

21<sup>st</sup> October 2015

**Telecommunication Certification Body  
UL Verification Services Ltd  
Offices 18-26 Grove House  
Lutyens Close  
Chineham Court,  
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Hampshire  
RG24 8AG**

**RE: Band 12 RN2480 eNode B FCC ID: PKTNODEBAZY MPE Calculation.**

To Whom It May Concern,

The General Dynamics Broadband Band 12 RN2480 eNode B is considered to be fixed equipment and intended for operation with separation distances greater than 20cm between the user and the equipment. Therefore the RF Exposure performance can be assessed by a Maximum Permissible Exposure (MPE) calculation using the limits defined in Part 1.1310 Table 1B for the General Population/Uncontrolled Exposure category.

The General Dynamics Broadband Band 12 RN2480 eNode B uses frequency division duplex (FDD) technology in normal operation with a duty cycle of 100%, therefore source based averaging is not applied in the MPE calculation.

Transmitter Power Calculation	Channel Size		Units
	5	10	MHz
Antenna Gain	18	18	dBi
Line Loss	0	0	dB
Antenna Gain Ratio	63.09573445	63.0957344	
eNode B Tx Output Power (per branch)	46	46	dBm
Upper Power Tolerance (per branch)	2	2	
Number of Transmitter Branches	2	2	
Total Output Power - all branches	126191.47	126191.47	mW
Maximum EIRP - all branches	7962143.41	7962143.41	mW
	69.01	69.01	dBm
Power Spectral Density (EIRP)	62.02	59.01	dBm/MHz
Maximum ERP - all branches	4853220.19	4853220.19	mW
	66.86	66.86	dBm
Power Spectral Density (ERP)	59.87	56.86	dBm/MHz
Power Spectral Density Limit (ERP)	60	60	dBm/MHz
Power Spectral Density (ERP)	59.87	56.86	dBm/MHz

**Table 1: Transmitter PSD Calculation**

MPE Distance Calculation	Channel Size		Units
	5	10	MHz
Frequency	728	728	MHz
MPE Limit from 1.1310	0.485	0.485	mw/cm <sup>2</sup>
Un-controlled/General Public Limit			
<b>Minimum Distance to meet MPE Limit</b>	<b>1142.59</b>	<b>1142.59</b>	<b>cm</b>
(100% Duty Cycle)	<b>449.48</b>	<b>449.48</b>	<b>inches</b>

**Table 2: Distance to MPE Limit**

The calculations above show the General Dynamics Broadband Band 12 RN2480 eNode B complies with the un-controlled /General Public limit of 0.485mW/cm<sup>2</sup> at a minimum distance of 11.43m for operation using either 5MHz or 10MHz channel sizes.

Yours Faithfully



P Warburg  
Principal Engineer  
General Dynamics Broadband.