



RF Exposure Evaluation

For

WetterOnline GmbH

wetteronline home

Test Model: wetteronline home 4

Additional Model No.: wetteronline home 5, wetteronline home 6

Prepared for : WetterOnline GmbH
Address : Karl-Legien-Strasse 194a 53117 Bonn Germany

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
Address : 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei,
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Date of receipt of test sample : April 08, 2025
Number of tested samples : 2
Sample No. : A250407031-1, A250407031-2
Serial number : Prototype
Date of Test : April 08, 2025 ~ April 25, 2025
Date of Report : April 27, 2025



**RF Exposure Evaluation****Report Reference No. : LCSA04075053EF**

Date of Issue..... : April 27, 2025

Testing Laboratory Name : Shenzhen LCS Compliance Testing Laboratory Ltd.Address..... : 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei,
Shajing Street, Baoan District, Shenzhen, 518000, ChinaTesting Location/ Procedure..... : Full application of Harmonised standards ■
Partial application of Harmonised standards □
Other standard testing method □**Applicant's Name..... : WetterOnline GmbH**

Address..... : Karl-Legien-Strasse 194a 53117 Bonn Germany

Test SpecificationStandard : FCC KDB publication 447498 D01 General RF Exposure Guidance
v06

FCC CFR 47 part1 1.1310

FCC CFR 47 part2 2.1091

Test Report Form No..... : TRF-4-E-214 A/0

TRF Originator : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF : Dated 2011-03

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EUT Description..... : wetteronline home

Trade Mark..... : WetterOnline

Test Model : wetteronline home 4

Ratings..... : For Adapter Input:100-240V~, 50/60Hz, 0.6A Max

Output: 5.0V~3.0A, 15.0W 9.0V~2.22A, 19.98W 12.0V~1.67A,
20.0W MaxResult : **PASS****Compiled by:**

Jack Liu/Administrator

Supervised by:

Cary Luo/ Technique principal

Approved by:

Gavin Liang/ Manager



Shenzhen LCS Compliance Testing Laboratory Ltd.

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Scan code to check authenticity



RF Exposure Evaluation

Test Report No. : LCSA04075053EF	<u>April 27, 2025</u> Date of issue
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EUT.....	: wetteronline home
Test Model.....	: wetteronline home 4
Applicant.....	: WetterOnline GmbH
Address.....	: Karl-Legien-Strasse 194a 53117 Bonn Germany
Telephone.....	: /
Fax.....	: /
Manufacturer.....	: SHENZHEN PRETECH INDUSTRIAL CO., LTD
Address.....	: 808, QIANCHENG COMMERCIAL CENTER, 5 HAICHENG ROAD, MABU COMMUNITY, XIXIANG STREET, BAO'AN DISTRICT SHENZHEN GUANGDONG CHINA
Telephone.....	: /
Fax.....	: /
Factory.....	: SHENZHEN PRETECH INDUSTRIAL CO., LTD
Address.....	: 808, QIANCHENG COMMERCIAL CENTER, 5 HAICHENG ROAD, MABU COMMUNITY, XIXIANG STREET, BAO'AN DISTRICT SHENZHEN GUANGDONG CHINA
Telephone.....	: /
Fax.....	: /

Test Result:	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.





Revision History

Report Version	Issue Date	Revision Content	Revised By
000	April 27, 2025	Initial Issue	---





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1. Product Information

EUT	: wetteronline home
Test Model	: wetteronline home 4
Additional Model No.	: wetteronline home 5, wetteronline home 6
Model Declaration	: PCB board, structure and internal of these model(s) are the same, So no additional models were tested
Ratings	: For Adapter Input:100-240V~, 50/60Hz, 0.6A Max Output: 5.0V~3.0A, 15.0W 9.0V~2.22A, 19.98W 12.0V~1.67A, 20.0W Max
Hardware Version	: SOD3566-M V1.1
Software Version	: rk3566_tgo-userdebug 13 TQ3C.230805.001.B2 eng.gxf.20250401.075218 release-keys
Bluetooth:	
Frequency Range	: 2402MHz~2480MHz
Channel Number	: 79 channels for Bluetooth V5.0 (DSS) 40 channels for Bluetooth V5.0 (DTS)
Channel Spacing	: 1MHz for Bluetooth V5.0 (DSS) 2MHz for Bluetooth V5.0 (DTS)
Modulation Type	: GFSK, $\pi/4$ -DQPSK, 8-DPSK for Bluetooth V5.0 (DSS) GFSK for Bluetooth V5.0 (DTS)
Bluetooth Version	: V5.0
Antenna Description	: PIFA Antenna, 1.50dBi(Max.)
WIFI(2.4G Band):	
Frequency Range	: 2412MHz~2462MHz
Channel Spacing	: 5MHz
Channel Number	: 11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz)
Modulation Type	: IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: PIFA Antenna, 3.27dBi(Max.)
WIFI(5.2G Band):	
Frequency Range	: 5180MHz~5240MHz
Channel Number	: 4 Channels for 20MHz bandwidth(5180MHz~5240MHz) 2 channels for 40MHz bandwidth(5190MHz~5230MHz) 1 channels for 80MHz bandwidth(5210MHz)
Modulation Type	: IEEE 802.11a/n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: PIFA Antenna, 0.83dBi(Max.)
WIFI(5.8G Band)	
Frequency Range	: 5745MHz~5825MHz
Channel Number	: 5 channels for 20MHz bandwidth(5745MHz~5825MHz) 2 channels for 40MHz bandwidth(5755MHz~5795MHz) 1 channels for 80MHz bandwidth(5775MHz)
Modulation Type	: IEEE 802.11a/n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: PIFA Antenna, 0.83dBi(Max.)
Exposure category	: General population/uncontrolled environment
EUT Type	: Production Unit
Device Type	: Mobile Device

Note: For a more detailed antenna description, please refer to the antenna specifications or the antenna report provided by the customer.





2. Evaluation Method

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

In accordance with KDB447498D01 for Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modelled or measured field strengths or power density, is ≤ 1.0 . The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging does not apply when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required by all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.

3. Limit

3.1 Refer Evaluation Method

[ANSI C95.1-2019](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz

[FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06](#): Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

[FCC CFR 47 part1 1.1310](#): Radiofrequency radiation exposure limits.

[FCC CFR 47 part2 2.1091](#): Radiofrequency radiation exposure evaluation: mobile devices.

3.2 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f ²)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Uncontrolled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f ²)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density





4. MPE Calculation Method

Predication of MPE limit at a given distance
Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=PG/4\pi R^2$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

5. Antenna Information

EUT can only use antennas certificated as follows provided by manufacturer;

Internal/ External Identification	Antenna type and antenna number	Operate frequency band	Maximum antenna gain	Notes
Internal	PIFA Antenna	2400MHz ~ 2500MHz	BT: 1.50dBi	BT Antenna
Internal	PIFA Antenna	2400MHz ~ 2500MHz 5000MHz ~ 6000MHz	2.4GWIFI: 3.27dBi 5.2GWIFI: 0.83dBi 5.8GWIFI: 0.83dBi	WIFI Antenna

6. Conducted Power

[BT]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	0	2402	-0.64
	39	2441	-0.62
	78	2480	-1.93
$\pi/4$ DQPSK	0	2402	-1.38
	39	2441	1.33
	78	2480	0.17
8DPSK	0	2402	-0.88
	39	2441	1.76
	78	2480	0.55

[BLE 1M]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
BLE	0	2402	-0.84
	19	2440	1.73
	39	2480	0.7

[BLE 2M]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
BLE	0	2402	-0.93
	19	2440	1.35
	39	2480	0.54





[2.4G WIFI]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
11B	1	2412	15.38
	6	2437	15.05
	11	2462	14.4
11G	1	2412	13.53
	6	2437	12.97
	11	2462	12.68
11N20 SISO	1	2412	13.22
	6	2437	12.49
	11	2462	12.33
11N40 SISO	3	2412	12.7
	6	2437	11.65
	9	2462	12.45

[5.2G WIFI]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11A	36	5180	12.41
	40	5200	12.21
	48	5240	10.81
11N20 SISO	36	5180	12.56
	40	5200	12.44
	48	5240	11.03
11N40 SISO	38	5190	10.01
	46	5230	8.75
11AC20 SISO	36	5180	11.52
	40	5200	11.36
	48	5240	10.04
11AC40 SISO	38	5190	10.05
	46	5230	8.67
11AC80 SISO	42	5210	8.31

[5.8G WIFI]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11A	149	5745	12.84
	157	5785	11.98
	165	5825	12.47
11N20 SISO	149	5745	13.1
	157	5785	12.38
	165	5825	12.85
11N40 SISO	151	5755	10.62
	159	5795	9.93
11AC20 SISO	149	5745	12
	157	5785	11.23
	165	5825	11.68
11AC40 SISO	151	5755	10.59
	159	5795	9.97
11AC80 SISO	155	5775	8.82





7. Manufacturing Tolerance

[BT]

GFSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	0	0	-1.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
$\pi/4$ -DQPSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	-0	1.0	0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
8DPSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	0	1.0	0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

[BLE1M]

BT LE (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	0	1.0	0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

[BLE2M]

BT LE (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	0	1.0	0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

[2.4G WIFI]

11B (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	15.0	15.0	14.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11G (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	13.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	13.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	12.0	11.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0





[5.2G WIFI]

11A (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	12.0	12.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	12.0	12.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	10.0	8.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	11.0	11.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	10.0	8.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC80 (Average)			
Channel	Channel 42		
Target (dBm)	8.0		
Tolerance $\pm$ (dB)	1.0		





[5.8G WIFI]

11A (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	12.0
Tolerance ±(dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	13.0	12.0	12.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	10.0	9.0	
Tolerance ±(dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	11.0
Tolerance ±(dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channe151	Channel 159	
Target (dBm)	10.0	9.0	
Tolerance ±(dB)	1.0	1.0	
11AC80 (Average)			
Channel	Channe155		
Target (dBm)	8.0		
Tolerance ±(dB)	1.0		





8. Measurement Results

8.1 Standalone MPE Evaluation

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance, $r=20\text{cm}$, as well as the gain of the used antenna refer to antenna information, the RF power density can be obtained.

[BT]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
GFSK	1.0	1.2589	1.50	1.4125	0.0004	1.0000
$\pi/4$ -DQPSK	2.0	1.5849	1.50	1.4125	0.0004	1.0000
8-DPSK	2.0	1.5849	1.50	1.4125	0.0004	1.0000

[BLE1M]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
GFSK	2.0	1.5849	1.50	1.4125	0.0004	1.0000

[BLE2M]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
GFSK	2.0	1.5849	1.50	1.4125	0.0004	1.0000

[2.4G WIFI]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11b	16.0	39.8107	3.27	2.1232	0.0168	1.0000
IEEE 802.11g	14.0	25.1189	3.27	2.1232	0.0106	1.0000
IEEE 802.11n HT20	14.0	25.1189	3.27	2.1232	0.0106	1.0000
IEEE 802.11n HT40	13.0	19.9526	3.27	2.1232	0.0084	1.0000

[5.2G WIFI]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	0.83	1.2106	0.0048	1.0000
IEEE 802.11n HT20	13.0	19.9526	0.83	1.2106	0.0048	1.0000
IEEE 802.11n HT40	11.0	12.5893	0.83	1.2106	0.0030	1.0000
IEEE 802.11ac VHT20	12.0	15.8489	0.83	1.2106	0.0038	1.0000
IEEE 802.11ac VHT40	11.0	12.5893	0.83	1.2106	0.0030	1.0000
IEEE 802.11ac VHT80	9.0	7.9433	0.83	1.2106	0.0019	1.0000



**[5.8G WIFI]**

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	0.83	1.2106	0.0048	1.0000
IEEE 802.11n HT20	14.0	25.1189	0.83	1.2106	0.0061	1.0000
IEEE 802.11n HT40	11.0	12.5893	0.83	1.2106	0.0030	1.0000
IEEE 802.11ac VHT20	13.0	19.9526	0.83	1.2106	0.0048	1.0000
IEEE 802.11ac VHT40	11.0	12.5893	0.83	1.2106	0.0030	1.0000
IEEE 802.11ac VHT80	9.0	7.9433	0.83	1.2106	0.0019	1.0000

Remark:

1. Output power including tune-up tolerance;
2. Output power was adjusted to duty cycle at 100% if measured duty cycle less than 98%;
3. MPE evaluate distance is 20cm from user manual provide by manufacturer.

8.2 Simultaneous Transmission MPE Evaluation

The EUT equipped with one BT antenna and one WIFI antenna. so need consider simultaneous transmission; According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;

$\sum \sum$ of MPE ratios ≤ 1.0

Modulation Type	MPE _{Antenna_BTLE} (mW/cm ²)	MPE _{Antenna_WIFI} (mW/cm ²)	$\sum$ MPE ratios	Limit	Results
BT&WIFI	0.0004	0.0168	0.0172	1.0	PASS

9. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

10. Description of Test Facility

NVLAP Accreditation Code is 600167-0.

FCC Designation Number is CN5024.

CAB identifier is CN0071.

CNAS Registration Number is L4595.

Test Firm Registration Number: 254912.

11.Measurement Uncertainty

BT /BLE/2.4GWLAN/5.2G WLAN/5.8G WLAN:

Test Item	Frequency Range	Uncertainty	Note
Output power	1GHz-40GHz	±0.57dB	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

-----THE END OF REPORT-----

