FCC Test Report

Report No.: AGC16735250601FR01

FCC ID	:	2BNL5-740743
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	15WATTS MAGNETIC WIRELESS CHARGING PAD
BRAND NAME	:	ionix
MODEL NAME	:	MSWC-65/24, 740743
APPLICANT	:	LI KUM TRADING CO., LIMITED
DATE OF ISSUE	:	Jul. 08, 2025
STANDARD(S)	:	FCC Part 15 Subpart C
REPORT VERSION	:	V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jul. 08, 2025	Valid	Initial Release

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Table of Contents

1. General Information 4
2. Product Information 5
2.1 Product Technical Description 5
2.2 Related Submittal(S) / Grant (S) 6
2.3 Test Methodology 6
2.4 Special Accessories 6
2.5 Equipment Modifications 6
2.6 Antenna Requirement 6
3. Test Environment 7
3.1 Address of The Test Laboratory 7
3.2 Test Facility 7
3.3 Environmental Conditions 8
3.4 Measurement Uncertainty 8
3.5 List of Equipment Used 9
4. System Test Configuration 10
4.1 EUT Configuration 10
4.2 EUT Exercise 10
4.3 Configuration of Tested System 10
4.4 Equipment Used in Tested System 10
4.5 Summary of Test Results 11
5. Description of Test Modes 12
6. Field Strength of Fundamental 13
6.1 Measurement Limits 13
6.2 Measurement Procedure 14
6.3 Field Strength Calculation 15
6.4 Measurement Setup 16
6.5 Measurement Result 17
7. -20 dB Bandwidth Measurement 23
7.1 Provisions Applicable 23
7.2 Measurement Procedure 23
7.3 Measurement Setup 23
7.4 Measurement Result 23
8. AC Power Line Conducted Emission Test 26
8.1 Measurement Limits 26
8.2 Measurement Setup 26
8.3 Preliminary Procedure of Line Conducted Emission Test 27
8.4 Final Procedure of Line Conducted Emission Test 27
8.5 Measurement Result 28
Appendix I: Photographs of Test Setup 30
Appendix II: Photographs of Test EUT 30

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1. General Information

Applicant	LI KUM TRADING CO., LIMITED
Address	SHOP 185 G/F HANG WAI IND CTR NO 6 KIN TAI ST TUEN MUN NT, HK, China
Manufacturer	PHUC VINH ELECTRONICS COMPANY LIMITED
Address	Than Canh Phuc Street, Hung Lam 1 Residential Area, Hong Thai Ward, Viet Yen Town, Bac Giang Province, Vietnam.
Factory	PHUC VINH ELECTRONICS COMPANY LIMITED
Address	Than Canh Phuc Street, Hung Lam 1 Residential Area, Hong Thai Ward, Viet Yen Town, Bac Giang Province, Vietnam.
Product Designation	15WATTS MAGNETIC WIRELESS CHARGING PAD
Brand Name	ionix
Test Model	MSWC-65/24
Series Model(s)	740743
Difference Description	All the same except for the model name.
Date of receipt of test item	Jun. 23, 2025
Date of Test	Jun. 23, 2025 to Jul. 07, 2025
Deviation from Standard	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Test Report Form No	AGCER-FCC-WPT-V1

Note: The test results of this report relate only to the tested sample identified in this report.

Prepared By	Jasiel Xie (Project Engineer)	Jul. 08, 2025
Reviewed By	Bibo Zhang (Reviewer)	Jul. 08, 2025
Approved By	Angela Li (Authorized Officer)	Jul. 08, 2025

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2. Product Information

2.1 Product Technical Description

Equipment Type	☒WPT System; ☐WPT Source; ☐WPT Client
Device Type	☒Desktop Charger
	☐Portable Charger
	☐Composite charger
Operation Frequency Band	WPT Band I: 110.5kHz-205kHz for Phone, 110.5kHz-205kHz for AirPods, 330kHz for Apple Watch
Hardware Version	R9336
Software Version	DD78
Modulation Type	FSK
Field Strength of Fundamental	67.94dBμV/m (Max)
Antenna Designation	Coil Antenna
Number of Coils	1 Primary Coil
Input Rating	DC 5V/3A, DC 9V/2A,DC 12V/1.67A
Output Rating	15W for Phone, 3W for AirPods, 2.5W for Apple Watch

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2.2 Related Submittal(S) / Grant (S)

This submittal(s) (test report) is intended for **FCC ID: 2BNL5-740743,** filing to comply with Part 2, Part 15 of the Federal Communication Commission rules.

2.3 Test Methodology

The tests were performed according to following standards:

No.	Identity	Document Title
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
2	FCC 47 CFR Part 15	Radio Frequency Devices
3	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

2.4 Special Accessories

Not available for this EUT intended for grant.

2.5 Equipment Modifications

Not available for this EUT intended for grant.

2.6 Antenna Requirement

Standard Requirement
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 non-detachable antenna inside the device cannot be replaced by the user at will.

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3. Test Environment

3.1 Address of The Test Laboratory

Laboratory: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L5488

Attestation of Global Compliance (Shenzhen) Co., Ltd. has been assessed and proved to follow CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories.)

A2LA-Lab Cert. No.: 5054.02

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to follow ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 975832

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files with Registration 975832.

IC-Registration No.: 24842(CAB identifier: CN0063)

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.

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3.3 Environmental Conditions

	Normal Conditions
Temperature range (℃)	0 - 30
Relative humidity range	20 % - 75 %
Pressure range (kPa)	86 - 106
Power supply	DC 5V/9V/12V by adapter

3.4 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%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	U_c = ±2.9 dB
Uncertainty of Radiated Emission below 150kHz	U_c = ±4.2 dB
Uncertainty of Radiated Emission below 30MHz	U_c = ±3.9 dB
Uncertainty of Radiated Emission below 1GHz	U_c = ±4.0 dB
Uncertainty of Occupied Channel Bandwidth	U_c = ±2.7 %

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3.5 List of Equipment Used

● Radiated Spurious Emission& RF Conducted Test							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
☒	AGC-EM-E046	EMI Test Receiver	R&S	ESCI	100096	2025-01-14	2026-01-13
☒	AGC-ER-E036	Spectrum Analyzer	Agilent	N9020A	MY49100060	2025-01-14	2026-01-13
☒	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2025-05-08	2026-05-07
☒	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2024-03-05	2026-03-04
☒	AGC-EM-E001	Wideband Antenna	SCHWARZBECK	VULB9168	D69250	2025-03-14	2027-03-13
☒	AGC-EM-A138	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2025-05-16	2027-05-15

● AC Power Line Conducted Emission							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
☒	AGC-EM-E116	EMI Test Receiver	R&S	ESCI	100034	2025-05-08	2026-05-07
☒	AGC-EM-A171	Attenuator	Mini-Circuits	UNAT-10A+	DC-6GZ	2024-02-01	2026-01-31
☒	AGC-EM-E023	AMN	R&S	ESH2-Z5	100086	2025-05-08	2026-05-07

● Test Software					
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Version Information
☒	AGC-EM-S001	CE Test System	R&S	ES-K1	V1.71
☒	AGC-EM-S003	RE Test System	FARA	EZ-EMC	VRA-03A

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4. System Test Configuration

4.1 EUT Configuration

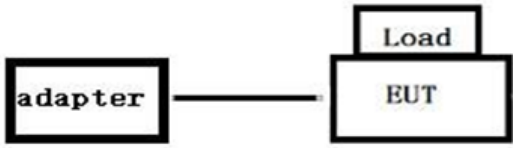
The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT Exercise

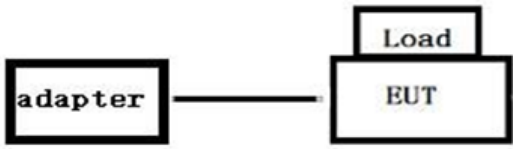
The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

4.3 Configuration of Tested System

Radiated Emission Configure:



Conducted Emission Configure:



4.4 Equipment Used in Tested System

The following peripheral devices and interface cables were connected during the measurement:

☒Test Accessories Come from the Laboratory

No.	Equipment	Manufacturer	Model No.	Specification Information	Cable
1	Adapter	Xiaomi	DY-14-EU	Input: AC: 100V-240V 50/60Hz 2.0A Output: USB-A/C (DC 5V/3A;9V/3A;11V/6.1A;11V/6A; 20V2.25A)	--

☒ Test Accessories Come From The Manufacturer

No.	Equipment	Model No.	Manufacturer	Specification Information	Cable
1	Apple Mobile Phone	iPhone 12	N/A	--	--
2	New Apple Watch	Series 8	N/A	--	--
3	Earphone	AirPods 3	N/A	--	--

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4.5 Summary of Test Results

Item	FCC Rules	Description of Test	Result
1	§15.203	Antenna Equipment	Pass
2	§15.209(a)(f)	Field Strength of Fundamental	Pass
3	§15.209(a)(f)	Radiated Spurious Emission	Pass
4	§15.215(c)	20dB Bandwidth	Pass
5	§15.205(a)	Restricted Bands of Operation	Pass
6	§15.207	AC Power Line Conducted Emission	Pass

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5. Description of Test Modes

Config.	Test Descriptions	Test Mode	Remark
1	EUT stand alone, standby, powered by AC/DC adapter.	@110.5kHz-205kHz	None
2	Direct contact during charging/operating between the EUT& WPT Load EUT is powered by AC/DC adapter	@110.5kHz-205kHz (127.6kHz)	Using a Phone (15W)
5		@110.5kHz-205kHz (127.6kHz)	Using a Airpods (3W)
6		@330kHz	Using a Apple Watch (2.5W)

Supplementary Test Instructions

- For the radiated emissions and AC power conducted emissions test, the EUT was tested in desktop position in the following configurations: Standby and charging.
- AC power line conducted testing was performed on Configuration 4 at EUT minimum and maximum load respectively only as worse case.
- Radiated spurious emission 30MHz to 1GHz was performed on Configuration 2 at EUT minimum and maximum load respectively only as worse case
- During the radiation emission test, the device will find the worst placement of the X, Y, and Z axes for testing.
- The EUT supports 15W, 3W, 2.5W "wireless output, and all modes have been tested at full load, half load and null load, only the worst mode is reflected in the report.
- Only the result of the worst case (Mode 2- full load-15W) was recorded in the report, if no other cases.

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6. Field Strength of Fundamental

6.1 Measurement Limits

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
	Note: For measurements in the frequency bands 9-90kHz and 110-490kHz, quasi-peak detection is preferred. If the margin is very small, average detection is added.				

■ Limits for frequency below 30MHz

Frequency	Limit (μV /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 (dBμV/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

Remark:

1) Emission level dBμV= 20 log Emission level μV/m
2) The smaller limit shall apply at the cross point between two frequency bands.
3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

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6.2 Measurement Procedure

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

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6.3 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any), Average Factor (optional) from the measured reading. The basic equation with a sample calculation is as follows:

- ◆ FS = RA + AF + CF - AG - AV

Where

- FS = Field Strength in dBμV/m
- RA = Receiver Amplitude (including preamplifier) in dBμV
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB/m
- AG = Amplifier Gain in dB
- AV = Average Factor in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

- ◆ FS = RR + LF

Where

- FS = Field Strength in dBμV/m
- RR = RA - AG - AV in dBμV
- LF = CF + AF in dB

Assume a receiver reading of 52.0dBμV is obtained.

- ■ The antenna factor of 7.4dB/m and cable factor of 1.6dB are added.
- ■ The amplifier gain of 29dB and average factor of 5dB are subtracted, giving a field strength of 27dBμV/m.
- ■ This value in dBμV/m was converted to its corresponding level in μV/m.

- RA = 52.0 dBμV/m, AF = 7.4 dB/m
- RR = 18.0 dBμV, CF = 1.6 dB
- LF = 9.0 Db, AG = 29.0 dB
- AV = 5.0 dB, FS = RR + LF
- FS = 18 + 9 = 27 dBμV/m

➢ Level in μV/m = Common Antilogarithm [(27 dBμV/m)/20] = 22.4 μV/m

■ Magnetic field strength calculation (9 kHz – 30 MHz)

When the limit is in terms of magnetic field, the following equation applies:

- ◆ H[dB(μA/m)] = V[dB(μV)] + LC [dB] - GPA [dB]+ AFH [dB(S/m)]

Where,

- ➢ H is the magnetic field strength (to be compared with the limit),
- ➢ V is the voltage level measured by the receiver or spectrum analyzer,
- ➢ LC is the cable loss,
- ➢ GPA is the gain of the preamplifier (if used), and
- ➢ AFH is the magnetic antenna factor.

If the “electrical” antenna factor is used instead, the above equation becomes:

- ◆ H[dB(μA/m)] =V[dB(μV)]+LC [dB]–GPA [dB] + AFE [dB(m-1)]-51.5[dBΩ]

where AFE is the “electric” antenna factor, as provided by the antenna calibration laboratory.

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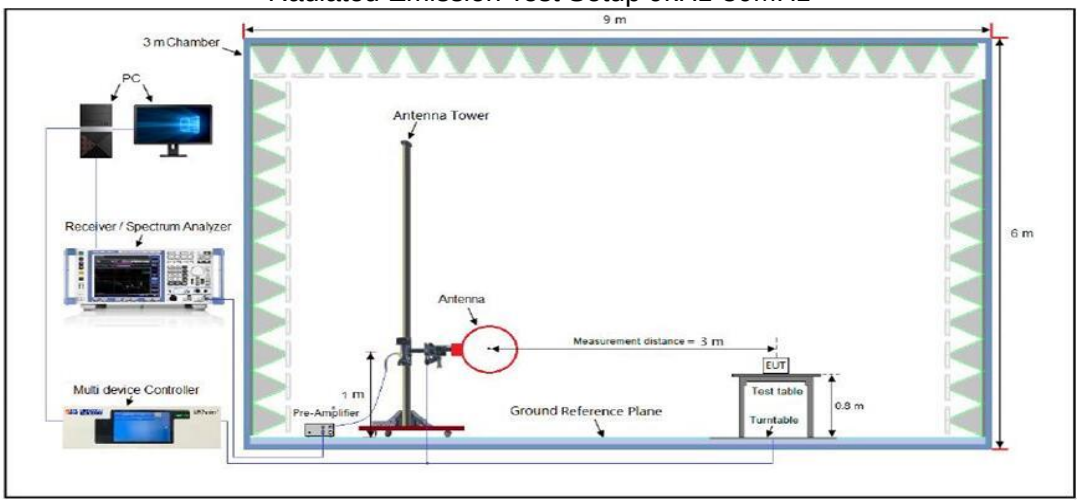
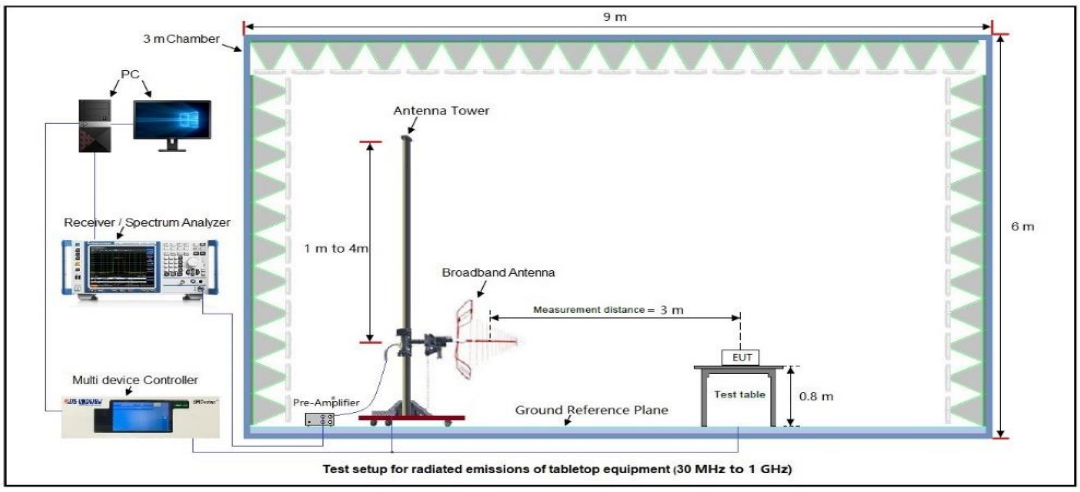
6.4 Measurement Setup

Radiated Emission Test Setup 9kHz-30MHz



Radiated Emission Test Setup 30MHz-1000MHz



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.

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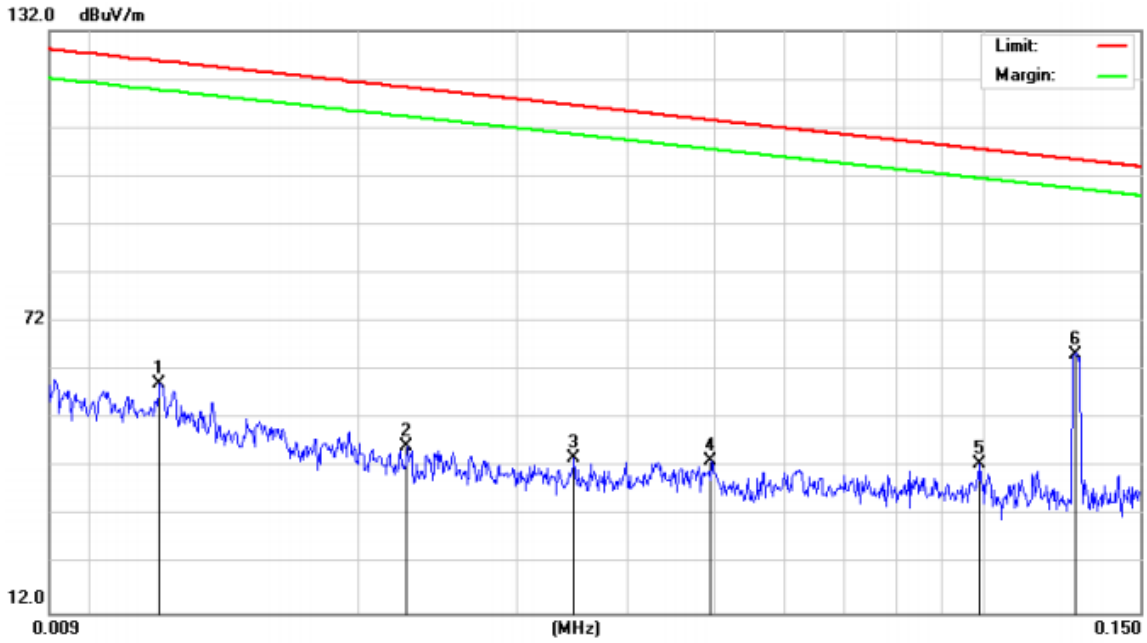
6.5 Measurement Result

Test Equipment	15WATTS MAGNETIC WIRELESS CHARGING PAD	Model Name	MSWC-65/24
Temperature	23.2℃	Relative Humidity	53.9%
Air Pressure	985 Mbar	Power supply	DC 12V by adapter
Worst Mode	Mode 2	Antenna Polarity	Face
Test graph and data for Electric Field strength between 9kHz-150kHz			
Test Mode: Mode 2			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		0.0120	16.97	42.36	59.33	125.8	-66.49	peak
2		0.0225	8.93	37.28	46.21	120.4	-74.19	peak
3		0.0347	8.90	34.93	43.83	116.6	-72.83	peak
4		0.0495	9.77	33.49	43.26	113.5	-70.33	peak
5		0.0991	10.80	32.03	42.83	107.6	-64.77	peak
6	*	0.1273	33.17	32.16	65.33	105.4	-40.10	peak

Result: Pass

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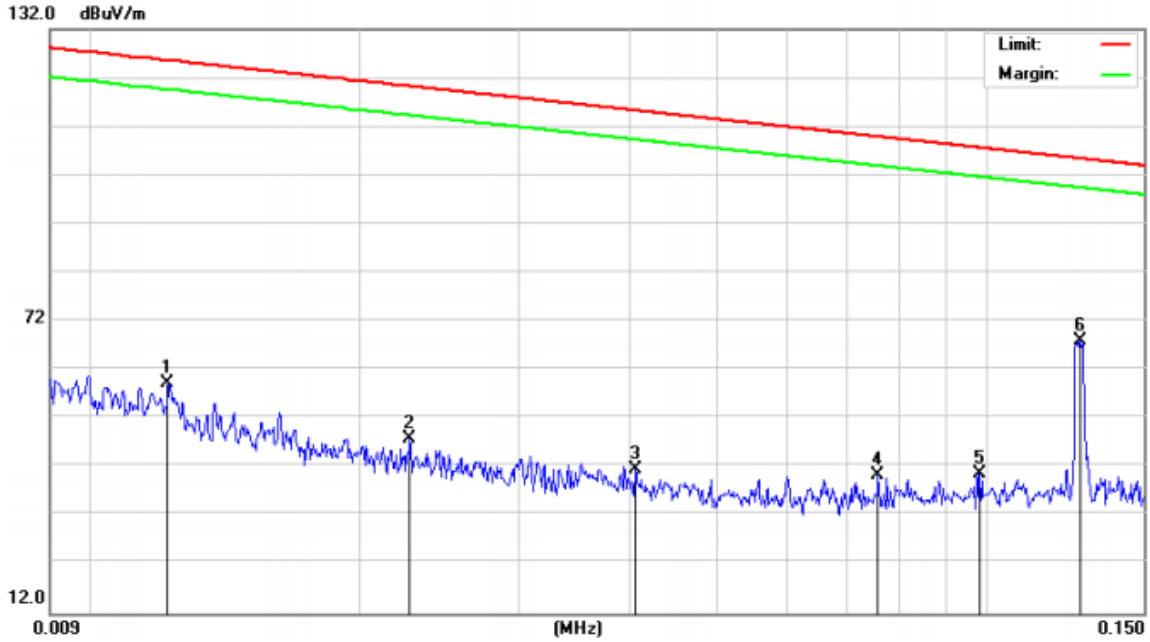
Test graph and data for Electric Field strength between 9kHz-150kHz
Test Mode: Mode 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		0.0122	16.95	42.25	59.20	125.6	-66.48	peak
2		0.0227	10.64	37.23	47.87	120.3	-72.45	peak
3		0.0405	7.37	34.21	41.58	115.3	-73.74	peak
4		0.0757	7.78	32.43	40.21	109.9	-69.71	peak
5		0.0984	8.55	32.04	40.59	107.6	-67.07	peak
6	*	0.1273	35.78	32.16	67.94	105.4	-37.49	peak

Result: Pass

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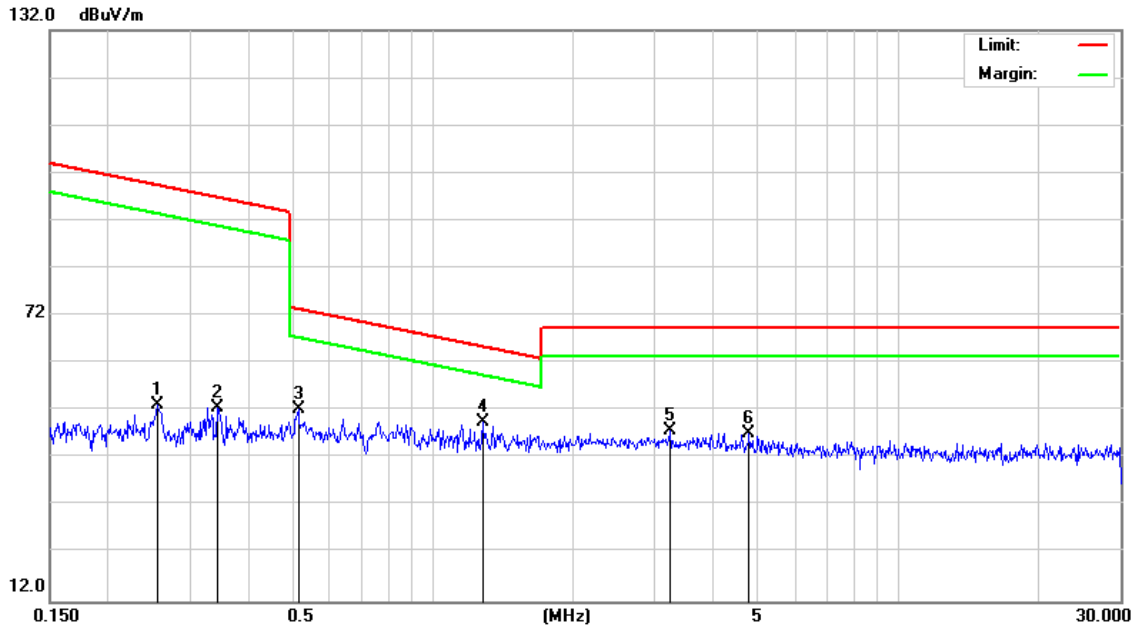
Test Equipment	15WATTS MAGNETIC WIRELESS CHARGING PAD	Model Name	MSWC-65/24
Temperature	23.2℃	Relative Humidity	53.9%
Air Pressure	985 Mbar	Power supply	DC 12V by adapter
Worst Mode	Mode 2	Antenna Polarity	Face

Test graph and data for Electric Field strength between 150kHz-30MHz

Test Mode: Mode 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		0.2561	20.88	32.43	53.31	99.40	-46.09	peak
2		0.3427	20.49	32.29	52.78	96.88	-44.10	peak
3		0.5128	20.24	32.15	52.39	73.40	-21.01	peak
4	*	1.2756	17.81	31.84	49.65	65.49	-15.84	peak
5		3.2239	16.74	31.09	47.83	69.54	-21.71	peak
6		4.7716	17.58	29.78	47.36	69.54	-22.18	peak

Result: Pass

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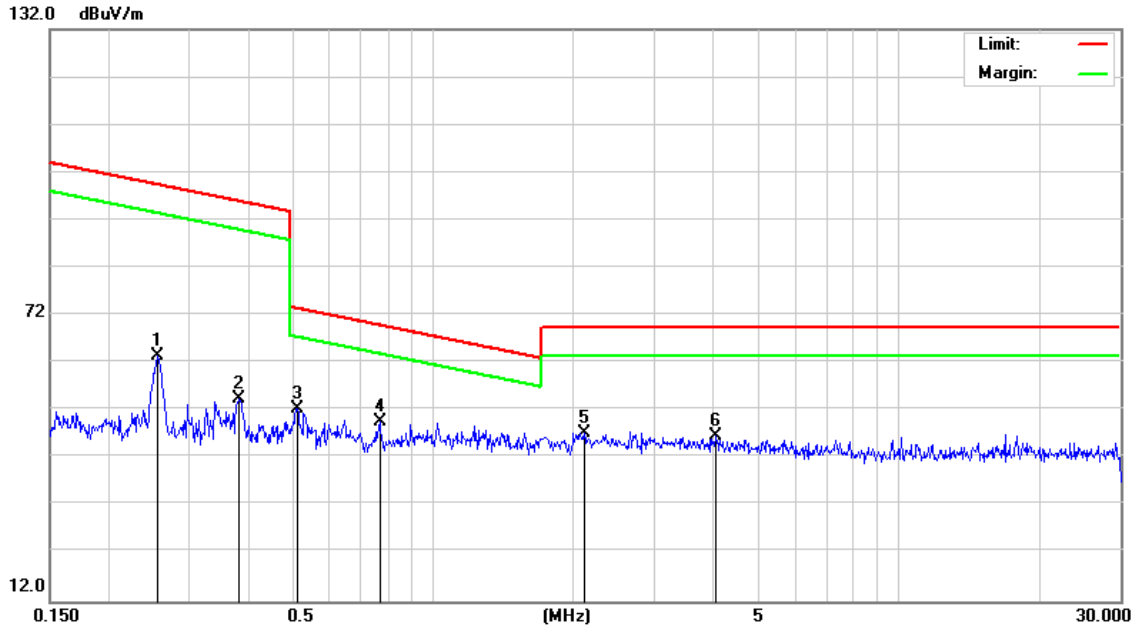
Test graph and data for Electric Field strength between 150kHz-30MHz
Test Mode: Mode 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		0.2561	31.13	32.43	63.56	99.40	-35.84	peak
2		0.3831	22.15	32.26	54.41	95.92	-41.51	peak
3		0.5100	20.28	32.15	52.43	73.45	-21.02	peak
4	*	0.7669	17.65	32.10	49.75	69.91	-20.16	peak
5		2.1101	15.86	31.49	47.35	69.54	-22.19	peak
6		4.0489	16.32	30.45	46.77	69.54	-22.77	peak

Result: Pass

Notes:

1. Negative value in the margin column shows emission below limit.
2. All measurements were made with 0.6m loop antenna at 3m distance. All emissions are below the QP limit.
3. Corr. Factor= Antenna Factor (dB/m) + Cable Loss (dB)
4. Loop antenna is used for the emission under 30MHz.

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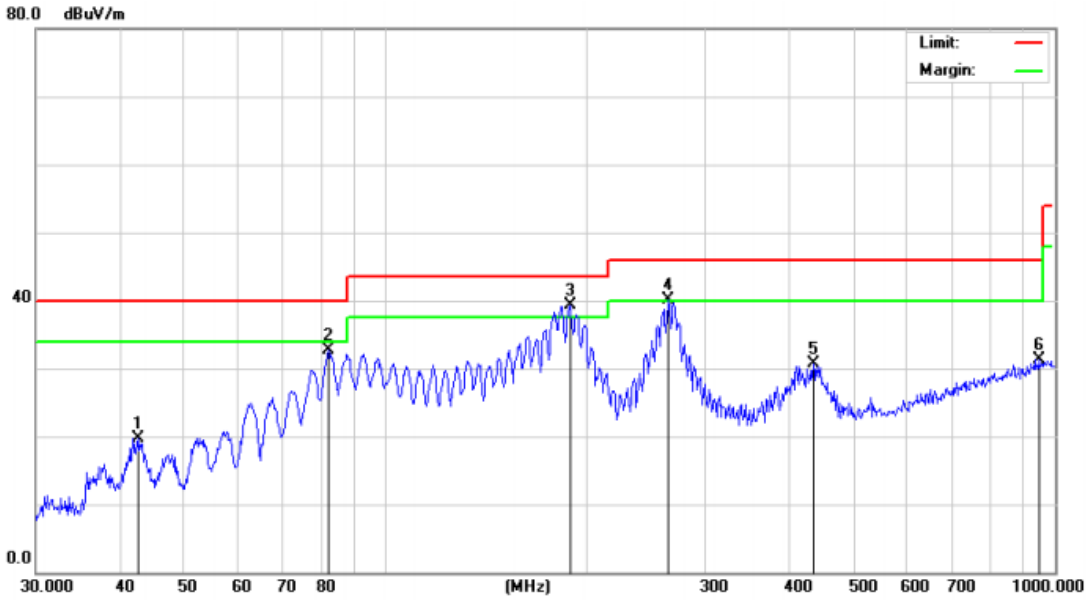
Test Equipment	15WATTS MAGNETIC WIRELESS CHARGING PAD	Model Name	MSWC-65/24
Temperature	23.6℃	Relative Humidity	56.3%
Air Pressure	985 Mbar	Power supply	DC 12V by adapter
Worst Mode	Mode 2	Antenna Polarity	Horizontal

Test graph and data for Radiated Emission up to 1GHz

Test Mode: Mode 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		42.7496	48.14	-28.52	19.62	40.00	-20.38	peak
2		82.0706	59.59	-26.98	32.61	40.00	-7.39	peak
3	*	188.4125	62.16	-22.93	39.23	43.50	-4.27	peak
4	!	264.7457	60.80	-20.66	40.14	46.00	-5.86	peak
5		435.5898	48.90	-18.14	30.76	46.00	-15.24	peak
6		945.4399	39.72	-8.32	31.40	46.00	-14.60	peak

Result: Pass

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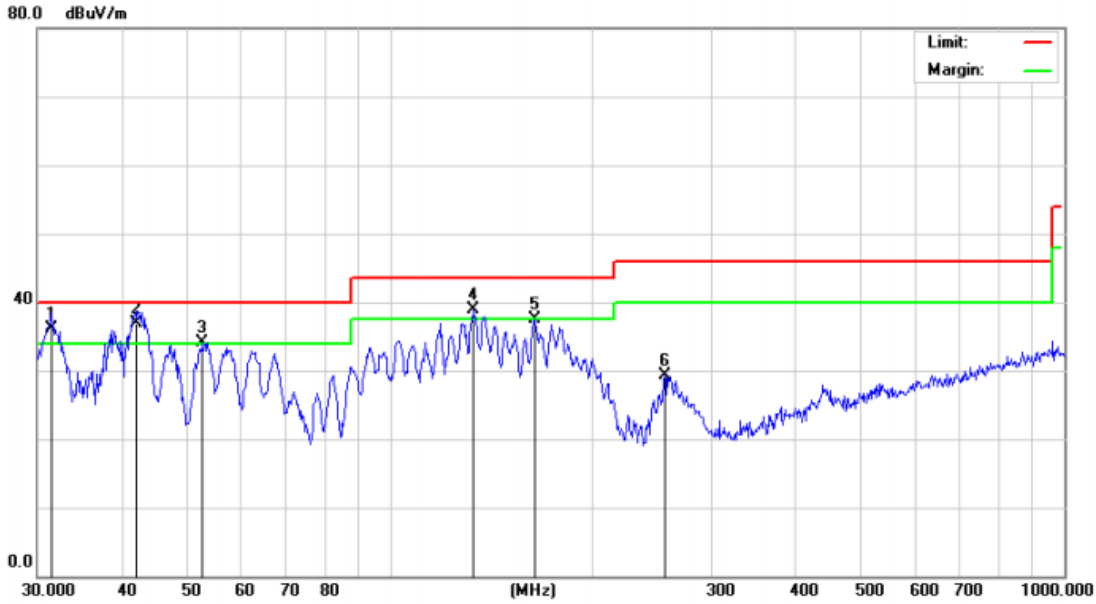
Test graph and data for Radiated Emission up to 1GHz
Test Mode: Mode 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	!	31.5095	59.42	-23.31	36.11	40.00	-3.89	QP
2	*	42.0066	58.63	-21.74	36.89	40.00	-3.11	QP
3	!	52.7600	55.36	-21.20	34.16	40.00	-5.84	peak
4	!	133.1511	59.81	-20.95	38.86	43.50	-4.64	peak
5		163.7550	57.41	-19.99	37.42	43.50	-6.08	peak
6		255.6231	49.79	-20.39	29.40	46.00	-16.60	peak

Result: Pass

Note: 1. Factor=Antenna Factor + Cable loss, Over = Measurement-Limit.
2. All test modes had been pre-tested. The mode 2 is the worst case and recorded in the report.
3. The “Factor” value can be calculated automatically by software of measurement system.

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7. -20 dB Bandwidth Measurement

7.1 Provisions Applicable

N/A

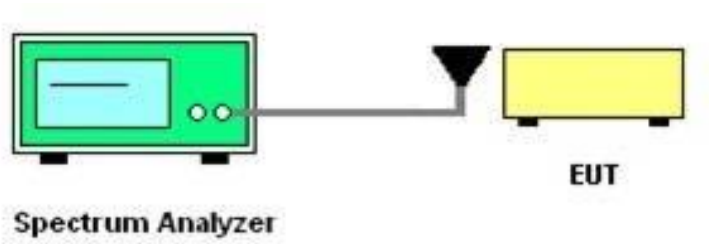
7.2 Measurement Procedure

Set the parameters of SPA as below:

1. The spectrum analyzer connected via a receive antenna placed near the EUT in peak Max hold mode.
2. Centre frequency = Operation Frequency
3. The resolution bandwidth of 300 Hz and the video bandwidth of 1 kHz were used.
4. Span: 3kHz, Sweep time: Auto
5. Set the EUT to continue transmitting mode. Allow the trace to stabilize. Use the “N dB down” function of SPA to define the bandwidth.
6. Measured the spectrum width with power higher than 20dB below carrier.
7. Measured the 99% OBW.
8. Record the plots and Reported.

Note： Since the measured signal is CW-like, it is not practical to adjust the RBW according to C63.10, as the measured bandwidth will always follow the RBW, resulting in approximately twice the RBW.

7.3 Measurement Setup



7.4 Measurement Result

Test Data of Occupied Bandwidth and -20dB Bandwidth					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (kHz)	-20dB Bandwidth (kHz)	Limits (MHz)	Pass or Fail
ASK	0.1276	0.785	0.886	N/A	Pass
ASK	0.127	0.839	0.892	N/A	Pass
ASK	0.330	0.824	0.836	N/A	Pass

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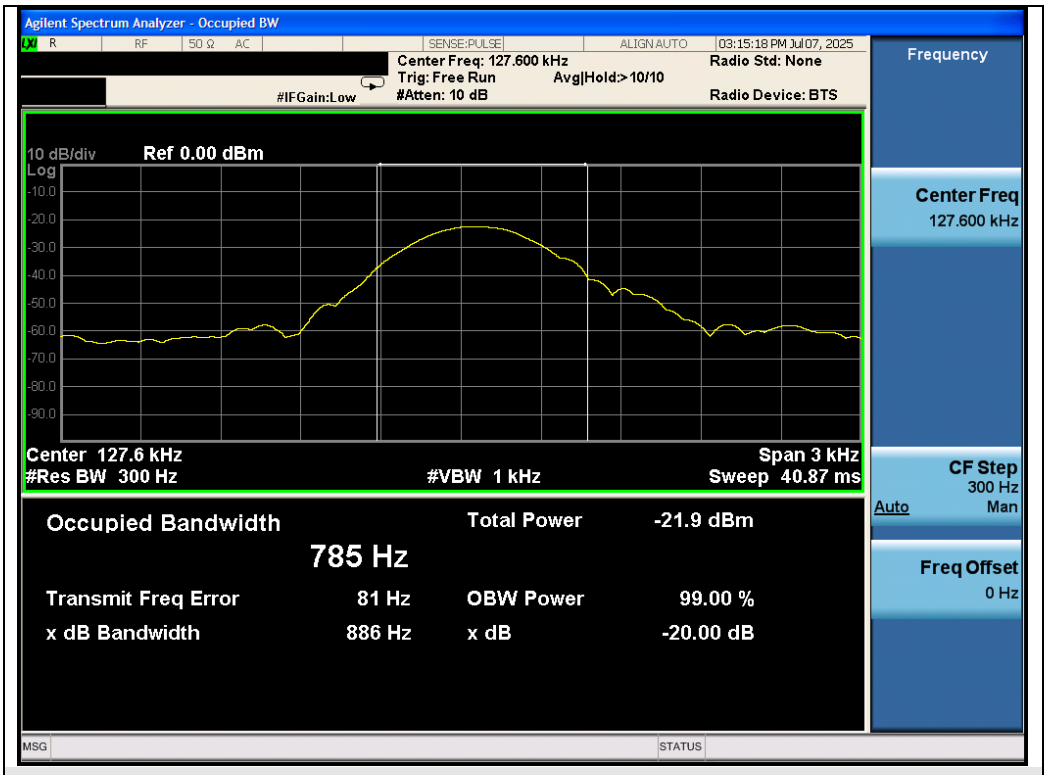
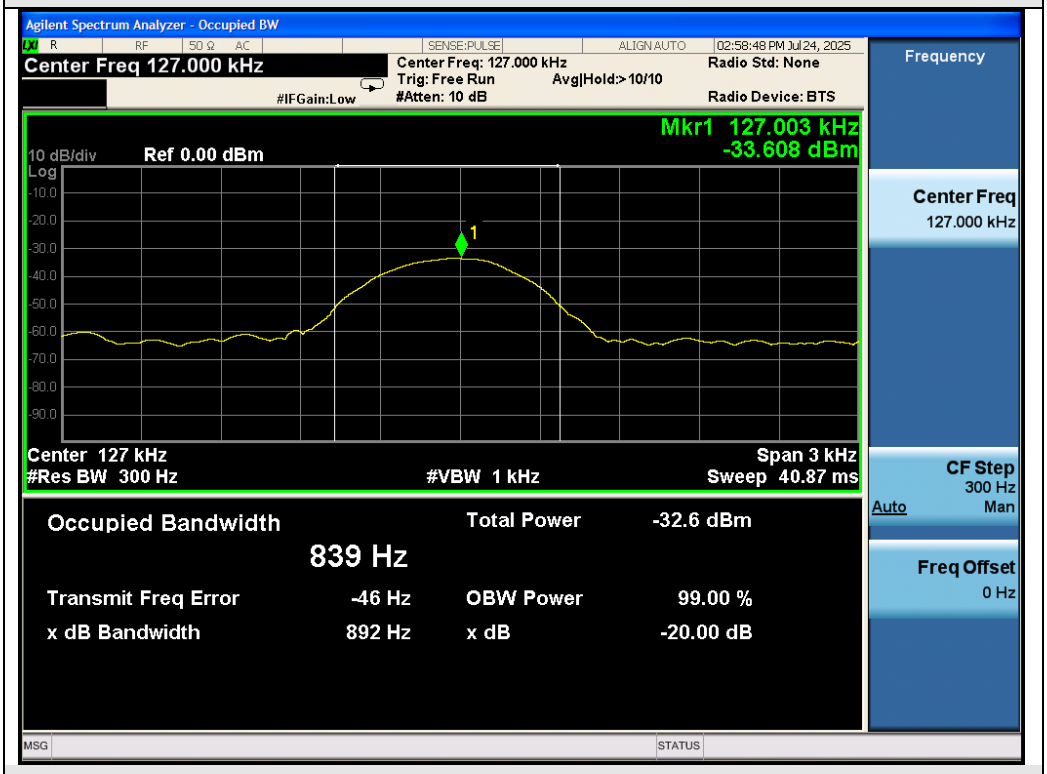
Test Graphs of -20dB Bandwidth



Test_Graph_FSK_Coil_127.6kHz_-20dB Bandwidth



Test_Graph_FSK_Coil_127kHz_-20dB Bandwidth

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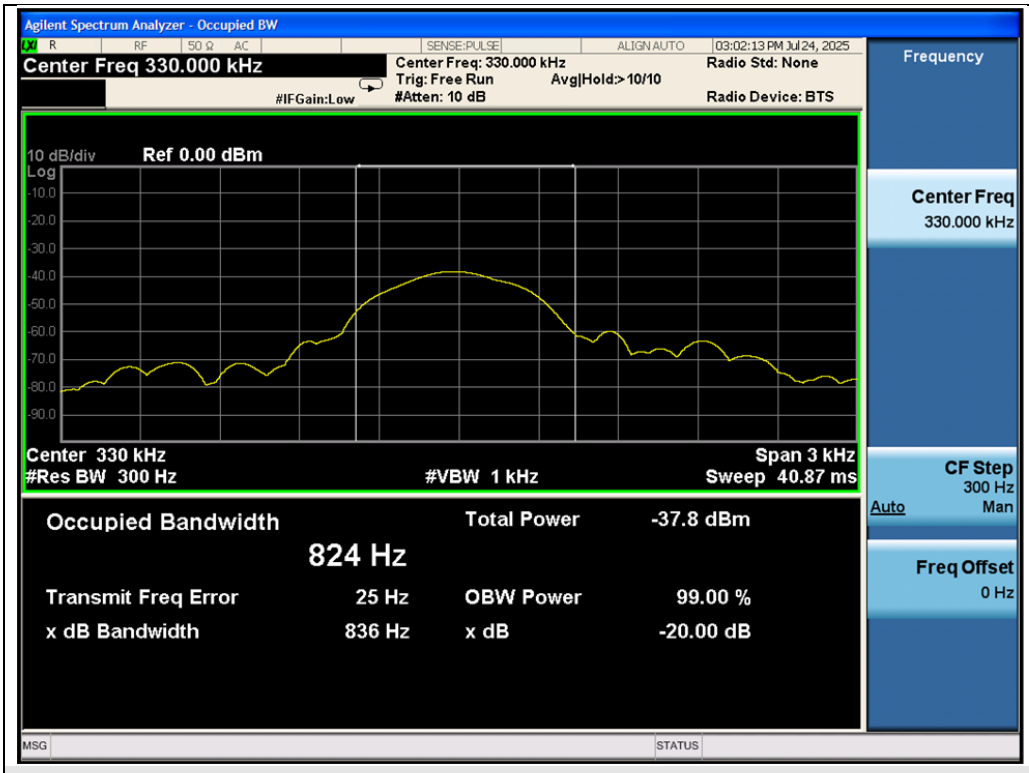

Test_Graph_FSK_Coil_255.4kHz_-20dB Bandwidth

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8. AC Power Line Conducted Emission Test

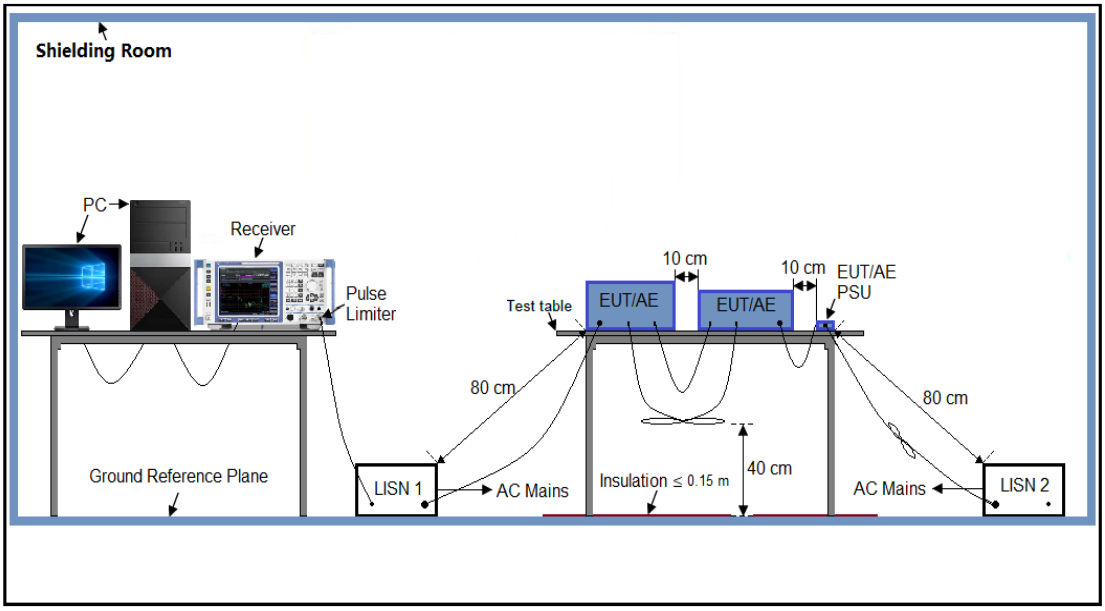
8.1 Measurement Limits

Frequency Range	Maximum RF Line Voltage	
	Q.P. (dBμV)	Average (dBμV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

8.2 Measurement Setup



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8.3 Preliminary Procedure of Line Conducted Emission Test

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. All support equipment received AC120V/60Hz power from a LISN, if any.
5. The EUT received DC 9V power from adapter which received AC120V/60Hz power from a LISN.
6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

8.4 Final Procedure of Line Conducted Emission Test

1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
3. The test data of the worst case condition(s) was reported on the Summary Data page.
4. A conducted emission is calculated by the following equation:
   - Measurement Level (dBμV) = Receiver reading (dBμV) + Transd (dB)
   - Transd (dB)= AMN Factor(dB)+Cable Loss(dB)+Attenuation(dB)
   - Margin= Limit-Level

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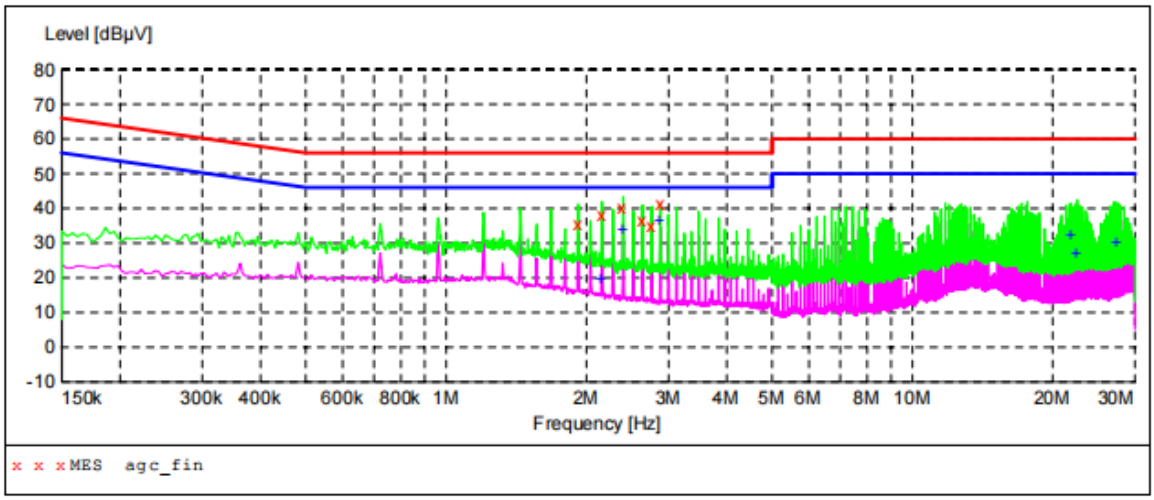
8.5 Measurement Result

AC Power Line Conducted Emission Test			
Test Mode	Mode 4	LISN Line	Hot Side



MEASUREMENT RESULT: "agc_fin"

2025/7/3 10:20

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
1.922000	35.40	10.4	56	20.6	QP	L1
2.158000	38.10	10.5	56	17.9	QP	L1
2.398000	40.50	10.5	56	15.5	QP	L1
2.642000	36.80	10.5	56	19.2	QP	L1
2.762000	35.20	10.5	56	20.8	QP	L1
2.878000	41.30	10.5	56	14.7	QP	L1

MEASUREMENT RESULT: "agc_fin2"

2025/7/3 10:20

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
2.158000	19.60	10.5	46	26.4	AV	L1
2.398000	33.80	10.5	46	12.2	AV	L1
2.878000	36.50	10.5	46	9.5	AV	L1
21.838000	32.60	15.5	50	17.4	AV	L1
22.434000	27.30	15.7	50	22.7	AV	L1
27.358000	30.00	17.4	50	20.0	AV	L1

Result: Pass

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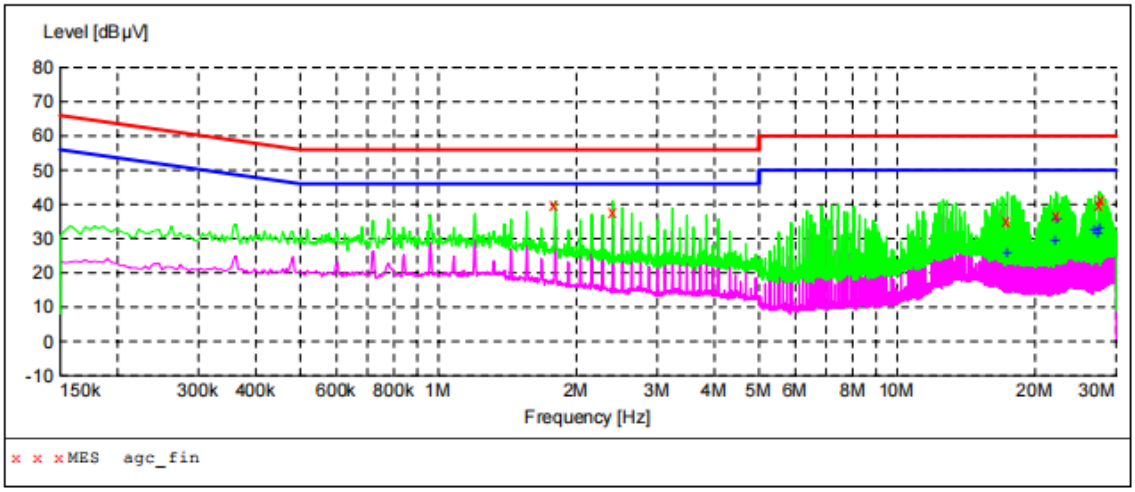
AC Power Line Conducted Emission Test			
Test Mode	Mode 4	LISN Line	Neutral Side



MEASUREMENT RESULT: "agc_fin"

2025/7/3 10:23

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
1.798000	39.70	10.4	56	16.3	QP	N
2.398000	37.60	10.5	56	18.4	QP	N
17.394000	35.40	14.0	60	24.6	QP	N
22.194000	36.60	15.6	60	23.4	QP	N
27.594000	39.70	17.4	60	20.3	QP	N
27.838000	41.60	17.5	60	18.4	QP	N

MEASUREMENT RESULT: "agc_fin2"

2025/7/3 10:23

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
17.394000	25.60	14.0	50	24.4	AV	N
22.194000	29.60	15.6	50	20.4	AV	N
22.322000	35.60	15.7	50	14.4	AV	N
26.998000	32.40	17.2	50	17.6	AV	N
27.594000	31.60	17.4	50	18.4	AV	N
27.838000	33.30	17.5	50	16.7	AV	N

Result: Pass

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Appendix I: Photographs of Test Setup

Refer to the Report No.: AGC16735250601AP01

Appendix II: Photographs of Test EUT

Refer to the Report No.: AGC16735250601AP02

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Conditions of Issuance of Test Reports

1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the “Company”) solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the “Clients”).
2. Any report issued by Company as a result of this application for testing services (the “Report”) shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.
3.The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
7. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.

-----End of Report-----

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the “Dedicated Testing/Inspection Stamp” is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.