

TEST REPORT

Application No.: SZEM2103002374CR (SHEM2103001709CR)
Applicant: Hangzhou Ezviz Software Co., Ltd.
Address of Applicant: Room 302, Unit B, Building 2,399 Danfeng Road, Binjiang District, Hangzhou, Zhejiang
Manufacturer: Hangzhou Ezviz Software Co., Ltd.
Address of Manufacturer: Room 302, Unit B, Building 2,399 Danfeng Road, Binjiang District, Hangzhou, Zhejiang
Equipment Under Test (EUT):
EUT Name: Internet PT Camera (Smart Home Camera)
Model No.: CS-C6N,CS-C6HN,CS-CTQ6N,CS-C6CN □
Add Model No.: CS-C6N-A0-1C2WFR,CS-C6N (A0-1C2WFR),CS-C6N-B0-1G2WF,CS-C6CN-A0-3H2WF,CS-C6CN (H.265),CS-C6HN-A0-1C2WFR,CS-CTQ6N-A0-1C2WFR
 □ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark: EZVIZ
Standard(s) : EN 55032:2015
 EN IEC 61000-3-2:2019
 EN 61000-3-3:2013+A1:2019
 EN 50130-4:2011 +A1:2014
Date of Receipt: 2019-07-29
Date of Test: 2019-07-30 to 2019-08-01
Date of Issue: 2021-03-09

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

Keny Xu
EMC Laboratory Manager



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Revision Record			
Version	Description	Date	Remark
00	Add Model No.	2021-03-09	Based on SZEM210100038201 (SHEM210100032601) (Original report no.: SZEM200800792801 (SHEM200500350301))

Authorized for issue by:				
				
		Bill Chen /Project Engineer		
				
		Eric Fu /Reviewer		





2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at Mains Terminals (150kHz-30MHz)	EN 55032:2015	EN 55032:2015	Class B	Pass
Asymmetric Mode Conducted Emissions (150kHz-30MHz)	EN 55032:2015	EN 55032:2015	Class B	Pass
Radiated Emissions (30MHz-1GHz)	EN 55032:2015	EN 55032:2015	Class B	Pass
Radiated Emissions (above 1GHz)	EN 55032:2015	EN 55032:2015	Class B	Pass
Harmonic Current Emission	EN IEC 61000-3-2:2019	EN IEC 61000-3-2:2019	Class A	N/A
Voltage Fluctuations and Flicker	EN 61000-3-3:2013+A1:2019	EN 61000-3-3:2013+A1:2019	Clause 5 of EN 61000-3-3	Pass

N/A: Not applicable. Please refer to Section 6.5 of this report for details.

Immunity Part				
Item	Standard	Method	Requirement	Result
Electrostatic Discharge	EN 50130-4:2011 +A1:2014	EN 61000-4-2:2009	6kV Contact Discharge 2,4,8kV Air Discharge	Pass
Radiated Immunity(80MHz-2.7GHz)	EN 50130-4:2011 +A1:2014	EN 61000-4-3:2006 +A1:2008+A2:2010	10V/m, 80%, 1kHz sinusoidal Amp. Mod.	Pass
Electrical Fast Transients/Burst at Power Port	EN 50130-4:2011 +A1:2014	EN 61000-4-4:2012	2kV 5/50ns Tr/Td 100kHz Repetition Frequency	Pass
Electrical Fast Transients/Burst at Signal Port	EN 50130-4:2011 +A1:2014	EN 61000-4-4:2012	1kV 5/50ns Tr/Td 100kHz Repetition Frequency	Pass
Surge at Power Port	EN 50130-4:2011 +A1:2014	EN 61000-4-5:2014 +A1:2017	1.2/50µs Tr/Td 0.5,1kV Line to Line 0.5,1,2kV Line to Ground	Pass
Conducted Immunity at Power Port (150kHz-100MHz)	EN 50130-4:2011 +A1:2014	EN 61000-4-6:2014	10Vrms (emf),80%,1kHz sinusoidal Amp. Mod.	Pass





Immunity Part				
Item	Standard	Method	Requirement	Result
Conducted Immunity at Signal Port (150kHz-100MHz)	EN 50130-4:2011 +A1:2014	EN 61000-4-6:2014	10Vrms (emf), 80%, 1kHz sinusoidal Amp. Mod.	Pass
Voltage Dips and Interruptions	EN 50130-4:2011 +A1:2014	EN 61000-4-11:2004 +A1:2017	80 % UT for 250per 70 % UT for 25per 40 % UT for 10per 0 % UT for 250per UT is Supply Voltage	Pass
Mains Supply Voltage Variations-Conditioning	EN 50130-4:2011 +A1:2014	EN 50130-4:2011+A1:2014	Unom+10% Unom-15%	Pass

InternalSource	UpperFrequency
Below 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5 times the highest frequency or 6 GHz, whichever is less

Declaration of EUT Family Grouping:

Note1: There are series models mentioned in this report, and they are the identical in electrical and electronic characters. Only the model CS-C6N was tested since their differences were the model number and appearance.

Note2: The report is copied from SZEM200800792801 (SHEM200800682401) to add trade mark.

Note3: We add some models (refer to page 1) in this report. The new models added in this report are the same Electronic or Electrical characters as the models in the report SZEM200800792801 (SHEM200500350301), so the new models in this report are deemed to fulfill the EMC requirements without testing.



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4 General Information

4.1 Details of E.U.T.

Power supply: DC 5V by adapter
Input: 100-240V~50/60Hz, Max. 0.3A
Output: DC 5V 1A
Test voltage: AC 230V 50Hz
Cable: DC Cable 3m for adapter

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
2.4 G Router	CISCO	RV110W	/
Laptop	LENOVO	R400	/

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conducted Emission at mains port using AMN	2.6dB (9kHz to 150kHz)
		2.4dB (150kHz to 30MHz)
2	Conducted Emission at mains port using VP	1.8dB (9kHz to 30MHz)
3	Conducted Emission at telecommunication port using AAN	4.2dB (150kHz to 30MHz)
4	Radiated Power	3.2dB
5	Radiated emission	4.5dB (30MHz-1GHz)
		5.1dB (1GHz-6GHz)
		5.4dB (6GHz-18GHz)
6	Radiated disturbance (disturbance current in a LLAS)	2.4dB (9kHz to 30MHz)

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.





4.4 Test Location

All tests were subcontracted to:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China
Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006. IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 Monitoring of EUT for All Immunity Test

Visual: Working status of EUT



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5 Equipment List

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2018-12-20	2019-12-19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2018-12-20	2019-12-19
Line impedance stabilization network	EMCO	3816/2	SHEM019-1	2018-12-20	2019-12-19
Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2018-12-20	2019-12-19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2017-12-20	2020-12-19
CE test Cable	/	/	CE01	2018-12-26	2019-12-25

Asymmetric Mode Conducted Emissions (150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2018-12-20	2019-12-19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2018-12-20	2019-12-19
8-wire ISN cat 5	SCHWARZBECK	CAT5 8158	SHEM137-1	2018-12-20	2019-12-19
8-wire ISN cat 3	SCHWARZBECK	CAT3 8158	SHEM137-2	2018-12-20	2019-12-19
8-wire ISNcat 6	SCHWARZBECK	NTFM8158	SHEM137-3	2018-12-20	2019-12-19
2-Draht ISN	Schwarzbeck - Mess-Elektronik	NTFM 8131	SHEM139-1	2018-12-20	2019-12-19
CE test Cable	/	/	CE01	2018-12-26	2019-12-25

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2018-12-20	2019-12-19
CONTROLLER	INNCO	CO200	SHEM047-1	N/A	N/A
ANTENNA MAST	INNCO	MA400-EP	SHEM047-2	N/A	N/A
TURN DEVICE	INNCO	DE 3600-RH	SHEM047-3	N/A	N/A
Broadband UHF-VHF ANTENNA	SCHWARZBECK	VULB9168	SHEM048-1	2017-02-28	2020-02-27
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21
Low Amplifier	CLAVIIO	BDLNA-0001-412010	SHEM164-1	2019-08-13	2020-08-12

Radiated Emissions (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2018-12-20	2019-12-19
CONTROLLER	INNCO	CO200	SHEM047-1	N/A	N/A
ANTENNA MAST	INNCO	MA400-EP	SHEM047-2	N/A	N/A
TURN DEVICE	INNCO	DE 3600-RH	SHEM047-3	N/A	N/A
Double ridged broadband horn ANTENNA	SCHWARZBECK	BBHA9120D	SHEM050-1	2017-01-14	2020-01-13



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High-amplifier	SCHWARZBECK	SCU-F0118-G40-BZ4-CS	SHEM050-2	2018-12-20	2019-12-19
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21
High Amplifier	CLAVIIO	BDLNA-0118-352810	SHEM165-1	2019-08-13	2020-08-12

Voltage Fluctuations and Flicker

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Harmonic&Flicker analyzer	AMETEK	PACS-1	SHEM024-2	2019-08-13	2020-08-12
AC Power Source 5KVA	AMETEK	5001iX	SHEM025-2	2019-08-13	2020-08-12

Electrostatic Discharge

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Electrostatic Discharge Simulator	TESEQ	NSG 437	SHEM041-2	2019-08-13	2020-08-12

Radiated Immunity(80MHz-2.7GHz)

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2019-08-13	2020-08-12
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2018-12-20	2019-12-19
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-2	2018-12-20	2019-12-19
Antenna	SCHWARZBECK	STLP9128D	SHEM130-1	N/A	N/A
Antenna	SCHWARZBECK	STLP9149	SHEM131-1	N/A	N/A
Amplifier	MILMEGA	80RF1000-250	SHEM132-1	2018-12-20	2019-12-19
Amplifier	MILMEGA	AS0840-55-55	SHEM133-1	2018-12-20	2019-12-19
Power meter sensor	Rohde & Schwarz	NRP-Z22	SHEM136-1	2018-12-20	2019-12-19
ElectroMagnetic Field Probe	ETS-Lindgren	HI-6105	SHEM134-1	2018-12-11	2019-12-10
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21

Electrical Fast Transients/Burst at Power Port

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2018-12-20	2019-12-19

Electrical Fast Transients/Burst at Signal Port

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2018-12-20	2019-12-19
Capacitive coupling clamp	EM test	HFK	SHEM026-2	2018-12-20	2019-12-19
Data coupling network 4 line	EM test	CNV 504	SHEM026-3	2018-12-20	2019-12-19

Surge at Power Port



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Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2018-12-20	2019-12-19

Conducted Immunity at Power Port (150kHz-100MHz)

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2019-08-13	2020-08-12
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2018-12-20	2019-12-19
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2018-12-20	2019-12-19
CDN impedance and K-factor	LUTHI	L-801 M1	SHEM023-5	2018-12-20	2019-12-19
CDN impedance and K-factor	LUTHI	L-801 M2/M3	SHEM023-6	2018-12-20	2019-12-19
Shielding Room	ZHONGYU	5*5*3M	SHEM079-6	2016-12-29	2019-12-28
Coupling and Decoupling Network	Teseq	CDN M016	SHEM168-1	2019-08-13	2020-08-12

Conducted Immunity at Signal Port (150kHz-100MHz)

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2019-08-13	2020-08-12
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2018-12-20	2019-12-19
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2018-12-20	2019-12-19
Coupling clamp	LIITHI	EM 101	SHEM027-1	2018-12-20	2019-12-19
CDN impedance and K-factor	LUTHI	L-801 M1	SHEM023-5	2018-12-20	2019-12-19
CDN impedance and K-factor	LUTHI	L-801 M2/M3	SHEM023-6	2018-12-20	2019-12-19
Coupling and Decoupling Network	Teseq	CDN M016	SHEM168-1	2019-08-13	2020-08-12

Voltage Dips and Interruptions

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2018-12-20	2019-12-19

Mains Supply Voltage Variations-Conditioning

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2018-12-20	2019-12-19





General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Digital pressure meter	YONGZHI	DYM3-01	SHEM082-1	2018-01-25	2021-01-24
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-1~6	2018-08-31	2019-08-30
Digital Multimeter	FLUKE	17B	SHEM043-3	2018-09-03	2019-09-02
Autoformer regulator	Guangzhou bao de	TDGC2-5KVA	SHEM150-1	N/A	N/A
Multi-purpose tong tester	FLUKE	316	SHEM001-1	2018-12-20	2019-12-19



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6 Emission Test Results

6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

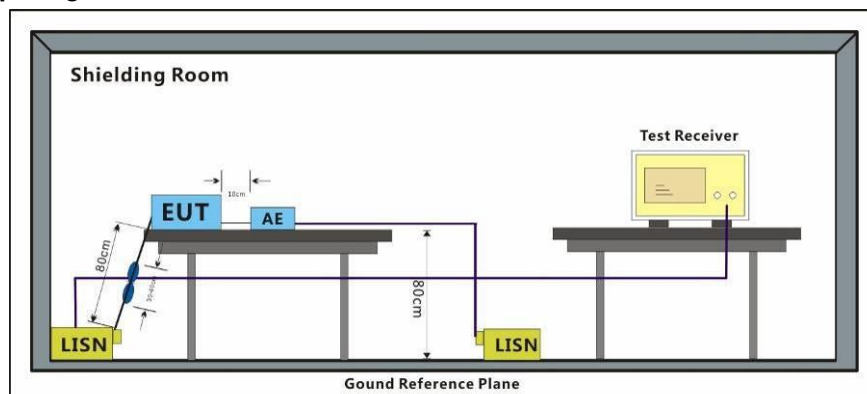
Test Requirement:	EN 55032:2015
Test Method:	EN 55032:2015
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar
Test mode a: Ethernet Monitoring mode_Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

6.1.2 Test Setup Diagram

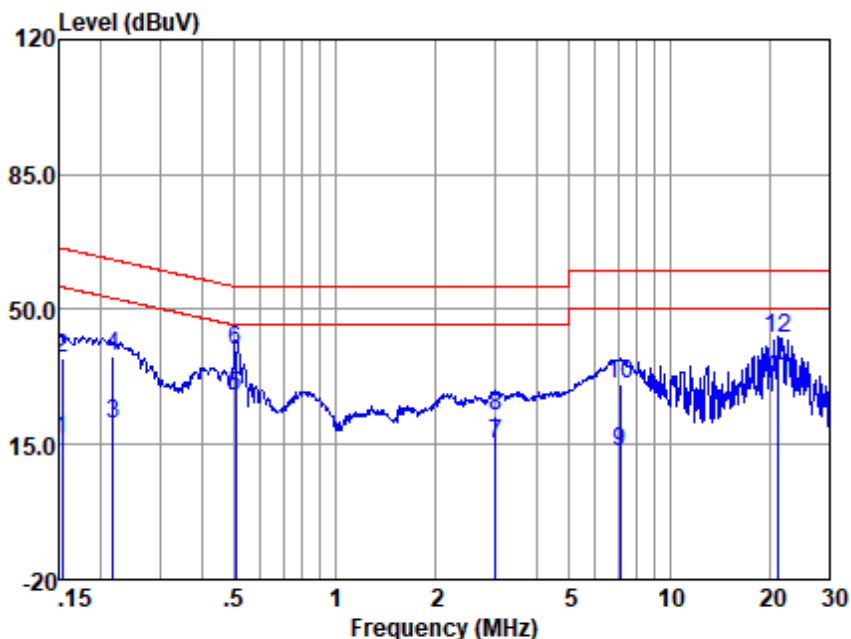


6.1.3 Measurement Data

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.



Mode:a; Line:Live Line



LISN : LINE
EUT/Project No : 15572CR
Test Mode : a

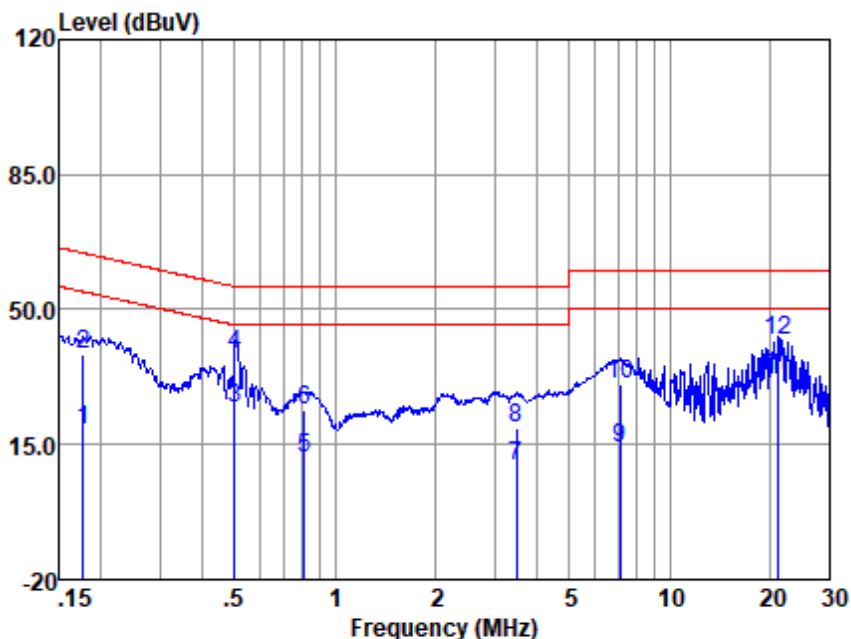
	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.15	6.29	0.09	10.00	16.38	55.87	-39.49	Average
2	0.15	27.27	0.09	10.00	37.36	65.87	-28.51	QP
3	0.22	10.45	0.07	10.00	20.52	52.92	-32.40	Average
4	0.22	27.63	0.07	10.00	37.70	62.92	-25.22	QP
5	0.50	17.39	0.08	10.00	27.47	46.00	-18.53	Average
6	0.50	29.44	0.08	10.00	39.52	56.00	-16.48	QP
7	3.03	4.88	0.14	10.20	15.22	46.00	-30.78	Average
8	3.03	12.00	0.14	10.20	22.34	56.00	-33.66	QP
9	7.10	2.52	0.19	10.30	13.01	50.00	-36.99	Average
10	7.10	20.05	0.19	10.30	30.54	60.00	-29.46	QP
11	21.15	21.39	0.31	10.40	32.10	50.00	-17.90	Average
12	21.15	31.64	0.31	10.40	42.35	60.00	-17.65	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss





Mode:a; Line:Neutral Line



LISN : NEUTRAL
EUT/Project No : 15572CR
Test Mode : a

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.18	8.76	0.07	10.00	18.83	54.64	-35.81	Average
2	0.18	28.13	0.07	10.00	38.20	64.64	-26.44	QP
3	0.50	14.33	0.06	10.00	24.39	46.00	-21.61	Average
4	0.50	28.30	0.06	10.00	38.36	56.00	-17.64	QP
5	0.81	1.68	0.07	10.00	11.75	46.00	-34.25	Average
6	0.81	13.73	0.07	10.00	23.80	56.00	-32.20	QP
7	3.49	-0.92	0.12	10.30	9.50	46.00	-36.50	Average
8	3.49	8.71	0.12	10.30	19.13	56.00	-36.87	QP
9	7.10	3.70	0.15	10.30	14.15	50.00	-35.85	Average
10	7.10	20.33	0.15	10.30	30.78	60.00	-29.22	QP
11	21.04	21.82	0.30	10.40	32.52	50.00	-17.48	Average
12	21.04	31.35	0.30	10.40	42.05	60.00	-17.95	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss



6.2 Asymmetric Mode Conducted Emissions (150kHz-30MHz)

Test Requirement: EN 55032:2015
Test Method: EN 55032:2015
Frequency Range: 150kHz to 30MHz
Limit:

0.15M-0.5MHz(Voltage) 84-74(dBμV) quasi-peak; 74-64(dBμV) average

0.5M-30MHz(Voltage) 74(dBμV) quasi-peak; 64(dBμV) average

0.15M-0.5MHz(Current) 40-30(dBμA) quasi-peak; 30-20(dBμA) average

0.5M-30MHz(Current) 30(dBμA) quasi-peak; 20(dBμA) average

Detector: 9kHz resolution bandwidth 0.15M to 30MHz

Remark: The voltage measured shall be corrected at each frequency of interest as follows:

if the current margin with respect to the current limit is ≤ 6 dB, the actual current margin shall be subtracted from the measured voltage;

if the current margin with respect to the current limit is > 6 dB, 6 dB shall be subtracted from the measured voltage.

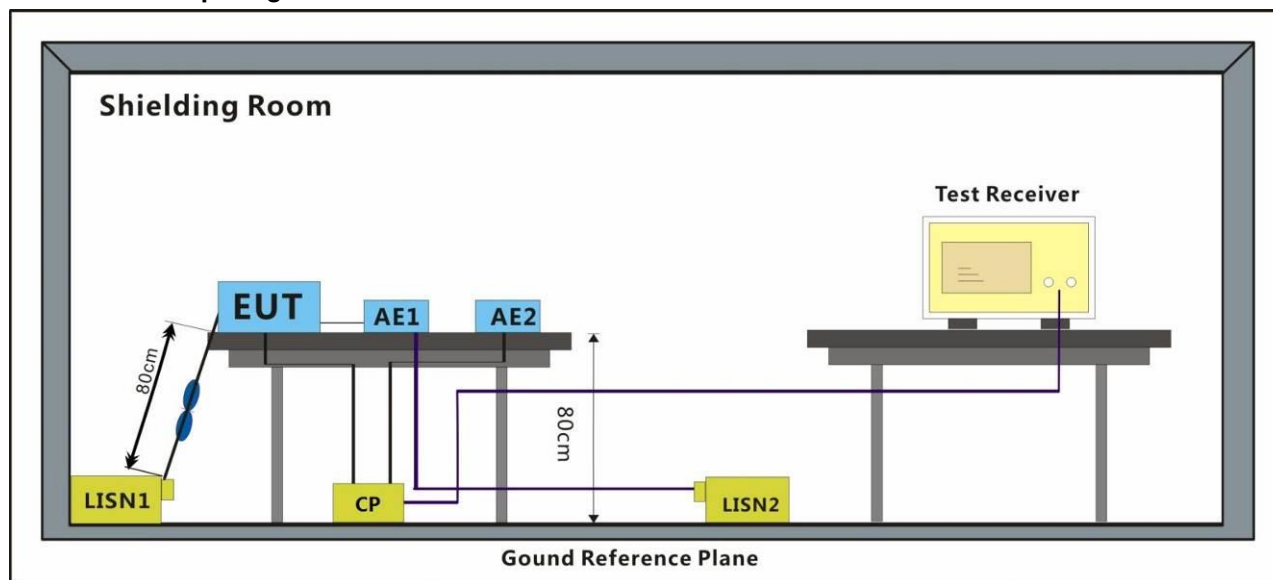
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode a: Ethernet Monitoring mode_Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

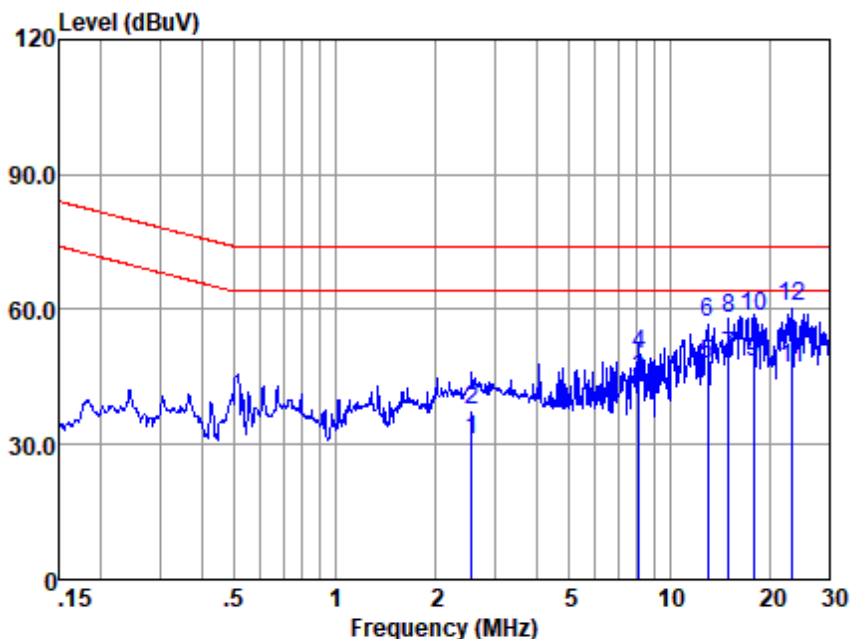
6.2.2 Test Setup Diagram



6.2.3 Measurement Data



Mode:a



ISN : CAT5-2019
EUT/Project No : 15572CR
Test Mode : a

	Freq (MHz)	Read level (dBuV)	ISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	2.57	11.57	9.31	10.10	30.98	64.00	-33.02	Average
2	2.57	18.37	9.31	10.10	37.78	74.00	-36.22	QP
3	8.11	24.54	9.37	10.30	44.21	64.00	-19.79	Average
4	8.11	30.36	9.37	10.30	50.03	74.00	-23.97	QP
5	12.99	28.13	9.39	10.40	47.92	64.00	-16.08	Average
6	12.99	37.18	9.39	10.40	56.97	74.00	-17.03	QP
7	14.99	29.62	9.40	10.40	49.42	64.00	-14.58	Average
8	14.99	38.14	9.40	10.40	57.94	74.00	-16.06	QP
9	17.85	28.43	9.45	10.40	48.28	64.00	-15.72	Average
10	17.85	38.75	9.45	10.40	58.60	74.00	-15.40	QP
11	23.39	26.91	9.53	10.40	46.84	64.00	-17.16	Average
12	23.39	40.70	9.53	10.40	60.63	74.00	-13.37	QP

Notes: Emission Level = Read Level + ISN Factor + Cable loss



6.3 Radiated Emissions (30MHz-1GHz)

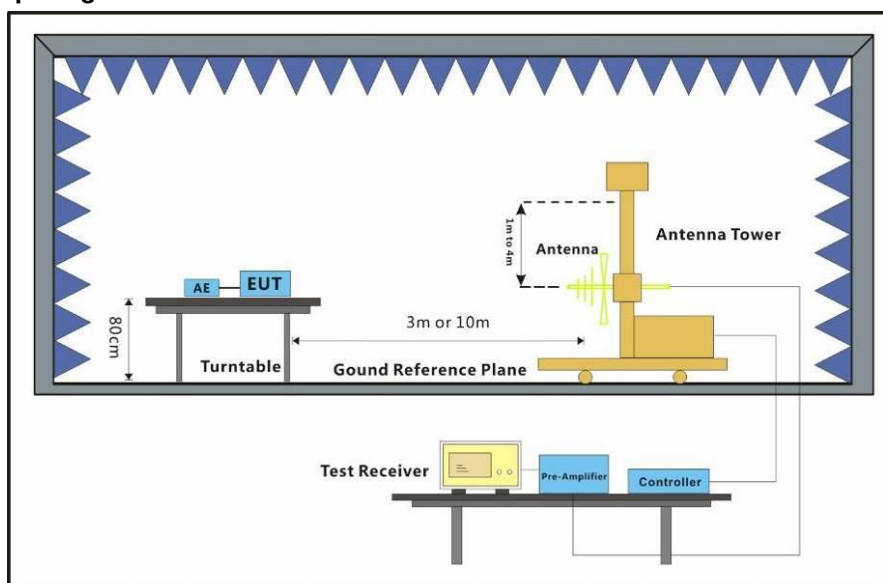
Test Requirement: EN 55032:2015
Test Method: EN 55032:2015
Frequency Range: 30MHz to 1GHz
Measurement Distance: 3m
Limit:
30MHz-230MHz 40 dB(μ V/m) quasi-peak
230MHz-1GHz 47 dB(μ V/m) quasi-peak
Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar
Test mode a: Ethernet Monitoring mode_Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

6.3.2 Test Setup Diagram

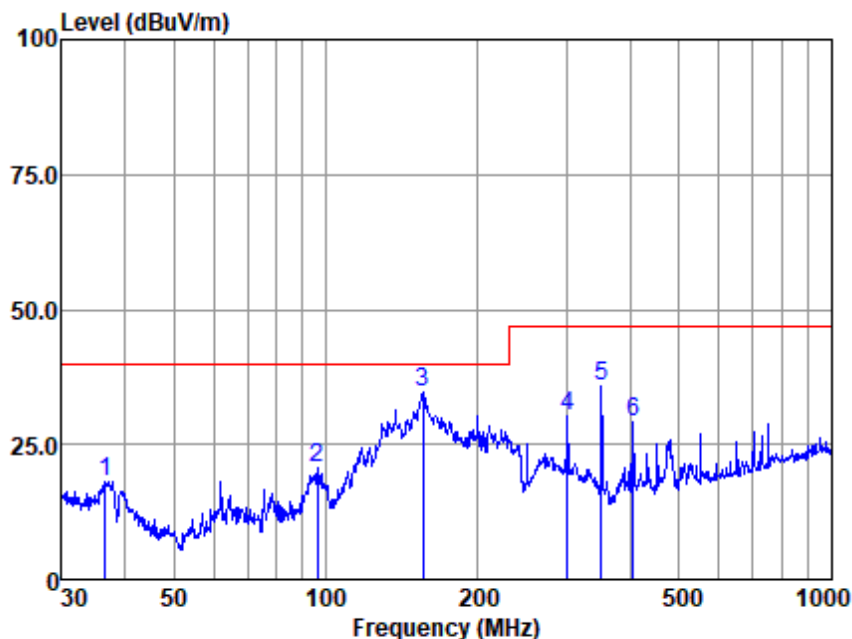


6.3.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.



Mode:a; Polarization:Horizontal



Antenna Polarity :HORIZONTAL
EUT/Project :5572CR
Test mode :a

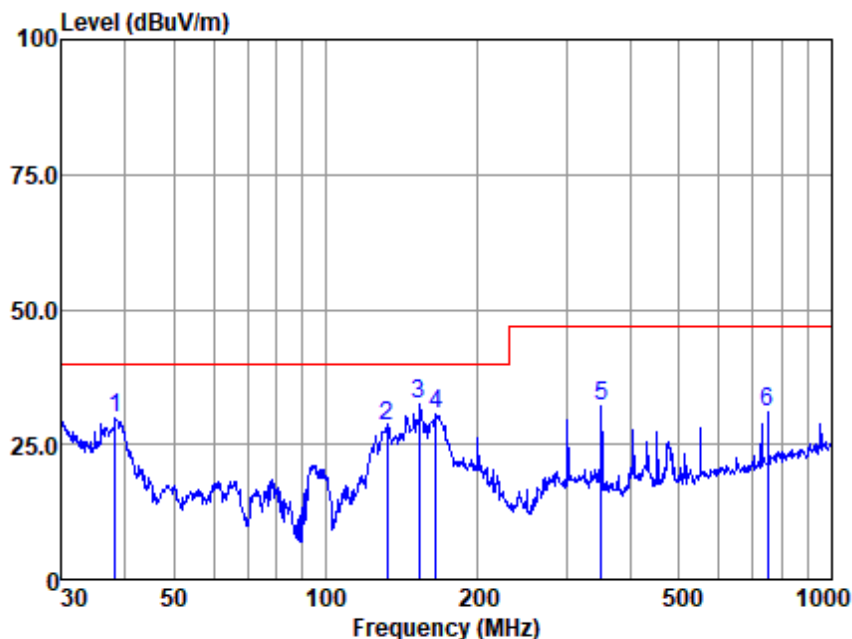
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	36.637	44.15	15.99	0.35	42.35	18.14	40.00	-21.86	QP
2	96.436	52.73	9.05	1.09	42.31	20.56	40.00	-19.44	QP
3	155.364	62.79	12.59	1.40	42.22	34.56	40.00	-5.44	QP
4	300.367	56.81	13.20	2.49	42.12	30.38	47.00	-16.62	QP
5	350.477	60.56	14.24	2.91	41.94	35.77	47.00	-11.23	QP
6	406.088	52.79	15.27	3.05	41.90	29.21	47.00	-17.79	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor





Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL
EUT/Project :5572CR
Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	38.346	55.43	16.15	0.46	42.34	29.70	40.00	-10.30	QP
2	132.221	56.82	12.45	1.42	42.26	28.43	40.00	-11.57	QP
3	153.200	60.91	12.33	1.38	42.23	32.39	40.00	-7.61	QP
4	165.487	59.25	12.24	1.49	42.21	30.77	40.00	-9.23	QP
5	350.477	57.06	14.24	2.91	41.94	32.27	47.00	-14.73	QP
6	750.108	47.63	21.08	4.22	41.99	30.94	47.00	-16.06	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



6.4 Radiated Emissions (above 1GHz)

Test Requirement:	EN 55032:2015
Test Method:	EN 55032:2015
Frequency Range:	Above 1GHz
Measurement Distance:	3m
Limit:	
1GHz-3GHz	70 dB(μV/m) peak, 50 dB(μV/m) average
3GHz-6GHz	74 dB(μV/m) peak, 54dB(μV/m) average
Detector:	Peak for pre-scan (1000kHz resolution bandwidth) 1000M to 6000MHz

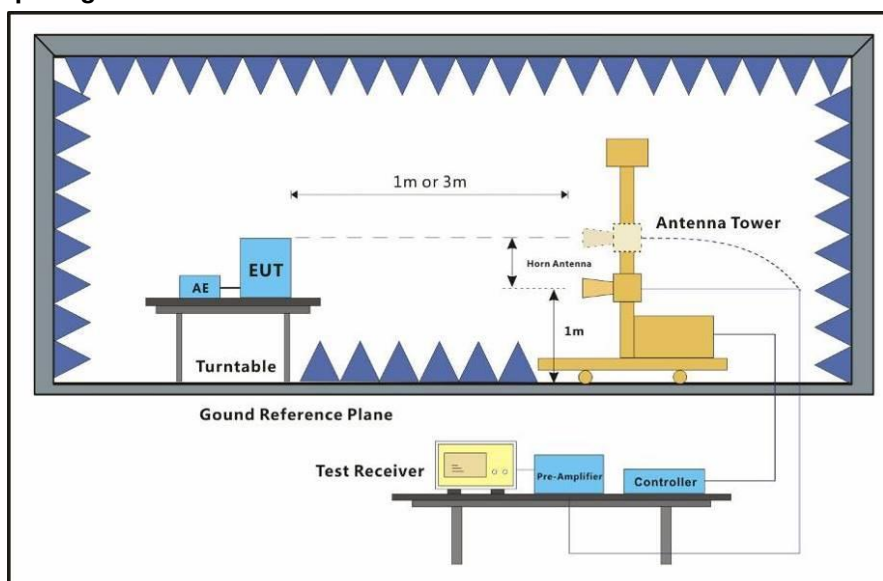
6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode a:Ethernet Monitoring mode_Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

6.4.2 Test Setup Diagram



6.4.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.



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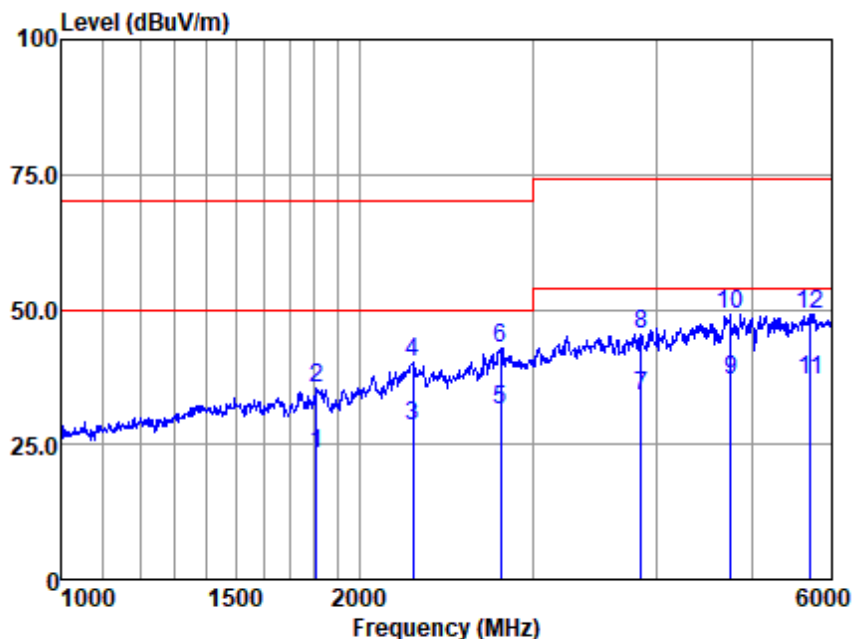
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Mode:a; Polarization:Horizontal



Antenna Polarity :HORIZONTAL
EUT/Project :5572CR
Test mode :a

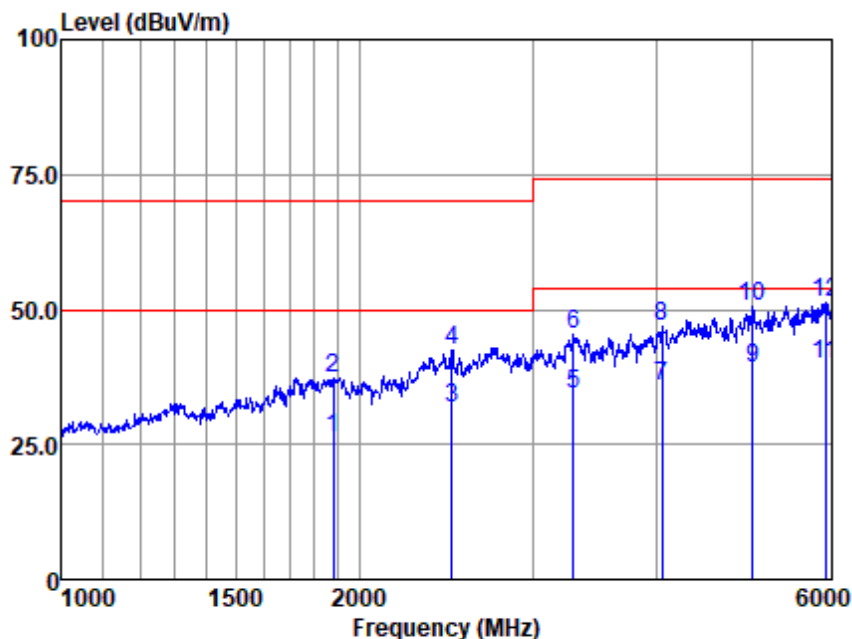
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1809.539	33.49	25.72	6.45	42.39	23.27	50.00	-26.73	Average
2	1809.539	45.65	25.72	6.45	42.39	35.43	70.00	-34.57	Peak
3	2267.854	36.67	26.78	7.31	42.35	28.41	50.00	-21.59	Average
4	2267.854	48.59	26.78	7.31	42.35	40.33	70.00	-29.67	Peak
5	2776.810	37.61	28.03	8.20	42.31	31.53	50.00	-18.47	Average
6	2776.810	49.04	28.03	8.20	42.31	42.96	70.00	-27.04	Peak
7	3854.321	35.91	29.45	10.87	42.40	33.83	54.00	-20.17	Average
8	3854.321	47.50	29.45	10.87	42.40	45.42	74.00	-28.58	Peak
9	4744.751	35.29	31.11	13.05	42.48	36.97	54.00	-17.03	Average
10	4744.751	47.58	31.11	13.05	42.48	49.26	74.00	-24.74	Peak
11	5716.644	33.84	32.20	13.52	42.61	36.95	54.00	-17.05	Average
12	5716.644	45.96	32.20	13.52	42.61	49.07	74.00	-24.93	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor





Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL
EUT/Project :5572CR
Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1882.294	36.37	25.83	6.46	42.38	26.28	50.00	-23.72	Average
2	1882.294	47.32	25.83	6.46	42.38	37.23	70.00	-32.77	Peak
3	2480.406	38.93	27.35	7.73	42.33	31.68	50.00	-18.32	Average
4	2480.406	49.76	27.35	7.73	42.33	42.51	70.00	-27.49	Peak
5	3292.082	38.89	28.68	9.24	42.34	34.47	54.00	-19.53	Average
6	3292.082	49.82	28.68	9.24	42.34	45.40	74.00	-28.60	Peak
7	4045.367	37.09	29.79	11.40	42.42	35.86	54.00	-18.14	Average
8	4045.367	47.94	29.79	11.40	42.42	46.71	74.00	-27.29	Peak
9	4997.811	37.45	31.60	12.65	42.50	39.20	54.00	-14.80	Average
10	4997.811	48.79	31.60	12.65	42.50	50.54	74.00	-23.46	Peak
11	5925.216	36.52	32.51	13.41	42.65	39.79	54.00	-14.21	Average
12	5925.216	48.11	32.51	13.41	42.65	51.38	74.00	-22.62	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor





6.5 Harmonic Current Emission

Test Requirement: EN IEC 61000-3-2:2019

Test Method: EN IEC 61000-3-2:2019

Frequency Range: 100Hz to 2kHz

There is no need for Harmonics test to be performed on this product (rated power is less than 75W) in accordance with EN IEC 61000-3-2:2019.

For further details, please refer to Clause 7 of EN 61000-3-2 which states:

"For the following categories of equipment, limits are not specified in this standard.- equipment with a rated power of 75W or less, other than lighting equipment."



6.6 Voltage Fluctuations and Flicker

Test Requirement: EN 61000-3-3:2013+A1:2019

Test Method: EN 61000-3-3:2013+A1:2019

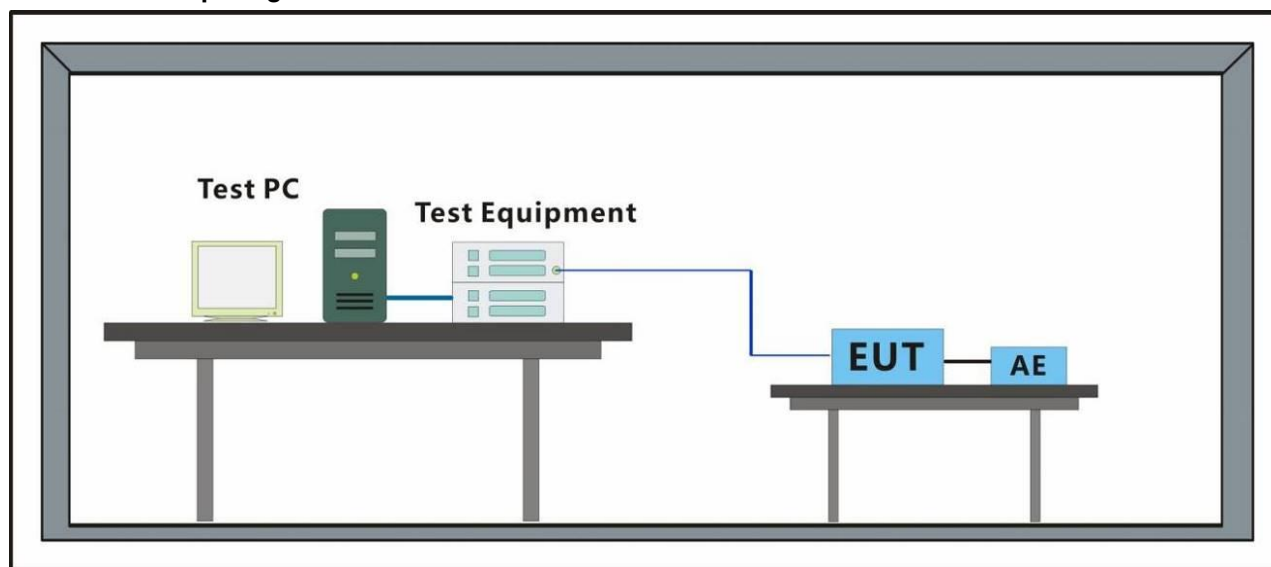
6.6.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode a: Ethernet Monitoring mode_Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

6.6.2 Test Setup Diagram



6.6.3 Measurement Data

Mode:a

Vrms at the end of test (Volt): 230.01

T-max (mS): 0

Highest dc (%): 0.00

Highest dmax (%): 0.00

Highest Pst (10 min. period): 0.228

Highest Plt (2 hr. period): 0.097

Test limit (mS): 500.0 Pass

Test limit (%): 3.30 Pass

Test limit (%): 4.00 Pass

Test limit: 1.000 Pass

Test limit: 0.650 Pass



7 Immunity Test Results

7.1 Performance Criteria Description in EN 50130-4:2011 +A1:2014

There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the application of the discharges is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change.

For further details, please refer to Clause 7.4, 8.4, 9.4, 10.4, 11.4, 12.4 and 13.4, of EN 50130-4.



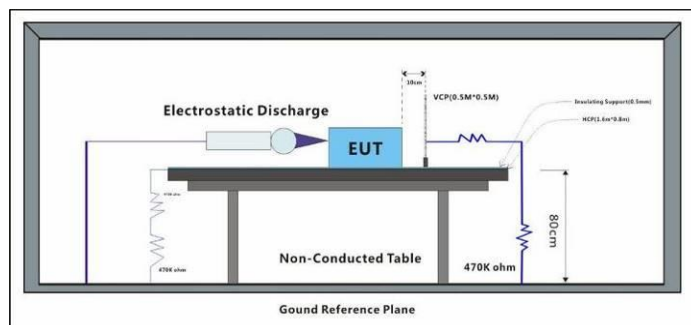
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7.2 Electrostatic Discharge

Test Requirement: EN 50130-4:2011 +A1:2014
Test Method: EN 61000-4-2:2009
Number of Discharge: Minimum 10 times at each test point for Air Discharge
Minimum 50 times at each test point for Contact or VCP & HCP Discharge
Discharge Mode: Single Discharge
Discharge Period: 1 second minimum
Criteria for compliance: There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the application of the discharges is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change.

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar
Test mode: a:Ethernet Monitoring mode Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

7.2.3 Test Results:

Observations: Test Point:
1. All insulated enclosure and seams.
2. All accessible metal parts of the enclosure.
3. All side

Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	A
Air Discharge	2,4,8	-	1	A
Contact Discharge	6	+	2	A
Contact Discharge	6	-	2	A
Horizontal Coupling	6	+	3	A
Horizontal Coupling	6	-	3	A
Vertical Coupling	6	+	3	A
Vertical Coupling	6	-	3	A

Results:

A: No degradation in the performance of the EUT was observed.

7.3 Radiated Immunity(80MHz-2.7GHz)

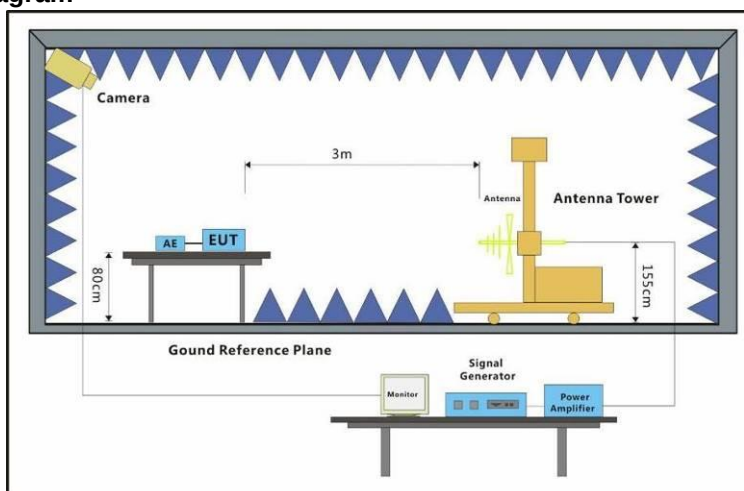
Test Requirement: EN 50130-4:2011 +A1:2014
Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010
Modulation: 80%, 1 kHz Amplitude Modulation & 0.5s ON 0.5s OFF Pulse Modulation

Criteria for compliance: There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the conditioning is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change, and no such flickering of indicators occurs at a field strength of 3 V/m.

For components of CCTV systems, where the status is monitored by observing the TV picture, then deterioration of the picture is allowed at 10 V/m, providing.

- a) there is no permanent damage or change to the EUT (e.g. no corruption of memory or changes to programmable settings etc.);
- b) at 3 V/m, any deterioration of the picture is so minor that the system could still be used; and
- c) there is no observable deterioration of the picture at 1 V/m.

7.3.1 Test Setup Diagram



7.3.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a:Ethernet Monitoring mode_Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

7.3.3 Test Results:

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-2.7GHz	10	Front	3s	A
80MHz-2.7GHz	10	Back	3s	A
80MHz-2.7GHz	10	Left	3s	A
80MHz-2.7GHz	10	Right	3s	A
80MHz-2.7GHz	10	Top	3s	A
80MHz-2.7GHz	10	Underside	3s	A

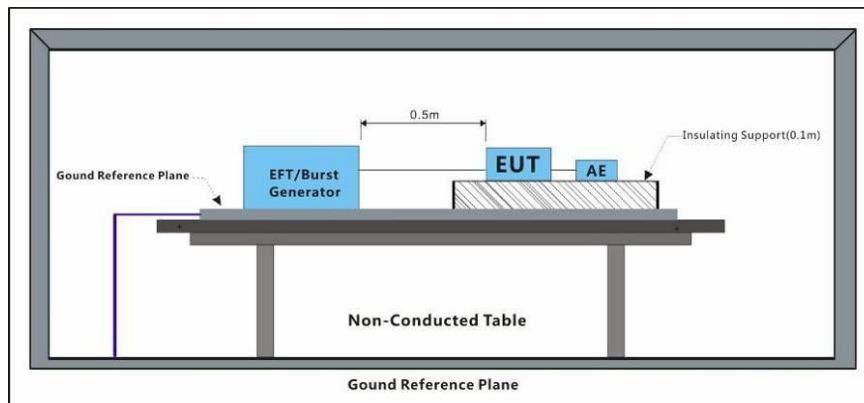
Results:

A: No degradation in the performance of the EUT was observed.

7.4 Electrical Fast Transients/Burst at Power Port

Test Requirement: EN 50130-4:2011 +A1:2014
Test Method: EN 61000-4-4:2012
Repetition Frequency: 100kHz
Burst Period: 300ms
Test Duration: 1 minute per level & polarity

7.4.1 Test Setup Diagram



7.4.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar
Test mode: a:Ethernet Monitoring mode_Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

7.4.3 Test Results:

Test Line	Level (kV)	Polarity	CDN/Clamp	Result / Observations
AC power port	2	+	CDN	A
AC power port	2	-	CDN	A

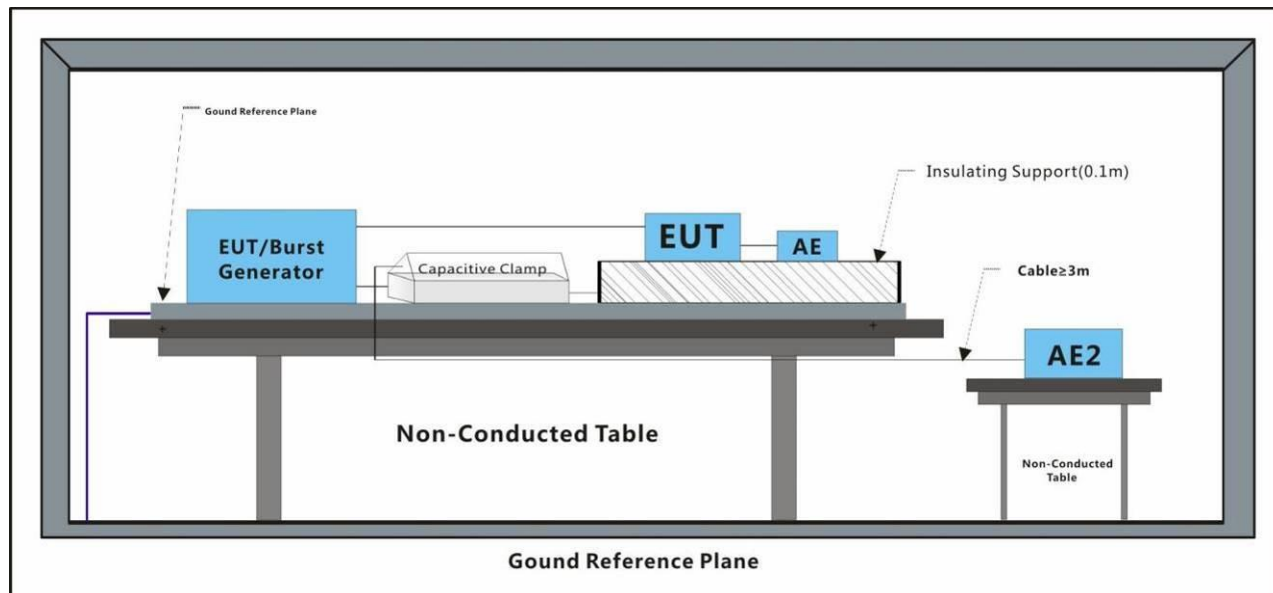
Results:

A: No degradation in the performance of the EUT was observed.

7.5 Electrical Fast Transients/Burst at Signal Port

Test Requirement: EN 50130-4:2011 +A1:2014
Test Method: EN 61000-4-4:2012
Repetition Frequency: 100kHz
Burst Period: 300ms
Test Duration: 1 minute per level & polarity

7.5.1 Test Setup Diagram



7.5.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: Ethernet Monitoring mode Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

7.5.3 Test Results:

Port	Level (kV)	Polarity	CDN/Clamp	Result / Observations
Signal port	1	+	Clamp	A
Signal port	1	-	Clamp	A

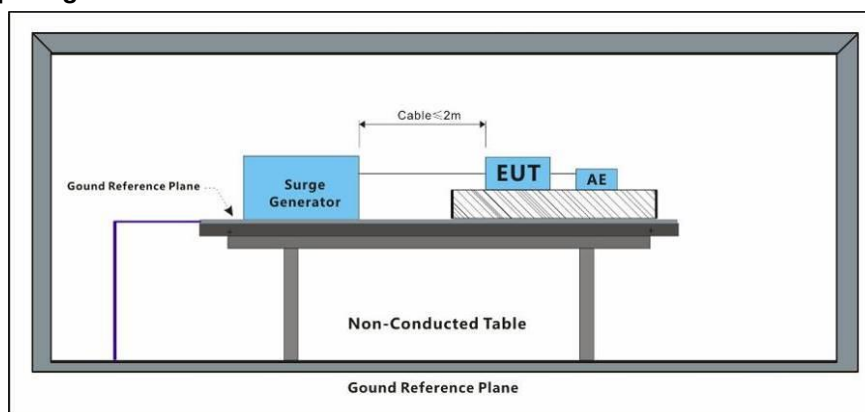
Results:

A: No degradation in the performance of the EUT was observed.

7.6 Surge at Power Port

Test Requirement: EN 50130-4:2011 +A1:2014
Test Method: EN 61000-4-5:2014 +A1:2017
Interval: 60s between each surge
No. of surges: 5 positive, 5 negative
Criteria for compliance: There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the application of the discharges is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change.

7.6.1 Test Setup Diagram



7.6.2 E.U.T. Operation

Operating Environment:
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar
Test mode: a:Ethernet Monitoring mode_Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

7.6.3 Test Results:

Test Line	Level (kV)	Polarity	Phase (deg)	Result / Observations
L-N	0.5,1	+	0°	A
L-N	0.5,1	-	0°	A
L-N	0.5,1	+	90°	A
L-N	0.5,1	-	90°	A
L-N	0.5,1	+	180°	A
L-N	0.5,1	-	180°	A
L-N	0.5,1	+	270°	A
L-N	0.5,1	-	270°	A

Results:

A: No degradation in the performance of the EUT was observed.

7.7 Conducted Immunity at Power Port (150kHz-100MHz)

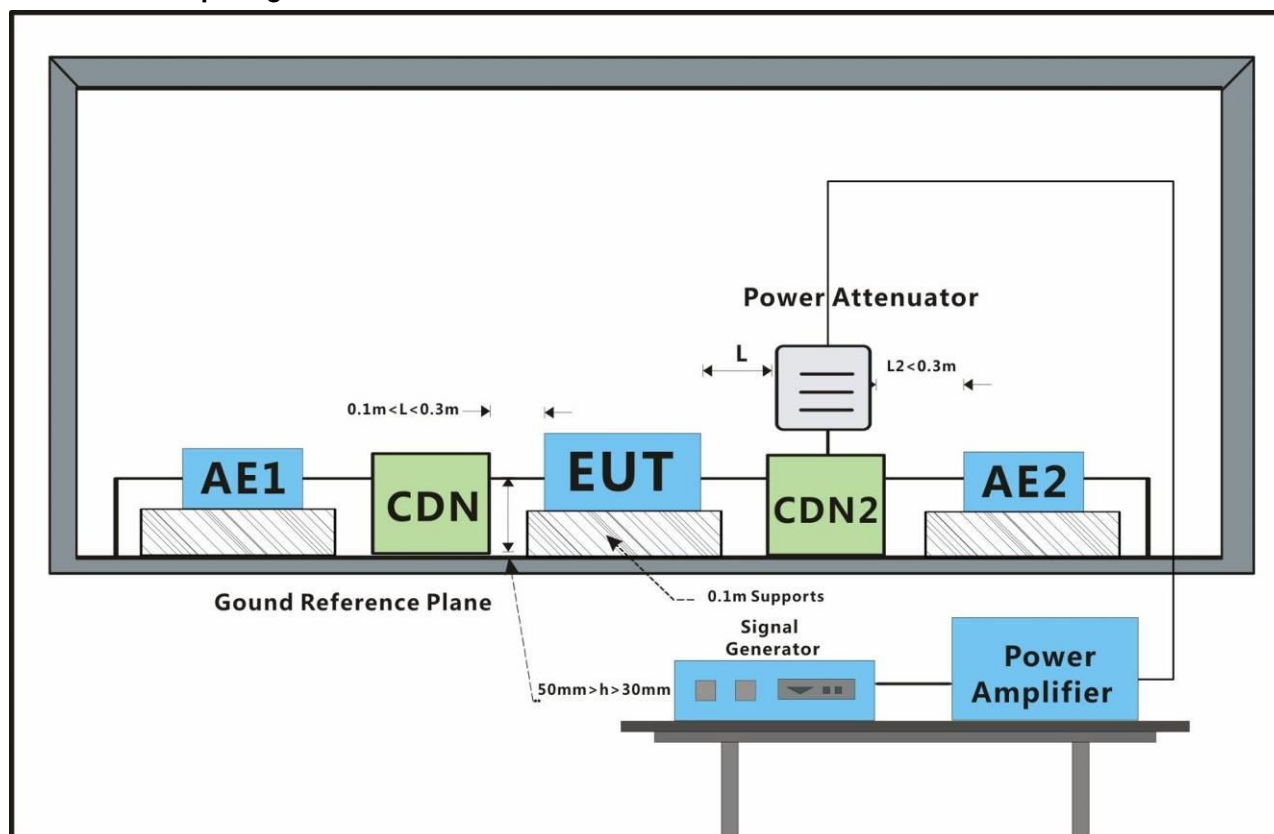
Test Requirement: EN 50130-4:2011 +A1:2014
Test Method: EN 61000-4-6:2014
Modulation: 80%, 1 kHz Amplitude Modulation & 0.5s ON 0.5s OFF Pulse Modulation

Criteria for compliance: There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the conditioning is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change, and no such flickering of indicators occurs at a field strength of 3 V.

For components of CCTV systems, where the status is monitored by observing the TV picture, then deterioration of the picture is allowed at 10 V, providing.

- a) there is no permanent damage or change to the EUT (e.g. no corruption of memory or changes to programmable settings etc.);
- b) at 3 V, any deterioration of the picture is so minor that the system could still be used; and
- c) there is no observable deterioration of the picture at 1 V.

7.7.1 Test Setup Diagram





7.7.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a:Ethernet Monitoring mode_Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

7.7.3 Test Results:

Cable port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
AC power port	10	CDN	2s	A

Results:

A: No degradation in the performance of the EUT was observed.



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7.8 Conducted Immunity at Signal Port (150kHz-100MHz)

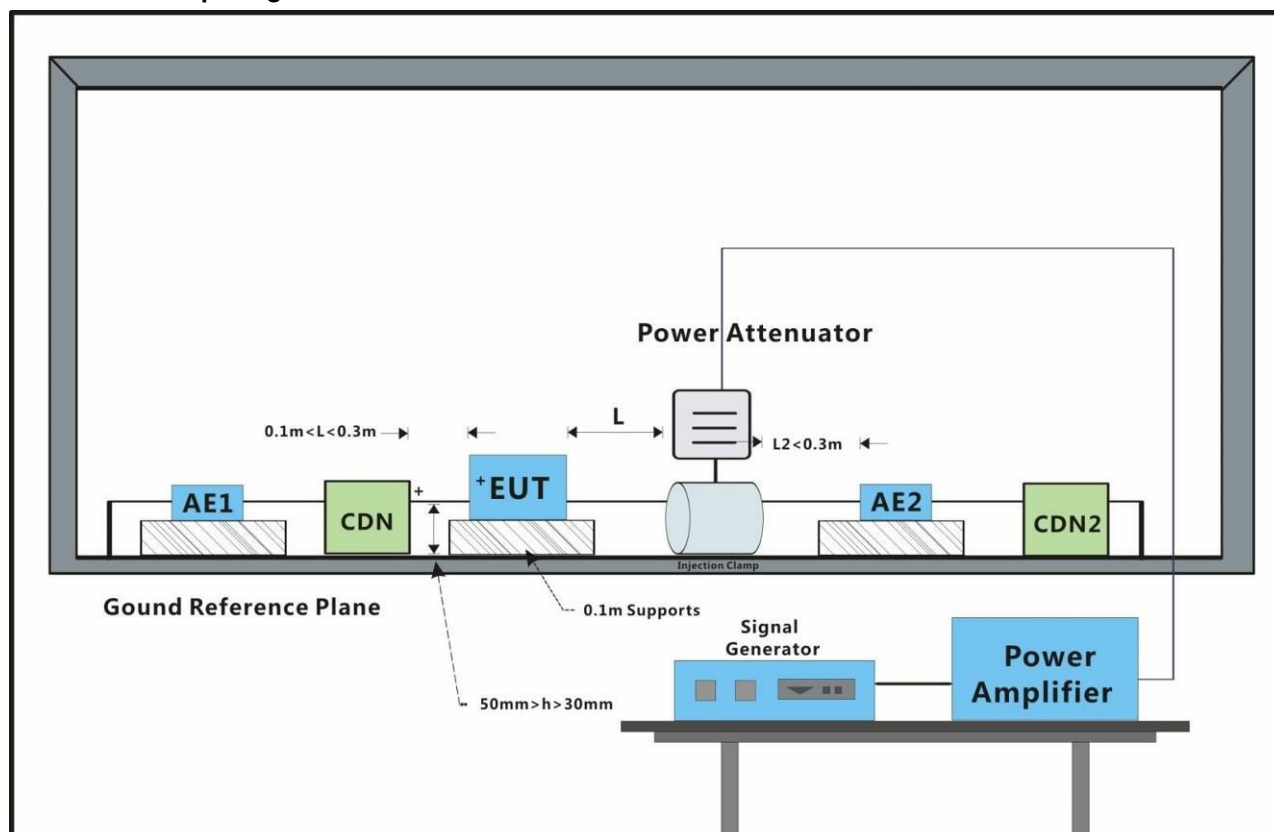
Test Requirement: EN 50130-4:2011 +A1:2014
Test Method: EN 61000-4-6:2014
Modulation: 80%, 1 kHz Amplitude Modulation & 0.5s ON 0.5s OFF Pulse Modulation

Criteria for compliance: There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the conditioning is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change, and no such flickering of indicators occurs at a field strength of 3 V.

For components of CCTV systems, where the status is monitored by observing the TV picture, then deterioration of the picture is allowed at 10 V, providing.

- a) there is no permanent damage or change to the EUT (e.g. no corruption of memory or changes to programmable settings etc.);
- b) at 3 V, any deterioration of the picture is so minor that the system could still be used; and
- c) there is no observable deterioration of the picture at 1 V.

7.8.1 Test Setup Diagram





7.8.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a:Ethernet Monitoring mode_Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

7.8.3 Test Results:

Port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
Signal port	10	Clamp	2s	A

Results:

A: No degradation in the performance of the EUT was observed.



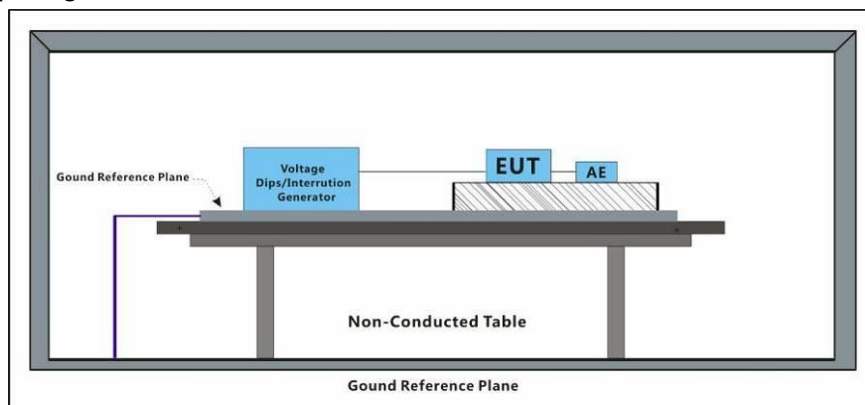
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7.9 Voltage Dips and Interruptions

Test Requirement: EN 50130-4:2011 +A1:2014
Test Method: EN 61000-4-11:2004 +A1:2017
Performance Criterion: 0% of UT (Supply Voltage) for 250 Periods; 40% of UT for 10 Periods; 70% of UT for 25 Periods; 80% of UT for 250 Periods;
No. of Dips / Interruptions: 3 per Level
Time between dropout 10s

7.9.1 Test Setup Diagram



7.9.2 E.U.T. Operation

Operating Environment:
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar
Test mode: a:Ethernet Monitoring mode_Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

7.9.3 Test Results:

Level % UT	Phase (deg)	Duration	No. of Dips / Interruptions	Result / Observations
80	0°	250 Cycles	3	A
80	180°	250 Cycles	3	A
70	0°	25 Cycles	3	A
70	180°	25 Cycles	3	A
40	0°	10 Cycles	3	A
40	180°	10 Cycles	3	A
0	0°	250 Cycles	3	B
0	180°	250 Cycles	3	B

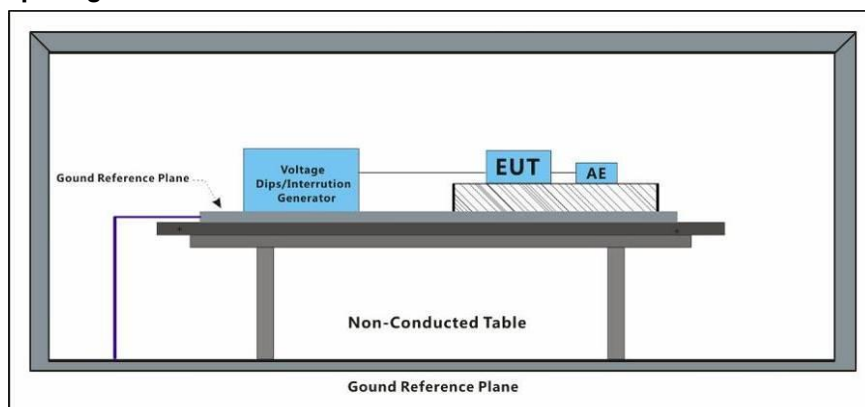
Results:

A: No degradation in the performance of the EUT was observed.
B: During test,EUT stop work.After test,the EUT restarted automatically.

7.10 Mains Supply Voltage Variations-Conditioning

Test Requirement:	EN 50130-4:2011 +A1:2014
Test Method:	EN 50130-4:2011+A1:2014
Voltage max.:	AC 253V (U _{max} : U _{nom} + 10%)
Voltage min.:	AC 195.5V (U _{min} : U _{nom} - 15%)
Unom Voltage:	AC 230V
Criteria:	There shall be no damage, malfunction or change of status due to the different supply voltage conditions. The EUT shall meet the acceptance criteria for the functional test (see Clause 6 of EN 50130-4), during the conditioning.

7.10.1 Test Setup Diagram



7.10.2 E.U.T. Operation

Operating Environment:					
Temperature:	22 °C	Humidity:	50 % RH	Atmospheric Pressure:	1020 mbar
Test mode:	a:Ethernet Monitoring mode_Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.				

7.10.3 Test Results: Pass

Test phenomenon description for the EUT:

1. The EUT working normal, before the conditioning.
2. Monitor the EUT during the conditioning period and detected no any changes in states, during the conditioning.
3. No degradation in the performance of the EUT was observed, after the conditioning.

8 Photographs

8.1 Conducted Emissions at Mains Terminals (150kHz-30MHz) Test Setup



8.2 Asymmetric Mode Conducted Emissions (150kHz-30MHz) Test Setup



8.3 Radiated Emissions (30MHz-1GHz) Test Setup



8.4 Radiated Emissions (above 1GHz) Test Setup



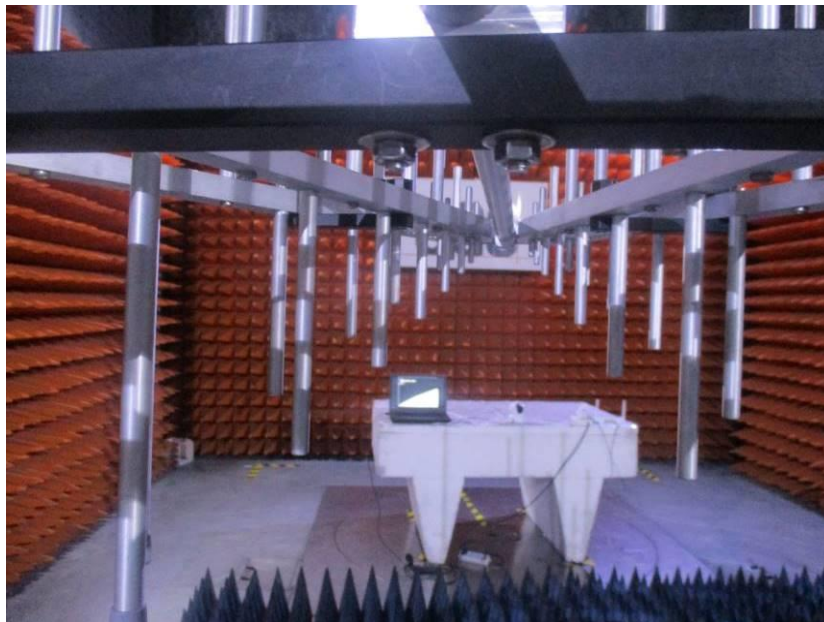
8.5 Voltage Fluctuations and Flicker Test Setup



8.6 Electrostatic Discharge Test Setup



8.7 Radiated Immunity(80MHz-2.7GHz) Test Setup



8.8 Electrical Fast Transients/Burst at Power Port Test Setup



8.9 Electrical Fast Transients/Burst at Signal Port Test Setup



8.10 Surge at Power Port Test Setup



8.11 Conducted Immunity at Power Port (150kHz-100MHz) Test Setup



8.12 Conducted Immunity at Signal Port (150kHz-100MHz) Test Setup



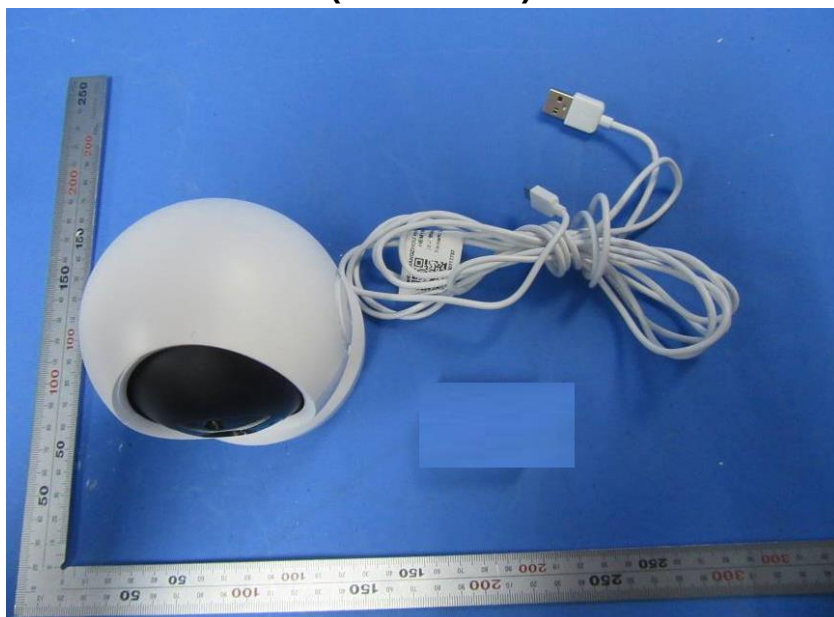
8.13 Voltage Dips and Interruptions Test Setup



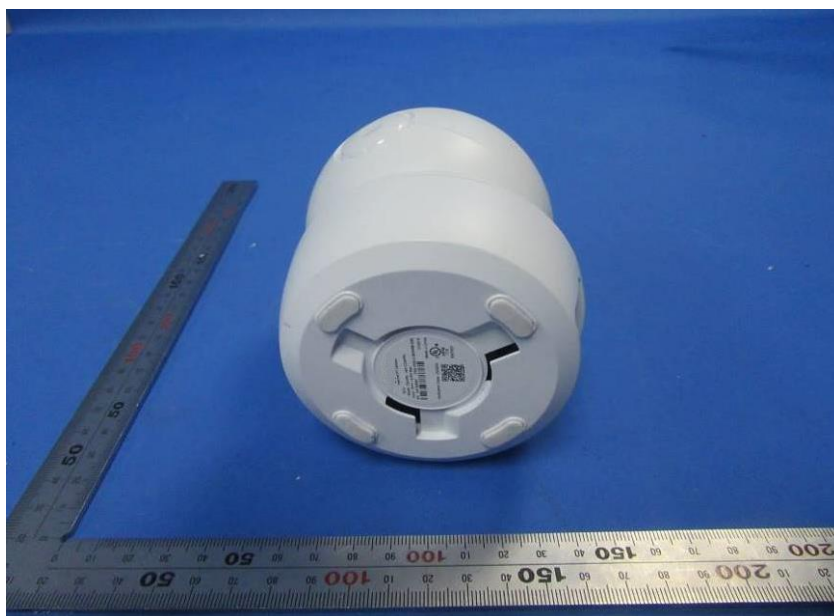
8.14 Mains Supply Voltage Variations-Conditioning Test Setup

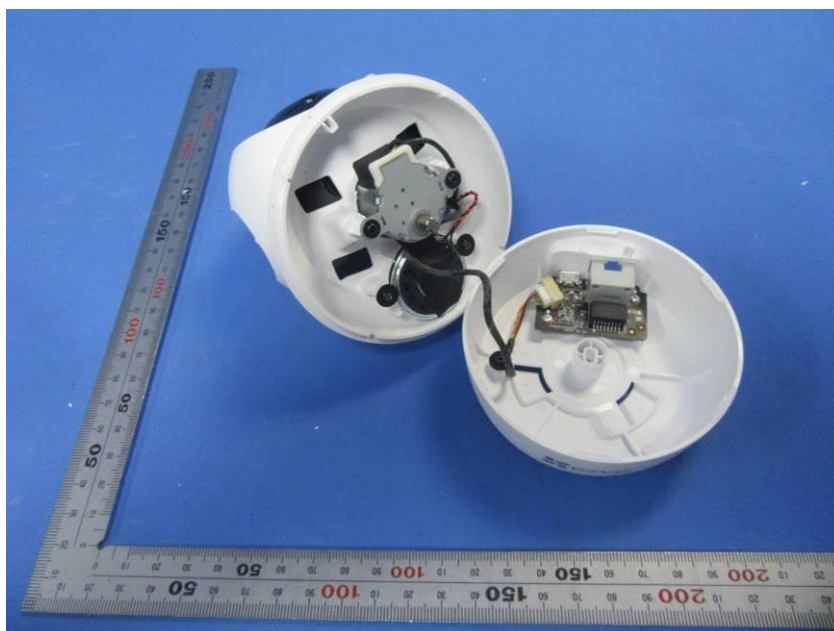


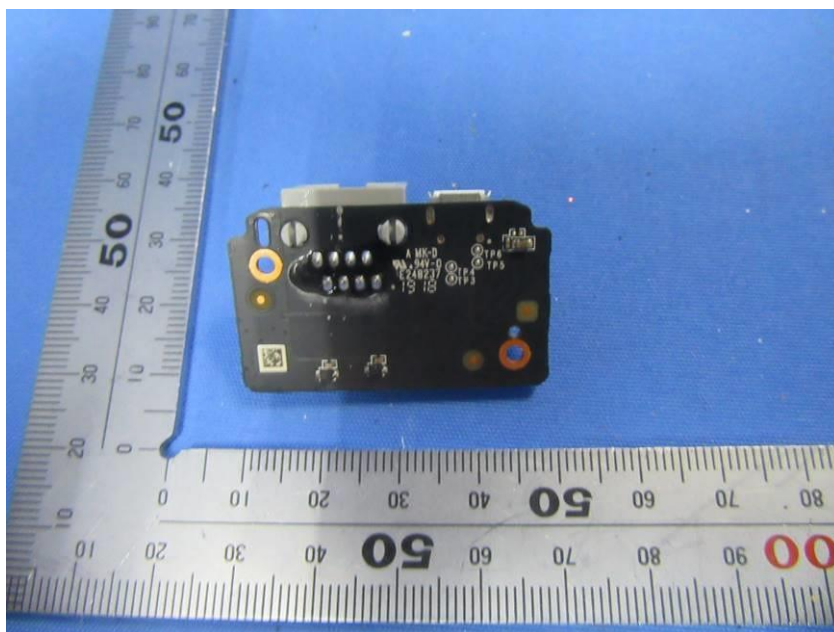
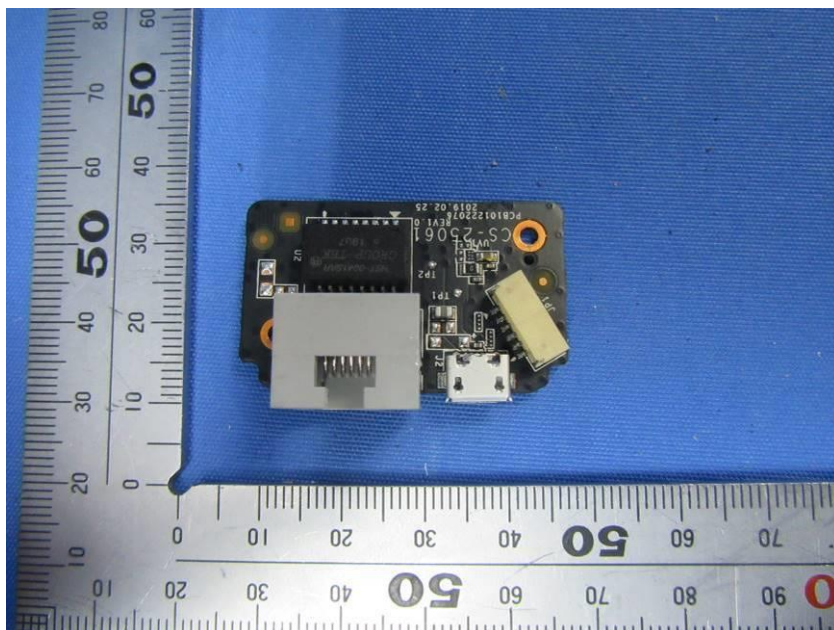
8.15 EUT Constructional Details (EUT Photos)

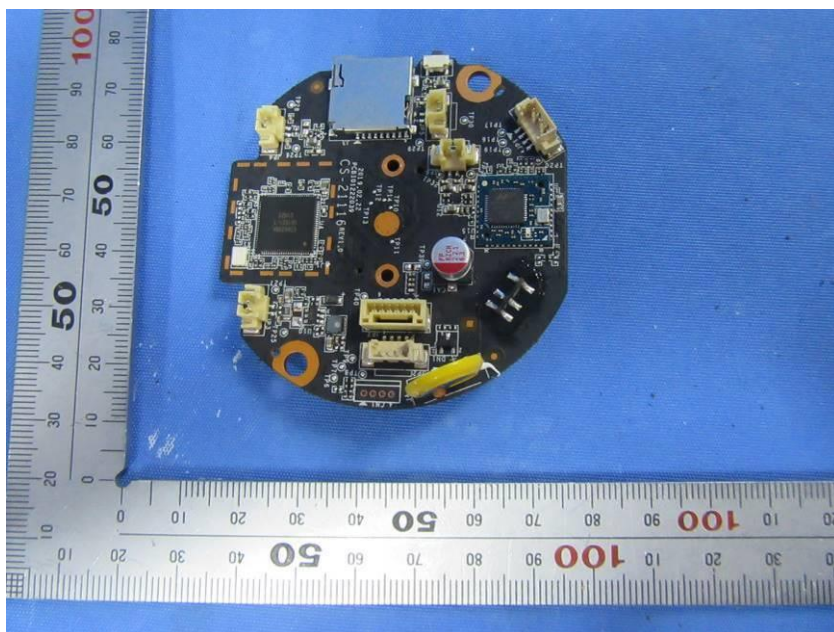


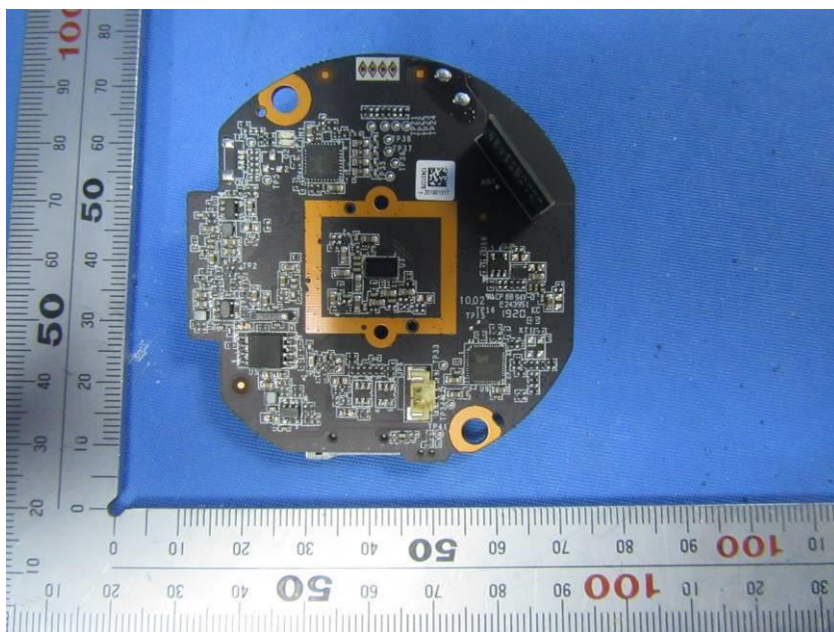
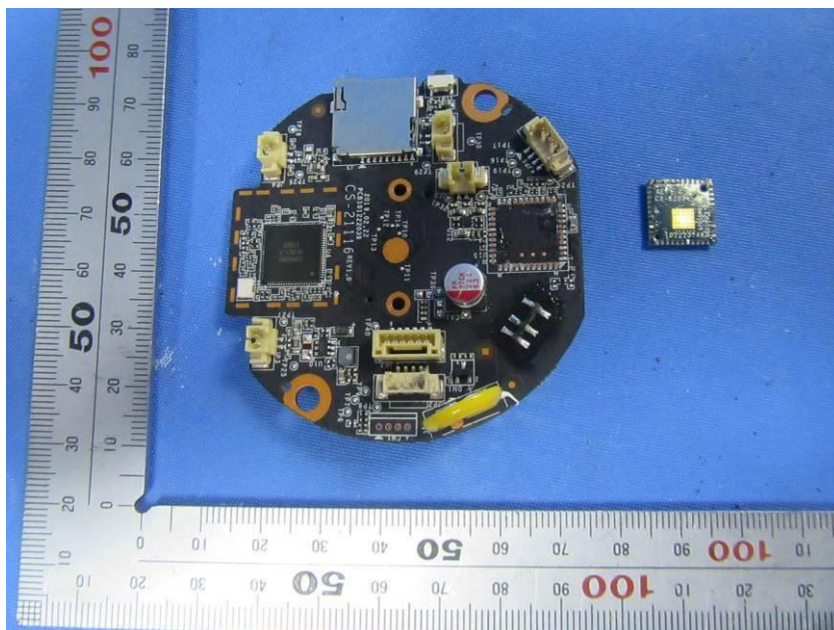


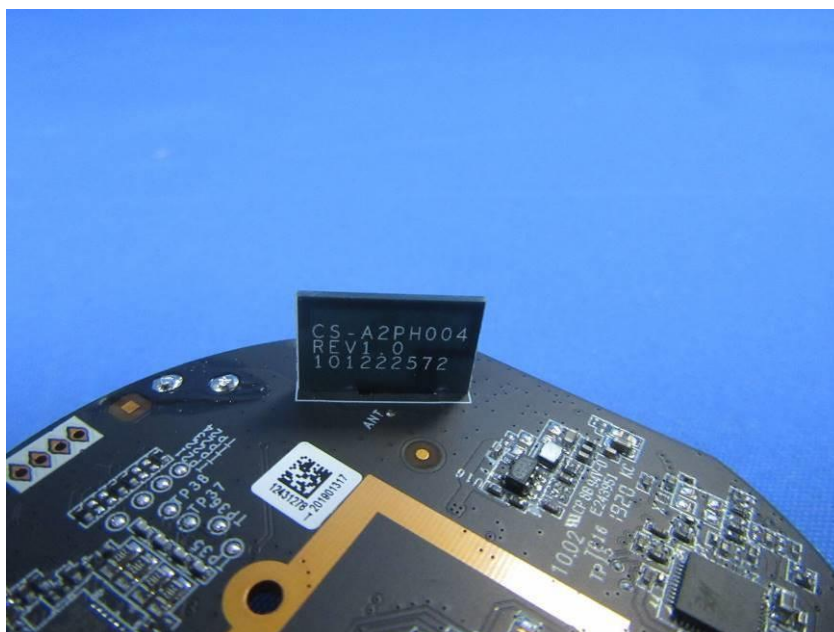
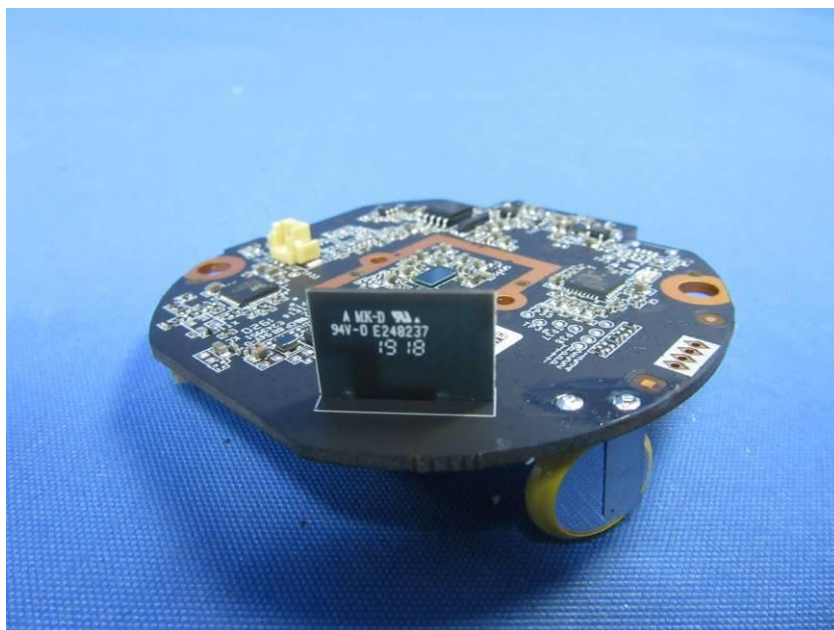












- End of the Report -