FCC& ISED EMC Test Report

Project No.	:	1807C103
Equipment	:	LCD Monitor
Model Name	:	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Applicant	:	TPV Electronics (Fujian) Co., Ltd.
Address	:	Rongqiao Economic and Technological Development Zone, Fuqing City, Fujian Province, P.R. China

Date of Receipt	:	Jul. 31, 2018
Date of Test	:	Aug. 01, 2018 ~ Aug. 13, 2018
Issued Date	:	Sep. 11, 2018
Tested by	:	BTL Inc.

Testing Engineer : (Jason Yang)

Technical Manager : (Bill Zhang)

Authorized Signatory : (Steven Lu)

BTL INC.

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

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NVLAP TESTING NVLAP LAB CODE 200788-0

Declaration

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

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

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

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

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

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

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

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FICE-1-1807C103	Original Issue.	Sep. 11, 2018

1. CERIFICATION

Equipment	:	LCD Monitor
Brand Name	:	N/A
Model Name	:	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Applicant	:	TPV Electronics (Fujian) Co., Ltd.
Date of Test	:	Aug. 01, 2018 ~ Aug. 13, 2018
Test Sample	:	Engineering Sample No.: D180706414
Standard(s)	:	FCC Part 15, Subpart B ICES-003 Issue 6:2016 ICES-003 Issue 6:2016 (updated April 2017) ANSI C63.4-2014

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FICE-1-1807C103) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

EMC Emission				
Standard(s)	Test Item	Limit	Judgment	Remark
FCC Part 15, Subpart B ICES-003 Issue 6:2016 ICES-003 Issue 6:2016 (updated April 2017) ANSI C63.4-2014	Conducted Emission	Class B	PASS	
	Radiated emission Below 1 GHz	Class B	PASS	
	Radiated emission Above 1 GHz	Class B	PASS	NOTE(2)

NOTE:

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

(2) The EUT’s max operating frequency is 148.5 MHz which does exceed 108 MHz, so the test will be performed.

2.1 TEST FACILITY

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

BTL's test firm number for FCC: 854385

BTL's test firm number for IC:4428B-3

BTL's test designation number for FCC:CN5020

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. The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{cispr} requirement.

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

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U, (dB)
DG-C01	CISPR	150 kHz ~ 30MHz	3.16

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
DG-CB08 (3m)	CISPR	30MHz ~ 200MHz	V	4.68
		30MHz ~ 200MHz	H	4.68
		200MHz ~ 1,000MHz	V	4.90
		200MHz ~ 1,000MHz	H	4.90

Test Site	Method	Measurement Frequency Range	U, (dB)
DG-CB08 (3m)	CISPR	1 ~ 6 GHz	4.26
		6 ~18 GHz	5.30

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	LCD Monitor
Brand Name	N/A
Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Model Difference(s)	N/A
Power Source	AC Mains.
Power Rating	100-240V～50-60Hz
Connecting I/O Port	1* AC port 4* USB port 1* Micro USB port 1* Display port 1* HDMI port 1* Headphone port 2* Audio port

Cable Type	Shielded Type	Ferrite Core	Length(m)	Note
HDMI	Shielded	NO	1.2/1.5/1.8	
DP	Shielded	NO	1.2/1.5/1.8	
USB	Shielded	YES	1.2/1.5/1.8	
Audio	Non-shielded	YES	1.2/1.5/1.8	
AC Power Cord	Non-shielded	NO	1.2/1.5/1.8	1.8m is worst case Detachable (3 Pin)

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. Power cable 1.8m, 1.5m and 1.2m length, worst case is Power cable 1.8m with DP +HDMI +Audio +USB 1.8m, 1.5m and 1.2m length testing and recording in test report.

3.2 DESCRIPTION OF TEST MODES

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

Pretest Mode	Description
Mode 1	HDMI 2560*1440/60Hz
Mode 2	DP 2560*1440/144Hz
Mode 3	HDMI 1080P
Mode 4	HDMI 1280*1024/75Hz
Mode 5	HDMI 640*480/75Hz

For Conducted Test	
Final Test Mode	Description
Mode 1	HDMI 2560*1440/60Hz
Mode 2	DP 2560*1440/144Hz
Mode 3	HDMI 1080P

For Radiated Test	
Final Test Mode	Description
Mode 1	HDMI 2560*1440/60Hz
Mode 2	DP 2560*1440/144Hz
Mode 3	HDMI 1080P

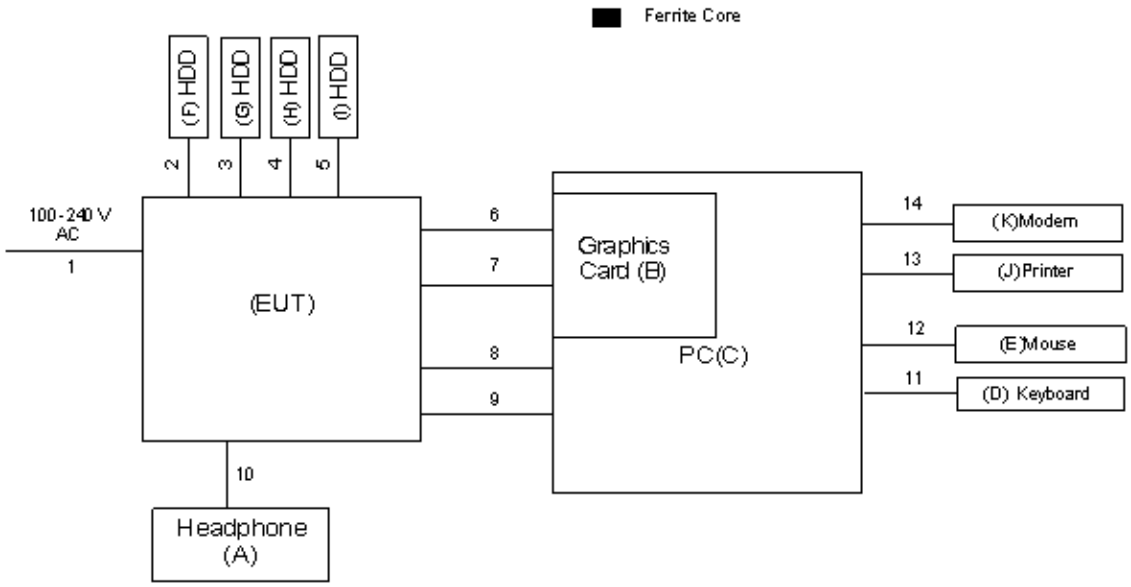
Evaluation description:
1. The maximum resolution is evaluated Mode 1-3. The worst case is Mode 1 and evaluated the middle and low resolution Mode 4 and mode 5.
2. According to client's requirement, choose Mode 1, Mode 2 and Mode 3 recording in test report.

3.3 EUT OPERATING CONDITIONS

The EUT exercise program used during radiated and/or conducted emission measurement was designed to exercise the various system components in a manner similar to a typical use. The standard test signals and output signal as following:
1. USB~ input from a USB storage device.
2. EUT Connected to headphone via headphone cable.
3. EUT Connected to PC via HDMI & DP & Audio & USB cable.
4. Send "H" pattern to serial port device (Modem).
5. Printer Connected to PC via Parallel cable.

As the keyboard and mouse are strictly input devices, no data is transmitted to (from) them during test. They are, however, continuously scanned for data input activity.

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 DESCRIPTION OF SUPPORT UNITS

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

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.
A	Headphone	Philips	SHMI500	VER	N/A
B	Graphics Card	DELL	ATI 3650	DOC	260832000932
C	PC	DELL	Vostro 470	DOC	28747261333
D	Keyboard	DELL	KB212-B	DOC	CN0HTXH97158125004DXA01
E	Mouse	DELL	MS111-P	DOC	CN011D3V71581279OLOT
F	HDD	WD	WDBLUZ5000ASL	DOC	WJ1E74X7D92
G	HDD	WD	WDBLUZ5000ASL	DOC	WX51AB3N8785
H	HDD	WD	WDBLUZ5000ASL	DOC	WXX1E7405LYS
I	HDD	WD	WDBLUZ5000AAL	DOC	WXM1A81M8113
J	Printer	SII	DPU-414	DOC	3018507 B
K	Modem	ACEEX	DM-1414V	IFAXDM 1414	0603002131

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.8m/1.5m/1.2m	AC Cable
2	YES	NO	1m	USB Cable
3	YES	NO	1m	USB Cable
4	YES	NO	1m	USB Cable
5	YES	NO	1m	USB Cable
6	YES	NO	1.8m/1.5m/1.2m	HDMI Cable
7	YES	NO	1.8m/1.5m/1.2m	DP Cable
8	YES	NO	1.8m/1.5m/1.2m	USB Cable
9	NO	NO	1.8m/1.5m/1.2m	Audio Cable
10	NO	NO	1.5m	Headphone Cable
11	YES	NO	1.8m	USB Cable
12	YES	NO	1.8m	USB Cable
13	YES	NO	1.8m	Parallel Cable
14	YES	NO	1.8m	RS232 Cable

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION (FREQUENCY RANGE 150KHZ-30MHZ)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

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

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

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

4.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	50Ω Terminator	SHX	TF2-3G-A	8122901	Mar. 11, 2019
2	TWO-LINE V-NETWORK	R&S	ENV216	100526	Mar. 11, 2019
3	EMI Test Receiver	R&S	ESR3	101862	Aug. 11, 2019
4	Artificial-Mains Network	SCHWARZBECK	NSLK 8127	8127685	Jun. 25, 2019
5	Cable	N/A	RG400 12m	N/A	Mar. 23, 2019
6	Measurement Software	Farad	EZ-EMC Ver.NB-03A 1-01	N/A	N/A

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

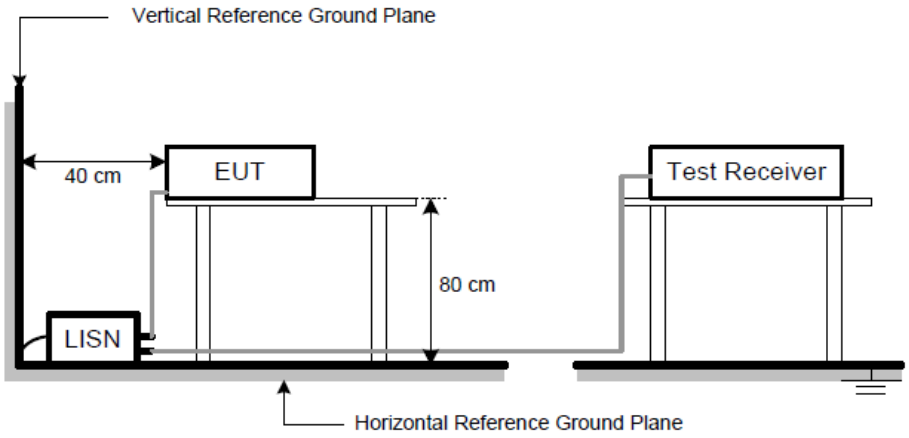
4.1.3 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.
f. First the whole spectrum of emission caused by equipment under test(EUT) is recorded with Detector set to peak. Peak value recorded in table if the margin from QP Limit is larger than 2dB,otherwise,QP value is recorded, Measuring frequency range from 150KHz to 30MHz.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP

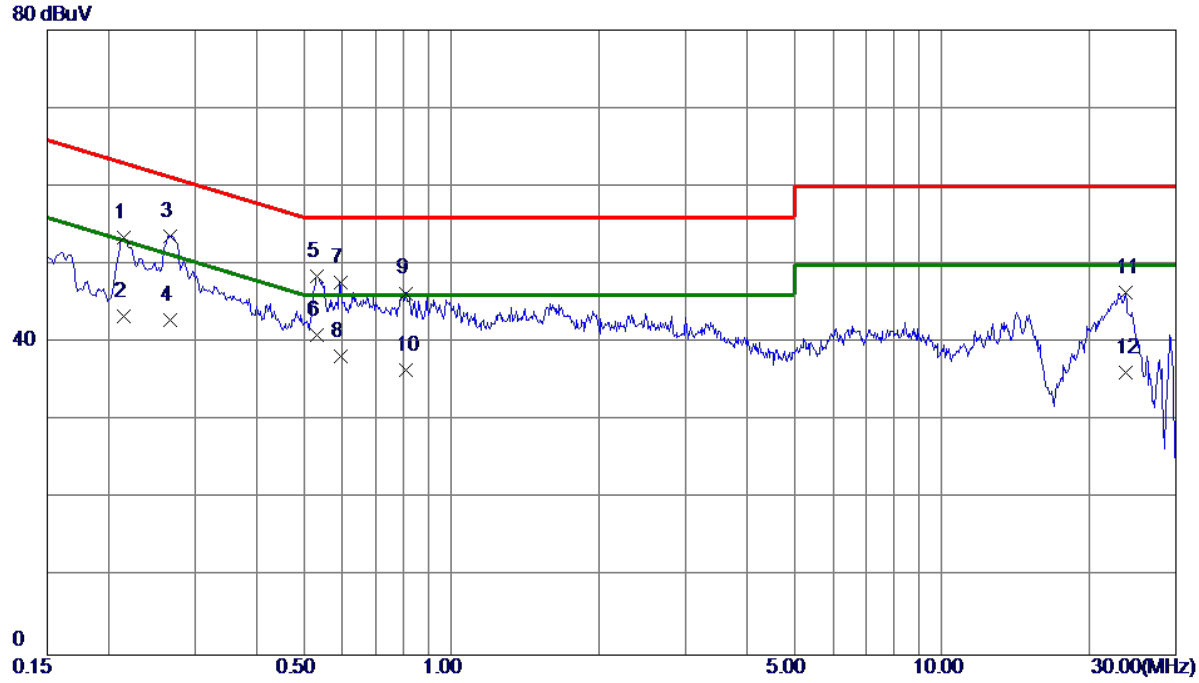


4.1.6 TEST RESULTS

Remark

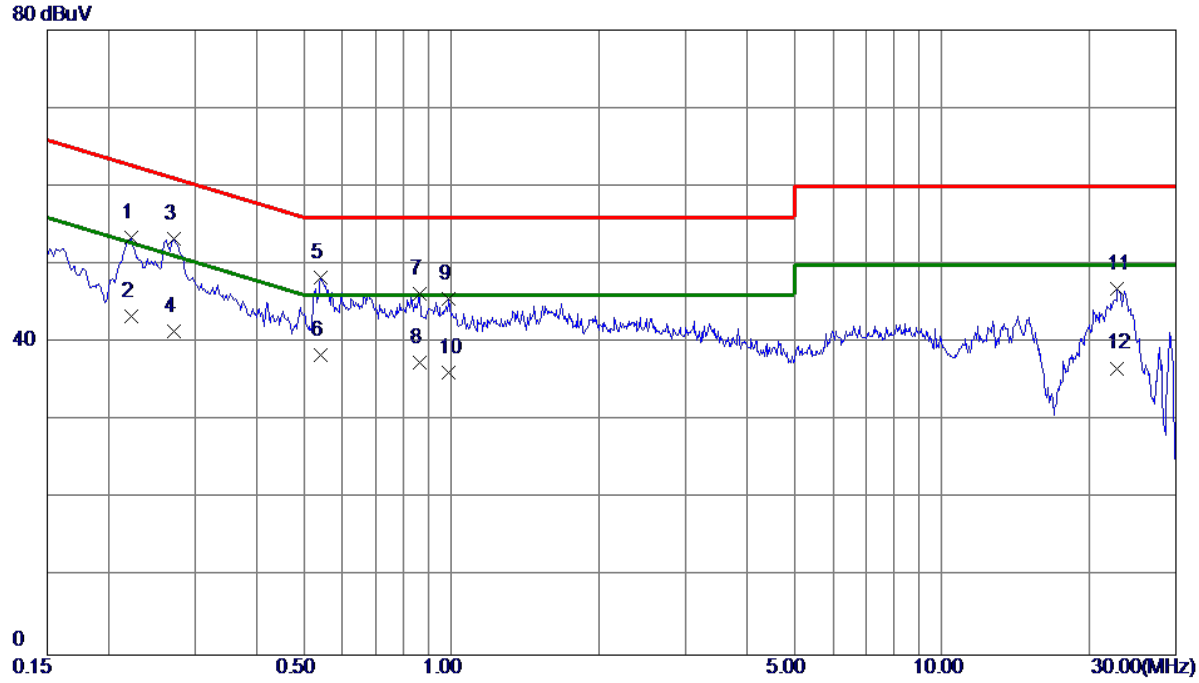
(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz. Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz,VBW=10KHz, Swp. Time =0.3 sec./MHz.
(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform.In this case, a " * " marked in AVG Mode column of Interference Voltage Measured.

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	53%
Test Voltage	AC 120V/60Hz	Phase	Line
Test Mode	HDMI 2560*1440/60Hz		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



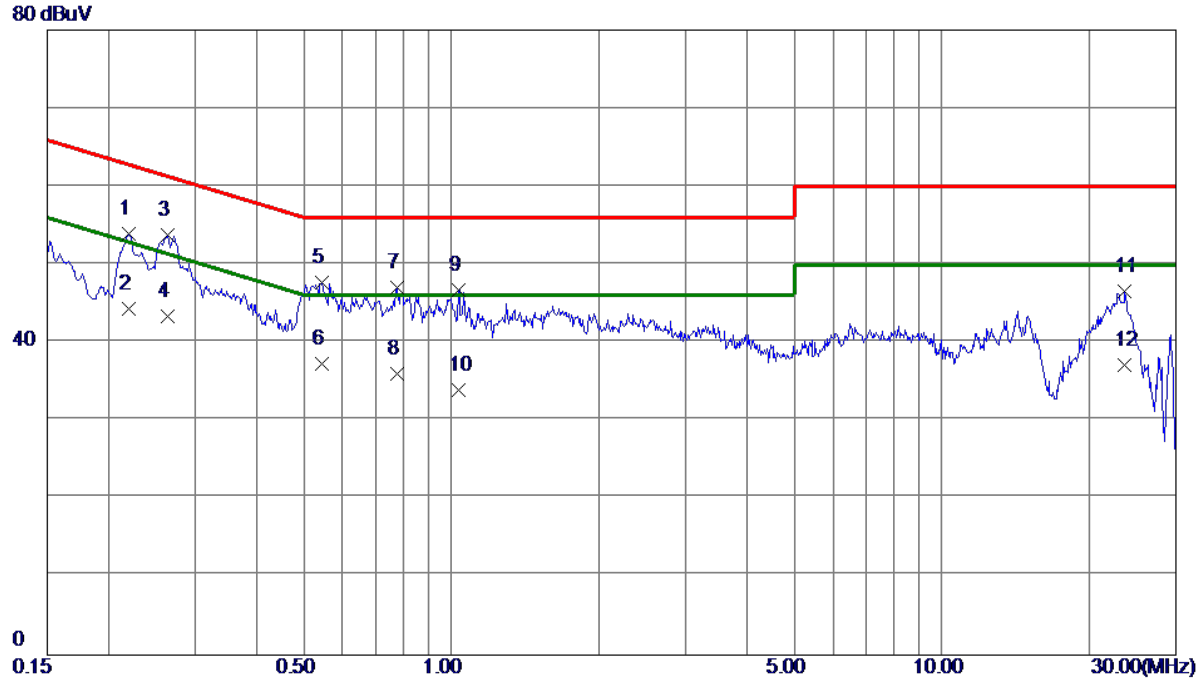
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.2152	43.64	9.79	53.43	63.00	-9.57	QP
2	0.2152	33.59	9.79	43.38	53.00	-9.62	AVG
3	0.2670	43.82	9.80	53.62	61.21	-7.59	QP
4	0.2670	33.10	9.80	42.90	51.21	-8.31	AVG
5	0.5324	38.62	9.83	48.45	56.00	-7.55	QP
6 *	0.5324	31.10	9.83	40.93	46.00	-5.07	AVG
7	0.5932	37.89	9.83	47.72	56.00	-8.28	QP
8	0.5932	28.40	9.83	38.23	46.00	-7.77	AVG
9	0.8070	36.48	9.84	46.32	56.00	-9.68	QP
10	0.8070	26.70	9.84	36.54	46.00	-9.46	AVG
11	23.6805	35.68	10.77	46.45	60.00	-13.55	QP
12	23.6805	25.41	10.77	36.18	50.00	-13.82	AVG

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	53%
Test Voltage	AC 120V/60Hz	Phase	Neutral
Test Mode	HDMI 2560*1440/60Hz		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



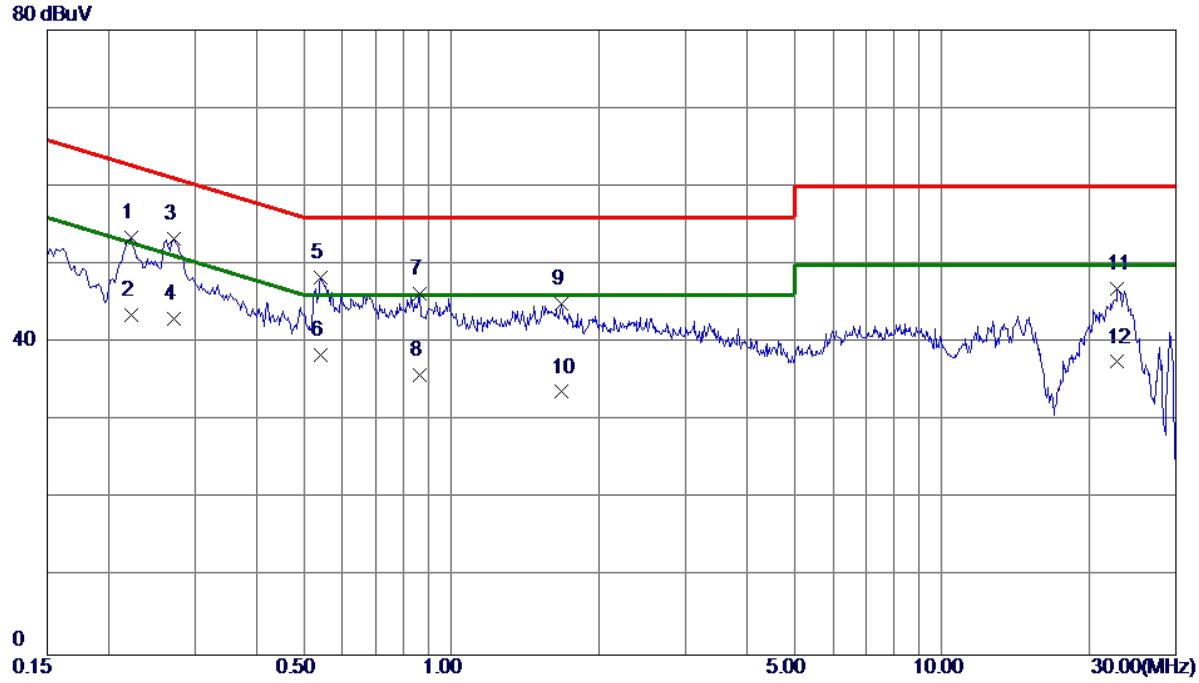
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.2220	43.50	9.88	53.38	62.74	-9.36	QP
2	0.2220	33.50	9.88	43.38	52.74	-9.36	AVG
3	0.2714	43.31	9.90	53.21	61.07	-7.86	QP
4	0.2714	31.51	9.90	41.41	51.07	-9.66	AVG
5 *	0.5414	38.41	9.98	48.39	56.00	-7.61	QP
6	0.5414	28.40	9.98	38.38	46.00	-7.62	AVG
7	0.8632	36.20	10.02	46.22	56.00	-9.78	QP
8	0.8632	27.40	10.02	37.42	46.00	-8.58	AVG
9	0.9892	35.52	10.05	45.57	56.00	-10.43	QP
10	0.9892	26.10	10.05	36.15	46.00	-9.85	AVG
11	22.8052	35.80	11.12	46.92	60.00	-13.08	QP
12	22.8052	25.60	11.12	36.72	50.00	-13.28	AVG

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	53%
Test Voltage	AC 120V/60Hz	Phase	Line
Test Mode	DP 2560*1440/144Hz		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



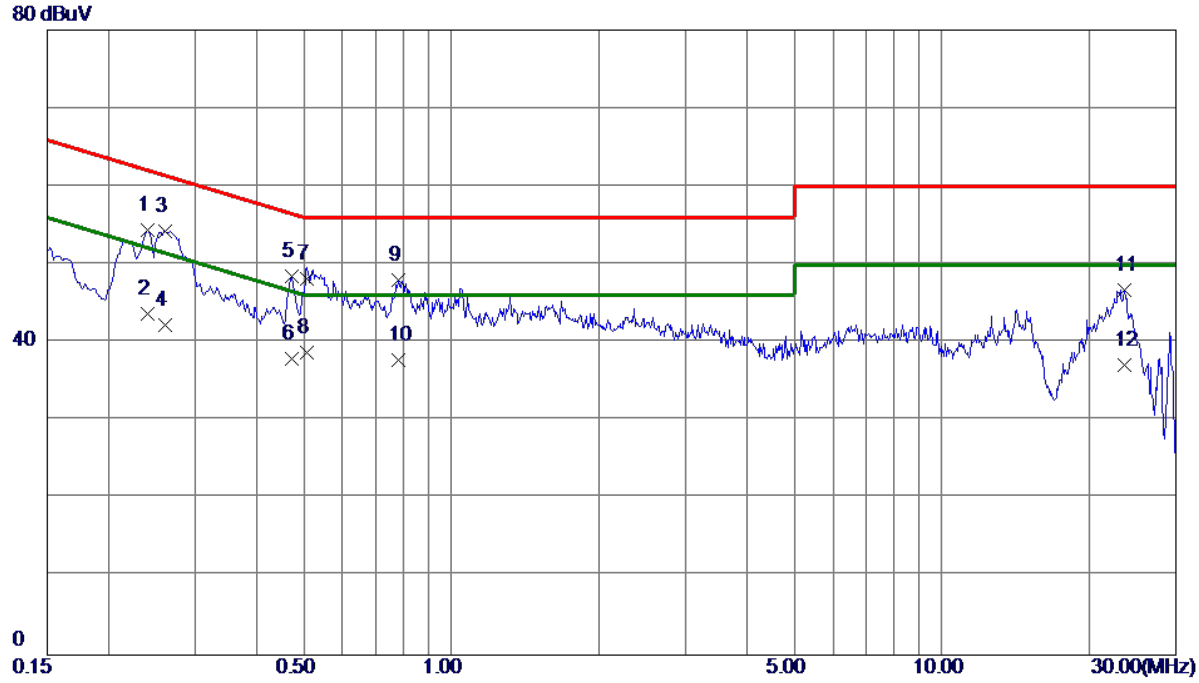
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.2197	44.05	9.79	53.84	62.83	-8.99	QP
2	0.2197	34.49	9.79	44.28	52.83	-8.55	AVG
3 *	0.2647	43.89	9.80	53.69	61.28	-7.59	QP
4	0.2647	33.50	9.80	43.30	51.28	-7.98	AVG
5	0.5437	37.81	9.83	47.64	56.00	-8.36	QP
6	0.5437	27.40	9.83	37.23	46.00	-8.77	AVG
7	0.7731	37.18	9.84	47.02	56.00	-8.98	QP
8	0.7731	26.10	9.84	35.94	46.00	-10.06	AVG
9	1.0363	36.81	9.85	46.66	56.00	-9.34	QP
10	1.0363	24.10	9.85	33.95	46.00	-12.05	AVG
11	23.5680	35.76	10.78	46.54	60.00	-13.46	QP
12	23.5680	26.40	10.78	37.18	50.00	-12.82	AVG

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	53%
Test Voltage	AC 120V/60Hz	Phase	Neutral
Test Mode	DP 2560*1440/144Hz		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



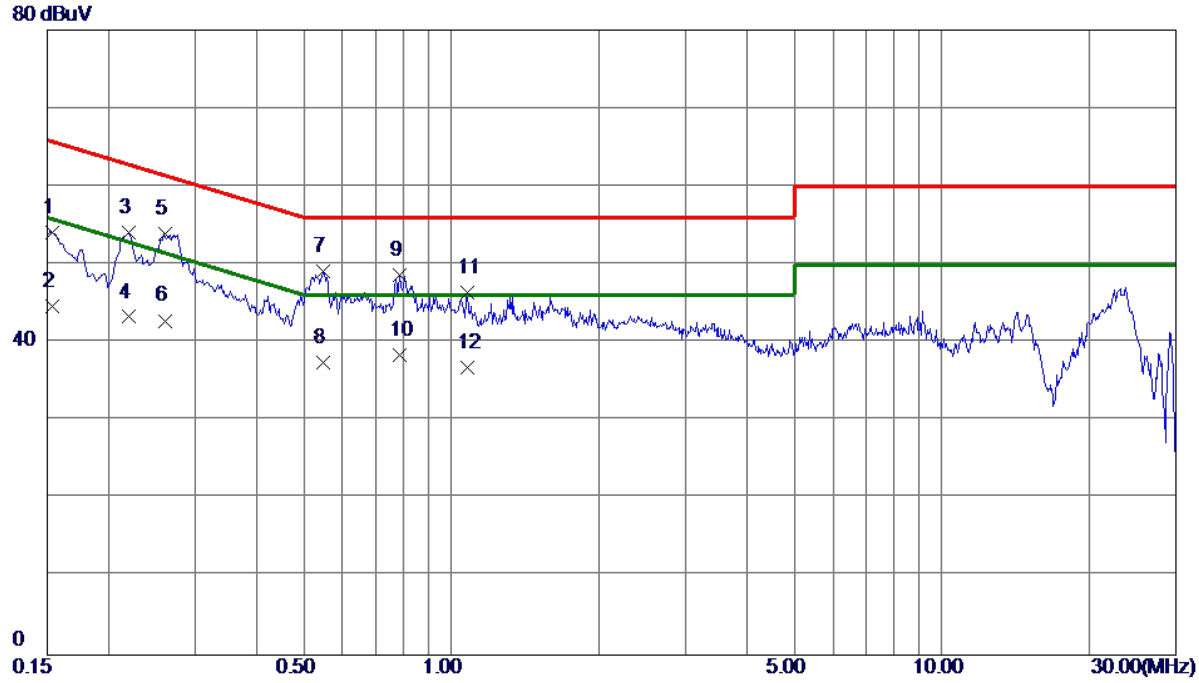
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.2220	43.50	9.88	53.38	62.74	-9.36	QP
2	0.2220	33.60	9.88	43.48	52.74	-9.26	AVG
3	0.2714	43.31	9.90	53.21	61.07	-7.86	QP
4	0.2714	33.11	9.90	43.01	51.07	-8.06	AVG
5 *	0.5414	38.41	9.98	48.39	56.00	-7.61	QP
6	0.5414	28.40	9.98	38.38	46.00	-7.62	AVG
7	0.8632	36.20	10.02	46.22	56.00	-9.78	QP
8	0.8632	25.90	10.02	35.92	46.00	-10.08	AVG
9	1.6777	34.90	10.08	44.98	56.00	-11.02	QP
10	1.6777	23.60	10.08	33.68	46.00	-12.32	AVG
11	22.8052	35.80	11.12	46.92	60.00	-13.08	QP
12	22.8052	26.40	11.12	37.52	50.00	-12.48	AVG

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	53%
Test Voltage	AC 120V/60Hz	Phase	Line
Test Mode	HDMI 1080P		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.2400	44.68	9.79	54.47	62.10	-7.63	QP
2	0.2400	33.90	9.79	43.69	52.10	-8.41	AVG
3 *	0.2602	44.49	9.80	54.29	61.43	-7.14	QP
4	0.2602	32.50	9.80	42.30	51.43	-9.13	AVG
5	0.4717	38.68	9.82	48.50	56.48	-7.98	QP
6	0.4717	28.11	9.82	37.93	46.48	-8.55	AVG
7	0.5076	38.40	9.83	48.23	56.00	-7.77	QP
8	0.5076	28.90	9.83	38.73	46.00	-7.27	AVG
9	0.7799	38.13	9.84	47.97	56.00	-8.03	QP
10	0.7799	27.90	9.84	37.74	46.00	-8.26	AVG
11	23.5342	36.00	10.78	46.78	60.00	-13.22	QP
12	23.5342	26.40	10.78	37.18	50.00	-12.82	AVG

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	53%
Test Voltage	AC 120V/60Hz	Phase	Neutral
Test Mode	HDMI 1080P		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.1532	44.20	9.88	54.08	65.82	-11.74	QP
2	0.1532	34.80	9.88	44.68	55.82	-11.14	AVG
3	0.2197	44.19	9.88	54.07	62.83	-8.76	QP
4	0.2197	33.40	9.88	43.28	52.83	-9.55	AVG
5	0.2602	44.00	9.90	53.90	61.43	-7.53	QP
6	0.2602	32.90	9.90	42.80	51.43	-8.63	AVG
7 *	0.5482	39.08	9.98	49.06	56.00	-6.94	QP
8	0.5482	27.50	9.98	37.48	46.00	-8.52	AVG
9	0.7844	38.55	10.02	48.57	56.00	-7.43	QP
10	0.7844	28.40	10.02	38.42	46.00	-7.58	AVG
11	1.0770	36.37	10.05	46.42	56.00	-9.58	QP
12	1.0770	26.80	10.05	36.85	46.00	-9.15	AVG

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Below 1 GHz
Measurement Method and Applied Limits:
ANSI C63.4:

Frequency (MHz)	Class A (at 10m)		Class B (at 3m)	
	(uV/m) Field strength	(dBuV/m) Field strength	(uV/m) Field strength	(dBuV/m) Field strength
30 - 88	90	39	100	40
88 - 216	150	43.5	150	43.5
216 - 960	210	46.4	200	46
Above 960	300	49.5	500	54

Above 1 GHz
Measurement Method and Applied Limits:
ANSI C63.4:

Frequency (MHz)	Class A				Class B	
	(dBuV/m) (at 3m)		(dBuV/m) (at 10m)		(dBuV/m) (at 3m)	
	Peak	Average	Peak	Average	Peak	Average
Above 1000	80	60	69.5	49.5	74	54

FREQUENCY RANGE OF RADIATED MEASUREMENT (FOR UNINTENTIONAL RADIATORS)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 - 108	1000
108 - 500	2000
500 - 1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 40 GHz, whichever is lower

NOTE:
(1) The limit for radiated test was performed according to as following:
FCC Part 15, Subpart B; ICES-003 Issue 6:2016 (updated April 2017).
(2) The tighter limit applies at the band edges.
(3) Emission level (dBuV/m) = 20log Emission level (uV/m).
3m Emission level = 10m Emission level + 20log(10m/3m).
(4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
Margin Level = Measurement Value - Limit Value

4.2.2 MEASUREMENT INSTRUMENTS LIST

Below 1GHz:

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Receiver	Keysight	N9038A	MY54450004	Aug. 11, 2019
2	MXE EMI Receiver	Agilent	N9038A	MY53220133	Mar. 11, 2019
3	Pre-Amplifier	Mini-Circuits	EMC 9135	980284	Mar. 11, 2019
4	Pre-Amplifier	Mini-Circuits	EMC 9135	980283	Mar. 11, 2019
5	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	586	Nov. 09, 2018
6	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	587	Jan. 04, 2019
7	Cable	emci	LMR-400(5m+11m+15m)	N/A	Jan. 11, 2019
8	Cable	emci	LMR-400(5m+8m+15m)	N/A	Jan. 11, 2019
9	Measurement Software	Farad	EZ-EMC Ver.BTL-2ANT-1	N/A	N/A
10	Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
11	Attenuator	SHX	TS2-6dB-6G-A	16101101	Nov. 09, 2018
12	Attenuator	SHX	TS2-6dB-6G-A	16101102	Jan. 04, 2019

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

Above 1GHz:

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Horn Antenna	EMCO	3115	9605-4803	Mar. 11, 2019
2	Amplifier	Agilent	8449B	3008A02584	Aug. 11, 2019
3	Measurement Software	Farad	EZ-EMC Ver.BTL-2ANT-1	N/A	N/A
4	Cable	MIcable Inc.	B10-01-01-15M(10MHz~26.5GHz)	18047122	May 25, 2019
5	Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
6	Controller	MF	MF-7802	MF780208159	N/A
7	Cable	emci	SUCOFLEX 102_8m(0.01GHz－40GHz)	N/A	Mar. 26, 2019

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

4.2.3 TEST PROCEDURE

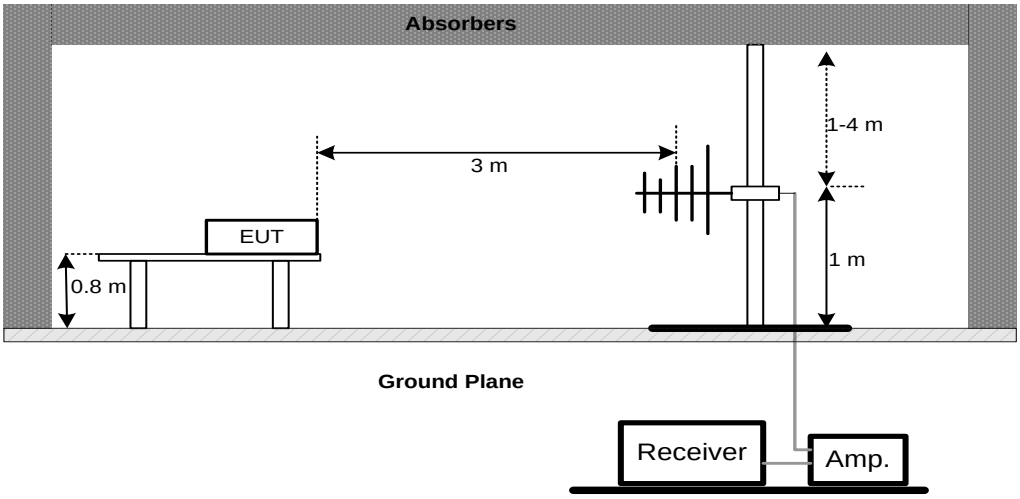
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
c. The height of the equipment or of the substitution antenna shall be 0.8 m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.
f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform. (below 1GHz)
h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn‘t perform. (above 1GHz)
i. For the actual test configuration, please refer to the related Item - Block Diagram of system tested (please refer to 3.3).

4.2.4 DEVIATION FROM TEST STANDARD

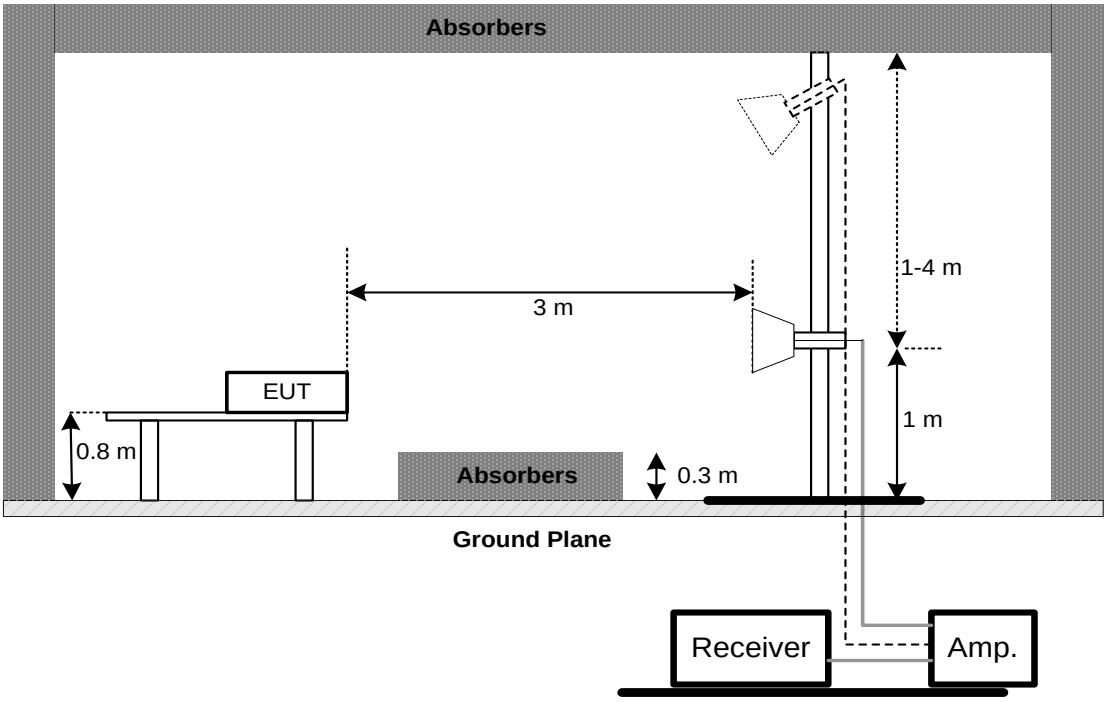
No deviation

4.2.5 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz

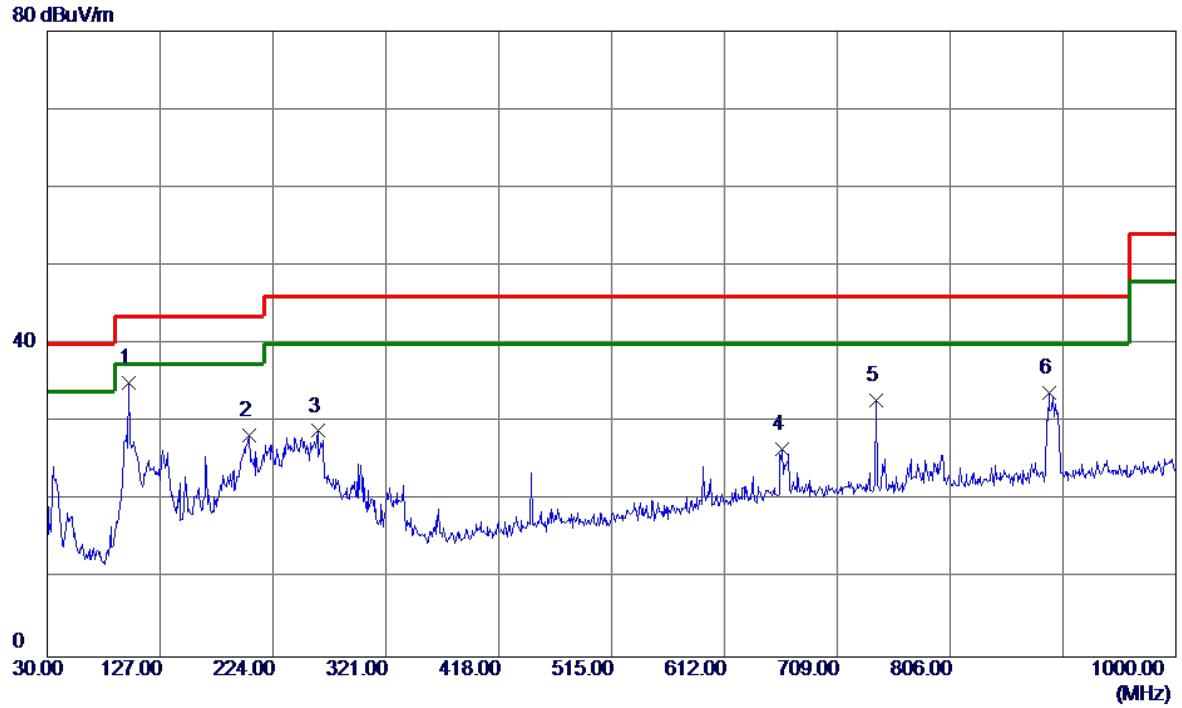


4.2.6 TEST RESULTS-BELOW 1GHZ

Remark：

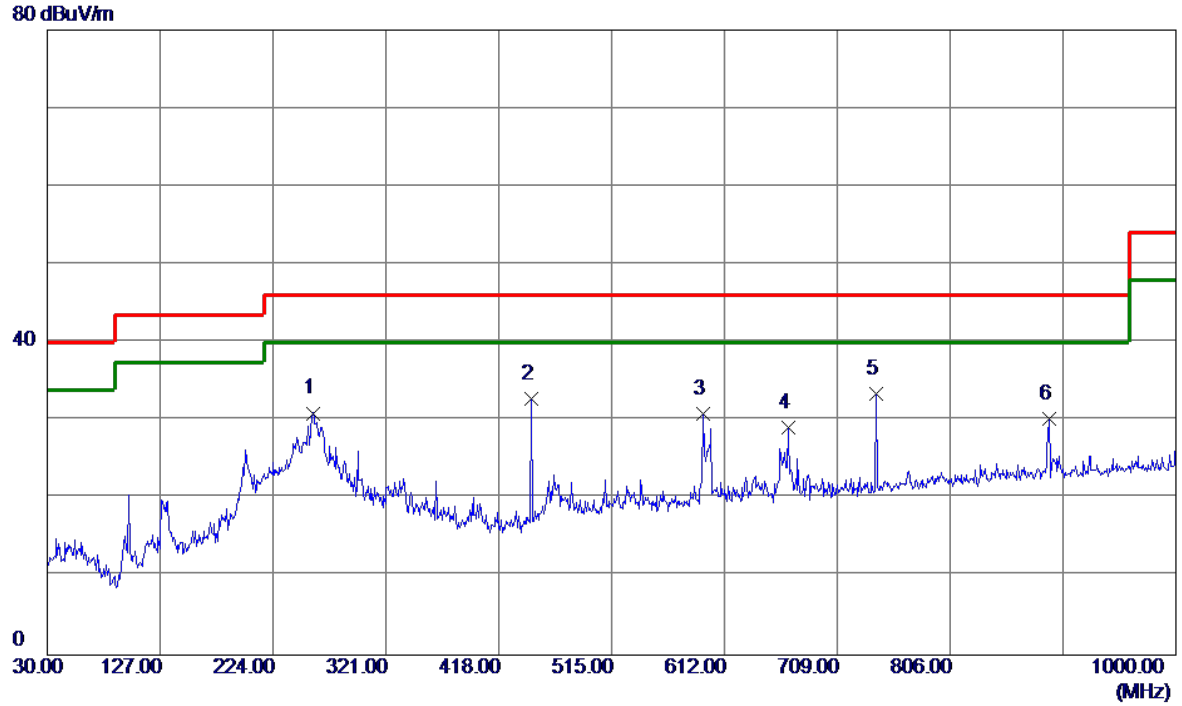
(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
(2) Measuring frequency range from 30MHz to 1000MHz.
(3) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	HDMI 2560*1440/60Hz		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



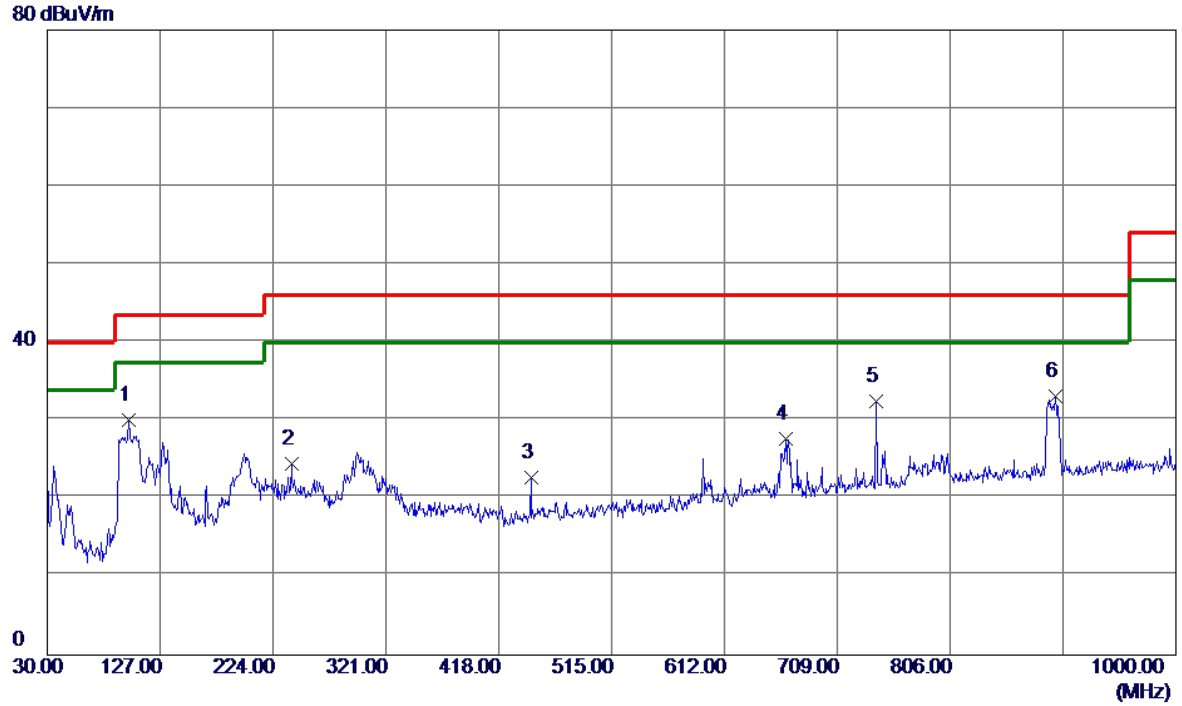
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1 *	99.8399	57.30	-22.22	35.08	43.50	-8.42	QP
2	203.1450	48.83	-20.50	28.33	43.50	-15.17	QP
3	262.3150	47.16	-18.28	28.88	46.00	-17.12	QP
4	661.9550	37.33	-10.84	26.49	46.00	-19.51	QP
5	742.4650	42.58	-9.82	32.76	46.00	-13.24	QP
6	890.8750	41.85	-8.08	33.77	46.00	-12.23	QP

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	HDMI 2560*1440/60Hz		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



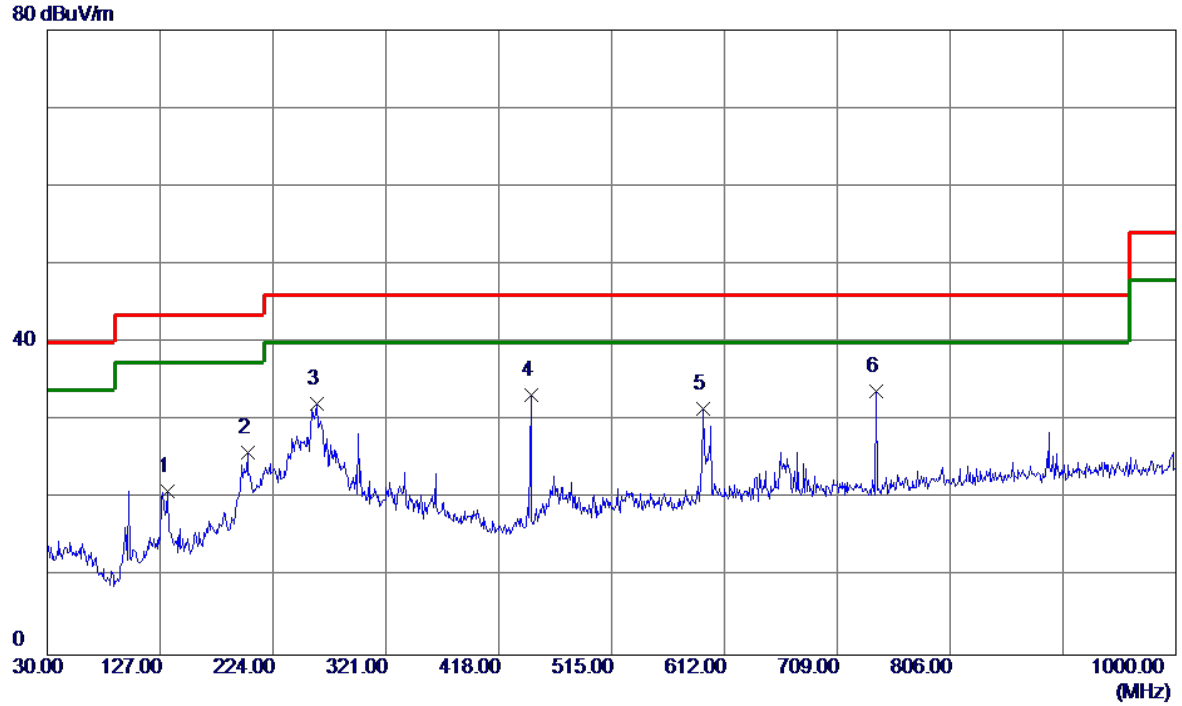
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	258.4350	49.41	-18.45	30.96	46.00	-15.04	QP
2	445.6450	47.02	-14.29	32.73	46.00	-13.27	QP
3	594.0550	42.43	-11.51	30.92	46.00	-15.08	QP
4	666.8050	39.95	-10.80	29.15	46.00	-16.85	QP
5 *	742.4650	43.20	-9.82	33.38	46.00	-12.62	QP
6	890.8750	38.25	-8.08	30.17	46.00	-15.83	QP

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	DP 2560*1440/144Hz		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



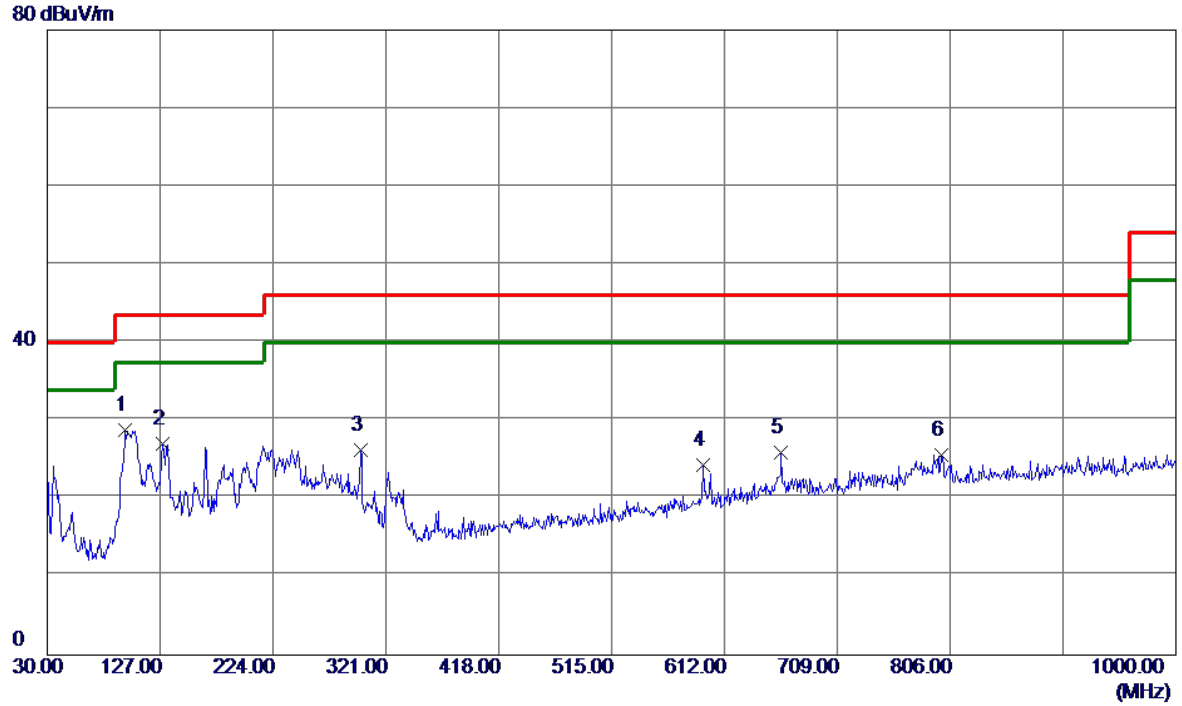
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	99.8399	52.35	-22.22	30.13	43.50	-13.37	QP
2	240.0050	43.45	-19.00	24.45	46.00	-21.55	QP
3	445.6450	37.04	-14.29	22.75	46.00	-23.25	QP
4	664.8650	38.55	-10.82	27.73	46.00	-18.27	QP
5	742.4650	42.30	-9.82	32.48	46.00	-13.52	QP
6 *	896.2100	41.18	-8.03	33.15	46.00	-12.85	QP

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	DP 2560*1440/144Hz		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



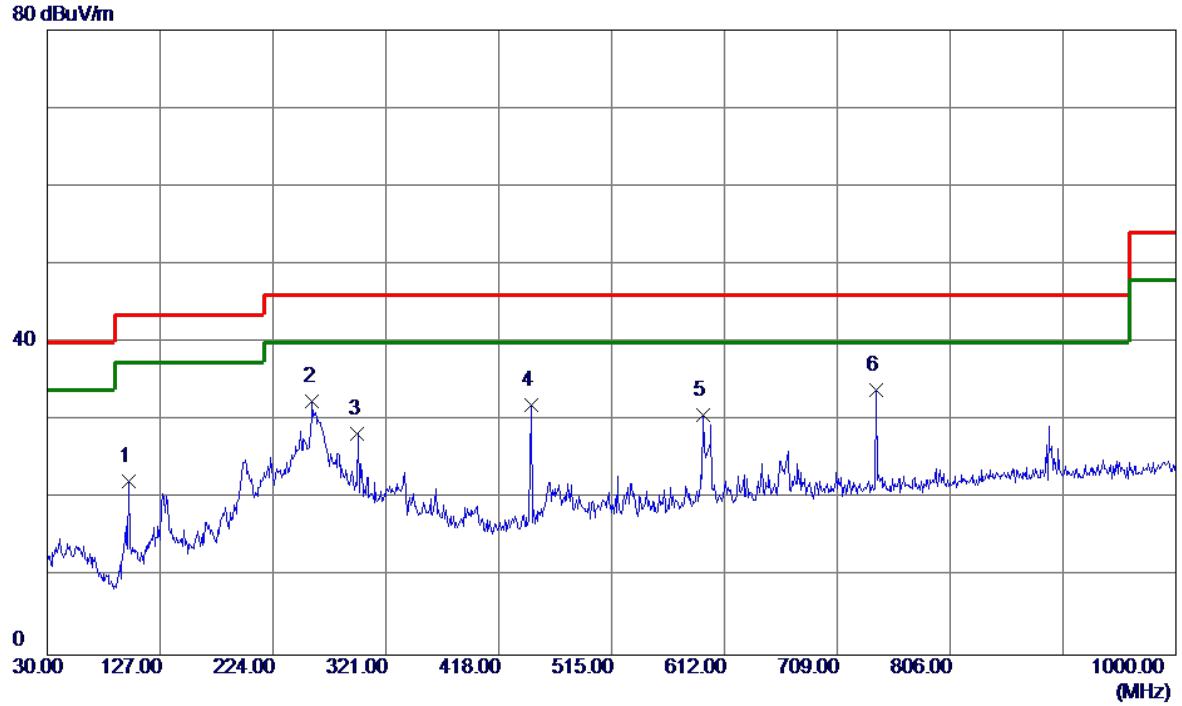
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	133.3049	39.75	-18.74	21.01	43.50	-22.49	QP
2	202.1750	46.36	-20.50	25.86	43.50	-17.64	QP
3	261.3450	50.47	-18.33	32.14	46.00	-13.86	QP
4	445.6450	47.59	-14.29	33.30	46.00	-12.70	QP
5	594.0550	43.03	-11.51	31.52	46.00	-14.48	QP
6 *	742.4650	43.61	-9.82	33.79	46.00	-12.21	QP

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	HDMI 1080P		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1 *	96.9300	51.35	-22.50	28.85	43.50	-14.65	QP
2	129.4250	46.18	-19.14	27.04	43.50	-16.46	QP
3	299.1750	43.42	-17.11	26.31	46.00	-19.69	QP
4	594.0550	35.81	-11.51	24.30	46.00	-21.70	QP
5	660.9850	36.79	-10.85	25.94	46.00	-20.06	QP
6	798.2400	34.57	-8.93	25.64	46.00	-20.36	QP

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	HDMI 1080P		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



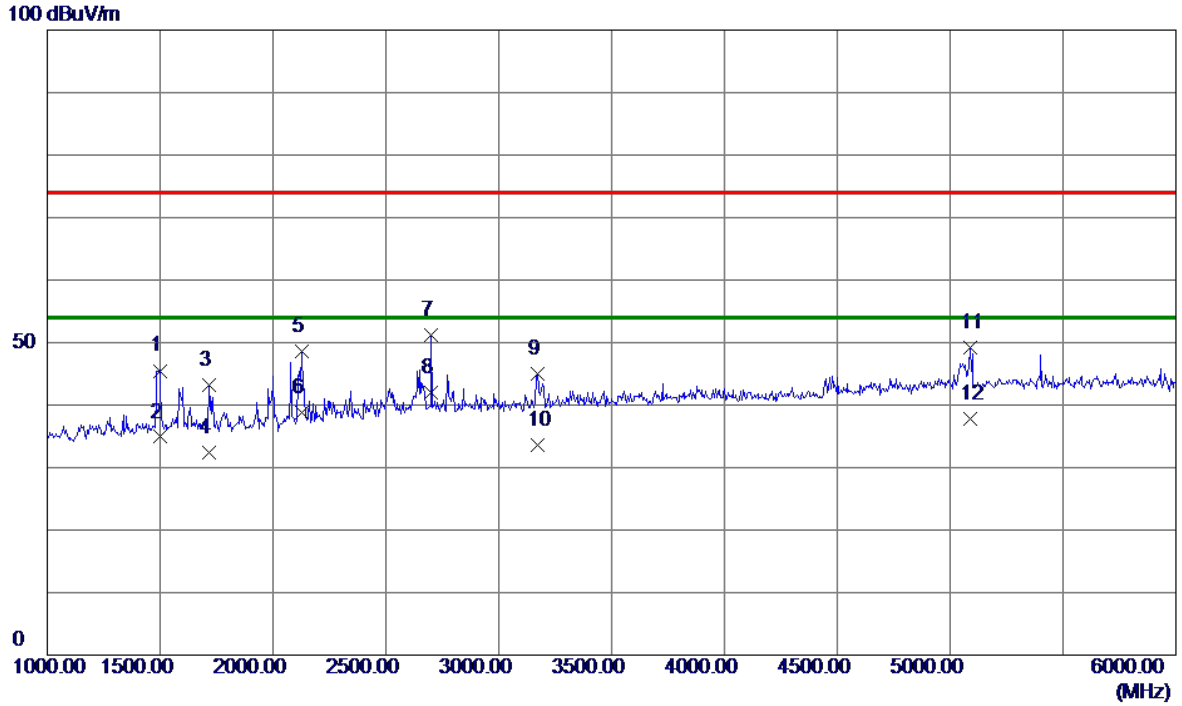
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	99.8399	44.45	-22.22	22.23	43.50	-21.27	QP
2	257.9500	50.90	-18.46	32.44	46.00	-13.56	QP
3	296.7500	45.43	-17.15	28.28	46.00	-17.72	QP
4	445.6450	46.35	-14.29	32.06	46.00	-13.94	QP
5	594.0550	42.24	-11.51	30.73	46.00	-15.27	QP
6 *	742.4650	43.68	-9.82	33.86	46.00	-12.14	QP

4.2.7 TEST RESULTS-ABOVE 1GHZ

Remark：

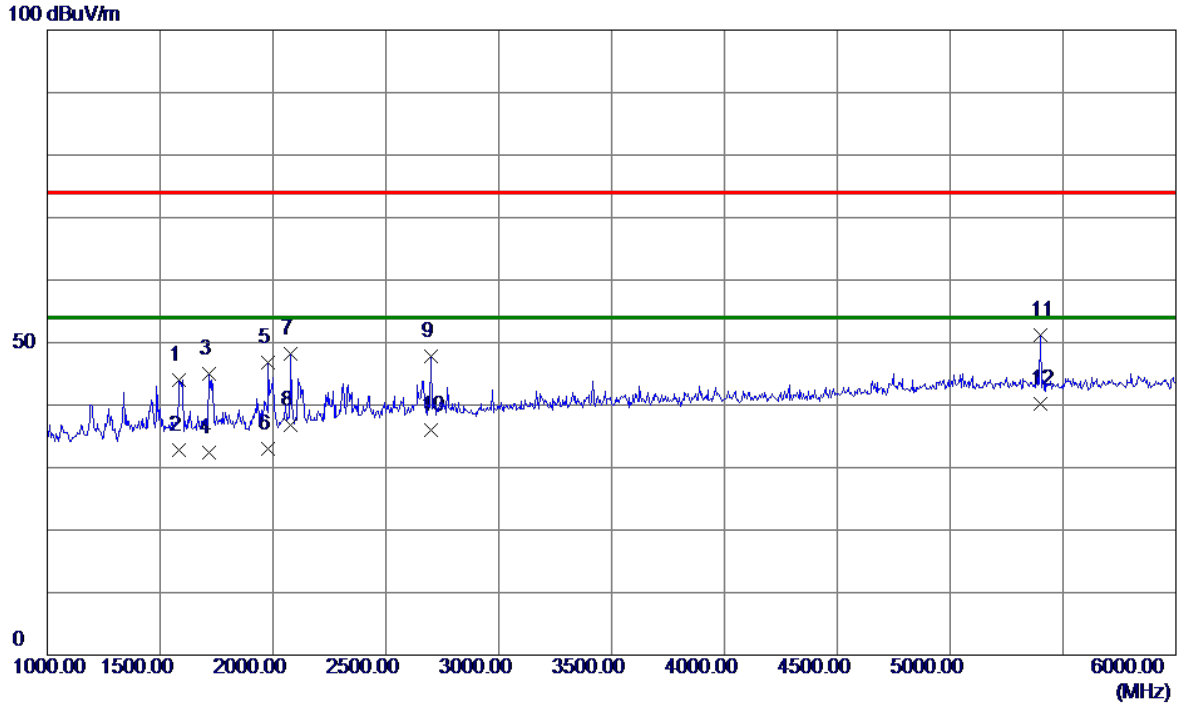
(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
(2) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission.
(3) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(4) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	HDMI 2560*1440/60Hz		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



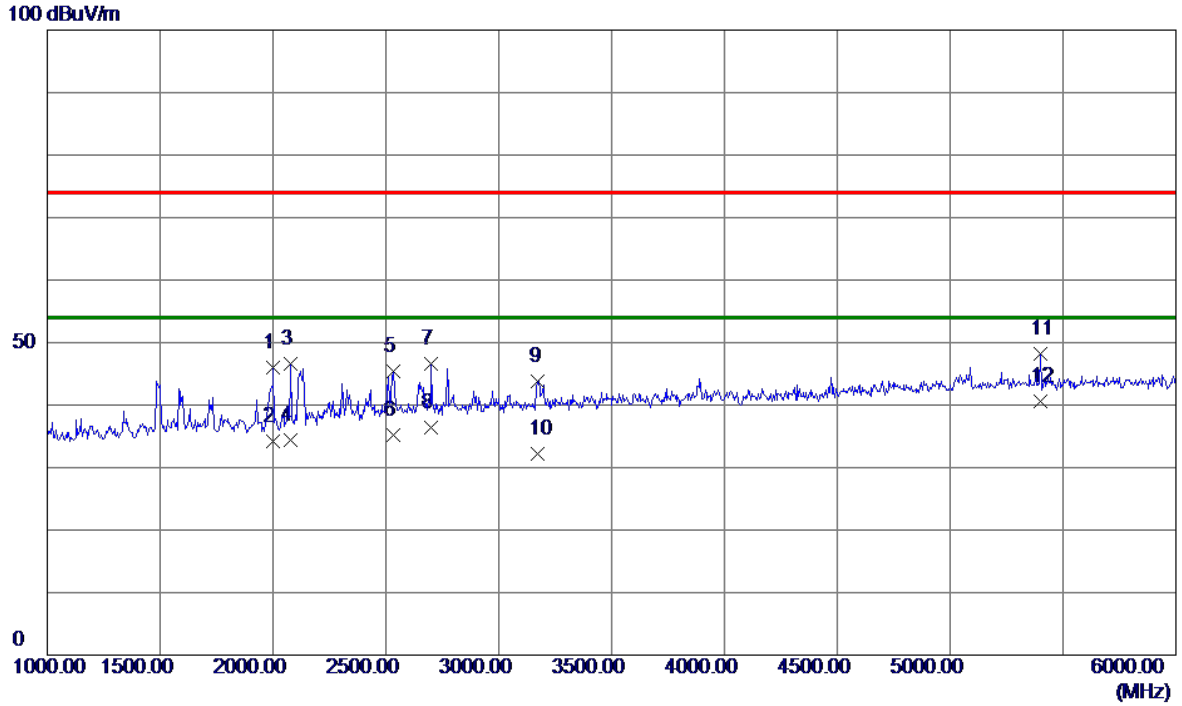
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1497.5000	49.08	-3.58	45.50	74.00	-28.50	Peak
2	1497.5000	38.48	-3.58	34.90	54.00	-19.10	AVG
3	1717.5000	46.04	-2.82	43.22	74.00	-30.78	Peak
4	1717.5000	35.13	-2.82	32.31	54.00	-21.69	AVG
5	2127.5000	50.01	-1.33	48.68	74.00	-25.32	Peak
6	2127.5000	40.12	-1.33	38.79	54.00	-15.21	AVG
7	2700.0000	50.42	0.75	51.17	74.00	-22.83	Peak
8 *	2700.0000	41.27	0.75	42.02	54.00	-11.98	AVG
9	3172.5000	42.86	2.17	45.03	74.00	-28.97	Peak
10	3172.5000	31.51	2.17	33.68	54.00	-20.32	AVG
11	5087.5000	41.53	7.75	49.28	74.00	-24.72	Peak
12	5087.5000	30.11	7.75	37.86	54.00	-16.14	AVG

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	HDMI 2560*1440/60Hz		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



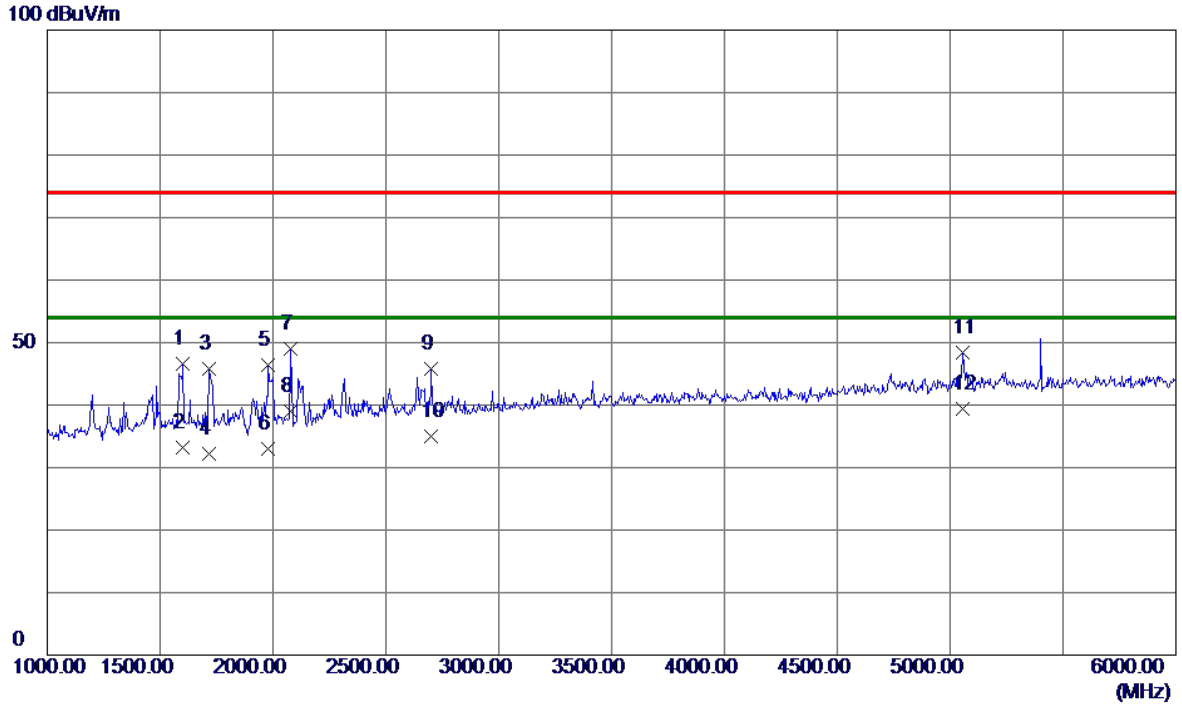
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1585.0000	47.33	-3.27	44.06	74.00	-29.94	Peak
2	1585.0000	36.11	-3.27	32.84	54.00	-21.16	AVG
3	1717.5000	47.83	-2.82	45.01	74.00	-28.99	Peak
4	1717.5000	35.13	-2.82	32.31	54.00	-21.69	AVG
5	1980.0000	48.65	-1.92	46.73	74.00	-27.27	Peak
6	1980.0000	34.96	-1.92	33.04	54.00	-20.96	AVG
7	2080.0000	49.63	-1.52	48.11	74.00	-25.89	Peak
8	2080.0000	38.25	-1.52	36.73	54.00	-17.27	AVG
9	2700.0000	47.13	0.75	47.88	74.00	-26.12	Peak
10	2700.0000	35.17	0.75	35.92	54.00	-18.08	AVG
11	5400.0000	43.17	8.05	51.22	74.00	-22.78	Peak
12 *	5400.0000	32.15	8.05	40.20	54.00	-13.80	AVG

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	DP 2560*1440/144Hz		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



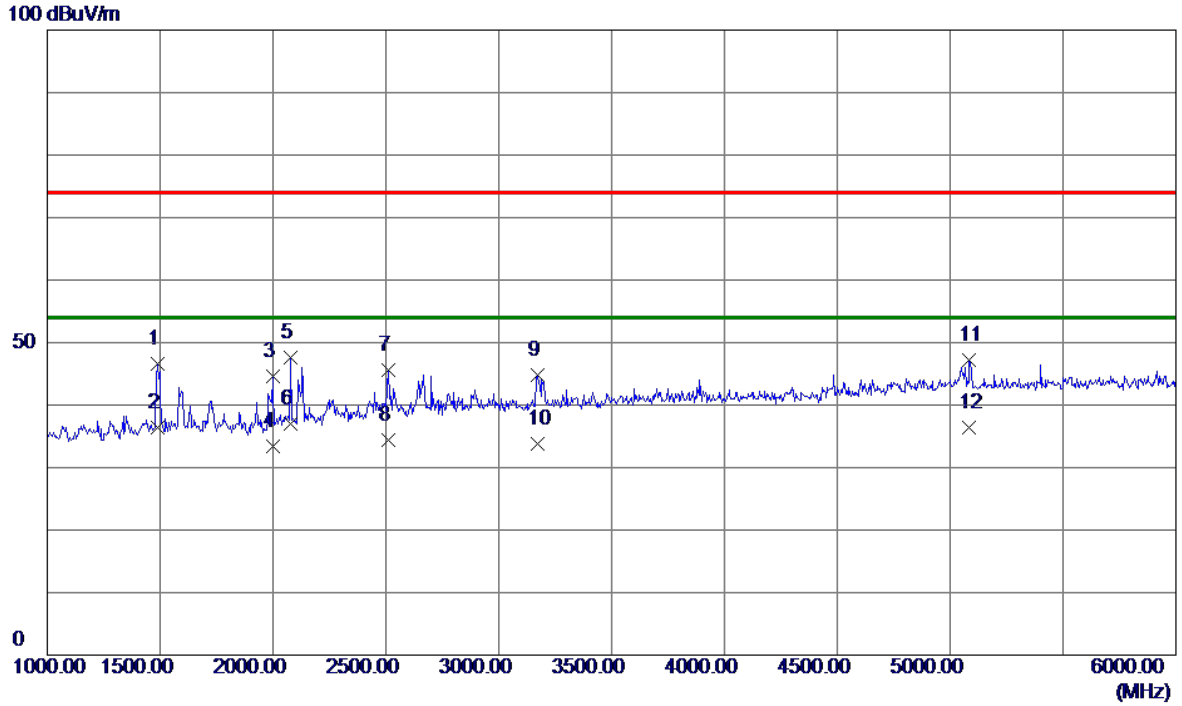
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	2000.0000	47.83	-1.85	45.98	74.00	-28.02	Peak
2	2000.0000	36.12	-1.85	34.27	54.00	-19.73	AVG
3	2080.0000	48.15	-1.52	46.63	74.00	-27.37	Peak
4	2080.0000	35.84	-1.52	34.32	54.00	-19.68	AVG
5	2535.0000	45.02	0.29	45.31	74.00	-28.69	Peak
6	2535.0000	34.92	0.29	35.21	54.00	-18.79	AVG
7	2700.0000	45.76	0.75	46.51	74.00	-27.49	Peak
8	2700.0000	35.62	0.75	36.37	54.00	-17.63	AVG
9	3175.0000	41.70	2.18	43.88	74.00	-30.12	Peak
10	3175.0000	30.11	2.18	32.29	54.00	-21.71	AVG
11	5400.0000	40.14	8.05	48.19	74.00	-25.81	Peak
12 *	5400.0000	32.48	8.05	40.53	54.00	-13.47	AVG

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	DP 2560*1440/144Hz		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



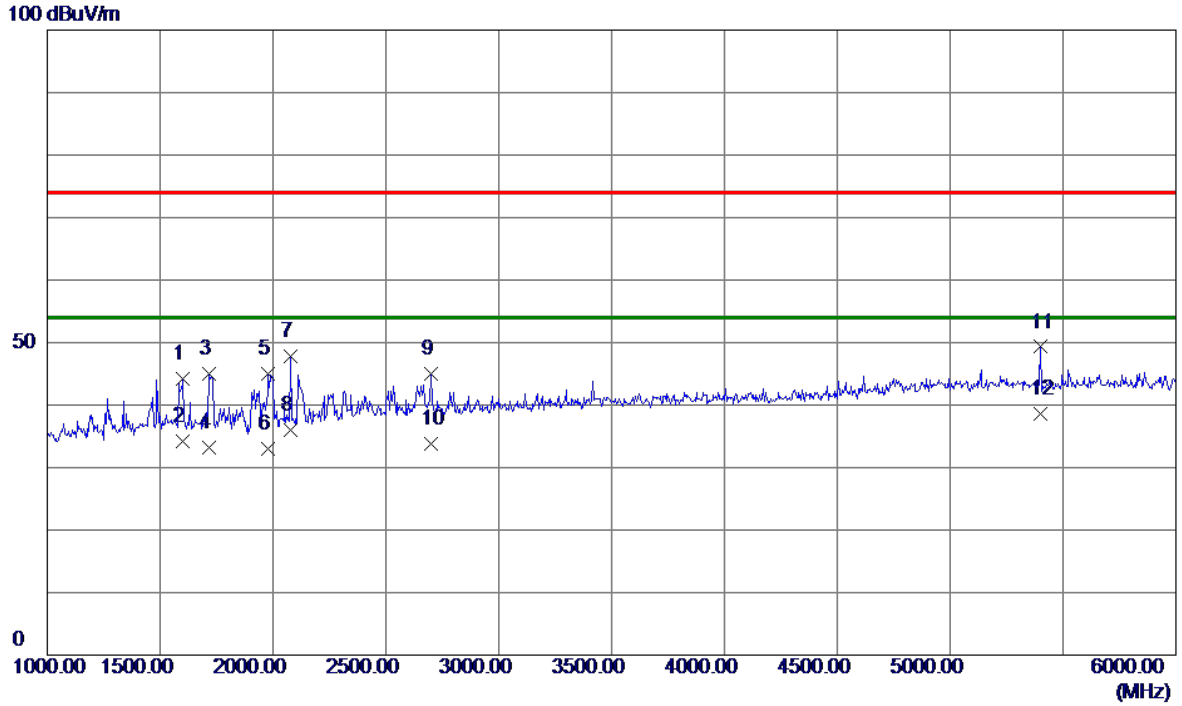
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1600.0000	49.89	-3.22	46.67	74.00	-27.33	Peak
2	1600.0000	36.47	-3.22	33.25	54.00	-20.75	AVG
3	1715.0000	48.66	-2.82	45.84	74.00	-28.16	Peak
4	1715.0000	35.11	-2.82	32.29	54.00	-21.71	AVG
5	1980.0000	48.41	-1.92	46.49	74.00	-27.51	Peak
6	1980.0000	34.96	-1.92	33.04	54.00	-20.96	AVG
7	2080.0000	50.46	-1.52	48.94	74.00	-25.06	Peak
8	2080.0000	40.57	-1.52	39.05	54.00	-14.95	AVG
9	2700.0000	45.00	0.75	45.75	74.00	-28.25	Peak
10	2700.0000	34.26	0.75	35.01	54.00	-18.99	AVG
11	5057.5000	40.73	7.72	48.45	74.00	-25.55	Peak
12 *	5057.5000	31.59	7.72	39.31	54.00	-14.69	AVG

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	HDMI 1080P		
Note	Cable:1.8m		
Test Engineer	Jason Yang		



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1487.5000	50.30	-3.65	46.65	74.00	-27.35	Peak
2	1487.5000	40.12	-3.65	36.47	54.00	-17.53	AVG
3	1997.5000	46.54	-1.86	44.68	74.00	-29.32	Peak
4	1997.5000	35.17	-1.86	33.31	54.00	-20.69	AVG
5	2080.0000	49.10	-1.52	47.58	74.00	-26.42	Peak
6 *	2080.0000	38.43	-1.52	36.91	54.00	-17.09	AVG
7	2512.5000	45.29	0.22	45.51	74.00	-28.49	Peak
8	2512.5000	34.25	0.22	34.47	54.00	-19.53	AVG
9	3170.0000	42.57	2.16	44.73	74.00	-29.27	Peak
10	3170.0000	31.69	2.16	33.85	54.00	-20.15	AVG
11	5085.0000	39.49	7.75	47.24	74.00	-26.76	Peak
12	5085.0000	28.64	7.75	36.39	54.00	-17.61	AVG

EUT	LCD Monitor	Model Name	**273QCG******** (*=A-Z,a-z,0-9,/,orblank)
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	HDMI 1080P		
Note	Cable:1.8m		
Test Engineer	Jason Yang		

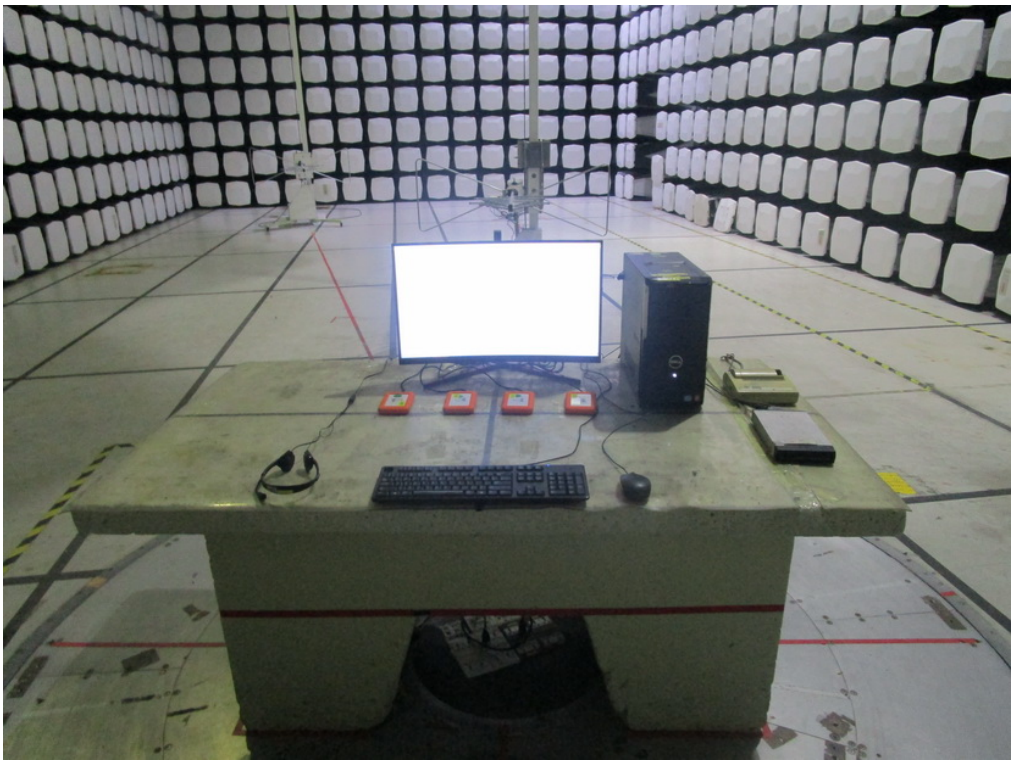


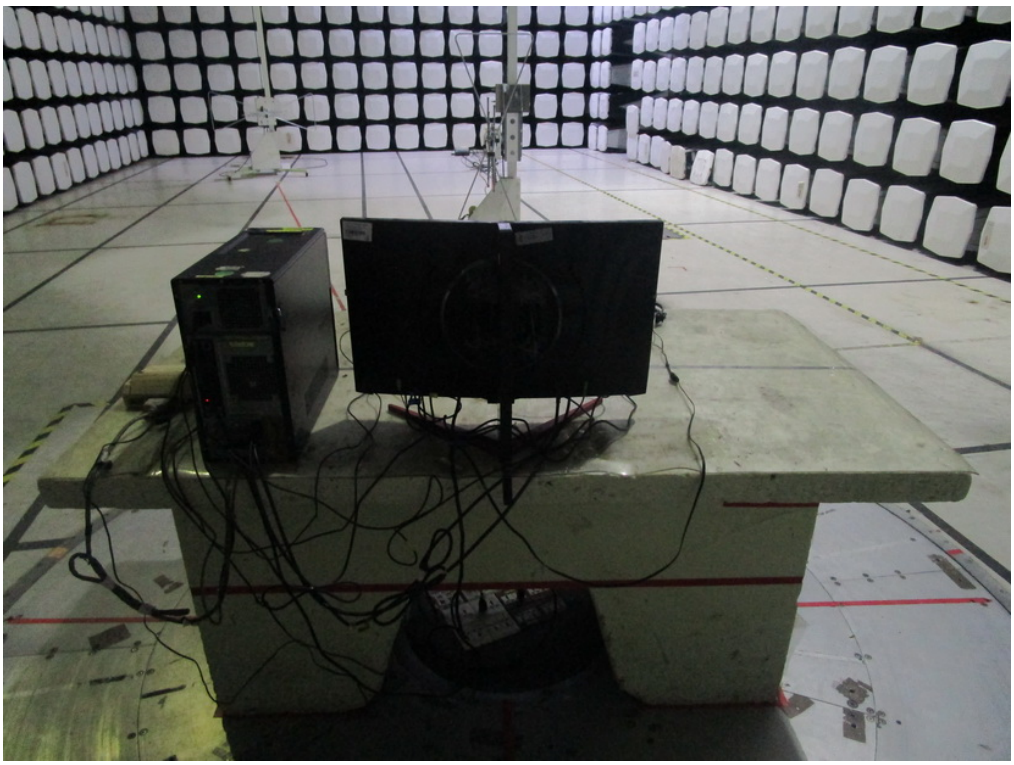
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin	
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector
1	1600.0000	47.48	-3.22	44.26	74.00	-29.74	Peak
2	1600.0000	37.42	-3.22	34.20	54.00	-19.80	AVG
3	1715.0000	47.89	-2.82	45.07	74.00	-28.93	Peak
4	1715.0000	35.95	-2.82	33.13	54.00	-20.87	AVG
5	1980.0000	46.94	-1.92	45.02	74.00	-28.98	Peak
6	1980.0000	34.85	-1.92	32.93	54.00	-21.07	AVG
7	2080.0000	49.41	-1.52	47.89	74.00	-26.11	Peak
8	2080.0000	37.47	-1.52	35.95	54.00	-18.05	AVG
9	2700.0000	44.30	0.75	45.05	74.00	-28.95	Peak
10	2700.0000	33.11	0.75	33.86	54.00	-20.14	AVG
11	5400.0000	41.25	8.05	49.30	74.00	-24.70	Peak
12 *	5400.0000	30.61	8.05	38.66	54.00	-15.34	AVG

5. EUT TEST PHOTO

Conducted Emission

Radiated emission below 1 GHz





Radiated emission above 1 GHz