



中认信通
CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)



TEST REPORT

Applicant: CHUWI TECHNOLOGY (ShenZhen) CO., LIMITED

Address: 2 Floor Building 3 LiJinCheng Industrial park the east of Gongye road
LongHua Shenzhen China

FCC ID: 2AHLZ-HEROBOX1

Product Name: Mini PC

Model Number: HeroBox, CWI527,CWI601,CWI603,
CWI604,CWI605,CWI606,CWI607,CWI608

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: CR230847350-00A

Date Of Issue: 2023/9/9

Reviewed By: Julie Tan

Julie Tan

Title: RF Engineer

Approved 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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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR230847350-00A	Original Report	2023/9/9

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Mini PC
EUT Model:	HeroBox
Multiple Model:	CWI527,CWI601,CWI603,CWI604,CWI605,CWI606,CWI607,CWI608
Highest Operation Frequency:	5825MHz
Rated Input Voltage:	DC 12.0V from Adapter
Serial Number:	29X0-1
EUT Received Date:	2023/8/17
EUT Received Status:	Good
Note: The Multiple models are electrically identical with the test model. Please refer to the declaration letter for more detail, which was provided by manufacturer.	

Accessory Information:

Accessory Description	Manufacturer	Model	Parameters
Adapter	SHENZHEN BSY TECHNOLOGY CO.,LTD	BSY036A120300U W	Input: 100-240Vac 50/60Hz 1.0A Output: 12.0Vdc 3.0A 36.0W

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 : Operating
Equipment Modifications:	No
EUT Exercise Software:	Color Bar was used

1.2.2 Support Equipment List and Details

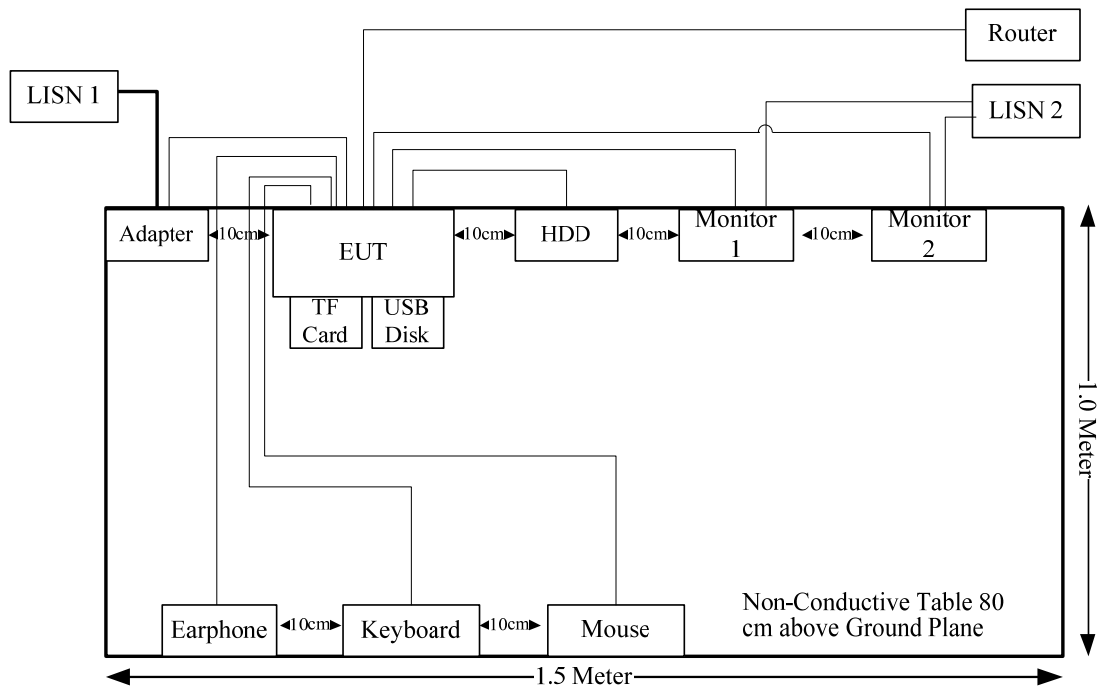
Manufacturer	Description	Model	Serial Number
Kingston	TF Card	DTI/2GB	CH 031308
SanDisk	USB Disk	16 GB	BL201026210Z
SanDisk	HDD	64 GB	1183DRECV11N
PHILIPS	Monitor 1	24PFF5595/T3	XM2A2124000343
AOC	Monitor 2	24M2	OHWL5YA000130 H7
CLC	Earphone	Whiteview5.0	EP21107125
PHILIPS	Keyboard	SPT6234	K234210510746
PHILIPS	Mouse	SPT6234	C234210506222
TOTO LINK	Router	X5000R	X5000RK9T0560

1.2.3 Support Cable List and Details

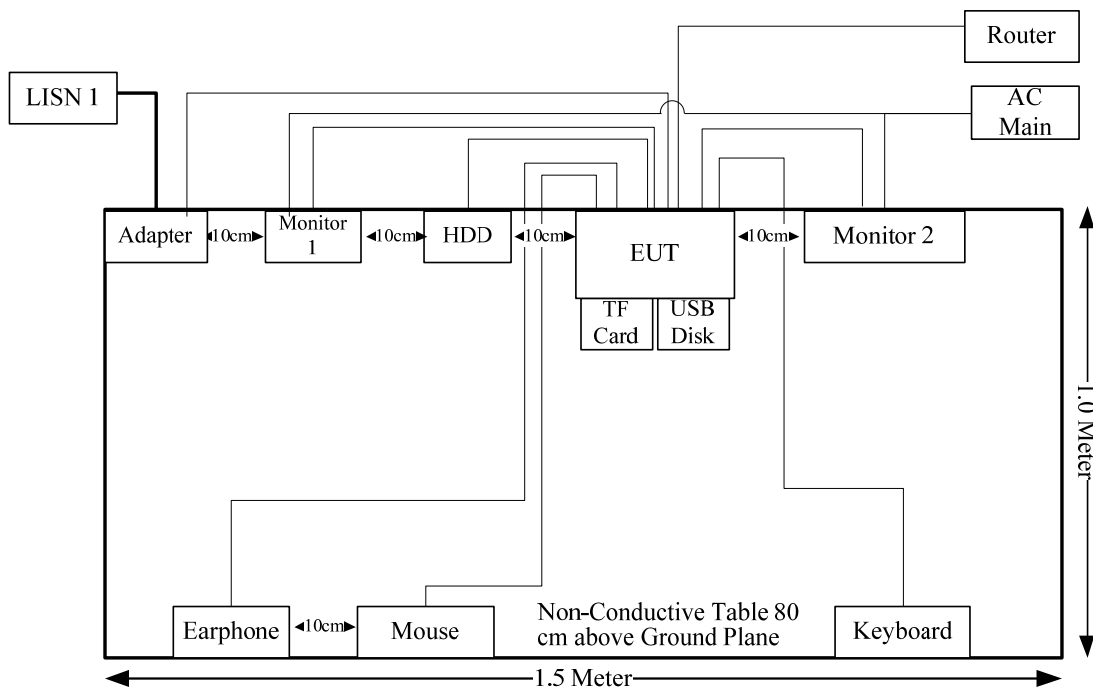
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
DC Cable	No	No	2.5	Adapter	EUT
Earphone Cable	No	No	1	EUT	Earphone
USB Cable	No	No	1	EUT	Keyboard
USB Cable	No	No	1	EUT	Mouse
RJ45 Cable	Yes	No	10	EUT	Router
USB Cable	No	No	0.8	EUT	HDD
VGA Cable	No	Yes	1.5	EUT	Monitor 1
HDMI Cable	No	No	1.5	EUT	Monitor 2

1.2.4 Block Diagram of Test Setup

AC line 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)

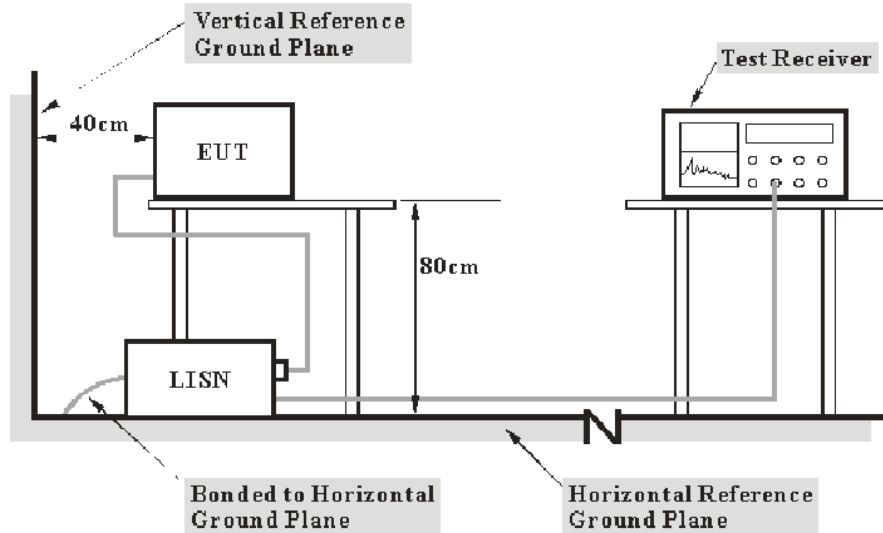
2. SUMMARY OF TEST RESULTS

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 or 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 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

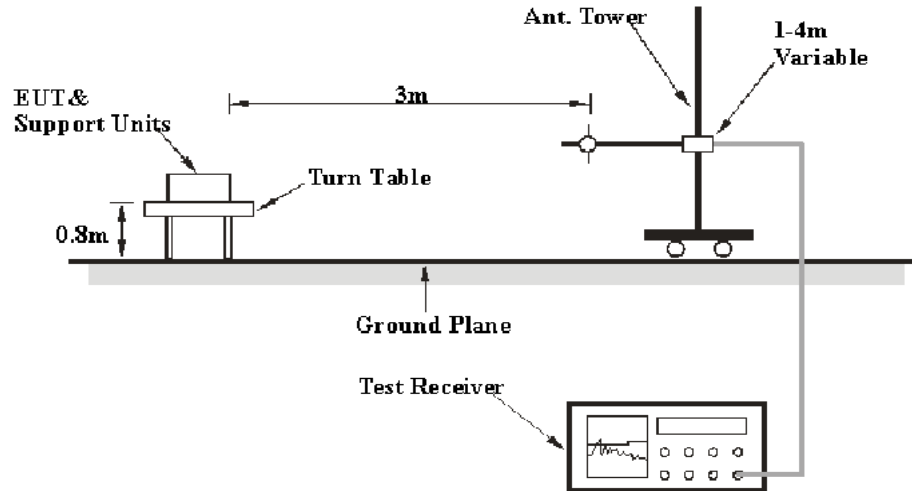
The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

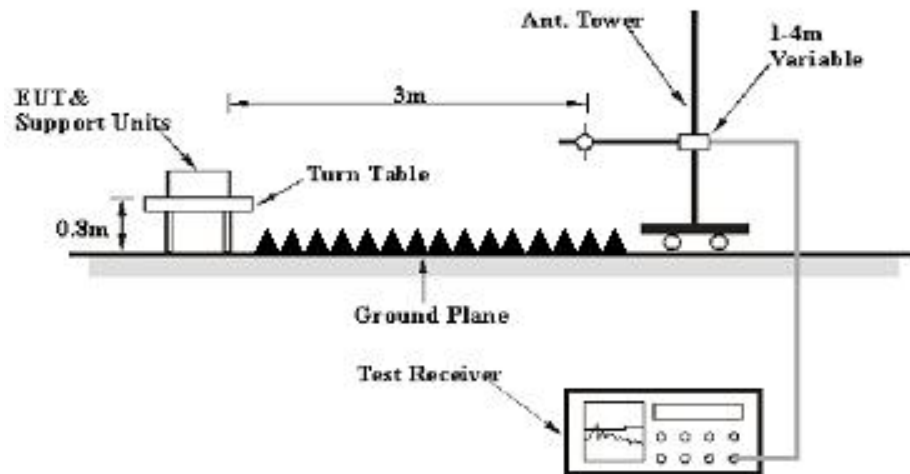
3.2 Radiation Spurious Emissions

3.2.1 EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emissions 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 30 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.

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:	29X0-1	Test Date:	2023/08/28
Test Site:	CE	Test Mode:	Operating
Tester:	David Huang	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.4	Relative Humidity: (%)	59	ATM Pressure: (kPa)	100.1
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2023/03/31	2024/03/30
R&S	EMI Test Receiver	ESR3	102726	2023/03/31	2024/03/30
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2023/08/06	2024/08/05
Audix	Test Software	E3	190306 (V9)	N/A	N/A

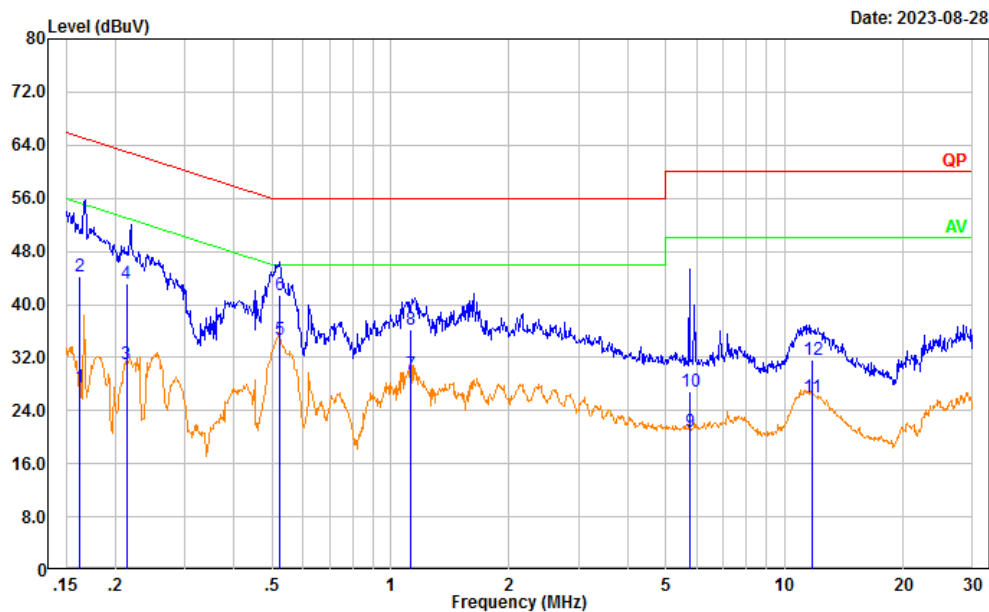
* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Project No.: CR230847350-RF

Tester: David Huang

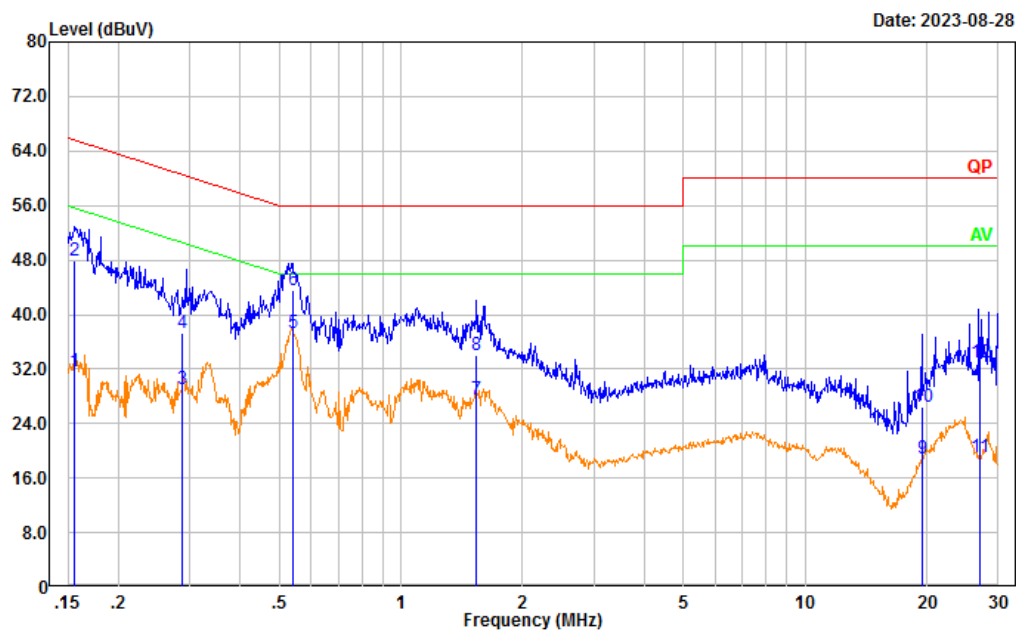
Port: Line

Note:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.163	17.91	9.61	27.52	55.33	27.81	Average
2	0.163	34.64	9.61	44.25	65.33	21.08	QP
3	0.213	21.45	9.61	31.06	53.07	22.01	Average
4	0.213	33.50	9.61	43.11	63.07	19.96	QP
5	0.521	25.13	9.61	34.74	46.00	11.26	Average
6	0.521	31.88	9.61	41.49	56.00	14.51	QP
7	1.120	19.84	9.62	29.46	46.00	16.54	Average
8	1.120	26.48	9.62	36.10	56.00	19.90	QP
9	5.729	11.10	9.66	20.76	50.00	29.24	Average
10	5.729	17.23	9.66	26.89	60.00	33.11	QP
11	11.733	16.43	9.67	26.10	50.00	23.90	Average
12	11.733	22.01	9.67	31.68	60.00	28.32	QP

Project No.: CR230847350-RF
 Tester: David Huang
 Port: neutral
 Note:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.156	22.00	9.61	31.61	55.68	24.07	Average
2	0.156	38.41	9.61	48.02	65.68	17.66	QP
3	0.288	19.46	9.61	29.07	50.59	21.52	Average
4	0.288	27.75	9.61	37.36	60.59	23.23	QP
5	0.541	27.65	9.61	37.26	46.00	8.74	Average
6	0.541	34.03	9.61	43.64	56.00	12.36	QP
7	1.531	17.94	9.63	27.57	46.00	18.43	Average
8	1.531	24.51	9.63	34.14	56.00	21.86	QP
9	19.511	9.13	9.70	18.83	50.00	31.17	Average
10	19.511	16.79	9.70	26.49	60.00	33.51	QP
11	27.018	9.28	9.80	19.08	50.00	30.92	Average
12	27.018	23.05	9.80	32.85	60.00	27.15	QP

4.2 Radiation Spurious Emissions

Serial Number:	29X0-1	Test Date:	2023/08/28~2023/9/5
Test Site:	966-1/966-2	Test Mode:	Operating
Tester:	coco Tian, Hugo Huo	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.6~25.8	Relative Humidity: (%)	28~62	ATM Pressure: (kPa)	99.7~99.9
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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	2023/3/31	2024/3/30
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2023/7/16	2024/7/15
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2023/7/16	2024/7/15
Sonoma	Amplifier	310N	186165	2023/7/16	2024/7/15
Audix	Test Software	E3	201021 (V9)	N/A	N/A
ETS-Lindgren	Horn Antenna	3115	9912-5985	2020/10/13	2023/10/12
PASTERNAK	Horn Antenna	PE9852/2F-20	112002	2021/02/05	2024/02/04
PASTERNAK	Horn Antenna	PE9850/2F-20	072001	2021/02/05	2024/02/04
R&S	Spectrum Analyzer	FSV40	101591	2023/03/31	2024/03/30
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2023/08/07	2024/08/06
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2023/08/07	2024/08/06
MICRO-COAX	Coaxial Cable	UFB142A-1-2362-200200	235772-001	2023/08/07	2024/08/06
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2022/11/09	2023/11/08
AH	Preamplifier	PAM-1840VH	190	2022/11/09	2023/11/08

** 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).*

Test Data:

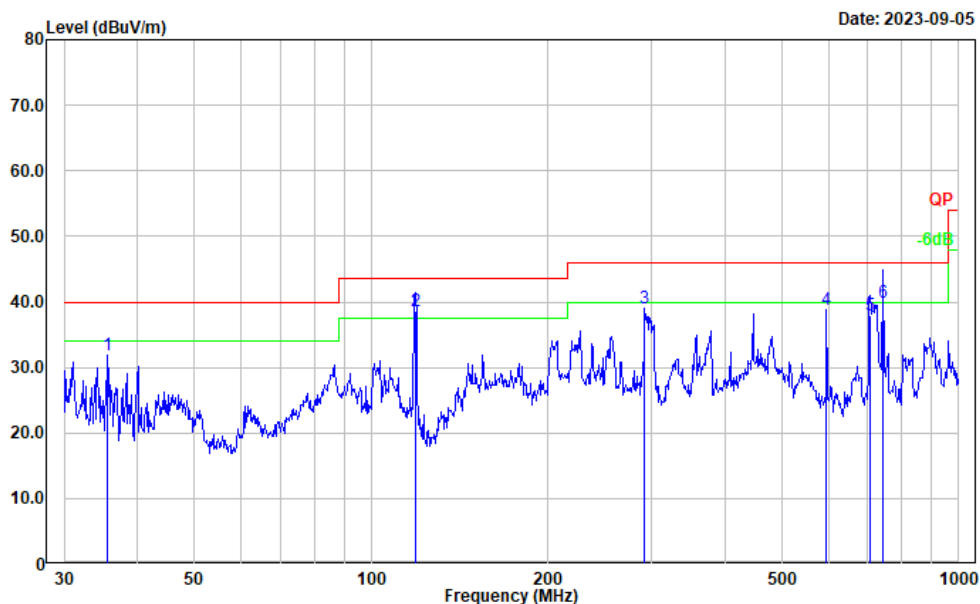
1) 30MHz-1GHz

Project No.: CR230847350-RF

Tester: Hugo Huo

Polarization: horizontal

Note:



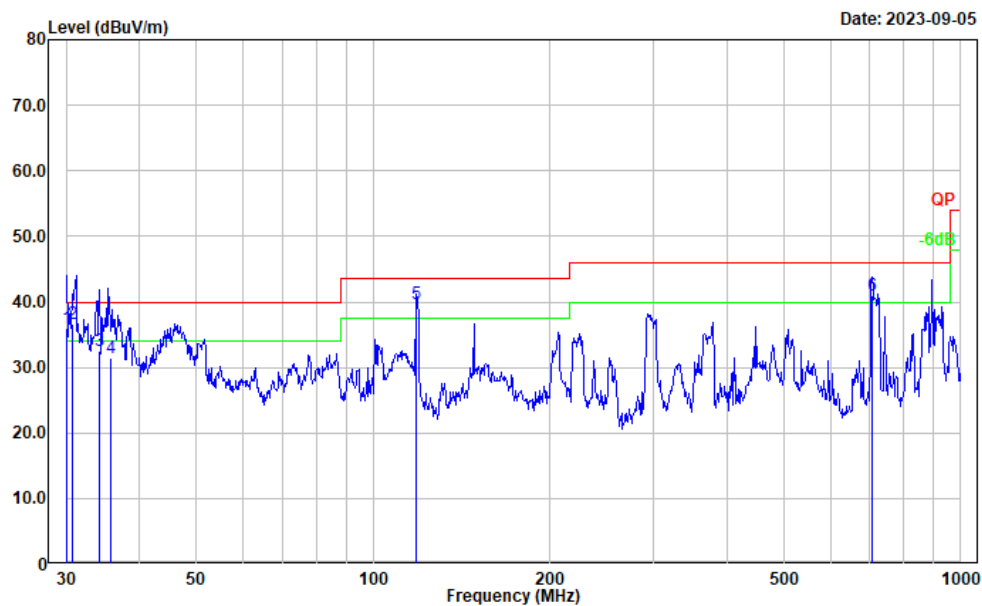
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	35.624	39.90	-7.96	31.94	40.00	8.06	Peak
2	119.018	50.02	-11.53	38.49	43.50	5.01	QP
3	292.058	50.05	-10.93	39.12	46.00	6.88	Peak
4	595.133	43.91	-5.15	38.76	46.00	7.24	Peak
5	706.700	41.46	-3.49	37.97	46.00	8.03	QP
6	744.866	42.71	-2.91	39.80	46.00	6.20	QP

Project No.: CR230847350-RF

Tester: Hugo Huo

Polarization: vertical

Note:

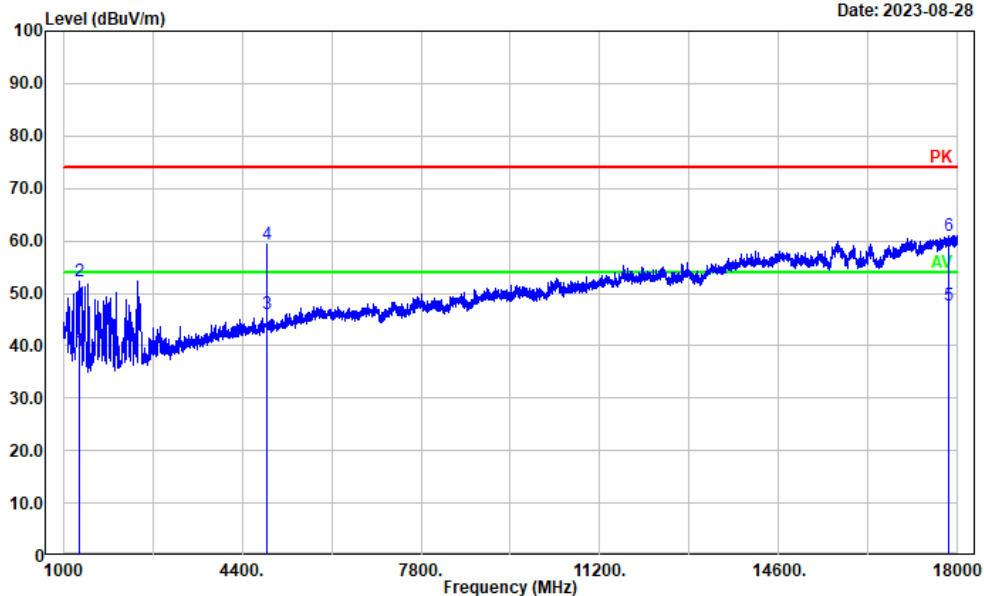


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	30.109	39.67	-3.68	35.99	40.00	4.01	QP
2	30.792	40.78	-4.21	36.57	40.00	3.43	QP
3	34.194	39.34	-6.82	32.52	40.00	7.48	QP
4	35.727	39.40	-8.04	31.36	40.00	8.64	QP
5	118.573	51.16	-11.57	39.59	43.50	3.91	QP
6	704.808	44.40	-3.50	40.90	46.00	5.10	QP

2) Above 1GHz

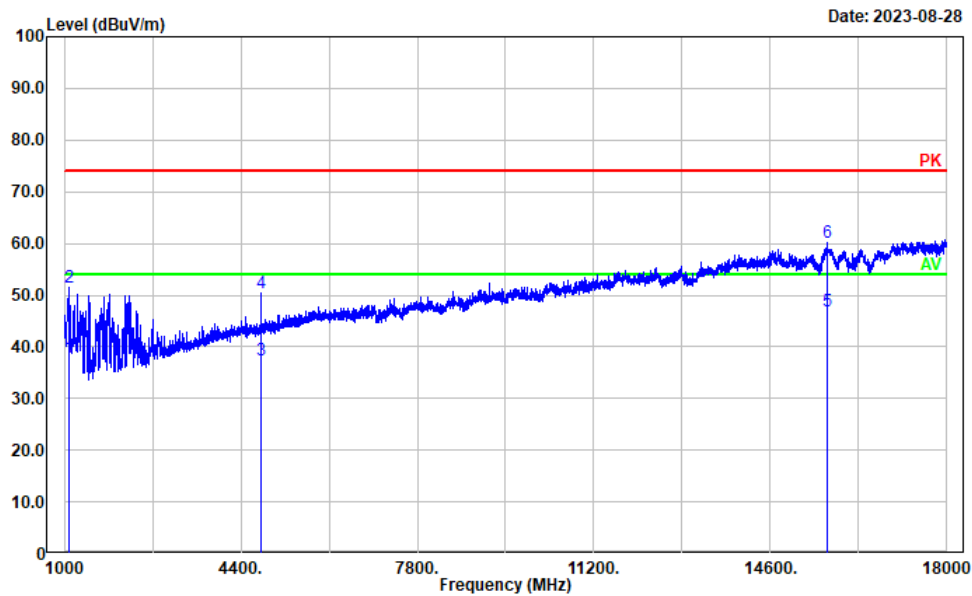
Project No.: CR230847350-RF
Tester: coco Tian
Polarization: horizontal
Note:

Date: 2023-08-28



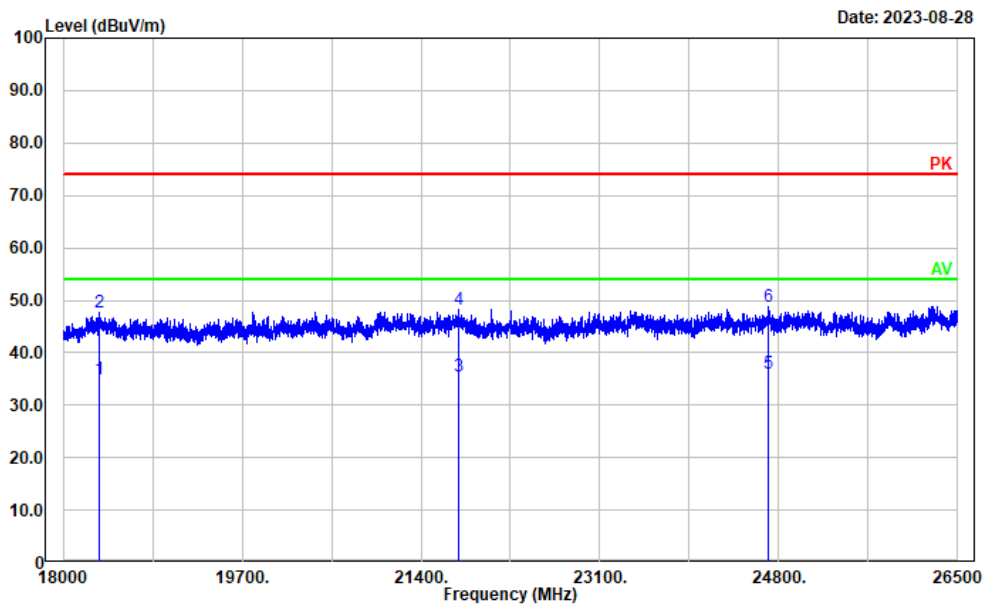
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	1319.664	40.53	-1.53	39.00	54.00	15.00	Average
2	1319.664	53.90	-1.53	52.37	74.00	21.63	Peak
3	4873.375	35.13	11.05	46.18	54.00	7.82	Average
4	4873.375	48.28	11.05	59.33	74.00	14.67	Peak
5	17829.970	16.58	31.05	47.63	54.00	6.37	Average
6	17829.970	29.84	31.05	60.89	74.00	13.11	Peak

Project No.: CR230847350-RF
Tester: coco Tian
Polarization: vertical
Note:



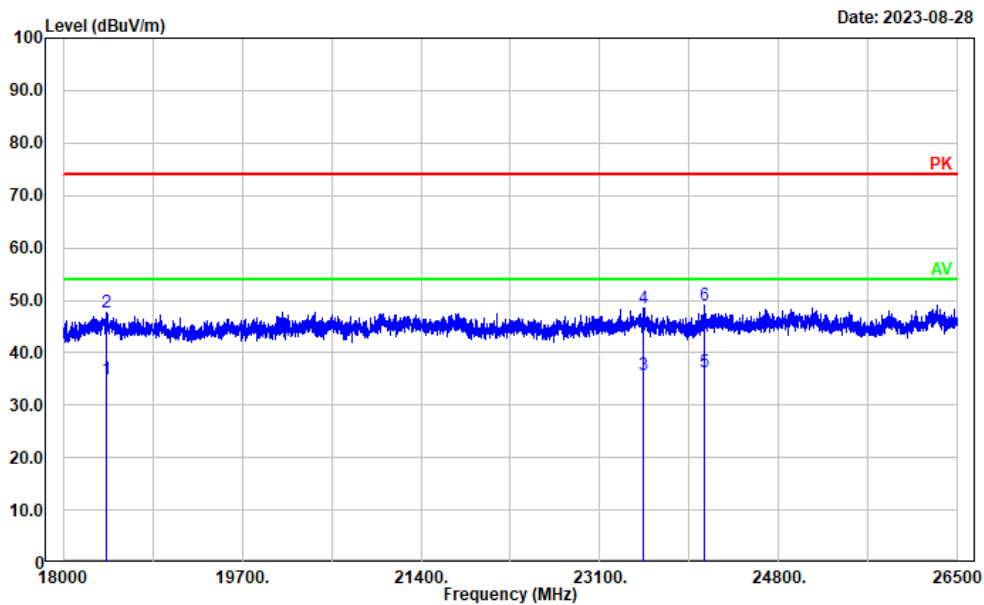
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	1098.620	40.15	-2.17	37.98	54.00	16.02	Average
2	1098.620	53.69	-2.17	51.52	74.00	22.48	Peak
3	4781.556	26.54	10.84	37.38	54.00	16.62	Average
4	4781.556	39.65	10.84	50.49	74.00	23.51	Peak
5	15694.340	24.58	22.30	46.88	54.00	7.12	Average
6	15694.340	37.88	22.30	60.18	74.00	13.82	Peak

Project No.: CR230847350-RF
Tester: coco Tian
Polarization: Horizontal
Note:



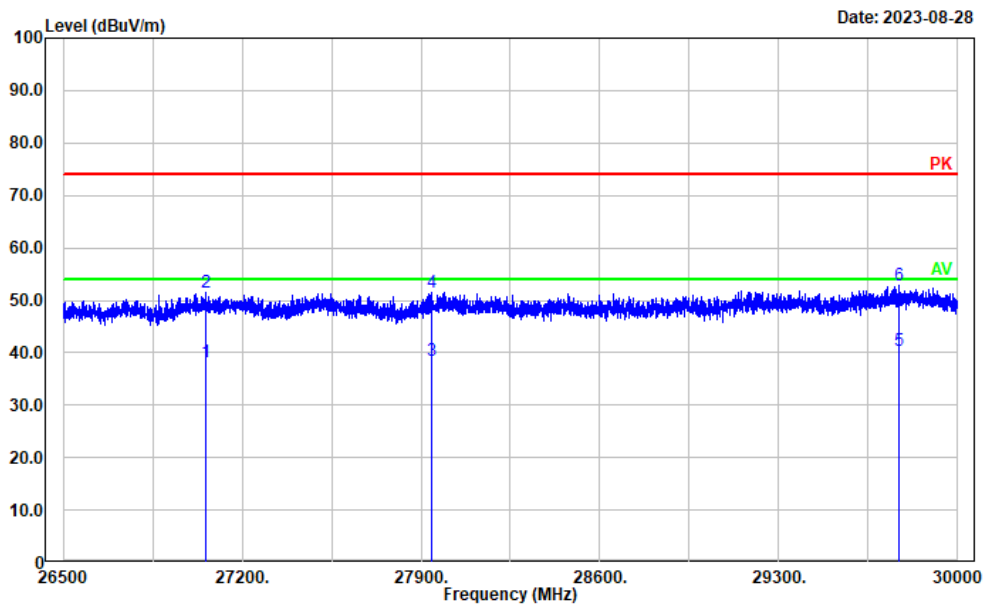
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	18343.470	36.43	-1.54	34.89	54.00	19.11	Average
2	18343.470	49.32	-1.54	47.78	74.00	26.22	Peak
3	21754.350	36.53	-0.95	35.58	54.00	18.42	Average
4	21754.350	49.29	-0.95	48.34	74.00	25.66	Peak
5	24697.640	36.52	-0.60	35.92	54.00	18.08	Average
6	24697.640	49.41	-0.60	48.81	74.00	25.19	Peak

Project No.: CR230847350-RF
Tester: coco Tian
Polarization: Vertical
Note:



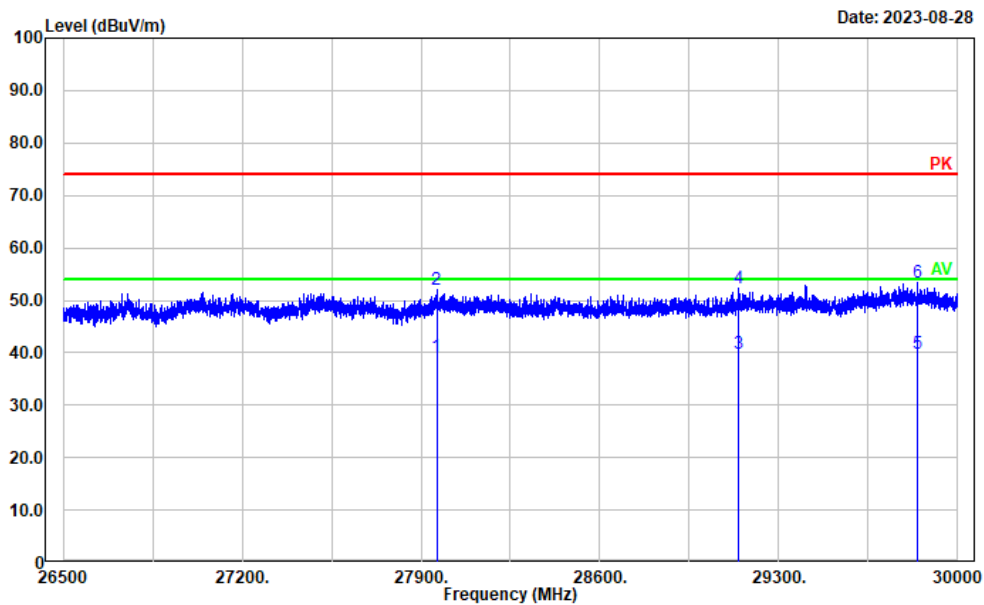
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	18406.380	36.43	-1.55	34.88	54.00	19.12	Average
2	18406.380	49.36	-1.55	47.81	74.00	26.19	Peak
3	23510.800	36.43	-0.65	35.78	54.00	18.22	Average
4	23510.800	49.24	-0.65	48.59	74.00	25.41	Peak
5	24097.420	37.46	-1.18	36.28	54.00	17.72	Average
6	24097.420	50.22	-1.18	49.04	74.00	24.96	Peak

Project No.: CR230847350-RF
Tester: coco Tian
Polarization: Horizontal
Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	27055.910	36.43	1.89	38.32	54.00	15.68	Average
2	27055.910	49.63	1.89	51.52	74.00	22.48	Peak
3	27939.490	35.42	3.11	38.53	54.00	15.47	Average
4	27939.490	48.41	3.11	51.52	74.00	22.48	Peak
5	29770.350	35.01	5.46	40.47	54.00	13.53	Average
6	29770.350	47.30	5.46	52.76	74.00	21.24	Peak

Project No.: CR230847350-RF
Tester: coco Tian
Polarization: Vertical
Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	27961.190	36.11	3.26	39.37	54.00	14.63	Average
2	27961.190	48.89	3.26	52.15	74.00	21.85	Peak
3	29140.930	35.43	4.46	39.89	54.00	14.11	Average
4	29140.930	47.72	4.46	52.18	74.00	21.82	Peak
5	29841.070	34.52	5.39	39.91	54.00	14.09	Average
6	29841.070	47.91	5.39	53.30	74.00	20.70	Peak

5. EUT PHOTOGRAPHS

Please refer to the attachment CR230847350-EXP EUT EXTERNAL PHOTOGRAPHS and
CR230847350-INP EUT INTERNAL PHOTOGRAPHS

6. TEST SETUP PHOTOGRAPHS

Please refer to the attachment CR230847350-00-TSP TEST SETUP PHOTOGRAPHS.

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