RF Exposure Considerations

FCC ID: QVHWIFIAMFA001

For mobile operation, FCC requires that the calculated MPE (Maximum Permissible Exposure) be equal to or less than a given limit dependent on frequency at a distance of 20 cm from the device to the body of the user.

The module is a 2.4GHz WIFI module operates between 2412 – 2462MHz.
The following FCC Rule Parts and procedures are applicable:

Part 1.1310 – Radiofrequency radiation exposure limits

Part 2.1091 – Radiofrequency radiation exposure evaluation: mobile devices

KDB447498 D01 v06

Mobile and Portable Devices RF Exposure Procedures and Equipment Authorisation Policies

MPE calculation

$$S = EIRP/4 \pi R^2$$

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

For 2.4GHz band:

Values S = 1.0 mW/cm^2 for General population uncontrolled exposure
(FCC Part 1.1310, Table 1(B) Radiofrequency radiation exposure limits)

S = 1.0mW/cm^2

P = 14.64dBm (29.1mW) - From original module grant

G = 2.1dBi (x1.62)

R = 20cm

Calculation:

$S = PG/4 \pi R^2$

$S = 29.1 \times 1.62/12.56 \times (20)^2$

$S = 47.14/5026$

$S = 0.0094$ mW/cm^2

Conclusion

This confirms compliance to the required FCC Part 1.1310 Radio frequency radiation exposure limit of 1.0mW/cm^2 at 20cm operation and, hence, meets the requirements of FCC rule part 2.1091(c) and KDB447498 D01 v06, section 7.1.