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: Section 2.1091
CFR47 FCC Part 1: Section 1.1310
FCC KDB Publication 447498 v06
FCC KDB Publication 865664 D01 v01r04
FCC KDB Publication 865664 D02 v01r02
RSS-102 Issue 5 March 2015

➢ **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 (Max. 2.3 dBi for BLE, Max -0.5 dBi for DTSs and FHSs), the RF power density can be calculated as below:

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

a) EUT RF Exposure Evaluation standalone operations

Test Mode	Measured Peak Power		Antenna Gain (dBi)	Measured e.i.r.p (mW)		$S_{(mW/cm^2)}= PG/4\pi R^2$
	(dBm)	(W)		(dBm)	(W)	
DTSs#1(BLE)	6.40	0.0044	2.3	8.70	0.0074	0.0015
DTSs#2	19.13	0.0818	-0.5	18.63	0.0729	0.0145
DTSs#3	19.16	0.0824	-0.5	18.66	0.0735	0.0146
DTSs#4	18.94	0.0783	-0.5	18.44	0.0698	0.0139
FHSs#1	19.58	0.0908	-0.5	19.08	0.0809	0.0161
FHSs#2	19.21	0.0834	-0.5	18.71	0.0743	0.0148
FHSs#3	18.96	0.0787	-0.5	18.46	0.0701	0.0140
FHSs#4	18.93	0.0782	-0.5	18.43	0.0697	0.0139
FHSs#5	18.65	0.0733	-0.5	18.15	0.0653	0.0130

b) EUT RF Exposure Evaluation simultaneous transmission operations

Simultaneous transmission mode	The sum of the ratios	Result
BLE + DTSs	0.0015/1 + 0.0146/1< 1	Pass
BLE + FHSs	0.0015/1 + 0.0161/1< 1	Pass

Limits for Maximum Permissible Exposure (MPE) according to FCC Part 1.1310:

1.0 mW/cm^2