

# Maximum Permissible Exposure (MPE)

- FCCID : **A3LWCH730B**
- Product name : **Wi-Fi Transmitter**
- Model name : **WCH730B**
- Device category : **Mobile device**

For maximum permissible exposure(MPE) evaluation of mobile device, the calculation is:

$$S = P G / (4 R^2 \pi) , \text{ mW/cm}^2$$

S = Maximum Power density  
 P = Maximum power with tolerance  
 G = Numeric power gain of the antenna  
 R = Distance from transmitting antenna

RF Function	Frequency Range (MHz)	Antenna gain (dBi)			Max. Target Power (dBm)	Power Tolerance (dB)	MPE (mW/cm <sup>2</sup> )
		ANT 1	ANT 2	Directional			
<b>Bluetooth</b> <b>Bluetooth LE</b>	<b>2402 ~ 2480</b>	<b>2.00</b>	<b>N/A</b>	<b>N/A</b>	<b>7.00</b>	<b>± 2.5</b>	<b><u>0.003379</u></b>
802.11b/g	2412 ~ 2462	2.20	1.90	N/A	16.00	± 2.5	0.023374
802.11n(HT20) – 1TX	2412 ~ 2462	2.20	1.90	N/A	16.00	± 2.5	0.023374
<b>802.11n(HT20) – 2TX</b>	<b>2412 ~ 2462</b>	<b>N/A</b>	<b>N/A</b>	<b>5.062</b>	<b>13.50</b>	<b>± 2.5</b>	<b><u>0.025406</u></b>
802.11n(HT40) – 1TX	2422 ~ 2452	2.20	1.90	N/A	11.25	± 2.5	0.007829
802.11n(HT40) – 2TX		N/A	N/A	5.062	8.75	± 2.5	0.008510
<b>802.11a – 1TX</b>	<b>5180 ~ 5240</b> <b>5260 ~ 5320</b> <b>5500 ~ 5700</b> <b>5745 ~ 5825</b>	<b>2.50</b> <b>2.60</b> <b>2.80</b> <b>2.00</b>	<b>2.20</b> <b>2.80</b> <b>2.50</b> <b>2.80</b>	<b>N/A</b>	<b>15.50</b>	<b>± 2.5</b>	<b><u>0.022322</u></b>
802.11(HT20) – 1TX 802.11ac(VHT20) – 1TX	5180 ~ 5240 5260 ~ 5320 5500 ~ 5700 5745 ~ 5825	2.50 2.60 2.80 2.00	2.20 2.80 2.50 2.80	N/A	15.50	± 2.5	0.022322
802.11(HT20) – 2TX 802.11ac(VHT20) – 2TX	5180 ~ 5240 5260 ~ 5320 5500 ~ 5700 5745 ~ 5825	N/A	N/A	5.362 5.711 5.662 5.420	11.50	± 2.5	0.017176
802.11n(HT40) – 1TX 802.11ac(VHT40) – 1TX	5190 ~ 5230 5270 ~ 5310 5510 ~ 5670 5755 ~ 5795	2.50 2.60 2.80 2.00	2.20 2.80 2.50 2.80	N/A	15.50	± 2.5	0.022322
802.11n(HT40) – 2TX 802.11ac(VHT40) – 2TX	5190 ~ 5230 5270 ~ 5310 5510 ~ 5670 5755 ~ 5795	N/A	N/A	5.362 5.711 5.662 5.420	11.50	± 2.5	0.017176
802.11ac(VHT80) – 1TX	5210 5290 5530 5775	2.50 2.60 2.80 2.00	2.20 2.80 2.50 2.80	N/A	13.50	± 2.5	0.014084
802.11ac(VHT80) – 2TX	5210 5290 5530 5775	N/A	N/A	5.362 5.711 5.662 5.420	10.50	± 2.5	0.013644

For simultaneous transmission, the calculation is:

**Calculation of MPE<sub>1</sub> + Calculation of MPE<sub>2</sub> + ... + Calculation of MPE<sub>N</sub>**

1. Simultaneous transmission 1 (2.4GHz band 802.11n(HT20) - 2TX & Bluetooth)  
 0.025406 + 0.003379 = **0.028784 mW/cm<sup>2</sup>**
2. Simultaneous transmission 2 (5GHz band 802.11a - 1TX & Bluetooth)  
 0.022322 + 0.003379 = **0.025700 mW/cm<sup>2</sup>**

**According to above calculation, this device complies with FCC 1.1310 limit.**