

Ke Mei Ou Laboratory Co., Ltd.

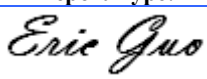
E506, 5th Floor, No.39 Keji Middle 2nd Rd, Science & Technology
Park, Nanshan District, Shenzhen, P. R. China
Tel: + 86 755 83642690 Fax: + 86 755 83297077
www.kmolab.com

FCC TEST REPORT

Under :
FCC Part 15, Class B

Prepared For :
Legrand Home Systems
301 Fulling Mill Road, Suite G, Middletown, PA 17057

FCC ID: YV8-CM7000
EUT: Outdoor IR HD Bullet IP Camera
Model: CM7000

May 9, 2014 Issue Date:
Extension Report Report Type:
 Test Engineer: Eric Guo
 Review By: Apollo Liu / Manager

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1. General Information

1.1 Notes

The test results of this report relate exclusively to the test item specified in 1.5. The KMO Lab does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the KMO Lab.

1.2 Testing Laboratory

Ke Mei Ou Laboratory Co., Ltd.

ANSI-ASQ National Accreditation Board/ACLASS ISO/IEC 17025 Accredited Lab for telecommunication standards. The Registration Number is AT-1532. The testing quality system meets with ISO/IEC-17025 requirements, This approval results is accepted by MRA of ILAC.

FCC Test Site Registration Number: 962205

IC Test Site Registration Number: 4986A-2

Internet: www.kmolab.com

1.3 Details of Applicant

Name : Legrand Home Systems

Address : 301 Fulling Mill Road, Suite G, Middletown, PA 17057

1.4 Application Details

Date of Receipt of Application : April 11, 2014

Date of Receipt of Test Item : April 11, 2014

Date of Test : April 11~May 9, 2014

1.5 Test Item

Manufacturer : N/A

Address : N/A

Trade Name : Legrand

Model No.(Base) : CM7000

Model No.(Extension) : N/A

Description : Outdoor IR HD Bullet IP Camera

Note: The one sample for testing only.

Additional Information

Frequency : N/A

Number of Channels : N/A

Power Supply : DC 12.0V/1.0A(Adapter model: SEF1200100A1BB)
DC 12.0V/1.0A(Adapter model: WEF1200100A1BA)
POE 48Vpower (Output DC12V)

Operation Distance : N/A

Resolution : N/A

Remark: The Applicant's statement is as follows:

1.6 Test Standards

FCC 15 Subpart B

Note: All radiated measurements were made in all three orthogonal planes. The values reported are the maximum values.

2. Technical Test

2.1 Summary of Test Results

The EUT has been tested according to the following specifications:

FCC 15 Subpart B: 2007, Class B

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.107	Conducted Test	PASS	Complies
FCC Part 15, Paragraph 15.109	Radiated Test	PASS	Complies

3. EUT Modifications

No modification by test lab.

4. Conducted Power Line Test

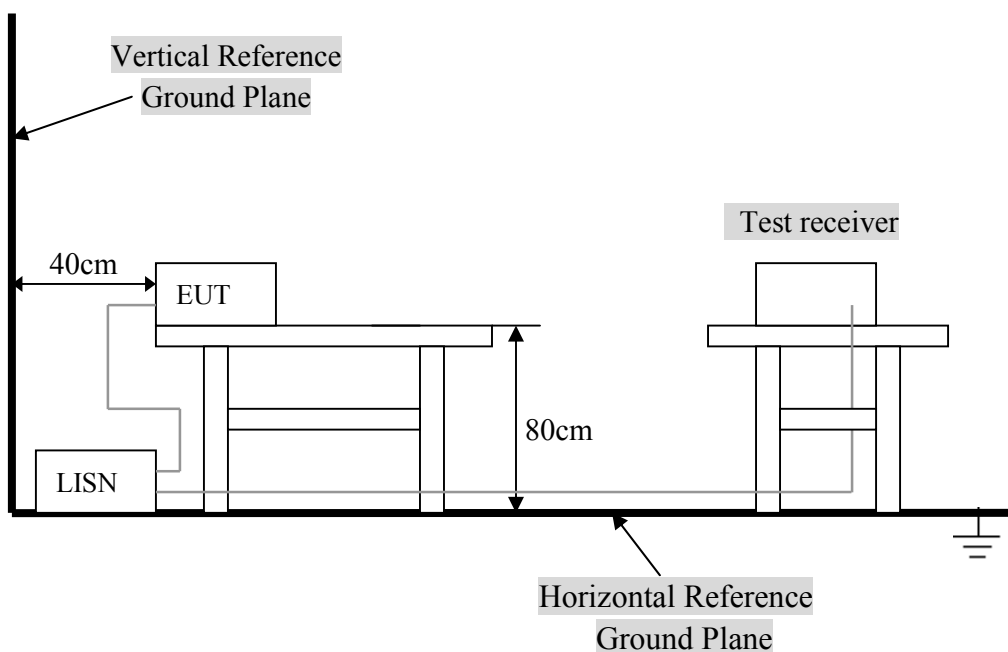
4.1 Test Equipment

Please refer to Section 8 this report.

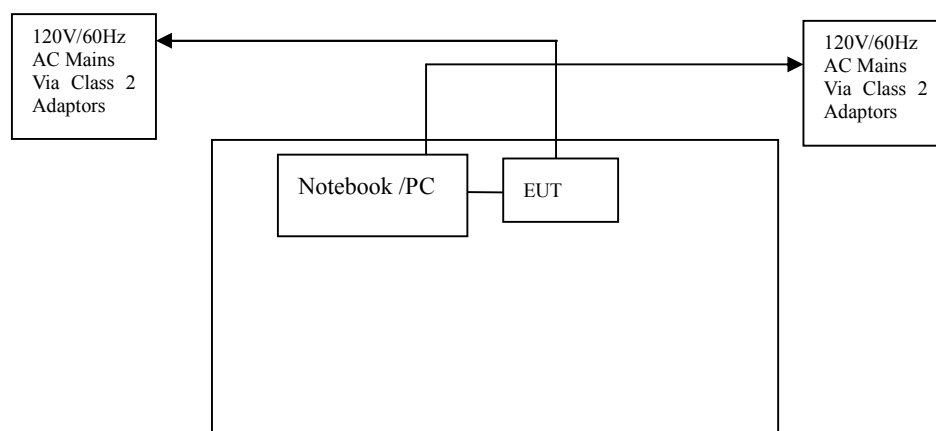
4.2 Test Procedure

The EUT was tested according to ANSI C63.4 - 2003. The frequency spectrum from 0.15 MHz to 30 MHz was investigated. The LISN used was 50 ohm / 50 u-Henry as specified by section 5.1 OF ANSI C63.4 - 2003. cables and peripherals were moved to find the maximum emission levels for each frequency.

4.3 Test Setup



For the actual test configuration, Please refer to the related items – Photos of Testing.



4.4 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model #	FCC ID
Outdoor IR HD Bullet IP Camera	N/A	CM7000	YV8-CM7000

B. Internal Devices

Device	Manufacturer	Model #	FCCID / DoC
N/A			

C. Peripherals

Device	Manufacturer	Model # Serial #	FCC ID/ DoC	Cable
Printer	HP	HP930C	DoC	1.5m unshielded power cord 1.2m unshielded data cable.
Modem	GVC	N/A	DoC	1.5m unshielded power cord 1.2m unshielded data cable.
Notebook	DELL	PP10L	DoC	1.5m unshielded power cord
PC	Dell	2400n	DoC	1.5m unshielded power cord

4.5 EUT Operating Condition

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

4.6 Conducted Power Line Emission Limits

Frequency Range (MHz)	Class A QP/AV (dBuV)	Class B QP/AV (dBuV)
0.15 – 0.5	79/66	66 –56/56 –46
0.5 – 5.0	73/60	56/46
5.0 – 30	73/60	60/50

Note: In the above table, the tighter limit applies at the band edges.

4.7 Conducted Power Line Test Result

Product	: Outdoor IR HD Bullet IP Camera	Test Mode	: Normal Link / Auto
Test Item	: Conducted Emission Data	Temperature	: 25 °C
Test Voltage	: DC 12V	Humidity	: 56%RH
Test Result	: PASS	Adapter Model	:

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All readings are quasi -peak values with a resolution bandwidth of 9 KHz.

- Temperature : 26 °C
- Humidity : 53 % RH

CM7000

Adapter model: SEF1200100A1BB

FCC Part 15 Paragraph 15.107							
Frequency (MHz)	Emission (dBuV)		LINE/NEUTRAL	Limit (dBuV)		Margin (dB)	
	QP	AV		QP	AV	QP	AV
0.162	47.25	32.48	Line	65.36	55.36	-18.11	-22.88
0.162	46.92	32.43	Neutral	65.36	55.36	-18.44	-22.93
0.182	44.91	29.73	Line	64.39	54.39	-19.48	-24.66
0.174	45.72	31.41	Neutral	64.77	54.77	-19.05	-23.36
0.190	46.11	31.52	Line	64.04	54.04	-17.93	-22.52
0.182	44.65	29.73	Neutral	64.39	54.39	-19.74	-24.66

Note: NF = No Significant Peak was Found.

Note:

- 1.Uncertainty in conducted emission measured is <+/- 2dB.
- 2.The emission levels of other frequencies were very low against the limit.
- 3.All Reading Levels are Quasi-Peak and Average value.
- 4.Emission = Meter Reading + Factor; Factor = Insertion Loss + Cable Loss.
- 5.Margin Value = Emission Level - Limit Value.

Conducted Emission**FCC15.107**

EUT: Outdoor IR HD Bullet IP Camera

M/N: CM7000

Manufacturer: N/A

Operating Condition: Transmitter

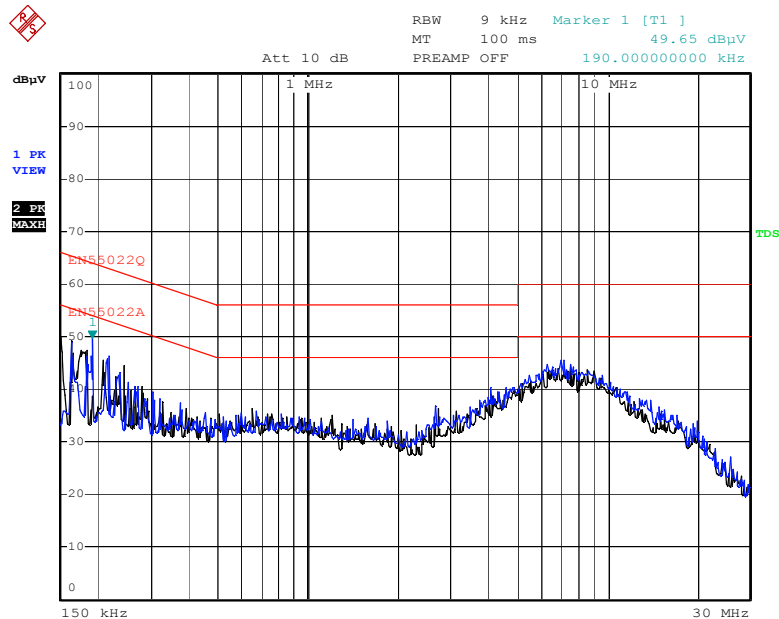
Test Site: Normal

Operator: Eric

Test Specification: LINE&NEUTRAL

Comment:

CM7000



Date: 6.MAY.2014 11:24:43

5. Radiated Emission Test

5.1 Test Equipment

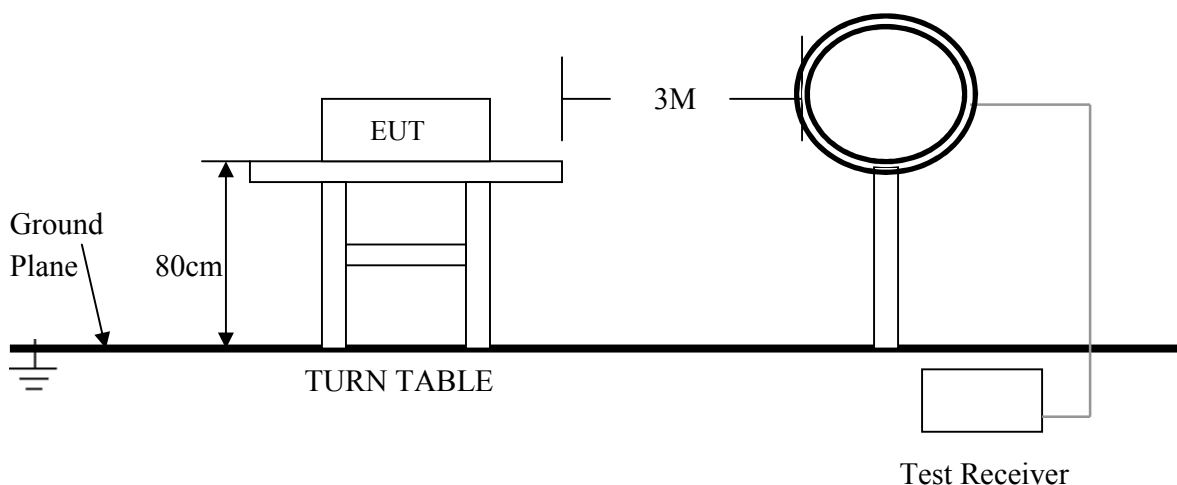
Please refer to Section 8 this report.

5.2 Test Procedure

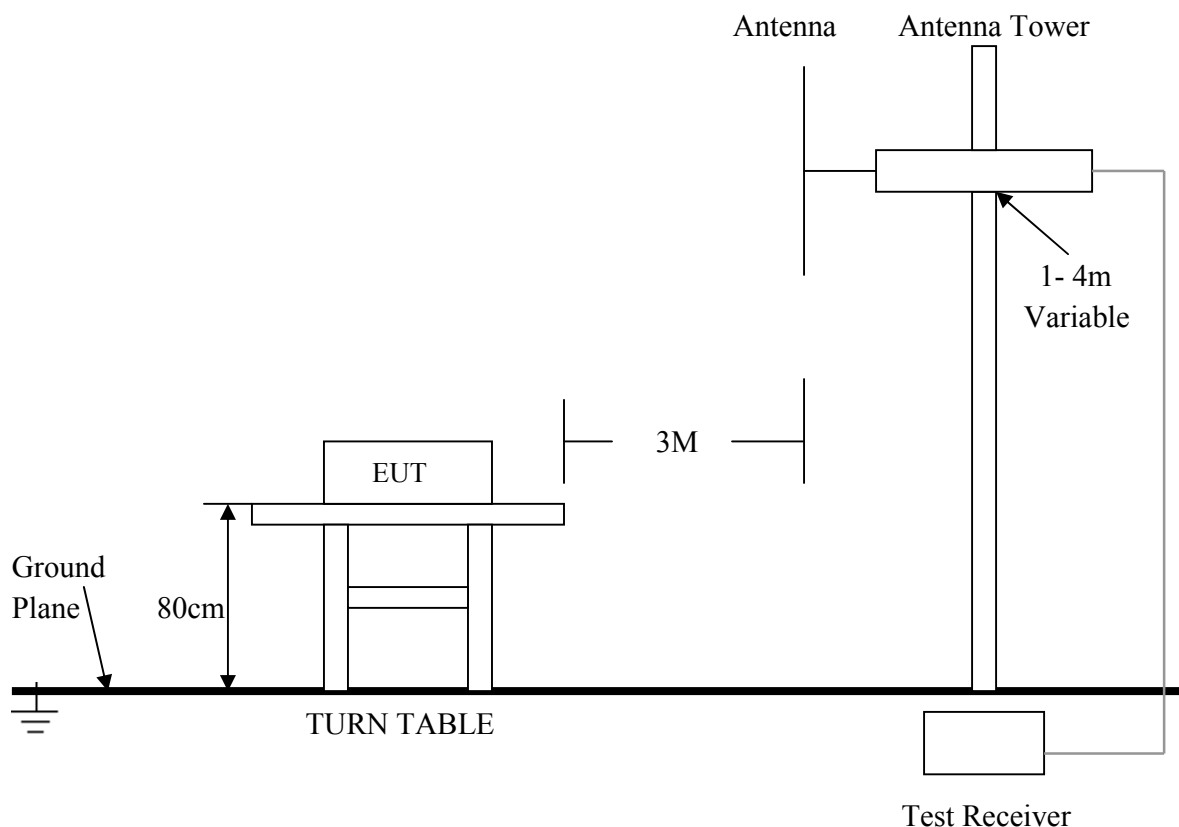
1. The EUT was tested according to ANSI C63.4 - 2003.
2. The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
3. The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 KHz. All readings are above 1 GHz , peak values with a resolution bandwidth of 1 MHz . Measurements were made at 3 meters.
4. The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
5. Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
6. The antenna polarization : Vertical polarization and Horizontal polarization.

5.3 Radiated Test Setup

For Frequencies below 30 MHz



For the actual test configuration , please refer to the related items – Photos of Testing

For Frequencies above 30 MHz

For the actual test configuration , please refer to the related items – Photos of Testing.

5. 4 Configuration of The EUT

Same as section 4.4 of this report

5. 5 EUT Operating Condition

Same as section 4.5 of this report

5. 6 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

Frequencies in restricted band are complied to limit on Paragraph 15.109.

Frequency (MHz)	Distance (m)	Field Strength (dBuV/m)
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
Above 960	3	54.0

Note:

1. In the emission tables above, the tighter limit applies at the band edges.
2. Distance refers to the distance between measuring instrument, antenna, and the closest point of any part of the device or system.
3. The lower limit shall apply at the transition frequencies.

5.7 Radiated Emission Test Result

Product : Tablet PC Test Mode : Normal Link / Auto
 Test Item : Fundamental Radiated Emission Data Temperature : 25 °C
 Test Voltage : DC 12V/POE Humidity : 56%RH
 Test Result : **PASS** Model :

For Frequency Below 30MHz

Freq. (MHz)	Emission (dBuV/m) QP Detector	HORIZ / VERT	Limits (dBuV/m)	Margin (dB)
N/A	N/A	N/A	N/A	N/A

- Note:**
- (1) All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
 - (2) "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
 - (3) Emission Level = Reading Level + Probe Factor + Cable Loss.

CM7000

Frequency from 30 MHz to 1 GHz

Adapter model: SEF1200100A1BB

FCC Part 15 Paragraph 15.109				
Freq. (MHz)	Emission (dBuV/m)	HORIZ / VERT	Limits (dBuV/m)	Margin (dB)
275.040	34.28	HORIZ	46.0	-11.72
35.680	31.48	VERT	40.0	-8.52
335.960	37.51	HORIZ	46.0	-8.49
79.760	35.11	VERT	40.0	-4.89
342.080	28.78	HORIZ	46.0	-17.22
148.480	35.78	VERT	43.5	-7.72

Note: NF = No Significant Peak was Found.

POE

FCC Part 15 Paragraph 15.109				
Freq. (MHz)	Emission (dBuV/m)	HORIZ / VERT	Limits (dBuV/m)	Margin (dB)
250.000	33.44	HORIZ	46.0	-12.56
60.240	38.31	VERT	40.0	-1.69
270.000	42.01	HORIZ	46.0	-3.99
275.000	35.38	VERT	46.0	-10.62
275.000	36.46	HORIZ	46.0	-9.54
338.960	34.62	VERT	46.0	-11.38

Note: NF = No Significant Peak was Found.

Frequency above 1 GHz

Freq. (MHz)	Emission (dBuV/m)		HORIZ / VERT	Limits (dBuV/m)		Margin(dB)	
	PK	AV				PK	AV
2024.400	50.48	31.61	HORZ	74	54	-23.52	-22.39
2024.400	50.41	31.62	VERT	74	54	-23.59	-22.38
2543.200	46.29	32.58	HORZ	74	54	-27.71	-21.42
2105.200	45.09	31.22	VERT	74	54	-28.91	-22.78
2982.800	48.78	35.28	HORZ	74	54	-25.22	-18.72
2159.200	45.44	31.78	VERT	74	54	-28.56	-22.22

Note: NF = No Significant Peak was Found.

Note:

1. Uncertainty in radiated emission measured is <+/-4dB
2. Any departure from specification : N/A
3. Emission = Reading Level + Probe Factor + Cable Loss.
4. Margin value = Emission level – Limit value.

6. Photo of Testing

6.1 Emission test view

Conducted emission test view



Radiated emission test view





6.2 Photograph - EUT CM7000

EUT top view



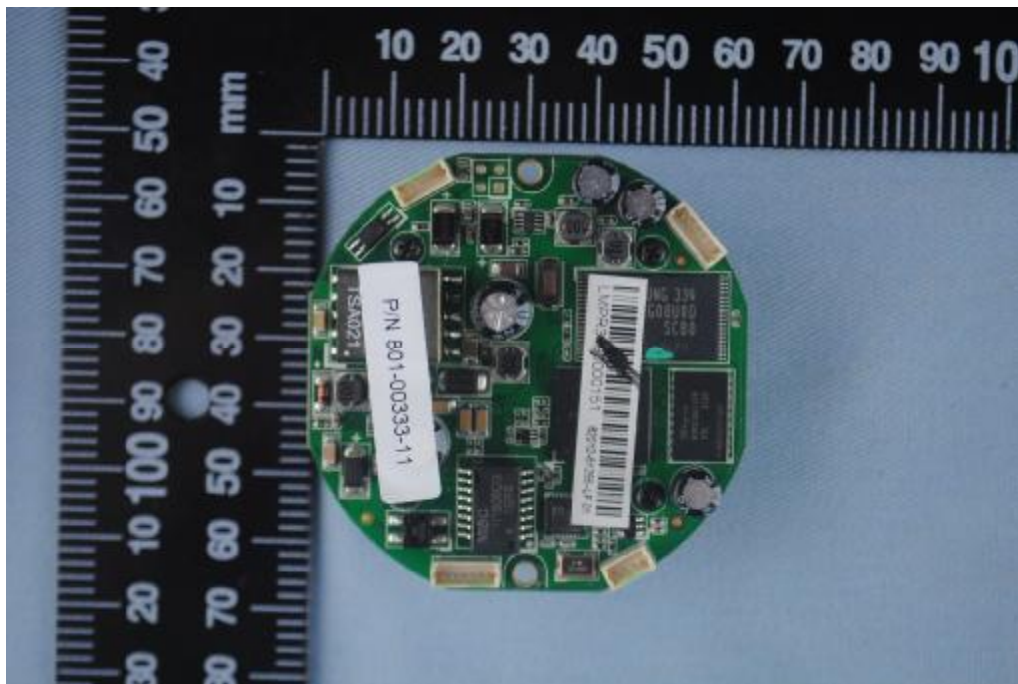
EUT bottom view

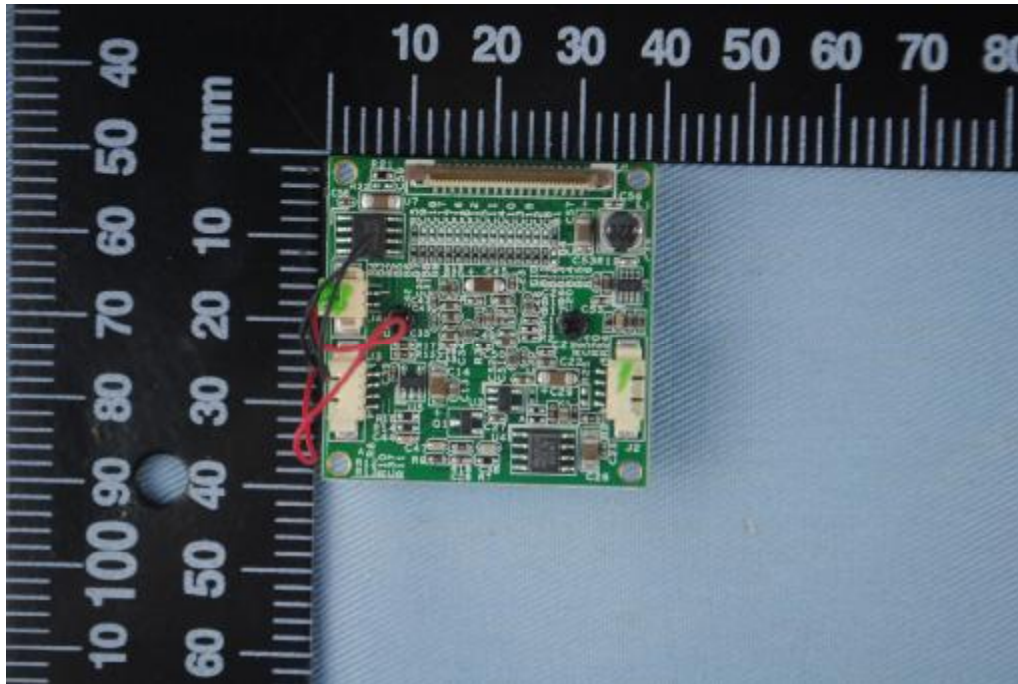


EUT inside whole view

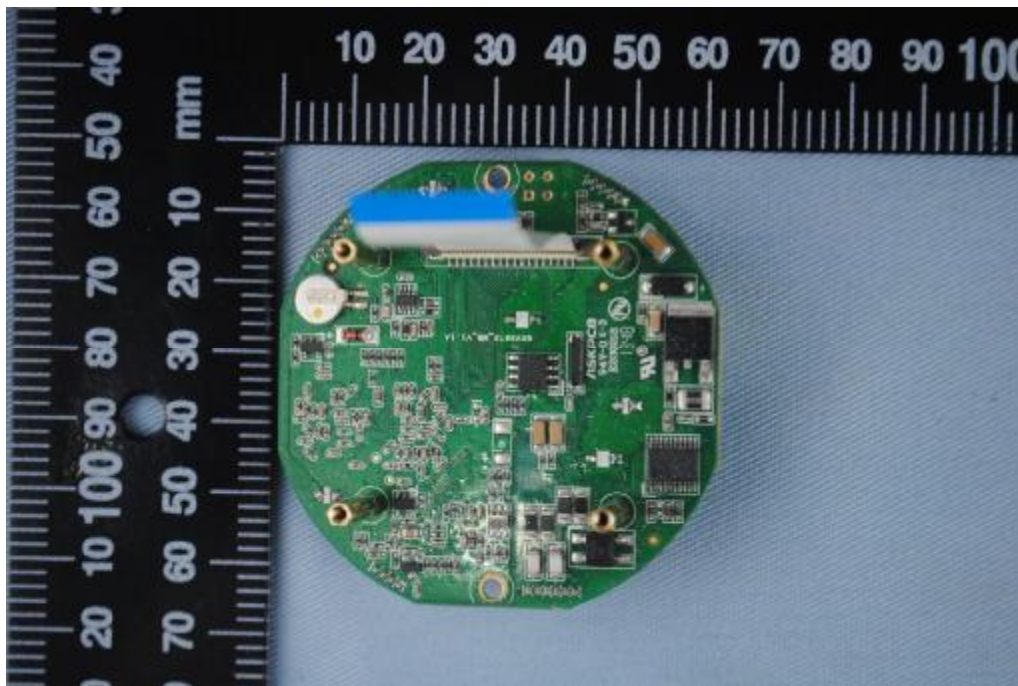


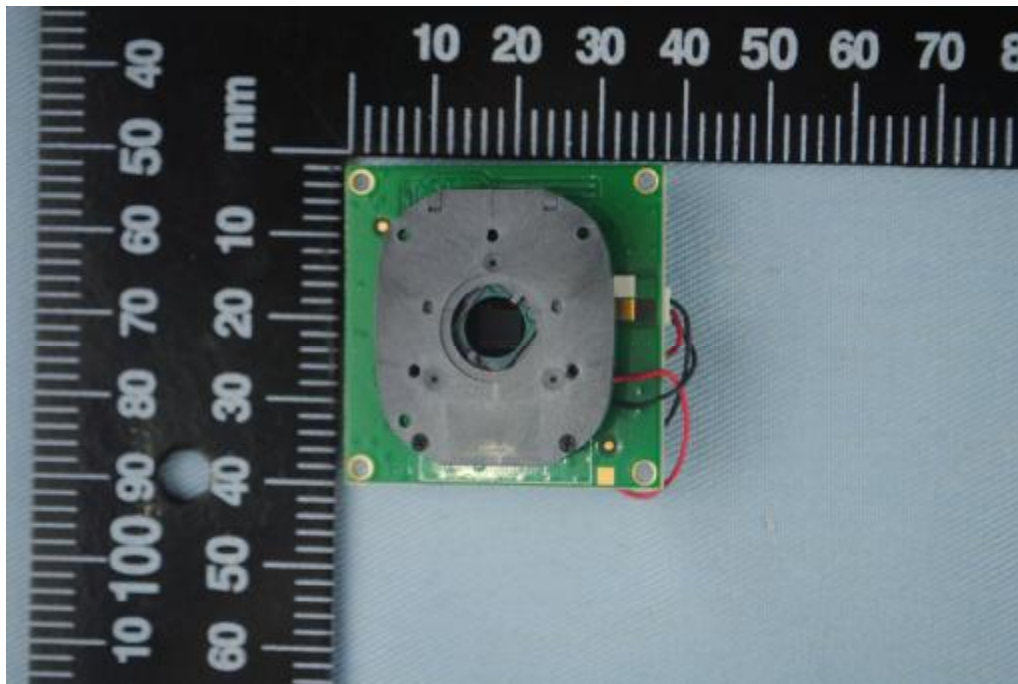
Main & RF board component side





Main & RF board solder side





Adapter top view



Adapter side view



7. FCC Label

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.

The Label must not be a stick-on paper label. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.



Proposed Label Location on EUT

EUT Bottom View/Proposed FCC Mark Location



8. Test Equipment

The following test equipments were used during the radiated & conducted emission test:

Equipment/ Facilities	Manufacturer	Model #	Serial No.	Due Date
Turntable	Innco systems GmbH	CT-0801	KMO-SZ114	NCR
Antenna Tower	Innco systems GmbH	MM4000-PP	KMO-SZ115	NCR
Controller	Innco systems GmbH	CO2000	KMO-SZ116	NCR
Pre-Amplifier	Agilent	87405C	KMO-SZ155	Dec.6, 2014
Pre-Amplifier	Com-Power	PAM-840	KMO-SZ156	Dec.6, 2014
Horn Antenna	Com-Power	AH-840	KMO-SZ157	Dec.6, 2014
EMI Test Receiver	Rohde & Schwarz	ESPI7	KMO-SZ002	June 27, 2014
Spectrum Analyzer	Rohde & Schwarz	FSP40	KMO-SZ003	June 27, 2014
Signal Generator	FLUKE	PM5418+Y/C	KMO-SZ020	May 27, 2014
Loop Antenna	Rohde & Schwarz	HFH2-Z2	KMO-SZ004	Jan. 30, 2015
Trilog-Super Broadband Antenna	SCHWARZBECK	VULB9161	KMO-SZ005	Sep.18, 2014
Trilog-Super Broadband Antenna	SCHWARZBECK	VULB9161	KMO-SZ006	Sep.18, 2014
Broad-Band Horn Antenna	SCHWARZBECK	BBHA 9120D	KMO-SZ007	Sep.18, 2014
Broad-Band Horn Antenna	SCHWARZBECK	BBHA 9120D	KMO-SZ008	Sep.18, 2014
AMN	Rohde & Schwarz	ESH3-Z5	KMO-SZ009	June 27, 2014
Pulse Limiter	SCHWARZBECK	VTSD 9561-F	KMO-SZ077	Nov.29, 2013
ISN	SCHWARZBECK	NTFM 8158 CAT3	KMO-SZ070	Nov.19, 2014
ISN	SCHWARZBECK	NTFM 8158 CAT5	KMO-SZ071	Nov.19, 2014
ISN	SCHWARZBECK	NTFM 8158 CAT6	KMO-SZ072	Nov.19, 2014
KMO Shielded Room	KMO	KMO-001	KMO-SZ036	NCR
Coaxial Cable with N-Connectors	SCHWARZBECK	AK9515H	KMO-SZ037	Sep.18, 2014
AC Power Source / Analyzer	Agilent	6813B	KMO-SZ166	July 22, 2014
Digital Radio Communication Tester	Rohde & Schwarz	CMD60	KMO-SZ169	April 10, 2015
Universal Radio Communication Tester	Rohde & Schwarz	CMU200	KMO-SZ170	April 10, 2015
Program Control Telephone Exchanger	Excelltel	CDX8000-M	KMO-SZ221	NCR
3m Anechoic Chamber	KMO	KMO-3AC	KMO-3AC-1	Nov.12, 2016
Temperature Chamber	TABAI	PSL-4GTW	N/A	Feb.10, 2015