RF Exposure

The equipment under test (EUT) is a XAG FDS Docking Station with Bluetooth function operating in 2402-2480MHz, 2.4G WIFI function operating in 2412-2462MHz. The EUT is powered by DC 5V by adapter. For more detail information pls. refer to the user manual.

BLE
Bluetooth Version: 5.0
Antenna Type: Integral antenna.
Antenna Gain: 5.6dBi.
The nominal conducted output power specified: 1dBm (Tolerance: +/-2dB).

The maximun conducted output power for the EUT is 2.25dBm in the frequency 2402MHz which is within the production variation.

The minimum conducted output power for the EUT is 0.16dBm in the frequency 2480MHz which is within the production variation.

According to FCC Part 2.1091, this unlicensed transmitting devices is categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, According to the KDB 447498 V06 and OET 65, the simple calculation as below:

The source-based time averaged maximum radiated power = 3dBm+5.6dBi = 8.6dBm = 7.24mW

From above data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna for 2.4GHz band can be calculated according to OET 65 as follow:
= 7.24mW/ 4πR^2
= 0.0014 mW/cm^2
<1mW/cm^2

The MPE limit is 1.0 mW/cm^2 for general population and uncontrolled exposure in the WIFI frequency range according to FCC Part 1.1310. As the measured power density at 20cm from the transmitter is lower than the MPE limit, the compliance to the MPE limit can be ensured by indicating the minimum 20cm separation between the transmitter's radiating structure and body of the user or nearby persons.

2.4GHz WiFi:
Antenna Type: Integral Antenna.
Antenna Gain: 5.6dBi
Modulation Type: BPSK, QPSK, 16QAM, 64QAM, 256QAM, CCK, DQPSK, DBPSK and DSSS.
The nominal conducted output power specified: 15dBm (Tolerance: +/-4dB).

The maximun conducted output power for the EUT is 18.05dBm in the frequency 2437MHz(IEEE 802.11g) which is within the production variation.

The minimum conducted output power for the EUT is 11.85dBm in the frequency 2462MHz(IEEE 802.11b) which is within the production variation.

According to FCC Part 2.1091, this unlicensed transmitting devices is categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, According to the KDB 447498 V06 and OET 65, the simple calculation as below:

The source-based time averaged maximum radiated power = 19dBm +5.6dBi = 24.6dBm = 288.4mW

From above data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna for 2.4GHz band can be calculated according to OET 65 as follow:
= 288.4mW/ 4πR^2
= 0.0574 mW/cm^2
<1mW/cm^2

The MPE limit is 1.0 mW/cm^2 for general population and uncontrolled exposure in the WIFI frequency range according to FCC Part 1.1310. As the measured power density at 20cm from the transmitter is lower than the MPE limit, the compliance to the MPE limit can be ensured by indicating the minimum 20cm separation between the transmitter's radiating structure and body of the user or nearby persons.

Not support Simultaneous transmitting in 2.4GHz WiFi and Bluetooth.

The following RF exposure statement or similar sentence is proposed to be included in the user manual:

“FCC RF Radiation Exposure Statement Caution: This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons.”