FCC TEST REPORT
FCC ID:2A4ZC-GW01

Report Number ..... :	**ZKT-2202220990E**
Date of Test	Feb. 24, 2022 to Mar. 01, 2022
Date of issue ..... :	Mar. 01, 2022
Total number of pages	21
Test Result ..... :	PASS
Testing Laboratory ..... :	**Shenzhen ZKT Technology Co., Ltd.**
Address ..... :	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China
Applicant's name ..... :	**Shenzhen guilai technology co., LTD**
Address ..... :	Room 813,kaihaoda square building, industrial park road no.1,dalang street,longhua district,shenzhen city,china.
Manufacturer's name ..... :	**Shenzhen guilai technology co., LTD**
Address ..... :	Room 813,kaihaoda square building, industrial park road no.1,dalang street,longhua district,shenzhen city,china.
Test specification:	
Standard ..... :	FCC CFR Title 47 Part 15 Subpart C
Test procedure ..... :	/
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	TRF-EL-107_V0
Test Report Form(s) Originator .... :	ZKT Testing
Master TRF ..... :	Dated: 2020-01-06

This device described above has been tested by ZKT, 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.
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Product name ..... :	**Folding magnetic bracket Fast wireless charger**
Trademark ..... :	N/A
Model/Type reference ..... :	GW02 GW01/GW03/GW04/GW05/GW06/GW07/GW08
Ratings ..... :	Input: DC 5V 2A, 9V 2A, 12V 3A Wireless Output Phone: 15W Max Wireless Output TWS: 5W Max

Testing procedure and testing location:

Testing Laboratory.....:	**Shenzhen ZKT Technology Co., Ltd.**
Address.....:	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China
Tested by (name + signature).....:	Alen He
Reviewer (name + signature).....:	Joe Liu
Approved (name + signature).....:	Lake Xie

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1. VERSION

Report No.	Version	Description	Approved
ZKT-2202220990E	Rev.01	Initial issue of report	Mar. 01, 2022

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

Shenzhen ZKT Technology Co., Ltd.
Add. : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

FCC Test Firm Registration Number: 692225
Designation Number: CN1299
IC Registered No.: 27033

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	3m camber Radiated spurious emission(9KHz-30MHz)	U=4.5dB
2	3m camber Radiated spurious emission(30MHz-1GHz)	U=4.8dB
3	3m chamber Radiated spurious emission(1GHz-18GHz)	U=4.9dB
4	3m chamber Radiated spurious emission(18GHz-40GHz)	U=5.0dB
5	Conducted Adjacent channel power	U=1.38dB
6	Conducted output power uncertainty Above 1G	U=1.576dB
7	Conducted output power uncertainty below 1G	U=1.28dB
8	humidity uncertainty	U=5.3%
9	Temperature uncertainty	U=0.59℃

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

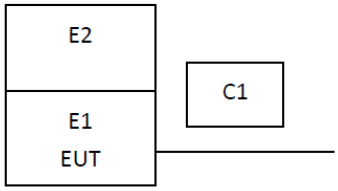
Product Name:	Folding magnetic bracket Fast wireless charger
Model No.:	GW02 GW01/GW03/GW04/GW05/GW06/GW07/GW08
Model Difference:	Only for different model name
Serial No.:	N/A
Hardware version:	H1.0
Software version:	S1.0
Operation Frequency:	115kHz ~ 205KHz
Modulation type:	MSK
Antenna Type:	Inductive loop coil Antenna
Antenna gain:	0dBi
Power supply:	Input: DC 5V 2A, 9V 2A, 12V 3A Wireless Output Phone: 15W Max Wireless Output TWS: 5W Max

3.2 Test mode

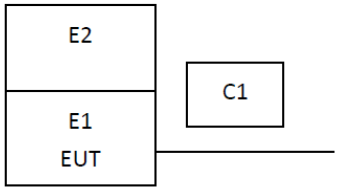
Test Modes:		
Mode 1	AC/DC Adapter (5V/2A) + EUT + Mobile Phone XIAOMI (10W)	
Mode 2	AC/DC Adapter (5V/2A) + EUT + Mobile Phone XIAOMI (7.5W)	
Mode 3	AC/DC Adapter (5V/2A) + EUT + Mobile Phone XIAOMI (5W)	
Mode 4	AC/DC Adapter (5V/2A) + EUT + TWS (5W)	
Mode 5	AC/DC Adapter (9V/2A) + EUT + Mobile Phone XIAOMI (15W)	
Mode 6	AC/DC Adapter (9V/2A) + EUT + Mobile Phone XIAOMI (10W)	
Mode 7	AC/DC Adapter (9V/2A) + EUT + Mobile Phone XIAOMI (7.5W)	
Mode 8	AC/DC Adapter (9V/2A) + EUT + Mobile Phone XIAOMI (5W)	
Mode 9	AC/DC Adapter (9V/2A) + EUT + TWS (5W)	
Mode 10	AC/DC Adapter (9V/2A) + EUT + Mobile Phone XIAOMI (10W)+ TWS (5W)	
Mode 11	AC/DC Adapter (12V/3A) + EUT + Mobile Phone XIAOMI (15W)	
Mode 12	AC/DC Adapter (12V/3A) + EUT + Mobile Phone XIAOMI (10W)	
Mode 13	AC/DC Adapter (12V/3A) + EUT + Mobile Phone XIAOMI (7.5W)	
Mode 14	AC/DC Adapter (12V/3A) + EUT + Mobile Phone XIAOMI (5W)	
Mode 15	AC/DC Adapter (12V/3A) + EUT + TWS (5W)	
Mode 16	AC/DC Adapter (12V/3A) + EUT + Mobile Phone XIAOMI (15W)+ TWS (5W)	Record
Note: All test modes were pre-tested, but we only recorded the worst case in this report.		

3.3 Block Diagram of EUT Configuration

Conducted Emission



Radiated Emission



3.4 Test Conditions

Temperature: 23~26℃

Relative Humidity: 54~63 %

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
E1	Folding magnetic bracket Fast wireless charger	N/A	GW02	N/A	EUT
A1	Phone	XIAOMI	DL01	N/A	Auxiliary
A2	TWS	XIAOMI	DL02	N/A	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note
C1	NO	NO	1.0M	DC cable unshielded

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 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	9020A	MY45109572	Sep. 22, 2021	Sep. 21, 2022
2	Spectrum Analyzer (1GHz-40GHz)	Agilent	E4446A	100363	Sep. 22, 2021	Sep. 21, 2022
3	Test Receiver (9kHz-7GHz)	R&S	ESCI7	101169	Sep. 22, 2021	Sep. 21, 2022
4	Bilog Antenna (30MHz-1400MHz)	Schwarzbeck	VULB9168	00877	Sep. 22, 2021	Sep. 21, 2022
5	Horn Antenna (1GHz-18GHz)	SCHWARZBECK	BBHA9120D	1541	Sep. 22, 2021	Sep. 21, 2022
6	Horn Antenna (18GHz-40GHz)	A.H. System	SAS-574	588	Sep. 22, 2021	Sep. 21, 2022
7	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	N/A	Sep. 22, 2021	Sep. 21, 2022
8	Amplifier (1GHz-40GHz)	全聚达	DLE-161	097	Sep. 22, 2021	Sep. 21, 2022
9	Loop Antenna (9KHz-30MHz)	SCHWARZBECK	FMZB1519B	014	Sep. 22, 2021	Sep. 21, 2022
10	RF cables1 (9kHz-30MHz)	N/A	9kHz-30MHz	N/A	Sep. 22, 2021	Sep. 21, 2022
11	RF cables2 (30MHz-1GHz)	N/A	30MHz-1GHz	N/A	Sep. 22, 2021	Sep. 21, 2022
12	RF cables3 (1GHz-40GHz)	N/A	1GHz-40GHz	N/A	Sep. 22, 2021	Sep. 21, 2022
13	CMW500 Test	R&S	CMW500	106504	Sep. 22, 2021	Sep. 21, 2022
14	ESG Signal Generator	Agilent	E4421B	GB40051203	Sep. 22, 2021	Sep. 21, 2022
15	Signal Generator	Agilent	N5182A	MY47420215	Sep. 22, 2021	Sep. 21, 2022
16	D.C. Power Supply	LongWei	TPR-6405D	\	\	\
17	Software	Frad	EZ-EMC	FA-03A2 RE	\	\

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	Sep. 22, 2021	Sep. 21, 2022
2	LISN	CYBERTEK	EM5040A	E1850400149	Sep. 22, 2021	Sep. 21, 2022
3	Test Cable	N/A	C01	N/A	Sep. 22, 2021	Sep. 21, 2022
4	Test Cable	N/A	C02	N/A	Sep. 22, 2021	Sep. 21, 2022
5	EMI Test Receiver	R&S	ESRP3	101946	Sep. 22, 2021	Sep. 21, 2022
6	Absorbing Clamp	DZ	ZN23201	N/A	Sep. 22, 2021	Sep. 21, 2022

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 Limits

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quas -peak	Average	
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.

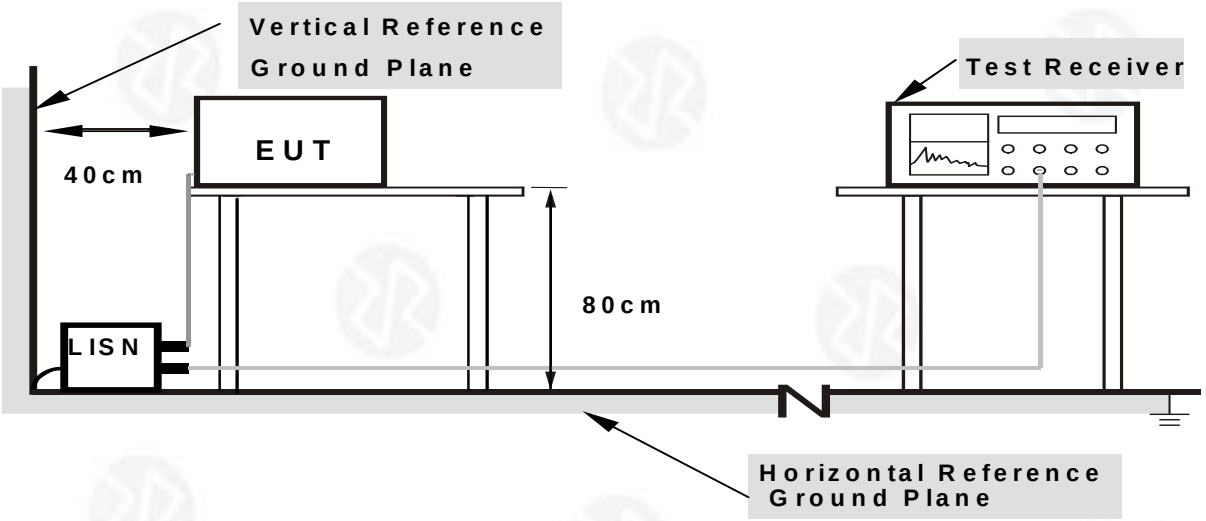
4.1.2 TEST PROCEDURE

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 equipments 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



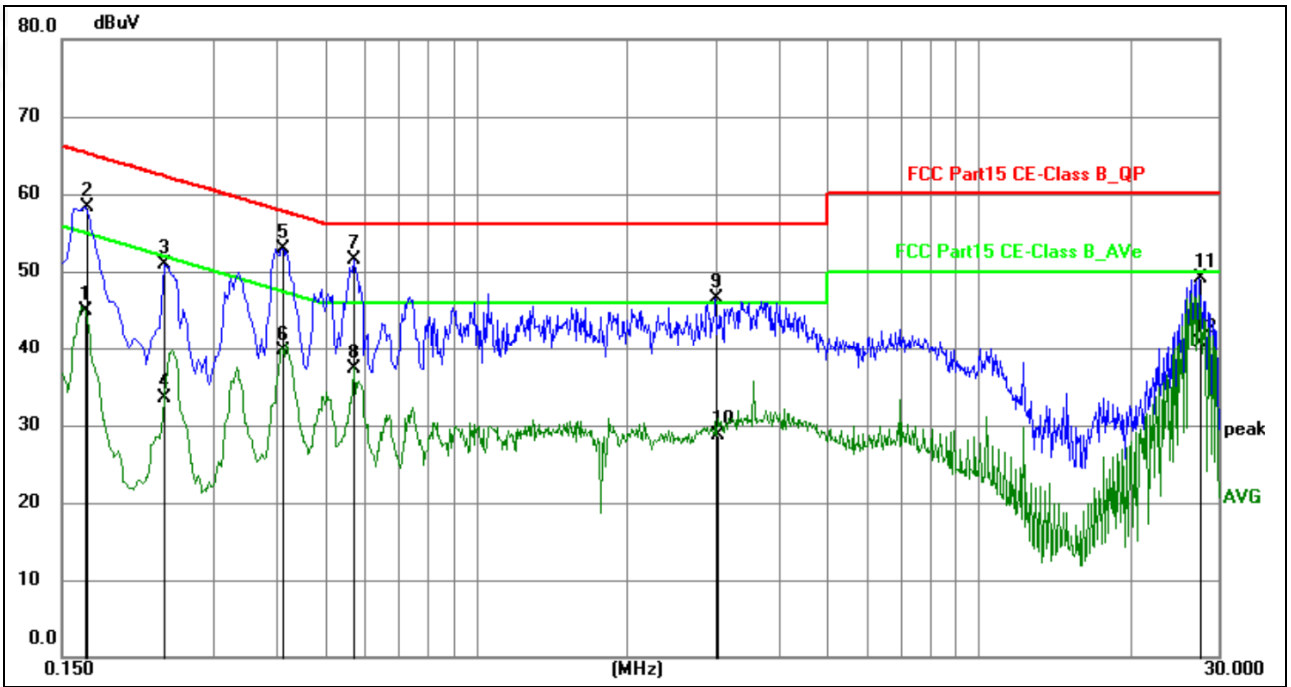
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

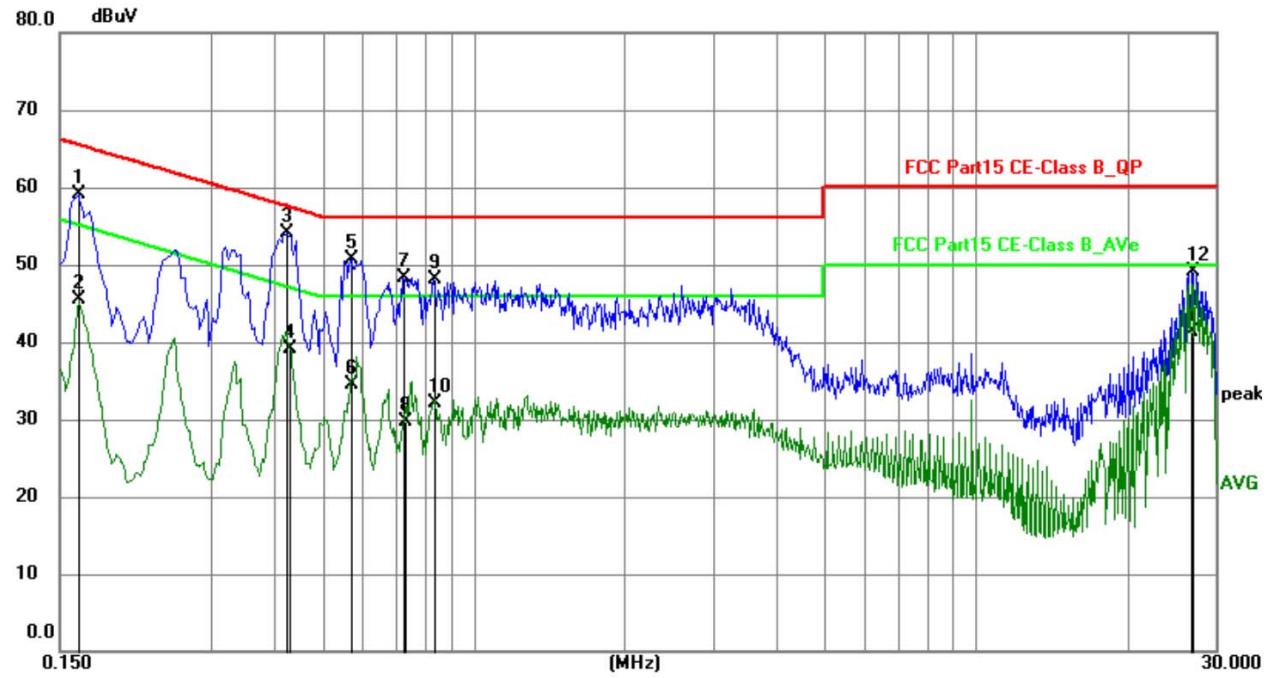
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Phase :	L
Test Voltage :	AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1667	32.33	12.64	44.97	55.12	-10.15	AVG	P	
2	0.1680	45.77	12.61	58.38	65.06	-6.68	QP	P	
3	0.2400	39.24	11.73	50.97	62.10	-11.13	QP	P	
4	0.2400	21.82	11.73	33.55	52.10	-18.55	AVG	P	
5	0.4110	42.01	10.95	52.96	57.63	-4.67	QP	P	
6	0.4126	28.76	10.94	39.70	47.60	-7.90	AVG	P	
7	0.5729	40.92	10.53	51.45	56.00	-4.55	QP	P	
8	0.5731	26.84	10.53	37.37	46.00	-8.63	AVG	P	
9	2.9985	36.51	9.94	46.45	56.00	-9.55	QP	P	
10	3.0120	18.76	9.93	28.69	46.00	-17.31	AVG	P	
11	27.4830	39.20	9.93	49.13	60.00	-10.87	QP	P	
12	27.6270	30.79	9.94	40.73	50.00	-9.27	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		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1635	46.37	12.71	59.08	65.28	-6.20	QP	P	
2	0.1635	32.81	12.71	45.52	55.28	-9.76	AVG	P	
3	0.4245	43.17	10.88	54.05	57.36	-3.31	QP	P	
4	0.4305	28.31	10.86	39.17	47.24	-8.07	AVG	P	
5	0.5684	40.25	10.53	50.78	56.00	-5.22	QP	P	
6	0.5684	23.99	10.53	34.52	46.00	-11.48	AVG	P	
7	0.7259	37.86	10.49	48.35	56.00	-7.65	QP	P	
8	0.7304	19.24	10.49	29.73	46.00	-16.27	AVG	P	
9	0.8339	37.59	10.47	48.06	56.00	-7.94	QP	P	
10	0.8339	21.68	10.47	32.15	46.00	-13.85	AVG	P	
11	26.7585	31.29	9.93	41.22	50.00	-8.78	AVG	P	
12	26.9025	39.17	9.93	49.10	60.00	-10.90	QP	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 Limits

Limits for frequency below 30MHz

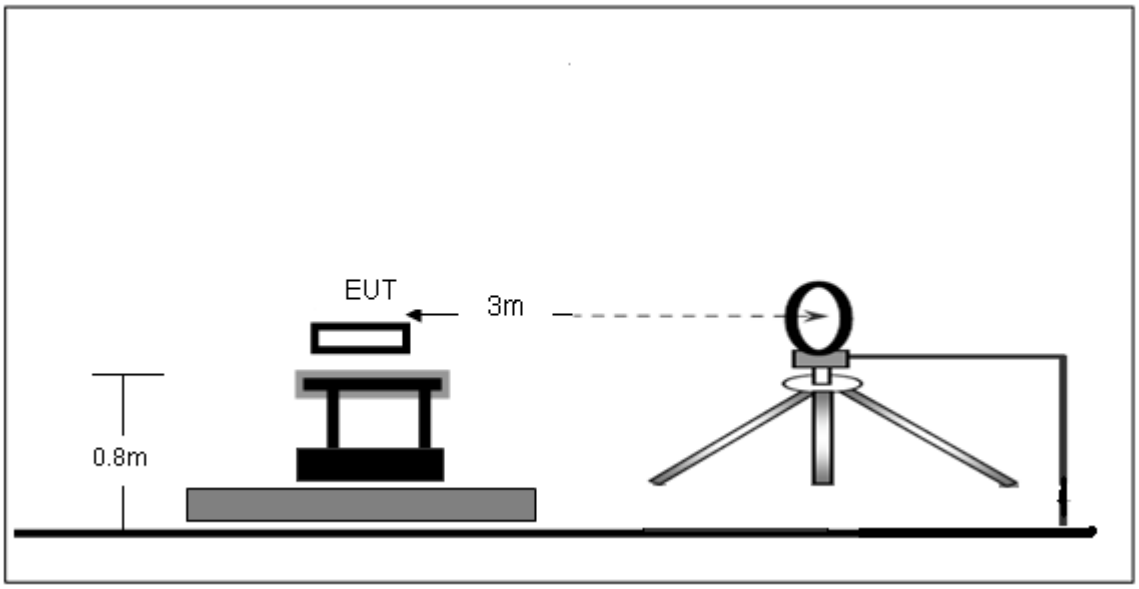
Frequency	Limit (uV/m)	Measurement Distance(m)	Remark
0.009-0.490	2400/F(kHz)	300	Quasi-peak Value
0.490-1.705	24000/F(kHz)	30	Quasi-peak Value
1.705-30	30	30	Quasi-peak Value

Limits for frequency Above 30MHz

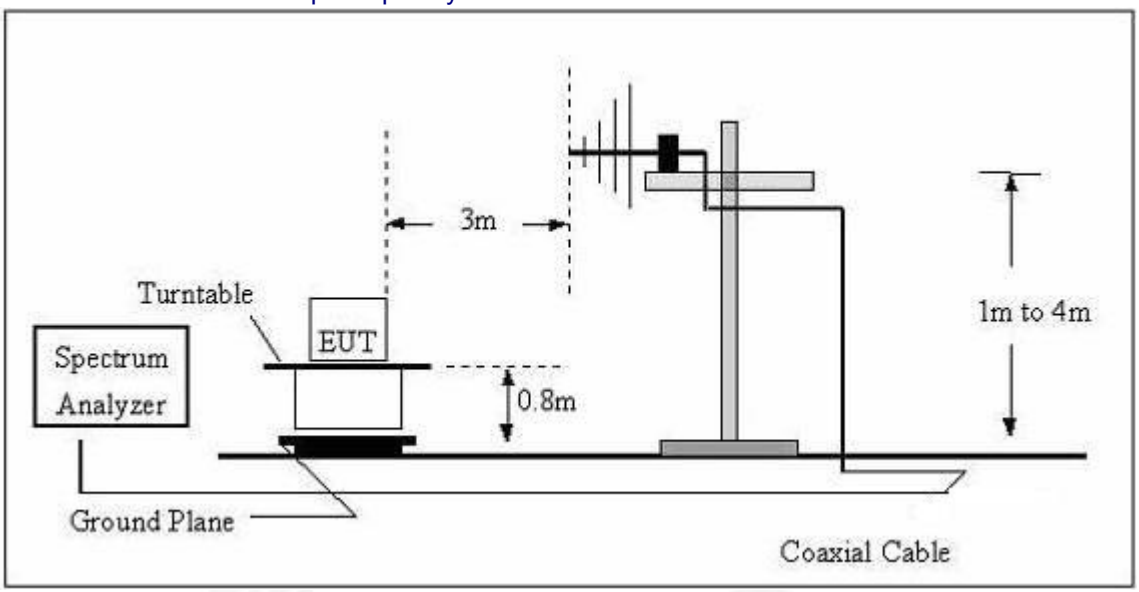
Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.00	Quasi-peak Value
88MHz-216MHz	43.50	Quasi-peak Value
216MHz-960MHz	46.00	Quasi-peak Value
960MHz-1GHz	54.00	Quasi-peak Value
Above 1GHz	54.00	Average Value
	74.00	Peak Value

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 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.

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

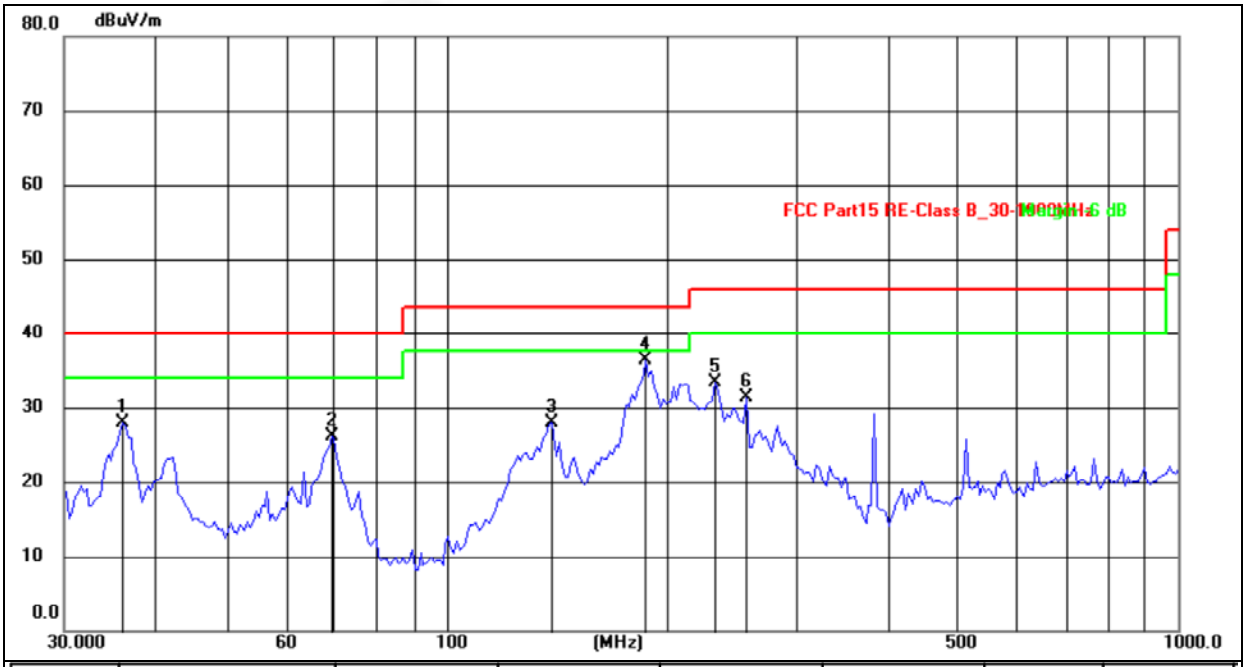
9 kHz~30 MHz

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(kHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
24.85	40.15	20.15	60.30	139.72	-79.42	PK
24.85	31.63	20.15	51.78	119.72	-67.94	AV
56.74	50.25	20.33	70.58	132.53	-61.95	PK
56.74	43.34	20.33	63.67	112.53	-48.86	AV
121.66	68.71	20.55	89.26	125.91	-36.65	PK
121.66	38.66	20.55	59.21	105.91	-46.70	AV
128.77	67.26	20.55	87.81	123.85	-36.04	PK
128.77	37.44	20.55	57.99	103.85	-45.86	AV
685.35	32.44	20.64	53.08	70.89	-17.81	QP
965.72	36.89	21.26	58.15	67.91	-9.76	QP
1228.32	29.55	22.32	51.87	65.86	-13.99	QP

Note:
Pre-scan in the all of mode, the worst case in of was recorded.
Factor = antenna factor + cable loss – pre-amplifier.
Margin = Emission Level- Limit.

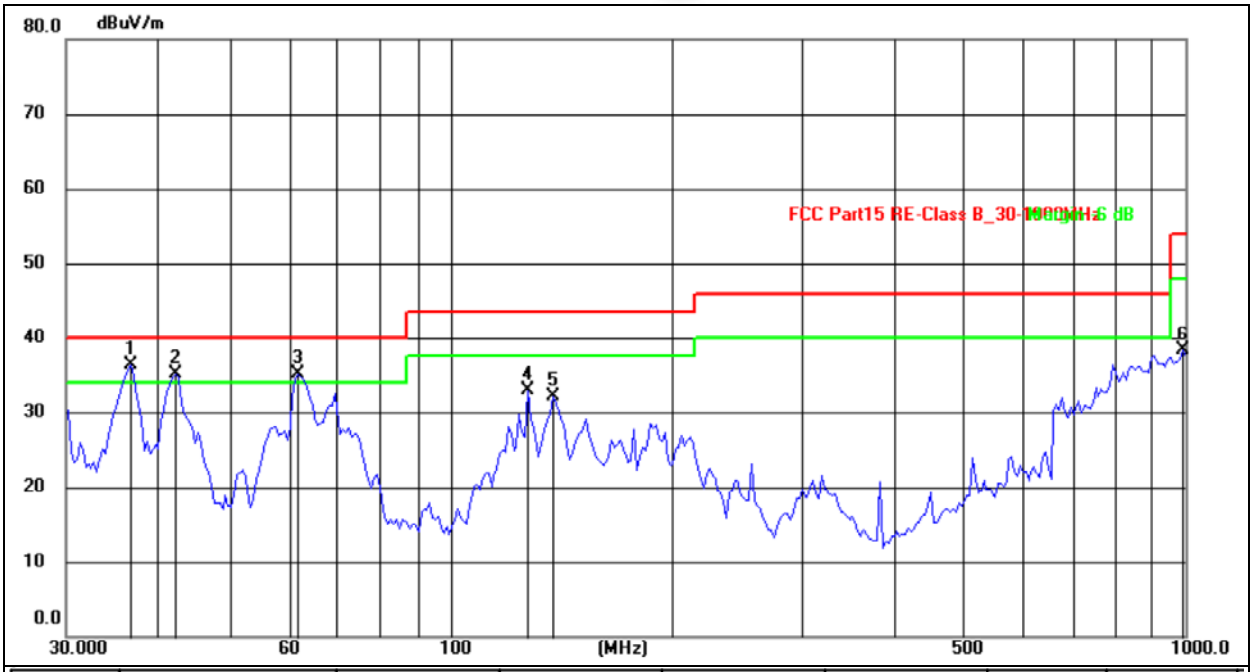
30MHz-1GHz

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	36.0638	42.66	-14.85	27.81	40.00	-12.19	QP
2	69.6004	42.86	-16.79	26.07	40.00	-13.93	QP
3	139.1171	45.37	-17.40	27.97	43.50	-15.53	QP
4	187.4240	55.47	-19.08	36.39	43.50	-7.11	QP
5	233.3486	51.41	-18.11	33.30	46.00	-12.70	QP
6	256.9712	48.50	-17.24	31.26	46.00	-14.74	QP

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	36.7017	53.66	-17.35	36.31	40.00	-3.69	QP
2	42.2280	51.97	-16.96	35.01	40.00	-4.99	QP
3	62.1037	53.55	-18.53	35.02	40.00	-4.98	QP
4	127.4407	54.43	-21.49	32.94	43.50	-10.56	QP
5	137.9028	53.37	-21.35	32.02	43.50	-11.48	QP
6	991.2718	40.62	-2.26	38.36	54.00	-15.64	QP

Remarks:
1.Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2.The emission levels of other frequencies are very lower than the limit and not show in test report.

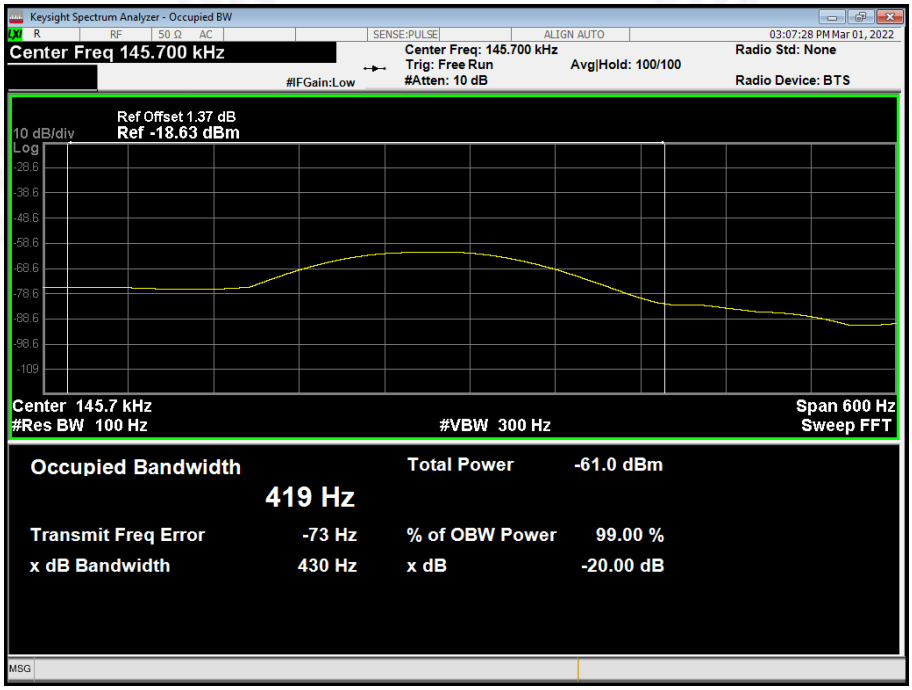
6. BANDWIDTH TEST

1. Set RBW = 100Hz.
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 points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

TEST SETUP

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa		

Frequency (KHz)	20dB bandwidth (Hz)	99% bandwidth (Hz)	Result
145.7	430	419	Pass



7. TEST SETUP PHOTO

Reference to the appendix I for details.

8. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

※※※※※ END OF REPORT ※※※※※