

1 Safety Human Exposure

1.1 Radio Frequency Exposure Compliance

1.1.1 Electromagnetic Fields

RESULT:

Pass

Test Specification

Test standard : CFR47 FCC Part 2: Section 2.1091
CFR47 FCC Part 1: Section 1.1310
FCC KDB Publication 447498 v06
FCC KDB Publication 865664 D02 v01r02
OET Bulletin 65 (Edition 97-01)
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FCC ID: Z9G-EDF65

IC: 1004A-EDF65

According to declaration of applicant, the Bluetooth and Wi-Fi can't transmitting simultaneously.

➤ FCC requirements

FCC requirement: Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 20cm normally can be maintained between the user and the device.

MPE Calculation Method according to OET Bulletin 65

Power Density: $S_{(mW/cm^2)} = PG/4\pi R^2$ or $EIRP/4\pi R^2$

Where:

S = power density (mW/cm²)

P = power input to the antenna (mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (cm)

The nominal maximum conducted output power specified:

2.4GHz DSS: 4.89 dBm, 2.4GHz DTS: 15.56 dBm

U-NII band: 19.29 dBm

From the peak RF output power, the minimum mobile separation distance, d=20 cm, as well as the antenna gain (Max. 2.77 dBi for 2.4GHz DSS & DTS and 2.65 dBi U-NII band), the RF power density can be calculated as below:

For 2.4GHz DSS: $S_{(mW/cm^2)} = PG/4\pi R^2 = 0.0012$ mW/cm²

For 2.4GHz DTS: $S_{(mW/cm^2)} = PG/4\pi R^2 = 0.0136$ mW/cm²

For U-NII band: $S_{(mW/cm^2)} = PG/4\pi R^2 = 0.031$ mW/cm²

➤ **IC requirements:** The EUT shall comply with the requirement of RSS-102 section 2.5.2.

Exemption from Routine Evaluation Limits – RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

- RF exposure evaluation exempted power for 2.4GHz DSS & DTS: 2.676 W
- RF exposure evaluation exempted power for U-NII band: 4.849 W

The nominal maximum conducted output power specified:

2.4GHz DSS: 4.89 dBm, 2.4GHz DTS: 15.56 dBm

U-NII band: 19.29 dBm

Antenna Gain: 2.77 dBi for 2.4GHz DSS & DTS

Antenna Gain: 2.65 dBi for U-NII band

The Max. e.i.r.p. for 2.4GHz DSS: 7.66 dBm = 0.006 W

The Max. e.i.r.p. for 2.4GHz DTS: 18.33 dBm = 0.068 W

The Max. e.i.r.p. for U-NII band: 21.94 dBm = 0.156 W

Both e.i.r.p. for the 2.4GHz DSS & DTS and U-NII band are less than the RF exposure evaluation exempted power. So RF exposure evaluation is not required.

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