



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	AmpliFi Router
Frequency band (Operating)	☒ WLAN: 2400MHz ~ 2483.5MHz ☒ WLAN: 5150MHz ~ 5250MHz ☒ WLAN: 5725MHz ~ 5850MHz ☒ Bluetooth: 2400MHz ~ 2483.5MHz
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
Max. output power	Band: 2400MHz ~ 2483.5MHz 802.11b: 26.84 dBm (483.15mW) 802.11g: 27.47 dBm (557.85mW) 802.11n HT20: 25.94 dBm (392.38mW) 802.11n HT40: 26.11 dBm (408.02mW) Band: 2400MHz ~ 2483.5MHz GFSK: 7.19 dBm (5.24mW) $\pi/4$ -DQPSK: 9.36 dBm (8.63mW) 8DPSK: 9.81 dBm (9.57mW) GFSK(BLE): 6.46 dBm (4.43mW) Band: 5150MHz ~ 5250MHz 802.11a: 26.26 dBm (0.211mW) 802.11an (20MHz): 26.22 dBm (0.209mW) 802.11an (40MHz): 26.19 dBm (0.208mW) 802.11ac (20MHz): 21.31 dBm (0.214mW) 802.11ac (40MHz): 26.05 dBm (0.201mW) 802.11ac (80MHz): 20.09 dBm (0.051mW) Band: 5725MHz ~ 5850MHz 802.11a: 26.07 dBm (0.202mW) 802.11an (20MHz): 26.04 dBm (0.201mW) 802.11an (40MHz): 16.43 dBm (0.022mW) 802.11ac (20MHz): 26.14 dBm (0.205mW) 802.11ac (40MHz): 15.82 dBm (0.019mW) 802.11ac (80MHz): 15.35 dBm (0.017mW)



Antenna gain (Max)	Band: 2400MHz ~ 2483.5MHz, 5150MHz ~ 5250MHz, 5725MHz ~ 5850 MHz Antenna 0: 4.0 dBi Antenna 1: 4.0 dBi Antenna 2: 4.0 dBi Directional gain: 8.77 dBi Band: 2400MHz ~ 2483.5MHz Antenna: 1.0 dBi
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A

Remark:

1. The maximum output power is 27.47 dBm (557.85mW) at 2437MHz (with numeric 8.77 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 thi

TEST RESULTS

No non-compliance noted.

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:

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

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)
		ANT 0+1+2			ANT 0+1+2	
802.11b	2400-2483.5	26.84	8.77	20	0.2414	1
802.11g	2400-2483.5	27.47	8.77	20	0.2791	1
802.11n (20MHz)	2400-2483.5	25.94	8.77	20	0.1962	1
802.11n (40MHz)	2400-2483.5	26.11	8.77	20	0.2040	1
GFSK	2400-2483.5	7.19	1.0	20	0.0013	1
$\pi/4$ -DQPSK	2400-2483.5	9.36	1.0	20	0.0022	1
8DPSK	2400-2483.5	9.81	1.0	20	0.0024	1
GFSK(BLE)	2400-2483.5	6.46	1.0	20	0.0011	1
802.11a	5150-5250	26.26	8.77	20	0.211	1
802.11an (20MHz)	5150-5250	26.22	8.77	20	0.209	1
802.11an (40MHz)	5150-5250	26.19	8.77	20	0.208	1
802.11ac (20MHz)	5150-5250	26.31	8.77	20	0.214	1
802.11ac (40MHz)	5150-5250	26.05	8.77	20	0.201	1
802.11ac (80MHz)	5150-5250	20.09	8.77	20	0.051	1
802.11a	5725-5850	26.07	8.77	20	0.202	1
802.11an (20MHz)	5725-5850	26.04	8.77	20	0.201	1
802.11an (40MHz)	5725-5850	16.43	8.77	20	0.022	1
802.11ac (20MHz)	5725-5850	26.14	8.77	20	0.205	1
802.11ac (40MHz)	5725-5850	15.82	8.77	20	0.019	1
802.11ac (80MHz)	5725-5850	15.35	8.77	20	0.017	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