

# EMC Test Report

## According to FCC Part 15 Subpart B

Project No.		LBE041680
Equipment under Test		
	Address	416 Maetan3-Dong, Yeongtong-Gu,Suwon-City,Gyeonggi-Do, Korea,443-742
	Product Name	Digital Camcorder
	Model Name	SCD907
	Manufacturer	SAMSUNG
	Brand Name	SAMSUNG
	Variant Model	See Page 3
Date of Test		September 2 ~ 6, 2004
Issued Date		September 6, 2004

	Name/Position	Signature
Tested by	Sung Wook, Choi Test Engineer	S. W. Choi
Reviewed by	No Cheon, Park Manager of EMC Lab.	N. C. Park
Authorized by	Kyu Baek, Chung Chief of EMC Lab.	K. B. Chung

1. This test reports does not constitute an endorsement by NIST/NVLAP or U.S Government.
2. 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.

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 LAB CODE 200623-0

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## 1. General Information

### 1.1 Basic Information related Product

Applicant	Samsung Electronics Co. Ltd;
Model name	SCD907
Applicant Address	Samsung Electronics Co. Ltd; 416 Maetan3- Dong, Yeongtong-Gu, Suwon-City, Gyeonggi-Do, Korea, 443-742
Contact Person	Sung Wook, Choi
Kind of product	Digital Camcorder
Valiant list	None
Manufacturer	Samsung Electronics Co.Ltd;
New / Alternative / Permissive change Information	This report is original report #

### 1.2 Detail Information related Product

#### Specification

System	
Video signal	NTSC
Video recording system	2 rotary heads, Helical scanning system
Audio recording system	Rotary heads, PCM system
Usable cassette	Digital video tape (6.35mm width): Mini DV cassette
Tape speed	SP: approx. 18.81mm/s LP: approx. 12.56mm/s
Tape recording time	SP: 60 minutes (when using DVM 60), LP: 90 minutes (when using DVM 60)
FF/REW time	Approx. 150 sec. (using DVM60 tape)
Image device	CCD (Charge Coupled Device)
Lens	F1.8 10x(Optical), 900x(Digital) Electronic zoom lens
Filter diameter	Ø37
LCD monitor/Viewfinder	
Size/dot number	2.5inchs 211k
LCD monitor Method	TFT LCD
Viewfinder	0.24" Color LCD
Connectors	
Video output	1Vp-p (75Ω terminated)
S-video output	Y: 1Vp-p, 75Ω, C: 0.286Vp-p, 75Ω
Audio output	-7.5dBs (600Ω terminated)
DV input/output	4pin special in/out connector
USB output	Mini-B type connector
External mic	Ø3.5 stereo
General	
Power source	DC 8.4V, Lithium Ion Battery Pack 7.4V
Power source type	Lithium Ion Battery Pack, Power supply (100V~240V) 50/60Hz
Power consumption (Recording)	5.7W(LCD), 4.5W (Viewfinder)
Operating temperature	0°~40°C (32°F~104°F)
Storage temperature	-20°C ~ 60°C (-4°F ~ 140°F)
External dimension	Length 120mm, Height 101.5mm, Width 58mm
Weight	480g (Except for Lithium Ion Battery Pack and tape)
Built-in MIC	Omni-directional stereo condenser microphone
Remote control	Indoors: greater than 15m (straight line), Outdoors: about 5m (straight line)

### **1.3 Operating Mode and Condition**

The system was configured for testing in typical fashion use.

The mode of operation utilized for testing was selected to best simulate typical EUT use.

- PLAY
- RECORDING

### **1.4 Equipment Modifications**

No equipment modifications were required.

## 1.5 Test Configuration

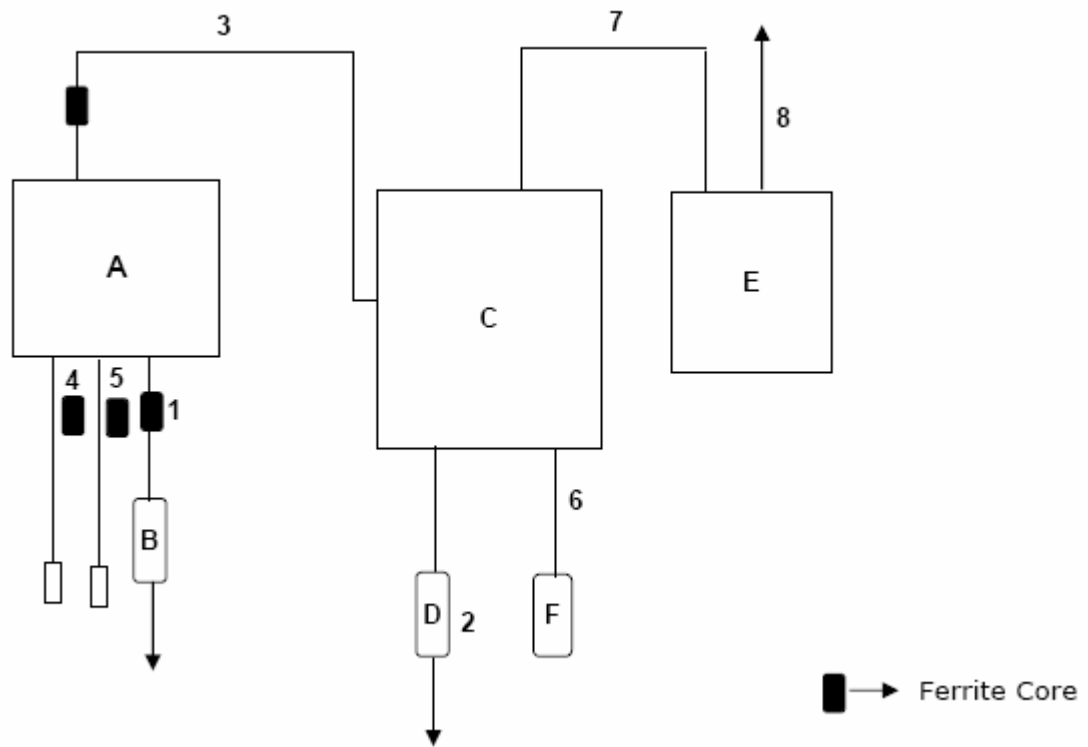
### Used EUT and Peripherals

Mark	Item	Model No.	Serial No.	Manufacturer	FCC ID
A	Digital Camcorder	SCD907	-	SAMSUNG	A3L04OMEGA211
B	Adapter	AA-E7	-	SAMSUNG	DOC
C	Note PC	Ox138-A01-T	PPO3S 9X9XA00	DELL	DOC
D	Adapter	ADP-50FH	TH-08H051-17971-19A-01DV	DELL	DOC
E	Printer	ML-1750	PR1750-120V-018	SAMSUNG	A3LML-1750
F	PS/2 Mouse	P801	01038598	SAMSUNG	DOC

### Used Cable Description

	Connect Cable	Length [m]	Shielded [Y/N]	Remark
1	AC Power cable	1.7	No	
2	AC Power cable	1.7	No	
3	USB	1.5	No	
4	DV	1.5	Yes	
5	AV	1.5	No	

Block Diagram



## 1.6 Applied Standards

List
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Product or Generic Standards	Basic Standards
FCC Part15 Subpart B	ANSI 63.4 : 2000

## 1.7 Test Facility

### General Information

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR 22, 16-1, 16-2, 11.

This EMC Testing Lab. is accredited by Korea Laboratory Accreditation Scheme(KOLAS) which signed the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the above test item(s) and test method(s).

This Lab. is operated as testing laboratory in accordance with the requirements of ISO/IEC 17025:1998.

### Accreditation and Listing



### Uncertainty

(According to NAMAS Pub.NIS81)

Test Item	Expanded Uncertainty
Radiated Disturbance	5.09
Disturbance voltage at the mains terminals	1.64



## 2. Summary of Test Results

**Result : PASS**

The equipment under test(EUT) has been found to comply with the applied standards.

Test Name		Applied Standard	Result
Electromagnetic Emission Test			
3.1	Conducted Emission	FCC Part15 Subpart B	Complied
3.2	Radiated Emission	FCC Part15 Subpart B	Complied

### 3. Description of Individual Tests

#### 3.1 Conducted Emission

Test Information		
	Test Engineer	Sung Wook, Choi
	Test Date	September 6, 2004
	Climate Condition	Ambient Temperature : 24 °C Relative Humidity : 49%
	Test Place	Shield Room #5

#### Test Equipments

Equipment	Modal Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
L.I.S.N	ESH3-Z5	R&S	100262	2005-02-11	12
Test Software	EP5CE	TOYO	None	N/A	N/A
TV Signal Generator	PM5418-TDSI	PHILIPS	LO612347	2004-09-20	12
Field strength meter	ESS	R&S	844661/005	2005-01-05	12
RF Relais Matrix	PSU	R&S	861206/024	N/A	N/A
L.I.S.N	ESH3-Z5	R&S	100260	2005-07-06	12
Spectrum Analyzer	ESI	R&S	100067	2005-01-09	12

#### EUT Test Setup

EUT was placed on a platform of nominal size, raised 80cm above the conducting ground plane. The rear of table top was located 40cm to the vertical conducting plane. The rear of EUT was aligned and flushed with rear of tabletop. All other surfaces of tabletop was at least 80cm from any other grounded conducting surface. All unused 50 ohm connectors of the LISN were resistively terminated in 50 ohm when not connected to the measuring equipment See photo.

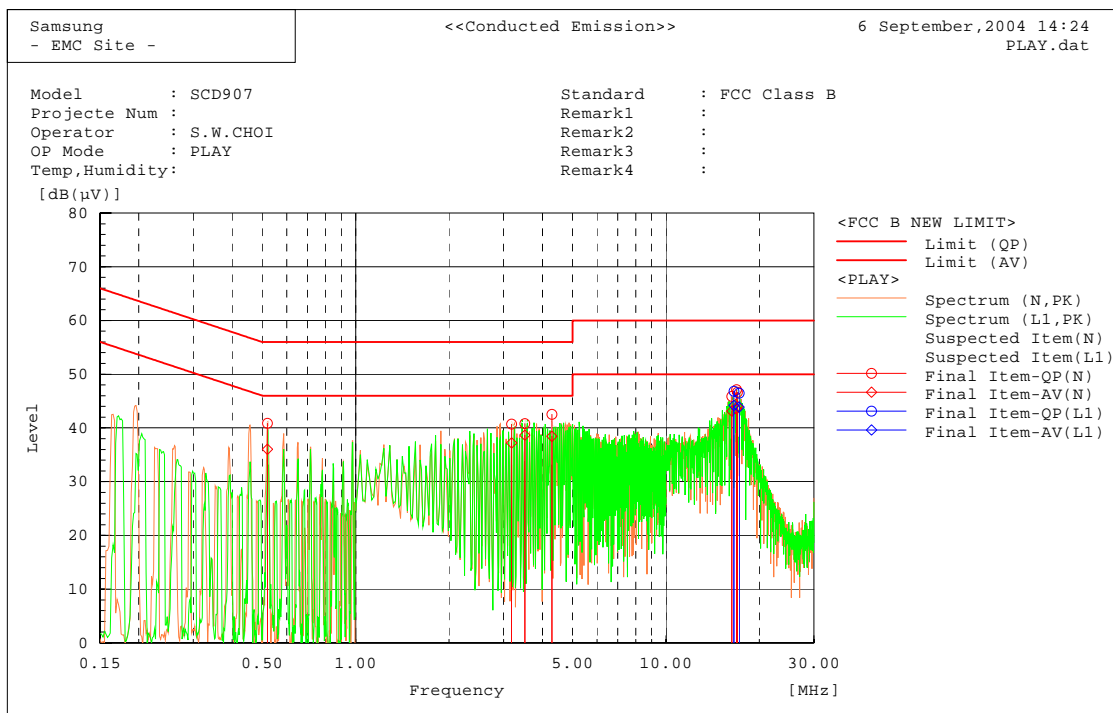
#### Test Result

<b>Measurement Results</b>	<p>Pass</p> <p>The measured emissions of the EUT have found to be below the specified limits.</p>
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**Test Data**

■ Operating Mode : PLAY

**[Graph and Data]**



**Final Result**

--- N Phase ---

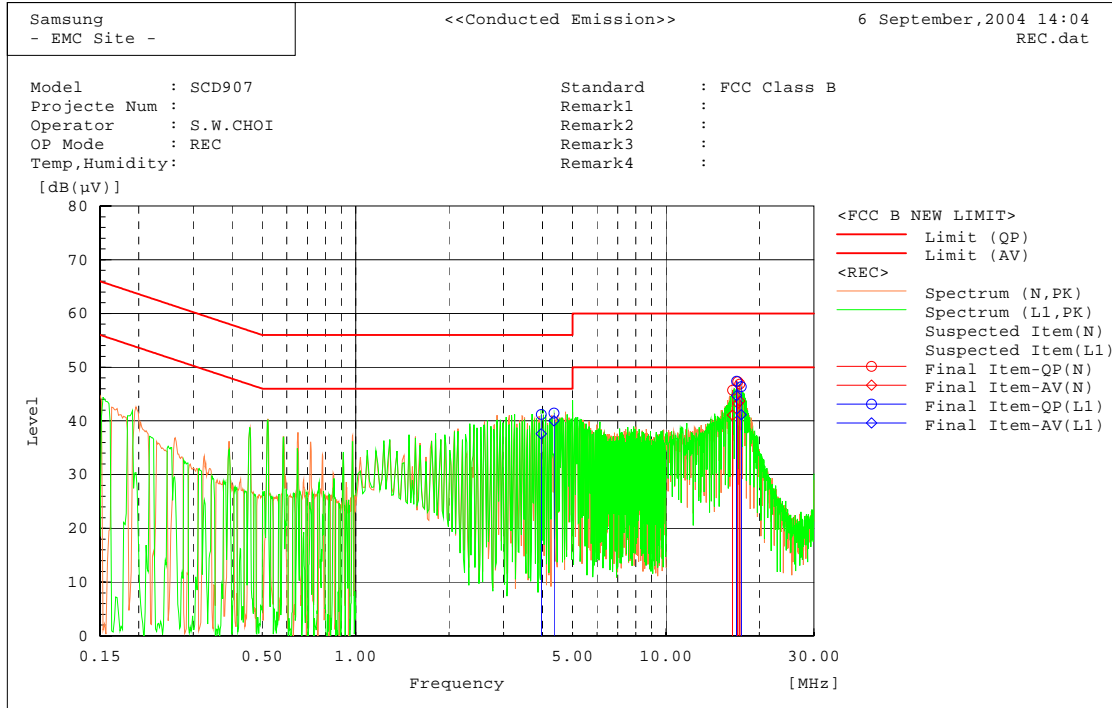
No.	Frequency	Reading QP	Reading AV	c.f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.51989	40.7	35.9	0.2	40.9	36.1	56.0	46.0	15.1	10.0
2	3.18408	40.5	37.0	0.2	40.7	37.2	56.0	46.0	15.3	8.8
3	3.50837	40.6	38.5	0.2	40.8	38.7	56.0	46.0	15.2	7.3
4	4.28951	42.3	38.3	0.2	42.5	38.5	56.0	46.0	13.5	7.5
5	16.30842	44.9	42.1	1.0	45.9	43.1	60.0	50.0	14.1	6.9
6	16.89479	46.1	42.5	1.0	47.1	43.5	60.0	50.0	12.9	6.5
7	17.02064	45.7	43.0	1.0	46.7	44.0	60.0	50.0	13.3	6.0

--- L1 Phase ---

No.	Frequency	Reading QP	Reading AV	c.f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	16.56694	45.6	43.0	1.2	46.8	44.2	60.0	50.0	13.2	5.8
2	17.21663	45.3	42.7	1.2	46.5	43.9	60.0	50.0	13.5	6.1

■ Operating Mode : RECORDING

[Graph and Data]



Final Result

--- N Phase ---

No.	Frequency	Reading QP	Reading AV	c.f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	16.39099	44.7	40.1	1.0	45.7	41.1	60.0	50.0	14.3	8.9
2	17.03948	46.3	42.3	1.0	47.3	43.3	60.0	50.0	12.7	6.8
3	17.29679	45.9	42.7	1.0	46.9	43.7	60.0	50.0	13.1	6.3

--- L1 Phase ---

No.	Frequency	Reading QP	Reading AV	c.f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	3.96721	41.0	37.4	0.2	41.2	37.6	56.0	46.0	14.8	8.4
2	4.35624	41.3	39.8	0.2	41.5	40.0	56.0	46.0	14.5	6.0
3	16.90321	46.2	43.5	1.2	47.4	44.7	60.0	50.0	12.6	5.3
4	17.49359	45.2	40.0	1.2	46.4	41.2	60.0	50.0	13.6	8.8

### 3.2 Radiated Emission

Test Information		
	Test Engineer	Sung Wook, Choi
	Test Date	September 2, 2004
	Climate Condition	Ambient Temperature : 23℃ Relative Humidity : 46%
	Test Place	10m Semi Anechoic chamber

#### Test Equipments

Equipment	Modal Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
RF Selector	NS4900	TOYO	0303-015	N/A	N/A
Biconilog Antenna	6112B	SCHAFFNER	2767	2005-05-22	12
Mast Controller	HD2000	HD	HD20000902027	N/A	N/A
Test Software	EP5RET	TOYO	None	N/A	N/A
EMI Receiver	ESI26	R&S	100067	2005-01-09	12
Test Software	EP5RE	TOYO	None	N/A	N/A
TV Signal Generator	PM5418-TDSI	PHILIPS	LO627116	2005-01-28	12
Signal Generator	SMG	R&S	860288036	2004-11-06	12
Spectrum Analyzer	E7405A	Agilent	MY42000109	2004-11-27	12
Field strength meter	ESCS30	R&S	839809/002	2005-04-28	12
AMPLIFIER	310N	SONOMA	185861	2004-09-20	12

#### EUT Test Setup

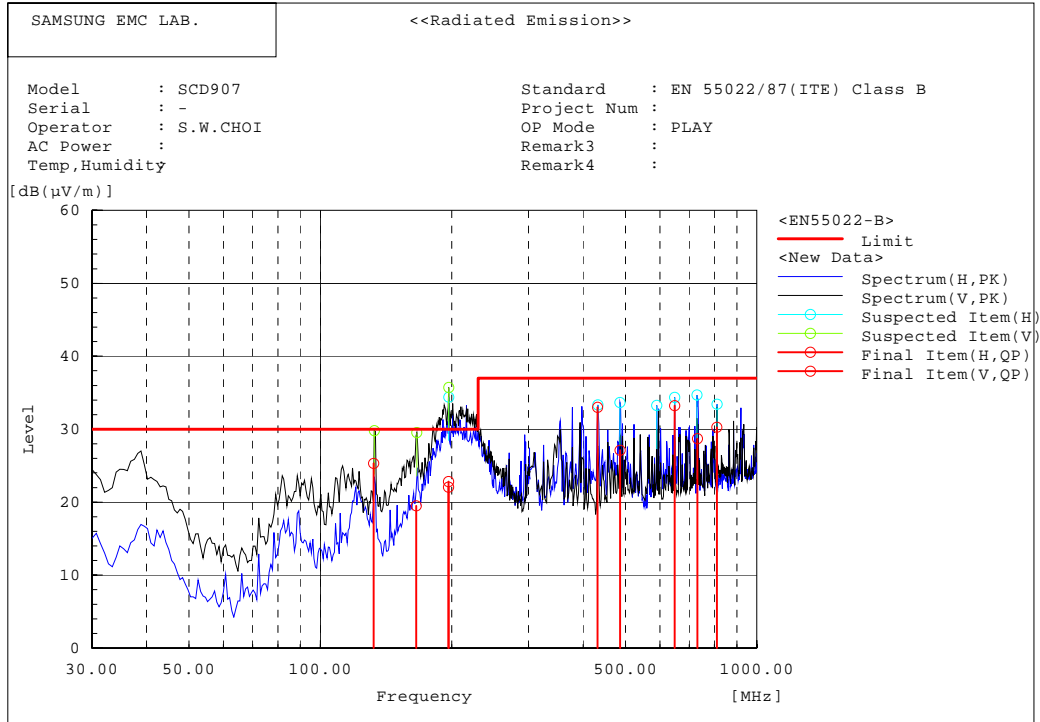
EUT was placed on a platform of nominal size and raised 80cm above the conducting ground plane. The rear of EUT was aligned and flushed with rear of tabletop. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. See photo.

#### Test Result

<b>Measurement Results</b>	<p>Pass</p> <p>The measured emissions of the EUT have found to be below the specified limits.</p>
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**Test Data (Other Frequency)**

■ Operating Mode : PLAY



Final Result

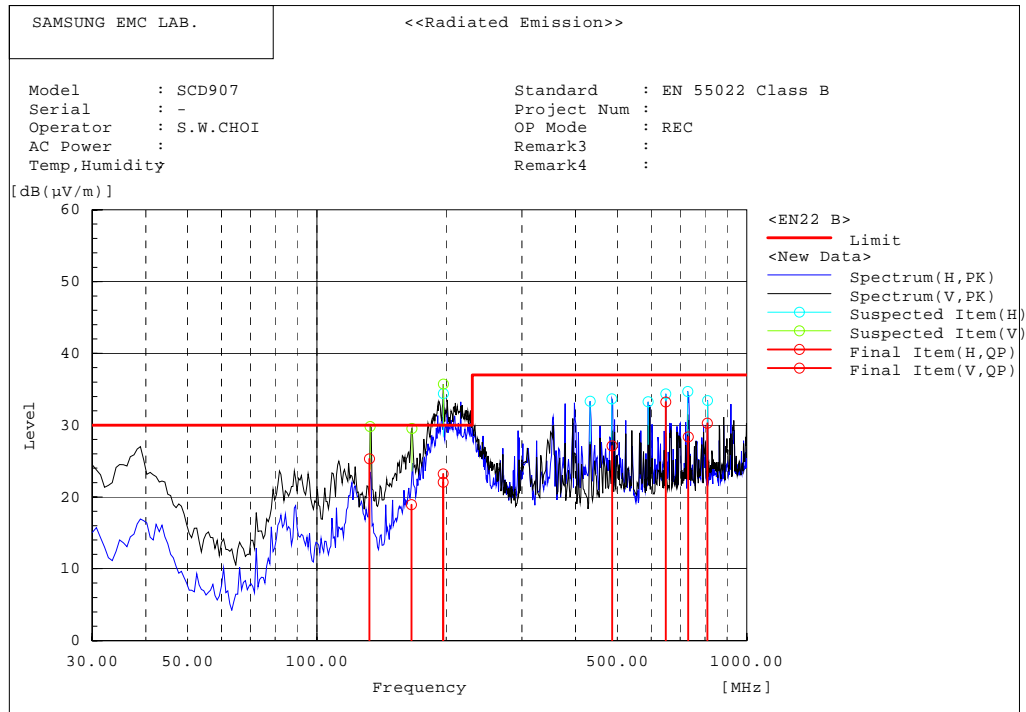
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	196.604	43.4	-21.4	22.0	30.0	8.0	
2	730.708	36.1	-7.4	28.7	37.0	8.3	
3	647.970	41.7	-8.5	33.2	37.0	3.8	
4	485.970	37.9	-10.8	27.1	37.0	9.9	
5	809.970	37.6	-7.3	30.3	37.0	6.7	
6	431.990	45.2	-12.2	33.0	37.0	4.0	

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	196.603	44.2	-21.4	22.8	30.0	7.2	
2	132.580	45.1	-19.8	25.3	30.0	4.7	
3	165.871	41.0	-21.5	19.5	30.0	10.5	

■ Operating Mode : RECORDING



Final Result

--- Horizontal Polarization (QP)---

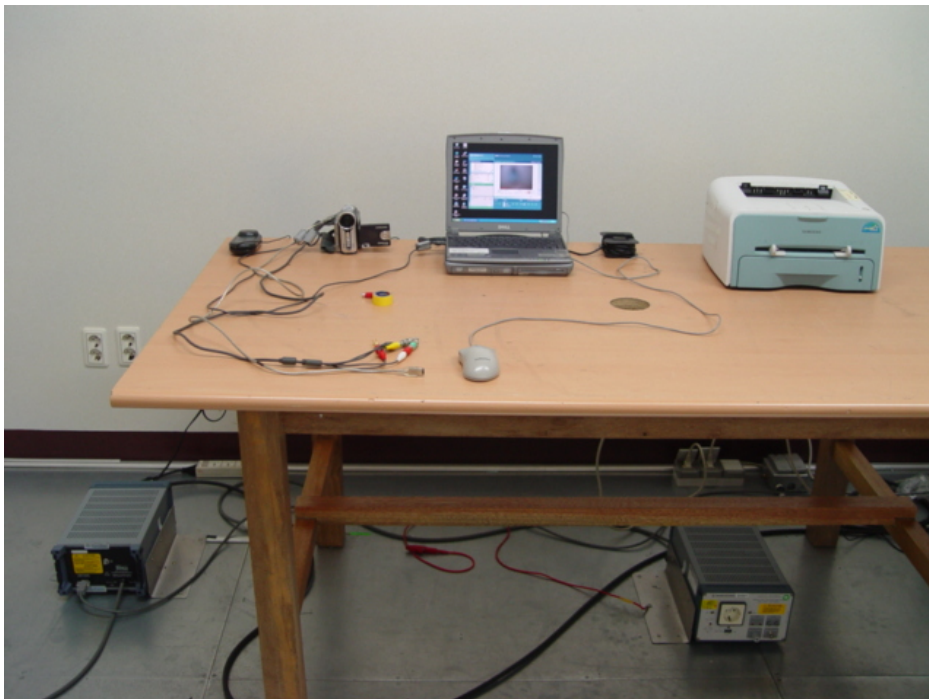
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	196.604	43.4	-21.4	22.0	30.0	8.0	
2	730.710	35.8	-7.4	28.4	37.0	8.6	
3	647.970	41.7	-8.5	33.2	37.0	3.8	
4	485.970	37.9	-10.8	27.1	37.0	9.9	
5	809.970	37.6	-7.3	30.3	37.0	6.7	

--- Vertical Polarization (QP)---

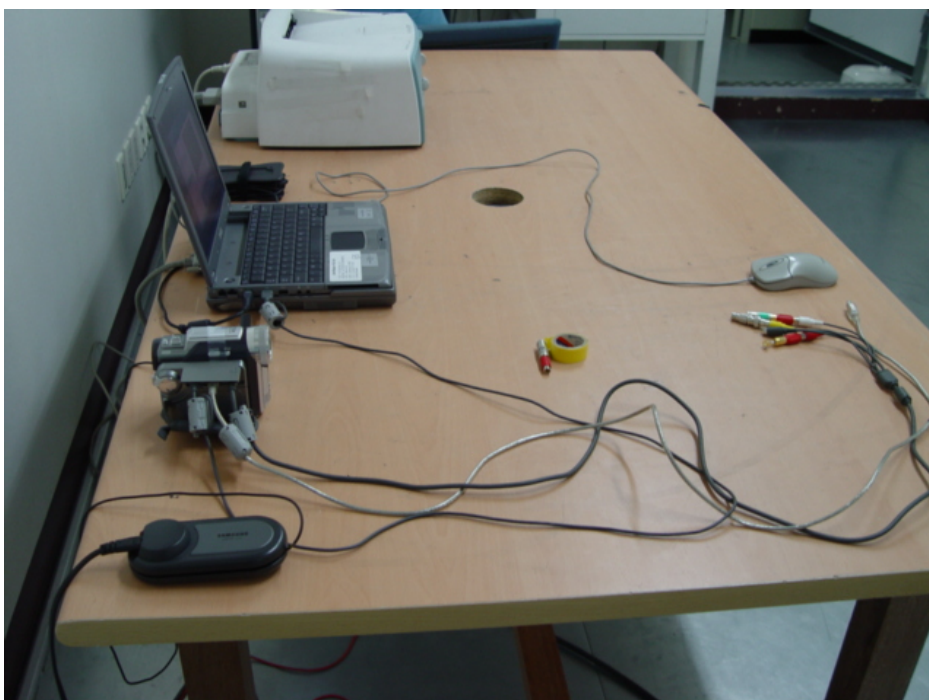
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	196.604	44.6	-21.4	23.2	30.0	6.8	
2	132.580	45.1	-19.8	25.3	30.0	4.7	
3	165.878	40.4	-21.5	18.9	30.0	11.1	

## 4. Appendix A

### 4.1 Test Photography

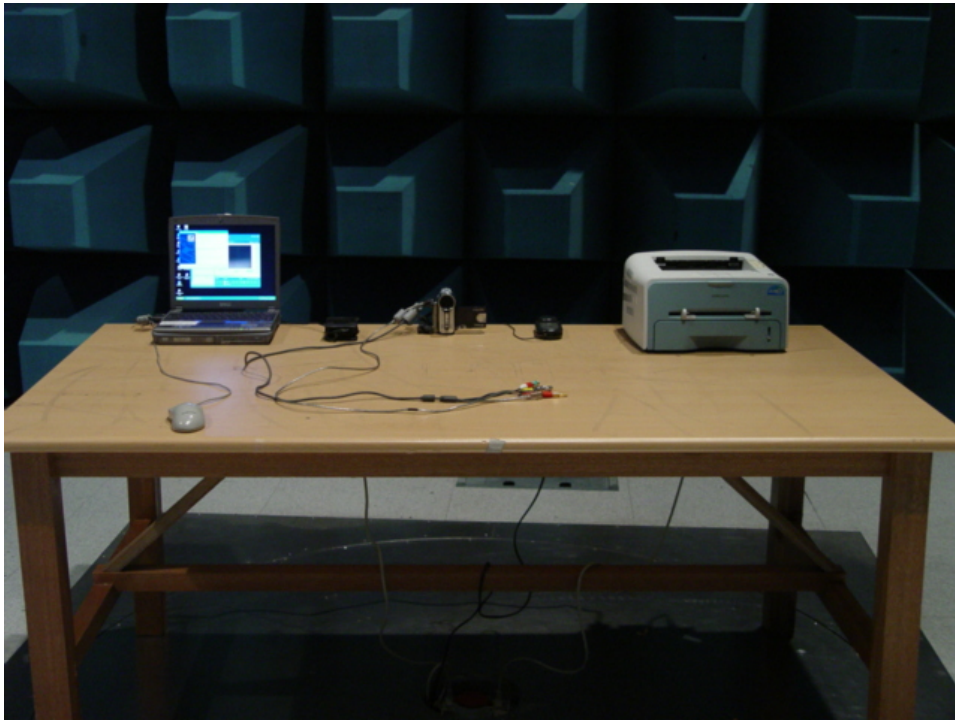


Picture 1. Conducted Emission (Front)

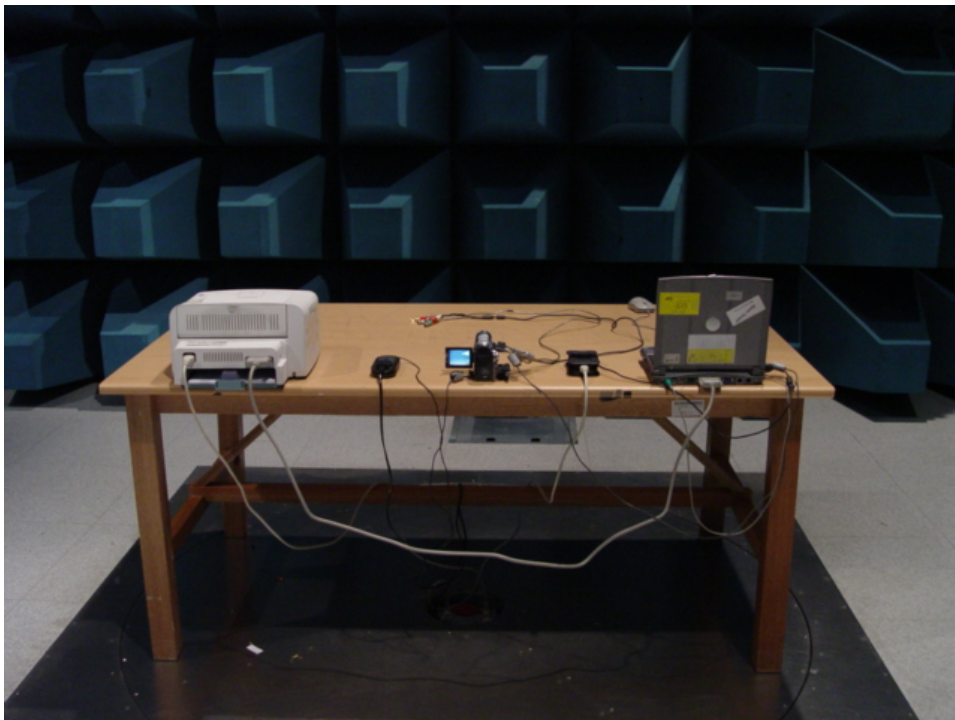


Picture 2. Conducted Emission (Rear)





Picture 3. Radiated Emission (Front)



Picture 4. Radiated Emission (Rear)

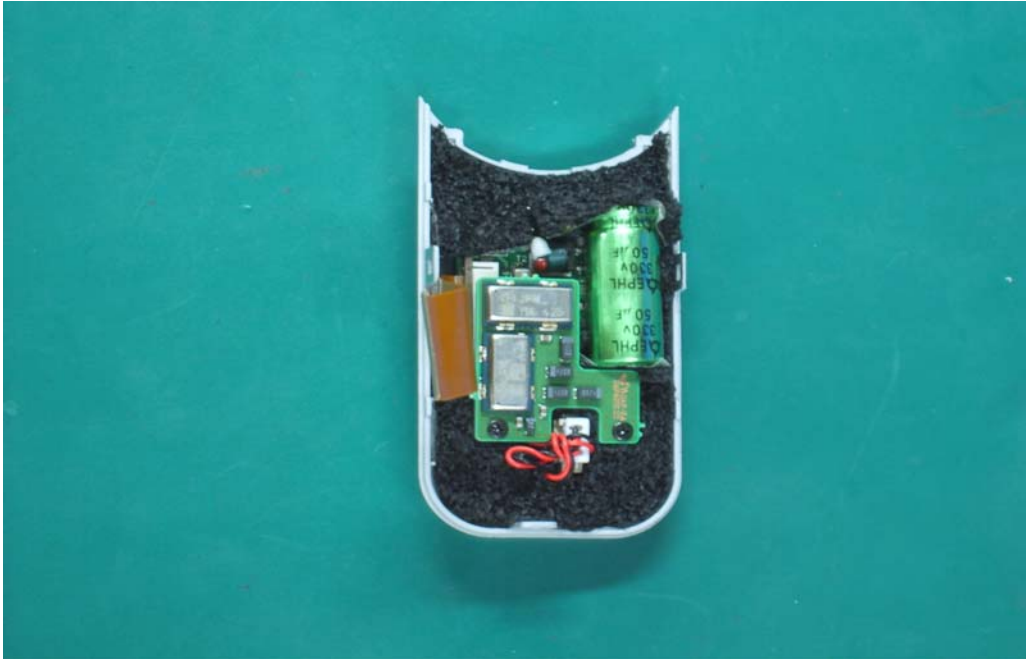
## 4.2 EUT Photography



Picture 5. EUT (Front)



Picture 6. EUT (Rear)

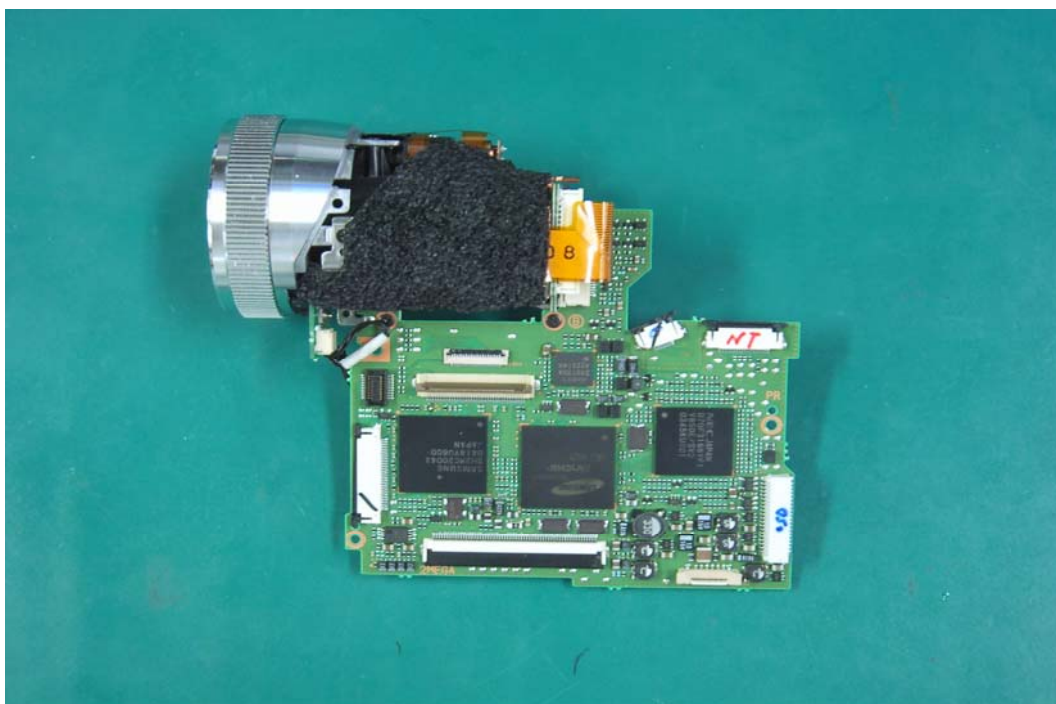


Picture [ FRONT BOARD ]



Picture [ FUNCTION BOARD ]

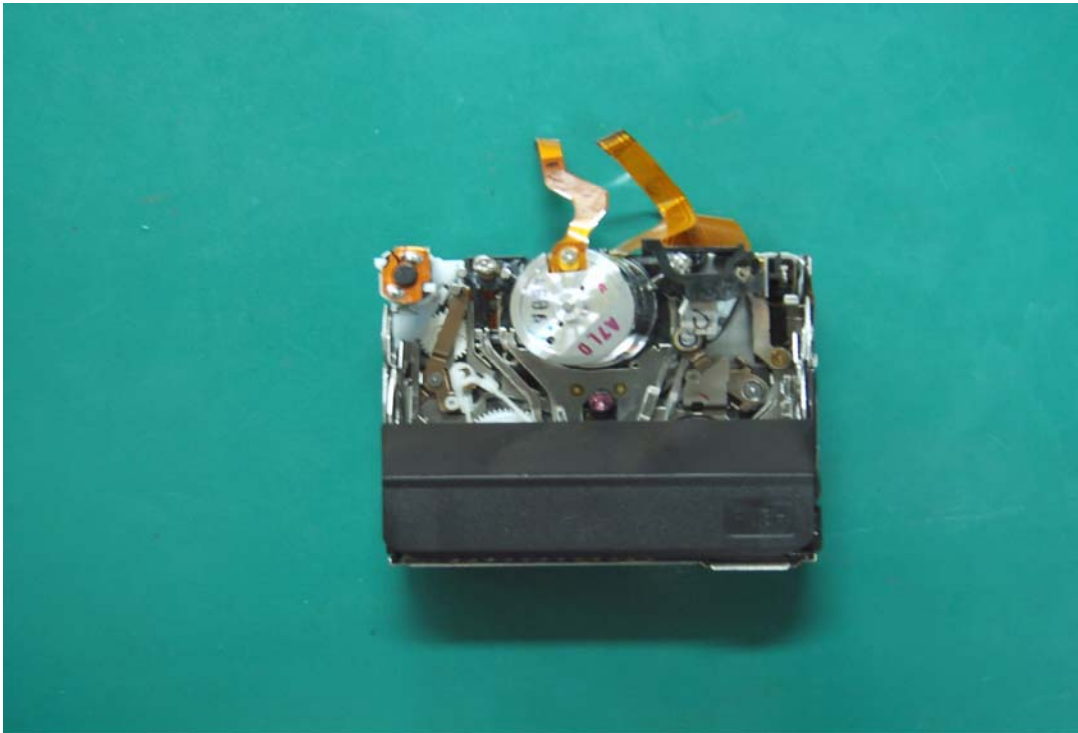




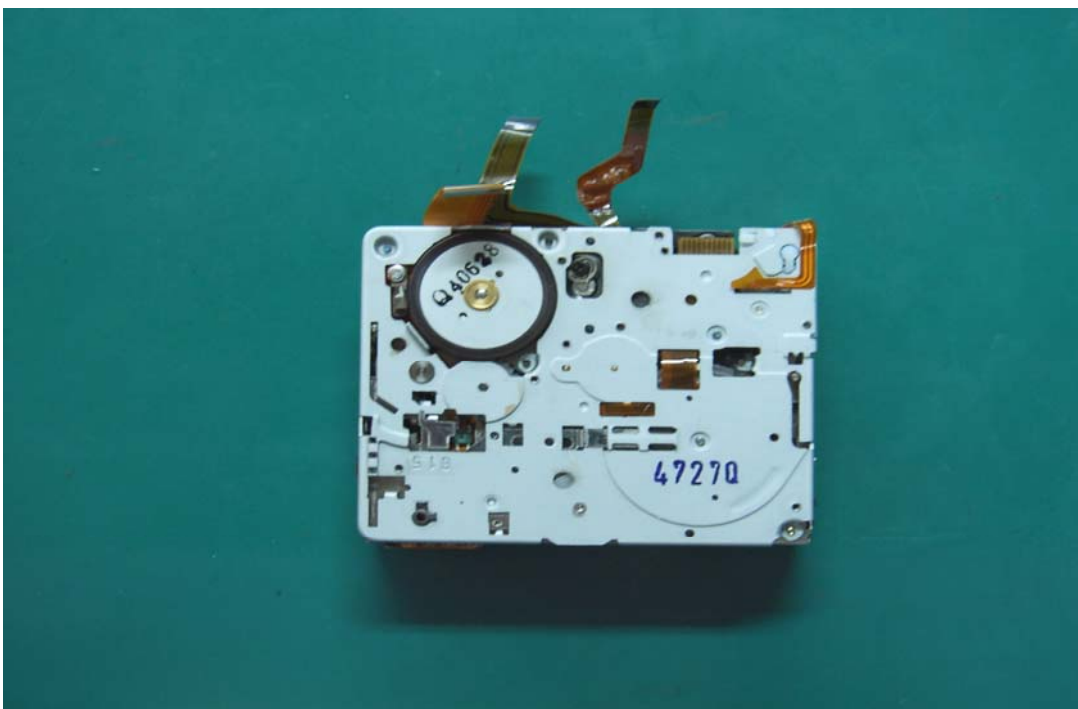
Picture [ MAIN PCB TOP SIDE ]



Picture [ MAIN PCB BOTTOM SIDE ]



Picture [ DECK TOP SIDE ]



Picture [ DECK BOTTOM SIDE ]



[ Label ]