

FCC TEST REPORT

FCC ID:2BOR5-990-1001

Report No..... : ZHT-250401110W03
Product..... : Holder
Trademark..... : Offroam
Model(s)..... : 990-1001
Model Difference..... : /
Applicant..... : Cypress Overland LLC
Address..... : 1577 C St Ste 105 PMB 829905 Anchorage, Alaska 99501-5127 US
Manufacturer..... : Cypress Overland LLC
Address..... : 1577 C St Ste 105 PMB 829905 Anchorage, Alaska 99501-5127 US
Prepared by..... : Guangdong Zhonghan Testing Technology Co., Ltd.
Address..... : Room 104/201, Building 1, Yibaolai Industrial Park, Qiaotou, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Date of Receipt..... : Apr. 1, 2025
Date of Test(s)..... : Apr. 1, 2025 to May. 7, 2025
Date of Issue..... : May. 7, 2025
Standard..... : FCC CFR Title 47 Part 15 Subpart C
Test procedure..... : /

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

Tested by:

Reviewed by:

Approved by:

Leon Li

Leon Li/ Engineer

Baret Wu

Baret Wu/ Director

Levi Lee

Levi Lee/ Manager

Note: This device described above has been tested by ZHT, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report. This report shall not be reproduced except in full, without the written approval of ZHT, this document may be altered or revised by ZHT, personal only, and shall be noted in the revision of the document.



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1. VERSION

Report No.	Version	Description	Approved
ZHT-250401110W03	Rev.01	Initial issue of report	May 7, 2025

2. TEST SUMMARY

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Spurious Emission	15.209(a)(f)	Pass
20dB Bandwidth	15.215	Pass

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

3. GENERAL INFORMATION

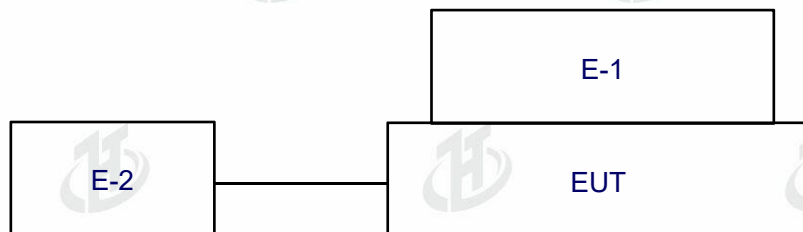
3.1 GENERAL DESCRIPTION OF EUT

Product Name:	Holder
Test Model No.:	990-1001
Hardware version:	V1.0
Software version:	V1.0
Operation Frequency:	111-145KHz, 360KHz
Modulation type:	MSK
Antenna Type:	Coil Antenna
Antenna gain:	0dBi
Ratings	Input: 9 V  2.22 A, 5 V  3 A Output: 5W/ 7.5W/ 15W
Remark: The antenna gain is provided by the customer, if the data provided by the customer is not accurate, Guangdong Zhonghan Testing Technology Co., Ltd. does not assume any responsibility.	

3.2 Test mode

Test Modes:	
Mode 1	AC Adapter+Wireless charging load(5W): 360KHz
Mode 2	AC Adapter+Wireless charging load(7.5W): 360KHz
Mode 3	AC Adapter+Wireless charging load(15W): 360KHz
Mode 4	AC Adapter+Wireless charging load(5W): 111-145KHz
Mode 5	AC Adapter+Wireless charging load(7.5W): 111-145KHz
Mode 6	AC Adapter+Wireless charging load(15W): 111-145KHz
Mode 7	Standby
Remark: All full load, half load, and no-load tests have been conducted in each mode, only the worst-case was recorded in the report. Mode 1 full load is the worst mode.	

3.3 Block Diagram of EUT Configuration



3.4 Test Conditions

Temperature: 25.6℃

Relative Humidity: 54.3 %

3.5 Description Of Support Units (Conducted Mode)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Wireless charging load	/	EESON	/	AE
E-2	AC Adapter	Xiaomi	MDY-12-ED	/	AE

Item	Shielded Type	Ferrite Core	Length	Note

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

4. TAEST FACILITY AND TEST INSTRUMENT USED

4.1 TEST FACILITY

Guangdong Zhonghan Testing Technology Co., Ltd.
Add.:Room 104/201, Building 1, Yibaolai Industrial Park, Qiaotou, Fuhai Subdistrict, Bao'an District,
Shenzhen, Guangdong, China

FCC Registration Number:255941
Designation Number: CN0325
IC Registered No.: 29832
CAB identifier: CN0143

4.2 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Equipment	Manufacturer	Model	Last Cal.	Next Cal.
1	Receiver	R&S	ESCI	May 10, 2024	May 09, 2025
2	Loop antenna	EMCI	LAP600	May 10, 2024	May 09, 2025
3	Amplifier	Schwarzbeck	BBV 9743 B	May 10, 2024	May 09, 2025
4	Amplifier	Schwarzbeck	BBV 9718 B	May 10, 2024	May 09, 2025
5	Bilog Antenna	Schwarzbeck	VULB9162	May 28, 2024	May 27, 2025
6	Horn Antenna	Schwarzbeck	BBHA9120D	May 16, 2024	May 15, 2025
7	Horn Antenna	A.H.SYSTEMS	SAS574	May 10, 2024	May 09, 2025
8	Amplifier	AEROFLEX	100KHz-40GHz	May 10, 2024	May 09, 2025
9	Spectrum Analyzer	R&S	FSV40	May 10, 2024	May 09, 2025
10	CDNE	Schwarzbeck	CDNE M2 + CDNE M3	May 10, 2024	May 09, 2025
11	Spectrum Analyzer	KEYSIGHT	N9020A	May 10, 2024	May 09, 2025
12	WIDBAND RADIO COMMUNICATION TESTER	R&S	CMW500	May 10, 2024	May 09, 2025
13	Single Generator	Agilent	N5182A	May 10, 2024	May 09, 2025
14	Power Sensor	MWRFTtest	MW100-RFCB	May 10, 2024	May 09, 2025
15	Audio analyzer	R&S	UPL	May 10, 2024	May 09, 2025
16	Single Generator	R&S	SMB100A	May 10, 2024	May 09, 2025

Conduction Test equipment

Equipment	Manufacturer	Model	Last Cal.	Next Cal.
Receiver	R&S	ESCI	May 10, 2024	May 09, 2025
LISN	R&S	ENV216	May 10, 2024	May 09, 2025
ISN CAT 6	Schwarzbeck	NTFM 8158	May 10, 2024	May 09, 2025
ISN CAT 5	Schwarzbeck	CAT5 8158	May 10, 2024	May 09, 2025
Capacitive Voltage Probe	Schwarzbeck	CVP 9222 C	May 10, 2024	May 09, 2025
Current Transformer Clamp	Schwarzbeck	SW 9605	May 10, 2024	May 09, 2025

Conducted Test Instrument

Item	Equipment	Manufacturer	Model	Serial No.	Last Cal.	Next Cal.
1	Spectrum Analyzer	R&S	FSV40	101413	May 10, 2024	May 09, 2025
2	Spectrum Analyzer	KEYSIGHT	N9020A	MY53420208	May 10, 2024	May 09, 2025
3	Power Sensor	MWRFTest	MW100-RFCB	/	May 10, 2024	May 09, 2025

4.3 TESTING SOFTWARE

Project	Software name	Edition
Radiated Emission	EZ-EMC	FA-03A2 RE+
RF Test	MTS 8310	2.0.0.0

4.4 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 1.38\text{dB}$
2	RF conducted power	$\pm 0.16\text{dB}$
3	Spurious emissions conducted	$\pm 0.21\text{dB}$
4	All radiated emissions (9k-30MHz)	$\pm 4.68\text{dB}$
5	All radiated emissions (<1G)	$\pm 4.68\text{dB}$
6	All radiated emissions (>1G)	$\pm 4.89\text{dB}$
7	Temperature	$\pm 0.5^{\circ}\text{C}$
8	Humidity	$\pm 2\%$
9	Occupied Bandwidth	$\pm 4.96\%$
10	Power Spectral Density	$\pm 0.71\text{dB}$

Decision Rule

- ☒ Uncertainty is not included
☐ Uncertainty is included

5. CONDUCTED EMISSION TEST

5.1 CONDUCTED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

5.1.1 POWER LINE CONDUCTED EMISSION Limits

FREQUENCY (MHz)	Limit (dBuV)		Standard
	QP	AVG	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

(1) *Decreases with the logarithm of the frequency.

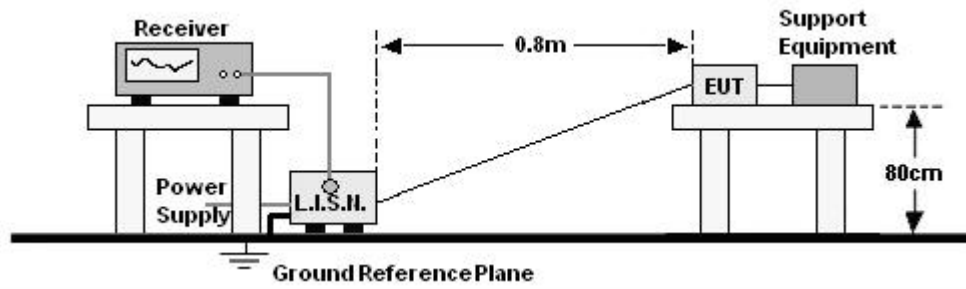
5.1.2 TEST PROCEDURE

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

5.1.3 DEVIATION FROM TEST STANDARD

No deviation

5.1.4 TEST SETUP

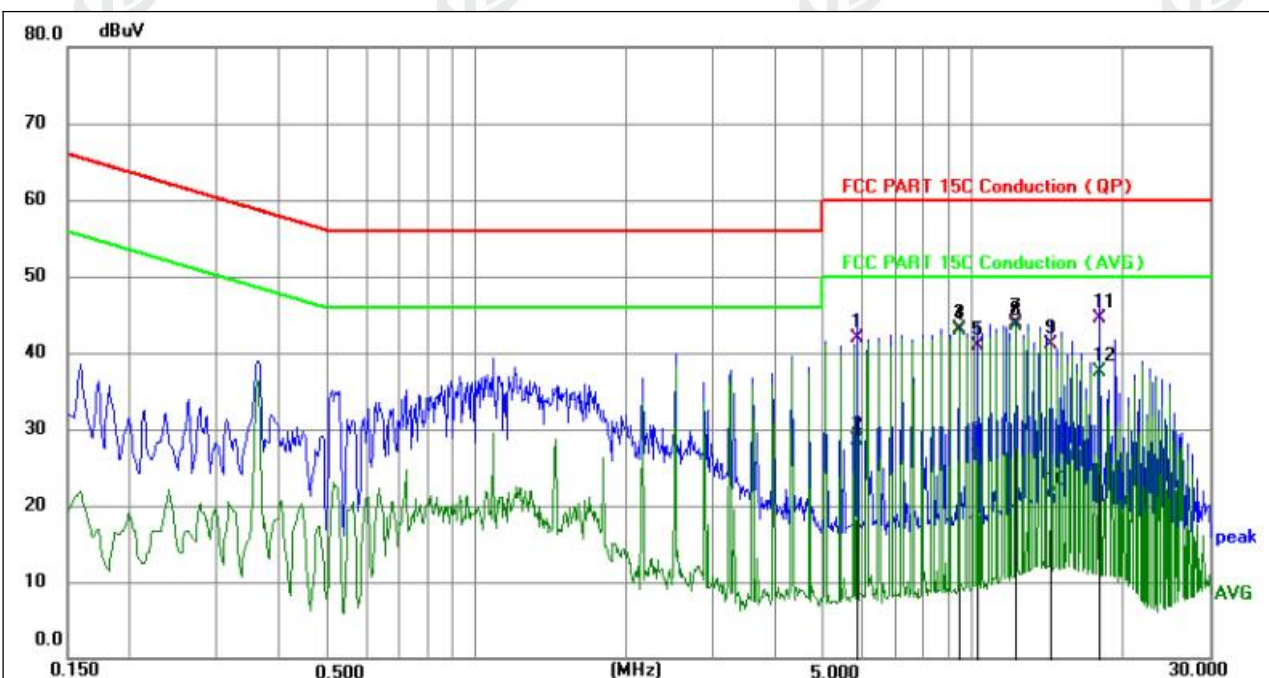


5.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

5.1.6 Test Result

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Phase :	L
Test Voltage:	AC 120V/60Hz		



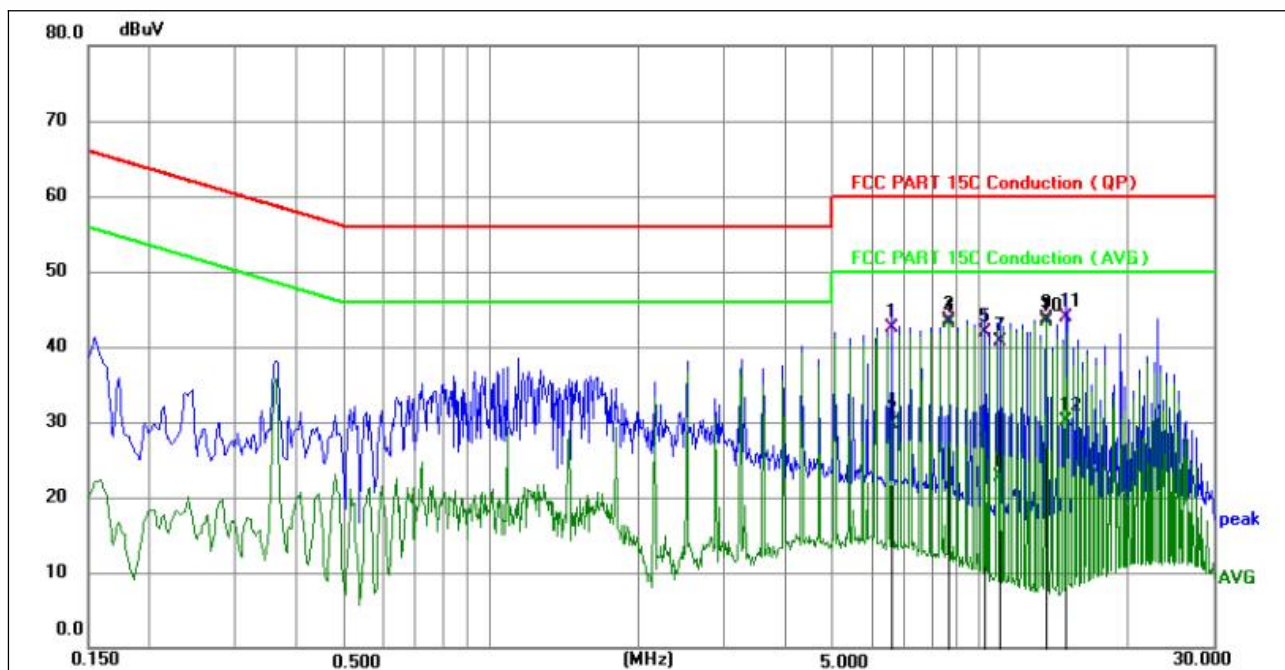
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	5.8605	31.84	10.11	41.95	60.00	-18.05	QP	P	
2	5.8605	18.43	10.11	28.54	50.00	-21.46	AVG	P	
3	9.3614	33.12	10.08	43.20	60.00	-16.80	QP	P	
4	9.3614	32.85	10.08	42.93	50.00	-7.07	AVG	P	
5	10.2570	30.81	10.08	40.89	60.00	-19.11	QP	P	
6	10.2570	17.61	10.08	27.69	50.00	-22.31	AVG	P	
7	12.2415	33.76	10.09	43.85	60.00	-16.15	QP	P	
8 *	12.2415	33.47	10.09	43.56	50.00	-6.44	AVG	P	
9	14.2934	30.96	10.09	41.05	60.00	-18.95	QP	P	
10	14.2934	11.16	10.09	21.25	50.00	-28.75	AVG	P	
11	18.0015	34.41	10.10	44.51	60.00	-15.49	QP	P	
12	18.0015	27.34	10.10	37.44	50.00	-12.56	AVG	P	

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. Measurement Level = Reading level + Correct Factor
4. The emission levels of other frequencies are very lower than the limit and not show in test report.



Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	N
Test Voltage:	AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	6.5940	32.48	10.11	42.59	60.00	-17.41	QP	P	
2	6.5940	19.59	10.11	29.70	50.00	-20.30	AVG	P	
3	8.6415	33.41	10.09	43.50	60.00	-16.50	QP	P	
4	8.6415	32.98	10.09	43.07	50.00	-6.93	AVG	P	
5	10.2615	31.83	10.08	41.91	60.00	-18.09	QP	P	
6	10.2615	18.70	10.08	28.78	50.00	-21.22	AVG	P	
7	10.9905	30.66	10.08	40.74	60.00	-19.26	QP	P	
8	10.9905	12.58	10.08	22.66	50.00	-27.34	AVG	P	
9	13.6815	33.55	10.09	43.64	60.00	-16.36	QP	P	
10 *	13.6815	33.25	10.09	43.34	50.00	-6.66	AVG	P	
11	15.0225	33.78	10.10	43.88	60.00	-16.12	QP	P	
12	15.0225	20.06	10.10	30.16	50.00	-19.84	AVG	P	

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. Measurement Level = Reading level + Correct Factor
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

6. RADIATED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	9kHz to 1GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9KHz-150KHz	Quasi-peak	200Hz	600Hz	Peak Value
	150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average

6.1 Radiated Emission Limits

Limits for frequency below 30MHz

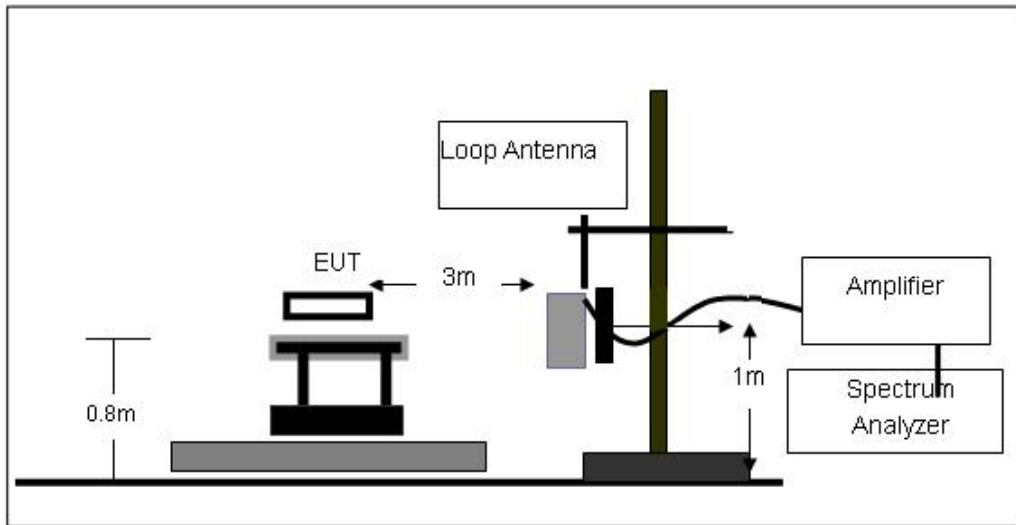
Frequency	Limit (uV/m)	Measurement Distance(m)	Remark
0.009-0.490	2400/F(kHz)	300	Peak Value
0.490-1.705	24000/F(kHz)	30	Quasi-peak Value
1.705-30	30	30	Quasi-peak Value

Limits for frequency Above 30MHz

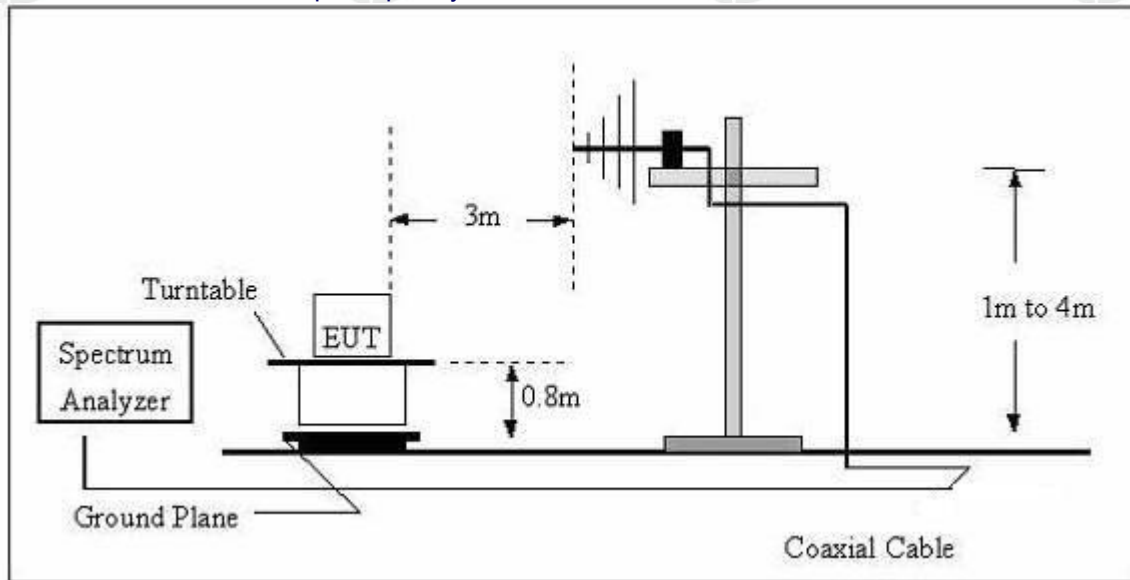
Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.00	Quasi-peak Value
88MHz-216MHz	43.50	Quasi-peak Value
216MHz-960MHz	46.00	Quasi-peak Value
960MHz-1GHz	54.00	Quasi-peak Value
Above 1GHz	54.00	Average Value
	74.00	Peak Value

6.2 Anechoic Chamber Test Setup Diagram

(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.205 limits.

6.3 Test Procedure

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna (calibrated by dipole antenna) are used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on measurement.

6.4 DEVIATION FROM TEST STANDARD

No deviation



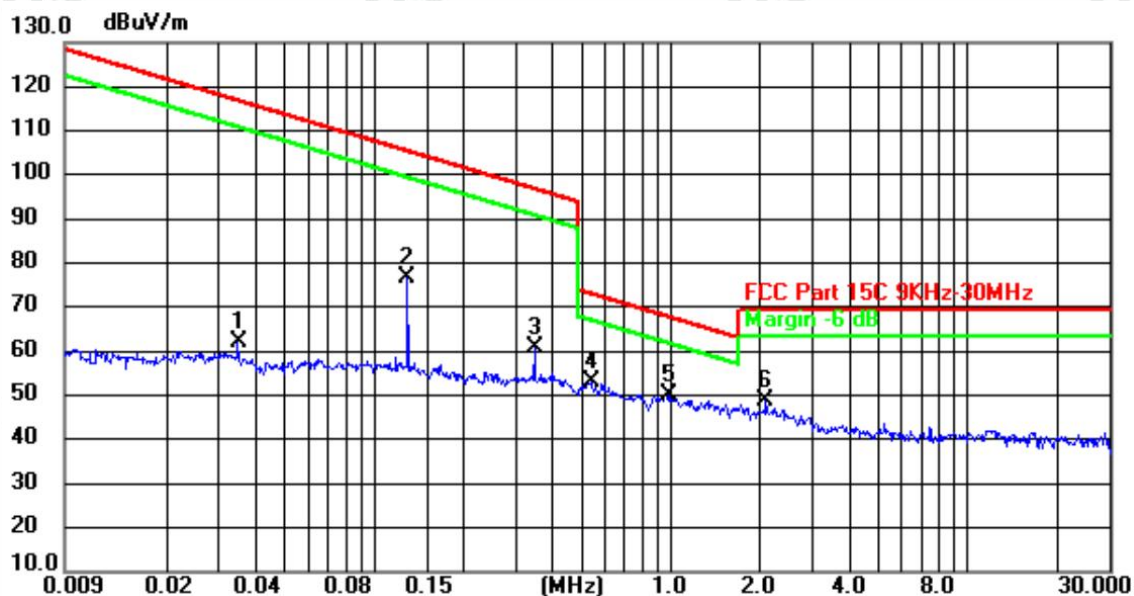
6.5 Test Result

Measurement data:

Note: Limit dBuV/m @3m = Limit dBuV/m @300m+ 80

Limit dBuV/m @3m = Limit dBuV/m @30m + 40

9 kHz~30 MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.035	61.71	0.18	61.89	116.72	-54.83	peak
2	0.129	76.52	0.16	76.68	105.39	-28.71	peak
3	0.346	59.88	0.83	60.71	96.82	-36.11	peak
4	0.536	51.72	1.18	52.90	73.02	-20.12	peak
5 *	0.978	48.20	2.07	50.27	67.80	-17.53	peak
6	2.080	44.62	4.32	48.94	69.54	-20.60	peak

Note:

Pre-scan in the all of mode, the worst case in of was recorded.

Factor = antenna factor + cable loss – pre-amplifier.

Emission Level = Meter Reading - Factor

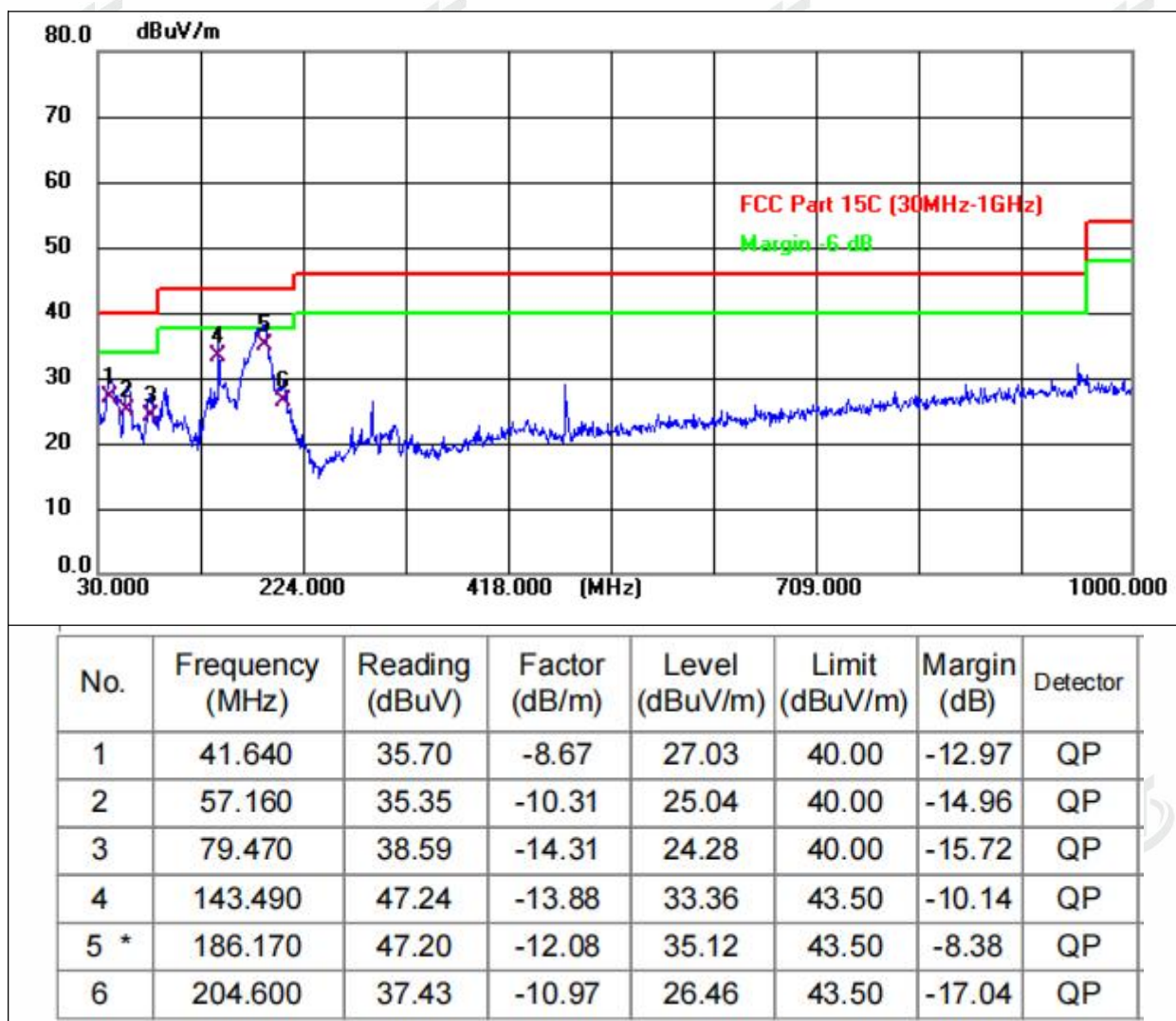
Margin = Emission Level- Limit.

The amplitude of emissions which are attenuated by more than 20db below the permissible value has no need to be reported.



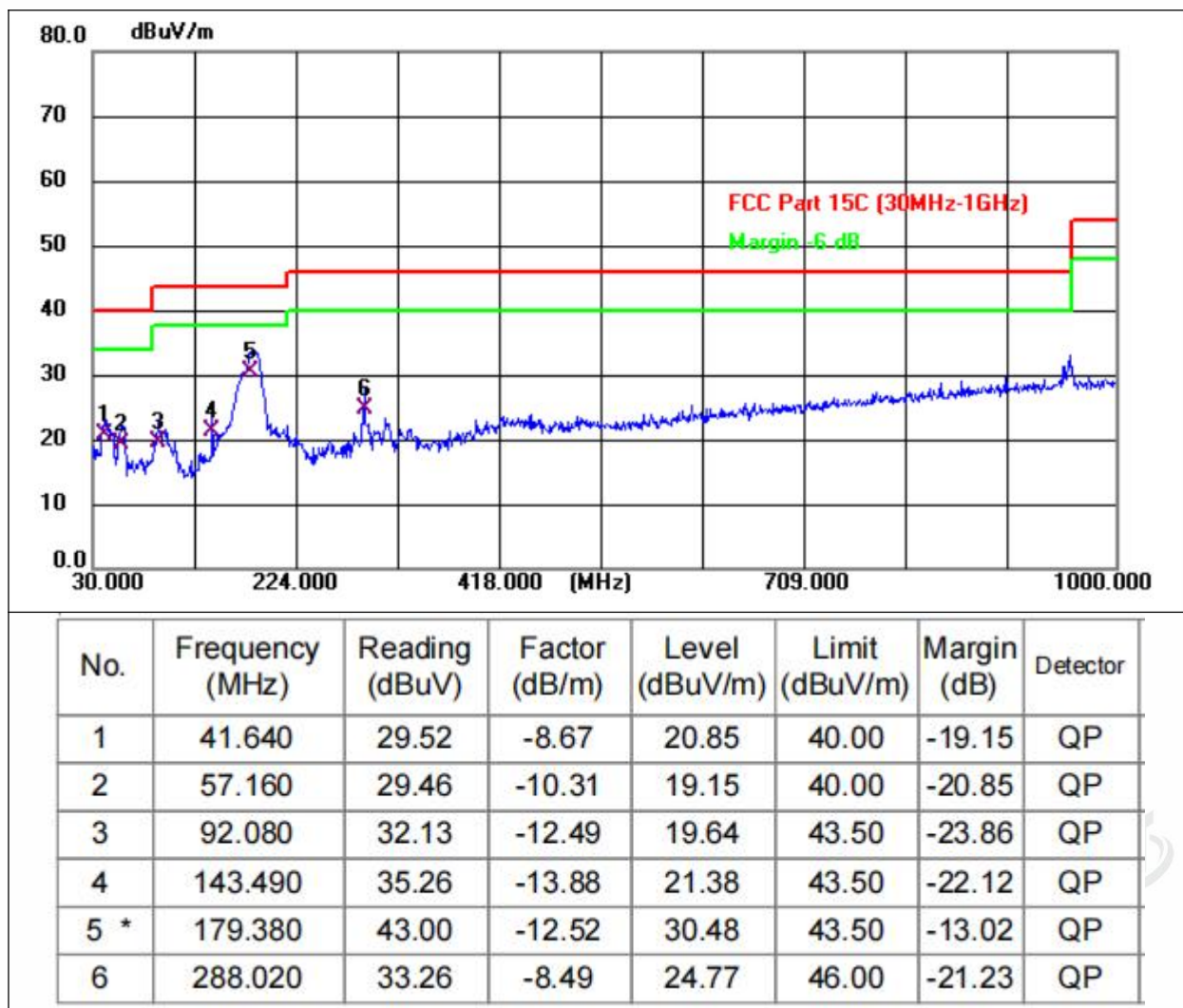
30MHz-1GHz

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz		





Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz		



Remarks:

- Factor = Antenna Factor + Cable Loss – Preamplifier Factor
- Level = Reading + Factor
- Margin = Emission Level- Limit.
- The emission levels of other frequencies are very lower than the limit and not show in test report.



7. BANDWIDTH TEST

1. Set RBW = 10Hz for 1%-5%OBW.

Note: Because the measured signal is CW-like, adjusting the RBW per C63.10 would not be practical since measurement bandwidth will always follow the RBW. The RBW is set to 10 Hz to perform the occupied bandwidth test.

2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.

3. Detector = Peak.

4. Trace mode = max hold.

5. Sweep = auto couple.

6. Allow the trace to stabilize.

7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

TEST SETUP



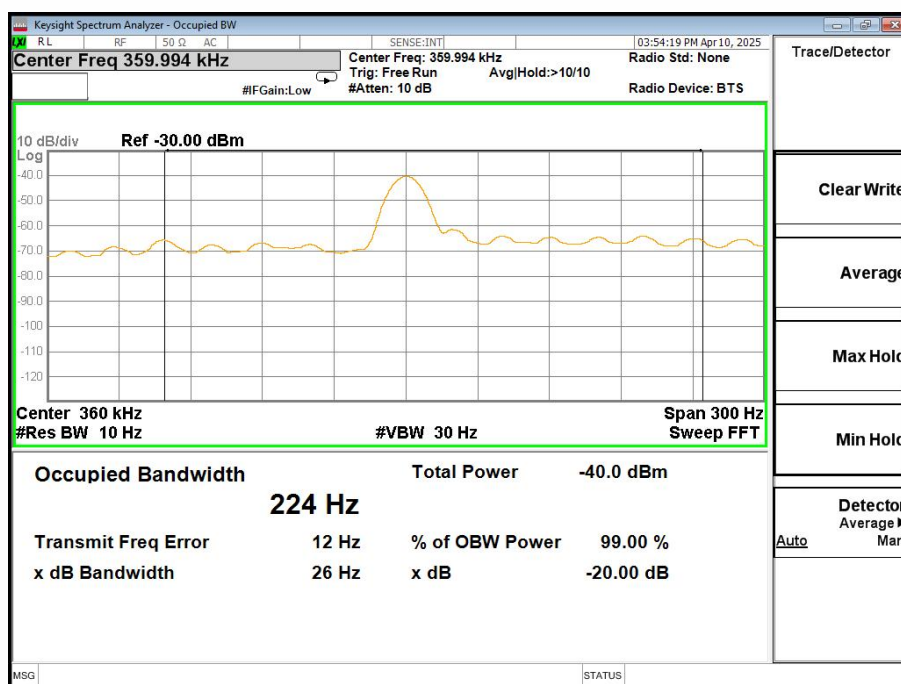
Temperature:	25.7 °C	Relative Humidity:	55%
Pressure:	101kPa		

Frequency (KHz)	20dB bandwidth (KHz)	Result
127.8	0.026	Pass
360	0.026	Pass

127.8KHz



360KHz



8. ANTENNA REQUIREMENT

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
EUT Antenna:	
The antenna is Coil Antenna, the best case gain of the antennas is 0dBi, reference to the appendix II for details	

9. TEST SETUP PHOTO

Reference to the appendix I for details.

10. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

******* END OF REPORT *******