RADIO FREQUENCY EXPOSURE

LIMIT

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 §15.247(b)(4) and §1.1307(b)(1) of this chapter.

EUT Specification

EUT	802.11n VDSL2 Bonding Gateway
Frequency band (Operating)	☒ WLAN: 2.412GHz ~ 2.462GHz ☐ WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☐ WLAN: 5.745GHz ~ 5825GHz ☐ Others _
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others _____
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	24.12dBm (258.03mW)
Antenna gain (Max)	5.00dBi (Numeric gain:3.16)
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation

Note:

1. *The maximum output power is 24.12dBm (258.03mW) at 2462MHz (with 3.16 numeric antenna gain.)*
2. *For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20 cm, even if the calculations indicate that the MPE distance would be lesser.*

TEST RESULT

No non-compliance noted.

Calculation

Given $S = \frac{P \times G}{4\Pi d^2}$ ***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

EUT Output Power=258.03mW
Numeric antenna gain=3.16
Substituting the MPE safe distance using d=20 cm into ***Equation 1*** :
Fields

The power density S = $258.03 \times 3.16 / (4\Pi \times 400)$ cm^2 =0.1623mW/cm^2

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW / cm^2 even if the calculation indicates that the power density would be larger.)