

FCC ID: CB2VWHL3  
Confirmation No. EA99627  
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RE: Calculation of FCC limits Part 15.231

The limits provided for in CFR47 Part 15.231(b) indicate that -

For the frequency range 260MHz - 470MHz, the limit is a linear interpolation between 3750uV/m and 12500uV/m where the limit at 260MHz is 3750uV/m and the limit at 470MHz is 12500uV/m.

A formula to calculate the limit is established with a ratio linearly equating the frequency range to the limit range.

$$(F_0 - F_L) / (F_H - F_L) = (L_0 - L_L) / (L_H - L_L)$$

where  $F_0$  and  $L_0$  represent the frequency in question and its limit

where  $F_L$  and  $L_L$  represent the lower frequency ( 260MHz ) and its limit ( 3750uV/m ).

Where  $F_H$  and  $L_H$  represent the higher frequency ( 470MHz ) and its limit ( 12500uV/m ).

The calculations for the frequencies included in the application are:

$$\begin{aligned} 288\text{MHz} \quad & ( 288 - 260 ) / ( 470 - 260 ) = (L_0 - 3750) / ( 12500 - 3750 ) \\ & ( 28 / 210 ) * ( 8750 ) = L_0 - 3750 \\ & L_0 = 1166.7 + 3750 \\ & L_0 = 4916.7 \text{ uV/m} \end{aligned}$$

$$\begin{aligned} 310\text{MHz} \quad & ( 310 - 260 ) / ( 470 - 260 ) = (L_0 - 3750) / ( 12500 - 3750 ) \\ & ( 50 / 210 ) * ( 8750 ) = L_0 - 3750 \\ & L_0 = 2083.3 + 3750 \\ & L_0 = 5833.3 \text{ uV/m} \end{aligned}$$

$$\begin{aligned} 418\text{MHz} \quad & ( 418 - 260 ) / ( 470 - 260 ) = (L_0 - 3750) / ( 12500 - 3750 ) \\ & ( 158 / 210 ) * ( 8750 ) = L_0 - 3750 \\ & L_0 = 6583.3 + 3750 \\ & L_0 = 10333.3 \text{ uV/m} \end{aligned}$$

The limit in dB terms is calculated as the result of 20 times the log of the uV/m limit.

$$288\text{MHz} \quad \text{dB limit is } 20 * \text{LOG}( 4916.7 \text{ uV/m} ) = 73.8 \text{ dBuV/m}$$

$$310\text{MHz} \quad \text{dB limit is } 20 * \text{LOG}( 5833.3 \text{ uV/m} ) = 75.3 \text{ dBuV/m}$$

$$418\text{MHz} \quad \text{dB limit is } 20 * \text{LOG}( 10333.3 \text{ uV/m} ) = 80.3 \text{ dBuV/m}$$