FCC TEST REPORT
FCC ID:2BLCQ-AWCTS1531BQ

Report Number.....:	**ZHT-240914035E**
Date of Test.....:	Sept. 14, 2024 to Sept. 25, 2024
Date of issue.....:	Oct. 14, 2024
Test Result .....:	PASS
Testing Laboratory.....:	**Guangdong Zhonghan Testing Technology Co., Ltd.**
Address .....:	Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Applicant's name .....:	**ATANS Technology Inc**
Address .....:	Room 1021, block a, Baoyuan Huafeng headquarters economic building, 288 Xixiang Avenue, Laodong community, Xixiang street, Bao'an District, Shenzhen
Manufacturer's name .....:	**ATANS Technology Inc**
Address .....:	Room 1021, block a, Baoyuan Huafeng headquarters economic building, 288 Xixiang Avenue, Laodong community, Xixiang street, Bao'an District, Shenzhen
Test specification:	
Standard.....:	FCC CFR Title 47 Part 15 Subpart C
Test procedure.....:	/
Non-standard test method .....:	N/A

This device described above has been tested by ZHT, and the test resul/ show that the equipment under test (EUT) is in compliance with the FCC requiremen/. And it is applicable only to the tested sample identified in the report.
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Product name.....:	**QI wireless charging module**
Trademark .....:	ATANS
Model/Type reference.....:	AWC-TS1531-BQ
Model Difference.....:	/
Ratings.....	Input:DC12V/1.5A Wireless output: 5 W / 7.5 W / 10 W / 15 W

Testing procedure and testing location:

Testing Laboratory.....	Guangdong Zhonghan Testing Technology Co., Ltd.
Address.....	Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Tested by (name + signature).....	Leon Li
Reviewer (name + signature).....	Baret Wu
Approved (name + signature).....	Levi Lee

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1. VERSION

Report No.	Version	Description	Approved
ZHT-230705026E	Rev.01	Initial issue of report	Oct. 14, 2024

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

2.1 TEST FACILITY

Guangdong Zhonghan Testing Technology Co., Ltd.
Add. : Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an Distric Shenzhen, Guangdong, China

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

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U，where expended 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	±1.38dB
2	RF conducted power	±0.16dB
3	Conducted spurious emissions	±0.21dB
4	All radiated emissions (9k-30MHz)	±4.68dB
5	All radiated emissions (<1G)	±4.68dB
6	All radiated emissions (>1G)	±4.89dB
7	Temperature	±0.5°C
8	Humidity	±2%
9	Occupied Bandwidth	±4.96%

3. GENERAL INFORMATION

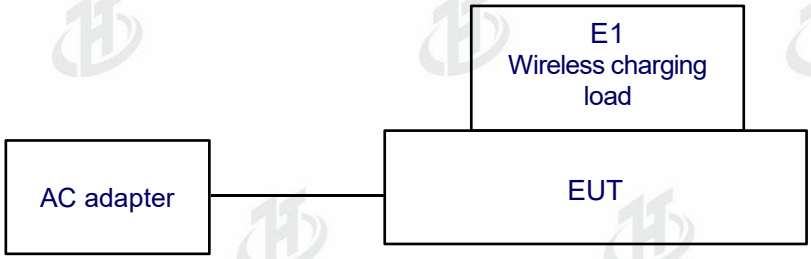
3.1 GENERAL DESCRIPTION OF EUT

Product Name:	QI wireless charging module
Test Model No:	AWC-TS1531-BQ
Hardware version:	0049EDA0
Software version:	V1.0
Operation Frequency:	115-205KHz
Modulation type:	MSK
Antenna Type:	Coil Antenna
Antenna gain:	0dBi

3.2 Test mode

Test Modes:	
Mode 1	Wireless charging(5W)
Mode 2	Wireless charging(7.5W)
Mode 3	Wireless charging(10W)
Mode 4	Wireless charging(15W)
Note: 1. All modes were tested, only the worst-case was recorded in the report. Mode 4 is the worst mode. 2.The EUT not supports portable use.	

3.3 Block Diagram of EUT Configuration



3.4 Test Conditions

Temperature: 23~26℃

Relative Humidity: 54~63 %

3.5 Description Of Support Uni/ (Conducted Mode)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support uni/ 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	N/A	EESON	N/A	AE
E-2	AC adapter	N/A	CHG-WALL-PD-45W	N/A	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”.

3.6 EQUIPMEN/ 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	966 Anechoic Chamber	EMToni	9m6m6m	May 10, 2024	May 09, 2025
11	Spectrum Analyzer	KEYSIGHT	N9020A	May 10, 2024	May 09, 2025
12	WIDBAND RADIO COMMUNICATI ON TESTER	R&S	CMW500	May 10, 2024	May 09, 2025
13	Single Generator	Agilent	N5182A	May 10, 2024	May 09, 2025
14	Power Sensor	MWRFtest	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
17	Power Amplifier Shielding Room	EMToni	2m3m3m	Nov. 25, 2021	Nov. 24, 2024

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
CE Shielding Room	EMToni	9m4m3m	Nov. 25, 2021	Nov. 24, 2024

4. CONDUCTED EMISSION TEST

4.1 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

4.1.1 POWER LINE CONDUCTED EMISSION Limi/

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.

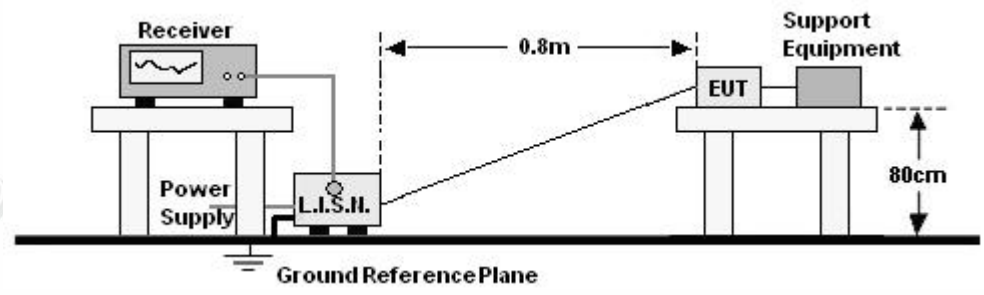
4.1.2 TEST PROCEDURE

a. 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 equipmen/ powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. 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.
c. 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.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP

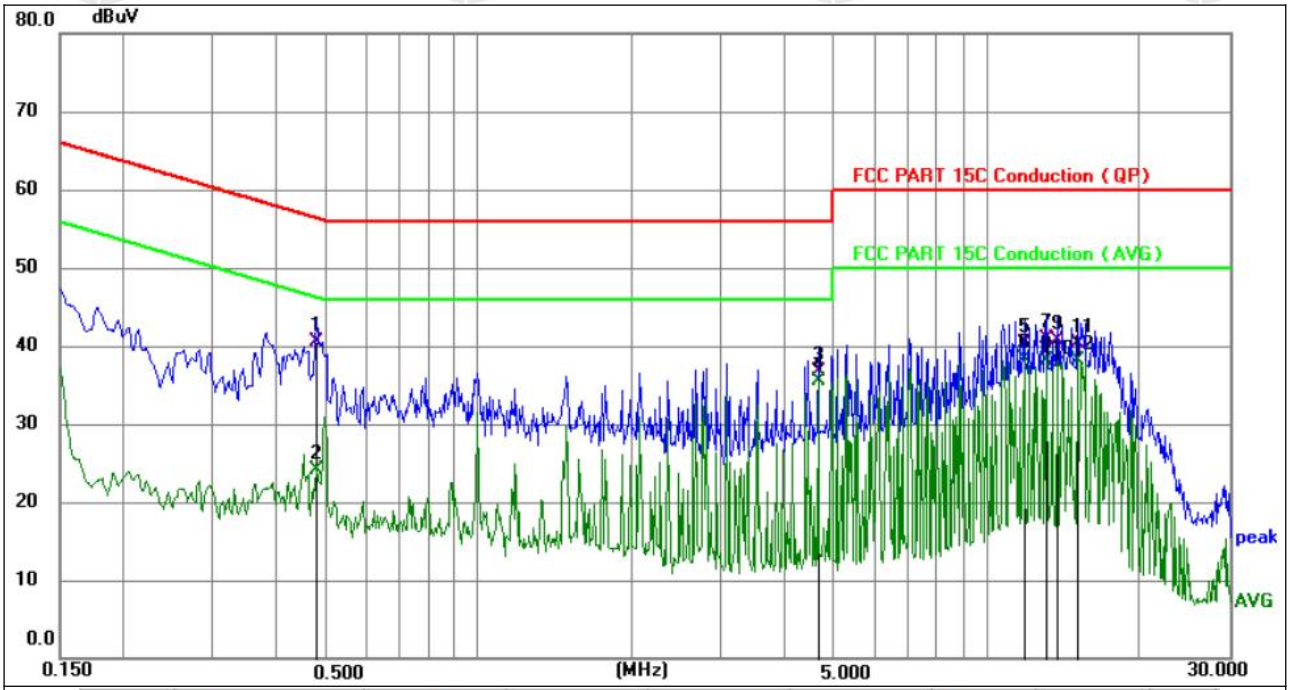


4.1.5 EUT OPERATING CONDITIONS

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.

4.1.6 Test Result

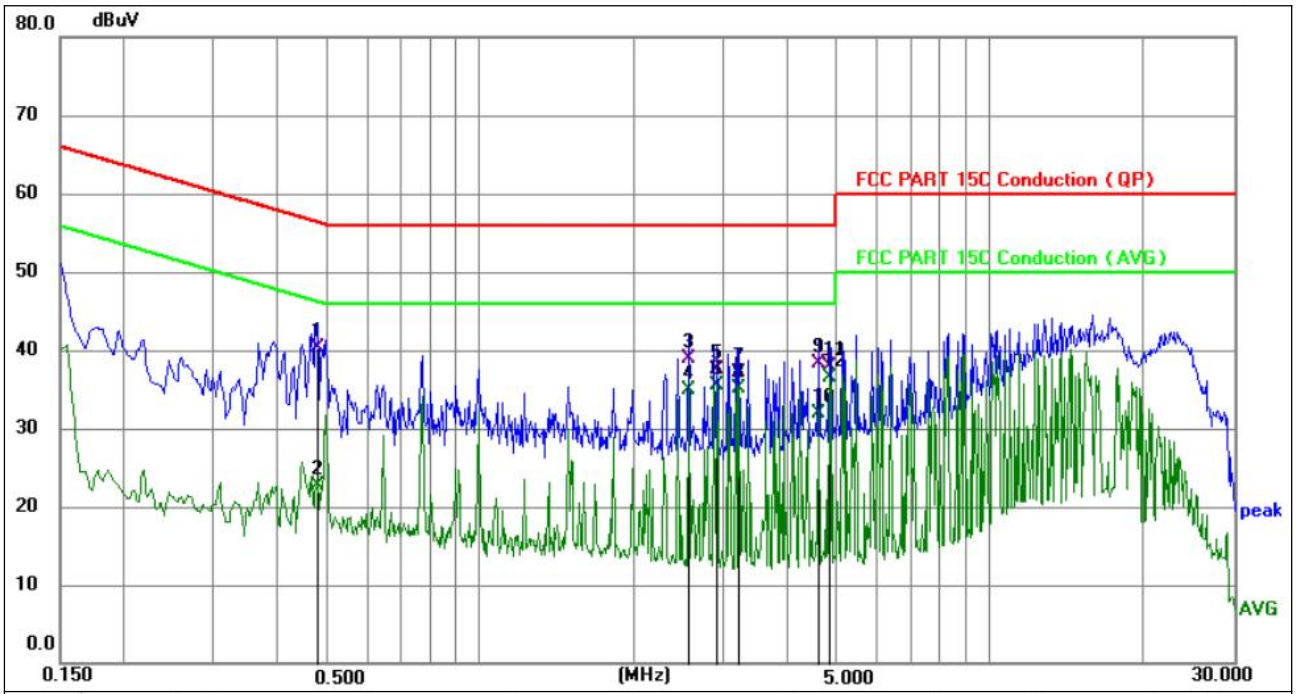
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Phase :	L
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode 4



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.4784	30.41	10.01	40.42	56.37	-15.95	QP	P
2	0.4784	14.10	10.01	24.11	46.37	-22.26	AVG	P
3	4.6634	26.50	10.11	36.61	56.00	-19.39	QP	P
4 *	4.6634	25.40	10.11	35.51	46.00	-10.49	AVG	P
5	11.8320	30.17	10.09	40.26	60.00	-19.74	QP	P
6	11.8320	28.20	10.09	38.29	50.00	-11.71	AVG	P
7	13.0830	30.72	10.09	40.81	60.00	-19.19	QP	P
8	13.0830	28.08	10.09	38.17	50.00	-11.83	AVG	P
9	13.7985	30.53	10.09	40.62	60.00	-19.38	QP	P
10	13.7985	27.46	10.09	37.55	50.00	-12.45	AVG	P
11	15.1304	30.11	10.10	40.21	60.00	-19.79	QP	P
12	15.1304	27.99	10.10	38.09	50.00	-11.91	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.Mesurement Level = Reading level + Correct Factor

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Phase :	N
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode 4



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.4784	30.27	10.01	40.28	56.37	-16.09	QP	P
2	0.4784	12.60	10.01	22.61	46.37	-23.76	AVG	P
3	2.5620	28.80	10.06	38.86	56.00	-17.14	QP	P
4	2.5620	24.75	10.06	34.81	46.00	-11.19	AVG	P
5	2.9130	27.44	10.07	37.51	56.00	-18.49	QP	P
6	2.9130	25.46	10.07	35.53	46.00	-10.47	AVG	P
7	3.2190	27.12	10.08	37.20	56.00	-18.80	QP	P
8	3.2190	25.12	10.08	35.20	46.00	-10.80	AVG	P
9	4.6185	28.21	10.11	38.32	56.00	-17.68	QP	P
10	4.6185	21.85	10.11	31.96	46.00	-14.04	AVG	P
11	4.8345	27.81	10.12	37.93	56.00	-18.07	QP	P
12 *	4.8345	26.36	10.12	36.48	46.00	-9.52	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.Mesurement Level = Reading level + Correct Factor

5. 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	Quasi-peak
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

5.1 Radiated Emission Limit

Limi/ for frequency below 30MHz

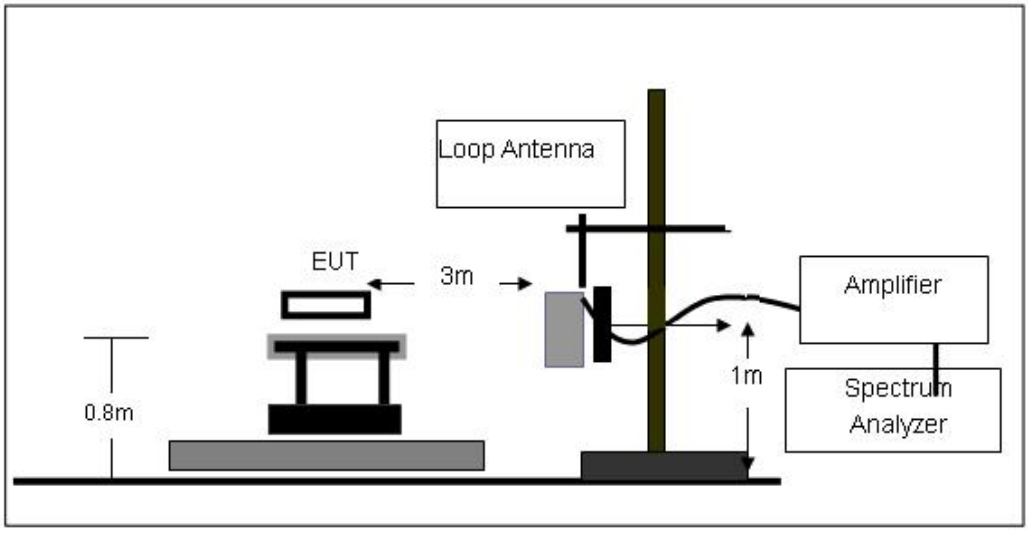
Frequency	Limit (uV/m)	Measurement Distance(m)	Remark
0.009-0.490	2400/F(kHz)	300	Quasi-peak Value
0.490-1.705	24000/F(kHz)	30	Quasi-peak Value
1.705-30	30	30	Quasi-peak Value

Limi/ for frequency Above 30MHz

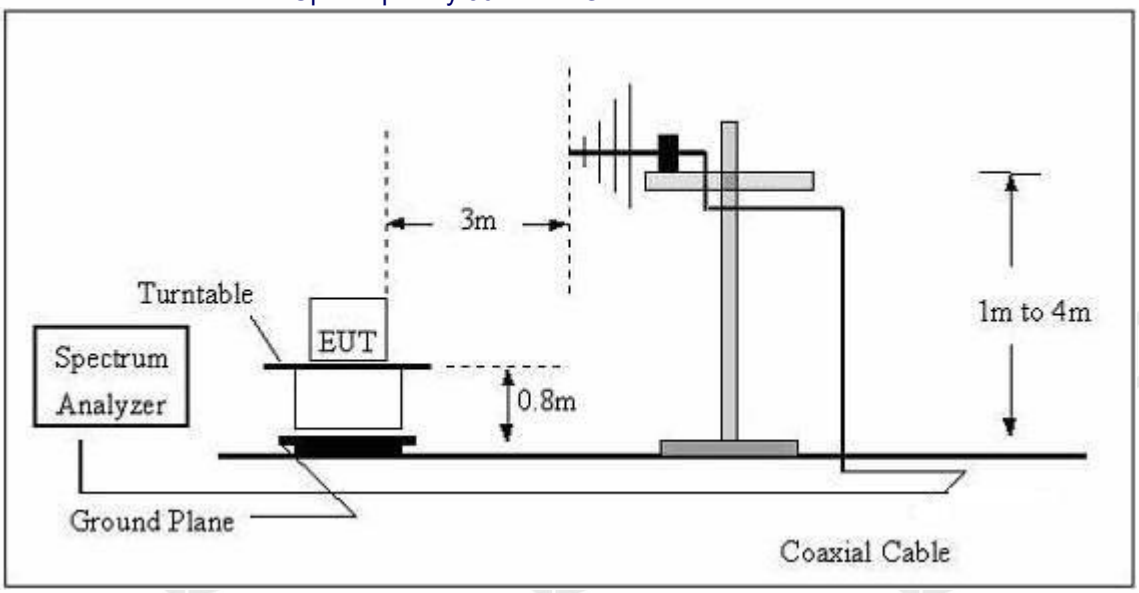
Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.00	Quasi-peak Value
88MHz-216MHz	43.50	Quasi-peak Value
216MHz-960MHz	46.00	Quasi-peak Value
960MHz-1GHz	54.00	Quasi-peak Value
Above 1GHz	54.00	Average Value
	74.00	Peak Value

5.2 Anechoic Chamber Test Setup Diagram

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



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



The radiated emission test 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 limit.

5.3 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.

5.4 DEVIATION FROM TEST STANDARD

No deviation

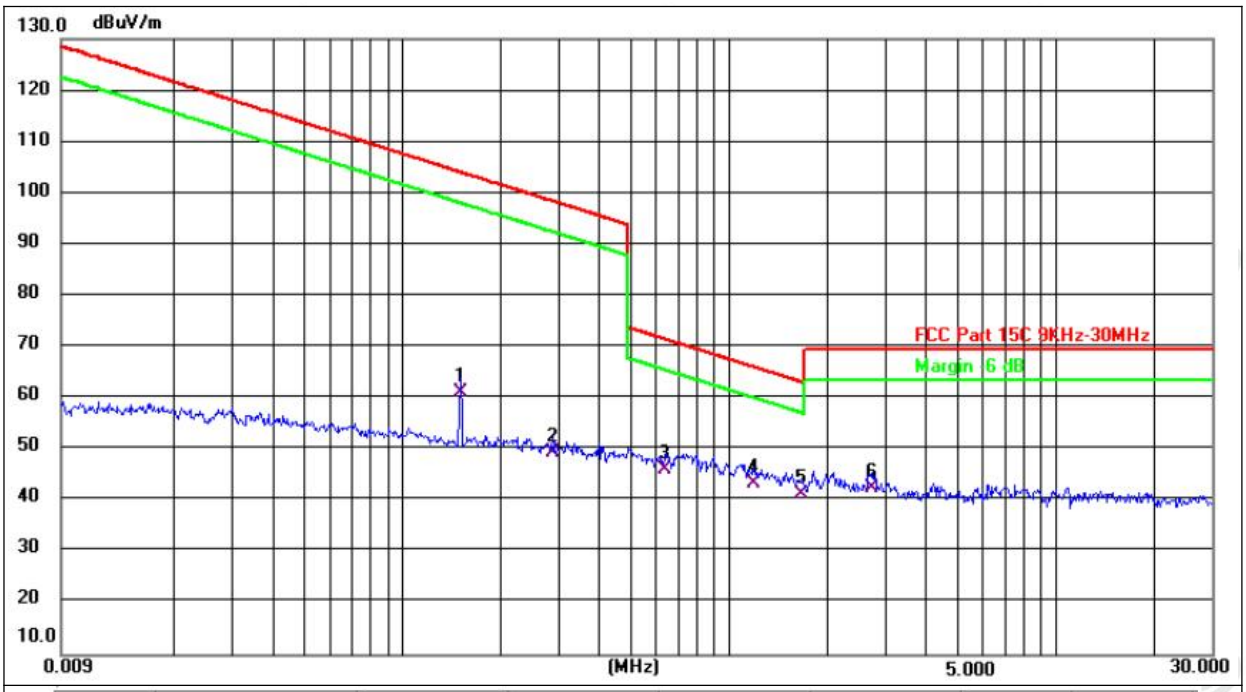
5.5 Test Result

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

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	coaxial
Test Voltage:	AC 120V/60Hz	Test Modes:	Mode 4

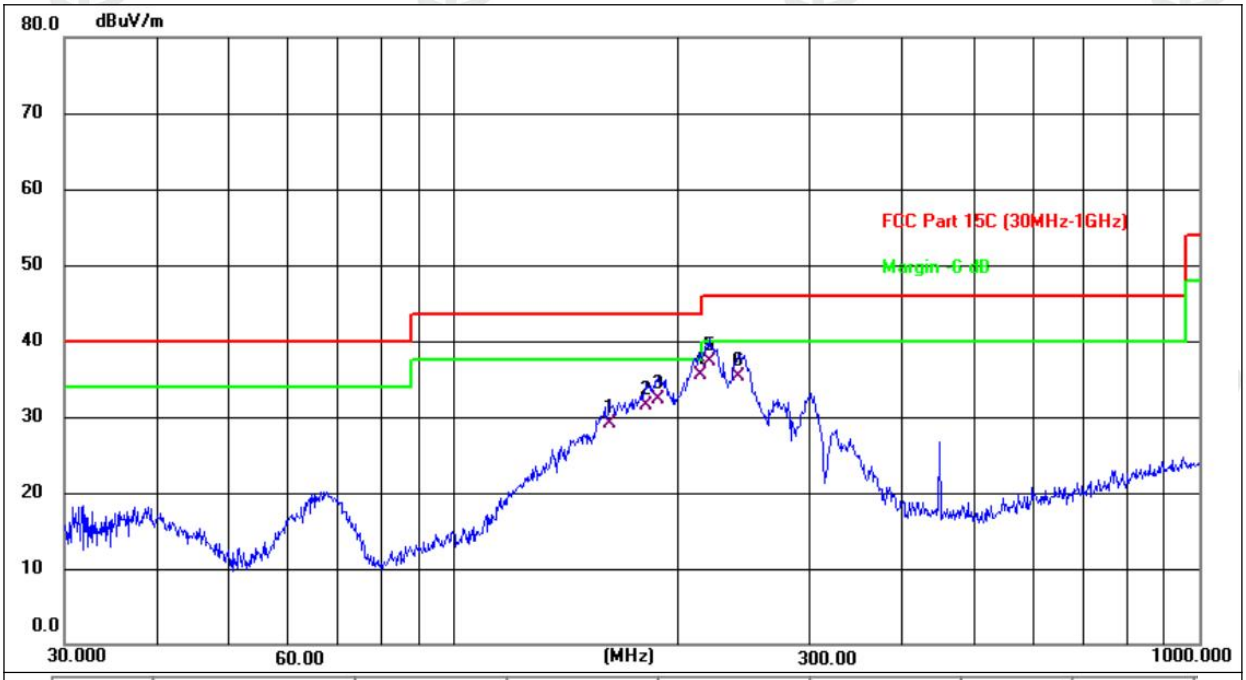


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1506	61.09	0.16	61.25	104.05	-42.80	QP
2	0.2872	48.72	0.71	49.43	98.44	-49.01	QP
3	0.6360	44.90	1.38	46.28	71.53	-25.25	QP
4	1.1880	40.90	2.50	43.40	66.11	-22.71	QP
5 *	1.6572	37.76	3.46	41.22	63.22	-22.00	QP
6	2.7185	36.89	5.63	42.52	69.54	-27.02	QP

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.

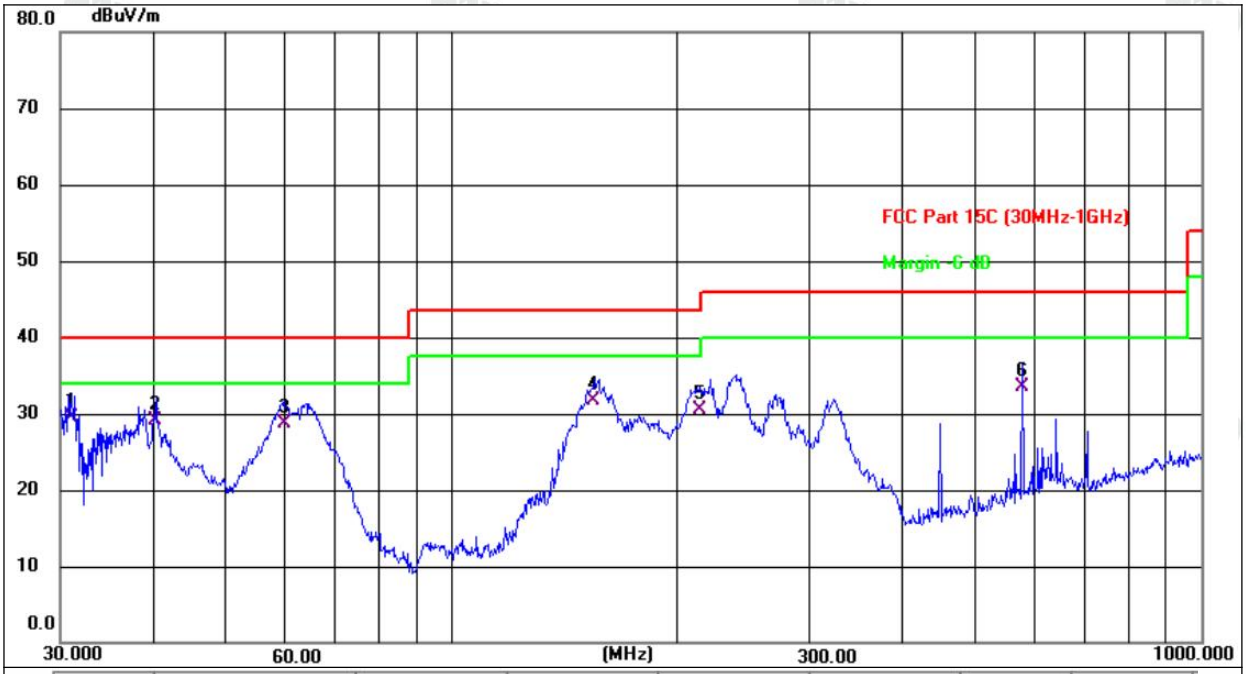
30MHz-1GHz

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Test Modes:	Mode 4



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	161.4740	44.90	-15.87	29.03	43.50	-14.47	QP
2	181.2834	48.49	-17.01	31.48	43.50	-12.02	QP
3	187.7530	49.80	-17.42	32.38	43.50	-11.12	QP
4 *	213.7634	53.07	-17.57	35.50	43.50	-8.00	QP
5	219.8448	54.52	-17.31	37.21	46.00	-8.79	QP
6	240.8303	51.60	-16.37	35.23	46.00	-10.77	QP

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Test Modes:	Mode 4



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	31.0705	42.04	-12.48	29.56	40.00	-10.44	QP
2	40.2754	41.83	-12.75	29.08	40.00	-10.92	QP
3	59.6492	44.74	-15.98	28.76	40.00	-11.24	QP
4	154.8204	47.24	-15.49	31.75	43.50	-11.75	QP
5	214.5141	48.08	-17.54	30.54	43.50	-12.96	QP
6	576.6443	41.34	-7.91	33.43	46.00	-12.57	QP

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

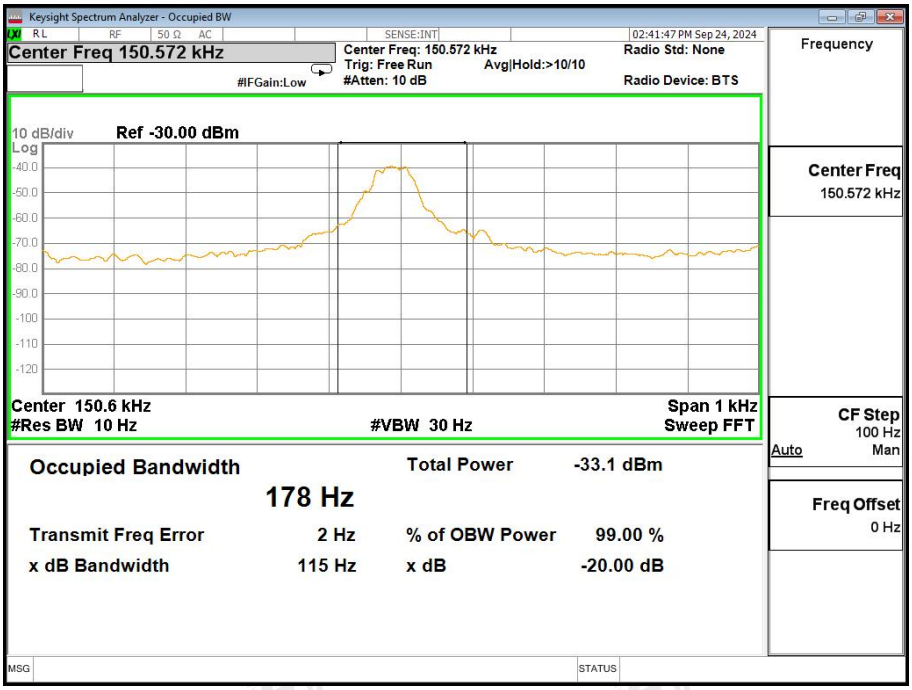
6. BANDWIDTH TEST

1. Set RBW = 10 Hz.
2. Set the video bandwidth (VBW) ≥ 3 x 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 point (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 ℃	Relative Humidity:	55%
Pressure:	101kPa		

Frequency (KHz)	20dB bandwidth (KHz)	Result
150.6	0.115	Pass



7. 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	

8. TEST SETUP PHOTO

Reference to the appendix I for details.

9. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

※※※※※ **END OF REPORT** ※※※※※