TEST REPORT

CERTIFICATE OF CONFORMITY

Standard:	**EN 55032:2015 +A11:2020, Class B** **EN 61000-3-2:2014, Class D** **EN IEC 61000-3-2:2019+A1:2021, Class D** **EN 61000-3-3:2013+A2:2021** **EN 55035:2017 +A11:2020**
Report No.:	CEBEFM-WTW-P22030972
Model No.:	V984Q
Received Date:	Feb. 27, 2018
Test Date:	Mar. 2 to 6, 2018 & Mar. 30 to Apr. 20, 20222
Issued Date:	Apr. 29, 2022
Applicant:	TOP VICTORY ELECTRONICS (TAIWAN) CO., LTD.
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Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Approved by: Jim Hsiang , **Date:** Apr. 29, 2022

Jim Hsiang / Associate Technical Manager

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Prepared by : Vivian Chen / Senior Specialist

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Release Control Record

Issue No.	Description	Date Issued
CEBEFM-WTW-P22030972	Original release.	Apr. 29, 2022

1 Certificate

Product:	LCD Monitor
Brand:	NEC
Test Model:	V984Q
Sample Status:	Engineering sample
Applicant:	TOP VICTORY ELECTRONICS (TAIWAN) CO., LTD.
Test Date:	Mar. 2 to 6, 2018 & Mar. 30 to Apr. 20, 20222
Standard:	EN 55032:2015 +A11:2020, Class B
	EN 61000-3-2:2014, Class D
	EN IEC 61000-3-2:2019+A1:2021, Class D
	EN 61000-3-3:2013+A2:2021
	EN 55035:2017 +A11:2020
Measurement procedure:	EN 61000-4-2:2009 / IEC 61000-4-2:2008 ED. 2.0
	EN 61000-4-3:2006 +A1:2008 +A2:2010 / IEC 61000-4-3:2010 ED. 3.2
	EN IEC 61000-4-3:2020 / IEC 61000-4-3:2020 ED. 4.0
	EN 61000-4-4:2012 / IEC 61000-4-4:2012 ED. 3.0
	EN 61000-4-5:2014 +A1:2017 / IEC 61000-4-5:2017 ED. 3.1
	EN 61000-4-6:2014+AC:2015 / IEC 61000-4-6:2013 ED. 4.0
	EN 61000-4-8:2010 / IEC 61000-4-8:2009 ED. 2.0
	EN 61000-4-11:2004 +A1: 2017 / IEC 61000-4-11:2017 ED. 2.1
	EN IEC 61000-4-11:2020 / IEC 61000-4-11:2020 ED. 3.0

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

2 Summary of Test Results

The test items that the EUT need to perform in accordance with its interfaces, evaluated functions, are as follows:

Standard	Test Item	Result	Remark
EN 55032	Conducted Emissions from Power Ports	Pass	Minimum passing Class B margin is -5.24 dB at 0.38438 MHz
EN 55032	Conducted Emissions from Wired Network Ports	Pass	Minimum passing Class B margin is -4.21 dB at 0.38438 MHz
EN 55032	Radiated Emissions up to 1 GHz	Pass	Minimum passing Class B margin is -4.15 dB at 800.01 MHz & 784.73 MHz
EN 55032	Radiated Emissions above 1 GHz	Pass	Minimum passing Class B margin is -9.04 dB at 2942.36 MHz
EN 61000-3-2 EN IEC 61000-3-2	Harmonic Current Measurement	Pass	Meets Class D requirements.
EN 61000-3-3	Voltage Fluctuations and Flicker Measurement	Pass	$P_{st} \leqq 1.00$ $d_{max} \leqq 4.00\ \%$ $P_{lt} \leqq 0.65$ $d_c \leqq 3.30\ \%$ $T_{max} \leqq 500$ ms
IEC 61000-4-2	Electrostatic Discharges (ESD)	Pass	For EN 55035 Performance Criteria B
IEC 61000-4-3	Radio Frequency Electromagnetic Field (RS)	Pass	For EN 55035 Performance Criteria A
IEC 61000-4-4	Fast Transients Common Mode (EFT)	Pass	For EN 55035 Performance Criteria A
IEC 61000-4-5	Surges	Pass	For EN 55035 Performance Criteria A
IEC 61000-4-6	Radio Frequency Common Mode (CS)	Pass	For EN 55035 Performance Criteria A
IEC 61000-4-8	Power Frequency Magnetic Field (PFMF)	Pass	For EN 55035 Performance Criteria A
IEC 61000-4-11	Voltage Dips and Interruptions (DIP)	Pass	For EN 55035 **For Voltage Dips:** < 5%% Residual, 0.5 cycle Performance Criteria A 70%% Residual, 25 cycle Performance Criteria A **For Voltage Interruptions:** < 5%% Residual, 250 cycle Performance Criteria C

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Performance Criteria

General Performance Criteria

These criterions shall be used during the testing of primary functions where no specified in the normative annexes of EN 55035 is applicable.

Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state 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 may reasonably expect from the equipment if used as intended.

Performance criterion B

During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test.

After the test, 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), or recovery time, 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.

Performance 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. A reboot or re-start operation is allowed.

Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

Product Specific Performance criteria for network functions
Equipment that provides these functions transmits and receives data through ports such as an analogue/digital data port. The networking functions are just like network switching and routing ; data transmission ; supervisory...etc.

The particular performance criteria which are specified in the normative annexes of CISPR 35/ EN 55035 take precedence over the corresponding parts of the general performance criteria.

Performance criterion A
Where relevant, during the application of the test the network function shall, as a minimum, operate ensuring that:
- established connections shall be maintained throughout the application of the test;
- no change of operational state or corruption of stored data occurs;
- no increase in error rate above the figure defined by the manufacturer occurs. The manufacturer should select the most appropriate performance measurement criteria for the product or system, for example bit error rate, block error rate;
- no request for retry above the figure defined by the manufacturer;
- the data transmission rate does not reduce below the figure defined by the manufacturer;
- no protocol failure occurs;
- other verifications are described in F.3.3.1 of CISPR 35/ EN 55035.

Performance criterion B
Established connections shall be maintained throughout the test, or shall self-recover in a way and timescale that is imperceptible to the user.

The error rate, request for retry and data transmission rates may be degraded during the application of the test. Degradation of the performance as described in criterion A is permitted, provided that the normal operation of the EUT is self-recoverable to the condition established prior to the application of the test.

Where required, as defined in Clause 5 of CISPR 35/ EN 55035, the acceptable operation of the function shall be verified at the completion of the test as described in Table H.1 of CISPR 35/ EN 55035, by confirming the following:

- the EUT’s ability to establish a connection,
- the EUT’s ability to clear a connection.

During surge testing disconnection is allowed on the analogue/digital data port being tested.

If the EUT is a supervisory equipment, it shall not impact the normal operation of the network being monitored. In addition, any supervisory functions impacted during the period of the test shall return to the state prior to the test. Elements to consider include: alarms, signalling lamps, printer output, network traffic rates, network monitoring.

Performance criterion C
Degradation of performance as described in criteria A and B is permitted provided that the normal operation of the EUT is self-recoverable to the condition immediately before the application of the test, or can be restored after the test by the operator.

Product Specific Performance Criteria for xDSL

The particular performance criteria which are specified in the normative annexes of CISPR 35/ EN 55035 take precedence over the corresponding parts of the general performance criteria.

Performance criterion A

Applicable for the test requirement defined in table clause 2.1 of EN 55035

During the swept frequency test the established connection shall be maintained throughout the testing and the information transferred without any additional reproducible errors or loss of synchronisation. If a degradation in performance is observed and the system is adaptive, for example has the capability to automatically retrain in the presence of an interfering signal, then for conducted immunity tests only, the following procedure shall be followed:

a) For each range of interfering frequencies in which degradation in performance is observed, three frequencies (beginning, middle and end) shall be identified.
b) At each of the frequencies identified in step a), the interfering signal shall be turned on and the system is allowed to retrain.
c) If the system is able to retrain and then functions correctly for a dwell time of at least 60 seconds without any additional reproducible errors or loss of synchronisation, then the performance level of the system is considered acceptable.
d) The frequencies identified in step a) and the data rates achieved in step b) shall be recorded in the test report.

Applicable for the test requirement defined in table clause 2.2 of EN 55035

It is important that the modems are able to train in the presence of repetitive impulsive noise and minimize disruption to the end-user where a repetitive impulsive noise source starts after the link has synchronized. Therefore the following procedure and performance criteria shall apply.

The manufacturer shall select the class of impulsive noise protection (INP) to be used for the immunity test and should state this information in the technical documentation and in the test report. The maximum delay shall be set to 8 ms.

In the absence of impulsive noise: The modem shall operate without retraining at its target noise margin with a bit rate value depending on the line attenuation and the stationary noise being present on the line. (The actual value will be between the minimum and maximum bit rate values programmed in the port).

The impulsive noise source shall then be applied at the required test level.

With the impulsive noise applied: The modem shall operate without retraining and without SES at the bit rate established prior to the application of the impulsive noise. No extra CRC errors shall occur due to the impulsive noise.

After the test, the noise margin value shall return to the target noise margin.

Performance criterion B

Applicable for the test requirement defined in table clause 2.3 of EN 55035

Modems shall withstand the occurrence of isolated impulsive noise events. The performance criteria defined in below Table shall be applied.

Impulse duration (ms)	**Performance criteria**
0.24	The application of the impulse shall not cause the xDSL link to lose synchronisation. No CRC errors are permitted.
10	The application of the 5 impulses shall result in less than 75 CRC errors and shall not cause the link to lose synchronisation.
300	The application of the impulse shall not cause the xDSL link to lose synchronisation.

Applicable for the test requirements defined in table clauses 2.5 and 4.5 of EN 55035

For application of this test to the xDSL port, a repetition rate of 100 kHz (burst length 0.75 ms) shall be used.

Degradation of the performance as described in criterion A is permitted in that errors are acceptable during the application of the test. However the application of the test shall not cause the system to lose the established connection or re-train. At the cessation of the test the system shall operate in the condition established prior to the application of the test without user intervention.

After the application of the EFT/B tests to the xDSL or AC mains port, the CRC error count shall not have increased by more than 600 when compared to the count prior to the application of the test.

Performance criterion C

Degradation of the performance as described in criteria A and B is permitted provided that the normal operation of the EUT is self-recoverable to the condition established prior to application of the test or can be restored after the test by the operator.

2.2 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:

Measurement	Specification	Expanded Uncertainty (k=2) (±)	Maximum allowable uncertainty (±)
Conducted Emissions from Power Ports	9 kHz ~ 30 MHz	2.77 dB	3.4 dB (U_{cispr})
Conducted Emissions from Wired Network Ports	150 kHz ~ 30 MHz	3.94 dB	5.0 dB (U_{cispr})
Radiated Emissions up to 1 GHz	30 MHz ~ 1 GHz	4.26 dB	6.3 dB (U_{cispr})
Radiated Emissions above 1 GHz	1 GHz ~ 6 GHz	5.11 dB	5.2 dB (U_{cispr})

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.3 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 Description of EUT

Product	LCD Monitor
Brand	NEC
Test Model	V984Q
Sample Status	Engineering sample
Operating Software	WIN 7
Power Supply Rating	Internal switching power supply Rating: 100-240Vac, 50/60Hz Power Cord: Non-shielded AC cable (3.0m)
Accessory Device	Speaker (NEC/ SP-TF1) IR receiver (NEC/ KT-RC2) Remote control (NEC/ RU-M124)
Data Cable Supplied	Shielded Display cable (2m) Shielded HDMI cable (2m) Non-shielded LAN cable (2m / 10m)

Note:

1. This report is issued as a supplementary report to BV CPS report no.: CE180227D09 R1. The difference compared with original report is upgrading test standard from EN 55024 to EN 55035 and updating standard to the latest version, Therefore Immunity tests testing need to be verified for the test. The other test data was copied from original report.

2. The EUT is a LCD Monitor and the highest resolution is up to to the following specification:
   - HDMI (up to 4096 x 2160, 60Hz)
   - Display (up to 3840 x 2160, 60Hz)

3. The EUT has the following interfaces:
   - HDMI in *3
   - Display in *2
   - Display out
   - RS-232C in
   - Audio in
   - Audio out
   - Remote in
   - AC in
   - Micro SD Card slot
   - USB 1 (Type-A)
   - USB 2 (Type-B)
   - USB CM1
   - USB CM2
   - USB MP
   - LAN *2 (10/ 100Mbps)
   - External speaker terminal *2

3.2 Features of EUT

The tests reported herein were performed according to the method specified by TOP VICTORY ELECTRONICS (TAIWAN) CO., LTD., for detailed feature description, please refer to the manufacturer's specifications or user's manual.
Please refer to appendix of the report if the applicant has provided additional descriptions of the EUT.

3.3 Operating Modes of EUT and Determination of Worst Case Operating Mode

1. The EUT was pre-tested under operating and standby condition and the worst emission level was found under **operating condition**.

2. The EUT is designed with AC power supply of 100-240Vac, 50/60Hz.
   For radiated emission evaluation, 230Vac/50Hz & 110Vac/60Hz (for EN 55032 & AS/NZS CISPR 32), 120Vac/60Hz (for FCC Part 15), 110Vac/60Hz (for CNS 13438), 100Vac/50Hz (for VCCI) had been covered during the pre-test. The worst data was found at **110Vac/60Hz** and recorded in the applied test report.

3. For Radiated emission test, the EUT has been pre-tested under following test modes, and test **Pre-tested Mode 7** was the worst case.

Description			Pre-tested mode											
			1	2	3	4	5	6	7	8	9	10	11	12	13
Interface/ function	HDMI in (side)	4096 x 2160 (60Hz)	V	V	V	V	V	V							
	HDMI in (rear)								V						
	DP in	3840 x 2160 (60Hz)								V					
	HDMI in (rear): 1920*1080 (60Hz)										V				
	HDMI in (rear): 640*480 (60Hz)											V			
	Micro SD												V		
	USB MP													V	
	HDMI from DVD: 2160p														V
LAN cable	10m		V	V		V	V	V	V	V	V	V	V	V	V
	2m				V										
Panel's Angle	Horizontal - with stand		V	V	V				V	V	V	V	V	V	V
	Horizontal - without stand					V									
	Vertical- without stand						V								
	laying-flat type- without stand							V							
Speaker	Internal		V												
	SP-TF1			V	V	V	V	V	V	V	V	V	V	V	V

4. According as per pre-test result and client's requirement, the final test modes were as the following:

Mode	Pre-tested Mode	Color bar signal	Input Power
Conducted emission test			
1	Pre-tested Mode 7	ITU-R BT 1729	230Vac/ 50Hz & 110Vac/ 60Hz
2		ITU-R BT 471-1	
3	Pre-tested Mode 13	ITU-R BT 471-1*	
Asymmetric mode conducted emission at telecommunication ports test			
1	Pre-tested Mode 7 - LAN Speed: 100Mbps	ITU-R BT 1729	230Vac/ 50Hz
2		ITU-R BT 471-1	
The idle mode of conducted emission test at telecom port was pre-tested based on the worst case of link mode. Due to emissions of idle mode being very low compared to link mode, only the link mode data were presented in the test report.			
Radiated emission test			
1	Pre-tested Mode 7	ITU-R BT 1729	110Vac/ 60Hz
2		ITU-R BT 471-1	
3	Pre-tested Mode 13	ITU-R BT 471-1*	
Harmonics, Flicker, Immunity tests			
1	Pre-tested Mode 7		230Vac/ 50Hz
2	Pre-tested Mode 7 <Default mode>		
Harmonics, Flicker, Immunity tests			
1	Pre-tested Mode 7		230Vac/ 50Hz

*: Selected the worst color bar signal from radiated test.

3.4 Test Program Used and Operation Descriptions

Emission Tests (Harmonic & Flicker Test Excluded):

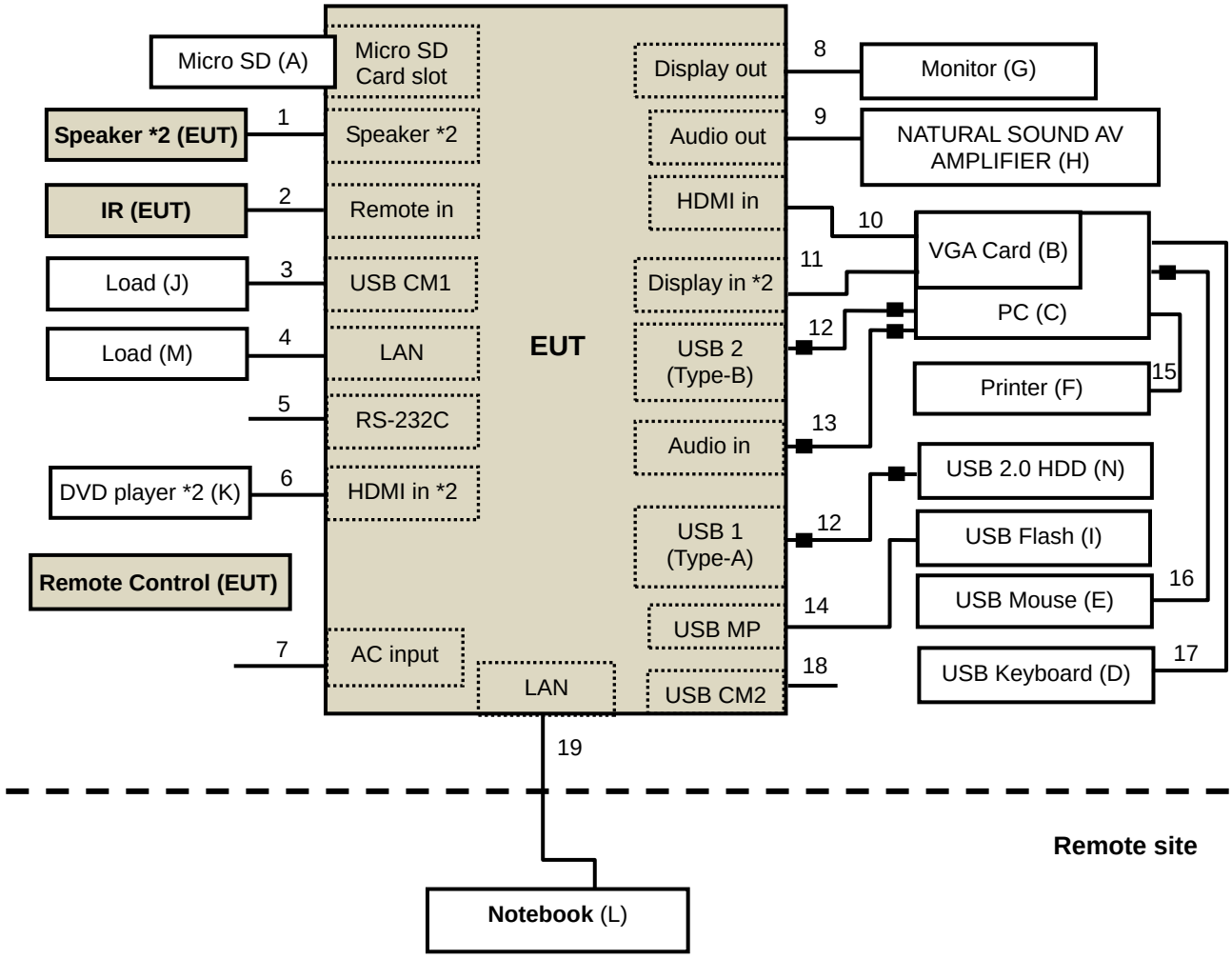
a. Turned on the power of all equipment.
b. PC ran a test program to enable all functions.
c. PC read and wrote messages from HDD.
d. EUT read and wrote messages from Micro SD card & USB Flash & HDD.
e. EUT sent and received messages from Notebook (kept in a remote area) via an UTP LAN cable (10m).
f. PC sent "ITU-R BT 1729 color bars with moving element" to EUT and ext. monitor via EUT, then they displayed them on their screens simultaneously. ***<For Mode 1>***
g. PC / DVD players sent "ITU-R BT 471-1 color bars with moving element" to EUT and ext. monitor via EUT, then they displayed them on their screens simultaneously. ***<For Mode 2 & Mode 3>***
h. PC sent messages to printer and printer printed them out.
i. EUT charged to Load continuously.
j. PC/ DVD players sent “1kHz” audio signal to NATURAL SOUND AV AMPLIFIER / speakers via EUT.
k. Steps c-j were repeated.

Harmonics, Flicker & Immunity Tests:

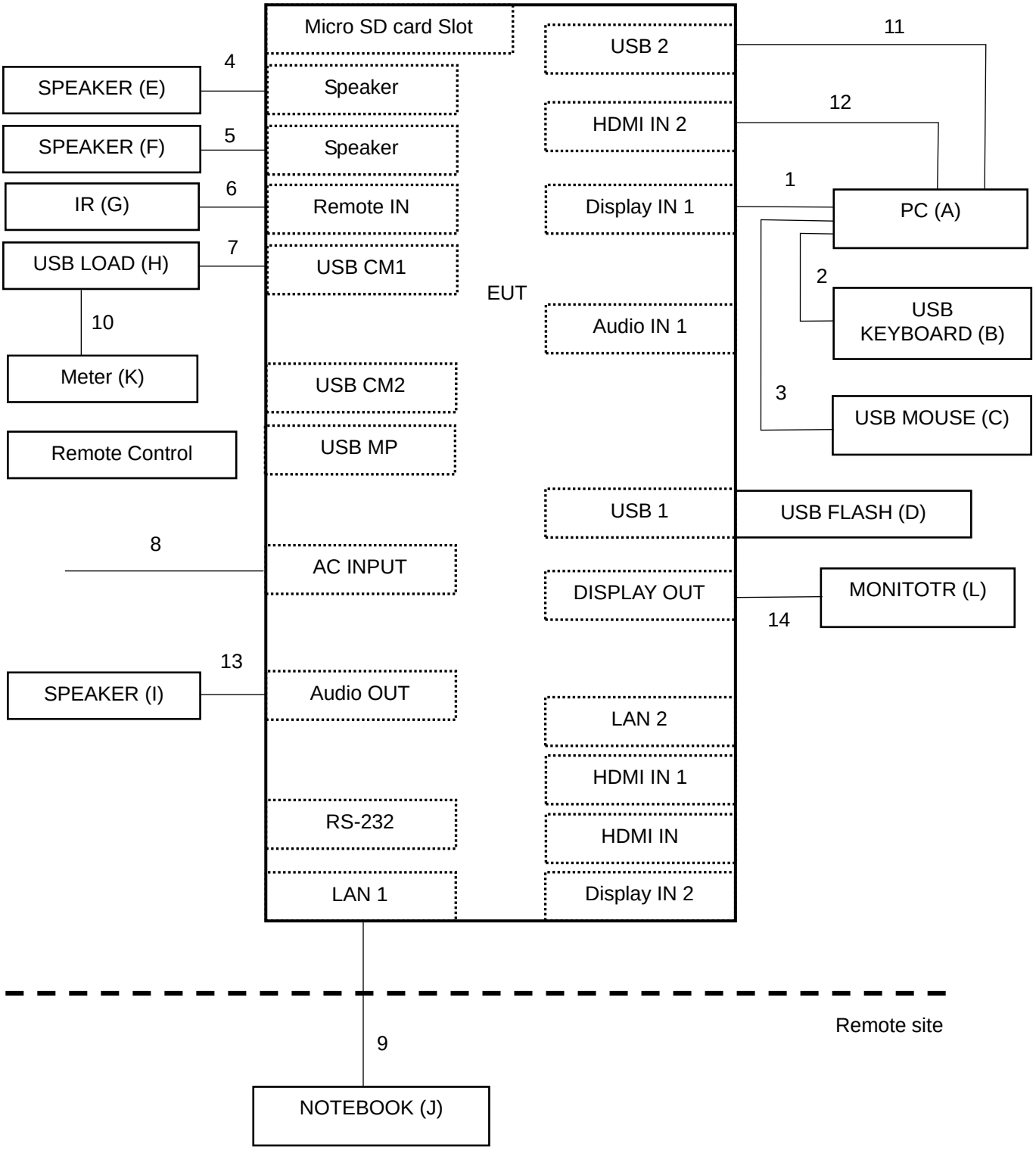
a. Turned on the power of all equipment.
b. PC ran a test program to enable all functions.
c. PC read and wrote messages from HDD.
d. PC read and wrote messages from USB Flash Drive via EUT.
e. EUT sent and received messages from Notebook PC (kept in a remote area) via an UTP LAN cable.
f. PC sent “color bars” messages to EUT and ext. LCD monitor via EUT, and then they displayed them on their screens simultaneously.
g. EUT charged to Load continuously.
h. PC sent audio signal to speakers via EUT.
i. Steps c-h were repeated.

3.5 Connection Diagram of EUT and Peripheral Devices

Emission tests (Harmonics & Flicker excluded):



Harmonics, Flicker, Immunity tests:



3.6 Configuration of Peripheral Devices and Cable Connections

Emission tests (Harmonics & Flicker excluded):

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Micro SD card	Apacer	16GB	N/A	N/A	Provided by Lab
B.	VGA CARD	ASUS	STRIX-GTX980-DC20C-4GD5	EBYVCM102330	N/A	Provided by Lab
C.	PERSONAL COMPUTER	HP	HP ProDesk 400 G1 MT	SGH449P2P9	FCC DoC Approved	Provided by Lab
D.	USB Keyboard	BTC	5200U	G09302046485	FCC DoC Approved	Provided by Lab
E.	USB Mouse	Microsoft	1113	9170515153524	FCC DoC Approved	Provided by Lab
F.	PRINTER	LEXMARK	Z33	03331652570	FCC DoC Approved	Provided by Lab
G.	LCD Monitor	ASUS	MG28UQ	H8LMTF147971	FCC DoC Approved	Provided by Lab
H.	NATURAL SOUND AV AMPLIFIER	YAMAHA	RX-V367	T636970RT	N/A	Provided by Lab
I.	USB 3.0 Flash	Transcend	16GB	N/A	N/A	Provided by Lab
J.	Load	N/A	N/A	N/A	N/A	Supplied by applicant
K.	DVD player *2	SONY	BDP-S7200	N/A	N/A	Supplied by applicant
L.	Notebook PC	SONY	SVS151A12P	275548477001024	FCC DoC Approved	Provided by Lab
M.	Load	N/A	N/A	N/A	N/A	Supplied by applicant
N.	USB 2.0 Hard Disk	BUFFALO	HD-LBU2	55519210504210	FCC DoC Approved	Provided by Lab

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Audio cable	2	1.8	N	0	Supplied by applicant
2.	IR cable	1	1.8	N	0	Supplied by applicant
3.	USB cable	1	1.8	Y	0	Provided by Lab
4.	LAN cable (Cat.5e)	1	1.8	N	0	Provided by Lab
5.	RS232 cable	1	1.8	Y	0	Provided by Lab
6.	HDMI cable	2	2.0	Y	0	Provided by Lab
7.	AC power cable	1	3.0	N	0	Supplied by applicant
8.	Display cable	1	2.0	Y	0	Supplied by applicant
9.	Audio cable	1	1.8	N	0	Provided by Lab
10.	HDMI cable	1	2.0	Y	0	Supplied by applicant
11.	Display cable	2	2.0	Y	0	Provided by Lab
12.	USB cable	2	1.8	Y	2	Supplied by applicant
13.	Audio cable	1	1.8	N	2	Supplied by applicant
14.	USB cable	1	1.8	Y	0	Provided by Lab
15.	USB cable	1	1.8	Y	0	Provided by Lab
16.	USB cable	1	1.8	Y	1	Provided by Lab
17.	USB cable	1	1.8	Y	0	Provided by Lab
18.	USB cable	1	1.8	Y	0	Provided by Lab
19.	LAN cable (Cat.5e)	1	10	N	0	Supplied by applicant

Harmonics, Flicker, Immunity tests:

No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A.	PC	HP	Elite Desk 800G4	4CE9251SMQ	NA	Provided by Lab
B.	USB KEYBOARD	DELL	KB4021	CN-05V23T-71581-1AK-0 0MT-A01	DoC	Provided by Lab
C.	USB MOUSE	HP	M-UAE96	F93A90AN3V42GO7	DoC	Provided by Lab
D.	USB 3.0 FLASH	SP	SP016GBUF3J80V1T	NA	NA	Provided by Lab
E.	SPEAKER	NEC	SP-TF1	460L01871J	NA	Supplied by applicant
F.	SPEAKER	NEC	SP-TF1	460L01871J	NA	Supplied by applicant
G.	IR	IR	NEC	KT-RC2	NA	Supplied by applicant
H.	USB LOAD	NA	2.5Ohm	NA	NA	Provided by Lab
I.	SPEAKER	N/A	N/A	NA	NA	Provided by Lab
J.	Notebook	DELL	P70F	1KY07L2	DoC	Provided by Lab
K.	Meter	YFE	YFE-370A	NA	NA	Provided by Lab
L.	Monitor	ASUS	PA279CV	M7LMTF235958	NA	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Display cable	1	1.8	Y	0	Provided by Lab
2.	USB 2.0 cable	1	2	Y	0	Provided by Lab
3.	USB 2.0 cable	1	1.8	Y	0	Provided by Lab
4.	Audio cable	1	1.8	N	0	Supplied by applicant
5.	Audio cable	1	1.8	N	0	Supplied by applicant
6.	IR cable	1	1.8	N	0	Supplied by applicant
7.	USB cable	1	1.2	Y	0	Provided by Lab
8.	AC power cable	1	3.0	N	0	Supplied by applicant
9.	LAN cable (Cat.5e)	1	10	N	0	Provided by Lab
10.	DC power cable	1	1.2	N	0	Provided by Lab
11.	USB cable	1	1.8	Y	0	Provided by Lab
12.	HDMI cable	1	2.0	Y	0	Supplied by applicant
13.	Audio cable	1	1.5	N	0	Provided by Lab
14.	Display cable	1	1.8	Y	0	Provided by Lab

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 Conducted Emissions from Power Ports

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	100290	Dec. 19, 2017	Dec. 18, 2018
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH2-Z5	100104	Dec. 06, 2017	Dec. 05, 2018
LISN With Adapter (for EUT)	AD10	C09Ada-001	Dec. 06, 2017	Dec. 05, 2018
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	847265/023	Nov. 03, 2017	Nov. 02, 2018
SCHWARZBECK Artificial Mains Network (For EUT)	NNLK8129	8129229	May 9, 2017	May 8, 2018
Software	Cond_V7.3.7.4	NA	NA	NA
RF cable (JYEBAO) With 10dB PAD	5D-FB	Cable-C09.01	Feb. 21, 2018	Feb. 20, 2019
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010789	May 18, 2017	May 17, 2018
ROHDE & SCHWARZ Artificial Mains Network (For TV EUT)	ESH3-Z5	100220	Nov. 14, 2017	Nov. 13, 2018
LISN With Adapter (for TV EUT)	100220	N/A	Nov. 14, 2017	Nov. 13, 2018

Notes: 1. The test was performed in Shielded Room No. 9.
2. The VCCI Site Registration No. C-1312.
3. Tested Date: Mar. 6, 2018

4.2 Conducted Emissions from Wired Network Ports

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	100290	Dec. 19, 2017	Dec. 18, 2018
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH2-Z5	100104	Dec. 06, 2017	Dec. 05, 2018
LISN With Adapter (for EUT)	AD10	C09Ada-001	Dec. 06, 2017	Dec. 05, 2018
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	847265/023	Nov. 03, 2017	Nov. 02, 2018
SCHWARZBECK Artificial Mains Network (For EUT)	NNLK8129	8129229	May 9, 2017	May 8, 2018
Software	Cond_V7.3.7.4	NA	NA	NA
Software	ISN_V7.3.7.4	NA	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C09.01	Feb. 21, 2018	Feb. 20, 2019
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010789	May 18, 2017	May 17, 2018
FCC ISN	F-071115-1057-1	20651	Feb. 12, 2018	Feb. 11, 2019

Notes: 1. The test was performed in Shielded Room No. 9.
2. The VCCI Site Registration No. T-1587
3. Tested Date: Mar. 6, 2018

4.3 Radiated Emissions up to 1 GHz

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Sonoma Preamplifier	310N	352922	Feb. 20, 2018	Feb. 19, 2019
Sonoma Preamplifier	310N	352921	Feb. 20, 2018	Feb. 19, 2019
Agilent Test Receiver	N9038A	MY50010158	Jul. 1, 2017	Jun. 30, 2018
Agilent Test Receiver	N9038A	MY51210114	Jul. 5, 2017	Jul. 4, 2018
Schwarzbeck Antenna	VULB9168	9168-316	Dec. 11, 2017	Dec. 10, 2018
Schwarzbeck Antenna	VULB9168	9168-317	Dec. 11, 2017	Dec. 10, 2018
Max Full. Turn Table & Tower	MF7802	MF7802121	NA	NA
Max Full. Tower	MF7802	MF780208105	NA	NA
Software	Radiated_V8.7.08	NA	NA	NA
JYEBAO RF cable With 5dB PAD	LMR-600	CABLE-CH8-01.V	Jun. 26, 2017	Jun. 25, 2018
JYEBAO RF cable With 5dB PAD	LMR-600	CABLE-CH8-02.H	Jun. 26, 2017	Jun. 25, 2018
WOKEN RF cable With 5dB PAD	8D	CABLE-CH8-03.3M	Jun. 26, 2017	Jun. 25, 2018

Notes: 1. The test was performed in Chamber No. 8.
2. The Industry Canada Reference No. IC 7450E-8.
3. The VCCI Site Registration No. R-12946.
4. Tested Date: Mar. 2 to 3, 2018

4.4 Radiated Emissions above 1 GHz

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Agilent Spectrum	E4446A	MY51100009	Jun. 1, 2017	May 31, 2018
Agilent Test Receiver	N9038A	MY51210114	Jul. 5, 2017	Jul. 4, 2018
Agilent Preamplifier	8449B	3008A01924	Feb. 22, 2018	Feb. 21, 2019
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Feb. 21, 2018	Feb. 20, 2019
EMCI Preamplifier	EMC184045B	980235	Feb. 22, 2018	Feb. 21, 2019
Schwarzbeck Horn Antenna	BBHA-9170	212	Dec. 1, 2017	Nov. 30, 2018
ETS Horn Antenna	3117	00123980	Dec. 13, 2017	Dec. 12, 2018
Max Full. Turn Table	MF7802	MF7802121	NA	NA
Max Full. Tower	MF7802	MF780208105	NA	NA
Software	Radiated_V8.7.08	NA	NA	NA
SUHNER RF cable With 4dB PAD	SF106-18	Cable-CH8-01	Aug. 14, 2017	Aug. 13, 2018
SUHNER RF cable With 3/4dB PAD	SF102	Cable-CH8-02 (3.6m)	Aug. 14, 2017	Aug. 13, 2018
MICRO-TRONICS Notch filter	BRC50703-01	010	May 31, 2017	May 30, 2018
MICRO-TRONICS Band Pass Filter	BRM17690	005	May 31, 2017	May 30, 2018

Notes: 1. The 3dB beamwidth of the horn antenna is minimum 30 degree (or w = 1.6m at 3m distance) for 1~6 GHz.
2. The test was performed in Chamber No. 8.
3. The Industry Canada Reference No. IC 7450E-8.
4. The VCCI Site Registration No. G-19.
5. Tested Date: Mar. 3, 2018

4.5 Harmonic Current Measurement

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Harmonics and Flicker Analyzer TESEQ	PROFLINE 2105	1632A00983&1639A01863	Jun. 8, 2021	Jun. 7, 2022
Software	CTS 4	N/A	N/A	N/A

Notes:

1. The test was performed in Linkou EMS Room No.1.
2. Tested Date: Apr. 14, 2022

4.6 Voltage Fluctuations and Flicker Measurement

Refer to section 4.5 to get information of the instruments.

4.7 Electrostatic Discharges (ESD)

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Electronic Discharge Simulator Noiseken	ESS-2000	ESS0382041	Oct. 7, 2021	Oct. 6, 2022
ESD Generator EM Test	Dito//DM-150/330//DM-150/330-rfci	P1315117252/P1317117852	Jul. 9, 2021	Jul. 8, 2022
ESD Simulator KeyTek	MZ15/EC	0504259	Nov. 10, 2021	Nov. 9, 2022
	MZ-15/EC	0401299	Oct. 7, 2021	Oct. 6, 2022
ESD Simulator TESEQ	NSG 438	1364	Dec. 16, 2021	Dec. 15, 2022

Notes:

1. The test was performed in Linkou ESD Room No.01.
2. Tested Date: Apr. 20, 2022

4.8 Radio Frequency Electromagnetic Field (RS)

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Signal Generator Agilent	E8257D	MY48050465	Jun. 22, 2021	Jun. 21, 2022
Amplifier BONN	BSA 0125-800	1912556	NA	NA
Amplifier TESTQ	CBA 1G-275	T44344	NA	NA
Power Amplifier AR	35S4G8AM4	0326094	NA	NA
Power Amplifier AR	100S1G4M3	0329249	NA	NA
Controller AR	SC1000M3	305910	NA	NA
RF Power meter BOONTON	4232A	10180	May 24, 2021	May 23, 2022
Power sensor BOONTON	51011-EMC	34152	May 24, 2021	May 23, 2022
Power sensor BOONTON	51011-EMC	34153	May 24, 2021	May 23, 2022
Log-Periodic Antenna AR	AT6080	0329465	NA	NA
BiconiLog Antenna EMCO	3141	1001	NA	NA
High Gain Horn Antenna AR	AT4010	0329800	NA	NA
LOG ANTENNA Schwarzbeck	Schwarzbeck Stlp 9149	9149-260	NA	NA
CHANCE MOST Full Anechoic Chamber (9x5x3m)	Chance Most	RS-002	Feb. 3, 2022	Feb. 2, 2023
Software BVADT	RS_V7.6	NA	NA	NA
Audio analyzer R&S	UPV	104565	May 18, 2021	May 17, 2022
Ear Simulator Telephonometry B&K	4185	2553594	NA	NA
Pressure-field Microphone B&K	4192	3190854	Dec. 20, 2021	Dec. 19, 2022
Two channel microphone conditioning amplifier B&K	2690 A OS2	2645274	May 16, 2021	May 15, 2022
POWER AMPLIFIER B&K	2716C	2610979	NA	NA
Mouth Simulator B&K	4227	2630632	NA	NA
Software	ABMS_ V7.4.3	NA	NA	NA

Notes:

1. The test was performed in Linkou RS Room No.02.
2. Tested Date: Apr. 12, 2022

4.9 Fast Transients Common Mode (EFT)

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Burst generator Haefely	PEFT 4010	154954	Apr. 7, 2021	Apr. 6, 2022

Notes:

1. The test was performed in Linkou EFT Room.
2. Tested Date: Mar. 30, 2022

4.10 Surges

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
EMS Simulator KeyTek	EMCPro	9902207	May 7, 2021	May 6, 2022
Software	CEWare32	NA	NA	NA
Modular Impulse Generator EMC-Partner	MIG0603IN3 IEC-ANSI	352	Aug. 13, 2021	Aug. 12, 2022
Coupling Decoupling Network EMC-Partner	CDN-UTP8	045	Aug. 13, 2021	Aug. 12, 2022

Notes:

1. The test was performed in Linkou EMS Room No.1.
2. Tested Date: Apr. 14, 2022.

4.11 Radio Frequency Common Mode (CS)

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
R&S SML03 S.G R&S	SML03	101801	Jan. 11, 2022	Jan. 10, 2023
Amplifier AR	75A250AM1	306331	NA	NA
Digital Sweep Function Generator Topward	8120	984801	NA	NA
Power Sensor R & S	NRV-Z5	837878/039	Oct. 19, 2021	Oct. 18, 2022
Power Meter R & S	NRVD	837794/040	Oct. 19, 2021	Oct. 18, 2022
FCC EM Injection Clamp FCC	F-203I-23mm	455	NA	NA
Current Clamp FCC	F-120-9A	361	Aug. 8, 2021	Aug. 7, 2022
Coupling/Dcoupling Network EM TEST	CDN M1/32A	306508	Jun. 17, 2021	Jun. 16, 2022
CDN M2-16Amp FCC	FCC-801-M2-16A	01047	Feb. 23, 2022	Feb. 22, 2023
Coupling/Dcoupling Network TESEQ	CDN M232	37702	Jun. 17, 2021	Jun. 16, 2022
Coupling/Dcoupling Network TESEQ	CDN M332	41258	Jun. 17, 2021	Jun. 16, 2022
Coupling/Dcoupling Network TESEQ	CDN M332	41256	Jun. 17, 2021	Jun. 16, 2022
Coupling Decoupling Network TESEQ	CDN M432S	56519	Feb. 23, 2022	Feb. 22, 2023
CDN FCC	FCC-801-M5-50A	100018	Jan. 18, 2022	Jan. 17, 2023
Coupling Decoupling Network TESEQ	CDN T2A-10	54942	Feb. 22, 2022	Feb. 21, 2023
Coupling Decoupling Network TESEQ	CDN T400A	49918	Feb. 23, 2022	Feb. 22, 2023

Coupling Decoupling Network TESEQ	CDN T800	34428	Feb. 22, 2022	Feb. 21, 2023
Coupling Decoupling Network TESEQ	CDN T8-10	40376	Feb. 22, 2022	Feb. 21, 2023
Coupling Decoupling Network TESEQ	CDN T8-230	56641	Feb. 22, 2022	Feb. 21, 2023
Coupling Decoupling Network TESEQ	CDN T8-230	56642	Feb. 22, 2022	Feb. 21, 2023
Coupling Decoupling Network TESEQ	CDN T8-230	56643	Feb. 22, 2022	Feb. 21, 2023
CDN Calibration Kit TESEQ	CDN T8S	29459	Jun. 17, 2021	Jun. 16, 2022
Coupling Decoupling Network TESEQ	CDN ST08A	56527	Feb. 21, 2022	Feb. 20, 2023
Coupling Decoupling Network TESEQ	CDN ST08A	56525	Feb. 21, 2022	Feb. 20, 2023
CDN TESEQ	CDN S200	53490	Feb. 24, 2022	Feb. 23, 2023
CDN TESEQ	CDN S400	52115	June 17, 2021	June 16, 2022
Coupling Decoupling Network TESEQ	CDN S751A	56435	Feb. 21, 2022	Feb. 20, 2023
Coupling Decoupling Network TESEQ	CDN S751A	56436	Feb. 22, 2022	Feb. 21, 2023
Software BVADT	CS_V7.4.2	NA	NA	NA
Audio analyzer R&S	UPV	104565	May 18, 2021	May 17, 2022
Ear Simulator Telephonometry B&K	4185	2553594	NA	NA
Pressure-field Microphone B&K	4192	3073928	Aug. 12, 2021	Aug. 11, 2022
Two channel microphone conditioning amplifier B&K	2690 OS2	3001996	Nov. 17, 2021	Nov. 16, 2022
POWER AMPLIFIER B&K	2716C	2610979	NA	NA
Mouth Simulator B&K	4227	2630632	NA	NA
Software BVADT	ABMS_ V7.4.3	NA	NA	NA

Notes:

1. The test was performed in Linkou CS Room No.1.
2. Tested Date: Mar. 31, 2022.

4.12 Power Frequency Magnetic Field (PFMF)

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Magnetic field generator NARDA	PMM 1008	0100X30701	Aug. 30, 2021	Aug. 29, 2022
Magnetic Field Meter Combinova	MFM 10	224	Jun. 20, 2021	Jun. 19, 2022

Notes:

1. The test was performed in Linkou EMS Room No.02.
2. Tested Date: Apr. 6, 2022

4.13 Voltage Dips and Interruptions (DIP)

Description & Manufacturer	Model no.	Serial No.	Calibrated Date	Calibrated Until
Harmonics and Flicker Analyzer TESEQ	PROFLINE 2105	1632A00983&1639A01863	Jun. 8, 2021	Jun. 7, 2022
EMS Simulator KeyTek	EMCPro	9902207	May 7, 2021	May 6, 2022
Software	WIN2120	NA	NA	NA

Notes:

1. The test was performed in Linkou EMS Room No.1.
2. Tested Date: Apr. 14, 2022

5 Limits of Test Items

5.1 Conducted Emissions from Power Ports

For AC mains power input/output Port

Frequency (MHz)	Class A (dBμV)		Class B (dBμV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Notes: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

5.2 Conducted Emissions from Wired Network Ports

Frequency (MHz)	Coupling Device	Class A				Class B			
		Voltage Limit (dBuV)		Current limits (dBuA)		Voltage Limit (dBuV)		Current limits (dBuA)	
		Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.15-0.5	Using AAN	97-87	84-74	-	-	84-74	74-64	-	-
0.5-30		87	74	-	-	74	64	-	-
0.15-0.5	Using CVP and Current probe	97-87	84-74	53-43	40-30	84-74	74-64	40-30	30-20
0.5-30		87	74	43	30	74	64	30	20
0.15-0.5	Using a 150 Ω load	-	-	53-43	40-30	-	-	40-30	30-20
0.5-30		-	-	43	30	-	-	30	20

Note: The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

5.3 Radiated Emissions up to 1 GHz

Frequency (MHz)	Class A Quasi-peak (dBuV/m)		Class B Quasi-peak (dBuV/m)	
	at 3m	at 10m	at 3m	at 10m
30 - 230	50	40	40	30
230 - 1000	57	47	47	37

Notes: 1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

5.4 Radiated Emissions above 1 GHz

Frequency (GHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	Average	Peak	Average	Peak
1 to 3	56	76	50	70
3 to 6	60	80	54	74

Notes: 1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

Frequency Range of Radiated Measurement (For unintentional radiators)

Highest internal frequency (*Fx*) (MHz)	**Highest measurement frequency (*FM*)** (GHz)
Fx *≤ 108 MHz*	1
108 MHz < ***Fx*** ≤ 500 MHz	2
500 MHz < ***Fx*** ≤ 1 GHz	5
Fx *> 1 GHz*	5 x ***Fx*** up to a maximum of 6 GHz
Fx is the highest fundamental frequency generated and/or used in the ITE or digital apparatus under test.	

5.5 Harmonic Current Measurement

Limits for Class A equipment	
Harmonic Order n	Max. permissible harmonics current A
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
15≦n≦39	0.15x15/n
Even harmonics	
2	1.08
4	0.43
6	0.30
8≦n≦40	0.23x8/n

Limits for Class D equipment		
Harmonic Order n	Max. permissible harmonics current per watt mA/W	Max. permissible harmonics current A
Odd Harmonics only		
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
13	0.30	0.21
15≦n≦39	3.85/n	0.15x15/n

Notes: 1. Class A and Class D are classified according to section 5 of EN 61000-3-2.

2. According to section 7 of EN 61000-3-2, the above limits for all equipment except for lighting equipment having an active input power > 75 W and no limits apply for equipment with an active input power up to and including 75 W.

Classification of equipment

Class A	Class B	Class C	Class D
Balanced three-phase equipment; Household appliances excluding equipment as Class D; Tools excluding portable tools; Dimmers for incandescent lamps; Audio equipment; Equipment not specified in one of the three other classes.	Portable tools; Arc welding equipment which is not professional equipment.	Lighting equipment.	Equipment having a specified power less than or equal to 600 W of the following types: Personal computers and personal computer monitors; Television receivers; Refrigerators and freezers having one or more variable-speed drives to control compressor motor(s).

5.6 Voltage Fluctuations and Flicker Measurement

Test Item	Limit	Note
P_{st}	1.0	P_{st} means short-term flicker indicator.
P_{lt}	0.65	P_{lt} means long-term flicker indicator.
T_{dt} (ms)	500	T_{dt} means maximum time that d(t) exceeds 3.3 %.
d_c (%)	3.3%	d_c means relative steady-state voltage change
d_{max} (%)		d_{max} means maximum relative voltage change. Control Method of Equipment (see below)
	4%	■ - without additional conditions
	6%	☐ - switched manually, or - switched automatically more frequently than twice per day, and also has either a delayed restart (the delay not less than a few tens of seconds), or manual restart, after a power supply interruption
	7%	☐ - attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or switched on automatically, or - is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

5.7 General immunity requirements

Port	Basic Standard	Test item	Test specification	Performance criteria
Power input (AC)	IEC 61000-4-4	Fast Transients, Common Mode (EFT)	±1 kV 5/50 ns (Tr/Th) 5 kHz, repetition frequency	B
	IEC 61000-4-5	Surge	Line to line: ±1 kV, 1.2/50 µs Line to earth: ±2 kV, 1.2/50 µs	B
	IEC 61000-4-6	Radio Frequency, Common Mode (CS)	0.15-10 MHz, 3V, 80% AM (1kHz), 10-30 MHz, 3V-1V, 80% AM (1kHz), 30-80 MHz, 1V, 80% AM (1kHz),	A
	IEC 61000-4-11	Voltage dips and interruptions (DIP)	**Voltage Dips:** < 5 % residual voltage, 0.5 cycle 70% residual voltage, 25 cycles (at 50Hz) **Voltage Interruption:** < 5 % residual voltage, 250 cycles (at 50 Hz)	B C C
DC power/ Wired network and Signal/ Control port	IEC 61000-4-4	Fast Transients, Common Mode (EFT)	±0.5 kV 5/50 ns (Tr/Th) 100 kHz, repetition frequency for xDSL port 5 kHz, repetition frequency for other port	B
	IEC 61000-4-5	Surge	**Wired network ports** (directly connected to outdoor cables): Symmetrically operated: 10/700µs w/o primary protectors: ±1.0kV, or with primary protectors fitted: ±1.0kV and ±4.0kV, Coaxial or shielded operated: 1.2/50µs shield to ground: ±0.5 kV, **DC power ports** (directly connected to outdoor cables): 1.2/50 µs each individual line to earth, or shield to ground: ±0.5 kV,	C B B
	IEC 61000-4-6	Radio Frequency, Common Mode (CS)	0.15-10 MHz, 3V, 80% AM (1kHz), 10-30 MHz, 3V-1V, 80% AM (1kHz), 30-80 MHz, 1V, 80% AM (1kHz),	A
		Broadband impulse noise disturbances (Applicable only to xDSL ports.)	**Repetitive :** Impulse frequency profile : 0.15 – 0.5 MHz, 107 dBuV ; 0. 5 – 10 MHz, 107 – 36 dBuV ; 10 – 30 MHz, 36 – 30 dBuV Burst duration : 0.70 ms Burst period :10 ms(for 50 Hz) At least 2 minutes for each port under test.	A
			Isolated : Impulse frequency profile : 0.15 –30 MHz, 110 dBuV Burst duration : 0.24 ms, 10 ms and 300 ms Isolated impulses : 5 times Interval : at least 60 seconds	B

Port	Basic Standard	Test item	Test specification	Performance criteria
Enclosure	IEC 61000-4-2	Electrostatic Discharge (ESD)	±4 kV (contact) ±8 kV (Air)	B
	IEC 61000-4-3	Radio Frequency Electromagnetic Field (RS)	Swept Frequency Test: 80 to 1000(MHz), 3 V/m, 80 % AM (1 kHz) Spot Frequency Test: 1800, 2600, 3500, 5000 MHz (±1 %), 3V/m, 80% AM (1kHz)	A
	IEC 61000-4-8	Power Frequency Magnetic Field (PFMF)	1A/m, 50Hz	A

6 Test Arrangements

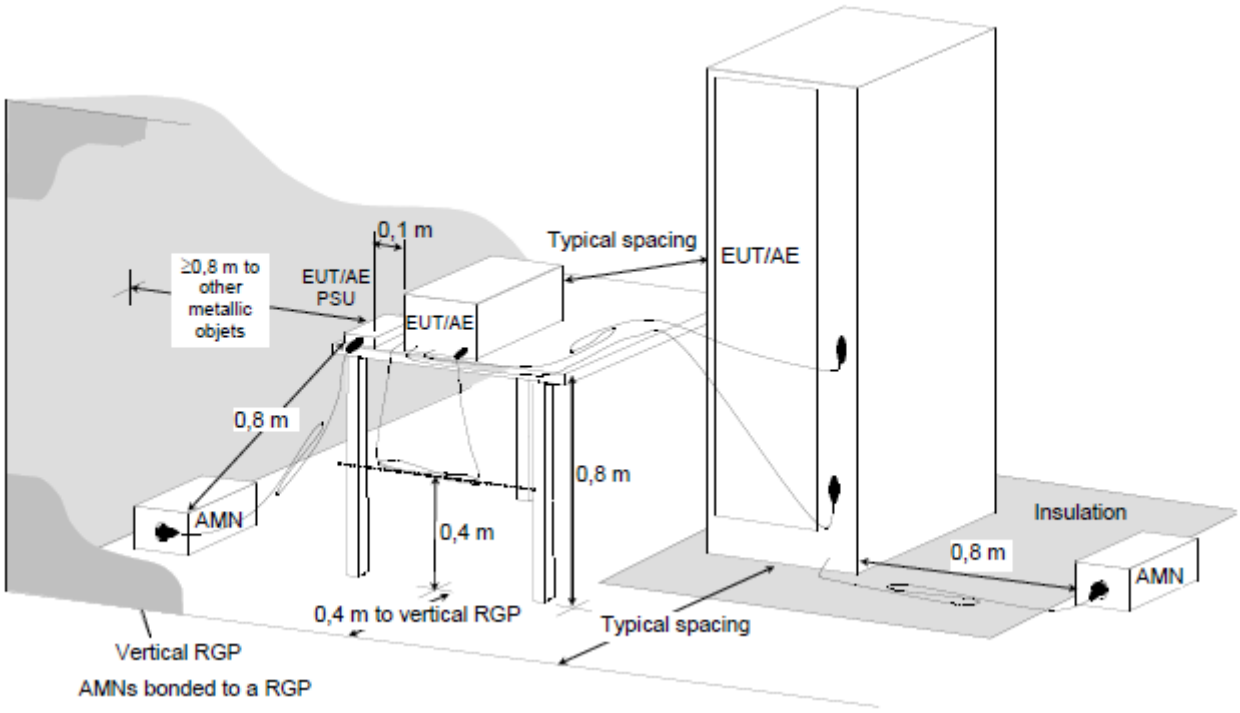
6.1 Conducted Emissions from Power Ports

a. The EUT is placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN), or an Artificial Network (AN) as specified in CISPR 25 if uses in a vehicle. Other support units are connected to the power mains through another LISN and/or AN. They provide coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The test results of conducted emissions at mains ports are recorded of six worst margins for quasi-peak (mandatory) [and average (if necessary)] values against the limits at frequencies of interest unless the margin is 20 dB or greater.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

6.2 Conducted Emissions from Wired Network Ports

Method of Using AANs:

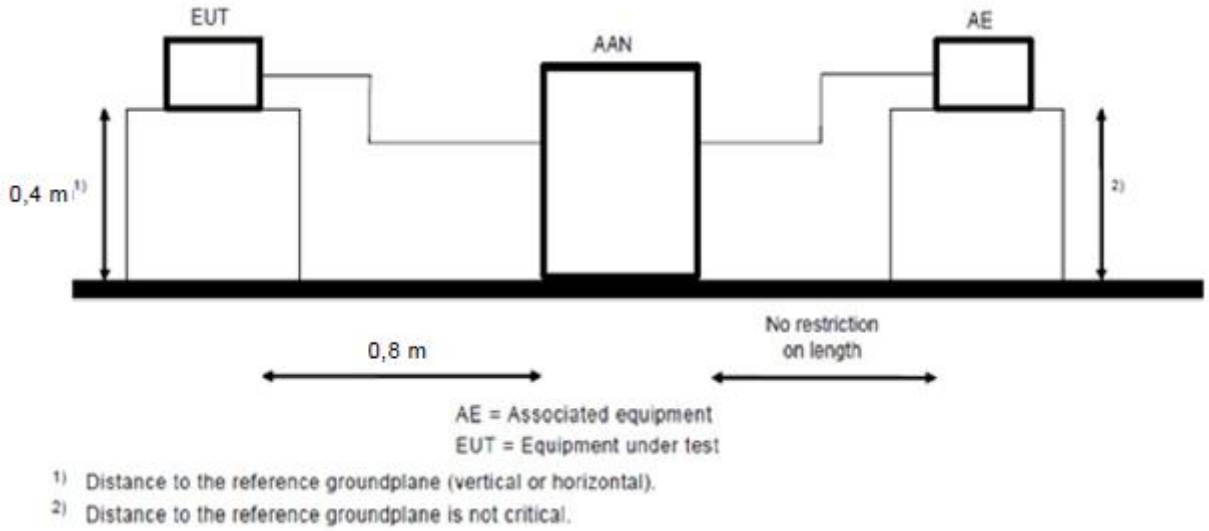
a. The EUT is placed 0.4 meters from the conducting wall of the shielded room and connected to AAN directly to reference ground plane.

b. If voltage measurement is used, measure voltage at the measurement port of the AAN, correct the reading by adding the AAN voltage division factor, and compare to the voltage limit.

c. It is not necessary to apply the current limit if a AAN is used.

d. The test results of disturbance at telecommunication ports are recorded of six worst margins for quasi-peak (mandatory) [and average (if necessary)] values against the limits at frequencies of interest unless the margin is 20 dB or greater.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

Method of Using a 150 Ω load to the outside surface of the shielding cable:

a. Breaks the external protective insulation (exposing the shield) and connect a 150Ω resistor from the outside surface of the shield to ground.

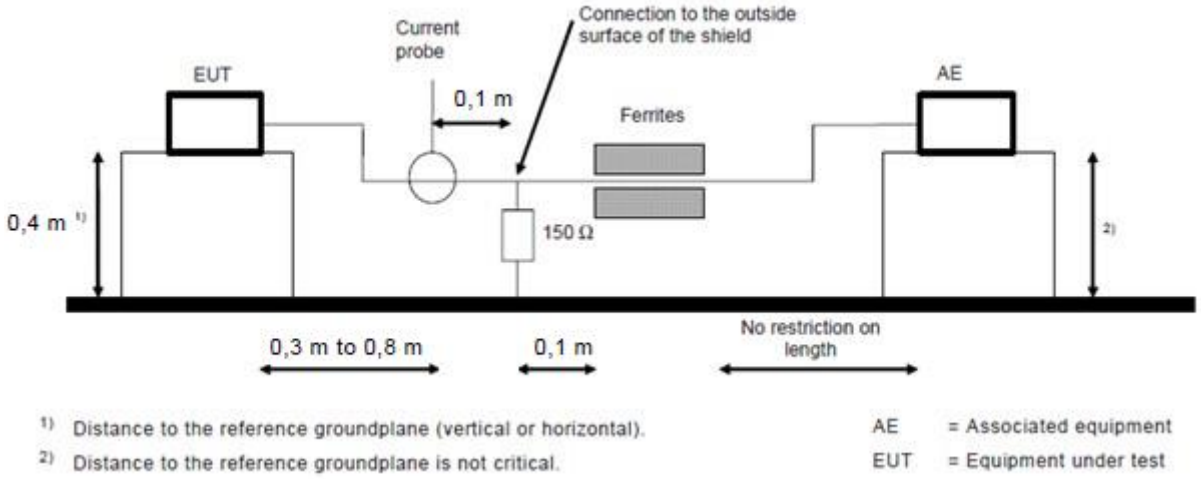
b. A current probe shall be placed at 0.1 m from the 150Ω resistor. The current probe to EUT horizontal distance is between 0.3 m to 0.8 m.

c. If current measurement is used, measure current at the measurement port of the current probe, correct the reading by adding the current probe division factor, and compare to the current limit.

d. It is not necessary to apply the voltage limit if a current probe is used.

e. The test results of disturbance at telecommunication ports are recorded of six worst margins for quasi-peak (mandatory) [and average (if necessary)] values against the limits at frequencies of interest unless the margin is 20 dB or greater.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

Method of Using a combination of current probe and capacitive voltage probe:

a. Measure current with a current probe.

b. Compare the measured current with the applicable current limit.

c. Measure voltage with a capacitive voltage probe as specified in 5.2.2 of CISPR 16-1-2.

d. Adjust the measured voltage as follows:

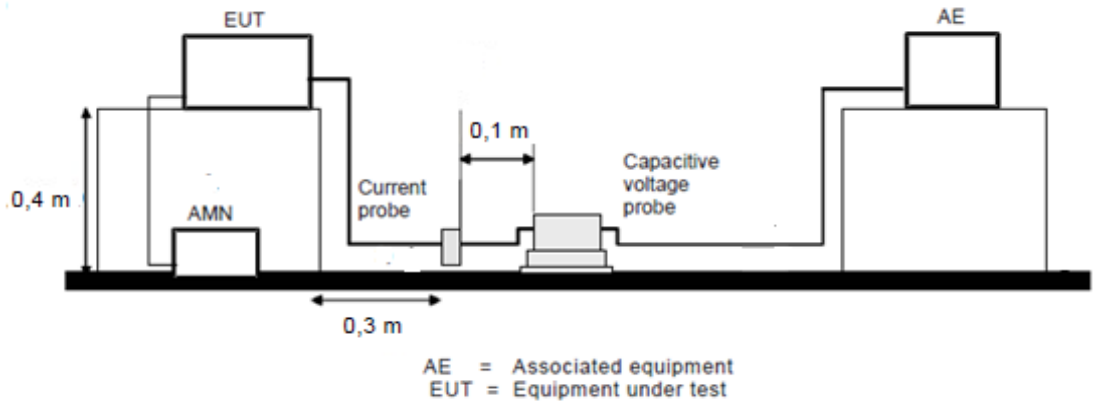
- current margin ≤ 6 dB – subtract the actual current margin from measured voltage;
- current margin > 6 dB – subtract 6 dB from measured voltage.

e. Compare adjusted voltage with the applicable voltage limit

f. Both the measured current and the adjusted voltage shall be below the applicable

g. The test results of disturbance at telecommunication ports are recorded of six worst margins for quasi-peak (mandatory) [and average (if necessary)] values against the limits at frequencies of interest unless the margin is 20 dB or greater.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

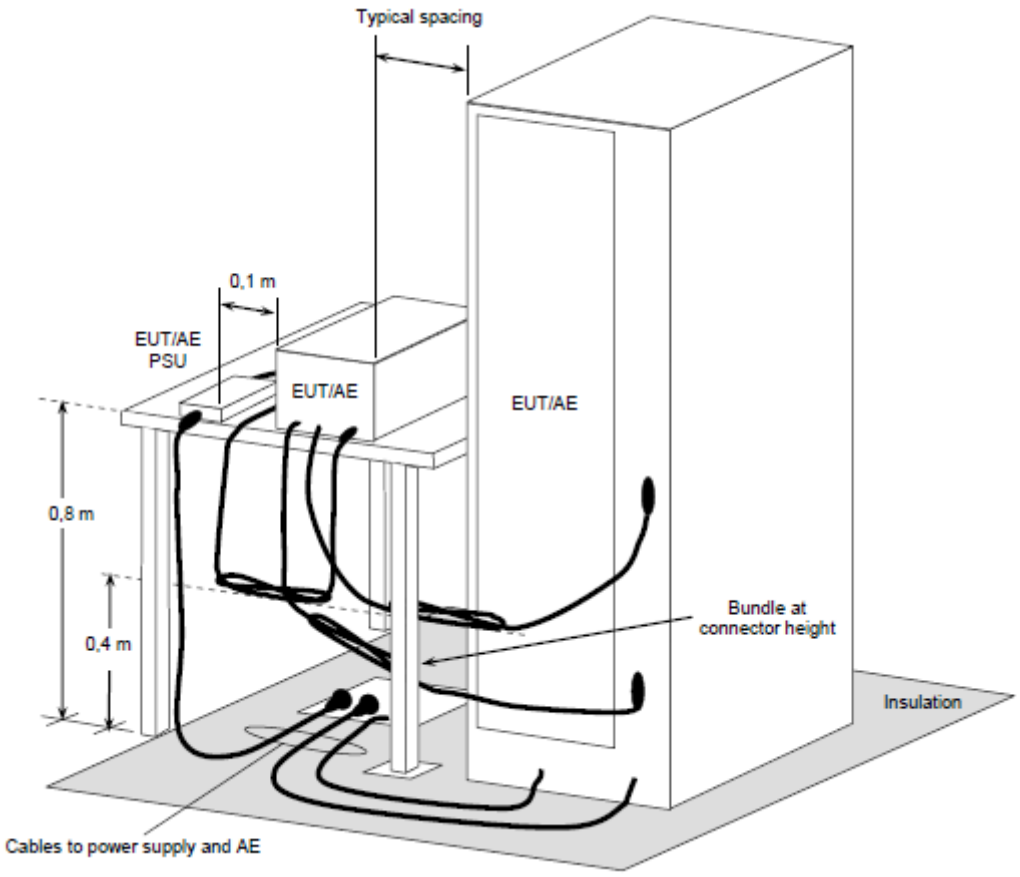


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

6.3 Radiated Emissions up to 1 GHz

a. For the table-top EUT is placed on a 0.8 meter to the top of rotating table; for the the floor standing EUT shall be insulated (by insulation of maximum thickness of 150 mm) from the horizontal reference ground plane. The rotating table is rotated 360 degrees to determine the position of the highest radiation. If the equipment requires a dedicated ground connection, this shall be provided and bonded to the RGP.
b. The EUT is set 10 meters for 0.03 GHz to 1 GHz away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT is arranged to its worst case and then the antenna is tuned to heights from 1 m to 4 m and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system is set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is up to 1 GHz.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for quasi-peak detection (QP) at frequency up to 1GHz.

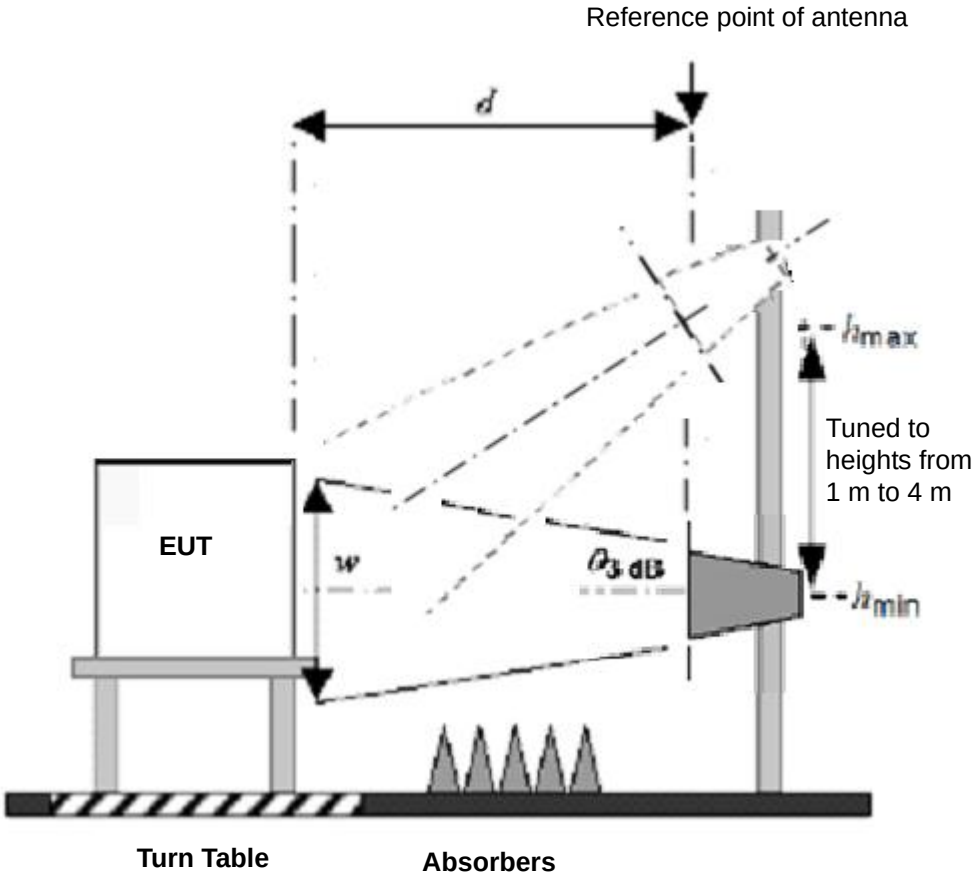


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

6.4 Radiated Emissions above 1 GHz

a. For the table-top EUT is placed on a 0.8 meter to the top of rotating table; for the the floor standing EUT shall be insulated (by insulation of 12 mm) from the horizontal reference ground plane. The rotating table is rotated 360 degrees to determine the position of the highest radiation. If the equipment requires a dedicated ground connection, this shall be provided and bonded to the RGP.
b. The EUT was set *d* = 3 meters for 1 GHz to 6 GHz away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The height of antenna can be varied from one meter to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The spectrum analyzer system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.

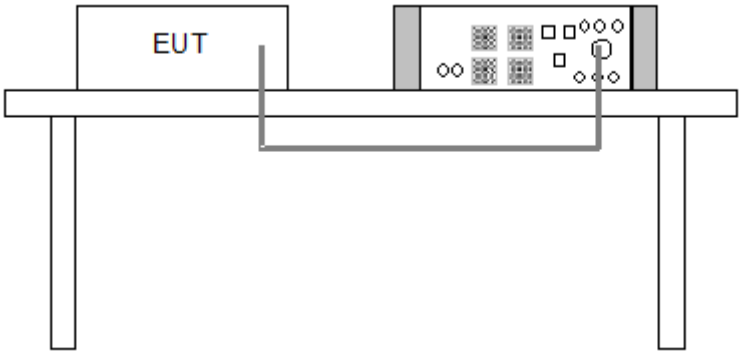
Note: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection (PK) at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

6.5 Harmonic Current Measurement

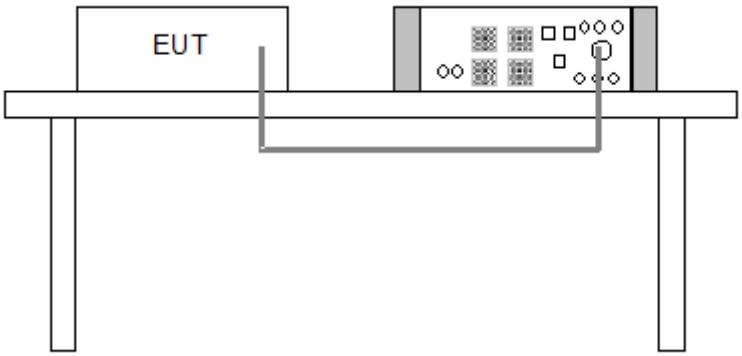
a. The harmonic current limits apply to line currents and not to currents in the neutral conductor. Nevertheless, for single-phase equipment, it is permissible to measure the currents in the neutral conductor instead of the currents in the line.
b. The EUT is tested as presented by, and in accordance with information provided by, the manufacturer. Preliminary operation of motor drives by the manufacturer may be needed before the tests are undertaken to ensure that results correspond with normal use.
c. In all configurations, the use of additional load shall not cause the total output power available to be exceeded.
d. 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.



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

6.6 Voltage Fluctuations and Flicker Measurement

a. Controls or automatic programs of the EUT shall be set to produce the most unfavourable sequence of voltage changes, using only those combinations of controls and programmes which are mentioned by the manufacturer in the instruction manual, or are otherwise likely to be used.
b. Preliminary operation of motor drives may be needed before the tests to ensure that results corresponding to those of normal use are obtained.
c. During the flick measurement, the measure time shall include that part of whole operation cycle in which the EUT produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

6.7 Electrostatic Discharges (ESD)

Discharge Impedance:	330 ohm / 150 pF
Number of Discharge:	Air – Direct: 10 discharges per location (each polarity) Contact – Direct & Indirect: 10 discharges per location (each polarity)
Discharge Period:	1-second minimum

The basic test procedure was in accordance with EN/IEC 61000-4-2:

a. Electrostatic discharges were applied only to those points and surfaces of the EUT that are accessible to users during normal operation.

b. The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.

c. The time interval between two successive single discharges was at least 1 second.

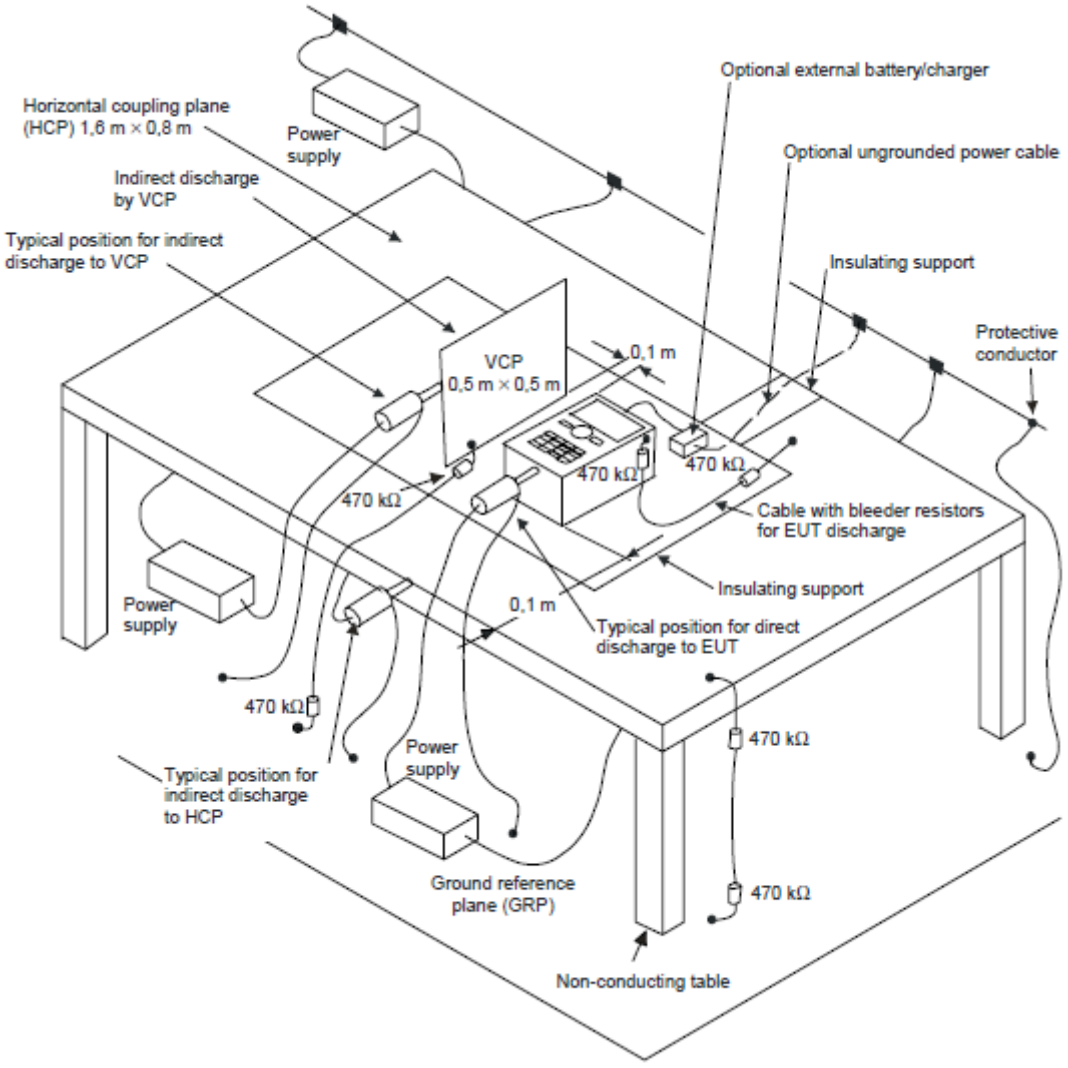
d. The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the EUT.

e. Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.

f. Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.

g. At least ten single discharges (in the most sensitive polarity) were applied to the **H**orizontal **C**oupling **P**lane at points on each side of the EUT. The ESD generator was positioned at a distance of 0.1 meters from the EUT with the discharge electrode touching the **HCP.**

h. At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the **V**ertical **C**oupling **P**lane in sufficiently different positions that the four faces of the EUT were completely illuminated. The **VCP** (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the EUT.



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the **G**round **R**eference **P**lane. 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 **H**orizontal **C**oupling **P**lane (1.6m x 0.8m) was placed on the table and attached to the **GRP** by means of a cable with 940kΩ total impedance. The equipment under test, was installed in a representative system as described in section 7 of EN/IEC 61000-4-2, and its cables were placed on the **HCP** and isolated by an insulating support of 0.5mm thickness. A distance of 1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system and extended at least 0.5 m.

6.8 Radio Frequency Electromagnetic Field (RS)

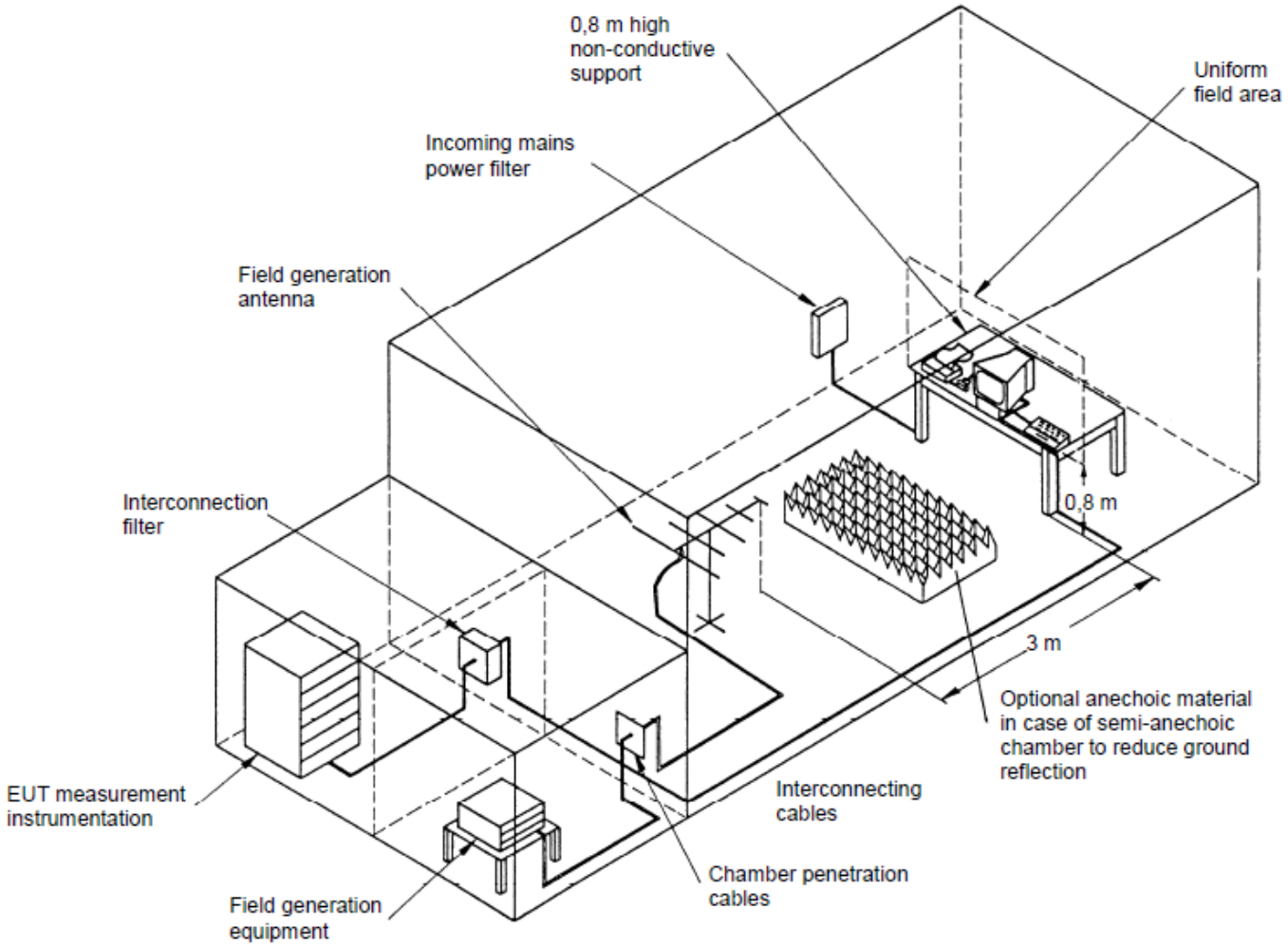
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of preceding frequency value
Dwell Time:	3 seconds

The test procedure was in accordance with EN/IEC 61000-4-3.

a. The testing was performed in a modified semi-anechoic chamber.

b. The frequency range shall be swept, with the signal 80% amplitude modulated with a 1kHz sine wave.

c. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLETOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN/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.

FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN/IEC 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

6.9 Fast Transients Common Mode (EFT)

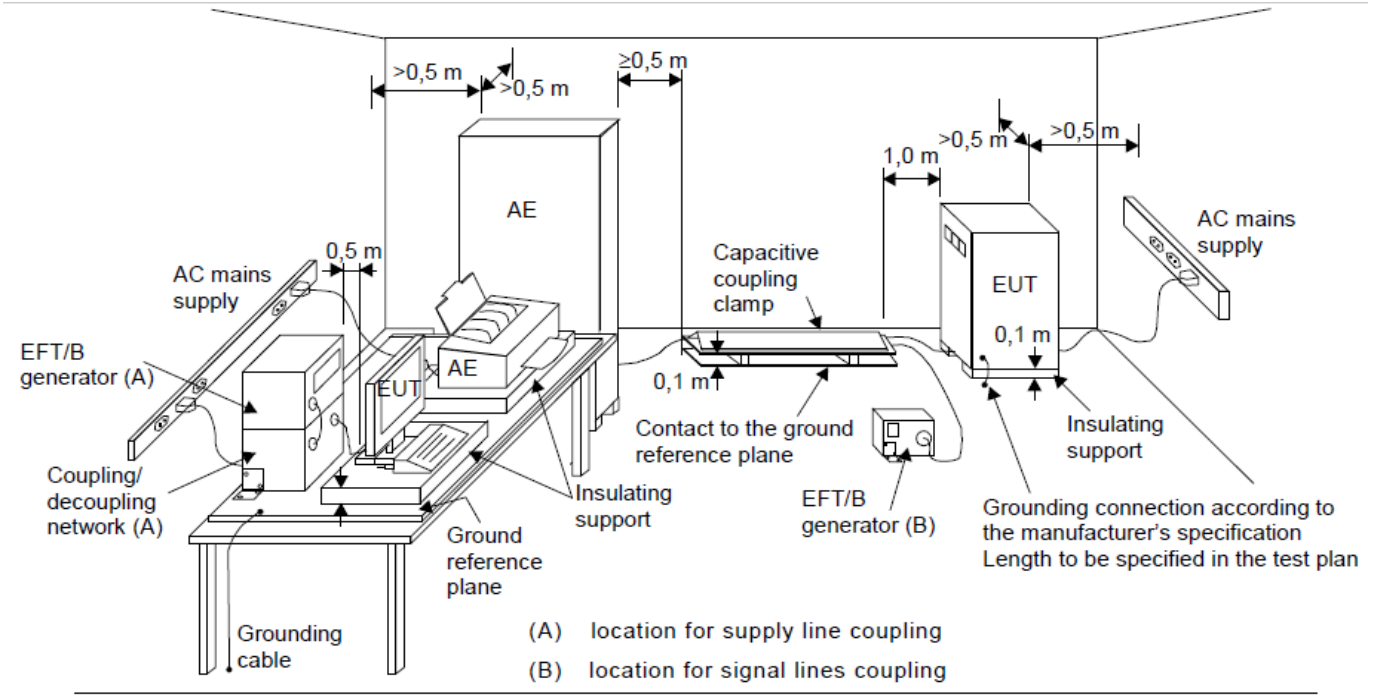
Impulse Repetition Frequency:	xDSL telecommunication port: 100kHz others: 5kHz
Impulse Wave Shape:	5/50 ns
Burst Duration:	0.75 ms for 100kHz Repetition Frequency 15 ms for 5kHz Repetition Frequency
Burst Period:	300 ms
Test Duration:	1 min.

a. Both positive and negative polarity discharges were applied.

b. The distance between any coupling devices and the EUT should be 0.5 m for table-top equipment testing, and 1.0 m for floor standing equipment.

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

d. The transient/burst waveform was in accordance with EN/IEC 61000-4-4, 5/50 ns.



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

6.10 Surges

Wave-Shape:	**Wired network ports (direct to outdoor cables):** **Symmetrically operated:** 10/700 μs Open Circuit Voltage 5/320 μs Short Circuit Current **Non-symmetrically operated:** 1.2/50 μs Open Circuit Voltage 8/20 μs Short Circuit Current **Shielded cables (direct to outdoor cables):** 1.2/50 μs Open Circuit Voltage 8/20 μs Short Circuit Current **Wired network ports (indoor cables, longer than 30m):** 1.2/50 μs Open Circuit Voltage 8/20 μs Short Circuit Current **Input DC power port (direct to outdoor cables):** 1.2/50 μs Open Circuit Voltage 8/20 μs Short Circuit Current **Input AC power port:** 1.2/50 μs Open Circuit Voltage 8/20 μs Short Circuit Current
Pulse Repetition Rate:	20 sec.
Number of Tests:	5 positive and 5 negative at selected points

a. EUT Power ports:

The surge shall 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 network shall not exceed 2 meters in length.

For double-insulated products without PE or external earth connections, the test shall be done in a similar way as for grounded products but without adding any additional external grounded connections. If there are no other possible connections to earth, line-to-ground tests may be omitted.

b. Wired network ports

- Unshielded unsymmetrical interconnection lines:

The coupling / decoupling networks shall not influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling network shall not exceed 2 meters in length.

No line-to-ground surges are applied for double-insulated products (i.e. products without any dedicated earth terminal).

- Unshielded symmetrical interconnection lines:

For symmetrical interconnection lines and high-speed interconnection lines, the CDN shall be selected to match the number of lines/pairs existing the cable. If coupling arrestors are use, 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 not exceed 2 meters in length.

In order to avoid the coupling and decoupling capacitors having a filtering effect on the data transfer, a balanced high frequency design associating the coupling capacitors with coupling chokes is required. Where normal functioning of high speed communications lines cannot be achieved because of the impact of the CDN on the EUT, product committees should specify appropriate operation or that no surge immunity test is required.

- Shielded lines:

The EUT is isolated from ground and the surge is applied to its metallic enclosure; the termination (or auxiliary equipment) at the port(s) under test is grounded. This test applies to equipment with one or more shielded cables.

The length of the cable between the port(s) under test and the device attached to the other end of the cable (AE in Figure 12) shall be:

- 20 m (preferred length) or,

- the shortest length over 10 m, where the manufacturer provides pre-assembled cables used in actual installations.

No test shall be required for cables which according to the manufacturer's specification are ≤ 10 m.

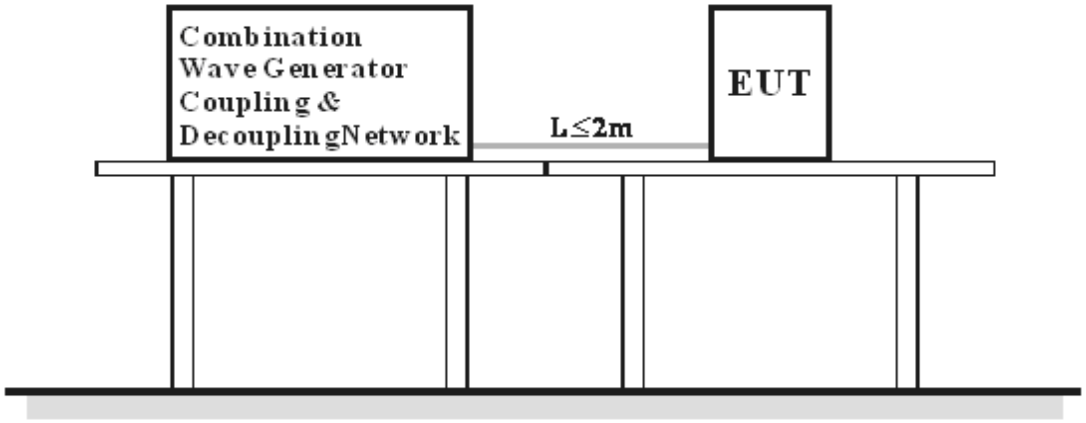
Rules for application of the surge to shielded lines:

a) Shields grounded at both ends:
- the test shall be carried out.

The test level is applied on shields with a 2 Ω generator source impedance and with the 18 μF capacitor.

b) Shields grounded at one end:
- the test shall be carried out according to unshielded unsymmetrical interconnection lines or unshielded symmetrical interconnection lines because the shield does not provide any protection against surges induced by magnetic fields.

For EUTs which do not have metallic enclosures, the surge is applied directly to the shielded cable at the EUT side.



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

6.11 Radio Frequency Common Mode (CS)

Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of preceding frequency value
Dwell Time	3 seconds

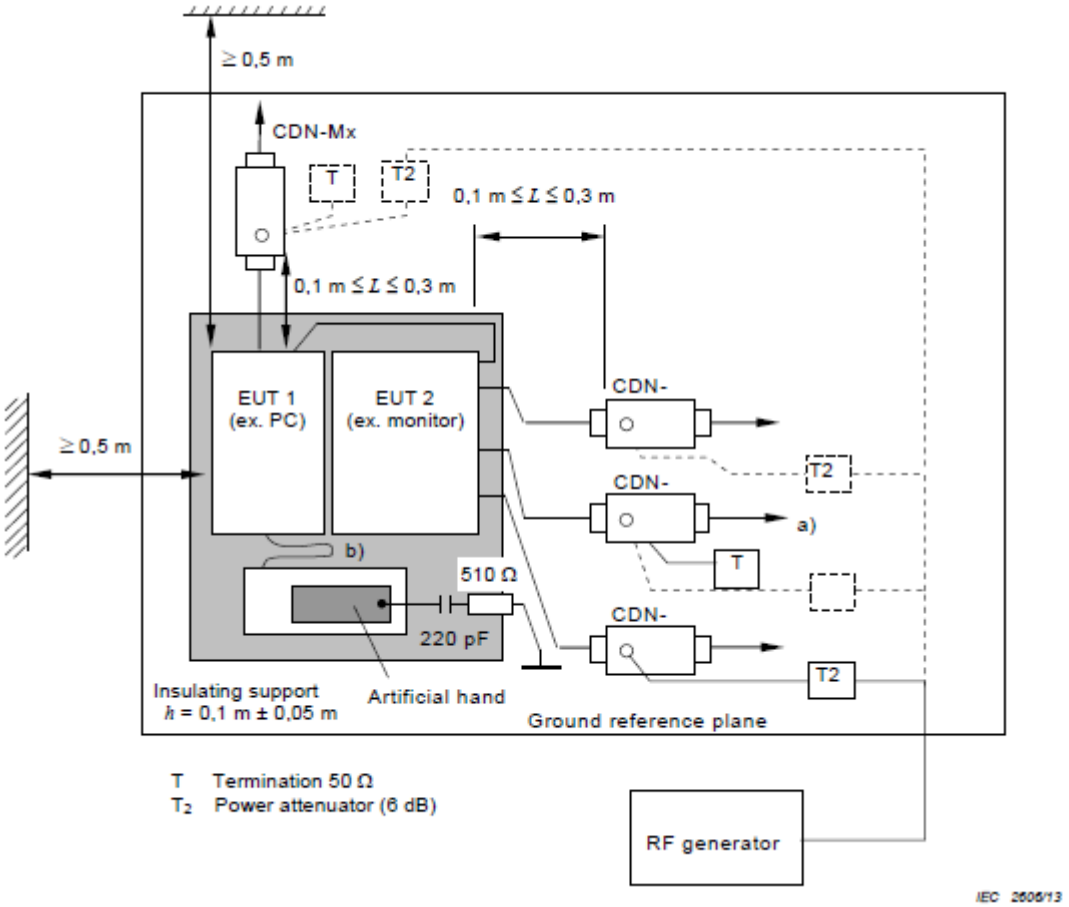
a. The EUT shall be tested within its intended operating and climatic conditions.

b. An artificial hand was placed on the hand-held accessory and connected to the ground reference plane.

c. One of the CDNs not used for injection was terminated with 50 ohm, providing only one return path. All other CDNs were coupled as decoupling networks.

d. The frequency range shall be swept, using the signal level established during the setting process and with a disturbance signal of 80 % amplitude. The signal is modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or the switch coupling devices as necessary. Where the frequency is swept incrementally, the step size shall not exceed 1 % of the preceding frequency value.

e. Attempts should be made to fully exercise the EUT during testing, and to fully interrogate all exercise modes selected for susceptibility.



Note: 1.The EUT clearance from any metallic obstacles shall be at least 0,5 m.
2. Interconnecting cables (≦1 m) belonging to the EUT shall remain on the insulating support.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

Broadband impulse noise disturbances, Repetitive and Isolated (Applicable only to xDSL ports.)

a. The EUT shall be tested within its intended operating and climatic conditions.

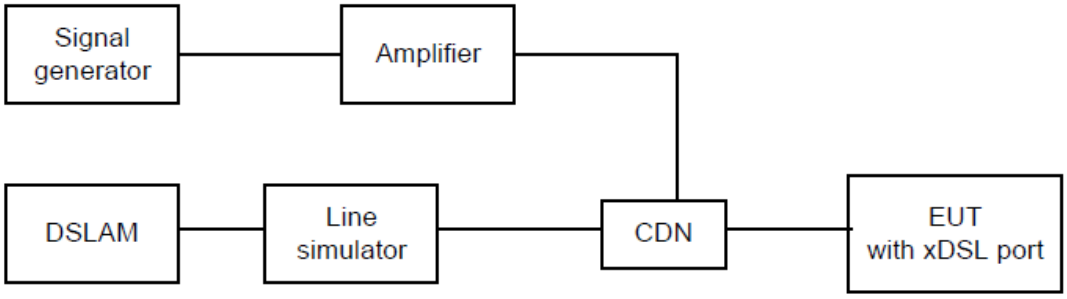
b. An artificial hand was placed on the hand-held accessory and connected to the ground reference plane.

c. One of the CDNs not used for injection was terminated with 50 ohm, providing only one return path. All other CDNs were coupled as decoupling networks.

d. For the repetitive impulse test the disturbance shall be applied for a period of at least 2 minutes for each port under test.

e. For the isolated impulse test a minimum of 5 isolated impulses shall be applied with an interval of at least 60 seconds between successive impulses.

f. Attempts should be made to fully exercise the EUT during testing, and to fully interrogate all exercise modes selected for susceptibility.



Example schematic of the broadband impulsive conducted disturbances test setup

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

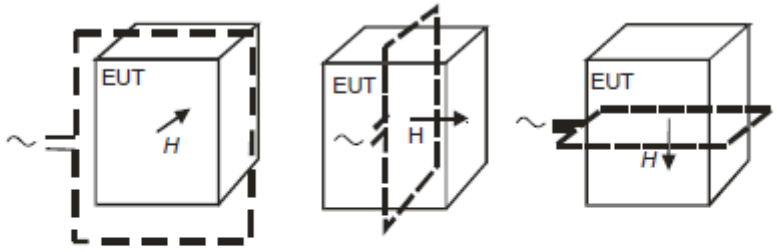
6.12 Power Frequency Magnetic Field (PFMF)

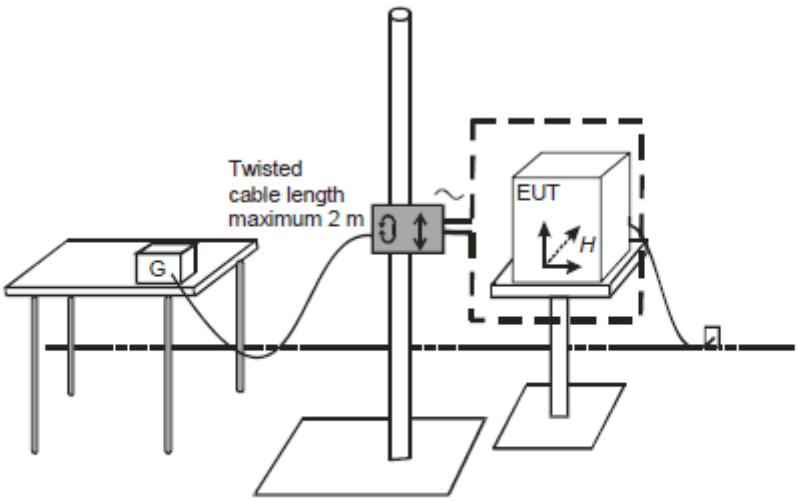
Observation Time:	1 minute
Inductance Coil:	Rectangular coil, 1 m x 1 m (L x W) or 2.6 m x 1 m (L x W)

a. The equipment is configured and connected to satisfy its functional requirements.

b. The power supply, input and output circuits shall be connected to the sources of power supply, control and signal.

c. 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.





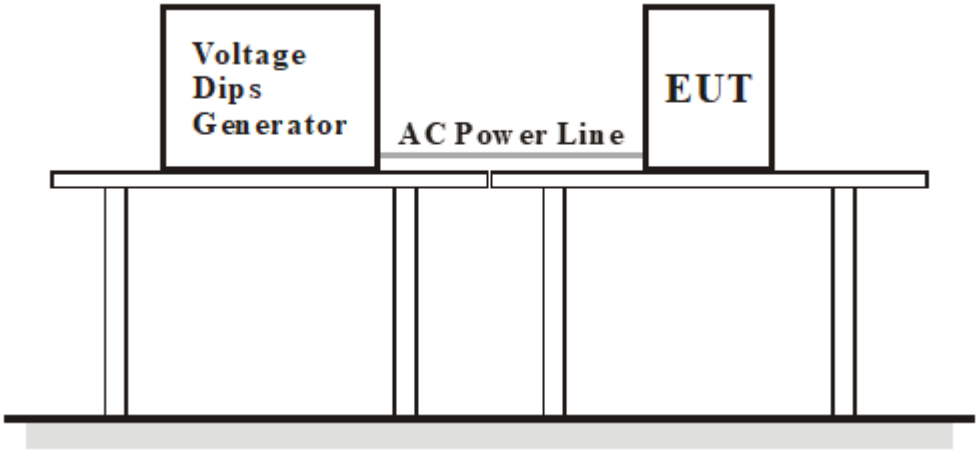
For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

6.13 Voltage Dips and Interruptions (DIP)

Interval between Event:	10 seconds
Sync Angle (degrees):	0° / 180°
Test Cycle:	3 times

a. The test shall be performed with the EUT connected to the test generator with the shortest power supply cable as specified by the EUT manufacturer. If no cable length is specified, it shall be the shortest possible length suitable to the application of the EUT.

b. The EUT shall be tested for each selected combination of test levels and duration with a sequence of 3 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 0 voltage crossover point of the voltage waveform.



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

7 Test Results of Test Item

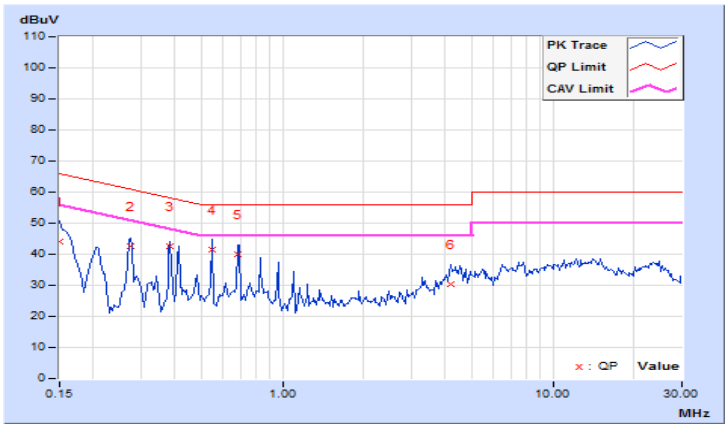
7.1 Conducted Emissions from Power Ports - Input Power: 110Vac, 60Hz

Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	110Vac, 60Hz	**Environmental Conditions**	22℃, 66%RH, 1012mbar
Tested by	ED Lin		
Test Mode	Mode 1		

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15000	10.11	34.05	18.62	44.16	28.73	66.00	56.00	-21.84	-27.27
2	0.27500	10.13	32.39	29.21	42.52	39.34	60.97	50.97	-18.45	-11.63
3	0.38438	10.15	32.27	31.68	42.42	41.83	58.18	48.18	-15.76	-6.35
4	0.54844	10.17	31.48	27.14	41.65	37.31	56.00	46.00	-14.35	-8.69
5	0.68516	10.20	29.91	25.02	40.11	35.22	56.00	46.00	-15.89	-10.78
6	4.17969	10.48	19.73	10.65	30.21	21.13	56.00	46.00	-25.79	-24.87

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

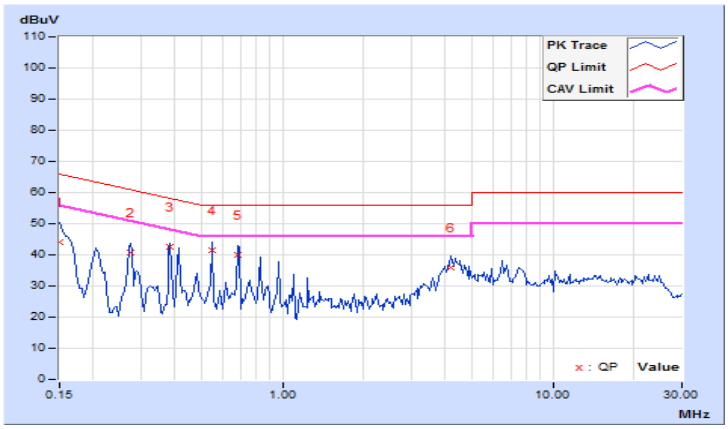


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	110Vac, 60Hz	**Environmental Conditions**	22℃, 66%RH, 1012mbar
Tested by	ED Lin		
Test Mode	Mode 1		

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15000	10.12	33.81	18.58	43.93	28.70	66.00	56.00	-22.07	-27.30
2	0.27500	10.15	30.71	26.27	40.86	36.42	60.97	50.97	-20.11	-14.55
3	0.38438	10.16	32.25	31.76	42.41	41.92	58.18	48.18	-15.77	-6.26
4	0.54844	10.19	31.42	27.40	41.61	37.59	56.00	46.00	-14.39	-8.41
5	0.68516	10.21	29.75	25.14	39.96	35.35	56.00	46.00	-16.04	-10.65
6	4.19531	10.50	25.44	17.16	35.94	27.66	56.00	46.00	-20.06	-18.34

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

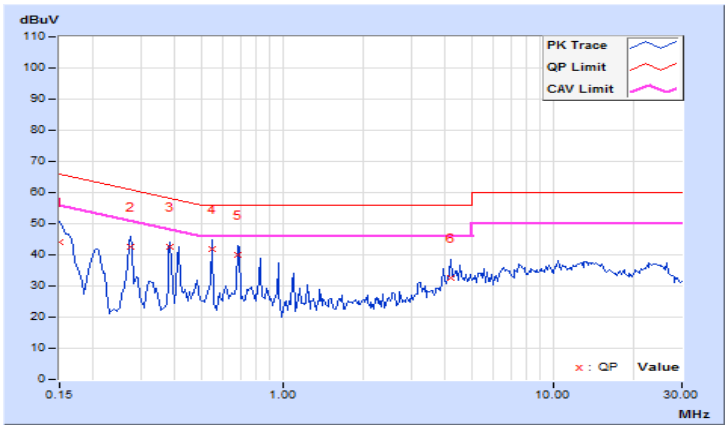


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	110Vac, 60Hz	**Environmental Conditions**	22℃, 66%RH, 1012mbar
Tested by	ED Lin		
Test Mode	Mode 2		

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15000	10.11	34.09	18.54	44.20	28.65	66.00	56.00	-21.80	-27.35
2	0.27500	10.13	32.31	29.17	42.44	39.30	60.97	50.97	-18.53	-11.67
3	0.38438	10.15	32.29	31.70	42.44	41.85	58.18	48.18	-15.74	-6.33
4	0.54844	10.17	31.52	27.16	41.69	37.33	56.00	46.00	-14.31	-8.67
5	0.68516	10.20	29.89	24.94	40.09	35.14	56.00	46.00	-15.91	-10.86
6	4.19531	10.48	22.09	12.98	32.57	23.46	56.00	46.00	-23.43	-22.54

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

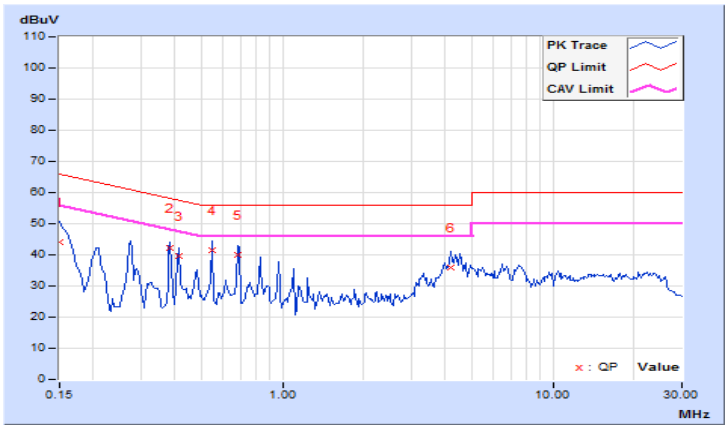


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	110Vac, 60Hz	**Environmental Conditions**	22℃, 66%RH, 1012mbar
Tested by	ED Lin		
Test Mode	Mode 2		

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15000	10.12	33.93	18.38	44.05	28.50	66.00	56.00	-21.95	-27.50
2	0.38438	10.16	32.23	31.76	42.39	41.92	58.18	48.18	-15.79	-6.26
3	0.41172	10.16	29.37	26.26	39.53	36.42	57.61	47.61	-18.08	-11.19
4	0.54844	10.19	31.40	27.38	41.59	37.57	56.00	46.00	-14.41	-8.43
5	0.68516	10.21	29.77	25.16	39.98	35.37	56.00	46.00	-16.02	-10.63
6	4.19141	10.50	25.51	16.26	36.01	26.76	56.00	46.00	-19.99	-19.24

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

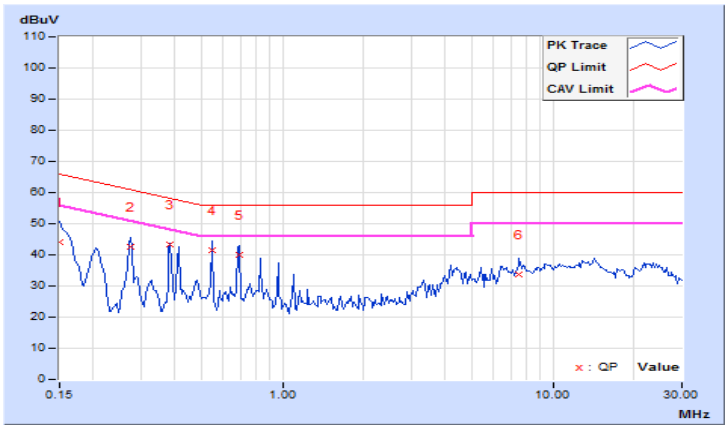


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	110Vac, 60Hz	**Environmental Conditions**	22℃, 66%RH, 1012mbar
Tested by	ED Lin		
Test Mode	Mode 3		

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15000	10.11	34.09	18.58	44.20	28.69	66.00	56.00	-21.80	-27.31
2	0.27500	10.13	32.29	29.21	42.42	39.34	60.97	50.97	-18.55	-11.63
3	0.38438	10.15	33.29	32.70	43.44	42.85	58.18	48.18	-14.74	-5.33
4	0.54844	10.17	31.48	27.18	41.65	37.35	56.00	46.00	-14.35	-8.65
5	0.68906	10.20	29.91	25.02	40.11	35.22	56.00	46.00	-15.89	-10.78
6	7.46875	10.59	22.96	20.46	33.55	31.05	60.00	50.00	-26.45	-18.95

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

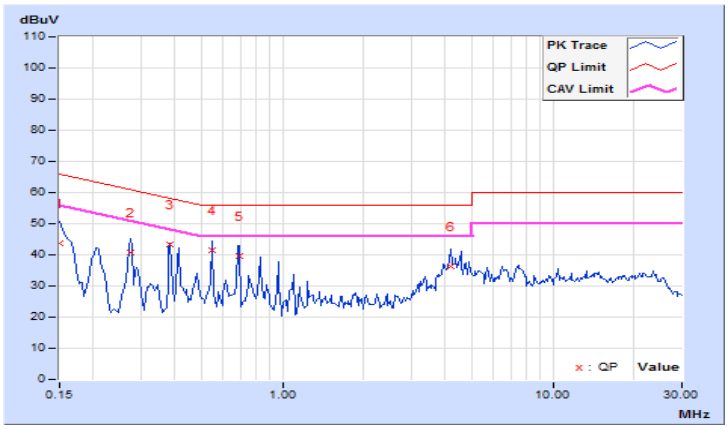


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	110Vac, 60Hz	**Environmental Conditions**	22℃, 66%RH, 1012mbar
Tested by	ED Lin		
Test Mode	Mode 3		

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15000	10.12	33.71	18.26	43.83	28.38	66.00	56.00	-22.17	-27.62
2	0.27500	10.15	30.71	26.29	40.86	36.44	60.97	50.97	-20.11	-14.53
3	**0.38438**	**10.16**	**33.23**	**32.78**	**43.39**	**42.94**	**58.18**	**48.18**	**-14.79**	**-5.24**
4	0.54844	10.19	31.34	27.36	41.53	37.55	56.00	46.00	-14.47	-8.45
5	0.68906	10.21	29.59	25.10	39.80	35.31	56.00	46.00	-16.20	-10.69
6	4.19141	10.50	25.91	16.32	36.41	26.82	56.00	46.00	-19.59	-19.18

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



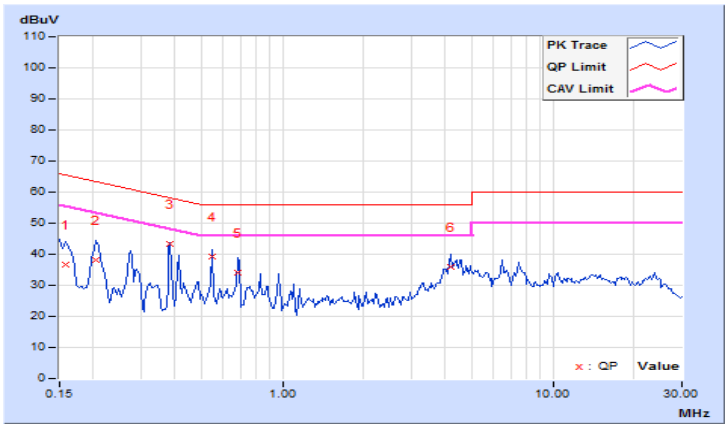
7.2 Conducted Emissions from Power Ports - Input Power: 230Vac, 50Hz

Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	230Vac, 50Hz	**Environmental Conditions**	22℃, 66%RH, 1012mbar
Tested by	ED Lin		
Test Mode	Mode 1		

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15781	10.11	26.46	23.10	36.57	33.21	65.58	55.58	-29.01	-22.37
2	0.20469	10.12	28.00	24.80	38.12	34.92	63.42	53.42	-25.30	-18.50
3	0.38438	10.15	33.20	32.76	43.35	42.91	58.18	48.18	-14.83	-5.27
4	0.54844	10.17	28.98	24.92	39.15	35.09	56.00	46.00	-16.85	-10.91
5	0.68516	10.20	24.03	19.82	34.23	30.02	56.00	46.00	-21.77	-15.98
6	4.18750	10.48	25.34	12.59	35.82	23.07	56.00	46.00	-20.18	-22.93

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

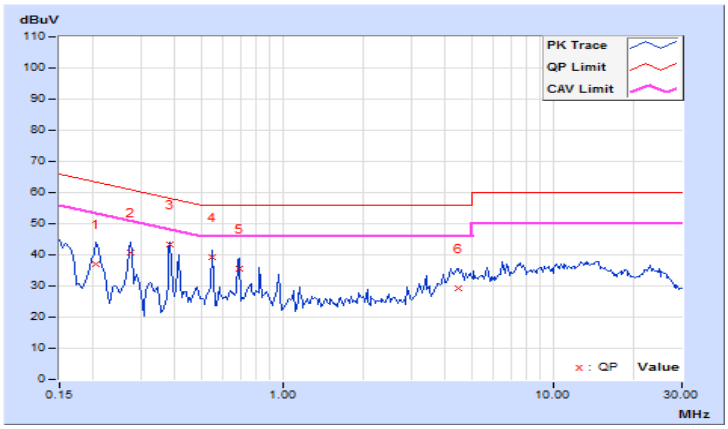


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	230Vac, 50Hz	**Environmental Conditions**	22℃, 66%RH, 1012mbar
Tested by	ED Lin		
Test Mode	Mode 1		

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.20469	10.14	26.79	22.87	36.93	33.01	63.42	53.42	-26.49	-20.41
2	0.27500	10.15	30.44	26.75	40.59	36.90	60.97	50.97	-20.38	-14.07
3	0.38438	10.16	33.24	32.70	43.40	42.86	58.18	48.18	-14.78	-5.32
4	0.54844	10.19	29.00	24.64	39.19	34.83	56.00	46.00	-16.81	-11.17
5	0.68906	10.21	25.43	21.93	35.64	32.14	56.00	46.00	-20.36	-13.86
6	4.49219	10.50	18.65	11.16	29.15	21.66	56.00	46.00	-26.85	-24.34

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

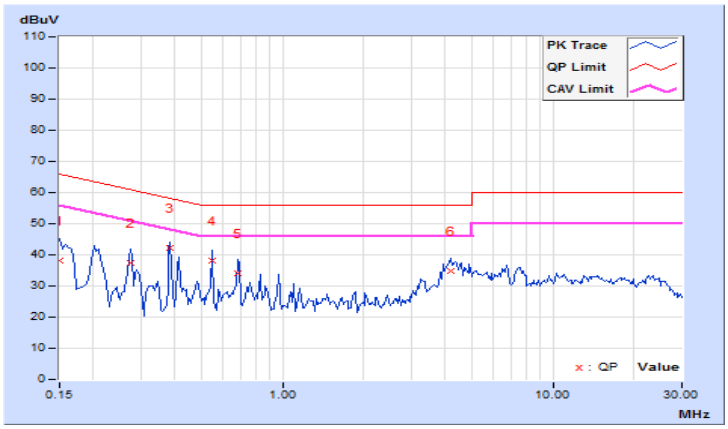


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	230Vac, 50Hz	**Environmental Conditions**	22℃, 66%RH, 1012mbar
Tested by	ED Lin		
Test Mode	Mode 2		

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15000	10.11	27.98	15.78	38.09	25.89	66.00	56.00	-27.91	-30.11
2	0.27500	10.13	27.34	22.47	37.47	32.60	60.97	50.97	-23.50	-18.37
3	0.38438	10.15	32.23	31.76	42.38	41.91	58.18	48.18	-15.80	-6.27
4	0.54844	10.17	27.97	23.97	38.14	34.14	56.00	46.00	-17.86	-11.86
5	0.68516	10.20	23.99	19.78	34.19	29.98	56.00	46.00	-21.81	-16.02
6	4.19531	10.48	24.20	14.03	34.68	24.51	56.00	46.00	-21.32	-21.49

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

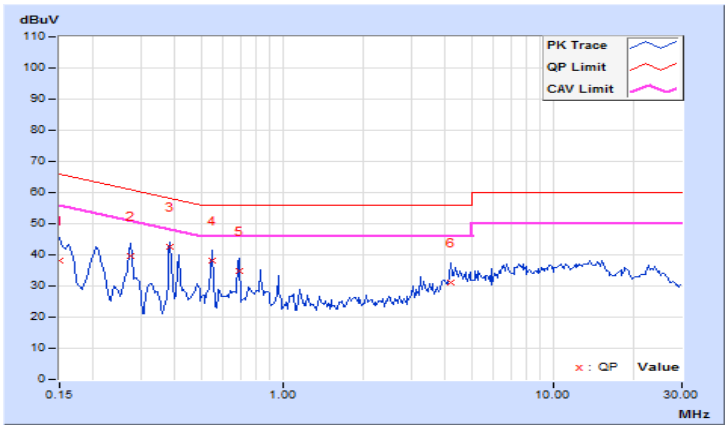


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	230Vac, 50Hz	**Environmental Conditions**	22℃, 66%RH, 1012mbar
Tested by	ED Lin		
Test Mode	Mode 2		

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15000	10.12	28.06	15.92	38.18	26.04	66.00	56.00	-27.82	-29.96
2	0.27500	10.15	29.30	25.82	39.45	35.97	60.97	50.97	-21.52	-15.00
3	0.38438	10.16	32.29	31.70	42.45	41.86	58.18	48.18	-15.73	-6.32
4	0.54844	10.19	27.88	23.69	38.07	33.88	56.00	46.00	-17.93	-12.12
5	0.68906	10.21	24.66	21.09	34.87	31.30	56.00	46.00	-21.13	-14.70
6	4.19531	10.50	20.73	10.21	31.23	20.71	56.00	46.00	-24.77	-25.29

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

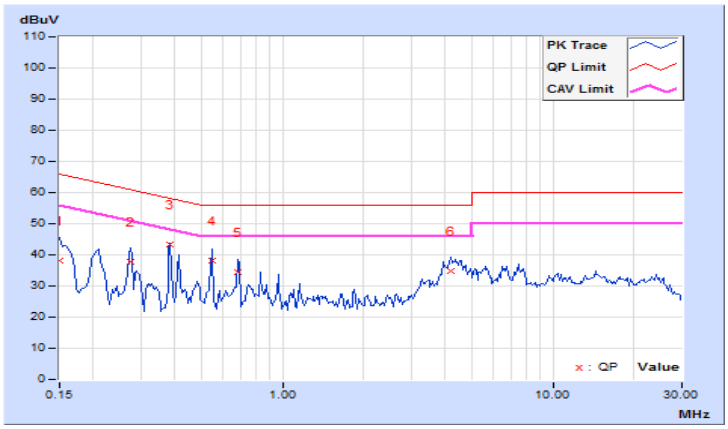


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	230Vac, 50Hz	**Environmental Conditions**	22℃, 66%RH, 1012mbar
Tested by	ED Lin		
Test Mode	Mode 3		

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15000	10.11	27.88	15.72	37.99	25.83	66.00	56.00	-28.01	-30.17
2	0.27500	10.13	27.48	22.57	37.61	32.70	60.97	50.97	-23.36	-18.27
3	0.38438	10.15	33.20	32.76	43.35	42.91	58.18	48.18	-14.83	-5.27
4	0.54844	10.17	28.09	24.07	38.26	34.24	56.00	46.00	-17.74	-11.76
5	0.68516	10.20	24.09	19.88	34.29	30.08	56.00	46.00	-21.71	-15.92
6	4.19922	10.48	24.29	13.89	34.77	24.37	56.00	46.00	-21.23	-21.63

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

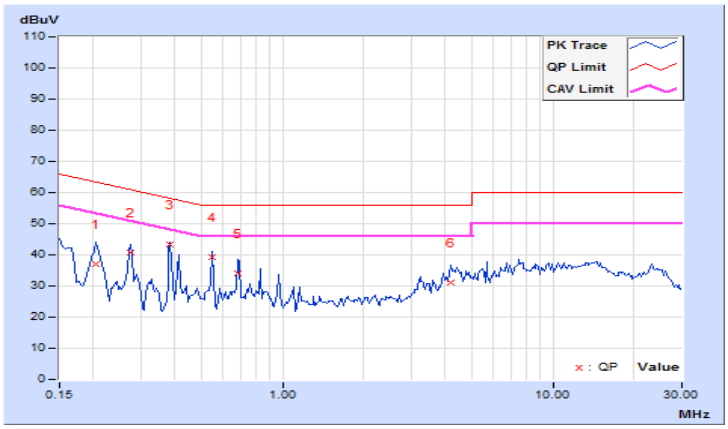


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	230Vac, 50Hz	**Environmental Conditions**	22℃, 66%RH, 1012mbar
Tested by	ED Lin		
Test Mode	Mode 3		

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.20469	10.14	26.93	22.81	37.07	32.95	63.42	53.42	-26.35	-20.47
2	0.27500	10.15	30.43	26.77	40.58	36.92	60.97	50.97	-20.39	-14.05
3	0.38438	10.16	33.22	32.70	43.38	42.86	58.18	48.18	-14.80	-5.32
4	0.54844	10.19	28.98	24.64	39.17	34.83	56.00	46.00	-16.83	-11.17
5	0.68516	10.21	24.03	20.77	34.24	30.98	56.00	46.00	-21.76	-15.02
6	4.20703	10.50	20.65	11.94	31.15	22.44	56.00	46.00	-24.85	-23.56

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



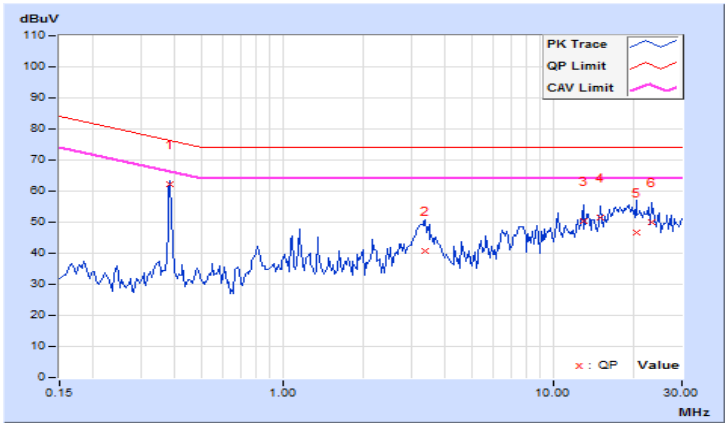
7.3 Conducted Emissions from Wired Network Ports

Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	230Vac, 50Hz	**Environmental Conditions**	22℃, 66%RH, 1012mbar
Tested by	ED Lin		
Test Mode	Mode 1 RJ45 TELECOM PORT (100Mbps)		

No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.38438**	**9.55**	**52.68**	**52.42**	**62.23**	**61.97**	**76.18**	**66.18**	**-13.95**	**-4.21**
2	3.37891	9.32	31.27	20.78	40.59	30.10	74.00	64.00	-33.41	-33.90
3	13.00781	9.58	40.79	21.34	50.37	30.92	74.00	64.00	-23.63	-33.08
4	15.02344	9.67	41.74	22.96	51.41	32.63	74.00	64.00	-22.59	-31.37
5	20.38281	9.91	36.65	21.79	46.56	31.70	74.00	64.00	-27.44	-32.30
6	23.12891	10.08	39.75	23.20	49.83	33.28	74.00	64.00	-24.17	-30.72

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

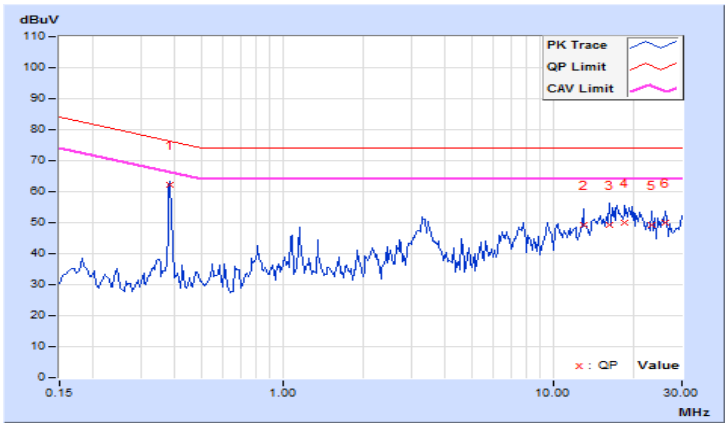


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	230Vac, 50Hz	**Environmental Conditions**	22℃, 66%RH, 1012mbar
Tested by	ED Lin		
Test Mode	Mode 2 RJ45 TELECOM PORT (100Mbps)		

No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.38438**	**9.55**	**52.68**	**52.42**	**62.23**	**61.97**	**76.18**	**66.18**	**-13.95**	**-4.21**
2	12.94531	9.57	39.56	22.50	49.13	32.07	74.00	64.00	-24.87	-31.93
3	16.23047	9.72	39.64	27.22	49.36	36.94	74.00	64.00	-24.64	-27.06
4	18.44141	9.82	40.06	30.85	49.88	40.67	74.00	64.00	-24.12	-23.33
5	23.32422	10.09	39.34	17.69	49.43	27.78	74.00	64.00	-24.57	-36.22
6	26.01172	10.25	39.81	16.43	50.06	26.68	74.00	64.00	-23.94	-37.32

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



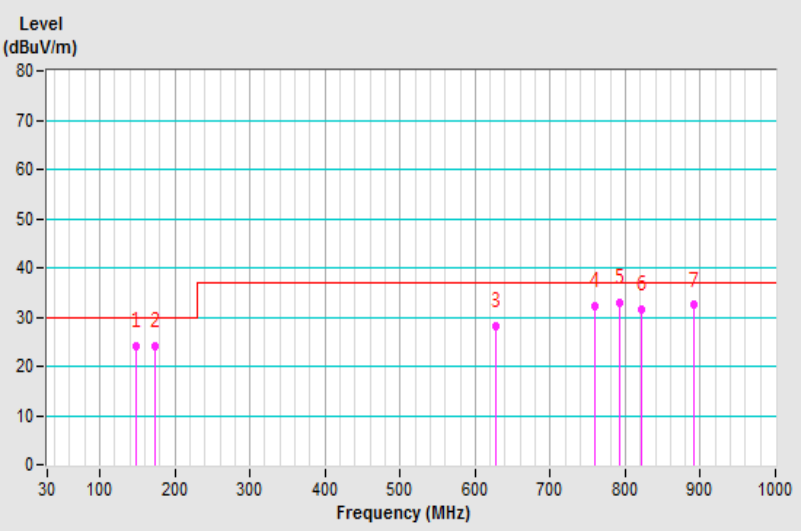
7.4 Radiated Emissions up to 1 GHz

Frequency Range	30MHz ~ 1GHz	**Detector Function & Bandwidth**	Quasi-Peak (QP), 120kHz
Tested by	Chin-Wen Wang	**Environmental Conditions**	20℃, 76%RH, 1002mbar
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Horizontal at 10 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	148.51	24.10 QP	30.00	-5.90	3.94 H	199	36.86	-12.76
2	172.83	24.10 QP	30.00	-5.90	2.98 H	107	37.18	-13.08
3	626.67	28.20 QP	37.00	-8.80	1.00 H	179	32.20	-4.00
4	758.86	32.19 QP	37.00	-4.81	1.53 H	189	34.14	-1.95
5	791.93	32.83 QP	37.00	-4.17	1.42 H	286	34.82	-1.99
6	821.76	31.60 QP	37.00	-5.40	1.03 H	285	33.20	-1.60
7	891.02	32.38 QP	37.00	-4.62	1.10 H	142	33.53	-1.15

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

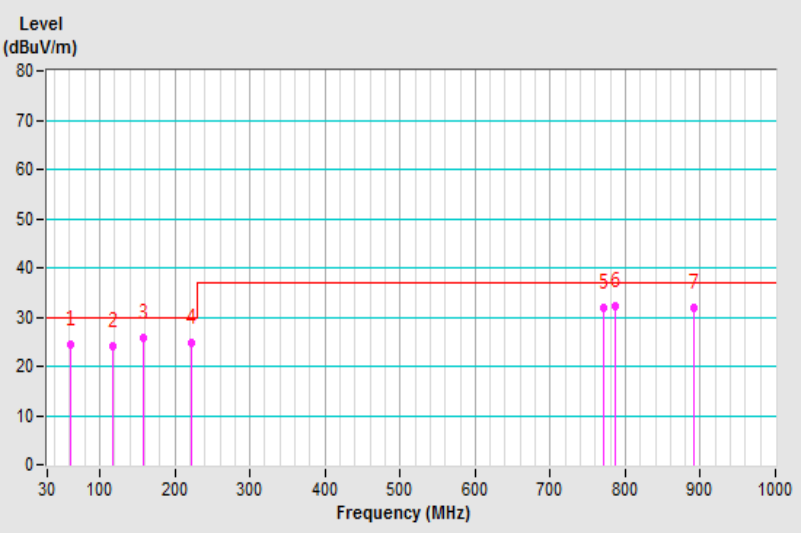


Frequency Range	30MHz ~ 1GHz	Detector Function & Bandwidth	Quasi-Peak (QP), 120kHz
Tested by	Chin-Wen Wang	Environmental Conditions	20℃, 76%RH, 1002mbar
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Vertical at 10 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	60.87	24.38 QP	30.00	-5.62	1.53 V	284	38.99	-14.61
2	117.20	24.11 QP	30.00	-5.89	1.09 V	302	40.31	-16.20
3	158.72	25.75 QP	30.00	-4.25	1.17 V	316	38.61	-12.86
4	221.53	24.89 QP	30.00	-5.11	1.00 V	1	40.44	-15.55
5	770.79	32.03 QP	37.00	-4.97	3.78 V	102	33.34	-1.31
6	785.70	32.27 QP	37.00	-4.73	3.86 V	94	33.21	-0.94
7	891.04	32.02 QP	37.00	-4.98	2.63 V	53	32.12	-0.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

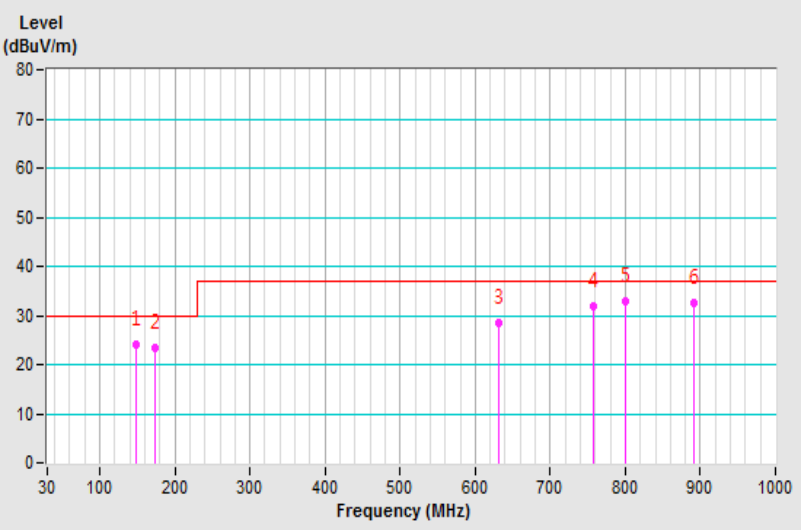


Frequency Range	30MHz ~ 1GHz	Detector Function & Bandwidth	Quasi-Peak (QP), 120kHz
Tested by	Chin-Wen Wang	Environmental Conditions	20℃, 76%RH, 1005mbar
Test Mode	Mode 2		

Antenna Polarity & Test Distance : Horizontal at 10 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	148.51	24.16 QP	30.00	-5.84	3.29 H	213	36.92	-12.76
2	173.92	23.36 QP	30.00	-6.64	3.52 H	118	36.55	-13.19
3	631.11	28.64 QP	37.00	-8.36	1.65 H	312	32.56	-3.92
4	758.28	31.95 QP	37.00	-5.05	1.09 H	243	33.91	-1.96
5	**800.01**	**32.85 QP**	**37.00**	**-4.15**	**1.10 H**	**287**	**34.83**	**-1.98**
6	891.02	32.64 QP	37.00	-4.36	1.02 H	134	33.79	-1.15

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
   – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

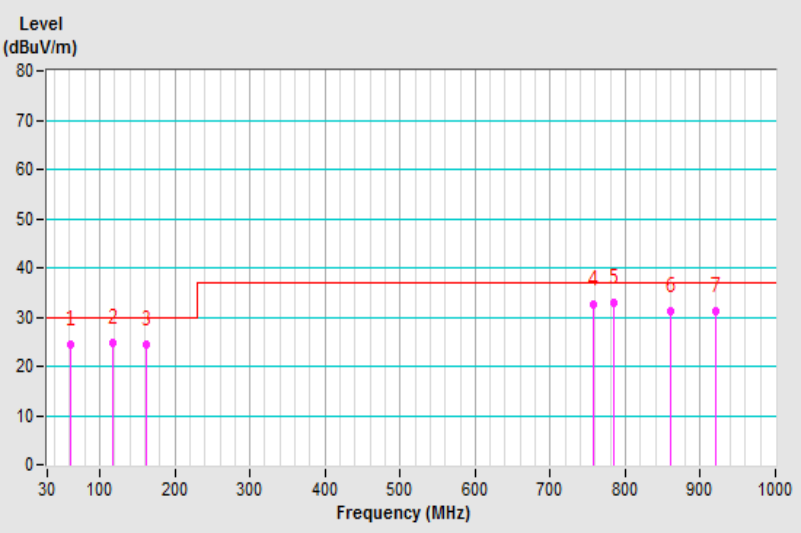


Frequency Range	30MHz ~ 1GHz	Detector Function & Bandwidth	Quasi-Peak (QP), 120kHz
Tested by	Chin-Wen Wang	Environmental Conditions	20℃, 76%RH, 1005mbar
Test Mode	Mode 2		

Antenna Polarity & Test Distance : Vertical at 10 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	60.94	24.40 QP	30.00	-5.60	1.08 V	246	39.03	-14.63
2	116.48	24.67 QP	30.00	-5.33	1.65 V	267	40.91	-16.24
3	162.48	24.47 QP	30.00	-5.53	2.30 V	306	37.38	-12.91
4	756.72	32.57 QP	37.00	-4.43	3.62 V	129	33.53	-0.96
5	**784.73**	**32.85 QP**	**37.00**	**-4.15**	**3.55 V**	**106**	**33.78**	**-0.93**
6	860.97	31.25 QP	37.00	-5.75	2.30 V	66	31.66	-0.41
7	919.61	31.31 QP	37.00	-5.69	1.89 V	59	30.60	0.71

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

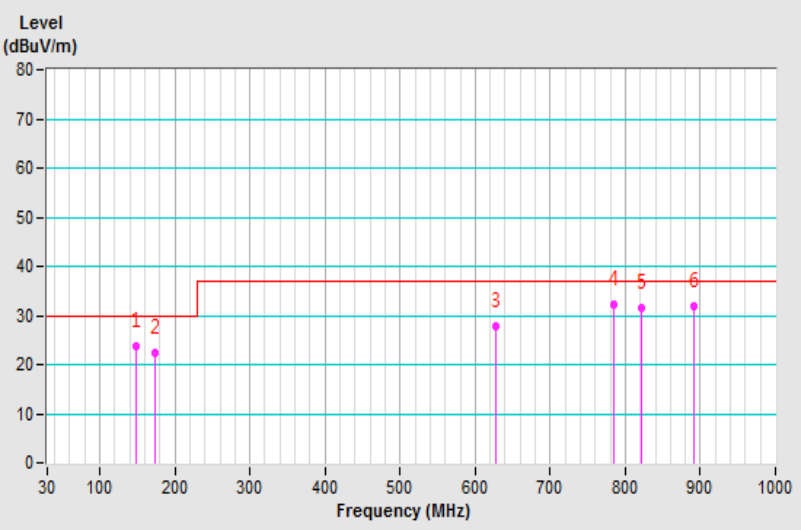


Frequency Range	30MHz ~ 1GHz	Detector Function & Bandwidth	Quasi-Peak (QP), 120kHz
Tested by	Chin-Wen Wang	Environmental Conditions	20℃, 76%RH, 1005mbar
Test Mode	Mode 3		

Antenna Polarity & Test Distance : Horizontal at 10 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	148.49	23.89 QP	30.00	-6.11	3.58 H	206	36.66	-12.77
2	173.03	22.45 QP	30.00	-7.55	4.00 H	74	35.55	-13.10
3	627.84	27.76 QP	37.00	-9.24	1.56 H	223	31.72	-3.96
4	785.24	32.28 QP	37.00	-4.72	1.20 H	293	34.20	-1.92
5	821.33	31.67 QP	37.00	-5.33	1.37 H	299	33.28	-1.61
6	891.00	31.91 QP	37.00	-5.09	1.02 H	174	33.07	-1.16

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
   – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

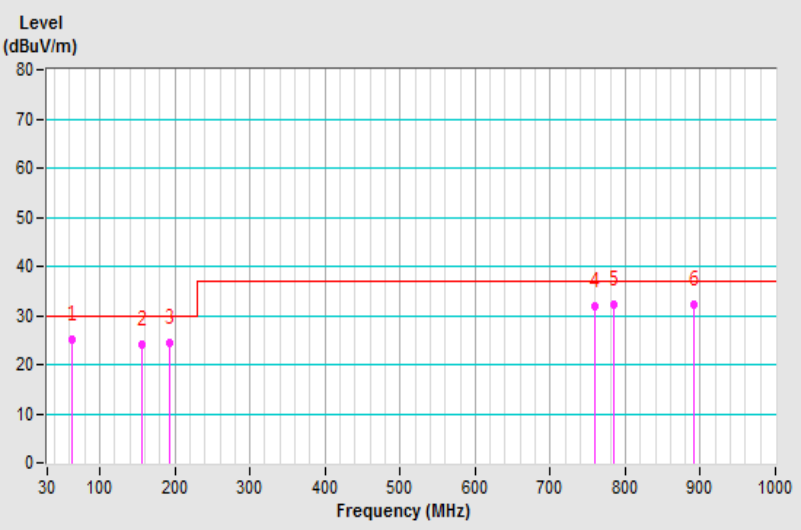


Frequency Range	30MHz ~ 1GHz	Detector Function & Bandwidth	Quasi-Peak (QP), 120kHz
Tested by	Chin-Wen Wang	Environmental Conditions	20℃, 76%RH, 1005mbar
Test Mode	Mode 3		

Antenna Polarity & Test Distance : Vertical at 10 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	62.06	25.11 QP	30.00	-4.89	1.08 V	246	39.96	-14.85
2	156.80	24.05 QP	30.00	-5.95	1.07 V	320	36.88	-12.83
3	193.01	24.36 QP	30.00	-5.64	1.03 V	323	39.92	-15.56
4	759.51	32.00 QP	37.00	-5.00	1.56 V	116	33.01	-1.01
5	784.10	32.16 QP	37.00	-4.84	3.85 V	99	33.09	-0.93
6	891.02	32.18 QP	37.00	-4.82	2.62 V	60	32.28	-0.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
   – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value



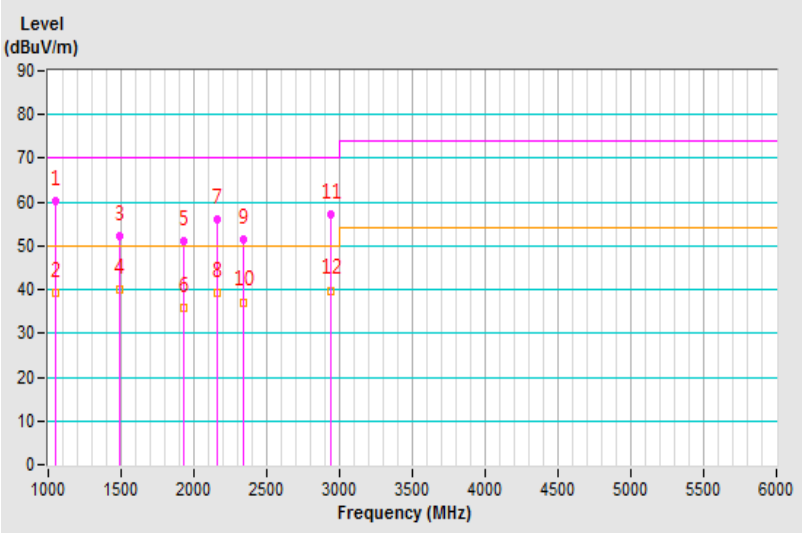
7.5 Radiated Emissions above 1 GHz

Frequency Range	1GHz ~ 6GHz	**Detector Function & Bandwidth**	Peak (PK) / Average (AV), 1MHz
Tested by	Chin-Wen Wang	**Environmental Conditions**	20℃, 76%RH, 1005mbar
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	1045.86	60.29 PK	70.00	-9.71	1.02 H	124	64.45	-4.16
2	1045.86	39.27 AV	50.00	-10.73	1.02 H	124	43.43	-4.16
3	1485.04	52.17 PK	70.00	-17.83	1.00 H	112	55.44	-3.27
4	1485.04	39.99 AV	50.00	-10.01	1.00 H	112	43.26	-3.27
5	1933.87	50.98 PK	70.00	-19.02	2.13 H	82	51.30	-0.32
6	1933.87	35.76 AV	50.00	-14.24	2.13 H	82	36.08	-0.32
7	2157.69	55.93 PK	70.00	-14.07	1.13 H	151	55.58	0.35
8	2157.69	39.29 AV	50.00	-10.71	1.13 H	151	38.94	0.35
9	2343.79	51.49 PK	70.00	-18.51	1.06 H	124	50.70	0.79
10	2343.79	37.15 AV	50.00	-12.85	1.06 H	124	36.36	0.79
11	2940.23	57.14 PK	70.00	-12.86	1.00 H	68	56.42	0.72
12	2940.23	39.82 AV	50.00	-10.18	1.00 H	68	39.10	0.72

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

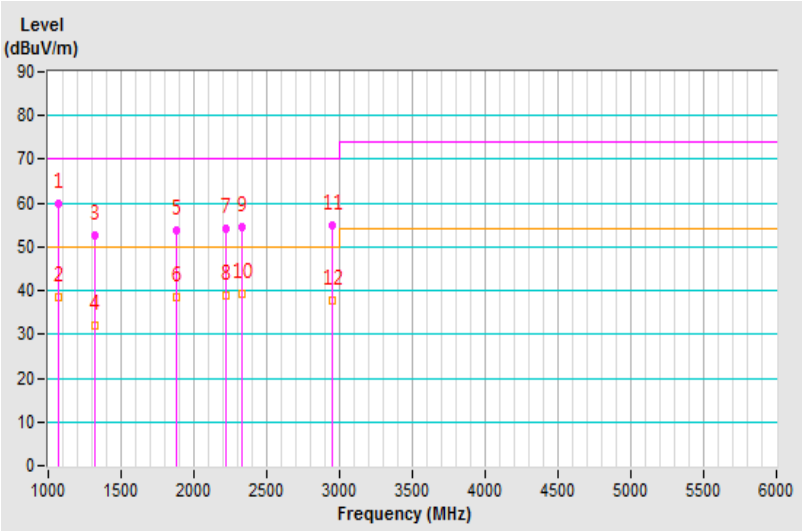


Frequency Range	1GHz ~ 6GHz	Detector Function & Bandwidth	Peak (PK) / Average (AV), 1MHz
Tested by	Chin-Wen Wang	Environmental Conditions	20℃, 76%RH, 1005mbar
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1066.40	59.95 PK	70.00	-10.05	2.05 V	196	64.20	-4.25
2	1066.40	38.56 AV	50.00	-11.44	2.05 V	196	42.81	-4.25
3	1315.14	52.47 PK	70.00	-17.53	1.54 V	53	55.33	-2.86
4	1315.14	32.16 AV	50.00	-17.84	1.54 V	53	35.02	-2.86
5	1882.21	53.71 PK	70.00	-16.29	2.09 V	175	54.19	-0.48
6	1882.21	38.56 AV	50.00	-11.44	2.09 V	175	39.04	-0.48
7	2223.24	54.16 PK	70.00	-15.84	1.45 V	327	53.94	0.22
8	2223.24	38.80 AV	50.00	-11.20	1.45 V	327	38.58	0.22
9	2334.48	54.38 PK	70.00	-15.62	1.03 V	329	53.61	0.77
10	2334.48	39.28 AV	50.00	-10.72	1.03 V	329	38.51	0.77
11	2945.76	54.98 PK	70.00	-15.02	1.91 V	337	54.31	0.67
12	2945.76	37.85 AV	50.00	-12.15	1.91 V	337	37.18	0.67

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

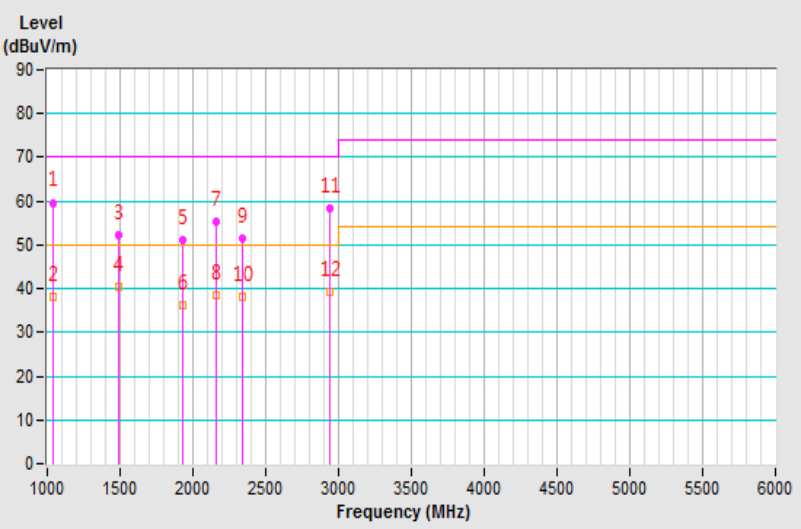


Frequency Range	1GHz ~ 6GHz	Detector Function & Bandwidth	Peak (PK) / Average (AV), 1MHz
Tested by	Chin-Wen Wang	Environmental Conditions	20℃, 76%RH, 1005mbar
Test Mode	Mode 2		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1044.57	59.64 PK	70.00	-10.36	1.05 H	212	63.82	-4.18
2	1044.57	38.17 AV	50.00	-11.83	1.05 H	212	42.35	-4.18
3	1485.00	52.32 PK	70.00	-17.68	1.00 H	125	55.59	-3.27
4	1485.00	40.26 AV	50.00	-9.74	1.00 H	125	43.53	-3.27
5	1932.63	51.02 PK	70.00	-18.98	2.20 H	92	51.34	-0.32
6	1932.63	36.24 AV	50.00	-13.76	2.20 H	92	36.56	-0.32
7	2156.28	55.35 PK	70.00	-14.65	1.10 H	324	55.00	0.35
8	2156.28	38.47 AV	50.00	-11.53	1.10 H	324	38.12	0.35
9	2344.51	51.52 PK	70.00	-18.48	1.12 H	139	50.73	0.79
10	2344.51	38.17 AV	50.00	-11.83	1.12 H	139	37.38	0.79
11	2941.26	58.32 PK	70.00	-11.68	1.00 H	54	57.61	0.71
12	2941.26	39.41 AV	50.00	-10.59	1.00 H	54	38.70	0.71

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

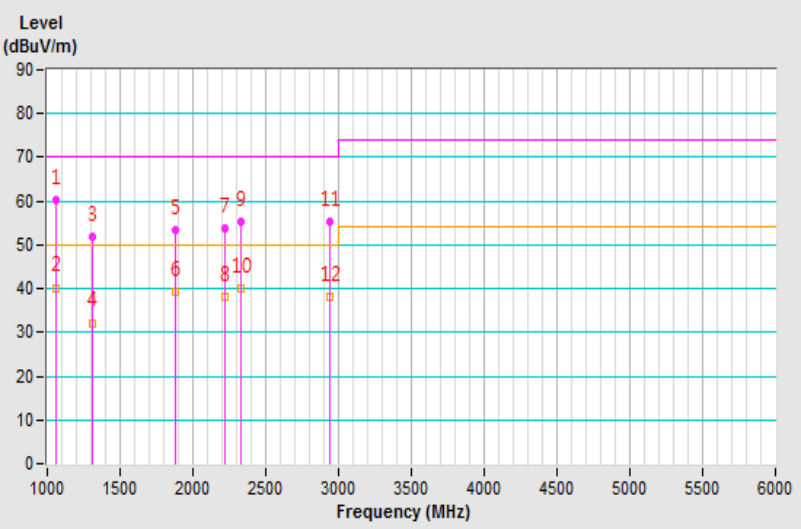


Frequency Range	1GHz ~ 6GHz	Detector Function & Bandwidth	Peak (PK) / Average (AV), 1MHz
Tested by	Chin-Wen Wang	Environmental Conditions	20℃, 76%RH, 1005mbar
Test Mode	Mode 2		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1064.54	60.32 PK	70.00	-9.68	2.14 V	201	64.58	-4.26
2	1064.54	40.21 AV	50.00	-9.79	2.14 V	201	44.47	-4.26
3	1314.85	51.87 PK	70.00	-18.13	1.62 V	258	54.73	-2.86
4	1314.85	32.21 AV	50.00	-17.79	1.62 V	258	35.07	-2.86
5	1883.22	53.41 PK	70.00	-16.59	2.12 V	182	53.89	-0.48
6	1883.22	39.25 AV	50.00	-10.75	2.12 V	182	39.73	-0.48
7	2223.41	53.59 PK	70.00	-16.41	1.65 V	332	53.37	0.22
8	2223.41	38.17 AV	50.00	-11.83	1.65 V	332	37.95	0.22
9	2333.74	55.34 PK	70.00	-14.66	1.00 V	339	54.58	0.76
10	2333.74	40.19 AV	50.00	-9.81	1.00 V	339	39.43	0.76
11	2943.51	55.20 PK	70.00	-14.80	2.20 V	356	54.51	0.69
12	2943.51	38.15 AV	50.00	-11.85	2.20 V	356	37.46	0.69

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

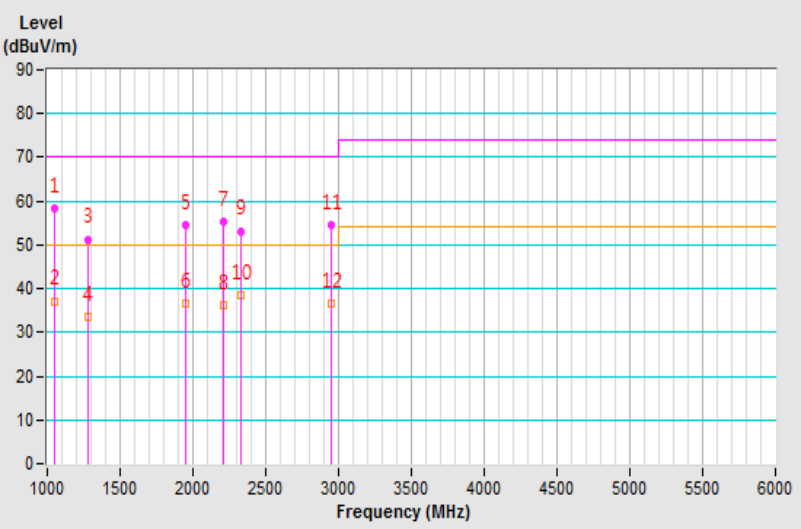


Frequency Range	1GHz ~ 6GHz	Detector Function & Bandwidth	Peak (PK) / Average (AV), 1MHz
Tested by	Chin-Wen Wang	Environmental Conditions	20℃, 76%RH, 1005mbar
Test Mode	Mode 3		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1045.75	58.29 PK	70.00	-11.71	1.55 H	142	62.45	-4.16
2	1045.75	37.15 AV	50.00	-12.85	1.55 H	142	41.31	-4.16
3	1275.36	51.26 PK	70.00	-18.74	2.60 H	352	53.98	-2.72
4	1275.36	33.45 AV	50.00	-16.55	2.60 H	352	36.17	-2.72
5	1952.34	54.39 PK	70.00	-15.61	2.23 H	74	54.66	-0.27
6	1952.34	36.49 AV	50.00	-13.51	2.23 H	74	36.76	-0.27
7	2209.36	55.39 PK	70.00	-14.61	2.10 H	32	55.12	0.27
8	2209.36	36.18 AV	50.00	-13.82	2.10 H	32	35.91	0.27
9	2333.23	53.17 PK	70.00	-16.83	1.00 H	184	52.41	0.76
10	2333.23	38.65 AV	50.00	-11.35	1.00 H	184	37.89	0.76
11	2946.32	54.62 PK	70.00	-15.38	2.29 H	287	53.95	0.67
12	2946.32	36.58 AV	50.00	-13.42	2.29 H	287	35.91	0.67

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

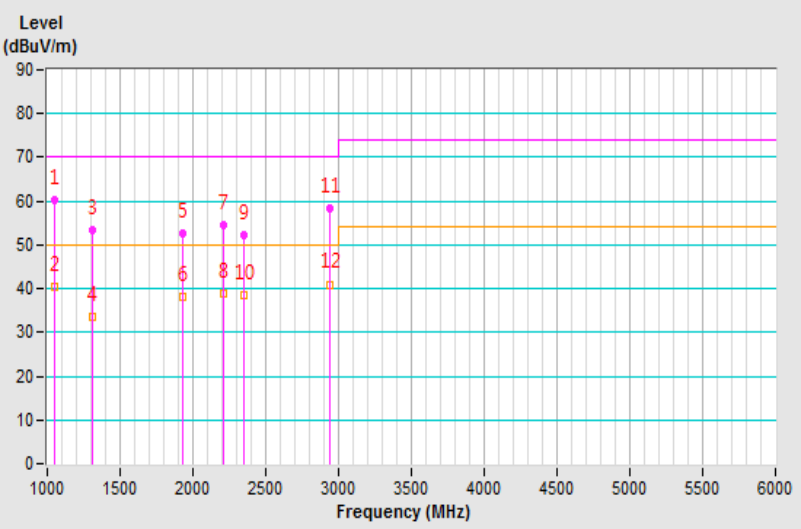


Frequency Range	1GHz ~ 6GHz	Detector Function & Bandwidth	Peak (PK) / Average (AV), 1MHz
Tested by	Chin-Wen Wang	Environmental Conditions	20℃, 76%RH, 1005mbar
Test Mode	Mode 3		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1052.38	60.32 PK	70.00	-9.68	1.08 V	127	64.51	-4.19
2	1052.38	40.27 AV	50.00	-9.73	1.08 V	127	44.46	-4.19
3	1314.25	53.23 PK	70.00	-16.77	1.52 V	263	56.08	-2.85
4	1314.25	33.47 AV	50.00	-16.53	1.52 V	263	36.32	-2.85
5	1933.29	52.63 PK	70.00	-17.37	1.54 V	162	52.95	-0.32
6	1933.29	38.24 AV	50.00	-11.76	1.54 V	162	38.56	-0.32
7	2209.37	54.36 PK	70.00	-15.64	2.10 V	160	54.09	0.27
8	2209.37	38.85 AV	50.00	-11.15	2.10 V	160	38.58	0.27
9	2345.24	52.39 PK	70.00	-17.61	1.42 V	77	51.60	0.79
10	2345.24	38.61 AV	50.00	-11.39	1.42 V	77	37.82	0.79
11	2942.36	58.32 PK	70.00	-11.68	1.00 V	67	57.62	0.70
12	**2942.36**	**40.96 AV**	**50.00**	**-9.04**	**1.00 V**	**67**	**40.26**	**0.70**

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value



7.6 Harmonic Current Measurement

Test Duration	5 min	**Fundamental Voltage / Ampere**	230.58 Vrms/ 2.334 Arms
Power Consumption	517.7 W	**Power Frequency**	50 Hz
Power Factor	0.973	**Environmental Conditions**	21°C, 76% RH
Tested By	Kent Wang	**Test Mode**	Mode 1

Harm#	Harms (avg) (A)	100% Limit (A)	Harms (max) (A)	150% Limit (A)
1	2.259	-	4.524	-
3	0.456	1.760	0.458	2.640
5	0.039	0.984	0.041	1.475
7	0.045	0.518	0.047	0.777
9	0.007	0.259	0.009	0.388
11	0.011	0.181	0.012	0.272
13	0.012	0.155	0.014	0.233
15	0.009	0.135	0.010	0.202
17	0.007	0.119	0.009	0.179
19	0.013	0.105	0.014	0.158
21	0.014	0.095	0.015	0.142
23	0.009	0.086	0.011	0.130
25	0.008	0.080	0.013	0.120
27	0.013	0.074	0.015	0.111
29	0.015	0.069	0.016	0.103
31	0.011	0.064	0.013	0.096
33	0.017	0.060	0.018	0.090
35	0.018	0.057	0.019	0.085
37	0.011	0.054	0.013	0.081
39	0.009	0.051	0.010	0.077

Note: Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.

Test Duration	5 min	**Fundamental Voltage / Ampere**	230.59 Vrms / 2.173 Arms
Power Consumption	485.7 W	**Power Frequency**	50 Hz
Power Factor	0.971	**Environmental Conditions**	21°C, 76% RH
Tested By	Kent Wang	**Test Mode**	Mode 2

Harm#	Harms (avg) (A)	100% Limit (A)	Harms (max) (A)	150% Limit (A)
1	2.121	-	4.329	-
3	0.442	1.651	0.443	2.477
5	0.033	0.923	0.035	1.384
7	0.041	0.486	0.042	0.729
9	0.009	0.243	0.010	0.364
11	0.012	0.170	0.013	0.255
13	0.010	0.146	0.011	0.219
15	0.011	0.126	0.012	0.189
17	0.008	0.112	0.010	0.168
19	0.013	0.099	0.014	0.148
21	0.009	0.089	0.011	0.133
23	0.007	0.081	0.010	0.122
25	0.011	0.075	0.013	0.112
27	0.017	0.069	0.019	0.104
29	0.011	0.065	0.014	0.097
31	0.020	0.060	0.021	0.090
33	0.006	0.056	0.008	0.085
35	0.012	0.053	0.013	0.080
37	0.016	0.051	0.017	0.076
39	0.007	0.048	0.008	0.072

Note: Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.

7.7 Voltage Fluctuations and Flicker Measurement

Observation (Tp)	10 min		
Input Power	230 Vac, 50 Hz	**Environmental Conditions**	25°C, 71% RH
Tested By	Kent Wang	**Test Mode**	Mode 1

Test Parameter	Measurement Value	Limit	Remarks
P_{st}	0.327	1.00	Pass
P_{lt}	0.143	0.65	Pass
T_{max} (ms)	0.000	500	Pass
d_{max} (%)	-0.260	4.00	Pass
d_c (%)	0.000	3.30	Pass

Notes:

a. P_{st} means short-term flicker indicator.
b. P_{lt} means long-term flicker indicator.
c. T_{max} means accumulated time value of d(t) with a deviation exceeding 3.3 %.
d. d_{max} means maximum relative voltage change.
e. d_c means maximum relative steady-state voltage change.

7.8 Electrostatic Discharges (ESD)

For EN 55035

Test mode	Mode 1	Input Power	230 Vac, 50 Hz
Environmental conditions	20 °C, 42% RH 1006 mbar	Tested by	Kent Wang

Test Results of Direct Application					
Discharge Level (kV)	Polarity (+/-)	Test Point	Contact Discharge	Air Discharge	Performance Criteria
2	+/-	4, 5, 6	Note 1	---	A
4	+/-	4, 5, 6	Note 2	---	B
2, 4	+/-	1	---	Note 1	A
8	+/-	1	---	Note 2	B
2, 4, 8	+/-	2, 3, 7~13	---	Note 1	A

Description of test points of direct application: Please refer to following page for representative mark only.

Test Results of Indirect Application					
Discharge Level (kV)	Polarity (+/-)	Test Point	Horizontal Coupling Plane	Vertical Coupling Plane	Performance Criteria
2	+/-	Four Sides	Note 1	Note 1	A
4	+/-	Four Sides	Note 2	Note 2	B

Description of test points of indirect application:

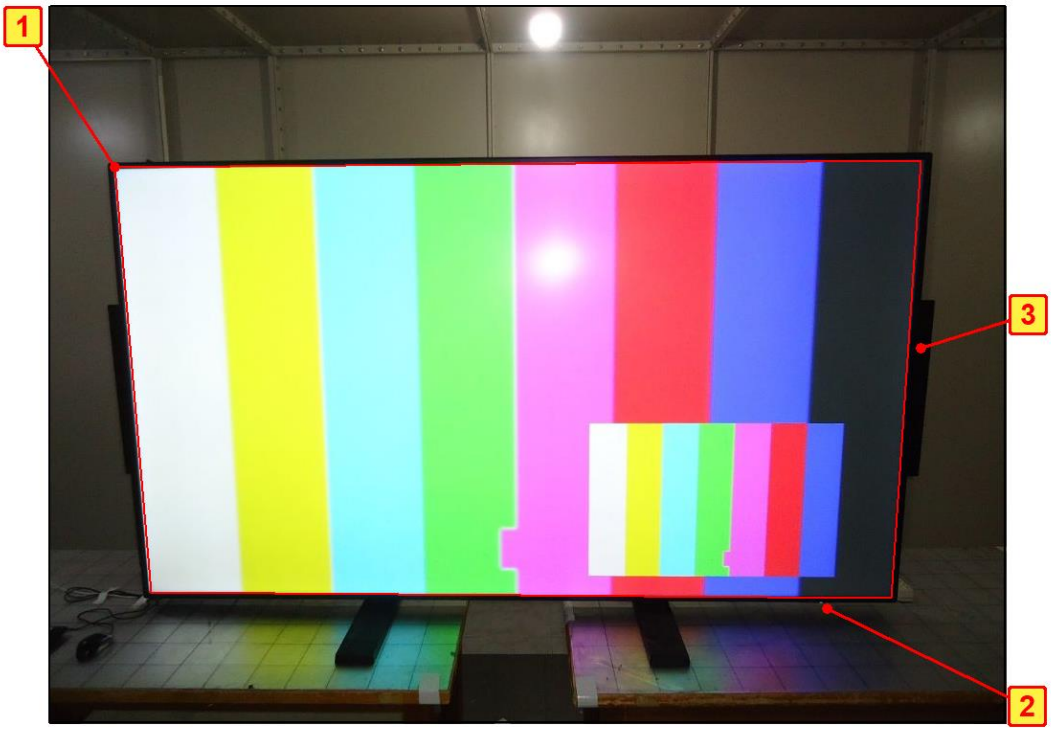
1. Front side 2. Rear side 3. Right side 4. Left side

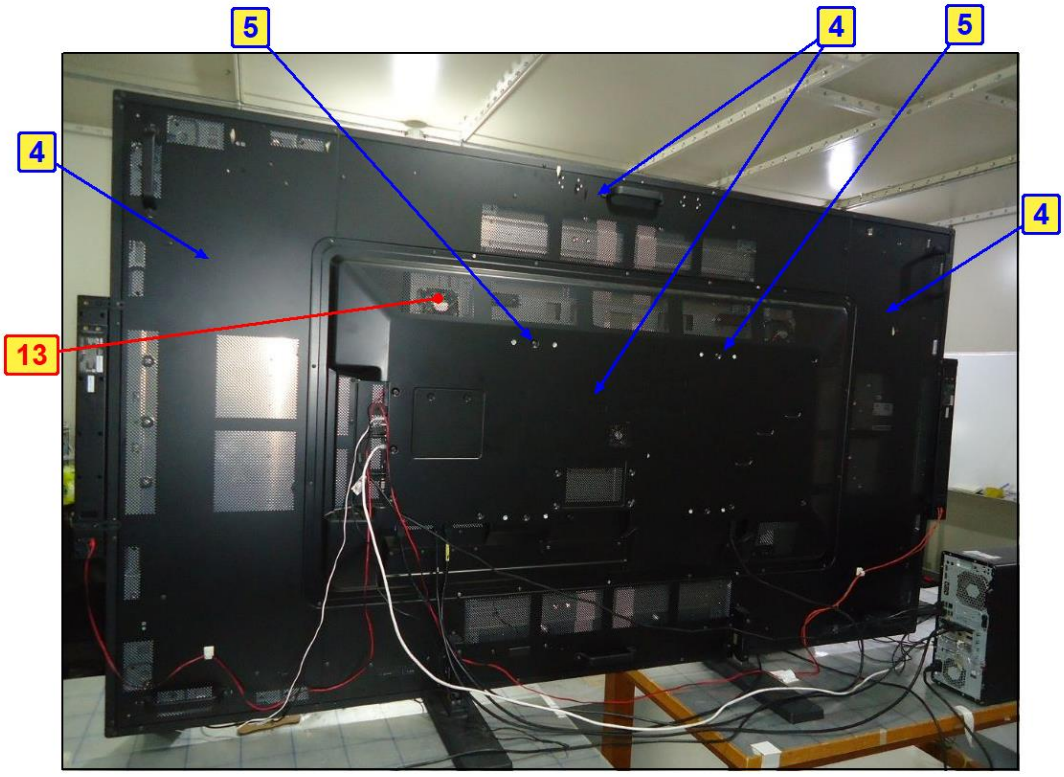
Please refer to the attached page for description of test points.

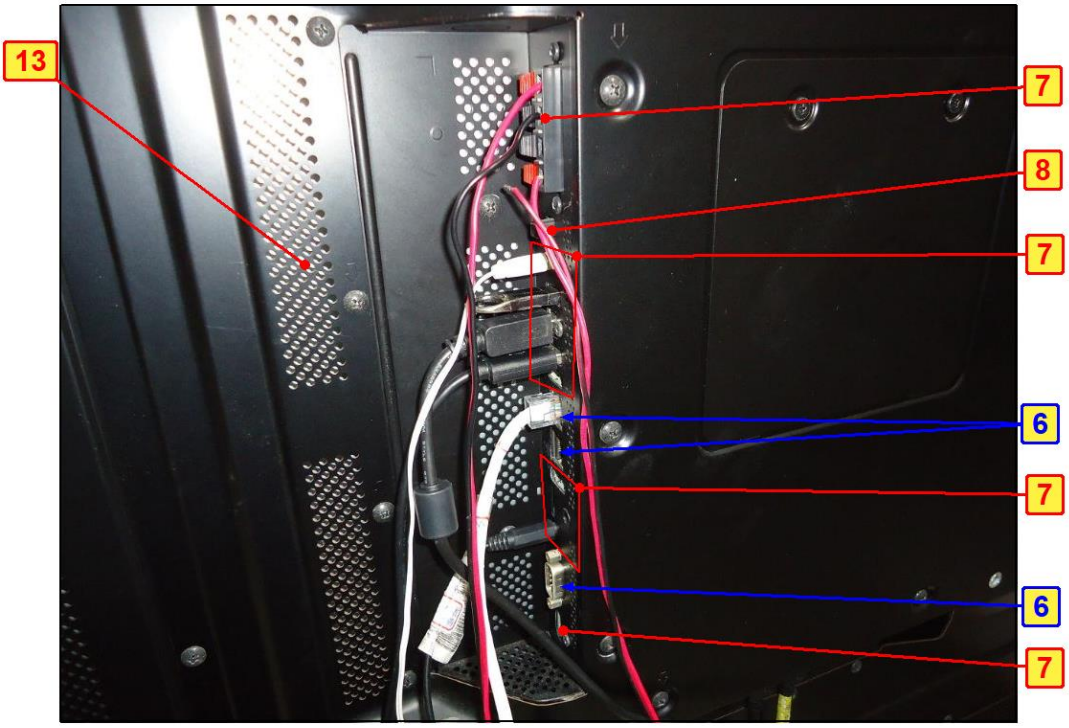
Notes:

1. The EUT is operated normal during the test.
2. There are horizontal bars on the screen, but self-recoverable after test.

Description of test point



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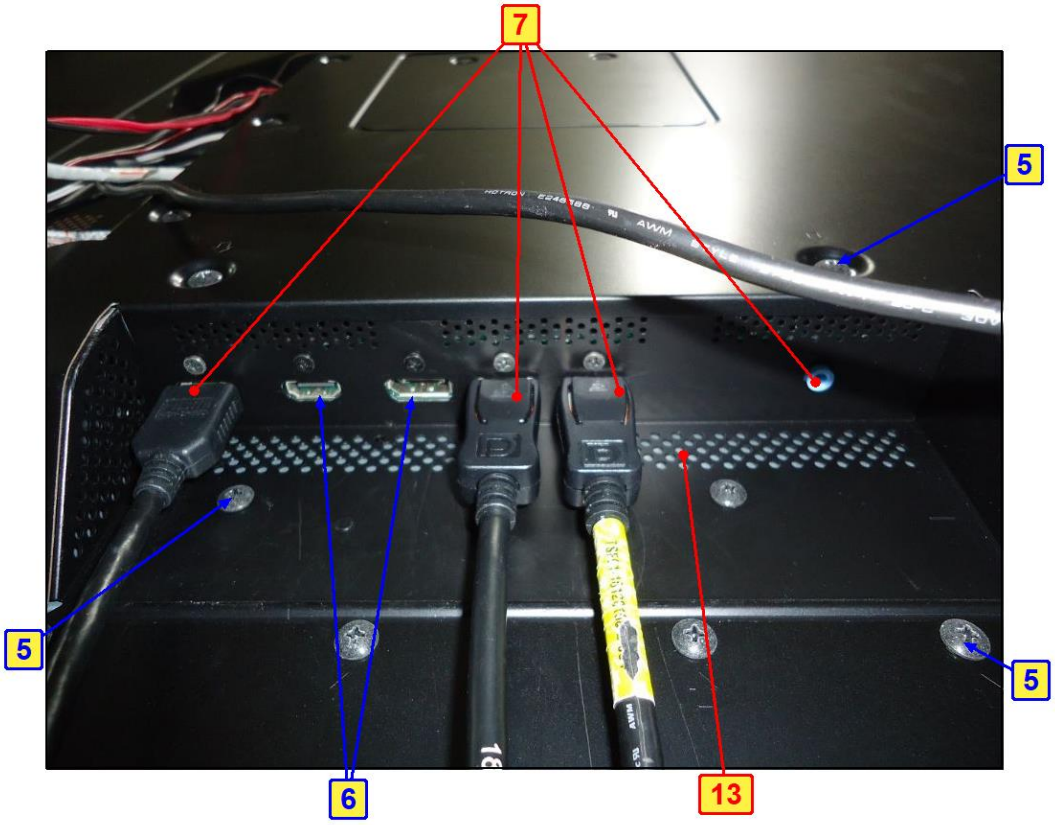
6
7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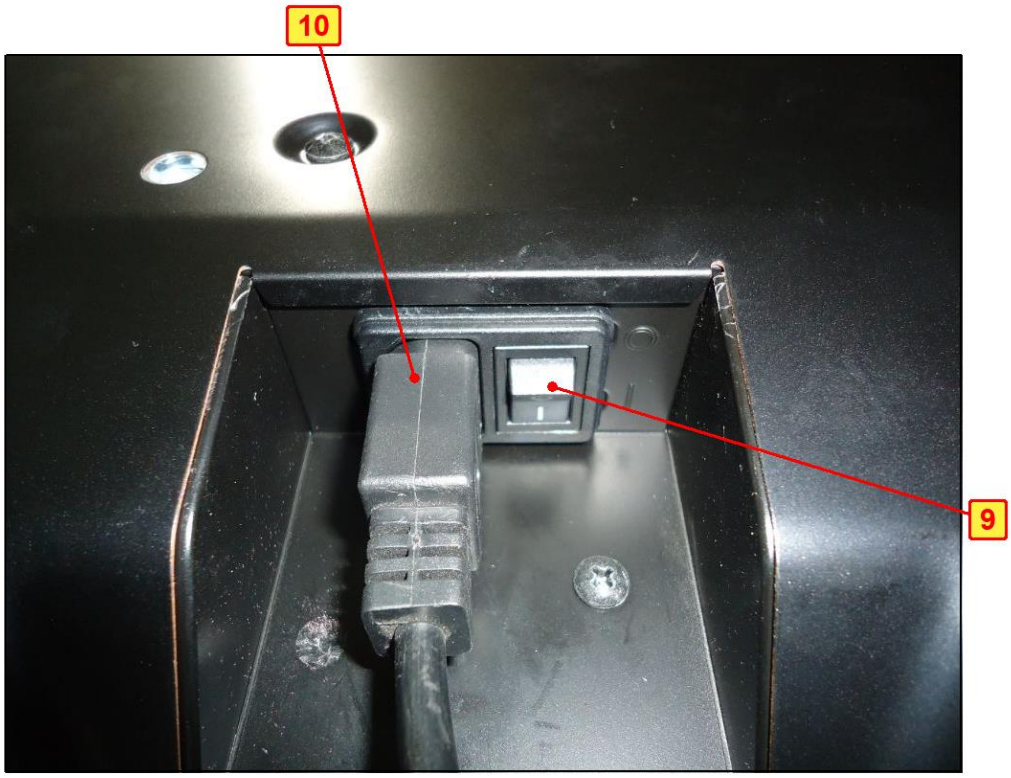
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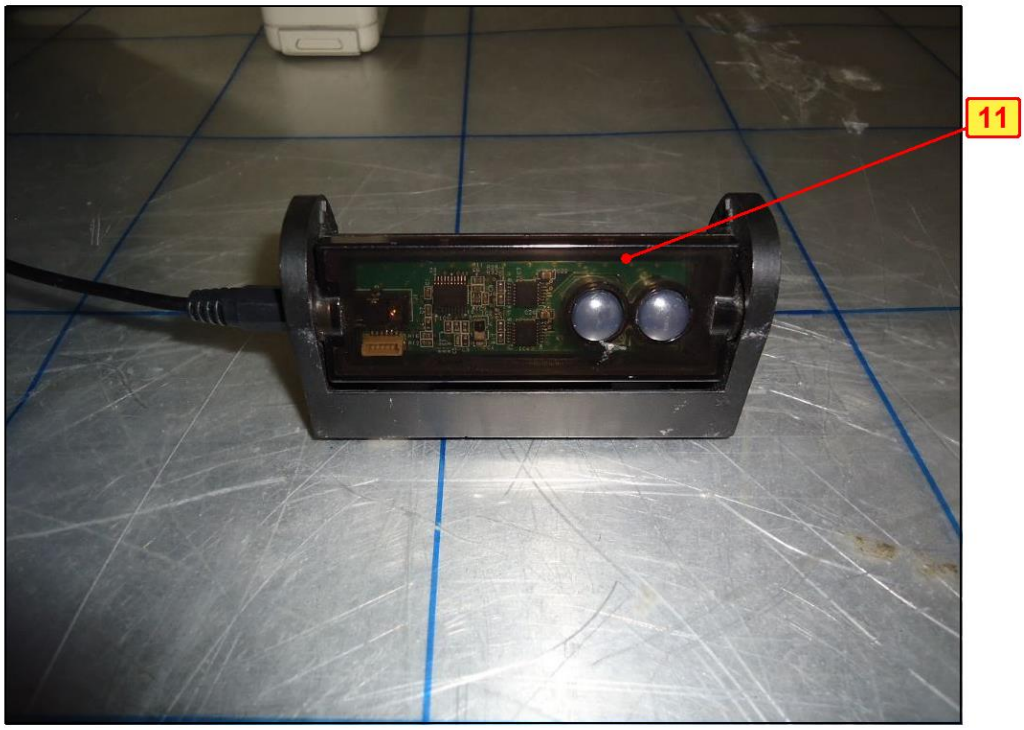

11


12
NEC


8
MUTE
INPUT/SET
MENU/EXIT

7.9 Radio Frequency Electromagnetic Field (RS)

For EN 55035

Test mode	Mode 1	Input Power	230 Vac, 50 Hz
Environmental conditions	22 °C, 70% RH 999 mbar	Tested by	Kent Wang

Frequency (MHz)	Polarity	Azimuth(°)	Applied Field Strength		Observation	Performance Criteria
			(V/m)	Modulation		
80 - 1000	V&H	0, 90, 180, 270	3	80% AM (1kHz)	Note 1	A
1800, 2600, 3500, 5000	V&H	0, 90, 180, 270	3	80% AM (1kHz)	Note 1	A
80 - 1000	V&H	0, 90, 180, 270	3	80% AM (1kHz)	Note 2, 3	A
1800, 2600, 3500, 5000	V&H	0, 90, 180, 270	3	80% AM (1kHz)	Note 2, 3	A

Notes:

1. The EUT is operated normal during the test.
2. Audio Out Function (Speaker out) Acoustic Reference level Pass.
3. Audio Out Function (Ear Phone out) Electrical Reference level Pass.

7.10 Fast Transients Common Mode (EFT)

For EN 55035

Test mode	Mode 1	Input Power	230 Vac, 50 Hz
Environmental conditions	20 °C, 68% RH 1008 mbar	Tested by	Kent Wang

Input AC power port				
Voltage (kV)	Test Point	Polarity (+/-)	Observation	Performance Criteria
1	L	+/-	Note	A
1	N	+/-	Note	A
1	PE	+/-	Note	A
1	L-N- PE	+/-	Note	A

Wired network and signal/ control port				
Voltage (kV)	Test Point	Polarity (+/-)	Observation	Performance Criteria
0.5	LAN	+/-	Note	A

Note: The EUT is operated normal during the test.

7.11 Surges

For EN 55035

Test mode	Mode 1	Input Power	230 Vac, 50 Hz
Environmental conditions	21 °C, 76% RH 1000 mbar	Tested by	Kent Wang

Input AC power port					
Voltage (kV)	Test Point	Azimuth(°)	Polarity (+/-)	Observation	Performance Criteria
0.5, 1	L–N	90, 270	+/-	Note	A
0.5, 1, 2	L–PE	90, 270	+/-	Note	A
0.5, 1, 2	N–PE	90, 270	+/-	Note	A

Note: The EUT is operated normal during the test.

7.12 Radio Frequency Common Mode (CS)

For EN 55035

Test mode	Mode 1	Input Power	230 Vac, 50 Hz
Environmental conditions	22 °C, 73% RH 1010 mbar	Tested by	Kent Wang

Input AC power port							
Frequency (MHz)	Level (V rms)	Modulation	Tested Line	Injection Method	Return Path	Observation	Performance Criteria
0.15 – 10	3	80% AM (1kHz)	AC power	CDN-M3	CDN-T4	Note 1	A
10 – 30	3 ~ 1	80% AM (1kHz)	AC power	CDN-M3	CDN-T4	Note 1	A
30 – 80	1	80% AM (1kHz)	AC power	CDN-M3	CDN-T4	Note 1	A
0.15 – 10	3	80% AM (1kHz)	AC power	CDN-M3	CDN-T4	Note 2, 3	A
10 – 30	3 ~ 1	80% AM (1kHz)	AC power	CDN-M3	CDN-T4	Note 2, 3	A
30 – 80	1	80% AM (1kHz)	AC power	CDN-M3	CDN-T4	Note 2, 3	A

Wired network and signal/ control port							
Frequency (MHz)	Level (V rms)	Modulation	Tested Line	Injection Method	Return Path	Observation	Performance Criteria
0.15 - 10	3	80% AM (1kHz)	LAN	CDN-T4	CDN-M3	Note 1	A
10 - 30	3 ~ 1	80% AM (1kHz)	LAN	CDN-T4	CDN-M3	Note 1	A
30 - 80	1	80% AM (1kHz)	LAN	CDN-T4	CDN-M3	Note 1	A
0.15 - 10	3	80% AM (1kHz)	LAN	CDN-T4	CDN-M3	Note 2, 3	A
10 - 30	3 ~ 1	80% AM (1kHz)	LAN	CDN-T4	CDN-M3	Note 2, 3	A
30 - 80	1	80% AM (1kHz)	LAN	CDN-T4	CDN-M3	Note 2, 3	A

Notes:

1. The EUT is operated normal during the test.
2. Audio Out Function (Speaker out) Acoustic Reference level Pass.
3. Audio Out Function (Ear Phone out) Electrical Reference level Pass.

7.13 Power Frequency Magnetic Field (PFMF)

For EN 55035

Test mode	Mode 1	Input Power	230 Vac, 50 Hz
Environmental conditions	23 °C, 69% RH 1007 mbar	Tested by	Kent Wang

Application	Frequency (Hz)	Field Strength (A/m)	Observation	Performance Criteria
X - Axis	50	1	Note	A
Y - Axis	50	1	Note	A
Z - Axis	50	1	Note	A

Note: The EUT is operated normal during the test.

7.14 Voltage Dips and Interruptions (DIP)

For EN 55035

Test mode	Mode 1	Input Power	230 Vac, 50 Hz; 240 Vac, 50 Hz; 100 Vac, 50 Hz
Environmental conditions	21 °C, 76% RH 1000 mbar	Tested by	Kent Wang

Input Power for testing: 230Vac, 50 Hz (Nominal input Voltage)					
Voltage Residual (%)	Duration (cycle)	Interval (sec)	Times	Observation	Performance Criteria
< 5 %	0.5	10	3	Note 1	A
70 %	25	10	3	Note 1	A
< 5 %	250	10	3	Note 2	C

Input Power for testing: 240Vac, 50 Hz (Maximum rated input voltage)					
Voltage Residual (%)	Duration (cycle)	Interval (sec)	Times	Observation	Performance Criteria
< 5 %	0.5	10	3	Note 1	A
70 %	25	10	3	Note 1	A
< 5 %	250	10	3	Note 2	C

Input Power for testing: 100Vac, 50 Hz (Minimum rated input voltage)					
Voltage Residual (%)	Duration (cycle)	Interval (sec)	Times	Observation	Performance Criteria
< 5 %	0.5	10	3	Note 1	A
70 %	25	10	3	Note 1	A
< 5 %	250	10	3	Note 2	C

Notes:

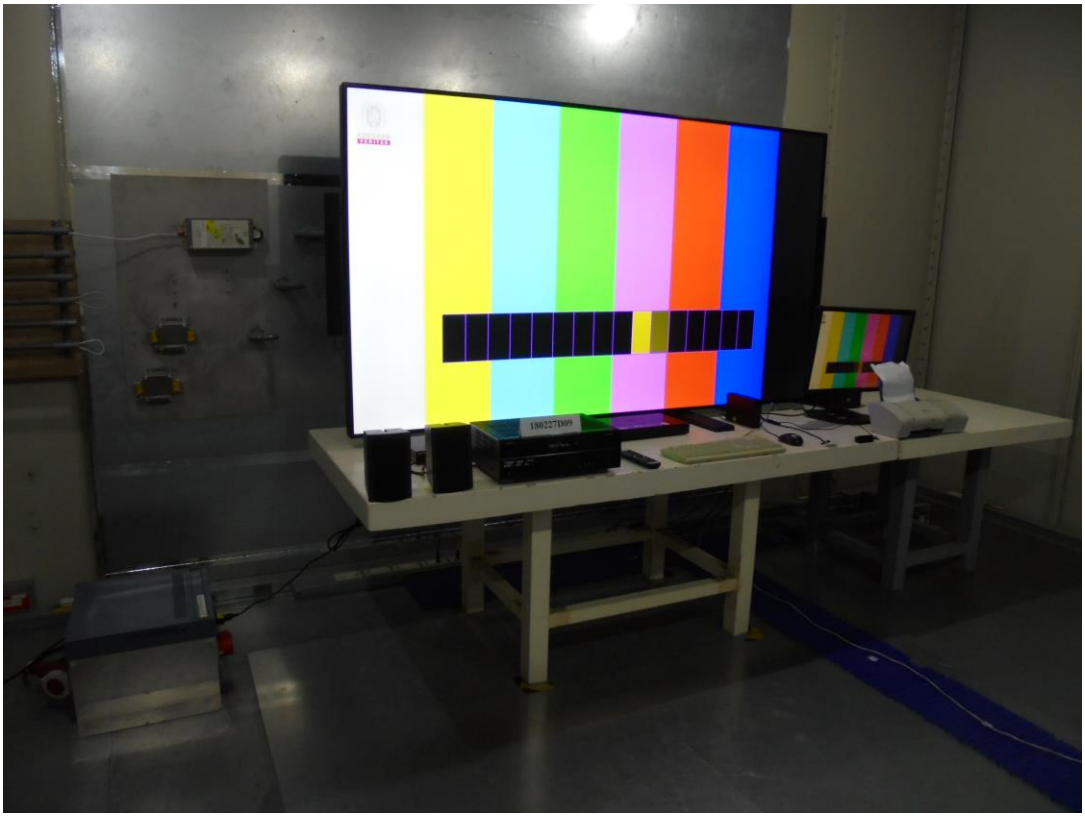
1. The EUT is operated normal during the test.
2. The EUT appears a "reboot" phenomena during the test, need manual recoverable after the test.

8 Pictures of Test Arrangements

8.1 Conducted Emissions from Power Ports

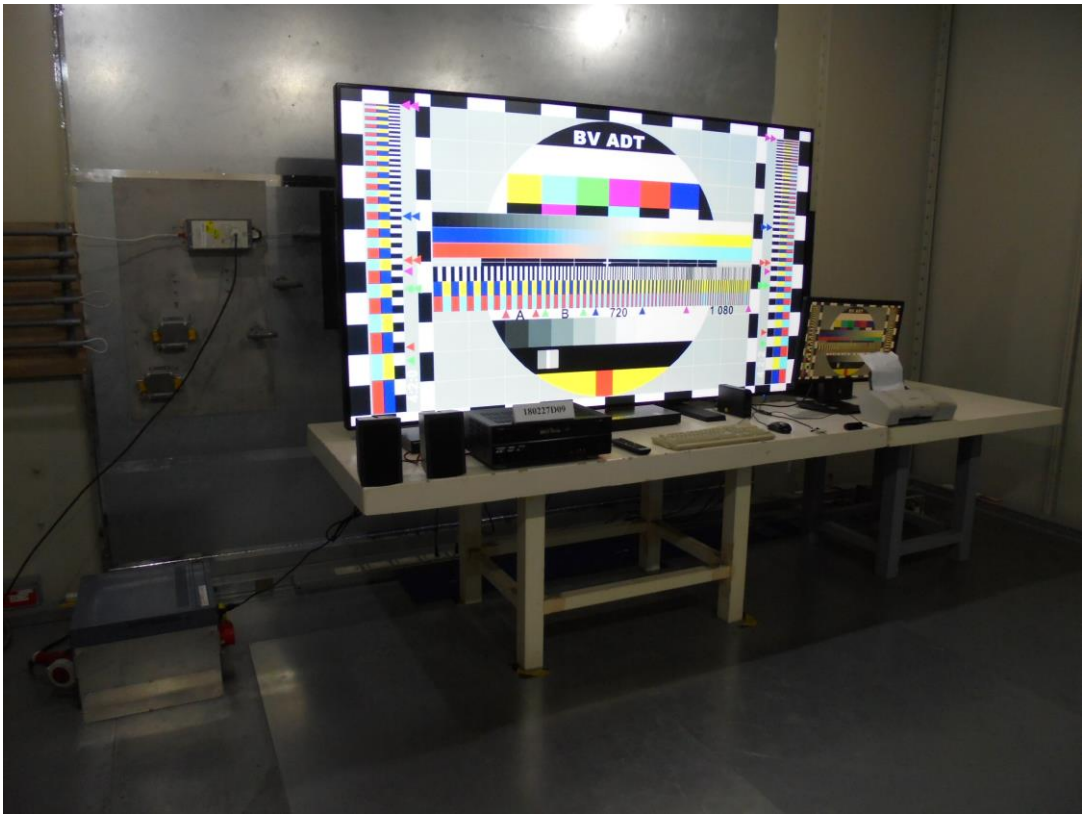
Mode 1

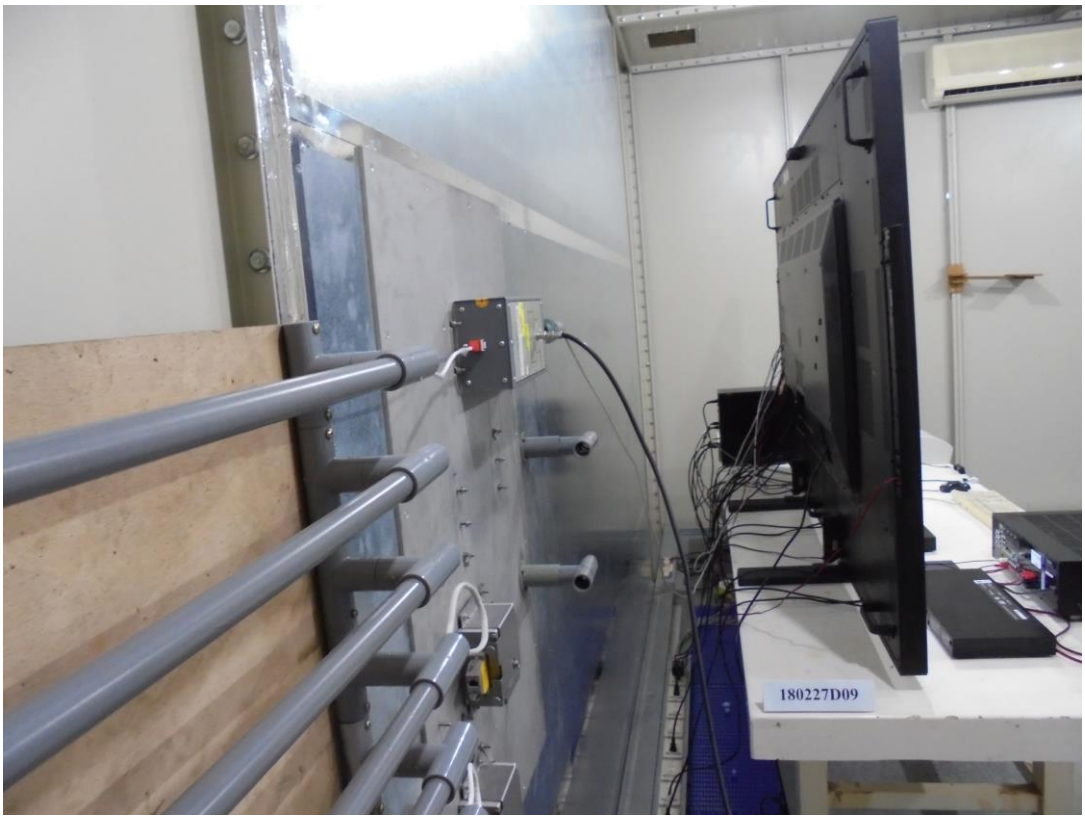
Mode 2 & Mode 3



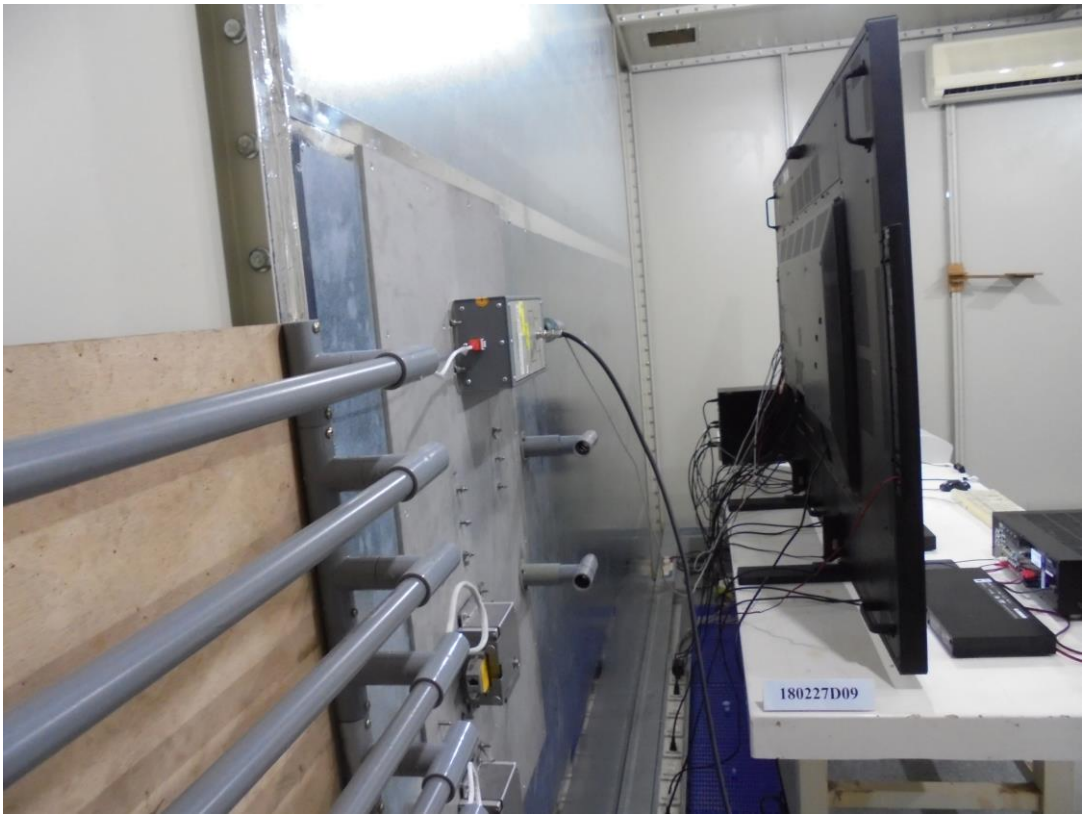
8.2 Conducted Emissions from Wired Network Ports

Mode 1



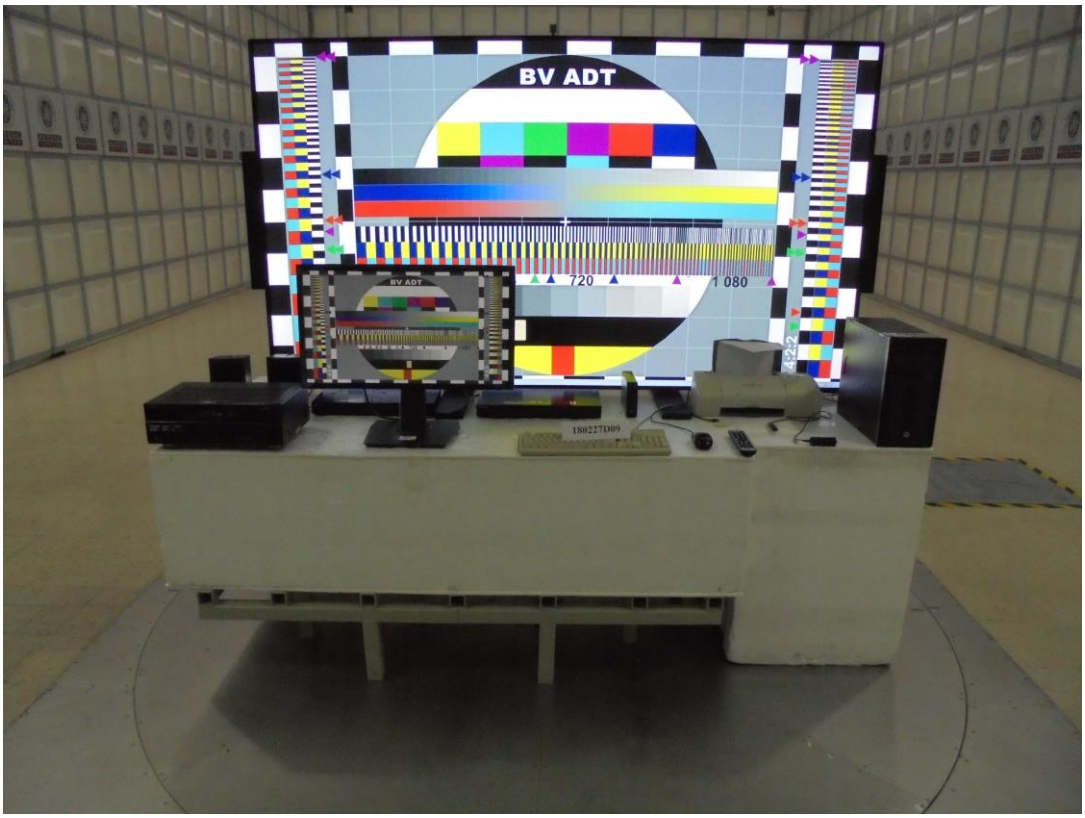


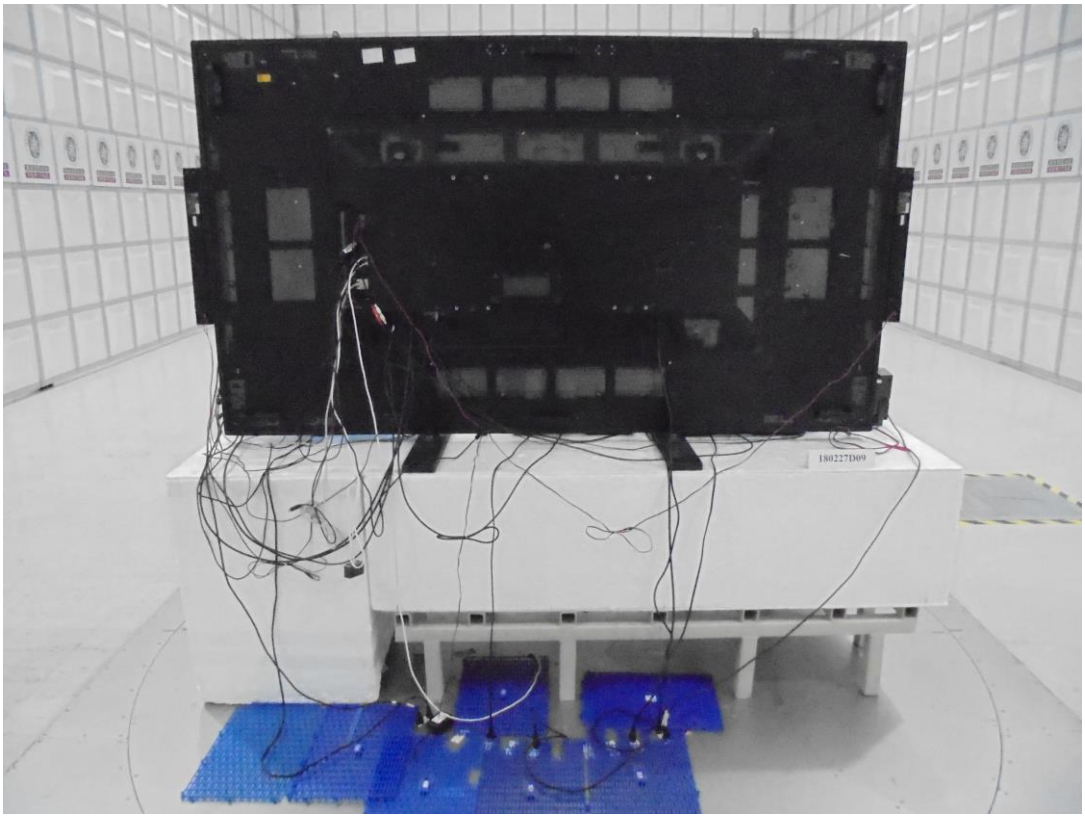
Mode 2



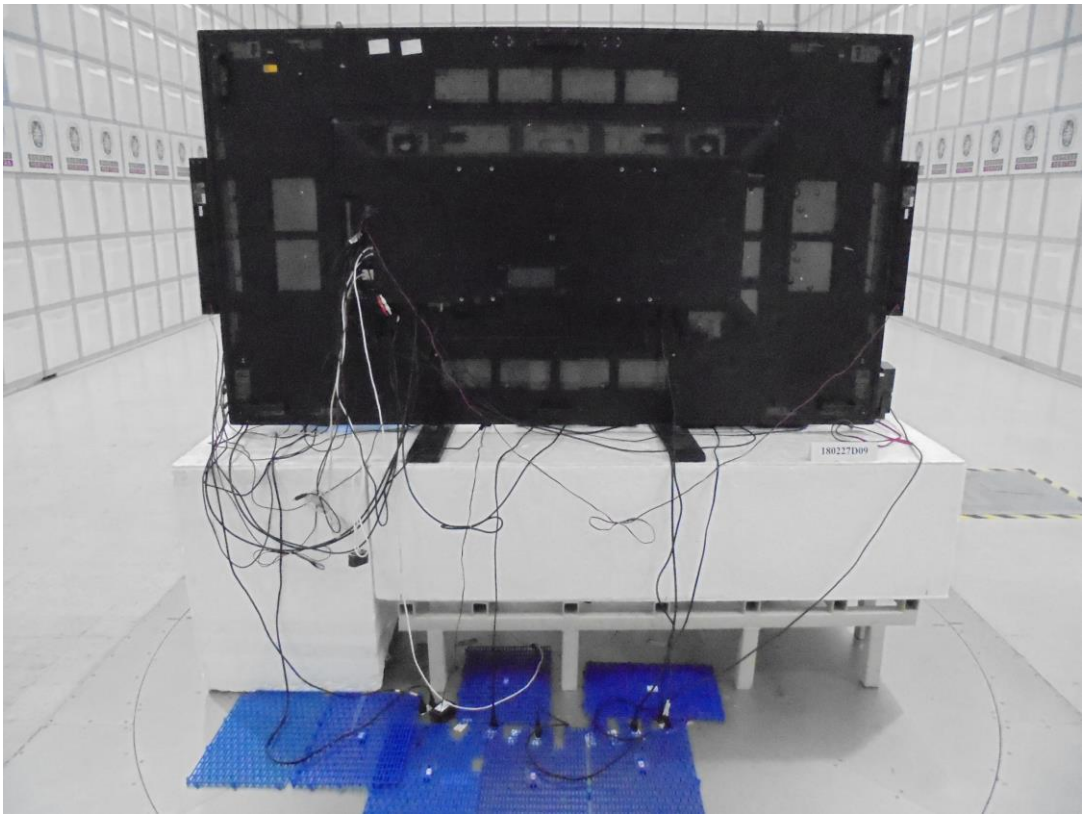
8.3 Radiated Emissions up to 1 GHz

Mode 1



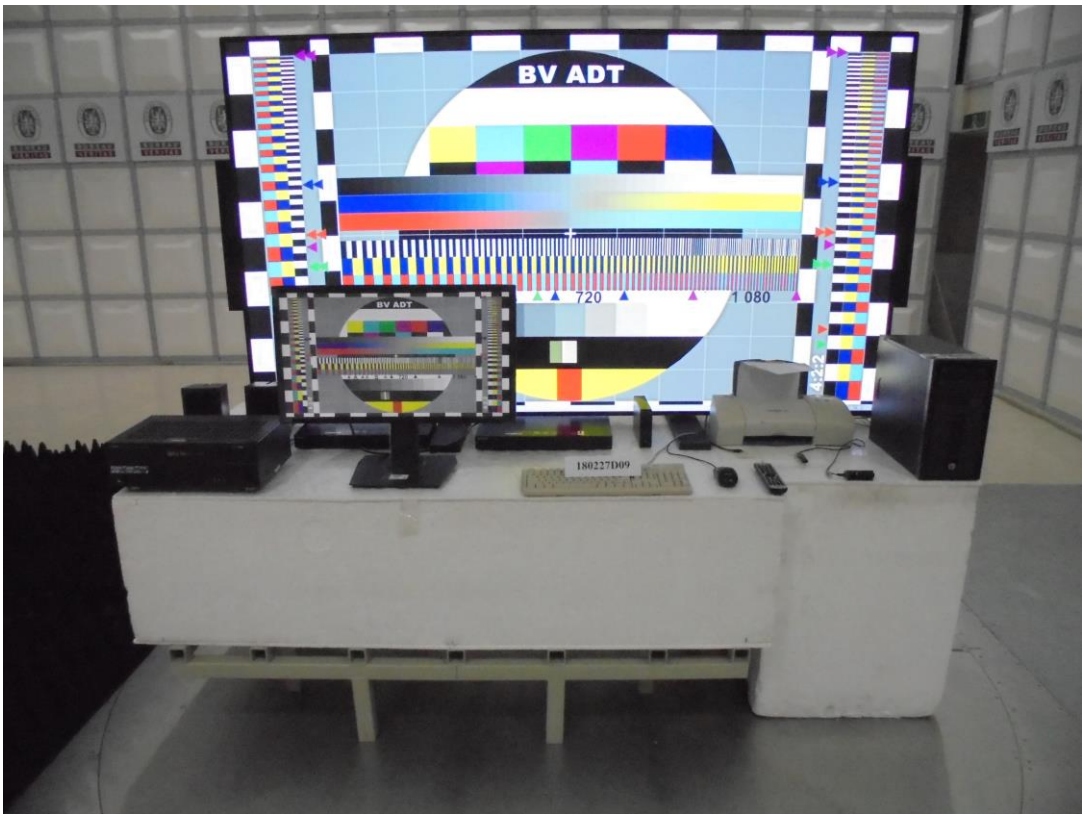


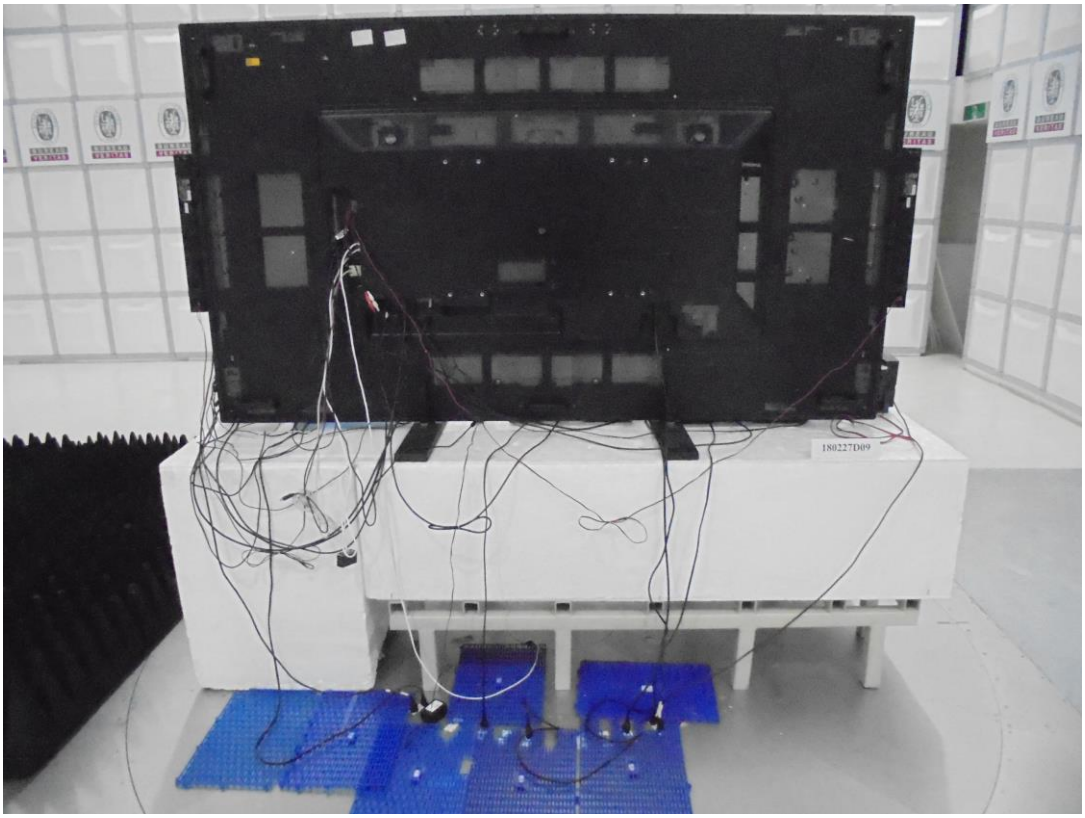
Mode 2 & Mode 3



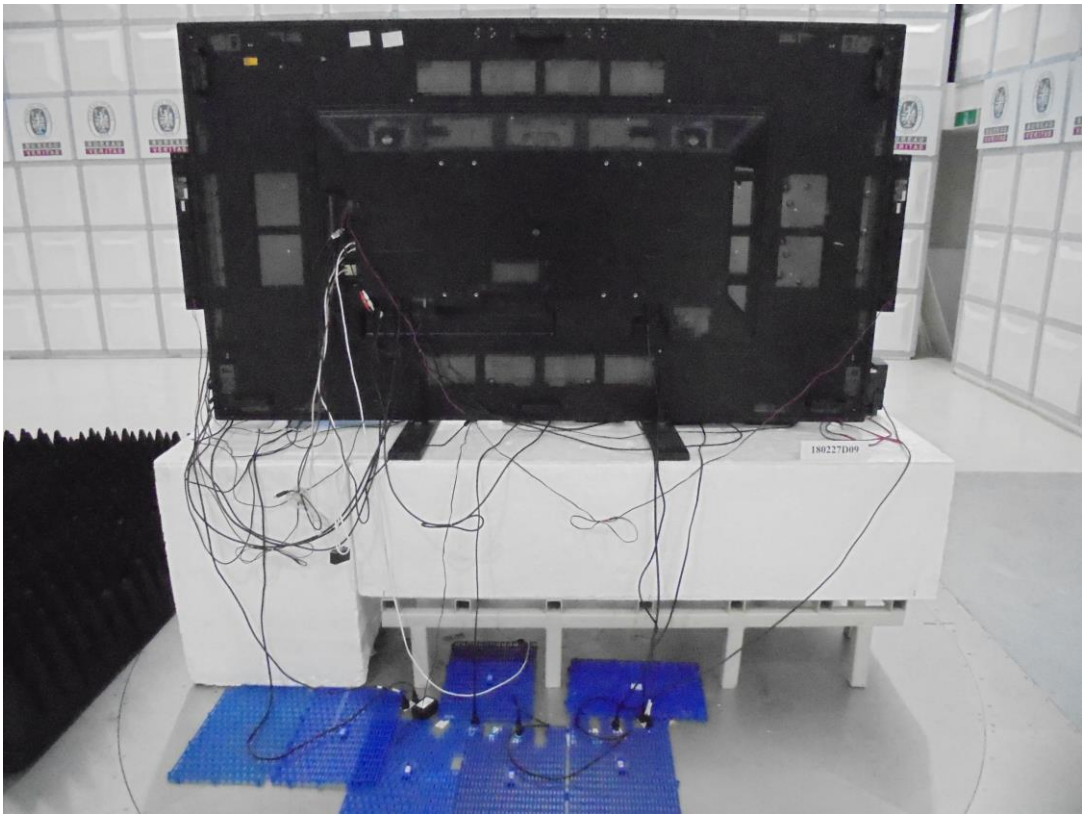
8.4 Radiated Emissions above 1 GHz

Mode 1

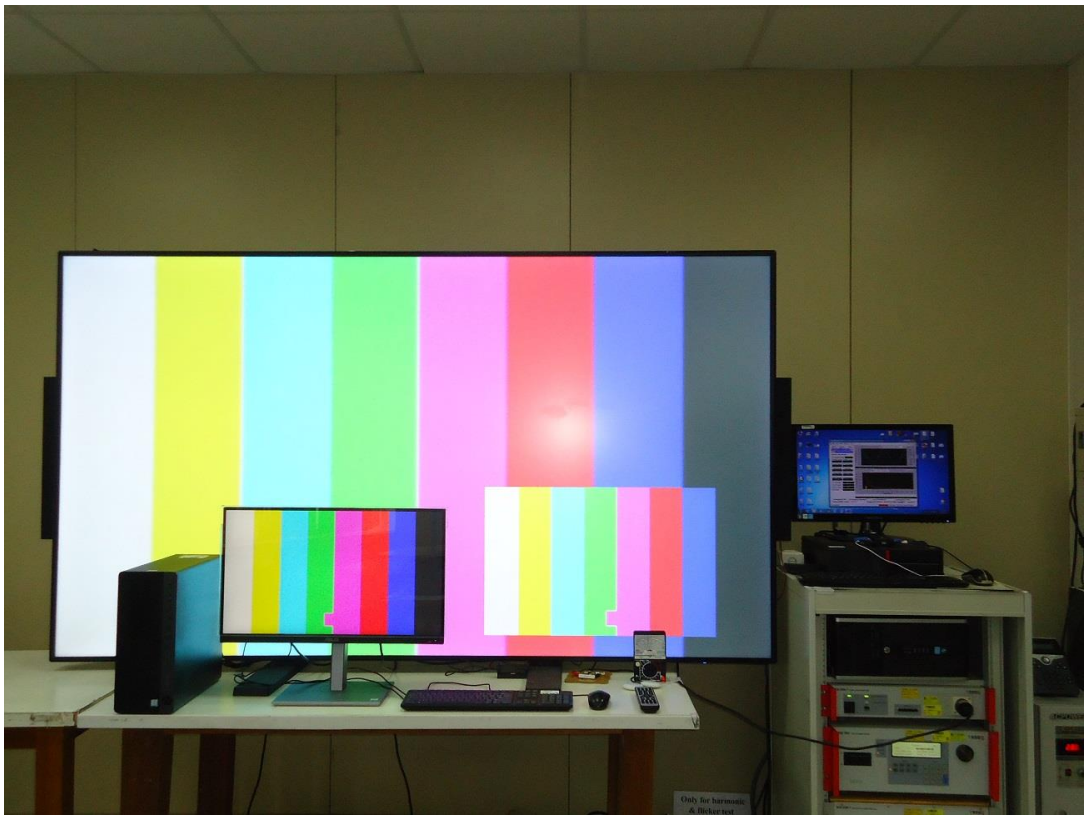




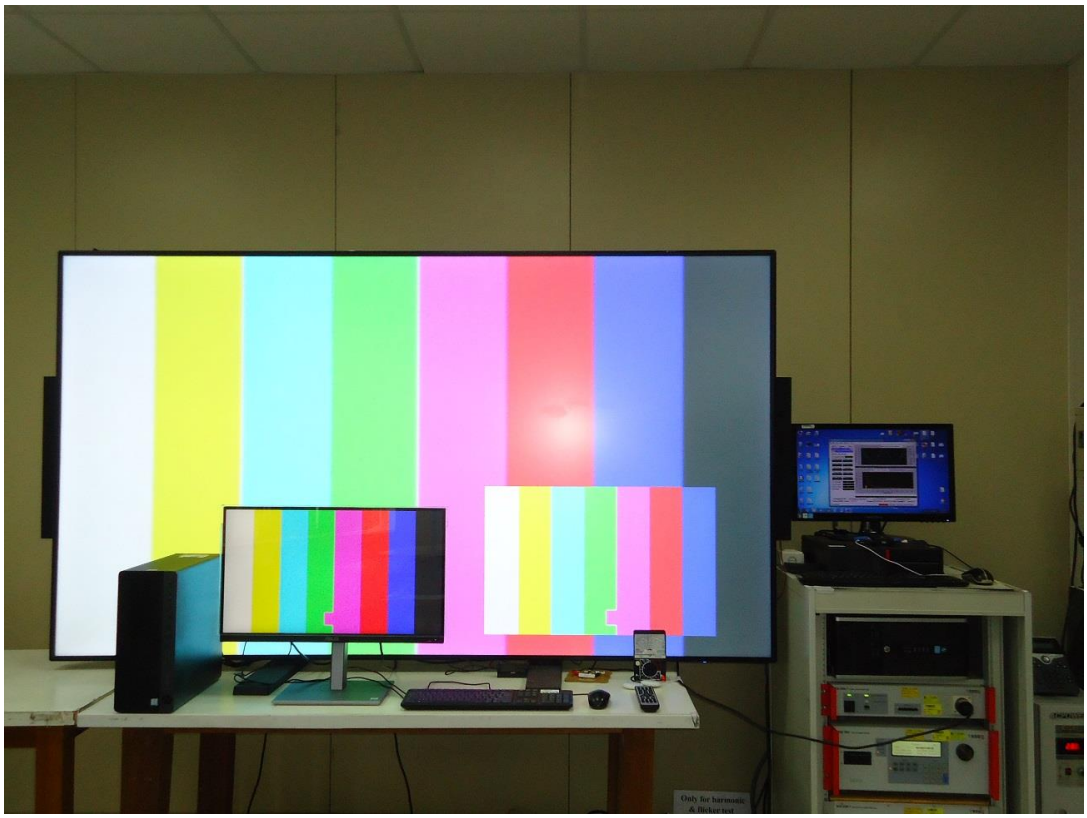
Mode 2 & Mode 3



8.5 Harmonic Current Measurement

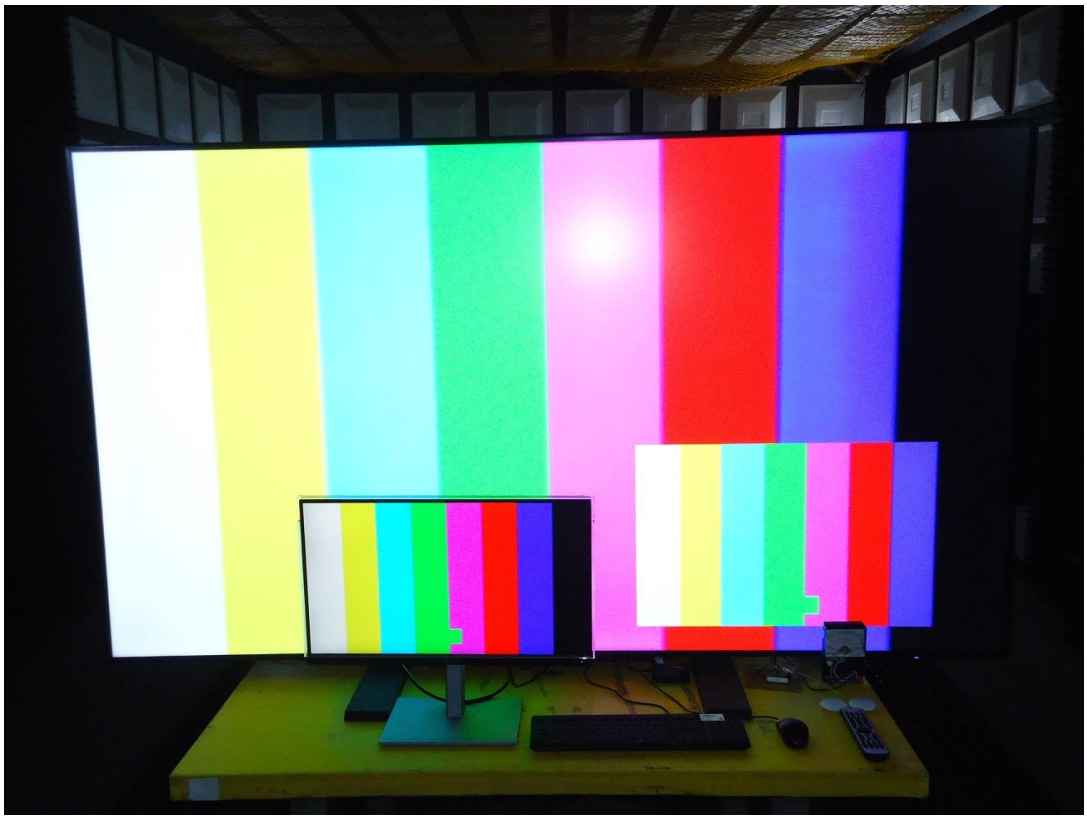


8.6 Voltage Fluctuations and Flicker Measurement



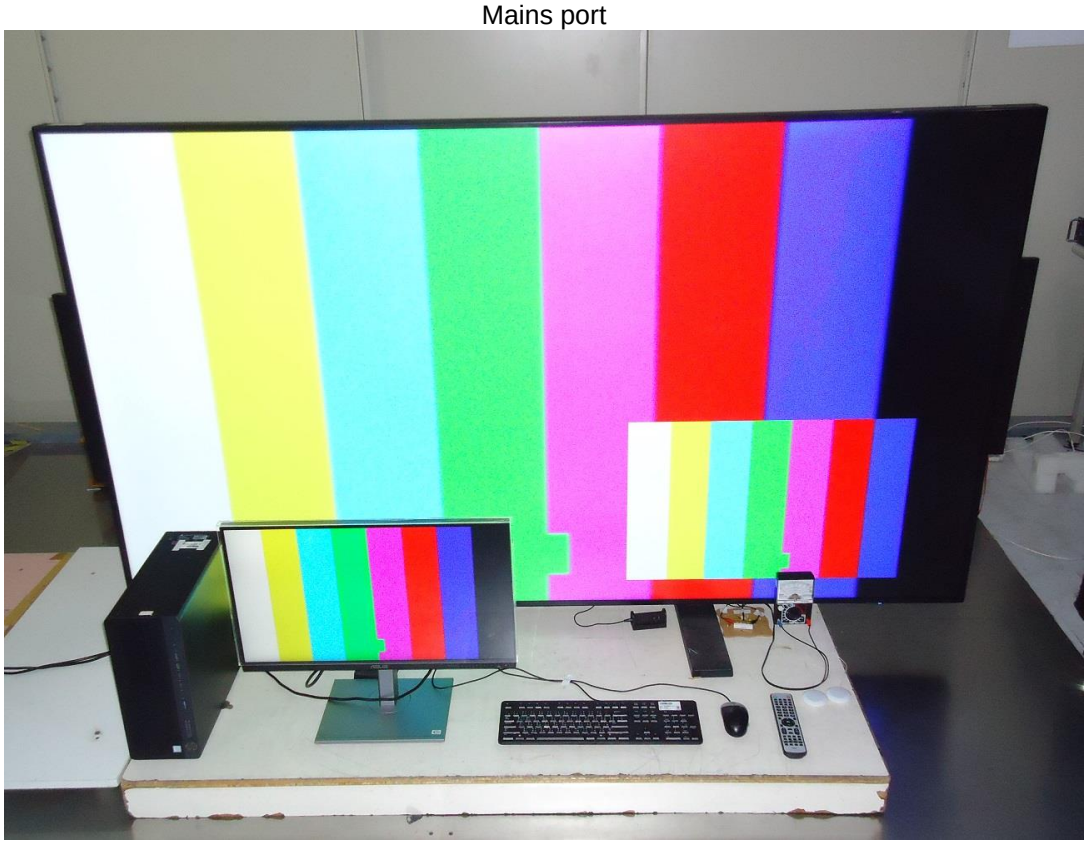
8.7 Electrostatic Discharges (ESD)

8.8 Radio Frequency Electromagnetic Field (RS)

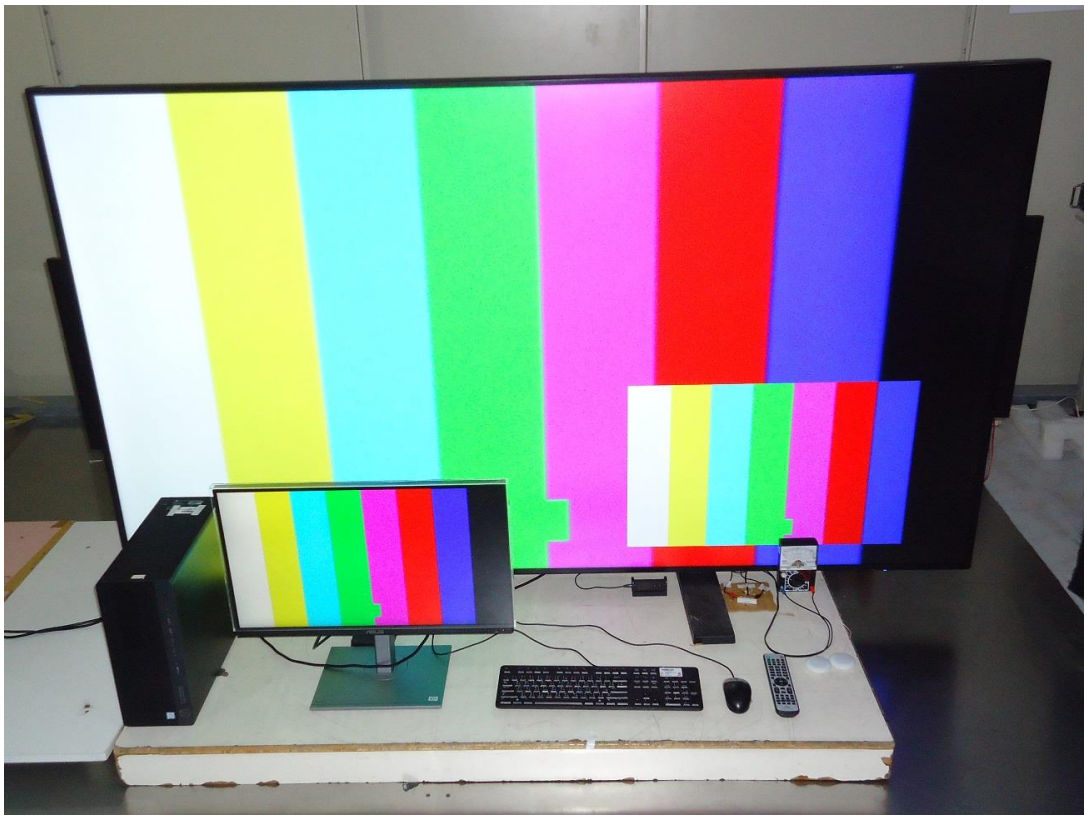


8.9 Fast Transients Common Mode (EFT)

Mains port



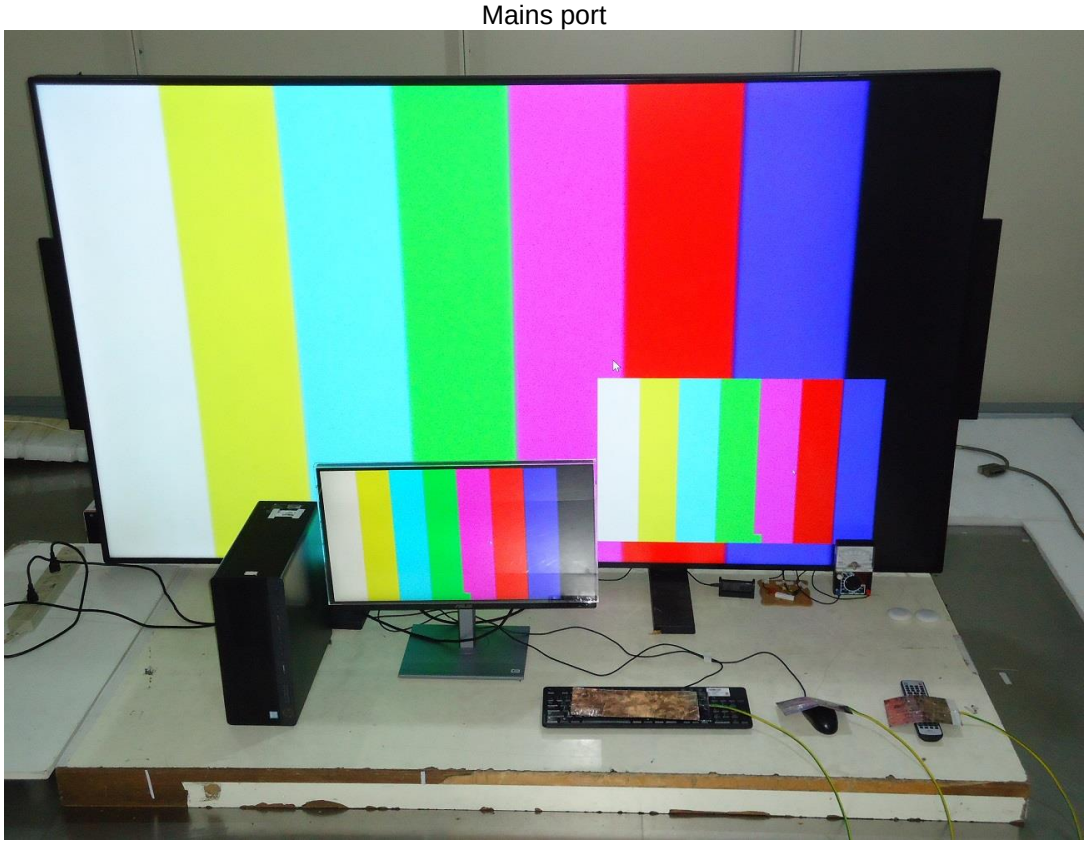
LAN



8.10 Surges

8.11 Radio Frequency Common Mode (CS)

Mains port



LAN

8.12 Power Frequency Magnetic Field (PFMF)

8.13 Voltage Dips and Interruptions (DIP)

9 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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