

**Prüfbericht - Nr.:** **Reference Test Report No:**  
*Test Report No.* **ULRTC568820300000023F/**

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# 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, section 7  
RSS-102 Issue 5 March 2015, section 2.5.2

#### ➤ 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 KDB 447498 v06

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

Where:

$S$  = power density ( $mW/cm^2$ )

$P$  = 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)

From the peak RF output power, the minimum mobile separation distance,  $d=20$  cm, as well as the antenna gain, the RF power density can be calculated as below:

$$S_{(mW/cm^2)} = PG/4\pi R^2$$

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**a) EUT RF Exposure Evaluation standalone operations**

Test Mode	Maximum conducted Power		Antenna Gain (dBi)	Measured e.i.r.p		$S_{(\text{mW/cm}^2)} = \frac{PG}{4\pi R^2}$	Limit (mW/cm <sup>2</sup> )
	(dBm)	(mW)		(dBm)	(mW)		
BLE	8.19	6.59	1.5	9.69	9.31	0.0019	1.0
Thread	8.25	6.68	1.5	9.75	9.44	0.0019	1.0

**b) EUT RF Exposure Evaluation simultaneous transmission operations**

Not supported.

- **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: 2.670 W

**a) EUT RF Exposure Evaluation standalone operations:**

Test Mode	Measured Peak Power		Antenna Gain (dBi)	Measured e.i.r.p (mW)	
	(dBm)	(mW)		(dBm)	(mW)
BLE	8.19	6.59	1.5	9.69	9.31
Thread	8.25	6.68	1.5	9.75	9.44

**b) EUT RF Exposure Evaluation simultaneous transmission operations**

Not supported.

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