



April 02, 2015

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Attention: Director of Certification

**RE: Analysis of RF Exposure for Portable and Mobile use per KDB 447498 D01 Mobile Portable RF Exposure v05r02 and RSS-102 Issue 4 March 2010**

FCC ID: Q371E60326-3Q

IC : 4638A-1E603263G

**1. Mobile MPE Calculation Summary using a 20cm separation distance:**

Mode	Output Power	Power Density (mW/m <sup>2</sup> )
802.11 b	16.38 dBm	0.0109
802.11 g	23.50 dBm	0.0561
802.11 n	22.97 dBm	0.0496
GSM	30.16 dBm	0.4374
PCS	30.18 dBm	0.1985

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

Transmitter type	Transmitter type that can transmit at the same time
WLAN	GSM/GPRS/U/HSDPA
GSM/GPRS/U/HSDPA	WLAN

**3. Simultaneous Transmission MPE (worst-case):**

Transmitter type	MPE (mw/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	MPE ratio (MPE/Limit)
WLAN(802.11 g)	0.0561	1.0	0.0561
GSM	0.4374	0.565	0.7742
Sum of the ratios (should be <1.0)			0.8303



**4. Mobile MPE Calculation using a 20cm separation distance (802.11 b):**

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>16.38</b>	(dBm)
Maximum peak output power at antenna input terminal:	<b>43.45</b>	(mW)
Antenna gain(typical):	<b>1</b>	(dBi)
Maximum antenna gain:	<b>1.259</b>	(numeric)
Prediction distance:	<b>20</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</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>0.0109</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>0.109</b>	(W/m <sup>2</sup> )
Margin of Compliance:	<b>-19.63</b>	(dB)

**5. Mobile MPE Calculation using a 20cm separation distance (802.11 g):**

Maximum peak output power at antenna input terminal:	<b>23.50</b>	(dBm)
Maximum peak output power at antenna input terminal:	<b>223.87</b>	(mW)
Antenna gain(typical):	<b>1</b>	(dBi)
Maximum antenna gain:	<b>1.259</b>	(numeric)
Prediction distance:	<b>20</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>0.0561</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>0.561</b>	(W/m <sup>2</sup> )
Margin of Compliance:	<b>-12.51</b>	(dB)



**6. Mobile MPE Calculation using a 20cm separation distance (802.11 n):**

Maximum peak output power at antenna input terminal:	<b>22.97</b>	(dBm)
Maximum peak output power at antenna input terminal:	<b>198.15</b>	(mW)
Antenna gain(typical):	<b>1</b>	(dBi)
Maximum antenna gain:	<b>1.259</b>	(numeric)
Prediction distance:	<b>20</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>0.0496</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>0.496</b>	(W/m <sup>2</sup> )
Margin of Compliance:	<b>-13.04</b>	(dB)

**7. Mobile MPE Calculation using a 20cm separation distance (GSM):**

Maximum peak output power at antenna input terminal:	<b>30.16</b>	(dBm)
Maximum peak output power at antenna input terminal:	<b>1037.53</b>	(mW)
Antenna gain(typical):	<b>5.2</b>	(dBi)
Maximum antenna gain:	<b>3.311</b>	(numeric)
Prediction distance:	<b>25</b>	(cm)
Source Based Time Average Duty Cycle:	<b>100</b>	(%)
Prediction frequency:	<b>848.16</b>	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	<b>0.565</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>0.4374</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>4.374</b>	(W/m <sup>2</sup> )
Margin of Compliance:	<b>-1.11</b>	(dB)



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**8. Mobile MPE Calculation using a 20cm separation distance (PCS):**

Maximum peak output power at antenna input terminal:	<b>30.18</b>	(dBm)
Maximum peak output power at antenna input terminal:	<b>1042.32</b>	(mW)
Antenna gain(typical):	<b>-0.19</b>	(dBi)
Maximum antenna gain:	<b>0.957</b>	(numeric)
Prediction distance:	<b>20</b>	(cm)
Source Based Time Average Duty Cycle:	<b>100</b>	(%)
Prediction frequency:	<b>1880</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>0.1985</b>	(mW/cm <sup>2</sup> )
Power density at prediction frequency:	<b>1.985</b>	(W/m <sup>2</sup> )
Margin of Compliance:	<b>-7.02</b>	(dB)

Sincerely,

  
Alex Chang

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Name

Authorized Signatory

Title: EMC/Wireless Test Engineer