

6. Safety Human exposure

6.1 Radio Frequency Exposure Compliance

6.1.1 Maximum Permissible Exposure

RESULT:
Passed

Test standard : RSS-102 Issue 4
FCC KDB Publication 447498
FCC 1.1310

MPE Calculation

According to the formula $Pd = \frac{P_{out} * G}{4R^2\pi}$

Where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = Antenna gain in numeric

$\pi = 3.14159$

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

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user.

Warning statement to the user for keeping the safety distance from the antenna should be included in the user manual.

The highest measured power is 9.55 dBm at 2476 MHz for wireless operation, hence the Maximum Permissible Exposure (MPE) value:

$$Pd = \frac{P_{out} * G}{4R^2\pi} = \frac{9.02 * 3.16}{4 * 20^2 * 3.14159} = 0.005671 \text{ mW} / \text{cm}^2 < 1 \text{ mW/cm}^2$$

The summed maximum permissible exposure (MPE) level is 0.005671mW/cm². It is less than MPE limit 1mW/cm², therefore the device is exclusion from SAR test, and compliance with MPE limit.