

FCC Test Report

Client Name : Gopod Group Limited.

Client Address : 6/F., 235 Wing Lok Trade Centre, Sheung Wan,
Hong Kong, China

Product Name : Magnetic Wireless Car Charger

Report Date : Nov. 30, 2022

Shenzhen Anbotek Compliance Laboratory Limited



Shenzhen Anbotek Compliance Laboratory Limited

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TEST REPORT

Applicant : Gopod Group Limited.
Manufacturer : Gopod Group Holding Limited
Product Name : Magnetic Wireless Car Charger
Model No. : D481F2, D481F1
Trade Mark : Gmobi
Rating(s) : Input: 5V \equiv 3A, 9V \equiv 2A, 12V \equiv 1.5A
Output: 5W & 7.5W
Test Standard(s) : **FCC Part15 Subpart C, Paragraph 15.209**
Test Method(s) : **ANSI C63.10: 2020**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt

Nov. 11, 2022

Date of Test

Nov. 11 ~ 24, 2022

Prepared By

Nian Xiu Chen

(Nianxiu Chen)

Approved & Authorized Signer

Kingkong Jin

(Kingkong Jin)



Revision History

Report Version	Description	Issued Date
R00	Original Issue.	Nov. 30, 2022



1. General Information

1.1. Client Information

Applicant	:	Gopod Group Limited.
Address	:	6/F., 235 Wing Lok Trade Centre, Sheung Wan, Hong Kong, China
Manufacturer	:	Gopod Group Holding Limited
Address	:	4/F,5/F,6/F of Building#8,1/F of Building#3,4/F of Building#6,Unbuilt Science and Technology Industrial Park,Huarong Road,HengLang Community Dalang Street,LongHua District, Shenzhen, China
Factory	:	Gopod Group Holding Limited
Address	:	4/F,5/F,6/F of Building#8,1/F of Building#3,4/F of Building#6,Unbuilt Science and Technology Industrial Park,Huarong Road,HengLang Community Dalang Street,LongHua District, Shenzhen, China

1.2. Description of Device (EUT)

Product Name	:	Magnetic Wireless Car Charger
Model No.	:	D481F2, D481F1 (Note: All samples are the same except the model number, so we prepare "D481F2" for test only.)
Trade Mark	:	Gmobi
Test Power Supply	:	DC 12V (Note: During the test, pre-scan all test voltages and only show the test data of the worst case (DC 12V) in this Report.
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	:	N/A
RF Specification		
Operation Frequency	:	127KHz, 360KHz
Modulation Type	:	FSK
Antenna Type	:	Inductive loop coil Antenna
Antenna Gain(Peak)	:	0 dBi (Provided by customer)
Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.		



1.3. Auxiliary Equipment Used During Test

Description	Rating(s)
Mobile Phone	iPhone 12

1.4. Description of Test Modes

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 configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	WPT Mode

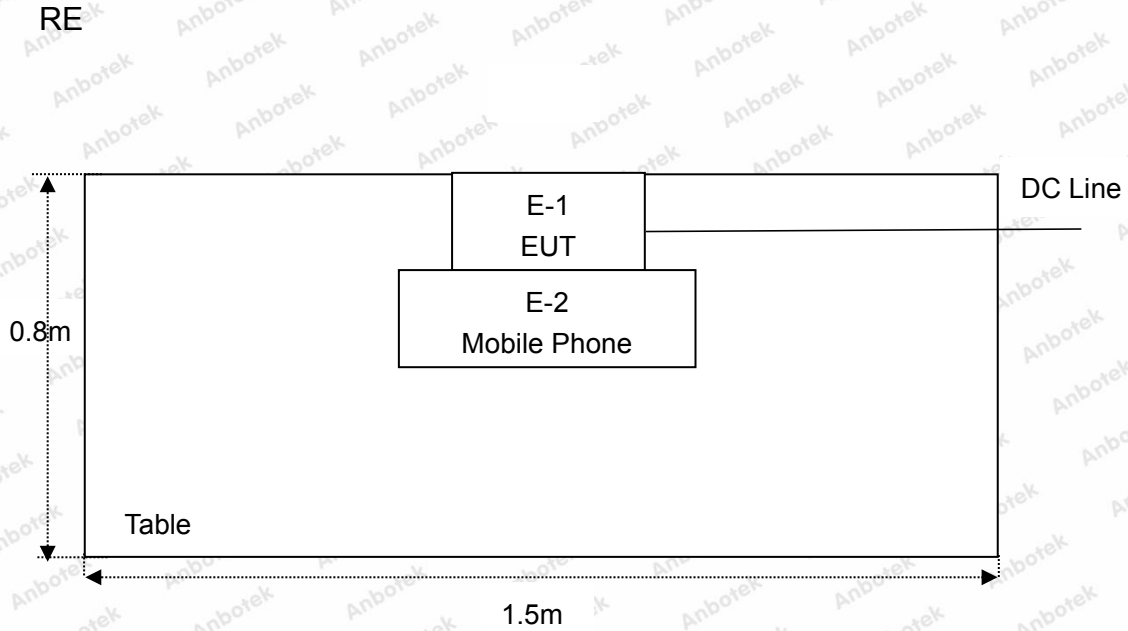
For Radiated Emission	
Final Test Mode	Description
Mode 1	WPT Mode

Note:

- (1) The device does not support simultaneous transmission of 127KHz & 360KHz, therefore, worst case is transmitting at 360KHz mode.
- (2) All the situation(full load, half load and empty load) has been tested,only the worst situation (full load 7.5W) was recorded in the report.



1.5. Description Of Test Setup



1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Oct. 23, 2022	1 Year
2.	Three Phase V-type Artificial Power Network	CYBERTEK	EM5040DT	E215040DT001	Jul. 05, 2022	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Oct. 13, 2022	1 Year
4.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Oct. 23, 2022	1 Year
5.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Oct. 22, 2022	1 Year
6.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Oct. 13, 2022	1 Year
7.	EMI Preamplifier	SKET Electronic	LNPA-0118G-45	SKET-PA-002	Oct. 13, 2022	1 Year
8.	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D	02555	Oct. 16, 2022	3 Year
9.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Oct. 23, 2022	1 Year
10.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Oct. 23, 2022	1 Year
11.	Horn Antenna	A-INFO	LB-180400-KF	J211060628	Oct. 23, 2022	1 Year
12.	Pre-amplifier	SONOMA	310N	186860	Oct. 23, 2022	1 Year
13.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
14.	MXA Spectrum Analysis	KEYSIGHT	N9020A	MY53280032	Oct. 13, 2022	1 Year
15.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Oct. 13, 2022	1 Year
16.	Signal Generator	Agilent	E4421B	MY41000743	Oct. 13, 2022	1 Year
17.	DC Power Supply	IVYTECH	IV3605	1804D360510	Oct. 22, 2022	1 Year
18.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Oct. 19, 2022	1 Year



1.7. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 3.9 dB (Horizontal)
	:	Ur = 3.8 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4 dB

1.8. Description of Test Facility

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

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, 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. Registration No. 184111.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518128



2. Summary of Test Results

Standard Section	Test Item	Result
15.203	Antenna Requirement	PASS
15.207	Conducted Emission Test	N/A
15.205/15.209	Spurious Emission	PASS

Note: "N/A" denotes test is not applicable in this Test Report



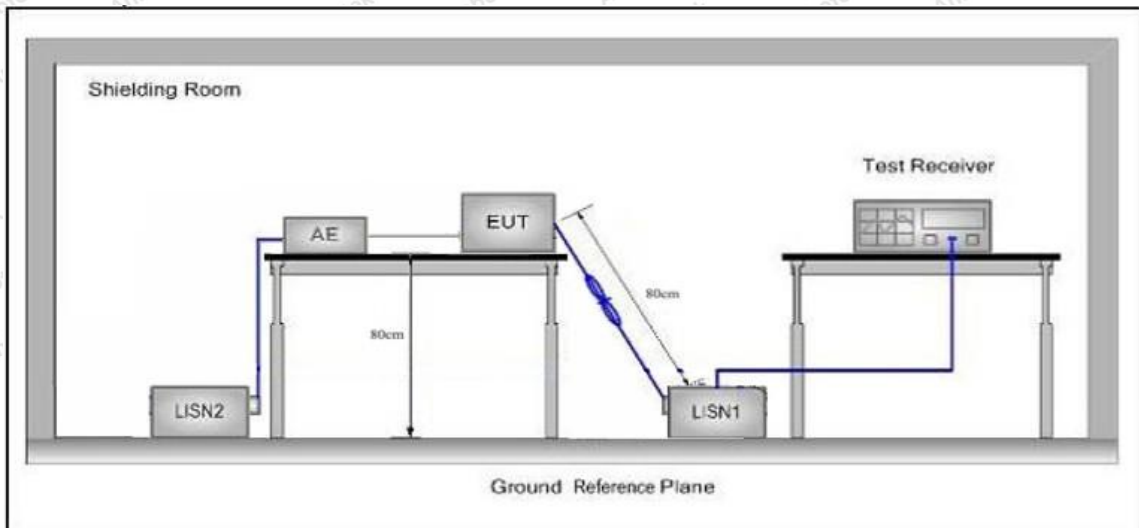
3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207		
	Frequency	Maximum RF Line Voltage (dBuV)	
		Quasi-peak Level	Average Level
Test Limit	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46
	5MHz~30MHz	60	50

Remark: (1) *Decreasing linearly with logarithm of the frequency.
 (2) The lower limit shall apply at the transition frequency.

3.2. Test Setup



3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10-2020 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Not applicable.

This is a Car device, which is intended to be installed on a vehicle only, not connet to the public utility under normal use.15.207 test is exempted.



4. Radiation Spurious Emission

4.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.209 and 15.205				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	960MHz~1000MHz	500	54.0	Quasi-peak	3
	Above 1000MHz	500	54.0	Average	3
-		-	74.0	Peak	3

Remark:

(1)The lower limit shall apply at the transition frequency.

(2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

4.2. Test Setup

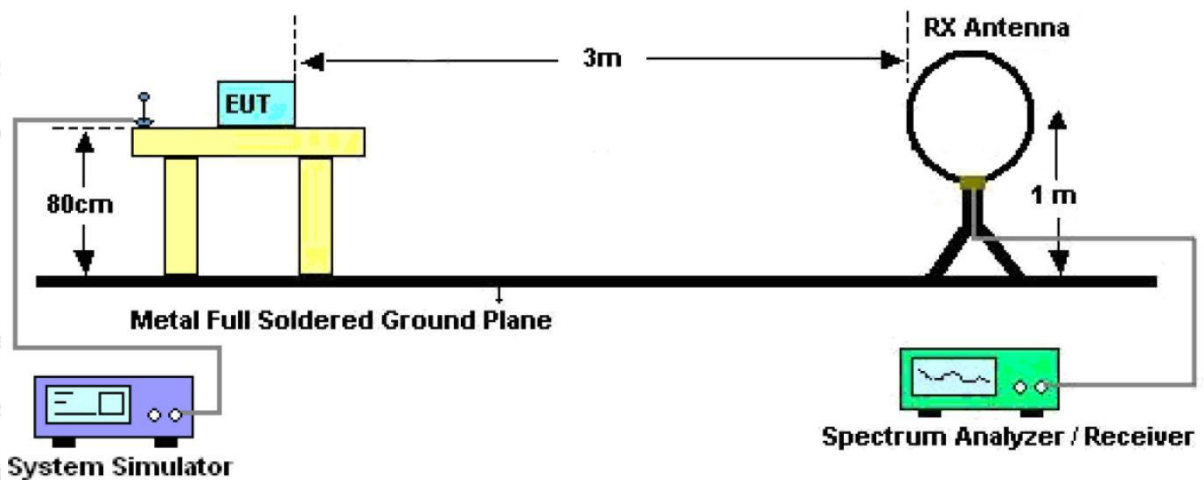


Figure 1. Below 30MHz



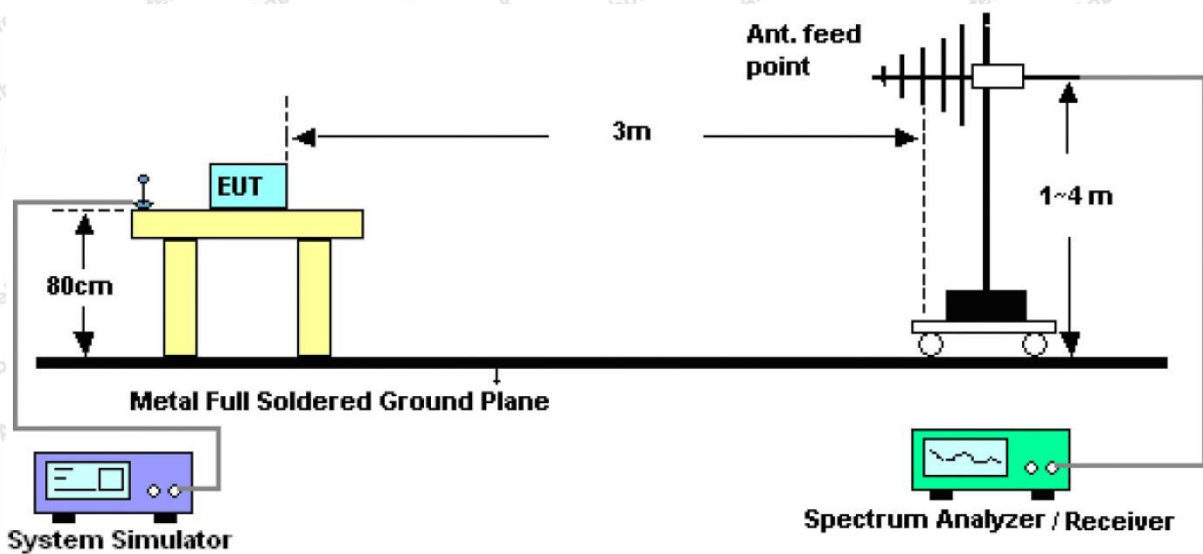


Figure 2. 30MHz to 1GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane. 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 be moved up and down from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

For 9kHz to 150kHz, Set the spectrum analyzer as:

RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:

RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:

RBW = 100kHz, VBW =300kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

4.4. Test Data

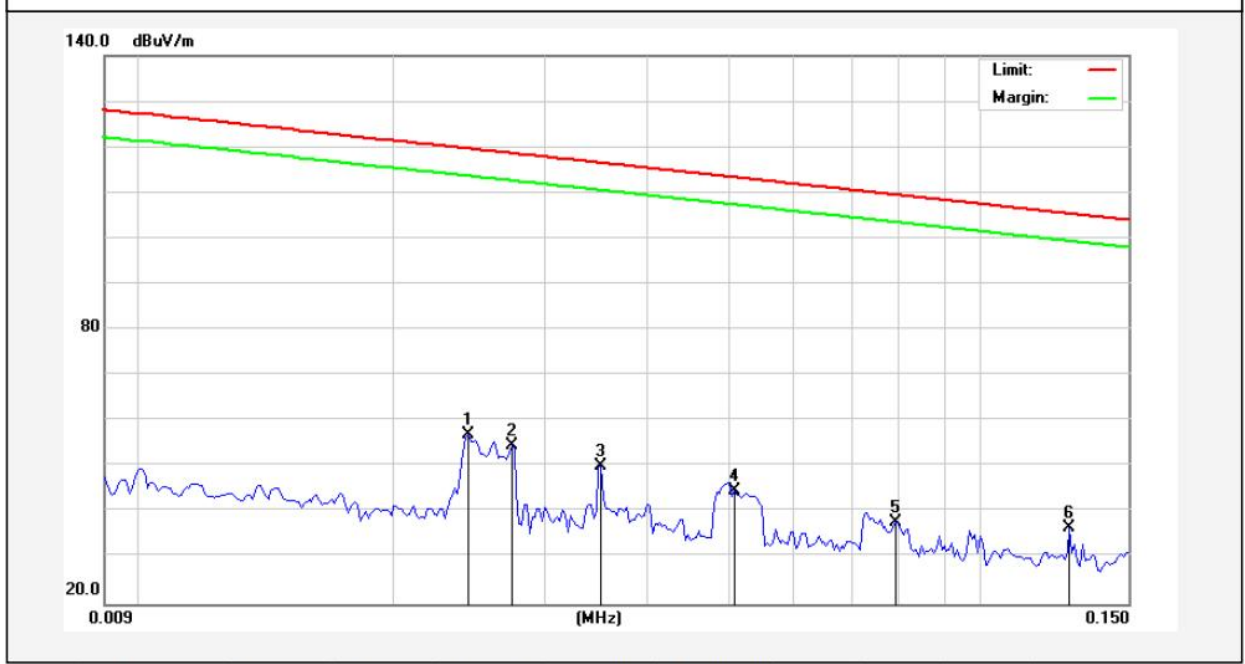
PASS

During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.



Test Results (Between 9KHz – 150KHz)

Test Mode: Mode 1
 Distance: 3m
 Power Source: DC 12V
 Temp.(°C)/Hum.(%RH): 23.5°C/48%RH

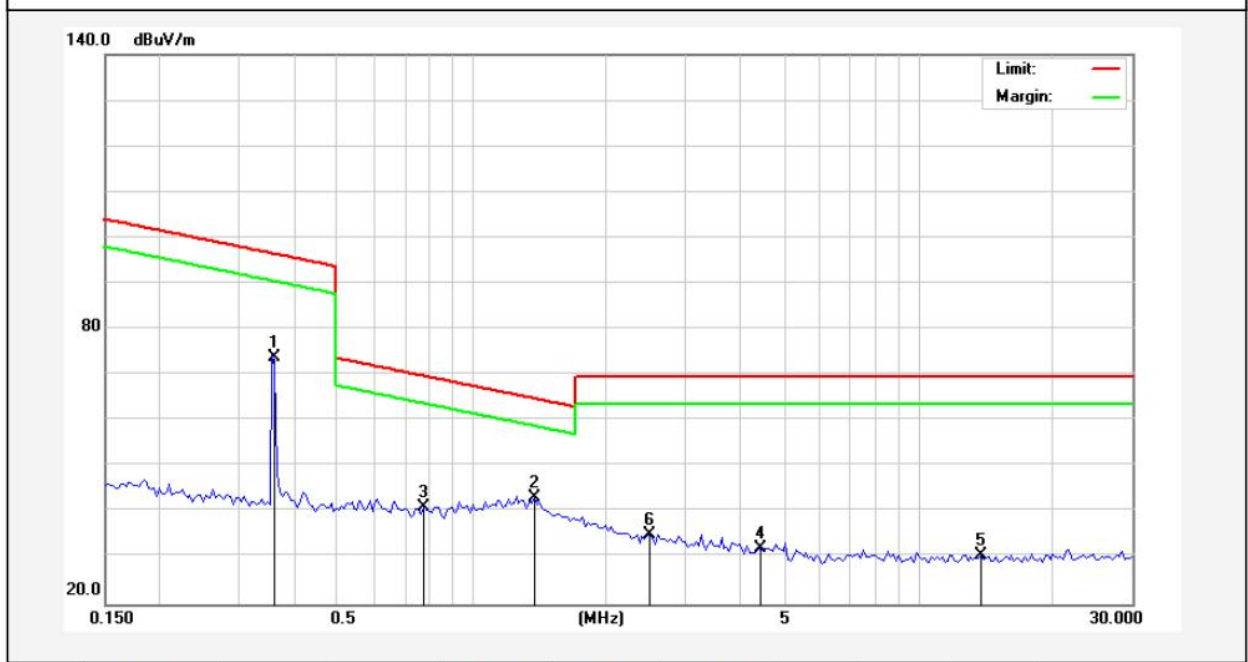


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	0.0244	36.71	20.38	57.09	119.70	-62.61	AVG			
2	0.0275	34.24	20.39	54.63	118.66	-64.03	AVG			
3	0.0352	29.60	20.48	50.08	116.53	-66.45	AVG			
4	0.0507	24.21	20.41	44.62	113.38	-68.76	AVG			
5	0.0791	17.39	20.36	37.75	109.54	-71.79	AVG			
6	0.1275	16.34	20.34	36.68	105.42	-68.74	AVG			



Test Results (Between 0.15MHz – 30MHz)

Test Mode: Mode 1
 Distance: 3m
 Power Source: DC 12V
 Temp.(°C)/Hum.(%RH): 23.5°C/48%RH



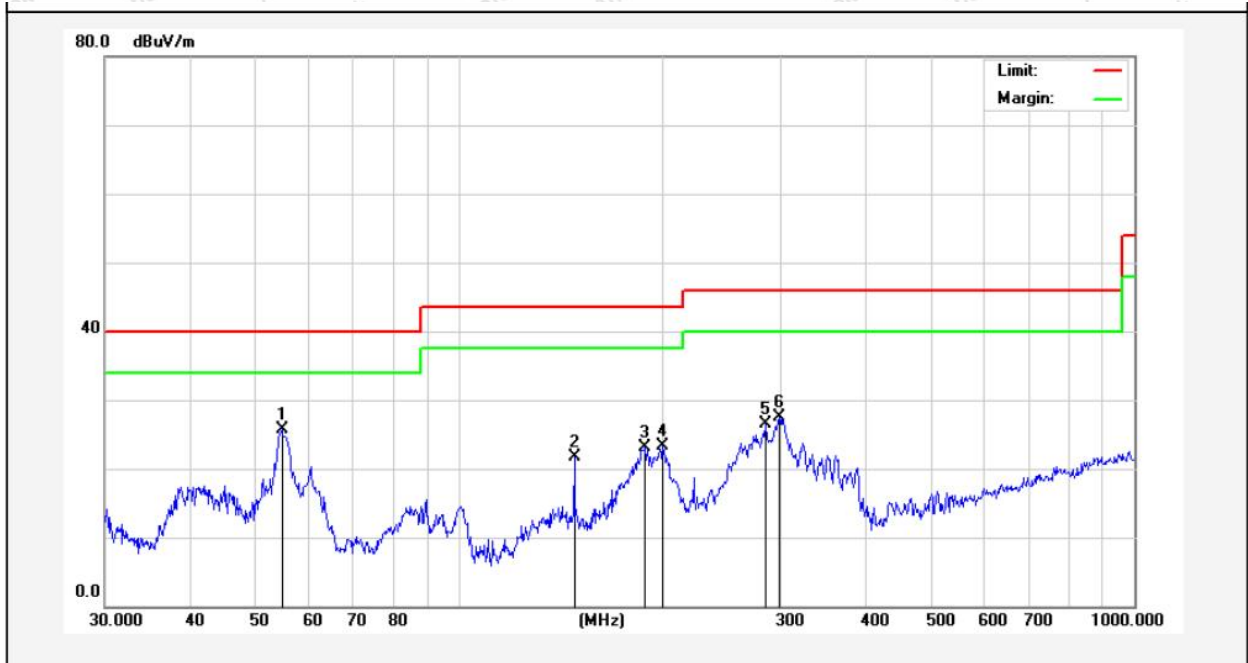
No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	0.3600	53.47	20.28	73.75	96.46	-22.71	QP			
2	1.3702	23.13	20.26	43.39	64.89	-21.50	peak			
3	0.7752	20.97	20.25	41.22	69.83	-28.61	peak			
4	4.3954	11.91	20.39	32.30	69.50	-37.20	peak			
5	13.7315	9.99	20.53	30.52	69.50	-38.98	peak			
6	2.4868	14.76	20.29	35.05	69.50	-34.45	peak			

Remark: According to FCC PART 15.209 (d), the emission limits 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.



Test Results (Between 30MHz –1000 MHz)

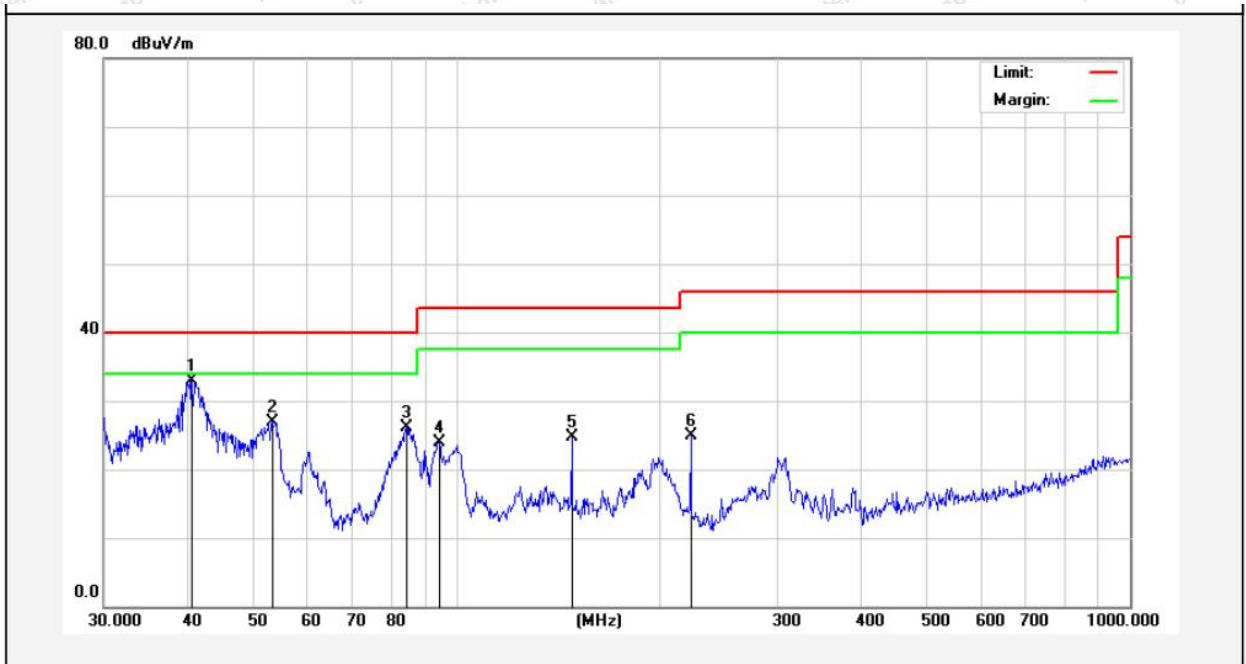
Test Mode: Mode 1
 Distance: 3m
 Power Source: DC 12V
 Polarization: Horizontal
 Temp.(°C)/Hum.(%RH): 23.6°C/47%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	54.8348	43.26	-17.56	25.70	40.00	-14.30	QP			
2	148.4410	44.64	-22.88	21.76	43.50	-21.74	QP			
3	189.0743	45.97	-22.80	23.17	43.50	-20.33	QP			
4	200.6881	45.56	-22.32	23.24	43.50	-20.26	QP			
5	284.9767	44.89	-18.46	26.43	46.00	-19.57	QP			
6	298.2681	44.80	-17.31	27.49	46.00	-18.51	QP			



Test Mode: Mode 1
 Distance: 3m
 Power Source: DC 12V
 Polarization: Horizontal
 Temp.(°C)/Hum.(%RH): 23.6°C/47%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	40.5591	47.56	-14.62	32.94	40.00	-7.06	QP			
2	53.3179	43.92	-17.00	26.92	40.00	-13.08	QP			
3	84.4054	44.72	-18.64	26.08	40.00	-13.92	QP			
4	94.4283	41.23	-17.26	23.97	43.50	-19.53	QP			
5	148.4410	46.72	-22.10	24.62	43.50	-18.88	QP			
6	222.9501	43.85	-18.88	24.97	46.00	-21.03	QP			



5. Antenna Requirement

5.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203
Requirement	1) 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.

5.2. Antenna Connected Construction

The antenna is a Inductive loop coil Antenna which permanently attached, and the best case gain of the antenna is 0 dBi. It complies with the standard requirement.



APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

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

