



September 22, 2015

TUV SUD BAPT  
Octagon House, Concorde Way  
Segensworth Rd N, Fareham  
PO15 5RL

Attention: Director of Certification

**RE: Analysis of RF Exposure for Fixed and Mobile according to FCC 2.1091 and RSS-102 Issue 5 March 2015.**

FCC ID: 2ABLPFT2225

IC: 20546-FT2225

**1. Mobile MPE Calculation Summary using a 31cm separation distance:**

Mode	Output Power (dBm)	Power Density (mW/cm <sup>2</sup> )
802.11b	19.38	0.0024
802.11g	15.32	0.0007
Bluetooth	7.25	0.0001
Satellite (L-Band)	32.09	0.4754

**2. Co-Located Transmitters transmission table:**

Transmitter type	Transmitter type that can transmit at the same time
WiFi 802.11 b/g	Satellite (L-Band) / Bluetooth
Bluetooth	WiFi / Satellite (L-Band)
Satellite	WiFi / Bluetooth



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**3. Simultaneous Transmission MPE:**

<b>Transmitter type</b>	<b>MPE (mW/cm<sup>2</sup>)</b>	<b>Limit (mW/cm<sup>2</sup>)</b>	<b>MPE ratio (MPE/Limit)</b>
WiFi (802.11b)	0.0024	1.0	0.0024
Bluetooth	0.0001	1.0	0.0001
Satellite (L-Band)	0.4754	1.0	0.4754
Sum of the ratios (should be <1.0)			0.4779



**4. Mobile MPE Calculation using a 31cm separation distance (802.11b):**

Using Power Density formula:

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density

P = power input to the antenna

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

R = distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal:	<b>19.38</b>	(dBm)
Maximum peak output power at antenna input terminal:	<b>86.70</b>	(mW)
Antenna gain(typical):	<b>-4.79</b>	(dBi)
Maximum antenna gain:	<b>0.332</b>	(numeric)
Prediction distance:	<b>31</b>	(cm)
Source Based Time Average Duty Cycle:	<b>100</b>	(%)
Prediction frequency:	<b>2462</b>	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	<b>1.000</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>0.0024</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>0.024</b>	(W/m <sup>2</sup> )
Margin of Compliance:	<b>-26.23</b>	(dB)

**5. Mobile MPE Calculation using a 31cm separation distance (802.11g):**

Maximum peak output power at antenna input terminal:	<b>15.32</b>	(dBm)
Maximum peak output power at antenna input terminal:	<b>34.04</b>	(mW)
Antenna gain(typical):	<b>-6.23</b>	(dBi)
Maximum antenna gain:	<b>0.238</b>	(numeric)
Prediction distance:	<b>31</b>	(cm)
Source Based Time Average Duty Cycle:	<b>100</b>	(%)
Prediction frequency:	<b>2412</b>	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	<b>1.000</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>0.0007</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>0.007</b>	(W/m <sup>2</sup> )
Margin of Compliance:	<b>-31.73</b>	(dB)



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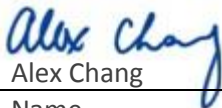
**6. Mobile MPE Calculation using a 31cm separation distance (Bluetooth):**

Maximum peak output power at antenna input terminal:	<b>7.25</b>	(dBm)
Maximum peak output power at antenna input terminal:	<b>5.31</b>	(mW)
Antenna gain(typical):	<b>-6.01</b>	(dBi)
Maximum antenna gain:	<b>0.251</b>	(numeric)
Prediction distance:	<b>31</b>	(cm)
Source Based Time Average Duty Cycle:	<b>100</b>	(%)
Prediction frequency:	<b>2440</b>	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	<b>1.000</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>0.0001</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>0.001</b>	(W/m <sup>2</sup> )
Margin of Compliance:	<b>-39.58</b>	(dB)

**7. Mobile MPE Calculation using a 31cm separation distance (Satellite L-Band):**

Maximum peak output power at antenna input terminal:	<b>32.09</b>	(dBm)
Maximum peak output power at antenna input terminal:	<b>1618.08</b>	(mW)
Antenna gain(typical):	<b>5.5</b>	(dBi)
Maximum antenna gain:	<b>3.548</b>	(numeric)
Prediction distance:	<b>31</b>	(cm)
Source Based Time Average Duty Cycle:	<b>100</b>	(%)
Prediction frequency:	<b>1660.5</b>	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	<b>1.000</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>0.4754</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>4.754</b>	(W/m <sup>2</sup> )
Margin of Compliance:	<b>-3.23</b>	(dB)

Sincerely,

  
Alex Chang

Name

Authorized Signatory

Title: EMC/Wireless Test Engineer