

1 Safety Human Exposure

1.1 Radio Frequency Exposure Compliance

1.1.1 Electromagnetic Fields

RESULT:

Pass

Test Specification

Test standard

: CFR47 FCC Part 2: Section 2.1091
CFR47 FCC Part 1: Section 1.1310
FCC KDB Publication 447498 v06
FCC KDB Publication 865664 D01 v01r04
FCC KDB Publication 865664 D02 v01r02
RSS-102 Issue 5 March 2015

➤ FCC requirements

FCC requirement: Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 20cm normally can be maintained between the user and the device.

MPE Calculation Method according to KDB 447498 v06

Power Density: $S_{(mW/cm^2)} = PG/4\pi R^2$ or $EIRP/4\pi R^2$

Where:

S = power density (mW/cm^2)

P = power input to the antenna (mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (cm)

From the peak RF output power, the minimum mobile separation distance, d=20 cm, as well as the antenna gain (Max. 1.9 dBi for DTS, Max 4.4 dBi for NII), the RF power density can be calculated as below:

$$S_{(mW/cm^2)} = PG/4\pi R^2$$

a) EUT RF Exposure Evaluation standalone operations

| Test Mode | Measured Peak Power | | Antenna Gain (dBi) | $S_{(mW/cm^2)} = PG/4\pi R^2$ | Limit (mW/cm^2) |
|--------------|---------------------|-------|--------------------|-------------------------------|---------------------|
| | (dBm) | (mW) | | | |
| 2.4GHz Wi-Fi | 25.16 | 328.1 | 1.9 | 0.101 | 1.0 |
| 5GHz Wi-Fi | 20.73 | 118.3 | 4.4 | 0.065 | 1.0 |

b) EUT RF Exposure Evaluation simultaneous transmission operations

| Simultaneous transmission mode | The sum of the ratios | Result |
|--------------------------------|-----------------------|--------|
| Not supported | N/A | N/A |

➤ **IC requirements:** The EUT shall comply with the requirement of RSS-102 section 2.5.2.

Exemption from Routine Evaluation Limits – RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

- RF exposure evaluation exempted power for 2.4GHz Wi-Fi: 2.68 W
- RF exposure evaluation exempted power for 5GHz Wi-Fi: 4.52 W

Note: the lowest frequency used for obtaining the strictest threshold-power.

a) EUT RF Exposure Evaluation standalone operations:

| Test Mode | Measured Peak Power | | Antenna Gain (dBi) | Measured e.i.r.p (mW) | | Compliance |
|--------------|---------------------|-------|-----------------------|--------------------------|------|------------|
| | (dBm) | (mW) | | (dBm) | (mW) | |
| 2.4GHz Wi-Fi | 25.16 | 328.1 | 1.9 | 27.06 | 508 | Y |
| 5GHz Wi-Fi | 20.73 | 118.3 | 4.4 | 25.13 | 326 | Y |

b) EUT RF Exposure Evaluation simultaneous transmission operations

| Simultaneous transmission mode | The sum of the ratios | Result |
|--------------------------------|-----------------------|--------|
| Not supported | N/A | N/A |

“RF Radiation Exposure Statement Caution: This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons.”

