

# RF EXPOSURE TEST

FCC ID: 2AHR2SP3178-BK6

## RF EXPOSURE CALCULATION METHOD

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi r^2} = \frac{EIRP}{4\pi r^2}$$

P :power input to the antenna in Mw

EIRP :Equivalent(effective) isotropic radiated power.

S :power density mW/ cm<sup>2</sup>

G ;numeric gain of antenna relative to isotropic radiator

R :distance to centre of radiation in cm

FCC radio frequency exposure limits may be exceeded at distances closer than r cm from the antenna of this device

$$r = \sqrt{\frac{PG}{4\pi S}} = \sqrt{\frac{EIRP}{4\pi S}}$$

EIRP=10<sup>(Antenna Gain+Peak Output Power/10)</sup>

Note:

1. s=1.0 mW /cm<sup>2</sup> for limits for General Population/Uncontrolled Exposures.
2. The time averaged power over 30 minutes will be equaled Output Power.
3. The Power Density at a distance of 20cm calculated from the formula is far below the limit of 1MW/ cm<sup>2</sup>

Tune-up power:

1Mbps: 7+-1dBm, Max:8dbm

2Mbps: 6+-1dBm, Max:7dbm

3Mbps: 6+-1dBm, Max:7dbm

| Output power Max (PK)(dBm) | Output power to antenna (mW) | Antenna Gain (numeric) | Power Density (S) (mW/ cm <sup>2</sup> ) | Limit of Power Density (S) (mW/ cm <sup>2</sup> ) | Result |
|----------------------------|------------------------------|------------------------|--|---|--------|
| 8                          | 6.30                         | 1.26(1dBi)             | 0.0016                                   | 1   | Pass   |

**R=20cm**

NOTE: (For mobile or fixed location transmitters, the maximum power density is

1.0mW/cm<sup>2</sup> .even if the calculation indicates that the power density would be larger)