CE EMC Test Report

Project No.	:	1910C075
Equipment	:	LCD Monitor
Brand Name	:	N/A
Test Model	:	**27G2********(*=A-Z,a-z,0-9,/, +,-,\ or blank)
Series Model	:	N/A
Applicant	:	TPV Electronics (Fujian) Co., Ltd.
Address	:	Rongqiao Economic and Technological Development Zone, Fuqing City, Fujian Province, P.R. China
Date of Receipt	:	Oct. 16, 2019
Date of Test	:	Oct. 16, 2019 ~ Oct. 30, 2019
Issued Date	:	Dec. 05, 2019
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG2019101655
Standard(s)	:	EN 55032:2012+AC:2013 EN 55032:2015 EN 55032:2015+AC:2016 EN 55024:2010 EN 55024:2010+A1:2015 IEC 61000-3-2:2014 / EN 61000-3-2:2014 IEC 61000-3-3:2013 / EN 61000-3-3:2013

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

Derek Tong

Prepared by : Derek Tong

Kevin Li

Approved by : Kevin Li

Certificate #5123.02

Add: No.3, Jinshagang 1st Road, Shixia, Dalang Town,Dongguan, Guangdong, China.

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Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, A2LA, or any agency of the U.S. Government.

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BTL's laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.
Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

Table of Contents Page

Table of Contents Page

Table of Contents Page

Table of Contents Page

REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Dec. 05, 2019

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

Emission			
Standard(s)	Test Item		Result
EN 55032: 2012+AC:2013 EN 55032:2015 EN 55032:2015+AC:2016	Radiated emissions up to 1 GHz		PASS
	Radiated emissions above 1 GHz		PASS
	Radiated emissions from FM receivers		N/A
	Conducted emissions AC mains power port		PASS
	Asymmetric mode conducted emissions	AAN	N/A
		Current Probe	N/A
		CP+CVP	N/A
	Conducted differential voltage emissions		N/A

Standard(s)	Test Item	Result
IEC 61000-3-2:2014 EN 61000-3-2:2014	Harmonic current	PASS
IEC 61000-3-3:2013 EN 61000-3-3:2013	Voltage fluctuations (Flicker)	PASS

Immunity			
Standard(s)	Ref Standard(s)	Test Item	Result
EN 55024: 2010/ EN 55024:2010+A1:2015	EN 61000-4-2:2009 IEC 61000-4-2:2008	ESD	PASS
	EN 61000-4-3: 2006+A1:2008+A2:2010 IEC 61000-4-3: 2006+A1:2007+A2:2010	RS	PASS
	EN 61000-4-4:2004 IEC 61000-4-4:2004	EFT	PASS
	EN 61000-4-5:2006 IEC 61000-4-5:2005	Surge	PASS
	EN 61000-4-6: 2009 IEC 61000-4-6:2008	CS	PASS
	EN 61000-4-8:2010 IEC 61000-4-8:2009	PFMF	PASS
	EN 61000-4-11:2004 IEC 61000-4-11:2004	Dip	PASS

NOTE:

(1) “N/A” denotes test is not applicable to this device.

1.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

1.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2, The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{cispr} requirement.

The reported uncertainty of measurement **y** ± **U**, where expanded uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95**%.

A. Radiated emissions up to 1 GHz measurement:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
DG-CB08 (10m)	CISPR	30MHz ~ 200MHz	V	4.44
		30MHz ~ 200MHz	H	3.44
		200MHz ~ 1,000MHz	V	4.28
		200MHz ~ 1,000MHz	H	3.52

B. Radiated emissions above 1 GHz measurement:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB08 (3m)	CISPR	1GHz ~ 6GHz	4.36

C. Conducted emissions AC mains power port measurement:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-C02	CISPR	150kHz ~ 30MHz	2.60

D. Harmonic current emissions / Voltage fluctuations (Flicker) measurement:

Test Site	Method	Item	U (%)
DG-C01	EN 61000-3-2	Current	0.593
	EN 61000-3-3	Voltage	0.595

E. Immunity Measurement:

Test Site	Method	Item	U
DG-SR02	IEC 61000-4-2	Rise time tr	6.80%
		Peak current Ip	6.30%
		Current at 30 ns	6.50%
		Current at 60 ns	6.90%
DG-CB05	IEC 61000-4-3	Electromagnetic field immunity test	2.38dB
DG-SR05	IEC 61000-4-4	Peak voltage (V_P)	3.7%
		Rise time (tr)	4.4%
		Pulse width(tw)	4.1%
		Pulse Freq.(kHz)	0.8%
		Burst Duration(ms)	1.4%
		Burst Period(ms)	1.4%
		Peak voltage (V_P)-with clamp	3.7%
		Rise time (tr) -with clamp	5.0%
		Pulse width(tw) -with clamp	4.8%
DG-SR01	IEC 61000-4-5	Open-Circuit Output Voltage (1.2/50us)	3.8%
		Open circuit front time (1.2/50us)	6.3%
		Open circuit time of half value (1.2/50us)	4.6%
		Open-Circuit Output Voltage (10/700us)	3.8%
		Open circuit front time (10/700us)	5.9%
		Open circuit time of half value (10/700us)	4.7%
DG-CB06	IEC 61000-4-6	CDN	1.32dB
		EM clamp	3.16dB
		Audio breakthrough measurement for RS 2G/3G	1.42dB
		Audio breakthrough measurement for RS 4G	1.44dB
DG-SR05	IEC 61000-4-8	Magnetic Field Level	3.787 %
DG-SR05	IEC 61000-4-11	DIP Amplitude	0.5%
		DIP Time Event	3%

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Tested By
Radiated emissions up to 1 GHz	25°C	60%	Promise Yin
Radiated emissions above 1 GHz	25°C	60%	Promise Yin
Conducted emissions AC mains power port	25°C	53%	Lorry Lao
Harmonic current	25°C	55%	Bang Liang
Voltage fluctuations (Flicker)	25°C	55%	Bang Liang

Test Item	Temperature	Humidity	Pressure	Tested By
ESD	25°C	44%	1010hPa	Rich Ye
RS	25°C	42%	/	Hunter Xu
EFT	25°C	45%	/	Celina Lai
Surge	25°C	45%	/	Celina Lai
CS	25°C	41%	/	Jason Liang
PFMF	25°C	45%	/	Celina Lai
Dip	25°C	45%	/	Celina Lai

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	LCD Monitor
Brand Name	N/A
Test Model	**27G2********(*=A-Z,a-z,0-9,/, +,-,\ or blank)
Series Model	N/A
Model Difference(s)	Only differ in model name due to marketing purpose.
Power Source	AC Mains.
Power Rating	100-240V~ 50/60Hz
Connecting I/O Port(s)	1* AC port 1* DP port 2* HDMI port 1* Earphone port
Classification Of EUT	Class B
Highest Internal Frequency(Fx)	600MHz

Cable Type	Shielded Type	Ferrite Core	Length(m)	Note
AC Power Cord	Non-shielded	NO	1.8/1.5	1.8m is worst case Detachable(3 Pin)
DP	Shielded	NO	1.8/1.5	-
HDMI	Shielded	NO	1.8/1.5	-

Note:
1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. Power cable 1.8m, 1.5m length, worst case is Power cable 1.8m with HDMI + DP length testing and recording in test report.

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	HDMI1 2560*1440/75Hz
Mode 2	HDMI2 2560*1440/75Hz
Mode 3	DP 2560*1440/75Hz
Mode 4	HDMI1 1080P
Mode 5	HDMI1 1080P
Mode 6	HDMI1 1280*1024/75Hz
Mode 7	HDMI1 640*480/75Hz

Radiated emissions up to 1 GHz test	
Final Test Mode	Description
Mode 1	HDMI1 2560*1440/75Hz
Mode 3	DP 2560*1440/75Hz
Mode 4	HDMI1 1080P

Radiated emissions Above 1 GHz test	
Final Test Mode	Description
Mode 1	HDMI1 2560*1440/75Hz
Mode 3	DP 2560*1440/75Hz
Mode 4	HDMI1 1080P

Conducted emissions AC mains power port test	
Final Test Mode	Description
Mode 1	HDMI1 2560*1440/75Hz
Mode 3	DP 2560*1440/75Hz
Mode 4	HDMI1 1080P

Harmonic current & Voltage fluctuations (Flicker) Test	
Final Test Mode	Description
Mode 1	HDMI1 2560*1440/75Hz

Immunity Test	
Final Test Mode	Description
Mode 1	HDMI1 2560*1440/75Hz

Evaluation description:

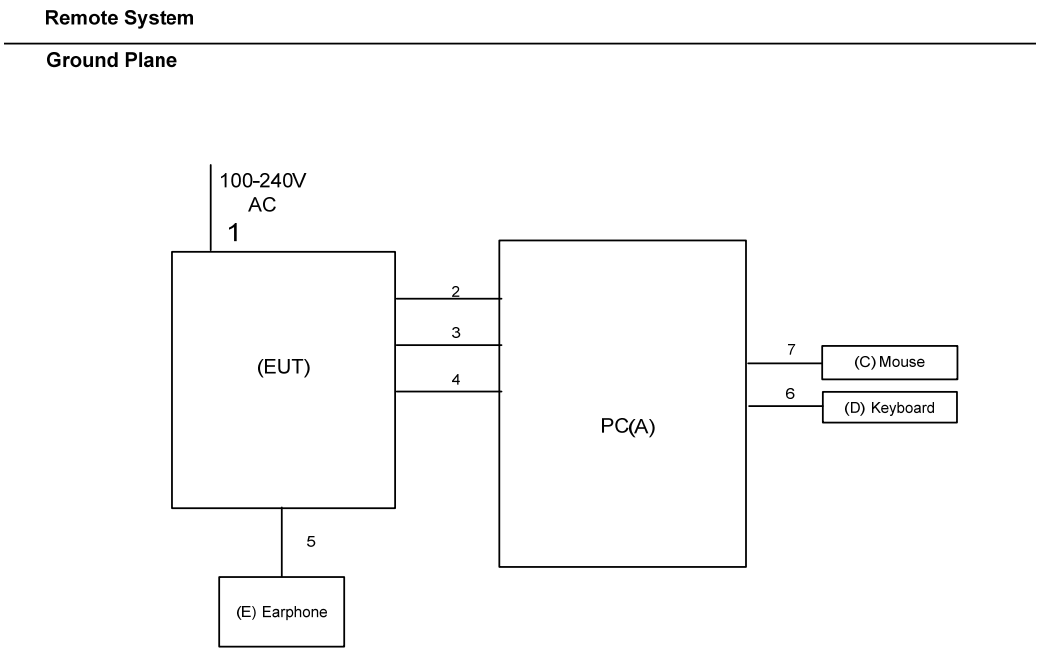
1. The maximum resolution is evaluated Mode 1-5. The worst case is Mode 1 and evaluated the middle and low resolution Mode 6 and Mode 7.
2. According to the client's requirement, choose Mode 1, Mode 3, Mode 4 and recorded in test report.

2.3 EUT OPERATING CONDITIONS

The EUT exercise program used during radiated and/or conducted emission measurement was designed to exercise the various system components in a manner similar to a typical use. The standard test signals and output signal as following:

1. EUT connected to PC via DP & HDMI cable.
2. EUT connected to Earphone via Earphone cable.
3. Mouse and Keyboard connected to PC via USB cable.

2.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.
A	PC	DELL	Vostro 470	28747261333
B	Mouse	DELL	MS111-P	CN011D3V71581279OLOT
C	Keyboard	DELL	KB212-B	CN0HTXH97158125004DXA01
D	Earphone	Apple	N/A	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	AC Cable	NO	NO	1.8m/1.5m
2	DP Cable	YES	NO	1.8m/1.5m
3	HDMI Cable	YES	NO	1.8m/1.5m
4	HDMI Cable	YES	NO	1.8m/1.5m
5	Earphone Cable	NO	NO	1.2m
6	USB Cable	YES	NO	1.8m
7	USB Cable	YES	NO	1.8m

3. EMC EMISSION TEST- EN55032:2012+AC:2013 & 2015

3.1 RADIATED EMISSION UP TO 1 GHZ

3.1.1 LIMITS

Class B equipment up to 1000MHz

Frequency MHz	Measurement		Class B limit dB(uV/m)
	Distance m	Detector type/bandwidth	SAC
30-230	10	Quasi peak / 120 kHz	30
230-1000			37

Notes:

(1) The limit for radiated test was performed according to as following: EN 55032

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

(4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
Margin Level = Measurement Value - Limit Value

3.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	Receiver	Keysight	N9038A	MY54450004	Aug. 03, 2020
2	MXE EMI Receiver	Agilent	N9038A	MY53220133	Mar. 10, 2020
3	Pre-Amplifier	EMC INSTRUMENT	EMC 9135	980284	Mar. 10, 2020
4	Pre-Amplifier	EMC INSTRUMENT	EMC 9135	980283	Mar. 10, 2020
5	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	946	Nov. 24, 2019
6	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	947	Nov. 24, 2019
7	Cable	emci	LMR-400(5m+ 11m+15m)	N/A	Aug. 06, 2020
8	Cable	emci	LMR-400(5m+ 8m+8m)	N/A	Aug. 06, 2020
9	Measurement Software	Farad	EZ-EMC Ver.BTL-2ANT-1	N/A	N/A
10	Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
11	Attenuator	EMCI	EMCI-N-6-06	N0670	Nov. 24, 2019
12	Attenuator	EMCI	EMCI-N-6-06	N0671	Nov. 24, 2019

Remark: “N/A” denotes no model no., no serial no. or no calibration specified.
All calibration period of equipment list is one year.

3.1.3 TEST PROCEDURE

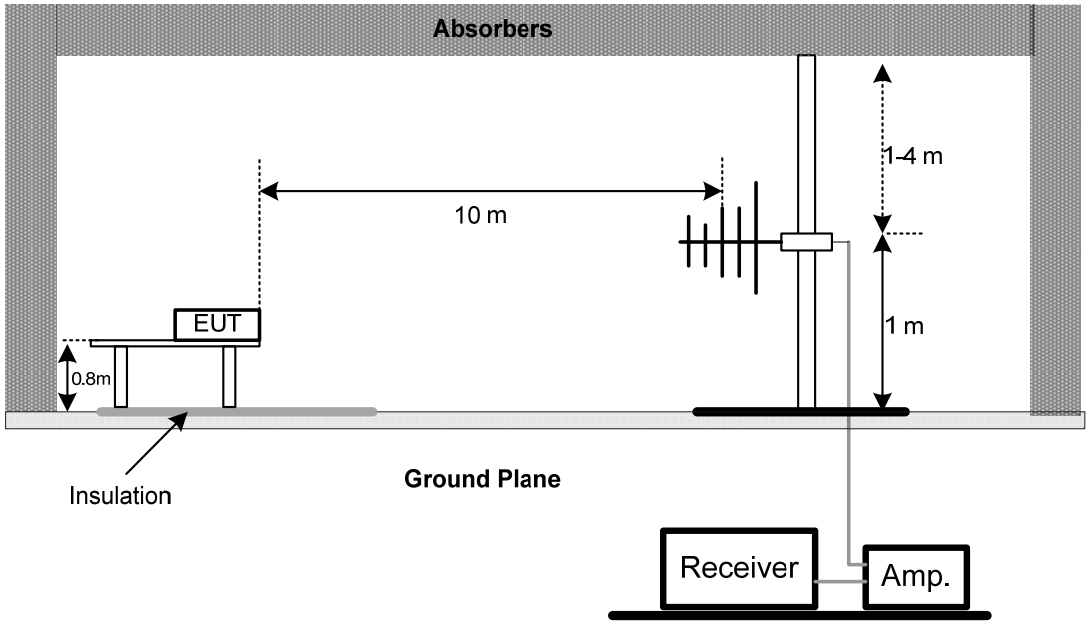
a. The measuring distance of 10 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz).
c. The height of the equipment or of the substitution antenna shall be 0.8 m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform. (below 1GHz)
g. For the actual test configuration, please refer to the related Item - Block Diagram of system tested.

3.1.4 DEVIATION FROM TEST STANDARD

No deviation

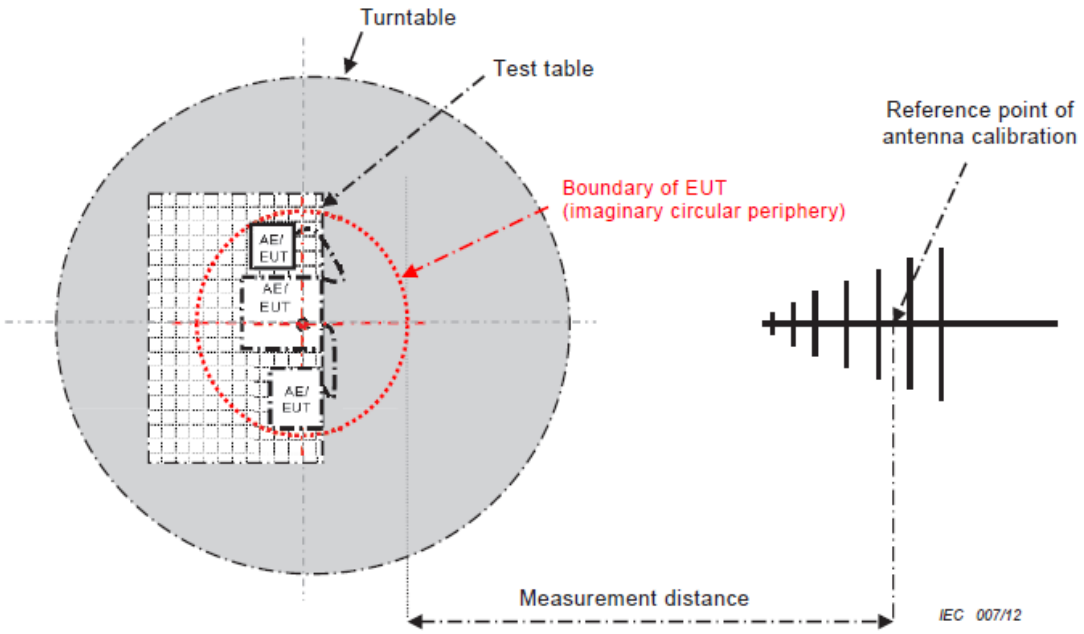
3.1.5 TEST SETUP

UP TO 1 GHZ



Note: The antenna can be moved between 1 to 4 meters above the ground.

3.1.6 MEASUREMENT DISTANCE



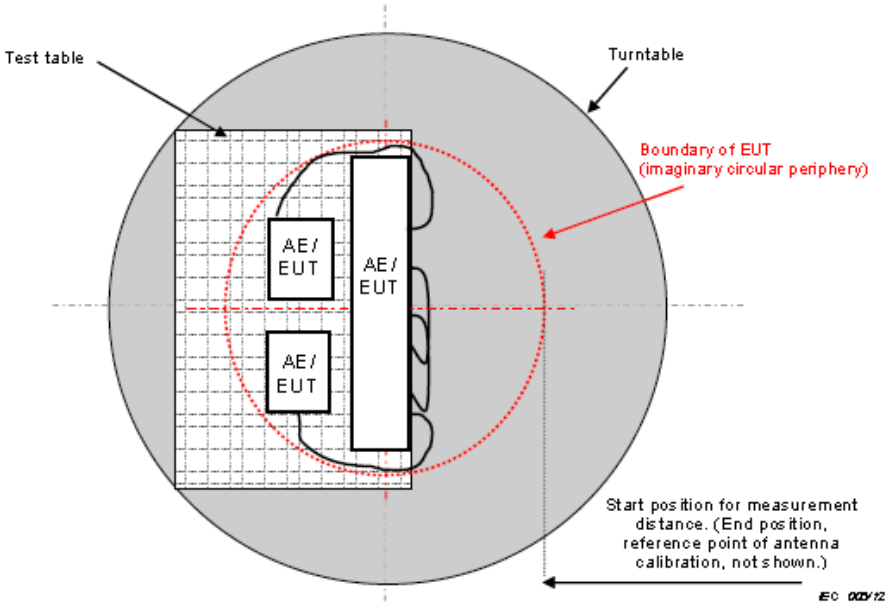
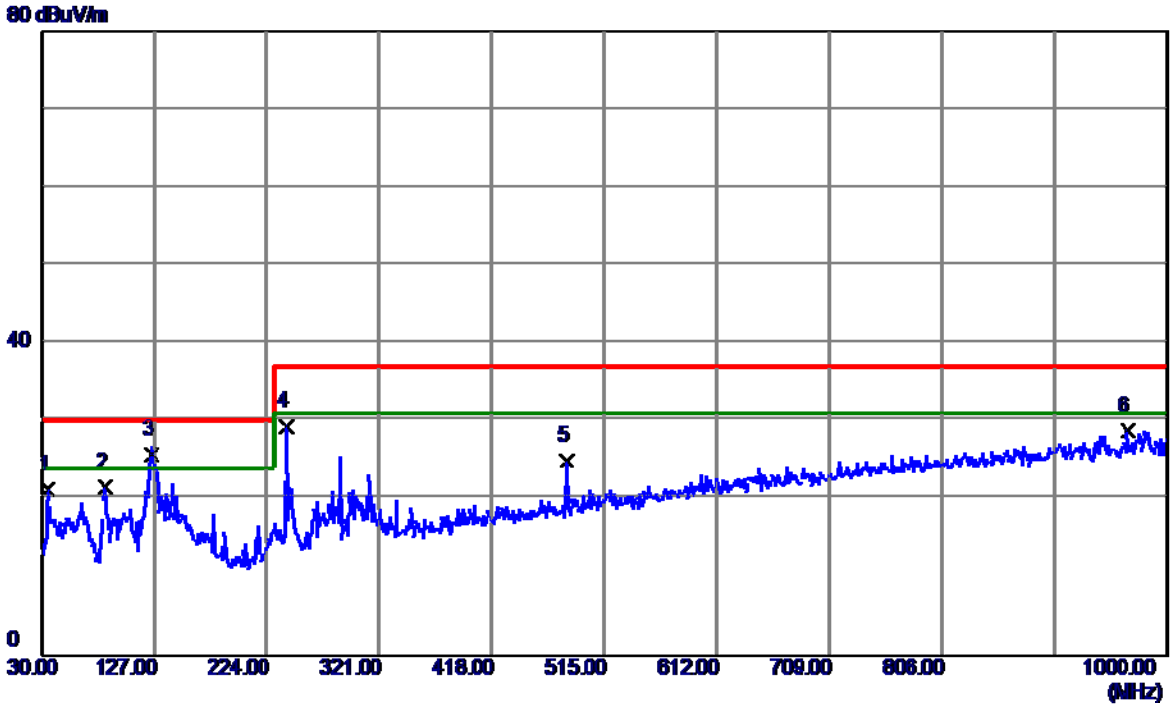


Figure C.2 – Boundary of EUT, Local AE and associated cabling

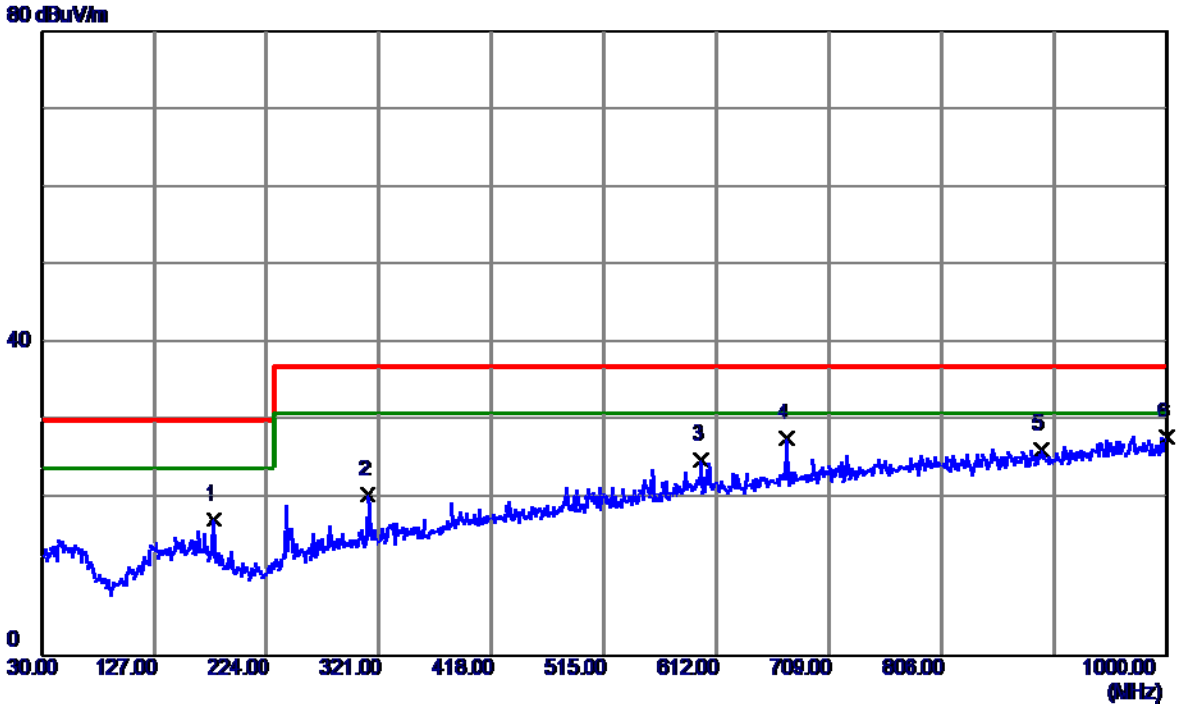
3.1.7 TEST RESULTS (UP TO 1 GHZ)

Test Voltage	AC 230V/50Hz	Polarization	Vertical
Test Mode	HDMI1 2560*1440/75Hz		



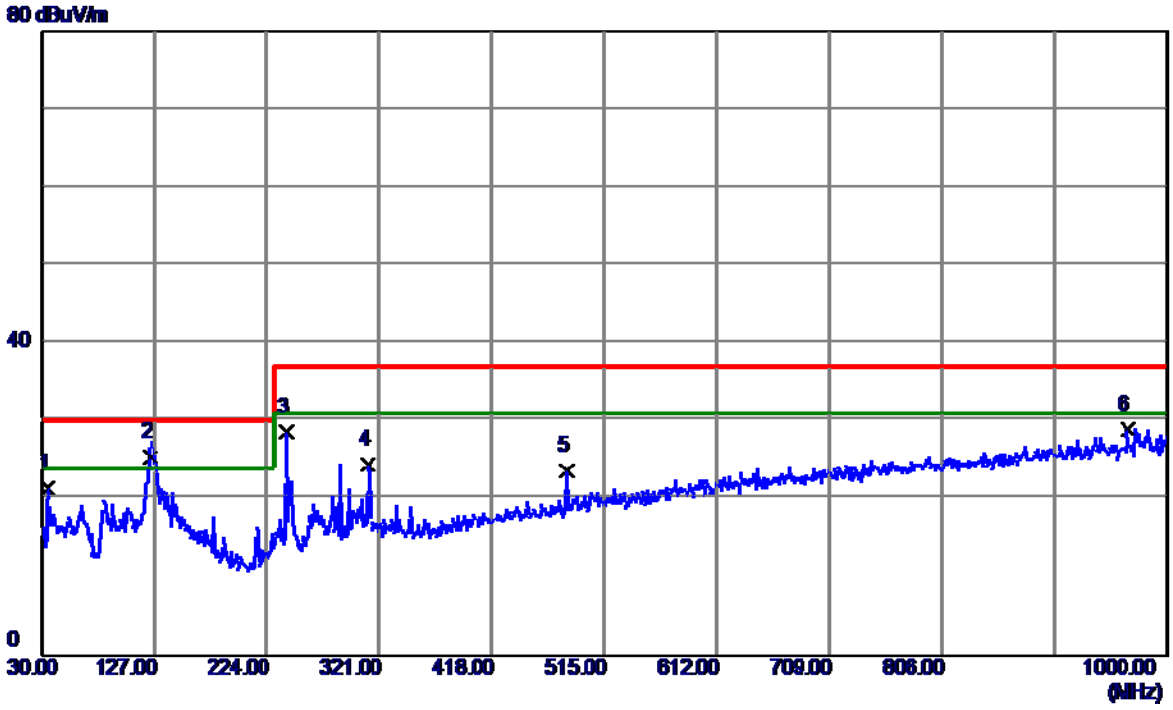
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	35.8200	39.43	-18.10	21.33	30.00	-8.67	QP
2	85.2900	43.76	-22.15	21.61	30.00	-8.39	QP
3 *	125.0600	43.95	-18.13	25.82	30.00	-4.18	QP
4	241.4600	46.71	-17.35	29.36	37.00	-7.64	QP
5	482.9900	35.93	-10.94	24.99	37.00	-12.01	QP
6	966.0500	32.08	-3.34	28.74	37.00	-8.26	QP

Test Voltage	AC 230V/50Hz	Polarization	Horizontal
Test Mode	HDMI1 2560*1440/75Hz		



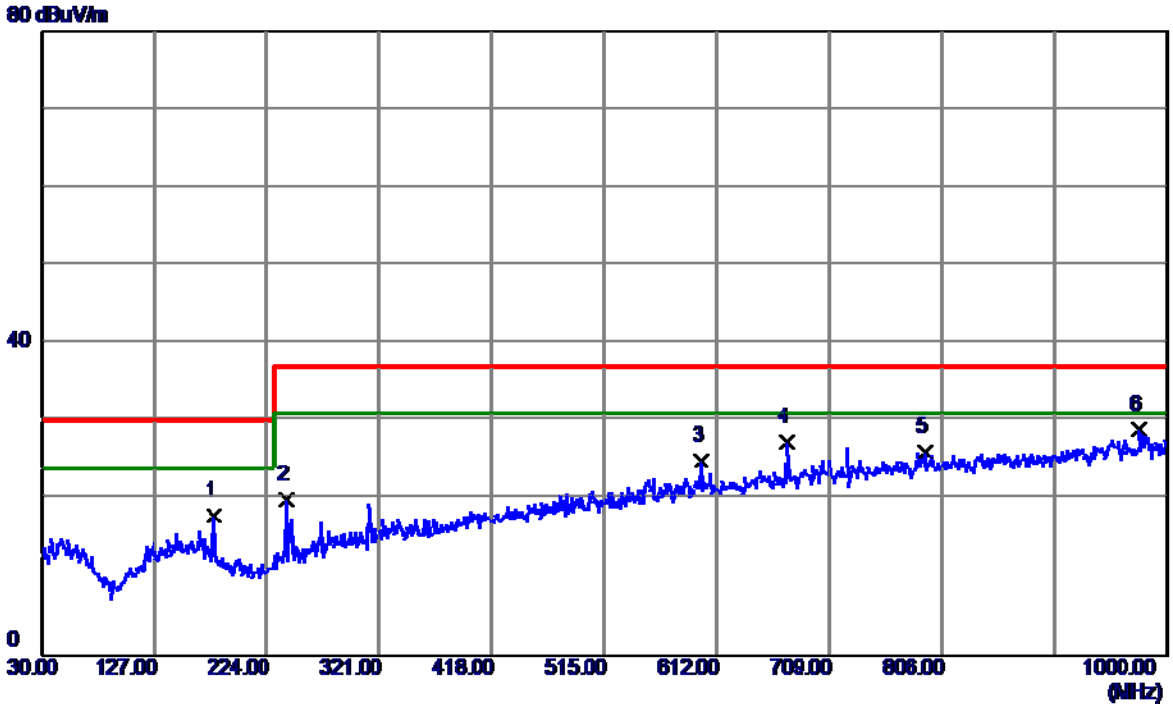
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	178.4100	34.60	-17.18	17.42	30.00	-12.58	QP
2	311.3000	35.30	-14.71	20.59	37.00	-16.41	QP
3	599.3900	33.59	-8.46	25.13	37.00	-11.87	QP
4	672.1400	35.38	-7.51	27.87	37.00	-9.13	QP
5	892.3300	31.28	-4.87	26.41	37.00	-10.59	QP
6 *	1000.0000	31.27	-3.21	28.06	37.00	-8.94	QP

Test Voltage	AC 230V/50Hz	Polarization	Vertical
Test Mode	DP 2560*1440/75Hz		



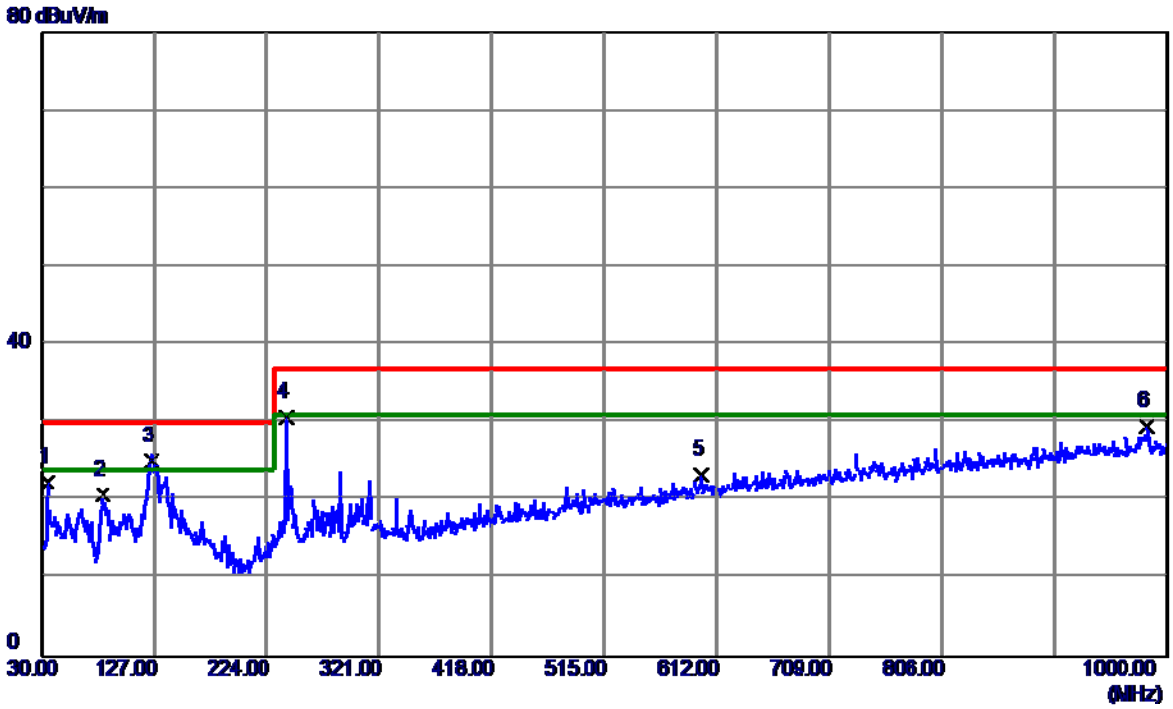
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	35.8200	39.49	-18.10	21.39	30.00	-8.61	QP
2 *	124.0900	43.61	-18.22	25.39	30.00	-4.61	QP
3	241.4600	45.93	-17.35	28.58	37.00	-8.42	QP
4	311.3000	39.20	-14.72	24.48	37.00	-12.52	QP
5	482.9900	34.62	-10.94	23.68	37.00	-13.32	QP
6	966.0500	32.34	-3.34	29.00	37.00	-8.00	QP

Test Voltage	AC 230V/50Hz	Polarization	Horizontal
Test Mode	DP 2560*1440/75Hz		



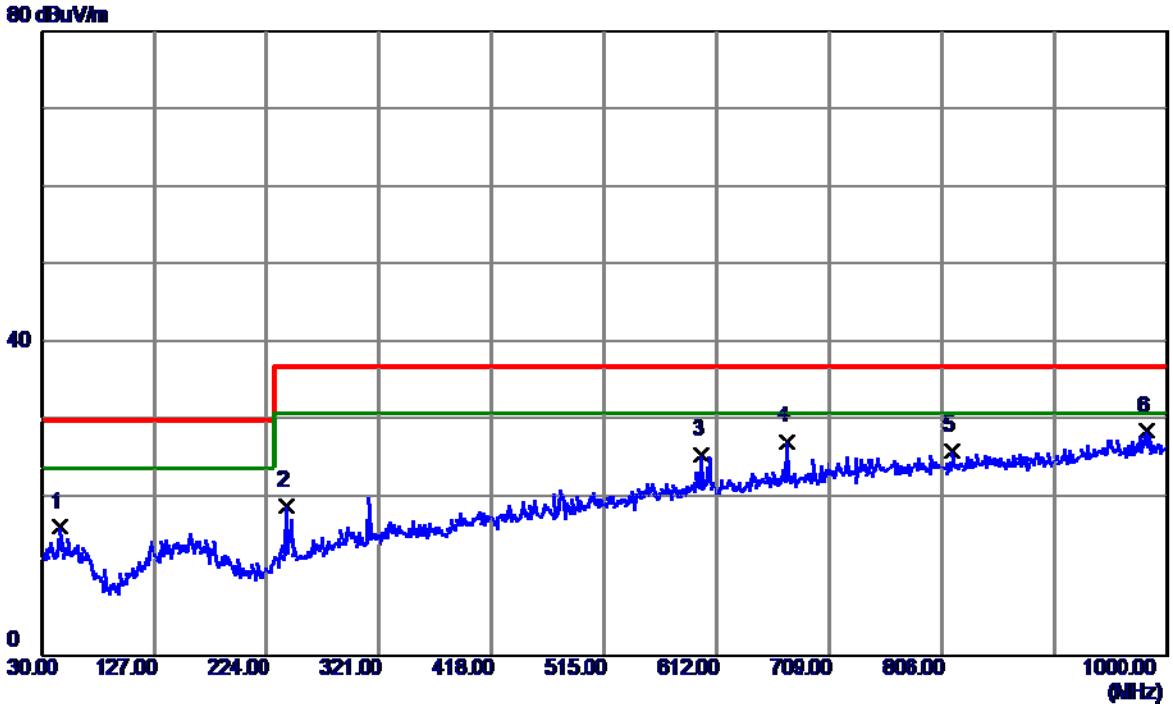
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	178.4100	35.07	-17.18	17.89	30.00	-12.11	QP
2	241.4600	37.28	-17.23	20.05	37.00	-16.95	QP
3	599.3900	33.48	-8.46	25.02	37.00	-11.98	QP
4	672.1400	34.89	-7.51	27.38	37.00	-9.62	QP
5	791.4500	31.84	-5.82	26.02	37.00	-10.98	QP
6 *	976.7200	32.41	-3.48	28.93	37.00	-8.07	QP

Test Voltage	AC 230V/50Hz	Polarization	Vertical
Test Mode	HDMI1 1080P		



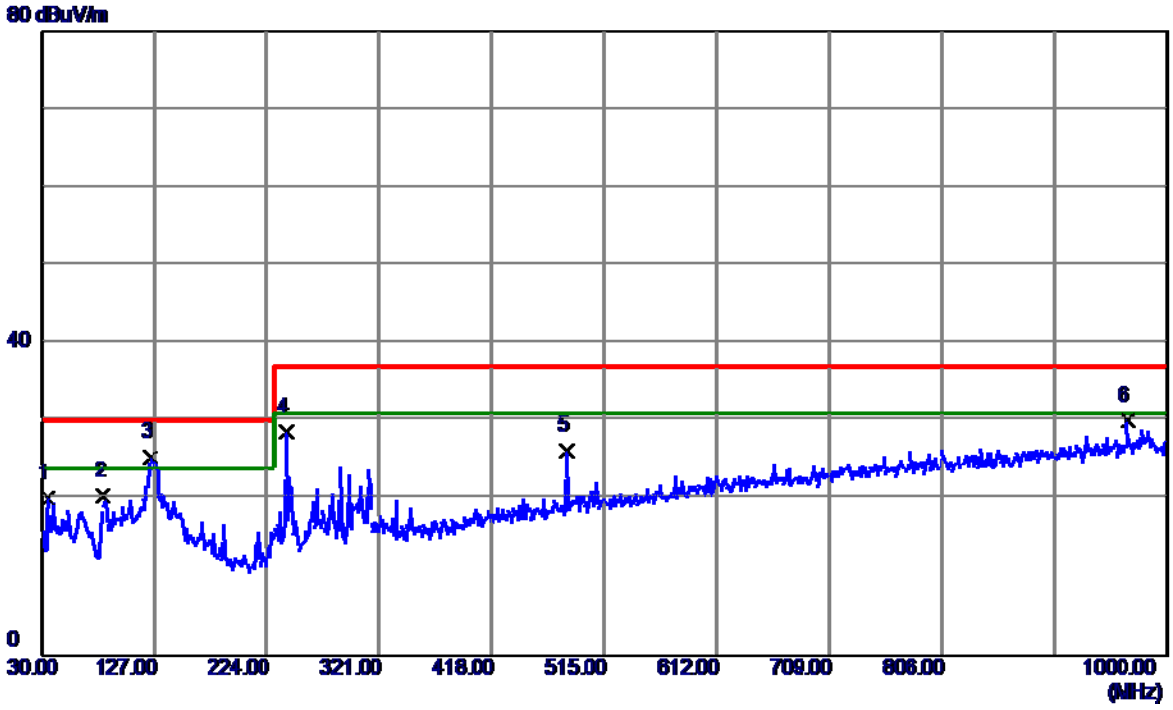
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	35.8200	40.56	-18.10	22.46	30.00	-7.54	QP
2	82.3800	42.50	-21.67	20.83	30.00	-9.17	QP
3 *	125.0600	43.32	-18.13	25.19	30.00	-4.81	QP
4	241.4600	48.09	-17.35	30.74	37.00	-6.26	QP
5	599.3900	32.00	-8.59	23.41	37.00	-13.59	QP
6	982.5400	32.75	-3.15	29.60	37.00	-7.40	QP

Test Voltage	AC 230V/50Hz	Polarization	Horizontal
Test Mode	HDMI1 1080P		



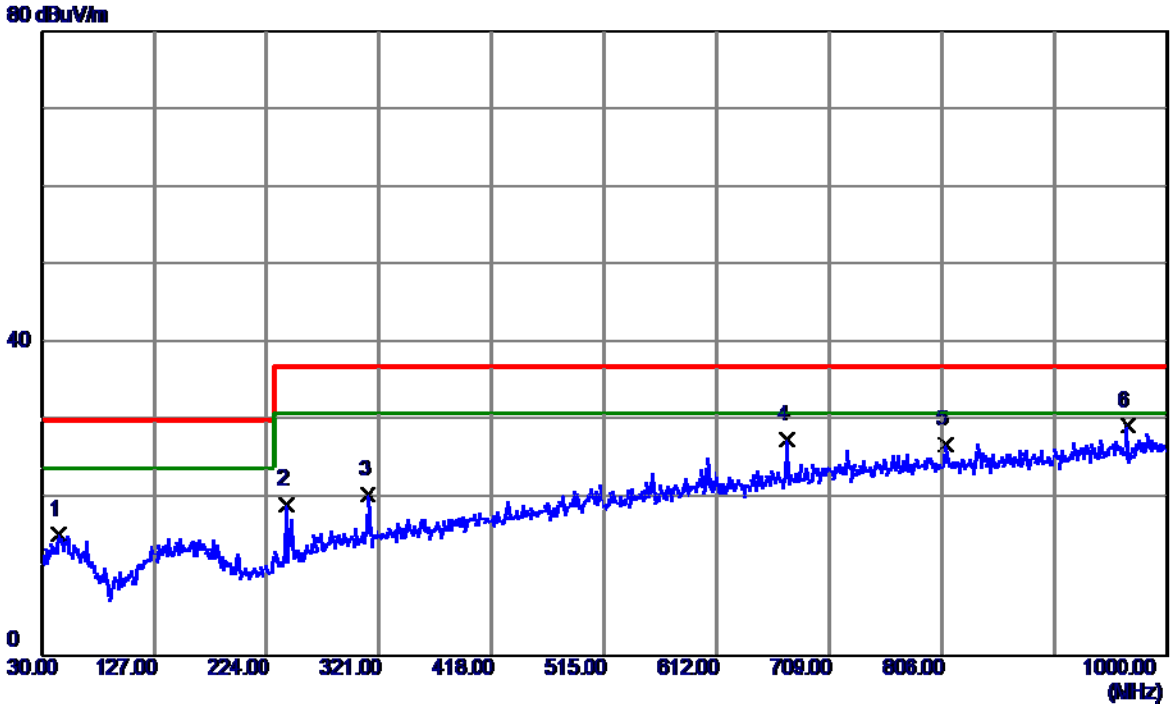
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	46.4900	33.13	-16.72	16.41	30.00	-13.59	QP
2	241.4600	36.41	-17.23	19.18	37.00	-17.82	QP
3	599.3900	34.22	-8.46	25.76	37.00	-11.24	QP
4	672.1400	34.95	-7.51	27.44	37.00	-9.56	QP
5	814.7300	31.79	-5.61	26.18	37.00	-10.82	QP
6 *	982.5400	32.17	-3.41	28.76	37.00	-8.24	QP

Test Voltage	AC 110V/60Hz	Phase	Line
Test Mode	HDMI1 2560*1440/75Hz		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	34.8500	38.45	-18.26	20.19	30.00	-9.81	QP
2	83.3500	42.35	-21.84	20.51	30.00	-9.49	QP
3 *	124.0900	43.68	-18.22	25.46	30.00	-4.54	QP
4	241.4600	45.95	-17.35	28.60	37.00	-8.40	QP
5	482.9900	37.24	-10.94	26.30	37.00	-10.70	QP
6	966.0500	33.35	-3.34	30.01	37.00	-6.99	QP

Test Voltage	AC 110V/60Hz	Phase	Neutral
Test Mode	HDMI1 2560*1440/75Hz		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	45.5200	32.26	-16.76	15.50	30.00	-14.50	QP
2	241.4600	36.66	-17.23	19.43	37.00	-17.57	QP
3	311.3000	35.34	-14.71	20.63	37.00	-16.37	QP
4	672.1400	35.12	-7.51	27.61	37.00	-9.39	QP
5	808.9099	32.73	-5.66	27.07	37.00	-9.93	QP
6 *	966.0500	33.00	-3.60	29.40	37.00	-7.60	QP

3.2 RADIATED EMISSION ABOVE 1 GHZ

3.2.1 LIMITS

Class B equipment above 1000MHz

Frequency MHz	Measurement		Class B limit dB(uV/m)
	Distance m	Detector type/bandwidth	FSOATS
1000-3000	3	Average / 1 MHz	50
3000-6000			54
1000-3000		Peak / 1 MHz	70
3000-6000			74

Notes:

(1) The limit for radiated test was performed according to as following: EN 55032

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

(4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
Margin Level = Measurement Value - Limit Value

Required highest frequency for radiated measurement

Highest internal frequency (F_x) MHz	Highest measured frequency MHz
$F_x \leqq 108$	1000
$108 < F_x \leqq 500$	2000
$500 < F_x \leqq 1000$	5000
$F_x > 1000$	5^{th} up to a maximum 6 GHz,

Note for FM and TV broadcast receiver, F_x is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies.

3.2.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	Horn Antenna	EMCO	3115	9605-4803	Mar. 23, 2020
2	Amplifier	Agilent	8449B	3008A02584	Aug. 03, 2020
3	MXE EMI Receiver	Agilent	N9038A	MY53220133	Mar. 10, 2020
4	Measurement Software	Farad	EZ-EMC Ver.BTL-2ANT-1	N/A	N/A
5	Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
6	Controller	MF	MF-7802	MF780208159	N/A
7	Cable	MIcable Inc.	B10-01-01-5M	18047123	Mar. 01, 2020
8	Cable	MIcable Inc.	B10-01-01-10M	18072746	Mar. 01, 2020
9	Cable	N/A	A50-3.5M3.5M-1.5M-AT	18041824	Mar. 01, 2020

Remark: “N/A” denotes no model no., no serial no. or no calibration specified.
All calibration period of equipment list is one year.

3.2.3 TEST PROCEDURE

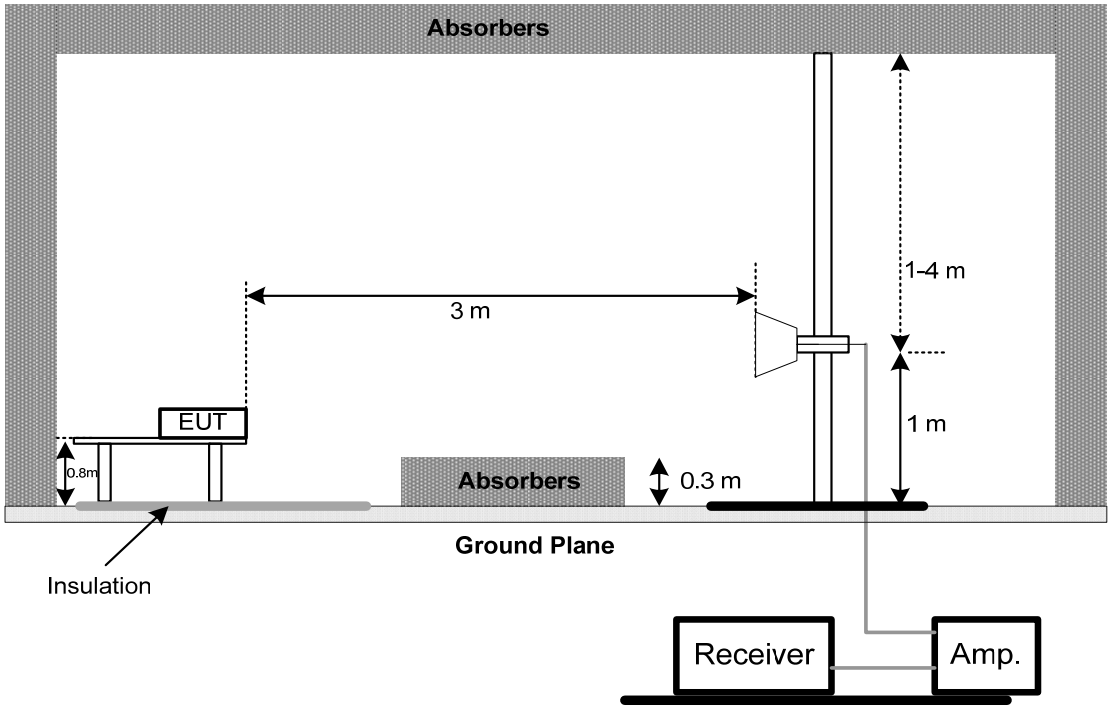
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
b. The height of the equipment or of the substitution antenna shall be 0.8 m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
c. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
d. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn‘t perform. (above 1GHz)
f. For the actual test configuration, please refer to the related Item - Block Diagram of system tested.

3.2.4 DEVIATION FROM TEST STANDARD

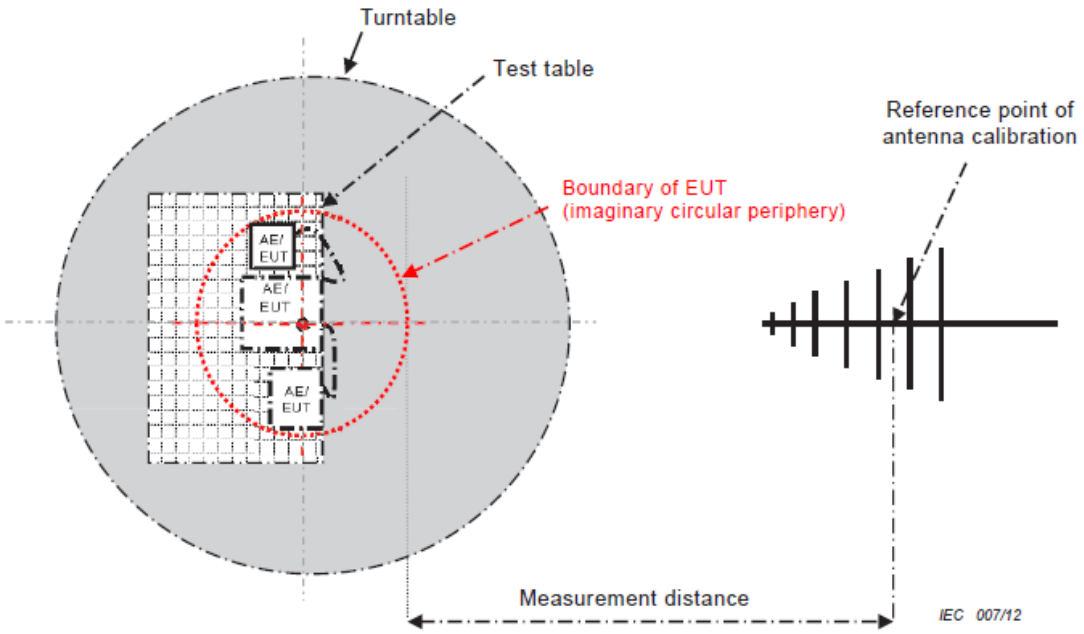
No deviation

3.2.5 TEST SETUP

ABOVE 1 GHZ



3.2.6 MEASUREMENT DISTANCE



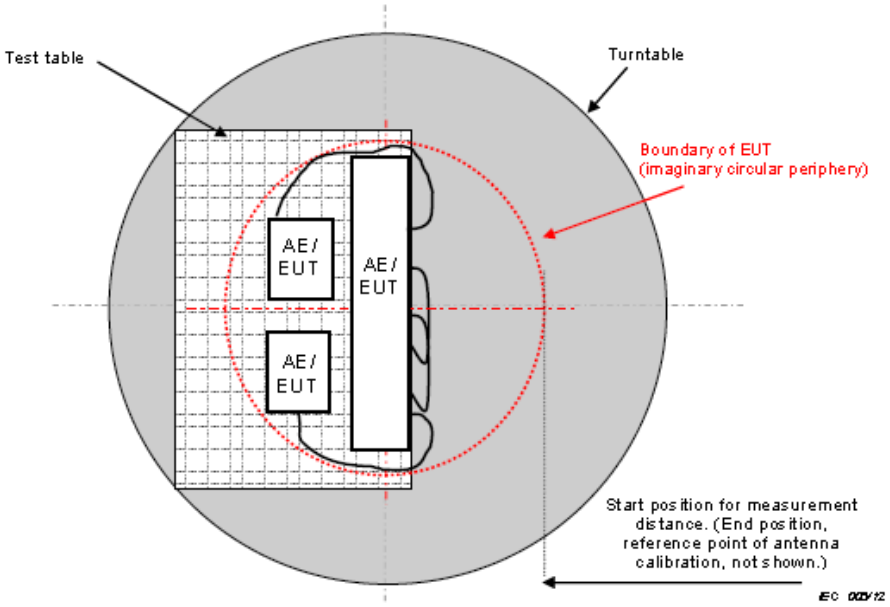
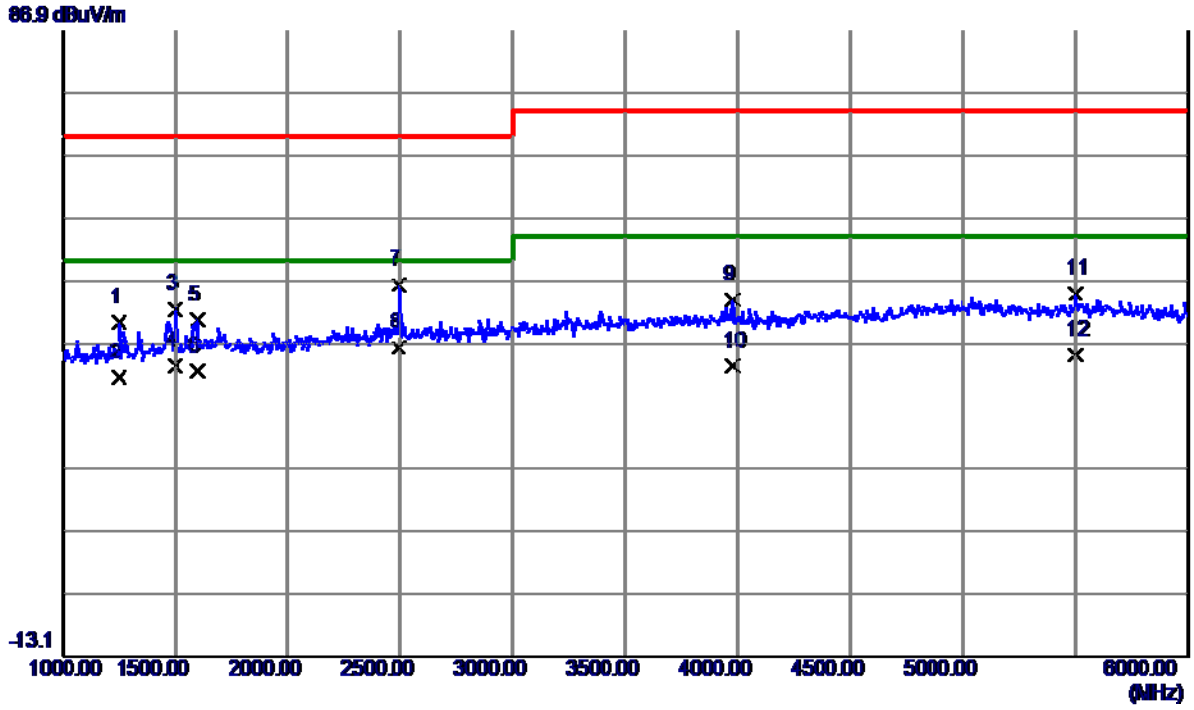


Figure C.2 – Boundary of EUT, Local AE and associated cabling

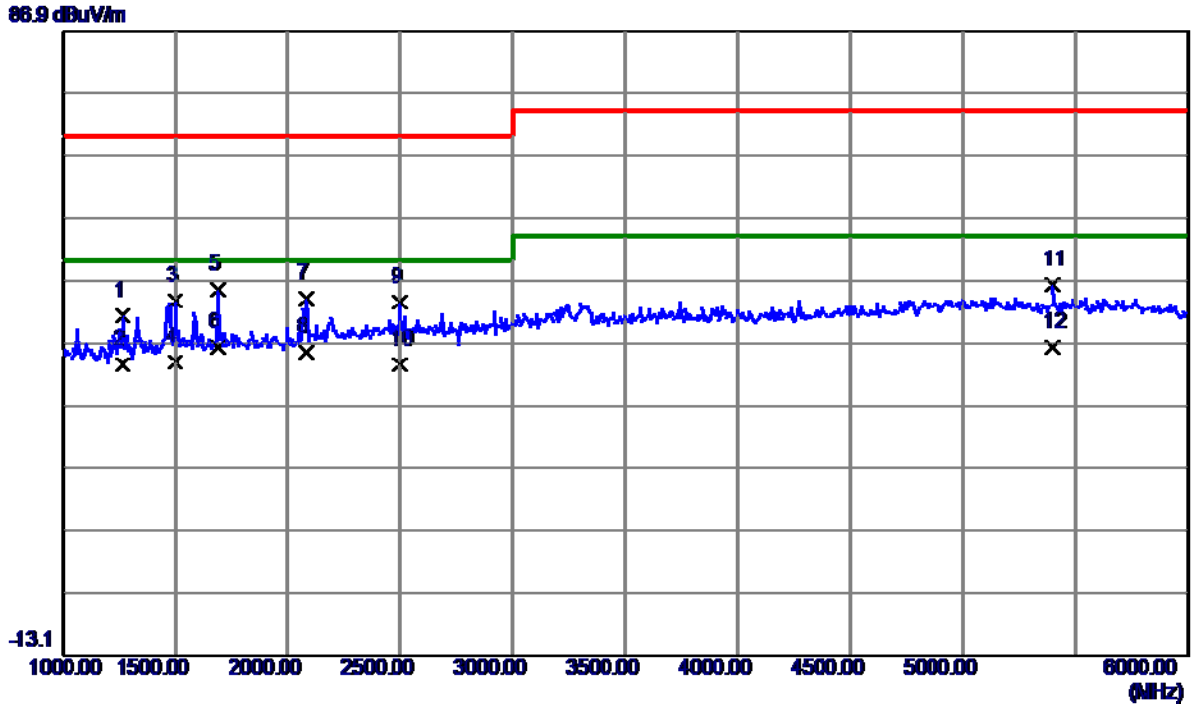
3.2.7 TEST RESULTS (ABOVE 1 GHZ)

Test Voltage	AC 230V/50Hz	Polarization	Vertical
Test Mode	HDMI1 2560*1440/75Hz		



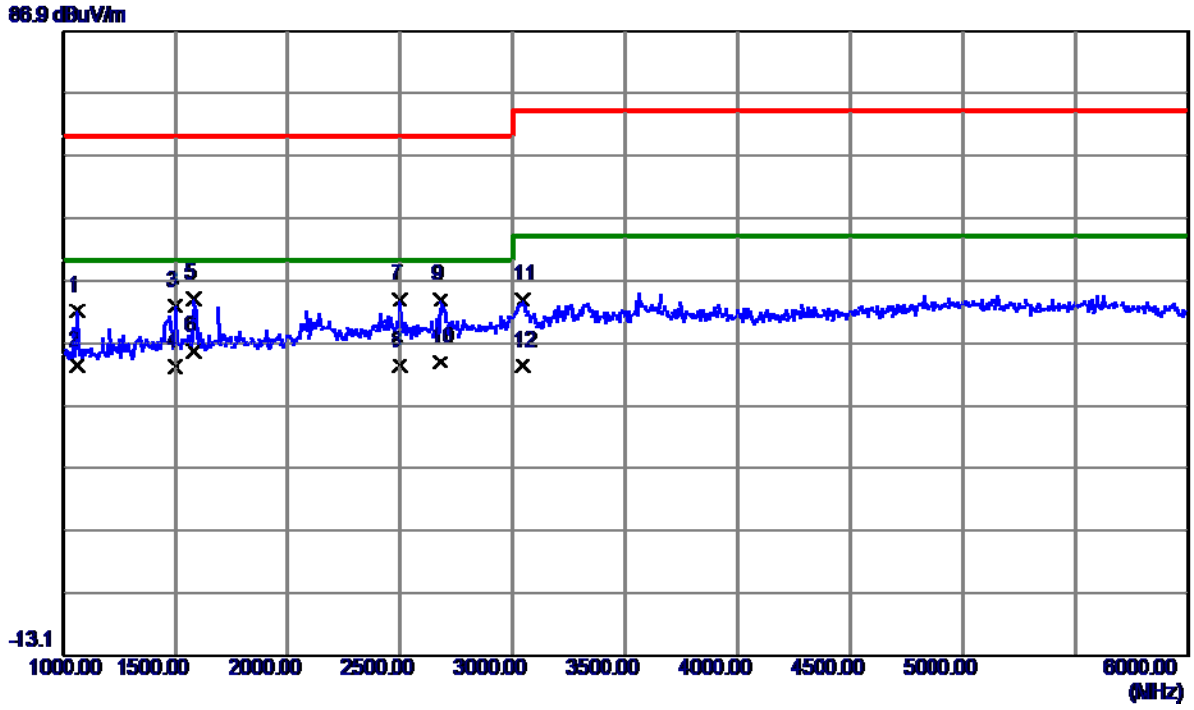
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1250.0000	45.69	-5.31	40.38	70.00	-29.62	Peak
2	1250.0000	36.88	-5.31	31.57	50.00	-18.43	AVG
3	1497.5000	45.98	-3.58	42.40	70.00	-27.60	Peak
4	1497.5000	36.87	-3.58	33.29	50.00	-16.71	AVG
5	1597.5000	44.00	-3.23	40.77	70.00	-29.23	Peak
6	1597.5000	35.64	-3.23	32.41	50.00	-17.59	AVG
7	2495.0000	46.06	0.17	46.23	70.00	-23.77	Peak
8 *	2495.0000	36.21	0.17	36.38	50.00	-13.62	AVG
9	3977.5000	39.18	4.69	43.87	74.00	-30.13	Peak
10	3977.5000	28.56	4.69	33.25	54.00	-20.75	AVG
11	5497.5000	36.73	8.14	44.87	74.00	-29.13	Peak
12	5497.5000	26.95	8.14	35.09	54.00	-18.91	AVG

Test Voltage	AC 230V/50Hz	Polarization	Horizontal
Test Mode	HDMI1 2560*1440/75Hz		



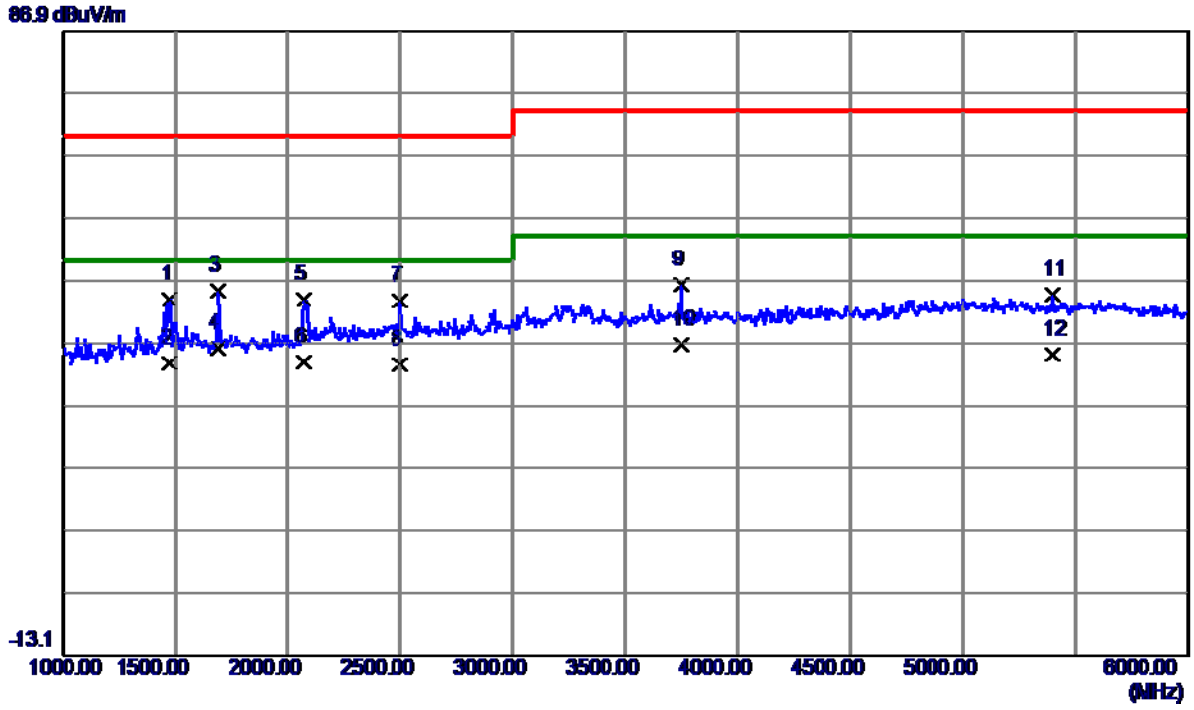
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1265.0000	46.45	-5.20	41.25	70.00	-28.75	Peak
2	1265.0000	38.77	-5.20	33.57	50.00	-16.43	AVG
3	1497.5000	47.21	-3.58	43.63	70.00	-26.37	Peak
4	1497.5000	37.44	-3.58	33.86	50.00	-16.14	AVG
5	1690.0000	48.42	-2.91	45.51	70.00	-24.49	Peak
6 *	1690.0000	39.20	-2.91	36.29	50.00	-13.71	AVG
7	2085.0000	45.66	-1.50	44.16	70.00	-25.84	Peak
8	2085.0000	36.91	-1.50	35.41	50.00	-14.59	AVG
9	2497.5000	43.25	0.18	43.43	70.00	-26.57	Peak
10	2497.5000	33.33	0.18	33.51	50.00	-16.49	AVG
11	5400.0000	38.16	8.05	46.21	74.00	-27.79	Peak
12	5400.0000	28.22	8.05	36.27	54.00	-17.73	AVG

Test Voltage	AC 230V/50Hz	Polarization	Vertical
Test Mode	DP 2560*1440/75Hz		



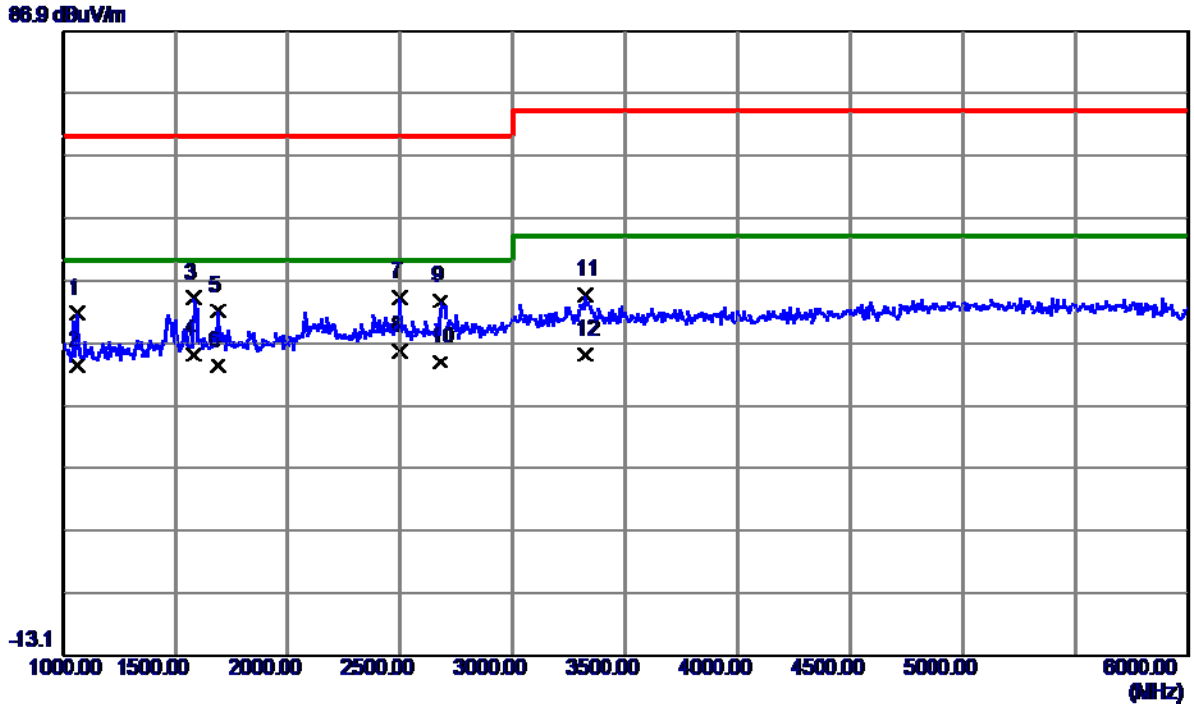
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1065.0000	48.71	-6.60	42.11	70.00	-27.89	Peak
2	1065.0000	39.89	-6.60	33.29	50.00	-16.71	AVG
3	1497.5000	46.51	-3.58	42.93	70.00	-27.07	Peak
4	1497.5000	36.75	-3.58	33.17	50.00	-16.83	AVG
5	1582.5000	47.33	-3.28	44.05	70.00	-25.95	Peak
6 *	1582.5000	38.92	-3.28	35.64	50.00	-14.36	AVG
7	2497.5000	43.78	0.18	43.96	70.00	-26.04	Peak
8	2497.5000	33.20	0.18	33.38	50.00	-16.62	AVG
9	2677.5000	43.15	0.69	43.84	70.00	-26.16	Peak
10	2677.5000	33.22	0.69	33.91	50.00	-16.09	AVG
11	3042.5000	42.21	1.73	43.94	74.00	-30.06	Peak
12	3042.5000	31.50	1.73	33.23	54.00	-20.77	AVG

Test Voltage	AC 230V/50Hz	Polarization	Horizontal
Test Mode	DP 2560*1440/75Hz		



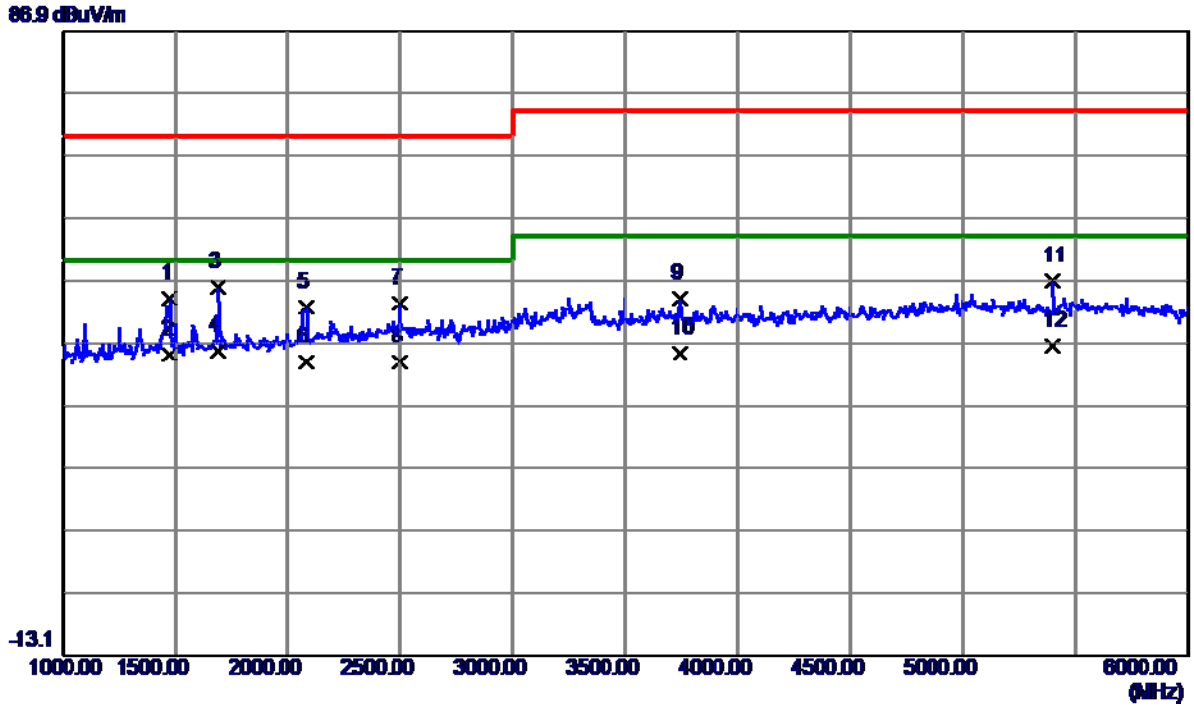
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1475.0000	47.57	-3.73	43.84	70.00	-26.16	Peak
2	1475.0000	37.41	-3.73	33.68	50.00	-16.32	AVG
3	1690.0000	48.28	-2.91	45.37	70.00	-24.63	Peak
4 *	1690.0000	39.08	-2.91	36.17	50.00	-13.83	AVG
5	2072.5000	45.43	-1.55	43.88	70.00	-26.12	Peak
6	2072.5000	35.50	-1.55	33.95	50.00	-16.05	AVG
7	2500.0000	43.57	0.19	43.76	70.00	-26.24	Peak
8	2500.0000	33.23	0.19	33.42	50.00	-16.58	AVG
9	3747.5000	42.28	4.01	46.29	74.00	-27.71	Peak
10	3747.5000	32.66	4.01	36.67	54.00	-17.33	AVG
11	5400.0000	36.71	8.05	44.76	74.00	-29.24	Peak
12	5400.0000	27.13	8.05	35.18	54.00	-18.82	AVG

Test Voltage	AC 230V/50Hz	Polarization	Vertical
Test Mode	HDMI1 1080P		



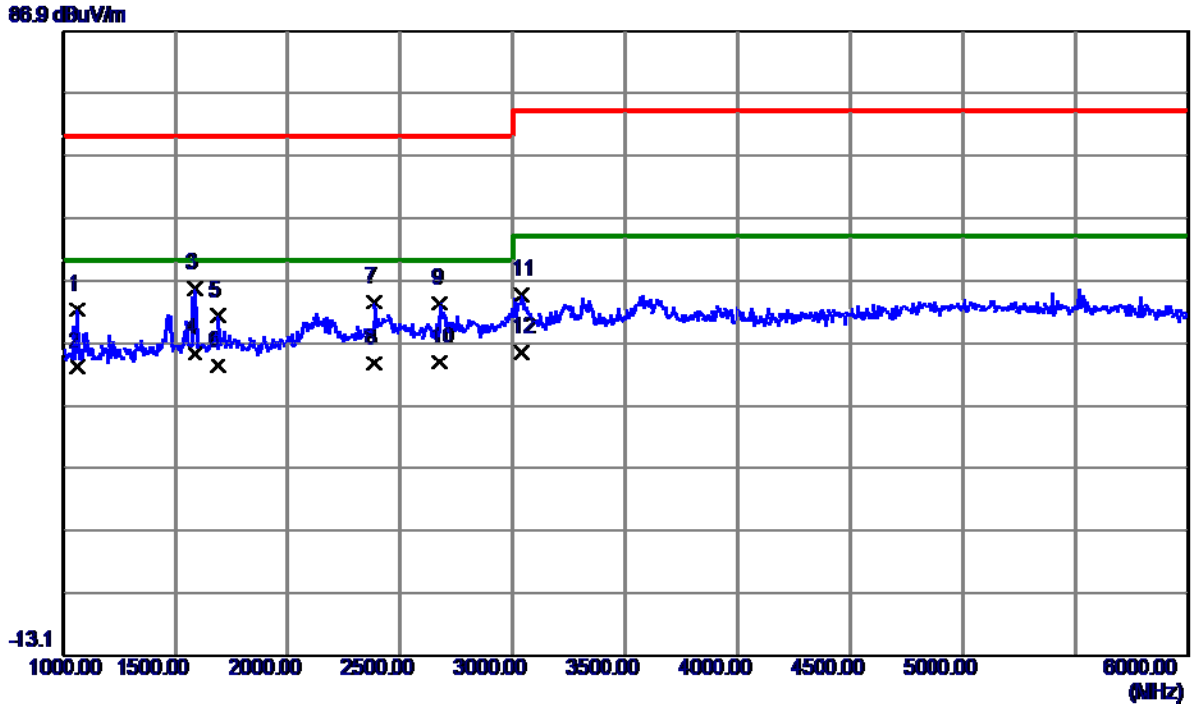
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1065.0000	48.22	-6.60	41.62	70.00	-28.38	Peak
2	1065.0000	39.81	-6.60	33.21	50.00	-16.79	AVG
3	1582.5000	47.48	-3.28	44.20	70.00	-25.80	Peak
4	1582.5000	38.44	-3.28	35.16	50.00	-14.84	AVG
5	1690.0000	45.10	-2.91	42.19	70.00	-27.81	Peak
6	1690.0000	36.19	-2.91	33.28	50.00	-16.72	AVG
7	2497.5000	44.06	0.18	44.24	70.00	-25.76	Peak
8 *	2497.5000	35.56	0.18	35.74	50.00	-14.26	AVG
9	2677.5000	42.99	0.69	43.68	70.00	-26.32	Peak
10	2677.5000	33.24	0.69	33.93	50.00	-16.07	AVG
11	3320.0000	42.08	2.67	44.75	74.00	-29.25	Peak
12	3320.0000	32.49	2.67	35.16	54.00	-18.84	AVG

Test Voltage	AC 230V/50Hz	Polarization	Horizontal
Test Mode	HDMI1 1080P		



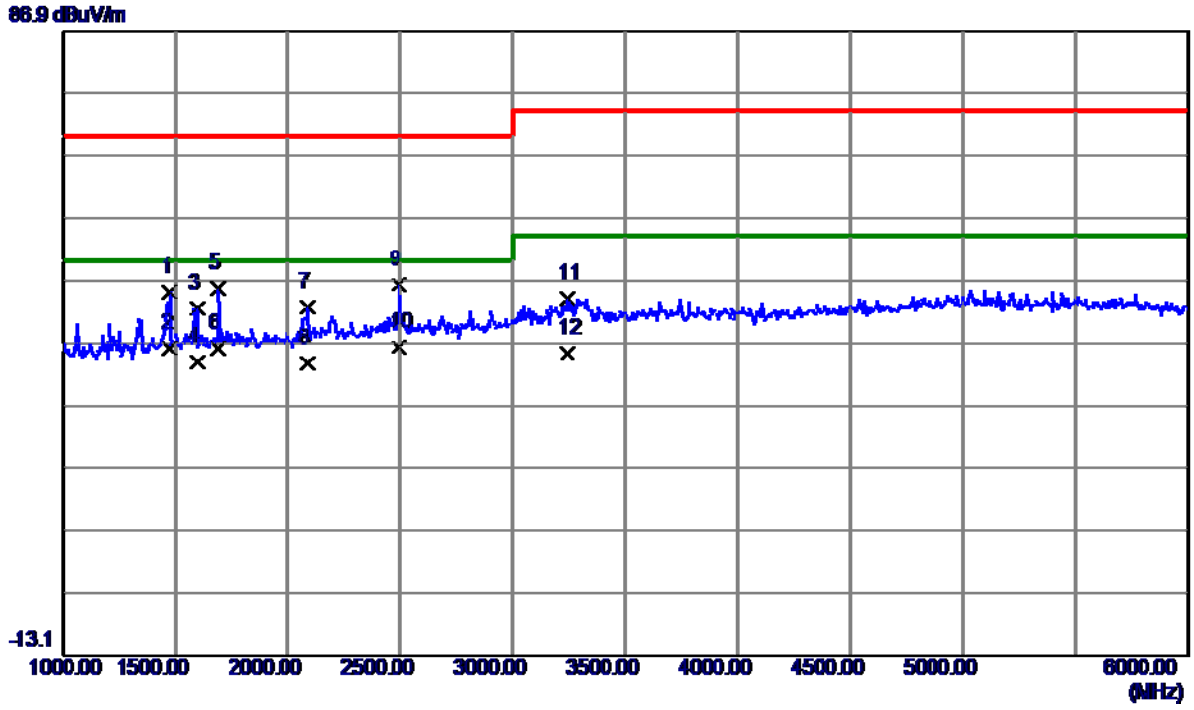
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1475.0000	47.78	-3.73	44.05	70.00	-25.95	Peak
2	1475.0000	38.77	-3.73	35.04	50.00	-14.96	AVG
3	1690.0000	48.81	-2.91	45.90	70.00	-24.10	Peak
4 *	1690.0000	38.56	-2.91	35.65	50.00	-14.35	AVG
5	2082.5000	44.20	-1.51	42.69	70.00	-27.31	Peak
6	2082.5000	35.42	-1.51	33.91	50.00	-16.09	AVG
7	2497.5000	43.08	0.18	43.26	70.00	-26.74	Peak
8	2497.5000	33.63	0.18	33.81	50.00	-16.19	AVG
9	3745.0000	40.09	4.00	44.09	74.00	-29.91	Peak
10	3745.0000	31.29	4.00	35.29	54.00	-18.71	AVG
11	5400.0000	38.94	8.05	46.99	74.00	-27.01	Peak
12	5400.0000	28.42	8.05	36.47	54.00	-17.53	AVG

Test Voltage	AC 110V/60Hz	Polarization	Vertical
Test Mode	HDMI1 2560*1440/75Hz		



No.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1065.0000	48.94	-6.60	42.34	70.00	-27.66	Peak
2	1065.0000	39.77	-6.60	33.17	50.00	-16.83	AVG
3	1587.5000	48.96	-3.26	45.70	70.00	-24.30	Peak
4 *	1587.5000	38.51	-3.26	35.25	50.00	-14.75	AVG
5	1690.0000	44.21	-2.91	41.30	70.00	-28.70	Peak
6	1690.0000	36.27	-2.91	33.36	50.00	-16.64	AVG
7	2385.0000	43.75	-0.28	43.47	70.00	-26.53	Peak
8	2385.0000	33.90	-0.28	33.62	50.00	-16.38	AVG
9	2675.0000	42.67	0.68	43.35	70.00	-26.65	Peak
10	2675.0000	33.17	0.68	33.85	50.00	-16.15	AVG
11	3037.5000	42.98	1.72	44.70	74.00	-29.30	Peak
12	3037.5000	33.69	1.72	35.41	54.00	-18.59	AVG

Test Voltage	AC 110V/60Hz	Polarization	Horizontal
Test Mode	HDMI1 2560*1440/75Hz		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1475.0000	48.82	-3.73	45.09	70.00	-24.91	Peak
2	1475.0000	39.81	-3.73	36.08	50.00	-13.92	AVG
3	1597.5000	45.68	-3.23	42.45	70.00	-27.55	Peak
4	1597.5000	37.07	-3.23	33.84	50.00	-16.16	AVG
5	1690.0000	48.64	-2.91	45.73	70.00	-24.27	Peak
6	1690.0000	39.10	-2.91	36.19	50.00	-13.81	AVG
7	2087.5000	44.23	-1.49	42.74	70.00	-27.26	Peak
8	2087.5000	35.20	-1.49	33.71	50.00	-16.29	AVG
9	2495.0000	46.09	0.17	46.26	70.00	-23.74	Peak
10 *	2495.0000	36.07	0.17	36.24	50.00	-13.76	AVG
11	3245.0000	41.62	2.41	44.03	74.00	-29.97	Peak
12	3245.0000	32.94	2.41	35.35	54.00	-18.65	AVG

3.3 CONDUCTED EMISSION MEASUREMENT AT AC MAINS POWER PORTS

3.3.1 LIMITS

Requirements for conducted emissions from AC mains power ports of Class B equipment

Frequency Range MHz	Coupling Device	Detector Type / bandwidth	Class B Limits (dB(μV))
0.15 - 0.5	AMN	Quasi Peak / 9 kHz	66-56
0.5 - 5			56
5 - 30			60
0.15 - 0.5	AMN	Average / 9 kHz	56-46
0.5 - 5			46
5 - 0			50

NOTE:

(1) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)
Margin Level = Measurement Value – Limit Value

3.3.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	EMI Test Receiver	R&S	ESCI	100382	Mar. 10, 2020
2	LISN	EMCO	3816/2	52765	Mar. 10, 2020
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	May. 19, 2020
4	50Ω Terminator	SHX	TF5-3	15041305	Mar. 10, 2020
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A 1-01	N/A	N/A
6	Cable	N/A	RG223	12m	Mar. 12, 2020

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

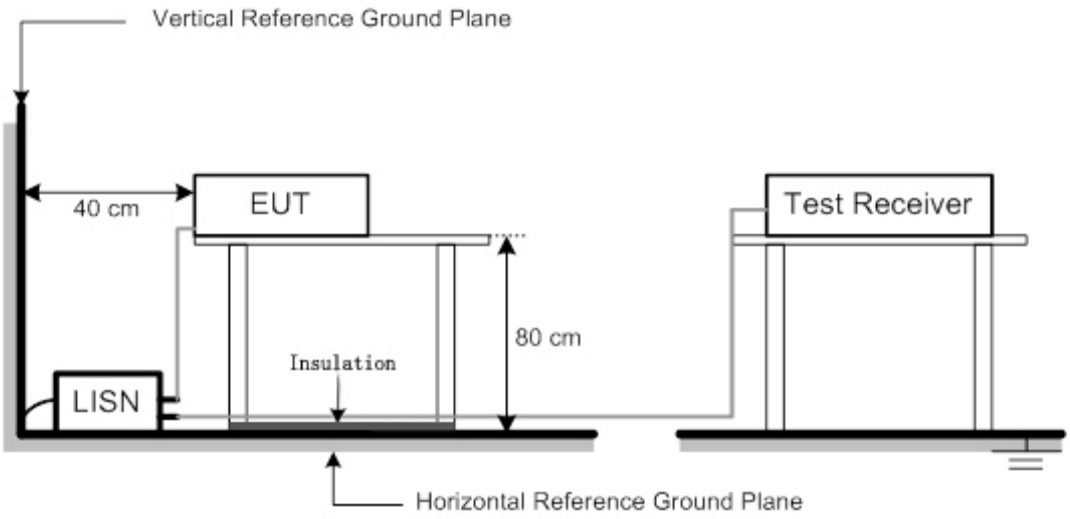
3.3.3 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.3.4 DEVIATION FROM TEST STANDARD

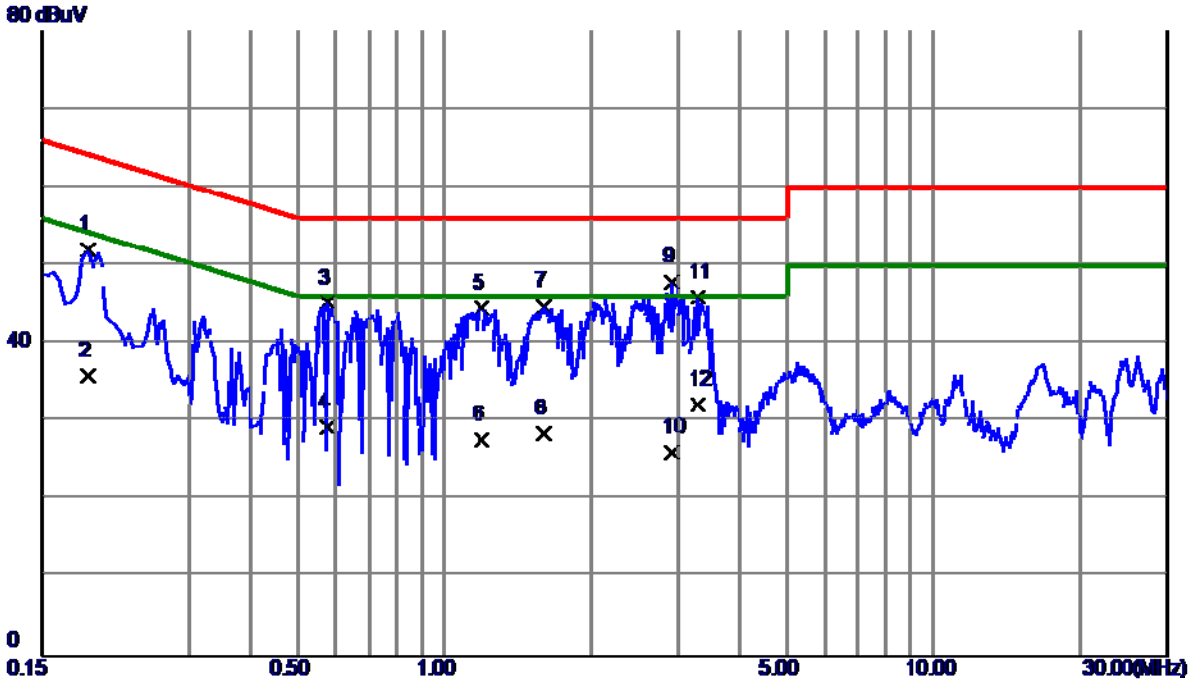
No deviation

3.3.5 TEST SETUP



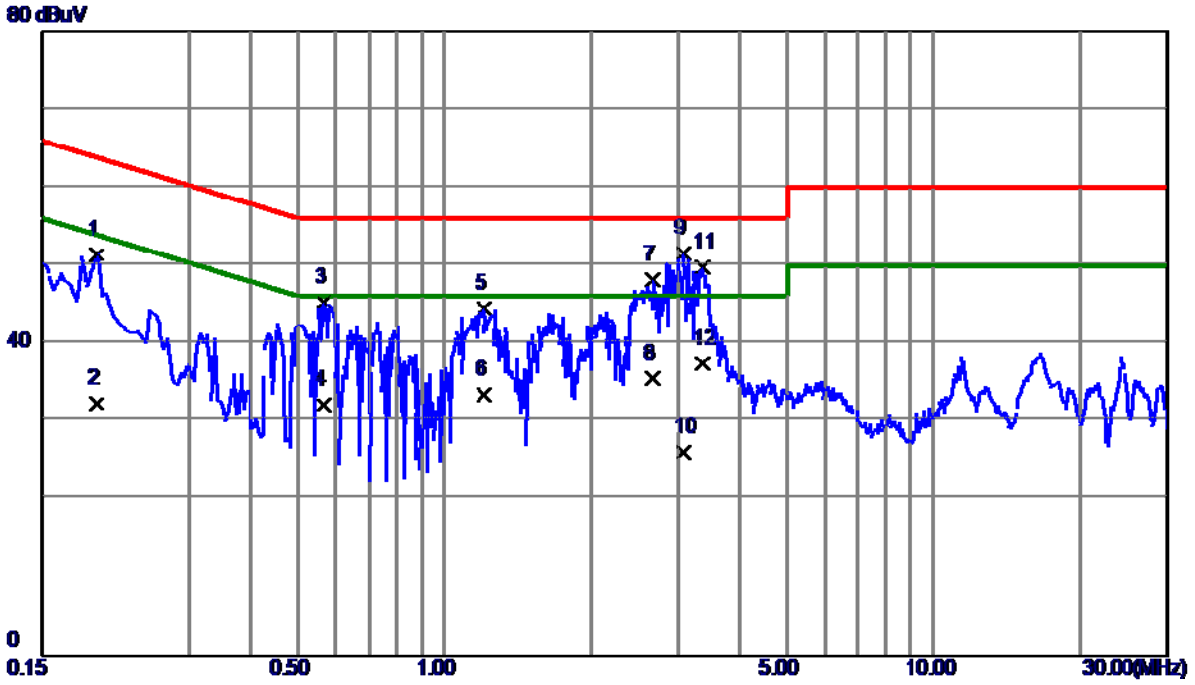
3.3.6 TEST RESULTS

Test Voltage	AC 230V/50Hz	Phase	Line
Test Mode	HDMI1 2560*1440/75Hz		



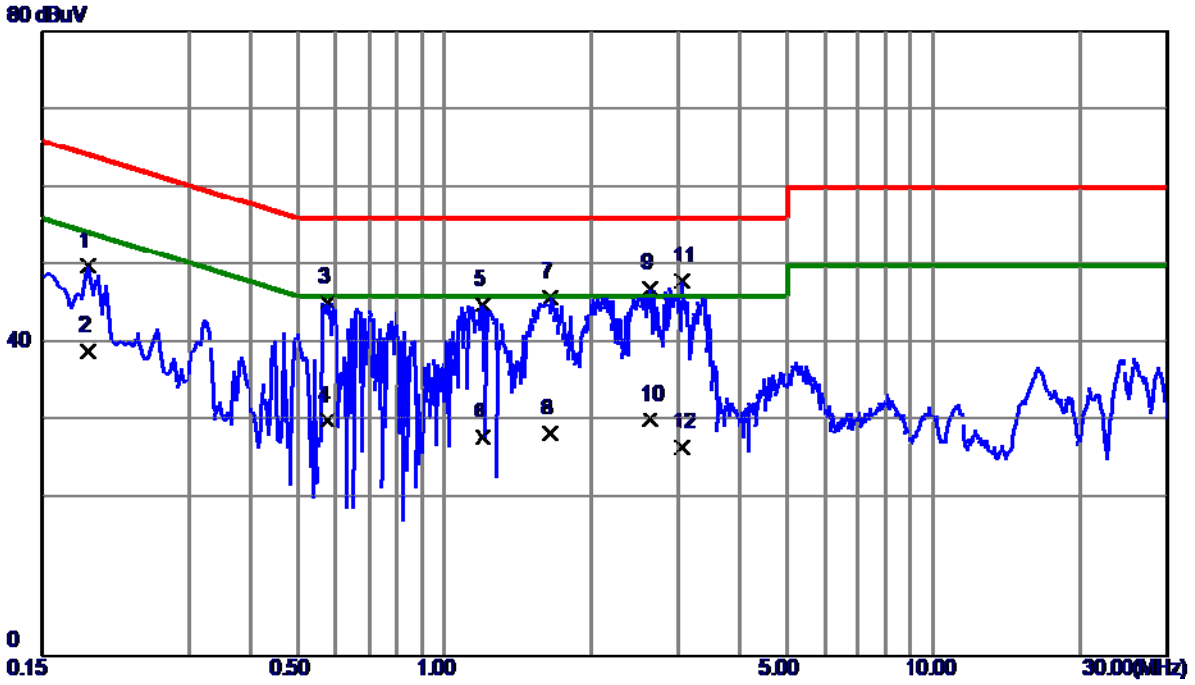
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.1860	42.26	9.81	52.07	64.21	-12.14	QP
2	0.1860	26.10	9.81	35.91	54.21	-18.30	AVG
3	0.5775	35.31	9.89	45.20	56.00	-10.80	QP
4	0.5775	19.40	9.89	29.29	46.00	-16.71	AVG
5	1.1940	34.56	9.93	44.49	56.00	-11.51	QP
6	1.1940	17.78	9.93	27.71	46.00	-18.29	AVG
7	1.6035	34.76	9.96	44.72	56.00	-11.28	QP
8	1.6035	18.50	9.96	28.46	46.00	-17.54	AVG
9 *	2.9085	37.86	10.05	47.91	56.00	-8.09	QP
10	2.9085	16.01	10.05	26.06	46.00	-19.94	AVG
11	3.2910	35.83	10.08	45.91	56.00	-10.09	QP
12	3.2910	22.15	10.08	32.23	46.00	-13.77	AVG

Test Voltage	AC 230V/50Hz	Phase	Neutral
Test Mode	HDMI1 2560*1440/75Hz		



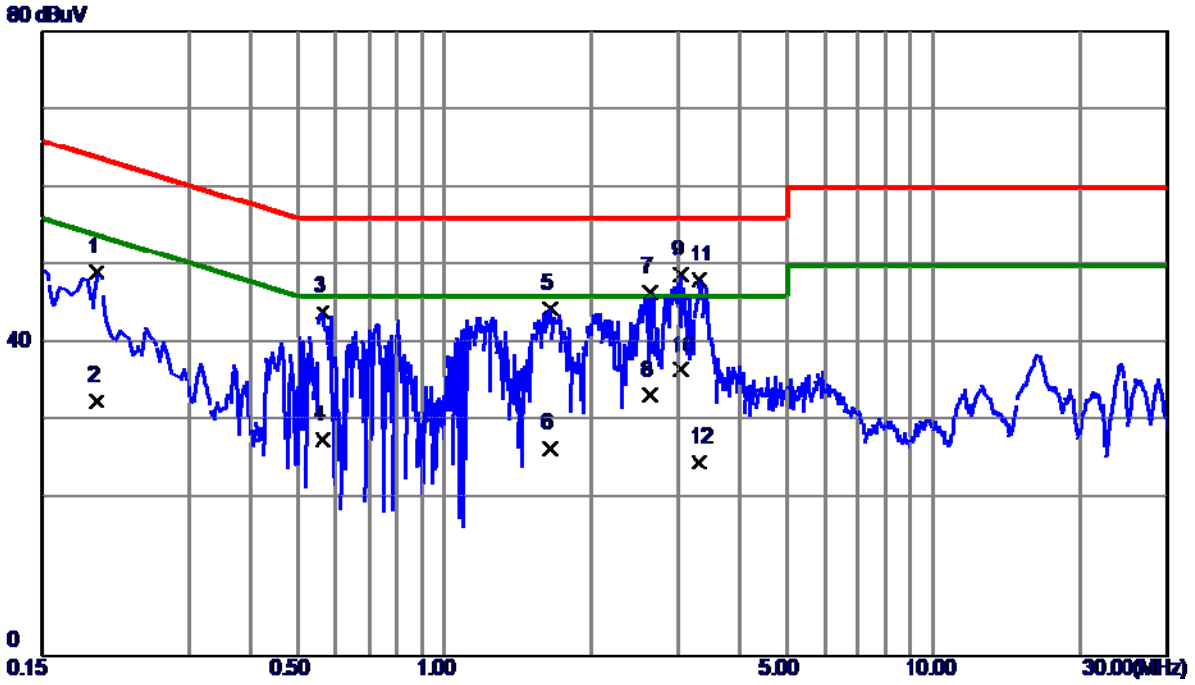
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.1949	41.51	9.90	51.41	63.83	-12.42	QP
2	0.1949	22.40	9.90	32.30	53.83	-21.53	AVG
3	0.5684	35.19	10.04	45.23	56.00	-10.77	QP
4	0.5684	22.14	10.04	32.18	46.00	-13.82	AVG
5	1.2030	34.42	10.13	44.55	56.00	-11.45	QP
6	1.2030	23.24	10.13	33.37	46.00	-12.63	AVG
7	2.6655	37.92	10.23	48.15	56.00	-7.85	QP
8	2.6655	25.33	10.23	35.56	46.00	-10.44	AVG
9 *	3.0705	41.34	10.25	51.59	56.00	-4.41	QP
10	3.0705	15.80	10.25	26.05	46.00	-19.95	AVG
11	3.3720	39.50	10.28	49.78	56.00	-6.22	QP
12	3.3720	27.15	10.28	37.43	46.00	-8.57	AVG

Test Voltage	AC 230V/50Hz	Phase	Line
Test Mode	DP 2560*1440/75Hz		



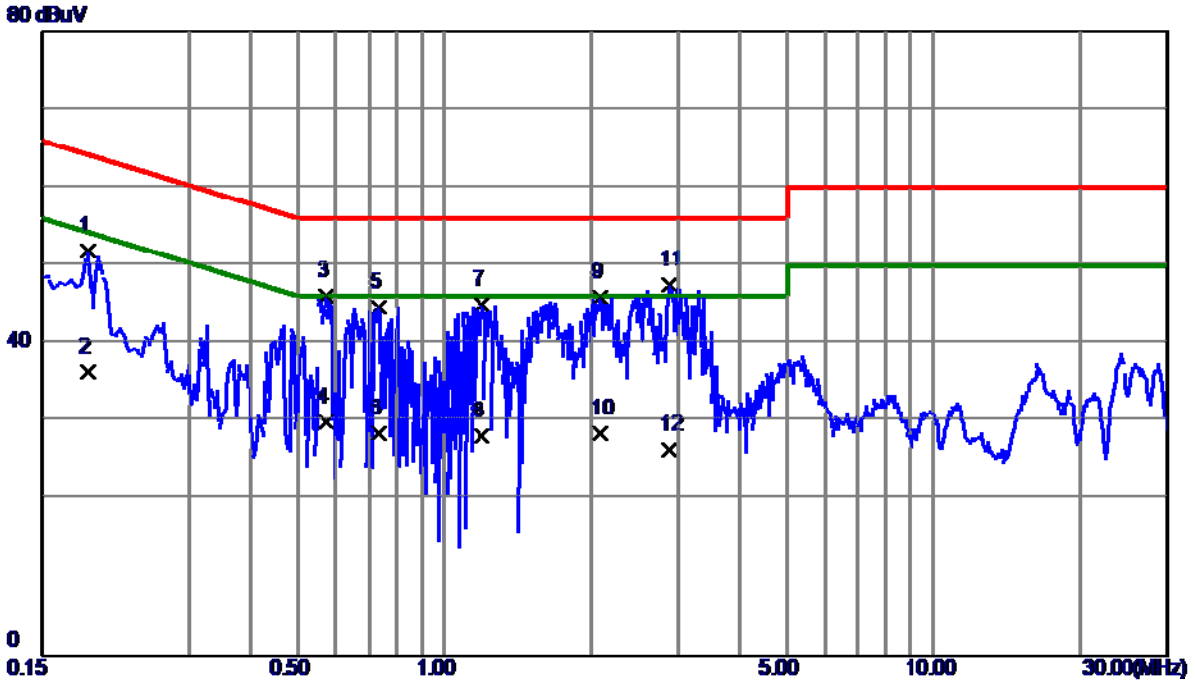
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.1860	40.13	9.81	49.94	64.21	-14.27	QP
2	0.1860	29.16	9.81	38.97	54.21	-15.24	AVG
3	0.5775	35.41	9.89	45.30	56.00	-10.70	QP
4	0.5775	20.20	9.89	30.09	46.00	-15.91	AVG
5	1.1985	35.05	9.93	44.98	56.00	-11.02	QP
6	1.1985	18.00	9.93	27.93	46.00	-18.07	AVG
7	1.6485	35.93	9.97	45.90	56.00	-10.10	QP
8	1.6485	18.50	9.97	28.47	46.00	-17.53	AVG
9	2.6430	37.03	10.03	47.06	56.00	-8.94	QP
10	2.6430	20.14	10.03	30.17	46.00	-15.83	AVG
11 *	3.0525	37.97	10.06	48.03	56.00	-7.97	QP
12	3.0525	16.70	10.06	26.76	46.00	-19.24	AVG

Test Voltage	AC 230V/50Hz	Phase	Neutral
Test Mode	DP 2560*1440/75Hz		



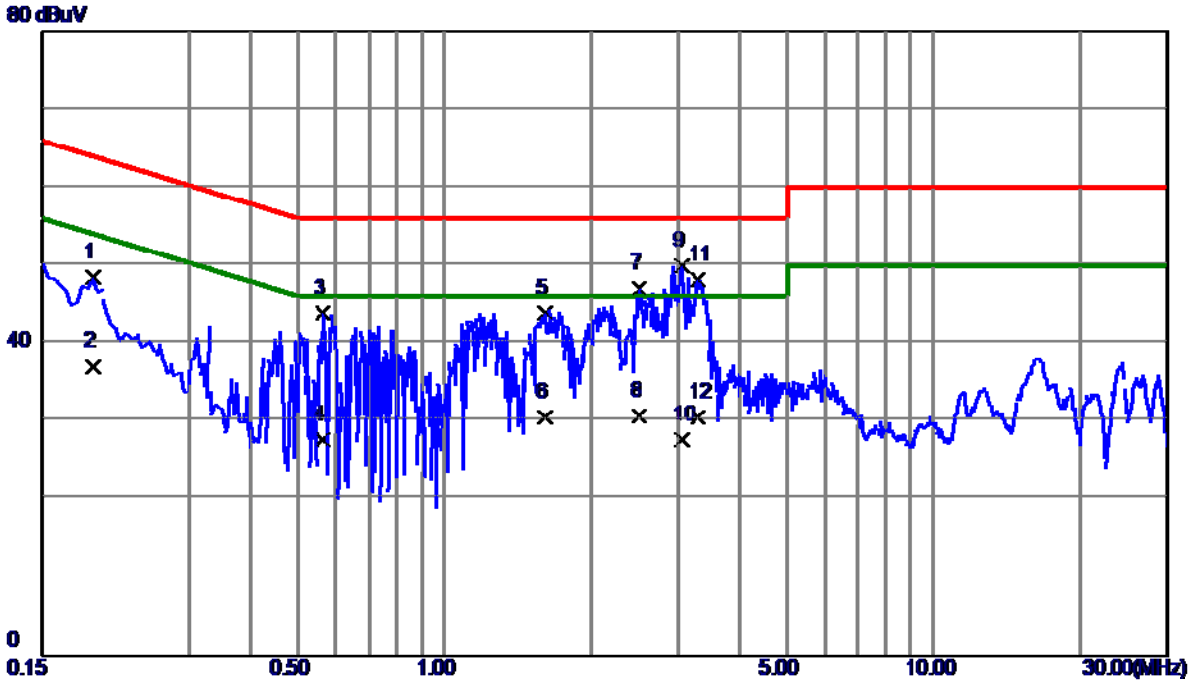
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.1949	39.18	9.90	49.08	63.83	-14.75	QP
2	0.1949	22.80	9.90	32.70	53.83	-21.13	AVG
3	0.5639	34.04	10.04	44.08	56.00	-11.92	QP
4	0.5639	17.70	10.04	27.74	46.00	-18.26	AVG
5	1.6485	34.29	10.17	44.46	56.00	-11.54	QP
6	1.6485	16.40	10.17	26.57	46.00	-19.43	AVG
7	2.6340	36.35	10.22	46.57	56.00	-9.43	QP
8	2.6340	23.14	10.22	33.36	46.00	-12.64	AVG
9 *	3.0435	38.58	10.25	48.83	56.00	-7.17	QP
10	3.0435	26.31	10.25	36.56	46.00	-9.44	AVG
11	3.3270	37.91	10.27	48.18	56.00	-7.82	QP
12	3.3270	14.50	10.27	24.77	46.00	-21.23	AVG

Test Voltage	AC 230V/50Hz	Phase	Line
Test Mode	HDMI1 1080P		



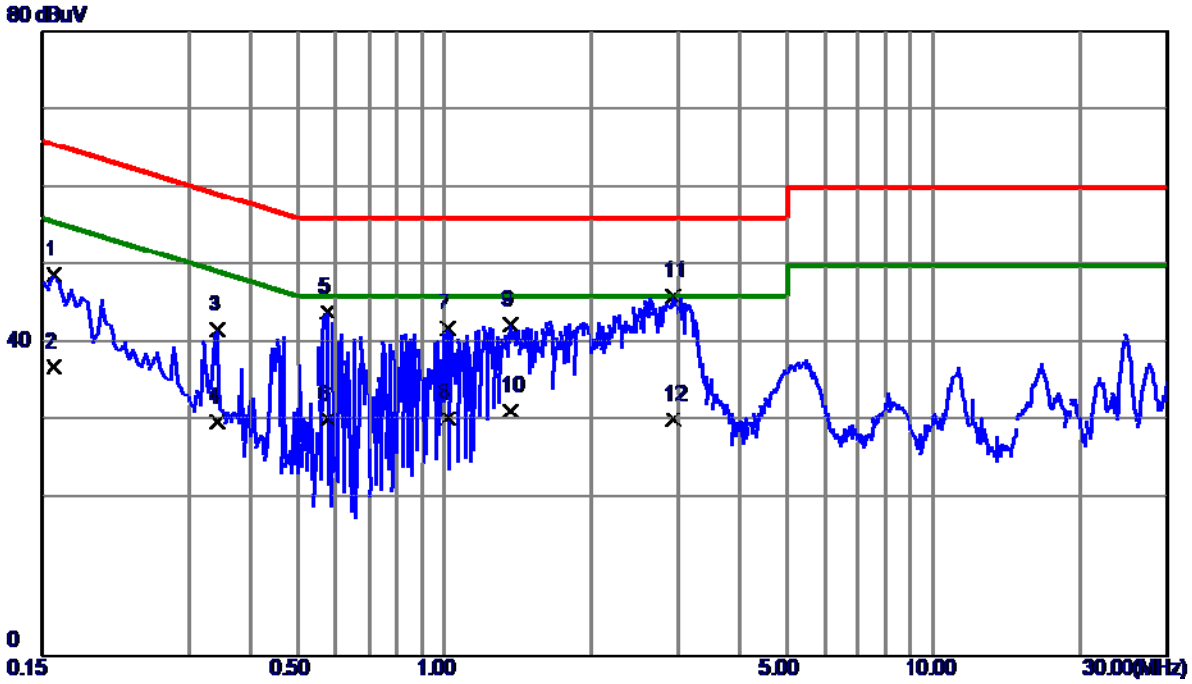
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.1860	42.05	9.81	51.86	64.21	-12.35	QP
2	0.1860	26.50	9.81	36.31	54.21	-17.90	AVG
3	0.5730	36.21	9.89	46.10	56.00	-9.90	QP
4	0.5730	20.10	9.89	29.99	46.00	-16.01	AVG
5	0.7350	34.75	9.90	44.65	56.00	-11.35	QP
6	0.7350	18.60	9.90	28.50	46.00	-17.50	AVG
7	1.1940	35.00	9.93	44.93	56.00	-11.07	QP
8	1.1940	18.30	9.93	28.23	46.00	-17.77	AVG
9	2.0805	35.98	10.00	45.98	56.00	-10.02	QP
10	2.0805	18.50	10.00	28.50	46.00	-17.50	AVG
11 *	2.8860	37.54	10.05	47.59	56.00	-8.41	QP
12	2.8860	16.40	10.05	26.45	46.00	-19.55	AVG

Test Voltage	AC 230V/50Hz	Phase	Neutral
Test Mode	HDMI1 1080P		



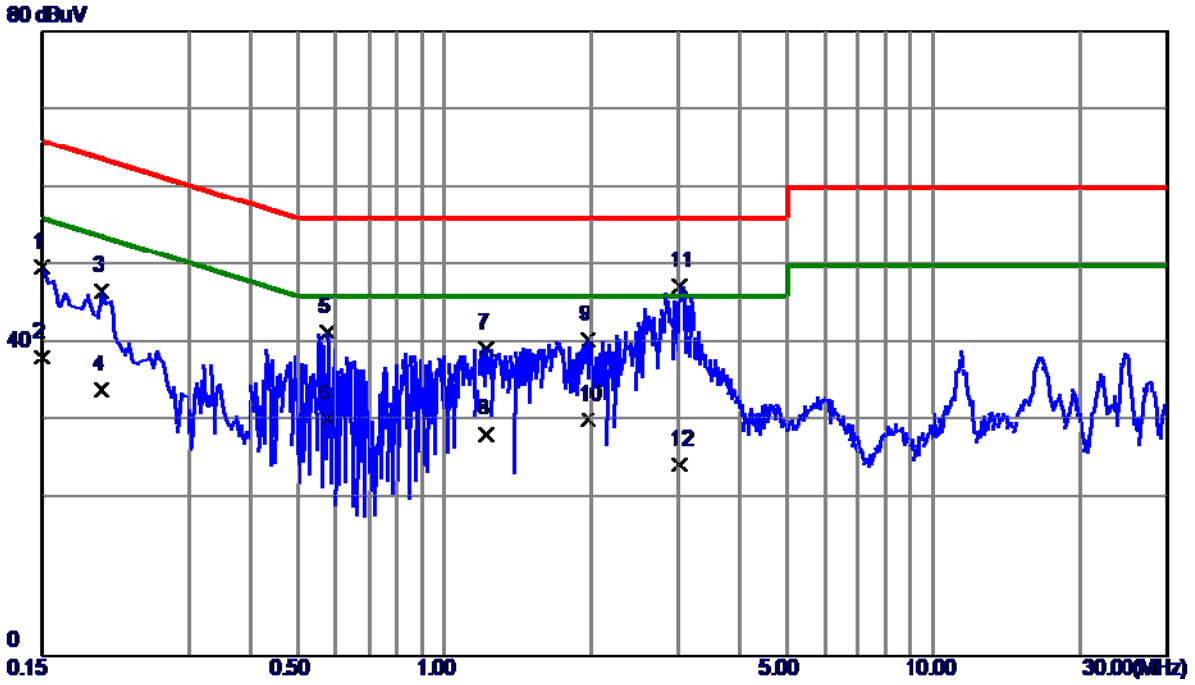
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.1905	38.56	9.90	48.46	64.01	-15.55	QP
2	0.1905	27.14	9.90	37.04	54.01	-16.97	AVG
3	0.5639	33.73	10.04	43.77	56.00	-12.23	QP
4	0.5639	17.70	10.04	27.74	46.00	-18.26	AVG
5	1.6125	33.64	10.16	43.80	56.00	-12.20	QP
6	1.6125	20.35	10.16	30.51	46.00	-15.49	AVG
7	2.4990	36.76	10.21	46.97	56.00	-9.03	QP
8	2.4990	20.53	10.21	30.74	46.00	-15.26	AVG
9 *	3.0570	39.61	10.25	49.86	56.00	-6.14	QP
10	3.0570	17.40	10.25	27.65	46.00	-18.35	AVG
11	3.3000	37.82	10.27	48.09	56.00	-7.91	QP
12	3.3000	20.35	10.27	30.62	46.00	-15.38	AVG

Test Voltage	AC 110V/60Hz	Phase	Line
Test Mode	HDMI1 2560*1440/75Hz		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.1590	39.03	9.82	48.85	65.52	-16.67	QP
2	0.1590	27.14	9.82	36.96	55.52	-18.56	AVG
3	0.3435	31.85	9.85	41.70	59.12	-17.42	QP
4	0.3435	20.14	9.85	29.99	49.12	-19.13	AVG
5	0.5775	34.15	9.89	44.04	56.00	-11.96	QP
6	0.5775	20.35	9.89	30.24	46.00	-15.76	AVG
7	1.0184	31.97	9.92	41.89	56.00	-14.11	QP
8	1.0184	20.53	9.92	30.45	46.00	-15.55	AVG
9	1.3605	32.49	9.95	42.44	56.00	-13.56	QP
10	1.3605	21.36	9.95	31.31	46.00	-14.69	AVG
11 *	2.9265	36.02	10.05	46.07	56.00	-9.93	QP
12	2.9265	20.25	10.05	30.30	46.00	-15.70	AVG

Test Voltage	AC 110V/60Hz	Phase	Neutral
Test Mode	HDMI1 2560*1440/75Hz		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.1500	39.90	9.91	49.81	66.00	-16.19	QP
2	0.1500	28.34	9.91	38.25	56.00	-17.75	AVG
3	0.1995	36.77	9.90	46.67	63.63	-16.96	QP
4	0.1995	24.15	9.90	34.05	53.63	-19.58	AVG
5	0.5775	31.40	10.04	41.44	56.00	-14.56	QP
6	0.5775	20.14	10.04	30.18	46.00	-15.82	AVG
7	1.2164	29.28	10.14	39.42	56.00	-16.58	QP
8	1.2164	18.26	10.14	28.40	46.00	-17.60	AVG
9	1.9680	30.35	10.19	40.54	56.00	-15.46	QP
10	1.9680	20.10	10.19	30.29	46.00	-15.71	AVG
11 *	3.0120	37.17	10.25	47.42	56.00	-8.58	QP
12	3.0120	14.20	10.25	24.45	46.00	-21.55	AVG

4. EMC EMISSION TEST- EN 55032:2015+AC:2016

4.1 RADIATED EMISSIONS UP TO 1 GHZ

4.1.1 LIMITS

Class B equipment up to 1000MHz

Frequency Range MHz	Measurement			Class B limits dB(μV/m)
	Facility	Distance m	Detector type/ bandwidth	
30 - 230	SAC	10	Quasi peak / 120 kHz	30
230 - 1000				37

Notes:

(1) The limit for radiated test was performed according to as following: EN 55032

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

(4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
Margin Level = Measurement Value - Limit Value

4.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	Receiver	Keysight	N9038A	MY54450004	Aug. 03, 2020
2	MXE EMI Receiver	Agilent	N9038A	MY53220133	Mar. 10, 2020
3	Pre-Amplifier	EMC INSTRUMENT	EMC 9135	980284	Mar. 10, 2020
4	Pre-Amplifier	EMC INSTRUMENT	EMC 9135	980283	Mar. 10, 2020
5	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	946	Nov. 24, 2019
6	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	947	Nov. 24, 2019
7	Cable	emci	LMR-400(5m+1 1m+15m)	N/A	Aug. 06, 2020
8	Cable	emci	LMR-400(5m+8 m+8m)	N/A	Aug. 06, 2020
9	Measurement Software	Farad	EZ-EMC Ver.BTL-2ANT-1	N/A	N/A
10	Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
11	Attenuator	EMCI	EMCI-N-6-06	N0670	Nov. 24, 2019
12	Attenuator	EMCI	EMCI-N-6-06	N0671	Nov. 24, 2019

Remark: “N/A” denotes no model no., no serial no. or no calibration specified.
All calibration period of equipment list is one year.

4.1.3 TEST PROCEDURE

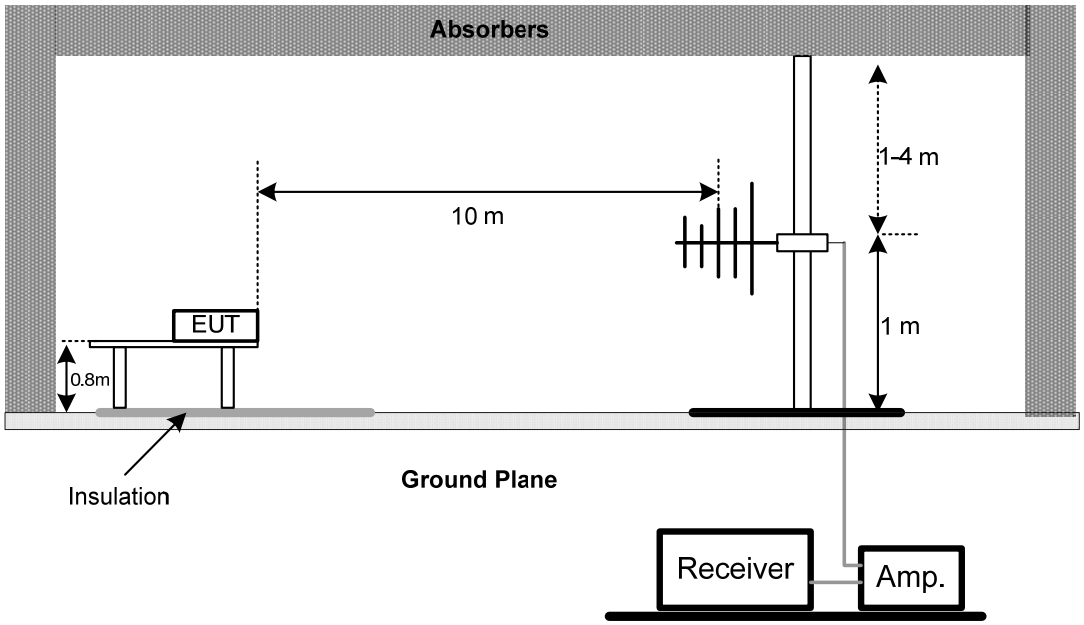
a. The measuring distance of 10 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz).
b. The height of the equipment or of the substitution antenna shall be 0.8 m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
c. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
d. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform. (below 1GHz)
e. For the actual test configuration, please refer to the related Item - Block Diagram of system tested.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP

UP TO 1 GHZ



Note: The antenna can be moved between 1 to 4 meters above the ground.

4.1.6 MEASUREMENT DISTANCE

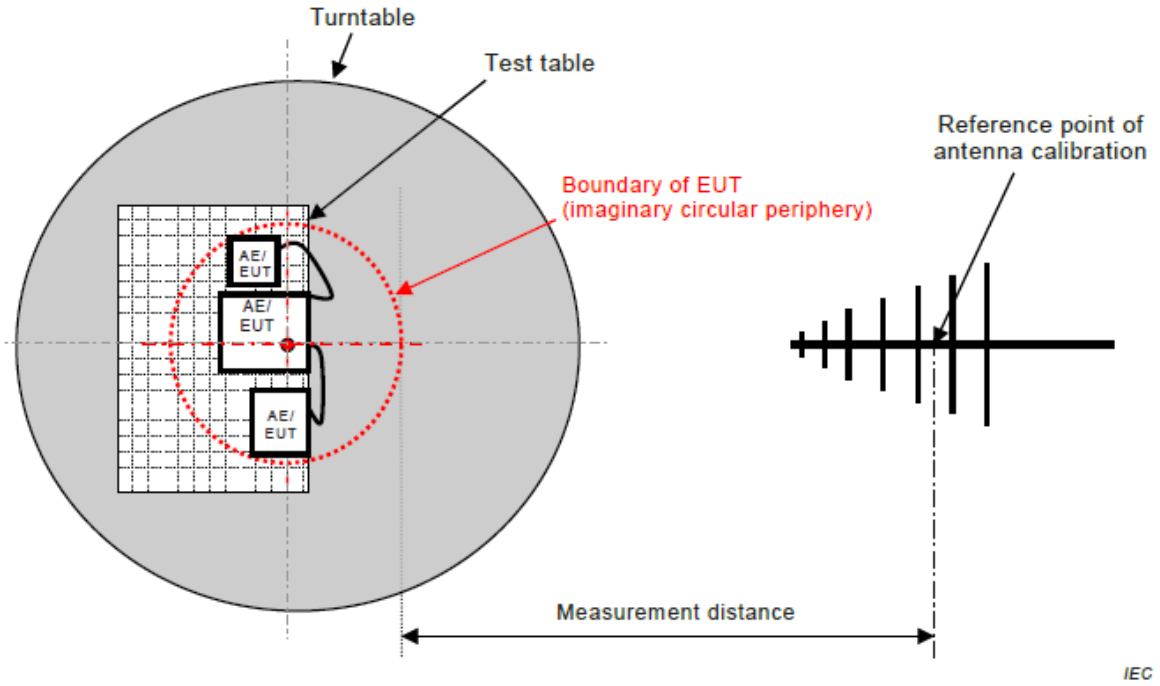


Figure C.1 – Measurement distance

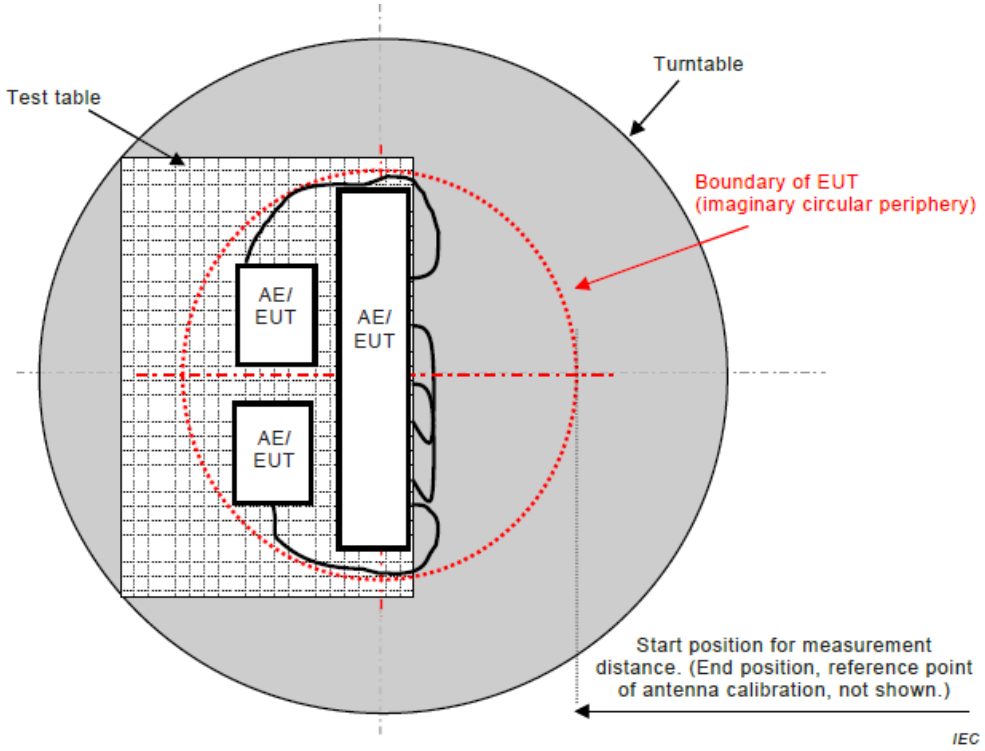
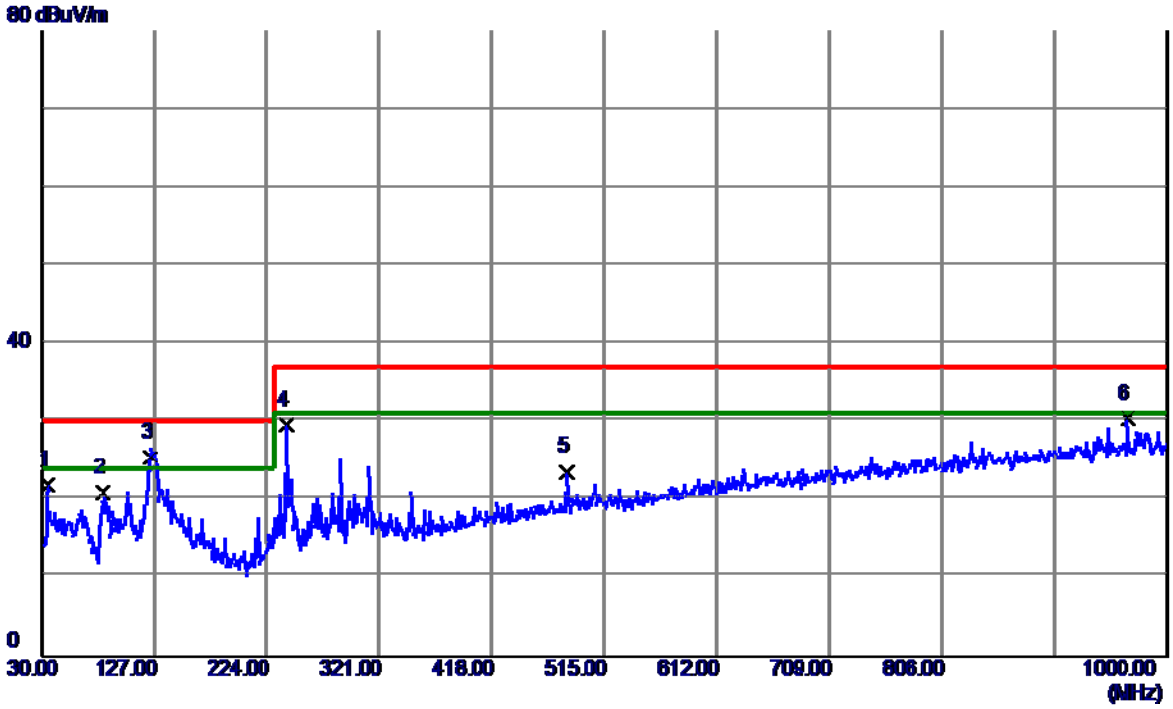


Figure C.2 – Boundary of EUT, Local AE and associated cabling

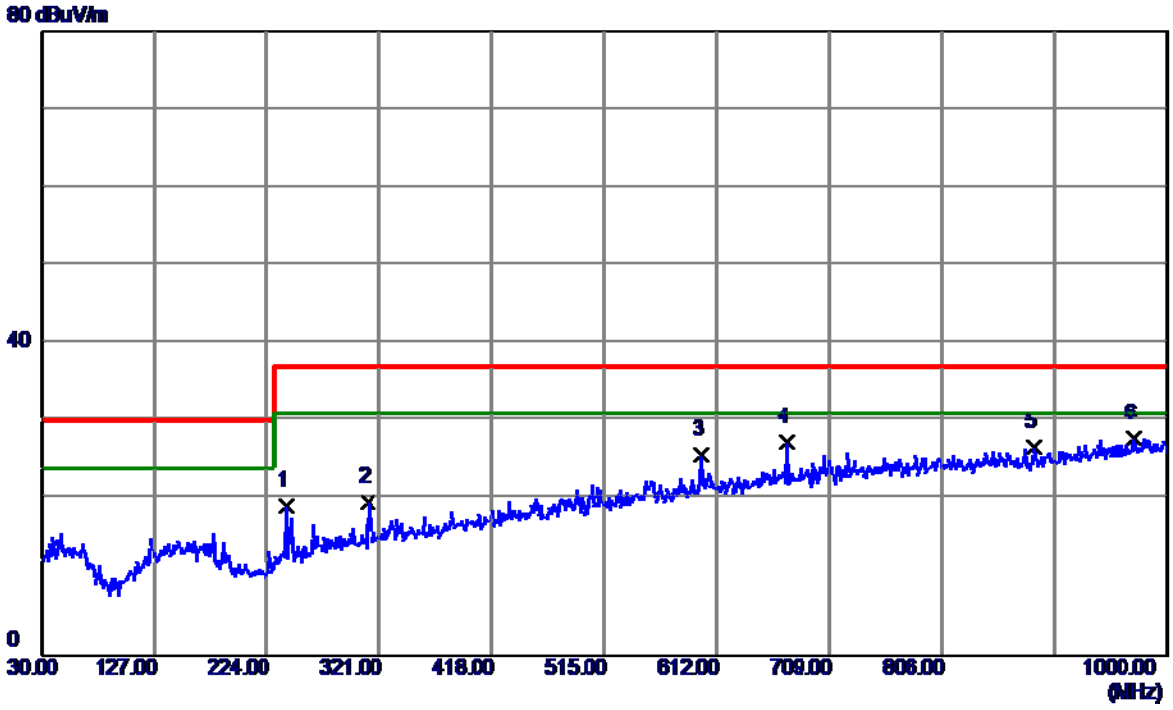
4.1.7 TEST RESULTS (UP TO 1 GHZ)

Test Voltage	AC 230V/50Hz	Polarization	Vertical
Test Mode	HDMI1 2560*1440/75Hz		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	35.8200	40.00	-18.10	21.90	30.00	-8.10	QP
2	82.3800	42.56	-21.67	20.89	30.00	-9.11	QP
3 *	124.0900	43.67	-18.22	25.45	30.00	-4.55	QP
4	241.4600	46.97	-17.35	29.62	37.00	-7.38	QP
5	482.9900	34.54	-10.94	23.60	37.00	-13.40	QP
6	966.0500	33.76	-3.34	30.42	37.00	-6.58	QP

Test Voltage	AC 230V/50Hz	Polarization	Horizontal
Test Mode	HDMI1 2560*1440/75Hz		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	241.4600	36.46	-17.23	19.23	37.00	-17.77	QP
2	311.3000	34.35	-14.71	19.64	37.00	-17.36	QP
3	599.3900	34.18	-8.46	25.72	37.00	-11.28	QP
4	672.1400	34.88	-7.51	27.37	37.00	-9.63	QP
5	885.5400	31.73	-4.94	26.79	37.00	-10.21	QP
6 *	971.8700	31.36	-3.54	27.82	37.00	-9.18	QP

4.2 RADIATED EMISSIONS ABOVE 1 GHZ

4.2.1 LIMITS

Class B equipment above 1000MHz

Frequency Range MHz	Measurement			Class B limits dB(μV/m)
	Facility	Distance m	Detector type/bandwidth	
1000 - 3000	FSOATS	3	Average / 1 MHz	50
3000 - 6000				54
1000 - 3000			Peak / 1 MHz	70
3000 - 6000				74

Notes:

(1) The limit for radiated test was performed according to as following: EN 55032

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

(4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
Margin Level = Measurement Value - Limit Value

Required highest frequency for radiated measurement

Highest internal frequency (F_x) MHz	Highest measured frequency MHz
$F_x \leqq 108$	1000
$108 < F_x \leqq 500$	2000
$500 < F_x \leqq 1000$	5000
$F_x > 1000$	5^{th} up to a maximum 6 GHz,

Note for FM and TV broadcast receiver, F_x is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies.

4.2.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	Horn Antenna	EMCO	3115	9605-4803	Mar. 23, 2020
2	Amplifier	Agilent	8449B	3008A02584	Aug. 03, 2020
3	MXE EMI Receiver	Agilent	N9038A	MY53220133	Mar. 10, 2020
4	Measurement Software	Farad	EZ-EMC Ver.BTL-2ANT-1	N/A	N/A
5	Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
6	Controller	MF	MF-7802	MF780208159	N/A
7	Cable	MIcable Inc.	B10-01-01-5M	18047123	Mar. 01, 2020
8	Cable	MIcable Inc.	B10-01-01-10M	18072746	Mar. 01, 2020
9	Cable	N/A	A50-3.5M3.5M-1.5M-AT	18041824	Mar. 01, 2020

Remark: “N/A” denotes no model no., no serial no. or no calibration specified.
All calibration period of equipment list is one year.

4.2.3 TEST PROCEDURE

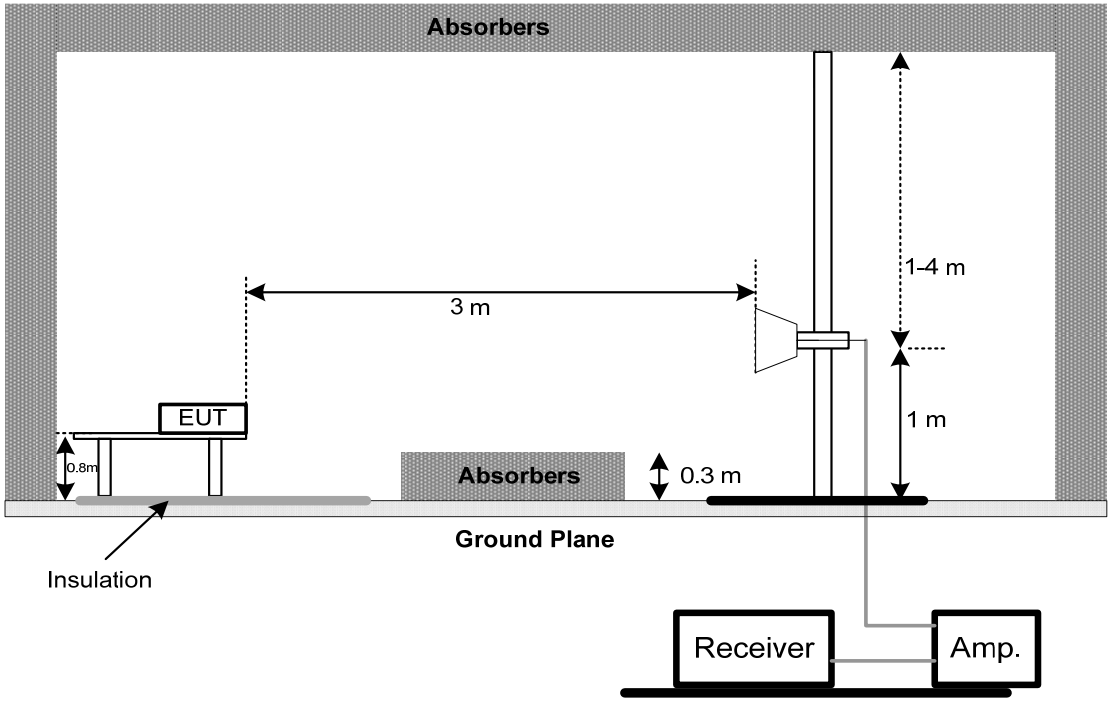
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The height of the equipment or of the substitution antenna shall be 0.8 m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
c. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
d. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn‘t perform. (above 1GHz)
e. For the actual test configuration, please refer to the related Item - Block Diagram of system tested.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP

ABOVE 1 GHZ



4.2.6 MEASUREMENT DISTANCE

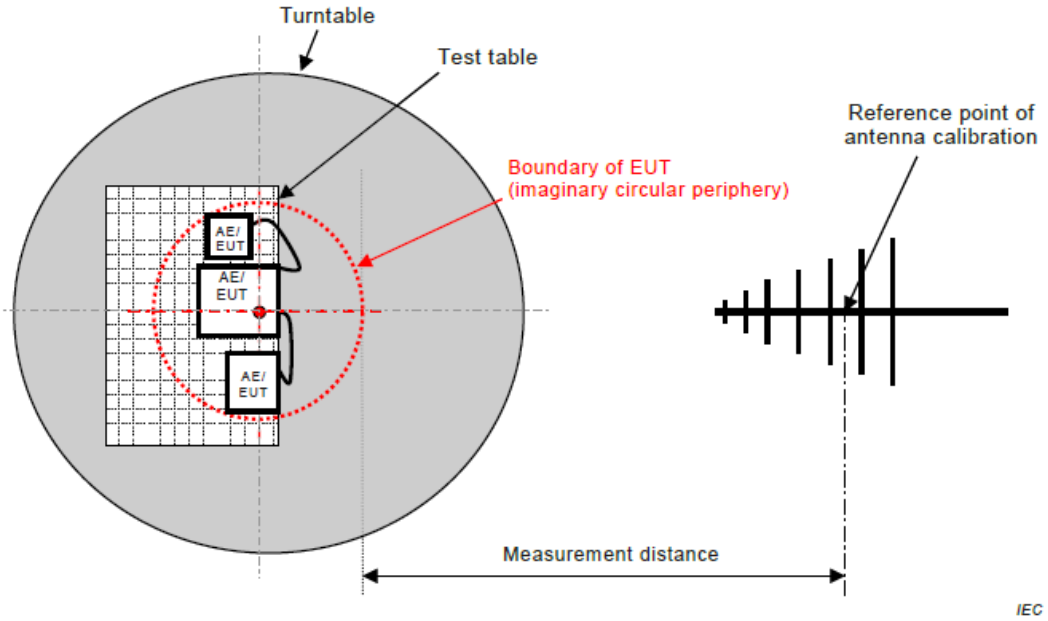


Figure C.1 – Measurement distance

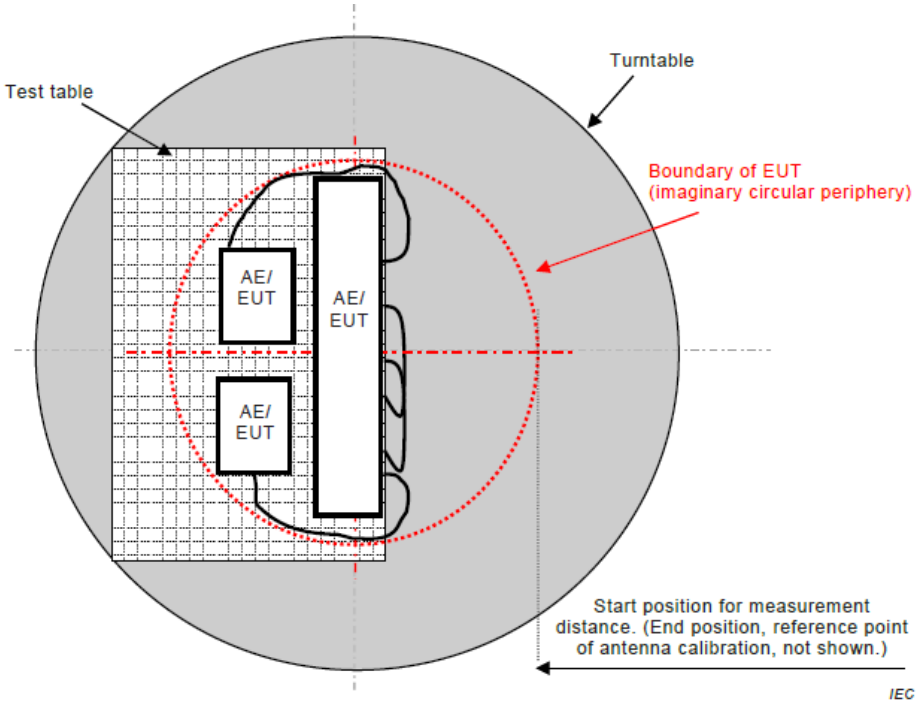
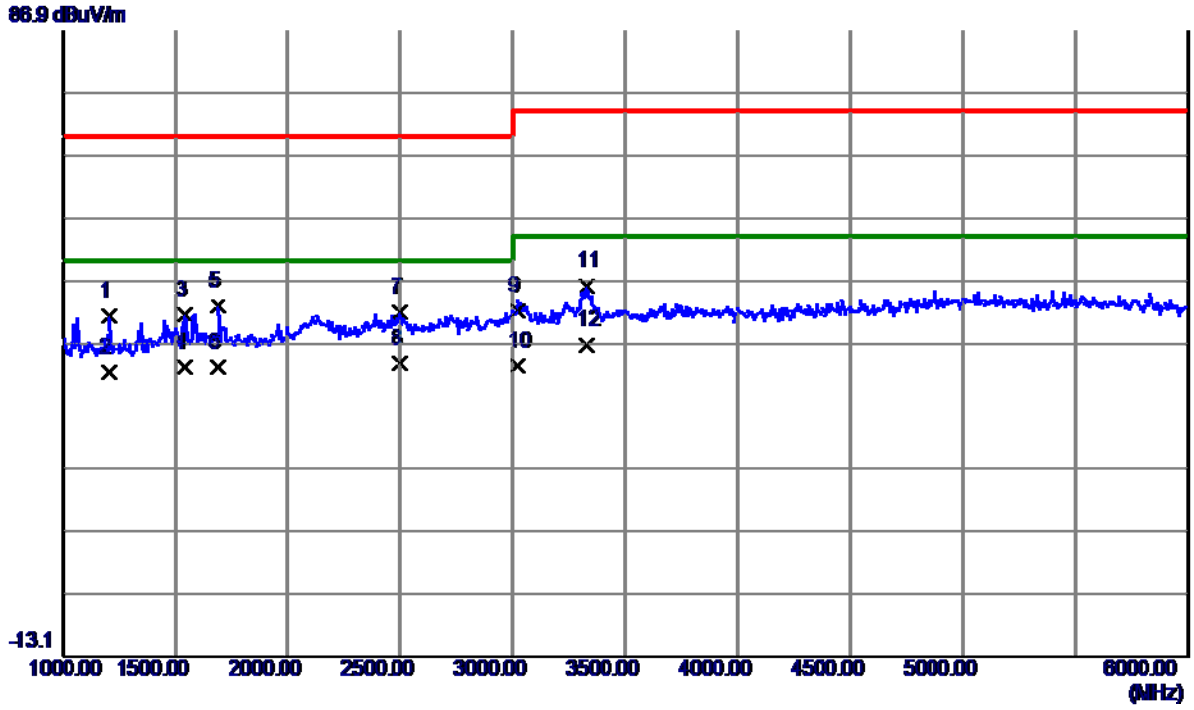


Figure C.2 – Boundary of EUT, Local AE and associated cabling

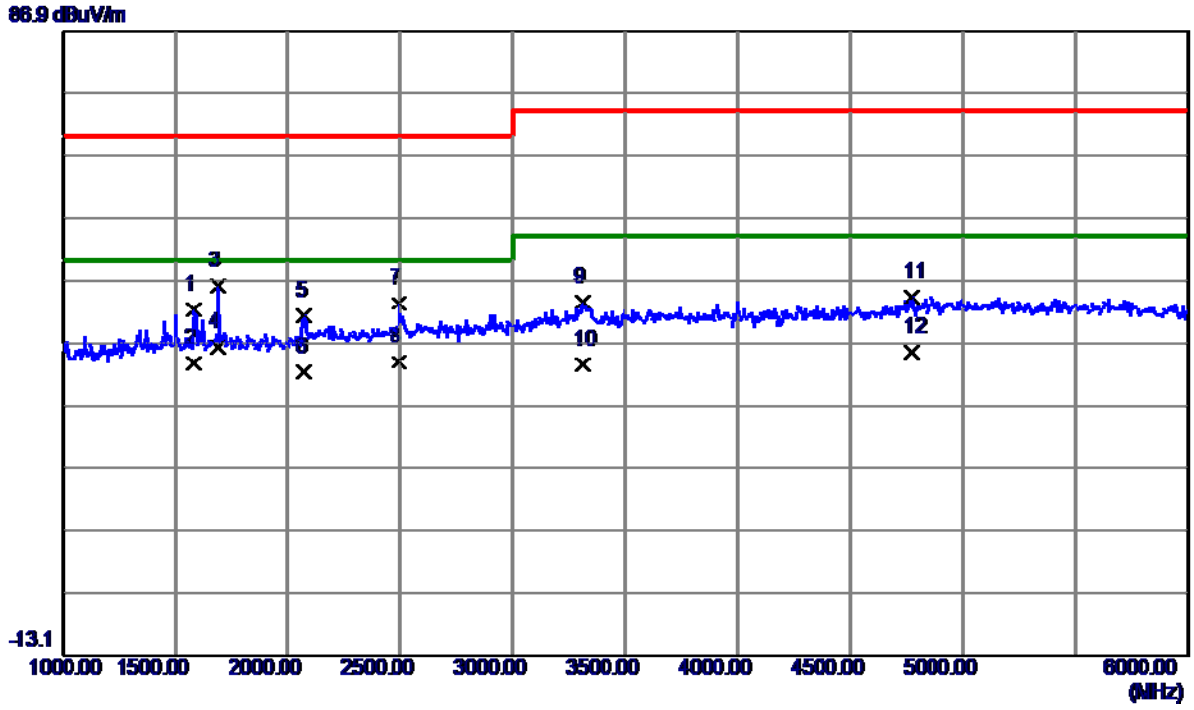
4.2.7 TEST RESULTS (ABOVE 1 GHZ)

Test Voltage	AC 230V/50Hz	Polarization	Vertical
Test Mode	HDMI1 2560*1440/75Hz		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1207.5000	46.90	-5.60	41.30	70.00	-28.70	Peak
2	1207.5000	37.89	-5.60	32.29	50.00	-17.71	AVG
3	1545.0000	44.84	-3.41	41.43	70.00	-28.57	Peak
4	1545.0000	36.46	-3.41	33.05	50.00	-16.95	AVG
5	1690.0000	45.87	-2.91	42.96	70.00	-27.04	Peak
6	1690.0000	36.07	-2.91	33.16	50.00	-16.84	AVG
7	2497.5000	41.66	0.18	41.84	70.00	-28.16	Peak
8 *	2497.5000	33.56	0.18	33.74	50.00	-16.26	AVG
9	3020.0000	40.47	1.66	42.13	74.00	-31.87	Peak
10	3020.0000	31.55	1.66	33.21	54.00	-20.79	AVG
11	3330.0000	43.45	2.70	46.15	74.00	-27.85	Peak
12	3330.0000	33.94	2.70	36.64	54.00	-17.36	AVG

Test Voltage	AC 230V/50Hz	Polarization	Horizontal
Test Mode	HDMI1 2560*1440/75Hz		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1582.5000	45.56	-3.28	42.28	70.00	-27.72	Peak
2	1582.5000	37.06	-3.28	33.78	50.00	-16.22	AVG
3	1690.0000	49.07	-2.91	46.16	70.00	-23.84	Peak
4 *	1690.0000	39.23	-2.91	36.32	50.00	-13.68	AVG
5	2075.0000	42.89	-1.54	41.35	70.00	-28.65	Peak
6	2075.0000	33.82	-1.54	32.28	50.00	-17.72	AVG
7	2495.0000	43.17	0.17	43.34	70.00	-26.66	Peak
8	2495.0000	33.77	0.17	33.94	50.00	-16.06	AVG
9	3310.0000	40.82	2.63	43.45	74.00	-30.55	Peak
10	3310.0000	30.90	2.63	33.53	54.00	-20.47	AVG
11	4775.0000	37.50	6.77	44.27	74.00	-29.73	Peak
12	4775.0000	28.74	6.77	35.51	54.00	-18.49	AVG

4.3 CONDUCTED EMISSION MEASUREMENT AT AC MAINS POWER PORTS

4.3.1 LIMITS

Requirements for conducted emissions from AC mains power ports of Class B equipment

Frequency Range MHz	Coupling Device	Detector Type / bandwidth	Class B Limits (dB(μV))
0.15 - 0.5	AMN	Quasi Peak / 9 kHz	66-56
0.5 - 5			56
5 - 30			60
0.15 - 0.5	AMN	Average / 9 kHz	56-46
0.5 - 5			46
5 - 30			50

NOTE:

(1) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)
Margin Level = Measurement Value – Limit Value

4.3.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	EMI Test Receiver	R&S	ESCI	100382	Mar. 10, 2020
2	LISN	EMCO	3816/2	52765	Mar. 10, 2020
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	May. 19, 2020
4	50Ω Terminator	SHX	TF5-3	15041305	Mar. 10, 2020
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	Cable	N/A	RG223	12m	Mar. 12, 2020

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

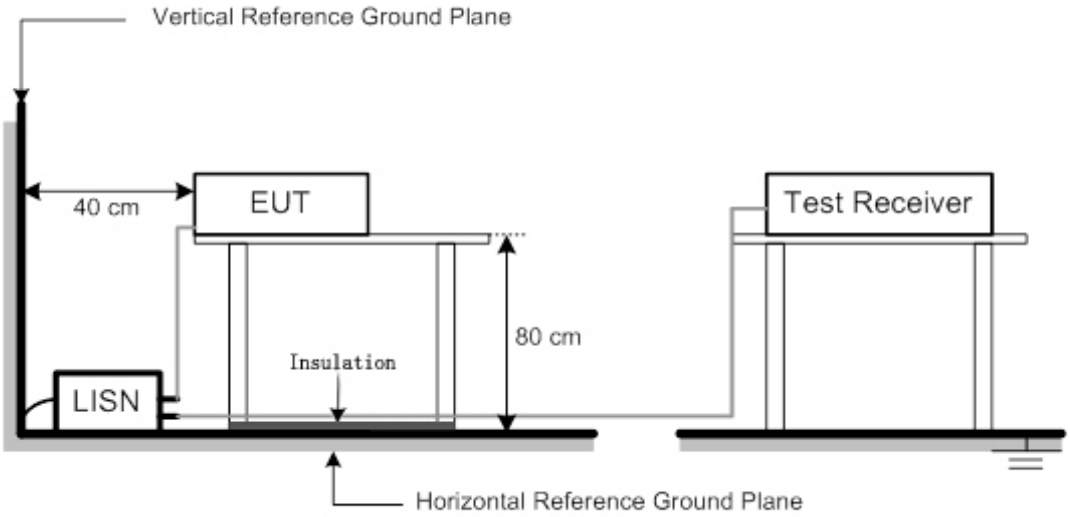
4.3.3 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.3.4 DEVIATION FROM TEST STANDARD

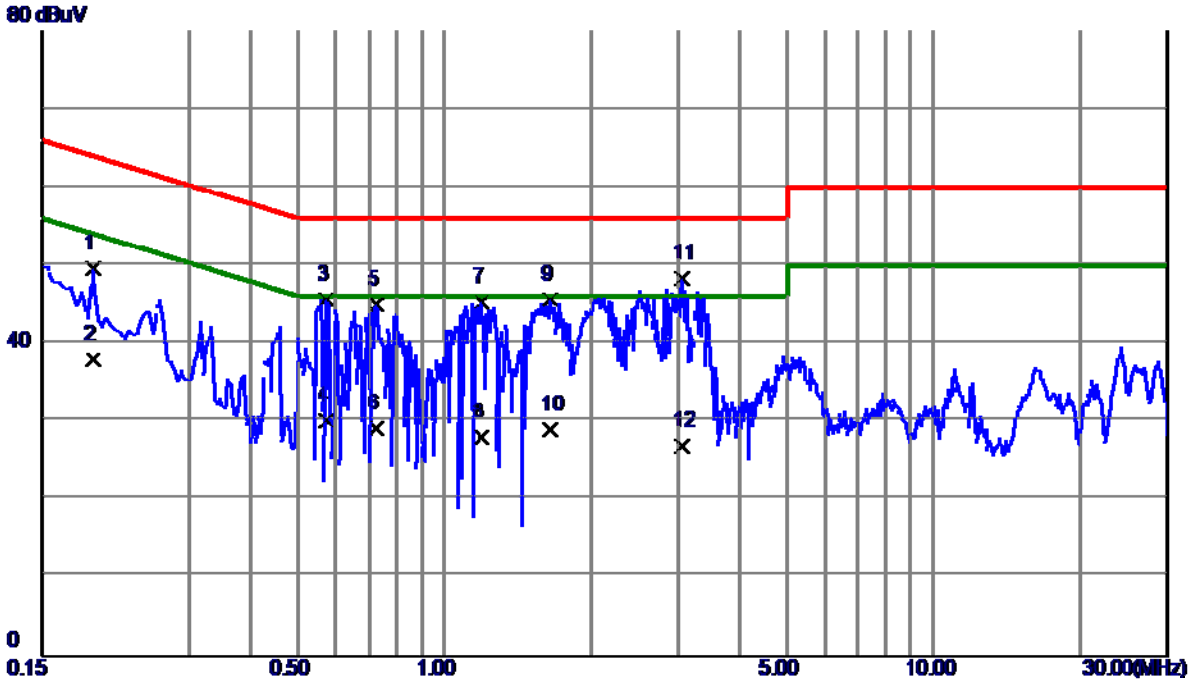
No deviation

4.3.5 TEST SETUP



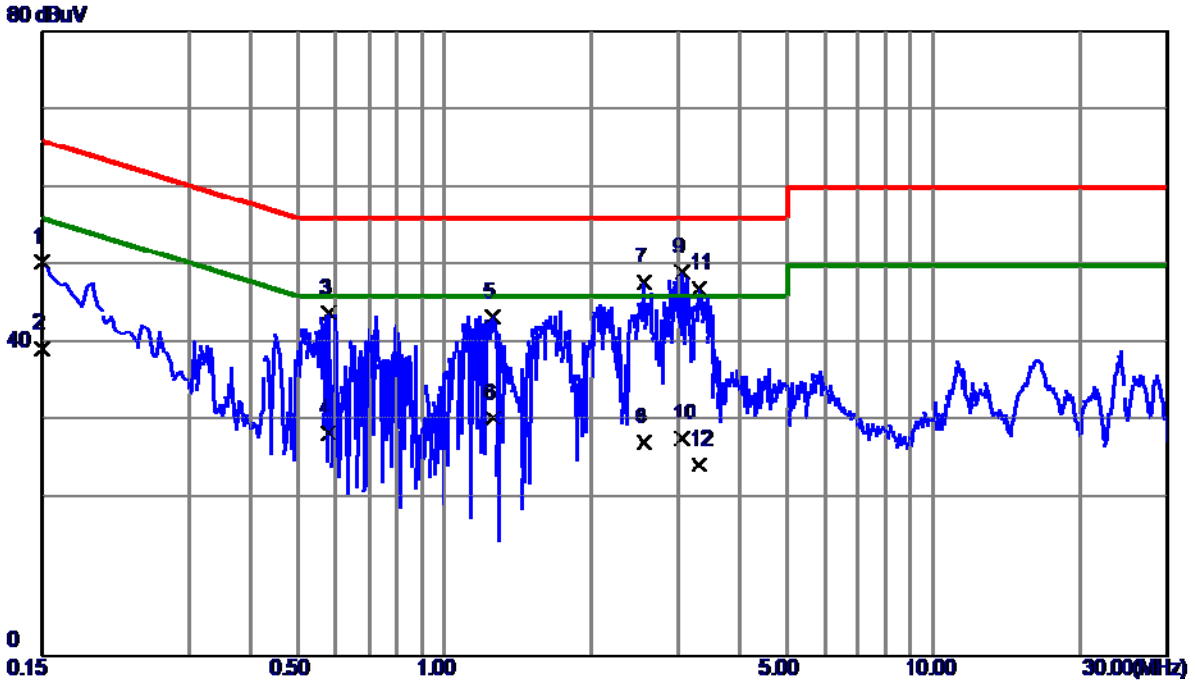
4.3.6 TEST RESULTS

Test Voltage	AC 230V/50Hz	Phase	Line
Test Mode	HDMI1 2560*1440/75Hz		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.1905	39.85	9.81	49.66	64.01	-14.35	QP
2	0.1905	28.14	9.81	37.95	54.01	-16.06	AVG
3	0.5730	35.63	9.89	45.52	56.00	-10.48	QP
4	0.5730	20.20	9.89	30.09	46.00	-15.91	AVG
5	0.7260	35.08	9.90	44.98	56.00	-11.02	QP
6	0.7260	19.20	9.90	29.10	46.00	-16.90	AVG
7	1.1895	35.31	9.93	45.24	56.00	-10.76	QP
8	1.1895	18.00	9.93	27.93	46.00	-18.07	AVG
9	1.6440	35.62	9.97	45.59	56.00	-10.41	QP
10	1.6440	19.00	9.97	28.97	46.00	-17.03	AVG
11 *	3.0570	38.22	10.06	48.28	56.00	-7.72	QP
12	3.0570	16.80	10.06	26.86	46.00	-19.14	AVG

Test Voltage	AC 230V/50Hz	Phase	Neutral
Test Mode	HDMI1 2560*1440/75Hz		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.1500	40.42	9.91	50.33	66.00	-15.67	QP
2	0.1500	29.51	9.91	39.42	56.00	-16.58	AVG
3	0.5820	33.84	10.04	43.88	56.00	-12.12	QP
4	0.5820	18.50	10.04	28.54	46.00	-17.46	AVG
5	1.2570	33.26	10.14	43.40	56.00	-12.60	QP
6	1.2570	20.24	10.14	30.38	46.00	-15.62	AVG
7	2.5665	37.55	10.22	47.77	56.00	-8.23	QP
8	2.5665	17.20	10.22	27.42	46.00	-18.58	AVG
9 *	3.0525	38.93	10.25	49.18	56.00	-6.82	QP
10	3.0525	17.60	10.25	27.85	46.00	-18.15	AVG
11	3.3180	36.76	10.27	47.03	56.00	-8.97	QP
12	3.3180	14.20	10.27	24.47	46.00	-21.53	AVG

5. HARMONIC AND FLICKER TEST

5.1 HARMONIC CURRENT EMISSIONS

5.1.1 LIMITS

The power consumption is less than 75W, there is no limit applied.

5.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	Harmonics and Flicker Analyzer	California Instruments	PACS-1	72344	Aug. 03, 2020
2	3KVA AC Power source	California Instruments	3001ix	56309	Aug. 03, 2020
3	Measurement Software	California	CTS4.0 Version 4.21	N/A	N/A

Remark: “N/A” denotes no model no., no serial No. or no calibration specified.
All calibration period of equipment list is one year.

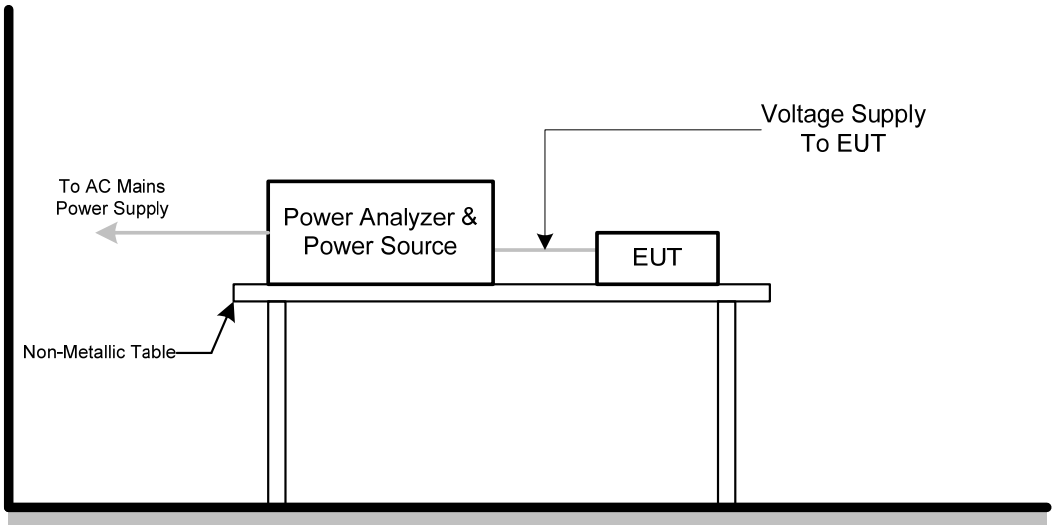
5.1.3 TEST PROCEDURE

a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions.
b. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

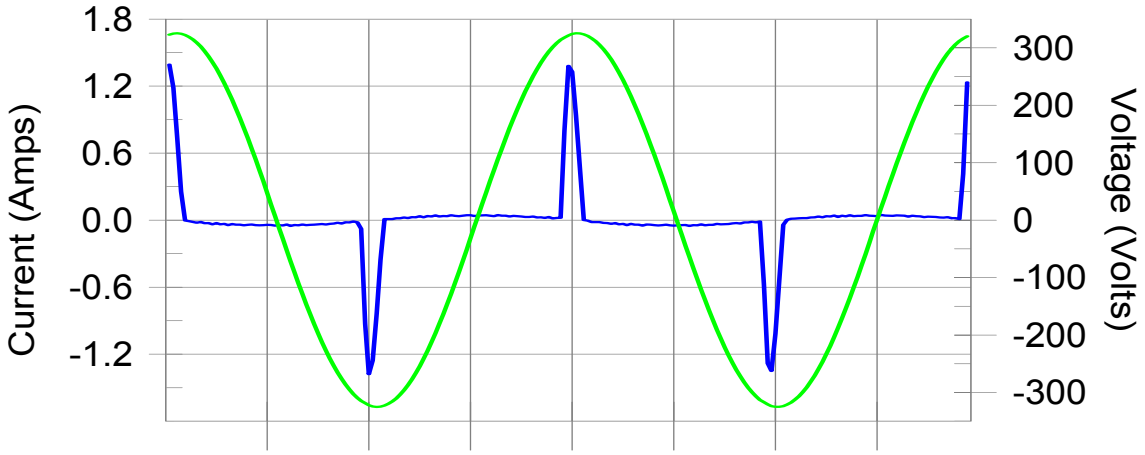
5.1.5 TEST SETUP



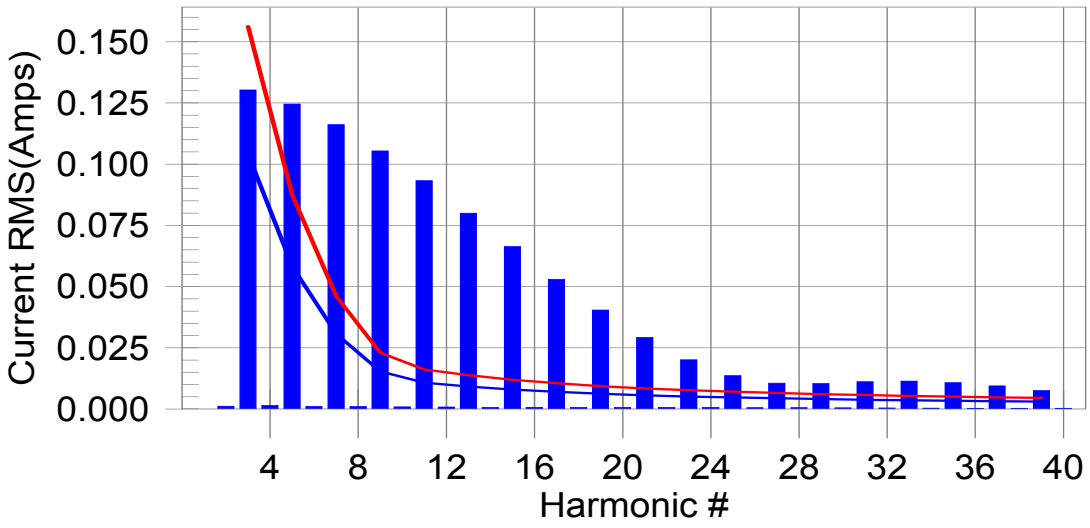
5.1.6 TEST RESULTS

Harmonic - Class D	
Test Voltage	AC 230V/50Hz
Test Mode	HDMI1 2560*1440/75Hz

Current & voltage waveforms



Harmonics and Class D limit line European Limits



Test result: N/L Worst harmonics H0-0.0% of 150% limit, H0-0% of 100% limit

Current Test Result Summary (Run time)	
Test Voltage	AC 230V/50Hz
Test Mode	HDMI1 2560*1440/75Hz

Highest parameter values during test:

V_RMS (Volts):	229.97	Frequency(Hz):	50.00
I_Peak (Amps):	1.426	I_RMS (Amps):	0.322
I_Fund (Amps):	0.140	Crest Factor:	4.447
Power (Watts):	30.7	Power Factor:	0.417

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	0.000	N/A	0.002	0.000	N/A	N/L
3	0.130	0.104	N/A	0.132	0.156	N/A	N/L
4	0.002	0.000	N/A	0.002	0.000	N/A	N/L
5	0.125	0.058	N/A	0.125	0.087	N/A	N/L
6	0.001	0.000	N/A	0.002	0.000	N/A	N/L
7	0.116	0.031	N/A	0.116	0.046	N/A	N/L
8	0.001	0.000	N/A	0.001	0.000	N/A	N/L
9	0.105	0.015	N/A	0.106	0.023	N/A	N/L
10	0.001	0.000	N/A	0.001	0.000	N/A	N/L
11	0.093	0.011	N/A	0.094	0.016	N/A	N/L
12	0.001	0.000	N/A	0.001	0.000	N/A	N/L
13	0.080	0.009	N/A	0.080	0.014	N/A	N/L
14	0.001	0.000	N/A	0.001	0.000	N/A	N/L
15	0.066	0.008	N/A	0.067	0.012	N/A	N/L
16	0.001	0.000	N/A	0.001	0.000	N/A	N/L
17	0.053	0.007	N/A	0.053	0.011	N/A	N/L
18	0.001	0.000	N/A	0.001	0.000	N/A	N/L
19	0.040	0.006	N/A	0.041	0.009	N/A	N/L
20	0.001	0.000	N/A	0.001	0.000	N/A	N/L
21	0.029	0.006	N/A	0.030	0.008	N/A	N/L
22	0.001	0.000	N/A	0.001	0.000	N/A	N/L
23	0.020	0.005	N/A	0.021	0.008	N/A	N/L
24	0.001	0.000	N/A	0.001	0.000	N/A	N/L
25	0.014	0.005	N/A	0.014	0.007	N/A	N/L
26	0.001	0.000	N/A	0.001	0.000	N/A	N/L
27	0.011	0.004	N/A	0.011	0.007	N/A	N/L
28	0.001	0.000	N/A	0.001	0.000	N/A	N/L
29	0.010	0.004	N/A	0.011	0.006	N/A	N/L
30	0.000	0.000	N/A	0.001	0.000	N/A	N/L
31	0.011	0.004	N/A	0.011	0.006	N/A	N/L
32	0.000	0.000	N/A	0.001	0.000	N/A	N/L
33	0.011	0.004	N/A	0.011	0.005	N/A	N/L
34	0.000	0.000	N/A	0.001	0.000	N/A	N/L
35	0.011	0.003	N/A	0.011	0.005	N/A	N/L
36	0.000	0.000	N/A	0.000	0.000	N/A	N/L
37	0.009	0.003	N/A	0.010	0.005	N/A	N/L
38	0.000	0.000	N/A	0.000	0.000	N/A	N/L
39	0.008	0.003	N/A	0.008	0.005	N/A	N/L
40	0.000	0.000	N/A	0.000	0.000	N/A	N/L

Voltage Source Verification Data (Run time)	
Test Voltage	AC 230V/50Hz
Test Mode	HDMI1 2560*1440/75Hz

Highest parameter values during test:

Voltage (Vrms): 229.97	Frequency(Hz): 50.00
I_Peak (Amps): 1.426	I_RMS (Amps): 0.322
I_Fund (Amps): 0.140	Crest Factor: 4.447
Power (Watts): 30.7	Power Factor: 0.417

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.106	0.460	23.14	OK
3	0.549	2.069	26.54	OK
4	0.059	0.460	12.94	OK
5	0.042	0.920	4.55	OK
6	0.023	0.460	4.99	OK
7	0.074	0.690	10.75	OK
8	0.019	0.460	4.24	OK
9	0.039	0.460	8.57	OK
10	0.020	0.460	4.38	OK
11	0.063	0.230	27.34	OK
12	0.018	0.230	7.68	OK
13	0.048	0.230	21.03	OK
14	0.014	0.230	6.22	OK
15	0.052	0.230	22.65	OK
16	0.014	0.230	6.09	OK
17	0.044	0.230	19.16	OK
18	0.013	0.230	5.59	OK
19	0.046	0.230	19.98	OK
20	0.017	0.230	7.28	OK
21	0.023	0.230	9.82	OK
22	0.012	0.230	5.29	OK
23	0.029	0.230	12.79	OK
24	0.006	0.230	2.77	OK
25	0.019	0.230	8.06	OK
26	0.009	0.230	4.01	OK
27	0.014	0.230	6.22	OK
28	0.010	0.230	4.18	OK
29	0.020	0.230	8.75	OK
30	0.005	0.230	2.23	OK
31	0.015	0.230	6.68	OK
32	0.005	0.230	2.33	OK
33	0.026	0.230	11.17	OK
34	0.003	0.230	1.21	OK
35	0.015	0.230	6.46	OK
36	0.004	0.230	1.68	OK
37	0.018	0.230	7.73	OK
38	0.003	0.230	1.39	OK
39	0.015	0.230	6.74	OK
40	0.006	0.230	2.78	OK

5.2 VOLTAGE CHANGES, VOLTAGE FLUCTUATIONS AND FLICKER TEST

5.2.1 LIMITS

Tests	Limits EN 61000-3-3	Descriptions
Pst	≤ 1.0, Tp= 10 min.	Short Term Flicker Indicator
Plt	≤ 0.65, Tp=2 hr.	Long Term Flicker Indicator
dc	≤ 3.3%	Relative Steady-State V-Chang
dmax	≤ 4%	Maximum Relative V-change
d (t)	≤ 500 ms	Relative V-change characteristic

5.2.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	Harmonics and Flicker Analyzer	California Instruments	PACS-1	72344	Aug. 03, 2020
2	3KVA AC Power source	California Instruments	3001ix	56309	Aug. 03, 2020
3	Measurement Software	California	CTS4.0 Version 4.21	N/A	N/A

Remark: “N/A” denotes no model no., no serial No. or no calibration specified.
All calibration period of equipment list is one year.

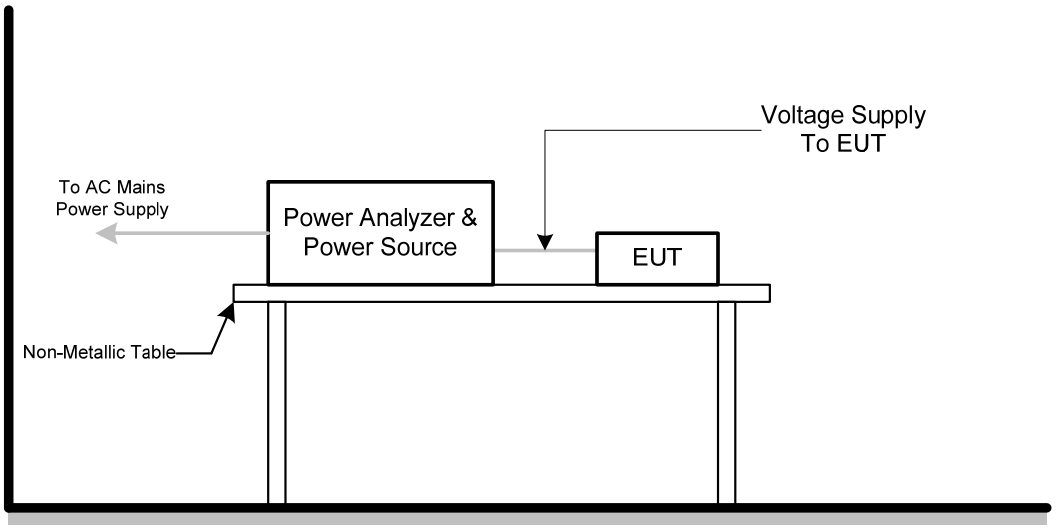
5.2.3 TEST PROCEDURE

a. Tests was performed according to the Test Conditions/Assessment of Voltage Fluctuations specified in EN 61000-3-3 depend on which standard adopted for compliance measurement.
b. All types of harmonic current and/or voltage fluctuation in this report are assessed by direct measurement using flicker-meter.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

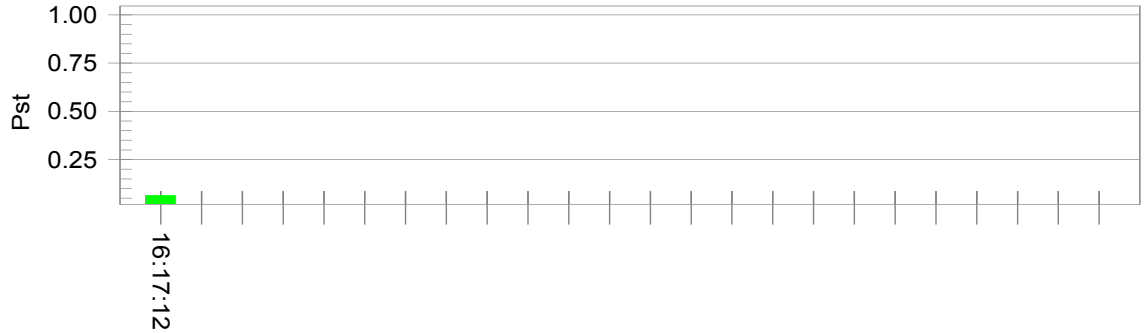
5.2.5 TEST SETUP



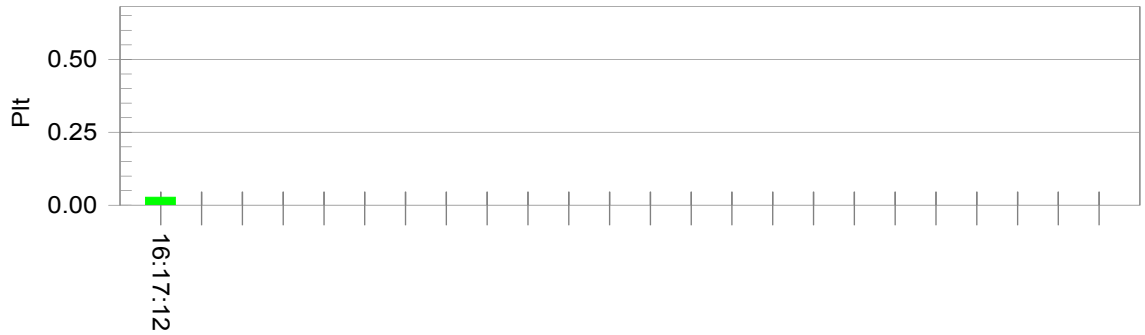
5.2.6 TEST RESULTS

Test Voltage	AC 230V/50Hz
Test Mode	HDMI1 2560*1440/75Hz

Psti and limit line European Limits



Plt and limit line



Parameter values recorded during the test:
Vrms at the end of test (Volt):229.94

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):	0.064	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.028	Test limit:	0.650	Pass

6. EMC IMMUNITY TEST

6.1 STANDARD COMPLIANCE/SEVERITY LEVEL/CRITERIA

Tests Standard No.	Test Specification Level	Test Ports	Criteria
Electrostatic discharge IEC 61000-4-2 (ESD)	±8 kV air discharge ±4 kV contact discharge (Direct Mode)	Enclosure	B
	±4kV HCP discharge ±4kV VCP discharge (Indirect Mode)	Enclosure	B
Radiated, radio-frequency, electromagnetic field immunity IEC 61000-4-3 (RS)	80 MHz to 1000 MHz 3V/m(unmodulated, r.m.s), 1 kHz, 80% AM modulated	Enclosure	A
Electrical fast transient/burst immunity IEC 61000-4-4 (EFT)	±0.5kV(peak) 5/50ns Tr/Th 5kHz Repetition Frequency (100kHz Repetition Frequency for xDSL ports)	Signal ports and telecommunication ports (Only applicable to cable length>3 m)	B
	±0.5kV(peak) 5/50ns Tr/Th 5kHz Repetition Frequency	DC Power Ports	B
	±1 kV(peak) 5/50ns Tr/Th 5kHz Repetition Frequency	AC Power Ports	B
Surge immunity IEC 61000-4-5 (Surge)	±1 kV(peak) 10/700 Tr/Th μs (without primary protection)	Signal ports and telecommunication ports (applicable only to ports connect directly to outdoor cables)	C
	±4 kV(peak) 10/700 Tr/Th μs (with primary protectors fitted)		C
	±0.5 kV(peak) 1.2/50(8/20) Tr/Th μs	DC Power Ports (applicable only to ports connect directly to outdoor cables)	B
	±1 kV(peak) 1.2/50(8/20) Tr/Th μs (line to line)	AC Power Ports	B
	±2 kV(peak) 1.2/50(8/20) Tr/Th μs (line to earth or ground)		B

Immunity to conducted disturbances, induced by radio-frequency fields IEC 61000-4-6 (CS)	0.15 MHz to 80 MHz 3V(unmodulated, r.m.s), 1kHz 80%, AM 150Ω source impedance	Signal ports and telecommunication ports (Only applicable to cable length>3 m)	A
	0.15 MHz to 80 MHz 3V(unmodulated, r.m.s), 1kHz 80%, AM 150Ω source impedance	DC Power Ports	A
	0.15 MHz to 80 MHz 3V(unmodulated, r.m.s), 1kHz 80%, AM 150Ω source impedance	AC Power Ports	A
Power frequency magnetic field immunity IEC 61000-4-8 (PFMF)	50 Hz or 60Hz, 1A/m(r.m.s)	Enclosure	A
Voltage dips, short interruptions and voltage variations immunity IEC 61000-4-11 (Dip)	Voltage reduction＞95% 0.5 cycle Voltage reduction 30% 25 cycle Voltage reduction＞95% 250 cycle	AC Power Ports	B C C

6.2 GENERAL PERFORMANCE CRITERIA

According to **EN55024** standard, the general performance criteria as following:

Criterion A	The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion B	After the test, the equipment shall continue to operate as intended without operator Intervention. No degradation of performance or loss of function is allowed, after the application of the phenomenon below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating state if stored data allowed to persist after the test. If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion C	Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

6.3 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

6.3.1 TEST SPECIFICATION

Basic Standard	IEC 61000-4-2
Discharge Impedance	330 ohm / 150 pF
Required Performance	B
Discharge Voltage	Air Discharge: ±2 kV, ±4 kV, ±8 kV Contact Discharge: ±2 kV, ±4 kV
Polarity	Positive & Negative
Number of Discharge	Air Discharge: min. 20 times at each test point Contact Discharge: min. 200 times in total
Discharge Mode	Single Discharge
Discharge Period	1 second

6.3.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	ESD Generator	TESEQ AG	NSG 437	450	Sep. 28, 2019

Remark: “N/A” denotes no model no., no serial No. or no calibration specified.
All calibration period of equipment list is one year.

6.3.3 TEST PROCEDURE

The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manner:

a. Contact discharge was applied to conductive surfaces (Direct) and coupling planes (Indirect) of the EUT.
During the test, it was performed with single discharges. For the single discharge time between successive single discharges was at least 1 second. The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points. One of the test points shall be subjected to at least 50 indirect discharges to the center of the front edge of the horizontal coupling plane. The remaining three test points shall each receive at least 50 direct contact discharges.
If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second.
Vertical Coupling Plane (VCP):
The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.
The four faces of the EUT will be performed with electrostatic discharge.
Horizontal Coupling Plane (HCP):
The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.
The four faces of the EUT will be performed with electrostatic discharge.

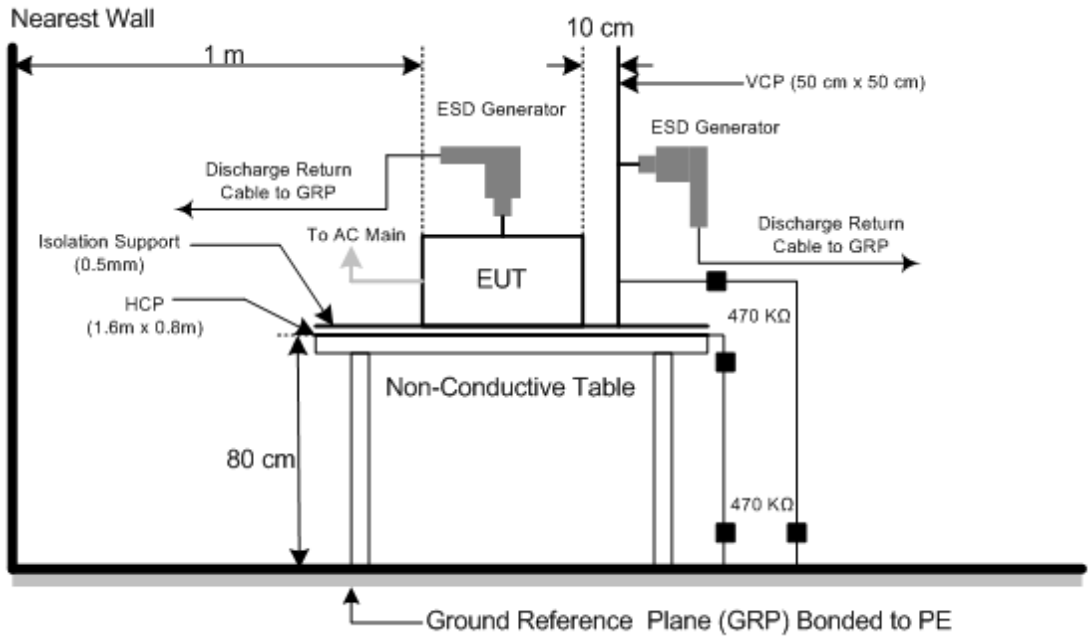
b. Air discharges at insulation surfaces of the EUT.
It was at least ten single discharges with positive and negative at the same selected point.

c. For TABLE-TOP equipment:
The configuration consisted of a wooden table 0.8 meters high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A Horizontal Coupling Plane (1.6m x 0.8m) was placed on the table and attached to the GRP by means of a cable with 940k total impedance. The equipment under test was installed in a representative system as described in IEC 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

6.3.4 DEVIATION FROM TEST STANDARD

No deviation

6.3.5 TEST SETUP



6.3.6 TEST RESULTS

Test Voltage	AC 230V/50Hz
Test Mode	HDMI 1920*1080/60Hz

Mode	Air Discharge								Contact Discharge					
Test Level	2kV		4kV		8kV		- kV		2kV		4kV		- kV	
Location	P	N	P	N	P	N	P	N	P	N	P	N	P	N
1	A	A	A	A	B	A	-	-	A	A	B	B	-	-
2	A	A	A	A	A	A	-	-	-	-	-	-	-	-
3	A	A	A	A	B	A	-	-	-	-	-	-	-	-
4	A	A	A	A	A	A	-	-	-	-	-	-	-	-
5	A	A	A	A	A	A	-	-	-	-	-	-	-	-
6	A	A	A	A	A	A	-	-	-	-	-	-	-	-
7	A	A	A	A	A	A	-	-	-	-	-	-	-	-
Criteria	B						-		B				-	
Result	B						-		B				-	

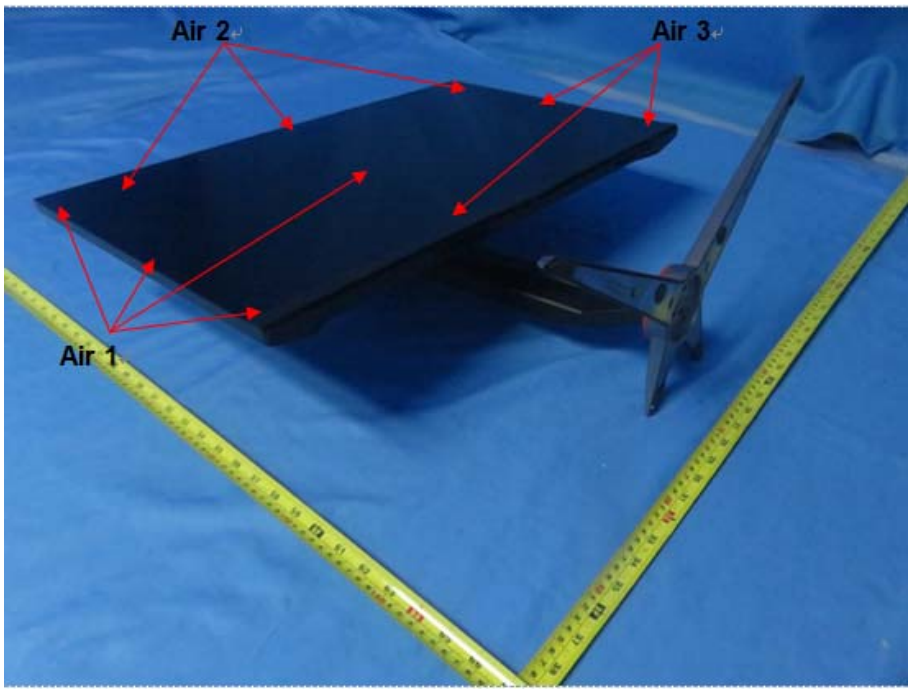
Mode	HCP Contact Discharge						VCP Contact Discharge					
Test Level	2kV		4kV		- kV		2kV		4kV		- kV	
Location	P	N	P	N	P	N	P	N	P	N	P	N
Left side	A	A	A	A	-	-	A	A	A	A	-	-
Right side	A	A	A	A	-	-	A	A	A	A	-	-
Front side	A	A	A	A	-	-	A	A	A	A	-	-
Rear side	A	A	A	A	-	-	A	A	A	A	-	-
Criteria	B				-		B				-	
Result	A				-		A				-	

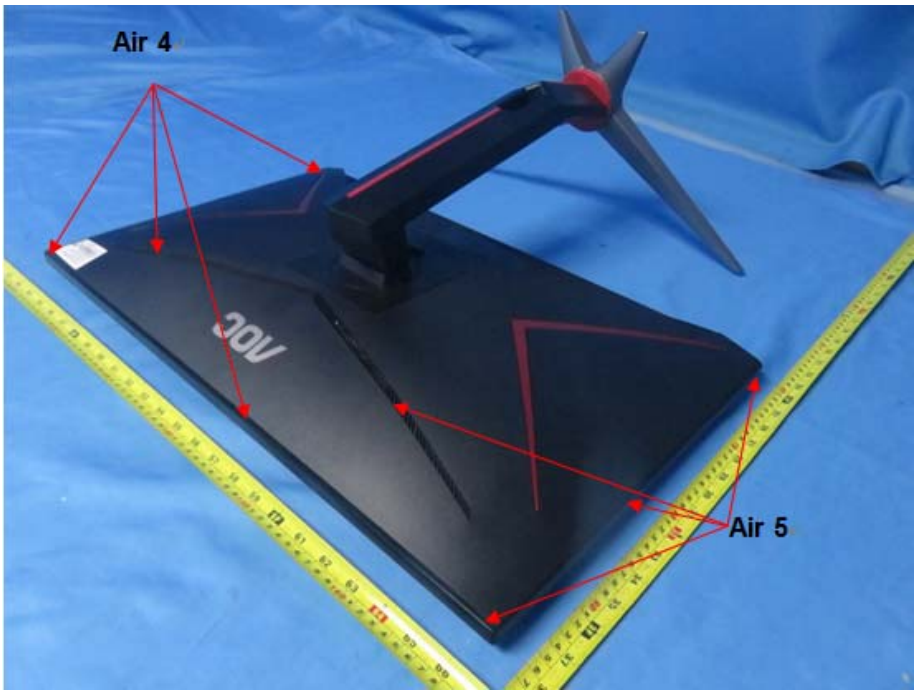
Note:

1) P/N denotes the Positive/Negative polarity of the output voltage.

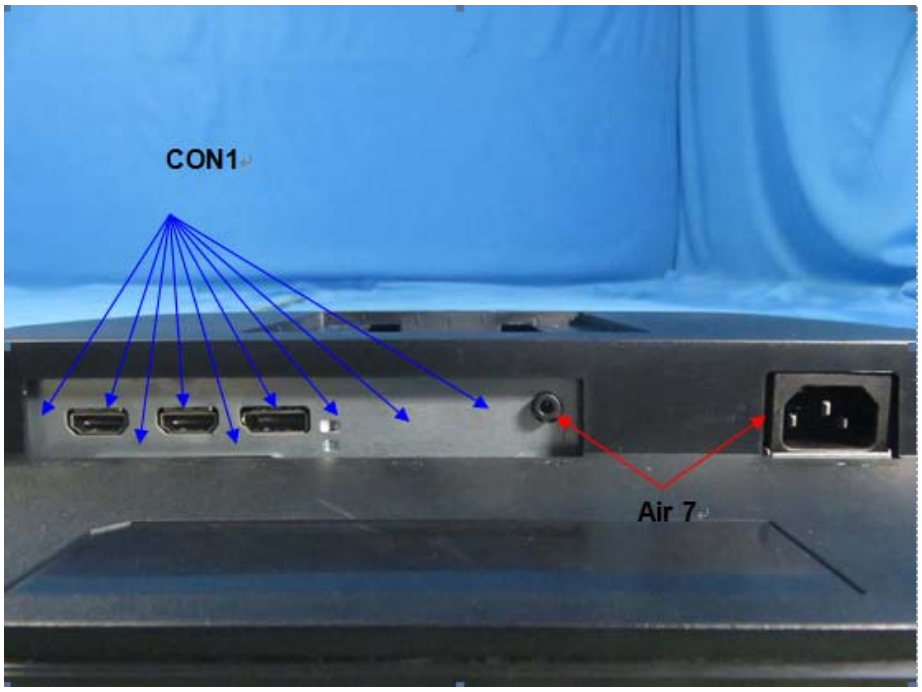
2) N/A - denotes test is not applicable in this test report

PHOTO(S) SHOWN THE LOCATION(S) OF ESD EVALUATED






Air 6


CON1
Air 7

6.4 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS)

6.4.1 TEST SPECIFICATION

Basic Standard	IEC 61000-4-3
Required Performance	A
Frequency Range	80 MHz - 1000 MHz
Field Strength	3 V/m(unmodulated, r.m.s)
Modulation	1 kHz Sine Wave, 80%, AM Modulation
Frequency Step	1% of fundamental
Polarity of Antenna	Horizontal and Vertical
Test Distance	3 m
Antenna Height	1.55 m
Dwell Time	3 seconds

6.4.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	Antenna	ETS	3142C	47662	Mar. 23, 2020
2*	Amplifier	AR	50S1G4A	326720	Apr. 08, 2021
3	MXG Analog Signal Generator	Agilent	N5181A	MY49060710	Aug. 03, 2020
4*	Power amplifier	MILMEGA	AS1860-50	1064834	Aug. 20, 2020
5	Microwave Log.-Per. Antenna	TESEQ	STLP 9149	9149-277	Mar. 23, 2020
6*	Power amplifier	MILMEGA	80RF1000-250	1064833	Aug. 20, 2020
7	Measurement Software	TOYO	IM5/RS Ver 3.8.050	N/A	N/A

Remark: “N/A” denotes no model no., no serial No. or no calibration specified.
“*” calibration period of equipment list is three year.
All calibration period of equipment list is one year.

6.4.3 TEST PROCEDURE

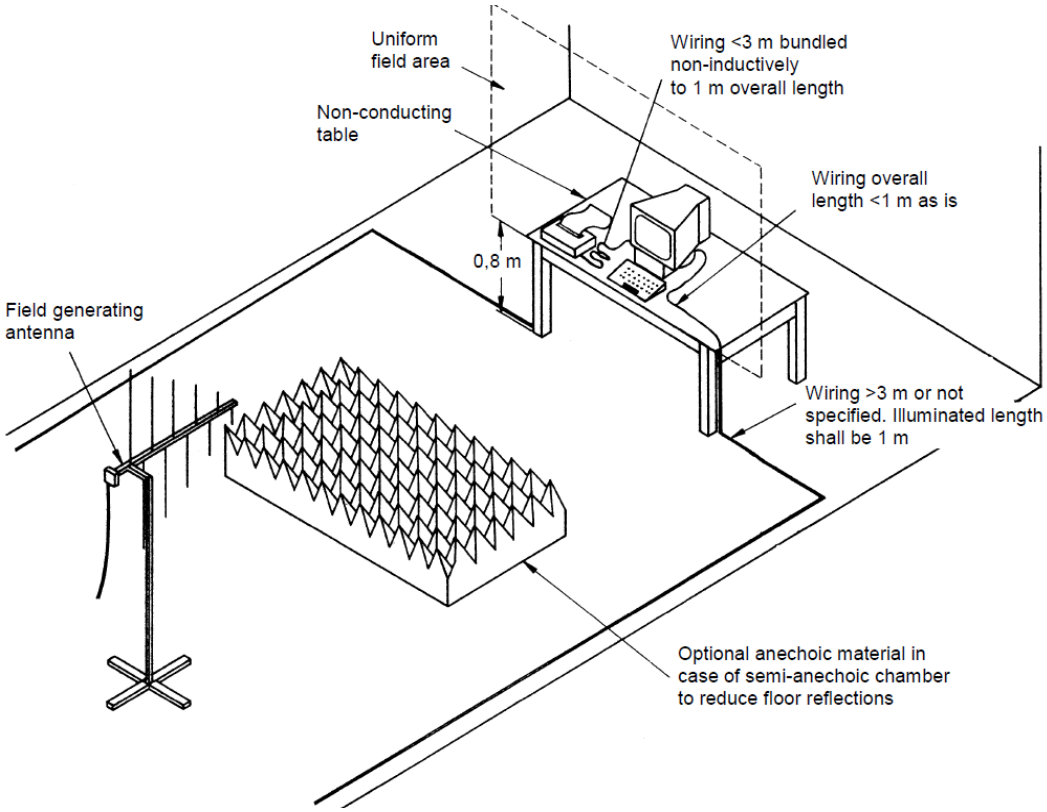
The EUT and support equipment are in a fully-anechoic chamber.
The testing distance from antenna to the EUT was 3 meters.
For TABLE-TOP equipment:
The EUT installed in a representative system as described in IEC 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.
The other condition as following manner:

a. The field strength level was 3 V/m(unmodulated, r.m.s).
b. The frequency range is swept from 80 MHz to 1000 MHz, with the signal 80%amplitude modulated with a 1 kHz sine wave. The rate of sweep did not exceed 1.5x 10-3 decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
c. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
d. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

6.4.4 DEVIATION FROM TEST STANDARD

No deviation

6.4.5 TEST SETUP



6.4.6 TEST RESULTS

Test Voltage	AC 230V/50Hz
Test Mode	HDMI1 2560*1440/75Hz

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Modulation	Azimuth	Criterion	Result
80 - 1000	H / V	3V/m	AM Modulated 1000Hz, 80%	0	A	A
				90		
				180		
				270		

6.5 ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST (EFT/BURST)

6.5.1 TEST SPECIFICATION

Basic Standard	IEC 61000-4-4
Required Performance	B
Test Voltage	AC Power Ports:±1 kV
Polarity	Positive & Negative
Impulse Frequency	5 kHz: except for xDSL ports.
Impulse Wave shape	5/50 ns
Burst Duration	15 ms
Burst Period	300 ms
Test Duration	1 min.

6.5.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	Fast Transient Burst Simulator	Prima	EFT61004TA	PR190741004	Aug. 27, 2020

Remark: “N/A” denotes no model no., no serial No. or no calibration specified.
All calibration period of equipment list is one year.

6.5.3 TEST PROCEDURE

For TABLE-TOP equipment:
The configuration consisted of a wooden table (0.8m high) standing on the Ground Reference Plane and should be located 0.1 m+/- 0.01m above the Ground Reference Plane. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.
The other condition as following manner:

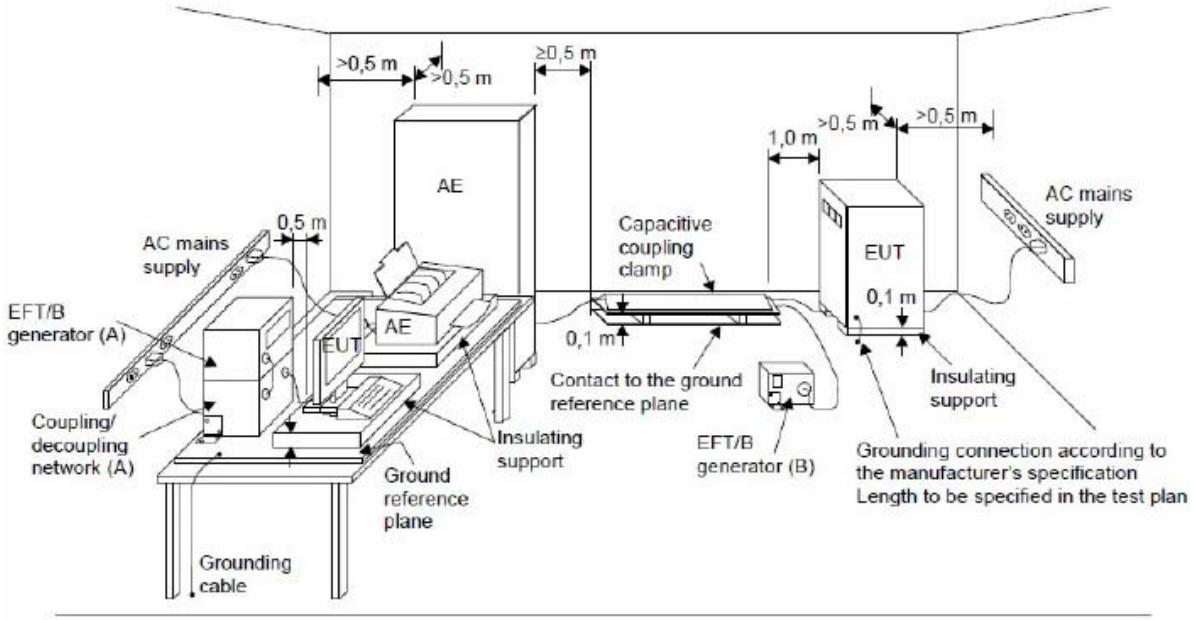
a. Both positive and negative polarity discharges were applied.

b. The duration time of each test sequential was 1 minute

6.5.4 DEVIATION FROM TEST STANDARD

No deviation

6.5.5 TEST SETUP



6.5.6 TEST RESULTS

Test Voltage	AC 230V/50Hz
Test Mode	HDMI 1920*1080/60Hz

EUT Ports Tested		Polarity	Repetition Frequency	Test Level 1kV	Criterion	Result
AC Power Port	Line (L)	+	5 kHz	A	B	A
		-	5 kHz	A		
	Neutral (N)	+	5 kHz	A	B	A
		-	5 kHz	A		
	Ground (PE)	+	5 kHz	A	B	A
		-	5 kHz	A		
	L+N	+	5 kHz	A	B	A
		-	5 kHz	A		
	L+PE	+	5 kHz	A	B	A
		-	5 kHz	A		
	N+PE	+	5 kHz	A	B	A
		-	5 kHz	A		
	L+N+PE	+	5 kHz	A	B	A
		-	5 kHz	A		

6.6 SURGE IMMUNITY TEST

6.6.1 TEST SPECIFICATION

Basic Standard	IEC 61000-4-5
Required Performance	B (For AC/DC Power Ports)
Wave-Shape	1.2/50(8/20) Tr/Th μs combination wave
Test Voltage	AC Power Port: ±0.5 kV, ±1 kV, ±2 kV
Generator Source Impedance	2 Ω of the low-voltage power supply network. 12 Ω (10Ω+2Ω) of the low-voltage power supply network and ground.
Number of Tests & Polarity	5 positive and 5 negative at selected points
Phase Angle	AC Power Port: 0°/90°/180°/270°
Pulse Repetition Rate	1 time / min.

6.6.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	Lightning Surge Generator	Prima	SUG61005 TB	PR190854067	Aug. 27, 2020

Remark: “N/A” denotes no model no., no serial No. or no calibration specified.
All calibration period of equipment list is one year.

6.6.3 TEST PROCEDURE

a. For EUT power supply:
The surge is to be applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks shall be 2meters in length (or shorter).

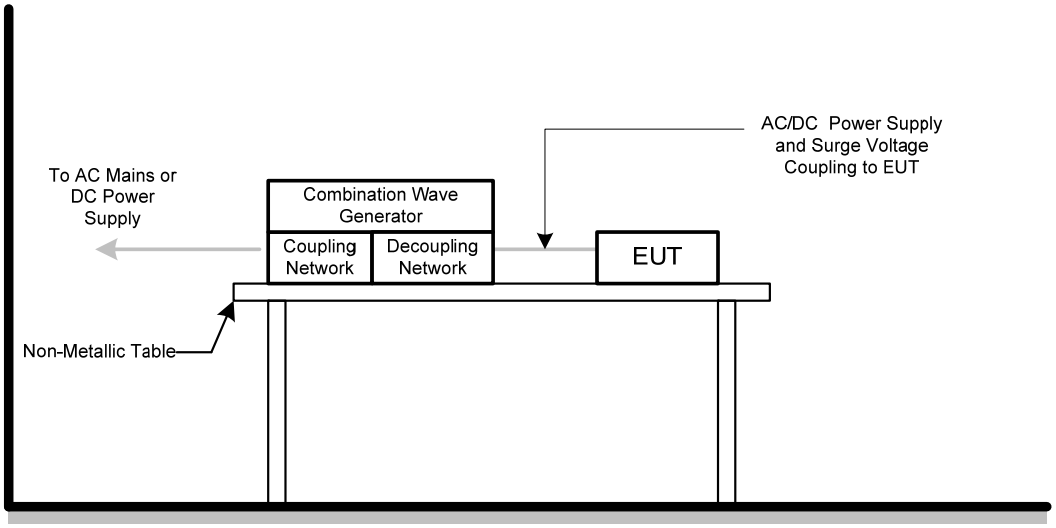
b. For test applied to unshielded unsymmetrically operated interconnection lines of EUT :
The surge is applied to the lines via the capacitive coupling. The coupling /decoupling networks shall not influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

c. For test applied to unshielded symmetrically operated interconnection /telecommunication lines of EUT :
The surge is applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrestor cannot be specified. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

6.6.4 DEVIATION FROM TEST STANDARD

No deviation

6.6.5 TEST SETUP



6.6.6 TEST RESULTS

Test Voltage	AC 230V/50Hz
Test Mode	HDMI1 2560*1440/75Hz

Wave Form EUT Ports Tested		1.2/50(8/20)Tr/Thμs						Criterion	Result
		Polarity	Phase	Voltage					
				0.5kV	1kV	-- kV	-- kV		
AC	L – N	+/-	0°	A	A	-	-	B	A
		+/-	90°	A	A	-	-		
		+/-	180°	A	A	-	-		
		+/-	270°	A	A	-	-		

Wave Form EUT Ports Tested		1.2/50(8/20)Tr/Thμs						Criterion	Result
		Polarity	Phase	Voltage					
				0.5kV	1kV	2kV	-- kV		
AC	L – PE	+/-	0°	A	A	A	-	B	A
		+/-	90°	A	A	A	-		
		+/-	180°	A	A	A	-		
		+/-	270°	A	A	A	-		
	N – PE	+/-	0°	A	A	A	-	B	A
		+/-	90°	A	A	A	-		
		+/-	180°	A	A	A	-		
		+/-	270°	A	A	A	-		

6.7 IMMUNITY TO CONDUCTED DISTURBANCES, INDUCED BY RADIO-FREQUENCY FIELDS TEST (CS)

6.7.1 TEST SPECIFICATION

Basic Standard	IEC 61000-4-6
Required Performance	A
Frequency Range	0.15 MHz - 80 MHz
Field Strength	3 V (unmodulated, r.m.s.)
Modulation	1 kHz Sine Wave, 80%, AM Modulation
Frequency Step	1% of fundamental
Dwell Time	3 seconds

6.7.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	Power CDN	FCC	FCC-801-M 2/M3-16A	100270	Mar. 10, 2020
2	TEST SYSTEM FOR CONDUCTED AND RADIATED IMMUNITY	TESEQ	NSG 4070B	37513	Aug. 03, 2020
3	Measurement Software	Farad	EZ-CS (V2.0.1.4)	N/A	N/A

Remark: “N/A” denotes no model no., no serial No. or no calibration specified.
All calibration period of equipment list is one year.

6.7.3 TEST PROCEDURE

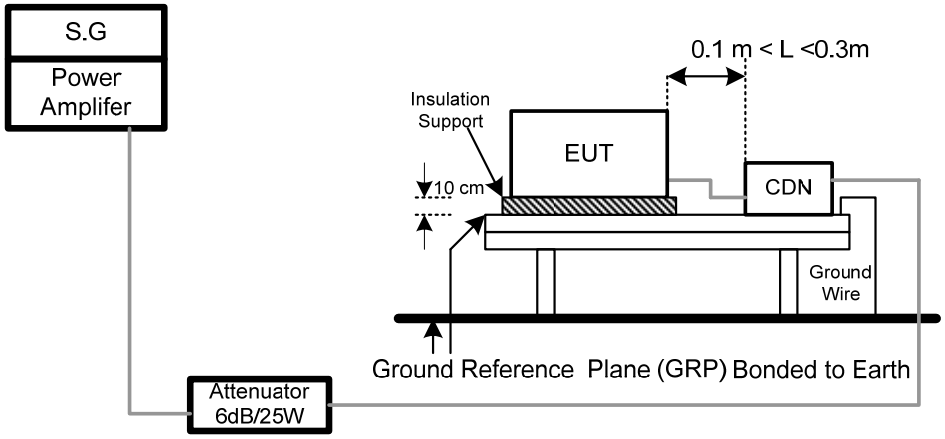
The equipment to be tested is placed on an insulating support of 0.1m height above a reference ground plane. All cables exiting the EUT shall be supported at a height of at least 30 mm above the reference ground plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.
The other condition as following manner:

a. The field strength level was 3 V (unmodulated, r.m.s.)
b. The frequency range is swept from 150 kHz to 80 MHz, with the signal 80%amplitude modulated with a 1 kHz sine wave. The rate of sweep did not exceed 1.5x 10-3 decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
c. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.

6.7.4 DEVIATION FROM TEST STANDARD

No deviation

6.7.5 TEST SETUP



6.7.6 TEST RESULTS

Test Voltage	AC 230V/50Hz
Test Mode	HDMI1 2560*1440/75Hz

Test Ports (Mode)	Frequency Range (MHz)	Field Strength	Modulation	Criteria	Results
Input/ Output AC.Power Port	0.15 ---80	3V	AM Modulated 1000Hz, 80%	A	A

6.8 POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST (PFMF)

6.8.1 TEST SPECIFICATION

Basic Standard	IEC 61000-4-8
Required Performance	A
Frequency Range	50/60 Hz
Field Strength	1 A/m
Observation Time	1 minute
Inductance Coil	Rectangular type, 1mx1m

6.8.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	Magnetic Field test Generator	FCC	F-1000-4-8-G-125A	4032	Mar. 10, 2020
2	Magnetic Field immunity loop	Thermo KeyTek	F-1000-4-8/9/10-L-1M	4024	Mar. 10, 2020

Remark: “N/A” denotes no model no., no serial No. or no calibration specified.
All calibration period of equipment list is one year.

6.8.3 TEST PROCEDURE

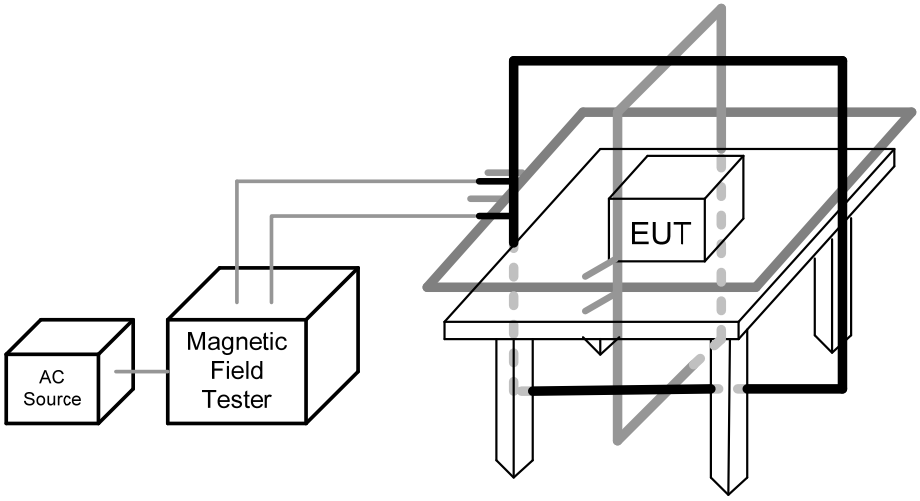
For TABLE-TOP equipment:
The equipment shall be subjected to the test magnetic field by using the induction coil of standard dimension (1 m x 1 m). The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.
The other condition as following manner:

a. The equipment cabinets shall be connected to the safety earth directly on the GRP via the earth terminal of the EUT.
b. The cables supplied or recommended by the equipment manufacturer shall be used. 1 meter of all cables used shall be exposed to the magnetic field.

6.8.4 DEVIATION FROM TEST STANDARD

No deviation

6.8.5 TEST SETUP



6.8.6 TEST RESULTS

Test Voltage	AC 230V/50Hz
Test Mode	HDMI1 2560*1440/75Hz

50Hz

Test Mode	Test Level	Antenna aspect	Duration (s)	Criteria	Results
Enclosure	1 A/m	X	60	A	A
Enclosure	1 A/m	Y	60	A	A
Enclosure	1 A/m	Z	60	A	A

60Hz

Test Mode	Test Level	Antenna aspect	Duration (s)	Criteria	Results
Enclosure	1 A/m	X	60	A	A
Enclosure	1 A/m	Y	60	A	A
Enclosure	1 A/m	Z	60	A	A

6.9 VOLTAGE DIPS, SHORT INTERRUPTIONS AND VOLTAGE VARIATIONS IMMUNITY TEST(DIP)

6.9.1 TEST SPECIFICATION

Basic Standard	IEC 61000-4-11
Required Performance	B (For >95% Voltage Dips) C (For 30% Voltage Dips) C (For >95% Voltage Interruptions)
Interval between Event	Ten seconds
Phase Angle	0°/180°
Test Cycle	3 times

6.9.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Series Model	Calibrated until
1	Cycle Sag Simulator	Prima	DRP61011 TA	PR19076452	Aug. 27, 2020

Remark: “N/A” denotes no model no., no serial No. or no calibration specified.
All calibration period of equipment list is one year.

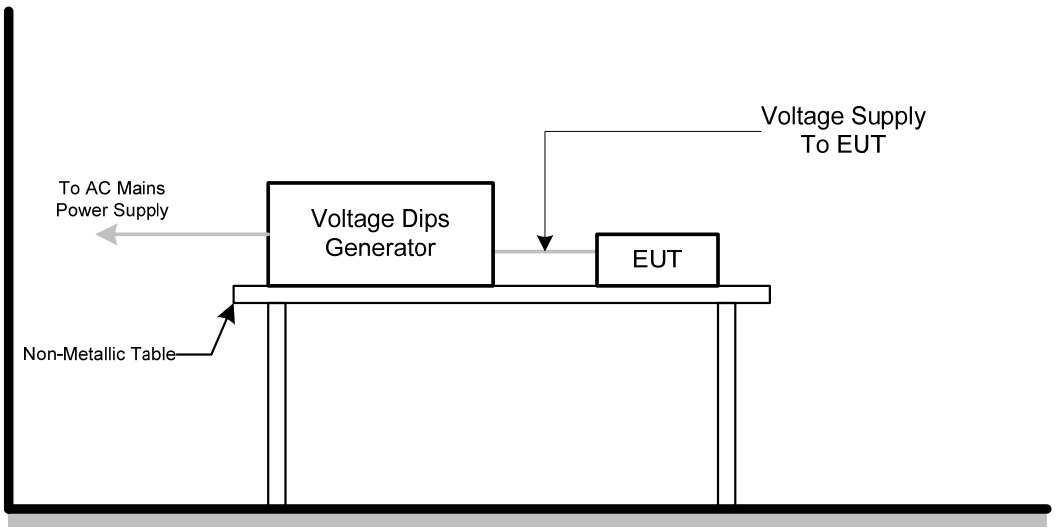
6.9.3 TEST PROCEDURE

The EUT shall be tested for each selected combination of test levels and duration with a sequence of three dips/interruptions with intervals of 10 s minimum (between each test event). Each representative mode of operation shall be tested. Abrupt changes in supply voltage shall occur at zero crossings of the voltage waveform.

6.9.4 DEVIATION FROM TEST STANDARD

No deviation

6.9.5 TEST SETUP



6.9.6 TEST RESULTS

Test Voltage	AC 100V/50Hz, AC 230V/50Hz, AC 240V/50Hz
Test Mode	HDMI1 2560*1440/75Hz

AC 100V/50Hz				
Item	Residual Voltage	Cycle	Criteria	Results
Voltage dips	＞95%	0.5	B	A
Voltage dips	30%	25	C	A
Voltage Interruption	＞95%	250	C	C

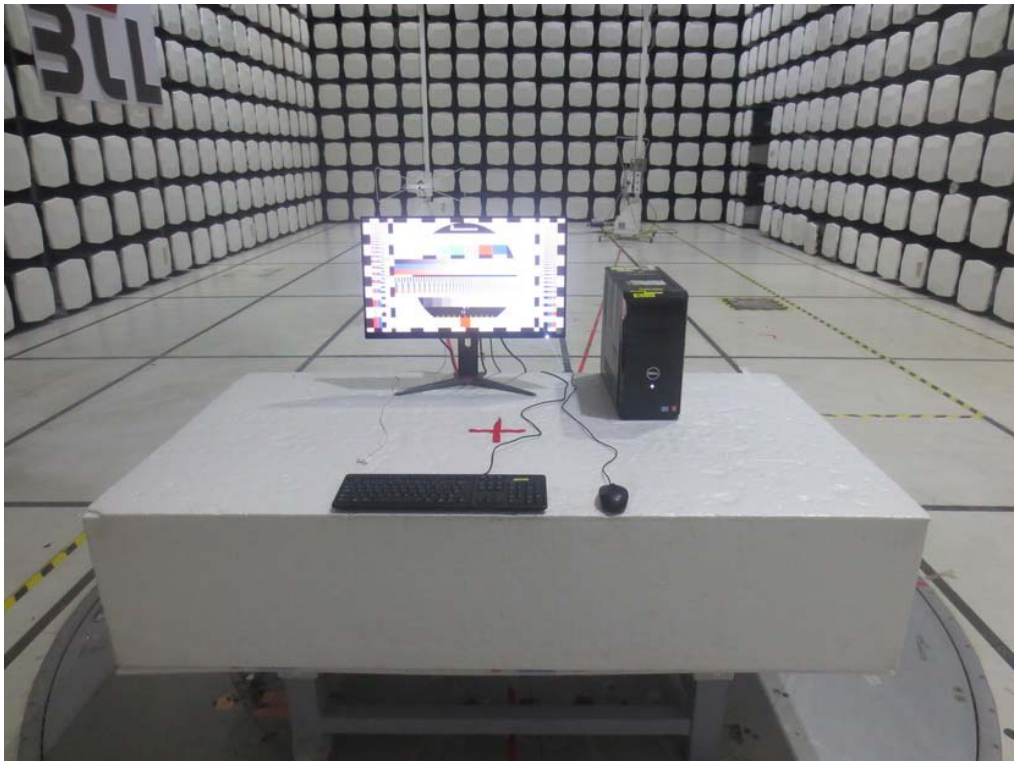
AC 230V/50Hz				
Item	Residual Voltage	Cycle	Criteria	Results
Voltage dips	＞95%	0.5	B	A
Voltage dips	30%	25	C	A
Voltage Interruption	＞95%	250	C	C

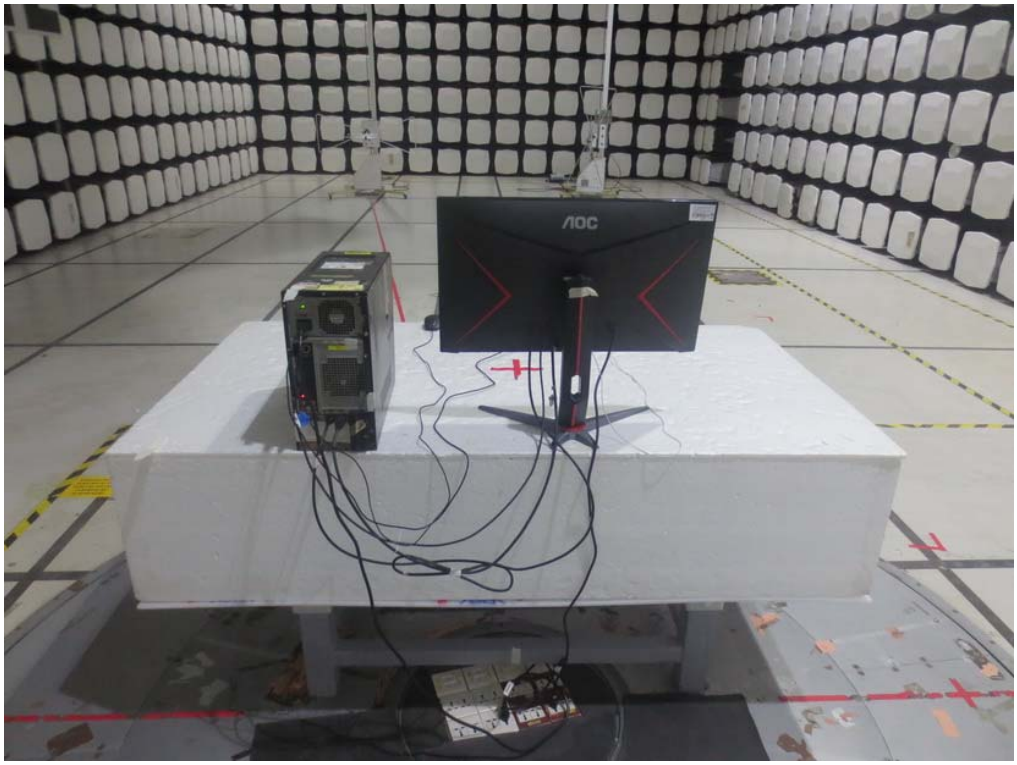
AC 240V/50Hz				
Item	Residual Voltage	Cycle	Criteria	Results
Voltage dips	＞95%	0.5	B	A
Voltage dips	30%	25	C	A
Voltage Interruption	＞95%	250	C	C

7. EUT TEST PHOTO

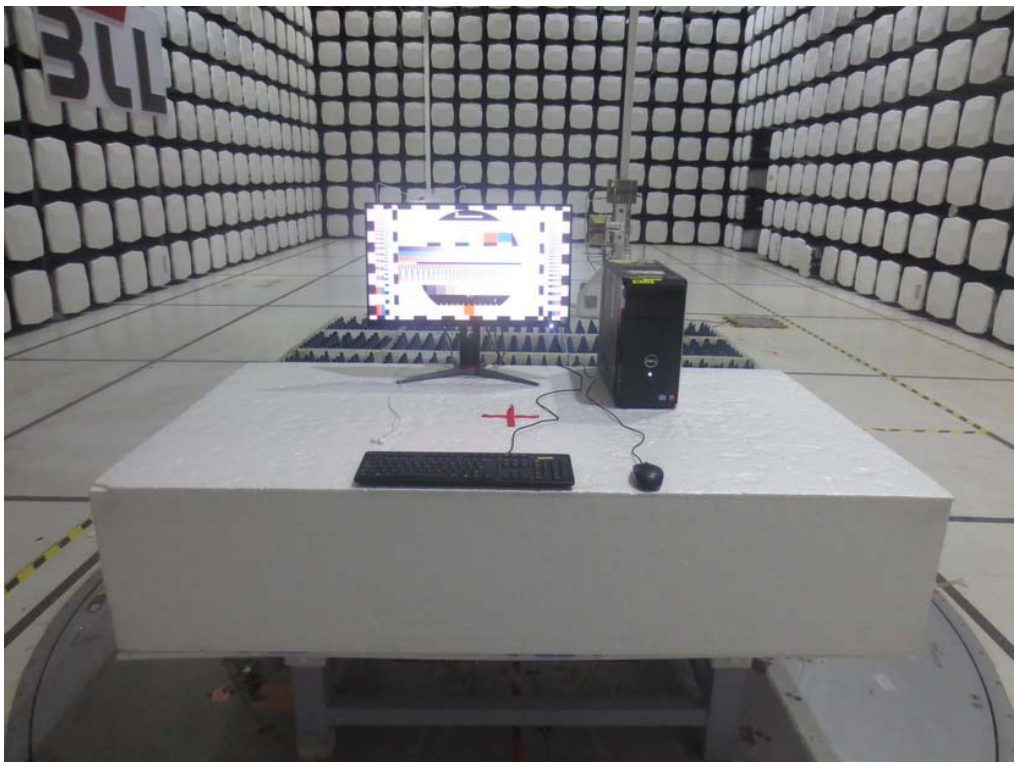
EN 55032:2012+AC:2013 &2015

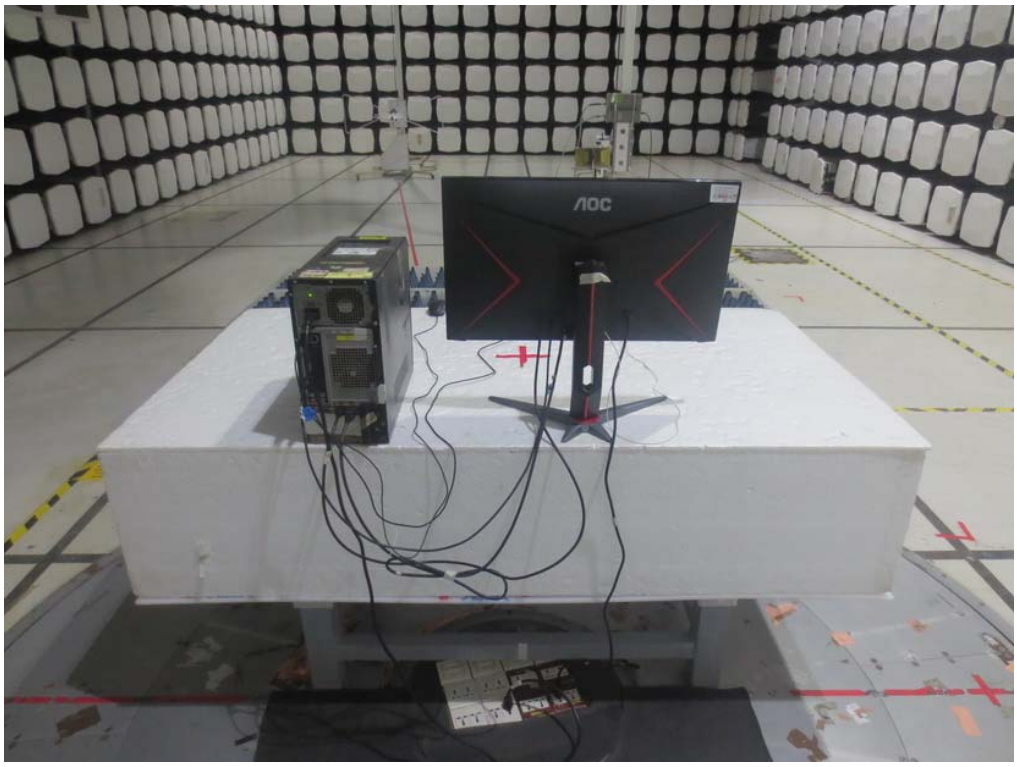
Radiated emissions up to 1 GHz



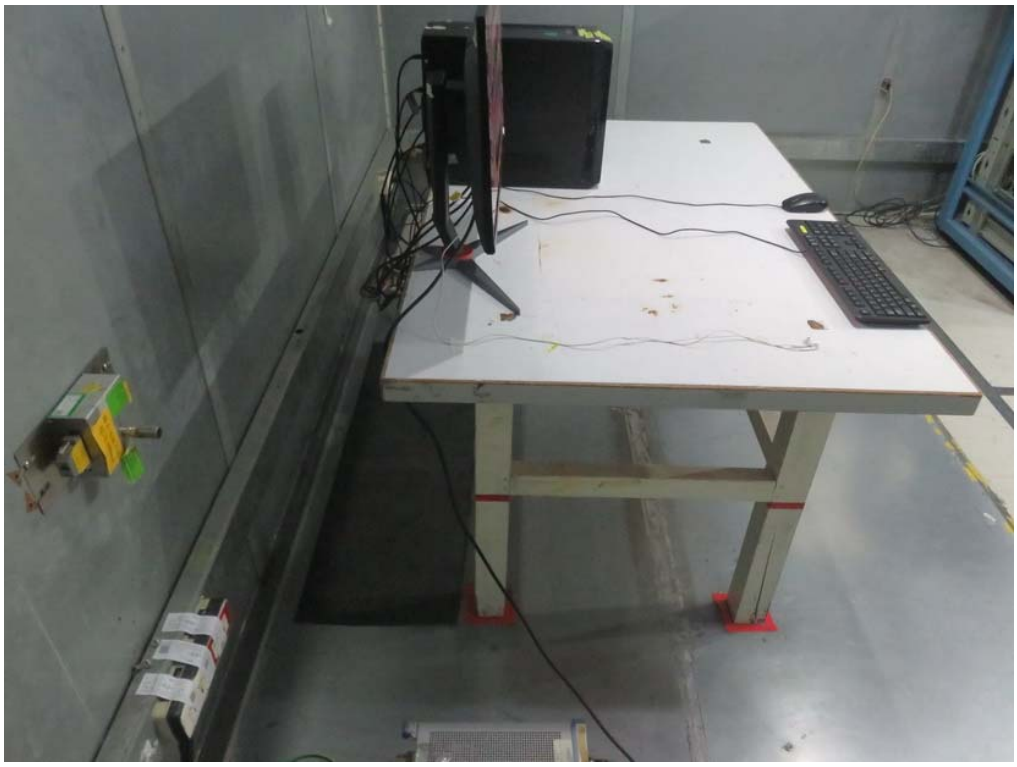


Radiated emissions above 1 GHz



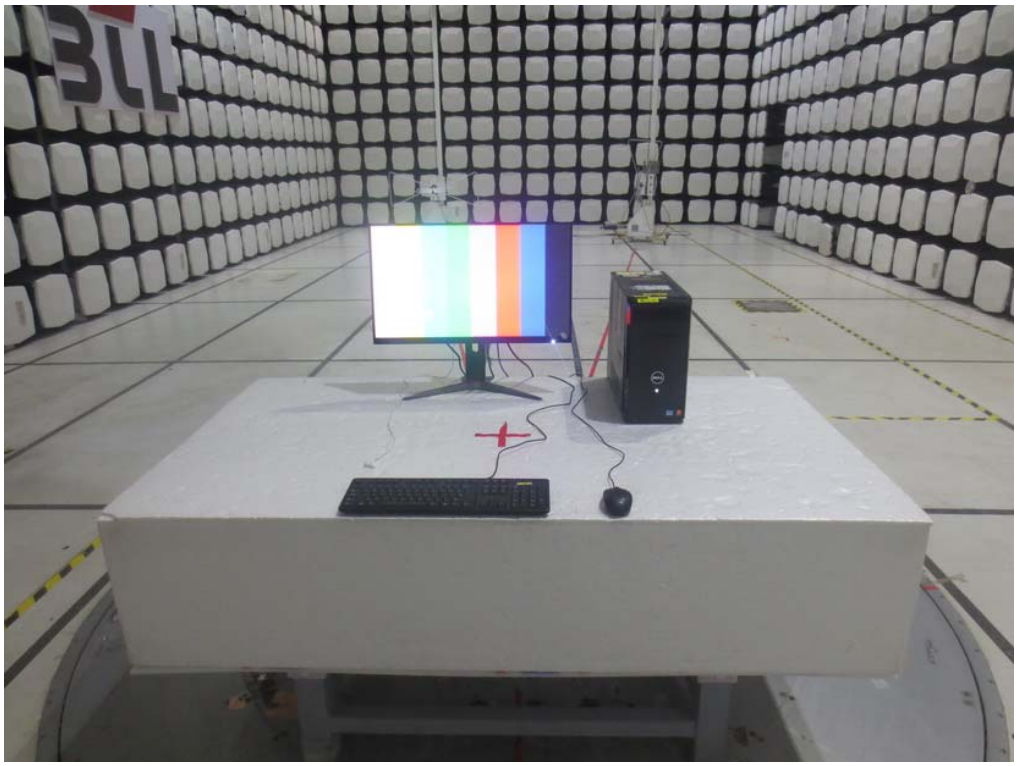


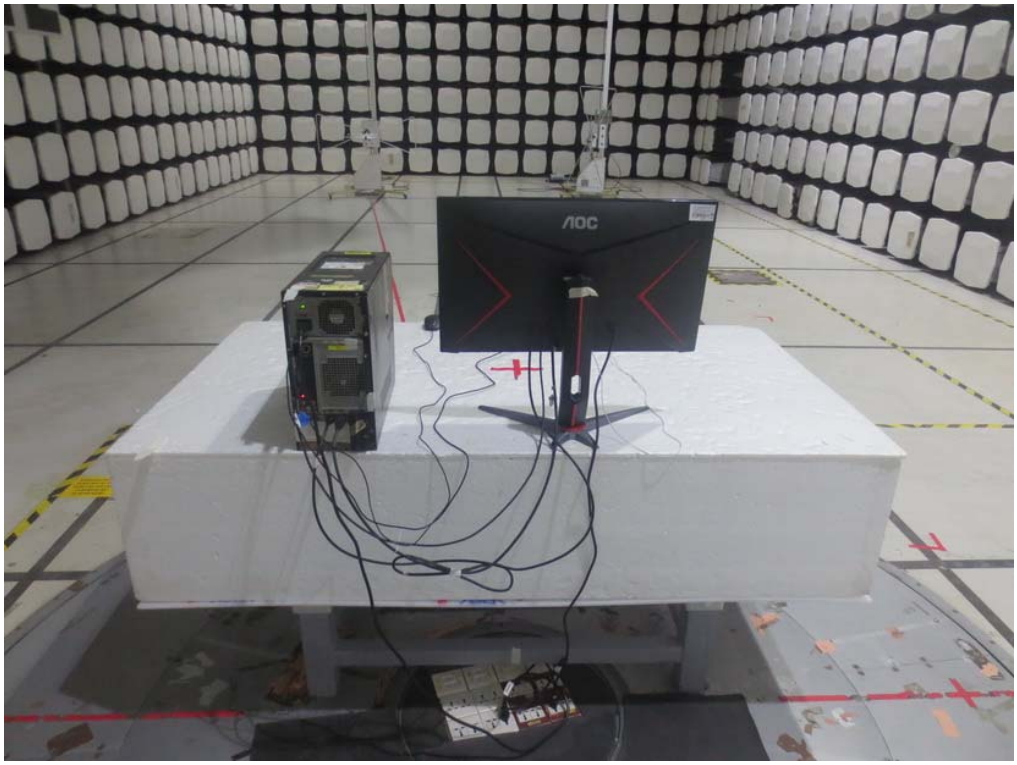
Conducted emissions AC mains power port



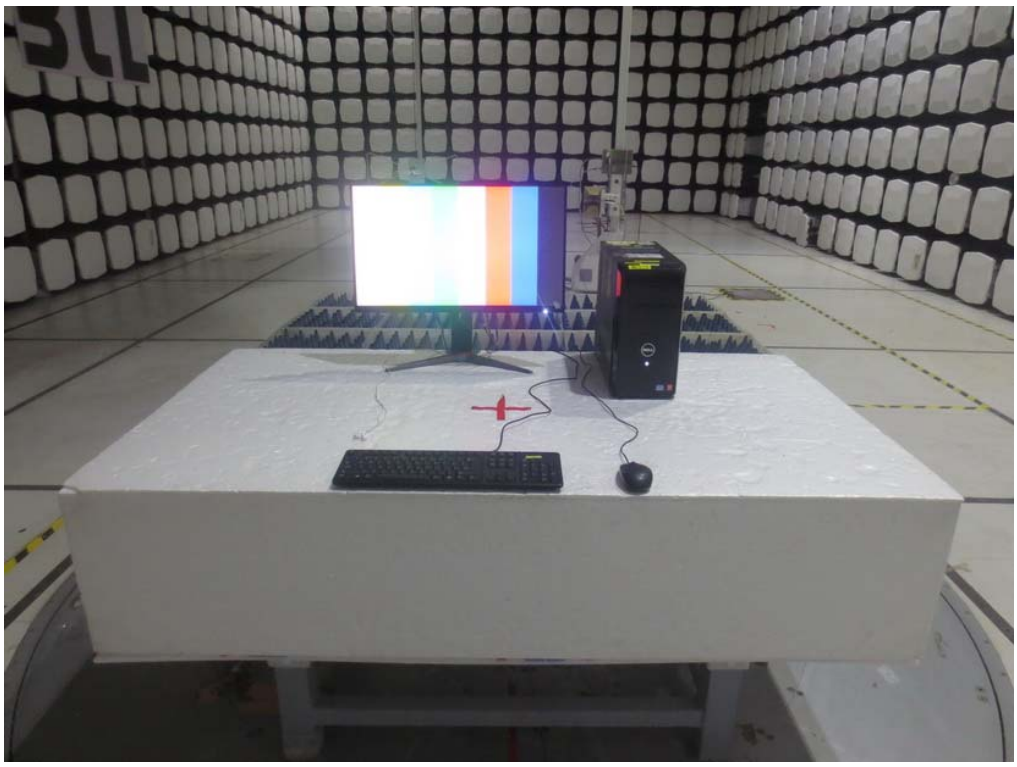
EN 55032:2015+AC:2016

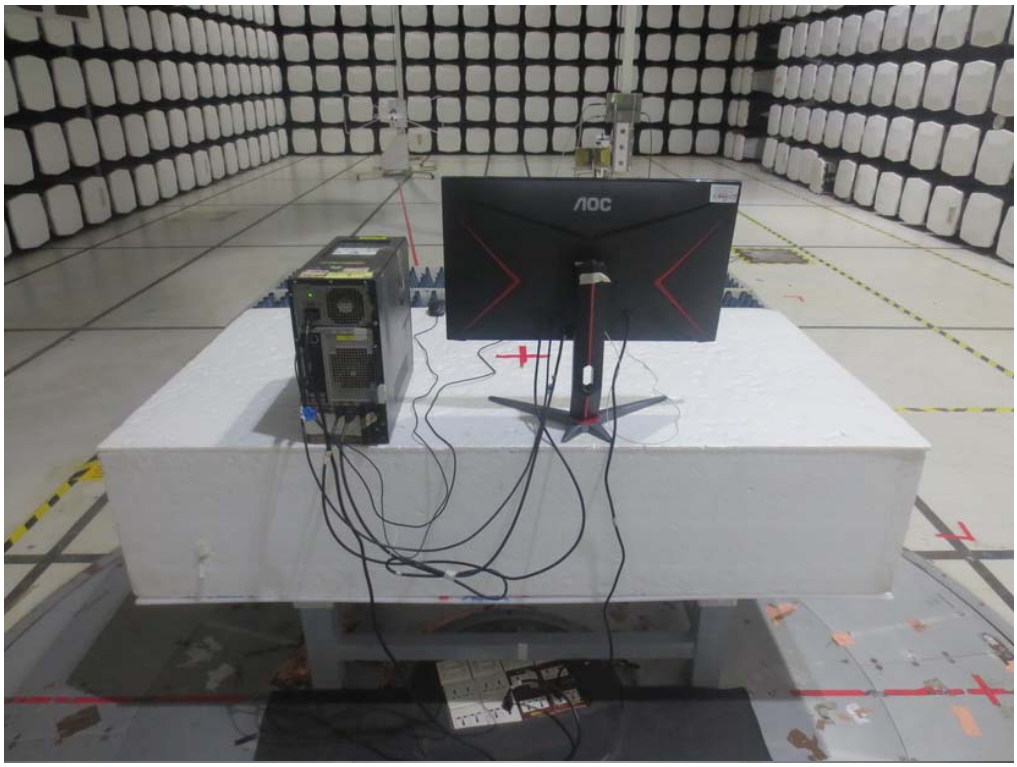
Radiated emissions up to 1 GHz



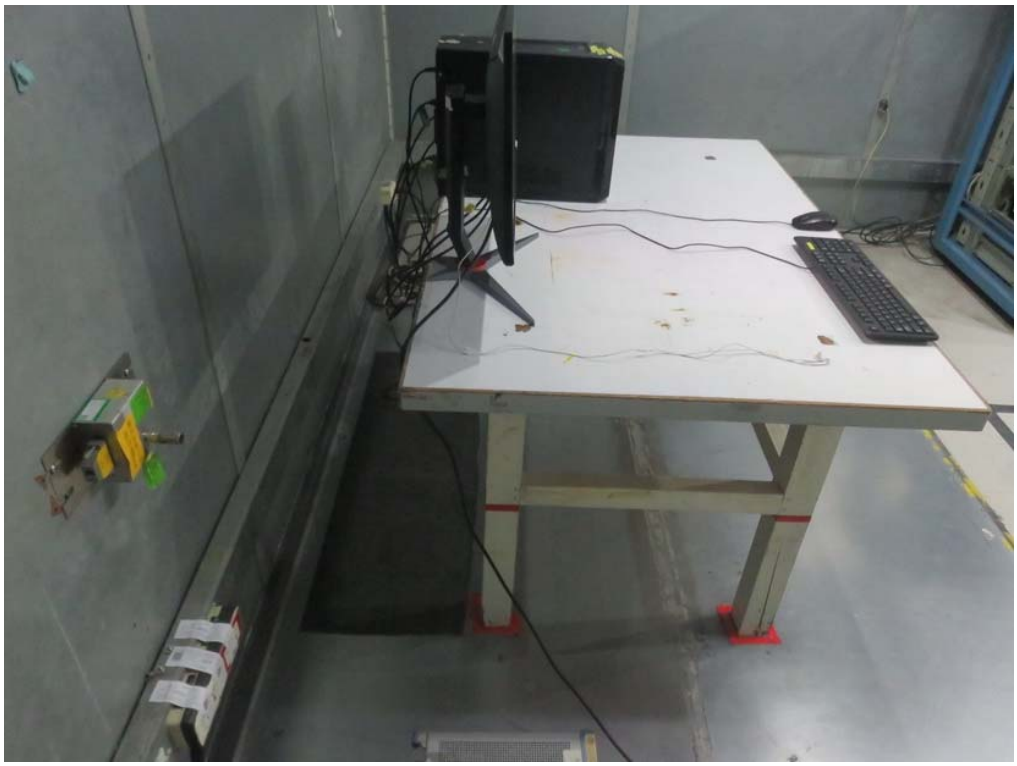


Radiated emissions above 1 GHz





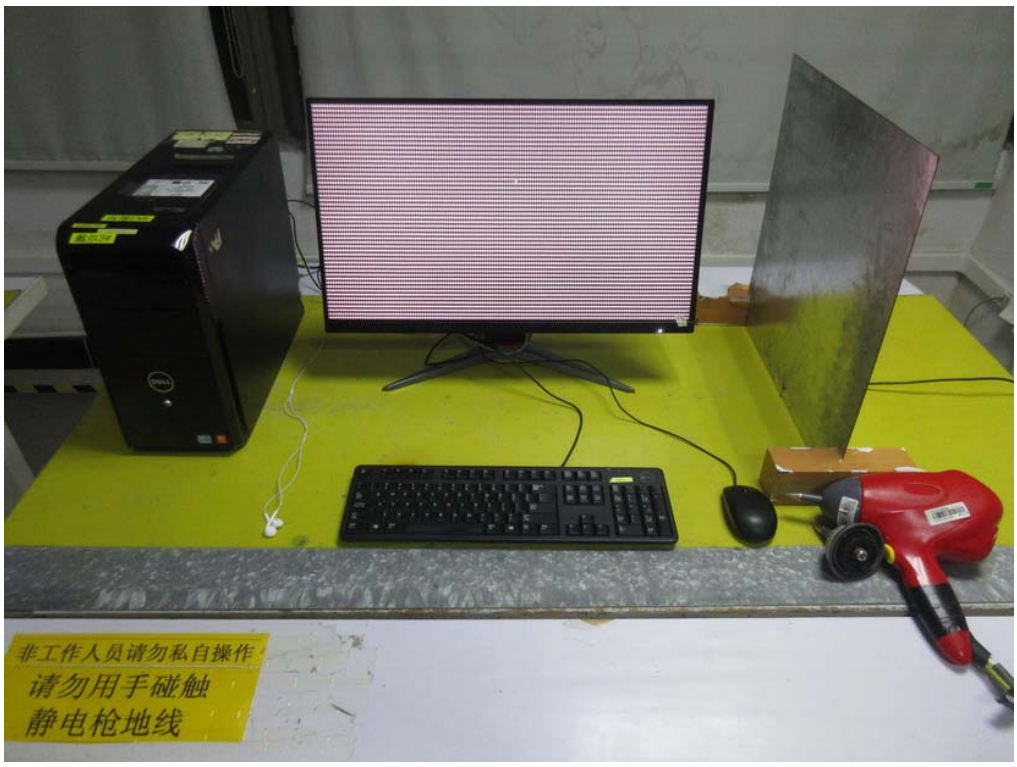
Conducted emissions AC mains power port



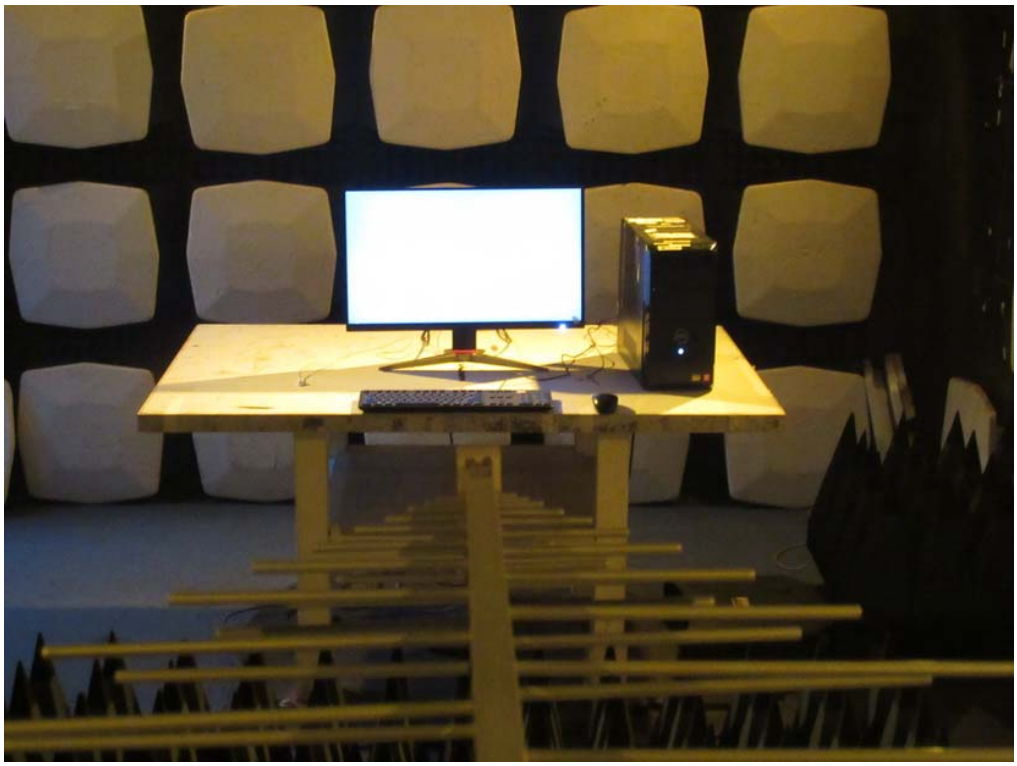
Harmonic current emissions

Voltage fluctuations (Flicker)

Electrostatic discharge immunity



Radiated, radio-frequency, electromagnetic field immunity

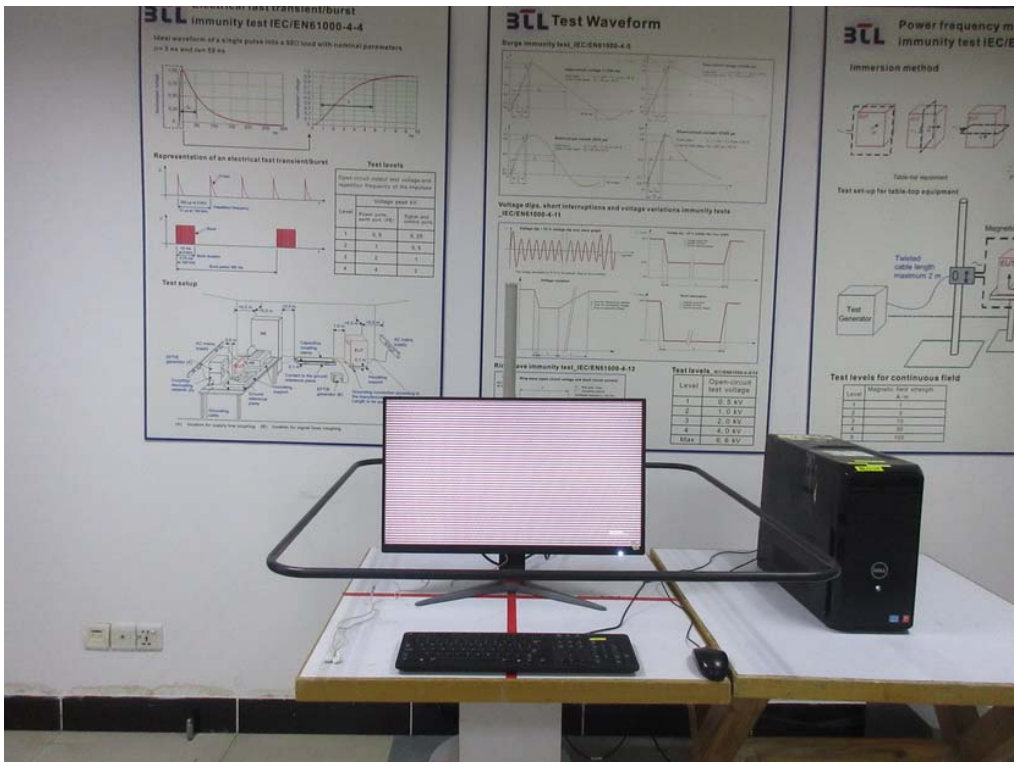


Electrical fast transient/burst immunity

Surge immunity

Immunity to conducted disturbances, induced by radio-frequency fields

Power frequency magnetic field immunity



Voltage dips, short interruptions and voltage variations immunity

End of Test Report