

CERTIFICATE of EMC Compliance

Report No: EMC-FCC-1228-1
Type of equipment: SPEED DOME CAMERA
Model Name: SCP-3370THN
Variant Model Name: SCP-3370HN
Applicant: SAMSUNG TECHWIN CO., LTD.
Address: #42 Seongju-Dong, Changwon-Si,
Kyungsangnam-Do, Korea
Manufacturer#1: SAMSUNG TECHWIN CO., LTD.
Address: #42 Seongju-Dong, Changwon-Si,
Kyungsangnam-Do, Korea
Manufacturer#2: TIANJIN SAMSUNG TECHWIN
OPTO-ELECTRONIC CO., LTD
Address: No.11 Weiliu Road. Micro-Electronic Industrial
Park Jingang Road Tianjin 300385, China
Test standards: FCC part 15 subpart B, Class A
Classification: Verification

The above equipment was tested by EMC compliance Testing Laboratory for with the requirements of FCC Rules and Regulations. The results of testing in this report apply to the product / system which was tested only.

These results are deemed satisfactory evidence of compliance with ICES-003 of the Canadian Interference-Causing Equipment Regulations.

Laboratory

EMC compliance Ltd.
480-5 Sin-dong, Yeongtong-gu,
Suwon-city, Gyeonggi-do, 443-390, Korea

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Yeom, Han-Seok/ Manager

EMI TEST REPORT

Test report No.: EMC-FCC-1228-1
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No.11 Weiliu Road. Micro-Electronic Industrial Park
Jingang Road Tianjin 300385, China
Test standards: FCC part 15 subpart B, Class A
Test Procedure and Items
- Radiated Emissions Measurement : ANSI C63.4-2009
Testing Laboratory: EMC Compliance Ltd.
Test result: Complied

The above equipment was tested by EMC compliance Testing Laboratory for compliance with the requirements of FCC Rules and Regulations. The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

These results are deemed satisfactory evidence of compliance with ICES-003 of the Canadian Interference-Causing Equipment Regulations.

Date of receipt: 2011. 02. 07

Date of testing: 2011. 02. 11

Issued date: 2011. 02. 23

Tested by:



KIM, IN-HO

Approved by:



YEOM, HAN-SEOK

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1. Applicant information

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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

Facsimile Number: 82 31 336 4767

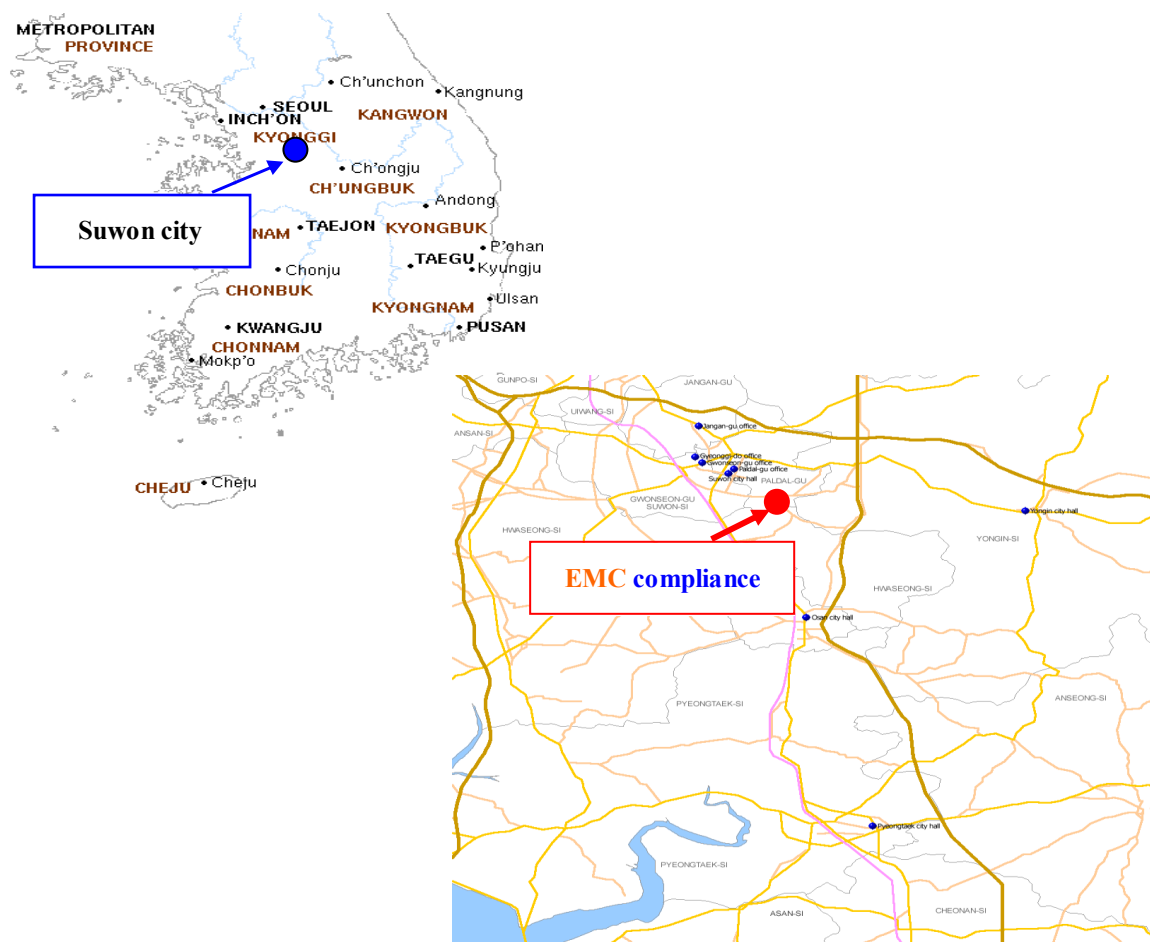
FCC CAB.: KR0040

VCCI Registration No.: R-3327, G-198, C-3706, T-1849

Industry Canada Registration No.: 8035A

KOLAS NO.: 231

SITE MAP



3. Test system configuration

3.1 Operation environment

	Temperature	Humidity	Pressure
Chamber(10 m)	: 21 °C	33 % R.H.	-

Test site

These testing items were performed following locations;

Chamber (10 m) : Radiated Emission

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.

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]

4. Description of E.U.T.

4.1 General information

Model	SCP-3370THN	SCP-3370HN	SCP-3370N
Image Device	EX-view HAD CCD		
Total Pixels	NTSC : 811(H) x 508(V)		
	PAL : 795(H) x 596(V)		
Effective Pixels	NTSC : 768(H) x 494(V)		
	PAL : 752(H) x 582(V)		
Scanning System	2:1 Interlace		
Synchronization	Internal / Line Lock		
Frequency	NTSC : H : 15.734kHz / V : 59.94Hz		
	PAL : H : 15.625kHz / V : 50Hz		
Horizontal Resolution	Color : 600TV lines / BW : 700TV lines		
Min. Illumination	COLOR : 0.7 Lux (50 IRE @ F1.6), 0.001 Lux (50IRE, Color, Sens-up 512x) B/W : 0.07 Lux (50 IRE @ F1.6), 0.0001 Lux (50IRE, B/W, Sens-up 512x)		
S / N Ratio	52 dB (AGC off, Weight On)		
Video Output	CVBS : 1.0 Vp-p / 75Ω composite		
Focal Length (Zoom Ratio)	3.5~129.5mm		
Max. Aperture Ratio	1:1.6 (Wide) ~ 3.9 (Tele)		
Angular Field of View	H : 55.5°(Wide) ~ 1.59°(Tele) / V : 42.5°(Wide) ~ 1.19°(Tele)		
Min. Object Distance	1800mm		
Focus Control	AUTO / MANUAL / ONE-SHOT		
Zoom Movement Speed	2.8 sec		
Pan Range	360° Endless		
Pan Speed	Preset : 600°/sec / Manual : 0.024°/sec ~ 120°/sec		
Tilt Range	-5° ~ 185°		
Tilt Speed	Preset : 600°/sec / Manual : 0.024°/sec ~ 120°/sec		
Preset	255		
Preset Accuracy	±0.1°		
Auto Tracking	-Built-in	-	
OSD	NTSC: ENGLISH, FRENCH, SPANISH, PORTUGUES, KOREAN, JAPANESE, TAIWANESE PAL: ENGLISH, CHINESE, FRENCH, GERMAN, SPANISH, ITALIAN, PORTUGUES, POLISH, RUSSIAN, CZECH, TURKISH		
Camera Title	Off / On (Displayed 12 Characters)		
Day & Night	Auto (ICR) / Color / B/W		
Back Light	WDR / BLC / HLC / Off		

Model	SCP-3370THN	SCP-3370HN	SCP-3370N
WDR	Low / Medium / High		
Contrast Enhancement	SSDR (Off/On)		
Digital Noise Reduction	SSNR III (Off/On)		
Digital Image Stabilization	Off/On		
Motion Detection	Off/On		
Privacy Masking	Off/On (8 programmable zones)		
Sens-up	2x ~ 512x		
Gain Control	Off/Low/Medium/High/Manual		
White Balance	ATW / ATW (IN) / ATW (OUT) / Manual / AWC		
Electronic Shutter Speed	NTSC : 1/60~1/120,000sec		
	PAL : 1/50~1/120,000sec		
Digital Zoom	Off/On (2x ~ 16x)		
Digital Flip	Off/On		
VPS	Off/On		
Intelligent Video	Off / Detection / Tracking / Fixed/Moved / Auto Track		
PIP	Off/On		
Schedule	Day/Time		
Alarm	8 In 3 Out		
Communication	RS-485, Coaxial Control		
Protocol	Coax : Pelco-C (Coaxitron) RS-485: Auto Detected, SAMSUNG-T, SAMSUNG-E, Pelco(D/P), Panasonic, Vicon, Honeywell, AD, GE, BOSCH		
Operating Temperature / Humidity	-10°C~+50°C / 20~80% RH	-50°C ~ +50°C / Less than 90% RH	
Ingress Protection	-	IP66	
Input Voltage	24V AC ±10%		
Power Consumption	Max. 15W	Max. 15W / 60W (Fan & Heater)	
Color / Material	Ivory, Aluminum, Plastic (Dome Cover : Clear)		Ivory, Plastic (Dome Cover : Clear)
Dimension (Φ×H)	Φ248 x 316.5mm		Φ155 x 243.4mm
Weight	4.5 Kg		2 Kg

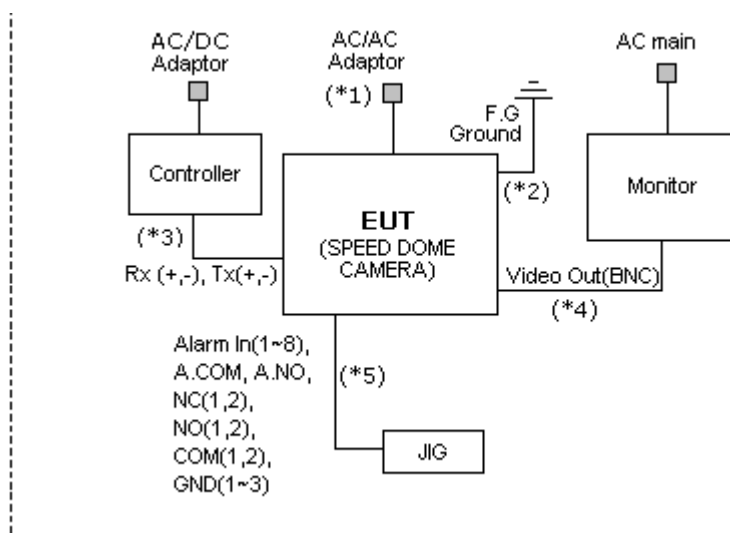
4.2 Product description

Type of product:	SPEED DOME CAMERA
Model name (Basic):	SCP-3370THN
Model name (Variant):	SCP-3370HN
Difference	Tracking Board Removal
Serial no	Engineering Sample
Testing voltage	AC 24 V
Product rating	AC 24 V
Internal clock frequency	27 MHz
Note :	This test was done with SCP-3370THN. AC/AC Adaptor was not provided by the manufacturer.

4.3 Auxiliary equipments

Type	Model / Part #	Serial number	Manufacturer
AC/AC Adaptor	STA-220	-	Dream electronics
Monitor	GCM-1014SA-D	90309991	Honeywell
JIG	-	-	-
Controller	SCC-3100A	D7304940	Samsung Techwin

4.4 Test configuration



Note *	Start		End		Cable		
	Name	I/O port	Name	I/O port	Length (m)	Spec.	Cable
1	EUT (SPEED DOME CAMERA)	Power	AC/AC Adaptor	Power	1.5	Non-Shield	-
2		F.G	Ground	F.G	1.5	Non-Shield	-
3		Rx (+,-), Tx(+,-)	Controller	Rx (+,-), Tx(+,-)	3.0	Non-Shield	Out-door
4		Video Out (BNC)	Monitor	Video In (BNC)	3.0	Shield	Out-door
5		Alarm In(1~8), A.COM, A.NO, NC(1,2), NO(1,2), COM(1,2), GND(1~3)	JIG	Alarm Out(1~8), A.COM, A.NO, NC(1,2), NO(1,2), COM(1,2), GND(1~3)	3.0	Non-Shield	Out-door

4.5 Operating conditions

The EUT was configured as normal intended use.

Test mode	Normal operation
1	Camera operating mode.
	RS-485 operating mode.
	Alarm operating mode.

5. Summary of test results

In the above configuration tested, The EUT complied with the requirement of the specification

5.1 Modification to the E.U.T.

None

5.2 Summary of EMI emission test results

FCC Part 15 Subpart B (Class A)

ANSI C63.4 – 2009

Application	Test method	Test result
Conducted emission	ANSI C63.4 – 2009	N/A
Radiated emission AC 24 V	ANSI C63.4 – 2009	Complied

6. Test results

6.1 Radiated Emission

Test specification	FCC Part 15, Section 15.109(g), Class A		
Test mode	Operating mode.		
Date	2011. 02. 11		
Testing voltage	AC 24 V		
Test facility	10 m Chamber		
Temperature (°C)	21 °C	Humidity (% R.H.)	33 % R.H.
Remarks	Complied Minimum limit margin is 14.8 dB at 510.742 MHz.		

6.1.1 Limits of radiated emission measurement

Frequency [MHz]	Class A (dB(μ V/m)) @ 10 m	Class B (dB(μ V/m)) @ 3 m
30-88	39	40
88-216	43.5	43.5
216-960	46.4	46
Above 960	49.5	54

* Note- Alternative standard: CISPR, Pub. 22 *

6.1.2 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.

6.1.3 Used equipments

Equipment	Model no.	Serial no.	Makers	Next cal. date	Used
Test Receiver	ESCI	100001	R&S	11.08.17	☒
Bi-Log Antenna	VULB 9168	375	SCHWARZBECK	11.11.30	☒
Amplifier	310N	284608	SONOMA INSTRUMENT	11.07.08	☒
3 dB Attenuator	8491A	16861	HP	12.01.13	☒
Antenna Mast	AM4.0	079/3440509	MATURO	-	☒
Turn Table	CO2000-SOFT	-	MATURO	-	☒

6.1.4 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

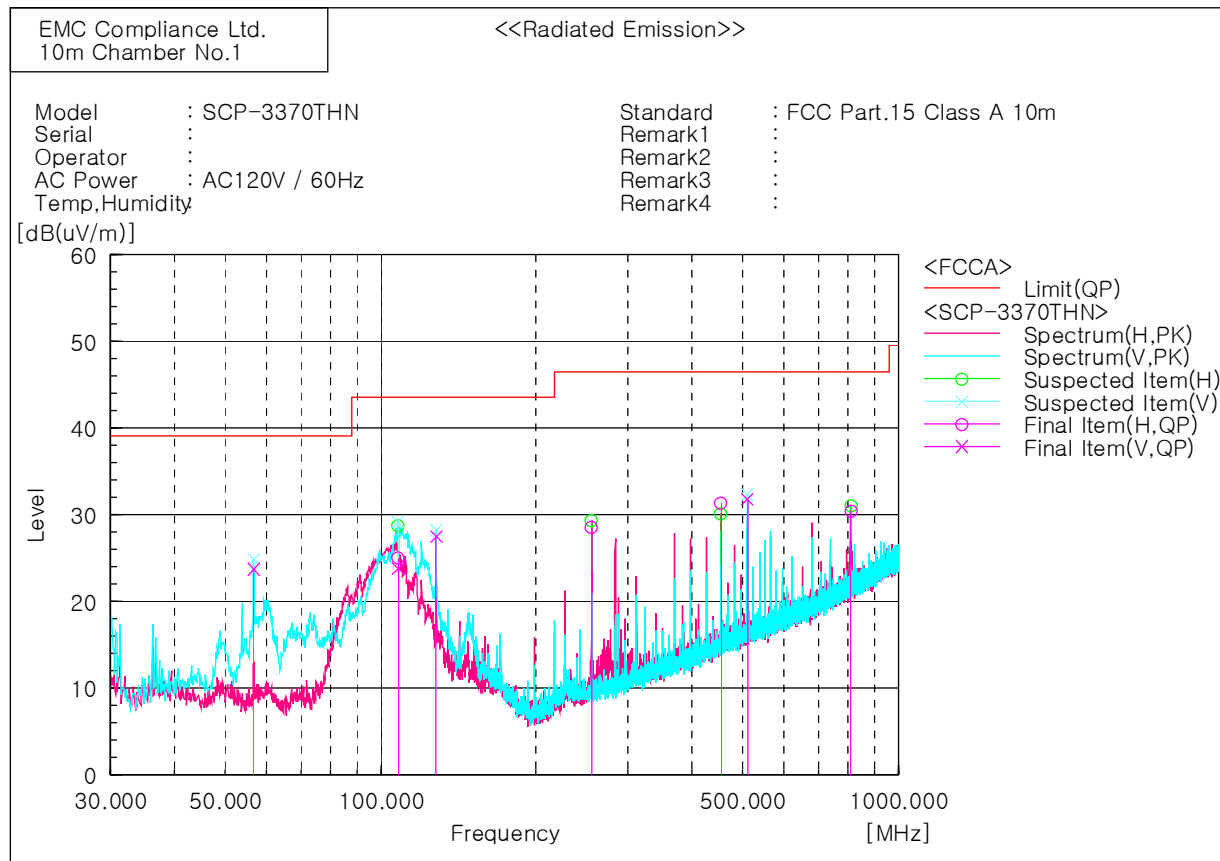
The result is $30 + 12 + 5 + 3 - 35 = 15 \text{ dB}(\mu\text{V/m})$

6.1.5 Photographs of test setup



6.1.6 Radiated emission measurement result

* Graph and Data



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	56.750	V	41.3	-17.6	23.7	39.0	15.3	301.0	20.1
2	108.106	V	42.8	-19.0	23.8	43.5	19.7	301.0	207.8
3	108.004	H	44.1	-19.1	25.0	43.5	18.5	400.0	273.1
4	127.998	V	44.6	-17.1	27.5	43.5	16.0	100.0	183.4
5	255.365	H	44.9	-16.4	28.5	46.5	18.0	298.0	60.4
6	453.988	H	41.5	-10.2	31.3	46.5	15.2	199.0	47.6
7	510.742	V	40.7	-9.0	31.7	46.5	14.8	301.0	353.6
8	809.974	H	33.8	-3.4	30.4	46.5	16.1	100.0	14.8

7. E.U.T. photographs

Front View



Rear View



Left View



Right View



Top View



Bottom View



Label



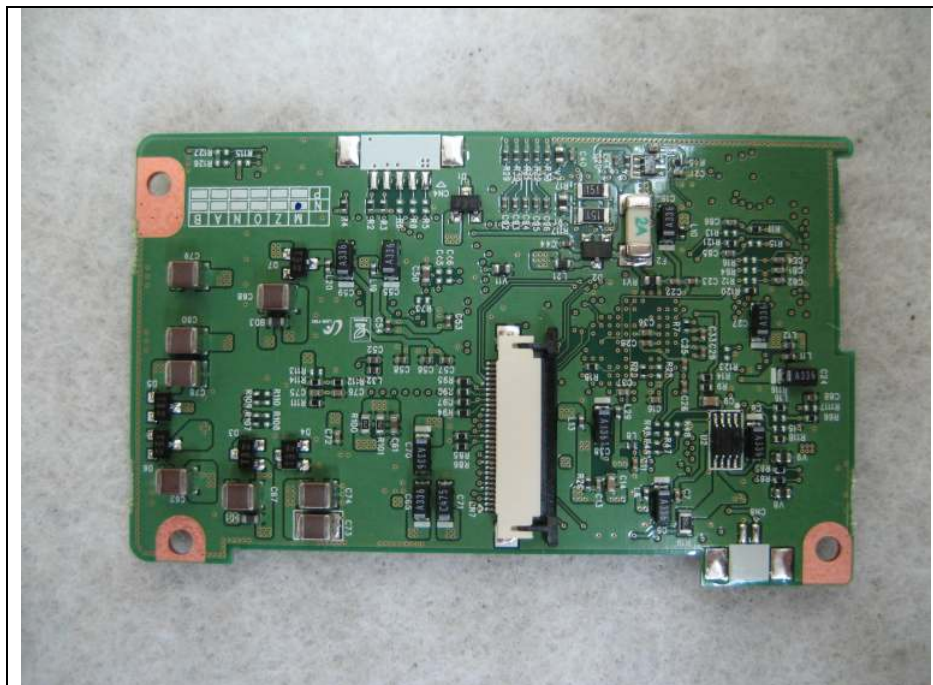
FCC Label Location

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Inside



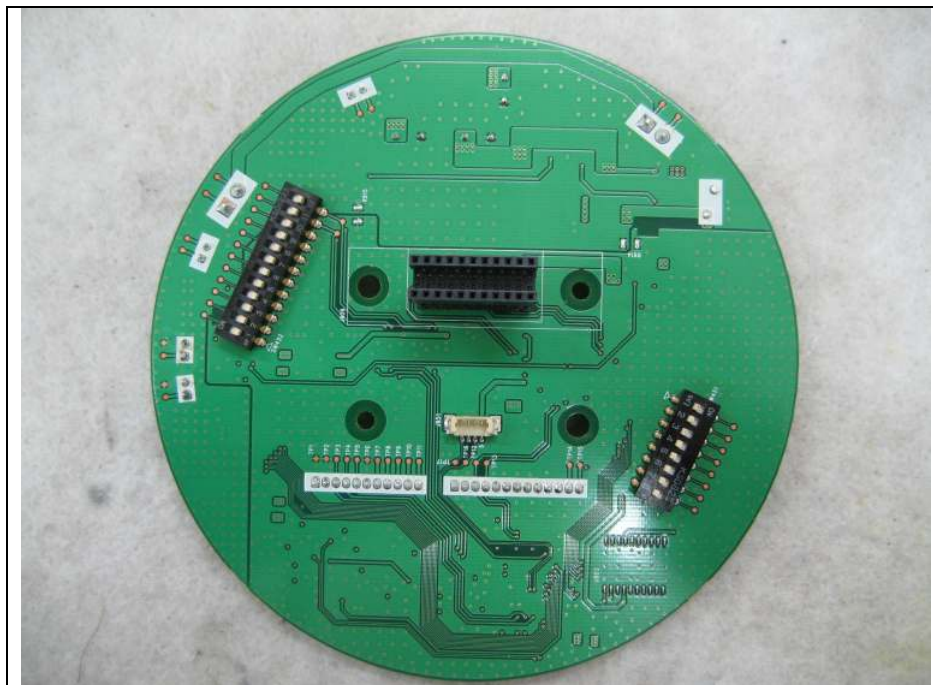
Main Board



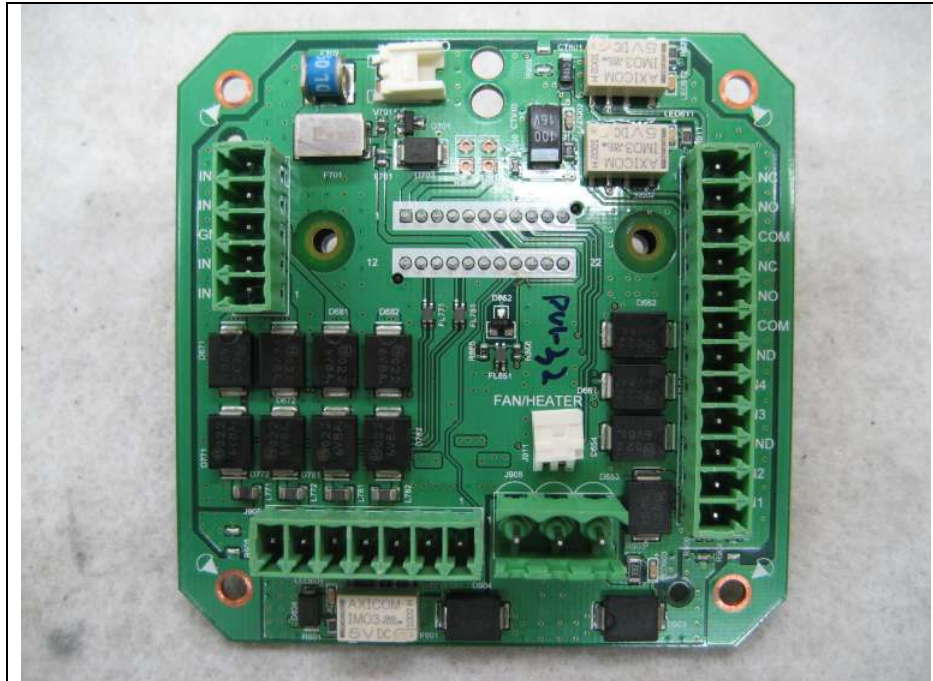
CCD Board



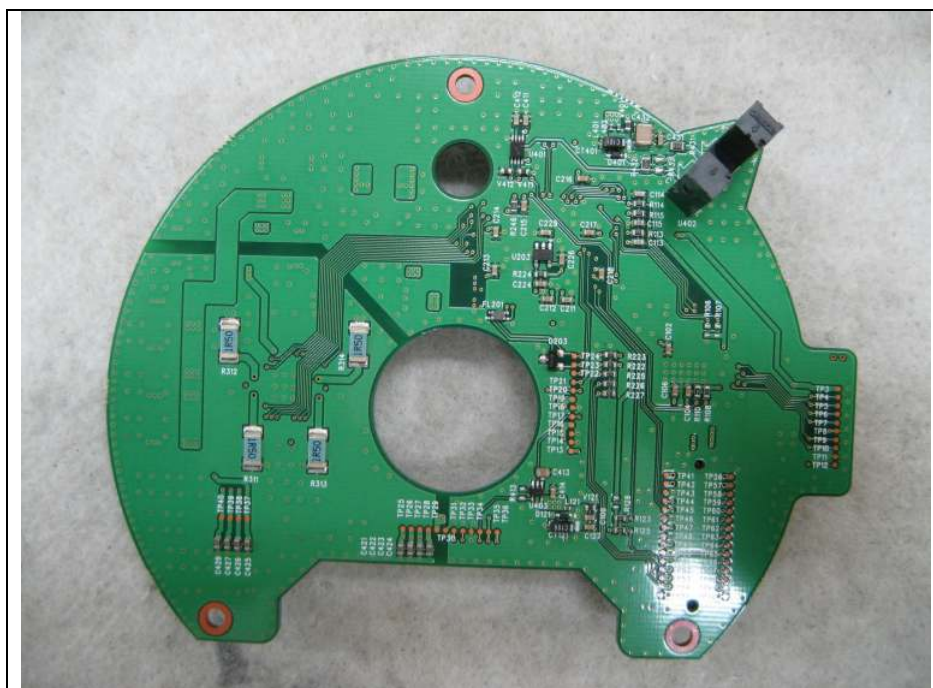
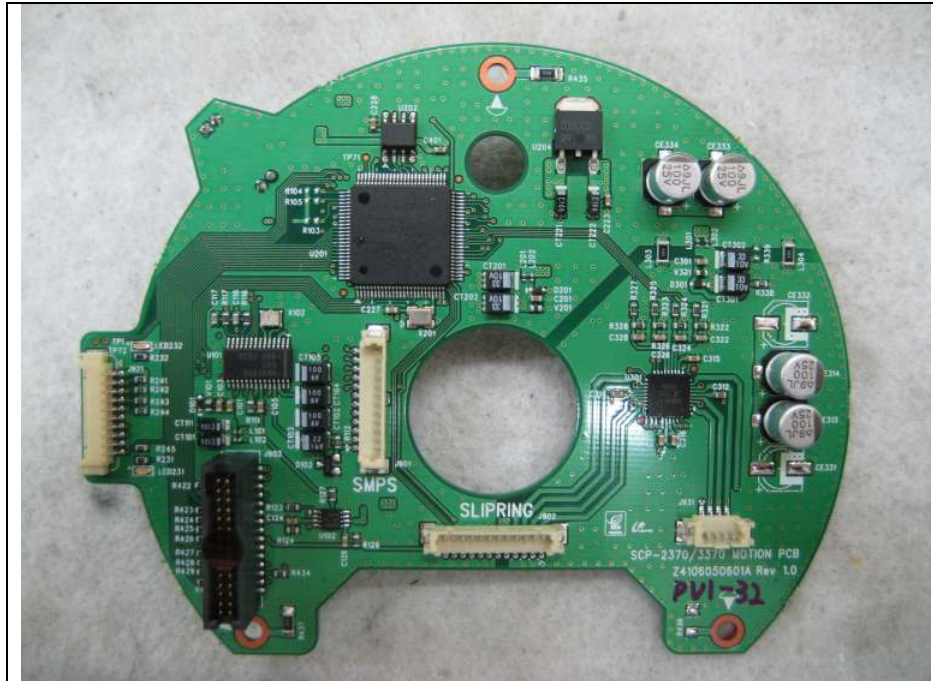
Inner Board



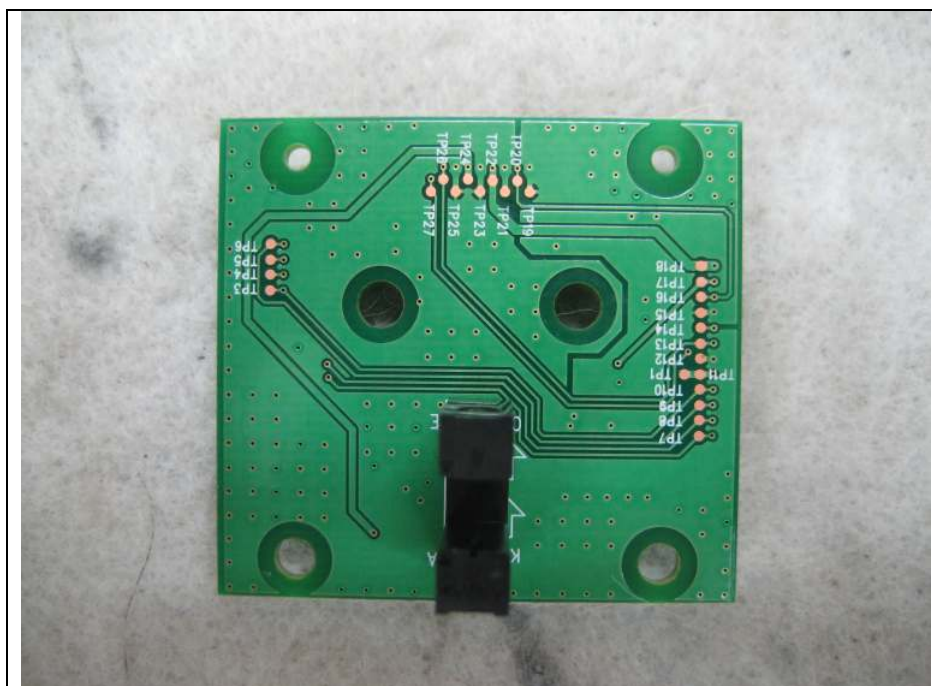
Interface Board



Motion Board



Sensor Board



Power Board

