

Report No.:C170707R01-RPB

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RADIO FREQUENCY EXPOSURE

LIMIT

According to §15.247(i) and §15.407(f), 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) of this chapter.

EUT Specification

EUT	YCS.1517					
Frequency band (Operating)	 WLAN: 2.412GHz ~ 2.462GHz WLAN: 5.15GHz ~ 5.25GHz WLAN: 5.25GHz ~ 5.35GHz WLAN: 5.47GHz ~ 5.725GHz WLAN: 5.725GHz ~ 5.85GHz Bluetooth: 2.402GHz ~ 2.480GHz Others 					
Device category	☐ Portable (<20cm separation)☐ Mobile (>20cm separation)☐ Others					
Exposure classification	☐ Others ☐ Portable (<20cm separation) ☐ Mobile (>20cm separation) ☐ Others ☐ Occupational/Controlled exposure (S = 5mW/cm²) ☐ General Population/Uncontrolled exposure (S=1mW/cm²) ☐ Single antenna ☐ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity ☐ WIFI:2.412-2.462GHz					
Antenna diversity	☐ Multiple antennas ☐ Tx diversity ☐ Rx diversity					
Average Transmit Power:	WIFI:2.412-2.462GHz IEEE 802.11n HT20 mode: 15.24dBm					
Antenna gain (Max)	FPC Antenna Gain: 0.87dBi					
Evaluation applied						
Romark:						

- 1. The maximum output power is 15.24dBm (33.42mW) at 2437MHz (with 1.222numeric 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.
- 4. All two antennas are completely uncorrelated with each other.





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:

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

 $S = Power density in mW / cm^2$

Maximum Permissible Exposure

Substituting the MPE safe distance using d = 20 cm into Equation 1:

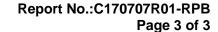
Yields

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

 $S = Power density in mW / cm^2$







Modulation Mode	Frequency band (MHz)	Max. tune up power(dBm)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm2)	Limit (mW/cm2)
IEEE802.11 n(20MHz)	2412-2462	15.5	0.87	20	0.0086	1

Note:

Only WLAN can transmit, the formula of calculated the MPE is: CPD1 / LPD1 + CPD2 / LPD2 +etc. < 1 CPD = Calculation power density LPD = Limit of power density WLAN 2.4G=0.0086mW/cm²

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm² even if the calculation indicates that the power density would be larger.)