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## Report version

Version No.	Date of issue	Description
Rev.00	2022-10-28	Original
/	/	/

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## 1. GENERAL INFORMATION

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

General Description of EUT	
Product Name:	Magnetic wireless charger with car mount
Trade Name:	/
Model No.:	MO6571
Adding Model(s):	/
Rate Power:	Input: 5V/2A, 9V/2A Wireless Output: 15W Max
Software Version:	893982-V0
Hardware Version:	ZCX-NY7518-V1.11
<i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i>	

Technical Characteristics of EUT	
<b>EN 303417</b>	
Frequency Range:	110-205kHz
Radiated H-Field:	27.11dBuA/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

### Address of the test laboratory

Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Block 70 Bao'an District, Shenzhen, Guangdong, China

### FCC – Registration No.: 125990

Waltek Testing Group (Shenzhen) 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. 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	1.0	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 ETSI EN 301 489-3 [1], 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 $\pm 4.52$ dB @0.2-1GHz $\pm 5.56$ dB @1-6GHz $\pm 3.84$ dB @6-18GHz $\pm 3.92$ dB
Uncertainty for Conducted Emission	@9-150kHz $\pm 3.74$ dB @0.15-30MHz $\pm 3.34$ 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



Clamp					
Clamp	Luthi	MDS21	3809	2022-03-28	2023-03-27
PFMF					
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
H/F					
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
ESD					
ESD Generator	LIONCEL	ESD-203B	0170901	2022-03-28	2023-03-27
EFT/SURGE/DIPS					
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
CS					
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
RS					
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



Software List			
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.

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## 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.

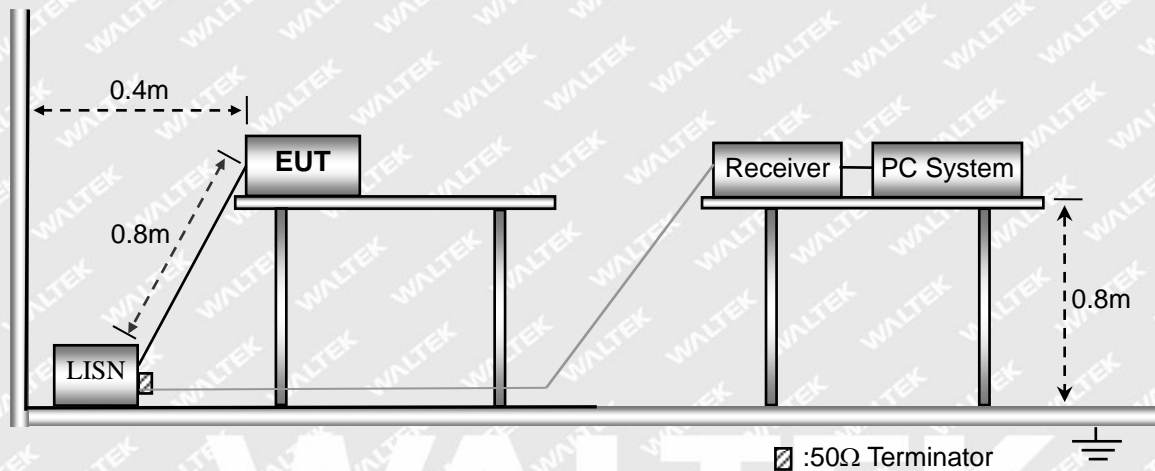
N/A: Not applicable.

### 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

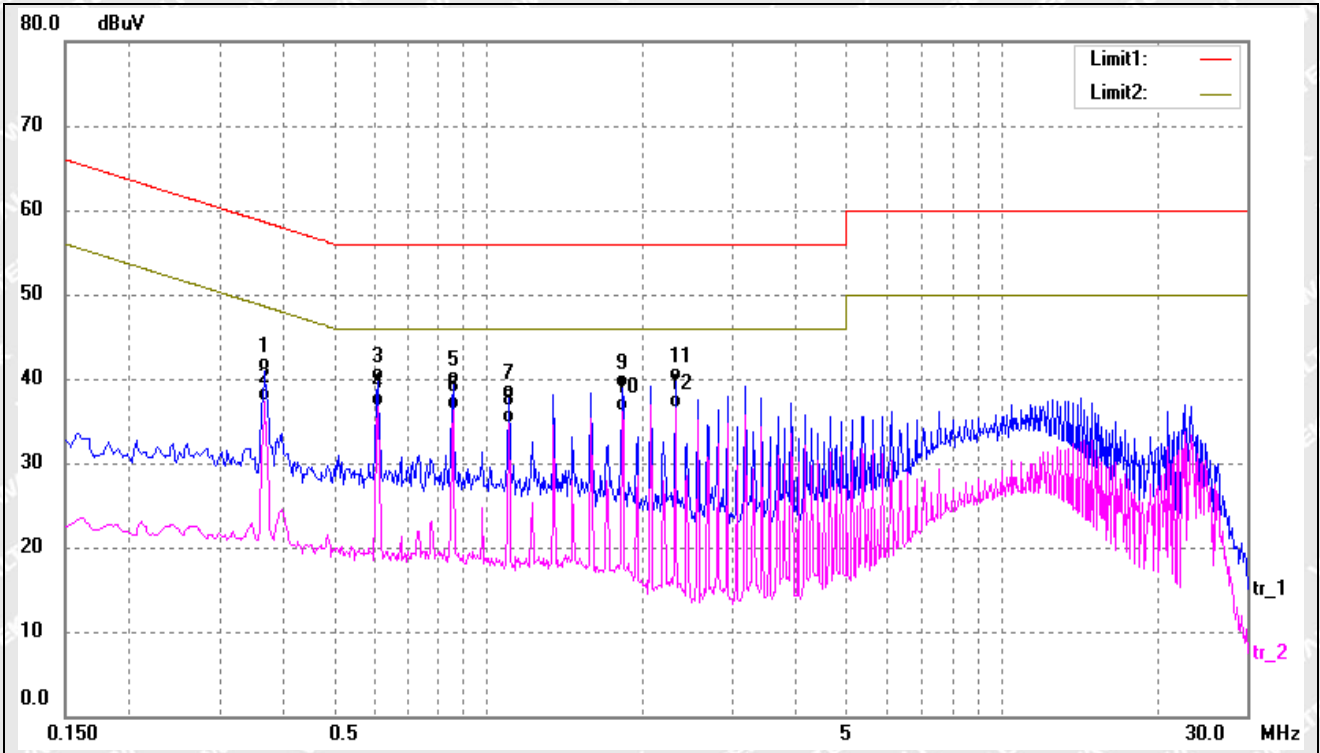
Temperature:	23.5 °C
Relative Humidity:	54 %
ATM Pressure:	1015 mbar

#### 3.4 Conducted Emissions Test Data

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



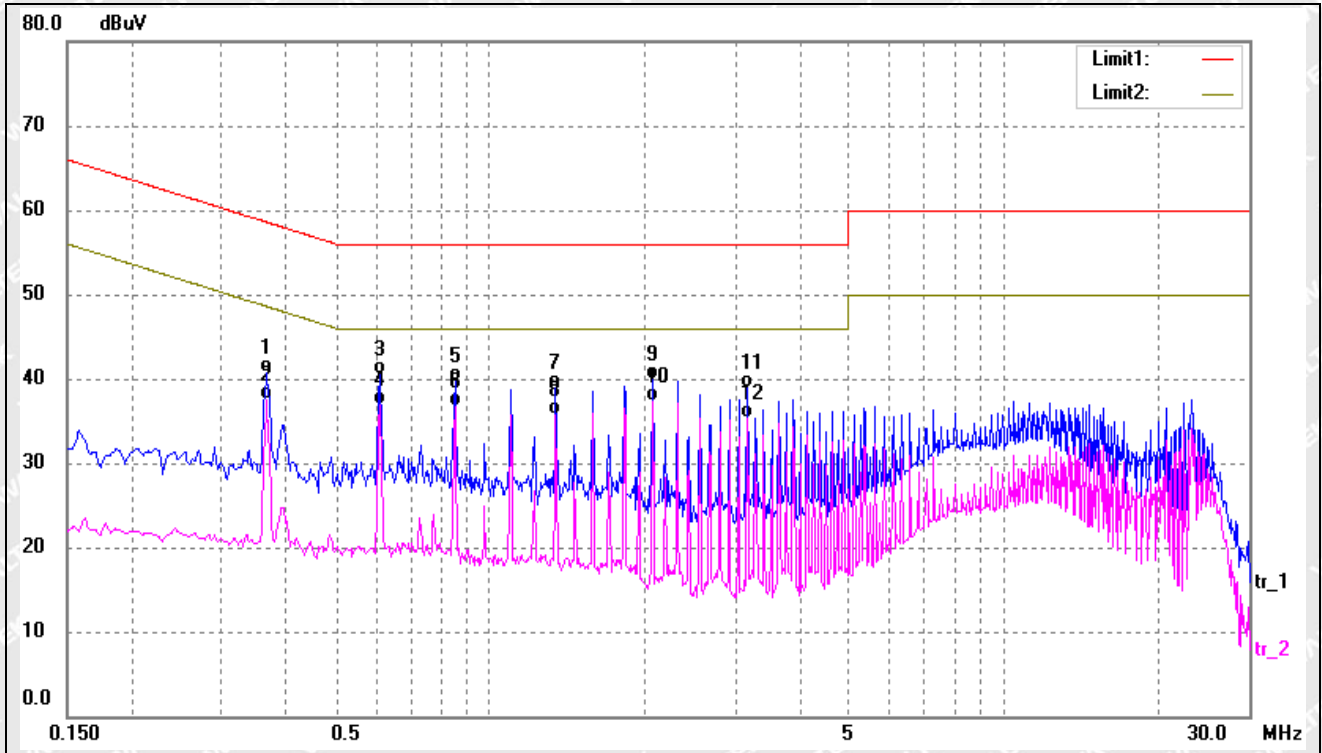
Test mode:	TM1	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3660	30.69	10.23	40.92	58.59	-17.67	QP
2	0.3660	27.06	10.23	37.29	48.59	-11.30	AVG
3	0.6100	29.50	10.21	39.71	56.00	-16.29	QP
4*	0.6100	26.49	10.21	36.70	46.00	-9.30	AVG
5	0.8540	29.12	10.16	39.28	56.00	-16.72	QP
6	0.8540	26.06	10.16	36.22	46.00	-9.78	AVG
7	1.0980	27.58	10.15	37.73	56.00	-18.27	QP
8	1.0980	24.50	10.15	34.65	46.00	-11.35	AVG
9	1.8260	28.71	10.23	38.94	56.00	-17.06	QP
10	1.8260	25.96	10.23	36.19	46.00	-9.81	AVG
11	2.3140	29.50	10.26	39.76	56.00	-16.24	QP
12	2.3140	26.23	10.26	36.49	46.00	-9.51	AVG



Test mode:	TM1	Polarity:	Line
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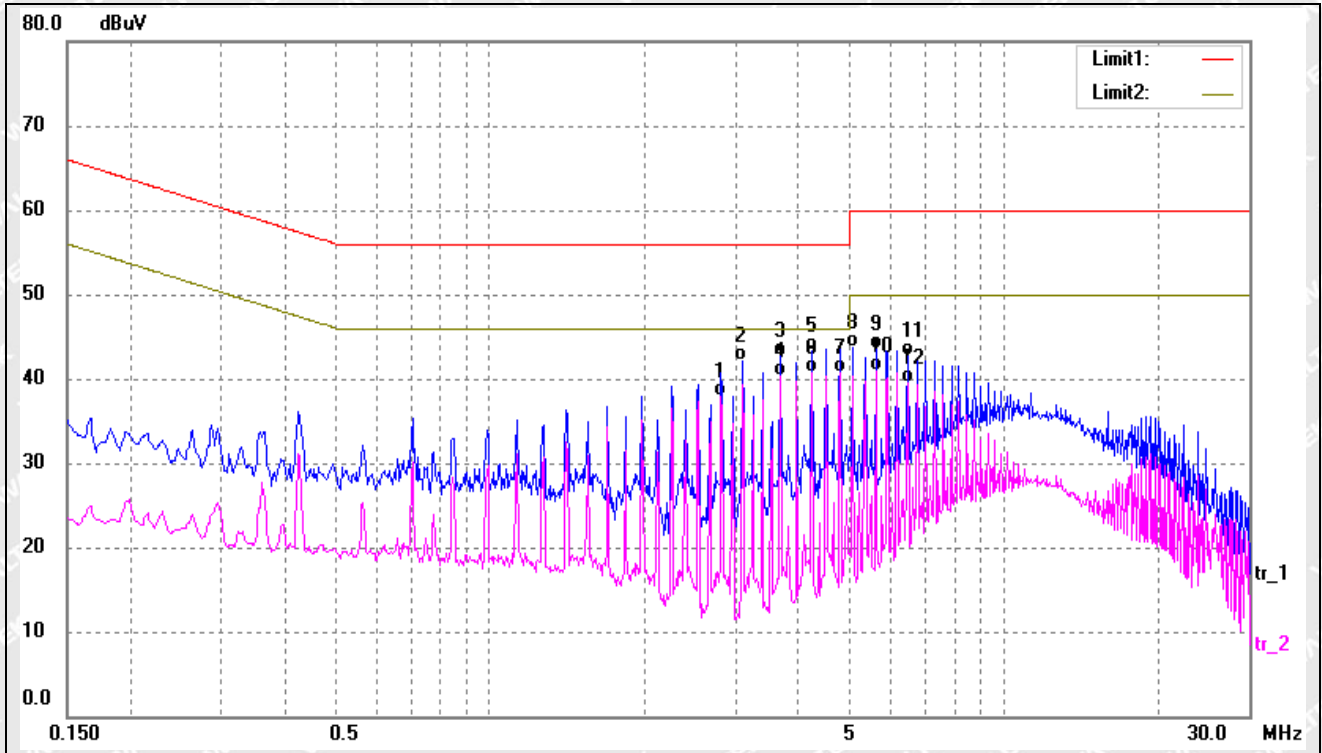


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3660	30.53	10.23	40.76	58.59	-17.83	QP
2	0.3660	27.32	10.23	37.55	48.59	-11.04	AVG
3	0.6100	30.21	10.21	40.42	56.00	-15.58	QP
4	0.6100	26.79	10.21	37.00	46.00	-9.00	AVG
5	0.8540	29.64	10.16	39.80	56.00	-16.20	QP
6	0.8540	26.45	10.16	36.61	46.00	-9.39	AVG
7	1.3420	28.67	10.17	38.84	56.00	-17.16	QP
8	1.3420	25.60	10.17	35.77	46.00	-10.23	AVG
9	2.0700	29.72	10.25	39.97	56.00	-16.03	QP
10*	2.0700	27.03	10.25	37.28	46.00	-8.72	AVG
11	3.1660	28.56	10.28	38.84	56.00	-17.16	QP
12	3.1660	24.97	10.28	35.25	46.00	-10.75	AVG





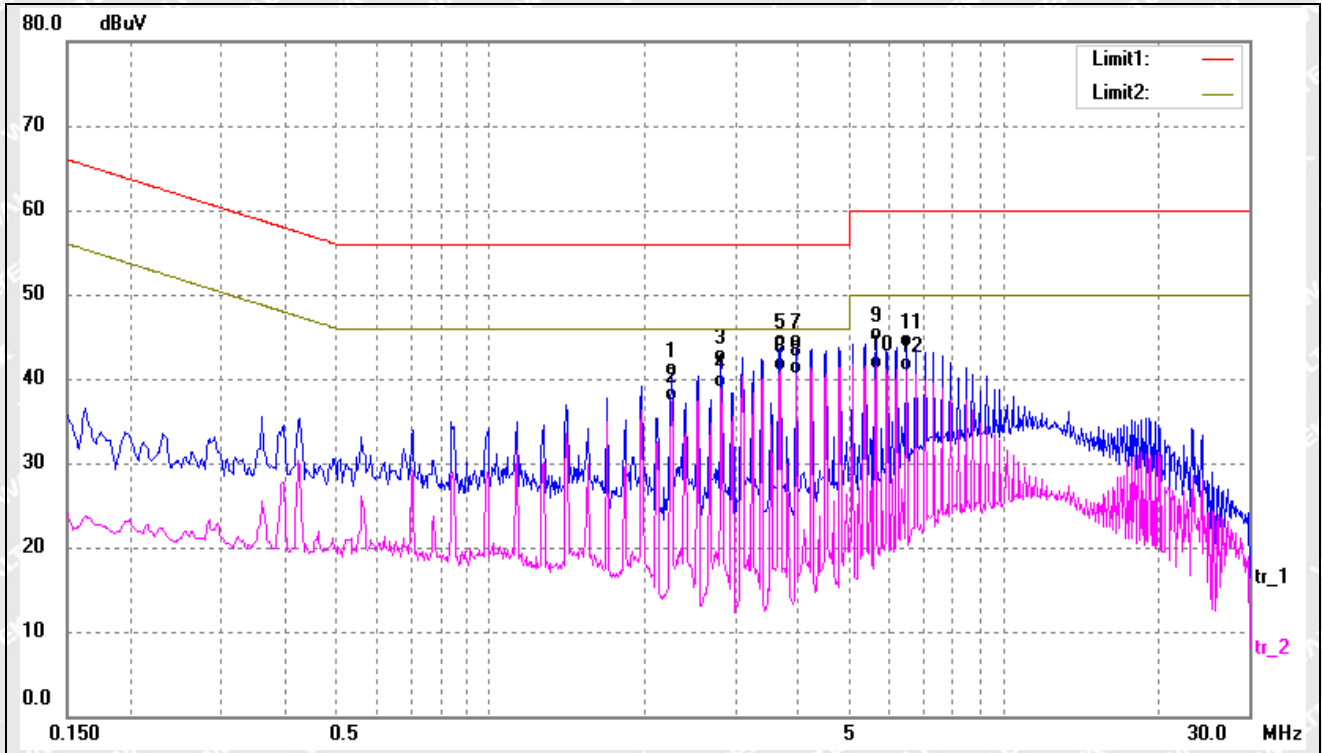
Test mode:	TM2	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	2.8220	27.68	10.27	37.95	46.00	-8.05	AVG
2	3.1060	31.75	10.28	42.03	56.00	-13.97	QP
3	3.6700	32.49	10.29	42.78	56.00	-13.22	QP
4	3.6700	29.97	10.29	40.26	46.00	-5.74	AVG
5	4.2340	32.95	10.31	43.26	56.00	-12.74	QP
6	4.2340	30.37	10.31	40.68	46.00	-5.32	AVG
7*	4.7980	30.37	10.32	40.69	46.00	-5.31	AVG
8	5.0820	33.30	10.33	43.63	60.00	-16.37	QP
9	5.6460	33.23	10.33	43.56	60.00	-16.44	QP
10	5.6460	30.66	10.33	40.99	50.00	-9.01	AVG
11	6.4940	32.35	10.34	42.69	60.00	-17.31	QP
12	6.4940	29.14	10.34	39.48	50.00	-10.52	AVG



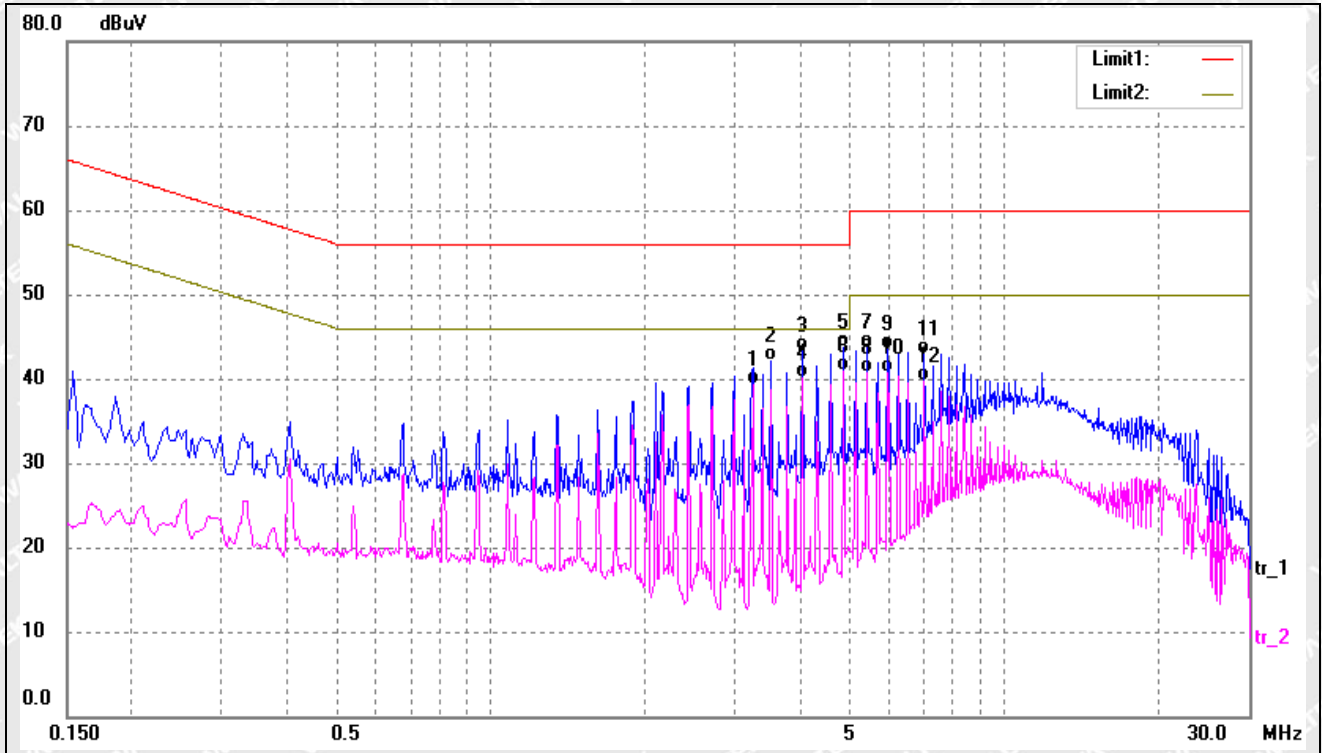
Test mode:	TM2	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	2.2500	30.10	10.26	40.36	56.00	-15.64	QP
2	2.2500	27.06	10.26	37.32	46.00	-8.68	AVG
3	2.8140	31.61	10.27	41.88	56.00	-14.12	QP
4	2.8140	28.70	10.27	38.97	46.00	-7.03	AVG
5	3.6700	33.41	10.29	43.70	56.00	-12.30	QP
6*	3.6700	30.69	10.29	40.98	46.00	-5.02	AVG
7	3.9380	33.36	10.30	43.66	56.00	-12.34	QP
8	3.9500	30.27	10.30	40.57	46.00	-5.43	AVG
9	5.6260	34.10	10.33	44.43	60.00	-15.57	QP
10	5.6260	30.79	10.33	41.12	50.00	-8.88	AVG
11	6.4700	33.43	10.34	43.77	60.00	-16.23	QP
12	6.4700	30.53	10.34	40.87	50.00	-9.13	AVG



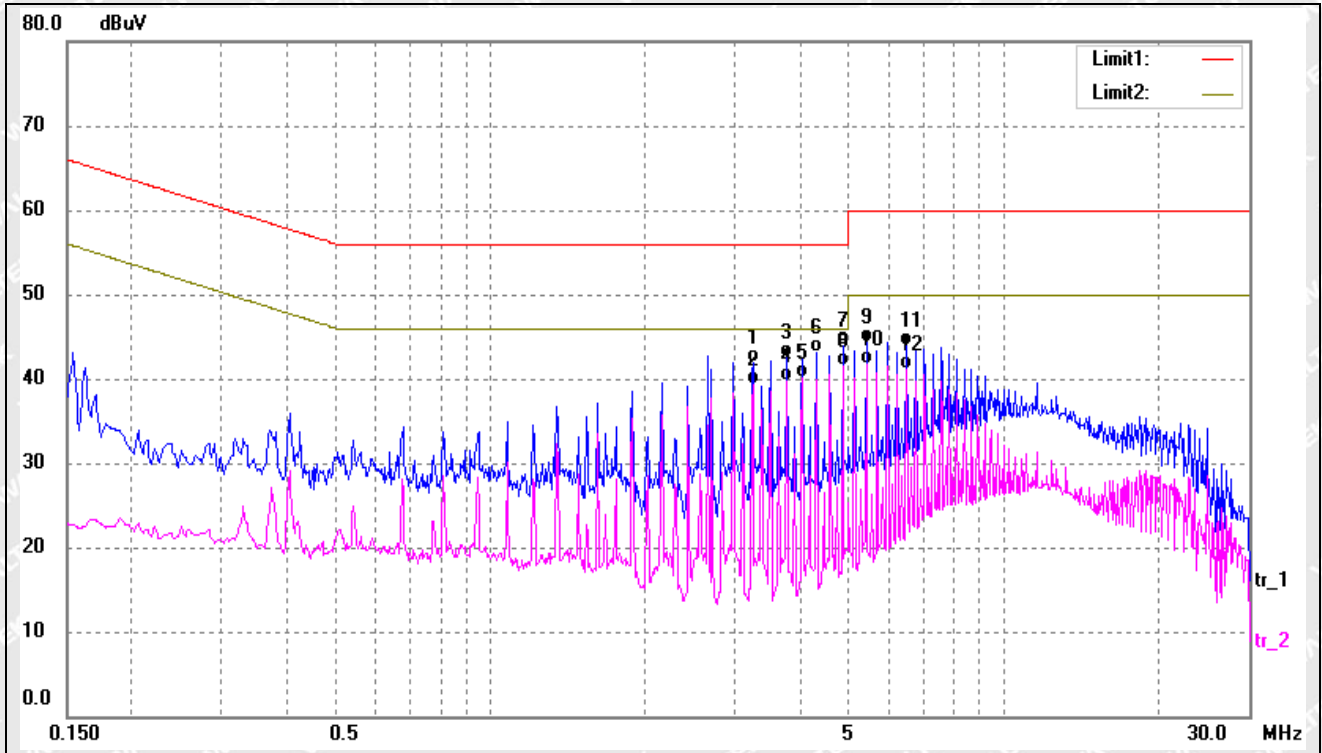
Test mode:	TM3	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	3.2500	28.99	10.28	39.27	46.00	-6.73	AVG
2	3.5220	31.73	10.29	42.02	56.00	-13.98	QP
3	4.0620	32.99	10.30	43.29	56.00	-12.71	QP
4	4.0620	29.72	10.30	40.02	46.00	-5.98	AVG
5	4.8740	33.43	10.33	43.76	56.00	-12.24	QP
6*	4.8740	30.61	10.33	40.94	46.00	-5.06	AVG
7	5.4180	33.38	10.33	43.71	60.00	-16.29	QP
8	5.4180	30.33	10.33	40.66	50.00	-9.34	AVG
9	5.9580	33.15	10.33	43.48	60.00	-16.52	QP
10	5.9580	30.35	10.33	40.68	50.00	-9.32	AVG
11	7.0180	32.56	10.34	42.90	60.00	-17.10	QP
12	7.0180	29.28	10.34	39.62	50.00	-10.38	AVG



Test mode:	TM3	Polarity:	Line
------------	-----	-----------	------



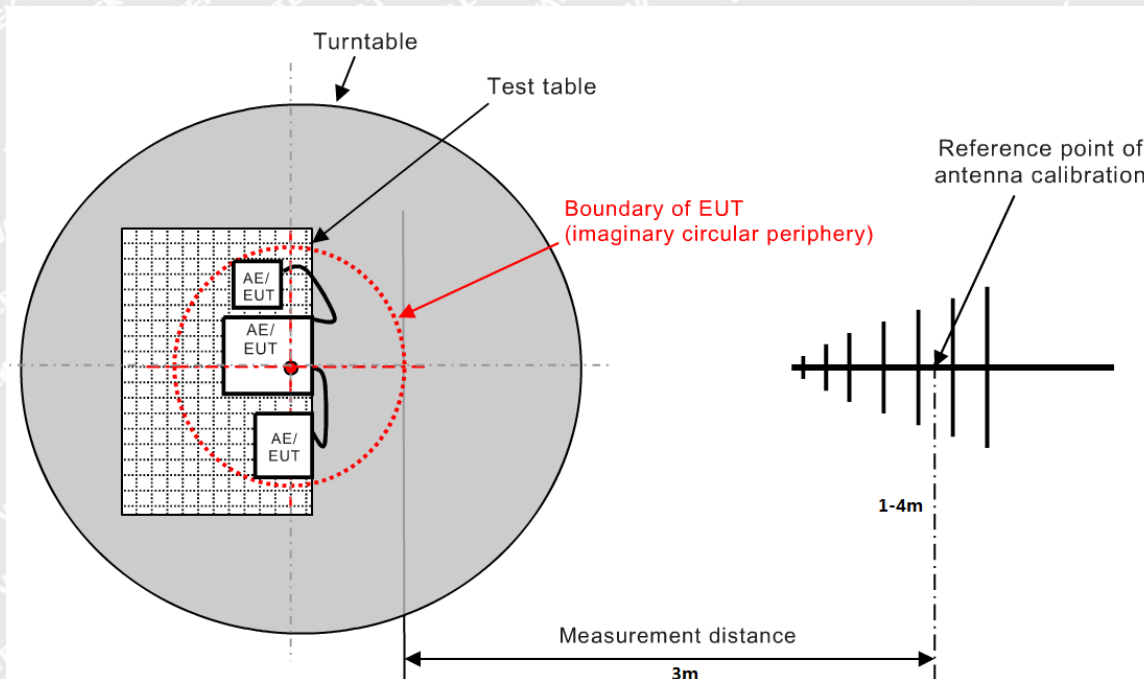
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	3.2420	31.54	10.28	41.82	56.00	-14.18	QP
2	3.2420	29.01	10.28	39.29	46.00	-6.71	AVG
3	3.7820	32.21	10.30	42.51	56.00	-13.49	QP
4	3.7820	29.42	10.30	39.72	46.00	-6.28	AVG
5	4.0500	29.85	10.30	40.15	46.00	-5.85	AVG
6	4.3220	32.74	10.31	43.05	56.00	-12.95	QP
7	4.8620	33.59	10.33	43.92	56.00	-12.08	QP
8*	4.8620	31.08	10.33	41.41	46.00	-4.59	AVG
9	5.4020	33.90	10.33	44.23	60.00	-15.77	QP
10	5.4020	31.38	10.33	41.71	50.00	-8.29	AVG
11	6.4820	33.51	10.34	43.85	60.00	-16.15	QP
12	6.4820	30.86	10.34	41.20	50.00	-8.80	AVG



## 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:

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



### 4.3 Environmental Conditions

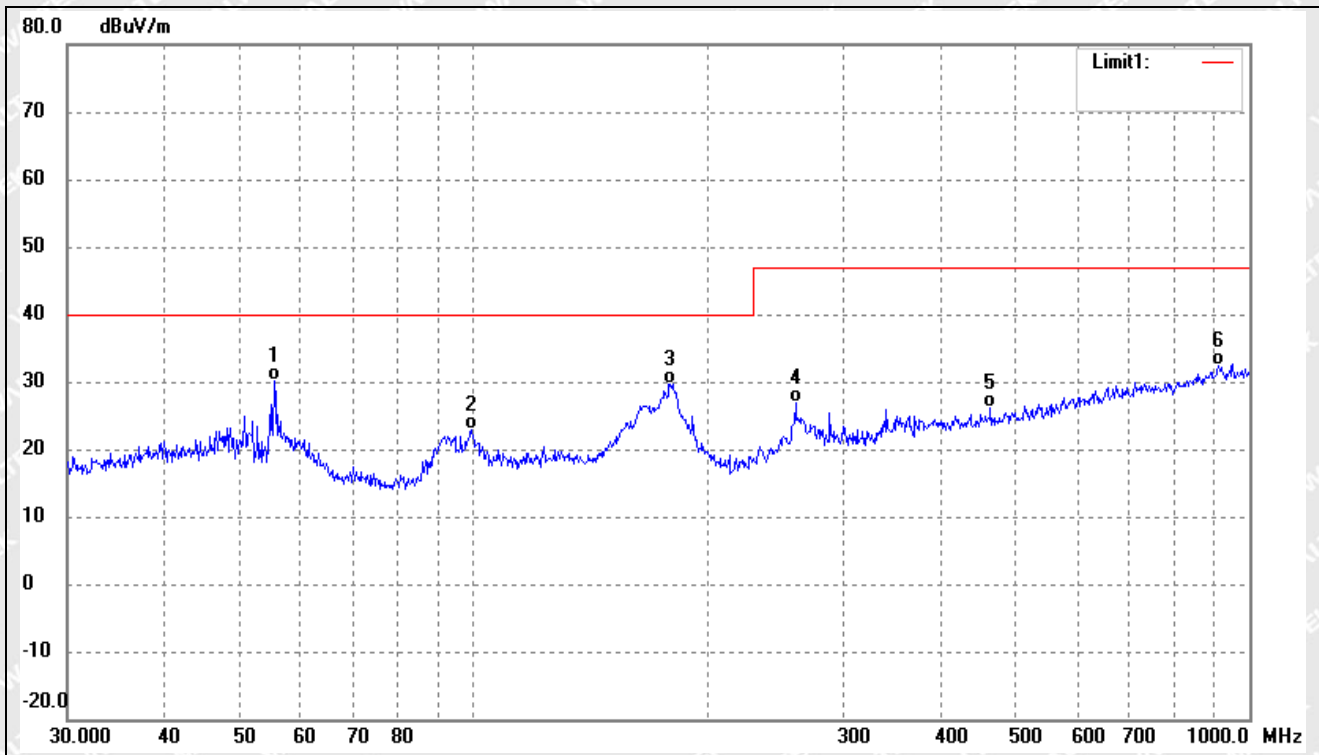
Temperature:	22.5° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

### 4.4 Summary of Test Results/Plots

Note: Only show the worst case in the test report

➤ 30MHz to 1GHz

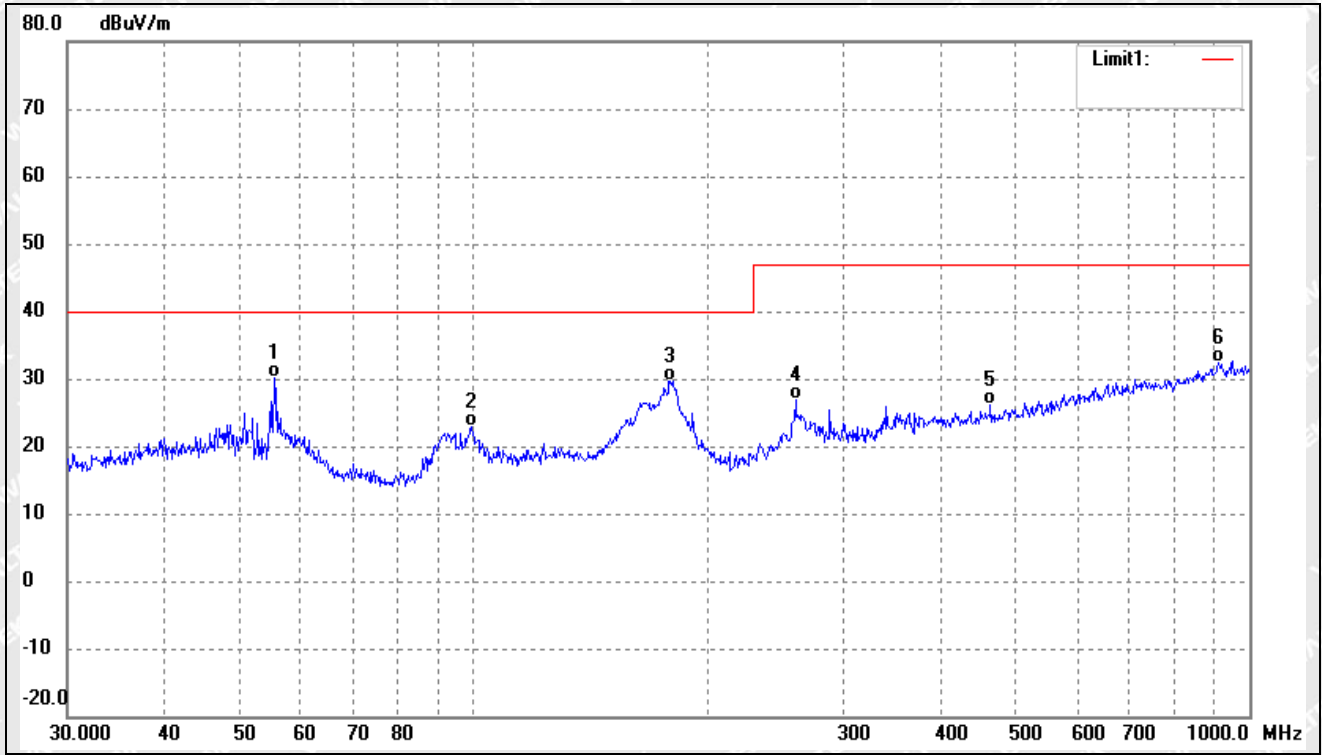
Test mode:	TM1	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	55.4147	38.50	-8.26	30.24	40.00	-9.76	-	-	QP
2	99.5281	30.96	-8.18	22.78	40.00	-17.22	-	-	QP
3	179.3864	39.78	-10.16	29.62	40.00	-10.38	-	-	QP
4	260.1444	33.35	-6.37	26.98	47.00	-20.02	-	-	QP
5	463.9696	28.62	-2.61	26.01	47.00	-20.99	-	-	QP
6	912.8620	28.20	4.06	32.26	47.00	-14.74	-	-	QP



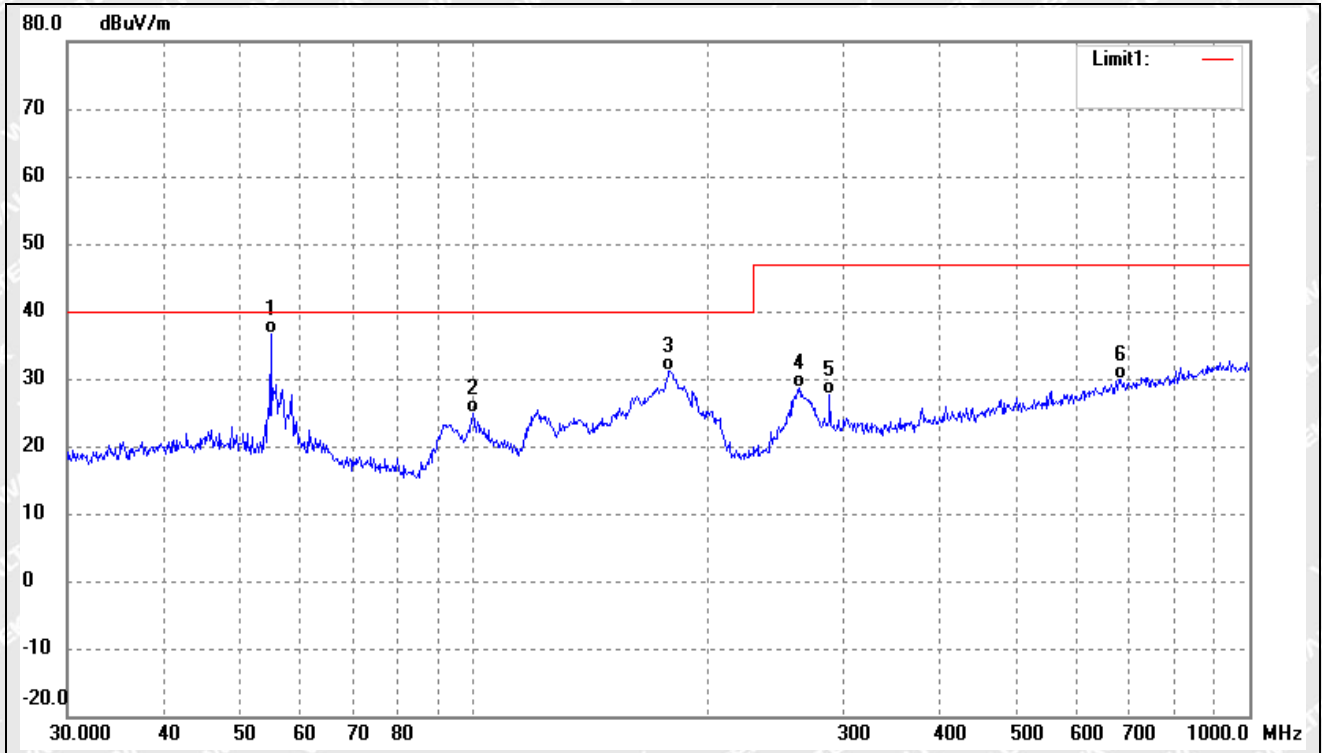
Test mode:	TM1	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	55.4147	38.50	-8.26	30.24	40.00	-9.76	-	-	QP
2	99.5281	30.96	-8.18	22.78	40.00	-17.22	-	-	QP
3	179.3864	39.78	-10.16	29.62	40.00	-10.38	-	-	QP
4	260.1444	33.35	-6.37	26.98	47.00	-20.02	-	-	QP
5	463.9696	28.62	-2.61	26.01	47.00	-20.99	-	-	QP
6	912.8620	28.20	4.06	32.26	47.00	-14.74	-	-	QP



Test mode:	TM2	Polarity:	Horizontal
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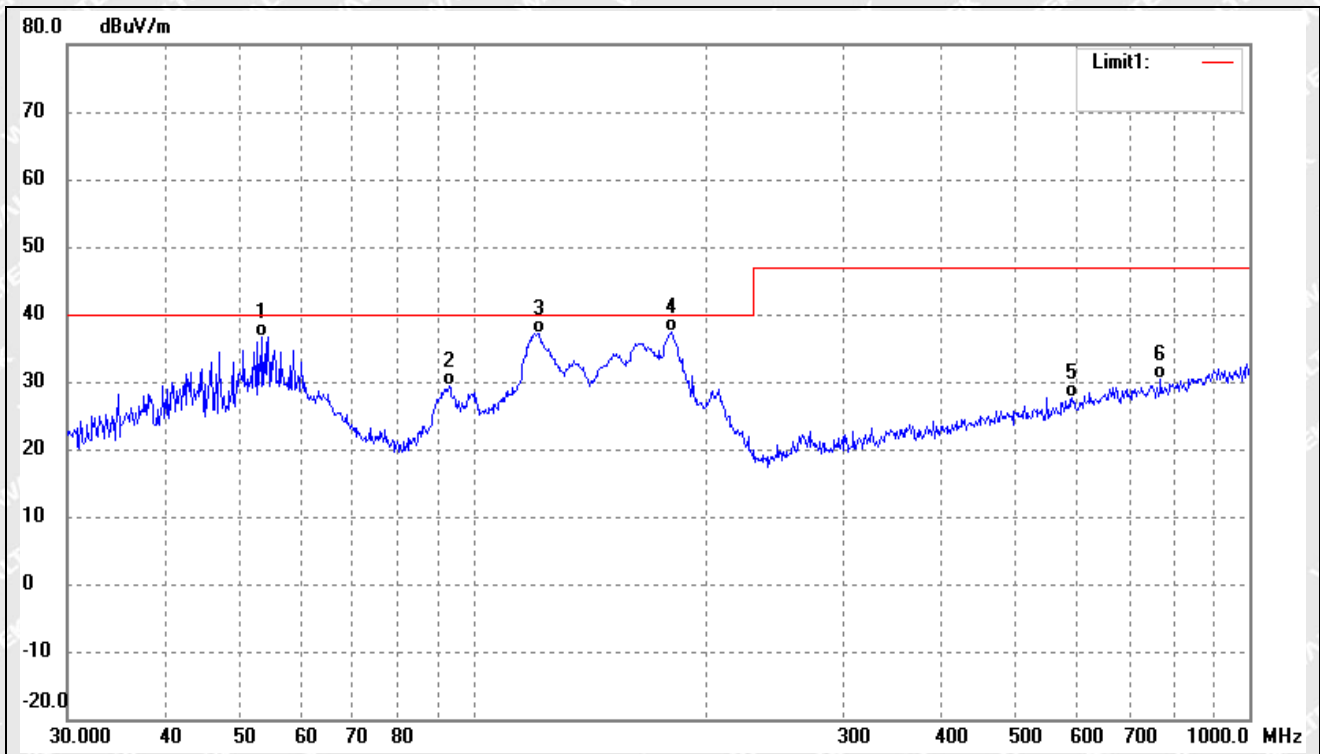


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	54.8348	44.69	-8.16	36.53	40.00	-3.47	-	-	QP
2	99.8777	32.92	-8.09	24.83	40.00	-15.17	-	-	QP
3	178.7584	41.46	-10.21	31.25	40.00	-8.75	-	-	QP
4	262.8955	34.91	-6.27	28.64	47.00	-18.36	-	-	QP
5	287.9904	33.05	-5.42	27.63	47.00	-19.37	-	-	QP
6	682.3485	28.73	1.09	29.82	47.00	-17.18	-	-	QP





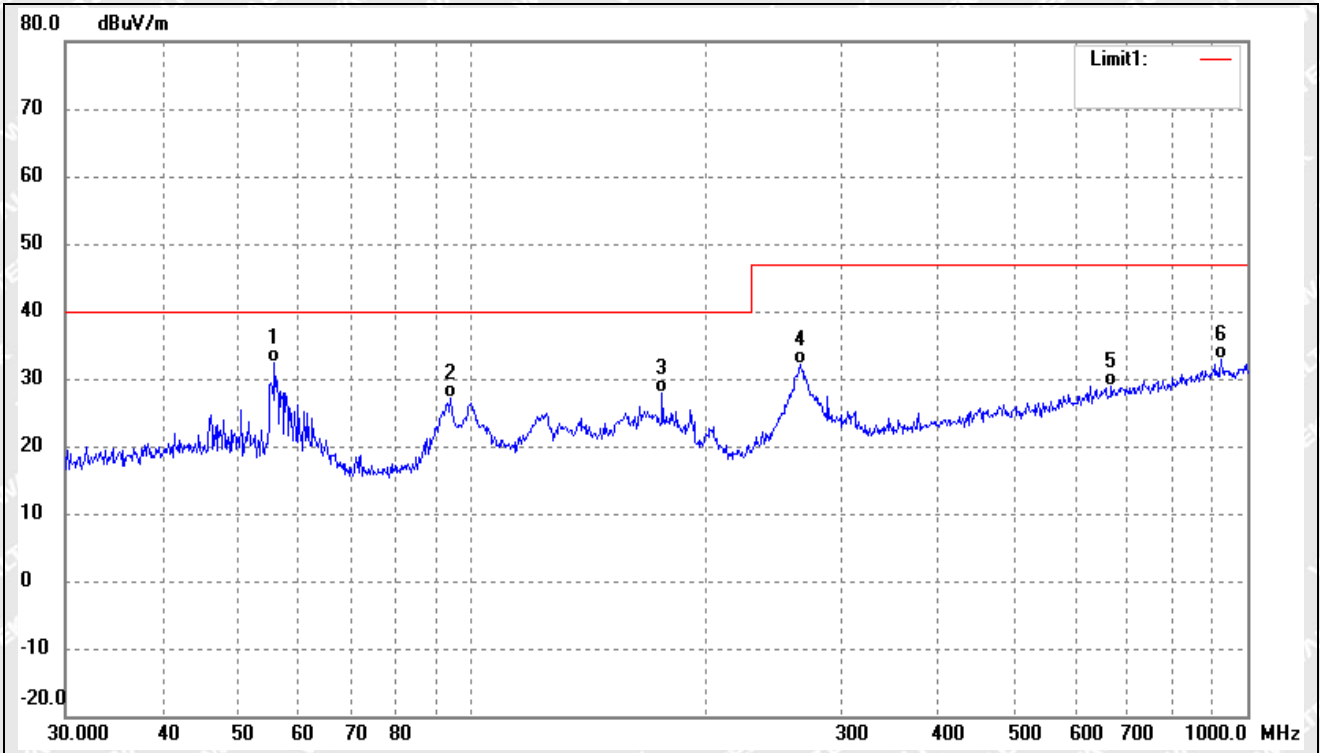
Test mode:	TM2	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	53.5052	44.64	-7.92	36.72	40.00	-3.28	-	-	QP
2	93.1132	39.42	-9.98	29.44	40.00	-10.56	-	-	QP
3	121.5486	46.16	-9.09	37.07	40.00	-2.93	-	-	QP
4	180.0165	47.46	-10.14	37.32	40.00	-2.68	-	-	QP
5	590.9737	28.04	-0.31	27.73	47.00	-19.27	-	-	QP
6	768.7482	28.28	2.01	30.29	47.00	-16.71	-	-	QP



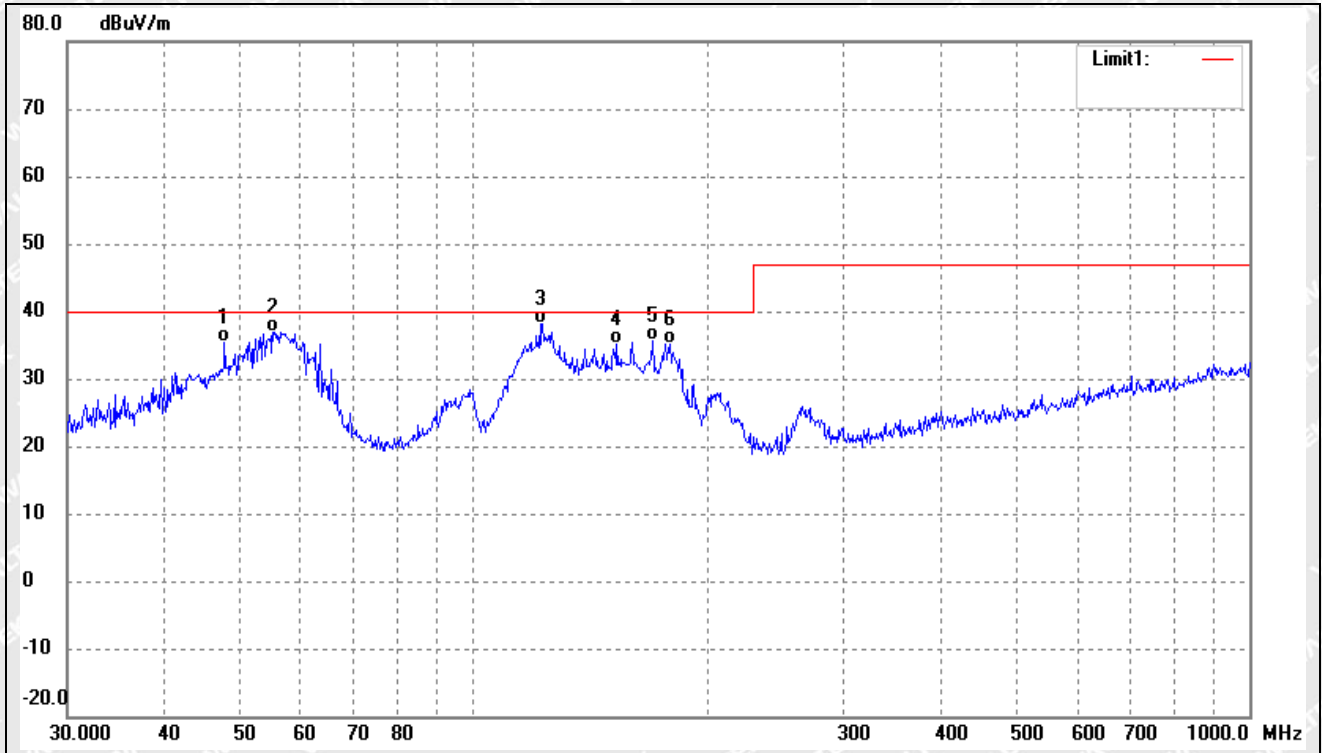
Test mode:	TM3	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	55.8047	40.67	-8.32	32.35	40.00	-7.65	-	-	QP
2	94.0979	36.92	-9.70	27.22	40.00	-12.78	-	-	QP
3	176.2686	38.25	-10.33	27.92	40.00	-12.08	-	-	QP
4	265.6757	38.30	-6.17	32.13	47.00	-14.87	-	-	QP
5	668.1423	28.12	0.86	28.98	47.00	-18.02	-	-	QP
6	925.7563	28.81	4.06	32.87	47.00	-14.13	-	-	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	47.8260	42.72	-7.27	35.45	40.00	-4.55	-	-	QP
2	55.2207	45.20	-8.23	36.97	40.00	-3.03	-	-	QP
3	121.9755	47.34	-9.18	38.16	40.00	-1.84	-	-	QP
4	153.2004	46.60	-11.50	35.10	40.00	-4.90	-	-	QP
5	170.1948	46.20	-10.64	35.56	40.00	-4.44	-	-	QP
6	179.3864	45.28	-10.16	35.12	40.00	-4.88	-	-	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.

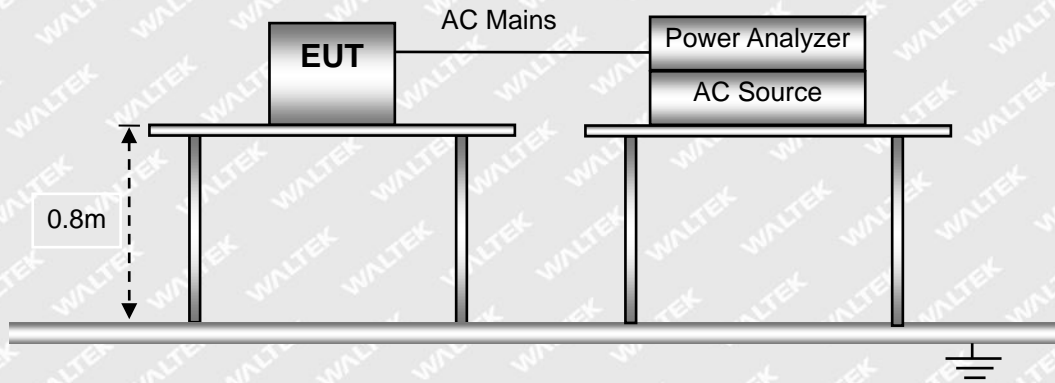


## 5. Harmonic Current Emissions

### 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:	25°C
Relative Humidity:	50%
ATM Pressure:	1011 mbar

### 5.5 Harmonic Current Emissions Test Data



### Harmonics – Class-A

Test category: Class-A (European limits)

Test Margin: 100

Test date: 2022/10/25

Start time: 11:38:29

End time: 11:41:10

Test duration (min): 2.5

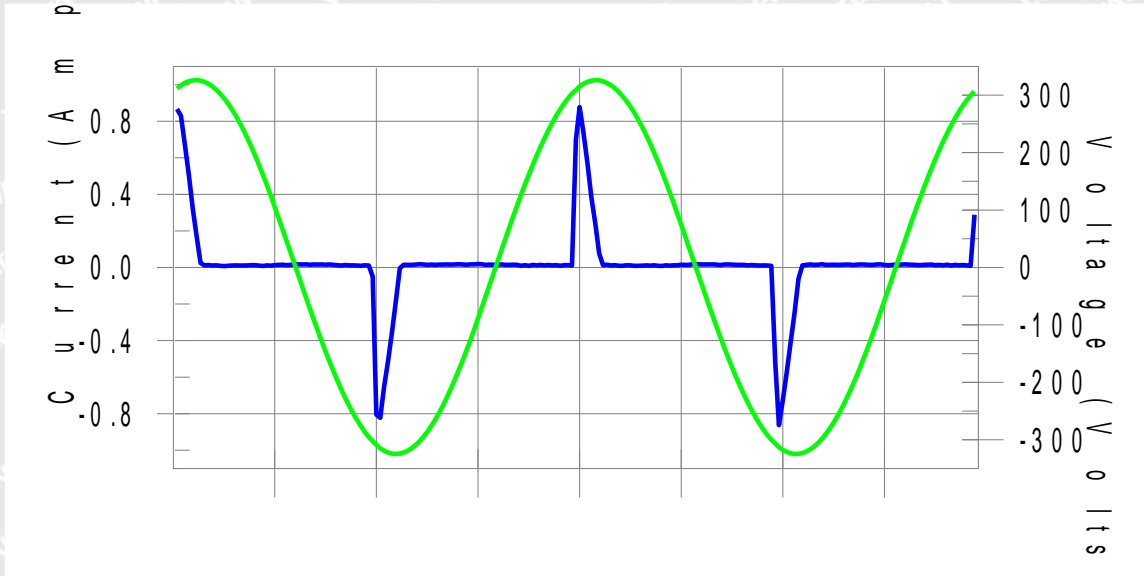
Data file name: H-000544.cts\_data

Comment: TM1

Test Result: Pass

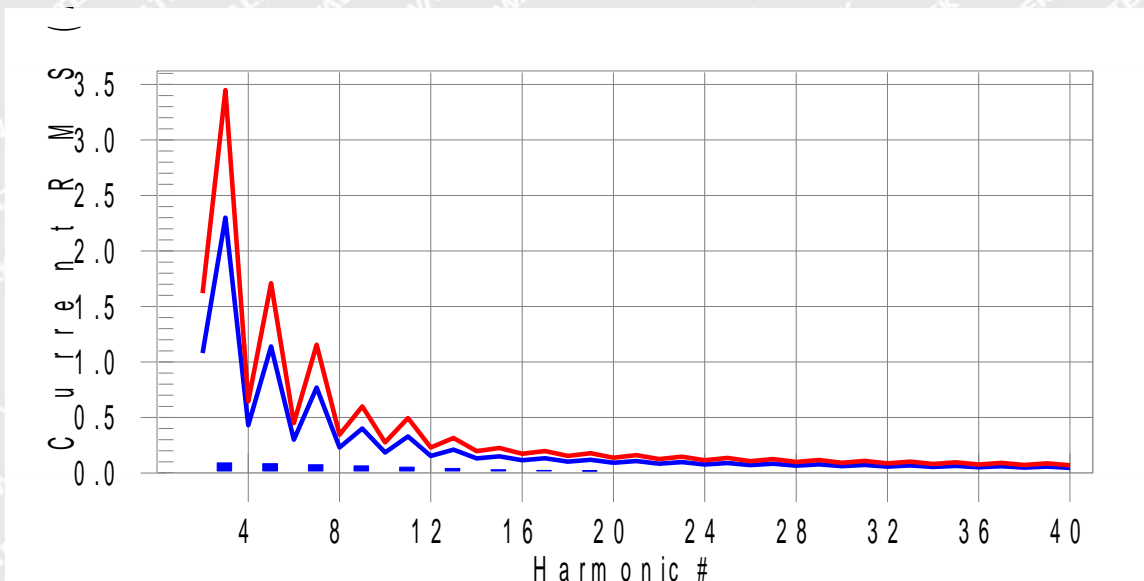
Source qualification: Normal

#### Current & voltage waveforms



#### Harmonics and Class A limit line

#### European Limits



**Test result: Pass**    **Worst harmonics H15-13.9% of 150% limit, H15-20.7% of 100% limit**



## Current Test Result Summary (Run time)

**Test category: Class-A (European limits)**      **Test Margin: 100**  
**Test date: 2022/10/25**      **Start time: 11:38:29**      **End time: 11:41:10**  
**Test duration (min): 2.5**      **Data file name: H-000544.cts\_data**  
**Comment: TM1**

**Test Result: Pass**      **Source qualification: Normal**  
**THC(A): 0.181**      **I-THD(%): 190.2**      **POHC(A): 0.041**      **POHC Limit(A): 0.251**

### Highest parameter values during test:

**V\_RMS (Volts): 230.11**      **Frequency(Hz): 50.00**  
**I\_Peak (Amps): 0.922**      **I\_RMS (Amps): 0.208**  
**I\_Fund (Amps): 0.095**      **Crest Factor: 4.491**  
**Power (Watts): 21.5**      **Power Factor: 0.452**

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	0.090	2.300	3.9	0.092	3.450	2.7	Pass
4	0.001	0.430	N/A	0.001	0.645	N/A	Pass
5	0.084	1.140	7.3	0.085	1.710	5.0	Pass
6	0.000	0.300	N/A	0.001	0.450	N/A	Pass
7	0.075	0.770	9.7	0.076	1.155	6.6	Pass
8	0.000	0.230	N/A	0.001	0.345	N/A	Pass
9	0.064	0.400	16.0	0.065	0.600	10.8	Pass
10	0.000	0.184	N/A	0.001	0.276	N/A	Pass
11	0.052	0.330	15.9	0.053	0.495	10.7	Pass
12	0.000	0.153	N/A	0.001	0.230	N/A	Pass
13	0.041	0.210	19.5	0.041	0.315	13.1	Pass
14	0.000	0.131	N/A	0.001	0.197	N/A	Pass
15	0.031	0.150	20.7	0.031	0.225	13.9	Pass
16	0.000	0.115	N/A	0.001	0.173	N/A	Pass
17	0.023	0.132	17.8	0.024	0.198	11.9	Pass
18	0.000	0.102	N/A	0.001	0.153	N/A	Pass
19	0.019	0.118	16.1	0.019	0.178	10.9	Pass
20	0.000	0.092	N/A	0.001	0.138	N/A	Pass
21	0.018	0.107	16.4	0.018	0.161	11.1	Pass
22	0.000	0.084	N/A	0.001	0.125	N/A	Pass
23	0.017	0.098	17.6	0.018	0.147	12.0	Pass
24	0.000	0.077	N/A	0.001	0.115	N/A	Pass
25	0.017	0.090	18.6	0.017	0.135	12.6	Pass
26	0.000	0.071	N/A	0.001	0.107	N/A	Pass



Reference No.: WTF22X09189734W003

27	0.016	0.083	18.6	0.016	0.125	12.6	Pass
28	0.000	0.066	N/A	0.001	0.099	N/A	Pass
29	0.014	0.078	17.6	0.014	0.116	11.8	Pass
30	0.000	0.061	N/A	0.001	0.092	N/A	Pass
31	0.011	0.073	15.8	0.012	0.109	10.6	Pass
32	0.000	0.058	N/A	0.001	0.086	N/A	Pass
33	0.009	0.068	13.9	0.010	0.102	9.4	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.008	0.064	12.7	0.008	0.096	8.6	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.008	0.061	12.5	0.008	0.091	8.5	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.007	0.058	13.0	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: 2022/10/25**      **Start time: 11:38:29**      **End time: 11:41:10**  
**Test duration (min): 2.5**      **Data file name: H-000544.cts\_data**  
**Comment: TM1**

**Test Result: Pass**      **Source qualification: Normal**

### Highest parameter values during test:

**Voltage (Vrms): 230.11**      **Frequency(Hz): 50.00**  
**I\_Peak (Amps): 0.922**      **I\_RMS (Amps): 0.208**  
**I\_Fund (Amps): 0.095**      **Crest Factor: 4.491**  
**Power (Watts): 21.5**      **Power Factor: 0.452**

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.055	0.460	11.95	OK
3	0.517	2.070	24.96	OK
4	0.077	0.460	16.79	OK
5	0.062	0.920	6.76	OK
6	0.032	0.460	6.98	OK
7	0.043	0.690	6.22	OK
8	0.012	0.460	2.67	OK
9	0.039	0.460	8.44	OK
10	0.011	0.460	2.28	OK
11	0.043	0.230	18.70	OK
12	0.010	0.230	4.31	OK
13	0.033	0.230	14.40	OK
14	0.007	0.230	3.03	OK
15	0.035	0.230	15.36	OK
16	0.009	0.230	3.73	OK
17	0.024	0.230	10.47	OK
18	0.010	0.230	4.56	OK
19	0.020	0.230	8.76	OK
20	0.014	0.230	6.26	OK
21	0.020	0.230	8.69	OK
22	0.004	0.230	1.94	OK
23	0.020	0.230	8.89	OK
24	0.003	0.230	1.42	OK
25	0.023	0.230	9.88	OK
26	0.002	0.230	1.05	OK
27	0.019	0.230	8.21	OK





Reference No.: WTF22X09189734W003

28	0.004	0.230	1.64	OK
29	0.024	0.230	10.31	OK
30	0.004	0.230	1.54	OK
31	0.019	0.230	8.10	OK
32	0.003	0.230	1.11	OK
33	0.017	0.230	7.56	OK
34	0.002	0.230	0.86	OK
35	0.015	0.230	6.35	OK
36	0.002	0.230	0.99	OK
37	0.013	0.230	5.75	OK
38	0.003	0.230	1.11	OK
39	0.013	0.230	5.44	OK
40	0.008	0.230	3.49	OK

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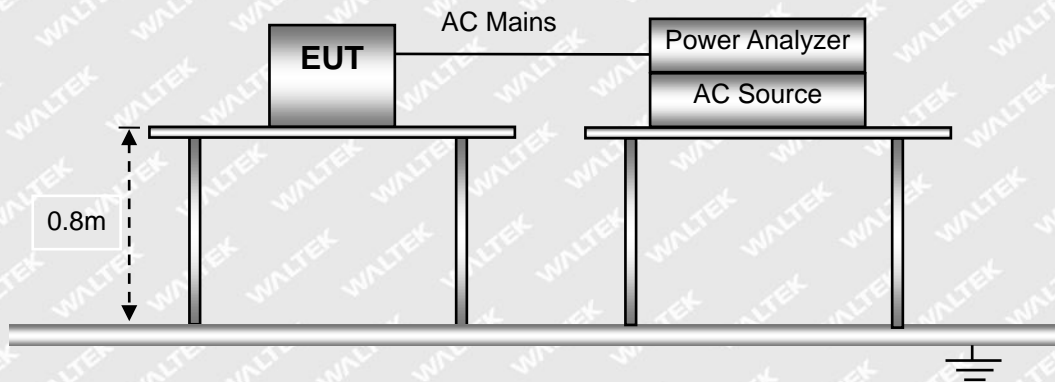


## 6. Voltage Fluctuation and Flicker

### 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:	25°C
Relative Humidity:	50%
ATM Pressure:	1011 mbar

### 6.5 Voltage Fluctuation and Flicker Test Data

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



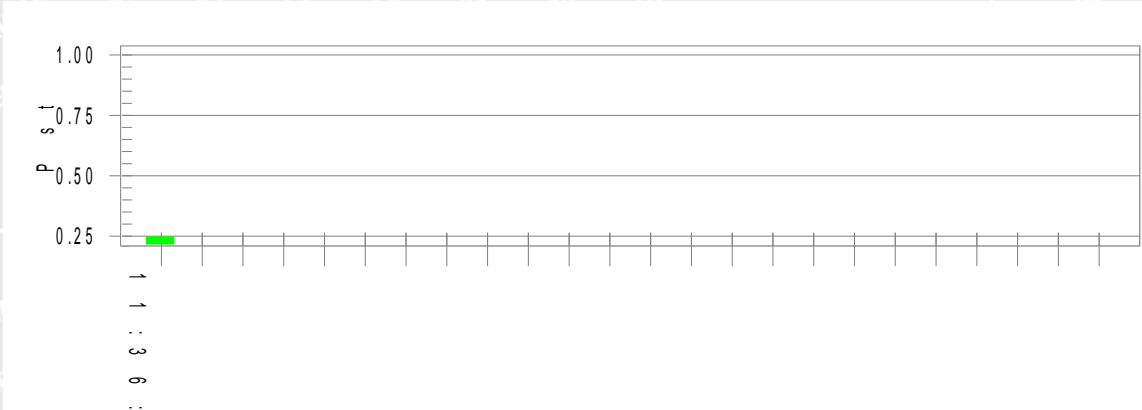
Test mode:	TM1
------------	-----

**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:**

**Vrms at the end of test (Volt): 230.02**

**Highest dt (%):**

**Test limit (%):**

**T-max (mS): 0**

**Test limit (mS): 500.0 Pass**

**Highest dc (%): 0.00**

**Test limit (%): 3.30 Pass**

**Highest dmax (%): 0.00**

**Test limit (%): 4.00 Pass**

**Highest Pst (10 min. period): 0.247**

**Test limit: 1.000 Pass**

**Highest Plt (2 hr. period): 0.108**

**Test limit: 0.650 Pass**

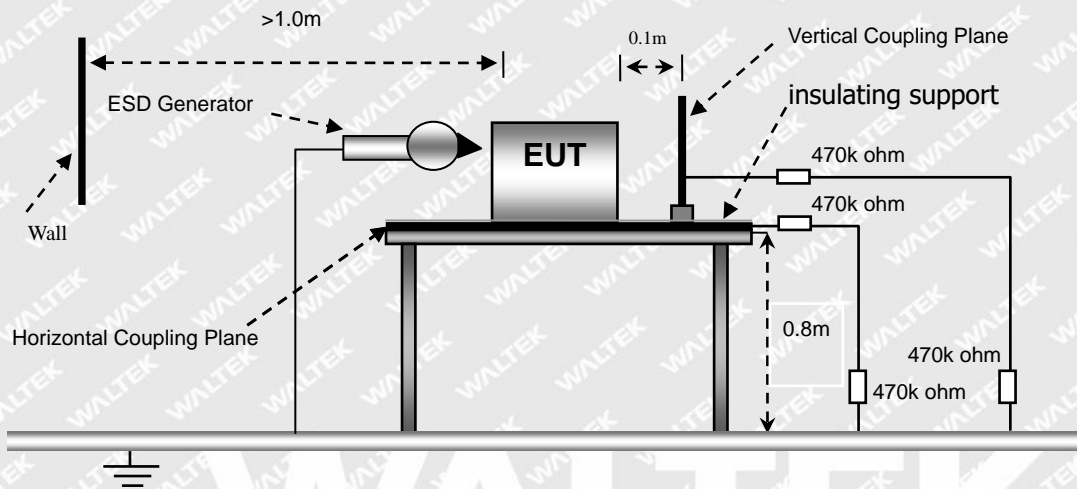


## 7. Electrostatic Discharge (ESD)

### 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	B
Note: TM4 for TT,TR		

### 7.4 Environmental Conditions

Temperature:	25°C
Relative Humidity:	50%
ATM Pressure:	1011 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
Gap	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	/	/	/	/
<b>Indirect Contact Discharge</b>								
HCP (6 Sides)	A	A	A	A	/	/	/	/
VCP (4 Sides)	A	A	A	A	/	/	/	/

Test Result: Pass

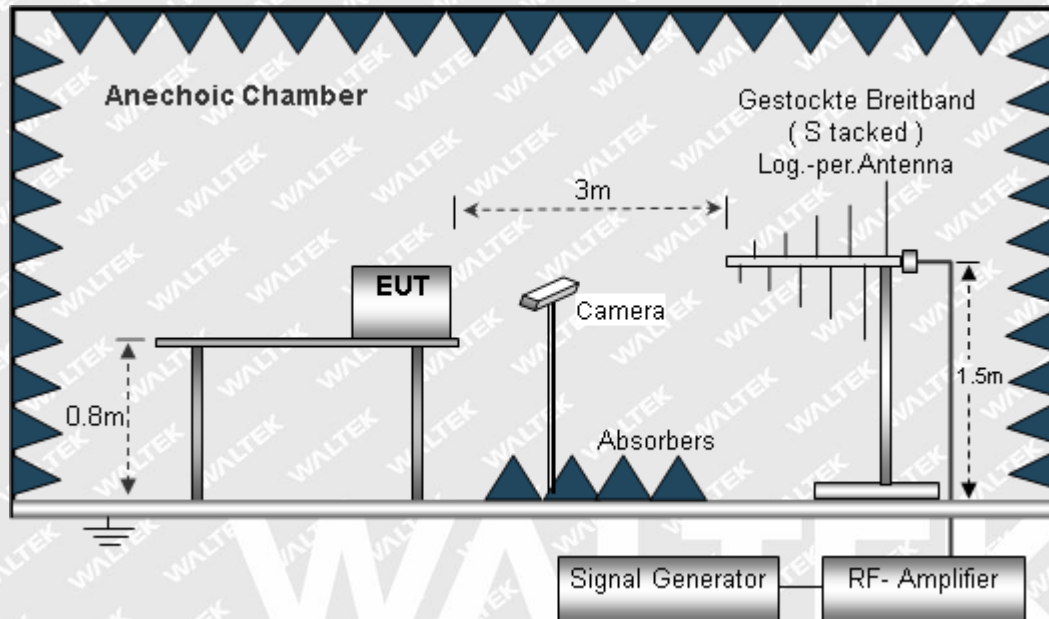
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## 8. Radio Frequency Electromagnetic Field (R/S)

### 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	A
Note: TM4 for CT,CR		

### 8.4 Environmental Conditions

Temperature:	25°C
Relative Humidity:	50%
ATM Pressure:	1011 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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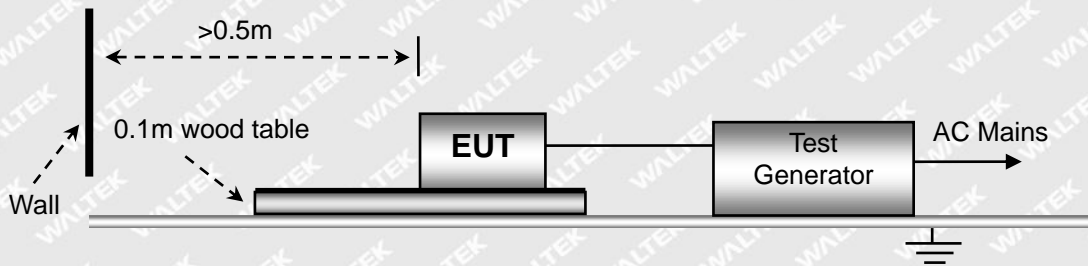
## 9. Fast Transients, Common Mode (EFT)

### 9.1 Test Procedure

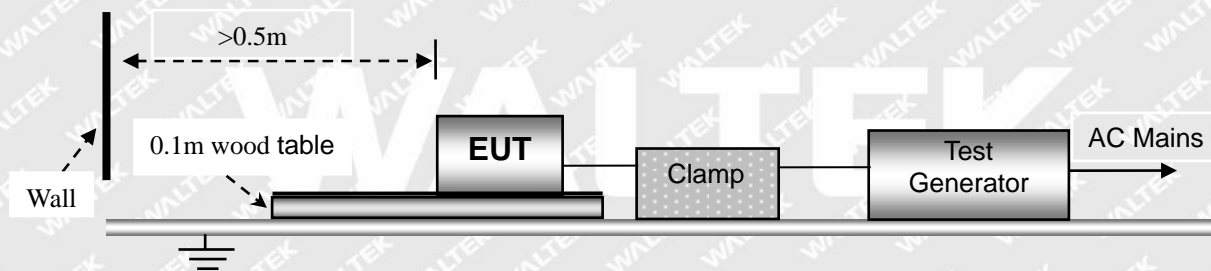
Test is conducting under the description of EN 61000-4-4.

### 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:	25 °C
Relative Humidity:	50%
ATM Pressure:	1011 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



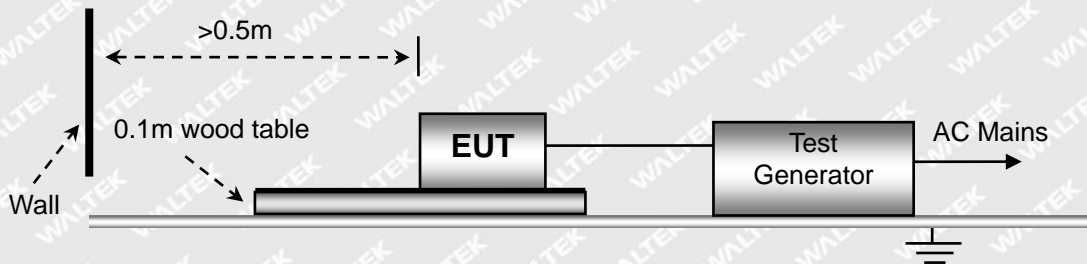
## 10. Surges

### 10.1 Test Procedure

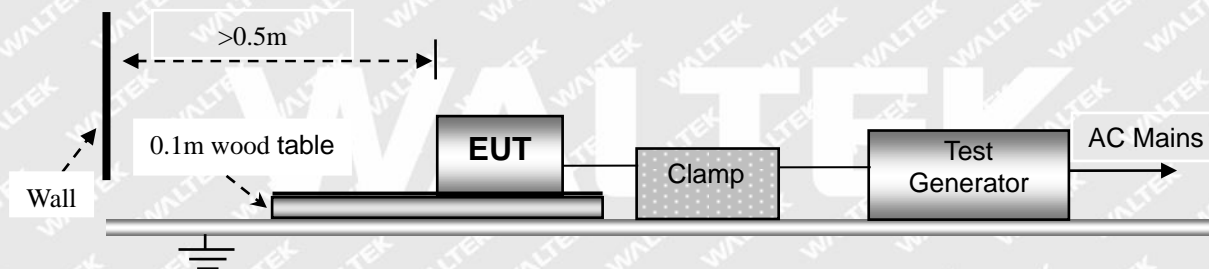
Test is conducting under the description of EN 61000-4-5.

### 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:	25 °C
Relative Humidity:	50%
ATM Pressure:	1011 mbar

### 10.5 Surge Test Data



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

Test Result: Pass

# WALTEK



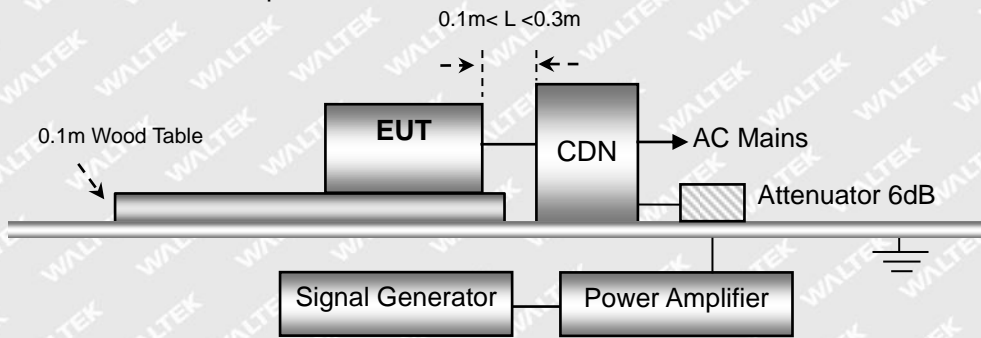
## 11. Radio Frequency, Common Mode (C/S)

### 11.1 Test Procedure

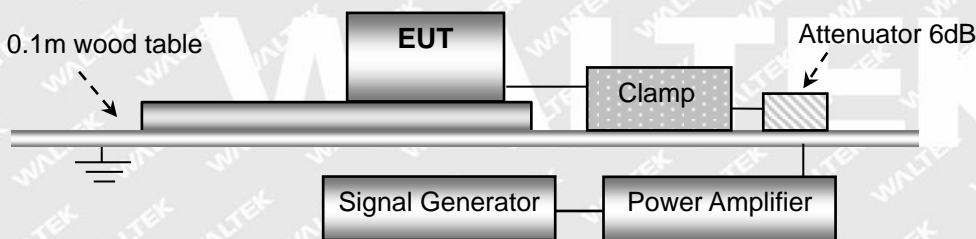
Test is conducting under the description of EN 61000-4-6.

### 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:	25 °C
Relative Humidity:	50%
ATM Pressure:	1011 mbar

### 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

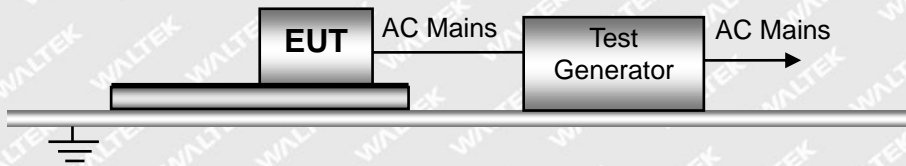


## 12. Voltage Dips and Interruptions

### 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:	25 °C
Relative Humidity:	50%
ATM Pressure:	1011 mbar

### 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

---

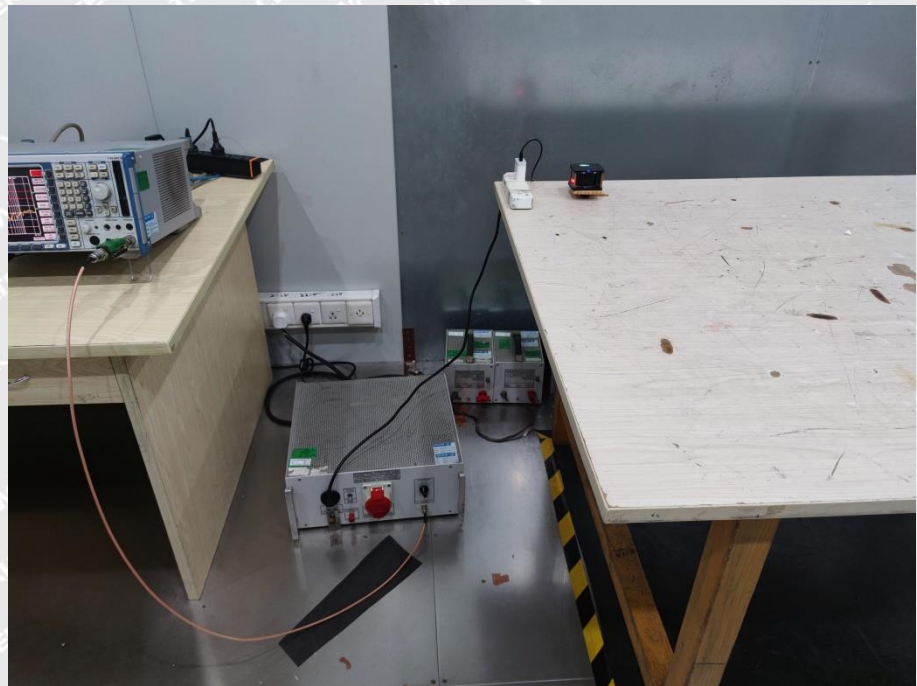
Please refer to "ANNEX".

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## EXHIBIT 2 - TEST SETUP PHOTOGRAPHS

**Conducted Emission  
Test Setup**



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



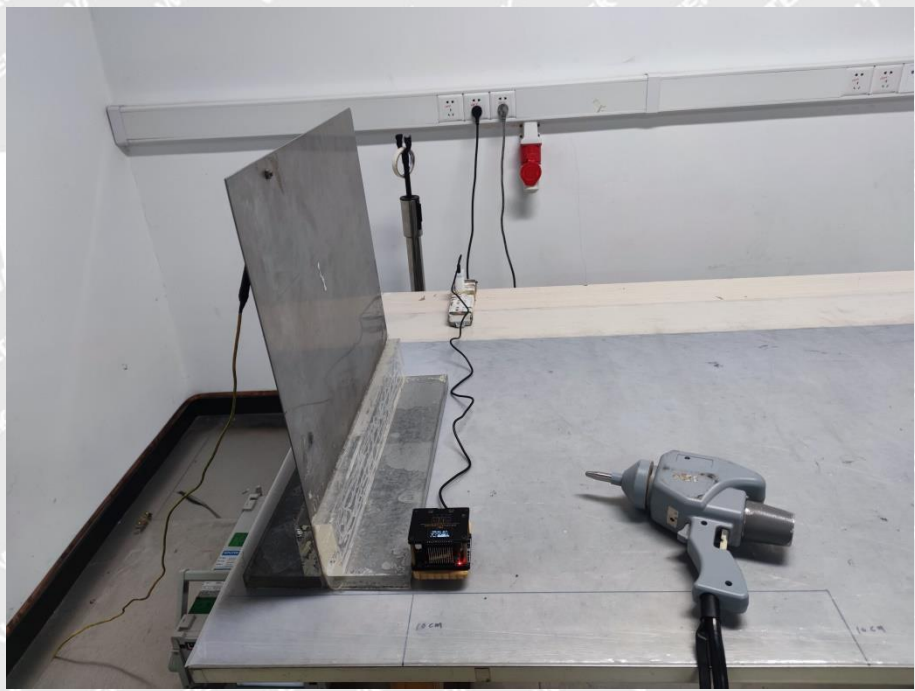




**Harmonic/Flicker Test View**

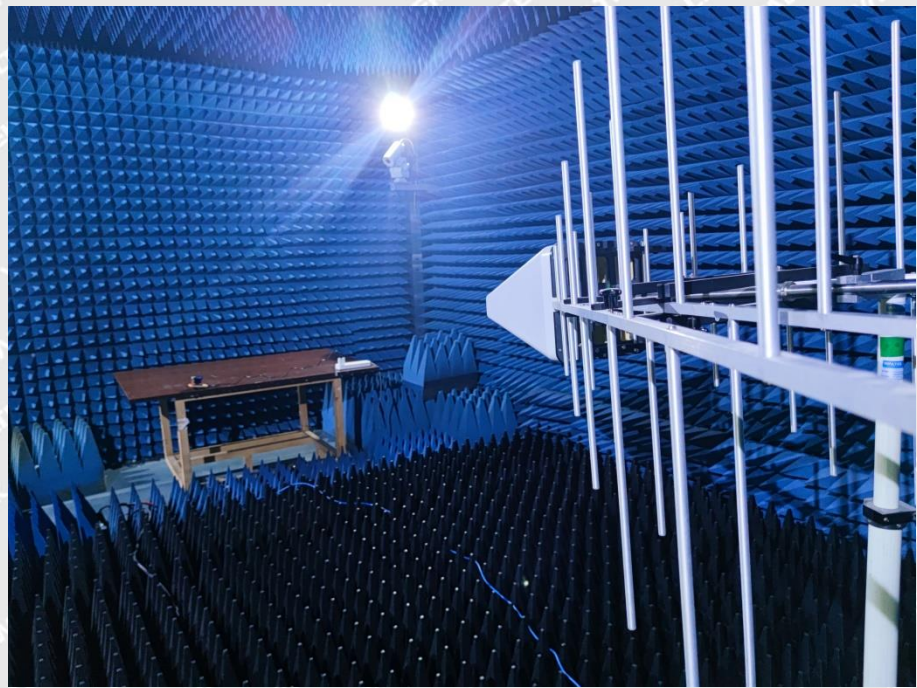


**EN 61000-4-2 Test View**





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

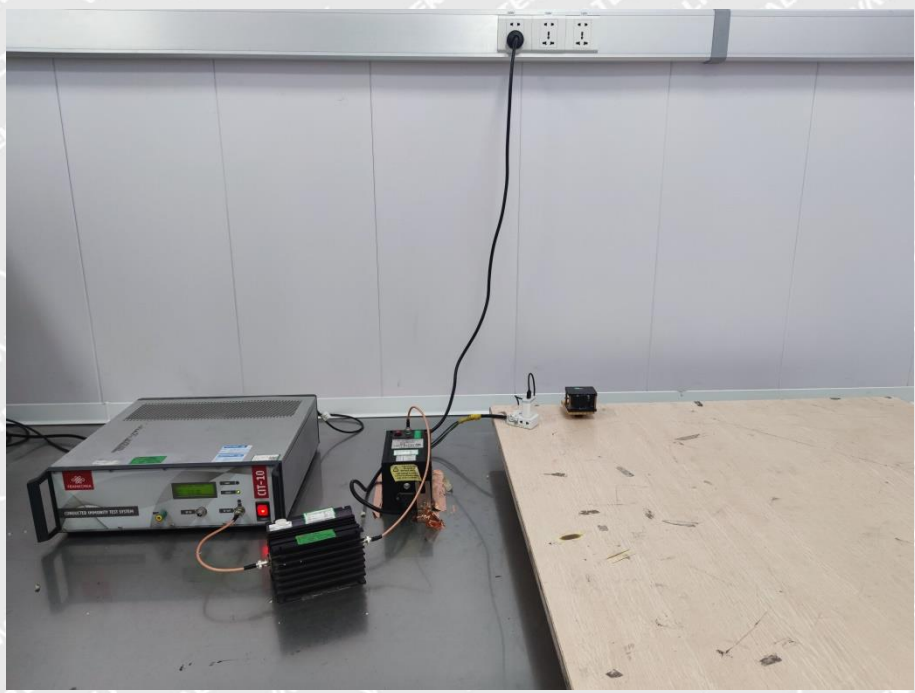


**EN 61000-4-4/5/11 Test View**





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



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

# WALTEK



# TEST REPORT

**Reference No.** ..... : WTF22U09189738V  
**Applicant** ..... : Mid Ocean Brands B.V.  
**Address** ..... : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon,  
Hong Kong  
**Manufacturer** ..... : 117237  
**Address** ..... : /  
**Product Name** ..... : Magnetic wireless charger with car mount  
**Model No.** ..... : MO6571  
**Standards** ..... : EN 50498:2010  
**Test Category** ..... : CE-EMC  
**Test Item** ..... : All item  
**Date of Receipt sample** ..... : 2022-10-10  
**Date of Test** ..... : 2022-10-10 to 2022-10-24  
**Date of Issue** ..... : 2022-10-25  
**Test Report Form No.** ..... : WT-50498A-01B  
**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, reviewer and approver.

**Prepared By:**

**Waltek Testing Group (Suzhou) Co., Ltd.**

Address: NO.4499,Wuzhong Avenue,Hengjing Street,Wuzhong Economic  
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Tel : + 86 - 512 - 6655 2666

Fax: + 86 - 512 - 6603 2668

Email: suz@waltek.com.cn

Tested by:

Approved by:

*Anna. Shu*

Anna Shu

*Fish Yu*

Fish Yu



## 1 Test Summary

EMISSION			
Test Item	Test Method	Class / Severity	Result
Broadband radiated disturbances, 30MHz to 1000MHz	CISPR 25:2008	Table 1 of Clause 7.1.	Pass
Narrowband disturbances, 30MHz to 1000MHz	CISPR 25:2008	Table 2 of Clause 7.2	Pass
Conducted transient disturbances	ISO 7637-2:2004	Table 3 of Clause 7.3	Pass
IMMUNITY			
Test Item	Test Method	Performance Criteria	Result
Conducted transient immunity	ISO 7637-2:2004	D	N/A

Remark:

Pass

Test item meets the requirement

Fail

Test item does not meet the requirement

# WALTEK



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# WALTEK



### 3 General Information

#### 3.1 General Description of E.U.T.

**Product Name** ..... : Magnetic wireless charger with car mount

**Model No.** ..... : MO6571

**Technical Data** ..... : DC 9V

#### 3.2 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: ---

# WALTEK



#### 4 Equipment Used during Test

<input checked="" type="checkbox"/> Radiated Emission					
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration due
1	EMI TEST RECEIVER	R&S	ESR7	102319	2023.03.26
2	Biconical Antenna	Schwarzbeck	VHA 9124+ BBA9106	01431	2022.11.08
3	Log-periodic Antenna	Schwarzbeck	VUSLP 9111 B	00424	2022.11.08
4	preamplifier	Chinese-emc	-	1022-6GHz 4	2023.07.15
5	LISN	Schwarzbeck	NNBM 8124N	06747/06748	2023.07.15
<input checked="" type="checkbox"/> Transient Conducted Emission					
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration due
1	Auto Emissions System	TESEQ	AES 5501	1280	2023.03.26
2	Oscilloscope	KEYSIGHT	DSOX1102G	CN58166488	2023.03.26

# WALTEK





## 5 Emission Test Results

### 5.1 Radiated disturbances For 30MHz to 1000MHz

Test Requirement .....	: EN 50498:2010
Test Method .....	: CISPR 25:2008
Test Result .....	: Pass
Frequency Range .....	: 30MHz to 1000MHz
Test Limit .....	: Table 1 of Clause 7.1 for Broadband radiated disturbances

Frequency range MHz	Limits (QP) dB $\mu$ V/m
30 to 75	62 – 52 <sup>a</sup>
75 to 400	52 – 63 <sup>b</sup>
400 to 1 000	63

<sup>a</sup> Decreasing linearly with the log of the frequency.  
<sup>b</sup> Increasing linearly with the log of the frequency.

Table 2 of Clause 7.2 for Narrowband radiated disturbances

Frequency range MHz	Limits (AV) dB $\mu$ V/m
30 to 75	52 – 42 <sup>a</sup>
75 to 400	42 – 53 <sup>b</sup>
400 to 1 000	53

<sup>a</sup> Decreasing linearly with the log of the frequency.  
<sup>b</sup> Increasing linearly with the log of the frequency.

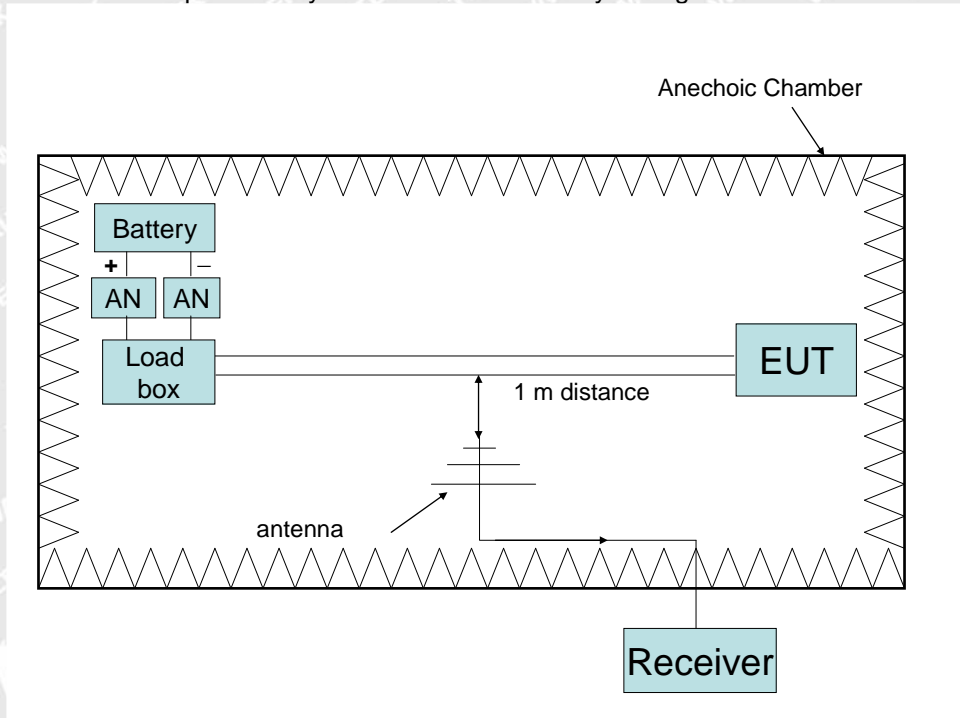
#### 5.1.1 E.U.T. Operation

Operating Environment:	
Temperature .....	: 22.9°C
Humidity .....	: 56.9%RH
Atmospheric Pressure .....	: 100.1 kPa
EUT Operation:	
Test Input Voltage .....	: DC 9V
Operating Mode .....	: Power on



### 5.1.2 Block Diagram of Test Setup and procedure

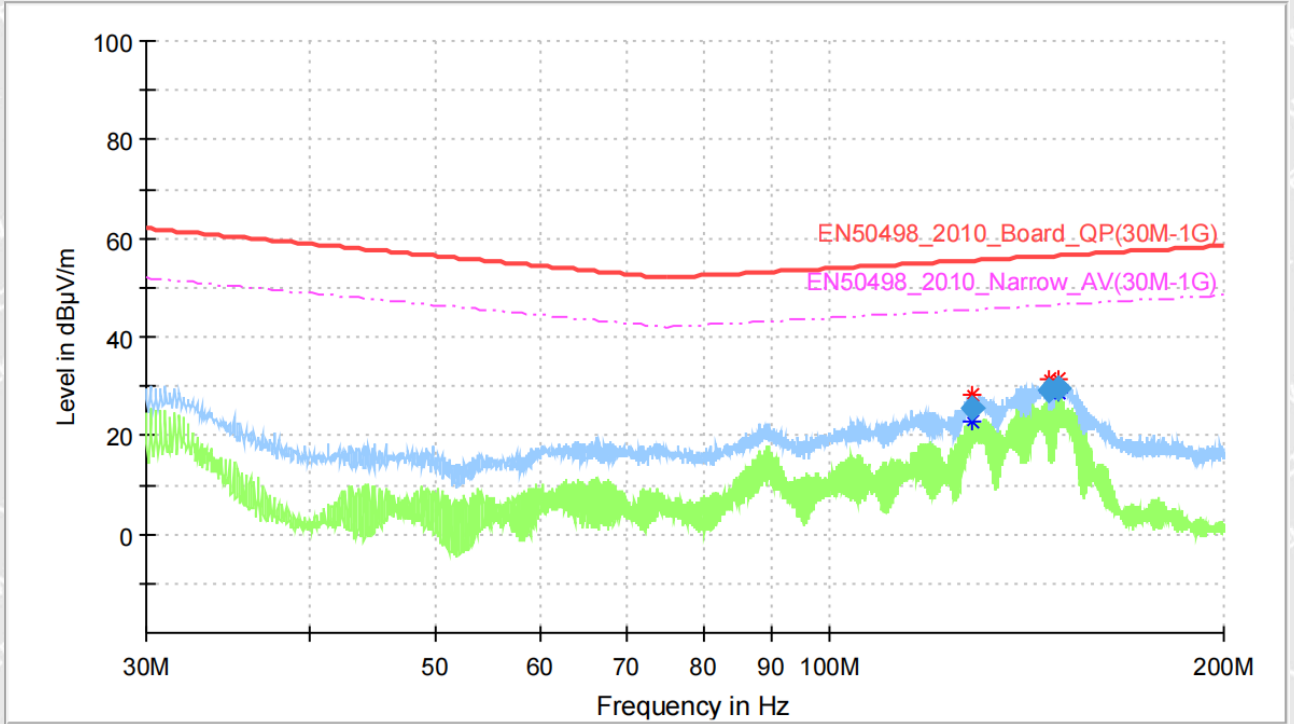
The EUT was insulated placed 50mm above the ground plane, the ground plane was in a height of 1m to the reference plane of semi-anechoic chamber and with electrical connection. No additional electric connection was made between the EUT and ground plane as the EUT will not be intended to be bonded to the bodywork of the vehicle. The EUT was powered by 12V/24V vehicle battery through 5  $\mu$ H/50 ohm LISN.





**5.1.3 Measurement Data**

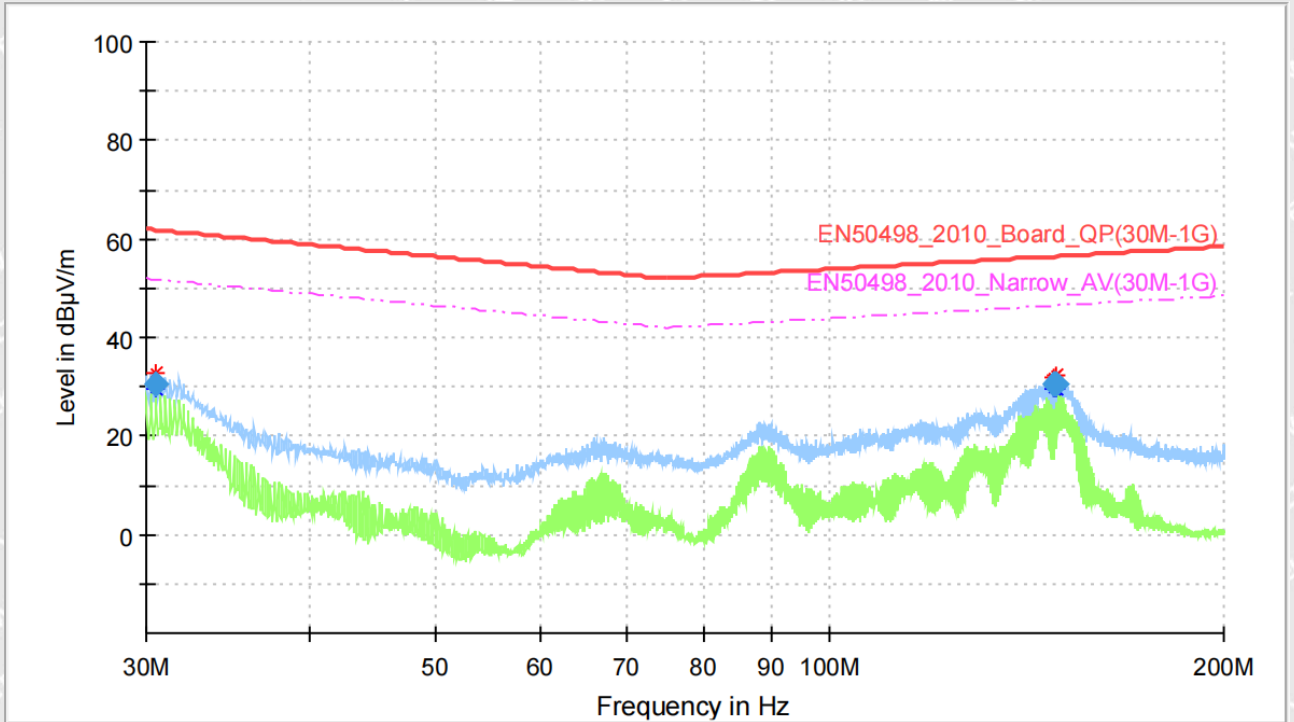
30MHz-200MHz Antenna-Horizontal:



Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)
128.200000	28.38	---	55.52	27.14	---	---
128.200000	---	22.83	45.52	22.69	---	---
147.100000	---	28.62	46.43	17.81	---	---
147.100000	31.51	---	56.43	24.92	---	---
149.150000	31.64	---	56.52	24.88	---	---
149.150000	---	28.57	46.52	17.95	---	---



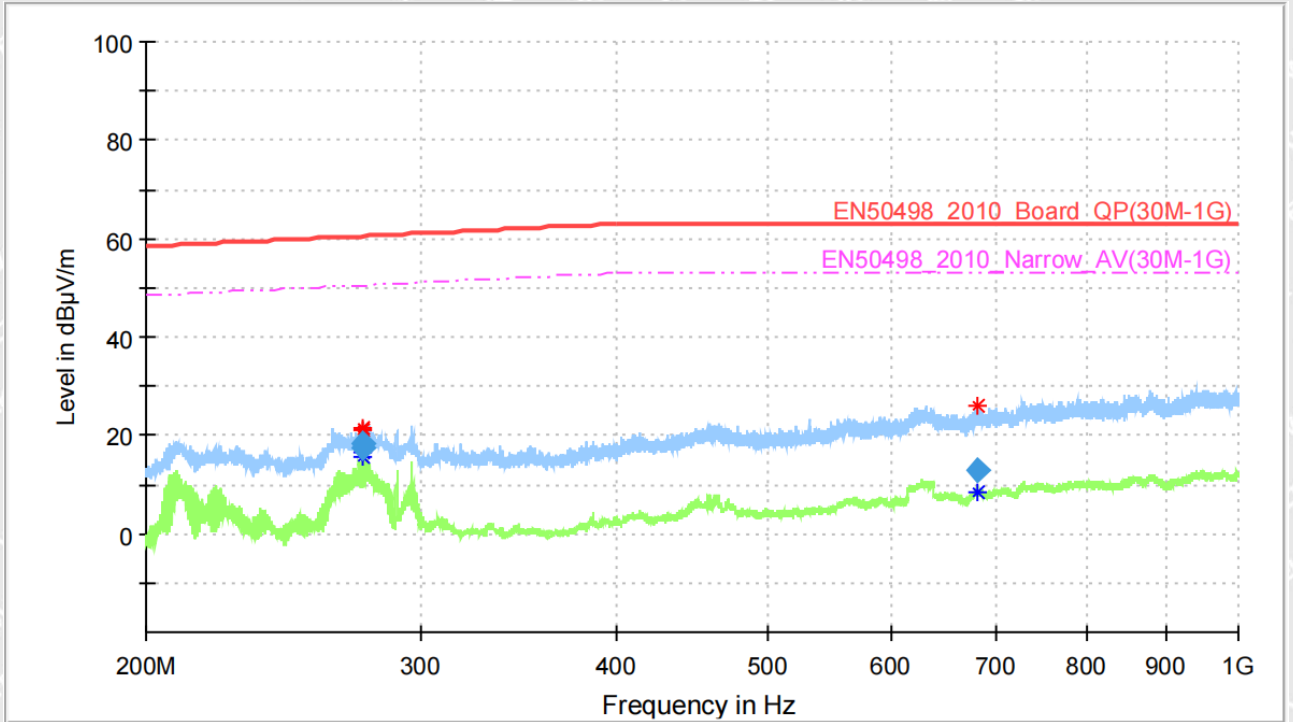
30MHz-200MHz Antenna Vertical:



Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)
30.500000	33.00	---	61.82	28.82	---	---
30.500000	---	29.57	51.82	22.25	---	---
148.450000	31.95	---	56.49	24.53	---	---
148.450000	---	29.59	46.49	16.89	---	---
148.950000	32.14	---	56.51	24.37	---	---
148.950000	---	29.48	46.51	17.03	---	---



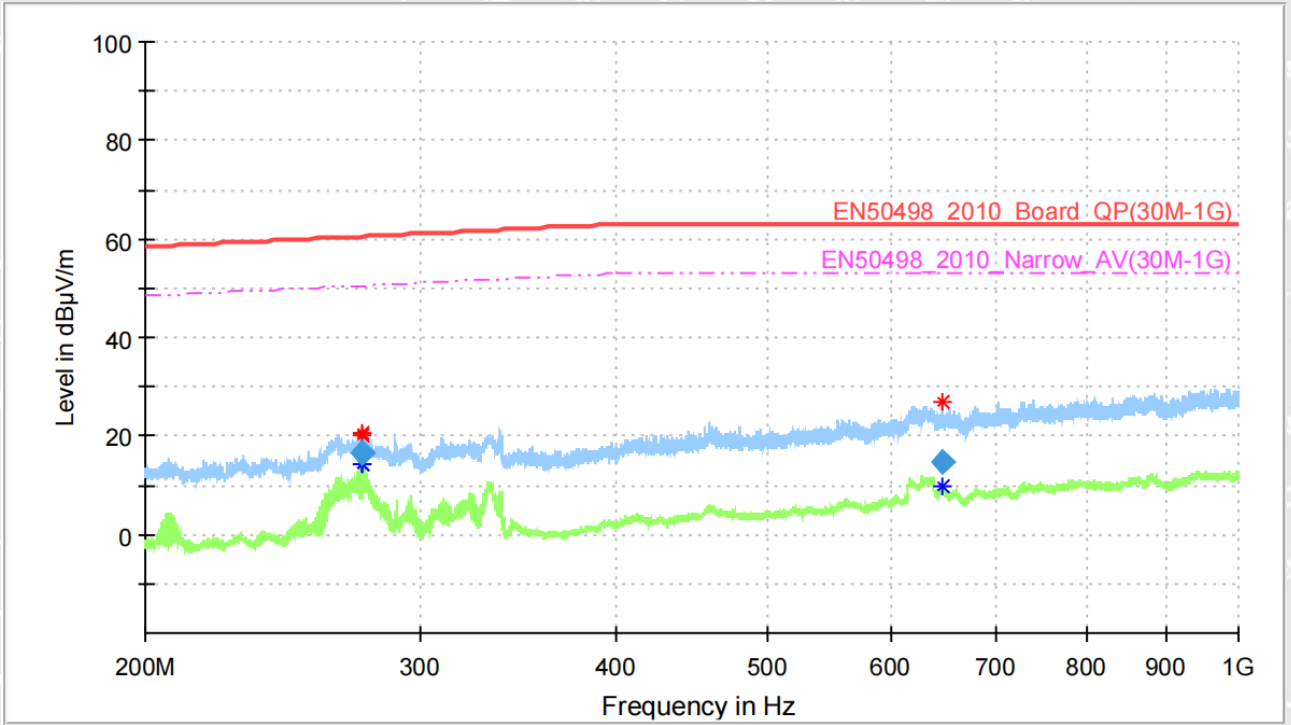
200MHz-1000MHz Antenna-Horizontal:



Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)
274.800000	21.09	---	60.53	39.44	---	---
274.800000	---	15.67	50.53	34.86	---	---
275.300000	21.61	---	60.55	38.94	---	---
275.300000	---	16.50	50.55	34.04	---	---
680.900000	---	8.41	53.00	44.59	---	---
680.900000	26.07	---	63.00	36.93	---	---



200MHz-1000MHz Antenna-Vertical:



Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)
274.750000	---	14.30	50.53	36.23	---	---
274.750000	20.12	---	60.53	40.41	---	---
275.550000	20.44	---	60.55	40.11	---	---
275.550000	---	14.41	50.55	36.14	---	---
646.650000	26.78	---	63.00	36.22	---	---
646.650000	---	9.71	53.00	43.29	---	---



**5.2 Transient Conducted Emissions Test**

Test Requirement..... : EN 50498:2010  
 Test Method ..... : ISO 7637-2:2004  
 Test Result ..... : Pass  
 Test Limit..... : As below Table

	Maximum allowed pulse amplitude for	
Polarity of pulse amplitude	Vehicles with 12 V systems	Vehicles with 24V systems
Positive	+75V	+150V
Negative	-100V	-450V

**5.2.1 E.U.T. Operation**

Operating Environment:

Temperature ..... : 20.1°C  
 Humidity ..... : 47.9%RH  
 Atmospheric Pressure..... : 101.2kPa

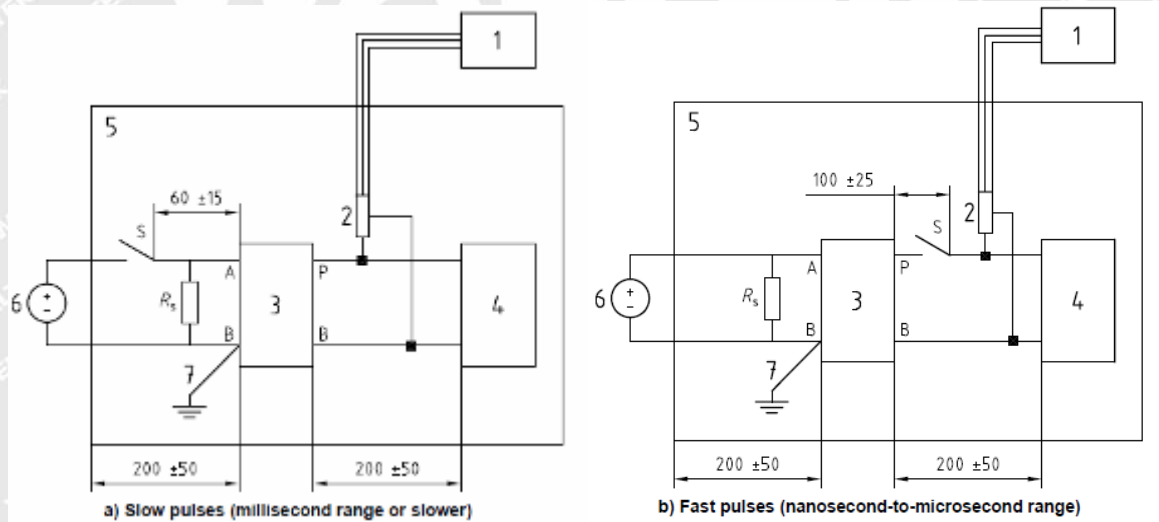
EUT Operation:

Test Input Voltage..... : DC 9V  
 Operating Mode ..... : Power on

**5.2.2 Block Diagram of Setup**

The slow pulse(millisecond range or slower)

The fast pulse(nanosecond to microsecond range)



**Key**

- 1 oscilloscope or equivalent
- 2 voltage probe
- 3 artificial network
- 4 DUT (source of transient)
- 5 ground plane
- 6 power supply
- 7 Ground connection; length < 100 mm



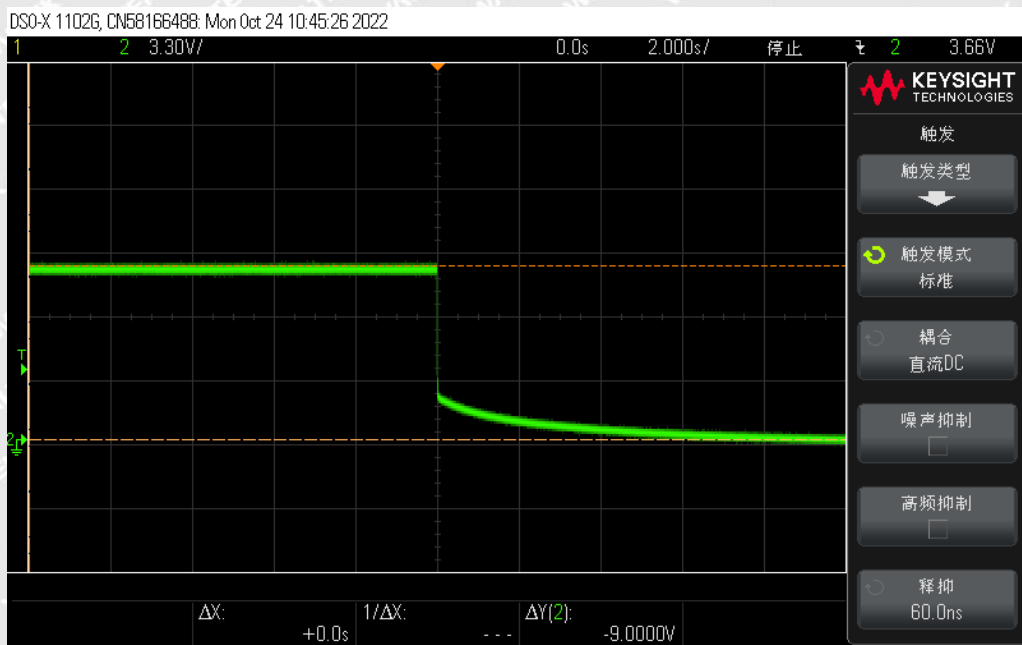
5.2.3 Measurement data

Pulse		Maximum allowed pulse amplitude	Measurement Level	Result
Fast	Switch on	Positive: +75V	+6.5525V	Pass
	Switch off		-9.0000V	Pass
Slow	Switch on	Negative: -100V	+6.2225V	Pass
	Switch off		-9.0000V	Pass

Fast on:



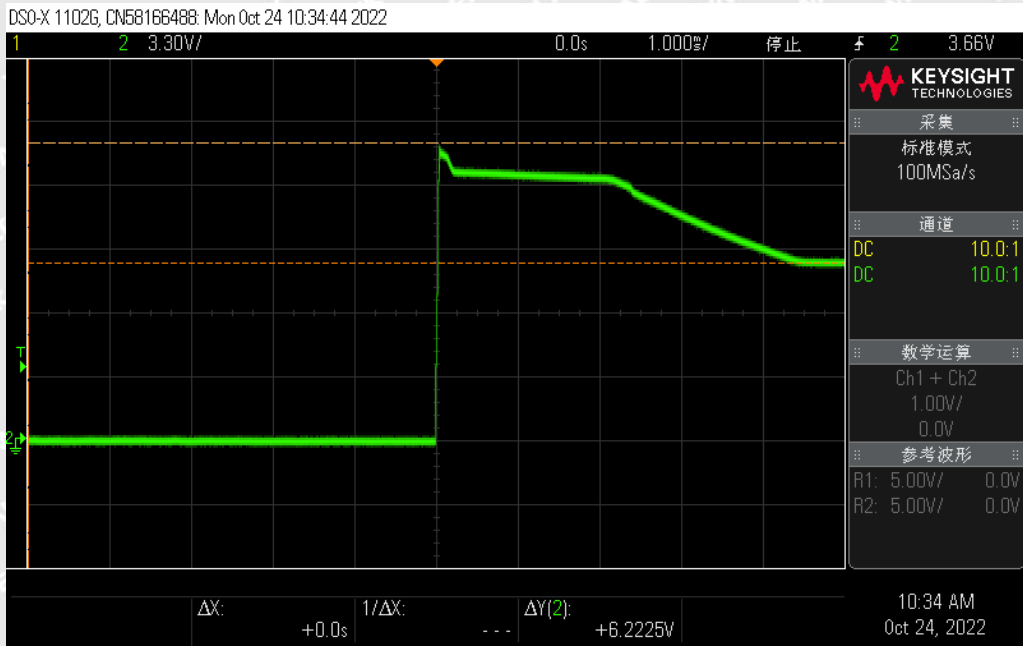
Fast off:



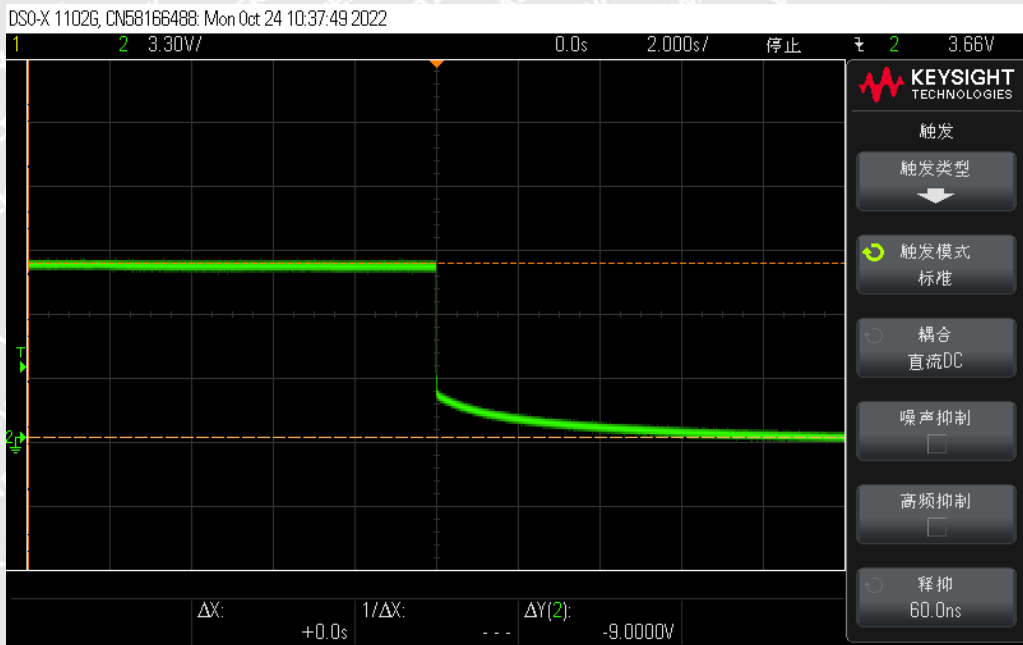




Slow on:



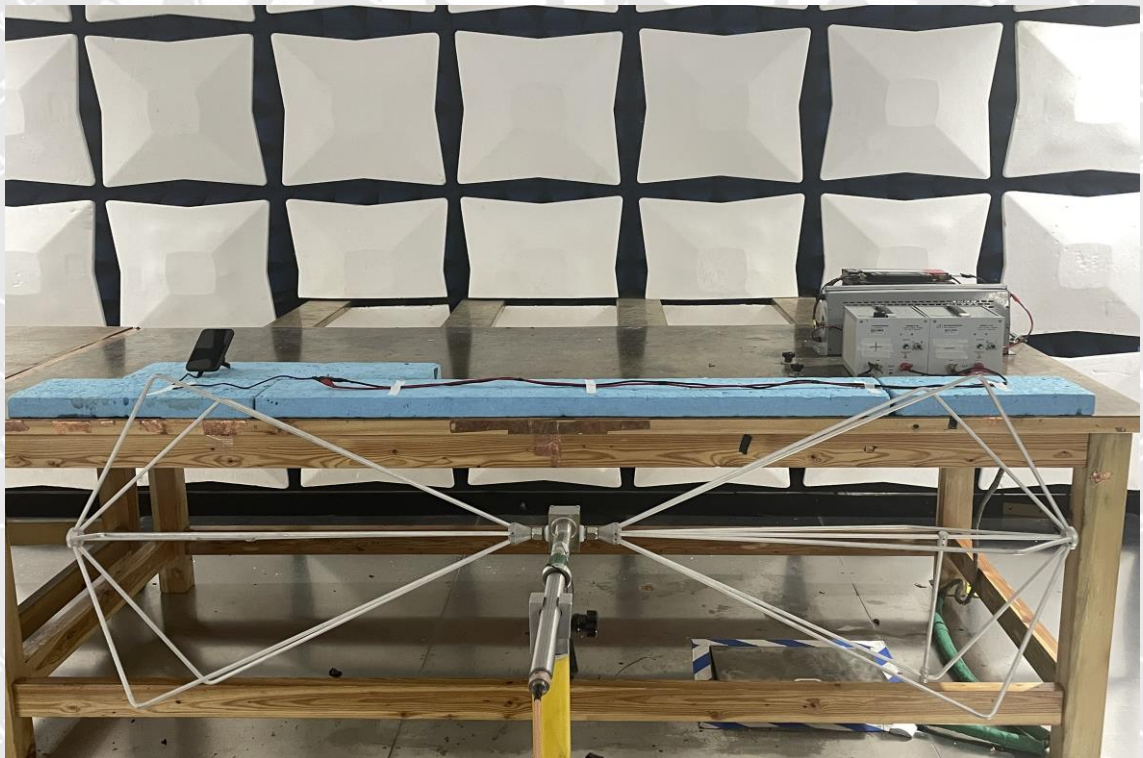
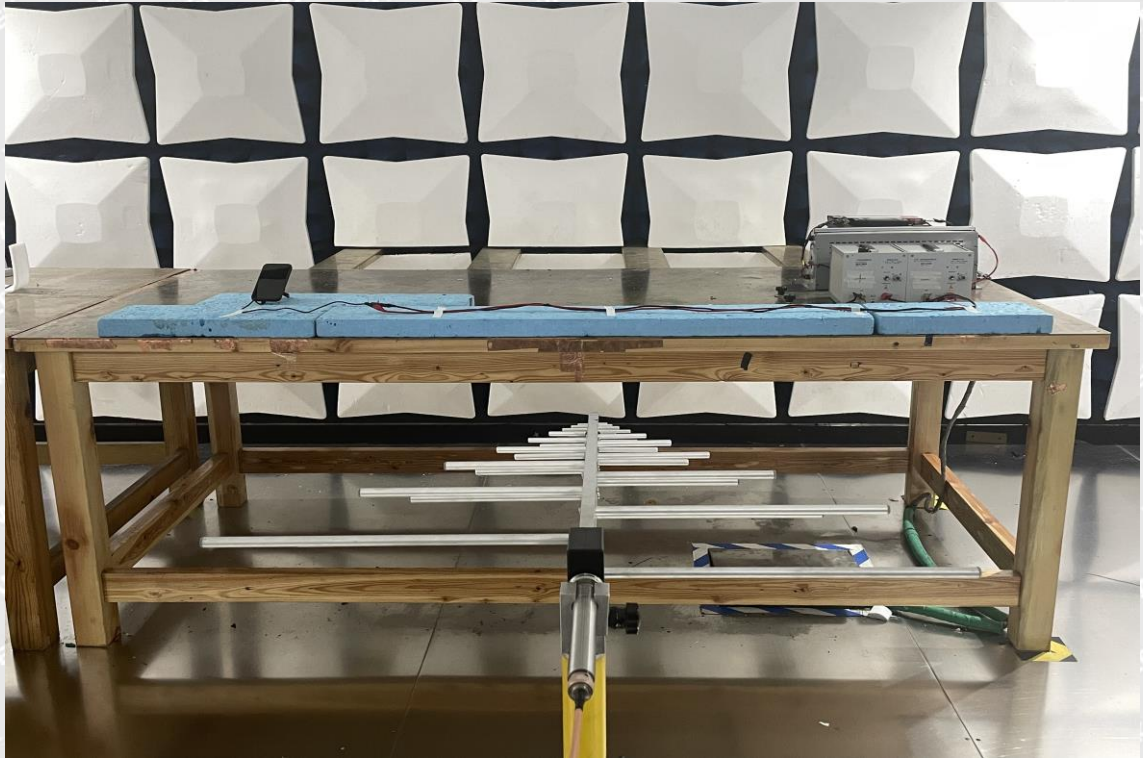
Slow off:





## 6 Photographs – Test Setup

### 6.1 Photograph –Broadband / Narrowband Radiated Emission Test Setup



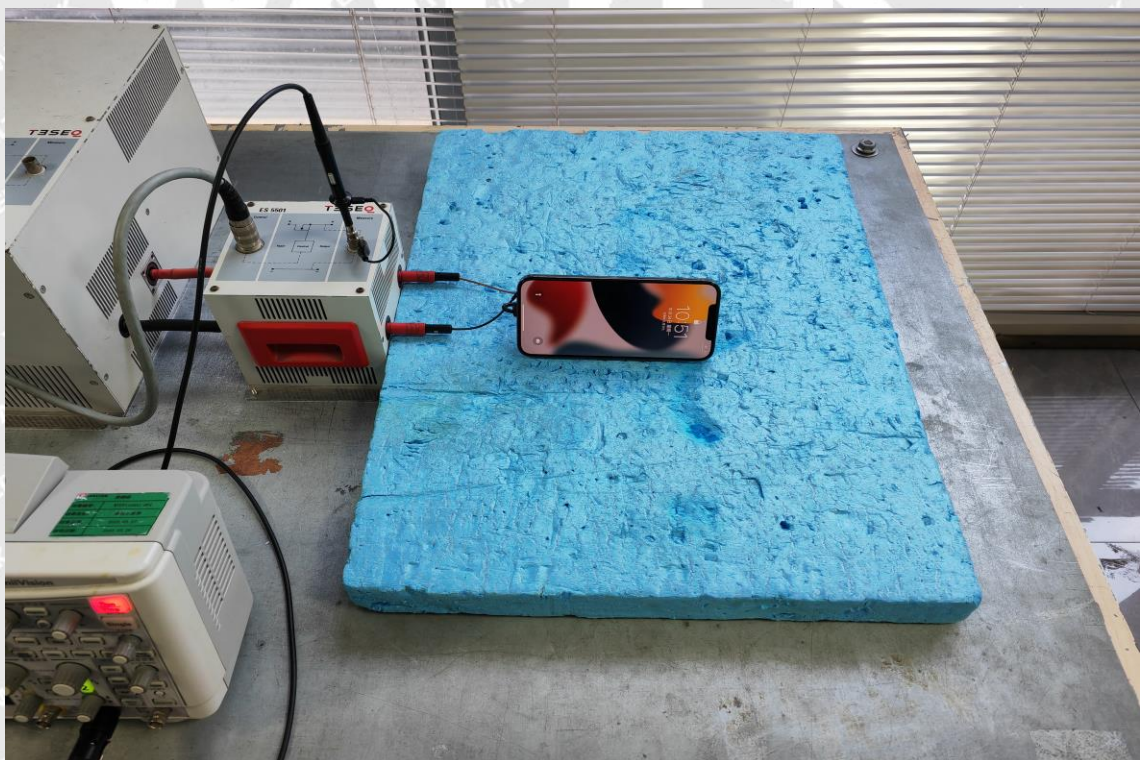


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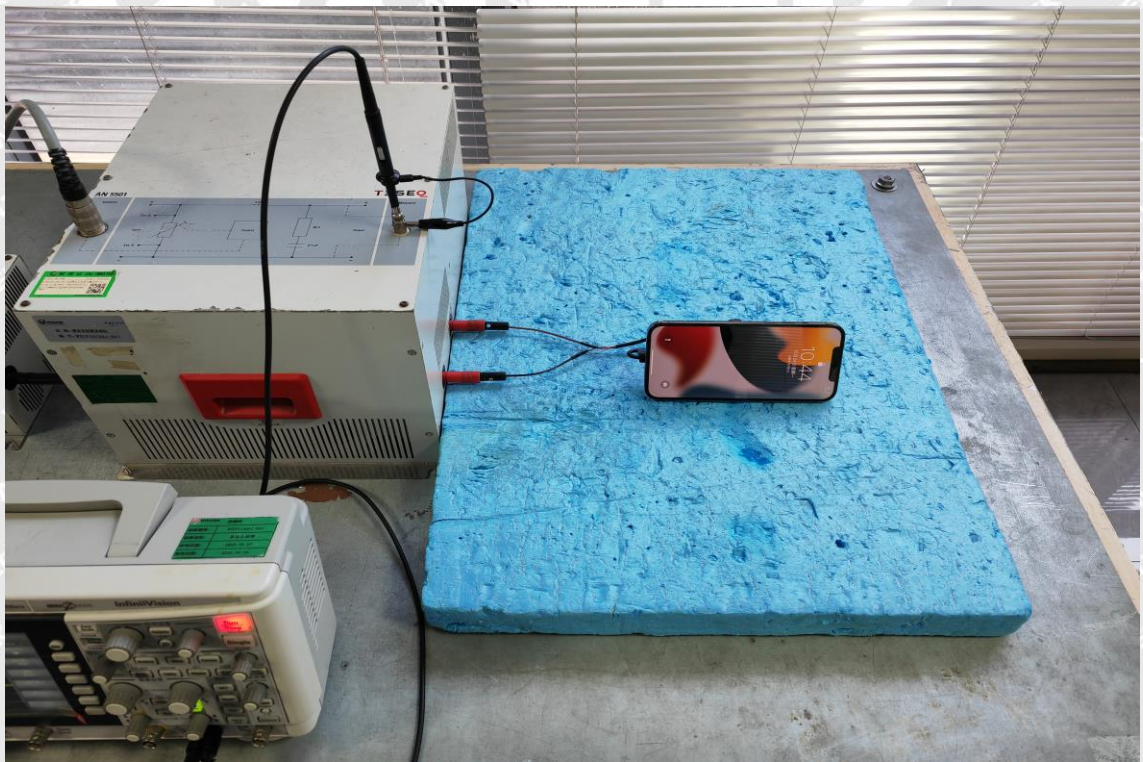
## 6.2 Photograph –Conducted transient disturbances Test Setup

Fast





Slow









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## Report version

Version No.	Date of issue	Description
Rev.00	2022-10-28	Original
/	/	/

# WALTEK



## 1. GENERAL INFORMATION

---

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

General Description of EUT	
Product Name:	Magnetic wireless charger with car mount
Trade Name:	/
Model No.:	MO6571
Adding Model(s):	/
<i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i>	

Technical Characteristics of EUT	
Rated Voltage:	AC 230V 50Hz
Rated Current:	/
Rated Power:	Input: 5V/2A, 9V/2A Wireless Output: 15W Max
Power Adaptor Model:	/
Highest Internal Frequency:	Below 108MHz
Classification of Equipment:	Class B of Group 2
Wireless Charger Transmit Frequency Range:	110~205KHz



## 1.2 Test Standards

The tests were performed according to following standards:

**EN IEC 61000-6-1:2019** Electromagnetic compatibility (EMC) —Part 6-1: Generic standards —Immunity for residential, commercial and light-industrial environments.

**EN 55011:2016/A1:2017** Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement.

**EN IEC 61000-3-2:2019** Electromagnetic compatibility (EMC) -- Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase).

**EN 61000-3-3:2013+A1:2019** Electromagnetic compatibility (EMC) -- Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current  $\leq 16$  A per phase and not subject to conditional connection.

**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 standards EN 55011, EN IEC 61000-3-2, EN 61000-3-3, and EN IEC 61000-6-1 for Industrial, scientific and medical equipment, and all related testing and measurement techniques intertional standards.



## 1.4 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	Power Supply Mode
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

Note: The product was measured at two nominal voltages of 230V and 110V, using a frequency of 50Hz or 60Hz. This report shows the worst case with 230V/50Hz data.

EUT Cable List and Details				
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite	With / Without Chip
USB Cable	1.0	Unshielded	Without Ferrite	/

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

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



## 1.5 Performance Criteria for EMS

All the test data has been collected, reduced, and analyzed within this report in accordance with Immunity requires the following as specific performance criteria:

- A. The apparatus shall continue to operate as intended during and after the test. The manufacturer specifies some minimum performance level. The performance level may be specified by the manufacturer as a permissible loss of performance.
- B. The apparatus shall continue to operate as intended after the test. This indicates that the EUT does not need to function at normal performance levels during the test, but must recover. Again some minimal performance is defined by the manufacturer. No change in operating state or loss of data is permitted.
- C. Temporary loss of function is allowed. Operation of the EUT may stop as long as it is either automatically reset or can be manually restored by operation of the controls.

# WALTEK



## 1.6 Test Equipment List and Details

Description	Manufacturer	Model	Serial No.	Cal. Date	Due. Date
<input 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
Trilog Broadband Antenna	Schwarz beck	VULB9163	9163-333	2021-03-20	2023-03-19
Loop Antenna	Schwarz beck	FMZB 1516	9773	2021-03-20	2023-03-19
Amplifier	HP	8447F	2805A03475	2022-01-07	2023-01-06
<input checked="" type="checkbox"/> Chamber A: Above 1GHz					
Amplifier	C&D	PAP-1G18	2002	2022-03-22	2023-03-21
Horn Antenna	ETS	3117	00086197	2021-03-19	2023-03-18
<input checked="" 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 checked="" 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	CAT3-8158-00 59	2022-03-22	2023-03-21
8-WIRE LISN	Schwarz beck	8158	CAT5-8158-011 7	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
<input checked="" type="checkbox"/> Harmonics & Flicker					
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
<input checked="" type="checkbox"/> Electrostatic discharges					
ESD Generator	LIONCEL	ESD-203B	0170901	2022-03-28	2023-03-27
<input checked="" type="checkbox"/> Power-frequency magnetic field (PFMF)					



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
<input checked="" type="checkbox"/> Electronic fast transient(EFT)/Surges/Dips					
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
<input checked="" type="checkbox"/> Radio frequency, continuous conducted (C/S)					
CONDUCTED IMMUNITY TEST SYSTEM	FRANKONIA	CIT-10/75	126B1247/201 3	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
<input checked="" type="checkbox"/> Radio frequency electromagnetic Field (R/S)					
Signal Generator	HP	8688B	3438A00604	2022-03-22	2023-03-21
Power Sensor	Agilent	E9301A	MY52450001	2022-03-25	2023-03-24
Power Sensor	Agilent	E9304A	MY55081055	2022-03-25	2023-03-24
RF Power Amplifier	MicoTop	MPA-80-1000-250	MPA1906239	2022-03-22	2023-03-21
RF Power Amplifier	MicoTop	MPA-1000-6000-1 00	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





## 2. SUMMARY OF TEST RESULTS

Standards	Description of Test Item	Result
EN 55011	Conducted Emission	Compliant
	Radiated Emission	Compliant
EN IEC 61000-3-2	Harmonic Current Emission	Compliant
EN 61000-3-3	Voltage Fluctuation and Flicker	Compliant
EN IEC 61000-6-1	Electrostatic Discharge Immunity in accordance with EN 61000-4-2	Compliant
	Continuous RF electromagnetic field Disturbances Immunity in accordance with EN 61000-4-3	Compliant
	Electrical Fast Transient/Burst Immunity in accordance with EN 61000-4-4	Compliant
	Surges Immunity in accordance with EN 61000-4-5	Compliant
	Continuous induced RF disturbances Immunity in accordance with EN 61000-4-6	Compliant
	Power-frequency Magnetic Fields Immunity in accordance With EN 61000-4-8	Compliant
	Voltage Dips/Interruptions Immunity in accordance with EN 61000-4-11	Compliant

N/A: not applicable



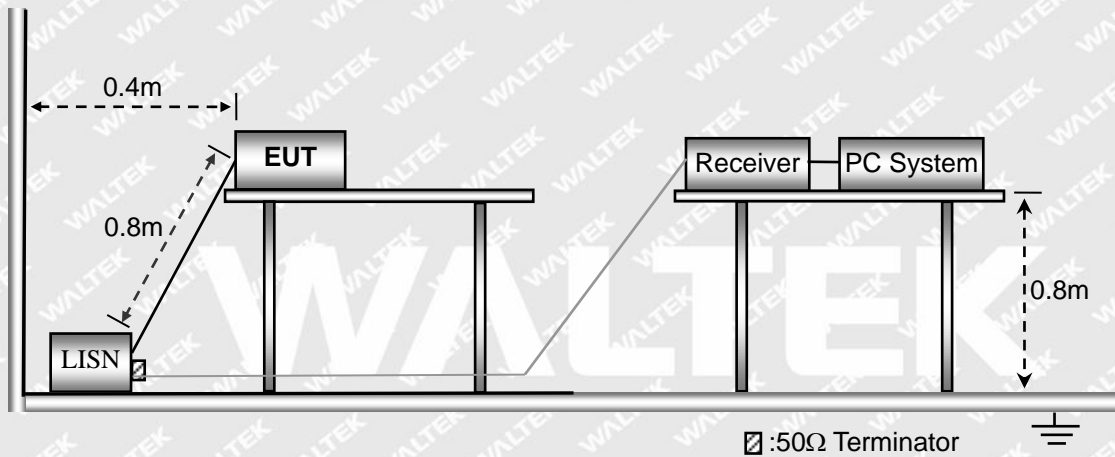
### 3. Conducted Emission

#### 3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement:

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	9-150kHz $\pm 3.74\text{dB}$
		0.15-30MHz $\pm 3.34\text{dB}$

#### 3.2 Basic Test Setup Block Diagram



#### 3.3 Environmental Conditions

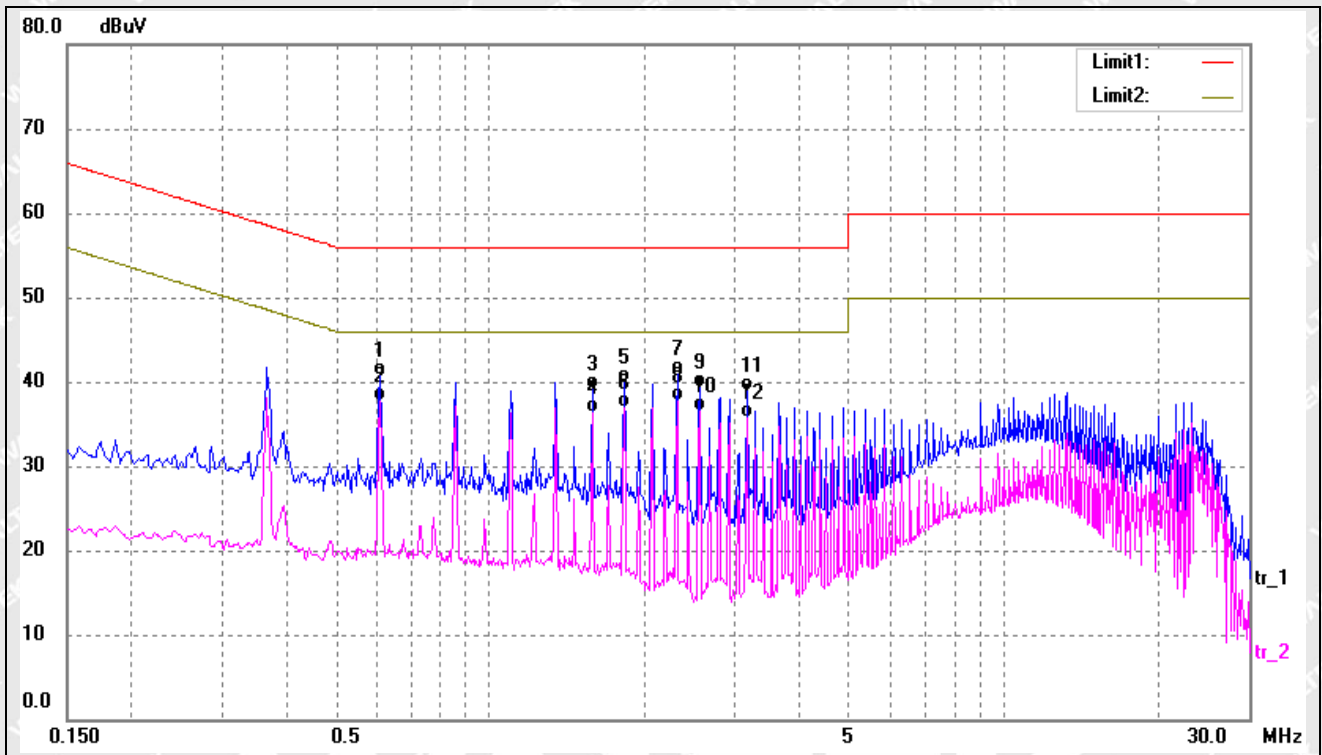
Temperature:	23.5 °C
Relative Humidity:	54 %
ATM Pressure:	1015 mbar

#### 3.4 Summary of Test Results

Please find the results below:



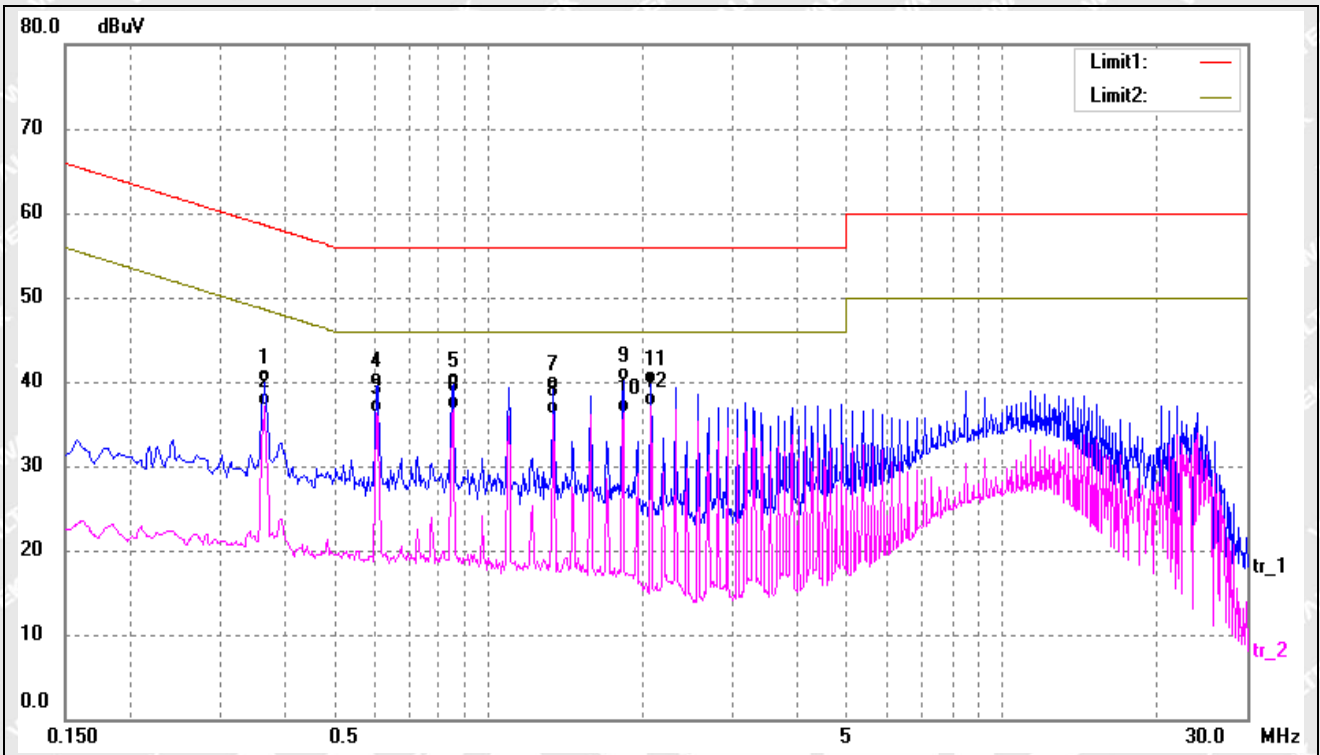
Test mode:	TM1	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.6100	30.41	10.21	40.62	56.00	-15.38	QP
2*	0.6100	27.56	10.21	37.77	46.00	-8.23	AVG
3	1.5820	28.82	10.21	39.03	56.00	-16.97	QP
4	1.5820	26.10	10.21	36.31	46.00	-9.69	AVG
5	1.8220	29.75	10.23	39.98	56.00	-16.02	QP
6	1.8220	26.59	10.23	36.82	46.00	-9.18	AVG
7	2.3100	30.65	10.26	40.91	56.00	-15.09	QP
8	2.3100	27.42	10.26	37.68	46.00	-8.32	AVG
9	2.5540	29.12	10.26	39.38	56.00	-16.62	QP
10	2.5540	26.34	10.26	36.60	46.00	-9.40	AVG
11	3.1620	28.70	10.28	38.98	56.00	-17.02	QP
12	3.1620	25.38	10.28	35.66	46.00	-10.34	AVG



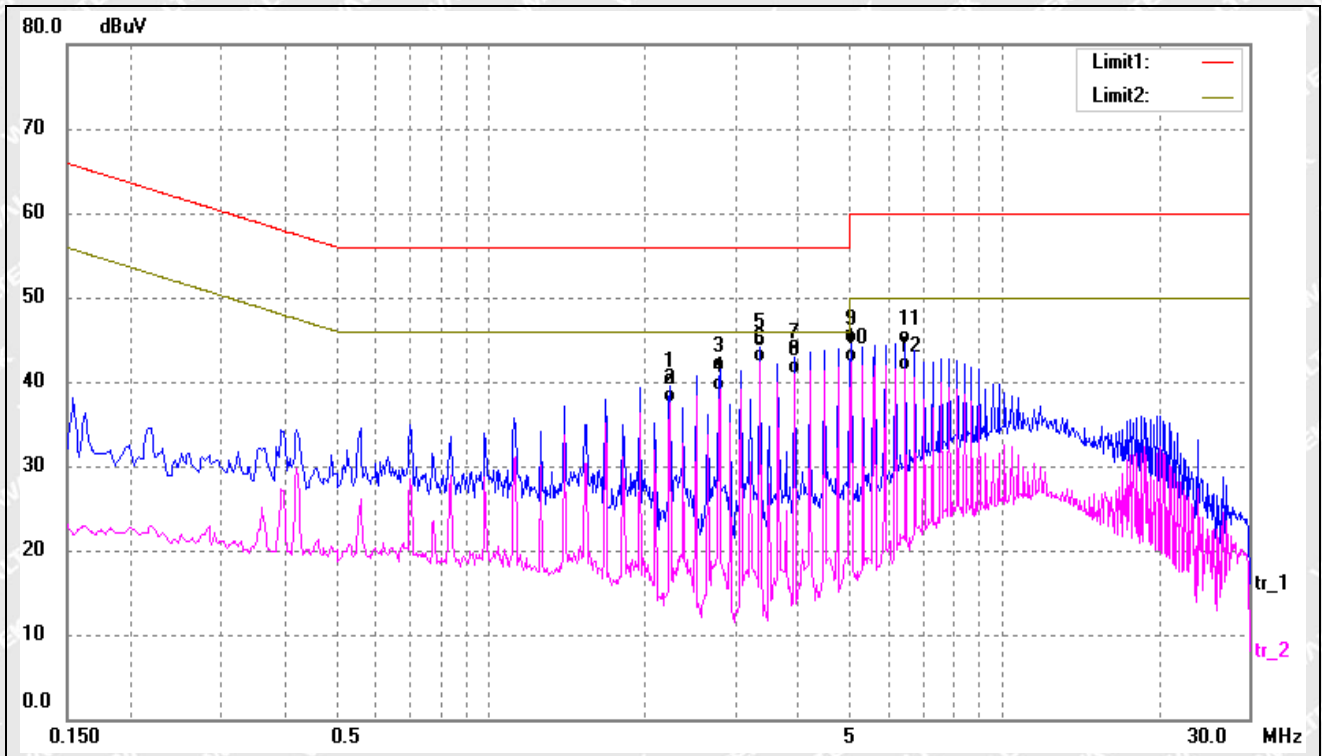
Test mode:	TM1	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3660	29.72	10.23	39.95	58.57	-18.62	QP
2	0.3660	26.92	10.23	37.15	48.57	-11.42	AVG
3	0.6060	26.12	10.21	36.33	46.00	-9.67	AVG
4	0.6100	29.37	10.21	39.58	56.00	-16.42	QP
5	0.8540	29.44	10.16	39.60	56.00	-16.40	QP
6	0.8540	26.45	10.16	36.61	46.00	-9.39	AVG
7	1.3380	28.92	10.17	39.09	56.00	-16.91	QP
8	1.3380	25.88	10.17	36.05	46.00	-9.95	AVG
9	1.8300	29.89	10.23	40.12	56.00	-15.88	QP
10	1.8300	26.17	10.23	36.40	46.00	-9.60	AVG
11	2.0740	29.39	10.25	39.64	56.00	-16.36	QP
12*	2.0740	26.76	10.25	37.01	46.00	-8.99	AVG



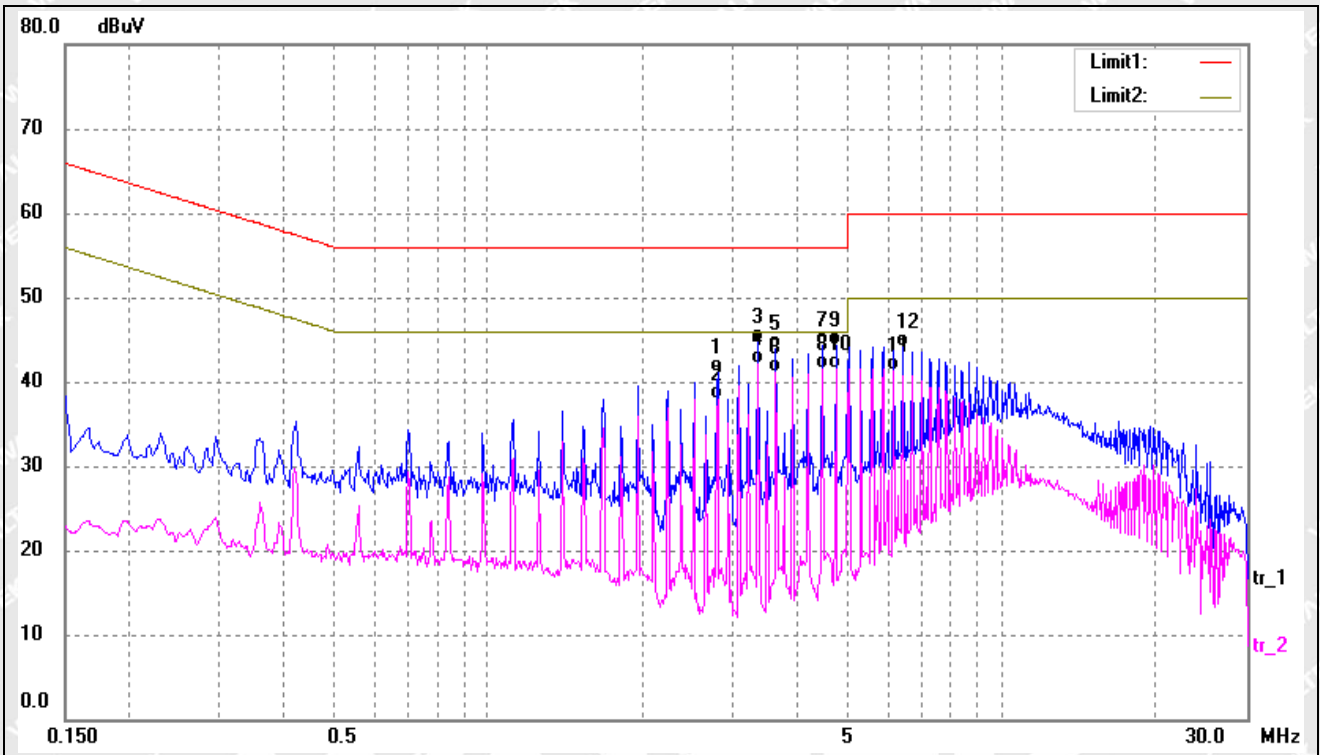
Test mode:	TM2	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	2.2380	29.32	10.26	39.58	56.00	-16.42	QP
2	2.2380	27.15	10.26	37.41	46.00	-8.59	AVG
3	2.7980	31.13	10.27	41.40	56.00	-14.60	QP
4	2.7980	28.73	10.27	39.00	46.00	-7.00	AVG
5	3.3580	33.74	10.29	44.03	56.00	-11.97	QP
6*	3.3580	31.98	10.29	42.27	46.00	-3.73	AVG
7	3.9140	32.52	10.30	42.82	56.00	-13.18	QP
8	3.9140	30.55	10.30	40.85	46.00	-5.15	AVG
9	5.0340	34.22	10.33	44.55	60.00	-15.45	QP
10	5.0340	31.92	10.33	42.25	50.00	-7.75	AVG
11	6.4340	34.25	10.34	44.59	60.00	-15.41	QP
12	6.4340	31.06	10.34	41.40	50.00	-8.60	AVG



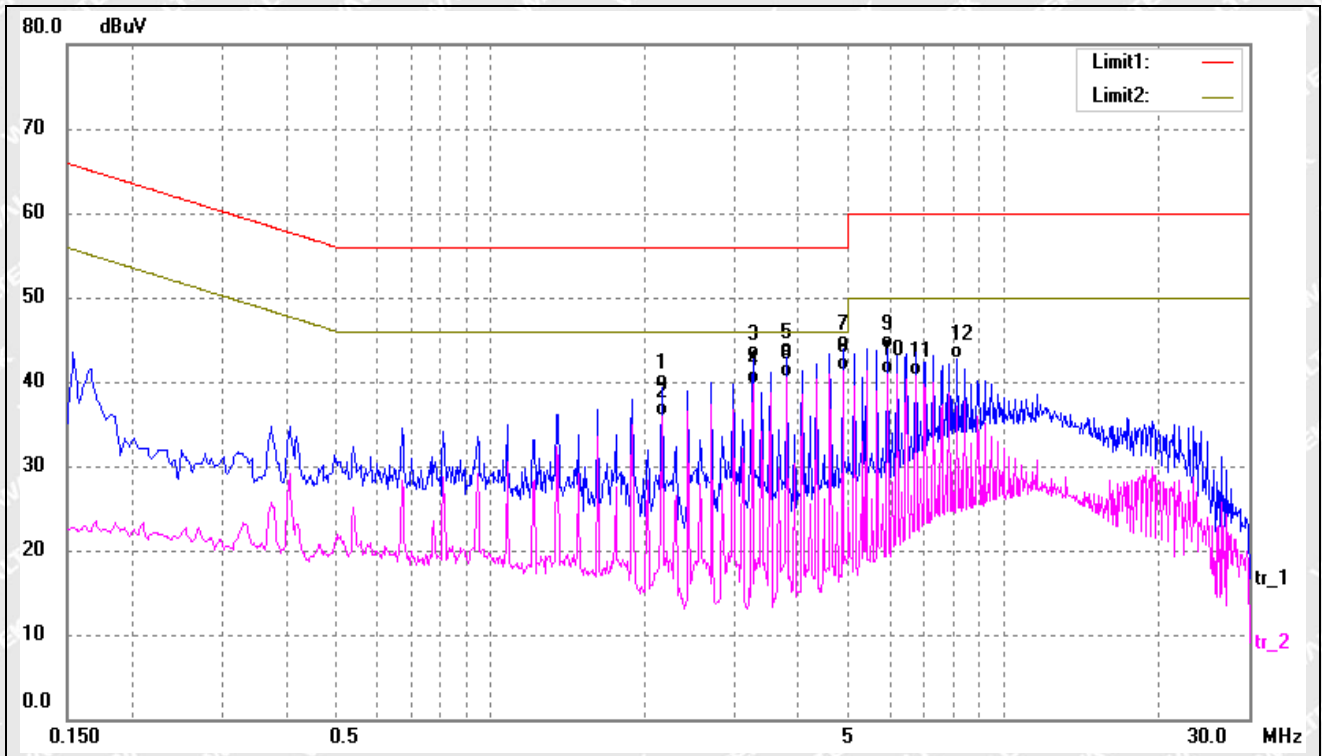
Test mode:	TM2	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	2.7980	30.87	10.27	41.14	56.00	-14.86	QP
2	2.7980	27.67	10.27	37.94	46.00	-8.06	AVG
3	3.3580	34.46	10.29	44.75	56.00	-11.25	QP
4*	3.3580	31.76	10.29	42.05	46.00	-3.95	AVG
5	3.6380	33.55	10.29	43.84	56.00	-12.16	QP
6	3.6380	30.79	10.29	41.08	46.00	-4.92	AVG
7	4.4740	33.98	10.32	44.30	56.00	-11.70	QP
8	4.4740	31.21	10.32	41.53	46.00	-4.47	AVG
9	4.7540	33.92	10.32	44.24	56.00	-11.76	QP
10	4.7540	31.22	10.32	41.54	46.00	-4.46	AVG
11	6.1540	31.07	10.33	41.40	50.00	-8.60	AVG
12	6.4340	33.69	10.34	44.03	60.00	-15.97	QP



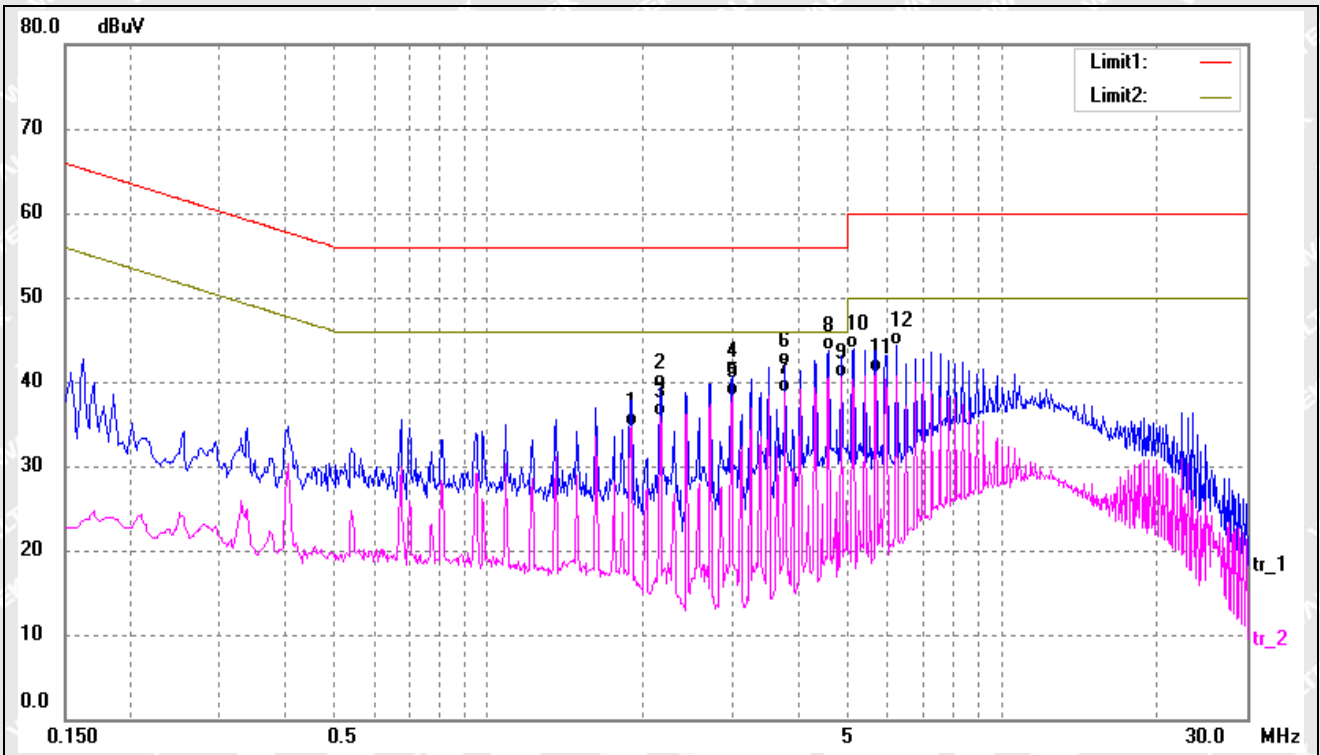
Test mode:	TM3	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	2.1620	29.09	10.25	39.34	56.00	-16.66	QP
2	2.1620	25.56	10.25	35.81	46.00	-10.19	AVG
3	3.2420	32.45	10.28	42.73	56.00	-13.27	QP
4	3.2420	29.44	10.28	39.72	46.00	-6.28	AVG
5	3.7820	32.61	10.30	42.91	56.00	-13.09	QP
6	3.7820	30.28	10.30	40.58	46.00	-5.42	AVG
7	4.8620	33.55	10.33	43.88	56.00	-12.12	QP
8*	4.8620	30.97	10.33	41.30	46.00	-4.70	AVG
9	5.9420	33.53	10.33	43.86	60.00	-16.14	QP
10	5.9420	30.62	10.33	40.95	50.00	-9.05	AVG
11	6.7540	30.44	10.34	40.78	50.00	-9.22	AVG
12	8.1060	32.41	10.34	42.75	60.00	-17.25	QP



Test mode:	TM3	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	1.8980	24.40	10.24	34.64	46.00	-11.36	AVG
2	2.1620	29.13	10.25	39.38	56.00	-16.62	QP
3	2.1620	25.61	10.25	35.86	46.00	-10.14	AVG
4	2.9820	30.49	10.28	40.77	56.00	-15.23	QP
5	2.9820	27.93	10.28	38.21	46.00	-7.79	AVG
6	3.7940	31.66	10.30	41.96	56.00	-14.04	QP
7	3.7940	28.39	10.30	38.69	46.00	-7.31	AVG
8	4.6060	33.42	10.32	43.74	56.00	-12.26	QP
9*	4.8780	30.22	10.33	40.55	46.00	-5.45	AVG
10	5.1460	33.60	10.33	43.93	60.00	-16.07	QP
11	5.6900	30.78	10.33	41.11	50.00	-8.89	AVG
12	6.2340	33.93	10.33	44.26	60.00	-15.74	QP





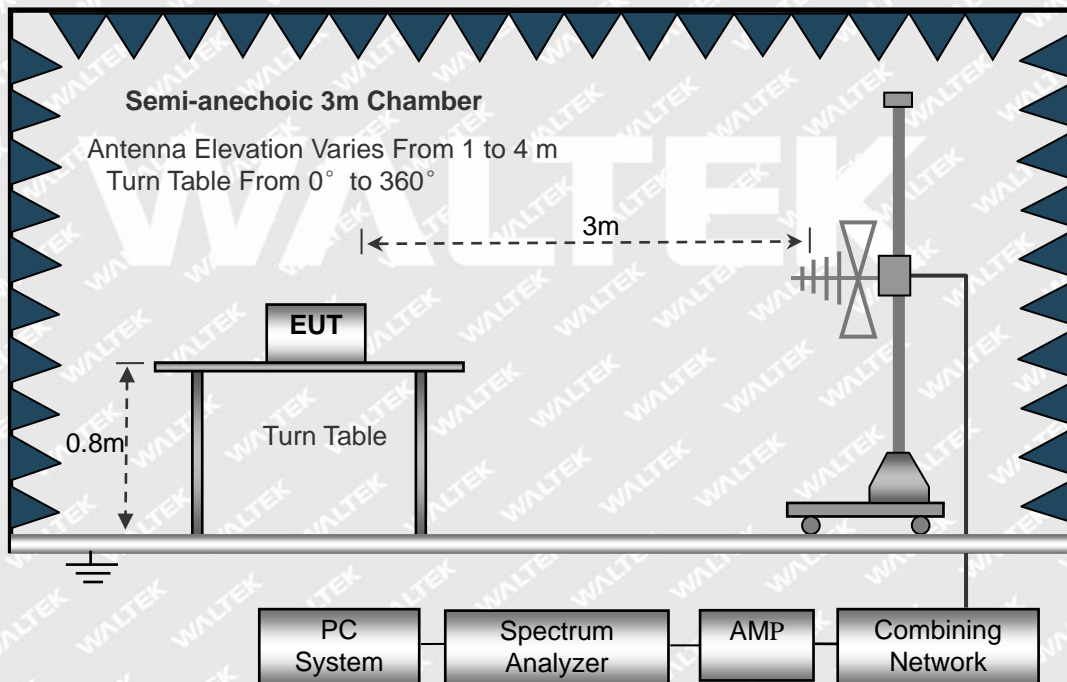
## 4. Radiated Emission

### 4.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement:

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Radiated Emissions	Radiated	30-200MHz $\pm 4.52\text{dB}$
		0.2-1GHz $\pm 5.56\text{dB}$
		1-6GHz $\pm 3.84\text{dB}$

### 4.2 Basic Test Setup Block Diagram





### 4.3 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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Correct Correct} = \text{Ant. Factor} + \text{Cable Loss} - \text{Ampl. Gain}$$

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

$$\text{Margin} = \text{Corr. Ampl.} - \text{EN 55011 Limit}$$

### 4.4 Environmental Conditions

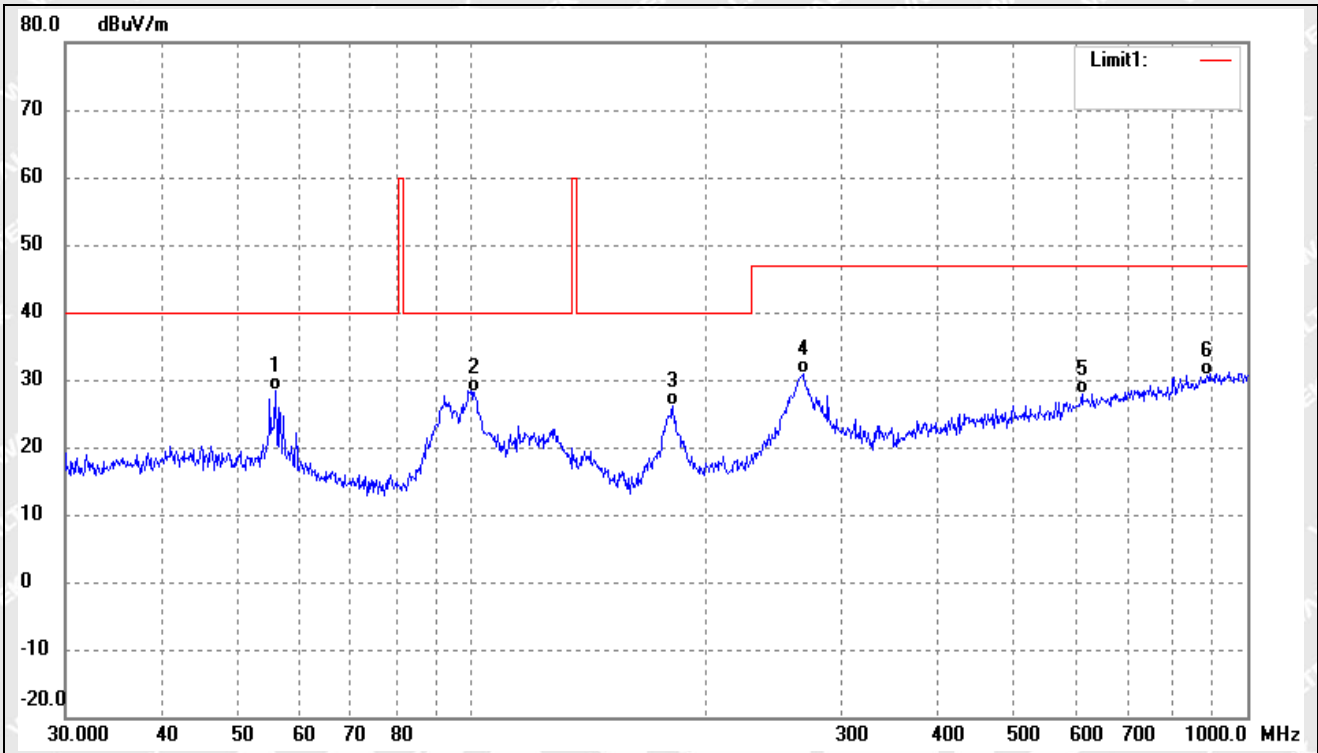
Temperature:	22.5 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

### 4.5 Summary of Test Results

Please find the results below:



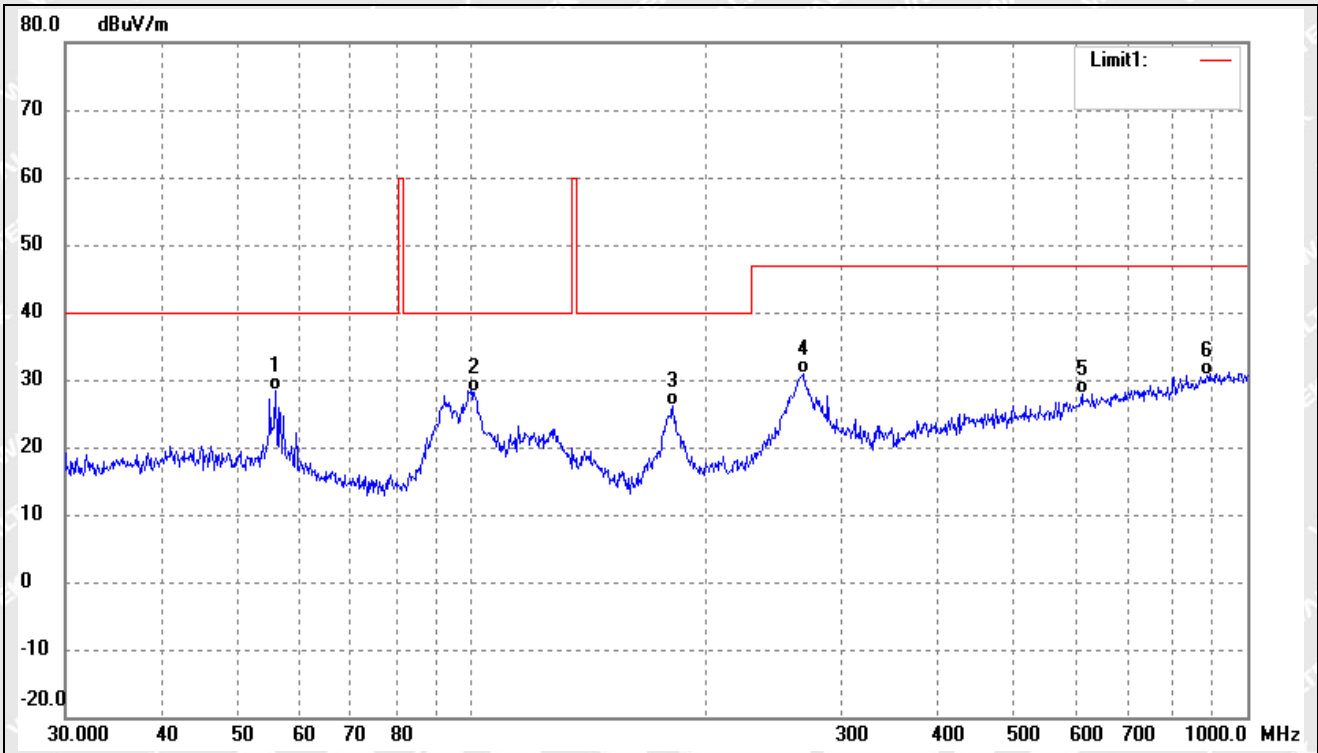
Test mode:	TM1	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	56.0007	36.78	-8.36	28.42	40.00	-11.58	-	-	QP
2	100.9340	36.23	-8.07	28.16	40.00	-11.84	-	-	QP
3	181.9202	36.07	-9.89	26.18	40.00	-13.82	-	-	QP
4	267.5455	36.96	-6.11	30.85	47.00	-16.15	-	-	QP
5	612.0642	27.87	0.03	27.90	47.00	-19.10	-	-	QP
6	887.6099	26.87	3.83	30.70	47.00	-16.30	-	-	QP



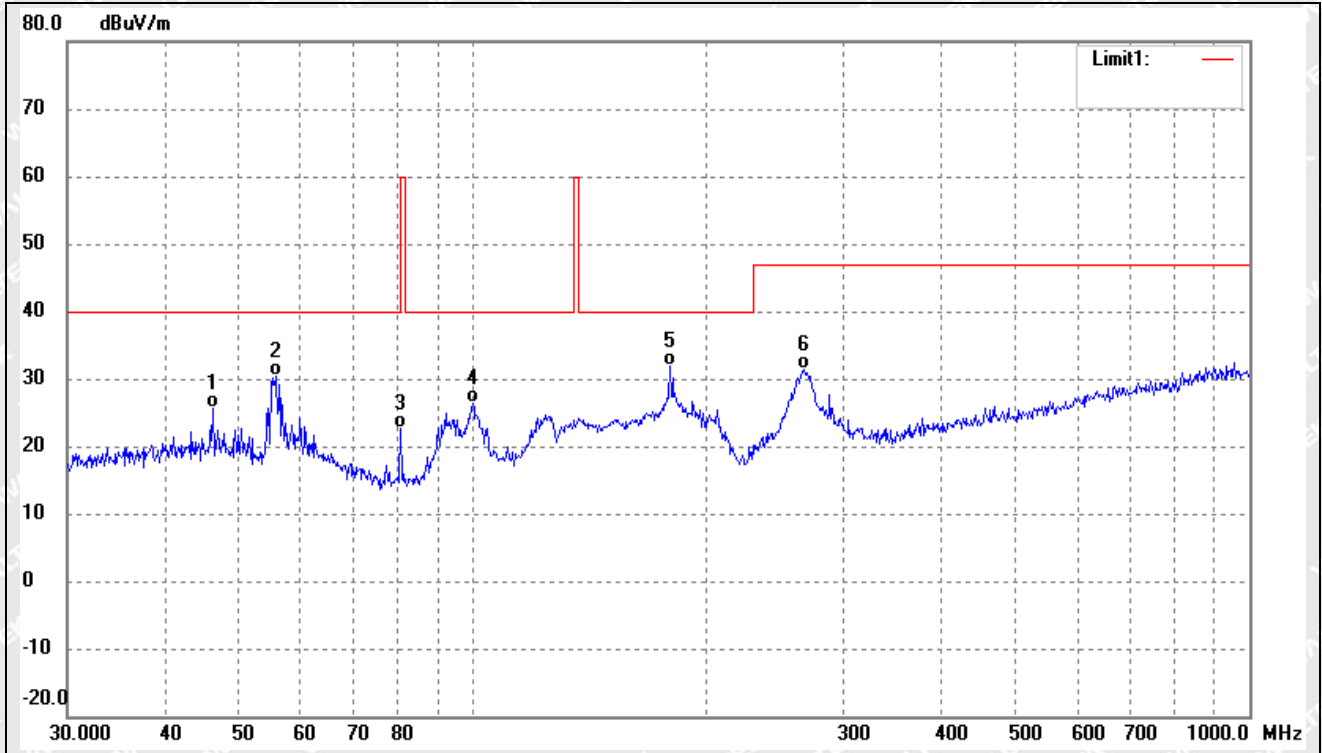
Test mode:	TM1	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	56.0007	36.78	-8.36	28.42	40.00	-11.58	-	-	QP
2	100.9340	36.23	-8.07	28.16	40.00	-11.84	-	-	QP
3	181.9202	36.07	-9.89	26.18	40.00	-13.82	-	-	QP
4	267.5455	36.96	-6.11	30.85	47.00	-16.15	-	-	QP
5	612.0642	27.87	0.03	27.90	47.00	-19.10	-	-	QP
6	887.6099	26.87	3.83	30.70	47.00	-16.30	-	-	QP



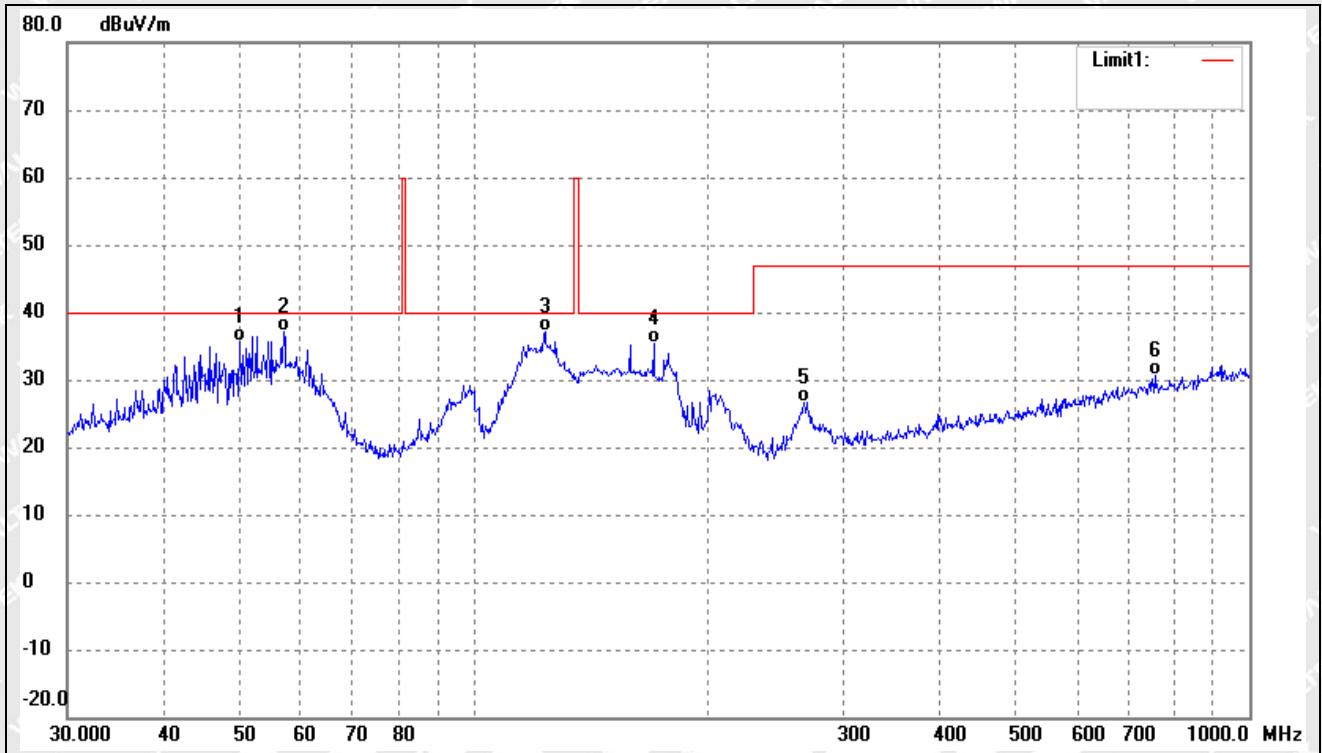
Test mode:	TM2	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	46.1780	32.81	-7.25	25.56	40.00	-14.44	-	-	QP
2	55.6094	38.76	-8.29	30.47	40.00	-9.53	-	-	QP
3	80.6442	34.57	-11.85	22.72	40.00	-17.28	-	-	QP
4	99.8777	34.37	-8.09	26.28	40.00	-13.72	-	-	QP
5	179.3864	41.96	-10.16	31.80	40.00	-8.20	-	-	QP
6	266.6089	37.44	-6.14	31.30	47.00	-15.70	-	-	QP



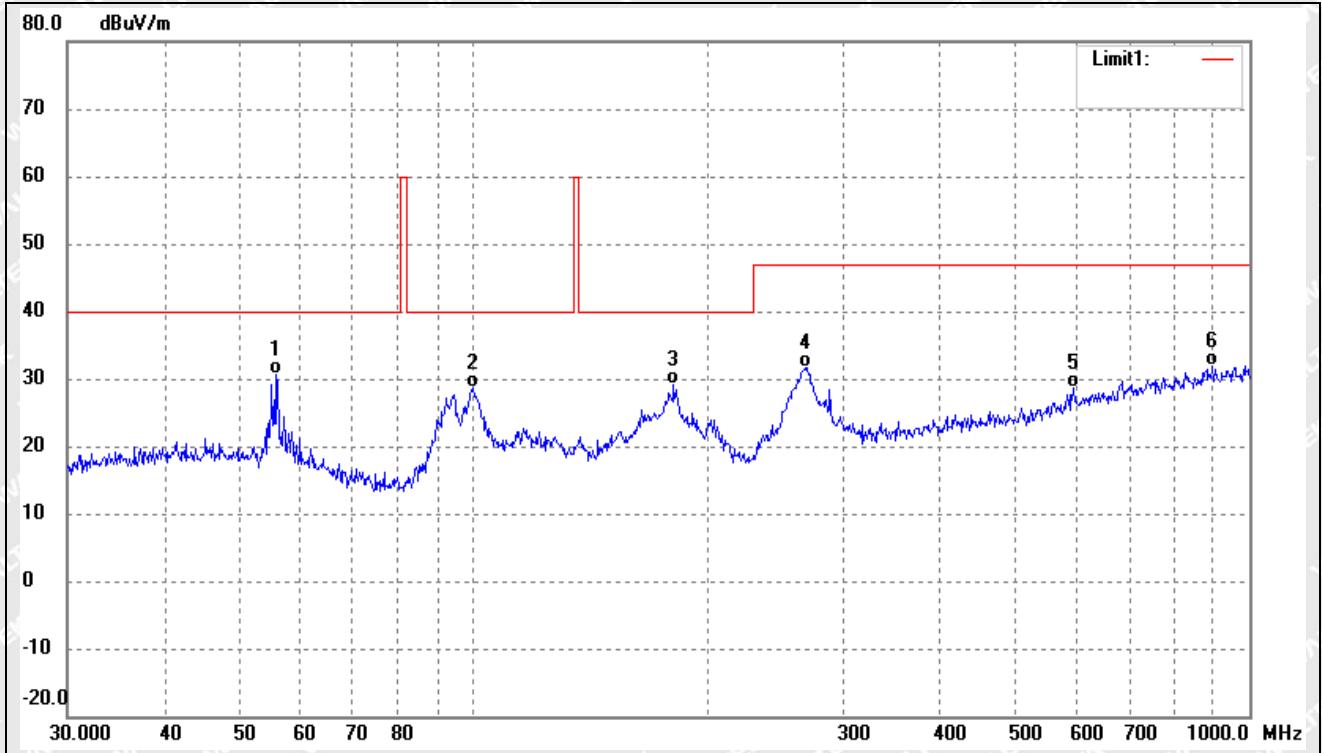
Test mode:	TM2	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	50.0566	43.03	-7.33	35.70	40.00	-4.30	-	-	QP
2	56.9911	45.70	-8.53	37.17	40.00	-2.83	-	-	QP
3	123.6984	46.50	-9.48	37.02	40.00	-2.98	-	-	QP
4	170.7925	45.92	-10.62	35.30	40.00	-4.70	-	-	QP
5	266.6089	32.80	-6.14	26.66	47.00	-20.34	-	-	QP
6	755.3872	28.68	1.87	30.55	47.00	-16.45	-	-	QP



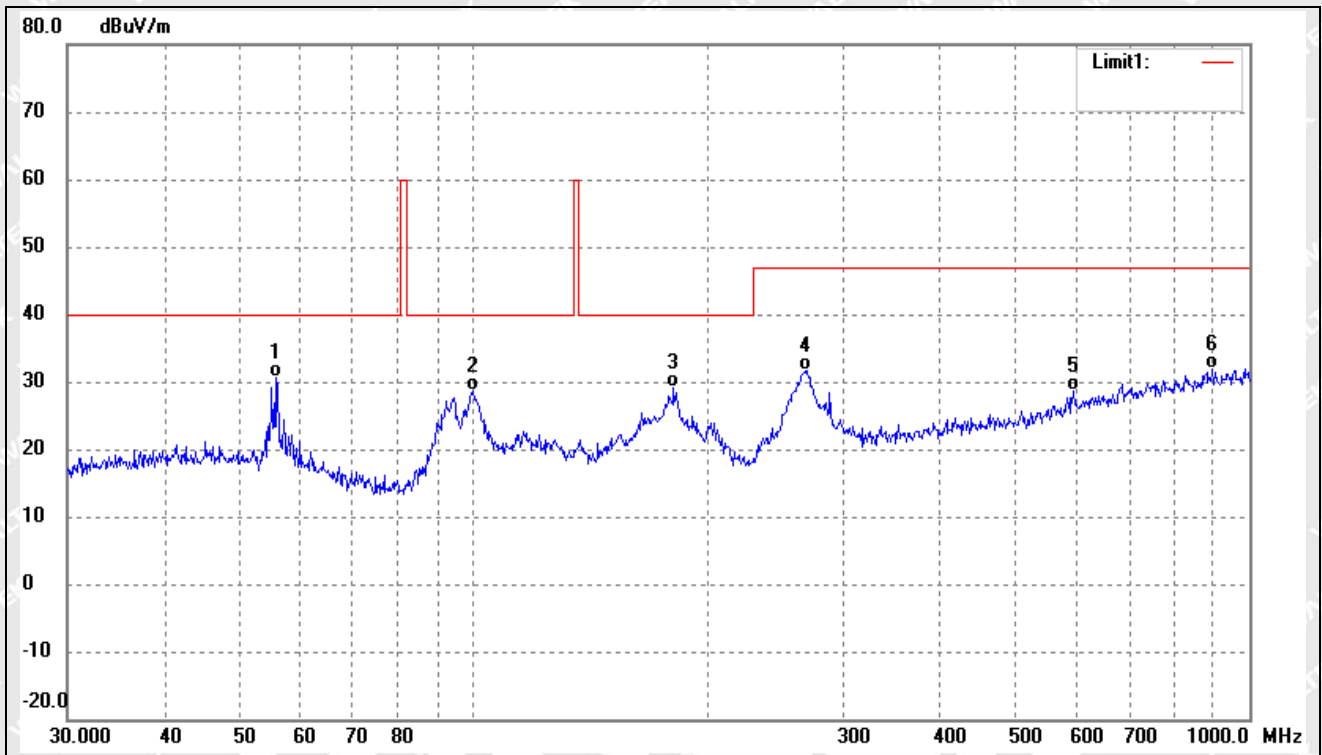
Test mode:	TM3	Polarity:	Horizontal
------------	-----	-----------	------------



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	55.6094	38.88	-8.29	30.59	40.00	-9.41	-	-	QP
2	99.8777	36.82	-8.09	28.73	40.00	-11.27	-	-	QP
3	181.2834	39.00	-9.97	29.03	40.00	-10.97	-	-	QP
4	268.4853	37.72	-6.08	31.64	47.00	-15.36	-	-	QP
5	593.0497	29.01	-0.28	28.73	47.00	-18.27	-	-	QP
6	896.9965	27.94	3.99	31.93	47.00	-15.07	-	-	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	55.6094	38.88	-8.29	30.59	40.00	-9.41	-	-	QP
2	99.8777	36.82	-8.09	28.73	40.00	-11.27	-	-	QP
3	181.2834	39.00	-9.97	29.03	40.00	-10.97	-	-	QP
4	268.4853	37.72	-6.08	31.64	47.00	-15.36	-	-	QP
5	593.0497	29.01	-0.28	28.73	47.00	-18.27	-	-	QP
6	896.9965	27.94	3.99	31.93	47.00	-15.07	-	-	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 conducted under the description of EN IEC 61000-3-2.

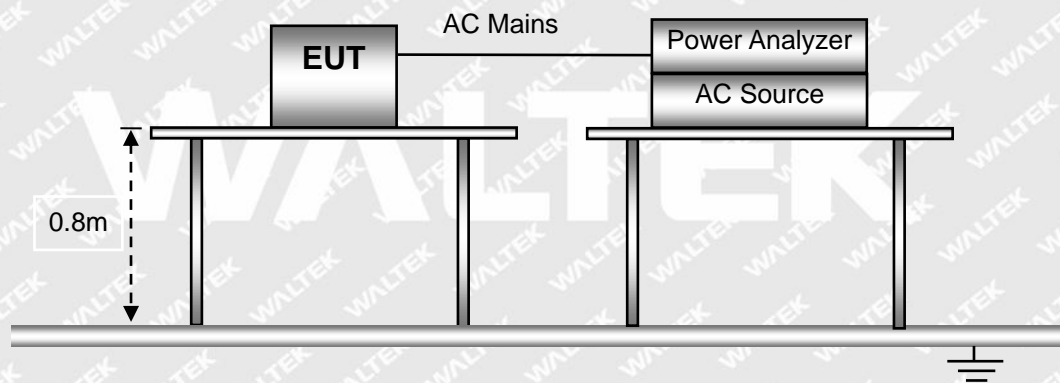
### 5.2 Test Standards

EN IEC 61000-3-2, Clause 7.2 Limits for Class A equipment.

### 5.3 Environmental Conditions

Temperature:	24.5 °C
Relative Humidity:	51 %
ATM Pressure:	1022 mbar

### 5.4 Basic Test Setup Block Diagram

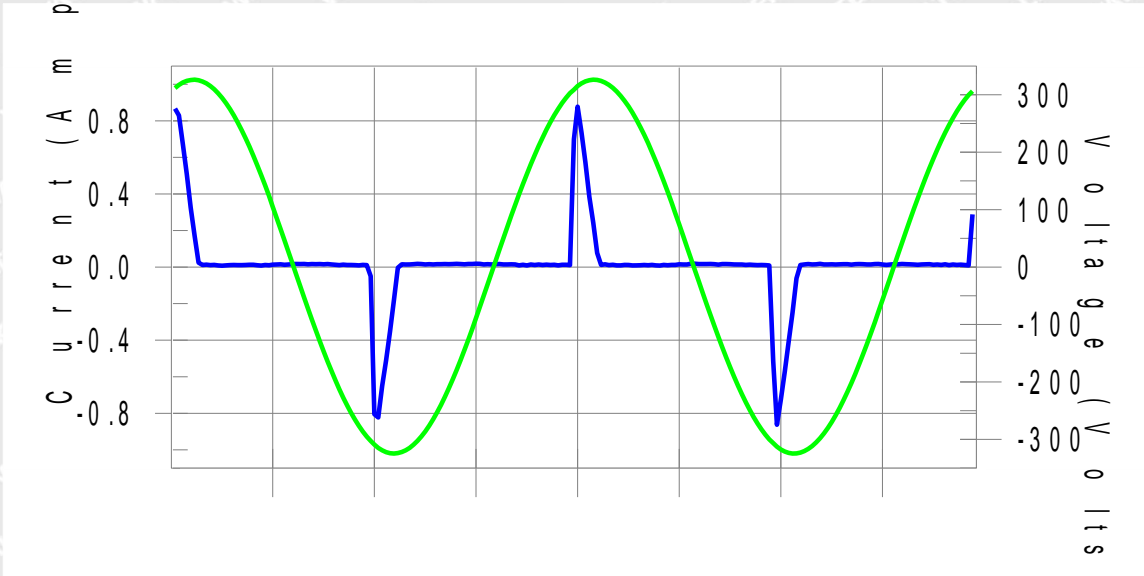


### 5.5 Harmonic Current Emissions Test Data

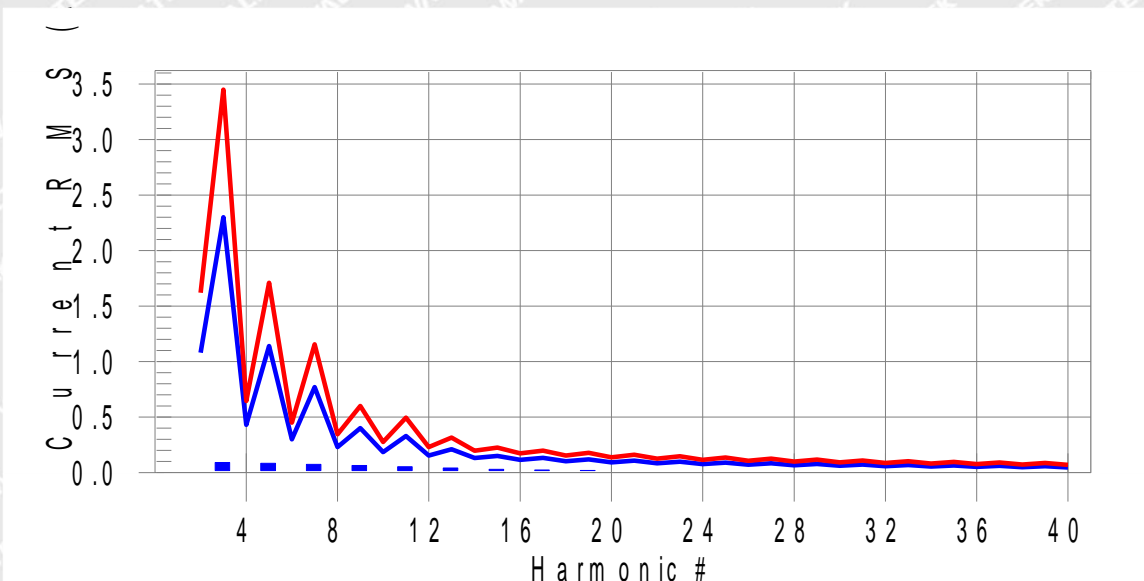


### Harmonics – Class-A

**Test category:** Class-A (European limits)      **Test Margin:** 100  
**Test date:** 2022/10/25      **Start time:** 11:38:29      **End time:** 11:41:10  
**Test duration (min):** 2.5      **Data file name:** H-000544.cts\_data  
**Comment:** TM1  
**Test Result:** Pass      **Source qualification:** Normal  
**Current & voltage waveforms**      -



### Harmonics and Class A limit line      European Limits



**Test result:** Pass      **Worst harmonics H15-13.9% of 150% limit, H15-20.7% of 100% limit**



## Current Test Result Summary (Run time)

**Test category: Class-A (European limits)**      **Test Margin: 100**  
**Test date: 2022/10/25**      **Start time: 11:38:29**      **End time: 11:41:10**  
**Test duration (min): 2.5**      **Data file name: H-000544.cts\_data**  
**Comment: TM1**

**Test Result: Pass**      **Source qualification: Normal**  
**THC(A): 0.181**      **I-THD(%): 190.2**      **POHC(A): 0.041**      **POHC Limit(A): 0.251**

### Highest parameter values during test:

**V\_RMS (Volts): 230.11**      **Frequency(Hz): 50.00**  
**I\_Peak (Amps): 0.922**      **I\_RMS (Amps): 0.208**  
**I\_Fund (Amps): 0.095**      **Crest Factor: 4.491**  
**Power (Watts): 21.5**      **Power Factor: 0.452**

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	0.090	2.300	3.9	0.092	3.450	2.7	Pass
4	0.001	0.430	N/A	0.001	0.645	N/A	Pass
5	0.084	1.140	7.3	0.085	1.710	5.0	Pass
6	0.000	0.300	N/A	0.001	0.450	N/A	Pass
7	0.075	0.770	9.7	0.076	1.155	6.6	Pass
8	0.000	0.230	N/A	0.001	0.345	N/A	Pass
9	0.064	0.400	16.0	0.065	0.600	10.8	Pass
10	0.000	0.184	N/A	0.001	0.276	N/A	Pass
11	0.052	0.330	15.9	0.053	0.495	10.7	Pass
12	0.000	0.153	N/A	0.001	0.230	N/A	Pass
13	0.041	0.210	19.5	0.041	0.315	13.1	Pass
14	0.000	0.131	N/A	0.001	0.197	N/A	Pass
15	0.031	0.150	20.7	0.031	0.225	13.9	Pass
16	0.000	0.115	N/A	0.001	0.173	N/A	Pass
17	0.023	0.132	17.8	0.024	0.198	11.9	Pass
18	0.000	0.102	N/A	0.001	0.153	N/A	Pass
19	0.019	0.118	16.1	0.019	0.178	10.9	Pass
20	0.000	0.092	N/A	0.001	0.138	N/A	Pass
21	0.018	0.107	16.4	0.018	0.161	11.1	Pass
22	0.000	0.084	N/A	0.001	0.125	N/A	Pass
23	0.017	0.098	17.6	0.018	0.147	12.0	Pass
24	0.000	0.077	N/A	0.001	0.115	N/A	Pass
25	0.017	0.090	18.6	0.017	0.135	12.6	Pass
26	0.000	0.071	N/A	0.001	0.107	N/A	Pass



Reference No.: WTF22X09189734W004

27	0.016	0.083	18.6	0.016	0.125	12.6	Pass
28	0.000	0.066	N/A	0.001	0.099	N/A	Pass
29	0.014	0.078	17.6	0.014	0.116	11.8	Pass
30	0.000	0.061	N/A	0.001	0.092	N/A	Pass
31	0.011	0.073	15.8	0.012	0.109	10.6	Pass
32	0.000	0.058	N/A	0.001	0.086	N/A	Pass
33	0.009	0.068	13.9	0.010	0.102	9.4	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.008	0.064	12.7	0.008	0.096	8.6	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.008	0.061	12.5	0.008	0.091	8.5	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.007	0.058	13.0	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: 2022/10/25**      **Start time: 11:38:29**      **End time: 11:41:10**  
**Test duration (min): 2.5**      **Data file name: H-000544.cts\_data**  
**Comment: TM1**

**Test Result: Pass**      **Source qualification: Normal**

### Highest parameter values during test:

**Voltage (Vrms): 230.11**      **Frequency(Hz): 50.00**  
**I\_Peak (Amps): 0.922**      **I\_RMS (Amps): 0.208**  
**I\_Fund (Amps): 0.095**      **Crest Factor: 4.491**  
**Power (Watts): 21.5**      **Power Factor: 0.452**

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.055	0.460	11.95	OK
3	0.517	2.070	24.96	OK
4	0.077	0.460	16.79	OK
5	0.062	0.920	6.76	OK
6	0.032	0.460	6.98	OK
7	0.043	0.690	6.22	OK
8	0.012	0.460	2.67	OK
9	0.039	0.460	8.44	OK
10	0.011	0.460	2.28	OK
11	0.043	0.230	18.70	OK
12	0.010	0.230	4.31	OK
13	0.033	0.230	14.40	OK
14	0.007	0.230	3.03	OK
15	0.035	0.230	15.36	OK
16	0.009	0.230	3.73	OK
17	0.024	0.230	10.47	OK
18	0.010	0.230	4.56	OK
19	0.020	0.230	8.76	OK
20	0.014	0.230	6.26	OK
21	0.020	0.230	8.69	OK
22	0.004	0.230	1.94	OK
23	0.020	0.230	8.89	OK
24	0.003	0.230	1.42	OK
25	0.023	0.230	9.88	OK
26	0.002	0.230	1.05	OK
27	0.019	0.230	8.21	OK



Reference No.: WTF22X09189734W004

28	0.004	0.230	1.64	OK
29	0.024	0.230	10.31	OK
30	0.004	0.230	1.54	OK
31	0.019	0.230	8.10	OK
32	0.003	0.230	1.11	OK
33	0.017	0.230	7.56	OK
34	0.002	0.230	0.86	OK
35	0.015	0.230	6.35	OK
36	0.002	0.230	0.99	OK
37	0.013	0.230	5.75	OK
38	0.003	0.230	1.11	OK
39	0.013	0.230	5.44	OK
40	0.008	0.230	3.49	OK

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## 6. Voltage Fluctuation Flicker

### 6.1 Test Procedure

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

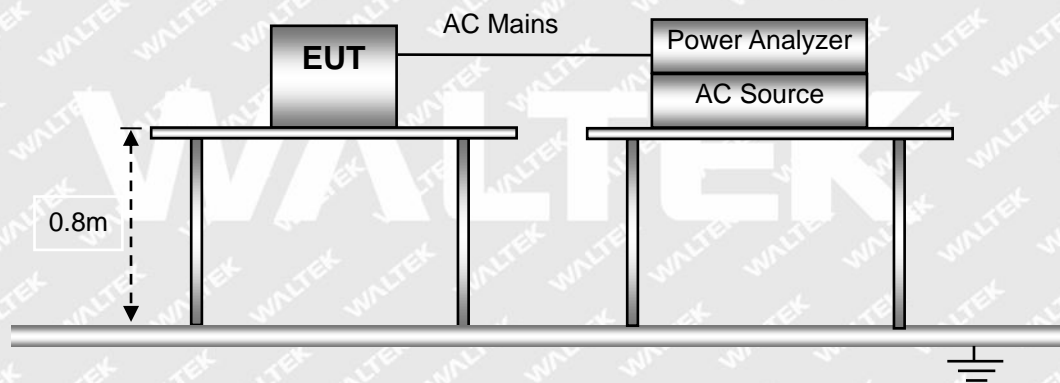
### 6.2 Test Standards

EN 61000-3-3, Limit: Clause 5.

### 6.3 Environmental Conditions

Temperature:	24.5 °C
Relative Humidity:	51 %
ATM Pressure:	1022 mbar

### 6.4 Basic Test Setup Block Diagram



### 6.5 Voltage Fluctuation and Flicker Test Data



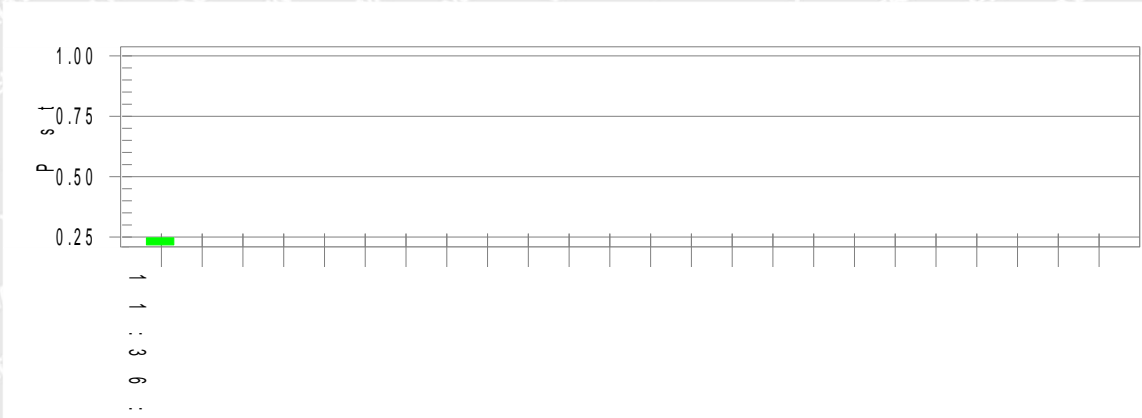
Test mode:	TM1
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**Test Result: Pass**

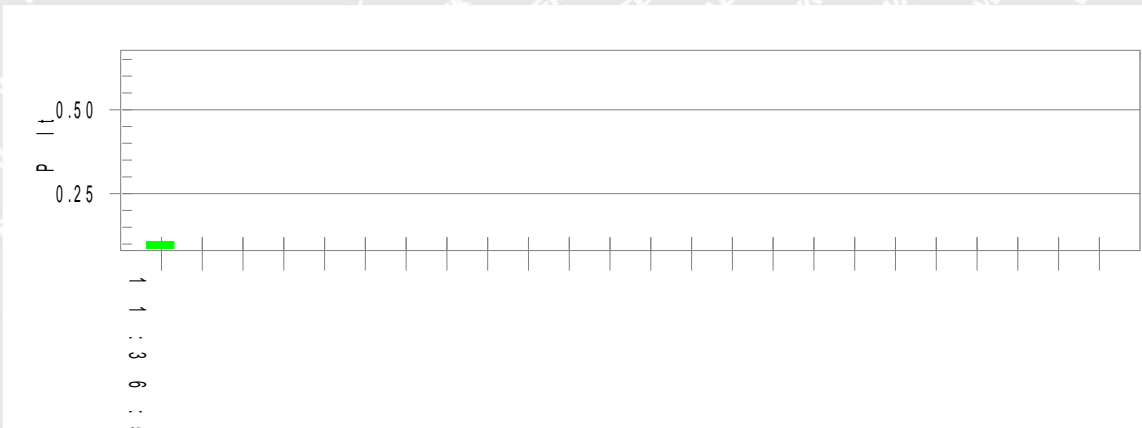
**Status: Test Completed**

**Pst 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>230.02</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 Discharges (ESD)

### 7.1 Test Procedure

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

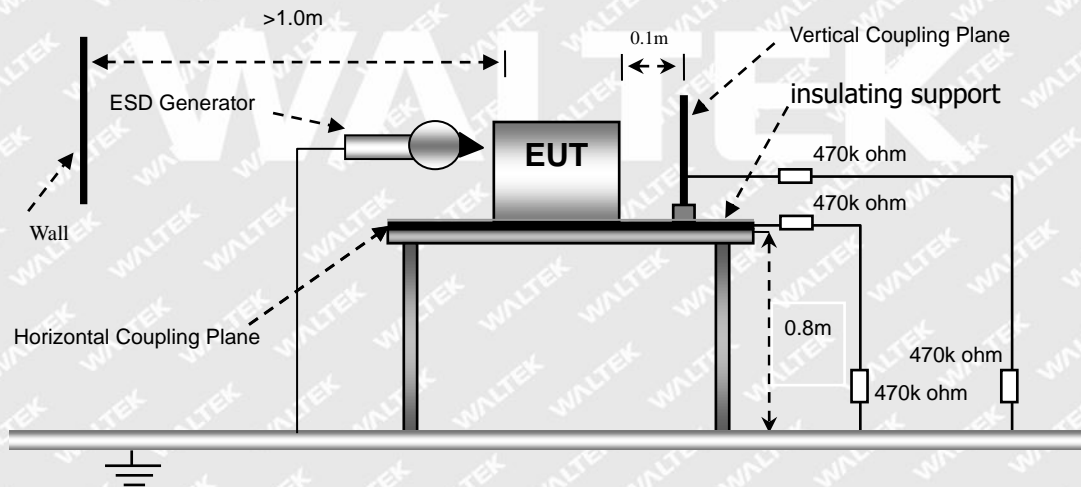
### 7.2 Test Performance

Performance Criterion: B

### 7.3 Environmental Conditions

Temperature:	24.6 °C
Relative Humidity:	51%
ATM Pressure:	1011 mbar

### 7.4 Basic Test Setup Block Diagram





## 7.5 Electrostatic Discharge Immunity Test Data

Test Mode: TM1, TM2, TM3

Table 1: Electrostatic Discharge Immunity (Air Discharge)

EN 61000-4-2 Test Points	Test Voltage (kV)									
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
USB Port	B	B	B	B	B	B	B	B	/	/
Gap	B	B	B	B	B	B	B	B	/	/
Enclosure	B	B	B	B	B	B	B	B	/	/

Table 2: Electrostatic Discharge Immunity (Direct Contact)

EN 61000-4-2 Test Points	Test Voltage (kV)									
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
USB Port	B	B	B	B	/	/	/	/	/	/

Table 3: Electrostatic Discharge Immunity (Indirect Contact HCP & VCP)

EN 61000-4-2 Test Points	Test Voltage (kV)									
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
HCP (6 Sides)	A	A	A	A	/	/	/	/	/	/
VCP (4 Sides)	A	A	A	A	/	/	/	/	/	/

Test Result: Pass

## 8. Continuous RF Electromagnetic Field Disturbances (RS)

### 8.1 Test Procedure

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

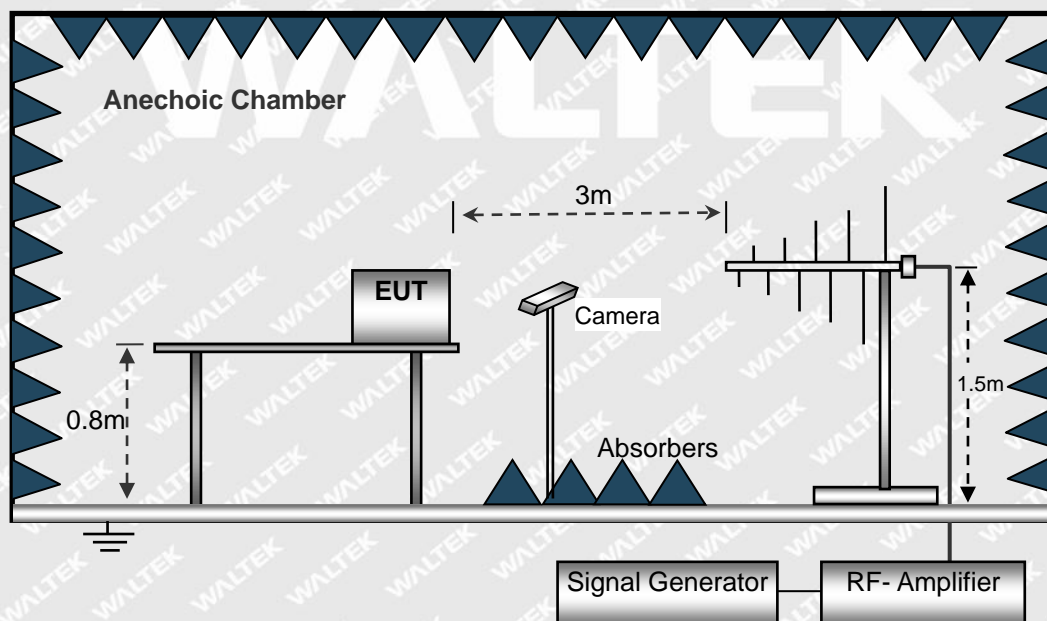
### 8.2 Test Performance

Performance Criterion: A

### 8.3 Environmental Conditions

Temperature:	24.5°C
Relative Humidity:	51 %
ATM Pressure:	1010 mbar

### 8.4 Basic Test Setup Block Diagram





## 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, TM2, TM3

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
1400-6000	3	A	A	A	A	A	A	A	A

Test Result: Pass

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## 9. Electrical Fast Transients (EFT)

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### 9.1 Test Procedure

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

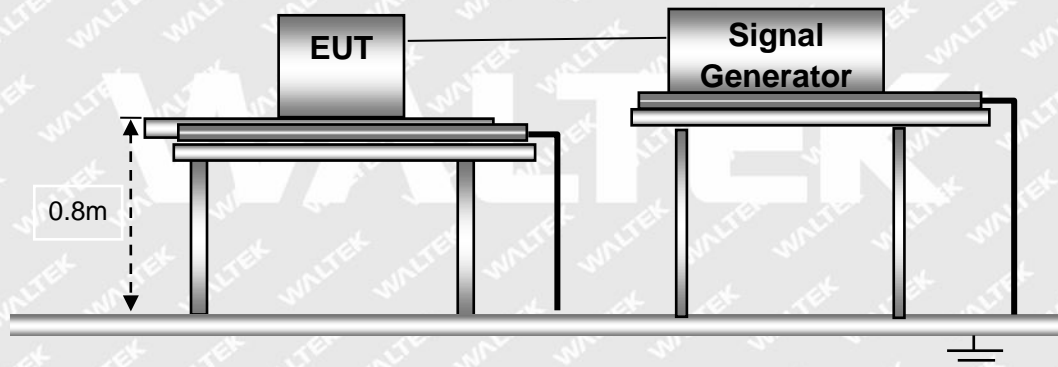
### 9.2 Test Performance

Performance Criterion: B

### 9.3 Environmental Conditions

Temperature:	24.5 °C
Relative Humidity:	51 %
ATM Pressure:	1011 mbar

### 9.4 Basic Test Setup Block Diagram





## 9.5 Electrical Fast Transients Test Data

Test Mode: TM1, TM2, TM3

EN 61000-4-4 Test Points		Test Voltage (kV)							
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
Power Supply  Power Port of EUT	L1	A	A	A	A	/	/	/	/
	L2	A	A	A	A	/	/	/	/
	PE	/	/	/	/	/	/	/	/
	L1+L2	A	A	A	A	/	/	/	/
	L1 + PE	/	/	/	/	/	/	/	/
	L2 + PE	/	/	/	/	/	/	/	/
	L1+L2+PE	/	/	/	/	/	/	/	/
Signal ports	RJ45	/	/	/	/	/	/	/	/

Test Result: Pass

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## 10. Surges

### 10.1 Test Procedure

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

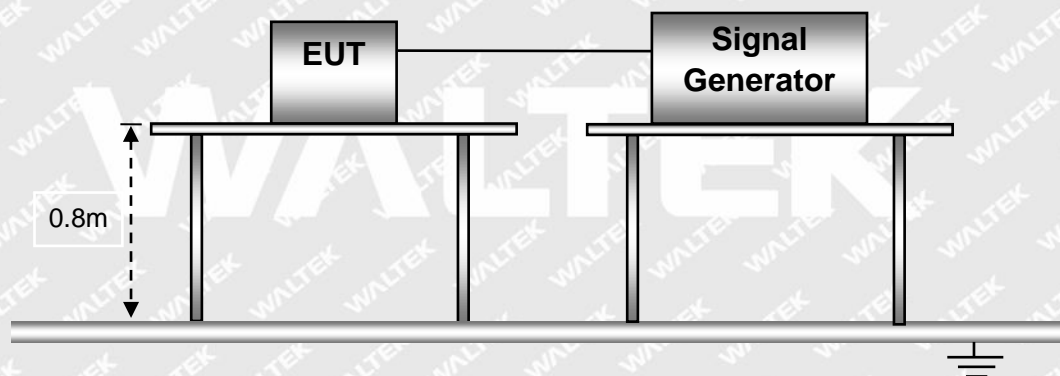
### 10.2 Test Performance

Performance Criterion: B

### 10.3 Environmental Conditions

Temperature:	24.5°C
Relative Humidity:	51 %
ATM Pressure:	1011 mbar

### 10.4 Basic Test Setup Block Diagram



### 10.5 Surge Test Data

Test Mode: TM1, TM2, TM3

Test Voltage	Poll	Path	Pass	Fail
0.5kV	±	L-N	A	/
1kV	±	L-N	A	/
2kV	±	L-PE, N-PE	/	/
4kV	±	L-N, L-PE, N-PE	/	/

Test Result: Pass



## 11. Continuous Induced RF Disturbances (C/S)

### 11.1 Test Procedure

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

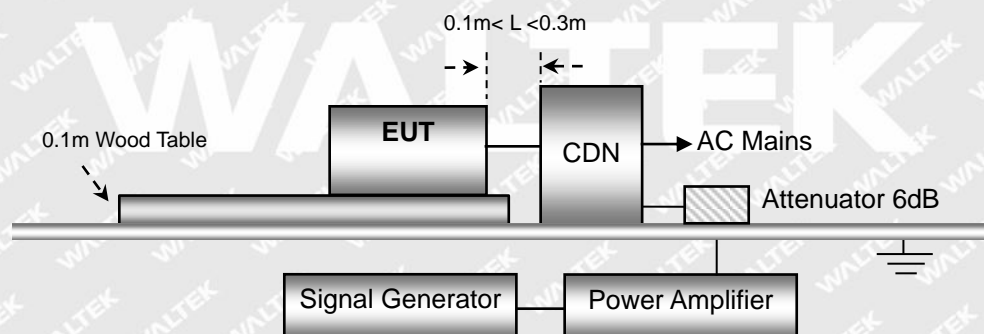
### 11.2 Test Performance

Performance Criterion: A

### 11.3 Environmental Conditions

Temperature:	24.5 °C
Relative Humidity:	51 %
ATM Pressure:	1011 mbar

### 11.4 Basic Test Setup Block Diagram







## 11.5 Continuous Conducted Disturbances Test Data

Sweep frequency range: 0.15 MHz to 80 MHz

Frequency step: 1% of fundamental

Dwell time: 1 second

Test Mode: TM1, TM2, TM3

AC Port

Frequency MHz	Injected Position	Voltage level (e.m.f.)	Observations (Performance Criterion)	Result
0.15-80	AC Mains	1V	/	/
0.15-80	AC Mains	3V	A	Pass
0.15-80	AC Mains	10V	/	/

Test Result: Pass

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## 12. Power-Frequency Magnetic Fields (PFMF)

### 12.1 Test Procedure

Test is conducted under the description of EN 61000-4-8.

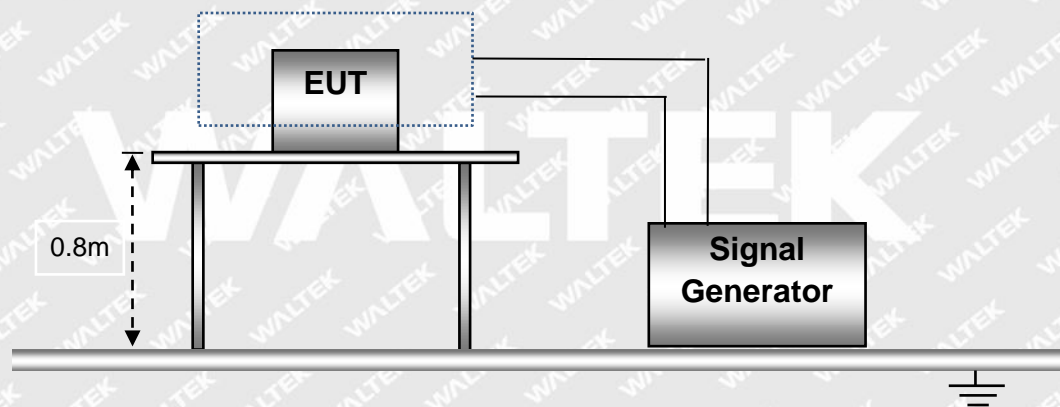
### 12.2 Test Performance

Performance Criterion: A

### 12.3 Environmental Conditions

Temperature:	24.5 °C
Relative Humidity:	51 %
ATM Pressure:	1011 mbar

### 12.4 Basic Test Setup Block Diagram



### 12.5 Power-Frequency Magnetic Field Test Data

Test Mode: TM1, TM2, TM3

Level	Magnetic Field Strength (r.m.s) A/m	Frequency Hz	Induction Coil Position	Pass	Fail
1	1	50	X, Y, Z	/	/
2	3	50	X, Y, Z	A	/
3	10	50	X, Y, Z	/	/
X	Special	/	/	/	/

Test Result: Pass



## 13. Voltage Dips and Interruptions

### 13.1 Test Procedure

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

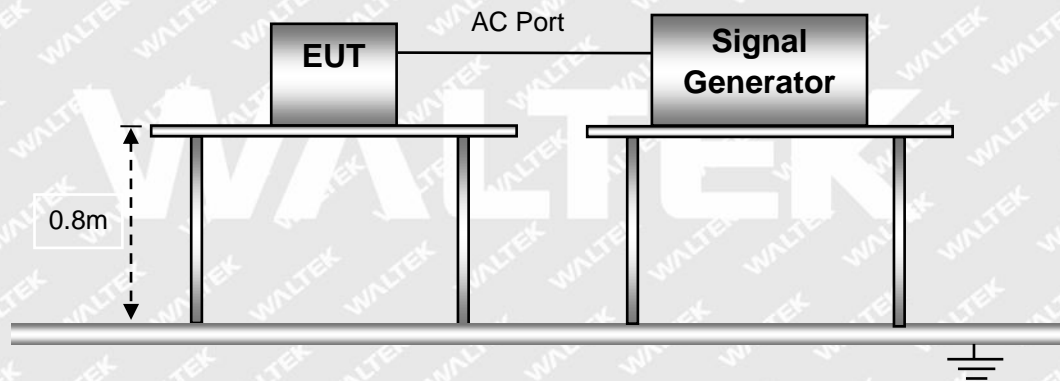
### 13.2 Test Performance

Performance Criterion: B/C

### 13.3 Environmental Conditions

Temperature:	24.5 °C
Relative Humidity:	51 %
ATM Pressure:	1011 mbar

### 13.4 Basic Test Setup Block Diagram



### 13.5 Voltage Dips And Interruptions Test Data

Test Mode: TM1, TM2, TM3

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

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## EXHIBIT 1 - EUT PHOTOGRAPHS

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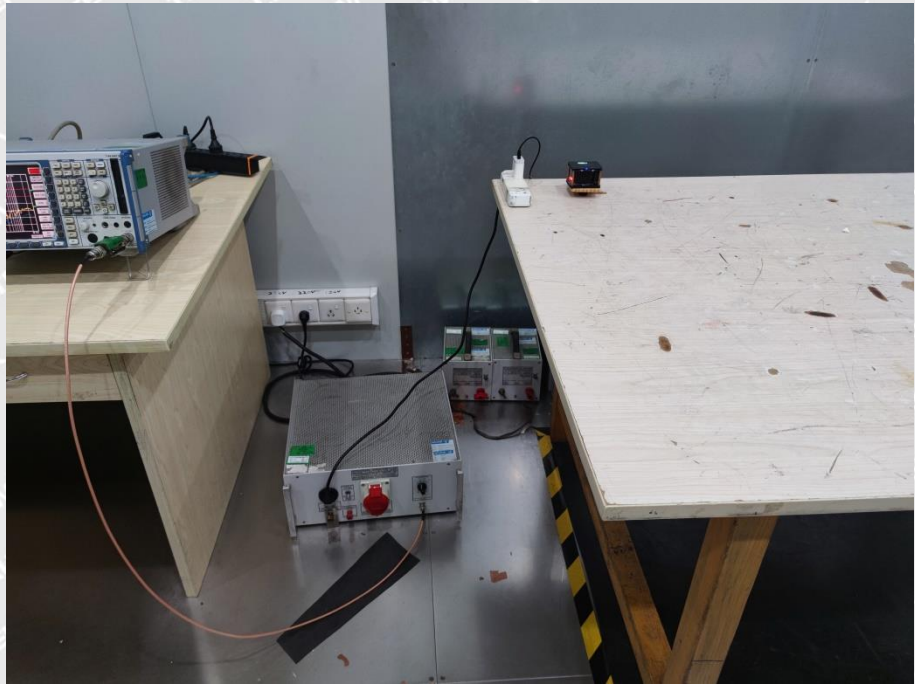
Please refer to "ANNEX".

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## EXHIBIT 2 - TEST SETUP PHOTOGRAPHS

**Conducted Emission  
Test Setup**



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

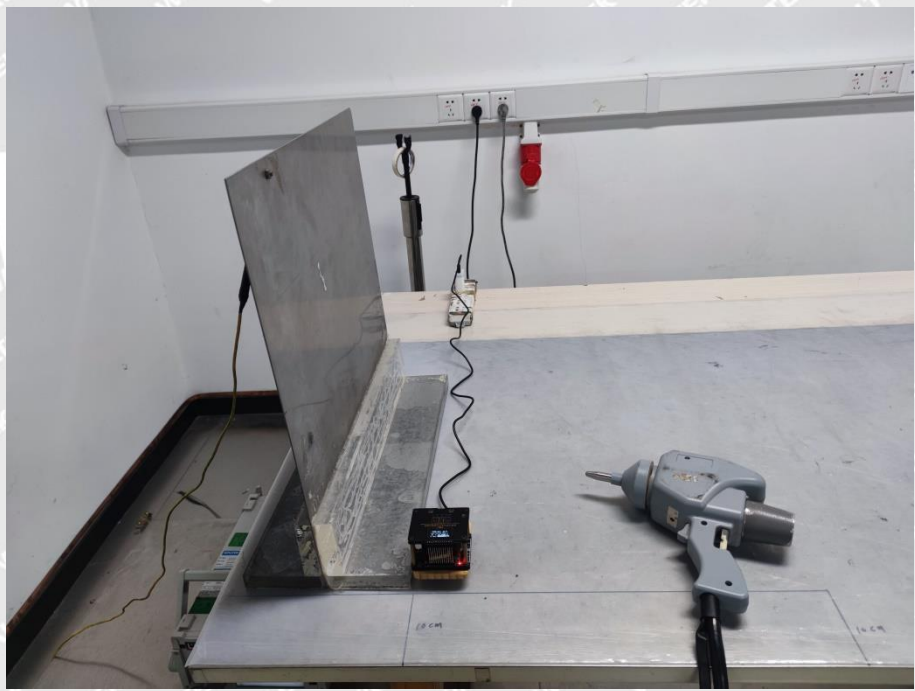




**Harmonic/Flicker Test View**

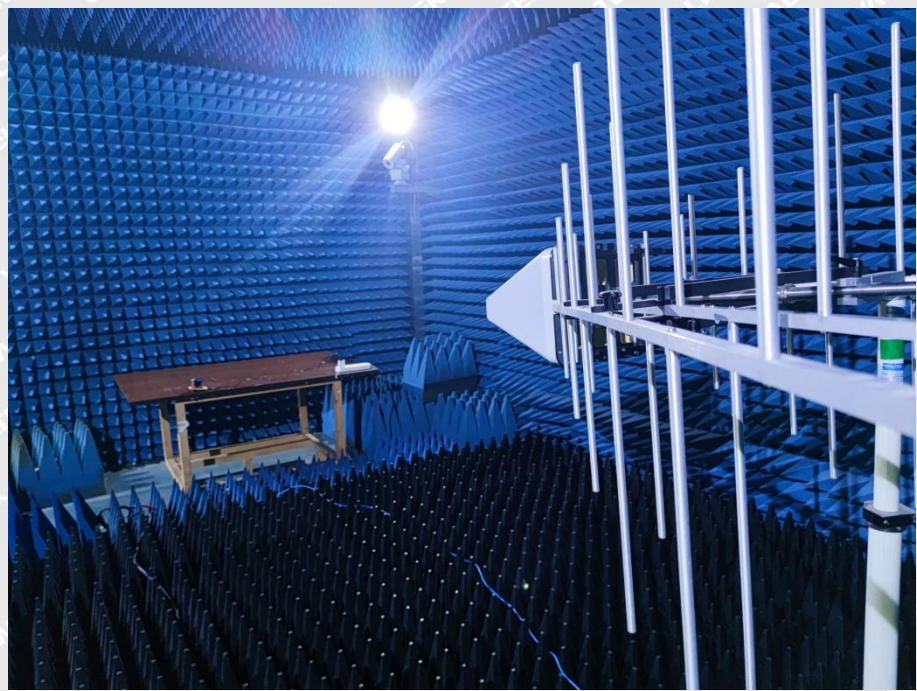


**EN 61000-4-2 Test View**





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

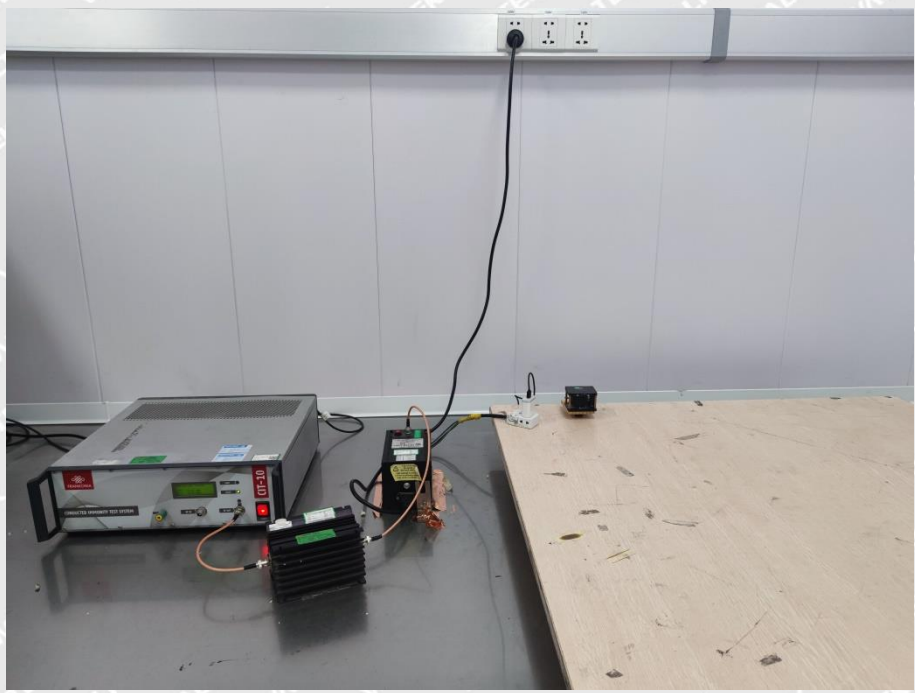


**EN 61000-4-4/5/11 Test View**

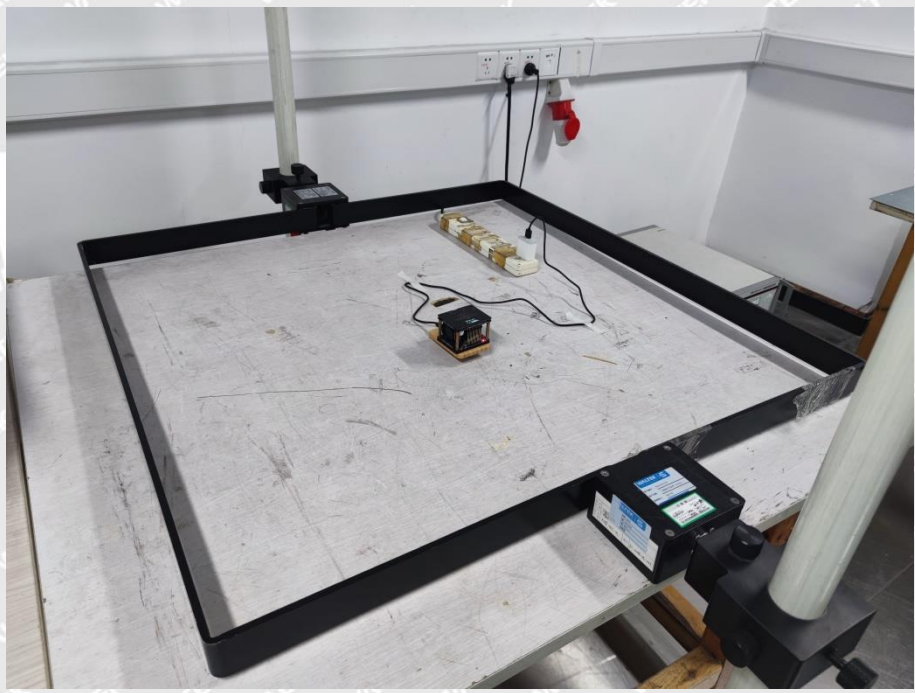




**EN 61000-4-6 Test View**



**EN 61000-4-8 Test View**



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