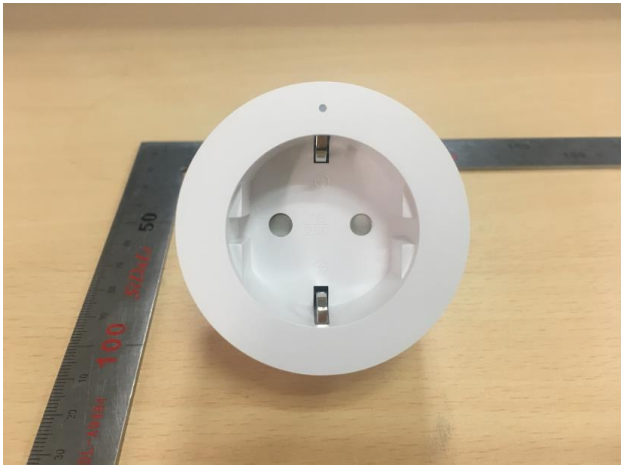




Prüfbericht-Nr.: Test report no.:	50284810 002	Auftrags-Nr.: Order no.:	244322579	Seite 1 von 14 Page 1 of 14			
Kunden-Referenz-Nr.: Client reference no.:	2159468	Auftragsdatum: Order date:	2021-04-06				
Auftraggeber: Client:	Lumi United Technology Co., Ltd. 8th Floor, JinQi Wisdom Valley, No. 1 Tangling Road, Liuxian Ave, Taoyuan Residential District, Nanshan District, Shenzhen, Guangdong, P. R. China						
Prüfgegenstand: Test item:	Smart Plug						
Bezeichnung / Typ-Nr.: Identification / Type no.:	SP-EUC01						
Auftrags-Inhalt: Order content:	Certificate of Conformity Approval for RED						
Prüfgrundlage: Test specification:	EN 300 328 V2.2.2:2019 EN 301 489-1 V2.2.3:2019 EN 301 489-17 V3.1.1:2017	EN IEC 61058-1:2018 EN 61058-1-1:2016 EN 62479:2010					
Wareneingangsdatum: Date of sample receipt:	2021-04-23						
Prüfmuster-Nr.: Test sample no.:	A003040212-001						
Prüfzeitraum: Testing period:	Refer to test report						
Ort der Prüfung: Place of testing:	MRT Technology (Suzhou) Co., Ltd.						
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shanghai) Co., Ltd.						
Prüfergebnis*: Test result*:	Pass						
geprüft von: tested by:	 X Yanli Fan		genehmigt von: authorized by:	 X Hongfei Wu			
Datum: Date:	2021-11-22	Signed by: Yanli Fan		Ausstellungsdatum: Issue date:	2021-11-22	Signed by: Hongfei Wu	
Stellung / Position:	PE/Yanli Fan		Stellung / Position:	Reviewer/Hongfei Wu			
Sonstiges / Other:	The purpose of this report is to update the test standard from EN 300 328 V2.1.1:2016 to EN 300 328 V2.2.2:2019, change the address of license holder and add the alternative factory. Only the receiver blocking was performed again according to the difference between these two standards, other tests please refer to the original report 50284810 001. other requirements of RED 2014/53/EU, please refer to clause 6 of this report. Remark: Adding the alternative factory: CTTech Co., Ltd. Address: Building 2, No. 197 Plant, East Side of Xinhua Avenue, Tongqiao Town, Zhongkai High Tech Zone, Huizhou, 516032 Guangdong Province, P.R. china						
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged						
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet			
* Legend:	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(s)	N/A = not applicable	N/T = not tested			
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

5.1.1 RECEIVER BLOCKING*RESULT: PASS***6.1.1 ELECTRICAL SAFETY REQUIREMENT***RESULT: PASS***6.1.2 HUMAN EXPOSURE TO EM FIELDS***RESULT: PASS***6.2.1 ELECTROMAGNETIC COMPATIBILITY REQUIREMENT***RESULT: PASS*

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1. General Remarks

1.1 Complementary Materials

Null.

1.2 Test Specifications

The following standards were applied.

Table 1: Applied Standard and Test Levels

Radio
EN 300 328 V2.2.2:2019

2. Test Sites

2.1 Test Facilities

MRT Technology (Suzhou) Co., Ltd.
 D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic
 Development Zone, Suzhou, China

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

MRT Lab is accredited to ISO 17025 by the American Association for Laboratory
 Accreditation (A2LA) under the American Association for Laboratory Accreditation
 Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for
 FCC, Industry Canada, EU and TELEC Rules.

2.2 List of Test and Measurement Instruments

Table 2: List of Test and Measurement Equipment

Receiver Blocking

Instrument	Manufacturer	Type No.	Asset No.	Cali. Due Date
Signal Analyzer	R&S	FSV40	MRTSUE06218	2022-04-13
PXA Signal Analyzer	Keysight	N9030B	MRTSUE06395	2021-08-30
Vector Signal Generator	R&S	SMU200A	MRTSUE06489	2022-02-23
RF Signal Generator	Keysight	E8257D	MRTSUE06453	2021-07-02
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	2021-10-20
Bluetooth Test Set	Anritsu	MT8852B- 042	MRTSUE06389	2021-06-11
Thermal Hygrometer	testo	622	MRTSUE06629	2021-11-25

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2.3 Measurement Uncertainty

Table 3: Emission Measurement Uncertainty

Parameter	Uncertainty
Occupied Channel Bandwidth	± 5 %
RF output power, conducted	± 1.5 dB
Power Spectral Density, conducted	± 3 dB
Unwanted Emissions, conducted	± 3 dB
All emissions, radiated	± 6 dB
Temperature	± 1 °C
Humidity	± 5 %
DC and low frequency voltages	± 3 %
Time	± 5 %
Duty Cycle	± 5 %

3. General Product Information

3.1 Product Function and Intended Use

The EUT (Equipment Under Test) is a smart plug which support Zigbee.
The aim of this report is to evaluate the RF characteristic of Zigbee of the EUT.

For details refer to the User Manual and Circuit Diagram.

3.2 System Details

Table 4: Technical Specification of EUT

General Description of EUT	
Product Name:	Smart Plug
Model No.:	SP-EUC01
Rated Voltage:	AC 250V, 50/60Hz
Test Voltage:	DC 3.3V
Operation Temperature:	0~35°C
Technical Specification of Zigbee	
Frequency Range:	2405 - 2480 MHz
Modulation Type:	OQPSK
Antenna Type:	Internal Antenna
Antenna Gain:	3 dBi
Receiver Category:	2

3.3 Independent Operation Modes

Table 5: Independent Operation Modes

Test Mode		Channel Number	Channel Frequency [MHz]
Tx	Rx		
TM1	TM4	11	2405
TM2	TM5	18	2440
TM3	TM6	26	2480

Note: The EUT was set into continuous transmitting or receiving mode in Tx or Rx mode.

Table 6: Power Parameter Setting Value

Channel Number	Channel Frequency [MHz]	Power Parameter Setting Value
11	2405	6
18	2440	6
26	2480	6

3.4 Noise Suppressing Parts

Refer to schematics.

4. Test Set-up and Operation Modes

4.1 Test Methodology

Radio: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Physical Configuration for Testing

The EUT was designed to get into related working mode with the control of computer.
Notes:

For antenna conducted measurements, the antenna was replaced by a 50Ω antenna connector.

For antenna radiated measurements, the associated cables and computer were removed.

For more details, refer to section: Photographs of the Test Set-Up.

4.3 Test Operation and Test Software

Null.

4.4 Special Accessories and Auxiliary Equipment

Null.

4.5 Countermeasures to achieve EMC Compliance

Null.

5. Test Results RADIO

5.1 Receiver Parameters

5.1.1 Receiver Blocking

RESULT:
PASS

Date of testing	: 2021-05-07
Ambient temperature	: 25°C
Relative humidity	: 52%
Atmospheric pressure	: 101kPa
Test requirement	: EN 300 328 V2.2.2:2019, clause 4.3.2.11
Test procedure	: EN 300 328 V2.2.2:2019, clause 5.4.11.2
Normal test voltage	: DC 3.3V
Test modes applied	: TM4, TM6

Table 7: Receiver Blocking

Test Mode	Wanted signal mean power from companion device [dBm]	Blocking signal frequency [MHz]	Blocking signal power [dBm]	PER [%]	Limit [%]	Verdict
TM4	-62.84	2300	-31	0	10	Pass
		2380	-31	0	10	Pass
TM6	-62.82	2504	-31	0	10	Pass
		2584	-31	0	10	Pass

Note:

1. The level of Wanted signal mean power from companion device and Blocking signal power has to be corrected for the (in-band) antenna assembly gain.
2. The setting of Blocking signal power is stricter than the requirement in standard.

6. Other Evaluation of RED 2014/53/EU

6.1 Article 3.1a

6.1.1 Electrical Safety Requirement

RESULT:**PASS**

Evaluation procedure : EN IEC 61058-1:2018
EN 61058-1-1:2016

Test details refer to test report 50283429 002 issued by TUV Rheinland (Shanghai) Co., Ltd.

6.1.2 Human Exposure to EM Fields

RESULT:**PASS**

Evaluation procedure : EN 62479:2010

Test details refer to test report 50284810 001 issued by TUV Rheinland (Shanghai) Co., Ltd.

6.2 Article 3.1b

6.2.1 Electromagnetic Compatibility Requirement

RESULT:**PASS**

Evaluation procedure : EN IEC 61058-1:2018
EN 61058-1-1:2016

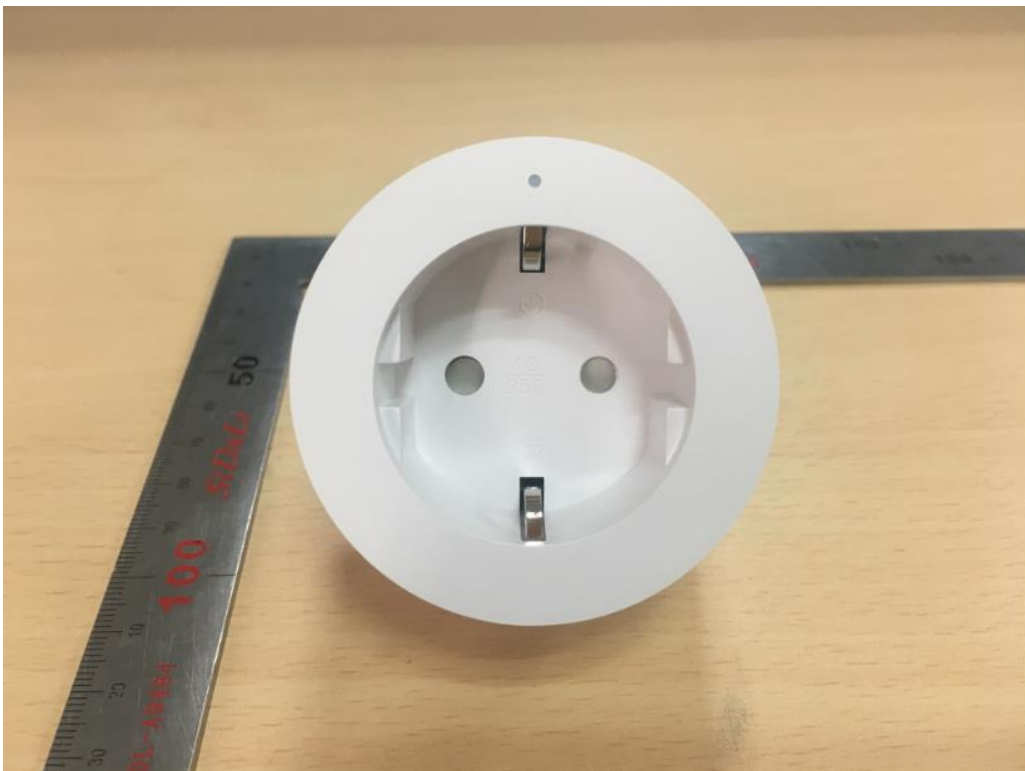
Test details refer to test report 50275968 002 issued by TUV Rheinland (Shanghai) Co., Ltd.

Evaluation procedure : EN 301 489-1 V2.2.3:2019
EN 301 489-17 V3.1.1:2017

Test details refer to test report 50275960 002 issued by TUV Rheinland (Shanghai) Co., Ltd.

7. Photographs of the Sample and Test Setup

Photograph 1: EUT Photo



Photograph 2: Set-up for Blocking Test



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