

FCC TEST REPORT

FCC ID: 2BMGC-NWC-153

Report No..... : ZHT-251029116W01-1

Product..... : Wireless charger for smartphone

Trademark..... : Shelllang

Model(s)..... : NWC-153

Model difference..... : /

Applicant..... : SHELLLANG KOREA

Address..... : Room B101, 110, Yulgok-ro, Jongno-gu, Seoul, Korea

Manufacturer..... : SHELLLANG KOREA

Address..... : Room B101, 110, Yulgok-ro, Jongno-gu, Seoul, Korea

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..... : Oct. 29, 2025

Date of Test(s)..... : Oct. 29, 2025-Nov. 20, 2025

Date of Issue..... : Nov. 20, 2025

Test Standard(s)..... : FCC CFR Title 47 Part 15 Subpart C

Test procedure..... : ANSI C63.10-2020

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

Prepared by:

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Kimi Lu/ Engineer

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Baret Wu/ Director

Approved by:

Levi Lee

Levi Lee/ Manager

Note: The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report shall not be reproduced except in full, without prior written approval of ZHT. This document may be altered or revised by ZHT, personnel only, and shall be noted in the revision of the document.



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1. 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. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

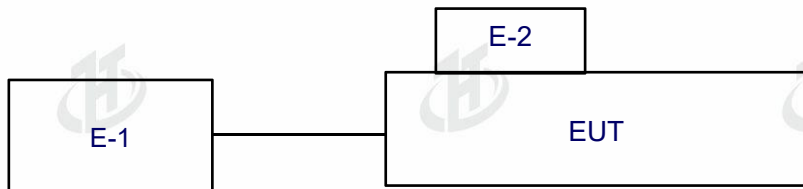
Product Name:	Wireless charger for smartphone
Test Model No:	NWC-153
Hardware version:	V1.0
Software version:	V1.0
Operation Frequency:	Phone: 115-205 kHz, 360 kHz
Modulation type:	ASK
Antenna Type:	Inductive loop coil Antenna
Antenna gain:	0dBi
Power supply:	Input: DC 5 V, DC 9 V, DC 12 V Wireless output: 5W /7.5 W /10W /15 W
Sample Number:	251029116YP001
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

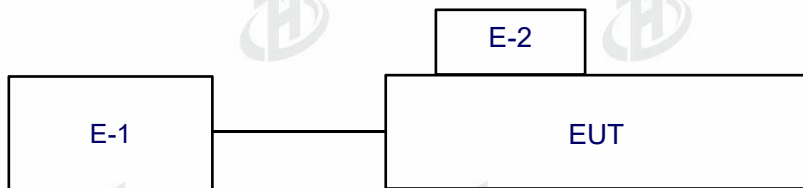
Test Modes:	
Mode 1	AC Adapter + Phone charging port(Battery Status: $\leq 1\%$) -115-205 kHz
Mode 2	AC Adapter + Phone charging port(Battery Status:50%)-115-205 kHz
Mode 3	AC Adapter + Phone charging port(Battery Status: $\geq 98\%$) -115-205 kHz
Mode 4	AC Adapter + Phone charging port(Battery Status: $\leq 1\%$) -360 kHz
Mode 5	AC Adapter + Phone charging port(Battery Status:50%)-360 kHz
Mode 6	AC Adapter + Phone charging port(Battery Status: $\geq 98\%$) -360 kHz
Mode 7	Standby
Note: All modes were tested, only the worst-case was recorded in the report. Conducted Emission Mode 4 is the worst mode. Radiated Emission(9-30MHz) Mode 1 and Mode 4 is the worst mode. Radiated Emission(30-1GHz) Mode 4 is the worst mode.	

3.3 Block Diagram of EUT Configuration

Conducted Emission



Radiated Emission



3.4 Test Conditions

Temperature: 25.6℃

Relative Humidity: 54.3

3.5 Description Of Support Units

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	Adapter	Xiaomi	MDY-08-EH	/	AE
E-2	Mobile phone	Xiaomi	Xiaomi 13	/	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. TEST 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 Instrument List For All Test Items

Item	Equipment	Manufacturer	Model	Serial No.	Last Cal.	Next Cal.
1	Receiver	R&S	ESCI	100874	May 6, 2025	May 5, 2026
2	Loop antenna	EMCI	LAP600	272	Sept. 8, 2025	Sept. 7, 2026
3	Amplifier	Schwarzbeck	BBV 9743 B	00378	May 6, 2025	May 5, 2026
4	Amplifier	Schwarzbeck	BBV 9718 B	00040	May 7, 2025	May 6, 2026
5	Bilog Antenna	Schwarzbeck	VULB9162	00498	May 15, 2025	May 14, 2026
6	Horn Antenna	Schwarzbeck	BBHA9120D	02623	May 15, 2025	May 14, 2026
7	Horn Antenna	A.H.SYSTEMS	SAS574	588	Oct. 20, 2025	Oct. 19, 2026
8	Amplifier	AEROFLEX	100KHz-40GHz	097	Oct. 20, 2025	Oct. 19, 2026
9	Spectrum Analyzer	R&S	FSV40	101413	Oct. 20, 2025	Oct. 19, 2026
10	Spectrum Analyzer	KEYSIGHT	N9020A	MY53420208	May 7, 2025	May 6, 2026
11	WIDBAND RADIO COMMUNICATION TESTER	R&S	CMW500	109863	May 7, 2025	May 6, 2026
12	Single Generator	Agilent	N5182A	MY48180575	May 7, 2025	May 6, 2026
13	Power Sensor	MWRFTest	MW100-RFCB	/	May 7, 2025	May 6, 2026
14	CABLE	EMToni	DA800-NM-NM-11000MM	/	Nov. 25, 2021	Nov. 24, 2026

Conduction Test equipment

Equipment	Manufacturer	Model	Serial No.	Last Cal.	Next Cal.
Receiver	R&S	ESCI	100874	May 6, 2025	May 5, 2026
LISN	R&S	ENV216	102794	May 6, 2025	May 5, 2026
ISN CAT 6	Schwarzbeck	NTFM 8158	00318	May 7, 2025	May 6, 2026
ISN CAT 5	Schwarzbeck	CAT5 8158	00343	May 7, 2025	May 6, 2026
Capacitive Voltage Probe	Schwarzbeck	CVP 9222 C	00101	May 8, 2025	May 7, 2026
Current Transformer Clamp	Schwarzbeck	SW 9605	SW9605 #209	May 8, 2025	May 7, 2026
CABLE	EMToni	G223-NM-BNCM-2000MM	/	May 6, 2025	May 5, 2026

4.3 Testing software

Project	Software name	Edition
Conducted Emission	EZ-EMC	EMC-CON 3A1.1+
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 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	0.92dB
2	RF conducted power	0.16dB
3	Conducted spurious emissions	0.21dB
4	All radiated emissions (9k-30MHz)	4.68dB
5	All radiated emissions (30-1GHz)	5.1dB
6	All radiated emissions (1-6GHz)	3.9dB
7	All radiated emissions (6GHz-18GHz)	4.3dB
8	All radiated emissions (18-40GHz)	4.65dB
9	Temperature	0.5°C
10	Humidity	2%
11	Occupied Bandwidth	4.96%

Decision Rule

- ☒ Uncertainty is not included
☐ Uncertainty is inclu



4. CONDUCTED EMISSION TEST

5.1 CONDUCTED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2020
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.

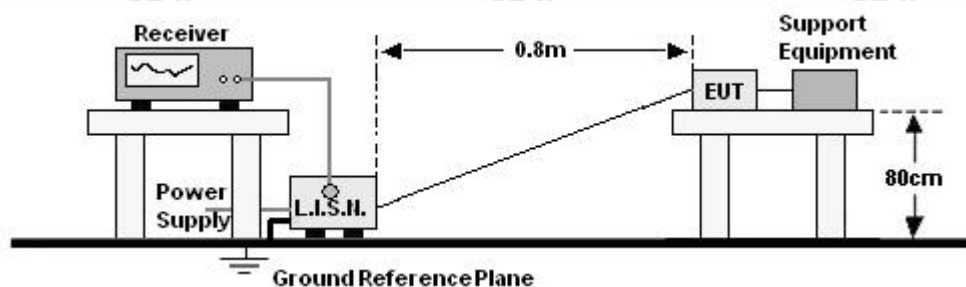
5.1.2 TEST PROCEDURE

- 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

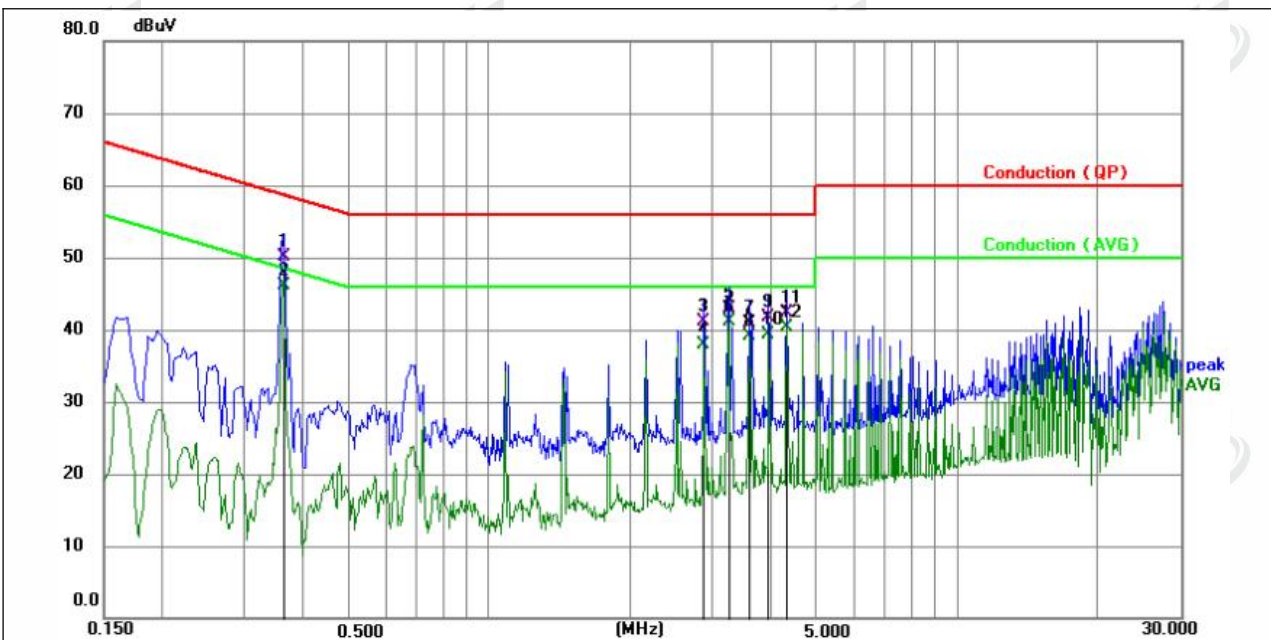


5.1.5 EUT OPERATING CONDITIONS

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:	24.6°C	Relative Humidity:	53.5%
Pressure:	101kPa	Phase :	L
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode 4



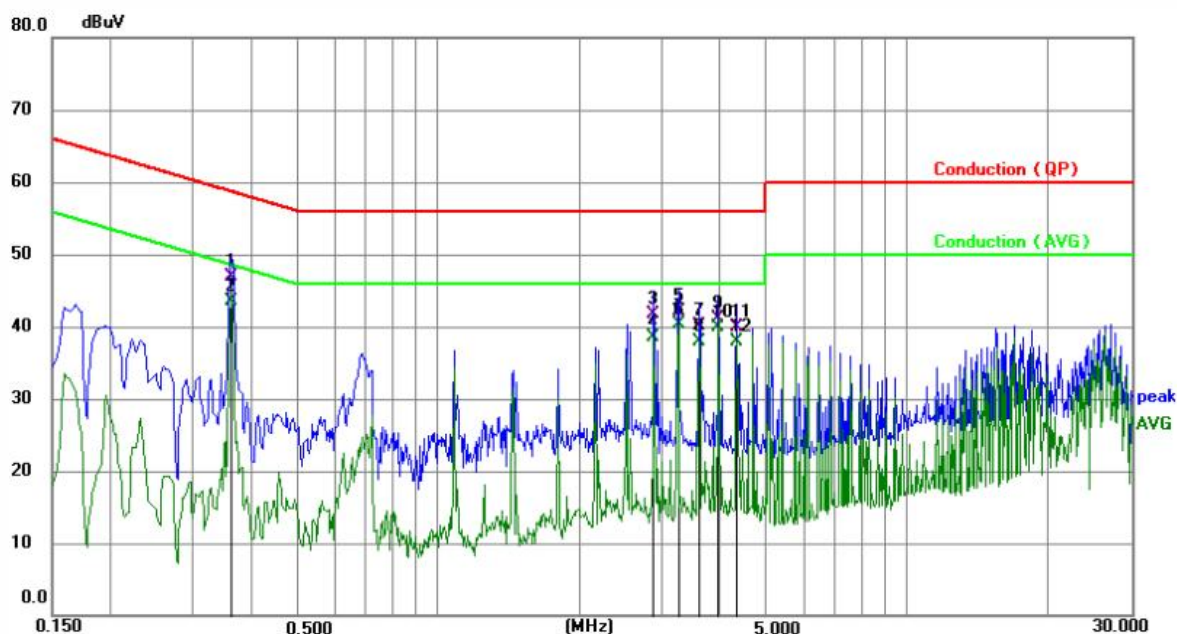
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.3614	40.10	9.97	50.07	58.70	-8.63	QP	P	
2 *	0.3614	36.04	9.97	46.01	48.70	-2.69	AVG	P	
3	2.8814	30.96	10.07	41.03	56.00	-14.97	QP	P	
4	2.8814	27.92	10.07	37.99	46.00	-8.01	AVG	P	
5	3.2414	32.91	10.08	42.99	56.00	-13.01	QP	P	
6	3.2414	30.98	10.08	41.06	46.00	-4.94	AVG	P	
7	3.6015	30.86	10.09	40.95	56.00	-15.05	QP	P	
8	3.6015	29.06	10.09	39.15	46.00	-6.85	AVG	P	
9	3.9615	31.58	10.09	41.67	56.00	-14.33	QP	P	
10	3.9615	29.15	10.09	39.24	46.00	-6.76	AVG	P	
11	4.3215	32.11	10.10	42.21	56.00	-13.79	QP	P	
12	4.3215	30.15	10.10	40.25	46.00	-5.75	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



Temperature:	24.6°C	Relative Humidity:	53.5%
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	Remark
1	0.3613	36.99	9.97	46.96	58.70	-11.74	QP	P	
2 *	0.3613	33.51	9.97	43.48	48.70	-5.22	AVG	P	
3	2.8814	31.67	10.07	41.74	56.00	-14.26	QP	P	
4	2.8814	28.49	10.07	38.56	46.00	-7.44	AVG	P	
5	3.2414	32.11	10.08	42.19	56.00	-13.81	QP	P	
6	3.2414	30.31	10.08	40.39	46.00	-5.61	AVG	P	
7	3.6015	30.11	10.09	40.20	56.00	-15.80	QP	P	
8	3.6015	27.85	10.09	37.94	46.00	-8.06	AVG	P	
9	3.9615	30.94	10.09	41.03	56.00	-14.97	QP	P	
10	3.9615	29.88	10.09	39.97	46.00	-6.03	AVG	P	
11	4.3215	29.80	10.10	39.90	56.00	-16.10	QP	P	
12	4.3215	27.78	10.10	37.88	46.00	-8.12	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

5. RADIATED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10:2020				
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

6.1 Radiated Emission Limits

Limits for frequency below 30MHz

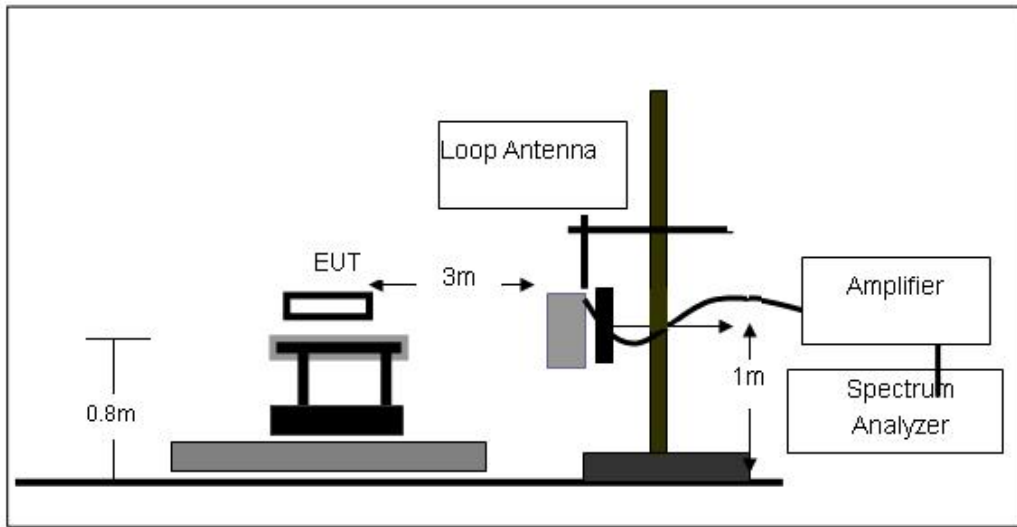
Frequency	Limit (uV/m)	Measurement Distance(m)	Remark
0.009-0.490	2400/F(kHz)	300	Peak Value
0.490-1.705	24000/F(kHz)	30	Quasi-peak Value
1.705-30	30	30	Quasi-peak Value

Limits for frequency Above 30MHz

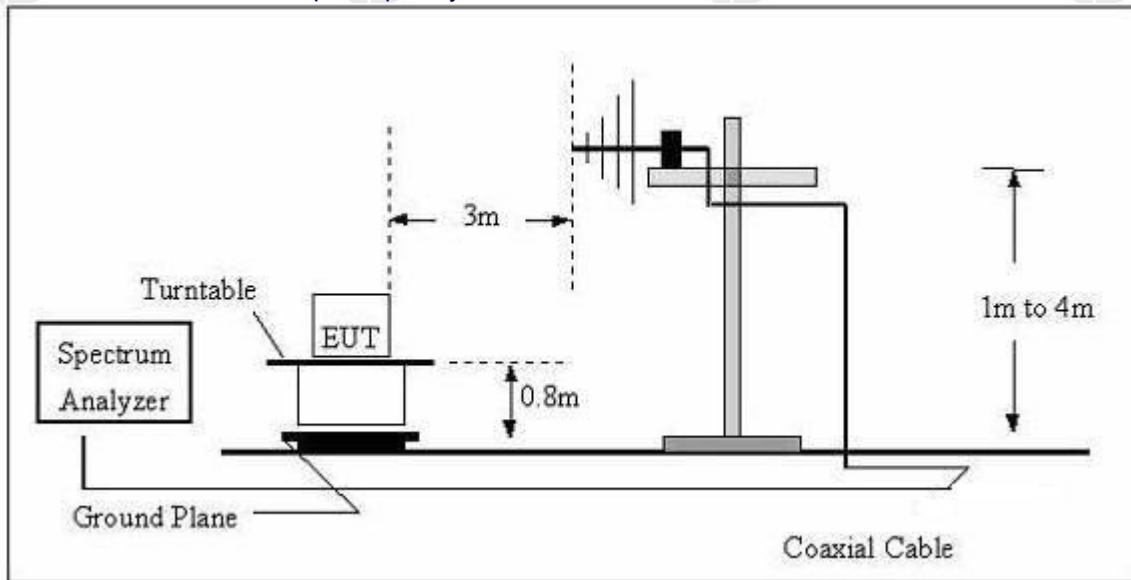
Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.00	Quasi-peak Value
88MHz-216MHz	43.50	Quasi-peak Value
216MHz-960MHz	46.00	Quasi-peak Value
960MHz-1GHz	54.00	Quasi-peak Value
Above 1GHz	54.00	Average Value
	74.00	Peak Value

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 C63.10-2020. 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

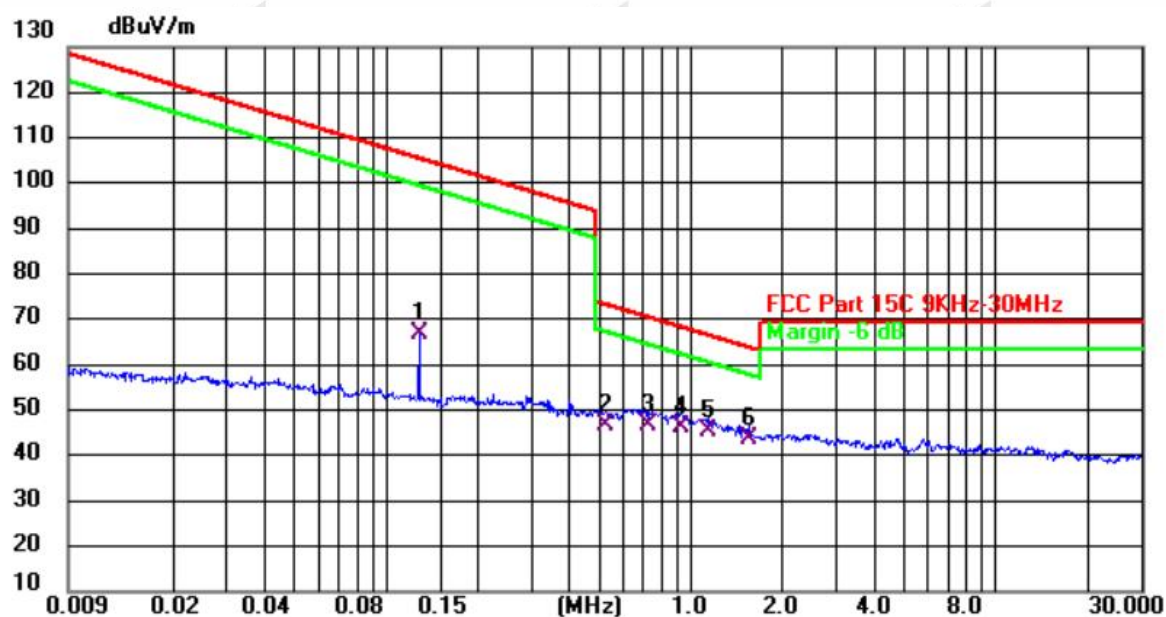
Measurement data:

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

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

9 kHz~30 MHz

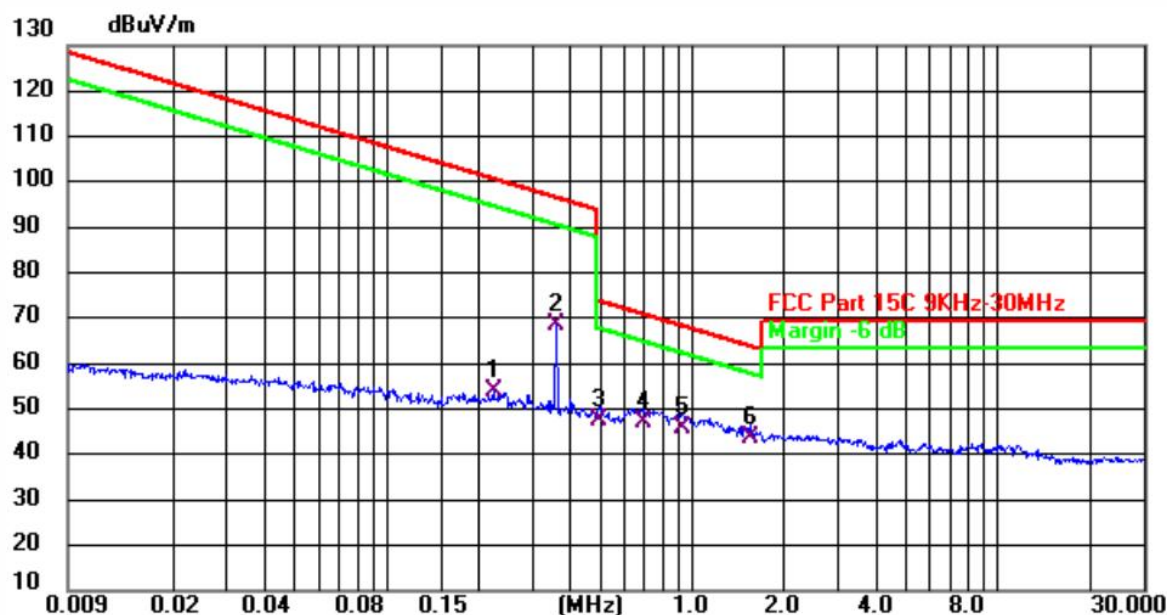
Temperature:	26℃	Relative Humidity:	53.5%
Pressure:	101kPa	Polarization:	coaxial
Test Voltage:	AC 120V/60Hz	Test Modes:	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F
1	0.1277	66.52	0.16	66.68	105.48	-38.80	Peak	-	-	P
2	0.5238	45.58	1.14	46.72	73.22	-26.50	QP	-	-	P
3	0.7187	45.25	1.54	46.79	70.47	-23.68	QP	-	-	P
4	0.9314	44.25	1.97	46.22	68.22	-22.00	QP	-	-	P
5	1.1320	43.02	2.38	45.40	66.53	-21.13	QP	-	-	P
6 *	1.5403	40.23	3.22	43.45	63.85	-20.40	QP	-	-	P



Temperature:	26℃	Relative Humidity:	53.5%
Pressure:	101kPa	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	Height (cm)	Azimuth (deg.)	P/F
1	0.2235	53.25	0.58	53.83	100.62	-46.79	Peak	-	-	P
2	0.3600	67.79	0.84	68.63	96.48	-27.85	Peak	-	-	P
3	0.4950	46.61	1.08	47.69	73.71	-26.02	QP	-	-	P
4	0.6902	45.44	1.48	46.92	70.82	-23.90	QP	-	-	P
5	0.9314	43.75	1.97	45.72	68.22	-22.50	QP	-	-	P
6 *	1.5403	40.23	3.22	43.45	63.85	-20.40	QP	-	-	P

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.

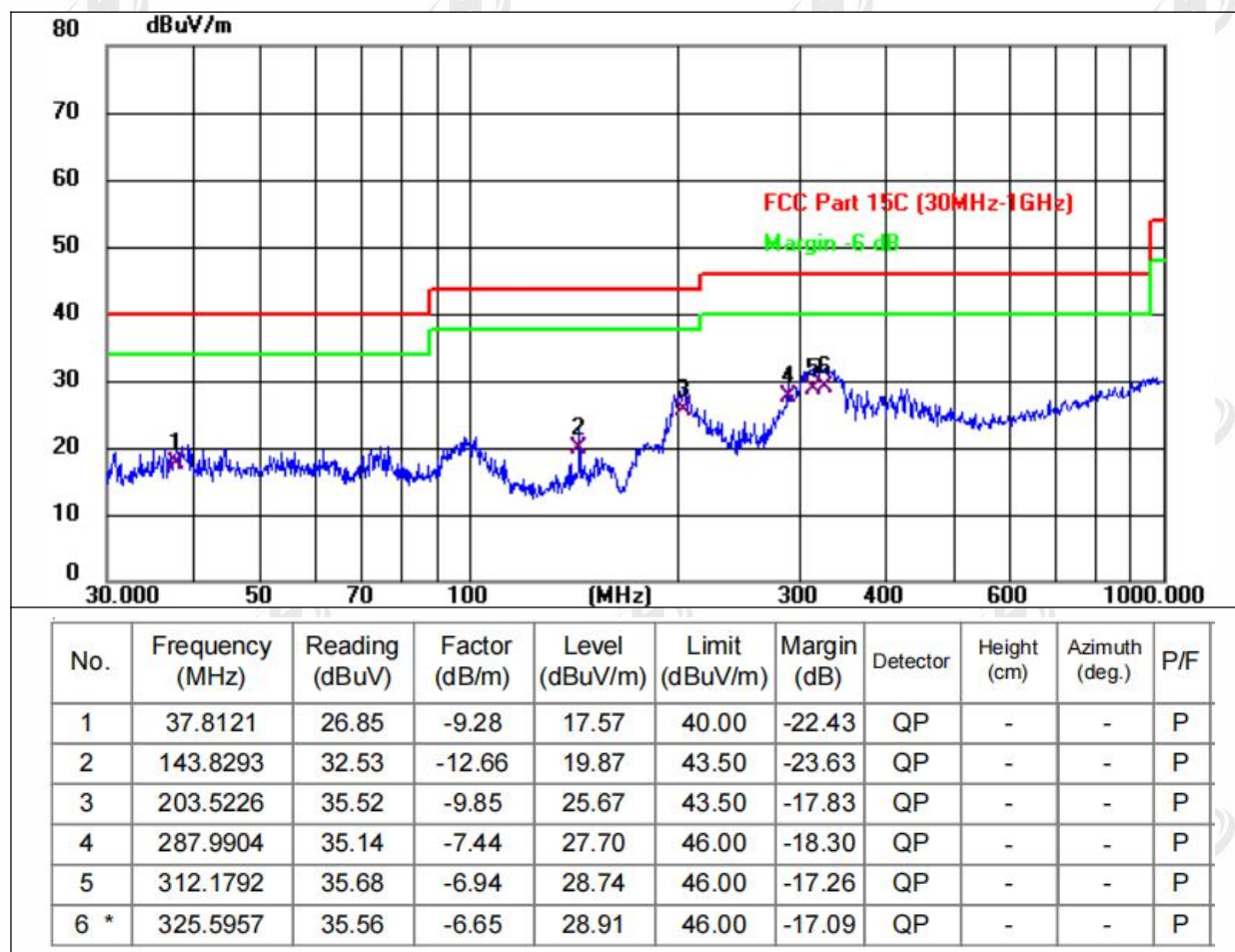
The amplitude of emissions which are attenuated by more than 20db below the permissible value has no need to be reported.

.-'Means the test Degree and Height are not recorded by the test software and only show the worst case in the test report.



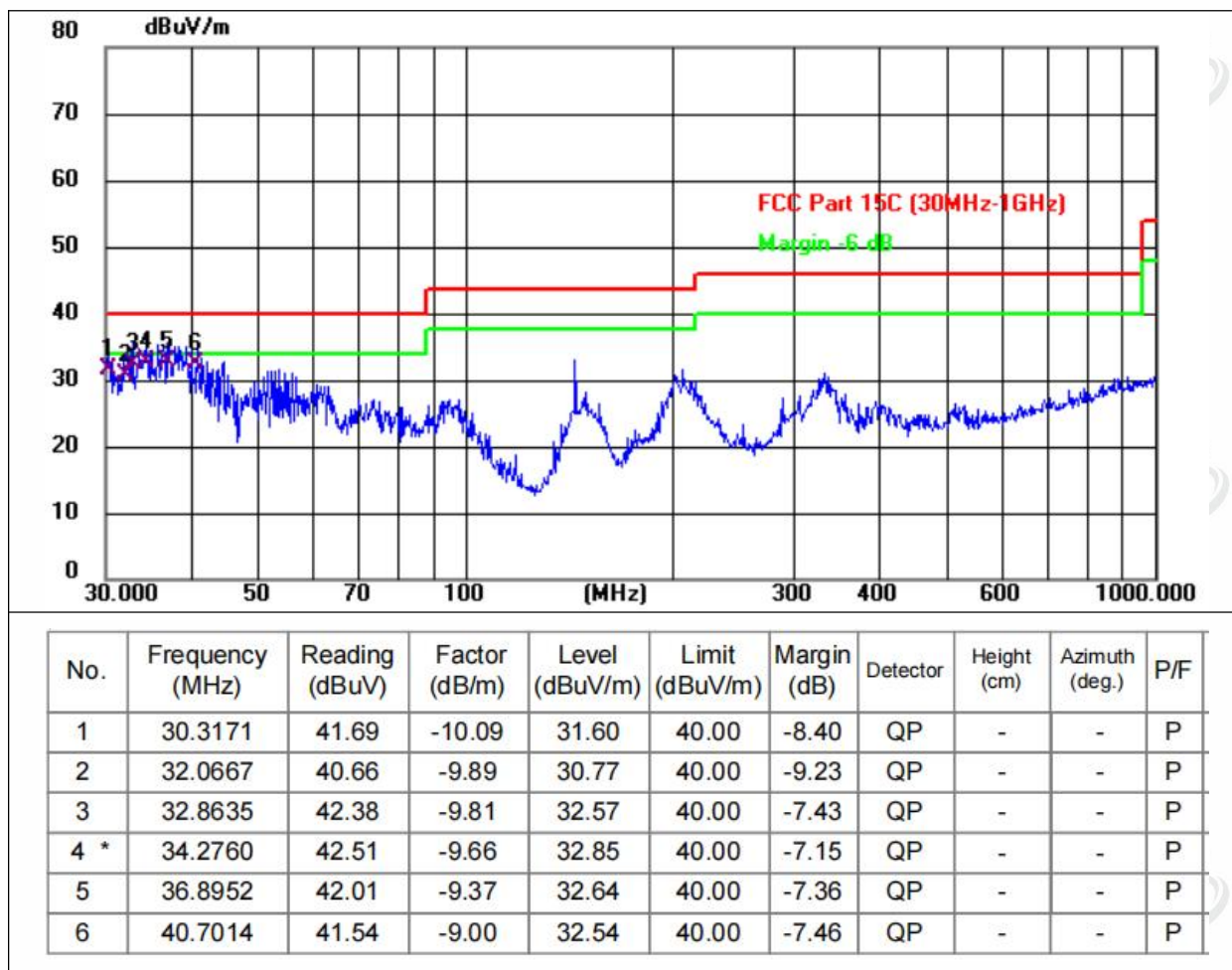
30MHz-1GHz

Temperature:	26°C	Relative Humidity:	53.5%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Test Modes:	Mode 4





Temperature:	26°C	Relative Humidity:	53.5%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Test Modes:	Mode 4



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.
5. '-' Means the test Degree and Height are not recorded by the test software and only show the worst case in the test report.



6. BANDWIDTH TEST

1. Set RBW = 10 Hz for 1%-5%OBW.
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:	53.6%
Pressure:	101kPa		

	Frequency (KHz)	20dB bandwidth (KHz)	Result
Phone coil	127.7	0.104	Pass
	360	0.027	Pass

Phone coil



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 *******