



## 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

<b>Frequency band (Operating)</b>	<input checked="" type="checkbox"/> WLAN: 2412MHz ~ 2462MHz <input checked="" type="checkbox"/> WLAN: 5150MHz ~ 5250MHz <input type="checkbox"/> WLAN: 5250MHz ~ 5350MHz <input type="checkbox"/> WLAN: 5470MHz ~ 5725MHz <input checked="" type="checkbox"/> WLAN: 5725MHz ~ 5850MHz <input type="checkbox"/> Bluetooth: 2402MHz ~ 2480MHz
<b>Device category</b>	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation)
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )
<b>Antenna diversity</b>	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input checked="" type="checkbox"/> Tx/Rx diversity
<b>Evaluation applied</b>	<input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> N/A
<b>Remark:</b> 1. The maximum output power is <u>29.82dBm (959.97mW)</u> at <u>2437MHz</u> (with <u>numeric 3 antenna gain.</u> ) 2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance. 3. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm <sup>2</sup> even if the calculation indicates that the power density would be larger.	

### 14.3. Test Results

No non-compliance noted.



#### 14.4.Calculation

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

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:

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

Changing to units of mW and cm, using:

$P$  (mW) =  $P$  (W) / 1000 and

$d$  (cm) =  $d$ (m) / 100

Yields

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

Where  $d$  = Distance in cm

$P$  = Power in mW

$G$  = Numeric antenna gain

$S$  = Power density in mW / cm<sup>2</sup>



**14.5. Maximum Permissible Exposure**

Max. output power	<p>Non-Beamforming                      Band: 5150MHz ~ 5250MHz                      802.11a: 21.57dBm (143.57mW)                      802.11ac VHT20: 20.17dBm (104.04mW)                      802.11ac VHT40: 21.26dBm (133.60mW)                      802.11ac VHT80: 13.09dBm (20.39mW)</p>
	<p>Band: 5725MHz ~ 5850MHz                      802.11a: 23.80dBm (239.80mW)                      802.11ac VHT20: 23.34dBm (215.90mW)                      802.11ac VHT40: 23.97dBm (249.28mW)                      802.11ac VHT80: 18.96dBm (78.67mW)</p>
	<p>Beamforming                      Band: 5150MHz ~ 5250MHz                      802.11ac VHT20: 14.15dBm (26.01mW)                      802.11ac VHT40: 15.24dBm (33.40mW)                      802.11ac VHT80: 7.07dBm (5.10mW)</p>
	<p>Band: 5725MHz ~ 5850MHz                      802.11ac VHT20: 17.32dBm (53.98mW)                      802.11ac VHT40: 17.95dBm (62.33mW)                      802.11ac VHT80: 12.94dBm (19.67mW)</p>
Antenna gain (Max)	5dBi

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

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
802.11a	5150-5250	21.57	5	20	0.0903	1
802.11a	5725-5850	23.80	5	20	0.1509	1
802.11ac VHT20	5150-5250	20.17	5	20	0.0655	1
802.11ac VHT20	5725-5850	23.34	5	20	0.1358	1
802.11ac VHT40	5150-5250	21.26	5	20	0.0840	1
802.11ac VHT40	5725-5850	23.97	5	20	0.1568	1
802.11ac VHT80	5150-5250	13.09	5	20	0.0128	1
802.11ac VHT80	5725-5850	18.96	5	20	0.0495	1

**Maximum Permissible Exposure (Beamforming)**

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
802.11ac VHT20	5150-5250	14.15	11.02	20	0.0655	1
802.11ac VHT20	5725-5850	17.32	11.02	20	0.1358	1
802.11ac VHT40	5150-5250	15.24	11.02	20	0.0840	1
802.11ac VHT40	5725-5850	17.95	11.02	20	0.1568	1
802.11ac VHT80	5150-5250	7.07	11.02	20	0.0128	1
802.11ac VHT80	5725-5850	12.94	11.02	20	0.0495	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 <sup>2</sup> )
2.4G 11ac VHT20	2412-2462	29.82	3	20	0.3811
5G 11ac VHT40	5725-5850	23.97	5	20	0.1568
Co-location Total					0.5379
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 <sup>2</sup> )
2.4G 11ac VHT20	2412-2462	23.80	9.02	20	0.3811
5G 11ac VHT40	5725-5850	17.95	11.02	20	0.1568
Co-location Total					0.6988
Maximum Permissible Exposure Limit					1