ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR LOW-POWER, NON-LICENSED TRANSMITTER

Test Report No.	**: W162R-D003**
AGR No	**: A15DA-329**
Applicant	**: HYO RYOUNG A.M.D Co., Ltd.**
Address	**: #707, 137, Gilju-ro, Wonmi-gu, Bucheon-si, Gyeonggi-do, Korea**
Manufacturer	**: HYO RYOUNG A.M.D Co., Ltd.**
Address	**: #707, 137, Gilju-ro, Wonmi-gu, Bucheon-si, Gyeonggi-do, Korea**
Type of Equipment	**: Wireless charger**
FCC ID.	**: 2AHAWHR-CTX**
IC Certification No.	**: 21104-HRCTX**
Model Name	**: HR-CTX**
Multiple Model Name	**: N/A**
Serial number	**: N/A**
Total page of Report	**: 27 pages (including this page)**
Date of Incoming	**: January 04, 2016**
Date of issue	**: February 01, 2016**

SUMMARY

The equipment complies with the regulation; **FCC CFR47 Part 15 Subpart C Section 15.207 and 15.209, 2.1049** ***and IC RSS-Gen Issue 4, November 2014 and RSS-216 Issue 2, January 2016.***

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

Reviewed by: Jae-Ho, Lee / Chief Engineer
ONETECH Corp.

Approved by: Sung-Ik, Han/ Managing Director
ONETECH Corp.

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Revision History

Issue Report No.	Issued Date	Revisions	Effect Section
W162R-D003	February 01, 2016	Initial Release	All

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1. VERIFICATION OF COMPLIANCE

APPLICANT	: HYO RYOUNG A.M.D Co., Ltd.
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CONTACT PERSON	: Jong-Hwa, Kwon / Deputy General Manager
TELEPHONE NO	: +82-32-684-0463
FCC ID	: 2AHAWHR-CTX
IC CERTIFICATION NO.	: 21104-HRCTX
MODEL NAME	: HR-CTX
BRAND NAME	: N/A
SERIAL NUMBER	: N/A
DATE	: February 01, 2016

EQUIPMENT CLASS	**FCC: DCD – Part 15 Low Power Transmitter Below 1 705 kHz** **IC: Low Power Transmitter General Field Limits(9 kHz-30MHz)** **WPT subassembly of the source_Type 3(Cat I)**
KIND OF EQUIPMENT	Wireless charger
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2013
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC&IC RULES PART(S)	FCC CFR47 Part 15 Subpart C Section 15.207 and 15.209, 2.1049 IC RSS-Gen Issue 4, Nov. 2014 and RSS-216 Issue 2, Jan. 2016
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 m, Semi Anechoic Chamber

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC&IC Rules and Regulations. The equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

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2. TEST SUMMARY

2.1 Test items and results

SECTION		TEST ITEMS	RESULTS
15.209, 15.209(a)	RSS-216 Sec.6.2 ICES-001	Radiated emission, Spurious Emission and Field Strength of Fundamental	Met the Limit / PASS
-	RSS-Gen Sec.6.6	99% Bandwidth	Met the Limit / PASS
2.1049	-	20 dB Bandwidth	Met the Limit / PASS
15.207	RSS-216 Sec.6.2 ICES-001	Transmitter AC Power Line Conducted Emission	Met the Limit / PASS

2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

2.3 Related Submittal(s) / Grant(s)

Original submittal only

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in FCC CFR47 Part 15 Subpart C Section 15.207 and 15.209, 2.1049 and IC RSS-Gen Issue 4 and RSS-216 Issue 2.

2.5 Test Methodology

Radiated testing was performed according to the procedures in ANSI C63.10: 2013 at a distance of 3 m from EUT to the antenna.

2.6 Test Facility

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025.

The Electromagnetic compatibility measurement facilities are located at 301-14, Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do, 464-862 Korea.

-. Site Filing:

VCCI (Voluntary Control Council for Interference) – Registration No. R-4112/ C-4617/ G-666/ T-1842

IC (Industry Canada) – Registration No. Site# 3736-3

-. Site Accreditation:

KOLAS (Korea Laboratory Accreditation Scheme) - Accreditation NO. KT085

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

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3. GENERAL INFORMATION

3.1 Product Description

The HYO RYOUNG A.M.D Co., Ltd., Model: HR-CTX (referred to as the EUT in this report) is a Wireless charger. Product specification information described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	Wireless Charger
OPERATING FREQUENCY	110 kHz ~ 205 kHz
RATED RF OUTPUT POWER	71.70 dBμV/m
ANTENNA TYPE	Coil Antenna
MODULATION	ASK
LIST OF EACH OSC. OR CRY. FREQ.(FREQ. >= 1 MHz)	110 kHz ~ 205 kHz
RATED SUPPLY VOLTAGE	DC 5.0 V

3.2 Alternative type(s)/model(s); also covered by this test report.

-. None

4. EUT MODIFICATIONS

-. None

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5. SYSTEM TEST CONFIGURATION

5.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	N/A	N/A	N/A

5.2 Peripheral equipment

Model	Manufacturer	Description	Connected to
N/A	N/A	DUMMY	N/A

5.3 Mode of operation during the test

For the testing, software used to control the EUT for staying in continuous transmitting is programmed.

For final testing, the EUT was set at Max. load (112 kHz), Mid. load (147 kHz), and Min. load (176 kHz). To get a maximum emission levels from the EUT, the EUT was moved throughout the XY, XZ, and YZ planes and the worst case is "XY" axis.

Mode	Charging current	Description
Charging Mode With load	1 000 mA	Using Max. load
	500 mA	Using Mid. load
	100 mA	Using Min. load

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5.4 Configuration of Test System

Line Conducted Test **:** The EUT was tested in a charging mode. The EUT was connected to USB and the power of USB was connected to Adapter. All supporting equipments were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.4: 2009 7.3.3 to determine the worse operating conditions.

Radiated Emission Test **:** Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 m Semi Anechoic Chamber.

The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

5.5 Antenna Requirement

According to section 15.203, 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.

Antenna Construction:

The antenna of the EUT is a Coil Antenna on the main board in the EUT, so no consideration of replacement by the user.

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6. PRELIMINARY TEST

6.1 AC Power line Conducted Emissions Tests

During Preliminary Tests, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Transmitting Mode	X

6.2 General Radiated Emissions Tests

During Preliminary Tests, the following operating modes were investigated

Operation Mode	The Worse operating condition (Please check one only)
Transmitting Mode	X

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7. 99 % OCCUPIED BANDWIDTH

7.1 Operating environment

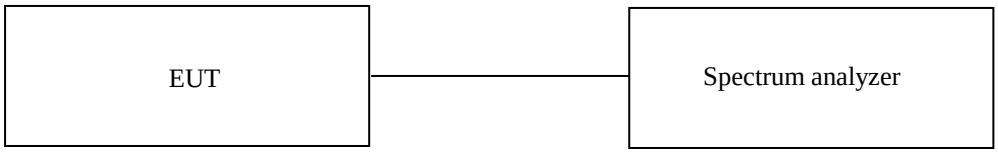
Temperature : 22.1 ℃

Relative humidity : 45.5 % R.H.

7.2 Test set-up

The emission bandwidth (×dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated × dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3× the resolution bandwidth. When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth, as calculated or measured.

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3×RBW.



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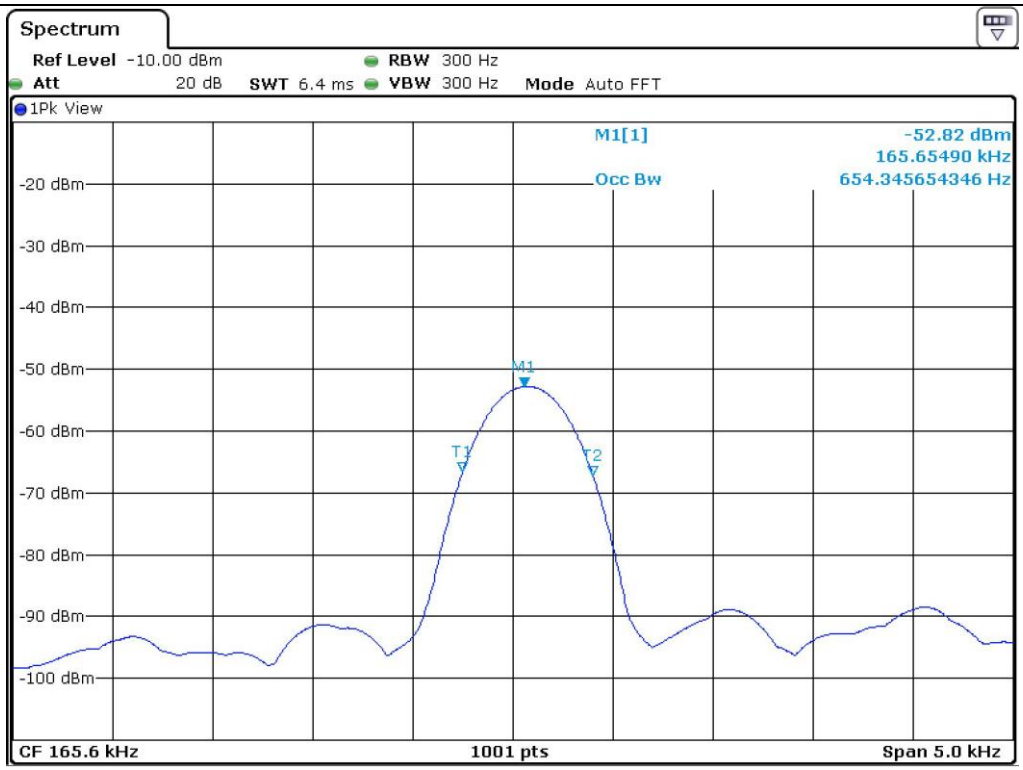
7.4 Test data

-. Test Date : January 05, 2016

99 % Occupied Bandwidth: 654.35 Hz



Tested by: Min-Gu, Ji / Project Engineer

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8. 20 dB BANDWIDTH

8.1 Operating environment

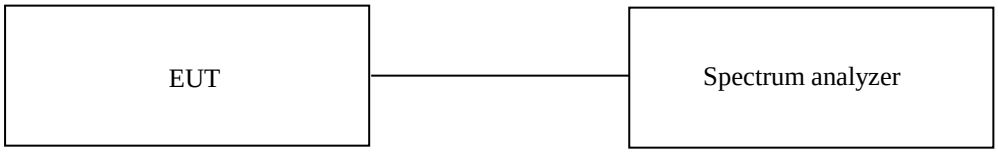
Temperature : 22.1 ℃

Relative humidity : 45.5 % R.H.

8.2 Test set-up

a. Span = approximately 2 to 3 times the 20 dB bandwidth, RBW = greater than 1 % of the 20 dB bandwidth, VBW = RBW, Sweep = auto, Detector = peak, Trace = max hold.

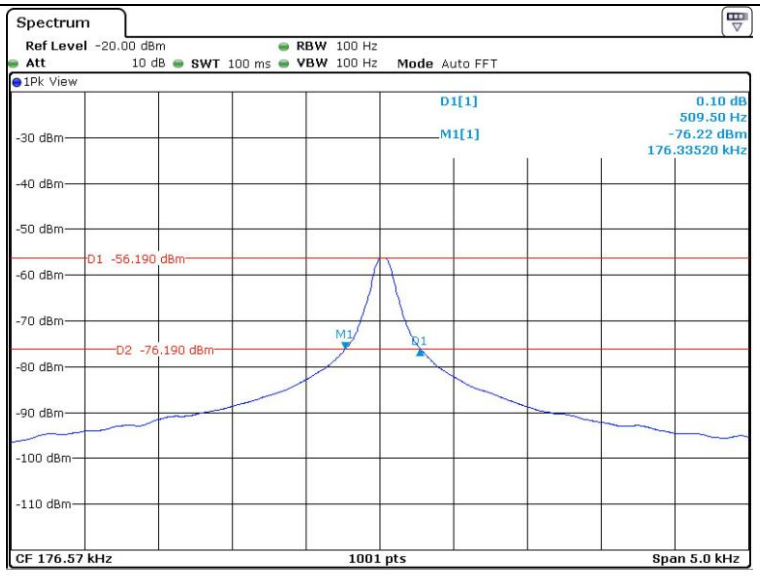
b. The marker-to-peak function to set the mark to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission. Reset the function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level.
The marker-delta reading at this point is 20 dB bandwidth of the emission.



8.3 Test data

-. Test Date : January 05, 2016

20 dB Bandwhidth : 509.5 Hz



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9. Spurious Emission Test

9.1 Regulation

According to §15.209(a), for an intentional device, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency [MHz]	Field strength [μ V/m]	Field strength [dBμ V/m]	Measurement distance [m]
0.009 ~ 0.490	2 400 / F (kHz)		300
0.490 ~ 1.705	24 000 / F (kHz)		30
1.705 ~ 30	30	29.50	30
30 ~ 88	*100	40.00	3
88 ~ 216	*150	43.52	3
216 ~ 960	*200	46.02	3
Above 960	500	53.98	3

*Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54 ~ 72 MHz, 76 ~ 88 MHz, 174 ~ 216 MHz or 470 ~ 806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

9.2 Test set-up

The radiated emissions measurements were on the 3 m semi anechoic chamber. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 30 kHz to 1 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 ms in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

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9.3 Test data for Using Max load (1 000 mA)

9.3.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 45.5 % R.H. Temperature: 22.1 ℃

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Wireless charger Date: January 05, 2016

Operating Condition : Transmitting Mode

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
0.016	33.6	H	20.10	0.1	53.80	123.52	-69.72
0.034	37.6	H	18.50	0.1	56.20	116.97	-60.77
0.068	25.4	H	18.30	0.1	43.80	110.95	-67.15
*0.112	52.6	H	18.20	0.1	70.90	106.62	-35.72
0.389	26.3	H	18.20	0.1	44.60	95.81	-51.21
26.090	42.5	H	22.30	0.8	65.60	70.00	-4.40

-. Remark: “H” Horizontal, “V” Vertical

-. “*” Means Fundamental frequency

-. Emission Level [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

-. Margin [dB] = Emission Level [dBμV/m] – Limit [dBμV/m]

-. Limit calculation: Limit at specified distance + 40log (300/3) = Limit + 80 dB for up to 0.49 MHz

Limit at specified distance + 40log (30/3) = Limit + 40 dB for above 0.49 MHz, Below 30 MHz

Tested by: Min-Gu, Ji / Project Engineer

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9.3.2 Magnetic Field Radiated Emission Below 30 MHz

Humidity Level : 45.2 % R.H. Temperature: 22.3 ℃

Limits apply to : IC ICES-001 Issue4

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Wireless charger Date: January 25, 2016

Operating Condition : Transmitting Mode

Frequency (MHz)	Ant. Pol. (X/Y/Z)	Induced Current (dBμA)	Limits (dBμA)	Margin (dB)
0.031	X	19.41	88.00	-68.59
*0.112	X	40.94	69.61	-28.67
0.335	X	20.99	52.48	-31.49
0.555	X	13.31	49.06	-35.75
3.435	X	-3.92	36.70	-40.62
10.265	X	-3.10	29.27	-32.37
17.575	X	3.22	25.63	-22.41

-. Remark: "*" Means Fundamental frequency

-. Margin [dB] = Emission Level [dBuA] – Limit [dBμA]

Tested by: Min-Gu, Ji / Project Engineer

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9.3.3 Spurious Radiated Emission below 1 GHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 44.5 % R.H. Temperature: 23.3 ℃

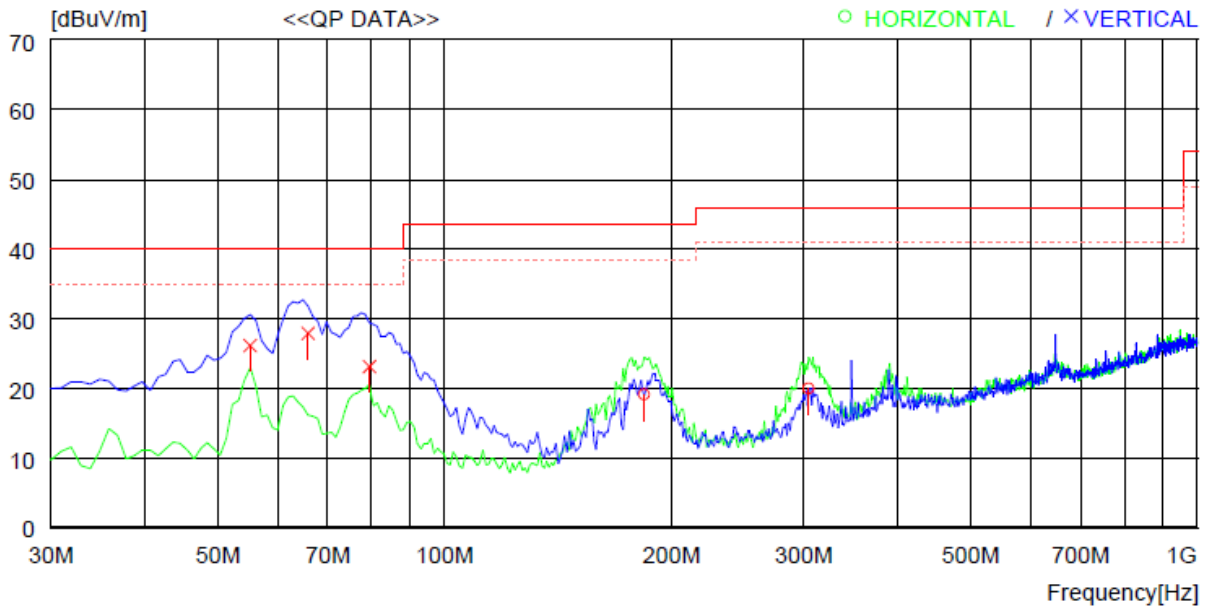
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209 and IC RSS-Gen Issue 4, ICES-001 Issue4

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : Wireless charger Date: January 05, 2016

Operating Condition : Transmitting Mode



No.	FREQ [MHz]	READING QP [dBuV]	C.FACTOR [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]	COMMENT
----- Horizontal -------									
1	184.230	38.5	-19.4	19.1	43.5	24.4	200	0	
2	304.510	34.3	-14.3	20.0	46.0	26.0	100	238	
----- Vertical -------									
3	55.220	43.5	-17.4	26.1	40.0	13.9	100	0	
4	65.890	47.5	-19.6	27.9	40.0	12.1	100	0	
5	79.470	46.3	-23.2	23.1	40.0	16.9	200	146	

Tested by: Min-Gu, Ji / Project Engineer

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9.4 Test data for Using Mid. load (500 mA)

9.4.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 45.5 % R.H. Temperature: 22.1 ℃

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Wireless charger Date: January 05, 2016

Operating Condition : Transmitting Mode

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
0.016	30.6	H	20.10	0.1	50.80	123.52	-72.72
0.031	31.2	H	18.60	0.1	49.90	117.78	-67.88
0.035	31.5	H	18.50	0.1	50.10	116.72	-66.62
*0.147	53.2	H	18.40	0.1	71.70	104.26	-32.56
0.389	27.6	H	18.20	0.1	45.90	95.81	-49.91
25.700	44.2	H	22.30	0.8	67.30	70.00	-2.70

-. Remark: “H” Horizontal, “V” Vertical

-. “*” Means Fundamental frequency

-. Emission Level [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

-. Margin [dB] = Emission Level [dBμV/m] – Limit [dBμV/m]

-. Limit calculation: Limit at specified distance + 40log (300/3) = Limit + 80 dB for up to 0.49 MHz

Limit at specified distance + 40log (30/3) = Limit + 40 dB for above 0.49 MHz, Below 30 MHz

Tested by: Min-Gu, Ji / Project Engineer

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EMC Testing Div. : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

9.4.2 Magnetic Field Radiated Emission Below 30 MHz

Humidity Level : 45.2 % R.H. Temperature: 22.3 ℃

Limits apply to : IC ICES-001 Issue4

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Wireless charger Date: January 25, 2016

Operating Condition : Transmitting Mode

Frequency (MHz)	Ant. Pol. (X/Y/Z)	Induced Current (dBμA)	Limits (dBμA)	Margin (dB)
0.029	X	18.66	88.00	-69.34
0.143	X	2.94	59.65	-56.71
*0.147	X	42.04	57.93	-15.89
0.455	X	17.78	50.41	-32.63
3.290	X	-3.59	36.99	-40.58
10.255	X	-2.88	29.28	-32.16
24.990	X	0.49	23.24	-22.75

-. Remark: "*" Means Fundamental frequency

-. Margin [dB] = Emission Level [dBuA] – Limit [dBμA]

Tested by: Min-Gu, Ji / Project Engineer

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9.4.3 Spurious Radiated Emission below 1 GHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 44.5 % R.H. Temperature: 23.3 ℃

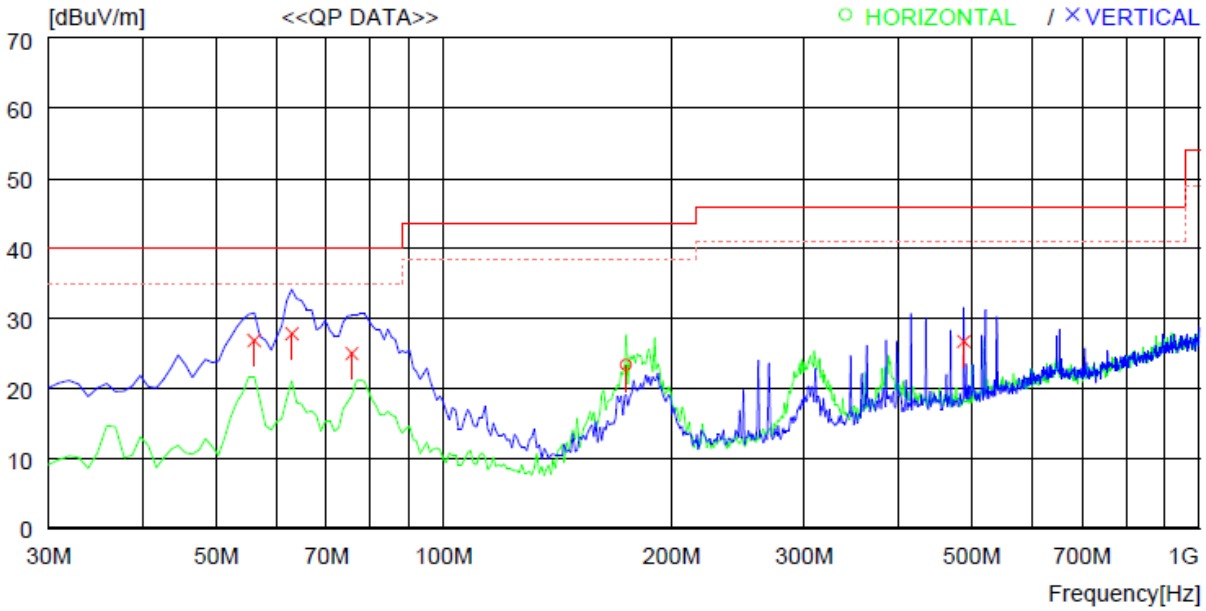
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209 and IC RSS-Gen Issue 4, ICES-001 Issue4

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : Wireless charger Date: January 05, 2016

Operating Condition : Transmitting Mode



No.	FREQ [MHz]	READING QP [dBuV]	C.FACTOR [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]	COMMENT
	----- Horizontal -------								
1	174.530	43.3	-20.0	23.3	43.5	20.2	200	206	
	----- Vertical -------								
2	56.190	44.3	-17.5	26.8	40.0	13.2	100	0	
3	62.980	46.5	-18.7	27.8	40.0	12.2	100	0	
4	75.590	47.3	-22.3	25.0	40.0	15.0	200	85	
5	487.841	36.5	-9.8	26.7	46.0	19.3	100	0	

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9.5 Test data for Using Min. load (100 mA)

9.5.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 45.5 % R.H. Temperature: 22.1 ℃

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Wireless charger Date: January 05, 2016

Operating Condition : Transmitting Mode

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
0.016	35.2	H	20.10	0.1	55.40	123.52	-68.12
0.035	31.3	H	18.50	0.1	49.90	116.72	-66.82
*0.176	53.3	H	18.30	0.1	71.70	102.69	-30.99
0.389	27.6	H	18.20	0.1	45.90	95.81	-49.91
0.657	18.5	H	18.20	0.1	36.80	71.25	-34.45
25.670	45.3	H	22.30	0.8	68.40	70.00	-1.60

-. Remark: “H” Horizontal, “V” Vertical

-. “*” Means Fundamental frequency

-. Emission Level [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

-. Margin [dB] = Emission Level [dBμV/m] – Limit [dBμV/m]

-. Limit calculation: Limit at specified distance + 40log (300/3) = Limit + 80 dB for up to 0.49 MHz

Limit at specified distance + 40log (30/3) = Limit + 40 dB for above 0.49 MHz, Below 30 MHz

Tested by: Min-Gu, Ji / Project Engineer

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9.5.2 Magnetic Field Radiated Emission Below 30 MHz

Humidity Level : 45.2 % R.H. Temperature: 22.3 ℃

Limits apply to : IC ICES-001 Issue4

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Wireless charger Date: January 25, 2016

Operating Condition : Transmitting Mode

Frequency (MHz)	Ant. Pol. (X/Y/Z)	Induced Current (dBμA)	Limits (dBμA)	Margin (dB)
0.012	X	-9.95	88.00	-97.95
0.059	X	3.91	88.00	-84.09
0.141	X	-8.09	60.21	-68.30
*0.176	X	49.42	56.70	-7.28
0.545	X	28.47	49.18	-20.71
1.280	X	12.36	43.39	-31.03
10.135	X	-2.98	29.36	-32.34
25.345	X	0.71	23.14	-22.43

-. Remark: "*" Means Fundamental frequency

-. Margin [dB] = Emission Level [dBuA] – Limit [dBμA]

Tested by: Min-Gu, Ji / Project Engineer

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9.5.2 Spurious Radiated Emission below 1 GHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 44.5 % R.H. Temperature: 23.3 ℃

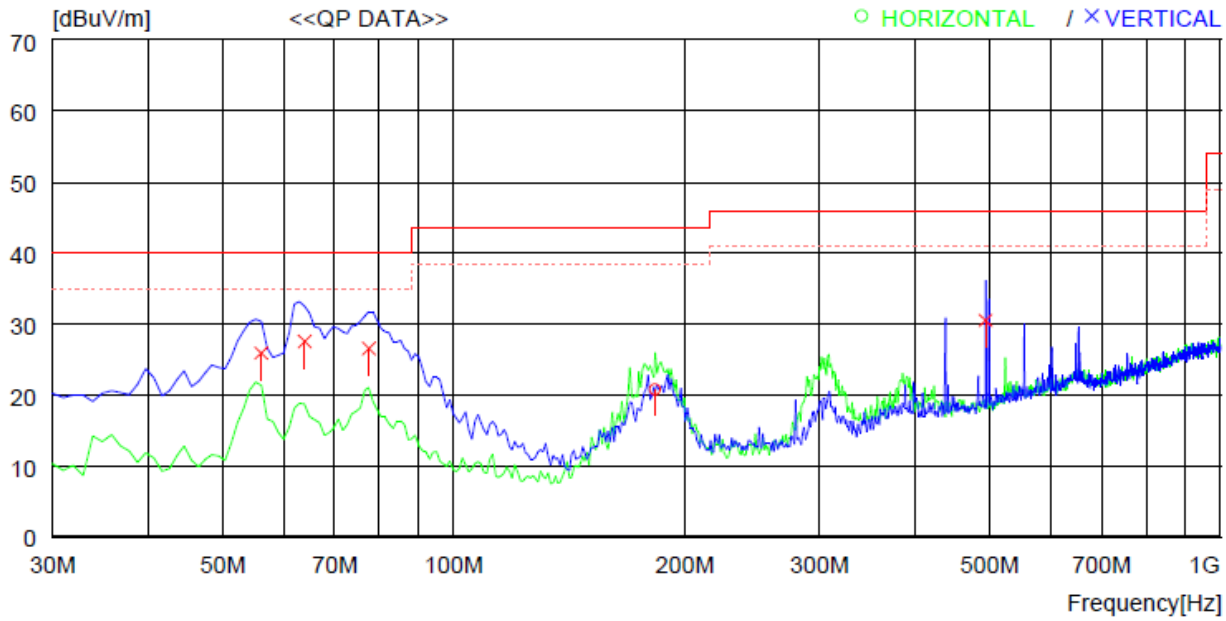
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209 and IC RSS-Gen Issue 4, ICES-001 Issue4

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : Wireless charger Date: January 05, 2016

Operating Condition : Transmitting Mode



No.	FREQ [MHz]	READING QP [dBuV]	C.FACTOR [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]	COMMENT
	----- Horizontal -------								
1	183.260	40.2	-19.4	20.8	43.5	22.7	200	0	
	----- Vertical -------								
2	56.190	43.4	-17.5	25.9	40.0	14.1	100	0	
3	63.950	46.5	-19.0	27.5	40.0	12.5	100	0	
4	77.530	49.4	-22.8	26.6	40.0	13.4	200	359	
5	493.661	40.2	-9.7	30.5	46.0	15.5	100	158	

Tested by: Min-Gu, Ji / Project Engineer

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10. CONDUCTED EMISSION TEST

10.1 Operating environment

Temperature	:	22 ℃
Relative humidity	:	45 % R.H.

10.2 Test set-up

The EUT was placed on a wooden table, 0.8 m height above the floor. Power was fed to the EUT through a 50 Ω / 50 μH + 5 Ω Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

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EMC Testing Div. : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

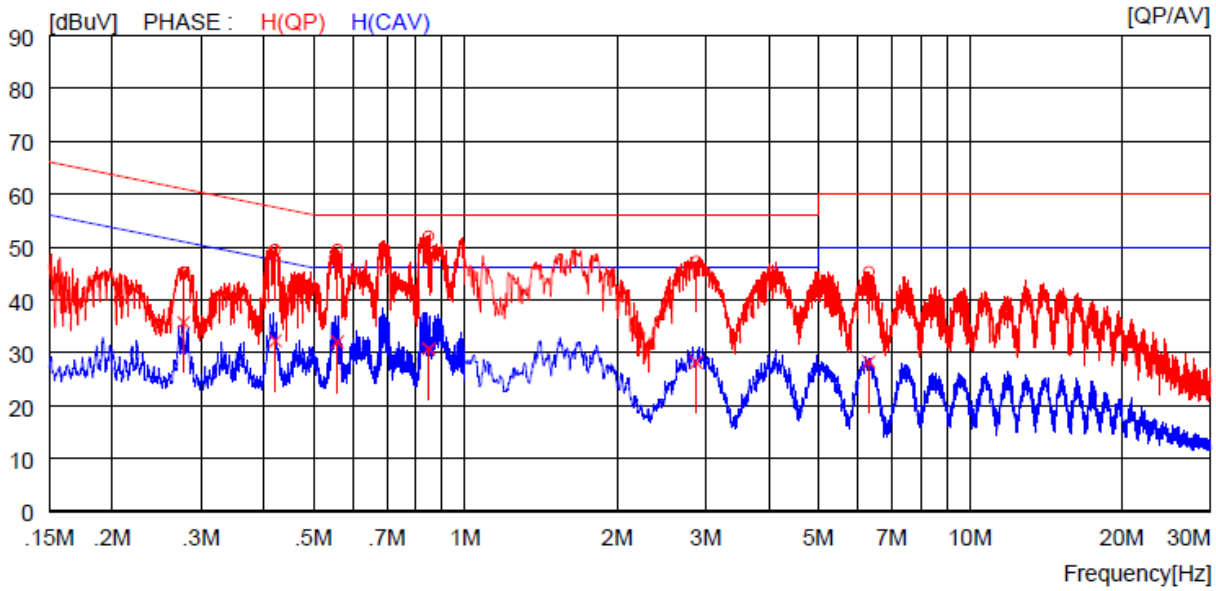
10.3 Test data

-. Test Date : January 05, 2016

-. Resolution bandwidth : 9 kHz

-. Frequency range : 0.15 MHz ~ 30 MHz

-. Tested Line : HOT



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.27700	35.1	----	10.0	45.1	----	60.9	----	15.8	----	H(QP)
2	0.42100	39.4	----	10.0	49.4	----	57.4	----	8.0	----	H(QP)
3	0.55900	39.4	----	10.1	49.5	----	56.0	----	6.5	----	H(QP)
4	0.84800	41.8	----	10.1	51.9	----	56.0	----	4.1	----	H(QP)
5	2.87200	37.1	----	10.1	47.2	----	56.0	----	8.8	----	H(QP)
6	6.31000	35.0	----	10.2	45.2	----	60.0	----	14.8	----	H(QP)
7	0.27700	----	25.7	10.0	----	35.7	----	50.9	----	15.2	H(CAV)
8	0.42100	----	22.2	10.0	----	32.2	----	47.4	----	15.2	H(CAV)
9	0.55900	----	21.9	10.1	----	32.0	----	46.0	----	14.0	H(CAV)
10	0.84800	----	20.6	10.1	----	30.7	----	46.0	----	15.3	H(CAV)
11	2.87200	----	18.0	10.1	----	28.1	----	46.0	----	17.9	H(CAV)
12	6.31000	----	18.0	10.2	----	28.2	----	50.0	----	21.8	H(CAV)

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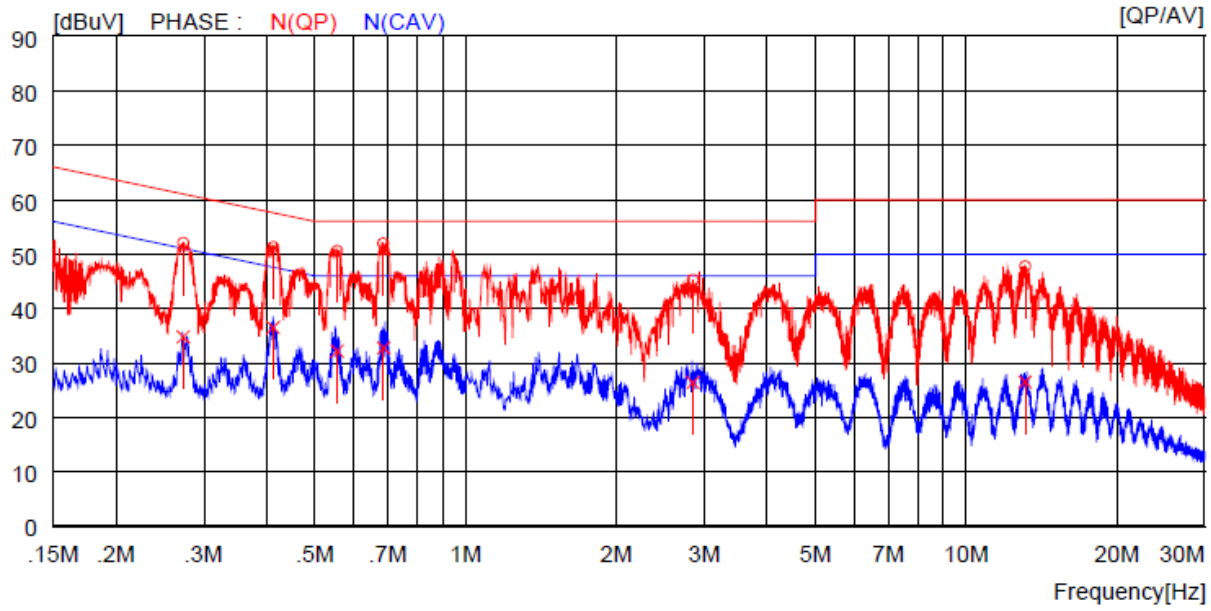
-. Tested Line : NEUTRAL



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.27300	42.1	----	10.0	52.1	----	61.0	----	8.9	----	N(QP)
2	0.41300	41.3	----	10.0	51.3	----	57.6	----	6.3	----	N(QP)
3	0.55400	40.5	----	10.1	50.6	----	56.0	----	5.4	----	N(QP)
4	0.68600	41.8	----	10.1	51.9	----	56.0	----	4.1	----	N(QP)
5	2.84800	35.1	----	10.1	45.2	----	56.0	----	10.8	----	N(QP)
6	13.13000	37.2	----	10.5	47.7	----	60.0	----	12.3	----	N(QP)
7	0.27300	----	24.8	10.0	----	34.8	----	51.0	----	16.2	N{CAV}
8	0.41300	----	26.5	10.0	----	36.5	----	47.6	----	11.1	N{CAV}
9	0.55400	----	22.1	10.1	----	32.2	----	46.0	----	13.8	N{CAV}
10	0.68600	----	22.7	10.1	----	32.8	----	46.0	----	13.2	N{CAV}
11	2.84800	----	16.3	10.1	----	26.4	----	46.0	----	19.6	N{CAV}
12	13.13000	----	16.0	10.5	----	26.5	----	50.0	----	23.5	N{CAV}

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

Tested by: Min-Gu, Ji / Project Engineer

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11. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESCI	101012	Nov. 02, 2015	One Year	■
2.		R/S	ESU	100261	Apr. 29, 2015	One Year	■
3.		R/S	ESPI	101278	Nov. 02, 2015	One Year	■
4.		R/S	ESHS10	834467/007	Apr. 29, 2015	One Year	■
4.	Spectrum analyzer	R/S	FSV30	101372	April 29, 2015	One Year	■
5.	Amplifier	Sonoma Instrument	310N	312544	Apr. 29, 2015	One Year	■
6.	Amplifier	Sonoma Instrument	310N	312545	Apr. 29, 2015	One Year	■
7.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-255	May 02, 2014	Two Year	■
8.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-421	Jul. 10, 2014	Two Year	■
9.	Controller	Innco System	CO2000	619/27030611/L	N/A	N/A	■
10.	LISN	EMCO	3825/2	9109-1867	Apr. 29, 2015	One Year	■
				9109-1869	Apr. 29, 2015	One Year	-
		Schwarzbeck	NSLK8126	8126-404	Apr. 29, 2015	One Year	■
		Schwarzbeck	NSLK8128	8128-216	Apr. 06, 2015	One Year	■
11.	Turn Table	Innco System	DT3000	930611	N/A	N/A	■
12.	Antenna Master	Innco System	MA4000-EP	MA4000/332	N/A	N/A	■
13.	Antenna Master	Innco System	MA4000-EP	MA4000/335	N/A	N/A	■
14.	Loop Antenna	R/S	HFH2-Z2	879285/26	Dec. 09, 2014	Two Year	■
15.	Triple Loop Antenna	Schwarzbeck	HXYZ 9170	HFCD 9171-207	Sep. 25, 2015	Two Year	■
15.	Frequency Counter	HP	53152A	US39270295	Oct. 07, 2015	One Year	■
16.	Chamber	Sam Kun	SSE-43CI-A	060712	May 15, 2015	One Year	■
17.	DC Power Supply	Digital Electronics	DRP-305DN	4030195	Sep. 03, 2015	One Year	■

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