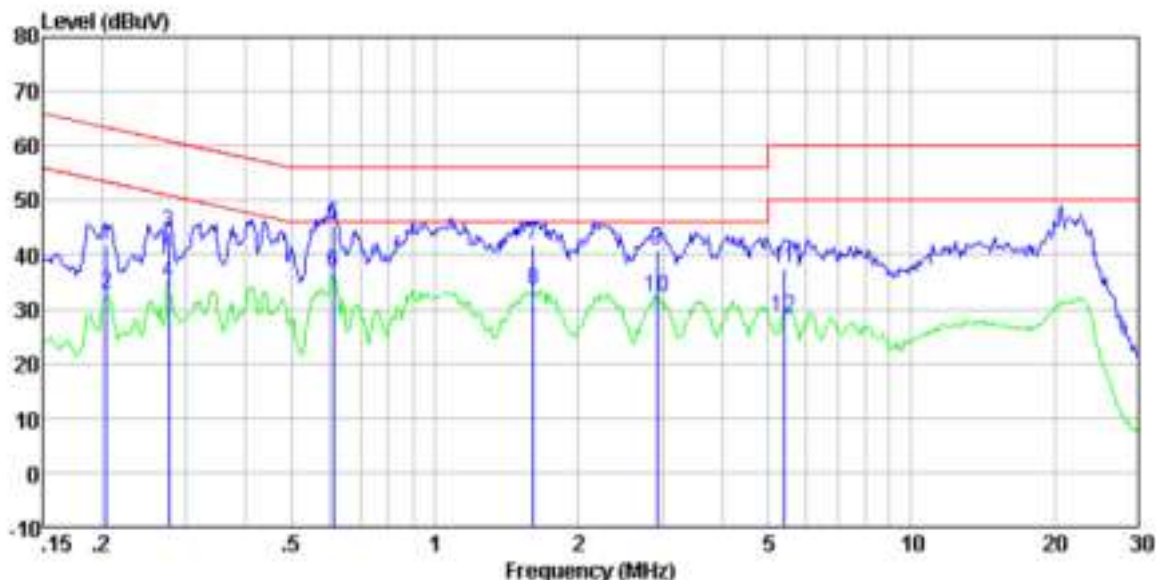
7 Test results and Measurement Data

7.1 Conducted Emissions

Test Requirement:	FCC Part15 B Section 15.107					
Test Method:	ANSI C63.4:2014					
Test Frequency Range:	150kHz to 30MHz					
Class / Severity:	Class B					
Receiver setup:	RBW=9kHz, VBW=30kHz					
Limit:	Frequency range (MHz)		Limit (dBμV)			
			Quasi-peak		Average	
	0.15-0.5		66 to 56*		56 to 46*	
Test setup:	<p>Method: E.U.T. Equipment under test LISN Line impedance stabilization network Test table height: 0.8m</p>					
	Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:
Test Instruments:	Refer to section 6 for details					
Test mode:	Refer to section 5.2 for details only show the worst case.					
Test results:	Pass					

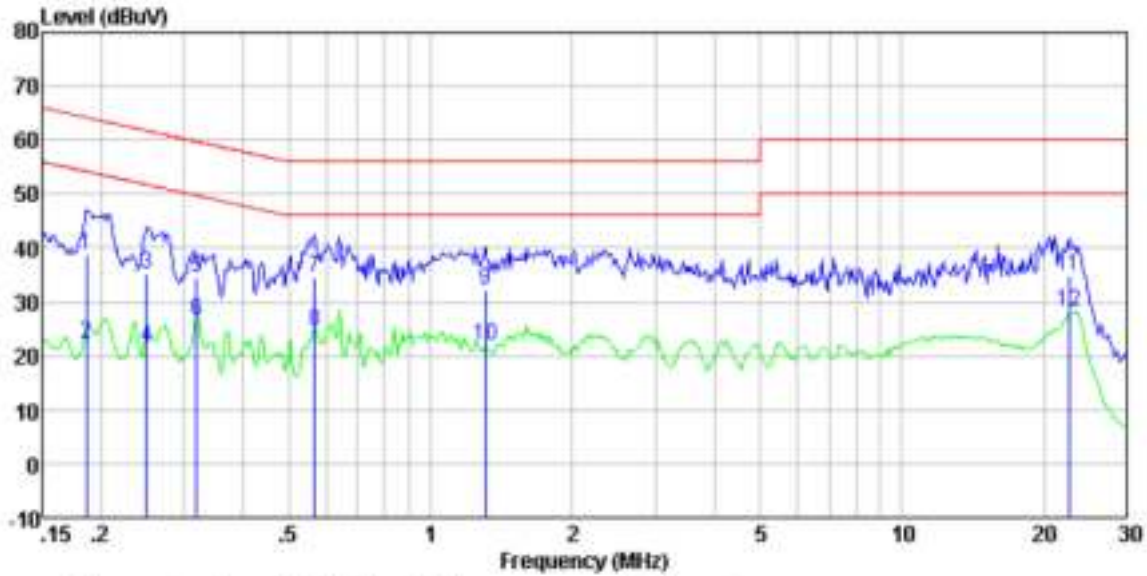
Measurement data

Test mode:	Charging mode	Phase Polarity:	Line
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Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.20	21.27	20.40	0.11	41.78	63.45	-21.67	QP
0.20	12.19	20.40	0.11	32.70	53.45	-20.75	Average
0.28	23.68	20.40	0.10	44.18	60.94	-16.76	QP
0.28	14.35	20.40	0.10	34.85	50.94	-16.09	Average
0.61	25.04	20.28	0.12	45.44	56.00	-10.56	QP
0.61	16.31	20.28	0.12	36.71	46.00	-9.29	Average
1.61	21.39	20.20	0.17	41.76	56.00	-14.24	QP
1.61	13.17	20.20	0.17	33.54	46.00	-12.46	Average
2.93	20.35	20.20	0.19	40.74	56.00	-15.26	QP
2.93	11.71	20.20	0.19	32.10	46.00	-13.90	Average
5.42	17.07	20.20	0.17	37.44	60.00	-22.56	QP
5.42	8.18	20.20	0.17	28.55	50.00	-21.45	Average

Test mode:	Charging mode	Phase Polarity:	Neutral
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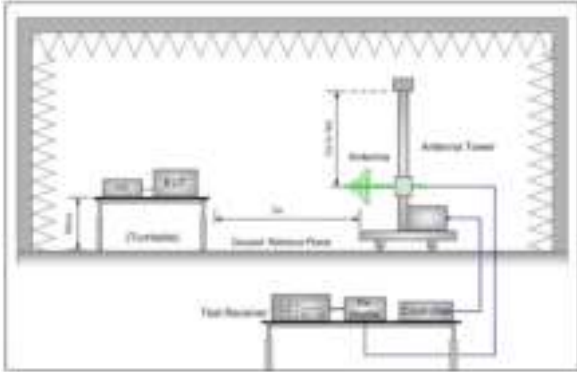
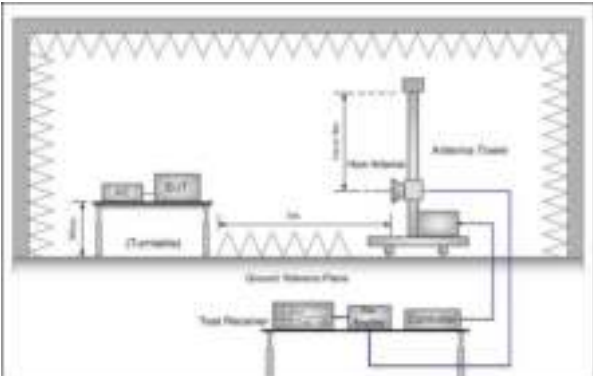


Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.19	18.40	20.40	0.10	38.90	64.20	-25.30	QP
0.19	1.66	20.40	0.10	22.16	54.20	-32.04	Average
0.25	14.71	20.40	0.10	35.21	61.78	-26.57	QP
0.25	1.11	20.40	0.10	21.61	51.78	-30.17	Average
0.32	14.14	20.39	0.10	34.63	59.75	-25.12	QP
0.32	5.89	20.39	0.10	26.38	49.75	-23.37	Average
0.57	14.03	20.29	0.12	34.44	56.00	-21.56	QP
0.57	4.11	20.29	0.12	24.52	46.00	-21.48	Average
1.31	11.83	20.20	0.16	32.19	56.00	-23.81	QP
1.31	1.36	20.20	0.16	21.72	46.00	-24.28	Average
22.66	14.12	20.33	0.23	34.68	60.00	-25.32	QP
22.66	7.49	20.33	0.23	28.05	50.00	-21.95	Average

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.

7.2 Radiated Emission

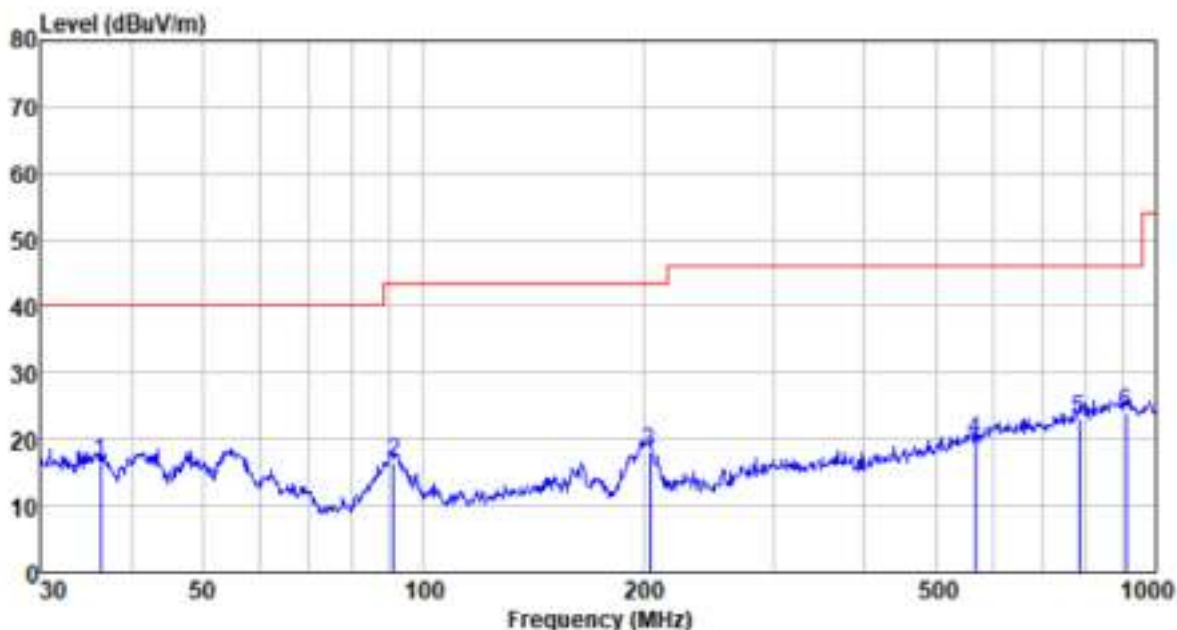
Test Requirement:	FCC Part15 B Section 15.109					
Test Method:	ANSI C63.4:2014					
Test Frequency Range:	30MHz to 6000MHz					
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)					
Receiver setup:	Frequency	Detector	RBW	VBW	Remark	
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value	
	Above 1GHz	Peak	1MHz	3MHz	Peak Value	
		Peak	1MHz	10Hz	Average Value	
Limit:	Frequency	Limit (dBuV/m @3m)		Remark		
	30MHz-88MHz	40.00		Quasi-peak Value		
	88MHz-216MHz	43.50		Quasi-peak Value		
	216MHz-960MHz	46.00		Quasi-peak Value		
	960MHz-1GHz	54.00		Quasi-peak Value		
	Above 1GHz	54.00		Average Value		
74.00		Peak Value				
Test setup:	For radiated emissions from 30MHz to1GHz					
						
Test setup:	For radiated emissions above 1GHz					
						
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1 012mbar

Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.2 for details only show the worst case.
Test results:	Pass

Measurement data

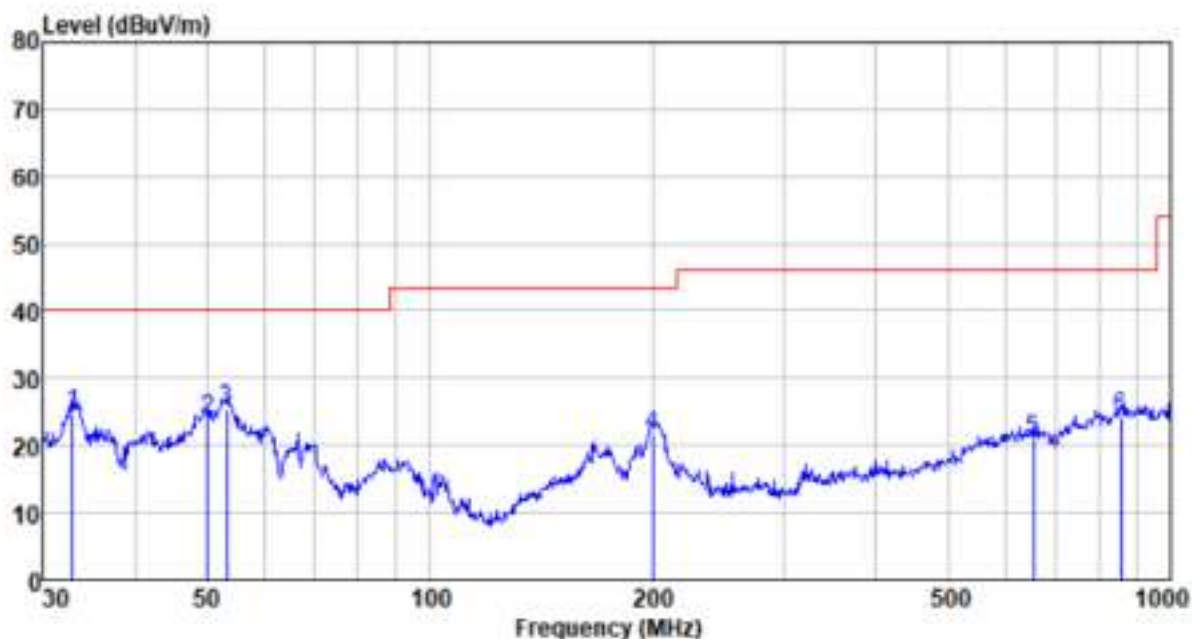
Below 1GHz

Test mode:	Charging mode	Antenna Polarity:	Horizontal
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Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
36.254	39.76	11.55	0.62	35.44	16.49	40.00	-23.51	QP
91.175	41.10	10.84	1.12	36.65	16.41	43.50	-27.09	QP
203.523	42.84	10.55	1.86	37.33	17.92	43.50	-25.58	QP
566.622	34.91	18.78	3.59	37.53	19.75	46.00	-26.25	QP
785.093	35.02	21.15	4.40	37.62	22.95	46.00	-23.05	QP
909.667	34.28	22.34	4.88	37.59	23.91	46.00	-22.09	QP

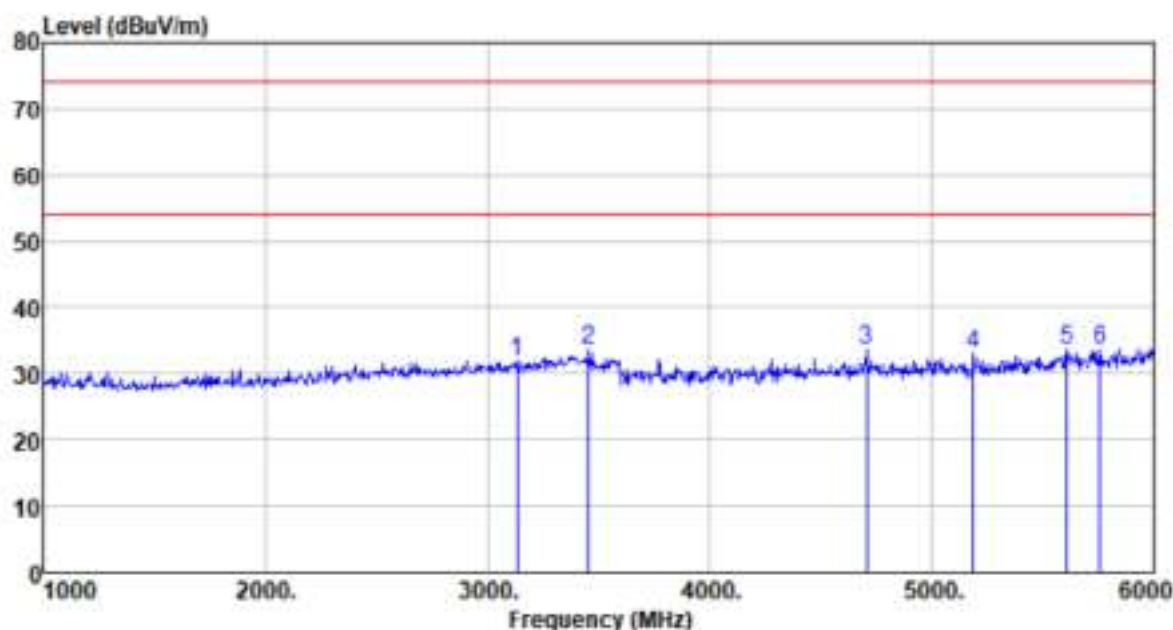
Test mode:	Charging mode	Antenna Polarity:	Vertical
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Freq MHz	Reading level dBuV	Antenna factor dB/a	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
32.979	48.24	11.26	0.59	35.22	24.87	40.00	-15.13	QP
50.057	46.99	12.30	0.77	36.18	23.88	40.00	-16.12	QP
53.131	48.70	11.98	0.80	36.23	25.25	40.00	-14.75	QP
199.986	46.65	10.40	1.94	37.33	21.56	43.50	-21.94	QP
651.942	35.14	19.55	3.92	37.59	21.02	46.00	-24.98	QP
857.025	35.11	21.92	4.68	37.61	24.10	46.00	-21.90	QP

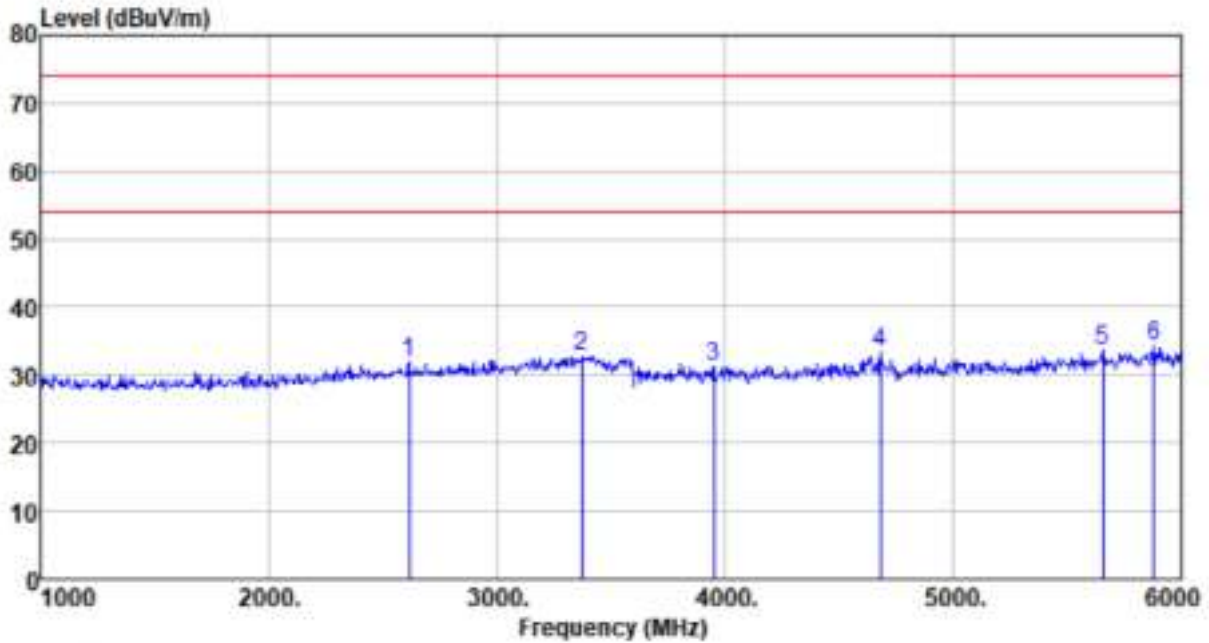
Above 1GHz

Test mode:	Charging mode	Antenna Polarity:	Horizontal
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Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
3135.000	37.35	28.40	3.56	37.31	32.00	74.00	-42.00	Peak
3455.000	38.88	28.40	3.69	37.35	33.62	74.00	-40.38	Peak
4705.000	35.63	31.05	4.56	37.69	33.55	74.00	-40.45	Peak
5185.000	34.16	31.57	4.98	37.53	33.18	74.00	-40.82	Peak
5605.000	33.25	31.88	5.31	36.93	33.51	74.00	-40.49	Peak
5755.000	32.80	32.15	5.43	36.73	33.65	74.00	-40.35	Peak

Test mode:	Charging mode	Antenna Polarity:	Vertical
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Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2615.000	37.94	27.88	3.12	37.03	31.91	74.00	-42.09	Peak
3370.000	38.12	28.40	3.63	37.34	32.81	74.00	-41.19	Peak
3950.000	35.04	29.65	3.91	37.40	31.20	74.00	-42.80	Peak
4680.000	35.44	31.00	4.54	37.68	33.30	74.00	-40.70	Peak
5655.000	33.35	31.97	5.35	36.87	33.80	74.00	-40.20	Peak
5880.000	33.00	32.39	5.52	36.56	34.35	74.00	-39.65	Peak

Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$

8 Test Setup Photo

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

9 EUT Constructional Details

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

----- End -----