RF EXPOSURE EVALUATION

EUT Specification

EUT	USB Bluetooth Adapter
Frequency band (Operating)	☐2.408GHz ~ 2.474GHz ☐WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☐WLAN: 5.745GHz ~ 5.825GHz ☒Others(2402-2480MHz)
Device category	☒Portable (<20cm separation) ☐Mobile (>20cm separation) ☐Others ___
Antenna diversity	☒Single antenna ☐Multiple antennas ☐Tx diversity ☐Rx diversity ☐Tx/Rx diversity
Max. output power	-0.10dBm (0.977mW) for BDR+EDR -1.88dBm (0.649mW) for BLE 1Mbps -1.61dBm (0.690mW) for BLE 2Mbps
Antenna gain	0dBi
Evaluation applied	☐MPE Evaluation ☒SAR Evaluation

Standard Requirement

Portable Device

According to §15.247(i) and §1.1307b(1), 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 KDB 447498 D01 General RF Exposure Guidance v05, section 4.3.1.

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,[16] where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation17
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Measurement Result for BT

Measurement Result

Channel	Channel Frequency (MHz)	Max Output power (dBm)	Max Output power (mW)	Calculation Value (Note 1)	Threshold Value
GFSK					
Low	2402	-3.40	0.457	0.142	3.0
Middle	2441	-4.24	0.377	0.118	3.0
High	2480	-3.62	0.435	0.137	3.0
π/4-DQPSK					
Low	2402	-1.11	0.774	0.240	3.0
Middle	2441	-1.80	0.661	0.207	3.0
High	2480	-0.10	0.977	0.308	3.0
8DPSK					
Low	2402	-0.33	0.927	0.287	3.0
Middle	2441	-1.18	0.762	0.238	3.0
High	2480	-0.34	0.925	0.291	3.0

Note 1: Calculation Value =[(max. power of channel, mW)/(min. test separation distance, mm)] ·[√f(GHz)].
Fox example: 0.977/5*√2.480=0.308 ≤ 3.0

According to KDB447498 D01 V06, threshold at which no SAR required is ≤3.0 for 1-g SAR, separation distance is 5mm, and no simultaneous SAR measurement is required.

Measurement Result for BLE

At separation distance ≤5mm

Channel	Channel Frequency (MHz)	Max Output power (dBm)	Max Output power (mW)	Calculation Value (Note 1)	Threshold Value
GFSK (1Mbps)					
Low	2402	-1.88	0.649	0.201	3.0
Middle	2441	-2.83	0.521	0.163	3.0
High	2480	-2.61	0.548	0.173	3.0
GFSK(2Mbps)					
Low	2402	-1.61	0.690	0.214	3.0
Middle	2441	-2.63	0.546	0.171	3.0
High	2480	-1.94	0.640	0.202	3.0

Note 1: Calculation Value =[(max. power of channel, mW)/(min. test separation distance, mm)] ·[√f(GHz)].
Fox example: 0.690/5*√2.402=0.214 ≤ 3.0

According to KDB447498 D01 V06, threshold at which no SAR required is ≤3.0 for 1-g SAR, separation distance is 5mm, and no SAR measurement is required.

The SAR measurement is not necessary.