

EMI TEST REPORT

According to FCC Part 15 Subpart B/Class B

Product : LCD Projection TV Receiver
Model No. : HLK506W

FCC ID : A3LHLK506W

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3. This test report is to certify that the tested device properly complies with the requirements of FCC Rules and Regulations Part 15 Subpart B Unintentional Radiators.
All tests necessary to show compliance to the requirements were and these results met the specifications requirement.

Date of test : May 31, 2001

Issued Date : June 12, 2000

Tested by:

Chun Kyu, PARK / Test Engineer

Reviewed by:

Seung Kyu, CHA / Manager of EMC Lab

Authorised by:

Taek Jeong, Shin / Chief of EMC Lab

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NVLAP Code: 200447

Table of Contents

1. General Information

- 1.1 Product Description
- 1.2 Configuration of EUT and peripherals
- 1.3 Used Cable Description
- 1.4 System Block Diagram of Test Configuration

2. System Test Configuration

- 2.1 Configuration of Radiated and Conducted Interference Measurement
- 2.2 Operation Environment
- 2.3 Test Procedure

3. Measurement Uncertainty

4. Conducted Emission Test Data

5. Radiated Emission Test Data

6. Label Configuration and Location

7. Test Equipment Used

Distribution

This test report has been made available as follows:

CS Management Center, EMC Laboratory	1 original
CTV Division	1 copy

1. General Information

Applicant : Samsung Electronics Co., Ltd.
CS Management Center EMC Test Laboratory
Tel.: +81-(0)31-200-2135 Fax.: +81-(0)31-200-2189

Full Address : 416 Maetan 3 Dong, Paldal-Ku,
Suwon City, Kyungki Do, Korea, 442-742

Kind of Product : **LCD Projection TV Receiver**

CONTACT PERSON : Chun Kyu, PARK
TEL. +82-31-200-2135

REGULATION(S) : FCC Part 15 Subpart B, Class B

Model Name : **HLK506W** (Brand Name: SAMSUNG)

Customer Ref. : Color TV Div.
(Contact Person : Seung Cheol, Lee Tel.: +82-(0)31-200-5419)

TEST SITE : RF Anechoic Chamber & Shield Room

TEST SITE ADDRESS : 416, Maetan-3 Dong, Paldal-Gu
Suwon City, Kyungki-Do, Korea, 442-742

1.1 Product Description

1) Operating Frequency :

13.5MHz Main Video Decoder(VPC3230), 27MHz Main Video Decoder(VPC3230) ,
Interlace to Progressive(SDA9400), 65MHz LVDS Receiver(90CF386) /
LVDS Trans-mitter(90C385), 35MHz Red FLCD Driver(SDP-0001) /
Green FLCD Driver(SDP-0001) / Blue FLCD Driver(SDP-0001)

2) Justification

The system was configured for testing in typical fashion use. Cable were attached to each of the available I/O Ports. Where applicable, peripherals were attached to the I/O cables. The mode of operation utilized for testing was selected to best simulate typical EUT use.

3) Description of Testing operating mode

Operating Mode	Operating section of EUT
"H" Pattern display	
	On Screen
Audio Output	Audio out to TV Audio IN

4) Tested Resolution :

Tested Video mode	Resolutions	Refresh rates	Colors
Display	1024 X 768	60Hz	16bits

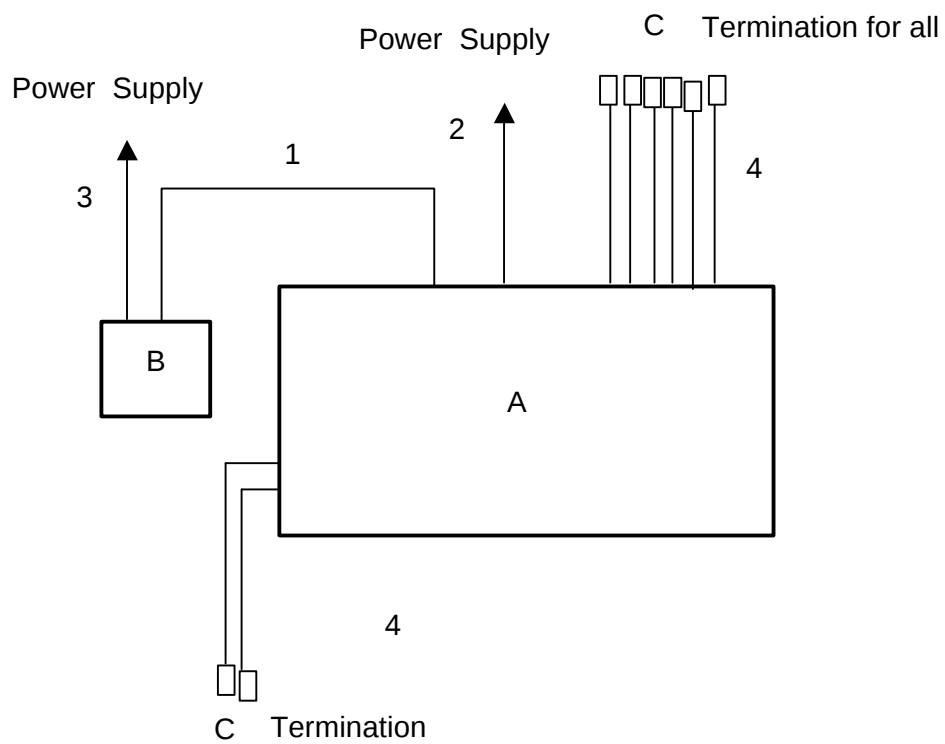
5) Product Specification

Item	Specification	Remark
Inch	50" Wide	
Display Device	FLCD 0.76" 3	
Resolution	HD (3million pixels)	Picture
Scan System	Progressive (720P)	
Screen Format	16:09	
PC	Multi Sync (XGA)	Functions
Caption	Yes	
Universal RMC	Yes	
Multi language	English / Spanish / French	
V-chip	Yes	
GUI (On Screen Graphic)	Yes	
Favorate CH	Yes	
DTV Ready	In : 1080i/720p/480p/480i , Out : 720p	
Picture Mode	4:3, 16:9, Panorama, Zoom1, Zoom2, Stretch	
Connection & Terminal	AV-In S-VHS RF-In AV-In S-VHS Component	Front Rear
PC-Input	1EA (D_sub 15Pin)	

Mark	Item	Model No.	Serial No.	Manufacturer	Remark
A	LCD Projection TV	HLK506W	-	SAMSUNG	EUT
B	Note PC	S830	626591AR200504	SAMSUNG	
C	Dummy Load	-	-	-	Rated Impedance

[illegible]

1.4 System Block Diagram of Test Configuration



2. System Test Configuration

2.1 Configuration of Radiated and Conducted Interference Measurement

* Cabling was taken into consideration and test data was taken under worse case conditions.

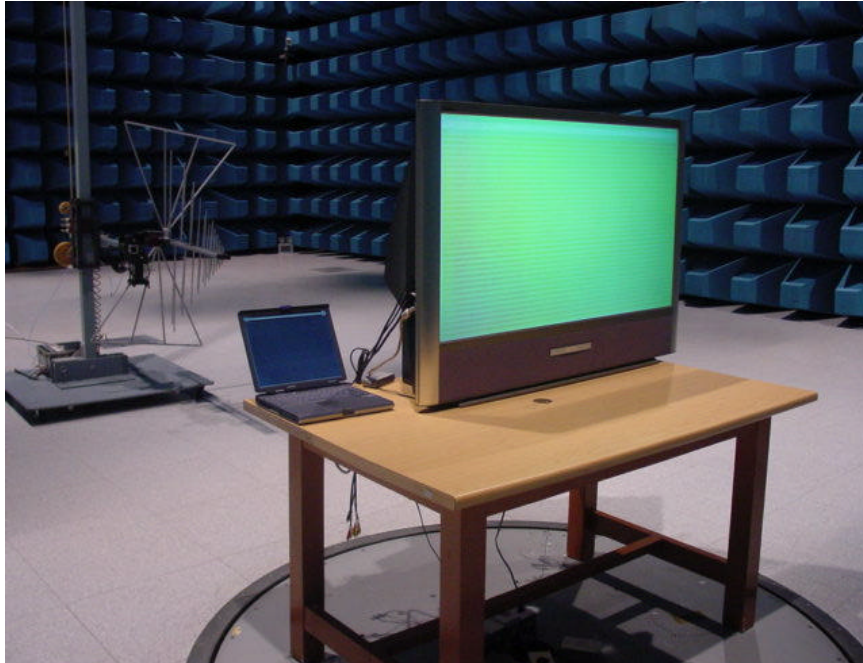
1)Conduction(Front View)



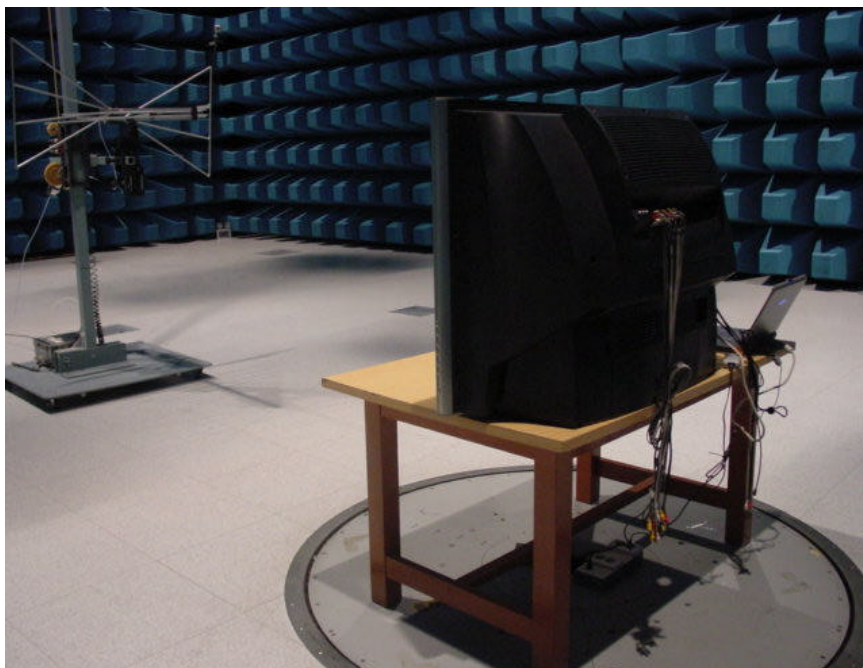
2)Conduction(Rear View)



3) Radiation(Front View)



4) Radiation(Rear View)



2.2 Operation Enviroment

	Conduction	Radiation
Temperature [C] :	22	20
Humidity [%] :	43	45
Power supply	: AC120V/60Hz	AC120V/60Hz

2.3 Test Procedure

2.3.1 Conducted Emissions

Eut was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting ground plane.

The rear of EUT,including peripherals was aligned and flush with rear of tabletop. All other surfaces of tabletop was at least 80cm from any other grounded conducting surface. I/O cables and AC cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane.

Each EUT current-carrying power lead,except the ground(safety) lead, were individually connected through a LISN to the input power source.

All unused 50 ohm connectors of the LISN were resistively terminated in 50 ohm when not connected to the measuring equipment.

2.3.2 Radiated Emissions

Eut was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.

The rear of EUT, including peripherals was aligned and flush with rear of tabletop. I/O cables that were connected to the peripherals were bundle in center.

They were folded back and forth forming a bundle 30cm to 40cm long and were hanged 40cm height to the ground plane.

Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

3. Measurement Uncertainty

All data in report are to be traceability to the national or international standards.

3.1 Conducted Emission Test

The measurement uncertainty(with a 95% confidence level)for this test was $\pm 2.2\text{dB}$.

☐ The data listed in this test report may exceed the test limit because it does not have enough margin(more than 2.0dB).

☒ *The data listed in this test report has enough margin, more than 2.0dB.*

3.2 Radiated Emission Test

The measurement uncertainty(with a 95% confidence level)for this test was $\pm 3.4\text{dB}$.

☐ The data listed in this test report may exceed the test limit because it does not have enough margin(more than 2.0dB).

☒ *The data listed in this test report has enough margin, more than 3.4dB.*

4. Conducted Emission Test Data

The initial step in collecting conducted data was to perform a quasi-peak and average scan over the measurement range using a receiver.

The final data represents worst-case emissions.

+ Test Data Sheet

Frequency	Meter Reading [a]	LISN Pol.	Total Loss [b]	Results [a+b]	Limits	Margin (Limits-Result)
[MHz]	[dBuV]	[L,N]	[dB]	[dBuV]	[dBuV]	[dB]
0.62	27.5	L1	0.24	27.74	48	20.26
0.98	34.3	L2	0.13	34.43		13.57
1.05	36	L1	0.11	36.11		11.89
2.71	32.9	L1	0.1	33		15.00
3	31.4	L2	0.11	31.51		16.49
4.68	34.2	L2	0.12	34.32		13.68
4.74	35.3	L1	0.12	35.42		12.58
6.02	31.5	L2	0.11	31.61		16.39
9.21	38.9	L2	0.49	39.39		8.61
15.26	34.3	L1	1.03	35.33		12.67
17.17	35.7	L2	1.23	36.93		11.07
18.14	34.2	L2	1.24	35.44		12.56
22.16	28.6	L2	1.84	30.44		17.56

* QP : Quasi-peak

* Results = Meter Reading(QP) + Total Loss(LISN Insertion loss + Cable loss)

5. Radiated Emission Test Data

The initial step in collecting radiated data was to perform a quasi-peak scan over the measurement range using a receiver.
All modes of operation were investigated and the worst-case emission are reported.
All other emission are non-significant.
The minimum margin to the limit is as follows :

Frequency Range [MHz]	Tested Frequency [MHz]	ANT Pol.	Meter Reading [A] [dBuV/m]	Total Loss [B] [dB]	Antenna Height [Cm]	Turn table Degree [Deg]	Results [A+B] [dBuV/m]	Limits at 3m [dBuV/m]	Margin (Limit-Result) [dB]
30 - 88	37.5	V	19.1	15.9	113	355	35	40	5.0
	42.2	V	21.0	14.7	124	356	35.7	40	4.3
	50.2	V	21.2	11.71	121	184	32.91	40	7.1
	58.7	V	20.6	10.74	116	182	31.34	40	8.7
	71.8	V	21.5	8.97	115	176	30.47	40	9.5
30 - 216	117	H	23.0	9.52	126	146	32.52	43.5	11.0
	130.1	H	24.4	9.65	126	154	34.05	43.5	9.5
	142.8	H	21.1	9.72	132	166	30.82	43.5	12.7
	162.5	H	19.8	10.77	135	324	30.57	43.5	12.9
	199.7	H	18.4	12.12	152	322	30.52	43.5	13.0
216 - 960	259.8	H	16.4	16.46	192	187	32.86	46	13.1
	319.5	V	17.7	17.16	189	188	34.86	46	11.1
	389.5	H	15.7	18.66	199	164	34.36	46	11.6
	454.9	V	16.9	20.28	231	276	37.18	46	8.8
	500.3	V	20.3	20.82	221	299	41.12	46	4.9
	520	V	21.0	21.48	198	345	42.48	46	3.5
960 - 2000	-	-	<	-	-	-	-	54	-

* "<" Means equal or less then 5dB

* Receiving Antenna Mode : **Horizontal, Vertical**

* Test distance : 3m (RF Anechoic chamber))

* Results = Meter Reading + Total Loss(Antenna factor + Cable loss)

7. Test Equipment Used

Equipment	Model No.	Serial No.	Makers	Last calibration and Interval
Spectrum analyzer	8566B	3340A21744	H.P	01/03/21, 12Months
		Firmware versions : Rev.29.9.86		
Quasi-peak adapter	85650A	3303A01784	H.P	01/01/21, 12Months
RF Preselector	85685A	3506A01500	H.P	01/01/29, 12Months
Field strength meter	ESVP	880725/042	R & S	01/03/13, 12Months
	ESS	844861/005	R & S	01/06/23, 12Months
		F/W ver. : Main 1.08, OTP 02.01, GRA 02.03		
L.I.S.N	3825/2	9208-1981	EMCO	01/03/23, 12Months
Bi-Log Antenna	3142	9712-1237	EMCO	01/01/13, 12Months
Double ridged Horn Ant.	3115	9505-4441	EMCO	01/05/23, 12Months