# 14. Radio Frequency Exposure

## 14.1. Applicable Standards

The measurements shown in this test report were made in accordance with the procedures given in FCC Part 2 (Section 2.1091)

KDB 447498

## 14.2. EUT Specification

| | |
|---|---|
| **Frequency band (Operating)** | ☐ WLAN: 2412MHz ~ 2462MHz<br>☒ WLAN: 5150MHz ~ 5250MHz<br>☐ WLAN: 5250MHz ~ 5350MHz<br>☐ WLAN: 5470MHz ~ 5725MHz<br>☒ WLAN: 5725MHz ~ 5850MHz<br>☐ Bluetooth: 2402MHz ~ 2480MHz |
| **Device category** | ☐ Portable (<20cm separation)<br>☒ Mobile (>20cm separation) |
| **Exposure classification** | ☐ Occupational/Controlled exposure (S = 5mW/cm$^2$)<br>☒ General Population/Uncontrolled exposure (S=1mW/cm$^2$) |
| **Antenna diversity** | ☐ Single antenna<br>☒ Multiple antennas<br>☐ Tx diversity<br>☐ Rx diversity<br>☒ Tx/Rx diversity |
| **Evaluation applied** | ☒ MPE Evaluation*<br>☐ SAR Evaluation<br>☐ N/A |
| ***Remark:***<br>*1. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm$^2$ even if the calculation indicates that the power density would be larger.* | |

## 14.3. Test Results

No non-compliance noted.

## 14.4.Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

*Where* *E = Field strength in Volts / meter*

*P = Power in Watts*
*G = Numeric antenna gain*

*d = Distance in meters*

*S = Power density in milliwatts / square centimeter*

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

*P (mW) = P (W) / 1000 and*
*d (cm) = d(m) / 100*

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ ***Equation 1***

*Where* *d = Distance in cm*
*P = Power in mW*
*G = Numeric antenna gain*
*S = Power density in mW / cm²*

## 14.5.Maximum Permissible Exposure

**Maximum Permissible Exposure**

| Modulation Mode | Frequency band (MHz) | Max. Conducted output power (dBm) | Antenna gain (dBi) | Distance (cm) | Power density (mW/cm2) | Limit (mW/cm2) |
|---|---|---|---|---|---|---|
| 802.11a | 5150-5250 | 22.63 | 4 | 20 | 0.0916 | 1 |
| | 5725-5850 | 22.51 | 4 | 20 | 0.0890 | 1 |
| 802.11an HT20 | 5150-5250 | 22.50 | 4 | 20 | 0.0889 | 1 |
| | 5725-5850 | 22.37 | 4 | 20 | 0.0862 | 1 |
| 802.11an HT40 | 5150-5250 | 22.56 | 4 | 20 | 0.0900 | 1 |
| | 5725-5850 | 22.61 | 4 | 20 | 0.0910 | 1 |
| 802.11ac VHT20 | 5150-5250 | 22.58 | 4 | 20 | 0.0906 | 1 |
| | 5725-5850 | 22.46 | 4 | 20 | 0.0880 | 1 |
| 802.11ac VHT40 | 5150-5250 | 22.62 | 4 | 20 | 0.0913 | 1 |
| | 5725-5850 | 22.68 | 4 | 20 | 0.0925 | 1 |
| 802.11ac VHT80 | 5150-5250 | 16.63 | 4 | 20 | 0.0230 | 1 |
| | 5725-5850 | 20.33 | 4 | 20 | 0.0539 | 1 |

**Maximum Permissible Exposure (Co-location)**

| Modulation Mode | Frequency band (MHz) | Max. Conducted output power (dBm) | Antenna Gain(dBi) | Distance (cm) | Power Density ($mW/cm^2$) |
|---|---|---|---|---|---|
| 2.4G 11an HT20 | 2412-2462 | 27.95 | 3 | 20 | 0.2476 |
| 5G 11ac VHT40 | 5725-5850 | 22.68 | 4 | 20 | 0.0925 |
| Co-location Total | | | | | 0.3401 |
| Maximum Permissible Exposure Limit | | | | | 1 |