134, Wu Kung Road,
WuKu Industrial. Zone,
Taipei County, Taiwan 248
Tel: +886-2-2299-3279
Fax: +886-2-2298-2698

No: EM/2009/B0115C

VERIFICATION OF COMPLIANCE

Product Name	:	Fix Dome Network Camera
Brand Name	:	VIVOTEK
Model No.	:	FD8161
Added Model(s)	:	N/A
Applicant	:	VIVOTEK INC.
Address of Applicant	:	6F, No.192, Lien-Cheng Rd., Chung-Ho City,Taipei County, Taiwan, R.O.C.
Manufacturer	:	VIVOTEK INC.
Address of Manufacturer	:	5F, No.168, Lien-Cheng Rd., Chung-Ho City,Taipei County, Taiwan, R.O.C.
Based on SGS EMC Test Report Number(s)	:	EM/2009/B0115
Date of Issue	:	Jan. 06, 2010
Applicable Standards	:	EN55022 : 2006+A1:2007 Class B, EN61000-3-2 : 2006, EN61000-3-3 : 2008, EN55024 : 1998+A1:2001+A2:2003, IEC61000-4-2 : 1995+A1:1998+A2:2000, IEC61000-4-3 : 2006+A1:2007, IEC61000-4-4 : 2004, IEC61000-4-5 : 2005, IEC61000-4-6 : 2008, IEC61000-4-8 : 2009, IEC61000-4-11 : 2004

Conclusion

Based upon a review of the Technical Construction File, the apparatus is in compliance with below requirements of:

EMC Directive 2004/108/EC

Authorized Signatory:

CE

SGS TAIWAN LTD.
Ion Lin

TEST REPORT

Test Report No. : EM/2009/B0115

Applicant : VIVOTEK INC.

Address : 6F, No.192, Lien-Cheng Rd., Chung-Ho City,Taipei County, Taiwan, R.O.C.

Manufacturer : VIVOTEK INC.

Address : 5F, No.168, Lien-Cheng Rd., Chung-Ho City,Taipei County, Taiwan, R.O.C.

Equipment Under Test (EUT) :

Name : Fix Dome Network Camera

Brand Name : VIVOTEK

Model No. : FD8161

Added Model(s) : N/A

Standards:

EN55022 : 2006+A1:2007 Class B	EN61000-3-2 : 2006
EN61000-3-3 : 2008	
EN55024 : 1998+A1:2001+A2:2003	IEC61000-4-2 : 1995+A1:1998+A2:2000
IEC61000-4-3 : 2006+A1:2007	IEC61000-4-4 : 2004
IEC61000-4-5 : 2005	IEC61000-4-6 : 2008
IEC61000-4-8 : 2009	IEC61000-4-11 : 2004

In the configuration tested, the EUT complied with the standards specified above.

Date of Receipt : Nov. 18, 2009
Date of Test : Nov. 18 ~ Dec. 24, 2009
Date of Issue : Jan. 06, 2010

Remarks:

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS Taiwan Electronics & Communication Laboratory or testing done by SGS Taiwan Electronics & Communication Laboratory in connection with distribution or use of the product described in this report must be approved by SGS Taiwan Electronics & Communication Laboratory in writing.

Test By:	Mark Liu	*Date*	Jan. 06, 2010
	Mark Liu(Engineer)		
Prepared By:	Kay Ke	*Date*	Jan. 06, 2010
	Kay Ke(Clerk)		
Approved By	Ion Lin	*Date*	Jan. 06, 2010
	Ion Lin(Assistant Manager)		

SGS Taiwan Ltd. 台灣檢驗科技股份有限公司 | No. 134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan. /台北縣五股工業區五工路134號
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Member of SGS Group

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1.General Description

1.1 General Description of EUT

Name of EUT	:	Fix Dome Network Camera
Brand Name	:	VIVOTEK
Model No.(s)	:	FD8161
Added Model(s)	:	N/A
Variant Description:		N/A

1.2 Details of EUT

Power Supply	:	Input : AC 100-240V/50-60Hz; Output :DC 12V/1.5A Adapter of Model : 3A-183WP12
Power Cord	:	Unshielded
Modes/Function	:	Full System Operation Mode.

1.3 Description of Support Units

PRODUCT	MANUFACTURER	MODEL NO.	SERIAL NO.
NOTEBOOK	IBM	R400	R8-AZLWT
NOTEBOOK	IBM	R61	L3A9050
Earphone	Logitech	ClearChat Style	981-000026
SD Card	Super	512MB	S331AM512
Monitor	TVS	CM-14VN	KE115120
POE	D-link	DES-1228P	00195B0FA2C0

1.4 Operation Procedure

1. Set down EUT with support units and turn on the power of all equipment.
2. Pre-test the EUT in all modes by each model, then figure the worst case out.
3. Tests under the normal operation pattern.

1.5 The worst case of the EUT

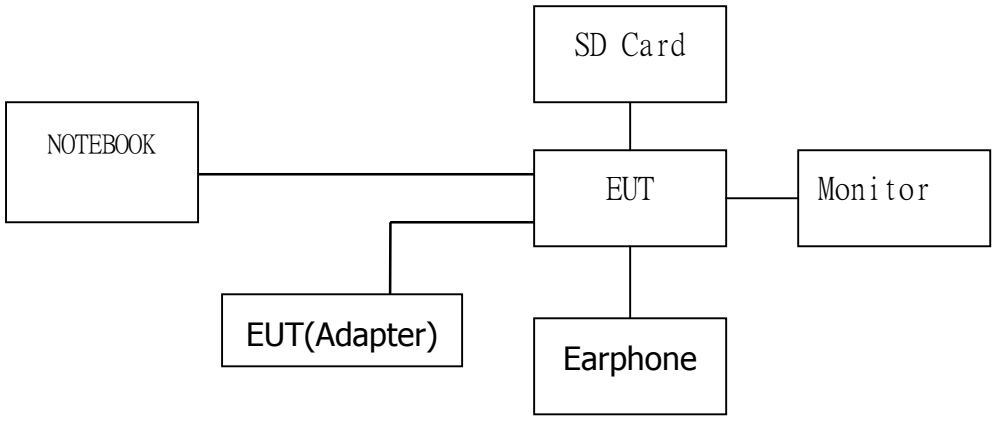
EUT will be carried out in the worst case as followings:
Model No.: FD8161
Mode : Full System Operation Mode.

1.6 Modification List

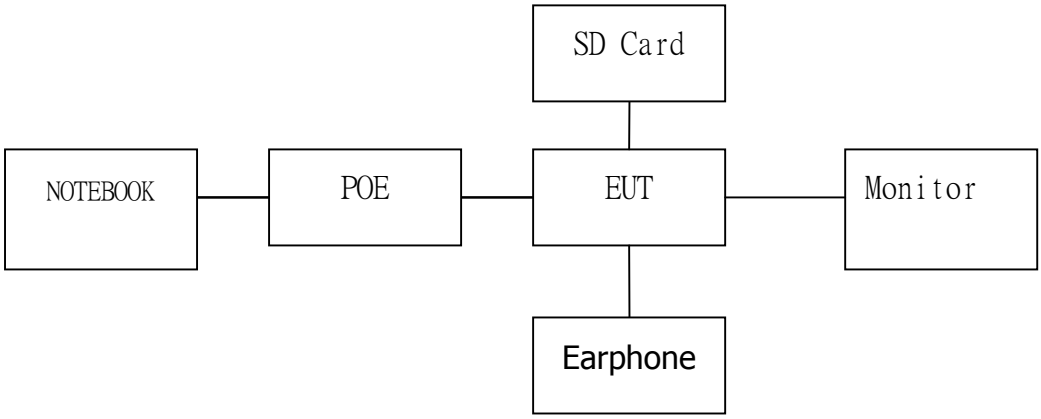
No modification by SGS Taiwan Electronics & Communication Laboratory.

1.7 Configuration of Tested System

Full System Operation mode (For AC Adaptor)



Full System Operation mode (For POE)



1.8 Cable List

Cable Type	Length	Shield
LAN Cable	5m	Non-shielding
AV Cable	1.8m	Non-shielding
Power Cable	1.9m	Non-shielding

1.9 Summary of Results

Hightest Emission					
Standard	**Test Type**	**Result**	**Phase/Polar.**	**Frequency(MHz)**	**Margin(dB)**
EN55022 : 2006+A1:2007 Class B	Conducted Emission	Pass	Line	0.1805	-7.96(QP)
			Neutral	4.6100	-10.60(QP)
	Radiated Emission	Pass	Ver.	200.2600	-3.32(QP)
EN 61000-3-2: 2006	Harmonic current emissions	Pass	Meet the requirements		
EN 61000-3-3: 2008	Voltage changes, voltage fluctuations & flicker	Pass	Meet the requirements		

Immunity (EN 55024:1998+A1:2001+A2:2003)				
Standard	**Test Type**	**Result**	**Performance Criteria**	**Test Judgment**
IEC61000-4-2:1995 +A1:1998 +A2:2000	ESD test	PASS	Criterion B	Meets the requirements of Performance Criterion B
IEC 61000-4-3:2006 +A1:2007	RS test	PASS	Criterion A	Meets the requirements of Performance Criterion A
IEC61000-4-4:2004	EFT Test	PASS	Criterion B	Meets the requirements of Performance Criterion A
IEC61000-4-5:2005	Surge Test	PASS	Criterion B	Meets the requirements of Performance Criterion A
IEC61000-4-6:2008	CS Test	PASS	Criterion A	Meets the requirements of Performance Criterion A
IEC61000-4-8:2009	PMF test	PASS	Criterion A	Meets the requirements of Performance Criterion A
IEC61000-4-11:2004	DIP Test	PASS	Criterion C/C/B	Meets the requirements of Performance Criterion B/A/A

2.Radio Disturbance

EN55022 : 2006+A1:2007 Class B

2.1 Test Results

EN55022 Class B	Result
Conducted Emission	**PASS**
Radiated Emission	**PASS**

2.2 Limit

Maximum permissible level of Line Conducted Emission

FREQUENCY (MHz)	Class A(dBuV)		Class B(dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Note : The lower limit shall apply at the transition frequency.

Maximum permissible level of Common Mode Conducted Emission (Telecommunication Ports)

CLASS A

FREQUENCY (MHz)	Voltage Limit(dBuV)		Current Limit(dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	97 - 87	84 – 74	53 – 43	40 – 30
0.5 - 30.0	87	74	43	30

CLASS B

FREQUENCY (MHz)	Voltage Limit(dBuV)		Current Limit(dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	84 - 74	74 – 64	40 – 30	30 – 20
0.5 - 30.0	74	64	30	20

Note : The lower limit shall apply at the transition frequency.

Maximum permissible level of Radiated Emission measured at 10 meter

FREQUENCY (MHz)	Class A(dBuV/m)	Class B(dBuV/m)
	Quasi - peak	Quasi - peak
30 - 230	40	30
230 - 1000	47	37

Note : The lower limit shall apply at the transition frequency.

Limits above 1 GHz
Limits for radiated disturbance of Class A ITE at a measurement distance of 3m

Frequency range GHz	Average Limit dB(μV/m)	Peak Limit dB(μV/m)
1 to 3	56	76
3 to 6	60	80

Note : The lower limit applies at the transition frequency.

Limits for radiated disturbance of Class B ITE at a measurement distance of 3m

Frequency range GHz	Average Limit dB(μV/m)	Peak Limit dB(μV/m)
1 to 3	50	70
3 to 6	54	74

Note : The lower limit applies at the transition frequency.

2.3 Methods and Procedures

Standard	Date	Description
EN55022	2006+A1:2007 Class B	Limits and methods of measurement of radio interference characteristics of information technology equipment.

2.4. Test of Conducted Emission & ISN

2.4.1 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
EMI Test Receiver	ESCS 30	828985/004	Sep. 15, 2009	Sep. 14, 2010
Coaxial Cables	WK CE Cable	N/A	Nov. 28, 2009	Nov. 27, 2010
L.I.S.N	NNB-2/16Z	99012	Feb. 02, 2009	Feb. 01, 2010
L.I.S.N	FCC-LISN-50/250-25-2-01	04034	Feb. 02, 2009	Feb. 01, 2010
ISN	FCC-TLISN-T4	20228	Feb. 03, 2009	Feb. 02, 2010

2.4.2 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory
No.134, Wu Kung Road. Wuku Industrial Zone, Taipei County 248, Taiwan (R.O.C.)

2.4.3 EUT Operating Condition

Environment :

Temperature	Humidity
24 °C	59 %RH

Test setup : Please refer to photo of CE,ISN testing set-up

2.4.4 Uncertainty of Conducted Emission

Expanded uncertainty (k=2) of Conducted Emission measurement is 2.28dB.

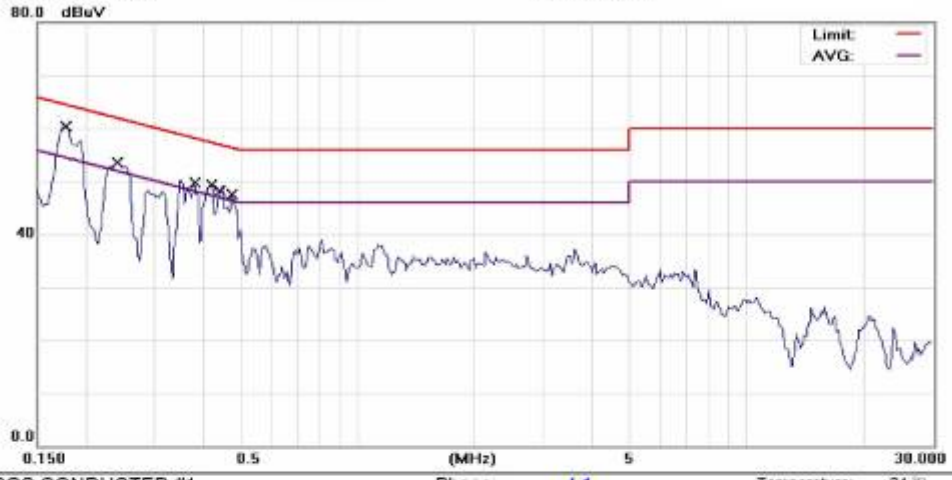
2.4.5 Measurement Data(CE)

L:

臺灣檢驗科技股份有限公司-電子暨通訊服務部
台北縣五股工業區五工路134號
電話：（02）22993279 傳真：（02）22982698

Conducted Emission Measurement

File :EM-2009-B0115 Date: 2009/12/01



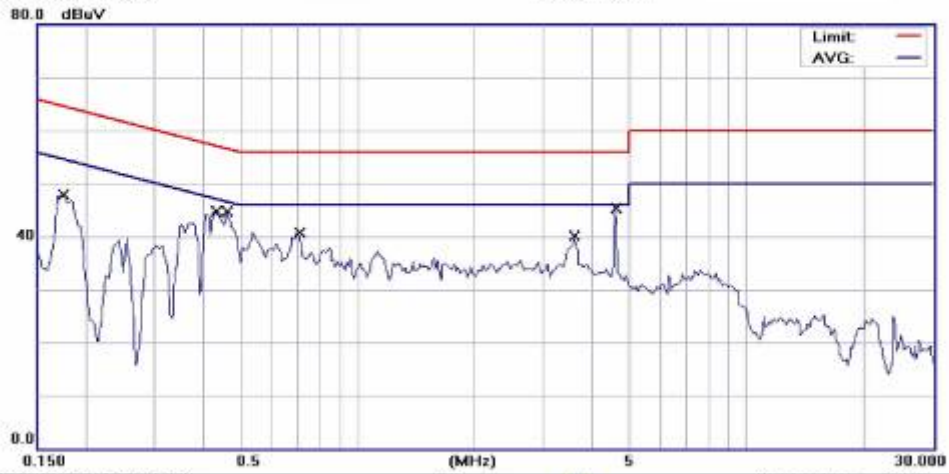
Site SGS CONDUCTED #1 Phase: L1 Temperature: 24 ℃
Limit: CISPR22/11/EN55022 Class B Power: AC 230V/50Hz Humidity: 59 %
EUT: Fix Dome Network Camera
M/N: FD8161
Note: Full System operation Mode (For AC Adaptor)

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1805	56.36	0.14	56.50	64.46	-7.96	QP	
2		0.1805	40.92	0.14	41.06	54.46	-13.40	AVG	
3		0.2430	49.13	0.11	49.24	61.99	-12.75	QP	
4		0.2430	31.65	0.11	31.76	51.99	-20.23	AVG	
5		0.3744	46.16	0.09	46.25	58.40	-12.15	QP	
6		0.3744	35.01	0.09	35.10	48.40	-13.30	AVG	
7		0.4212	43.58	0.08	43.66	57.42	-13.76	QP	
8		0.4212	31.60	0.08	31.68	47.42	-15.74	AVG	
9		0.4390	43.30	0.08	43.38	57.08	-13.70	QP	
10		0.4390	31.47	0.08	31.55	47.08	-15.53	AVG	
11		0.4680	43.11	0.07	43.18	56.55	-13.37	QP	
12		0.4680	31.10	0.07	31.17	46.55	-15.38	AVG	

N:

臺灣檢驗科技股份有限公司-電子暨通訊服務部
台北縣五股工業區五工路134號
電話：（02）22993279 傳真：（02）22982698

Conducted Emission Measurement



Site SGS CONDUCTED #1 Phase: N Temperature: 24 °C
Limit: CISPR22/11/EN55022 Class B Power: AC 230V/50Hz Humidity: 59 %
EUT: Fix Dome Network Camera
M/N: FD8161
Note: Full System operation Mode (For AC Adaptor)

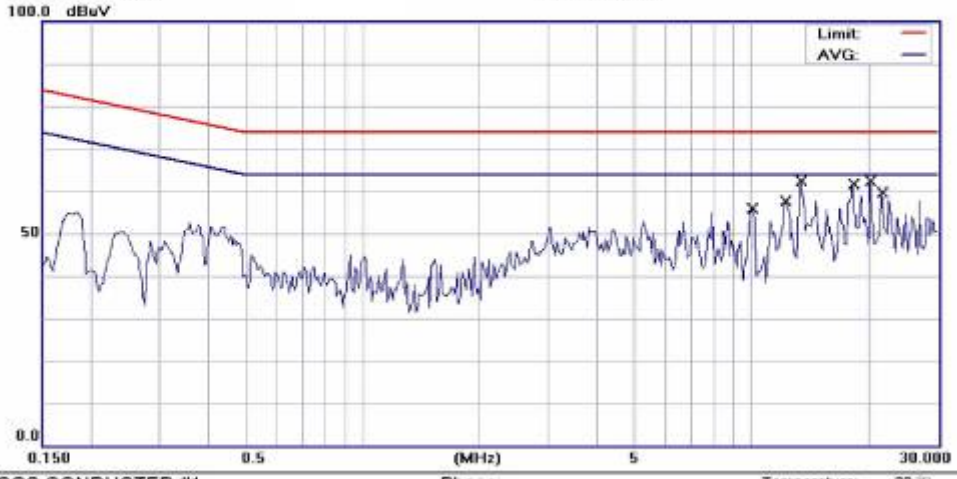
No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1750	47.79	0.17	47.96	64.72	-16.76	QP	
2		0.4350	44.68	0.11	44.79	57.16	-12.37	QP	
3		0.4600	44.56	0.10	44.66	56.69	-12.03	QP	
4		0.7100	40.63	0.11	40.74	56.00	-15.26	QP	
5		3.6100	39.85	0.17	40.02	56.00	-15.98	QP	
6	*	4.6100	45.22	0.18	45.40	56.00	-10.60	QP	

2.4.6 Measurement Data(ISN)

SGS
臺灣檢驗科技股份有限公司-電子暨通訊服務部
台北縣五股工業區五工路134號
電話：（02）22993279 傳真：（02）22982698

Conducted Emission Measurement

File :EM-2009-B0115 Date: 2009/12/11



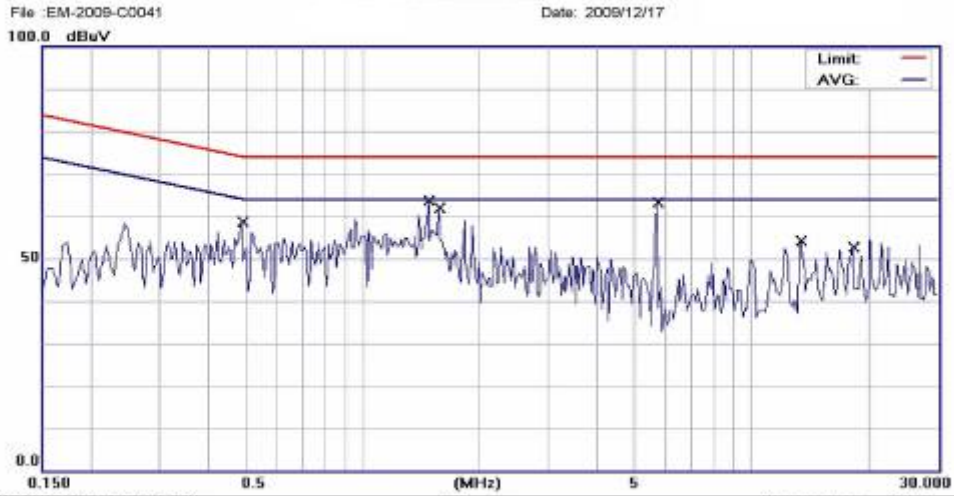
Site SGS CONDUCTED #1 Phase: Temperature: 23 °C
Limit: EN55022 ISN Voltage - Class B (QP) Power: AC 230V/50Hz Humidity: 60 %
EUT: Fix Dome Network Camera
M/N: FD8161
Note: Full System operation Mode (For AC Adaptor)

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		10.0600	45.81	10.02	55.83	74.00	-18.17	QP	
2		12.2000	47.69	9.99	57.68	74.00	-16.32	QP	
3		13.4200	52.36	9.97	62.33	74.00	-11.67	QP	
4		18.2400	51.75	9.83	61.58	74.00	-12.42	QP	
5	*	20.2600	52.61	9.77	62.38	74.00	-11.62	QP	
6		21.6600	49.95	9.79	59.74	74.00	-14.26	QP	

For POE

臺灣檢驗科技股份有限公司-電子暨通訊服務部
台北縣五股工業區五工路134號
電話：（02）22993279 傳真：（02）22982698

Conducted Emission Measurement



Site SGS CONDUCTED #1 Phase: Temperature: 24 °C
Limit: EN55022 ISN Voltage - Class B (QP) Power: AC 230V/50Hz Humidity: 56 %
EUT: Network Camera
M/N: FD8161
Note: Full System Operation Mode (For POE)

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.4900	48.60	9.93	58.53	74.17	-15.64	QP	
2		1.4843	50.80	9.92	60.72	74.00	-13.28	QP	
3	*	1.4843	48.50	9.92	58.42	64.00	-5.58	AVG	
4		1.5700	52.04	9.92	61.96	74.00	-12.04	QP	
5		5.7200	53.24	10.00	63.24	74.00	-10.76	QP	
6		13.4200	43.73	10.31	54.04	74.00	-19.96	QP	
7		18.2400	42.52	10.13	52.65	74.00	-21.35	QP	

2.5 Test of Radiated Emission

2.5.1 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100335	Feb. 05, 2009	Feb. 04, 2010
RF-Amplifier	Agilent	8447D	2944A09469	Nov. 28, 2009	Nov. 27, 2010
Broadband Antenna	SCHWAZBECK	VULB9160	9160-3224	Mar. 11, 2009	Mar. 10, 2010
Coaxial Cables	N/A	OS RE Cable	N/A	Nov. 28, 2009	Nov. 27, 2010
Antenna Master	HD GmbH	MA 240	240/515	N/A	N/A
Turn Table	HD GmbH	DT420	420/542	N/A	N/A
Controller	HD GmbH	HD 100	100/589	N/A	N/A

2.5.2 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory
No. 29, Pau-Tou-Tsuo Valley, Chia-Pau Tsuen, Linkou Hsiang, Taipei County 244, Taiwan (R.O.C.)

2.5.3 EUT Operating Condition

Environment :

Temperature	Humidity
24 °C	61 %RH

Test setup : Please refer to photo of RE testing set-up

2.5.4 Uncertainty of Radiated Emission

Expanded uncertainty (k=2) of radiated emission measurement is 3.8dB.

2.5.5 Measurement Data

2.5.5.1 Horizontal polarization

SGS
臺灣檢驗科技股份有限公司 -電子暨通訊實驗室
Address :台北縣五股工業區五工路 134 號
Tel:02-2299-3279 Fax:02-2298-2698

Radiated Emission Measurement

Site :10MOpensite
Limit: CISPR22/CISPR11/EN55022 Class B 10m
EUT: Fix Dome Network Camera
M/N: FD8161
Note: Full System Operation Mode (For AC Adaptor)

Polarization: *Horizontal*
Power: AC 230V/50Hz

Temperature: 24 °C
Humidity: 61%

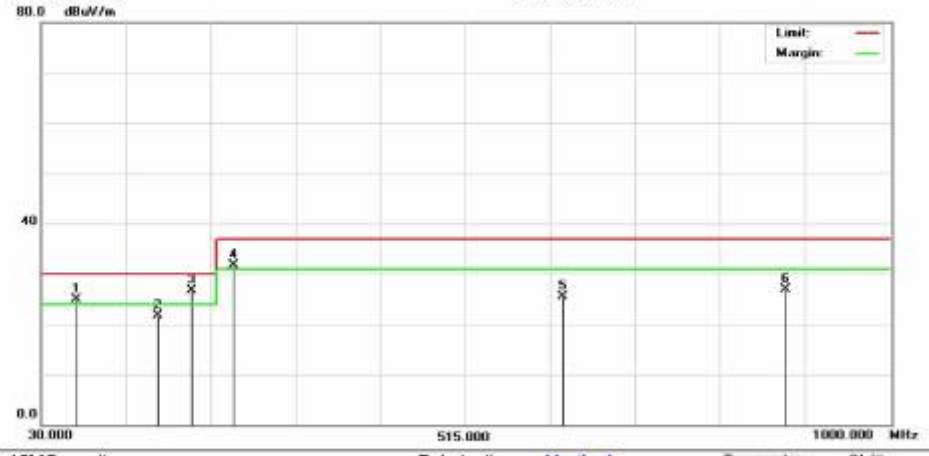
No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	200.1750	45.34	-22.64	22.70	30.00	-7.30	QP	
2		250.1000	45.95	-21.74	24.21	37.00	-12.79	QP	
3		280.2000	44.94	-20.76	24.18	37.00	-12.82	QP	
4		500.8750	39.16	-13.23	25.93	37.00	-11.07	QP	
5		624.5500	38.11	-10.05	28.06	37.00	-8.94	QP	
6		874.3250	34.18	-9.51	24.67	37.00	-12.33	QP	

2.5.5.2 Vertical polarization

SGS
臺灣檢驗科技股份有限公司 -電子暨通訊實驗室
Address :台北縣五股工業區五工路 134 號
Tel:02-2299-3279 Fax:02-2298-2698

Radiated Emission Measurement

File :2009-B0115 Date: 2009/11/25



Site :10MOpensite Polarization: *Vertical* Temperature: 24 °C
Limit: CISPR22/CISPR11/EN55022 Class B 10m Power: AC 230V/50Hz Humidity: 61%
EUT: Fix Dome Network Camera
M/N: FD8161
Note: Full System Operation Mode **(For AC Adaptor)**

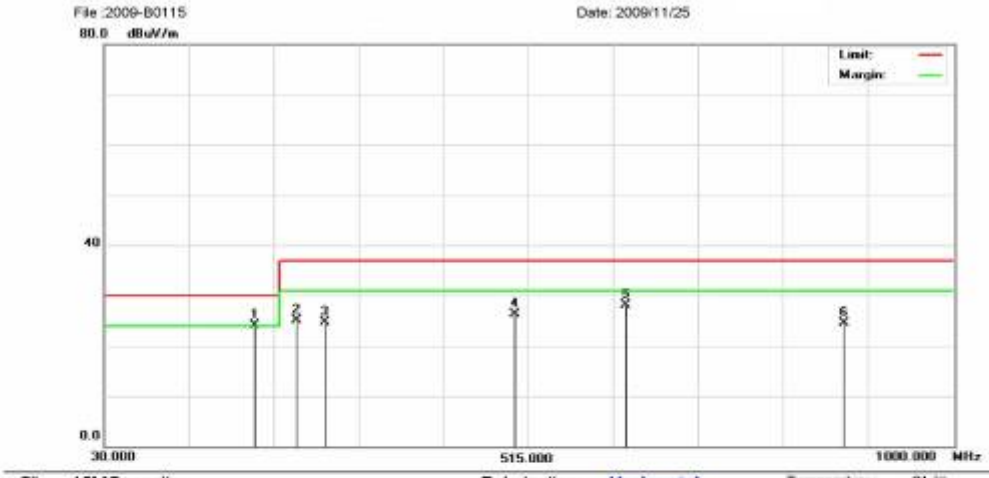
No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	!	71.2200	46.35	-21.51	24.84	30.00	-5.16	QP	
2		162.6300	37.25	-15.49	21.76	30.00	-8.24	QP	
3	*	200.2600	44.43	-17.75	26.68	30.00	-3.32	QP	
4	!	250.3600	47.85	-16.18	31.67	37.00	-5.33	QP	
5		624.5500	38.95	-13.52	25.43	37.00	-11.57	QP	
6		880.1750	35.17	-8.28	26.89	37.00	-10.11	QP	

For POE

2.5.5.3 Horizontal polarization

臺灣檢驗科技股份有限公司 -電子暨通訊實驗室
Address :台北縣五股工業區五工路 134 號
Tel:02-2299-3279 Fax:02-2298-2698

Radiated Emission Measurement



Site :10MOpensite
Limit: CISPR22/CISPR11/EN55022 Class B 10m
EUT: Fix Dome Network Camera
M/N: FD8161
Note: Full System Operation Mode **(For POE)**

Polarization: ***Horizontal***
Power: 230V/50Hz

Temperature: 24 ℃
Humidity: 61%

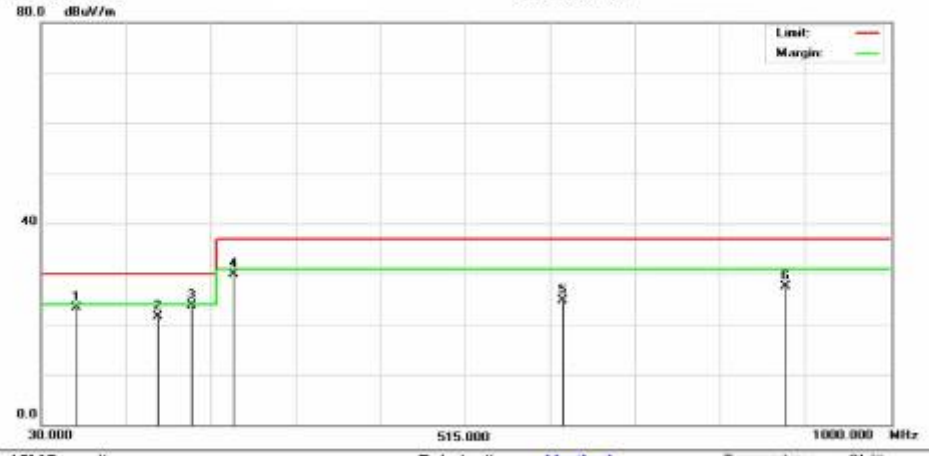
No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	200.3600	46.82	-22.62	24.20	30.00	-5.80	QP	
2		250.2300	46.76	-21.74	25.02	37.00	-11.98	QP	
3		280.1500	45.37	-20.76	24.61	37.00	-12.39	QP	
4		500.3600	39.43	-13.20	26.23	37.00	-10.77	QP	
5		624.3600	38.06	-10.05	28.01	37.00	-8.99	QP	
6		874.4300	34.02	-9.51	24.51	37.00	-12.49	QP	

2.5.5.4 Vertical polarization

SGS
臺灣檢驗科技股份有限公司 -電子暨通訊實驗室
Address :台北縣五股工業區五工路 134 號
Tel:02-2299-3279 Fax:02-2298-2698

Radiated Emission Measurement

File :2009-B0115 Date: 2009/11/25



Site :10MOpensite
Limit: CISPR22/CISPR11/EN55022 Class B 10m
EUT: Fix Dome Network Camera
M/N: FD8161
Note: Full System Operation Mode **(For POE)**

Polarization: *Vertical*
Power: 230V/50Hz

Temperature: 24 ℃
Humidity: 61%

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		70.2100	45.36	-22.05	23.31	30.00	-6.69	QP	
2		162.2600	37.00	-15.49	21.51	30.00	-8.49	QP	
3	*	200.6300	41.36	-17.71	23.65	30.00	-6.35	QP	
4		250.3800	46.00	-16.18	29.82	37.00	-7.18	QP	
5		624.6300	38.20	-13.52	24.68	37.00	-12.32	QP	
6		880.2700	35.83	-8.28	27.55	37.00	-9.45	QP	

3.Harmonics

EN61000-3-2:2006

3.1 Test Results

EN61000-3-2:2006	**PASS**

3.2 Methods and Procedures

Standard	Date	Description
EN61000-3-2	2006	Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)

3.3 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
Power Analyzer	EMC Partner	HAR1000-1P	151	Jun. 08, 2009	Jun. 07, 2010

3.4 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory
No.134, Wu Kung Road. Wuku Industrial Zone, Taipei County 248, Taiwan (R.O.C.)

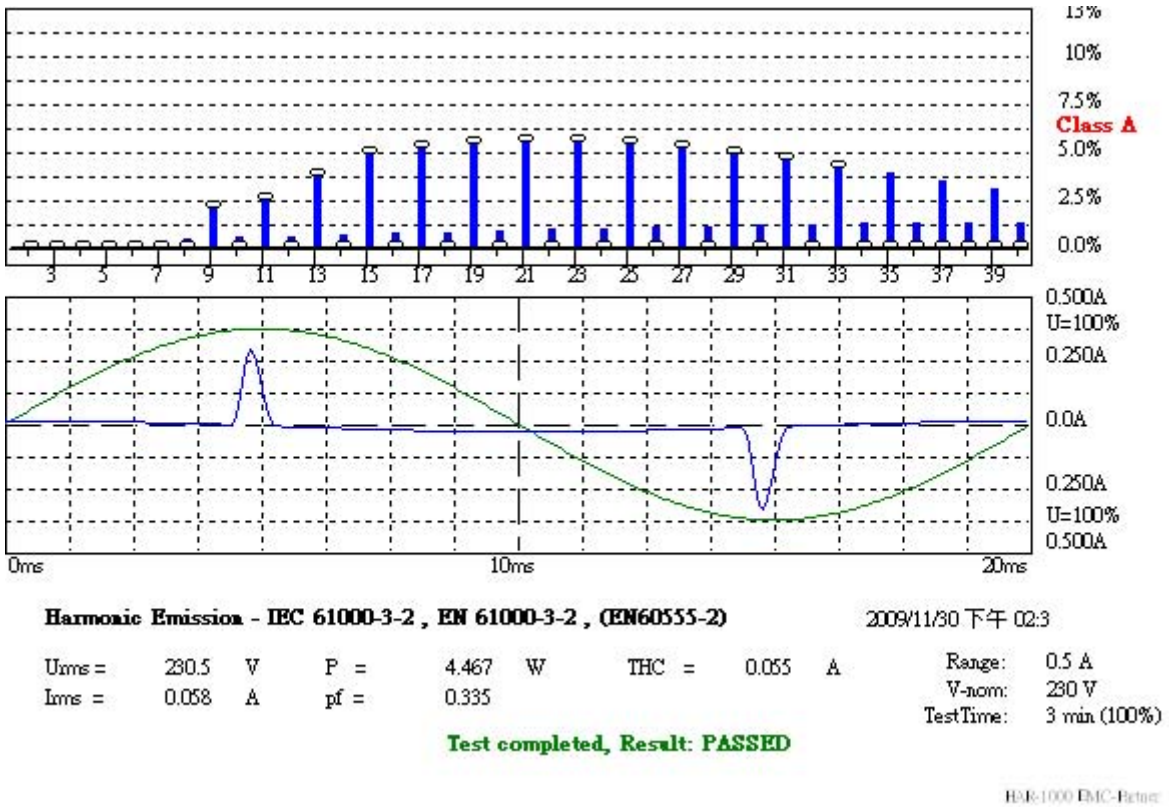
3.5 EUT Operating Condition

Environment :

Temperature	Humidity
20 °C	54 %RH

Test setup : Please refer to photo of HARMONIC testing set-up

3.6 Measurement Data (1)



Harmonic Emission - IEC 61000-3-2 , EN 61000-3-2 , (EN60555-2) 2009/11/30 下午 02:3

Urms =	230.5	V	P =	4.467	W	THC =	0.055	A	Range:	0.5 A
Irms =	0.058	A	pf =	0.335					V-nom:	230 V
									TestTime:	3 min (100%)

Test completed, Result: PASSED

BJR-1000 EMC-Partner

Measurement Data (2)

Urms =	230.5V	Freq =	50.000	Range:	0.5 A
Irms =	0.058A	Ipk =	0.344A	cf =	5.954
P =	4.467W	S =	13.34VA	pf =	0.335
THDi =	90.8 %	THDu =	0.10 %	Class A	
Test - Time : 3min (100 %)					
Test completed, Result: PASSED					

Order	Freq. [Hz]	Iavg [A]	Iavg%L [%]	Imax [A]	Imax%L [%]	Limit [A]	Status
1	50	0.0251		0.0260			
2	100	0.0000	0.0000	0.0014	0.1328	1.0800	
3	150	0.0182	0.7916	0.0191	0.8293	2.3000	
4	200	0.0000	0.0000	0.0014	0.3336	0.4300	
5	250	0.0180	1.5784	0.0188	1.6517	1.1400	
6	300	0.0000	0.0000	0.0014	0.4781	0.3000	
7	350	0.0176	2.2900	0.0184	2.3938	0.7700	
8	400	0.0000	0.0000	0.0014	0.6236	0.2300	
9	450	0.0171	4.2820	0.0179	4.4708	0.4000	
10	500	0.0000	0.0000	0.0014	0.7629	0.1840	
11	550	0.0165	4.9971	0.0172	5.2157	0.3300	
12	600	0.0000	0.0000	0.0014	0.9155	0.1533	
13	650	0.0157	7.4946	0.0164	7.8038	0.2100	
14	700	0.0000	0.0000	0.0014	1.0681	0.1314	
15	750	0.0149	9.9244	0.0155	10.315	0.1500	
16	800	0.0000	0.0000	0.0014	1.2207	0.1150	
17	850	0.0140	10.542	0.0145	10.929	0.1324	
18	900	0.0000	0.0000	0.0014	1.3434	0.1022	
19	950	0.0130	10.939	0.0134	11.313	0.1184	
20	1000	0.0000	0.0000	0.0014	1.4927	0.0920	
21	1050	0.0119	11.114	0.0123	11.479	0.1071	
22	1100	0.0000	0.0000	0.0013	1.6055	0.0836	

23	1150	0.0108	11.079	0.0111	11.386	0.0978	
24	1200	0.0000	0.0000	0.0013	1.7514	0.0767	
25	1250	0.0098	10.836	0.0100	11.088	0.0900	
26	1300	0.0000	0.0000	0.0013	1.8543	0.0708	
27	1350	0.0087	10.419	0.0089	10.620	0.0833	
28	1400	0.0000	0.0000	0.0013	1.9505	0.0657	
29	1450	0.0076	9.8200	0.0078	9.9908	0.0776	
30	1500	0.0000	0.0000	0.0013	2.0400	0.0613	
31	1550	0.0066	9.1063	0.0067	9.2502	0.0726	
32	1600	0.0000	0.0000	0.0012	2.1230	0.0575	
33	1650	0.0056	8.2794	0.0057	8.4147	0.0682	
34	1700	0.0000	0.0000	0.0012	2.1993	0.0541	
35	1750	0.0000	0.0000	0.0049	7.5955	0.0643	
36	1800	0.0000	0.0000	0.0011	2.2092	0.0511	
37	1850	0.0000	0.0000	0.0041	6.6745	0.0608	
38	1900	0.0000	0.0000	0.0011	2.2689	0.0484	
39	1950	0.0000	0.0000	0.0034	5.8187	0.0577	
40	2000	0.0000	0.0000	0.0010	2.2556	0.0460	

4.Flicker

EN61000-3-3:2008

4.1 Test Results

EN61000-3-3:2008	**PASS**

4.2 Methods and Procedures

Standard	Date	Description
EN61000-3-3	2008	Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection

4.3 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
Power Analyzer	EMC Partner	HAR1000-1P	151	Jun. 08, 2009	Jun. 07, 2010

4.4 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory
No.134, Wu Kung Road. Wuku Industrial Zone, Taipei County 248, Taiwan (R.O.C.)

4.5 EUT Operating Condition

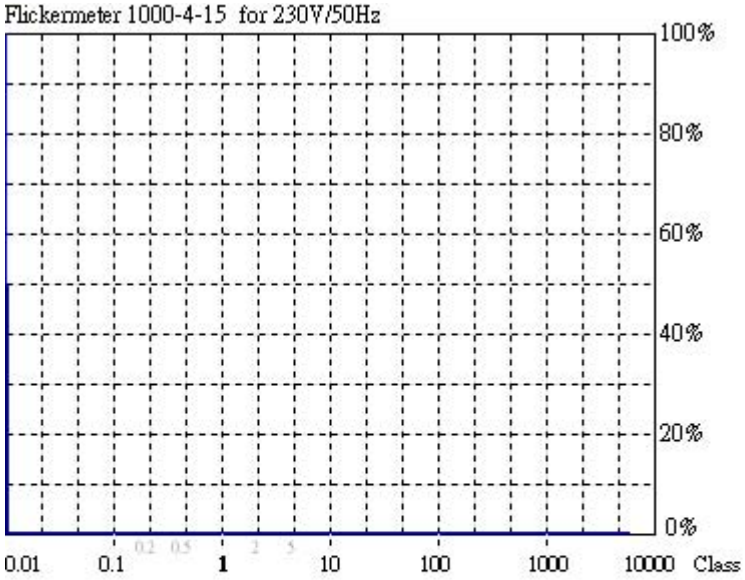
Environment :

Temperature	Humidity
20 °C	54 %RH

Test setup : Please refer to photo of FLICKER testing set-up

4.6 Measurement Data

Flickermeter 1000-4-15 for 230V/50Hz



Actual Flicker (Fli):	**0.00**
Short-term Flicker (Pst):	**0.07**
Limit (Pst):	1.00
Long-term Flicker (Plt):	**0.07**
Limit (Plt):	0.65
Maximum Relative Volt. Change (dmax):	**0.00%**
Limit (dmax):	4.00%
Relative Steady-state Voltage Change (dc):	**0.00%**
Limit (dc):	3.30%
Maximum Interval exceeding 3.30% (dt):	**0.00ms**
Limit (dt>Lim):	500ms

Flicker Emission - IEC 61000-3-3 , EN 61000-3-3 , (EN60555-3)

2009/11/30 下午 02:4

Urms =	230.3	V	P =	4.442	W
Irms =	0.056	A	pf =	0.345	

Range:	0.5 A
V-nom:	230 V
TestTime:	10 min (100%)

Test completed, Result: PASSED

BAR-1000 EMC-Partner

5.IMMUNITY

EN55024:1998+A1:2001+A2:2003

5.1 Test Results

Test Standard	Performance Criteria	Result
IEC61000-4-2:1995+A1:1998+A2:2000	**B**	**PASS**
IEC61000-4-3:2006+A1:2007	**A**	**PASS**
IEC61000-4-4:2004	**B**	**PASS**
IEC61000-4-5:2005	**B**	**PASS**
IEC61000-4-6: 2008	**A**	**PASS**
IEC61000-4-8 : 2009	**A**	**PASS**
IEC61000-4-11:2004	**C/C/B**	**PASS**

5.2 Performance Criteria Description

Criterion A - The apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.

Criterion B - The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.

Criterion C - Temporary loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls.

5.3 Test of IEC61000-4-2

5.3.1 Methods and Procedures

Standard	Date	Description
IEC61000-4-2	1995+A1:1998+A2:2000	Electrostatic Discharge (ESD)

5.3.2 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
ESD Simulator	NoiseKen	ESS-100L/ TC-815R	ESS0635368	Jun. 19, 2009	Jun. 18, 2010
HCP	N/A	1.6 x 0.8 m	N/A	N/A	N/A
VCP	N/A	0.5 x 0.5 m	N/A	N/A	N/A
Ground Reference Plane	N/A	6.5 x 3.5 m	N/A	N/A	N/A

5.3.3 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory
No.134, Wu Kung Road. Wuku Industrial Zone, Taipei County 248, Taiwan (R.O.C.)

5.3.4 EUT Operating Condition

Environment :

Temperature	Humidity
26 °C	58 %RH

Test setup : Please refer to photo of ESD testing set-up

5.3.5 Results of Electrostatic Discharge Test (ESD)

Basic Standard : IEC61000-4-2
Discharge Impedance : 330 ohm / 150 pF
Discharge Voltage : Air Discharge : ±2, 4, 8, 15 KV
Contact Discharge : ±2, 4, 8 kV
HCP/VCP : ±2, 4, 8 kV
Polarity : Positive/Negative
Number of Discharge : 25 times at each test point
Discharge Mode : Single Discharge
Discharge Period : 1 second

Note 1 : For contact discharge, the EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity. All tests according to sec. 4.2.1 of EN55024 : 1998+A1:2001+A2:2003.

A. Observations :

Test points: 1. Case/screw. 2. LED.

Direct Application			**Test Results**	
Discharge Level (kV)	Polarity (+/-)	Test Point	Contact Discharge	Air Discharge
2, 4, 8, 15	+/-	1 ~ 2	N/A	A
2, 4, 8	+/-	1	A	N/A

Remark: A : No degradation of performance or loss of function.
N/A : Not Applicable.

B. Observations :

Test points: 1. Front side. 2. Rear side. 3. Left side. 4. Right side.

Indirect Application			**Test Results**	
Discharge Level (kV)	Polarity (+/-)	Test Point	Horizontal Coupling	Vertical Coupling
2, 4, 8	+/-	1 - 4	A	A

Remark: A : No degradation of performance or loss of function.
N/A : Not Applicable.

5.4 Test of IEC61000-4-3

5.4.1 Methods and Procedures

Standard	Date	Description
IEC61000-4-3	2006+A1:2007	Radio-Frequency Electromagnetic Field Susceptibility Test, RS

5.4.2 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
RS Test Site	Chance Most	8*4*4 Chamber	N/A	Apr. 10, 2009	Apr. 09, 2010
Signal Generator	Agilent	E4438C	MY45093613	May. 22 , 2009	May. 21, 2010
Power Amplifier(200-1000MHz)	OPHIR	5127FE	1050	N/A	N/A
Power Amplifier(800-2500MHz)	FRANKONIA	FLG-50B	1011	N/A	N/A
Power Amplifier(1000-3000MHz)	OPHIR	3814FE	N/A	N/A	N/A
Relay Switching Unit	FRANKONIA	RSU-3203	113A3122	N/A	N/A
Remote RF Switch	Audix	r2S1216	2008040801	N/A	N/A
Turn Table	Chance Most	N/A	N/A	N/A	N/A
Antenna Tower	Chance Most	N/A	N/A	N/A	N/A
Controller	Chance Most	886	N/A	N/A	N/A
Log-Per Broad band Antenna	Schwarzbeck	VUSLP9111E	N/A	N/A	N/A
Strength Field Meter	Wandel & Goltermann	EMR-30	M-0006	Feb. 20, 2009	Feb. 19, 2010

5.4.3 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory
No.134, Wu Kung Road. Wuku Industrial Zone, Taipei County 248, Taiwan (R.O.C.)

5.4.4 EUT Operating Condition

Environment :

Temperature	Humidity
20 °C	58 %RH

Test setup : Please refer to photo of RS testing set-up

5.4.5 Results of Radiated Radio Frequency Electromagnetic (RS)

Basic Standard : IEC61000-4-3
Frequency range : 80 MHz - 1000 MHz
Field strength : 3 V/m
Modulation : 80% AM (1KHz)
Frequency step : 1 % of fundamental
Polarity of Antenna : Horizontal and Vertical
Dwell Time : 3 seconds
Test distance : 3 m

No.	Frequency (MHz)	Antenna Orientation	Observation	EUT Orientation
1	80 - 1000	Vertical/Horizontal	A	0 degree
2	80 - 1000	Vertical/Horizontal	A	90 degree
3	80 - 1000	Vertical/Horizontal	A	180 degree
4	80 - 1000	Vertical/Horizontal	A	270 degree

Remark: A : No degradation of performance or loss of function.
N/A : Not Applicable.

5.5 Test of IEC61000-4-4

5.5.1 Methods and Procedures

Standard	Date	Description
IEC61000-4-4	2004	Electrical fast transient/burst requirements

5.5.2 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
EMS Multi-Tester	EMC Partner	TRANSIENT 2000	648	Feb. 02, 2009	Feb. 01, 2010
Clamp	EMC Partner	CN-EFT1000	469	N/A	N/A

5.5.3 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory
No.134, Wu Kung Road. Wuku Industrial Zone, Taipei County 248, Taiwan (R.O.C.)

5.5.4 EUT Operating Condition

Environment :

Temperature	Humidity
20 °C	56 %RH

Test setup : Please refer to photo of EFT testing set-up

5.5.5 Results of Electrical Fast Transient (EFT)

Basic Standard : IEC61000-4-4
Test Voltage : AC Input/Output : $\pm$ 1 Kv
Signal/Comm. : $\pm$ 0.5 Kv
Polarity : Positive/Negative
Impulse Frequency : 5 kHz
Tr/Tn : 5/50ns
Burst : 15ms/300ms

Observation :

Test Point	Polarity	Test Level (Kv)	Results
L	+/-	1	A
N	+/-	1	A
L-N	+/-	1	A
Signal/Comm.	+/-	0.5	A

Remark: A : No degradation of performance or loss of function.
N/A : Not Applicable.

5.6 Test of IEC61000-4-5

5.6.1 Methods and Procedures

Standard	Date	Description
IEC61000-4-5	2005	Surge immunity test

5.6.2 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
EMS Multi-Tester	EMC Partner	TRANSIENT 2000	648	Feb. 02, 2009	Feb. 01, 2010
Universal Surge CDN	EMC Partner	CDN-UTP	015	Feb. 02, 2009	Feb. 01, 2010

5.6.3 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory
No.134, Wu Kung Road. Wuku Industrial Zone, Taipei County 248, Taiwan (R.O.C.)

5.6.4 EUT Operating Condition

Environment :

Temperature	Humidity
20 °C	54 %RH

Test setup : Please refer to photo of SURGE testing set-up

5.6.5 Results of Surge Test

Test Rate : 1 pulse every minute
No. of Tests : 5 positive and 5 negative pulses
Waveform : 1.2/50μs (8/20μs)

Observation Description

AC Power line & Signal line:

Test Point	Phase Angle (degree)	Polarity (+/-)	Test Level (kV)	Observation
L – N	0, 90, 180, 270	+/-	1	A
L – PE	0, 90, 180, 270	+/-	2	N/A
N – PE	0, 90, 180, 270	+/-	2	N/A
BNC	N/A	+/-	1	N/A

Remark: A : No degradation of performance or loss of function.
N/A : Not Applicable.

Test Rate : 1 pulse every minute
No. of Tests : 5 positive and 5 negative pulses
Waveform : 10/700μs

Observation Description

Telecommunication line:

Test Point	Phase Angle (degree)	Polarity (+/-)	Test Level (kV)	Observation
LAN	N/A	+/-	1	A
POE LAN	N/A	+/-	1	N/A

Remark: A : No degradation of performance or loss of function.
N/A : Not Applicable.

5.7 Test of IEC61000-4-6

5.7.1 Methods and Procedures

Standard	Date	Description
IEC61000-4-6	2008	Immunity to conducted disturbances, induced by radio-frequency fields.

5.7.2 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
CS Test Site	N/A	N/A	N/A	Apr. 10, 2009	Apr. 09, 2010
Signal Generator	ROHDE&SCHWARZ	SMY01	844146/016	Dec. 11, 2009	Dec. 10, 2010
RF Power Amplifier	Kalmus	116FC-CE	8380-1	N/A	N/A
6dB-PowerAttenuator	Bird	25-A-MFN-06	9731	N/A	N/A
Coaxial Cables	N/A	No. 15-17, 21-23	N/A	N/A	N/A
CDN (2 Pin)	COMTEST	4412-16	9743	Feb. 13, 2009	Feb. 12, 2010
EM Injection Clamp	FCC	F-203I-23MM	479	N/A	N/A

5.7.3 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory
No.134, Wu Kung Road. Wuku Industrial Zone, Taipei County 248, Taiwan (R.O.C.)

5.7.4 EUT Operating Condition

Environment :

Temperature	Humidity
20 °C	54 %RH

Test setup : Please refer to photo of CS testing set-up

5.7.5 Results of Immunity to Conducted Disturbances (CS)

Basic Standard : IEC61000-4-6
Frequency range : 0.15 MHz - 80 MHz
Field strength : 3 V/rms
Modulation : 80% AM, 1 kHz Sinewave
Frequency step : 1 % of fundamental
Dwell Time : 3 seconds
Coupling Method : CDN 2 Lines/Clamp

Cable Description	Frequency (MHz)	Observation
AC input	0.15 – 80	A

Signal Ports

Cable Description	Frequency (MHz)	Observation
Signal/Comm.	0.15 – 80	A

Remark: A : No degradation of performance or loss of function.

N/A : Not Applicable.

5.8 Test of IEC61000-4-8

5.8.1 Methods and Procedures

Standard	Date	Description
IEC61000-4-8	2009	Power Frequency Magnetic Field Immunity Test

5.8.2 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
EMS Multi-Tester	EMC Partner	Transient 2000	648	Feb. 02, 2009	Feb. 01, 2010
PMF Antenna	EMC Partner	MF-1000	MF-1000-2 -07	Feb. 02, 2009	Feb. 01, 2010

5.8.3 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory
No.134, Wu Kung Road. Wuku Industrial Zone, Taipei County 248, Taiwan (R.O.C.)

5.8.4 EUT Operating Condition

Environment :

Temperature	**Humidity**
20 °C	54 %RH

Test setup: Please refer to photo of PRMF testing set-up

5.8.5 Result of Immunity to power Frequency Magnetic

Basic Standard: IEC61000-4-8 : 2009
Power Frequency:50 Hz
Magnetic Field: 1 A/m(r.m.s)
Observation: A

Remark: A : No degradation of performance or loss of function.
N/A : Not Applicable.

5.9 Test of IEC61000-4-11

5.9.1 Methods and Procedures

Standard	Date	Description
IEC61000-4-11	2004	Voltage dips, short interruptions and voltage variations immunity tests

5.9.2 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
EMS Multi-Tester	EMC Partner	TRANSIENT 2000	648	Feb. 02 , 2009	Feb. 01 , 2010

5.9.3 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory
No.134, Wu Kung Road. Wuku Industrial Zone, Taipei County 248, Taiwan (R.O.C.)

5.9.4 EUT Operating Condition

Environment :

Temperature	Humidity
20 °C	53 %RH

Test setup : Please refer to photo of DIP testing set-up

5.9.5 Results of Voltage Dips Immunity Test

EUT Rated Voltage : 230 Volts.
Voltage : 30, 95 % Ut
Phase Angle : 0,180 degree
Total events: 3 dropouts
Event interval : 10 seconds

Environmental phenomena	Test specification	Duration (in periods of the rated frequency)	Observation
Interruptions	>95	250	B
Voltage dips	>95	0.5	A
	30	25	A

Remark: A : No degradation of performance or loss of function.
B : During testing, the EUT have stop. Testing complete, it can return to normal operation.
N/A : Not Applicable.

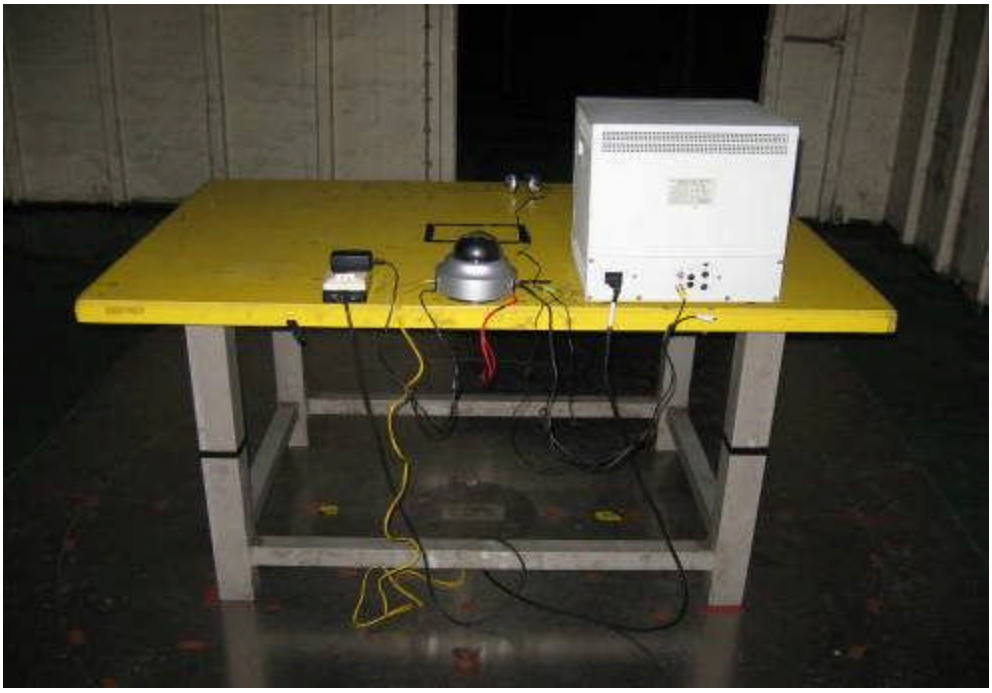
APPENDIX - Constructional Details

Photograph of Testing General Set-up

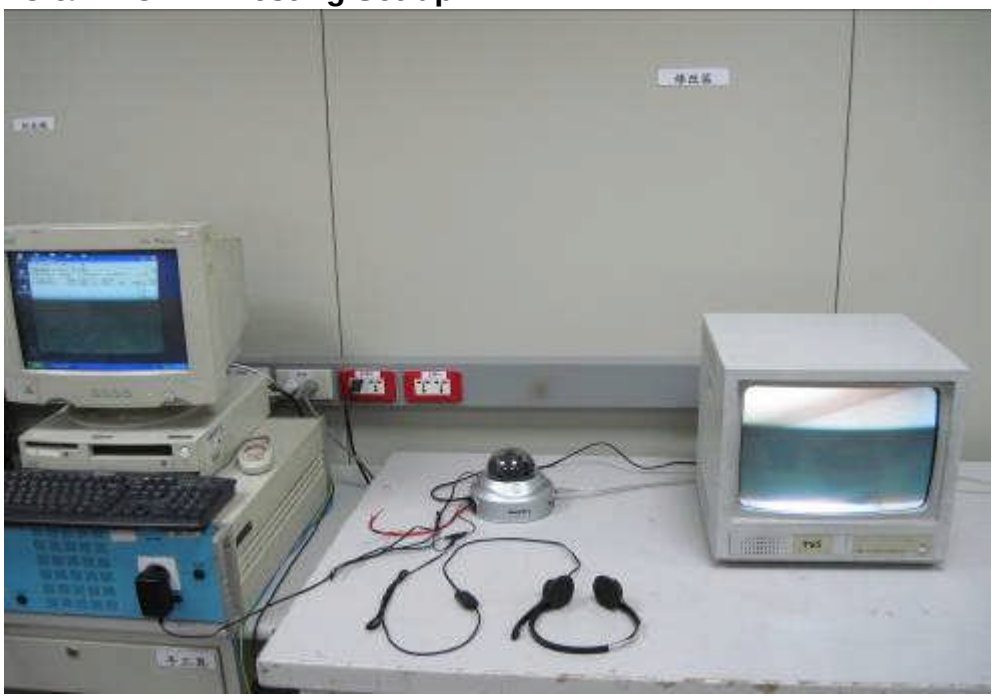
CE Testing Set-up

ISN Testing Set-up

RE Testing Set-up



HARMONIC & FLICEKR Testing Set-up



ESD Testing Set-up

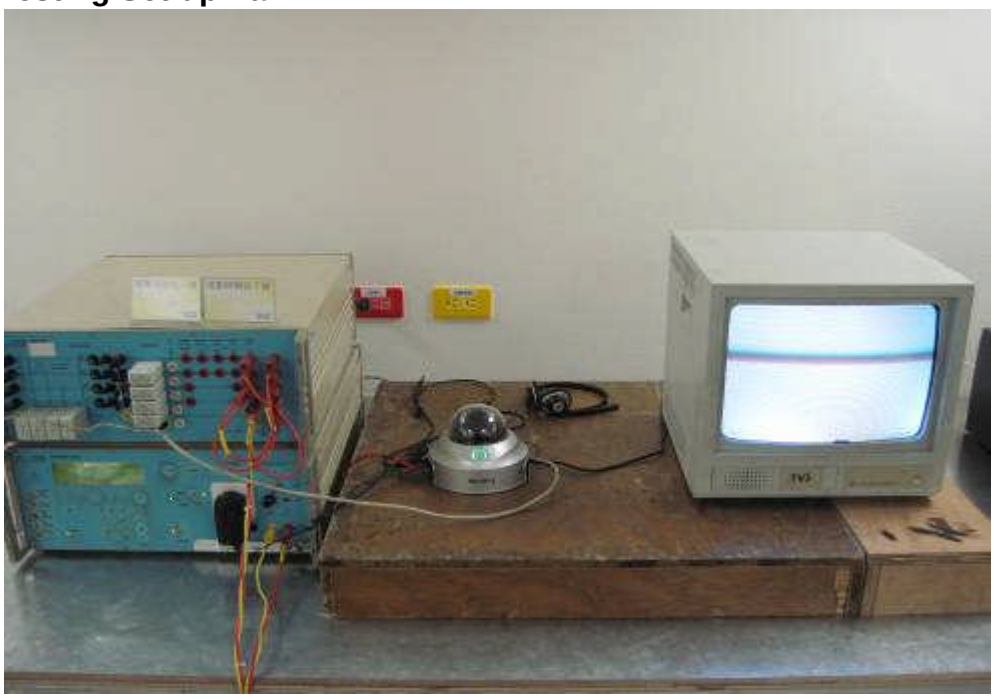
RS Testing Set-up

EFT Testing Set-up

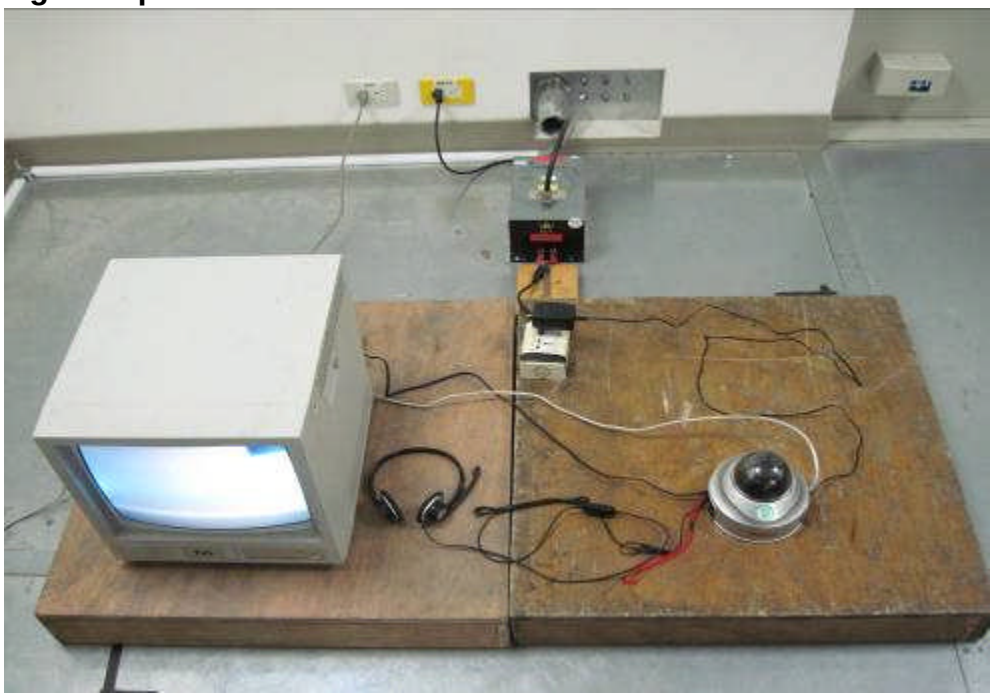
EFT Testing Set-up(Clamp)

SURGE Testing Set-up

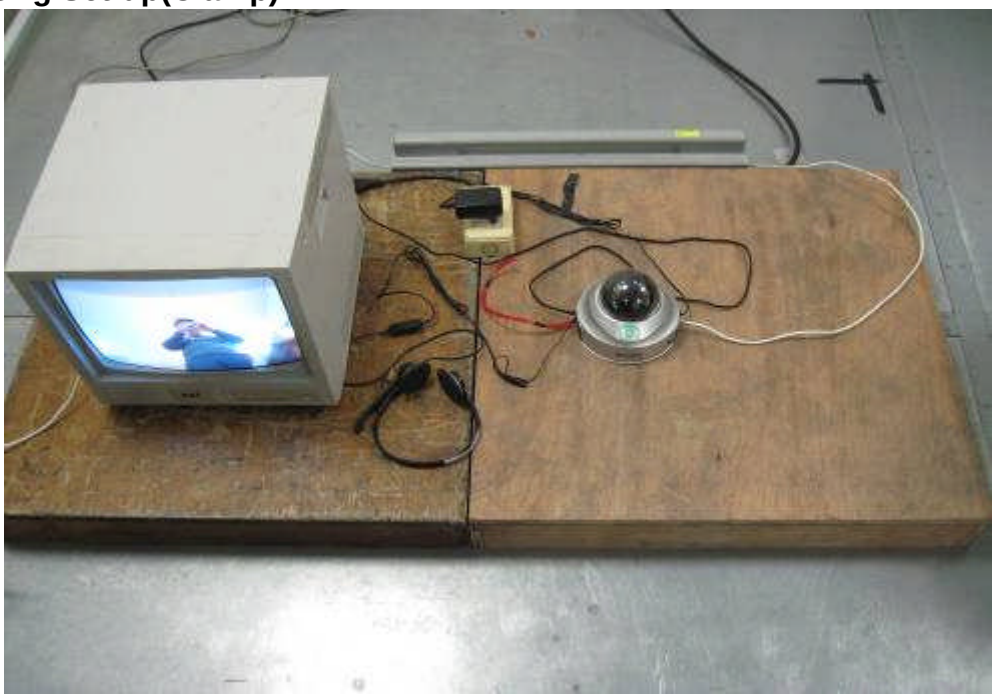
SURGE Testing Set-up-Lan



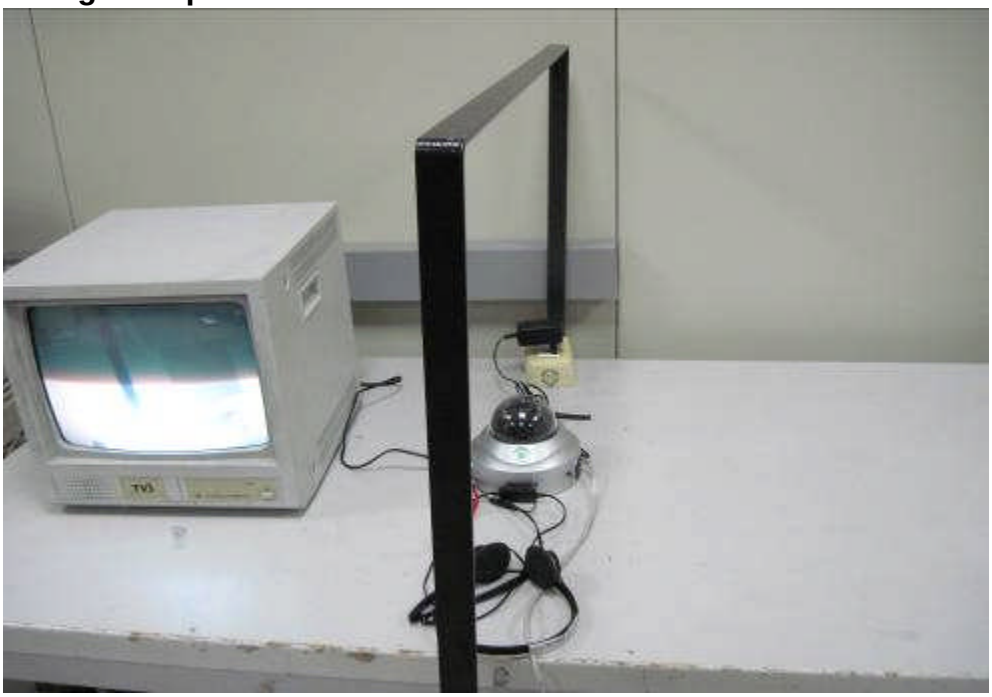
CS Testing Set-up



CS Testing Set-up(Clamp)



PMF Testing Set-up



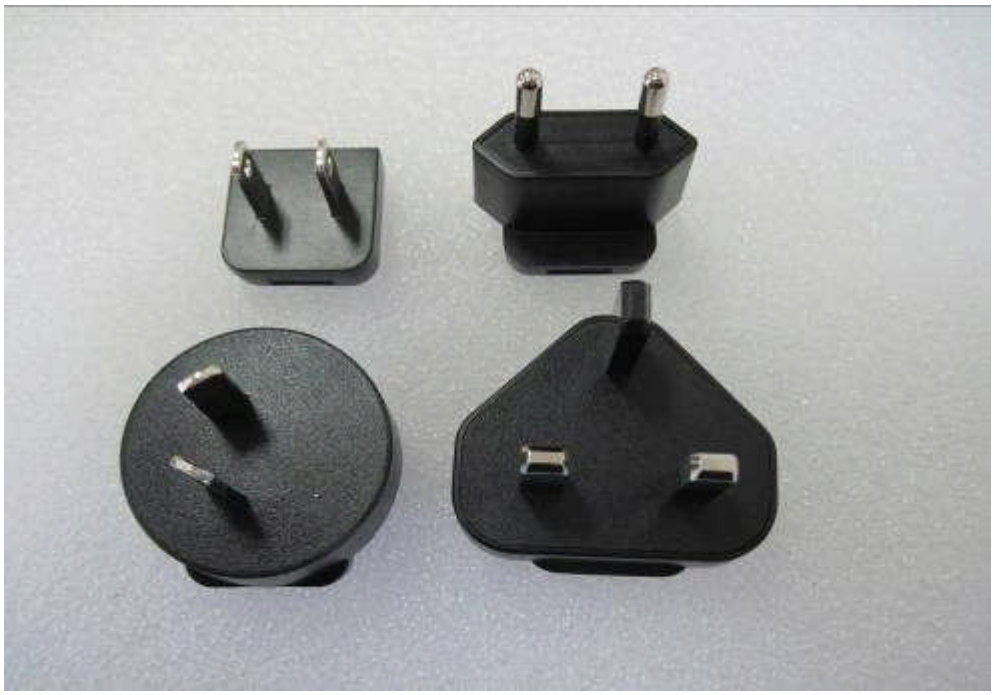
DIP Testing Set-up

Photographs of EUT Unit

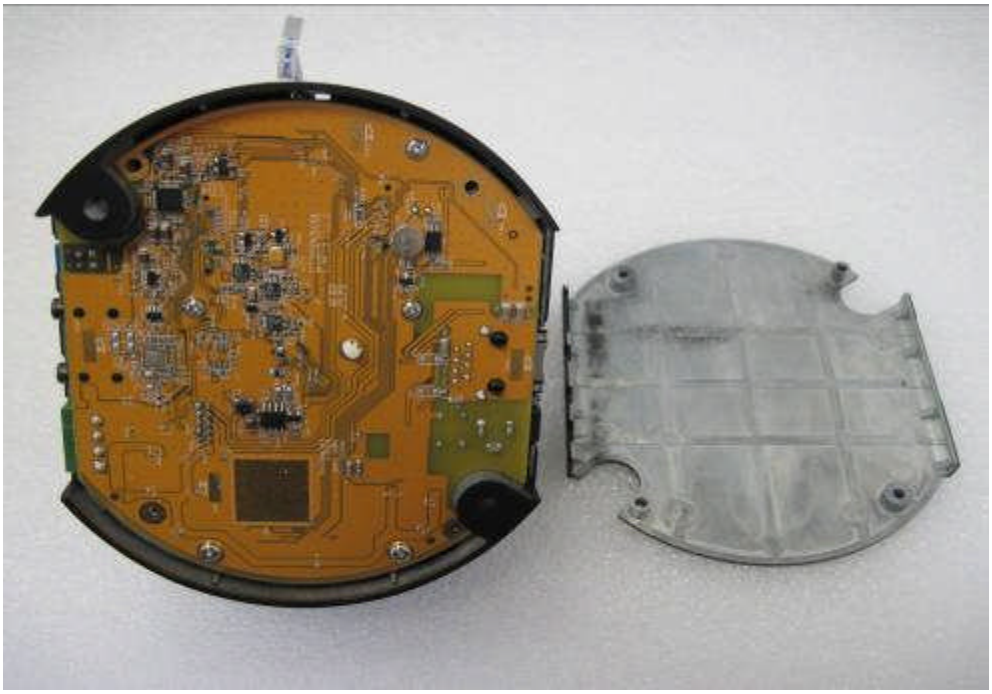
Exterior:

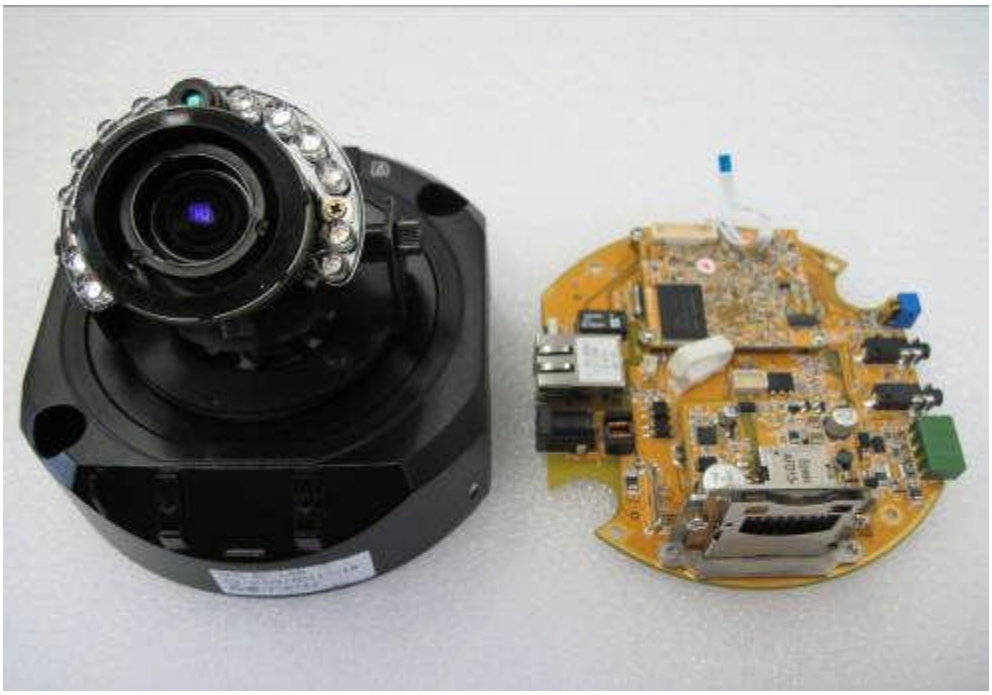

SWITCH-MODE
POWER SUPPLY
MODEL: 3A-183WP12
INPUT:100-240V~,50-60Hz,0.6A
OUTPUT: 12V ⎓ 1.5A
FOR I.T.E. USE ONLY
EFFICIENCY LEVEL V
LPS
Intertek
0936 S
MADE IN CHINA

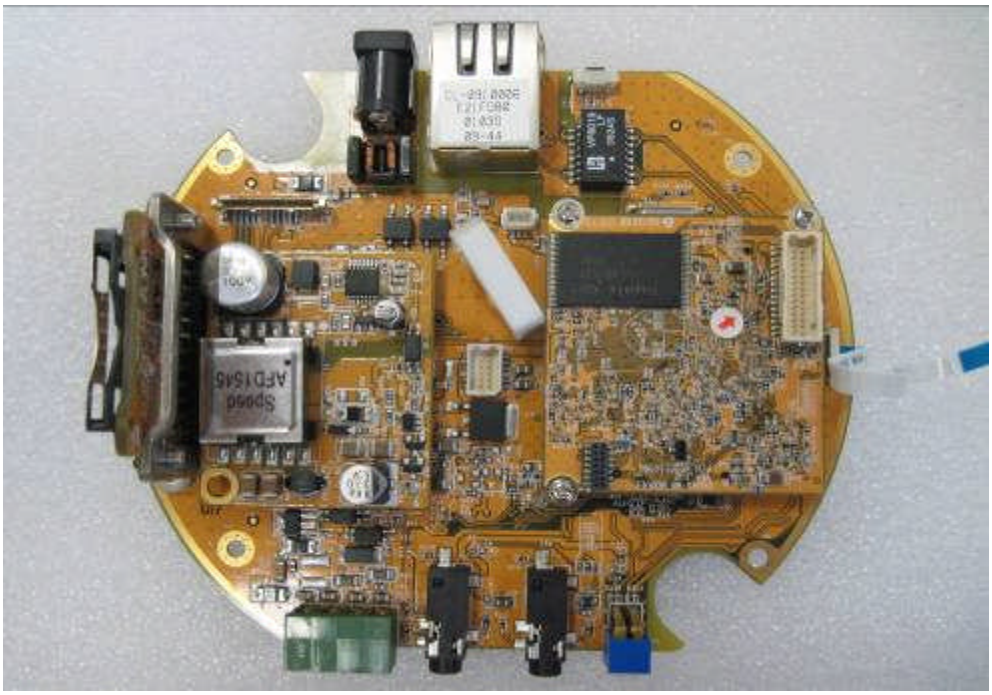

SWITCH-MODE
POWER SUPPLY
MODEL: 3A-183WP12
INPUT: 100-240V~, 50-60Hz,0.6A
OUTPUT: 12V ⎓ 1.5A
FOR I.T.E. USE ONLY
intertek
c UL us
LISTED
E163743
EFFICIENCY LEVEL V
0946 X
MADE IN CHINA

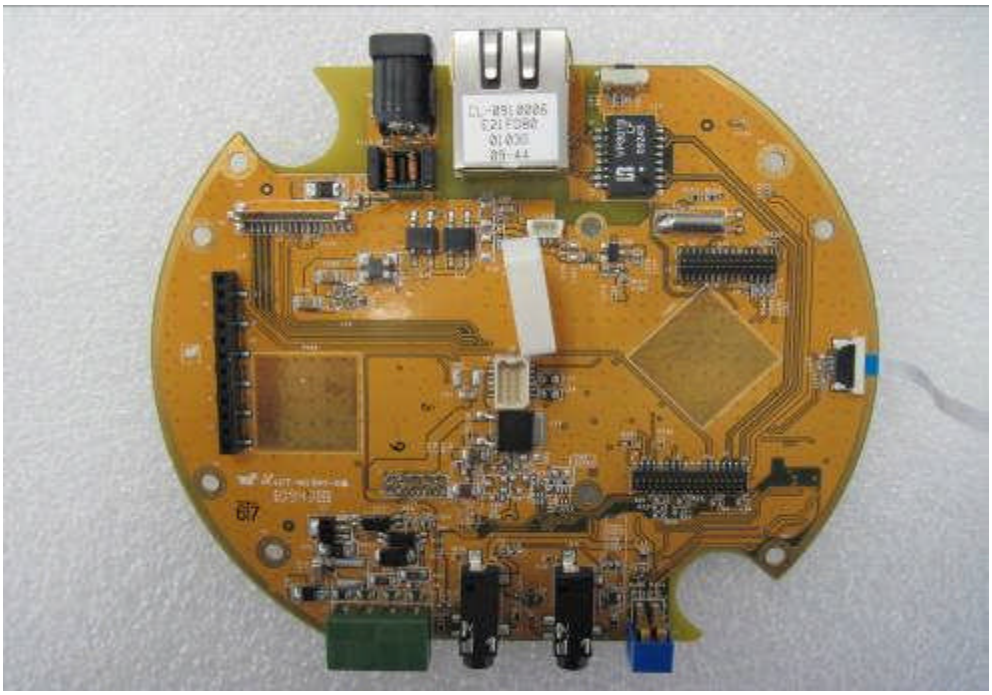


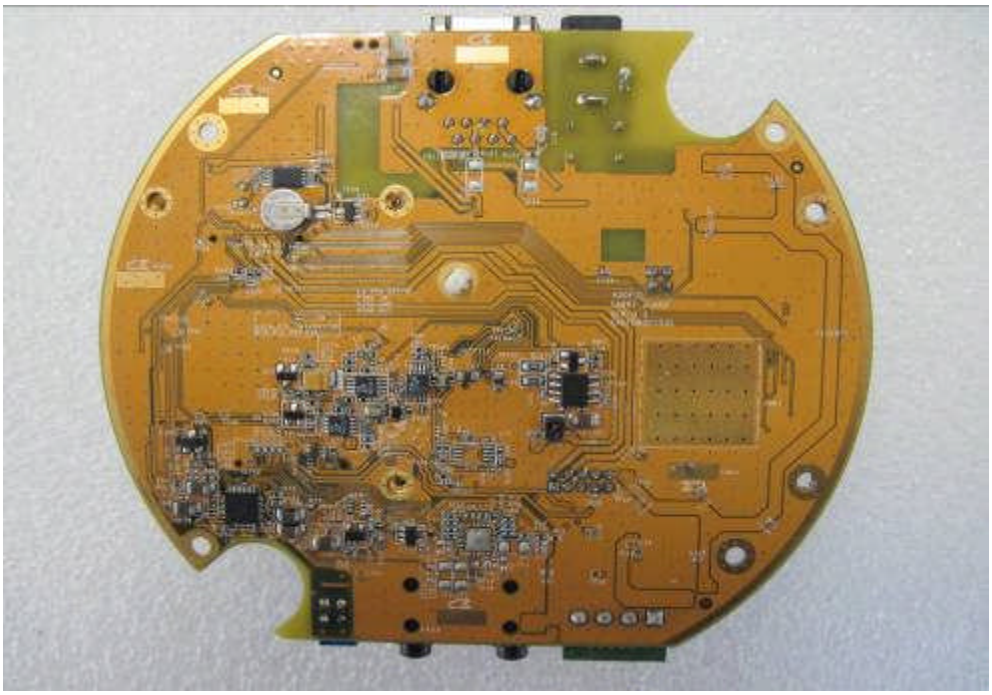
Interior:

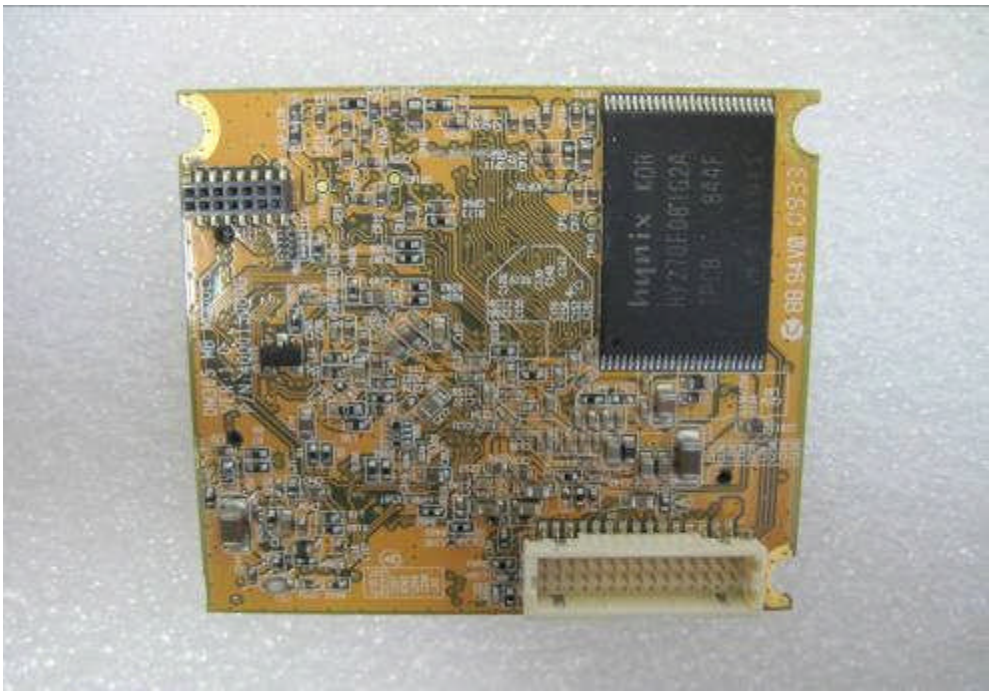




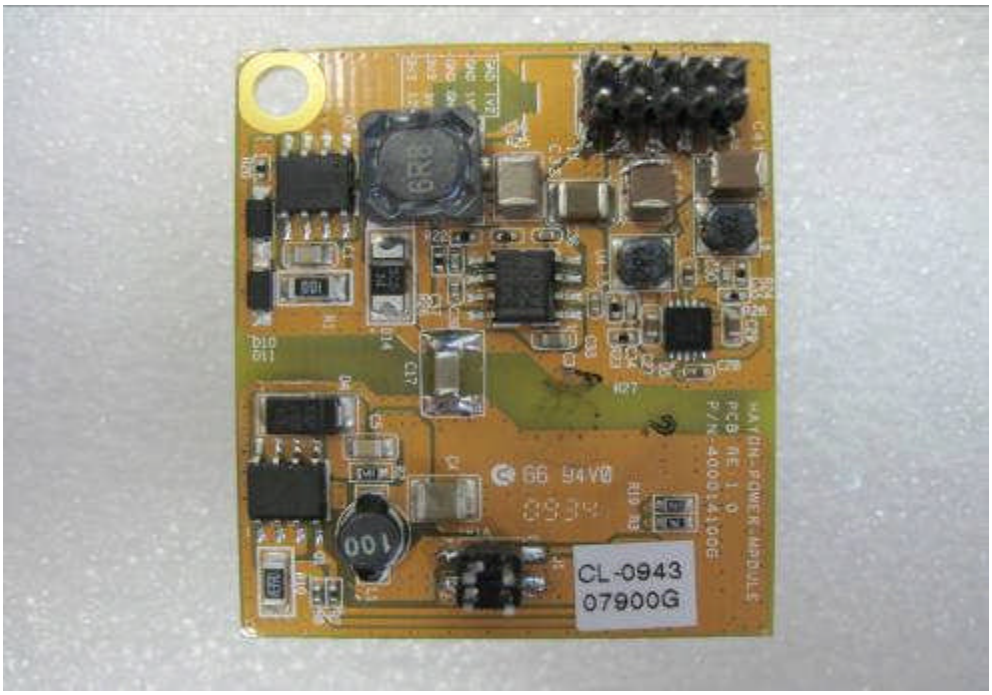


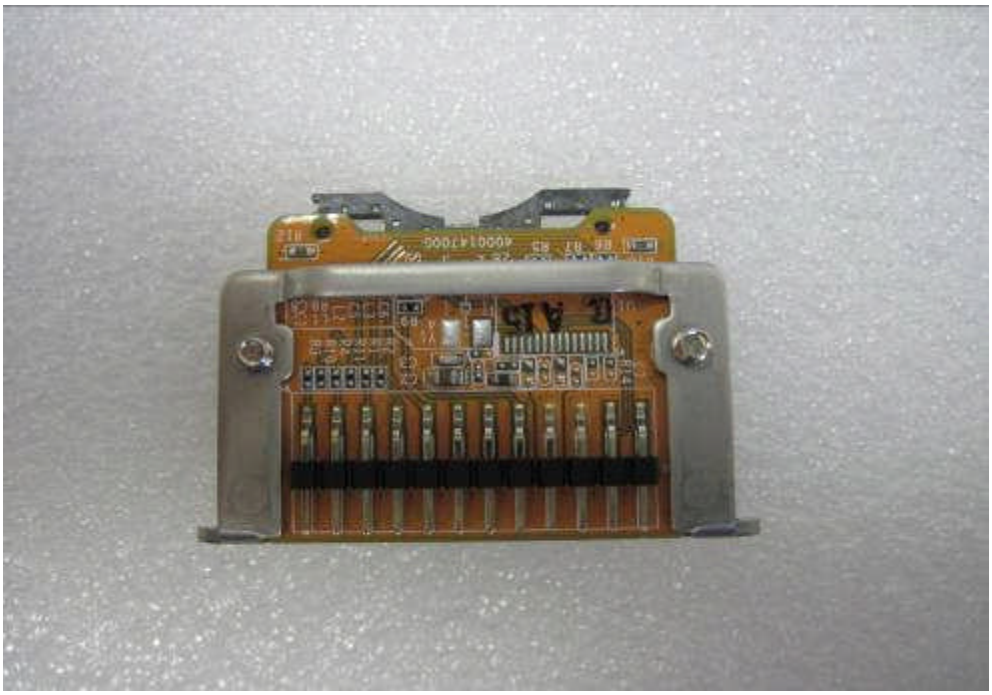


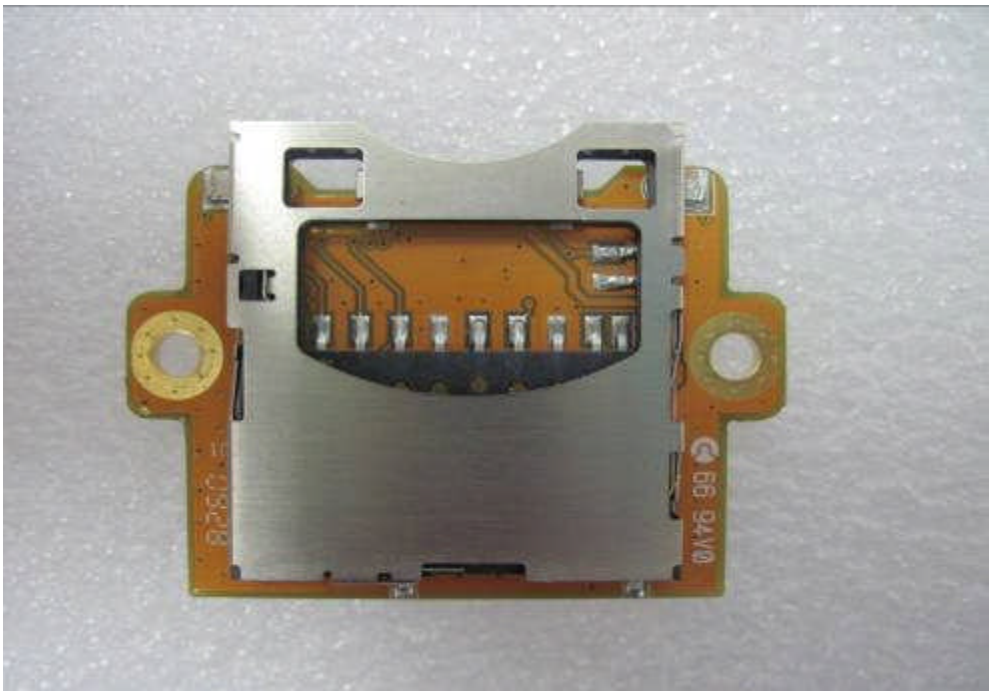


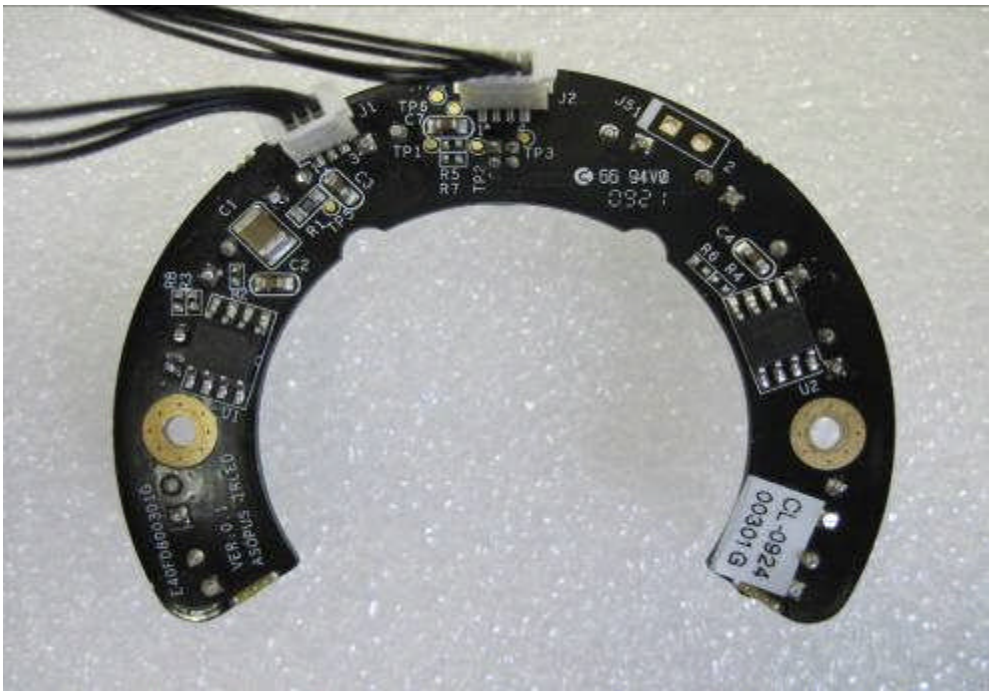

hynix KOR


Speed
AFD1545

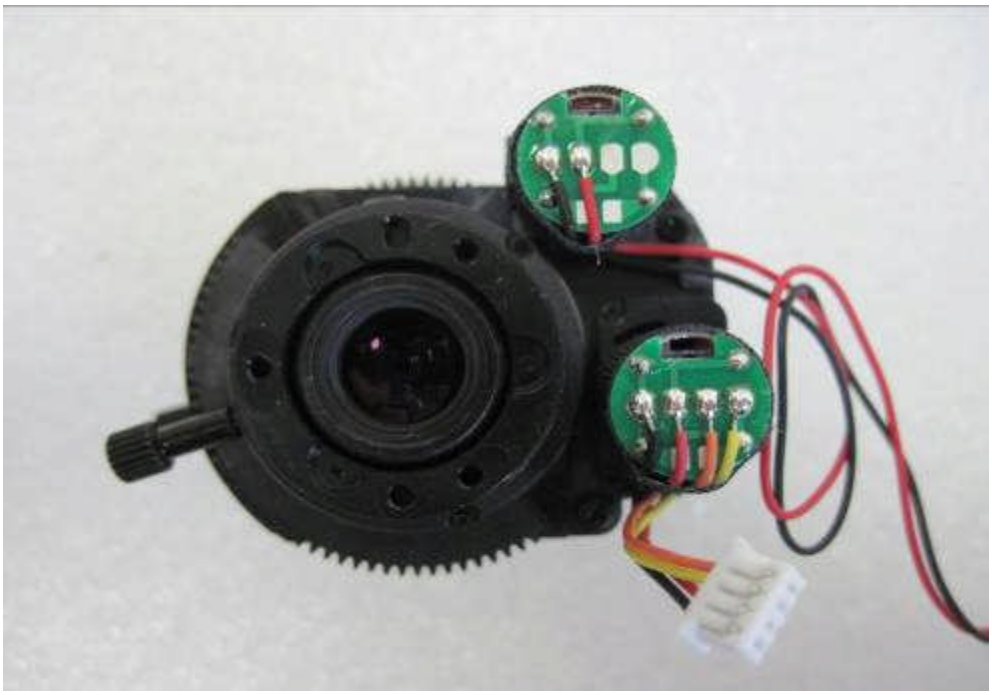

CL-0943
07900G

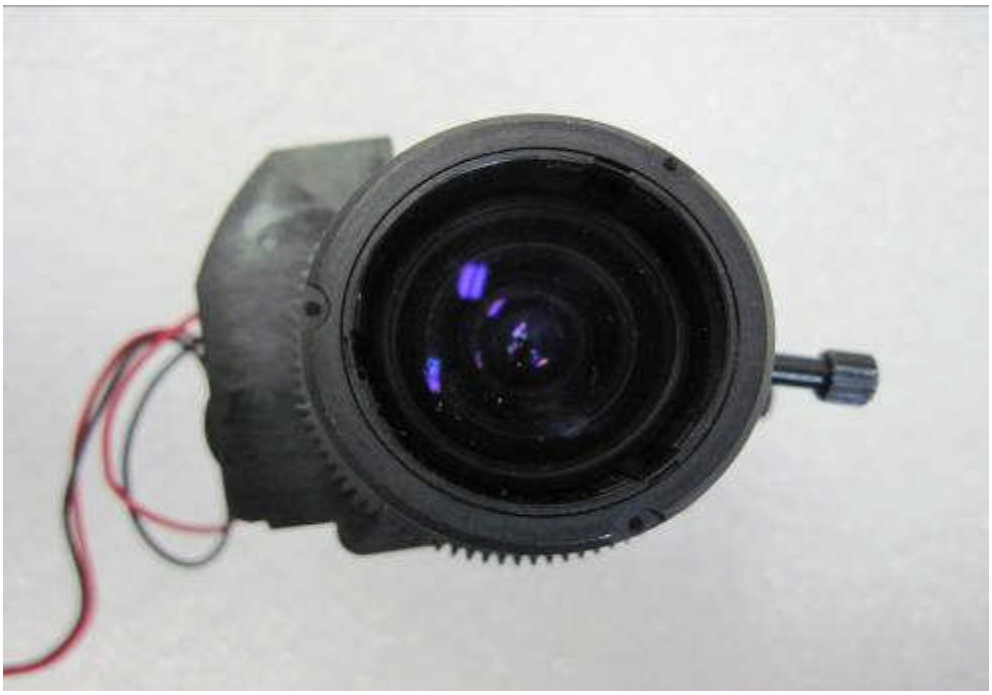


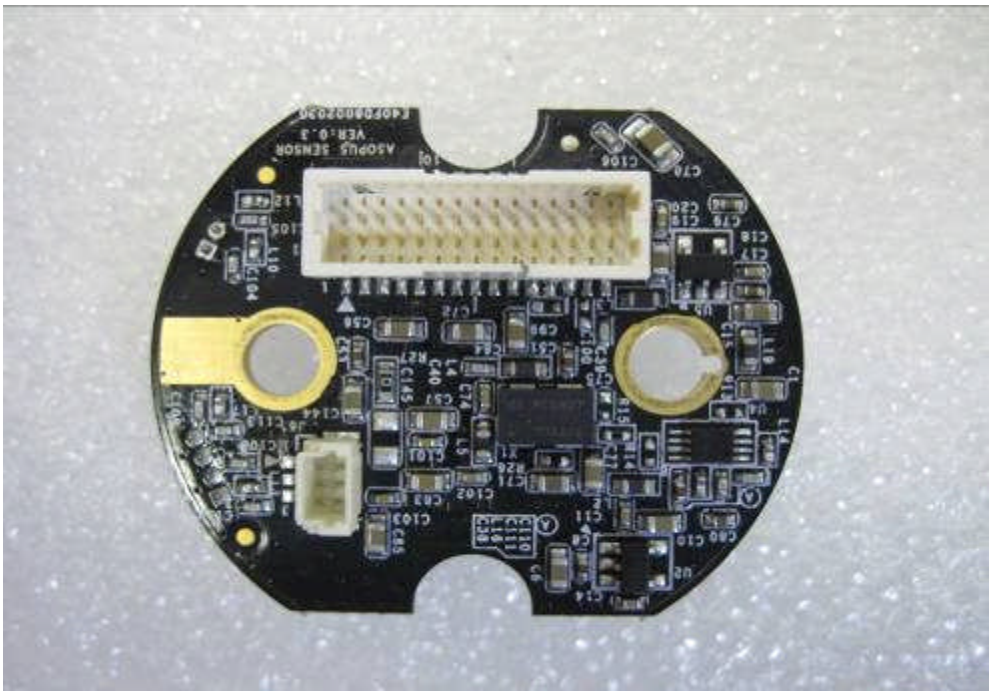


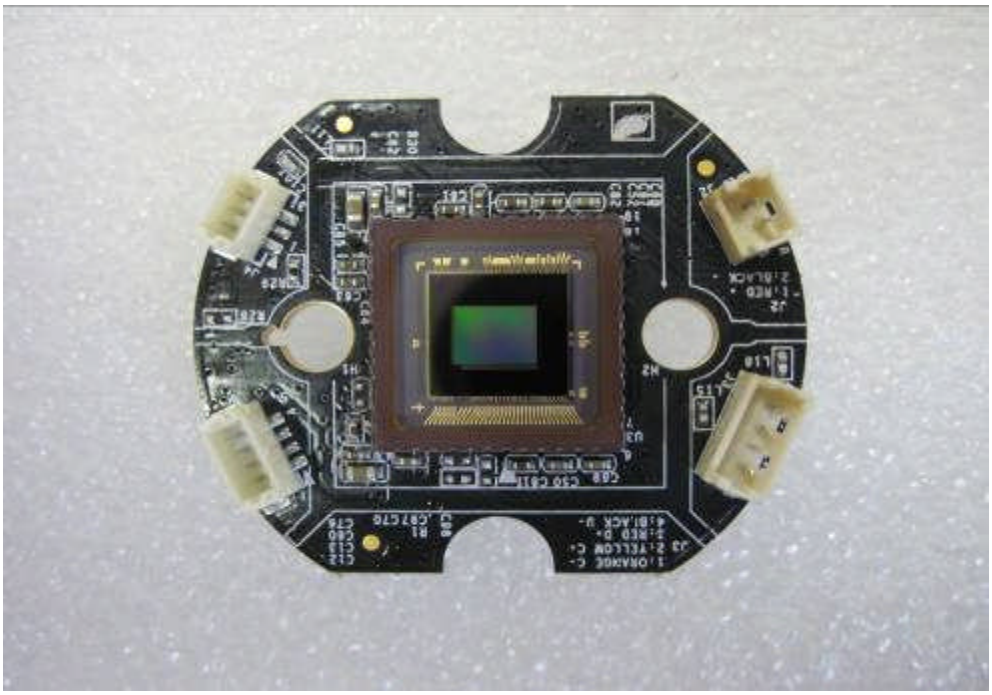

J1
J2
JS1
TP1
TP2
TP3
TP5
TP6
C1
C2
C4
R1
R3
R4
R5
R6
R7
U2
VER:0.1
ASORUS JR1.0


LD1
LD2
LD3
LD4
LD5
LD6
LD7
LD8
LD9
LD10
LD11
LD12
J3









** End of Report **