



## EMC TEST REPORT For VCCI

Test Report No. : KES-E1-19T0038

Date of Issue : Jan. 18, 2019

Product name : Analog Camera

Model/Type No. : HCD-6010

Variant Model : -

Applicant : Hanwha Techwin Co., Ltd.

Applicant Address : 6, Pangyo-ro 319 Beon-gil, Bundang-gu, Seongnam-si,  
Gyeonggi-do, 13488, KOREA

Manufacturer : 1. Hanwha Techwin (Tianjin) Co.,Ltd.  
2. HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.  
3. D-TECH CO.,LTD.

Manufacturer Address : 1. No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin,  
300385, People's Republic of China  
2. Lot O-2, Que Vo Industrial Zone extended area,  
Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam  
3. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do,  
Korea (Suwon Industrial Complex)

Date of Receipt : Jan. 10, 2019

Test date : Jan. 13, 2019 ~ Jan. 14, 2019

Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Dong Hyun, Won  
EMC Test Engineer

Reviewed by

Dong-Hun, Jang  
EMC Technical Manager

This test report is not related to KOLAS.



## KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,  
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea  
Tel: +82-31-425-6200 / Fax: +82-31-424-0450  
www.kes.co.kr

Test report No.:  
KES-E1-19T0038  
Page (2) of (30)

### REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Jan. 18, 2019	KES-E1-19T0038	Issued

***This report shall not be reproduced except in full, without the written approval of KES Co., Ltd. This document may be altered or revised by KES Co., Ltd. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by KES Co., Ltd. will constitute fraud and shall nullify the document.***

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.  
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
The authenticity of the test report, contact shchoi@kes.co.kr



## TABLE OF CONTENTS

1.0	General Product Description.....	4
1.1	Test Voltage & Frequency .....	6
1.2	Variant Model Differences.....	6
1.3	Device Modifications .....	6
1.4	Equipment Under Test.....	6
1.5	Support Equipments .....	6
1.6	External I/O Cabling .....	7
1.7	EUT Operating Mode(s) .....	7
1.8	Configuration.....	8
1.9	Remarks when standards applied .....	9
1.10	Calibration Details of Equipment Used for Measurement.....	9
1.11	Test Facility .....	9
1.12	Laboratory Accreditations and Listings .....	9
2.0	Test Regulations.....	10
2.1	Conducted Emissions Mains Power Ports.....	12
2.2	Conducted Emissions at Telecommunication Ports.....	13
2.3	Radiated Electric Field Emissions(Below 1 GHz) .....	14
2.4	Radiated Electric Field Emissions(Above 1 GHz) .....	15
APPENDIX A – TEST DATA.....		16
Conducted Emissions at Mains Power Ports.....		16
Conducted Emissions at Telecommunication Ports .....		18
Radiated Electric Field Emissions(Below 1 GHz) .....		20
Radiated Electric Field Emissions(Above 1 GHz).....		21
Test Setup Photos and Configuration .....		22
Conducted Voltage Emissions .....		22
Conducted Telecommunication Emissions .....		23
Radiated Electric Field Emissions(Below 1 GHz) .....		24
Radiated Electric Field Emissions(Above 1 GHz).....		25
EUT External Photographs .....		26
EUT Internal Photographs .....		27



## 1.0 General Product Description

### Main Specifications of EUT are:

	HCD-6010
<b>Video</b>	
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 : 0.27Lux (F2.0, 1/30sec) B/W : 0.017Lux
S / N Ratio	52dB (AGC off, Weight on)
Video Output	BNC(AHD / TVI / CVI / CVBS Selectable)
Resolution	1920 x 1080
Max. Framerate	30fps @1080p(N), 25fps @ 1080p(P)
<b>Pan / Tilt / Rotate</b>	
Pan / Tilt / Rotate Range	0° ~ 350° / 0° ~ 67° / 0° ~ 355°
<b>Lens Type</b>	
Focal Length (Zoom Ratio)	2.8mm fixed
Max. Aperture Ratio	F2.0
Angular Field of View	H:113.7 V:61.5 D:134.5
Min. Object Distance	0.5m (1.64ft)
Focus Control	Manual
Lens Type	Fixed
Mount Type	Board-in type
Auto Back Focus(ABF)	-
<b>Operational</b>	
On Screen Display	Multi-language Support(16)
Camera Title	Off / On (Displayed 15 characters)
Day & Night	Auto (ICR) / Color / B/W
Backlight Compensation	Off / User BLC / HLC / WDR
Wide Dynamic Range	120dB
Contrast Enhancement	-
Digital Noise Reduction	SSNR4 ( Off / On )
Defog	AUTO / MANUAL / OFF
Digital Image Stabilization	-
Motion Detection	Off / On(4 zones)
Privacy Masking	Off / On (8 zones rectangle)
Gain Control	Off / Low / Middle / High / Very High
White Balance	ATW / Outdoor / Indoor(4,500K° ~ 8,500K°) / Manual / AWC (1,800K° ~ 10,500K°)

**KES Co., Ltd.**

3701, 40, Simin-daero 365beon-gil,  
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea  
Tel: +82-31-425-6200 / Fax: +82-31-424-0450  
www.kes.co.kr

Test report No.:  
KES-EI-19T0038  
Page (5) of (30)

LDC (Lens Distortion Correction)	-
Electronic Shutter Speed	1sec ~ 1/12,000sec
Digital Zoom	-
Reverse	Off / H-Rev / V-Rev / HV-Rev
Profile	Basic, Day & Night, Backlight, ITS, Indoor, User
Alarm	-
Remote control interface	Coaxial
Protocol	AHD : ACP (AHD Coax Protocol), CVBS : Pelco-C (Coaxitron) CCP (CVI Coax Protocol), TCP (TVI Coax Protocol)
Viewable length	-
Video Transmission Distance	500m(5C2V Coaxial Cable)
<b>Environmental</b>	
Operating Temperature / Humidity	-10°C ~ +55°C (+14°F ~ +131°F) / Less than 90% RH
Ingress Protection	-
Vandal Resistance	-
<b>Electrical</b>	
Input Voltage/Current	12VDC(±10% )
Power Consumption	3.6W
<b>Mechanical</b>	
Color / Material	Ivory / Plastic
Dimension (WxHxD)	Ø110 x 86mm
Weight	320g

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.  
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
The authenticity of the test report, contact shchoi@kes.co.kr



## 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 ☐ 230 Vac ☐ 100 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
Analog Camera	HCD-6010	-	Hanwha Techwin (Tianjin) Co.,Ltd.	EUT

## 1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Monitor	SMT-2233	ZC6U67VH500194D	Weiha Daewoo Electronics Co., Ltd.	-
DVR	HRD-442	-	Hanwha Techwin (Tianjin) Co.,Ltd.	-
DVR Adaptor	DH1230	-	Doo Hyun Electronics Co., Ltd.	-



## 1.6 External I/O Cabling

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Analog Camera (EUT)	BNC	DVR	BNC	3.0	U
DVR	D - SUB	Monitor	D - SUB	1.8	S

\* Unshielded=U, Shielded=S

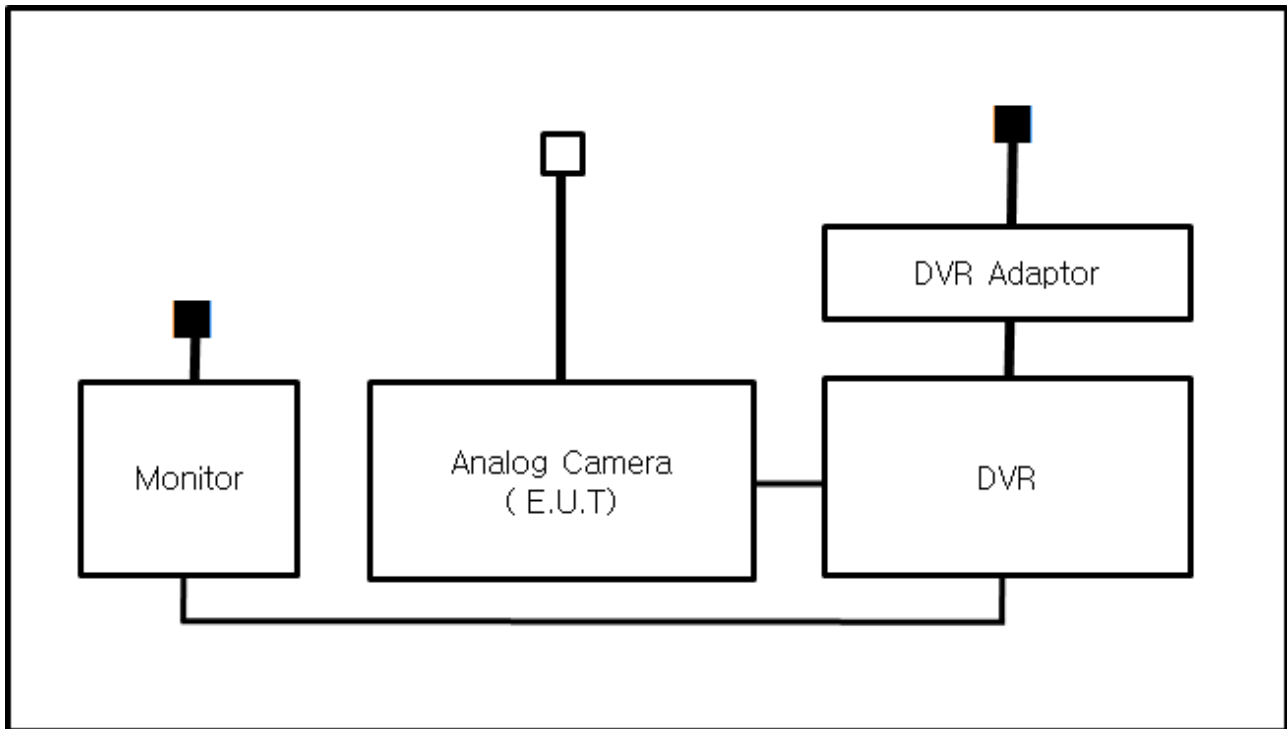
## 1.7 EUT Operating Mode(s)

Test mode	operating
DC 12 V	EUT Monitoring

EUT Test operating S/W		
Name	Version	Manufacture Company
-	-	-

## 1.8 Configuration

■ AC Main  
 □ DC Main





## 1.9 Remarks when standards applied

N/A







## 1.10 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.

## 1.11 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 C63.4:2014 and CISPR 16-1-4:2012

## 1.12 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Aechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
International	KOLAS	EMI (3 m & 10 m Semi-Aechoic Chamber , and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KT489
USA	FCC	3 m & 10 m Semi-Aechoic Chamber, 10 m Open Area and Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi-Aechoic Chamber and Conducted test site	 23298-1
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
Europe	TÜV SÜD	EMI (3 m & 10 m Semi-Aechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 CARAT 17 07 01633 001

## 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

☐ Group 2

☐ Class A

☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 61547 :2009

☐ EN 55032:2015

☐ Class A

☐ Class B

☐ EN 55024:2010 +A1:2015

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013



- 
- |   |   |                                  |
|---|---|----------------------------------|
| <input checked="" type="checkbox"/> <b>VCCI-CISPR 32:2016</b> | <input checked="" type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> <b>AS/NZS CISPR32:2015</b>           | <input type="checkbox"/> Class A            | <input type="checkbox"/> Class B |
| <input type="checkbox"/> <b>47 CFR Part 15, Subpart B</b>     |   |                                  |
| <input type="checkbox"/> CISPR 22:2009 +A1:2010               | <input type="checkbox"/> Class A            | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2009                      |   |                                  |
| <input type="checkbox"/> <b>IC Regulation ICES-003 : 2016</b> |   |                                  |
| <input type="checkbox"/> CAN/CSA CISPR 22-10                  | <input type="checkbox"/> Class A            | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2014                      |   |                                  |
| <br><input type="checkbox"/> <b>RE- Directive 2014/53/EU</b>  |   |                                  |
| <input type="checkbox"/> EN 301 489-1 V1.9.2                  |   |                                  |
| <input type="checkbox"/> Equipment for fixed use              |   |                                  |
| <input type="checkbox"/> Equipment for vehicular use          |   |                                  |
| <input type="checkbox"/> Equipment for portable use           |   |                                  |
| <input type="checkbox"/> EN 301 489-3 V1.6.1                  |   |                                  |
| <input type="checkbox"/> EN 301 489-17 V2.2.1                 |   |                                  |
| <input type="checkbox"/> EN 60945:2002                        |   |                                  |



## 2.1 Conducted Emissions Mains Power Ports

### Test Date

N/A

### Test Location

Electro wave Shieldroom #3

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101783	04, 25, 2019
<input type="checkbox"/>	LISN	ENV216	R & S	101137	01, 31, 2019
<input type="checkbox"/>	LISN	ENV216	R & S	101786	04, 25, 2019

### Test Conditions

Temperature:

°C

Relative Humidity:

% R.H.

### 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

It is not tested apply because it is powered by DC



## 2.2 Conducted Emissions at Telecommunication Ports

### Test Date

N/A

### Test Location

Electro wave Shieldroom #3

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101783	04, 25, 2019
<input type="checkbox"/>	LISN	ENV216	R & S	101137	01, 31, 2019
<input type="checkbox"/>	LISN	ENV216	R & S	101786	04, 25, 2019
<input type="checkbox"/>	8-WIRE ISN CAT3	CAT3 8158	SCHWARZBECK	8158-0019	03, 22, 2019
<input type="checkbox"/>	8-WIRE ISN CAT5	CAT5 8158	SCHWARZBECK	8158-0030	03, 22, 2019

### Test Conditions

Temperature:

°C

Relative Humidity:

% R.H.

### 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

N/A



## 2.3 Radiated Electric Field Emissions(Below 1 GHz)

### Test Date

Jan. 13, 2019

### Test Location

☐ OPEN AREA TEST SITE #2 ☒ SEMI ANECHOIC CHAMBER #4(10m)

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESU26	R & S	100551	04, 11, 2019
<input checked="" type="checkbox"/>	AMPLIFIER	SCU 01	R & S	100603	11, 26, 2019
<input checked="" type="checkbox"/>	ATTENUATOR	8491A	HP	32173	03, 21, 2019
<input checked="" type="checkbox"/>	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	11, 29, 2020

### Test Conditions

Temperature: 24,3 °C  
Relative Humidity: 52,1 % R.H.

### 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.

## 2.4 Radiated Electric Field Emissions(Above 1 GHz)

**Test Date**

Jan. 14, 2019

**Test Location**

SEMI ANECHOIC CHAMBER #3

**Test Equipment**

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESR7	R & S	101190	08, 06, 2019
<input checked="" type="checkbox"/>	PREAMPLIFIER	8449B	AGILENT	3008A01967	05, 31, 2019
<input type="checkbox"/>	ATTENUATOR	8491A	HP	35496	03, 21, 2019
<input checked="" type="checkbox"/>	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 02, 2019

**Test Conditions**Temperature: 24,8 °C  
Relative Humidity: 50,6 % R.H.**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.



**KES Co., Ltd.**

3701, 40, Simin-daero 365beon-gil,  
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea  
Tel: +82-31-425-6200 / Fax: +82-31-424-0450  
www.kes.co.kr

Test report No.:  
KES-E1-19T0038  
Page (16) of (30)

---

## **APPENDIX A – TEST DATA**

### **Conducted Emissions at Mains Power Ports**

HOT LINE

N/A

---

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.  
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
The authenticity of the test report, contact shchoi@kes.co.kr





**KES Co., Ltd.**

3701, 40, Simin-daero 365beon-gil,  
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea  
Tel: +82-31-425-6200 / Fax: +82-31-424-0450  
www.kes.co.kr

Test report No.:  
KES-E1-19T0038  
Page (17) of (30)

---

NEUTRAL LINE

N/A

◆ 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))

---

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.  
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
The authenticity of the test report, contact shchoi@kes.co.kr



**KES Co., Ltd.**

3701, 40, Simin-daero 365beon-gil,  
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea  
Tel: +82-31-425-6200 / Fax: +82-31-424-0450  
www.kes.co.kr

Test report No.:  
KES-E1-19T0038  
Page (18) of (30)

---

## **Conducted Emissions at Telecommunication Ports**

**[10 Mbps]**

N/A

---

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.  
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
The authenticity of the test report, contact shchoi@kes.co.kr



## KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,  
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea  
Tel: +82-31-425-6200 / Fax: +82-31-424-0450  
www.kes.co.kr

Test report No.:  
KES-E1-19T0038  
Page (19) of (30)

---

**[100 Mbps]**

N/A

◆ Calculation

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

QuasiPeak / CAverage : The Final Value

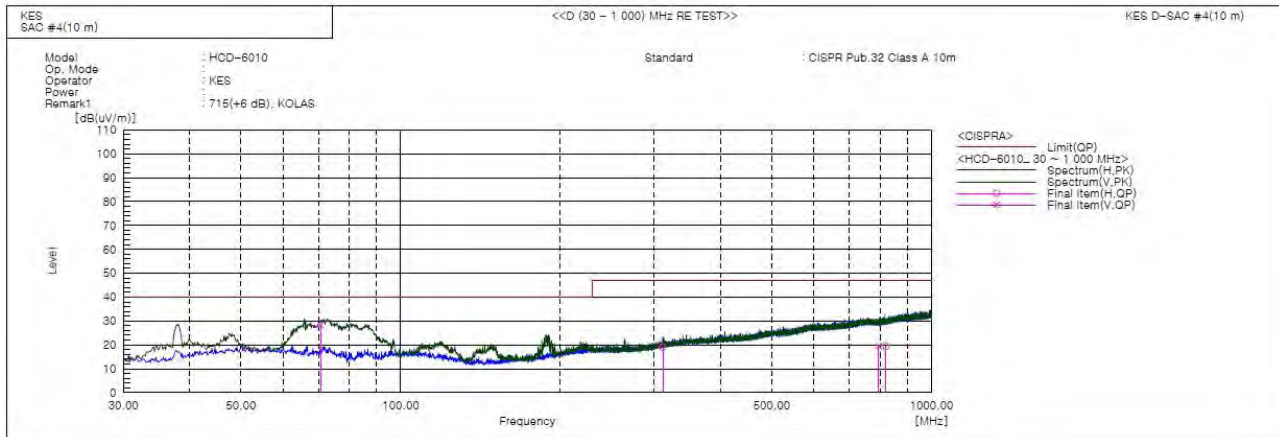
Reading Value : Not shown in the table.

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

---

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.  
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
The authenticity of the test report, contact shchoi@kes.co.kr

## Radiated Electric Field Emissions(Below 1 GHz)



### 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]	Remark
1	70.594	V	53.8	-25.5	28.3	40.0	11.7	110.0	119.0	
2	311.764	H	37.2	-18.2	19.0	47.0	28.0	296.0	8.0	
3	795.000	V	27.2	-7.9	19.3	47.0	27.7	400.0	134.0	
4	821.155	H	27.0	-7.6	19.4	47.0	27.6	394.0	186.0	

### ◆ Calculation

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

Corrected Amplitude : The Final Value, Amplitude : Reading Value,

Correction Factor : ANT FACTOR + Cable loss



## KES Co., Ltd.

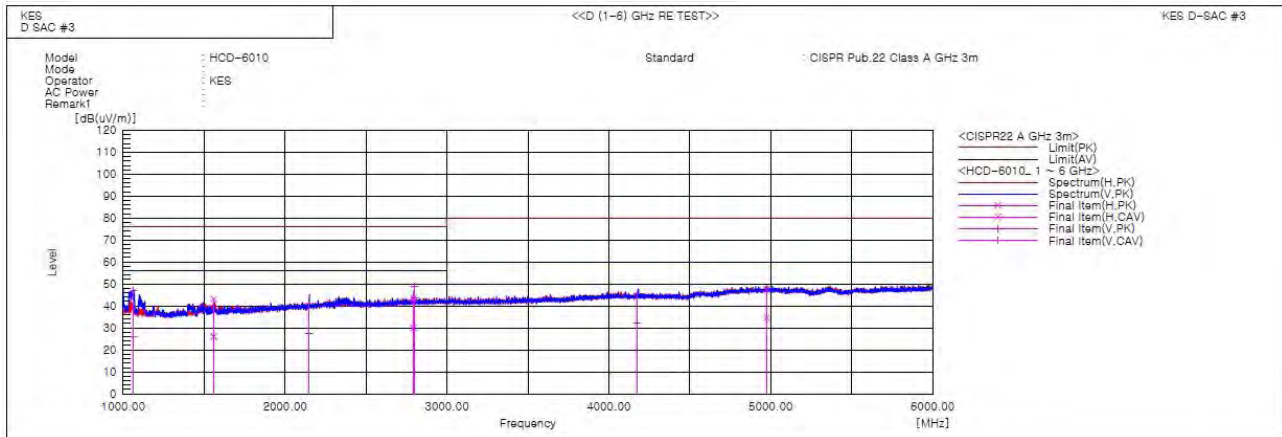
3701, 40, Simin-daero 365beon-gil,  
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea  
Tel: +82-31-425-6200 / Fax: +82-31-424-0450  
www.kes.co.kr

Test report No.:

KES-E1-19T0038

Page (21) of (30)

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



#### Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1064.740	V	54.8	33.8	-7.7	47.1	26.1	76.0	56.0	28.9	29.9	100.0	17.3	
2	1558.852	H	48.5	31.3	-5.3	43.2	26.0	76.0	56.0	32.8	30.0	100.0	58.9	
3	2145.391	V	42.3	28.6	-1.3	41.0	27.3	76.0	56.0	35.0	28.7	100.0	355.7	
4	2792.681	H	42.4	28.9	1.1	43.5	30.0	76.0	56.0	32.5	26.0	100.0	317.3	
5	2795.980	V	47.9	42.5	1.1	49.0	43.6	76.0	56.0	27.0	12.4	100.0	170.3	
6	4171.692	V	40.4	27.2	5.0	45.4	32.2	80.0	60.0	34.6	27.8	100.0	5.2	
7	4975.160	H	39.2	26.3	8.4	47.6	34.7	80.0	60.0	32.4	25.3	100.0	168.6	

#### ◆ Calculation

Result(PK/CAV) [dB(μV/m)] = (Reading(PK/CAV)[dB(μV)] + c.f[dB(1/m)])

Margin(PK/CAV)[dB] = Limit[dB(μV/m)] - Result(PK/CAV) [dB(μV/m)]

Reading(PK/CAV) : Reading value, Result(PK/CAV) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.  
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
The authenticity of the test report, contact shchoi@kes.co.kr



**KES Co., Ltd.**

3701, 40, Simin-daero 365beon-gil,  
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea  
Tel: +82-31-425-6200 / Fax: +82-31-424-0450  
www.kes.co.kr

Test report No.:  
KES-E1-19T0038  
Page (22) of (30)

---

## **Test Setup Photos and Configuration**

### **Conducted Voltage Emissions**

N/A

---

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.  
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
The authenticity of the test report, contact shchoi@kes.co.kr



**KES Co., Ltd.**

3701, 40, Simin-daero 365beon-gil,  
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea  
Tel: +82-31-425-6200 / Fax: +82-31-424-0450  
www.kes.co.kr

Test report No.:  
KES-E1-19T0038  
Page (23) of (30)

---

## Conducted Telecommunication Emissions

N/A

---

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.  
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
The authenticity of the test report, contact shchoi@kes.co.kr



## Radiated Electric Field Emissions(Below 1 GHz)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.  
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
The authenticity of the test report, contact shchoi@kes.co.kr



## Radiated Electric Field Emissions(Above 1 GHz)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.  
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
The authenticity of the test report, contact shchoi@kes.co.kr

## EUT External Photographs

(Top)



(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.  
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
The authenticity of the test report, contact shchoi@kes.co.kr

## EUT Internal Photographs

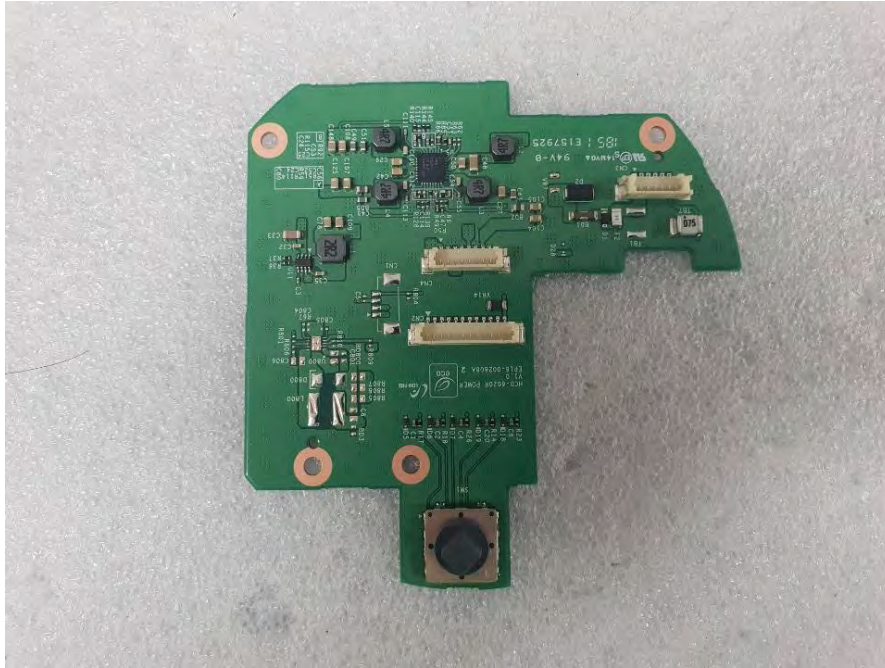
(Internal View)



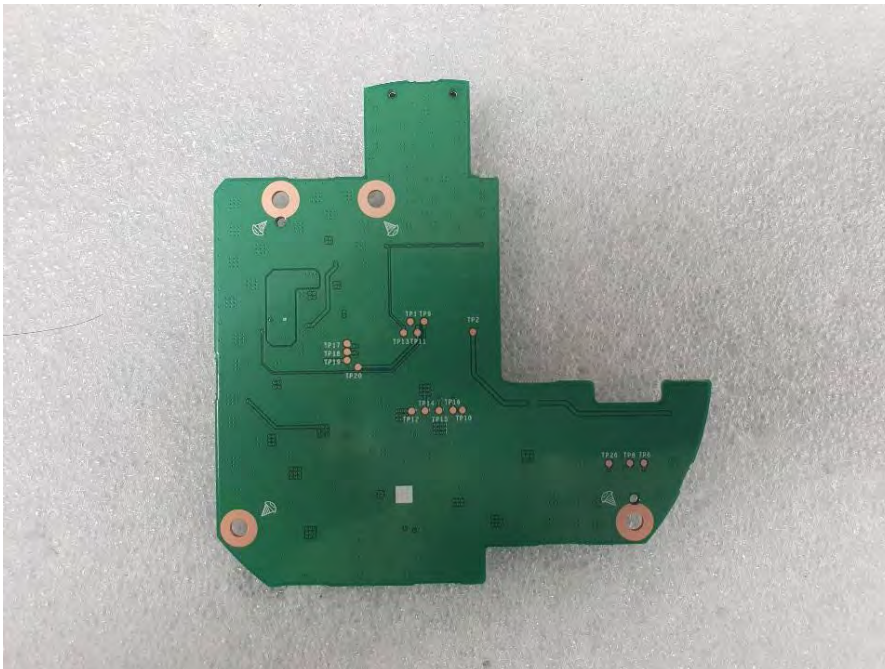


## EUT Internal View – Main Board

(Top)



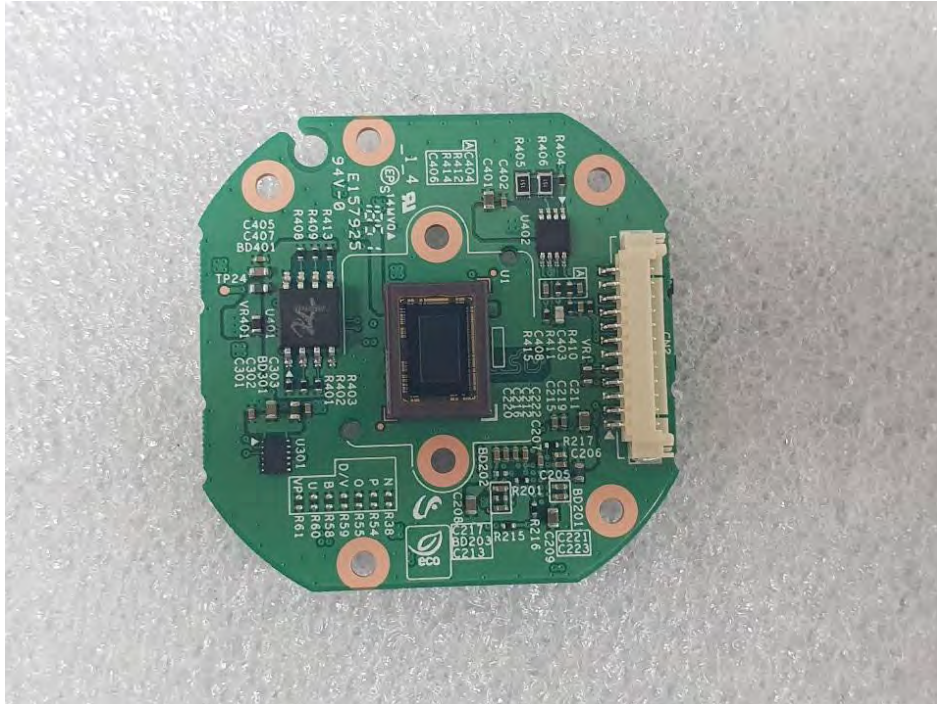
(Bottom)



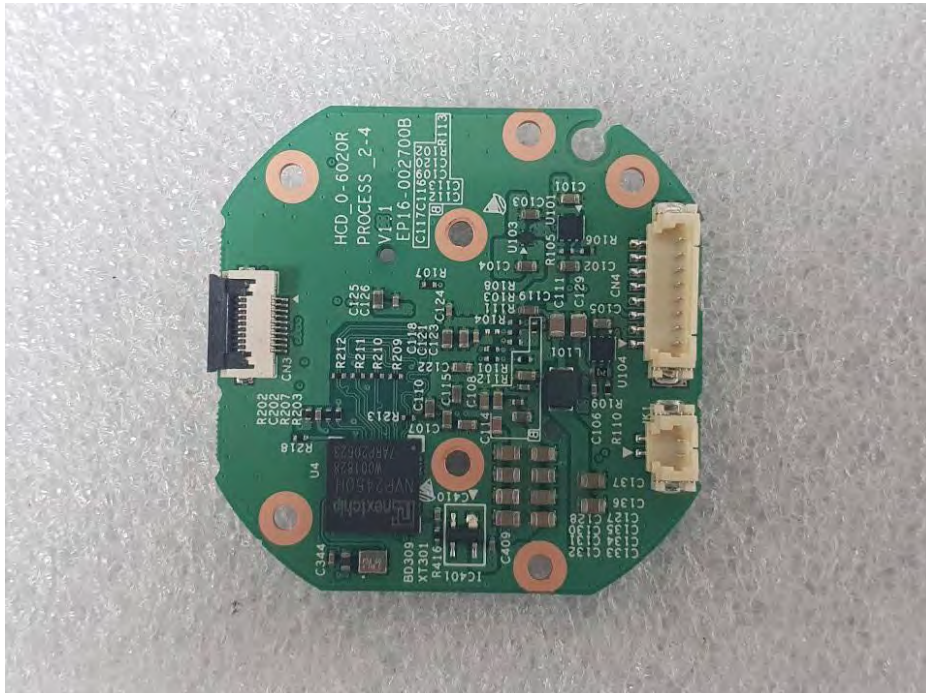
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.  
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
The authenticity of the test report, contact shchoi@kes.co.kr

## EUT Internal View – lens Board

(Top)



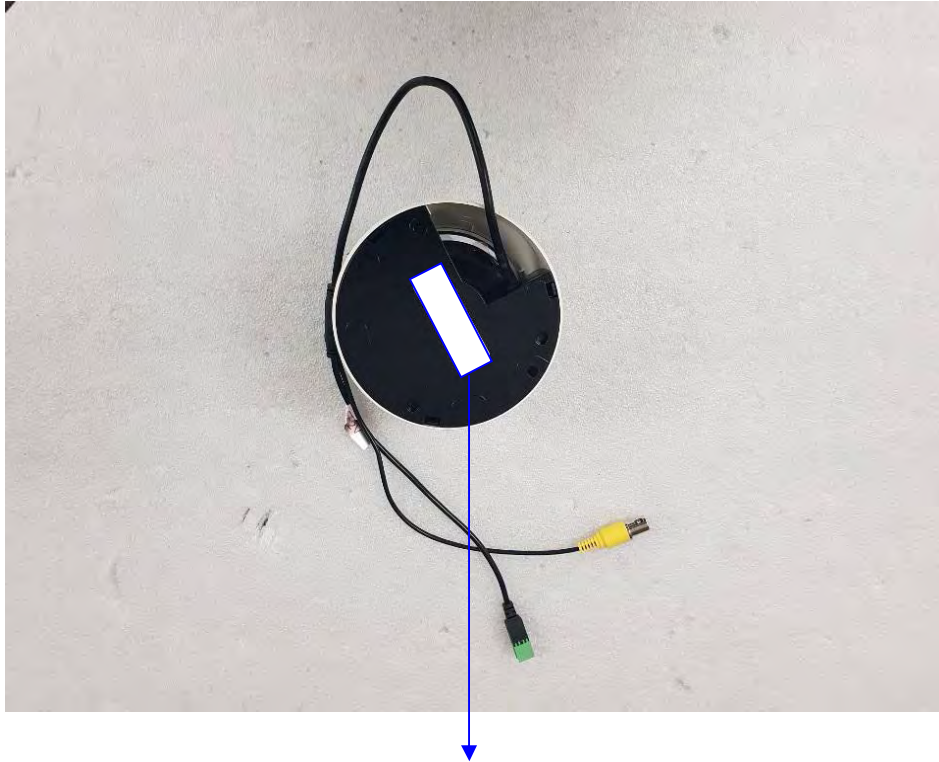
(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.  
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
The authenticity of the test report, contact shchoi@kes.co.kr



## Label Photographs



この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI-A