SAMSUNG ELECTRONICS

EMI TEST REPORT

FCC Part 15 Subpart B, Class B

Product : Multi Function Monitor
Model No. : 30118

FCC ID : A3L30118

1. *This test reports shall not be reproduced except in full, without the written approval of SEC EMC Testing laboratory.*
2. *This test reports does not constitute an endorsement by NIST/NVLAP or U.S Government.*
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 : October 12, 2000

Issued Date : October 17, 2000

Tested by: B. S. Kim
Byeong Soo, KIM / Test Engineer

Reviewed by: S. K. Cha
Seung Kyu, CHA / Manager of EMC Lab

Authorised by: T. J. Shin
Taek Jeong, Shin / Chief of EMC Lab

This laboratory is registered by the NIST/NVLAP, U.S.A.
The test reported herein have been performed in accordance with its terms of registration.

NVLAP®

Table of Contents

1. General Information

APPLICANT	:	SAMSUNG ELECTRONICS CO., LTD.
ADDRESS	:	416, Maetan-3 Dong, Paldal-Gu Suwon City, Kyungki-Do, Korea, 442-742
CONTACT PERSON	:	Byeong Soo, KIM TEL. +82-31-200-2135
CONTACT ADDRESS	:	416, Maetan-3 Dong, Paldal-Gu Suwon City, Kyungki-Do, Korea, 442-742
REGULATION(S)	:	FCC Part 15 Subpart B, Class B
MODEL NUMBER	:	30118
SERIAL NUMBER	:	-
KIND OF PRODUCT	:	Multi Function Monitor
TESTED DATE	:	October 12, 2000
TEST SITE	:	Open Field Test Site & Shield Room
TEST SITE ADDRESS	:	781-14, Chung-Ri, Dongtan-Myun, Hwasung-Kun, Kyungki-Do, Korea 416, Maetan-3 Dong, Paldal-Gu Suwon City, Kyungki-Do, Korea, 442-742

1.1 Product Description

The Samsung Electronics Co., Ltd. Multi Function Monitor 30118 is used as a kitchen appliance that provides extensive capability to the user. This screen will operates as a television, a DVD player, an Internet Browser, a CD audio player.
It can be operated in AC100~120V.
See attached User's Guide for more information.

1.2 Tested System Details

The FCC IDs for all equipment, plus descriptions of all cables used in the tested system are:

	Model	FCC ID/DoC	Description	Cable description
(1)	Samsung Electronics M/N : 30118 S/N : - (EUT)	FCC ID : A3L30118	Multi Function Monitor	Unshielded AC Power Cable Shielded Parallel Cable Unshielded Video Cable
(2)	Samsung Electronics M/N : VR633HF S/N : 011360434	FCC ID : A3LTWIN2K	VCR	Unshielded AC Power Cable Unshielded Video Cable
(3)	HP M/N : 810C S/N : CN0561N1S3	DoC	Print	Unshielded AC Power Cable Shielded Parallel Cable
(4)	HP M/N : C6409-60152 S/N : B0B15B	-	AC Power Adapter	Unshielded AC Power Cable Shielded Video Cable Unshielded Video Cable
(5)	- M/N : - S/N : -	-	Security Box	Unshielded AC Power Cable Unshielded Video Cable
(6)	Samsung Electronics M/N : - S/N : -	-	Keyboard	Wireless
(7)	Samsung Electronics M/N : - S/N : -	-	Remocon	Wireless

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in FCC/ANSI C63.4(1992).
Radiated testing was performed at a distance of 3 meters from the antenna to EUT.

1.4 Test Facility

All test described in this report were performed by :

1) Open field test site :
   781-14, Chung-Ri, Dongtan-Myun, Hwasung-Kun, Kyungki-Do, Korea
2) Conducted measurement facility :
   416, Maetan-3 Dong, Paldal-Gu, Suwon City, Kyungki-Do, Korea

2. System Test Configuration

2.1 Operation Environment

	Conduction	Radiation
Temperature [¡Ė] :	24	25.5
Humidity [%] :	35	43
Power supply :	AC110V/60Hz	AC110V/60Hz

2.2 Justification

The system was configured in typical fashion(as a customer would normally use it) for testing.

2.3 EUT Exercise Soft ware

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to typical use.

2.4 Test Procedure

2.4.1 Conducted Emissions

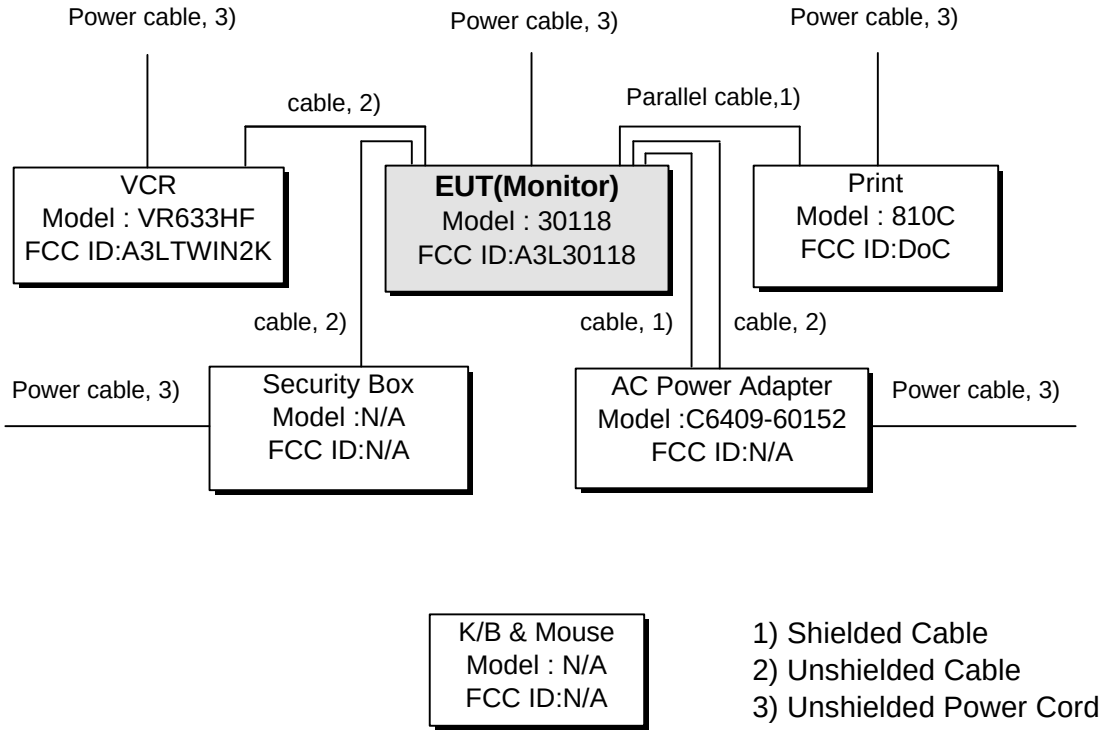
EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting ground plane.
The rear of EUT, including peripherals was aligned and flush with rear of tabletop.
All other surfaces of tabletop was 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.

2.4.2 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.

2.5 Test System configuration



3. Conducted and Radiated Measurement Photos

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

3.1 Conducted Measurement Photos

¤· ***Conduction(Front View)***

¤· ***Conduction(Rear View)***

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

3.2 Radiated Measurement Photos

¤· ***Radiation(Front View)***

¤· ***Radiation(Rear View)***

4. Measurement Uncertainty

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

4.1 Conducted Emission Test

The measurement uncertainty(with a 95% confidence level)for this test was ±2.2dB.

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

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

4.2 Radiated Emission Test

The measurement uncertainty(with a 95% confidence level)for this test was ±3.4dB.

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

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

5. Conducted Emission Test Data

The initial step in collecting conducted data was to perform a quasi-peak scan over the measurement range using a spectrum analyzer.
The final data represents worst-case emissions.

The minimum margin to the limit is as follows :

Frequency	:	11.96	[MHz]
Meter Reading	:	43	[dBuV]
LISN Loss	:	0.25	[dB]
Cable loss	:	0.37	[dB]
Result	:	43.62	[dBuV]
Margin	:	4.38	[dB]

¡Û Test Data Sheet

Tested Frequency	Meter Reading [A]	LISN Pol.	Factor[B]		Results [A+B]	Limits	FCC Margin
			LISN Loss	Cable Loss			
[MHz]	[dBuV]	[L,N]	[dB]		[dBuV]	[dBuV]	[dB]
0.470	37.7	L2	0.07	0.10	37.87	48.0	10.13
0.600	39.8	L1	0.06	0.18	40.04	48.0	7.96
1.130	39.5	L1	0.06	0.05	39.61	48.0	8.39
1.660	38.5	L1	0.06	0.23	38.79	48.0	9.21
1.860	40.5	L1	0.06	0.22	40.78	48.0	7.22
2.390	39	L1	0.06	0.14	39.20	48.0	8.80
3.650	36.6	L1	0.06	0.06	36.72	48.0	11.28
5.480	39.1	L1	0.05	0.05	39.20	48.0	8.80
8.280	34.8	L2	0.07	0.15	35.02	48.0	12.98
11.960	43	L1	0.25	0.37	43.62	48.0	4.38
13.410	41.7	L1	0.41	0.40	42.51	48.0	5.49
15.330	34.5	L2	0.55	0.49	35.54	48.0	12.46
21.980	30.9	L2	1.37	0.47	32.74	48.0	15.26

* All readings are quasi-peak mode.
* Results = Meter Reading + LISN Insertion loss + Cable loss

6. Radiated Emission Test Data

The initial step in collecting radiated data was to perform a quasi-peak scan over the measurement range using a spectrum analyzer.
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	:	215.99	[MHz]
Meter Reading	:	20.1	[dBuV/m]
Antenna Factor	:	11.6	[dB]
Cable loss	:	1.1	[dB]
Result	:	32.8	[dBuV/m]
Margin	:	10.7	[dB]

¡Û Test Data Sheet

Frequency Range [MHz]	Tested Frequency [MHz]	Ant. Pol.	Meter Reading [A] [dBuV/m]	Factor[B] [dB] Ant. Factor	Factor[B] [dB] Cable Loss	Antenna Height [Cm]	Turn table Degree [Deg]	Results [A+B] [dBuV/m]	FCC Margin [dB]	Limits [3m] [dBuV/m]
30 - 88	47.88	V	14.5	12.20	0.05	110	230	26.8	13.25	40.0
	70.73	V	15.5	8.60	0.35	100	155	24.5	15.55	
	75.67	V	15.9	8.65	0.32	100	350	24.9	15.13	
88 - 216	114.42	H	20.1	9.10	0.40	210	90	29.6	13.90	43.5
	125.00	H	20.7	8.95	0.51	315	190	30.2	13.34	
	129.03	V	14.8	8.90	0.57	100	170	24.3	19.23	
	133.50	H	20.1	9.00	0.60	260	120	29.7	13.80	
	215.99	H	20.1	11.60	1.10	175	250	32.8	10.70	
216 - 960	269.98	V	20.2	13.40	1.43	240	330	35.0	10.97	46.0
	296.97	V	15.1	14.50	1.60	220	170	31.2	14.80	
	324.45	V	12.5	15.40	1.76	180	215	29.7	16.34	
	350.97	H	9.8	15.70	1.79	205	40	27.3	18.71	
960 -	-	-	-	-	-	-	-	-	-	54.0

* "<" Means equal or less than * All readings are quasi-peak mode.
* Results = Meter Reading + Antenna Factor + Cable loss

8. Test Equipment Used

Equipment	Model No.	Serial No.	Makers	Last calibration and Interval
Spectrum analyzer	8566B	3340A21744	H.P	00/03/15, 12Months
		Firmware versions : Rev.29.9.86		
Quasi-peak adapter	85650A	3303A01784	H.P	99/12/30, 12Months
RF Preselector	85685A	3506A01500	H.P	99/12/30, 12Months
Field strength meter	ESVP	880725/042	R & S	00/01/10, 12Months
	ESS	844861/005	R & S	00/06/23, 12Months
		F/W ver. : Main 1.08, OTP 02.01, GRA 02.03		
L.I.S.N	3825/2	9208-1981	EMCO	00/03/23, 12Months
Bi-conical Antenna	3110B	2012	EMCO	99/12/21, 12Months
Log-periodic Antenna	3146A	1320	EMCO	99/12/21, 12Months
Double ridged Horn Ant.	3115	9505-4441	EMCO	00/05/23, 12Months