RF EXPOSURE FCCID : 2AHUGSLX100H

1. FCC 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/f^2)	< 30
30 ~ 300	27.5	0.073	0.2	< 30
300 ~ 1 500	/	/	f/1 500	< 30
1 500 ~ 15 000	/	/	1.0	< 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 : Bluetooth Classic

- Frequency Range: 2402 MHz ~ 2480 MHz

- Measured RF Maximum Output Power: 0.89 dBm

- Target Power & Tolerance: 0.50 dBm & ± 1.00 dB

(Maximum : 1.50 dBm & Minimum : -0.50 dBm)

- Maximum Peak Antenna Gain: 2.00 dBi

- Maximum Output Power for the Calculation: 1.50 dBm

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

- EIRP = P + G = 1.50 dBm + 2.00 dBi = 3.50 dBm = 2.24 mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)

Power Density at the specific separation

- S = EIRP / (4 X R^2 X π) = 2.24 / (4 X 20^2 X π) = **0.000 445** mW/cm^2 (Limit : 1.00)	- NOTE S : Maximum Power Density (mW/cm^2) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (20 cm)

MPE Calculations : Bluetooth Low Energy

- Frequency Range: 2402 MHz ~ 2480 MHz

- Measured RF Maximum Output Power: -2.98 dBm

- Target Power & Tolerance: -3.00 dBm & ± 1.00 dB

(Maximum : -2.00 dBm & Minimum : -4.00 dBm)

- Maximum Peak Antenna Gain: 2.50 dBi

- Maximum Output Power for the Calculation: -2.00 dBm

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

- EIRP = P + G = -2.00 dBm + 2.50 dBi = 0.50 dBm = 1.12 mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)

Power Density at the specific separation

- S = EIRP / (4 X R^2 X π) = 1.12 / (4 X 20^2 X π) = **0.000 223** mW/cm^2 (Limit : 1.00)	- NOTE S : Maximum Power Density (mW/cm^2) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (20 cm)

MPE Calculations : 24 GHz Radar Sensor

- Frequency Range: 24150 MHz

- Measured RF Maximum Output Power: 10.00 dBm

- Target Power & Tolerance: 9.50 dBm & ± 1.00 dB

(Maximum : 10.50 dBm & Minimum : 8.50 dBm)

- Maximum Peak Antenna Gain: 9.23 dBi

- Maximum Output Power for the Calculation: 10.50 dBm

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

- EIRP = P + G = 10.50 dBm + 9.23 dBi = 19.73 dBm = 93.97 mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)

Power Density at the specific separation

- S = EIRP / (4 X R^2 X π) = 93.97 / (4 X 20^2 X π) = **0.018 695** mW/cm^2 (Limit : 1.00)	- NOTE S : Maximum Power Density (mW/cm^2) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (20 cm)

MPE Calculations :Bluetooth Classic + Low Energy + 24 GHz Radar Sensor

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

Simultaneous MPE for Bluetooth Classic + Low Energy + 24 GHz Radar Sensor

Bluetooth Classic + Low Energy + 24 GHz Radar Sensor

- Total (%) =	- NOTE
([Bluetooth Classic Result(mW/cm^2) / Limit(mW/cm^2)] +	Bluetooth Classic + Low Energy + 24 GHz Radar Sensor
[Bluetooth Low Energy Result(mW/cm^2) / Limit(mW/cm^2)] +	Bluetooth Classic = 0.000 445 mW/cm^2
[24 GHz Radar Sensor Result(mW/cm^2) / Limit(mW/cm^2)]) * 100	Bluetooth Low Energy = 0.000 223 mW/cm^2
= ([**0.000 445** / 1] +	24 GHz Radar Sensor = 0.018 695 mW/cm^2
[**0.000 223** / 1] +	
[**0.018 695** / 1]) * 100	Distance to the center of the radiation of the antenna (20 cm)
= **1.914** %	Limit : ≤ 100 %