TEST REPORT

Report No.	CISRR25032724302
Project No.	CISR250327243
Applicant	Echo Water LLC
Address	875 E 1950 N, Spanish Fork, UT 84660, US
Manufacturer	Echo Water LLC
Address	875 E 1950 N, Spanish Fork, UT 84660, US
Product Name	Echo Flask Hydrogen Water Bottle
Trademark	Echo
Model/Type reference	Echo Flask
Listed Model(s)	N/A
Standard	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09)
Test date	March 27, 2025 to April 2, 2025
Issue date	April 3, 2025
Test result	**Complied**

Prepared by: Rory Huang

Approved by: Genry Long

The test results relate only to the tested samples.

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Contents

1. REPORT VERSION

Version No.	Issue date	Description
00	April 3, 2025	Original

2. TEST DESCRIPTION

No.	Test Item	Standard Requirement	Result
1	Conducted emissions (AC power port)	EN 301 489-1, clause 8.4 EN 301 489-17, clause 7.1	Pass
2	Radiated emissions (30MHz-1GHz)	EN 301 489-1, clause 8.2 EN 301 489-17, clause 7.1	Pass
3	Radiated emissions (above 1GHz)	EN 301 489-1, clause 8.2 EN 301 489-17, clause 7.1	Pass
4	Harmonic current emissions	Class B	Not Applicable
5	Voltage fluctuations and flicker	EN 301 489-1, clause 8.6 EN 301 489-17, clause 7.1	Pass
6	Electrostatic discharge	EN 301 489-1, clause 9.3 EN 301 489-17, clause 7.2	Pass
7	Radio frequency electromagnetic field (80 MHz to 6 000 MHz)	EN 301 489-1, clause 9.2 EN 301 489-17, clause 7.2	Pass
8	Fast transients, common mode (AC power port)	EN 301 489-1, clause 9.4 EN 301 489-17, clause 7.2	Pass
9	Surges (AC power port)	EN 301 489-1, clause 9.8 EN 301 489-17, clause 7.2	Pass
10	Radio frequency, common mode 0,15 MHz to 80 MHz (AC power port)	EN 301 489-1, clause 9.5 EN 301 489-17, clause 7.2	Pass
11	Voltage dips and interruptions	EN 301 489-1, clause 9.7 EN 301 489-17, clause 7.2	Pass

Note:

– The measurement uncertainty is not included in the test result.

3. SUMMARY

3.1. Product Description

Main unit information:	
Product Name:	Echo Flask Hydrogen Water Bottle
Trade Mark:	Echo
Model No.:	Echo Flask
Listed Model(s):	N/A
Model difference:	Input: DC 5V
Power supply:	N/A
Hardware version:	N/A
Software version:	N/A
Accessory unit information:	
Battery information:	DC 3.7V

3.2. Modification of EUT

No modifications are made to the EUT during all test items.

3.3. Deviation from standards

None

3.4. Testing Site

Laboratory Name	Shenzhen Bangce Testing Technology Co., Ltd.
Laboratory Location	101, building 10, Yunli Intelligent Park, Shutianpu community, Matian Street, Guangming District, Shenzhen，Guangdong, China
Contact information	Tel: 86-755-2319 6848, email: service@cis-cn.net Website: http://www.cis-cn.net/

4. TEST CONFIGURATION

4.1. Descriptions of test mode

No	Test mode	Description
TM1	Bluetooth link mode	Keep the EUT in bluetooth linking mode with AE.

4.2. Environmental conditions

Type	Requirement
Temperature:	15~35°C
Relative Humidity:	30~60 %
Air Pressure:	950~1050mba

4.3. Equipment Used during the Test

Conducted emissions (AC power port)

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	Rohde&schwarz	ESCI7	100853	2025-01-08	2026-01-07
2	Artificial power network	Schwarzbeck	NSLK8127	8127-01096	2025-01-08	2026-01-07
3	8-wire Impedance Stabilization Network	Schwarzbeck	NTFM 8158	8158-00337	2025-01-08	2026-01-07
4	Artificial power network	Schwarzbeck	ENV216	/	2025-01-08	2026-01-07

Radiated emissions (30MHz-1GHz)

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	Rohde&schwarz	ESCI7	100853	2025-01-08	2026-01-07
2	Broadband antenna	schwarabeck	VULB9163	9163-1436	2023-01-08	2026-01-07
3	Amplifier	Tonscend	TAP9K3G40	AP23A8060270	2025-01-08	2026-01-07

Radiated emissions (above 1GHz)

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	Rohde&schwarz	ESCI7	100853	2025-01-08	2026-01-07
2	Horn antenna	schwarabeck	BBHA9120D	9120D-2487	2023-01-08	2026-01-07
3	Prime amplifier	Tonscend	TAP01018050	AP23A8060280	2025-01-08	2026-01-07

Voltage fluctuations and flicker

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	Harmonic scintillation Analyzer	US	CI-5000	/	2025-01-08	2026-01-07

Electrostatic discharge

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	Electrostatic Generator	ETEST	ES-ESD-20	ESD-22007	2025-01-08	2026-01-07

Radio frequency electromagnetic field (80 MHz to 6 000 MHz)

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	Power Amplifier	SKET	HAP_80M 01G-250W	202302439	2025-01-08	2026-01-07
2	Power Amplifier	SKET	20230244 0	MPA1903082	2025-01-08	2026-01-07
3	MXG RF Signal Generator	Agilent	N5181A	MY50145362	2025-01-08	2026-01-07
4	Stacked Log. Per. Broadband Antenna	Schwarzbeck	STLP 9129 Plus	SK202210120 01	2025-01-08	2026-01-07
5	Field strength probe	Schwarzbeck	EP-601	811ZX20776	2025-01-08	2026-01-07

Fast transients, common mode (AC power port)
Surges (AC power port)

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	Surge Generator	ETEST	ES-4516A	220922	2025-01-08	2026-01-07

Radio frequency, common mode 0,15 MHz to 80 MHz (AC power port)

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	Conduction Immunity Signal Generator	SKET	CITS_150 k230M-75W	202302437	2025-01-08	2026-01-07
2	Coupled decoupling network	SKET	M2/M3-16A	/	2025-01-08	2026-01-07

Voltage dips and interruptions

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	Drop generator	ETEST	ES-1113A	221122	2025-01-08	2026-01-07

5. TEST RESULTS

5.1. Evaluation Results (Evaluation)

5.1.1. Harmonic current emissions

Test Requirement:	Class B
Test Limit:	Not specified

5.1.1.1. Test Result

Not Applicable

5.2. Emission Test Results (EMI)

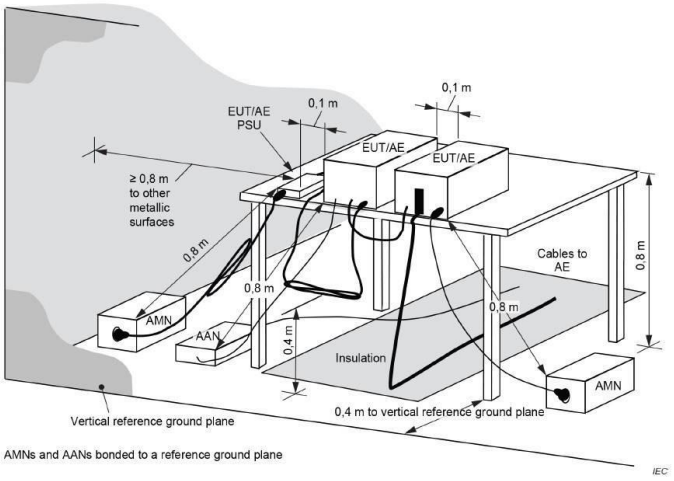
5.2.1. Conducted emissions (AC power port)

Test Requirement:	EN 301 489-1, clause 8.4 EN 301 489-17, clause 7.1
Test Limit:	Frequency Range (MHz) / Detector Type / Bandwidth / Limit (dBuV) 0.15 to 0.5 / Quasi Peak / 9 kHz / 66 to 56 0.5 to 5 / Quasi Peak / 9 kHz / 56 5 to 30 / Quasi Peak / 9 kHz / 60 0.15 to 0.5 / Average / 9 kHz / 56 to 46 0.5 to 5 / Average / 9 kHz / 46 5 to 30 / Average / 9 kHz / 50
Test Method:	EN 55032, annex A.3
Procedure:	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. Remark: Level= Read Level+ Cable Loss+ LISN Factor

5.2.1.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.1 °C	Humidity:	56.2 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

5.2.1.2. Test Setup Diagram

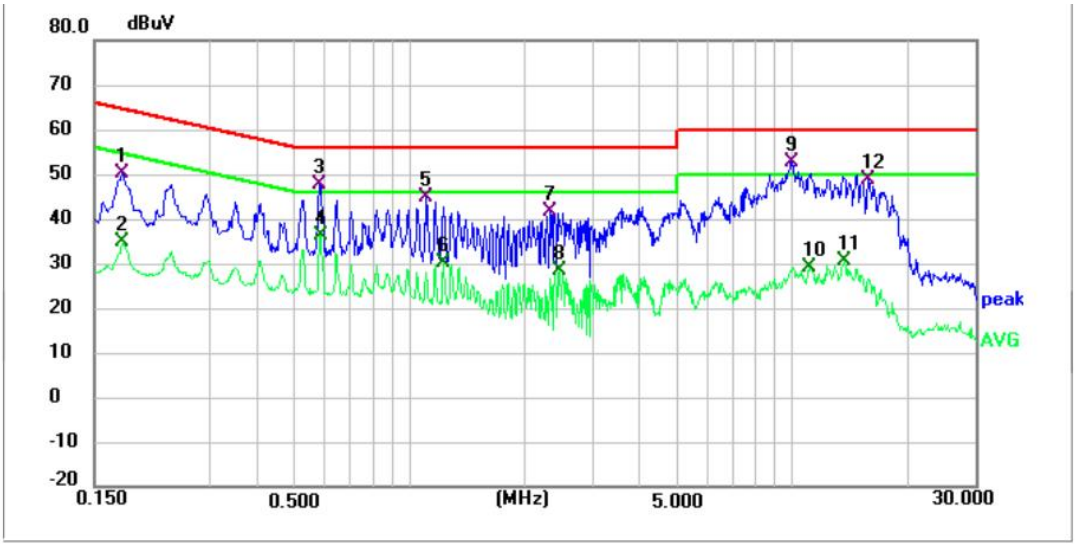


5.2.1.3. Test Result

Pass

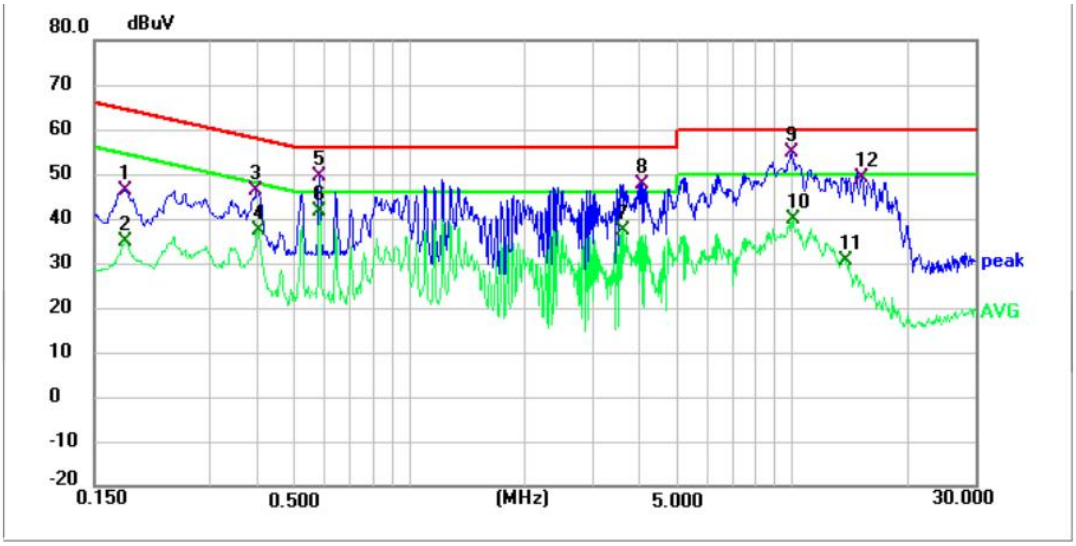
5.2.1.4. Test Data

TM1 / Line: Line



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.178	39.93	10.31	50.24	64.58	-14.34	QP
2	0.178	24.45	10.31	34.76	54.58	-19.82	AVG
3	0.582	37.36	10.39	47.75	56.00	-8.25	QP
4	0.586	25.90	10.39	36.29	46.00	-9.71	AVG
5	1.106	34.22	10.46	44.68	56.00	-11.32	QP
6	1.226	19.56	10.49	30.05	46.00	-15.95	AVG
7	2.334	30.89	10.80	41.69	56.00	-14.31	QP
8	2.462	17.49	10.83	28.32	46.00	-17.68	AVG
9 *	9.990	39.06	13.61	52.67	60.00	-7.33	QP
10	11.110	14.99	14.19	29.18	50.00	-20.82	AVG
11	13.626	14.86	15.50	30.36	50.00	-19.64	AVG
12	15.834	32.55	16.12	48.67	60.00	-11.33	QP

TM1 / Line: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.182	35.97	10.32	46.29	64.40	-18.11	QP
2	0.182	24.59	10.32	34.91	54.40	-19.49	AVG
3	0.398	36.05	10.33	46.38	57.90	-11.52	QP
4	0.402	27.08	10.34	37.42	47.81	-10.39	AVG
5	0.582	38.96	10.39	49.35	56.00	-6.65	QP
6 *	0.582	31.16	10.39	41.55	46.00	-4.45	AVG
7	3.606	26.06	11.23	37.29	46.00	-8.71	AVG
8	4.062	36.43	11.42	47.85	56.00	-8.15	QP
9	9.938	41.06	13.59	54.65	60.00	-5.35	QP
10	10.054	26.08	13.63	39.71	50.00	-10.29	AVG
11	13.770	15.39	15.19	30.58	50.00	-19.42	AVG
12	15.170	33.34	15.72	49.06	60.00	-10.94	QP

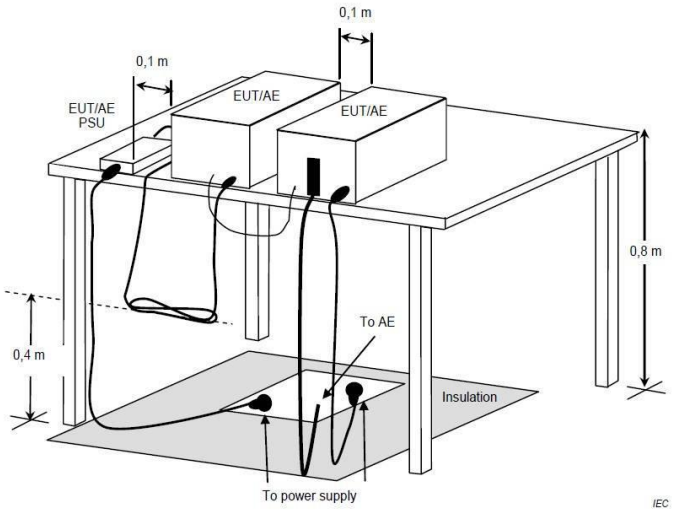
5.2.2. Radiated emissions (30MHz-1GHz)

Test Requirement:	EN 301 489-1, clause 8.2 EN 301 489-17, clause 7.1
Test Limit:	FREQUENCY (MHz) / dB(μV/m) At 10m / dB(μV/m) At 3m 30MHz-230MHz / 30 / 40 230MHz-1GHz / 37 / 47 Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz
Test Method:	EN 55032, annex A.2
Procedure:	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. Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

5.2.2.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.6 °C	Humidity:	56.7 %	Atmospheric Pressure:	103 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

5.2.2.2. Test Setup Diagram



5.2.2.3. Test Result

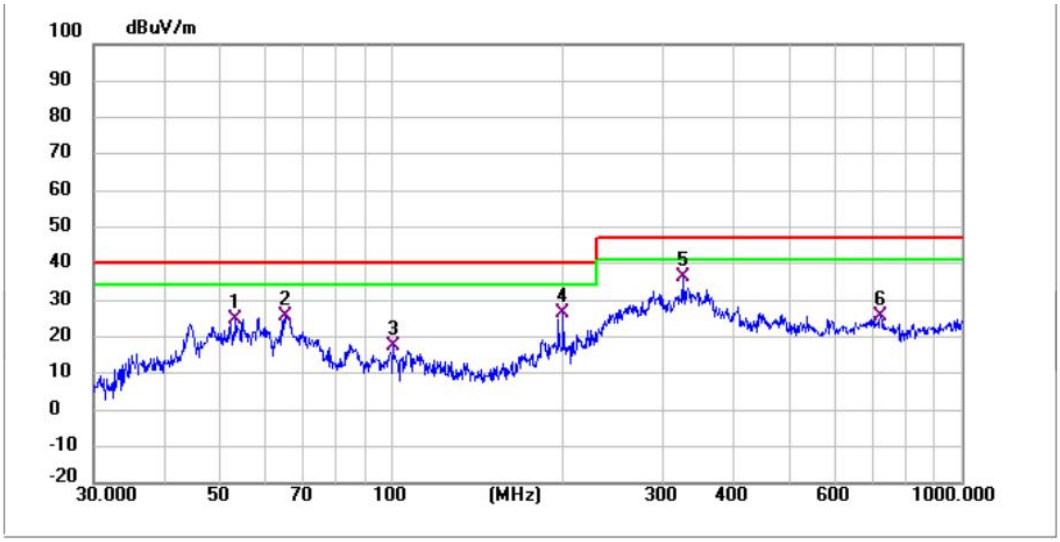
Pass

5.2.2.4. Test Data

TM1 / Polarization: Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	44.120	49.81	-29.59	20.22	40.00	-19.78	QP
2	105.641	51.22	-30.77	20.45	40.00	-19.55	QP
3	199.986	49.16	-29.86	19.30	40.00	-20.70	QP
4 *	324.456	63.96	-26.60	37.36	47.00	-9.64	QP
5	605.659	45.27	-18.97	26.30	47.00	-20.70	QP
6	739.660	43.88	-16.99	26.89	47.00	-20.11	QP

TM1 / Polarization: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	53.318	54.59	-29.89	24.70	40.00	-15.30	QP
2	65.114	57.49	-31.73	25.76	40.00	-14.24	QP
3	100.581	48.38	-30.85	17.53	40.00	-22.47	QP
4	199.986	56.26	-29.86	26.40	40.00	-13.60	QP
5 *	324.456	63.17	-26.60	36.57	47.00	-10.43	QP
6	721.726	42.40	-16.57	25.83	47.00	-21.17	QP

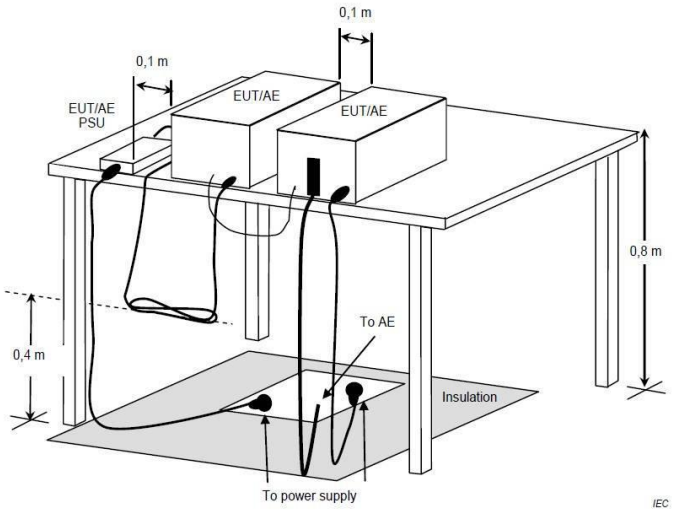
5.2.3. Radiated emissions (above 1GHz)

Test Requirement:	EN 301 489-1, clause 8.2 EN 301 489-17, clause 7.1
Test Limit:	**Frequency range (MHz)** / **Radiated emissions limit (dBuV/m)** (Peak / Average) 1000 to 6000: 74 / 54 Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000MHz to 6000MHz
Test Method:	EN 55032, annex A.2
Procedure:	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

5.2.3.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.2 °C	Humidity:	56.8 %	Atmospheric Pressure:	103 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

5.2.3.2. Test Setup Diagram

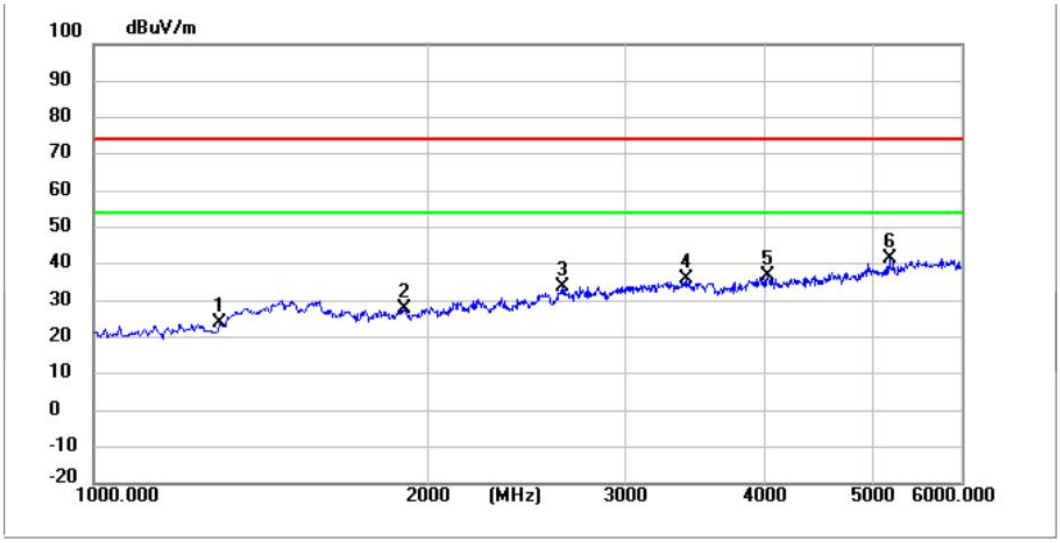


5.2.3.3. Test Result

Pass

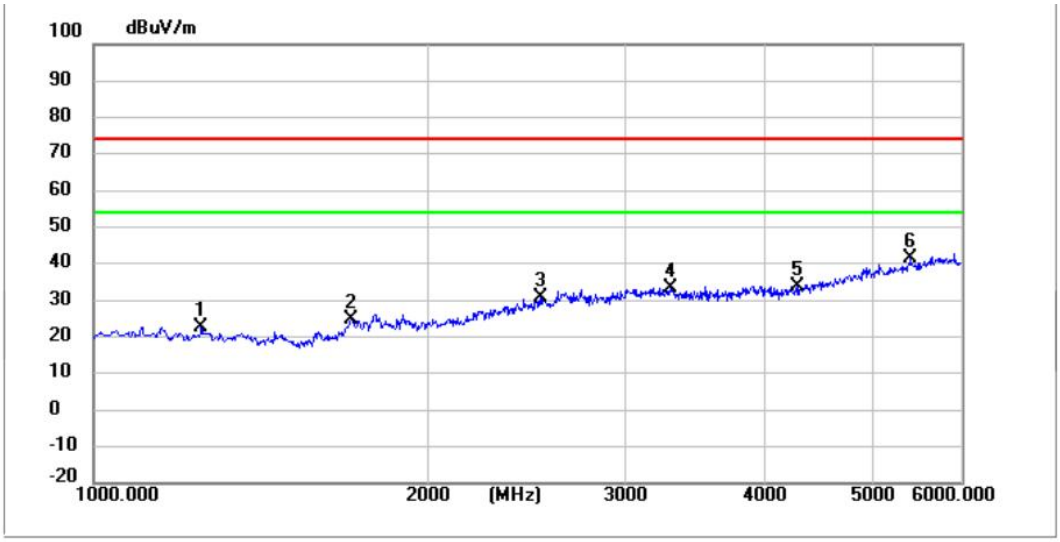
5.2.3.4. Test Data

TM1 / Polarization: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1300.000	45.22	-21.28	23.94	74.00	-50.06	peak
2	1900.000	47.20	-19.23	27.97	74.00	-46.03	peak
3	2635.000	49.69	-16.00	33.69	74.00	-40.31	peak
4	3405.000	49.43	-13.67	35.76	74.00	-38.24	peak
5	4030.000	48.89	-12.28	36.61	74.00	-37.39	peak
6 *	5175.000	49.45	-8.07	41.38	74.00	-32.62	peak

TM1 / Polarization: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1250.000	43.88	-21.37	22.51	74.00	-51.49	peak
2	1705.000	44.92	-20.05	24.87	74.00	-49.13	peak
3	2525.000	47.66	-16.75	30.91	74.00	-43.09	peak
4	3295.000	47.37	-13.94	33.43	74.00	-40.57	peak
5	4285.000	45.53	-11.70	33.83	74.00	-40.17	peak
6 *	5415.000	47.95	-6.56	41.39	74.00	-32.61	peak

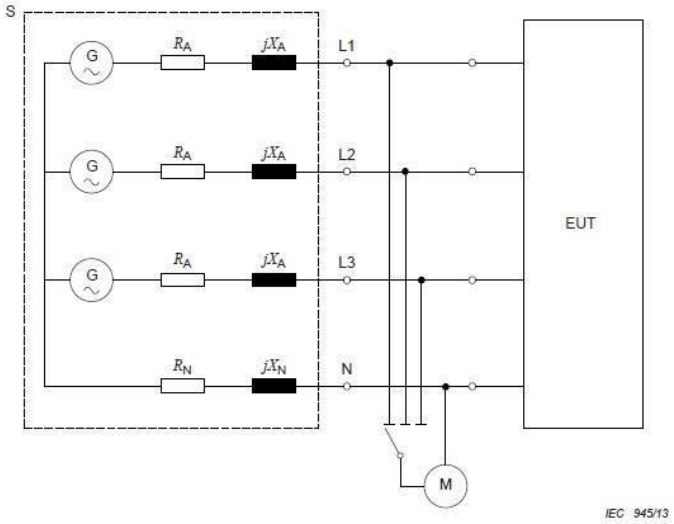
5.2.4. Voltage fluctuations and flicker

Test Requirement:	EN 301 489-1, clause 8.6 EN 301 489-17, clause 7.1
Test Limit:	EN 61000-3-3, clause 5
Test Method:	EN 61000-3-3, clause 6

5.2.4.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.9 °C	Humidity:	55.6 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

5.2.4.2. Test Setup Diagram



5.2.4.3. Test Result

Pass

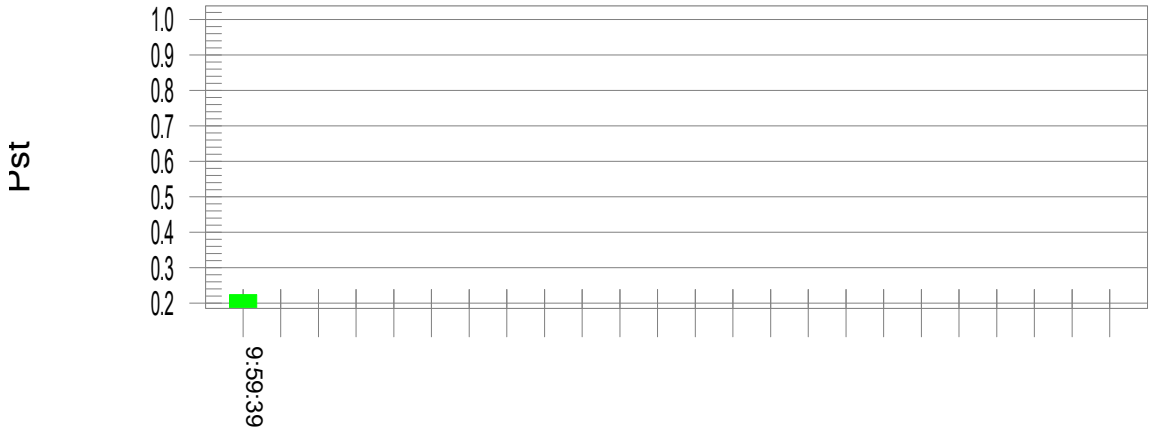
5.2.4.4. Test Data

Flicker Test Summary per IEC61000-3-3:2013/AMD1:2017 (Run time)

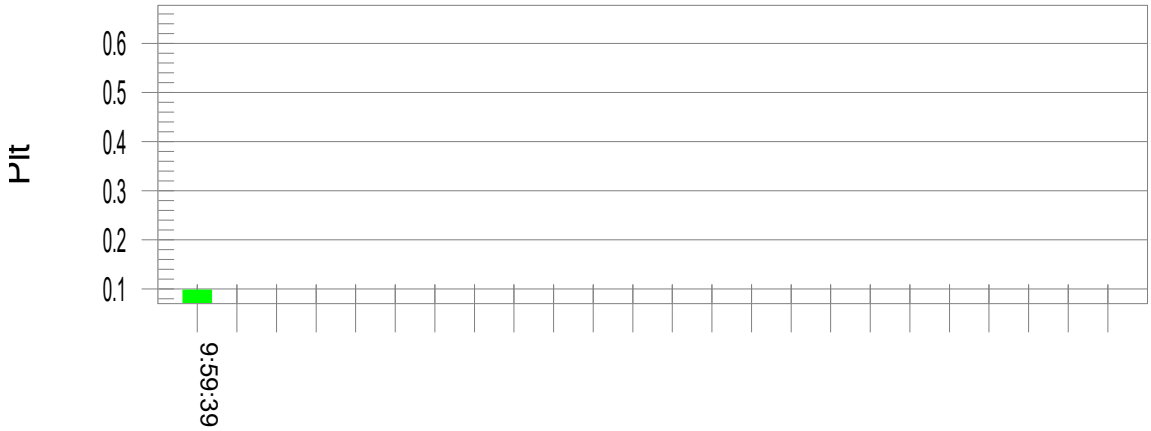
EUT: ZC-XPG-100 Tested by: RIO YE
Test category: All parameters (European limits)Test Margin: 100
Test date: 2025-2-7 Start time: 9:49:18 End time: 9:59:45
Test duration (min): 10 Data file name: F-000109.cts_data
Comment: Comments
Customer: CISE250121072

Test Result: Pass Status: Test Completed

Pst and limit line European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	231.38				
Highest dt (%):		Test limit (%):			
T-max (mS):	0	Test limit (mS):		500.0	Pass
Highest dc (%):	0.00	Test limit (%):		3.30	Pass
Highest dmax (%):	0.00	Test limit (%):		4.00	Pass
Highest Pst (10 min. period):	0.224	Test limit:	1.000	Pass	
Highest Plt (2 hr. period):	0.098	Test limit:	0.650	Pass	

5.3. Immunity Test Results (EMS)

Performance Criteria for ETSI EN 301 489-1 V2.2.3 (2019-11)

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.
Continuous and non-continuous operation
Latency is the time delay between the initiation and the completion of operation of the EUT.
Correct functioning requires completing the relevant operation within the maximum latency time.
Where the maximum latency is specified in the applicable harmonised radio standard (in the wanted performance criterion, or an acknowledge requirement), that value shall be used.
Where this is not the case, then the maximum latency is that required by the intended use of the EUT.
Operating modes
Where the EUT has more than one mode of operation (see clause 4.4.1), an unplanned transition from one mode to another is considered as an unintentional response. The EUT shall be tested in all modes to confirm there are no such unintentional responses.
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.
Continuous and non-continuous operation
Latency is the time delay between the initiation and the completion of operation of the EUT.
Correct functioning requires completing the relevant operation within the maximum latency time.
Where the maximum latency is specified in the applicable harmonised radio standard (in the wanted performance criterion, or an acknowledge requirement), that value shall be used.
Where this is not the case, then the maximum latency is that required by the intended use of the EUT.
Operating modes
Where the EUT has more than one mode of operation (see clause 4.4.1), an unplanned transition from one mode to another is considered as an unintentional response. The EUT shall be tested in all modes to confirm there are no such unintentional responses.

Performance Criteria for ETSI EN 301 489-17 V3.2.4 (2020-09)

Performance criteria
General performance criteria
The performance criteria are:
• performance criteria A for immunity tests with phenomena of a continuous nature;
• performance criteria B for immunity tests with phenomena of a transient nature;
• performance criteria C for immunity tests with power interruptions exceeding a certain time.
The equipment shall meet the minimum performance criteria as specified in the following clauses.
Performance table
Performance criteria overview
Table 2: Performance criteria

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 clause 6.2.2.		

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.

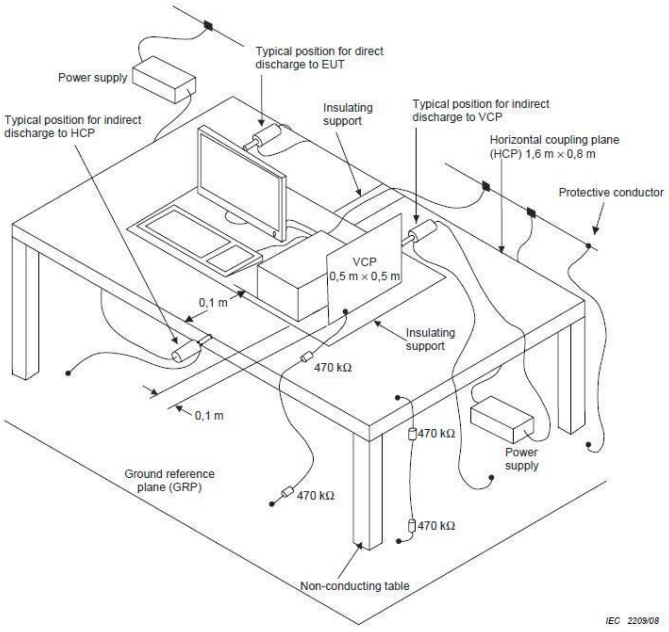
5.3.1. Electrostatic discharge

Test Requirement:	EN 301 489-1, clause 9.3 EN 301 489-17, clause 7.2
Test Method:	EN 61000-4-2, clauses 6, 7 and 8
Procedure:	Discharge Impedance: 330Ω/150pF Number of Discharge: Minimum 10 times at each test point Discharge Mode: Single Discharge Discharge Period: 1 second minimum
Performance Criteria:	TT(B), TR(B)

5.3.1.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.8 °C	Humidity:	56 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

5.3.1.2. Test Setup Diagram



5.3.1.3. Test Result

Pass

5.3.1.4. Test Data

Discharge type	Volt (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

Test Point: 1. All insulated enclosure and seams.
2. All accessible metal parts of the enclosure.
3. All side.
A: No degradation in the performance of the EUT was observed.

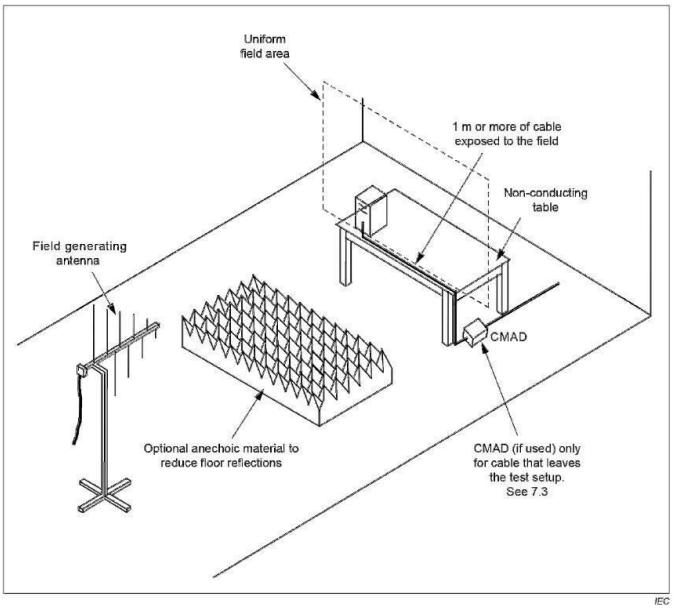
5.3.2. Radio frequency electromagnetic field (80 MHz to 6 000 MHz)

Test Requirement:	EN 301 489-1, clause 9.2 EN 301 489-17, clause 7.2
Test Method:	EN 61000-4-3, clauses 6, 7 and 8
Procedure:	Frequency Range: 80MHz to 6GHz Antenna Polarisation: Vertical and Horizontal Modulation: 1kHz,80% Amp. Mod,1% increment
Performance Criteria:	CT(A), CR(A)

5.3.2.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.2 °C	Humidity:	56.8 %	Atmospheric Pressure:	103 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

5.3.2.2. Test Setup Diagram



5.3.2.3. Test Result

Pass

5.3.2.4. Test Data

Frequency	Field Strength (V/m)	EUT face	Dwell time	Result/ Observations
80MHz-6GHz	3	Front	3s	A
80MHz-6GHz	3	Back	3s	A
80MHz-6GHz	3	Left	3s	A
80MHz-6GHz	3	Right	3s	A
80MHz-6GHz	3	Top	3s	A
80MHz-6GHz	3	Bottom	3s	A

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

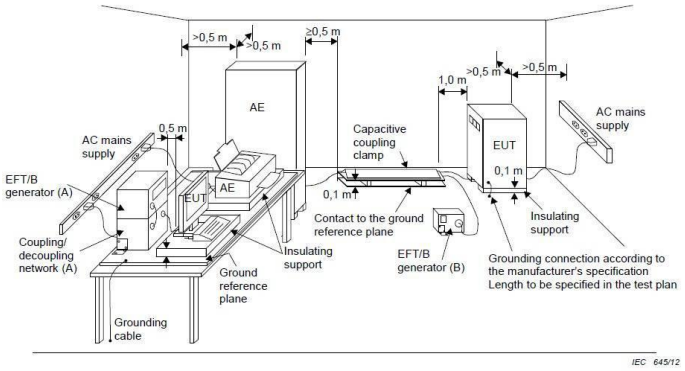
5.3.3. Fast transients, common mode (AC power port)

Test Requirement:	EN 301 489-1, clause 9.4 EN 301 489-17, clause 7.2
Test Method:	EN 61000-4-4, clauses 5
Procedure:	Repetition Frequency: 5kHz Burst Period: 300ms
Performance Criteria:	TT(B), TR(B)

5.3.3.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.8 °C	Humidity:	56 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

5.3.3.2. Test Setup Diagram



5.3.3.3. Test Result

Pass

5.3.3.4. Test Data

Port	Volt (kV)	Polarity	CDN/ Clamp	Result/ Observations
AC power port	1	+	CDN	A
AC power port	1	-	CDN	A

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

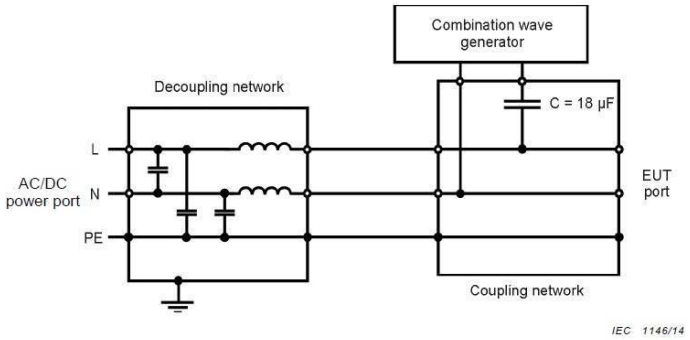
5.3.4. Surges (AC power port)

Test Requirement:	EN 301 489-1, clause 9.8 EN 301 489-17, clause 7.2
Test Method:	EN 61000-4-5, clauses 7 and 8
Performance Criteria:	TT(B), TR(B)

5.3.4.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.8 °C	Humidity:	56 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

5.3.4.2. Test Setup Diagram



5.3.4.3. Test Result

Pass

5.3.4.4. Test Data

Port	Volt (kV)	Polarity	Phase(degree)	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

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

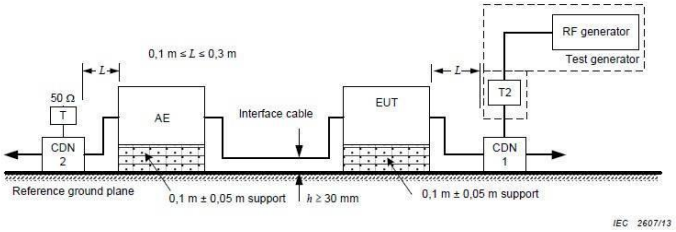
5.3.5. Radio frequency, common mode 0,15 MHz to 80 MHz (AC power port)

Test Requirement:	EN 301 489-1, clause 9.5 EN 301 489-17, clause 7.2
Test Method:	EN 61000-4-6, clauses 6 and 8
Performance Criteria:	CT(A), CR(A)

5.3.5.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.8 °C	Humidity:	56 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

5.3.5.2. Test Setup Diagram



5.3.5.3. Test Result

Pass

5.3.5.4. Test Data

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

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

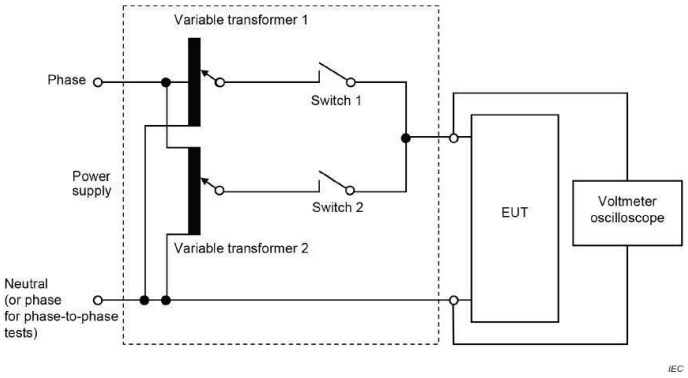
5.3.6. Voltage dips and interruptions

Test Requirement:	EN 301 489-1, clause 9.7 EN 301 489-17, clause 7.2
Test Method:	EN 61000-4-11, clause 8 The test levels shall be: • voltage dip: 0 % residual voltage for 0,5 cycle; • voltage dip: 0 % residual voltage for 1 cycle; • voltage dip: 70 % residual voltage for 25 cycles (at 50 Hz); • voltage interruption: 0 % residual voltage for 250 cycles (at 50 Hz).
Performance Criteria:	Voltage dips: TT(B), TR(B) Voltage interruptions: TT(C), TR(C)

5.3.6.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.8 °C	Humidity:	56 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

5.3.6.2. Test Setup Diagram



5.3.6.3. Test Result

Pass

5.3.6.4. Test Data

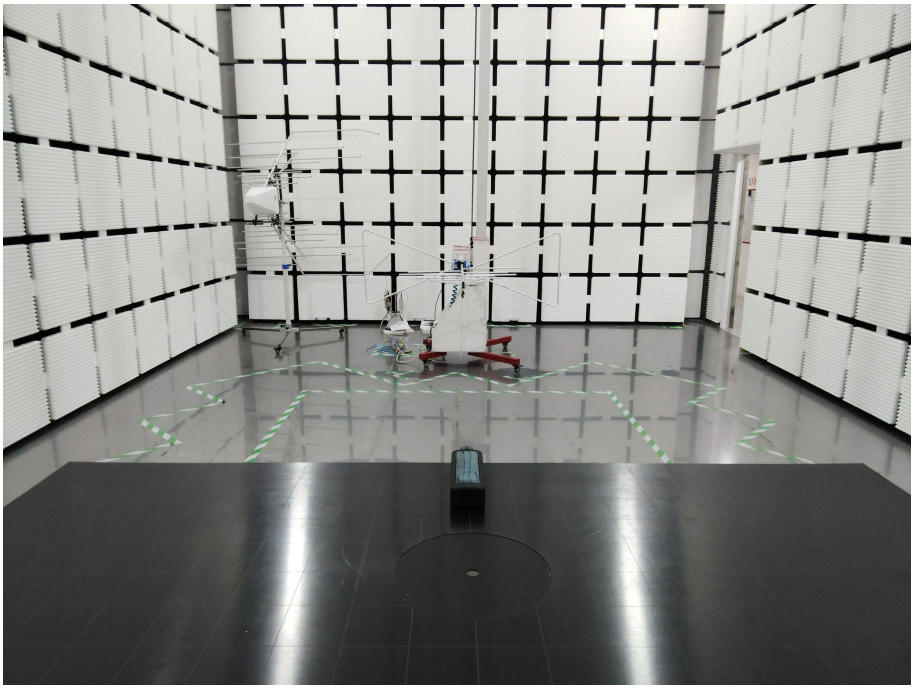
Level %UT	Phase (degree)	Duration	No. of Dips/ Interruptions	Result/ Observations
0	0°	0.5 Cycles	3	A
0	180°	0.5 Cycles	3	A
0	0°	1 Cycles	3	A
0	180°	1 Cycles	3	A
0	0°	250 Cycles	3	A
0	180°	250 Cycles	3	A
70	0°	25 Cycles	3	A
70	180°	25 Cycles	3	A

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

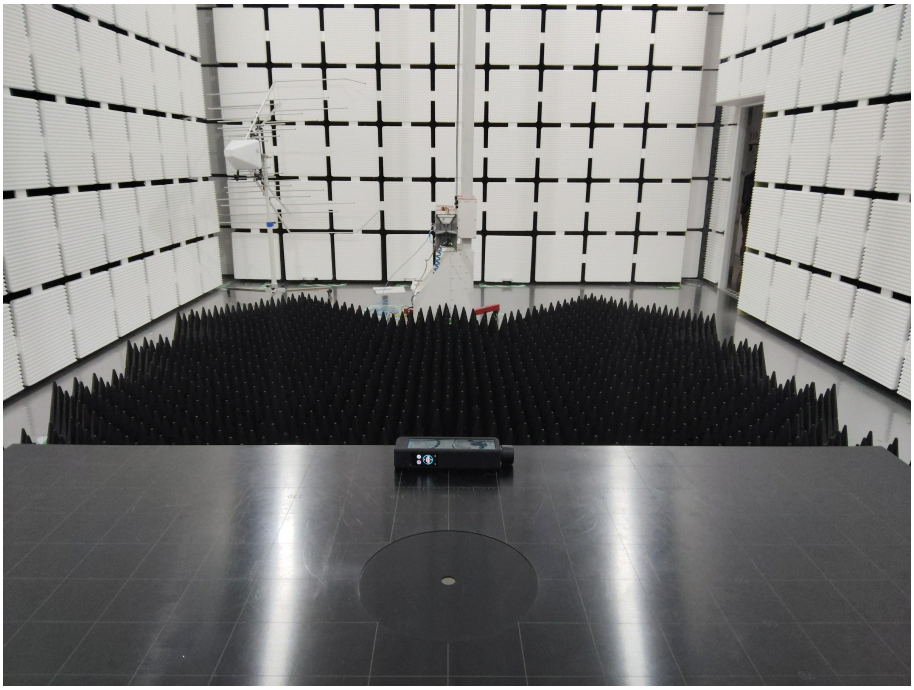
6. TEST SETUP PHOTOS

Conducted emissions (AC power port)
Voltage fluctuations and flicker

Radiated emissions (30MHz-1GHz)

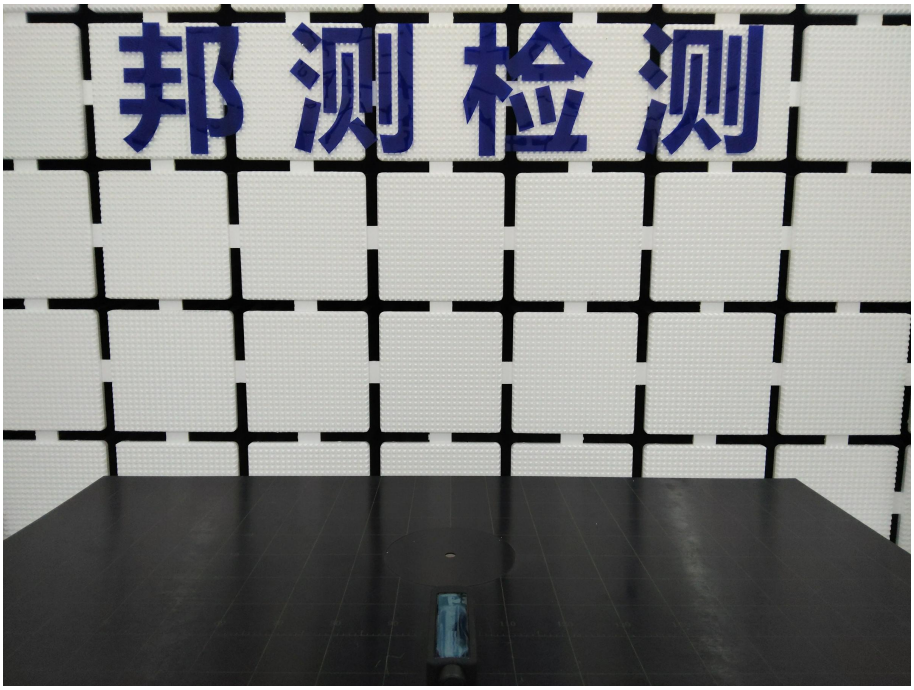


Radiated emissions (above 1GHz)



Electrostatic discharge

Radio frequency electromagnetic field (80 MHz to 6 000 MHz)



Fast transients, common mode (AC power port)
Surges (AC power port)

Radio frequency, common mode 0,15 MHz to 80 MHz (AC power port)

Voltage dips and interruptions

7. EXTERNAL AND INTERNAL PHOTOS

7.1. External Photos

refer to the RF report CISRR25032724301.

7.2. Internal Photos

refer to the RF report CISRR25032724301.

------End of the report-----