
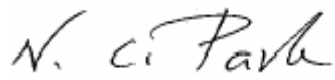


EMC Test Report

Project No.	LBE071132	
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-A2013P	
Manufacturer	Tianhin Samsung Electronics Co., Ltd	
Brand Name	SAMSUNG	
Variant Model	See Page 3	
Date of Test	April 5~15, 2007	
Issued Date	April 30, 2007	

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

	Name/Position	Signature
Tested by	Young Jin, Kim Test Engineer	
Reviewed by	No Cheon, Park Manager of EMC Lab.	

SAMSUNG EMC Laboratory.		
Address	416 Maetan3-Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, Korea, 443-742	
Telephone No.	82-31-277-7746	
Fax No.	82-31-277-7753	

* This report is the test result about the sphere accredited by KOLAS which signed the Mutual Recognition Arrangement of International Laboratory Accreditation Cooperation.

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1. General Information

1.1 Basic Information related Product

Applicant	Samsung Electronics Co., Ltd
Model name	SCC-A2013P
Applicant Address	416 Maetan3- Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, Korea, 443-742
Contact Person	Jei Soon, Kang
Kind of Product	CCTV Camera
Valiant Model List	None
Manufacturer	Tianhin Samsung Electronics Co.,Ltd.

1.2 Detail Information related Product

Specification

Items	SCC-A2013P
Camera Type	1/2" High Resolution Day/Night Camera
Image	Ex-View IT CCD
	1/2" 470K
	795(H) x 596(V)
	752(H) x 582(V)
Scanning	PAL(625 Line, 2:1 Interlace)
	15,625Hz
	15,625Hz
	50Hz
Min. Scene Illumination	Sense Up Off : 0.1 Lux(F1.2, 50 IRE)
	0.072 Lux(F1.2, 30 IRE)
	0.036 Lux(F1.2, 15 IRE)
	Sense Up 128x : 0.0001 Lux(F1.2, 15 IRE)
	Sense Up Off : 0.01 Lux(F1.2, 50 IRE)
	0.0072 Lux(F1.2, 30 IRE)
	0.0036 Lux(F1.2, 15 IRE)
	Sense Up 256x : 0.00001 Lux(F1.2, 15 IRE)
Functions	Off/On(24ea)
	DAY/NIGHT/AUTO/EXT
	Off/On(4EA)
	No
	Off ~ x16
	Off ~ 1/10K sec
	Off ~ x256
	No
	Off/On(Area setting)
	Off/Low/High
	Off/On(Max.1/100K sec)
	Off/On
	No
	Off/On
ATW1/ATW2/AWC/MANUAL	
Resolution	540/570 TV Lines (Color/BW)

	350 Lines
Video Output	VBS 1.0Vp-p(75Ω , composite)
S/N Ratio	50dB
Lens	VIDEO/DC
	C/CS Mount Compatible
OSD	Yes
	E/F/G/S/I, E/R/P
Alarm	No
	Yes(1ea)
Remote Control	Yes(Half)
Environmental Conditions	14°F~122°F(-10℃~50℃)
	Within 90% RH
Power	AC220V~AC240V(50Hz±0.3Hz)
	4W
	Yes
Physical Specification	65(W)x55(H)x130.5(D)mm
	117(W)x103(H)x175(D)
	600g
	720g
	10,560/21,870
	Silver

1.4 Test Configuration

Used EUT and Peripherals

Mark	Item	Model No.	Serial No.	Manufacturer	Note
A	CCTV camera	SCC-A2013P	-	Samsung	EUT

Used Cable Description

No	Connect Cable	Length [m]	Shielded [Y/N]	Remark
1	Power Cable	1.0	NO	-
2	BNC Cable (Video out)	1.0	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 CISPR 16-4 and Lab. 34)

Test Item	Expanded Uncertainty
Radiated Emission	(Hor) $\pm 4.00\text{dB}$ (Ver) $\pm 4.40\text{dB}$
Conducted Emission	$\pm 3.30\text{dB}$

2. Summary of Test Results

Result : Complied

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	Young Jin, Kim
Test Date	April 06, 2007
Climate Condition	Ambient Temperature : 22.4 °C (EN Limit : 15 °C~35 °C) Relative Humidity : 32 % (EN Limit : 30 %~60 %) Atmospheric Pressure 100.8 kPa (EN Limit : 860~1060)
Test Place	Shield Room #1

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
Test Software	EMC 32	R&S	Ver 5.20.0	N/A	N/A
Field strength meter	ESCI	R&S	100369	2006-05-10	12
L.I.S.N (For EUT)	ENV216	R&S	100116	2006-09-01	12
L.I.S.N (For Peripherals)	ESH3-Z5	R&S	100262	2006-08-23	12

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	Complied The measured emissions of the EUT have found to be below the specified limits.
----------------------------	---

Test Data

[Graph and Data]

Test Information

Test Description: SCC-A2013P
Operating Conditions:
Operator Name:
Comment:

Hardware Setup: Voltage with ENV 2-Line-LISN - [EMI conducted]

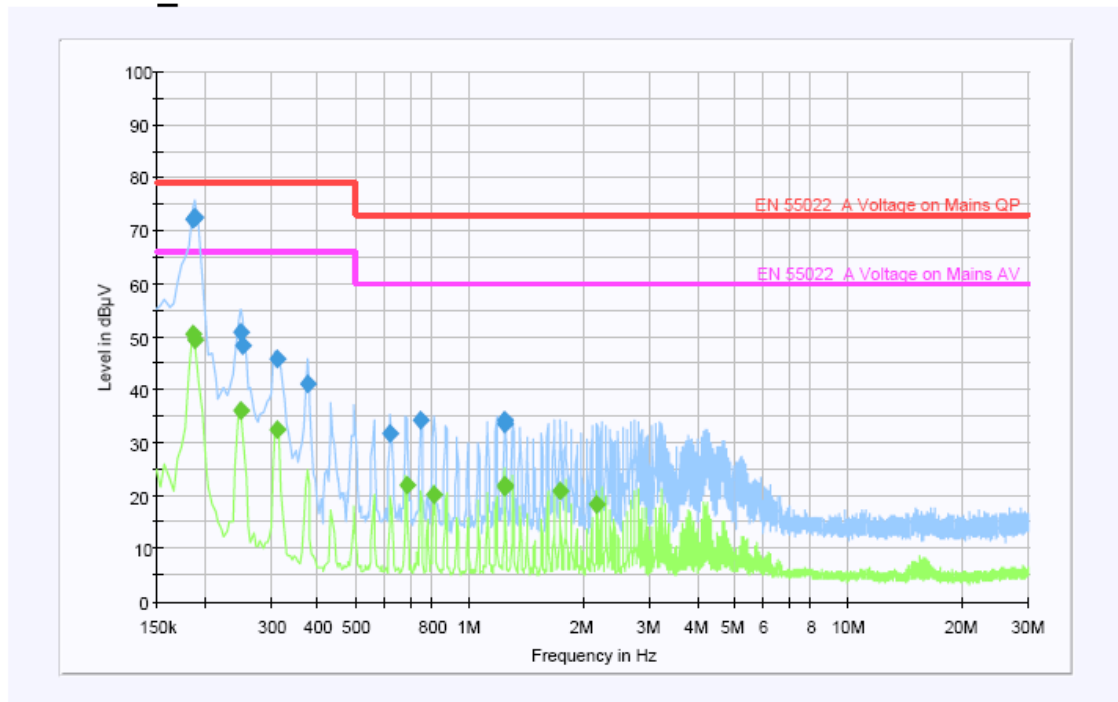
Subrange 1
Frequency Range: 150kHz - 30MHz
Receiver: ESCI 3 [ESCI 3]
@ GPIB0 (ADR 20), SN 100369/003, FW 3.82
Signal Path: Receiver-2-Line-LISN ENV216
FW 1.0
Correction Table: Receiver-2-LISN ENV216
LISN: ENV216
Correction Table (Line 0): ENV216_100116_N
Correction Table (Line 1): ENV216_100116_L

Scan Setup: EN55022_A_ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup: Voltage with ENV 2-Line-LISN
Level Unit: dB μ V

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	QuasiPeak; Average	9kHz	15s	ESCI 3

EN55022_A with ENV 2-Line-LISN



Final Measurement Detector 2

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.186 900	50.4	N	9.6	15.6	66.0
0.188 700	49.5	L1	9.6	16.5	66.0
0.249 700	36.3	N	9.6	29.7	66.0
0.310 500	32.7	L1	9.9	33.3	66.0
0.683 900	21.9	N	9.6	38.1	60.0
0.809 500	20.2	N	9.6	39.8	60.0
1.241 800	22.1	L1	9.7	37.9	60.0
1.242 600	21.7	N	9.6	38.3	60.0
1.737 800	20.9	L1	9.7	39.1	60.0
2.172 200	18.3	N	9.7	41.7	60.0

Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.186 900	72.3	L1	9.6	6.7	79.0
0.188 500	72.6	N	9.6	6.4	79.0
0.249 500	50.8	N	9.6	28.2	79.0
0.253 100	48.5	N	9.6	30.5	79.0
0.310 500	45.7	L1	9.9	33.3	79.0
0.375 300	41.2	N	9.6	37.8	79.0
0.618 900	31.7	L1	9.6	41.3	73.0
0.744 500	34.3	N	9.6	38.7	73.0
1.241 800	34.4	N	9.6	38.6	73.0
1.243 200	33.6	N	9.6	39.4	73.0

3.2 Radiated Emission

Test Information	
Test Engineer	Young Jin, Kim
Test Date	April 05, 2007
Climate Condition	Ambient Temperature : 22.1 °C (EN Limit : 15 °C~35 °C) Relative Humidity : 32 % (EN Limit : 30 %~60 %) Atmospheric Pressure 100.5 kPa (EN Limit : 860~1060)
Test Place	10m Semi Anechoic Chamber #2

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Date	Interval
Bi-con Antenna	CBL6141A	SCHAFFNER	4268	2006-05-24	12
EMI Receiver	ESI26	R&S	100147	2006-06-06	12
AMPLIFIER	310N	SONOMA	251675	2007-03-03	12
Ant Mast	MA4000	Inn-co	-	N/A	N/A
Mast Controller	CO2000	Inn-co	-	N/A	N/A
RF Selector	NS4900	TOYO	-	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>Complied</p> <p>The measured emissions of the EUT have found to be below the specified limits.</p>
----------------------------	--

3.3 Harmonics

Test Information	
Test Engineer	Young Jin, Kim
Test Date	April 10, 2007
Climate Condition	Ambient Temperature : 23.3 °C (EN Limit : 15 °C~35 °C) Relative Humidity : 33 % (EN Limit : 30 %~60 %) Atmospheric Pressure 100.8 kPa (EN Limit : 860~1060)
Test Place	Shield Room #3

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	Complied The measured emissions of the EUT have found to be below the specified limits.
----------------------------	---

Test Data

Product: CCTV CAMERA	2007 Apr 10 1:16pm
Serial no:	Page 1 of 1
Description:	
Result Name: SCC-A2013P	
Voltech IEC1000-3 Windows Software 3.13.08	Test Date: 2007 Apr 27 9:37am
Type of Test: Steady State Harmonics Test - Table (1995)	
Power Analyzer: Voltech PM3000A v2.22 s/n 9229	
AC Source: Mains / Manual Source	
Overall Result:	
PASS	

Class	A
Class Multiplier	1
Power	3.1 W

Harmonic	Reading	Limit	Result	Harmonic	Reading	Limit	Result
2	0.03mA	1.080A	N/A	3	12.64mA	2.300A	Pass
4	0.04mA	430mA	N/A	5	12.21mA	1.140A	Pass
6	0.03mA	300mA	N/A	7	11.60mA	770mA	Pass
8	0.03mA	230mA	N/A	9	10.79mA	400mA	Pass
10	0.03mA	184mA	N/A	11	9.86mA	330mA	Pass
12	0.03mA	153mA	N/A	13	8.82mA	210mA	Pass
14	0.02mA	131mA	N/A	15	7.71mA	150mA	Pass
16	0.02mA	115mA	N/A	17	6.57mA	132mA	Pass
18	0.02mA	102mA	N/A	19	5.46mA	118mA	Pass
20	0.01mA	92mA	N/A	21	4.41mA	107mA	N/A
22	0.02mA	84mA	N/A	23	3.45mA	98mA	N/A
24	0.00mA	77mA	N/A	25	2.64mA	90mA	N/A
26	0.00mA	71mA	N/A	27	1.99mA	83mA	N/A
28	0.01mA	66mA	N/A	29	1.58mA	78mA	N/A
30	0.01mA	61mA	N/A	31	1.38mA	73mA	N/A
32	0.01mA	58mA	N/A	33	1.37mA	68mA	N/A
34	0.01mA	54mA	N/A	35	1.37mA	64mA	N/A
36	0.01mA	51mA	N/A	37	1.37mA	61mA	N/A
38	0.01mA	48mA	N/A	39	1.31mA	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	Young Jin, Kim
Test Date	April 10, 2007
Climate Condition	Ambient Temperature : 23.3 °C (EN Limit : 15 °C~35 °C) Relative Humidity : 33 % (EN Limit : 30 %~60 %) Atmospheric Pressure 100.8 kPa (EN Limit : 860~1060)
Test Place	Shield Room #3

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 is accordance with the requirements of the applied standard.

Test Result

Measurement Results	<p>Complied</p> <p>The measured emissions of the EUT have found to be below the specified limits.</p>
----------------------------	--

Test Data

Product:	CCTV CAMERA	2007 Apr 10 1:12pm
Serial no:		Page 1 of 1
Description:		
Result Name:	SCC-A2013P	
Voltech IEC1000-3 Windows Software 3.13.08		Test Date: 2007 Apr 27 9:39am
Type of Test:	Flickermeter Test - Table	
Power Analyzer:	Voltech PM3000A v2.22 s/n 9229	
AC Source:	Mains / Manual Source	
Overall Result:	Notes:	
PASS	Measurement method - Voltage	

	Pst	dc (%)	dmax (%)	d(t) > 3%(ms)
Limit	1.000	3.000	4.000	200
Reading 1	0.071	0.017	0.040	0

The measured value of dmax(%) is 0.047

3.5 ESD

Test Information	
Test Engineer	Young Jin, Kim
Test Date	April 15, 2006
Climate Condition	Ambient Temperature : 23.2 °C (EN Limit : 15 °C~35 °C) Relative Humidity : 32 % (EN Limit : 30 %~60 %) Atmospheric Pressure 100.8 kPa (EN Limit : 860~1060)
Test Place	Shield Room #3

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Date	Interval (month)
ESD Gun	Minizap	Thermo keytek	0412247	2006-11-21	12
Vertical Plane	VCP-1	Keytek	-	-	-

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	Complied No Operation errors were detected during or after the applied test.
----------------------------	--

Test Data

	No	Applied Point Name	Discharge Method	Test Level	Tested No	Criteria	Result
Indirect		Horizontal Plane	Contact	$\pm 2 \text{ kV} / \pm 4 \text{ kV} /$	40	B	A
Indirect		Vertical Plane	Contact	$\pm 2 \text{ kV} / \pm 4 \text{ kV}$	40	B	A
Direct	1	Control Switch	Air	$\pm 2 \text{ kV} / \pm 4 \text{ kV} \pm 8 \text{ kV}$	60	B	A
Direct	2	Screw	Contact	$\pm 2 \text{ kV} \pm 6 \text{ kV} / \pm 8 \text{ kV}$	60	B	A
Direct	3	Video out	Contact	$\pm 2 \text{ kV} \pm 6 \text{ kV} / \pm 8 \text{ kV}$	60	B	A
Direct	4	Side Plane	Contact	$\pm 2 \text{ kV} \pm 6 \text{ kV} / \pm 8 \text{ kV}$	60	B	A
Direct	5	RS-485	Air	$\pm 2 \text{ kV} / \pm 4 \text{ kV} \pm 8 \text{ kV}$	60	B	A

■ This means Air Discharge

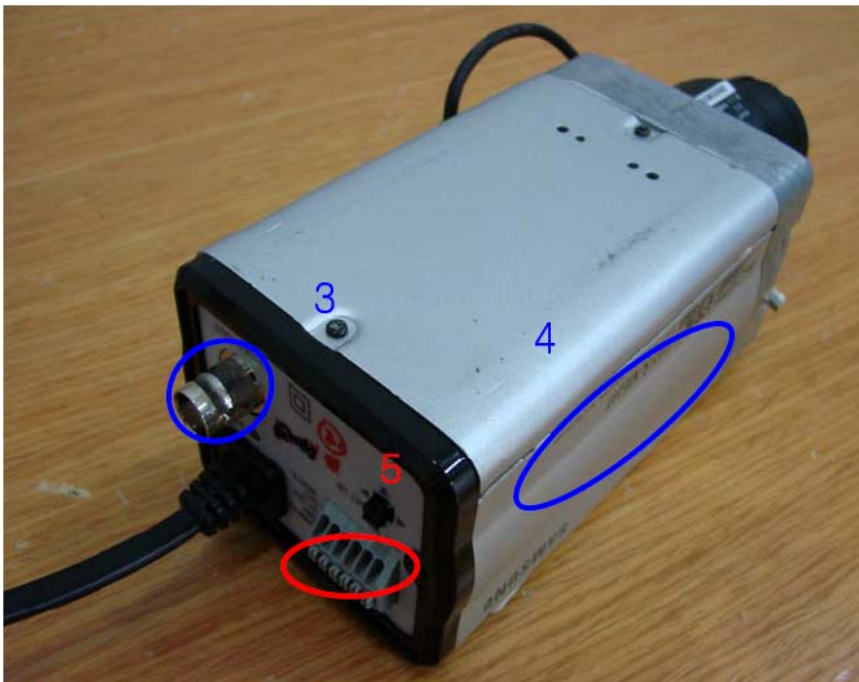
■ This means Contact Discharge

Test Points

[Front]



[Rear]



3.6 Radiated Immunity

Test Information	
Test Engineer	Young Jin, Kim
Test Date	April 14 , 2007
Climate Condition	Ambient Temperature : 30.2℃ (EN Limit : 15 ℃~35 ℃) Relative Humidity : 30 % (EN Limit : 30 %~60 %) Atmospheric Pressure 100.2 kPa (EN Limit : 860~1060)
Test Place	Fully Anechoic Chamber

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Date	Interval (month)
Mast Controller	CO2000	-	inn-co	N/A	N/A
SIGNAL GENERATOR	SML03	102190	R&S	2006-03-17	12
MILLIVOLT METER	URV5	100243	R&S	2006-03-22	N/A
10V INSERTION UNIT	URV5-Z2	100240	R&S	2006-03-22	12
10V INSERTION UNIT	URV5-Z2	100241	R&S	2006-03-22	12
Amplifier	250W1000A	312241	AR	N/A	N/A
Amplifier	60SIG3	311853	AR	N/A	N/A
Antenna	AT1080	310700	AR	N/A	N/A
Antenna Mast	TP1000A	311200	AR	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	Complied No Operation errors were detected during or after the applied test.
----------------------------	--

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 (0.5 s ON: 0.5 s 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 (0.5 s ON: 0.5 s OFF)	2 s	Front	B	B	B	B
			2 s	Left	B	B	B	B
			2 s	Back	B	B	B	B
			2 s	Right	B	B	B	B
1 V/m	80 ~ 1000	PM with 1Hz (0.5 s ON: 0.5 s OFF)	1 s	Front	A	A	A	A
			1 s	Left	A	A	A	A
			1 s	Back	A	A	A	A
			1 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	2 s	Front	B	B	B	B
			2 s	Left	B	B	B	B
			2 s	Back	B	B	B	B
			2 s	Right	B	B	B	B
1 V/m	80 ~ 1000	80% AM @1kHz	1 s	Front	A	A	A	A
			1 s	Left	A	A	A	A
			1 s	Back	A	A	A	A
			1 s	Right	A	A	A	A

3.7 EFT

Test Information	
Test Engineer	Young Jin, Kim
Test Date	April 13, 2007
Climate Condition	Ambient Temperature : 22.6 °C (EN Limit : 15 °C~35 °C) Relative Humidity : 32 % (EN Limit : 25 %~75 %) Atmospheric Pressure 100.4 kPa (EN Limit : 860~1060)
Test Place	Shield Room #2

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Date	Interval
EFT/Burst Test System	PEFT	HAEFELY	152608	2006-05-18	12
3 Phases CDN 690V/100A	FP-EFT 100M	HAEFELY	152635	2006-05-18	12

EUT Test Setup

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

Test Result

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

Test Data

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

3.8 Immunity to Surge

Test Information	
Test Engineer	Young Jin, Kim
Test Date	April 12, 2007
Climate Condition	Ambient Temperature : 23.2 °C (EN Limit : 15 °C~35 °C) Relative Humidity : 32 % (EN Limit : 25 %~75 %) Atmospheric Pressure 100.8 kPa (EN Limit : 860~1060)
Test Place	Shield Room #2

Test Equipments

Equipment	Modal Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
Surge 8000	PSURGE 8000	Haefely	152602	2007-01-26	12
Surge Impulse Module	PIM 100	Haefely	152288	2007-01-26	12
Coupling Decoupling Network	PCD 120	Haefely	148918	2007-01-26	N/A
Coupling Decoupling Network	FP-SURGE 100M	Haefely	152636	2007-01-26	N/A
Impulse Module	PIM 120	Haefely	150663	2007-01-26	N/A

EUT Test Setup

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

Test Result

Measurement Results	Complied 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(s)	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	Young Jin, Kim
Test Date	April 15, 2006
Climate Condition	Ambient Temperature : 27.6°C (EN Limit : 15°C~35°C) Relative Humidity : 28 % (EN Limit : 30 %~60 %) Atmospheric Pressure 100.3 kPa (EN Limit : 860~1060)
Test Place	Shield Room #3

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Date	Interval
RF - Generator	NSG2070	Schaffner	1118	2006-06-07	12
Attenuator	INA2070-1	Schaffner	2118	2007-02-22	12
Coupling Decoupling Network	CDN M016	Schaffner	21246	2006-04-20	12
Test Software	Win 2070	SCHAFFNER	Ver. 5.00	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	Complied No Operation errors were detected during or after the applied test.
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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 (0.5 s ON: 0.5 s OFF)	CDN	C	B
AC Mains	0.15~100MHz	3 V	3 s	PM with 1Hz (0.5 s ON: 0.5 s OFF)	CDN	B	B
AC Mains	0.15~100MHz	1 V	3 s	PM with 1Hz (0.5 s ON: 0.5 s OFF)	CDN	A	A

3.10 Voltage Dip

Test Information	
Test Engineer	Young Jin, Kim
Test Date	April 11, 2007
Climate Condition	Ambient Temperature : 23.1 °C (EN Limit : 15 °C~35 °C) Relative Humidity : 345% (EN Limit : 25 %~75 %) Atmospheric Pressure 100.9 kPa (EN Limit : 860~1060)
Test Place	Shield Room #2

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Date	Interval
Voltage Dip & Interruption	Pline 1610	HAEFELY	083690-21	2006-06-09	12

EUT Test Setup

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

Test Result

Measurement Results	Complied 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	Criteria	Result
Reduction Level	Duration of reduction (s)					
Reduction 30 & 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

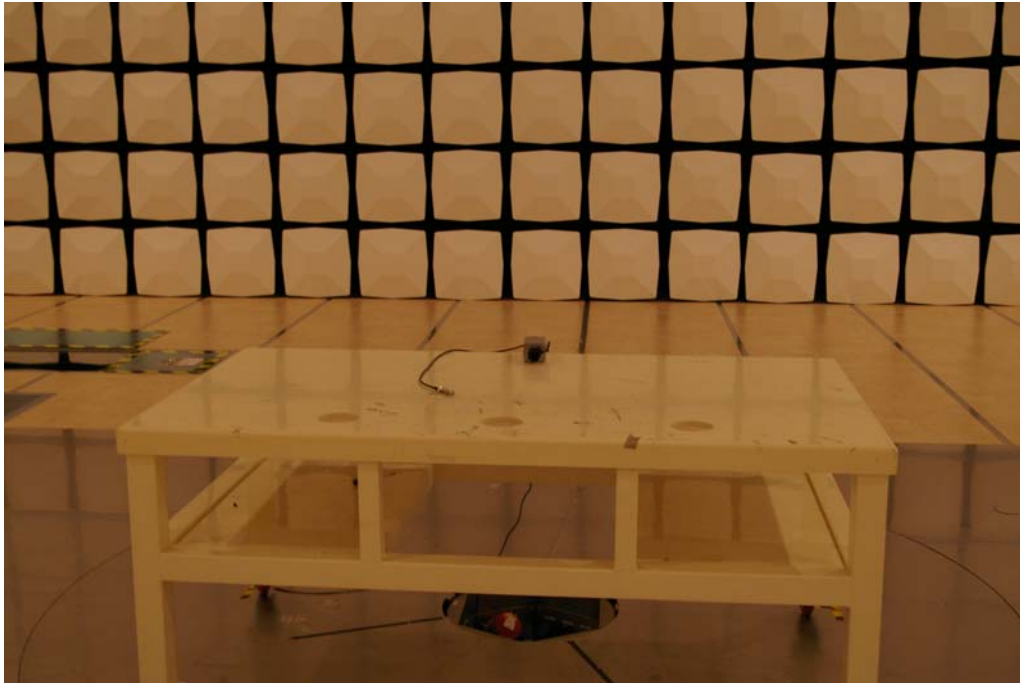
Picture 1. Conducted Emission (Front)



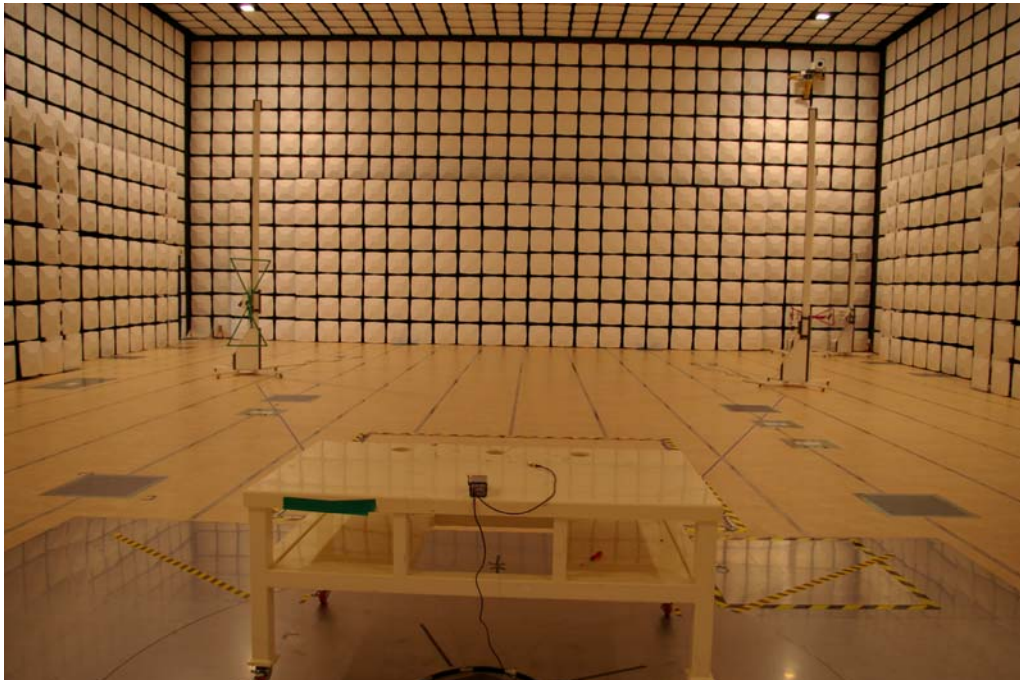
Picture 2. Conducted Emission (Rear)



Picture 3. Radiated Emission (Front)



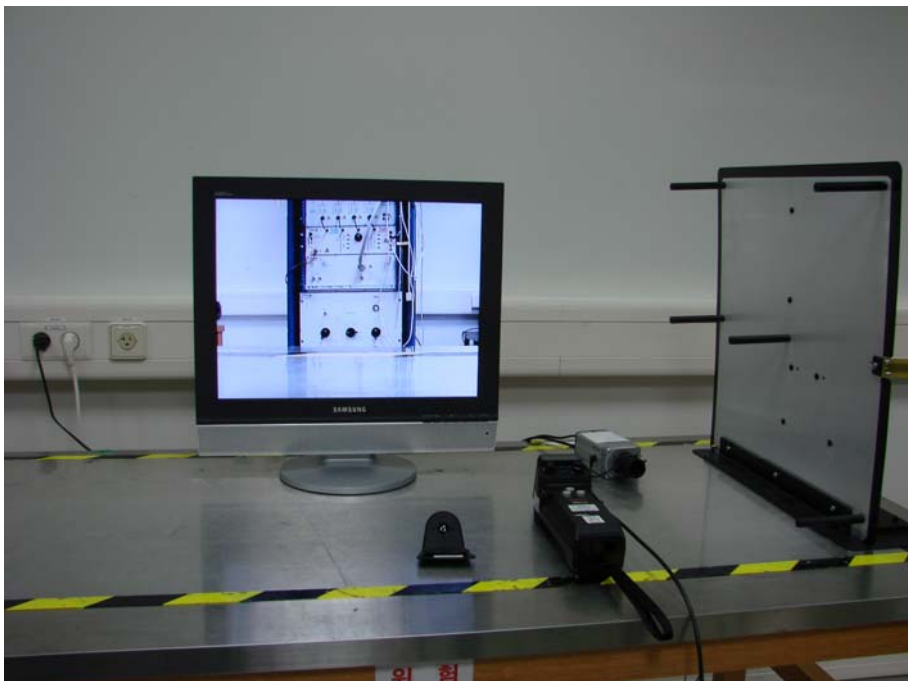
Picture 4. Radiated Emission (Rear)



Picture 5. Harmonics & Flicker



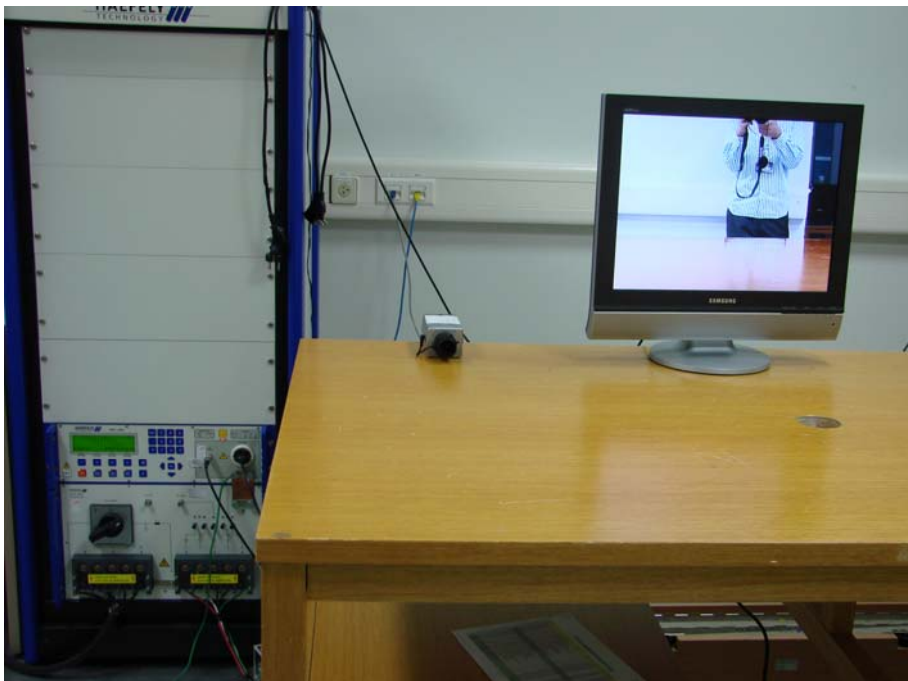
Picture 6. ESD



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

