



Test Report

FCC Part15 Subpart C

Product Name : Wireless Charge Rack
Model No. : CN85-WL-6DESK
FCC ID : HD5-CX85WL

Applicant : HONEYWELL INTERNATIONAL INC
Honeywell Safety and Productivity Solutions
Address : 9680 OLD BAILES RD FORT MILL SC
29707-7539, USA

Date of Receipt : Jan. 26, 2021
Test Date : Jan. 27, 2021 ~ Mar. 23, 2021
Issued Date : Apr. 27, 2021
Report No. : 2110870R-RF-US-P06V05
Report Version : V1.0

The test results presented in this report relate only to the object tested.

The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.

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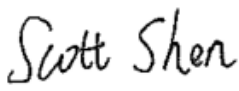
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Test Report Certification


Issued Date : Apr. 27, 2021
Report No. : 2110870R-RF-US-P06V05



Product Name : Wireless Charge Rack
 Applicant : HONEYWELL INTERNATIONAL INC
 Honeywell Safety and Productivity Solutions
 Address : 9680 OLD BAILES RD FORT MILL SC 29707-7539, USA
 Manufacturer : 1.HONEYWELL INTERNATIONAL INC
 Honeywell Safety and Productivity Solutions
 2.Metro(Suzhou)Technologies Co.,Ltd
 Address : 1.9680 OLD BAILES RD FORT MILL SC 29707-7539, USA
 2.No.221 Xinghai street China-Singapore Suzhou Industrial Park
 Model No. : CN85-WL-6DESK
 FCC ID : HD5-CX85WL
 EUT Voltage : AC 120V/60Hz
 Brand Name : Honeywell
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart C; ANSI C63.10: 2013
 Test Result : Complied
 Performed Location : DEKRA Testing and Certification (Suzhou) Co., Ltd.
 No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006,
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 TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
 FCC Designation Number: CN1199

Documented By : 

 (Project Engineer: Scott Shen)

Approved By : 

 (Supervisor: Jack Zhang)

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
2110870R-RF-US-P06V05	V1.0	Initial Issued Report	Apr. 27, 2021

1. General Information

1.1. EUT Description

Product Name	Wireless Charge Rack
Model No.	CN85-WL-6DESK
S/N	21012B2C08
Hardware Version	Rev01
Working Voltage	AC 120V/60Hz
Frequency Range	120 kHz ~ 300 kHz
Type of Modulation	ASK

1.2. Antenna information

Model No.	N/A		
Antenna manufacturer	N/A		
Antenna Delivery	<input checked="" type="checkbox"/> 1*TX+1*RX	<input type="checkbox"/> 2*TX+2*RX	<input type="checkbox"/> 3*TX+3*RX
Antenna technology	<input checked="" type="checkbox"/> SISO		
	<input type="checkbox"/> MIMO	<input type="checkbox"/> Basic	
		<input type="checkbox"/> CDD	
		<input type="checkbox"/> Sectorized	
		<input type="checkbox"/> Beam-forming	
Antenna Type	<input type="checkbox"/> External	<input type="checkbox"/> Dipole	
		<input type="checkbox"/> Sectorized	
	<input checked="" type="checkbox"/> Internal	<input type="checkbox"/> PIFA	
		<input type="checkbox"/> PCB	
		<input type="checkbox"/> Ceramic Chip Antenna	
		<input checked="" type="checkbox"/> Loop antenna	
		<input type="checkbox"/> Type F antenna	

1.3. Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit

Note:

1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For portable device, radiated spurious emission was verified over X, Y, Z Axis, and shown the worst case on this report.

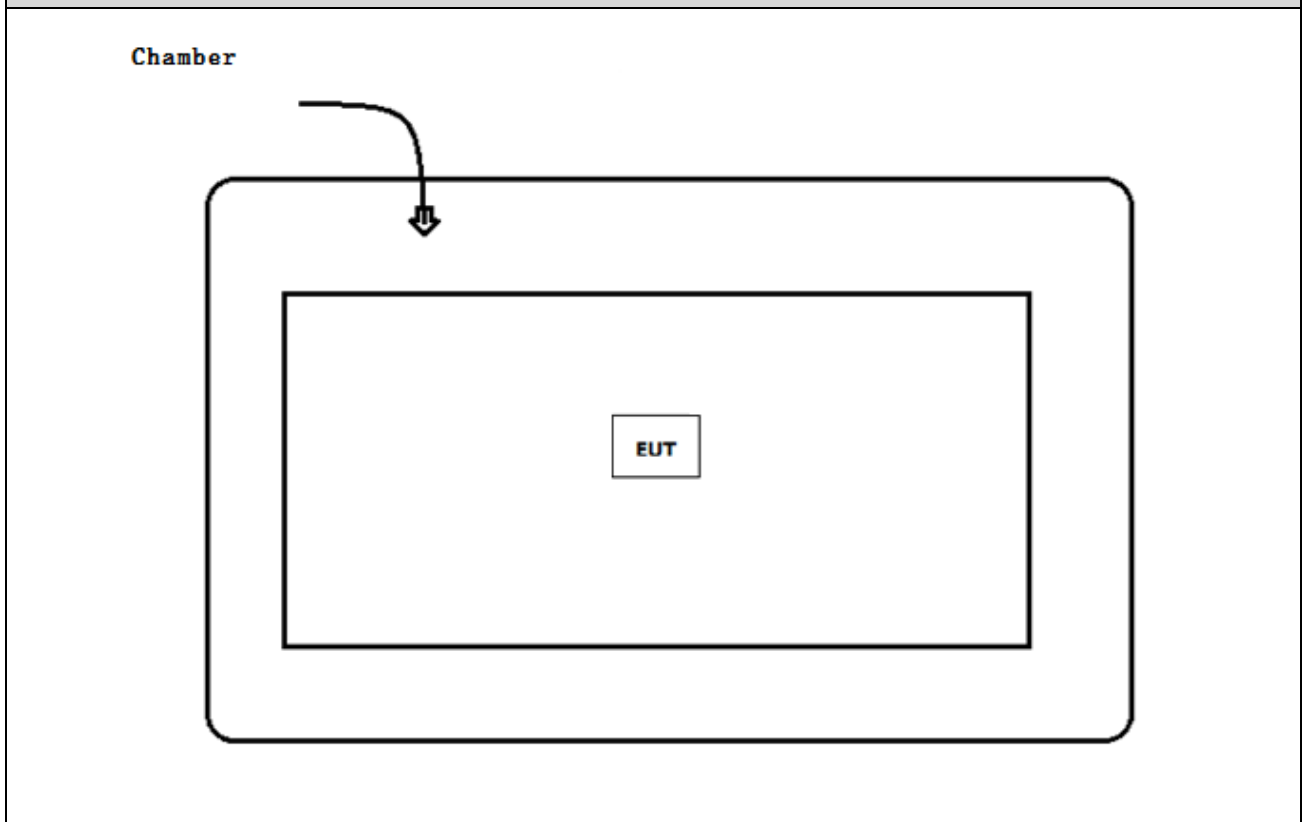
1.4. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 N/A	N/A	N/A	N/A	N/A

1.5. Configuration of Tested System

Test setup Diagram- Radiated Emission



1.6. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Verify that the EUT works properly.

2. Technical Test

2.1. Summary of Test Result

- No deviations from the test standards
 Deviations from the test standards as below description:

Performed Test Item	Normative References	Limit	Result
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C Section 15.207	FCC 15.207	PASS
Field Strength of Spurious	FCC CFR Title 47 Part 15 Subpart C Section 15.209	FCC 15.209	PASS
Channel Bandwidth	FCC CFR Title 47 Part 15 Subpart C Section 15.215(c)	FCC 15.215	PASS
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: Section 15.203	FCC 15.203	PASS

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

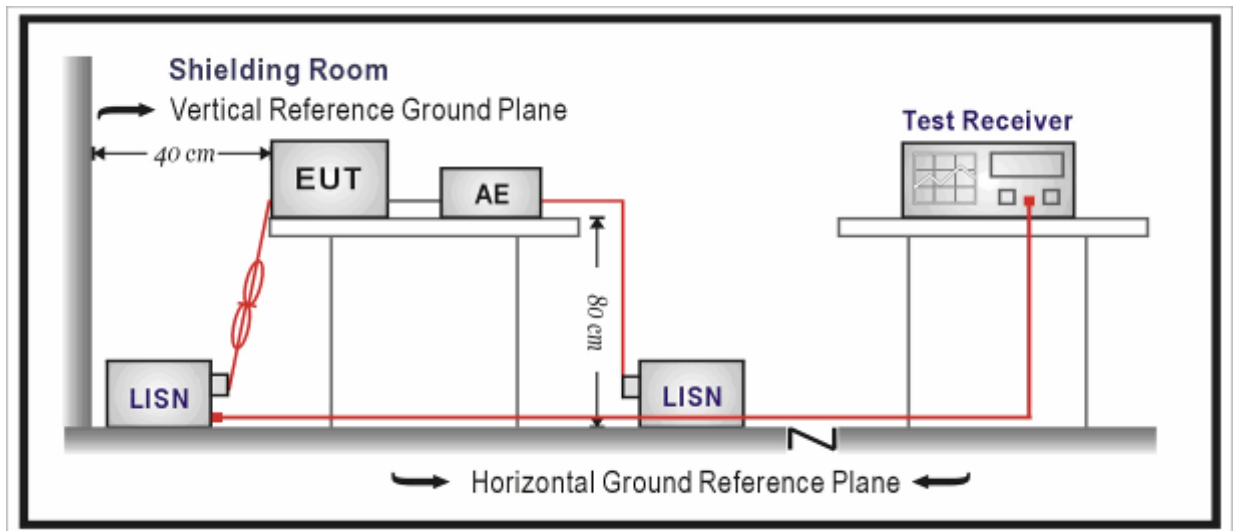
3. Conducted Emission

3.1. Test Equipment

Conducted Emission / TR-1					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100906	2020.04.18	2021.04.17
Two-Line V-Network	R&S	ENV216	100044	2020.04.18	2021.04.17
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	7081402	2020.09.23	2021.09.22
50ohm Termination	SHX	TF2	7081403	2020.09.23	2021.09.22
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2020.08.23	2021.08.22
EMI V3(test software)	DEKRA	N/A	N/A	N/A	N/A

Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

3.2. Test Setup



3.3. Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 – 46
0.50 - 5.0	56	46
5.0 - 30	60	50

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

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

3.4. Test Procedure

The EUT was setup according to ANSI C63.10 requirements. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.5. Uncertainty

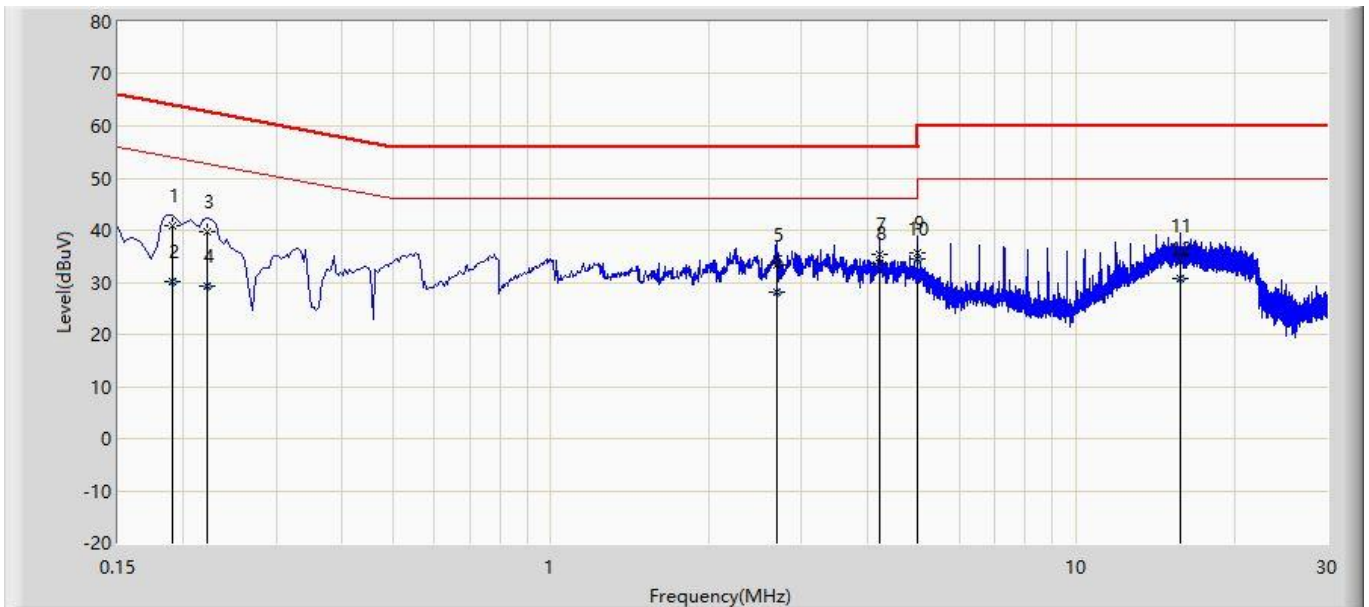
The measurement uncertainty is defined as:

9kHz~150kHz: 2.80 dB

150kHz~30MHz: 2.40 dB

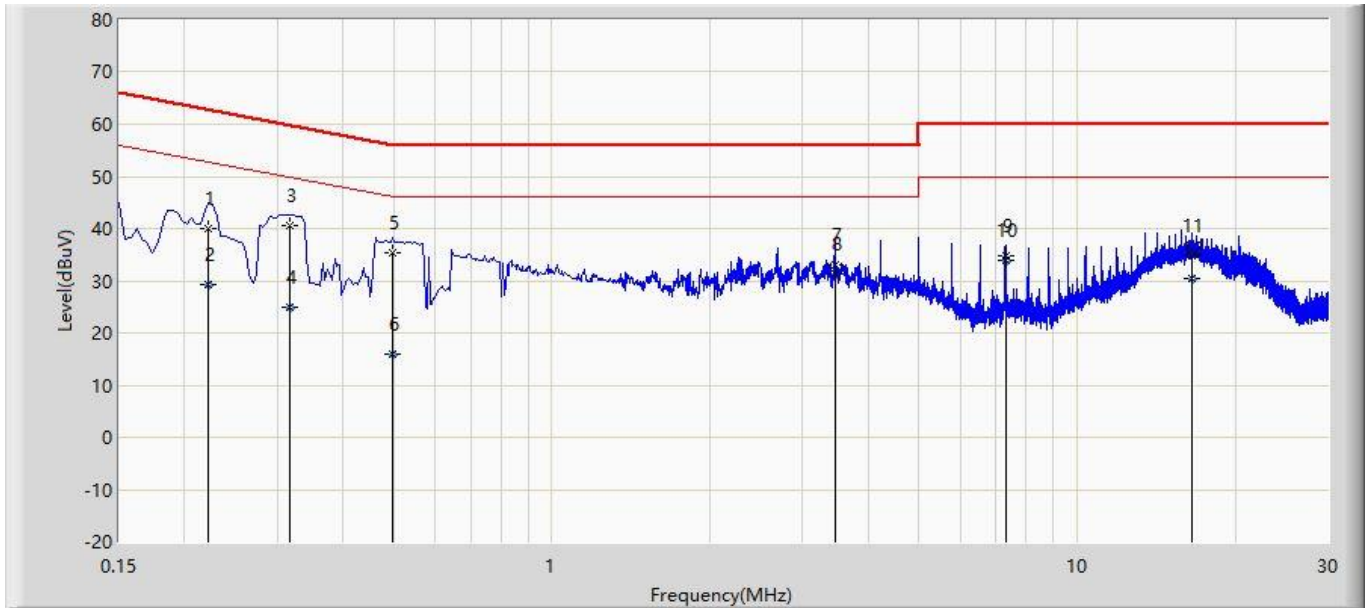
3.6. Test Result

Profile: 2110870R	Page No.: 1
Engineer: Neil	
Site: TR1	Time: 2021/01/27 - 20:29
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101044_(0.009-30MHz)	Polarity: Line
EUT: Wireless Charge Rack	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.190	40.884	31.209	-23.153	64.037	9.648	0.027	0.000	QP
2		0.190	30.044	20.369	-23.992	54.037	9.648	0.027	0.000	AV
3		0.222	39.831	30.148	-22.913	62.744	9.653	0.029	0.000	QP
4		0.222	29.339	19.656	-23.405	52.744	9.653	0.029	0.000	AV
5		2.686	33.192	23.371	-22.808	56.000	9.720	0.102	0.000	QP
6		2.686	28.058	18.236	-17.942	46.000	9.720	0.102	0.000	AV
7		4.226	35.270	25.372	-20.730	56.000	9.767	0.131	0.000	QP
8		4.226	33.579	23.681	-12.421	46.000	9.767	0.131	0.000	AV
9		4.994	35.643	25.711	-20.357	56.000	9.790	0.142	0.000	QP
10	*	4.994	34.415	24.484	-11.585	46.000	9.790	0.142	0.000	AV
11		15.742	34.980	24.673	-25.020	60.000	10.054	0.253	0.000	QP
12		15.742	30.586	20.279	-19.414	50.000	10.054	0.253	0.000	AV

Profile: 2110870R	Page No.: 2
Engineer: Neil	
Site: TR1	Time: 2021/01/27 - 20:35
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101044_(0.009-30MHz)	Polarity: Neutral
EUT: Wireless Charge Rack	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.222	39.981	30.271	-22.763	62.744	9.680	0.029	0.000	QP
2		0.222	29.139	19.430	-23.604	52.744	9.680	0.029	0.000	AV
3		0.318	40.722	31.005	-19.036	59.759	9.682	0.035	0.000	QP
4		0.318	25.040	15.323	-24.719	49.759	9.682	0.035	0.000	AV
5		0.498	35.260	25.533	-20.773	56.033	9.686	0.041	0.000	QP
6		0.498	16.023	6.297	-30.010	46.033	9.686	0.041	0.000	AV
7		3.454	33.030	23.162	-22.970	56.000	9.749	0.119	0.000	QP
8	*	3.454	31.403	21.535	-14.597	46.000	9.749	0.119	0.000	AV
9		7.298	34.751	24.700	-25.249	60.000	9.878	0.173	0.000	QP
10		7.298	34.014	23.964	-15.986	50.000	9.878	0.173	0.000	AV
11		16.510	34.921	24.573	-25.079	60.000	10.088	0.260	0.000	QP
12		16.510	30.348	20.000	-19.652	50.000	10.088	0.260	0.000	AV

4. Radiated Emission

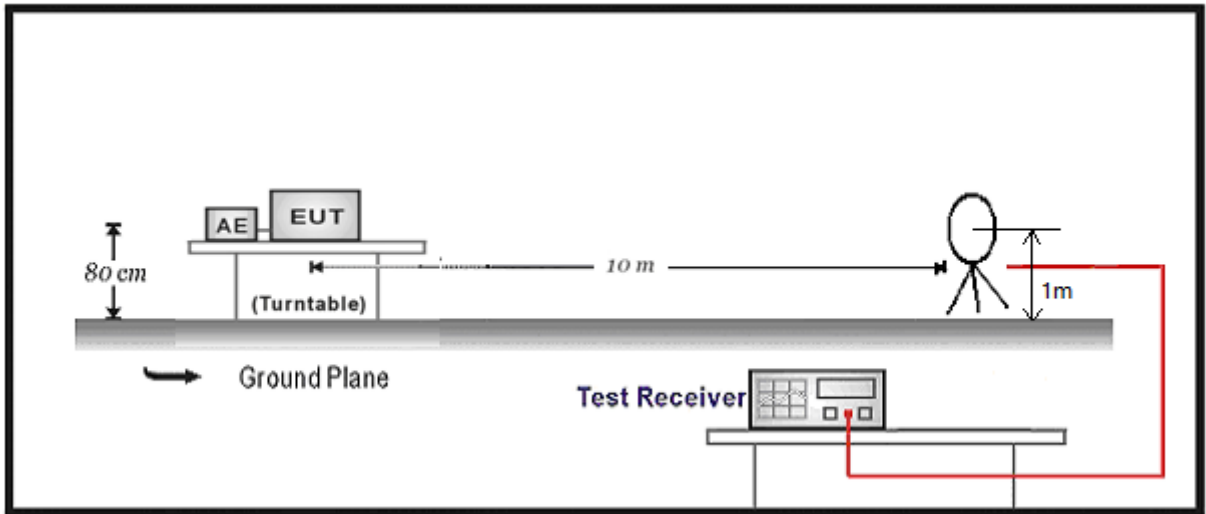
4.1. Test Equipment

Radiated Emission / AC-1					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100175	2020.08.15	2021.08.14
Preamplifier	Quietek	AP-025C	CHM-0602008	2020.04.05	2021.04.04
Coaxial Cable	Huber+Suhner	RG 214_U	AC1-L	2020.04.05	2021.04.04
Loop Antenna	R&S	HFH2-Z2	833799/003	2021.02.17	2022.02.16
Temperature/Humidity Meter	RTS	RTS-8S	AC1-TH	2020.08.13	2021.08.12
EMI V3(test software)	DEKRA	N/A	N/A	N/A	N/A
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

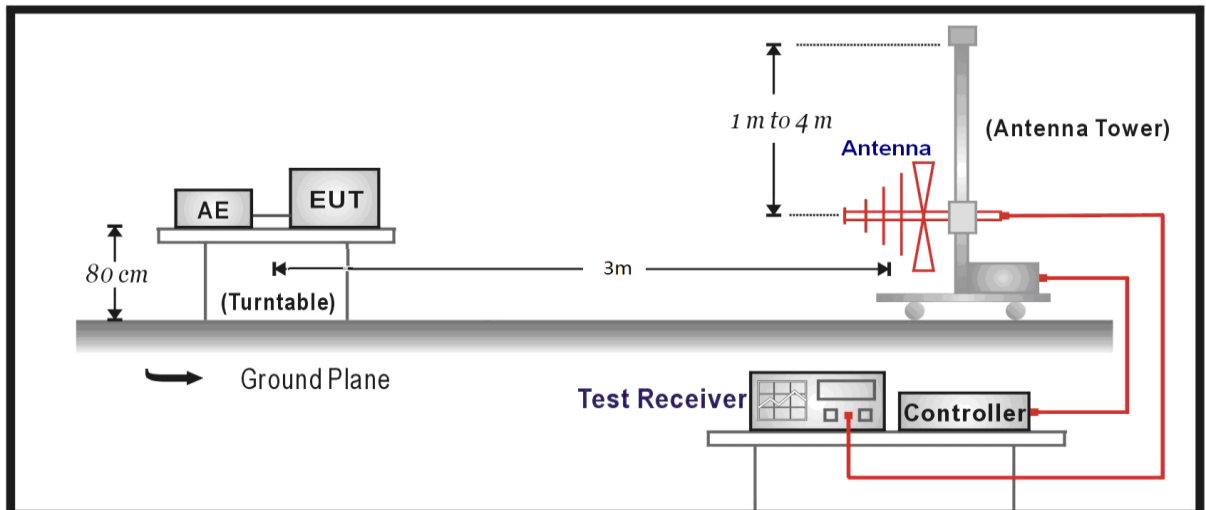
Radiated Emission / AC-3					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100176	2020.08.15	2021.08.14
Bilog Antenna	Teseq GmbH	CBL6112D	27613	2020.08.19	2021.08.18
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC3-C	2020.04.05	2021.04.04
Temperature/Humidity Meter	RTS	RTS-8S	AC3-TH	2020.08.13	2021.08.12
EMI V3(test software)	DEKRA	N/A	N/A	N/A	N/A
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

4.2. Test Setup

9kHz~30MHz Test Setup:



30MHz~1GHz Test Setup:



4.3. Limit

Field strength of emissions from intentional radiators operated under 15.209(a) shall not exceed the following:

FCC Part 15.209(a)		
Fundamental frequency (MHz)	Field strength of fundamental ($\mu\text{V}/\text{m}$)	Field strength of spurious emissions ($\mu\text{V}/\text{m}$)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

- (1) The tighter limits apply at the band edges.
- (2) Measurements were performed at 10m and the data was extrapolated to the specified measurement distance of 300m using the square of an inverse linear distance extrapolation factor (40 dB/decade) as specified in §15.31(f)(2). Extrapolation Factor = $40 \log_{10}(300/10) = 59\text{dB}$ for example.
- Measurements were performed at 10m and the data was extrapolated to the specified measurement distance of 30m using the square of an inverse linear distance extrapolation factor (40 dB/decade) as specified in §15.31(f)(2). Extrapolation Factor = $40 \log_{10}(30/10) = 19\text{dB}$ for example.
- (3) All measurements were performed using a loop antenna. The antenna was positioned in three orthogonal positions (X front, Y side, Z top) and the position with the highest emission level was recorded.

4.4. Test Procedure

The EUT was setup according to ANSI C63.10 for compliance to FCC 47CFR 15.209 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 10 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This

is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10 on radiated measurement.

The frequency range from 9kHz to 10th harmonic is checked.

4.5. Uncertainty

The measurement uncertainty is defined as:

Horizontal: 30MHz~200MHz: 3.50 dB

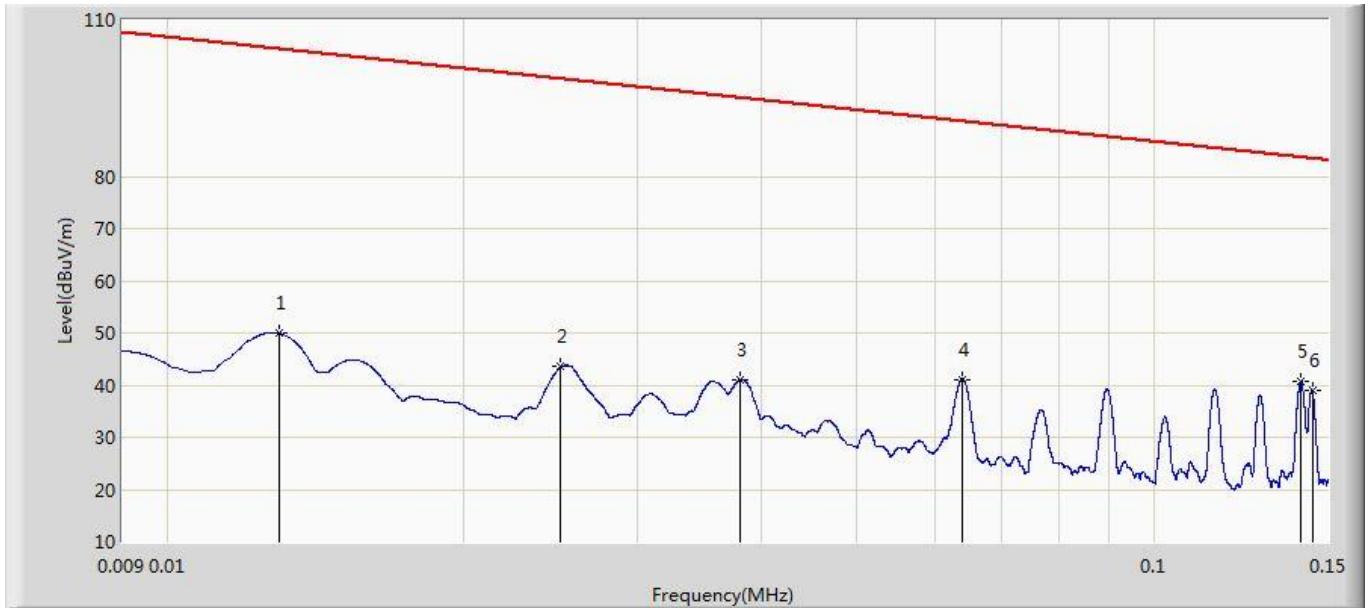
300MHz~1GHz: 3.60 dB

Vertical: 30MHz~200MHz: 3.60 dB

300MHz~1GHz: 3.50 dB

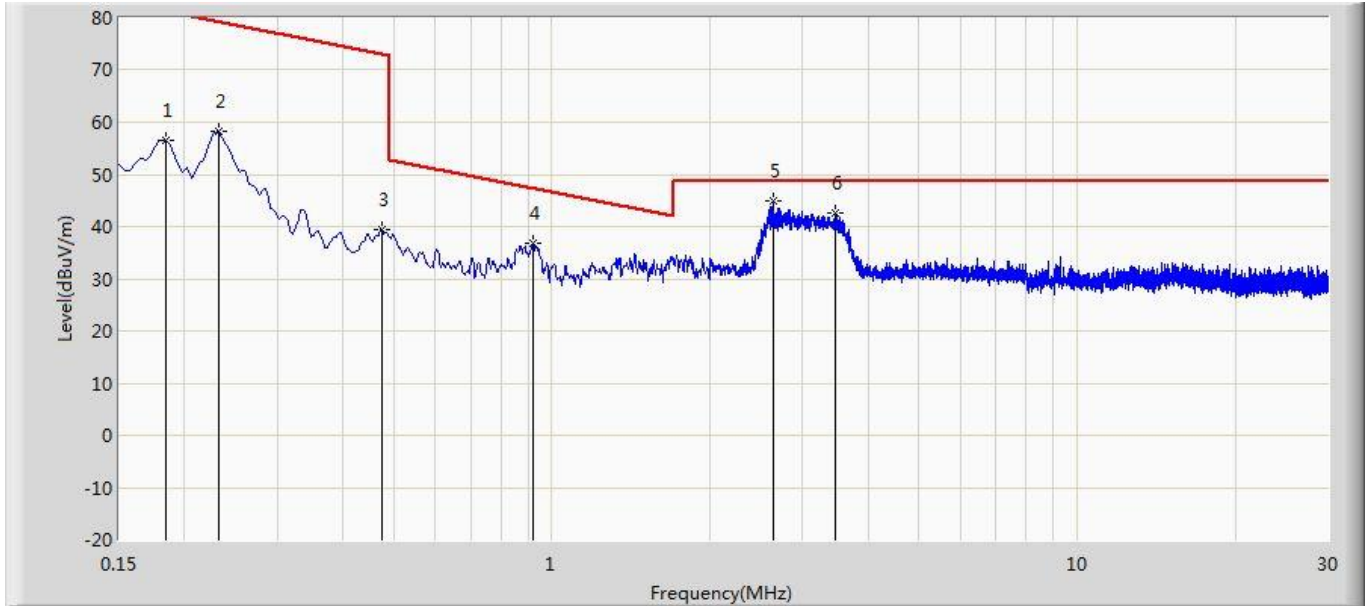
4.6. Test Result

Profile: 2110870R	Page No.: 120
Engineer: Neil	
Site: AC1	Time: 2021/03/19 - 10:37
Limit: FCC-15.209(10m) 9K-30M	Margin: 0
Probe: RF_(0.009-30MHz)	Polarity: Vertical
EUT: Wireless Charge Rack	Power: AC 120V/60Hz
Note: Mode 1	



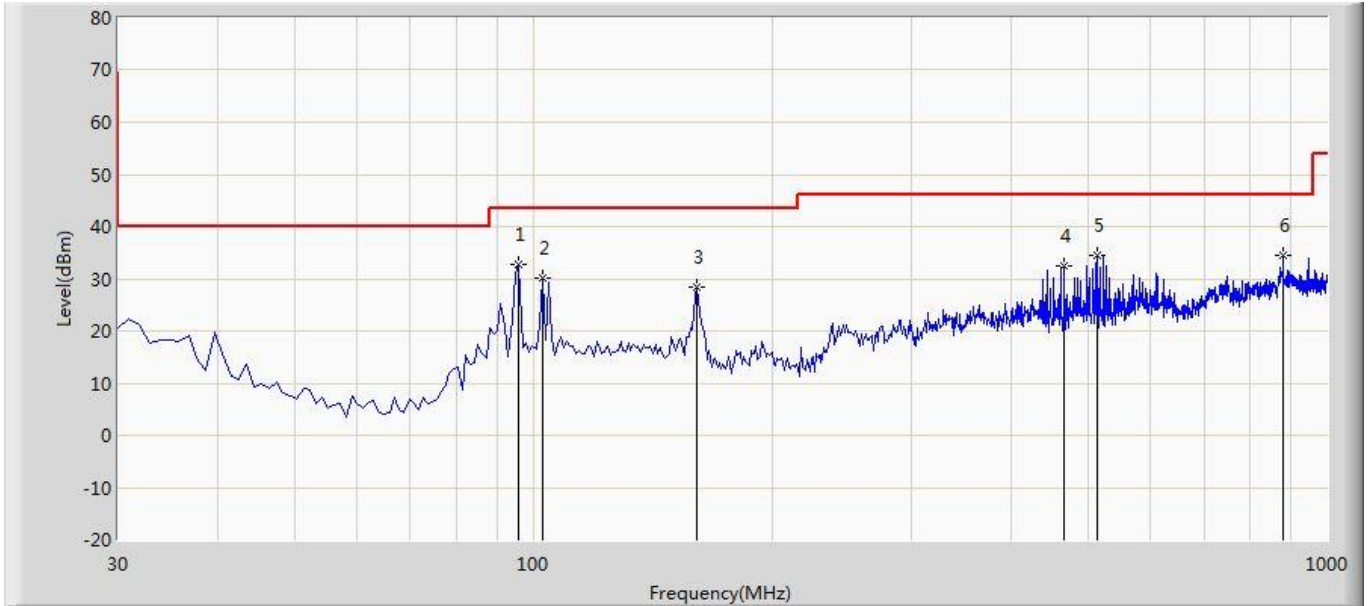
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		0.013	50.037	28.908	-54.373	104.410	21.129	PK
2		0.025	43.719	22.202	-55.010	98.729	21.517	PK
3		0.038	41.058	19.121	-54.033	95.091	21.937	PK
4		0.064	41.046	19.077	-49.517	90.563	21.969	PK
5	*	0.141	40.815	18.858	-42.886	83.701	21.957	PK
6		0.145	39.005	17.048	-44.453	83.458	21.957	PK

Profile: 2110870R	Page No.: 117
Engineer: Neil	
Site: AC1	Time: 2021/03/19 - 10:35
Limit: FCC-15.209(10m) 9K-30M	Margin: 0
Probe: RF_(0.009-30MHz)	Polarity: Horizontal
EUT: Wireless Charge Rack	Power: AC 120V/60Hz
Note: Mode 1	



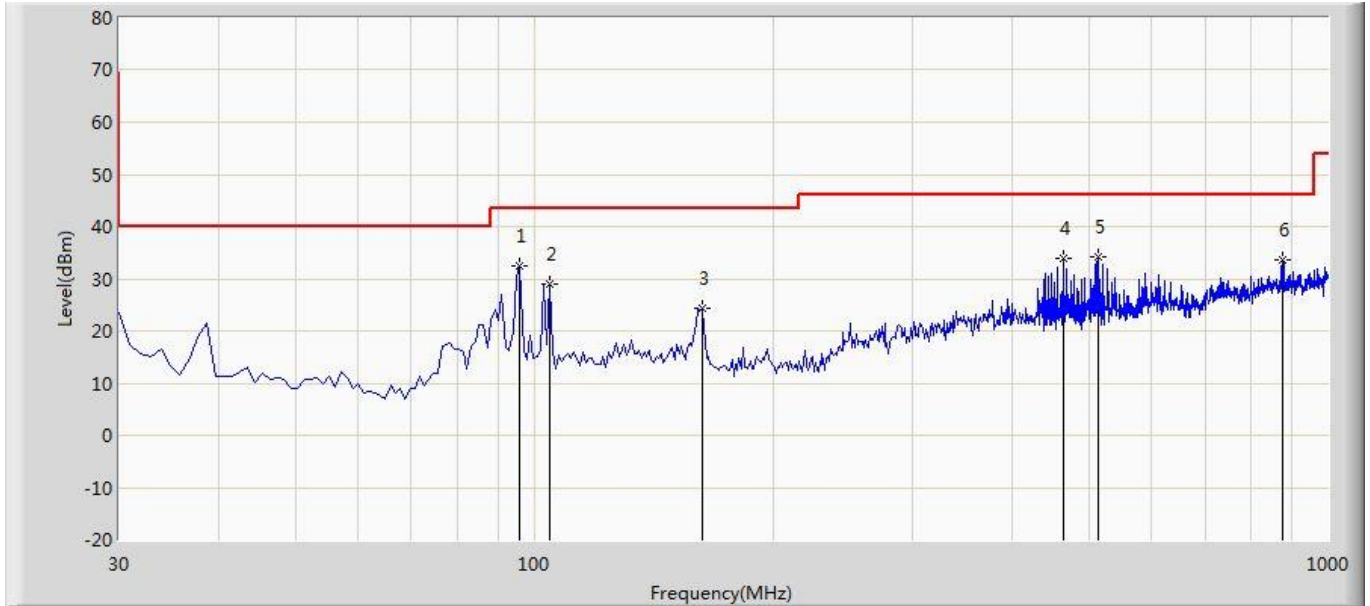
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		0.184	56.608	34.660	-24.781	81.389	21.948	PK
2		0.232	58.126	36.181	-21.249	79.375	21.945	PK
3		0.475	39.334	17.420	-33.816	73.150	21.914	PK
4		0.919	36.754	15.745	-10.666	47.420	21.009	PK
5	*	2.642	44.987	23.235	-3.640	48.627	21.752	PK
6		3.471	42.682	21.036	-5.945	48.627	21.646	PK

Profile: 2110870R	Page No.: 7
Engineer: Neil	
Site: AC3	Time: 2021/03/23 - 14:34
Limit: FCC-15.209(10m) 9K-30M	Margin: 0
Probe: AC3_3m(30-1000MHz)	Polarity: Horizontal
EUT: Wireless Charge Rack	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBm)	Reading Level (dBm)	Over Limit (dB)	Limit (dBm)	Factor (dB)	Type
1	*	95.960	32.746	8.912	-10.754	43.500	23.834	PK
2		102.750	30.140	4.801	-13.360	43.500	25.339	PK
3		160.950	28.476	7.519	-15.024	43.500	20.957	PK
4		466.500	32.358	1.850	-13.642	46.000	30.508	PK
5		513.060	34.540	3.779	-11.460	46.000	30.761	PK
6		880.690	34.393	-2.143	-11.607	46.000	36.536	PK

Profile: 2110870R	Page No.: 8
Engineer: Neil	
Site: AC3	Time: 2021/03/23 - 14:38
Limit: FCC-15.209(10m) 9K-30M	Margin: 0
Probe: AC3_3m(30-1000MHz)	Polarity: Vertical
EUT: Wireless Charge Rack	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBm)	Reading Level (dBm)	Over Limit (dB)	Limit (dBm)	Factor (dB)	Type
1	*	95.960	32.530	8.915	-10.970	43.500	23.615	PK
2		104.690	29.107	4.627	-14.393	43.500	24.480	PK
3		162.890	24.239	3.268	-19.261	43.500	20.971	PK
4		463.590	33.802	3.366	-12.198	46.000	30.436	PK
5		513.060	34.078	2.556	-11.922	46.000	31.522	PK
6		874.870	33.602	-2.153	-12.398	46.000	35.755	PK

Note 1: The final result only applies for using QP detector, if the pre-test result on peak is lower than limit, then QP measurement needn't be performed.

Note 2: " * ", means this data is the worst emission level.

Note 3: Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Note 4: The orthogonal orientations (x/y/z) of the shielded loop antenna are evaluated, shown in the report is the worst data.

5. 20dB Occupied Bandwidth

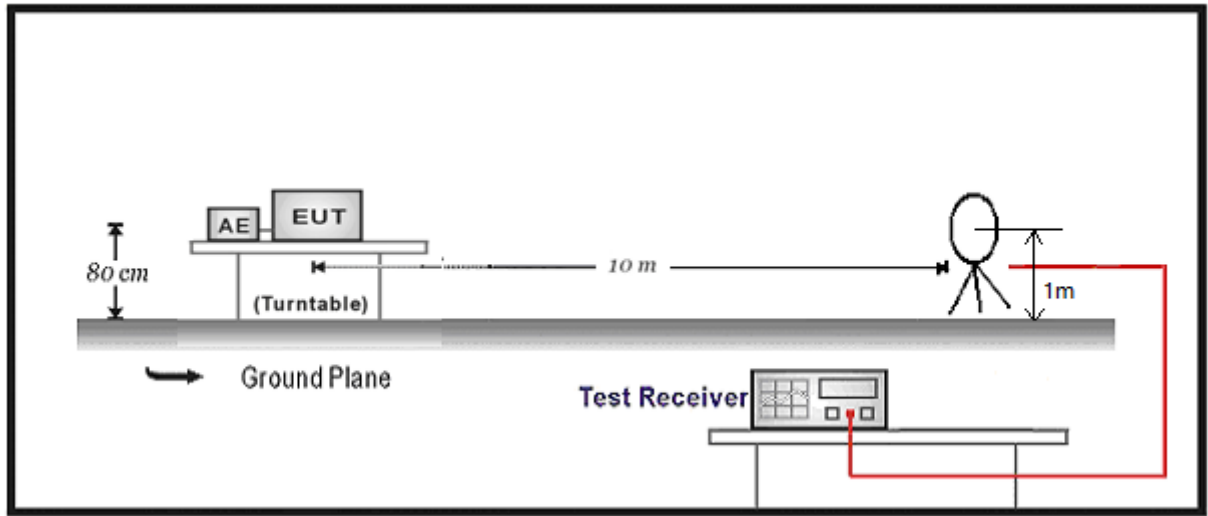
5.1. Test Equipment

20dB Occupied Bandwidth / AC-1					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100175	2020.08.15	2021.08.14
Preamplifier	Quietek	AP-025C	CHM-0602008	2020.04.05	2021.04.04
Coaxial Cable	Huber+Suhner	RG 214_U	AC1-L	2020.04.05	2021.04.04
Loop Antenna	R&S	HFH2-Z2	833799/003	2021.02.17	2022.02.16
Temperature/Humidity Meter	RTS	RTS-8S	AC1-TH	2020.08.13	2021.08.12
EMI V3(test software)	DEKRA	N/A	N/A	N/A	N/A

Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

5.2. Test Setup

9kHz~30MHz Test Setup:



5.3. Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.215(c), 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.

5.4. Test Procedure

The bandwidth of the fundamental frequency was measured by spectrum analyzer with the RBW 1%~5% of 20dBc bandwidth and the VBW three times of the RBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

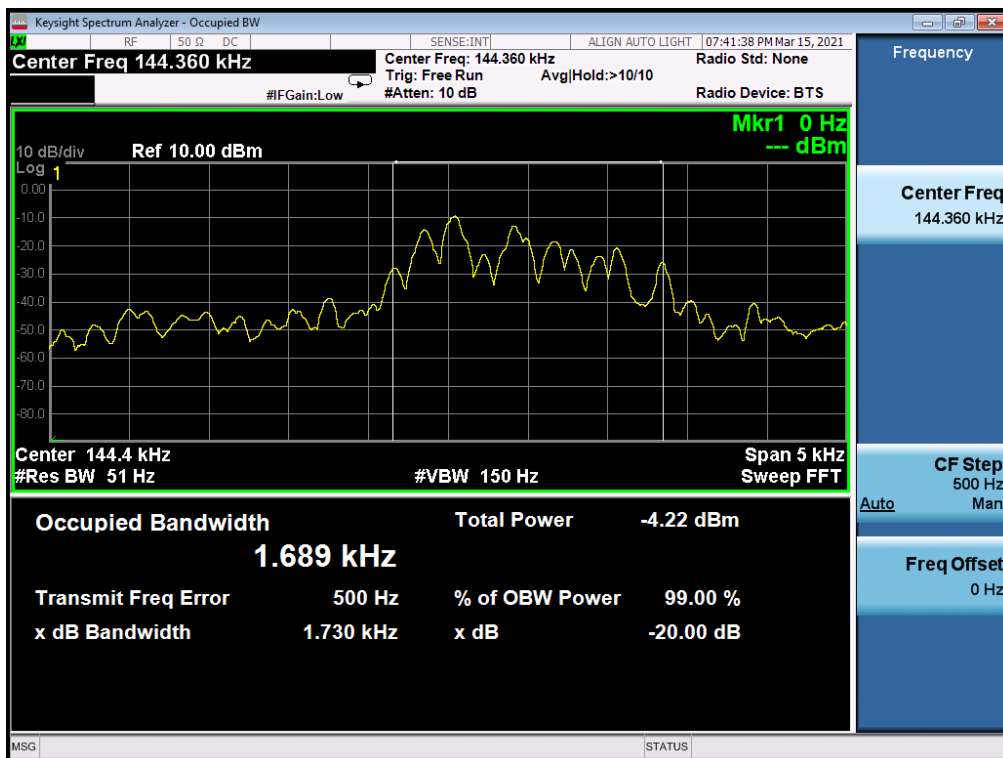
5.5. Uncertainty

The measurement uncertainty is defined as ± 150 Hz

5.6. Test Result

Product	Wireless Charge Rack
Test Item	20dB Occupied Bandwidth
Test Mode	Mode 1

Frequency (kHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
120 ~ 300	1.73	1.689



6. Antenna Requirement

6.1. Requirement

Antenna Requirement Limit
<p>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.</p>

6.2. Result

Antenna Connector Construction	
<input checked="" type="checkbox"/>	The use of a permanently attached antenna
<input type="checkbox"/>	The antenna use of a unique coupling to the intentional radiator
<input type="checkbox"/>	The use of a nonstandard antenna jack or electrical connector
Please refer to the attached document "Internal Photograph" to show the antenna connector.	

_____ The End _____