TEST REPORT

Reference No.	:	WTF20F08055379-1W
FCC ID	:	2AXCJ-VANW4F02
Applicant	:	VANTAGE CITY GROUP LIMITED
Address	:	RM701, 7/F, World-Wide House, 19 Des Voeux Road, Central, HK
Manufacturer	:	The same as above
Address	:	The same as above
Product Name	:	VANTAGE WIRELESS CHARGER FOR FURNITURE APPLICATION
Model No.	:	VAN-W4F-5W2/LI+VAN-USB-C-W4F-5W02/LI+VAN-USAD-2209-F-AJC
Standards	:	FCC Part 18
Date of Receipt sample	:	2020-08-13
Date of Test	:	2020-09-01
Date of Issue	:	2020-09-17
Test Result	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:
Waltek Testing Group (Foshan) Co., Ltd.
Address: No.13-19, 2/F., 2nd Building, Sunlink International Machinery City,
Chencun, Shunde District, Foshan, Guangdong, China
Tel:+86-757-23811398 Fax:+86-757-23811381 E-mail:info@waltek.com.cn

Compiled by:

Roy Hong / Project Engineer

Approved by:

Danny Zhou / Manager

1 Revision History

Test Report No.	Date of Issue	Description	Status
WTF20F08055379-1W	2020-09-17	Original	Valid

2 Contents

Page

1 REVISION HISTORY 2
2 CONTENTS 3
3 GENERAL INFORMATION 4
3.1 GENERAL DESCRIPTION OF E.U.T 4
3.2 TECHNICAL CHARACTERISTICS OF EUT 4
3.3 STANDARDS APPLICABLE FOR TESTING 4
3.4 TEST FACILITY 5
3.5 SUBCONTRACTED 5
3.6 ABNORMALITIES FROM STANDARD CONDITIONS 5
4 EUT SETUP AND TEST MODE 6
5 EQUIPMENT USED DURING TEST 7
5.1 EQUIPMENT LIST 7
5.2 SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT 8
5.3 MEASUREMENT UNCERTAINTY 8
6 SUMMARY OF TEST RESULT 9
7 CONDUCTED EMISSIONS 10
8 RADIATED SPURIOUS EMISSIONS 13
9 PHOTOGRAPHS TEST SETUP 18
9.1 PHOTOGRAPHS - RADIATED EMISSION TEST SETUP 18
9.2 PHOTOGRAPHS – CONDUCTED EMISSION TEST SETUP 19
10 PHOTOGRAPHS - CONSTRUCTIONAL DETAILS 20
10.1 EUT - EXTERNAL PHOTOS 20
10.2 EUT - INTERNAL VIEW 24

3 General Information

3.1 General Description of E.U.T

Product Name .....: VANTAGE WIRELESS CHARGER FOR FURNITURE APPLICATION

Model No. .....: VAN-W4F-5W2/LI+VAN-USB-C-W4F-5W02/LI+VAN-USAD-2209-F-AJC

Model Description .....: ---

Rated Voltage.....: DC 9V, 2.5A, Wireless power: 5W, USB port power: 12.5W

Battery Capacity .....: ---

Power Adapter .....: VAN-USAD-2209-F-JAC
Input: AC 100-240V, 50/60Hz, 0.5A
Output: DC 9V, 2.5A

3.2 Technical Characteristics of EUT

Frequency Range .....: 110-205kHz

Antenna Type.....: Coil Antenna

3.3 Standards Applicable for Testing

The tests were performed according to following standards:

FCC Part 18 Subpart C	Industrial, Scientific, and medical equipment
ANSI C63.4-2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9kHz to 40GHz.

3.4 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: 21895-1**

Waltek Testing Group (Foshan) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration IC number:21895-1, Nov. 14, 2016.

- **FCC – Registration No.: 820106**

Waltek Testing Group (Foshan) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 820106, August 16, 2018

- **FCC – Designation No.: CN5034**

Waltek Testing Group (Foshan) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation No. CN5034.

- **NVLAP – Lab Code: 600191-0**

Waltek Services (Foshan) Co., Ltd. EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 600191-0.
This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

3.5 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes ☒ No

If Yes, list the related test items and lab information:

Test items: ---

Lab information: ---

3.6 Abnormalities from Standard Conditions

None.

4 EUT Setup and Test Mode

The EUT was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List

Test Mode	Description	Power Supply Mode
TM1	Wireless Charging	Input: DC 9V, 2.5A Output: DC 5V, 5W

Test Conditions

Temperature:	22~25℃
Relative Humidity:	50~55%
Atmospheric pressure:	101.9kPa

5 Equipment Used during Test

5.1 Equipment List

Conducted Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal Date**	**Cal Due Date**
1.	EMI Test Receiver	RS	ESCI	101178	2020-01-09	2021-01-08
2.	LISN	RS	ENV216	101215	2020-01-09	2021-01-08
3.	Cable	HUBER+SUHNER	CBL2-NN-3M	223NN322	2020-01-09	2021-01-08
4.	Test Software	FARATRONIC	EZ-EMC CON-03A1	-	-	-
3m Semi-anechoic Chamber for Radiation Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	RS	ESR7	101566	2020-01-09	2021-01-08
2.	EMC Analyzer	Agilent	N9020A	MY48011796	2020-01-09	2021-01-08
3.	Active Loop Antenna	SCHWARZBECK	FMZB1519B	00004	2020-01-09	2021-01-08
4.	Trilog Broadband Antenna	SCHWARZBECK	VULB 9162	9162-117	2020-01-09	2021-01-08
5.	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	01561	2020-01-09	2021-01-08
6.	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	2020-01-09	2021-01-08
7.	Amplifier	Lunar E M	LNA1G18-40	20160501002	2020-01-09	2021-01-08
8.	Coaxial Cable (below 1GHz)	H+S	CBL3-NN-12+3 m	214NN320	2020-01-09	2021-01-08
9.	Coaxial Cable (above 1GHz)	Times-Micorwave	CBL5-NN	-	2020-01-09	2021-01-08
10.	Test Software	FARATRONIC	EZ-EMC RA-03A1-1	-	-	-
RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	Spectrum Analyzer	Agilent	N9020A	MY48011796	2020-01-09	2021-01-08
2.	Spectrum Analyzer	R&S	FSP40	100501	2020-01-09	2021-01-08
3.	Vector Signal Generator	Agilent	N5182A	MY50141533	2020-01-09	2021-01-08
4.	Analog Signal Generator	Agilent	N5181A	MY48180720	2020-01-09	2021-01-08
5.	Environmental Chamber	KSON	THS-D4C-100	5244K	2020-01-09	2021-01-08
6.	RF Control Unit	CHANGCHUANG	JS0806-2	-	2020-01-09	2021-01-08

5.2 Special Accessories and Auxiliary Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.
1.	/	/	/	/

5.3 Measurement Uncertainty

Parameter	Uncertainty
RF Output Power	±0.95dB
Occupied Bandwidth	±1.5%
Conducted Spurious Emission	±2.7dB
Conducted Emission	±2.7dB
Transmitter Spurious Emission	±3.8dB (for 25MHz-1GHz)
	±5.0dB (for 1GHz-18GHz)

6 Summary of Test Result

Test Items	FCC Rules	Result
Conducted Emissions	§18.307(b)	Compliance
Radiated Emissions	§18.305(b)	Compliance

Remark:

Pass Test item meets the requirement

Fail Test item does not meet the requirement

N/A Test case does not apply to the test object

7 Conducted Emissions

7.1 Standard Applicable

According to FCC 18.307(b), the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies shall not exceed the limits in the following tables:

Frequency (MHz)	Conducted Limit (dBμV)	
	QP	AVG
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

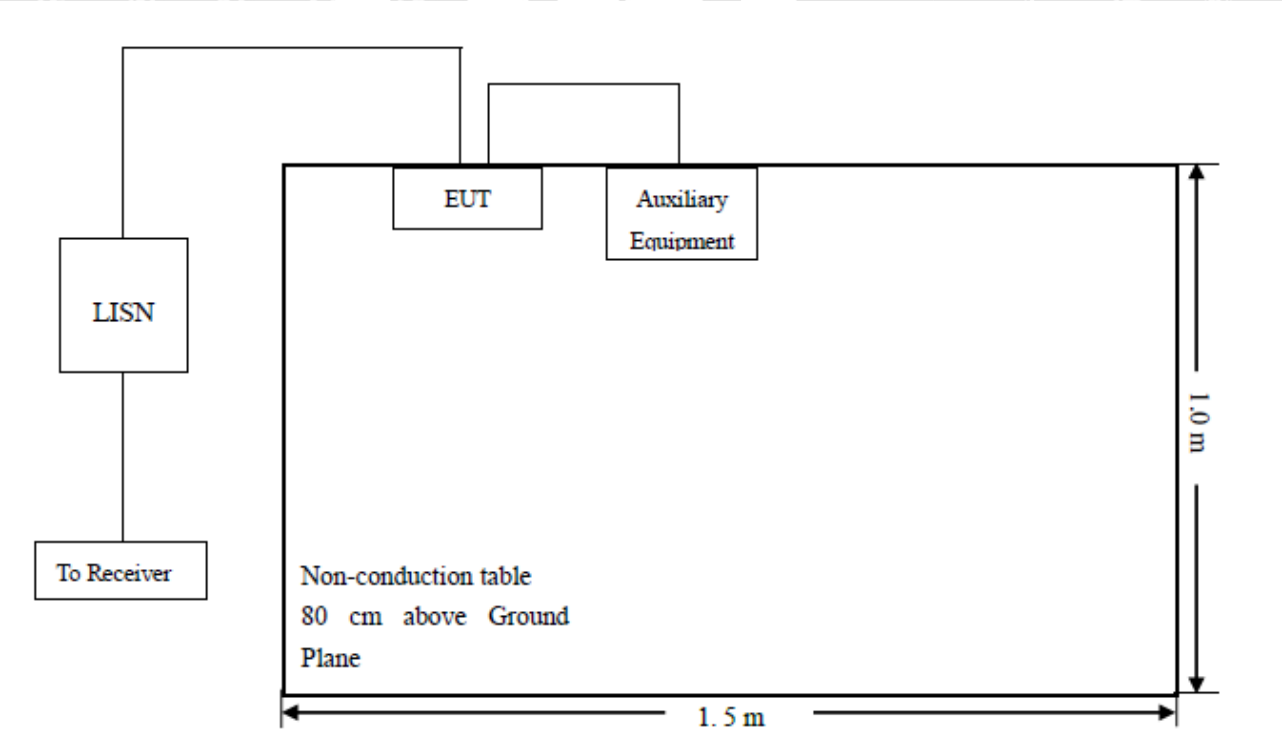
7.2 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 18.307 limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

7.3 Basic Test Setup Block Diagram



7.4 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency.....150 kHz

Stop Frequency.....30 MHz

Sweep Speed.....Auto

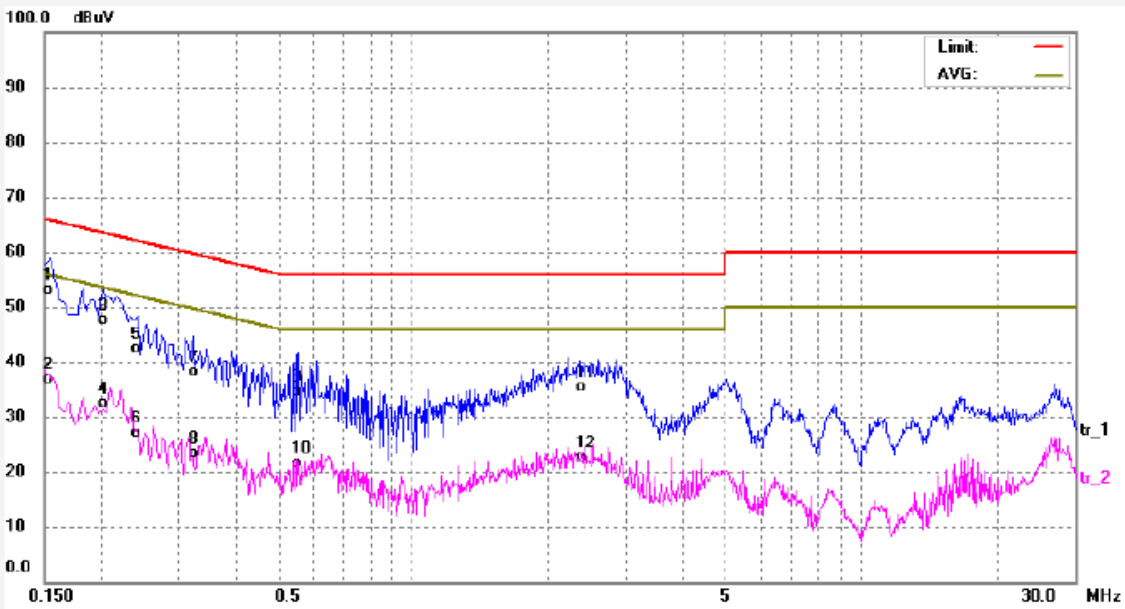
IF Bandwidth.....10 kHz

Quasi-Peak Adapter Bandwidth.....9 kHz

Quasi-Peak Adapter Mode.....Normal

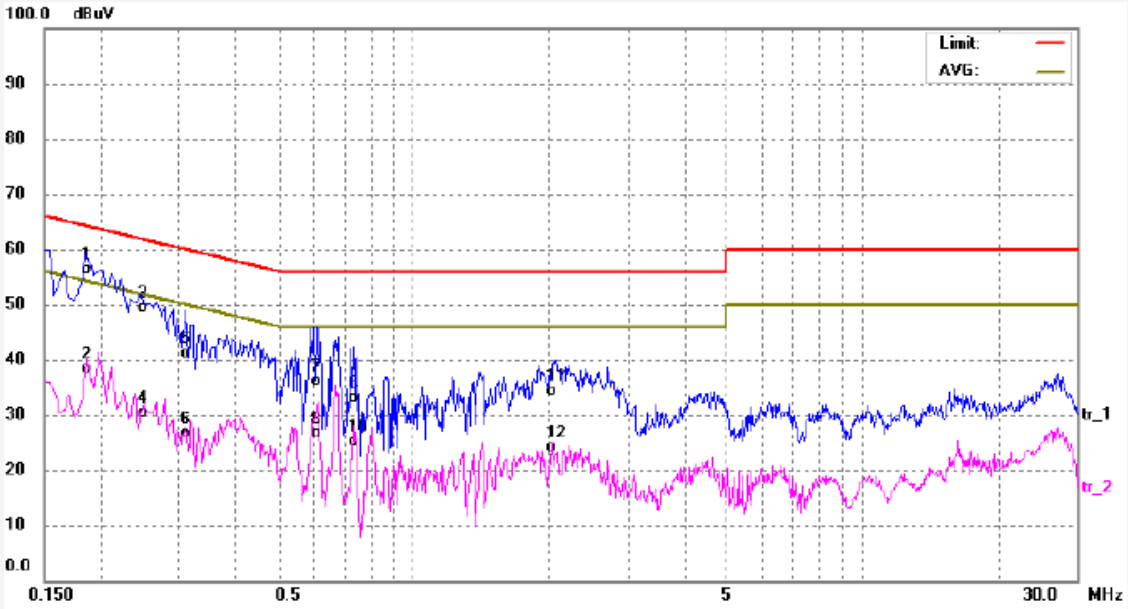
7.5 Test Result

Test Mode:	TM1	**Polarity:**	Line



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Remark
1	0.1539	42.44	9.64	52.08	65.79	-13.71	QP	
2	0.1539	26.34	9.64	35.98	55.79	-19.81	AVG	
3	0.2020	36.99	9.64	46.63	63.53	-16.90	QP	
4	0.2020	21.85	9.64	31.49	53.53	-22.04	AVG	
5	0.2420	31.74	9.64	41.38	62.03	-20.65	QP	
6	0.2420	16.47	9.64	26.11	52.03	-25.92	AVG	
7	0.3220	27.40	9.64	37.04	59.66	-22.62	QP	
8	0.3220	12.83	9.64	22.47	49.66	-27.19	AVG	
9	0.5540	24.05	9.65	33.70	56.00	-22.30	QP	
10	0.5540	10.89	9.65	20.54	46.00	-25.46	AVG	
11	2.3460	24.75	9.71	34.46	56.00	-21.54	QP	
12	2.3460	11.99	9.71	21.70	46.00	-24.30	AVG	

Test Mode:	TM1	**Polarity:**	Neutral



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Remark
1	0.1860	45.65	9.61	55.26	64.21	-8.95	QP	
2	0.1860	27.65	9.61	37.26	54.21	-16.95	AVG	
3	0.2460	38.75	9.61	48.36	61.89	-13.53	QP	
4	0.2460	19.83	9.61	29.44	51.89	-22.45	AVG	
5	0.3100	30.57	9.62	40.19	59.97	-19.78	QP	
6	0.3100	16.04	9.62	25.66	49.97	-24.31	AVG	
7	0.5980	25.56	9.63	35.19	56.00	-20.81	QP	
8	0.5980	16.08	9.63	25.71	46.00	-20.29	AVG	
9	0.7340	22.45	9.64	32.09	56.00	-23.91	QP	
10	0.7340	14.45	9.64	24.09	46.00	-21.91	AVG	
11	2.0340	23.59	9.67	33.26	56.00	-22.74	QP	
12	2.0340	13.48	9.67	23.15	46.00	-22.85	AVG	

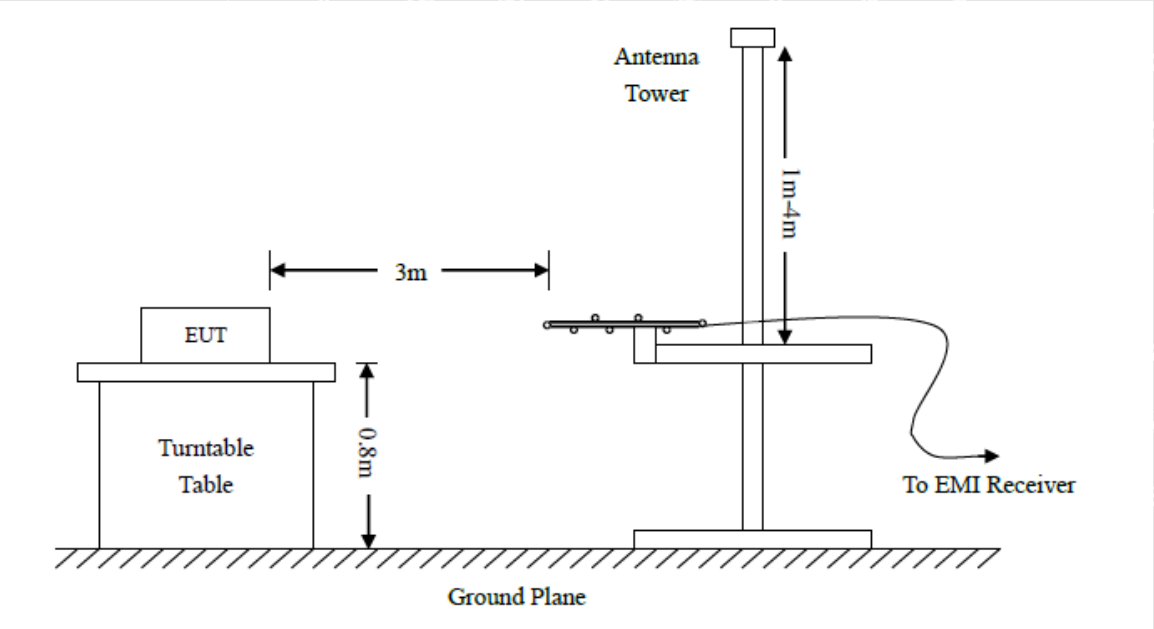
8 Radiated Spurious Emissions

8.1 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 18.307 limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.



8.2 Test Receiver Setup

9KHz-30MHz	30MHz-1GHz	Above 1GHz
RBW=10kHz	RBW=120kHz	RBW=1MHz
VBW=30kHz	VBW=300kHz	VBW=3MHz(Peak), 10MHz(AV)
Sweep time=Auto	Sweep time=Auto	Sweep time=Auto
Trace=Max hold	Trace=Max hold	Trace=Max hold
Detector function=peak	Detector function=peak, QP	Detector function=peak, AV

8.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Corr. Factor

Corr.Factor=Antenna Factor + Cable Factor - Amplifier Gain

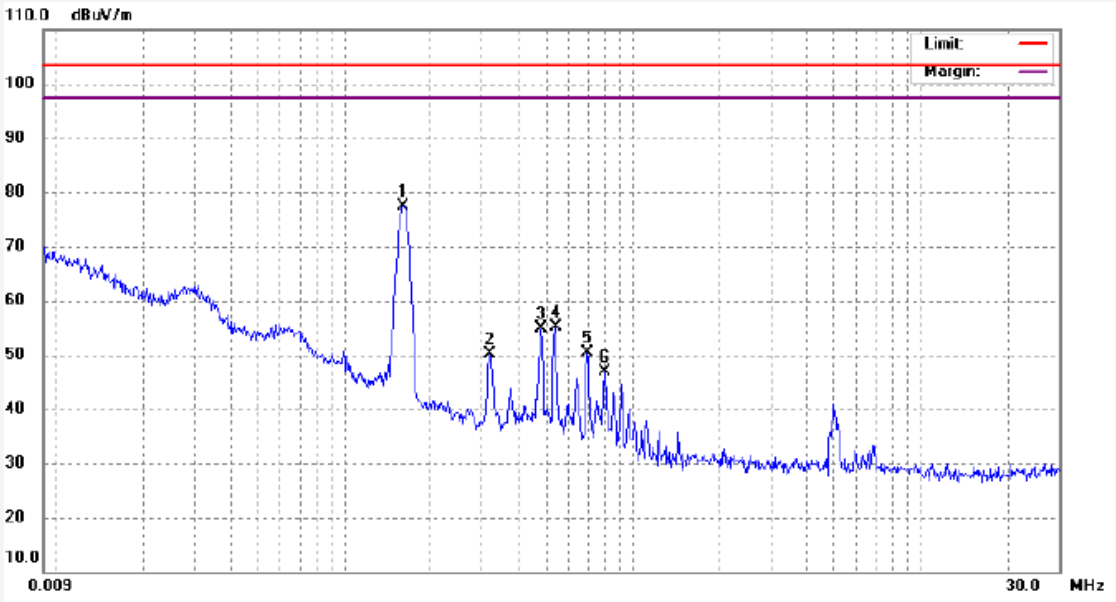
The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Limit

8.4 Test Results

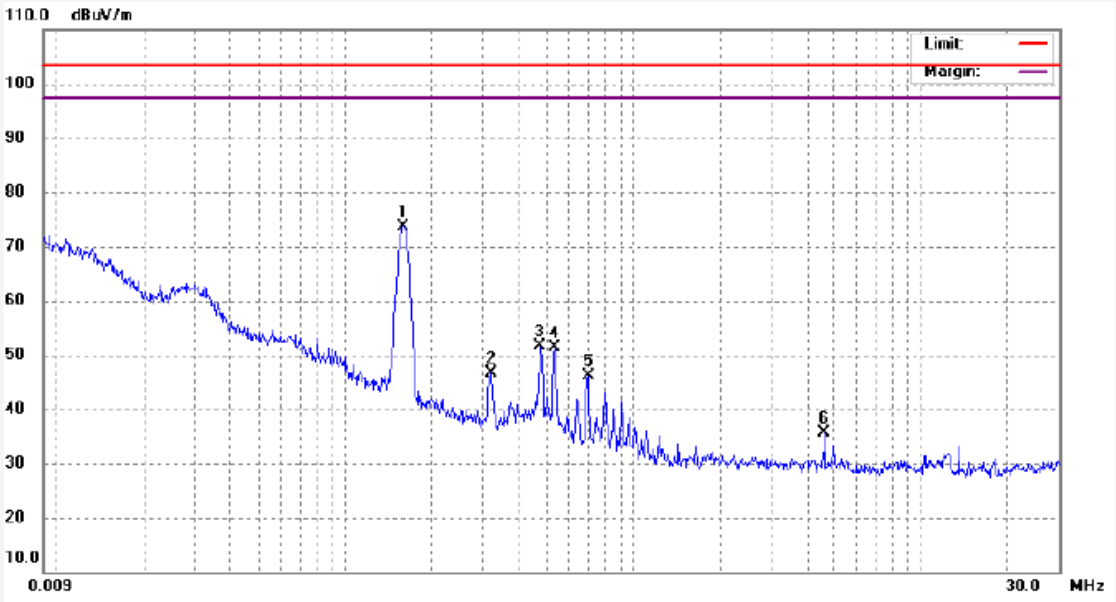
Below 30MHz

Test Mode:	TM1	**Polarization:**	Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	0.1594	56.51	20.93	77.44	103.50	-26.06	peak	
2	0.3181	29.47	20.58	50.05	103.50	-53.45	peak	
3	0.4795	34.83	19.93	54.76	103.50	-48.74	peak	
4	0.5372	35.04	20.03	55.07	103.50	-48.43	peak	
5	0.6941	29.52	20.79	50.31	103.50	-53.19	peak	
6	0.7974	25.76	21.08	46.84	103.50	-56.66	peak	

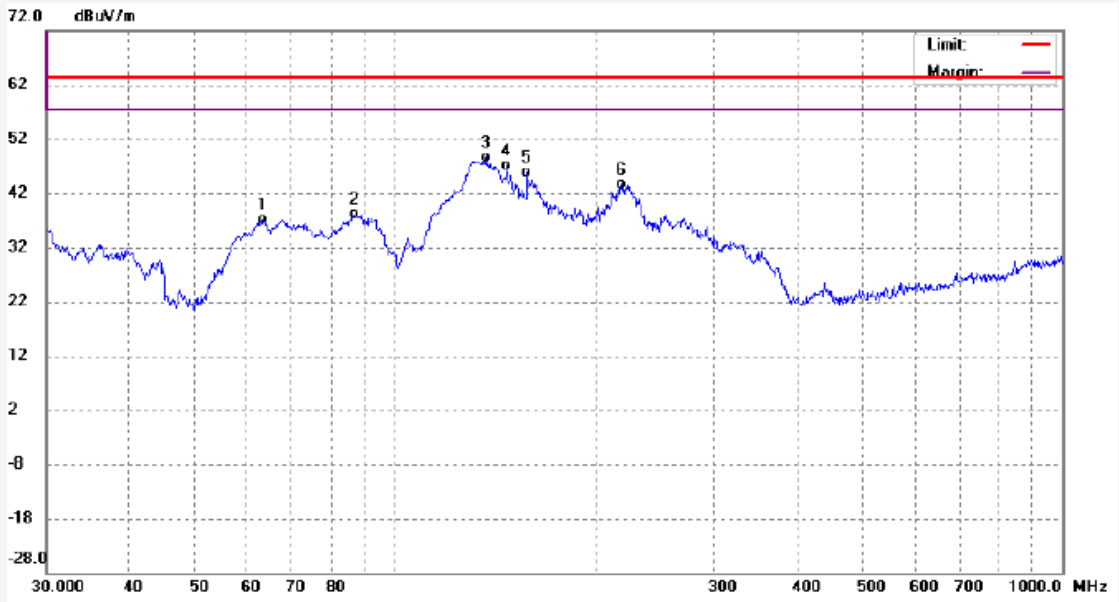
Test Mode:	TM1	Polarization:	Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	0.1598	52.82	20.93	73.75	103.50	-29.75	peak	
2	0.3204	26.14	20.57	46.71	103.50	-56.79	peak	
3	0.4784	31.77	19.94	51.71	103.50	-51.79	peak	
4	0.5363	31.26	20.02	51.28	103.50	-52.22	peak	
5	0.6964	25.32	20.80	46.12	103.50	-57.38	peak	
6	4.6136	14.87	20.81	35.68	103.50	-67.82	peak	

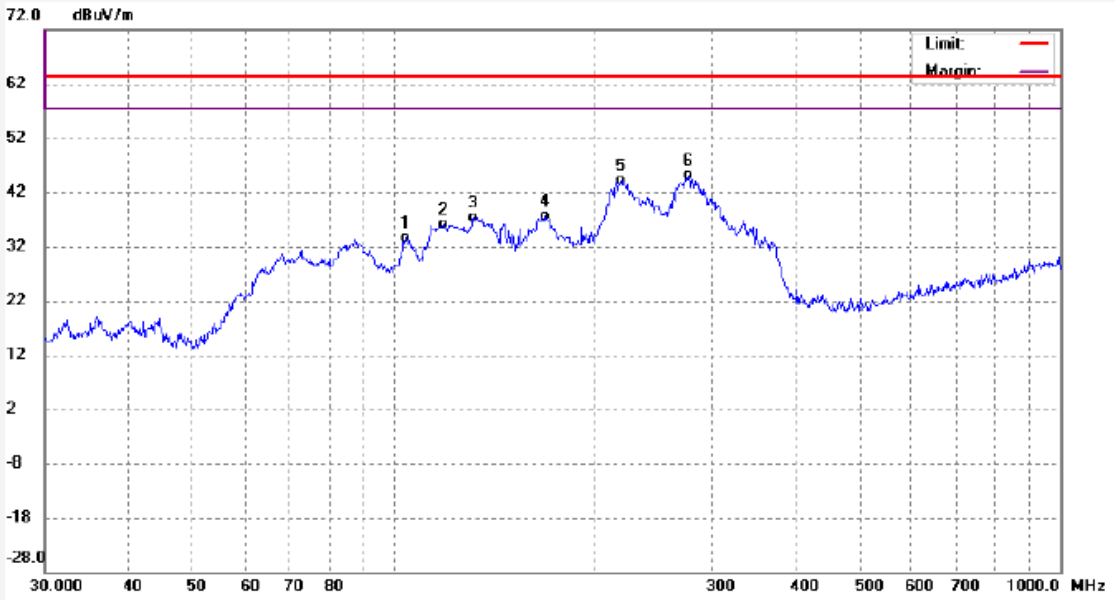
Above 30MHz

Test Mode:	TM1	Polarization:	Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	63.5134	25.11	12.11	37.22	63.50	-26.28	QP	
2	86.8677	27.39	10.81	38.20	63.50	-25.30	QP	
3	137.2276	37.65	10.89	48.54	63.50	-14.96	QP	
4	146.9907	35.75	11.29	47.04	63.50	-16.46	QP	
5	158.0569	33.48	12.28	45.76	63.50	-17.74	QP	
6	218.7683	28.80	14.73	43.53	63.50	-19.97	QP	

Test Mode:	TM1	**Polarization:**	Horizontal

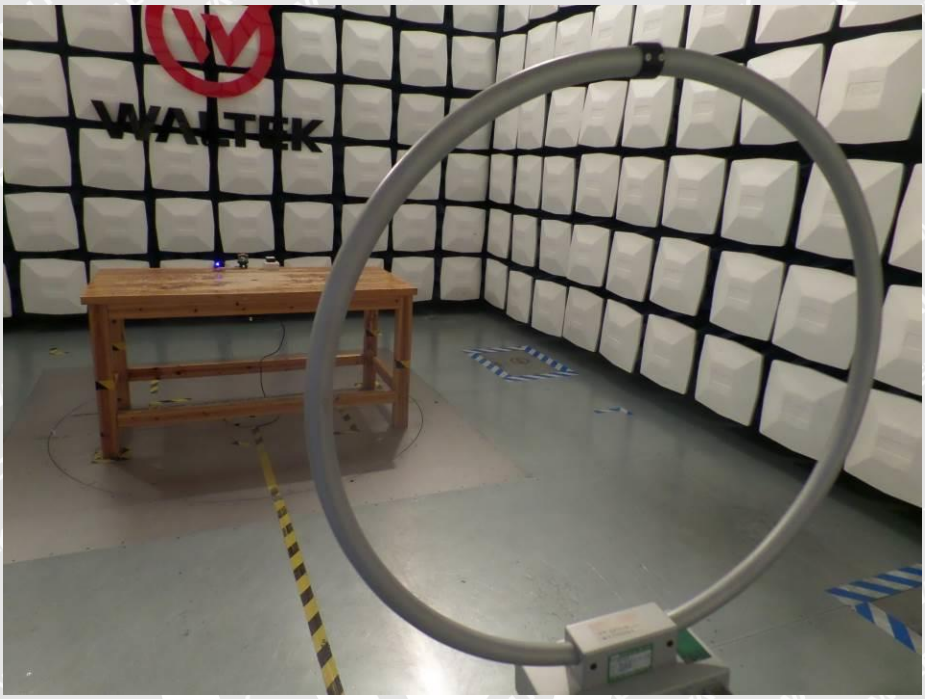


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	104.1701	21.13	12.44	33.57	63.50	-29.93	QP	
2	118.6846	24.84	11.18	36.02	63.50	-27.48	QP	
3	131.9427	27.23	10.21	37.44	63.50	-26.06	QP	
4	169.3019	26.83	10.90	37.73	63.50	-25.77	QP	
5	219.4598	30.46	13.77	44.23	63.50	-19.27	QP	
6	277.3851	29.39	15.62	45.01	63.50	-18.49	QP	

9 Photographs Test Setup

9.1 Photographs - Radiated Emission Test Setup

9kHz to 30MHz

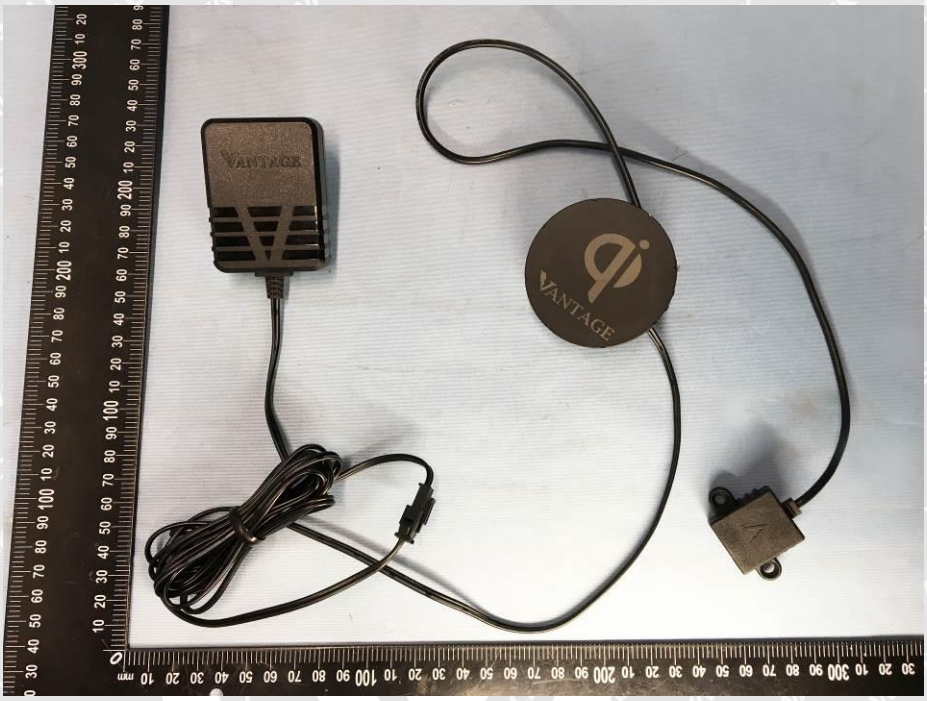


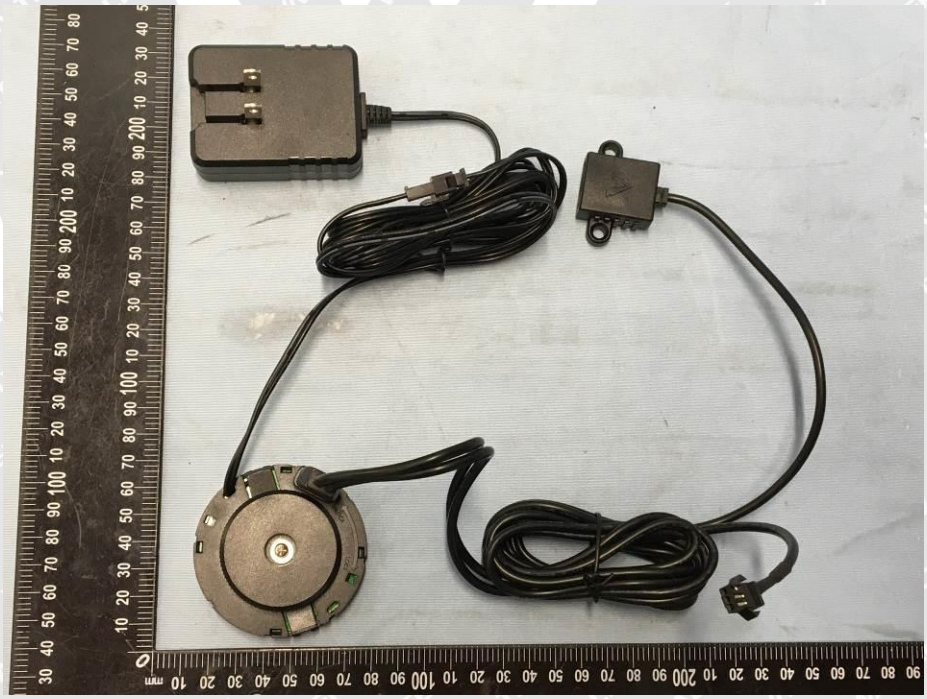
30MHz to 1GHz

9.2 Photographs – Conducted Emission Test Setup

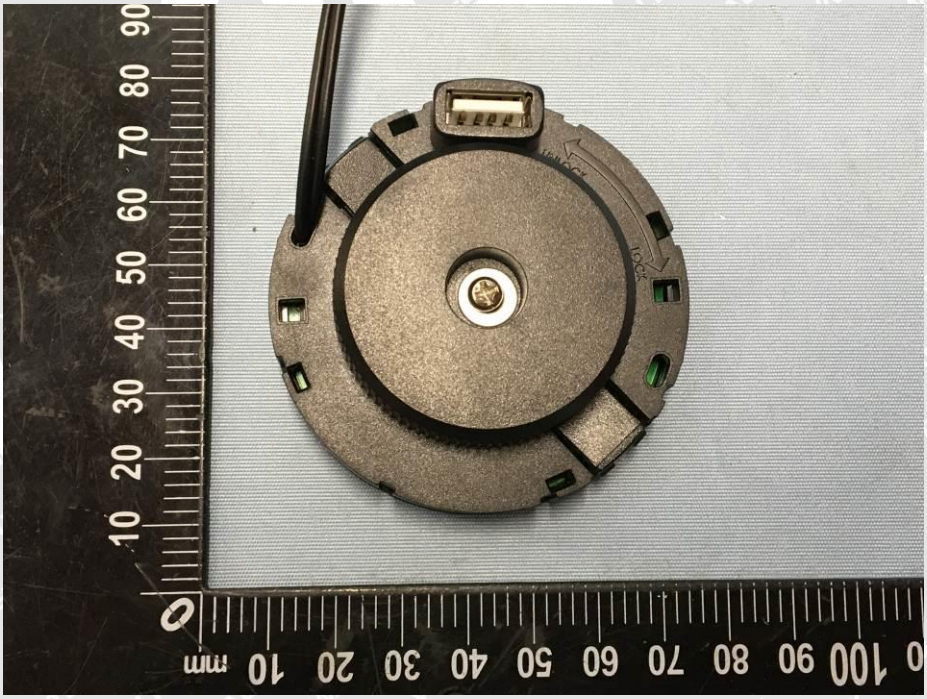
10 Photographs - Constructional Details

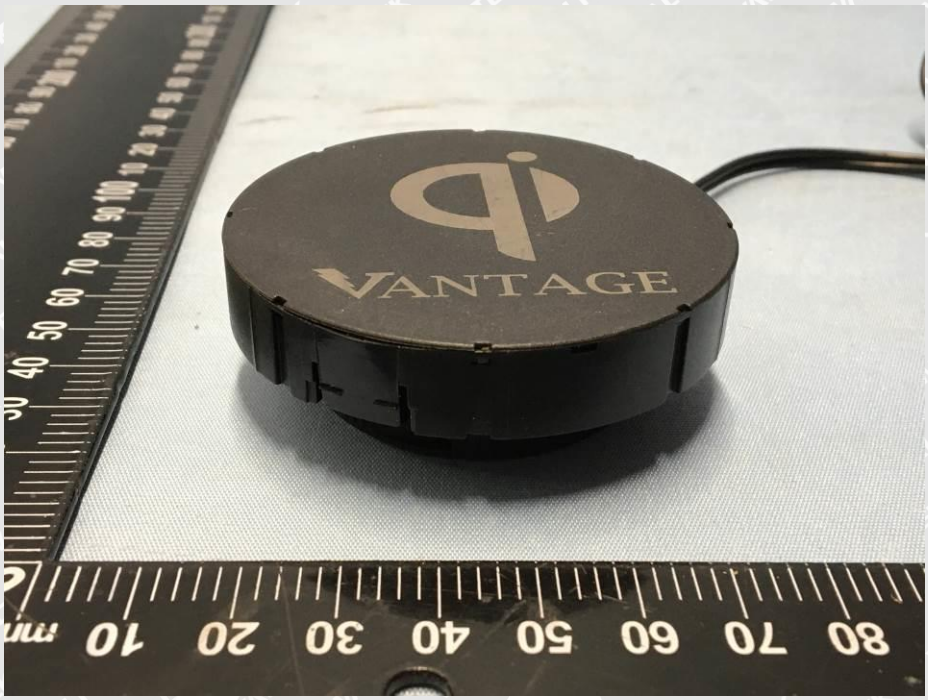
10.1 EUT - External Photos

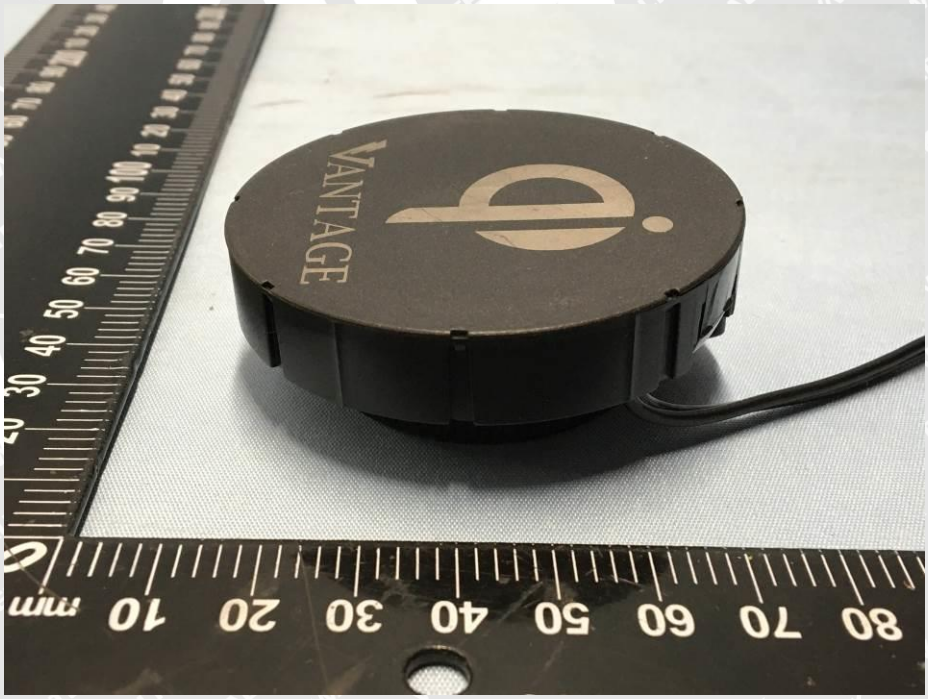




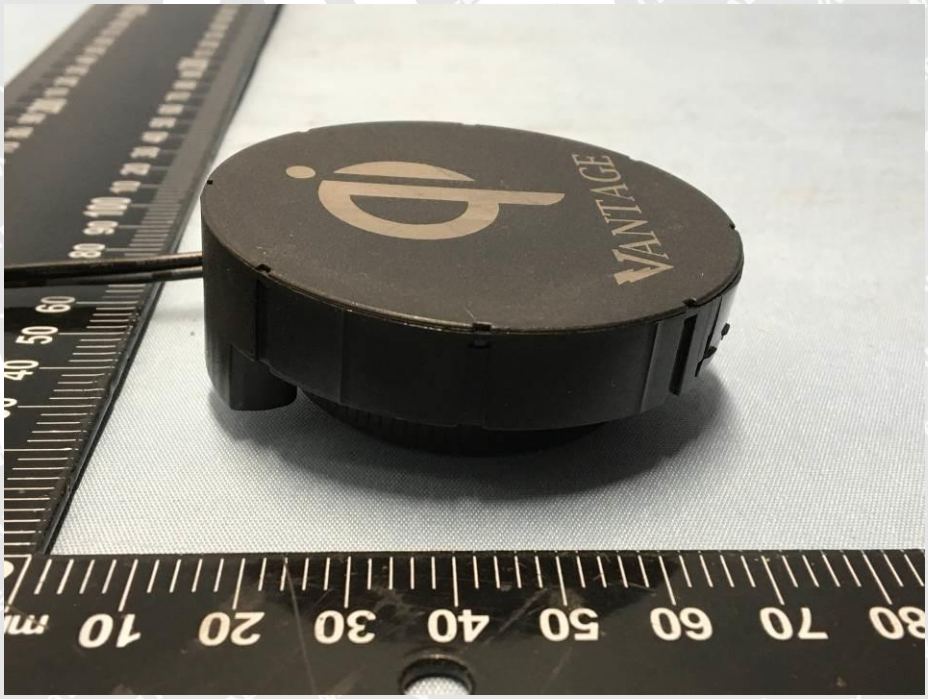
VANTAGE



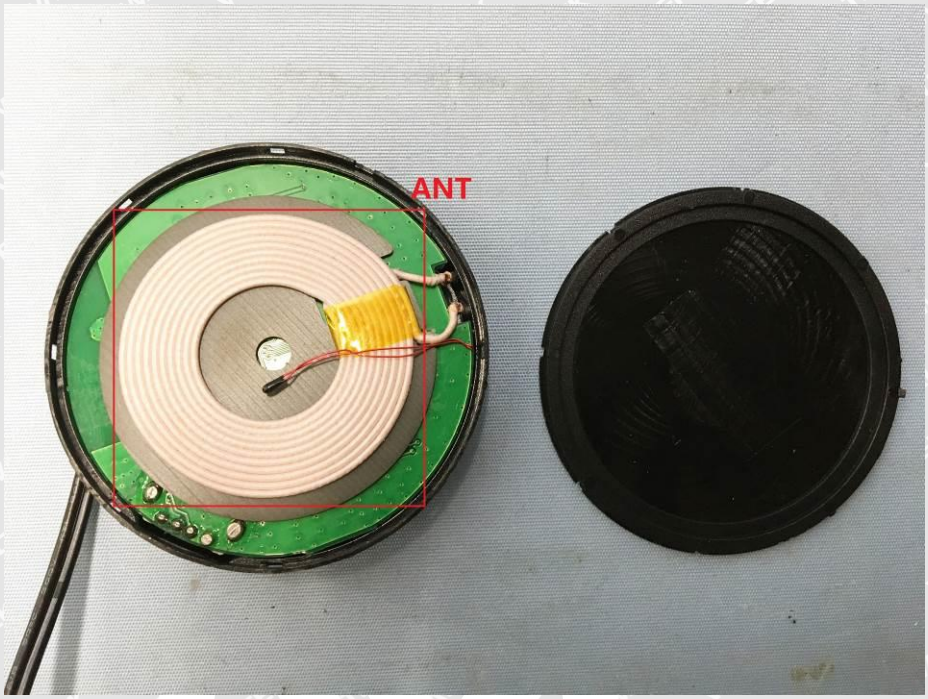

VANTAGE

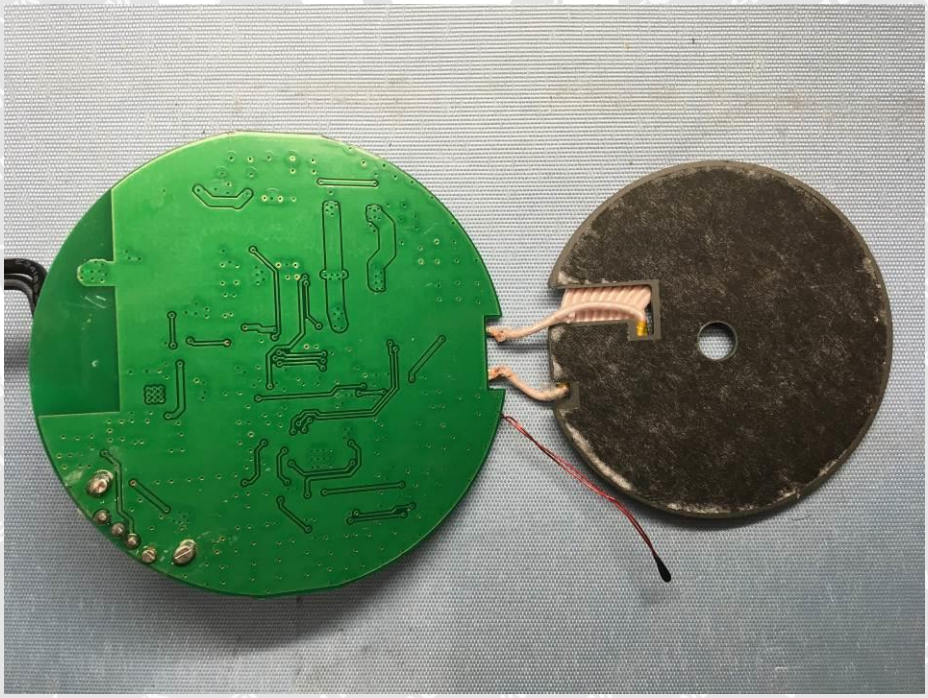

VANTAGE

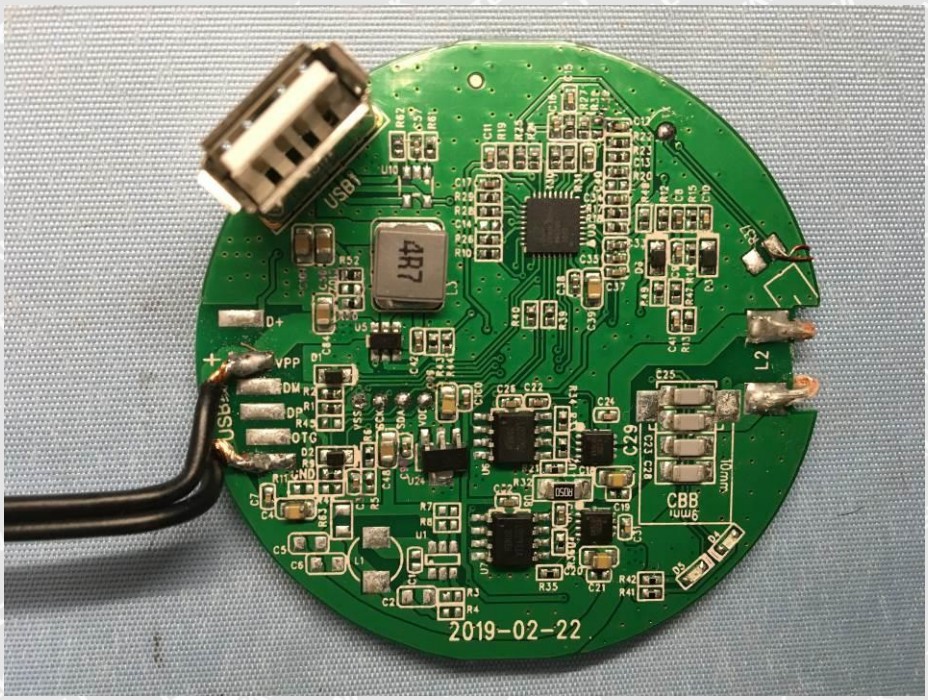
VANTAGE

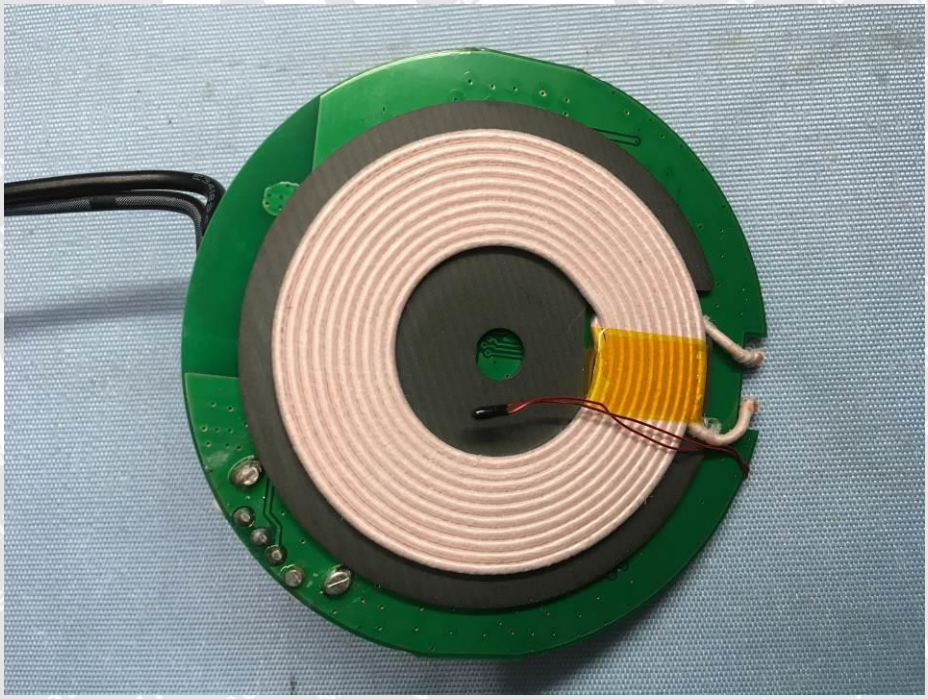

VANTAGE

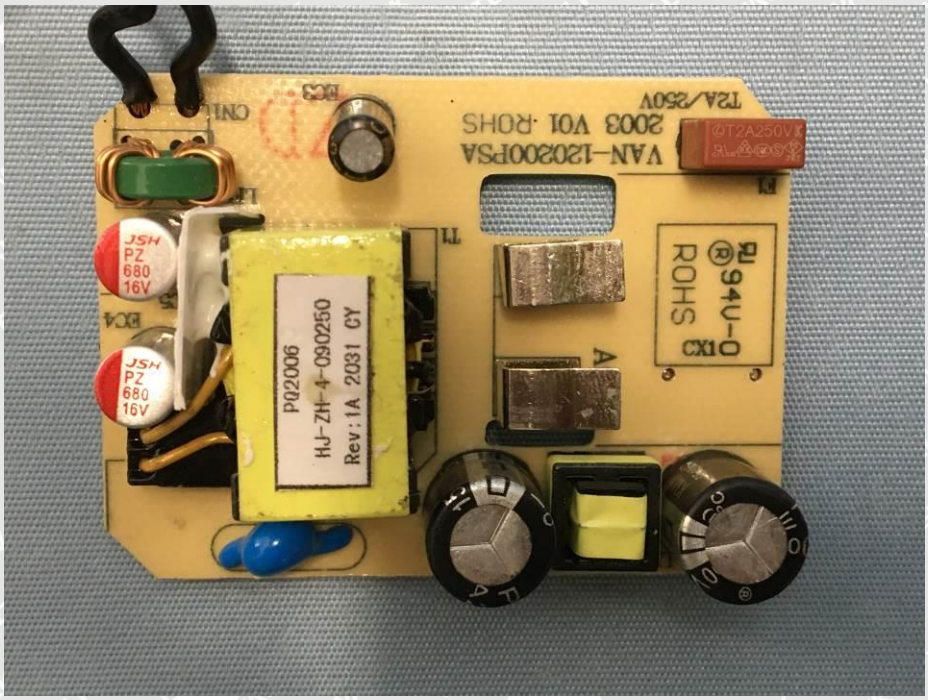
10.2 EUT - Internal View

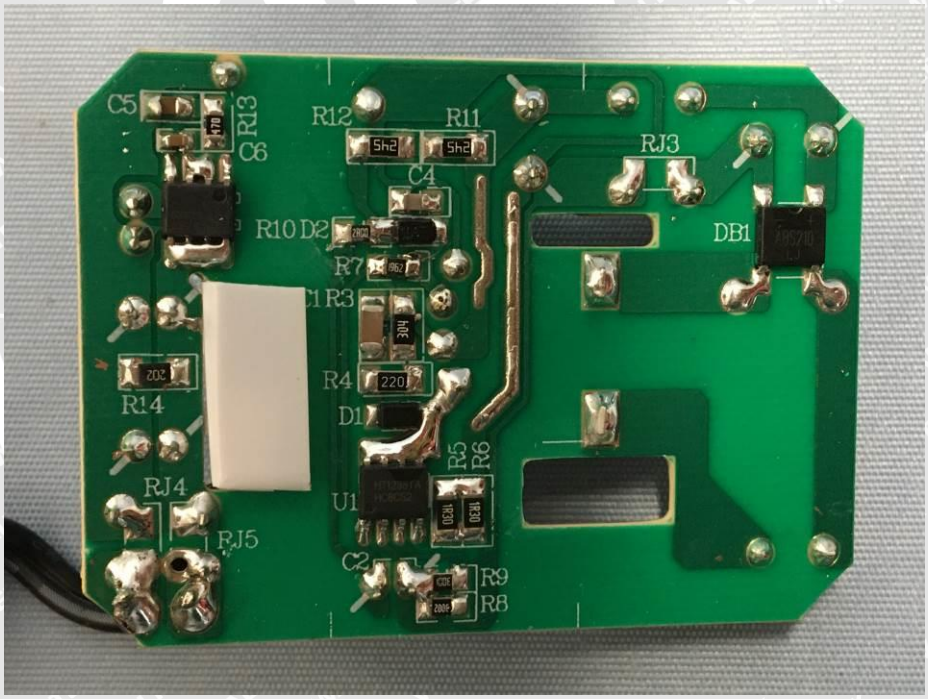





4R7
D+
VPP
DM
DP
OTG
GND
CBB
2019-02-22







======End of Report======