EMC Technologies Report Number: M040405_Cert_Emilia_Atheros_2.4_BT

RF EXPOSURE INFORMATION

RADIO FREQUENCY EXPOSURE (HAZARD) INFORMATION

Testing was performed in accordance with the requirements of FCC Part 15.247(b)(5)

Spread spectrum transmitters operating in the 2400 - 2483.5 MHz band 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).

In accordance with this section and also section 2.1091 this device has been defined as a mobile device whereby a distance of 20 cm normally can be maintained between the user and the device.

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/cm^2.

Friis transmission formula: Pd = (P*G) / (4*π*r^2)

where: Pd = power density (mW/cm^2)
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 Part 1, section 3.0 of test report M040405_Cert_Emilia_Atheros_2.4_BT (WLAN Module):
Maximum peak output power at the antenna terminal = 20.56dBm = 113.8mW
Antenna (Inverted F) gain (typical) = 1.59 dBi = 1.442 numeric
Prediction distance = 20 cm
Prediction frequency = 2437 MHz
MPE limit for uncontrolled exposure at prediction frequency = 1 mW/cm^2

Therefore, the power density at prediction frequency (Pd) = 0.0326 mW/cm^2

The result was extracted from Part 2, section 3.0 of test report M040405_Cert_Emilia_Atheros_2.4_BT (Bluetooth Module):
Maximum peak output power at the antenna terminal = 10.13dBm = 10.3mW
Antenna (Inverted F) gain (typical) = 3.06 dBi = 2.023 numeric
Prediction distance = 20 cm
Prediction frequency = 2441 MHz
MPE limit for uncontrolled exposure at prediction frequency = 1 mW/cm^2

Therefore, the power density at prediction frequency (Pd) = 0.0041mW/cm^2

The total power density (TPd) for WLAN and Bluetooth transmitters continuously operated:

TPd = 0.0326 (WLAN) + 0.0041 (Bluetooth) = 0.0367mW/cm^2

Results: Complies