

EMC Test Report

Project No.	LBE052260
Equipment under Test	
Applicant	Samsung Electronics Co., Ltd.
Address	416 Maetan3-Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, Korea, 443-742
Product Name	CCTV CAMERA
Model Name	SCC-641P
Manufacturer	Samsung Electronics Co., Ltd.
Brand Name	SAMSUNG
Variant Model	See Page 3
Date of Test	September 16 ~ October 07, 2005
Issued Date	October 11, 2005

Applied Standards	EN 61000-6-4:2001, EN61000-3-2: 2000, EN61000-3-3: 1995+A1:2001, EN50130-4: 1995 + A1:1998
Result	Passed The equipment under test has found to be compliant with the applied standards.

	Name/Position	Signature
Tested by	Sung Wook, Choi Test Engineer	<i>S. W. Choi</i>
Reviewed by	No Cheon, Park Manager of EMC Lab.	<i>N. C. Park</i>
Authorized by	Seung Kyu, Cha Chief of EMC Lab.	<i>S. K. Cha</i>

SAMSUNG EMC Laboratory.		
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1. General Information

1.1 Basic Information related Product

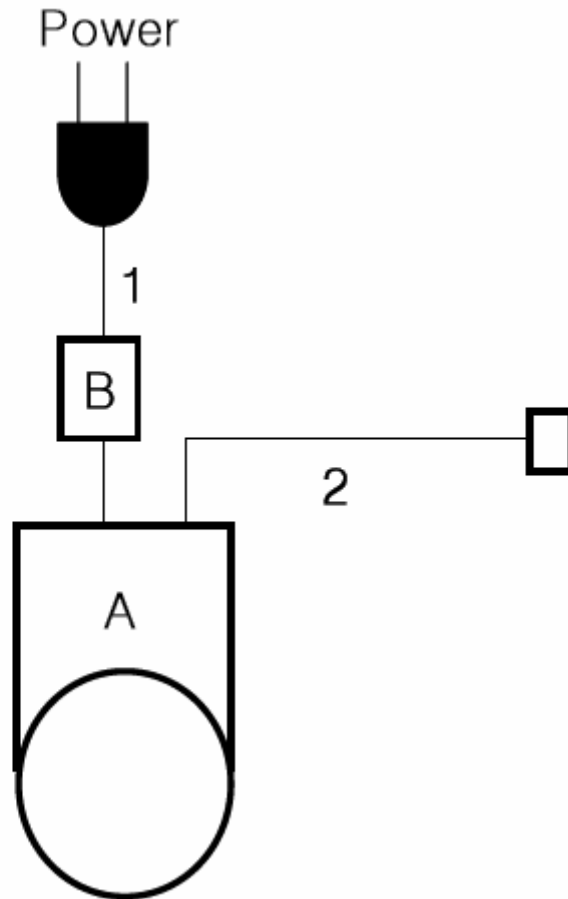
Applicant	Samsung Electronics Co., Ltd.
Model name	SCC-641P
Applicant Address	416 Maetan3- Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, Korea, 443-742
Contact Person	Jong Uk, Kim
Kind of Product	CCTV CAMERA
Valiant Model List	None
Manufacturer	Samsung Electronics Co., Ltd.

1.2 Detail Information related Product

Specification

NO	Items	Contents
1	Product Type	- Zoom lens single body COMBI DOME CAMERA
2	Power Input	- AC 24 ± 10% (50Hz ± 0.3Hz)
3	Power Consumption	- 18W
4	Broadcasting Type	- PAL STANDARD COLOR SYSTEM
5	Image Device	- 1/4 inch IT CCD
6	Effective Pixels	- 752(H) × 582(V)
7	Scanning Mode	- 625 Lines, 2:1 Interlace
8	Scanning line Frequency	- Horizontal : 15, 625 Hz(INT) / 15, 625 Hz(L/L) Vertical : 50 Hz(INT) / 50 Hz(L/L)
9	Synchronization Mode	- INT/LINE LOCK
10	Resolution	- 480 TV LINES
11	S/N Ratio	- 52dB (AGC OFF)
12	Min. Object Illumination	- 0,3 Lux (SENS UP X4) (0,01 Lux)
13	Color Temperature	- ATW/AWC/MANUAL MODE (3200° K, 5600° K, R/B GAIN Court)
14	Signal Output	- COMPOSITE VIDEO OUT : 1.0 Vp-p 75 ohms/BNC
15	Lens	- one body; 22X Zoom lens ▪ Focal length : 3.6 to 79.2 mm - Aperture : F1.6(Wide), F3.8(Tele) - Auto Focus
16	PAN Function	- PAN range : 360° Endless ▪ Preset Pan Speed : 240° /sec, maximum - Manual Pan Speed : 0.8° ~ 90° /sec (64Step)
17	TILT Function	- TILT range : 0° ~ 90° - Preset Tilt Speed : 150° /sec, maximum - Manual Tilt Speed : 0.8° ~ 45° /sec (64Step)
18	REMOTE CONTROL	- Tele/Wide(ZOOM), Near/Far(FOCUS), Iris Open/Close, Pan/Tilt
19	ALARM	- Alarm Inputs : 4 IN(5mA Sink) - Alarm Outputs : 3 OUT (Open collector : 2 DC24V 40mA Max, Relay : 1, NO, NC, COM 2A 30VDC, 0.5A 125VAC Max)
20	Operation Temperature	- -10°C ~ +50°C (14°F ~ 122°F)
21	Operation Humidity	- ~90%
22	SIZE	- DOME : 147 (φ), Outline : 159,5(φ) x 176(H)(Adapter:23.5(H)mm)
23	Weight	- 2Kg

1.3 Test Block Diagram



1.4 Test Configuration

Used EUT and Peripherals

Seq	Device	Model Name	Serial #	Maker	Note
A	CCTV CAMERA	SCC-641P	-	SAMSUNG	EUT
B	Adapter	YK-24150AK	9-12-1506	SAMSUNG	FOR EUT

Used Cable Description

No	Connect Cable	Length [m]	Shielded [Y/N]	Remark
1	Power Cable	1.5	No	
2	BNC Cable	1.5	No	Termination

1.5 Applied Standards

List

Product or Generic Standards	Basic Standards
EN61000-6-4:2001	EN61000-4-2:1995
EN61000-3-2: 2000	EN61000-4-3:1996
EN61000-3-3: 1995+A1:2001	EN61000-4-4:1995
EN50130-4:1995+A1:1998	EN61000-4-5:1995
	EN61000-4-6:1996
	EN61000-4-11:1994

Performance Criteria

- A. normal performance within the specification limits
- B. temporary degradation or less of function or performance which is self-recoverable
- C. temporary degradation or less of function or performance which require operator intervention or system reset

1.6 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	±4.4
Disturbance voltage at the mains terminals	±3.3

2. Summary of Test Results

Result : **PASS**

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

Section of the Product Standard		Applied Standard	Result
Electromagnetic Emission Test			
3.1	Conducted Emission	EN61000-6-4:2001	Complied
3.2	Radiated Emission	EN61000-6-4:2001	Complied
3.3	Harmonics	EN61000-3-2: 2000	Complied
3.4	Flicker	EN61000-3-3: 1995+A1:2001	Complied
Electromagnetic Susceptibility(Immunity) Test			
3.5	ESD	EN61000-4-2:1995	Complied
3.6	Radiated Immunity	EN61000-4-3:1996	Complied
3.7	EFT	EN61000-4-4:1995	Complied
3.8	SURGE	EN61000-4-5:1995	Complied
3.9	Conducted Immunity	EN61000-4-6:1996	Complied
3.10	Voltage Dip	EN61000-4-11:1994	Complied

3. Description of Individual Tests

3.1 Conducted Emission

Test Information	
Test Engineer	Sung Wook, Choi
Test Date	September 24, 2005
Climate Condition	Ambient Temperature : 21.5 (EN Limit : 15 ~35) Relative Humidity : 53% (EN Limit : 30%~60%) Atmospheric Pressure 1015 mbar (EN Limit : 860~1060)
Test Place	Shield Room #5

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
RF Relais Matrix	PSU	R&S	861206/024	N / A	N / A
EMC Analyzer	E7405A	Agilent	MY42000052	2006-06-09	12
EMI Test Receiver	ESS-30	R&S	844861/005	2006-05-19	12
ARTIFICIAL-MAINS NETWORK	ESH3-Z5	R&S	831886/007	2005-10-04	12
Test Software	EP5CE	TOYO	Ver. 2.0.860	N / A	N / A

EUT Test Setup

The EUT was set up as per normal use on a wooden table, 0.4m from a vertical ground reference plane, at least 0.8m from other conduction surfaces and 0.8m from the LISN.

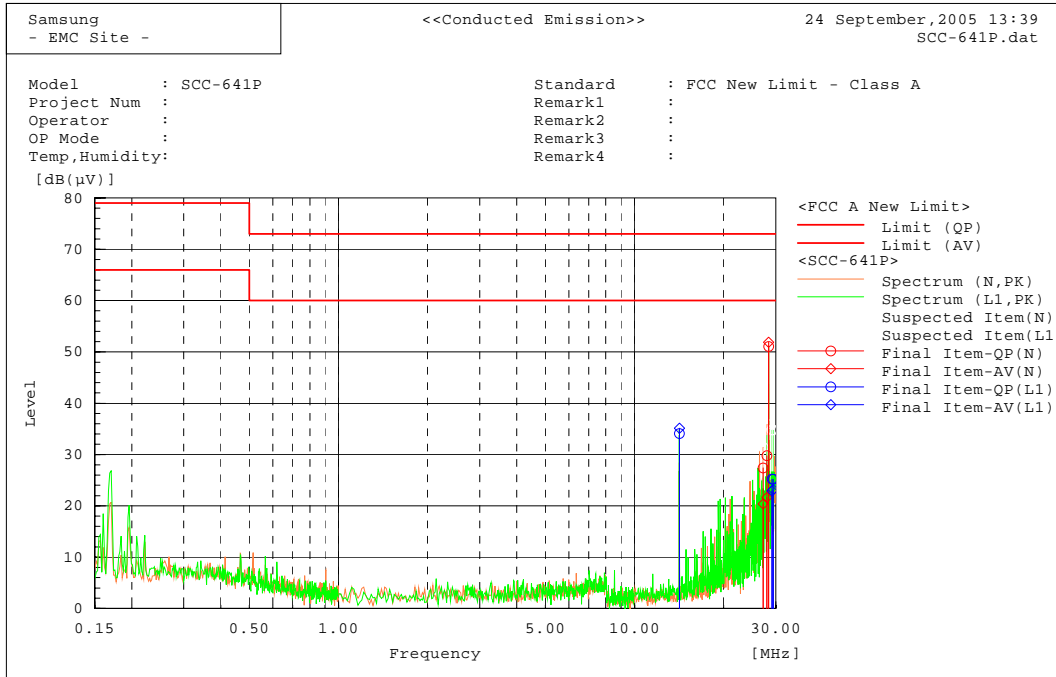
See photo.

Test Result

Measurement Results	<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

[Graph and Data]



Final Result

--- N Phase ---

No.	Frequency [MHz]	Reading QP [dB(µV)]	Reading AV [dB(µV)]	c.f [dB]	Result QP [dB(µV)]	Result AV [dB(µV)]	Limit QP [dB(µV)]	Limit AV [dB(µV)]	Margin QP [dB]	Margin AV [dB]
1	27.20581	26.8	19.8	0.6	27.4	20.4	73.0	60.0	45.6	39.6
2	27.99298	29.2	21.0	0.6	29.8	21.6	73.0	60.0	43.2	38.4
3	28.37575	50.4	51.3	0.6	51.0	51.9	73.0	60.0	22.0	8.1

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(µV)]	Reading AV [dB(µV)]	c.f [dB]	Result QP [dB(µV)]	Result AV [dB(µV)]	Limit QP [dB(µV)]	Limit AV [dB(µV)]	Margin QP [dB]	Margin AV [dB]
1	14.18858	33.6	34.7	0.5	34.1	35.2	73.0	60.0	38.9	24.9
2	29.11644	24.2	21.9	1.0	25.2	22.9	73.0	60.0	47.8	37.1
3	29.44469	24.2	22.2	1.0	25.2	23.2	73.0	60.0	47.8	36.8

3.2 Radiated Emission

Test Information	
Test Engineer	Sung Wook, Choi
Test Date	September 16, 2005
Climate Condition	Ambient Temperature : 22 (EN Limit : 15 ~35) Relative Humidity : 54% (EN Limit : 30%~60%) Atmospheric Pressure 1016 mbar (EN Limit : 860~1060)
Test Place	10m Semi Anechoic Chamber

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
EMI Test Receiver	ESCS30	R&S	839809/002	2006-05-24	12
RF Selector	NS4900	TOYO	0303-015	N / A	N / A
Mast Controller	HD2000	HD	HD20000902027	N / A	N / A
Bilog Antenna	CBL6112B	SCHAFFNER	2767	2006-06-04	12
EMC Analyzer	E7405A	Agilent	US41110272	2006-01-20	12
Amplifier	310N	SONOMA	185861	2005-10-08	12
Test Software	EP5RE	TOYO	Ver. 2.0.870	N/A	N/A

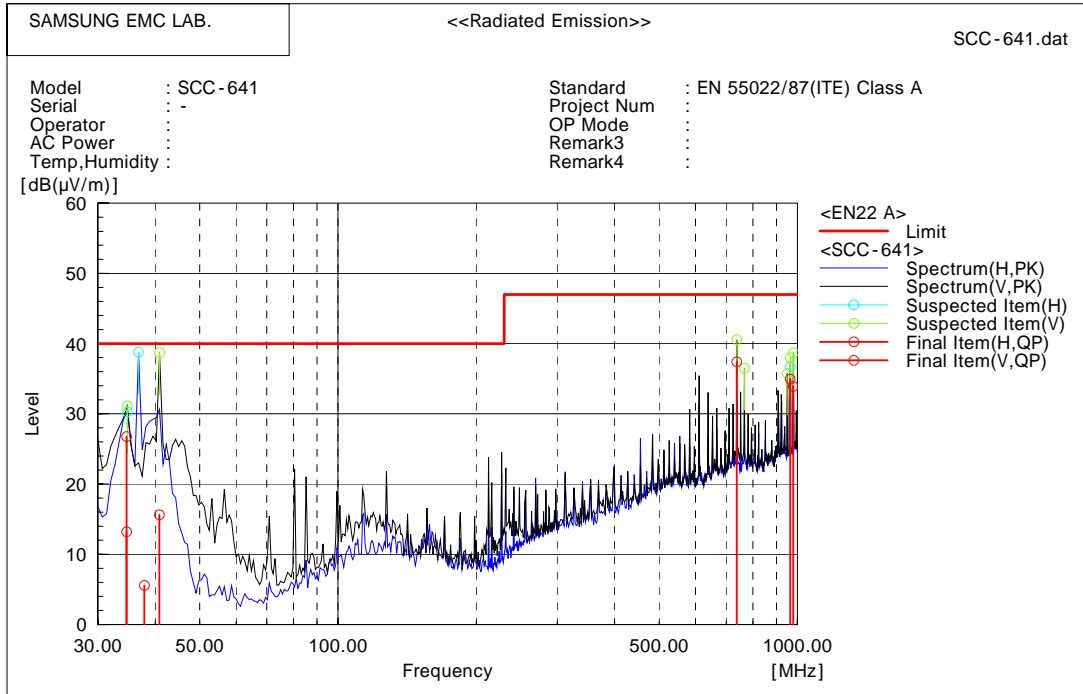
EUT Test Setup

EUT set up in semi-anechoic chamber. EUT in center of table positioned at 10m from antenna.
All ports terminated into characteristic loads.

Test Result

Measurement Results	<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



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	37.871	23.5	-17.9	5.6	40.0	34.5	
2	34.671	29.4	-16.2	13.2	40.0	26.8	

--- 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	40.827	35.1	-19.4	15.7	40.0	24.4	
2	737.763	44.3	-6.9	37.4	47.0	9.6	
3	978.948	37.4	-3.5	33.9	47.0	13.1	
4	34.664	43.0	-16.2	26.8	40.0	13.2	
5	964.773	38.7	-3.7	35.0	47.0	12.0	

3.3 Harmonics

Test Information	
Test Engineer	Sung Wook, Choi
Test Date	October 7, 2005
Climate Condition	Ambient Temperature : 23 (EN Limit : 15 ~35) Relative Humidity : 41% (EN Limit : 30%~60%) Atmospheric Pressure 1011 mbar (EN Limit : 860~1060)
Test Place	Harmonic & Flicker Test Room

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
Power Analyzer	PM3000A	Voltech	AU112/9229	2006-08-05	12
Reference Impedance Network	NI2415	ZIMMER	-	N/A	N/A

EUT Test Setup

The EUT was set up in accordance with the requirements of the applied standard.

The power consumption, steady state harmonic currents were measured in the tested operating mode(s).

Test Result

Measurement Results	<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

Product: CCTV CAMERA	2005 Oct 7 2:21pm
Serial no:	Page 1 of 1
Description:	
Result Name: SCC-641P	
Voltech IEC1000-3 Windows Software 3.13.08	Test Date: 2005 Oct 7 1:58pm
Type of Test: Steady State Harmonics Test - Table (1995)	
Power Analyzer: Voltech PM3000A v2.20 s/n 9229	
AC Source: Mains / Manual Source	
Overall Result:	
PASS	

Class	A
Class Multiplier	1
Power	11.5 W

Harmonic	Reading	Limit	Result	Harmonic	Reading	Limit	Result
2	1.67mA	1.080A	N/A	3	75.80mA	2.300A	Pass
4	0.82mA	430mA	N/A	5	52.19mA	1.140A	Pass
6	0.29mA	300mA	N/A	7	7.91mA	770mA	Pass
8	0.04mA	230mA	N/A	9	6.60mA	400mA	Pass
10	0.10mA	184mA	N/A	11	0.97mA	330mA	N/A
12	0.06mA	153mA	N/A	13	3.82mA	210mA	N/A
14	0.03mA	131mA	N/A	15	1.08mA	150mA	N/A
16	0.01mA	115mA	N/A	17	0.75mA	132mA	N/A
18	0.03mA	102mA	N/A	19	0.59mA	118mA	N/A
20	0.02mA	92mA	N/A	21	0.83mA	107mA	N/A
22	0.01mA	84mA	N/A	23	0.40mA	98mA	N/A
24	0.02mA	77mA	N/A	25	0.44mA	90mA	N/A
26	0.00mA	71mA	N/A	27	0.46mA	83mA	N/A
28	0.01mA	66mA	N/A	29	0.23mA	78mA	N/A
30	0.02mA	61mA	N/A	31	0.29mA	73mA	N/A
32	0.01mA	58mA	N/A	33	0.23mA	68mA	N/A
34	0.01mA	54mA	N/A	35	0.23mA	64mA	N/A
36	0.01mA	51mA	N/A	37	0.18mA	61mA	N/A
38	0.01mA	48mA	N/A	39	0.21mA	58mA	N/A
40	0.01mA	46mA	N/A				

This EUT don't need to test. Because the Power of EUT is below 75W.

3.4 Flicker

Test Information	
Test Engineer	Sung Wook, Choi
Test Date	October 7, 2005
Climate Condition	Ambient Temperature : 22 (EN Limit : 15 ~35) Relative Humidity : 41% (EN Limit : 30%~60%) Atmospheric Pressure 1021 mbar (EN Limit : 860~1060)
Test Place	Harmonic & Flicker Test Room

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
Power Analyzer	PM3000A	Voltech	AU112/9229	2006-08-05	12
Reference Impedance Network	NI2415	ZIMMER	-	N/A	N/A

EUT Test Setup

The EUT was set up in accordance with the requirements of the applied standard.

Test Result

Measurement Results	<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

Product: CCTV CAMERA		2005 Oct 7 2:16pm		
Serial no:		Page 1 of 1		
Description:				
Result Name: SCC-641P				
Voltech IEC1000-3 Windows Software 3.13.08		Test Date: 2005 Oct 7 2:01pm		
Type of Test: Flickermeter Test - Table				
Power Analyzer: Voltech PM3000A v2.20 s/n 9229				
AC Source: Mains / Manual Source				
Overall Result:	Notes:			
PASS	Measurement method - Voltage			
	Pst	dc (%)	dmax (%)	d(t) > 3.3%(ms)
Limit	N/A	3.300	6.000	500
Reading 1	N/A	0.024	0.040	0

The measured value of dmax(%) is 0.040.

3.5 ESD

Test Information	
Test Engineer	Sung Wook, Choi
Test Date	September 27, 2005
Climate Condition	Ambient Temperature : 22.5 (EN Limit : 15 ~35) Relative Humidity : 52% (EN Limit : 30%~60%) Atmospheric Pressure 1016 mbar (EN Limit : 860~1060)
Test Place	Shield Room #2

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
ESD Gun	MZ-15	Keytek	504173	2006-03-31	12

EUT Test Setup

The EUT was operated on a wooden table 0.8 meter above the reference ground. A HCP is lying on the table. Between the EUT and the HCP 0.5 mm is isolated base.

Test Result

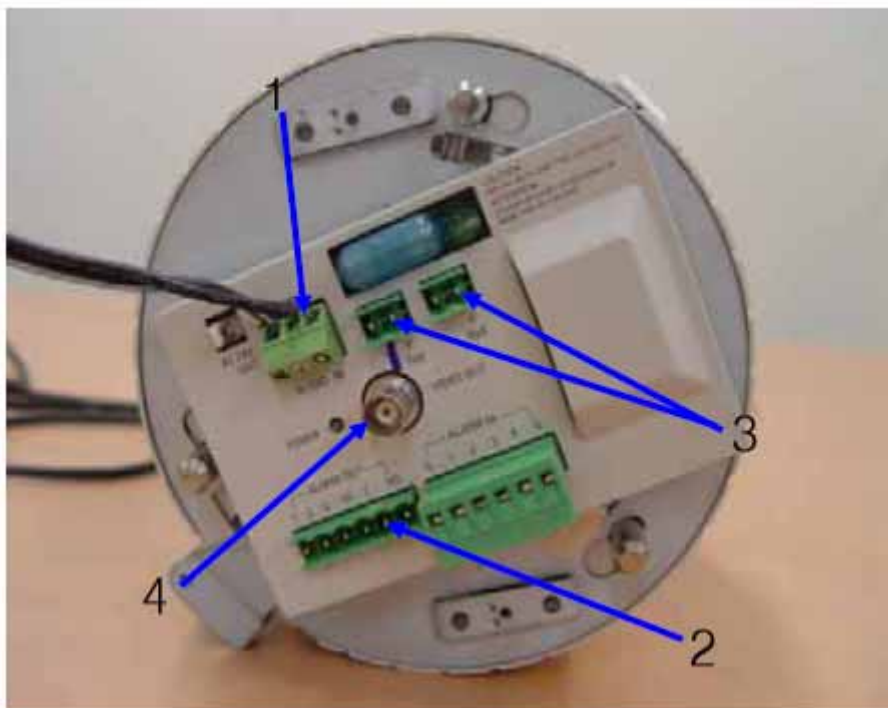
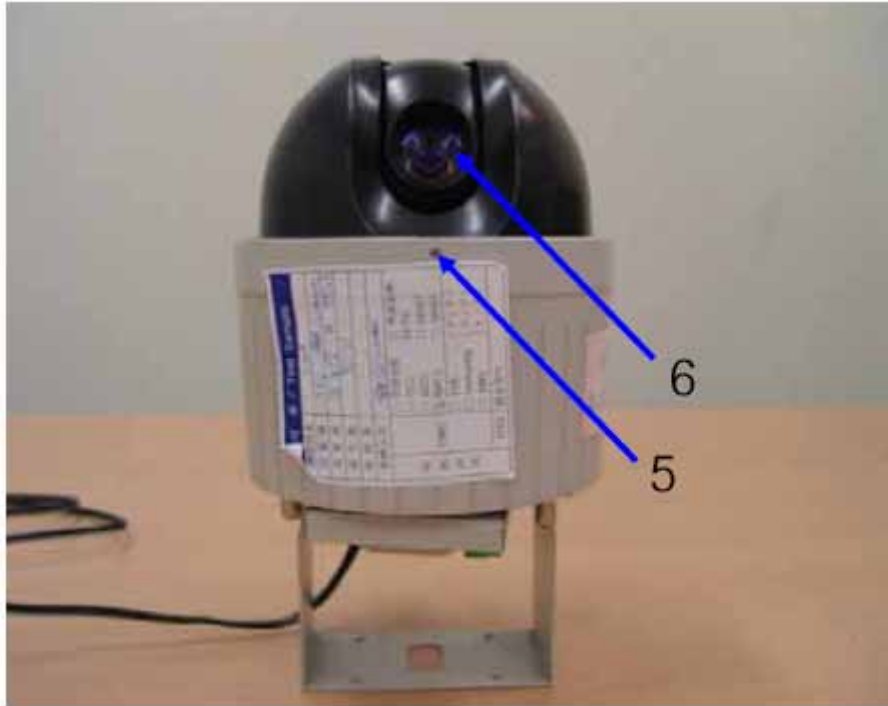
Measurement Results	Pass No Operation errors were detected during or after the applied test.
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Test Data

	No	Applied Point Name	Discharge Method	Test Level	Tested No	Criteria	Result
Indirect		Horizontal Plane	Contact	$\pm 2 \pm 4 \pm 6 \text{ kV}$	150	B	A
Indirect		Vertical Plane	Contact	$\pm 2 \pm 4 \pm 6 \text{ kV}$	300	B	A
Direct	1	Power	Contact	$\pm 2 \pm 4 \pm 6 \text{ kV}$	80	B	A
Direct	2	Alarm Out	Contact	$\pm 2 \pm 4 \pm 6 \text{ kV}$	80	B	A
Direct	3	Txd/Rxd	Contact	$\pm 2 \pm 4 \pm 6 \text{ kV}$	60	B	A
Direct	4	Video Out	Contact	$\pm 2 \pm 4 \pm 6 \text{ kV}$	80	B	B
Direct	5	Screw	Contact	$\pm 2 \pm 4 \pm 6 \text{ kV}$	80	B	A
Direct	6	Lens	Air	$\pm 2 \pm 4 \pm 6 \pm 8 \text{ kV}$	60	B	A

Test Points

FRONT



REAR

3.6 Radiated Immunity

Test Information	
Test Engineer	Sung Wook, Choi
Test Date	September 27, 2005
Climate Condition	Ambient Temperature : 21 (EN Limit : 15 ~35) Relative Humidity : 53% (EN Limit : 30%~60%) Atmospheric Pressure 1015 mbar (EN Limit : 860~1060)
Test Place	Fully Anechoic Chamber

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
Amplifier	AR200W1000M7A	AR	17282	N/A	N/A
Dual Directional Coupler	DCU	R/S	316976/001	2005.11.04	12
Signal Generator	SML03	R/S	101279	2005.11.04	12
RMS/PEAK VOLTMETER	URE3	R/S	839432/032	2005.11.05	12
Power Meter	NRVD	R/S	841501/010	2005.11.05	12
Antenna	AT1080	AR	16511	N/A	N/A

EUT Test Setup

The EUT was operated on a wooden table 0.8 meter above the reference ground. The test distance was 3 meter.

Test Result

Measurement Results	<p>Pass</p> <p>No Operation errors were detected during or after the applied test.</p>
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Test Data

Test Level	Freq. Range	Modulation	Dwell Time	Test Side	Criteria		Result	
					Ver	Hor	Ver	Hor
[V/m]	[MHz]							
10 V/m	80 ~ 1000	PM with 1HZ(0.5s ON: 0.5s OFF)	3 s	Front	C	C	B	B
			3 s	Left	C	C	B	B
			3 s	Back	C	C	B	B
			3 s	Right	C	C	B	B
3 V/m	80 ~ 1000	PM with 1HZ(0.5s ON: 0.5s OFF)	3 s	Front	B	B	B	B
			3 s	Left	B	B	B	B
			3 s	Back	B	B	B	B
			3 s	Right	B	B	B	B
1 V/m	80 ~ 1000	PM with 1HZ(0.5s ON: 0.5s OFF)	3 s	Front	A	A	A	A
			3 s	Left	A	A	A	A
			3 s	Back	A	A	A	A
			3 s	Right	A	A	A	A

Test Level	Freq. Range	Modulation	Dwell Time	Test Side	Criteria		Result	
					Ver	Hor	Ver	Hor
[V/m]	[MHz]							
10 V/m	80 ~ 1000	80% AM @1KHz	3 s	Front	C	C	B	B
			3 s	Left	C	C	B	B
			3 s	Back	C	C	B	B
			3 s	Right	C	C	B	B
3 V/m	80 ~ 1000	80% AM @1KHz	3 s	Front	B	B	B	B
			3 s	Left	B	B	B	B
			3 s	Back	B	B	B	B
			3 s	Right	B	B	B	B
1 V/m	80 ~ 1000	80% AM @1KHz	3 s	Front	A	A	A	A
			3 s	Left	A	A	A	A
			3 s	Back	A	A	A	A
			3 s	Right	A	A	A	A

3.7 EFT

Test Information	
Test Engineer	Sung Wook, Choi
Test Date	September 27, 2005
Climate Condition	Ambient Temperature : 20.5 (EN Limit : 15 ~35) Relative Humidity : 55% (EN Limit : 25%~75%) Atmospheric Pressure 1018 mbar (EN Limit : 860~1060)
Test Place	Shield Room #2

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
Fast Transient / Burst Generator	NSG2025-7	SCHAFFNER	19873	2006-05-17	12
Test Software	WIN2025	SCHAFFNER	Ver. 4.00	N/A	N/A

EUT Test Setup

The EUT was operated on a wooden table 0.8 meter above the reference ground.

Test Result

Measurement Results	Pass No Operation errors were detected during or after the applied test.
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Test Data

Port	Coupling	Test Level		Phase wave shape (kHz)	Polarity	Criteria	Result
		Voltage (kV)	Frequency (kHz)				
AC Port	Live	0.5	5	5/50	+/-	B	B
		1	5	5/50	+/-	B	B
		2	5	5/50	+/-	B	B
	Neutral	0.5	5	5/50	+/-	B	B
		1	5	5/50	+/-	B	B
		2	5	5/50	+/-	B	B
	Live to Neutral	0.5	5	5/50	+/-	B	B
		1	5	5/50	+/-	B	B
		2	5	5/50	+/-	B	B

3.8 Immunity to Surge

Test Information	
Test Engineer	Sung Wook, Choi
Test Date	September 27, 2005
Climate Condition	Ambient Temperature : 22.5 (EN Limit : 15 ~35) Relative Humidity : 52% (EN Limit : 25%~75%) Atmospheric Pressure 1017 mbar (EN Limit : 860~1060)
Test Place	Shield Room #2

Test Equipments

Equipment	Modal Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
High energy Pulse Generator System	NSG2050	SCHAFFNER	200242-148AR	2006-05-25	12
CDN	131	SCHAFFNER	34307	2006-05-25	12
Test Software	WIN2050	SCHAFFNER	Ver. 5.50	N/A	12

EUT Test Setup

The EUT was operated on a wooden table 0.8 meter above the reference ground.

Test Result

Measurement Results	Pass No Operation errors were detected during or after the applied test.
----------------------------	------------------------------------------------------------------------------------

Test Data

Port	Coupling	Test Level			Phase wave shape (μ s)	Polarity	Criteria	Result
		Voltage (kV)	Repetition Time(sec)	No				
AC Port	Live to Neutral	0.5, 1	60	40	1.2/50(8/20)	+/-	B	A

3.9 Conducted Immunity

Test Information	
Test Engineer	Sung Wook, Choi
Test Date	September 28, 2005
Climate Condition	Ambient Temperature : 21.5 (EN Limit : 15 ~35) Relative Humidity : 53 % (EN Limit : 30%~60%) Atmospheric Pressure 1015 mbar (EN Limit : 860~1060)
Test Place	Conducted Immunity Room

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
Amplifier	150A220	AR	17077	N/A	N/A
Dual Directional Coupler	DCU	R/S	316976/001	2005.11.04	12
Signal Generator	SML03	R/S	101279	2005.11.04	12
RMS/PEAK VOLTMETER	URE3	R/S	839432/032	2005.11.05	12
Power Meter	NRVD	R/S	841501/010	2005.11.05	12
Antenna	AT1080	AR	16511	N/A	N/A
CDN	M016	SCHAFFNER	20574	2006.05.21	12
CDN	M016	SCHAFFNER	20573	2006.04.26	12
CDN	M016	SCHAFFNER	20571	2006.04.26	12

EUT Test Setup

The EUT was operated on a wooden table 0.8 meter above the reference ground.

Test Result

Measurement Results	Pass No Operation errors were detected during or after the applied test.
----------------------------	------------------------------------------------------------------------------------

Test Data

Port Coupling	Freq. Range	Level	Dwell Time	Modulation	Coupling	Criteria	Result
AC Mains	0.15~100MHz	10 V	3 s	80% AM @1KHz	CDN	C	B
AC Mains	0.15~100MHz	3 V	3 s	80% AM @1KHz	CDN	B	B
AC Mains	0.15~100MHz	1 V	3 s	80% AM @1KHz	CDN	A	A

Port Coupling	Freq. Range	Level	Dwell Time	Modulation	Coupling	Criteria	Result
AC Mains	0.15~100MHz	10 V	3 s	PM with 1HZ (0.5s ON: 0.5s OFF)	CDN	C	B
AC Mains	0.15~100MHz	3 V	3 s	PM with 1HZ (0.5s ON: 0.5s OFF)	CDN	B	B
AC Mains	0.15~100MHz	1 V	3 s	PM with 1HZ (0.5s ON: 0.5s OFF)	CDN	A	A

3.10 Voltage Dip

Test Information	
Test Engineer	Sung Wook, Choi
Test Date	September 27, 2005
Climate Condition	Ambient Temperature : 22.5 (EN Limit : 15 ~35) Relative Humidity : 51% (EN Limit : 25%~75%) Atmospheric Pressure 1017 mbar (EN Limit : 860~1060)
Test Place	Shield Room #2

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
Test Software	WIN2120	SCHAFFNER	Ver. 2.01	N/A	N/A
Voltage Dip & Interruption	NSG1007	SCHAFFNER	55407	2006-05-17	12
Voltage Dip & Interruption	NSG1007	SCHAFFNER	55408	2006-05-17	12

EUT Test Setup

The EUT was operated on a wooden table 0.8 meter above the reference ground.

Test Result

Measurement Results	Pass No Operation errors were detected during or after the applied test.
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Test Data

Voltage Dips/Interference

Test Voltage		Number of Applications	Time Between Application	Angle (Degrees)	Criteria	Result
Reduction Level	Duration of reduction (s)					
Reduction 60%	0.5 / 1 / 5 / 10	10	10 s	0 / 180	B/C	A
Reduction 100%	0.5 / 1 / 5	10	10 s	0	B/C	A

Mains supply voltage variation

Voltage	Criteria	Result
10% UP	A	A
15% DOWN	A	A

4. Appendix A

4.1 Test Photography



Picture 1. Conducted Emission (Front)



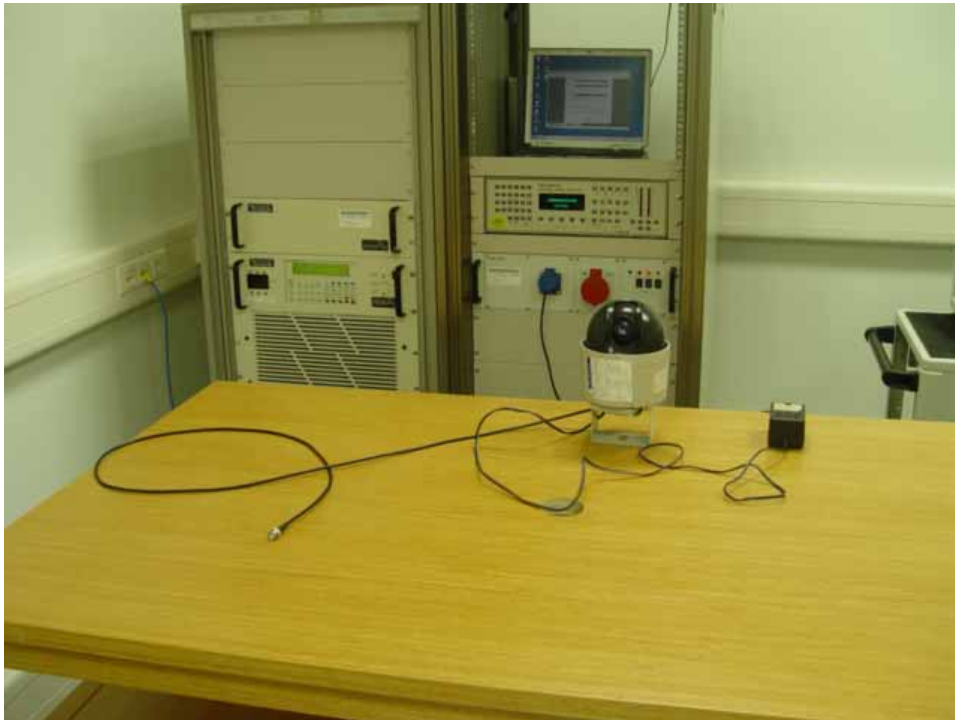
Picture 2. Conducted Emission (Rear)



Picture 3. Radiated Emission (Front)



Picture 4. Radiated Emission (Rear)



Picture 5. Harmonics & Flicker



Picture 6. ESD



Picture 7. Radiated Immunity



Picture 8. EFT



Picture 9. Surge



Picture 10. Conducted Immunity



Picture 11. Voltage Dip

4.2 EUT Photography



Picture 12. EUT (front)



Picture 13. EUT (Rear)