TEST REPORT

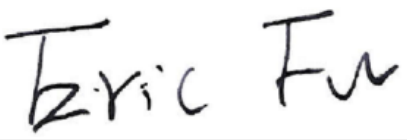
Application No.:	SZCR2303000839AT(KSCR2302000124AT)
Applicant:	Hangzhou Ezviz Software Co., Ltd.
Address of Applicant:	Room 302,Unit B,Building 2,399 Danfeng Road,Binjiang District,Hangzhou,Zhejiang
Manufacturer:	Hangzhou Ezviz Software Co., Ltd.
Address of Manufacturer:	Room 302,Unit B,Building 2,399 Danfeng Road,Binjiang District,Hangzhou,Zhejiang
Equipment Under Test (EUT):	
EUT Name:	EZVIZ SMART LOCK
Model No.:	CS-DL01/DL01CP/A3, CS-DL01, CS-DL01 (ZB), CS-DL01S Pro, CS-DL01 Pro, CS-DL01S Pro (ZB), CS-DL01 Pro (ZB), CS-DL01P-BT, CS-DL01P-BT (A0), CS-DL01CP-BT, CS-DL01CP-BT (A0)
Trade Mark:	EZVIZ
Standard(s) :	EN 301 489-1 V2.2.3 EN 301 489-17 V3.2.4
Date of Receipt:	2023-02-01
Date of Test:	2023-02-02 to 2023-02-20
Date of Issue:	2023-03-29
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Digitally signed by Keny Xu
Date: 2023.08.29 14:31:48 +08'00'

Keny Xu
EMC Laboratory Manager

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2023-03-29		Original

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 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	EN 55032:2015	Class B	Pass
Conducted Emissions at Telecommunication Port (150kHz-30MHz)	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	EN 55032:2015	Class B	Pass
Radiated Emissions (30MHz-1GHz)	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	EN 55032:2015	Class B	Pass
Radiated Emissions (above 1GHz)	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	EN 55032:2015	Class B	Pass
Harmonic Current Emission	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	EN IEC 61000-3-2:2019	Class A	N/A*
Voltage Fluctuations and Flicker	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	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 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	EN 61000-4-2:2009	4kV Contact Discharge 8kV Air Discharge	Pass
Electrical Fast Transients/Burst at Power Port	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	EN 61000-4-4:2012	1kV 5/50ns Tr/Td 5kHz Repetition Frequency	Pass
Electrical Fast Transients/Burst at Signal Port	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	EN 61000-4-4:2012	0.5kV 5/50ns Tr/Td 5kHz Repetition Frequency	Pass
Surge at Power Port	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	EN 61000-4-5:2014 +A1:2017	1.2/50μs Tr/Td 1kV Line to Line 2kV Line to Ground	Pass
Surge at Signal Port	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	EN 61000-4-5:2014+A1:2017	10/700μs Tr/Td 1kV Line to Ground	Pass
Conducted Immunity at Power Port (150kHz-80MHz)	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	EN 61000-4-6:2014	3Vrms (emf),80%,1kHz Amp. Mod.	Pass

Immunity Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Immunity at Signal Port (150kHz-80MHz)	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	EN 61000-4-6:2014	3Vrms (emf),80%,1kHz Amp. Mod.	Pass
Voltage Dips and Interruptions	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	EN 61000-4-11:2004 +A1:2017	0 % UT for 0.5per 0 % UT for 1per 0 % UT for 250per 70 % UT for 25per UT is Supply Voltage	Pass
Radiated Immunity (80MHz-6GHz)	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4	EN 61000-4-3:2006 +A1:2008+A2:2010	3V/m, 80%, 1kHz Amp. Mod.	Pass

3 Contents

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 6V for CS-DL01 (ZB) DC 3V for CS-DL01P-BT DC 5V for CS-A3
Test Voltage:	DC 6V for CS-DL01 (ZB) DC 3V for CS-DL01P-BT DC 5V for CS-A3

For CS-DL01 (ZB)

BLE

Power supply:	DC 6V by Battery
Bluetooth Version:	V5.0 LE
Operation Frequency:	2402MHz to 2480MHz
Modulation Type:	GFSK
Channel Spacing:	2MHz
Number of Channels:	40
Antenna Type:	FPC Antenna
Adaptive Type:	LBE under LBT based DAA
Antenna Gain:	4.10 dBi(Provided by the manufacturer)
Power Class:	>=10mW
Receiver Category:	2
Data Rate:	1Mbps,2Mbps,125Kbps,500Kbps
Test Voltage:	DC 6V

Zgibee

Operation Frequency:	2405MHz to 2480MHz
Modulation Type:	QPSK
Channel Spacing:	5MHz
Number of Channels:	16
Antenna Type:	FPC Antenna
Adaptive Type:	Adaptive Frequency Hopping using LBT based DAA
Antenna Gain:	2.60 dBi(Provided by the manufacturer)
Power Class:	<10mW
Receiver Category:	2
Test Voltage:	DC 6V

For CS-DL01P-BT

BLE

Power supply:	DC 3V
Test voltage:	DC3V
Adaptive Type:	Non-adaptive
Antenna Gain:	1.62dBi (Provided by manufacturer)
Antenna Type:	FPC Antenna
Bluetooth Version:	V5.0 LE
Channel Spacing:	1MHz,2MHz
Modulation Type:	GFSK
Number of Channels:	40
Operation Frequency:	2402MHz to 2480MHz
Power Class:	<10mW

13.56MHz

Operation Frequency	13.56MHz
Modulation Technique:	ASK
Antenna Type:	PCB Antenna
Number of Channel:	1

Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

For CS-A3

2.4G Wi-Fi

Adaptive Type:	FBE under LBT based DAA
Antenna Gain:	2.6dBi(Provided by manufacturer)
Antenna Type:	PCB Antenna
Channel Spacing:	5MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20): 13 802.11n(HT40):9
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2472MHz 802.11n(HT40): 2422MHz to 2462MHz
Power Class:	>=10mW

Zigbee

Adaptive Type:	FBE under LBT based DAA
Antenna Gain:	2.1dBi(Provided by manufacturer)
Antenna Type:	PCB Antenna
Channel Spacing:	5MHz
Modulation Type:	O-QPSK
Number of Channels:	16
Operation Frequency:	2405MHz to 2480MHz
Power Class:	<10mW

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Ezviz Studio	Hikvision	V2.4.1.150213	/
Mobile Phone	ZTE	Z11MAX	/
Router	NETGEAR	RAX50	/
Home Gateway	Ezviz	CS-A3	/
Battery	NECTIUM	AA LR6	/

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at Mains Power Port (150kHz-30MHz)	± 2.9dB
Radiated Emissions (30MHz-1GHz)	± 5.5dB
Voltage Fluctuations and Flicker	± 3.7%
Harmonic Current Emission	± 3.7%
Electrostatic Discharge	± 6%
Radiated Immunity (80MHz-1GHz,1800MHz,2600MHz,3500MHz,5000MHz)	± 2.1dB
Electrical Fast Transients & Burst at AC Power Port	± 5.5%
Surge at AC Power Port	± 5.5%
Conducted Immunity at AC Power Port (150kHz-80MHz)	± 1.5dB
Voltage Dips and Interruptions	± 3.7%
Remark: The U_{lab} (lab Uncertainty) is less than $U_{cispr/ETSI}$ (CISPR/ETSI Uncertainty), so the test results – compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit; – non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.	

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

Address 1: No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).

2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

4.5 Test Facility

• 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 (Member No. 1937)

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. Shenzhen EMC laboratory 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.

• 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 EMS Monitor

Visual: Work statues of EUT

Other: A support spectrum analyser and pick up antenna was used to monitor for any unintentional transmission from the EUT.

5 Equipment List

Radiated Emissions (30MHz-1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2020-07-19	2023-07-18
MXE EMI Receiver	Agilent Technologies	N9038A	SEM004-15	2022-10-21	2023-10-20
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-01	2021-09-17	2023-09-16
Pre-Amplifier	Agilent Technologies	8447D	SEM005-01	2022-03-22	2023-03-21
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2022-07-09	2023-07-08

Radiated Emissions (Above 1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2022-04-02	2025-04-01
Signal Analyzer	Rohde & Schwarz	FSV40	SEM008-04	2022-03-23	2023-03-22
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2021-04-14	2023-04-13
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2022-09-23	2023-09-22
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2022-07-09	2023-07-08

Electrostatic Discharge					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
ESD Generator	TESEQ AG	NSG 437	SEM019-02	2022-03-25	2023-03-24

Radiated Immunity (80MHz-6GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Fully-Anechoic Chamber 2	Chang Zhou Zhong Shuo	854	SEM001-05	2022-07-09	2023-07-08
Power Sensor	Rohde & Schwarz	NRP-Z91	SEM009-09	2022-03-23	2023-03-22
Stacked Log.-Per.-Broadband Antenna	Schwarzbeck	STLP 9129	SEM003-25	N/A	N/A
Signal Generator	Rohde & Schwarz	SMB100A	SEM006-11	2022-03-22	2023-03-21
Broadband Amplifier	Rohde & Schwarz	BBA150-BC250	SEM005-12	2022-09-23	2023-09-22
Broadband Amplifier	Rohde & Schwarz	BBA150-D110	SEM005-13	2022-03-23	2023-03-22

Broadband Amplifier	Rohde & Schwarz	BBA150-E60	SEM005-16	2022-04-24	2023-04-23
Measurement Software	Rohde & Schwarz	EMC32 V9.25.00	N/A	N/A	N/A

General used equipment					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Humidity/ Temperature Indicator	MINGGAO	TH607	SEM002-17	2022-09-13	2023-09-12
Humidity/ Temperature Indicator	MINGGAO	TH607	SEM002-18	2022-09-13	2023-09-12
Humidity/ Temperature Indicator	MINGGAO	TH607	SEM002-19	2022-09-13	2023-09-12
Humidity/ Temperature Indicator	MINGGAO	TH607	SEM002-20	2022-09-13	2023-09-12
Humidity/ Temperature Indicator	MINGGAO	TH607	SEM002-22	2022-09-13	2023-09-12
Humidity/ Temperature Indicator	MINGGAO	TH607	SEM002-23	2022-09-13	2023-09-12
Barometer	Shanghai Meteorological Industry Factory	DYM3	SEM002-24	2022-09-13	2023-09-12

Conducted Emission						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date**	**Cal. Due date**
1	Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2022-06-12	2024-06-11
2	LISN	Rohde & Schwarz	ENV216	SEM007-01	2022-09-21	2023-09-20
3	LISN	ETS-LINDGREN	3816/2	SEM007-02	2022-03-23	2023-03-20
4	EMI Test Receiver(9kHz-3GHz)	Rohde & Schwarz	ESCI	SEM004-02	2022-03-23	2023-03-22
5	Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
6	Coaxial Cable	SGS	N/A	SEM024-01	2022-07-08	2023-07-07

Conducted Differential Voltage Emissions						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date**	**Cal. Due date**
1	Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2022-06-12	2022-06-11
2	EMI Test Receiver(9kHz-3GHz)	Rohde & Schwarz	ESCI	SEM004-02	2022-03-23	2023-03-22
3	Switch	WEINSCHEL ENGINEERING	1506A	SEN009-01	N/A	N/A

4	Matching Pad	anzac	PT-75	SEN009-02	N/A	N/A
5	Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
6	Coaxial Cable	SGS	N/A	SEM024-01	2022-07-08	2023-07-07

RE in Chamber <1GHz						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date**	**Cal. Due date**
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2020-07-19	2023-07-18
2	MXE EMI receiver(3Hz-3.6GHz)	KEYSIGHT	N9038A	SEM004-15	2022-10-31	2023-10-30
3	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-02	2022-05-23	2024-05-22
4	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2022-03-23	2023-03-22
5	Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
6	Coaxial Cable	SGS	N/A	SEM025-01	2022-07-08	2023-07-07

RE in Chamber >1GHz						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date**	**Cal. Due date**
1	3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2021-03-12	2024-03-11
2	EXA Signal Analyzer (10Hz-44GHz)	Agilent Technologies Inc	N9010A	SEM004-12	2021-04-07	2024-04-06
3	Horn Antenna (800MHz-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2021-04-12	2024-04-11
4	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2022-09-21	2023-09-20
5	Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
6	Coaxial Cable	SGS	N/A	SEM026-01	2022-07-08	2023-07-07

Harmonics / Flicker test						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date**	**Cal. Due date**
1	AC Power Source	California Instruments	5001ix	SEM016-02	2022-04-07	2023-04-06
2	Power Analyzer	California Instruments	PACS-1	SEM016-01	2022-04-07	2023-04-06

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3	Measurement Software	California Instruments	CTS 4 V4.24.0	N/A	N/A	N/A

ESD						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date**	**Cal. Due date**
1	ESD Generator	TESEQ AG	NSG 437	SEM019-02	2022-04-15	2023-04-14
2	ESD Ground Plane	SGS(3m*3m)	N/A	SEN006-01	N/A	N/A

EFT, Surge, Voltage dips and Interruption, Power-frequency Magnetic Field						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date (yyyy-mm-dd)**	**Cal. Due date (yyyy-mm-dd)**
1	Ultra Compact Simulator	EM Test	UCS 500N7	SEM018-02	2022-03-22	2023-03-21
2	Capacitive Coupling Clamp	EM Test	HFK	SEM018-03	2022-03-22	2023-03-21
3	Magnetic Field Test Antenna	EM Test	MS100N	SEM018-04	2022-04-07	2023-04-06
4	High Speed Coupling/Decoupling Network	EM Test	CNI 508N2	SEM018-05	2022-06-29	2023-06-28
5	Coupling network	EM Test	CNV 504N1	SEM018-10	2022-06-29	2023-06-28
6	Coupling network	EM Test	CNV 508T5	SEM018-11	2022-06-29	2023-06-28
7	Measurement Software	EM Test	IEC CONTROL V6.0.1	N/A	N/A	N/A

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Radiated Immunity						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date (yyyy-mm-dd)**	**Cal. Due date (yyyy-mm-dd)**
1	Fully-Anechoic Chamber 2	Chang Zhou Zhong Shuo	854	SEM001-05	2022-07-08	2023-07-07
2	Power Sensor	Rohde & Schwarz	NRP-Z91	SEM009-09	2022-03-23	2023-03-22
3	Stacked Log.-Per.-Broadband Antenna (70MHz-10GHz)	Schwarzbeck	STLP 9129	SEM003-25	N/A	N/A
4	Signal Generator (9kHz-6GHz)	Rohde & Schwarz	SMB100A	SEM006-11	2022-03-23	2023-03-22
5	Broadband Amplifier (80MHz-1GHz)	Rohde & Schwarz	BBA150-BC250	SEM005-12	2022-09-21	2023-09-20
6	Broadband Amplifier(800MHz-3GHz)	Rohde & Schwarz	BBA150-D110	SEM005-13	2022-03-23	2023-03-22
7	Broadband Amplifier(2.5GHz-6GHz)	Rohde & Schwarz	BBA150-E60	SEM005-16	2022-04-07	2023-04-06
8	Measurement Software	Rohde & Schwarz	EMC32 V9.25.00	N/A	N/A	N/A

Conducted Immunity						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date**	**Cal. Due date**
1	Shielding Room	AUDIX	N/A	SEM001-08	2022-06-12	2024-06-11
2	RF-Generator	SCHAFFNER	NSG 2070	SEM006-01	2022-09-21	2023-09-20
3	Coupling/Decoupling Network	SCHAFFNER	CDN M016	SEM007-03	2022-04-07	2023-04-06
4	EM Clamp	SCHAFFNER	KEMZ 801	SEM013-01	2022-09-21	2023-09-20

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6 Emission Test Results

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

Test Requirement:	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4
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

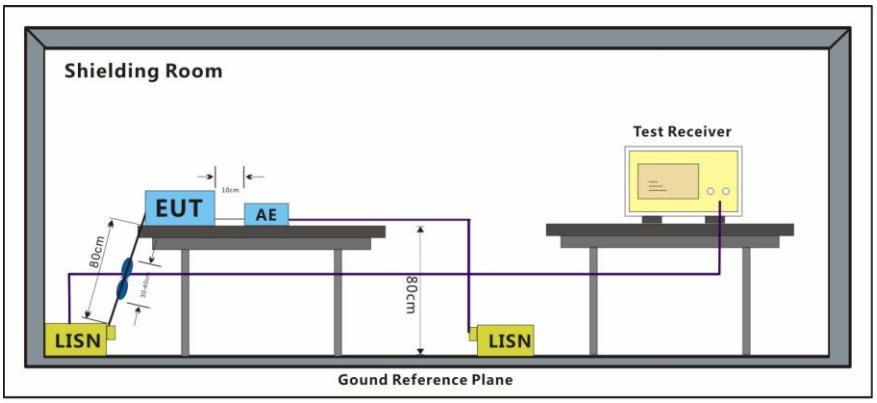
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode c: Wireless mode_The EUT(CS-A3) is connected with the wireless router through WiFi, and connected with the Open/Close Sensor, PIR Sensor through ZigBee signal. And use the mobile phone connected with the router to observe the status information.

6.1.2 Test Setup Diagram



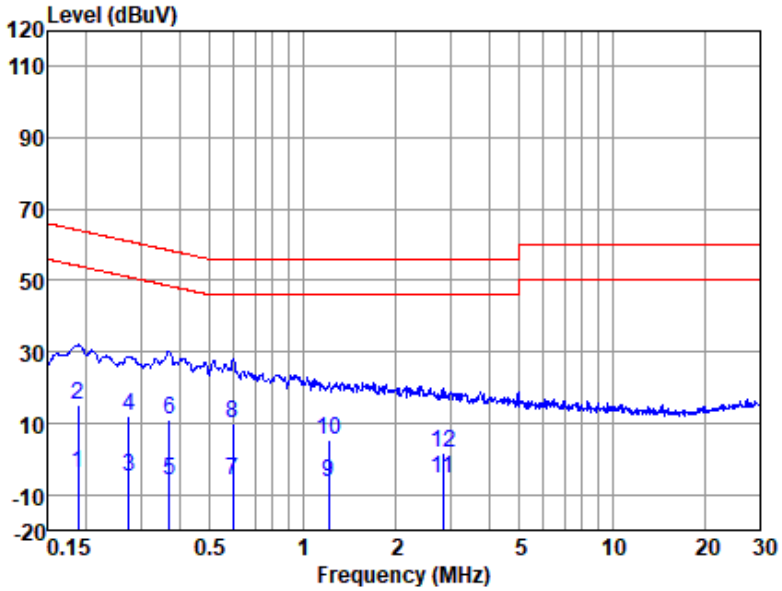
6.1.3 Measurement Data

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.

1.Result (dBuV) = Reading(dBuV) + Correction Factor (dB)

2.Correction Factor (dB)=LISN Factor (dB)+Cable Loss (dB)

Mode:c; Line:Live Line



LISN : LINE
EUT/Project No : 0839AT
Test Mode : c

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.19	-14.33	0.20	9.92	-4.21	54.11	-58.32	Average
2	0.19	4.96	0.20	9.92	15.08	64.11	-49.03	QP
3	0.27	-15.35	0.20	9.94	-5.21	50.98	-56.19	Average
4	0.27	1.66	0.20	9.94	11.80	60.98	-49.18	QP
5	0.37	-16.05	0.20	9.93	-5.92	48.52	-54.44	Average
6	0.37	0.66	0.20	9.93	10.79	58.52	-47.73	QP
7	0.59	-16.30	0.20	9.92	-6.18	46.00	-52.18	Average
8	0.59	-0.02	0.20	9.92	10.10	56.00	-45.90	QP
9	1.22	-16.74	0.20	9.91	-6.63	46.00	-52.63	Average
10	1.22	-4.55	0.20	9.91	5.56	56.00	-50.44	QP
11	2.84	-15.88	0.20	9.97	-5.71	46.00	-51.71	Average
12	2.84	-8.59	0.20	9.97	1.58	56.00	-54.42	QP

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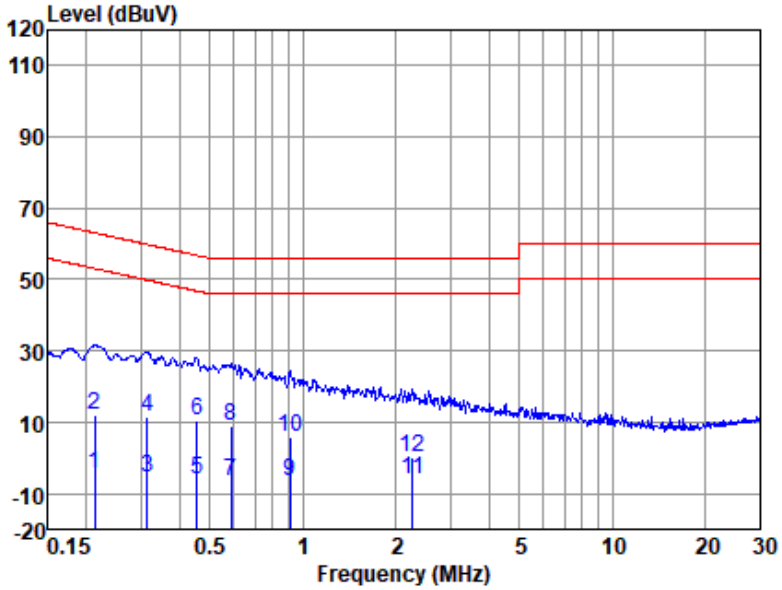
Mode:c; Line:Neutral Line



LISN : NEUTRAL
EUT/Project No : 0839AT
Test Mode : c

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.21	-14.62	0.20	9.93	-4.49	53.10	-57.59	Average
2	0.21	1.68	0.20	9.93	11.81	63.10	-51.29	QP
3	0.31	-15.71	0.20	9.94	-5.57	49.84	-55.41	Average
4	0.31	1.38	0.20	9.94	11.52	59.84	-48.32	QP
5	0.45	-16.19	0.20	9.93	-6.06	46.80	-52.86	Average
6	0.45	0.60	0.20	9.93	10.73	56.80	-46.07	QP
7	0.59	-16.80	0.20	9.92	-6.68	46.00	-52.68	Average
8	0.59	-1.10	0.20	9.92	9.02	56.00	-46.98	QP
9	0.91	-16.62	0.20	9.90	-6.52	46.00	-52.52	Average
10	0.91	-4.09	0.20	9.90	6.01	56.00	-49.99	QP
11	2.26	-16.03	0.20	9.95	-5.88	46.00	-51.88	Average
12	2.26	-10.16	0.20	9.95	-0.01	56.00	-56.01	QP

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6.2 Conducted Emissions at Telecommunication Port (150kHz-30MHz)

Test Requirement:	EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4
Test Method:	EN 55032:2015
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	84dB(μV)-74dB(μV) quasi-peak, 74dB(μV)-64dB(μV) average
0.5M-30MHz	74dB(μV) quasi-peak, 64dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

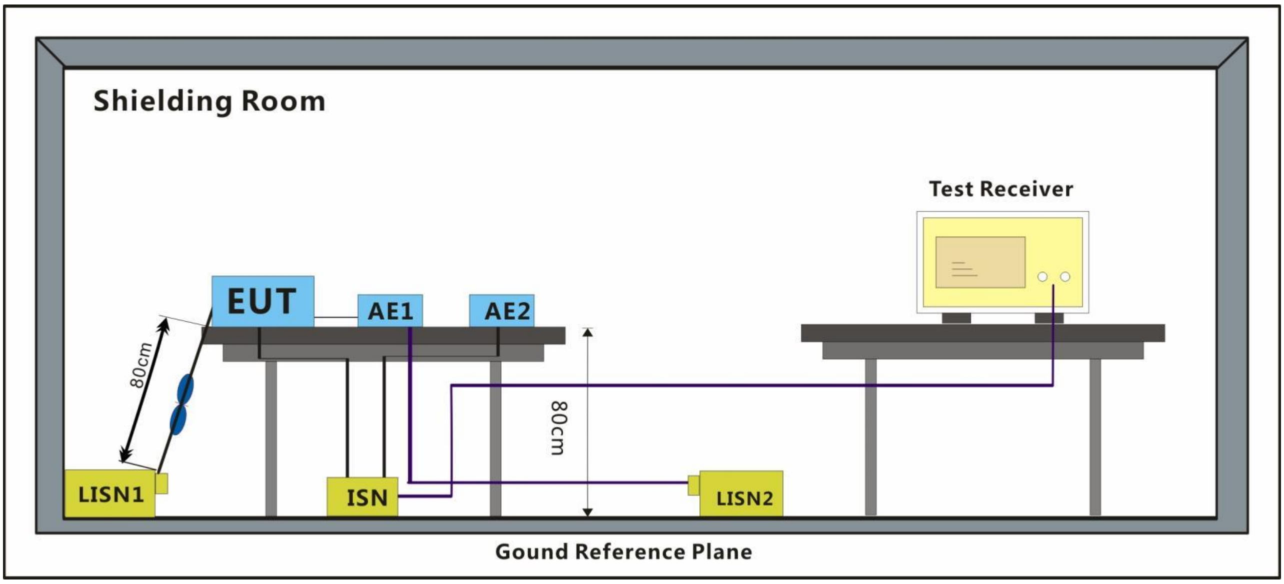
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode c: Wireless mode_The EUT(CS-A3) is connected with the wireless router through WiFi, and connected with the Open/Close Sensor, PIR Sensor through ZigBee signal. And use the mobile phone connected with the router to observe the status information.

6.2.2 Test Setup Diagram



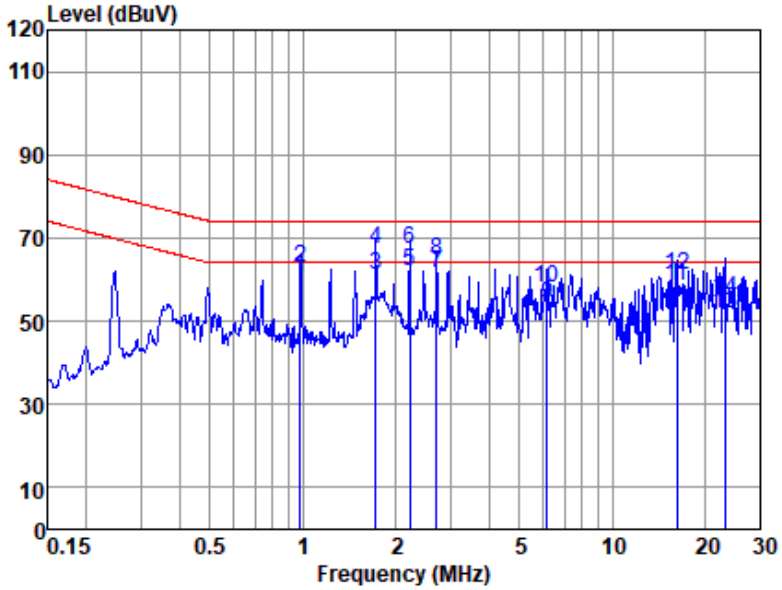
6.2.3 Measurement Data

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.

1.Result (dBuV) = Reading(dBuV) + Correction Factor (dB)

2.Correction Factor (dB)=ISN Factor (dB)+Cable Loss (dB)

Mode:c



LISN : LAN
EUT/Project No : 0839AT
Test Mode : c

	Freq (MHz)	Read level (dBuV)	ISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.98	41.37	9.60	9.90	60.87	64.00	-3.13	Average
2	0.98	43.47	9.60	9.90	62.97	74.00	-11.03	QP
3	1.73	41.50	9.60	9.93	61.03	64.00	-2.97	Average
4	1.73	47.84	9.60	9.93	67.37	74.00	-6.63	QP
5	2.21	42.40	9.60	9.95	61.95	64.00	-2.05	Average
6	2.21	47.66	9.60	9.95	67.21	74.00	-6.79	QP
7	2.71	41.90	9.60	9.97	61.47	64.00	-2.53	Average
8	2.71	44.99	9.60	9.97	64.56	74.00	-9.44	QP
9	6.15	34.66	9.50	10.05	54.21	64.00	-9.79	Average
10	6.15	38.63	9.50	10.05	58.18	74.00	-15.82	QP
11	16.23	38.67	9.53	10.15	58.35	64.00	-5.65	Average
12	16.23	41.31	9.53	10.15	60.99	74.00	-13.01	QP
13	23.12	31.95	9.60	10.19	51.74	64.00	-12.26	Average
14	23.12	35.54	9.60	10.19	55.33	74.00	-18.67	QP

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6.3 Radiated Emissions (30MHz-1GHz)

Test Requirement: EN 301 489-1 V2.2.3
EN 301 489-17 V3.2.4

Test Method: EN 55032: 2015+A11:2020+A1:2020

Limit:

Test Distance:	3m
30MHz-230MHz	40 dB(μV/m) quasi-peak
230MHz-1GHz	47 dB(μV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

6.3.1 E.U.T. Operation

Operating Environment:

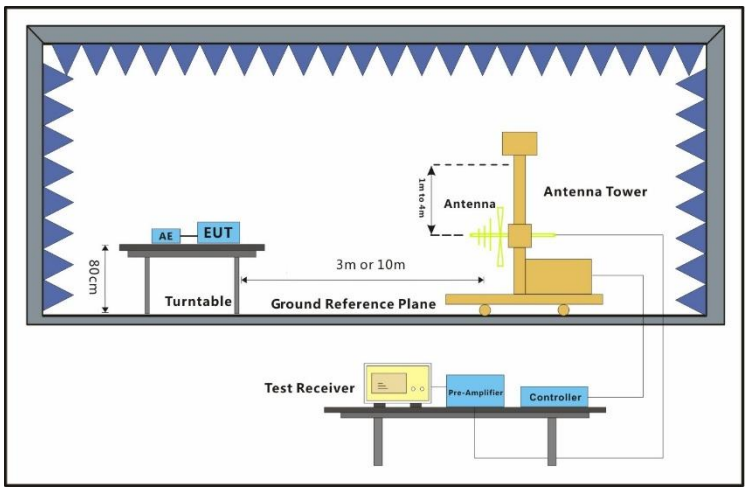
Temperature: 18.4 °C Humidity: 32.5 % RH Atmospheric Pressure: 1010 mbar

Test mode a:Working mode_ Keep EUT (CS-DL01 (ZB)) working and.established communication with Gateway and CS-DL01P-BT.

b:Working mode_ Keep EUT (CS-DL01P-BT) working and established communication with CS-DL01 (ZB).

c: Wireless mode_The EUT(CS-A3) is connected with the wireless router through WiFi, and connected with the Open/Close Sensor, PIR Sensor through ZigBee signal. And use the mobile phone connected with the router to observe the status information.

6.3.2 Test Setup Diagram



6.3.3 Measurement Procedure and Data

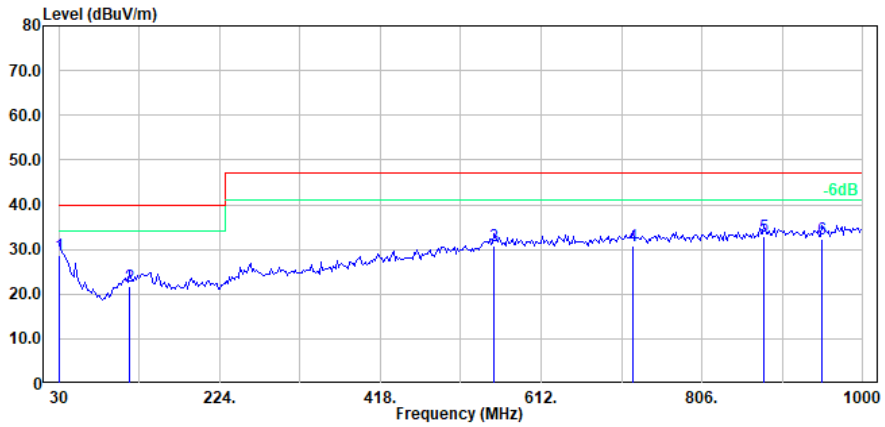
Frequency range: 30MHz-1GHz

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.

The red line show in graphic is the limit in standard used in this section.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Mode: a; Polarity: Horizontal



Site :Chamber
Antenna Polarity :Horizontal
EUT/Project :0839AT
Test mode :a

No.	Freq (MHz)	Read level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level (dBuv/m)	Limit (dBuv/m)	Over Limit (dB)	Remark
1	30.000	3.50	25.04	0.21	28.75	40.00	-11.25	QP
2	115.360	2.77	18.19	0.88	21.84	40.00	-18.16	QP
3	555.740	3.61	25.02	2.21	30.84	47.00	-16.16	QP
4	722.580	2.76	25.52	2.43	30.71	47.00	-16.29	QP
5	881.660	3.52	27.07	2.33	32.92	47.00	-14.08	QP
6	951.500	2.97	26.81	2.62	32.40	47.00	-14.60	QP

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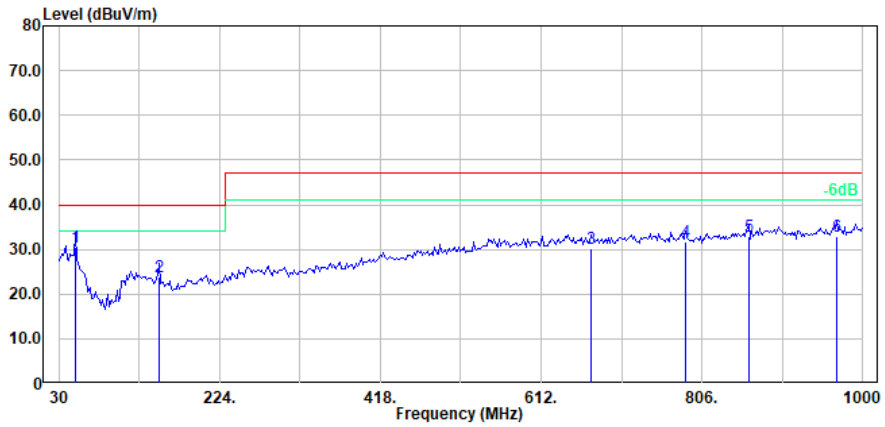
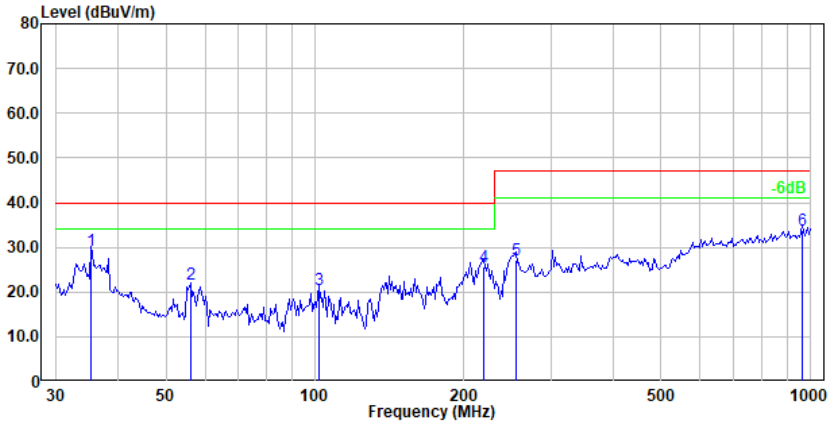
Mode: a; Polarity: Vertical



Site :Chamber
Antenna Polarity :Vertical
EUT/Project :0839AT
Test mode :a

No.	Freq (MHz)	Read level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level (dBuv/m)	Limit (dBuv/m)	Over Limit (dB)	Remark
1	49.400	12.47	17.65	0.33	30.45	40.00	-9.55	QP
2	150.280	6.10	16.71	1.12	23.93	40.00	-16.07	QP
3	672.140	2.74	25.02	2.42	30.18	47.00	-16.82	QP
4	786.600	3.66	25.90	2.28	31.84	47.00	-15.16	QP
5	862.260	3.86	26.88	2.21	32.95	47.00	-14.05	QP
6	968.960	3.08	27.16	2.52	32.76	47.00	-14.24	QP

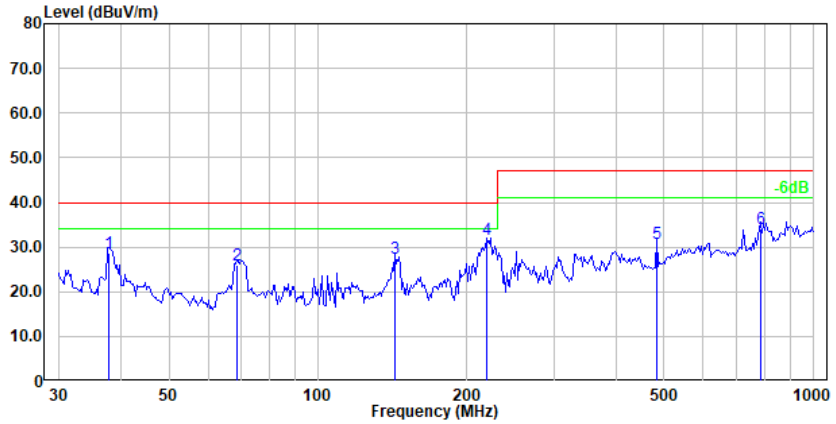
Mode:b; Polarization:Horizontal



Site :Chamber
Antenna Polarity :Horizontal
EUT/Project :0839AT
Test mode :b

No.	Freq (MHz)	Read level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level (dBuv/m)	Limit (dBuv/m)	Over Limit (dB)	Remark
1	35.25	4.65	24.19	0.31	29.15	40.00	-10.85	QP
2	56.00	5.87	15.23	0.56	21.66	40.00	-18.34	QP
3	101.64	3.29	16.56	0.78	20.63	40.00	-19.37	QP
4	219.84	9.06	15.48	1.17	25.71	40.00	-14.29	QP
5	254.73	6.98	18.93	1.25	27.16	47.00	-19.84	QP
6	965.54	4.11	27.02	2.54	33.67	47.00	-13.33	QP

Mode:b; Polarization:Vertical



Site :Chamber
Antenna Polarity :Vertical
EUT/Project :0839AT
Test mode :b

No.	Freq (MHz)	Read level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level (dBuv/m)	Limit (dBuv/m)	Over Limit (dB)	Remark
1	37.81	5.58	22.85	0.36	28.79	40.00	-11.21	QP
2	68.63	10.24	14.93	0.65	25.82	40.00	-14.18	QP
3	143.33	9.38	17.13	1.07	27.58	40.00	-12.42	QP
4	219.84	15.12	15.48	1.17	31.77	40.00	-8.23	QP
5	482.22	5.42	23.22	2.02	30.66	47.00	-16.34	QP
6	782.35	6.01	25.89	2.29	34.19	47.00	-12.81	QP

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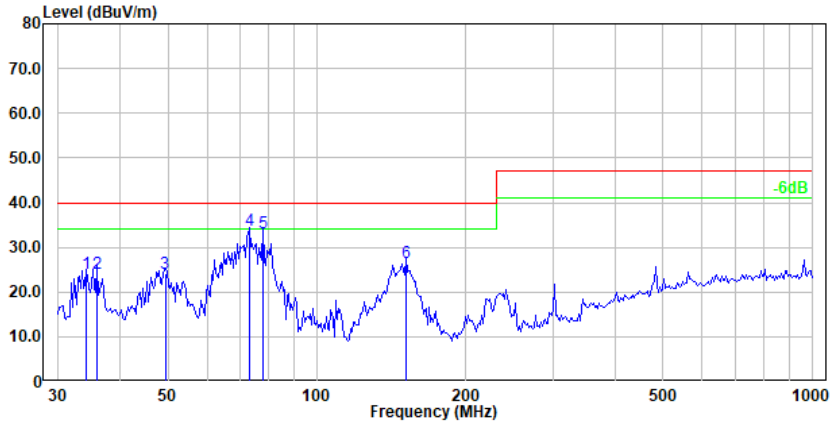
Mode:c; Polarization:Horizontal



Site :Chamber
Antenna Polarity :Horizontal
EUT/Project :0839AT
Test mode :c

No.	Freq (MHz)	Read level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level (dBuv/m)	Limit (dBuv/m)	Over Limit (dB)	Remark
1	34.28	-0.72	24.54	0.29	24.11	40.00	-15.89	QP
2	36.00	0.07	23.77	0.32	24.16	40.00	-15.84	QP
3	49.36	6.07	17.67	0.33	24.07	40.00	-15.93	QP
4	73.10	18.39	14.76	0.71	33.86	40.00	-6.14	QP
5	77.87	18.88	13.60	0.81	33.29	40.00	-6.71	QP
6	151.60	8.79	16.67	1.12	26.58	40.00	-13.42	QP

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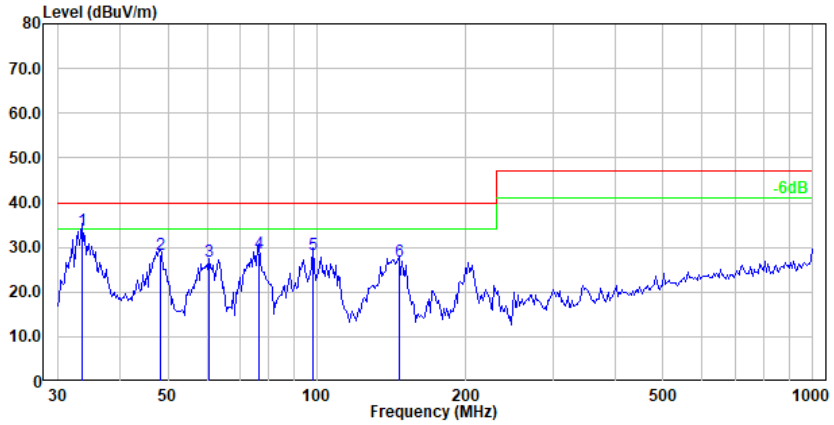
Mode:c; Polarization:Vertical



Site :Chamber
Antenna Polarity :Vertical
EUT/Project :0839AT
Test mode :c

No.	Freq (MHz)	Read level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level (dBuv/m)	Limit (dBuv/m)	Over Limit (dB)	Remark
1	33.56	8.76	24.68	0.28	33.72	40.00	-6.28	QP
2	48.33	9.88	18.10	0.34	28.32	40.00	-11.68	QP
3	60.49	11.97	14.13	0.71	26.81	40.00	-13.19	QP
4	76.24	14.03	13.97	0.77	28.77	40.00	-11.23	QP
5	98.14	11.77	15.98	0.74	28.49	40.00	-11.51	QP
6	146.37	8.86	16.89	1.09	26.84	40.00	-13.16	QP

6.4 Radiated Emissions (Above 1GHz)

Test Requirement: EN 301 489-1 V2.2.3
EN 301 489-17 V3.2.4
Test Method: EN 55032: 2015+A11:2020+A1:2020
Measurement Distance: 3m

Limit:

Frequency Range	Radiated emissions limit(dBμV/m)	
	Peak	Average
1GHz-6GHz	74	54
Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to 6000MHz		

6.4.1 E.U.T. Operation

Operating Environment:

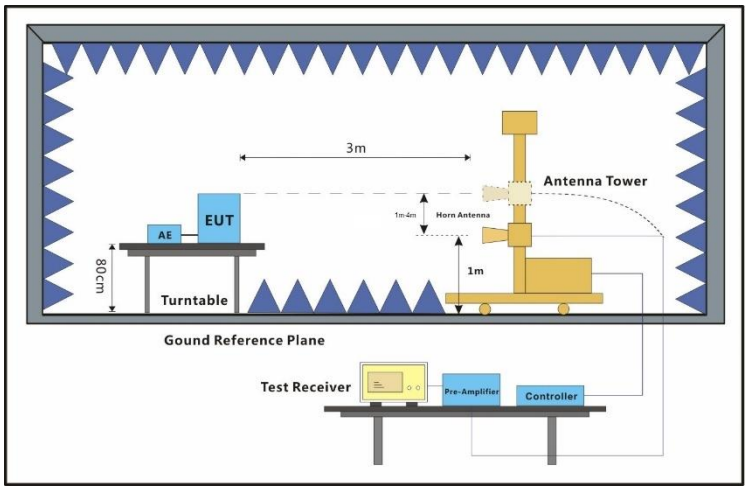
Temperature: 25 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode a:Working mode_ Keep EUT (CS-DL01 (ZB)) working and.established communication with Gateway and CS-DL01P-BT.

b:Working mode_ Keep EUT (CS-DL01P-BT) working and established communication with CS-DL01 (ZB).

c: Wireless mode_The EUT(CS-A3) is connected with the wireless router through WiFi, and connected with the Open/Close Sensor, PIR Sensor through ZigBee signal. And use the mobile phone connected with the router to observe the status information.

6.4.2 Test Setup Diagram



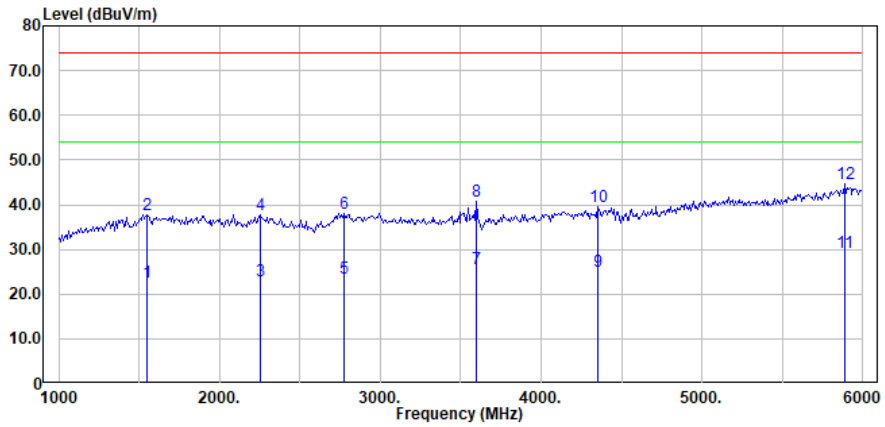
6.4.3 Measurement Procedure and Data

Frequency range: Above 1GHz

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.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

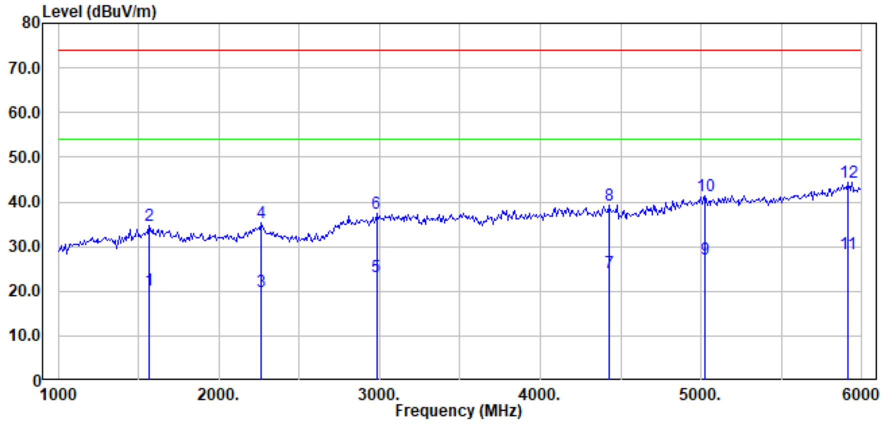
Mode: a; Polarity: Horizontal



Site :Chamber
Antenna Polarity :Horizontal
EUT/Project :0839AT
Test mode :a

No.	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	1544.872	43.23	25.12	5.11	50.93	22.53	54.00	-31.47	Average
2	1544.872	58.32	25.12	5.11	50.93	37.62	74.00	-36.38	Peak
3	2250.000	41.36	26.29	6.33	51.15	22.83	54.00	-31.17	Average
4	2250.000	56.34	26.29	6.33	51.15	37.81	74.00	-36.19	Peak
5	2770.833	40.05	27.69	6.92	51.05	23.61	54.00	-30.39	Average
6	2770.833	54.41	27.69	6.92	51.05	37.97	74.00	-36.03	Peak
7	3596.154	40.34	28.36	7.71	50.82	25.59	54.00	-28.41	Average
8	3596.154	55.60	28.36	7.71	50.82	40.85	74.00	-33.15	Peak
9	4349.359	37.57	30.00	8.40	50.80	25.17	54.00	-28.83	Average
10	4349.359	52.04	30.00	8.40	50.80	39.64	74.00	-34.36	Peak
11	5887.820	36.59	32.35	11.36	50.91	29.39	54.00	-24.61	Average
12	5887.820	51.82	32.35	11.36	50.91	44.62	74.00	-29.38	Peak

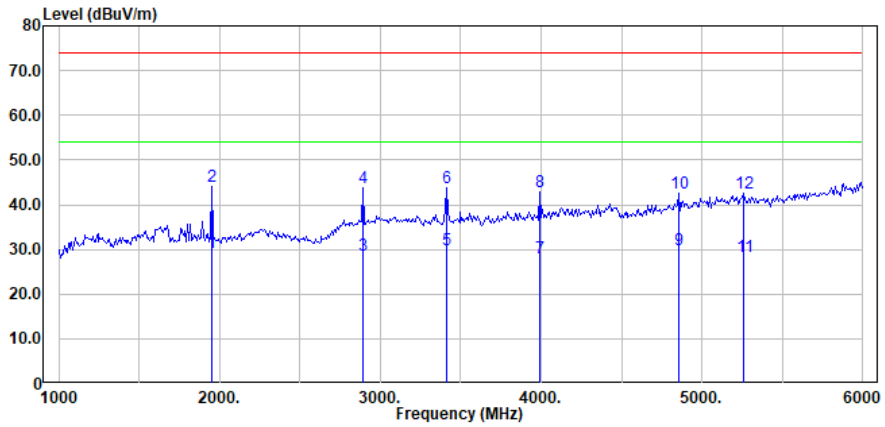
Mode: a; Polarity: Vertical



Site :Chamber
Antenna Polarity :Vertical
EUT/Project :0839AT
Test mode :a

No.	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	1560.897	40.89	25.13	5.14	50.94	20.22	54.00	-33.78	Average
2	1560.897	55.31	25.13	5.14	50.94	34.64	74.00	-39.36	Peak
3	2258.013	38.49	26.32	6.34	51.15	20.00	54.00	-34.00	Average
4	2258.013	53.69	26.32	6.34	51.15	35.20	74.00	-38.80	Peak
5	2979.167	38.92	28.07	7.15	51.00	23.14	54.00	-30.86	Average
6	2979.167	53.19	28.07	7.15	51.00	37.41	74.00	-36.59	Peak
7	4429.487	36.48	30.18	8.47	50.83	24.30	54.00	-29.70	Average
8	4429.487	51.45	30.18	8.47	50.83	39.27	74.00	-34.73	Peak
9	5022.436	37.68	31.49	9.07	51.00	27.24	54.00	-26.76	Average
10	5022.436	51.94	31.49	9.07	51.00	41.50	74.00	-32.50	Peak
11	5911.859	35.48	32.39	11.42	50.91	28.38	54.00	-25.62	Average
12	5911.859	51.58	32.39	11.42	50.91	44.48	74.00	-29.52	Peak

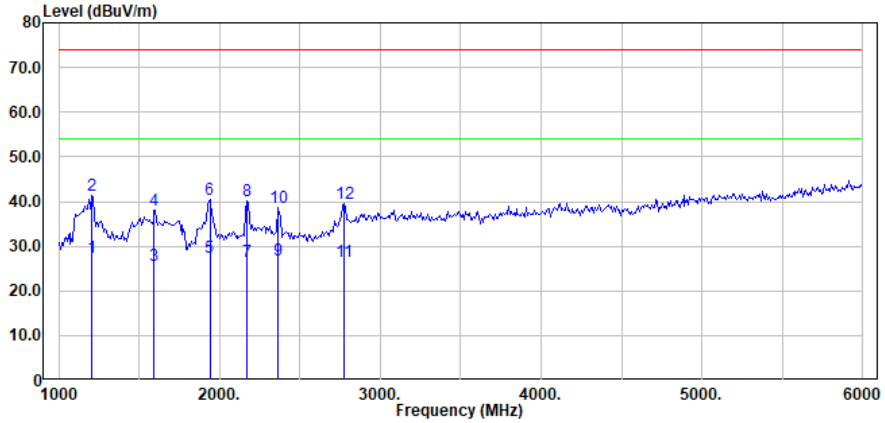
Mode:b; Polarization:Horizontal



Site :Chamber
Antenna Polarity :Horizontal
EUT/Project :0839AT
Test mode :b

No.	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	
	1953.53	49.03	25.35	5.96	51.17	29.17	54.00	-24.83	Average
	1953.53	63.90	25.35	5.96	51.17	44.04	74.00	-29.96	Peak
	2891.03	44.62	27.91	7.05	51.02	28.56	54.00	-25.44	Average
	2891.03	59.98	27.91	7.05	51.02	43.92	74.00	-30.08	Peak
	3411.86	45.02	28.15	7.54	50.88	29.83	54.00	-24.17	Average
	3411.86	58.88	28.15	7.54	50.88	43.69	74.00	-30.31	Peak
	3988.78	41.65	29.17	8.06	50.70	28.18	54.00	-25.82	Average
	3988.78	56.42	29.17	8.06	50.70	42.95	74.00	-31.05	Peak
	4854.17	40.87	31.14	8.87	50.96	29.92	54.00	-24.08	Average
	14854.17	53.51	31.14	8.87	50.96	42.56	74.00	-31.44	Peak
	15262.82	37.99	31.65	9.70	50.97	28.37	54.00	-25.63	Average
	15262.82	52.32	31.65	9.70	50.97	42.70	74.00	-31.30	Peak

Mode:b; Polarization:Vertical



Site :Chamber
Antenna Polarity :Vertical
EUT/Project :0839AT
Test mode :b

No.	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	
	1200.32	49.60	24.09	4.39	50.72	27.36	54.00	-26.64	Average
	1200.32	63.60	24.09	4.39	50.72	41.36	74.00	-32.64	Peak
	1592.95	46.38	25.15	5.21	50.96	25.78	54.00	-28.22	Average
	1592.95	58.62	25.15	5.21	50.96	38.02	74.00	-35.98	Peak
	1937.50	47.44	25.34	5.92	51.16	27.54	54.00	-26.46	Average
	1937.50	60.30	25.34	5.92	51.16	40.40	74.00	-33.60	Peak
	2169.87	45.51	26.00	6.24	51.17	26.58	54.00	-27.42	Average
	2169.87	58.96	26.00	6.24	51.17	40.03	74.00	-33.97	Peak
	2362.18	44.74	26.70	6.46	51.13	26.77	54.00	-27.23	Average
	12362.18	56.47	26.70	6.46	51.13	38.50	74.00	-35.50	Peak
	12770.83	43.00	27.69	6.92	51.05	26.56	54.00	-27.44	Average
	12770.83	55.85	27.69	6.92	51.05	39.41	74.00	-34.59	Peak

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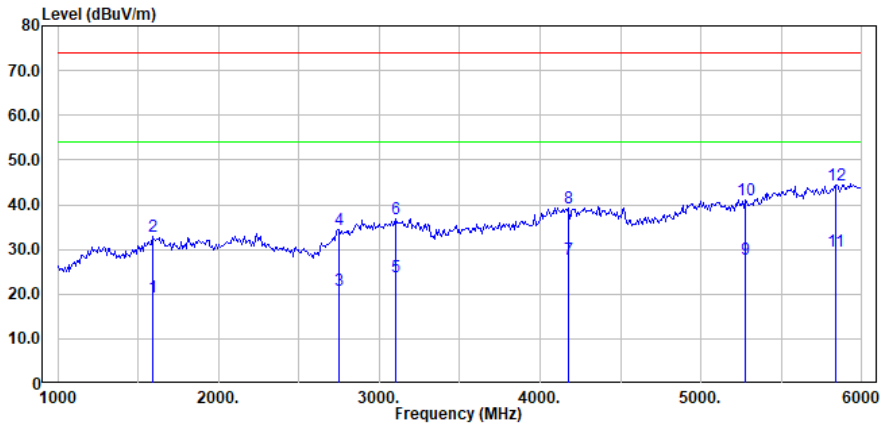
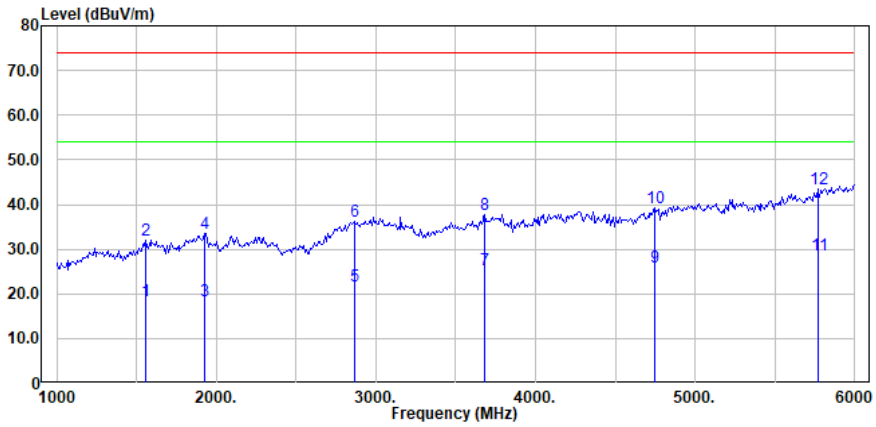
Mode:c; Polarization:Horizontal



Site :Chamber
Antenna Polarity :Horizontal
EUT/Project :0839AT
Test mode :c

No.	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	
	1592.95	40.06	25.15	5.21	50.96	19.46	54.00	-34.54	Average
	1592.95	53.49	25.15	5.21	50.96	32.89	74.00	-41.11	Peak
	2746.80	37.27	27.65	6.89	51.05	20.76	54.00	-33.24	Average
	2746.80	51.05	27.65	6.89	51.05	34.54	74.00	-39.46	Peak
	3099.36	39.52	28.11	7.27	50.97	23.93	54.00	-30.07	Average
	3099.36	52.37	28.11	7.27	50.97	36.78	74.00	-37.22	Peak
	4173.08	40.78	29.59	8.23	50.75	27.85	54.00	-26.15	Average
	4173.08	52.21	29.59	8.23	50.75	39.28	74.00	-34.72	Peak
	5278.85	37.41	31.66	9.74	50.97	27.84	54.00	-26.16	Average
	15278.85	50.55	31.66	9.74	50.97	40.98	74.00	-33.02	Peak
	15839.74	36.98	32.29	11.23	50.92	29.58	54.00	-24.42	Average
	15839.74	51.79	32.29	11.23	50.92	44.39	74.00	-29.61	Peak

Mode:c; Polarization:Vertical



Site :Chamber
Antenna Polarity :Vertical
EUT/Project :0839AT
Test mode :c

No.	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	
	1552.89	39.13	25.13	5.12	50.93	18.45	54.00	-35.55	Average
	1552.89	52.76	25.13	5.12	50.93	32.08	74.00	-41.92	Peak
	1921.47	38.32	25.33	5.89	51.15	18.39	54.00	-35.61	Average
	1921.47	53.39	25.33	5.89	51.15	33.46	74.00	-40.54	Peak
	2866.99	38.02	27.86	7.03	51.03	21.88	54.00	-32.12	Average
	2866.99	52.28	27.86	7.03	51.03	36.14	74.00	-37.86	Peak
	3684.30	39.82	28.54	7.79	50.79	25.36	54.00	-28.64	Average
	3684.30	52.27	28.54	7.79	50.79	37.81	74.00	-36.19	Peak
	4750.00	37.22	30.91	8.77	50.92	25.98	54.00	-28.02	Average
	14750.00	50.37	30.91	8.77	50.92	39.13	74.00	-34.87	Peak
	15775.64	36.34	32.20	11.06	50.92	28.68	54.00	-25.32	Average
	15775.64	51.23	32.20	11.06	50.92	43.57	74.00	-30.43	Peak

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6.5 Harmonic Current Emission

Test Requirement: EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4

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 IEC 61000-3-2:2019 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."

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6.6 Voltage Fluctuations and Flicker

Test Requirement: EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4

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

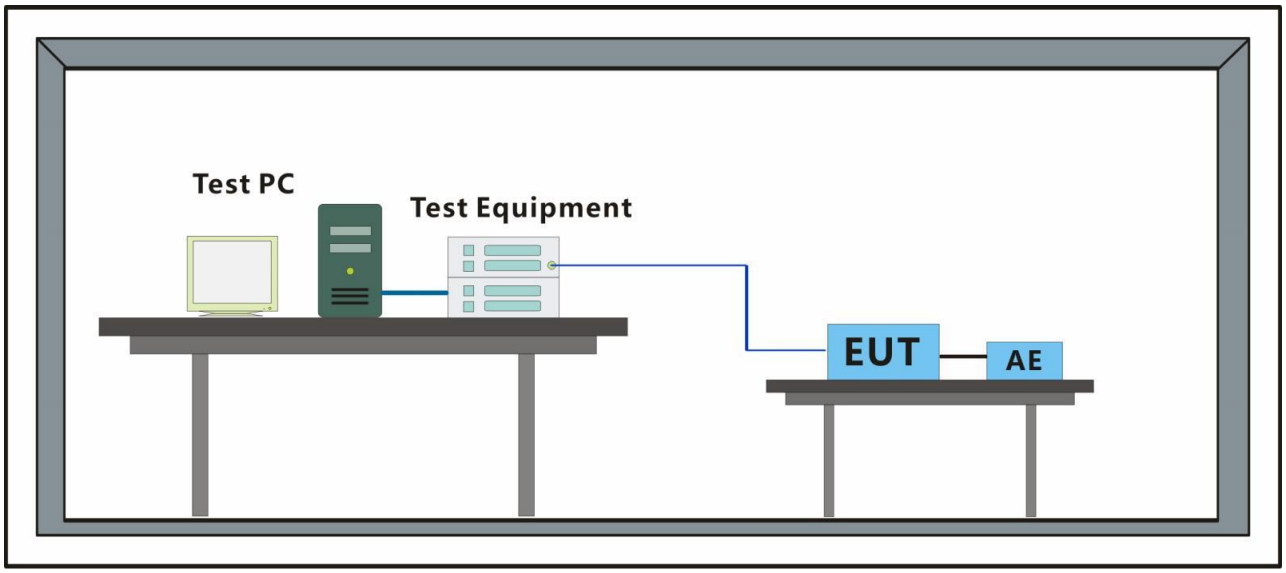
6.6.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode c: Wireless mode_The EUT(CS-A3) is connected with the wireless router through WiFi, and connected with the Open/Close Sensor, PIR Sensor through ZigBee signal. And use the mobile phone connected with the router to observe the status information.

6.6.2 Test Setup Diagram



6.6.3 Measurement Data

Mode:c

Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.25			
Highest dt (%):	0.00	Test limit (%):	N/A	N/A
T-max (mS):	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.03	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.261	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.114	Test limit:	0.650	Pass

7 Immunity Test Results

Performance Criteria Description in EN 301 489-1

Performance criteria for continuous phenomena	During the test, the equipment shall: • continue to operate as intended; • not unintentionally transmit; • not unintentionally change its operating state; • not unintentionally change critical stored data.
Performance criteria for transient phenomena	For all ports and transient phenomena with the exception described below, the following applies: • The application of the transient phenomena shall not result in a change of the mode of operation (e.g. unintended transmission) or the loss of critical stored data. • After application of the transient phenomena, the equipment shall operate as intended. For surges applied to symmetrically operated wired network ports intended to be connected directly to outdoor lines the following criteria applies: • For products with only one symmetrical port intended for connection to outdoor lines, loss of function is allowed, provided the function is self-recoverable, or can be otherwise restored. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost. • For products with more than one symmetrical port intended for connection to outdoor lines, loss of function on the port under test is allowed, provided the function is self-recoverable. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

Performance Criteria Description in EN 301 489-17

Criteria	During Test	After Test (i.e. as a result of the application of the test)
A	Shall operate as intended. (see note). Shall be no loss of function. Shall be no unintentional transmissions.	Shall operate as intended. Shall be no degradation of performance. Shall be no loss of function. Shall be no loss of critical stored data.
B	May be loss of function.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no loss of critical stored data.
C	May be loss of function.	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no loss of critical stored data.
NOTE: Operate as intended during the test allows a level of degradation in accordance with Minimum performance level.		
Minimum performance level		
For equipment that supports a PER or FER, the minimum performance level shall be a PER or FER less than or equal to 10 %.		

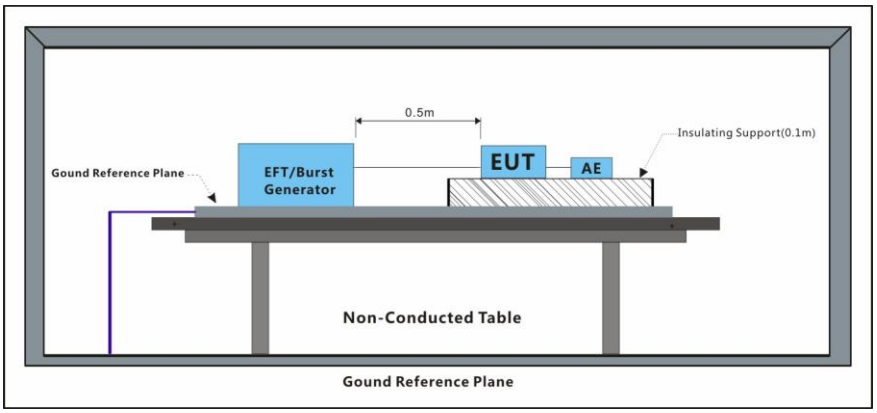
For equipment that does not support a PER or a FER, the minimum performance level shall be no loss of the wireless transmission function needed for the intended use of the equipment.

Performance criteria for Continuous phenomena
The performance criteria A shall apply. Where the EUT is a transmitter in standby mode, unintentional transmission shall not occur during the test. Where the EUT is a transceiver in receive mode, unintentional transmission shall not occur during the test.
Performance criteria for Transient phenomena
The performance criteria B shall apply, except for voltage dips greater than or equal to 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply. Where the EUT is a transmitter in standby mode, unintentional transmission shall not occur as a result of the application of the test. Where the EUT is a transceiver in receive mode, unintentional transmission shall not occur as a result of the application of the test.

7.1 Electrical Fast Transients/Burst at Power Port

Test Requirement: EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4
Test Method: EN 61000-4-4:2012
Performance Criterion: B
Repetition Frequency: 5kHz
Burst Period: 300ms

7.1.1 Test Setup Diagram



7.1.2 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode: c: Wireless mode_The EUT(CS-A3) is connected with the wireless router through WiFi, and connected with the Open/Close Sensor, PIR Sensor through ZigBee signal. And use the mobile phone connected with the router to observe the status information.

7.1.3 Test Results:

Test Line	Level (kV)	Polarity	CDN/Clamp	Result / Observations
AC power port	1	+	Direct	A
AC power port	1	-	Direct	A

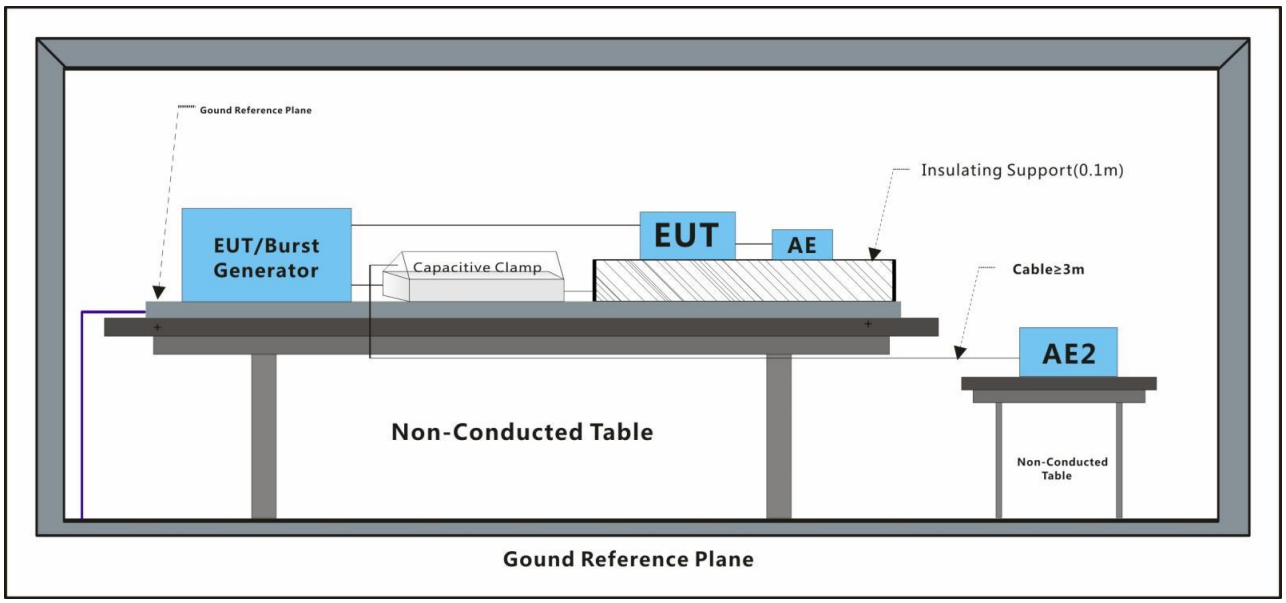
Results:

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

7.2 Electrical Fast Transients/Burst at Signal Port

Test Requirement: EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4
Test Method: EN 61000-4-4:2012
Performance Criterion: B

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:
Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar
Test mode: c: Wireless mode_The EUT(CS-A3) is connected with the wireless router through WiFi, and connected with the Open/Close Sensor, PIR Sensor through ZigBee signal. And use the mobile phone connected with the router to observe the status information.

7.2.3 Test Results:

Port	Level (kV)	Polarity	CDN/Clamp	Result / Observations
Signal port	0.5	+	Clamp	A
Signal port	0.5	-	Clamp	A

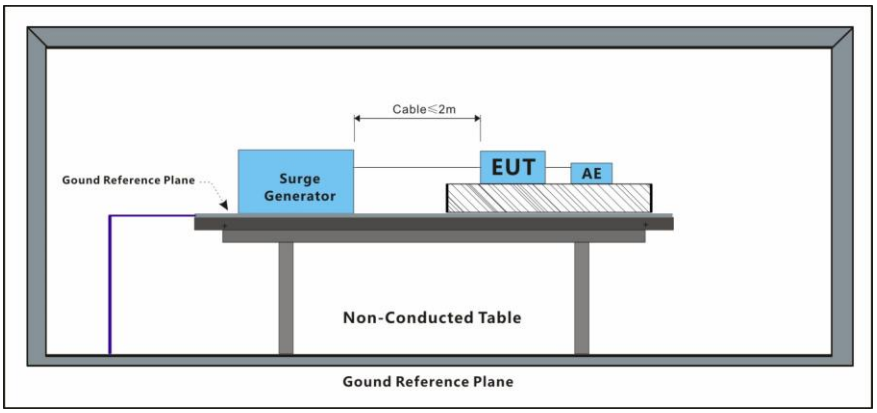
Results:

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

7.3 Surge at Power Port

Test Requirement: EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4
Test Method: EN 61000-4-5:2014 +A1:2017
Performance Criterion: B
Interval: 60s between each surge
No. of surges: 5 positive, 5 negative at 0°, 90°, 180°, 270°.

7.3.1 Test Setup Diagram



7.3.2 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode: c: Wireless mode_The EUT(CS-A3) is connected with the wireless router through WiFi, and connected with the Open/Close Sensor, PIR Sensor through ZigBee signal. And use the mobile phone connected with the router to observe the status information.

7.3.3 Test Results:

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

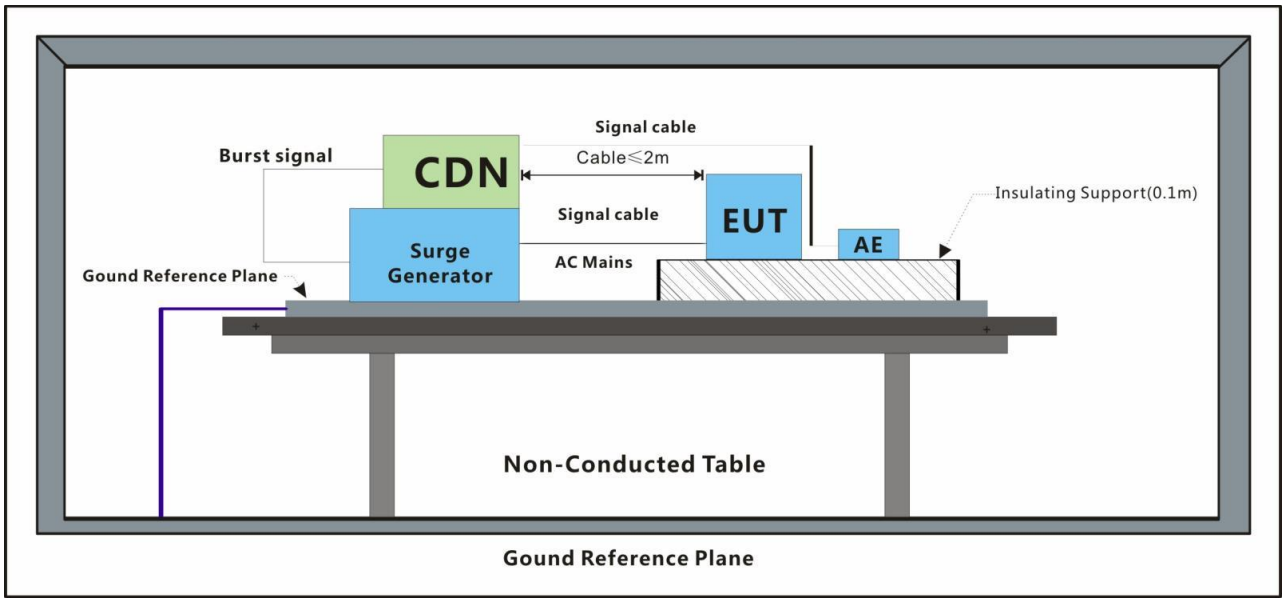
Results:

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

7.4 Surge at Signal Port

Test Requirement: EN 301 489-1 V2.2.3;EN 301 489-17 V3.2.4
Test Method: EN 61000-4-5:2014 +A1:2017
Performance Criterion: B
Interval: 60s between each surge

7.4.1 Test Setup Diagram



7.4.2 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode c: Wireless mode_The EUT(CS-A3) is connected with the wireless router through WiFi, and connected with the Open/Close Sensor, PIR Sensor through ZigBee signal. And use the mobile phone connected with the router to observe the status information.

7.4.3 Test Results:

Port	Line	Level (kV)	Polarity	Result / Observations
Signal port	Line-Ground	1	+	A
Signal port	Line-Ground	1	-	A

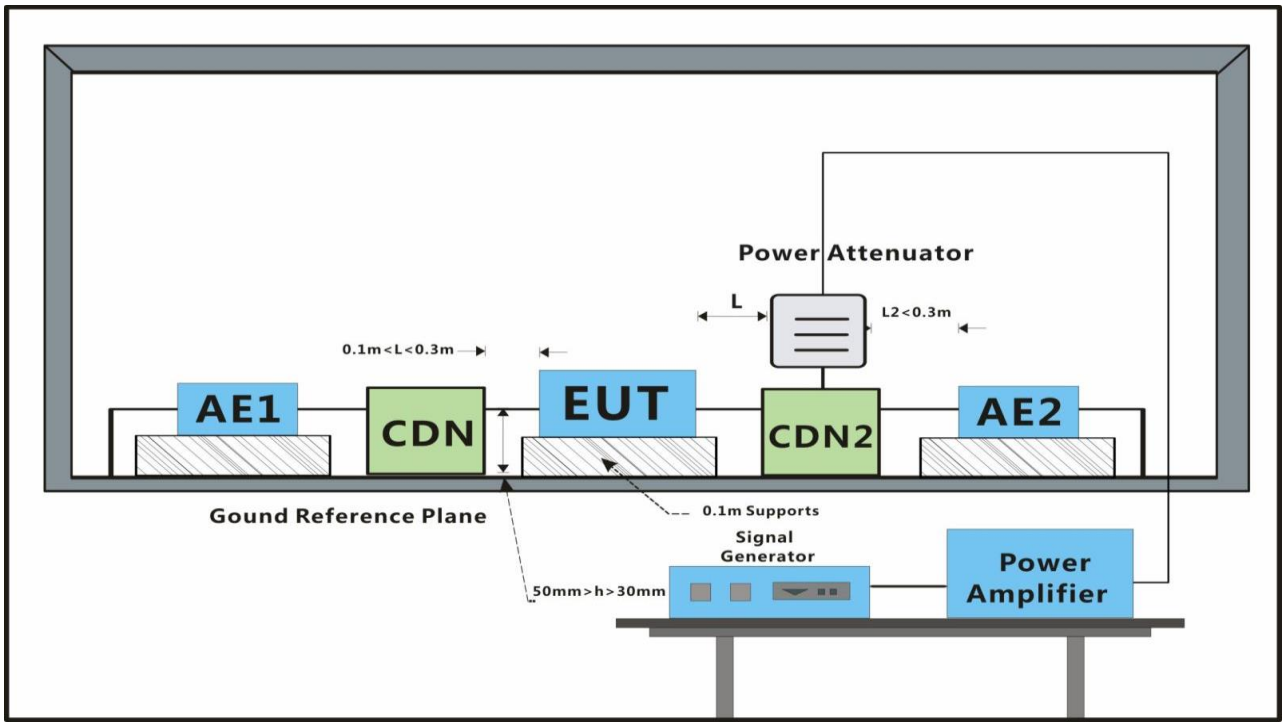
Results:

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

7.5 Conducted Immunity at Power Port (150kHz-80MHz)

Test Requirement: EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4
Test Method: EN 61000-4-6:2014
Performance Criterion: A
Frequency Range: 0.15MHz to 80MHz
Modulation: 80%, 1kHz Amplitude Modulation
Step Size 1%

7.5.1 Test Setup Diagram



7.5.2 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode: c: Wireless mode_The EUT(CS-A3) is connected with the wireless router through WiFi, and connected with the Open/Close Sensor, PIR Sensor through ZigBee signal. And use the mobile phone connected with the router to observe the status information.

7.5.3 Test Results:

Cable port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
AC power port	3	CDN	3s	A

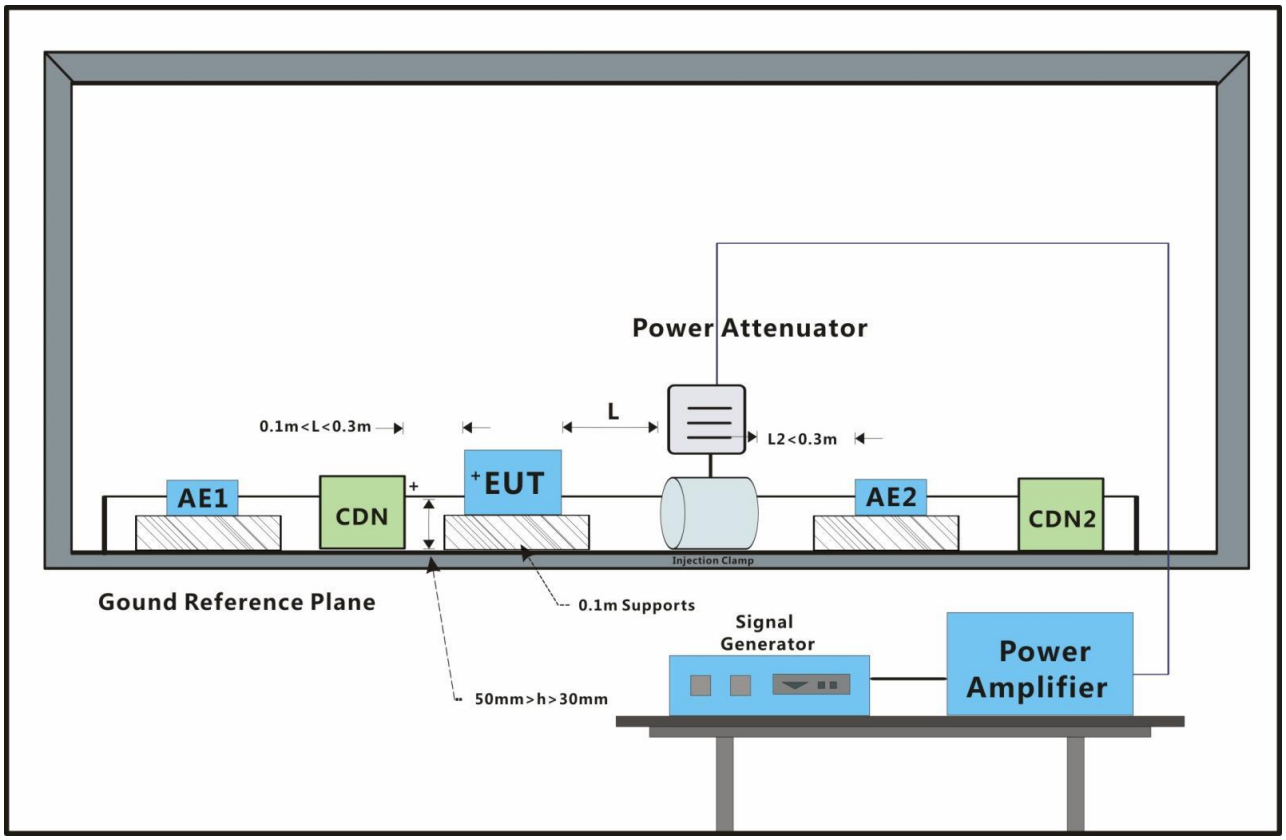
Results:

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

7.6 Conducted Immunity at Signal Port (150kHz-80MHz)

Test Requirement: EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4
Test Method: EN 61000-4-6:2014
Performance Criterion: A
Frequency Range: 0.15MHz to 80MHz
Modulation: 80%, 1kHz Amplitude Modulation
Step Size 1%

7.6.1 Test Setup Diagram



7.6.2 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode: c: Wireless mode_The EUT(CS-A3) is connected with the wireless router through WiFi, and connected with the Open/Close Sensor, PIR Sensor through ZigBee signal. And use the mobile phone connected with the router to observe the status information.

7.6.3 Test Results:

Port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
Signal port	3	Coupling	3s	A

Results:

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

7.7 Voltage Dips and Interruptions

Test Requirement: EN 301 489-1 V2.2.3; EN 301 489-17 V3.2.4

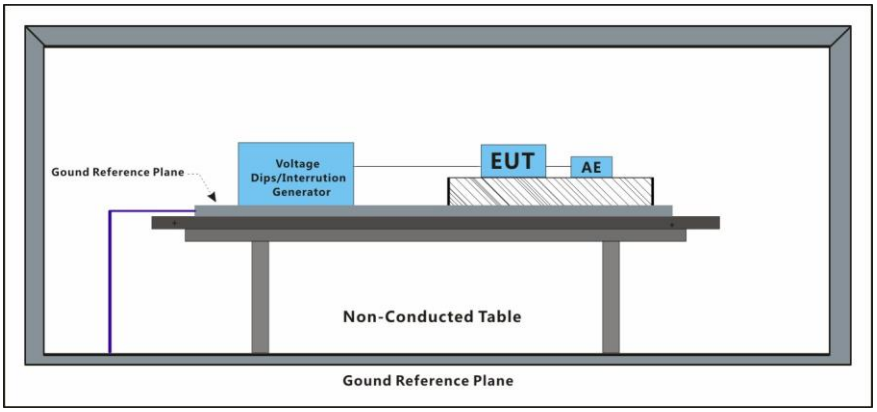
Test Method: EN 61000-4-11:2004 +A1:2017

Performance Criterion: 0% of UT (Supply Voltage) for 0.5 Periods:B; 0% of UT for 1 Periods:B; 0% of UT for 250 Periods:C; 70 % of UT for 25 Periods:C

No. of Dips / Interruptions: 3 per Level

Time between dropout 10s

7.7.1 Test Setup Diagram



7.7.2 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode: c: Wireless mode_The EUT(CS-A3) is connected with the wireless router through WiFi, and connected with the Open/Close Sensor, PIR Sensor through ZigBee signal. And use the mobile phone connected with the router to observe the status information.

7.7.3 Test Results:

Level % UT	Phase (deg)	Duration	No. of Dips / Interruptions	Result / Observations
0	0°	0.5 Cycles	3	A
0	180°	0.5 Cycles	3	A
0	0°	1 Cycles	3	A
0	180°	1 Cycles	3	A
0	0°	250 Cycles	3	C
0	180°	250 Cycles	3	C
70	0°	25 Cycles	3	A
70	180°	25 Cycles	3	A

Results:

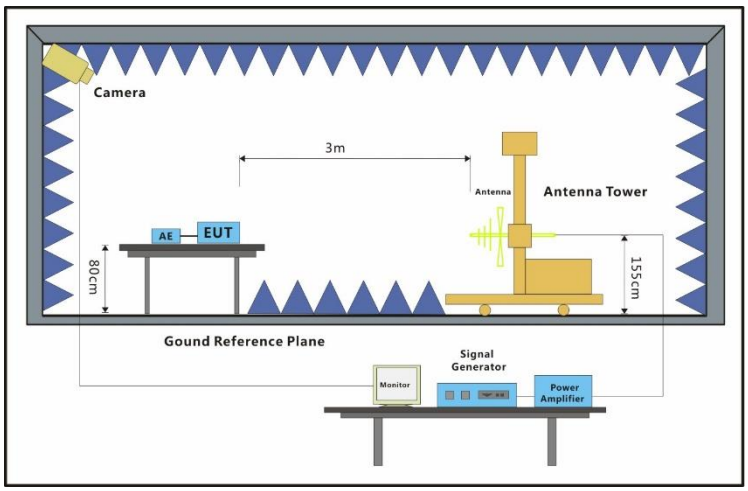
A: No degradation in the performance of the EUT was observed.

C: During the test EUT stop working when power supply drop，;After the test by manual operation can work normally.

7.8 Radiated Immunity (80MHz-6GHz)

Test Requirement: EN 301 489-1 V2.2.3
EN 301 489-17 V3.2.4
Test Method: EN IEC 61000-4-3: 2020

7.8.1 Test Setup Diagram



7.8.2 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode

a:Working mode_ Keep EUT (CS-DL01 (ZB)) working and.established communication with Gateway and CS-DL01P-BT.

b:Working mode_ Keep EUT (CS-DL01P-BT) working and established communication with CS-DL01 (ZB).

c: Wireless mode_The EUT(CS-A3) is connected with the wireless router through WiFi, and connected with the Open/Close Sensor, PIR Sensor through ZigBee signal. And use the mobile phone connected with the router to observe the status information.

7.8.3 Test Condition and Results:

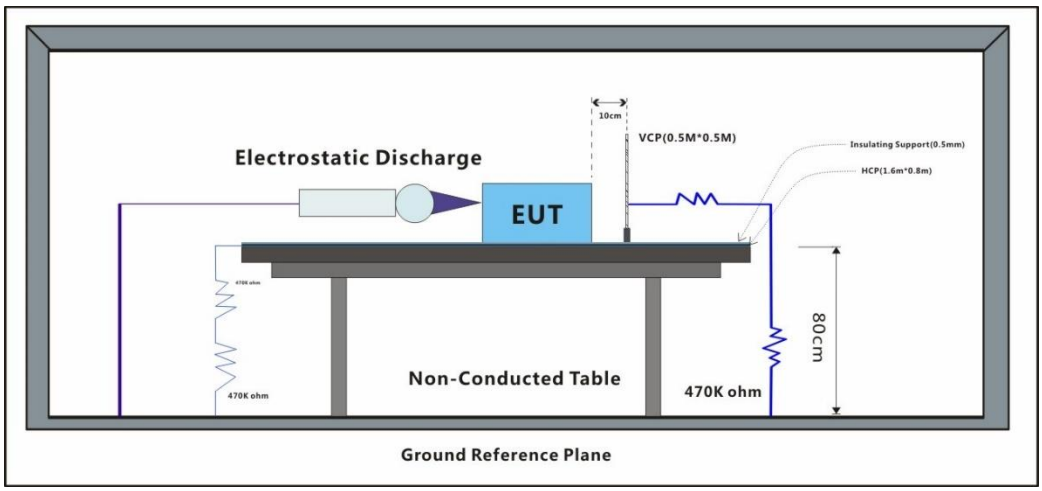
Performance Criterion: A
Frequency Range: 80MHz to 6GHz
Antenna Polarisation: Vertical and Horizontal
Modulation: 1kHz,80% Amp. Mod,1% increment

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-6GHz	3	Front	2s	A
80MHz-6GHz	3	Back	2s	A
80MHz-6GHz	3	Left	2s	A
80MHz-6GHz	3	Right	2s	A
80MHz-6GHz	3	Top	2s	A
80MHz-6GHz	3	Underside	2s	A
A: No degradation in the performance of the EUT was observed				

7.9 Electrostatic Discharge

Test Requirement: EN 301 489-1 V2.2.3
EN 301 489-17 V3.2.4
Test Method: EN 61000-4-2:2009

7.9.1 Test Setup Diagram



7.9.2 E.U.T. Operation

Operating Environment:

Temperature: 21 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode a:Working mode_ Keep EUT (CS-DL01 (ZB)) working and.established communication with Gateway and CS-DL01P-BT.

b:Working mode_ Keep EUT (CS-DL01P-BT) working and established communication with CS-DL01 (ZB).

c: Wireless mode_The EUT(CS-A3) is connected with the wireless router through WiFi, and connected with the Open/Close Sensor, PIR Sensor through ZigBee signal. And use the mobile phone connected with the router to observe the status information.

7.9.3 Test Condition and Results:

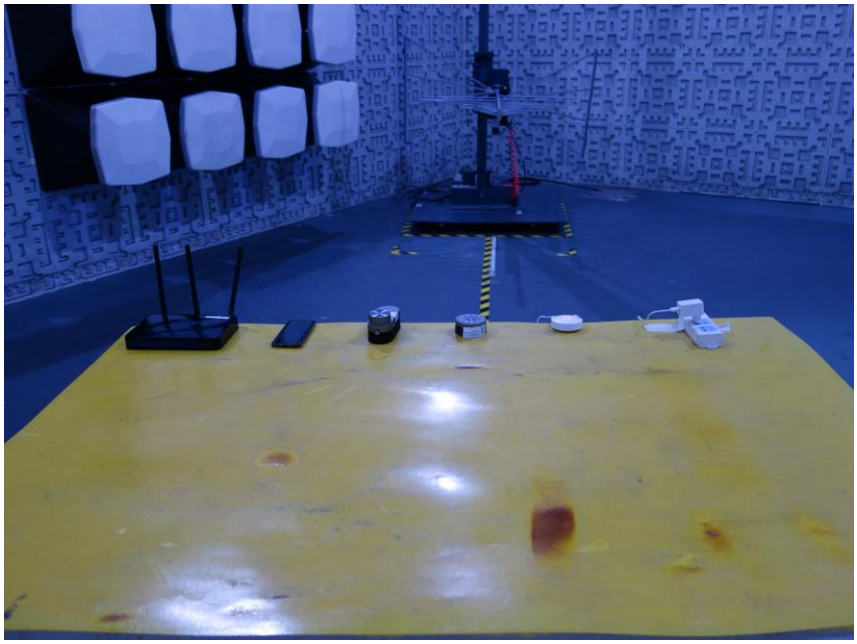
Performance Criterion: B
Discharge Impedance: 330Ω/150pF
Number of Discharge: Minimum 10 times at each test point
Discharge Mode: Single Discharge
Discharge Period: 1 second minimum
Test Point: 1. All insulated enclosure and seams.
2. All accessible metal parts of the enclosure.
3. All side

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	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A
A: No degradation in the performance of the EUT was observed				

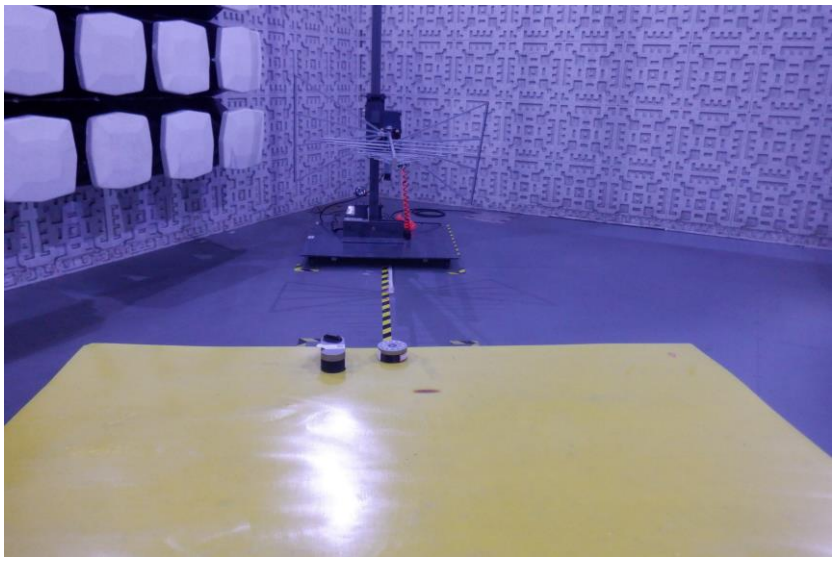
8 Test Setup Photo

Radiated Emissions (30MHz-1GHz)

Mode a



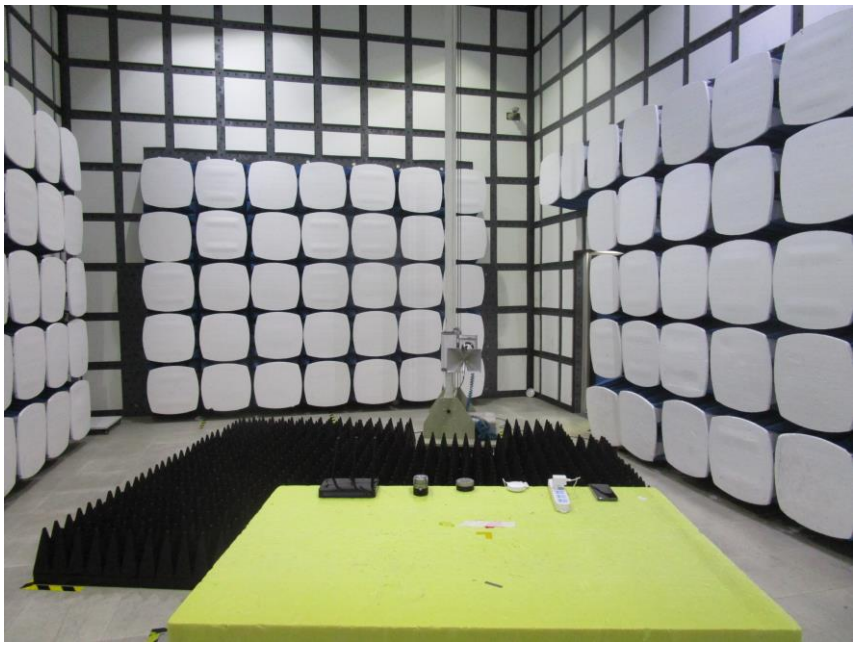
Mode b



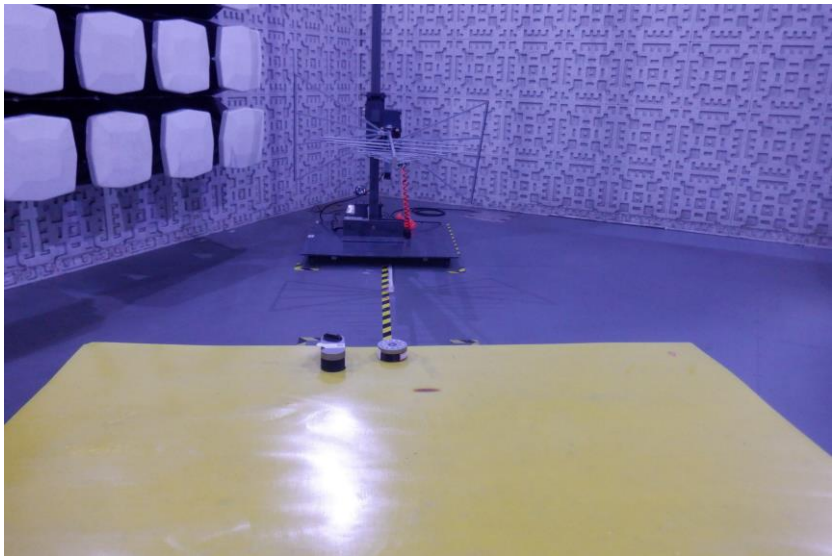
Mode c

Radiated Emissions (Above 1GHz)

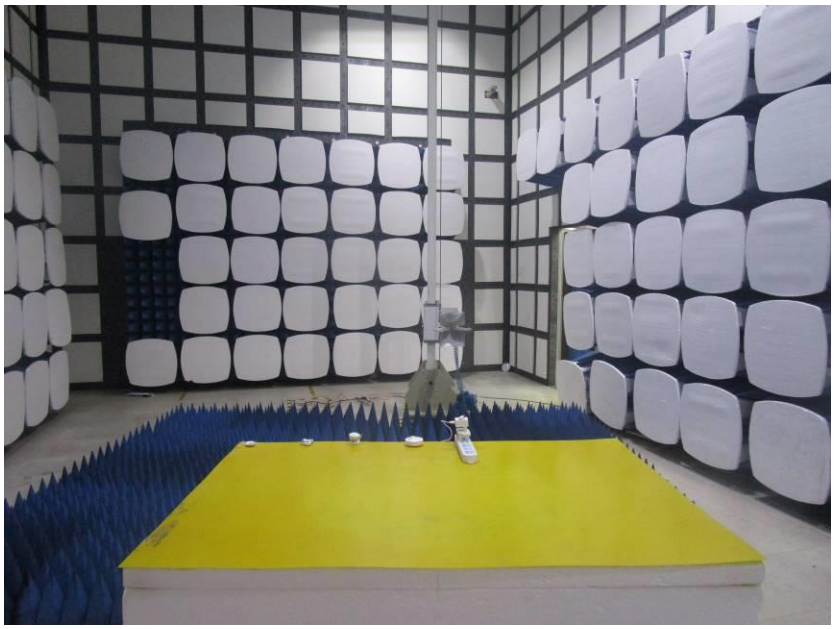
Mode a



Mode b



Mode c

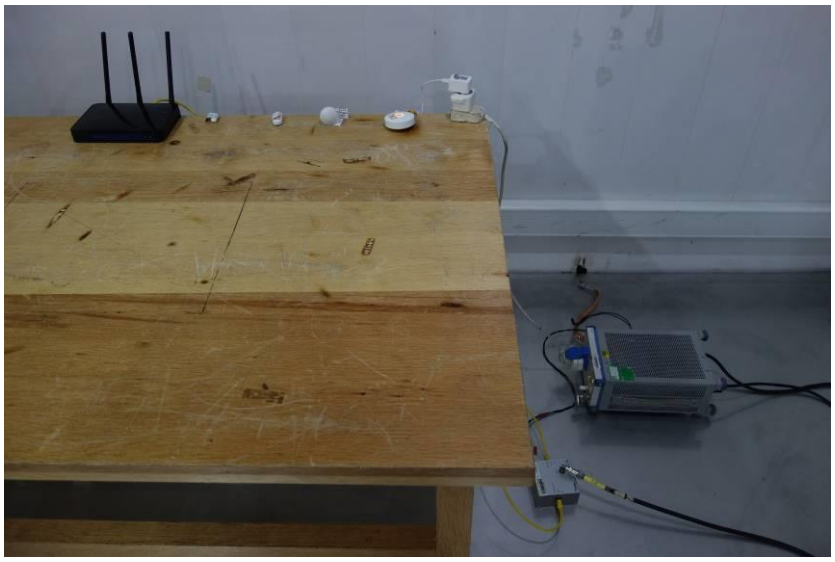


Conducted Emissions at Mains Terminals (150kHz-30MHz) Test Setup

Mode c

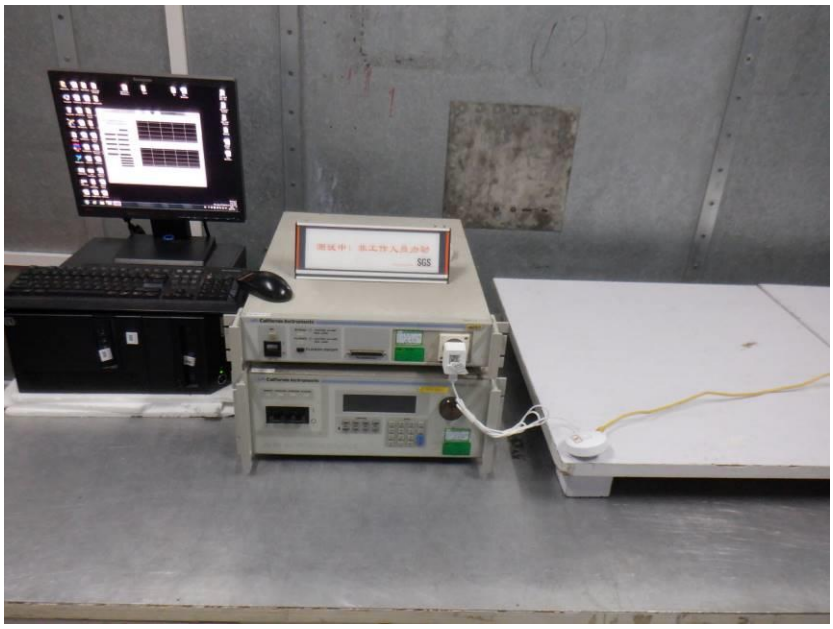
Conducted Emissions at Telecommunication Port (150kHz-30MHz) Test Setup

Mode c



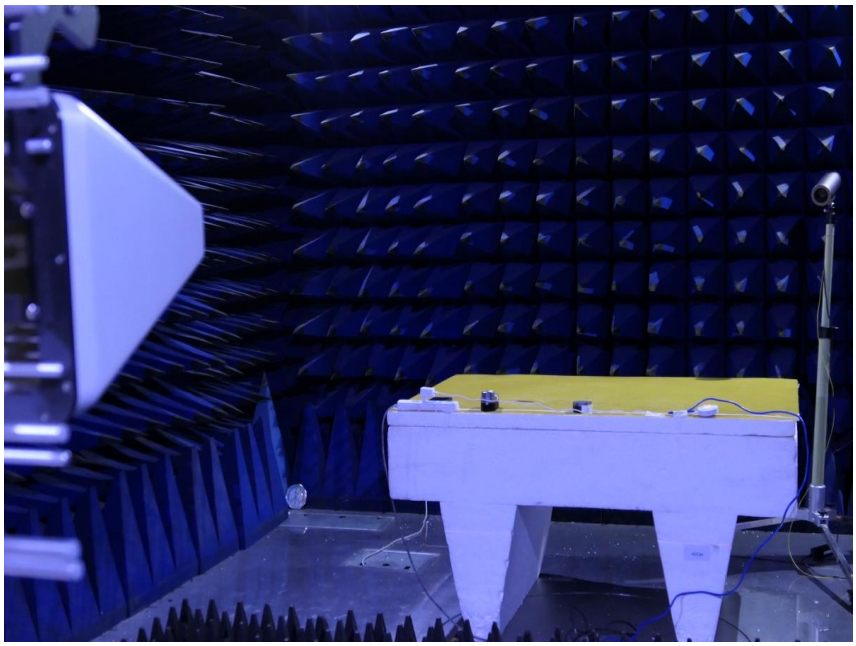
Voltage Fluctuations and Flicker Test Setup

Mode c

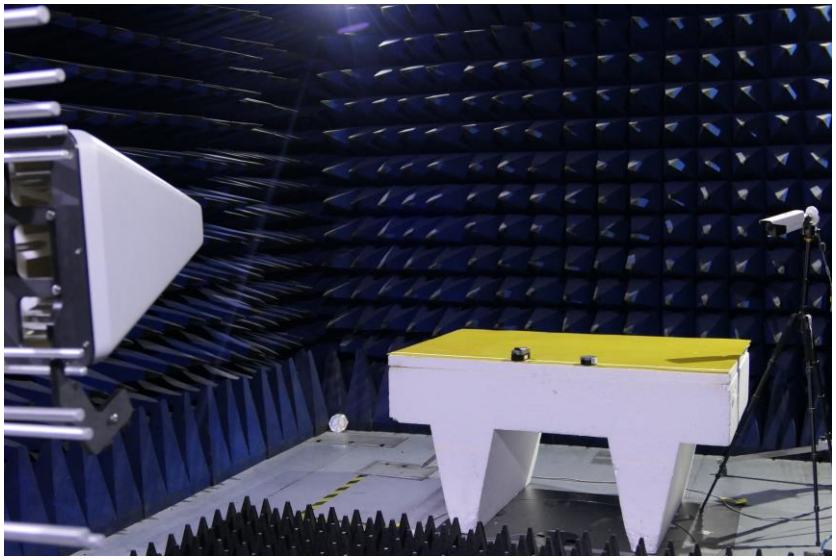


Radiated Immunity (80MHz-6GHz)

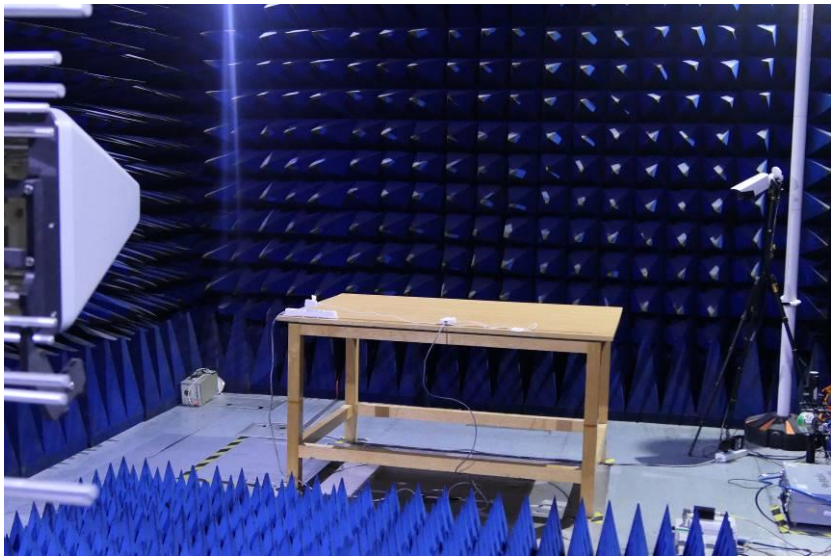
Mode a



Mode b



Mode c



Electrostatic Discharge

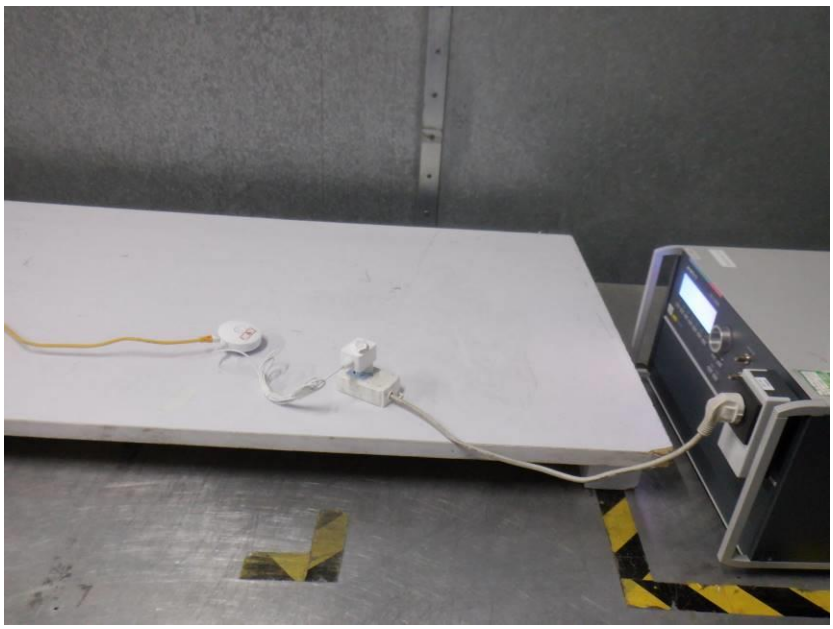
Mode a

Mode b

Mode c

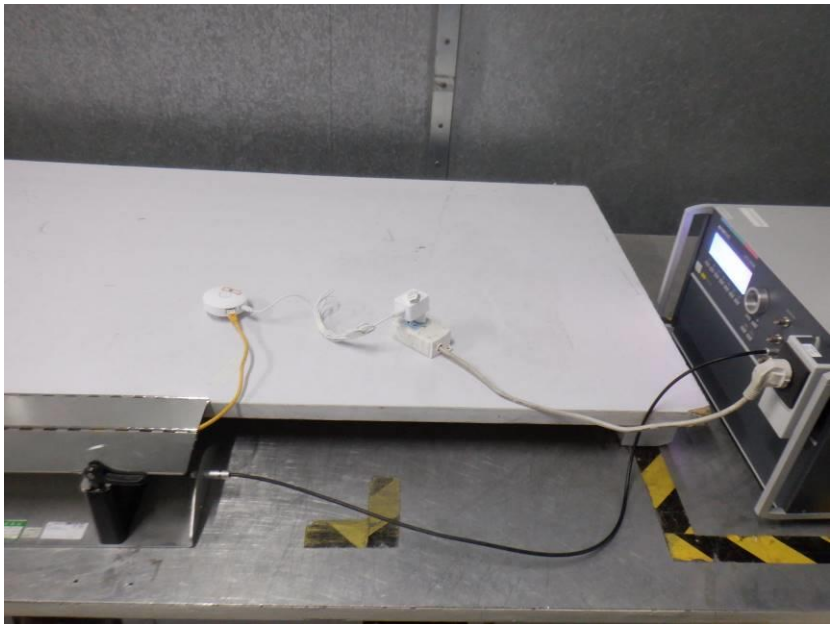
Electrical Fast Transients/Burst at Power Port Test Setup

Mode c



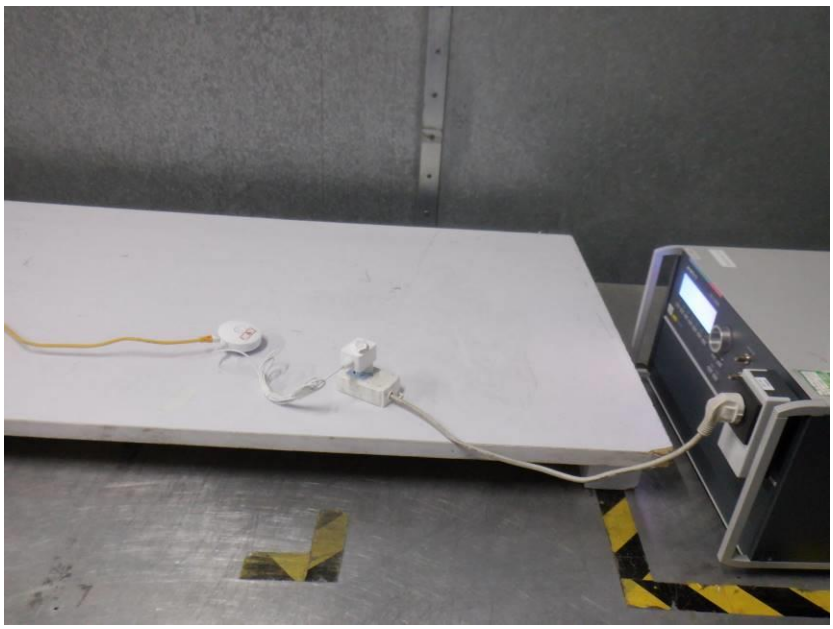
Electrical Fast Transients/Burst at Signal Port Test Setup

Mode c



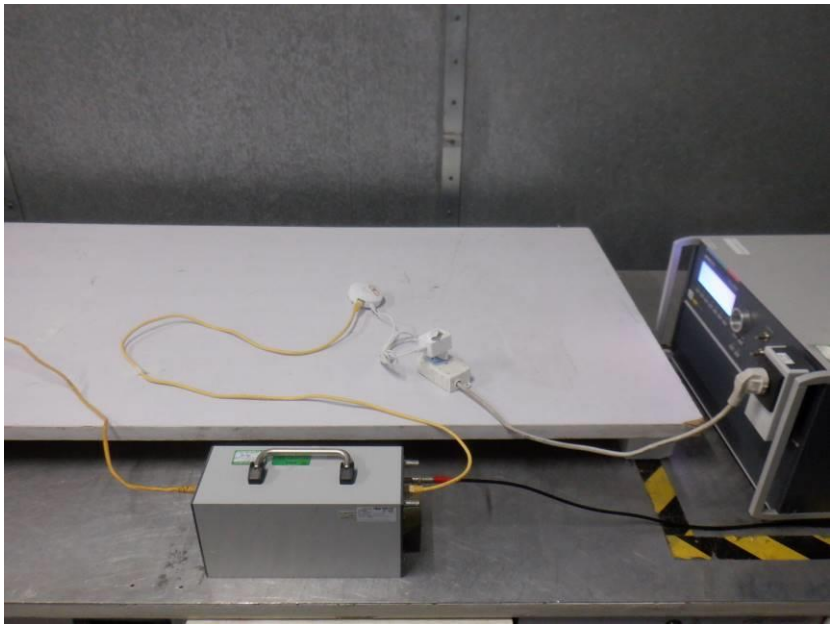
Surge at Power Port Test Setup

Mode c



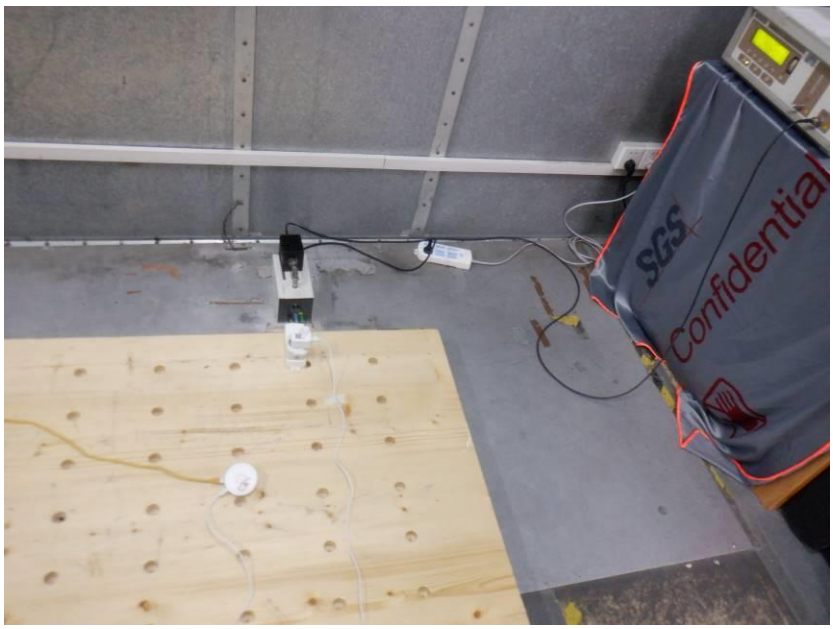
Surge at Signal Port Test Setup

Mode c



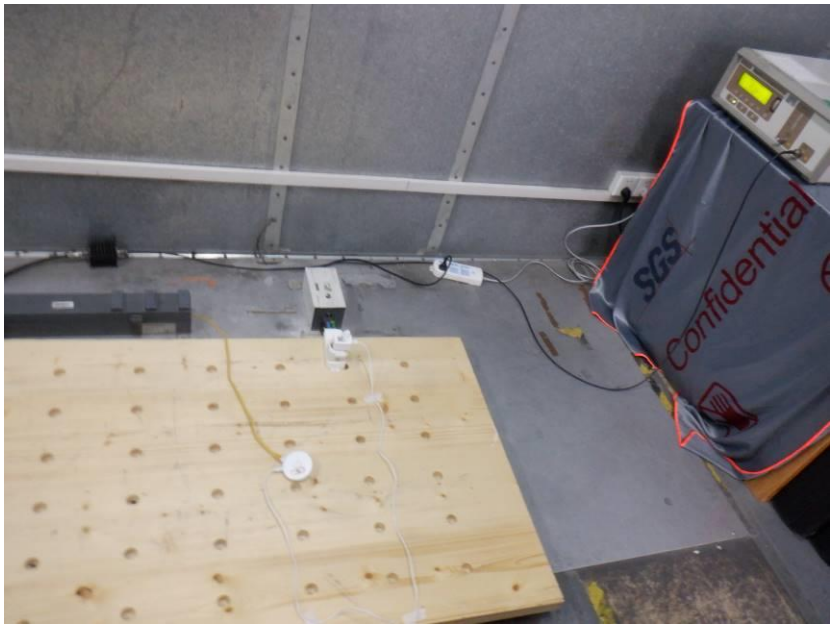
Conducted Immunity at Power Port (150kHz-80MHz) Test Setup

Mode c



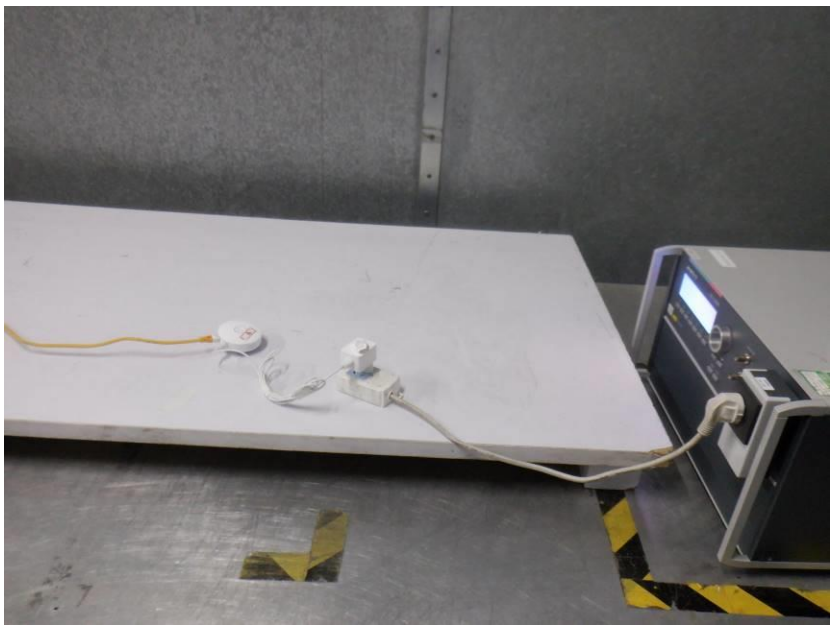
Conducted Immunity at Signal Port (150kHz-80MHz) Test Setup

Mode c



Voltage Dips and Interruptions Test Setup

Mode c



9 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for SZCR2303000839AT

- End of the Report -