EMC Test Report

Report No.: AGC04094190609EE02

PRODUCT DESIGNATION	:	5W wireless charging gravity phone holder
BRAND NAME	:	N/A
MODEL NAME	:	P302.61
APPLICANT	:	Xindao B.V.
DATE OF ISSUE	:	Jul. 09, 2019
STANDARD(S)	:	Draft EN 301 489-1 V2.2.1 (2019-03) ETSI EN 301 489-3 V2.1.1 (2019-03)
REPORT VERSION		V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jul. 09, 2019	Valid	Initial Release

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1. TEST REPORT CERTIFICATION

Applicant	Xindao B.V.
Address	P.O. Box 3082, 2280 GB, Rijswijk, The Netherlands
Manufacturer	Xindao B.V.
Address	P.O. Box 3082, 2280 GB, Rijswijk, The Netherlands
Factory	Xindao B.V.
Address	P.O. Box 3082, 2280 GB, Rijswijk, The Netherlands
Product Designation	5W wireless charging gravity phone holder
Brand Name	N/A
Test Model	P302.61
Difference description	All the same except for the color for appearance.
Date of test	Jun. 24, 2019 to Jul. 05, 2019
Deviation	None
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-EC-EMC

We, Attestation of Global Compliance (Shenzhen) Co., Ltd., hereby certify that the submitted samples of the above item, as detailed in chapter 2.1 of this report, has been tested in our facility. The test record, data evaluation and test configuration represented herein are true and accurate accounts of measurements of the sample's EMC characteristics under the conditions herein specified.

Tested By Erik Yang

Erik Yang(Yang Jianmin) Jul. 05, 2019

Reviewed By Max Zhang

Max Zhang(Zhang Yi) Jul. 09, 2019

Approved By Forrest Lei

Forrest Lei(Lei Yonggang)
Authorized Officer Jul. 09, 2019

2. GENERAL INFORMATION

2.1. DESCRIPTION OF EUT

The EUT is a short range, WIRELESS CHARGER device.

Details of technical specification refer to the description in follows:

Hardware Version	L-IC-045_5W_V1.0.
Software Version	V1.0
Operation Frequency range	110-205kHz
Antenna Type	Integral antenna
Power Supply	DC 5V 2A by USB Port

2.2. OBJECTIVE

Perform Electro Magnetic Interference (EMI) and Electro Magnetic Susceptibility (EMS) tests for CE Marking.

2.3. TEST STANDARDS AND RESULTS

The EUT has been tested according to ETSI EN 301 489-1 V2.2.1 (2019-03) and ETSI EN 301 489-3 V2.1.1 (2019-03).

ETSI EN 301 489-1	Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for Electro Magnetic Compatibility
ETSI EN 301 489-3	Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU

2.4. ENVIRONMENTAL CONDITIONS

During the measurement the environmental conditions were within the listed ranges:

- Temperature: -20-55ºC
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

3. TEST MODE DESCRIPTION

NO.	TEST MODE DESCRIPTION	WORST
1	Charging with adaptor at full load	V
2	Charging with adaptor at half load	--
3	Charging with adaptor at null load	--

Note:
1. V means EMI worst mode.
2. All the modes are tested, but only the worst case is recorded in this report.
3. The car charger was supplied by DC 12V and DC 24V. Only the worst mode test data(DC 12V) recorded in the test report.

I/O Port Information (☒Applicable ☐Not Applicable)

I/O Port of EUT			
I/O Port Type	**Number**	**Cable Description**	**Tested With**
USB	1	1.0m Unshielded	1

4. MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in measurement” (GUM) published by CISPR and ANSI.

- Uncertainty of Conducted Emission, Uc = ±3.2 dB
- Uncertainty of Radiated Emission below 1GHz, Uc = ±3.9 dB
- Uncertainty of Radiated Emission above 1GHz, Uc = ±4.8 dB

5. SUPPORT EQUIPMENT

Device Type	Manufacturer	Model Name	Serial No.	specification
Load	--	--	--	5W
Car-Charger	--	--	--	--
Adapter-2	Samsung	EP-TA200	--	--
DC Source	SAIL	12V 60Ah 356A	SAIL	--

Note:

1 All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

6. IDENTIFICATION OF THE RESPONSIBLE TESTING LOCATION

Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao 'an District, Shenzhen, Guangdong, China

TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	Jun.12, 2019	Jun.11, 2020
LISN	R&S	ESH2-Z5	100086	Aug.28, 2018	Aug.27, 2019
V-network	Rohde & Schwarz	ESH3-Z6	100398	Aug.28, 2018	Aug.27, 2019
V-network	Rohde & Schwarz	ESH3-Z6	100399	Aug.28, 2018	Aug.27, 2019

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Jun.12, 2019	Jun.11, 2020
ANTENNA	SCHWARZBECK	VULB9168	D69250	Sep.28, 2018	Sep.27, 2019

TEST EQUIPMENT OF TRANSIENT IMMUNITY AND SURGE TEST

Description	Manufacturer	Model	Cal. Date	Cal. Due
Voltage Drop Simulator	EM Test	VDS 200	Aug. 25, 2018	Aug. 24, 2019
Electrical Fast Transient Generator	EM Test	EFT 200	Aug. 25, 2018	Aug. 24, 2019
Micropulse Generator	EM Test	MPG 200	Aug. 25, 2018	Aug. 24, 2019
Surge Generator	Schaffner	Modula 6150	Aug.28, 2018	Aug.27, 2019

TEST EQUIPMENT OF RS IMMUNITY TEST

Description	Manufacturer	Model	S/N	Cal. Date	Cal. Due
SIGNAL GENERATOR	R&S	E4421B	MY43351603	Jun.12, 2019	Jun.11, 2020
ANTENNA	SCHWARZBCK	VULB9168	D69250	Aug.28, 2018	Aug.27, 2019
POWER SENSOR	R&S	URV5-Z4	100124	May 17, 2019	May 16, 2020
POWER METER	R&S	NRVD	8323781027	May 17, 2019	May 16, 2020
POWER AMPLIFIER	KALMUS	7100LC	04-02/17-06-001	Jun.12, 2019	Jun.11, 2020

RF AMPLIFIER	Milmega	AS0104-55_55	1004793	Jun.12, 2019	Jun.11, 2020
HORN ANTENNA	ETS LINDGREN	3117	00034609	May 17, 2019	May 16, 2020

TEST EQUIPMENT OF CS IMMUNITY TEST

Description	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Power Amplifier	AR	75A250	18464	Jun.12, 2019	Jun.11, 2020
CDN	ZHINAN	ZN3751	15004	Aug.28, 2018	Aug.27, 2019
6dB attenuator	JWF	50FHC-006-50	N/A	Jun.12, 2019	Jun.11, 2020
Electromagnetic Injection Clamp	Luthi	EM101	35773	Aug.28, 2018	Aug.27, 2019
Power Sensor	R&S	URV5-Z4	100124	May 17, 2019	May 16, 2020
Power Meter	R&S	NRVD	8323781027	May 17, 2019	May 16, 2020
SIGNAL GENERATOR	R&S	E4421B	MY43351603	May 17, 2019	May 16, 2020

7. TEST CONDITIONS AND RESULT

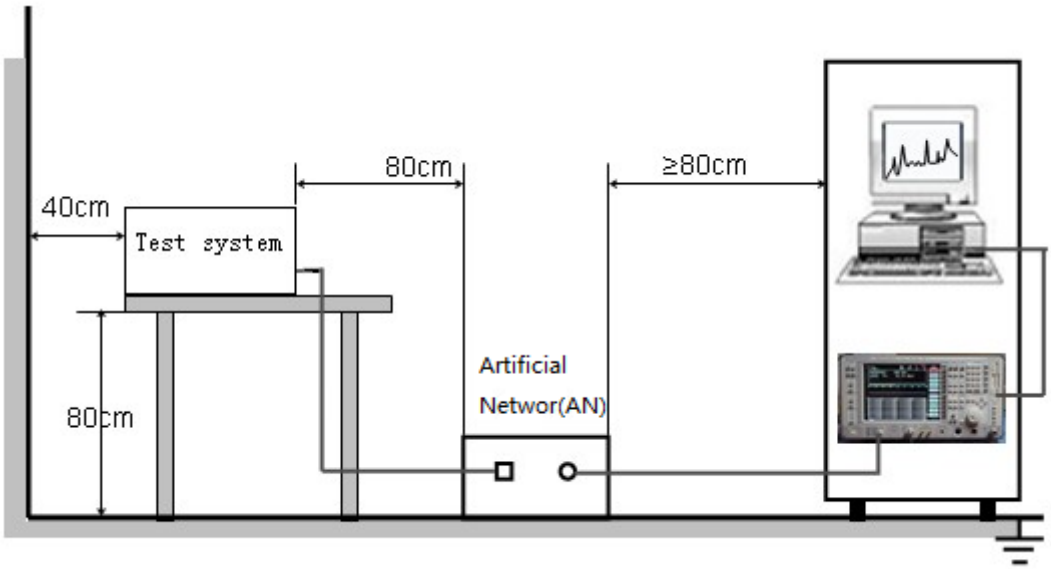
7.1. LINE CONDUCTED EMISSION TEST

7.1.1 LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz-500kHz	66-56	56-46
500kHz-5MHz	56	46
5MHz-30MHz	60	50

Note:
1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.

7.1.2. BLOCK DIAGRAM OF TEST SETUP



7.1.3. PROCEDURE OF LINE CONDUCTED EMISSION TEST

(1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per EN 55032 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

(2) Support equipment, if needed, was placed as per EN 55032.

(3) All I/O cables were positioned to simulate typical actual usage as per EN 55032.

(4) The EUT received DC power through a Artificial Network (AN) as specified in CISPR 25.Thge AN should be connected to DC power source which supplied power source and was grounded to the ground plane.

(5) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the AN powering the EUT. The AN has two monitoring points: Line 1 (Positive) and Line 2 (Negative). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.

(6) Analyzer / Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.

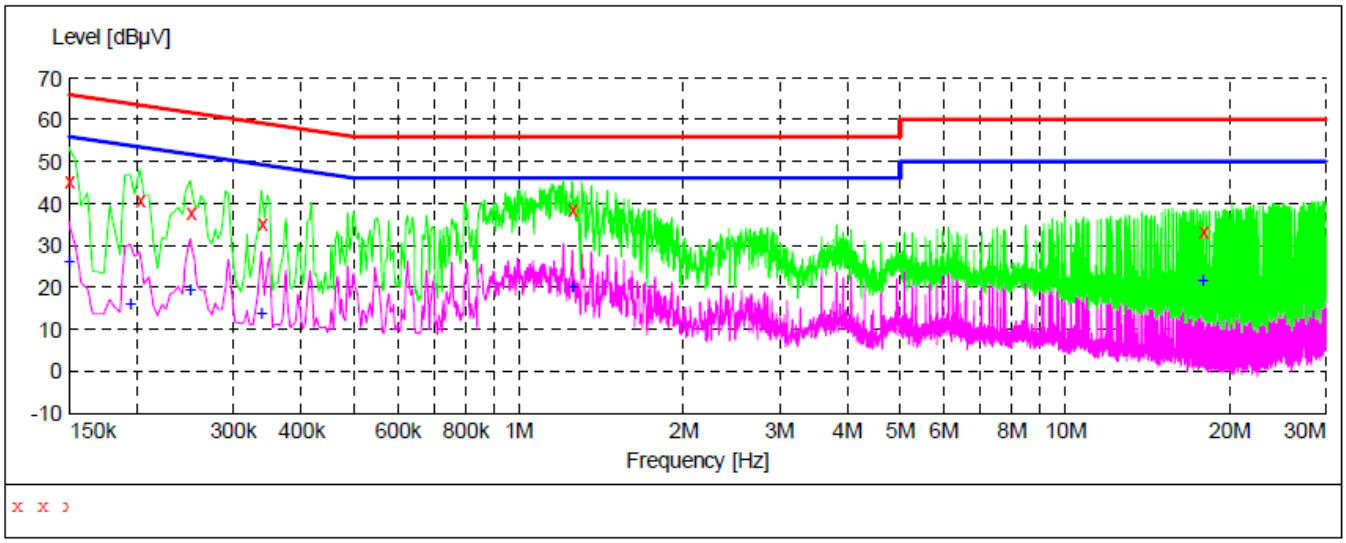
(7) During the above scans, the emissions were maximized by cable manipulation.

(8) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions.

(9) Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.

7.1.4. TEST RESULT

LINE CONDUCTED EMISSION TEST-P



MEASUREMENT RESULT

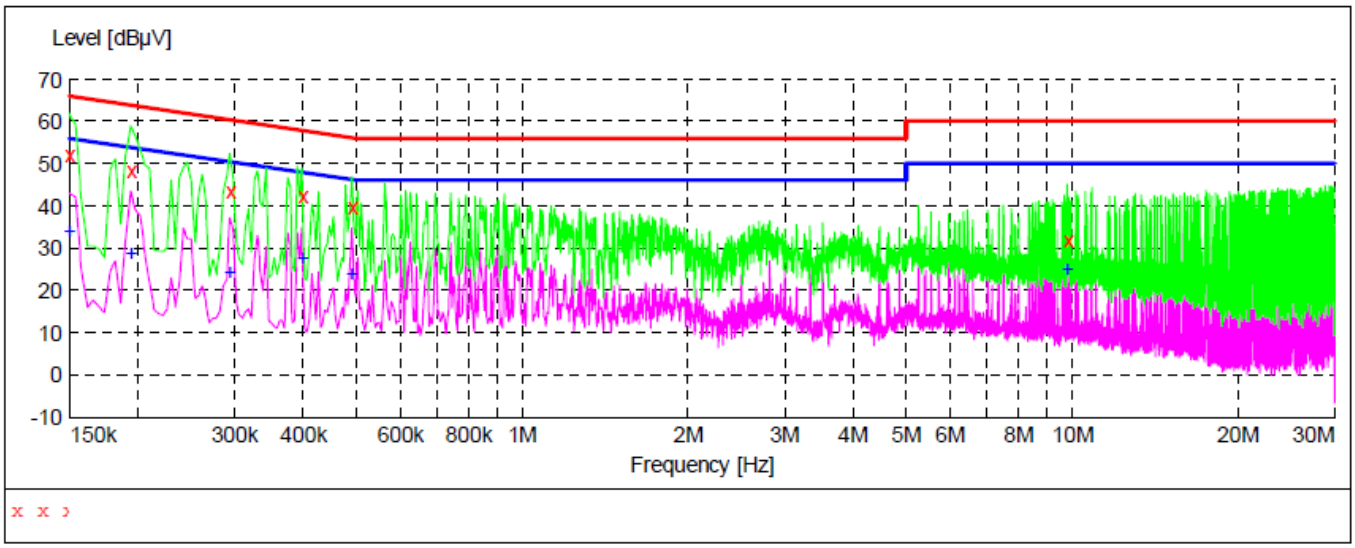
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.150000	45.50	10.8	66	20.5	QP	P
0.202000	40.80	10.9	64	22.7	QP	P
0.250000	37.80	10.9	62	24.0	QP	P
0.338000	35.10	10.7	59	24.2	QP	P
1.250000	38.50	11.5	56	17.5	QP	P
17.906000	33.20	12.4	60	26.8	QP	P

MEASUREMENT RESULT

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.150000	26.20	10.8	56	29.8	AV	P
0.194000	16.10	10.9	54	37.8	AV	P
0.250000	19.40	10.9	52	32.4	AV	P
0.338000	14.00	10.7	49	35.3	AV	P
1.250000	20.20	11.5	46	25.8	AV	P
17.906000	21.60	12.4	50	28.4	AV	P

RESULT: PASS

LINE CONDUCTED EMISSION TEST-N



MEASUREMENT RESULT

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.150000	52.30	10.8	66	13.7	QP	N
0.194000	48.40	10.9	64	15.5	QP	N
0.294000	43.50	10.9	60	16.9	QP	N
0.398000	42.60	10.3	58	15.3	QP	N
0.490000	40.00	11.1	56	16.2	QP	N
9.786000	32.00	11.9	60	28.0	QP	N

MEASUREMENT RESULT

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.150000	34.00	10.8	56	22.0	AV	N
0.194000	28.90	10.9	54	25.0	AV	N
0.294000	24.40	10.9	50	26.0	AV	N
0.398000	27.90	10.3	48	20.0	AV	N
0.490000	24.10	11.1	46	22.1	AV	N
9.786000	25.30	11.9	50	24.7	AV	N

RESULT: PASS

7.2. RADIATED DISTURBANCE MEASUREMENT

7.2.1. LIMITS OF RADIATED DISTURBANCES

Limits for radiated disturbance 30M to1 GHz at a measurement distance of 3 m

Frequency range (MHz)	Quasi peak limits(dBuV/m), for Class B ITE, at 3m measurement distance
30 - 230	40
230 - 1000	47

Limits for radiated disturbance above 1 GHz at a measurement distance of 3 m

Frequency range (MHz)	Limits (dBuV/m), Class B ITE	
	Peak	Average
1000-3000MHz	70	50
3000-6000MHz	74	54

Notes:

1. The lower limit shall apply at the transition frequency.
2. Additional provisions may be required for cases where interference occurs.

7.2.2. TEST PROCEDURE

(1). The EUT was placed on the top of an insulating table 0.8 meters above the ground at a semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

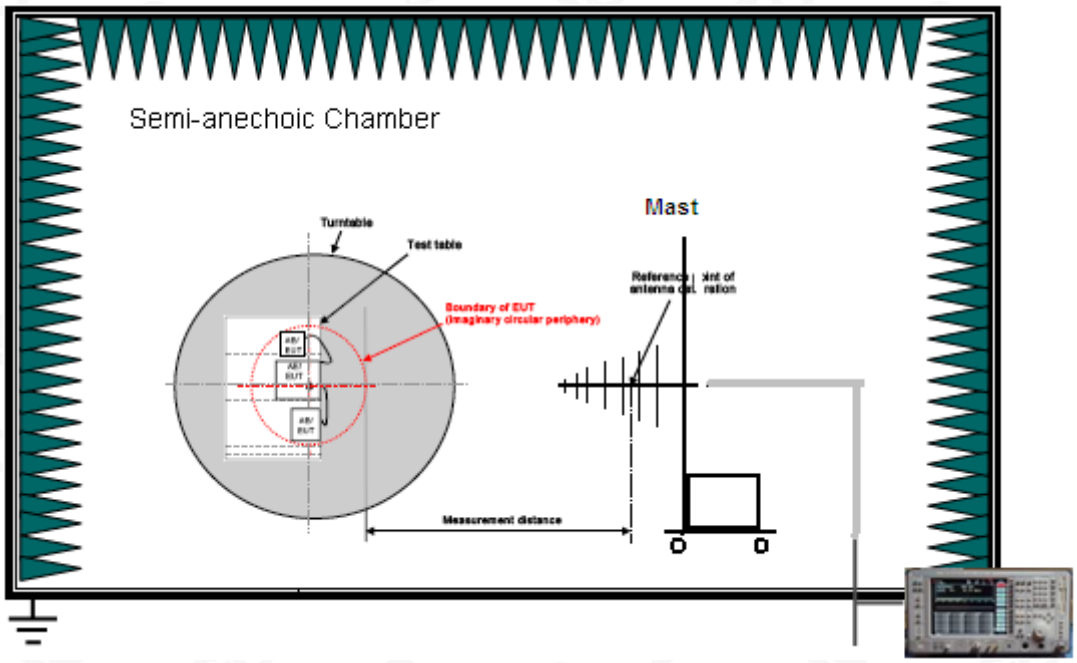
(2). The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

(3).The antenna is a broadband antenna, and its height is varied from 1 to 4 meter above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

(4). For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to the heights from 1 to 4 meters and the ratable table was turned from 0 degrees to 360 degrees to find the maximum reading.

(5).The test-receiver system was set to Peak Detector Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emission that did not have 10dB margin would be retested one by one using the quasi-peak method.

7.2.3. BLOCK DIAGRAM OF TEST SETUP



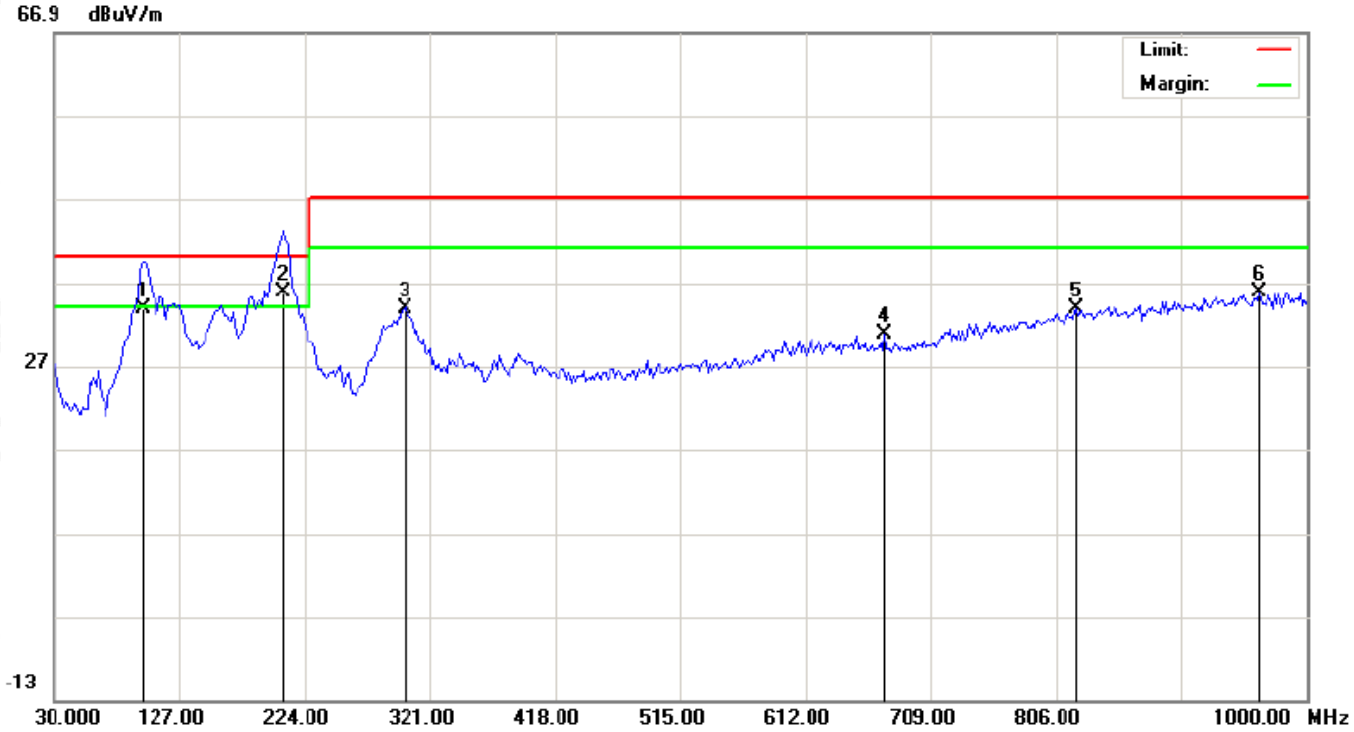
For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

7.2.4 TEST RESULT

The test modes were carried out for all modes.

The worst test mode of the EUT was Mode 1, and its test data was showed as the follow:

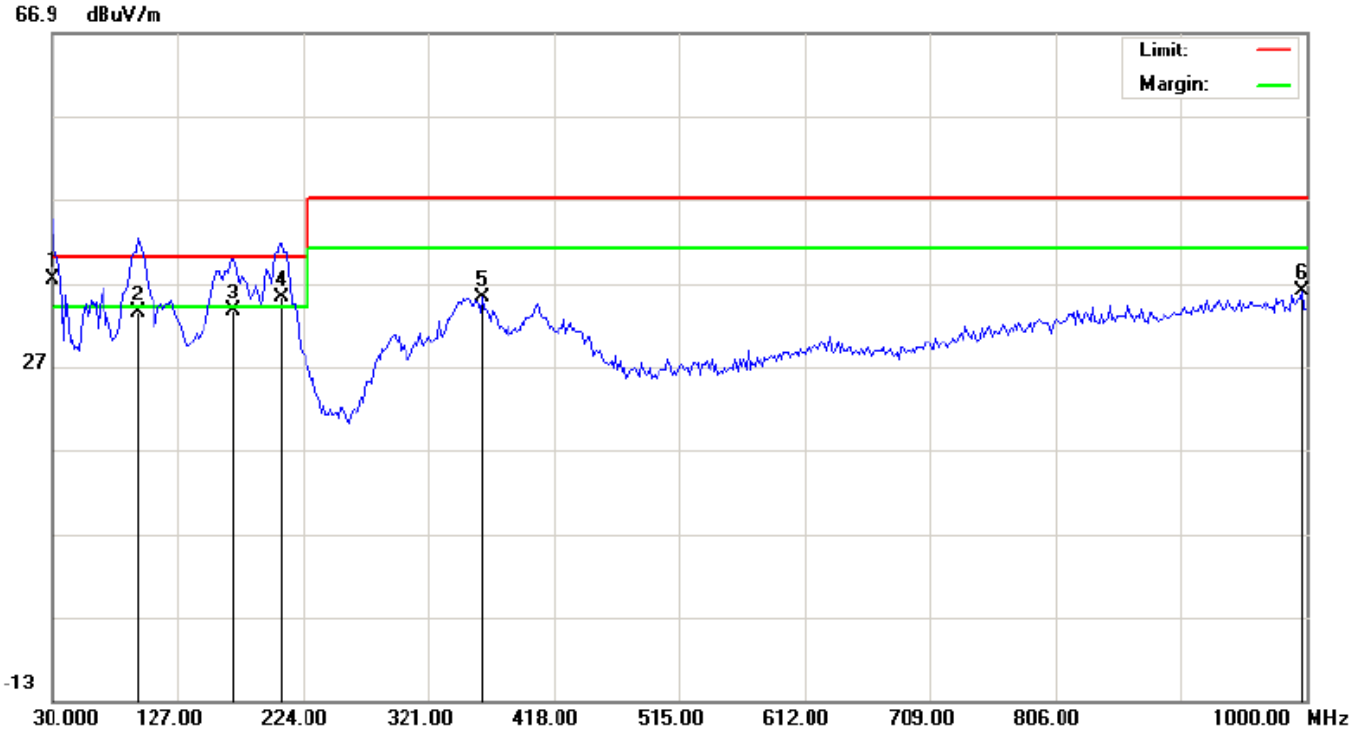
RADIATED EMISSION BELOW 1GHZ– HORIZONTAL



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		99.5167	17.91	15.96	33.87	40.00	-6.13	QP			
2	*	207.8666	19.28	16.52	35.80	40.00	-4.20	QP			
3		301.6000	14.37	19.53	33.90	47.00	-13.10	peak			
4		673.4333	3.06	27.83	30.89	47.00	-16.11	peak			
5		822.1667	3.02	30.70	33.72	47.00	-13.28	peak			
6		962.8167	3.57	32.24	35.81	47.00	-11.19	peak			

RESULT: PASS

RADIATED EMISSION BELOW 1GHZ– VERTICAL



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	30.0000	19.33	18.17	37.50	40.00	-2.50	QP			
2		96.2833	17.83	15.63	33.46	40.00	-6.54	QP			
3		170.6500	15.43	18.09	33.52	40.00	-6.48	QP			
4	!	207.8333	18.66	16.52	35.18	40.00	-4.82	QP			
5		363.0333	13.47	21.68	35.15	47.00	-11.85	peak			
6		996.7667	3.51	32.53	36.04	47.00	-10.96	peak			

RESULT: PASS

8. IMMUNITY TEST

8.1. EUT SETUP AND OPERATING CONDITIONS

The battery was in full voltage and the charger was connected to the EUT to keep the voltage constant during the tests.

Each immunity test was performed according to the requirements of the standard.

8.2. GENERAL PERFORMANCE CRITERIA

1. Performance criteria for Continuous phenomena applied to Transmitter (CT)

For equipment of type II or type III that requires a communication link that is maintained during the test, it shall be verified by appropriate means supplied by the manufacturer that the communication link is maintained during each individual exposure in the test sequence.

Where the EUT is a transmitter, tests shall be repeated with the EUT in standby mode to ensure that any unintentional transmission does not occur.

2. Performance criteria for Transient phenomena applied to Transmitter (TT)

For equipment of type II or type III that requires a communication link that is maintained during the test, this shall be verified by appropriate means supplied by the manufacturer during each individual exposure in the test sequence. Where the EUT is a transmitter, tests shall be repeated with the EUT in standby mode to ensure that any unintentional transmission does not occur.

3. Performance criteria for Continuous phenomena applied to Receiver (CR)

For equipment of type II or III that requires a communication link that is maintained during the test, it shall be verified by appropriate means supplied by the manufacturer that the communication link is maintained during each individual exposure in the test sequence. Where the EUT is a transceiver, under no circumstances shall the transmitter operate unintentionally during the test.

4. Performance criteria for Transient phenomena applied to Receiver (TR)

For equipment of type II or type III that requires a communication link that is maintained during the test, this shall be verified by appropriate means supplied by the manufacturer during each individual exposure in the test sequence. Where the EUT is a transceiver, under no circumstances shall the transmitter operate unintentionally during the test.

5. Performance Table

Performance criteria		
Criteria	**During Test**	**After Test**
A	Shall operate as intended. May show degradation of performance. 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 stored data or user programmable functions.
B	May show loss of function (one or more). May show degradation of performance. No unintentional transmissions.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no degradation of performance. Shall be no loss of stored data or user programmable functions.
C	May be loss of function (one or more).	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no degradation of performance.

8.3. RADIATED, RADIO FREQUENCY ELECTROMAGNETIC FIELD IMMUNITY TEST

8.3.1 TEST SPECIFICATION

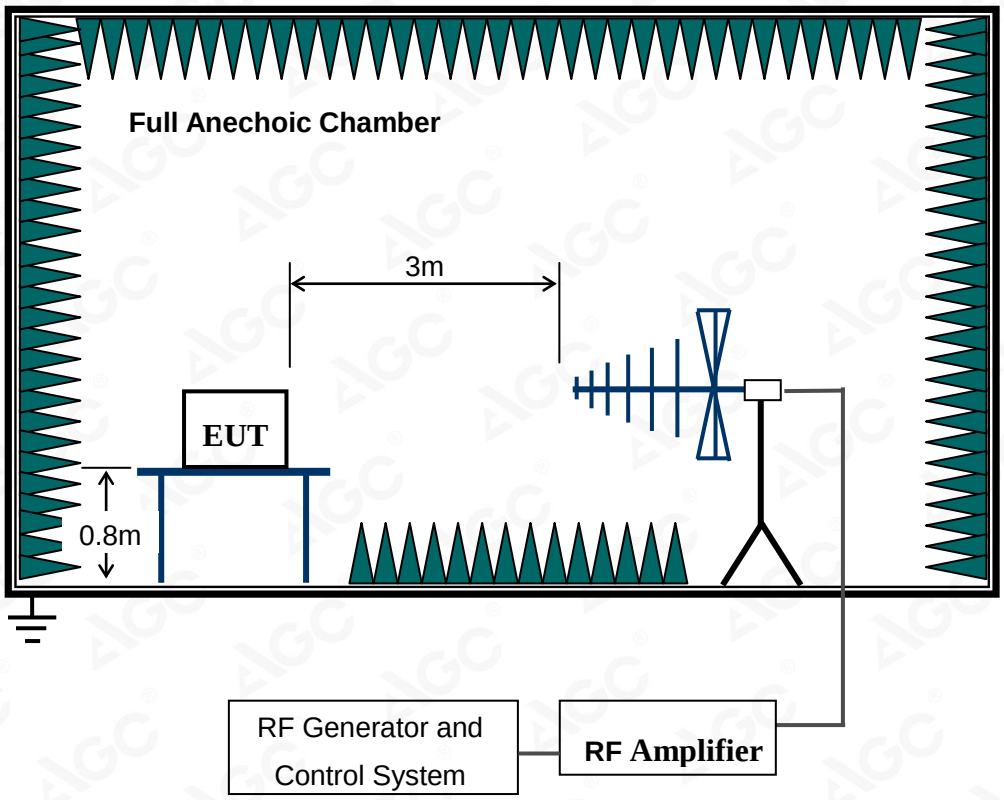
Basic Standard	EN 61000-4-3
Frequency Range	80 MHz – 6000MHz
Field Strength	3V/m
Modulation	1 kHz sine wave, 80%, AM modulation
Frequency Step	1% of fundamental
Polarity of Antenna	Horizontal and Vertical
Test Distance	3m
Antenna Height	1.55m
Dwell Time	3 seconds

8.3.2 TEST PROCEDURE

The test procedure was in accordance with EN 61000-4-3.

a. The testing was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.
b. The test signal was 80% amplitude modulated with a 1 kHz sine wave.
c. The frequency range was swept from 80 MHz to 6000MHz with the exception of the exclusion band for transmitters, receivers and duplex transceivers. The rate of sweep did not exceed 1.5×10^{-3} decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
d. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
e. The field strength level was 3V/m.
f. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

8.3.3 TEST SETUP



For the actual test configuration, please refer to Appendix II: Photographs of the Test Configuration.

8.3.4 TEST RESULT

TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.2.2, ETSI EN 301 489-3 and EN 61000-4-3 for the measurement methods.

☒ **MODE 1** ☒ **MODE 2** ☒ **MODE 3**

Freq. Range (MHz)	Field	Modulation	Polarity	Position	Observation	Result (Criteria meet)
80-6000	3V/m	Yes	H	Front	CR, CT	A
80-6000	3V/m	Yes	H	Back	CR, CT	A
80-6000	3V/m	Yes	H	Left	CR, CT	A
80-6000	3V/m	Yes	H	Right	CR, CT	A
80-6000	3V/m	Yes	V	Front	CR, CT	A
80-6000	3V/m	Yes	V	Back	CR, CT	A
80-6000	3V/m	Yes	V	Left	CR, CT	A
80-6000	3V/m	Yes	V	Right	CR, CT	A

8.4. IMMUNITY TO CONDUCTED DISTURBANCES INDUCED BY RF FIELDS

8.4.1 TEST SPECIFICATION

Basic Standard	EN 61000-4-6
Frequency Range	0.15 MHz – 80 MHz
Field Strength	3Vrms
Modulation	1 kHz Sine Wave, 80% AM
Frequency Step	1% of fundamental
Coupled Cable	a.c. power line
Coupling Device	CDN-M2

8.4.2 TEST PROCEDURE

a. The EUT shall be tested within its intended operating and climatic conditions.

b. The test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn, while the other non-excited RF input ports of the coupling devices are terminated by a 50-ohm load resistor.

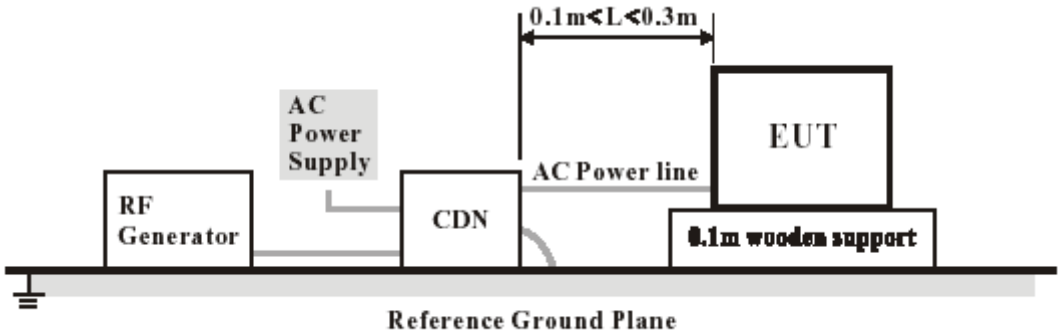
c. The test signal was 80% amplitude modulated with a 1 kHz sine wave

d. The frequency range is swept from 150 kHz to 80 MHz, using the signal level established during the setting process and with a disturbance signal of 80% amplitude. The sweep rate shall not exceed 1.5×10^{-3} decades/s. The step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value where the frequency is swept incrementally.

e. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised, and able to respond. Sensitive frequencies such as clock frequencies and harmonics or frequencies of dominant interest, shall be analyzed separately.

f. Attempts should be made to fully exercise the EUT during test, and to fully interrogate all exercise modes selected for susceptibility.

8.4.3 TEST SETUP



For the actual test configuration, please refer to Appendix II: Photographs of the Test Configuration.

8.4.4 TEST RESULT

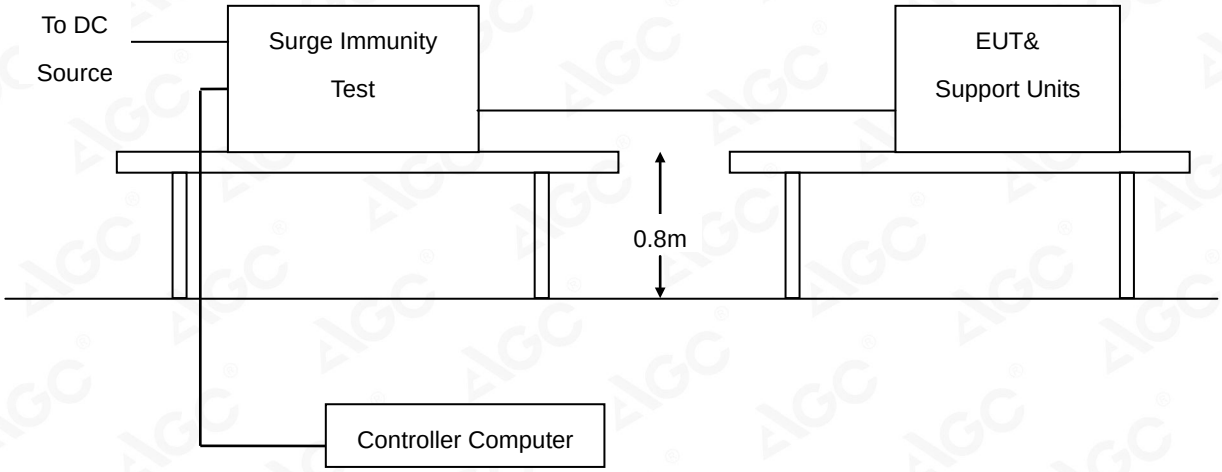
☒ MODE 1 ☒ MODE 2 ☒ MODE 3

Test Point	Frequency (MHz)	Field Strength (Vrms)	Observation	Conclusion
a.c. port	0.15 – 80	3	CT,CR	A

8.5. TRANSIENTS AND SURGES IN THE VEHICULAR ENVIRONMENT

8.5.1 LIMITS OF HARMONIC CURRENT

Please refer to ISO 7637-2[15]



Test Configuration

Ambient Condition of the Test Site			
Temperature	24°C	**EUT AC Voltage Rating**	N/A
Humidity	51%RH	**EUT DC Voltage Rating**	DC 12V
Pressure	990 mbar	**Ground Bond Resistance**	0.2 Ω
Tested by	Erik		

TEST PROCEDURE

Please refer to ISO 7637-2[8] for the measurement methods.

TEST RESULTS

The test modes were carried out for all modes.

The worst test mode of the EUT was Mode 1, and its test data was showed as the follow:

Pulse 1:	Level:	III
	Test level:	-75 V($12V_{DC}$), -450V($24V_{DC}$)
	Number of pulses:	5000
Pulse 2a:	Level:	III
	Test level:	+37 V($12V_{DC}$), +37V($24V_{DC}$)
	Number of pulses:	5000
Pulse 2b:	Level:	III
	Test level:	+10 V($12V_{DC}$), +20V($24V_{DC}$)
	Number of pulses:	10
Pulse 3a:	Level:	III
	Test level:	-112 V($12V_{DC}$), -150V($24V_{DC}$)
	Coupling duration:	1 h
Pulse 3b:	Level:	III
	Test level:	+75 V($12V_{DC}$), +150V($24V_{DC}$)
	Coupling duration:	1 h
Pulse 4:	Level:	III
	Test level:	-6 V($12V_{DC}$), -12V($24V_{DC}$)
	Number of pulses:	1
Operation mode:		- Full load for $12V_{DC}$ (worst case)

Test pulse number	Test voltage	Number of pulses / duration	Required functional status	Functional status of the systems during the test
1 (12V)	-75 V	10	B	**B**
2a (12V)	+37 V	10	B	**A**
2b (12V)	+10 V	10	B	**B**
3a (12V)	-112 V	20min	A	**A**
3b (12V)	+75 V	20min	A	**A**
4 (12V)	-6 V	10	B	**B**

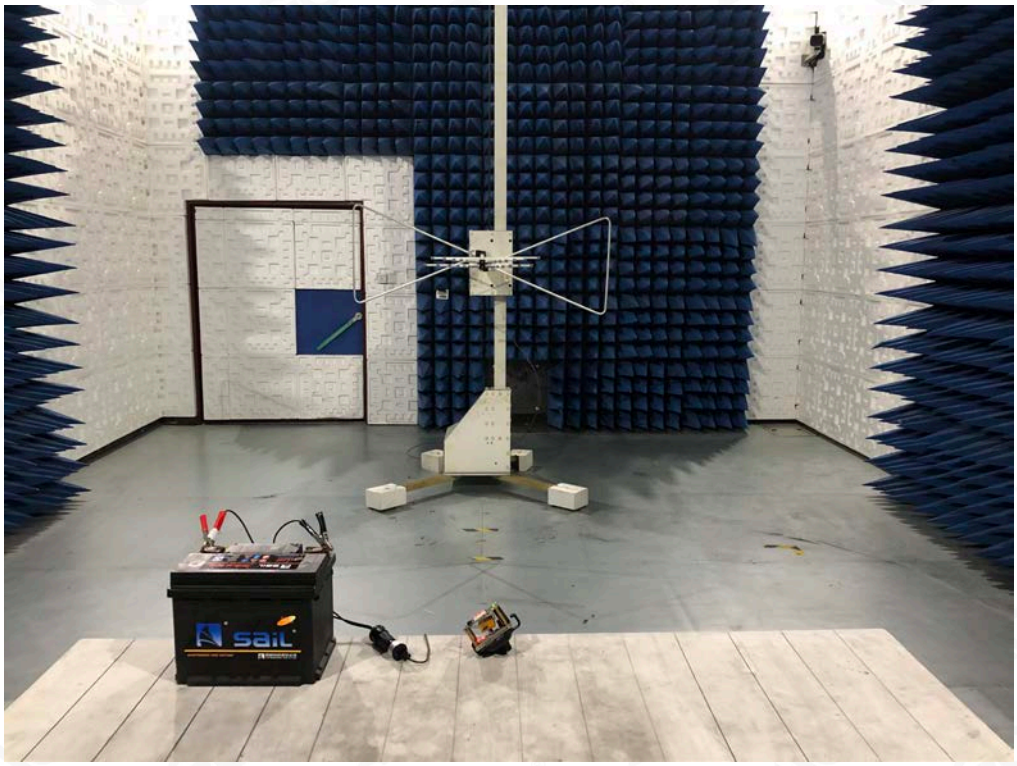
Note: During test, the EUT hasn't loss of function and no unintended RF-Transmission, and no loss of primary user functions.

After test, the EUT can operate as intended with no loss of primary and secondary user functions, and the communication link has been maintained.

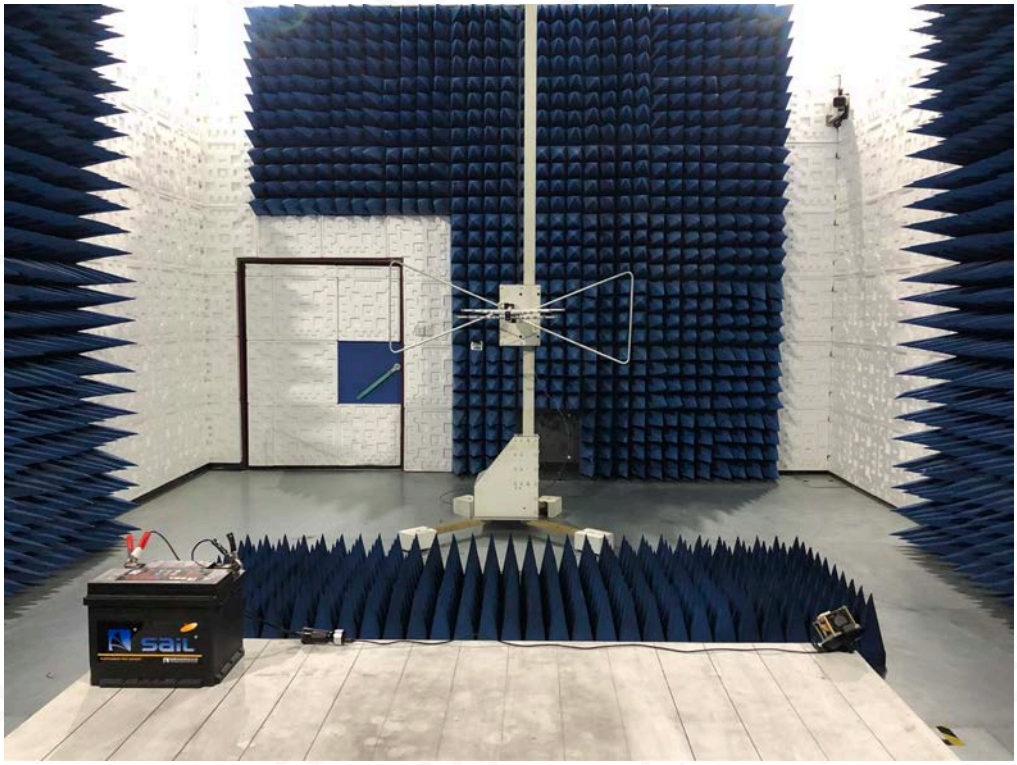
APPENDIX A: PHOTOGRAPHS OF TEST SETUP

LINE CONDUCTED EMISSION TEST SETUP

RADIATED EMISSION TEST SETUP



EN 61000-4-3 RS TEST SETUP



EN 61000-4-6 CS IMMUNITY TEST SETUP

----END OF REPORT----