

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Telephone: +86 (0) 21 6191 5666

Fax: +86 (0) 21 6191 5678

ee.shanghai@sgs.com

Report No.: SHEM180700562201

Page: 1 of 68

TEST REPORT

Application No.: SHEM1807005622CR
Applicant: Hangzhou Hikvision Digital Technology Co., Ltd.
Address of Applicant: No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China
Manufacturer: Hangzhou Hikvision Digital Technology Co., Ltd.
Address of Manufacturer: No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China
Factory:
1. Hangzhou Hikvision Technology Co., Ltd.
2. Hangzhou Hikvision Electronics Co., Ltd.
Address of Factory:
1. No.700, Dongliu Road, Binjiang District, Hangzhou City, Zhejiang, 310052, China
2. No.299, Qiushi Road, Tonglu Economic Development Zone, Tonglu County, Hangzhou, Zhejiang, 310052, China

Equipment Under Test (EUT):

EUT Name: Wireless Security Control Panel

Model No.: DS-PWA32-HSR, DS-PWA32-HGR, DS-PWA32-H, DS-PWA32-HG, DS-PWA32-HS, DS-PWA32-HR ☐

☐ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

Standard(s) : EN 55032:2015, EN 50130-4:2011 +A1:2014
EN 61000-3-2:2014, EN 61000-3-3:2013

Date of Receipt: 2018-07-12

Date of Test: 2018-07-18 to 2018-07-23

Date of Issue: 2018-08-17

Test Result:

Pass*

* 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.





Parlam Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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Revision Record			
Version	Description	Date	Remark
00	Original	2018-08-17	/

Authorized for issue by:			
			
		<hr/>	
		Vincent Zhu / Project Engineer	
			
		<hr/>	
		Eddy Zong / 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 61000-3-2:2014	EN 61000-3-2:2014	Class A	N/A
Voltage Fluctuations and Flicker	EN 61000-3-3:2013	EN 61000-3-3:2013	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
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
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



Immunity Part				
Item	Standard	Method	Requirement	Result
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
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
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

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 DS-PWA32-HSR was tested since their differences were the software version, their naming and color silk.

Note2: Only one mode was shown as the test setup photos since all modes were same for the test setup.

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 5V 2A by Adapter
	Adapter:
	Model No.:ADS-12B-06 05010E
	INPUT:100-240V~50/60Hz
	OUTPUT:DC 5V 2A
	Rechargeable li-ion Polymer Battery
	Model:765965
	Nominal Voltage:3.8V
	Capacity:4520mAh 17.176Wh
Test voltage:	AC 230V 50Hz
Cable:	DC Cable 150cm for Adapter

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
2.4 G Router	CISCO	RV110W	/
Laptop	LENOVO	X100e	/

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conducted Emission at mains port using AMN	3.2dB (9kHz to 150kHz)
		3.0dB (150kHz to 30MHz)
2	Conducted Emission at mains port using VP	1.9 dB(9kHz to 30MHz)
3	Conducted Emission at telecommunication port using AAN	2.4 dB(150kHz to 30MHz)
4	Radiated Power	3.5dB
5	Radiated emission	4.4dB (30MHz-1GHz)
		4.6dB (1GHz-6GHz)

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 performed at:

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

No tests were sub-contracted.

4.5 Test Facility

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

• **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **NVLAP (Certificate No. 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). Certificate No. 201034-0.

• **FCC –Designation Number: CN5033**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

• **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1.

• **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

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

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	2017-12-20	2018-12-19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2017-12-20	2018-12-19
Line impedance stabilization network	EMCO	3816/2	SHEM019-1	2017-12-20	2018-12-19
Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2017-12-20	2020-12-19
CE test Cable	/	/	CE01	2017-12-26	2018-12-25

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	2017-12-20	2018-12-19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2017-12-20	2018-12-19
8-wire ISN cat 5	SCHWARZBECK	CAT5 8158	SHEM137-1	2017-12-20	2018-12-19
8-wire ISN cat 3	SCHWARZBECK	CAT3 8158	SHEM137-2	2017-12-20	2018-12-19
8-wire ISNcat 6	SCHWARZBECK	NTFM8158	SHEM137-3	2017-12-26	2018-12-25
2-Draht ISN	Schwarzbeck - Mess-Elektronik	NTFM 8131	SHEM139-1	2017-12-20	2018-12-19
CE test Cable	/	/	CE01	2017-12-26	2018-12-25

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2017-09-26	2018-09-25
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	CLAVIO	BDLNA-0001-412010	SHEM164-1	2017-08-22	2018-08-21

Radiated Emissions (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2017-09-26	2018-09-25
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
High-amplifier	SCHWARZBECK	SCU-F0118-G40-BZ4-CS	SHEM050-2	2017-12-20	2018-12-19
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21



Voltage Fluctuations and Flicker					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Harmonic&Flicker analyzer	AMETEK	PACS-1	SHEM024-2	2017-08-22	2018-08-21
AC Power Source 5KVA	AMETEK	500iX	SHEM025-2	2017-08-22	2018-08-21

Electrostatic Discharge					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Electrostatic Discharge Simulator	TESEQ	NSG 437	SHEM041-1	2017-09-26	2018-09-25

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	2017-12-20	2018-12-19

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	2017-12-20	2018-12-19
Capacitive coupling clamp	EM test	HFK	SHEM026-2	2017-12-20	2018-12-19
Data coupling network 4 line	EM test	CNV 504	SHEM026-3	2017-12-20	2018-12-19

Surge 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	2017-12-20	2018-12-19

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	2017-12-20	2018-12-19

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	2017-12-20	2018-12-19



Radiated Immunity(80MHz-2.7GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2017-09-26	2018-09-25
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2017-12-20	2018-12-19
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-2	2017-12-20	2018-12-19
Antenna	SCHWARZBECK	STLP9128D	SHEM130-1	N/A	N/A
Antenna	SCHWARZBECK	STLP9149	SHEM131-1	N/A	N/A
Amplifier	MILMEGA	80RF1000-250	SHEM132-1	N/A	N/A
Amplifier	MILMEGA	AS0840-55-55	SHEM133-1	N/A	N/A
Power meter sensor	Rohde & Schwarz	NRP-Z22	SHEM136-1	2017-12-19	2018-12-18
ElectroMagnetic Field Probe	ETS-Lindgren	HI-6113	SHEM134-1	2017-12-19	2018-12-18
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21

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	2017-09-26	2018-09-25
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2017-12-20	2018-12-19
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2017-12-25	2018-12-24
CDN impedance and K-factor	LUTHI	L-801 M1	SHEM023-5	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M2/M3	SHEM023-6	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	5*5*3M	SHEM079-6	2016-12-29	2019-12-28

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	2017-09-26	2018-09-25
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2017-12-20	2018-12-19
6dB Attenuator	HUAXIANG	DTS50-6dB-1G-A	SHEM123-2	2017-12-25	2018-12-24
Coupling clamp	LIITHI	EM 101	SHEM027-1	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M1	SHEM023-5	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M2/M3	SHEM023-6	2017-12-20	2018-12-19



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	2019-01-24
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-1~6	2017-09-13	2018-09-12
Digital Multimeter	FLUKE	17B	SHEM043-3	2017-09-11	2018-09-10
Autoformer regulator	Guangzhou bao de	TDGC2-5KVA	SHEM150-1	N/A	N/A
Multi-purpose tong tester	FLUKE	316	SHEM001-1	2017-12-20	2018-12-19

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

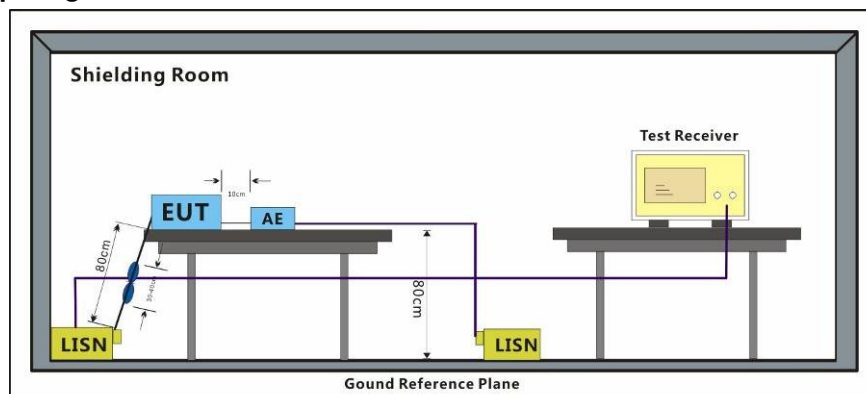
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1003 mbar

Test mode:
 a: Normal Working 1_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 2G)
 b: Normal Working 2_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 4G)

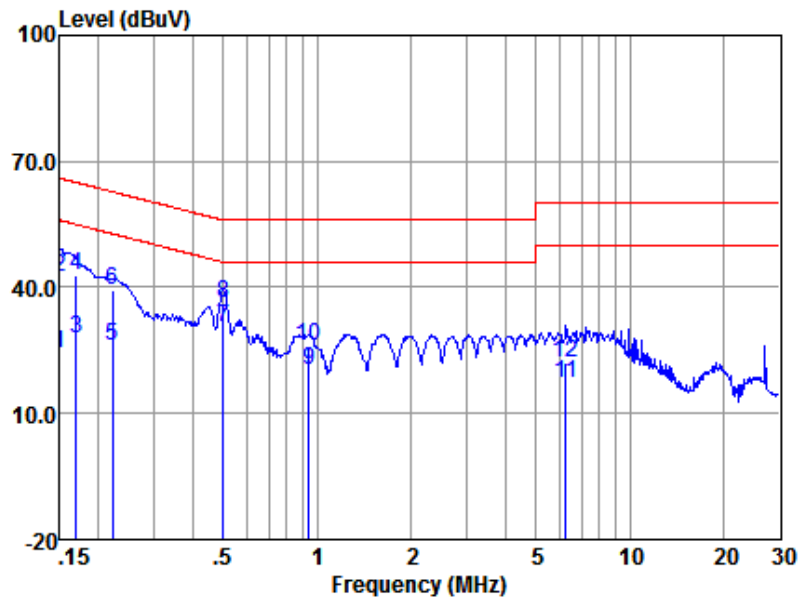
6.1.2 Test Setup Diagram



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

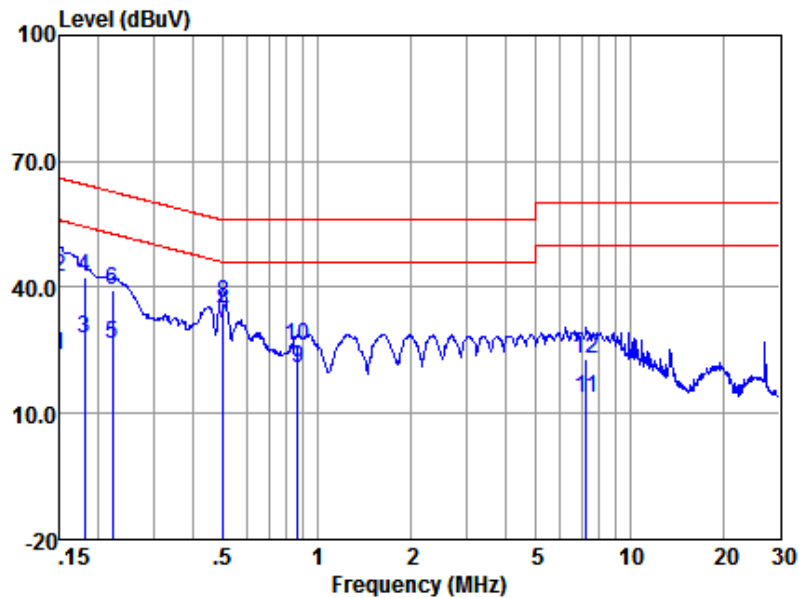


LISN : LINE
 EUT/Project No : 5622CR
 Test Mode : a

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.15	14.53	0.05	9.82	24.40	56.00	-31.60	Average
2	0.15	32.47	0.05	9.82	42.34	66.00	-23.66	QP
3	0.17	17.94	0.05	9.83	27.82	54.99	-27.17	Average
4	0.17	32.85	0.05	9.83	42.73	64.99	-22.26	QP
5	0.22	16.36	0.05	9.84	26.25	52.74	-26.49	Average
6	0.22	29.66	0.05	9.84	39.55	62.74	-23.19	QP
7	0.50	20.48	0.05	9.80	30.33	46.00	-15.67	Average
8	0.50	26.54	0.05	9.80	36.39	56.00	-19.61	QP
9	0.94	10.22	0.05	9.83	20.10	46.00	-25.90	Average
10	0.94	16.01	0.05	9.83	25.89	56.00	-30.11	QP
11	6.25	7.16	0.10	9.84	17.10	50.00	-32.90	Average
12	6.25	12.10	0.10	9.84	22.04	60.00	-37.96	QP

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

Mode:a; Line:Neutral Line

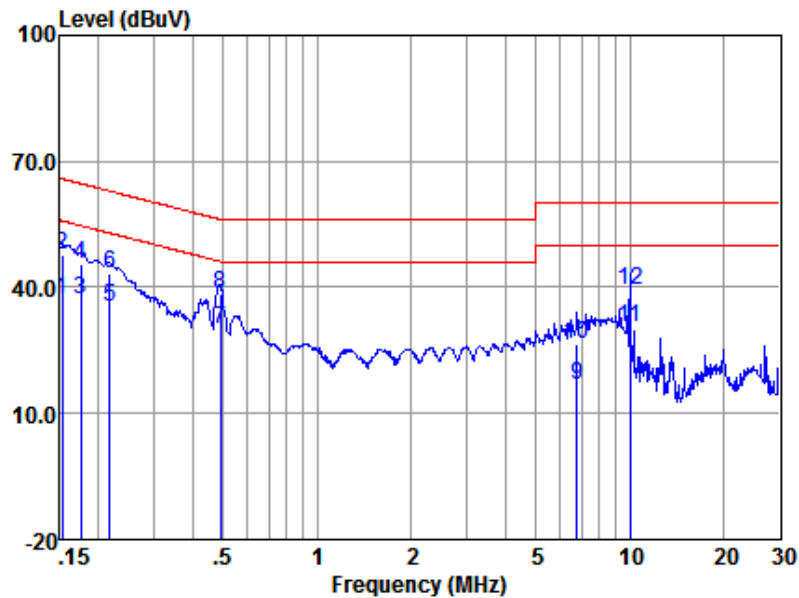


LISN : NEUTRAL
 EUT/Project No : 5622CR
 Test Mode : a

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.15	14.02	0.06	9.82	23.90	56.00	-32.10	Average
2	0.15	32.77	0.06	9.82	42.65	66.00	-23.35	QP
3	0.18	17.82	0.06	9.83	27.71	54.50	-26.79	Average
4	0.18	32.59	0.06	9.83	42.48	64.50	-22.02	QP
5	0.22	16.45	0.06	9.84	26.35	52.74	-26.39	Average
6	0.22	29.54	0.06	9.84	39.44	62.74	-23.30	QP
7	0.50	21.37	0.05	9.80	31.22	46.01	-14.79	Average
8	0.50	26.59	0.05	9.80	36.44	56.01	-19.57	QP
9	0.87	10.79	0.05	9.87	20.71	46.00	-25.29	Average
10	0.87	16.01	0.05	9.87	25.93	56.00	-30.07	QP
11	7.29	3.88	0.13	9.83	13.84	50.00	-36.16	Average
12	7.29	13.00	0.13	9.83	22.96	60.00	-37.04	QP

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

Mode:b; Line:Live Line

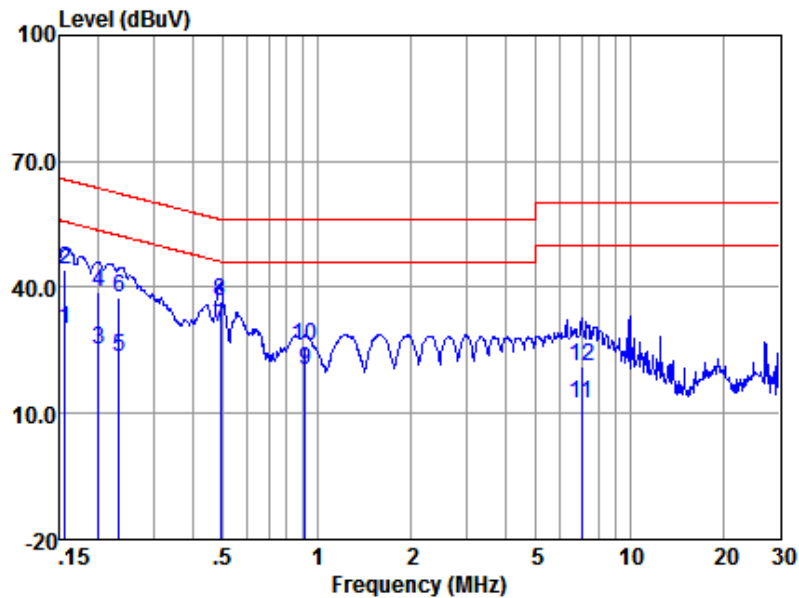


LISN : LINE
 EUT/Project No : 5622CR
 Test Mode : b

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.15	27.31	0.05	9.82	37.18	55.87	-18.69	Average
2	0.15	37.73	0.05	9.82	47.60	65.87	-18.27	QP
3	0.17	27.14	0.05	9.83	37.02	54.72	-17.70	Average
4	0.17	35.64	0.05	9.83	45.52	64.72	-19.20	QP
5	0.22	25.28	0.05	9.84	35.17	52.92	-17.75	Average
6	0.22	33.33	0.05	9.84	43.22	62.92	-19.70	QP
7	0.49	20.34	0.05	9.81	30.20	46.19	-15.99	Average
8	0.49	28.38	0.05	9.81	38.24	56.19	-17.95	QP
9	6.81	6.62	0.11	9.85	16.58	50.00	-33.42	Average
10	6.81	16.44	0.11	9.85	26.40	60.00	-33.60	QP
11	10.02	20.69	0.21	9.73	30.63	50.00	-19.37	Average
12	10.02	29.62	0.21	9.73	39.56	60.00	-20.44	QP

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

Mode:b; Line:Neutral Line



LISN : NEUTRAL
 EUT/Project No : 5622CR
 Test Mode : b

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.16	20.06	0.06	9.82	29.94	55.65	-25.71	Average
2	0.16	34.25	0.06	9.82	44.13	65.65	-21.52	QP
3	0.20	15.42	0.06	9.83	25.31	53.62	-28.31	Average
4	0.20	29.19	0.06	9.83	39.08	63.62	-24.54	QP
5	0.23	13.63	0.06	9.84	23.53	52.35	-28.82	Average
6	0.23	27.60	0.06	9.84	37.50	62.35	-24.85	QP
7	0.49	20.56	0.05	9.81	30.42	46.14	-15.72	Average
8	0.49	26.61	0.05	9.81	36.47	56.14	-19.67	QP
9	0.92	10.26	0.05	9.87	20.18	46.00	-25.82	Average
10	0.92	16.00	0.05	9.87	25.92	56.00	-30.08	QP
11	7.02	2.43	0.12	9.85	12.40	50.00	-37.60	Average
12	7.02	11.40	0.12	9.85	21.37	60.00	-38.63	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.

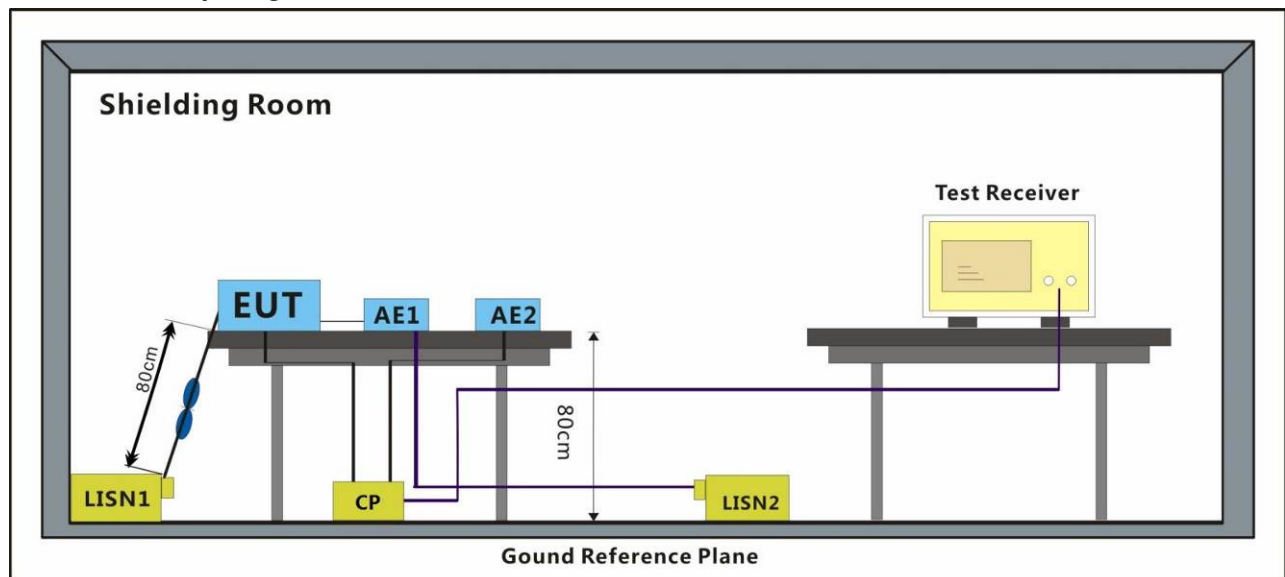
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1003 mbar

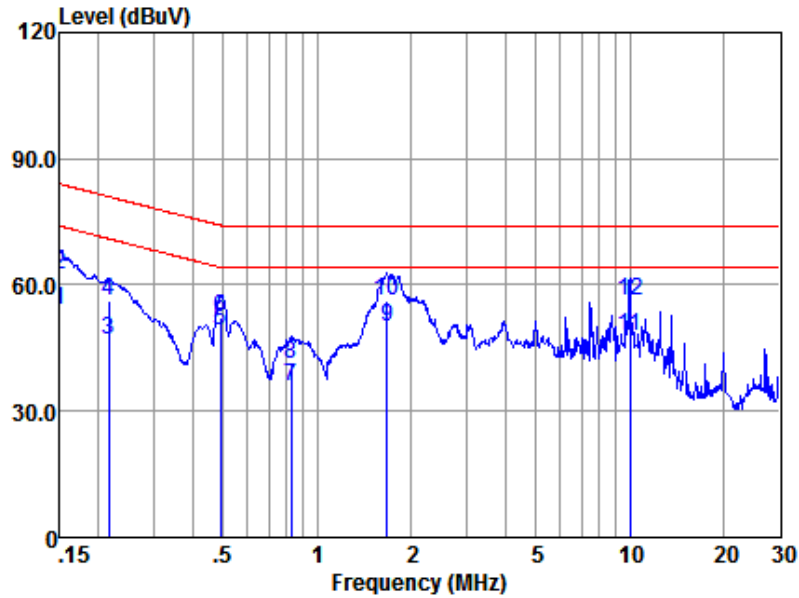
Test mode: a:Normal Working 1_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 2G)
 b:Normal Working 2_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 4G)

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

Mode:a

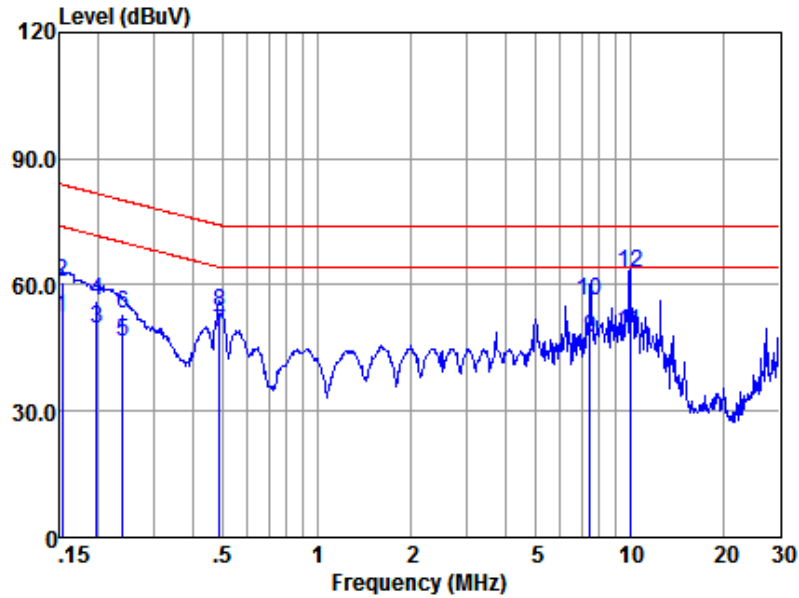


ISN : ISN CAT5
 EUT/Project No : 5622CR
 Test Mode : a

	Freq (MHz)	Read level (dBuV)	ISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.15	34.39	9.75	9.82	53.96	74.00	-20.04	Average
2	0.15	42.73	9.75	9.82	62.30	84.00	-21.70	QP
3	0.22	27.45	9.64	9.83	46.92	71.01	-24.09	Average
4	0.22	36.96	9.64	9.83	56.43	81.01	-24.58	QP
5	0.49	29.71	9.45	9.81	48.97	64.19	-15.22	Average
6	0.49	33.04	9.45	9.81	52.30	74.19	-21.89	QP
7	0.83	16.77	9.37	9.86	36.00	64.00	-28.00	Average
8	0.83	22.15	9.37	9.86	41.38	74.00	-32.62	QP
9	1.67	31.00	9.29	9.88	50.17	64.00	-13.83	Average
10	1.67	36.96	9.29	9.88	56.13	74.00	-17.87	QP
11	10.02	28.67	9.20	9.73	47.60	64.00	-16.40	Average
12	10.02	37.16	9.20	9.73	56.09	74.00	-17.91	QP

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

Mode:b



ISN : ISN CAT5
 EUT/Project No : 5622CR
 Test Mode : b

	Freq (MHz)	Read level (dBuV)	ISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.15	32.67	9.74	9.82	52.23	73.87	-21.64	Average
2	0.15	40.96	9.74	9.82	60.52	83.87	-23.35	QP
3	0.20	30.01	9.66	9.83	49.50	71.71	-22.21	Average
4	0.20	36.82	9.66	9.83	56.31	81.71	-25.40	QP
5	0.24	27.14	9.61	9.85	46.60	70.13	-23.53	Average
6	0.24	33.65	9.61	9.85	53.11	80.13	-27.02	QP
7	0.49	29.50	9.45	9.81	48.76	64.23	-15.47	Average
8	0.49	34.45	9.45	9.81	53.71	74.23	-20.52	QP
9	7.49	28.48	9.20	9.85	47.53	64.00	-16.47	Average
10	7.49	37.34	9.20	9.85	56.39	74.00	-17.61	QP
11	10.02	29.57	9.20	9.73	48.50	64.00	-15.50	Average
12	10.02	43.74	9.20	9.73	62.67	74.00	-11.33	QP

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

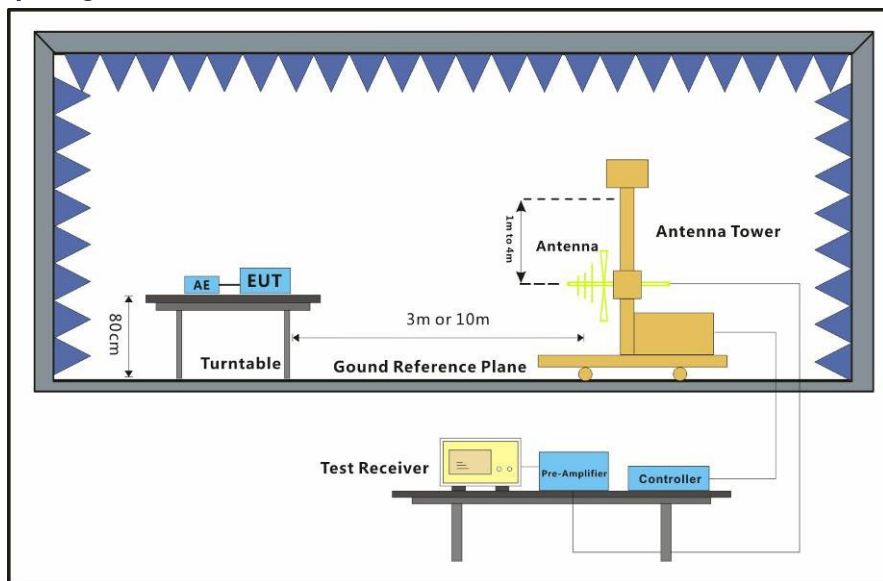
6.3 Radiated Emissions (30MHz-1GHz)

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: Normal Working 1_ Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 2G)
 b: Normal Working 2_ Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 4G)

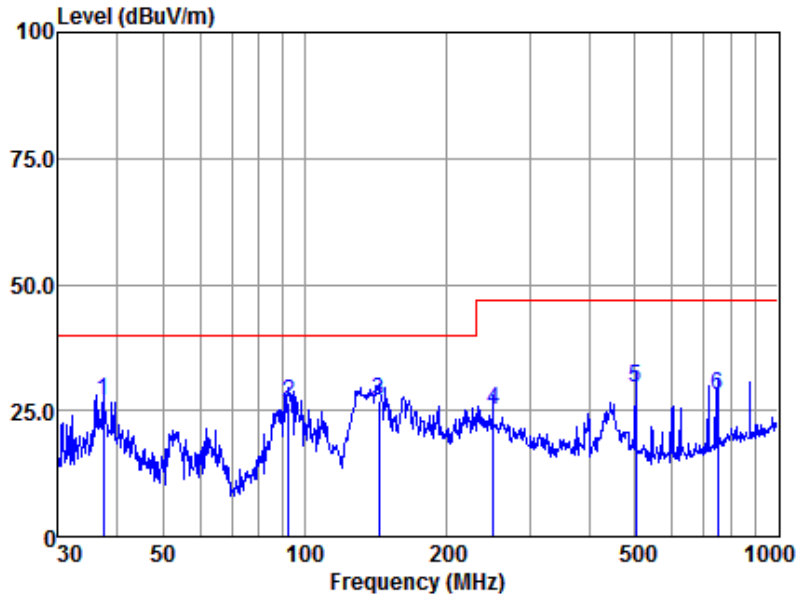
6.3.2 Test Setup Diagram



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



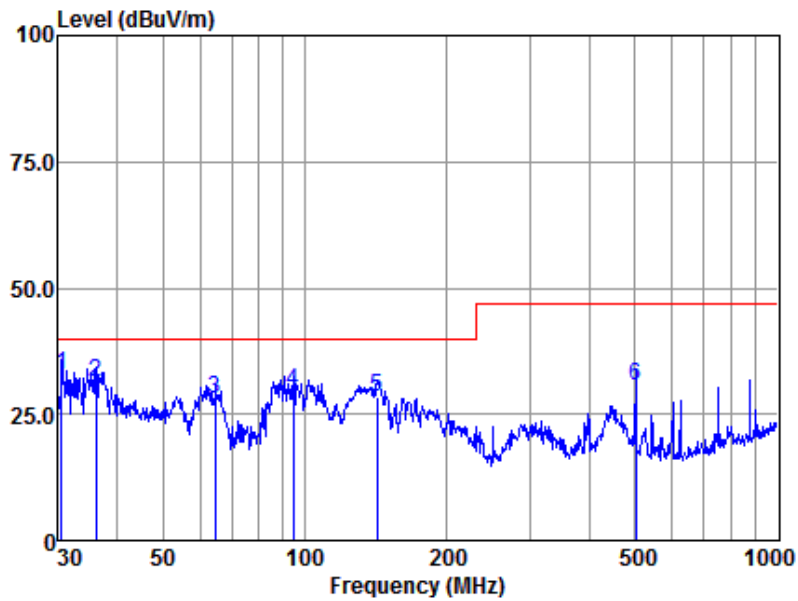
Antenna Polarity :HORIZONTAL
 EUT/Project :5622CR
 Test mode :a

	Read	Antenna	Cable	Preamp	Emission	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
-----	-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	37.42	53.42	16.07	0.21	42.62	27.08	40.00	-12.92 QP
2	92.46	60.19	8.47	0.43	42.69	26.40	40.00	-13.60 QP
3	143.33	57.63	11.51	0.61	42.63	27.12	40.00	-12.88 QP
4	250.30	55.18	11.50	0.77	42.46	24.99	47.00	-22.01 QP
5	501.18	53.39	17.24	1.18	42.14	29.67	47.00	-17.33 QP
6	750.11	47.51	21.09	1.88	42.57	27.91	47.00	-19.09 QP

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



Mode:a; Polarization:Vertical

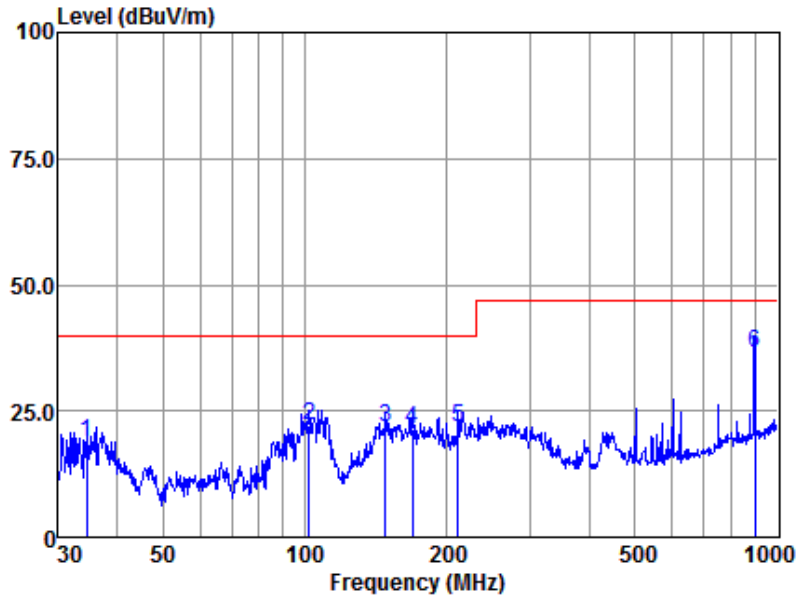


Antenna Polarity :VERTICAL
 EUT/Project :5622CR
 Test mode :a

	Read	Antenna	Cable	Preamp	Emission	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
-----	-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	30.53	59.98	15.36	0.18	42.60	32.92	40.00	-7.08 QP
2	36.13	57.82	15.95	0.21	42.61	31.37	40.00	-8.63 QP
3	64.66	58.22	12.03	0.32	42.66	27.91	40.00	-12.09 QP
4	94.43	63.06	8.75	0.43	42.69	29.55	40.00	-10.45 QP
5	142.32	59.04	11.45	0.61	42.63	28.47	40.00	-11.53 QP
6	501.18	54.17	17.24	1.18	42.14	30.45	47.00	-16.55 QP

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

Mode:b; Polarization:Horizontal

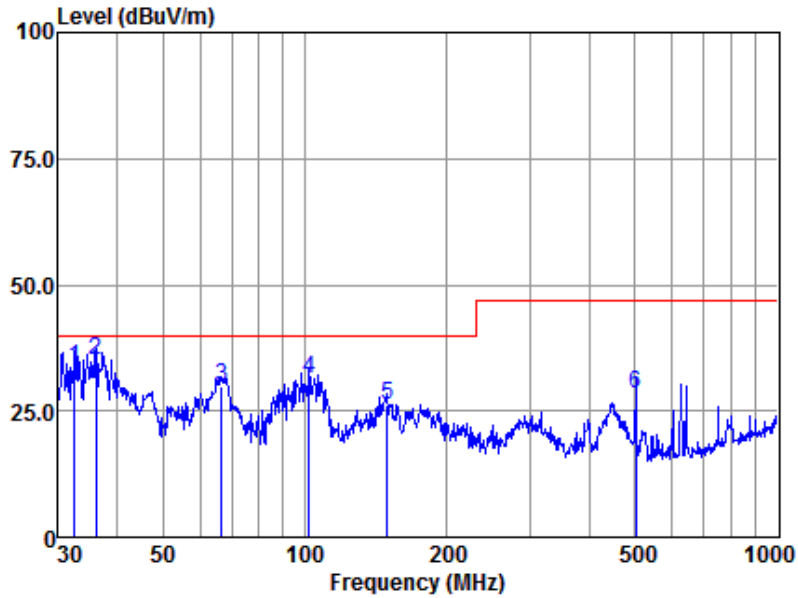


Antenna Polarity :HORIZONTAL
 EUT/Project :5622CR
 Test mode :b

	Read	Antenna	Cable	Preamp	Emission	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	34.52	45.57	15.79	0.20	42.61	18.95	40.00	-21.05 QP
2	102.00	54.96	9.52	0.46	42.69	22.25	40.00	-17.75 QP
3	147.92	52.07	11.78	0.62	42.61	21.86	40.00	-18.14 QP
4	169.01	51.74	11.77	0.65	42.58	21.58	40.00	-18.42 QP
5	210.79	53.56	9.89	0.71	42.51	21.65	40.00	-18.35 QP
6	897.00	53.51	22.68	2.42	41.90	36.71	47.00	-10.29 QP

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

Mode:b; Polarization:Vertical



Antenna Polarity :VERTICAL
 EUT/Project :5622CR
 Test mode :b

	Read	Antenna	Cable	Preamp	Emission	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	32.52	60.59	15.58	0.19	42.61	33.75	40.00	-6.25 QP
2	36.13	61.66	15.95	0.21	42.61	35.21	40.00	-4.79 QP
3	66.50	60.26	11.81	0.32	42.66	29.73	40.00	-10.27 QP
4	102.00	63.93	9.52	0.46	42.69	31.22	40.00	-8.78 QP
5	149.49	56.37	11.87	0.62	42.61	26.25	40.00	-13.75 QP
6	501.18	52.08	17.24	1.18	42.14	28.36	47.00	-18.64 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(μ V/m) peak, 50 dB(μ V/m) average
3GHz-6GHz	74 dB(μ V/m) peak, 54dB(μ V/m) average
Detector:	Peak for pre-scan (1000kHz resolution bandwidth) 1000M to 6000MHz

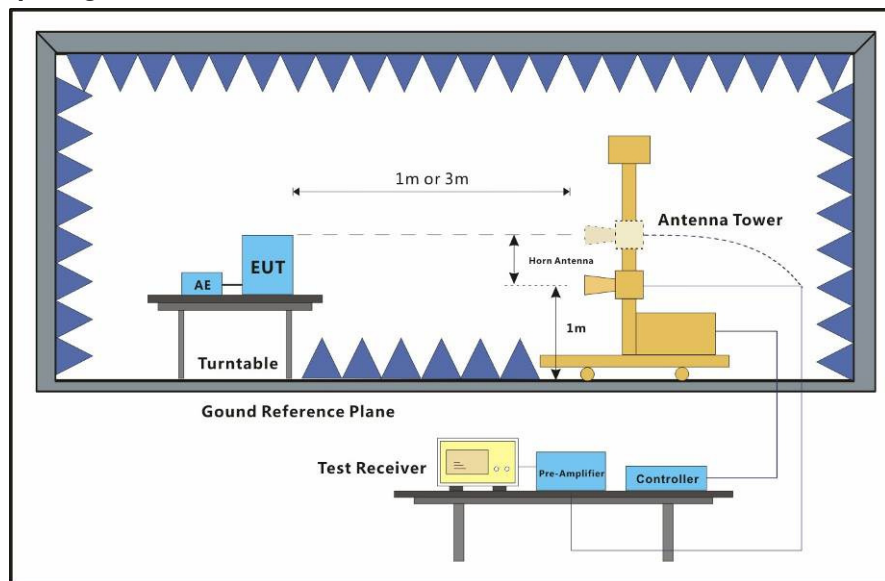
6.4.1 E.U.T. Operation

Operating Environment:

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

Test mode: a:Normal Working 1_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 2G)
 b:Normal Working 2_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 4G)

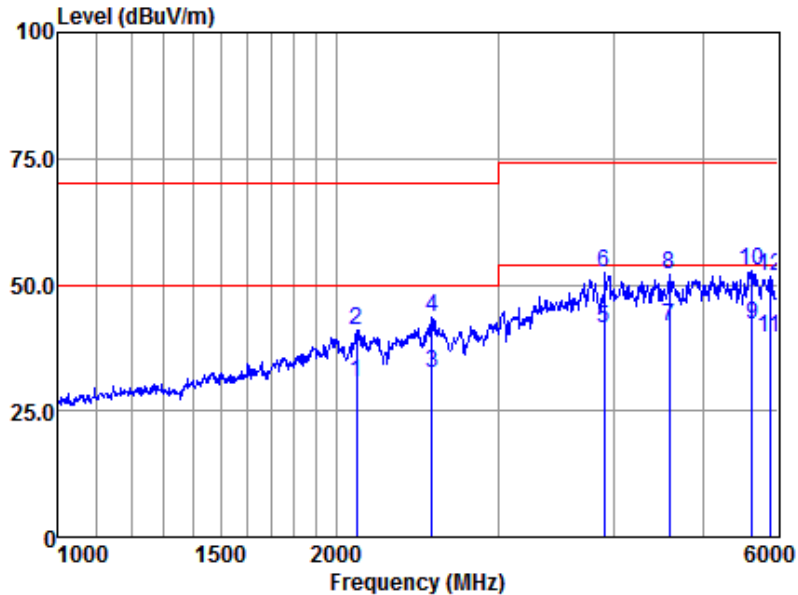
6.4.2 Test Setup Diagram



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.

Mode:a; Polarization:Horizontal

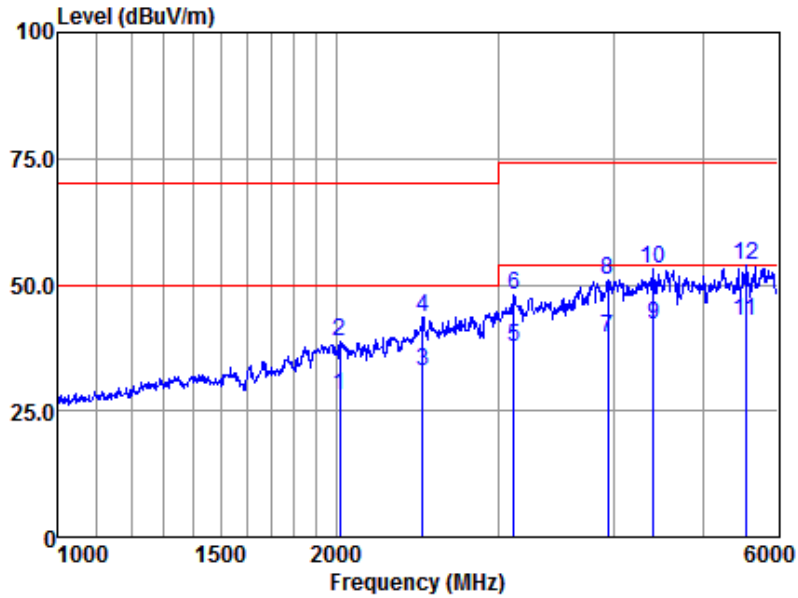


Antenna Polarity :HORIZONTAL
 EUT/Project :5620CR
 Test mode :a

	Read Freq	Antenna Level	Cable Factor	Preamp Loss	Emission Factor	Limit Level	Over Line	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB
1	2103.45	41.75	26.31	4.67	42.21	30.52	50.00	-19.48 Average
2	2103.45	52.30	26.31	4.67	42.21	41.07	70.00	-28.93 Peak
3	2538.86	41.56	27.49	5.37	42.13	32.29	50.00	-17.71 Average
4	2538.86	52.87	27.49	5.37	42.13	43.60	70.00	-26.40 Peak
5	3902.97	46.98	29.53	6.90	41.94	41.47	54.00	-12.53 Average
6	3902.97	58.06	29.53	6.90	41.94	52.55	74.00	-21.45 Peak
7	4585.94	44.63	30.79	7.89	41.65	41.66	54.00	-12.34 Average
8	4585.94	55.16	30.79	7.89	41.65	52.19	74.00	-21.81 Peak
9	5645.39	43.48	32.11	8.34	41.96	41.97	54.00	-12.03 Average
10	5645.39	54.37	32.11	8.34	41.96	52.86	74.00	-21.14 Peak
11	5893.45	40.59	32.46	8.40	41.87	39.58	54.00	-14.42 Average
12	5893.45	52.51	32.46	8.40	41.87	51.50	74.00	-22.50 Peak

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

Mode:a; Polarization:Vertical

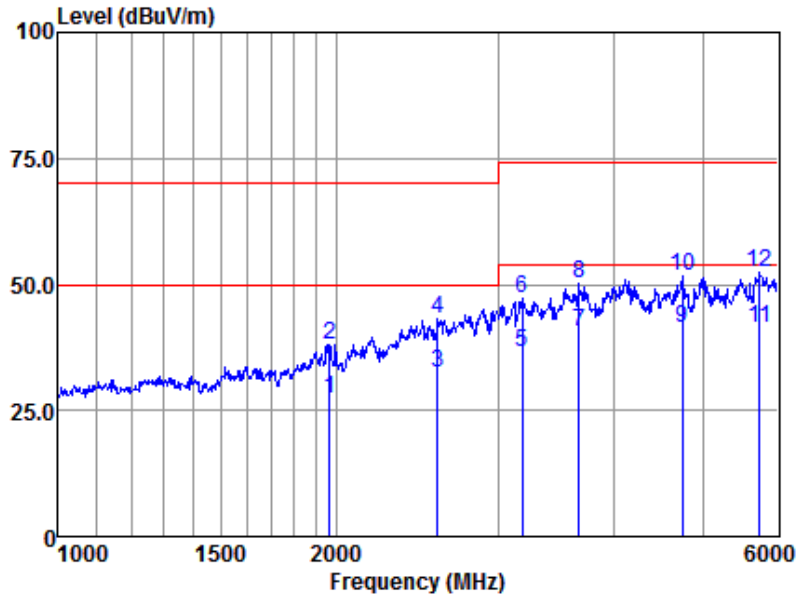


Antenna Polarity :VERTICAL
 EUT/Project :5620CR
 Test mode :a

	Read	Antenna	Cable	Preamp	Emission	Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark	
-----	-----	-----	-----	-----	-----	-----	-----	-----	
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB		
1	2018.53	39.82	26.05	4.50	42.22	28.15	50.00	-21.85	Average
2	2018.53	50.26	26.05	4.50	42.22	38.59	70.00	-31.41	Peak
3	2480.41	42.23	27.35	5.27	42.17	32.68	50.00	-17.32	Average
4	2480.41	53.06	27.35	5.27	42.17	43.51	70.00	-26.49	Peak
5	3114.21	44.96	28.57	5.89	41.75	37.67	54.00	-16.33	Average
6	3114.21	55.14	28.57	5.89	41.75	47.85	74.00	-26.15	Peak
7	3938.09	44.83	29.59	6.90	41.95	39.37	54.00	-14.63	Average
8	3938.09	56.39	29.59	6.90	41.95	50.93	74.00	-23.07	Peak
9	4408.69	45.86	30.44	7.64	41.71	42.23	54.00	-11.77	Average
10	4408.69	56.92	30.44	7.64	41.71	53.29	74.00	-20.71	Peak
11	5545.14	44.41	31.97	8.32	41.99	42.71	54.00	-11.29	Average
12	5545.14	55.74	31.97	8.32	41.99	54.04	74.00	-19.96	Peak

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

Mode:b; Polarization:Horizontal

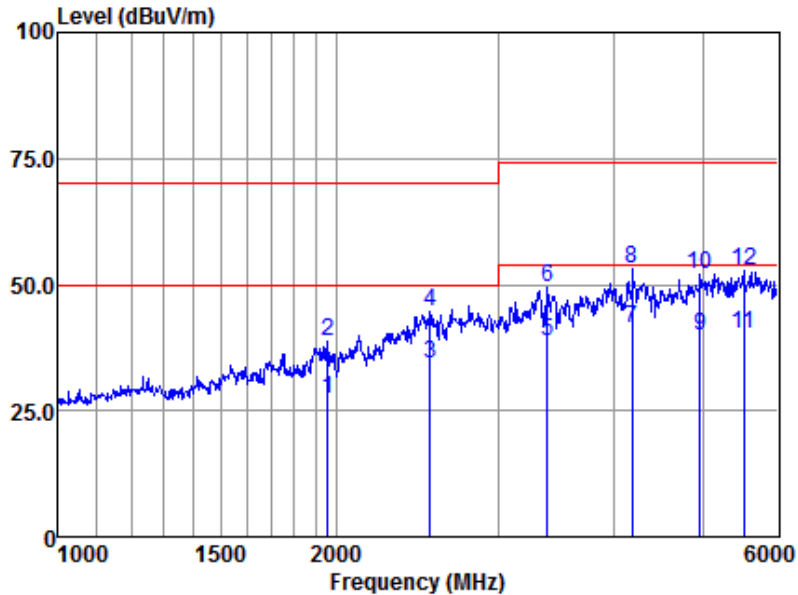


Antenna Polarity :HORIZONTAL
 EUT/Project :5620CR
 Test mode :b

	Read Freq	Antenna Level	Cable Factor	Preamp Loss	Emission Factor	Limit Level	Over Line	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB
1	1968.53	39.34	25.95	4.39	42.20	27.48	50.00	-22.52 Average
2	1968.53	50.04	25.95	4.39	42.20	38.18	70.00	-31.82 Peak
3	2575.51	41.59	27.57	5.42	42.10	32.48	50.00	-17.52 Average
4	2575.51	52.10	27.57	5.42	42.10	42.99	70.00	-27.01 Peak
5	3181.89	43.77	28.61	5.96	41.77	36.57	54.00	-17.43 Average
6	3181.89	54.27	28.61	5.96	41.77	47.07	74.00	-26.93 Peak
7	3659.16	46.77	29.11	6.45	41.89	40.44	54.00	-13.56 Average
8	3659.16	56.41	29.11	6.45	41.89	50.08	74.00	-23.92 Peak
9	4736.26	43.79	31.09	8.04	41.64	41.28	54.00	-12.72 Average
10	4736.26	54.07	31.09	8.04	41.64	51.56	74.00	-22.44 Peak
11	5747.46	42.64	32.25	8.36	41.92	41.33	54.00	-12.67 Average
12	5747.46	53.62	32.25	8.36	41.92	52.31	74.00	-21.69 Peak

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

Mode:b; Polarization:Vertical



Antenna Polarity :VERTICAL
 EUT/Project :5620CR
 Test mode :b

	Read	Antenna	Cable	Preamp	Emission	Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark	
-----	-----	-----	-----	-----	-----	-----	-----	-----	
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB		
1	1957.97	39.33	25.94	4.39	42.20	27.46	50.00	-22.54	Average
2	1957.97	50.49	25.94	4.39	42.20	38.62	70.00	-31.38	Peak
3	2529.78	43.67	27.47	5.37	42.14	34.37	50.00	-15.63	Average
4	2529.78	54.09	27.47	5.37	42.14	44.79	70.00	-25.21	Peak
5	3381.76	45.55	28.74	6.18	41.83	38.64	54.00	-15.36	Average
6	3381.76	56.35	28.74	6.18	41.83	49.44	74.00	-24.56	Peak
7	4185.46	45.98	30.04	7.32	41.85	41.49	54.00	-12.51	Average
8	4185.46	57.54	30.04	7.32	41.85	53.05	74.00	-20.95	Peak
9	4953.24	41.96	31.52	8.17	41.61	40.04	54.00	-13.96	Average
10	4953.24	53.84	31.52	8.17	41.61	51.92	74.00	-22.08	Peak
11	5525.31	41.96	31.92	8.32	42.00	40.20	54.00	-13.80	Average
12	5525.31	54.59	31.92	8.32	42.00	52.83	74.00	-21.17	Peak

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



6.5 Harmonic Current Emission

Test Requirement: EN 61000-3-2:2014

Test Method: EN 61000-3-2:2014

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 61000-3-2:2014.

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

Test Method: EN 61000-3-3:2013

6.6.1 E.U.T. Operation

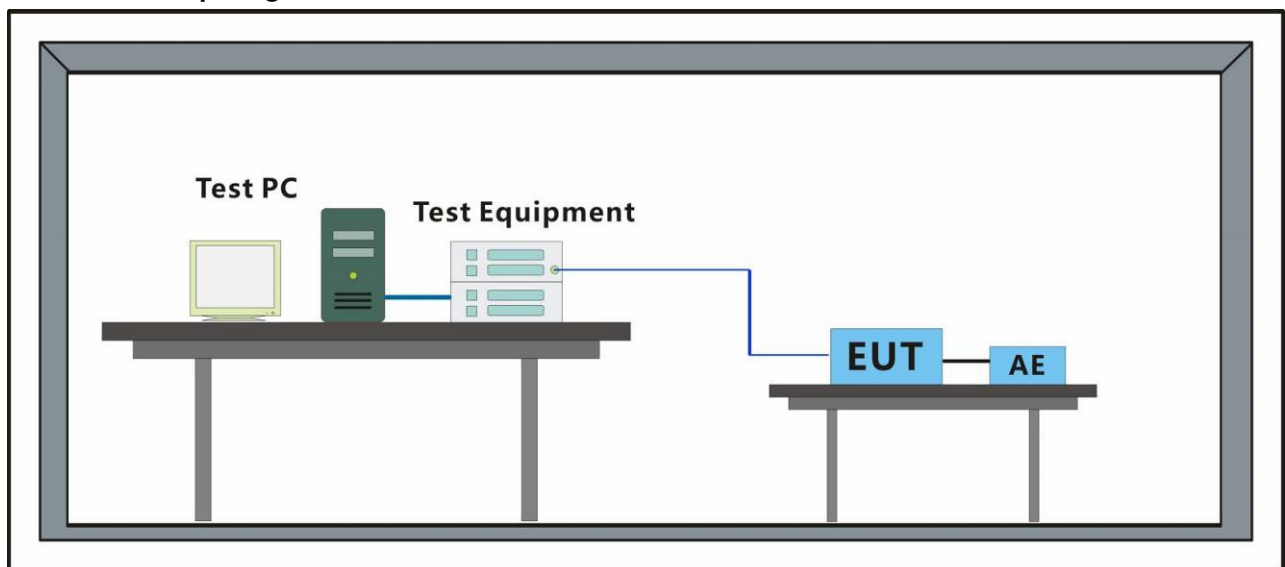
Operating Environment:

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

Test mode: a:Normal Working 1_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 2G)

b:Normal Working 2_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 4G)

6.6.2 Test Setup Diagram



6.6.3 Measurement Data

Mode:a

Vrms at the end of test (Volt): 230.04

T-max (mS): 0

Highest dc (%): 0.35

Highest dmax (%): 1.49

Highest Pst (10 min. period): 0.401

Highest Plt (2 hr. period): 0.153

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

Mode:b

Vrms at the end of test (Volt): 229.68

T-max (mS): 0

Highest dc (%): 0.43

Highest dmax (%): 1.05

Highest Pst (10 min. period): 0.361

Highest Plt (2 hr. period): 0.109

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

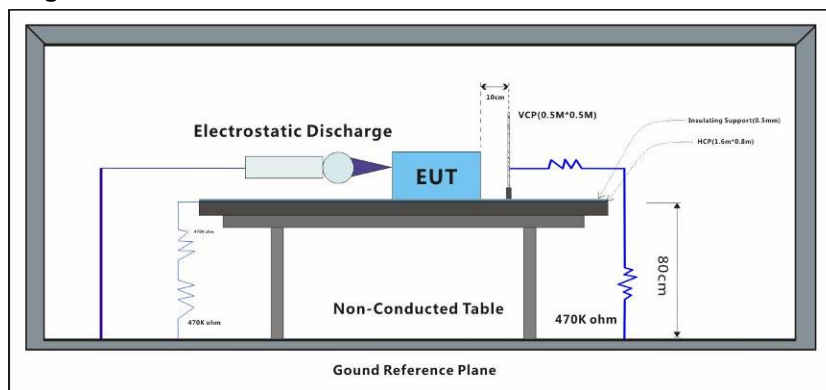
There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the application of the discharges is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as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

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

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:Normal Working 1_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 2G) b:Normal Working 2_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 4G)				

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

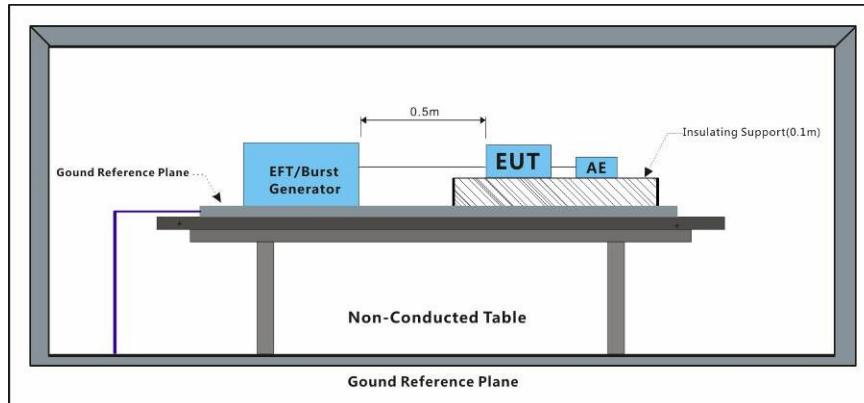
Results:

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

7.3 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

7.3.1 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: Normal Working 1_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 2G)
 b: Normal Working 2_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 4G)

7.3.3 Test Results:

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

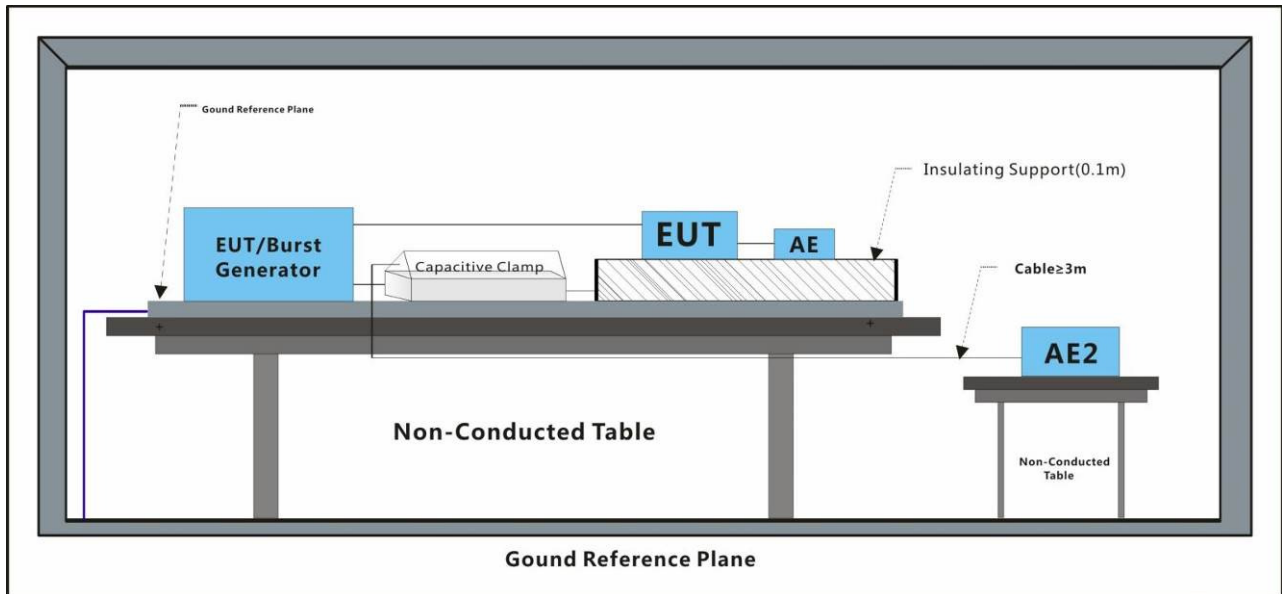
Results:

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

7.4 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

7.4.1 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: Normal Working 1_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 2G)
 b: Normal Working 2_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 4G)

7.4.3 Test Results:

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

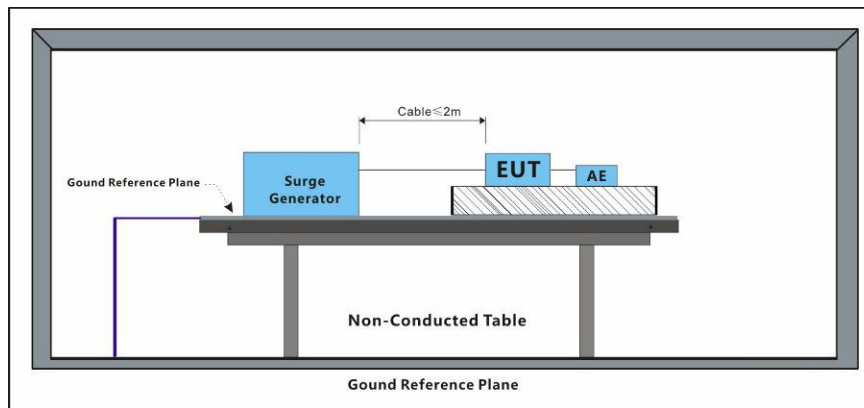
Results:

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

7.5 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

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: Normal Working 1_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 2G) b: Normal Working 2_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 4G)

7.5.3 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

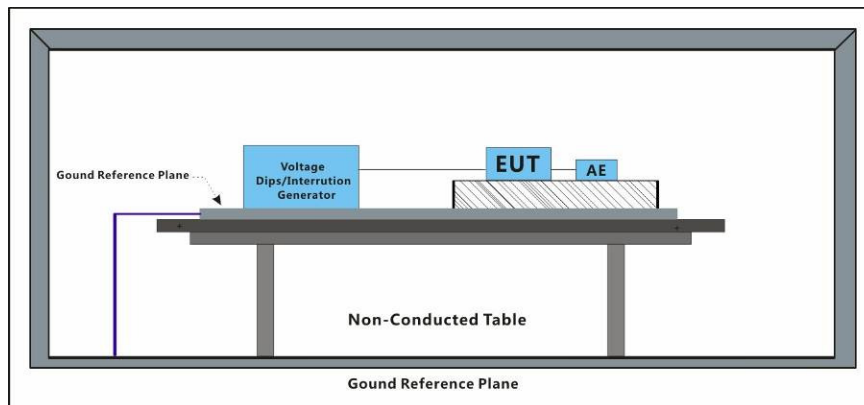
Results:

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

7.6 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

7.6.1 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: Normal Working 1_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 2G)
 b: Normal Working 2_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 4G)

7.6.3 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:

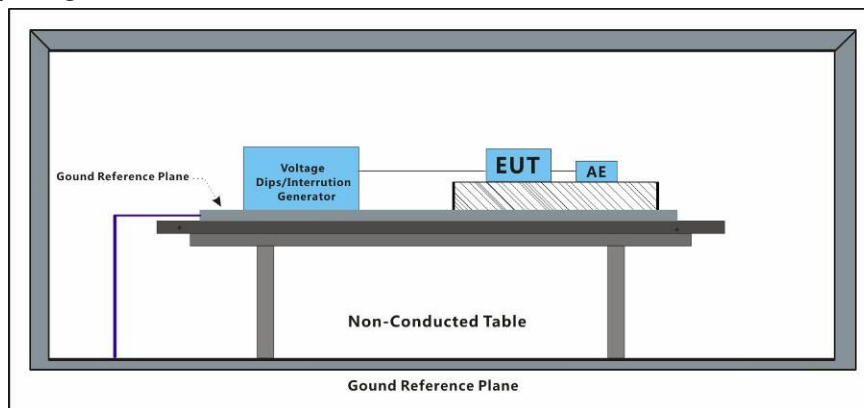
A: No degradation in the performance of the EUT was observed.

B: During test, EUT stop work, After test, which the equipment under test recovers its normal Performance.

7.7 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.

7.7.1 Test Setup Diagram



7.7.2 E.U.T. Operation

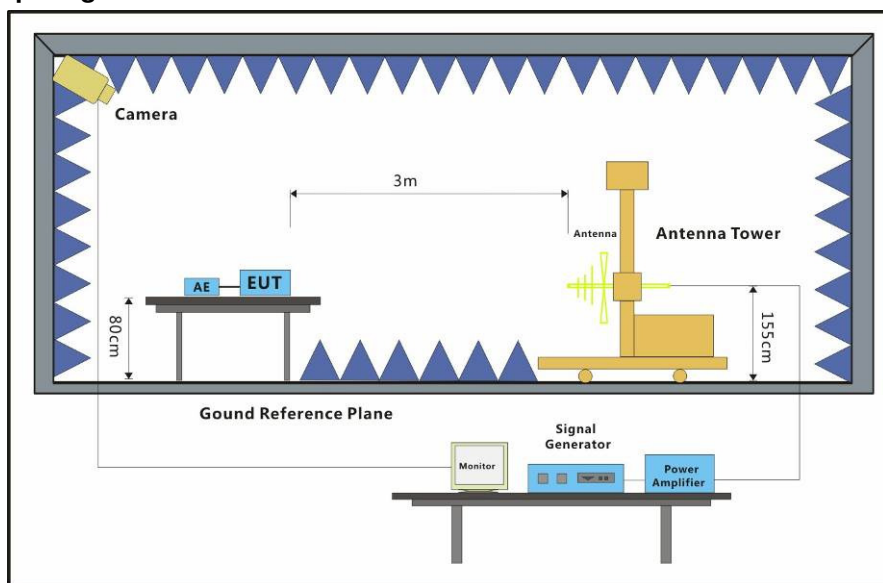
Operating Environment:			
Temperature:	22 °C	Humidity:	50 % RH Atmospheric Pressure: 1020 mbar
Test mode:	a:Normal Working 1_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 2G) b:Normal Working 2_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 4G)		

7.7.3 Test Results:

7.8 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

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: Normal Working 1_ Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 2G)
 b: Normal Working 2_ Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 4G)

7.8.3 Test Results:

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-2.7GHz	10	Front	2s	A
80MHz-2.7GHz	10	Back	2s	A
80MHz-2.7GHz	10	Left	2s	A
80MHz-2.7GHz	10	Right	2s	A
80MHz-2.7GHz	10	Top	2s	A
80MHz-2.7GHz	10	Underside	2s	A

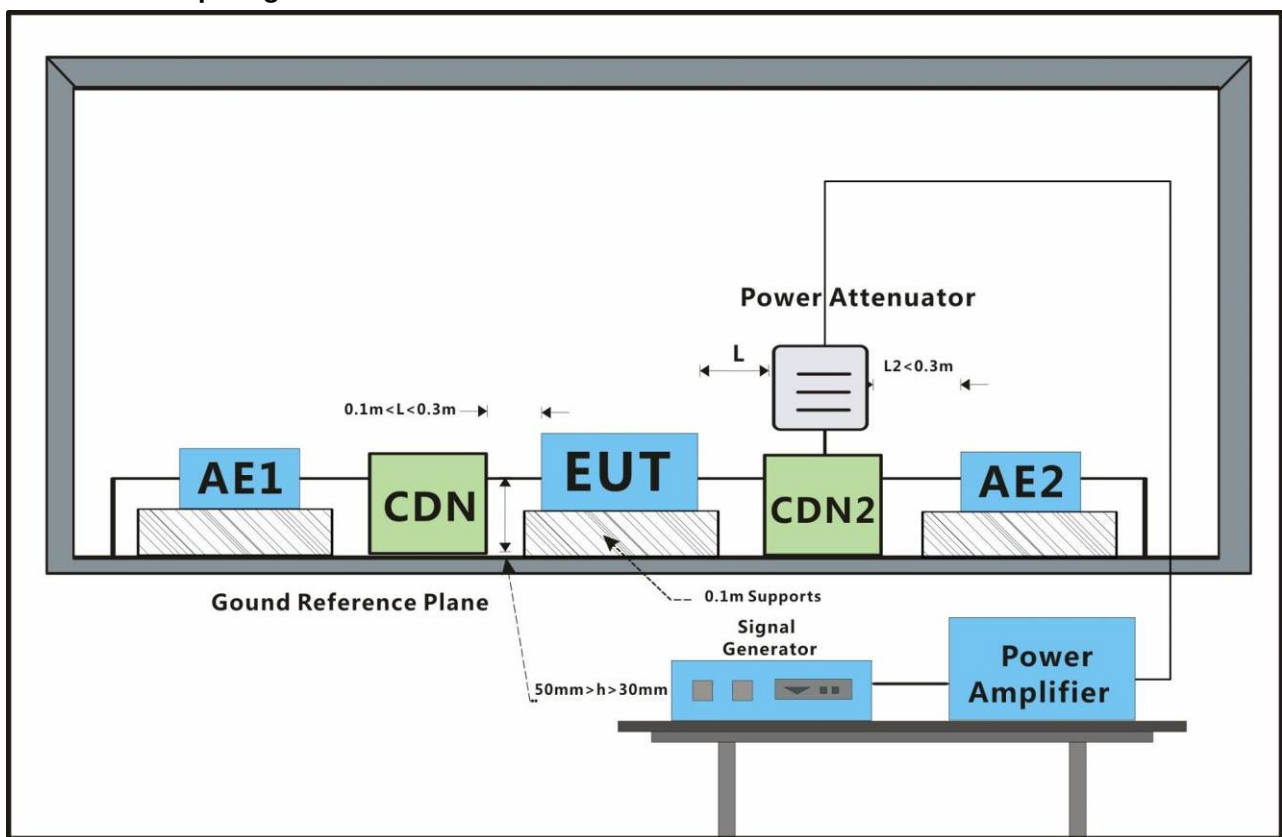
Results:

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

7.9 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

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: Normal Working 1_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 2G)
 b: Normal Working 2_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 4G)

7.9.3 Test Results:

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

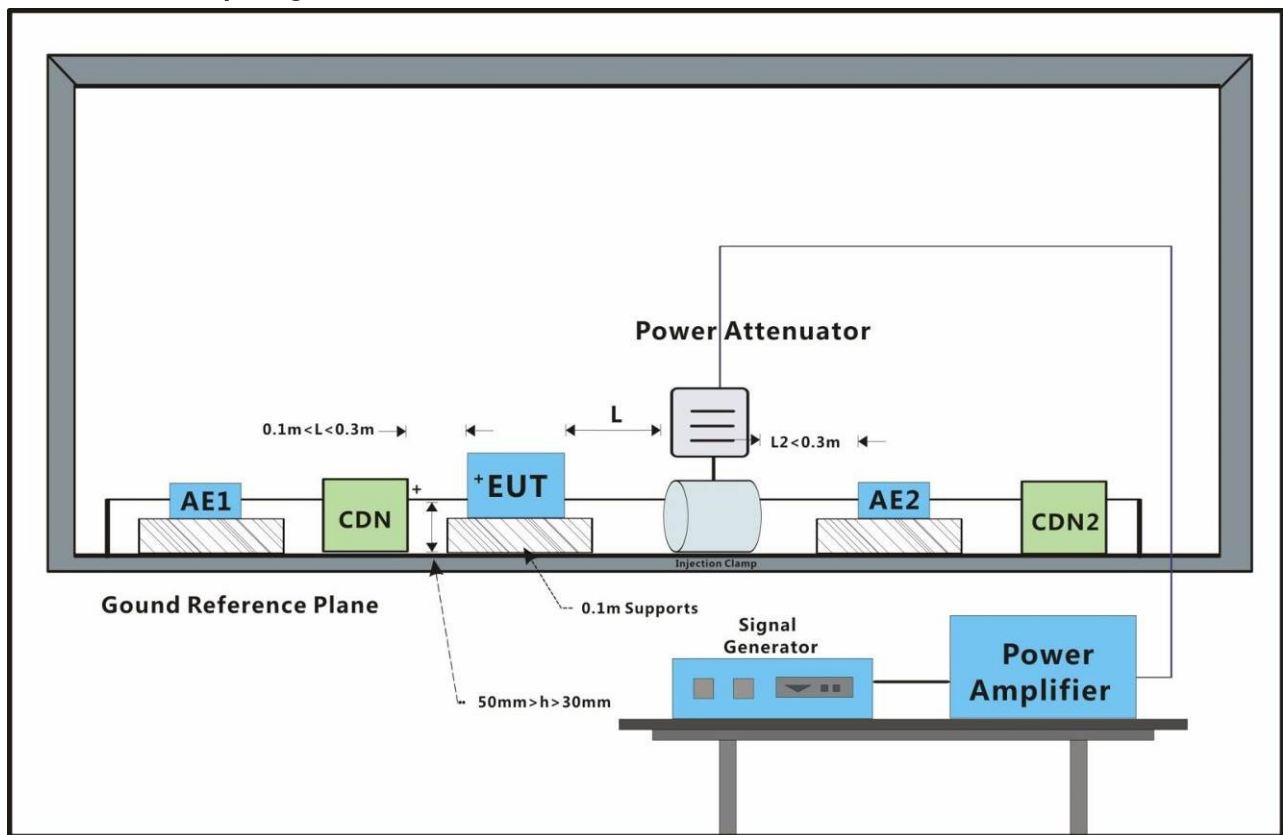
Results:

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

7.10 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

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: Normal Working 1_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 2G)
 b: Normal Working 2_Establish communication between EUT and associated equipments , and then keep EUT control associated equipments.(For 4G)

7.10.3 Test Results:

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

Results:

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

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



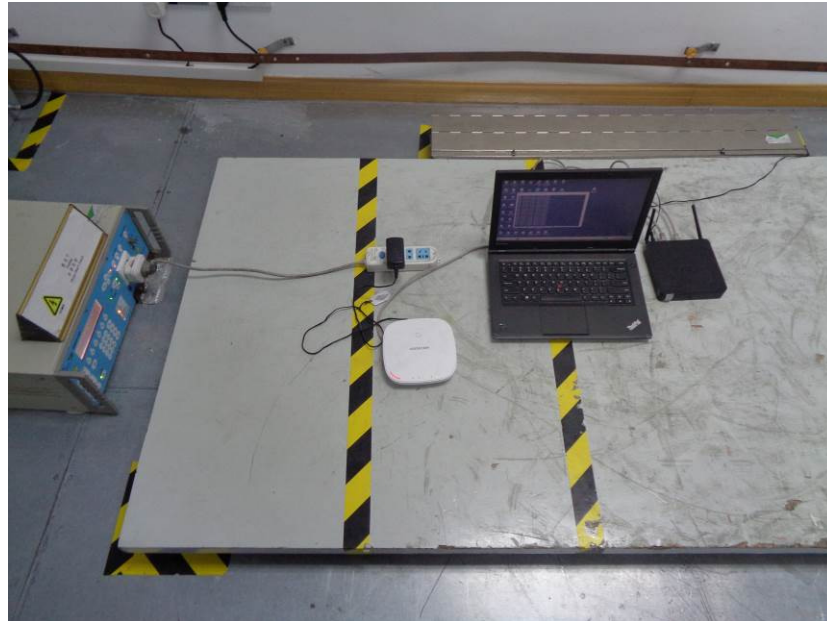
8.5 Voltage Fluctuations and Flicker Test Setup



8.6 Electrostatic Discharge Test Setup



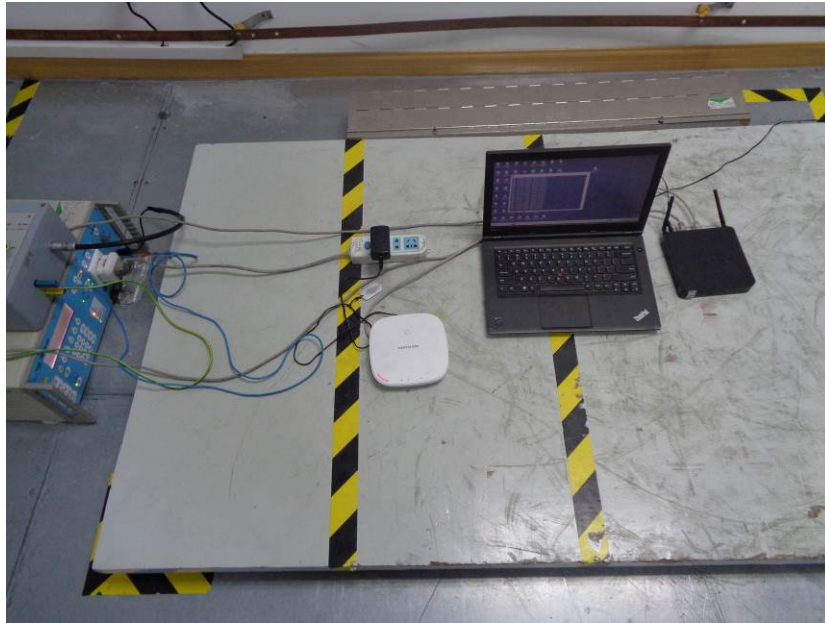
8.7 Electrical Fast Transients/Burst at Power Port Test Setup



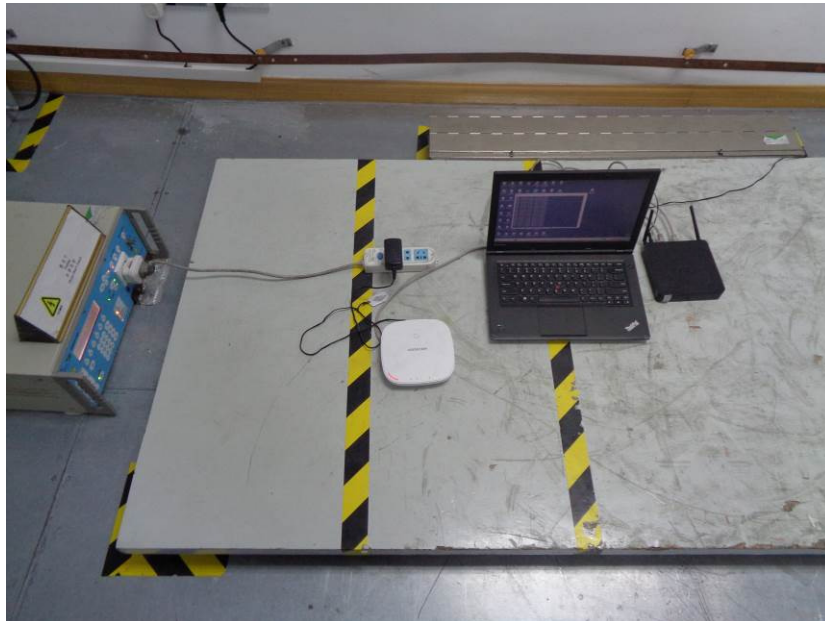
8.8 Electrical Fast Transients/Burst at Signal Port Test Setup



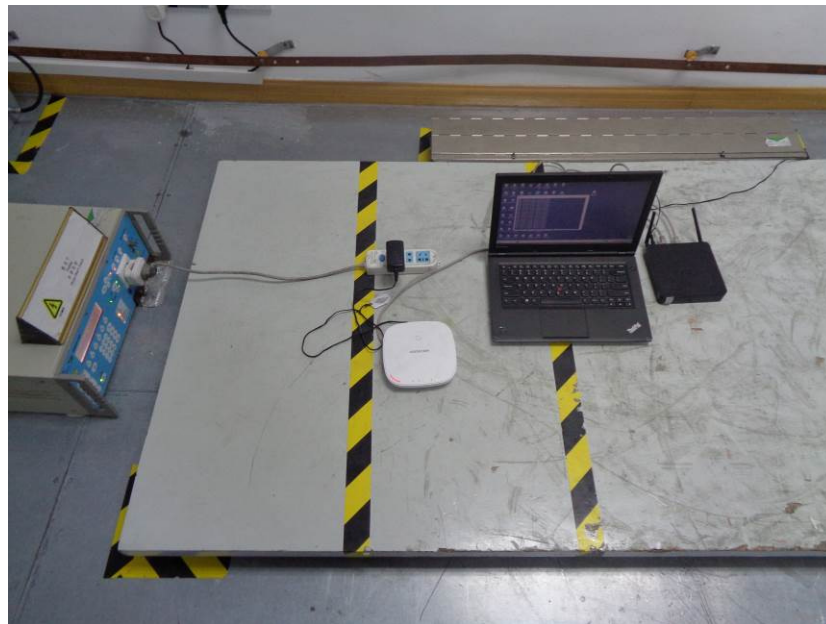
8.9 Surge at Power Port Test Setup



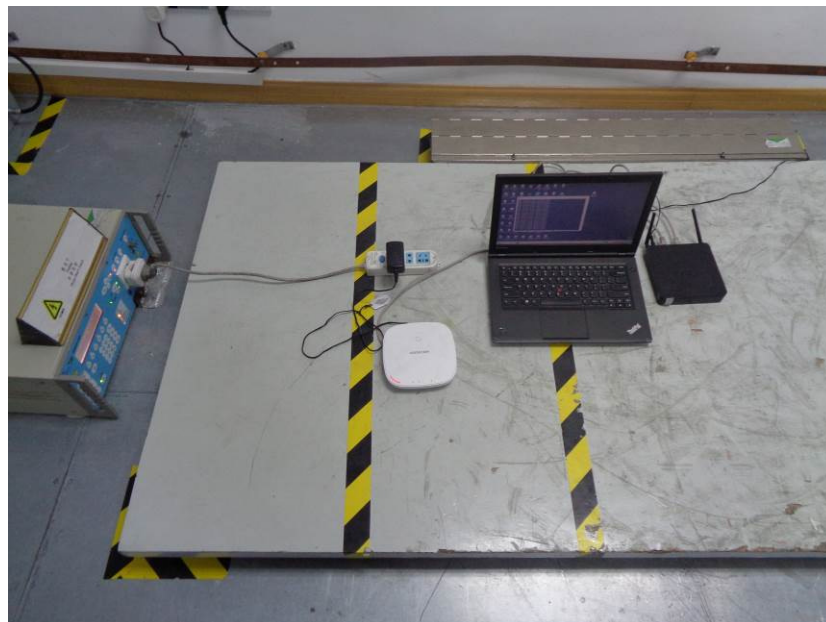
8.10 Voltage Dips and Interruptions Test Setup



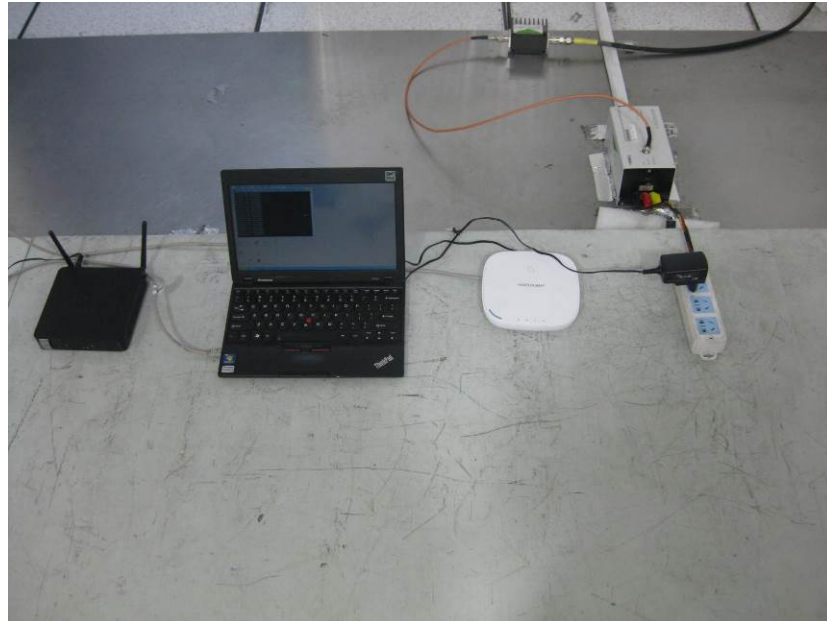
8.11 Mains Supply Voltage Variations-Conditioning Test Setup



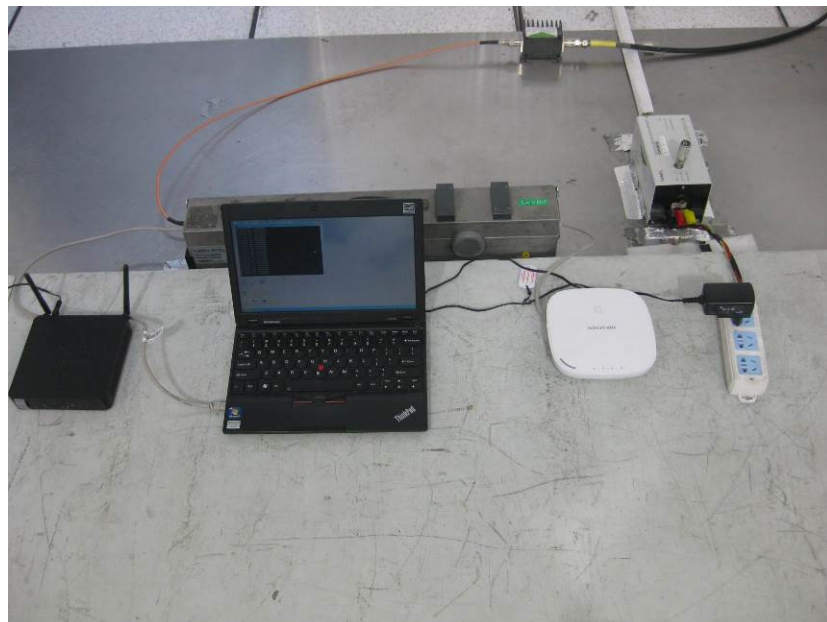
8.12 Radiated Immunity(80MHz-2.7GHz) Test Setup



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



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



8.15 EUT Constructional Details (EUT Photos)



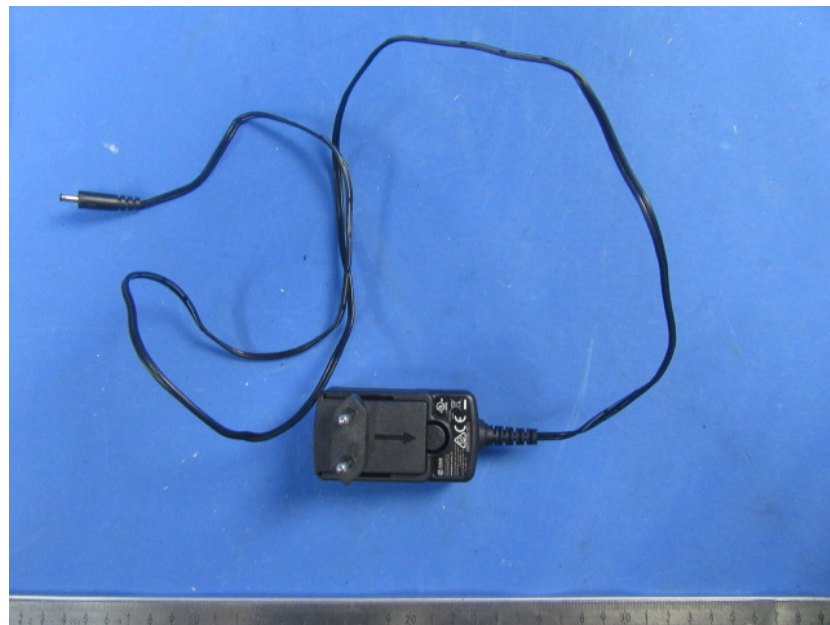


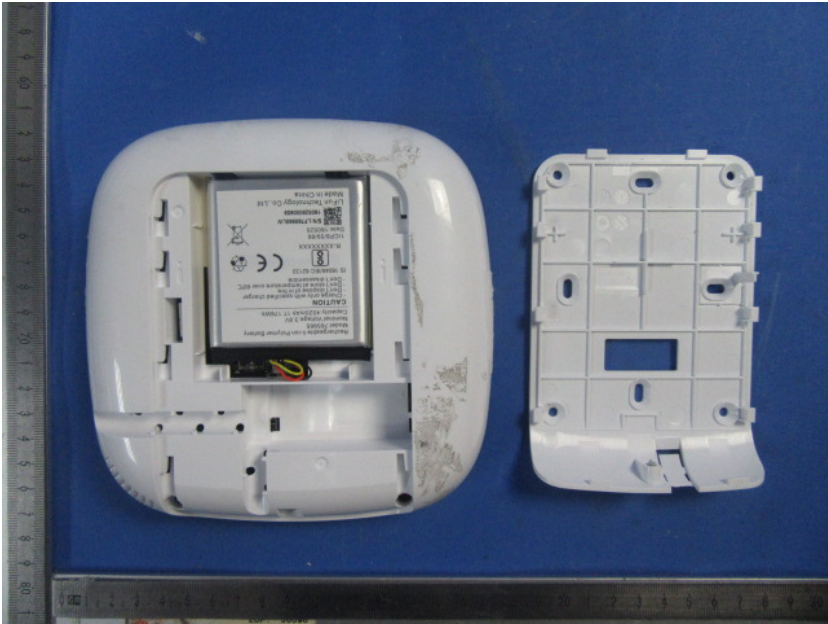


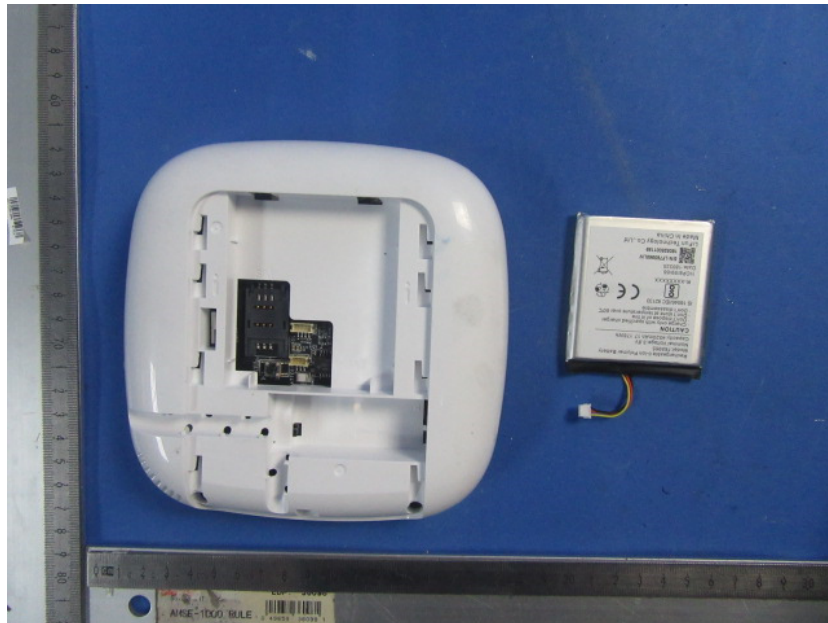


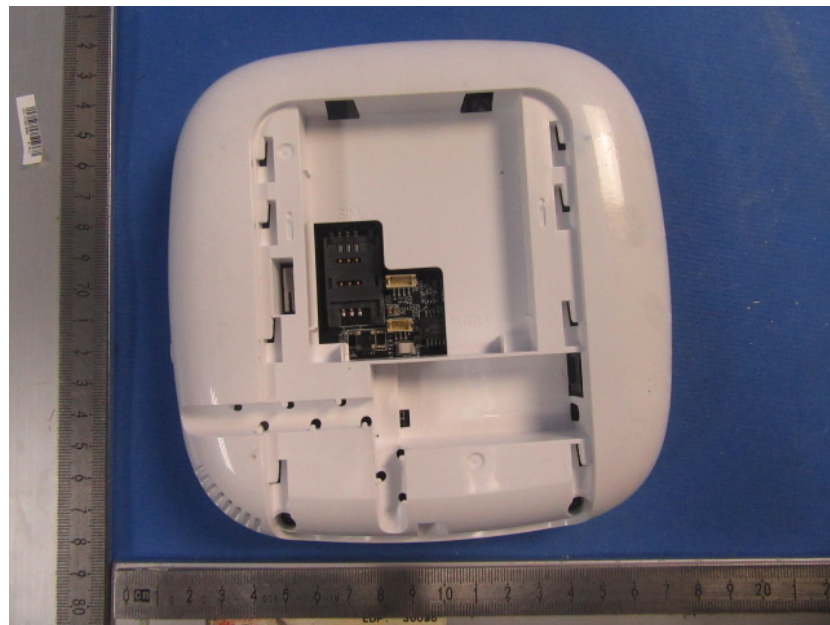


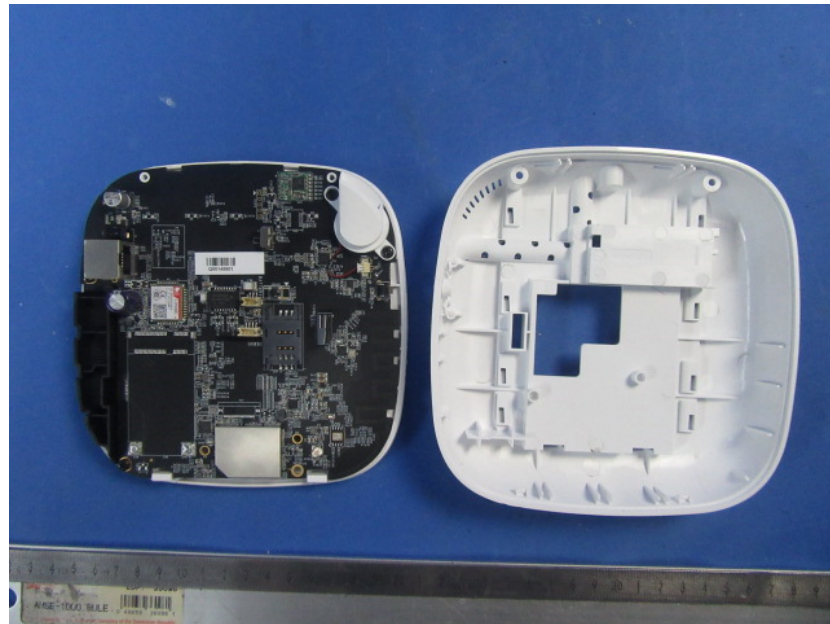


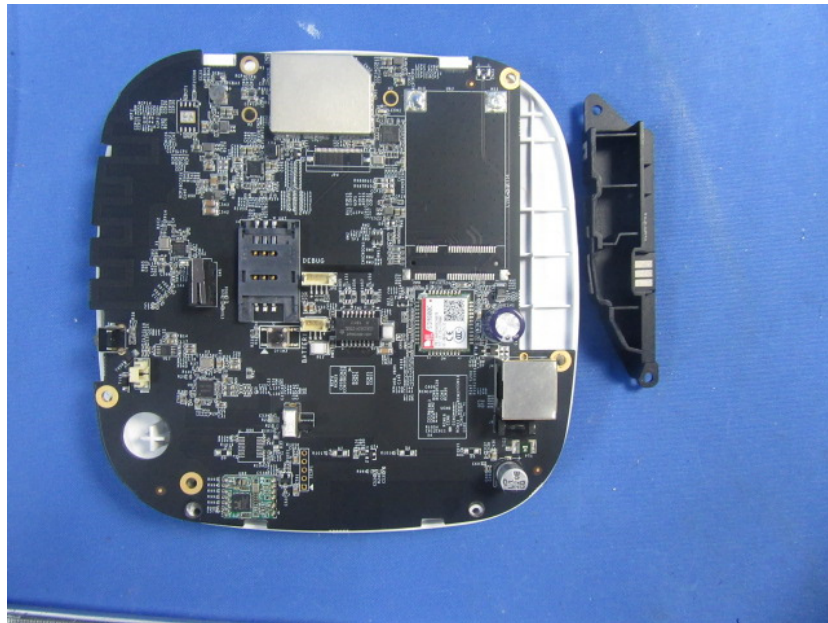
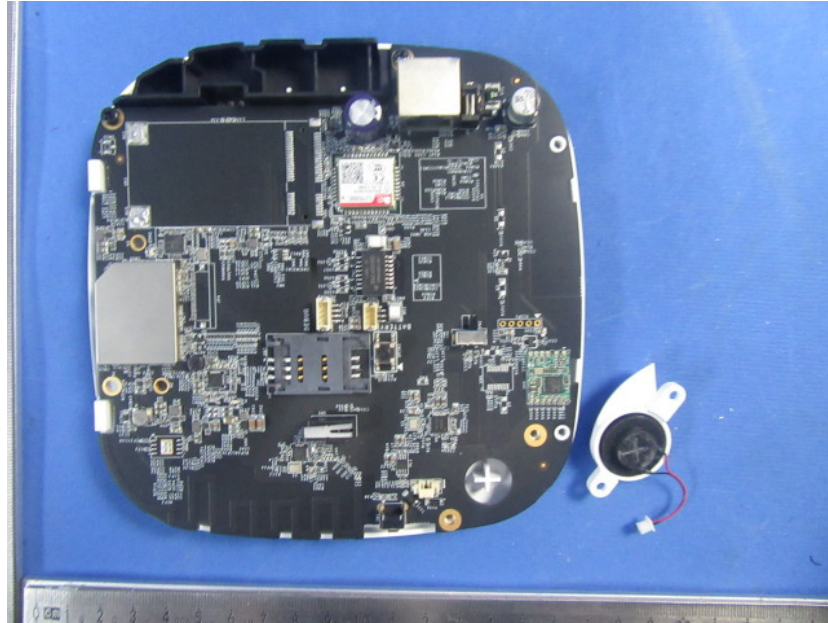


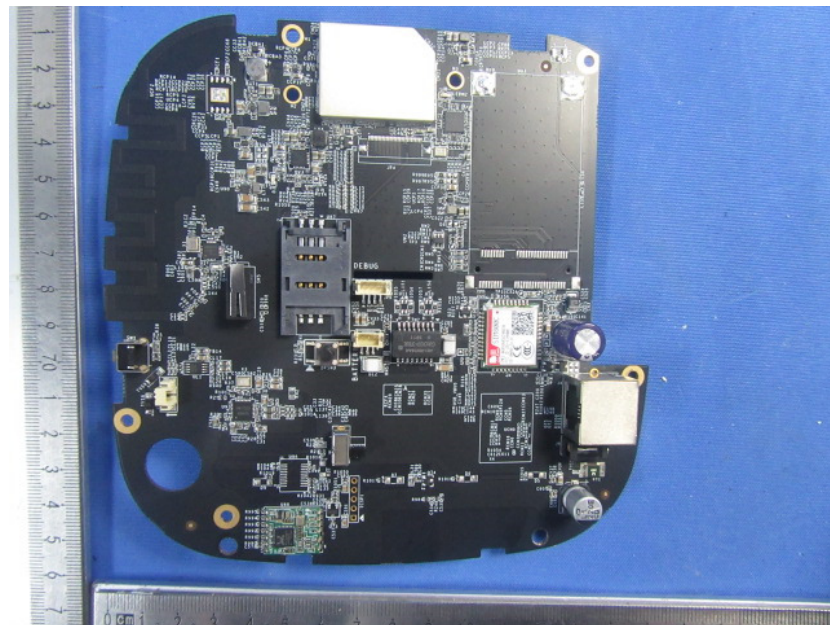
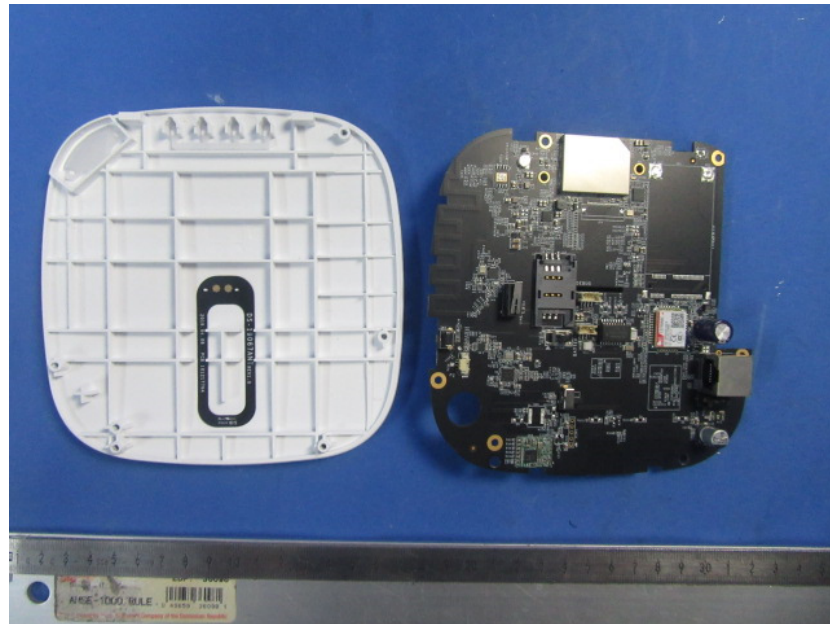


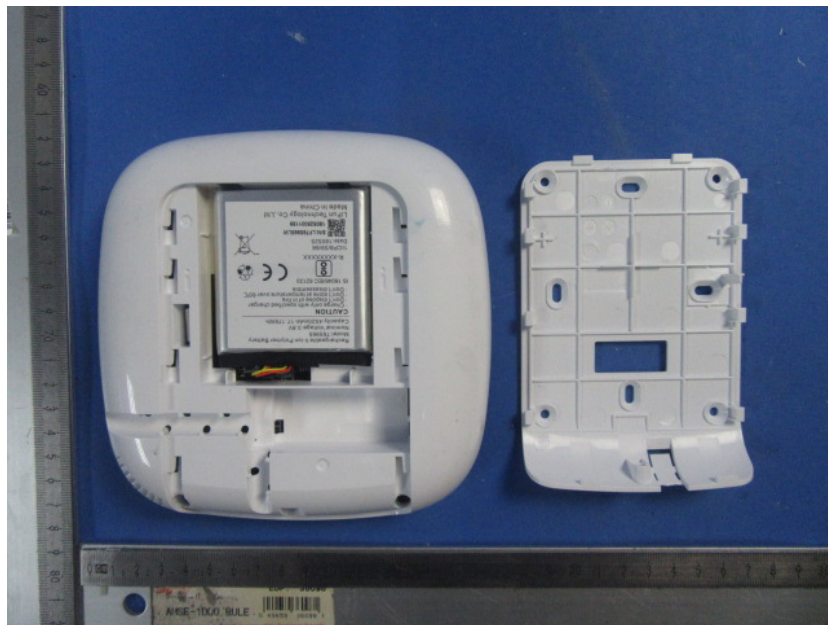
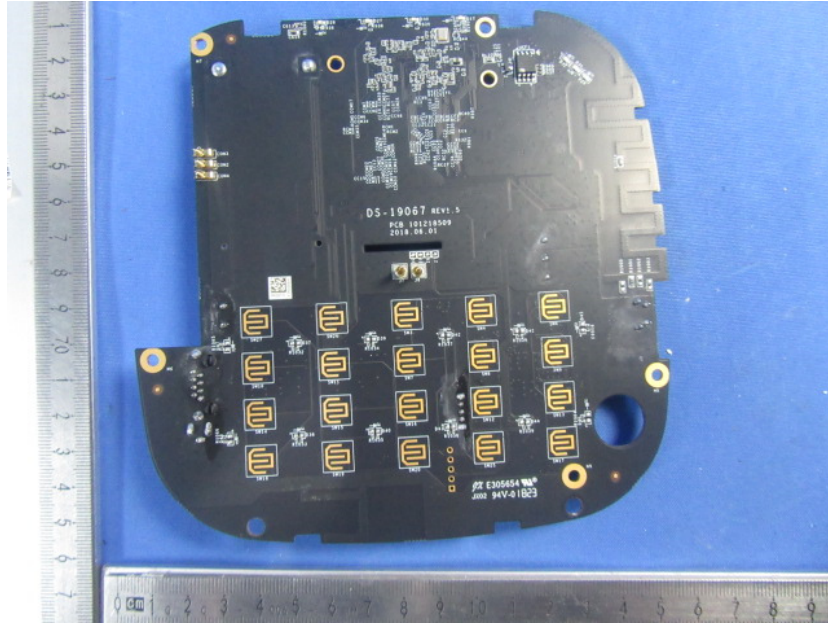


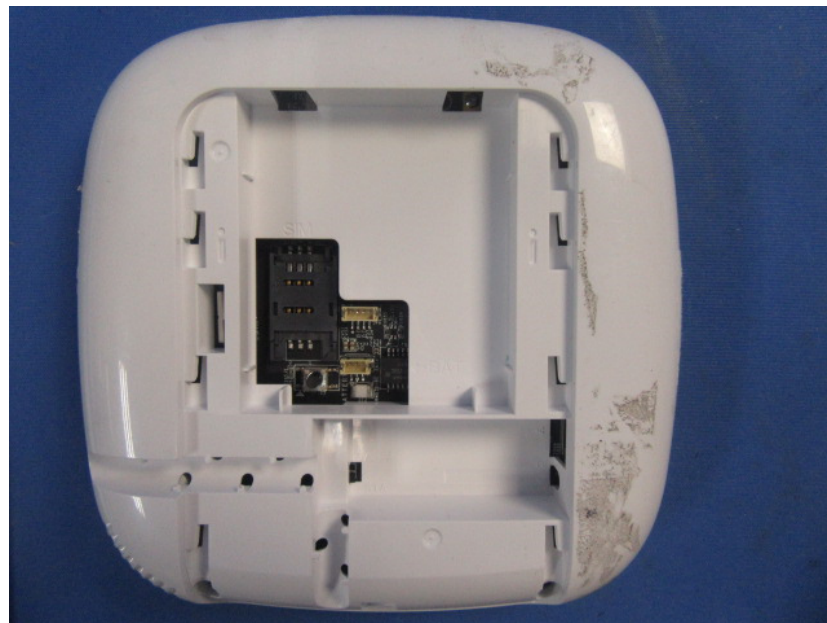


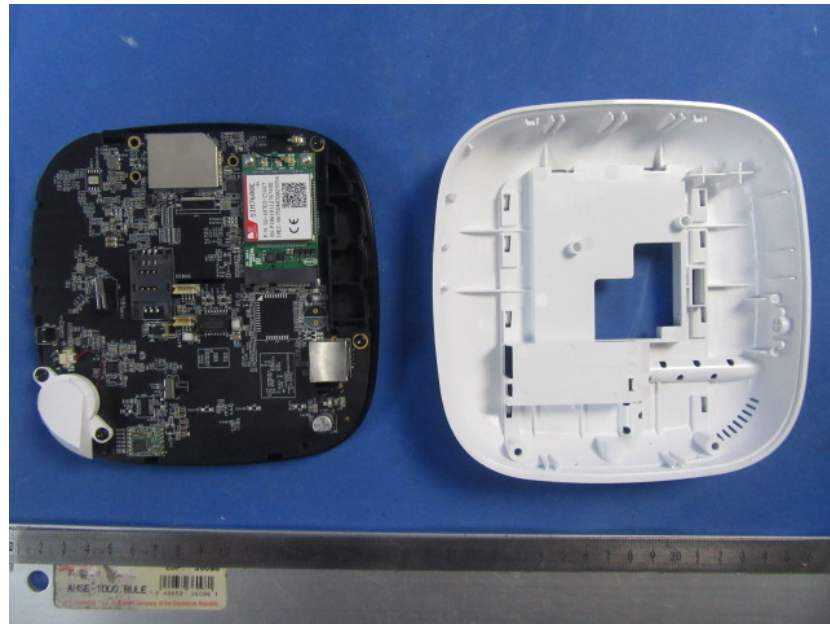




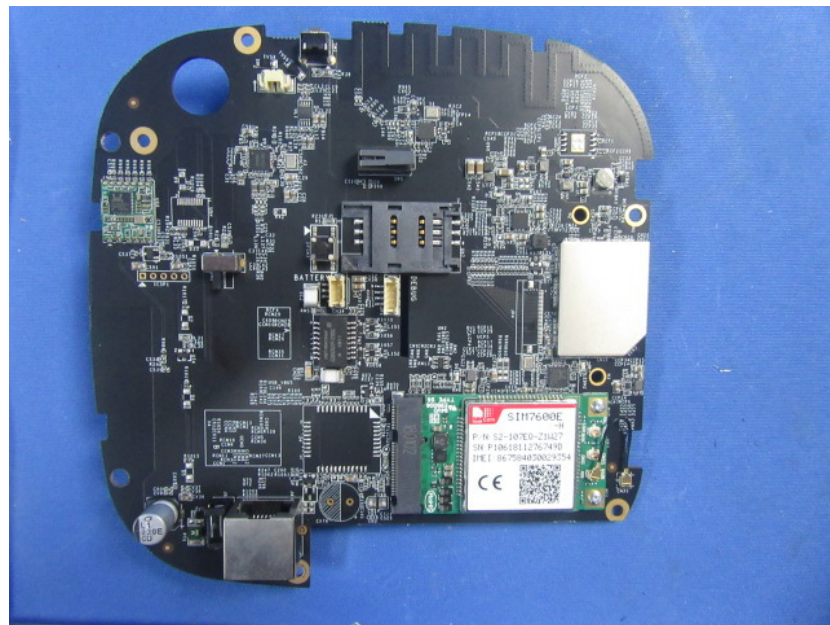
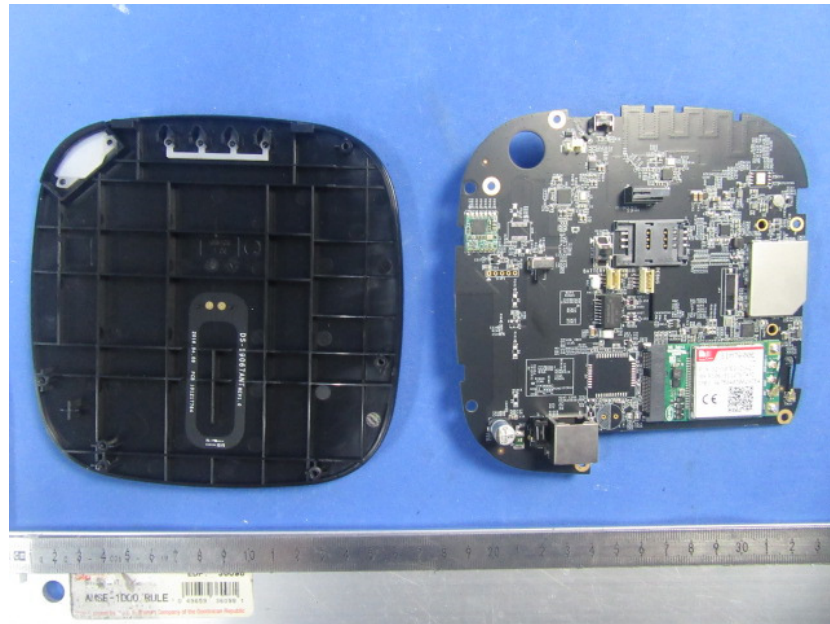


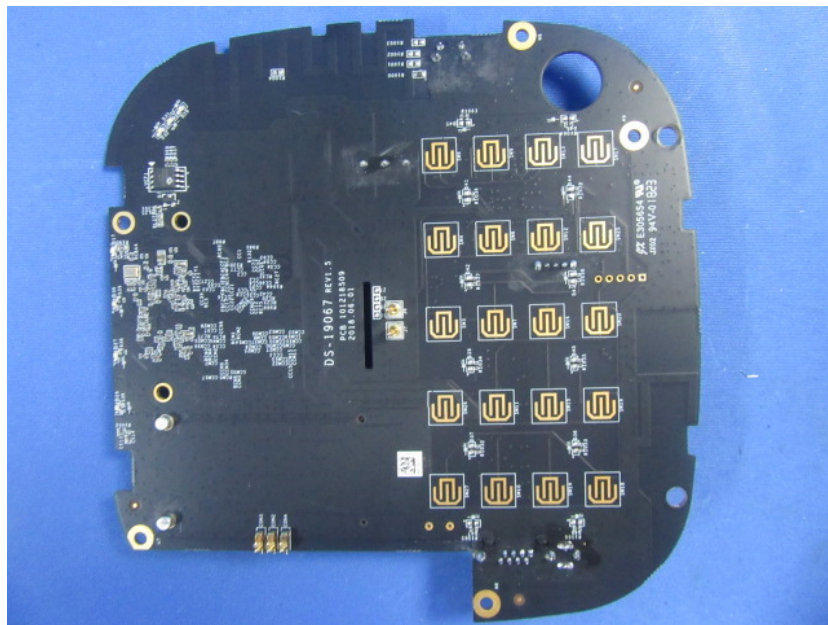












- End of the Report -