

## 6 Safety Human Exposure

### 6.1 Radio Frequency Exposure Compliance

#### 6.1.1 Electromagnetic Fields

**RESULT:** **Pass**

##### Test Specification

Test standard : CFR47 FCC Part 2.1091  
RSS-102 Issue 5 February 2021  
FCC KDB Publication 447498 v06  
Limit : CFR47 FCC Part 1.1310

##### RF Exposure Compliance Requirement for FCC

**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 KDB 447498 v06

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

Where:

S = power density (mW/cm<sup>2</sup>)

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:

The peak power of BT: 12.8 dBm

From the peak RF output power, the minimum mobile separation distance, d=20 cm, as well as the antenna gain (Max. 1.5 dBi for BT), the RF power density can be calculated as below:

For BT:  $S(mW/cm^2) = PG/4\pi R^2 = 0.05 mW/cm^2$

Limits for Maximum Permissible Exposure (MPE) according to FCC Part 1.1310: 1.0 mW/cm<sup>2</sup>

### **RF Exposure Compliance Requirement for IC**

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 : 2.670 W

### **The nominal maximum conducted output power specified:**

The peak power of BT: 12.8dBm

The max. Antenna Gain of BT: 1.5 dBi

The Max. e.i.r.p. of BT: 14.3 dBm = 0.027 W

The e.i.r.p. of BT is 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.”**