

EMC TEST REPORT

According to FCC Part 15B Class B

Project NO. : SE-01-0096

Product : **Slim CD-ReWritable/ DVD ROM DRIVE**

Model No. : **SN-308**

FCC ID. : **A3LSN308**

Date of test : June 4, 2001

Issued Date : June 8, 2001

Tested by:

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1. General Information

APPLICANT : SAMSUNG ELECTRONICS CO., LTD.

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REGULATION(S) : FCC Part 15B Class B

MODEL NUMBER : SN-308 (Trade Name "SAMSUNG")

VARIANT MODEL NUMBER : -

SERIAL NUMBER : -

KIND OF PRODUCT : Slim CD-ReWritable/ DVD ROM DRIVE

TESTED DATE : June 4, 2001

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

1.1 Product Description

Speed	CD : 24X, DVD : 8X, CD/RW : 8X
Access Time	CD 120ms, DVD 120ms, CD/RW 120ms
Buffer	2048KB
Interface	ATAPI BUS(IDE)
Size	128 * 12.7 * 129 mm

1.2 Tested System Details

Makers Model	FCC ID	Product Serial Number	Remarks
(1) SAMSUNG M/N : SN-308	A3LSN308	Slim CD-ReWritable/ DVD ROM DRIVE S/N : -	EUT
(2) PHILIPS M/N : 109P	A3KM092	External Monitor S/N : 4882A217	Unshielded AC Power Cable
(3) COMPAQ M/N : M-S48a	JNZ201213	PS/2 Mouse S/N : 4882A001	Shielded Mouse Cable
(4) COMPAQ M/N :SDM4540UL DOC		USB Keyboard S/N : 3892A630	Shielded Keyboard Cable
(5) Dell M/N :LATITUDE(C600) DOC		Notebook Computer S/N : TW-0791UH	-
(6) HP M/N :2225C+	DSI6XU2225	Printer S/N : 2814S11345	Shielded Printer Cable
(7) KOXOM M/N : -		Ear Phone S/N : -	Shielded Ear Phone Cable
(8) Dell M/N : ADP-70EB	DOC	AC Adapter S/N : TH-09364U	Unshielded AC Power Cable Unshielded DC Power Cable
(9) Sejin M/N: SMB-400	GJJS965M3	Serial Mouse S/N : 7DEF021843	Shielded Mouse Cable

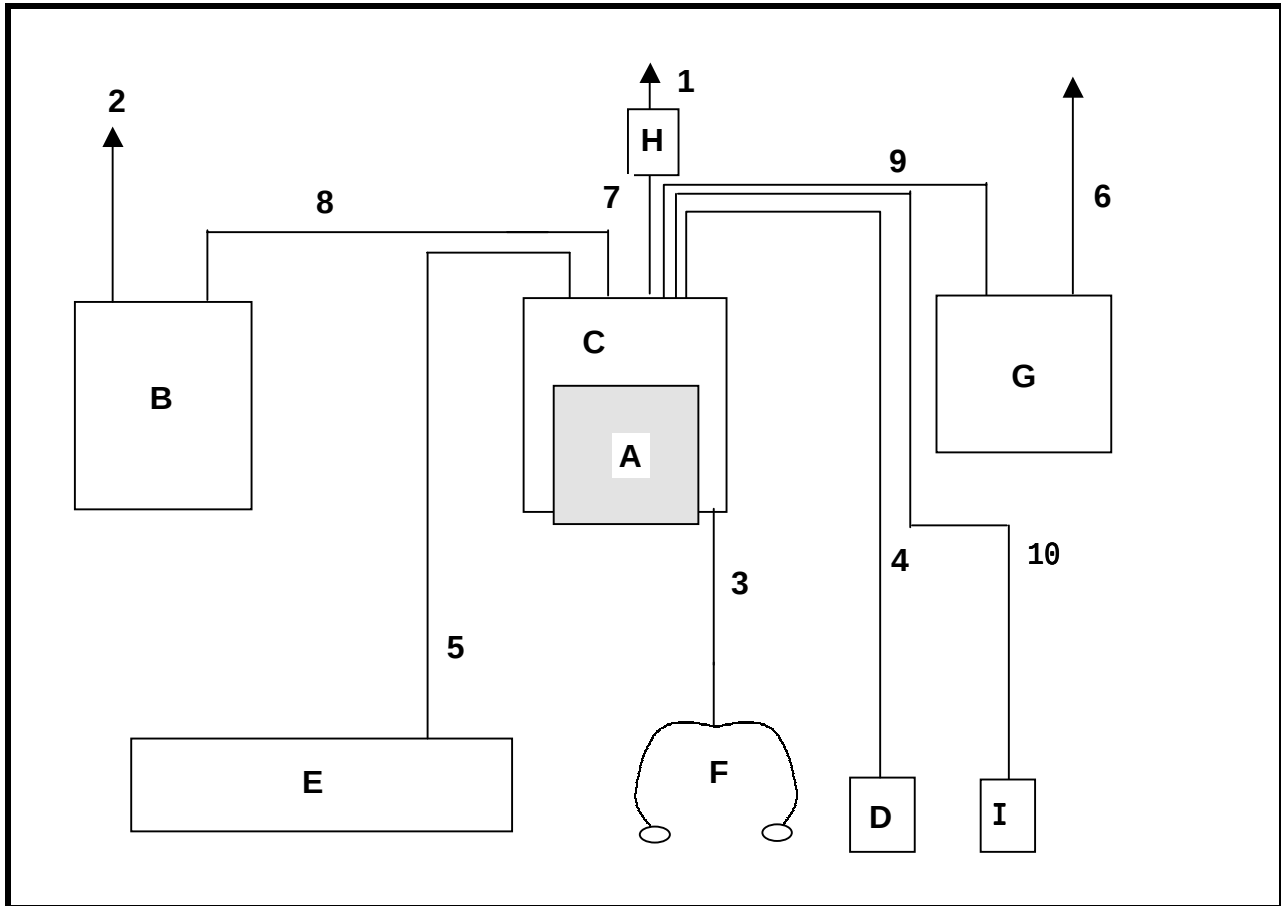
1.3 Configuration of EUT and peripherals

Mark	Item	Model No.	Serial No.	Manufacturer	Remark
A	Slim CD-ReWritable/ DVD ROM DRIVE	SN-308	-	Samsung	EUT
B	External Monitor	109P	4882A217	PHILIPS	
C	Notebook Computer	LATITUDE(C600)	TW-0791UH	DELL	
D	PS/2 Mouse	M-S48a	4882A001	COMPAQ	
E	USB Keyboard	SDM4540UL	3892A630	COMPAQ	
F	Ear phone	-	-	KOXOM	
G	Printer	2225C+	2814S11345	HP	
H	AC Adapter	ADP-70EB	TH-09364U	DELL	
I	Serial Mouse	SMB-400	7DEF021843	SEJIN	

1.4 Used Cable Description

No.	Item	Length[m]	Shielded(Y/N)	Remark
1	AC Power Cable	1.5	N	
2	AC Power Cable	1.5	N	
3	Earphone Cable	1.5	Y	
4	Mouse Cable	1.5	Y	
5	Keyboard Cable	1.5	Y	
6	AC Power Cable	1.5	N	
7	DC Power Cable	1.5	N	
8	Monitor Cable	1.2	Y	
9	Printer Cable	1.5	Y	
10	Mouse 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] :	25	24.5
Humidity [%] :	45	45
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				
0.47	33.3	31.2	0.1	33.4	48	14.6
0.76	28.1	23.1	0.1	28.2	48	19.8
2.03	29.2	25.6	0.1	29.3	48	18.7
3.37	31.2	29.2	0.1	31.3	48	16.7
3.96	29.8	34.7	0.1	34.8	48	13.2
7.81	28.1	26.6	0.1	28.2	48	19.8
9.48	31.5	26.8	0.1	31.6	48	16.4
17.87	32.1	32.7	0.1	32.8	48	15.2
21.55	33.6	30.7	0.1	33.7	48	14.3
27.87	32.2	30.8	0.1	32.3	48	15.7

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

* Margin = Limits-Result

* 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 (Limit-Result) [dB]
30 - 88	42.37	H	11.1	14.5	353	360	25.60	40	14.40
	55.38	V	19.5	10.7	100	360	30.20	40	9.80
	74.77	V	24.3	9.0	200	210	33.26	40	6.74
	84.41	V	20.4	9.1	100	106	29.50	40	10.50
88 - 216	120.57	V	23.1	9.4	100	275	32.51	43.5	10.99
	132.63	V	23.5	9.6	100	267	33.05	43.5	10.45
	150.00	H	18.8	10.2	202	245	29.00	43.5	14.50
	164.75	H	19.3	10.7	206	270	30.00	43.5	13.50
	202.66	V	19.5	12.2	100	256	31.70	43.5	11.80
216 - 960	250.87	H	17.8	14.4	100	170	32.20	46	13.80
	305.75	V	11.7	16.5	100	224	28.20	46	17.80
	456.03	V	12.1	19.6	100	176	31.70	46	14.30
	504.00	H	9.3	20.9	250	360	30.20	46	15.80
	831.20	H	9.9	25.8	350	158	35.70	46	10.30
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	2611A02672	H.P	00/ 6/23, 12Months
Quasi-peak adapter	85650A	2521A00687	H.P	00/10/10, 12Months
RF Preselector	85685A	3506A01500	H.P	01/01/29, 12Months
Field strength meter	ESVP	860688/015	R & S	01/ 3/20, 12Months
L.I.S.N	3825/2R	1981	EMCO	01/ 3/25, 12Months
Field strength meter	ESS	844861/005	R & S	00/ 6/23, 12Months
Biconilog Antenna	3142	1237	EMCO	01/1/2, 12Months