



# Maximum Permissible Exposure Evaluation

## FCC ID: 2AOQ6-WR25

### 1. Client Information

<b>Applicant</b>	:	ChongQing Lavid Industrial Co., Ltd.
<b>Address</b>	:	No.2 Workshop, Electronic and Electrical Manufacturing Base, Union Community, Chenjiaba Street, Wanzhou District, Chongqing, China
<b>Manufacturer</b>	:	ChongQing Lavid Industrial Co., Ltd.
<b>Address</b>	:	No.2 Workshop, Electronic and Electrical Manufacturing Base, Union Community, Chenjiaba Street, Wanzhou District, Chongqing, China

### 2. General Description of EUT

<b>EUT Name</b>	:	WiFi Repeater
<b>Models No.</b>	:	WR25, WR22, WR23, WR33, WR35, WR22T
<b>Model Difference</b>	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is appearance color.
<b>Sample ID</b>	:	HC-C-202405-0242-04-01-1#&HC-C-202405-0242-04-01-2#
<b>Product Description</b>	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz
	Antenna Gain:	3.0dBi FPC Antenna1 3.0dBi FPC Antenna2
<b>Power Rating</b>	:	Input: AC 120V/60Hz
<b>Software Version</b>	:	V122_127
<b>Hardware Version</b>	:	V2.0
<b>Connecting I/O Port(S)</b>	:	Please refer to the User's Manual
<b>Remark</b>	:	the MPE report used the EUT-2(HC-C-202405-0242-04-01-2#).

## MPE Calculations for FCC

### 1. EUT Operation Condition:

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

### 2. Exposure Evaluation:

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 the 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

### 3. Simultaneous transmission MPE Considerations

According to KDB447498: All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1. 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 modeled or measured field strengths or power density, is  $\leq 1.0$ .

This means that:

$$\sum \text{MPE ratios} \leq 1.0$$



## 4. Standalone MPE Evaluation:

2.4G WIFI Worst Maximum MPE Result Antenna1								
Mode	N <sub>TX</sub>	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/cm <sup>2</sup> ) [S]
802.11b	1	2412	18.83	18±1	19	3.0	20	0.03153
		2437	18.82	18±1	19	3.0	20	0.03153
		2462	18.53	18±1	19	3.0	20	0.03153
802.11g	1	2412	16.08	16±1	17	3.0	20	0.01989
		2437	16.82	16±1	17	3.0	20	0.01989
		2462	15.40	15±1	16	3.0	20	0.01580
802.11n (HT20)	1	2412	14.54	14±1	15	3.0	20	0.01255
		2437	14.99	14±1	15	3.0	20	0.01255
		2462	14.23	14±1	15	3.0	20	0.01255

Note:

N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted Peak Output Power.

2.4G WIFI Worst Maximum MPE Result Antenna2								
Mode	N <sub>TX</sub>	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/cm <sup>2</sup> ) [S]
802.11b	1	2412	18.52	18±1	19	3.0	20	0.03153
		2437	17.69	17±1	18	3.0	20	0.02504
		2462	18.47	18±1	19	3.0	20	0.03153
802.11g	1	2412	15.22	15±1	16	3.0	20	0.01580
		2437	15.27	15±1	16	3.0	20	0.01580
		2462	14.23	14±1	15	3.0	20	0.01255
802.11n (HT20)	1	2412	14.57	14±1	15	3.0	20	0.01255
		2437	13.83	13±1	14	3.0	20	0.00997
		2462	14.62	14±1	15	3.0	20	0.01255

Note:

N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted Peak Output Power.



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Remark:

1. Output power including turn-up tolerance;
2. Output power was adjust to duty cycle at 100% if measured duty cycle less than 98%;
3. MPE evaluate distance is 20cm from user manual provide by manufacturer.
4. Only the worst power was evaluated for each wireless function

### 5. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

#### Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/ cm <sup>2</sup> )
300-1,500	F/1500
1,500-100,000	1.0

### 6. Summary simultaneous transmission information

The sample supports two antennas for 2.4G WIFI Antenna1 and 2.4G WIFI Antenna2.

The 2.4G WIFI Antenna1 and 2.4G WIFI Antenna2 can transmit simultaneous.

The 2.4G WIFI Antenna with two different Antenna.

According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;

$\Sigma$  of MPE ratios  $\leq 1.0$

### 7. Summary simultaneous transmission results

2.4G WIFI Antenna1 + 2.4G WIFI Antenna2 Maximum Simultaneous transmission MPE Ratios is  $0.03153+0.03153=0.06306\leq 1.0$ .

### 8. Conclusion:

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

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



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