

EMC TEST REPORT

According to FCC Part 15B Class B

JOB NO. : SEMC929A

Product : **CD-ReWritable DRIVE**

Model No. : **SW-212**

FCC ID. : **A3LSW212**

Date of test : February 1, 2001

Issued Date : February 2, 2001

Tested by:

N. C. Park

No Cheon, PARK / 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.

SAMSUNG ELECTRONICS Co., Ltd.

Suwon EMC Test Laboratory

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

Tel. : 81-31-200-2185 Fax. : 81-31-200-2189

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1. General Information

APPLICANT : SAMSUNG ELECTRONICS CO., LTD.

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

CONTACT PERSON : Son Mun Eul

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

REGULATION(S) : FCC Part 15B Class B

MODEL NUMBER : SW-212 (Trade Name "SAMSUNG")

VARIANT MODEL NUMBER : -

SERIAL NUMBER : -

KIND OF PRODUCT : CD-ReWritable DRIVE

TESTED DATE : February 1, 2001

TEST SITE : SAMSUNG EMC TEST LAB.
FCC Registration Number: 98856
Anechoic Chamber #1

1.1 Product Description

Data Transfer Rate	Record : 1,200 KB/sec(8X), ReWrite : 600 KB/sec(4X)
Burst Transfer Rate	ReWrite : 600 KB/sec(4X), Read : 4,800 KB/sec(32X)
Interface Connector	PIO Mode 4 (16.6 MB/sec),DMA Mode 2 (16.6 MB/sec)
Supported Disc	ATAPI CD-DA,CD-ROM,CD-ROM/XA,Video-CD,CD-I, Photo CD,CD-EXTRA,CD-UDF
Size	149 * 42 * 200 mm

1.2 Tested System Details

Makers Model	FCC ID	Product Serial Number	Remarks
(1) SAMSUNG M/N : SW-212	A3LSW212	CD-ReWritable DRIVE S/N : -	EUT
(2) SAMSUNG M/N : CGE7507L	A3LCGE750	External Monitor S/N : 9106H2JN401141	Unshielded AC Power Cable Shielded Video Cable
(3) HP M/N : M-S34	DZL211029	PS/2 Mouse S/N :LZB94959845	Unshielded Mouse Cable
(4) HP M/N :SK-2506	DOC	Keyboard S/N :C9911227079	Shielded Keyboard Cable
(5) H.P. M/N :G810G	DOC	Personal Computer S/N : 100075SCI	Unshielded AC Power Cable
(6) SONY M/N :MDR-A101	-	Headphone S/N : -	Unshielded Cable
(7) H.P. M/N :2225C+	DSI6XU2225	Inkjet Printer S/N : H3AH502500	Unshielded AC Power Cable Shielded Printer Cable
(8) SEJIN M/N :SMB-400	GJJS965M3	Serial Mouse S/N : 9GHF000178	Unshielded Mouse Cable

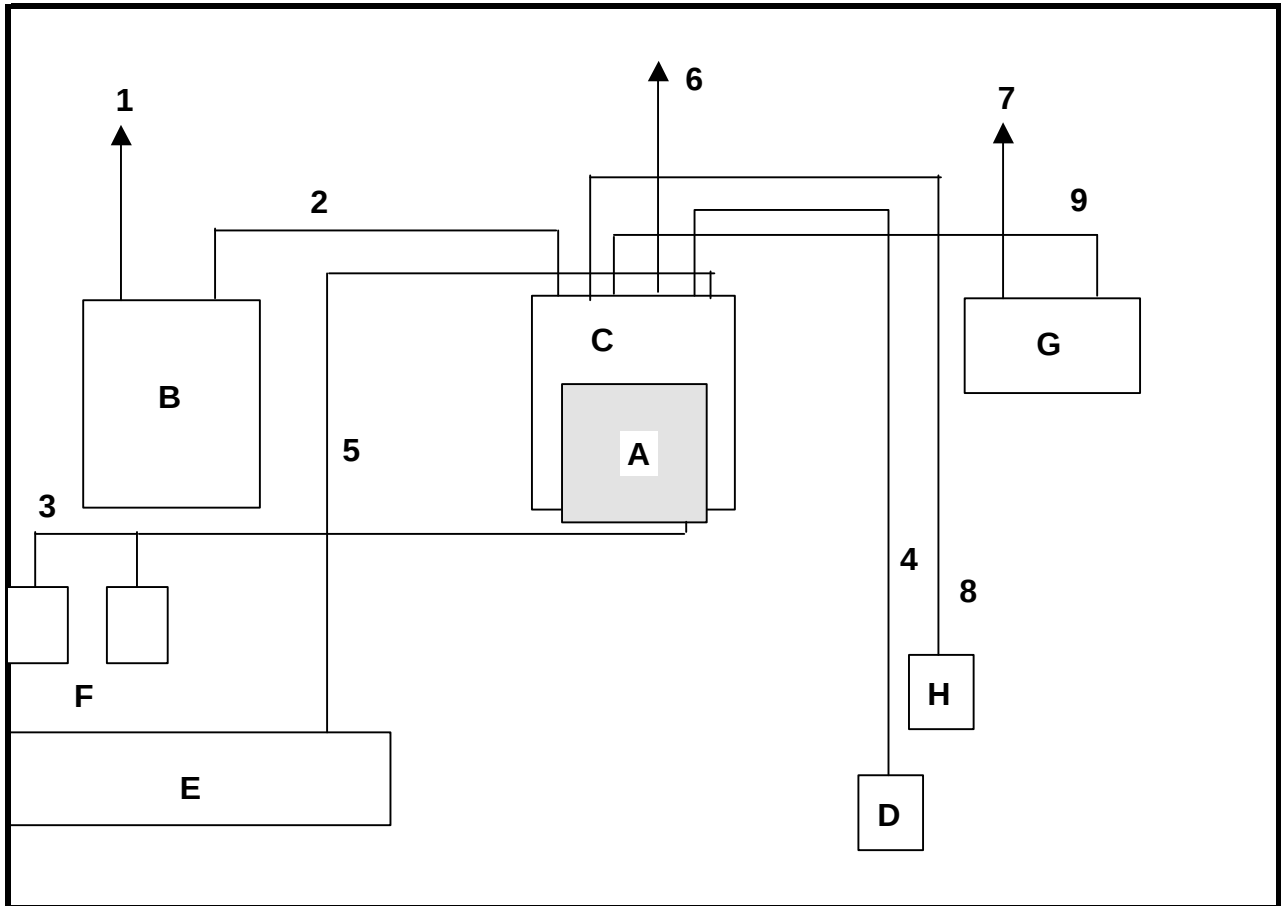
1.3 Configuration of EUT and peripherals

Mark	Item	Model No.	Serial No.	Manufacturer	Remark
A	CD-ReWritable DRIVE	SW-212	-	Samsung	EUT
B	External Monitor	CGE7507L	9106H2JN401141	Samsung	
C	Personal Computer	G810G	100075SCI	HP	
D	Mouse	M-S34	LZB94959845	HP	
E	Keyboard	SK-2506	C9911227079	HP	
F	Headphone	MDR-A101	-	SONY	
G	Inkjet Printer	2225C+	H3AH502500	HP	
H	Serial Mouse	SMB-400	9GHF000178	SEJIN	

1.4 Used Cable Description

No.	Item	Length[m]	Shielded(Y/N)	Remark
1	AC Power cable	1.7	N	
2	Video Cable	1.5	Y	
3	Headphone Cable	2	N	
4	Mouse Cable	2	N	
5	Keyboard Cable	1.5	Y	
6	AC Power cable	1.5	N	
7	AC Power cable	1.7	N	
8	Mouse Cable	2	N	
9	Printer Cable	1.5	Y	

1.5 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)



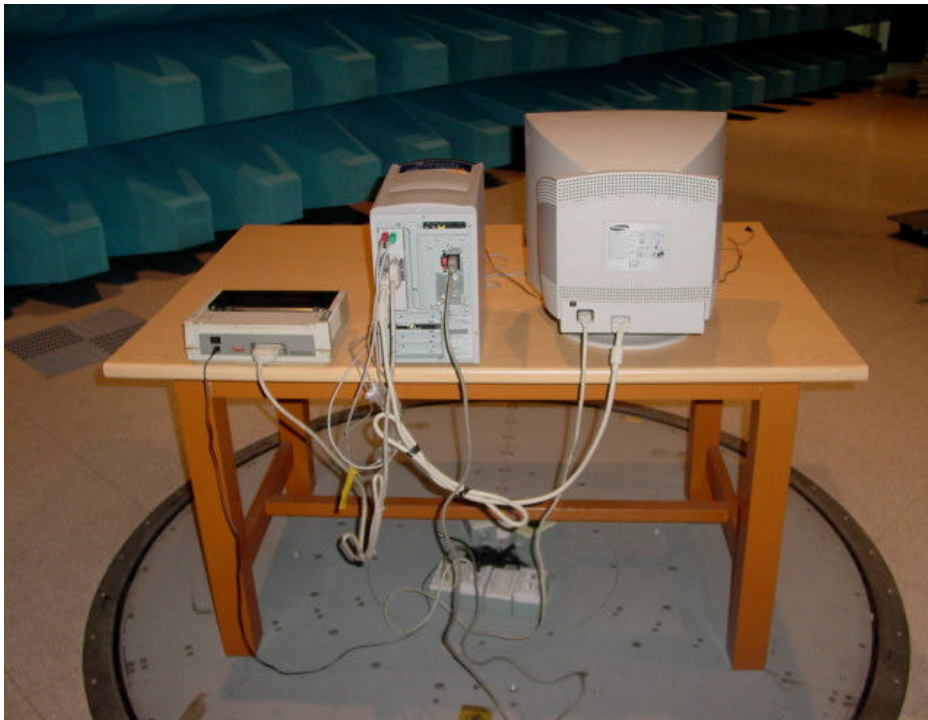
2)Conduction(Rear View)



3) Radiation(Front View)



4) Radiation(Rear View)



2.2 Operation Enviroment

	Conduction	Radiation
Temperature [centigrade] :	21	22
Humidity [%] :	41	38
Power supply :	AC120V/60Hz	AC120V/60Hz

2.3 Justification

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

2.4 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.

2.5 Test Procedure

2.5.1 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.

2.5.2 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. Conducted Emission Test Data

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

The final data represents worst-case emissions.

○ Test Data Sheet

Frequency [MHz]	Meter reading(a)		Total Loss(b) [dB]	Results (a) + (b) [dBuV]	Limits [dBuV]	Margin [dB]
	LISN Port					
	L1	L2				
1.86	25.8	25.3	0.1	25.9	48	-22.1
2.59	35.2	35.3	0.1	35.4	48	-12.6
5.01	24.9	27.5	0.1	27.6	48	-20.4
6.98	31.3	28.7	0.1	31.4	48	-16.6
14.98	33.8	34.1	0.1	34.2	48	-13.8
29.98	31.8	31.1	0.1	31.9	48	-16.1

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

* Margin = Result - Limits

* IF Bandwidth = 10kHz * Detecting Mode : Quasi-Peak

* Used receiver : ESS (Rohde & Schwarz)

4. 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 (Result-Limit) [dB]
30 - 88	35.3	V	13.3	19.5	98	146	32.8	40	-7.2
	65.1	H	13.2	9.23	223	138	22.43	40	-17.57
	74	H	16.7	8.97	223	138	25.67	40	-14.33
	78.3	H	15.4	8.82	225	156	24.22	40	-15.78
	83.7	H	14.9	9.1	218	148	24	40	-16
88 - 216	100.5	V	14.2	9.56	246	133	23.76	43.5	-19.74
	107.5	V	19.5	9.46	245	145	28.96	43.5	-14.54
	143.1	H	22.4	9.93	187	145	32.33	43.5	-11.17
	201.1	H	20.1	12.21	239	167	32.31	43.5	-11.19
	225.4	H	16.4	13.37	189	164	29.77	43.5	-13.73
216 - 960	249.4	H	12.3	14.42	213	165	26.72	46	-19.28
	287.3	H	14.6	16.46	204	212	31.06	46	-14.94
	301.3	H	21.1	16.46	174	225	37.56	46	-8.44
	337.6	H	16.3	17.49	221	225	33.79	46	-12.21
	370.1	H	19.4	18.11	223	223	37.51	46	-8.49
	391.4	H	13.3	18.66	275	234	31.96	46	-14.04
960-			Less than 5dB					54	

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

* Test distance : 3m

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

* IF Bandwidth = 120kHz

* Detecting Mode : Quasi-Peak

* Used receiver : ESVP (Rohde & Schwarz)

5. Test Equipment Used

Equipment	Model No.	Serial No.	Makers	Calibration Last calibration and Interval
Spectrum analyzer	8566B	3340A21744	H.P	00/ 3/15, 12Months
Quasi-peak adapter	85650A	2521A00687	H.P	00/10/10, 12Months
RF Preselector	85685A	2602A00224	H.P	00/10/10, 12Months
Field strength meter	ESVP	882402/009	R & S	00/6/23, 12Months
L.I.S.N	3825/2R	1981	EMCO	00/ 3/25, 12Months
Field strength meter	ESS	844861/005	R & S	00/ 6/23, 12Months
Biconilog Antenna	3142	1237	EMCO	01/1/2, 12Months