

VERIFICATION OF FCC PART 15 COMPLIANCE

*KES hereby verify that the subject product complies with all the
electromagnetic emission specified in the FCC Rule Part 15*

Product Description:	CCTV CAMERA
Model/Brand Name:	HCO-6070RN
Variant Model:	-
FCC Rule Part(s):	FCC 47CFR Part 15 Subpart B Class A Part 15.107(b) & Part 15.109(b)
FCC Procedure:	Verification
Applicant Name:	Hanwha Techwin Co., Ltd.
Applicant Address:	1204, Changwon-dareri, Seongsan-gu Changwon-si, Gyeongsangnam-do, Korea.
Manufacturer Name:	Hanwha Techwin (Tianjin) Co., Ltd.
Manufacturer Address:	No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385, People's Republic of China
Test Report Reference No.:	KES-E1-17T0171

CCTV CAMERA, Model **HCO-6070RN** has been tested in accordance with the measurement procedures specified in FCC 47CFR Part 15 Subpart B class A and has been shown to be complied with the electromagnetic emission limits specified in FCC Rule Part 15 Subpart B class A. A testing of the sample product has been valid for the sample tested based on the reference test report, KES-E1-17T0171

Date of Issue: 02. 27, 2017

Dong Hun, Jang
Technical Manager
Signature:



KES.Co., Ltd.

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EMC TEST REPORT For FCC

Test Report No. : KES-E1-17T0171

Date of Issue : Feb. 27, 2017

Product name : CCTV CAMERA

Model/Type No. : HCO-6070RN

Variant Model : -

Applicant : Hanwha Techwin Co., Ltd.

Applicant Address : 1204, Changwon-daero, Seongsan-gu Changwon-si,
Gyeongsangnam-do, Korea.

Manufacturer : Hanwha Techwin (Tianjin) Co.,Ltd.

Manufacturer Address : No.11 Weiliu Rd, Micro-Electronic Industrial
Park, TEDA, Tianjin, 300385, People's Republic of China.

Equipment authorization : ☐ Declaration of Conformity
☒ Verification
☐ Certification

Date of Receipt : Feb, 03, 2017

Test date : Feb, 14, 2017

Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

Jin Bae, Lee
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

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Test report No.:
KES-E1-17T0171
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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Feb. 27, 2017	KES-E1-17T0171	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Video	
Imaging Device	1/2.8" 2M CMOS
Total Pixels	1,945(H) x 1,109(V) 2.16M pixels
Effective Pixels	1,945(H) x 1,097(V) 2.13M pixels
Scanning System	Progressive Scan
Min. Illumination	Color : 0.2Lux (F1.4, 50IRE); 0.11Lux (F1.4, 30IRE) B/W : 0Lux(IR LED on)
S / N Ratio	52dB (AGC off, Weight on)
Video Output	BNC(AHD / TVI / CVI / CVBS Selectable)
Resolution	1920 x 1080
Max. Framerate	30fps @1080p 25fps @1080p
Lens Type	
Focal Length (Zoom Ratio)	2.8 ~ 12mm (4.3x) varifocal
Max. Aperture Ratio	F1.4
Angular Field of View	H : 103.8°(Wide) ~ 32.4°(Tele) / V : 53.7°(Wide) ~ 18.4°(Tele) D : 121.9°(Wide) ~ 37.1°(Tele)
Min. Object Distance	0.5m (1.64ft)
Focus Control	Manual
Lens Type	DC Auto Iris
Mount Type	Board-in type
Auto Back Focus(ABF)	-
Operational	
IR LED	
Viewable length	30m (98.43ft)
On Screen Display	Multi-language Support(16) English, Japanese, Spanish, French, Portuguese, Korean, German, Italian, Russian, Polish, Czech, Romanian, Serbian, Swedish, Danish, Turkish
Camera Title	Off / On (Displayed 15 characters)
Day & Night	Auto (ICR) / Color / B/W
Backlight Compensation	Off / User BLC / HLC
Wide Dynamic Range	120dB
Contrast Enhancement	-
Digital Noise Reduction	SSNR4 (Off / On)
Defog	AUTO / MANUAL / OFF
Digital Image Stabilization	Not support
Motion Detection	Off / On(4 zones)
Privacy Masking	Off / On (4zones rectangle)
Gain Control	Off / Low / Middle / High / Very High
White Balance	ATW / Outdoor / Indoor / Manual / AWC (1,800K ~ 10,500K)
LDC (Lens Distortion Correction)	Not support
Electronic Shutter Speed	1sec~ 1/12,000sec
Digital Zoom	Not support
Reverse	Off / H-Rev / V-Rev / HV-Rev
Profile	Basic, Day & Night, Backlight, ITS, Indoor, User
Intelligent Video Analytics	Not support
Alarm	MD output 1
Remote control interface	Coaxial
Protocol	NTSC/PAL : Pelco-C (Coaxitron) AHD : ACP(AHD Coax Protocol)
Video Transmission Distance	500m(5C2V Coaxial Cable)
Environmental	
Operating Temperature / Humidity	-30°C ~ +55°C (-22°F ~ +131°F) / Less than 90% RH * Start up should be done at above -10°C
Ingress Protection	IP66
Vandal Resistance	IK10
Electrical	
Input Voltage/Current	Dual (24VAC±10% & 12VDC±10%)
Power Consumption	Max. 6W
Mechanical	
Color / Material	Dark Gray / Aluminum
Dimension (WxHxD)	260* Ø 78 mm
Weight	922g

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1.1 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

Voltage ☐ 100 Vac ☐ 120 Vac ☒ 24 Vac ☒ 12 Vdc ☐ PoE

Frequency ☐ 50 Hz ☒ 60 Hz ☐ Hz

1.2 Variant Model Differences

Not applicable

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
CCTV CAMERA	HCO-6070RN	-	Hanwha Techwin (Tianjin) Co.,Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
MONITOR	M1950DM	206KCLH81256	LG Electronics Co., Ltd.	-
MONITOR Adapter	PA-1650-64	OE9FA612314103637	LITE-ON TECHNOLOGY CORPORATION	-
Alarm	-	-	-	-



1.6 External I / O Cabling

- AC 24 V Mode

Start		END		Cable Spec.	
Description	I / O Port	Description	I / O Port	Length	Shield
CCTV CAMERA (E.U.T)	BNC	MONITOR	Component	3.5	S
	2 Pin	Alarm	2 Pin	3.0	U

- DC 12 V Mode

Start		END		Cable Spec.	
Description	I / O Port	Description	I / O Port	Length	Shield
CCTV CAMERA (E.U.T)	BNC	MONITOR	Component	3.5	S
	2 Pin	Alarm	2 Pin	3.0	U

* Unshielded = U, Shielded = S

1.7 EUT Operating Mode(s)

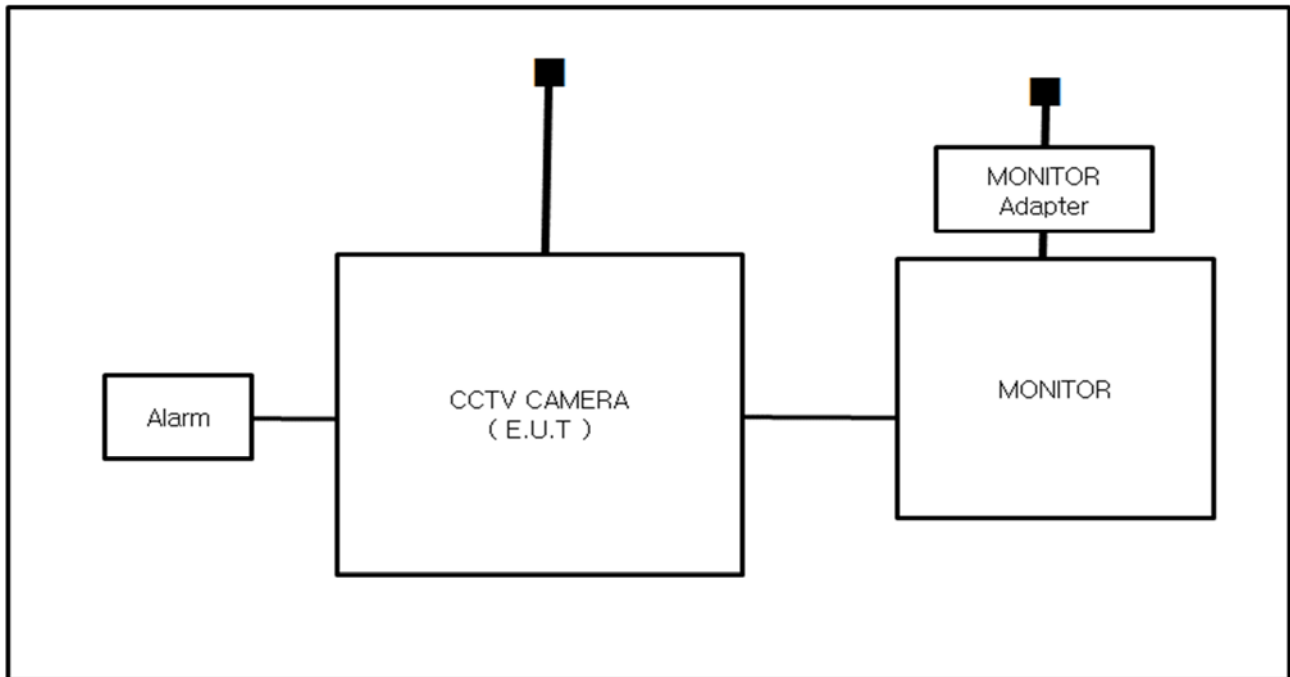
Test mode	operating
AC 24 V, DC 12 V	E.U.T Monitoring

E.U.T Test operating S/W		
Name	Version	Manufacture Company
-	-	-

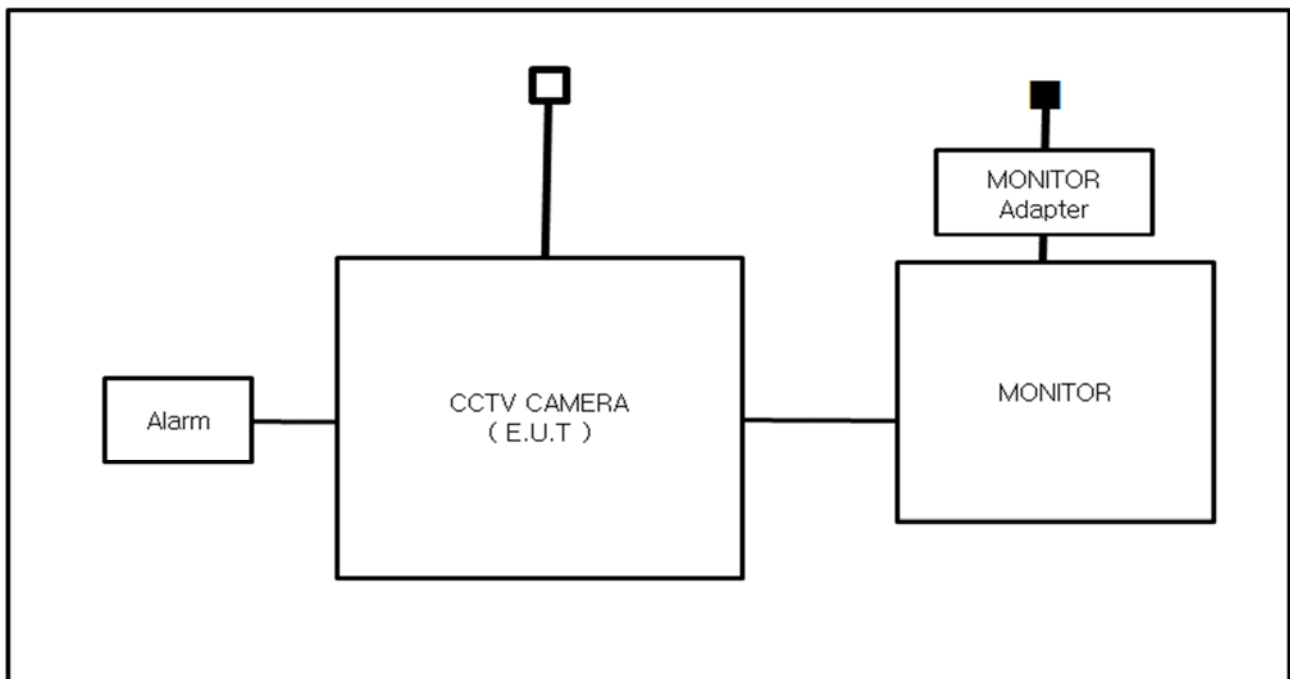
1.8 Configuration

■ AC Main
□ DC Main

- AC 24 V Mode



- DC 12 V Mode



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1.9 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

1.10 Test Facility

The measurement facility is located at 473-21 Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Korea. The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

1.11 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	
JAPAN	VCCI	Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz	 R-4308, C-4798, T-2311, G-914
KOREA	MSIP	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
Canada	IC	3 & 10 meter Open Area Test Sites and one conducted site	 4769B-1
Europe	CE	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	
International	KOLAS	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	

2.0 Test Regulations

The emissions tests were performed according to following regulations:

☐ **EMC – Directive 2014/30/EU**

☐ EN 61000-6-3:2011

☐ EN 61000-6-1:2007

☐ EN 61000-6-4:2007 +A1:2011

☐ EN 61000-6-2:2005

☐ EN 55011:2007 +A1:2010

☐ Group 1
☐ Class A

☐ Group 2
☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 55032:2012

☐ Class A

☐ Class B

☐ EN 55024:2010

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013



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- | | | |
|--|---|----------------------------------|
| ☐ VCCI V-3 / 2015.04 | ☐ Class A | ☐ Class B |
| ☐ AS/NZS CISPR22:2009 + A1:2010 | ☐ Class A | ☐ Class B |
| ☒ 47 CFR Part 15, Subpart B | | |
| ☐ CISPR 22:2009 + A1:2010 | ☐ Class A | ☐ Class B |
| ☒ ANSI C63.4-2014 | ☒ Class A | ☐ Class B |
| ☐ IC Regulation ICES-003 : 2016 | | |
| ☐ CAN/CSA CISPR 22-10 | ☐ Class A | ☐ Class B |
| ☐ ANSI C63.4-2014 | | |
| ☐ MEDICAL – Directive 93/42/EEC | | |
| ☐ EN 60601-1-2 :2007 | | |
| ☐ RE– Directive 2014/53/EU | | |
| ☐ EN 301 489-1 V1.9.2 | | |
| ☐ Equipment for fixed use | | |
| ☐ Equipment for vehicular use | | |
| ☐ Equipment for portable use | | |
| ☐ EN 301 489-3 V1.6.1 | | |
| ☐ EN 301 489-17 V2.2.1 | | |
| ☐ EN 60945:2002 | | |

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2.1 Conducted Emissions at Mains Power Ports

Test Date

Feb, 14, 2017

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESR3	R & S	101783	05, 03, 2017
☒	LISN	ENV216	R & S	101137	02, 03, 2018
☒	LISN	ENV216	R & S	101786	05, 02, 2017
☒	PULSE LIMITER	ESH3-Z2	R & S	101914	12, 13, 2017
☒	Shield Room #3	-	SEMITEC	-	-
☒	EMI Test S/W	EMC32	R & S	9.12.00	-

Test Conditions

Temperature: 22,9 °C

Relative Humidity: 41,3 %

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.



2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Feb, 14, 2017

Test Location

☐ Open Area Test Site #1 ☒ Open Area Test Site #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI TEST Receiver	ESR3	R & S	101781	05, 03, 2017
☒	Trilog-Broadband Antenna	VULB9163	Schwarzbeck	715	04, 14, 2018
☒	OATS	-	KES	-	-
☒	Antenna Mast	-	DAEIL EMC	-	-
☒	Turn Table	-	DAEIL EMC	-	-
☒	EMI Test S/W	-	-	-	-

Test Conditions

Temperature: 5,1 °C
Relative Humidity: 45,0 %

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

2.3 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Feb, 14, 2017

Test Location

Semi Anechoic Chamber #1

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	Log-Periodic Antenna	STLP 9149	SCHWARZBECK	9149-255	05, 17, 2018
☒	EMI TEST Receiver	ESU26	R & S	100551	04, 18, 2017
☒	Preamplifier	SCU 18	R & S	102232	06, 29, 2017
☒	Semi Anechoic Chamber #1	-	KES	-	-
☒	Tilt Antenna Mast	TAM 4.0-E	maturro	18100116	-
☒	Turn Table	DT 2000-1,5T	INN-CO	-	-
☒	EMI Test S/W	N/A	N/A	N/A	N/A

Test Conditions

Temperature: 25,0 °C

Relative Humidity: 33,8 %

Frequency Range of Measurement

1 GHz to 6 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

APPENDIX A – TEST DATA

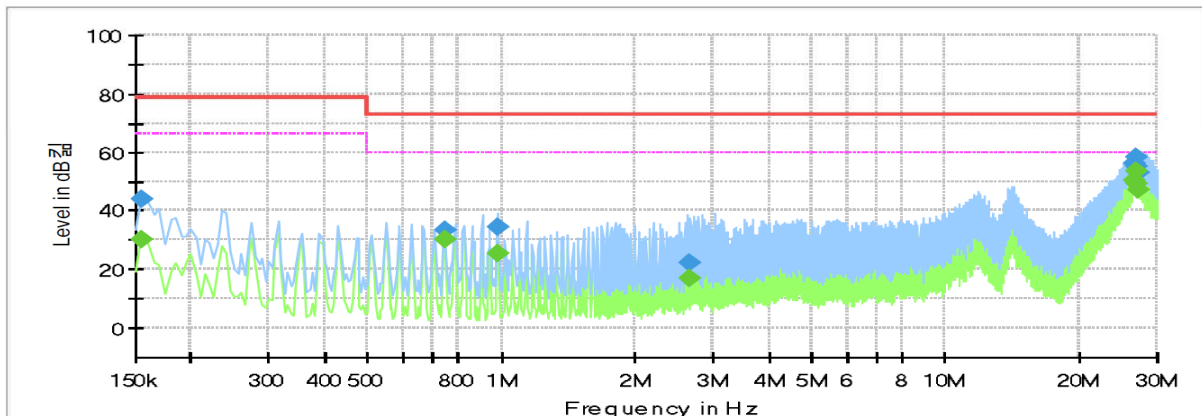
Conducted Emissions at Mains Power Ports

- AC 24 V Mode

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	HCO-6070RN
Mode	AC 24 V_H
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	43.83	---	79.00	35.17	1000.0	9.000	L1	21.0
0.155000	---	30.12	66.00	35.88	1000.0	9.000	L1	21.0
0.745000	33.29	---	73.00	39.71	1000.0	9.000	L1	20.3
0.745000	---	30.33	60.00	29.67	1000.0	9.000	L1	20.3
0.980000	34.25	---	73.00	38.75	1000.0	9.000	L1	20.2
0.980000	---	25.17	60.00	34.83	1000.0	9.000	L1	20.2
2.665000	22.00	---	73.00	51.00	1000.0	9.000	L1	19.8
2.665000	---	17.07	60.00	42.93	1000.0	9.000	L1	19.8
26.705000	---	50.30	60.00	9.70	1000.0	9.000	L1	20.3
26.705000	55.91	---	73.00	17.09	1000.0	9.000	L1	20.3
26.985000	---	49.15	60.00	10.85	1000.0	9.000	L1	20.3
26.985000	55.10	---	73.00	17.90	1000.0	9.000	L1	20.3
27.025000	---	53.72	60.00	6.28	1000.0	9.000	L1	20.3
27.025000	58.17	---	73.00	14.83	1000.0	9.000	L1	20.3
27.060000	---	47.04	60.00	12.96	1000.0	9.000	L1	20.3
27.060000	53.17	---	73.00	19.83	1000.0	9.000	L1	20.3

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

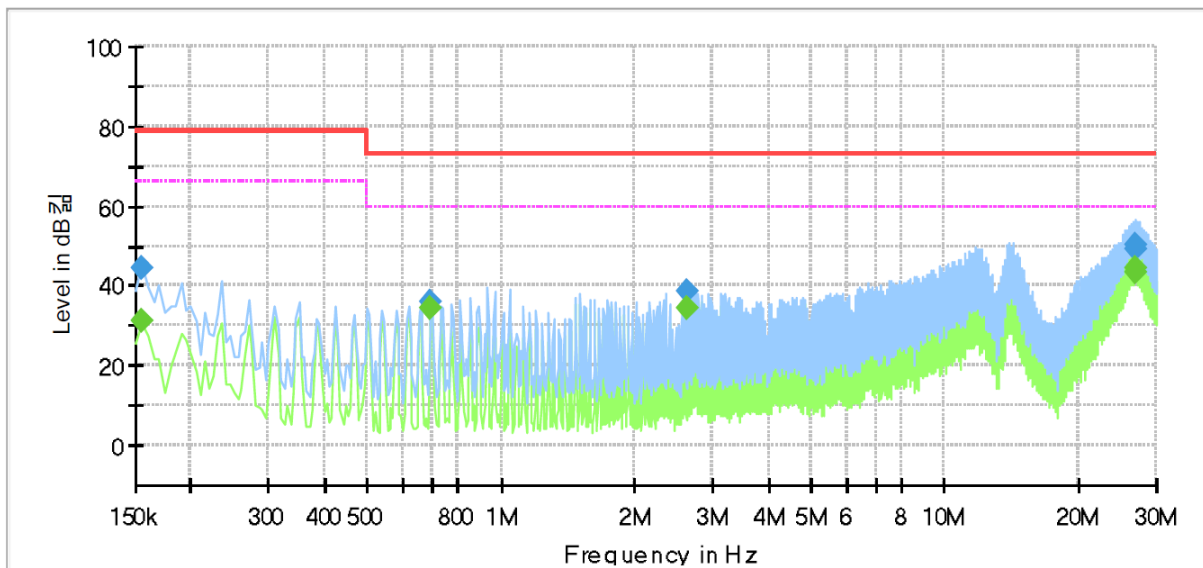
Reading Value : Not shown in the table.

Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

[NEUTRAL]

Common Information

Test Description: Conducted Emission
Model No.: HCO-6070RN
Mode: AC 24 V_N
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	31.14	66.00	34.86	1000.0	9.000	N	21.0
0.155000	44.56	---	79.00	34.44	1000.0	9.000	N	21.0
0.695000	---	34.35	60.00	25.65	1000.0	9.000	N	20.4
0.695000	35.93	---	73.00	37.07	1000.0	9.000	N	20.4
2.630000	---	34.48	60.00	25.52	1000.0	9.000	N	19.8
2.630000	38.85	---	73.00	34.15	1000.0	9.000	N	19.8
26.990000	---	44.37	60.00	15.63	1000.0	9.000	N	20.3
26.990000	50.21	---	73.00	22.79	1000.0	9.000	N	20.3
27.030000	---	43.42	60.00	16.58	1000.0	9.000	N	20.3
27.030000	49.43	---	73.00	23.57	1000.0	9.000	N	20.3

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

Radiated Electric Field Emissions(Below 1 GHz)

- AC 24 V Mode

Frequency	Amplitude	ANT	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dBμV]	Polar. (H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dBμV/m]	[dBμV/m]	[dB]
130.88	16.43	V	1.01	8.72	2.79	27.94	43.50	15.56
162.35	10.61	H	3.98	8.60	3.18	22.39	43.50	21.11
242.61	10.33	H	3.99	12.39	4.06	26.78	46.40	19.62
297.38	10.18	V	1.02	13.36	4.59	28.13	46.40	18.27
371.24	10.24	V	1.00	14.95	5.08	30.27	46.40	16.13
546.42	9.84	H	4.00	18.21	6.44	34.49	46.40	11.91

* H : Horizontal, V : Vertical

◆ Calculation

Corrected Amplitude [dBuV] = Amplitude[dBuV] + Correction Factor [dB]
Corrected Amplitude : The Final Value, Amplitude : Reading Value,
Correction Factor : ANT FACTOR + Cable loss

- DC 12 V Mode

Frequency	Amplitude	ANT	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dBμV]	Polar. (H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dBμV/m]	[dBμV/m]	[dB]
45.52	11.24	V	1.01	13.27	1.62	26.13	43.50	17.37
158.04	10.98	H	3.94	8.44	3.13	22.55	43.50	20.95
207.51	10.84	H	3.99	11.63	3.63	26.10	43.50	17.40
297.03	17.31	V	1.00	13.35	4.59	35.25	46.40	11.15
371.44	10.88	H	3.98	14.95	5.08	30.91	46.40	15.49
545.00	9.86	V	1.03	18.19	6.43	34.48	46.40	11.92

* H : Horizontal, V : Vertical

◆ Calculation

Corrected Amplitude [dBuV] = Amplitude[dBuV] + Correction Factor [dB]
Corrected Amplitude : The Final Value, Amplitude : Reading Value,
Correction Factor : ANT FACTOR + Cable loss

**Radiated Electric Field Emissions(Above 1 GHz)**

- AC 24 V Mode

- PK

Frequency	Amplitude	ANT Polar.	ANT. Height	Correction Factor			Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]	(H/V)	[m]	ANT. [dB /m]	Cable [dB]	AMP [dB]	[dB μ V/m]	[dB μ V/m]	[dB]
1 088.000	80.150	H	3.160	20.940	3.230	43.640	60.680	80.000	19.320
1 144.000	69.620	V	2.610	21.230	3.300	43.640	50.510	80.000	29.490
1 608.000	74.540	H	3.650	23.600	3.880	43.660	58.360	80.000	21.640
1 609.000	72.280	V	2.680	23.600	3.880	43.660	56.100	80.000	23.900
3 570.000	31.410	H	3.480	30.700	6.160	44.240	24.030	80.000	55.970
3 588.000	30.770	V	2.150	30.730	6.190	44.240	23.450	80.000	56.550
4 609.000	41.920	H	3.660	32.510	6.830	44.280	36.980	80.000	43.020
4 790.000	40.310	V	2.160	32.840	6.990	44.300	35.840	80.000	44.160

- AV

Frequency	Amplitude	ANT Polar.	ANT. Height	Correction Factor			Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]	(H/V)	[m]	ANT. [dB /m]	Cable [dB]	AMP [dB]	[dB μ V/m]	[dB μ V/m]	[dB]
1 079.000	57.020	H	3.480	20.890	3.220	43.640	37.490	60.000	22.510
1 153.000	52.970	V	1.980	21.270	3.320	43.640	33.920	60.000	26.080
1 600.000	49.650	H	3.610	23.560	3.860	43.660	33.410	60.000	26.590
1 617.000	49.340	V	2.350	23.640	3.900	43.670	33.210	60.000	26.790
3 573.000	43.660	H	3.650	30.710	6.160	44.240	36.290	60.000	23.710
3 590.000	44.000	V	2.480	30.730	6.190	44.240	36.680	60.000	23.320
4 600.000	28.120	H	3.160	32.490	6.820	44.270	23.160	60.000	36.840
4 783.000	27.460	V	2.680	32.830	6.980	44.300	22.970	60.000	37.030

◆ Calculation

Correction Factor [dB] = Ant Factor[dB/m] + Cable Loss [dB] – Preamp Factor [dB]

Corrected Amplitude [dB μ V] = Amplitude[dB μ V] + Correction Factor [dB]

Corrected Amplitude : The Final Value, Amplitude : Reading Value

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KES-E1-17T0171
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- DC 12 V Mode

- PK

Frequency	Amplitude	ANT Polar.	ANT. Height	Correction Factor			Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dBμV]	(H/V)	[m]	ANT. [dB /m]	Cable [dB]	AMP [dB]	[dBμV/m]	[dBμV/m]	[dB]
1 099.000	75.710	V	2.680	21.000	3.240	43.640	56.310	80.000	23.690
1 610.000	71.080	V	2.340	23.610	3.880	43.660	54.910	80.000	25.090
1 638.000	74.590	H	3.180	23.750	3.940	43.670	58.610	80.000	21.390
2 174.000	57.660	H	3.120	26.330	4.740	43.860	44.870	80.000	35.130
3 444.000	30.860	H	3.370	30.500	5.940	44.240	23.060	80.000	56.940
3 599.000	43.340	V	2.160	30.750	6.210	44.240	36.060	80.000	43.940
4 767.000	39.970	H	3.890	32.800	6.970	44.300	35.440	80.000	44.560
4 839.000	39.720	V	2.370	32.930	7.000	44.310	35.340	80.000	44.660

- AV

Frequency	Amplitude	ANT Polar.	ANT. Height	Correction Factor			Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dBμV]	(H/V)	[m]	ANT. [dB /m]	Cable [dB]	AMP [dB]	[dBμV/m]	[dBμV/m]	[dB]
1 092.000	53.730	V	1.880	20.960	3.230	43.640	34.280	60.000	25.720
1 617.000	47.890	V	2.640	23.640	3.900	43.670	31.760	60.000	28.240
1 637.000	49.950	H	3.480	23.750	3.940	43.670	33.970	60.000	26.030
2 180.000	39.850	H	3.420	26.350	4.750	43.860	27.090	60.000	32.910
3 450.000	43.430	H	3.660	30.510	5.950	44.250	35.640	60.000	24.360
3 586.000	31.000	V	2.840	30.730	6.190	44.240	23.680	60.000	36.320
4 760.000	27.620	H	3.580	32.790	6.960	44.300	23.070	60.000	36.930
4 833.000	27.080	V	2.610	32.920	7.000	44.310	22.690	60.000	37.310

◆ Calculation

Correction Factor [dB] = Ant Factor[dB/m] + Cable Loss [dB] – Preamp Factor [dB]

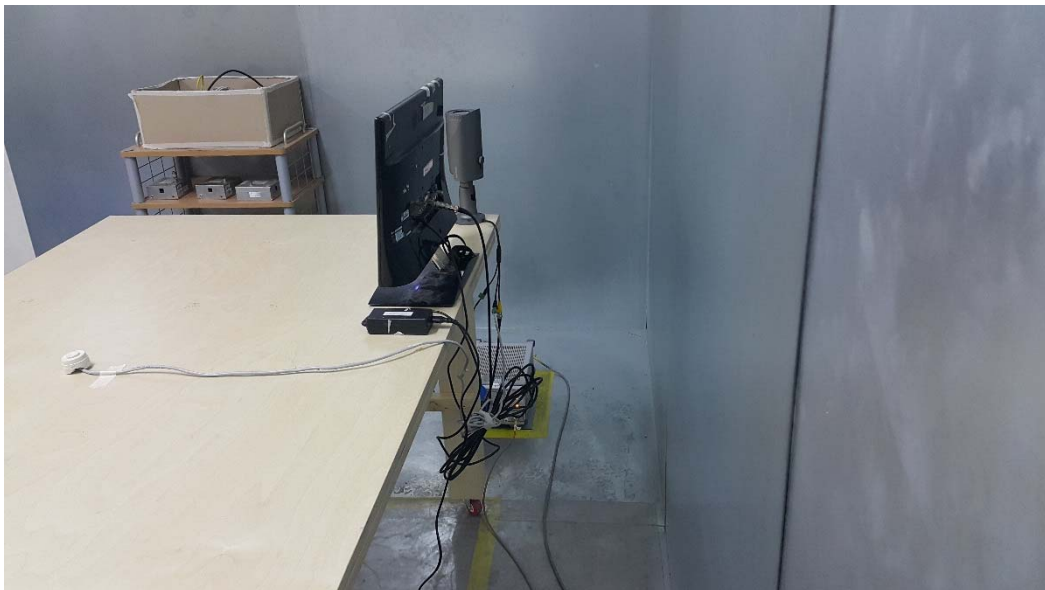
Corrected Amplitude [dBuV] = Amplitude[dBuV] + Correction Factor [dB]

Corrected Amplitude : The Final Value, Amplitude : Reading Value

Test Setup Photos and Configuration

Conducted Voltage Emissions

- AC 24 V Mode



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Radiated Electric Field Emissions(Below 1 GHz)

- AC 24 V Mode



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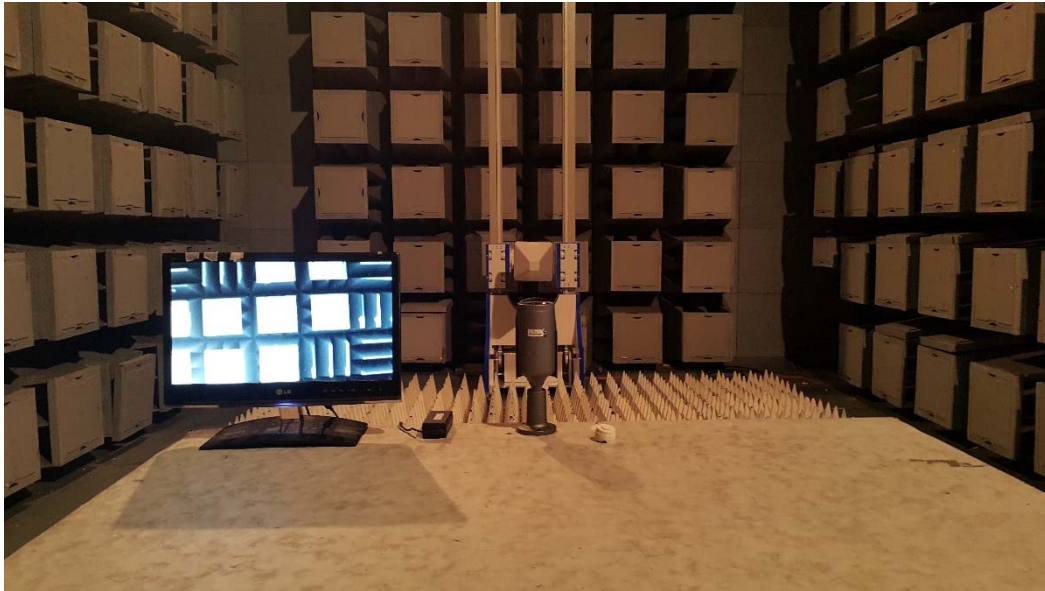
- DC 12 V Mode



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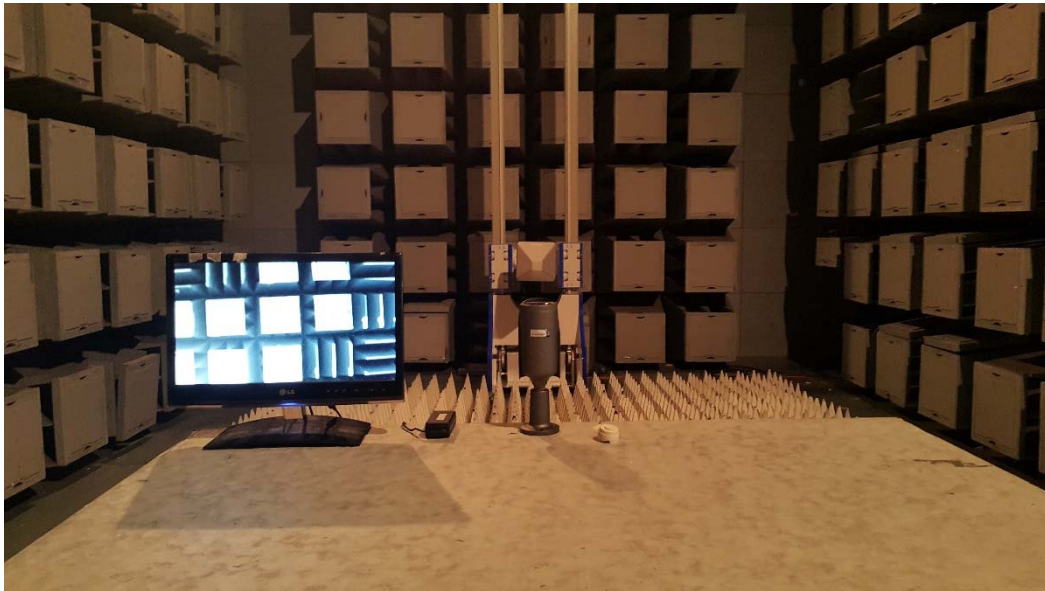
Radiated Electric Field Emissions(Above 1 GHz)

- AC 24 V Mode



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- DC 12 V Mode



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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

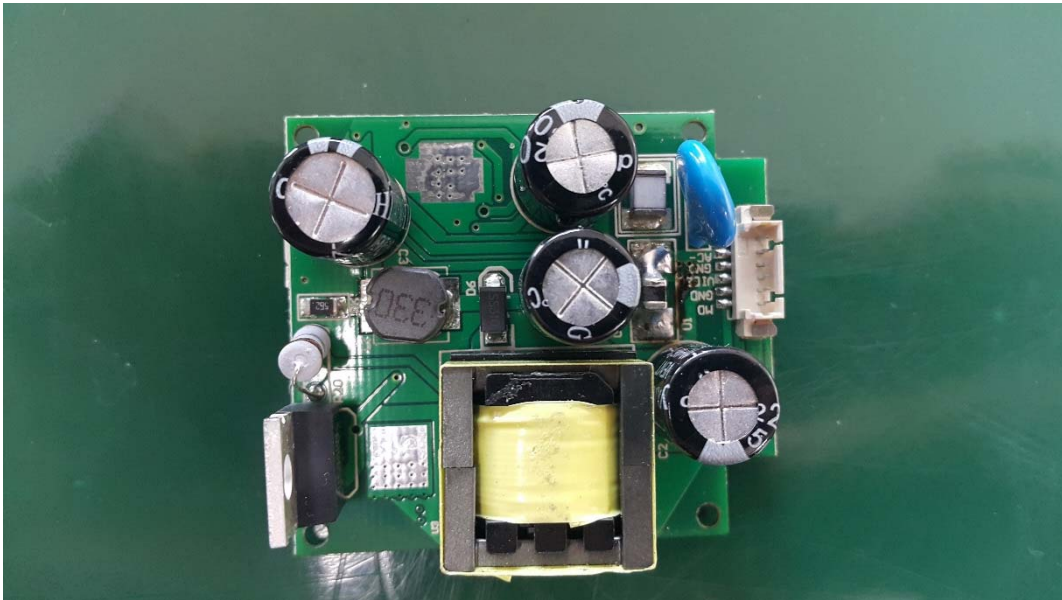
(Internal View)



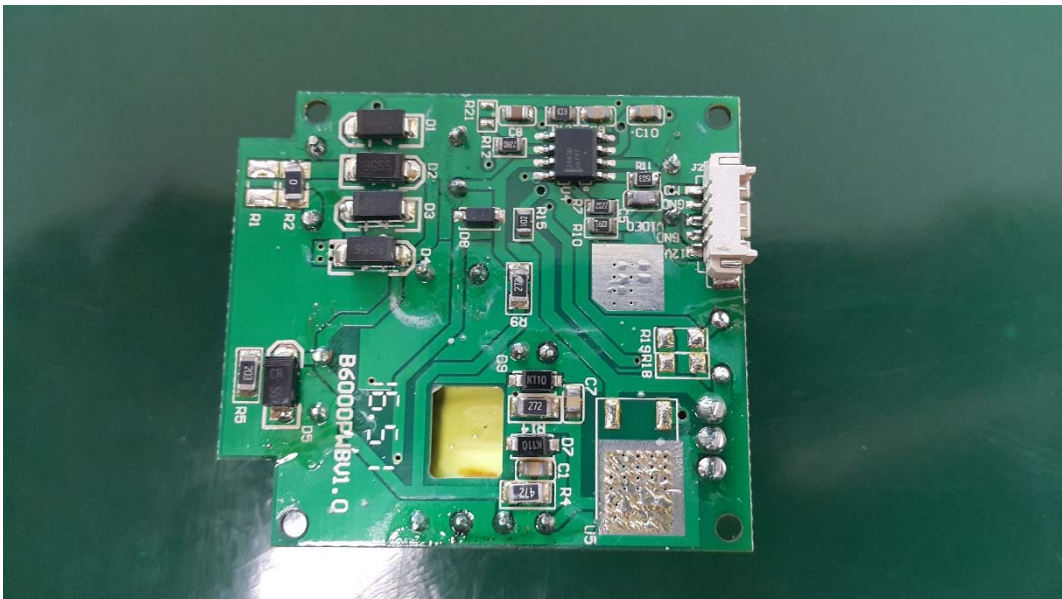
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EUT Internal View – Main Board

(Top)



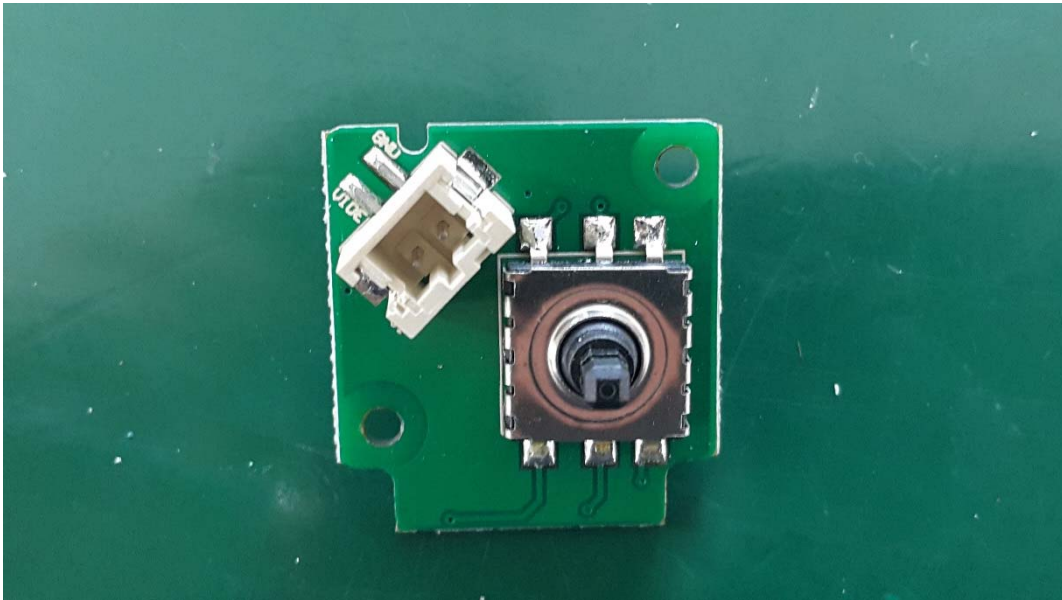
(Bottom)



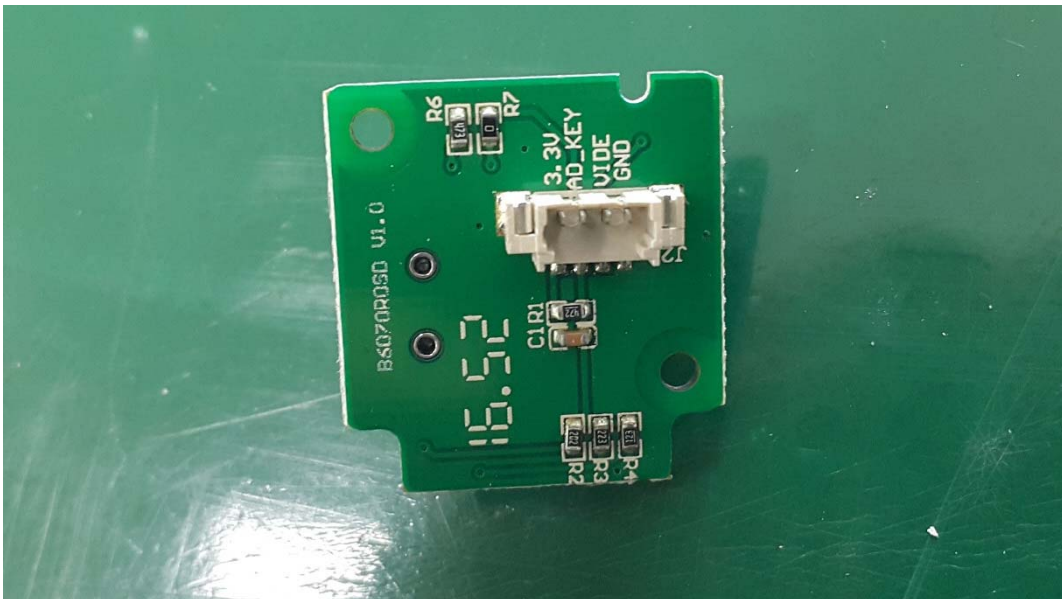
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EUT Internal View – Sub Board

(Top)

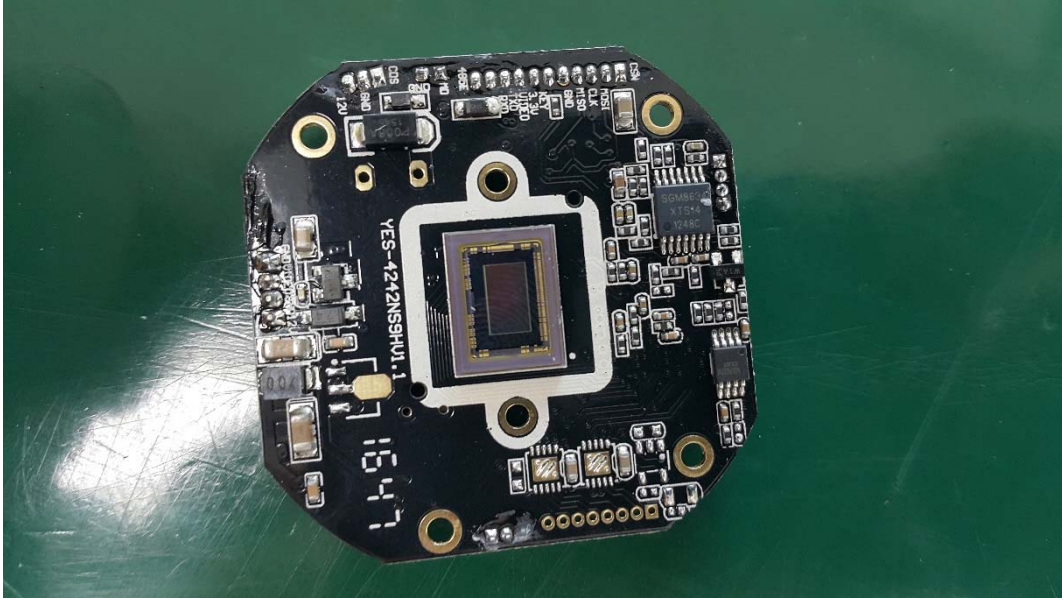


(Bottom)



EUT Internal View – Lens Board

(Top)



(Bottom)



EUT Internal View – LED Board

(Top)



(Bottom)



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Label Photographs



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