





Test Report

Applicant: Dong Guan Ya Li Electric Appliance Co., Ltd.

Address: THE FIVE STREET JINQIANLING JITIGANG HUANGJIANG TOWN,

DONGGUAN CITY, GUANGDONG 523000 CHINA

FCC ID: 2AZRWYL-889FI

Product: Wireless Charger

Brand: YALI

Test model(s): YL-889

Series model(s): N/A

Test Date: Apr. 23, 2021~ Apr. 27, 2021

Issued By: Hwa-Hsing (Dongguan) Testing Co., Ltd.

Lab Address: No.101, Bld N1, Yuyuan 2Rd, Yuyuan Industrial Park, HuangJiang

Town, Dongguan, China

FCC Designation No.: CN1255

Standards: FCC Part 15, Subpart C

ANSI C63.10-2013

The above equipment has been tested by Hwa-Hsing (Dongguan) Testing Co., Ltd., and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :	(anh	Date:	Apr. 28, 2021	
	Tank Tan/ Project Engineer			
Approved by :	Dang Li	Date:	Apr. 29, 2021	

Harry Li/ Technical Director

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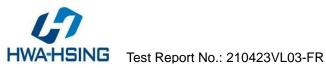
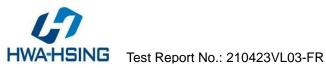


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Release Control Record

Issue No.	Description	Date Issued
210423VL03-FR	Original release.	Apr. 29, 2021

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Summary of Test Results

FCC Part 15, Subpart C ANSI C63.10-2013					
Clause	Test Item	Result/Remarks	Verdict		
§15.203	Antenna Requirement	No antenna connector is used.	Pass		
§15.207	AC Power Conducted Emission	Meet the requirement of limit.	N/A		
§15.209	Radiated Emission	Meet the requirement of limit.	Pass		
§15.215 (c)	20dB Bandwidth	Meet the requirement of limit.	Pass		

Note: There is no deviation to the applied test methods and requirements covered by the scope of this report

1.1 **Measurement Uncertainty**

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

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.66 dB
Radiated Emissions 9KHz ~ 30MHz	9KHz ~ 30MHz	2.49 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	3.47 dB
Radiated Emissions above 1 GHz	Above 1GHz	4.84 dB

1.2 **Modification Record**

There were no modifications required for compliance.

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2 General Information

2.1 General Description of EUT

Product Name	Wireless Charger
Brand	YALI
FCC ID	2AZRWYL-889FI
Test Model	YL-889
Series Models	N/A
Power Supply Rating	Input: DC 5V 2A Output: DC 5V 1A
Modulation type	ASK
Operating frequency	110kHz~180kHz
Antenna type	Coil Antenna

- For a more detailed features description, please refer to the manufacturer's specification or the User's Manual.
- 2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
- 3. Please refer to the EUT photo document (Reference No.: 210423VL03) for detailed product photo.

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2.2 Operating Modes of EUT

The EUT was tested under the following modes the final worst mode was marked in boldface and recorded in

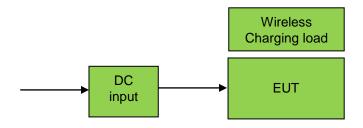
this report.

Test frequency	Test mode	Test voltage	
110~130kHz	wireless charging + Transmiting	20.51/	
160~180kHz	Standby + Transmiting	DC 5V	

3 Configuration and Connections with EUT

3.1 Connection Diagram of EUT and Peripheral Devices

Configuration:



3.2 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
Α.	USB Dummy load	N/A	N/A	N/A	N/A	N/A

Note:

- 1. All power cords of the above support units are non-shielded (1.5m).
- 2. Items E~Gacted as communication partners to transfer data.

	D	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
Ī	1.	DC Line	1	1.2	No	N/A	

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Radiated Emissions up to 1 GHz

Limits of radiated emissions

FCC Part 15, Subpart C, Section 15.209

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as

following:

Frequencies (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
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

Note:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
- 4. The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

4.2 **Test Instruments**

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
EMI Test Receiver (10kHz~7GHz)	Rohde&Schwarz	ESCI 7	100962	2021/05/20
Loop Antenna 9kHz~30MHz	TESEQ	HLA 6121	56735	2022/04/15
Broadband antenna (25MHz~2500MHz)	Schwarzbeck	VULB 9168	00937	2021/10/19
Signal Amplifier (30MHz~1000MHz)	Com-power	PAM-103	18020051	2022/03/15
3m Semi-anechoic Chamber	MAORUI	9m*6m*6m	NSEMC003	2022/04/15
Attenuator	R&S	TS2GA-6dB	18101101	2022/03/15
Test software	EZ	EZ_EMC V1.1.4.2	N/A	N/A

Note: 1. The calibration interval of the above test instruments is 12/24 months and the calibrations aretraceable to CEPREI/CHINA.

2. The test was performed in Chamber 1.

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4.3 Test Procedure

Below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meters Semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

30MHz~1GHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

- 1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- 2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
- 3. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
- 4. Margin value = Emission level Limit value.

4.4 Deviation from test standard

No deviation.

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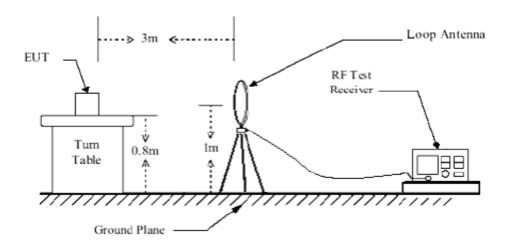
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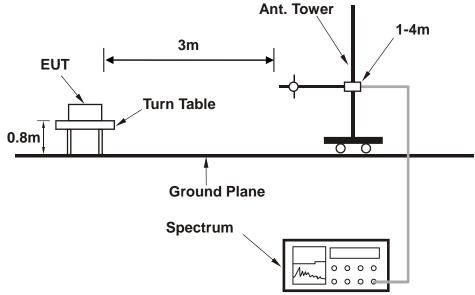


4.5 Test Setup

Below 30MHz test setup



Below 1GHz test setup



Note: For the actual test configuration, please refer to the attached file (Test Setup Photo).

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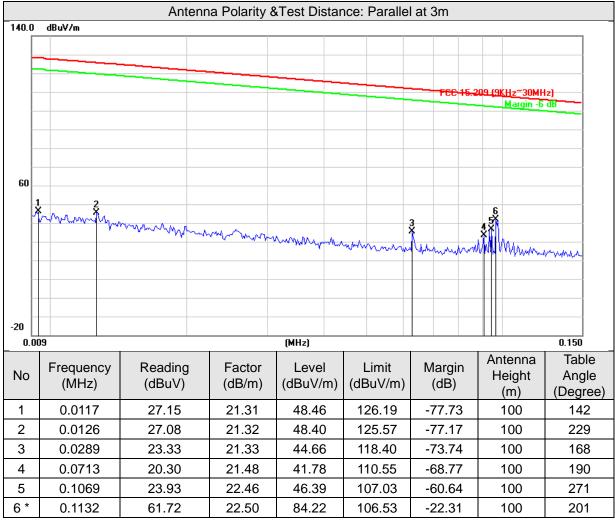
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4.6 Test Results

Test mode	Standby		
Frequency Range	9kHz ~150kHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Input Voltage	DC5V	Environmental Conditions	23℃, 62%RH
Tested by	Tank Tan	Test Date	2021/04/25



REMARKS

- 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
- 2. Negative sign (-) in the margin column signify levels below the limit.
- 3. Frequency range scanned: 0.009-0.15MHz.
- 4. Only emissions significantly above equipment noise floor are reported.

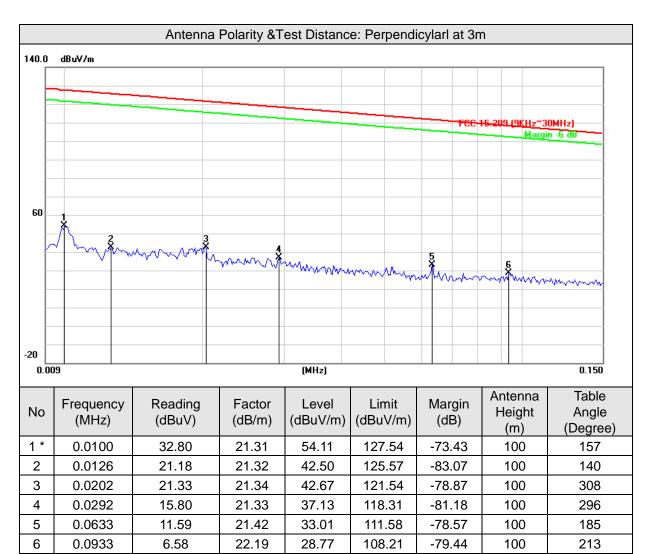
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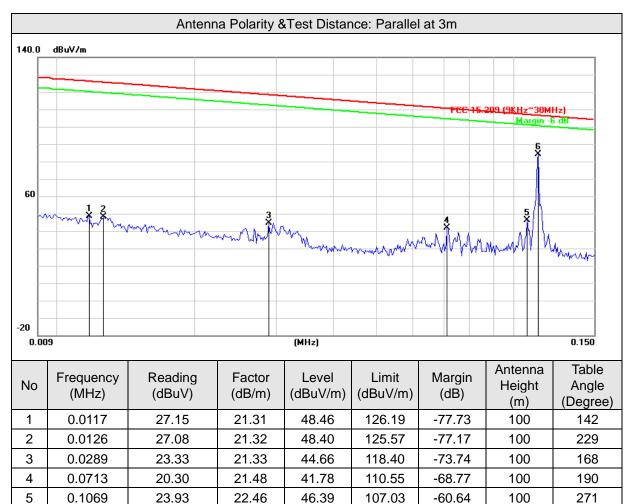
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Test mode	Wireless charging mode			
Frequency Range	9kHz ~150kHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz	
Input Voltage	DC5V	Environmental Conditions	23℃, 62%RH	
Tested by	Tank Tan	Test Date	2021/04/25	



6 * Remarks:

0.1132

1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.

106.53

-22.31

100

201

84.22

- 2. Negative sign (-) in the margin column signify levels below the limit.
- 3. Frequency range scanned: 0.009-0.15MHz.

22.50

61.72

4. Only emissions significantly above equipment noise floor are reported.

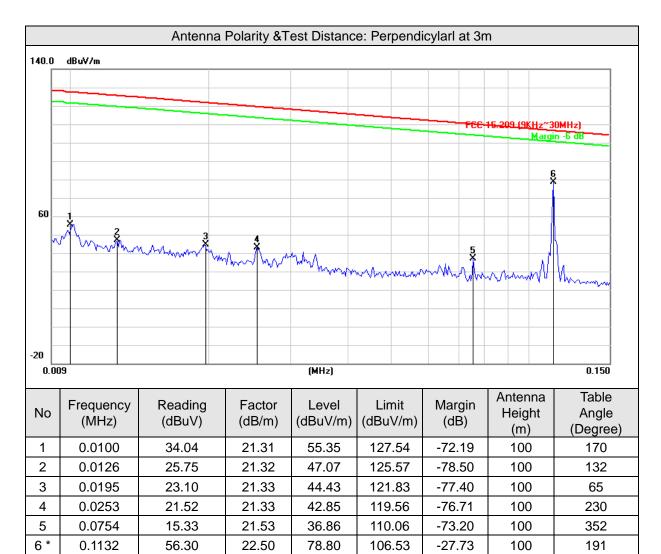
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Remarks:

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- 2. Negative sign (-) in the margin column signify levels below the limit.
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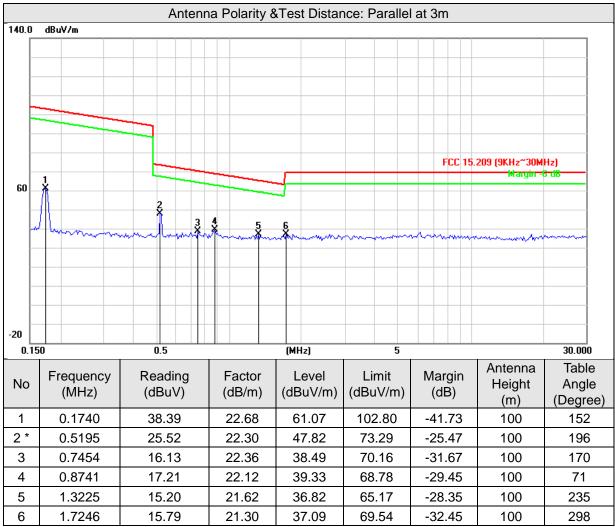
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Test mode	Standby mode		
FrequencyRange	150kHz ~30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Input voltage	DC5V	Environmental Conditions	23℃, 62%RH
Tested by	Tank Tan	Test Date	2021/04/25



Remarks:

- 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
- 2. Negative sign (-) in the margin column signify levels below the limit.
- 3. Frequency range scanned: 0.15-30 MHz.
- 4. Only emissions significantly above equipment noise floor are reported.

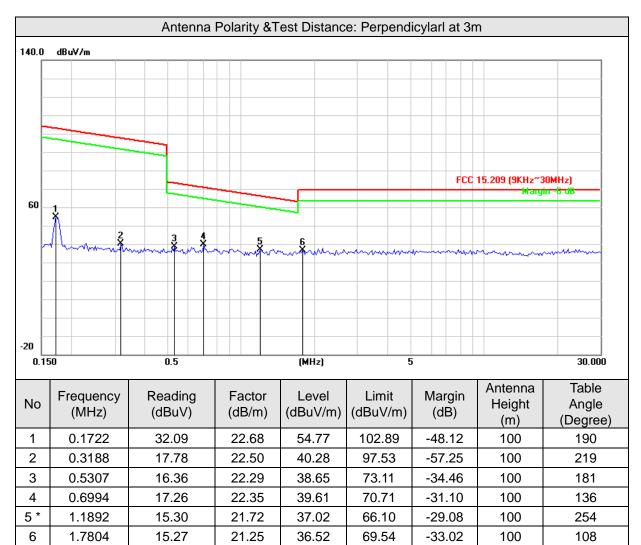
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Remarks:

- 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
- 2. Negative sign (-) in the margin column signify levels below the limit.
- 3. Frequency range scanned: 0.15-30 MHz.
- 4. Only emissions significantly above equipment noise floor are reported.

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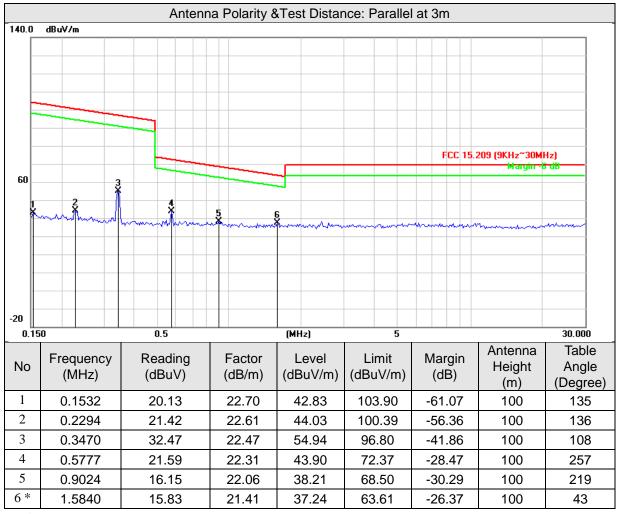
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Test mode	Wireless charging mode		
FrequencyRange	150kHz ~30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Input voltage	DC5V	Environmental Conditions	23℃, 62%RH
Tested by	Tank Tan	Test Date	2021/04/25



Remarks:

- 1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 - Pre-Amplifier Factor (dB)
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value

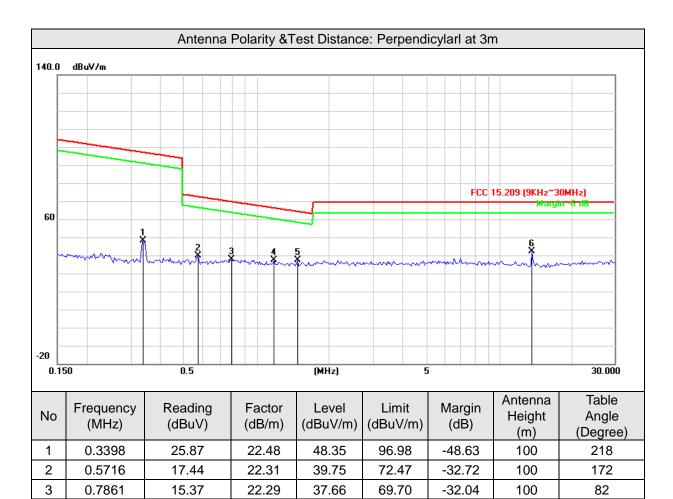
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6 * Remarks:

4

5

1.1767

1.4707

13.6737

- 1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 - Pre-Amplifier Factor (dB)

37.52

37.46

42.11

66.19

64.25

69.54

-28.67

-26.79

-27.43

3. The other emission levels were very low against the limit.

21.73

21.50

18.78

4. Margin value = Emission level - Limit value

15.79

15.96

23.33

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100

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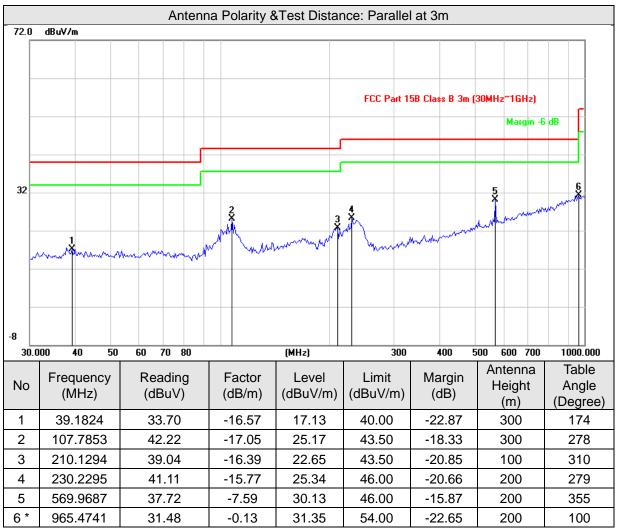
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205

327



Test mode	Standby mode		
FrequencyRange	30MHz ~1GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Input voltage	DC5V	Environmental Conditions	23℃, 62%RH
Tested by	Tank Tan	Test Date	2021/04/25



Remarks:

- 1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 - Pre-Amplifier Factor (dB)
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value

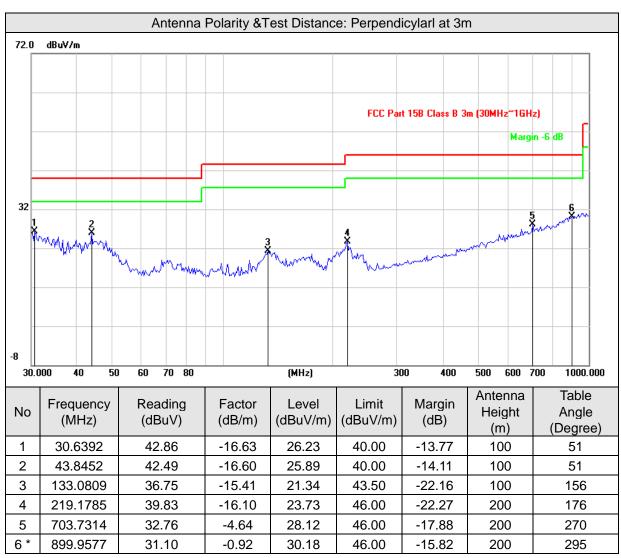
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Remarks:

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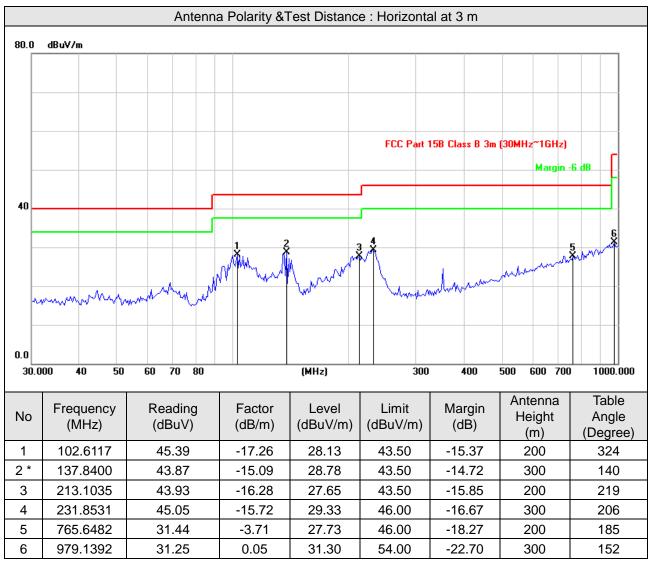
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Test mode	Wireless charging mode		
Frequency Range	30MHz ~ 1GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Input voltage	DC5V	Environmental Conditions	23℃, 62%RH
Tested by	Tank Tan	Test Date	2021/04/25



Remarks:

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 - Pre-Amplifier Factor (dB)
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- 4. Margin value = Emission level Limit value

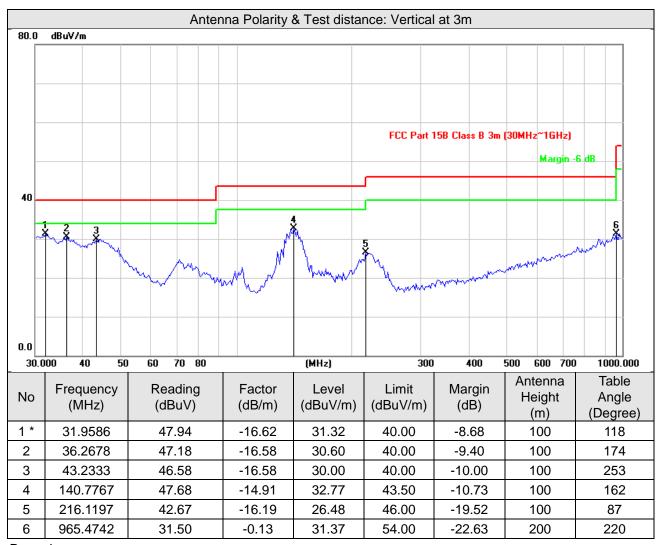
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Remarks:

- 1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 - Pre-Amplifier Factor (dB)
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value

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5 20dB bandwidth measurement

5.1 Limits of 20dB bandwidth measurement

The field strength of any emissions appearing between the band edges and out of band shall be attenuated at least 20 dB below the level of the unmodulated carrier or to the general limits in Section 15.209

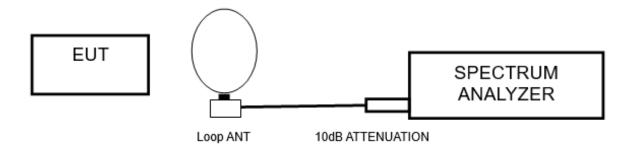
5.2 Test instruments

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.	
Spectrum	Keysight	N9020A	MY51240612	2021/09/16	
(10kHz~26.5GHz)	. 10 y 0.g. 11	N9020A	W1131240012	2021/09/10	
Power Meter 10Hz~18GHz	Tonscend	JS0806-2	188060126	2021/09/16	
Spectrum Analyzer	Rohde&Schwarz	FSV-40N	101783	2021/09/16	
Signal generator	Keysight	N5182A	GB40051020	2021/09/16	
Signal generator	Keysight	N5182A	MY47420944	2021/09/16	
Test Software	Tonscend	JS0806-2	NA	NA	
Power Meter 10Hz~18GHz	Tonscend	JS0806-2	188060126	2021/09/16	
Universal Switch Control Unit	Rohde&Schwarz	CMW500	12010002K50	2021/09/16	
Test Software	Tonscend	JS0806-2	NA	NA	
Loop Antenna 9kHz~30MHz	TESEQ	HLA 6121	56735	2022/04/15	

Note: 1. The calibration interval of the above test instruments is 12/24 months and the calibrations are traceable to CEPREI/CHINA.

2. The test was performed in Chamber 1.

5.3 Test setup



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EUT operating condition

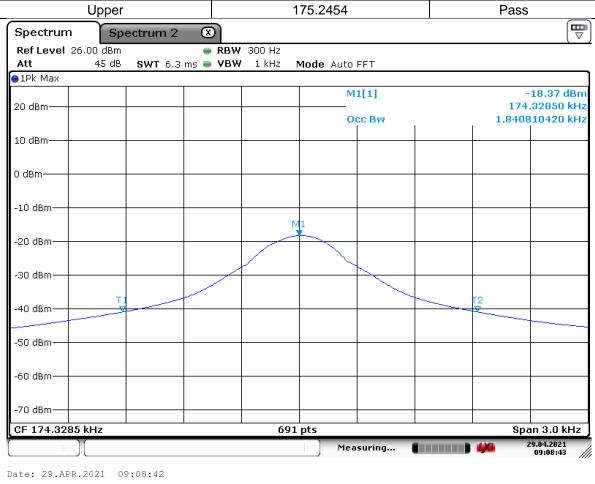
Turn on the EUT.

The EUT tested in charging mode and standby mode respectivel

Test results

Test mode	Channel frequency (kHz)	20dB bandwidth (kHz)	
Standby mode	160~180	1.840	

Lower & Upper Test Frequency Point (MHz)	Test Frequency (KHz)	P/F
Lower	173.4046	Pass
Upper	175.2454	Pass



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Test mode	Channel frequency (kHz)	20dB bandwidth (kHz)
Charging + Transmiting	110~130	0.738

Lower & Upper Test Frequency Point (MHz)						Test Frequency (KHz)					P/F	
Lower							117	7.726				Pass
		Up	per				118	3.464				Pass
Spectr	um		Spe	ctrum	2 💥ເເ							
Ref Lev Att SGL		00 dB 20 c		SWT 6.	● RE 3 ms ● VE	W 300 Hz JW 1 kHz N	1ode Auto	FFT				
●1AP Clr 0 dBm—	~w							M1[1]				-29.87 dBn
-10 dBm					ndB Bw				118.10250 kHz 20.00 dB 738.100000000 Hz			
-20 dBm	+					r		Q factor	ı		738.10	160.0
-30 dBm	+						*	-				
-40 dBm						 	+					
-50 dBm	_					T1/	45					
-60 dBm				_/		/	\					
-70 dBm			\Box									
-80 dBm												
-90 dBm	\perp											
CF 118.	.1025	kHz				691	L pts				Sp	an 5.0 kHz
Marker Type	Ref	Tre !		X-va	due l	Y-value	Eun	ction		Func	tion Resul	+
					118.1025 kHz						-	

-49.47 dBm

-49.58 dBm

Date: 29.APR.2021 09:18:20

1

117.7262 kHz

118.4643 kHz

Τ1

Т2

Tel: <u>0769-83078199</u> Web.: www.hwa-hsing.com

Q factor

ndB

E-Mail: customerservice.dg@hwa-hsing.com

Release Ver. 1.1

20.00 dB

160.0 29.04.2021 09:18:21



Pictures of Test Procedures

Please refer to the attached file (Test Setup Photo).

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Appendix – Information on the Testing Laboratories

We, Hwa-Hsing (Dongguan) Co., Ltd., A global provider of TESTING and CERTIFICATION services for consumer products, electronic products and wireless information technology products. Adhering to the core values "HONEST and TRUSTWORTHY, OBJECTIVE and IMPARTIALITY, RIGOROUS and AFFICIENT", commitment to provide professional, perfect and efficient comprehensive ONE-STOP solution of TESTING and CERTIFICATION services for Manufacturers, Buyers, Traders, Brands, Retailers. Assist client to better manage risk, protect their brands, reduce costs and cut time to over 150 markets in global. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Lab Address: No.101, Bld N1, Yuyuan 2Rd, Yuyuan Industrial Park, HuangJiang Town, Dongguan, China

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The address and road map of all our labs can be found in our web site also.

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