

Prüfbericht-Nr.: Auftrags-Nr.: Seite 1 von 25 244152843 50275960 001 Test Report No.: Order No.: Page 1 of 25

Kunden-Referenz-Nr.: Auftragsdatum: 60092347 24.06.2019

Client Reference No.: Order date .:

Lumi United Technology Co., Ltd. Auftraggeber: Client: F8, Jingqizhigu office building, No.1 Tangling Rd., Liuxian Ave., Taoyuan Sub-dist.,

Nanshan Dist. Shenzhen 518055, P. R. China

Prüfgegenstand: **Smart Plug**

Test item:

Bezeichnung / Typ-Nr.: SP-EUC01

Identification / Type No.:

Auftrags-Inhalt: EMC test

Order content:

EN 301 489-1 V2.1.1:2017

EN 301 489-17 V3.1.1:2017

Prüfgrundlage: Test specification:

Wareneingangsdatum: 24.06.2019

Date of receipt:

Prüfmuster-Nr.: A000951316-001

Test sample No.:

Prüfzeitraum: Testing period:

Refer to test report

Ort der Prüfung:

Place of testing:

EMC laboratory

ressie Xu

Prüflaboratorium: TÜV Rheinland (Shanghai)

Testing laboratory: Co., Ltd.

Prüfergebnis*: **Pass**

geprüft von I tested by:

Test result*:

kontrolliert von I reviewed by:

Train

Jiayi Zhou/Senior manager

02.09.2019 Jessie Xu/Senior project engineer

Datum Name/Stellung Unterschrift Datum Name/Stellung Unterschrift

Date Name/Position Signature Date Name/Position Signature

02.09.2019

Sonstiges / Other:

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt Condition of the test item at delivery: Test item complete and undamaged

1 = sehr gut 3 = befriedigend 4 = ausreichend * Legende: 2 = aut

5 = mangelhalt N/T = nicht getestet P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar Legend: 3 = satisfactory 4 = sufficient 1 = very good 2 = good 5 = poor F(ail) = failed a.m. test specifications(s)

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.

This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.



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TEST SUMMARY

4.1.1 HARMONICS ON AC MAINS

Result:

Passed

4.1.2 VOLTAGE FLUCTUATIONS ON AC MAINS

Result:

Passed

4.1.3 Mains Terminal Continuous Disturbance Voltage

Result:

Passed

4.2.1 RADIATED EMISSION

Result:

N/A

5.1.1 ELECTROSTATIC DISCHARGE

Result:

Passed

5.1.2 RF ELECTROMAGNETIC FIELD IMMUNITY TEST

Result:

Passed

5.2.1 FAST TRANSIENTS

Result:

Passed

5.2.2 INJECTED CURRENT

Result:

Passed

5.2.3 SURGES TO AC POWER PORT

Result:

Passed

5.2.4 VOLTAGE DIPS AND INTERRUPTIONS TO AC POWER PORT

Result:

Passed



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1 Test Sites

1.1 Test Facilities

Laboratory: TÜV Rheinland (Shanghai) Co., Ltd.

Address: No.177, 178, Lane 777 West Guangzhong Road, Jing'an District, Shanghai,

China

The used test equipment is in accordance with CISPR 16-1 series standards for measurement of radio interference.

Refer to Clause 7 for test and measurement instruments.

2 General Product Information

2.1 Product Function and Intended Use

The EUT (equipment under test) is an ordinary smart plug. For the further information, refer to the user's manual.

2.2 Ratings and System Details

Rated input : AC 250 V, 10 A

Rated frequency : 50/60 Hz

Maximum power : Max. 2300 W

2405-2480 M : 2405-2480 MHz Frequency Range

: OQPSK Modulation Type

: Internal antenna Antenna type

Antenna gain : 3 dBi Protection class : I

2.3 Independent Operation Modes

The basic operation modes are:

"Power on"

- Transmitting and receive simultaneously
- Radio standby

"Power off"



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2.4 Noise Generating and Noise Suppressing Parts	
Refer to the circuit diagram for further information.	
2.5 Submitted Documents	
Circuit diagram and label.	



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3 Test Set-up and Operation Modes

3.1 Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible emission level. The test conditions were adapted accordingly in reference to the instructions for use.

Refer to the related paragraph of this report.

Immunity: The equipment under test (EUT) was configured to have its highest possible susceptibility against the tested phenomena. The test conditions were adapted accordingly in reference to the instructions for use.

Refer to the related paragraph of this report.

3.2 Physical Configuration for Testing

Refer to the related paragraph of this report.

3.3 Test Operation and Test Software

Refer to the related paragraph of this report. No test software was used.

3.4 Special Accessories and Auxiliary Equipment

During the test, the incandescent bulb and electronic load were connected to the EUT as the load. And a mobile phone (Brand: HUAWEI, model: Mate 10 Pro) and gateway was used for connecting with the APP by wireless Wi-Fi.

3.5 Countermeasures to achieve EMC Compliance

Refer to circuit diagram for further information.



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4 Test Results EMISSION

4.1 Emission in the Frequency Range up to 30 MHz

4.1.1 Harmonics on AC mains

Result: Passed

Test procedure : EN 61000-3-2:2014

Reference clause : EN 301 489-1 V2.1.1:2017, clause 8.5

According to Clause 7 of EN 61000-3-2:2014, there is no limit specified for equipment with a rated power of 75 W or less, other than lighting equipment. Except the load, the rated power of the EUT itself is less than 75 W. Therefore, the EUT is deemed to meet the requirements of EN 61000-3-2:2014 without actual testing.

4.1.2 Voltage Fluctuations on AC Mains

Result: Passed

Test procedure : EN 61000-3-3:2013

Reference : EN 301 489-1 V2.1.1:2017, clause 8.6

According to the construction and characteristics of the EUT itself (low power), they do not produce voltage fluctuation which will exceed the limits specified by the standard above. Therefore, the test is not necessary.



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4.1.3 Mains Terminal Continuous Disturbance Voltage

Result: Passed

Date of testing : 29.08.2019 Test procedure : EN 55032:2015

Reference clause : EN 301 489-1 V2.1.1:2017, clause 8.4

Product category : Class B

: 0.15 - 30 MHzFrequency range

: Table A.10 of EN 55032:2015 Limits

Kind of test site : Shielded room

Ambient condition : Temperature: 22.4 °C; Relative humidity: 52.6 %

Expanded measurement: 3.39 dB

uncertainty (k=2)

Test Setup

Input voltage : AC 240 V, 50 Hz

: N/A Artificial hand

Operational mode : Power on with electronic load and operated Wi-Fi function

Earthing : Earthing through power cord. (as Class I equipment)

The measurement equipment like test receivers, quasi-peak detector and Artificial Mains Network (AMN) are in compliance with CISPR 16-1 series standards. The tested object was operated under its rated voltage and its rated frequency.

Furthermore an internal calibration with the test receiver was conducted prior to each measurement.

The tested object was placed on a wooden support above reference ground plane. The EUT was set 0.8 m away from the AMN. The cord longer than necessary to be connected to the AMN was folded forth and back parallel so as to form a bundle with a length between 0.3 m and 0.4 m.

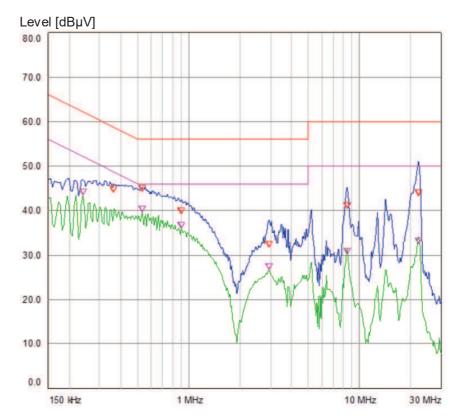
The following figures and tables were those measured by an automatic measuring system. Both Quasi-Peak and Average Value were measured. Quasi-Peak and Average Value were measured and listed respectively where they had a maximum in previous scanning survey. In the following figures, "\neq" (in red) means measurement results with quasi-peak detector and " ∇ " (in pink) means measurement results with average detector.



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Figure 1: Spectral Diagrams, Conducted Emission, 150 kHz-30 MHz, L



Final Measurement Results

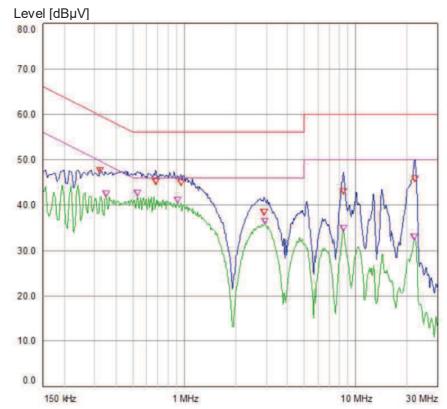
Trace	Frequency	Level	Limit	Delta Limit
	(MHz)	(dBµV)	(dBµV)	(dB)
1 QP	0.3615	44.08	58.69	-14.61
1 QP	0.5325	44.24	56.00	-11.76
1 QP	0.9015	39.17	56.00	-16.83
1 QP	2.9355	31.64	56.00	-24.36
1 QP	8.4435	40.32	60.00	-19.68
1 QP	22.0065	43.27	60.00	-16.73
2 CA	0.24	43.48	52.10	-8.62
2 CA	0.5325	39.59	46.00	-6.41
2 CA	0.906	35.86	46.00	-10.14
2 CA	2.94	26.64	46.00	-19.36
2 CA	8.457	30.08	50.00	-19.92
2 CA	22.0065	32.55	50.00	-17.45



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Figure 2: Spectral Diagrams, Conducted Emission, 150 kHz-30 MHz, N



Final Measurement Results

Trace	Frequency	Level	Limit	Delta Limit
	(MHz)	(dBµV)	(dBµV)	(dB)
1 QP	0.321	47.00	59.68	-12.68
1 QP	0.681	44.40	56.00	-11.60
1 QP	0.9555	44.31	56.00	-11.69
1 QP	2.9085	37.77	56.00	-18.23
1 QP	8.439	42.32	60.00	-17.68
1 QP	21.9975	44.99	60.00	-15.01
2 CA	0.348	41.83	49.01	-7.18
2 CA	0.5325	41.93	46.00	-4.07
2 CA	0.9105	40.38	46.00	-5.62
2 CA	2.9625	35.67	46.00	-10.33
2 CA	8.4525	34.18	50.00	-15.82
2 CA	21.894	32.31	50.00	-17.69



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4.2 Emission in the Frequency Range above 30 MHz

4.2.1 Radiated emission

Result: N/A

Port : Enclosure of ancillary equipment Reference clause : EN 301 489-1 V2.1.1:2017, clause 8.2

According to clause 8.2.1 of EN 301 489-1 V2.1.1:2017, this test is only applicable to ancillary equipment not incorporated in the radio equipment and intended to be measured on a stand-alone basis, as declared by the manufacturer. The EUT incorporates 2.4 GHz wireless transceiver and is not an ancillary equipment. Therefore, this test is not applicable to EUT.



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5 Test Results I M M U N I T Y

According to EN 301 489-17 V3.1.1:2017 clause 6, following performance criteria apply for the EUT.

6.1 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.

6.2 Performance table

Table 1: Performance criteria

Criteri	a During test	After test			
A	Shall operate as intended. May show degradation of performance (see note 1). Shall be no loss of function. Shall be no unintentional transmissions.	Shall be no loss of function. Shall be no loss of stored data or user programmable functions.			
(see note 1). Shall be no loss of function. Shall be no unintentional transmission. B May show loss of function (one or m May show degradation of performan (see note 1). No unintentional transmissions. C May be loss of function (one or more NOTE 1: Degradation of performance during the					
С	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 (see note 2).			
NOTE 1:	minimum performance level specified by the n some cases the specified minimum performance of performance. If the minimum performance level or the perm manufacturer then either of these may be derived including leaflets and advertising) and what the used as intended. No degradation of performance after the test is performance level specified by the manufacture cases the specified minimum performance level performance. After the test no change of actual of the minimum performance level or the permit manufacturer then either of these may be derived.	understood as a degradation to a level not below a nanufacturer for the use of the apparatus as intended. In noe level may be replaced by a permissible degradation issible performance degradation is not specified by the lived from the product description and documentation he user may reasonably expect from the apparatus if it is understood as no degradation below a minimum rer for the use of the apparatus as intended. In some rel may be replaced by a permissible degradation of all operating data or user retrievable data is allowed, issible performance degradation is not specified by the lived from the product description and documentation the user may reasonably expect from the apparatus if			

6.3 Performance criteria for Continuous phenomena applied to Transmitters (CT)



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The performance criteria A shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an ACKnowledgement (ACK) or Not ACKnowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

6.4 Performance criteria for Transient phenomena applied to Transmitters (TT)

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an acknowledgement (ACK) or not-acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpret

6.5 Performance criteria for Continuous phenomena applied to Receivers (CR)

The performance criteria A shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

6.6 Performance criteria for Transient phenomena applied to Receivers (TR)

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration for which performance criteria C shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.



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5.1 Enclosure

5.1.1 Electrostatic Discharge

Result: Passed

During the test, the EUT was placed on 0.8 m high wooden table above the ground plane. The minimum distance between the EUT and all other conductive structures except the ground plane beneath the EUT is more than 0.5 m. The size of the reference ground plane is more than 2 m by 2 m.

A horizontal coupling plane (HCP), sized 1.6 m x 0.8 m, was placed on the wooden table and an insulating plate was placed beneath the EUT to isolate the EUT from the horizontal ground plane. Vertical coupling plane (VCP) of dimensions 0.5 m x 0.5 m is placed parallel to and positioned at a distance of 0.1 m from the EUT.

Date of testing : 29.08.2019

Test procedure : EN 61000-4-2:2009

Reference clause : EN 301 489-1 V2.1.1:2017, clause 9.3

EN 301 489-17 V3.1.1:2017, clause 7.2

Test level : $\pm 2.0 \text{ kV}$, $\pm 4.0 \text{ kV}$ contact discharge;

 ± 2.0 kV, ± 4.0 kV ± 8.0 kV air discharge

Polarity : Positive / Negative

Atmospheric pressure : 101.3 kPa

Number of discharges : ≥ 10 at each point

Operation mode : Power on with incandescent bulb and operated Wi-Fi function

Performance criteria : Refer to clause 5

Ambient condition : Temperature: 22.0 °C, Relative humidity:52.7 %

Table 1: Electrostatic discharge immunity test results

Position	Kind of Discharge	Result	Remarks	
Non-metal enclosure	Air discharge	Pass	No disturbance of	
LED indicator	Air discharge	Pass	function.	
Coupling plane (Both HCP and VCP)	Contact discharge	Pass		



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5.1.2 RF electromagnetic field immunity test

Result: Passed

The test was performed inside a fully-anechoic chamber for the whole frequency range with the part of the ground plane between the field generating antenna and the equipment under test covered by absorbing material. The distance between the tip of the antenna and the side of system tested is 2.2 m in frequency band 80-1000 MHz and 3.6 m in frequency band 1-6 GB. The field uniformity of the test sites is regularly calibrated to ensure the 0-6 dB field uniformity criterion as specified by IEC 61000-4-3 is met.

Date of testing : 29.08.2019

Test procedure : EN 61000-4-3:2006+A1+A2

Reference clause : EN 301 489-1 V2.1.1:2017, clause 9.2

EN 301 489-17 V3.1.1:2017, clause 7.2

Test level : 3 V/m

Frequency range : 80 MHz-6000 MHz Modulation : 80% 1 kHz AM

Frequency scan speed: Frequency step: 1 %; Dwell time: 3 s

: Power on with incandescent bulb and operated Wi-Fi function Operation mode

Performance criteria : Refer to clause 5

Ambient condition : Temperature: 21.9 °C, Relative humidity: 53.4 %

Table 2: RF electromagnetic field immunity test results

Polarization	Position	Result	Remarks				
	Front side	e Pass					
Horizontal	Rear side Pass		Dazz	D	D	D	
Попиона	Left side						
	Right side				No disturbance of function.		
	Front side	Pass					
Vertical	Rear side		Daga				
Vertical	Left side						
	Right side						



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5.2 AC Power Port

5.2.1 Fast Transients

Result: Passed

During the test, the EUT was placed on a 0.1 m high wooden support above the reference ground plane. The minimum distance between the EUT and all other conductive structures except the reference ground plane beneath the EUT is more than 0.5 m.

The length between the coupling device and the EUT is $0.5 \text{ m} \pm 0.05 \text{ m}$. The cord length more than 0.5 m, the excess length of this cable shall be folded to avoid a flat coil and situated at a distance of 0.1 m above the ground reference plane.

Date of testing : 29.08.2019

Test procedure : EN 61000-4-4:2004+A1

Reference clause : EN 301 489-1 V2.1.1:2017, clause 9.4

EN 301 489-17 V3.1.1:2017, clause 7.2

Test level : $\pm 1 \text{ kV}$, 5 kHz

Polarity : +/-

Coupling duration : 2 min/polarity
Input voltage : AC 230 V, 50 Hz

Operation mode : Power on with incandescent bulb and operated Wi-Fi function

Performance criteria : Refer to clause 5

Ambient condition : Temperature: 22.2 °C, Relative humidity: 52.9 %

Table 3: EFT/B immunity test results

Coupling lines	Result	Remarks
AC input power line (L+N+PE)	Pass	During the test, the EUT can operate as intended.



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5.2.2 Injected Current

Result: Passed

During the test, the sample was placed on a 0.1 m high wooden support above the reference ground plane. The minimum distance between the sample and all other conductive structures except the reference ground plane beneath the EUT is more than 0.5 m.

A CDN was used to couple the disturbing signal onto the power input port of the sample. The distance between the EUT and the injected point is within 0.1-0.3 m. The cable between the EUT and current injection point is placed about 50mm above the reference ground plane.

Date of testing : 29.08.2019

Test procedure : EN 61000-4-6:2009

Reference clause : EN 301 489-1 V2.1.1:2017, clause 9.5

EN 301 489-17 V3.1.1:2017, clause 7.2

Test level : 3 V r.m.s. Frequency range : 0.15 - 80 MHz : 80 %AM, 1 kHz Modulation

: Frequency step: 1 %; Dwell time: 3 s Frequency scan speed

: Power on with incandescent bulb and operated Wi-Fi Operation mode

function

Performance criteria : Refer to clause 5

Ambient conditions : Temperature: 23.4 °C, Relative humidity: 53.6 %

Table 4: Injected current test results

Coupling lines	Result	Remarks
AC input power	Pass	During the test, the EUT can operate as intended.



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5.2.3 Surges to AC Power Port

Result: Passed

Date of testing : 29.08.2019

Test procedure : EN 61000-4-5:2006

Reference clause : EN 301 489-1 V2.1.1:2017, clause 9.8

EN 301 489-17 V3.1.1:2017, clause 7.2

Test level : ± 0.5 kV, ± 1 kV (differential mode)

 $\pm 0.5 \text{ kV}, \pm 1 \text{ kV}, \pm 2 \text{ kV} \text{(common mode)}$

 T_r/T_d : 1.2/50 µs (open-circuit voltage)

8/20 µs (short-circuit current)

Polarity : Positive / Negative

Pulse number : 5 pulses for each polarity

Coupling phase : 0°, 90°, 180°, 270°

Repetition rate : 1 pulse/min

: AC 230 V, 50 Hz Input voltage

: Power on with incandescent bulb and operated Wi-Fi function Operation mode

Performance criteria : Refer to clause 5

Ambient conditions : Temperature: 22.2 °C, Relative humidity: 52.9 %

Table 5: Surge immunity test results

Coupling mode	Result	Remarks		
L-N (differential mode)	Pass			
L-PE (common mode)	Pass	During the test, the lamp flickered. After the		
N-PE (common mode)	Pass	disturbance ceased, it could be restored.		



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5.2.4 Voltage dips and interruptions to AC Power Port

Result: Passed

Date of testing : 29.08.2019

Test procedure : EN 61000-4-11:2004

Reference clause : EN 301 489-1 V2.1.1:2017, clause 9.7

EN 301 489-17 V3.1.1:2017, clause 7.2

Test level : 0 % residual voltage for 0.5 T;

> 0 % residual voltage for 1 T; 70 % residual voltage for 25 T; 0 % residual voltage for 250 T;

: AC 230 V, 50 Hz Input voltage

Operation mode : Power on with incandescent bulb and operated Wi-Fi function

Performance criteria : Refer to clause 5

: Temperature: 23.4 °C, Relative humidity: 53.6 % Ambient conditions

Table 6: Test condition and test result for voltage interruptions

Environmental Phenomena	Test level (in % U _T)	Duration (in period of the rated frequency)	Remarks
Dips	0	0.5T (10 ms)	During the test, the load lamp
Dips	0	1T (20 ms)	flickered, After the disturbance
Dips	70	25 (500 ms)	ceased, it could be restored by itself.
Interruptions	0	250 (5 s)	During the test, the load lamp flickered, After the disturbance ceased, it could be restored by operator.



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6 Photographs of the Test Set-Up

Photograph 1: Set-up for measurement of disturbance voltage on AC mains



Photograph 2: Set-up for immunity test of electrostatic discharge





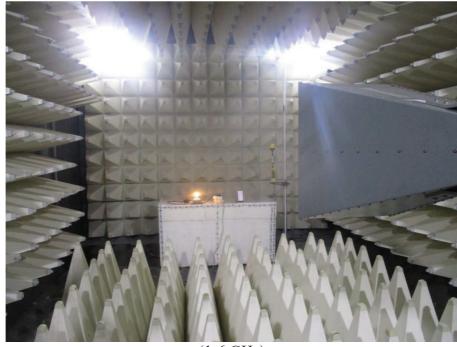
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Photograph 3: Set-up for immunity test of RF electromagnetic field



(80 MHz-1000 MHz)



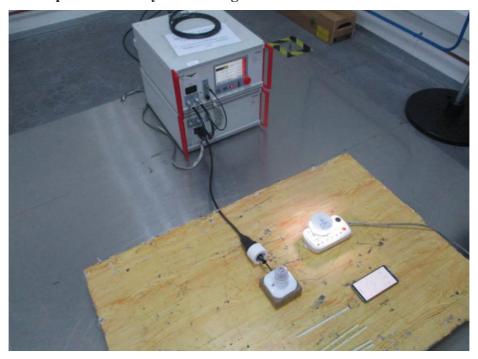
(1-6 GHz)



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Photograph 4: Set-up for immunity test of surge and fast transient/burst



Photograph 5: Set-up for immunity test of injected current





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Photograph 6: Set-up for immunity test of voltage dips and short interruptions





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7 List of Test and Measurement Instruments

Old ID	Equip.	Description	Model	Manufacturer	Inte. (mon)	Due Date
EMC-C-103	1811402	EMI test receiver	ESCI	Rohde&Schwarz	12	19.09.2019
EMC-C-110	1811407	Artificial mains network	ENV216	Rohde&Schwarz	12	19.02.2020
EMC-S-025	1824846	EMC Measurement Software	ES-SCAN (Version2.7)	ROHDE&SCHWARZ	NA*	NA*
EMC-S-002	1824845	EMC Measurement Software	EMC32 (Ver 10.20.01)	ROHDE&SCHWARZ	NA*	NA*
EMC-C-024	1811381	ESD generator	NSG 435	Schaffner	12	26.07.2020
EMC-C-093	1811396	Barometer	DYM3	Ningbo Jiangshan Gl	36	04.04.2021
EMC-C-132	1811416	Fully anechoic chamber	FAC3plus	Frankonia	36	25.07.2022
EMC-C-065	1811390	Signal generator	SMR20	Rohde&Schwarz	36	03.11.2020
EMC-C-153	1811424	Power Amplifier	80RF1000-300	MILMEGA	12	02.11.2019
EMC-C-182	1825214	Power Amplifier	AS0825-170	MILMEGA	12	20.03.2020
EMC-C-096	1811397	Power amplifier	AS0206-50	MILMEGA	12	02.11.2019
EMC-C-162	1817022	Average Power Sensor	NRP6AN	ROHDE&SCHWARZ	12	19.02.2020
EMC-C-163	1817023	Average Power Sensor	NRP6AN	ROHDE&SCHWARZ	12	19.02.2020
EMC-C-097	1811398	Broadband Field Meter	NBM-520	Narda	12	23.04.2020
EMC-C-098	1811399	E-field Probe	EF1891	Narda	12	23.04.2020
EMC-NC-032	1811432	EMS antenna	HL 046	Rohde&Schwarz	NA*	NA*
EMC-NC-055	1811433	Broadband horn antenna	BBHA 9120 E	Schwarzbeck	NA*	NA*
EMC-C-115	1811409	EMC test system	NSG 3040	Teseq	12	19.11.2019
EMC-C-114	1814624	Coupling/Decoupling Network	CDN Mo16	Schaffner	24	09.02.2020
EMC-C-149	1811423	Conducted Immunity Test System	NSG 4070B-75	TESEQ	12	05.09.2019
EMC-C-160	1811428	3-phase Voltage Dips Simulator	CSS-20P3	Shanghai Skylark	12	30.10.2019



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