



RF Exposure Evaluation

FCC ID: ZNPWD-R1501U

Applicant: Shenzhen Century Xinyang Tech Co., Ltd

Address: 3F, North Building, Bantian High-tech industrial Zone, No. 2 of Bell Road, Longgang, Shenzhen, Guangdong, China

Manufacturer: Shenzhen Century Xinyang Tech Co., Ltd

Address: 3F, North Building, Bantian High-tech industrial Zone, No. 2 of Bell Road, Longgang, Shenzhen, Guangdong, China

EUT: 1500Mbps Wireless WiFi Repeater

Trade Mark: N/A

Model Number: WD-R1501U, FWR-AX1500P, WD-AX1500U

Date of Receipt: May 06, 2025

Test Date: May 06, 2025 - May 14, 2025

Date of Report: May 15, 2025

Prepared By: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China

Applicable Standards: 47CFR§1.1310, 47CFR§1.1307
FCC CFR 47 part2 2.1091
KDB 447498 D01 General RF Exposure Guidance v06

Test Result: Pass

Report Number: DLE-250522003R-1

Prepared (Test Engineer): Alisa Song

Reviewer (Supervisor): Jack Bu

Approved (Manager): Jade Yang



This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.



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1. Product Information

Product Name:	1500Mbps Wireless WiFi Repeater
Trademark	N/A
Model No.:	WD-R1501U, FWR-AX1500P, WD-AX1500U
Model Difference	Differences in shell mold opening and product production batches are not the same, no product function differences, will not affect the test.
Power supply:	AC 100-240V 50/60Hz
Sample Number:	DLE-250522003R-101
WIFI 2.4G	
Operation Frequency:	2412~2462 MHz for 802.11b/g/nHT20/axHT20 2422~2452 MHz for 802.11nHT40/axHT40
Channel numbers:	11 Channels for 802.11b/g/n(HT20)/axHT20 7 channels for 802.11nHT40/axHT40
Channel separation:	5MHz
Modulation technology:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n(20/40): OFDM(QPSK, BPSK, 16-QAM, 64-QAM) 802.11ax(20/40): OFDMA(QPSK, BPSK, 16-QAM, 64-QAM, 1024-QAM)
Antenna Type:	ANT 1: External Antenna ANT 2: External Antenna
Antenna gain:	ANT 1: 4.19 dBi; ANT 2: 4.19 dBi Directional gain = $4.19 + 10 \log(2) = 7.2$
WIFI 5.8G	
Operation Frequency:	5745-5825 MHz for 802.11a/n/ac/ax (20M); 5755-5795 MHz for 802.11n/ac/ax (40M); 5775 MHz for 802.11 ac/ax (80M).
Channel numbers:	5 channels for 802.11 a/n/ac/ax (20M) in the 5745-5825MHz band; 2 channels for 802.11 n/ac/ax (40M) in the 5755-5795 MHz band; 1 channels for 802.11 ac/ax (80M) in the 5775MHz band.
Channel separation:	20MHz/40MHz/80MHz
Modulation technology:	802.11a(OFDM): BPSK, QPSK, 16-QAM, 64-QAM 802.11n(OFDM): BPSK, QPSK, 16-QAM, 64-QAM 802.11ac(OFDM): BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM 802.11ax(OFDMA): BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
Rate of Transmitter	802.11a: 6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps 802.11n/ac/ax: Up to 500Mbps
Antenna Type:	ANT 1: External Antenna ANT 2: External Antenna
Antenna gain:	ANT 1: 3.48 dBi; ANT 2: 3.48 dBi Directional gain = $3.48 + 10 \log(2) = 6.5$

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. The EUT's all information provided by client.



2. Test laboratory information

Test Lab: Shenzhen DL Testing Technology Co., Ltd.
101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong
Address: Industrial Zone, Baolong Street, Longgang District, Shenzhen,
Guangdong, China
FCC Test Firm Registration Number: 854456
Designation Number: CN1307
IC Registered No.: 27485
CAB ID.: CN0118

3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 2.56\text{dB}$
2	RF power,conducted	$\pm 0.42\text{dB}$
3	Spurious emissions,conducted	$\pm 2.76\text{dB}$
4	All emissions,radiated(<30MHz)	$\pm 3.54\text{dB}$
5	All emissions,radiated(<1G)	$\pm 3.65\text{dB}$
6	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
7	Occupied bandwidth	$\pm 1.28\text{MHz}$
8	PSD	$\pm 0.69\text{dB}$
9	Temperature	$\pm 0.5^{\circ}\text{C}$
10	Humidity	$\pm 2\%$



4. METHOD OF MEASUREMENT

4.1 APPLICABLE STANDARD

ANSI C95.1 – 1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

FCC KDB447498 D01 General RF Exposure Guidance v06: Mobile and Portable Device, RF Exposure, Equipment Authorization Procedures.

FCC CFR 47 part1 1.1310: Radio frequency radiation exposure limits

FCC CFR 47 part2 2.1091: Radiofrequency radiation exposure evaluation: mobile devices

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

4.2 LIMITS

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
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
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	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

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm², P_{out} = output power to antenna in mW;

G = gain of antenna in linear scale, $\pi = 3.1416$;

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.



Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

EVALUATION RESULTS

WIFI(Peak) ANT1

Frequency (MHz)	11b		
	2412	2437	2462
Target (dBm)	15.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	11g		
	2412	2437	2462
Target (dBm)	15.0	16.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	11n(HT20)		
	2412	2437	2462
Target (dBm)	16.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	11n(HT40)		
	2412	2437	2462
Target (dBm)	16.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	11ax(HEW20)		
	2412	2437	2462
Target (dBm)	16.0	15.0	14.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	11ax(HEW40)		
	2412	2437	2462
Target (dBm)	16.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0



WIFI(Peak) ANT2

Frequency (MHz)	11b		
	2412	2437	2462
Target (dBm)	15.0	15.0	16.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	11g		
	2412	2437	2462
Target (dBm)	15.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	11n(HT20)		
	2412	2437	2462
Target (dBm)	15.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	11n(HT40)		
	2412	2437	2462
Target (dBm)	16.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	11ax(HEW20)		
	2412	2437	2462
Target (dBm)	15.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	11ax(HEW40)		
	2412	2437	2462
Target (dBm)	16.0	16.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0



WIFI(Average) ANT1

Frequency (MHz)	802.11a		
	5745	5785	5825
Target (dBm)	15.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	802.11n(HT20)		
	5745	5785	5825
Target (dBm)	15.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	802.11n(HT40)		
	5755	/	5795
Target (dBm)	15.0	/	15.0
Tolerance $\pm$ (dB)	2.0	/	2.0
Frequency (MHz)	11ac(VHT20)		
	5745	5785	5825
Target (dBm)	15.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	11ac(VHT40)		
	5755	/	5795
Target (dBm)	15.0	/	15.0
Tolerance $\pm$ (dB)	2.0	/	2.0
Frequency (MHz)	11ac(VHT80)		
	/	5775	/
Target (dBm)	/	15.0	/
Tolerance $\pm$ (dB)	/	2.0	/
Frequency (MHz)	11ax(HEW20)		
	5745	5785	5825
Target (dBm)	15.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	11ax(HEW40)		
	5755	/	5795
Target (dBm)	15.0	/	15.0
Tolerance $\pm$ (dB)	2.0	/	2.0
Frequency (MHz)	11ax(HEW80)		
	/	5775	/
Target (dBm)	/	15.0	/
Tolerance $\pm$ (dB)	/	2.0	/



WIFI(Average) ANT2

Frequency (MHz)	802.11a		
	5745	5785	5825
Target (dBm)	15.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	802.11n(HT20)		
	5745	5785	5825
Target (dBm)	14.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	802.11n(HT40)		
	5755	/	5795
Target (dBm)	14.0	/	15.0
Tolerance $\pm$ (dB)	2.0	/	2.0
Frequency (MHz)	11ac(VHT20)		
	5745	5785	5825
Target (dBm)	15.0	15.0	15.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	11ac(VHT40)		
	5755	/	5795
Target (dBm)	15.0	/	15.0
Tolerance $\pm$ (dB)	2.0	/	2.0
Frequency (MHz)	11ac(VHT80)		
	/	5775	/
Target (dBm)	/	15.0	/
Tolerance $\pm$ (dB)	/	2.0	/
Frequency (MHz)	11ax(HEW20)		
	5745	5785	5825
Target (dBm)	15.0	15.0	16.0
Tolerance $\pm$ (dB)	2.0	2.0	2.0
Frequency (MHz)	11ax(HEW40)		
	5755	/	5795
Target (dBm)	15.0	/	15.0
Tolerance $\pm$ (dB)	2.0	/	2.0
Frequency (MHz)	11ax(HEW80)		
	/	5775	/
Target (dBm)	/	15.0	/
Tolerance $\pm$ (dB)	/	2.0	/

**MPE Result**

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
2.4GWIFI ANT1	18.0	63.096	4.19	2.624	0.03294	1.0000
5.8GWIFI ANT1	17.0	50.119	3.48	2.228	0.02222	1.0000

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
2.4GWIFI ANT2	18.0	63.096	4.19	2.624	0.03294	1.0000
5.8GWIFI ANT2	17.0	50.119	3.48	2.228	0.02222	1.0000

Remark:

1. Output power (Peak) including turn-up tolerance;
2. MPE evaluate distance is 20cm from user manual provide by manufacturer.

Simultaneous MPE Result

2.4GWIFI ANT1 MPE (Ratio)	2.4GWIFI ANT2 MPE (Ratio)	simultaneous MPE (Ratio)	MPE Limits (Ratio)
0.03294	0.03294	0.06588	1.0000

Note: WIFI 2.4G and 5G cannot be transmitted simultaneously. You can either transmit 2.4G WIFI or 5G WIFI.

Remark: antenna gain=2.4G:4.19dBi/ 5.8GWIFI:3.48dBi
Conform to 2.1091.

****END OF REPORT****