



TEST REPORT

Reference No. : WTD24D07175715W002

Manufacturer* : Shenzhen EBELONG Technology Co., Ltd.

Address : 3th Floor, Building 2, Hengmingzhu Technology Industrial Park,
Xinqiao Tongfuyu Industrial district, Gonghe community, Shajing
subdistrict, Baoan, Shenzhen city, Guangdong, China.

Factory : Guang Dong EBELONG Intelligent Technology Co., Ltd

Address : 4th Floor, Building 2, Hengmingzhu Technology Industrial Park,
Xinqiao Tongfuyu Industrial district, Gonghe community, Shajing
subdistrict, Baoan, Shenzhen city, Guangdong, China.

Product : Refer to section 4.3.

Model(s) : Refer to section 4.3.

Standards : ETSI EN 301 489-1 V2.2.3 (2019-11)
ETSI EN 301 489-3 V2.3.2 (2023-01)

Date of Receipt sample : 2018-05-31

Date of Test : 2018-05-31 to 2018-06-09

Date of Issue : 2024-08-09

Test Result : **Pass**

Remarks:

1. The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.
2. “*” **manufacturer** means any natural or legal person who manufactures radio equipment or has radio equipment designed or manufactured, and markets that equipment under his name or trade mark.

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3 Revision History

Test Report No.	Date of Receipt Sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTD24D07175715W002	2018-05-31	2018-05-31 to 2018-06-09	2024-08-09	Original	-	Valid
<p>Note:</p> <p>This test report (Ref. No.: WTD24D07175715W002) is only valid with the original test report (Waltek Services (Shenzhen) Co., Ltd. - Report Ref. No.: WTS18S05113117W).</p> <p>This update only updates the standard version.</p> <p>After technical evaluation, no additional testing is required.</p>						

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4 General Information

4.1 General Description of E.U.T.

Product:	Refer to section 4.3.
Model(s):	Refer to section 4.3.
Model Description:	Refer to section 4.3.
Hardware Version:	RX: ERC302, ERC602: V2.6 ERC303, ERC603: V1.3 ERC304, ERC604: V1.2 TX: N/A
Software Version:	RX: ERC302, ERC602: V1.5 ERC303, ERC603: V1.5 ERC304, ERC604: V1.5 TX: N/A

4.2 Details of E.U.T.

Ratings:	Refer to section 4.3.
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4.3 Model List

RX:

Product Name	Model	Description	Ratings
Wireless Receiving Controller	ERC302	Model: ERC302, ERC303, ERC304 and ERC602, ERC603, ERC604 just have different shapes.	Input: AC 100-240V 50/60Hz Load: Max 5A(LED 600W)
	ERC303		Input: AC 100-240V 50/60Hz Load: Max 5A*2CH(LED 600W)
	ERC304		Input: AC 100-240V 50/60Hz Load: Max 10A(LED 1000W)
	ERC602		Input: AC 100-240V 50/60Hz Load: Max 5A(LED 600W)
	ERC603		Input: AC 100-240V 50/60Hz Load: Max 5A*2CH(LED 600W)
	ERC604		Input: AC 100-240V 50/60Hz Load: Max 10A(LED 1000W)

**TX:**

	Model	Description
E1	EQ0114	Gold wire lattice one-key switch
	EQ0214	Gold wire lattice double key switch
	EQ0314	Gold wire grid three-key switch
	EQ0133	Rose black one-key switch
	EQ0233	Rose black double key switch
	EQ0333	Rose black three-key switch
	EQ0122	Wire silver one-key switch
	EQ0222	Draw silver double key switch
	EQ0322	Draw silver three-key switch
	EQ0143	Blue one-key switch
	EQ0243	Blue two-key switch
	EQ0343	Blue three-key switch
	EE0154	White one-key switch
	EE0254	White double key switch
	EE0354	White three-key switch
	EE0165	Gold one-key switch
	EE0265	Gold two-key switch
	EE0365	Gold three-key switch
	EE0187	Silver one-key switch
	EE0287	Silver two-key switch
	EE0387	Silver three-key switch
E3	EE3154	E3 series white one-key switch
	EE3254	E3 series white double key switches
	EE3165	E3 series gold one-key switch
	EE3265	E3 series gold 2-key switches

4.4 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 Lab: /

Lab address: /

Test items: /

4.5 Abnormalities from Standard Conditions

None.



5 Test Summary

EMC PART		
Test Items	Test Requirement	Result
Conducted Emissions	EN 301 489-1/-3	PASS
Radiated Emissions	EN 301 489-1/-3	PASS
Harmonic Current Emissions	EN 301 489-1/-3	PASS
Voltage Fluctuations and Flicker	EN 301 489-1/-3	PASS
Electrostatic Discharge(ESD)	EN 301 489-1/-3	PASS
Radiated Immunity (R/S)	EN 301 489-1/-3	PASS
Electrical Fast Transients (EFT)	EN 301 489-1/-3	PASS
Surge Immunity	EN 301 489-1/-3	PASS
Conducted Immunity (C/S)	EN 301 489-1/-3	PASS
Voltage Dips and Interruptions	EN 301 489-1/-3	PASS
Remark: PASS: Test item meets the requirement N/A: Not Applicable		



6 Equipment Used during Test

6.1 Equipments List

Conducted Emissions						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	EMI Test Receiver	R&S	ESCI	100947	2017-09-12	2018-09-11
2	LISN	R&S	ENV216	100115	2017-09-12	2018-09-11
3	Cable	Top	TYPE16(3.5M)	-	2017-09-12	2018-09-11
3m Semi-anechoic Chamber for Radiation (TDK)						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Test Receiver	R&S	ESCI	101296	2018-04-06	2019-04-05
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2018-04-06	2019-04-05
3	Amplifier	ANRITSU	MH648A	M43381	2018-04-06	2019-04-05
4	Cable	HUBER+SUHNE R	CBL2	525178	2018-04-06	2019-04-05
3m Semi-anechoic Chamber for Radiation Emissions						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Spectrum Analyzer	R&S	FSP	100091	2018-04-28	2019-04-27
2	Amplifier	Agilent	8447D	2944A10178	2018-01-11	2019-01-10
3	Active Loop Antenna	Beijing Dazhi	ZN30900A	0703	2017-10-17	2018-10-16
4	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	2018-04-06	2019-04-05
5	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	2017-09-12	2018-09-11
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2018-04-06	2019-04-05
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2018-04-06	2019-04-05
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	2018-04-06	2019-04-05
Harmonic/ Flicker						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Digital Power Analyzer	SCHAFFNER	CCN 1000-1	72625	2018-04-09	2019-04-08
2	Power Source	SCHAFFNER	NSG 1007	58477	2018-04-09	2019-04-08



Electrostatic Discharge						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Electrostatic Discharge Simulator	SCHLODER	SESD 216	606144	2017-11-14	2018-11-13
Radio-frequency electromagnetic fields						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Signal Generater	R&S	SMB100A	105942	2017-09-12	2018-09-11
2	RF Power Amplifier	BONN Elektronik	BLWA0830-160/100/40D	128740	2017-09-12	2018-09-11
3	RF Power Amplifier	NJNT	NTWPAS-2560025	2560025	2018-04-14	2019-04-13
4	Gestockte Breitband (S tacked) Log.-per.Antenna	SCHWARZBECK	STLP9128D	043	2017-09-12	2018-09-11
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2018-04-06	2019-04-05
6	Power Meter	R&S	NRP2	102031	2017-09-12	2018-09-11
Surge, EFT, Voltage dips and Interruption						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	All Modules Generator	SCHAFFNER	6150	34579	2017-09-22	2018-09-21
2	EMS Modules Generator	EMC PARTNER TRANSIENT	2000	494	2017-09-22	2018-09-21
3	Capacitive Coupling Clamp	SCHAFFNER	CDN 8014	25311	2017-09-22	2018-09-21
4	Signal and Data Line Coupling Network	SCHAFFNER	CDN 117	25627	2017-09-22	2018-09-21
Conducted Immunity						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	RF Generator	TESEQ	NSG4070	25781	2017-09-12	2018-09-11
2	CDN M-Type	TESEQ	CDN M016	25112	2017-09-12	2018-09-11
3	EM-Clamp	TESEQ	KEMZ 801	25453	2017-09-12	2018-09-11
4	Attenuator 6dB	TESEQ	ATN6050	25365	2017-09-12	2018-09-11



6.2 Description of Support Units

Equipment	Manufacturer	Model No.	Series No.
/	/	/	/
/	/	/	/

6.3 Measurement Uncertainty

Parameter	Uncertainty
Conduction disturbance(150kHz~30MHz)	$\pm 3.64\text{dB}$
Radiated Emission(30MHz~1GHz)	$\pm 4.53\text{dB}$
Radiated Emission(1GHz~6GHz)	$\pm 5.03\text{dB}$

6.4 Test Equipment Calibration

All the test equipments used are valid and calibrated by GUANG ZHOU GRG METROLOGY & TEST CO., LTD. Address is No.163, Pingyun Rd. West of Huangpu Ave, Tianhe District, Guangzhou, Guangdong, China.

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6.5 Test Modes

Conducted Emissions	
TM1*	communication mode
Radiated Emissions	
TM1*	communication mode
Harmonic/ Flicker	
TM1*	communication mode
Electrostatic Discharge (ESD)	
TM1*	communication mode
Radiated Immunity(R/S)	
TM1*	communication mode
Electrical Fast Transients (EFT)/ Surge Immunity/ Voltage Dips and Interruptions/Conducted Immunity(C/S)	
TM1*	communication mode
All test mode were tested and passed, only Conducted Emissions, Radiated Emissions shows the worst-case mode which were recorded in this report.	

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7 EMC Requirements for Emissions

7.1 Conducted Emissions

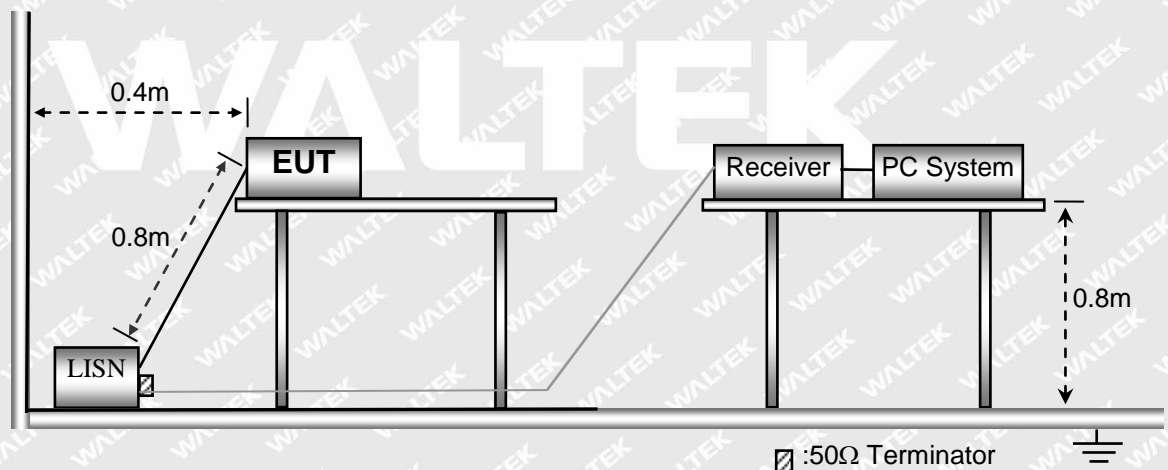
Test Method	: EN 301 489-1, EN 55032
Frequency Range	: 150kHz to 30MHz
Class/Severity	: Class B/ Table A.10 of EN 55032
Detector	: Peak for pre-scan (9kHz Resolution Bandwidth)

7.1.1 E.U.T. Operation

Operating Environment:	
Temperature	: 23.1°C
Humidity	: 52.6%RH
Atmospheric Pressure	: 101.2kPa
EUT Operation	: Refer to section 6.5.

7.1.2 Test Setup

The conducted emission tests were performed using the setup accordance with the EN 55032.



7.1.3 Measurement Description

An initial pre-scan was performed on the live and neutral lines.

No further quasi-peak or average measurements were performed since no peak emissions were detected within 10dB line below the average limit.

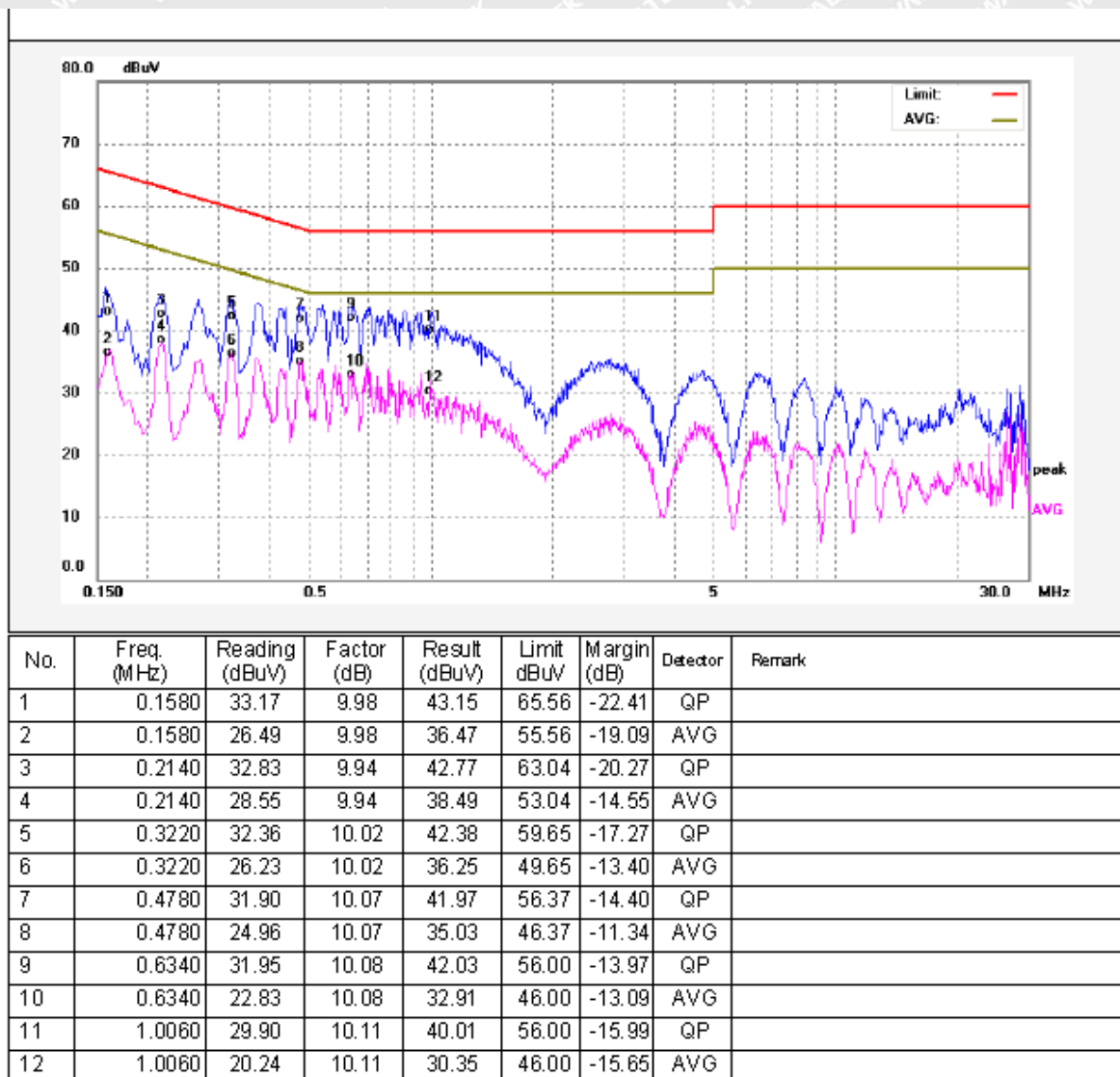
Please refer to the following peak scan graph for reference.



7.1.4 Test Results

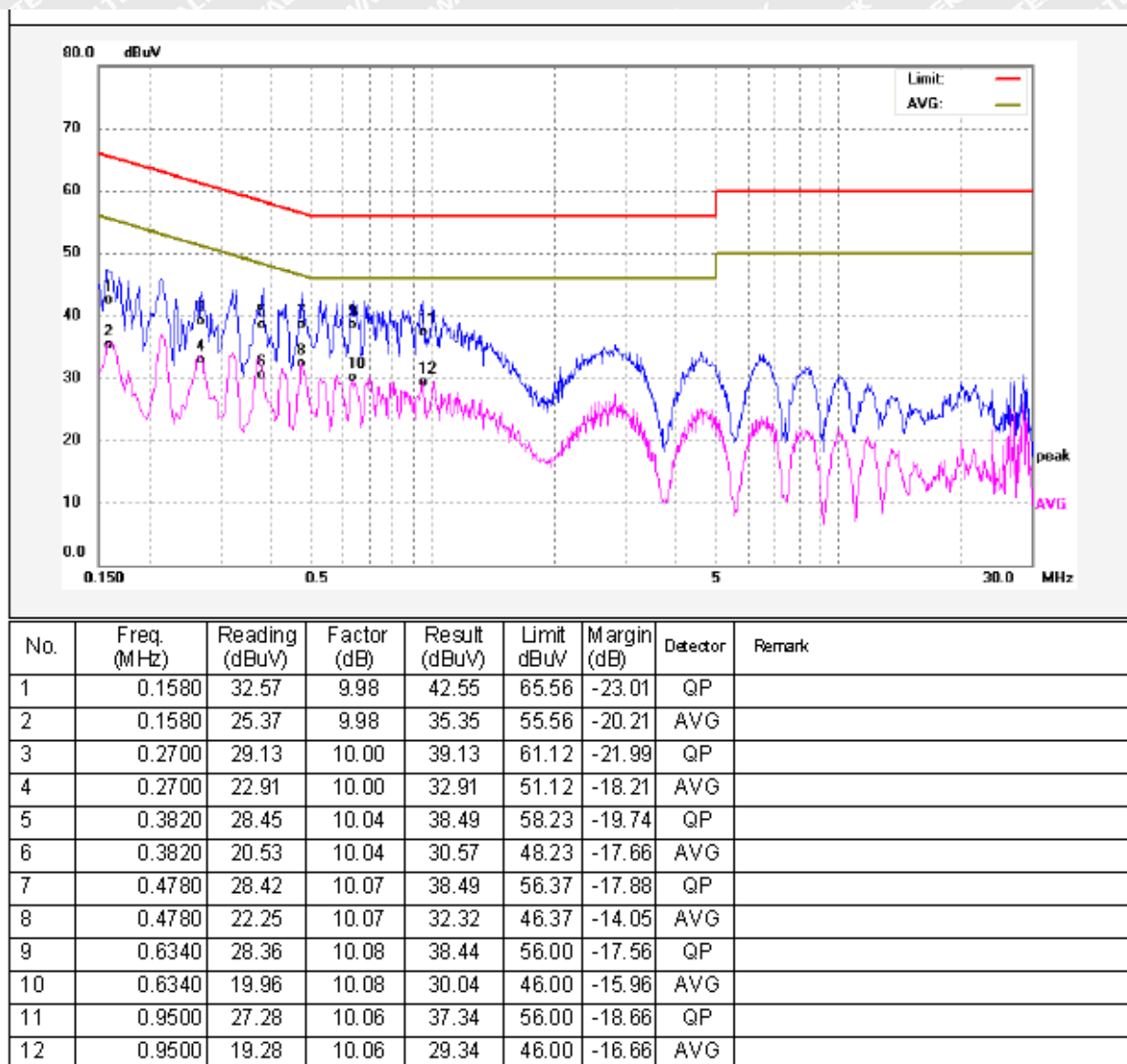
Model: ERC302

Live Line:





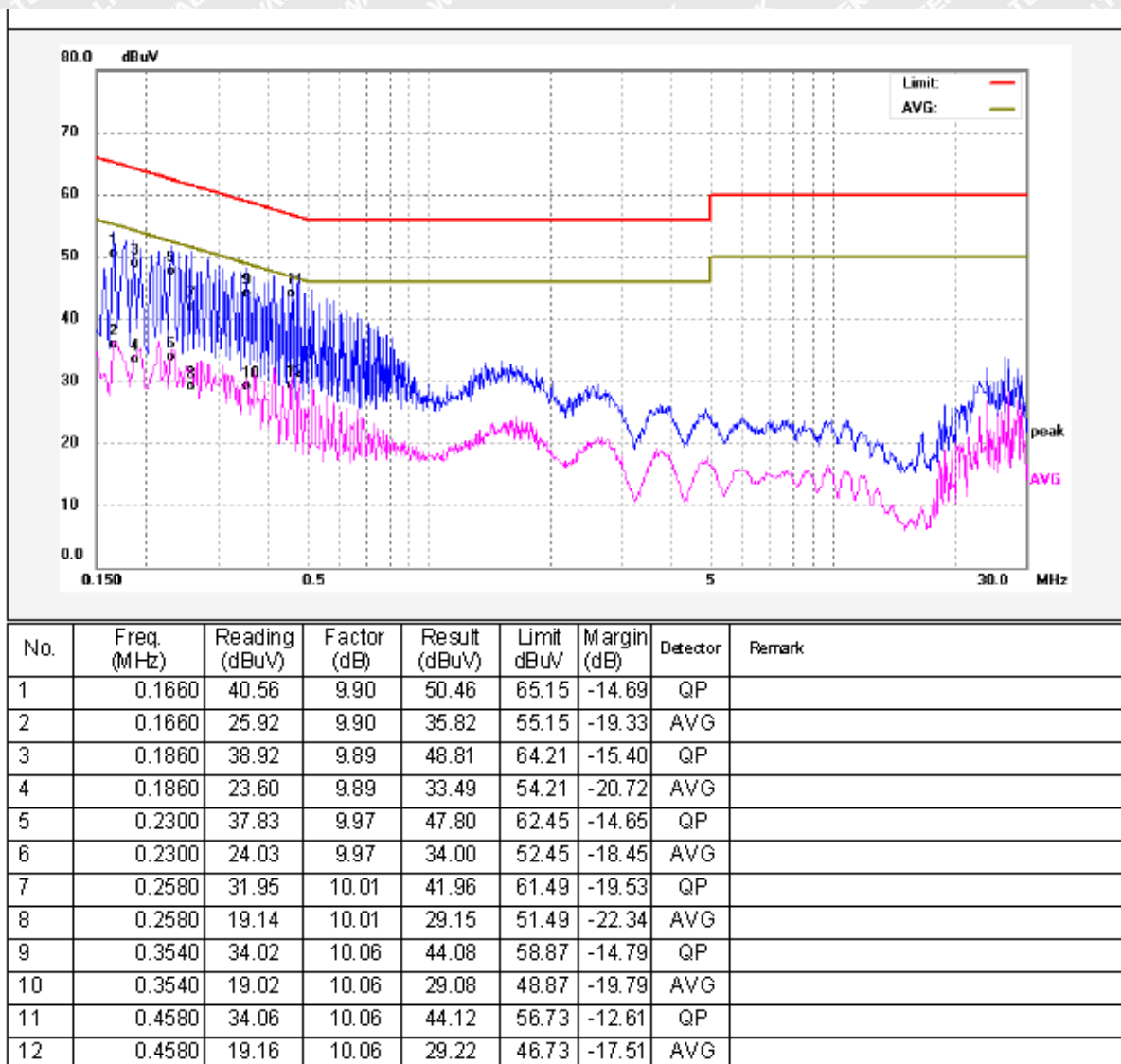
Neutral Line:





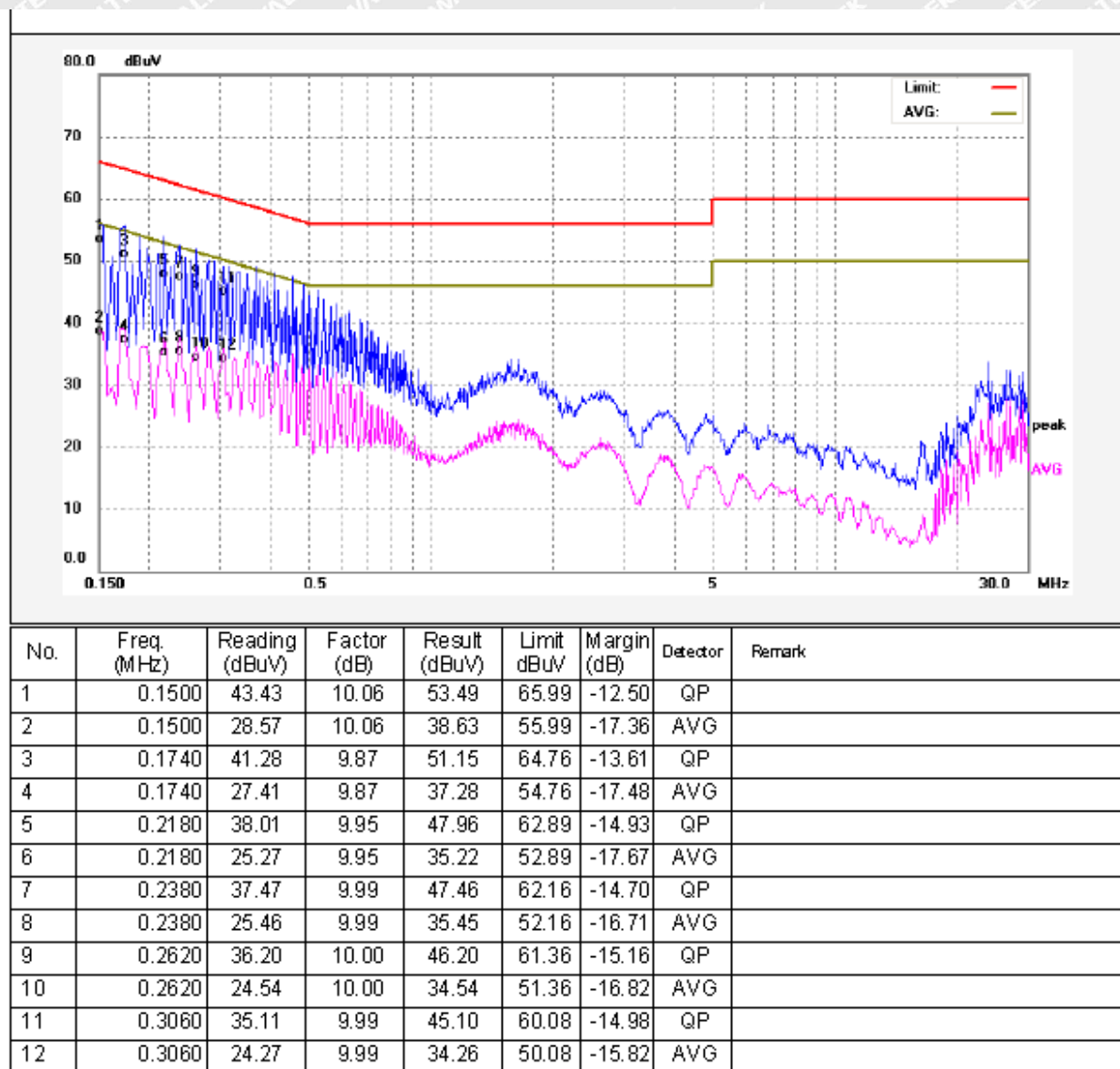
Model: ERC303

Live Line:



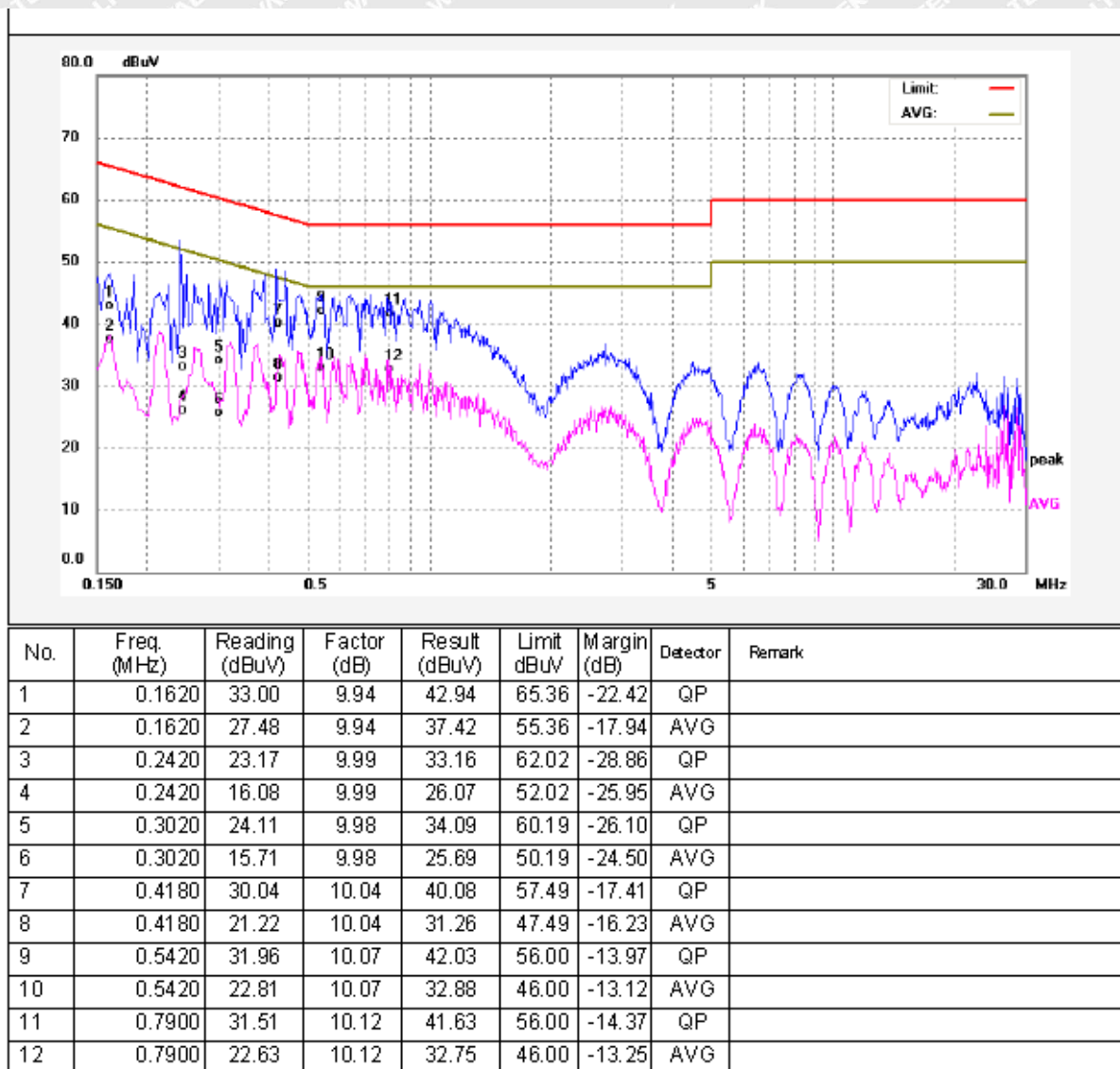


Neutral Line:



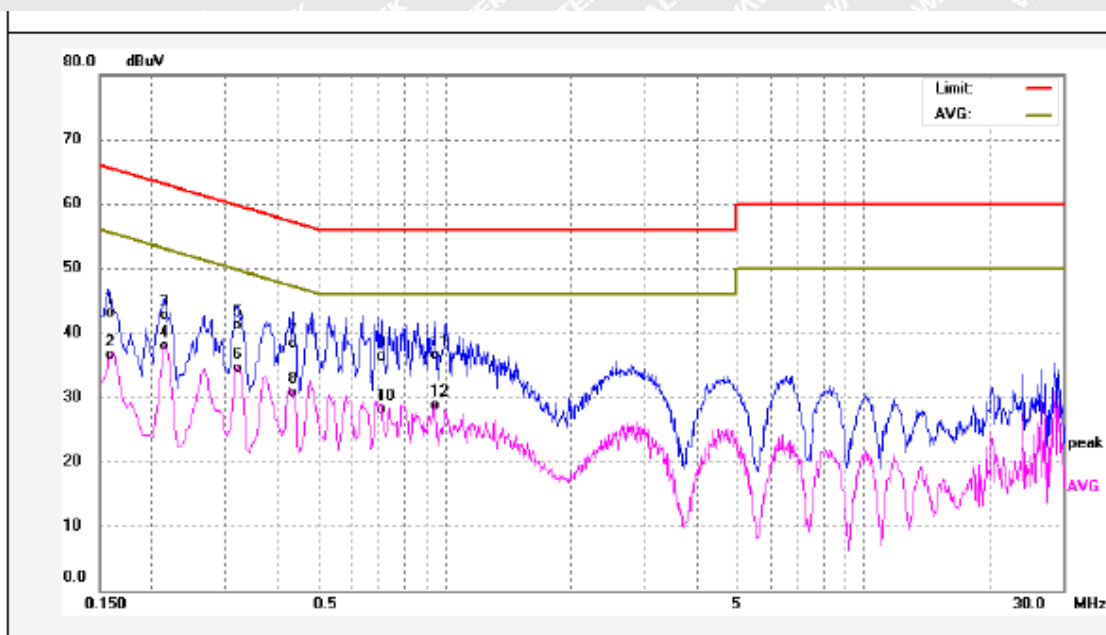


Model: ERC304
Live Line:





Neutral Line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1580	33.14	9.98	43.12	65.56	-22.44	QP	
2	0.1580	26.62	9.98	36.60	55.56	-18.96	AVG	
3	0.2140	32.71	9.94	42.65	63.04	-20.39	QP	
4	0.2140	28.01	9.94	37.95	53.04	-15.09	AVG	
5	0.3180	31.08	10.01	41.09	59.76	-18.67	QP	
6	0.3180	24.51	10.01	34.52	49.76	-15.24	AVG	
7	0.4340	28.16	10.05	38.21	57.18	-18.97	QP	
8	0.4340	20.74	10.05	30.79	47.18	-16.39	AVG	
9	0.7060	26.12	10.11	36.23	56.00	-19.77	QP	
10	0.7060	17.97	10.11	28.08	46.00	-17.92	AVG	
11	0.9500	26.43	10.06	36.49	56.00	-19.51	QP	
12	0.9500	18.58	10.06	28.64	46.00	-17.36	AVG	



7.2 Radiated Emissions

Test Method	: EN 301 489-1, EN 55032
Frequency Range	: 30MHz to 1GHz, 1GHz to 6GHz
Class/Severity	: Class B/ Table A.4 of EN 55032 (30MHz to 1GHz) Class B/ A.5 of EN 55032 (1GHz to 6GHz)
Detector	: Peak for pre-scan (120kHz Resolution Bandwidth Below 1GHz; 1MHz Resolution Bandwidth Above 1GHz)

7.2.1 EUT Operation:

Operating Environment :

Temperature : 22.5°C

Humidity : 52.1 % RH

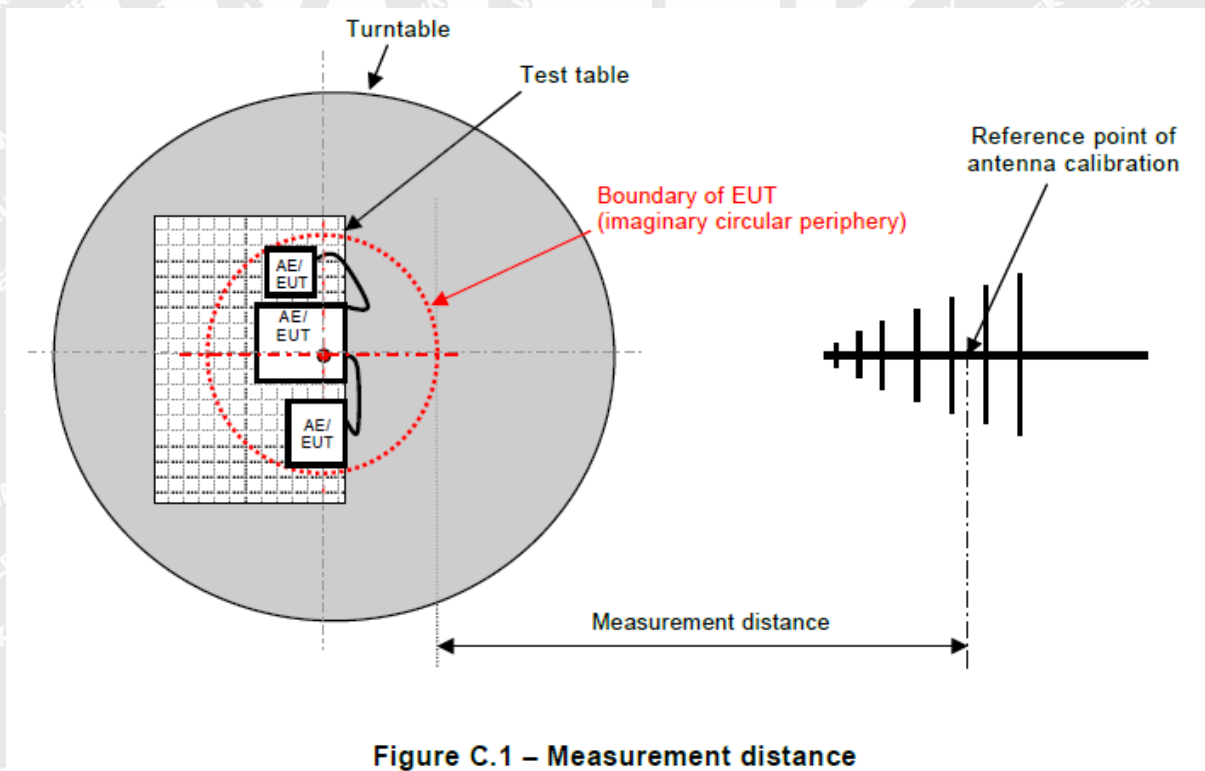
Atmospheric Pressure : 101.2kPa

EUT Operation : Refer to section 6.5.

7.2.2 Test Setup

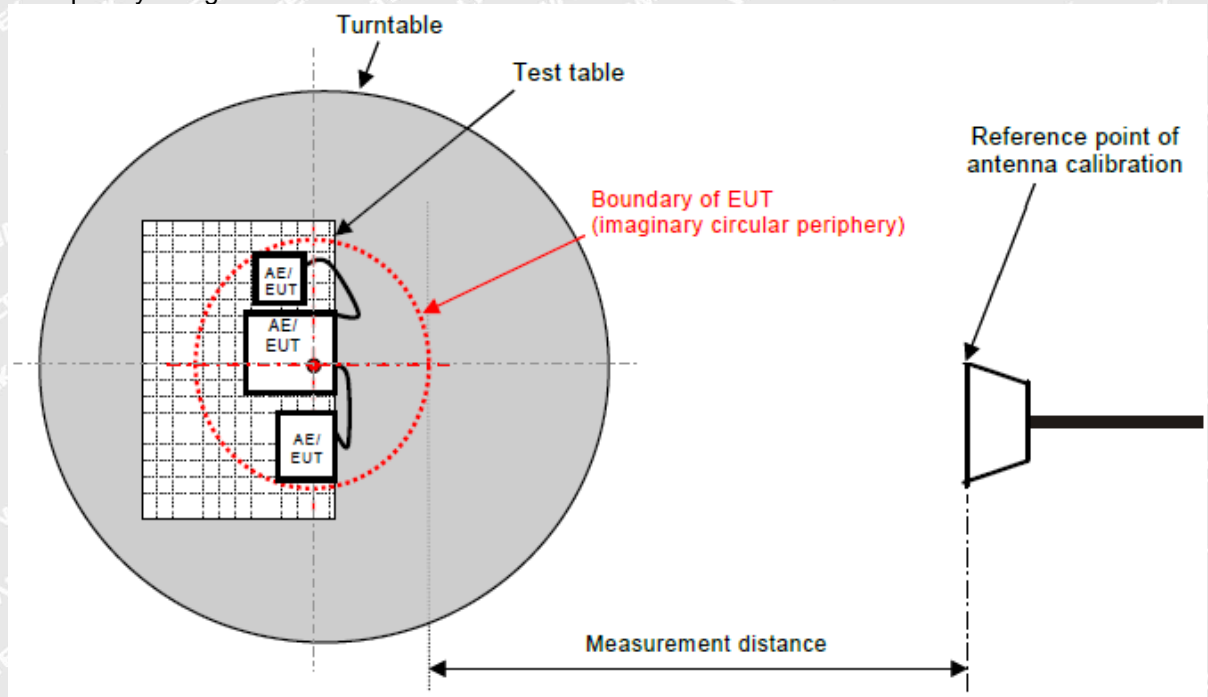
The radiated emission tests were performed using the setup accordance with the EN 55032.

Frequency Range: Below 1 GHz





Frequency Range: Above 1 GHz



7.2.3 Corrected Amplitude & Margin Calculation

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

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

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

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

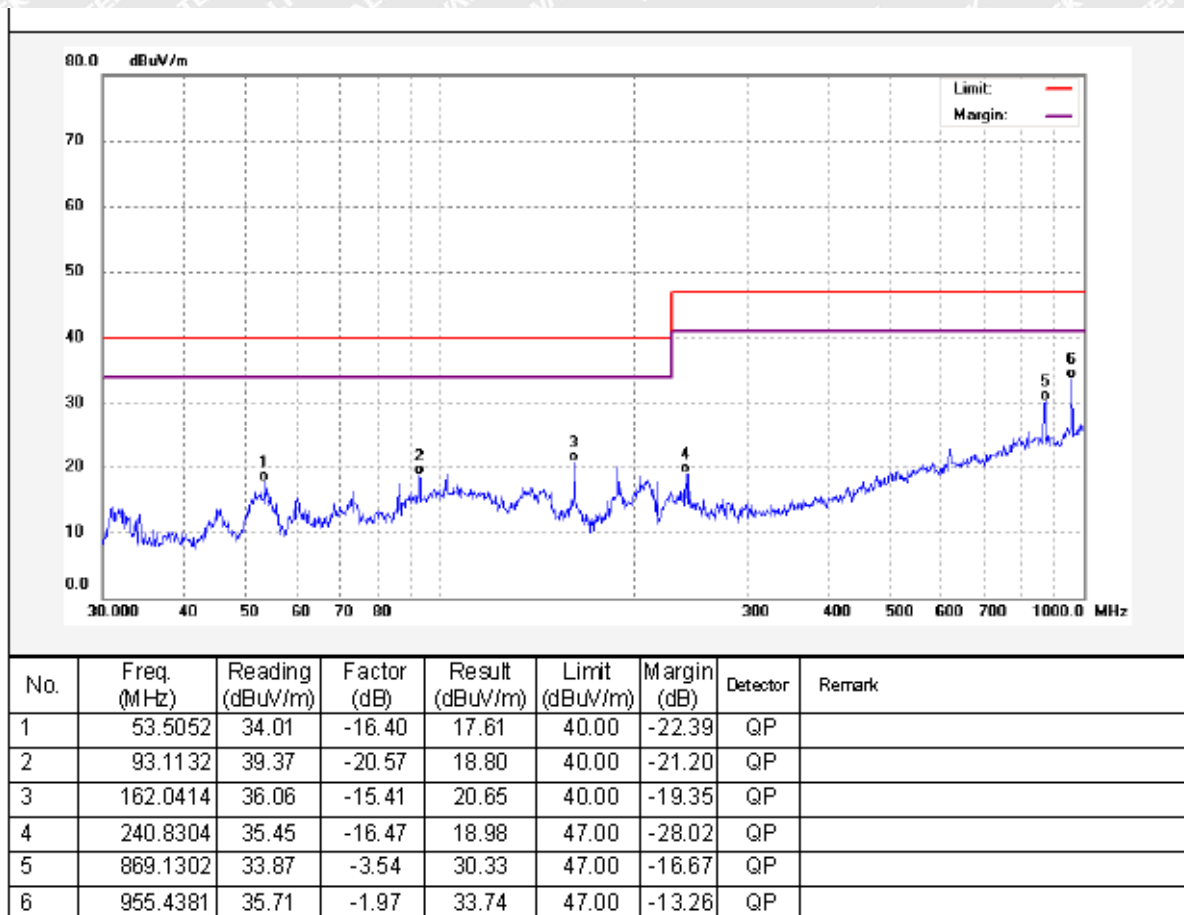


7.2.4 Test Result

Frequency Range: 30MHz ~ 1000MHz

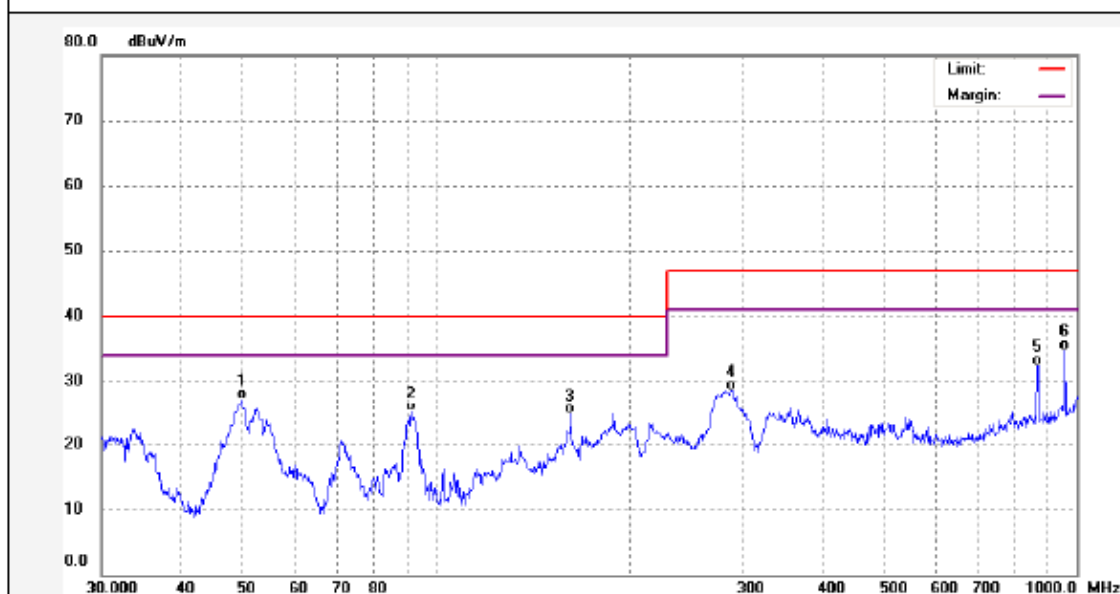
Model: ERC302

Antenna Polarization: Horizontal





Antenna Polarization: Vertical

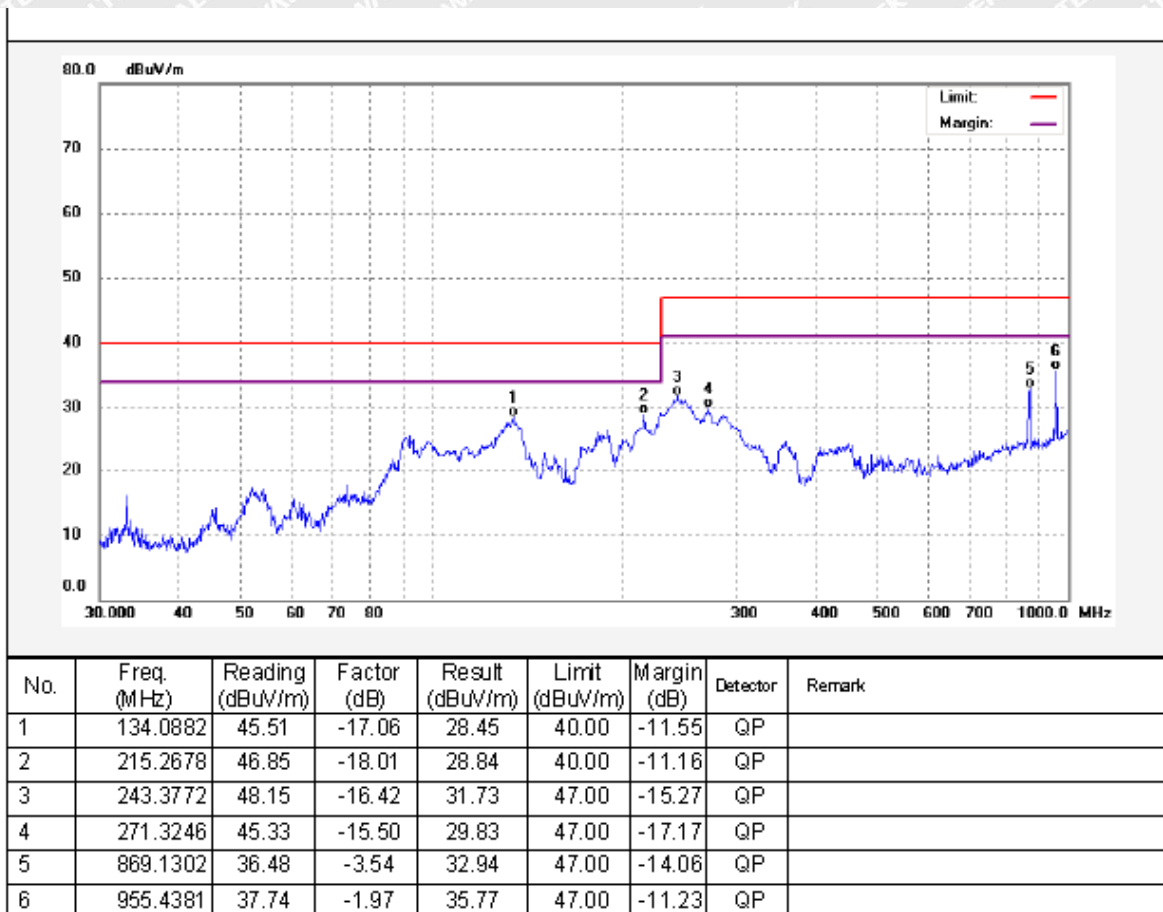


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	49.7068	43.32	-16.31	27.01	40.00	-12.99	QP	
2	91.4949	45.89	-20.87	25.02	40.00	-14.98	QP	
3	162.0414	40.13	-15.41	24.72	40.00	-15.28	QP	
4	289.0021	43.40	-14.84	28.56	47.00	-18.44	QP	
5	866.0879	35.82	-3.55	32.27	47.00	-14.73	QP	
6	955.4381	36.58	-1.97	34.61	47.00	-12.39	QP	



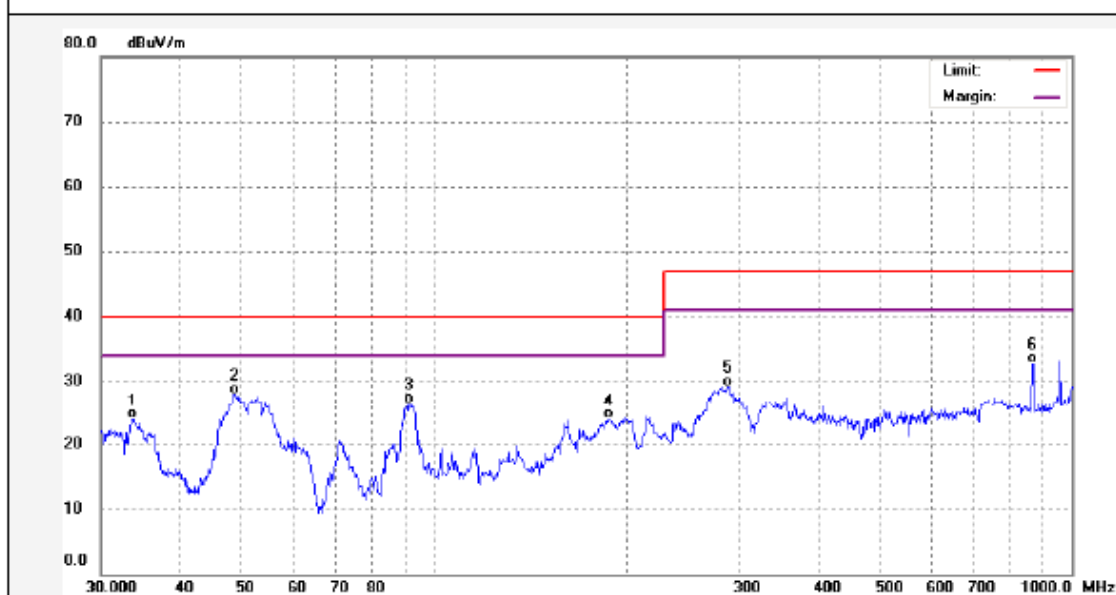
Model: ERC303

Antenna Polarization: Horizontal





Antenna Polarization: Vertical

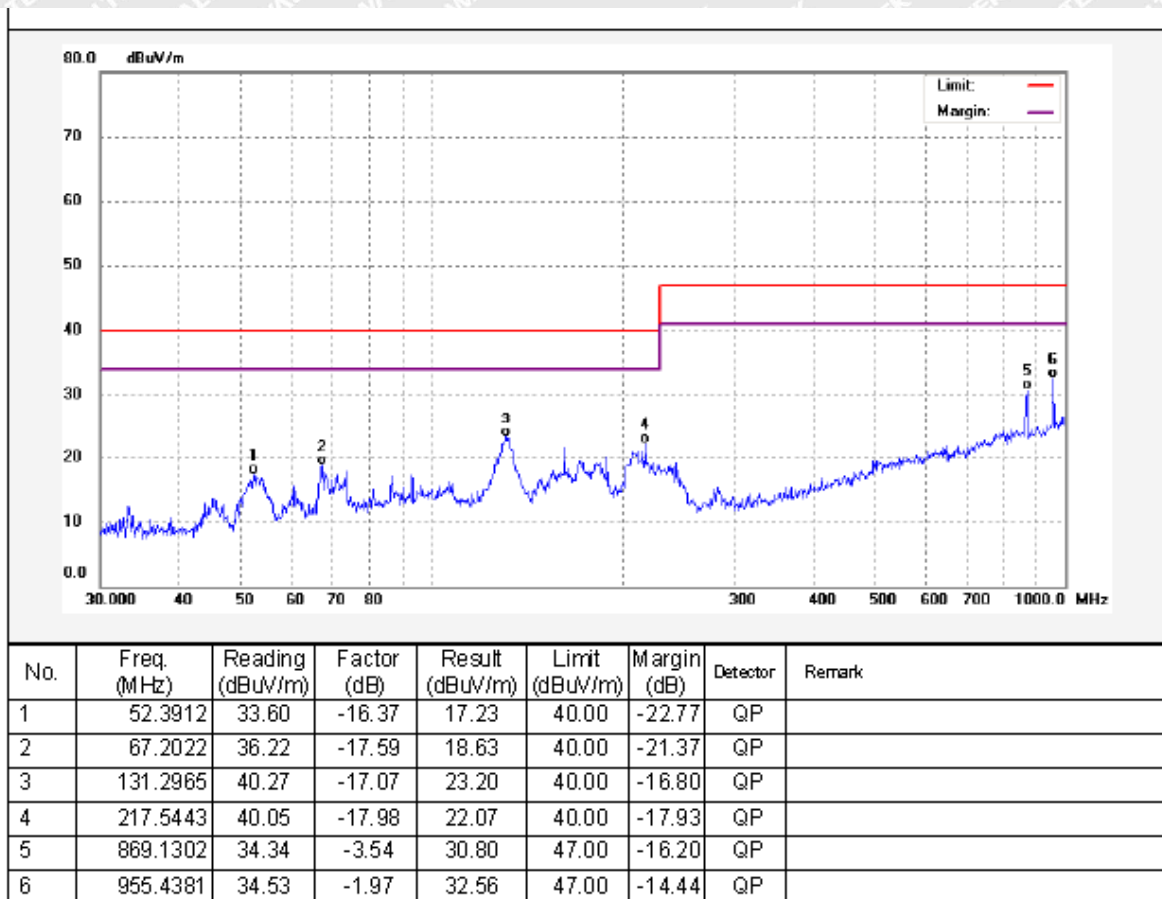


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	33.5624	41.64	-17.66	23.98	40.00	-16.02	QP	
2	48.6719	44.37	-16.42	27.95	40.00	-12.05	QP	
3	91.4949	47.39	-20.87	26.52	40.00	-13.48	QP	
4	187.7530	41.14	-17.14	24.00	40.00	-16.00	QP	
5	289.0021	43.91	-14.84	29.07	47.00	-17.93	QP	
6	866.0879	36.32	-3.55	32.77	47.00	-14.23	QP	



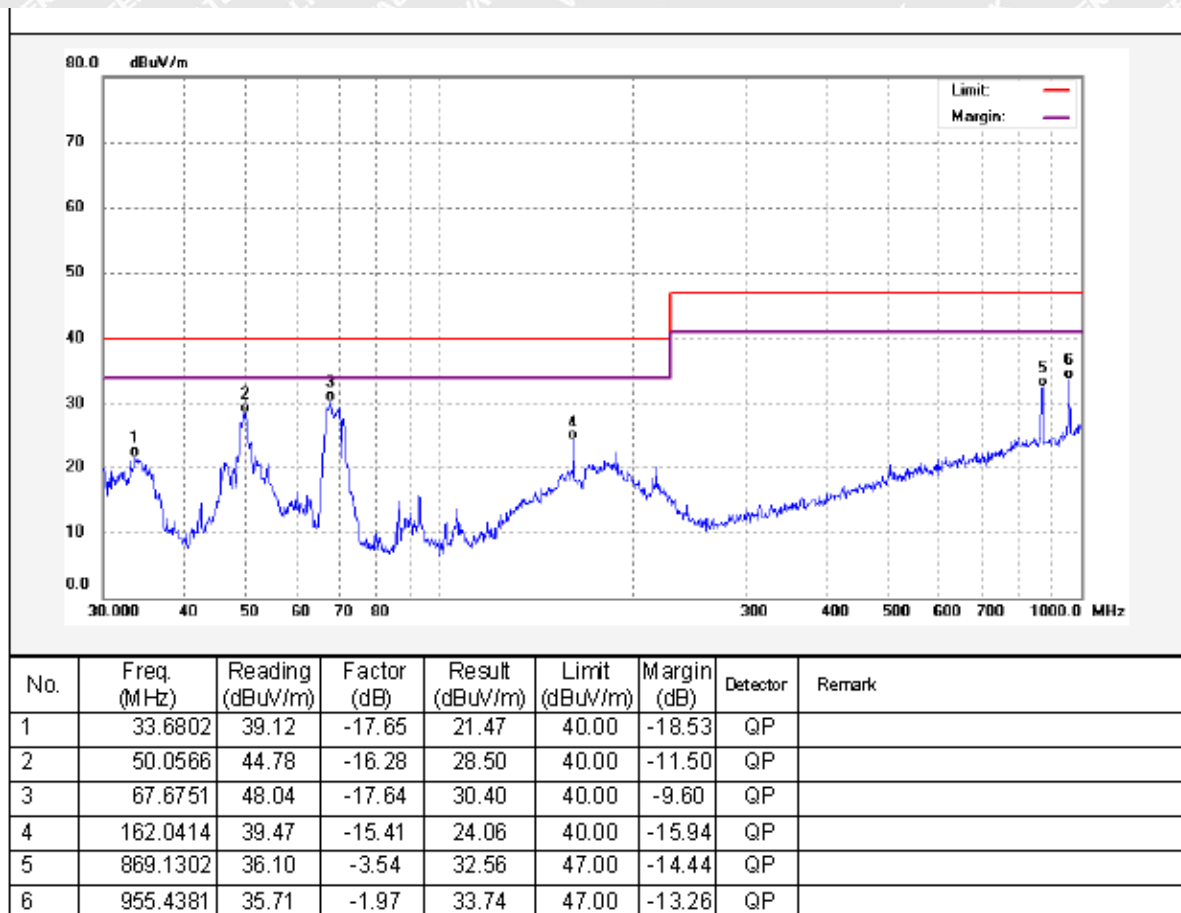
Model: ERC304

Antenna Polarization: Horizontal





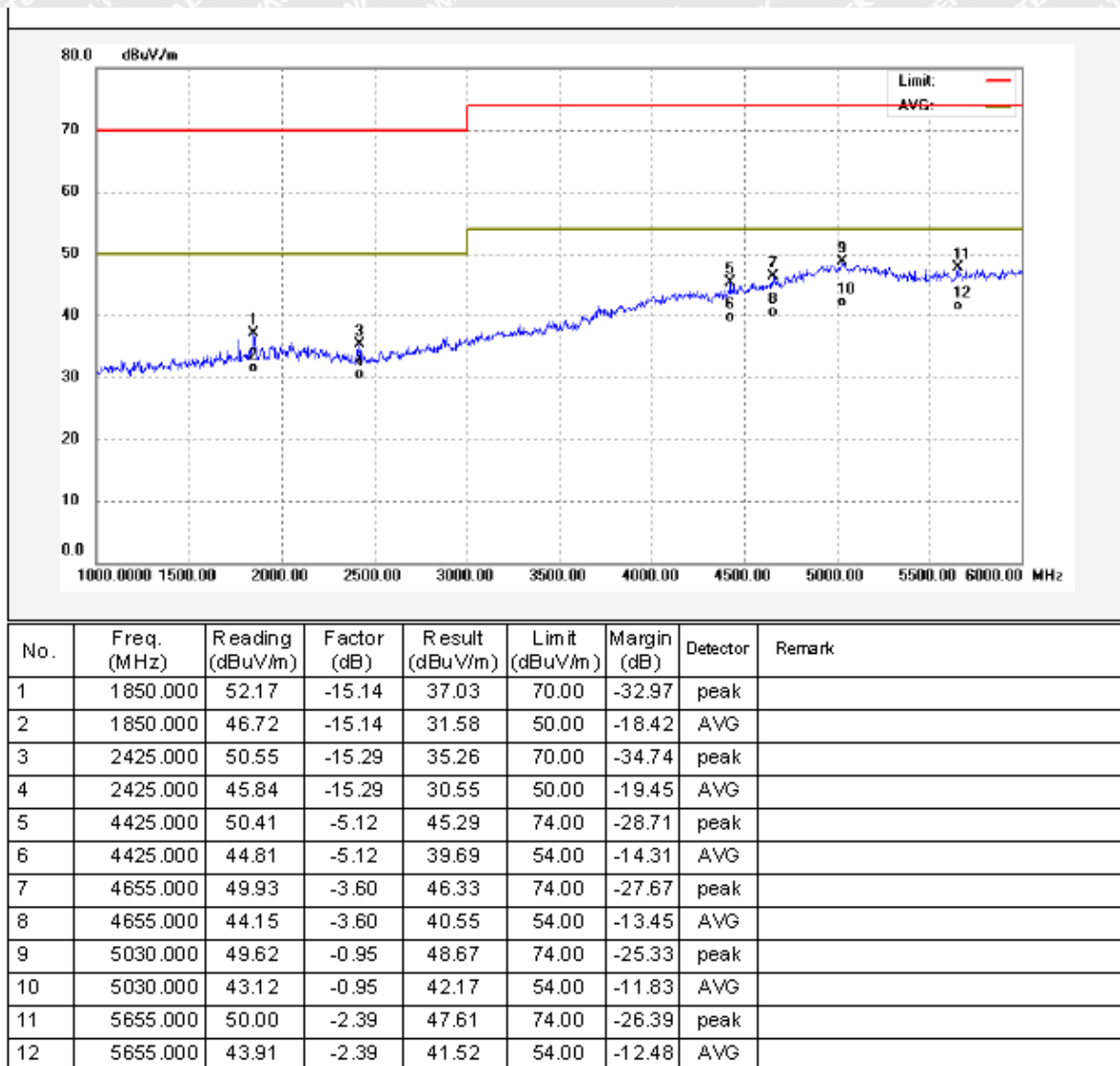
Antenna Polarization: Vertical



**Frequency Range: 1000MHz ~ 6000MHz**

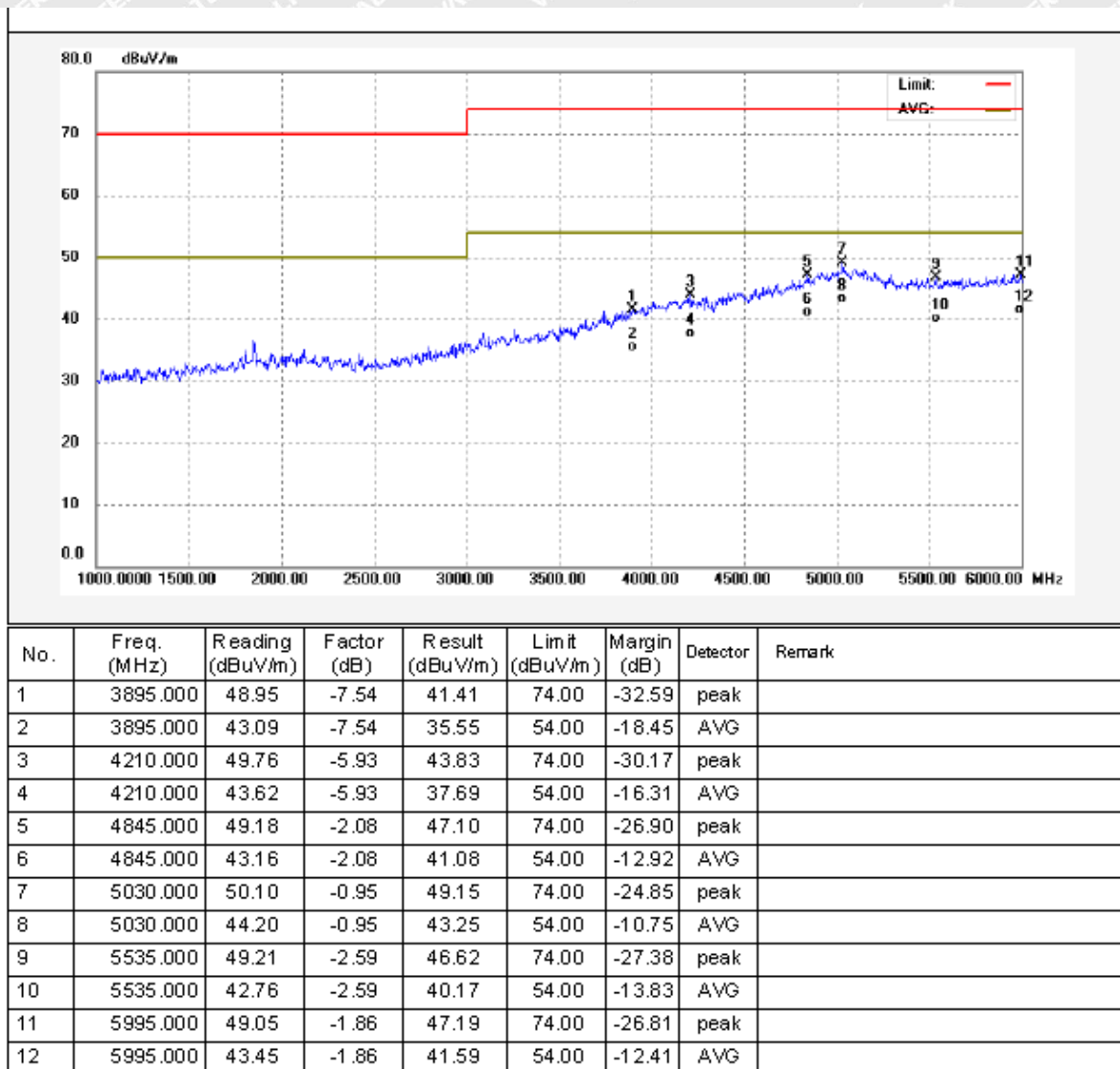
Model: ERC302

Antenna Polarization: Horizontal





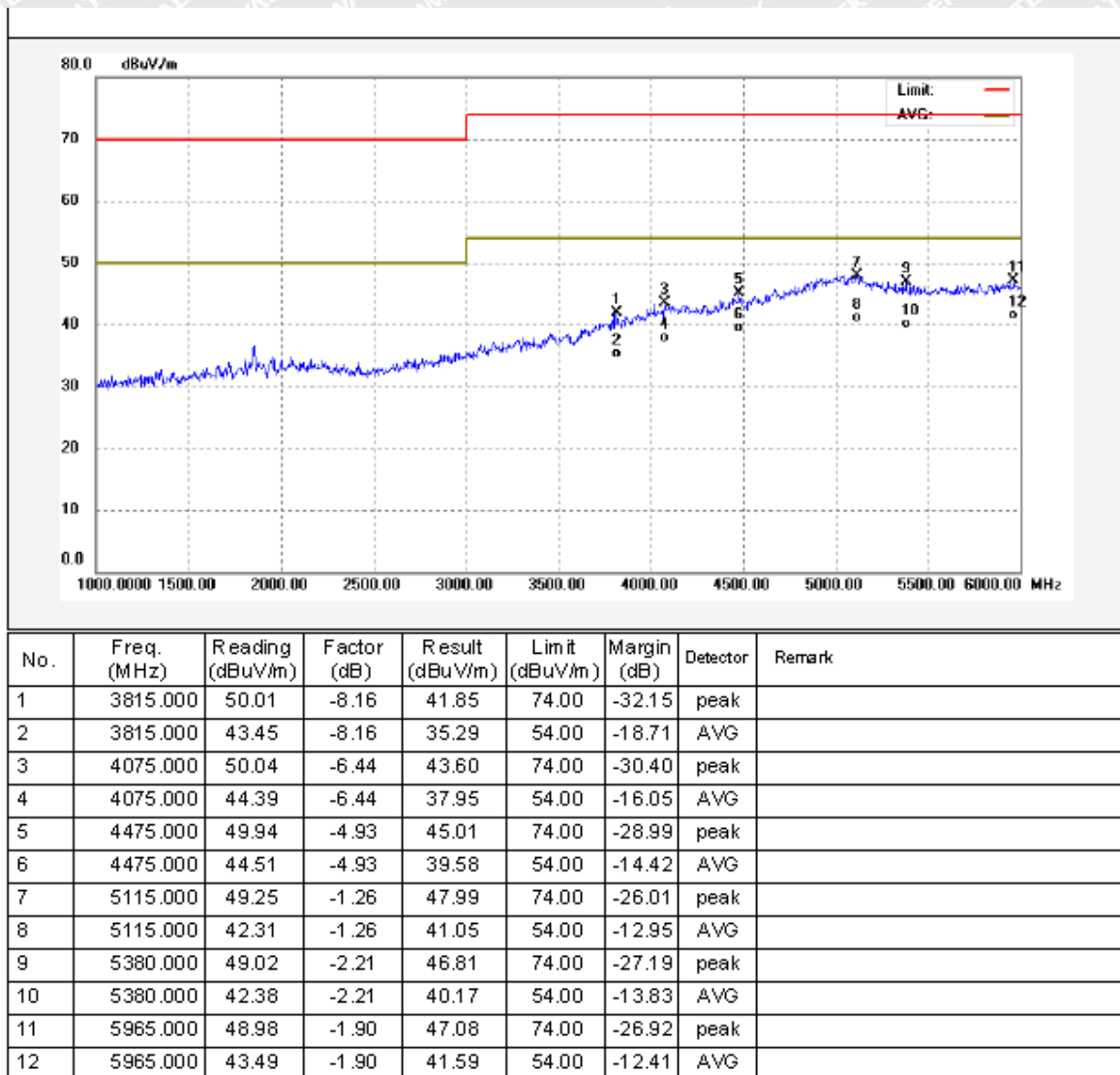
Antenna Polarization: Vertical





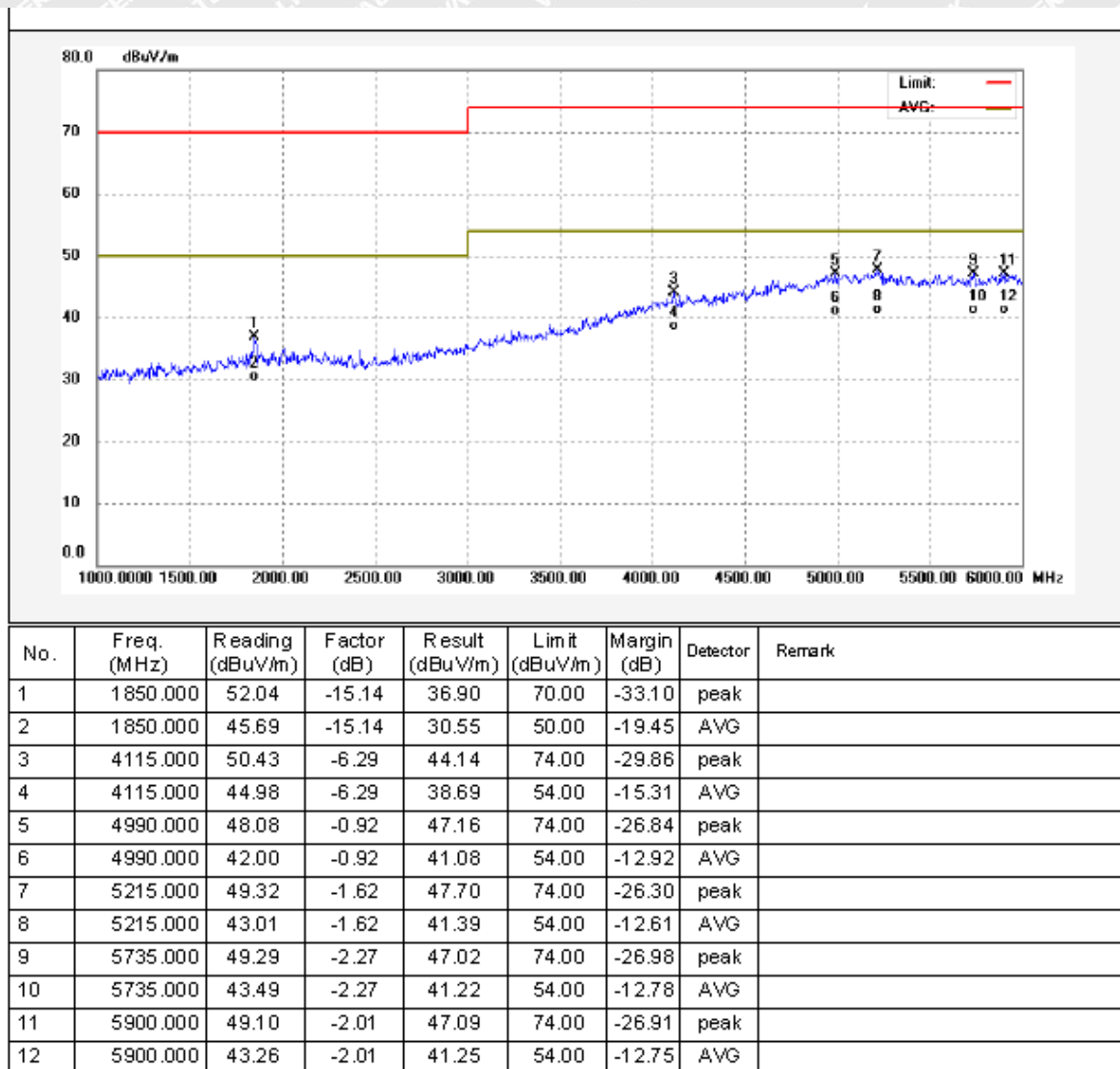
Model: ERC303

Antenna Polarization: Horizontal





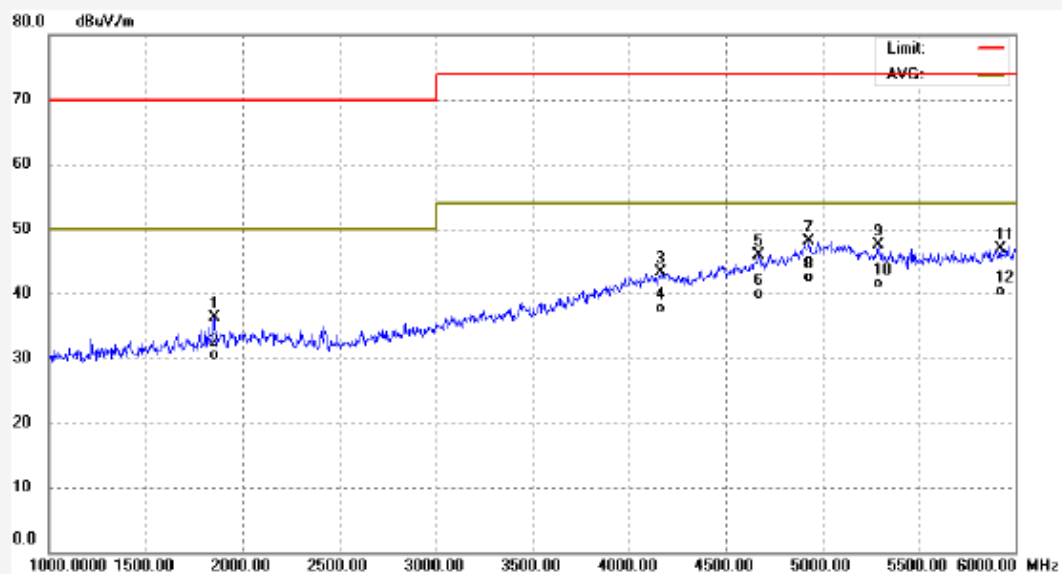
Antenna Polarization: Vertical





Model: ERC304

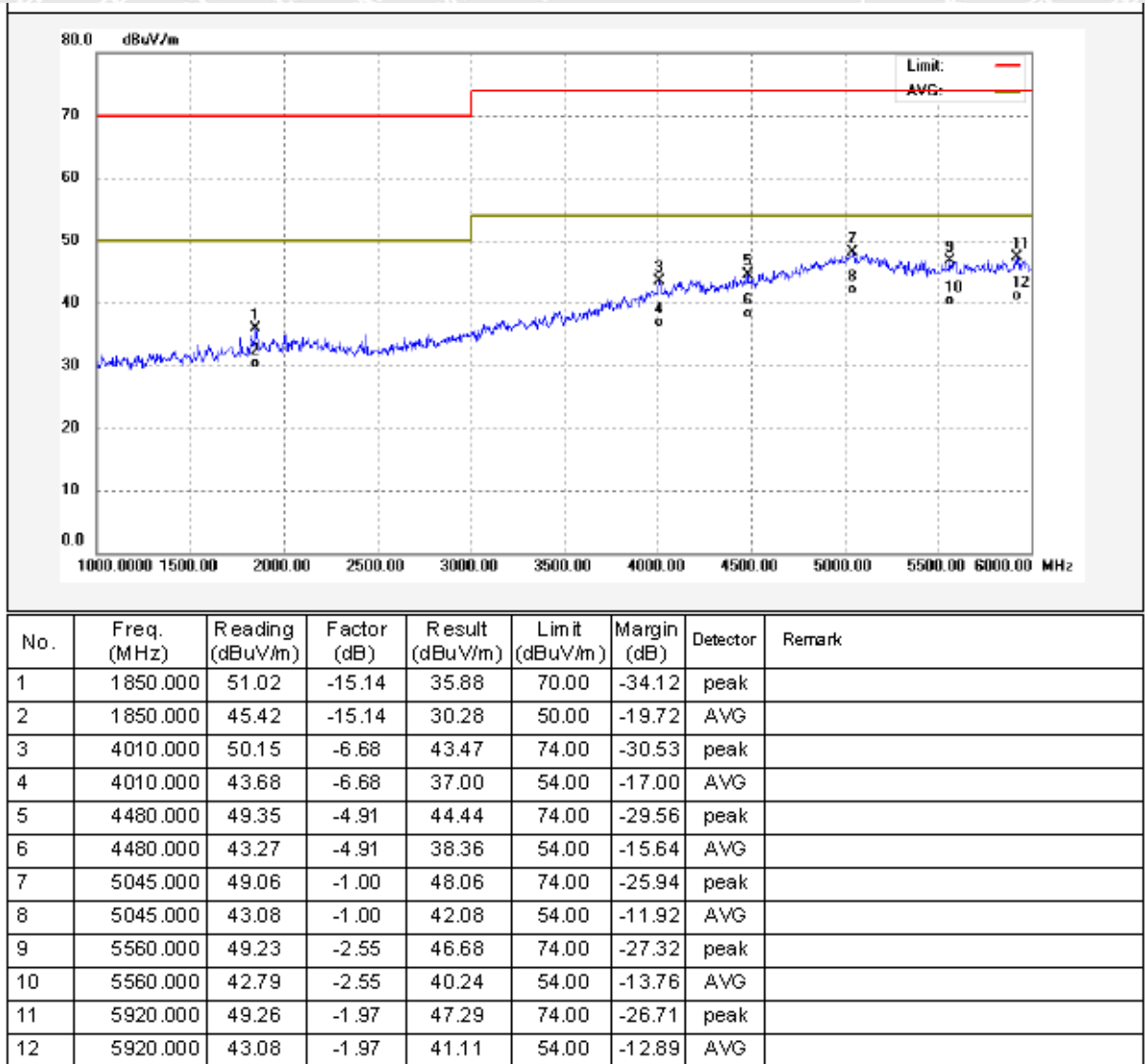
Antenna Polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1855.000	51.50	-15.11	36.39	70.00	-33.61	peak	
2	1855.000	45.63	-15.11	30.52	50.00	-19.48	AVG	
3	4165.000	49.37	-6.10	43.27	74.00	-30.73	peak	
4	4165.000	43.79	-6.10	37.69	54.00	-16.31	AVG	
5	4670.000	49.39	-3.48	45.91	74.00	-28.09	peak	
6	4670.000	43.33	-3.48	39.85	54.00	-14.15	AVG	
7	4930.000	49.56	-1.39	48.17	74.00	-25.83	peak	
8	4930.000	43.98	-1.39	42.59	54.00	-11.41	AVG	
9	5290.000	49.48	-1.89	47.59	74.00	-26.41	peak	
10	5290.000	43.33	-1.89	41.44	54.00	-12.56	AVG	
11	5920.000	48.89	-1.97	46.92	74.00	-27.08	peak	
12	5920.000	42.26	-1.97	40.29	54.00	-13.71	AVG	



Antenna Polarization: Vertical





7.3 Harmonic Current Emissions

Test Method : EN 301 489-1, EN 61000-3-2
Test Result : PASS

7.3.1 E.U.T. Operation

Operating Environment:

Temperature : 25°C

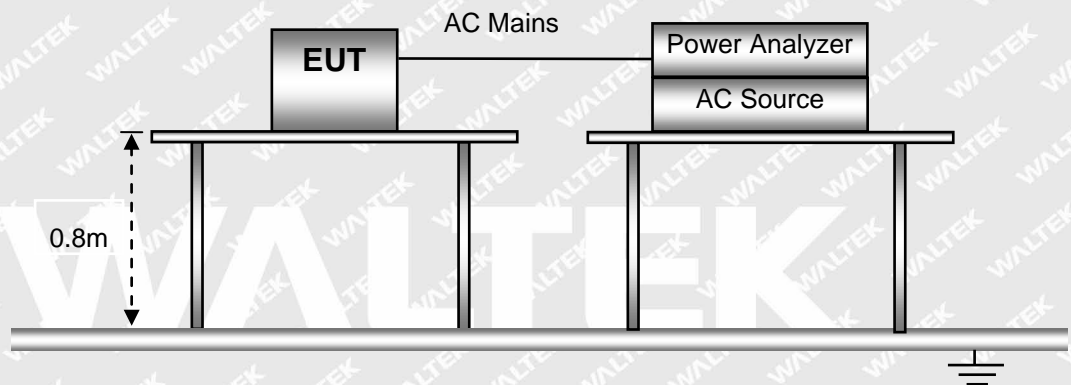
Humidity : 52.6%RH

Atmospheric Pressure : 101.4kPa

EUT Operation : Refer to section 6.5.

7.3.2 Block Diagram of Setup

The Harmonics Current emission test was performed in accordance with EN 61000-4-7.





7.3.3 Test Data

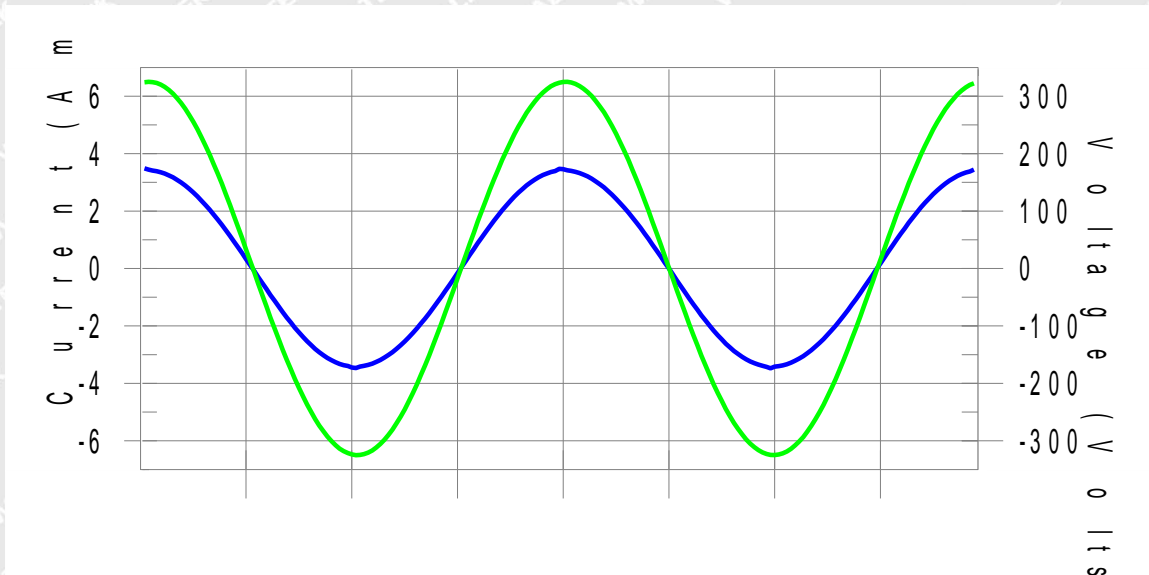
Model: ERC302

Harmonics – Class-A per Ed. 4.0 (2014)(Run time)

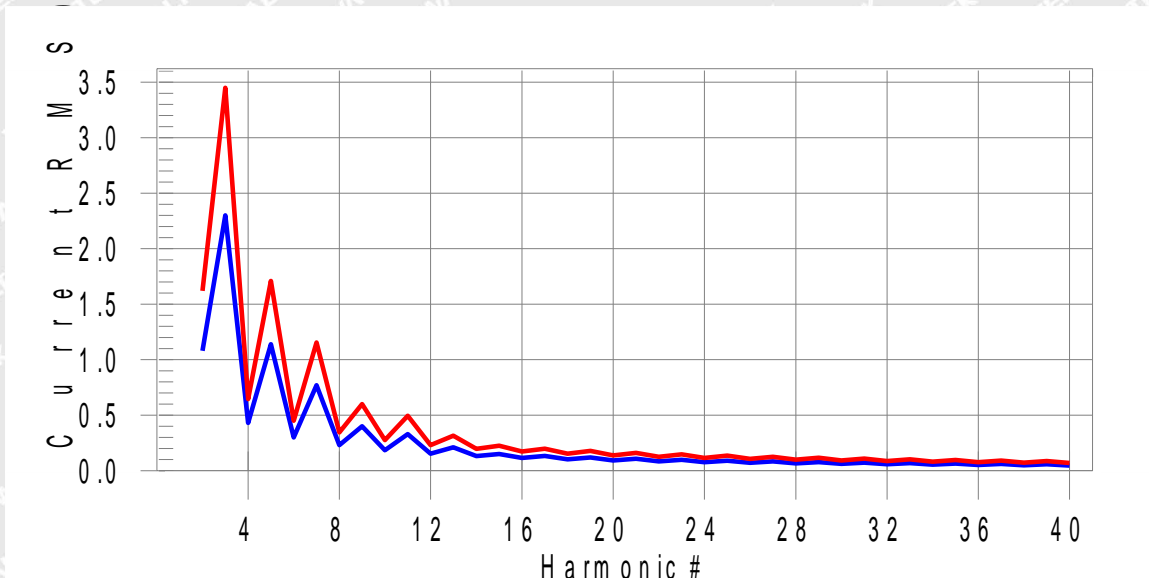
Test category: Class-A per Ed. 4.0 (2014) (European limits) Test Margin: 100
Test date: 2018/6/4 Start time: 18:51:27 End time: 18:54:08
Test duration (min): 2.5 Data file name: H-000467.cts_data

Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line European Limits



Test result: Pass Worst harmonics H0-0.0% of 150% limit, H0-0% of 100% limit



Current Test Result Summary (Run time)

Test category: Class-A per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 2018/6/4 Start time: 18:51:27 End time: 18:54:08
 Test duration (min): 2.5 Data file name: H-000467.cts_data

Test Result: Pass Source qualification: Normal
 THC(A): 0.013 I-THD(%): 0.5 POHC(A): 0.004 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts): 229.97 Frequency(Hz): 50.00
 I_Peak (Amps): 3.504 I_RMS (Amps): 2.424
 I_Fund (Amps): 2.423 Crest Factor: 1.447
 Power (Watts): 557.2 Power Factor: 1.000

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	0.010	2.300	N/A 0.011	3.450	N/A	Pass	
4	0.001	0.430	N/A 0.001	0.645	N/A	Pass	
5	0.003	1.140	N/A 0.003	1.710	N/A	Pass	
6	0.000	0.300	N/A 0.000	0.450	N/A	Pass	
7	0.002	0.770	N/A 0.003	1.155	N/A	Pass	
8	0.000	0.230	N/A 0.001	0.345	N/A	Pass	
9	0.003	0.400	N/A 0.003	0.600	N/A	Pass	
10	0.000	0.184	N/A 0.001	0.276	N/A	Pass	
11	0.002	0.330	N/A 0.003	0.495	N/A	Pass	
12	0.001	0.153	N/A 0.001	0.230	N/A	Pass	
13	0.002	0.210	N/A 0.002	0.315	N/A	Pass	
14	0.001	0.131	N/A 0.001	0.197	N/A	Pass	
15	0.002	0.150	N/A 0.002	0.225	N/A	Pass	
16	0.000	0.115	N/A 0.001	0.173	N/A	Pass	
17	0.002	0.132	N/A 0.002	0.198	N/A	Pass	
18	0.001	0.102	N/A 0.001	0.153	N/A	Pass	
19	0.002	0.118	N/A 0.002	0.178	N/A	Pass	
20	0.001	0.092	N/A 0.001	0.138	N/A	Pass	
21	0.002	0.107	N/A 0.002	0.161	N/A	Pass	
22	0.000	0.084	N/A 0.001	0.125	N/A	Pass	
23	0.002	0.098	N/A 0.002	0.147	N/A	Pass	
24	0.000	0.077	N/A 0.001	0.115	N/A	Pass	
25	0.002	0.090	N/A 0.002	0.135	N/A	Pass	
26	0.000	0.071	N/A 0.001	0.107	N/A	Pass	
27	0.002	0.083	N/A 0.002	0.125	N/A	Pass	
28	0.000	0.066	N/A 0.001	0.099	N/A	Pass	
29	0.001	0.078	N/A 0.001	0.116	N/A	Pass	
30	0.000	0.061	N/A 0.001	0.092	N/A	Pass	
31	0.001	0.073	N/A 0.001	0.109	N/A	Pass	
32	0.000	0.058	N/A 0.001	0.086	N/A	Pass	
33	0.001	0.068	N/A 0.001	0.102	N/A	Pass	
34	0.000	0.054	N/A 0.000	0.081	N/A	Pass	
35	0.001	0.064	N/A 0.001	0.096	N/A	Pass	
36	0.000	0.051	N/A 0.000	0.077	N/A	Pass	
37	0.001	0.061	N/A 0.001	0.091	N/A	Pass	
38	0.000	0.048	N/A 0.000	0.073	N/A	Pass	
39	0.001	0.058	N/A 0.001	0.087	N/A	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 per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 2018/6/4 Start time: 18:51:27 End time: 18:54:08
 Test duration (min): 2.5 Data file name: H-000467.cts_data

Test Result: Pass Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	229.97	Frequency(Hz):	50.00
I_Peak (Amps):	3.504	I_RMS (Amps):	2.424
I_Fund (Amps):	2.423	Crest Factor:	1.447
Power (Watts):	557.2	Power Factor:	1.000

Harm#	Harmonics		V-rms	Limit	V-rms	% of Limit	Status
2	0.071	0.460	15.41	OK			
3	0.461	2.069	22.30	OK			
4	0.059	0.460	12.84	OK			
5	0.046	0.920	4.96	OK			
6	0.027	0.460	5.98	OK			
7	0.030	0.690	4.39	OK			
8	0.010	0.460	2.18	OK			
9	0.030	0.460	6.56	OK			
10	0.009	0.460	1.89	OK			
11	0.009	0.230	3.98	OK			
12	0.012	0.230	5.17	OK			
13	0.007	0.230	3.01	OK			
14	0.007	0.230	2.96	OK			
15	0.008	0.230	3.37	OK			
16	0.009	0.230	3.85	OK			
17	0.005	0.230	2.20	OK			
18	0.009	0.230	4.00	OK			
19	0.011	0.230	4.97	OK			
20	0.018	0.230	7.95	OK			
21	0.011	0.230	4.64	OK			
22	0.003	0.230	1.27	OK			
23	0.003	0.230	1.51	OK			
24	0.003	0.230	1.26	OK			
25	0.005	0.230	2.12	OK			
26	0.004	0.230	1.60	OK			
27	0.003	0.230	1.51	OK			
28	0.002	0.230	1.02	OK			
29	0.007	0.230	2.84	OK			
30	0.002	0.230	0.99	OK			
31	0.004	0.230	1.80	OK			
32	0.003	0.230	1.22	OK			
33	0.004	0.230	1.66	OK			
34	0.002	0.230	1.02	OK			
35	0.004	0.230	1.68	OK			
36	0.002	0.230	0.73	OK			
37	0.005	0.230	2.21	OK			
38	0.003	0.230	1.19	OK			
39	0.006	0.230	2.70	OK			
40	0.011	0.230	4.80	OK			



Model: ERC303

Harmonics – Class-A per Ed. 4.0 (2014)(Run time)

Test category: Class-A per Ed. 4.0 (2014) (European limits) Test Margin: 100

Test date: 2018/6/4

Start time: 19:21:04

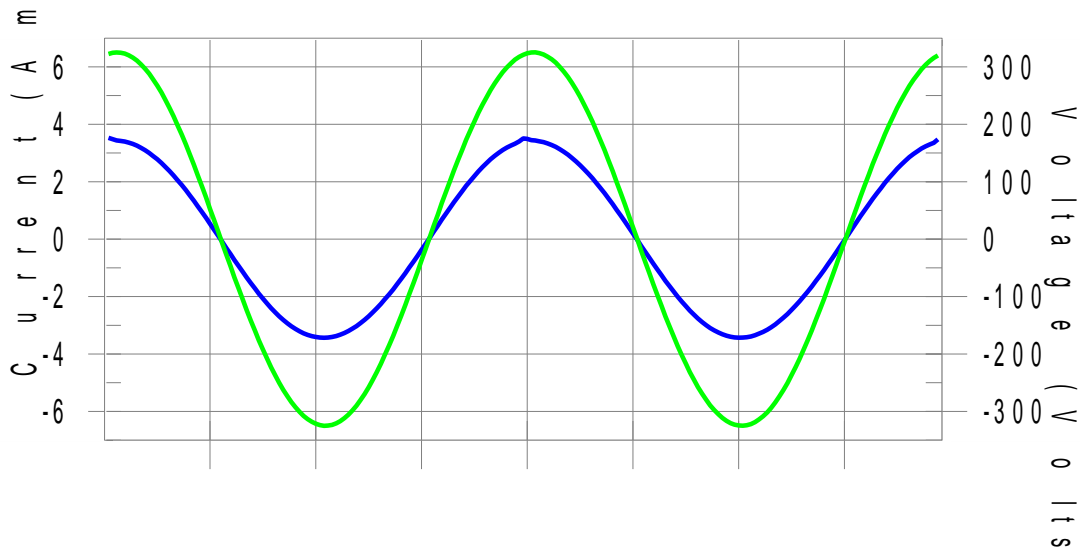
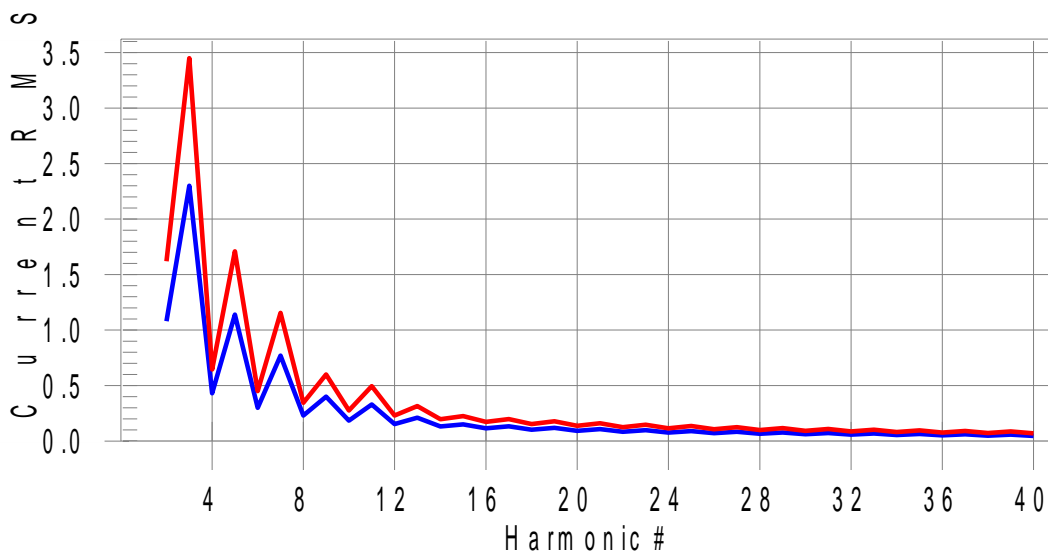
End time: 19:23:45

Test duration (min): 2.5

Data file name: H-000470.cts_data

Test Result: Pass

Source qualification: Normal

Current & voltage waveforms**Harmonics and Class A limit line European Limits****Test result: Pass Worst harmonics H0-0.0% of 150% limit, H0-0% of 100% limit**



Current Test Result Summary (Run time)

Test category: Class-A per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 2018/6/4 Start time: 19:21:04 End time: 19:23:45
 Test duration (min): 2.5 Data file name: H-000470.cts_data

Test Result: Pass Source qualification: Normal
 THC(A): 0.017 I-THD(%): 0.7 POHC(A): 0.004 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts): 229.97 Frequency(Hz): 50.00
 I_Peak (Amps): 3.547 I_RMS (Amps): 2.432
 I_Fund (Amps): 2.432 Crest Factor: 1.459
 Power (Watts): 559.2 Power Factor: 1.000

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.004	1.080	N/A 0.004	1.620	N/A	Pass	
3	0.011	2.300	N/A 0.011	3.450	N/A	Pass	
4	0.003	0.430	N/A 0.004	0.645	N/A	Pass	
5	0.003	1.140	N/A 0.004	1.710	N/A	Pass	
6	0.003	0.300	N/A 0.004	0.450	N/A	Pass	
7	0.003	0.770	N/A 0.003	1.155	N/A	Pass	
8	0.003	0.230	N/A 0.003	0.345	N/A	Pass	
9	0.003	0.400	N/A 0.003	0.600	N/A	Pass	
10	0.003	0.184	N/A 0.003	0.276	N/A	Pass	
11	0.003	0.330	N/A 0.003	0.495	N/A	Pass	
12	0.003	0.153	N/A 0.003	0.230	N/A	Pass	
13	0.003	0.210	N/A 0.003	0.315	N/A	Pass	
14	0.003	0.131	N/A 0.003	0.197	N/A	Pass	
15	0.003	0.150	N/A 0.003	0.225	N/A	Pass	
16	0.002	0.115	N/A 0.002	0.173	N/A	Pass	
17	0.002	0.132	N/A 0.002	0.198	N/A	Pass	
18	0.002	0.102	N/A 0.002	0.153	N/A	Pass	
19	0.002	0.118	N/A 0.002	0.178	N/A	Pass	
20	0.002	0.092	N/A 0.002	0.138	N/A	Pass	
21	0.002	0.107	N/A 0.002	0.161	N/A	Pass	
22	0.002	0.084	N/A 0.002	0.125	N/A	Pass	
23	0.002	0.098	N/A 0.002	0.147	N/A	Pass	
24	0.002	0.077	N/A 0.002	0.115	N/A	Pass	
25	0.001	0.090	N/A 0.001	0.135	N/A	Pass	
26	0.001	0.071	N/A 0.001	0.107	N/A	Pass	
27	0.001	0.083	N/A 0.001	0.125	N/A	Pass	
28	0.001	0.066	N/A 0.001	0.099	N/A	Pass	
29	0.001	0.078	N/A 0.001	0.116	N/A	Pass	
30	0.001	0.061	N/A 0.001	0.092	N/A	Pass	
31	0.001	0.073	N/A 0.001	0.109	N/A	Pass	
32	0.001	0.058	N/A 0.001	0.086	N/A	Pass	
33	0.001	0.068	N/A 0.001	0.102	N/A	Pass	
34	0.001	0.054	N/A 0.001	0.081	N/A	Pass	
35	0.001	0.064	N/A 0.001	0.096	N/A	Pass	
36	0.001	0.051	N/A 0.001	0.077	N/A	Pass	
37	0.001	0.061	N/A 0.001	0.091	N/A	Pass	
38	0.001	0.048	N/A 0.001	0.073	N/A	Pass	
39	0.001	0.058	N/A 0.001	0.087	N/A	Pass	
40	0.001	0.046	N/A 0.001	0.069	N/A	Pass	



Voltage Source Verification Data (Run time)

Test category: Class-A per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 2018/6/4 Start time: 19:21:04 End time: 19:23:45
 Test duration (min): 2.5 Data file name: H-000470.cts_data

Test Result: Pass Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	229.97	Frequency(Hz):	50.00
I_Peak (Amps):	3.547	I_RMS (Amps):	2.432
I_Fund (Amps):	2.432	Crest Factor:	1.459
Power (Watts):	559.2	Power Factor:	1.000

Harm#	Harmonics	V-rms	Limit	V-rms	% of Limit	Status
2	0.067	0.460	14.49	OK		
3	0.475	2.069	22.94	OK		
4	0.058	0.460	12.58	OK		
5	0.045	0.920	4.89	OK		
6	0.028	0.460	6.13	OK		
7	0.028	0.690	4.09	OK		
8	0.008	0.460	1.75	OK		
9	0.030	0.460	6.63	OK		
10	0.009	0.460	1.93	OK		
11	0.009	0.230	3.75	OK		
12	0.012	0.230	5.12	OK		
13	0.006	0.230	2.79	OK		
14	0.007	0.230	2.90	OK		
15	0.008	0.230	3.30	OK		
16	0.009	0.230	4.08	OK		
17	0.005	0.230	2.05	OK		
18	0.009	0.230	3.73	OK		
19	0.011	0.230	4.71	OK		
20	0.020	0.230	8.64	OK		
21	0.010	0.230	4.33	OK		
22	0.004	0.230	1.87	OK		
23	0.003	0.230	1.19	OK		
24	0.003	0.230	1.33	OK		
25	0.005	0.230	2.12	OK		
26	0.004	0.230	1.71	OK		
27	0.006	0.230	2.61	OK		
28	0.003	0.230	1.45	OK		
29	0.004	0.230	1.82	OK		
30	0.002	0.230	0.96	OK		
31	0.002	0.230	0.87	OK		
32	0.003	0.230	1.38	OK		
33	0.002	0.230	0.98	OK		
34	0.002	0.230	0.84	OK		
35	0.002	0.230	0.86	OK		
36	0.002	0.230	0.98	OK		
37	0.003	0.230	1.13	OK		
38	0.003	0.230	1.49	OK		
39	0.005	0.230	2.17	OK		
40	0.010	0.230	4.51	OK		



Model: ERC304

Harmonics – Class-A per Ed. 4.0 (2014)(Run time)

Test category: Class-A per Ed. 4.0 (2014) (European limits) Test Margin: 100

Test date: 2018/6/4

Start time: 17:52:02

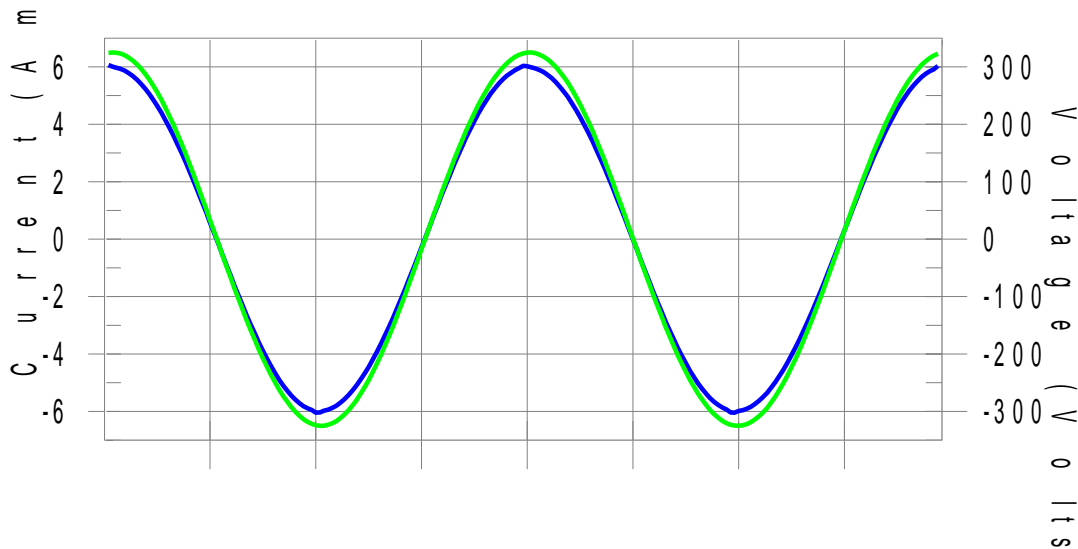
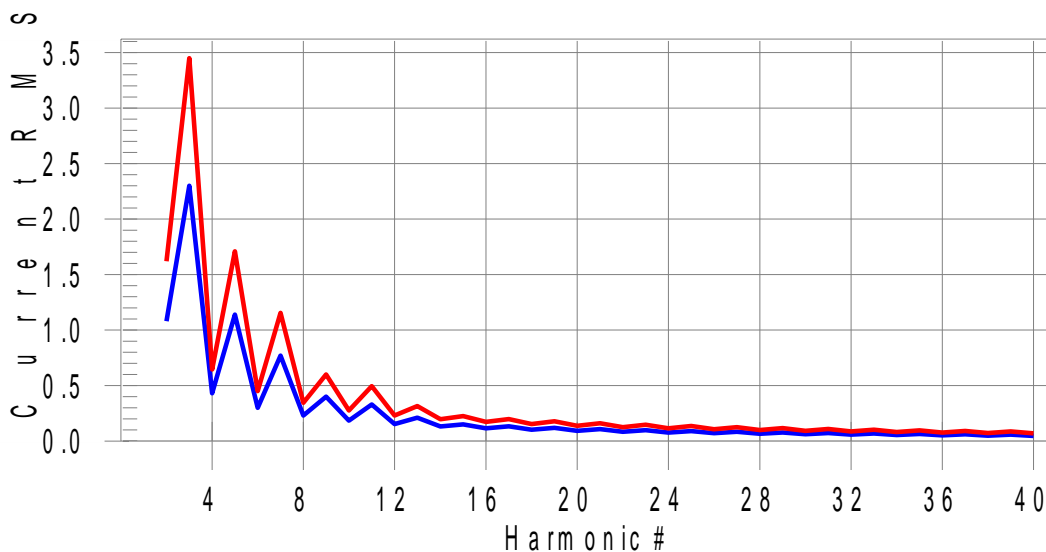
End time: 17:54:43

Test duration (min): 2.5

Data file name: H-000463.cts_data

Test Result: Pass

Source qualification: Normal

Current & voltage waveforms**Harmonics and Class A limit line European Limits****Test result: Pass Worst harmonics H0-0.0% of 150% limit, H0-0% of 100% limit**



Current Test Result Summary (Run time)

Test category: Class-A per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 2018/6/4 Start time: 17:52:02 End time: 17:54:43
 Test duration (min): 2.5 Data file name: H-000463.cts_data

Test Result: Pass Source qualification: Normal
 THC(A): 0.020 I-THD(%): 0.5 POHC(A): 0.005 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts): 229.96 Frequency(Hz): 50.00
 I_Peak (Amps): 6.079 I_RMS (Amps): 4.240
 I_Fund (Amps): 4.239 Crest Factor: 1.434
 Power (Watts): 974.8 Power Factor: 1.000

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	0.017	2.300	N/A 0.017	3.450	N/A	Pass	
4	0.001	0.430	N/A 0.001	0.645	N/A	Pass	
5	0.004	1.140	N/A 0.004	1.710	N/A	Pass	
6	0.000	0.300	N/A 0.000	0.450	N/A	Pass	
7	0.003	0.770	N/A 0.004	1.155	N/A	Pass	
8	0.000	0.230	N/A 0.001	0.345	N/A	Pass	
9	0.004	0.400	N/A 0.004	0.600	N/A	Pass	
10	0.001	0.184	N/A 0.001	0.276	N/A	Pass	
11	0.003	0.330	N/A 0.003	0.495	N/A	Pass	
12	0.001	0.153	N/A 0.001	0.230	N/A	Pass	
13	0.003	0.210	N/A 0.003	0.315	N/A	Pass	
14	0.001	0.131	N/A 0.001	0.197	N/A	Pass	
15	0.003	0.150	N/A 0.003	0.225	N/A	Pass	
16	0.000	0.115	N/A 0.001	0.173	N/A	Pass	
17	0.003	0.132	N/A 0.003	0.198	N/A	Pass	
18	0.000	0.102	N/A 0.001	0.153	N/A	Pass	
19	0.003	0.118	N/A 0.003	0.178	N/A	Pass	
20	0.001	0.092	N/A 0.001	0.138	N/A	Pass	
21	0.002	0.107	N/A 0.002	0.161	N/A	Pass	
22	0.000	0.084	N/A 0.001	0.125	N/A	Pass	
23	0.002	0.098	N/A 0.002	0.147	N/A	Pass	
24	0.000	0.077	N/A 0.001	0.115	N/A	Pass	
25	0.002	0.090	N/A 0.002	0.135	N/A	Pass	
26	0.000	0.071	N/A 0.001	0.107	N/A	Pass	
27	0.002	0.083	N/A 0.002	0.125	N/A	Pass	
28	0.000	0.066	N/A 0.001	0.099	N/A	Pass	
29	0.002	0.078	N/A 0.002	0.116	N/A	Pass	
30	0.000	0.061	N/A 0.000	0.092	N/A	Pass	
31	0.001	0.073	N/A 0.002	0.109	N/A	Pass	
32	0.000	0.058	N/A 0.000	0.086	N/A	Pass	
33	0.001	0.068	N/A 0.001	0.102	N/A	Pass	
34	0.000	0.054	N/A 0.000	0.081	N/A	Pass	
35	0.001	0.064	N/A 0.001	0.096	N/A	Pass	
36	0.000	0.051	N/A 0.000	0.077	N/A	Pass	
37	0.001	0.061	N/A 0.001	0.091	N/A	Pass	
38	0.000	0.048	N/A 0.000	0.073	N/A	Pass	
39	0.001	0.058	N/A 0.001	0.087	N/A	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 per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 2018/6/4 Start time: 17:52:02 End time: 17:54:43
 Test duration (min): 2.5 Data file name: H-000463.cts_data

Test Result: Pass Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	229.96	Frequency(Hz):	50.00
I_Peak (Amps):	6.079	I_RMS (Amps):	4.240
I_Fund (Amps):	4.239	Crest Factor:	1.434
Power (Watts):	974.8	Power Factor:	1.000

Harm#	Harmonics	V-rms	Limit	V-rms	% of Limit	Status
2	0.067	0.460	14.62	OK		
3	0.496	2.069	23.98	OK		
4	0.054	0.460	11.82	OK		
5	0.048	0.920	5.23	OK		
6	0.032	0.460	7.01	OK		
7	0.025	0.690	3.58	OK		
8	0.010	0.460	2.08	OK		
9	0.035	0.460	7.64	OK		
10	0.010	0.460	2.18	OK		
11	0.010	0.230	4.40	OK		
12	0.014	0.230	5.93	OK		
13	0.008	0.230	3.70	OK		
14	0.006	0.230	2.76	OK		
15	0.006	0.230	2.82	OK		
16	0.010	0.230	4.41	OK		
17	0.005	0.230	2.30	OK		
18	0.009	0.230	3.73	OK		
19	0.010	0.230	4.55	OK		
20	0.020	0.230	8.66	OK		
21	0.010	0.230	4.38	OK		
22	0.003	0.230	1.44	OK		
23	0.003	0.230	1.33	OK		
24	0.004	0.230	1.74	OK		
25	0.005	0.230	2.07	OK		
26	0.003	0.230	1.35	OK		
27	0.003	0.230	1.39	OK		
28	0.004	0.230	1.57	OK		
29	0.007	0.230	3.18	OK		
30	0.002	0.230	1.04	OK		
31	0.004	0.230	1.63	OK		
32	0.002	0.230	0.85	OK		
33	0.004	0.230	1.63	OK		
34	0.003	0.230	1.41	OK		
35	0.003	0.230	1.48	OK		
36	0.002	0.230	0.79	OK		
37	0.005	0.230	2.15	OK		
38	0.002	0.230	0.98	OK		
39	0.005	0.230	2.28	OK		
40	0.011	0.230	4.66	OK		



7.4 Voltage Fluctuation and Flicker

Test Method : EN 301 489-1, EN 61000-3-3
Test Result : PASS

7.4.1 EUT Operation:

Operating Environment:

Temperature : 21.5°C

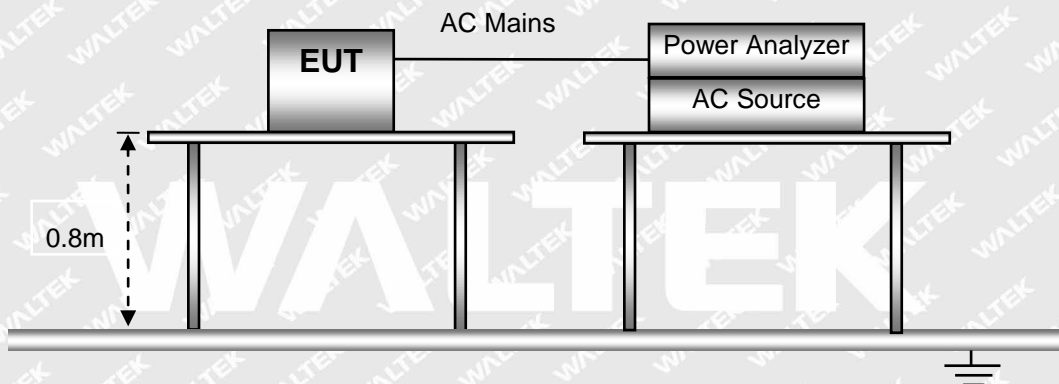
Humidity : 52.2 % RH

Atmospheric Pressure : 101.2kPa

EUT Operation : Refer to section 6.5.

7.4.2 Test Setup

The Voltage Fluctuation and Flicker test was performed in accordance with the EN 61000-3-3.





7.4.3 Test Result

Model: ERC302

Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

Test category: All parameters (European limits)

Test Margin: 100

Test date: 2018/6/4

Start time: 18:57:09

End time: 19:07:36

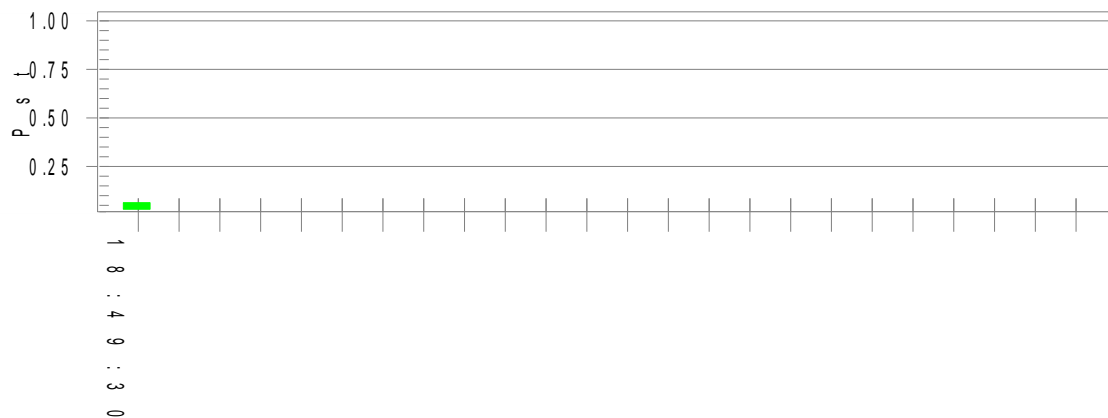
Test duration (min): 10

Data file name: F-000466.cts_data

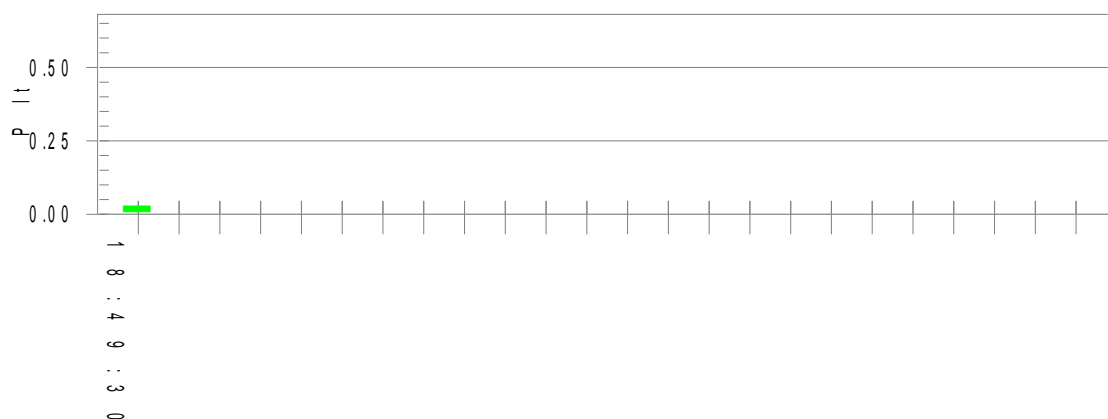
Test Result: Pass Status: Test Completed

Pst and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt): 228.90

T-max (mS): 0

Highest dc (%): 0.00

Highest dmax (%): 0.00

Highest Pst (10 min. period): 0.064

Highest Plt (2 hr. period): 0.028

Test limit (mS): 500.0

Test limit (%): 3.30

Test limit (%): 4.00

Test limit: 1.000

Test limit: 0.650

Pass

Pass

Pass

Pass

Pass



8 EMC Requirement for Immunity

8.1 Performance Criteria Description

ETSI EN 301 489-1 V2.2.3 Clause 6 requirements:

The performance criteria are used to take a decision on whether a radio equipment passes or fails immunity tests.

For the purpose of the present document two categories of performance criteria apply:

- Performance criteria for continuous phenomena.
- Performance criteria for transient phenomena.

NOTE: Normally, the performance criteria depends upon the type of radio equipment and/or its intended application. Thus, the present document only contains general performance criteria commonly used for the assessment of radio equipment.

Performance criteria for continuous phenomena

During the test, the equipment shall:

- continue to operate as intended;
- not unintentionally transmit;
- not unintentionally change its operating state;
- not unintentionally change critical stored data.

Performance criteria for transient phenomena

- The application of the transient phenomena shall not result in a change of the mode of operation (e.g. unintended transmission) or the loss of critical stored data.
- After application of the transient phenomena, the equipment shall operate as intended.

For surges applied to symmetrically operated wired network ports intended to be connected directly to outdoor lines the following criteria applies:

- For products with only one symmetrical port intended for connection to outdoor lines, loss of function is allowed, provided the function is self-recoverable, or can be otherwise restored. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.
- For products with more than one symmetrical port intended for connection to outdoor lines, loss of function on the port under test is allowed, provided the function is self-recoverable. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

**ETSI EN 301 489-3 V2.3.2** Clause 6 requirements:

The performance criteria are:

- 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.

Performance Requirements

Criteria	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

Applicability Overview

1. General

For the purposes of the present document, the provisions of ETSI EN 301 489-1 [1], clause 7, shall apply as appropriate, except as varied herein.

2. Special conditions for emissions

The provisions of ETSI EN 301 489-1 [1], clause 7.1 shall apply.

3. Special conditions for emissions

Special conditions for EMC immunity tests

Reference to clauses in ETSI EN 301 489-1 [1]	Special product-related conditions, additional to or modifying the test conditions in ETSI EN 301 489-1 [1], clause 9
9.2.2: Test method; Radio frequency electromagnetic field	The test shall be performed over the range 80 MHz to 2 700 MHz with the exception of the exclusion bands defined in clause 4.6. Where the EUT is subject to EMC Immunity testing under a Harmonised Standard of a Directive other than the Directive 2014/53/EU [i.1] then the modulating signal frequency specified in that Harmonised Standard may be used. If this alternative modulating frequency is used, then the applicable Directive, Harmonised Standard & modulating frequency shall be noted in the test report.
9.5.2: Test method; Radio frequency, common mode	Where the EUT is subject to EMC Immunity testing under a Harmonised Standard of a Directive other than the Directive 2014/53/EU [i.1] then the modulating signal frequency specified in that Harmonised Standard may be used. If this alternative modulating frequency is used, then the applicable Directive, Harmonised Standard & modulating frequency shall be noted in the test report.



8.2 Electrostatic Discharge(ESD)

Test Method	: EN 301 489-1, EN 61000-4-2
Discharge Impedance	: 330 Ω / 150 pF
Discharge Voltage	: Air Discharge: $\pm 2,4,8$ kV Contact Discharge: $\pm 2,4$ kV HCP & VCP: $\pm 2,4$ kV
Polarity	: Positive & Negative
Discharge Repeat Times	: At Least 20 times at each test point
Discharge Mode	: Single Discharge
Discharge Period	: 1 second minimum

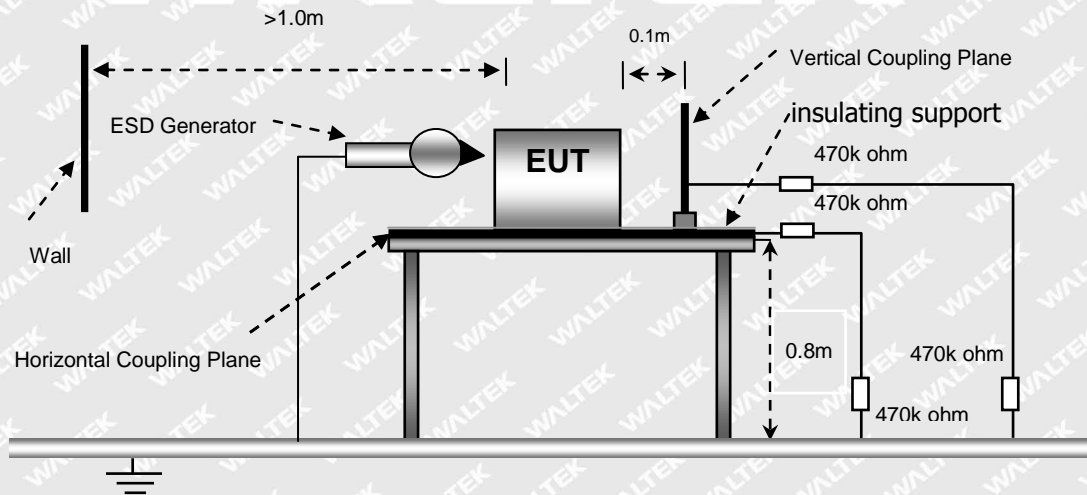
8.2.1 E.U.T. Operation

Operating Environment:

Temperature	: 21.5°C
Humidity	: 52.0 % RH
Barometric Pressure	: 101.3kPa
EUT Operation	: Refer to section 6.5.

8.2.2 Block Diagram of Setup

The ESD test was performed in accordance with the EN 61000-4-2.





8.2.3 Test Results

Indirect Application			Performance Criteria	
Discharge Level (kV)	Polarity (+/-)	Test Point	Horizontal Coupling	Vertical Coupling
2,4	+/-	1	B	B
Remark: Test points: 1. All sides (Front/Top/ Back/ Left/Right Sides).				

Direct Application			Performance Criteria	
Discharge Level (kV)	Polarity (+/-)	Test Point	Contact Discharge	Air Discharge
2,4,8	+/-	1	N/A	B
2,4	+/-	2	B	N/A
Remark: Test points: 1. All Exposed Surface & Seams; 2. All metallic part N/A: Not applicable.				

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8.3 Radiated Immunity(R/S)

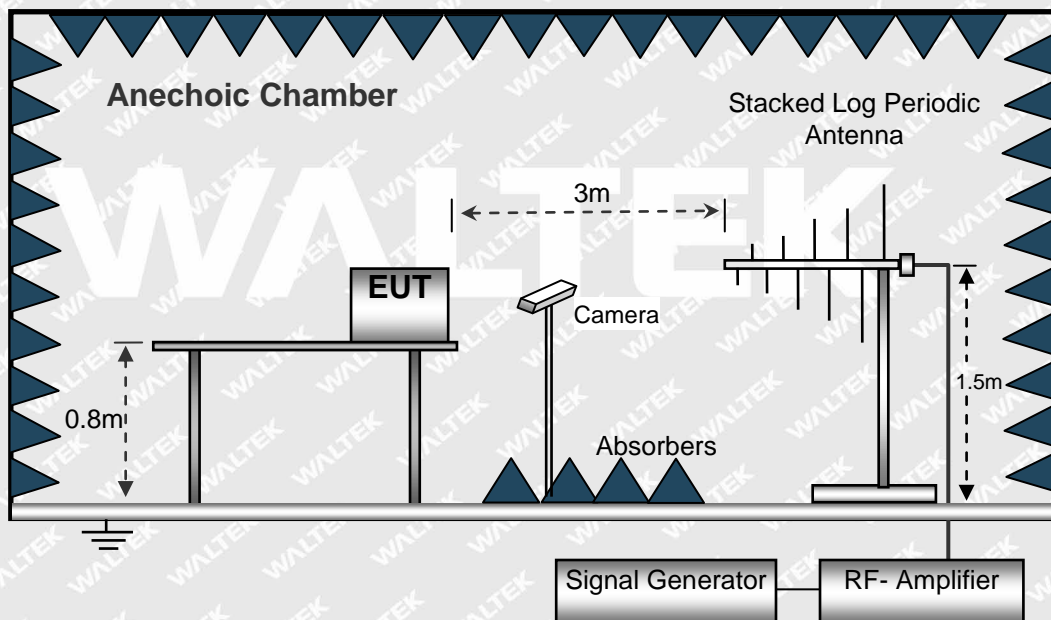
Test Method	: EN 301 489-1, EN 61000-4-3
Face Under Test	: Three Mutually Orthogonal Faces
Severity	: 3V/m, 1kHz, 80% Amp. Mod., 3V/m, 200Hz, 100% Amp. Mod.; CW;
Test Result	: PASS

8.3.1 E.U.T. Operation

Operating Environment:	
Temperature	: 21.4°C
Humidity	: 52.1 % RH
Barometric Pressure	: 101.2kPa
EUT Operation	: Refer to section 6.5.

8.3.2 Block Diagram of Setup

The Radiated Immunity test was performed in accordance with the EN 61000-4-3.



8.3.3 Test Results

Frequency	Level	Modulation	EUT Face	Performance Criteria	PER
80MHz -3GHz,	3V/m	1kHz, 80%, Amp. Mod.	Front, Back Left, Right	A	0.000%
3GHz - 6GHz	3V/m	1kHz, 80%, Amp. Mod.	Front, Back Left, Right	A	0.000%



8.4 Electrical Fast Transients (EFT)

Test Method	: EN 301 489-1, EN 61000-4-4
Polarity	: Positive & Negative
Repetition Frequency	: 5kHz
Burst Duration	: 300ms
Test Duration	: 2 minutes per level & polarity

8.4.1 E.U.T. Operation

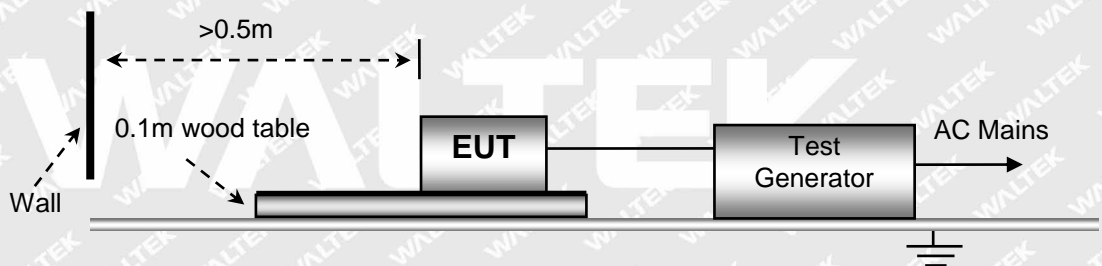
Operating Environment:

Temperature	: 21.5°C
Humidity	: 52.2 % RH
Barometric Pressure	: 101.2kPa
EUT Operation	: Refer to section 6.5.

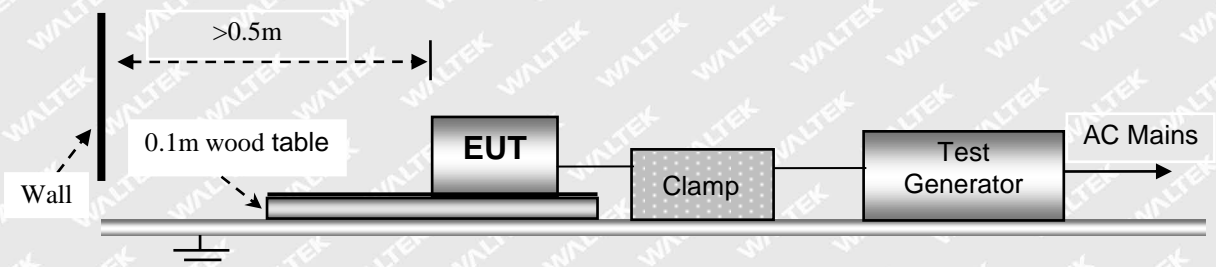
8.4.2 Block Diagram of Test Setup

The Electrical Fast Transients Immunity test was performed in accordance with the EN 61000-4-4.

For AC Mains or DC Ports:



For Signal, Telecommunication or Control Ports:



8.4.3 Test Results

Lead under Test	Test Level	Test Voltage	Performance Criteria
AC Mains	2	±1.0 kV	B



8.5 Surges

Test Method : EN 301 489-1, EN 61000-4-5
 Interval : 60s between each surge
 No. of surges : 5 positive, 5 negative at 0°, 90°, 180°, 270°.

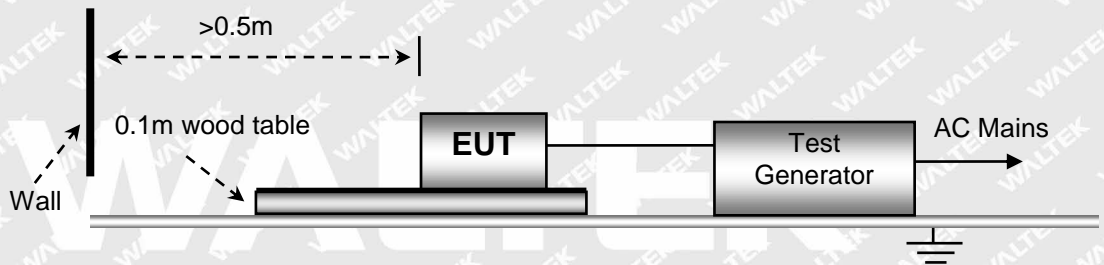
8.5.1 E.U.T. Operation

Operating Environment:
 Temperature : 21.6°C
 Humidity : 52.1 % RH
 Barometric Pressure : 101.2kPa
 EUT Operation : Refer to section 6.5.

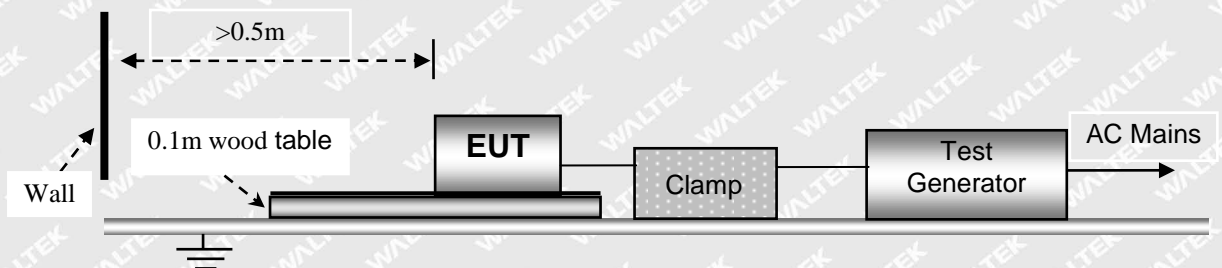
8.5.2 Block Diagram of Test Setup

The Surges Immunity test was performed in accordance with the EN 61000-4-5.

For AC Mains or DC Ports:



For Telecommunication Port:



8.5.3 Test Results

Lead under Test	Test Level	Test Voltage	Path	Performance Criteria
AC Mains	2	±1kV	L-N	B



8.6 Conducted Immunity 0.15MHz to 80MHz

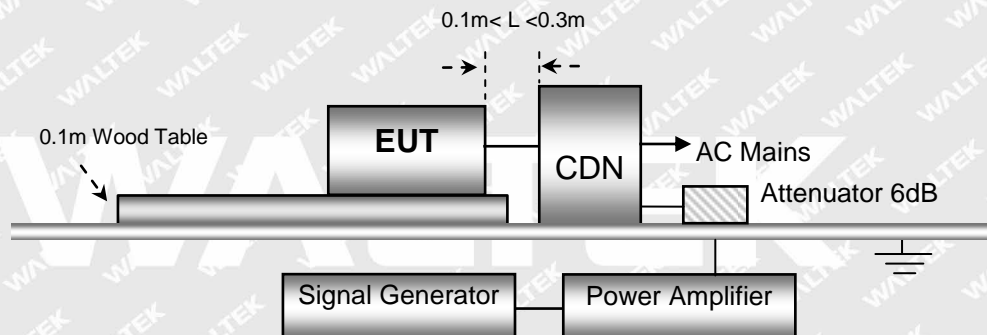
Test Method : EN 301 489-1, EN 61000-4-6
 Test level : 3V rms (unmodulated emf into 150 Ω)
 Modulation : 80%, 1kHz Amplitude Modulation.

8.6.1 E.U.T. Operation

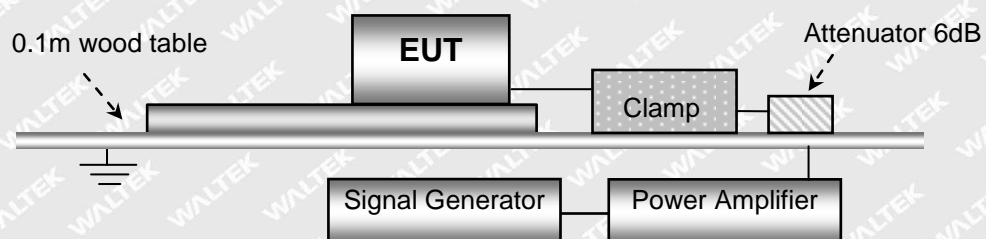
Operating Environment:
 Temperature : 21.5°C
 Humidity : 52.1 % RH
 Barometric Pressure : 101.3kPa
 EUT Operation : Refer to section 6.5.

8.6.2 Block Diagram of Test Setup

The Injected Currents Immunity test was performed in accordance with the EN 61000-4-6.
 For AC Mains or DC Ports:



For Signal, Telecommunication or Control Ports:



8.6.3 Test Results

Line	Frequency	Test Level	Voltage Level	Modulation	Step Size	Dwell Time	Performance Criteria	PER
AC Mains	0.15MHz to 80MHz	2	3Vrms	80%, 1kHz Amp. Mod.	1%	1s	A	0.000%



8.7 Voltage Dips and Interruptions

Test Method : EN 301 489-1, EN 61000-4-11

No. of Dips / Interruptions : 3 per Level at 10ms intervals

8.7.1 E.U.T. Operation

Operating Environment:

Temperature : 21.5°C

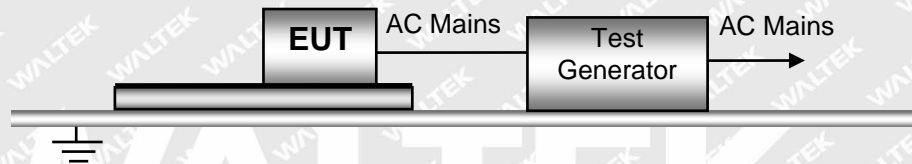
Humidity : 52.1 % RH

Barometric Pressure : 101.2kPa

EUT Operation : Refer to section 6.5.

8.7.2 Block Diagram of Setup

The Voltage Dips and Interruptions Immunity test was performed in accordance with the EN 61000-4-11.



8.7.3 Test Results

Type	Residual Voltage (%)	Phase	Cycle	Times	Performance Criteria
Voltage Dips	0	0° to 360° in 45° increments	0.5	3	B
	0	0° to 360° in 45° increments	1	3	B
	70	0° to 360° in 45° increments	25	3	B
Voltage Interruption	0	0° to 360° in 45° increments	250	3	C



9 Photographs – Test Setup

9.1 Photograph - Radiated Emissions Test Setup

For 30MHz-1000MHz



9.2 Photograph - Conducted Emissions Test Setup





9.3 Photograph - Radiated immunity Test Setup



9.4 Photograph - ESD Test Setup





9.5 Photographs – Surge & EFT & Dips Test Setup



9.6 Photographs – Conducted Immunity Test Setup





10 Photographs of EUT

Note: Please refer to appendix: Appendix-ERC302-Photos.

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

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