



FCC TEST REPORT

According to

47 CFR, Part 2, Part 15 and CISPR PUB. 22

Applicant	: LG Electronics USA
Address	: 1000 Sylvan Avenue Englewood Cliffs New Jersey United States
Equipment	: LCD Monitor
Model No.	: IPS234TA
FCC ID	: BEJIPS234TA

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History of this test report

■ ORIGINAL.

☐ Additional attachment as following record:

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FCC ID	: BEJIPS234TA

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4 – 2003** and the energy emitted by this equipment was ***passed*** **CISPR PUB. 22 and FCC Part 15** in both radiated and conducted emission class B limits. Testing was carried out on Mar 18, 2012 at ***CerpPASS Technology Corp.***

Signature

Miro Chueh/ Technical director



1. Summary of Test Procedure and Test Result

Test Item	Normative References	Test Result
Conducted Emission	ANSI C63.4-2003 FCC Part 15 Subpart B	PASS
Radiated Emission	ANSI C63.4-2003 FCC Part 15 Subpart B	PASS



2. Test Configuration of Equipment under Test

2.1. Manufacturer

LG Electronics Nanjing Display Co.,Ltd.

No.346,Yaoxin Road Economic & Technical Development Zone Nanjing China

2.2. Feature of Equipment under Test

LCD Monitor	Model No:	IPS234TA
Adapter #1	Manufacturer:	Lien Chang Electronic Enterprise Co.,Ltd.
	Model No.:	LCAP21A
	Input Rating:	100-240V~ 50-60Hz,1.1 A
	Output Rating:	19V  1.7A
DC Cable	Non-shielded, 1.5m with one ferrite cores bonded	
Adapter #2	Manufacturer:	SHENZHEN HONOR ELECTRONIC CO.,LTD.
	Model No.:	ADS-40SG-19-3 19032G
	Input Rating:	100-240V~ 50/60Hz,1.0A
	Output Rating:	19V  1.7A
DC Cable	Non-shielded, 1.5m	
Adapter #3	Manufacturer:	SHENZHEN HONOR ELECTRONIC CO.,LTD.
	Model No.:	ADS-40FSG-19 19032G***-1(*** can be PG,PBR,PI,PCU (direct plug-in type) represents different plug types, ADS-40FSG-19 19030GPG-1 was selected as the test model)
	Input:	100-240V~ 50/60Hz 1.0A max
	Output:	19V  1.7A
DC Cable	Non-Shielded, 1.5m	
Adapter #4	Manufacturer:	Lien Chang Electronic Enterprise Co.,Ltd.
	Model No.:	LCAP26A-* (* can be A,E,I,B direct plug-in type) represents different plug types, LCAP26A-C was selected as the test model)
	Input:	100-240V~50-60Hz 1.1A
	Output:	19V  1.7A
DC Cable	Non-Shielded, 1.5m	
VGA Cable	Shielded, 1.5m	
DVI Cable	Shielded, 1.5m	
※ the EUT Photos of 35~38 Just a publicity.		

Panel Manufacturer	Panel Model No.
LG	LM230WF3



2.3. Test Manner

Test Software

- a During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
- b The complete test system included the PC, Printer, USB Keyboard, USB Mouse, and EUT for EMI test.
- c During the test, setup up the EUT and all system, turn on the power of all Equipments, run the EMC test software "H", set the contrast control to maximum, set the brightness control to maximum, use white letters on a black background to represent all colors, make the EUT at the test mode and it is normal operation, and then test.

The pre-test modes

Test Mode 1: Full system (VGA mode 1920*1080@60Hz)With Adapter#1
Test Mode 2: Full system (VGA mode 1024*768@75Hz) With Adapter#1
Test Mode 3: Full system (VGA mode 720*400@70Hz) With Adapter#1
Test Mode 4: Full system (VGA mode 1920*1080@60Hz)With Adapter#2
Test Mode 5: Full system (VGA mode 1024*768@75Hz) With Adapter#2
Test Mode 6: Full system (VGA mode 720*400@70Hz) With Adapter#2
Test Mode 7: Full system (VGA mode 1920*1080@60Hz)With Adapter#3
Test Mode 8: Full system (VGA mode 1024*768@75Hz) With Adapter#3
Test Mode 9: Full system (VGA mode 720*400@70Hz) With Adapter#3
Test Mode 10: Full system (VGA mode 1920*1080@60Hz)With Adapter#4
Test Mode 11: Full system (VGA mode 1024*768@75Hz) With Adapter#4
Test Mode 12: Full system (VGA mode 720*400@70Hz) With Adapter#4
Test Mode 13: Full system (DVI mode 1920*1080@60Hz)With Adapter#1
Test Mode 14: Full system (DVI mode 1024*768@75Hz) With Adapter#1
Test Mode 15: Full system (DVI mode 720*400@70Hz) With Adapter#1
Test Mode 16: Full system (DVI mode 1920*1080@60Hz)With Adapter#2
Test Mode 17: Full system (DVI mode 1024*768@75Hz) With Adapter#2
Test Mode 18: Full system (DVI mode 720*400@70Hz) With Adapter#2
Test Mode 19: Full system (DVI mode 1920*1080@60Hz)With Adapter#3
Test Mode 20: Full system (DVI mode 1024*768@75Hz) With Adapter#3
Test Mode 21: Full system (DVI mode 720*400@70Hz) With Adapter#3
Test Mode 22: Full system (DVI mode 1920*1080@60Hz)With Adapter#4
Test Mode 23: Full system (DVI mode 1024*768@75Hz) With Adapter#4
Test Mode 24: Full system (DVI mode 720*400@70Hz) With Adapter#4

Select the worst case of the pre-test modes as the final test mode

Test Mode 1: Full system (VGA mode 1920*1080@60Hz)With Adapter#1

**2.4. Description of Support Unit**

No.	Device	Manufacturer	Model No.	Description
1	PC	Dell	Vostro200	Graphic: ASUS EAH6570
2	USB Keyboard	DELL	SK-8115	N/A
3	USB Mouse	DELL	G0K02XYK	N/A
4	USB Printer	HP	VCVRA-1001	N/A

No.	Cable	Quantity	Description
A	VGA Cable	1	Shielded, 1.5m
B	DVI Cable	1	Shielded, 1.5m,
C	USB Cable	1	Shielded, 1.8m, with one ferrite core bonded
D	USB Cable	1	Shielded, 1.5m
E	USB Cable	1	Shielded, 1.5m, with one ferrite core bonded

**2.5. General Information of Test**

Test Site:	CerpPASS Technology Corp.
Performand Location :	No.66,Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China
NVLAP LAB Code :	200814-0
FCC Registration Number :	916572, 331395
IC Registration Number :	7290A-1, 7290A-2
VCCI Registration Number :	T-1945 for Telecommunication Test C-2919 for Conducted emission test R-2670 for Radiated emission test below 1GHz G-227 for Radiated emission test above 1GHz
Frequency Range Investigated :	Conducted Emission Test: from 150kHz to 30 MHz Radiated Emission Test: from 30 MHz to 1,000 MHz Radiated Emission Test: from 1GHz to 18GHz
Test Distance :	The test distance of radiated emission below 1GHz from antenna to EUT is 3 M. The test distance of radiated emission above 1GHz from antenna to EUT is 3 M.

LABORATORY ACCREDITATION**2.6. Measurement Uncertainty**

Conducted Emission		
The measurement uncertainty is evaluated as ± 2.71 dB.		
Radiated Emission		
(30MHz -1000MHz)	Horizontal	The measurement uncertainty is evaluated as ± 3.59 dB.
	Vertical	The measurement uncertainty is evaluated as ± 3.89 dB
(1G-18GHz)	Horizontal	The measurement uncertainty is evaluated as ± 2.31 dB.
	Vertical	The measurement uncertainty is evaluated as ± 2.15 dB.



3. Test of Conducted Emission

3.1. Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

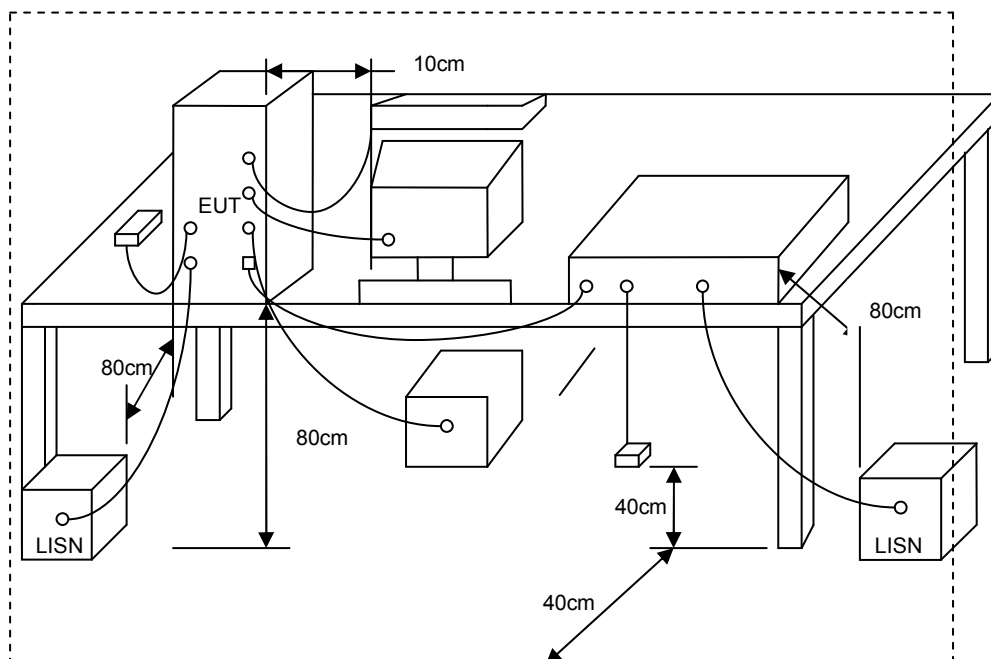
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

3.2. Test Procedures

- The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- Connect EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connecting to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



3.3. Typical test Setup



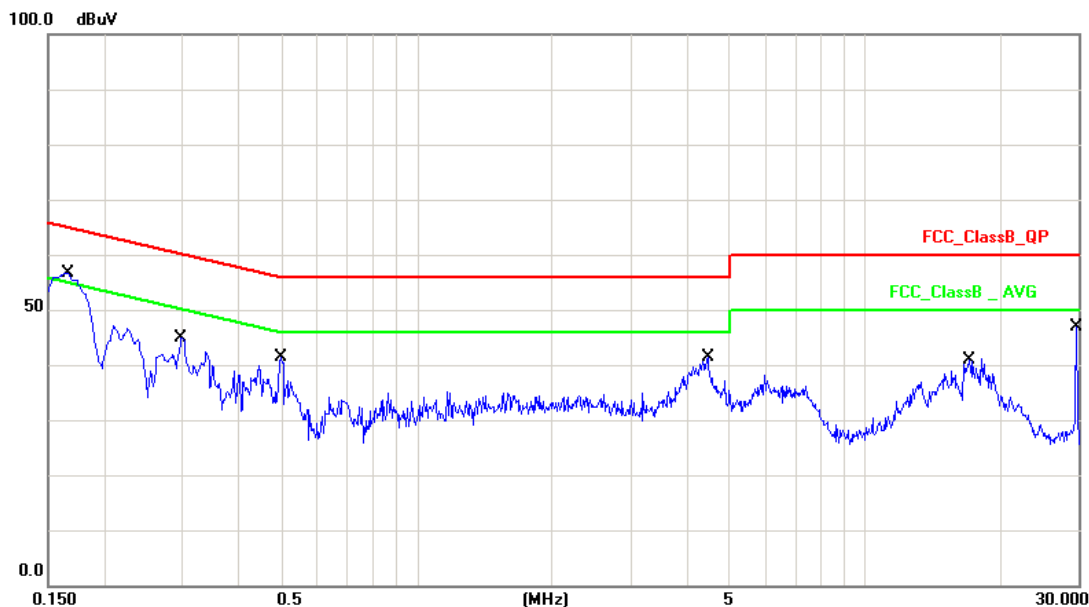
3.4. Measurement equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Test Receiver	R&S	ESCI	100565	2012.03.12	2013.03.11
AMN	R&S	ESH2-Z5	100182	2012.03.12	2013.03.11
Two-Line V-Network	R&S	ENV216	100325	2012.03.12	2013.03.11
ISN	FCC	FCC-TLISN-T2-02	20379	2011.12.09	2012.12.08
ISN	FCC	FCC-TLISN-T4-02	20380	2011.12.09	2012.12.08
ISN	FCC	FCC-TLISN-T8-02	20381	2011.12.09	2012.12.08
Current Probe	R&S	EZ-17	100303	2012.03.12	2013.03.11
Passive Voltage Probe	R&S	ESH2-Z3	100026	2012.03.12	2013.03.11
Attenuator	R&S	ESH3-Z2	100529	2012.03.12	2013.03.11
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-004	2011.08.14	2012.08.13



3.5. Test Result and Data

Test Mode :	Full system (VGA mode 1920*1080@60Hz)With Adapter#1		
AC Power :	AC 120V/60Hz	Phase :	LINE
Temperature :	22°C	Humidity :	50%
Pressure(mbar) :	1002	Date:	2012/03/17

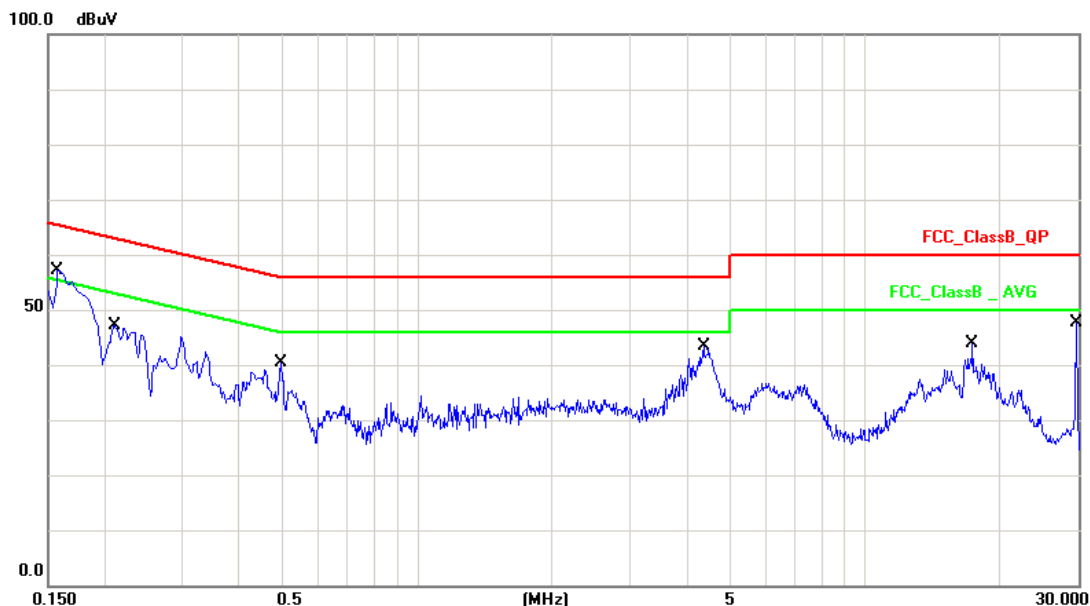


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1660	19.87	31.99	51.86	65.15	-13.29	QP
2	0.1660	19.87	21.47	41.34	55.15	-13.81	AVG
3	0.2980	19.87	21.22	41.09	60.30	-19.21	QP
4	0.2980	19.87	18.77	38.64	50.30	-11.66	AVG
5	0.4980	19.85	18.36	38.21	56.03	-17.82	QP
6	0.4980	19.85	17.56	37.41	46.03	-8.62	AVG
7	4.4740	19.71	15.39	35.10	56.00	-20.90	QP
8	4.4740	19.71	6.08	25.79	46.00	-20.21	AVG
9	17.1299	19.70	13.96	33.66	60.00	-26.34	QP
10	17.1299	19.70	9.28	28.98	50.00	-21.02	AVG
11	29.7020	19.56	26.04	45.60	60.00	-14.40	QP
12	29.7020	19.56	21.03	40.59	50.00	-9.41	AVG

Note: Measurement Level = Reading Level + Correct Factor



Test Mode :	Full system (VGA mode 1920*1080@60Hz)With Adapter#1		
AC Power :	AC 120V/60Hz	Phase :	NEUTRAL
Temperature :	22°C	Humidity :	50%
Pressure(mbar) :	1002	Date:	2012/03/17



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1580	19.50	33.55	53.05	65.56	-12.51	QP
2	0.1580	19.50	20.00	39.50	55.56	-16.06	AVG
3	0.2117	19.50	22.91	42.41	63.13	-20.72	QP
4	0.2117	19.50	10.67	30.17	53.13	-22.96	AVG
5	0.4980	19.50	18.61	38.11	56.03	-17.92	QP
6	0.4980	19.50	17.83	37.33	46.03	-8.70	AVG
7	4.3820	19.62	16.83	36.45	56.00	-19.55	QP
8	4.3820	19.62	7.24	26.86	46.00	-19.14	AVG
9	17.4260	19.94	18.35	38.29	60.00	-21.71	QP
10	17.4260	19.94	16.22	36.16	50.00	-13.84	AVG
11	29.7020	19.87	26.52	46.39	60.00	-13.61	QP
12	29.7020	19.87	21.52	41.39	50.00	-8.61	AVG

Note: Measurement Level = Reading Level + Correct Factor

Test engineer: Seben



4. Test of Radiated Emission

4.1. Test Limit

Radiated emissions from 30 MHz to 1,000 MHz were measured with a bandwidth of 120 kHz according to the methods defines in ANSI C63.4-2003. The EUT was placed on a nonmetallic stand in the open-field site, 0.8 meter above the ground plane, as shown in section 3.2. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (m)	Level (dBuV/m)	Level (dBuV/m)
30 - 88	3	40(QP)	N/A
88 - 216	3	43(QP)	N/A
216-960	3	46(QP)	N/A
960-1000	3	54(QP)	N/A
1000-18000	3	74(PK)	54(AV)

For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the below table.

Frequency (MHz)	Distance Meters	Radiated (dB μ V/ M)
30-230	10	30
230-1000	10	37

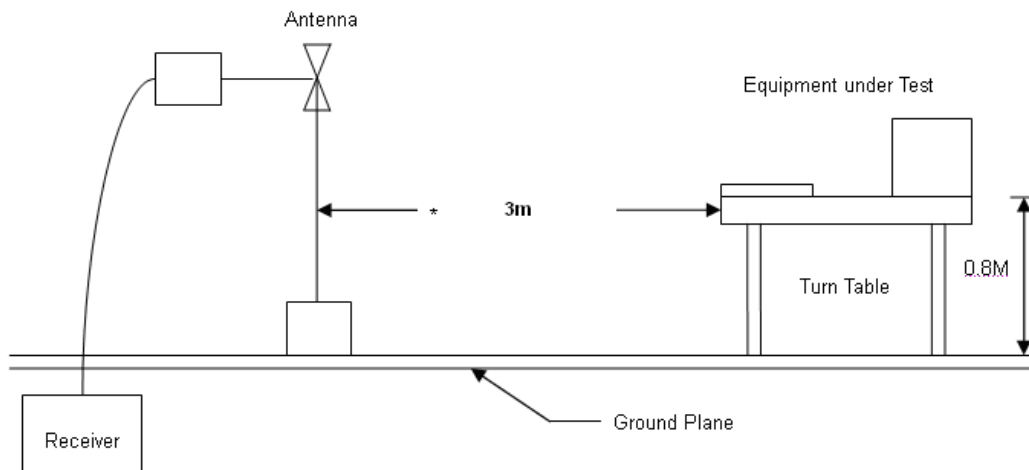


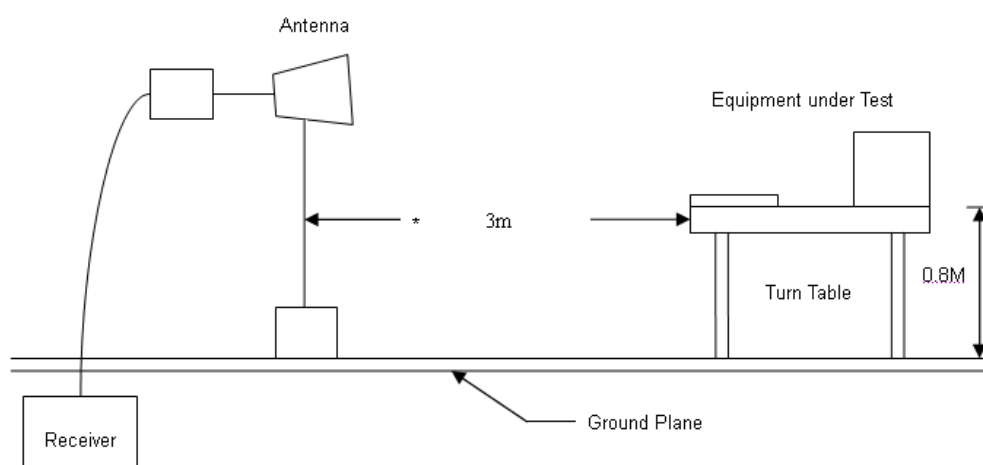
4.2. Test Procedures

- The EUT was placed on a Rota table top 0.8 meter above ground.
- The EUT and its simulators are placed on the 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 3 meters.
- The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
- 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 investigated over the frequency range from 30MHz to 1GHz using a receiver bandwidth of 120KHz and the frequency range from 1GHz to 18GHz using a receiver bandwidth of 1MHz.

4.3. Typical test Setup

Below 1GHz Test Setup



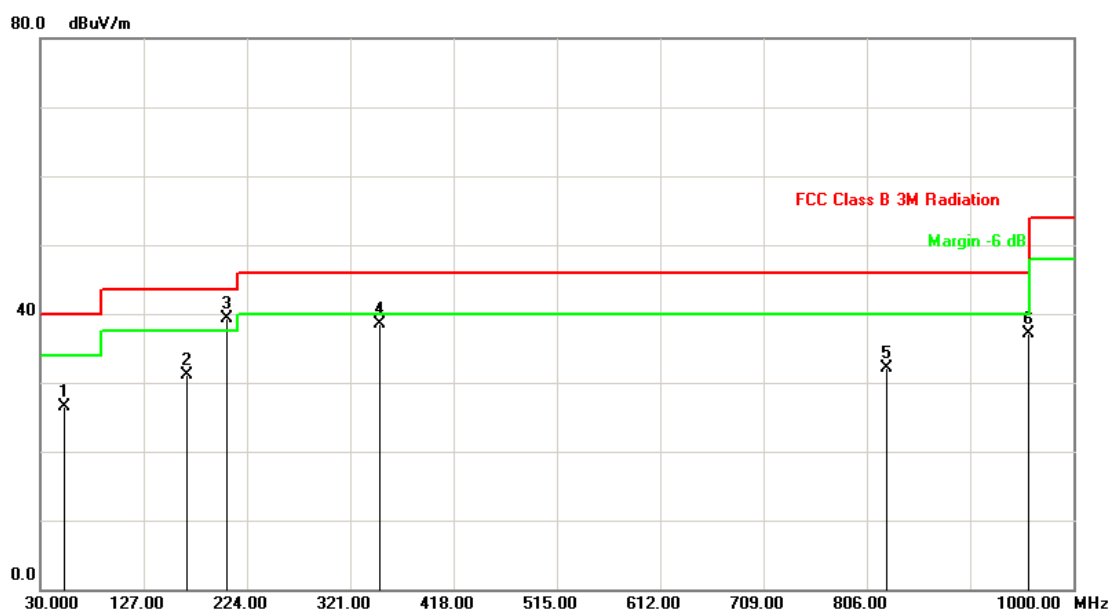
**Above 1GHz Test Setup****4.4. Measurement equipment**

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
EMI Test Receiver	R&S	ESCI	100563	2012.03.12	2013.03.11
H64 Preamplifier	HP	8447F	3113A05582	2012.03.12	2013.03.12
Preamplifier	Agilent	8449B	3008A02342	2012.03.12	2013.03.11
Ultra Broadband Antenna	R&S	HL562	100362	2011.05.07	2012.05.06
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2011.05.07	2012.05.06
Spectrum Analyzer	R&S	FSP40	100324	2011.08.14	2012.08.13
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2011.08.17	2012.08.16



4.5. Test Result and Data (30MHz ~ 1000MHz)

Test Mode :	Full system (VGA mode 1920*1080@60Hz)With Adapter#1		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Horizontal
Temp :	23°C	Humidity :	52%
Pressure(mbar) :	1002	Date :	2012/03/18

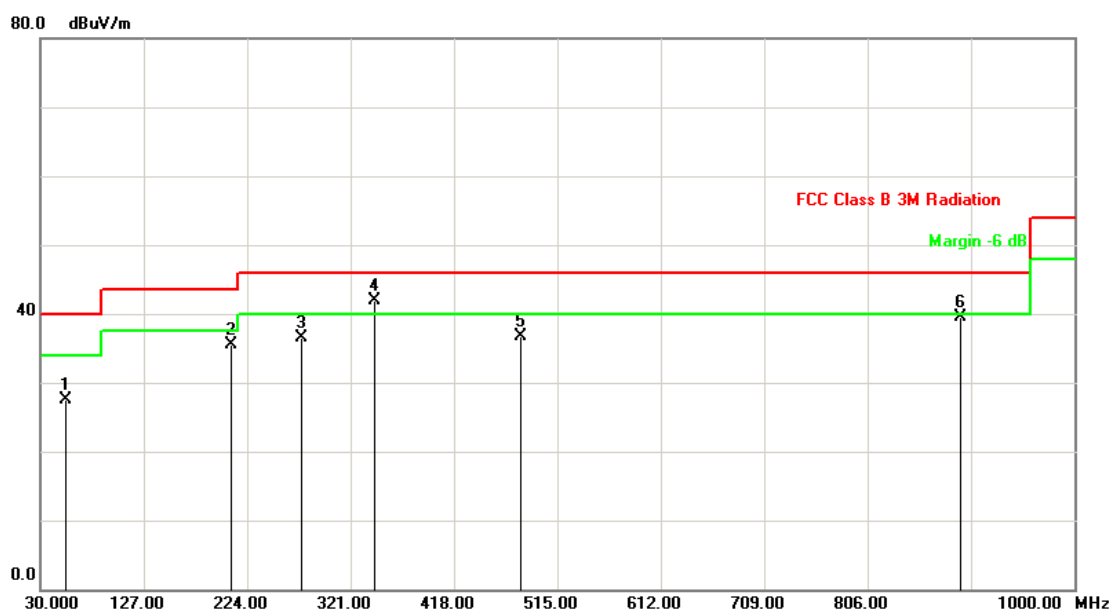


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	52.3100	-17.86	44.36	26.50	40.00	-13.50	QP	200	0
2	167.7400	-15.14	46.34	31.20	43.50	-12.30	QP	100	76
3	205.5699	-15.07	54.37	39.30	43.50	-4.20	QP	143	0
4	348.1600	-9.25	47.75	38.50	46.00	-7.50	QP	100	203
5	824.4299	1.55	30.55	32.10	46.00	-13.90	QP	200	180
6	958.2899	3.80	33.40	37.20	46.00	-8.80	QP	200	234

Note: Measurement Level = Reading Level + Correct Factor



Test Mode :	Full system (VGA mode 1920*1080@60Hz)With Adapter#1		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Vertical
Temp :	23°C	Humidity :	52%
Pressure(mbar) :	1002	Date :	2012/03/18

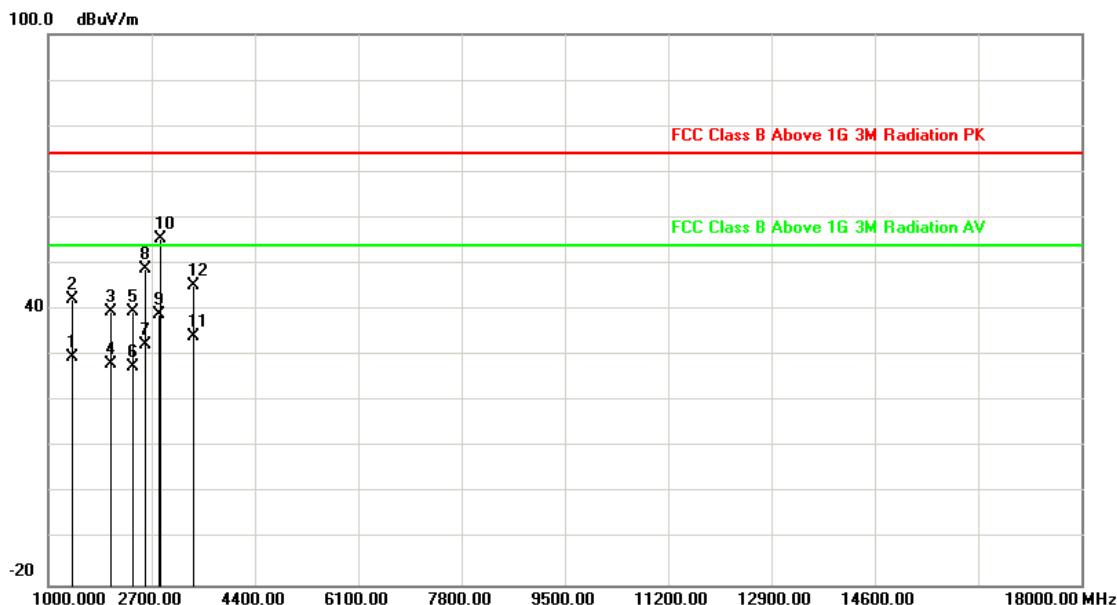


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	54.2500	-18.51	46.01	27.50	40.00	-12.50	QP	100	150
2	208.4800	-14.89	50.49	35.60	43.50	-7.90	QP	100	54
3	274.4400	-11.83	48.33	36.50	46.00	-9.50	QP	161	0
4	343.3100	-9.42	51.32	41.90	46.00	-4.10	QP	161	0
5	481.0500	-5.34	42.04	36.70	46.00	-9.30	QP	100	210
6	893.3000	2.91	36.59	39.50	46.00	-6.50	QP	100	8

Note: Measurement Level = Reading Level + Correct Factor

**4.6. Test Result and Data (1000MHz ~ 18000MHz)**

Test Mode :	Full system (VGA mode 1920*1080@60Hz)With Adapter#1		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Horizontal
Temp :	23℃	Humidity :	52%
Pressure(mbar) :	1002	Date :	2012/03/18

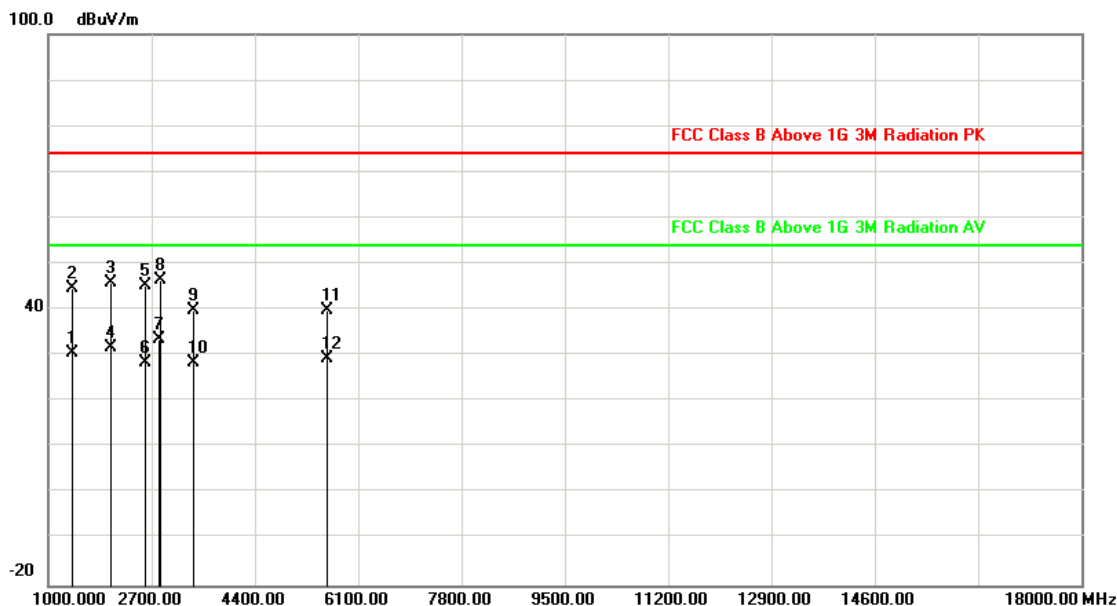


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	1390.550	-15.22	45.02	29.80	54.00	-24.20	AVG	100	54
2	1391.000	-15.22	57.34	42.12	74.00	-31.88	peak	100	54
3	2037.000	-13.72	53.17	39.45	74.00	-34.55	peak	200	125
4	2038.440	-13.71	41.81	28.10	54.00	-25.90	AVG	200	125
5	2394.000	-12.17	51.66	39.49	74.00	-34.51	peak	198	255
6	2395.100	-12.17	39.67	27.50	54.00	-26.50	AVG	198	255
7	2597.110	-11.42	43.92	32.50	54.00	-21.50	AVG	200	198
8	2598.000	-11.42	60.34	48.92	74.00	-25.08	peak	200	198
9	2835.770	-10.71	49.61	38.90	54.00	-15.10	AVG	189	77
10	2836.000	-10.71	66.04	55.33	74.00	-18.67	peak	189	77
11	3396.790	-10.43	44.53	34.10	54.00	-19.90	AVG	100	65
12	3397.000	-10.43	55.77	45.34	74.00	-28.66	peak	100	65

Note: Measurement Level = Reading Level + Correct Factor



Test Mode :	Full system (VGA mode 1920*1080@60Hz)With Adapter#1		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Vertical
Temp :	23°C	Humidity :	52%
Pressure(mbar) :	1002	Date :	2012/03/18



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	1390.520	-15.22	45.72	30.50	54.00	-23.50	AVG	100	78
2	1391.000	-15.22	59.90	44.68	74.00	-29.32	peak	100	78
3	2037.000	-13.72	59.49	45.77	74.00	-28.23	peak	200	2
4	2038.440	-13.71	45.51	31.80	54.00	-22.20	AVG	200	2
5	2598.000	-11.42	56.66	45.24	74.00	-28.76	peak	101	311
6	2600.750	-11.41	40.01	28.60	54.00	-25.40	AVG	101	311
7	2834.920	-10.71	44.21	33.50	54.00	-20.50	AVG	151	189
8	2836.000	-10.71	57.25	46.54	74.00	-27.46	peak	151	189
9	3380.000	-10.43	50.27	39.84	74.00	-34.16	peak	100	77
10	3384.820	-10.43	38.83	28.40	54.00	-25.60	AVG	100	77
11	5590.000	-4.37	44.37	40.00	74.00	-34.00	peak	200	16
12	5591.770	-4.37	33.87	29.50	54.00	-24.50	AVG	200	16

Note: Measurement Level = Reading Level + Correct Factor

Test engineer: Seben