

POWER DENSITY ESTIMATIONS BASED ON POWER OUTPUT, ANTENNA GAIN, AND DISTANCE FROM ANTENNA

$$(P G) / (4 R^2 \pi) = S$$

where: S = maximum power density (mW/cm ²)		transmitter operating variables:	
P =	power input to the antenna ----->>	=	-43.85 (dBm) - or -
G =	gain of the antenna - worst case ----->>	=	0 (dBi) - or -
R =	distance to the center of the radiation of the antenna -->>	=	20 (cm)

must be blank if dB values are entered

(P G) / (4 * R ² * π)	=	S (mW/cm ²)
(4.12098E-05 (mw) 1.00000 (gain)) / (4 * 20 ² (cm) * π)	=	S (mW/cm ²)
(4.12098E-05) / (4 * 400 * π)	=	S (mW/cm ²)
(4.12098E-05) / (5026.548246)	=	0.000000 (mW/cm ²)

MPE for 13.56 MHz Transmitter

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$$(P G) / (4 R^2 \pi) = S$$

where: S = maximum power density (mW/cm ²)		transmitter operating variables:		must be blank if dB values are entered
P =	power input to the antenna ----->>	=	5.348 (dBm) - or -	
G =	gain of the antenna - worst case ----->>	=	2 (dBi) - or -	
R =	distance to the center of the radiation of the antenna -->>	=	20 (cm)	

(P G) / (4 * R ² * π)	=	S	(mW/cm ²)
(3.426099725 (mw) 1.58489 (gain)) / (4 * 20 ² (cm) * π)	=	S	(mW/cm ²)
(5.430002131) / (4 * 400 * π)	=	S	(mW/cm ²)
(5.430002131) / (5026.548246)	=	0.001080	(mW/cm ²)

MPE for BLE Transmitter

MPE Ratio of simultaneous operation based on highest power density compared to the **FCC** limits

Device FCC ID OXM000103

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e.i.r.p			
7.348	0.001	Ratio 1	BLE
-43.85	0	Ratio 2	15.225

0.001 Total Ratio Must be ≤ 1

0.999 Remaining

Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0 , according to calculated/estimated, numerically modeled, or measured field strengths or power density.

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