

Assessment of RF exposure for collocated transmitters

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Federal Communications Commission
Office of Engineering and Technology
Laboratory Division
Equipment Authorization Branch

Subject: Assessment of RF exposure for collocated transmitters

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Dear Sir or Madam:

This GPRS Module will be installed into the host, Car GPS with Bluetooth, and due the size of the GPS, there is a concern about the RF exposure under the condition of collocation. Please check the assessment below:

1. The GPRS was designed with the maximum RF power 0.195W(EIRP) in the frequency band 1850.2 - 1909.8MHz and 0.982W(ERP) in the frequency band 824.2 - 848.8MHz. According to the FCC rule 47CFR §2.1091(c), both of the two conditions are not subject to routine environmental evaluation for RF exposure.
2. The maximum power densities(D) at a distance of 20cm from the transmitting antenna of GPRS are:
 - a. For 850MHz band, per §1.1310 Table(b) the limit is 0.567mW/cm²:
$$D = PG/(4\pi r^2) = (982 \times 1.64)/(4 \times 3.14 \times 400) = 0.32 \text{mW/cm}^2$$
 - b. For 1900MHz band, per §1.1310 Table(b) the limit is 1mW/cm²:
$$D = PG/(4\pi r^2) = (195)/(4 \times 3.14 \times 400) = 0.039 \text{mW/cm}^2$$
3. The maximum power densities(D) at a distance of 20cm from the transmitting antenna of Bluetooth with maximum peak power 2.09dBm, or 1.62mW, is:

For 2.4GHz band, per §1.1310 Table(b) the limit is 1mW/cm²:

$$D = PG/(4\pi r^2) = (1.62 \times 1)/(4 \times 3.14 \times 400) = 0.00032 \text{mW/cm}^2$$

4. According to above calculation, the aggregate power densities(D) at a distance of 20cm from the transmitting antenna is no significant increase and still meet the FCC's requirement for RF exposure.

Hope above can explain the compliance of RF exposure, if you have any questions about these, please kindly contact us.

Sincerely yours,

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