

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 15 SUBPART C**

OF

Seenda Technology Co., Ltd.

Product name: Wireless charging mouse pad

**MODEL No.: ICH-32SA05, ICH-32XXXX (X represents A,B,C.....1,2,3.....and all
other numbers or letters)**

FCC ID: HGO-ICH32SA05

Trademark: N/A

REPORT NO: ES161024014E1

ISSUE DATE: January 04, 2017

Prepared for

**Seenda Technology Co., Ltd.
906-908, Dongming Building, Minzhi Avenue, Longhua
Shenzhen, China**

Prepared by

EMTEK(SHENZHEN) CO., LTD.

**Bldg 69, Majialong Industry Zone, Nanshan District,
Shenzhen, Guangdong, China**

TEL: 86-755-26954280

FAX: 86-755-26954282

VERIFICATION OF COMPLIANCE


Applicant:	Seenda Technology Co.,Ltd.
Manufacturer:	Seenda Technology Co.,Ltd.
Product product:	Wireless charging mouse pad
Model Number:	ICH-32SA05, ICH-32XXXX (X represents A,B,C.....1,2,3.....and all other numbers or letters)
Trademark:	N/A
File Number:	ES161024014E1
Date of Test:	October 26, 2016 to January 04, 2017

We hereby certify that:

The above equipment was tested by EMTEK(SHENZHEN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15C

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

Date of Test : October 26, 2016 to January 04, 2017

Prepared by : 
Yaping Shen/Editor

Reviewer : 
Joe Xia/Supervisor


Approve & Authorized Signer : 
Lisa Wang/Manager

Table of Contents

1	GENERAL INFORMATION.....	4
1.1	PRODUCT DESCRIPTION.....	4
1.2	RELATED SUBMITTAL(S) / GRANT(S).....	4
1.3	TEST METHODOLOGY.....	5
1.4	SPECIAL ACCESSORIES	5
1.5	EQUIPMENT MODIFICATIONS	5
1.6	TEST FACILITY	5
2	SYSTEM TEST CONFIGURATION	6
2.1	EUT CONFIGURATION.....	6
2.2	EUT EXERCISE	6
2.3	TEST PROCEDURE	6
2.4	CONFIGURATION OF TESTED SYSTEM.....	6
3	SUMMARY OF TEST RESULTS	8
4	CONDUCTED EMISSION TEST	9
4.1	APPLICABLE STANDARD	9
4.2	CONFORMANCE LIMIT	9
4.3	TEST CONFIGURATION.....	9
4.4	TEST PROCEDURE	9
4.5	MEASUREMENT EQUIPMENT USED:.....	9
4.6	TEST RESULT	10
5	RADIATED EMISSION TEST	12
5.1	MEASUREMENT PROCEDURE	12
5.2	TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION).....	12
5.3	MEASUREMENT EQUIPMENT USED.....	13
5.4	RADIATED EMISSION LIMIT	13
5.5	MEASUREMENT RESULT	15
5.6	PHOTOS OF SETUP	22

1 General Information

1.1 Product Description

A major technical descriptions of EUT is described as following:

Product	Wireless charging mouse pad
Model Number	ICH-32SA05, ICH-32XXXX (X represents A,B,C.....1,2,3.....and all other numbers or letters) (Note: These models are identical in circuitry and electrical, mechanical and physical construction; the only difference is appearance model no. for trading purpose. We prepare ICH-32SA05 for test, and the worst result recorded in the report.)
Power Supply	Input: DC 5V by adapter or PC Output: DC 5V 1000mA Max
Operation Frequency	112-205 KHz
Modulation Technique	Induction
Antenna Type	Coil Antenna

1.2 Related Submittal(s) / Grant(s)

This submittal(s) (test report) is intended for FCC ID: HGO-ICH32SA05 filing to comply with the FCC Part 15, Subpart C Rules.

1.3 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Special Accessories

Not available for this EUT intended for grant.

1.5 Equipment Modifications

Not available for this EUT intended for grant.

1.6 Test Facility

Site Description
EMC Lab.

- : Accredited by CNAS, 2016.10.24
The certificate is valid until 2022.10.28
The Laboratory has been assessed and proved to be in compliance with
CNAS/CL01: 2006(identical to ISO/IEC17025: 2005)
The Certificate Registration Number is L2291
- Accredited by TUV Rheinland Shenzhen 2010.5.25
The Laboratory has been assessed according to the requirements ISO/IEC
17025
- Accredited by FCC, July 06, 2016
The Certificate Registration Number is 406365.
- Name of Firm : EMTEK(SHENZHEN) CO., LTD.
- Site Location : Bldg 69, Majialong Industry Zone,
Nanshan District, Shenzhen, Guangdong, China

2 System Test Configuration

2.1 EUT Configuration

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

2.2 EUT Exercise

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

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 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.

2.3.2 Radiated Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013.

2.4 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

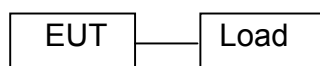


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
1.	Adapter	N/A	KSA0502000	N/A	N/A	N/A

Note:

- (1) Unless otherwise denoted as EUT in 『Remark』 column, device(s) used in tested system is a support equipment.

3 Summary of Test Results

FCC Rules	Description Of Test	Result
§15.207	AC Power Conducted Emission	Compliant
§15.209	Radiated Emission	Compliant

4 CONDUCTED EMISSION TEST

4.1 Applicable Standard

According to FCC Part 15.207(a)

4.2 Conformance Limit

Frequency(MHz)	Conducted Emission Limit	
	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.3 Test Configuration

Test according to clause 7.3 conducted emission test setup

4.4 Test Procedure

The EUT was placed on a table which is 0.8m above ground plane.

Maximum procedure was performed on the highest emissions to ensure EUT compliance.

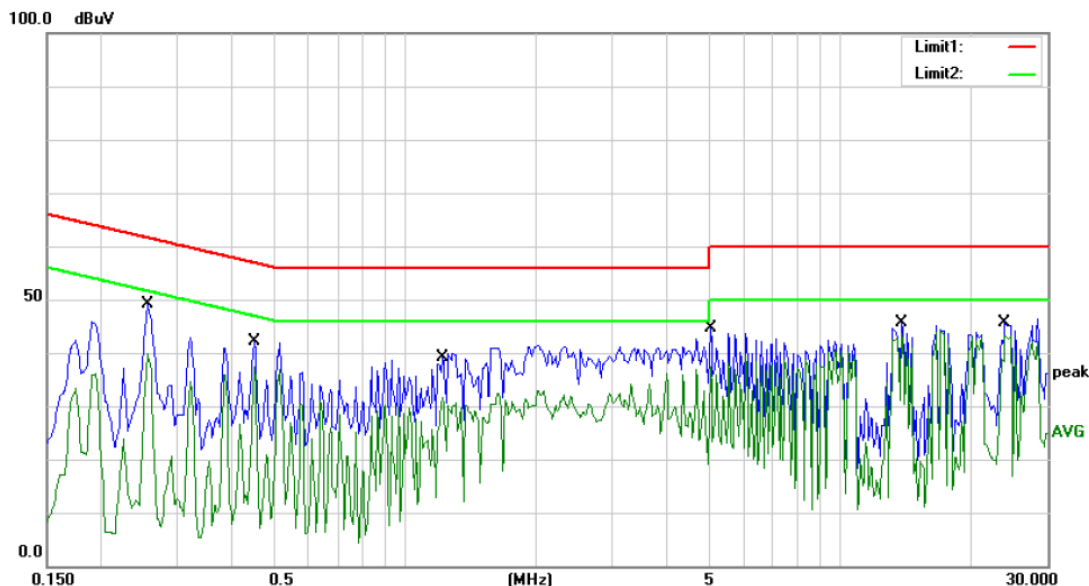
Repeat above procedures until all frequency measured were complete.

4.5 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	Due. CAL
Test Receiver	Rohde & Schwarz	ESCS30	828985/018	05/28/2016	05/28/2017
L.I.S.N.	Schwarzbeck	NNLK8129	8129203	05/28/2016	05/28/2017
50Ω Coaxial Switch	Anritsu	MP59B	M20531	N/A	N/A

4.6 Test Result

All of the power supply mode has been tested, the worst data has been recorded in the following pages.



Site Conducted #3

Phase: **L1**

Temperature: 22

Limit: (CE)FCC PART 15 C

Power: AC 120V/60Hz

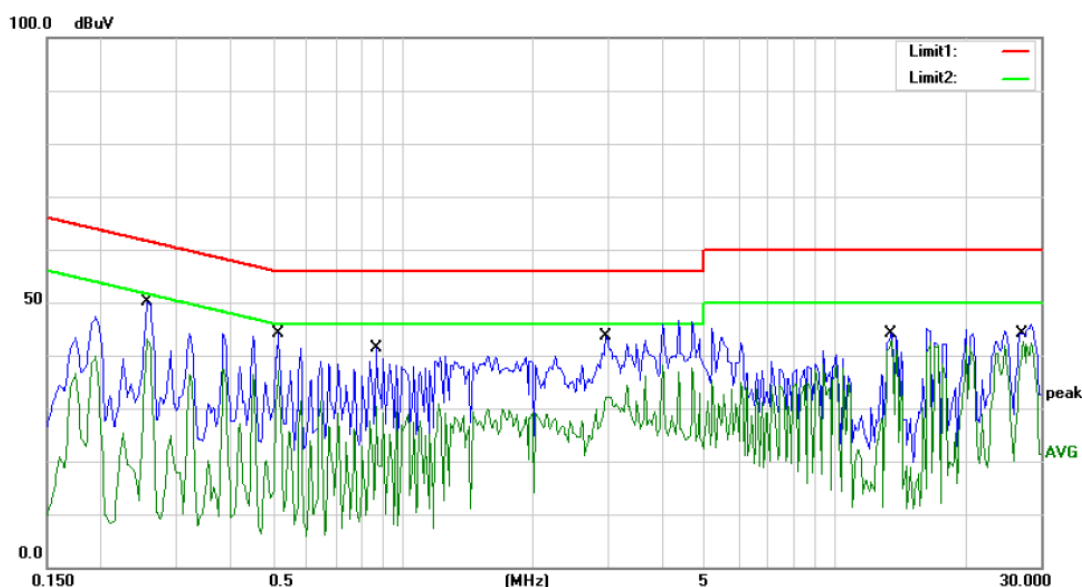
Humidity: 55 %

Mode: ON

Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB	dBuV	dBuV	dB		
1		0.2550	49.03	0.00	49.03	61.59	-12.56	QP	
2		0.2550	39.96	0.00	39.96	51.59	-11.63	AVG	
3		0.4500	42.20	0.00	42.20	56.88	-14.68	QP	
4		0.4500	37.36	0.00	37.36	46.88	-9.52	AVG	
5		1.2200	39.93	0.00	39.93	56.00	-16.07	QP	
6		1.2200	31.63	0.00	31.63	46.00	-14.37	AVG	
7		5.0400	44.58	0.00	44.58	60.00	-15.42	QP	
8		5.0400	38.17	0.00	38.17	50.00	-11.83	AVG	
9		13.9000	45.67	0.00	45.67	60.00	-14.33	QP	
10	*	13.9000	44.05	0.00	44.05	50.00	-5.95	AVG	
11		23.9750	46.28	0.00	46.28	60.00	-13.72	QP	
12		23.9750	43.24	0.00	43.24	50.00	-6.76	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: WQG



Site Conducted #3 Phase: **N** Temperature: 22
 Limit: (CE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 55 %
 Mode: ON
 Note:

No. Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.2550	50.01	0.00	50.01	61.59	-11.58	QP	
2	0.2550	43.11	0.00	43.11	51.59	-8.48	AVG	
3	0.5150	44.22	0.00	44.22	56.00	-11.78	QP	
4	0.5150	37.25	0.00	37.25	46.00	-8.75	AVG	
5	0.8700	41.41	0.00	41.41	56.00	-14.59	QP	
6	0.8700	30.34	0.00	30.34	46.00	-15.66	AVG	
7	2.9550	43.60	0.00	43.60	56.00	-12.40	QP	
8	2.9550	34.49	0.00	34.49	46.00	-11.51	AVG	
9	13.5500	44.22	0.00	44.22	60.00	-15.78	QP	
10 *	13.5500	42.68	0.00	42.68	50.00	-7.32	AVG	
11	27.2750	45.84	0.00	45.84	60.00	-14.16	QP	
12	27.2750	42.54	0.00	42.54	50.00	-7.46	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: WQG

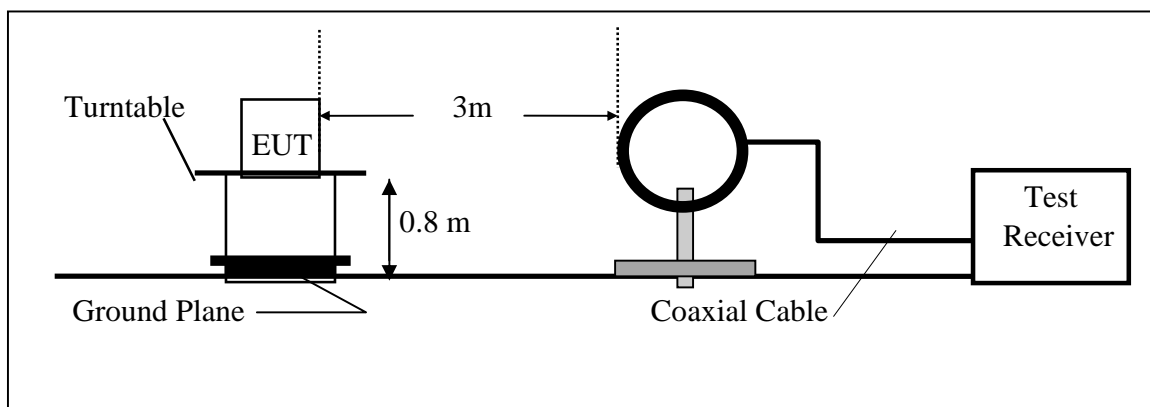
5 Radiated Emission Test

5.1 Measurement Procedure

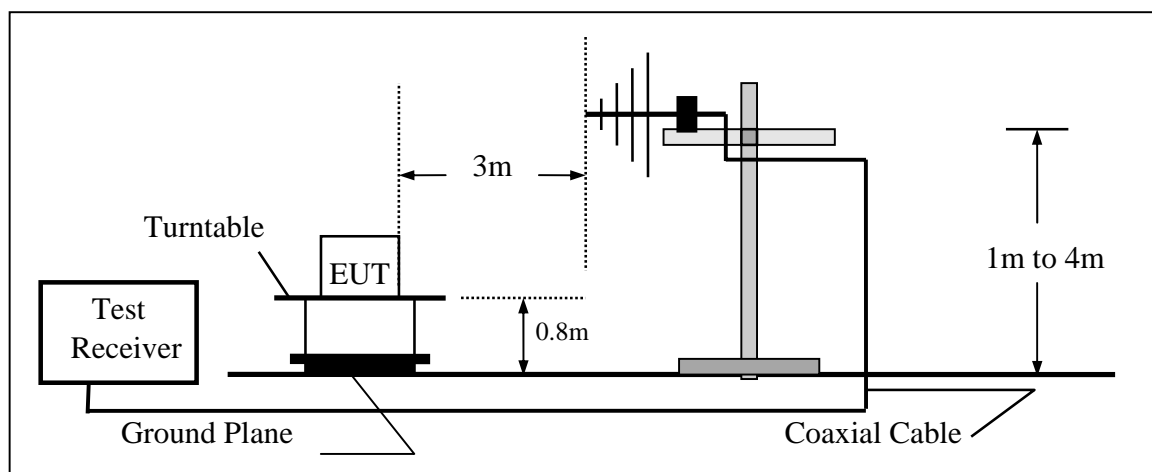
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.
5. Use the following receiver/spectrum analyzer settings:
 Span = wide enough to fully capture the emission being measured
 RBW=200Hz for 9KHz to 150KHz,
 RBW=9kHz for 150KHz to 30MHz,
 RBW=120KHz for 30MHz to 1GHz
 VBW $\geq 3 \times$ RBW
 Sweep = auto
 Detector function = QP
 Trace = max hold

5.2 Test SET-UP (Block Diagram of Configuration)

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



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



5.3 Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.26	05/28/2016	05/28/2017
Pre-Amplifier	HP	8447D	2944A07999	05/28/2016	05/28/2017
Bilog Antenna	Schwarzbeck	VULB9163	142	05/28/2016	05/28/2017
Loop Antenna	ARA	PLA-1030/B	1029	05/28/2016	05/28/2017
Cable	Schwarzbeck	AK9513	ACRX1	05/28/2016	05/28/2017
Cable	Rosenberger	N/A	FP2RX2	05/28/2016	05/28/2017
Cable	Schwarzbeck	AK9513	CRPX1	05/28/2016	05/28/2017
Cable	Schwarzbeck	AK9513	CRRX2	05/28/2016	05/28/2017

5.4 Radiated Emission Limit

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

FCC Part 15.209				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation Frequency tion at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
0.009 – 0.490	2400 / F(KHz)	300m	10000 * 2400/F(KHz)	20log 2400/F(KHz) + 80
0.490 – 1.705	24000 / F(KHz)	30m	100 * 24000/F(KHz)	20log 24000/F(KHz) + 40
1.705 – 30.00	30	30m	100* 30	20log 30 + 40
30.0 – 88.0	100	3m	100	20log 100
88.0 – 216.0	150	3m	150	20log 150
216.0 – 960.0	200	3m	200	20log 200
Above 960.0	500	3m	500	20log 500

15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)

Remark: 1. Emission level in dBuV/m=20 log (uV/m)
 2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
 3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of § 15.205, and the emissions located in restricted bands also comply with 15.209 limit.

5.5 Measurement Result

All of the power supply mode has been tested, the worst data has been recorded in the following pages.

Low frequency:

Operation Mode:	Max load	Test Date :	January 03, 2017
Frequency Range:	9KHz~30MHz	Temperature :	20℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP

Freq. (MHz)	Ant.Pol.	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)	Note
0.015	X	57.40	128.10	-70.70	PK
0.024	X	57.11	127.41	-70.30	PK
0.449	X	52.50	96.79	-44.29	PK
0.747	X	43.17	71.52	-28.35	PK

Mid frequency:

Operation Mode:	Mid load	Test Date :	January 03, 2017
Frequency Range:	9KHz~30MHz	Temperature :	20℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP

Freq. (MHz)	Ant.Pol.	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)	Note
0.016	X	51.93	128.02	-76.09	PK
0.025	X	53.85	127.32	-73.47	PK
0.717	X	46.86	71.78	-24.92	PK
10.418	X	40.34	69.50	-29.16	PK

High frequency:

Operation Mode:	Min load	Test Date :	January 03, 2017
Frequency Range:	9KHz~30MHz	Temperature :	20℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP

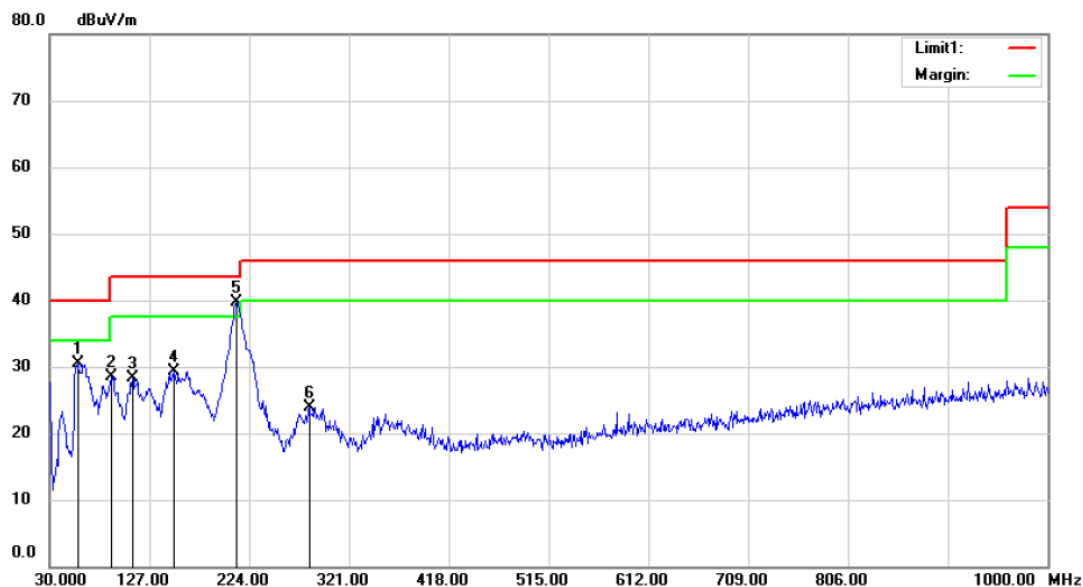
Freq. (MHz)	Ant.Pol.	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)	Note
0.015	X	52.69	128.04	-75.35	PK
0.299	X	62.86	107.56	-44.70	PK
0.538	X	54.00	73.37	-19.37	PK
0.747	X	48.17	71.52	-23.35	PK

Note:

Below 30MHz, Pre-test the X, Y, Z axis to find X axis is worst case, so only record X axis test data.
X: Field strength which this device generates since the position of the charging coil and loop antenna differ by 0 degrees.
Y: Field strength which this device generates since the position of the charging coil and loop antenna differ by 90 degrees.
Z: Field strength which this device generates since the position of the charging coil and loop antenna differ by 180 degrees.

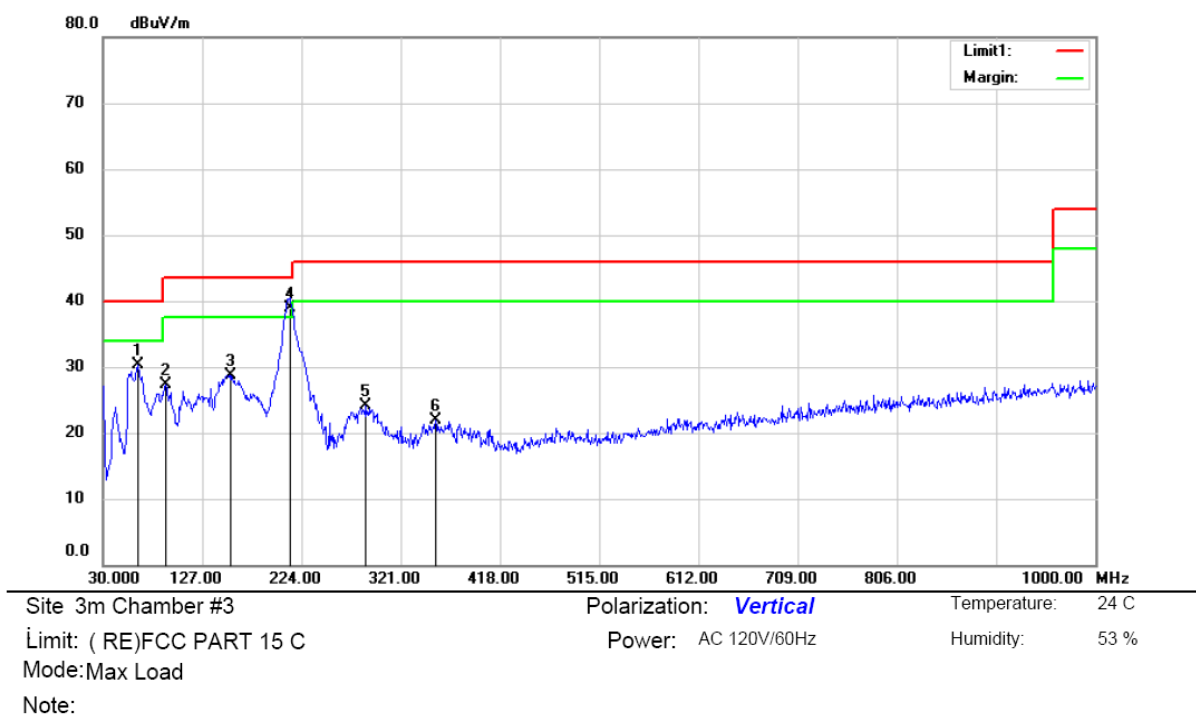
Low frequency:

Operation Mode:	Max load	Test Date :	January 03, 2017
Frequency Range:	30~1000MHz	Temperature :	20℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP



Site 3m Chamber #3	Polarization: Horizontal	Temperature: 24 C
Limit: (RE)FCC PART 15 C	Power: AC 120V/60Hz	Humidity: 53 %
Mode:Max Load		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		57.1600	46.14	-15.60	30.54	40.00	-9.46	QP		
2		90.1400	44.93	-16.41	28.52	43.50	-14.98	QP		
3		110.5100	44.07	-15.77	28.30	43.50	-15.20	QP		
4		151.2500	48.41	-19.02	29.39	43.50	-14.11	QP		
5	*	211.3900	55.01	-15.25	39.76	43.50	-3.74	QP		
6		282.2000	36.84	-12.94	23.90	46.00	-22.10	QP		

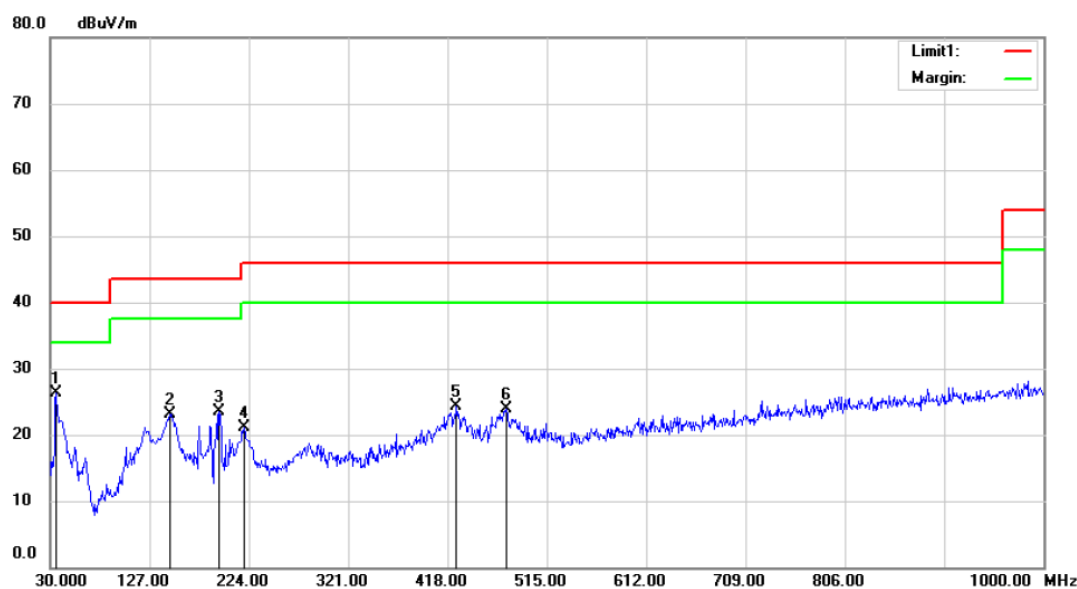


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		63.9500	47.60	-17.33	30.27	40.00	-9.73	QP		
2		91.1100	43.50	-16.25	27.25	43.50	-16.25	QP		
3		155.1300	47.47	-18.73	28.74	43.50	-14.76	QP		
4	*	212.3600	54.16	-15.16	39.00	43.50	-4.50	QP		
5		287.0500	36.74	-12.68	24.06	46.00	-21.94	QP		
6		354.9500	32.53	-10.56	21.97	46.00	-24.03	QP		

Mid frequency:

Operation Mode: Mid load
Frequency Range: 30~1000MHz
Test Result: PASS
Measured Distance: 3m

Test Date : January 03, 2017
Temperature : 20°C
Humidity : 55 %
Test By: SYP



Site 3m Chamber #3

Polarization: **Horizontal**

Temperature: 24 C

Limit: (RE)FCC PART 15 C

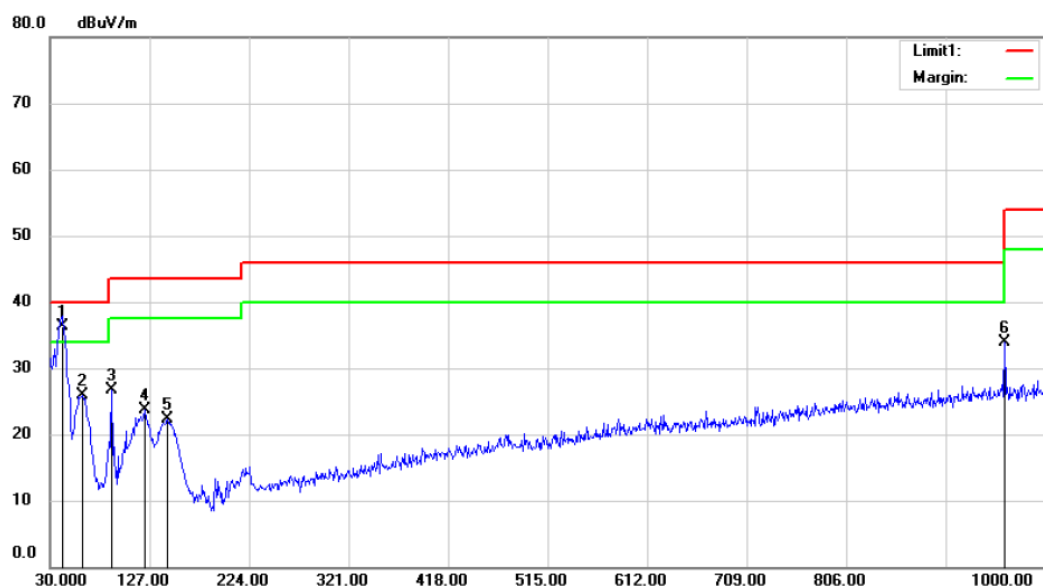
Power: AC 120V/60Hz

Humidity: 53 %

Mode:Mid Load

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	35.8200	41.65	-15.41	26.24	40.00	-13.76	QP		
2		146.4000	42.18	-19.10	23.08	43.50	-20.42	QP		
3		194.9000	39.95	-16.54	23.41	43.50	-20.09	QP		
4		219.1500	35.74	-14.60	21.14	46.00	-24.86	QP		
5		426.7300	33.19	-8.88	24.31	46.00	-21.69	QP		
6		475.2300	31.86	-7.95	23.91	46.00	-22.09	QP		



Site 3m Chamber #3

Polarization: *Vertical*

Temperature: 24 C

Limit: (RE)FCC PART 15 C

Power: AC 120V/60Hz

Humidity: 53 %

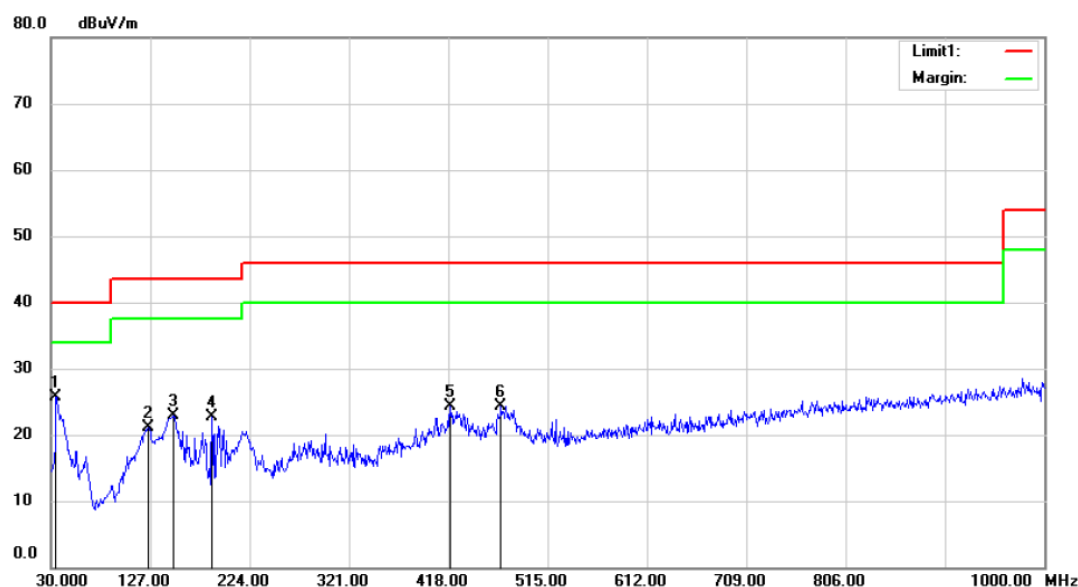
Mode:Mid Load

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	41.6400	51.33	-15.03	36.30	40.00	-3.70	QP		
2		62.0100	42.47	-16.53	25.94	40.00	-14.06	QP		
3		90.1400	43.13	-16.41	26.72	43.50	-16.78	QP		
4		122.1500	41.31	-17.65	23.66	43.50	-19.84	QP		
5		144.4600	41.34	-19.09	22.25	43.50	-21.25	QP		
6		960.2300	34.20	-0.29	33.91	54.00	-20.09	QP		

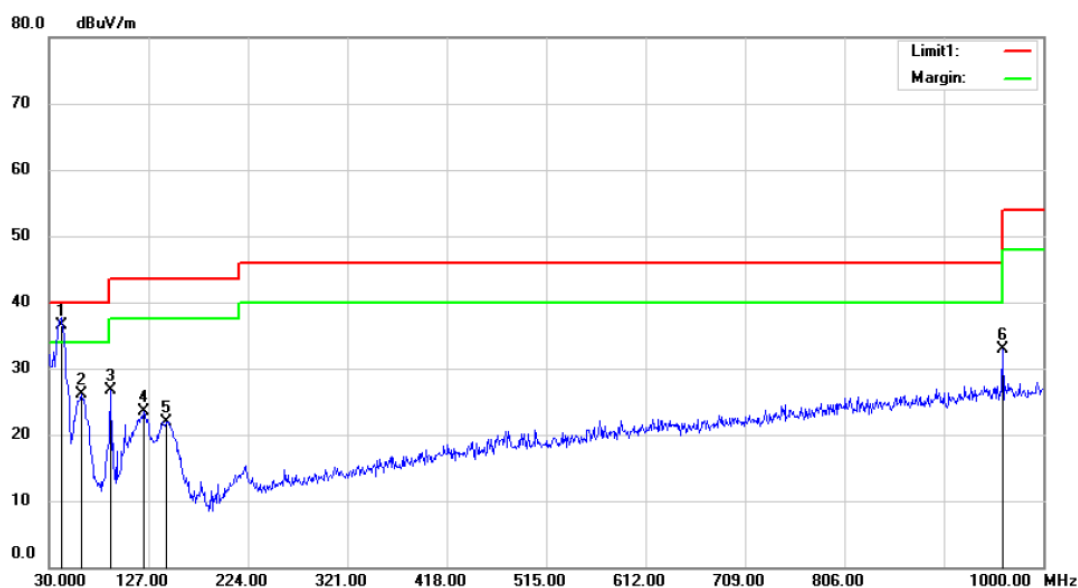
High frequency:

Operation Mode:	Min load	Test Date :	January 03, 2017
Frequency Range:	30~1000MHz	Temperature :	20℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP



Site 3m Chamber #3	Polarization: Horizontal	Temperature: 24 C
Limit: (RE)FCC PART 15 C	Power: AC 120V/60Hz	Humidity: 53 %
Mode:Min Load		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	34.8500	41.32	-15.62	25.70	40.00	-14.30	QP		
2		125.0600	39.10	-18.09	21.01	43.50	-22.49	QP		
3		149.3100	42.01	-19.12	22.89	43.50	-20.61	QP		
4		187.1400	39.55	-16.85	22.70	43.50	-20.80	QP		
5		419.9400	33.27	-9.02	24.25	46.00	-21.75	QP		
6		469.4100	32.44	-8.19	24.25	46.00	-21.75	QP		



Site 3m Chamber #3

Polarization: *Vertical*

Temperature: 24 C

Limit: (RE)FCC PART 15 C

Power: AC 120V/60Hz

Humidity: 53 %

Mode:Min Load

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	41.6400	51.53	-15.03	36.50	40.00	-3.50	QP		
2		62.0100	42.68	-16.53	26.15	40.00	-13.85	QP		
3		90.1400	43.10	-16.41	26.69	43.50	-16.81	QP		
4		122.1500	41.24	-17.65	23.59	43.50	-19.91	QP		
5		144.4600	41.05	-19.09	21.96	43.50	-21.54	QP		
6		960.2300	33.10	-0.29	32.81	54.00	-21.19	QP		

5.6 Photos of setup

CONDUCTED EMISSION TEST



Radiated Measurement Photos

