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

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

where:			transmitter operating variables:		must be blank if dB values are entered	
S =	maximum power density (mW/cm^2)					
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} * π)	=	S	(mW/cm^2)
(4.12098E-05 (mw) 1.00000 (gain)) / (4 * 20 (cm) ^{2} * π)	=	S	(mW/cm^2)
(4.12098E-05) / (4 * 400 * π $_3$)	=	S	(mW/cm^2)
(4.12098E-05) / (5026.548246)	=	0.000000	(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:			transmitter operating variables:		must be blank if dB values are entered	
S =	maximum power density (mW/cm^2)					
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 G) / (4 * R ^{2} * π)	=	S	(mW/cm^2)
(3.426099725 (mw) 1.58489 (gain)) / (4 * 20 (cm) ^{2} * π)	=	S	(mW/cm^2)
(5.430002131) / (4 * 400 * π $_3$)	=	S	(mW/cm^2)
(5.430002131) / (5026.548246)	=	0.001080	(mW/cm^2)

MPE for BLE Transmitter

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

Device FCC ID OXM000103

Date 16-Jul-20

Prepared By Kyle Fujimoto

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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