RF Exposure

The Equipment Under Test (EUT) is an Bigscreen Beyond which has Bluetooth function. The EUT was powered by USB port, 2x USB Type-A and DisplayPort (0.5m passive captive cables) to USB Type-C. Virtual Reality head-mounted display for use with a personal computer. The principle is shown in the figure below. The product has two RF modules, and their antennas are the same.

For Bluetooth:
Antenna Type: Ceramic antenna
Antenna Gain: 2.4dBi
Modulation Type: GFSK

Module 1 Specified Power:
The normal radiated output power (e.i.r.p) is: -0.5dBm (tolerance: +/-1.5dB).
The normal conducted output power is -2.9dBm (tolerance: +/-1.5dB).

Module 2 Specified Power:
The normal radiated output power (e.i.r.p) is: -0.5dBm (tolerance: +/-1.5dB).
The normal conducted output power is -2.9dBm (tolerance: +/-1.5dB).

For Module 1:
According to the KDB 447498 V07:

The Maximum peak radiated emission for the EUT is 96.2 dBμV/m at 3m in the frequency 2402MHz
The EIRP = [(FS*D) ^2 / 30] mW = 0.97dBm
which is within the production variation.

The Minimum peak radiated emission for the EUT is 93.8 dBμV/m at 3m in the frequency 2480MHz
The EIRP = [(FS*D) ^2 / 30] mW = -1.43dBm
which is within the production variation.

The maximum Radiated output power specified is 1.0dBm= 1.259mW

For Module 2:

According to the KDB 447498 V07:

The Maximum peak radiated emission for the EUT is 96.0 dBμV/m at 3m in the frequency 2402MHz
The EIRP = [(FS*D) ^2 / 30] mW = 0.77dBm
which is within the production variation.

The Minimum peak radiated emission for the EUT is 93.9 dBμV/m at 3m in the frequency 2480MHz
The EIRP = [(FS*D) ^2 / 30] mW = -1.33dBm
which is within the production variation.

The maximum Radiated output power specified is 1.0dBm= 1.259mW

The SAR Exclusion Threshold Level:

P_{th}(mW) = ERP_{20cm} * (d/20cm) ^{x} (X= $-\log_{10}\left(\frac{60}{ERP_{20\ cm}\sqrt{f}}\right)$)

= 3060 * $(0.5/20)^{1.9}$ mW

= 2.72 mW

Since max. conducted output power and effective radiated power (ERP) is well below the SAR low threshold level, so the EUT is considered to comply with SAR requirement without testing.

Simultaneous Transmission

For Simultaneous transmitting of Bluetooth transmitter. According to KDB 447498 V07:

The sum of the ratios of the spatially averaged results to the applicable frequency dependent limits = 1.259mW/2.72 mW + 1.259mW/2.72mW = 0.93< 1

Since the sum of ratios for all simultaneously transmitting antennas incorporated in the device is ≤ 1.0, the EUT is considered to satisfy RF exposure for simultaneous transmission operations.