

Attachment 1

RF EXPOSURE INFORMATION



RADIO FREQUENCY EXPOSURE (HAZARD) INFORMATION

Testing was performed in accordance with the requirements of FCC Part 15.247(i)

Spread spectrum transmitters operating in the 2400 - 2483.5 MHz and 5725 – 5850 MHz bands are required to be operated in a manner that ensures that the public is not exposed to RF energy levels in accordance with CFR 47, Section 1.1307(b)(1).

Transmitter # 1: The Bluetooth antenna is located under the LHS of keyboard (near Caps lock area) and projected distance of less than 20cm from user.

Transmitter # 2: The WLAN antennas are located on the top edge of LCD screen (2 antennas left and right) and projected distance of greater than 20cm from user.

SAR is not required as the WLAN transmitter is mobile device and the power for the Bluetooth transmitter is below the low threshold.

The separation distance between the WLAN and BT antennas is greater than 20cm. Therefore, they are not co-located transmitters.

The MPE calculation shown below is the aggregate of WLAN and BT power densities.

In accordance with Section 1.1310, the Maximum Permissible Exposure (MPE) limit for the General Population/Uncontrolled Exposure of 1.0 has been applied, i.e 1mW/cm².

Friis transmission formula: $P_d = (P \cdot G) / (4 \cdot \pi \cdot r^2)$

where: P_d = power density (mW/cm²)
 P = power input to the antenna (mW)
 G = antenna gain (numeric)
 r = distance to the center of radiation of the antenna (cm)

The result was extracted from section 5.0 of M060108_Cert_EYTF3CSFT (BT Module):

Prediction frequency = 2480 MHz
Maximum peak output power = 3.3 dBm = 2.1 mW
Antenna (Inverted F) gain (max) = 2.78 dBi = 1.9 numeric
The power density calculated = 0.001 mW/cm²

The result was extracted from section 5.0 of M060108_Cert_WM3945ABG_DTS (WLAN)

Prediction frequency = **5785 MHz**
Maximum peak output power = 17.9 dBm = 61.7 mW
Antenna (Monopole) gain (max) = 1.79 dBi = 1.51 numeric
The power density calculated = 0.02 mW/cm²

Prediction frequency = **2437 MHz**
Maximum peak output power = 17.1 dBm = 51.3 mW
Antenna (Inverted F) gain (max) = 2.47 dBi = 1.77 numeric
The power density calculated = 0.02 mW/cm²

The result was extracted from section 5.0 of M060108_Cert_WM3945ABG_NII (WLAN)

Prediction frequency = **5320 MHz**
Maximum peak output power = 17.8 dBm = 60.3 mW
Antenna (Monopole) gain (max) = 1.66 dBi = 1.47 numeric
The power density calculated = 0.02 mW/cm²

Therefore, the power density (WLAN + BT) = 0.021 mW/cm²
MPE limit for uncontrolled exposure at prediction frequency = 1 mW/cm²

Results: Calculations show that the Radio devices with described antennas complied with Maximum Permissible Exposure (MPE) limit for the General Population/Uncontrolled Exposure

