



Radio Frequency Exposure

LIMIT

According to §15.247(i), 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 levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

EUT Specification

EUT	WiFi Access Point
Frequency band (Operating)	<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input checked="" type="checkbox"/> WLAN: 5.150GHz ~ 5.250GHz <input type="checkbox"/> WLAN: 5.250GHz ~ 5.350GHz <input type="checkbox"/> WLAN: 5.470GHz ~ 5.725GHz <input checked="" type="checkbox"/> WLAN: 5.725GHz ~ 5.850GHz <input type="checkbox"/> Bluetooth: 2.402GHz ~ 2.480 GHz
Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation)
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²)
Antenna diversity	<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
Max. output power	Band: 2412-2462MHz 802.11b: 26.46 dBm (442.39 mW) 802.11g: 28.73 dBm (746.50 mW) 802.11n (20MHz): 28.69 dBm (738.81 mW) 802.11n (40MHz): 27.53 dBm (565.64 mW) Band: 5150-5250 MHz 802.11a: 23.95 dBm 802.11an (20MHz): 23.93 dBm 802.11an (40MHz): 24.03 dBm 802.11ac (20MHz): 23.95 dBm 802.11ac (40MHz): 24.05 dBm 802.11ac (80MHz): 15.43 dBm Band: 5725-5850 MHz 802.11a: 26.10 dBm 802.11an (20MHz): 25.99 dBm 802.11an (40MHz): 25.64 dBm 802.11ac (20MHz): 26.03 dBm 802.11ac (40MHz): 25.67 dBm 802.11ac (80MHz): 21.99 dBm
Antenna gain (Max)	2412-2462MHz: 4.6dBi 5150-5250MHz: 4.8dBi
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> N/A

Remark:

1. The maximum output power is 28.73dBm (746.50 mW) at 2437 MHz (with numeric 1 antenna gain.)
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/cm² even if the calculation indicates that the power density would be larger.

*Note: Simultaneous transmission is not applicable for this EUT.

**TEST RESULTS**

No non-compliance noted.

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:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and} \\ d \text{ (cm)} = d \text{ (m)} / 100$$

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 / cm²



Maximum Permissible Exposure

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna Gain(dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
11b	2412-2462	26.46	4.6	20	0.2538	1
11g	2412-2462	28.73	4.6	20	0.4283	1
11n HT20	2412-2462	28.69	4.6	20	0.4239	1
11n HT40	2422-2452	27.53	4.6	20	0.3245	1
11a	5150-5250	23.93	4.8	20	0.1484	1
	5725-5850	25.99	4.8	20	0.2385	1
11n HT20	5150-5250	24.03	4.8	20	0.1519	1
	5725-5850	25.99	4.8	20	0.2385	1
11n HT40	5150-5250	24.03	4.8	20	0.1519	1
	5725-5850	25.64	4.8	20	0.2200	1
11ac VHT20	5150-5250	23.95	4.8	20	0.1491	1
	5725-5850	26.03	4.8	20	0.2408	1
11ac VHT40	5150-5250	24.05	4.8	20	0.1526	1
	5725-5850	25.67	4.8	20	0.2218	1
11ac VHT80	5150-5250	15.43	4.8	20	0.0210	1
	5725-5850	21.99	4.8	20	0.0950	1

NOTE:

Total (Chain0+Chain1) , the formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

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 11g	2412-2462	28.73	4.6	20	0.4283
5G 11a	5725-5850	25.99	4.8	20	0.2385
Co-location Total					0.6668
Maximum Permissible Exposure Limit					1