

## RF exposure evaluation

76-81 GHz Band Radar Service RF exposure evaluation.

### Regulation

According to FCC §95.3385, regardless of the power density levels permitted under this subpart, devices operating under the provisions of this subpart are subject to the radiofrequency radiation exposure requirements specified in §§1.1307(b), 2.1091, and 2.1093 as appropriate. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

### Test result

#### MPE calculation to the FCC ID:

These equations are generally accurate in the far field of an antenna but will over predict power density in the near field, where they could be used for making a “worst case” prediction.

$$S = PG/4\pi R^2 \quad \text{or} \quad S = \text{EIRP}/(4\pi R^2)$$

Where:

- S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)
- P = power input to the antenna (in appropriate units e.g. mW)
- G = power gain of the antenna in the direction of interest relative to the isotropic radiator
- R = distance to the centre of radiation of the antenna (appropriate units e.g. cm)
- EIRP = equivalent isotropically radiated power

#### Calculation:

Waveforms	Operating Frequency	EIRP		Power density (S) @ 20 cm	
				Calculated	Limit
	GHz	dBm	mW	mW/ cm <sup>2</sup>	
Waveform 0	76.402	22.5	177.83	0.035	1.0
Waveform 1	76.230	24.0	251.19	0.050	1.0
Waveform 2	76.642	24.1	257.04	0.051	1.0
Waveform 3	76.951	23.3	213.80	0.043	1.0

Signature	
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