TEST REPORT

Report No.:	BCTC2208832515-1E
Applicant:	KOROS TECHNOLOGY (SHENZHEN) CO.LTD
Product Name:	Wireless Charging Base
Model/Type Ref.:	WH-B001
Tested Date:	2022-08-28 to 2022-09-10
Issued Date:	2022-10-10

Shenzhen BCTC Testing Co., Ltd.

FCC ID: 2A8K8WHB001A

Product Name:	Wireless Charging Base
Trademark:	WaterH
Model/Type Ref.:	WH-B001, WH-B001-SeashellBlue,WH-B001-White,WH-B001-MagnetiteBlue, WH-B002- SeashellBlue,WH-B002-White,WH-B002-MagnetiteBlue, WH-B001-Black, WH-B002-Black, WH-B001-Pink, WH-B002-Pink
Prepared For:	KOROS TECHNOLOGY (SHENZHEN) CO.LTD
Address:	Room 302, Building 4, No. 4, Jingnan Road, Longzhu Community, Buji Street, Shenzhen City, GuangDong, China
Manufacturer:	Shenzhen Fangxin Technology Co., LTD
Address:	Room 503, Hengbo Innovation Science and Technology Park, No. 33, Qingning Road, Longhua Street, Longhua District, Shenzhen
Prepared By:	Shenzhen BCTC Testing Co., Ltd.
Address:	1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date:	2022-08-26
Sample tested Date:	2022-08-28 to 2022-09-10
Report No.:	BCTC2208832515-1E
Test Standards:	FCC Part15.209 ANSI C63.10-2013
Test Results:	PASS

Tested by:

Brave Zeng/ Project Handler

Approved by:

Zero Zhou/Reviewer

The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Testing Co., Ltd, this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client.

Table of Content

Test Report Declaration Page
1. Version 4
2. Test Summary 5
3. Measurement Uncertainty 6
4. Product Information and Test Setup 7
4.1 Product Information 7
4.2 Test Setup Configuration 7
4.3 Support Equipment 7
4.4 Test Mode 8
5. Test Facility and Test Instrument Used 9
5.1 Test Facility 9
5.2 Test Instrument Used 9
6. Conducted Emissions 11
6.1 Block Diagram Of Test Setup 11
6.2 Limit 11
6.3 Test Procedure 11
6.4 EUT Operating Conditions 12
6.5 Test Result 13
7. Radiated Emissions 15
7.1 Block Diagram Of Test Setup 15
7.2 Limit 16
7.3 Test Procedure 16
7.4 Test Result 17
8. Bandwidth Test 20
9. Antenna Requirements 22
10. EUT Test Setup Photographs 23

1. Version

Report No.	Issue Date	Description	Approved
BCTC2208832515-1E	2022-10-10	Original	Valid

2. Test Summary

The Product has been tested according to the following specifications:

No.	Test Parameter	Clause No	Results
1	Conducted Emission	15.207	PASS
2	Radiated Emission	15.209	PASS
3	20dB Bandwidth	15.215	PASS
4	Antenna Requirement	15.203	PASS

3. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Uncertainty
1	3m chamber Radiated spurious emission(9kHz-30MHz)	U=3.7dB
2	3m chamber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
3	3m chamber Radiated spurious emission(1GHz-18GHz)	U=4.5dB
4	3m chamber Radiated spurious emission(18GHz-40GHz)	U=3.34dB
5	Conducted Emission(150kHz-30MHz)	U=3.20dB
6	Conducted Adjacent channel power	U=1.38dB
7	Conducted output power uncertainty Above 1G	U=1.576dB
8	Conducted output power uncertainty below 1G	U=1.28dB
9	humidity uncertainty	U=5.3%
10	Temperature uncertainty	U=0.59℃

4. Product Information and Test Setup

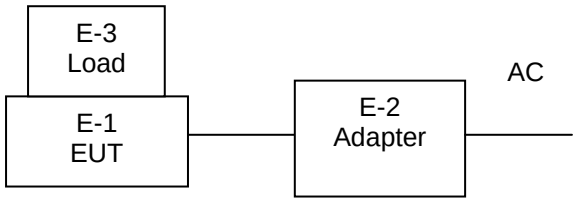
4.1 Product Information

Model/Type reference:	WH-B001, WH-B001-SeashellBlue,WH-B001-White,WH-B001-MagnetiteBlue, WH-B002- SeashellBlue,WH-B002-White,WH-B002-MagnetiteBlue, WH-B001-Black, WH-B002-Black, WH-B001-Pink, WH-B002-Pink
Model differences:	All models covered in this report are the same with each other, except for different model and appearance (for color, silk-screen) only for trading purpose. We choose WH-B001 as the final test prototype
Hardware Version:	N/A
Software Version:	N/A
Operation Frequency:	112-205KHz
Antenna installation:	Loop coil antenna
Ratings:	AC120V/60Hz

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP Photographs for the actual connections between Product and support equipment.

Conducted Emission / Radiated Spurious Emission:



4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-1	Wireless Charging Base	N/A	WH-B001	N/A	EUT
E-2	Adapter	XIAOMI	A232-050200U-CN2	N/A	Auxiliary
E-3	Dummy load	N/A	DL02	N/A	Auxiliary

Notes:
1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test confit

Test Modes 1	Wireless charger: 5W

5. Test Facility and Test Instrument Used

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at Shenzhen BCTC Testing Co., Ltd. Address: 1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.
FCC Test Firm Registration Number: 712850
IC Registered No.: 23583

5.2 Test Instrument Used

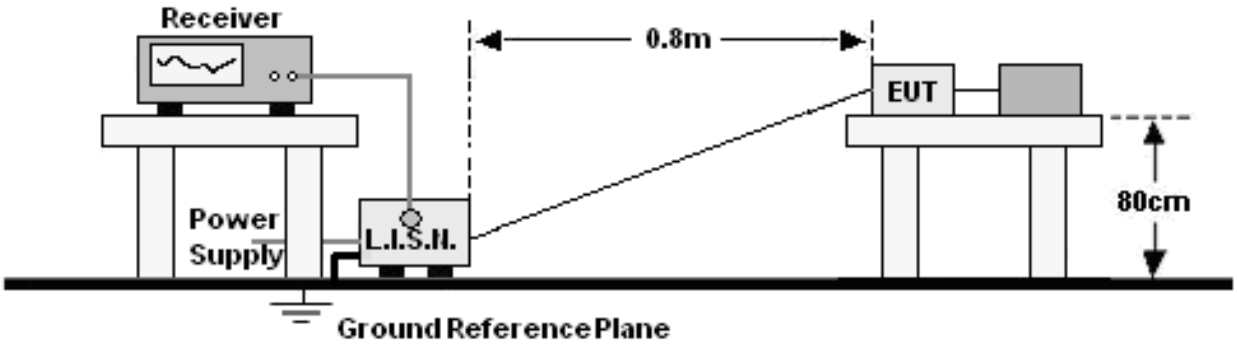
Conducted emissions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Receiver	R&S	ESR3	102075	May 24, 2022	May 23, 2023
LISN	R&S	ENV216	101375	May 24, 2022	May 23, 2023
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\
Attenuator	\	10dB DC-6GHz	1650	May 24, 2022	May 23, 2023

RF Conducted Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Power Metter	Keysight	E4419	\	May 24, 2022	May 23, 2023
Power Sensor (AV)	Keysight	E9300A	\	May 24, 2022	May 23, 2023
Signal Analyzer20kHz-26.5GHz	Keysight	N9020A	MY49100060	May 24, 2022	May 23, 2023
Spectrum Analyzer9kHz-40GHz	R&S	FSP40	\	May 24, 2022	May 23, 2023

Radiated Emissions Test (966 Chamber)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
966 chamber	ChengYu	966 Room	966	Jun. 06. 2020	Jun. 05, 2023
Receiver	R&S	ESR3	102075	May 24, 2022	May 23, 2023
Receiver	R&S	ESRP	101154	May 24, 2022	May 23, 2023
Amplifier	SKET	LAPA_01G18G-45dB	\	May 24, 2022	May 23, 2023
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 24, 2022	May 23, 2023
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	942	May 26, 2022	May 25, 2023
Horn Antenna	Schwarzbeck	BBHA9120D	1541	May 24, 2022	May 23, 2023
Horn Antenn (18GHz-40GHz)	Schwarzbeck	BBHA9170	00822	Jun. 15, 2021	May 23, 2023
Amplifier (18GHz-40GHz)	MITEQ	TTA1840-35-HG	2034381	May 26, 2022	May 25, 2023
Loop Antenna (9KHz-30MHz)	Schwarzbeck	FMZB1519B	00014	May 26, 2022	May 25, 2023
RF cables1 (9kHz-30MHz)	Huber+Suhnar	9kHz-30MHz	B1702988-0008	May 26, 2022	May 25, 2023
RF cables2 (30MHz-1GHz)	Huber+Suhnar	30MHz-1GHz	1486150	May 26, 2022	May 25, 2023
RF cables3 (1GHz-40GHz)	Huber+Suhnar	1GHz-40GHz	1607106	May 26, 2022	May 25, 2023
Power Metter	Keysight	E4419	\	May 26, 2022	May 25, 2023
Power Sensor (AV)	Keysight	E9300A	\	May 26, 2022	May 25, 2023
Signal Analyzer 20kHz-26.5GHz	Keysight	N9020A	MY49100060	May 26, 2022	May 25, 2023
Spectrum Analyzer 9kHz-40GHz	R&S	FSP 40	\	May 26, 2022	May 25, 2023
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

6. Conducted Emissions

6.1 Block Diagram Of Test Setup



6.2 Limit

FREQUENCY (MHz)	Limit (dBuV)	
	Quas-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Notes:
1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

6.3 Test Procedure

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

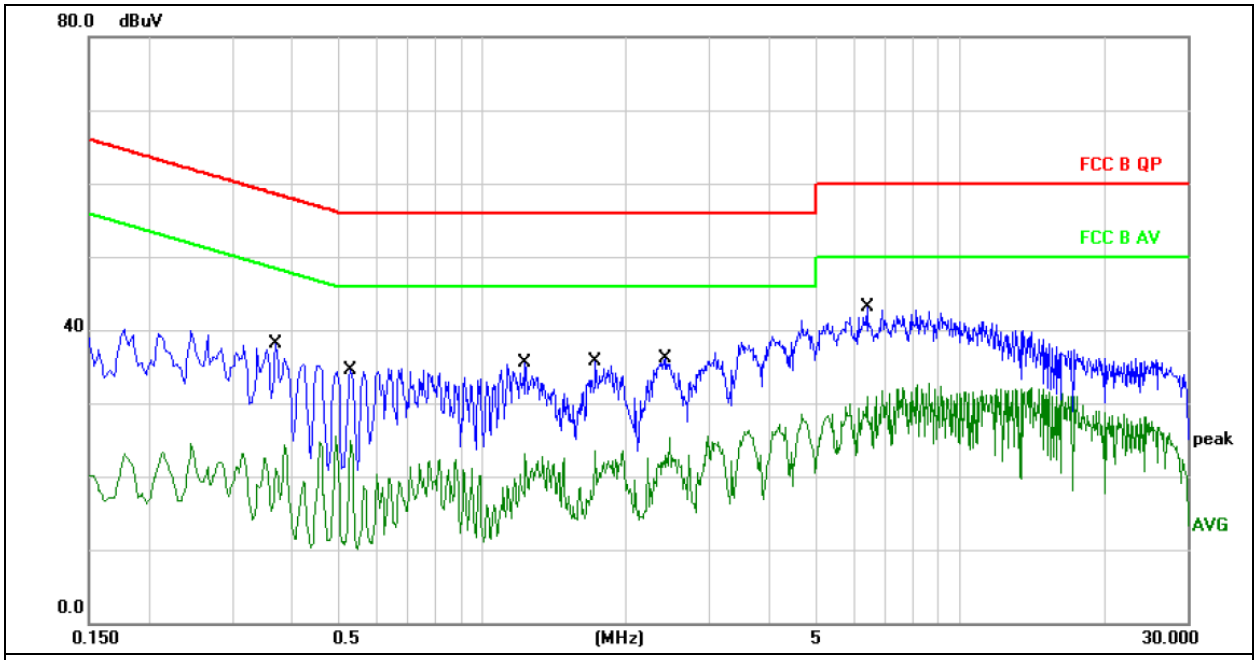
a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

6.4 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.

6.5 Test Result

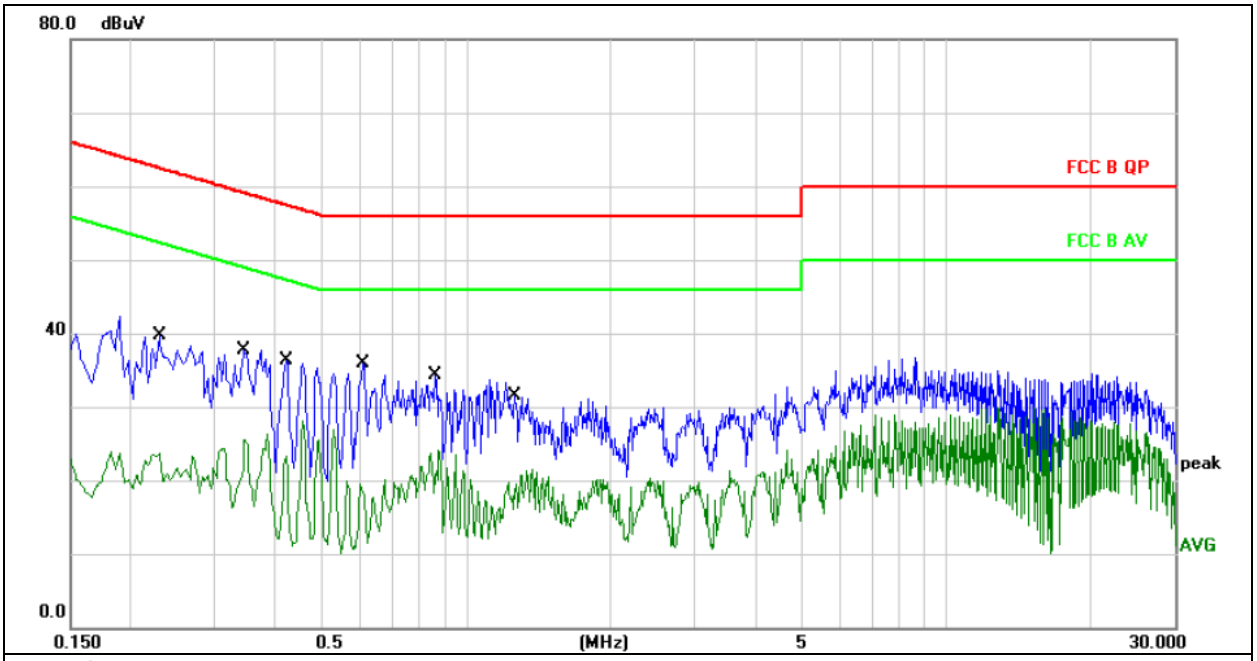
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa	Phase:	L
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 1



Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement=Reading Level+ Correct Factor
4. Over=Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.3700	28.00	10.06	38.06	58.50	-20.44	QP	
2		0.3700	14.33	10.06	24.39	48.50	-24.11	AVG	
3		0.5299	24.37	10.12	34.49	56.00	-21.51	QP	
4		0.5299	14.80	10.12	24.92	46.00	-21.08	AVG	
5		1.2340	25.40	10.13	35.53	56.00	-20.47	QP	
6		1.2340	12.99	10.13	23.12	46.00	-22.88	AVG	
7		1.7260	25.43	10.19	35.62	56.00	-20.38	QP	
8		1.7260	13.33	10.19	23.52	46.00	-22.48	AVG	
9		2.4340	25.70	10.31	36.01	56.00	-19.99	QP	
10		2.4340	15.00	10.31	25.31	46.00	-20.69	AVG	
11	*	6.3980	32.23	10.79	43.02	60.00	-16.98	QP	
12		6.3980	20.13	10.79	30.92	50.00	-19.08	AVG	

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa	Phase:	N
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 1



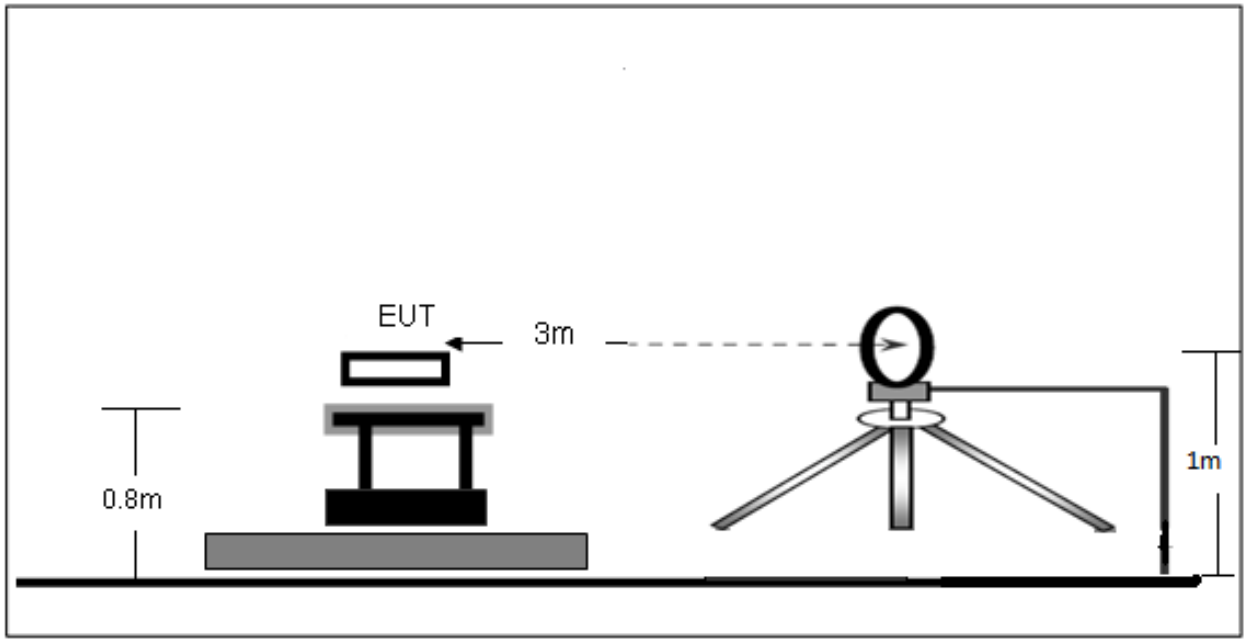
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement=Reading Level+ Correct Factor
4. Over=Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2300	29.65	10.01	39.66	62.45	-22.79	QP	
2		0.2300	13.68	10.01	23.69	52.45	-28.76	AVG	
3		0.3460	27.60	10.05	37.65	59.06	-21.41	QP	
4		0.3460	15.42	10.05	25.47	49.06	-23.59	AVG	
5		0.4220	26.31	10.08	36.39	57.41	-21.02	QP	
6		0.4220	13.31	10.08	23.39	47.41	-24.02	AVG	
7	*	0.6100	25.75	10.14	35.89	56.00	-20.11	QP	
8		0.6100	9.43	10.14	19.57	46.00	-26.43	AVG	
9		0.8660	24.14	10.13	34.27	56.00	-21.73	QP	
10		0.8660	13.96	10.13	24.09	46.00	-21.91	AVG	
11		1.2660	21.46	10.13	31.59	56.00	-24.41	QP	
12		1.2660	11.38	10.13	21.51	46.00	-24.49	AVG	

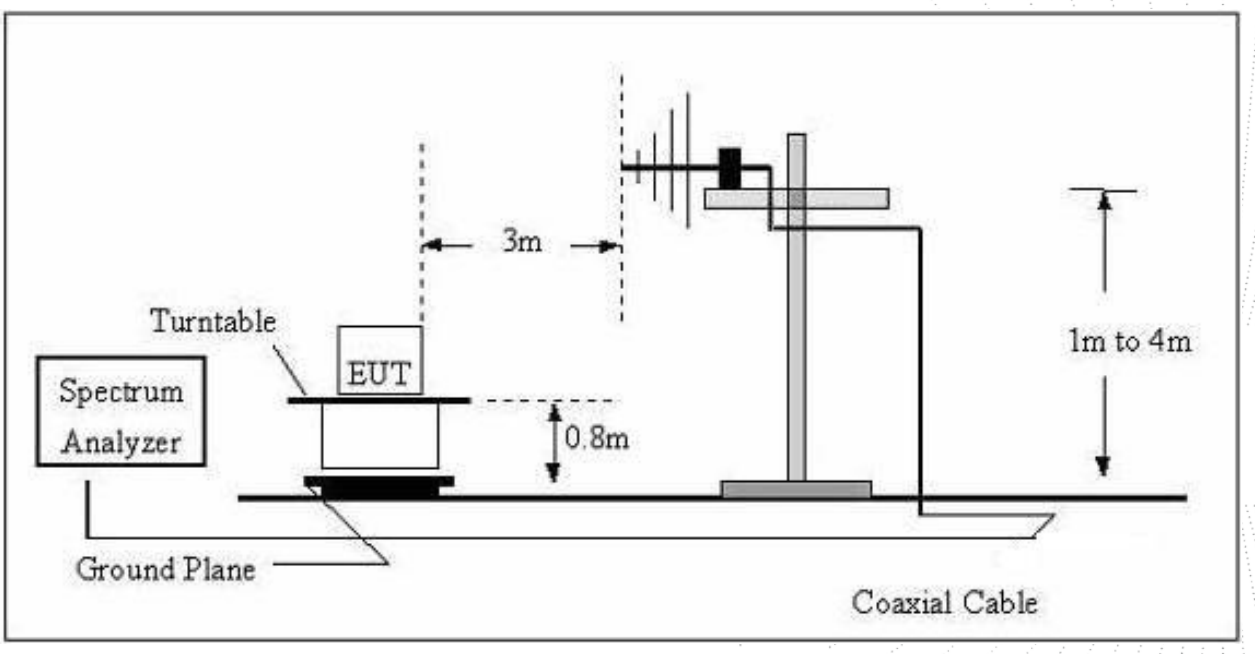
7. Radiated Emissions

7.1 Block Diagram Of Test Setup

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



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



7.2 Limit

FCC §15.209; §15.205.

Frequency	Field Strength	Distance	Field Strength Limit at 3m Distance	
(MHz)	uV/m	(m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

7.3 Test Procedure

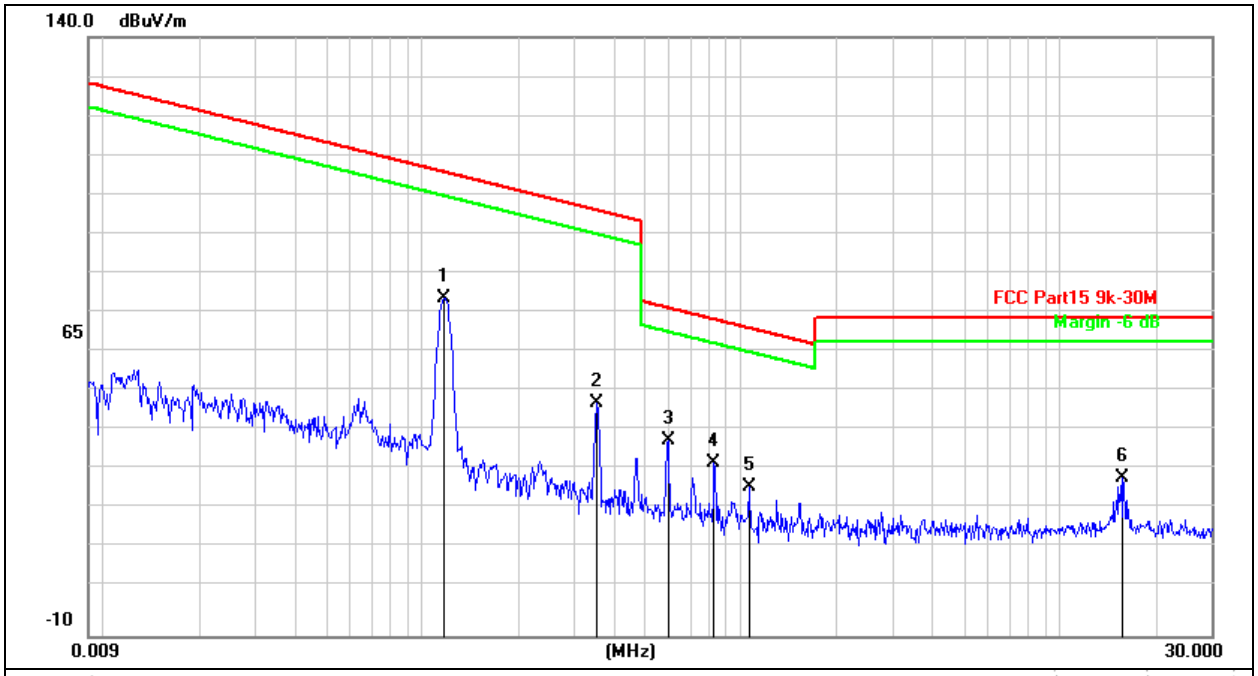
Receiver Parameter	Setting
Attenuation	Auto
9kHz~150kHz	RBW 200Hz for QP
150kHz~30MHz	RBW 9kHz for QP
30MHz~1000MHz	RBW 120kHz for QP

Below 1GHz test procedure as below:
a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).
h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel.

7.4 Test Result

Below 30MHz

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kpa	Test Voltage :	AC 120V/60Hz
Test Mode :	Mode 1	Polarization:	/



Remark:
1.Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Measurement=Reading Level+ Correct Factor
3. Over=Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	0.1178	84.89	-10.15	74.74	106.1	-31.44	QP
2		0.3549	58.75	-10.27	48.48	96.60	-48.12	QP
3		0.5916	49.30	-10.26	39.04	72.17	-33.13	QP
4		0.8251	43.50	-10.24	33.26	69.29	-36.03	QP
5		1.0610	37.69	-10.23	27.46	67.11	-39.65	QP
6		15.8057	38.74	-9.11	29.63	69.54	-39.91	QP

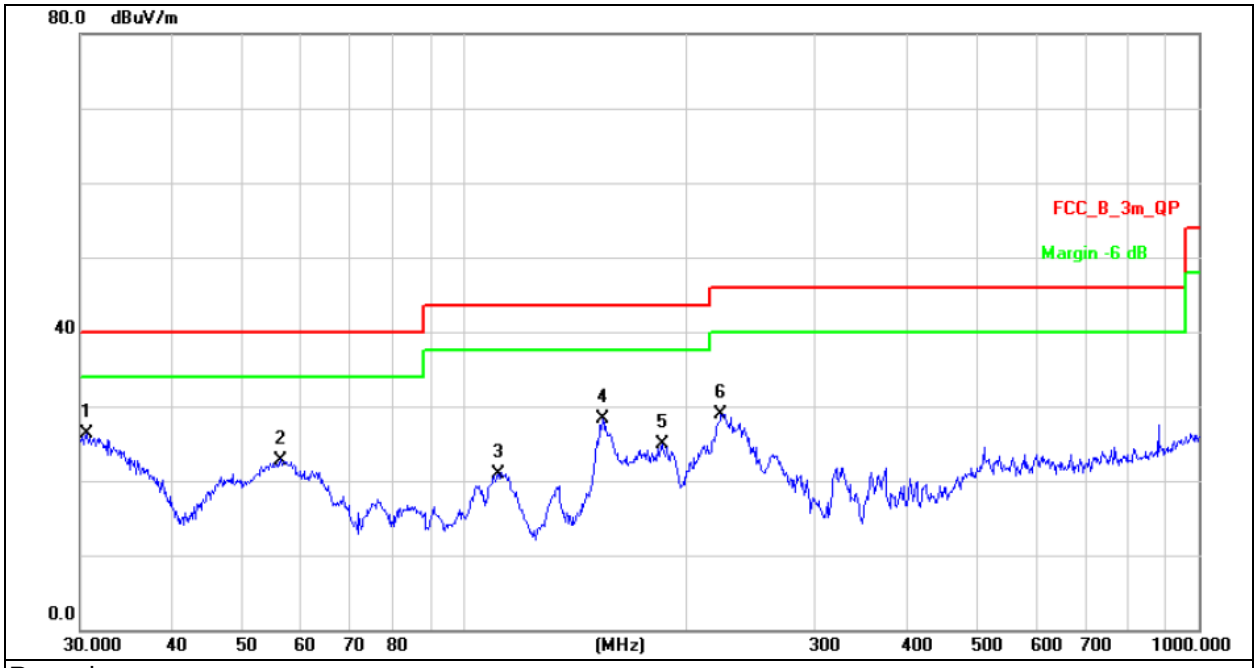
Between 30MHz – 1GHz

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Test Voltage:	AC 120V/60Hz
Test Mode:	Mode 1	Polarization:	Horizontal

Remark:
1.Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Measurement=Reading Level+ Correct Factor
3. Over=Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		112.5244	33.92	-11.79	22.13	43.50	-21.37	QP			
2		136.4598	29.63	-8.91	20.72	43.50	-22.78	QP			
3		155.3644	29.53	-8.15	21.38	43.50	-22.12	QP			
4	*	258.3264	41.11	-9.05	32.06	46.00	-13.94	QP			
5		324.4561	32.01	-7.16	24.85	46.00	-21.15	QP			
6		386.6338	30.45	-5.29	25.16	46.00	-20.84	QP			

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kpa	Test Voltage :	AC 120V/60Hz
Test Mode:	Mode 1	Polarization:	Vertical



Remark:
1.Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Measurement=Reading Level+ Correct Factor
3. Over=Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	30.6379	35.06	-8.74	26.32	40.00	-13.68	QP			
2		56.1974	34.32	-11.52	22.80	40.00	-17.20	QP			
3		111.3468	32.88	-11.90	20.98	43.50	-22.52	QP			
4		154.2786	36.41	-8.11	28.30	43.50	-15.20	QP			
5		185.7882	35.30	-10.49	24.81	43.50	-18.69	QP			
6		223.7334	39.35	-10.35	29.00	46.00	-17.00	QP			

8. Bandwidth Test

1. Set RBW = 1%~5% OBW.

2. Set the video bandwidth (VBW) ≥ 3 x RBW.

3. Detector = Peak.

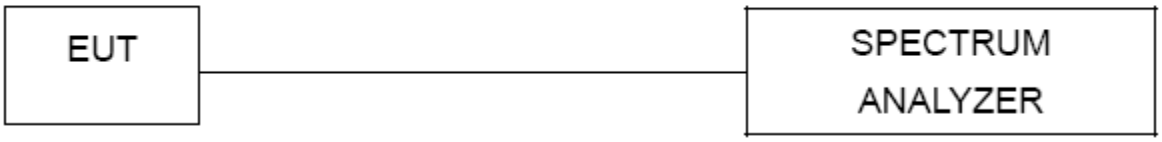
4. Trace mode = max hold.

5. Sweep = auto couple.

6. Allow the trace to stabilize.

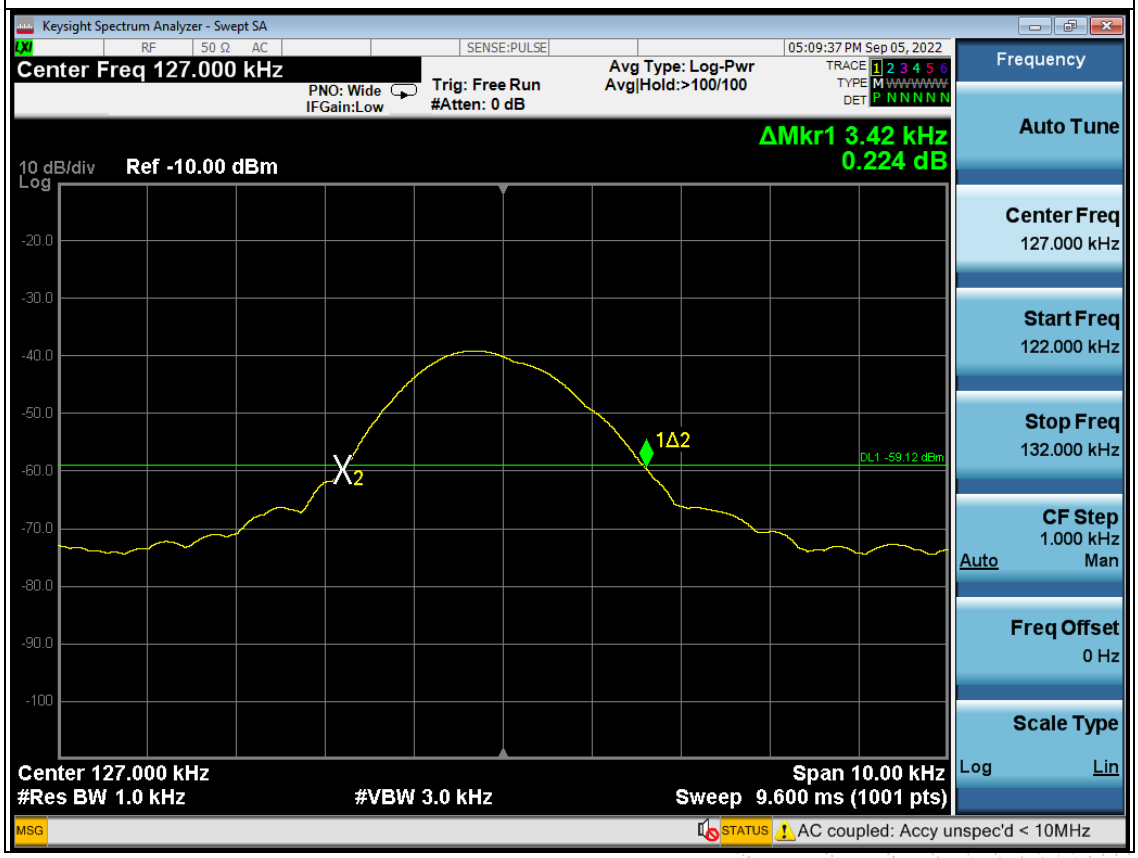
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

TEST SETUP



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

Frequency (KHz)	20dB bandwidth (KHz)	Result
127.00	3.42	Pass



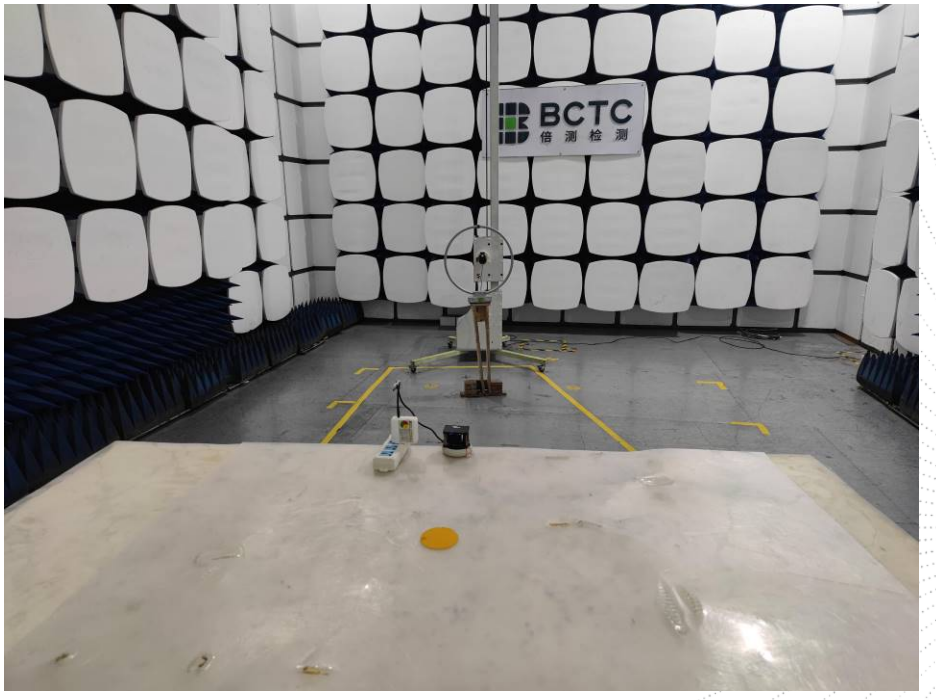
9. Antenna Requirements

For intentional device, according to FCC 47 CFR Section 15.203, 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 shall be considered sufficient to comply with the provisions of this section. 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.
The antenna used for this product is Inductive loop coil antenna.

10. EUT Test Setup Photographs

Conducted emissions

Radiated Measurement Photos



STATEMENT

1.The equipment lists are traceable to the national reference standards.

2.The test report can not be partially copied unless prior written approval is issued from our lab.

3.The test report is invalid without stamp of laboratory.

4.The test report is invalid without signature of person(s) testing and authorizing.

5.The test process and test result is only related to the Unit Under Test.

6.The quality system of our laboratory is in accordance with ISO/IEC17025.

7.If there is any objection to report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

Address:
1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

TEL:400-788-9558

P.C.: 518103

FAX:0755-33229357

Website:http://www.chnbctc.com

E-Mail:bctc@bctc-lab.com.cn

※※※※※ **END** ※※※※※