**Produkte**
*Products*

# 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<br>CFR47 FCC Part 1: Section 1.1310<br>FCC KDB Publication 447498 v06, section 7<br>RSS-102 Issue 5 March 2015, section 2.5.2 |

➢ **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. 5dBi), 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**

**Ant 0(Worst-case):**

| Test Mode | Max. Tune Up Output power(dBm) | Antenna Gain (dBi) | Measured e.i.r.p | | $S_{(mW/cm^2)}= PG/4\pi R^2$ | Limit $_{(mW/cm^2)}$ |
|---|---|---|---|---|---|---|
| | | | (dBm) | (mW) | | |
| 2.4GHz Wi-Fi (802.11n HT40) | 16.00 | 5.0 | 21.00 | 125.89 | 0.025 | 1.0 |
| 5.2GHz Wi-Fi (802.11ac VHT40) | 10.00 | 5.0 | 15.00 | 31.62 | 0.0063 | 1.0 |

**Ant 1(Worst-case):**

| Test Mode | Max. Tune Up Output power(dBm) | Antenna Gain (dBi) | Measured e.i.r.p | | $S_{(mW/cm^2)}= PG/4\pi R^2$ | Limit $_{(mW/cm^2)}$ |
|---|---|---|---|---|---|---|
| | | | (dBm) | (mW) | | |
| 2.4GHz Wi-Fi (802.11n HT40) | 12.00 | 5.0 | 17.00 | 50.12 | 0.010 | 1.0 |
| 5.2GHz Wi-Fi (802.11n HT40) | 9.00 | 5.0 | 14.00 | 25.12 | 0.0050 | 1.0 |

**b) EUT RF Exposure Evaluation simultaneous transmission operations, Ant 1+Ant 0**

| Simultaneous transmission mode | The sum of the ratios | Result |
|---|---|---|
| 2.4GHz Wi-Fi (802.11n HT40) | 0.025/1 + 0.010/1< 1 | Pass |

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