



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 ☒ WLAN: 5150MHz ~ 5250MHz ☐ WLAN: 5250MHz ~ 5350MHz ☐ WLAN: 5470MHz ~ 5725MHz ☒ WLAN: 5725MHz ~ 5850MHz ☐ Bluetooth: 2402MHz ~ 2480MHz
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm ²) ☒ General Population/Uncontrolled exposure (S=1mW/cm ²)
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☒ Tx/Rx diversity
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A
Remark: 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

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

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:

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

Changing to units of mW and cm, using:

$P \text{ (mW)} = P \text{ (W)} / 1000$ and

$d \text{ (cm)} = d \text{ (m)} / 100$

Yields

$$S = \frac{\times (30) \times P}{\times (d \ 3770)^2} = \frac{0.0796 \times P}{d^2} \quad G \quad \text{Equation 1}$$

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

**14.5.Maximum Permissible Exposure**

Max. output power	Non-Beamforming Band: 5150MHz ~ 5250MHz 802.11a: 26.38 dBm (434.317mW) 802.11an HT20: 26.36 dBm (432.287mW) 802.11an HT40: 26.62 dBm (458.957mW) 802.11ac VHT20: 26.39 dBm (435.251mW) 802.11ac VHT40: 26.64 dBm (461.075mW) 802.11ac VHT80: 16.34 dBm (43.069mW)
	Band: 5725MHz ~ 5850MHz 802.11a: 28.28 dBm (672.859mW) 802.11an HT20: 28.42 dBm (694.670mW) 802.11an HT40: 27.25 dBm (530.286mW) 802.11ac VHT20: 28.47 dBm (703.783mW) 802.11ac VHT40: 27.27 dBm (532.852mW) 802.11ac VHT80: 25.65 dBm (367.623mW)
	Beamforming Band: 5150MHz ~ 5250MHz 802.11a: 23.37 dBm (217.173mW) 802.11an HT20: 23.35 dBm (216.158mW) 802.11an HT40: 23.61 dBm (229.494mW) 802.11ac VHT20: 23.38 dBm (217.641mW) 802.11ac VHT40: 23.63 dBm (230.554mW) 802.11ac VHT80: 13.33 dBm (21.536mW)
Antenna gain (Max)	Band: 5725MHz ~ 5850MHz 802.11a: 25.27 dBm (336.453mW) 802.11an HT20: 25.41 dBm (347.359mW) 802.11an HT40: 24.24 dBm (265.161mW) 802.11ac VHT20: 25.46 dBm (351.916mW) 802.11ac VHT40: 24.26 dBm (266.444mW) 802.11ac VHT80: 22.64 dBm (183.824mW)
	5150MHz-5250MHz: ANT A: 4.18 dBi ; ANT B: 4.81 dBi 5725MHz-5850MHz: ANT A: 4.9 dBi ; ANT B: 4.18 dBi

**Maximum Permissible Exposure (Non-Beamforming)**

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm ²)	Limit (mW/cm ²)
802.11a	5150-5250	26.38	4.81	25	0.1674	1
802.11a	5725-5850	28.28	4.9	25	0.2647	1
802.11an HT20	5150-5250	26.36	4.81	25	0.1666	1
802.11an HT20	5725-5850	28.42	4.9	25	0.2733	1
802.11an HT40	5150-5250	26.62	4.81	25	0.1769	1
802.11an HT40	5725-5850	27.25	4.9	25	0.2087	1
802.11ac VHT20	5150-5250	26.39	4.81	25	0.1677	1
802.11ac VHT20	5725-5850	28.47	4.9	25	0.2769	1
802.11ac VHT40	5150-5250	26.64	4.81	25	0.1777	1
802.11ac VHT40	5725-5850	27.27	4.9	25	0.2097	1
802.11ac VHT80	5150-5250	16.34	4.81	25	0.0166	1
802.11ac VHT80	5725-5850	25.65	4.9	25	0.1446	1

Maximum Permissible Exposure (Beamforming)

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm ²)	Limit (mW/cm ²)
802.11a	5150-5250	23.37	7.51	25	0.1559	1
802.11a	5725-5850	25.27	7.56	25	0.2442	1
802.11an HT20	5150-5250	23.35	7.51	25	0.1551	1
802.11an HT20	5725-5850	25.41	7.56	25	0.2522	1
802.11an HT40	5150-5250	23.61	7.51	25	0.1647	1
802.11an HT40	5725-5850	24.24	7.56	25	0.1925	1
802.11ac VHT20	5150-5250	23.38	7.51	25	0.1562	1
802.11ac VHT20	5725-5850	25.46	7.56	25	0.2555	1
802.11ac VHT40	5150-5250	23.63	7.51	25	0.1655	1
802.11ac VHT40	5725-5850	24.26	7.56	25	0.1934	1
802.11ac VHT80	5150-5250	13.33	7.51	25	0.0155	1
802.11ac VHT80	5725-5850	22.64	7.56	25	0.1334	1

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

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna Gain(dBi)	Distance (cm)	Power Density (mW/cm ²)
VHT20	2412-2462	27.56	4.85	25	0.2220
802.11ac VHT40	5150-5250	26.64	4.81	25	0.1777
802.11ac VHT20	5725-5850	28.47	4.9	25	0.2769
Co-location Total					0.6766
Maximum Permissible Exposure Limit					1

(Beamforming)

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna Gain(dBi)	Distance (cm)	Power Density (mW/cm ²)
VHT20	2412-2462	24.55	7.64	25	0.2110
802.11ac VHT40	5150-5250	23.63	7.51	25	0.1655
802.11ac VHT20	5725-5850	25.46	7.56	25	0.2555
Co-location Total					0.632
Maximum Permissible Exposure Limit					1