

Application for FCC Certificate
On Behalf of
Hisense Electric Co., Ltd.

LED LCD TV

Model No.	Brand
50K366GW	Hisense
50K366GWN	

FCC ID : W9HLCDF0021

Prepared For : Hisense Electric Co., Ltd.
No.218 Qianwangang Road, Economy & Technology
Development Zone, Qingdao, China

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Report No. : ACI-F13108
Date of Test : Jul 09 – 12, 2013
Date of Report : Jul 16, 2013

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TEST REPORT FOR FCC CERTIFICATE

Applicant : Hisense Electric Co., Ltd.
 Manufacturer : Hisense Electric Co., Ltd.
 Factory #1 : Hisense Electric Co., Ltd.
 Factory #2 : Tatung Mexico S.A. de C.V.
 EUT Description : LED LCD TV

Model No.	Brand	Power Supply
50K366GW	Hisense	120V/60Hz
50K366GWN		

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2012
AND ANSI C63.4-2003*

The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B (Class B) limits both radiated and conducted emissions.

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report shows that the EUT (M/N: Refer to Sec2.1) which was tested in 3m anechoic chamber Jul 09 – 12, 2013 is technically compliance with the FCC official limits also.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

This report contains data that are not covered by the NVLAP accreditation.


This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

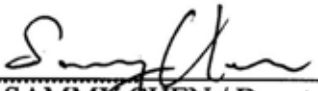
The test results for EUT's TV functions are contained in No.F13107, a Verification report.

Date of Test : Jul 09 – 12, 2013 Date of Report : Jul 16, 2013

Producer : 
 KATHY WANG / Supervisor

Review : 
 WENCY YANG / Supervisor

 For and on behalf of
 Audix Technology (Shanghai) Co., Ltd.

Signatory : 
 Authorized Signature EMC SAMMY CHEN / Deputy Manager

1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Description of Test Item	Standard	Limits	Results
EMISSION			
Conducted Disturbance at the Mains Terminal	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2012 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2012 AND ANSI C63.4-2003	15.109(a) Class B	Pass

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description	:	LED LCD TV
Type of EUT	:	<input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-product <input type="checkbox"/> Pro-type
Model No.	:	50K366GW, 50K366GWN
Note	:	The above models are all the same except for the different model name. The 50K366GW was tested and reported in the report.
Bread Name	:	Hisense
Applicant	:	Hisense Electric Co., Ltd. No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China
Manufacturer	:	Hisense Electric Co., Ltd. No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China
Factory #1	:	Hisense Electric Co., Ltd. No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China
Factory #2	:	Tatung Mexico S.A. de C.V. Miguel Catalán 420, Parque Industrial Rio Bravo, Cd. Juarez, Chih., CP 32557
LCD Panel	:	Manufacturer : Hisense M/N : HE500HF-B52 (1000)\PW1
Max Resolution	:	1920*1080@60Hz
D-Sub Cable	:	Shielded, Detachable, 1.85m, with two cores on cable
HDMI Cable	:	Shielded, Detachable, 1.00m
Power Cord	:	Unshielded, Detachable, 1.80m

Remark:

The EUT is a LED LCD TV which input/output ports as follows:

Bottom Port:

- (1) One DIGITAL AUDIO OUT Port : Connected with DVD PLAYER #1
- (2) One LAN Port : Connected with PC
- (3) One HDMI3/ARC Port : Connected with DVD PLAYER #2
- (4) One HDMI2 Port : Connected with DVD PLAYER #1
- (5) One component of Audio/YPbPr Audio Port : Connected with DVD PLAYER #1
- (6) One component of Video/YPbPr Port : Connected with DVD PLAYER #1

Side Port:

- (1) One ANT/CABLE IN Port : Connected with Antenna or ATSC SG / TV SG
- (2) One VGA Port : Connected with PC
- (3) One PC/DVI Audio In Port : Connected with PC
- (4) One HDMI1/DVI Port : Connected with PC
- (5) Two USB Ports : Connected with U-Disk
- (6) One Audio Out Port : Connected with Earphone

2.2 Peripherals

2.2.1 PC

Manufacturer : HP
 Model Number : dx7200MT
 Serial Number : CNG622017W
 Power Cord : Unshielded, Detachable, 1.8m
 Certificate : FCC DoC; CE/EMC; VCCI; C-Tick; UL
 BSMI (R33001) 3C (A000111)
 MIC (E-A011-04-2659(B))

2.2.2 Printer

Manufacturer : HP
 Model Number : C3990A
 Serial Number : JPZX020487
 Data Cable : Shielded, detachable, 1.5m
 Certificate : GS, CE/EMC, C-Tick, FCC DoC

2.2.3 Keyboard

Manufacturer : Microsoft
Model Number : 1406
Serial Number : 0200702302609
Data Cable : Shielded, undetachable ,1.8m
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,
BSMI

2.2.4 Mouse

Manufacturer : Microsoft
Model Number : 1405
Serial Number : 0204603562213
Data Cable : Shielded, undetachable, 1.8m.
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,
BSMI

2.2.5 Modem

Manufacturer : TP-LINK
Model Number : TM-EC5658V
Serial Number : 07123301053
Data Cable : Shielded, Detachable, 1.8m
Certificate : FCC DoC, CE/EMC, CCC

2.2.6 TV Signal Generator

Manufacturer : FLUKE
Model Number : 54200m01
Serial Number : 814008
Data Cable : Shielded, detachable, 2.0m
Power Cord : Unshielded, detachable, 2.0m
Certificate : CE/EMC, FCC DoC, CCC

2.2.7 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.2.8 DVD PLAYER #1

Manufacturer : PHILIPS
Model Number : DVP3986K/93
Serial Number : KX1A0902120108
Certificate : FCC DoC, CE/EMC, CCC

2.2.9 DVD PLAYER #2

Manufacturer : LG
Model Number : DF9921N
Serial Number : 3850R-M846W
Certificate : FCC DoC, CE/EMC, CCC

2.2.10 Earphone

Manufacturer : SONY
Model Number : MDR-E808
Serial Number : 1808030805305506

2.2.11 U-DISK *2

Manufacturer : LG
Model Number : 1GB

2.3 Description of Test Facility

Site Description (No.3 3m Chamber) : Sept. 17, 1998 file on
Mar 16, 2012 Renewed
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046, USA

Name of Firm : Audix Technology (Shanghai) Co., Ltd.

Site Location : 3F 34Bldg 680 Guiping Rd,
Caohejing Hi-Tech Park,
Shanghai 200233, China

NVLAP Lab Code : 200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty: U = 3.42 dB

Radiated Emission Expanded Uncertainty (30-200MHz):
U = 4.14 dB (Horizontal)
U = 4.28 dB (Vertical)

Radiated Emission Expanded Uncertainty (200M-1GHz):
U = 4.18 dB (Horizontal)
U = 4.26 dB (Vertical)

3 CONDUCTED EMISSION TEST

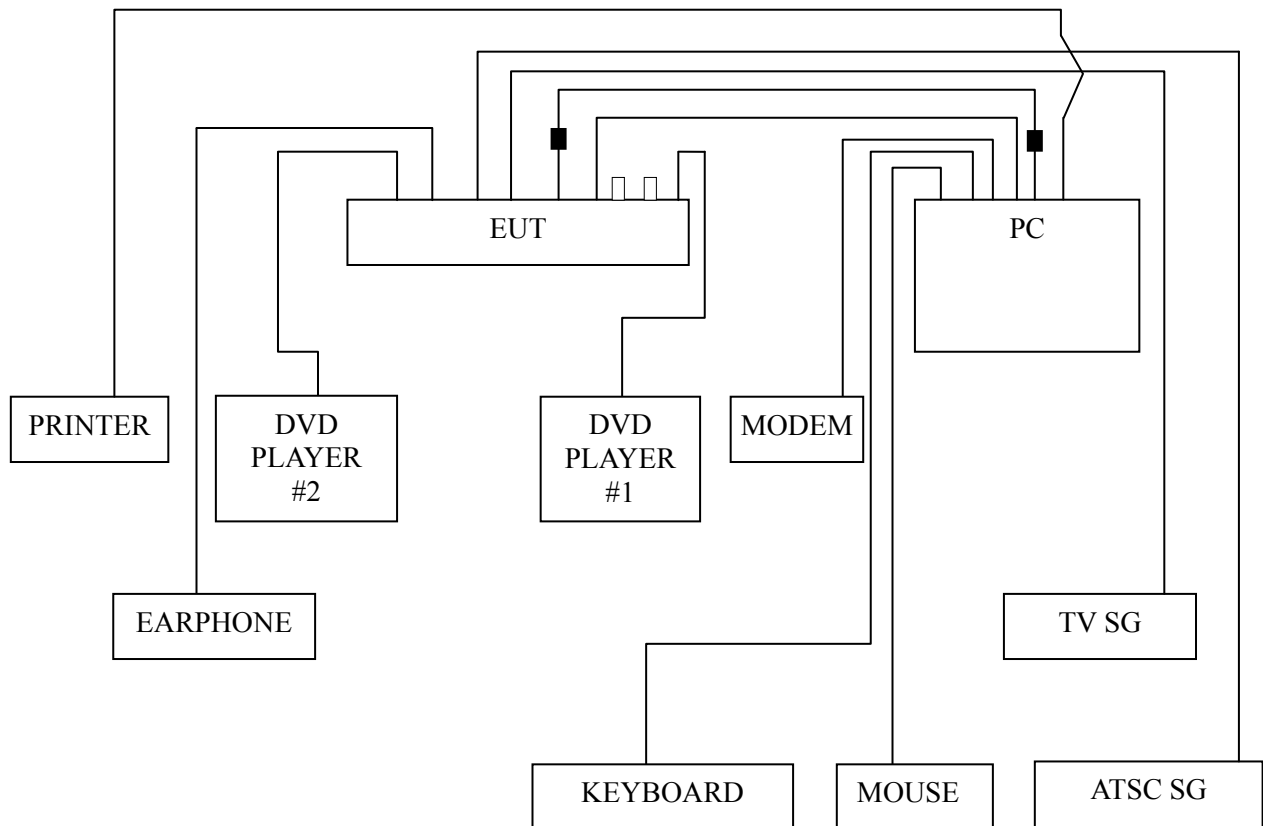
3.1 Test Equipment

The following test equipments are used during the conducted emission test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	100841	Mar 20, 2013	Mar 20, 2014
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Feb 25, 2013	Feb 25, 2014
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Mar 20, 2013	Mar 20, 2014
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Mar 18, 2013	Sep 18, 2013
5.	50 Ω Terminator	Anritsu	BNC	001	Mar 20, 2013	Mar 20, 2014
6.	Software	Audix	E3	SET00200 9804M592	--	--

3.2 Block Diagram of Test Setup

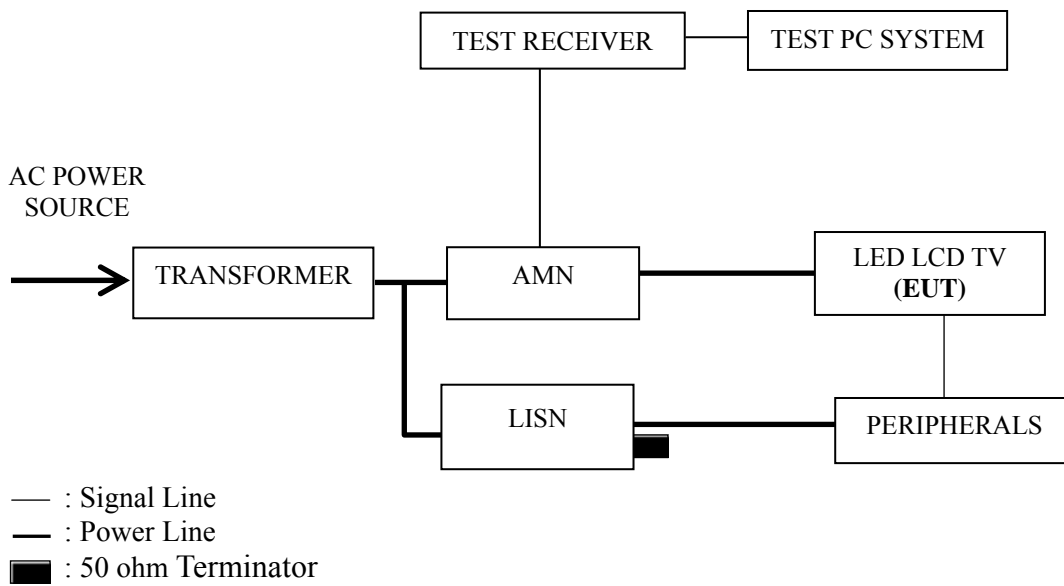
3.2.1 EUT & Peripherals



■ : Ferrite core

□ : U-Disk

3.2.2 Conducted Disturbance Test Setup



3.3 Conducted Emission Limit [FCC Part 15 Subpart B 15.107(a)]

Frequency Range (MHz)	Limits dB (μV)	
	Quasi-peak	Average
0.15 ~ 0.5	66~56	56~46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE 1 – The lower limit shall apply at the transition frequencies.
 NOTE 2 – The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz~0.50 MHz

3.4 Test Configuration

The EUT (listed in Sec.2.1) and the peripherals (listed in Sec 2.2) were installed as shown on Sec.3.2 to meet FCC requirement and operating in a manner that tends to maximize its emission level in a normal application.

3.5 Operating Condition of EUT

3.5.1 Setup the EUT and peripherals as shown in Sec. 3.2.

3.5.2 Turn on the power of all equipments and the EUT.

3.5.3 Set the contrast & brightness of EUT to maximum.

3.5.4 PC system ran the self-test program “EMC Test” by windows XP and sent “H” characters to EUT through graphic card, the EUT’s screen displayed and filled with “H” pattern by its resolution (Via D-Sub & HDMI Input).

3.5.5 In USB Play mode, set the EUT play digital media from U-Disk.

3.5.6 In LAN mode, set the EUT play digital media through LAN port.

3.5.7 The other peripherals devices were driven and operated during the test.

3.5.8 The test modes are as follows:

Test Mode
D-Sub 1920*1080@60Hz
HDMI 1920*1080@60Hz
D-Sub 1280*1024@60Hz
D-Sub 640*480@60Hz
USB Play
LAN

3.6 Test Procedures

The EUT and peripherals were connected to the power mains through an Artificial Mains Network (AMN). This provided a 50 ohm coupling impedance for the measuring equipment.

Both sides of AC line (Line & Neutral) were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed or manipulated according to ANSI C63.4:2003 during conducted emission test.

The bandwidth of R&S Test Receiver ESCI was set at 9 kHz.

The frequency range from 150 kHz to 30 MHz was checked.

The test modes were done on conducted disturbance test and all the test results are listed in Sec. 3.7.

3.7 Test Results

< **PASS** >

The frequency and amplitude of the highest conducted emission relative to the limit is reported. All emissions not reported below are too low against the prescribed limits.

Test Mode	Data Page
D-Sub 1920*1080@60Hz	P13
HDMI 1920*1080@60Hz	P14
D-Sub 1280*1024@60Hz	P15
D-Sub 640*480@60Hz	P16
USB Play	P17
LAN	P18

NOTE 1 – Factor = Cable Loss + AMN Factor.

NOTE 2 – Emission Level = Meter Reading + Factor.

NOTE 3 – “QP” means “Quasi-Peak” values, “AV” means “Average” values.

NOTE 3 – The worst case is for LAN test mode. The worst emission is detected at 0.150 MHz (Quasi-Peak Value) with corrected signal level of 61.88 dB (μ V) (limit is 66.00 dB (μ V)), when the Neutral of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22

Model No. : 50K366GW Humidity : 48%RH

Test Mode : D-Sub 1920*1080@60Hz Date of Test : Jul 12, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	61.54	0.13	61.67	66.00	4.33	QP
	0.642	38.70	0.04	38.74	56.00	17.26	
	1.225	37.42	0.03	37.45	56.00	18.55	
	1.897	36.35	0.03	36.38	56.00	19.62	
	6.047	38.27	0.19	38.46	60.00	21.54	
	16.800	32.80	0.01	32.81	60.00	27.19	
	0.150	46.80	0.13	46.93	56.00	9.07	AV
	0.642	22.40	0.04	22.44	46.00	23.56	
	1.225	28.60	0.03	28.63	46.00	17.37	
	1.897	27.20	0.03	27.23	46.00	18.77	
	6.047	33.90	0.19	34.09	50.00	15.91	
	16.800	26.90	0.01	26.91	50.00	23.09	
Neutral	0.150	61.70	0.12	61.82	66.00	4.18	QP
	0.614	40.89	0.12	41.01	56.00	14.99	
	1.229	37.27	0.15	37.42	56.00	18.58	
	1.919	37.18	0.12	37.30	56.00	18.70	
	6.045	38.57	0.24	38.81	60.00	21.19	
	16.980	32.96	0.69	33.65	60.00	26.35	
	0.150	46.90	0.12	47.02	56.00	8.98	AV
	0.614	29.91	0.12	30.03	46.00	15.97	
	1.229	28.50	0.15	28.65	46.00	17.35	
	1.919	26.80	0.12	26.92	46.00	19.08	
	6.045	34.50	0.24	34.74	50.00	15.26	
	16.980	26.90	0.69	27.59	50.00	22.41	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K366GW Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Jul 12, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	61.00	0.13	61.13	66.00	4.87	QP
	0.639	38.90	0.04	38.94	56.00	17.06	
	1.220	37.30	0.02	37.32	56.00	18.68	
	1.893	36.24	0.03	36.27	56.00	19.73	
	6.045	38.92	0.19	39.11	60.00	20.89	
	16.950	33.19	0.01	33.20	60.00	26.80	
	0.150	46.50	0.13	46.63	56.00	9.37	AV
	0.639	22.50	0.04	22.54	46.00	23.46	
	1.220	27.61	0.02	27.63	46.00	18.37	
	1.893	27.30	0.03	27.33	46.00	18.67	
	6.045	34.50	0.19	34.69	50.00	15.31	
	16.950	27.30	0.01	27.31	50.00	22.69	
Neutral	0.150	61.50	0.12	61.62	66.00	4.38	QP
	0.614	41.04	0.12	41.16	56.00	14.84	
	1.226	37.04	0.15	37.19	56.00	18.81	
	1.905	36.64	0.12	36.76	56.00	19.24	
	5.643	38.62	0.22	38.84	60.00	21.16	
	16.940	33.02	0.69	33.71	60.00	26.29	
	0.150	47.20	0.12	47.32	56.00	8.68	AV
	0.614	29.61	0.12	29.73	46.00	16.27	
	1.226	27.60	0.15	27.75	46.00	18.25	
	1.905	26.80	0.12	26.92	46.00	19.08	
	5.643	33.30	0.22	33.52	50.00	16.48	
	16.940	27.20	0.69	27.89	50.00	22.11	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K366GW Humidity : 48%RH

Test Mode : D-Sub 1280*1024@60Hz Date of Test : Jul 12, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	61.59	0.13	61.72	66.00	4.28	QP
	0.647	37.90	0.05	37.95	56.00	18.05	
	1.216	37.35	0.02	37.37	56.00	18.63	
	2.659	38.25	0.05	38.30	56.00	17.70	
	5.659	38.10	0.18	38.28	60.00	21.72	
	17.240	33.03	0.02	33.05	60.00	26.95	
	0.150	46.80	0.13	46.93	56.00	9.07	AV
	0.647	21.59	0.05	21.64	46.00	24.36	
	1.216	27.61	0.02	27.63	46.00	18.37	
	2.659	28.30	0.05	28.35	46.00	17.65	
	5.659	31.50	0.18	31.68	50.00	18.32	
	17.240	27.29	0.02	27.31	50.00	22.69	
Neutral	0.150	61.71	0.12	61.83	66.00	4.17	QP
	0.615	40.95	0.12	41.07	56.00	14.93	
	1.230	37.38	0.15	37.53	56.00	18.47	
	2.662	36.96	0.12	37.08	56.00	18.92	
	5.642	39.00	0.22	39.22	60.00	20.78	
	16.310	32.23	0.65	32.88	60.00	27.12	
	0.150	47.00	0.12	47.12	56.00	8.88	AV
	0.615	29.31	0.12	29.43	46.00	16.57	
	1.230	27.30	0.15	27.45	46.00	18.55	
	2.662	27.60	0.12	27.72	46.00	18.28	
	5.642	33.90	0.22	34.12	50.00	15.88	
	16.310	27.30	0.65	27.95	50.00	22.05	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K366GW Humidity : 48%RH

Test Mode : D-Sub 640*480@60Hz Date of Test : Jul 12, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	61.59	0.13	61.72	66.00	4.28	QP
	0.634	39.40	0.03	39.43	56.00	16.57	
	1.225	37.93	0.03	37.96	56.00	18.04	
	2.657	37.86	0.05	37.91	56.00	18.09	
	5.643	38.58	0.18	38.76	60.00	21.24	
	16.970	33.20	0.01	33.21	60.00	26.79	
	AV	0.150	46.70	0.13	46.83	56.00	9.17
		0.634	22.90	0.03	22.93	46.00	23.07
		1.225	28.20	0.03	28.23	46.00	17.77
		2.657	28.20	0.05	28.25	46.00	17.75
		5.643	33.50	0.18	33.68	50.00	16.32
		16.970	27.50	0.01	27.51	50.00	22.49
Neutral	0.150	61.74	0.12	61.86	66.00	4.14	QP
	0.638	38.12	0.12	38.24	56.00	17.76	
	1.217	36.89	0.14	37.03	56.00	18.97	
	1.909	36.14	0.12	36.26	56.00	19.74	
	5.641	38.98	0.22	39.20	60.00	20.80	
	17.000	32.99	0.69	33.68	60.00	26.32	
	AV	0.150	47.30	0.12	47.42	56.00	8.58
		0.638	21.60	0.12	21.72	46.00	24.28
		1.217	27.31	0.14	27.45	46.00	18.55
		1.909	26.30	0.12	26.42	46.00	19.58
		5.641	34.20	0.22	34.42	50.00	15.58
		17.000	27.30	0.69	27.99	50.00	22.01

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K366GW Humidity : 48%RH

Test Mode : USB Play Date of Test : Jul 12, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark	
Line	0.150	61.60	0.13	61.73	66.00	4.27	QP	
	0.646	38.01	0.05	38.06	56.00	17.94		
	1.218	37.36	0.02	37.38	56.00	18.62		
	2.588	37.01	0.05	37.06	56.00	18.94		
	5.641	39.37	0.18	39.55	60.00	20.45		
	16.720	32.70	0.02	32.72	60.00	27.28		
	0.150	46.80	0.13	46.93	56.00	9.07	AV	
	0.646	21.59	0.05	21.64	46.00	24.36		
	1.218	27.91	0.02	27.93	46.00	18.07		
	2.588	28.10	0.05	28.15	46.00	17.85		
	5.641	34.30	0.18	34.48	50.00	15.52		
	16.720	26.59	0.02	26.61	50.00	23.39		
	Neutral	0.150	60.76	0.12	60.88	66.00	5.12	QP
		0.612	41.22	0.12	41.34	56.00	14.66	
1.219		36.98	0.14	37.12	56.00	18.88		
1.903		36.72	0.12	36.84	56.00	19.16		
5.655		38.57	0.22	38.79	60.00	21.21		
16.480		32.90	0.67	33.57	60.00	26.43		
0.150		47.10	0.12	47.22	56.00	8.78	AV	
0.612		29.81	0.12	29.93	46.00	16.07		
1.219		27.41	0.14	27.55	46.00	18.45		
1.903		27.20	0.12	27.32	46.00	18.68		
5.655		30.30	0.22	30.52	50.00	19.48		
16.480		27.39	0.67	28.06	50.00	21.94		

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K366GW Humidity : 48%RH

Test Mode : LAN Date of Test : Jul 12, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	61.59	0.13	61.72	66.00	4.28	QP
	0.613	40.90	0.01	40.91	56.00	15.09	
	1.221	37.89	0.02	37.91	56.00	18.09	
	1.969	36.93	0.03	36.96	56.00	19.04	
	6.045	39.20	0.19	39.39	60.00	20.61	
	17.010	33.25	0.01	33.26	60.00	26.74	
	0.150	46.60	0.13	46.73	56.00	9.27	AV
	0.613	28.81	0.01	28.82	46.00	17.18	
	1.221	28.31	0.02	28.33	46.00	17.67	
	1.969	26.50	0.03	26.53	46.00	19.47	
	6.045	34.60	0.19	34.79	50.00	15.21	
	17.010	27.30	0.01	27.31	50.00	22.69	
Neutral	0.150	61.76	0.12	61.88	66.00	4.12	QP
	0.611	41.10	0.12	41.22	56.00	14.78	
	1.210	36.45	0.14	36.59	56.00	19.41	
	1.951	35.65	0.12	35.77	56.00	20.23	
	5.774	39.52	0.23	39.75	60.00	20.25	
	16.660	33.28	0.67	33.95	60.00	26.05	
	0.150	47.20	0.12	47.32	56.00	8.68	AV
	0.611	29.61	0.12	29.73	46.00	16.27	
	1.210	27.21	0.14	27.35	46.00	18.65	
	1.951	26.30	0.12	26.42	46.00	19.58	
	5.774	34.30	0.23	34.53	50.00	15.47	
	16.660	27.50	0.67	28.17	50.00	21.83	

TEST ENGINEER: WENCY YANG

4 RADIATED EMISSION TEST

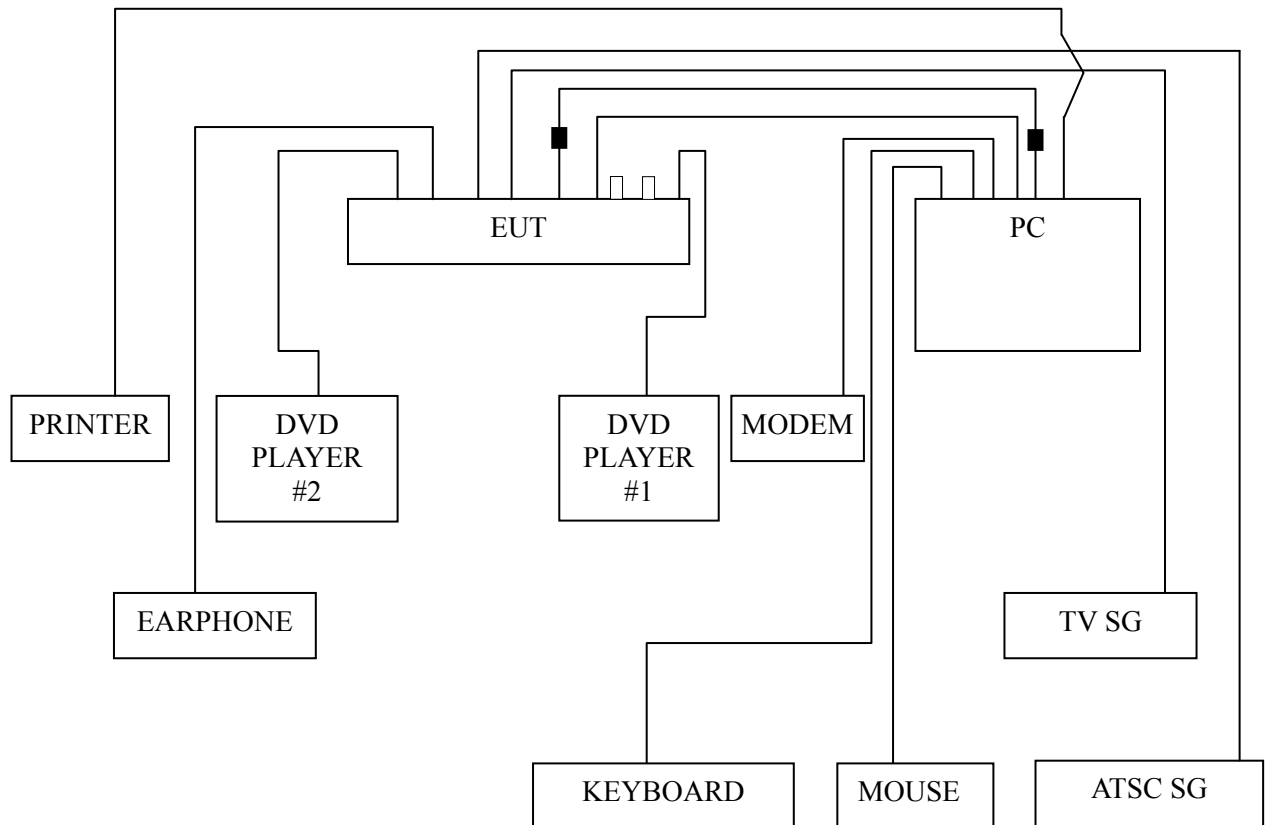
4.1 Test Equipment

The following test equipments are used during the radiated emission test in a semi-anechoic chamber:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Sep 11, 2012	Sep 11, 2013
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 18, 2013	Sep 18, 2013
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2013	Mar 20, 2014
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 03, 2013	May 03, 2014
5.	Horn Antenna	EMCO	3115	9607-4878	May 11, 2013	May 11, 2014
6.	Spectrum	Agilent	E7405A	MY45106600	Dec 17, 2012	Dec 17, 2013
7.	50 Coaxial Switch	Anritsu	MP59B	6200426390	Mar 18, 2013	Sep 18, 2013
8.	Software	Audix	E3	SET00200 9912M295-2	--	--

4.2 Block Diagram of Test Setup

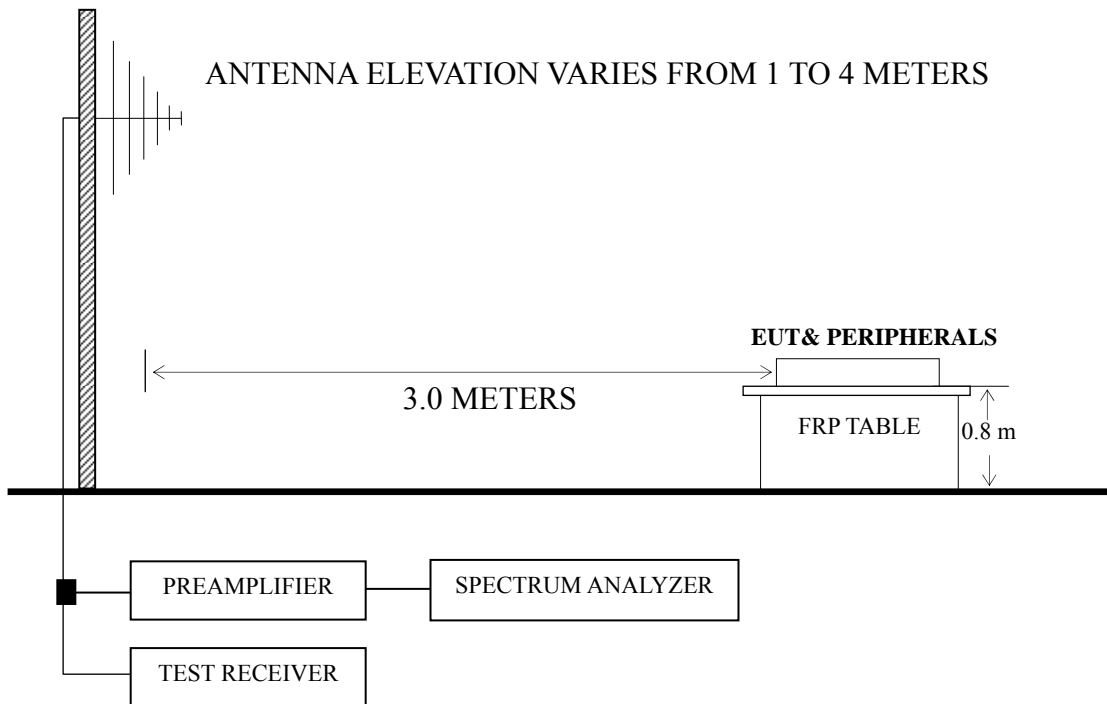
4.2.1 EUT and Peripherals



■ : Ferrite core

□ : U-Disk

4.2.2 Radiated emission test setup



■ : 50 ohm Coaxial Switch

4.3 Radiated Emission Limit [FCC Part 15 Subpart B 15.109(a)]

Frequency (MHz)	Distance (m)	Field strength limits	
		($\mu\text{V/m}$)	dB ($\mu\text{V/m}$)
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0

NOTE 1 - Emission Level dB ($\mu\text{V/m}$) = 20 log Emission Level ($\mu\text{V/m}$)
 NOTE 2 - The tighter limit applies at the band edges.
 NOTE 3 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
 NOTE 4 - The limits shown are based on Quasi-peak value detector.
 NOTE 5 - Above 1 GHz, the limit on peak emission is 20 dB above the maximum permitted average emission limit applicable to the EUT.

4.4 Test Configuration

The configuration of the EUT and peripherals are same as those used in conducted emission test.

Please refer to Sec.3.4.

4.5 Operating Condition of EUT

Same as conducted emission test which is listed in Sec.3.5, except for the test setup replaced by Sec.4.2.

4.6 Test Procedures

The EUT and peripherals were placed on a FRP turntable that is 0.8 meter above ground. The FRP turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. Broadband antenna (Calibrated Bilog Antenna) was used as receiving antenna. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna were set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to ANSI C63.4:2003 requirements during radiated emission test.

The I.F. bandwidth of Test Receiver R&S ESCI was set at 120 kHz.

The frequency range from 30 MHz to 1000MHz was checked for all test modes.

The test modes were done on radiated disturbance test and all the test results are listed in Sec.4.7.

4.7 Test Results

<PASS>

The frequency and amplitude of the highest radiated emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

Test Mode	Data Page
D-Sub 1920*1080@60Hz	P22 – P23
HDMI 1920*1080@60Hz	P24
D-Sub 1280*1024@60Hz	P25
D-Sub 640*480@60Hz	P26
USB Play	P27
LAN	P28

NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading.

NOTE 2 – All readings are Quasi-Peak values.

NOTE 3 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 4 – The worst case is for D-Sub 1920*1080@60Hz test mode. The worst emission at horizontal polarization was detected at 82.380 MHz with corrected signal level of 36.68 dB ($\mu\text{V}/\text{m}$) (limit is 40.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.90 m height and the turntable was at 225°. The worst emission at vertical polarization was detected at 155.130 MHz with corrected signal level of 40.20 dB ($\mu\text{V}/\text{m}$) (limit is 43.50 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.70 m height and the turntable was at 156°.

EUT : LED LCD TV Temperature : 22

Model No. : 50K366GW Humidity : 60%RH

Test Mode : D-Sub 1920*1080@60Hz Date of Test : Jul 09, 2013

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)	Remark
Horizontal	39.700	22.79	12.54	0.77	--	36.10	40.00	3.90	QP
	82.380	28.47	7.10	1.11	--	36.68	40.00	3.32	
	175.500	28.11	8.29	1.81	--	38.21	43.50	5.29	
	351.070	17.80	14.83	2.63	--	35.26	46.00	10.74	
	697.360	14.57	20.30	3.54	--	38.41	46.00	7.59	
	820.550	14.26	20.70	3.80	--	38.76	46.00	7.24	
	1029.000	48.34	23.81	4.92	38.14	38.93	74.00	35.07	PK
	1212.000	46.63	24.6	5.15	37.71	38.67	74.00	35.33	
	1391.000	45.73	25.3	5.59	37.22	39.40	74.00	34.60	
	1587.000	46.35	26.55	5.66	36.71	41.85	74.00	32.15	
	1843.000	45.5	29.62	6.16	36.29	44.99	74.00	29.01	
	1953.000	45.34	30.64	6.19	36.16	46.01	74.00	27.99	
	1029.000	35.75	23.81	4.92	38.14	26.34	54.00	27.66	AV
	1212.000	33.91	24.6	5.15	37.71	25.95	54.00	28.05	
	1391.000	32.58	25.3	5.59	37.22	26.25	54.00	27.75	
	1587.000	33.67	26.55	5.66	36.71	29.17	54.00	24.83	
1843.000	32.95	29.62	6.16	36.29	32.44	54.00	21.56		
1953.000	32.81	30.64	6.19	36.16	33.48	54.00	20.52		

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K366GW Humidity : 60%RH

Test Mode : D-Sub 1920*1080@60Hz Date of Test : Jul 09, 2013

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)	Remark
Vertical	57.160	27.78	5.81	0.88	--	34.47	40.00	5.53	QP
	71.710	28.41	6.02	0.95	--	35.38	40.00	4.62	
	155.130	28.93	9.60	1.67	--	40.20	43.50	3.30	
	353.010	13.72	14.87	2.63	--	31.22	46.00	14.78	
	518.880	12.61	18.30	3.03	--	33.94	46.00	12.06	
	704.150	12.73	20.13	3.55	--	36.41	46.00	9.59	
	1016.000	47.18	23.75	4.91	38.16	37.68	74.00	36.32	PK
	1123.000	46.88	24.18	5.03	37.92	38.17	74.00	35.83	
	1212.000	45.6	24.6	5.15	37.71	37.64	74.00	36.36	
	1362.000	45.35	25.21	5.51	37.3	38.77	74.00	35.23	
	1536.000	45.62	25.96	5.64	36.82	40.40	74.00	33.60	
	1758.000	49.19	28.62	6.11	36.41	47.51	74.00	26.49	
	1016.000	34.2	23.75	4.91	38.16	24.70	54.00	29.30	AV
	1123.000	33.4	24.18	5.03	37.92	24.69	54.00	29.31	
	1212.000	32.46	24.6	5.15	37.71	24.50	54.00	29.50	
	1362.000	32.06	25.21	5.51	37.3	25.48	54.00	28.52	
1536.000	32.12	25.96	5.64	36.82	26.90	54.00	27.10		
1758.000	36.94	28.62	6.11	36.41	35.26	54.00	18.74		

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K366GW Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Jul 09, 2013

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	79.470	27.73	6.76	1.06	35.55	40.00	4.45
	149.310	23.34	10.12	1.64	35.10	43.50	8.40
	210.420	23.54	7.60	2.00	33.14	43.50	10.36
	353.010	16.71	14.87	2.63	34.21	46.00	11.79
	594.540	19.54	18.50	3.20	41.24	46.00	4.76
	699.300	17.49	20.30	3.54	41.33	46.00	4.67
Vertical	34.850	12.56	15.85	0.71	29.12	40.00	10.88
	48.430	20.82	7.98	0.84	29.64	40.00	10.36
	82.380	27.13	7.10	1.11	35.34	40.00	4.66
	144.460	21.73	10.30	1.61	33.64	43.50	9.86
	212.360	26.88	7.60	2.01	36.49	43.50	7.01
	521.790	9.84	18.32	3.03	31.19	46.00	14.81

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K366GW Humidity : 60%RH

Test Mode : D-Sub 1280*1024@60Hz Date of Test : Jul 09, 2013

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	65.890	27.98	4.88	0.91	33.77	40.00	6.23
	81.410	27.99	6.97	1.10	36.06	40.00	3.94
	149.310	26.37	10.12	1.64	38.13	43.50	5.37
	173.560	28.32	8.32	1.80	38.44	43.50	5.06
	529.550	10.88	18.40	3.05	32.33	46.00	13.67
	769.140	8.20	18.30	3.60	30.10	46.00	15.90
Vertical	55.220	27.19	6.08	0.87	34.14	40.00	5.86
	69.770	26.08	5.74	0.92	32.74	40.00	7.26
	149.310	26.11	10.12	1.64	37.87	43.50	5.63
	296.750	16.86	12.55	2.52	31.93	46.00	14.07
	521.790	9.83	18.32	3.03	31.18	46.00	14.82
	699.300	15.23	20.30	3.54	39.07	46.00	6.93

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K366GW Humidity : 60%RH

Test Mode : D-Sub 640*480@60Hz Date of Test : Jul 09, 2013

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	73.650	25.38	6.33	0.98	32.69	40.00	7.31
	129.910	17.69	11.90	1.53	31.12	43.50	12.38
	159.010	23.43	9.60	1.70	34.73	43.50	8.77
	238.550	22.04	10.83	2.15	35.02	46.00	10.98
	348.160	13.71	14.80	2.62	31.13	46.00	14.87
Vertical	448.070	16.27	16.98	2.82	36.07	46.00	9.93
	68.800	25.35	5.56	0.92	31.83	40.00	8.17
	124.090	24.90	11.48	1.50	37.88	43.50	5.62
	181.320	24.65	8.22	1.84	34.71	43.50	8.79
	373.380	24.59	14.90	2.66	42.15	46.00	3.85
	465.530	13.41	17.50	2.88	33.79	46.00	12.21
878.750	15.32	19.77	4.32	39.41	46.00	6.59	

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K366GW Humidity : 60%RH

Test Mode : USB Play Date of Test : Jul 09, 2013

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	39.700	21.79	12.54	0.77	35.10	40.00	4.90
	75.590	25.92	6.54	1.01	33.47	40.00	6.53
	158.040	22.04	9.60	1.70	33.34	43.50	10.16
	212.360	28.39	7.60	2.01	38.00	43.50	5.50
	353.980	12.56	14.90	2.63	30.09	46.00	15.91
	678.930	8.19	19.00	3.48	30.67	46.00	15.33
Vertical	36.790	13.98	14.92	0.74	29.64	40.00	10.36
	57.160	27.78	5.81	0.88	34.47	40.00	5.53
	83.350	27.04	7.19	1.13	35.36	40.00	4.64
	170.650	28.48	8.38	1.78	38.64	43.50	4.86
	295.780	11.66	12.58	2.52	26.76	46.00	19.24
	672.140	13.19	19.60	3.44	36.23	46.00	9.77

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K366GW Humidity : 60%RH

Test Mode : LAN Date of Test : Jul 09, 2013

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	68.800	21.92	5.56	0.92	28.40	40.00	11.60
	161.920	27.72	9.20	1.72	38.64	43.50	4.86
	224.970	18.30	8.50	2.08	28.88	46.00	17.12
	341.370	8.91	14.80	2.61	26.32	46.00	19.68
	562.530	5.63	19.10	3.12	27.85	46.00	18.15
	772.050	12.70	18.20	3.60	34.50	46.00	11.50
Vertical	32.910	16.74	16.30	0.69	33.73	40.00	6.27
	48.430	20.82	7.98	0.84	29.64	40.00	10.36
	83.350	25.29	7.19	1.13	33.61	40.00	6.39
	143.490	21.89	10.30	1.61	33.80	43.50	9.70
	211.390	22.83	7.60	2.01	32.44	43.50	11.06
	711.910	15.72	19.68	3.55	38.95	46.00	7.05

TEST ENGINEER: NEAL WANG

5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Gasket	35X0.7X41mm\VGA	Qingdao Joinset S&T Co., Ltd.	See Internal Photo Figure 26
		Shenzhen Tongantai Electronic Technology Co., Ltd.	
Ferrite core	ZCAT2132-1130	Jiangsu Chenlang Group Electronic Co., Ltd.	See Internal Photo Figure 27, 28
		FEELUX	

Note: We had required the applicant and manufacturer that all electrical and mechanical devices employed for spurious radiation suppression, including any modifications made during certification testing, must be incorporated in each unit marked

TEST ENGINEER:

Neal Wang

(NEAL WANG)

6 DEVIATION TO TEST SPECIFICATIONS

None.