



CTK Co., Ltd.  
The Power Leader of Global Engineering Companies

# CTK Co., Ltd.

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## RF EXPOSURE EVALUATION

FCC ID : 2AFWN-WA23FO012W0

### Standard Requirement

The following FCC Rule Parts and procedures are applicable :

*Part 1.1310 Radiofrequency radiation exposure limits*

*Part 2.1091 Radiofrequency radiation exposure evaluation : Mobile device*

*KDB447498 D01 v06 Mobile and Portable Devices RF Exposure Procedures and Equipment*

*Authorization Policies*

Table 1 below sets forth limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields.

*Table 1—Limits for Maximum Permissible Exposure (MPE)*

| Frequency range (MHz)  | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm <sup>2</sup> ) | Averaging time (minutes) |
|--|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| <b>(A) Limits for Occupational/Controlled Exposure</b>         |                               |                               |                                     |                          |
| 0.3-3.0  | 614                           | 1.63                          | *100                                | 6                        |
| 3.0-30   | 1842/f                        | 4.89/f                        | *900/f <sup>2</sup>                 | 6                        |
| 30-300   | 61.4                          | 0.163                         | 1.0                                 | 6                        |
| 300-1,500  |                               |                               | f/300                               | 6                        |
| 1,500-100,000  |                               |                               | 5                                   | 6                        |
| <b>(B) Limits for General Population/Uncontrolled Exposure</b> |                               |                               |                                     |                          |
| 0.3-1.34   | 614                           | 1.63                          | *100                                | 30                       |
| 1.34-30  | 824/f                         | 2.19/f                        | *180/f <sup>2</sup>                 | 30                       |
| 30-300   | 27.5                          | 0.073                         | 0.2                                 | 30                       |
| 300-1,500  |                               |                               | f/1500                              | 30                       |
| 1,500-100,000  |                               |                               | <b>1.0</b>                          | 30                       |

*f = frequency in MHz \* = Plane-wave equivalent power density*



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### RF Output Power

802.11b : 17.08 dBm (51.050 mW)

802.11g : 16.66 dBm (46.345 mW)

802.11n-HT20 : 16.57 dBm (45.394 mW)

802.11n-HT40 : 14.63 dBm (29.040 mW)

### MPE calculation

$$S = \text{EIRP} / (4\pi R^2)$$

Where

S : Power density

EIRP : P x G

P : Maximum transmitter power

G : Antenna gain

R : distance to the centre of radiation of the antenna

### FCC-MPE Limits

$$1 \text{ mW/cm}^2$$

### EUT RF Exposure

P : 17.08 dBm (51.050 mW)

G : 2.5 dBi (x 1.778)

R : 20 cm

$$S = 0.018 \text{ mW/cm}^2$$

### EUT RF Exposure

P : 17.08 dBm (0.051 W)

G : 2.5 dBi (x 1.778)

R : 0.20 m

$$S = 0.181 \text{ W/m}^2$$

### Safety distance(R)

P : 17.08 dBm (51.050 mW)

G : 2.5 dBi (x 1.778)

S : 1 mW/cm<sup>2</sup>

$$R \geq 7.23 \text{ cm}$$

### Conclusion

This confirms compliance to the required Radio frequency radiation exposure limit.