



Declaration of Conformity



Type of equipment: NETWORK CAMERA
Brand Name /Trade Mark: SAMSUNG TECHWIN CO., LTD.
Type designation /model: SNP-3370THP
Variant Model Name: SNP-3301HP
Applicant: SAMSUNG TECHWIN CO., LTD.

In accordance with the following Directives:

2004/108/EC The Electromagnetic Compatibility Directive

Including amendments by the CE Marking Directive 93/68/EEC

The following harmonized European standards or technical specifications have been applied:

EN 55022:2006	Limits and methods of measurement of radio disturbance characteristics of information technology equipment
EN 50130-4:1995 +A1:1998 +A2:2003	Product family standard: Immunity requirements for components of fire, intruder and social alarm systems
EN 61000-4-2:1995 +A1:1998 +A2:2001	Electrostatic discharge immunity test
EN 61000-4-3:2006	Radiated, radio-frequency, electromagnetic field immunity test
EN 61000-4-4:2004	Electrical fast transient/burst immunity test
EN 61000-4-5:1995+A1:2001	Surge immunity test
EN 61000-4-6:1996+A1:2001	Immunity to conducted disturbances, induced by radio-frequency fields

The CE Marking on the products and/or their packaging signifies that SAMSUNG TECHWIN CO., LTD. holds the reference technical file available to the European Union authorities.

Place and date of issue: #42 Seongju-Dong, Changwon-Shi, Kyungsangnam-Do, Korea
/ May 25, 2010

Authorized Signatory: Name : Kang Min, Kim
Title : Principal Research Engineer
Signature :

Chang Suk Oh
SAMSUNG TECHWIN CO., LTD

EMC TEST REPORT

Test report No: EMC-CE-2123-1
Type of Equipment: NETWORK CAMERA
Model Name: SNP-3370THP
Variant Model Name: SNP-3301HP
Applicant: SAMSUNG TECHWIN CO., LTD.
#42 Seongju-Dong, Changwon-Shi,
Kyungsangnam-Do, Korea
Manufacturer: TIANJIN SAMSUNG TECHWIN OPTP
NO.11 Weiliu Road, Micro-Electronic Industrial
Park Jingang Road Tianjin

Test standards:

EN 55022:2006, Class A, EN 50130-4:1995+A1:1998+A2:2003

Testing Laboratory: EMC Compliance Ltd.

Test result : Complied

This product complies with the requirements of the EMC Directive 2004/108/EC.

The results in this report apply only to the sample tested.

This test report shall not be reproduced, except in full, without the written approval of EMC compliance Laboratory.

Date of receipt: 2010. 05. 06

Date of testing: 2010. 05. 07 ~ 05. 12

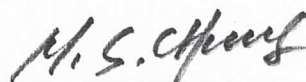
Issued date: 2010. 05. 25

Tested by:



SUNG, KI-MUN

Approved by:



CHUNG, MIN-SEOK

Contents

1. Applicant information	3
2. Laboratory information	4
3. Test system configuration.....	5
3.1 Operation environment	5
3.2 Measurement Uncertainty	6
4. Description of E.U.T.	7
4.1 General information.....	7
4.2 Product description	8
4.3 Auxiliary equipments.....	8
4.4 Test configuration	9
5. Summary of test results.....	10
5.1 Modification to the E.U.T.	10
5.2 Summary of EMI emission test results	10
5.3 Summary of immunity test results	10
5.4 Performance criteria.....	11
6. Test results	13
6.1 Conducted Emission	13
6.2 Radiated Emission	18
6.3 Electrostatic Discharge	22
6.4 Radio Frequency Electromagnetic Fields	26
6.5 Electric Fast Transient/BURST.....	28
6.6 Surge	31
6.7 Conducted Immunity	34
7. E.U.T. photographs.....	37

1. Applicant information

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Manufacturer: TIANJIN SAMSUNG TECHWIN OPTP
Address: NO.11 Weiliu Road, Micro-Electronic Industrial
Park Jingang Road Tianjin

2. Laboratory information

Address

EMC compliance Ltd.

480-5 Sin-dong, Yeongtong-gu, Suwon-city, Gyeonggi-do, 443-390, Korea

Telephone Number: 82 31 336 9919

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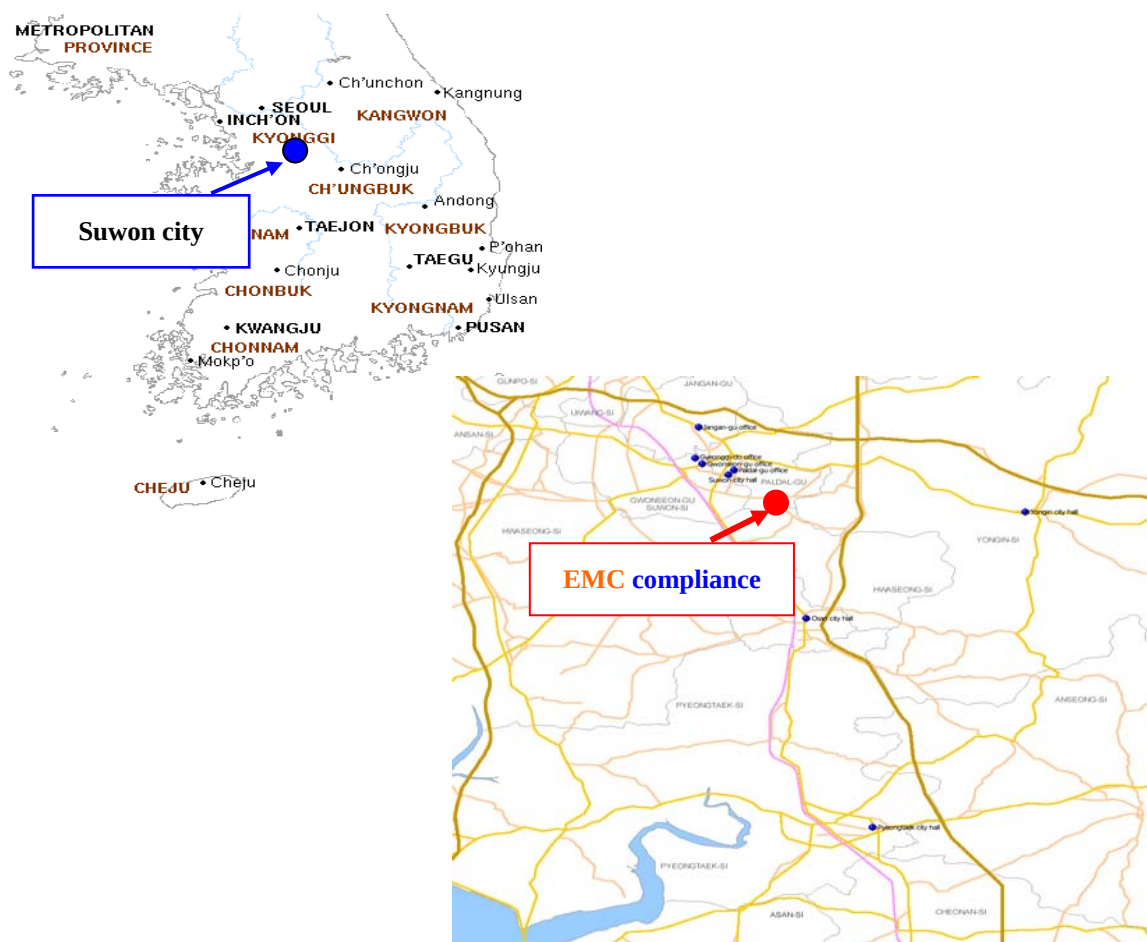
FCC CAB.: KR0040

VCCI Registration No. : C-1713, R-2710

Industry Canada Registration No. : 8035

KOLAS NO.: 231

SITE MAP



3. Test system configuration

3.1 Operation environment

	Temperature	Humidity	Pressure
Chamber(10 m)	: 23 °C	33 % R.H.	-
Shielded room(CE)	: 23 °C	42 % R.H.	-
Shielded room(ESD)	: 23 °C	41 % R.H.	100.5 kPa

Test site

These testing items were performed following locations;

Shielded Room : Conducted Emission
ESD, EFT/Burst, Surge, CS
Chamber (10 m) : Radiated Emission
Fully anechoic chamber (3 m) : RS

3.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC.

The factors contributing to uncertainties are test receiver, cable loss, antenna factor calibration, Antenna directivity, antenna factor variation with height, antenna phase center variation, antenna frequency interpolation, measurement distance variation, site imperfection, mismatch, and system repeatability. Based on CISPR 16-4-2, the measurement uncertainty level with a 95 % confidence level was applied.

Conducted emission measurement : ($k = 2$, 95 %)

9 kHz ~ 150 kHz: ± 3.95 [dB]

150 kHz ~ 30 MHz: ± 3.55 [dB]

Radiated Emission measurement : ($k = 2$, 95 %)

30 MHz ~ 300 MHz: 3 m: ± 4.3 [dB]

10 m: ± 4.3 [dB]

300 MHz ~ 1 000 MHz: 3 m: ± 4.4 [dB]

10 m: ± 4.3 [dB]

Radio Frequency Electromagnetic Fields : ($k = 2$, 95 %)

± 1.09 [dB]

4. Description of E.U.T.

4.1 General information

Image	
Sensor Device	1/4" Vertical Double Density Interline CCD
Progressive Scan	Yes
Horizontal	550 TV Lines
Min. illumination	Color : 0.7 Lux (F1.6, 50 IRE), 0.002Lux (Sens-up, 256X) B/W : 0.03 Lux (F1.2, 50 IRE)
Day/Night	Auto(ICR)/Color/B/W
Wide Dynamic Range	Yes
Digital Image Stabilization	On/Off
Privacy Mask	On/Off (8 Programmable zone)
Video Out	BNC 1 out
Operating Temperature	-50 ° C ~ +50 ° C
IEC Standard	IP66(IEC-60529)
Power Requirement	AC24V, Max. 64W(Heater/Fan ON)
Alarm I/O	4 ea / 2 ea
Storage	SD/SDHC Memory Slot
Video Codec	H.264 / MPEG4 / JPEG Multi Codec Simultaneous Multi Streaming (H.264 / MPEG-4 selectable)
Max Resolution	NTSC : 704x480 (4CIF) PAL : 704x576 (4CIF)
Framerate	Up to 30/25 fps at all Codecs and Resolutions
Audio	G.711
Bi-directional Audio	Yes
Motion Detection	Yes
Intelligent Detection	Auto-tracking
IP	IPv4

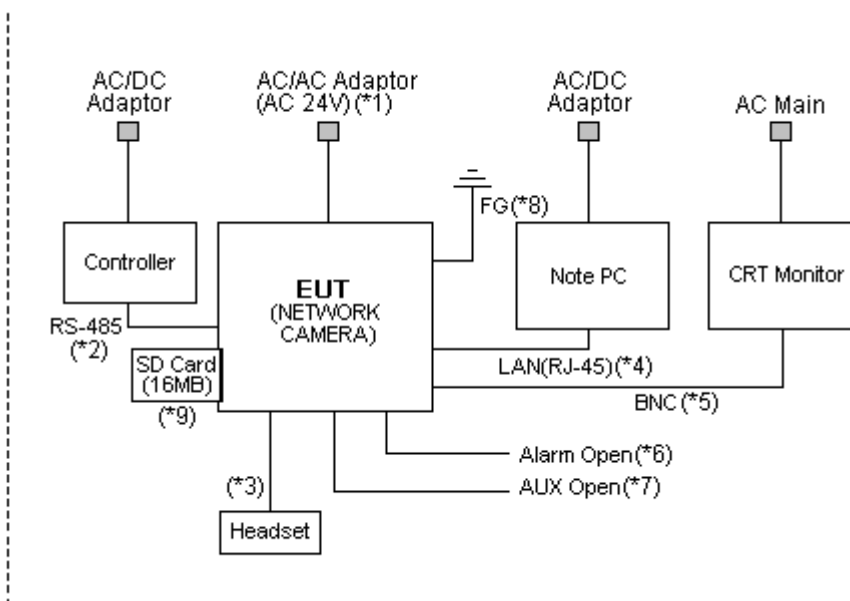
4.2 Product description

Type of product	NETWORK CAMERA
Model name (Basic)	SNP-3370THP
Model name (Variant)	SNP-3301HP
Difference	Buyer model name
Trade name	-
Serial no	Engineering Sample
Testing Voltage	AC 24 V
Product rating	AC 24 V
Note	AC/AC adaptor was not provided by the manufacturer.

4.3 Auxiliary equipments

Type	Model / Part #	Serial number	Manufacturer
Note PC	C1410	463680121002	FUJITSU
Controller	SSC-2000	-	SAMSUNG
CRT Monitor	GCM-1014SA-D	90309991	Honeywell
Headset	SHS-250V	TAKS712885H	SAMSUNG
Adaptor	STA-220	-	SAMSUNG
SD Card	SDC-16M	SU6FA485595	CANNON

4.4 Test configuration



Note	Start		End		Cable		
*	Name	I/O port	Name	I/O port	Length (m)	Spec.	Cable
1	EUT (NETWORK CAMERA)	Power	AC/AC Adaptor	Power	1.8	Non-Shield	-
2		RS-485	Controller	RS-485	3.0	Non-Shield	Out-door
3		Headset	Headset	Headset	2.0	Non-Shield	In-door
4		LAN(RJ-45)	Note PC	LAN(RJ-45)	3.0	Non-Shield	In-door
5		BNC	CRT Monitor	BNC	2.0	Shield	In-door
6		Alarm	Open	-	3.0	Non-Shield	Out-door
7		AUX	Open	-	3.0	Non-Shield	In-door
8		FG	Ground	-	1.8	Non-Shield	In-door
9		SD Card	SD Card	SD Card	Direct	-	In-door

4.5 Operating conditions

The EUT was configured as normal intended use.

Test mode	Normal operation
1	Camera operating mode (Web view)

5. Summary of test results

5.1 Modification to the E.U.T.

None

5.2 Summary of EMI emission test results

Application	Test method	Test result
Conducted emission - Telecommunication (AC 24 V)	EN 55022:2006, Class A	Complied
Radiated emission - AC 24 V	EN 55022:2006, Class A	Complied
Harmonics current	EN 61000-3-2:2006	N/A
Voltage fluctuations and flickers	EN 61000-3-3:1995+A1:2001+A2:2005	N/A

5.3 Summary of immunity test results

Items	Application	Test method	Test result
Electrostatic discharge	Enclosure	EN 61000-4-2:1995+A1+1998+A2:2001	Complied
Radiated RF immunity	Enclosure	EN 61000-4-3:2006	Complied
Electric Fast Transient/BURST	AC 24 V Signal Telecommunication	EN 61000-4-4:2004	Complied
Surge	AC 24 V Signal	EN 61000-4-5:1995+A1:2001	Complied
Conducted RF immunity	AC 24 V Signal Telecommunication	EN 61000-4-6:1996+A1:2001	Complied
Magnetic field immunity	Enclosure	EN 61000-4-8:1993+A1:2001	N/A
Voltage dip/interruption	AC 24 V	EN 61000-4-11:2004	N/A
Voltage variation	AC 24 V	EN 50130-4:2003	N/A

5.4 Performance criteria

The variety and the diversity of the apparatus within the scope of this document makes it difficult to define precise criteria for the evaluation of the immunity test results.

If as a result of the application of the tests defined in this standard, the apparatus becomes dangerous or unsafe then the apparatus shall be deemed to have failed the test. A functional description and a definition of performance by the manufacture and noted in the test report, based on the following criteria:

Electrostatic discharge

There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the application of discharge is permissible, providing which could be interpreted by associated equipment as a change,

Radiated electromagnetic fields

There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the application of discharge is permissible, providing which could be interpreted by associated equipment as a change, and no such Flickering of indicators occurs at a field strength of 3 V/m. For components of CCTV systems, where the picture is allowed at 10 V/m, providing.

- (a) there is no permanent damage or change to EUT (e.g. no corruption of memory or changes to programmable setting etc.)
- (b) at 3 V/m, any deterioration of the picture is so minor that the system could still be used; and
- (c) there is no observable deterioration of the picture at 1 V/m.

Fast transient burst / slow high energy voltage surge

There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the application of discharge is permissible, providing That there is no residual is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as

Conducted RF immunity

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the application of discharge is permissible, providing

That there is no residual is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change, and no such flickering of indicators oeuvres at $U = 130 \text{ dB}\mu\text{V}$.

For component of CCTV systems, where the status is monitored by observing the TV picture, then deterioration of the picture is allowed at $U = 140 \text{ dB}\mu\text{V}$, providing:

- (a) there is no permanent damage or change to the EUT (e.g. no corruption of memory or changes to programmable settings etc.):
- (b) at $U = 130 \text{ dB}\mu\text{V}$, any deterioration of the picture is so minor that the system could still be used; and
- (c) there in no observable deterioration of the picture at $U = 120 \text{ dB}\mu\text{V}$.

Voltage dip/interruption / Voltage variation

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the conditioning is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change. The EUT shall meet the acceptance criteria for the functional test, after the conditioning.

6. Test results

6.1 Conducted Emission

Test specification	EN 55022:2006, Section 5, Class A		
Test mode	Camera operating mode		
Date	2010. 05. 07		
Testing voltage	AC 24 V		
Test facility	Shielded room (CE#2)		
Temperature (°C)	23 °C	Humidity (% R.H.)	42 % R.H.
Remarks	Complied Minimum limit margin is 14.33 dB at 23.130 MHz. (Average)		

6.1.1 Limits of conducted emission measurement

- Telecommunication

Frequency [MHz]	Class A Voltage Limits (dB(μV))		Current Limits (dB(μV))	
	Quasi-Peak	Average	Quasi-Peak	Average
0.15 ~ 0.5	97 to 87	84 to 74	53 to 43	40 to 30
0.5 ~ 30	87	74	43	30

* The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz

* The current and voltage disturbance limits are derived for use with an impedance stabilization Network (ISN) which presents a common mode (asymmetric mode) impedance of 150 Ω to the telecommunication port under test (conversion factor is $20 \log_{10} 150/I = 44$ dB).

6.1.2 Measurement procedure

The measurements were performed in a shielded room. EUT was setup as shown in photograph and placed on a non-metallic table height of 0.8 m above the reference ground plane. The rear of table was located 0.4 m to the vertical conducted plane. EUT was power through the LISN, which was bonded to the ground plane. The LISN power was filtered. Each EUT power lead, except ground (safety) lead was individually connected through a LISN to input power source. EUT signal cables that hung closer than 0.4 m to the Horizontal metal ground 0.3 m ~ 0.4 m long. The power cord was bundles in the center. All peripheral equipment was powered from a sub LISN. The LISN and ISN were positioned 0.8 m from the EUT. Peak and Average detection were used in preliminary testing and Quasi-peak and Average detections were used at final measurement.

6.1.3 Used equipments

Equipment	Model	Serial No.	Makers	Next Cal. Date	Used
Test Receiver	ESHS30	844827/011	R&S	10.08.14	☒
LISN	L3-32	0120J20305	PMM	-	☒
ISN	T800	24314	TESEQ	10.12.03	☒

6.1.4 Photographs of test setup



6.1.5 Conducted emission measurement result

* Telecommunication port

* AC 24 V (LCL 65 dB (LAN Port))

Frequency [MHz]	Correction	Quasi-peak			Average		
	Factor	Limit	Reading	Result	Limit	Reading	Result
	Cable	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]
0.171	0.02	95.91	38.71	38.73	82.91	36.85	36.87
0.657	0.03	87.00	43.14	43.17	74.00	38.71	38.74
1.998	0.04		46.73	46.77		38.69	38.73
16.230	0.09		60.11	60.20		57.86	57.95
18.240	0.09		61.23	61.32		58.75	58.84
19.710	0.10		60.60	60.70		58.11	58.21
21.660	0.10		59.00	59.10		56.86	56.96
23.130	0.10		61.76	61.86		59.57	59.67

• Note. QP = Quasi-Peak, AV= Average.

EUT: SNP-3370THP
Manuf: TIANJIN SAMSUNG TECHWIN OPTP
Op Cond:
Operator: AC 24V
Test Spec: EN55022 Class A Conducted Emission
Comment: Telecommunication port.

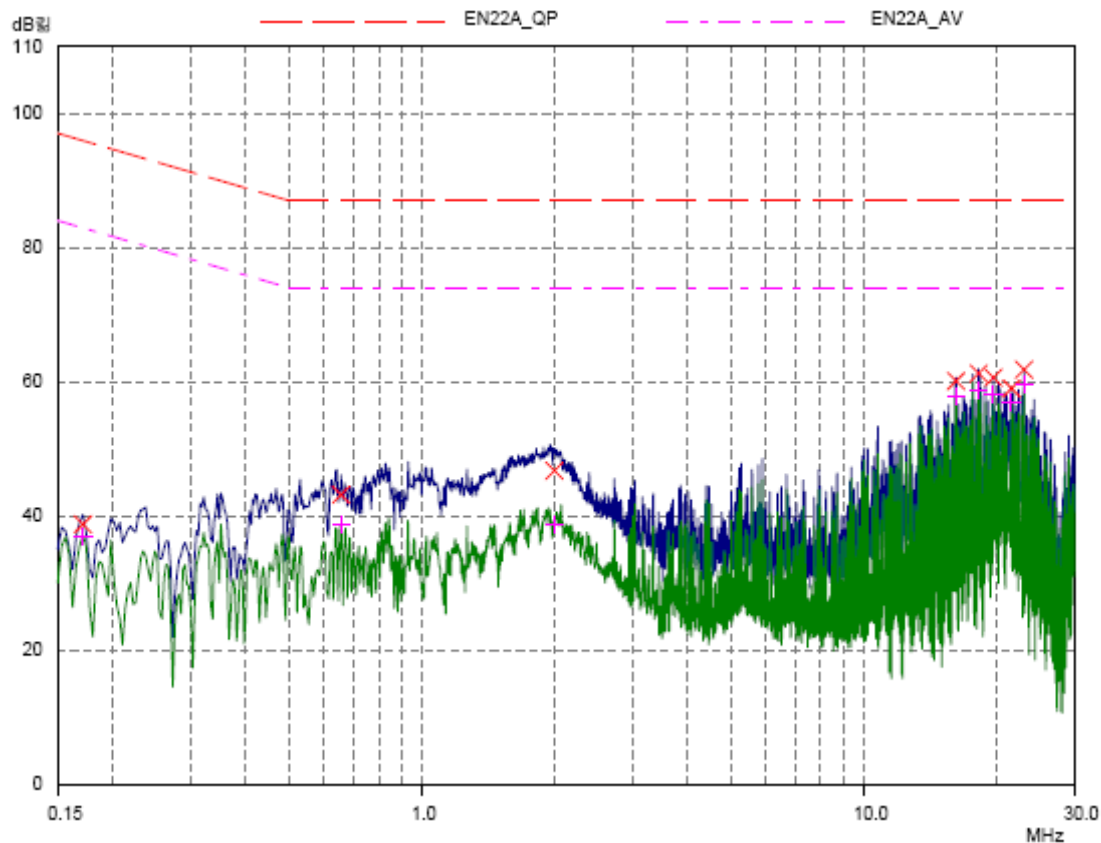
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Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	3MHz	3kHz	10kHz	PK+AV	10msec	Auto	OFF	60dB
3MHz	30MHz	5kHz	10kHz	PK+AV	5msec	Auto	OFF	60dB

Transducer	No.	Start	Stop	Name
	1	10kHz	30MHz	T800

Final Measurement: Detectors: X QP / + AV
Meas Time: 1sec
Peaks: 8
Acc Margin: 25 dB



6.2 Radiated Emission

Test specification	EN 55022:2006 Sections 6, Class A		
Test mode	Camera operating mode		
Date	2010. 05. 07		
Testing voltage	AC 24 V		
Test facility	10 m Chamber		
Temperature (°C)	23 °C	Humidity (% R.H.)	33 % R.H.
Remarks	Complied Minimum limit margin is 3.0 dB at 224.998 MHz.		

6.2.1 Limits of radiated emission measurement

Frequency [MHz]	Class A (dB(μ V/m)) @ 10 m	Class B (dB(μ V/m)) @ 10 m
30-230	40	30
230-1000	47	37

6.2.2 Measurement procedure

The test was done at a 10 m chamber with a quasi-peak detector. EUT was placed on a non-metallic table height of 0.8 m above the reference ground plane. Cables were folded back and forth forming a bundle 0.3 m to 0.4 m long and were hanged at a 0.4 m height to the ground plane.

Cables connected to EUT were fixed to cause maximum emission.

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.

6.2.3 Used equipments

Equipment	Model no.	Serial no.	Makers	Next cal. date	Used
Test Receiver	ESCI	100001	R&S	10.08.19	☒
Bi-Log Antenna	VULB 9168	375	SCHWARZBECK	11.11.30	☒
Amplifier	310N	284608	SONOMA INSTRUMENT	10.07.08	☒
3 dB Attenuator	8491A	16861	HP	11.01.09	☒
Antenna Mast	AM4.0	079/3440509	MATURO	-	☒
Turn Table	CO2000-SOFT	-	MATURO	-	☒

6.2.4 Sample calculation

The field strength is calculated adding the antenna Factor, cable loss and, Antenna pad adding, subtracting the amplifier gain from the measured reading.

The sample calculation is as follow:

$$\text{Result} = \text{M.R} + \text{C.F}(\text{A.F} + \text{C.L} + 3 \text{ dB Att} - \text{A.G})$$

M.R = Meter Reading

C.F = Correction Factor

A.F = Antenna Factor

C.L = Cable Loss

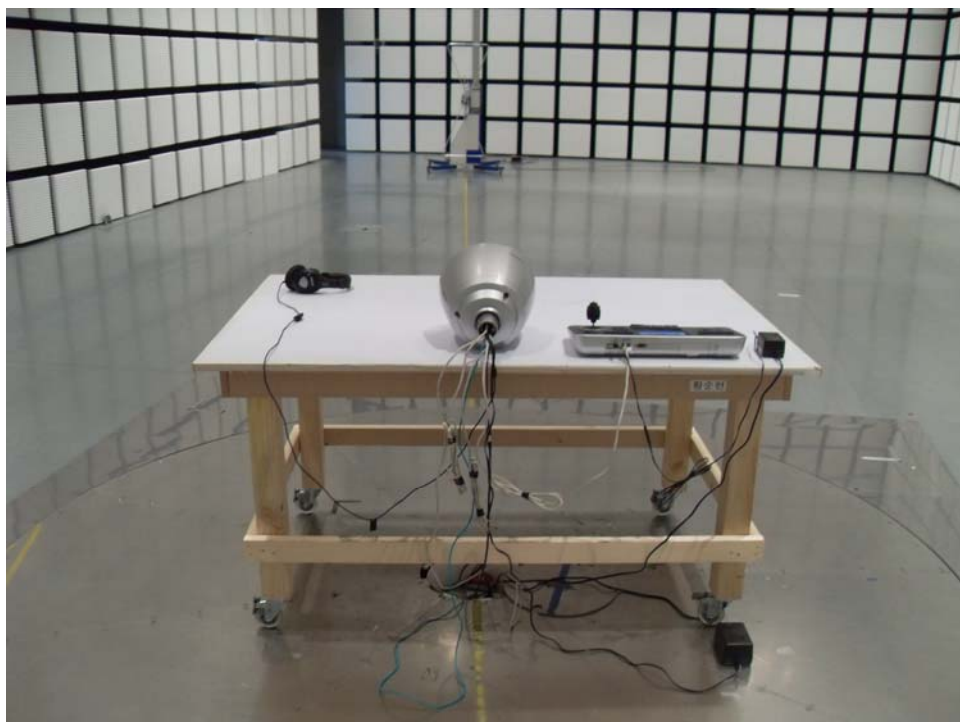
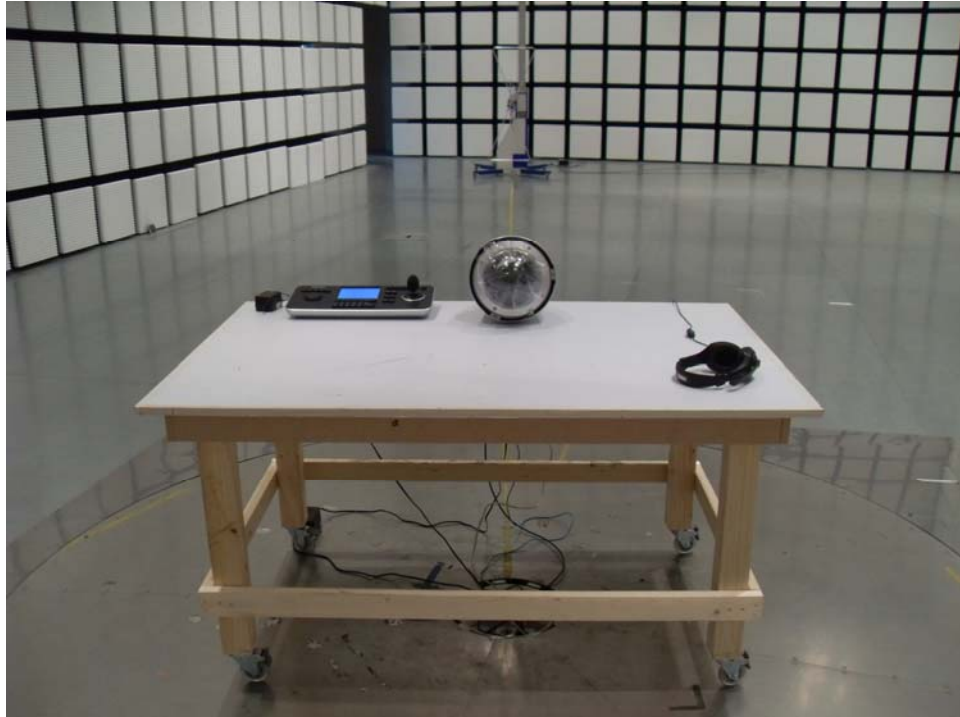
A.G= Amplifier Gain

3 dB Att = 3 dB Attenuator

If M.R is 30 dB, A.F 12 dB, C.L 5 dB, 3 dB, A.G 35 dB

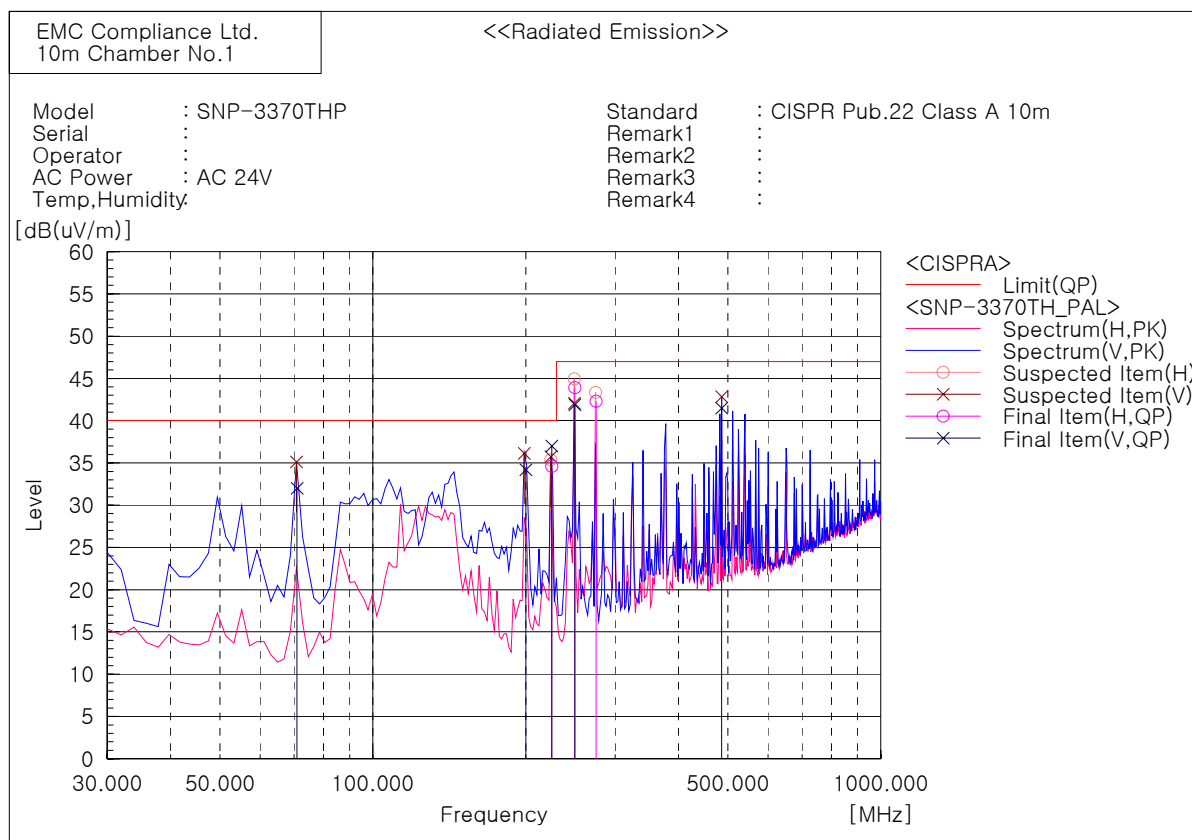
The result is $30 + 12 + 5 + 3 - 35 = 15 \text{ dB}(\mu\text{V/m})$

6.2.5 Photographs of test setup



6.2.6 Radiated emission measurement result

* Graph and Data



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	70.950	V	49.0	-17.0	32.0	40.0	8.0	202.0	184.9
2	224.998	V	51.7	-14.7	37.0	40.0	3.0	100.0	163.9
3	225.004	H	49.3	-14.7	34.6	40.0	5.4	400.0	347.0
4	250.012	H	57.5	-13.6	43.9	47.0	3.1	299.0	318.6
5	250.009	V	55.5	-13.6	41.9	47.0	5.1	100.0	163.9
6	275.004	H	55.0	-12.7	42.3	47.0	4.7	299.0	106.4
7	485.975	V	48.3	-6.8	41.5	47.0	5.5	301.0	218.3
8	200.004	V	50.3	-16.1	34.2	40.0	5.8	100.0	170.7

6.3 Electrostatic Discharge

Test specification	EN 61000-4-2:1995+A1+1998+A2:2001				
Test level	Contact: $\pm 2, 4, 6$ kV Air: $\pm 2, 4, 8$ kV HCP / VCP: $\pm 2, 4, 6$ kV				
Discharge impedance	330 Ω / 150 pF				
Date	2010. 05. 10				
Testing voltage	AC 24 V				
Number of discharge (Each polarity)	10				
Interval between discharges	1 s				
Temperature(°C)	23 °C	Humidity (% R.H.)	41 % R.H.	Pressure (kPa)	100.5 kPa
Remarks	Complied - There was no change of operation status during above testing.				

6.3.1 Measurement procedure

A ground reference plane was located on the floor, and connected to earth via a low Impedance connection. The return cable of the ESD generator was connected to the reference plane. In case of floor standing equipment, EUT was placed on the reference plane on 0.1 m of insulating Support. In case of table top equipment, EUT was placed on a wooden table 0.8 m above the reference grounded floor. A horizontal coupling plane (HCP) was placed on the table, and Connected to the reference plane via a 470 k Ω resistor located in each end (0.5 mm insulating support between EUT and HCP). In both cases a vertical coupling plane(VCP) OF 0.5 X 0.5 m was located 0.1 m from the EUT's sides. The VCP was connected to the reference plane in the same matter as the HCP.

6.3.2 Used equipments

Equipment	Model No.	Serial No.	Makers	Next Cal. Date	Used
ESD Tester	NSG 437	182	TESEQ	10.05.14	☒
HCP	-	-	-	-	☒
VCP	-	-	-	-	☒

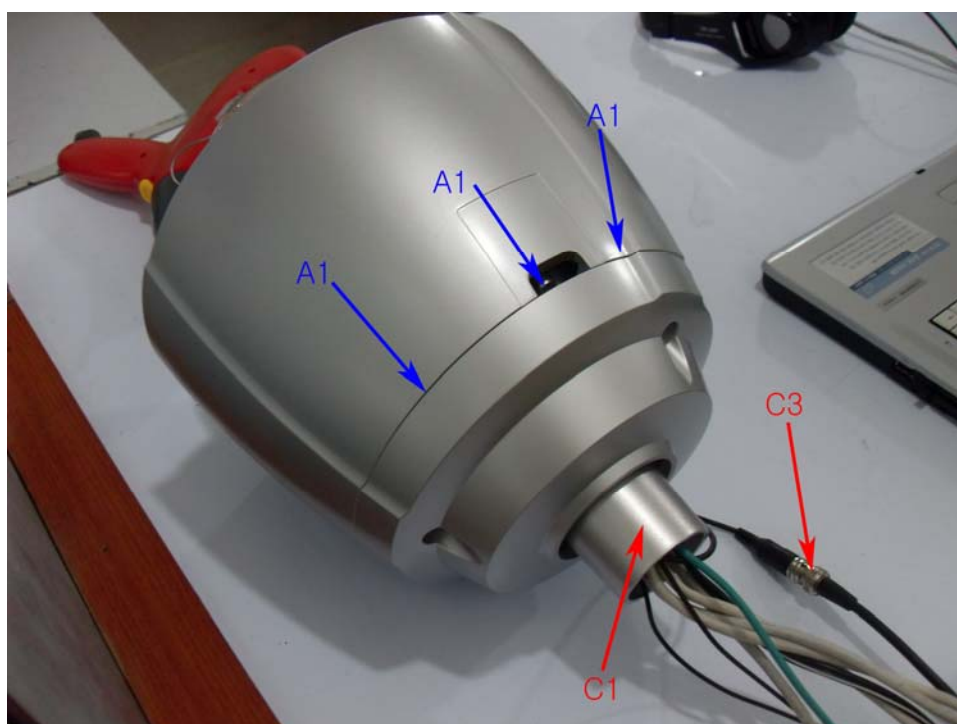
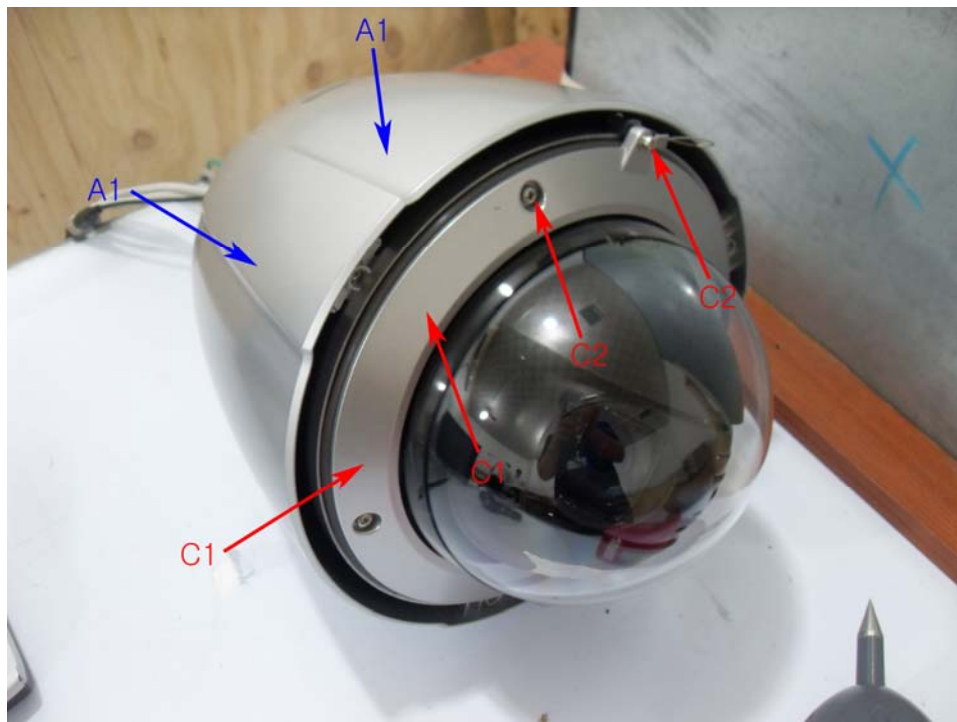
6.3.3 Photographs of test setup



6.3.4 Measurement result

Electrostatic Discharge (Test Point)

Air discharge	
Contact discharge	



Contact discharge

Location(EUT)		Applied level (±)	Result
C1	Enclosure	± 2, 4, 6 kV	Complied
C2	Screw	± 2, 4, 6 kV	Complied
C3	BNC Port	± 2, 4, 6 kV	Complied
	HCP (All 4 sides)	± 2, 4, 6 kV	Complied
	VCP (All 4 sides)	± 2, 4, 6 kV	Complied

Air discharge

Location(EUT)		Applied level (±)	Result
A1	Enclosure	± 2, 4, 8 kV	Complied

6.4 Radio Frequency Electromagnetic Fields

Test specification	EN 61000-4-3:2006				
Tested frequency	80 MHz ~ 1 GHz, 1 GHz ~ 2 GHz log 1 % step				
Test level & Modulation	1, 3, 10 V/m, 80 % Amplitude Modulation (1 kHz) 1, 3, 10 V/m, Pulse Modulation (1 Hz (0.5 s ON: 0.5 s OFF))				
Distance	3 m from EUT to tip of antenna				
Dwell time	3 s				
Step size	log 1 % step				
Testing voltage	AC 24 V				
Date	2010. 05. 11				
Temperature(°C)	24 °C	Humidity (% R.H.)	33 % R.H.	Pressure (kPa)	101.0 kPa
Remarks	Complied - There was no change of operation status during above testing.				

6.4.1 Measurement procedure

The test was performed at 3 m full anechoic chamber.

For floor standing equipment, the EUT was standing on the floor.

For tabletop equipment, the EUT was located on a wooden table 0.8 above the floor.

The EUT was tested all sides, horizontal and vertical polarization.

6.4.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Power meter	PM2002	302852	AR	11.04.19	☒
Power sensor	PH2000	303224	AR	11.04.16	☒
Power sensor	PH2000	303222	AR	11.04.16	☒
Directional coupler	DC6180	303976	AR	11.04.16	☒
Directional coupler	DC7144M1	320279	AR	11.02.22	☒
Signal generator	E4421B	GB40052295	AGILENT	10.10.26	☒
Amplifier	150W1000M2	303843	AR	11.04.19	☒
Amplifier	60S1G3M2	320444	AR	11.04.19	☒
Broadband Ant.	LPDA-0803	130269	ETS	-	☒
Field monitor	SI-300	-	TDK	-	☒
Antenna master	-	-	ETS	-	☒

6.4.3 Photographs of test setup



6.4.4 Measurement result

Location(EUT)	Antenna polarization	Result
Front side	Horizontal	Complied
	Vertical	Complied
Rear side	Horizontal	Complied
	Vertical	Complied
Left side	Horizontal	Complied
	Vertical	Complied
Right side	Horizontal	Complied
	Vertical	Complied

6.5 Electric Fast Transient/BURST

Test specification	EN 61000-4-4:2004				
Coupling	AC 24 V, Signal: Clamp Telecommunication : Clamp				
Test level	AC 24 V, Signal: ± 1 kV Telecommunication : ± 1 kV				
Repetition frequency	5 kHz, Tr/Th = 5 / 50 ns				
Coupling time	60 s				
Testing Voltage	AC 24 V				
Date	2010. 05. 10				
Temperature(°C)	25 °C	Humidity (% R.H.)	34 % R.H.	Pressure (kPa)	100.3 kPa
Remarks	Complied - There was no change of operation status during above testing.				

6.5.1 Measurement procedure

A ground reference plane was located on the floor.

EFT generator was connected to reference ground plane via low impedance connection.

For floor standing equipment, EUT was placed on a 0.1 m wooden table.

For tabletop equipment, EUT was placed on a 0.1 m above the ground reference plane.

Test generator and coupling/decoupling network was placed on, and bounded to, the ground reference plane. When using the coupling clamp, the minimum distance between the coupling plates and all other conductive surfaces, except the ground reference plane beneath the coupling clamp, Shall be 0.5 m.

6.5.2 Used equipments

Equipment	Model No.	Serial No.	Makers	Next Cal. date	Used
Generator	UCS 500 M6	0701-03	EM TEST	10.06.05	☒
Capacitive Coupling Clamp	-	-	EM TEST	-	☒

6.5.3 Photographs of test setup



6.5.4 Measurement result

* AC Line

EFT coupling point	(+)	(-)	Result
AC 24 V	+ 1 kV	- 1 kV	Complied

* Signal (AC 24 V)

EFT coupling point	(+)	(-)	Result
Alarm	+ 1 kV	- 1 kV	Complied
AUX	+ 1 kV	- 1 kV	Complied
RS-485	+ 1 kV	- 1 kV	Complied

* Telecommunication (AC 24 V)

EFT coupling point	(+)	(-)	Result
LAN	+ 1 kV	- 1 kV	Complied

6.6 Surge

Test specification	EN 61000-4-5:1995+A1:2001				
Coupling	AC 24 V, Signal: CDN				
Test level	AC 24 V, Signal: $\pm 0.5, 1$ kV				
Surge pulse shape	$Tr/Th = 1.2 / 50 \mu s$				
Coupling Impedance	AC 24 V, Signal: 40Ω				
Number of surge / Coupling time	5 / 1 min				
Testing Voltage	AC 24 V				
Date	2010. 05. 10				
Temperature(°C)	25 °C	Humidity (% R.H)	34 % R.H	Pressure(kPa)	100.3 kPa
Remarks	Complied - There was no change of operation status during above testing.				

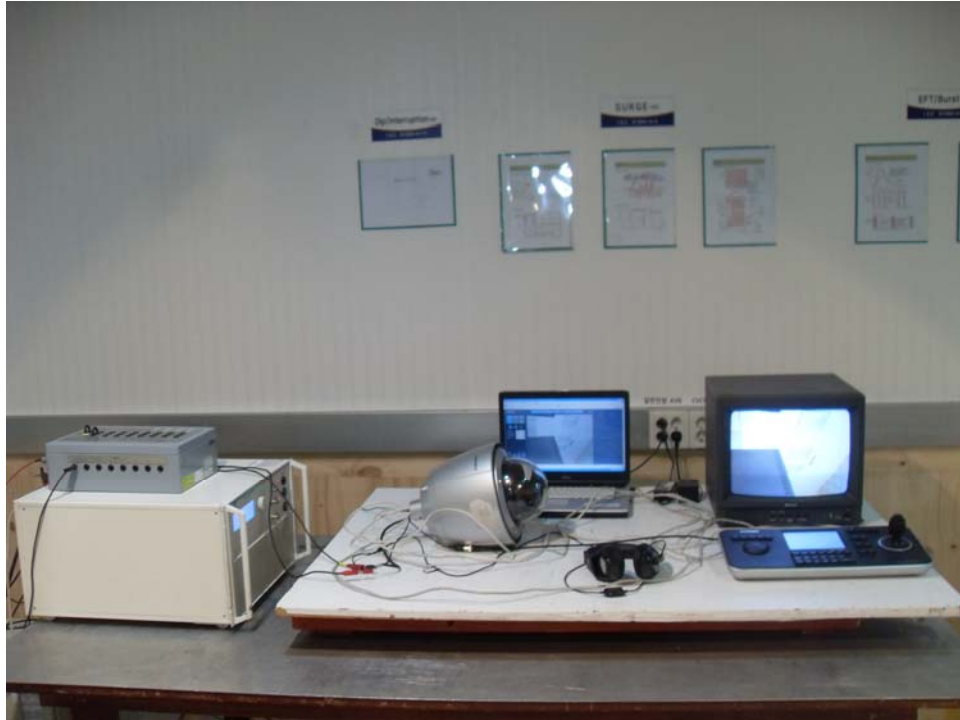
6.6.1 Measurement procedure

A ground reference plane was located on the floor. SURGE generator was connected to reference ground plane via low impedance connection. For floor standing equipment & table top equipment, EUT was placed on a wooden table.

6.6.2 Used equipments

Equipment	Model No.	Serial No.	Makers	Next Cal. Date	Used
Generator	UCS 500 M6	0701-03	EM TEST	10.06.05	☒
CDN	CNV 508 S1	0302-01	EM TEST	-	☒

6.6.3 Photographs of test setup



6.6.4 Measurement result

* AC Line

Coupling point	(+)	(-)	Result
AC 24 V	+ 0.5, 1 kV	- 0.5, 1 kV	Complied

* Signal (AC 24 V)

Coupling point	(+)	(-)	Result
Alarm	+ 0.5, 1 kV	- 0.5, 1 kV	Complied
RS-485	+ 0.5, 1 kV	- 0.5, 1 kV	Complied

6.7 Conducted Immunity

Test specification	EN 61000-4-6:1996+A1:2001				
Tested frequency	150 kHz ~ 100 MHz log 1 % step				
Test level & Modulation	1, 3, 10 V, 80 % Amplitude Modulation (1 kHz) 1, 3, 10 V, Pulse Modulation (1 Hz (0.5 s ON: 0.5 s OFF))				
Coupling method	AC 24 V : M2 Signal: Clamp Telecommunication: Clamp				
Testing Voltage	AC 24 V				
Date	2010. 05. 12				
Temperature(°C)	25 °C	Humidity (% R.H)	33 % R.H	Pressure(kPa)	101.0 kPa
Remarks	Complied - There was no change of operation status during above testing.				

6.7.1 Measurement procedure

A ground reference plane was located on the floor.

The test was performed on a ground reference plane on a 0.1 m wooden table.

This test were performed using CDN for mains, clamp for signal and injection probe.

The frequency range was swept from 150 kHz to 100 MHz. This frequency range was Modulated with 1 kHz sine wave at 80 %.

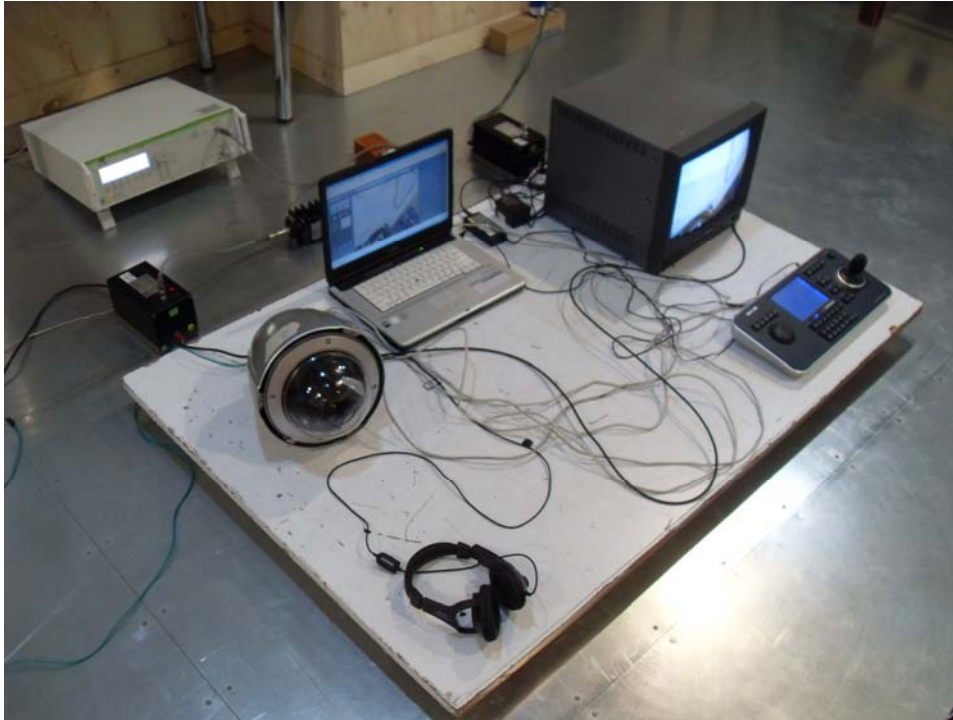
The signal generators provided the modulated frequency at a 1 % step size.

The power and all network cable, I/O cables longer than 3 m length were tested.

6.7.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
CS generator	CWS 500 C S1	V0635101750	EM TEST	10.10.16	☒
CDN	CDN M2/M3	0906-12	EM TEST	10.10.16	☒
CDN	CDN M3-32A	0506-29	EM TEST	11.02.10	☒
Attenuator	73-6-34	MU918	MCE/WEINSCHEL	11.02.09	☒
EM Clamp	KEMZ 801	17643	Schaffner	11.04.19	☒
Current probe	MD720	W1345167 /M6/0068	Schaffner	-	☐

6.6.3 Photographs of test setup



6.6.4 Measurement result

* AC Line

Coupling point	Coupling method	Result
AC 24 V	CDN (M2)	Complied

* Signal (AC 24 V)

Coupling point	Coupling method	Result
Alarm	Clamp	Complied
AUX	Clamp	Complied
RS-485	Clamp	Complied

* Telecommunication (AC 24 V)

Coupling point	Coupling method	Result
LAN	Clamp	Complied

7. E.U.T. photographs

Front View



Rear View



Left View



Right View



Top View



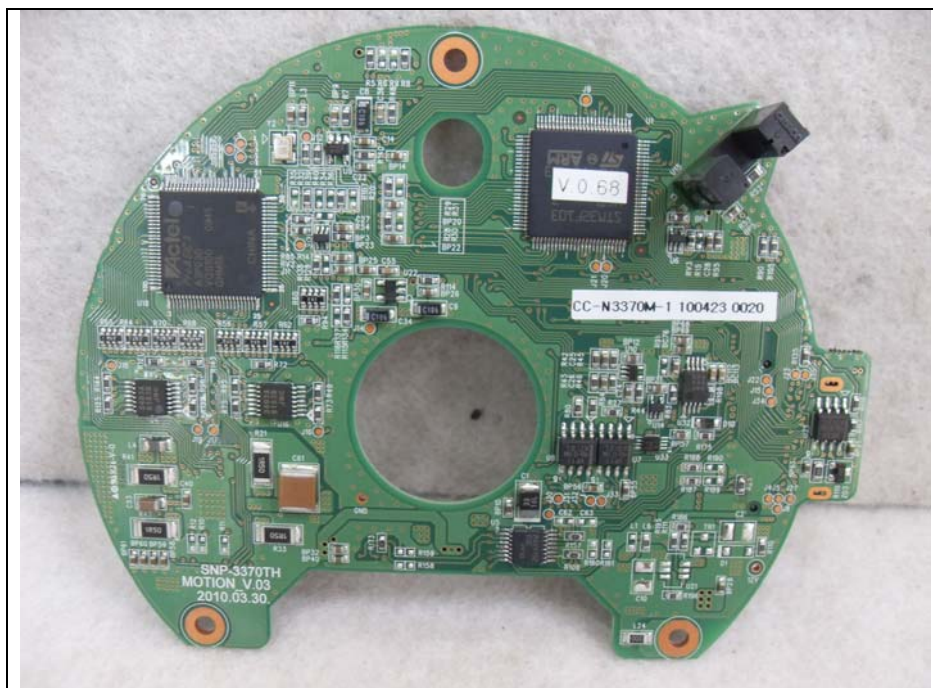
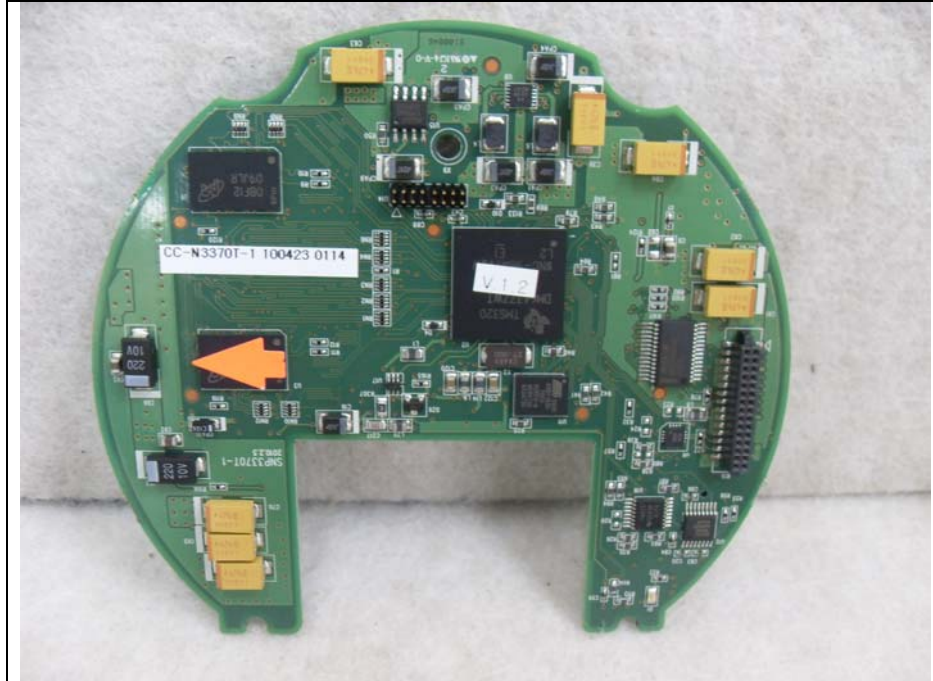
Bottom View



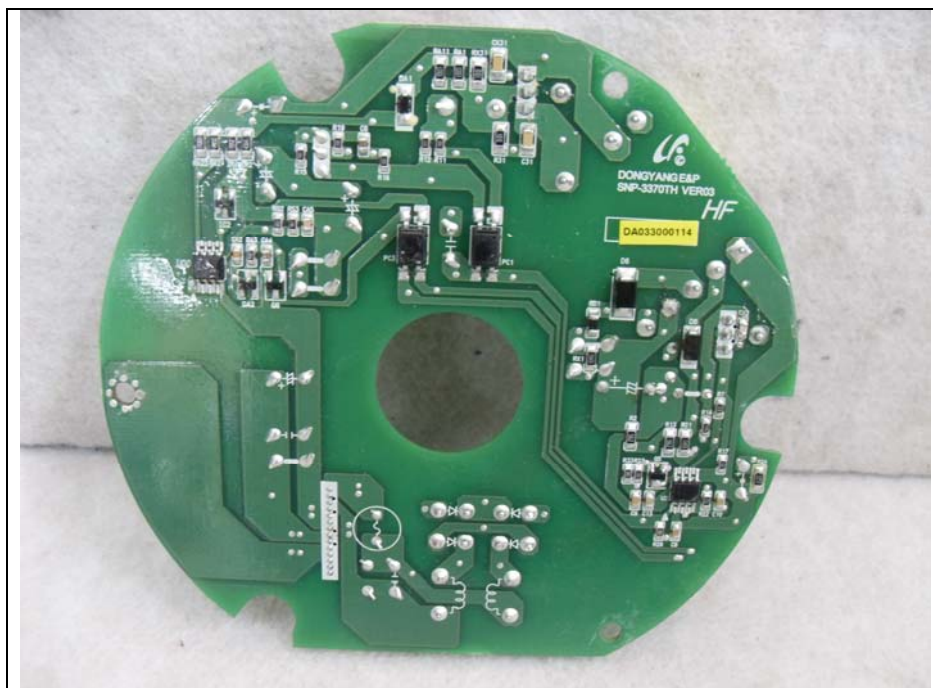
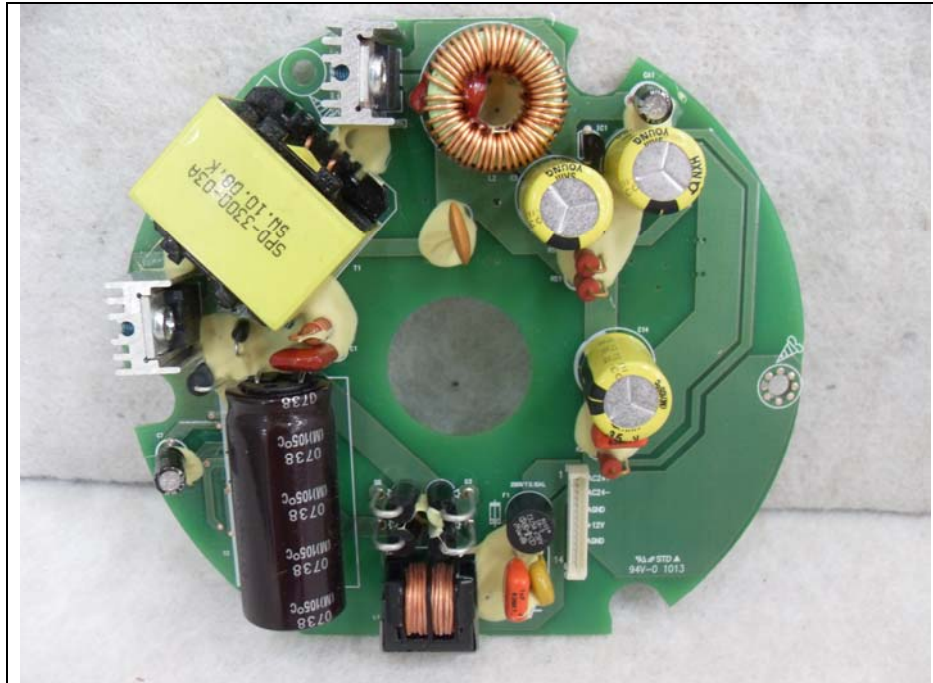
Inside



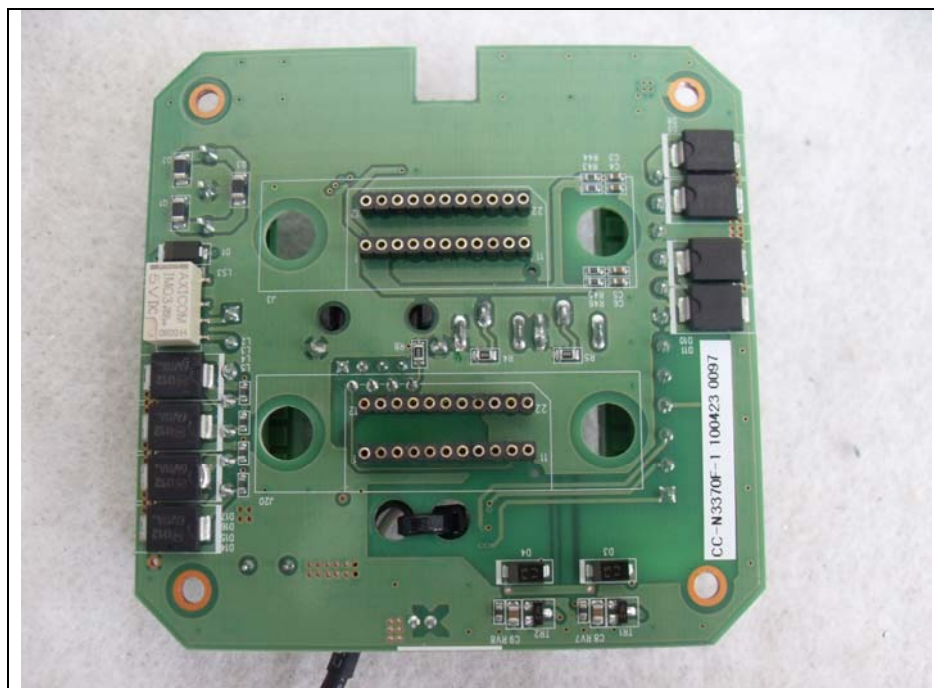
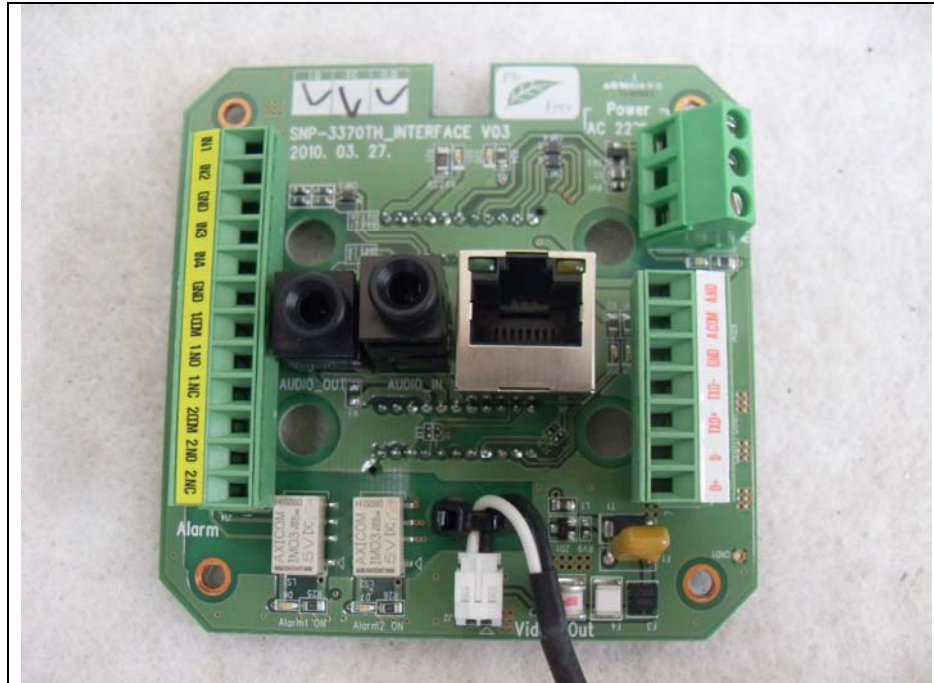
Main Board



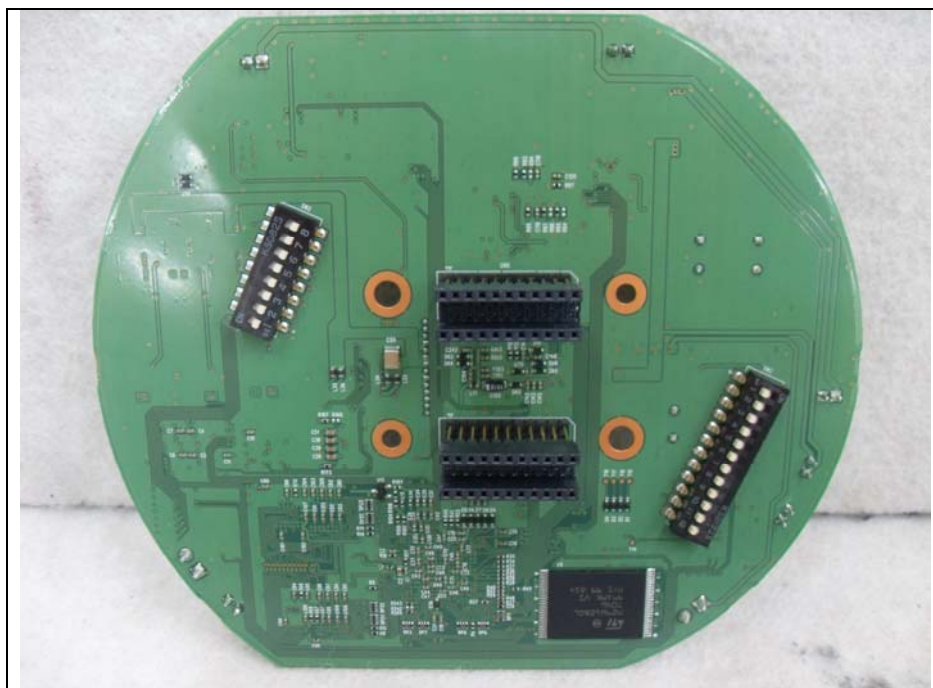
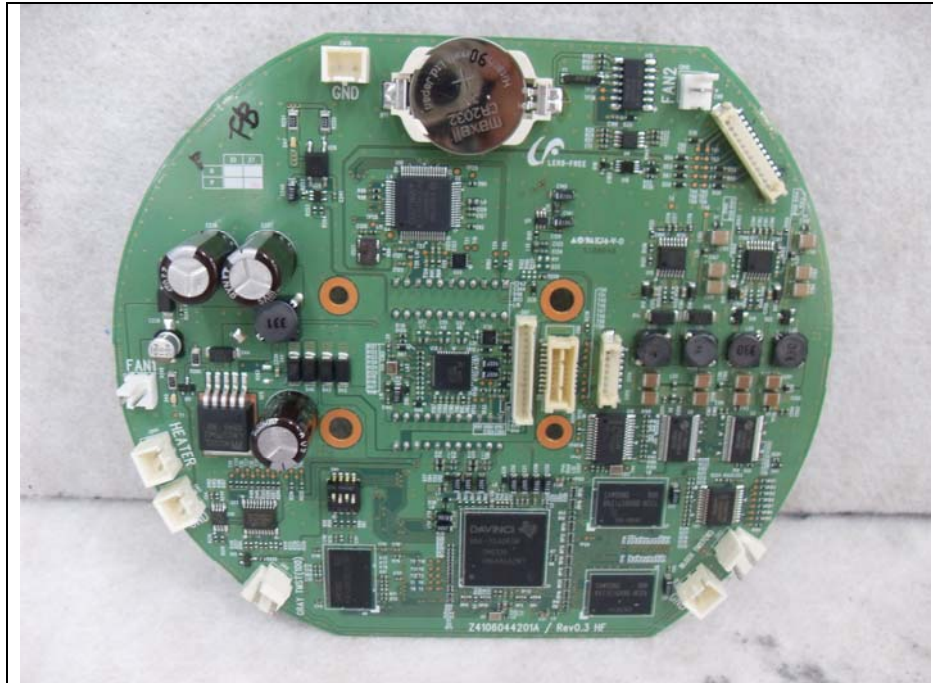
SMPS Board



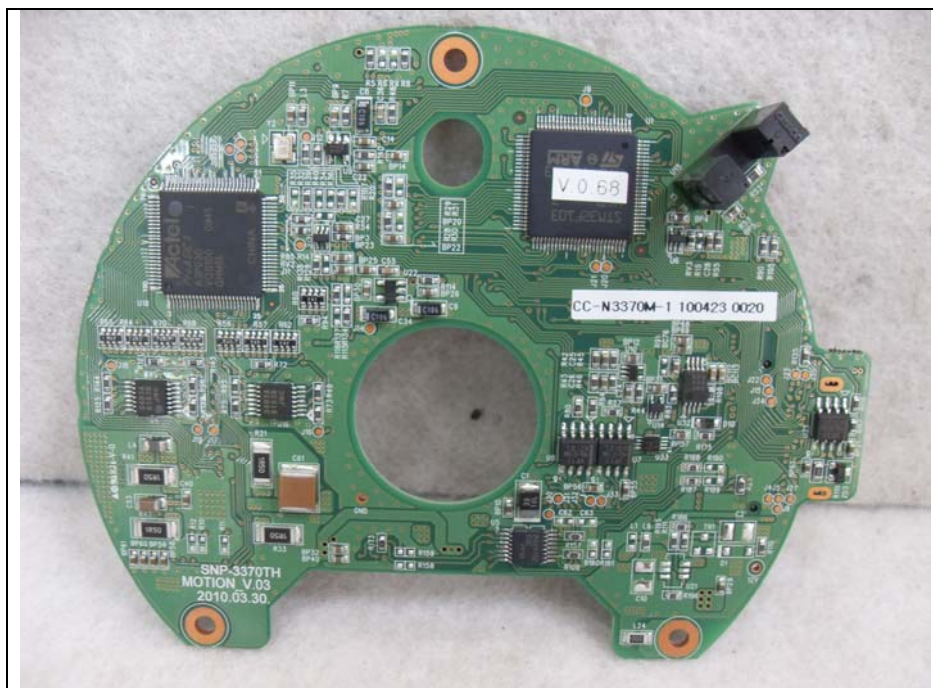
Interface Board



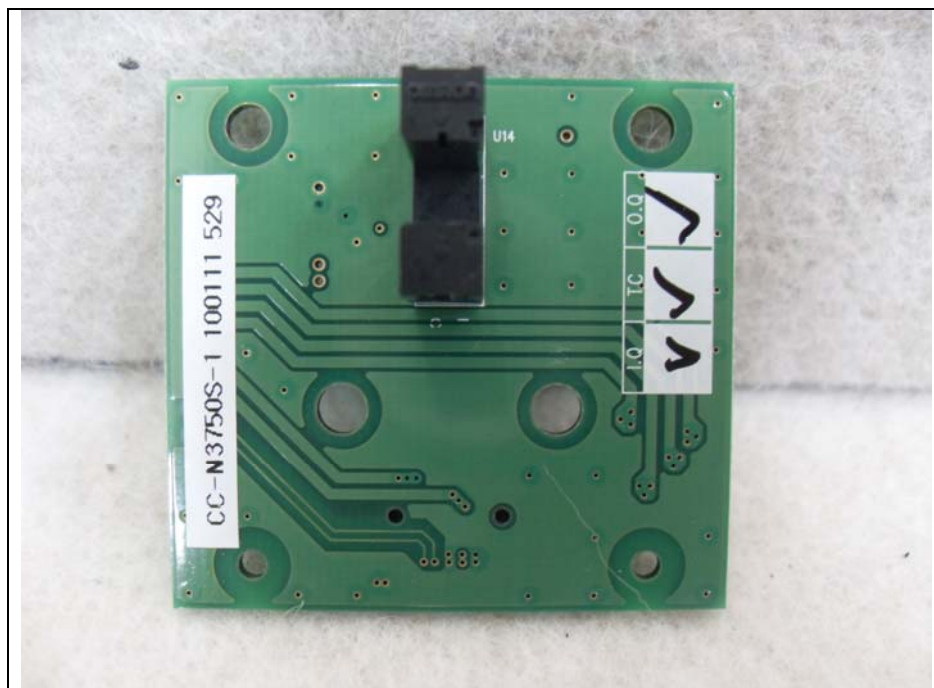
Control Board



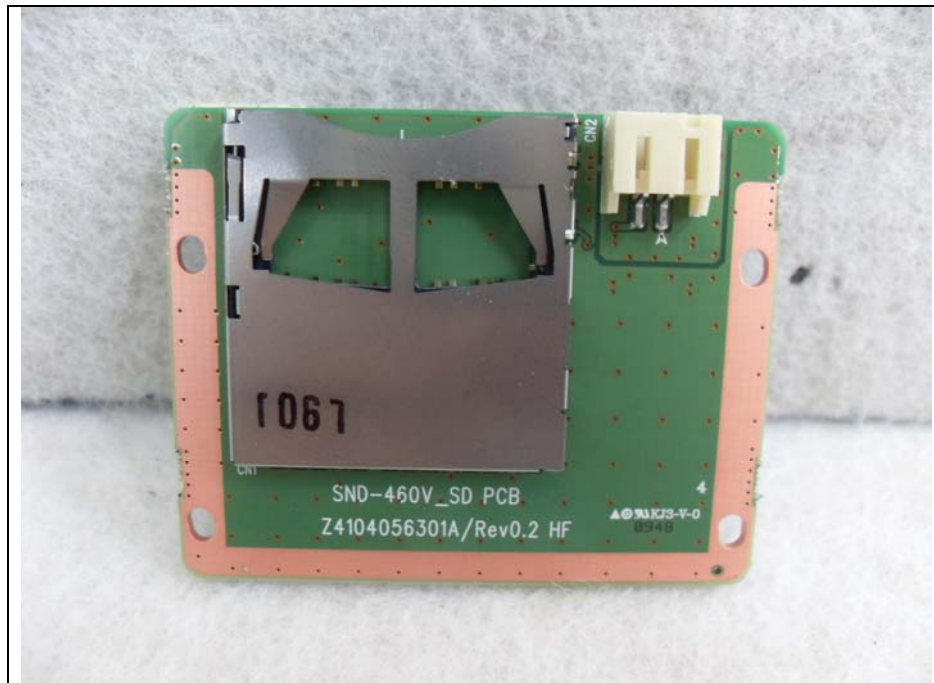
Motion Board



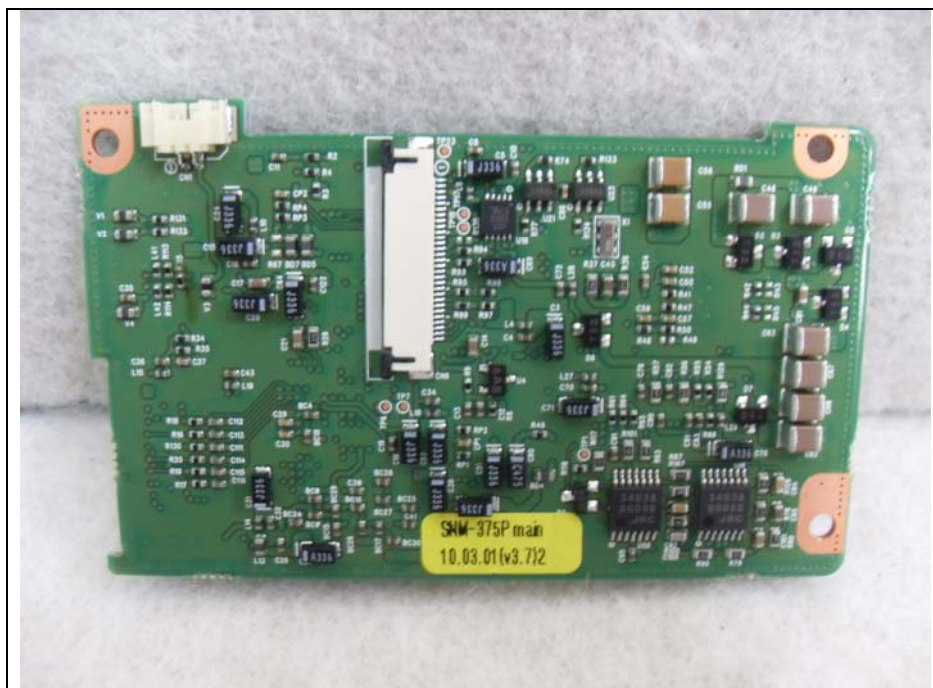
Sensor Board



SD Card Board



Camera Main Board



Camera CCD Board

