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**WALTEK**



## Report version

Version No.	Date of issue	Description
Rev.00	2022-05-26	Original
/	/	/

# WALTEK



## 1. GENERAL INFORMATION

### 1.1 Product Description for Equipment Under Test (EUT)

General Description of EUT	
Product Name:	Wireless charger weatherstation
Trade Name:	/
Model No.:	MO6665
Adding Model(s):	/
Rate Power:	Input: 5V/2A; 9V/1.67A Wireless Output: 5W/7.5W/10W/15W
Software Version:	5.0
Hardware Version:	Q6A00-10W main V5.0
<i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i>	

Technical Characteristics of EUT	
<b>EN303417</b>	
Frequency Range:	110-205kHz
Radiated H-Field:	43.38dBuA/m(@3m)
Type of Antenna:	Coil Antenna
<i>Note: The Antenna Gain is provided by the customer and can affect the validity of results.</i>	





## 1.2 Test Standards

The tests were performed according to following standards:

**ETSI EN 301 489-1 V2.2.3 (2019-11)**: Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for Electromagnetic Compatibility.

**ETSI EN 301 489-3 V2.1.1 (2019-03)**: Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU.

**Maintenance of compliance** is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the emission/immunity should be checked to ensure compliance has been maintained.

## 1.3 Test Methodology

All measurements contained in this report were conducted with the standard ETSI EN 301489-1, Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements.

## 1.4 Test Facility

### **FCC – Registration No.: 125990**

Waltek Testing Group (Shenzhen) Co., Ltd. Laboratory has been recognized to perform compliance testing on equipment subject to the Commissions Declaration Of Conformity (DOC). The Designation Number is CN5010, and Test Firm Registration Number is 125990.

### **Industry Canada (IC) Registration No.: 11464A**

The 3m Semi-anechoic chamber of Waltek Testing Group (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.



### 1.5 EUT Setup and Operation Mode

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

Test Mode List		
Test Mode	Description	Remark
TM1	Wireless Charging	Connect to the adapter; AC230V/50Hz for adapter; Wireless charging: output 5W
TM2	Wireless Charging	Connect to the adapter; AC230V/50Hz for adapter; Wireless charging: output 10W
TM3	Wireless Charging	Connect to the adapter; AC230V/50Hz for adapter; Wireless charging: output 15W
TM4	Wireless Charging	TT,CT for EMS testing

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
USB Cable	1.00	Unshielded	Without Ferrite

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
wireless charging tester	YBZ	YBZ wireless charging tester	/
Adapter	Xiaomi	MDY-08-ES	/





## 1.6 Performance Criteria for EMS

### ➤ EN 301 489-3, The performance criteria are:

In the table below:

- performance criterion A applies for immunity tests with phenomena of a continuous nature;
- performance criterion B applies for immunity tests with phenomena of a transient nature.

NOTE: Whether a phenomenon is considered transient, continuous or otherwise is indicated in the test procedures for the phenomenon in ETSI EN 301 489-1 [1], clause 9.

Table 2: Performance Requirements

Criterion	During test	After test
A	Operate as intended No loss of function No unintentional responses	Operate as intended No loss of function No degradation of performance No loss of stored data or user programmable functions
B	May show loss of function No unintentional responses	Operate as intended Lost function(s) shall be self-recoverable No degradation of performance No loss of stored data or user programmable functions

Where "operate as intended" or "no loss of function" is specified, the EUT shall demonstrate correct functioning as described in clause 5.

Where the EUT has more than one mode of operation (see clause 4.5.2), an unplanned transition from one mode to another is considered as an unintentional response. The EUT shall be tested in sufficient modes to confirm there are no such unintentional responses.





## 1.7 Measurement Uncertainty

Measurement uncertainty	
Parameter	Uncertainty
Uncertainty for Radiated Emission in 3m chamber	@30-200MHz $\pm 4.52\text{dB}$ @0.2-1GHz $\pm 5.56\text{dB}$ @1-6GHz $\pm 3.84\text{dB}$ @6-18GHz $\pm 3.92\text{dB}$
Uncertainty for Conducted Emission	@9-150kHz $\pm 3.74\text{dB}$ @0.15-30MHz $\pm 3.34\text{dB}$
Uncertainty for Harmonic test	3.26%
Uncertainty for Flicker test	4.76%
Uncertainty for RS test	21%, k=2
Uncertainty for CS test	29%, k=2
Uncertainty for ESD test	The immunity measurement system uncertainty is within standard requirement and is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%.
Uncertainty for EFT test	
Uncertainty for Surges test	
Uncertainty for Voltage Dips, Voltage Variations and Short Interruptions Test	
Uncertainty for PFMF test	



## 1.8 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
<input checked="" type="checkbox"/> Chamber A: Below 1GHz					
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2022-03-22	2023-03-21
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2022-03-22	2023-03-21
Amplifier	Agilent	8447F	3113A06717	2022-01-07	2023-01-06
Loop Antenna	Schwarz beck	FMZB 1516	9773	2021-03-20	2023-03-19
Trilog Broadband Antenna	Schwarz beck	VULB9163	9163-333	2021-03-20	2023-03-19
<input checked="" type="checkbox"/> Chamber A: Above 1GHz					
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2022-03-22	2023-03-21
Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2022-03-22	2023-03-21
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2022-03-22	2023-03-21
Amplifier	C&D	PAP-1G18	2002	2022-03-22	2023-03-21
Horn Antenna	ETS	3117	00086197	2021-03-19	2023-03-18
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2021-04-27	2023-04-26
Pre-amplifier	Schwarz beck	BBV 9721	9721-031	2022-03-25	2023-03-24
<input type="checkbox"/> Chamber B: Below 1GHz					
Trilog Broadband Antenna	Schwarz beck	VULB9163(B)	9163-635	2021-04-09	2023-04-08
Amplifier	Agilent	8447D	2944A10179	2022-03-22	2023-03-21
EMI Test Receiver	Rohde & Schwarz	ESPI	101391	2022-03-25	2023-03-24
<input type="checkbox"/> Chamber C: Below 1GHz					
EMI Test Receiver	Rohde & Schwarz	ESIB 26	100401	2022-01-07	2023-01-06
Trilog Broadband Antenna	Schwarz beck	VULB 9168	1194	2021-05-28	2023-05-27
Amplifier	HP	8447F	2944A03869	2022-03-22	2023-03-21
<input checked="" type="checkbox"/> Conducted Room 1#					
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2022-03-22	2023-03-21
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2022-03-25	2023-03-24
AC LISN	Schwarz beck	NSLK8126	8126-224	2022-03-22	2023-03-21
8-WIRE LISN	Schwarz beck	8158	CAT3-8158-0059	2022-03-22	2023-03-21
8-WIRE LISN	Schwarz beck	8158	CAT5-8158-0117	2022-03-22	2023-03-21
<input type="checkbox"/> Conducted Room 2#					
EMI Test Receiver	Rohde & Schwarz	ESPI	10129	2022-03-22	2023-03-21
LISN	Rohde & Schwarz	ENV 216	100097	2022-03-22	2023-03-21
EMF					
VDH Test Head	AFJ	VDH 30	SC022Z	2022-03-25	2023-03-24
3 Loop Antenna					
Loop Antenna	ZHINAN	ZN30401	19037	2021-04-26	2023-04-25





<b>Clamp</b>					
Clamp	Luthi	MDS21	3809	2022-03-28	2023-03-27
<b>PFMF</b>					
PMF Generator	LIONCEL	PMF-801C-C	0171101	2022-03-22	2023-03-21
PMF Antenna	LIONCEL	PMF-801C-A	0180302	2022-03-22	2023-03-21
Instantaneous PMF Generator Module	LIONCEL	PMF-801C-T	0171001	2022-03-22	2023-03-21
<b>H/F</b>					
Digital Power Analyzer	California Instrument	CTS	72831	2022-03-22	2023-03-21
Power Source	California Instrument	5001IX-CTS-400	25965	2022-03-22	2023-03-21
<b>ESD</b>					
ESD Generator	LIONCEL	ESD-203B	0170901	2022-03-28	2023-03-27
<b>EFT/SURGE/DIPS</b>					
Transient 2000	EMC PARTNER	TRA2000	863	2022-03-22	2023-03-21
Couple Clamp	EMC PARTNER	CN-EFT1000	513	2022-03-22	2023-03-21
<b>CS</b>					
CONDUCTED IMMUNITY TEST SYSTEM	FRANKONIA	CIT-10/75	126B1247/2013	2022-01-07	2023-01-06
Attenuator	EMTEST	MA-5100/6BF2	1009	2022-03-22	2023-03-21
CDN	Luthi	L-801M2/M3	2665	2022-03-22	2023-03-21
CDN	LIONCEL	CDN-T8	0210401	2022-03-25	2023-03-24
EM Clamp	TESEQ	KEMZ801A	45028	2022-03-25	2023-03-24
<b>RS</b>					
Signal Generator	HP	8688B	3438A00604	2022-03-22	2023-03-21
Power Meter	KEITHLEY	3500	1162591	2022-03-22	2023-03-21
Power Meter	KEITHLEY	3500	1121428	2022-03-22	2023-03-21
RF Power Amplifier	MicoTop	MPA-80-1000-250	MPA1906239	2022-03-22	2023-03-21
RF Power Amplifier	MicoTop	MPA-80-6000-100	MPA1906238	2022-03-22	2023-03-21
Antenna	SCHWARZBECK	STLP 9129	9129 114	N/A	N/A
Power Meter	Agilent	E4419B	GB42420578	2022-03-22	2023-03-21

<b>Software List</b>			
Description	Manufacturer	Model	Version
EMI Test Software (Radiated Emission)*	Farad	EZ-EMC	RA-03A1
EMI Test Software (Conducted Emission)*	Farad	EZ-EMC	RA-03A1

\*Remark: indicates software version used in the compliance certification testing.



## 2. SUMMARY OF TEST RESULTS

Standards	Reference	Description of Test Item	Result
ETSI EN 301 489-1	8.2	Radiated Emissions	Pass
	8.3	Conducted Emissions for DC Power Port	N/A
	8.4	Conducted Emissions for AC Power Port	Pass
	8.5	Harmonic Current Emissions	Pass
	8.6	Voltage Fluctuations and Flicker	Pass
	8.7	Telecommunication Ports	N/A
	9.2	Radio Frequency Electromagnetic Field	Pass
	9.3	Electrostatic Discharge	Pass
	9.4	Fast Transients, Common Mode	Pass
	9.5	Radio Frequency, Common Mode	Pass
	9.6	Transient and Surges in the Vehicular Environment	N/A
	9.7	Voltage Dips and Interruptions	Pass
	9.8	Surges	Pass

Pass: The EUT complies with the essential requirements in the standard.

Fail: The EUT does not comply with the essential requirements in the standard.

N/A: Not applicable.

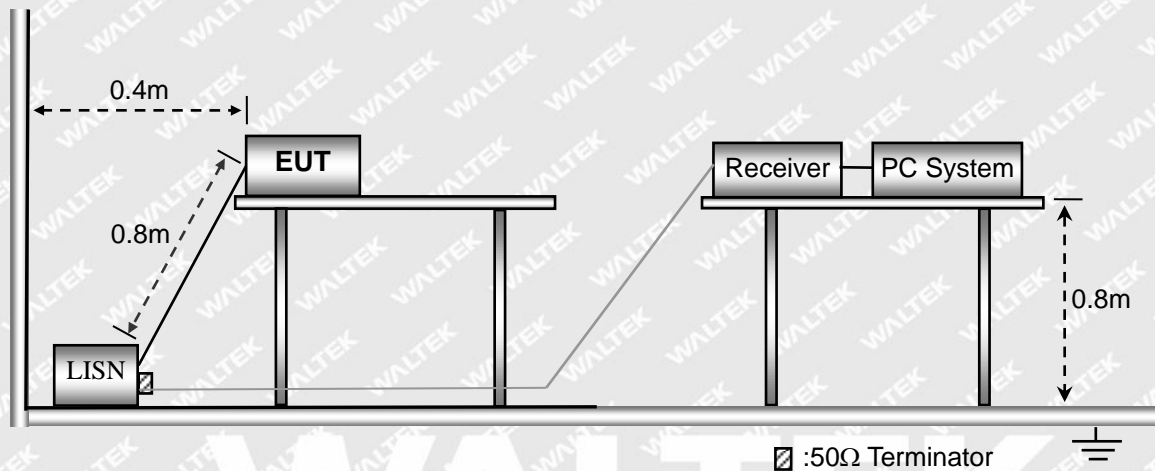


### 3. Conducted Emissions

#### 3.1 Test Procedure

Test is conducting under the description of EN55032 Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement.

#### 3.2 Basic Test Setup Block Diagram



#### 3.3 Environmental Conditions

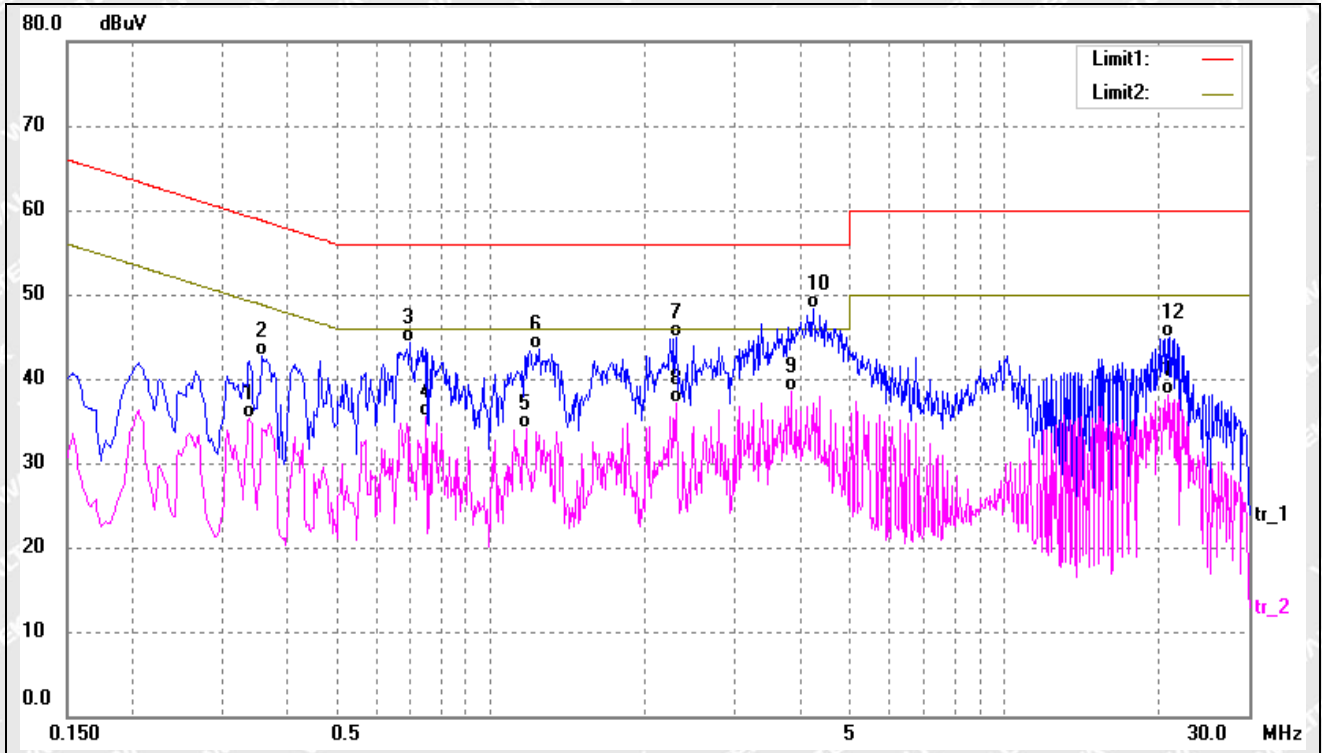
Temperature:	23.5 °C
Relative Humidity:	54 %
ATM Pressure:	1015 mbar

#### 3.4 Conducted Emissions Test Data

Note: Only show the worst case in the test report.



Test mode:	TM1	Polarity:	Neutral
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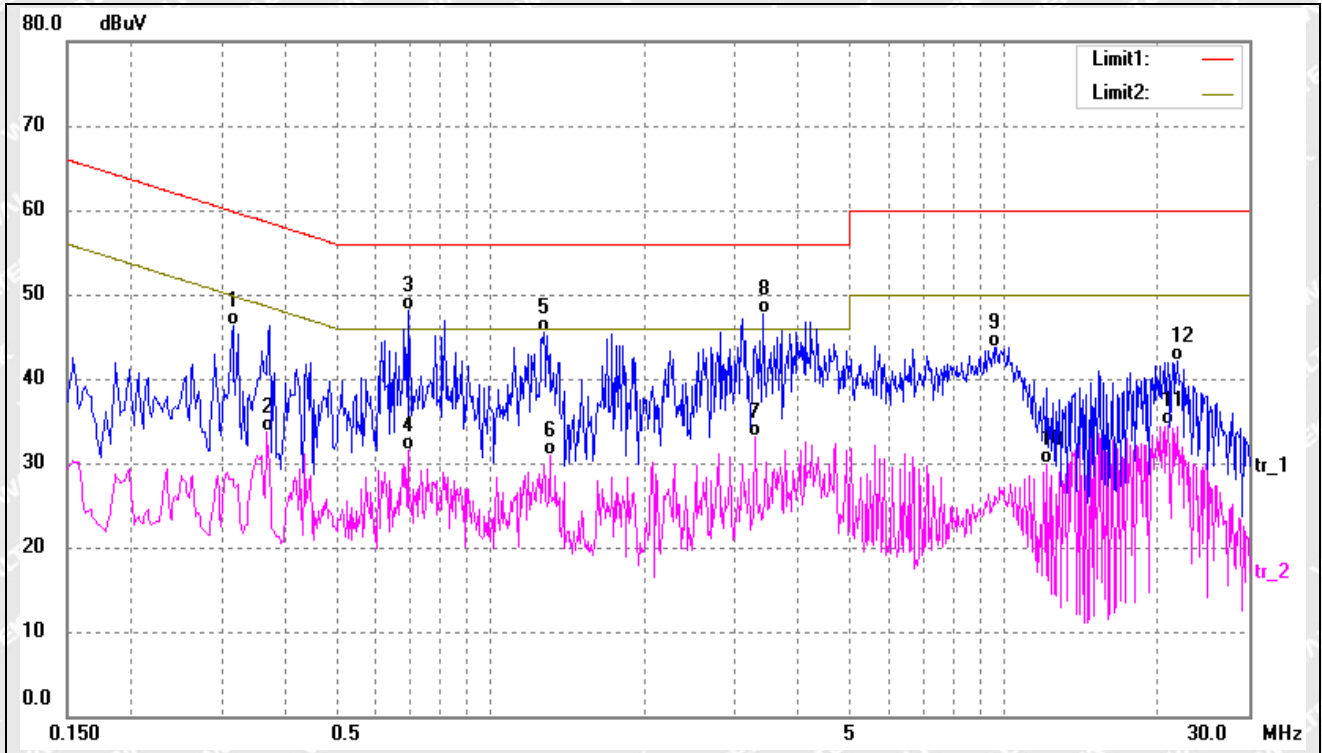


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3379	25.06	10.32	35.38	49.25	-13.87	AVG
2	0.3580	32.38	10.31	42.69	58.77	-16.08	QP
3	0.6980	33.98	10.38	44.36	56.00	-11.64	QP
4	0.7500	25.04	10.41	35.45	46.00	-10.55	AVG
5	1.1740	23.63	10.48	34.11	46.00	-11.89	AVG
6	1.2460	32.98	10.45	43.43	56.00	-12.57	QP
7	2.2980	34.80	10.12	44.92	56.00	-11.08	QP
8	2.2980	26.92	10.12	37.04	46.00	-8.96	AVG
9*	3.8540	28.45	10.05	38.50	46.00	-7.50	AVG
10	4.2500	38.35	10.03	48.38	56.00	-7.62	QP
11	20.8660	27.94	10.24	38.18	50.00	-11.82	AVG
12	21.0940	34.75	10.24	44.99	60.00	-15.01	QP





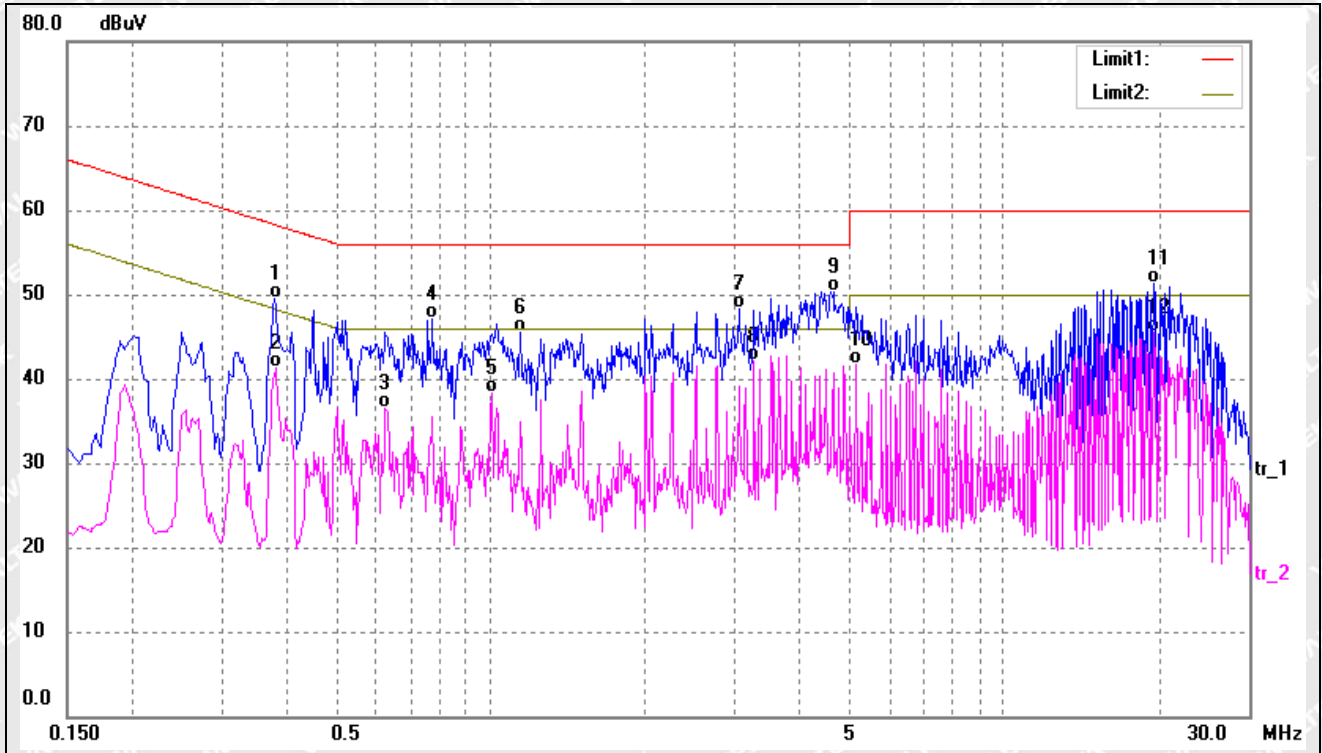
Test mode:	TM1	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3140	36.05	10.33	46.38	59.86	-13.48	QP
2	0.3660	23.43	10.30	33.73	48.59	-14.86	AVG
3*	0.6900	37.71	10.37	48.08	56.00	-7.92	QP
4	0.6900	21.10	10.37	31.47	46.00	-14.53	AVG
5	1.2740	35.09	10.44	45.53	56.00	-10.47	QP
6	1.3060	20.57	10.43	31.00	46.00	-15.00	AVG
7	3.2860	22.97	10.07	33.04	46.00	-12.96	AVG
8	3.4140	37.68	10.07	47.75	56.00	-8.25	QP
9	9.6860	33.91	9.88	43.79	60.00	-16.21	QP
10	12.1420	19.86	9.99	29.85	50.00	-20.15	AVG
11	20.8380	24.27	10.24	34.51	50.00	-15.49	AVG
12	21.7780	31.91	10.24	42.15	60.00	-17.85	QP



Test mode:	TM2	Polarity:	Neutral
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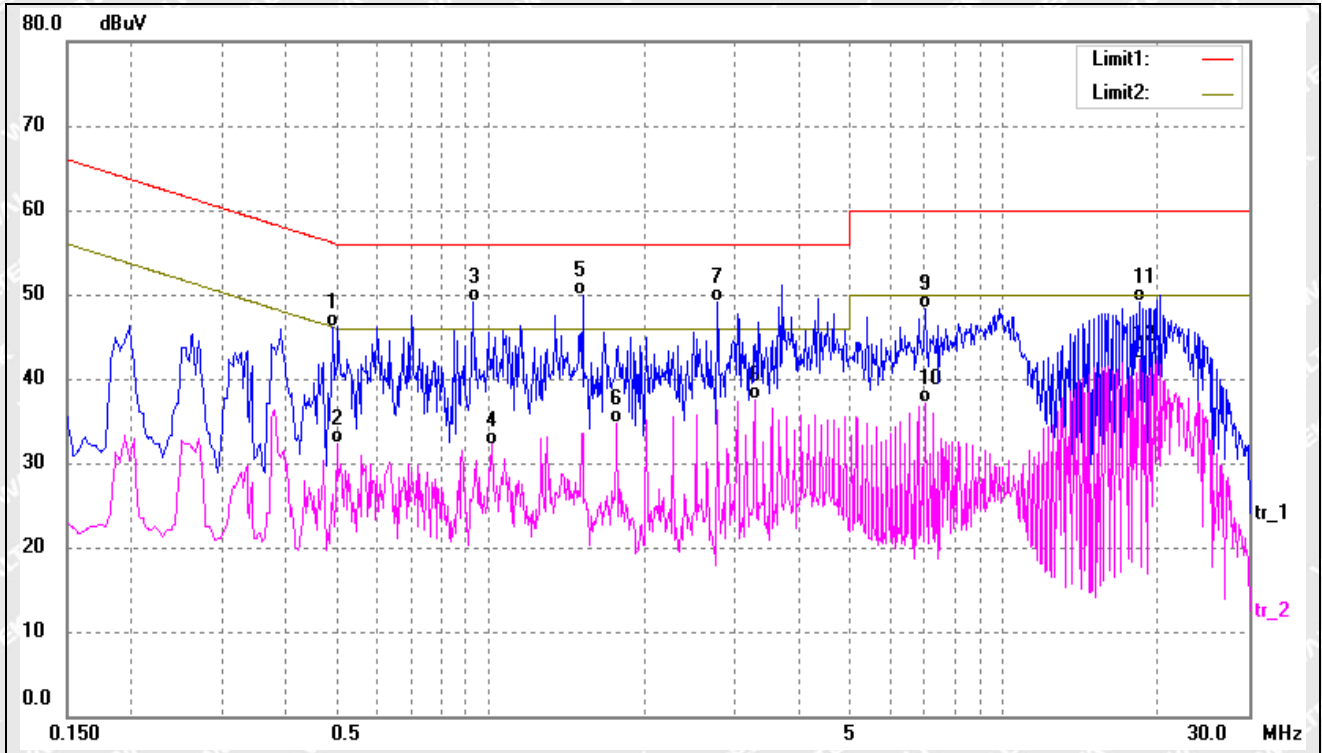


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3780	39.21	10.30	49.51	58.32	-8.81	QP
2	0.3820	30.93	10.30	41.23	48.23	-7.00	AVG
3	0.6260	26.20	10.34	36.54	46.00	-9.46	AVG
4	0.7740	36.62	10.42	47.04	56.00	-8.96	QP
5	1.0060	27.81	10.56	38.37	46.00	-7.63	AVG
6	1.1460	35.03	10.50	45.53	56.00	-10.47	QP
7	3.0540	38.17	10.08	48.25	56.00	-7.75	QP
8*	3.2659	31.98	10.08	42.06	46.00	-3.94	AVG
9	4.6060	40.28	10.02	50.30	56.00	-5.70	QP
10	5.1500	31.78	10.00	41.78	50.00	-8.22	AVG
11	19.5740	41.02	10.24	51.26	60.00	-8.74	QP
12	19.5740	35.32	10.24	45.56	50.00	-4.44	AVG





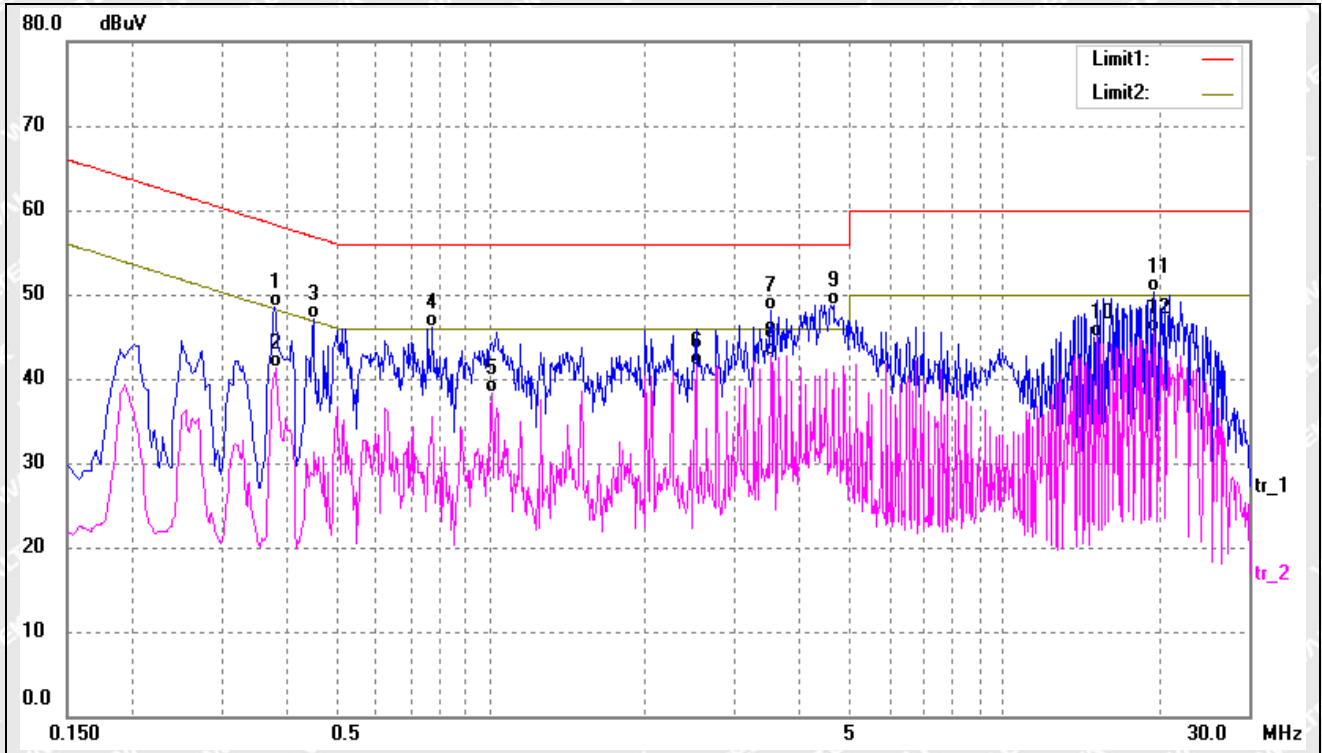
Test mode:	TM2	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.4940	35.90	10.26	46.16	56.10	-9.94	QP
2	0.5020	21.98	10.26	32.24	46.00	-13.76	AVG
3	0.9260	38.59	10.52	49.11	56.00	-6.89	QP
4	1.0100	21.64	10.56	32.20	46.00	-13.80	AVG
5*	1.5140	39.55	10.33	49.88	56.00	-6.12	QP
6	1.7660	24.49	10.23	34.72	46.00	-11.28	AVG
7	2.7740	38.96	10.10	49.06	56.00	-6.94	QP
8	3.2780	27.34	10.07	37.41	46.00	-8.59	AVG
9	7.0580	38.37	9.95	48.32	60.00	-11.68	QP
10	7.0580	27.13	9.95	37.08	50.00	-12.92	AVG
11	18.3660	38.90	10.22	49.12	60.00	-10.88	QP
12	18.3660	31.99	10.22	42.21	50.00	-7.79	AVG



Test mode:	TM3	Polarity:	Neutral
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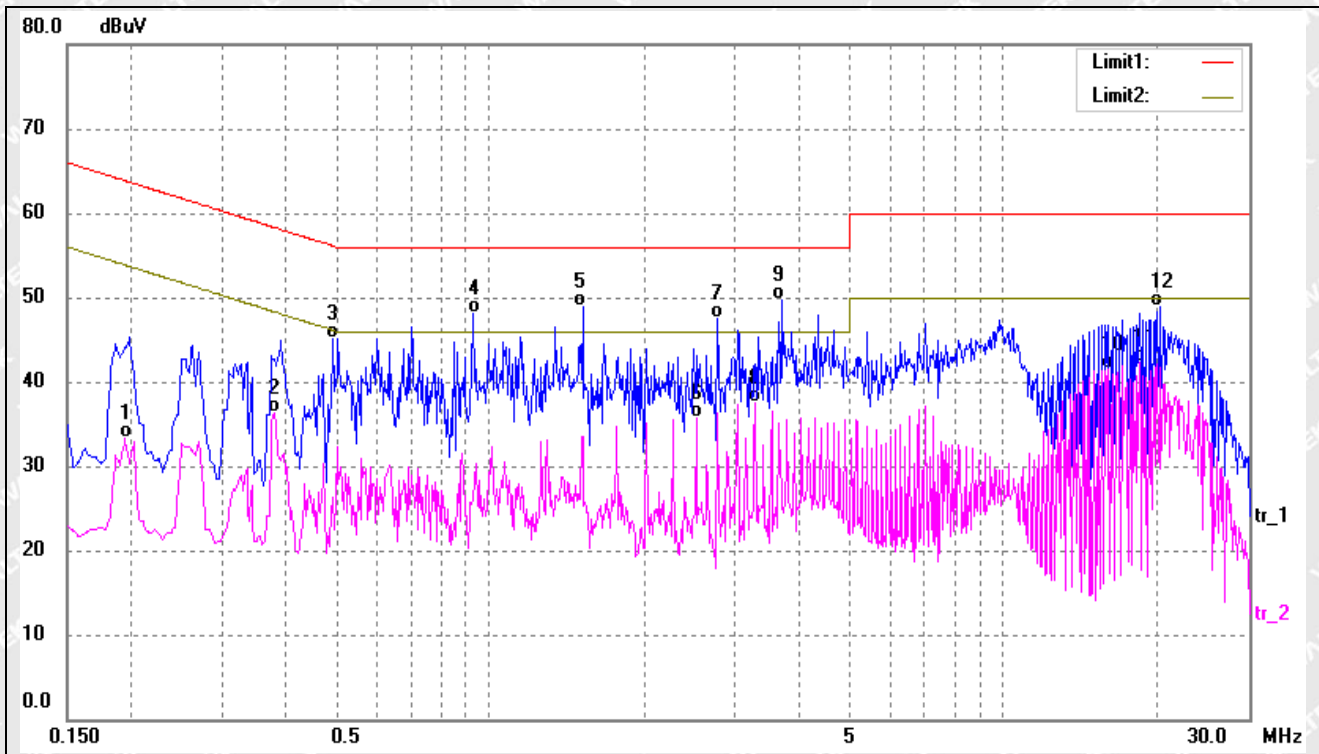


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3780	38.21	10.30	48.51	58.32	-9.81	QP
2	0.3820	30.93	10.30	41.23	48.23	-7.00	AVG
3	0.4500	36.75	10.28	47.03	56.87	-9.84	QP
4	0.7740	35.62	10.42	46.04	56.00	-9.96	QP
5	1.0060	27.81	10.56	38.37	46.00	-7.63	AVG
6	2.5139	31.37	10.11	41.48	46.00	-4.52	AVG
7	3.5179	38.02	10.06	48.08	56.00	-7.92	QP
8*	3.5179	32.71	10.06	42.77	46.00	-3.23	AVG
9	4.6059	38.78	10.02	48.80	56.00	-7.20	QP
10	15.1940	34.77	10.15	44.92	50.00	-5.08	AVG
11	19.5740	40.02	10.24	50.26	60.00	-9.74	QP
12	19.5740	35.32	10.24	45.56	50.00	-4.44	AVG





Test mode:	TM3	Polarity:	Line
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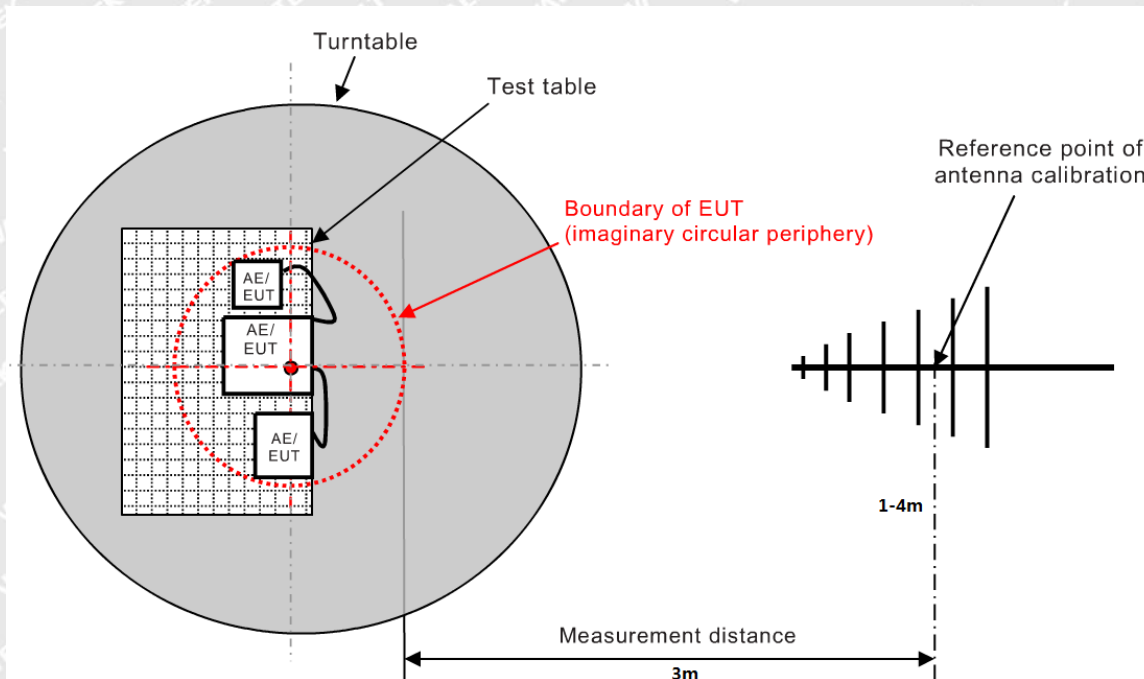
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1940	22.86	10.37	33.23	53.86	-20.63	AVG
2	0.3780	26.07	10.30	36.37	48.32	-11.95	AVG
3	0.4939	34.90	10.26	45.16	56.10	-10.94	QP
4	0.9260	37.59	10.52	48.11	56.00	-7.89	QP
5	1.5140	38.55	10.33	48.88	56.00	-7.12	QP
6	2.5219	25.66	10.11	35.77	46.00	-10.23	AVG
7	2.7740	37.46	10.10	47.56	56.00	-8.44	QP
8	3.2780	27.34	10.07	37.41	46.00	-8.59	AVG
9*	3.6939	39.55	10.06	49.61	56.00	-6.39	QP
10	15.9939	31.36	10.17	41.53	50.00	-8.47	AVG
11	18.3658	31.99	10.22	42.21	50.00	-7.79	AVG
12	20.1498	38.62	10.25	48.87	60.00	-11.13	QP



## 4. Radiated Emissions

### 4.2 Test Procedure

Test is conducting under the description of EN55032 Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement.



### 4.2 Corrected Amplitude & Margin Calculation

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

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

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of  $-6\text{dB}\mu\text{V}$  means the emission is  $6\text{dB}\mu\text{V}$  below the maximum limit for Class B device. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{EN 301489 Class B Limit}$$





Reference No.: WTF22X04078811W003

### 4.3 Environmental Conditions

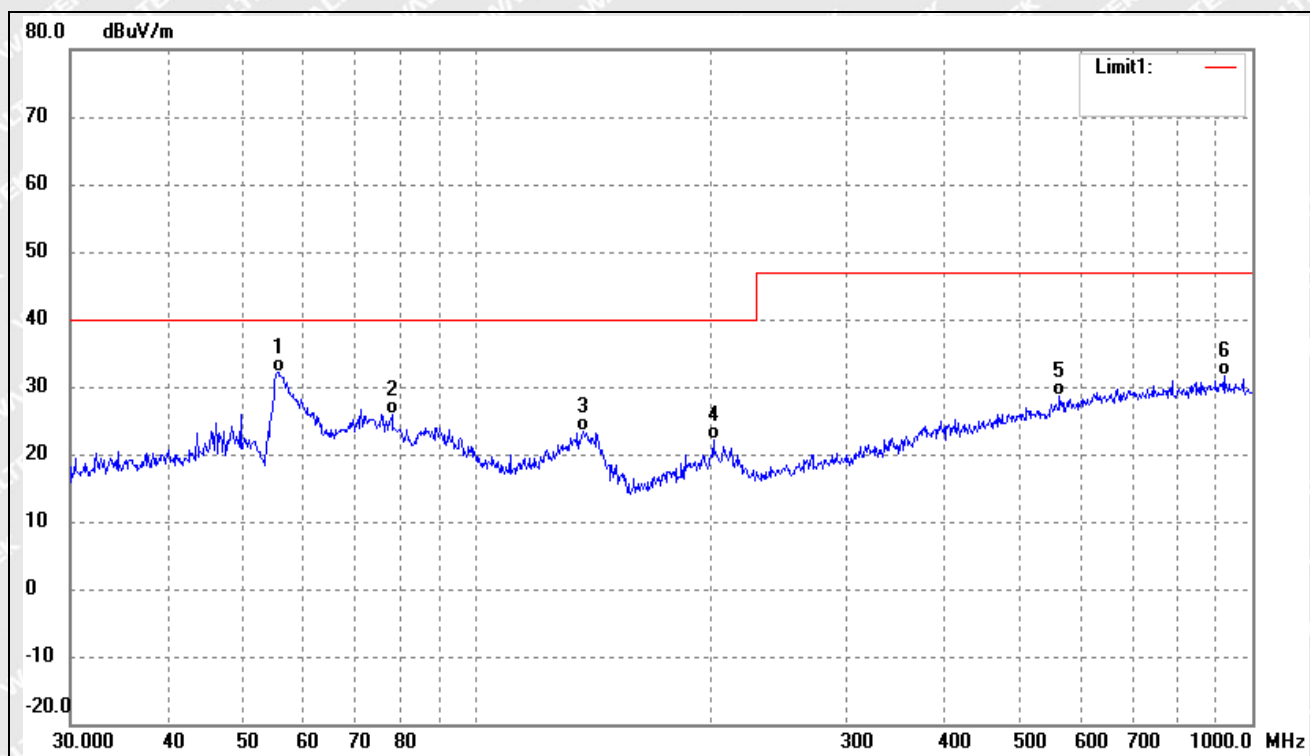
Temperature:	22.5° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

### 4.4 Summary of Test Results/Plots

Note: Only show the worst case in the test report

➤ 30MHz to 1GHz

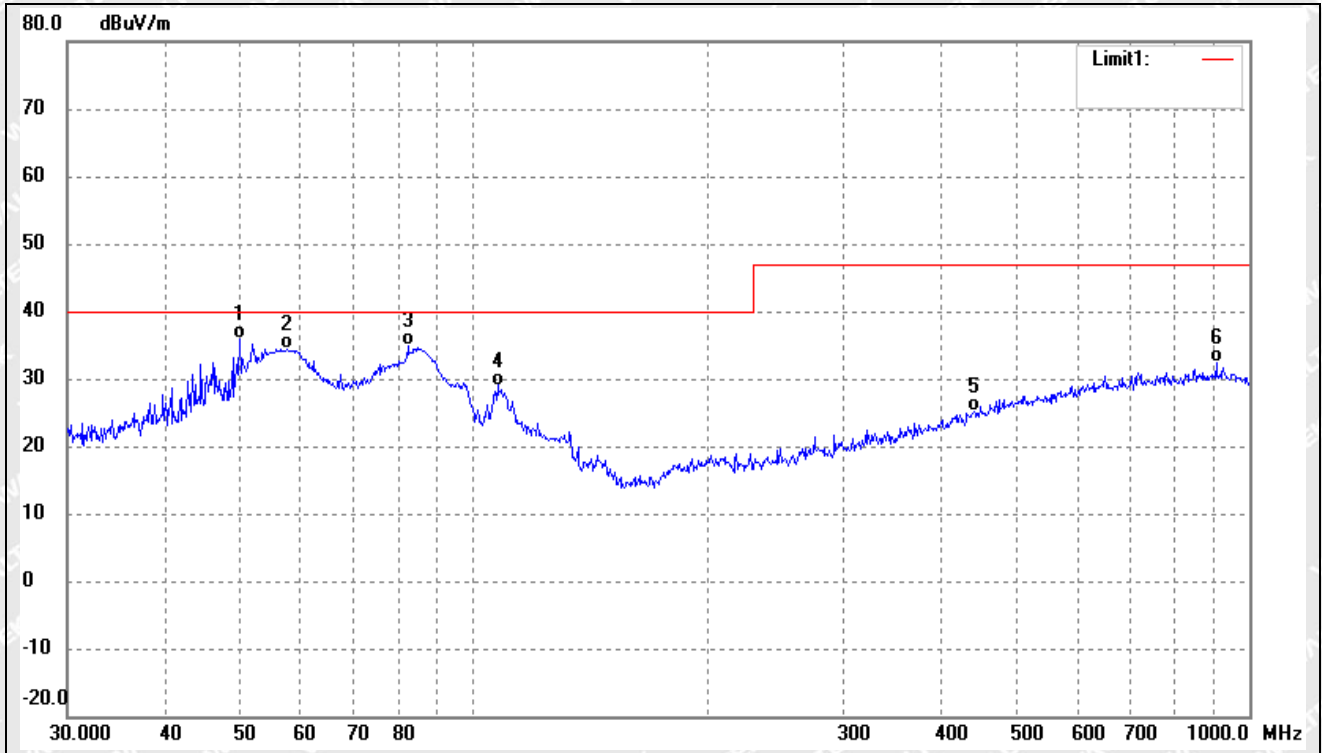
Test mode:	TM1	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	55.6094	39.97	-7.78	32.19	40.00	-7.81	-	-	QP
2	77.8654	36.61	-10.61	26.00	40.00	-14.00	-	-	QP
3	137.4202	35.55	-12.05	23.50	40.00	-16.50	-	-	QP
4	202.1005	31.86	-9.65	22.21	40.00	-17.79	-	-	QP
5	564.6389	28.77	-0.22	28.55	47.00	-18.45	-	-	QP
6	919.2866	28.98	2.69	31.67	47.00	-15.33	-	-	QP



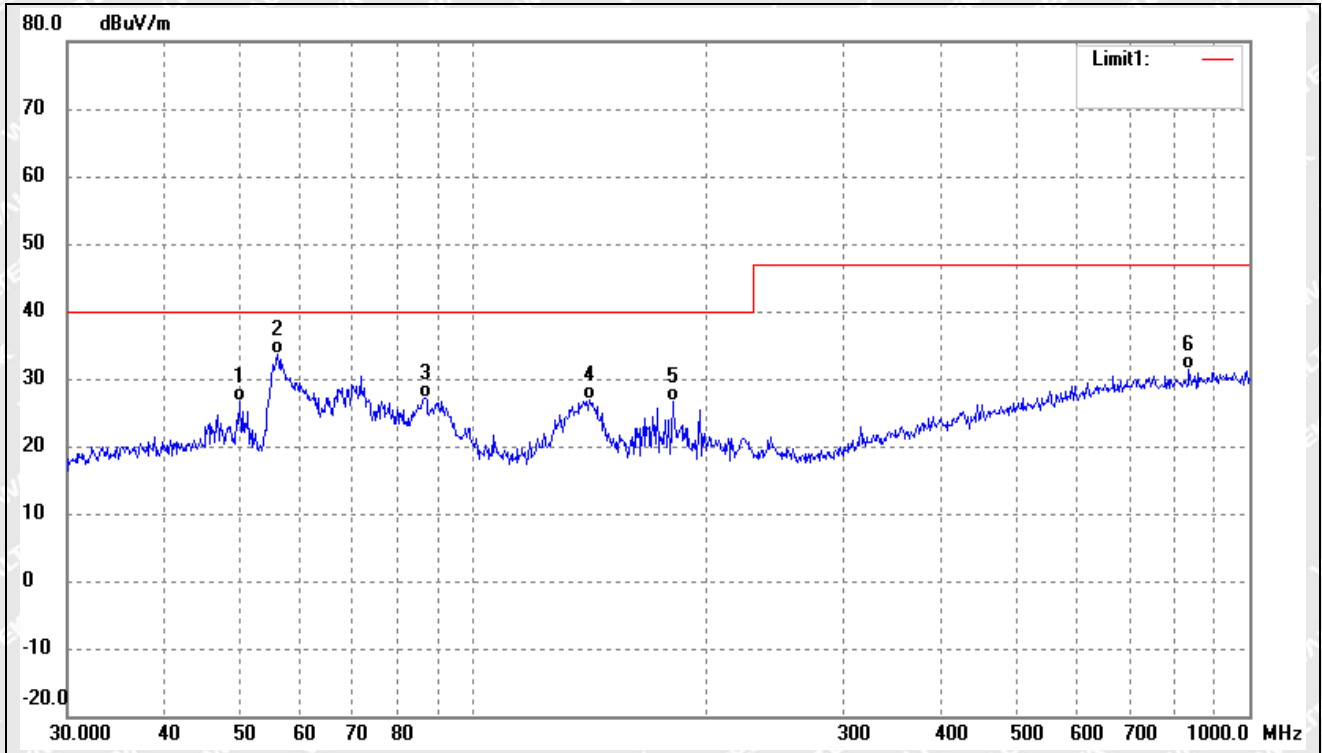
Test mode:	TM1	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	50.0566	42.86	-6.97	35.89	40.00	-4.11	-	-	QP
2	57.5939	42.46	-8.07	34.39	40.00	-5.61	-	-	QP
3	82.3589	45.67	-10.70	34.97	40.00	-5.03	-	-	QP
4	107.5101	37.83	-8.83	29.00	40.00	-11.00	-	-	QP
5	441.7426	27.80	-2.78	25.02	47.00	-21.98	-	-	QP
6	906.4824	29.69	2.74	32.43	47.00	-14.57	-	-	QP



Test mode:	TM2	Polarity:	Horizontal
------------	-----	-----------	------------

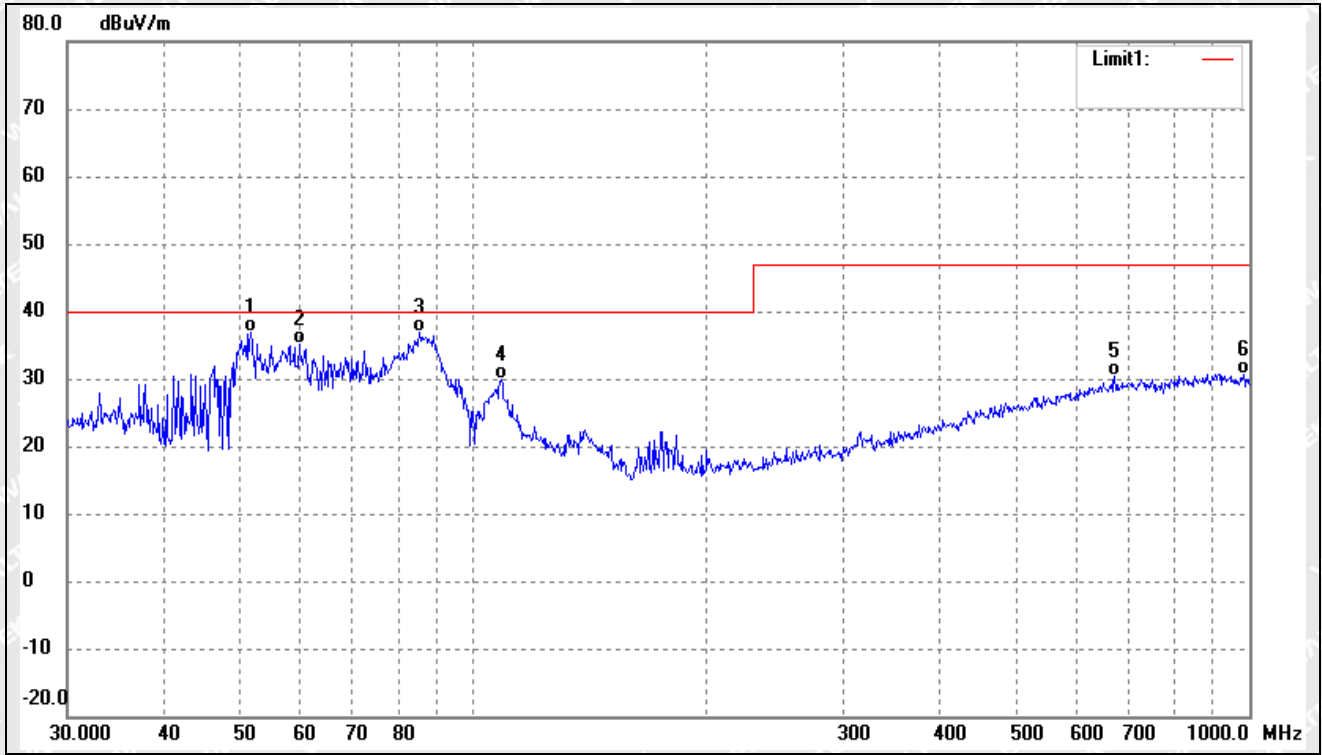


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	50.0566	33.56	-6.97	26.59	40.00	-13.41	-	-	QP
2	56.0007	41.49	-7.84	33.65	40.00	-6.35	-	-	QP
3	86.8068	37.86	-10.63	27.23	40.00	-12.77	-	-	QP
4	141.3298	39.26	-12.31	26.95	40.00	-13.05	-	-	QP
5	180.6488	37.78	-11.20	26.58	40.00	-13.42	-	-	QP
6	836.2441	29.07	2.30	31.37	47.00	-15.63	-	-	QP





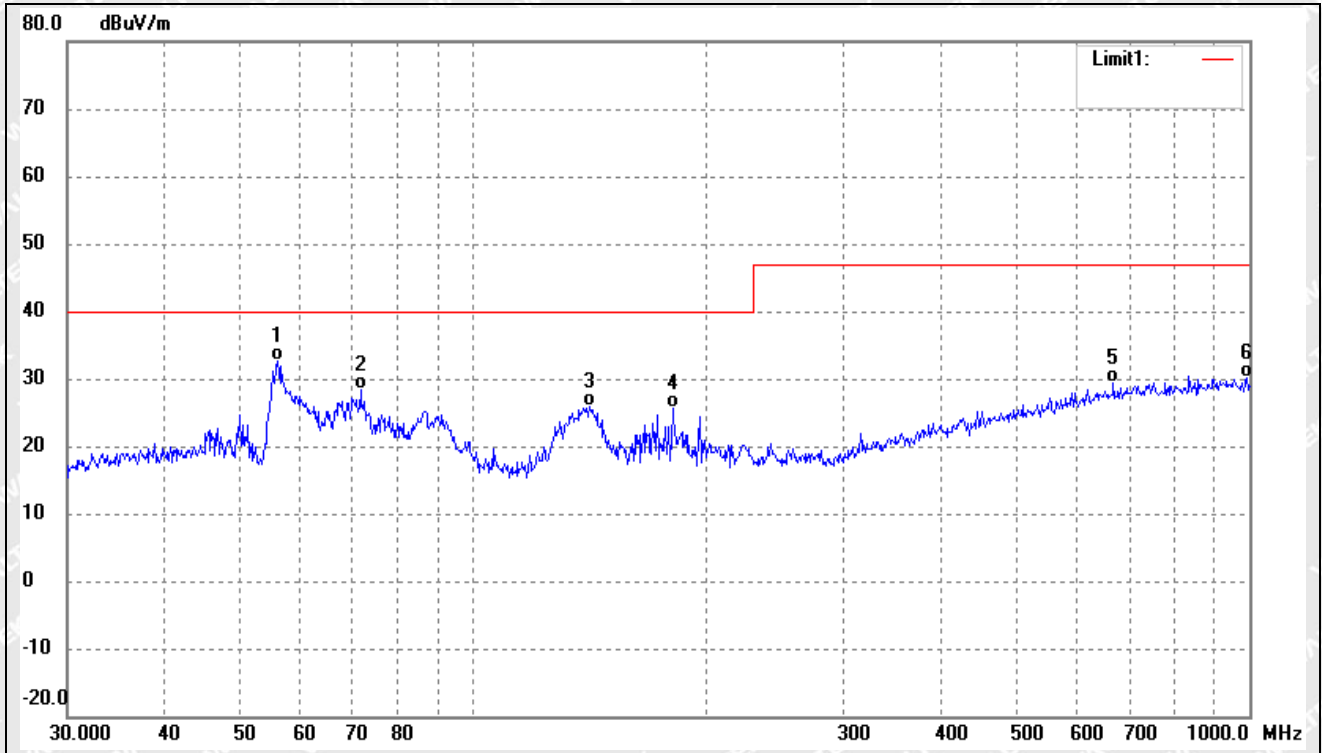
Test mode:	TM2	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	51.6613	44.05	-7.20	36.85	40.00	-3.15	-	-	QP
2	59.6492	43.61	-8.37	35.24	40.00	-4.76	-	-	QP
3	85.2980	47.60	-10.65	36.95	40.00	-3.05	-	-	QP
4	108.6470	38.70	-8.84	29.86	40.00	-10.14	-	-	QP
5	670.4891	29.13	1.14	30.27	47.00	-16.73	-	-	QP
6	982.6200	28.09	2.47	30.56	47.00	-16.44	-	-	QP



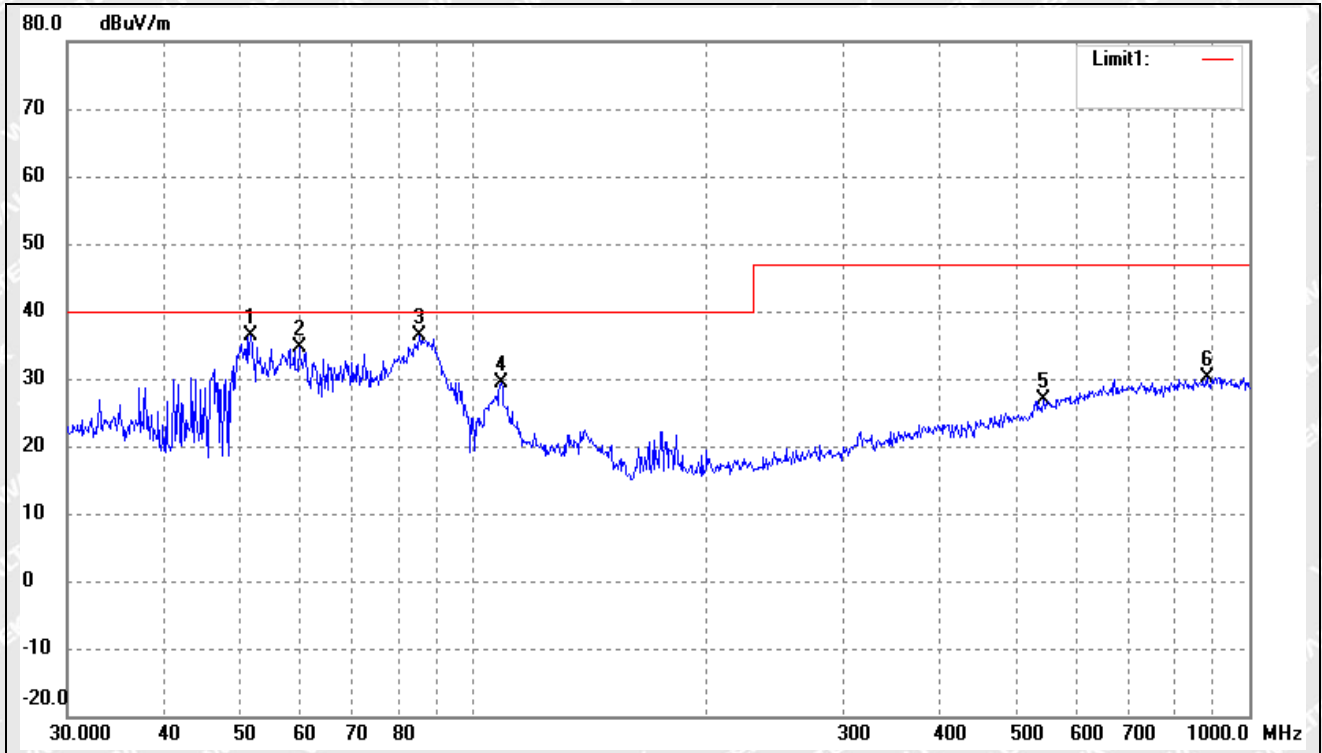
Test mode:	TM3	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	56.0007	40.49	-7.84	32.65	40.00	-7.35	-	-	QP
2	71.5806	38.68	-10.26	28.42	40.00	-11.58	-	-	QP
3	141.3298	38.26	-12.31	25.95	40.00	-14.05	-	-	QP
4	180.6485	36.78	-11.20	25.58	40.00	-14.42	-	-	QP
5	668.1422	28.32	1.11	29.43	47.00	-17.57	-	-	QP
6	993.0113	27.60	2.44	30.04	47.00	-16.96	-	-	QP



Test mode:	TM3	Polarity:	Vertical
------------	-----	-----------	----------



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	51.6614	43.55	-7.20	36.35	40.00	-3.65	-	-	QP
2	59.6492	43.11	-8.37	34.74	40.00	-5.26	-	-	QP
3	85.2981	47.10	-10.65	36.45	40.00	-3.55	-	-	QP
4	108.6470	38.20	-8.84	29.36	40.00	-10.64	-	-	QP
5	543.2740	27.37	-0.57	26.80	47.00	-20.20	-	-	QP
6	881.4067	27.60	2.62	30.22	47.00	-16.78	-	-	QP

Remark: '-' Means the test Degree and Height are not recorded by the test software and only show the worst case in the test report.

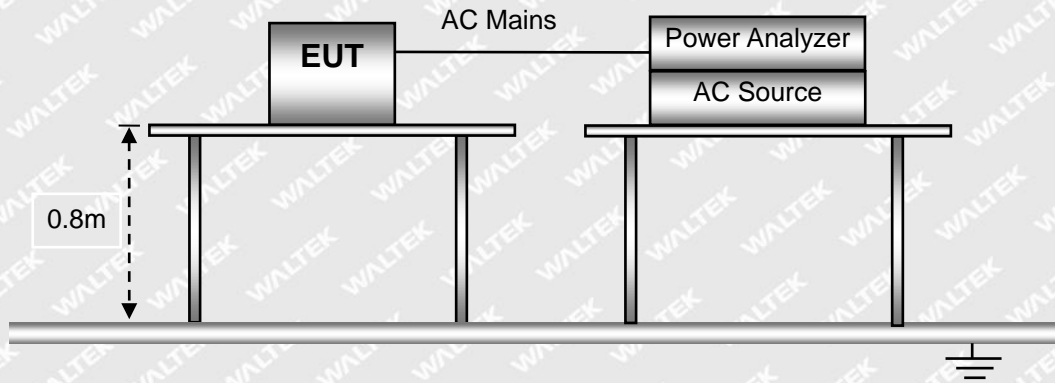


## 5. Harmonic Current Emissions

### 5.1 Test Procedure

Test is conducting under the description of EN 61000-3-2.

### 5.2 Test Setup Block Diagram



### 5.3 Test Standards

EN61000-3-2, Clause 7.1 Limits for Class A equipment.

### 5.4 Environmental Conditions

Temperature:	24 °C
Relative Humidity:	55%
ATM Pressure:	1010mbar

### 5.5 Harmonic Current Emissions Test Data

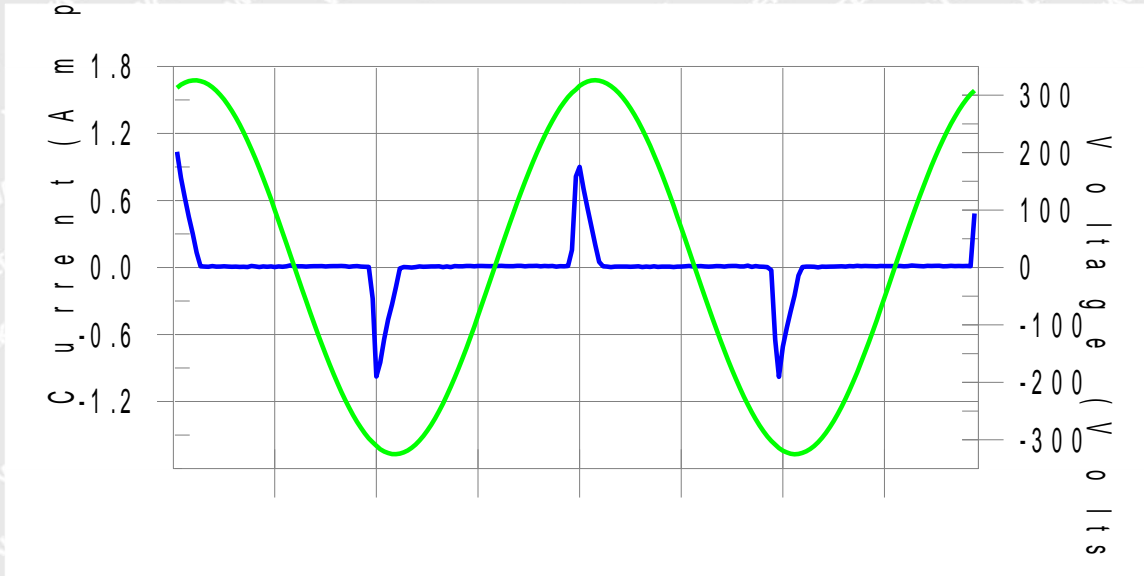


### Harmonics – Class-A per IEC 61000-3-2:2018/AMD1:2020(Run time)

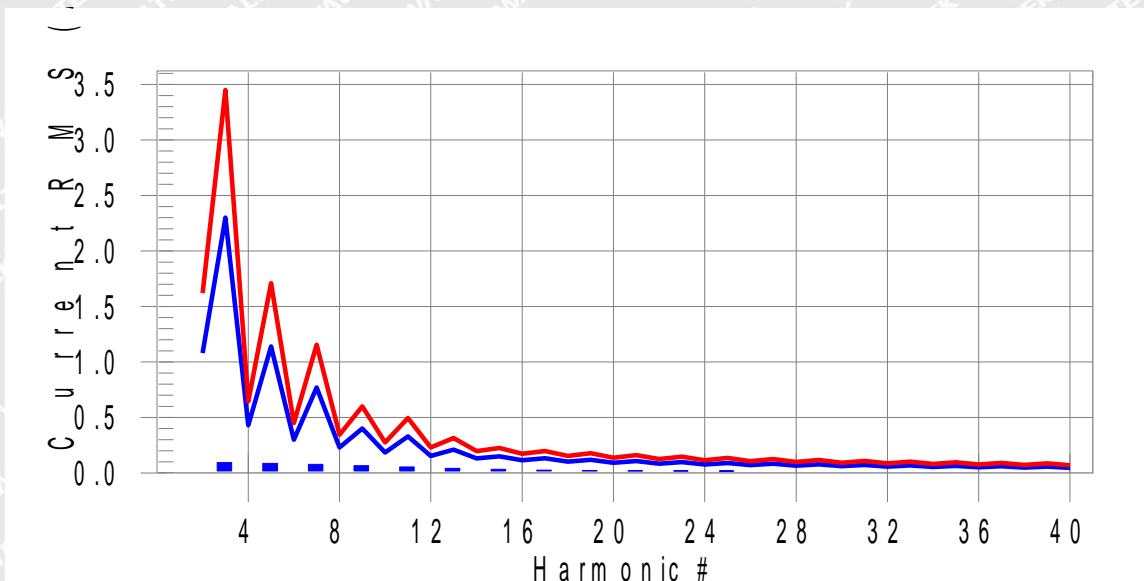
Test category: Class-A (European limits)      Test Margin: 100  
Test date: 2022/05/24      Start time: 0:05:31      End time: 0:08:12  
Test duration (min): 2.5      Data file name: H-000395.cts\_data

Test Result: Pass      Source qualification: Normal

#### Current & voltage waveforms



#### Harmonics and Class A limit line      European Limits



**Test result: Pass      Worst harmonics H15-14.6% of 150% limit, H15-21.8% of 100% limit**



## Current Test Result Summary (Run time)

Test category: Class-A (European limits) Test Margin: 100  
 Test date: 2022/05/24 Start time: 0:05:31 End time: 0:08:12  
 Test duration (min): 2.5 Data file name: H-000395.cts\_data

Test Result: Pass Source qualification: Normal  
 THC(A): 0.189 I-THD(%): 186.1 POHC(A): 0.045 POHC Limit(A): 0.251

### Highest parameter values during test:

V\_RMS (Volts): 230.14 Frequency(Hz): 50.00  
 I\_Peak (Amps): 1.074 I\_RMS (Amps): 0.222  
 I\_Fund (Amps): 0.101 Crest Factor: 5.772  
 Power (Watts): 22.8 Power Factor: 0.455

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	N/A	0.001	1.620	N/A	Pass
3	0.094	2.300	4.1	0.098	3.450	2.8	Pass
4	0.001	0.430	N/A	0.001	0.645	N/A	Pass
5	0.087	1.140	7.6	0.090	1.710	5.3	Pass
6	0.001	0.300	N/A	0.001	0.450	N/A	Pass
7	0.077	0.770	10.0	0.080	1.155	7.0	Pass
8	0.000	0.230	N/A	0.001	0.345	N/A	Pass
9	0.066	0.400	16.5	0.068	0.600	11.3	Pass
10	0.000	0.184	N/A	0.001	0.276	N/A	Pass
11	0.054	0.330	16.4	0.055	0.495	11.1	Pass
12	0.000	0.153	N/A	0.001	0.230	N/A	Pass
13	0.043	0.210	20.3	0.043	0.315	13.7	Pass
14	0.000	0.131	N/A	0.001	0.197	N/A	Pass
15	0.033	0.150	21.8	0.033	0.225	14.6	Pass
16	0.000	0.115	N/A	0.001	0.173	N/A	Pass
17	0.025	0.132	19.3	0.026	0.198	13.0	Pass
18	0.000	0.102	N/A	0.001	0.153	N/A	Pass
19	0.022	0.118	18.2	0.022	0.178	12.5	Pass
20	0.000	0.092	N/A	0.001	0.138	N/A	Pass
21	0.020	0.107	18.7	0.021	0.161	13.0	Pass
22	0.000	0.084	N/A	0.001	0.125	N/A	Pass
23	0.019	0.098	19.8	0.020	0.147	13.9	Pass
24	0.000	0.077	N/A	0.001	0.115	N/A	Pass
25	0.018	0.090	20.5	0.019	0.135	14.3	Pass
26	0.000	0.071	N/A	0.001	0.107	N/A	Pass
27	0.017	0.083	20.1	0.017	0.125	14.0	Pass





Reference No.: WTF22X04078811W003

28	0.000	0.066	N/A	0.001	0.099	N/A	Pass
29	0.015	0.078	18.7	0.015	0.116	12.8	Pass
30	0.000	0.061	N/A	0.001	0.092	N/A	Pass
31	0.012	0.073	16.6	0.012	0.109	11.3	Pass
32	0.000	0.058	N/A	0.001	0.086	N/A	Pass
33	0.010	0.068	14.5	0.010	0.102	9.9	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.008	0.064	12.9	0.009	0.096	8.9	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.007	0.061	12.2	0.008	0.091	8.7	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.007	0.058	12.1	0.008	0.087	8.8	Pass
40	0.000	0.046	N/A	0.000	0.069	N/A	Pass

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## Voltage Source Verification Data (Run time)

Test category: Class-A (European limits)      Test Margin: 100  
 Test date: 2022/05/24      Start time: 0:05:31      End time: 0:08:12  
 Test duration (min): 2.5      Data file name: H-000395.cts\_data

Test Result: Pass      Source qualification: Normal

### Highest parameter values during test:

Voltage (Vrms):	230.14	Frequency(Hz):	50.00
I_Peak (Amps):	1.074	I_RMS (Amps):	0.222
I_Fund (Amps):	0.101	Crest Factor:	5.772
Power (Watts):	22.8	Power Factor:	0.455

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.067	0.460	14.46	OK
3	0.522	2.071	25.21	OK
4	0.082	0.460	17.88	OK
5	0.064	0.920	6.93	OK
6	0.029	0.460	6.37	OK
7	0.044	0.690	6.41	OK
8	0.015	0.460	3.22	OK
9	0.039	0.460	8.54	OK
10	0.011	0.460	2.30	OK
11	0.043	0.230	18.84	OK
12	0.011	0.230	4.67	OK
13	0.035	0.230	15.14	OK
14	0.006	0.230	2.52	OK
15	0.038	0.230	16.37	OK
16	0.008	0.230	3.52	OK
17	0.027	0.230	11.55	OK
18	0.011	0.230	4.79	OK
19	0.024	0.230	10.37	OK
20	0.015	0.230	6.36	OK
21	0.023	0.230	10.05	OK
22	0.004	0.230	1.81	OK
23	0.025	0.230	10.86	OK
24	0.004	0.230	1.81	OK
25	0.025	0.230	10.81	OK
26	0.004	0.230	1.63	OK
27	0.023	0.230	9.89	OK
28	0.004	0.230	1.89	OK



Reference No.: WTF22X04078811W003

29	0.025	0.230	10.97	OK
30	0.005	0.230	2.03	OK
31	0.020	0.230	8.49	OK
32	0.004	0.230	1.58	OK
33	0.018	0.230	7.99	OK
34	0.003	0.230	1.26	OK
35	0.016	0.230	6.79	OK
36	0.003	0.230	1.43	OK
37	0.014	0.230	6.16	OK
38	0.003	0.230	1.24	OK
39	0.013	0.230	5.55	OK
40	0.008	0.230	3.68	OK

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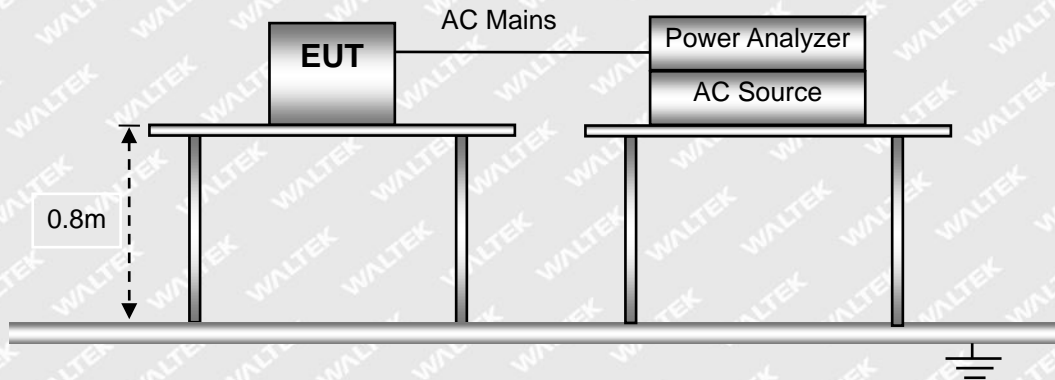


## 6. Voltage Fluctuation and Flicker

### 6.1 Test Procedure

Test is conducting under the description of EN 61000-3-3.

### 6.2 Test Setup Block Diagram



### 6.3 Test Standards

EN61000-3-3, Limit: Clause 5.

### 6.4 Environmental Conditions

Temperature:	24 °C
Relative Humidity:	55%
ATM Pressure:	1010 mbar

### 6.5 Voltage Fluctuation and Flicker Test Data

Result: The EUT is compliance with the requirements of this section.



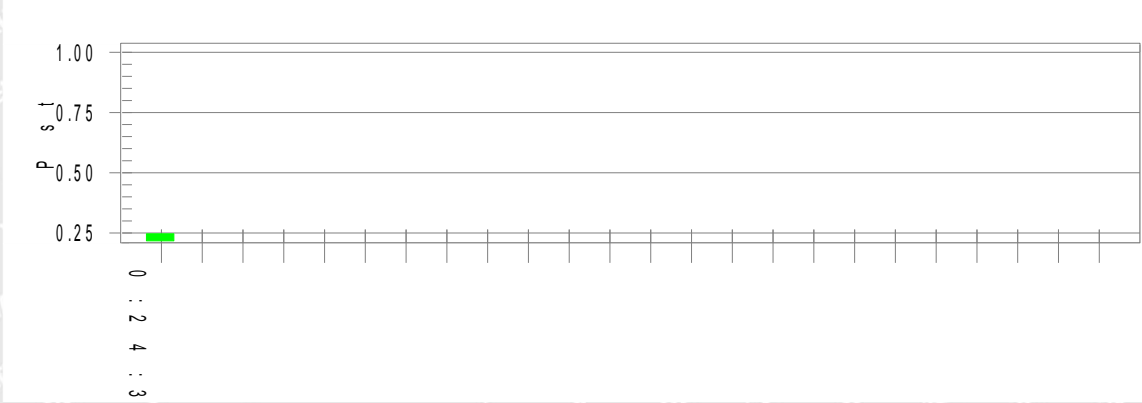
Test mode:	TM1
------------	-----

**Test Result: Pass**

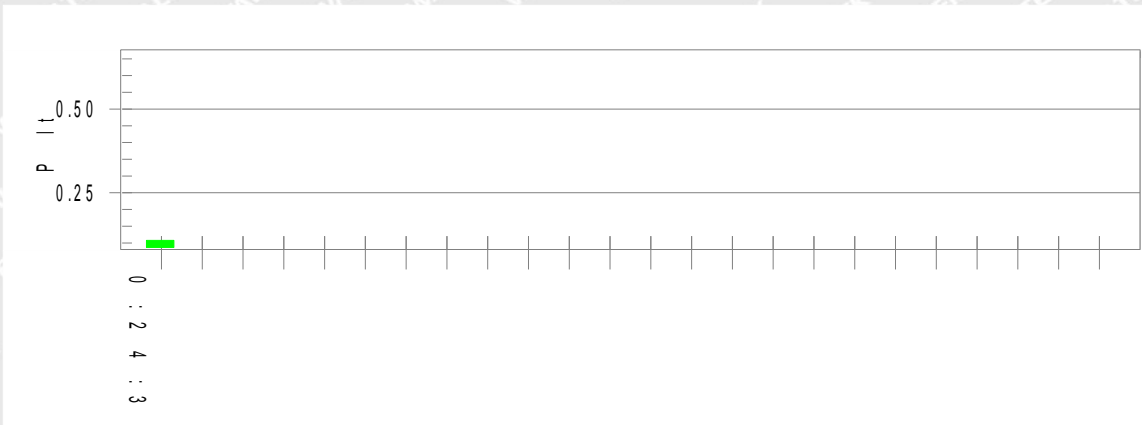
**Status: Test Completed**

**Pst<sub>i</sub> and limit line**

**European Limits**



**Plt and limit line**



**Parameter values recorded during the test:**

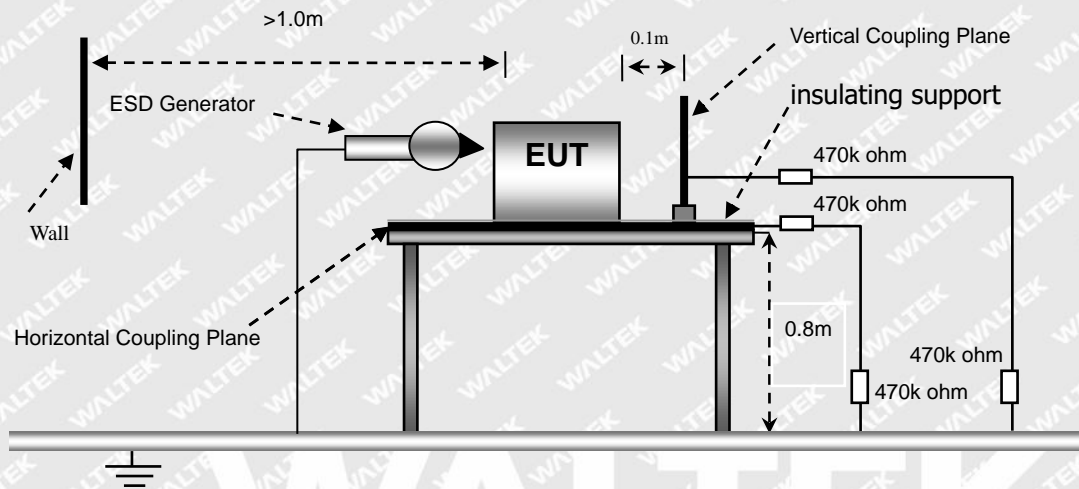
<b>Vrms at the end of test (Volt):</b>	<b>230.05</b>		
<b>Highest dt (%):</b>		<b>Test limit (%):</b>	
<b>T-max (mS):</b>	<b>0</b>	<b>Test limit (mS):</b>	<b>500.0 Pass</b>
<b>Highest dc (%):</b>	<b>0.00</b>	<b>Test limit (%):</b>	<b>3.30 Pass</b>
<b>Highest dmax (%):</b>	<b>0.00</b>	<b>Test limit (%):</b>	<b>4.00 Pass</b>
<b>Highest Pst (10 min. period):</b>	<b>0.247</b>	<b>Test limit:</b>	<b>1.000 Pass</b>
<b>Highest Plt (2 hr. period):</b>	<b>0.108</b>	<b>Test limit:</b>	<b>0.650 Pass</b>

## 7. Electrostatic Discharge (ESD)

### 7.1 Test Procedure

Test is conducting under the description of EN 61000-4-2.

### 7.2 Test Setup Block Diagram



### 7.3 Test Performance

Performance Criterion:	Mode	Verdict
		TM1-TM4

Note: TM4 for TT,TR

### 7.4 Environmental Conditions

Temperature:	24 °C
Relative Humidity:	55%
ATM Pressure:	1010 mbar

### 7.5 Electrostatic Discharge Immunity Test Data





Test mode	TM1-TM4							
EN 61000-4-2 Test Points	Test Levels (kV)							
	-2	+2	-4	+4	-6	+6	-8	+8
<b>Air Discharge</b>								
USB Port	B	B	B	B	B	B	B	B
Shell Gap	B	B	B	B	B	B	B	B
Button	B	B	B	B	B	B	B	B
Screen	B	B	B	B	B	B	B	B
Enclosure	B	B	B	B	B	B	B	B
<b>Direct Contact Discharge</b>								
USB Port	B	B	B	B	/	/	/	/
Metal Screw	B	B	B	B	/	/	/	/
Enclosure	B	B	B	B	/	/	/	/
<b>Indirect Contact Discharge</b>								
HCP (6 Sides)	A	A	A	A	/	/	/	/
VCP (4 Sides)	A	A	A	A	/	/	/	/

Test Result: Pass



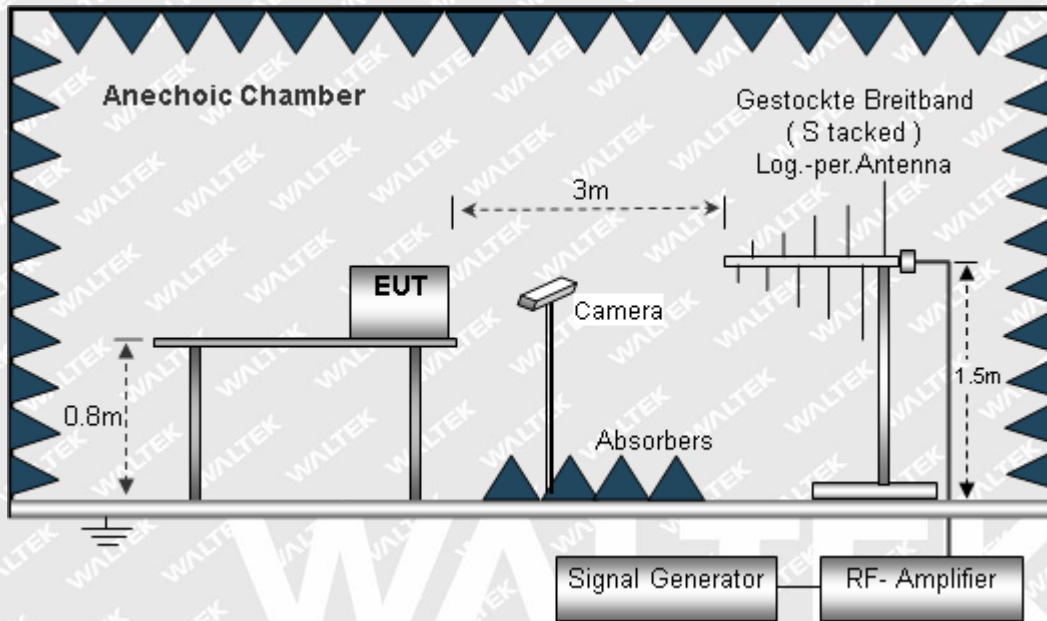


## 8. Radio Frequency Electromagnetic Field (R/S)

### 8.1 Test Procedure

Test is conducting under the description of EN 61000-4-3.

### 8.2 Test Setup Block Diagram



### 8.3 Test Performance

Performance Criterion:	Mode	Verdict
		TM1-TM4

Note: TM4 for CT,CR

### 8.4 Environmental Conditions

Temperature:	24 °C
Relative Humidity:	55%
ATM Pressure:	1010 mbar

### 8.5 Continuous Radiated Disturbances Test Data

Frequency step: 1% of fundamental

Dwell time: 1 second

Modulation: AM by 1kHz sine wave with 80% modulation depth



Test mode		TM1-TM4							
Frequency Range(MHz)	Field (V/m)	Front		Rear		Left Side		Right Side	
		VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
80-1000	3	A	A	A	A	A	A	A	A
1000-3000	3	A	A	A	A	A	A	A	A
3000-6000	3	A	A	A	A	A	A	A	A

Test Result: Pass

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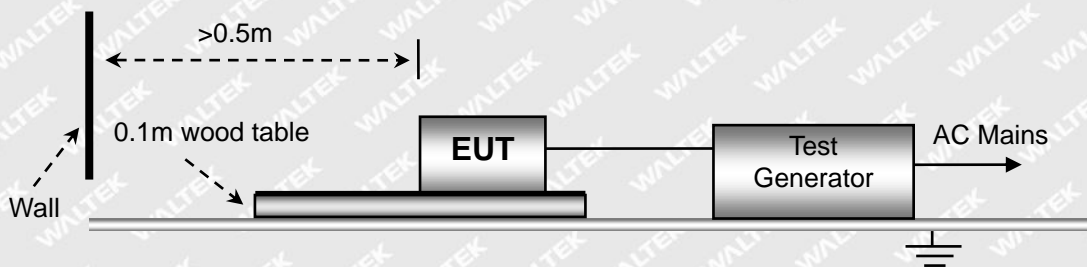
## 9. Fast Transients, Common Mode (EFT)

### 9.1 Test Procedure

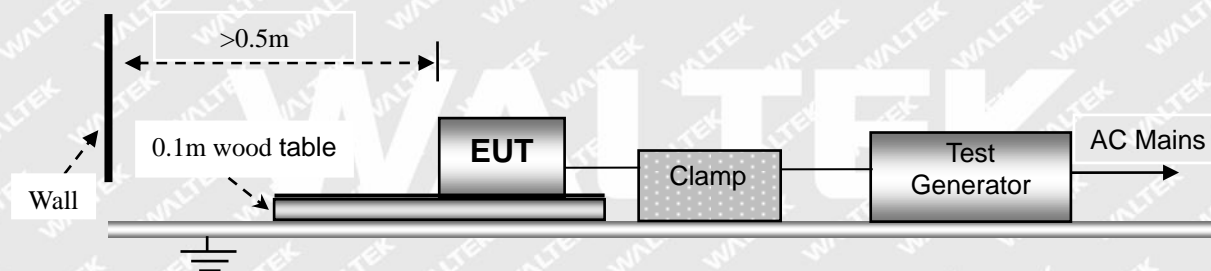
Test is conducting under the description of EN 61000-4-4.

### 9.2 Test Setup Block Diagram

For AC Mains or DC Ports:



For Signal or Telecommunication Ports:



### 9.3 Test Performance

Performance Criterion:	Mode	Verdict
		TM1-TM4

Note: TM4 for TT,TR

### 9.4 Environmental Conditions

Temperature:	24 °C
Relative Humidity:	55%
ATM Pressure:	1010 mbar

### 9.5 Electrical Fast Transients Test Data



Test Mode		TM1-TM4							
EN 61000-4-4 Test Line		Test Levels (kV)							
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
AC Main Power port	L	A	A	A	A	/	/	/	/
	N	A	A	A	A	/	/	/	/
	PE	/	/	/	/	/	/	/	/
	L-N	A	A	A	A	/	/	/	/
	L-PE	/	/	/	/	/	/	/	/
	N-PE	/	/	/	/	/	/	/	/
	L-N-PE	/	/	/	/	/	/	/	/
Signal ports	/	/	/	/	/	/	/	/	

Test Result: Pass

# WALTEK



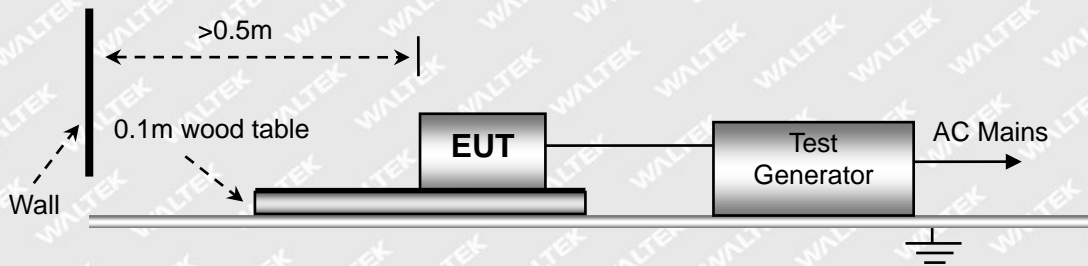
## 10. Surges

### 10.1 Test Procedure

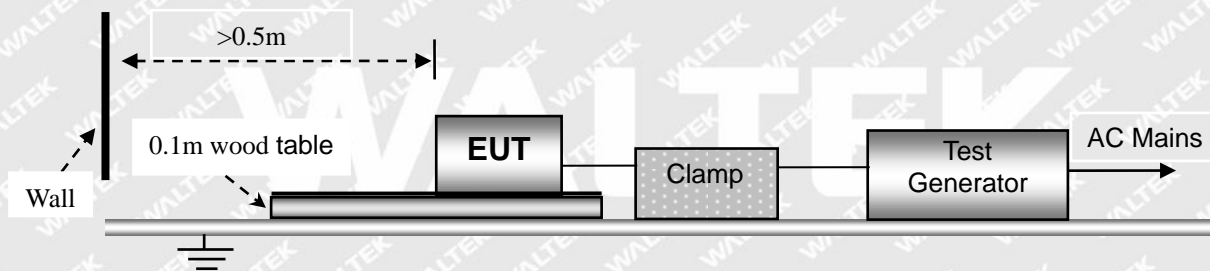
Test is conducting under the description of EN 61000-4-5.

### 10.2 Test Setup Block Diagram

For AC Mains or DC Ports:



For Signal or Telecommunication Ports:



### 10.3 Test Performance

Performance Criterion:	Mode	Verdict
		TM1-TM4

Note: TM4 for TT,TR

### 10.4 Environmental Conditions

Temperature:	24 °C
Relative Humidity:	55%
ATM Pressure:	1010 mbar

### 10.5 Surge Test Data





Test Mode	TM1-TM4			
Voltage	Poll	Path	Pass	Fail
0.5kV	±	L-N	B	/
1kV	±	L-N	B	/
2kV	±	L-N, L-PE, N-PE	/	/
4kV	±	L-N, L-PE, N-PE	/	/

Test Result: Pass

# WALTEK



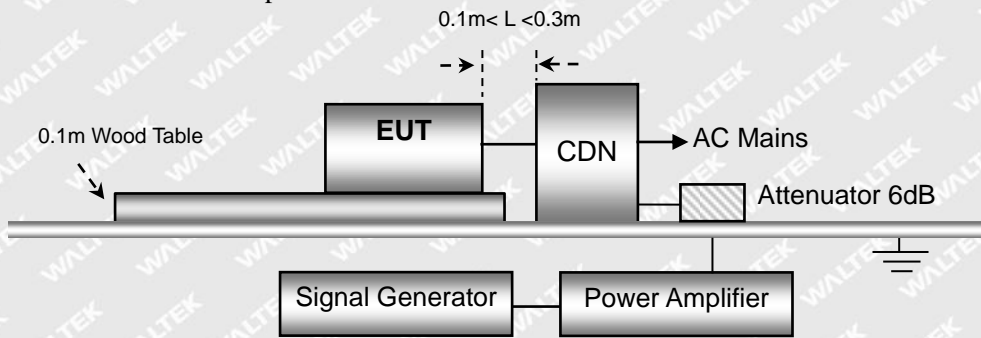
## 11. Radio Frequency, Common Mode (C/S)

### 11.1 Test Procedure

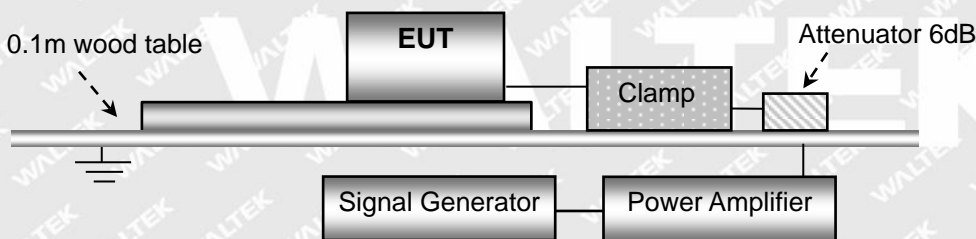
Test is conducting under the description of EN 61000-4-6.

### 11.2 Test Setup Block Diagram

For AC Mains or DC Input:



For Signal or Telecommunication Ports:



### 11.3 Test Performance

Performance Criterion:	Mode	Verdict
		TM1-TM4

Note: TM4 for CT,CR

### 11.4 Environmental Conditions

Temperature:	24 °C
Relative Humidity:	55%
ATM Pressure:	1010mbar

### 11.5 Continuous Conducted Disturbances Test Data

Sweep frequency range: 150kHz~80MHz

Frequency step: 1% of fundamental

Dwell time: 1 second



Test Mode		TM1-TM4		
Level	Voltage (V) (rms, unmodulated)	Modulation:	Pass	Fail
1	1	AM 80%, 1kHz sinewave	/	/
2	3	AM 80%, 1kHz sinewave	A	/
3	10	AM 80%, 1kHz sinewave	/	/
X	Special	/	/	/

Test Result: Pass

# WALTEK



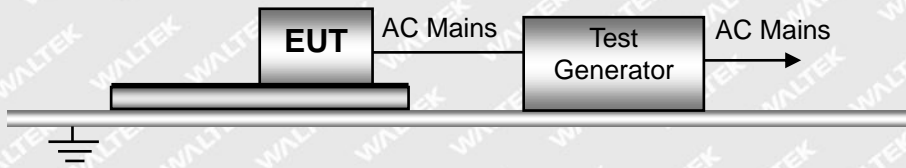


## 12. Voltage Dips and Interruptions

### 12.1 Test Procedure

Test is conducting under the description of EN 61000-4-11.

### 12.2 Test Setup Block Diagram



### 12.3 Test Performance

Performance Criterion:	Mode	Verdict
	TM1-TM4	B for voltage dip/ C for voltage interruption
Note: TM4 for TT,TR		

### 12.4 Environmental Conditions

Temperature:	24 °C
Relative Humidity:	55%
ATM Pressure:	1010mbar

### 12.5 Voltage Dips And Interruptions Test Data

U: Voltage dips in %  $U_T$  ( $U_T$  is rated voltage for the EUT)

T: Test duration

Level	U	T	Phase Angle	N	Pass	Fail
1	100%	10ms	0/90/180/270	3	A	/
2	100%	20ms	0/90/180/270	3	B	/
3	30%	500ms	0/90/180/270	3	B	/
4	100%	5000ms	0/90/180/270	3	B	/

Test Result: Pass



## EXHIBIT 1 - EUT PHOTOGRAPHS

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Please refer to "ANNEX".

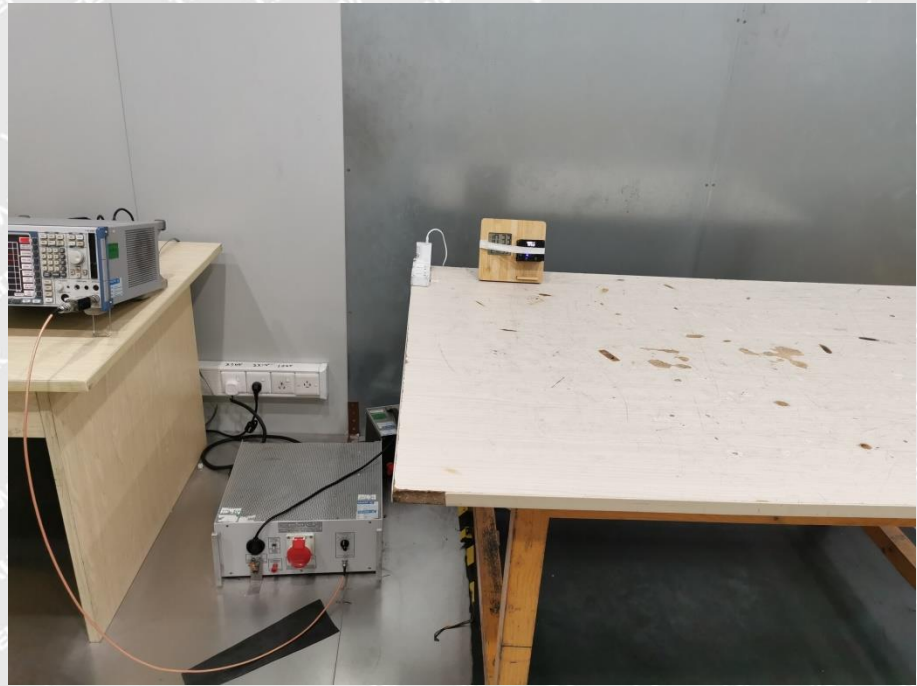
# WALTEK



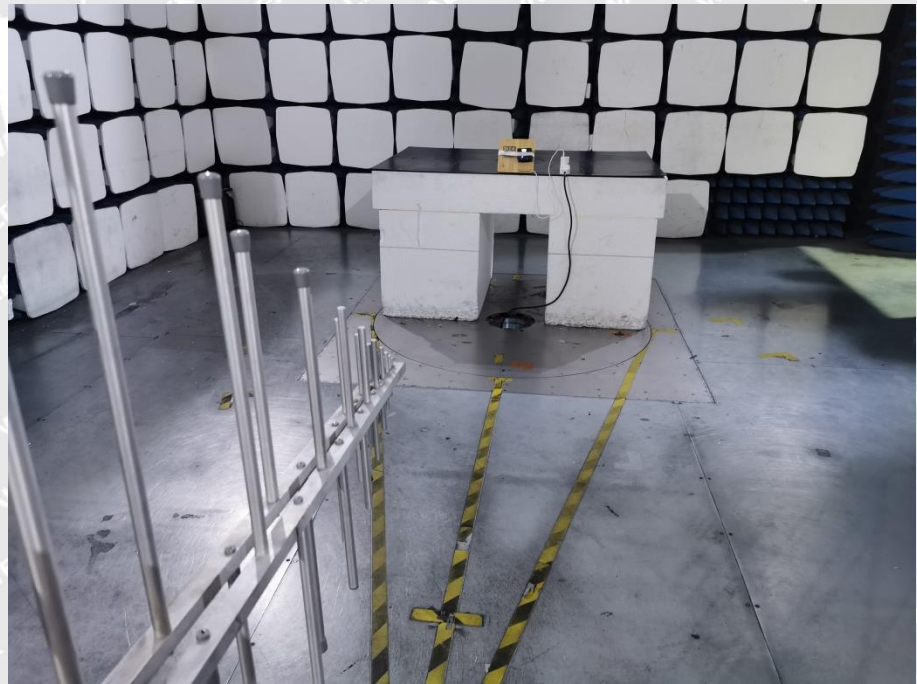


## EXHIBIT 2 - TEST SETUP PHOTOGRAPHS

**Conducted Emission  
Test Setup**



**Radiation Emission Test  
View(30MHz to 1GHz)**



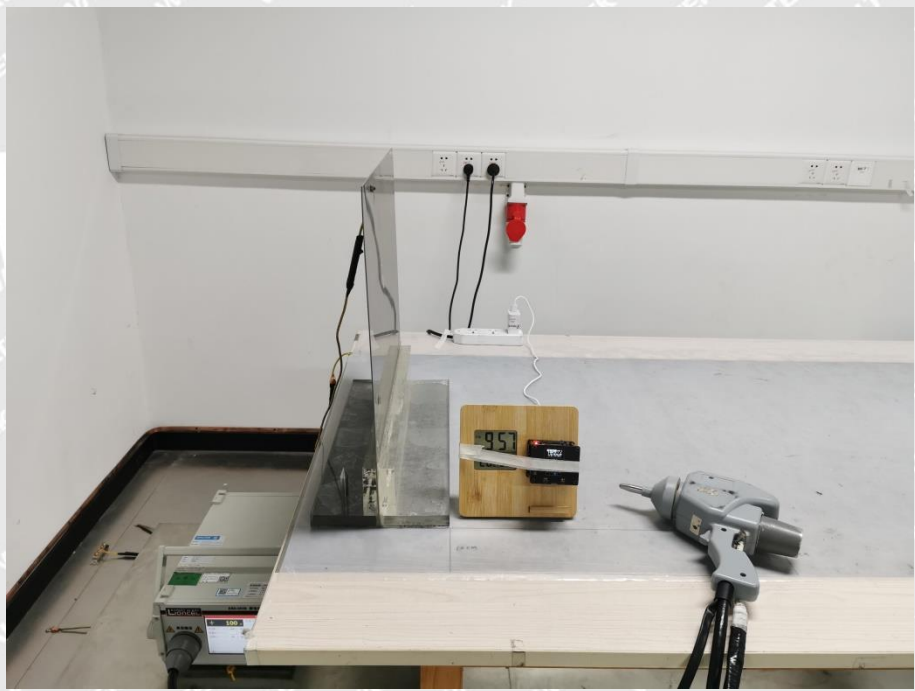




**Harmonic/Flicker Test View**

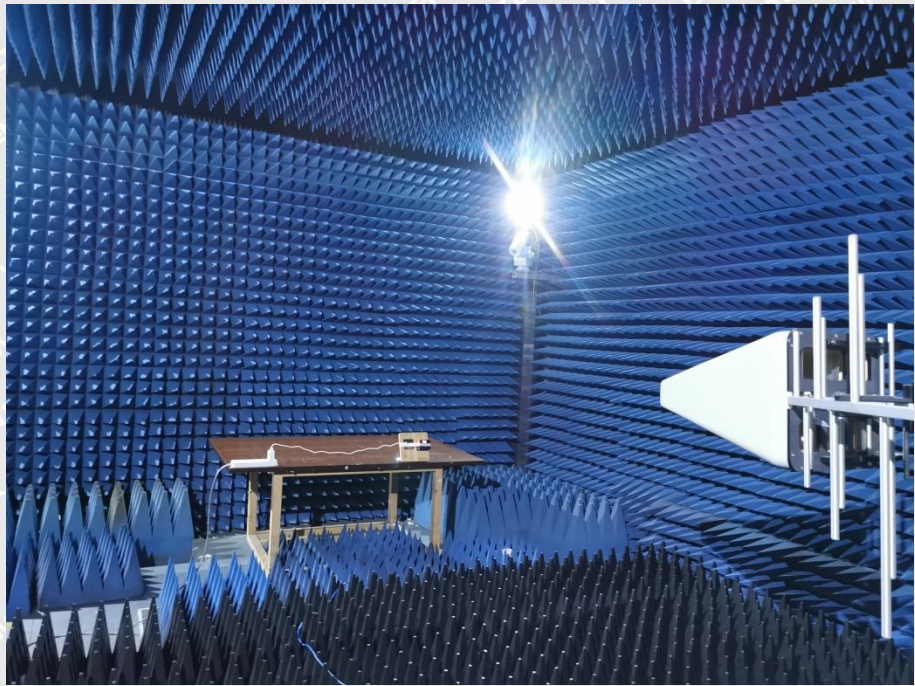


**EN 61000-4-2 Test View**

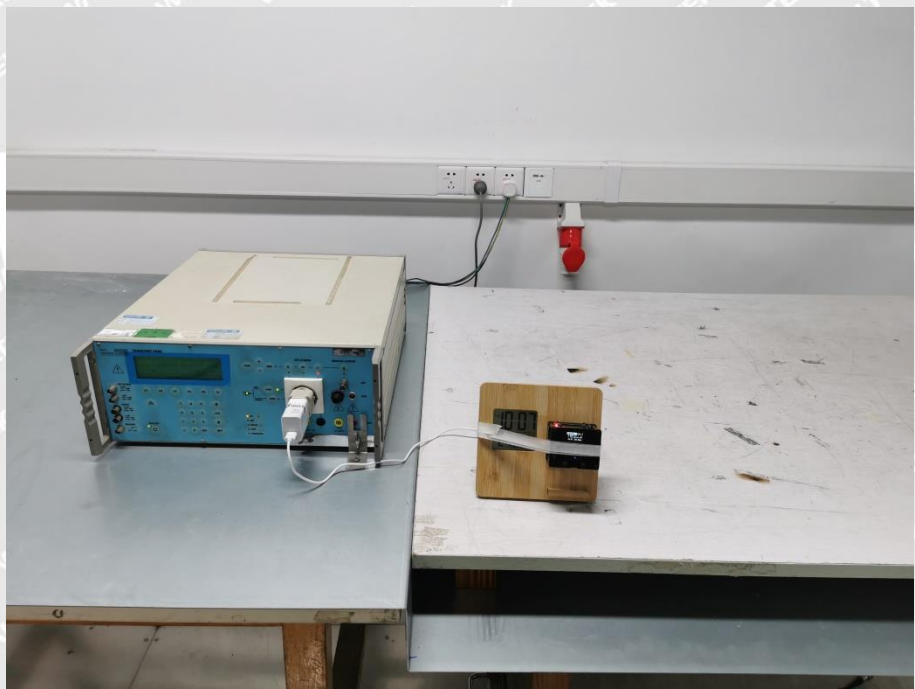




**EN 61000-4-3 Test View**



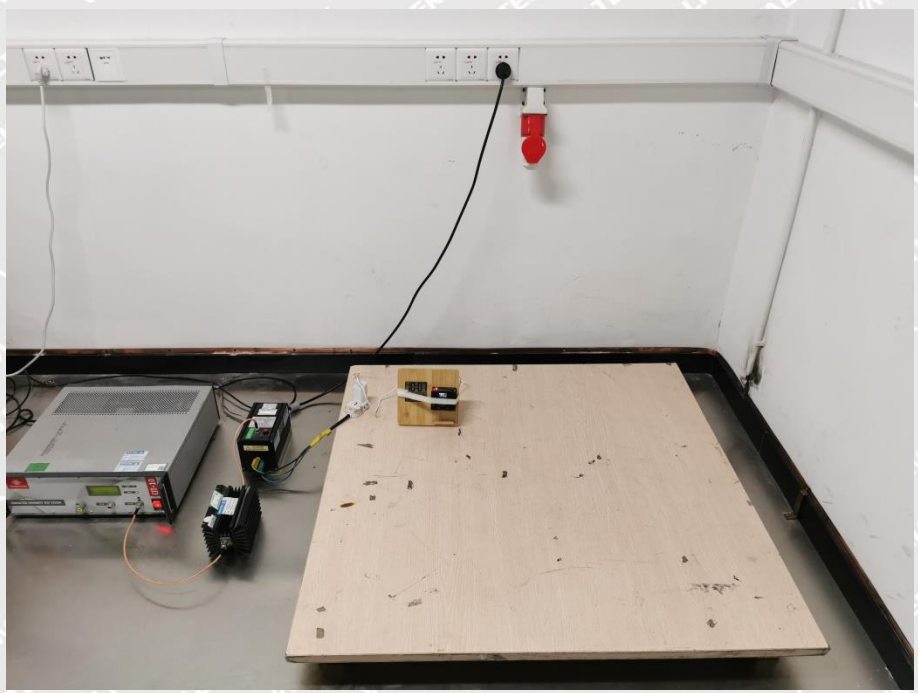
**EN 61000-4-4/5/11 Test View**







**EN 61000-4-6 Test View**



**\*\*\*\*\* END OF REPORT \*\*\*\*\***

# WALTEK