



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:

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1 Revision History

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



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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

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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.

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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

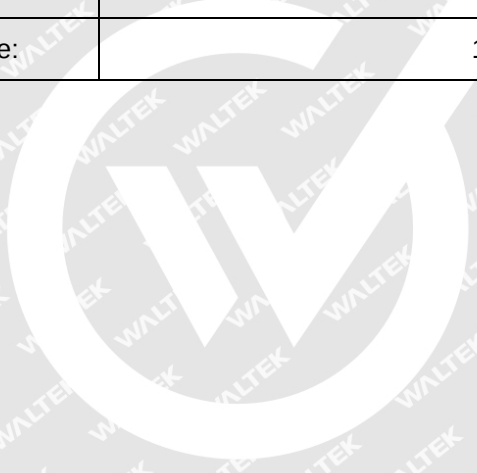
The EUT was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

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°C
Relative Humidity:	50~55%
Atmospheric pressure:	101.9kPa



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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-Microwave	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

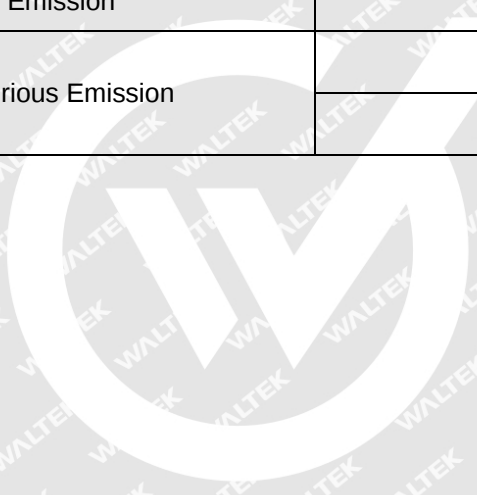


5.2 Special Accessories and Auxiliary Equipment

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

5.3 Measurement Uncertainty

Parameter	Uncertainty
RF Output Power	$\pm 0.95\text{dB}$
Occupied Bandwidth	$\pm 1.5\%$
Conducted Spurious Emission	$\pm 2.7\text{dB}$
Conducted Emission	$\pm 2.7\text{dB}$
Transmitter Spurious Emission	$\pm 3.8\text{dB}$ (for 25MHz-1GHz)
	$\pm 5.0\text{dB}$ (for 1GHz-18GHz)



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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



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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 (dB μ V)	
	QP	AVG
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

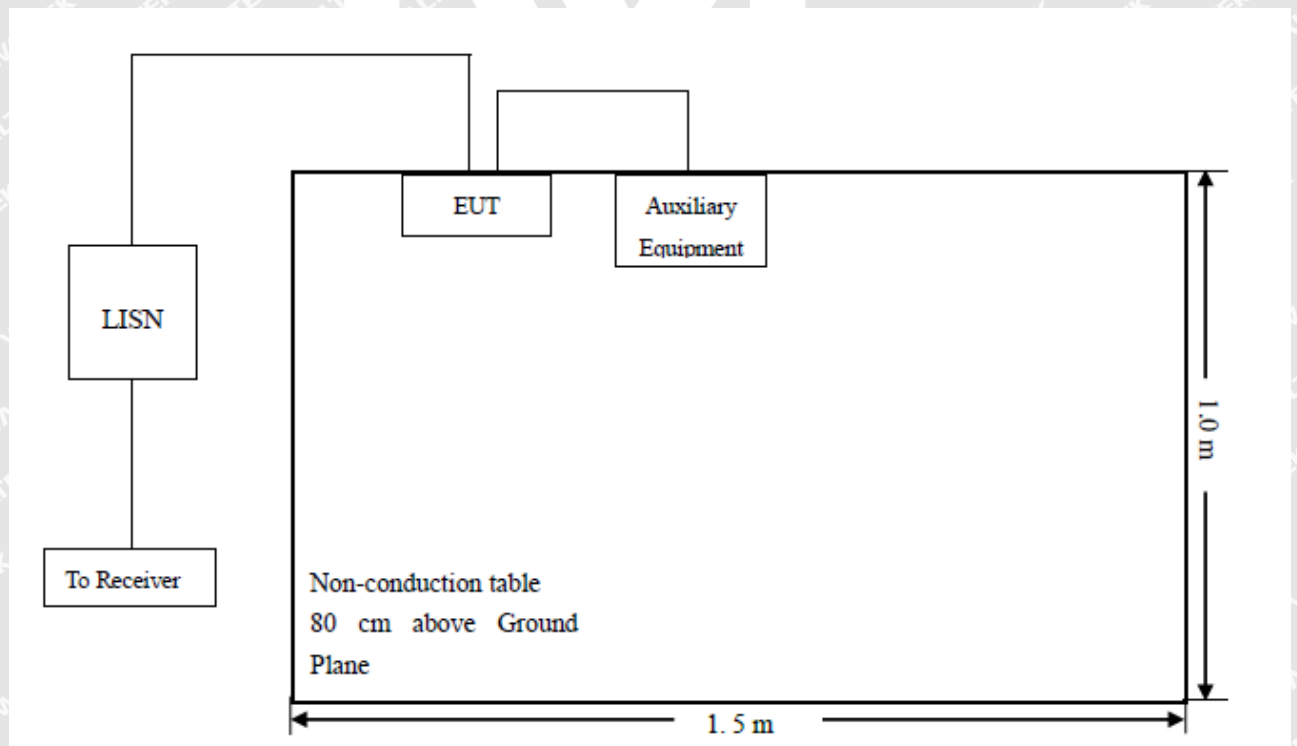
7.2 Test Procedure

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



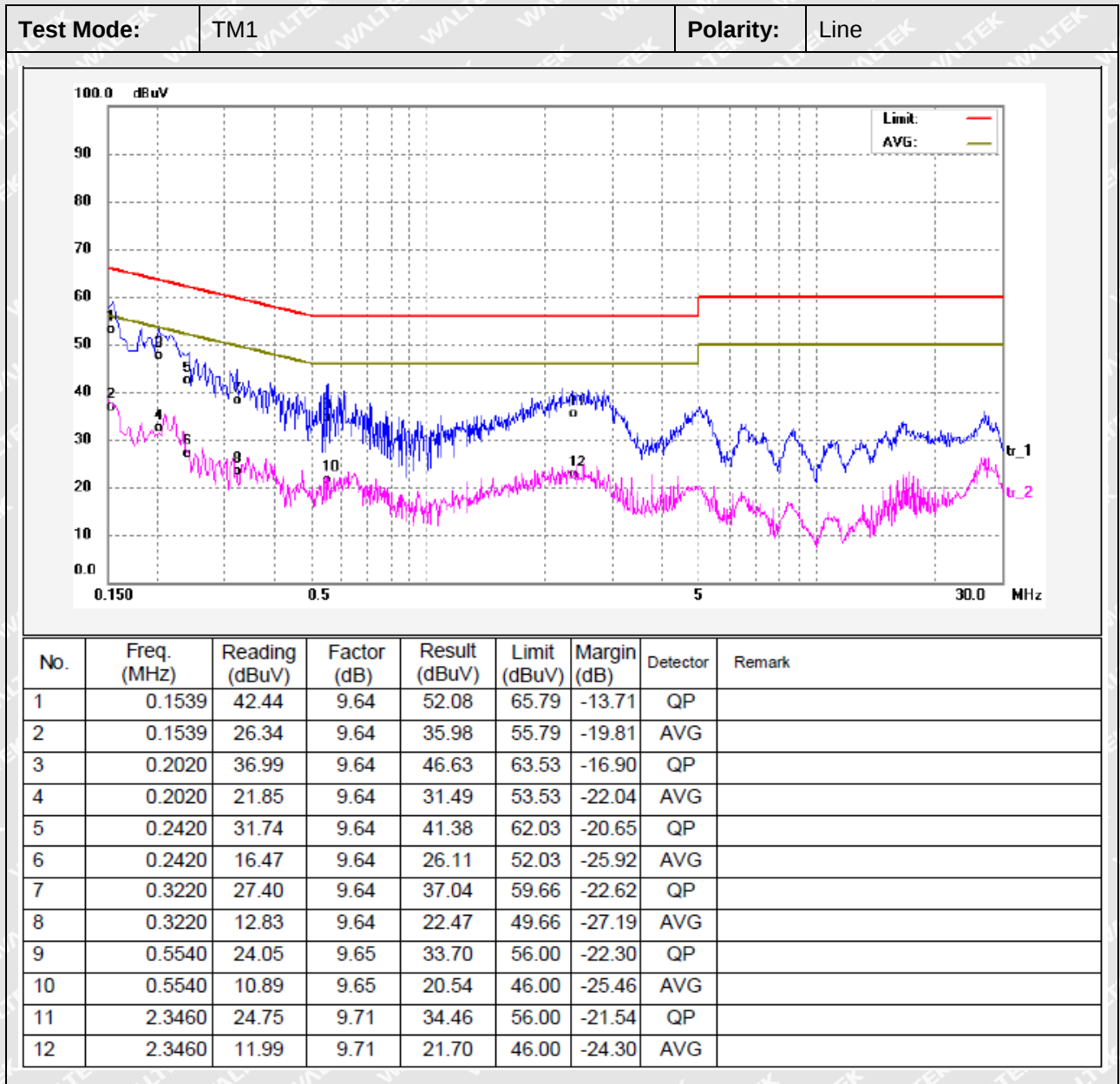


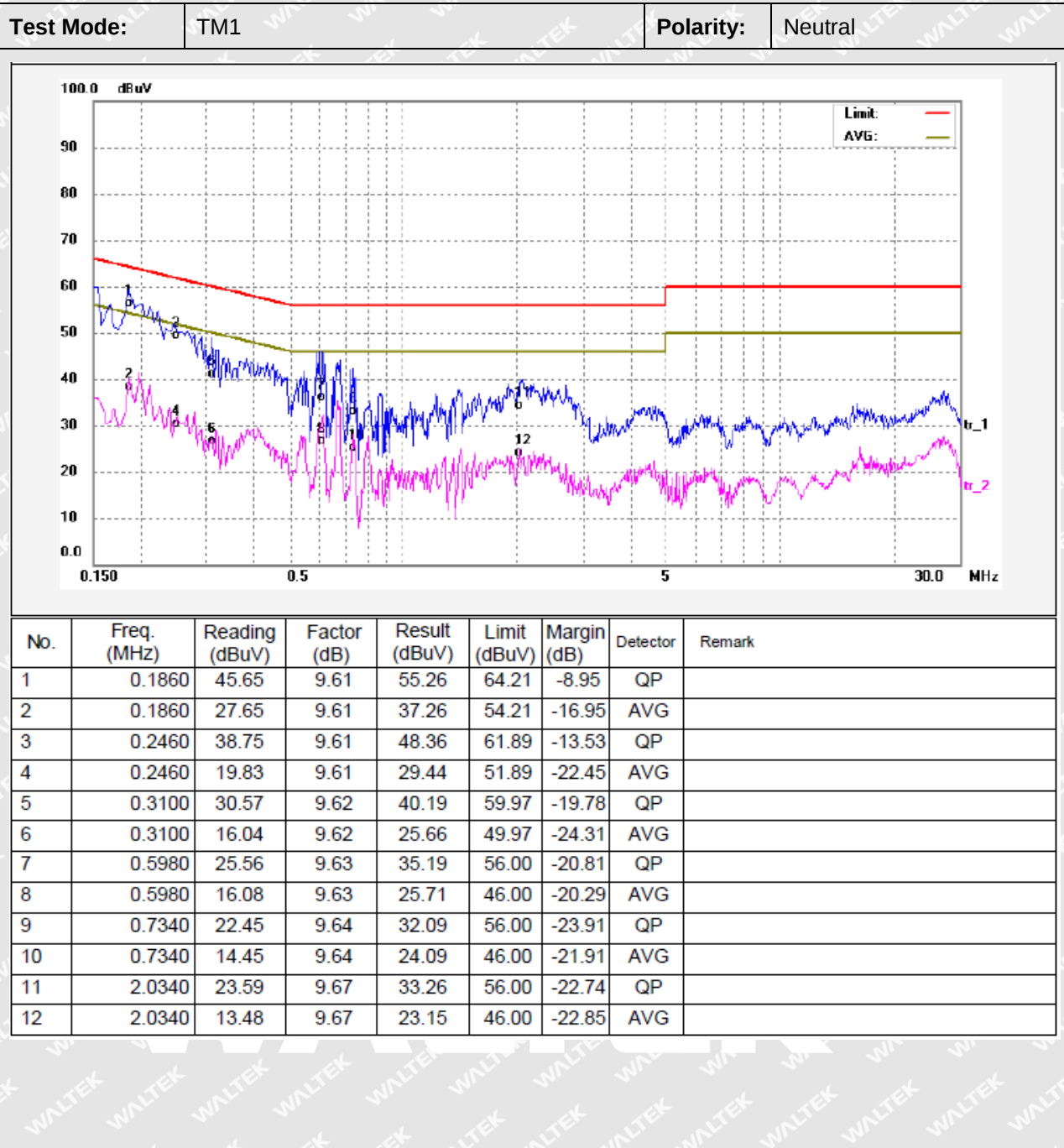
7.4 Test Receiver Setup

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





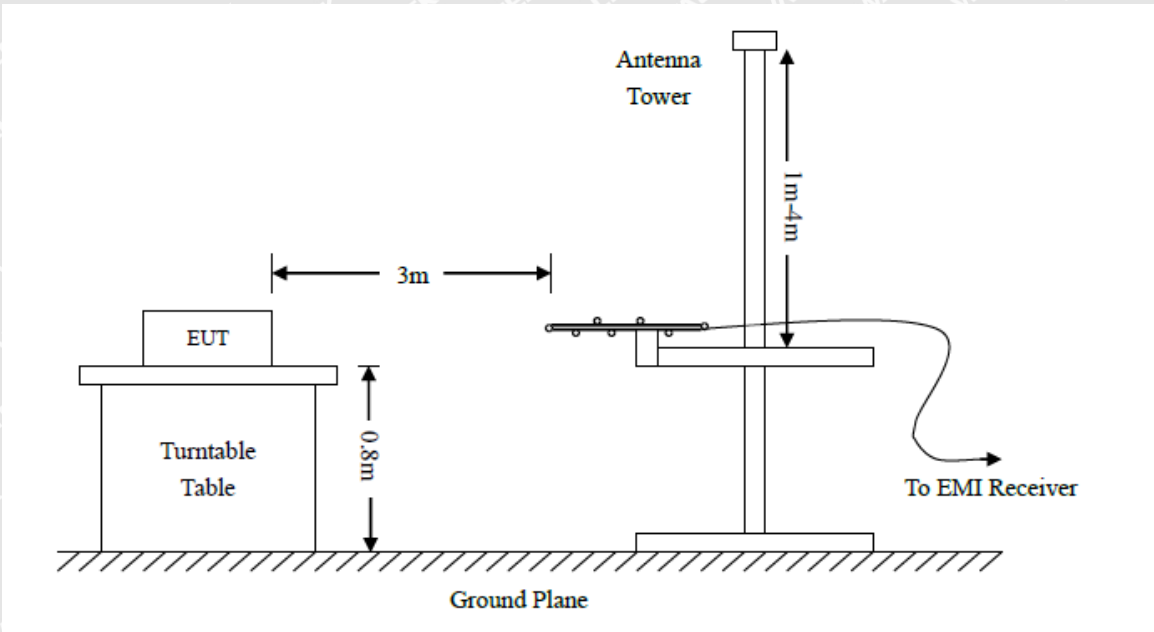


8 Radiated Spurious Emissions

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

RBW=10kHz

VBW=30kHz

Sweep time=Auto

Trace=Max hold

Detector function=peak

30MHz-1GHz

RBW=120kHz

VBW=300kHz

Sweep time=Auto

Trace=Max hold

Detector function=peak, QP

Above 1GHz

RBW=1MHz

VBW=3MHz(Peak), 10MHz(AV)

Sweep time=Auto

Trace=Max hold

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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Corr. Factor}$$

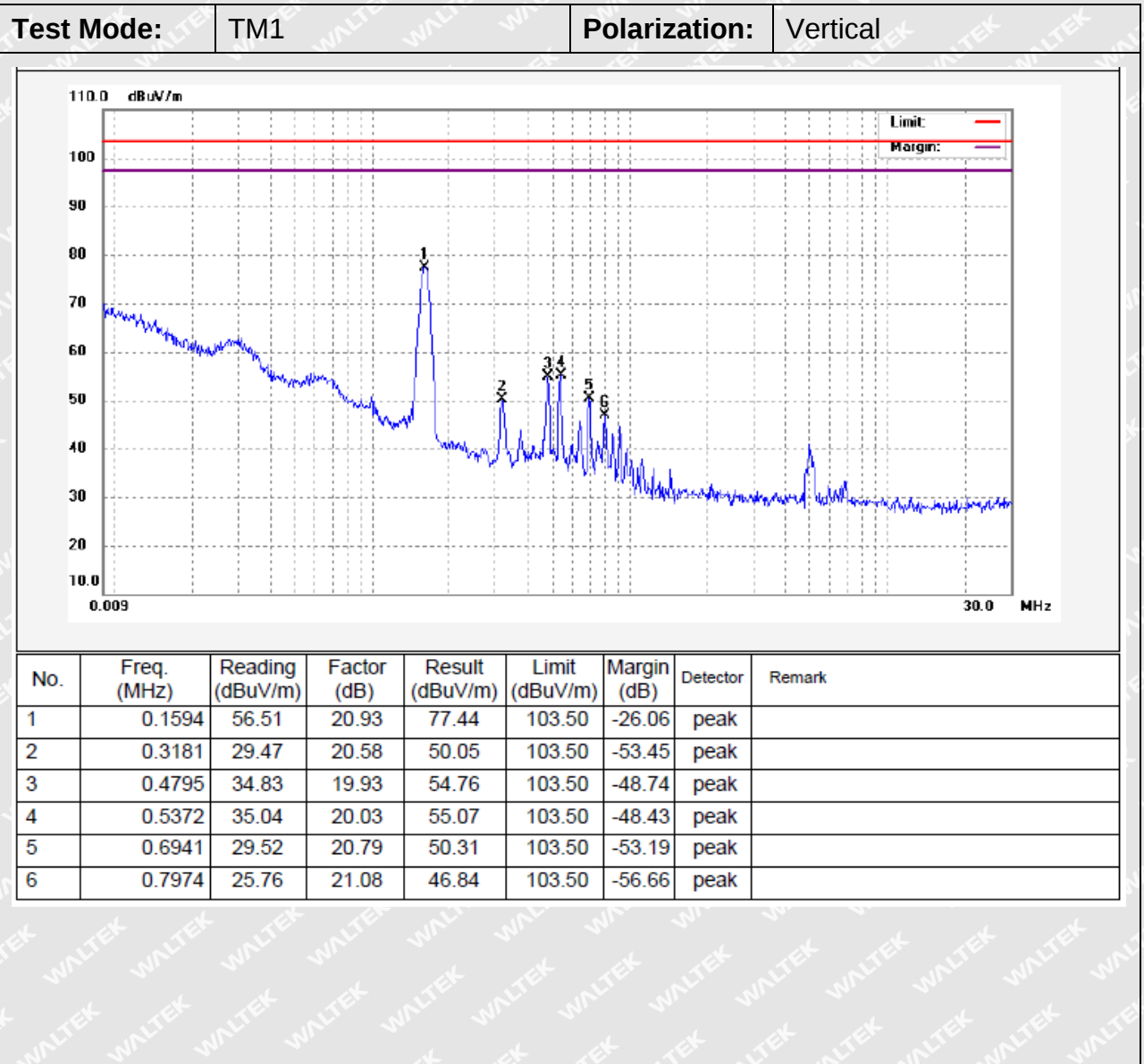
$$\text{Corr. Factor} = \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

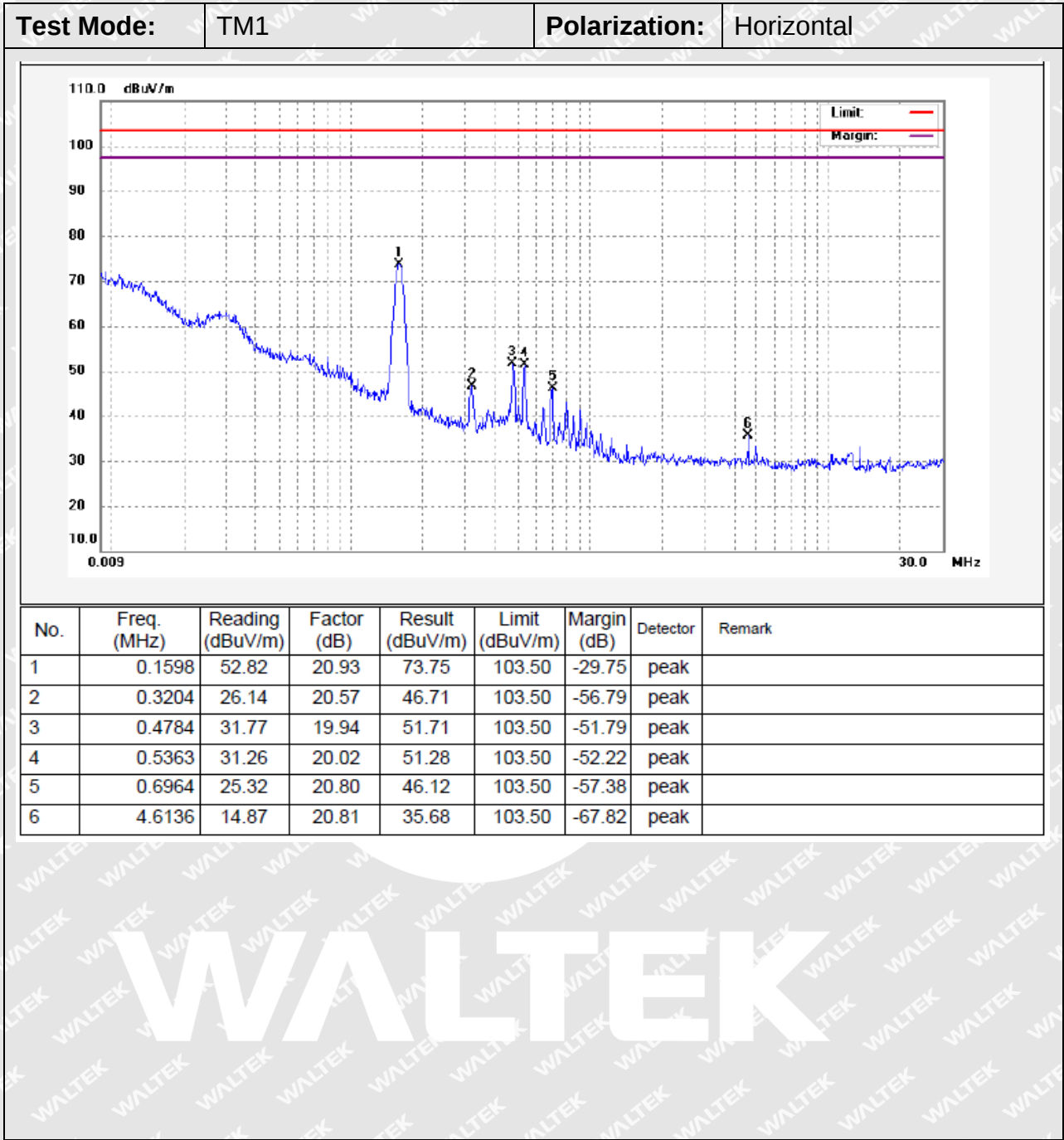
The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Limit}$$

8.4 Test Results

Below 30MHz



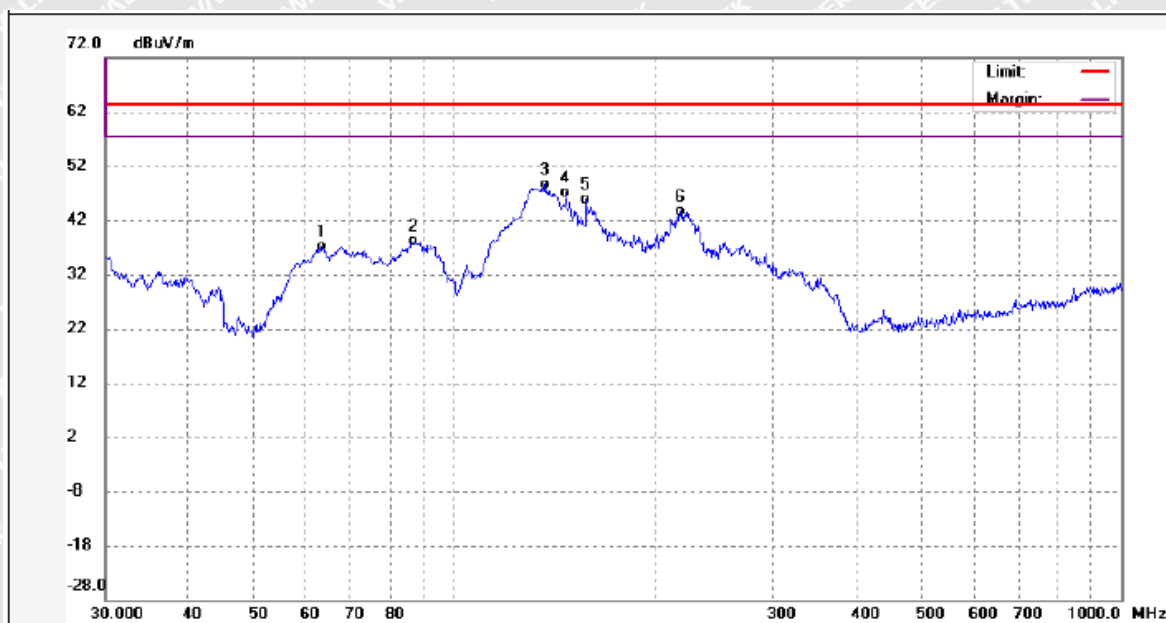


**Above 30MHz****Test Mode:**

TM1

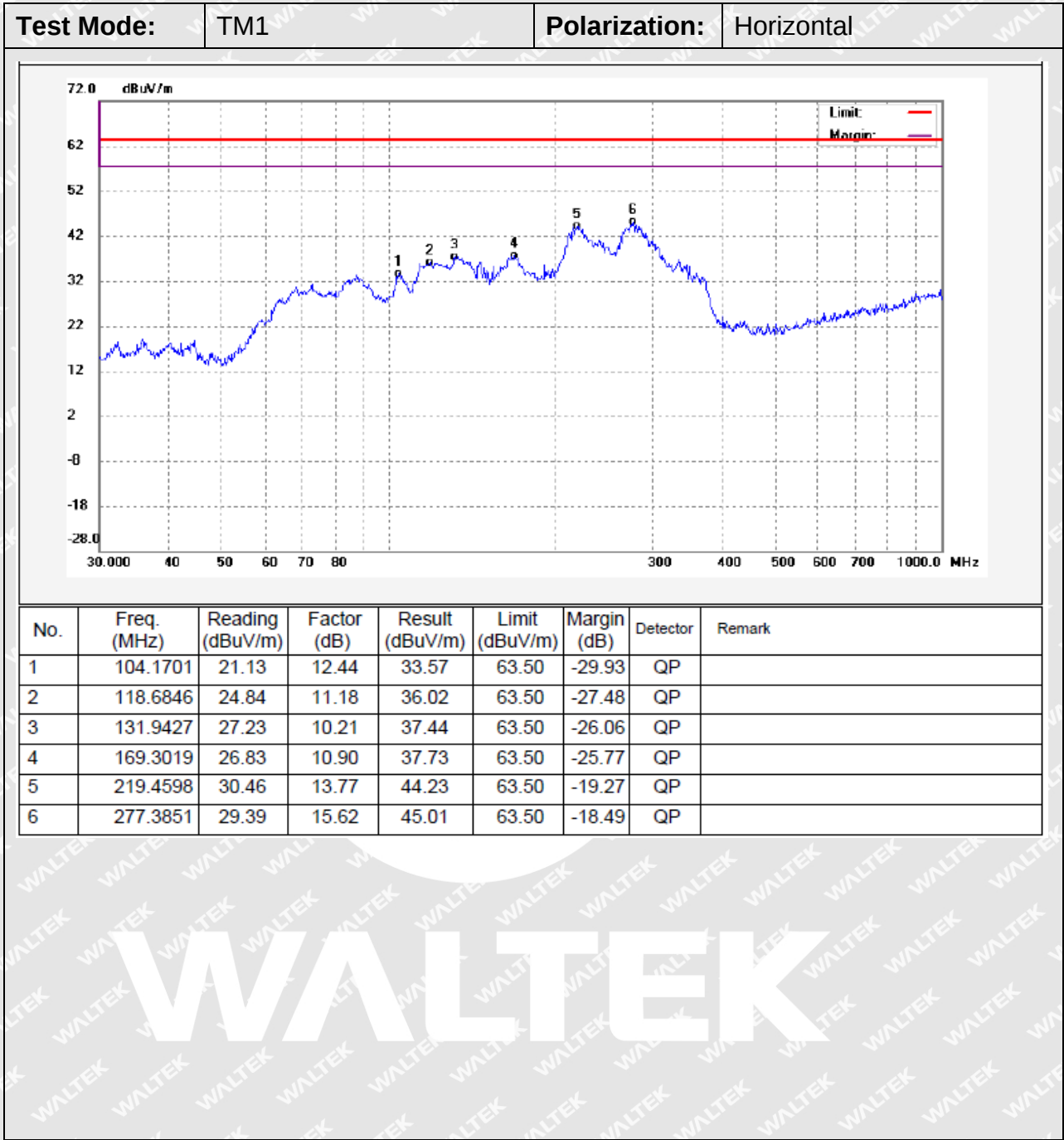
Polarization:

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	

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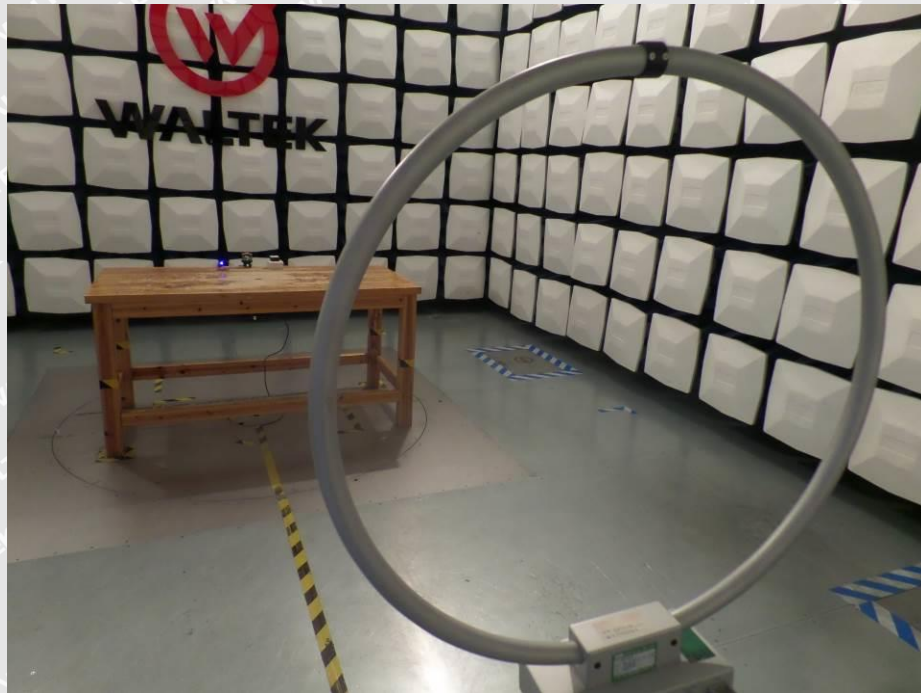




9 Photographs Test Setup

9.1 Photographs - Radiated Emission Test Setup

9kHz to 30MHz



30MHz to 1GHz





9.2 Photographs – Conducted Emission Test Setup

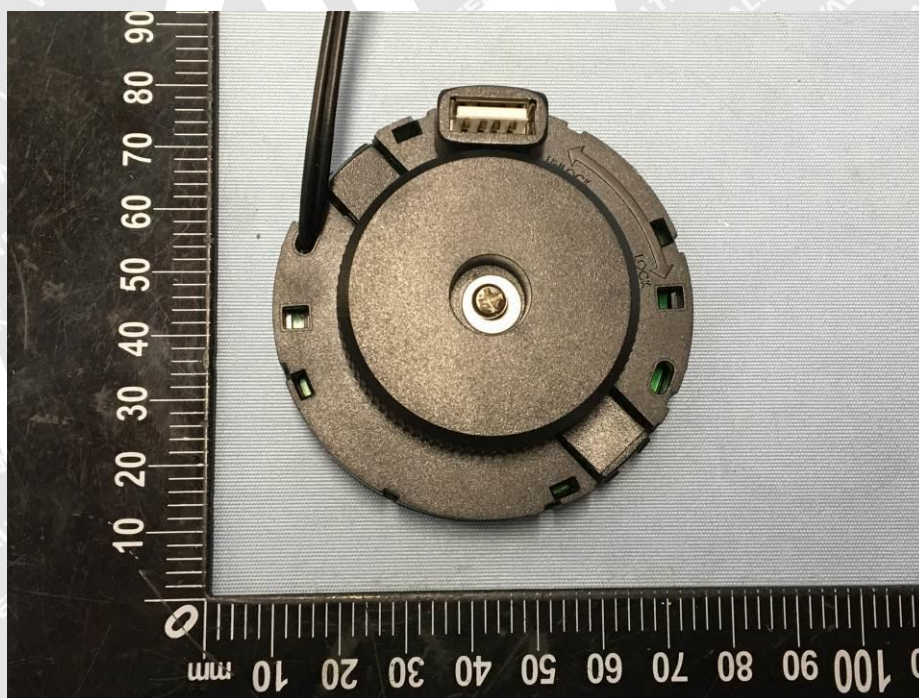


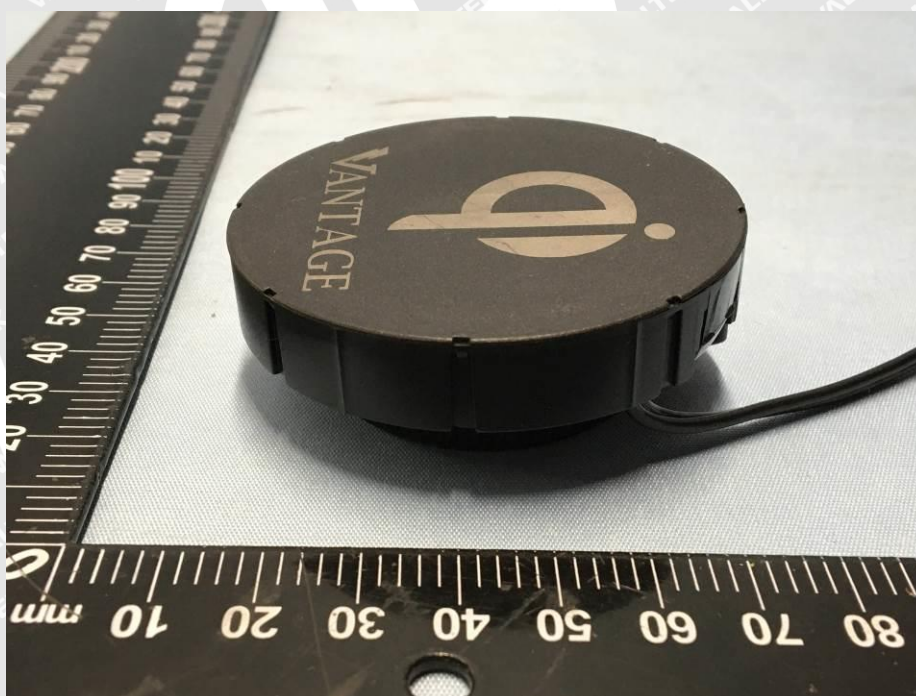


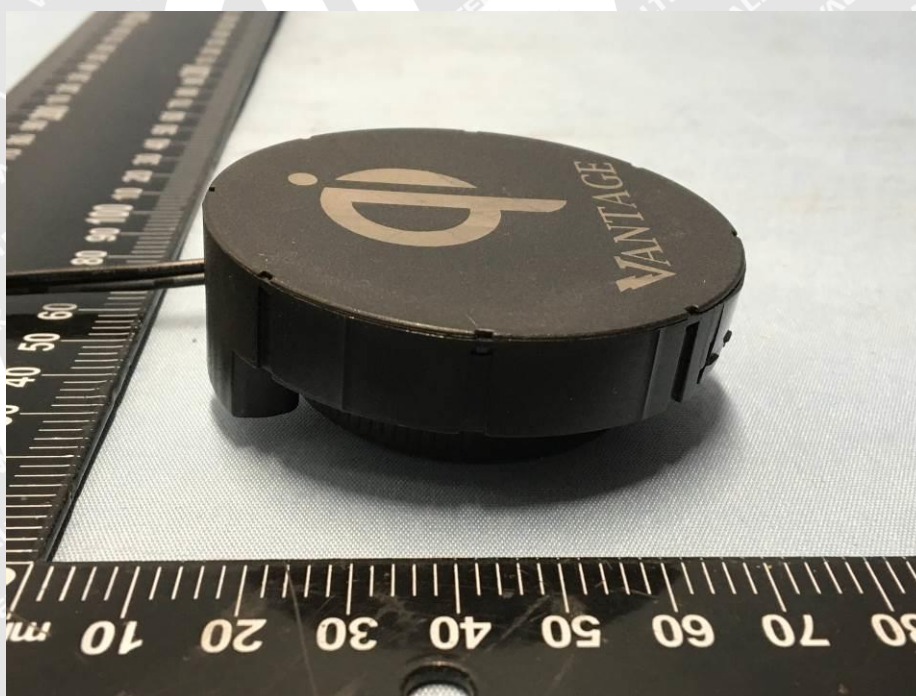
10 Photographs - Constructional Details

10.1 EUT - External Photos



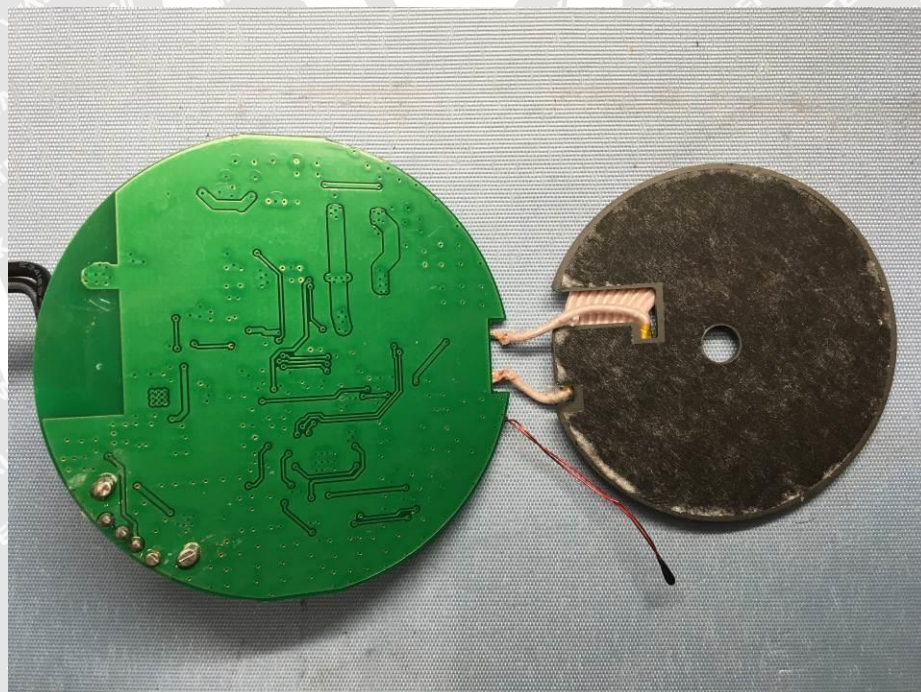
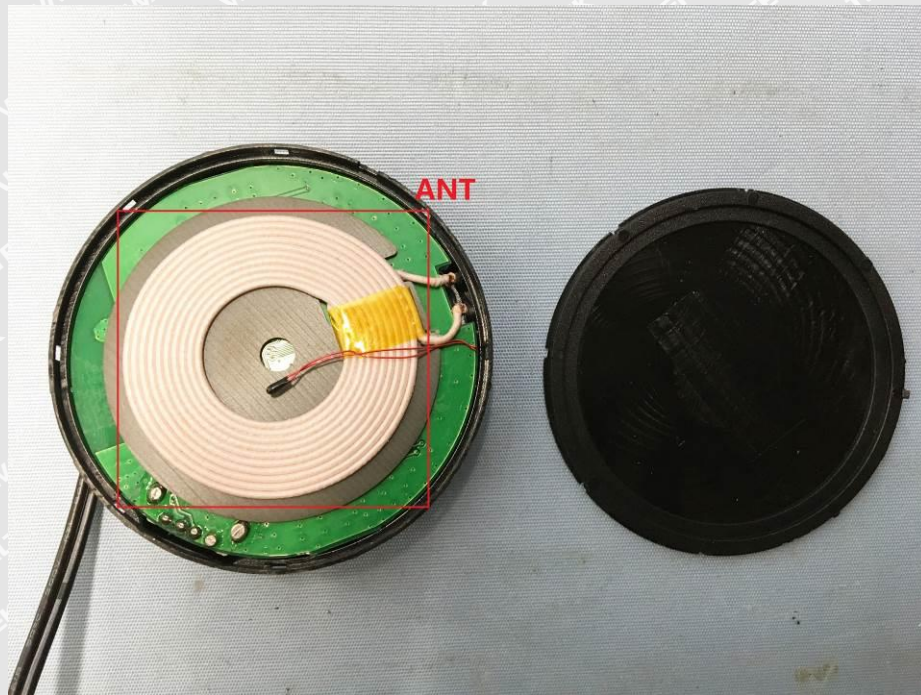


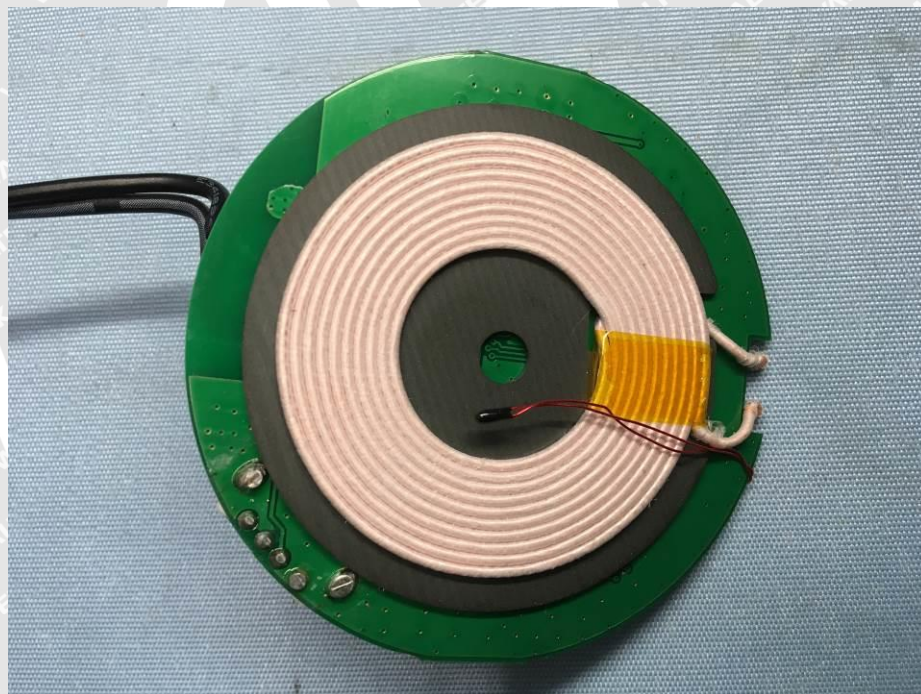
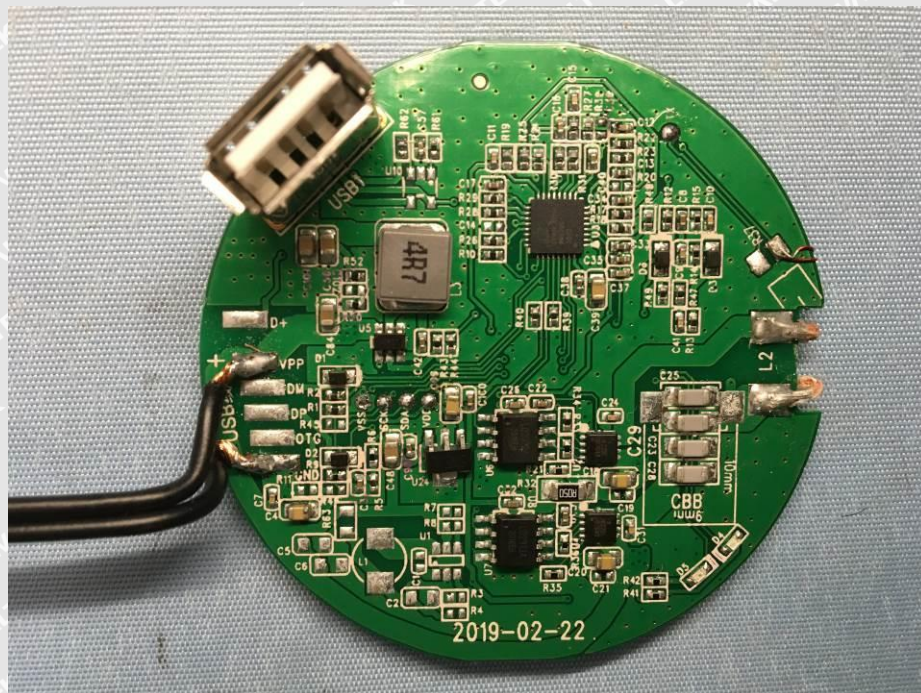


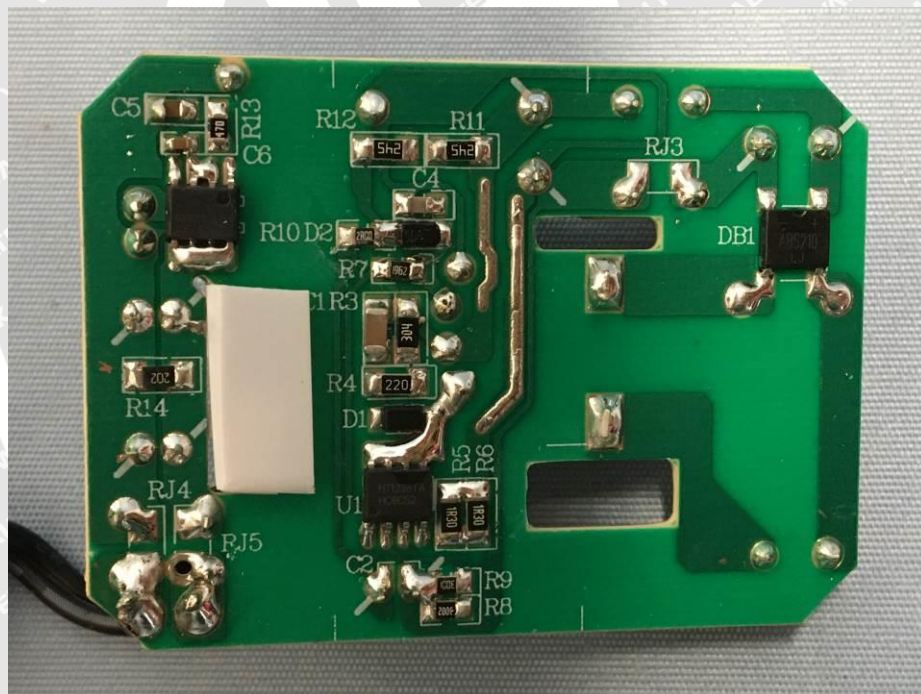
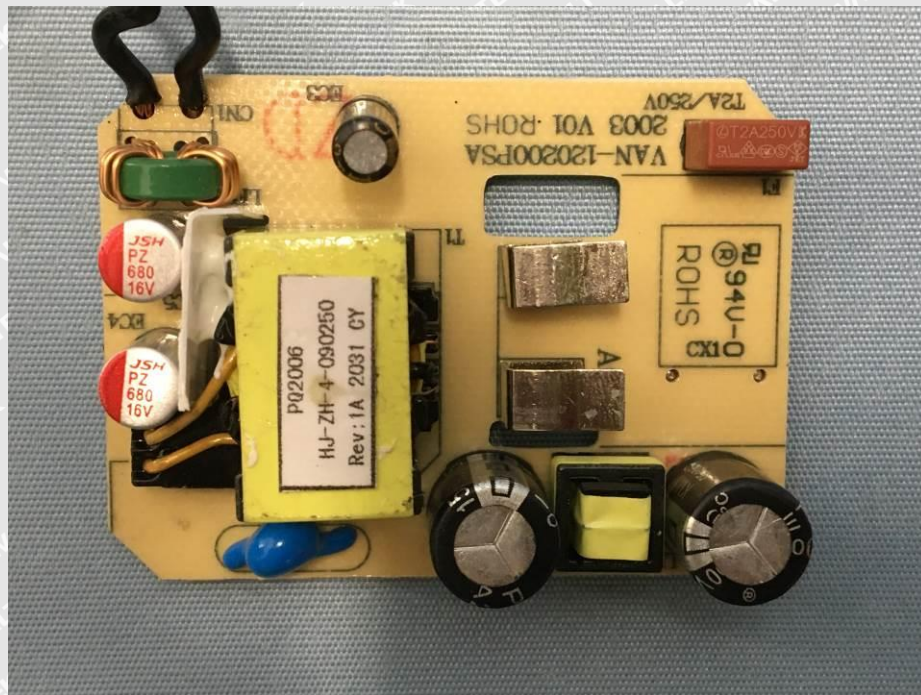




10.2 EUT - Internal View







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