FCC 47 CFR PART 15 SUBPART C

CERTIFICATION TEST REPORT

For

Station C

MODEL NUMBER: NSC3-BF, NSC3-GF, NSC3-WWT

FCC ID: 2ADLI-NSC3-BF-WWT

REPORT NUMBER: 4790704188-RF-1

ISSUE DATE: February 8, 2023

Prepared for

KODA ELECTRONICS (HK) CO., LTD.
2/F Mandarin Commercial House, 38 Morrison Hill Road, WanChai,HK

Prepared by

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch

Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China

Tel: +86 769 22038881
Fax: +86 769 33244054
Website: www.ul.com

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	02/08/2023	Initial Issue	

Summary of Test Results		
Description of Test Item	**Standard**	**Results**
Radiated Emission Test	FCC 15.209	PASS
20dB Bandwidth	FCC 15.215	PASS
AC Power Line Conducted Emission	FCC Part 15.207	Pass
Note 1: This test report is only published to and used by the applicant, and it is not for evidence purpose in China. Note 2: The measurement result for the sample received is <Pass> according to < CFR 47 FCC PART 15 SUBPART C > when <Accuracy Method> decision rule is applied		

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	KODA ELECTRONICS (HK) CO., LTD.
Address:	2/F Mandarin Commercial House, 38 Morrison Hill Road, WanChai,HK

Manufacturer Information

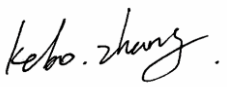
Company Name:	Rich Glory Electronics Co.,Ltd.
Address:	NO.10 Xiling Road, Fengcheng Street,Xinfeng County,Shaoguan City,China.

EUT Information

EUT Name:	Station C
Model:	NSC3-BF
Serial Model:	NSC3-GF, NSC3-WWT
Model Difference:	Please refer to page 8 clause 5.1. DESCRIPTION OF EUT
Trademark:	Nonstop
Sample Received Date:	January 16, 2023
Sample Status:	Normal
Sample ID:	5710706
Date of Tested:	January 18, 2023 ~ February 7, 2023

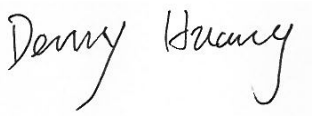
APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 FCC PART 15 SUBPART C	PASS

Prepared By:



Kebo Zhang
Senior Project Engineer

Checked By:



Denny Huang
Senior Project Engineer

Approved By:

Stephen Guo
Laboratory Manager

2. TEST METHODOLOGY

All tests were performed in accordance with the standard FCC CFR 47 Part 2, KDB 414788 D01 Radiated Test Site v01r01, CFR 47 FCC Part 15, ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	**A2LA (Certificate No.: 4102.01)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. **FCC (FCC Designation No.: CN1187)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Delcaration of Conformity (DoC) and Certification rules **ISED (Company No.: 21320)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046. **VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B , the VCCI registration No. is C-20012 and T-20011

Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Note 2: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3: For below 30 MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30 MHz had been correlated to measurements performed on an OFS.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty
Conduction Emission	3.62 dB
Radiated Emission (Included Fundamental Emission) (9 kHz ~ 30 MHz)	2.2 dB
Radiated Emission (Included Fundamental Emission) (30 MHz ~ 1 GHz)	4.00 dB
DTS and 99% Occupied Bandwidth	±0.0196%
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	Qi Fast Charging Pad USB-A Charging Port and USB Type-C Charging Port Station	
Model	NSC3-BF	
Series Model	NSC3-GF, NSC3-WWT	
Model Difference	Their electrical circuit design, layout, components used and internal wiring are identical, only the color and model name is different. We select “NSC3-BF” as the representative model for compliance test.	
Product Description	Operation Frequency	111 ~ 205 kHz
Rated Output Power	10 W	
Antenna type	Coil	
Ratings	DC 9 V	

5.2. TEST MODE

Test Mode	Description
Mode 1	USB-A and Type-C Full Load with 10 W wireless charging load (Full Load)
Mode 2	USB-A and Type-C Full Load with 10 W wireless charging load (Half Load)
Mode 3	USB-A and Type-C Full Load with 10 W wireless charging load (No Load)

Note: All the modes had been tested, but only the worst data was recorded in the report.

5.3. ACCESSORY

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Series No.
1	Wireless charger RX artificial load	/	/	/

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	Type A	Unshielded	1.0	/
2	USB	Type C	Unshielded	1.0	/

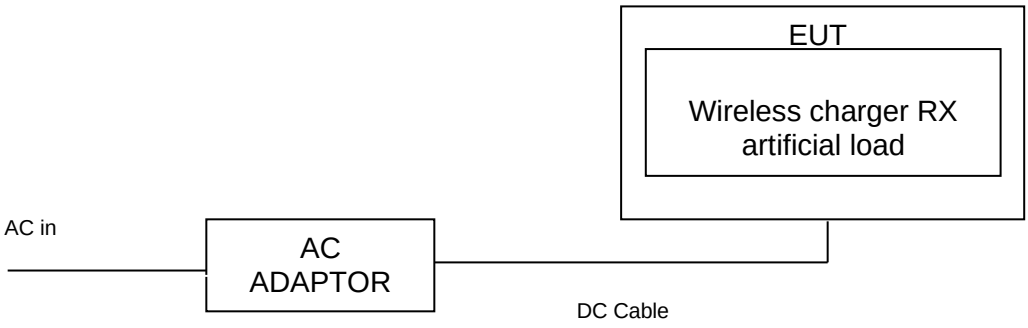
ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
1	AC ADAPTOR	GJTL	GJ27WE-0900300U	Input: AC 100 ~ 240 V, 50/60 Hz, 0.8 A Output: DC 9 V, 3 A

TEST SETUP

The EUT support wireless charging.

SETUP DIAGRAM FOR TEST



5.4. MEASURING INSTRUMENT LIST

Conducted Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
EMI Test Receiver	R&S	ESR3	101961	Oct.17, 2022	Oct.16, 2023
Two-Line V-Network	R&S	ENV216	101983	Oct.17, 2022	Oct.16, 2023
Software					
Description			Manufacturer	Name	Version
Test Software for Conducted Emissions			Farad	EZ-EMC	Ver. UL-3A1

Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Oct.17, 2022	Oct.16, 2023
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130959	Aug.02, 2021	Aug.01, 2024
Preamplifier	HP	8447D	2944A09099	Oct.17, 2022	Oct.16, 2023
Horn Antenna	Schwarzbeck	BBHA9170	697	July 20, 2021	July 19, 2024
Loop antenna	Schwarzbeck	1519B	00008	Dec.14, 2021	Dec.13, 2024
Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Oct.17, 2022	Oct.16, 2023
Software					
Description			Manufacturer	Name	Version
Test Software for Radiated Emissions			Farad	EZ-EMC	Ver. UL-3A1

Other Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
☑	PXA Signal Analyzer	Keysight	N9030A	MY55410512	Oct.17, 2022	Oct.16, 2023

6. 20dB BANDWIDTH TEST

LIMITS

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.215, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

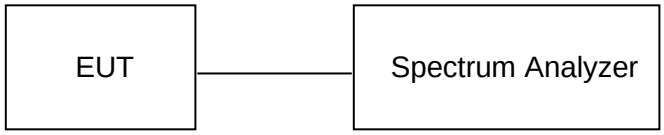
TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	1% to 5% of the bandwidth
VBW	approximately 3×RBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and 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 99%/20 dB relative to the maximum level measured in the fundamental emission.

TEST SETUP



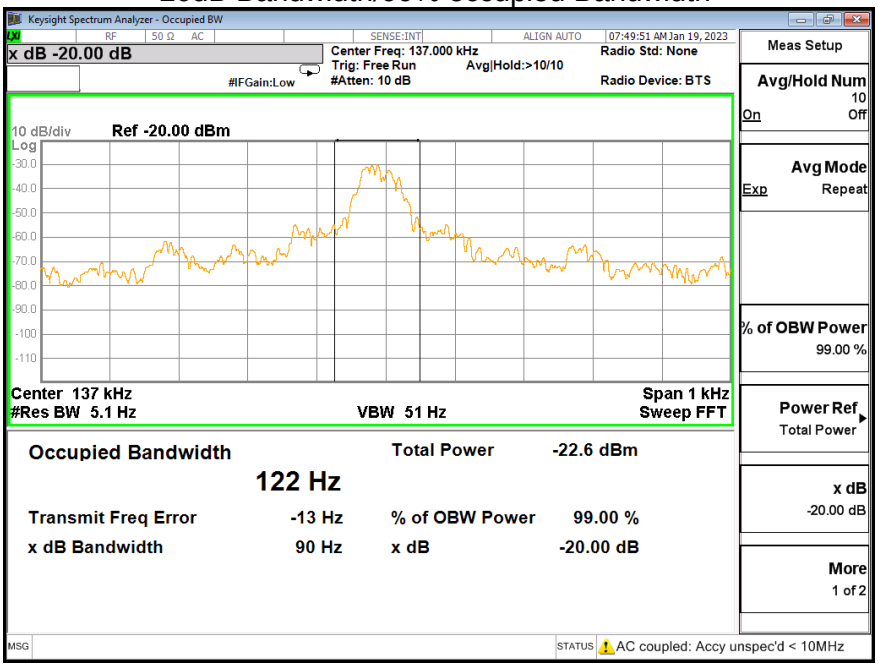
TEST ENVIRONMENT

Temperature	23.6 °C	Relative Humidity	54 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V, 60 Hz

RESULTS

Frequency (kHz)	20dB Bandwidth (Hz)	99% occupied Bandwidth (Hz)
137	90	122

20dB Bandwidth/99% occupied Bandwidth



7. RADIATED EMISSION TEST

LIMITS

Please refer to CFR 47 FCC §15.205 and §15.209.

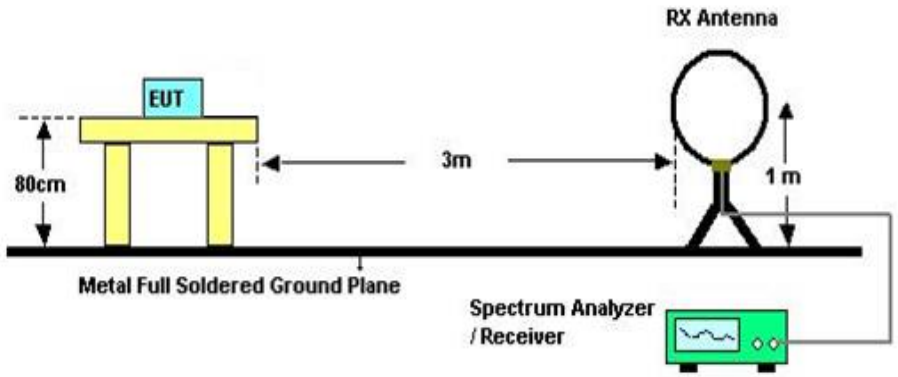
Radiated emissions limits for FCC (Class B) (9 kHz ~ 1 GHz)

Emissions radiated outside of the specified frequency bands above 30 MHz			
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m	
		Quasi-Peak	
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	
Above 1000	500	Peak	Average
		74	54

Emissions radiated outside of the specified frequency bands below 30 MHz		
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30

TEST SETUP AND PROCEDURE

Below 30 MHz



The setting of the spectrum analyser

RBW	200 Hz (From 9 kHz to 0.15 MHz) / 9 kHz (From 0.15 MHz to 30 MHz)
VBW	200 Hz (From 9 kHz to 0.15 MHz) / 9 kHz (From 0.15 MHz to 30 MHz)
Sweep	Auto
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.

2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80cm above ground.

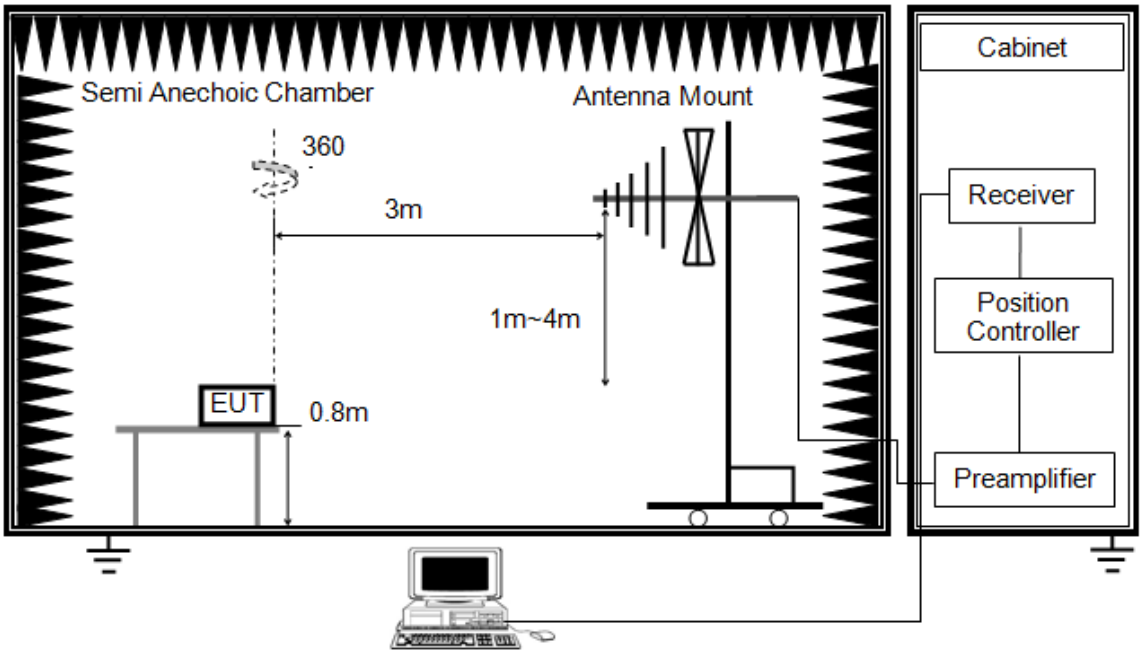
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.

5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.

7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30 m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

Below 1 GHz and above 30 MHz



The setting of the spectrum analyser

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.5.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

TEST ENVIRONMENT

Temperature	24.1 °C	Relative Humidity	68 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V, 60 Hz

RESULTS

7.1. SPURIOUS EMISSIONS BELOW 30 MHz

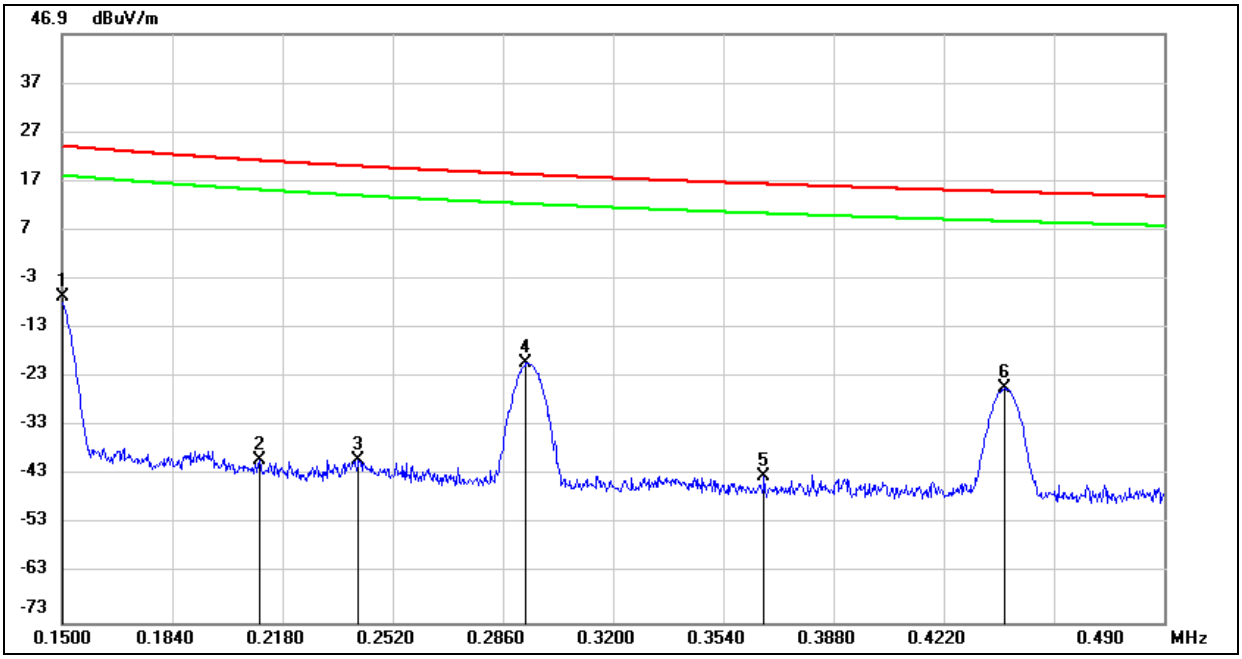
FCC PART 15C BELOW 30MHz SPURIOUS EMISSIONS (LOOP ANTENNA FACE ON TO THE EUT)

9 kHz ~ 150 kHz

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0299	68.29	-101.11	-32.82	38.09	-70.91	Peak
2	0.0475	69.80	-101.35	-31.55	34.07	-65.62	Peak
3	0.0541	68.34	-101.30	-32.96	32.94	-65.90	Peak
4	0.1218	60.21	-101.55	-41.34	25.89	-67.23	Peak
5	0.1270	59.12	-101.61	-42.49	25.53	-68.02	Peak
6	0.1469	90.28	-101.85	-11.57	24.26	-35.83	Fundamental

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result are deemed to comply with AV limit.
3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.
4. The test was performed at 3 m test site, but we added the corresponding factor to extrapolated the result to the specified distance according to FCC 15.31(f)(2).

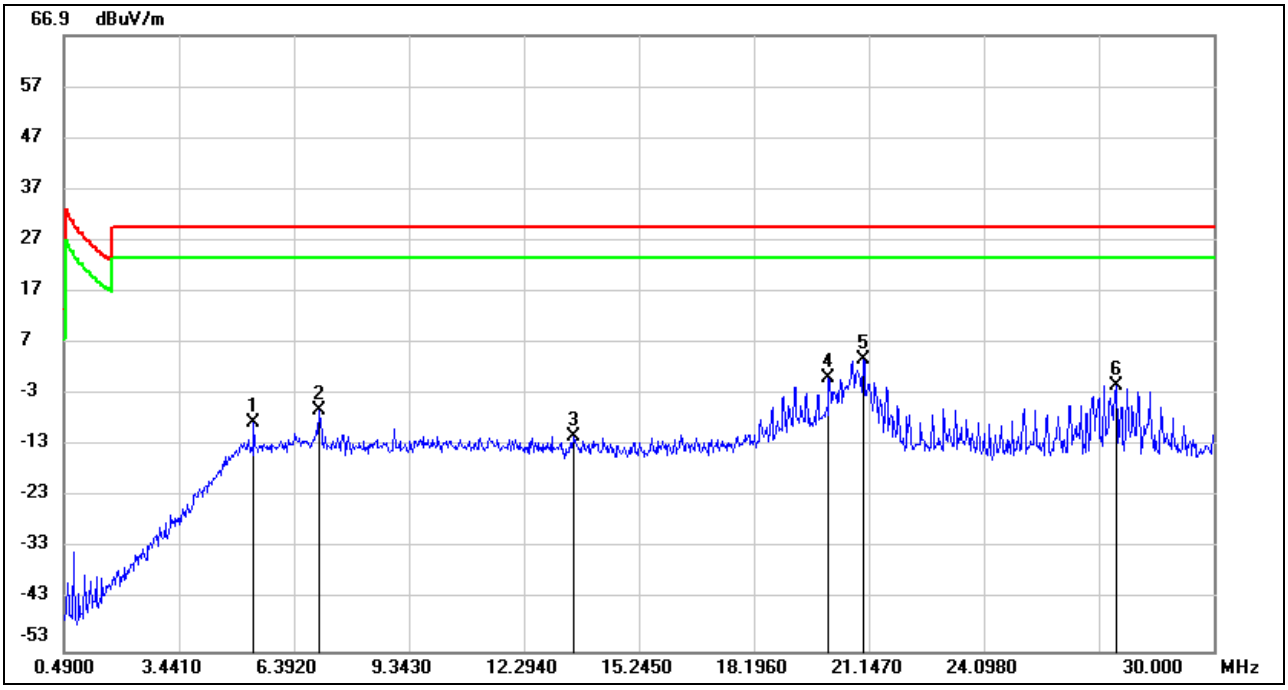
150 kHz ~ 490 kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1500	95.10	-101.89	-6.79	24.08	-30.87	Fundamental
2	0.2109	61.93	-101.83	-39.90	21.12	-61.02	Peak
3	0.2415	61.96	-101.80	-39.84	19.94	-59.78	Peak
4	0.2931	81.68	-101.77	-20.09	18.26	-38.35	Peak
5	0.3666	58.41	-101.75	-43.34	16.32	-59.66	Peak
6	0.4407	76.38	-101.72	-25.34	14.72	-40.06	Peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result are deemed to comply with AV limit.
3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.
4. The test was performed at 3 m test site, but we added the corresponding factor to extrapolated the result to the specified distance according to FCC 15.31(f)(2).
5. Point No.1 is the fundamental as the RBW use for 0.15 MHz to 30 MHz is 9 kHz.

490 kHz ~ 30 MHz

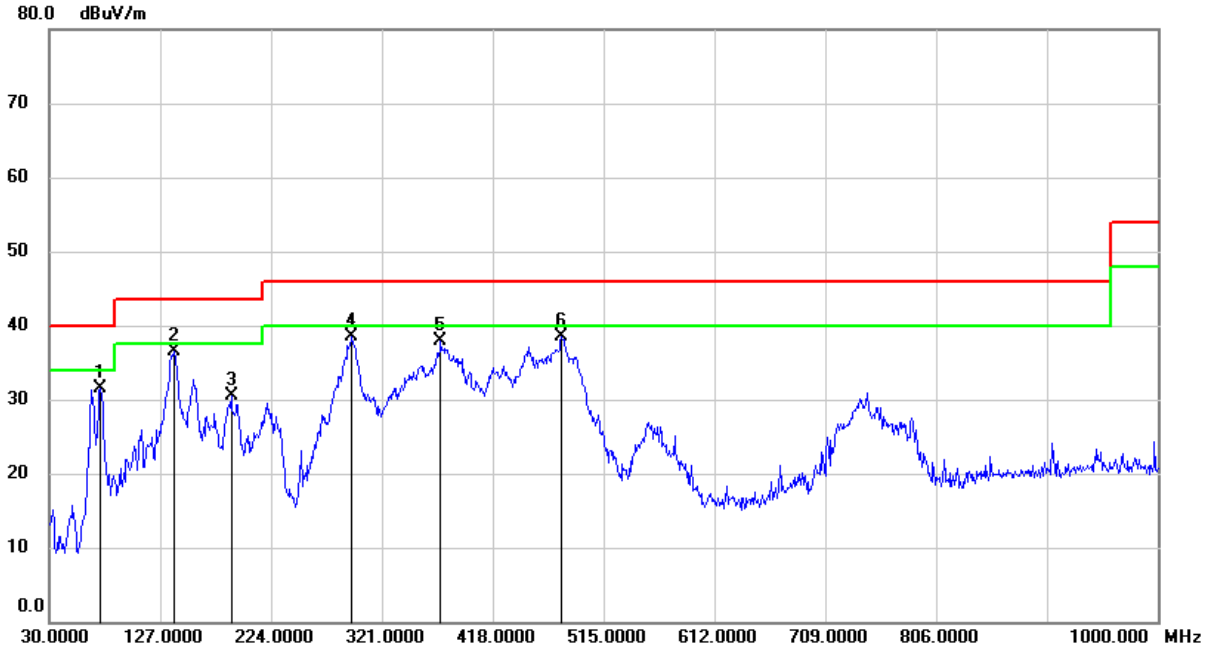


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5.3591	53.23	-61.88	-8.65	29.54	-38.19	Peak
2	7.0412	55.41	-61.63	-6.22	29.54	-35.76	Peak
3	13.5629	50.15	-61.41	-11.26	29.54	-40.80	Peak
4	20.1141	61.32	-61.09	0.23	29.54	-29.31	Peak
5	20.9994	64.72	-61.07	3.65	29.54	-25.89	Peak
6	27.4916	59.61	-60.81	-1.20	29.54	-30.74	Peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result are deemed to comply with AV limit.
3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.
4. The test was performed at 3 m test site, but we added the corresponding factor to extrapolated the result to the specified distance according to FCC 15.31(f)(2).

7.2. SPURIOUS EMISSIONS 30 MHz ~ 1 GHz

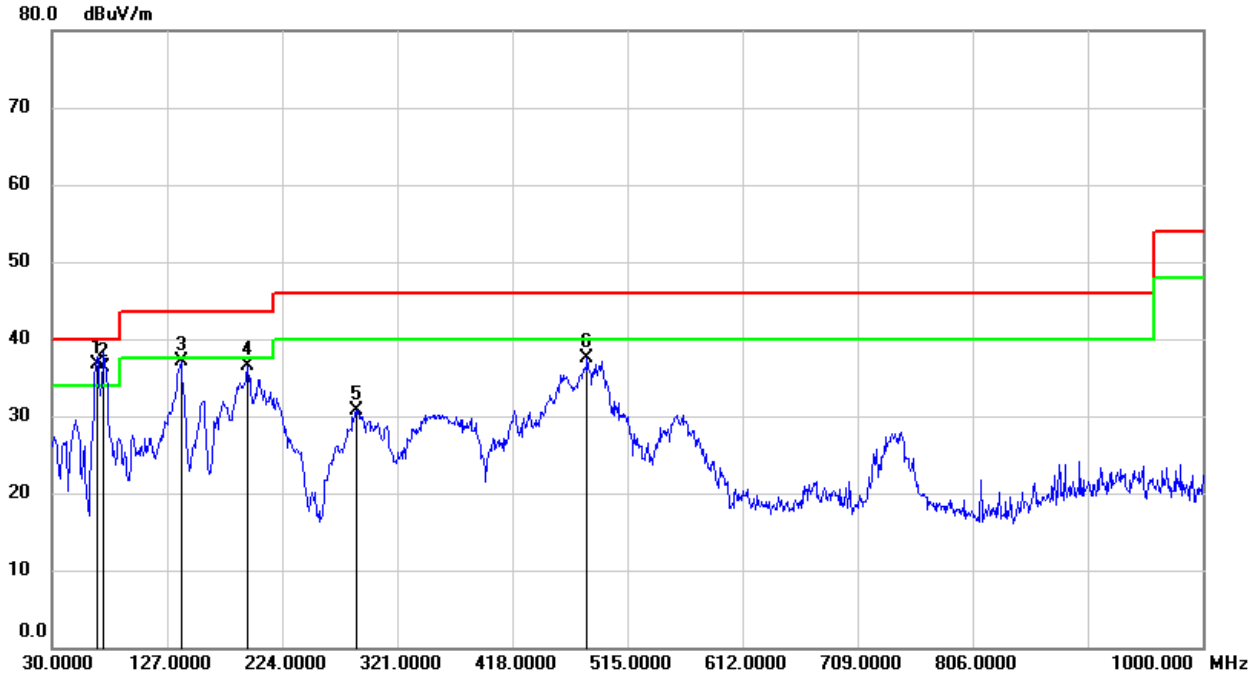
FCC PART15C SPURIOUS EMISSIONS (HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	74.6200	52.43	-20.91	31.52	40.00	-8.48	QP
2	138.6400	55.47	-18.94	36.53	43.50	-6.97	QP
3	189.0800	46.98	-16.48	30.50	43.50	-13.00	QP
4	294.8100	54.22	-15.69	38.53	46.00	-7.47	QP
5	372.4100	51.71	-13.90	37.81	46.00	-8.19	QP
6	478.1400	50.34	-11.83	38.51	46.00	-7.49	QP

Note: 1. Result Level = Read Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.
4. All the noise ared created from the digital circuit. It is not created by wireless charging circuit.

FCC PART15C SPURIOUS EMISSIONS (VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	67.8300	57.31	-20.53	36.78	40.00	-3.22	QP
2	73.6500	57.12	-20.83	36.29	40.00	-3.71	QP
3	138.6400	55.95	-18.94	37.01	43.50	-6.49	QP
4	194.9000	52.75	-16.31	36.44	43.50	-7.06	QP
5	286.0799	47.04	-16.25	30.79	46.00	-15.21	QP
6	481.0500	49.26	-11.78	37.48	46.00	-8.52	QP

Note: 1. Result Level = Read Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto
4. All the noise ared created from the digital circuit. It is not created by wireless charging circuit.

8. AC POWER LINE CONDUCTED EMISSION

LIMITS

Please ISED RSS-Gen Clause 8.8

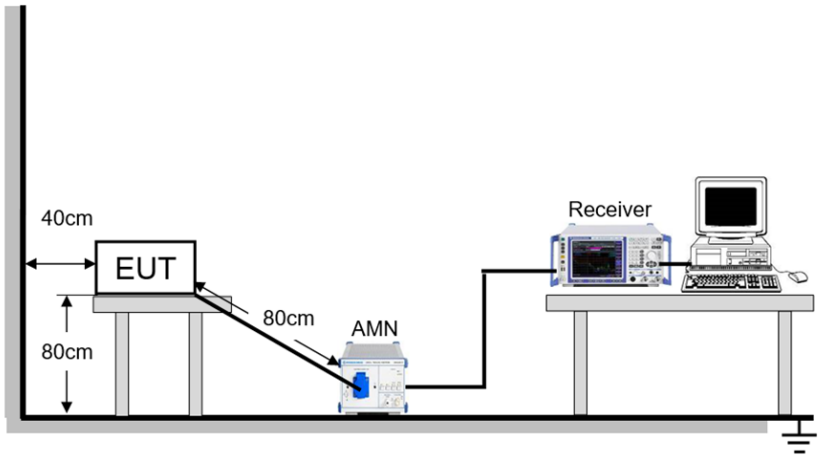
FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

TEST PROCEDURE

The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

TEST SETUP

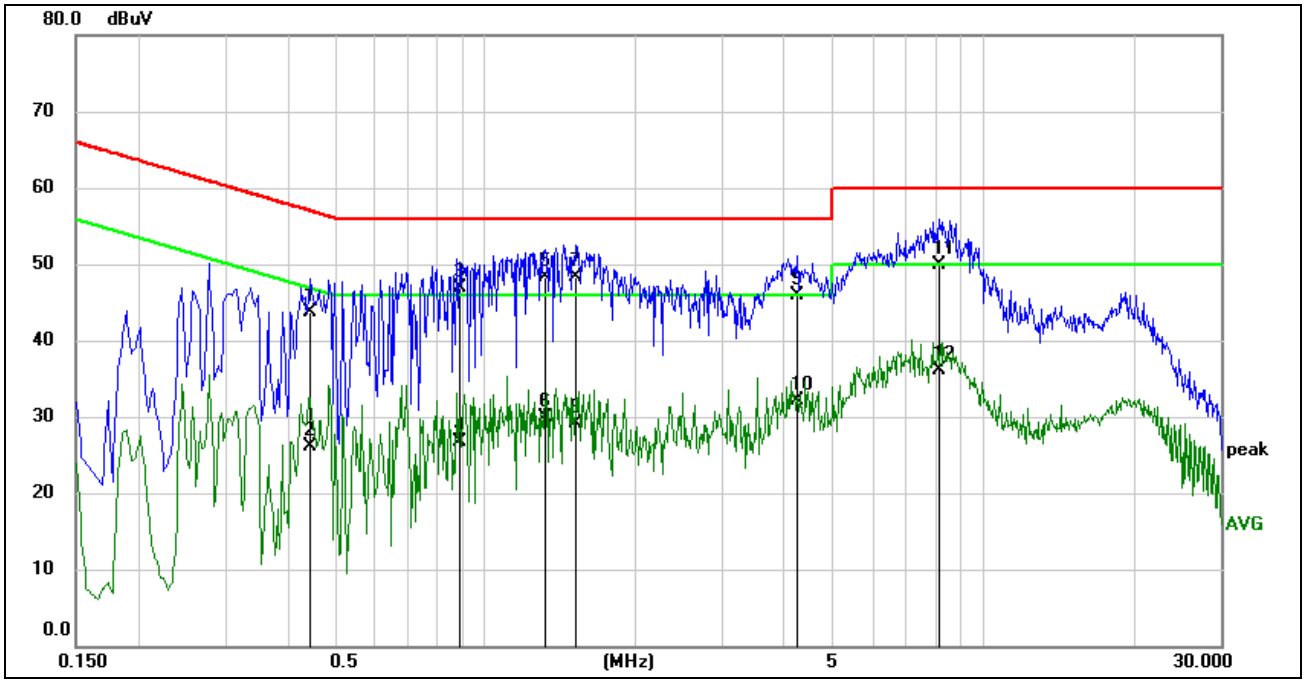


TEST ENVIRONMENT

Temperature	22.5 °C	Relative Humidity	54%
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V/60 Hz

TEST RESULTS

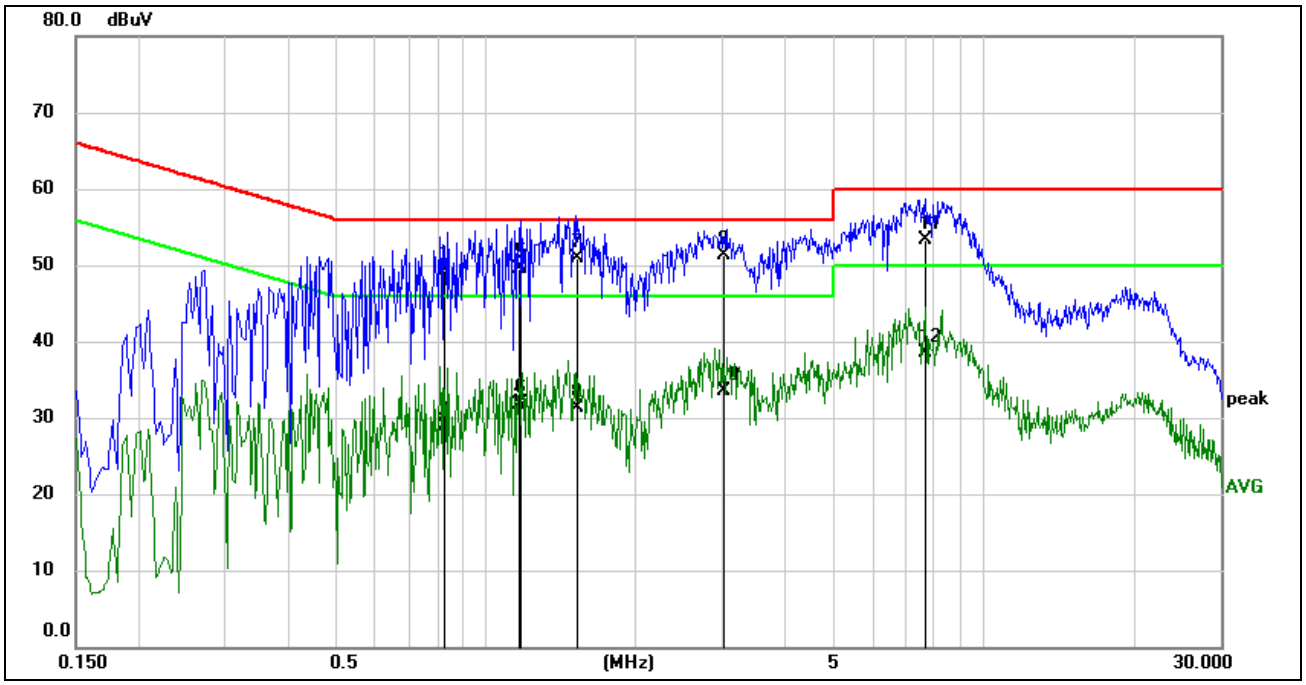
Test Mode:	Mode 1	Test Voltage	AC 120 V/60 Hz
Line	L1		



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.4439	34.09	9.60	43.69	56.99	-13.30	QP
2	0.4439	16.49	9.60	26.09	46.99	-20.90	AVG
3	0.8871	37.21	9.60	46.81	56.00	-9.19	QP
4	0.8871	17.13	9.60	26.73	46.00	-19.27	AVG
5	1.3192	38.69	9.61	48.30	56.00	-7.70	QP
6	1.3192	20.25	9.61	29.86	46.00	-16.14	AVG
7	1.5199	38.78	9.62	48.40	56.00	-7.60	QP
8	1.5199	19.51	9.62	29.13	46.00	-16.87	AVG
9	4.2457	36.14	9.70	45.84	56.00	-10.16	QP
10	4.2457	22.35	9.70	32.05	46.00	-13.95	AVG
11	8.1412	40.23	9.71	49.94	60.00	-10.06	QP
12	8.1412	26.48	9.71	36.19	50.00	-13.81	AVG

Note:
1. Result = Reading + Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Test Mode:	Mode 1	Test Voltage	AC 120 V/60 Hz
Line	N		



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.8310	39.80	9.50	49.30	56.00	-6.70	QP
2	0.8310	19.47	9.50	28.97	46.00	-17.03	AVG
3	1.1700	39.99	9.53	49.52	56.00	-6.48	QP
4	1.1700	22.10	9.53	31.63	46.00	-14.37	AVG
5	1.1701	40.10	9.53	49.63	56.00	-6.37	QP
6	1.1701	22.36	9.53	31.89	46.00	-14.11	AVG
7	1.5225	41.34	9.57	50.91	56.00	-5.09	QP
8	1.5225	21.71	9.57	31.28	46.00	-14.72	AVG
9	3.0102	41.78	9.62	51.40	56.00	-4.60	QP
10	3.0102	23.79	9.62	33.41	46.00	-12.59	AVG
11	7.6728	43.66	9.62	53.28	60.00	-6.72	QP
12	7.6728	28.90	9.62	38.52	50.00	-11.48	AVG

Note:
1. Result = Reading + Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.
Note: All the modes have been tested, only the worst data was recorded in the report.

END OF REPORT