



中认信通

CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)



TEST REPORT

Applicant: Shenzhen FreeYond Technology Co Ltd

Address: Unit 203,Block A,Tengfei Industrial Building,No.6Taohua Road,
Futian Bonded Area,Shenzhen, Guangdong, China

FCC ID: 2A8FE-F9

Product Name: Smart Phone

Standard(s): 47 CFR Part 15 Subpart B
ANSI C63.4-2014

The above equipment has been tested and found compliant with the requirement of the relative standards
by China Certification ICT Co., Ltd (Dongguan)

Report Number: CR22080020-00C

Date Of Issue: 2022-09-01

Reviewed By: Sun
Zhong

Sun Zhong

Title: Manager

Test Laboratory: China Certification ICT Co., Ltd (Dongguan)

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Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “▲”. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Smart Phone
EUT Model:	F9
Highest Operation Frequency:	2690 MHz
Rated Input Voltage:	DC 3.85V from battery or DC 5V from adapter
Serial Number:	CR22080020-RF-S1
EUT Received Date:	2022.08.15
EUT Received Status:	Good

Accessory Information:

Accessory Description	Manufacturer	Model	Parameters
Adapter	SHENZHEN EAST SUN ELECTRONIC CO., LTD.	ES568E-U050200XYF	Input: AC 100-240V~50/60Hz 0.5A Output: DC 5.0V 2A

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

EUT Operation Mode:	The system was configured for testing in Typical Use Mode, which was provided by the manufacturer. Test Mode: Downloading
Equipment Modifications:	No
EUT Exercise Software:	Winthrax.exe

1.2.2 Support Equipment List and Details

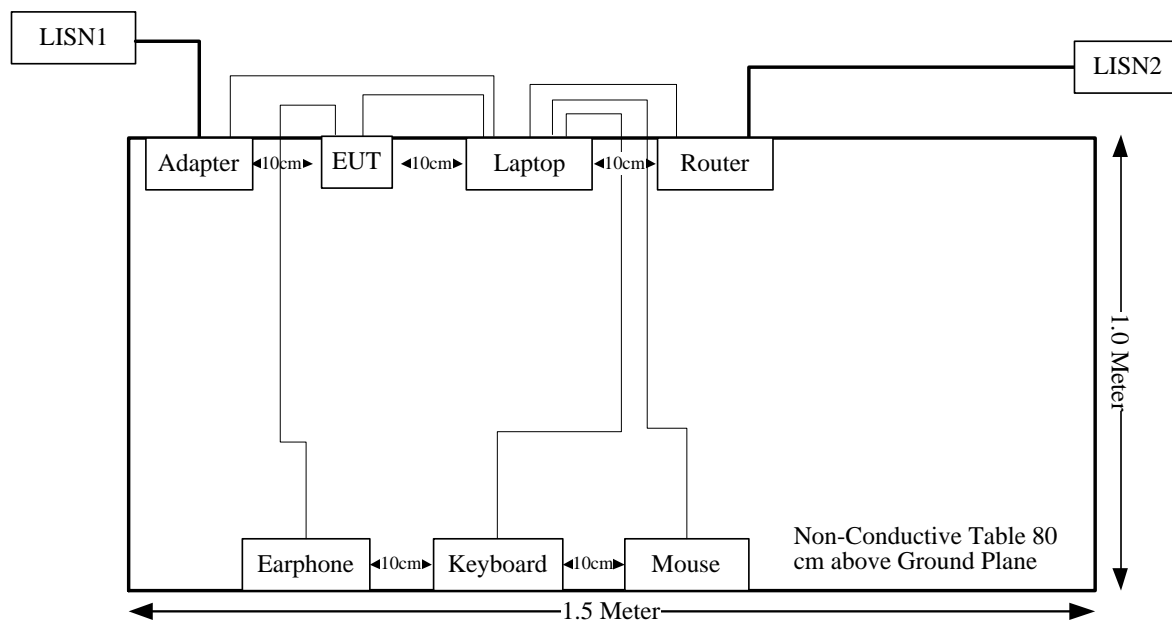
Manufacturer	Description	Model	Serial Number
Lenovo	Laptop	E480	PF-1QQYYYP 19/06
Unknown	Earphone	Unknown	Earphone 01
PHILIPS	Keyboard	SPK6234	K234210510742
PHILIPS	Mouse	SPK7214	M214BQ210411113
FAST	Router	FS05	11923811054

1.2.3 Support Cable List and Details

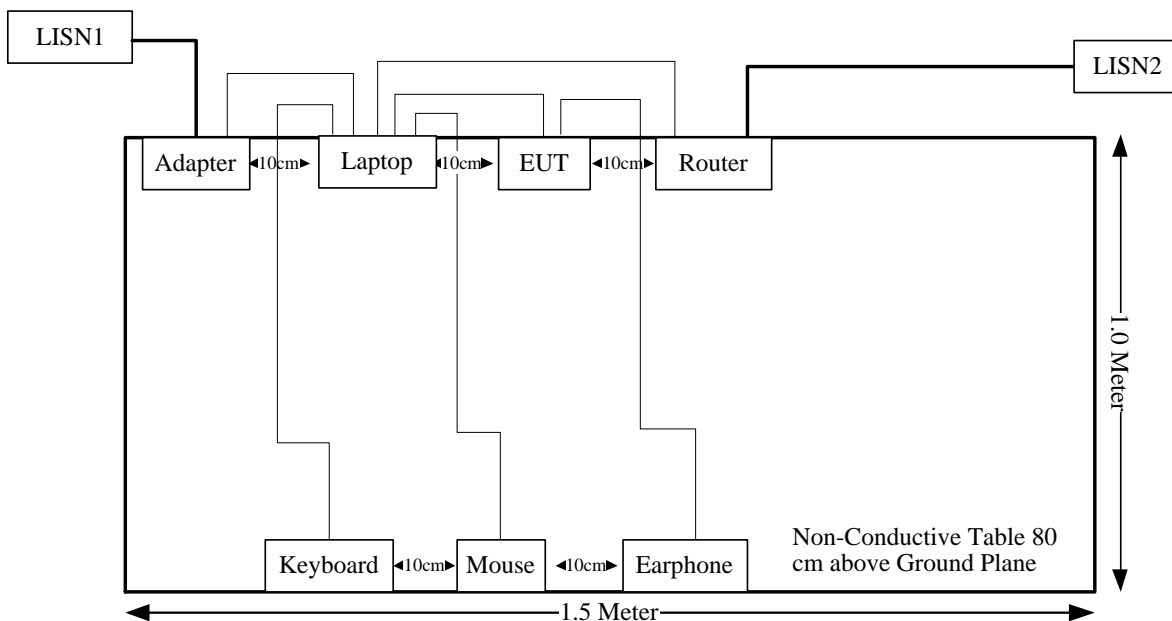
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Keyboard Cable	No	No	1.8	Keyboard	Laptop
Mouse Cable	No	No	2	Mouse	Laptop
Earphone Cable	No	No	2	EUT	Earphone
RJ45 Cable	No	No	1.2	Router	Laptop

1.2.4 Block Diagram of Test Setup

Conducted emissions:



Radiated emissions:



1.3 Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	30M~200MHz: 4.15 dB, 200M~1GHz: 5.61 dB, 1G~6GHz: 5.14 dB, 6G~18GHz: 5.93 dB, 18G~26.5G: 5.47 dB, 26.5G~40G: 5.63 dB
Temperature	$\pm 1^{\circ}\text{C}$
Humidity	$\pm 5\%$
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)

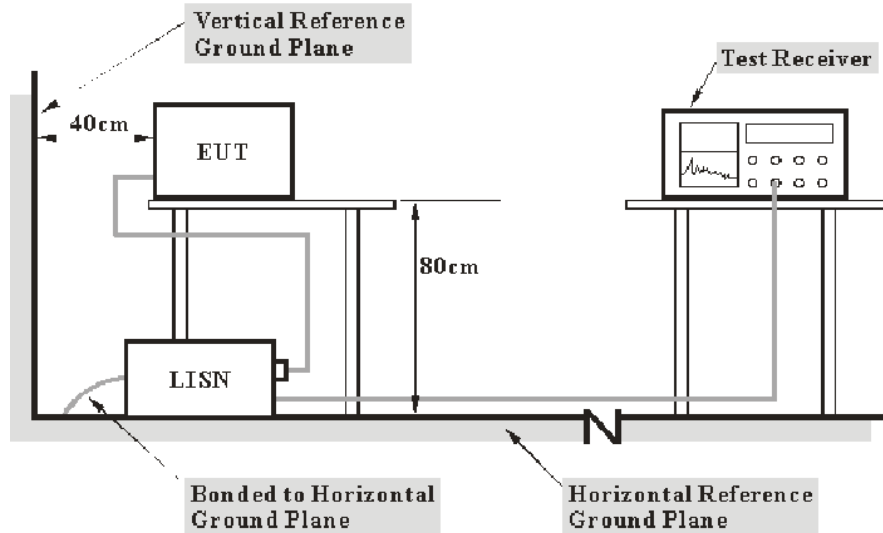
2. SUMMARY OF TEST RESULTS

Standard(s) Section	Description of Test	Result
§15.107	Conducted emissions	Compliant
§15.109	Radiated emissions	Compliant

3. REQUIREMENTS AND TEST PROCEDURES

3.1 AC Line Conducted Emissions

3.1.1 EUT Setup



Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter was connected to the main LISN with a 120 V/60 Hz AC power source.

3.1.2 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

3.1.3 Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT, the report shall list the six emissions with the smallest margin relative to the limit, unless the margin is greater than 20 dB.

All data was recorded in the Quasi-peak and average detection mode.

The report shall list the six emissions with the smallest margin relative to the limit, unless the margin is greater than 20 dB.

3.1.4 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

Factor = attenuation caused by cable loss + voltage division factor of AMN

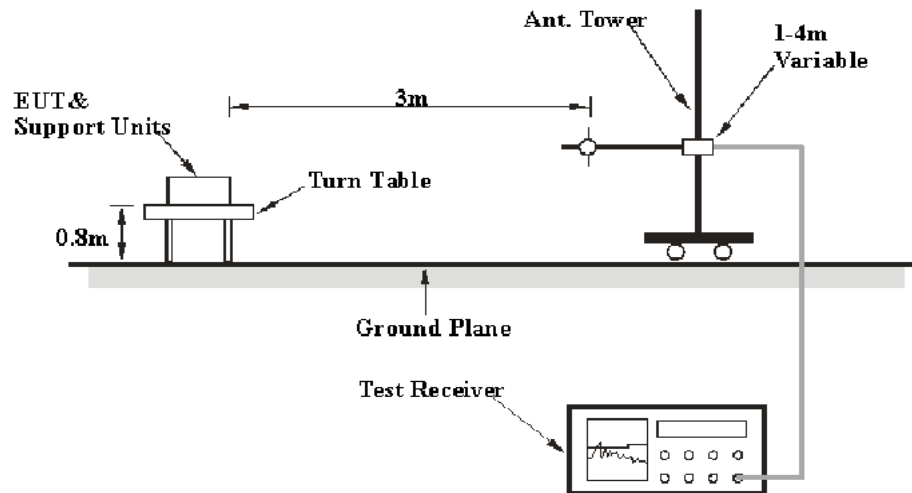
The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

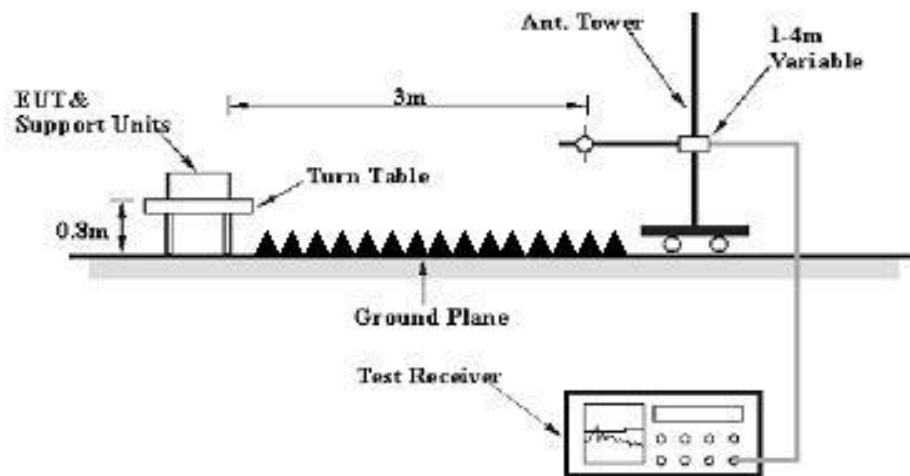
3.2 Radiation Spurious Emissions

3.2.1 EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was with the FCC Part 15 B Class B limits.

3.2.2 EMI Test Receiver Setup

The system was investigated from 30 MHz to 13.5 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
	1 MHz	3 MHz	/	AVG

If the maximized peak measured value complies with under the limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

3.2.3 Test Procedure

During the radiated emissions, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The data was recorded in the Quasi-peak detection mode for below 1 GHz, peak and average detection mode above 1 GHz.

All emissions under the average limit and under the noise floor have not recorded in the report.

3.2.4 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

Factor = Antenna Factor + Cable Loss- Amplifier Gain

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

4. TEST DATA AND RESULTS

4.1 AC Line Conducted Emissions

Serial Number:	CR22080020-RF-S1	Test Date:	2022-08-19
Test Site:	CE	Test Mode:	Downloading
Tester:	Vic Du	Test Result:	Pass

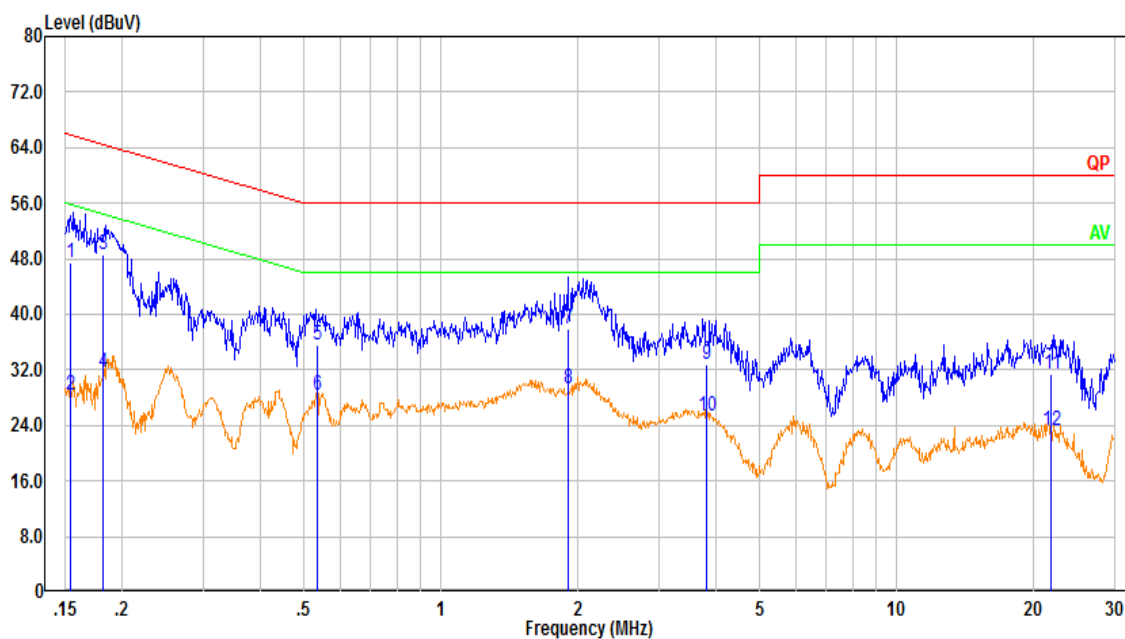
Environmental Conditions:

Temperature: (°C)	25.5	Relative Humidity: (%)	57	ATM Pressure: (kPa)	99.9
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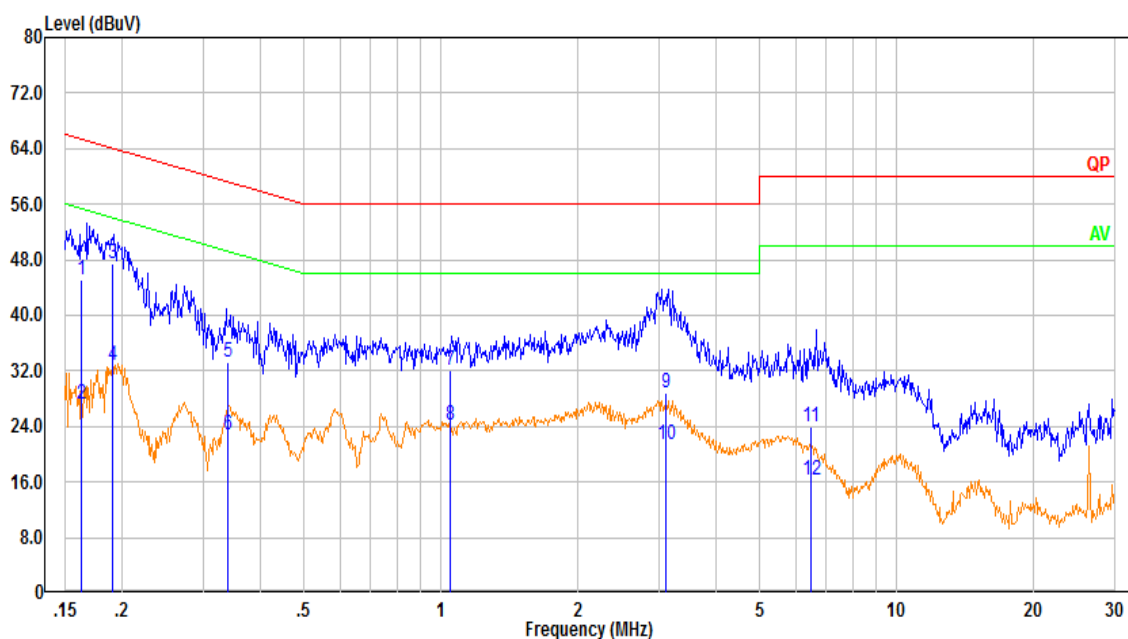
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2022-04-01	2023-03-31
R&S	LISN	ENV216	101132	2022-04-01	2023-03-31
R&S	EMI Test Receiver	ESR3	102726	2022-07-15	2023-07-14
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2022-08-07	2023-08-06
Audix	Test Software	E3	190306 (V9)	N/A	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Line:

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.154	37.72	9.61	47.33	65.80	18.47	QP
2	0.154	18.65	9.61	28.26	55.80	27.54	Average
3	0.181	38.95	9.61	48.56	64.42	15.86	QP
4	0.181	22.03	9.61	31.64	54.42	22.78	Average
5	0.534	25.87	9.61	35.48	56.00	20.52	QP
6	0.534	18.78	9.61	28.39	46.00	17.61	Average
7	1.900	28.31	9.63	37.94	56.00	18.06	QP
8	1.900	19.63	9.63	29.26	46.00	16.74	Average
9	3.832	23.09	9.65	32.74	56.00	23.26	QP
10	3.832	15.68	9.65	25.33	46.00	20.67	Average
11	21.855	21.58	9.81	31.39	60.00	28.61	QP
12	21.855	13.38	9.81	23.19	50.00	26.81	Average

Neutral:

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.163	35.43	9.61	45.04	65.32	20.28	QP
2	0.163	17.62	9.61	27.23	55.32	28.09	Average
3	0.190	37.73	9.61	47.34	64.04	16.70	QP
4	0.190	23.26	9.61	32.87	54.04	21.17	Average
5	0.341	23.62	9.61	33.23	59.18	25.95	QP
6	0.341	13.09	9.61	22.70	49.18	26.48	Average
7	1.048	22.56	9.62	32.18	56.00	23.82	QP
8	1.048	14.64	9.62	24.26	46.00	21.74	Average
9	3.111	19.10	9.65	28.75	56.00	27.25	QP
10	3.111	11.64	9.65	21.29	46.00	24.71	Average
11	6.470	14.23	9.66	23.89	60.00	36.11	QP
12	6.470	6.66	9.66	16.32	50.00	33.68	Average

4.2 Radiation Spurious Emissions

Serial Number:	CR22080020-RF-S1	Test Date:	2022-08-24~2022-08-25
Test Site:	966-1, 966-2	Test Mode:	Downloading
Tester:	Carl Xue, Mack Huang	Test Result:	Pass

Environmental Conditions:

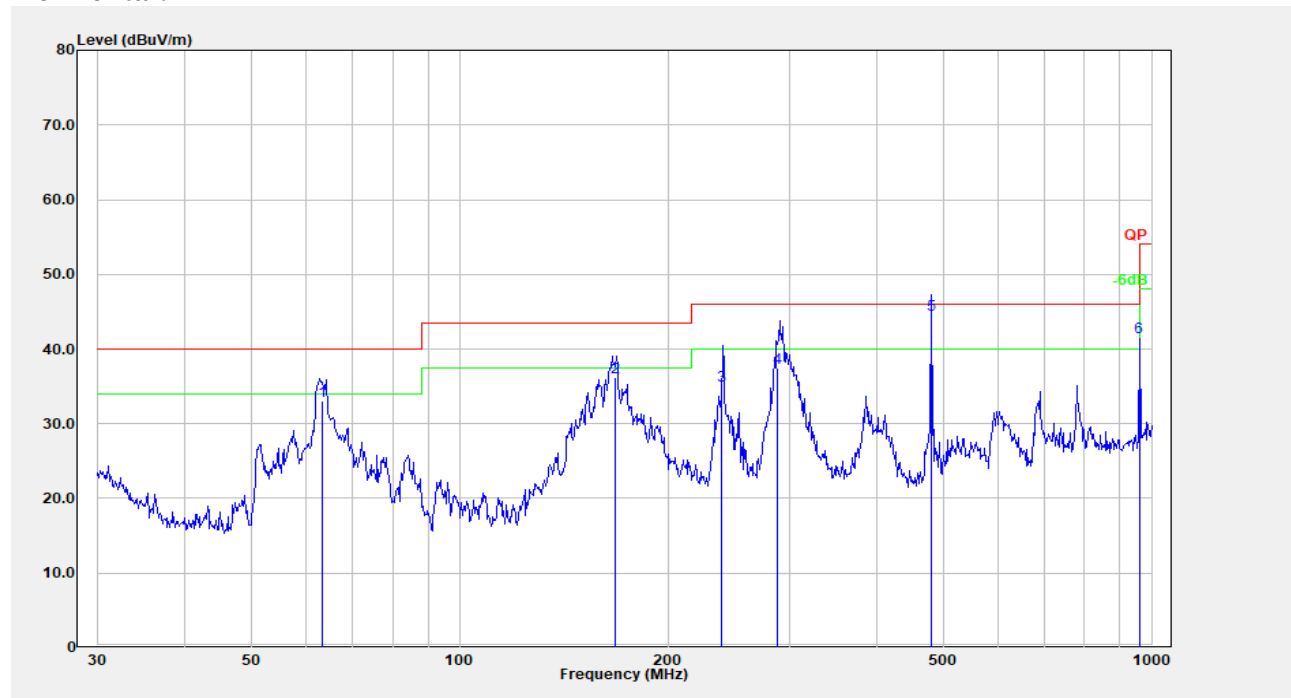
Temperature: (°C)	26.1~26.9	Relative Humidity: (%)	53~56	ATM Pressure: (kPa)	100.0~100.2
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Test Equipment List and Details:

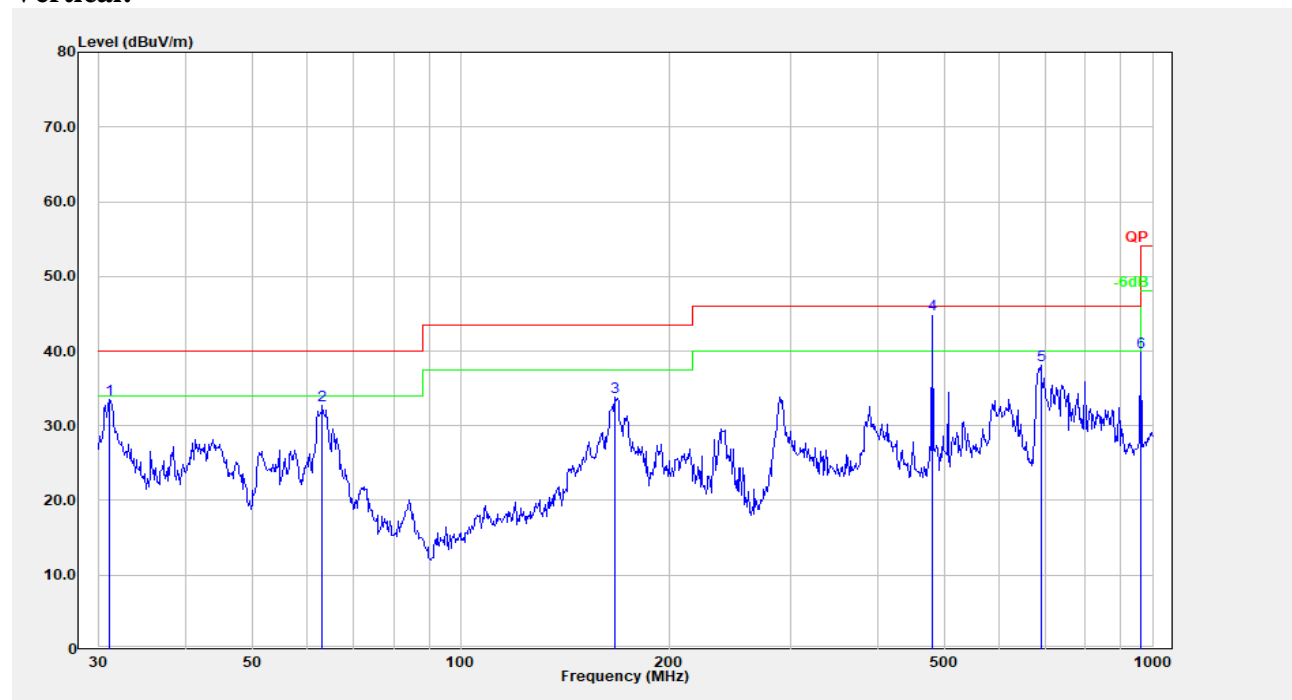
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-5	2020-10-19	2023-10-18
R&S	EMI Test Receiver	ESR3	102724	2022-07-15	2023-07-14
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2022-07-17	2023-07-16
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2022-07-17	2023-07-16
Sonoma	Amplifier	310N	186165	2022-07-17	2023-07-16
Audix	Test Software	E3	201021 (V9)	N/A	N/A
ETS-Lindgren	Horn Antenna	3115	9912-5985	2020-10-13	2023-10-12
R&S	Spectrum Analyzer	FSV40	101591	2022-07-15	2023-07-14
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2022-08-07	2023-08-06
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2022-08-07	2023-08-06
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2021-11-10	2022-11-09
E-Microwave	Band Rejection Filter	2400-2483.5MHz	OE01902424	2022-08-07	2023-08-06
Mini Circuits	High Pass Filter	VHF-6010+	31119	2022-08-07	2023-08-06

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

1) 30MHz-1GHz:

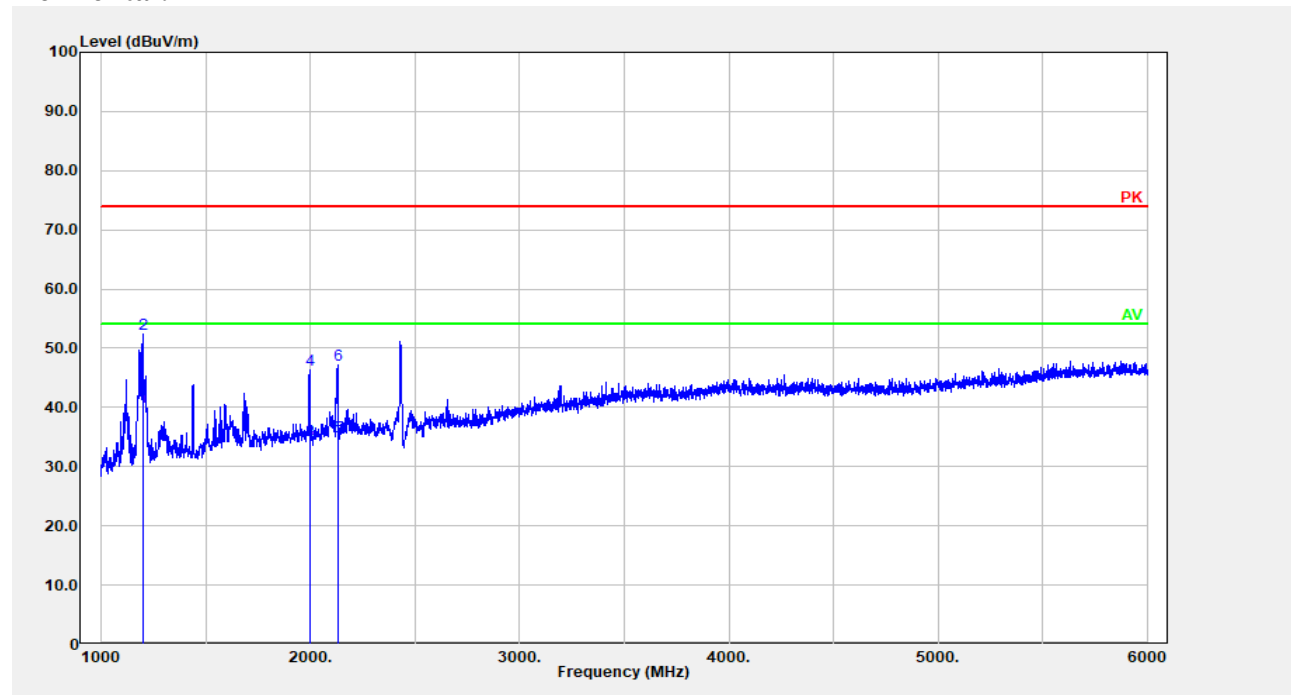
Horizontal:

No.	Frequency (MHz)	Reading (dBUV)	Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector
1	63.244	50.44	-17.33	33.11	40.00	6.89	QP
2	167.959	49.17	-12.97	36.20	43.50	7.30	QP
3	239.163	48.35	-13.18	35.17	46.00	10.83	QP
4	287.931	48.82	-11.35	37.47	46.00	8.53	QP
5	480.009	51.12	-6.48	44.64	46.00	1.36	QP
6	960.009	41.66	-0.15	41.51	54.00	12.49	QP

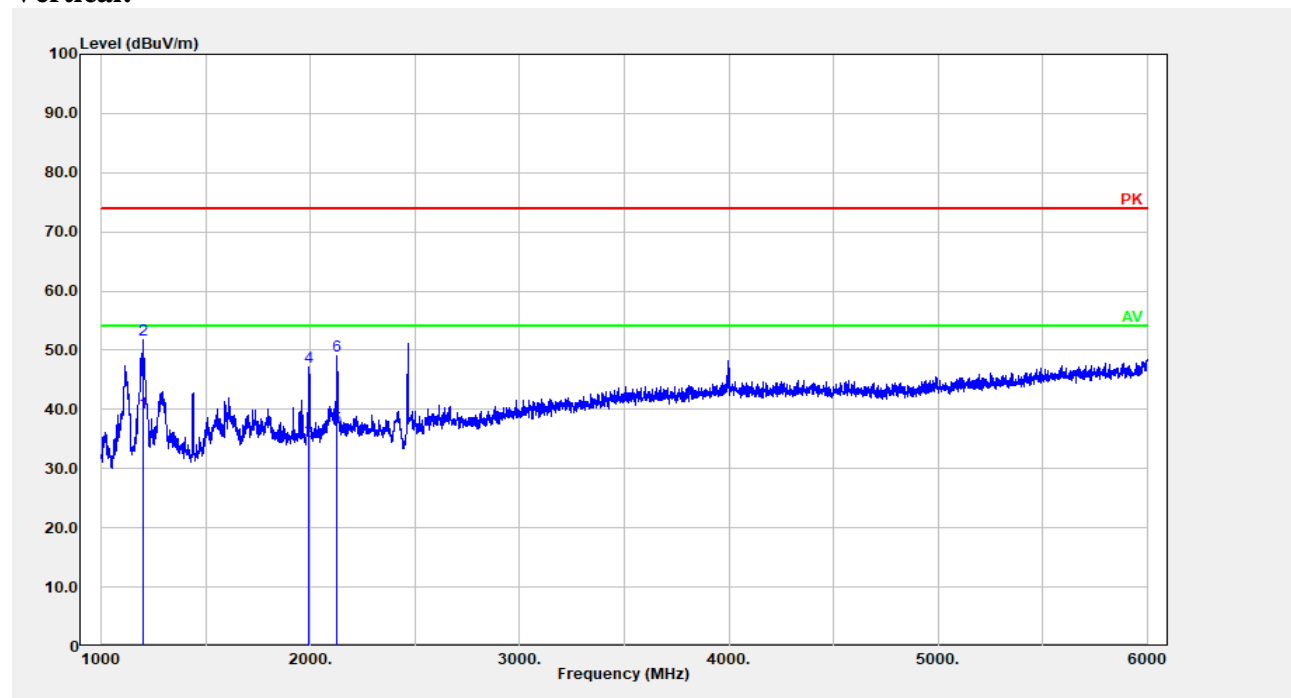
Vertical:

No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	31.071	38.10	-4.61	33.49	40.00	6.51	Peak
2	63.092	50.05	-17.33	32.72	40.00	7.28	Peak
3	167.237	46.79	-12.94	33.85	43.50	9.65	Peak
4	480.528	51.40	-6.49	44.91	46.00	1.09	QP
5	689.565	41.88	-3.75	38.13	46.00	7.87	Peak
6	962.162	39.88	-0.09	39.79	54.00	14.21	Peak

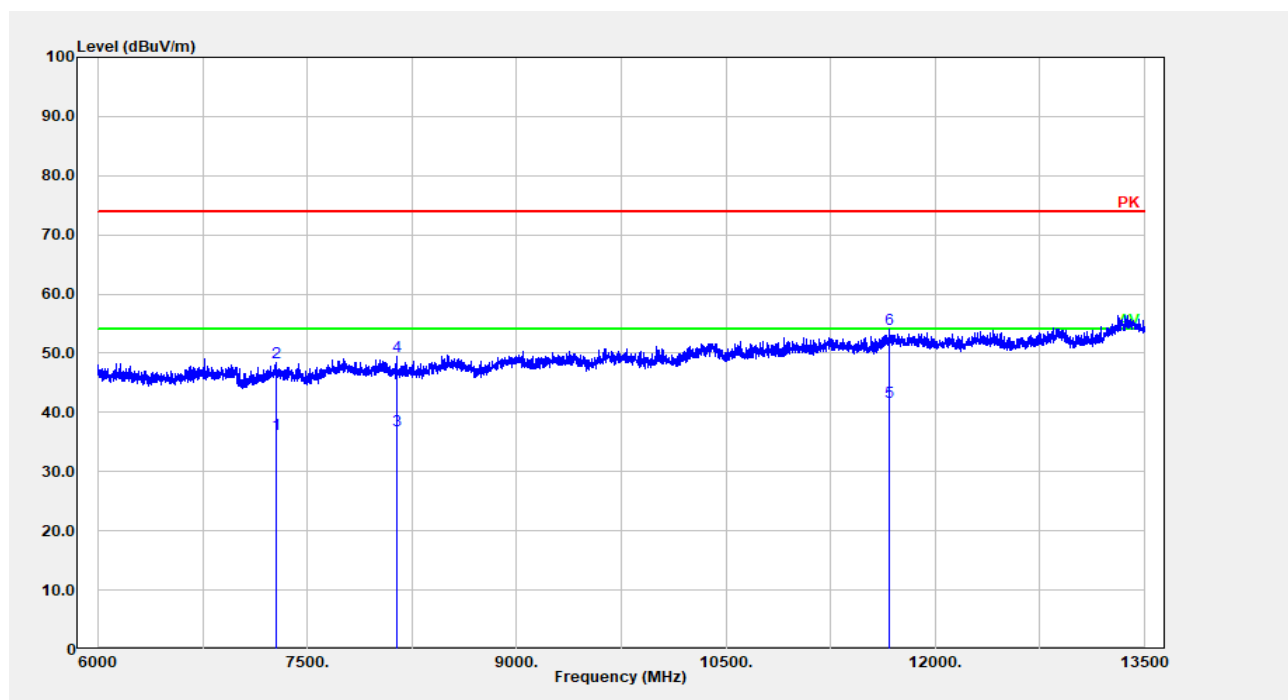
2) Above 1GHz

Horizontal:

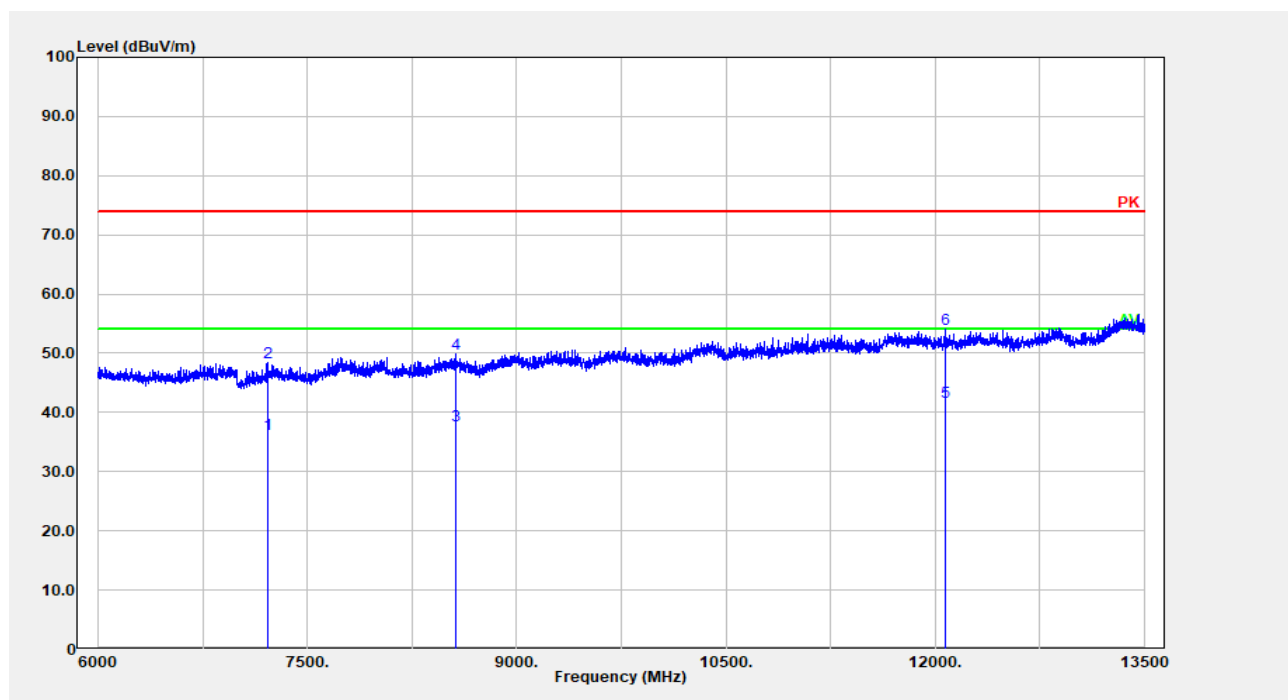
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector
1	1199.040	42.13	-1.95	40.18	54.00	13.82	Average
2	1199.040	54.25	-1.95	52.30	74.00	21.70	Peak
3	1998.200	32.03	2.36	34.39	54.00	19.61	Average
4	1998.200	44.06	2.36	46.42	74.00	27.58	Peak
5	2131.226	32.17	2.82	34.99	54.00	19.01	Average
6	2131.226	44.35	2.82	47.17	74.00	26.83	Peak

Vertical:

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	1200.040	41.42	-1.95	39.47	54.00	14.53	Average
2	1200.040	53.72	-1.95	51.77	74.00	22.23	Peak
3	1990.198	32.42	2.33	34.75	54.00	19.25	Average
4	1990.198	44.85	2.33	47.18	74.00	26.82	Peak
5	2129.226	34.12	2.81	36.93	54.00	17.07	Average
6	2129.226	46.24	2.81	49.05	74.00	24.95	Peak

Horizontal:

No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	7273.755	22.09	14.23	36.32	54.00	17.68	Average
2	7273.755	34.19	14.23	48.42	74.00	25.58	Peak
3	8137.928	21.45	15.57	37.02	54.00	16.98	Average
4	8137.928	33.90	15.57	49.47	74.00	24.53	Peak
5	11674.130	21.41	20.30	41.71	54.00	12.29	Average
6	11674.130	33.83	20.30	54.13	74.00	19.87	Peak

Vertical:

No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	7218.244	22.24	14.03	36.27	54.00	17.73	Average
2	7218.244	34.48	14.03	48.51	74.00	25.49	Peak
3	8562.513	21.10	16.69	37.79	54.00	16.21	Average
4	8562.513	33.21	16.69	49.90	74.00	24.10	Peak
5	12070.210	21.23	20.51	41.74	54.00	12.26	Average
6	12070.210	33.47	20.51	53.98	74.00	20.02	Peak

===== END OF REPORT =====