



Attn: Reviewing Engineer  
Federal Communications Commission  
7435 Oakland Mills Road  
Columbia, MD 21046

**MPE calculation. USA FCC and Industry Canada IC application .  
Project MDE\_HARMAN\_1303\_LevC\_BT  
Model BE L003, BE L004, BE L005**

7 layers AG  
Borsigstr.11  
40880 Ratingen Germany

**03 October 2014**

**FCC-ID: 2ACRLBEL005  
IC ID: 12339A-BEL005**

**Maximum Permissible Exposure**

as specified in Table 1B of 47 CFR 1.1310 – Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure

Frequency range (MHz)	Power density (mW/cm <sup>2</sup> )
300 – 1,500	f/1500
1,500 – 100,000	1.0

**Antenna information :**

**2400.0 MHz- 2483.5 MHz: Bluetooth PCB Antenna:**

**Type: Internal**

**Polarization: Linear**

**Impedance: 50 Ohm**

**Frequency: 2.4 to 2.5GHz**

**Gain: -5 dB**

**VSWR: <2.5**

**Calculations**

The output power at antenna input terminal: fcc conducted, incl antenna gain .PSK Modulation:-4.04 dBm (0.39 mW) ; FSK modulation-7.14 dBm(0.19mW) [Worst Case Selection Model L004 has been considered as worst case, due to highest output power value].

Prediction distance **R**: 20 cm

Prediction frequency :2480 MHz

MPE limit **S**: 1 mW/cm<sup>2</sup>

Equation OET bulletin 65, page 18, edition 97-01: **S = P\*G / (4πR<sup>2</sup>)**

S = power density; P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna (20cm)



P= 0.96 dBm      =(1.25 )mW  
G= -5.00 dBi  
S = 0.00007847478683 mW/cm<sup>2</sup>

Calculated maximum Power density (S)	Limit	Verdict
0.00007847478683 mW/cm <sup>2</sup>	1.0 mW/cm <sup>2</sup>	Pass

Yours sincerely

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Aleksey Yevdokymov, Testing and certification project manager.

Ratingen, 3 October 2014

A handwritten signature in black ink, appearing to be 'A. Yevdokymov', written over a horizontal line.