

RF exposure letter

RF Exposure evaluation

According to 447498 D01 General RF Exposure Guidance v05

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

Rated RF power output

2.412-2.462GHz: Total=Antenna A + B

Mode	WIFI
Detector	PK
IEEE 802.11b	8.5±1dBm
IEEE 802.11g	8±1dBm
IEEE 802.11n HT20	8±1dBm
IEEE 802.11n HT40	7±1dBm

5.180-5.240 GHz: Total=Antenna A + B

Mode	WIFI
Detector	PK
IEEE 802.11a	6.4±1dBm
IEEE 802.11n HT20	6.7±1dBm
IEEE 802.11n HT40	6.3±1dBm

5.745-5825 GHz: Total=Antenna A + B

Mode	WIFI
Detector	PK
IEEE 802.11a	6.3±1dBm
IEEE 802.11n HT20	6.2±1dBm
IEEE 802.11n HT40	5.8±1dBm

Note: 2.4G and 5G can't simultaneous transmission at the same time;

5.2G and 5.8G can't simultaneous transmission at the same time.

Worse case is as below: Antenna A and Antenna B is the work at the same time.

1、 2.4G output power: Total=Antenna A + B= 9.5dBm (8.91mW)

2412MHz : $(8.91\text{mW} / 5\text{mm}) \cdot [\sqrt{2.412(\text{GHz})}] = 2.77 < 3.0$ for 1-g SAR

2437MHz : $(8.91\text{mW} / 5\text{mm}) \cdot [\sqrt{2.437(\text{GHz})}] = 2.78 < 3.0$ for 1-g SAR

2462MHz : $(8.91\text{mW} / 5\text{mm}) \cdot [\sqrt{2.462(\text{GHz})}] = 2.78 < 3.0$ for 1-g SAR

2、 5.2G output power: Total=Antenna A + B= 7.7dBm (5.89mW)

5180MHz : $(5.89\text{mW} / 5\text{mm}) \cdot [\sqrt{5.180(\text{GHz})}] = 2.68 < 3.0$ for 1-g SAR

5200MHz : $(5.89\text{mW} / 5\text{mm}) \cdot [\sqrt{5.200(\text{GHz})}] = 2.69 < 3.0$ for 1-g SAR

5240MHz : $(5.89\text{mW} / 5\text{mm}) \cdot [\sqrt{5.240(\text{GHz})}] = 2.70 < 3.0$ for 1-g SAR

3、 5.8G output power : Total=Antenna A + B= 7.3dBm (5.37mW)

5745MHz : $(5.37\text{mW} / 5\text{mm}) \cdot [\sqrt{5.745(\text{GHz})}] = 2.57 < 3.0$ for 1-g SAR

5785MHz : $(5.37\text{mW} / 5\text{mm}) \cdot [\sqrt{5.785(\text{GHz})}] = 2.58 < 3.0$ for 1-g SAR

5825MHz : $(5.37\text{mW} / 5\text{mm}) \cdot [\sqrt{5.825(\text{GHz})}] = 2.59 < 3.0$ for 1-g SAR

Then SAR evaluation is not required