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## Prediction of MPE at given distance for SNB900

Equation from Page 18 of OET Bulletin 65, Edition 97-01

$$S = PG / 4\pi R^2$$

Where: S = power density  
 P = power input to Antenna  
 G = power gain of the antenna in the direction of interest relative to an isotropic radiator  
 R = distance to the centre of radiation of the antenna

The table below is excerpted from Table 1B of 47CFR 1.1310 titled Limits for maximum Permissible Exposure(MPE), Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Power Density(mW/cm <sup>2</sup> )	Averaging Time (minutes)
300-1500	f/1500	30

Where f = frequency in MHz

We are using only a 0dBi or 5dBi gain antenna. Use 5dBi as worst case.

Let us use prediction distance 21 cm.

We will calculate at 915MHz, being the center of the band.

Maximum peak output power at antenna input Terminal: 30dBm  
 Maximum peak output power at antenna input Terminal: 1000mW  
 Antenna gain (typical) : 5dBi  
 Maximum antenna gain: 3.2 numeric  
 Prediction distance: 21cm  
 Prediction frequency: 915MHz  
 MPE Limit for uncontrolled exposure at prediction freq: 0.610mW/cm<sup>2</sup>  
**Power density at prediction distance: 0.577mW/cm<sup>2</sup>**

### **Conclusion:**

The power density levels at a distance of 21 cm with maximum antenna of 5dbi gain is below the maximum levels allows by the FCC regulations.

The above calculation ignores the presence of the Bluetooth transmitter (FCC ID Q23104001) as the grant for this device indicates that the output power is so low that it does not have a significant contribution to the RF exposure hazard presented by the device.