# FCC ID : 2ARRD-AP6330

## RF EXPOSURE EVALUATION

According to FCC 1.1310: 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)

Limits for Maximum Permissible Exposure (MPE)

| Frequency Range(MHz) | Electric Field Strength(V/m) | Magnetic Field Strength(A/m) | Power Density($mW/cm^2$) | Average Time |
|---|---|---|---|---|
| **(A) Limits for Occupational/Control Exposures** | | | | |
| **300-1500** | **--** | **--** | **F/300** | **6** |
| **1500-100000** | **--** | **--** | **5** | **6** |
| **(B) Limits for General Population/Uncontrol Exposures** | | | | |
| **300-1500** | **--** | **--** | **F/1500** | **6** |
| **1500-100000** | **--** | **--** | **1** | **30** |

### 11.1 Friis transmission formula: Pd= (Pout*G)\ ($4*pi*R^2$)

Where

Pd= Power density in $mW/cm^2$

Pout=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.1416

R= distance between observation point and center of the radiator in 20cm

Pd the limit of MPE, $1mW/cm^2$. If we know the maximum gain of the nd total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

### 11.2 Measurement Result

WIFI 5G :

| Channel Freq. (MHz) | modulation | conducted power (dBm) | Tune-up power (dBm) | Max tune-up power (dBm) | Antenna Gain Numeric | Evaluation result (mW/cm2 ) | Power density Limits (mW/cm2 ) |
|---|---|---|---|---|---|---|---|
| 5180 | 11a | 13.49 | 12dBm to 14dBm | 14 | 1 | 0.0050 | <1 |
| 5200 | 11a | 13.86 | 12dBm to 14dBm | 14 | 1 | 0.0050 | <1 |
| 5240 | 11a | 13.15 | 12dBm to 14dBm | 14 | 1 | 0.0050 | <1 |
| 5745 | 11a | 16.27 | 15dBm to 17dBm | 17 | 1 | 0.0100 | <1 |
| 5785 | 11a | 16.07 | 15dBm to 17dBm | 17 | 1 | 0.0100 | <1 |
| 5825 | 11a | 15.34 | 14dBm to 16dBm | 16 | 1 | 0.0079 | <1 |
| 5180 | 11 n(HT20) | 12.11 | 11dBm to 13dBm | 13 | 1 | 0.0040 | <1 |
| 5200 | 11 n(HT20) | 12.48 | 11dBm to 13dBm | 13 | 1 | 0.0040 | <1 |
| 5240 | 11 n(HT20) | 11.88 | 10dBm to 12dBm | 12 | 1 | 0.0032 | <1 |
| 5745 | 11 n(HT20) | 15.34 | 14dBm to 16dBm | 16 | 1 | 0.0079 | <1 |
| 5785 | 11 n(HT20) | 15.12 | 14dBm to 16dBm | 16 | 1 | 0.0079 | <1 |
| 5825 | 11 n(HT20) | 14.42 | 13dBm to 15dBm | 15 | 1 | 0.0063 | <1 |

WIFI 2.4G

| Channel Freq. (MHz) | modulation | conducted power (dBm) | Tune-up power (dBm) | Max tune-up power (dBm) | Antenna Gain Numeric | Evaluation result (mW/cm2 ) | Power density Limits (mW/cm2 ) |
|---|---|---|---|---|---|---|---|
| 2.412 | 11b | 16.93 | 18dBm to 17dBm | 17 | 1 | 0.0100 | <1 |
| 2.437 | 11b | 16.47 | 15dBm to 17dBm | 17 | 1 | 0.0100 | <1 |
| 2.462 | 11b | 16.23 | 15dBm to 17dBm | 17 | 1 | 0.0100 | <1 |
| 2.412 | 11g | 21.12 | 20dBm to 22dBm | 22 | 1 | 0.0315 | <1 |
| 2.437 | 11g | 20.85 | 19dBm to 21dBm | 21 | 1 | 0.0250 | <1 |
| 2.462 | 11g | 20.82 | 19dBm to 21dBm | 21 | 1 | 0.0250 | <1 |
| 2.412 | 11n HT20 | 20.00 | 19dBm to 21dBm | 21 | 1 | 0.0250 | <1 |
| 2.437 | 11n HT20 | 19.51 | 18dBm to 20dBm | 20 | 1 | 0.0199 | <1 |
| 2.462 | 11n HT20 | 19.39 | 18dBm to 20dBm | 20 | 1 | 0.0199 | <1 |