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检测
TESTING
CNAS L4062

TEST REPORT

Reference No.	:	WTF23X06124887W003
Manufacturer	:	Mid Ocean Brands B.V.
Address	:	7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Factory	:	116266
Product Name	:	ABS wireless charger
Model No.	:	MO6250
Standards	:	**ETSI EN 301 489-1 V2.2.3 (2019-11)** **ETSI EN 301 489-3 V2.1.1 (2019-03)**
Date of Receipt sample	:	2023-06-08
Date of Test	:	2023-06-08 to 2023-06-26
Date of Issue	:	2023-06-26
Test Report Form No.	:	WTX_ETSI EN 301 489_1_2019W
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 approver.

Prepared By:

Waltek Testing Group (Shenzhen) Co., Ltd.

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Tested by:

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Approved by:

Silin Chen

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Rev.00	2023-06-26	Original
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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

General Description of EUT	
Product Name:	ABS wireless charger
Trade Name:	/
Model No.:	MO6250
Adding Model(s):	/
Rate Power:	Wireless Output: 10W Max
Software Version:	/
Hardware Version:	/
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
EN 303417	
Frequency Range:	108-205kHz
Radiated H-Field:	34.07dBuA/m(@3m)
Type of Antenna:	Coil Antenna
Note: The Antenna Gain is provided by the customer and can affect the validity of results.	

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	Charging	Connect to the adapter; AC230V/50Hz for adapter
TM2	Wireless Charging& USB full load	Connect to the adapter; AC230V/50Hz for adapter; Wireless charging: output 5W& USB full load 5W
TM3	Wireless Charging& USB full load	Connect to the adapter; AC230V/50Hz for adapter; Wireless charging: output 10W& USB full load 10W
TM4	Wireless Charging	TT,CT for EMS testing

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
DC Cable	1.2	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 ±4.52dB @0.2-1GHz ±5.56dB @1-6GHz ±3.84dB @6-18GHz ±3.92dB
Uncertainty for Conducted Emission	@9-150kHz ±3.74dB @0.15-30MHz ±3.34dB
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
☒Chamber A: Below 1GHz					
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2023-02-25	2024-02-24
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2023-02-25	2024-02-24
Amplifier	HP	8447F	2805A03475	2023-02-25	2024-02-24
Loop Antenna	Schwarz beck	FMZB 1516	9773	2021-03-20	2024-03-19
Trilog Broadband Antenna	Schwarz beck	VULB9163	9163-333	2023-03-20	2026-03-19
☒Chamber A: Above 1GHz					
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2023-02-25	2024-02-24
Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2023-02-25	2024-02-24
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2023-02-25	2024-02-24
Amplifier	C&D	PAP-1G18	14918	2023-02-25	2024-02-24
Horn Antenna	ETS	3117	00086197	2021-03-19	2024-03-18
DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2021-03-19	2024-03-18
Pre-amplifier	Schwarz beck	BBV 9721	9721-031	2023-02-25	2024-02-24
☐Chamber B:Below 1GHz					
Trilog Broadband Antenna	Schwarz beck	VULB9163(B)	9163-635	2021-04-09	2024-04-08
Amplifier	Agilent	8447D	2944A10179	2023-02-25	2024-02-24
EMI Test Receiver	Rohde & Schwarz	ESPI	101391	2023-02-25	2024-02-24
☐Chamber C:Below 1GHz					
EMI Test Receiver	Rohde & Schwarz	ESIB 26	100401	2023-02-25	2024-02-24
Trilog Broadband Antenna	Schwarz beck	VULB 9168	1194	2021-05-28	2024-05-27
Amplifier	HP	8447F	2944A03869	2023-02-25	2024-02-24
☐Chamber C: Above 1GHz					
EMI Test Receiver	Rohde & Schwarz	ESIB 26	100401	2023-02-25	2024-02-24
Horn Antenna	POAM	RTF-11A	LP228060221	2023-03-10	2026-03-09
Amplifier	Tonscend	TAP01018050	AP22E806235	2023-02-25	2024-02-24
☒Conducted Room 1#					
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2023-02-25	2024-02-24
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2023-02-25	2024-02-24
AC LISN	Schwarz beck	NSLK8126	8126-224	2023-02-25	2024-02-24
8-WIRE LISN	Schwarz beck	8158	CAT3-8158-0059	2023-02-25	2024-02-24
8-WIRE LISN	Schwarz beck	8158	CAT5-8158-0117	2023-02-25	2024-02-24
☐Conducted Room 2#					
EMI Test Receiver	Rohde & Schwarz	ESPI	10129	2023-02-25	2024-02-24
LISN	Rohde & Schwarz	ENV 216	100097	2023-02-25	2024-02-24

EMF					
VDH Test Head	AFJ	VDH 30	SC022Z	2023-02-25	2024-02-24
3 Loop Antenna					
Loop Antenna	ZHINAN	ZN30401	19037	2023-02-25	2025-02-24
Clamp					
Clamp	Luthi	MDS21	3809	2023-02-27	2024-02-26
PFMF					
PMF Generator	LIONCEL	PMF-801C-C	0171101	2023-02-25	2024-02-24
PMF Antenna	LIONCEL	PMF-801C-A	0180302	2023-02-25	2024-02-24
Instantaneous PMF Generator Module	LIONCEL	PMF-801C-T	0171001	2023-02-25	2024-02-24
H/F					
Digital Power Analyzer	California Instrument	CTS	72831	2023-02-25	2024-02-24
Power Source	California Instrument	5001IX-CTS-400	25965	2023-02-25	2024-02-24
ESD					
ESD Generator	LIONCEL	ESD-203B	0170901	2023-03-14	2024-03-13
EFT/SURGE/DIPS					
Transient 2000	EMC PARTNER	TRA2000	863	2023-02-25	2024-02-24
Couple Clamp	EMC PARTNER	CN-EFT1000	513	2023-02-25	2024-02-24
CS					
CONDUCTED IMMUNITY TEST SYSTEM	FRANKONIA	CIT-10/75	126B1247/2013	2023-02-25	2024-02-24
Attenuator	EMTEST	MA-5100/6BF2	1009	2023-02-25	2024-02-24
CDN	Luthi	L-801M2/M3	2665	2023-02-25	2024-02-24
CDN	LIONCEL	CDN-T8	0210401	2023-02-25	2024-02-24
EM Clamp	TESEQ	KEMZ801A	45028	2023-02-25	2024-02-24
RS					
Signal Generator	HP	8688B	3438A00604	2023-02-25	2024-02-24
Power Meter	KEITHLEY	3500	1162591	2023-02-25	2024-02-24
Power Meter	KEITHLEY	3500	1121428	2023-02-25	2024-02-24
RF Power Amplifier	MicoTop	MPA-80-1000-250	MPA1906239	2023-02-25	2024-02-24
RF Power Amplifier	MicoTop	MPA-80-6000-100	MPA1906238	2023-02-25	2024-02-24
Antenna	SCHWARZBECK	STLP 9129	9129 114	N/A	N/A
Power Meter	Agilent	E4419B	GB42420578	2023-02-25	2024-02-24

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.

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

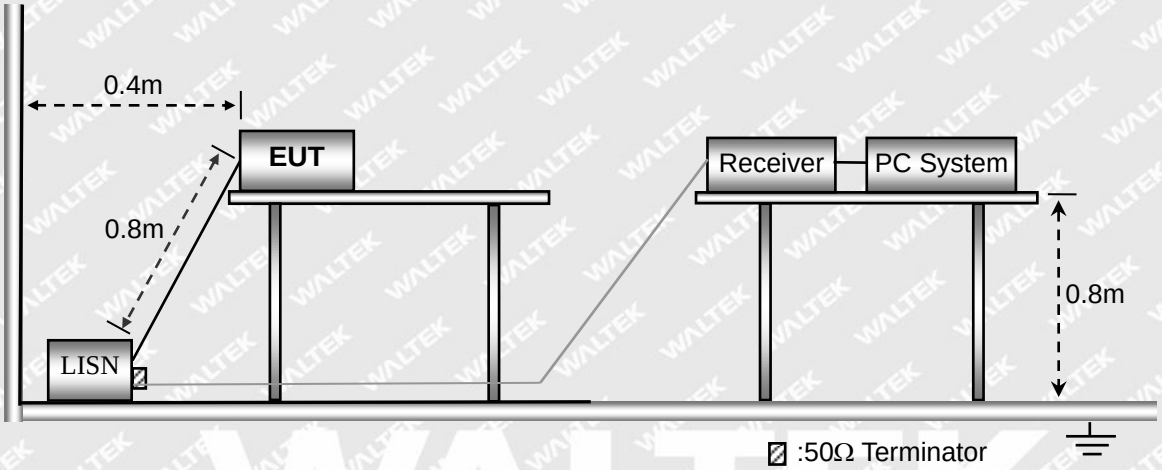
Pass: The EUT complies with the essential requirements in the standard.
Fail: The EUT does not comply with the essential requirements in the standard.
N/A: Not applicable.

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



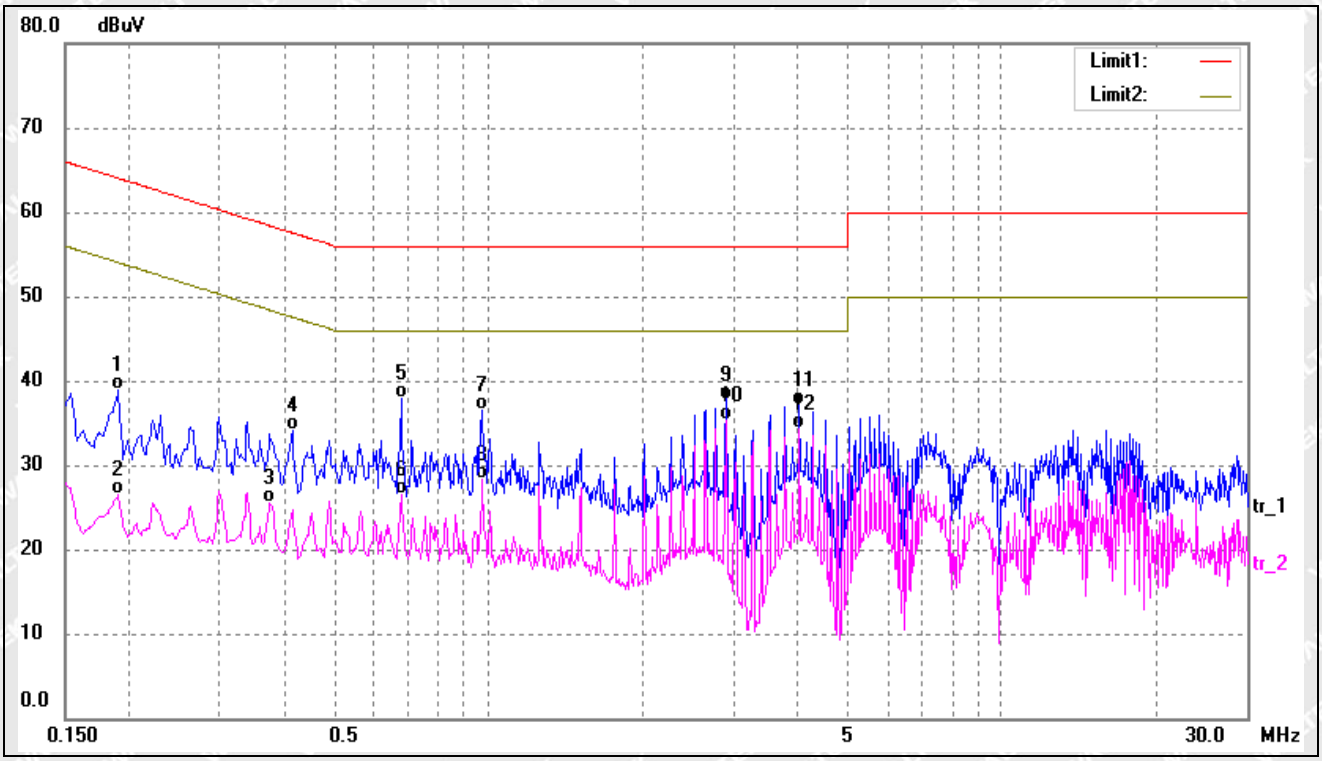
3.3 Environmental Conditions

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

3.4 Conducted Emissions Test Data

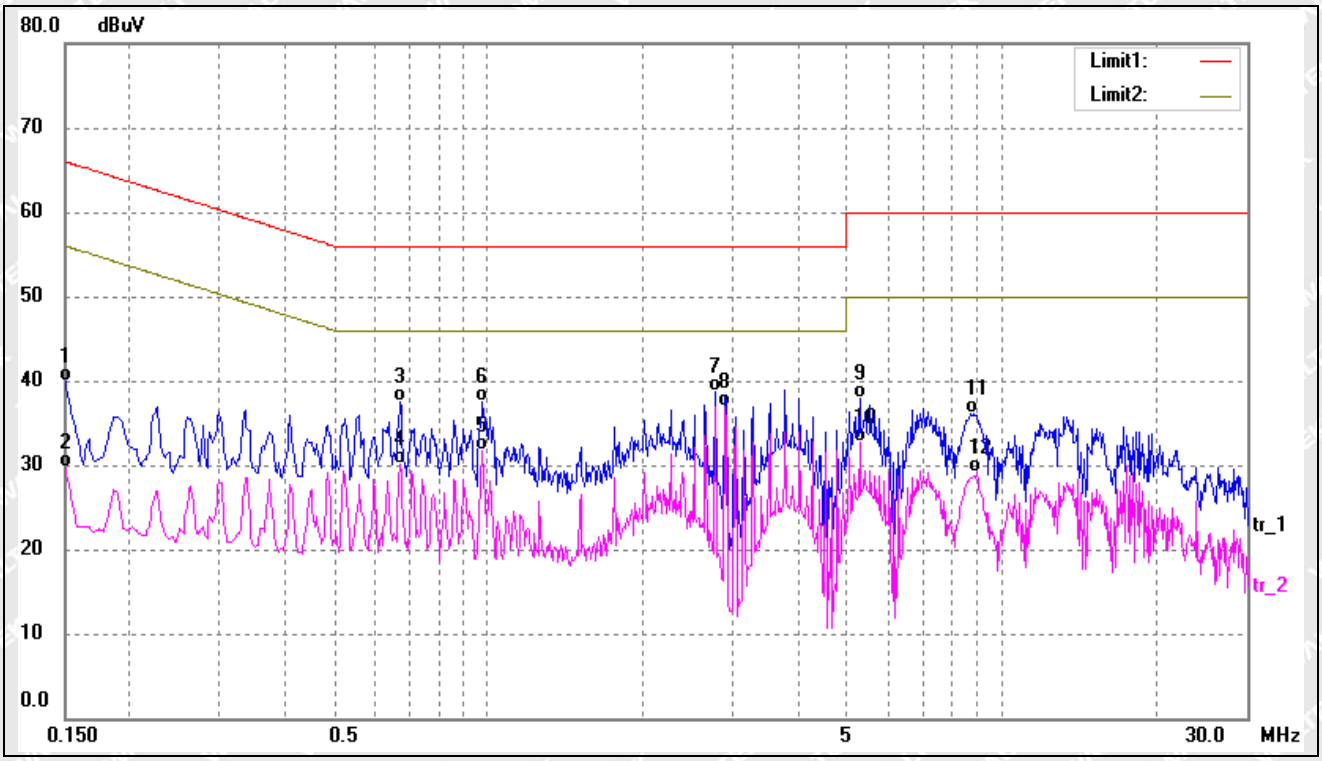
Note: Only show the worst case in the test report.

Test mode:	TM1	Polarity:	Neutral



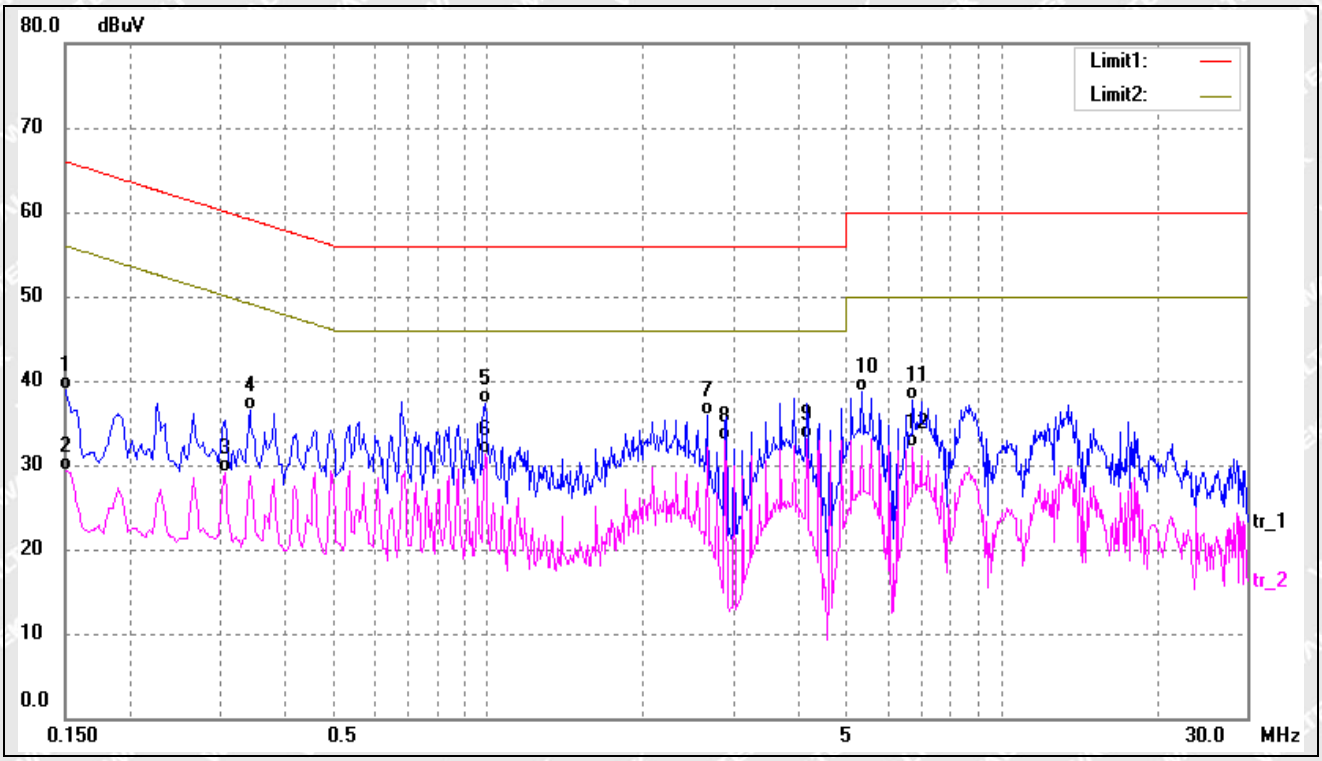
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1900	28.54	10.39	38.93	64.03	-25.10	QP
2	0.1900	16.06	10.39	26.45	54.03	-27.58	AVG
3	0.3738	15.32	10.28	25.60	48.41	-22.81	AVG
4	0.4139	23.79	10.26	34.05	57.57	-23.52	QP
5	0.6780	27.68	10.20	37.88	56.00	-18.12	QP
6	0.6780	16.27	10.20	26.47	46.00	-19.53	AVG
7	0.9779	26.35	10.14	36.49	56.00	-19.51	QP
8	0.9779	18.24	10.14	28.38	46.00	-17.62	AVG
9	2.9020	27.46	10.34	37.80	56.00	-18.20	QP
10*	2.9020	24.94	10.34	35.28	46.00	-10.72	AVG
11	4.0339	26.71	10.36	37.07	56.00	-18.93	QP
12	4.0339	23.95	10.36	34.31	46.00	-11.69	AVG

Test mode:	TM1	Polarity:	Line



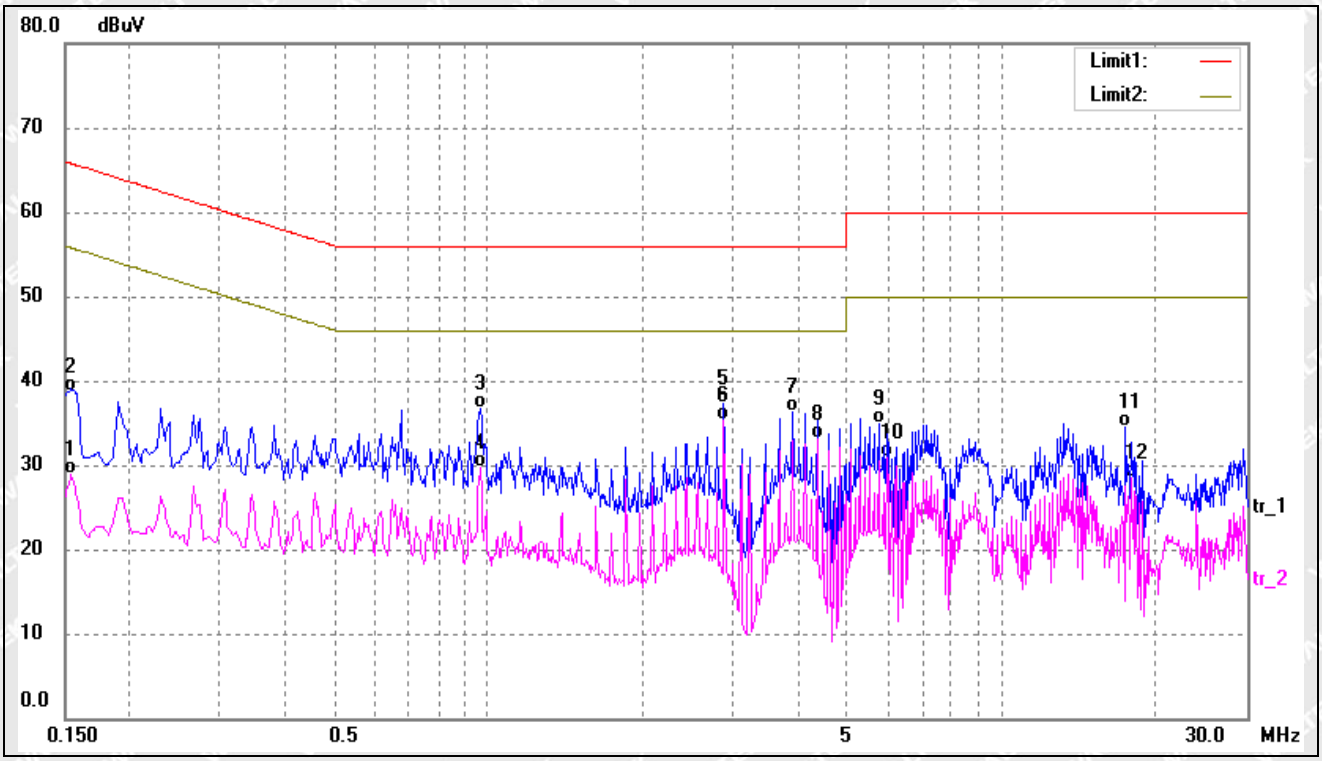
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1500	29.54	10.40	39.94	65.99	-26.05	QP
2	0.1500	19.27	10.40	29.67	55.99	-26.32	AVG
3	0.6740	27.32	10.20	37.52	56.00	-18.48	QP
4	0.6740	19.82	10.20	30.02	46.00	-15.98	AVG
5	0.9700	21.53	10.14	31.67	46.00	-14.33	AVG
6	0.9780	27.30	10.14	37.44	56.00	-18.56	QP
7	2.7740	28.42	10.34	38.76	56.00	-17.24	QP
8*	2.8980	26.64	10.34	36.98	46.00	-9.02	AVG
9	5.2940	27.43	10.38	37.81	60.00	-22.19	QP
10	5.2940	22.28	10.38	32.66	50.00	-17.34	AVG
11	8.6980	25.79	10.38	36.17	60.00	-23.83	QP
12	8.9500	18.66	10.38	29.04	50.00	-20.96	AVG

Test mode:	TM2	Polarity:	Neutral



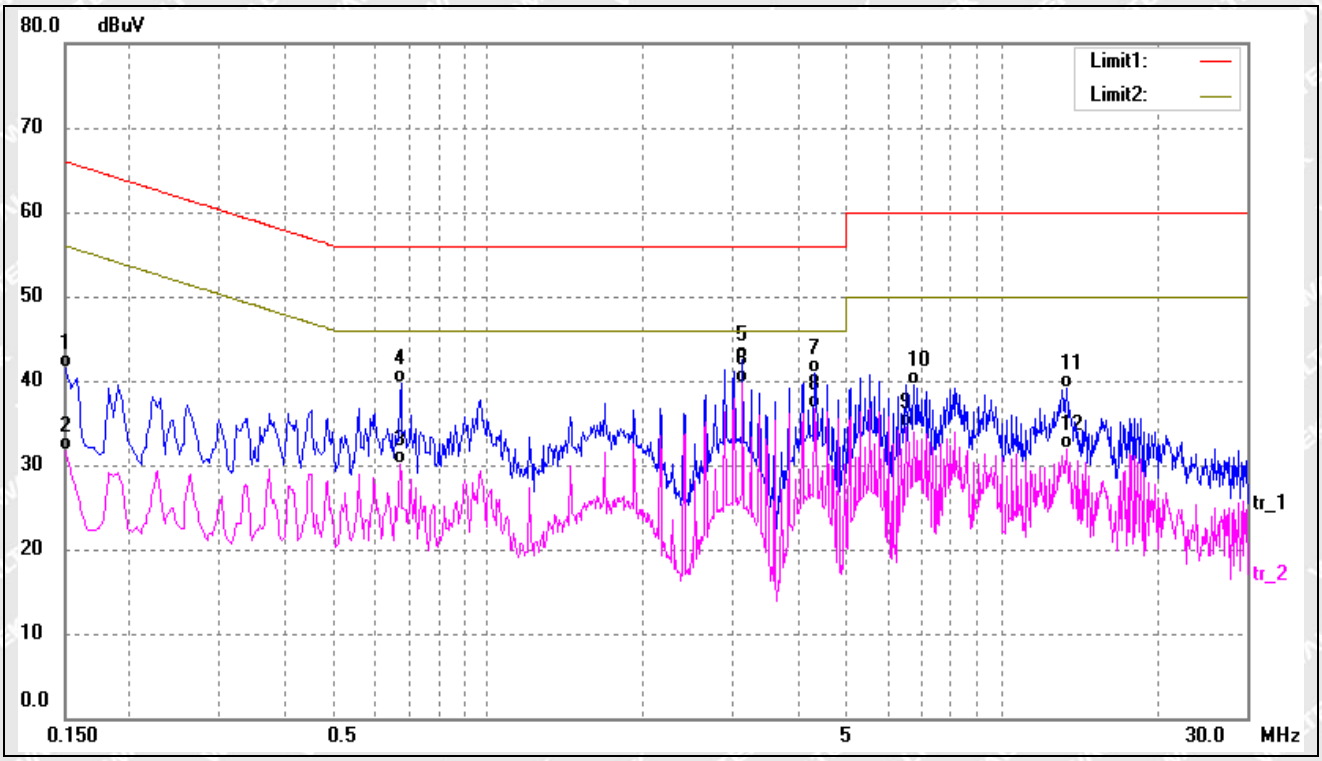
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1500	28.56	10.40	38.96	65.99	-27.03	QP
2	0.1500	18.90	10.40	29.30	55.99	-26.69	AVG
3	0.3060	18.88	10.30	29.18	50.08	-20.90	AVG
4	0.3420	26.25	10.28	36.53	59.15	-22.62	QP
5	0.9860	27.14	10.14	37.28	56.00	-18.72	QP
6	0.9860	21.17	10.14	31.31	46.00	-14.69	AVG
7	2.6700	25.53	10.34	35.87	56.00	-20.13	QP
8	2.8980	22.61	10.34	32.95	46.00	-13.05	AVG
9*	4.1779	22.69	10.37	33.06	46.00	-12.94	AVG
10	5.3380	28.33	10.38	38.71	60.00	-21.29	QP
11	6.7300	27.30	10.38	37.68	60.00	-22.32	QP
12	6.7300	21.73	10.38	32.11	50.00	-17.89	AVG

Test mode:	TM2	Polarity:	Line



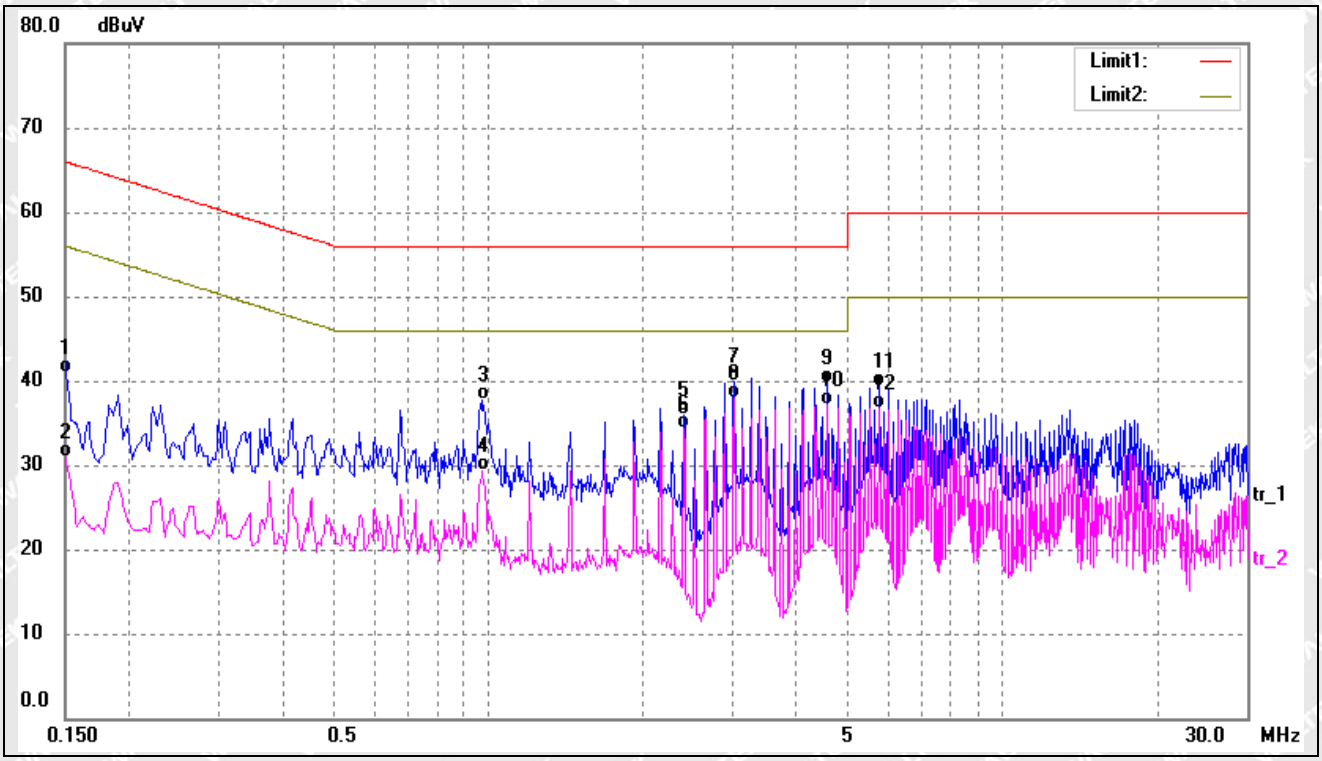
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1539	18.55	10.41	28.96	55.78	-26.82	AVG
2	0.1556	28.39	10.41	38.80	65.69	-26.89	QP
3	0.9660	26.56	10.14	36.70	56.00	-19.30	QP
4	0.9660	19.50	10.14	29.64	46.00	-16.36	AVG
5	2.8820	26.99	10.34	37.33	56.00	-18.67	QP
6*	2.8820	24.97	10.34	35.31	46.00	-10.69	AVG
7	3.9180	25.93	10.36	36.29	56.00	-19.71	QP
8	4.3780	22.69	10.37	33.06	46.00	-12.94	AVG
9	5.7580	24.62	10.38	35.00	60.00	-25.00	QP
10	5.9899	20.49	10.38	30.87	50.00	-19.13	AVG
11	17.4020	24.12	10.30	34.42	60.00	-25.58	QP
12	17.8580	18.14	10.31	28.45	50.00	-21.55	AVG

Test mode:	TM3	Polarity:	Neutral



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1500	31.09	10.40	41.49	65.99	-24.50	QP
2	0.1500	21.39	10.40	31.79	55.99	-24.20	AVG
3	0.6740	19.97	10.20	30.17	46.00	-15.83	AVG
4	0.6780	29.45	10.20	39.65	56.00	-16.35	QP
5	3.1300	32.20	10.35	42.55	56.00	-13.45	QP
6*	3.1300	29.40	10.35	39.75	46.00	-6.25	AVG
7	4.3340	30.55	10.37	40.92	56.00	-15.08	QP
8	4.3340	26.37	10.37	36.74	46.00	-9.26	AVG
9	6.5020	24.21	10.38	34.59	50.00	-15.41	AVG
10	6.7420	29.15	10.38	39.53	60.00	-20.47	QP
11	13.3620	28.78	10.27	39.05	60.00	-20.95	QP
12	13.3620	21.59	10.27	31.86	50.00	-18.14	AVG

Test mode:	TM3	Polarity:	Line

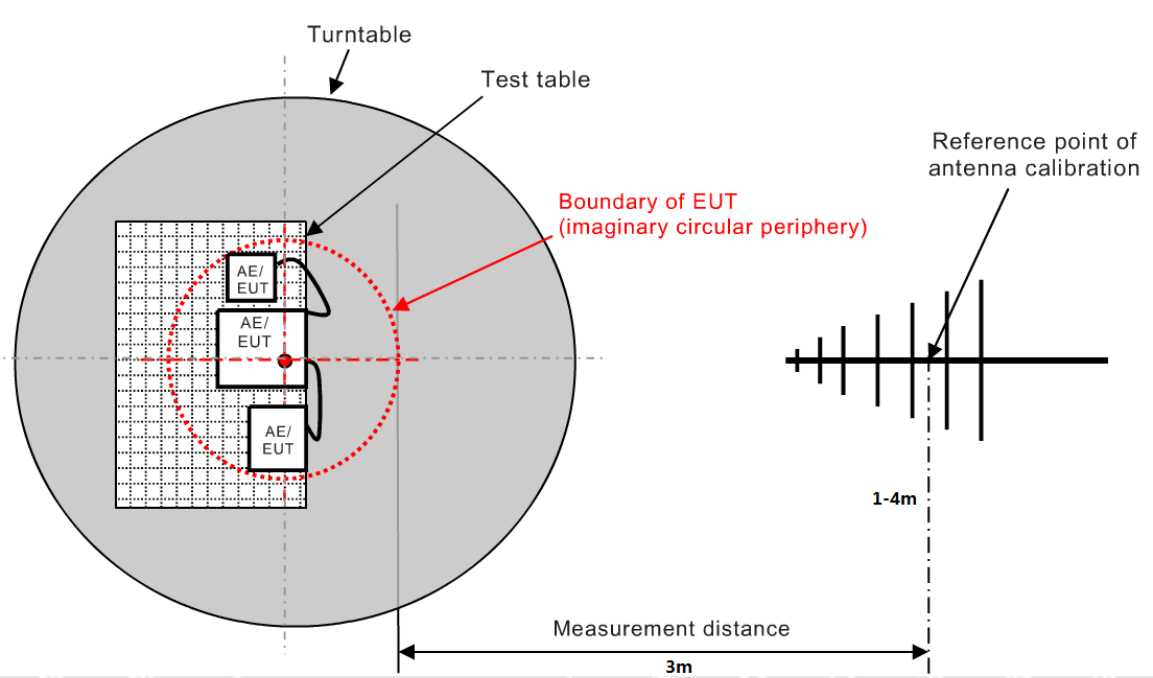


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1500	30.45	10.40	40.85	65.99	-25.14	QP
2	0.1500	20.48	10.40	30.88	55.99	-25.11	AVG
3	0.9699	27.54	10.14	37.68	56.00	-18.32	QP
4	0.9739	19.20	10.14	29.34	46.00	-16.66	AVG
5	2.4060	25.62	10.34	35.96	56.00	-20.04	QP
6	2.4060	23.89	10.34	34.23	46.00	-11.77	AVG
7	3.0099	29.53	10.35	39.88	56.00	-16.12	QP
8*	3.0099	27.62	10.35	37.97	46.00	-8.03	AVG
9	4.5739	29.24	10.37	39.61	56.00	-16.39	QP
10	4.5739	26.68	10.37	37.05	46.00	-8.95	AVG
11	5.7779	28.87	10.38	39.25	60.00	-20.75	QP
12	5.7779	26.35	10.38	36.73	50.00	-13.27	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:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for Class B device. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – EN 301489 Class B Limit

4.3 Environmental Conditions

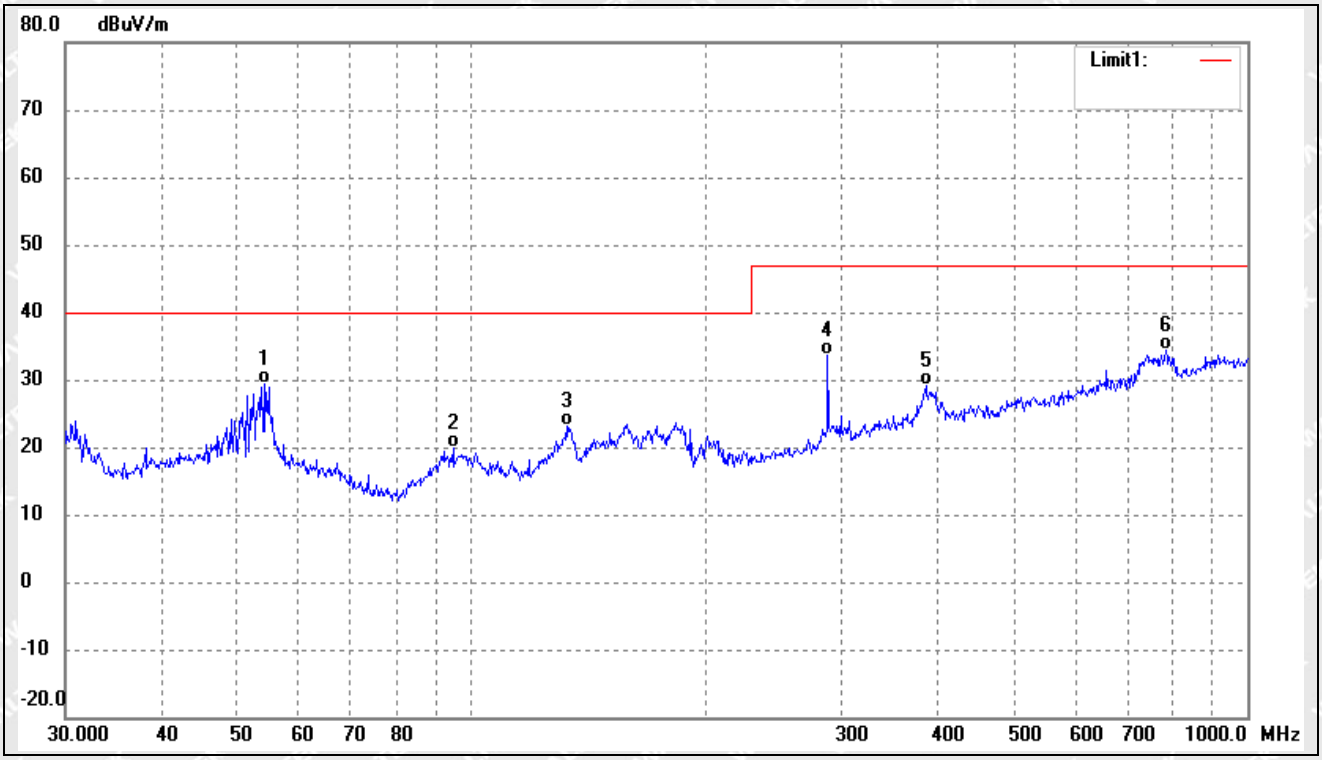
Temperature:	22.5° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

4.4 Summary of Test Results/Plots

Note: Only show the worst case in the test report

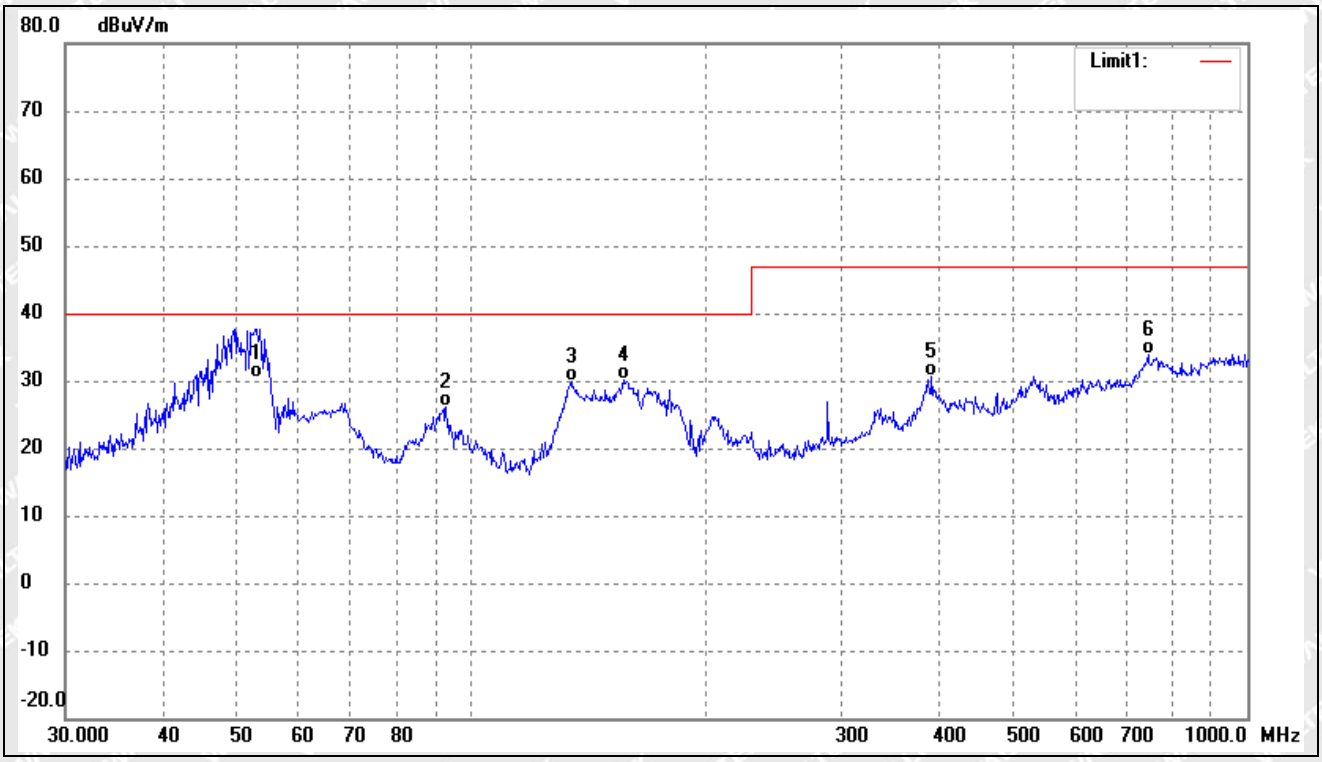
➢ 30MHz to 1GHz

Test mode:	TM1	Polarity:	Horizontal



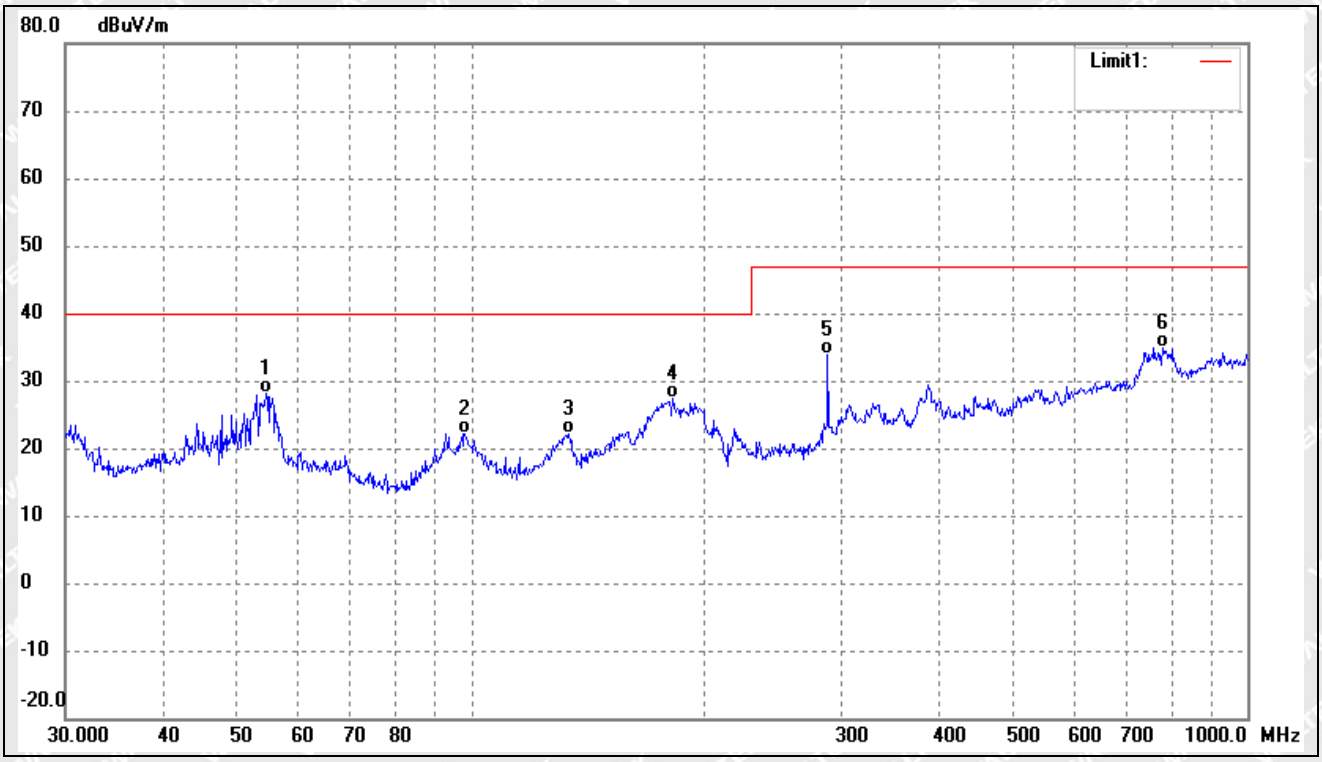
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	54.0711	36.97	-7.52	29.45	40.00	-10.55	-	-	QP
2	94.7601	29.36	-9.50	19.86	40.00	-20.14	-	-	QP
3	132.6850	34.55	-11.51	23.04	40.00	-16.96	-	-	QP
4	287.9904	38.75	-5.01	33.74	47.00	-13.26	-	-	QP
5	385.2805	32.05	-2.93	29.12	47.00	-17.88	-	-	QP
6	785.0935	55.29	-20.93	34.36	47.00	-12.64	-	-	QP

Test mode:	TM1	Polarity:	Vertical



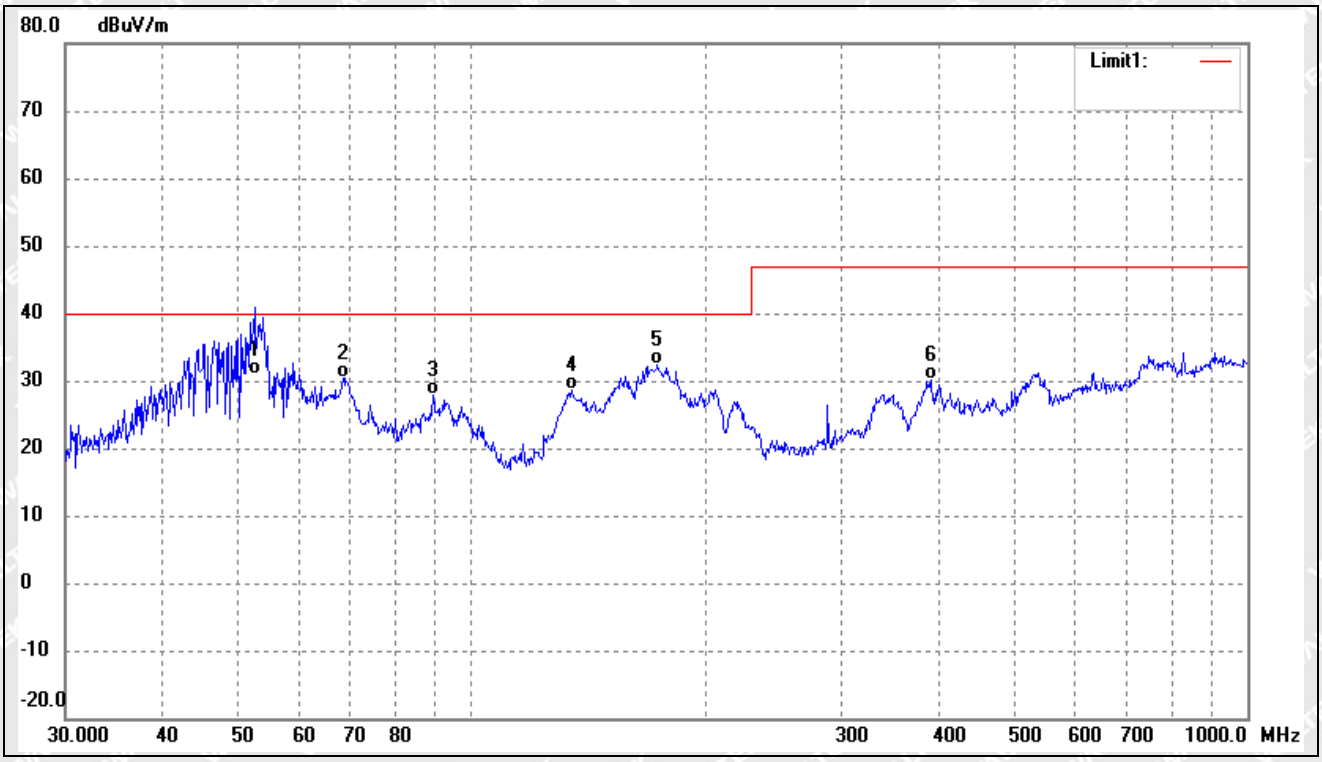
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	52.9453	37.81	-7.44	30.37	40.00	-9.63	-	-	QP
2	92.7871	36.21	-9.98	26.23	40.00	-13.77	-	-	QP
3	134.5592	41.38	-11.60	29.78	40.00	-10.22	-	-	QP
4	157.0074	41.45	-11.38	30.07	40.00	-9.93	-	-	QP
5	392.0951	33.28	-2.76	30.52	47.00	-16.48	-	-	QP
6	744.8661	54.99	-21.13	33.86	47.00	-13.14	-	-	QP

Test mode:	TM2	Polarity:	Horizontal



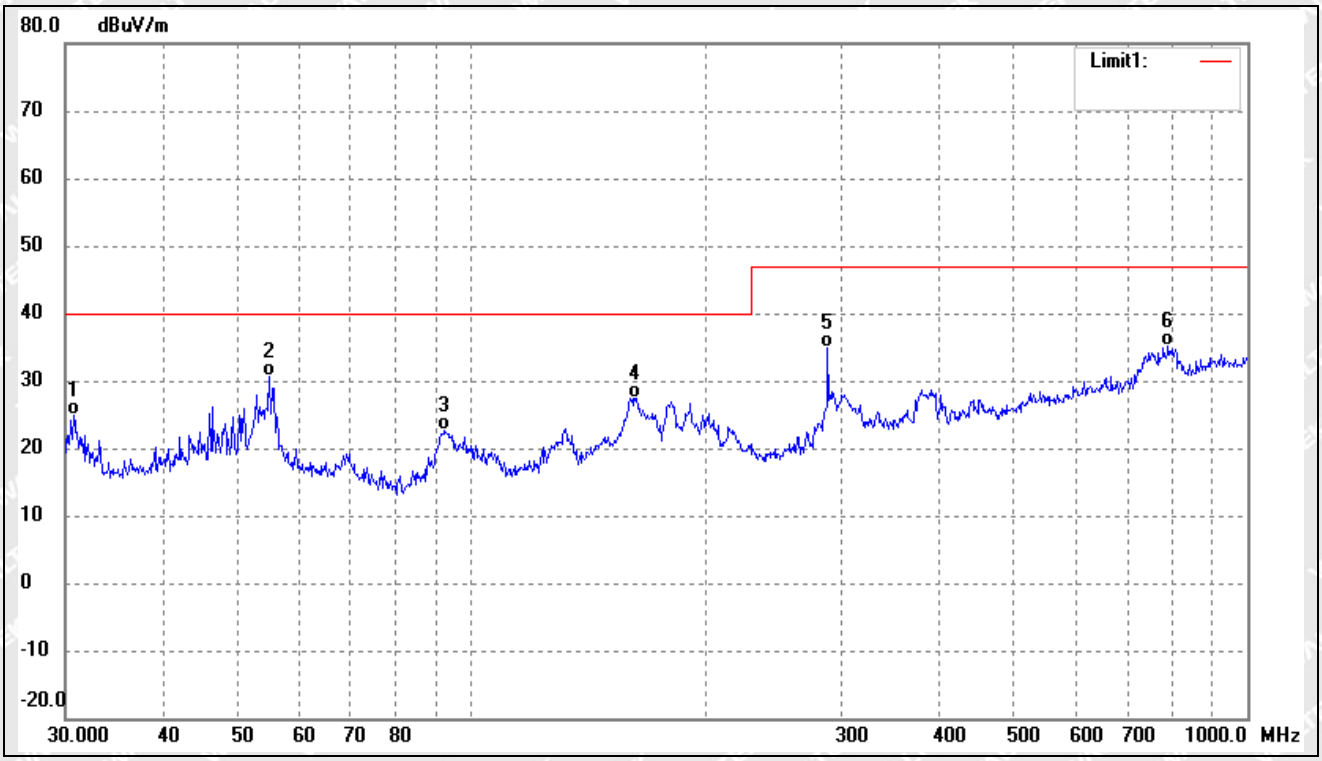
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	54.4516	35.59	-7.55	28.04	40.00	-11.96	-	-	QP
2	98.1419	30.95	-8.85	22.10	40.00	-17.90	-	-	QP
3	133.6188	33.73	-11.55	22.18	40.00	-17.82	-	-	QP
4	181.9202	37.01	-9.69	27.32	40.00	-12.68	-	-	QP
5	287.9904	38.84	-5.01	33.83	47.00	-13.17	-	-	QP
6	779.6068	55.89	-20.96	34.93	47.00	-12.07	-	-	QP

Test mode:	TM2	Polarity:	Vertical



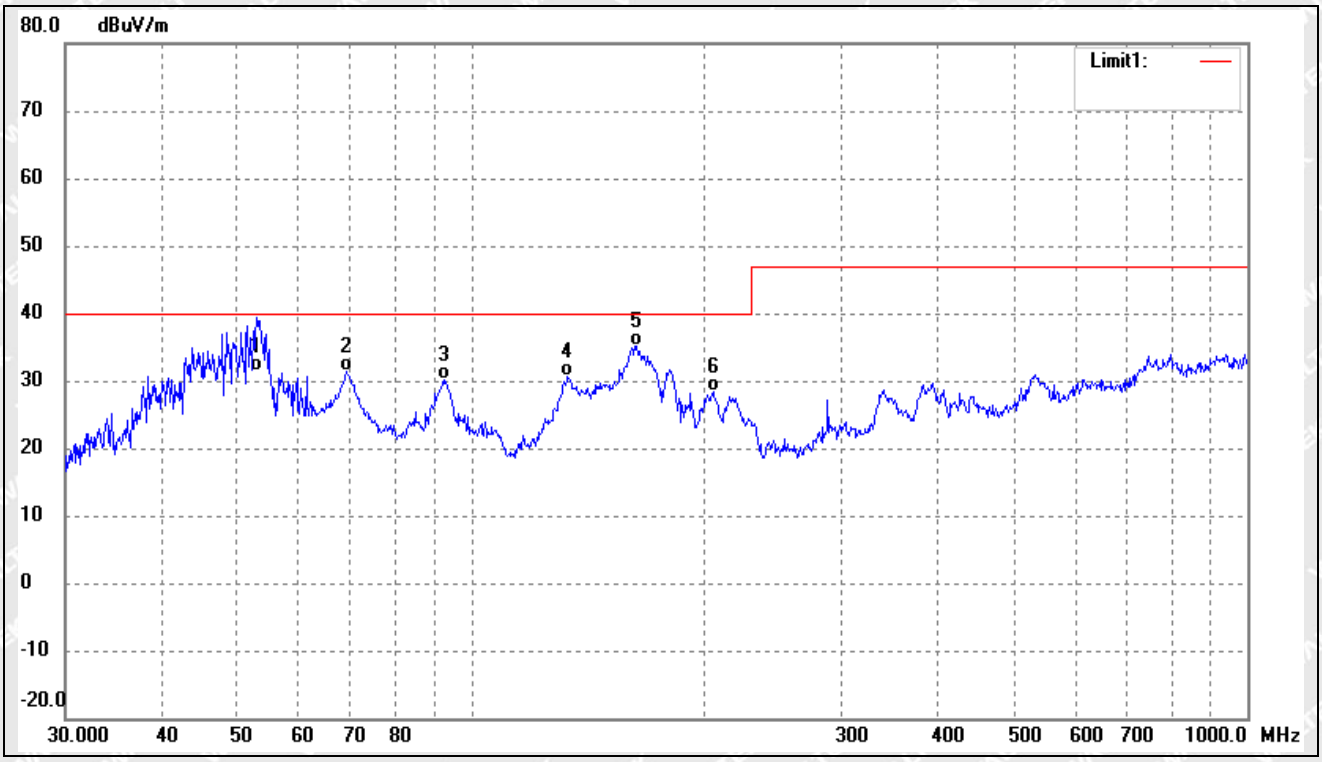
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	52.5753	38.21	-7.42	30.79	40.00	-9.21	-	-	QP
2	68.3908	41.36	-10.91	30.45	40.00	-9.55	-	-	QP
3	89.2764	38.74	-10.95	27.79	40.00	-12.21	-	-	QP
4	134.5592	40.18	-11.60	28.58	40.00	-11.42	-	-	QP
5	173.8135	42.74	-10.42	32.32	40.00	-7.68	-	-	QP
6	390.7226	32.89	-2.79	30.10	47.00	-16.90	-	-	QP

Test mode:	TM3	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	30.7455	35.53	-10.76	24.77	40.00	-15.23	-	-	QP
2	54.8348	38.19	-7.61	30.58	40.00	-9.42	-	-	QP
3	92.4624	32.76	-10.07	22.69	40.00	-17.31	-	-	QP
4	162.6106	38.48	-11.06	27.42	40.00	-12.58	-	-	QP
5	287.9904	39.86	-5.01	34.85	47.00	-12.15	-	-	QP
6	790.6188	56.09	-20.90	35.19	47.00	-11.81	-	-	QP

Test mode:	TM3	Polarity:	Vertical

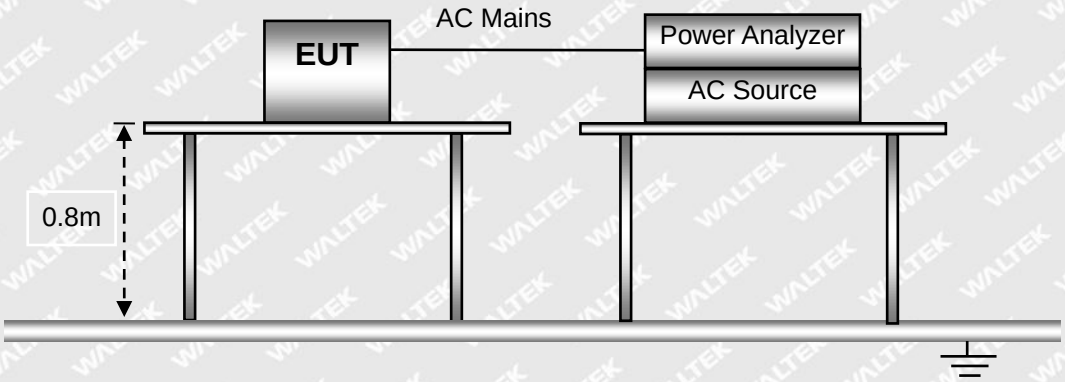


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	52.9453	38.76	-7.44	31.32	40.00	-8.68	-	-	QP
2	69.1141	42.42	-11.13	31.29	40.00	-8.71	-	-	QP
3	92.1388	40.26	-10.16	30.10	40.00	-9.90	-	-	QP
4	133.1511	42.06	-11.53	30.53	40.00	-9.47	-	-	QP
5	163.1818	46.08	-11.01	35.07	40.00	-4.93	-	-	QP
6	204.9551	36.57	-8.07	28.50	40.00	-11.50	-	-	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 Setup Block Diagram



5.2 Test Standards

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

5.3 Environmental Conditions

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

5.4 Harmonic Current Emissions Test Data

Harmonics – Class-A

Test category: Class-A (European limits) **Test Margin: 100**

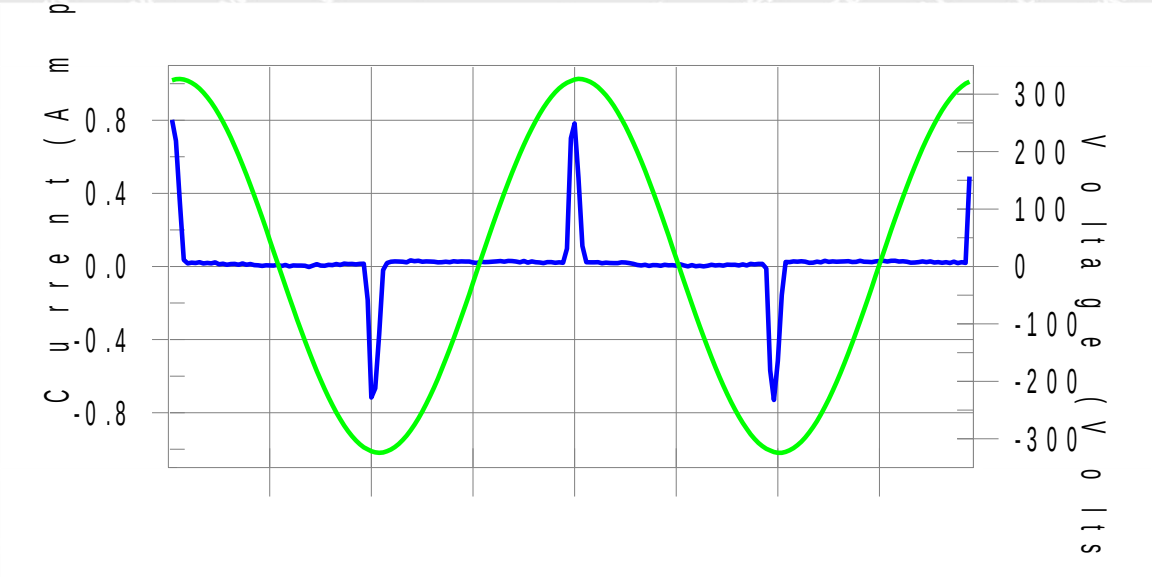
Test date: 2023/6/20 **Start time: 18:37:44** **End time: 18:40:25**

Test duration (min): 2.5 **Data file name: H-000445.cts_data**

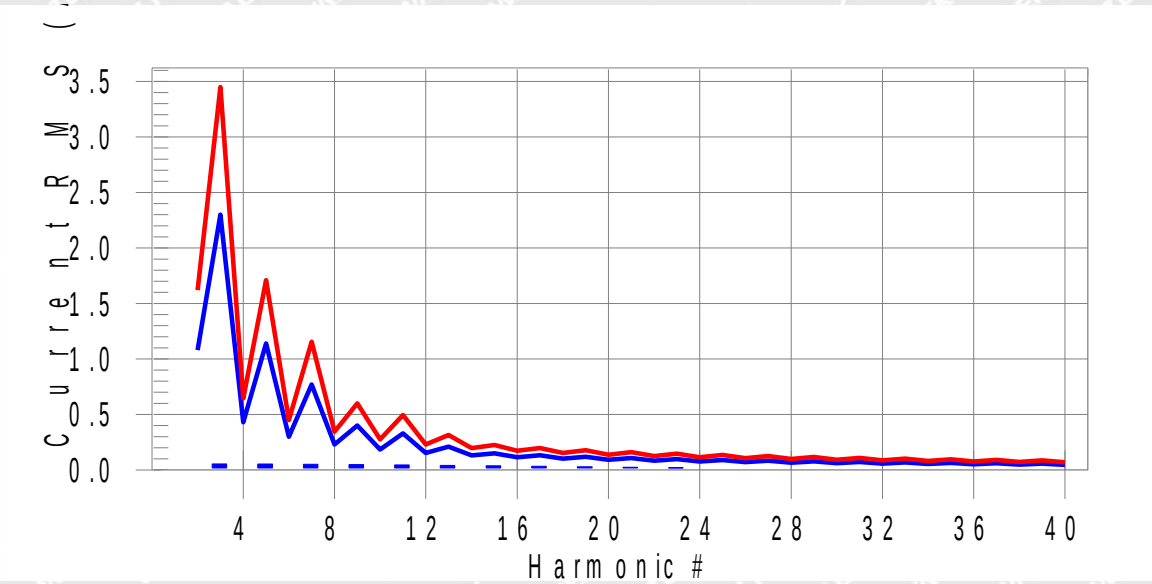
Comment: TM1

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

Current & voltage waveforms



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



Test result: Pass **Worst harmonics H17-17.3% of 150% limit, H17-25.2% of 100% limit**

Current Test Result Summary (Run time)

Test category: Class-A (European limits) **Test Margin: 100**
Test date: 2023/6/20 **Start time: 18:37:44** **End time: 18:40:25**
Test duration (min): 2.5 **Data file name: H-000445.cts_data**
Comment: TM1

Test Result: Pass **Source qualification: Normal**
THC(A): 0.140 **I-THD(%): 236.0** **POHC(A): 0.041** **POHC Limit(A): 0.251**

Highest parameter values during test:

V_RMS (Volts):	230.15	Frequency(Hz):	50.00
I_Peak (Amps):	0.835	I_RMS (Amps):	0.158
I_Fund (Amps):	0.059	Crest Factor:	5.411
Power (Watts):	13.4	Power Factor:	0.370

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	0.055	2.300	2.4	0.058	3.450	1.7	Pass
4	0.001	0.430	N/A	0.002	0.645	N/A	Pass
5	0.053	1.140	4.7	0.055	1.710	3.2	Pass
6	0.001	0.300	N/A	0.001	0.450	N/A	Pass
7	0.051	0.770	6.7	0.053	1.155	4.6	Pass
8	0.000	0.230	N/A	0.001	0.345	N/A	Pass
9	0.048	0.400	12.1	0.050	0.600	8.4	Pass
10	0.001	0.184	N/A	0.001	0.276	N/A	Pass
11	0.045	0.330	13.7	0.047	0.495	9.4	Pass
12	0.000	0.153	N/A	0.001	0.230	N/A	Pass
13	0.041	0.210	19.7	0.043	0.315	13.6	Pass
14	0.000	0.131	N/A	0.001	0.197	N/A	Pass
15	0.037	0.150	25.0	0.039	0.225	17.2	Pass
16	0.000	0.115	N/A	0.001	0.173	N/A	Pass
17	0.033	0.132	25.2	0.034	0.198	17.3	Pass
18	0.000	0.102	N/A	0.001	0.153	N/A	Pass
19	0.029	0.118	24.4	0.030	0.178	16.8	Pass
20	0.000	0.092	N/A	0.001	0.138	N/A	Pass
21	0.025	0.107	23.0	0.025	0.161	15.8	Pass
22	0.000	0.084	N/A	0.001	0.125	N/A	Pass
23	0.021	0.098	21.0	0.021	0.147	14.3	Pass
24	0.000	0.077	N/A	0.001	0.115	N/A	Pass
25	0.017	0.090	18.5	0.017	0.135	12.6	Pass
26	0.000	0.071	N/A	0.001	0.107	N/A	Pass

27	0.013	0.083	15.7	0.013	0.125	10.7	Pass
28	0.000	0.066	N/A	0.001	0.099	N/A	Pass
29	0.010	0.078	12.8	0.010	0.116	8.7	Pass
30	0.000	0.061	N/A	0.001	0.092	N/A	Pass
31	0.007	0.073	10.2	0.008	0.109	6.9	Pass
32	0.000	0.058	N/A	0.001	0.086	N/A	Pass
33	0.005	0.068	8.0	0.006	0.102	5.5	Pass
34	0.000	0.054	N/A	0.001	0.081	N/A	Pass
35	0.004	0.064	N/A	0.005	0.096	N/A	Pass
36	0.000	0.051	N/A	0.001	0.077	N/A	Pass
37	0.004	0.061	N/A	0.004	0.091	N/A	Pass
38	0.000	0.048	N/A	0.001	0.073	N/A	Pass
39	0.004	0.058	N/A	0.004	0.087	N/A	Pass
40	0.000	0.046	N/A	0.001	0.069	N/A	Pass

Voltage Source Verification Data (Run time)

Test category: Class-A (European limits) **Test Margin: 100**
Test date: 2023/6/20 **Start time: 18:37:44** **End time: 18:40:25**
Test duration (min): 2.5 **Data file name: H-000445.cts_data**
Comment: TM1

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

Highest parameter values during test:

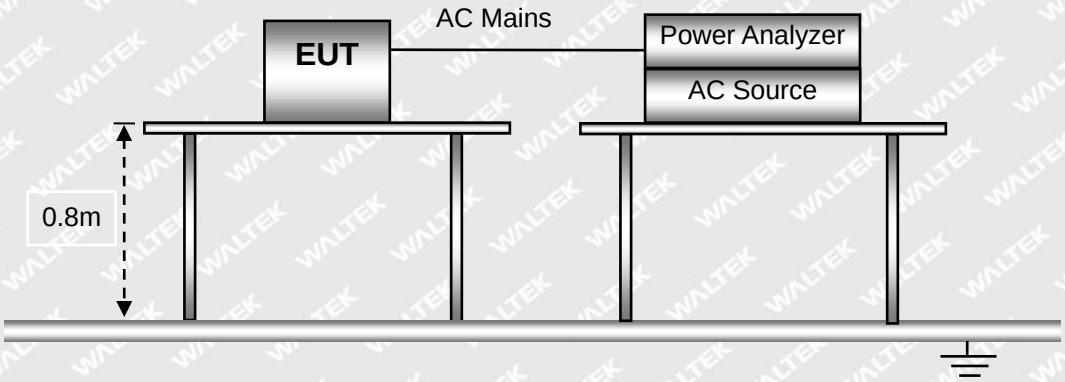
Voltage (Vrms):	**230.15**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**0.835**	**I_RMS (Amps):**	**0.158**
I_Fund (Amps):	**0.059**	**Crest Factor:**	**5.411**
Power (Watts):	**13.4**	**Power Factor:**	**0.370**

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.052	0.460	11.20	OK
3	0.523	2.071	25.25	OK
4	0.085	0.460	18.50	OK
5	0.056	0.920	6.05	OK
6	0.034	0.460	7.28	OK
7	0.028	0.690	4.00	OK
8	0.015	0.460	3.23	OK
9	0.037	0.460	7.98	OK
10	0.011	0.460	2.38	OK
11	0.034	0.230	14.78	OK
12	0.012	0.230	5.06	OK
13	0.037	0.230	16.08	OK
14	0.007	0.230	2.85	OK
15	0.032	0.230	13.99	OK
16	0.008	0.230	3.51	OK
17	0.032	0.230	13.93	OK
18	0.011	0.230	4.87	OK
19	0.037	0.230	16.28	OK
20	0.015	0.230	6.58	OK
21	0.034	0.230	14.72	OK
22	0.004	0.230	1.54	OK
23	0.027	0.230	11.57	OK
24	0.003	0.230	1.36	OK
25	0.022	0.230	9.57	OK
26	0.003	0.230	1.24	OK
27	0.016	0.230	6.84	OK

28	**0.004**	**0.230**	**1.92**	**OK**
29	**0.020**	**0.230**	**8.72**	**OK**
30	**0.003**	**0.230**	**1.22**	**OK**
31	**0.013**	**0.230**	**5.74**	**OK**
32	**0.003**	**0.230**	**1.18**	**OK**
33	**0.012**	**0.230**	**5.16**	**OK**
34	**0.003**	**0.230**	**1.29**	**OK**
35	**0.009**	**0.230**	**3.72**	**OK**
36	**0.003**	**0.230**	**1.25**	**OK**
37	**0.008**	**0.230**	**3.56**	**OK**
38	**0.003**	**0.230**	**1.17**	**OK**
39	**0.008**	**0.230**	**3.31**	**OK**
40	**0.008**	**0.230**	**3.50**	**OK**

6. Voltage Fluctuation and Flicker

6.1 Test Setup Block Diagram



6.2 Test Standards

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

6.3 Environmental Conditions

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

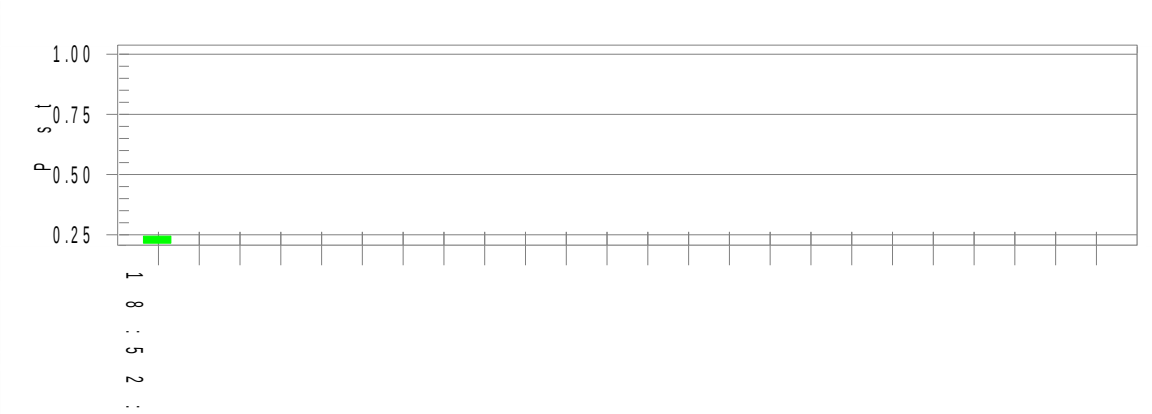
6.4 Voltage Fluctuation and Flicker Test Data

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

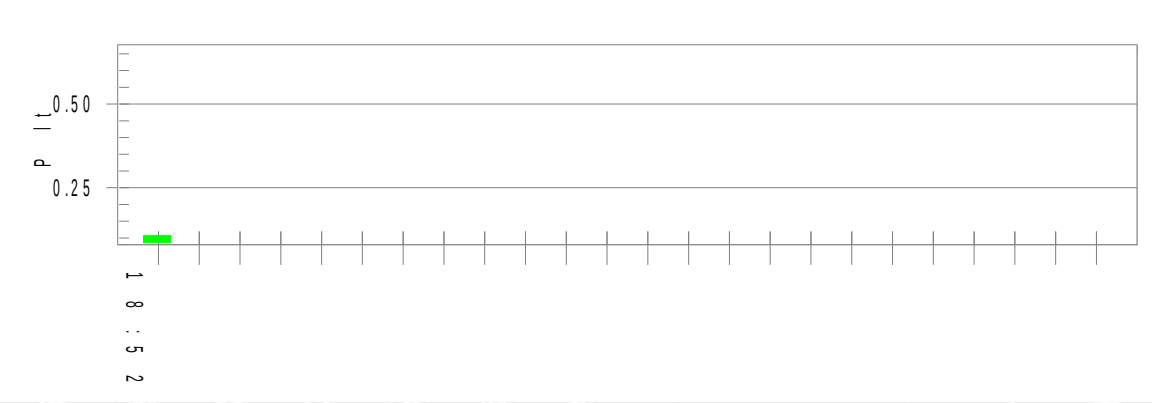
Test mode:	TM1

Test Result: Pass **Status: Test Completed**

Pst and limit line **European Limits**



Plt and limit line



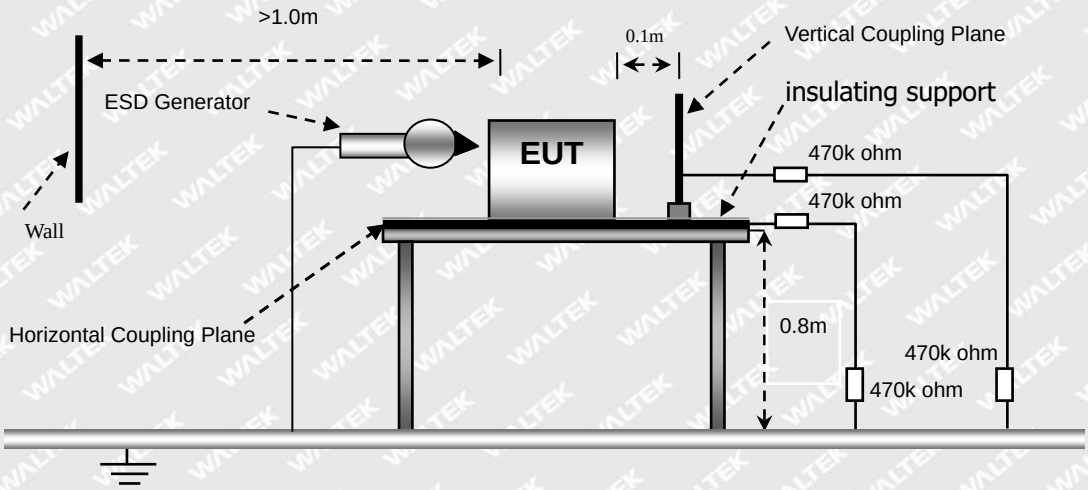
Parameter values recorded during the test:

Vrms at the end of test (Volt): 230.08

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):	**0.244**	**Test limit:**	**1.000**	**Pass**
Highest Plt (2 hr. period):	**0.107**	**Test limit:**	**0.650**	**Pass**

7. Electrostatic Discharge (ESD)

7.1 Test Setup Block Diagram



7.2 Test Performance

Required Performance Criterion:	B
Mode:	TM1-TM4
Note:TM4 for TT,TR	

7.3 Environmental Conditions

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

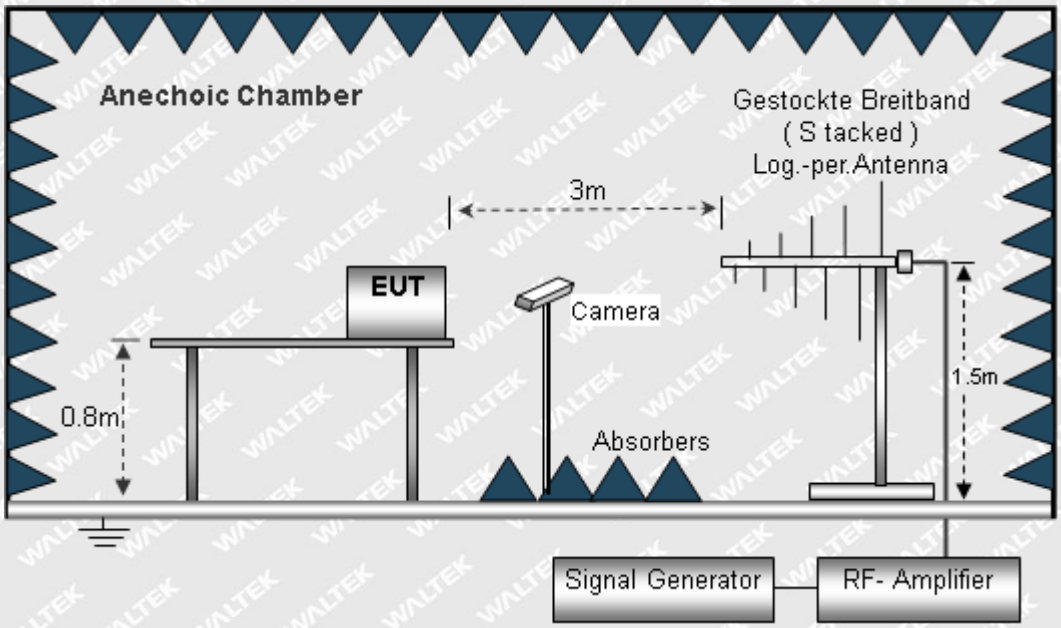
7.4 Electrostatic Discharge Immunity Test Data

Test mode	TM1-TM4							
Test Points	Test Levels (kV)							
	-2	+2	-4	+4	-6	+6	-8	+8
Air Discharge								
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
Direct Contact Discharge								
USB Port	B	B	B	B	/	/	/	/
Indirect Contact Discharge								
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 Setup Block Diagram



8.2 Test Performance

Required Performance Criterion:	A
Mode:	TM1-TM4
Note: TM4 for CT,CR	

8.3 Environmental Conditions

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

8.4 Continuous Radiated Disturbances Test Data

Frequency step: 1% of fundamental
Dwell time: 1 second
Modulation: AM by 1kHz sine wave with 80% modulation depth

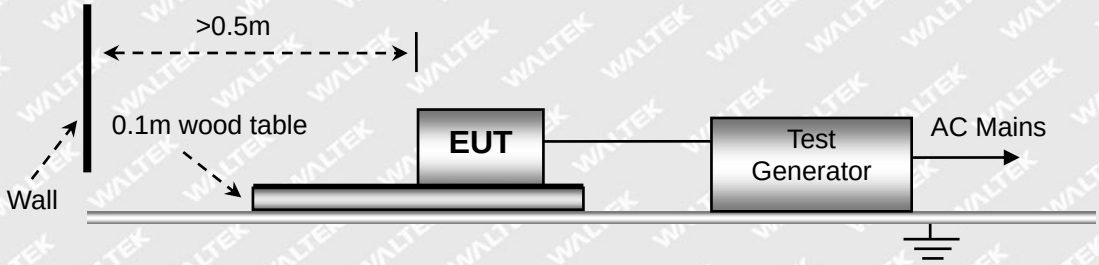
Test mode		TM1-TM4							
Frequency Range(MHz)	Field (V/m)	Front		Rear		Left Side		Right Side	
		VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
80-1000	3	A	A	A	A	A	A	A	A
1000-3000	3	A	A	A	A	A	A	A	A
3000-6000	3	A	A	A	A	A	A	A	A

Test Result: Pass

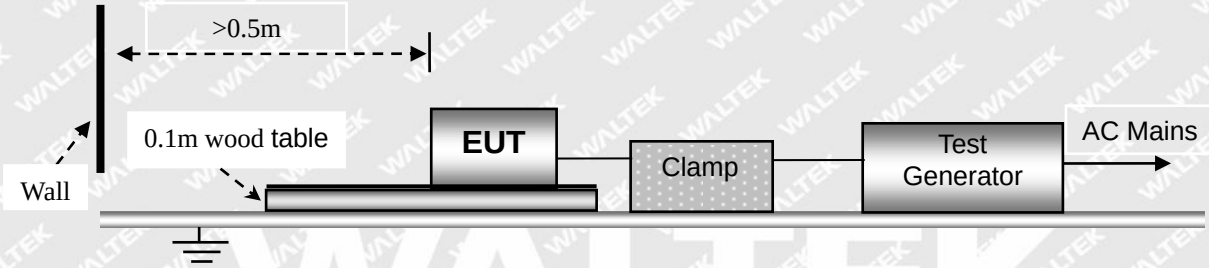
9. Fast Transients, Common Mode (EFT)

9.1 Test Setup Block Diagram

For AC Mains or DC Ports:



For Signal or Telecommunication Ports:



9.2 Test Performance

Required Performance Criterion:	B
Mode:	TM1-TM4
Note:TM4 for TT,TR	

9.3 Environmental Conditions

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

9.4 Electrical Fast Transients Test Data

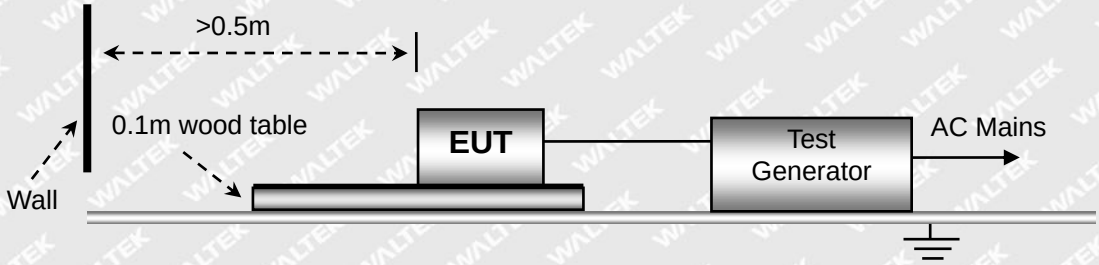
Test Mode		TM1-TM4							
Test Line		Test Levels (kV)							
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
AC Main Power port	L	A	A	A	A	/	/	/	/
	N	A	A	A	A	/	/	/	/
	PE	/	/	/	/	/	/	/	/
	L-N	A	A	A	A	/	/	/	/
	L-PE	/	/	/	/	/	/	/	/
	N-PE	/	/	/	/	/	/	/	/
	L-N-PE	/	/	/	/	/	/	/	/
Signal ports	/	/	/	/	/	/	/	/	/

Test Result: Pass

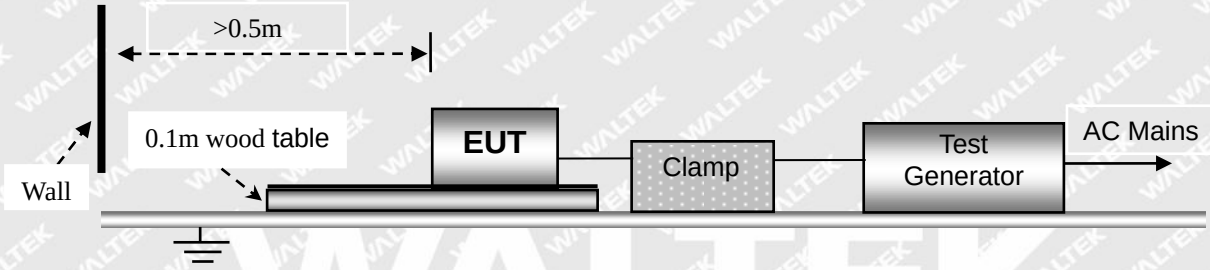
10. Surges

10.1 Test Setup Block Diagram

For AC Mains or DC Ports:



For Signal or Telecommunication Ports:



10.2 Test Performance

Required Performance Criterion:	B
Mode:	TM1-TM4
Note:TM4 for TT,TR	

10.3 Environmental Conditions

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

10.4 Surge Test Data

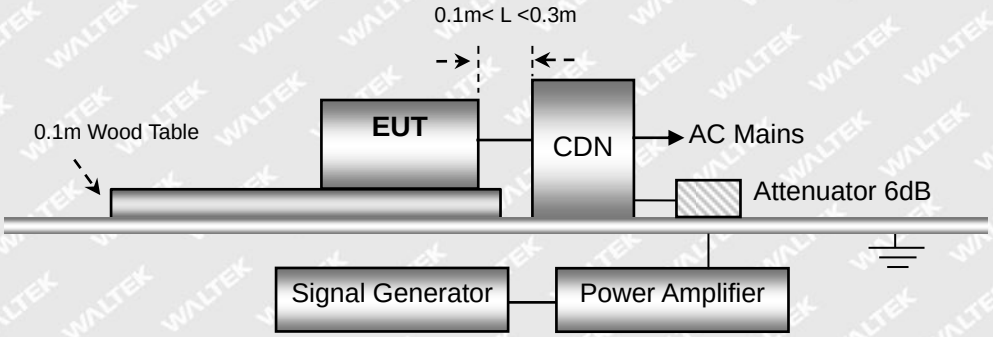
Test Mode	TM1-TM4			
Voltage	**Poll**	**Path**	**Pass**	**Fail**
0.5kV	±	L-N	A	/
1kV	±	L-N	A	/
2kV	±	L-N, L-PE, N-PE	/	/
4kV	±	L-N, L-PE, N-PE	/	/

Test Result: Pass

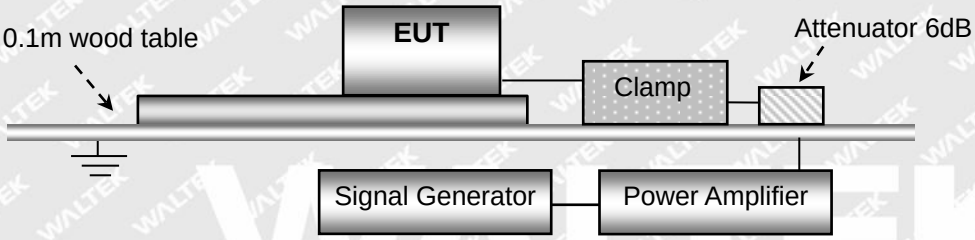
11. Radio Frequency, Common Mode (C/S)

11.1 Test Setup Block Diagram

For AC Mains or DC Input:



For Signal or Telecommunication Ports:



11.2 Test Performance

Required Performance Criterion:	A
Mode:	TM1-TM4
Note: TM4 for CT,CR	

11.3 Environmental Conditions

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

11.4 Continuous Conducted Disturbances Test Data

Sweep frequency range: 150kHz~80MHz

Frequency step: 1% of fundamental

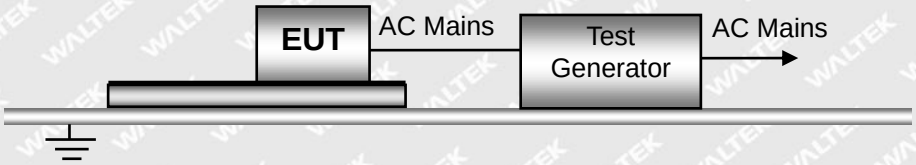
Dwell time: 1 second

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

12. Voltage Dips and Interruptions

12.1 Test Setup Block Diagram



12.2 Test Performance

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

12.3 Environmental Conditions

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

12.4 Voltage Dips And Interruptions Test Data

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

T: Test duration

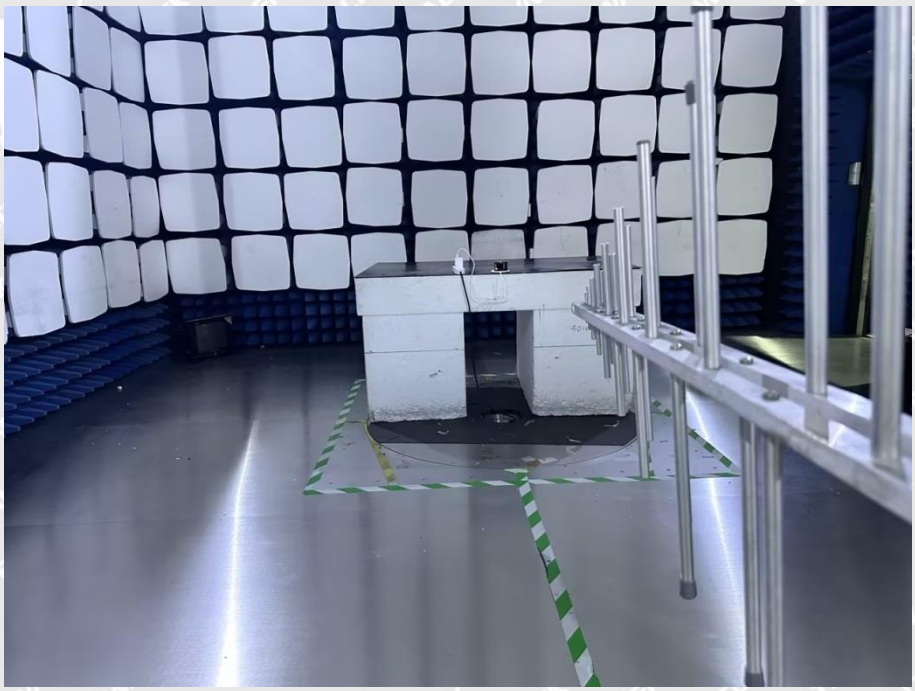
Level	U	T	Phase Angle	N	Pass	Fail
1	100%	10ms	0/90/180/270	3	A	/
2	100%	20ms	0/90/180/270	3	B	/
3	30%	500ms	0/90/180/270	3	B	/
4	100%	5000ms	0/90/180/270	3	B	/

Test Result: Pass

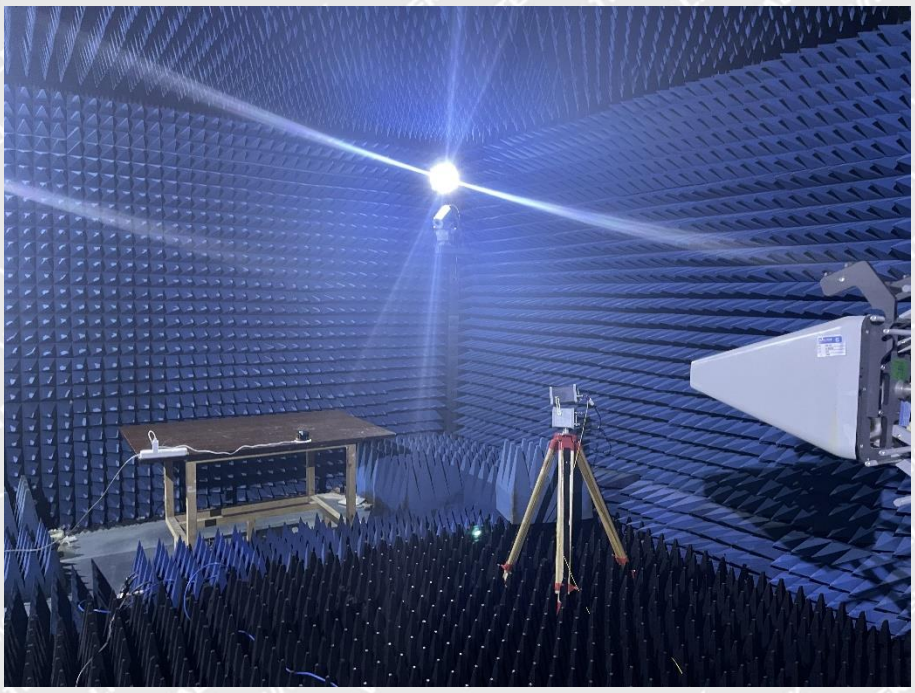
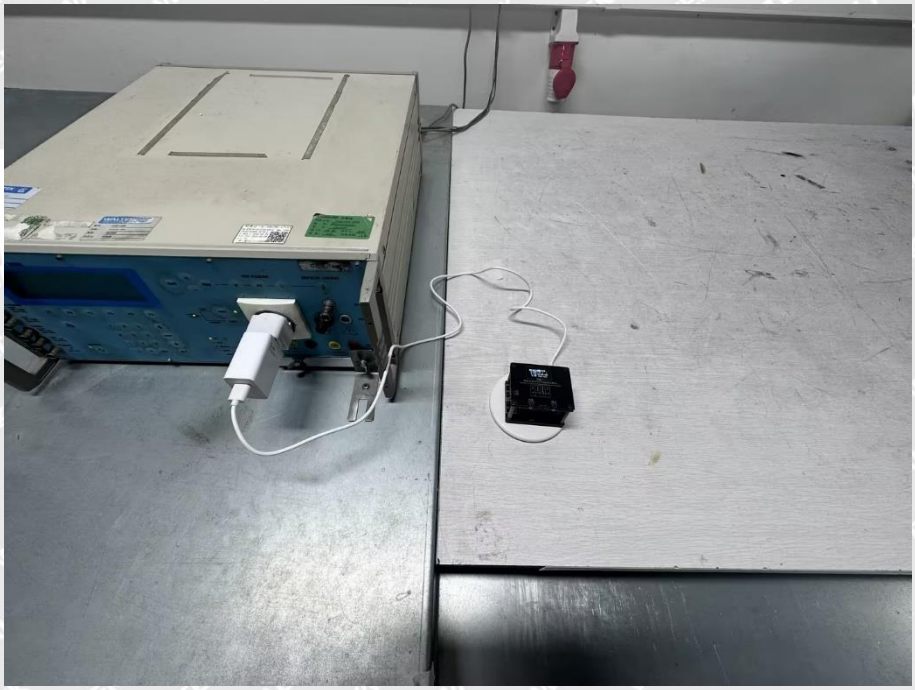
EXHIBIT 1 - EUT PHOTOGRAPHS

Please refer to “ANNEX”.

EXHIBIT 2 - TEST SETUP PHOTOGRAPHS

Conducted Emission Test Setup	
Radiation Emission Test View(30MHz to 1GHz)	

Harmonic/Flicker Test View	
ESD Test View	

R/S Test View	
EFT/ Surges/ Dips and Interruptions Test View	

CS Test View	

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

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TESTING
CNAS L4062

TEST REPORT

Reference No.	:	WTF23X06124887W004
Manufacturer	:	Mid Ocean Brands B.V.
Address	:	7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Factory	:	116266
Product Name	:	ABS wireless charger
Model No.	:	MO6250
Standards	:	**EN 55011:2016/A1:2017** **EN IEC 61000-6-1:2019** **EN IEC 61000-3-2:2019+A1:2021** **EN 61000-3-3:2013+A2:2021**
Date of Receipt sample	:	2023-06-08
Date of Test	:	2023-06-08 to 2023-06-26
Date of Issue	:	2023-06-26
Test Report Form No.	:	WTX_EN 55011_2016_B
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 approver.

Prepared By:

Waltek Testing Group (Shenzhen) Co., Ltd.

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Tested by:

Gala Wang

Approved by:

Silin Chen

TABLE OF CONTENTS

Report version

Version No.	Date of issue	Description
Rev.00	2023-06-26	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

General Description of EUT	
Product Name:	ABS wireless charger
Trade Name:	/
Model No.:	MO6250
Adding Model(s):	/
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	AC 230V 50Hz
Rated Current:	/
Rate Power:	Wireless Output: 10W Max
Power Adaptor Model:	/
Highest Internal Frequency:	Below 108MHz
Classification of Equipment:	Class B of Group 2
Wireless Charger Transmit Frequency Range:	108~205KHz

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+A1:2021: 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+A2:2021: 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 <= 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 7.5W
TM3	Wireless Charging	Connect to the adapter;	AC230V/50Hz for adapter; Wireless charging: output 10W
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
DC Cable	1.2	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.

1.6 Test Equipment List and Details

Description	Manufacturer	Model	Serial No.	Cal. Date	Due. Date
☐Chamber A:Below 1GHz					
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2023-02-25	2024-02-24
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2023-02-25	2024-02-24
Trilog Broadband Antenna	Schwarz beck	VULB9163	9163-333	2023-03-20	2026-03-19
Loop Antenna	Schwarz beck	FMZB 1516	9773	2021-03-20	2024-03-19
Amplifier	HP	8447F	2805A03475	2023-02-25	2024-02-24
☐Chamber A:Above 1GHz					
Amplifier	C&D	PAP-1G18	2002	2023-02-25	2024-02-24
Horn Antenna	ETS	3117	00086197	2021-03-19	2024-03-18
☒Chamber B:Below 1GHz					
Trilog Broadband Antenna	Schwarz beck	VULB9163(B)	9163-635	2021-04-09	2024-04-08
Amplifier	Agilent	8447D	2944A10179	2023-02-25	2024-02-24
EMI Test Receiver	Rohde & Schwarz	ESPI	101391	2023-02-25	2024-02-24
☐Chamber C:Below 1GHz					
EMI Test Receiver	Rohde & Schwarz	ESIB 26	100401	2023-02-25	2024-02-24
Trilog Broadband Antenna	Schwarz beck	VULB 9168	1194	2021-05-28	2024-05-27
Amplifier	HP	8447F	2944A03869	2023-02-25	2024-02-24
☐Chamber C:Above 1GHz					
Horn Antenna	POAM	RTF-11A	LP228060221	2023-03-10	2026-03-09
Amplifier	Tonscend	TAP01018050	AP22E806235	2023-02-25	2024-02-24
☒Conducted Room 1#					
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2023-02-25	2024-02-24
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2023-02-25	2024-02-24
AC LISN	Schwarz beck	NSLK8126	8126-224	2023-02-25	2024-02-24
8-WIRE LISN	Schwarz beck	8158	CAT3-8158-0059	2023-02-25	2024-02-24
8-WIRE LISN	Schwarz beck	8158	CAT5-8158-0117	2023-02-25	2024-02-24
☐Conducted Room 2#					
EMI Test Receiver	Rohde & Schwarz	ESPI	10129	2023-02-25	2024-02-24
LISN	Rohde & Schwarz	ENV 216	100097	2023-02-25	2024-02-24
☐Harmonics &Flicker					
Digital Power Analyzer	California Instrument	CTS	72831	2023-02-25	2024-02-24
Power Source	California Instrument	5001IX-CTS-400	25965	2023-02-25	2024-02-24

☒Electrostatic discharges					
ESD Generator	LIONCEL	ESD-203B	0170901	2023-03-14	2024-03-13
☒Power-frequency magnetic field (PFMF)					
PMF Generator	LIONCEL	PMF-801C-C	0171101	2023-02-25	2024-02-24
PMF Antenna	LIONCEL	PMF-801C-A	0180302	2023-02-25	2024-02-24
Instantaneous PMF Generator Module	LIONCEL	PMF-801C-T	0171001	2023-02-25	2024-02-24
☒Electronic fast transient(EFT)/Surges/Dips					
Transient 2000	EMC PARTNER	TRA2000	863	2023-02-25	2024-02-24
Couple Clamp	EMC PARTNER	CN-EFT1000	513	2023-02-25	2024-02-24
☒Radio frequency, continuous conducted (C/S)					
CONDUCTED IMMUNITY TEST SYSTEM	FRANKONIA	CIT-10/75	126B1247/2013	2023-02-25	2024-02-24
Attenuator	EMTEST	MA-5100/6BF2	1009	2023-02-25	2024-02-24
CDN	Luthi	L-801M2/M3	2665	2023-02-25	2024-02-24
CDN	LIONCEL	CDN-T8	0210401	2023-02-25	2024-02-24
EM Clamp	TESEQ	KEMZ801A	45028	2023-02-25	2024-02-24
☒Radio frequency electromagnetic Field (R/S)					
Signal Generator	HP	8688B	3438A00604	2023-02-25	2024-02-24
Power Sensor	Agilent	E9301A	MY52450001	2023-02-25	2024-02-24
Power Sensor	Agilent	E9304A	MY55081055	2023-02-25	2024-02-24
RF Power Amplifier	MicoTop	MPA-80-1000-250	MPA1906239	2023-02-25	2024-02-24
RF Power Amplifier	MicoTop	MPA-1000-6000-100	MPA1906238	2023-02-25	2024-02-24
Antenna	SCHWARZBECK	STLP 9129	9129 114	N/A	N/A
Power Meter	Agilent	E4419B	GB42420578	2023-02-25	2024-02-24

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	Compliant
	Continuous RF electromagnetic field Disturbances Immunity	Compliant
	Electrical Fast Transient/Burst Immunity	Compliant
	Surges Immunity	Compliant
	Continuous induced RF disturbances Immunity	Compliant
	Power-frequency Magnetic Fields Immunity	Compliant
	Voltage Dips/Interruptions Immunity	Compliant

N/A: not applicable

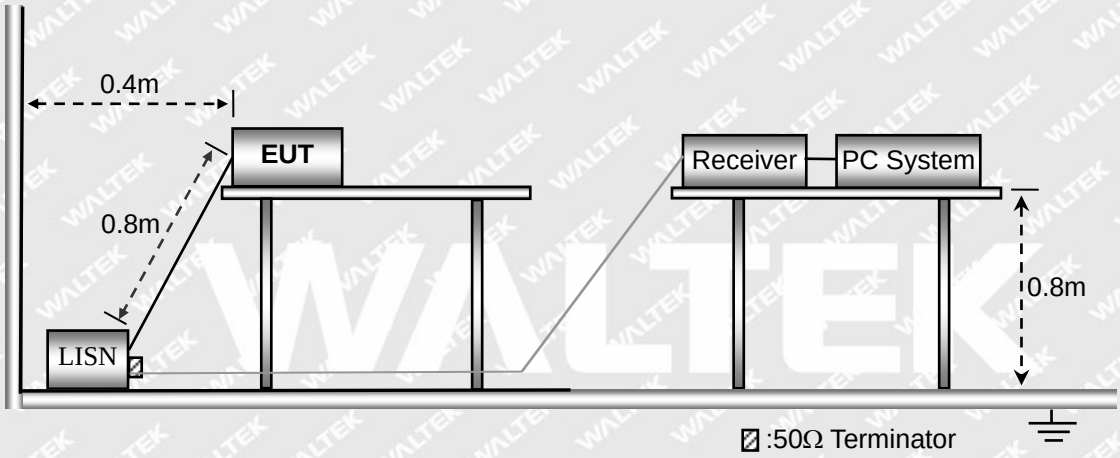
3. Conducted Emission

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 ±3.74dB
		0.15-30MHz ±3.34dB

3.2 Basic Test Setup Block Diagram



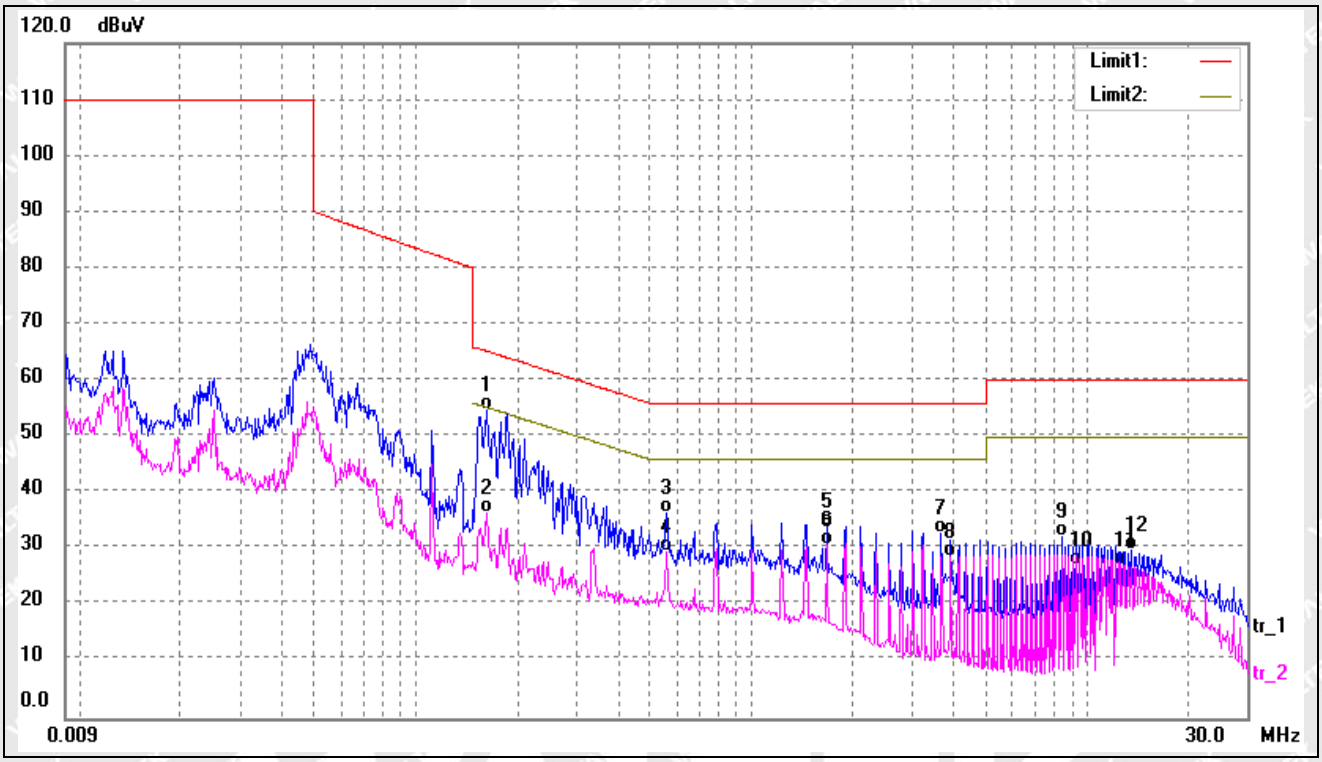
3.3 Environmental Conditions

Temperature:	22.5 °C
Relative Humidity:	54 %
ATM Pressure:	1015 mbar

3.4 Summary of Test Results

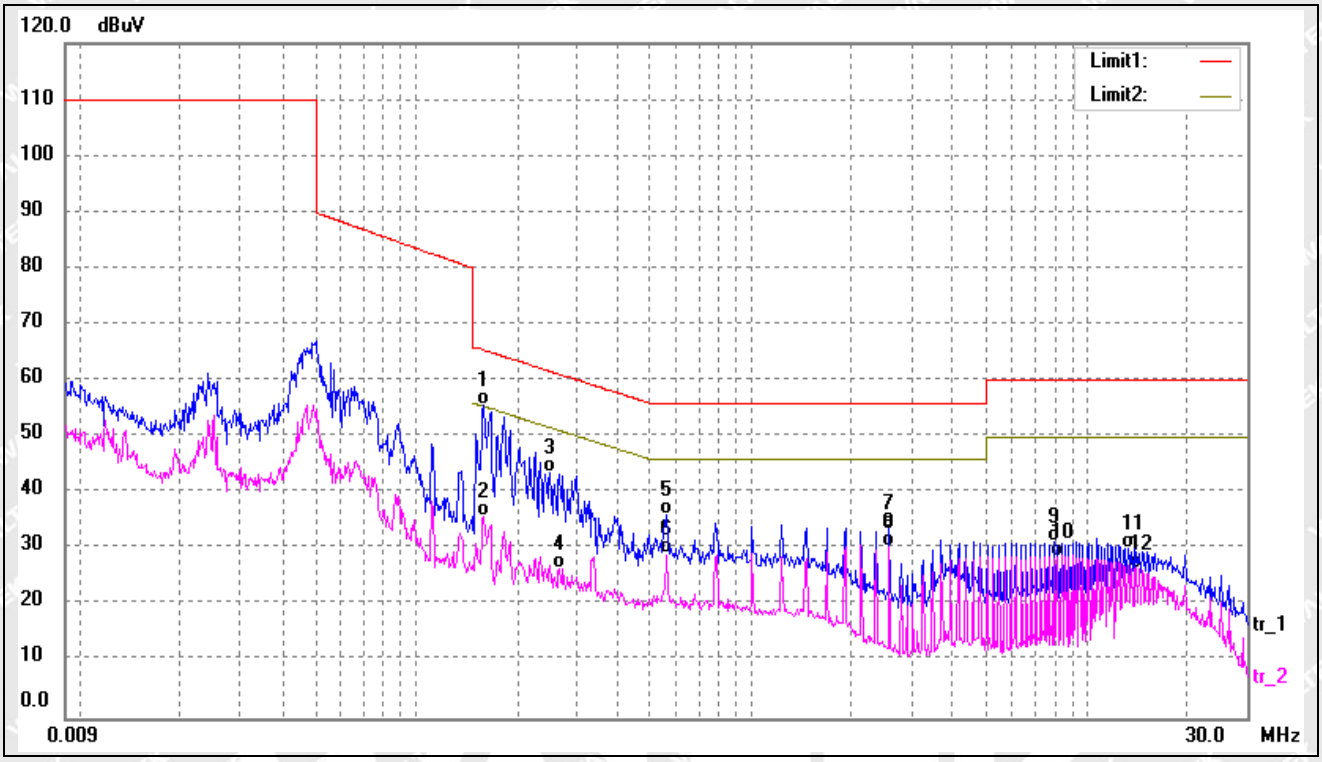
Please find the results below:

Test mode:	TM1	Polarity:	Line



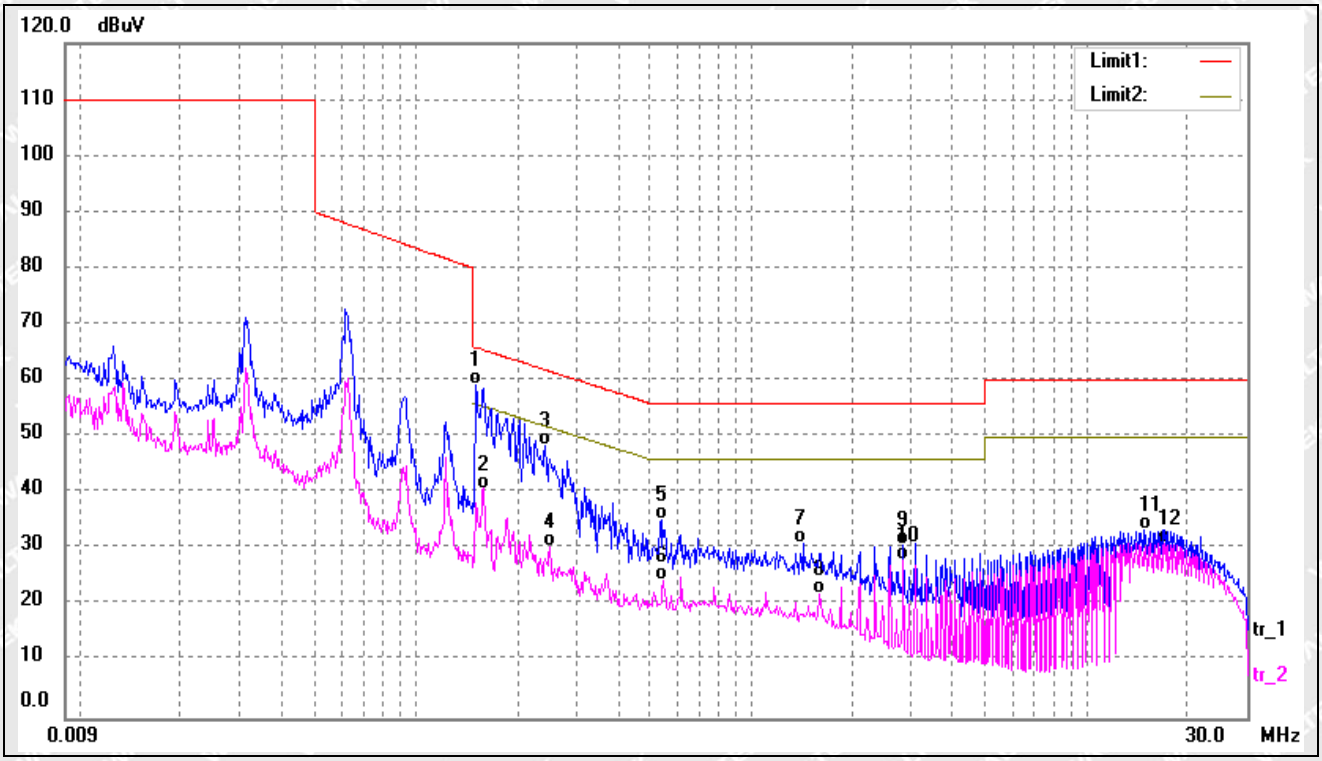
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1*	0.1620	44.44	10.37	54.81	65.26	-10.45	QP
2	0.1620	26.09	10.37	36.46	55.26	-18.80	AVG
3	0.5580	26.16	10.29	36.45	56.00	-19.55	QP
4	0.5620	19.26	10.30	29.56	46.00	-16.44	AVG
5	1.6820	23.92	10.27	34.19	56.00	-21.81	QP
6	1.6820	20.41	10.27	30.68	46.00	-15.32	AVG
7	3.6980	22.64	10.06	32.70	56.00	-23.30	QP
8	3.9220	18.70	10.05	28.75	46.00	-17.25	AVG
9	8.4020	22.43	9.91	32.34	60.00	-27.66	QP
10	9.2980	17.29	9.88	27.17	50.00	-22.83	AVG
11	12.8820	17.14	10.03	27.17	50.00	-22.83	AVG
12	13.5540	19.76	10.07	29.83	60.00	-30.17	QP

Test mode:	TM1	Polarity:	Neutral



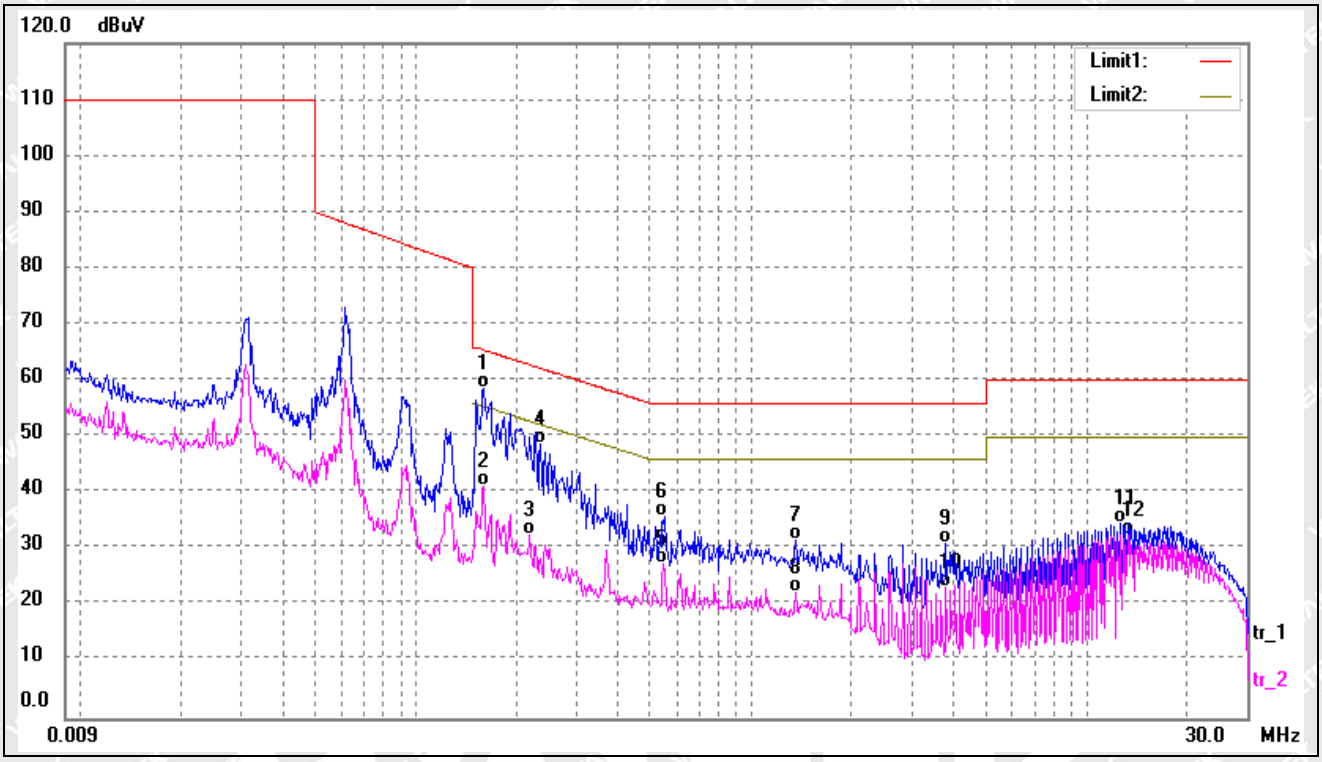
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1*	0.1580	45.26	10.37	55.63	65.46	-9.83	QP
2	0.1580	25.37	10.37	35.74	55.46	-19.72	AVG
3	0.2500	33.25	10.35	43.60	61.69	-18.09	QP
4	0.2660	16.30	10.35	26.65	51.18	-24.53	AVG
5	0.5620	25.90	10.30	36.20	56.00	-19.80	QP
6	0.5620	18.80	10.30	29.10	46.00	-16.90	AVG
7	2.5780	23.63	10.10	33.73	56.00	-22.27	QP
8	2.5780	20.43	10.10	30.53	46.00	-15.47	AVG
9	7.9540	21.35	9.92	31.27	60.00	-28.73	QP
10	8.1780	18.60	9.92	28.52	50.00	-21.48	AVG
11	13.3300	20.17	10.06	30.23	60.00	-29.77	QP
12	14.0020	16.61	10.09	26.70	50.00	-23.30	AVG

Test mode:	TM2	Polarity:	Line



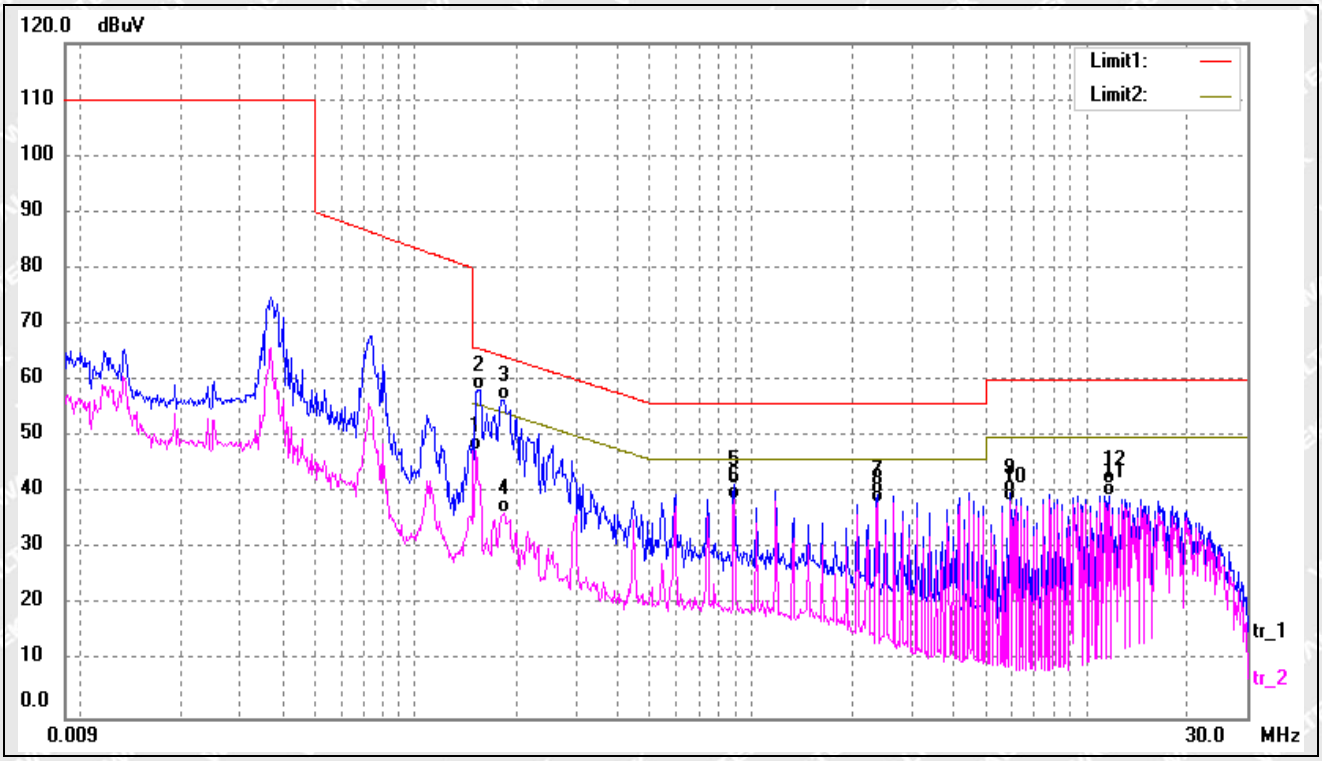
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1*	0.1500	48.84	10.38	59.22	65.89	-6.67	QP
2	0.1580	30.43	10.37	40.80	55.46	-14.66	AVG
3	0.2420	38.13	10.36	48.49	61.96	-13.47	QP
4	0.2500	20.01	10.35	30.36	51.69	-21.33	AVG
5	0.5420	24.96	10.29	35.25	56.00	-20.75	QP
6	0.5460	14.19	10.29	24.48	46.00	-21.52	AVG
7	1.4300	20.80	10.38	31.18	56.00	-24.82	QP
8	1.6020	11.71	10.30	22.01	46.00	-23.99	AVG
9	2.8380	20.63	10.09	30.72	56.00	-25.28	QP
10	2.8380	17.96	10.09	28.05	46.00	-17.95	AVG
11	14.7980	23.24	10.14	33.38	60.00	-26.62	QP
12	17.0180	20.99	10.19	31.18	50.00	-18.82	AVG

Test mode:	TM2	Polarity:	Neutral



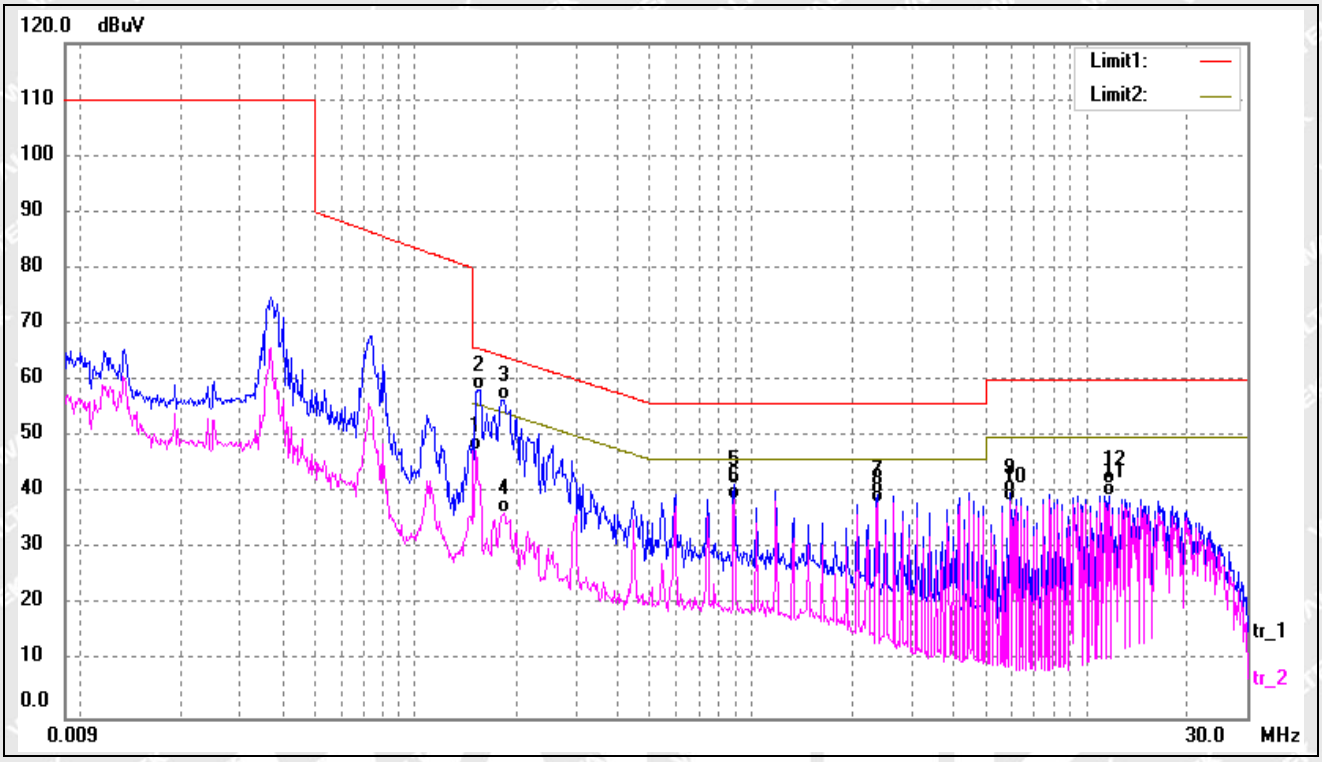
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1*	0.1580	48.30	10.37	58.67	65.46	-6.79	QP
2	0.1580	30.98	10.37	41.35	55.46	-14.11	AVG
3	0.2180	22.10	10.36	32.46	52.82	-20.36	AVG
4	0.2340	38.45	10.36	48.81	62.24	-13.43	QP
5	0.5460	17.29	10.29	27.58	46.00	-18.42	AVG
6	0.5500	25.63	10.29	35.92	56.00	-20.08	QP
7	1.3540	21.39	10.41	31.80	56.00	-24.20	QP
8	1.3540	11.89	10.41	22.30	46.00	-23.70	AVG
9	3.8220	21.00	10.05	31.05	56.00	-24.95	QP
10	3.8220	13.09	10.05	23.14	46.00	-22.86	AVG
11	12.5700	24.60	10.01	34.61	60.00	-25.39	QP
12	13.3100	22.39	10.06	32.45	50.00	-17.55	AVG

Test mode:	TM3	Polarity:	Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1500	37.20	10.38	47.58	55.89	-8.31	AVG
2	0.1540	47.89	10.37	58.26	65.67	-7.41	QP
3	0.1820	46.24	10.37	56.61	64.30	-7.69	QP
4	0.1820	26.19	10.37	36.56	54.30	-17.74	AVG
5	0.8900	30.95	10.49	41.44	56.00	-14.56	QP
6*	0.8900	28.48	10.49	38.97	46.00	-7.03	AVG
7	2.3700	29.55	10.11	39.66	56.00	-16.34	QP
8	2.3700	28.18	10.11	38.29	46.00	-7.71	AVG
9	5.9220	30.15	9.97	40.12	60.00	-19.88	QP
10	5.9220	28.70	9.97	38.67	50.00	-11.33	AVG
11	11.6940	29.47	9.96	39.43	60.00	-20.57	QP
12	11.6940	31.52	9.96	41.48	50.00	-8.52	AVG

Test mode:	TM3	Polarity:	Neutral



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1500	37.20	10.38	47.58	55.89	-8.31	AVG
2	0.1540	47.89	10.37	58.26	65.67	-7.41	QP
3	0.1820	46.24	10.37	56.61	64.30	-7.69	QP
4	0.1820	26.19	10.37	36.56	54.30	-17.74	AVG
5	0.8900	30.95	10.49	41.44	56.00	-14.56	QP
6*	0.8900	28.48	10.49	38.97	46.00	-7.03	AVG
7	2.3700	29.55	10.11	39.66	56.00	-16.34	QP
8	2.3700	28.18	10.11	38.29	46.00	-7.71	AVG
9	5.9220	30.15	9.97	40.12	60.00	-19.88	QP
10	5.9220	28.70	9.97	38.67	50.00	-11.33	AVG
11	11.6940	29.47	9.96	39.43	60.00	-20.57	QP
12	11.6940	31.52	9.96	41.48	50.00	-8.52	AVG

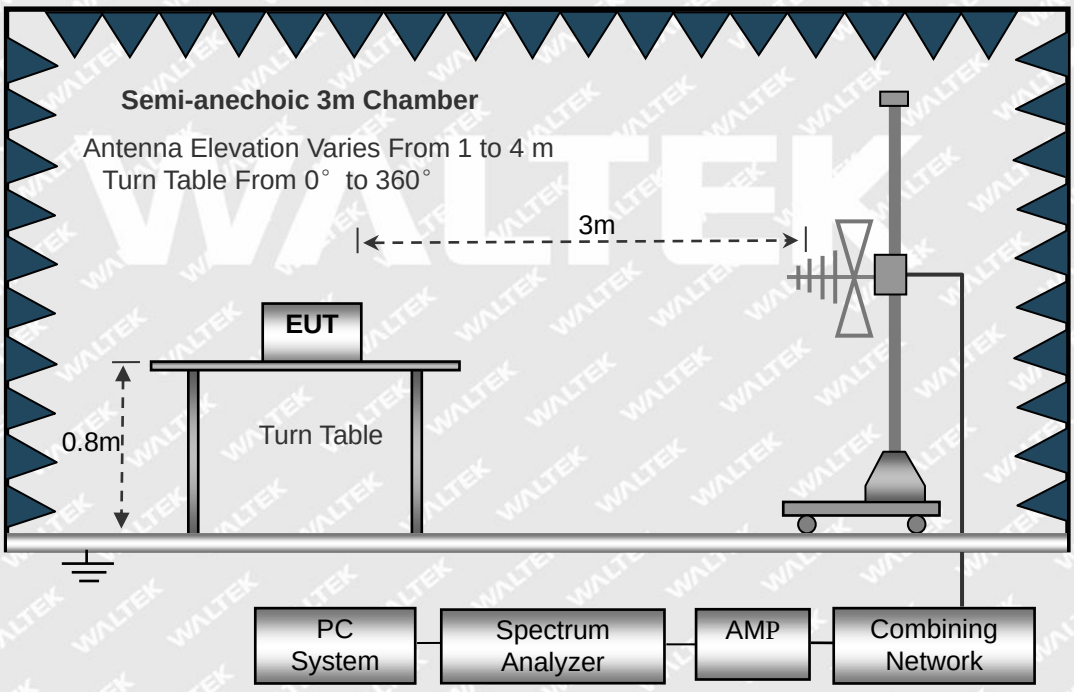
4. Radiated Emission

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 ±4.52dB
		0.2-1GHz ±5.56dB
		1-6GHz ±3.84dB

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:

Corr. Ampl. = Indicated Reading + Correct

Correct=Ant.Factor + Cable Loss - Ampl.Gain

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit.The equation for margin calculation is as follows:

Margin = Corr. Ampl. – EN 55011 Limit

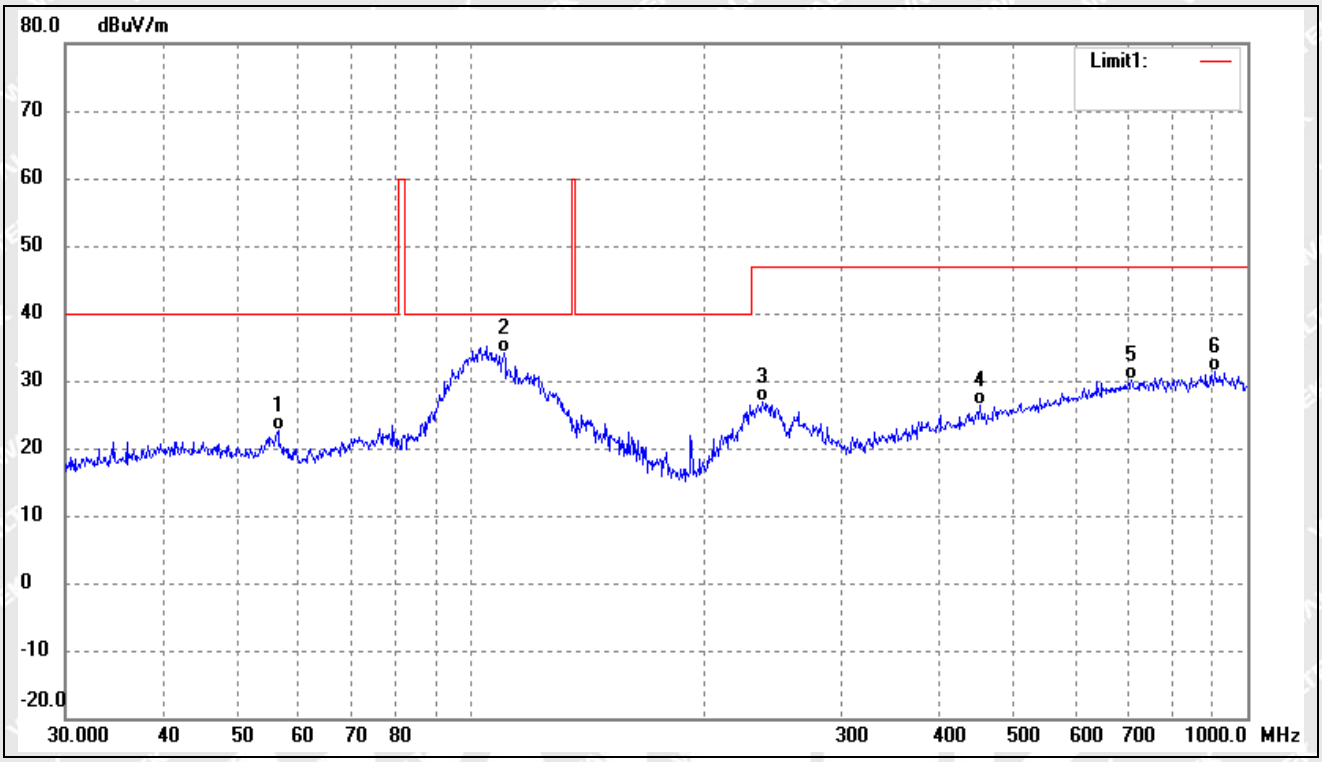
4.4 Environmental Conditions

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

4.5 Summary of Test Results

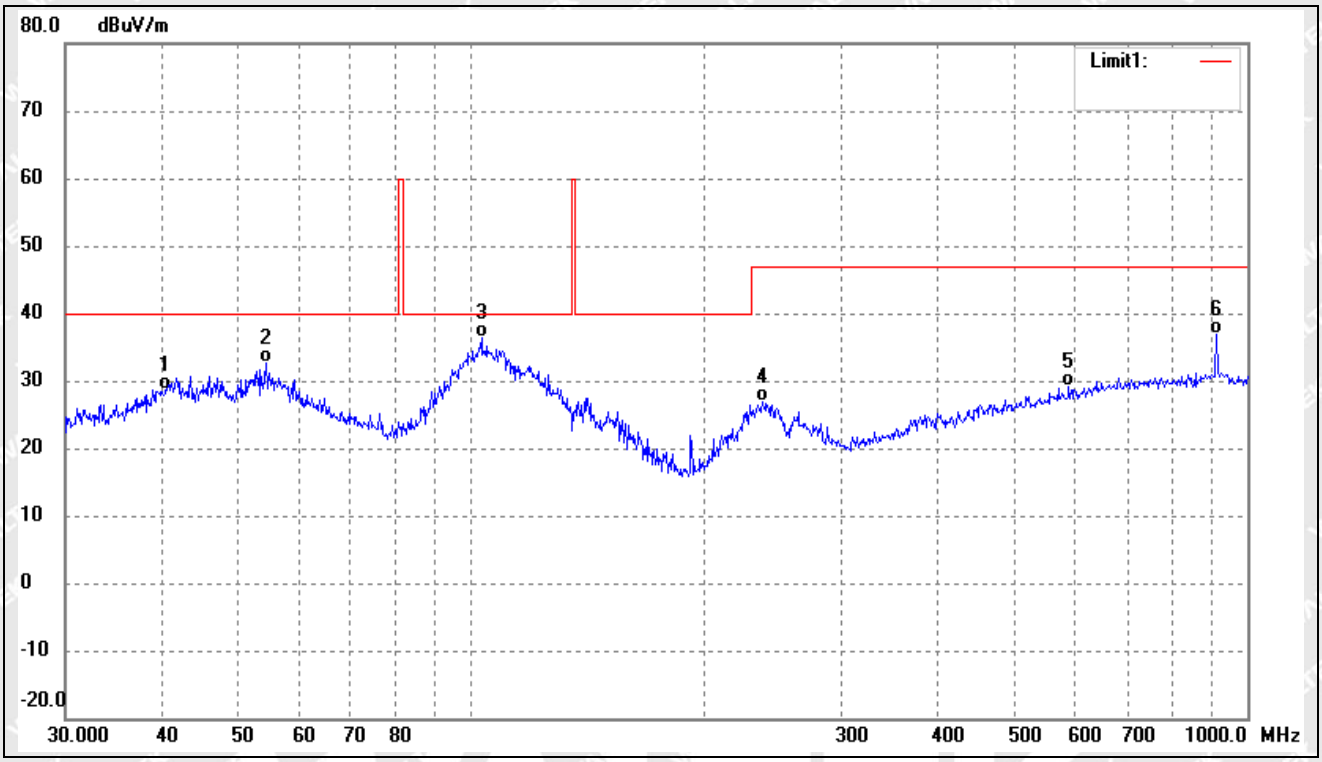
Please find the results below:

Test mode:	TM1	Polarity:	Horizontal



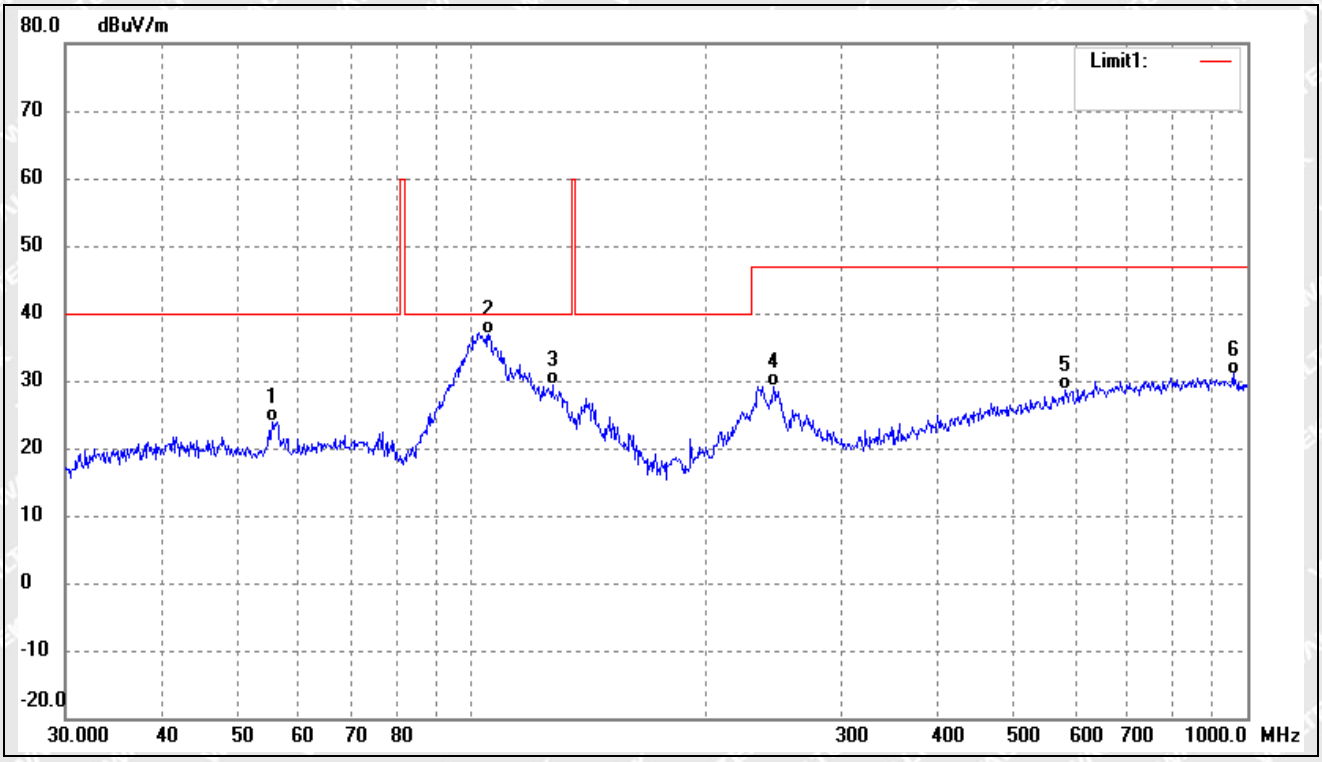
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	56.3948	30.53	-7.90	22.63	40.00	-17.37	-	-	QP
2	110.1816	42.91	-8.88	34.03	40.00	-5.97	-	-	QP
3	237.4760	35.58	-8.66	26.92	47.00	-20.08	-	-	QP
4	452.7197	28.75	-2.49	26.26	47.00	-20.74	-	-	QP
5	709.1823	28.63	1.48	30.11	47.00	-16.89	-	-	QP
6	909.6667	28.65	2.72	31.37	47.00	-15.63	-	-	QP

Test mode:	TM1	Polarity:	Vertical



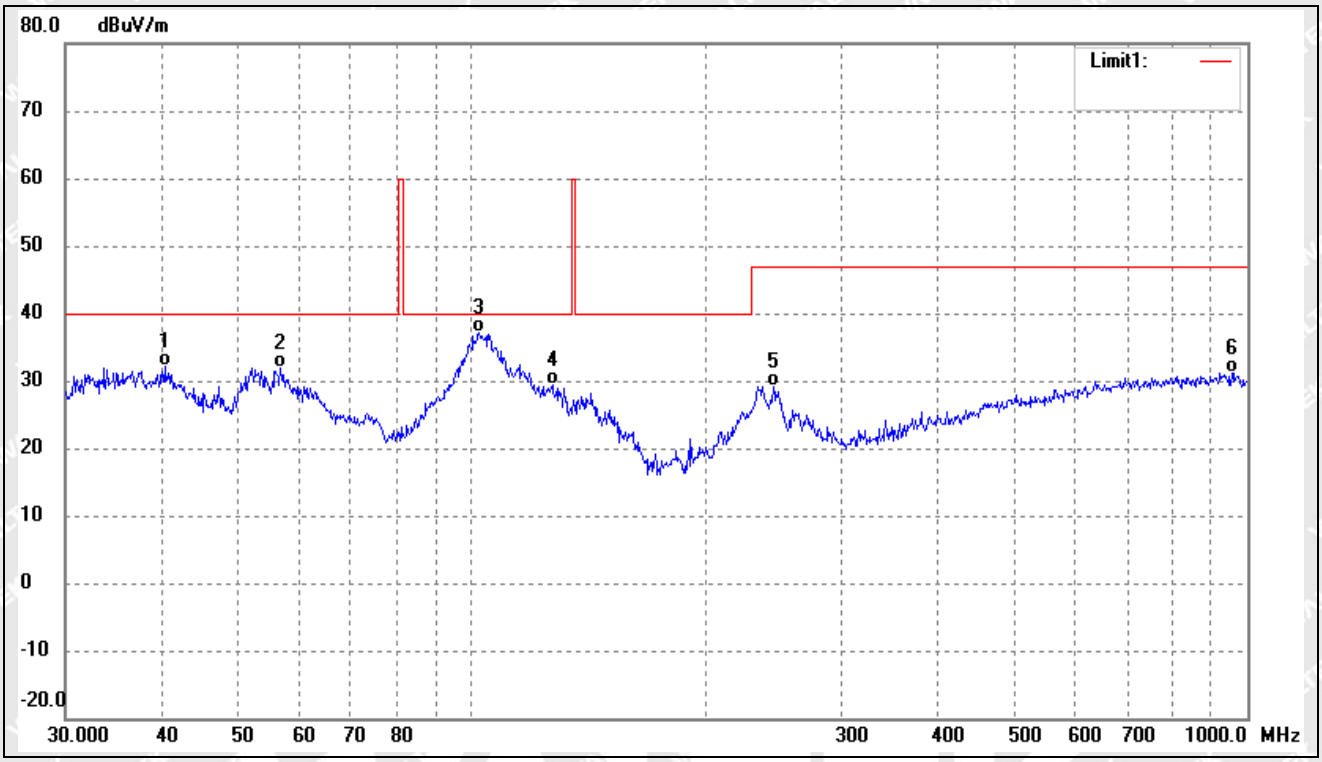
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	40.4172	35.56	-6.99	28.57	40.00	-11.43	-	-	QP
2	54.4515	40.13	-7.62	32.51	40.00	-7.49	-	-	QP
3	103.0799	45.12	-8.77	36.35	40.00	-3.65	-	-	QP
4	237.4759	35.58	-8.66	26.92	47.00	-20.08	-	-	QP
5	588.9050	28.98	0.18	29.16	47.00	-17.84	-	-	QP
6	912.8619	34.10	2.70	36.80	47.00	-10.20	-	-	QP

Test mode:	TM2	Polarity:	Horizontal



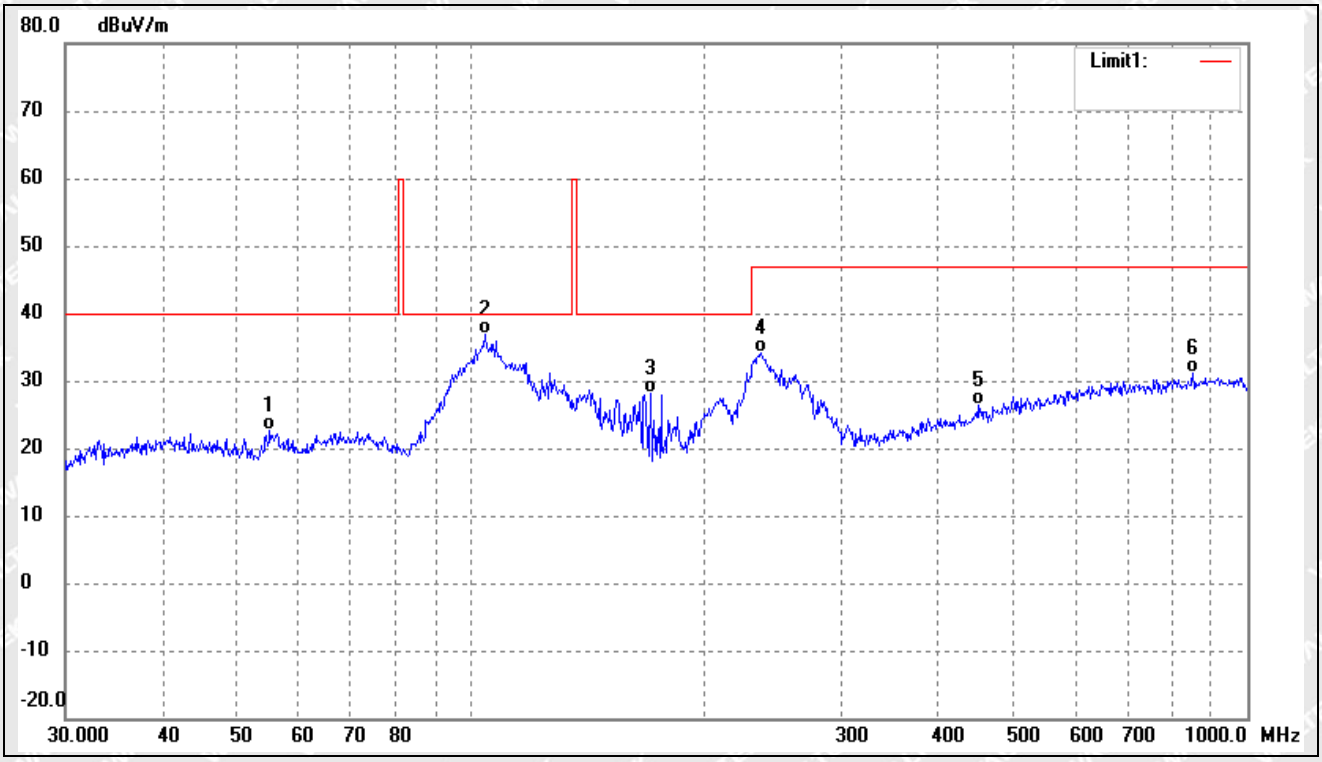
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	55.4147	31.66	-7.75	23.91	40.00	-16.09	-	-	QP
2	105.2718	45.70	-8.80	36.90	40.00	-3.10	-	-	QP
3	127.2176	40.42	-10.93	29.49	40.00	-10.51	-	-	QP
4	245.0900	37.67	-8.45	29.22	47.00	-17.78	-	-	QP
5	582.7425	28.43	0.08	28.51	47.00	-18.49	-	-	QP
6	958.7943	28.45	2.55	31.00	47.00	-16.00	-	-	QP

Test mode:	TM2	Polarity:	Vertical



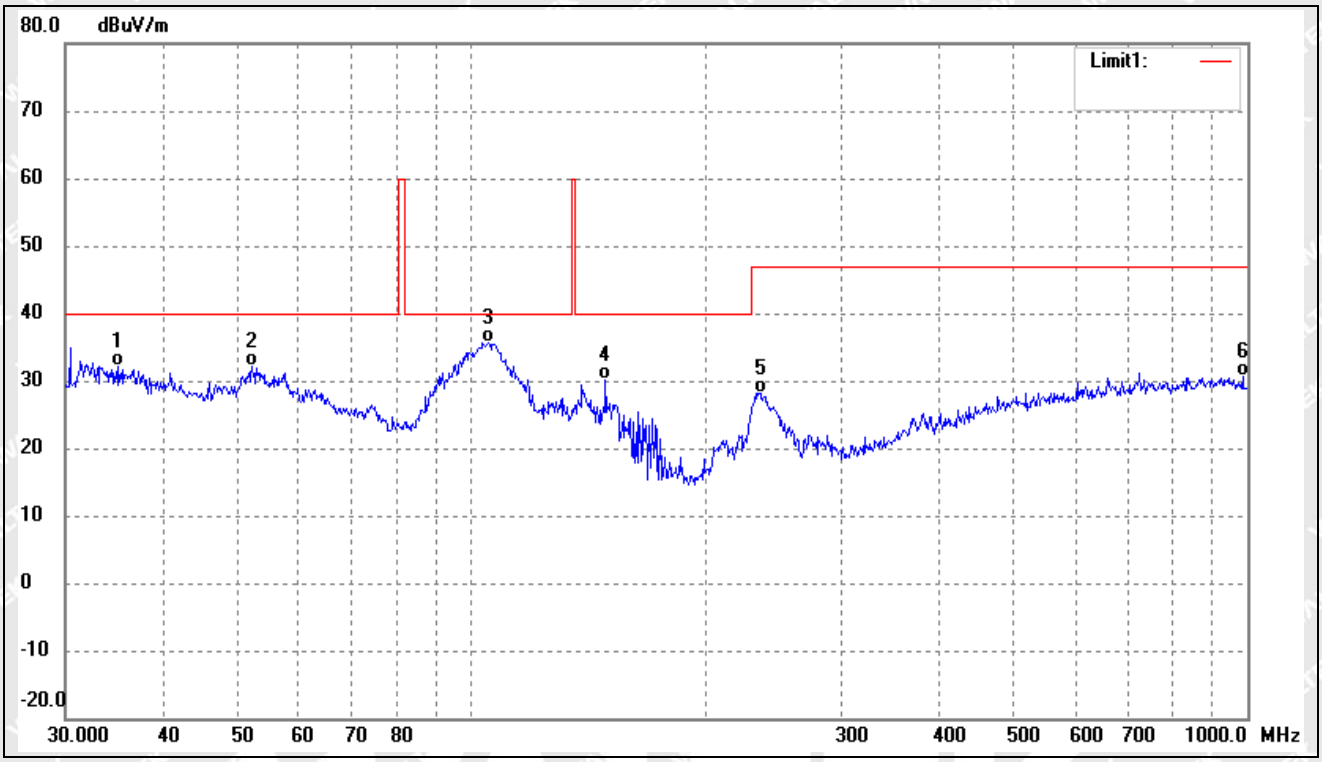
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	40.2757	39.14	-7.00	32.14	40.00	-7.86	-	-	QP
2	56.7917	39.78	-7.95	31.83	40.00	-8.17	-	-	QP
3	102.3597	46.00	-8.77	37.23	40.00	-2.77	-	-	QP
4	127.2176	40.42	-10.93	29.49	40.00	-10.51	-	-	QP
5	245.0900	37.67	-8.45	29.22	47.00	-17.78	-	-	QP
6	955.4381	28.64	2.57	31.21	47.00	-15.79	-	-	QP

Test mode:	TM3	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	55.0274	30.27	-7.69	22.58	40.00	-17.42	-	-	QP
2	104.1701	45.74	-8.78	36.96	40.00	-3.04	-	-	QP
3	170.1948	39.84	-11.72	28.12	40.00	-11.88	-	-	QP
4	235.8164	42.81	-8.71	34.10	47.00	-12.90	-	-	QP
5	449.5558	28.85	-2.57	26.28	47.00	-20.72	-	-	QP
6	851.0353	28.66	2.38	31.04	47.00	-15.96	-	-	QP

Test mode:	TM3	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	35.1278	40.44	-8.19	32.25	40.00	-7.75	-	-	QP
2	52.2079	39.47	-7.29	32.18	40.00	-7.82	-	-	QP
3	105.2718	44.54	-8.80	35.74	40.00	-4.26	-	-	QP
4	148.9625	42.59	-12.57	30.02	40.00	-9.98	-	-	QP
5	235.8164	36.96	-8.71	28.25	47.00	-18.75	-	-	QP
6	986.0717	28.25	2.46	30.71	47.00	-16.29	-	-	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

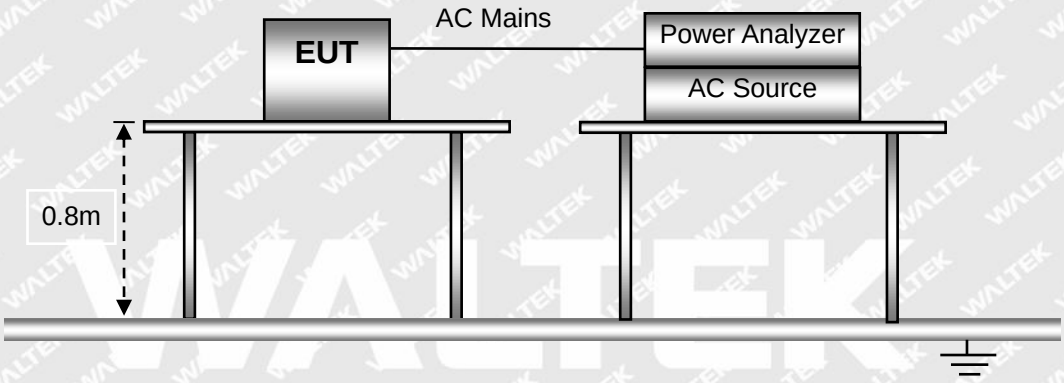
5.1 Test Standards

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

5.2 Environmental Conditions

Temperature:	24.6°C
Relative Humidity:	51 %
ATM Pressure:	1022 mbar

5.3 Basic Test Setup Block Diagram

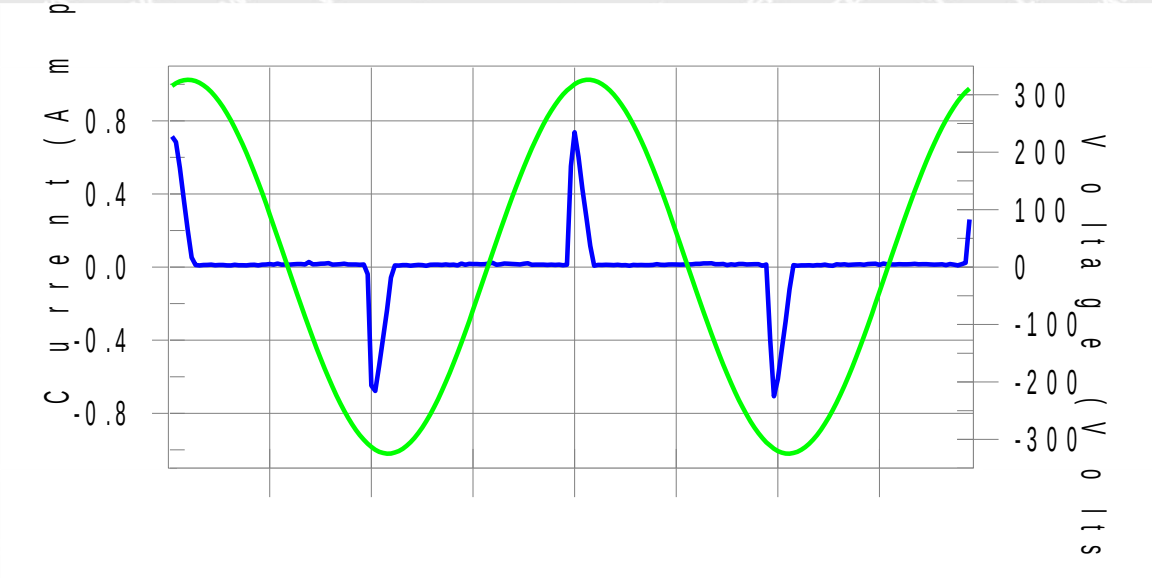


5.4 Harmonic Current Emissions Test Data

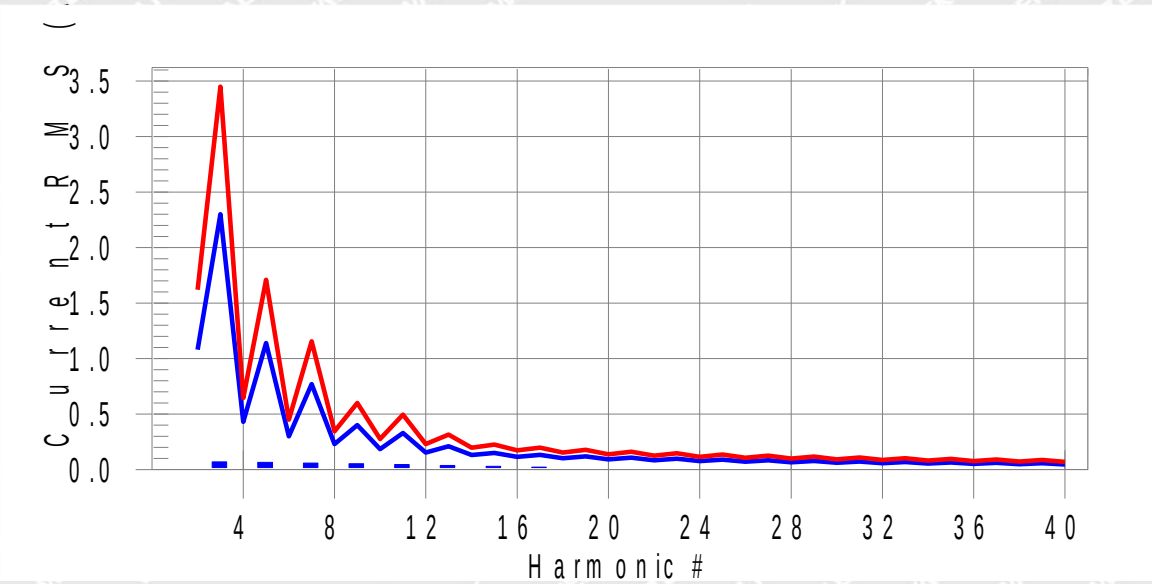
Harmonics – Class-A

Test category: Class-A (European limits) **Test Margin: 100**
Test date: 2023/06/26 **Start time: 16:37:02** **End time: 16:39:43**
Test duration (min): 2.5 **Data file name: H-000625.cts_data**
Comment: TM3
Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



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



Test result: Pass **Worst harmonics H15-13.2% of 150% limit, H15-19.7% of 100% limit**

Current Test Result Summary (Run time)

Test category: Class-A (European limits) **Test Margin: 100**
Test date: 2023/06/26 **Start time: 16:37:02** **End time: 16:39:43**
Test duration (min): 2.5 **Data file name: H-000625.cts_data**
Comment: TM3

Test Result: Pass **Source qualification: Normal**
THC(A): 0.146 **I-THD(%): 200.1** **POHC(A): 0.032** **POHC Limit(A): 0.251**

Highest parameter values during test:

V_RMS (Volts):	230.11	Frequency(Hz):	50.00
I_Peak (Amps):	0.773	I_RMS (Amps):	0.168
I_Fund (Amps):	0.073	Crest Factor:	4.689
Power (Watts):	16.5	Power Factor:	0.432

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	0.069	2.300	3.0	0.072	3.450	2.1	Pass
4	0.001	0.430	N/A	0.001	0.645	N/A	Pass
5	0.065	1.140	5.7	0.067	1.710	3.9	Pass
6	0.000	0.300	N/A	0.001	0.450	N/A	Pass
7	0.059	0.770	7.7	0.061	1.155	5.3	Pass
8	0.000	0.230	N/A	0.001	0.345	N/A	Pass
9	0.052	0.400	13.1	0.054	0.600	9.0	Pass
10	0.000	0.184	N/A	0.001	0.276	N/A	Pass
11	0.045	0.330	13.6	0.046	0.495	9.3	Pass
12	0.000	0.153	N/A	0.001	0.230	N/A	Pass
13	0.037	0.210	17.6	0.038	0.315	12.0	Pass
14	0.000	0.131	N/A	0.001	0.197	N/A	Pass
15	0.030	0.150	19.7	0.030	0.225	13.2	Pass
16	0.000	0.115	N/A	0.001	0.173	N/A	Pass
17	0.023	0.132	17.3	0.023	0.198	11.6	Pass
18	0.000	0.102	N/A	0.001	0.153	N/A	Pass
19	0.017	0.118	14.7	0.018	0.178	9.9	Pass
20	0.000	0.092	N/A	0.001	0.138	N/A	Pass
21	0.014	0.107	13.0	0.014	0.161	8.8	Pass
22	0.000	0.084	N/A	0.001	0.125	N/A	Pass
23	0.012	0.098	12.5	0.013	0.147	8.7	Pass
24	0.000	0.077	N/A	0.001	0.115	N/A	Pass
25	0.012	0.090	13.0	0.012	0.135	9.2	Pass
26	0.000	0.071	N/A	0.001	0.107	N/A	Pass

27	0.012	0.083	13.9	0.012	0.125	9.7	Pass
28	0.000	0.066	N/A	0.001	0.099	N/A	Pass
29	0.011	0.078	14.4	0.012	0.116	9.9	Pass
30	0.000	0.061	N/A	0.001	0.092	N/A	Pass
31	0.010	0.073	14.2	0.011	0.109	9.8	Pass
32	0.000	0.058	N/A	0.000	0.086	N/A	Pass
33	0.009	0.068	13.3	0.009	0.102	9.0	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.008	0.064	11.9	0.008	0.096	8.0	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.006	0.061	10.3	0.006	0.091	7.1	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.005	0.058	9.1	0.005	0.087	6.2	Pass
40	0.000	0.046	N/A	0.000	0.069	N/A	Pass

Voltage Source Verification Data (Run time)

Test category: Class-A (European limits) **Test Margin: 100**
Test date: 2023/09/26 **Start time: 16:37:02** **End time: 16:39:43**
Test duration (min): 2.5 **Data file name: H-000625.cts_data**
Comment: TM3

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

Highest parameter values during test:

Voltage (Vrms):	**230.11**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**0.773**	**I_RMS (Amps):**	**0.168**
I_Fund (Amps):	**0.073**	**Crest Factor:**	**4.689**
Power (Watts):	**16.5**	**Power Factor:**	**0.432**

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.058	0.460	12.56	OK
3	0.518	2.071	25.01	OK
4	0.079	0.460	17.17	OK
5	0.057	0.920	6.19	OK
6	0.028	0.460	6.15	OK
7	0.033	0.690	4.84	OK
8	0.013	0.460	2.80	OK
9	0.032	0.460	6.96	OK
10	0.012	0.460	2.69	OK
11	0.039	0.230	16.80	OK
12	0.010	0.230	4.56	OK
13	0.029	0.230	12.50	OK
14	0.005	0.230	2.28	OK
15	0.034	0.230	14.92	OK
16	0.008	0.230	3.36	OK
17	0.019	0.230	8.07	OK
18	0.011	0.230	4.83	OK
19	0.022	0.230	9.49	OK
20	0.014	0.230	6.25	OK
21	0.016	0.230	7.12	OK
22	0.003	0.230	1.38	OK
23	0.015	0.230	6.73	OK
24	0.003	0.230	1.10	OK
25	0.018	0.230	7.76	OK
26	0.004	0.230	1.65	OK
27	0.019	0.230	8.27	OK

28	**0.004**	**0.230**	**1.68**	**OK**
29	**0.019**	**0.230**	**8.08**	**OK**
30	**0.004**	**0.230**	**1.64**	**OK**
31	**0.017**	**0.230**	**7.34**	**OK**
32	**0.003**	**0.230**	**1.34**	**OK**
33	**0.016**	**0.230**	**7.10**	**OK**
34	**0.002**	**0.230**	**1.07**	**OK**
35	**0.014**	**0.230**	**6.22**	**OK**
36	**0.003**	**0.230**	**1.21**	**OK**
37	**0.014**	**0.230**	**6.19**	**OK**
38	**0.002**	**0.230**	**1.06**	**OK**
39	**0.013**	**0.230**	**5.52**	**OK**
40	**0.008**	**0.230**	**3.27**	**OK**

6. Voltage Fluctuation Flicker

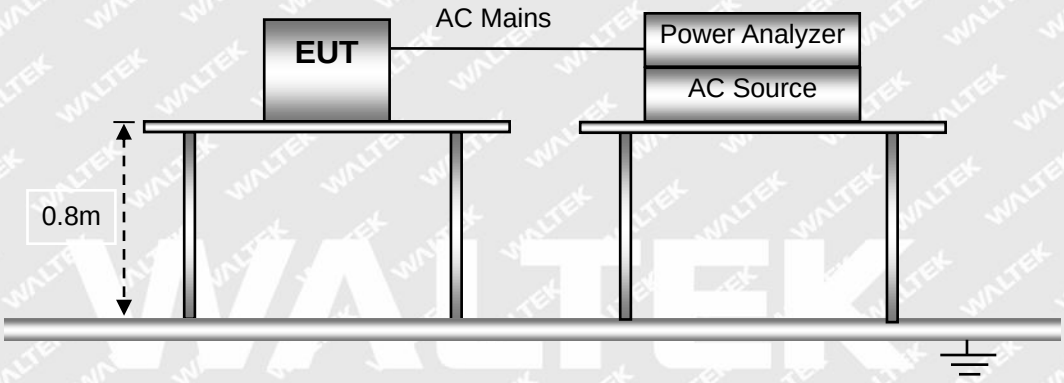
6.1 Test Standards

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

6.2 Environmental Conditions

Temperature:	24.6 °C
Relative Humidity:	51 %
ATM Pressure:	1022 mbar

6.3 Basic Test Setup Block Diagram

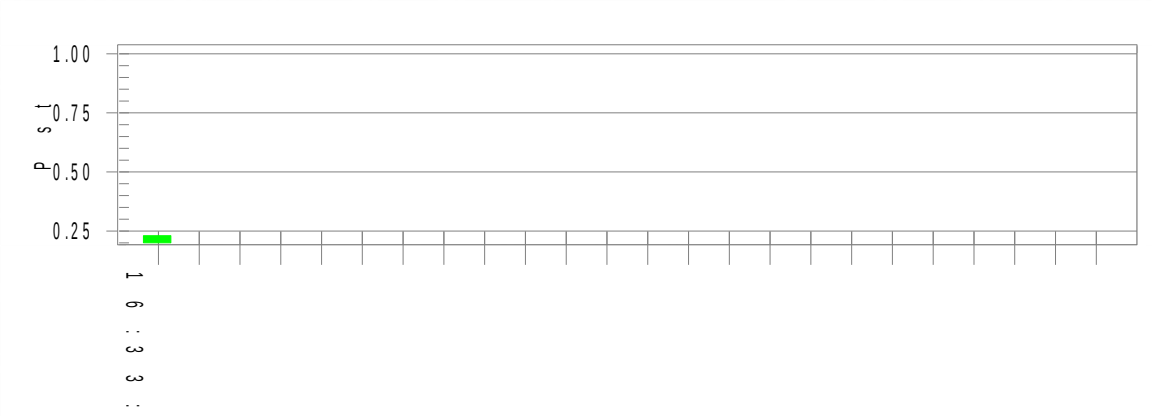


6.4 Voltage Fluctuation and Flicker Test Data

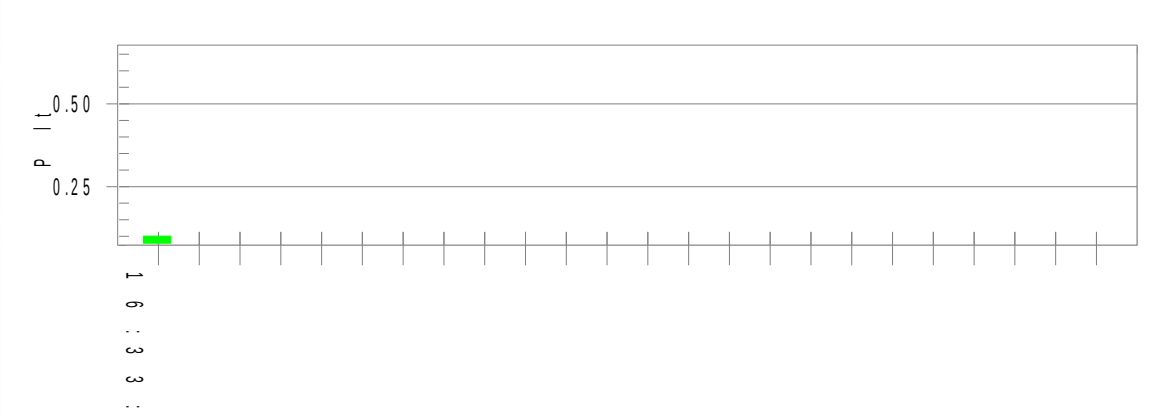
Test mode:	TM1

Test Result: Pass **Status: Test Completed**

Pst$_1$ and limit line **European Limits**



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	**231.43**			
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):	**0.230**	**Test limit:**	**1.000**	**Pass**
Highest Plt (2 hr. period):	**0.101**	**Test limit:**	**0.650**	**Pass**

7. Electrostatic Discharges (ESD)

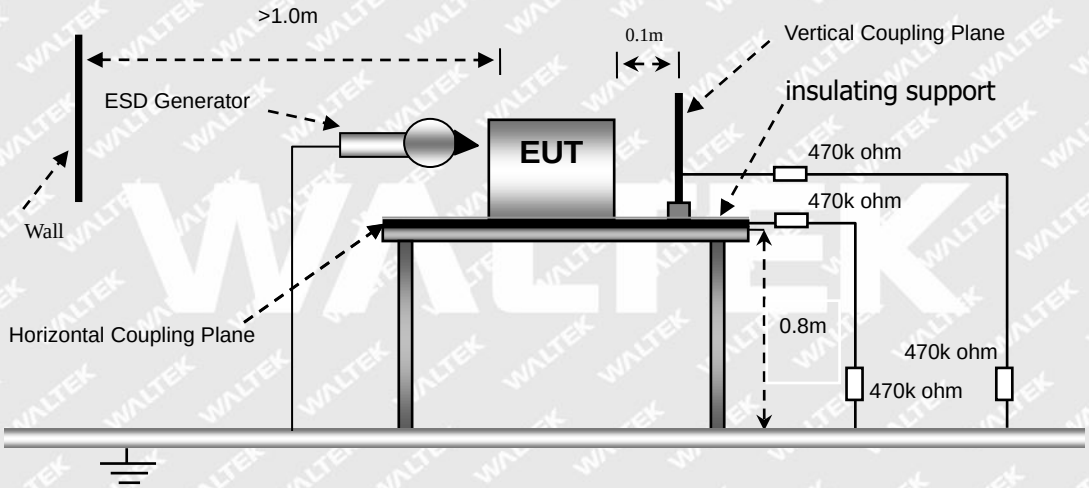
7.1 Test Performance

Performance Criterion: B

7.2 Environmental Conditions

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

7.3 Basic Test Setup Block Diagram



7.4 Electrostatic Discharge Immunity Test Data

Test Mode:TM1, TM2, TM3

Table 1: Electrostatic Discharge Immunity (Air Discharge)

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)

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)

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)

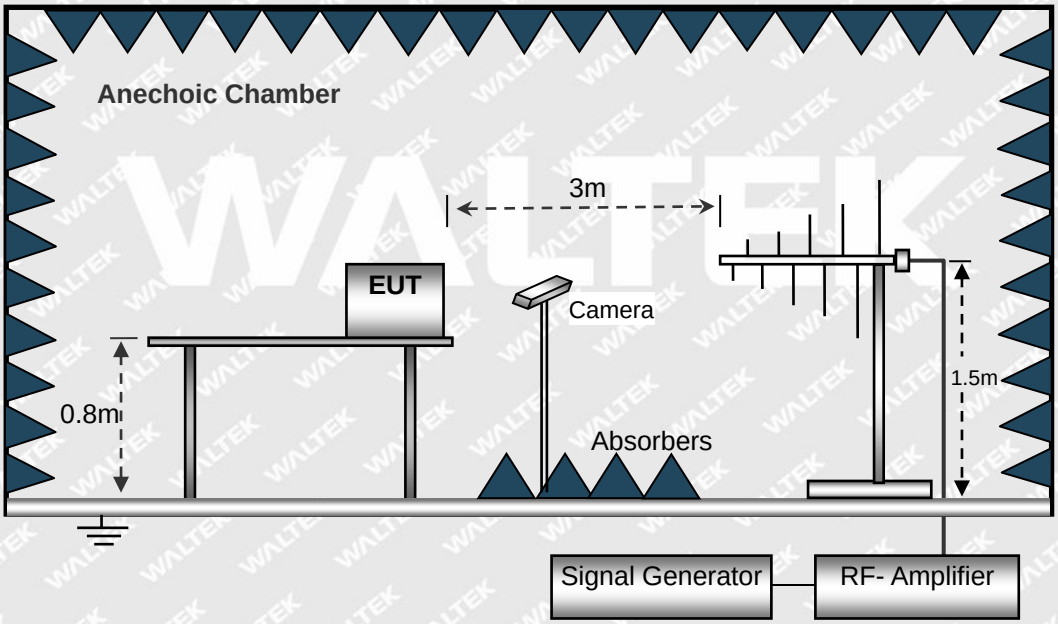
8.1 Test Performance

Performance Criterion: A

8.2 Environmental Conditions

Temperature:	24.6 °C
Relative Humidity:	51 %
ATM Pressure:	1010 mbar

8.3 Basic Test Setup Block Diagram



8.4 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

9. Electrical Fast Transients (EFT)

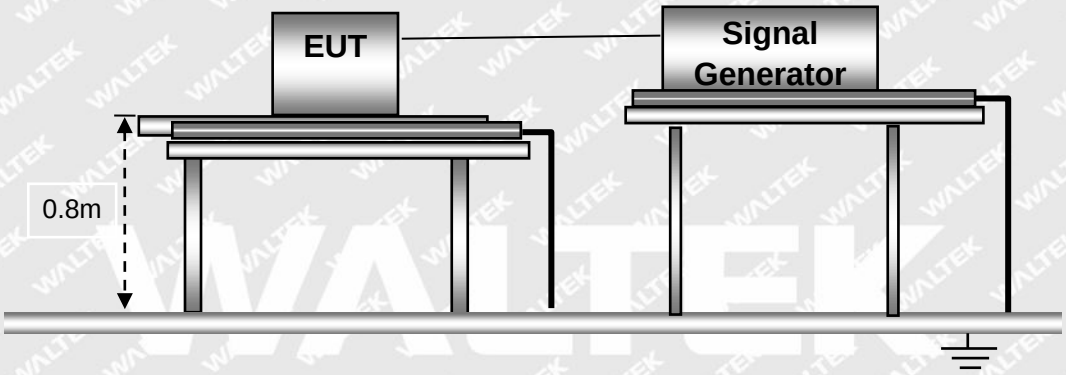
9.1 Test Performance

Performance Criterion: B

9.2 Environmental Conditions

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

9.3 Basic Test Setup Block Diagram



9.4 Electrical Fast Transients Test Data

Test Mode:TM1, TM2, TM3

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	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	RJ45	A	A	/	/	/	/	/	/

Test Result: Pass

10. Surges

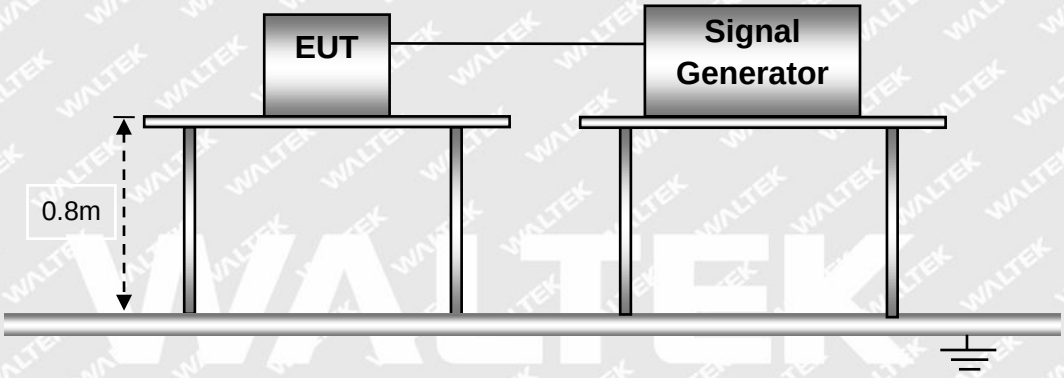
10.1 Test Performance

Performance Criterion: B

10.2 Environmental Conditions

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

10.3 Basic Test Setup Block Diagram



10.4 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)

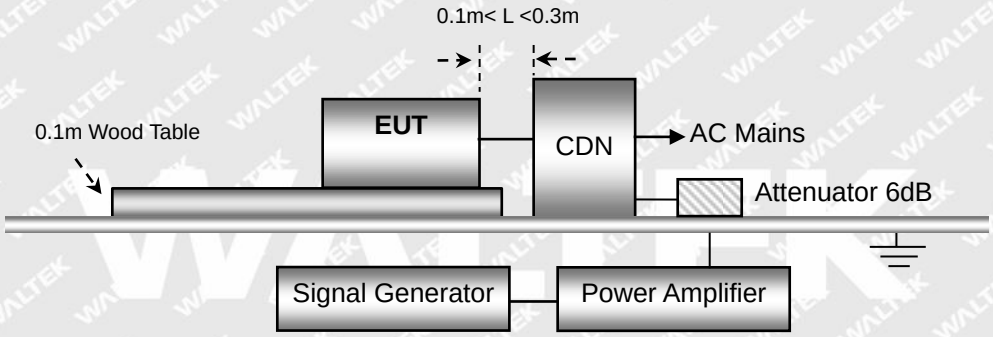
11.1 Test Performance

Performance Criterion: A

11.2 Environmental Conditions

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

11.3 Basic Test Setup Block Diagram



11.4 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

12. Power-Frequency Magnetic Fields (PFMF)

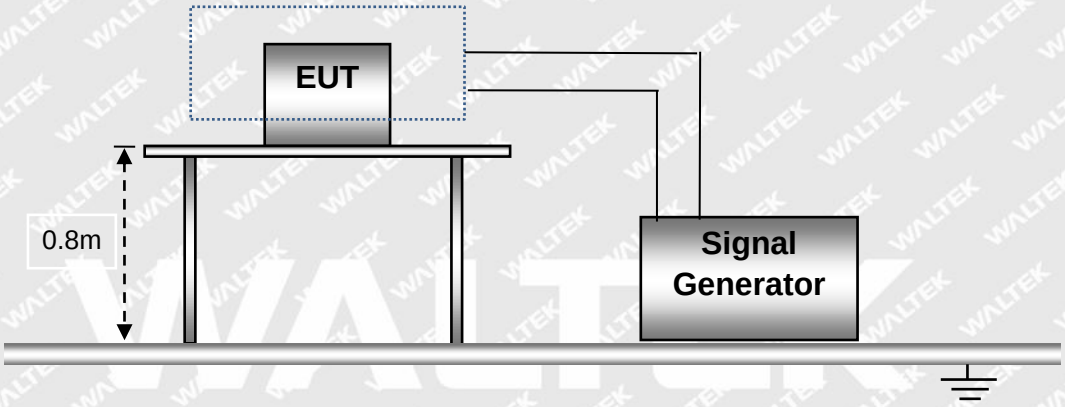
12.1 Test Performance

Performance Criterion: A

12.2 Environmental Conditions

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

12.3 Basic Test Setup Block Diagram



12.4 Power-Frequency Magnetic Field Test Data

Test Mode:TM1, TM2, TM3

Level	Magnetic Field Strength (r.m.s) A/m	Frequency Hz	Induction Coil Postion	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

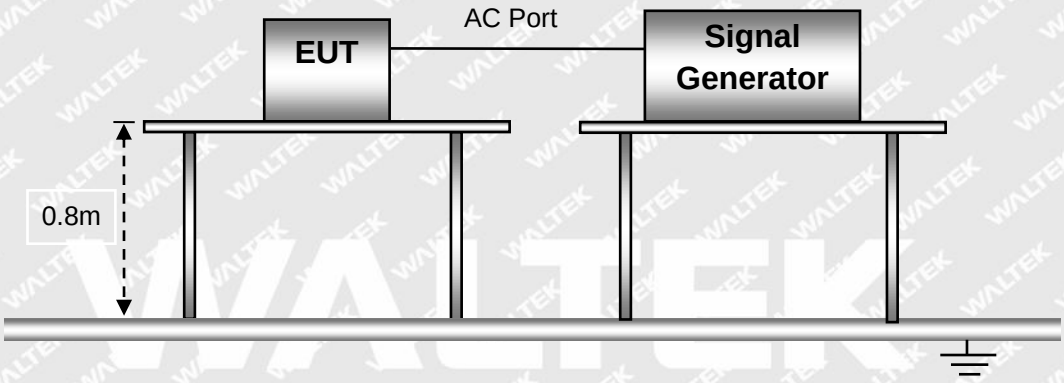
13.1 Test Performance

Performance Criterion: B/C

13.2 Environmental Conditions

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

13.3 Basic Test Setup Block Diagram



13.4 Voltage Dips And Interruptions Test Data

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

T: Test duration

Test Mode:TM1, TM2, TM3

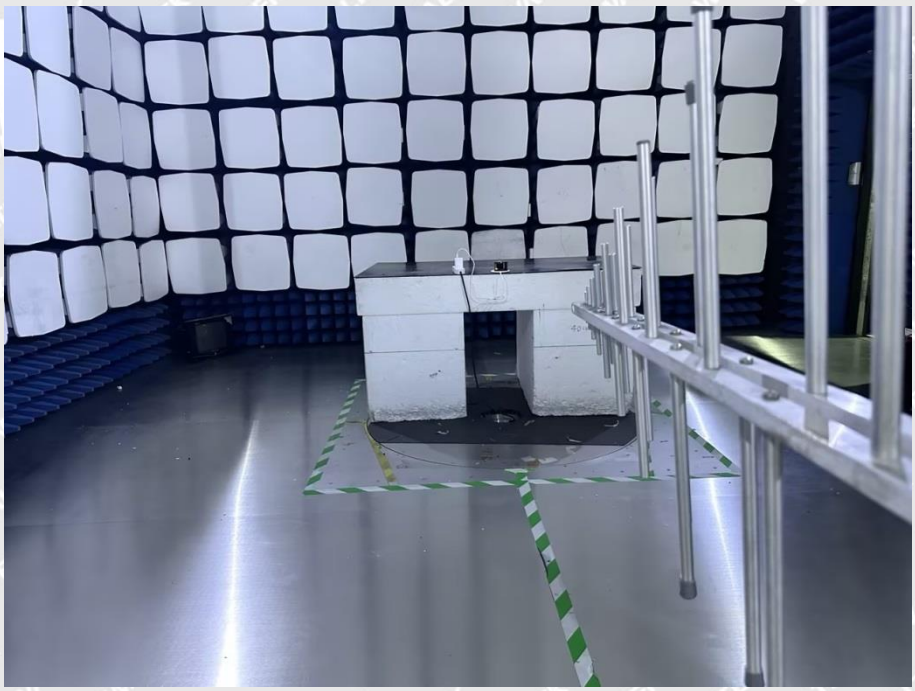
Level	U	T	Phase Angle	N	Pass	Fail
1	100%	10ms	0/90/180/270	3	A	/
2	100%	20ms	0/90/180/270	3	B	/
3	30%	500ms	0/90/180/270	3	B	/
4	100%	5000ms	0/90/180/270	3	B	/

Test Result: Pass

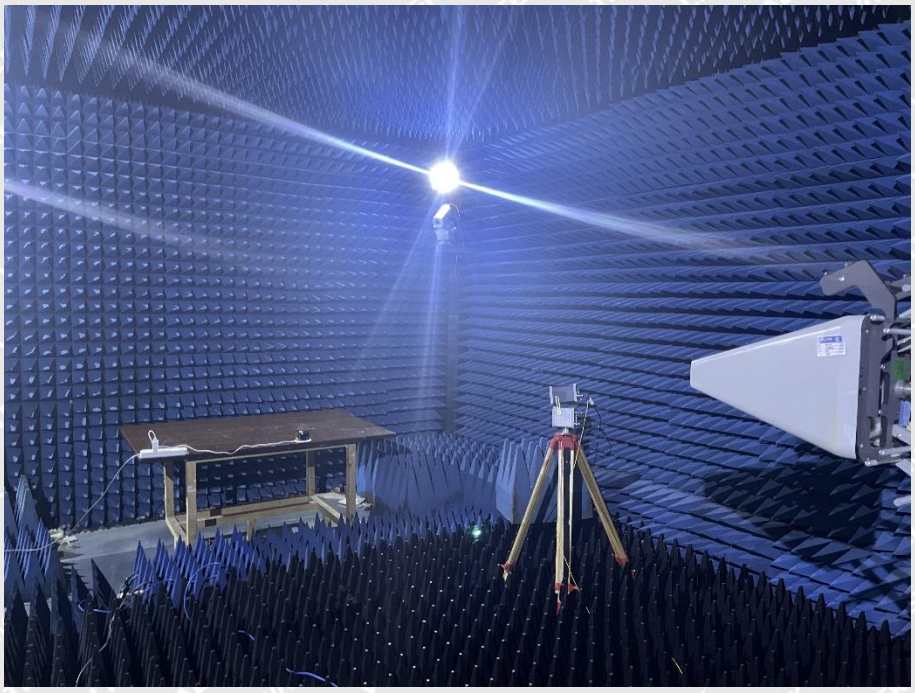
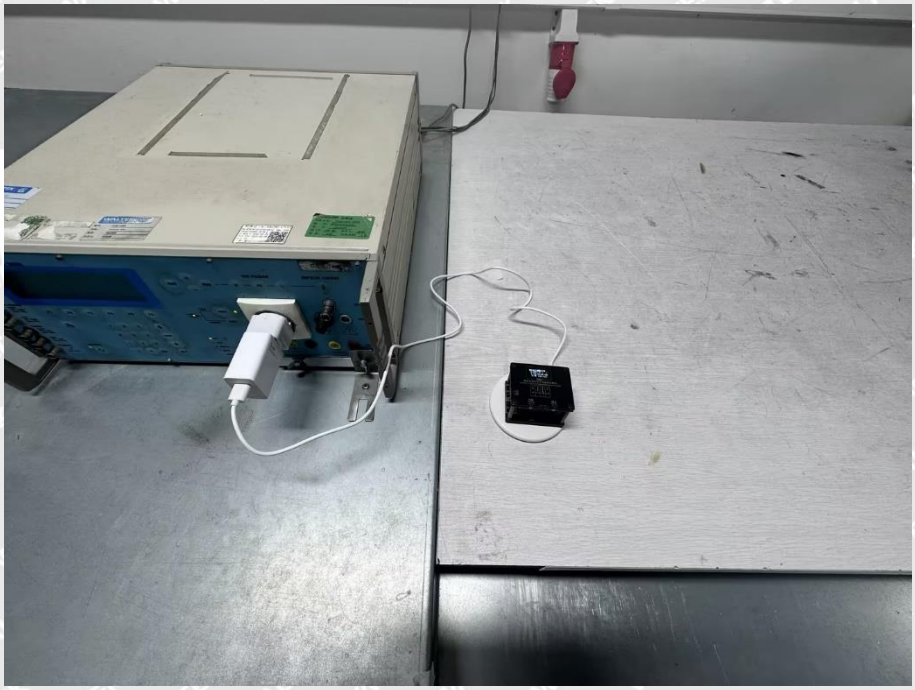
EXHIBIT 1 - EUT PHOTOGRAPHS

Please refer to “ANNEX”.

EXHIBIT 2 - TEST SETUP PHOTOGRAPHS

Conducted Emission Test Setup	
Radiation Emission Test View(30MHz to 1GHz)	

Harmonic/Flicker Test View	
ESD Test View	

R/S Test View	
EFT/ Surges/ Dips and Interruptions Test View	

CS Test View	
PFMF Test View	

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