RF EXPOSURE

1. Regulation
According to §15.247(i), 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 levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this Chapter.

Limits for Maximum Permissive Exposure: RF exposure is calculated.

Frequency Range	Electric Field Strength [V/m]	Magnetic Field Strength [A/m]	Power Density [mW/cm^2]	Averaging Time [minute]
Limits for General Population / Uncontrolled Exposure				
0.3 ~ 1.34	614	1.63	*(100)	30
1.34 ~ 30	824/f	2.19/f	*(180/f2)	30
30 ~ 300	27.5	0.073	0.2	30
300 ~ 1 500	/	/	f/1 500	30
1 500 ~ 15 000	/	/	1	30

f=frequency in MHz, *= plane-wave equivalent power density

MPE (Maximum Permissive Exposure) Prediction

Predication of MPE limit at a given distance: Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2 \quad \left(\Rightarrow R = \sqrt{PG/4\pi S}\right)$$

S = power density [mW/cm^2]
P = Power input to 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]

2. RF Exposure Compliance Issue
The information should be included in the user's manual:
This appliance and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter. A minimum separation distance of 20 cm must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements.

MPE Calculations : Wifi + BLE + LTE

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

Simultaneous MPE

Wifi+BLE+LTE

- Total (%) = [Wifi Result(mW/cm2) / Limit(mW/cm2)]+[LTE Result(mW/cm2) / Limit(mW/cm2)]+[BLE Result(mW/cm2) / Limit(mW/cm2)] * 100 = [**0.032 000** / 1] + [**0.110 000** / 1] + [**0.080 490** / 1] * 100 = **22.249** %	- NOTE Wifi+BT+LTE Wifi = 0. 032 mW/cm2 BLE= 0. 110 mW/cm2 LTE= 0. 080 mW/cm2 Distance to the center of the radiation of the antenna (20 cm) Limit : ≤ 100 %

RF Exposure Compliance Issue

Therefore, EUT is not required the SAR Evaluation.