



# TEST REPORT

**Applicant: Ofree(Fujian)Electronics Technology Co.,Ltd.**

Address: 9 Shugang Road, Dongqiao Economic Development Zone, Ningde City, Fujian Province, China

**FCC ID: 2A227-S8**

**Product Name: Massage chair**

**Model Number: S8**

**Multiple Models: S1, S2, S3, S4, S5, S6, S7, S9, S10, Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10, R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, M1, M2, M3, M4, M5, M6, M7, M8, M9, M10**

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

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

**Report Number: CR21100099-00**

**Date Of Issue: 2021-12-21**

**Reviewed By: Sun Zhong** *Sun Zhong*

Title: Manager

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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)

<b>EUT Name:</b>	Massage chair
<b>EUT Model:</b>	S8
<b>Multiple Models:</b>	S1, S2, S3, S4, S5, S6, S7, S9, S10, Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10, R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, M1, M2, M3, M4, M5, M6, M7, M8, M9, M10
<b>Highest Operation Frequency:</b>	2480 MHz
<b>Rated Input Voltage:</b>	AC 120V/60Hz
<b>Serial Number:</b>	CR21100099-EM-S1
<b>EUT Received Date:</b>	2021.11.02
<b>EUT Received Status:</b>	GOOD

Note: The Multiple models are identical with Test model, please refer to the declaration letter for more detail, which was provided by manufacturer.

### Accessory Information:

Accessory Description	Manufacturer	Model	Parameters
Power Cable	Unknown	Unknown	Unshielding, 1.2m

## 1.2 Description of Test Configuration

### 1.2.1 EUT Operation Condition:

<b>EUT Operation Mode:</b>	The system was configured for testing in Typical Use Mode, which was provided by the manufacturer. Test Mode: Operating
<b>Equipment Modifications:</b>	No
<b>EUT Exercise Software:</b>	No

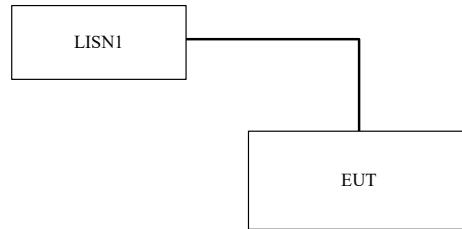
### 1.2.2 Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
/	/	/	/

### 1.2.3 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
/	/	/	/	/	/

### 1.2.4 Block Diagram of Test Setup



### 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	±1°C
Humidity	±5%
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)

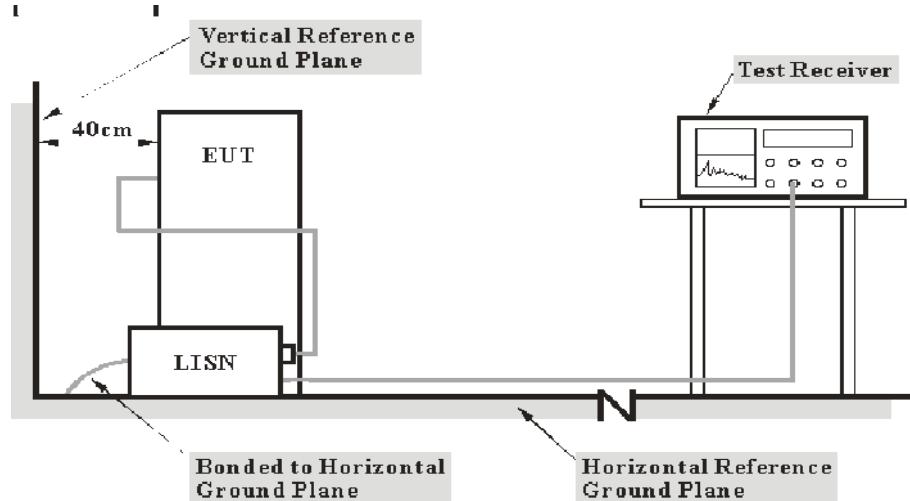
## 2. SUMMARY OF TEST RESULTS

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

### 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 EUT 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 EUT 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

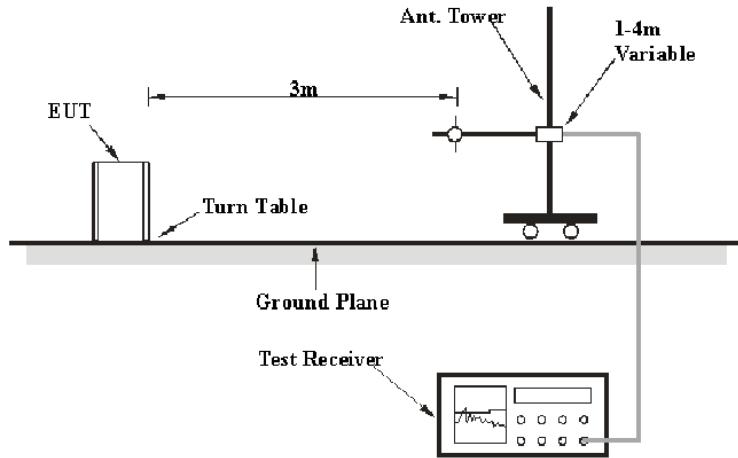
The “Margin” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

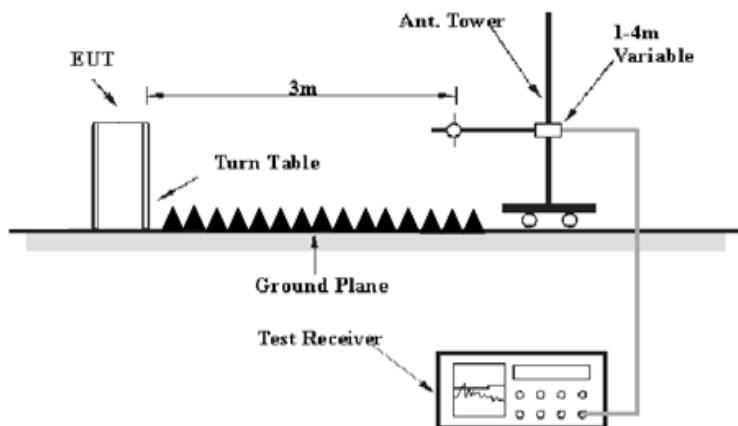
### 3.2 Radiation Spurious Emissions

#### 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 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	Measurement
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
	1 MHz	Reduced video bandwidth	/	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 EUT 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:	CR21100099-EM-S1	Test Date:	2021-12-14
Test Site:	CE	Test Mode:	Operating
Tester:	Nick Tang	Test Result:	Pass

#### Environmental Conditions:

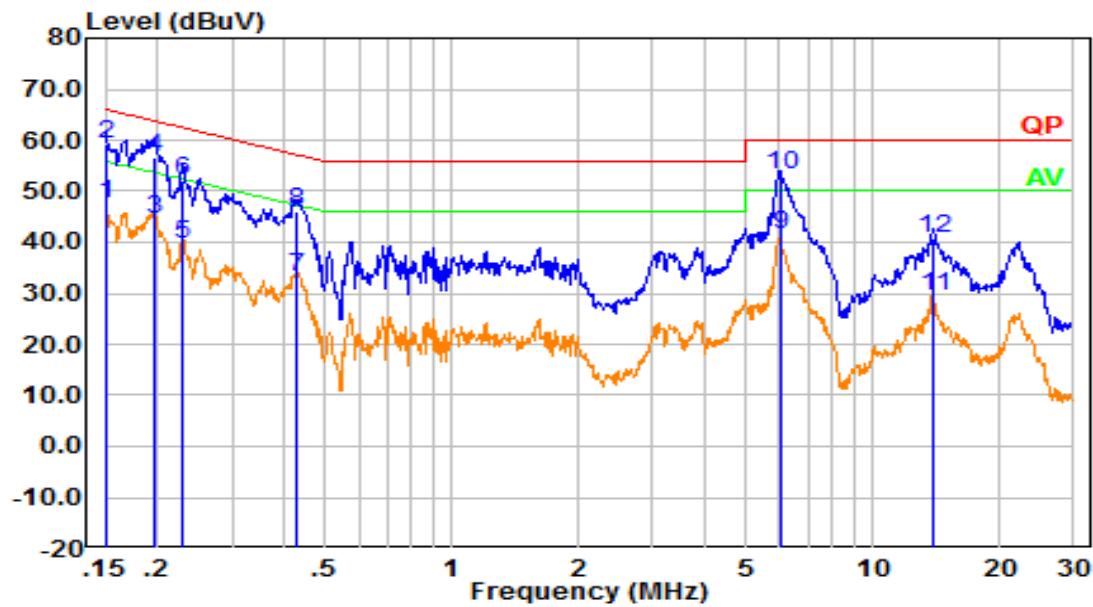
Temperature: (°C)	20.8	Relative Humidity: (%)	59	ATM Pressure: (kPa)	101.8
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#### Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2021-04-25	2022-04-24
R&S	EMI Test Receiver	ESR3	102726	2021-07-22	2022-07-21
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2021-08-08	2022-08-07
Audix	Test Software	E3	190306 (V9)	N/A	N/A

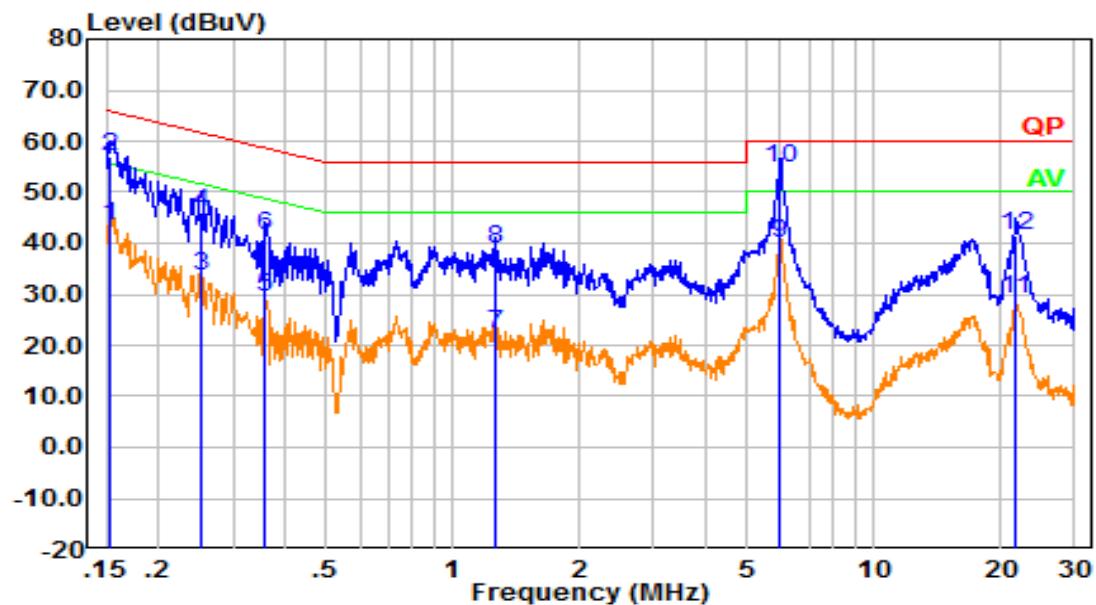
\* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Line:



No.	Frequency (MHz)	Reading (dB $\mu$ V)	Factor (dB)	Result (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Detector
1	0.151	37.75	9.61	47.36	55.96	8.60	Average
2	0.151	49.53	9.61	59.14	65.96	6.82	QP
3	0.195	34.75	9.61	44.36	53.81	9.45	Average
4	0.195	47.02	9.61	56.63	63.81	7.18	QP
5	0.228	30.03	9.61	39.64	52.52	12.88	Average
6	0.228	42.50	9.61	52.11	62.52	10.41	QP
7	0.425	23.67	9.61	33.28	47.35	14.07	Average
8	0.425	36.56	9.61	46.17	57.35	11.18	QP
9	6.027	31.70	9.66	41.36	50.00	8.64	Average
10	6.027	43.60	9.66	53.26	60.00	6.74	QP
11	13.994	19.79	9.68	29.47	50.00	20.53	Average
12	13.994	31.19	9.68	40.87	60.00	19.13	QP

Neutral:



No.	Frequency (MHz)	Reading (dB $\mu$ V)	Factor (dB)	Result (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Detector
1	0.152	33.71	9.61	43.32	55.88	12.56	Average
2	0.152	47.37	9.61	56.98	65.88	8.90	QP
3	0.251	24.03	9.61	33.64	51.74	18.10	Average
4	0.251	36.57	9.61	46.18	61.74	15.56	QP
5	0.359	19.73	9.61	29.34	48.76	19.42	Average
6	0.359	31.78	9.61	41.39	58.76	17.37	QP
7	1.260	12.52	9.62	22.14	46.00	23.86	Average
8	1.260	29.15	9.62	38.77	56.00	17.23	QP
9	5.997	30.37	9.66	40.03	50.00	9.97	Average
10	5.997	45.03	9.66	54.69	60.00	5.31	QP
11	21.698	19.15	9.72	28.87	50.00	21.13	Average
12	21.698	31.61	9.72	41.33	60.00	18.67	QP

## 4.2 Radiation Spurious Emissions

Serial Number:	CR21100099-EM-S1	Test Date:	2021-12-16
Test Site:	966-1, 966-2	Test Mode:	Operating
Tester:	Great Qiao	Test Result:	Pass

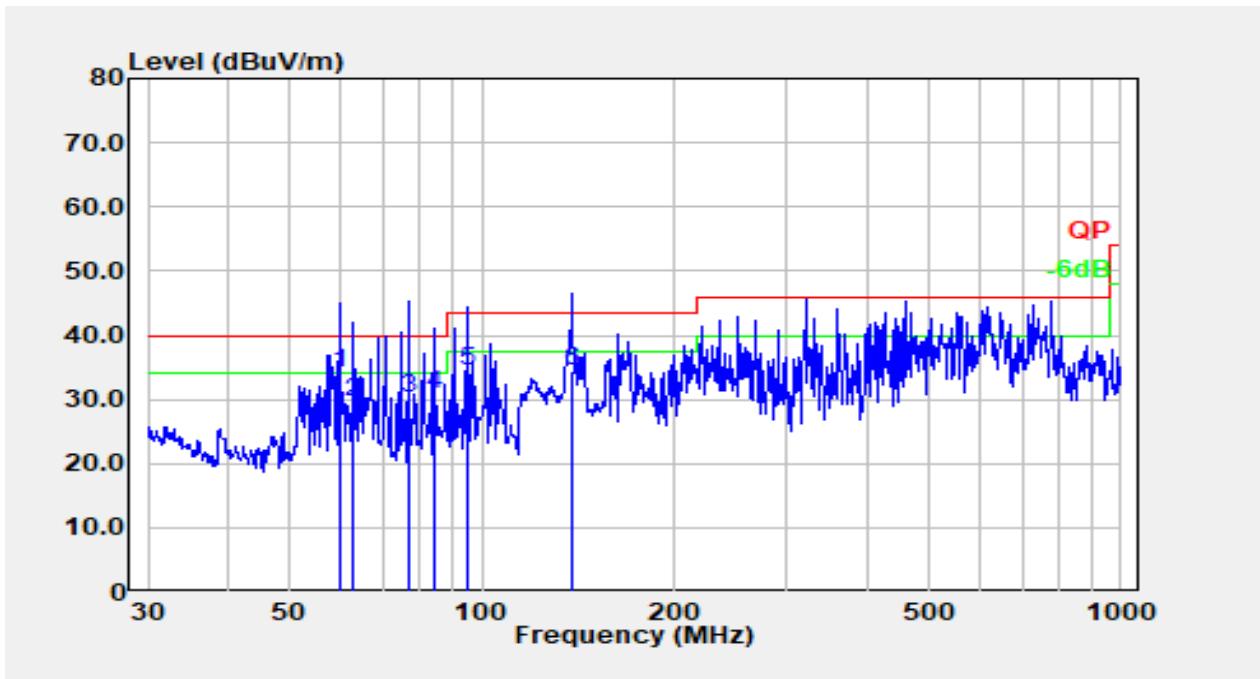
Environmental Conditions:					
Temperature: (°C)	21.5~22.3	Relative Humidity: (%)	53~56	ATM Pressure: (kPa)	101.1

### Test Equipment List and Details:

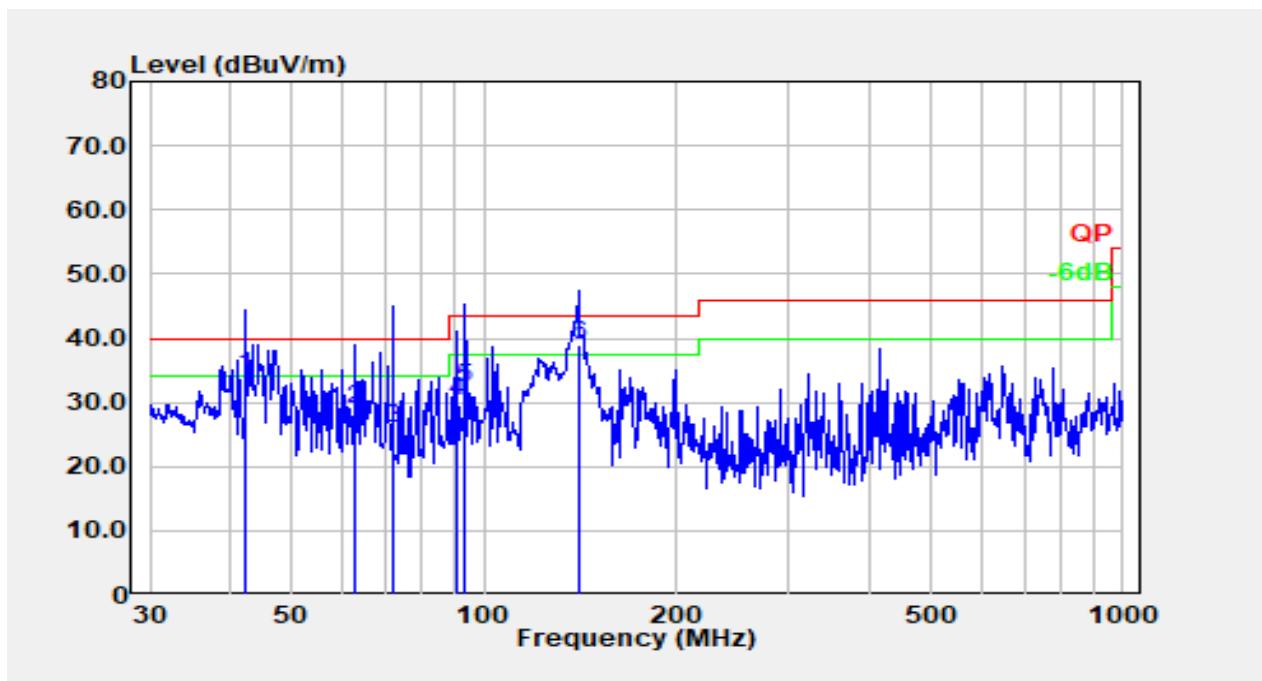
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-5	2020-10-19	2023-10-18
R&S	EMI Test Receiver	ESR3	102724	2021-07-22	2022-07-21
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2021-07-18	2022-07-17
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2021-07-18	2022-07-17
Sonoma	Amplifier	310N	186165	2021-07-18	2022-07-17
ETS-Lindgren	Horn Antenna	3115	9912-5985	2020-10-13	2023-10-12
R&S	Spectrum Analyzer	FSV40	101591	2021-07-22	2022-07-21
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2021-08-08	2022-08-07
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2021-08-08	2022-08-07
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2021-11-10	2022-11-09
Audix	Test Software	E3	201021 (V9)	N/A	N/A
E-Microwave	Band Rejection Filter	2400-2483.5MHz	OE01902424	2021-08-08	2022-08-07
Mini Circuits	High Pass Filter	VHF-6010+	31119	2021-08-08	2022-08-07

\* 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:

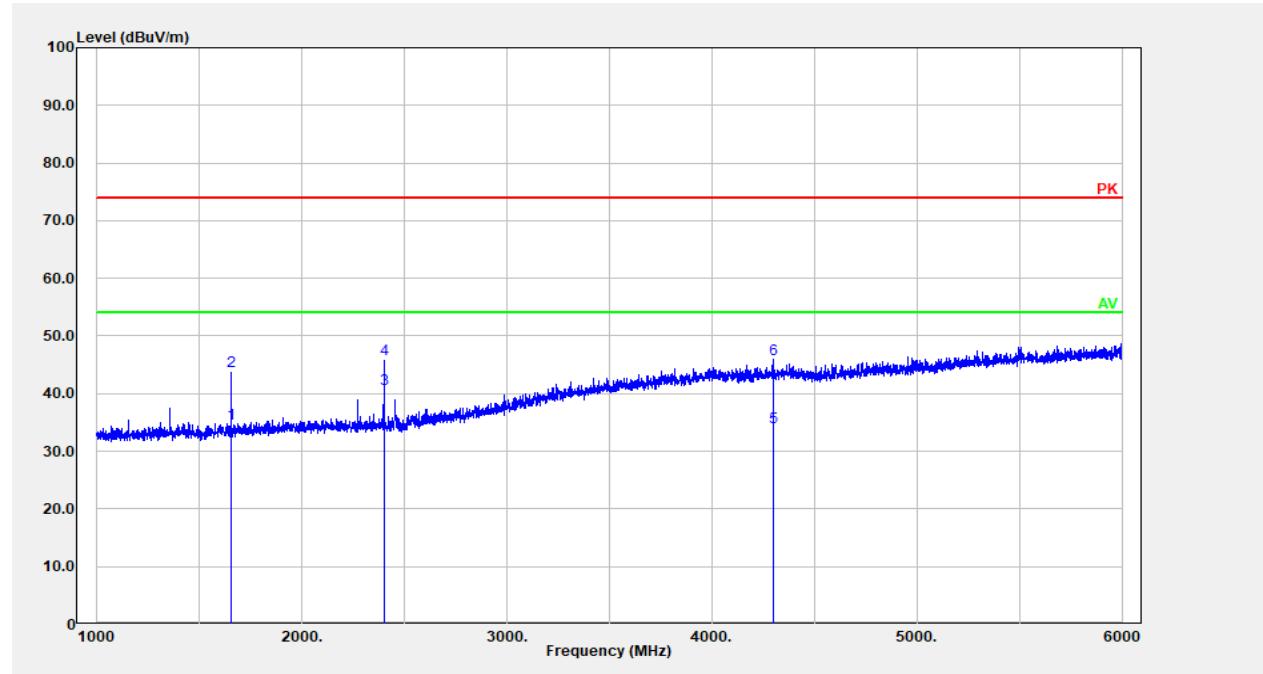
**Horizontal:**

No.	Frequency (MHz)	Reading (dB $\mu$ V)	Factor (dB/m)	Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
1	59.859	51.75	-17.64	34.11	40.00	5.89	QP
2	62.871	46.95	-17.36	29.59	40.00	10.41	QP
3	76.781	47.58	-17.36	30.22	40.00	9.78	QP
4	84.110	48.33	-17.48	30.85	40.00	9.15	QP
5	95.093	50.37	-15.83	34.54	43.50	8.96	QP
6	138.387	46.38	-12.06	34.32	43.50	9.18	QP

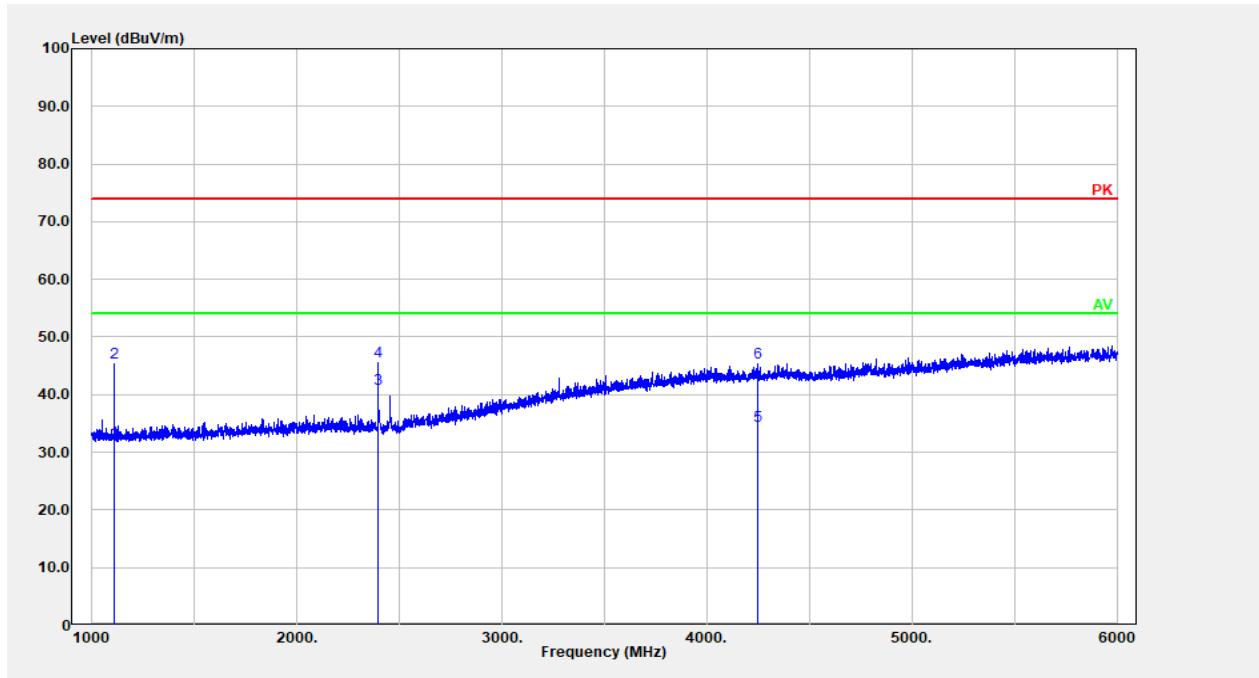
**Vertical:**

No.	Frequency (MHz)	Reading (dB $\mu$ V)	Factor (dB/m)	Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
1	42.302	46.89	-12.86	34.03	40.00	5.97	QP
2	62.871	46.21	-17.36	28.85	40.00	11.15	QP
3	72.084	43.02	-16.93	26.09	40.00	13.91	QP
4	90.537	47.32	-17.05	30.27	43.50	13.23	QP
5	93.440	48.65	-16.30	32.35	43.50	11.15	QP
6	140.342	51.22	-12.15	39.07	43.50	4.43	QP

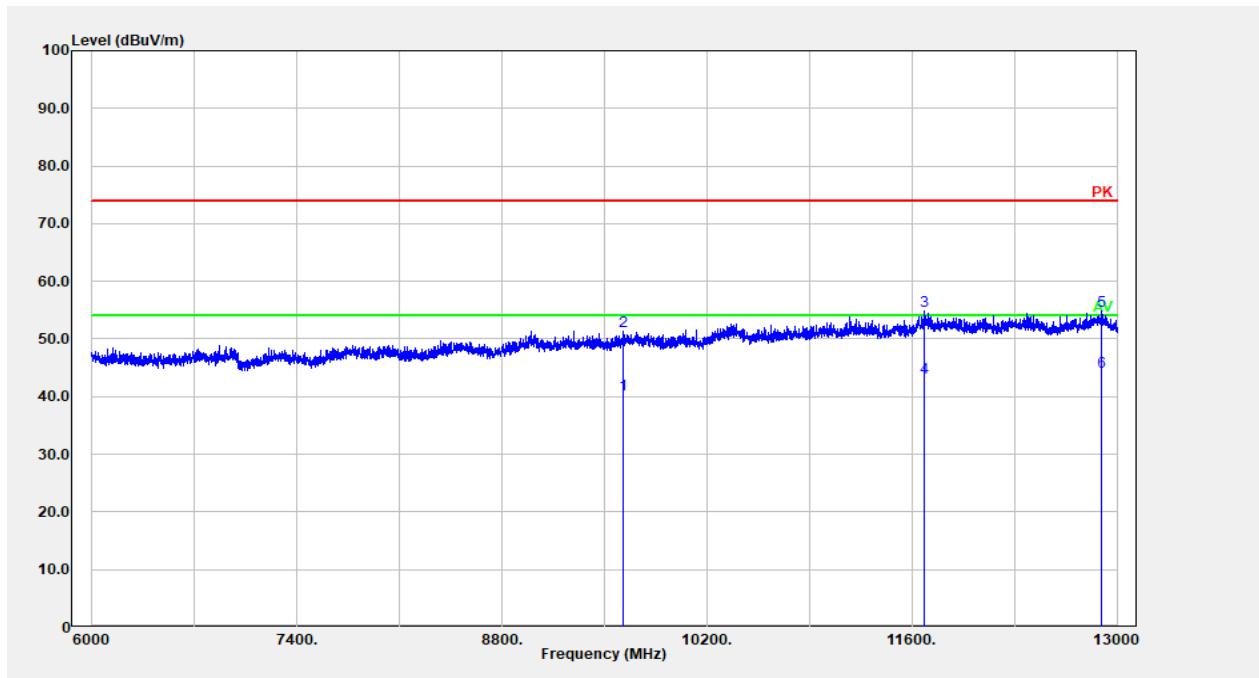
## 2) Above 1GHz

**Horizontal:**

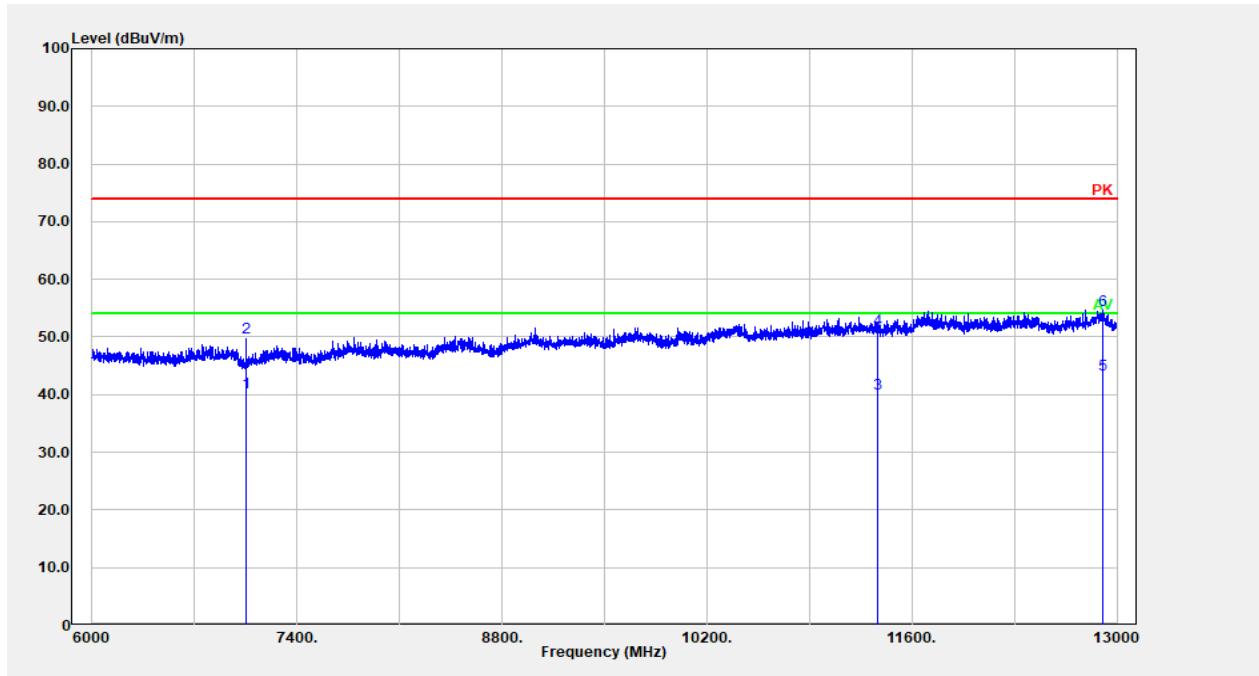
No.	Frequency (MHz)	Reading (dB $\mu$ V)	Factor (dB/m)	Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
1	1652.130	34.25	0.52	34.77	54.00	19.23	Average
2	1652.130	43.37	0.52	43.89	74.00	30.11	Peak
3	2401.000	37.17	3.69	40.86	54.00	13.14	Average
4	2401.000	42.30	3.69	45.99	74.00	28.01	Peak
5	4296.659	24.59	9.62	34.21	54.00	19.79	Average
6	4296.659	36.44	9.62	46.06	74.00	27.94	Peak

**Vertical:**

No.	Frequency (MHz)	Reading (dB $\mu$ V)	Factor (dB/m)	Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
1	1110.000	34.14	-2.19	31.95	54.00	22.05	Average
2	1110.000	47.80	-2.19	45.61	74.00	28.39	Peak
3	2395.279	37.26	3.66	40.92	54.00	13.08	Average
4	2395.279	42.14	3.66	45.80	74.00	28.20	Peak
5	4249.650	24.81	9.75	34.56	54.00	19.44	Average
6	4249.650	35.90	9.75	45.65	74.00	28.35	Peak

**Horizontal:**

No.	Frequency (MHz)	Reading (dB $\mu$ V)	Factor (dB/m)	Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
1	9625.325	22.57	17.78	40.35	54.00	13.65	Average
2	9625.325	33.62	17.78	51.39	74.00	22.61	Peak
3	11687.940	34.44	20.45	54.89	74.00	19.11	Peak
4	11687.940	22.76	20.45	43.21	54.00	10.79	Average
5	12894.980	33.28	21.55	54.82	74.00	19.18	Peak
6	12894.980	22.69	21.55	44.24	54.00	9.76	Average

**Vertical:**

No.	Frequency (MHz)	Reading (dB $\mu$ V)	Factor (dB/m)	Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
1	7054.411	27.19	13.27	40.46	54.00	13.54	Average
2	7054.411	36.53	13.27	49.80	74.00	24.20	Peak
3	11365.870	20.52	19.61	40.13	54.00	13.87	Average
4	11365.870	31.79	19.61	51.40	74.00	22.60	Peak
5	12904.780	21.93	21.56	43.49	54.00	10.51	Average
6	12904.780	33.17	21.56	54.73	74.00	19.27	Peak

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