

## MPE Calculations FCC ID: 2AUVU-OES3

RF Exposure Requirement: 47 CFR §1.1307(b)

RF Radiation Exposure Limits: 47 CFR §1.1310

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
(A) Limits for Occupational / Controlled Exposure (f = frequency)				
30-300	61.4	0.163	1.0	6
300-1,500	-	-	f/300	6
1.500-100,000	-	-	5.0	6
(B) Limits for General Population / Uncontrolled Exposure (f = frequency)				
30-300	27.5	0.073	0.2	30
300-1,500	-	-	f/1500	30
1.500-100,000	-	-	1.0	30

RF Radiation Exposure Guidelines: OET Bulletin 65

MPE Calculation Equation: 
$$S = \frac{PG}{4\pi R^2}$$

Where: S = Power Density (mW/cm<sup>2</sup>)  
 P = Output Power to Antenna (mW)  
 G = Gain of Antenna (linear)  
 R = Separation Distance from the Antenna (cm)

Total Exposure: 
$$\frac{S_1}{L_1} + \frac{S_2}{L_2} + \dots + \frac{S_n}{L_n} = S_{total}$$

Where: S<sub>x</sub> = Power Density (mW/cm<sup>2</sup>) of each individual radio  
 L<sub>x</sub> = Power Density Limit (mW/cm<sup>2</sup>) of each individual radio  
 S<sub>total</sub> = Total Power Density (mW/cm<sup>2</sup>) of all radios

HBF Side (HBF Horizontal + HBF Vertical + LTE + BT + WiFi)							
Radio	Frequency (GHz)	Target Conducted Output Power (dBm)	Antenna Gain (dBi)	Maximum EIRP (dBm)	Measurement Distance (cm)	Calculated MPE (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
HBF Horizontal	27.55-28.35	10	17	29.11	20	0.162	1.0
HBF Vertical	27.55-28.36	10	17	28.3	20	0.135	1.0
WiFi	2.4	18.72	1	19.72	20	0.019	1.0
LTE	0.777-0.787	25	1.6	26.6	20	0.091	0.518
BT	2.4	12.38	1	13.38	20	0.004	1.0
BLE	2.4	10	1	11	20	0.003	1.0
<b>Total:</b>						<b>0.498</b>	<b>1.0</b>

Patch/OEWG Side (Patch Horizontal + Patch Vertical + LTE + BT + WiFi)							
Radio	Frequency (GHz)	Target Conducted Output Power (dBm)	Antenna Gain (dBi)	Maximum EIRP (dBm)	Measurement Distance (cm)	Calculated MPE (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
Patch/OEWG Horizontal	27.55-28.35	20	7	29.42	20	0.174	1.0
Patch/OEWG Vertical	27.55-28.36	20	7	29.47	20	0.176	1.0
WiFi	2.4	18.72	1	19.72	20	0.019	1.0
LTE	0.777-0.787	25	1.6	26.6	20	0.091	0.518
BT	2.4	12.38	1	13.38	20	0.004	1.0
BLE	2.4	10	1	11	20	0.003	1.0
<b>Total:</b>						<b>0.551</b>	<b>1.0</b>