CE Test Report

Product Name ： 55” Dual-Sided LCD Signage Display

Model No. ： DF-55*, DS-55* (*=A-Z OR 0-9)

Applicant ： Associated Industries China, Inc.

Address ： 5F-1, No.3-1, Park Street, Nangang District, Taipei, Taiwan

Date of Receipt ： 2017/02/07

Report No. ： 1720099R-ITCEP34V00

Issued Date ： 2017/02/13

Report Version ： V1.0

Test Report Certification

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Product Name	:	55” Dual-Sided LCD Signage Display
Applicant	:	Associated Industries China, Inc.
Address	:	5F-1, No.3-1, Park Street, Nangang District, Taipei, Taiwan
Manufacturer	:	1. AU Optronics (Longke) Corporation 2. AU Optronics (Suzhou) Corporation 3. TOPFLY CORPORATION
Model No.	:	DF-55*, DS-55* (*=A-Z OR 0-9)
EUT Voltage	:	AC 100-240V, 50/60Hz
Trade Name	:	neovo
Applicable Standard	:	EN 55032: 2015 Class A EN 61000-3-2: 2014 EN 61000-3-3: 2013 EN 55024: 2010
Test Result	:	Complied
Performed Location	:	Hsin Chu Laboratory No. 75-2, 3rd Lin, WangYe Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan (R.O.C.) TEL:+886-3-592-8858 / FAX:+886-3-592-8859 No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 310, Taiwan No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 310, Taiwan TEL:+886-3-582-8001 / FAX:+886-3-582-8958

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Laboratory Information

We, **DEKRA Testing and Certification Co., Ltd.**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scopes:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
USA	**:**	**FCC**
Japan	**:**	**VCCI**

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:
http://www.dekra.com.tw/english/about/certificates.aspx?bval=5
The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site : http://www.dekra.com.tw/index_en.aspx
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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1. General Information

1.1. EUT Description

Product Name	55” Dual-Sided LCD Signage Display
Trade Name	neovo
Model No.	DF-55*, DS-55* (*=A-Z OR 0-9)

Component	
PSU (Mode 1)	AUO, P550HVF04.0 I/P: AC 110V~240V 50~60Hz 2.5A
Power Line (Mode 1)	Non-Shielded, 3.8m

Note:

1. This EUT is a 55” Dual-Sided LCD Signage Display.
2. The model number DF-55*, DS-55*; * = A-Z or 0-9.

Model No.	Description
DF-55	Dual-side with Full Size Stand
DS-55	Dual-side without Stand

1.2. Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Pre-Test Mode	
Mode 1: HDMI (DS-55) Mode 2: HDMI (DF-55)	
Final Test Mode	
Emission	Mode 1: HDMI (DS-55) Mode 2: HDMI (DF-55)
Immunity	Mode 1: HDMI (DS-55) Mode 2: HDMI (DF-55)

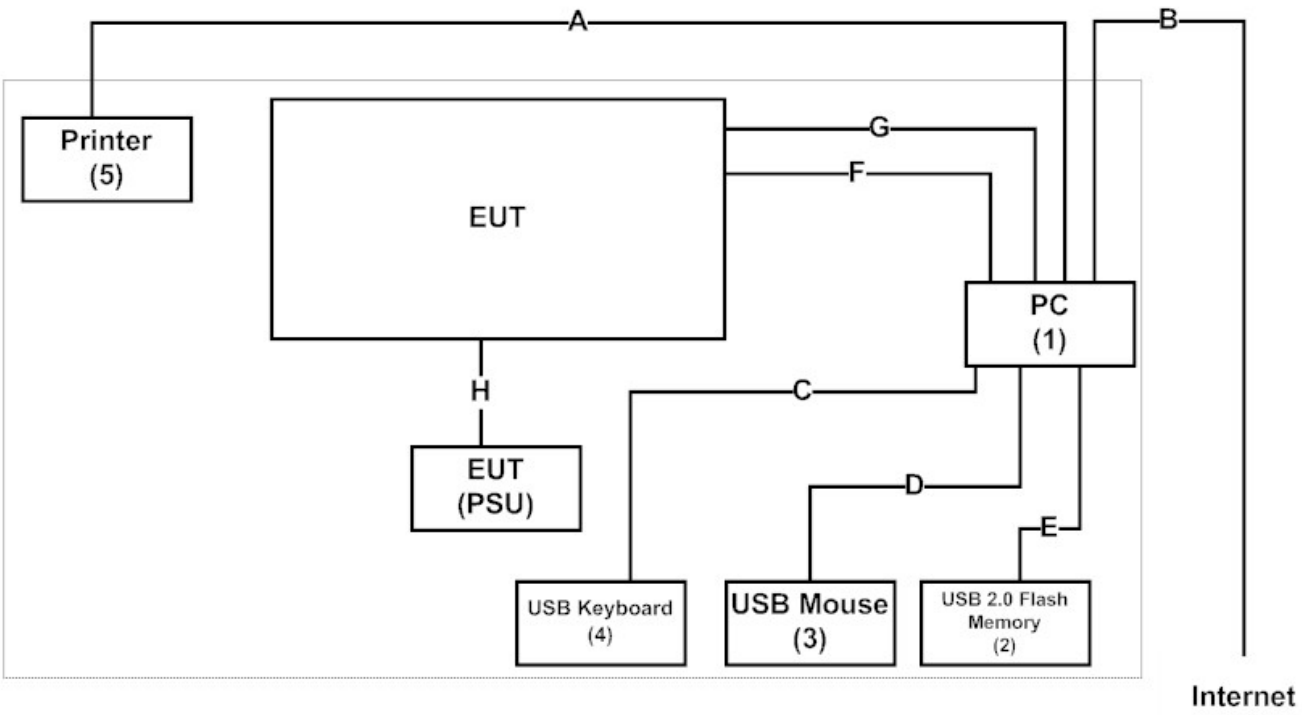
1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

EMI					
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	PC	DELL	D07M	CC1H628	Non-Shielded, 1.8m
2	USB 2.0 Flash Memory	Apacer	AH223	N/A	--
3	USB Mouse	Microsoft	Comfort Optical Mouse 1000	1016231-0	--
4	USB Keyboard	DELL	SK-8115	0269	--
5	Printer	HP	deskiet 5652	MY3621M0PS	Non-Shielded, 3.7m, one ferrite core bonded
EMS					
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	PC	DELL	DCSM	00144-562-218-245	Non-Shielded, 1.8m
2	Keyboard	Logitech	Y-SM46	SY525U17991	--
3	Mouse	Logitech	M-SBF83	HCA52200076	--

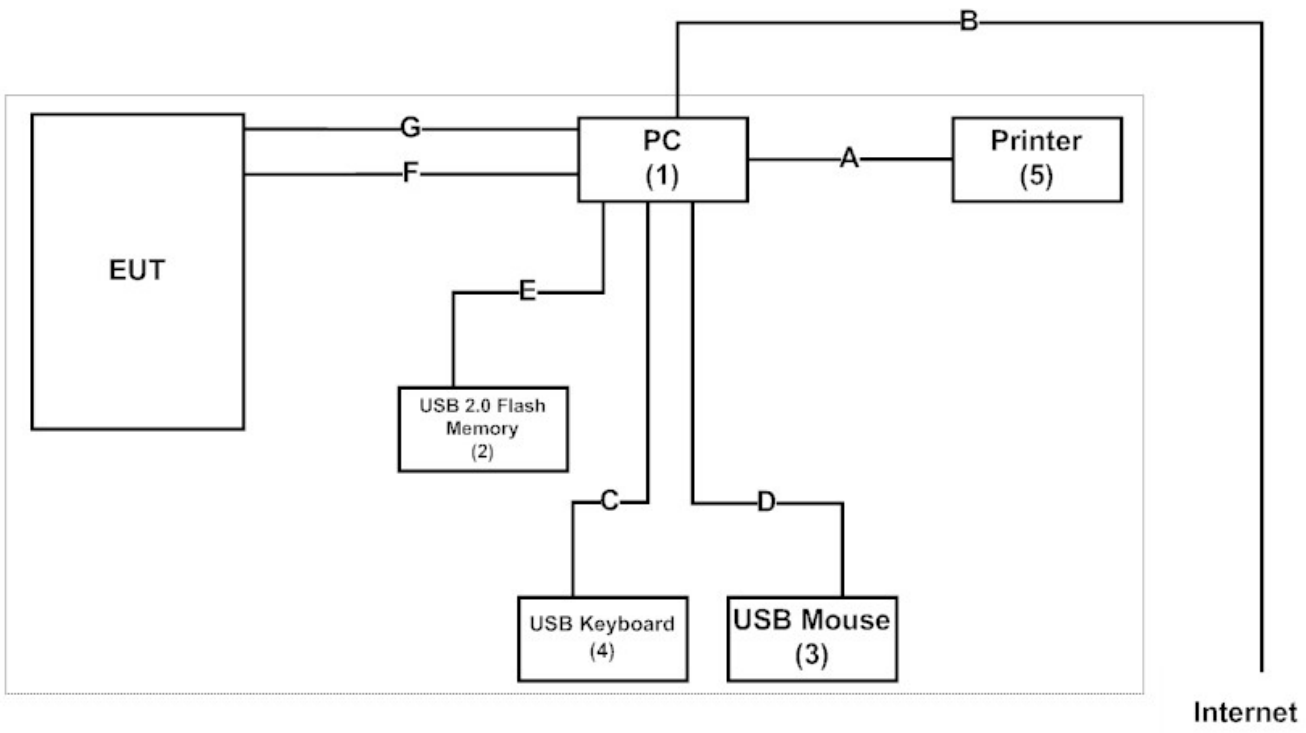
1.4. Configuration of Tested System

EMI	
Test Mode	Mode 1: HDMI (DS-55)
Connection Diagram	



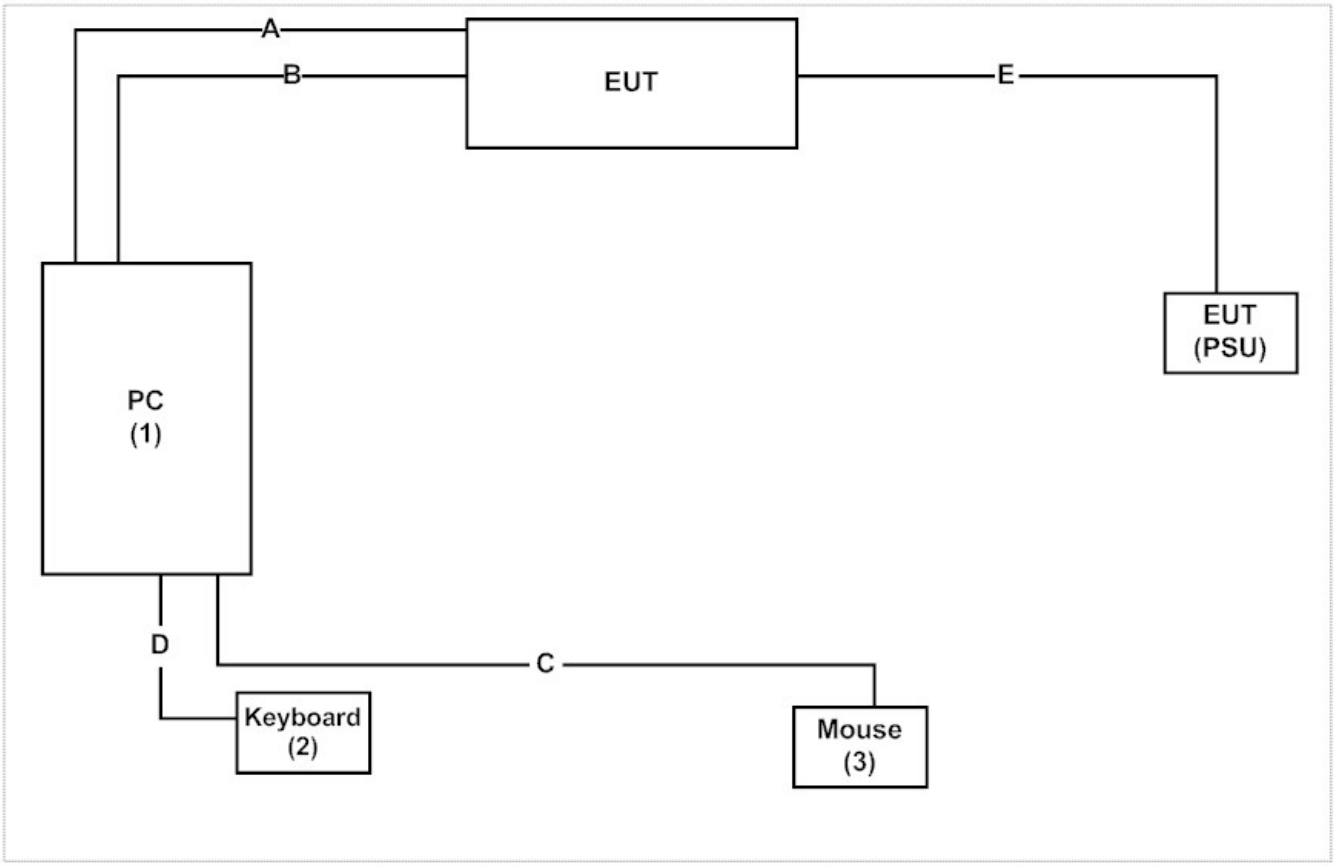
Signal Cable Type		Signal cable Description
A	USB Cable	Shielded, 1.8m
B	LAN Cable	Non-Shielded, 10m
C	USB Keyboard Cable	Shielded, 2m, one ferrite core bonded.
D	USB Mouse Cable	Shielded, 1.8m, one ferrite core bonded.
E	USB 2.0 Flash Memory Cable	Shielded, 1m
F	HDMI Cable	Shielded, 1.8m
G	HDMI Cable	Shielded, 1.8m
H	Power Cable	Non-Shielded, 3.8m

EMI	
Test Mode	Mode 2: HDMI (DF-55)
Connection Diagram	



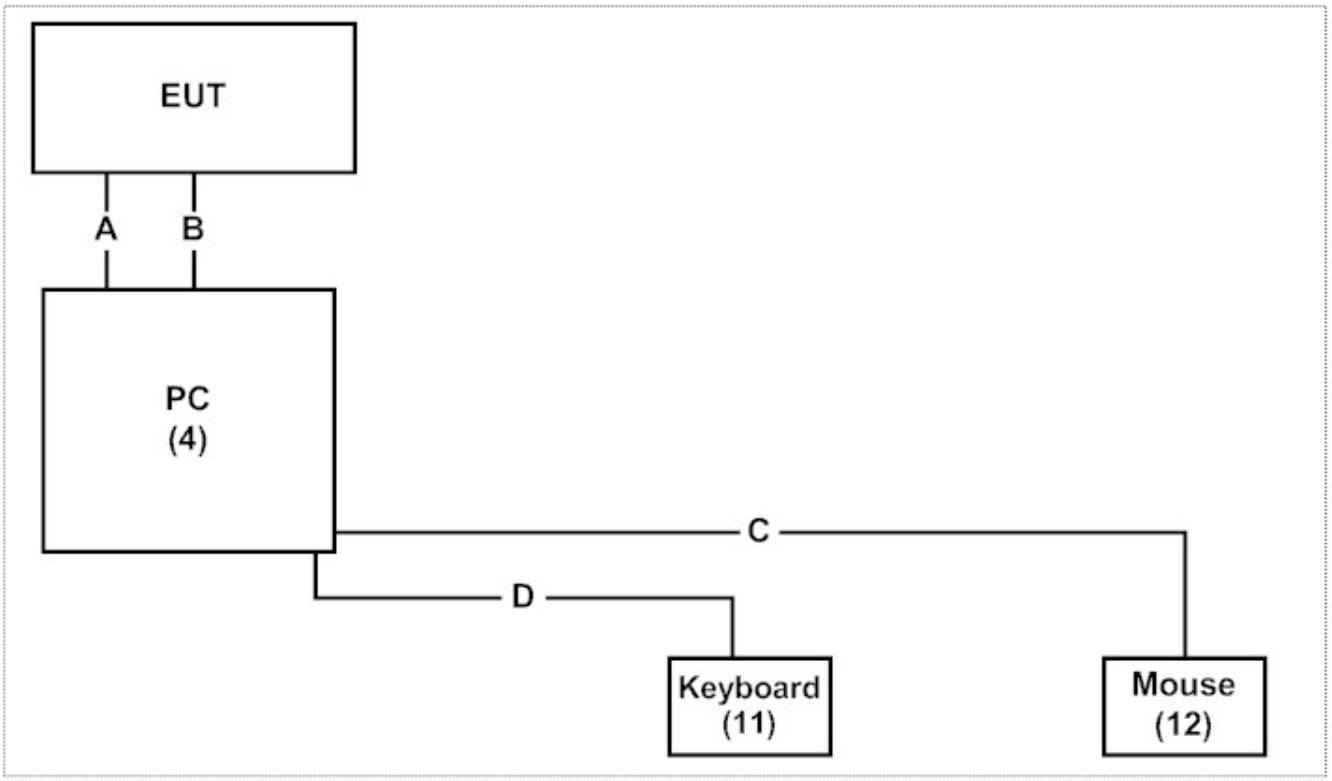
Signal Cable Type		Signal cable Description
A	USB Cable	Shielded, 1.8m
B	LAN Cable	Non-Shielded, 10m
C	USB Keyboard Cable	Shielded, 2m, one ferrite core bonded.
D	USB Mouse Cable	Shielded, 1.8m, one ferrite core bonded.
E	USB 2.0 Flash Memory Cable	Shielded, 1m
F	HDMI Cable	Shielded, 1.8m
G	HDMI Cable	Shielded, 1.8m

EMS	
Test Mode	Mode 1: HDMI (DS-55)
Connection Diagram	



Signal Cable Type		Signal cable Description
A	HDMI Cable	Shielded, 1.9m
B	HDMI to DVI Cable	Shielded, 1.9m
C	Mouse Cable	Shielded, 1.8m
D	Keyboard Cable	Shielded, 1.4m
E	Power Cable	Shielded, 3.8m

EMS	
Test Mode	Mode 2: HDMI (DF-55)
Connection Diagram	



Signal Cable Type		Signal cable Description
A	HDMI Cable	Shielded, 1.9m
B	HDMI to DVI Cable	Shielded, 1.9m
C	Mouse Cable	Shielded, 1.8m
D	Keyboard Cable	Shielded, 1.4m

1.5. EUT Exercise Software

1	Test system is in accord with EUT user manual (refer to 1.4 configuration of tested system)
2	Turn on the power of all equipment.
3	Notebook reads data from disk.
4	Notebook sends “H” pattern to monitor.

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

Emission			
Performed Item	Normative References	Test Performed	Deviation
Conducted Emissions	EN 55032: 2015	Yes	No
Asymmetric mode Conducted Emissions	EN 55032: 2015	Yes	No
Radiated Emissions	EN 55032: 2015	Yes	No
Power Harmonics	EN 61000-3-2: 2014	Yes	No
Voltage Fluctuation and Flicker	EN 61000-3-3: 2013	Yes	No

Immunity			
Performed Item	Normative References	Test Performed	Deviation
Electrostatic Discharge	IEC 61000-4-2 Ed. 2.0: 2008	Yes	No
Radiated susceptibility	IEC 61000-4-3 Ed. 3.2: 2010	Yes	No
Electrical fast transient/burst	IEC 61000-4-4 Ed. 3.0: 2012	Yes	No
Surge	IEC 61000-4-5 Ed. 2.0: 2005	Yes	No
Conducted susceptibility	IEC 61000-4-6 Ed. 3.0: 2008	Yes	No
Power frequency magnetic field	IEC 61000-4-8 Ed. 2.0: 2009	Yes	No
Voltage dips and interruption	IEC 61000-4-11 Ed. 2.0: 2004	Yes	No

2.2. List of Test Equipment

Conducted Emissions / SR2-H

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	2018/01/20
Coaxial Cable	Harbour	RG-400	SR2	2017/08/14
LISN	R&S	ENV216	100092	2017/08/16
Test Receiver	R&S	ESCS 30	836858/022	2018/01/14
Quietek EMI system	Quietek	Version 2.2	SR2	N/A

Radiated Emissions / Site1 (Under 1GHz)

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Bilog Antenna	Schaffner	CBL6112B	2915	2017/08/14
Spectrum Analyzer	Advantest	R3162C	91700283	2017/09/18
Test Receiver	R&S	ESCS 30	825442/017	2018/01/04
Coaxial Switch	Anritsu	MP59B	6200410245	2017/08/14
Coaxial Cable	Suhner	RG-214U	Site1	2017/08/14
Quietek EMI system	Quietek	Version 2.2	Site1	N/A

Radiated Emissions / CB4-H (Above 1GHz)

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Coaxial Cable	Huber+Suhner	SF104	MY22789/4	2017/08/14
Horn Antenna	Schwarzbeck	BBHA 9120	D312	2017/10/25
Horn Antenna	Schwarzbeck	BBHA 9170	203	2017/08/28
Pre-Amplifier	QuieTek	AMF-4D-00501800-24-10P	1203577	2017/05/08
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/22
Quietek EMI system	Quietek	Version 2.2	CB4-H	N/A

Power Harmonics / SR1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
EMC Emission Tester	EMC PARTNER	Harmonics-1000-1P	109	2015/03/17

Voltage Fluctuation and Flicker / SR1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
EMC Emission Tester	EMC PARTNER	Harmonics-1000-1P	109	2015/03/17

Electrostatic Discharge / SR1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Electrostatic Simulator Discharge	NoiseKen	ESS-2002	ESS04Z3759	2014/06/25
Horizontal Coupling Plane (HCP)	QuieTek	HCP AL50	N/A	N/A
Vertical Coupling Plane (VCP)	QuieTek	VCP AL50	N/A	N/A

Radiated susceptibility / CB1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Field strength Meter	WG	EMR-20C	080938-05	2014/08/19
Power Sensor	Boonton	51011-EMC	31507	2014/07/28
Power Sensor	Boonton	51011-EMC	34359	2014/07/28
RF Power Meter	Boonton	4232A	42201	2014/07/28
Signal Generator	R&S	SML03	103300	2014/04/24
Bilog Antenna	FRANKONIA	BTA-M	06001M	N/A
Horn Antenna	Schwarzbeck	BBHA 9120E	286	N/A
Directional Coupler	WERLATONE	C6021	28565	N/A
Directional Coupler	WERLATONE	C6187	28590	N/A
Power Amplifier	FRANKONIA	FLH200B	1022	N/A
Power Amplifier	FRANKONIA	FLG-50C	1009	N/A

Electrical fast transient / Burst / SR1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Clamper	HAEFELY	093 506.1	083 593-23	2014/07/25
EMC Immunity Tester	EMC-PARTNER	Transient-2000	984	2015/01/23

Surge / SR1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Coupling Network	EM TEST	CNV 504	0503-05	2014/12/12
Ultra Compact Generator	EM TEST	UCS 500-M4	1198-34	2014/07/25

Conducted susceptibility / SR4 (Mode 1)

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Attenuator	Schaffner	INA2070-1	2112	N/A
CDN	Schaffner	CDN M016	16337	2015/02/21
CDN	Schaffner	CDN T400	16905	2015/02/23
CDN	COM-POWER	CDN T8	711899	2015/02/20
Immunity Injection Clamp	Schaffner	KEMZ801	15928	2015/02/24
RF-Synthesizer/Amplifier	Schaffner	NSG 2070-1	1112	2015/02/20

Conducted susceptibility / SR1 (Mode 2)

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Attenuator	Schaffner	INA2070-1	2112	N/A
CDN	Schaffner	CDN M016	16337	2015/02/21
CDN	Schaffner	CDN T400	16905	2015/02/23
CDN	COM-POWER	CDN T8	711899	2015/02/20
Immunity Injection Clamp	Schaffner	KEMZ801	15928	2015/02/24
RF-Synthesizer/Amplifier	Schaffner	NSG 2070-1	1112	2015/02/20

Power frequency magnetic field / SR1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Magnetic Field Testing	Haefely	MAG100	080 938-05	2014/10/23
Triaxial ELF Magnetic Field Meter	F.B.BELL	4090	9852	2014/09/11

Voltage dips and interruption / SR1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Ultra Compact Generator	EM TEST	UCS 500-M4	1198-34	2014/07/25
EMC Immunity Tester	EMC-PARTNER	Transient-2000	984	2015/01/23

2.3. Measurement Uncertainty

Conducted Emissions

The measurement uncertainty is evaluated as ± 2.26 dB.

Radiated Emissions (Under 1GHz)

The measurement uncertainty is evaluated as ± 3.43 dB.

Radiated Emissions (Above 1GHz)

The measurement uncertainty is evaluated as ± 3.65 dB.

Harmonic Current Emission

The measurement uncertainty is evaluated as 0.1%.

Voltage Fluctuation and Flicker

The measurement uncertainty is evaluated as ±4%.

Electrostatic Discharge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in ESD testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant ESD standards. The immunity test signal from the ESD system meet the required specifications in IEC 61000-4-2 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63 %*10^{-10} and 2.76%.

Radiated susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in RS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant RS standards. The immunity test signal from the RS system meet the required specifications in IEC 61000-4-3 through the calibration for the uniform field strength and monitoring for the test level with the uncertainty evaluation report for the electrical filed strength as being 2.72 dB.

Electrical fast transient/burst

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in EFT/Burst testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant EFT/Burst standards. The immunity test signal from the EFT/Burst system meet the required specifications in IEC 61000-4-4 through the calibration report with the calibrated uncertainty for the waveform of voltage, frequency and timing as being 1.63 %, 2.8 x 10^{-10} and 2.76%.

Surge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in Surge testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant Surge standards. The immunity test signal from the Surge system meet the required specifications in IEC 61000-4-5 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63 % and 2.76%.

Conducted susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in CS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant CS standards. The immunity test signal from the CS system meet the required specifications in IEC 61000-4-6 through the calibration for unmodulated signal and monitoring for the test level with the uncertainty evaluation report for the injected modulated signal level through CDN and EM Clamp/Direct Injection as being 3.72 dB and 2.78 dB.

Power frequency magnetic field

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in PFM testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant PFM standards. The immunity test signal from the PFM system meet the required specifications in IEC 61000-4-8 through the calibration report with the calibrated uncertainty for the Gauss Meter to verify the output level of magnetic field strength as being 2 %.

Voltage dips and interruption

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in DIP testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant DIP standards. The immunity test signal from the DIP system meet the required specifications in IEC 61000-4-11 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63 % and 2.76%.

2.4. Test Environment

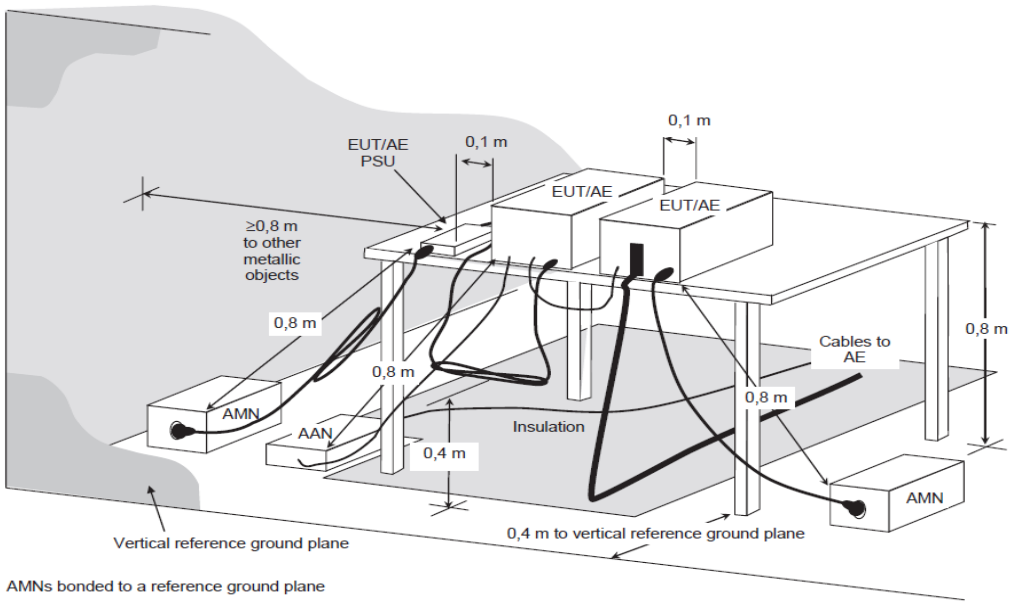
Performed Item	Items	Required	Actual
Conducted Emissions	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emissions	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	65
	Barometric pressure (mbar)	860-1060	950-1000
Power Harmonics	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	65
	Barometric pressure (mbar)	860-1060	950-1000
Voltage Fluctuation and Flicker	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	65
	Barometric pressure (mbar)	860-1060	950-1000
Electrostatic Discharge	Temperature (°C)	15-35	23
	Humidity (%RH)	30-60	45
	Barometric pressure (mbar)	860-1060	950-1000
Radiated susceptibility	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Electrical fast transient/burst	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Surge	Temperature (°C)	15-35	23
	Humidity (%RH)	10-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Conducted susceptibility	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Power frequency magnetic field	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Voltage dips and interruption	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emissions (Main Terminals)

3.1. Test Specification

According to EMC Standard : EN 55032

3.2. Test Setup



3.3. Limit

AC mains power ports			
Frequency range MHz	Coupling device	Detector type/ Bandwidth	Class A limits dB(μV)
0.15 - 0.5	AMN	Quasi Peak / 9 KHz	79
0.5 - 30			73
0.15 - 0.5	AMN	Average / 9 KHz	66
0.5 - 30			60
Both apply across the entire frequency range.			

3.4. Test Procedure

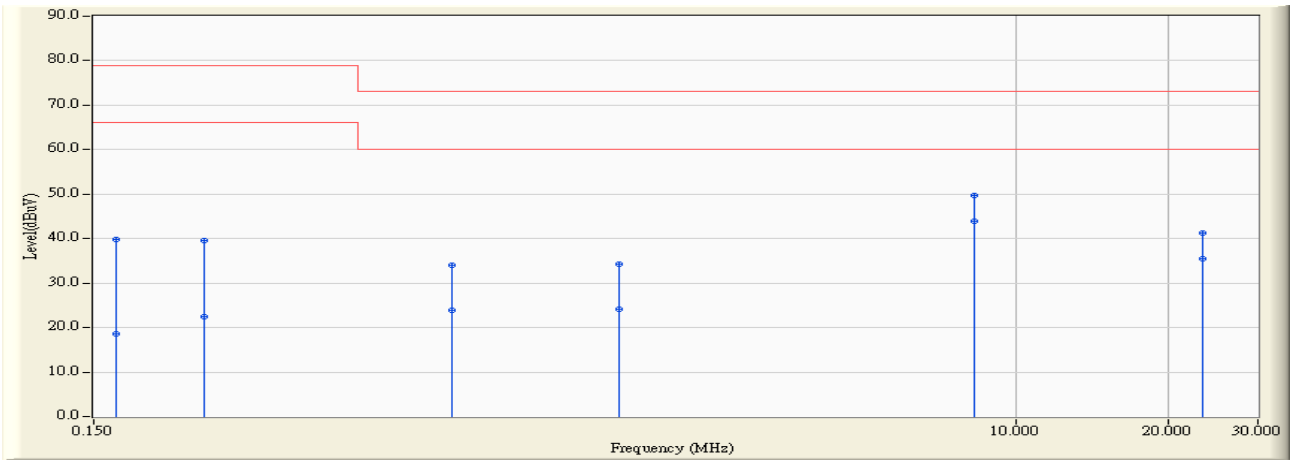
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination.
(Please refers to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

3.5. Deviation from Test Standard

No deviation.

3.6. Test Result

Site : SR2-H	**Time : 2017/01/03**
Limit : CISPR_A_00M_QP	**Margin : 13**
Probe : SR2-H_LISN(16A)-6_0712 - Line1	**Power : AC 230V/50Hz**
EUT : 55” Dual-Sided LCD Signage Display	**Note :Mode 1: HDMI (DS-55)**

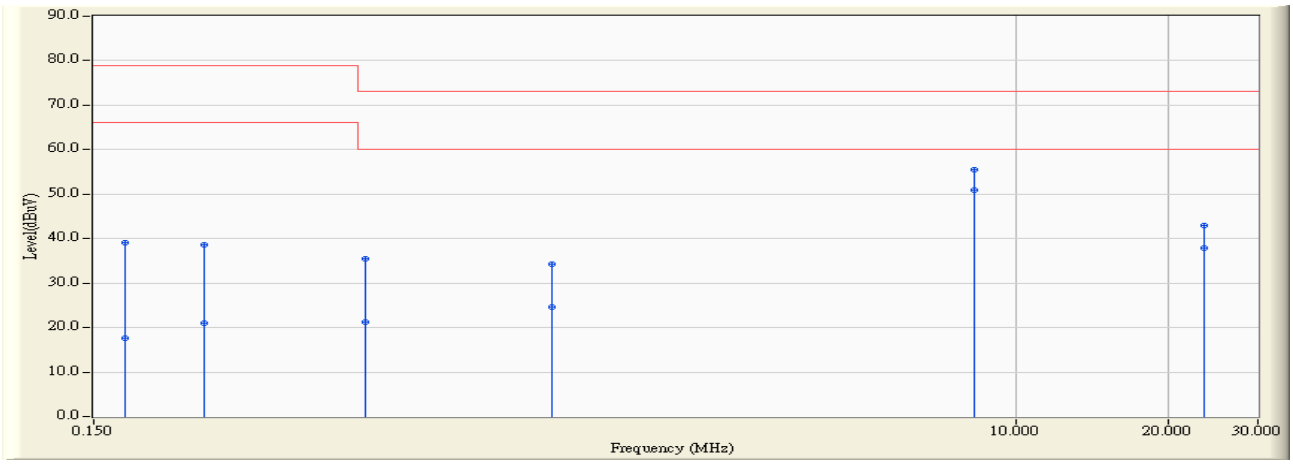


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.166	9.753	30.000	39.753	-39.247	79.000	QUASIPEAK
2		0.166	9.753	8.760	18.513	-47.487	66.000	AVERAGE
3		0.248	9.745	29.900	39.645	-39.355	79.000	QUASIPEAK
4		0.248	9.745	12.660	22.405	-43.595	66.000	AVERAGE
5		0.763	9.777	24.220	33.996	-39.004	73.000	QUASIPEAK
6		0.763	9.777	14.110	23.886	-36.114	60.000	AVERAGE
7		1.642	9.846	24.300	34.146	-38.854	73.000	QUASIPEAK
8		1.642	9.846	14.250	24.096	-35.904	60.000	AVERAGE
9		8.259	10.057	39.540	49.597	-23.403	73.000	QUASIPEAK
10	*	8.259	10.057	33.880	43.937	-16.063	60.000	AVERAGE
11		23.318	10.327	30.880	41.207	-31.793	73.000	QUASIPEAK
12		23.318	10.327	25.260	35.587	-24.413	60.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2-H	**Time : 2017/01/03**
Limit : CISPR_A_00M_QP	**Margin : 13**
Probe : SR2-H_LISN(16A)-6_0712 - Line2	**Power : AC 230V/50Hz**
EUT : 55” Dual-Sided LCD Signage Display	**Note : Mode 1: HDMI (DS-55)**

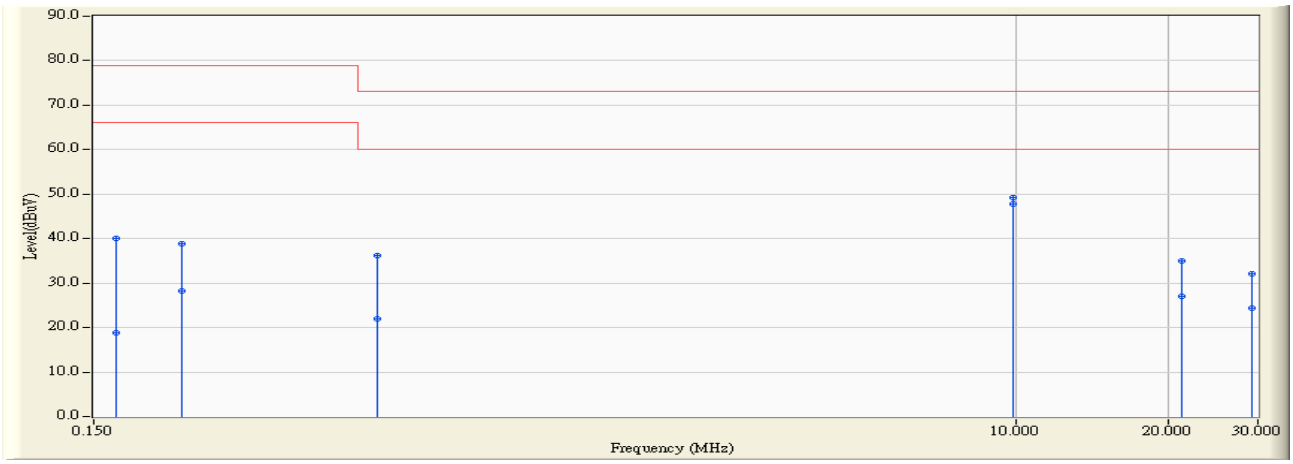


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.173	9.753	29.400	39.153	-39.847	79.000	QUASIPEAK
2		0.173	9.753	7.880	17.633	-48.367	66.000	AVERAGE
3		0.248	9.750	28.860	38.610	-40.390	79.000	QUASIPEAK
4		0.248	9.750	11.330	21.080	-44.920	66.000	AVERAGE
5		0.517	9.747	25.760	35.508	-37.492	73.000	QUASIPEAK
6		0.517	9.747	11.470	21.218	-38.782	60.000	AVERAGE
7		1.209	9.826	24.540	34.366	-38.634	73.000	QUASIPEAK
8		1.209	9.826	14.720	24.546	-35.454	60.000	AVERAGE
9		8.248	10.048	45.440	55.488	-17.512	73.000	QUASIPEAK
10	*	8.248	10.048	40.980	51.028	-8.972	60.000	AVERAGE
11		23.431	10.521	32.500	43.021	-29.979	73.000	QUASIPEAK
12		23.431	10.521	27.450	37.971	-22.029	60.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2-H	**Time : 2017/01/19**
Limit : CISPR_A_00M_QP	**Margin : 13**
Probe : SR2-H_LISN(16A)-6_0712 - Line1	**Power : AC 230V/50Hz**
EUT : 55” Dual-Sided LCD Signage Display	**Note : Mode 2: HDMI (DF-55)**

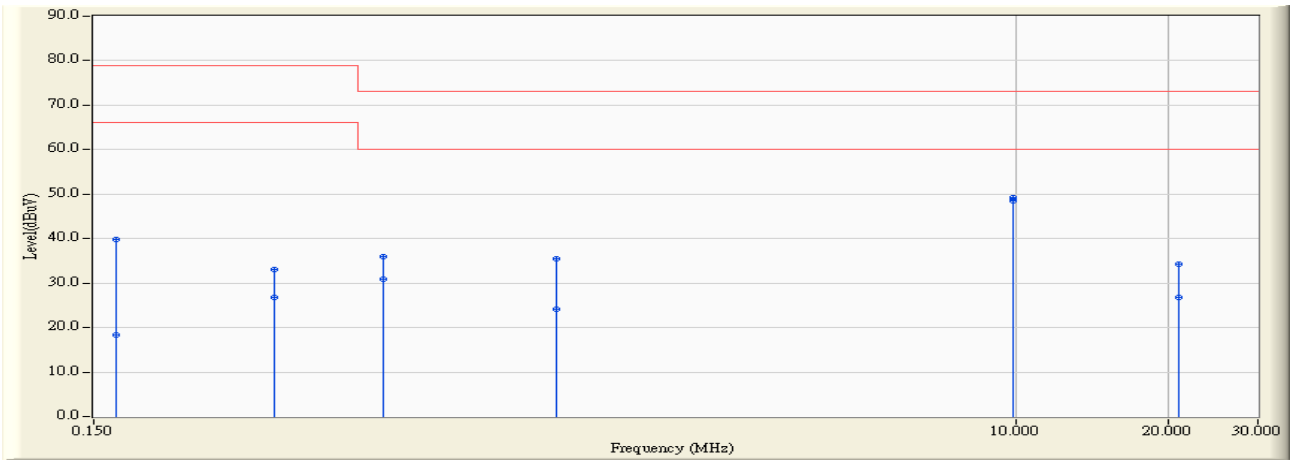


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.166	9.753	30.320	40.073	-38.927	79.000	QUASIPEAK
2		0.166	9.753	9.140	18.893	-47.107	66.000	AVERAGE
3		0.224	9.748	29.020	38.768	-40.232	79.000	QUASIPEAK
4		0.224	9.748	18.520	28.268	-37.732	66.000	AVERAGE
5		0.545	9.737	26.560	36.296	-36.704	73.000	QUASIPEAK
6		0.545	9.737	12.150	21.886	-38.114	60.000	AVERAGE
7		9.865	10.125	38.980	49.104	-23.896	73.000	QUASIPEAK
8	*	9.865	10.125	37.610	47.734	-12.266	60.000	AVERAGE
9		21.216	10.335	24.660	34.995	-38.005	73.000	QUASIPEAK
10		21.216	10.335	16.750	27.085	-32.915	60.000	AVERAGE
11		29.181	10.362	21.680	32.042	-40.958	73.000	QUASIPEAK
12		29.181	10.362	13.970	24.332	-35.668	60.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2-H	**Time : 2017/01/19**
Limit : CISPR_A_00M_QP	**Margin : 13**
Probe : SR2-H_LISN(16A)-6_0712 - Line2	**Power : AC 230V/50Hz**
EUT : 55” Dual-Sided LCD Signage Display	**Note : Mode 2: HDMI (DF-55)**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.166	9.753	30.120	39.873	-39.127	79.000	QUASIPEAK
2		0.166	9.753	8.700	18.453	-47.547	66.000	AVERAGE
3		0.341	9.750	23.240	32.990	-46.010	79.000	QUASIPEAK
4		0.341	9.750	17.050	26.800	-39.200	66.000	AVERAGE
5		0.560	9.754	26.300	36.054	-36.946	73.000	QUASIPEAK
6		0.560	9.754	21.060	30.814	-29.186	60.000	AVERAGE
7		1.228	9.827	25.700	35.527	-37.473	73.000	QUASIPEAK
8		1.228	9.827	14.320	24.147	-35.853	60.000	AVERAGE
9		9.865	10.143	39.180	49.322	-23.678	73.000	QUASIPEAK
10	*	9.865	10.143	38.400	48.542	-11.458	60.000	AVERAGE
11		20.923	10.506	23.680	34.186	-38.814	73.000	QUASIPEAK
12		20.923	10.506	16.210	26.716	-33.284	60.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

3.7. Test Photograph

Test Mode : Mode 1: HDMI (DS-55)

Description : Front View of Conducted Emissions Test Setup

Test Mode : Mode 1: HDMI (DS-55)

Description : Back View of Conducted Emissions Test Setup

Test Mode : Mode 2: HDMI (DF-55)

Description : Front View of Conducted Emissions Test Setup

Test Mode : Mode 2: HDMI (DF-55)

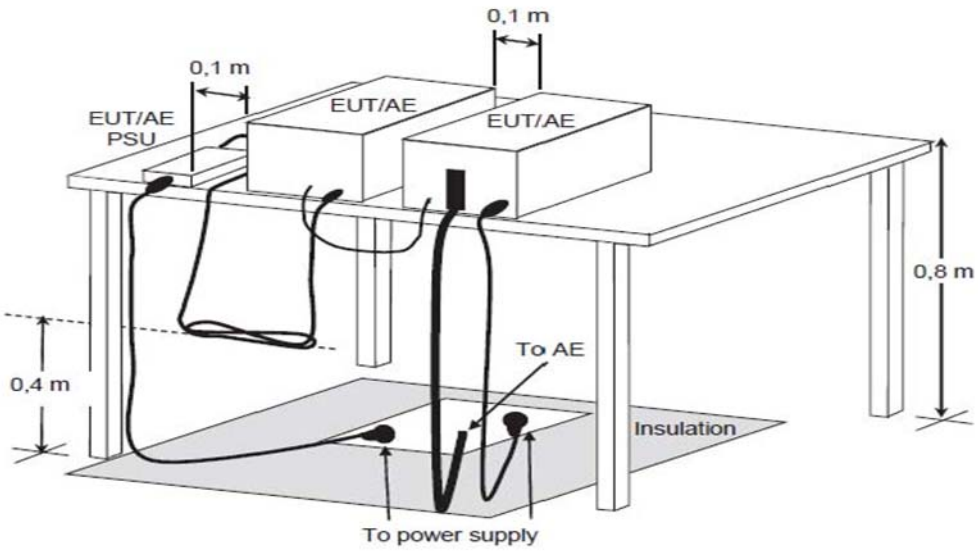
Description : Back View of Conducted Emissions Test Setup

4. Radiated Emissions

4.1. Test Specification

According to EMC Standard : EN 55032

4.2. Test Setup



4.3. Limit

Radiated emissions at frequencies up to 1 GHz

Frequency range (MHz)	Measurement		Class A Limits dB(μV/m)
	Distance (m)	Detector type/ Bandwidth	
30 - 230	10	Quasi Peak / 120 KHz	40
230 -1000			47
30 - 230	3		50
230 - 1000			57
Apply only 3m or 10m across the entire frequency range.			

Radiated emissions at frequencies above 1 GHz

Frequency range (MHz)	Measurement		Class A Limits dB(μV/m)
	Distance (m)	Detector type/ Bandwidth	
1000 - 3000	3	Average / 1 MHz	56
3000 - 6000			60
1000 - 3000		Peak / 1 MHz	76
3000 - 6000			80
Both apply across the frequency range from 1000 MHz to the highest required frequency of measurement derived from			

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
3. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

Required highest frequency for radiated measurement

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 6 GHz, whichever is lower

Radiated emissions from FM receivers

Frequency range (MHz)	Measurement		Limits dB(μV/m)	
	Distance (m)	Detector type/ Bandwidth	Fundamental	Harmonics
30 - 230	10	Quasi Peak / 120 KHz	50	42
230 - 300				42
300 - 1000				46
30 - 230	3		60	52
230 - 300				52
300 - 1000				56
Apply only 3m or 10m across the entire frequency range These relaxed limits apply only to emissions at the fundamental and harmonic frequencies of the local oscillator. Signals at all other frequencies shall be compliant with the limits given in Table “Reqirements for radiated emissions at frequencies up to 1GHz for Class B equipment.”				

Radiated emissions from outdoor units of home satellite receiving systems

Frequency range (MHz)	Measurement		Limits
	Distance (m)	Detector type/ Bandwidth	
30 - 230	10	Quasi Peak / 120 KHz	40 dB(μV/m)
230 -1 000			47 dB(μV/m)
1000 - 2500	3	Average / 1 MHz	50 dB(μV/m)
2500 - 18000			64 dB(μV/m)
1000 - 18000	3	Average / 1 MHz	37 dB(μV/m)
1000 - 18000	N/A	Average / 1 MHz	30 dBpW

4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 10 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
All cable leaving the table-top EUT for a connection outsidethe test site (for example, mains cable, telephone lines, connections to auxiliary equipment located outside the test area) shall be fitted with ferrite clamps placed on the floor at the point where the cable reached the floor.

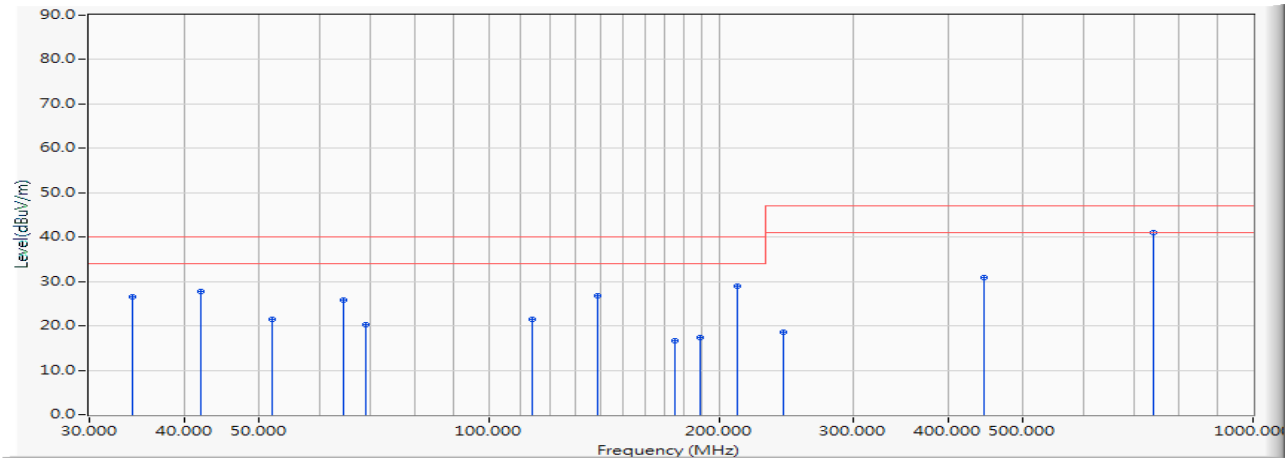
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.
Radiated emissions were invested over the frequency range from 30MHz to1GHz using a receiver bandwidth of 120kHz. Radiated was performed at an antenna to EUT distance of 10 meters.
Radiated emissions were invested over the frequency range from 1GHz to 6GHz using a receiver bandwidth of 1MHz. Radiated was performed at an antenna to EUT distance of 3 meters.

4.5. Deviation from Test Standard

No deviation.

4.6. Test Result

Site : EMC Site1	**Time : 2016/12/14**
Limit : EN55032_A_10M_QP	**Margin : 6**
EUT : 55” Dual-Sided LCD Signage Display	**Probe : SITE1_10M-3_0815 - HORIZONTAL**
Power : AC 230V/50Hz	**Note : Mode 1: HDMI (DS-55)**

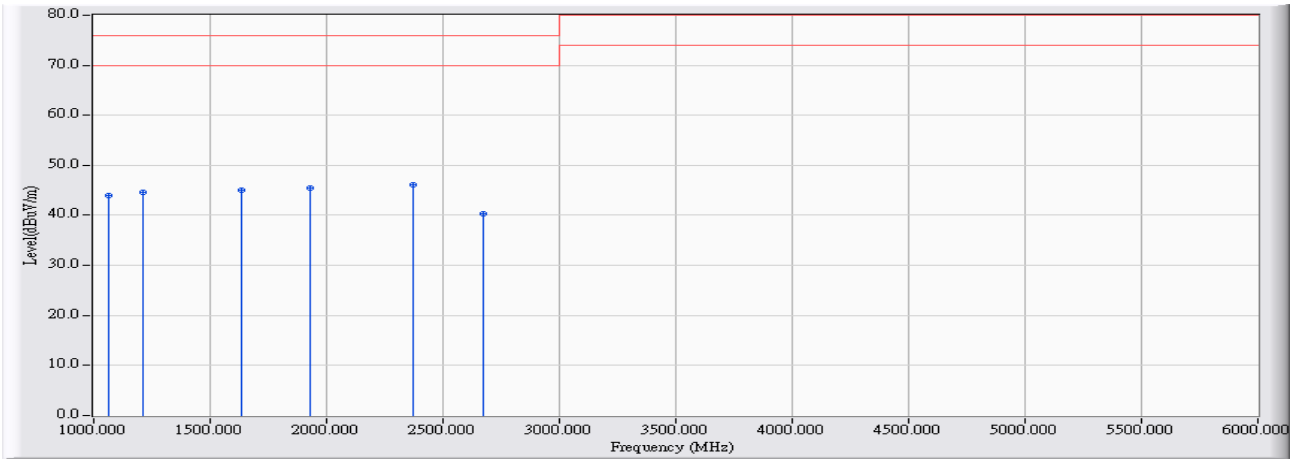


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		34.175	14.535	11.920	26.455	-13.545	40.000	QUASIPEAK
2		42.000	12.028	15.740	27.768	-12.232	40.000	QUASIPEAK
3		52.000	8.728	12.660	21.388	-18.612	40.000	QUASIPEAK
4		64.440	8.542	17.360	25.902	-14.098	40.000	QUASIPEAK
5		69.000	9.139	11.220	20.359	-19.641	40.000	QUASIPEAK
6		114.000	14.349	7.240	21.589	-18.411	40.000	QUASIPEAK
7		139.000	14.261	12.420	26.681	-13.319	40.000	QUASIPEAK
8		175.000	12.692	4.070	16.762	-23.238	40.000	QUASIPEAK
9		189.000	12.603	4.840	17.443	-22.557	40.000	QUASIPEAK
10		211.000	13.467	15.390	28.857	-11.143	40.000	QUASIPEAK
11		243.000	15.931	2.540	18.471	-28.529	47.000	QUASIPEAK
12		444.975	22.180	8.740	30.919	-16.081	47.000	QUASIPEAK
13	*	741.625	26.981	14.140	41.120	-5.880	47.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : CB4-H	**Time : 2017/01/05**
Limit : CISPR_32_A_(Above_1G)_3M_PK	**Margin : 6**
Probe : CB4-H_CE_EFS_B432_1-18GHz_3M_1116 - HORIZONTAL	**Power : AC 230V/50Hz**
EUT : 55” Dual-Sided LCD Signage Display	**Note : Mode 1: HDMI (DS-55)**

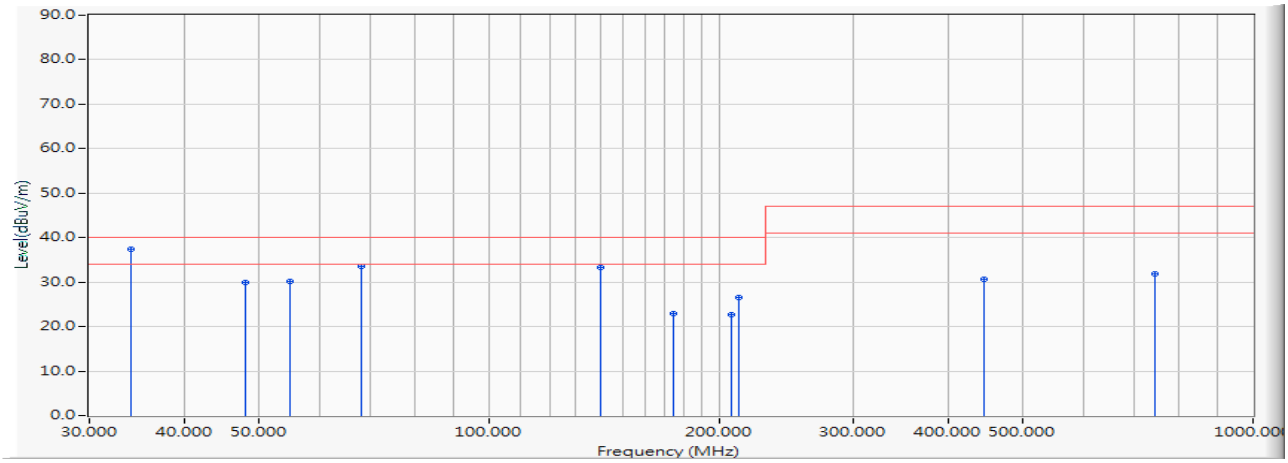


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1065.500	-13.220	57.098	43.878	-32.122	76.000	PEAK
2		1210.000	-12.621	57.298	44.677	-31.323	76.000	PEAK
3		1631.500	-10.837	55.922	45.085	-30.915	76.000	PEAK
4		1928.000	-9.814	55.248	45.435	-30.565	76.000	PEAK
5	*	2373.000	-8.038	54.205	46.167	-29.833	76.000	PEAK
6		2670.000	-6.908	47.321	40.413	-35.587	76.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : EMC Site1	**Time : 2016/12/14**
Limit : EN55032_A_10M_QP	**Margin : 6**
EUT : 55” Dual-Sided LCD Signage Display	**Probe : SITE1_10M-3_0815 - VERTICAL**
Power : AC 230V/50Hz	**Note : Mode 1: HDMI (DS-55)**

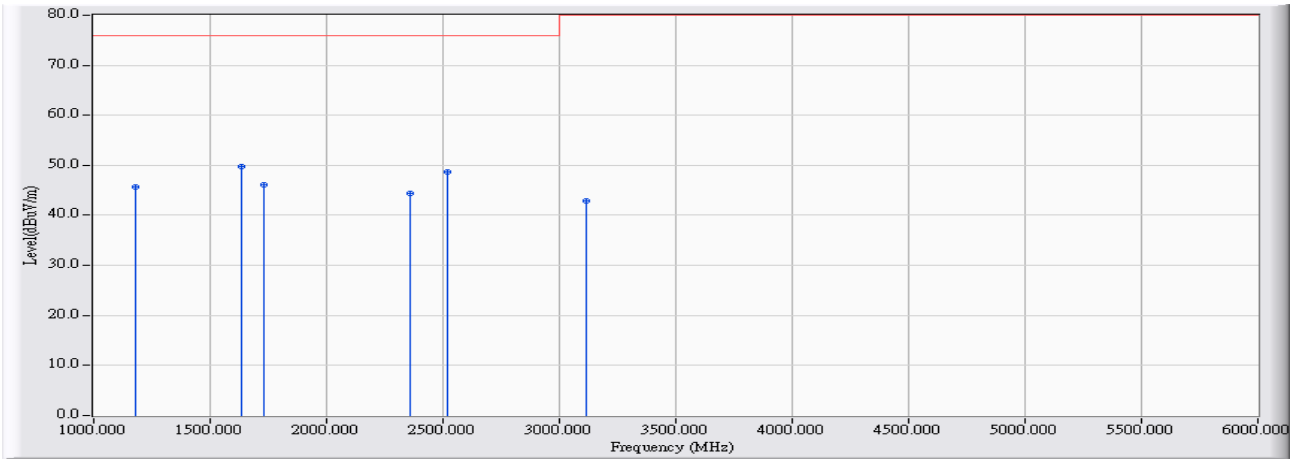


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	34.075	14.537	22.760	37.297	-2.703	40.000	QUASIPEAK
2		48.100	9.581	20.430	30.011	-9.989	40.000	QUASIPEAK
3		55.000	8.440	21.740	30.180	-9.820	40.000	QUASIPEAK
4		68.000	9.008	24.440	33.448	-6.552	40.000	QUASIPEAK
5		140.000	14.219	19.000	33.220	-6.780	40.000	QUASIPEAK
6		174.000	12.713	10.230	22.943	-17.057	40.000	QUASIPEAK
7		207.300	13.183	9.500	22.682	-17.318	40.000	QUASIPEAK
8		212.225	13.562	13.050	26.611	-13.389	40.000	QUASIPEAK
9		445.000	22.180	8.380	30.560	-16.440	47.000	QUASIPEAK
10		742.525	26.995	4.820	31.815	-15.185	47.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : CB4-H	**Time : 2017/01/05**
Limit : CISPR_32_A_(Above_1G)_3M_PK	**Margin : 0**
Probe : CB4-H_CE_EFS_B432_1-18GHz_3M_1116 - VERTICAL	**Power : AC 230V/50Hz**
EUT : 55” Dual-Sided LCD Signage Display	**Note : Mode 1: HDMI (DS-55)**

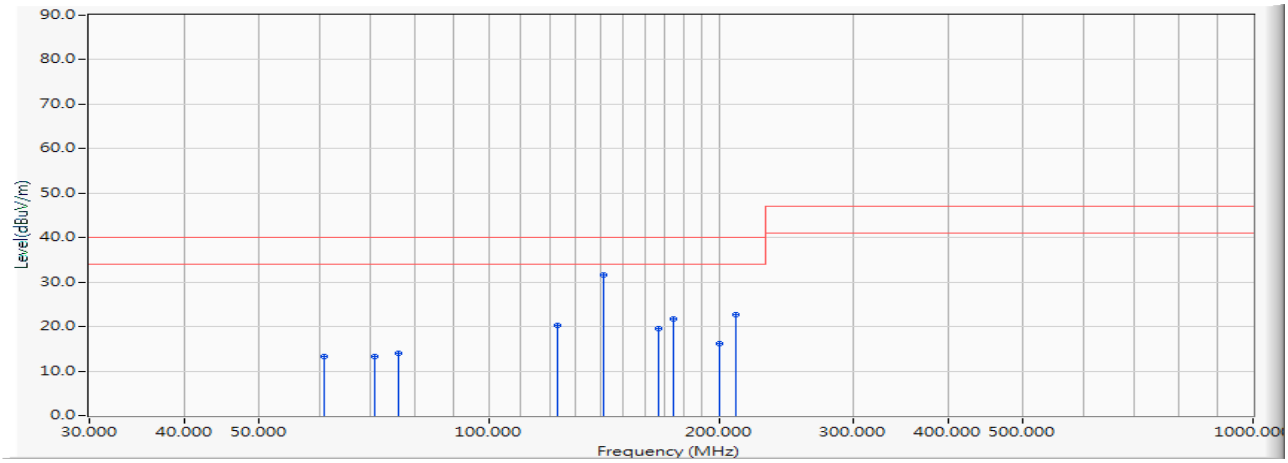


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1178.000	-12.759	58.400	45.641	-30.359	76.000	PEAK
2	*	1631.500	-10.837	60.502	49.665	-26.335	76.000	PEAK
3		1730.000	-10.490	56.549	46.059	-29.941	76.000	PEAK
4		2361.500	-8.085	52.490	44.405	-31.595	76.000	PEAK
5		2521.500	-7.451	56.169	48.719	-27.281	76.000	PEAK
6		3115.000	-5.548	48.450	42.902	-37.098	80.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : EMC Site1	**Time : 2017/02/06**
Limit : EN55032_A_10M_QP	**Margin : 6**
EUT : 55” Dual-Sided LCD Signage Display	**Probe : SITE1_10M-3_0815 - HORIZONTAL**
Power : AC 230V/50Hz	**Note : Mode 2: HDMI (DF-55)**

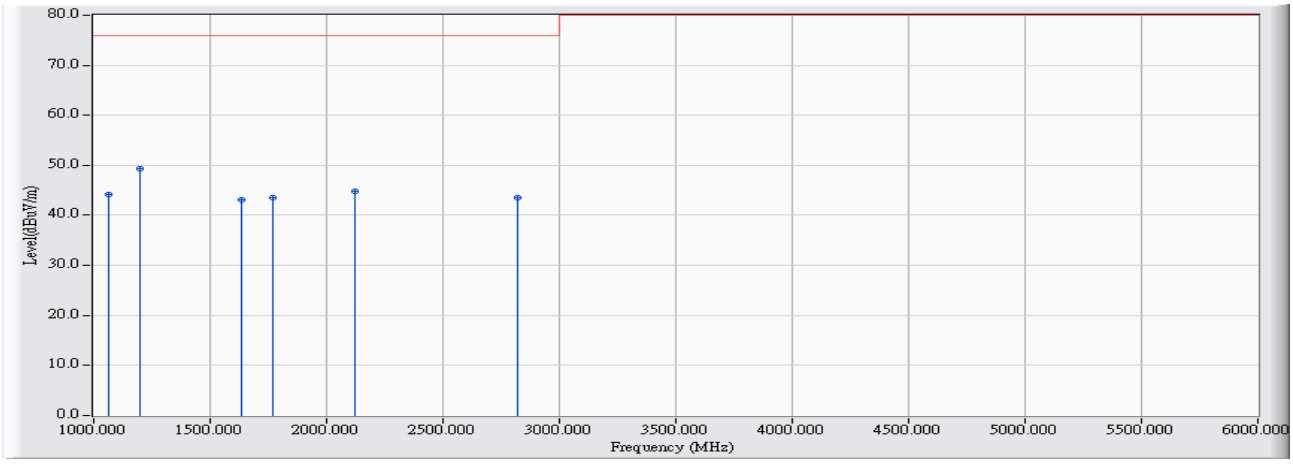


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		61.000	8.206	4.980	13.186	-26.814	40.000	QUASIPEAK
2		71.000	9.250	4.070	13.320	-26.680	40.000	QUASIPEAK
3		76.000	9.320	4.700	14.020	-25.980	40.000	QUASIPEAK
4		123.000	14.622	5.680	20.302	-19.698	40.000	QUASIPEAK
5	*	141.000	14.083	17.460	31.543	-8.457	40.000	QUASIPEAK
6		167.000	12.916	6.690	19.606	-20.394	40.000	QUASIPEAK
7		174.000	12.633	9.040	21.673	-18.327	40.000	QUASIPEAK
8		200.000	12.632	3.540	16.172	-23.828	40.000	QUASIPEAK
9		210.000	13.447	9.280	22.727	-17.273	40.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : CB4-H	**Time : 2017/01/05**
Limit : CISPR_32_A_(Above_1G)_3M_PK	**Margin : 0**
Probe : CB4-H_CE_EFS_B432_1-18GHz_3M_1116 - HORIZONTAL	**Power : AC 230V/50Hz**
EUT : 55” Dual-Sided LCD Signage Display	**Note : Mode 2: HDMI (DF-55)**

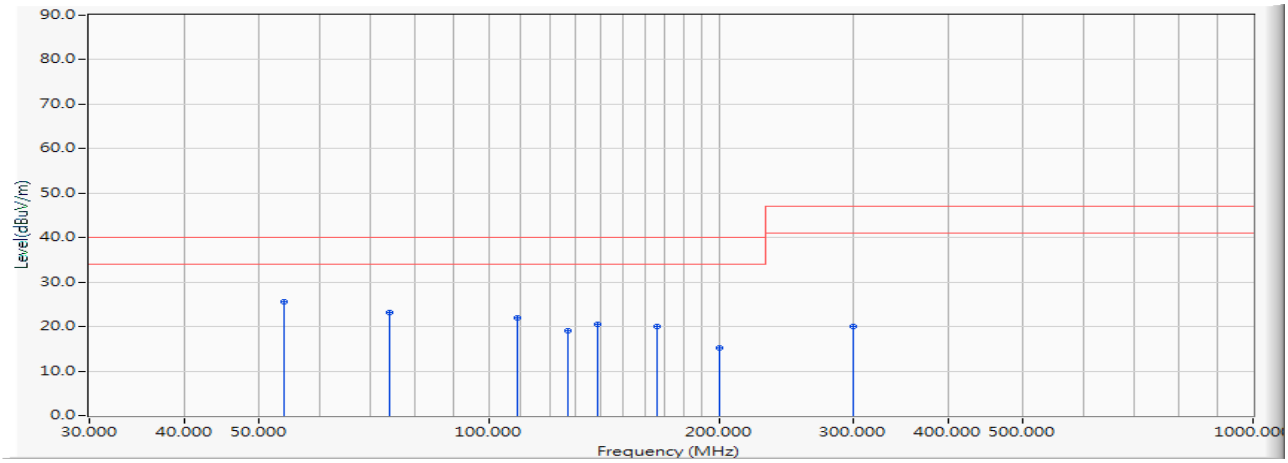


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1064.500	-13.224	57.428	44.204	-31.796	76.000	PEAK
2	*	1198.000	-12.674	62.070	49.396	-26.604	76.000	PEAK
3		1631.500	-10.837	53.870	43.033	-32.967	76.000	PEAK
4		1770.000	-10.350	53.786	43.436	-32.564	76.000	PEAK
5		2122.500	-9.056	53.933	44.877	-31.123	76.000	PEAK
6		2820.000	-6.366	49.869	43.503	-32.497	76.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : EMC Site1	**Time : 2017/02/06**
Limit : EN55032_A_10M_QP	**Margin : 6**
EUT : 55” Dual-Sided LCD Signage Display	**Probe : SITE1_10M-3_0815 - VERTICAL**
Power : AC 230V/50Hz	**Note : Mode 2: HDMI (DF-55)**

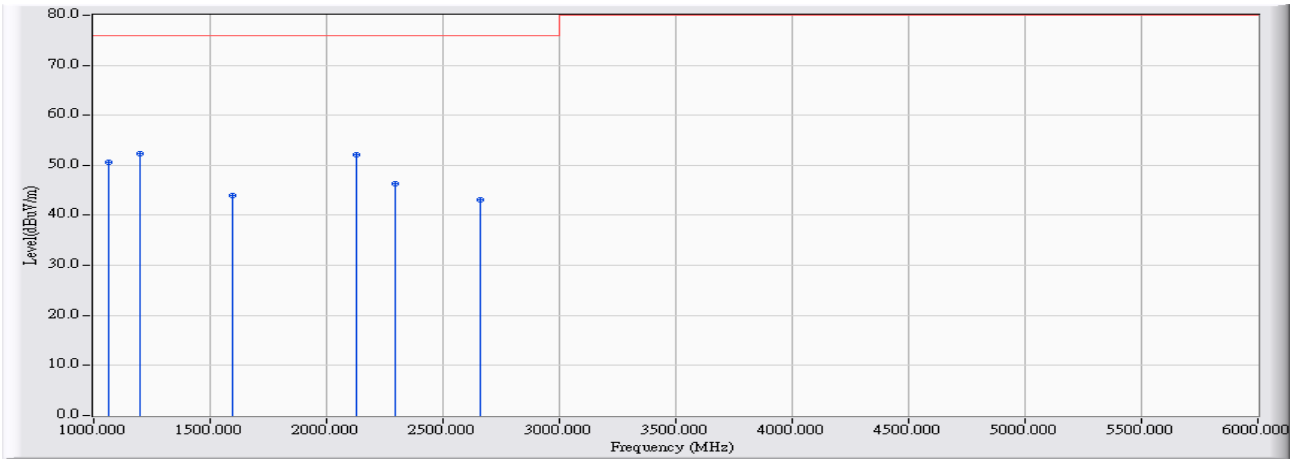


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	54.000	8.508	17.000	25.508	-14.492	40.000	QUASIPEAK
2		74.000	9.370	13.900	23.270	-16.730	40.000	QUASIPEAK
3		109.000	13.743	8.260	22.003	-17.997	40.000	QUASIPEAK
4		127.000	14.463	4.560	19.023	-20.977	40.000	QUASIPEAK
5		139.000	14.189	6.430	20.619	-19.381	40.000	QUASIPEAK
6		166.000	12.957	6.950	19.907	-20.093	40.000	QUASIPEAK
7		200.000	12.632	2.600	15.232	-24.768	40.000	QUASIPEAK
8		300.000	17.634	2.300	19.934	-27.066	47.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : CB4-H	**Time : 2017/01/05**
Limit : CISPR_32_A_(Above_1G)_3M_PK	**Margin : 0**
Probe : CB4-H_CE_EFS_B432_1-18GHz_3M_1116 - VERTICAL	**Power : AC 230V/50Hz**
EUT : 55” Dual-Sided LCD Signage Display	**Note : Mode 2: HDMI (DF-55)**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1063.000	-13.230	63.836	50.607	-25.393	76.000	PEAK
2	*	1197.500	-12.676	65.022	52.346	-23.654	76.000	PEAK
3		1593.000	-10.973	55.024	44.051	-31.949	76.000	PEAK
4		2125.000	-9.045	61.247	52.202	-23.798	76.000	PEAK
5		2293.000	-8.363	54.782	46.419	-29.581	76.000	PEAK
6		2659.500	-6.946	50.117	43.171	-32.829	76.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

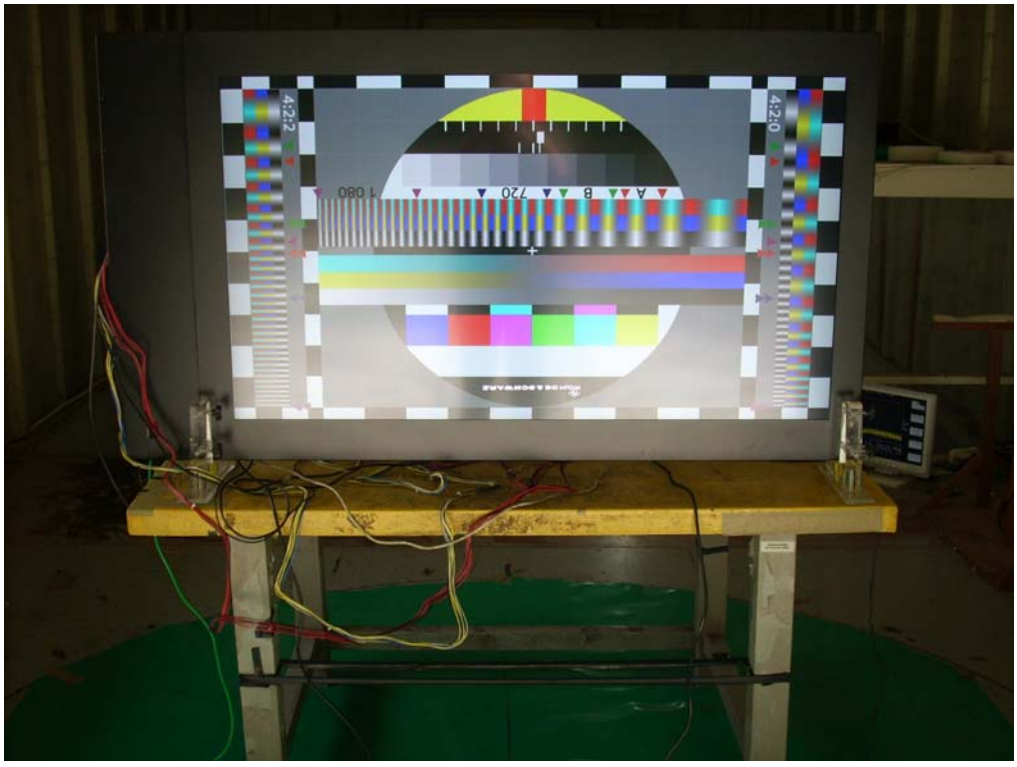
4.7. Test Photograph

Test Mode : Mode 1: HDMI (DS-55)

Description : Front View of Radiated Emissions Test Setup

Test Mode : Mode 1: HDMI (DS-55)

Description : Back View of Radiated Emissions Test Setup

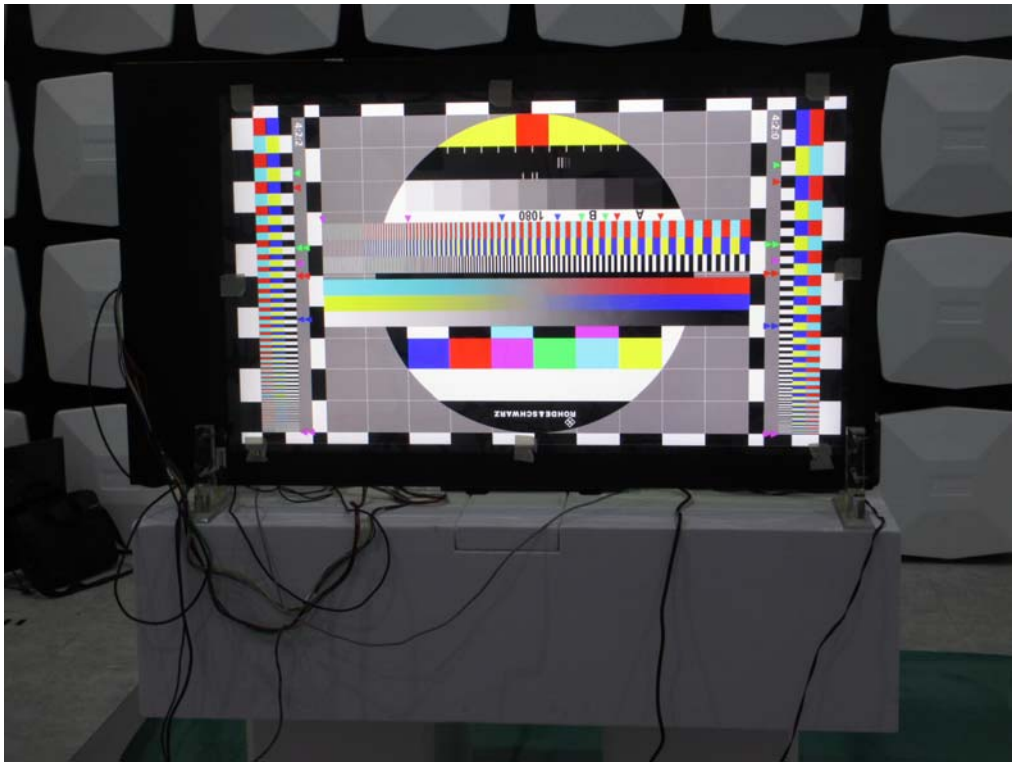


Test Mode　: Mode 1: HDMI (DS-55)

Description　: Front View of Radiated Emissions Test Setup (Horn)

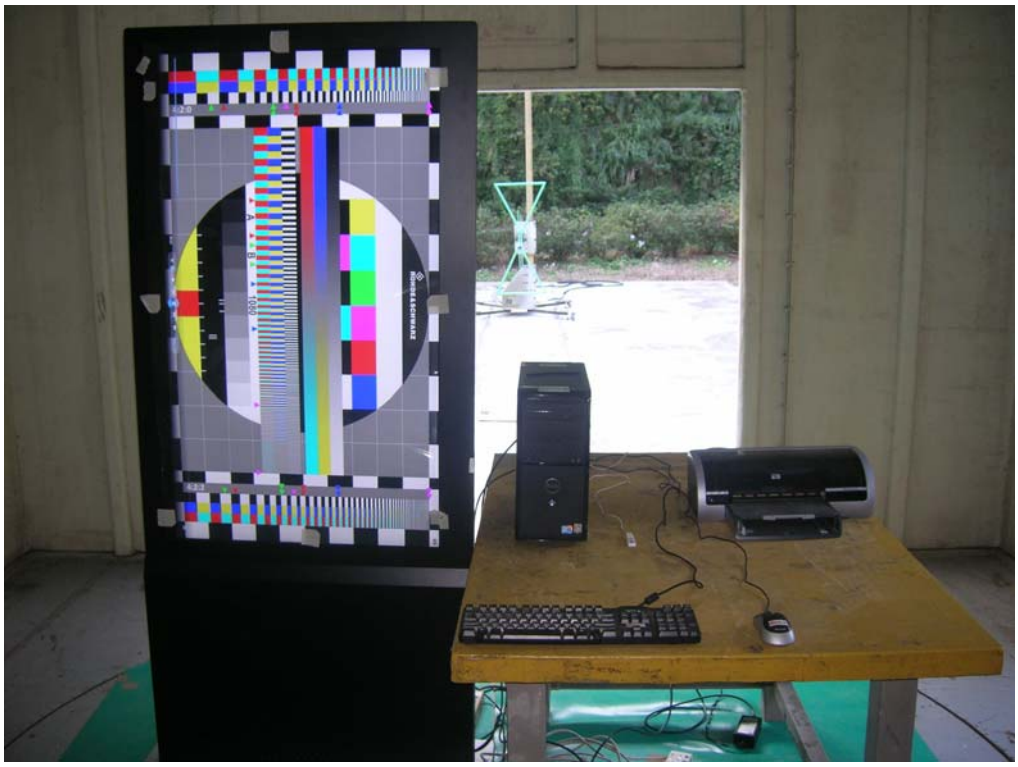
Test Mode　: Mode 1: HDMI (DS-55)

Description　: Back View of Radiated Emissions Test Setup (Horn)



Test Mode　: Mode 2: HDMI (DF-55)

Description　: Front View of Radiated Emissions Test Setup

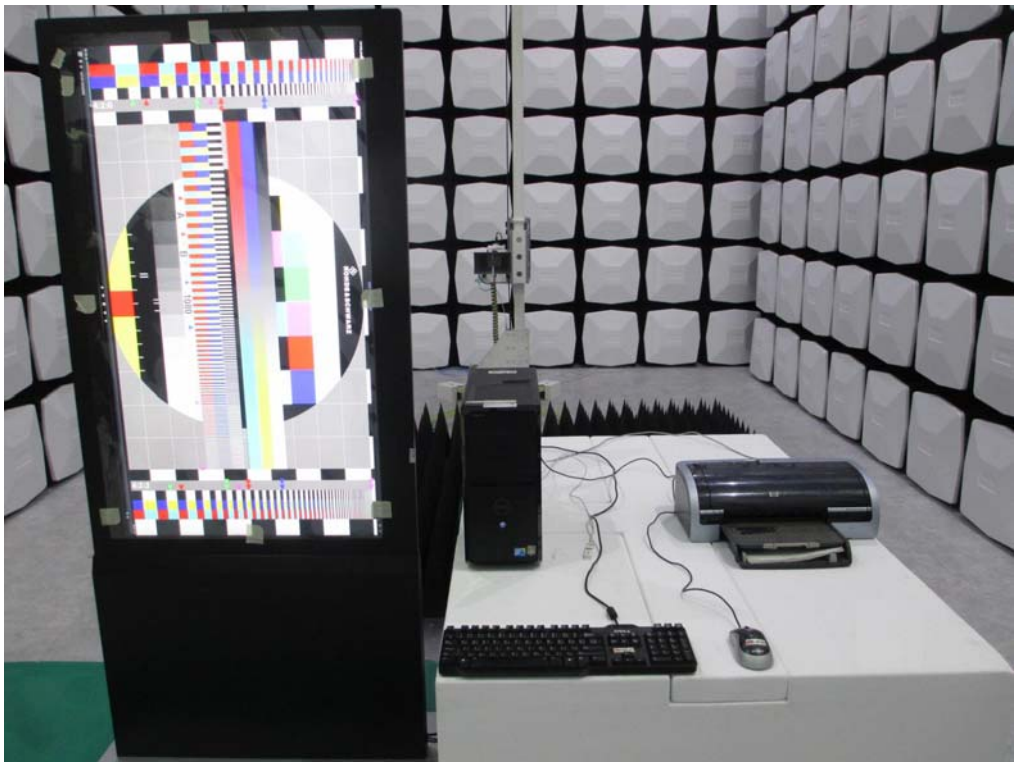


Test Mode　: Mode 2: HDMI (DF-55)

Description　: Back View of Radiated Emissions Test Setup

Test Mode　: Mode 2: HDMI (DF-55)

Description　: Front View of Radiated Emissions Test Setup (Horn)



Test Mode　: Mode 2: HDMI (DF-55)

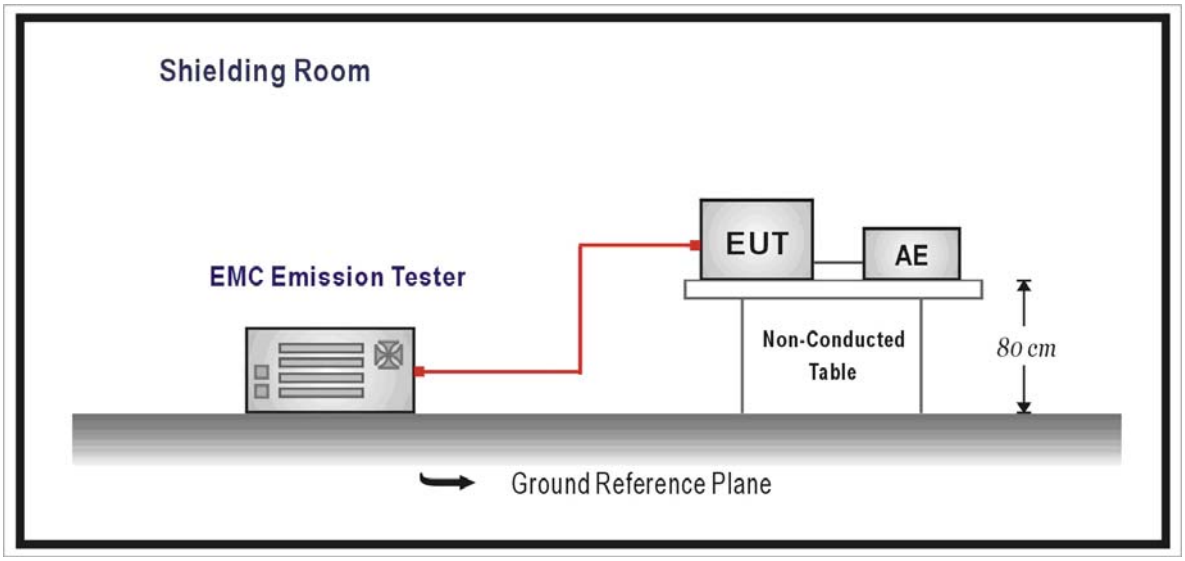
Description　: Back View of Radiated Emissions Test Setup (Horn)

5. Harmonic Current Emission

5.1. Test Specification

According to EMC Standard : EN 61000-3-2

5.2. Test Setup



5.3. Limit

(a) Limits of Class A Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current A	Harmonics Order n	Maximum Permissible harmonic current A
Odd harmonics		Even harmonics	
3	2.30	2	1.08
5	1.14	4	0.43
7	0.77	6	0.30
9	0.40	$8 \leq n \leq 40$	0.23 * 8/n
11	0.33		
13	0.21		
$15 \leq n \leq 39$	0.15 * 15/n		

(b) Limits of Class B Harmonics Currents

For Class B equipment, the harmonic of the input current shall not exceed the maximum permissible values given in table that is the limit of Class A multiplied by a factor of 1.5.

(c) Limits of Class C Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current Expressed as a percentage of the input current at the fundamental frequency %
2	2
3	30 · λ*
5	10
7	7
9	5
11 ≤ n ≤ 39 (odd harmonics only)	3
∗λ is the circuit power factor	

(d) Limits of Class D Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current per watt mA/W	Maximum Permissible harmonic current A
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
11 ≤ n ≤ 39 (odd harmonics only)	3.85/n	See limit of Class A

5.4. Test Procedure

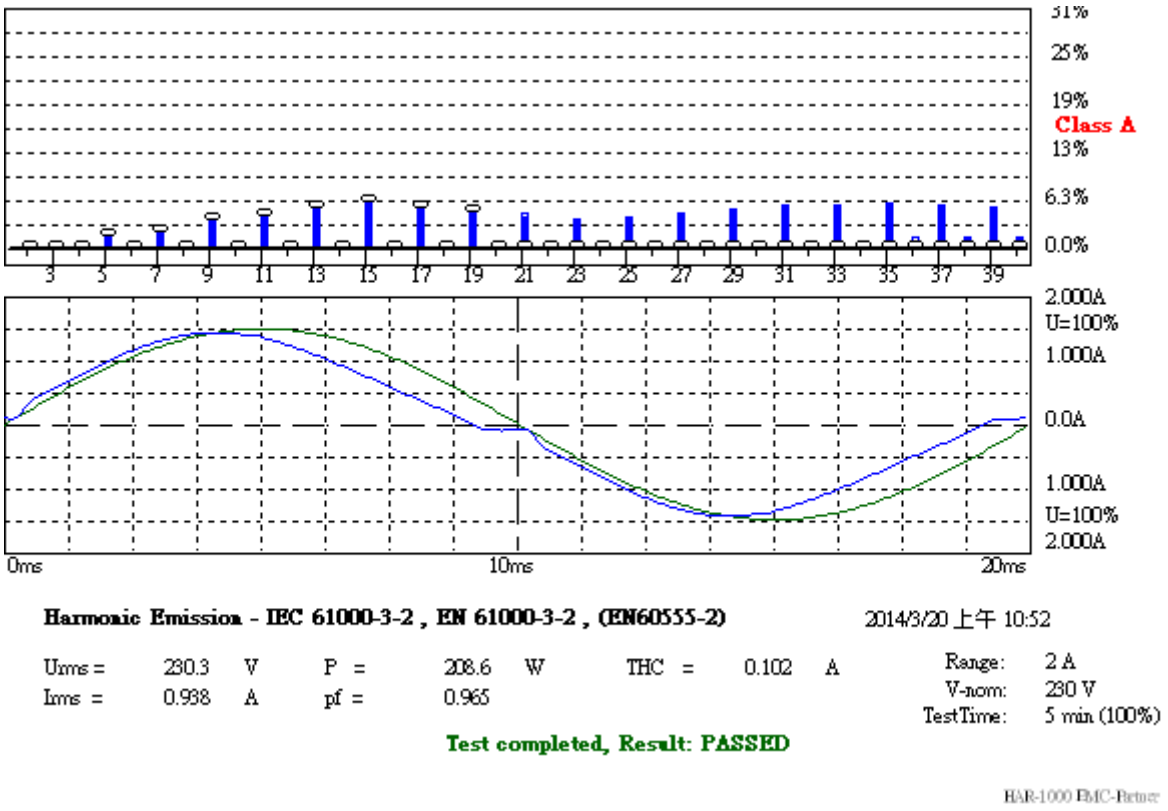
The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

5.5. Deviation from Test Standard

No deviation.

5.6. Test Result

Product	55” Dual-Sided LCD Signage Display		
Test Item	Power Harmonics		
Test Mode	Mode 1: HDMI (DS-55)		
Date of Test	2014/03/20	Test Site	SR1



Full Bar : Actual Values

Empty Bar : Maximum Values

Blue : Current , Green : Voltage , Red : Failed

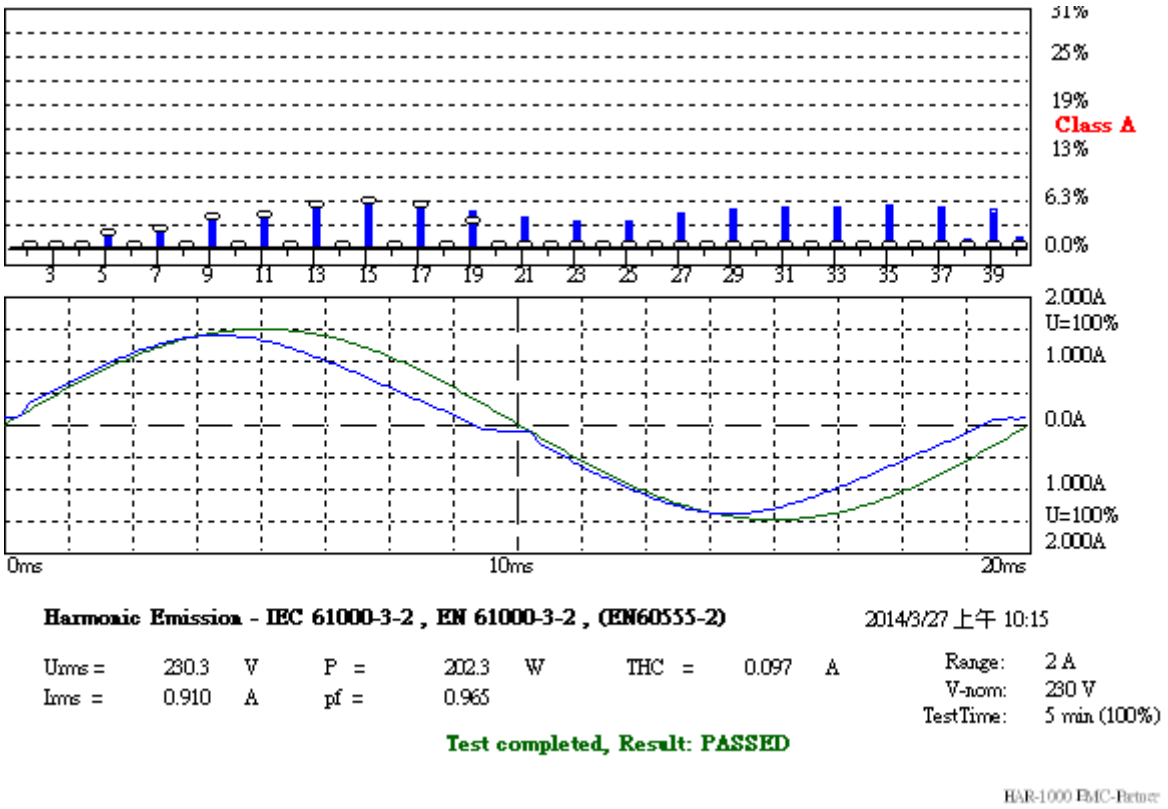
Urms =	230.3V	Freq =	49.987	Range:	2 A
Irms =	0.938A	Ipk =	1.438A	cf =	1.533
P =	208.6W	S =	216.1VA	pf =	0.965
THDi =	10.9 %	THDu =	0.10 %	Class A	

Test - Time : 5min (100 %)

Test completed, Result: PASSED

Order	Freq. [Hz]	Iavg [A]	Iavg%L [%]	Imax [A]	Imax%L [%]	Limit [A]	Status
1	50	0.9354		0.9380			
2	100	0.0000	0.0000	0.0012	0.1130	1.0800	
3	150	0.0935	4.0647	0.0936	4.0708	2.3000	
4	200	0.0000	0.0000	0.0004	0.0852	0.4300	
5	250	0.0200	1.7511	0.0200	1.7561	1.1400	
6	300	0.0000	0.0000	0.0002	0.0814	0.3000	
7	350	0.0186	2.4099	0.0189	2.4573	0.7700	
8	400	0.0000	0.0000	0.0002	0.1061	0.2300	
9	450	0.0153	3.8362	0.0154	3.8452	0.4000	
10	500	0.0000	0.0000	0.0002	0.1327	0.1840	
11	550	0.0140	4.2408	0.0142	4.2910	0.3300	
12	600	0.0000	0.0000	0.0002	0.1592	0.1533	
13	650	0.0114	5.4479	0.0116	5.5222	0.2100	
14	700	0.0000	0.0000	0.0002	0.1858	0.1314	
15	750	0.0092	6.1274	0.0093	6.1849	0.1500	
16	800	0.0000	0.0000	0.0002	0.2123	0.1150	
17	850	0.0073	5.5324	0.0073	5.5339	0.1324	
18	900	0.0000	0.0000	0.0002	0.2388	0.1022	
19	950	0.0057	4.7998	0.0059	4.9479	0.1184	
20	1000	0.0000	0.0000	0.0002	0.2654	0.0920	
21	1050	0.0000	0.0000	0.0044	4.1016	0.1071	
22	1100	0.0000	0.0000	0.0002	0.2919	0.0836	
23	1150	0.0000	0.0000	0.0035	3.6187	0.0978	
24	1200	0.0000	0.0000	0.0002	0.3184	0.0767	
25	1250	0.0000	0.0000	0.0033	3.6621	0.0900	
26	1300	0.0000	0.0000	0.0004	0.5175	0.0708	
27	1350	0.0000	0.0000	0.0037	4.3945	0.0833	
28	1400	0.0000	0.0000	0.0004	0.5573	0.0657	
29	1450	0.0000	0.0000	0.0038	4.8774	0.0776	
30	1500	0.0000	0.0000	0.0004	0.5971	0.0613	
31	1550	0.0000	0.0000	0.0038	5.2138	0.0726	
32	1600	0.0000	0.0000	0.0004	0.6369	0.0575	
33	1650	0.0000	0.0000	0.0038	5.5501	0.0682	
34	1700	0.0000	0.0000	0.0004	0.6767	0.0541	
35	1750	0.0000	0.0000	0.0037	5.6966	0.0643	
36	1800	0.0000	0.0000	0.0005	0.9553	0.0511	
37	1850	0.0000	0.0000	0.0033	5.4199	0.0608	
38	1900	0.0000	0.0000	0.0005	1.0084	0.0484	
39	1950	0.0000	0.0000	0.0029	5.0781	0.0577	
40	2000	0.0000	0.0000	0.0005	1.0615	0.0460	

Product	55” Dual-Sided LCD Signage Display		
Test Item	Power Harmonics		
Test Mode	Mode 2: HDMI (DF-55)		
Date of Test	2014/03/27	Test Site	SR1



Full Bar : Actual Values

Empty Bar : Maximum Values

Blue : Current , Green : Voltage , Red : Failed

Urms =	230.3V	Freq =	49.987	Range:	2 A
Irms =	0.910A	Ipk =	1.396A	cf =	1.533
P =	202.3W	S =	209.6VA	pf =	0.965
THDi =	10.8 %	THDu =	0.10 %	Class A	

Test - Time : 5min (100 %)

Test completed, Result: PASSED

Order	Freq. [Hz]	Iavg [A]	Iavg%L [%]	Imax [A]	Imax%L [%]	Limit [A]	Status
1	50	0.9082		0.9127			
2	100	0.0000	0.0000	0.0011	0.1017	1.0800	
3	150	0.0894	3.8889	0.0897	3.9009	2.3000	
4	200	0.0000	0.0000	0.0002	0.0568	0.4300	
5	250	0.0189	1.6562	0.0192	1.6811	1.1400	
6	300	0.0000	0.0000	0.0002	0.0814	0.3000	
7	350	0.0182	2.3592	0.0187	2.4256	0.7700	
8	400	0.0000	0.0000	0.0002	0.1061	0.2300	
9	450	0.0147	3.6681	0.0148	3.6926	0.4000	
10	500	0.0000	0.0000	0.0002	0.1327	0.1840	
11	550	0.0134	4.0632	0.0135	4.1060	0.3300	
12	600	0.0000	0.0000	0.0002	0.1592	0.1533	
13	650	0.0110	5.2524	0.0111	5.2897	0.2100	
14	700	0.0000	0.0000	0.0002	0.1858	0.1314	
15	750	0.0088	5.8622	0.0089	5.9408	0.1500	
16	800	0.0000	0.0000	0.0002	0.2123	0.1150	
17	850	0.0069	5.1861	0.0070	5.2572	0.1324	
18	900	0.0000	0.0000	0.0002	0.2388	0.1022	
19	950	0.0037	3.1509	0.0055	4.6387	0.1184	
20	1000	0.0000	0.0000	0.0002	0.2654	0.0920	
21	1050	0.0000	0.0000	0.0040	3.7598	0.1071	
22	1100	0.0000	0.0000	0.0002	0.2919	0.0836	
23	1150	0.0000	0.0000	0.0033	3.3691	0.0978	
24	1200	0.0000	0.0000	0.0002	0.3184	0.0767	
25	1250	0.0000	0.0000	0.0031	3.3908	0.0900	
26	1300	0.0000	0.0000	0.0002	0.3450	0.0708	
27	1350	0.0000	0.0000	0.0034	4.1016	0.0833	
28	1400	0.0000	0.0000	0.0002	0.3715	0.0657	
29	1450	0.0000	0.0000	0.0037	4.7201	0.0776	
30	1500	0.0000	0.0000	0.0002	0.3981	0.0613	
31	1550	0.0000	0.0000	0.0037	5.0456	0.0726	
32	1600	0.0000	0.0000	0.0004	0.6369	0.0575	
33	1650	0.0000	0.0000	0.0034	5.0130	0.0682	
34	1700	0.0000	0.0000	0.0004	0.6767	0.0541	
35	1750	0.0000	0.0000	0.0033	5.1270	0.0643	
36	1800	0.0000	0.0000	0.0004	0.7165	0.0511	
37	1850	0.0000	0.0000	0.0031	5.0184	0.0608	
38	1900	0.0000	0.0000	0.0004	0.7563	0.0484	
39	1950	0.0000	0.0000	0.0028	4.8665	0.0577	
40	2000	0.0000	0.0000	0.0005	1.0615	0.0460	

5.7. Test Photograph

Test Mode : Mode 1: HDMI (DS-55)

Description : Power Harmonics Test Setup

Test Mode : Mode 2: HDMI (DF-55)

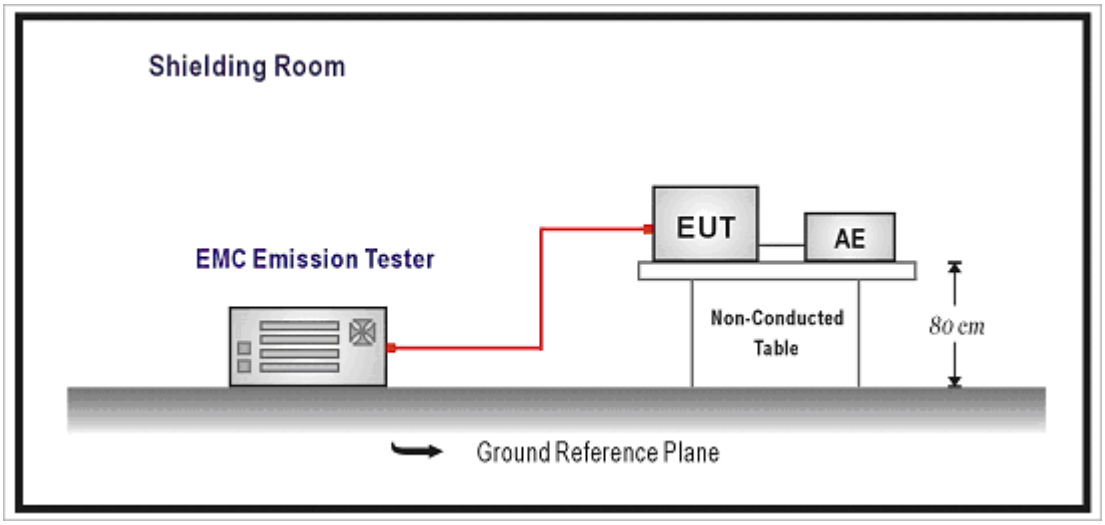
Description : Power Harmonics Test Setup

6. Voltage Fluctuation and Flicker

6.1. Test Specification

According to EMC Standard : EN 61000-3-3

6.2. Test Setup



6.3. Limit

The following limits apply:

- the value of P_{st} shall not be greater than 1.0;
- the value of P_{lt} shall not be greater than 0.65;
- the value of d(t) during a voltage change shall not exceed 3.3 % for more than 500 ms;
- the relative steady-state voltage change, d_c, shall not exceed 3.3 %;
- the maximum relative voltage change, d_{max}, shall not exceed;

a) 4 % without additional conditions;

b) 6 % for equipment which is:

- switched manually, or
- switched automatically more frequently 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.

NOTE The cycling frequency will be further limited by the P_{st} and P_{1t} limit.

For example: a d_{max} of 6%producing a rectangular voltage change characteristic twice per hour will give a P_{1t} of about 0.65.

c) 7 % for equipment which is:

- 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.

P_{st} and P_{1t} requirements shall not be applied to voltage changes caused by manual switching.

6.4. Test Procedure

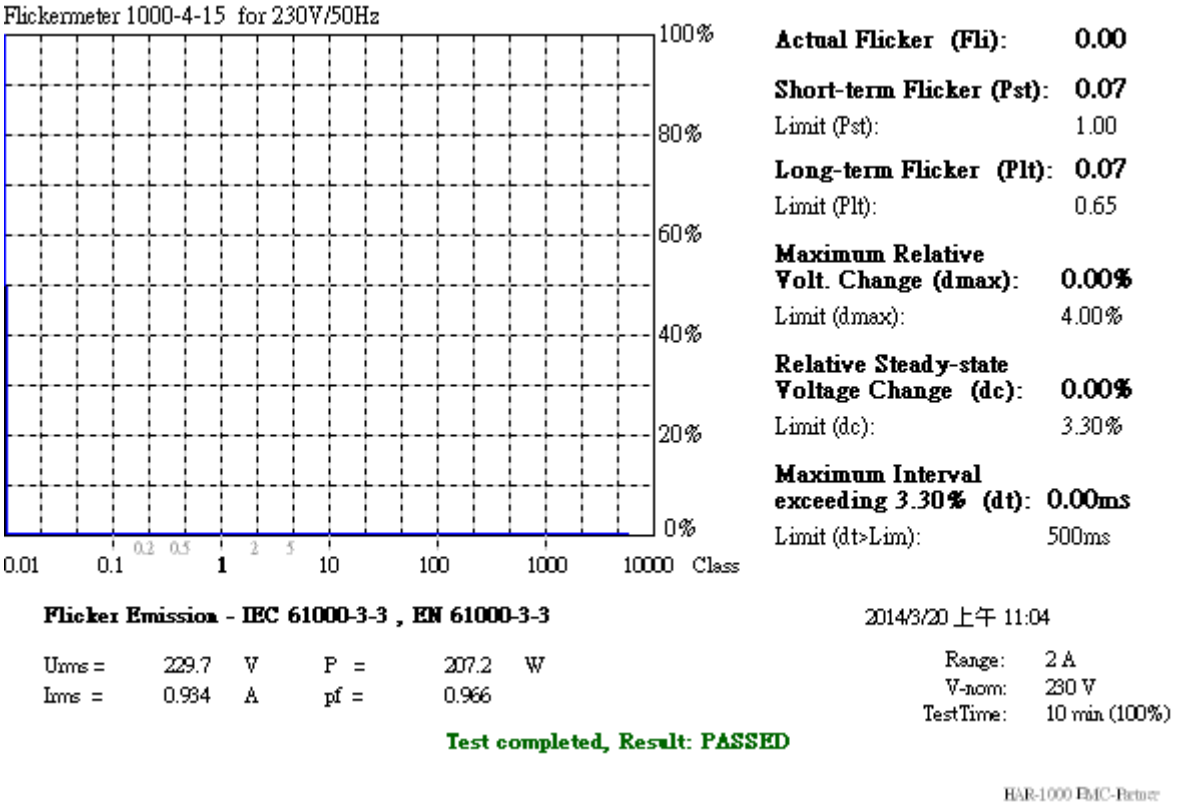
The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

6.5. Deviation from Test Standard

No deviation.

6.6. Test Result

Product	55” Dual-Sided LCD Signage Display		
Test Item	Voltage Fluctuation and Flicker		
Test Mode	Mode 1: HDMI (DS-55)		
Date of Test	2014/03/20	Test Site	SR1



Full Bar : Actual Values
Empty Bar : Maximum Values
Circles : Average Values
Blue : Current , Green : Voltage , Red : Failed

Urms =	229.7V	Freq =	49.987	Range:	2 A		
Irms =	0.934A	Ipk =	1.437A	cf =	1.539		
P =	207.2W	S =	214.5VA	pf =	0.966		

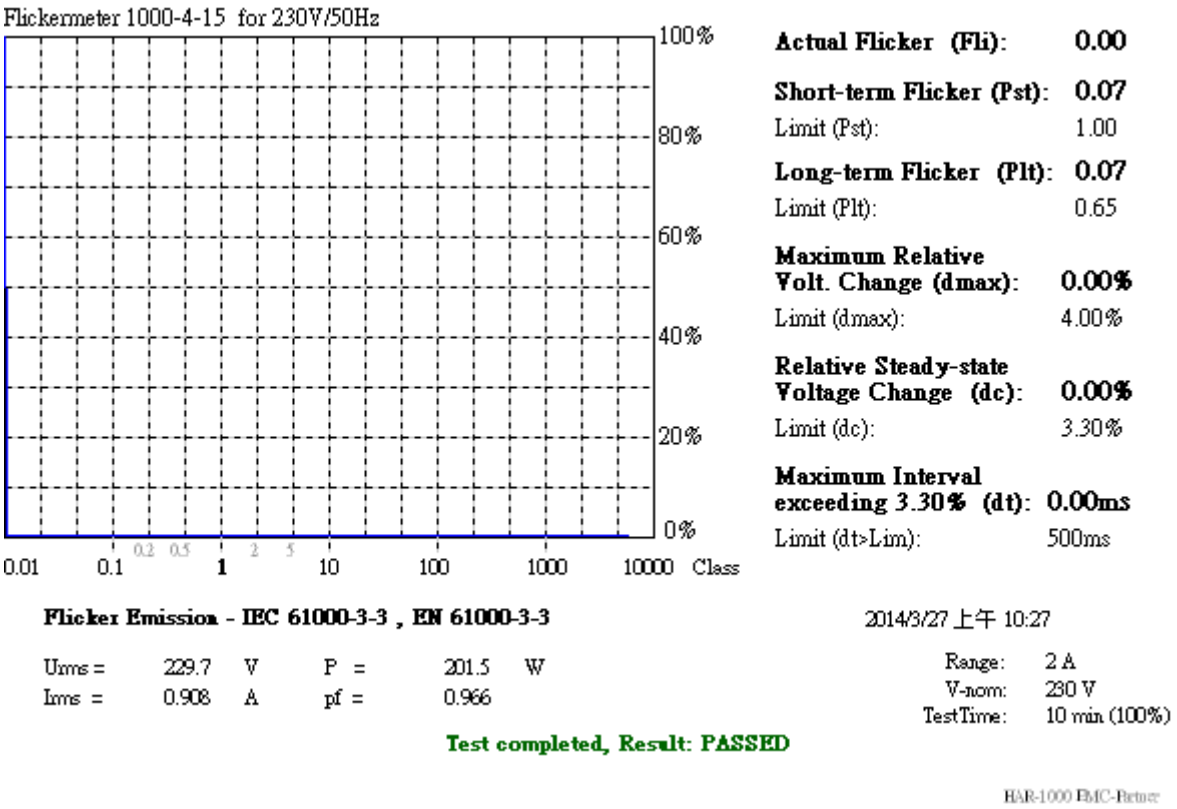
Test - Time : 1 x 10min = 10min (100 %)

LIN (Line Impedance Network) : L: 0.24ohm +j0.15ohm N: 0.16ohm +j0.10ohm

Limits :	Plt :	0.65	Pst :	1.00
	dmax :	4.00 %	dc :	3.30 %
	dtLim:	3.30 %	dt>Lim:	500ms

Test completed, Result: PASSED

Product	55” Dual-Sided LCD Signage Display		
Test Item	Voltage Fluctuation and Flicker		
Test Mode	Mode 2: HDMI (DF-55)		
Date of Test	2014/03/27	Test Site	SR1



Full Bar : Actual Values
Empty Bar : Maximum Values
Circles : Average Values
Blue : Current , Green : Voltage , Red : Failed

Urms = 229.7V Freq = 50.013 Range: 2 A
Irms = 0.908A Ipk = 1.395A cf = 1.535
P = 201.5W S = 208.6VA pf = 0.966

Test - Time : 1 x 10min = 10min (100 %)

LIN (Line Impedance Network) : L: 0.24ohm +j0.15ohm N: 0.16ohm +j0.10ohm

Limits : Plt : 0.65 Pst : 1.00
dmax : 4.00 % dc : 3.30 %
dtLim: 3.30 % dt>Lim: 500ms

Test completed, Result: PASSED

6.7. Test Photograph

Test Mode : Mode 1: HDMI (DS-55)

Description : Voltage Fluctuation and Flicker Test Setup

Test Mode : Mode 2: HDMI (DF-55)

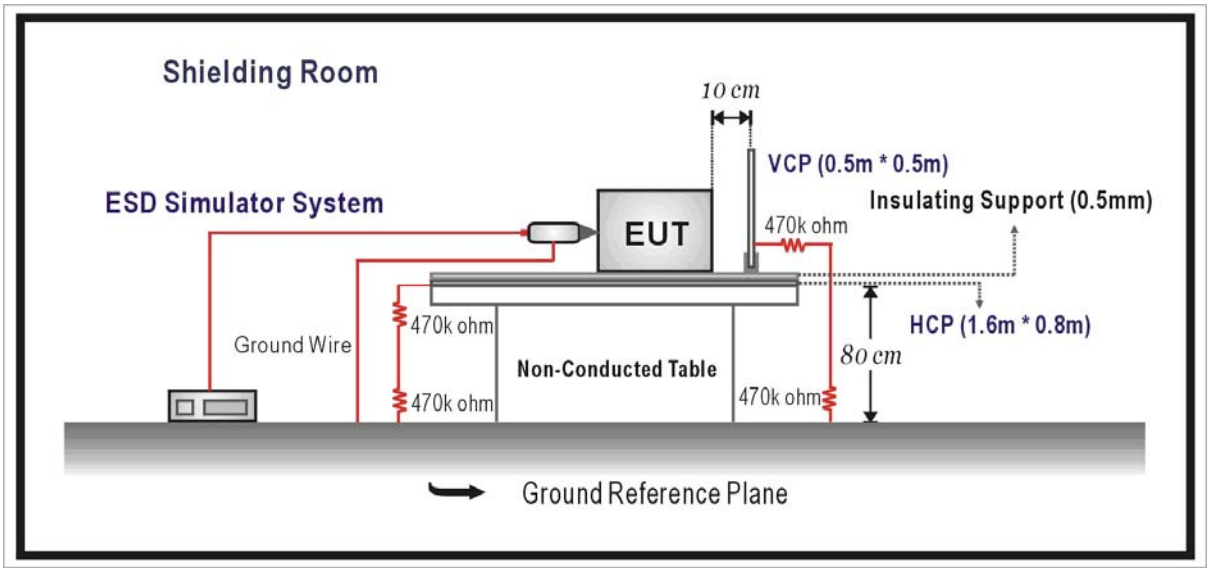
Description : Voltage Fluctuation and Flicker Test Setup

7. Electrostatic Discharge

7.1. Test Specification

According to Standard : IEC 61000-4-2

7.2. Test Setup



7.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Electrostatic Discharge	kV(Charge Voltage)	±8 Air Discharge ±4 Contact Discharge	B

7.4. Test Procedure

Direct application of discharges to the EUT:

Contact discharge was applied only to conductive surfaces of the EUT.

Air discharges were applied only to non-conductive surfaces of the EUT.

During the test, it was performed with single discharges. For the single discharge time between successive single discharges will be keep longer 1 second. It was at least ten single discharges with positive and negative at the same selected point.

The selected point, which was performed with electrostatic discharge, was marked on the red label of the EUT.

Indirect application of discharges to the EUT:

Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

7.5. Deviation from Test Standard

No deviation.

7.6. Test Result

Product	55” Dual-Sided LCD Signage Display		
Test Item	Electrostatic Discharge		
Test Mode	Mode 1: HDMI (DS-55)		
Date of Test	2014/03/27	Test Site	SR1

Item	Amount of Discharge	Voltage	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Discharge	10	+8	B	A	Pass
	10	-8	B	A	Pass
Contact Discharge	25	+4	B	A	Pass
	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(HCP)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Front)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Left)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Back)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Right)	25	-4	B	A	Pass

NR: No Requirement

☒ Meet criteria A: Operate as intended during and after the test

☐ Meet criteria B: Operate as intended after the test

☐ Meet criteria C: Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at ____ kV.

☒ No false alarms or other malfunctions were observed during or after the test.

Remark:

1. The Contact discharges were applied-at least total 200 discharges at a minimum of four test points.
2. The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

Product	55” Dual-Sided LCD Signage Display		
Test Item	Electrostatic Discharge		
Test Mode	Mode 2: HDMI (DF-55)		
Date of Test	2014/03/27	Test Site	SR1

Item	Amount of Discharge	Voltage	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Discharge	10	+8	B	A	Pass
	10	-8	B	A	Pass
Contact Discharge	25	+4	B	A	Pass
	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(HCP)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Front)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Left)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Back)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Right)	25	-4	B	A	Pass

NR: No Requirement

☒ Meet criteria A: Operate as intended during and after the test

☐ Meet criteria B: Operate as intended after the test

☐ Meet criteria C: Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at ____ kV.

☒ No false alarms or other malfunctions were observed during or after the test.

Remark:

1. The Contact discharges were applied-at least total 200 discharges at a minimum of four test points.
2. The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

7.7. Test Photograph

Test Mode : Mode 1: HDMI (DS-55)

Description : Electrostatic Discharge (ESD) Test Setup

Test Mode : Mode 2: HDMI (DF-55)

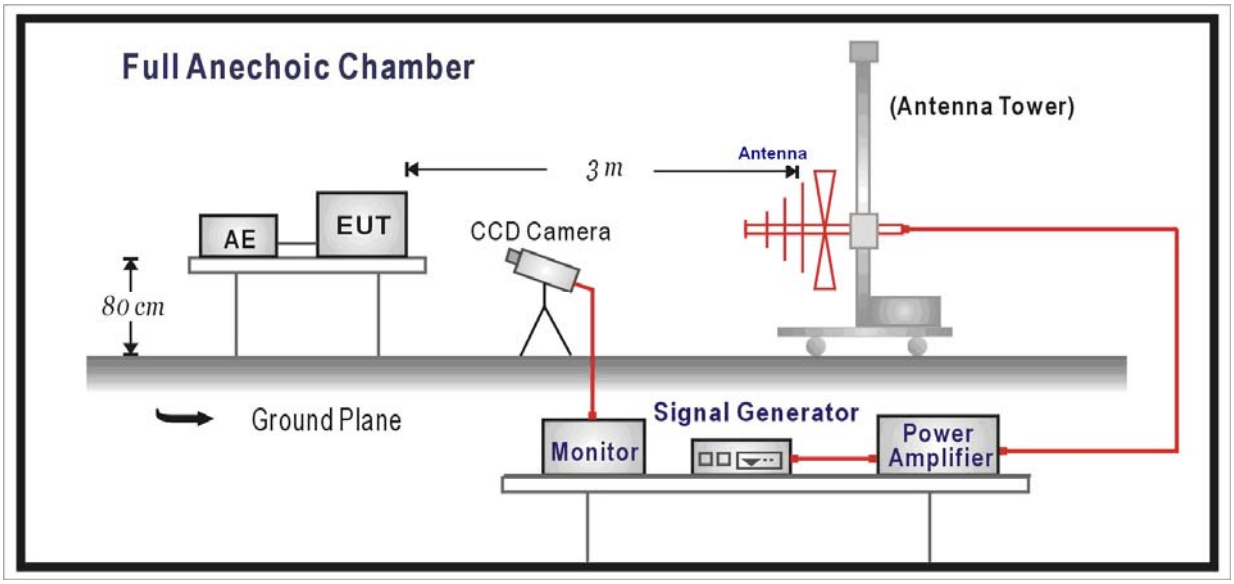
Description : Electrostatic Discharge (ESD) Test Setup

8. Radiated Susceptibility

8.1. Test Specification

According to Standard : IEC 61000-4-3

8.2. Test Setup



8.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Radio-Frequency	MHz	80-1000	
	Electromagnetic Field	V/m(Un-modulated, rms)	3	A
	Amplitude Modulated	% AM (1kHz)	80	

8.4. Test Procedure

The EUT and load, which are placed on a table that is 0.8 meter above ground, are placed with one coincident with the calibration plane such that the distance from antenna to the EUT was 3 meters.

Both horizontal and vertical polarization of the antenna and four sides of the EUT are set on measurement.

In order to judge the EUT performance, a CCD camera is used to monitor EUT screen.

All the scanning conditions are as follows:

	Condition of Test	Remarks
1.	Field Strength	3 V/m Level 2
2.	Radiated Signal	AM 80% Modulated with 1kHz
3.	Scanning Frequency	80MHz - 1000MHz
4	Dwell Time	3 Seconds
5.	Frequency step size Δf :	1%

8.5. Deviation from Test Standard

No deviation.

8.6. Test Result

Product	55” Dual-Sided LCD Signage Display		
Test Item	Radiated susceptibility		
Test Mode	Mode 1: HDMI (DS-55)		
Date of Test	2014/03/22	Test Site	CB1

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	0	H	3	A	A	Pass
80-1000	0	V	3	A	A	Pass
80-1000	90	H	3	A	A	Pass
80-1000	90	V	3	A	A	Pass
80-1000	180	H	3	A	A	Pass
80-1000	180	V	3	A	A	Pass
80-1000	270	H	3	A	A	Pass
80-1000	270	V	3	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ V/m at frequency _____MHz.

☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	55” Dual-Sided LCD Signage Display		
Test Item	Radiated susceptibility		
Test Mode	Mode 2: HDMI (DF-55)		
Date of Test	2014/03/22	Test Site	CB1

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	0	H	3	A	A	Pass
80-1000	0	V	3	A	A	Pass
80-1000	90	H	3	A	A	Pass
80-1000	90	V	3	A	A	Pass
80-1000	180	H	3	A	A	Pass
80-1000	180	V	3	A	A	Pass
80-1000	270	H	3	A	A	Pass
80-1000	270	V	3	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

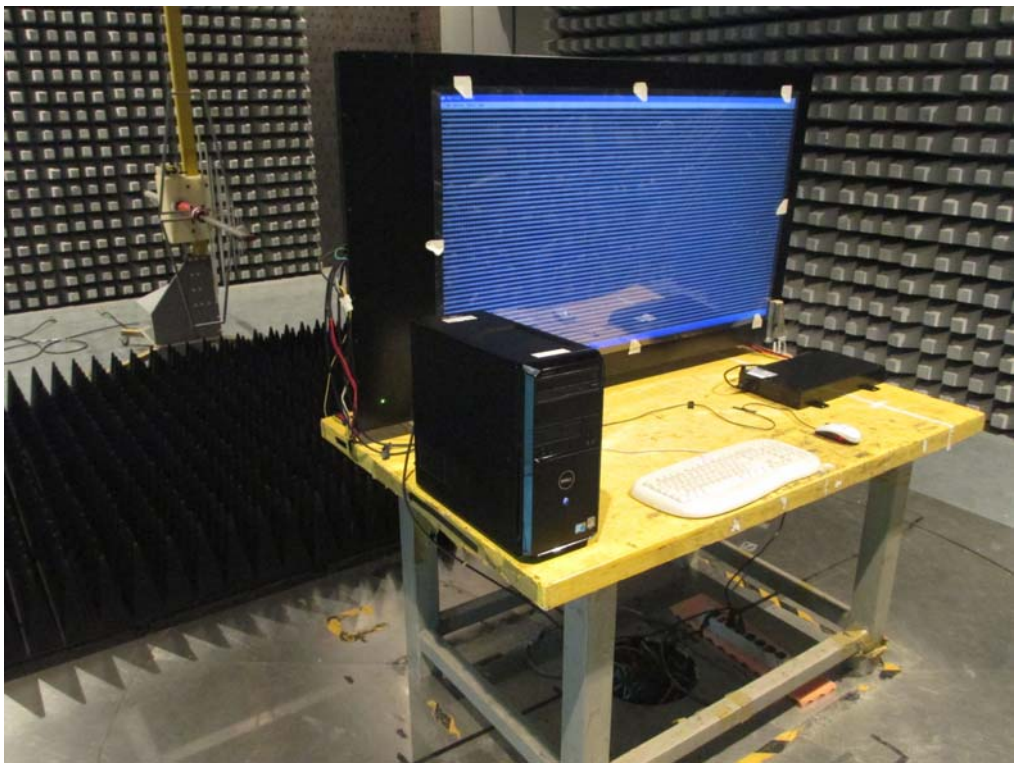
☐ EUT stopped operation and could / could not be reset by operator at _____ V/m at frequency _____MHz.

☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

8.7. Test Photograph

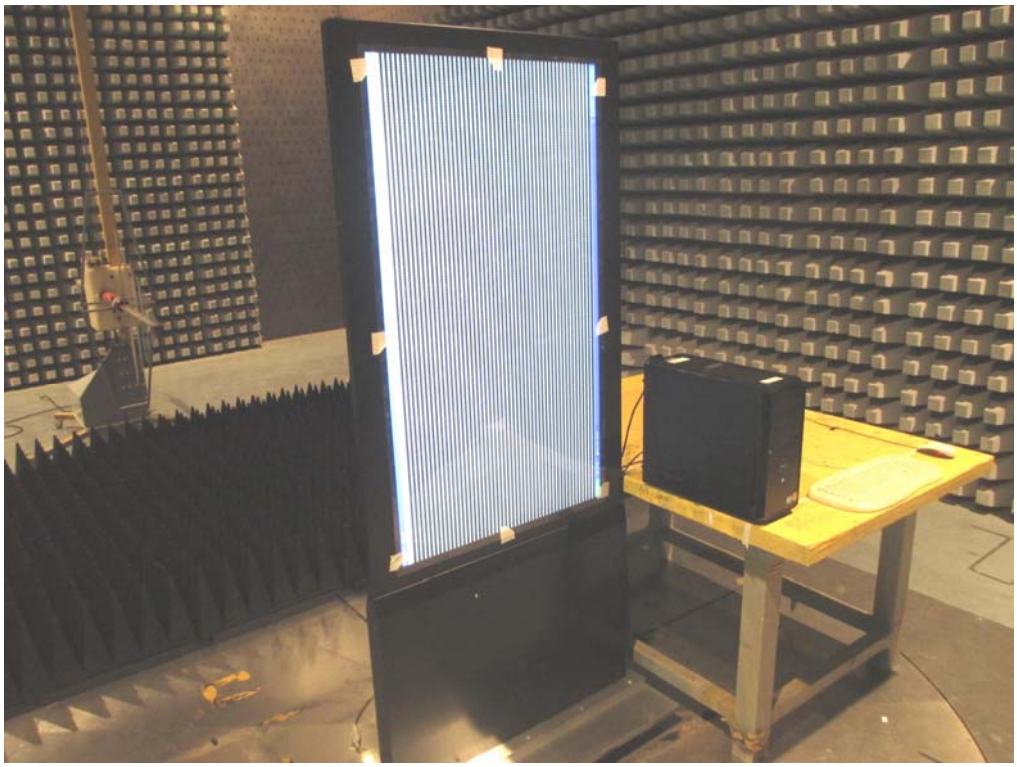
Test Mode : Mode 1: HDMI (DS-55)

Description : Radiated Susceptibility (RS) Test Setup



Test Mode : Mode 2: HDMI (DF-55)

Description : Radiated Susceptibility (RS) Test Setup

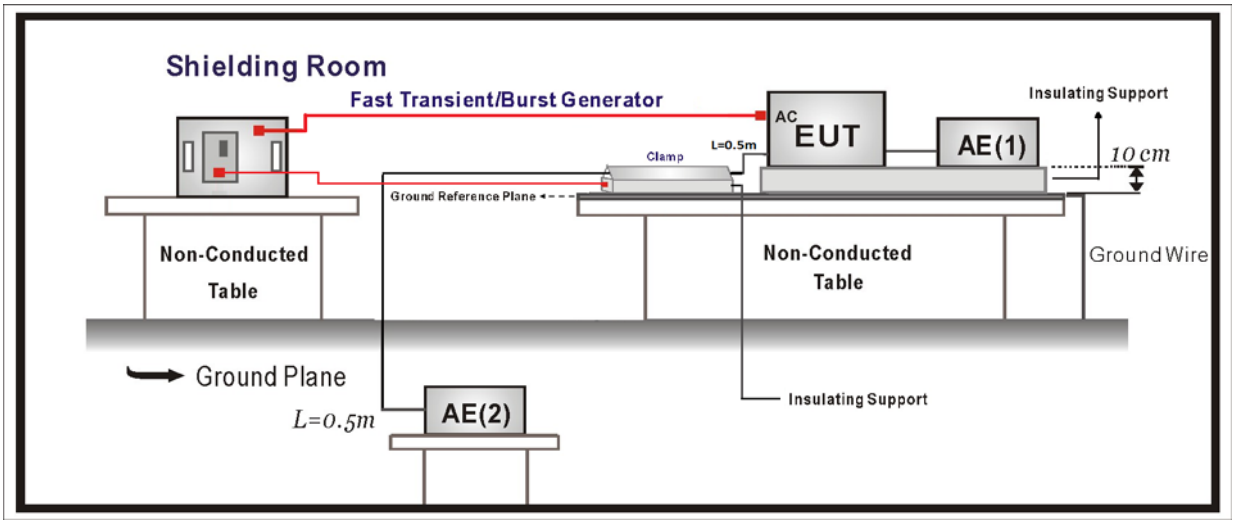


9. Electrical Fast Transient/Burst

9.1. Test Specification

According to Standard : IEC 61000-4-4

9.2. Test Setup



9.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
I/O and communication ports (See 1)				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±0.5 5/50 5	B
Input DC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±0.5 5/50 5	B
Input AC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±1 5/50 5	B

Note:

1) For xDSL equipment, the repetition frequency for EFT testing shall be 100 kHz.

9.4. Test Procedure

The EUT is placed on a table that is 0.8 meter height. A ground reference plane is placed on the table, and uses a 0.1m insulation between the EUT and ground reference plane.
The minimum area of the ground reference plane is 1m*1m, and 0.65mm thick min, and projected beyond the EUT by at least 0.1m on all sides.

Test on I/O and communication ports:
The EFT interference signal is through a coupling clamp device couples to the signal and control lines of the EUT with burst noise for 1minute.

Test on power supply ports:
The EUT is connected to the power mains through a coupling device that directly couples the EFT/B interference signal.
Each of the Line and Neutral conductors is impressed with burst noise for 1 minute.

The length of the signal and power lines between the coupling device and the EUT is 0.5m.

9.5. Deviation from Test Standard

No deviation.

9.6. Test Result

Product	55” Dual-Sided LCD Signage Display		
Test Item	Electrical fast transient/burst		
Test Mode	Mode 1: HDMI (DS-55)		
Date of Test	2014/03/23	Test Site	SR1

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L	±	1	60	Direct	B	A	Pass
N	±	1	60	Direct	B	A	Pass
PE	±	1	60	Direct	B	A	Pass
L+N	±	1	60	Direct	B	A	Pass
L+PE	±	1	60	Direct	B	A	Pass
N+PE	±	1	60	Direct	B	A	Pass
L+N+PE	±	1	60	Direct	B	A	Pass
Power Line	±	0.5	60	Clamp	B	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test.

Product	55” Dual-Sided LCD Signage Display		
Test Item	Electrical fast transient/burst		
Test Mode	Mode 2: HDMI (DF-55)		
Date of Test	2014/03/23	Test Site	SR1

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L	±	1	60	Direct	B	A	Pass
N	±	1	60	Direct	B	A	Pass
PE	±	1	60	Direct	B	A	Pass
L+N	±	1	60	Direct	B	A	Pass
L+PE	±	1	60	Direct	B	A	Pass
N+PE	±	1	60	Direct	B	A	Pass
L+N+PE	±	1	60	Direct	B	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test.

9.7. Test Photograph

Test Mode : Mode 1: HDMI (DS-55)

Description : Electrical Fast Transient/Burst (EFT/B) Test Setup

Test Mode : Mode 1: HDMI (DS-55)

Description : Electrical Fast Transient/Burst (EFT/B) Test Setup-Clamp (Power Line)

Test Mode　: Mode 2: HDMI (DF-55)

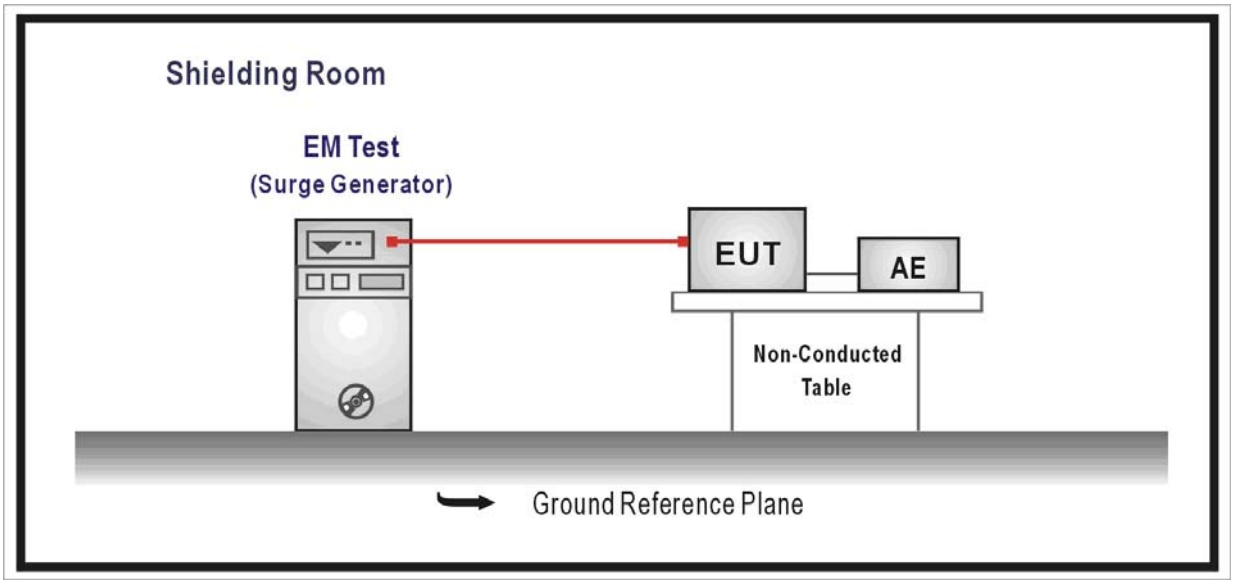
Description　: Electrical Fast Transient/Burst (EFT/B) Test Setup

10. Surge

10.1. Test Specification

According to Standard : IEC 61000-4-5

10.2. Test Setup



10.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Signal Ports and Telecommunication Ports(See 1) and 2) and 3) and 4))				
	Surges Line to Ground	Tr/Th us kV	10/700 ± 1	C
Input DC Power Ports				
	Surges Line to Ground	Tr/Th us kV	1.2/50 (8/20) ± 0.5	B
AC Input and AC Output Power Ports				
	Surges Line to Line Line to Ground	Tr/Th us kV kV	1.2/50 (8/20) ± 1 ± 2	B

Notes:

1) Applicable only to ports which according to the manufacturer's may directly to outdoor Cables.
2) Where normal functioning cannot be achieved because of the impact of the CDN on the EUT, no immunity test shall be required.
3) For ports where primary protection is intended, surges are applied at voltages up to 4 kV with the primary protectors fitted. Otherwise the 1 kV test level is applied without primary protection in place.
4) Where the coupling network for the 10/700 μs waveform affects the functioning of high speed data ports, the test shall be carried out using a 1,2/50 (8/20) μs waveform and appropriate coupling network.

10.4. Test Procedure

The EUT and its load are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The length of power cord between the coupling device and the EUT shall be 2m or less.

For Input and Output AC Power or DC Input and DC Output Power Ports:

The EUT is connected to the power mains through a coupling device that directly couples the Surge interference signal.

The surge noise shall be applied synchronized to the voltage phase at 0^0, 90^0, 180^0, 270^0 and the peak value of the a.c. voltage wave. (Positive and negative)

Each of Line-Earth and Line-Line is impressed with a sequence of five surge voltages with interval of 1 min.

10.5. Deviation from Test Standard

No deviation.

10.6. Test Result

Product	55” Dual-Sided LCD Signage Display		
Test Item	Surge		
Test Mode	Mode 1: HDMI (DS-55)		
Date of Test	2014/03/27	Test Site	SR1

Inject Line	Polarity	Angle	Voltage kV	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	0	1	60	Direct	B	A	Pass
L-N	±	90	1	60	Direct	B	A	Pass
L-N	±	180	1	60	Direct	B	A	Pass
L-N	±	270	1	60	Direct	B	A	Pass
L-PE	±	0	2	60	Direct	B	A	Pass
L-PE	±	90	2	60	Direct	B	A	Pass
L-PE	±	180	2	60	Direct	B	A	Pass
L-PE	±	270	2	60	Direct	B	A	Pass
N-PE	±	0	2	60	Direct	B	A	Pass
N-PE	±	90	2	60	Direct	B	A	Pass
N-PE	±	180	2	60	Direct	B	A	Pass
N-PE	±	270	2	60	Direct	B	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test.

Remark:

1. The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

Product	55” Dual-Sided LCD Signage Display		
Test Item	Surge		
Test Mode	Mode 2: HDMI (DF-55)		
Date of Test	2014/03/27	Test Site	SR1

Inject Line	Polarity	Angle	Voltage kV	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	0	1	60	Direct	B	A	Pass
L-N	±	90	1	60	Direct	B	A	Pass
L-N	±	180	1	60	Direct	B	A	Pass
L-N	±	270	1	60	Direct	B	A	Pass
L-PE	±	0	2	60	Direct	B	A	Pass
L-PE	±	90	2	60	Direct	B	A	Pass
L-PE	±	180	2	60	Direct	B	A	Pass
L-PE	±	270	2	60	Direct	B	A	Pass
N-PE	±	0	2	60	Direct	B	A	Pass
N-PE	±	90	2	60	Direct	B	A	Pass
N-PE	±	180	2	60	Direct	B	A	Pass
N-PE	±	270	2	60	Direct	B	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test.

Remark:

1. The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

10.7. Test Photograph

Test Mode　: Mode 1: HDMI (DS-55)

Description　: Surge Test Setup

Test Mode　: Mode 2: HDMI (DF-55)

Description　: Surge Test Setup

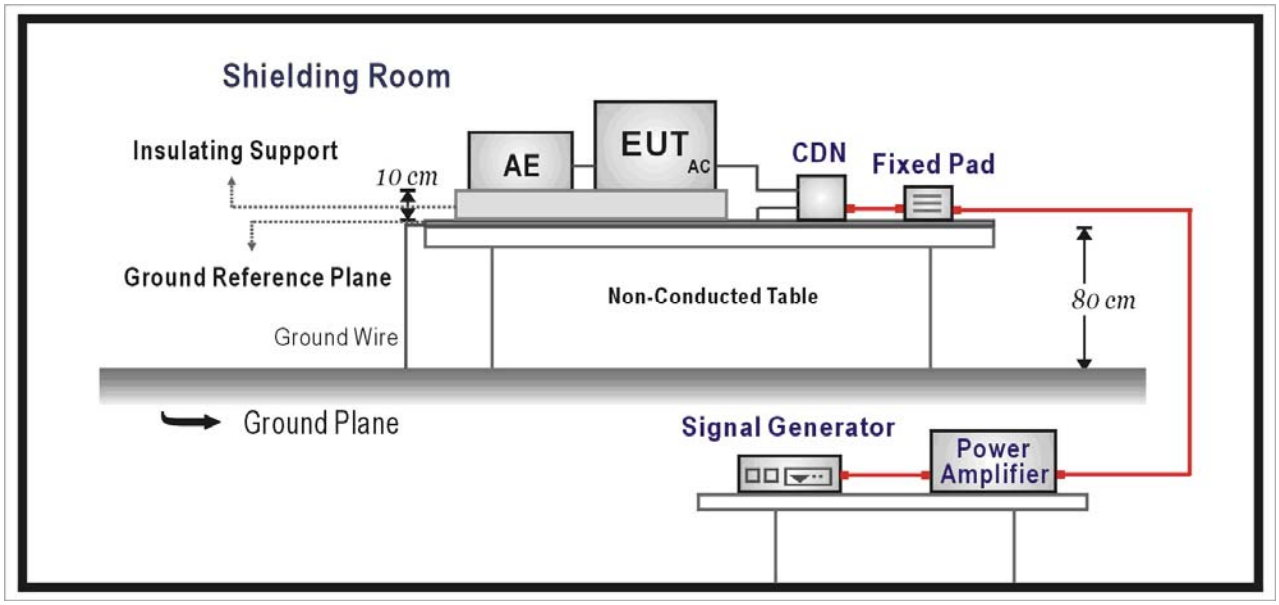
11. Conducted Susceptibility

11.1. Test Specification

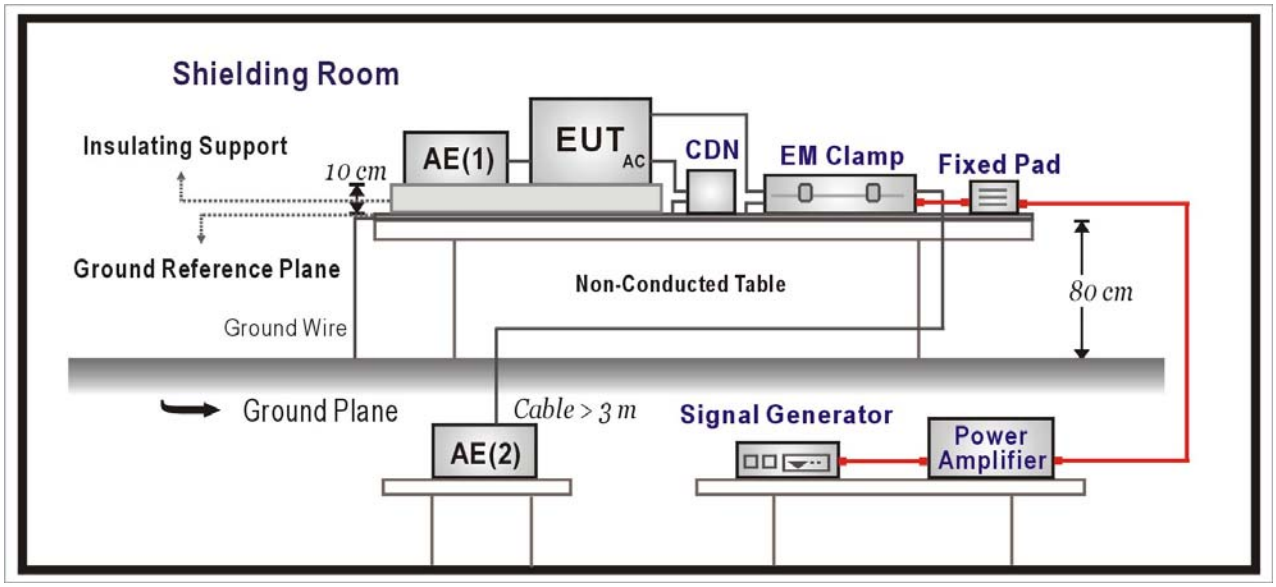
According to Standard : IEC 61000-4-6

11.2. Test Setup

CDN Test Mode



EM Clamp Test Mode



11.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Signal Ports and Telecommunication Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A
Input DC Power Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A
Input AC Power Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A

11.4. Test Procedure

The EUT are placed on a table that is 0.8 meter height, and a Ground reference plane on the table, EUT are placed upon table and use a 10cm insulation between the EUT and Ground reference plane.

For Signal Ports and Telecommunication Ports

The disturbance signal is through a coupling and decoupling networks (CDN) or EM-clamp device couples to the signal and Telecommunication lines of the EUT.

For Input DC and AC Power Ports

The EUT is connected to the power mains through a coupling and decoupling networks for power supply lines. And directly couples the disturbances signal into EUT.

Used CDN-M2 for two wires or CDN-M3 for three wires.

All the scanning conditions are as follows:

	Condition of Test	Remarks
1.	Field Strength	130dBuV(3V) Level 2
2.	Radiated Signal	AM 80% Modulated with 1kHz
3.	Scanning Frequency	0.15MHz – 80MHz
4	Dwell Time	3 Seconds
5.	Frequency step size Δf :	1%

11.5. Deviation from Test Standard

No deviation.

11.6. Test Result

Product	55” Dual-Sided LCD Signage Display		
Test Item	Conducted susceptibility		
Test Mode	Mode 1: HDMI (DS-55)		
Date of Test	2014/03/24	Test Site	SR4

Frequency Range (MHz)	Voltage Applied (V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~80	3	CDN	AC IN	A	A	Pass
0.15~80	3	Clamp	Power Line	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ dBuV(V) at frequency _____MHz.

☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	55” Dual-Sided LCD Signage Display		
Test Item	Conducted susceptibility		
Test Mode	Mode 2: HDMI (DF-55)		
Date of Test	2014/03/24	Test Site	SR1

Frequency Range (MHz)	Voltage Applied (V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~80	3)	CDN	AC IN	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ dBuV(V) at frequency _____MHz.

☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

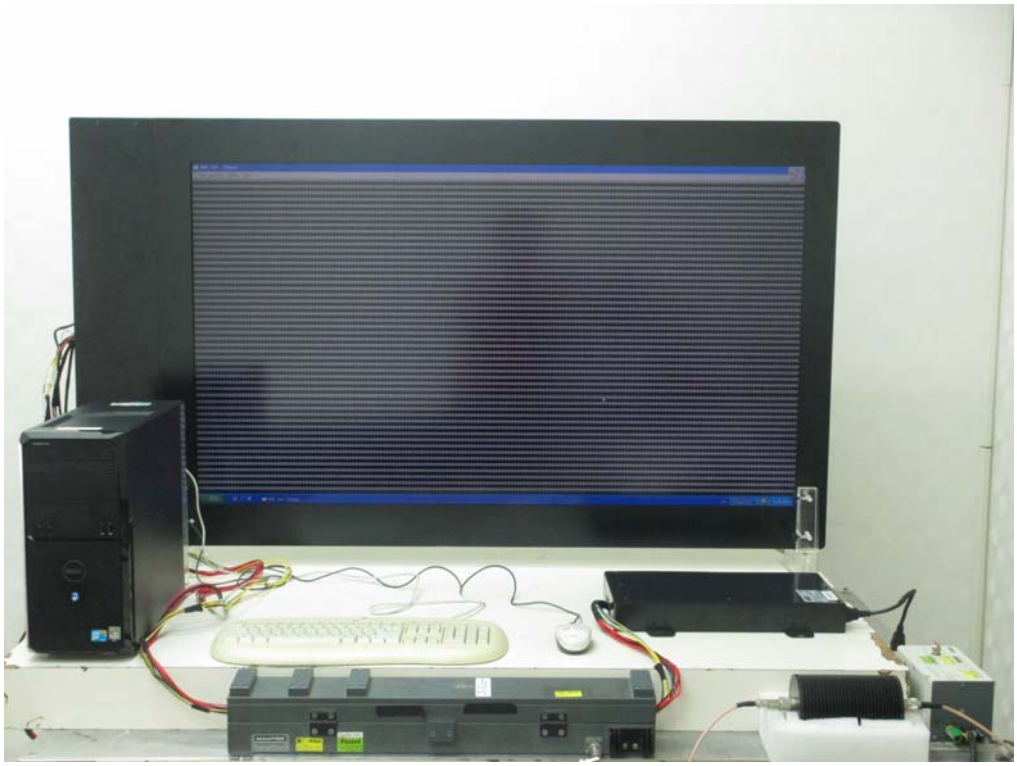
11.7. Test Photograph

Test Mode : Mode 1: HDMI (DS-55)

Description : Conducted Susceptibility (CS) Test Setup

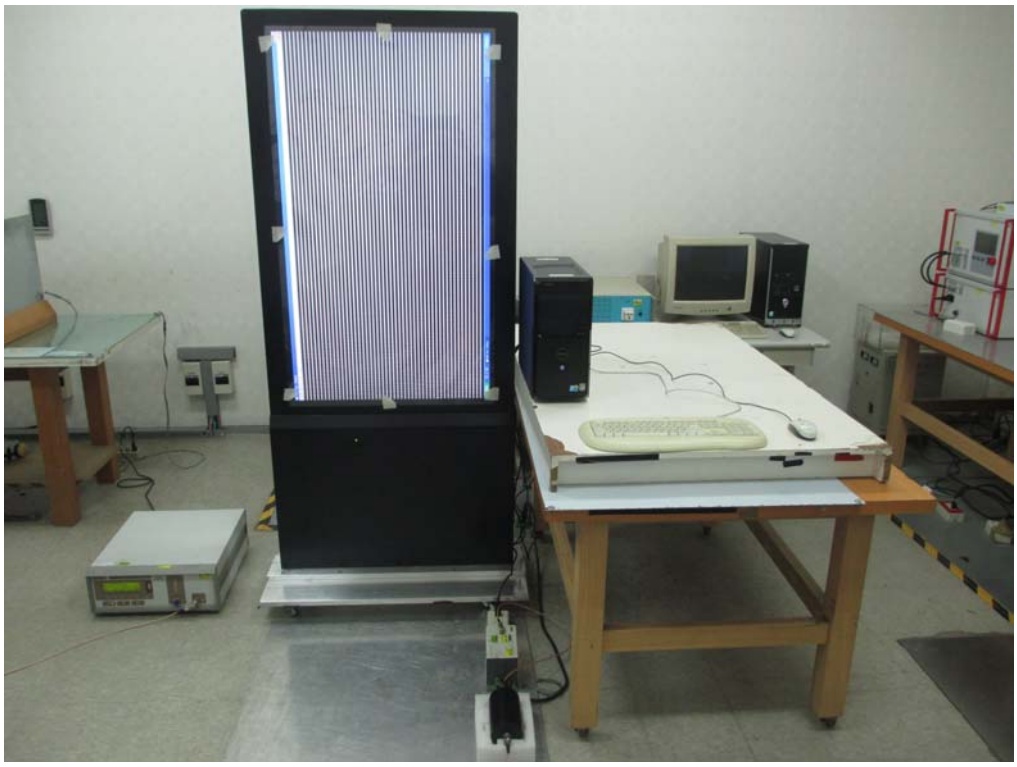
Test Mode : Mode 1: HDMI (DS-55)

Description : Conducted Susceptibility (CS) Test Setup- Clamp (LAN Cable)



Test Mode : Mode 2: HDMI (DF-55)

Description : Conducted Susceptibility (CS) Test Setup

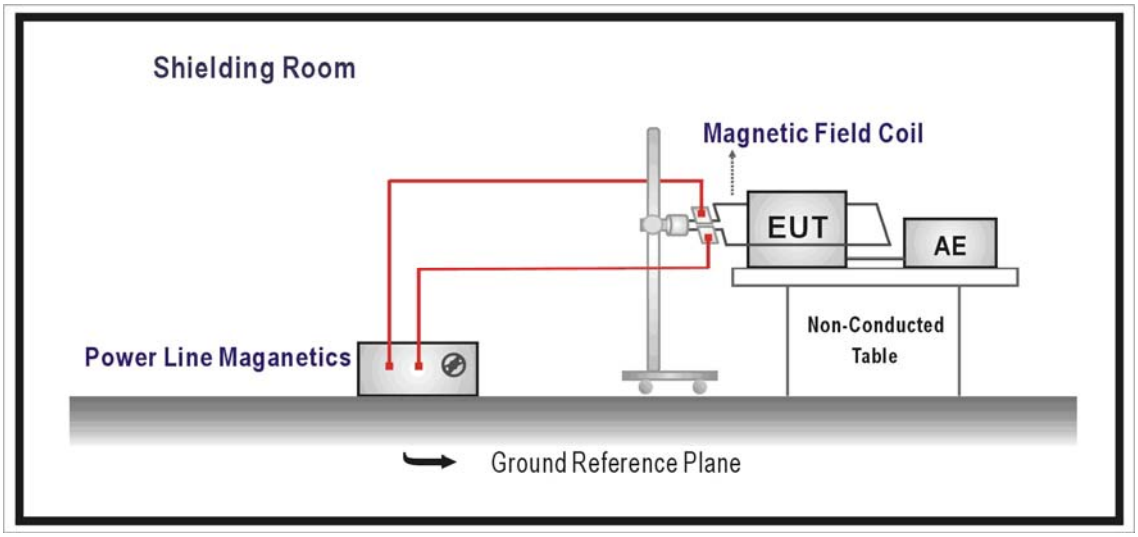


12. Power Frequency Magnetic Field

12.1. Test Specification

According to Standard : IEC 61000-4-8

12.2. Test Setup



12.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Power-Frequency Magnetic Field	Hz A/m (r.m.s.)	50 1	A

12.4. Test Procedure

The EUT and its load are placed on a table which is 0.8 meter above a metal ground plane measured at least 1m*1m min. The test magnetic field shall be placed at central of the induction coil.

The test magnetic Field shall be applied 1 minute by the immersion method to the EUT. And the induction coil shall be rotated by 90° in order to expose the EUT to the test field with different orientation (X, Y, Z Orientations).

12.5. Deviation from Test Standard

No deviation.

12.6. Test Result

Product	55” Dual-Sided LCD Signage Display		
Test Item	Power frequency magnetic field		
Test Mode	Mode 1: HDMI (DS-55)		
Date of Test	2014/03/25	Test Site	SR1

Polarization	Frequency (Hz)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50	1	A	A	Pass
Y Orientation	50	1	A	A	Pass
Z Orientation	50	1	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ A/m.

☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	55” Dual-Sided LCD Signage Display		
Test Item	Power frequency magnetic field		
Test Mode	Mode 2: HDMI (DF-55)		
Date of Test	2014/03/25	Test Site	SR1

Polarization	Frequency (Hz)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50	1	A	A	Pass
Y Orientation	50	1	A	A	Pass
Z Orientation	50	1	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ A/m.

☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

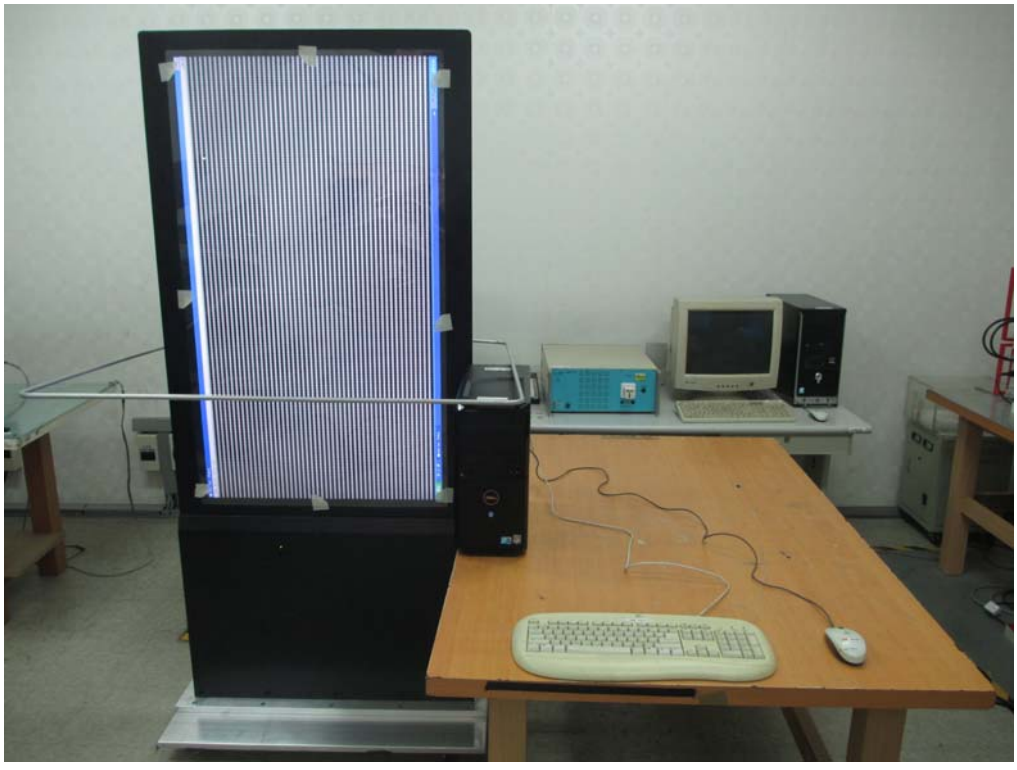
12.7. Test Photograph

Test Mode　: Mode 1: HDMI (DS-55)

Description　: Power Frequency Magnetic Field Test Setup

Test Mode　: Mode 2: HDMI (DF-55)

Description　: Power Frequency Magnetic Field Test Setup

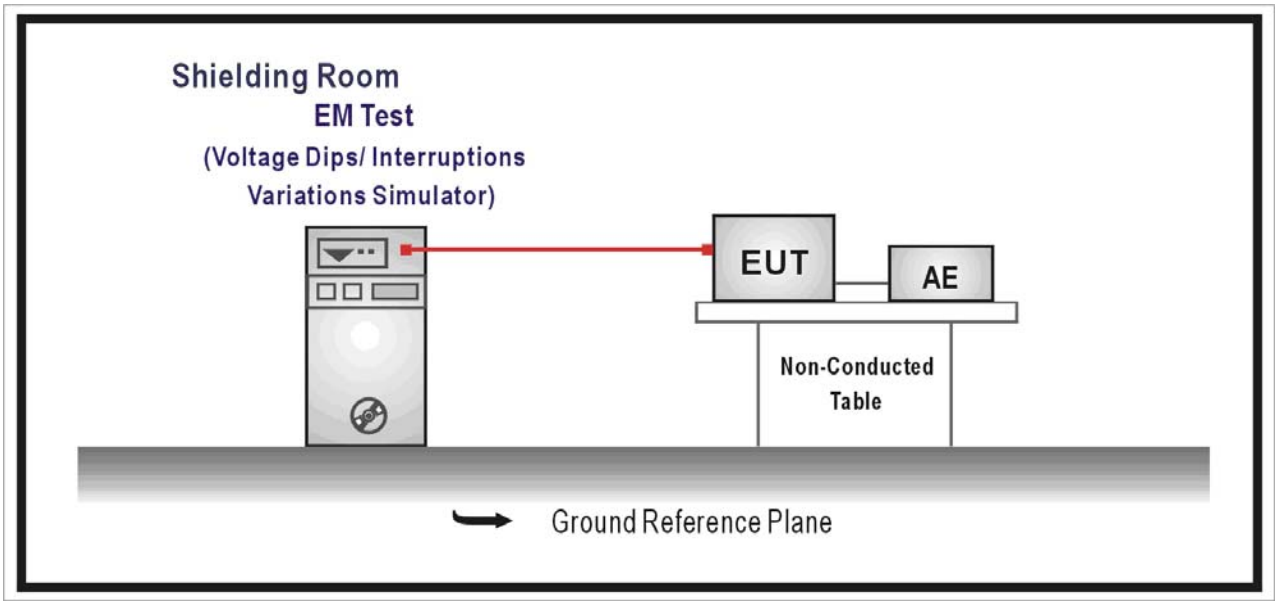


13. Voltage Dips and Interruption

13.1. Test Specification

According to Standard : IEC 61000-4-11

13.2. Test Setup



13.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Input AC Power Ports				
	Voltage Dips	% Reduction Period	30 25	C
		% Reduction Period	>95 0.5	B
	Voltage Interruptions	% Reduction Period	>95 250	C

13.4. Test Procedure

The EUT and its load are placed on a table which is 0.8 meter above a metal ground plane measured 1m*1m min. And 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The power cord shall be used the shortest power cord as specified by the manufacturer.

For Voltage Dips/ Interruptions test:

The selection of test voltage is based on the rated power range. If the operation range is large than 20% of lower power range, both end of specified voltage shall be tested. Otherwise, the typical voltage specification is selected as test voltage.

The EUT is connected to the power mains through a coupling device that directly couples to the Voltage Dips and Interruption Generator.

The EUT shall be tested for 30% voltage dip of supplied voltage and duration 25 Periods, for 95% voltage dip of supplied voltage and duration 0.5 Periods with a sequence of three voltage dips with intervals of 10 seconds, and for 95% voltage interruption of supplied voltage and duration 250 Periods with a sequence of three voltage interruptions with intervals of 10 seconds.

Voltage phase shifting are shall occur at 0^0, 45^0, 90^0 ,135^0 ,180^0 ,225^0, 270^0 ,315^0 of the voltage.

13.5. Deviation from Test Standard

No deviation.

13.6. Test Result

Product	55” Dual-Sided LCD Signage Display		
Test Item	Voltage dips and interruption		
Test Mode	Mode 1: HDMI (DS-55)		
Date of Test	2014/03/26	Test Site	SR1

AC 100V/ 50Hz

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30	0	25	C	A	Pass
30	45	25	C	A	Pass
30	90	25	C	A	Pass
30	135	25	C	A	Pass
30	180	25	C	A	Pass
30	225	25	C	A	Pass
30	270	25	C	A	Pass
30	315	25	C	A	Pass
>95	0	0.5	B	A	Pass
>95	45	0.5	B	A	Pass
>95	90	0.5	B	A	Pass
>95	135	0.5	B	A	Pass
>95	180	0.5	B	A	Pass
>95	225	0.5	B	A	Pass
>95	270	0.5	B	A	Pass
>95	315	0.5	B	A	Pass
>95	0	250	C	B	Pass
>95	45	250	C	B	Pass
>95	90	250	C	B	Pass
>95	135	250	C	B	Pass
>95	180	250	C	B	Pass
>95	225	250	C	B	Pass
>95	270	250	C	B	Pass
>95	315	250	C	B	Pass

☒ Meet criteria A : Operate as intended during and after the test

☒ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

- ☐ The nominal voltage of EUT is 230V.
- ☐ EUT stopped operation and could / could not be reset by operator at _____.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	55” Dual-Sided LCD Signage Display		
Test Item	Voltage dips and interruption		
Test Mode	Mode 1: HDMI (DS-55)		
Date of Test	2010/03/26	Test Site	SR1

AC 240V/ 50Hz

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30	0	25	C	A	Pass
30	45	25	C	A	Pass
30	90	25	C	A	Pass
30	135	25	C	A	Pass
30	180	25	C	A	Pass
30	225	25	C	A	Pass
30	270	25	C	A	Pass
30	315	25	C	A	Pass
>95	0	0.5	B	A	Pass
>95	45	0.5	B	A	Pass
>95	90	0.5	B	A	Pass
>95	135	0.5	B	A	Pass
>95	180	0.5	B	A	Pass
>95	225	0.5	B	A	Pass
>95	270	0.5	B	A	Pass
>95	315	0.5	B	A	Pass
>95	0	250	C	B	Pass
>95	45	250	C	B	Pass
>95	90	250	C	B	Pass
>95	135	250	C	B	Pass
>95	180	250	C	B	Pass
>95	225	250	C	B	Pass
>95	270	250	C	B	Pass
>95	315	250	C	B	Pass

☒ Meet criteria A : Operate as intended during and after the test

☒ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

- ☐ The nominal voltage of EUT is 230V.
- ☐ EUT stopped operation and could / could not be reset by operator at _____.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	55” Dual-Sided LCD Signage Display		
Test Item	Voltage dips and interruption		
Test Mode	Mode 2: HDMI (DF-55)		
Date of Test	2014/03/26	Test Site	SR1

AC 100V/ 50Hz

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30	0	25	C	A	Pass
30	45	25	C	A	Pass
30	90	25	C	A	Pass
30	135	25	C	A	Pass
30	180	25	C	A	Pass
30	225	25	C	A	Pass
30	270	25	C	A	Pass
30	315	25	C	A	Pass
>95	0	0.5	B	A	Pass
>95	45	0.5	B	A	Pass
>95	90	0.5	B	A	Pass
>95	135	0.5	B	A	Pass
>95	180	0.5	B	A	Pass
>95	225	0.5	B	A	Pass
>95	270	0.5	B	A	Pass
>95	315	0.5	B	A	Pass
>95	0	250	C	B	Pass
>95	45	250	C	B	Pass
>95	90	250	C	B	Pass
>95	135	250	C	B	Pass
>95	180	250	C	B	Pass
>95	225	250	C	B	Pass
>95	270	250	C	B	Pass
>95	315	250	C	B	Pass

☒ Meet criteria A : Operate as intended during and after the test

☒ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

- ☐ The nominal voltage of EUT is 230V.
- ☐ EUT stopped operation and could / could not be reset by operator at _____.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	55” Dual-Sided LCD Signage Display		
Test Item	Voltage dips and interruption		
Test Mode	Mode 2: HDMI (DF-55)		
Date of Test	2014/03/26	Test Site	SR1

AC 240V/ 50Hz

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30	0	25	C	A	Pass
30	45	25	C	A	Pass
30	90	25	C	A	Pass
30	135	25	C	A	Pass
30	180	25	C	A	Pass
30	225	25	C	A	Pass
30	270	25	C	A	Pass
30	315	25	C	A	Pass
>95	0	0.5	B	A	Pass
>95	45	0.5	B	A	Pass
>95	90	0.5	B	A	Pass
>95	135	0.5	B	A	Pass
>95	180	0.5	B	A	Pass
>95	225	0.5	B	A	Pass
>95	270	0.5	B	A	Pass
>95	315	0.5	B	A	Pass
>95	0	250	C	B	Pass
>95	45	250	C	B	Pass
>95	90	250	C	B	Pass
>95	135	250	C	B	Pass
>95	180	250	C	B	Pass
>95	225	250	C	B	Pass
>95	270	250	C	B	Pass
>95	315	250	C	B	Pass

☒ Meet criteria A : Operate as intended during and after the test

☒ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

- ☐ The nominal voltage of EUT is 230V.
- ☐ EUT stopped operation and could / could not be reset by operator at _____.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

13.7. Test Photograph

Test Mode　: Mode 1: HDMI (DS-55)

Description　: Voltage Dips and Interruption Test Setup

Test Mode　: Mode 2: HDMI (DF-55)

Description　: Voltage Dips and Interruption Test Setup

14. Attachment

➢ EUT Photograph

(1) EUT Photo (M/N: DS-55)

(2) EUT Photo

(3) EUT Photo (M/N: DF-55)

(4) EUT Photo