



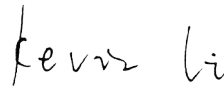
FCC& ISED EMC Test Report

Project No. : 1905C011
Equipment : LCD Monitor
Test Model : 22B2
Series Model : **22B2***** (*=0-9, A-Z, a-z, +, -, /, \ or blank)
Applicant : TPV Electronics (Fujian) Co., Ltd.
Address : Rongqiao Economic and Technological Development Zone, Fuqing City, Fujian Province, P.R. China

Date of Receipt : May 07, 2019
Date of Test : May 10, 2019 ~ May 30, 2019
Issued Date : Jun. 12, 2019
Tested by : BTL Inc.

Testing Engineer : 
(Kang Zhang)

Technical Manager : 
(Bill Zhang)

Authorized Signatory : 
(Kevin Li)

B T L I N C .

No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan,
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Certificate #5123.02

Declaration

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

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

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

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

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

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

Limitation

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

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Jun. 12, 2019

1. GENERAL SUMMARY

Equipment : LCD Monitor
Brand Name : N/A
Test Model : 22B2
Series Model : **22B2***** (*=0-9, A-Z, a-z, +, -, /, \ or blank)
Applicant : TPV Electronics (Fujian) Co., Ltd.
Date of Test : May 10, 2019 ~ May 30, 2019
Test Sample : Engineering Sample No.: DG19050736
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-1-1905C011) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of A2LA according to the ISO/IEC 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 Part15, 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 Registration Number for FCC: 357015

BTL's Designation Number for FCC: CN1240

BTL's Test Firm Registration Number for ISED: 4428B

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 $y \pm U$, 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	3.76
		30MHz ~ 200MHz	H	3.56
		200MHz ~ 1,000MHz	V	4.00
		200MHz ~ 1,000MHz	H	3.90

Test Site	Method	Measurement Frequency Range	U, (dB)
DG-CB08 (3m)	CISPR	1 ~ 6 GHz	4.02
		6 ~ 18 GHz	5.10

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
Test Model	22B2
Series Model	**22B2***** (*=0-9, A-Z, a-z, +, -, /, \ or blank)
Model Difference(s)	Only differ in model name due to marketing purpose
Power Source	DC voltage supplied from AC/DC adapter. Model: ADPC1925EX
Power Rating	I/P: 100-240V~ 1.3A 50/60Hz O/P: 19V---1.31A
Connecting I/O Port	1* DC port 1* D-SUB port 2* HDMI port 1* Earphone port

Cable Type	Shielded Type	Ferrite Core	Length(m)	Note
D-SUB	Shielded	YES	1.8/1.5/1.2	Bonded two Ferrite Cores
HDMI	Shielded	NO	1.8/1.5/1.2	
AC Power Cord	Non-shielded	NO	1.8/1.5/1.2	

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, 1.2m length, worst case is Power cable 1.8m with D-SUB+HDMI 1.8m 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	D-SUB 1920*1080/60Hz
Mode 2	HDMI 1920*1080/60Hz
Mode 3	HDMI 1080P
Mode 4	HDMI 1280*1024/75Hz
Mode 5	HDMI 640*480/60Hz

For Conducted Test	
Final Test Mode	Description
Mode 1	D-SUB 1920*1080/60Hz
Mode 2	HDMI 1920*1080/60Hz
Mode 3	HDMI 1080P

For Radiated Test	
Final Test Mode	Description
Mode 1	D-SUB 1920*1080/60Hz
Mode 2	HDMI 1920*1080/60Hz
Mode 3	HDMI 1080P

Evaluation description:

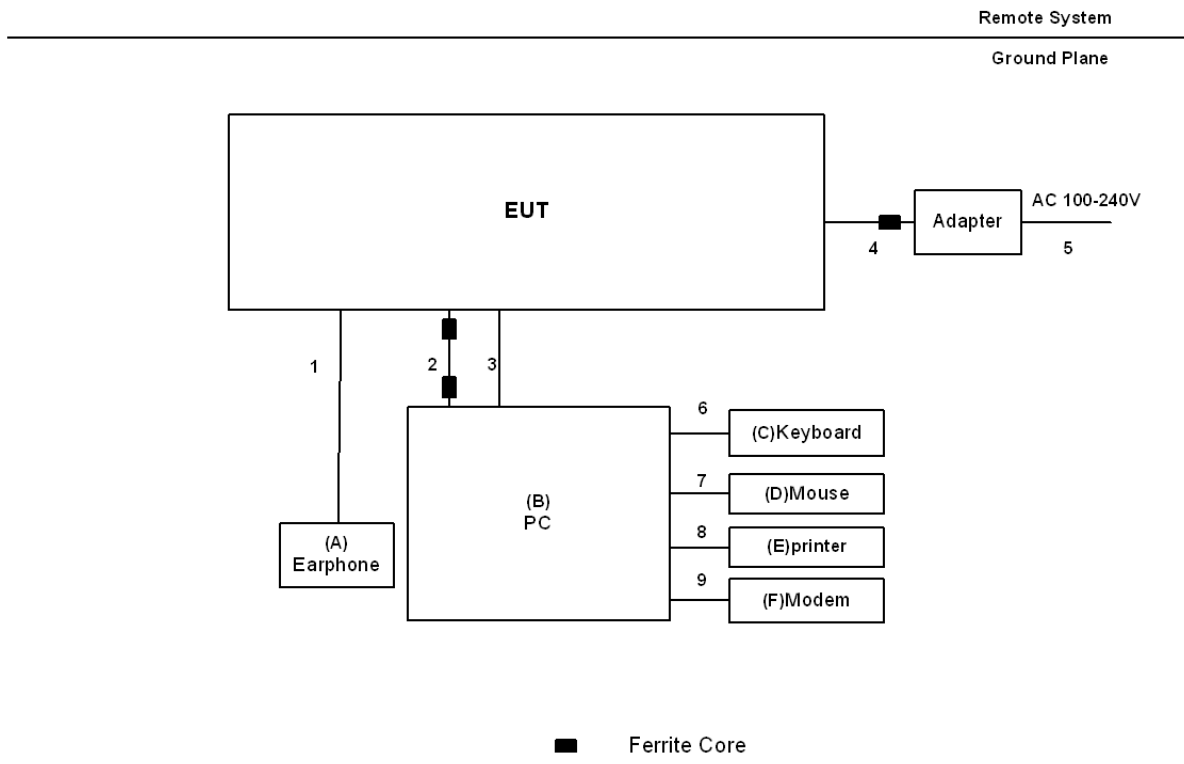
1. The maximum resolution is evaluated Mode 1-3. The worst case is Mode 2 and evaluated the middle and low resolution Mode 4 and mode 5.
2. According to the client's requirement, choose Mode 1, Mode 2, Mode 4 and recorded in test report.

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. EUT connected to Earphone via Earphone cable.
2. EUT connected to PC via D-SUB & HDMI cable.
3. EUT connected to adapter via DC cable.
4. PC connected to Mouse and Keyboard via USB cable.
5. PC connected to Printer via Parallel cable.
6. PC connected to Modem via RS232 cable.

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.	Series No.
A	Earphone	Apple	N/A	N/A
B	PC	DELL	8920-D15N8	N/A
C	Keyboard	DELL	KB212-B	CN0HTXH97158125004DXA01
D	Mouse	DELL	MS111-P	CN011D3V71581279OLOT
E	Printer	SII	DPU-414	3018507 B
F	Modem	ACEEX	DM-1414V	603002131

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	Earphone	NO	NO	1.2m
2	D-SUB Cable	YES	YES	1.8/1.5/1.2m
3	HDMI Cable	YES	NO	1.8/1.5/1.2m
4	DC Cable	NO	YES	1.0m
5	AC Cable	NO	NO	1.8/1.5/1.2m
6	USB Cable	YES	NO	1.8m
7	USB Cable	YES	NO	1.8m
8	Parallel Cable	YES	NO	1.2m
9	RS232 Cable	YES	NO	1.2m

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 *
0.5 - 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*	LISN	EMCO	3816/2SH	52766	Mar. 10, 2022
2	50Ω Terminator	SHX	TF2-3G-A	8122901	Mar. 10, 2020
3	TWO-LINE V-NETWORK	R&S	ENV216	100526	Mar. 10, 2020
4	EMI Test Receiver	R&S	ESR3	101862	Aug. 11, 2019
5	Cable	N/A	N/A(6m)	N/A	Mar. 12, 2020
6	Measurement Software	Farad	EZ-EMC Ver.NB-03A 1-01	N/A	N/A

Remark: "N/A" denotes no model no., serial no. or calibration specified.

"*" calibration period of equipment list is three year.

Except * item, all calibration period of equipment list is one year.

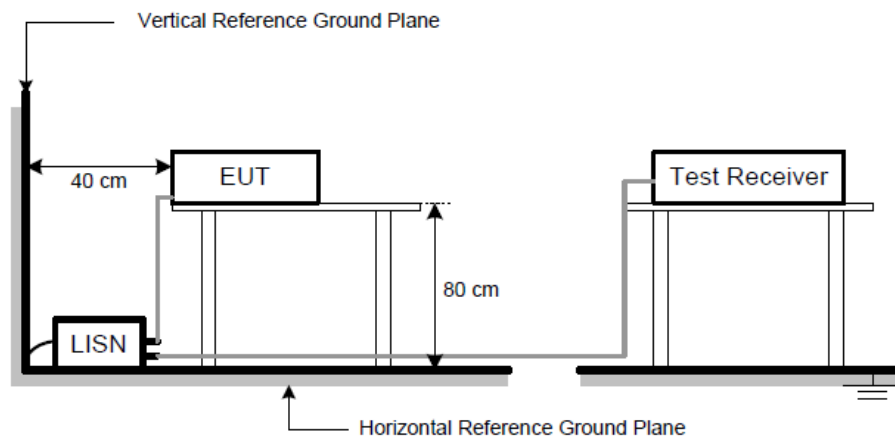
4.1.3 TEST PROCEDURE

- 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

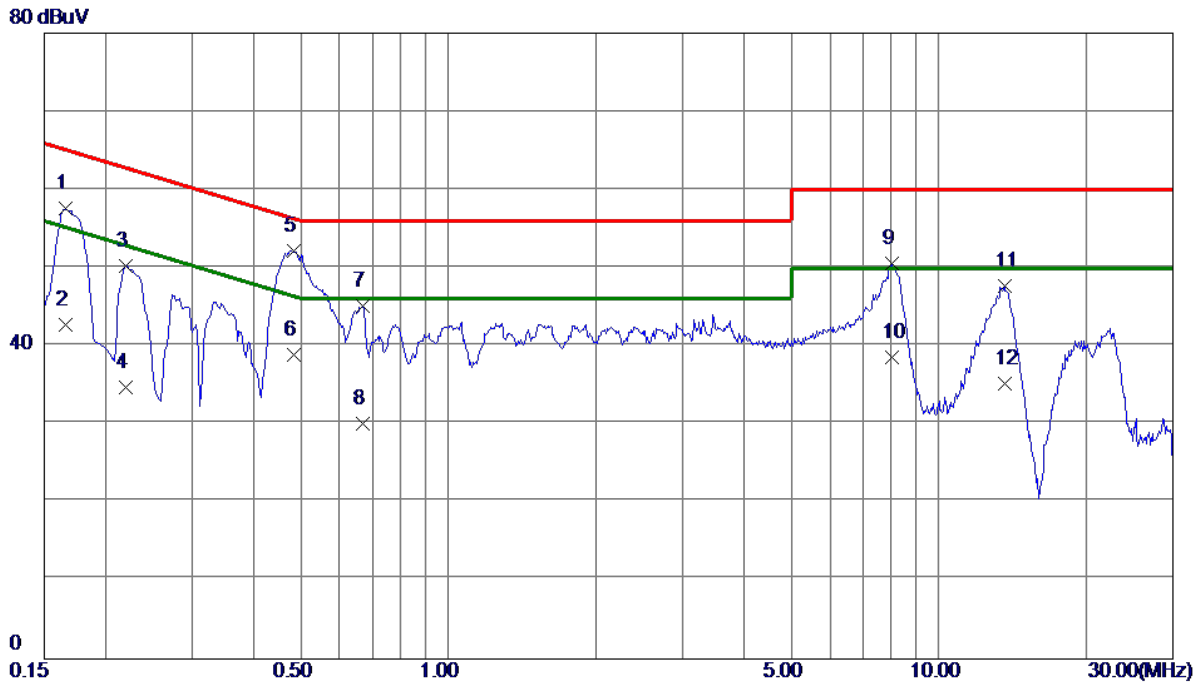


4.1.6 TEST RESULTS

Remark:

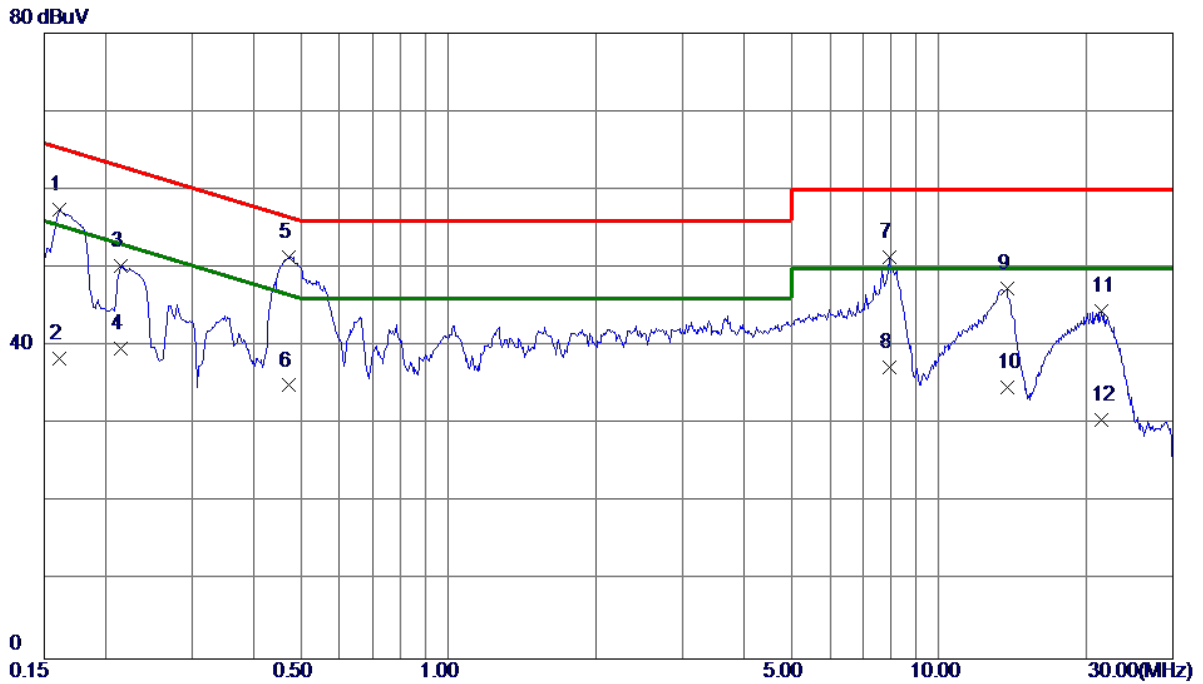
- (1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9 kHz; SPA setting in RBW=10 kHz, VBW =10 kHz, Swp. Time = 0.3 sec./MHz. Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10 kHz, VBW=10 kHz, Swp. 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	Test Model	22B2
Temperature	25°C	Relative Humidity	53%
Test Voltage	AC 120V/60Hz	Phase	Line
Test Mode	D-SUB 1920*1080/60Hz		
Test Engineer	Kang		



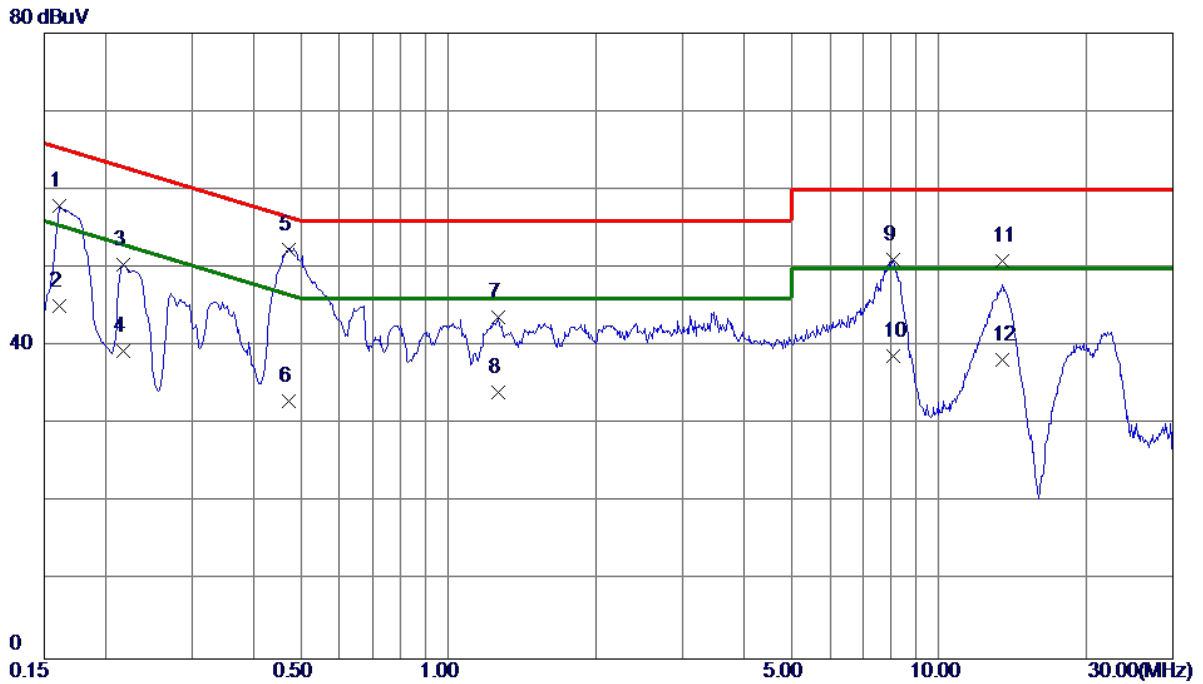
No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector
1	0.1658	47.97	9.56	57.53	65.17	-7.64	QP
2	0.1658	33.20	9.56	42.76	55.17	-12.41	AVG
3	0.2198	40.68	9.56	50.24	62.83	-12.59	QP
4	0.2198	25.10	9.56	34.66	52.83	-18.17	AVG
5 *	0.4852	42.59	9.57	52.16	56.25	-4.09	QP
6	0.4852	29.30	9.57	38.87	46.25	-7.38	AVG
7	0.6675	35.54	9.59	45.13	56.00	-10.87	QP
8	0.6675	20.50	9.59	30.09	46.00	-15.91	AVG
9	8.0385	40.44	10.05	50.49	60.00	-9.51	QP
10	8.0385	28.50	10.05	38.55	50.00	-11.45	AVG
11	13.6185	37.29	10.32	47.61	60.00	-12.39	QP
12	13.6185	24.90	10.32	35.22	50.00	-14.78	AVG

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	53%
Test Voltage	AC 120V/60Hz	Phase	Neutral
Test Mode	D-SUB 1920*1080/60Hz		
Test Engineer	Kang		



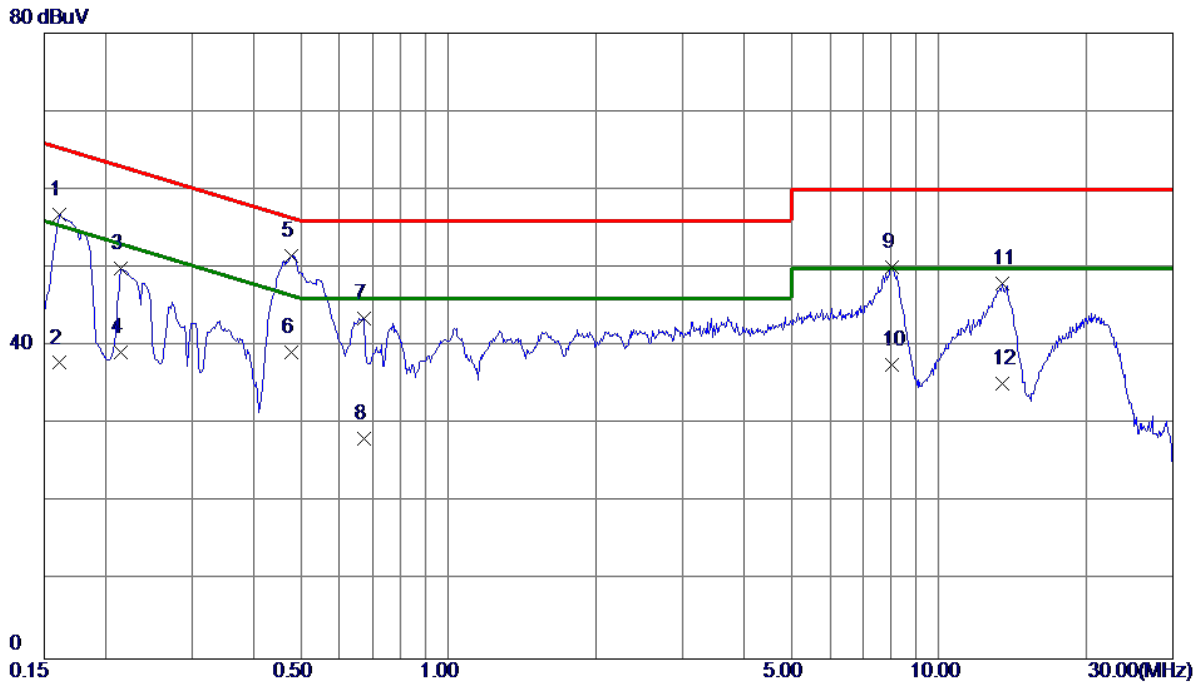
No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector
1	0.1613	47.92	9.54	57.46	65.40	-7.94	QP
2	0.1613	28.90	9.54	38.44	55.40	-16.96	AVG
3	0.2153	40.69	9.54	50.23	63.00	-12.77	QP
4	0.2153	30.20	9.54	39.74	53.00	-13.26	AVG
5 *	0.4740	41.82	9.56	51.38	56.44	-5.06	QP
6	0.4740	25.40	9.56	34.96	46.44	-11.48	AVG
7	7.9260	41.31	10.05	51.36	60.00	-8.64	QP
8	7.9260	27.30	10.05	37.35	50.00	-12.65	AVG
9	13.7580	37.00	10.36	47.36	60.00	-12.64	QP
10	13.7580	24.41	10.36	34.77	50.00	-15.23	AVG
11	21.4823	33.59	10.88	44.47	60.00	-15.53	QP
12	21.4823	19.69	10.88	30.57	50.00	-19.43	AVG

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	53%
Test Voltage	AC 120V/60Hz	Phase	Line
Test Mode	HDMI 1920*1080/60Hz		
Test Engineer	Kang		



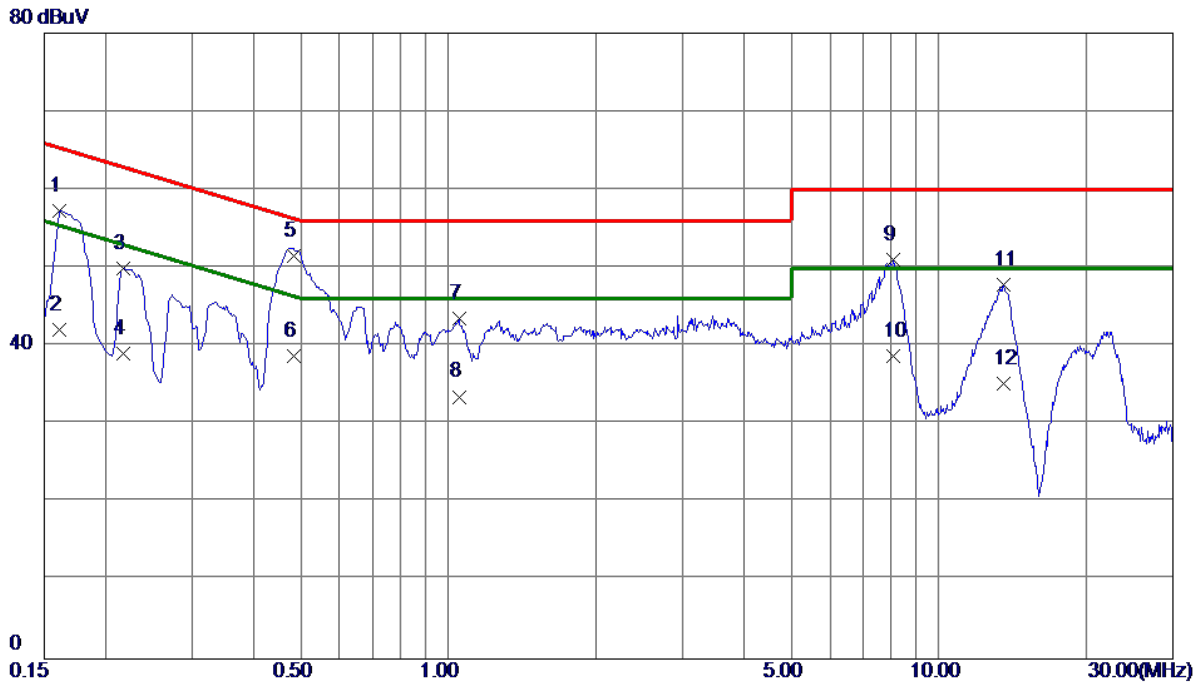
No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector
1	0.1613	48.27	9.57	57.84	65.40	-7.56	QP
2	0.1613	35.60	9.57	45.17	55.40	-10.23	AVG
3	0.2175	40.80	9.56	50.36	62.91	-12.55	QP
4	0.2175	29.80	9.56	39.36	52.91	-13.55	AVG
5 *	0.4740	42.80	9.57	52.37	56.44	-4.07	QP
6	0.4740	23.40	9.57	32.97	46.44	-13.47	AVG
7	1.2638	34.01	9.64	43.65	56.00	-12.35	QP
8	1.2638	24.50	9.64	34.14	46.00	-11.86	AVG
9	8.0655	40.93	10.05	50.98	60.00	-9.02	QP
10	8.0655	28.60	10.05	38.65	50.00	-11.35	AVG
11	13.4543	40.50	10.31	50.81	60.00	-9.19	QP
12	13.4543	27.90	10.31	38.21	50.00	-11.79	AVG

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	53%
Test Voltage	AC 120V/60Hz	Phase	Neutral
Test Mode	HDMI 1920*1080/60Hz		
Test Engineer	Kang		



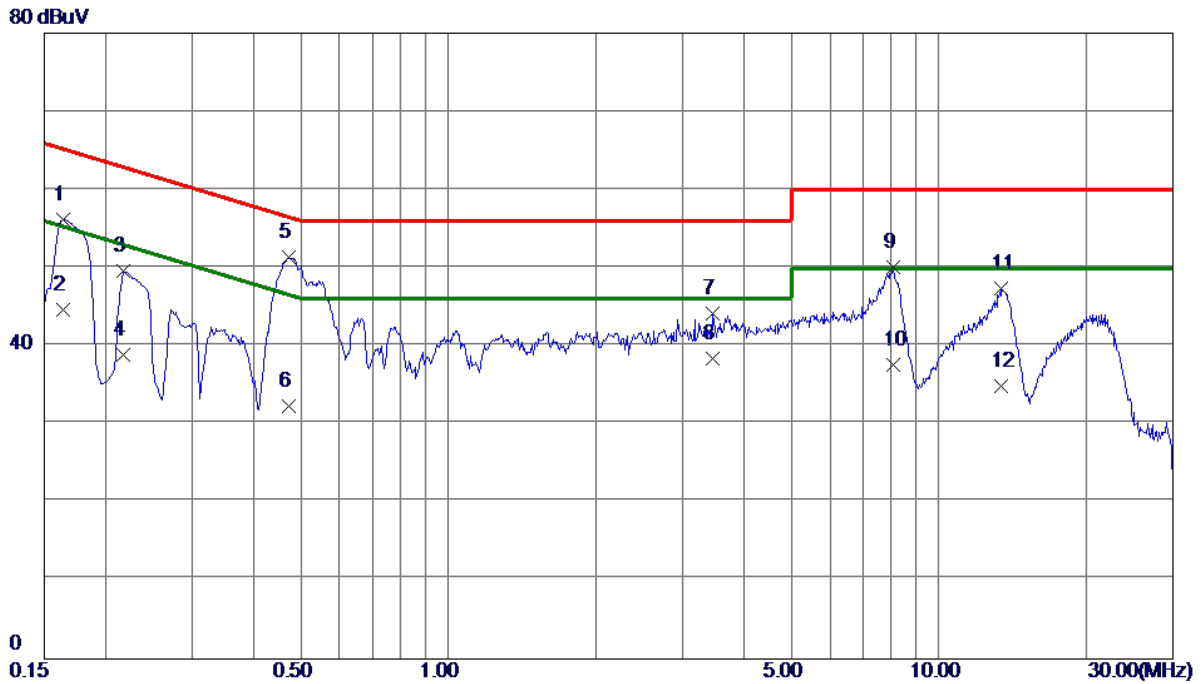
No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector
1	0.1613	47.31	9.54	56.85	65.40	-8.55	QP
2	0.1613	28.30	9.54	37.84	55.40	-17.56	AVG
3	0.2153	40.30	9.54	49.84	63.00	-13.16	QP
4	0.2153	29.70	9.54	39.24	53.00	-13.76	AVG
5 *	0.4785	42.03	9.56	51.59	56.37	-4.78	QP
6	0.4785	29.60	9.56	39.16	46.37	-7.21	AVG
7	0.6720	33.96	9.58	43.54	56.00	-12.46	QP
8	0.6720	18.60	9.58	28.18	46.00	-17.82	AVG
9	8.0183	40.04	10.05	50.09	60.00	-9.91	QP
10	8.0183	27.60	10.05	37.65	50.00	-12.35	AVG
11	13.4813	37.59	10.34	47.93	60.00	-12.07	QP
12	13.4813	24.81	10.34	35.15	50.00	-14.85	AVG

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	53%
Test Voltage	AC 120V/60Hz	Phase	Line
Test Mode	HDMI1 1080P		
Test Engineer	Kang		



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector
1	0.1613	47.70	9.57	57.27	65.40	-8.13	QP
2	0.1613	32.50	9.57	42.07	55.40	-13.33	AVG
3	0.2175	40.33	9.56	49.89	62.91	-13.02	QP
4	0.2175	29.50	9.56	39.06	52.91	-13.85	AVG
5 *	0.4852	41.90	9.57	51.47	56.25	-4.78	QP
6	0.4852	29.10	9.57	38.67	46.25	-7.58	AVG
7	1.0522	33.91	9.62	43.53	56.00	-12.47	QP
8	1.0522	23.90	9.62	33.52	46.00	-12.48	AVG
9	8.0655	41.05	10.05	51.10	60.00	-8.90	QP
10	8.0655	28.60	10.05	38.65	50.00	-11.35	AVG
11	13.5825	37.46	10.32	47.78	60.00	-12.22	QP
12	13.5825	24.90	10.32	35.22	50.00	-14.78	AVG

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	53%
Test Voltage	AC 120V/60Hz	Phase	Neutral
Test Mode	HDMI1 1080P		
Test Engineer	Kang		



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector
1	0.1635	46.69	9.54	56.23	65.28	-9.05	QP
2	0.1635	35.10	9.54	44.64	55.28	-10.64	AVG
3	0.2175	40.00	9.54	49.54	62.91	-13.37	QP
4	0.2175	29.30	9.54	38.84	52.91	-14.07	AVG
5 *	0.4740	41.78	9.56	51.34	56.44	-5.10	QP
6	0.4740	22.70	9.56	32.26	46.44	-14.18	AVG
7	3.4665	34.36	9.78	44.14	56.00	-11.86	QP
8	3.4665	28.60	9.78	38.38	46.00	-7.62	AVG
9	8.0948	40.00	10.05	50.05	60.00	-9.95	QP
10	8.0948	27.50	10.05	37.55	50.00	-12.45	AVG
11	13.4183	37.03	10.34	47.37	60.00	-12.63	QP
12	13.4183	24.60	10.34	34.94	50.00	-15.06	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. 10, 2020
3	Pre-Amplifier	EMC INSTRUMENT	EMC 9135	980284	Mar. 10, 2020
4	Pre-Amplifier	EMC INSTRUMENT	EMC 9135	980283	Mar. 10, 2020
5	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	946	Nov. 24, 2019
6	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	947	Nov. 24, 2019
7	Cable	emci	LMR-400(5m+11m+15m)	N/A	Aug. 07, 2019
8	Cable	emci	LMR-400(5m+8m+8m)	N/A	Aug. 07, 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	EMCI	EMCI-N-6-06	N0670	Nov. 24, 2019
12	Attenuator	EMCI	EMCI-N-6-06	N0671	Nov. 24, 2019

Above 1GHz:

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Horn Antenna	EMCO	3115	9605-4803	Mar. 23, 2020
2	Amplifier	Agilent	8449B	3008A02584	Aug. 11, 2019
3	MXE EMI Receiver	Agilent	N9038A	MY53220133	Mar. 10, 2020
4	Measurement Software	Farad	EZ-EMC Ver.BTL-2ANT-1	N/A	N/A
5	Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
6	Controller	MF	MF-7802	MF780208159	N/A
7	Cable	Mlcable Inc.	B10-01-01-5 M	18047123	Mar. 01, 2020
8	Cable	Mlcable Inc.	B10-01-01-10 M	18072746	Mar. 01, 2020
9	Cable	N/A	A50-3.5M3.5 M-1.5M-AT	18041824	Mar. 01, 2020

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

4.2.3 TEST PROCEDURE

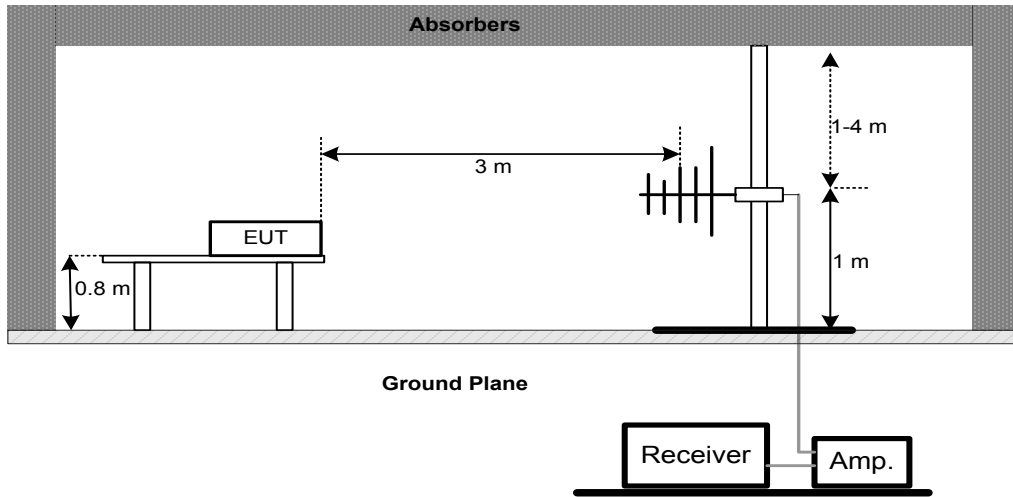
- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- b. The measuring distance 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 1 GHz)
- 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 1 GHz.
- 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 1 GHz)
- i. For the actual test configuration, please refer to the related Item - Block Diagram of system tested (please refer to 3.4).

4.2.4 DEVIATION FROM TEST STANDARD

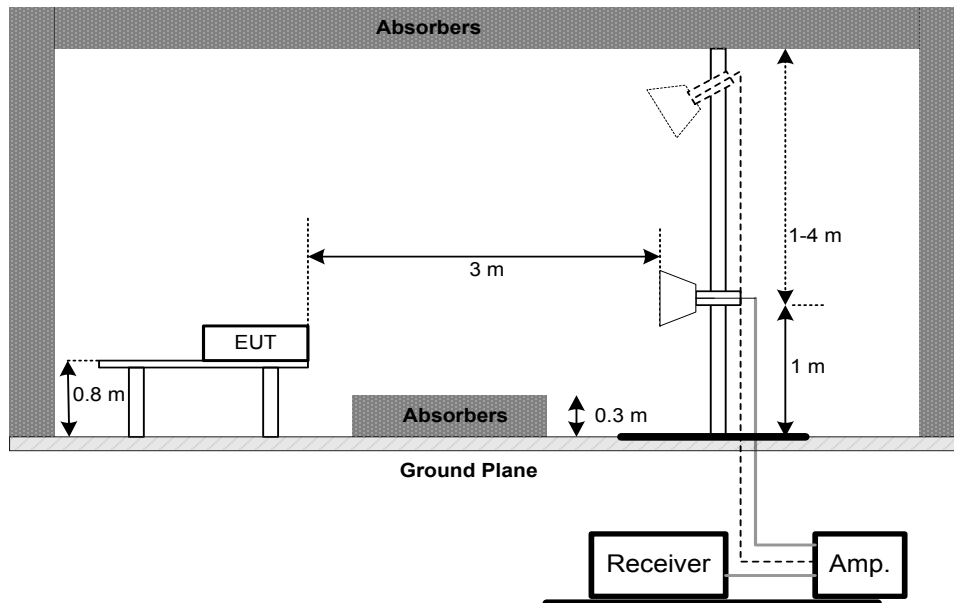
No deviation

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

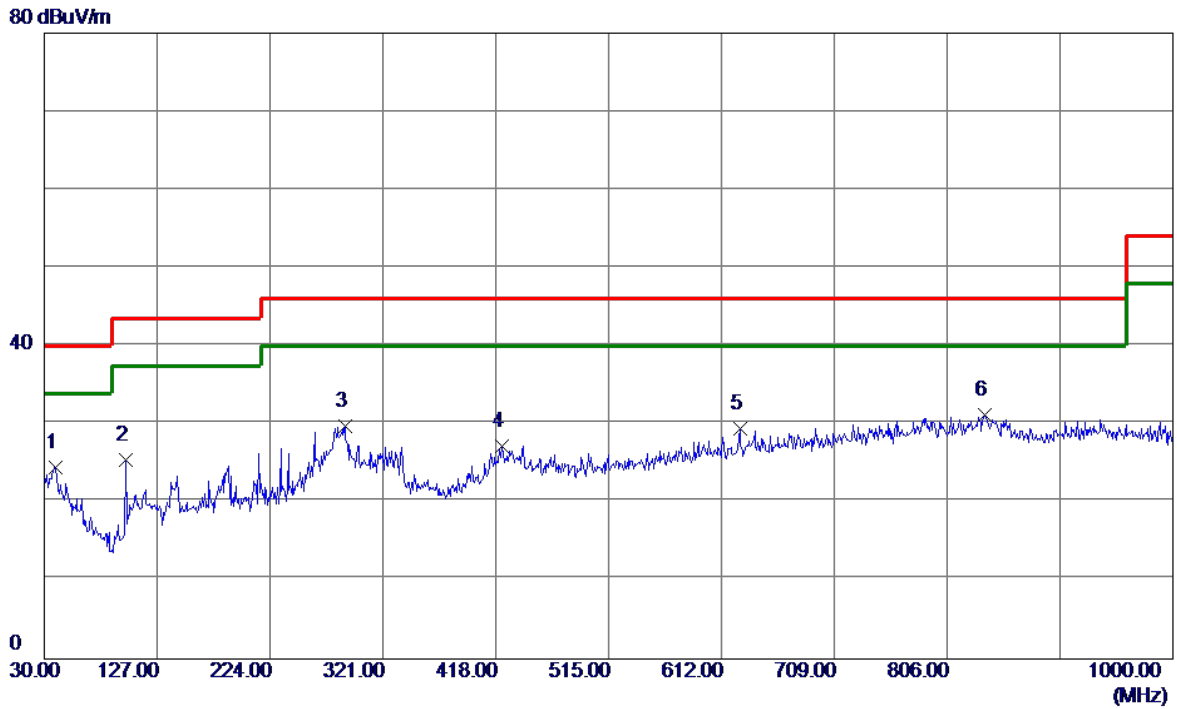


4.2.6 TEST RESULTS-BELOW 1 GHZ

Remark:

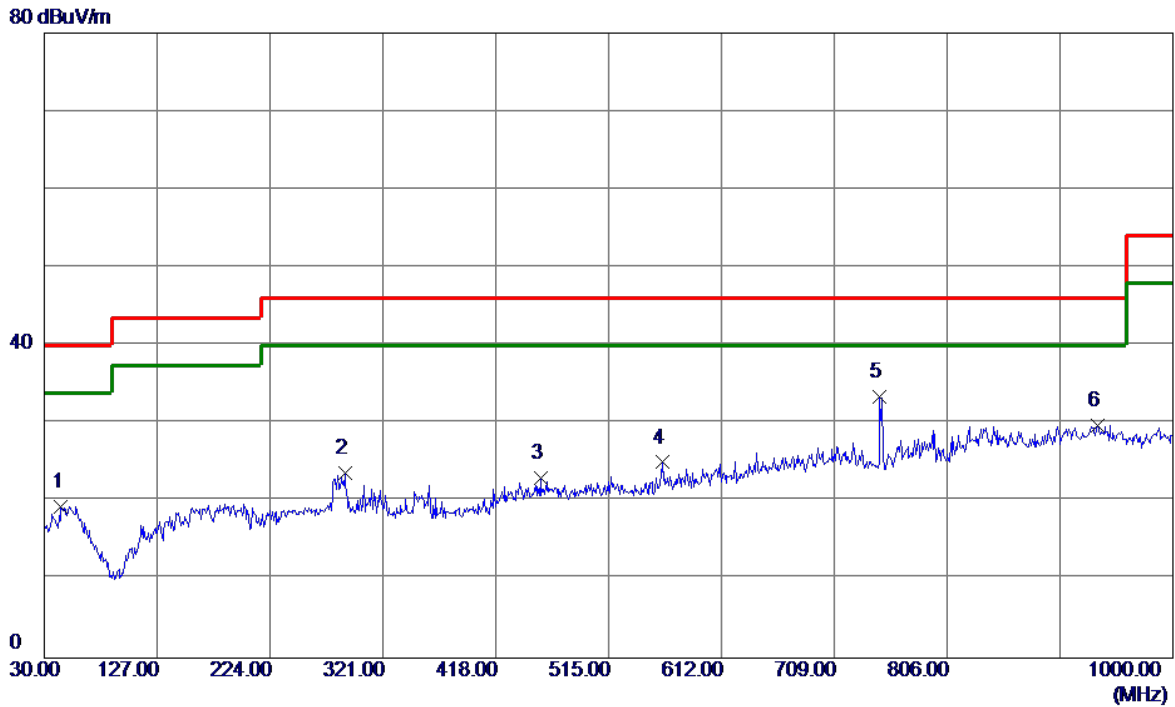
- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Measuring frequency range from 30 MHz to 1000 MHz
- (3) If the peak scan value lower limit more than 20 dB,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

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	D-SUB 1920*1080/60Hz		
Test Engineer	Kang		



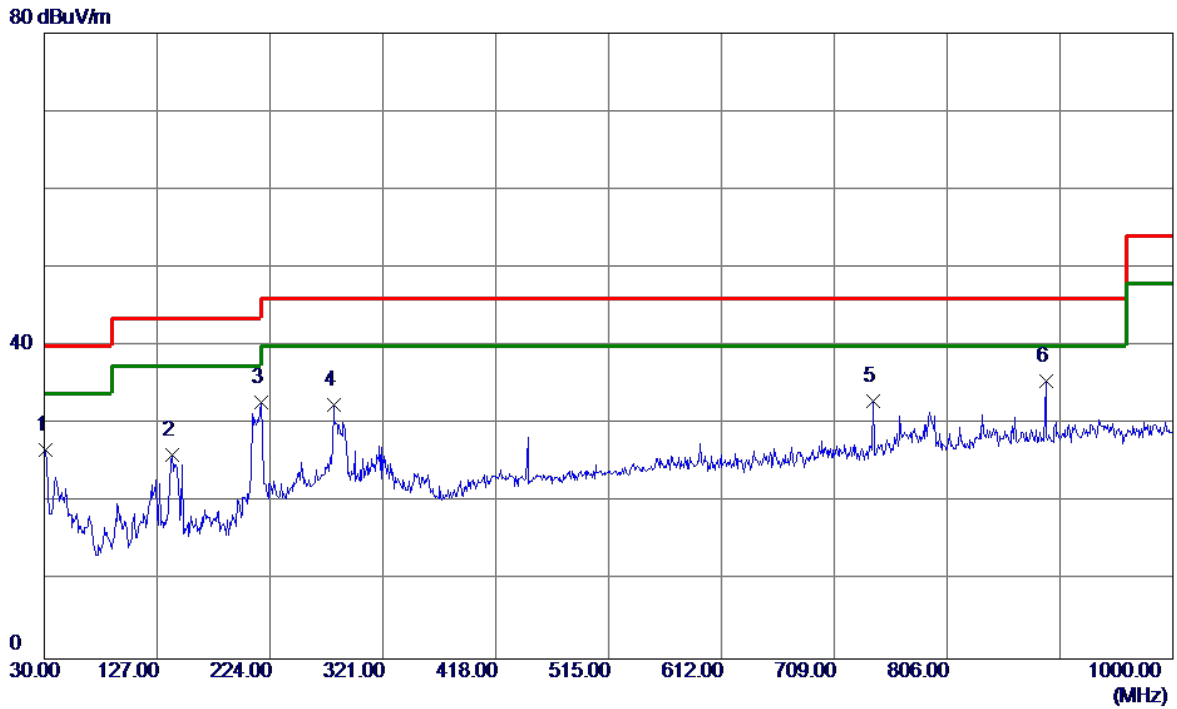
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector
1	40.1850	41.83	-17.30	24.53	40.00	-15.47	QP
2	99.8399	46.38	-20.98	25.40	43.50	-18.10	QP
3	288.5050	45.15	-15.45	29.70	46.00	-16.30	QP
4	423.3350	39.36	-12.15	27.21	46.00	-18.79	QP
5	628.0050	37.41	-8.02	29.39	46.00	-16.61	QP
6 *	838.4950	36.47	-5.34	31.13	46.00	-14.87	QP

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	D-SUB 1920*1080/60Hz		
Test Engineer	Kang		



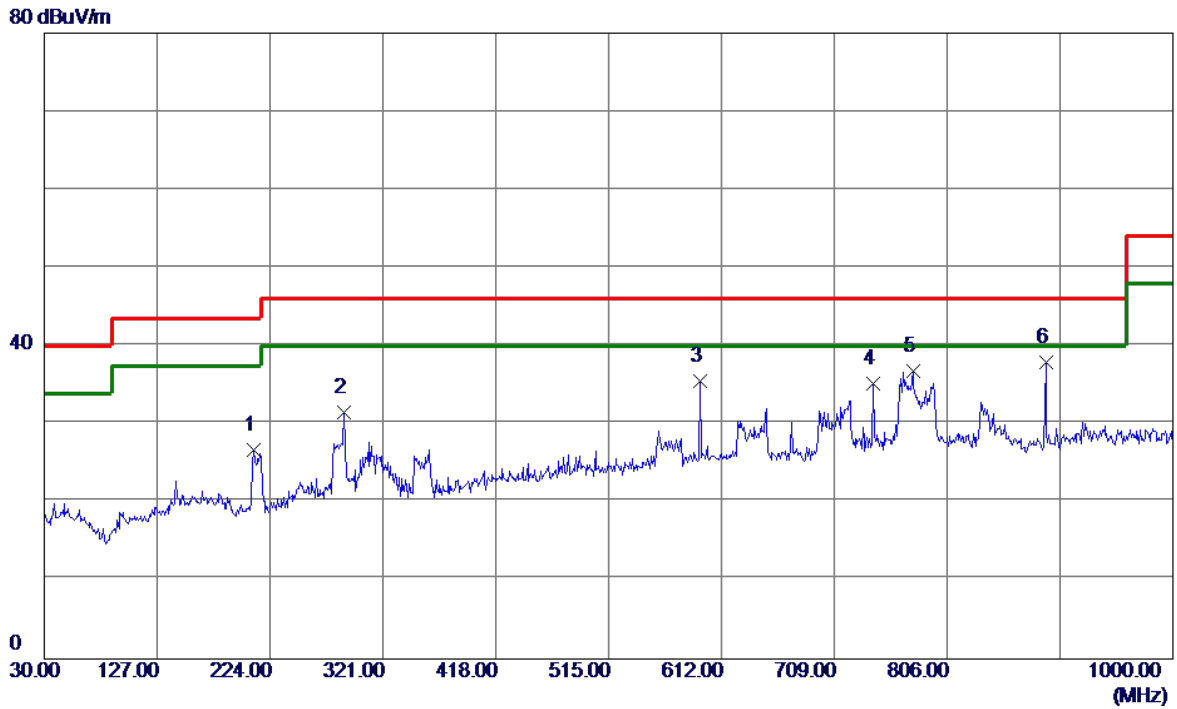
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector
1	44.5500	36.21	-16.80	19.41	40.00	-20.59	QP
2	288.5050	39.13	-15.45	23.68	46.00	-22.32	QP
3	456.3150	34.27	-11.29	22.98	46.00	-23.02	QP
4	561.0750	34.54	-9.50	25.04	46.00	-20.96	QP
5 *	748.2849	39.61	-6.24	33.37	46.00	-12.63	QP
6	935.0100	33.53	-3.77	29.76	46.00	-16.24	QP

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	HDMI 1920*1080/60Hz		
Test Engineer	Kang		



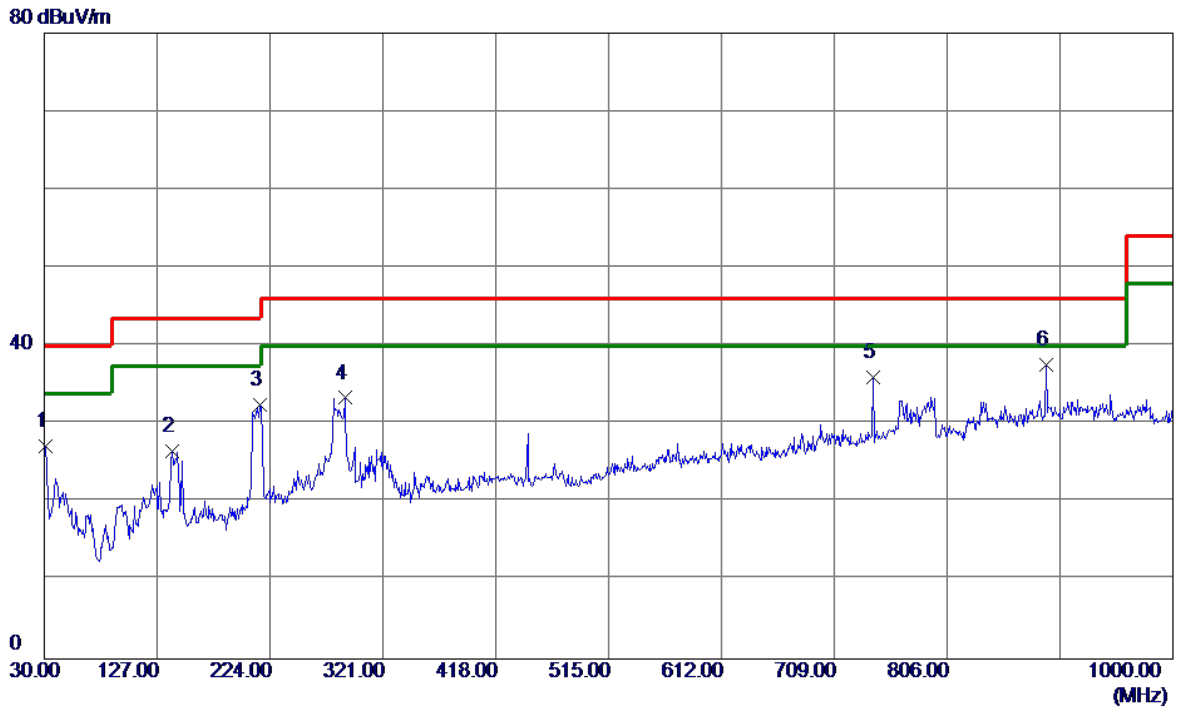
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector
1	30.9700	45.17	-18.46	26.71	40.00	-13.29	QP
2	139.6100	42.64	-16.57	26.07	43.50	-17.43	QP
3	216.2400	51.91	-19.09	32.82	46.00	-13.18	QP
4	278.8050	48.30	-15.75	32.55	46.00	-13.45	QP
5	742.4650	39.26	-6.35	32.91	46.00	-13.09	QP
6 *	890.8750	40.11	-4.59	35.52	46.00	-10.48	QP

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	HDMI 1920*1080/60Hz		
Test Engineer	Kang		



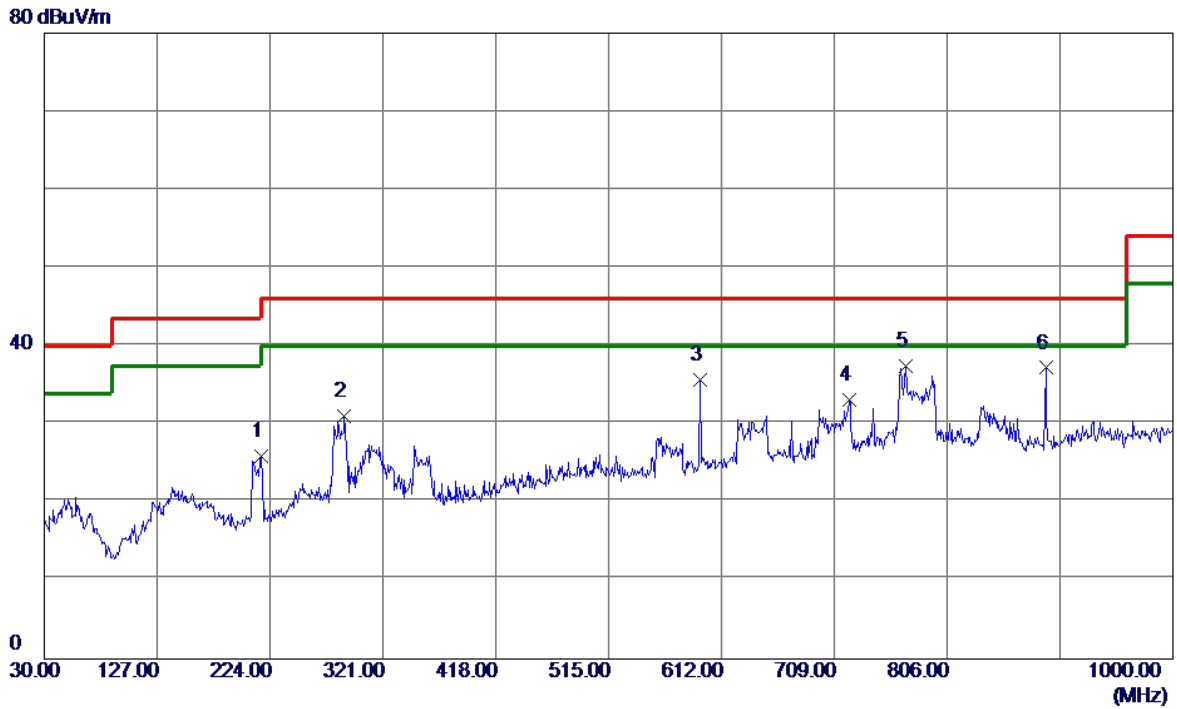
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector
1	209.9350	45.79	-19.11	26.68	43.50	-16.82	QP
2	288.0200	47.00	-15.47	31.53	46.00	-14.47	QP
3	594.0550	44.11	-8.63	35.48	46.00	-10.52	QP
4	742.4650	41.52	-6.35	35.17	46.00	-10.83	QP
5	776.4150	42.81	-5.95	36.86	46.00	-9.14	QP
6 *	890.8750	42.47	-4.59	37.88	46.00	-8.12	QP

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	HDMI1 1080P		
Test Engineer	Kang		



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector
1	30.9700	45.64	-18.46	27.18	40.00	-12.82	QP
2	139.6100	43.19	-16.57	26.62	43.50	-16.88	QP
3	215.7550	51.59	-19.09	32.50	43.50	-11.00	QP
4	288.5050	48.81	-15.45	33.36	46.00	-12.64	QP
5	742.4650	42.30	-6.35	35.95	46.00	-10.05	QP
6 *	890.8750	42.22	-4.59	37.63	46.00	-8.37	QP

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	HDMI1 1080P		
Test Engineer	Kang		



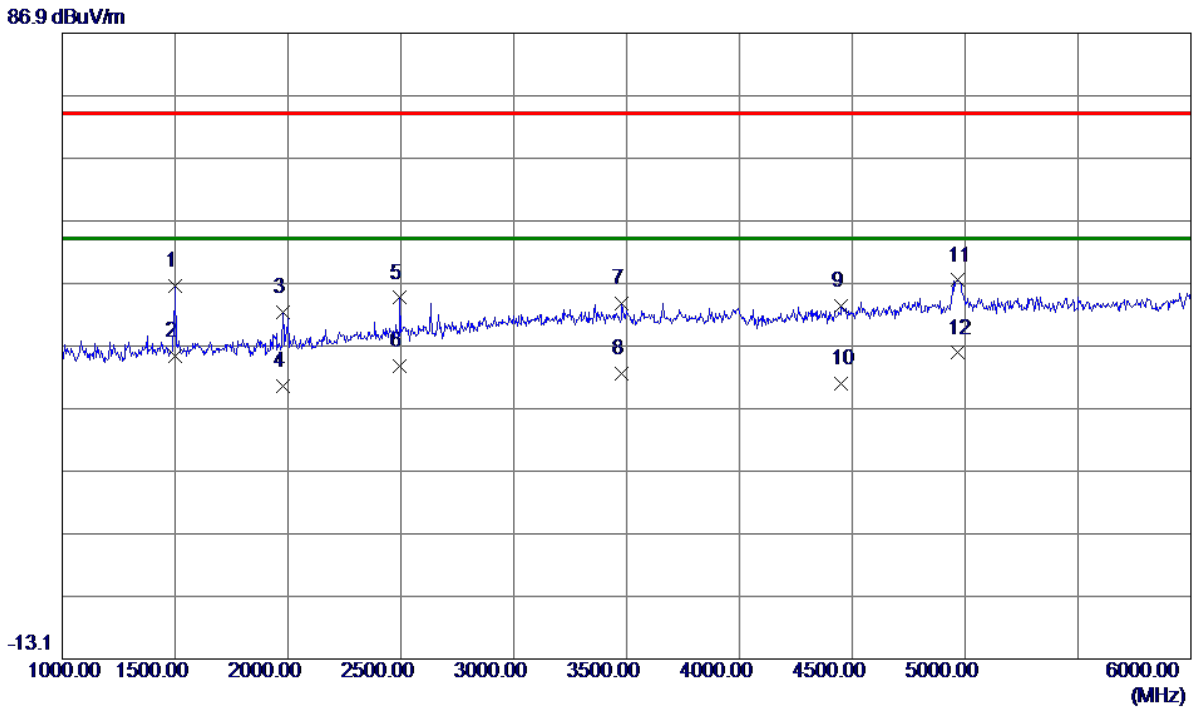
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector
1	216.2400	44.98	-19.09	25.89	46.00	-20.11	QP
2	288.0200	46.55	-15.47	31.08	46.00	-14.92	QP
3	594.0550	44.28	-8.63	35.65	46.00	-10.35	QP
4	722.0949	39.82	-6.72	33.10	46.00	-12.90	QP
5 *	770.1100	43.41	-6.01	37.40	46.00	-8.60	QP
6	890.8750	41.79	-4.59	37.20	46.00	-8.80	QP

4.2.7 TEST RESULTS-ABOVE 1 GHZ

Remark:

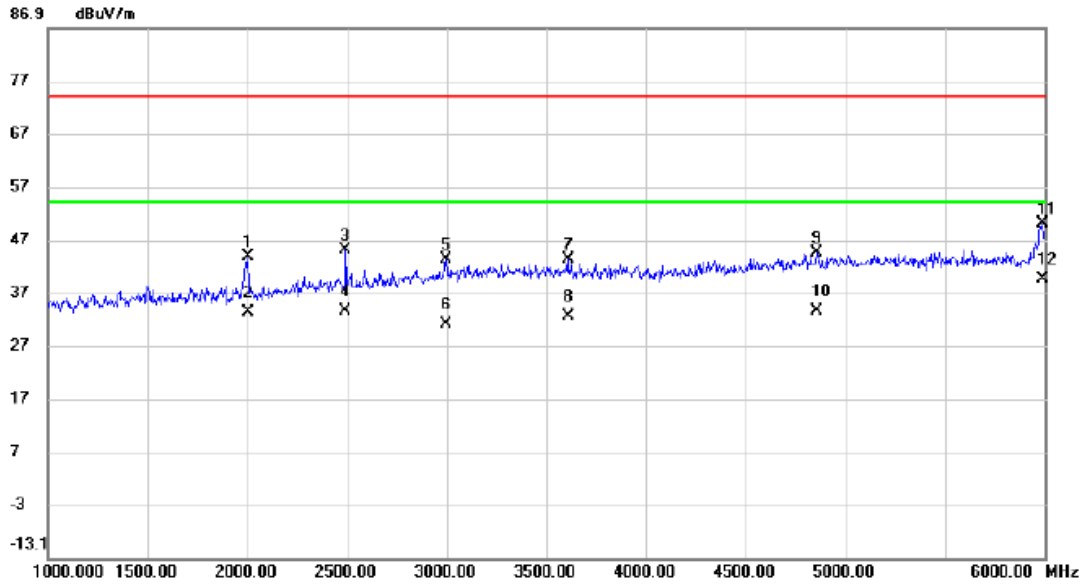
- (1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Radiated emissions measured in frequency range above 1000 MHz were made with an instrument using Peak detector 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 20 dB 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	Test Model	22B2
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V60Hz	Polarization	Vertical
Test Mode	D-SUB 1920*1080/60Hz		
Test Engineer	Kang		



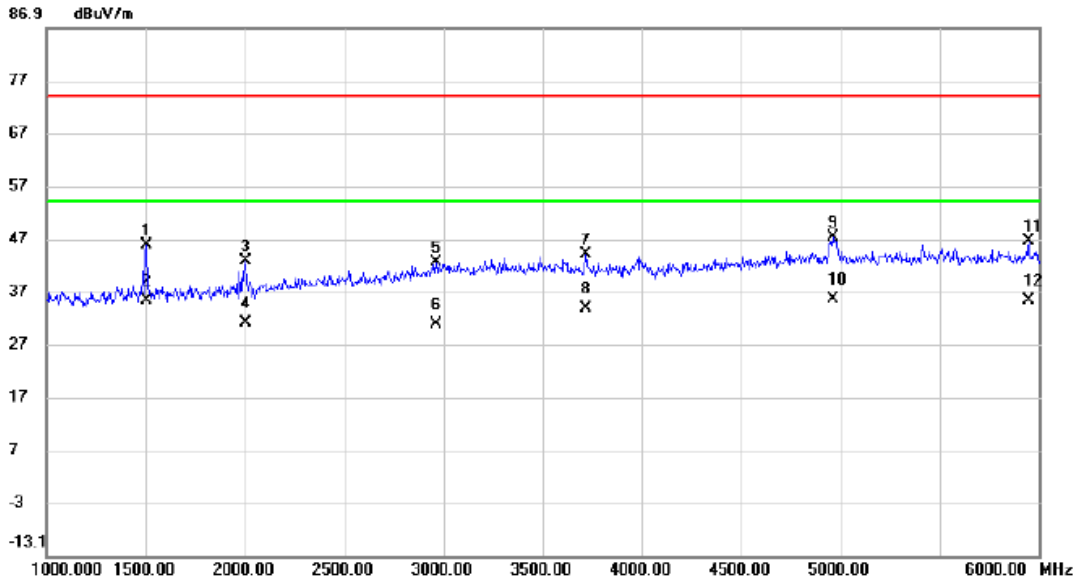
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector
1	1500.0000	49.99	-3.48	46.51	74.00	-27.49	Peak
2	1500.0000	38.71	-3.48	35.23	54.00	-18.77	AVG
3	1977.5000	44.12	-1.83	42.29	74.00	-31.71	Peak
4	1977.5000	32.30	-1.83	30.47	54.00	-23.53	AVG
5	2495.0000	44.10	0.50	44.60	74.00	-29.40	Peak
6	2495.0000	33.11	0.50	33.61	54.00	-20.39	AVG
7	3480.0000	39.68	4.07	43.75	74.00	-30.25	Peak
8	3480.0000	28.46	4.07	32.53	54.00	-21.47	AVG
9	4450.0000	37.16	6.11	43.27	74.00	-30.73	Peak
10	4450.0000	24.85	6.11	30.96	54.00	-23.04	AVG
11	4965.0000	39.55	7.85	47.40	74.00	-26.60	Peak
12 *	4965.0000	27.95	7.85	35.80	54.00	-18.20	AVG

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V60Hz	Polarization	Horizontal
Test Mode	D-SUB 1920*1080/60Hz		
Test Engineer	Kang		



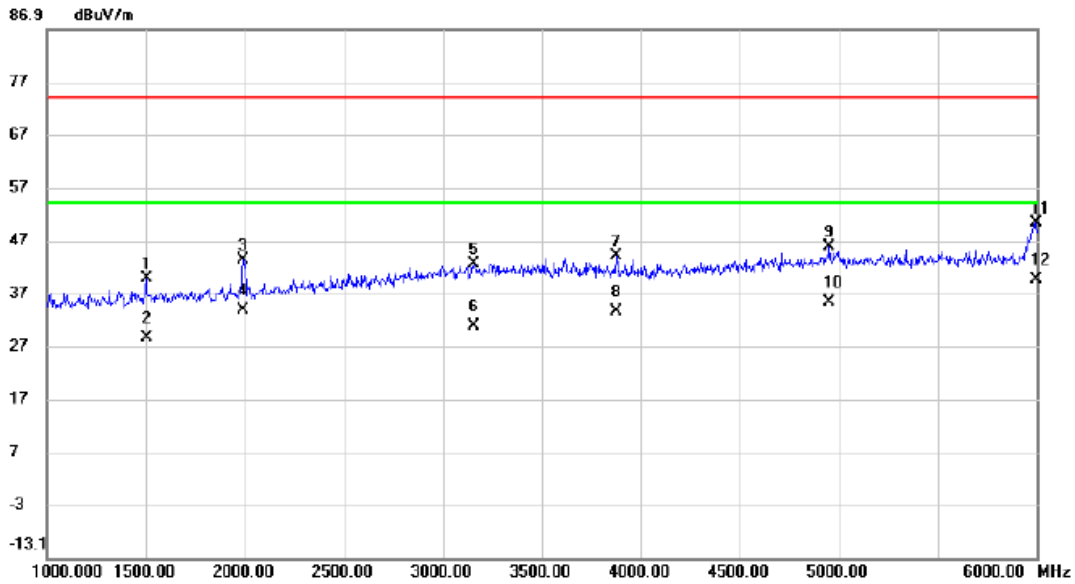
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		2000.000	45.59	-1.75	43.84	74.00	-30.16	peak	
2		2000.000	35.03	-1.75	33.28	54.00	-20.72	AVG	
3		2492.500	44.43	0.48	44.91	74.00	-29.09	peak	
4		2492.500	33.08	0.48	33.56	54.00	-20.44	AVG	
5		2995.000	40.36	3.03	43.39	74.00	-30.61	peak	
6		2995.000	27.94	3.03	30.97	54.00	-23.03	AVG	
7		3607.500	38.92	4.29	43.21	74.00	-30.79	peak	
8		3607.500	28.21	4.29	32.50	54.00	-21.50	AVG	
9		4855.000	37.01	7.47	44.48	74.00	-29.52	peak	
10		4855.000	26.14	7.47	33.61	54.00	-20.39	AVG	
11		5987.500	41.23	8.87	50.10	74.00	-23.90	peak	
12	*	5987.500	30.58	8.87	39.45	54.00	-14.55	AVG	

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V60Hz	Polarization	Vertical
Test Mode	HDMI 1920*1080/60Hz		
Test Engineer	Kang		



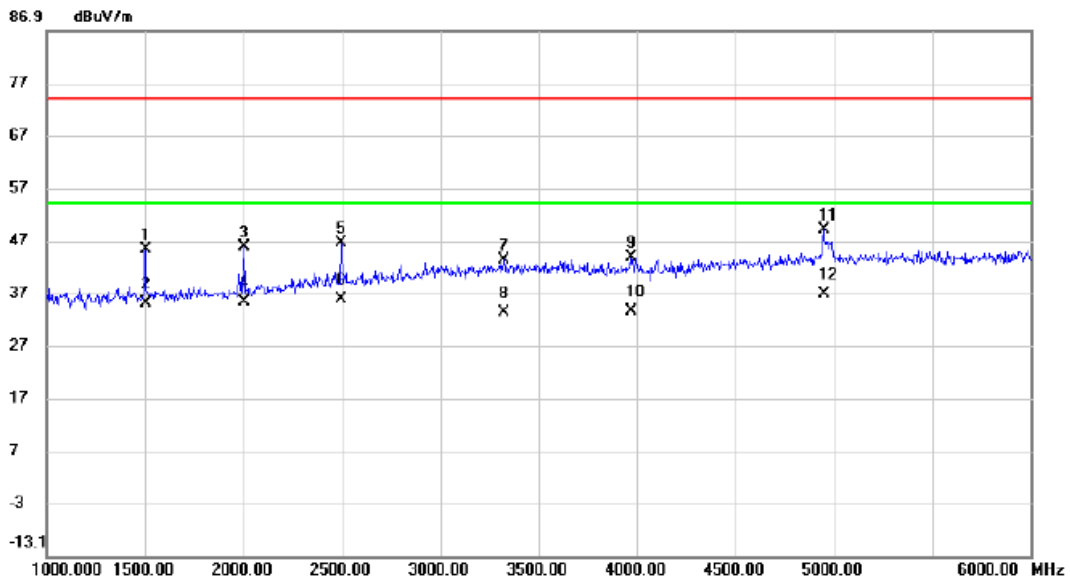
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		1500.000	49.22	-3.48	45.74	74.00	-28.26	peak	
2		1500.000	38.74	-3.48	35.26	54.00	-18.74	AVG	
3		2000.000	44.52	-1.75	42.77	74.00	-31.23	peak	
4		2000.000	32.69	-1.75	30.94	54.00	-23.06	AVG	
5		2960.000	39.62	2.86	42.48	74.00	-31.52	peak	
6		2960.000	27.88	2.86	30.74	54.00	-23.26	AVG	
7		3717.500	39.67	4.47	44.14	74.00	-29.86	peak	
8		3717.500	29.26	4.47	33.73	54.00	-20.27	AVG	
9		4960.000	39.44	7.84	47.28	74.00	-26.72	peak	
10	*	4960.000	27.77	7.84	35.61	54.00	-18.39	AVG	
11		5950.000	37.59	8.84	46.43	74.00	-27.57	peak	
12		5950.000	26.44	8.84	35.28	54.00	-18.72	AVG	

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V60Hz	Polarization	Horizontal
Test Mode	HDMI 1920*1080/60Hz		
Test Engineer	Kang		



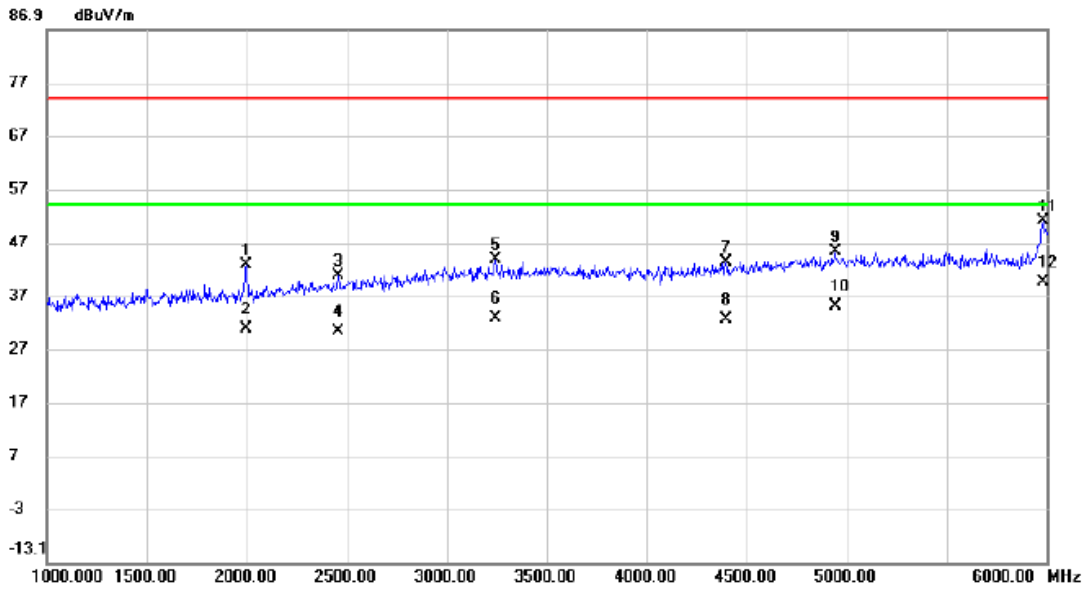
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		1500.000	43.32	-3.48	39.84	74.00	-34.16	peak	
2		1500.000	32.07	-3.48	28.59	54.00	-25.41	AVG	
3		1992.500	45.17	-1.77	43.40	74.00	-30.60	peak	
4		1992.500	35.46	-1.77	33.69	54.00	-20.31	AVG	
5		3157.500	39.05	3.40	42.45	74.00	-31.55	peak	
6		3157.500	27.43	3.40	30.83	54.00	-23.17	AVG	
7		3877.500	39.20	4.75	43.95	74.00	-30.05	peak	
8		3877.500	28.66	4.75	33.41	54.00	-20.59	AVG	
9		4952.500	37.93	7.80	45.73	74.00	-28.27	peak	
10		4952.500	27.47	7.80	35.27	54.00	-18.73	AVG	
11		5997.500	41.45	8.88	50.33	74.00	-23.67	peak	
12	*	5997.500	30.73	8.88	39.61	54.00	-14.39	AVG	

EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V60Hz	Polarization	Vertical
Test Mode	HDMI1 1080P		
Test Engineer	Kang		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		1500.000	48.78	-3.48	45.30	74.00	-28.70	peak	
2		1500.000	38.61	-3.48	35.13	54.00	-18.87	AVG	
3		2000.000	47.52	-1.75	45.77	74.00	-28.23	peak	
4		2000.000	37.02	-1.75	35.27	54.00	-18.73	AVG	
5		2495.000	45.90	0.51	46.41	74.00	-27.59	peak	
6		2495.000	35.18	0.51	35.69	54.00	-18.31	AVG	
7		3325.000	39.47	3.74	43.21	74.00	-30.79	peak	
8		3325.000	29.52	3.74	33.26	54.00	-20.74	AVG	
9		3967.500	38.98	4.90	43.88	74.00	-30.12	peak	
10		3967.500	28.55	4.90	33.45	54.00	-20.55	AVG	
11		4947.500	41.26	7.79	49.05	74.00	-24.95	peak	
12	*	4947.500	29.09	7.79	36.88	54.00	-17.12	AVG	

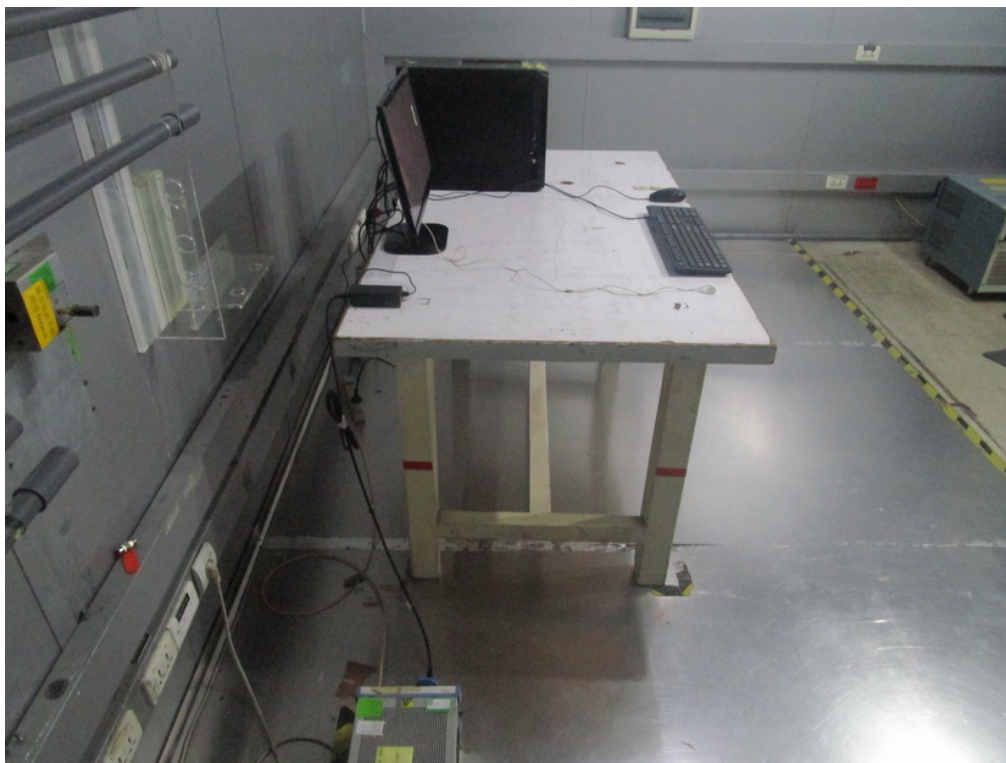
EUT	LCD Monitor	Test Model	22B2
Temperature	25°C	Relative Humidity	60%
Test Voltage	AC 120V60Hz	Polarization	Horizontal
Test Mode	HDMI1 1080P		
Test Engineer	Kang		



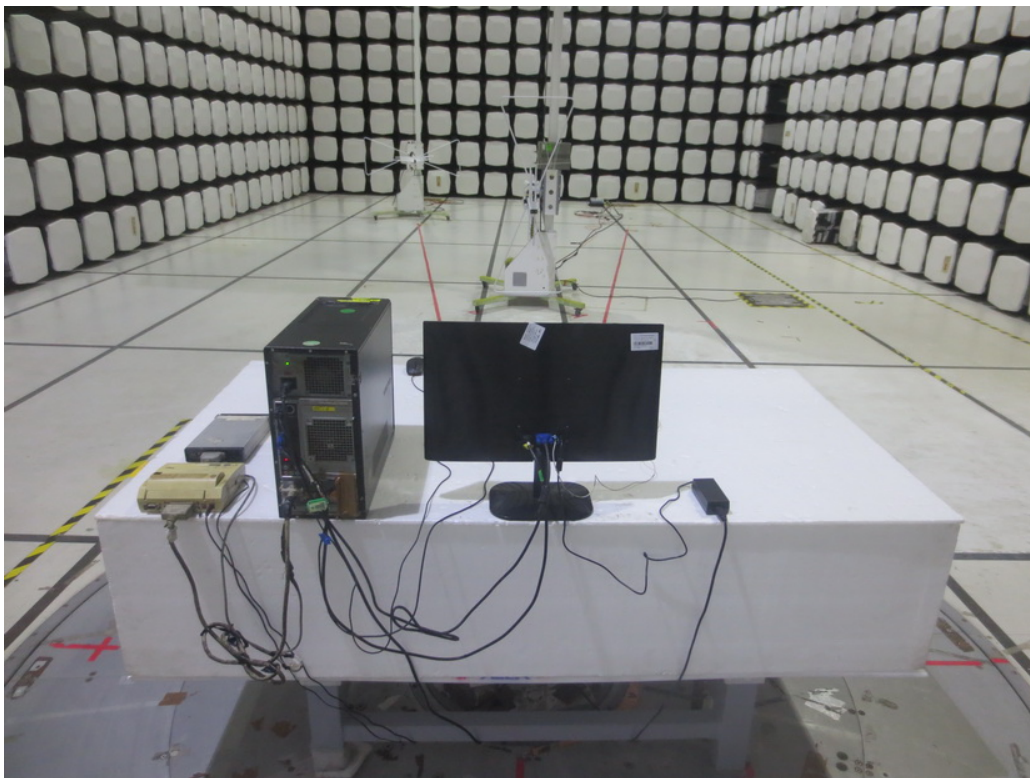
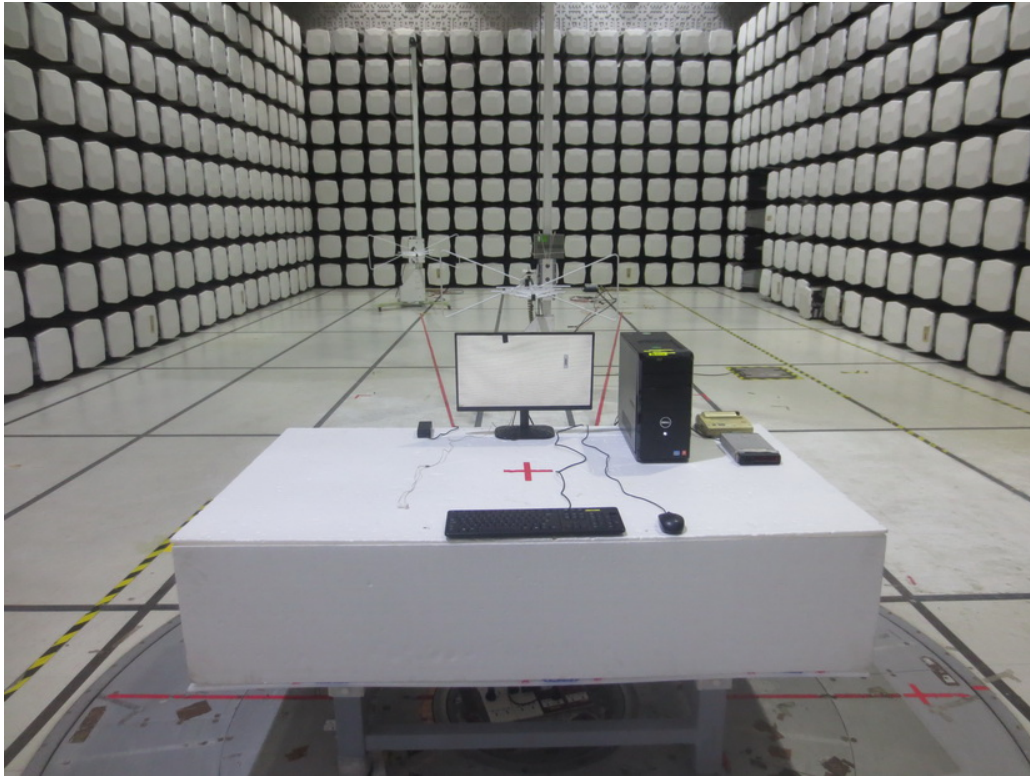
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		1995.000	44.53	-1.77	42.76	74.00	-31.24	peak	
2		1995.000	32.46	-1.77	30.69	54.00	-23.31	AVG	
3		2455.000	40.58	0.31	40.89	74.00	-33.11	peak	
4		2455.000	29.87	0.31	30.18	54.00	-23.82	AVG	
5		3240.000	40.24	3.56	43.80	74.00	-30.20	peak	
6		3240.000	29.15	3.56	32.71	54.00	-21.29	AVG	
7		4397.500	37.36	5.98	43.34	74.00	-30.66	peak	
8		4397.500	26.67	5.98	32.65	54.00	-21.35	AVG	
9		4940.000	37.46	7.76	45.22	74.00	-28.78	peak	
10		4940.000	27.36	7.76	35.12	54.00	-18.88	AVG	
11		5980.000	42.07	8.87	50.94	74.00	-23.06	peak	
12	*	5980.000	30.56	8.87	39.43	54.00	-14.57	AVG	

5. EUT TEST PHOTO

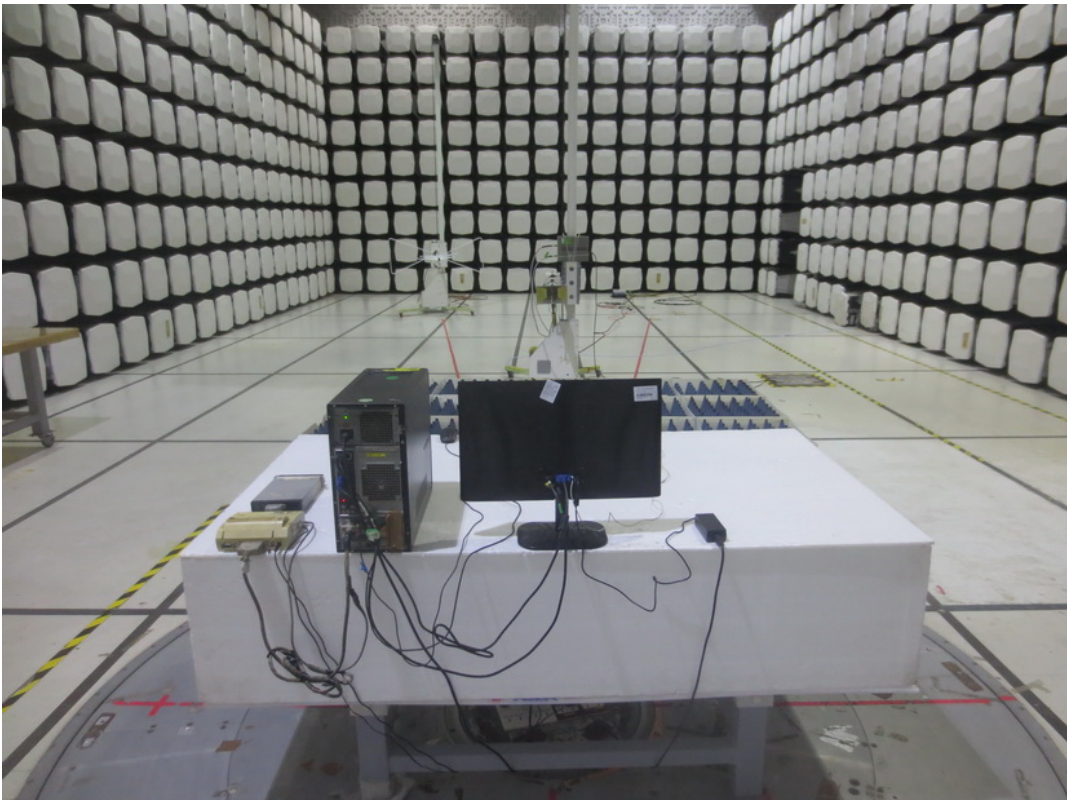
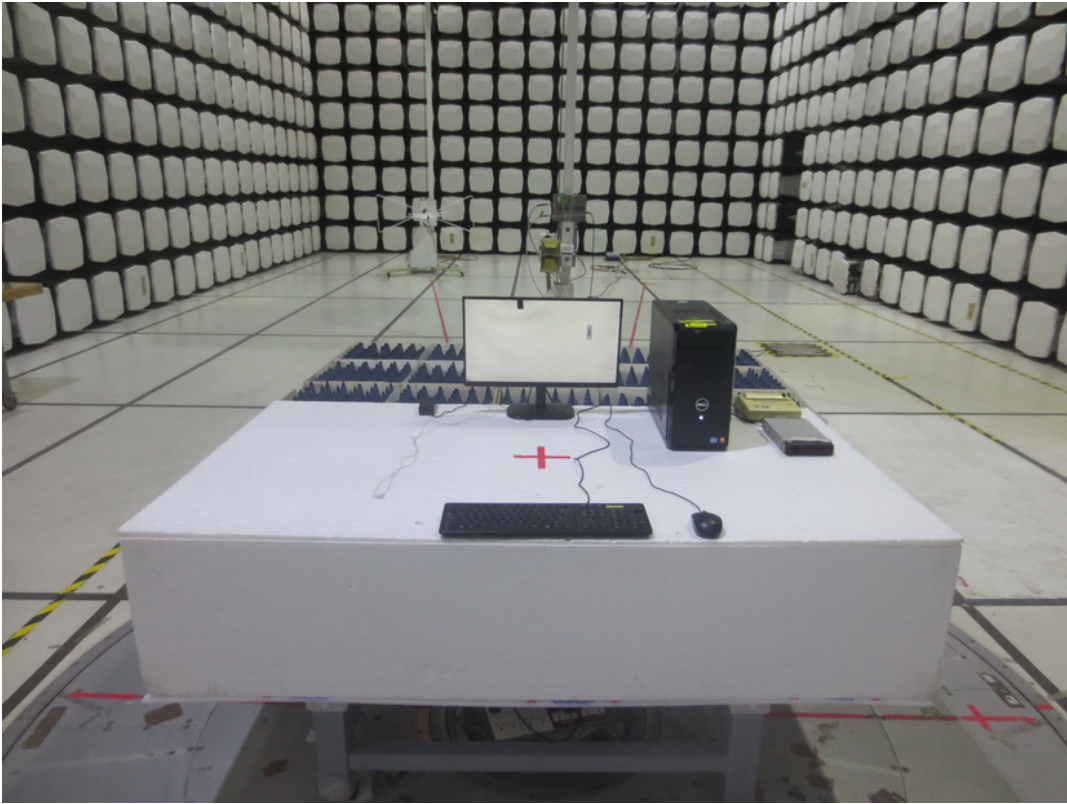
Conducted Emission



Radiated emission below 1 GHz



Radiated emission above 1 GHz



End of Test Report