

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:		must be blank if dB values are entered	
$P =$	power input to the antenna ----->>	=	-43.85 (dBm) - or -		(mW)
$G =$	gain of the antenna - worst case ----->>	=	0 (dBi) - or -		(numeric gain)
$R =$	distance to the center of the radiation of the antenna -->>	=	20		(cm)

$$(P G) / (4 * R^2 * \pi) = S \quad (mW/cm^2)$$

$$\left(\frac{4.12098E-05 \text{ (mw)}}{1.00000 \text{ (gain)}} \right) / \left(4 * \frac{20^2 \text{ (cm)}}{\pi} \right) = S \quad (mW/cm^2)$$

$$\left(4.12098E-05 \right) / \left(4 * 400 * \pi \right) = S \quad (mW/cm^2)$$

$$\left(4.12098E-05 \right) / \left(5026.548246 \right) = 0.000000 \quad (mW/cm^2)$$

MPE for 13.56 MHz Transmitter

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:		must be blank if dB values are entered	
$P =$	power input to the antenna ----->>	=	5.348	(dBm) - or -	(mW)
$G =$	gain of the antenna - worst case ----->>	=	2	(dBi) - or -	(numeric gain)
$R =$	distance to the center of the radiation of the antenna -->>	=	20		(cm)

$(P \quad G) / (4 * R^2 * \pi)$	=	S	(mW/cm ²)
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$(\frac{3.426099725}{(mw)} \quad \frac{1.58489}{(gain)}) / (4 * \frac{20}{(cm)}^2 * \pi)$	=	S	(mW/cm ²)
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$(5.430002131) / (4 * 400 * \pi)$	=	S	(mW/cm ²)
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$(5.430002131) / (5026.548246)$	=	0.001080	(mW/cm ²)
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MPE for BLE Transmitter

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

Device FCC ID OXM000103

Date 16-Jul-20

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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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