August 20, 2014

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

Attention: Director of Certification

RE: Analysis of RF Exposure for Portable use per Title 47, Part 1 Subpart I, §1.1310, Title 47, Part 2 Subpart J, §2.1091 and RSS-102 Issue 4 March 2010.

FCC ID: APV-3030GBT
IC: 5843C-3030GBT

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

Mode	Output Power	Antenna Gain	Power Density (mW/m^2)
GSM/GPRS 850	32.20 dBm (824.2 MHz)	-9.8 dBi*	0.0346
GSM/GPRS 1900	29.90 dBm (1880.0 MHz)	-4.5 dBi*	0.0690
Bluetooth	100.4 dBµV/m @ 3 meters	0 dBi	0.00065441
Bluetooth LE	86.6 dBµV/m @ 3 meters	0 dBi	0.00002728

2. Co-Located Transmitters transmission table:

Transmitter type	Transmitter type that can transmit at the same time
GSM/GPRS 850	Bluetooth
GSM/GPRS 850	Bluetooth LE
GSM/GPRS 1900	Bluetooth
GSM/GPRS 1900	Bluetooth LE

3. Simultaneous Transmission MPE (Worst Case Combination):

Transmitter type	MPE (mw/cm^2)	Limit (mW/cm^2)	MPE ratio (MPE/Limit)
GSM/GPRS 1900	0.0690	1.0	0.0690
Bluetooth	0.00065441	1.0	0.00065441
		Sum of the ratios (should be <1.0)	0.06965441

4. Mobile MPE Calculation using a 20cm separation distance (GSM/GPRS 850):

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:	**32.20**	(dBm)
Maximum peak output power at antenna input terminal:	**1659.59**	(mW)
Antenna gain(typical):	**-9.8**	(dBi)
Maximum antenna gain:	**0.105**	(numeric)
Prediction distance:	**20**	(cm)
Sourse Based Time Average Duty Cycle:	**100**	(%)
Prediction frequency:	**824.2**	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	**0.549**	(mW/cm^2)
Power density at prediction frequency:	**0.0346**	(mW/cm^2)
Power density at prediction frequency:	**0.346**	(W/m^2)
Margin of Compliance:	**-12.01**	(dB)

5. Mobile MPE Calculation using a 20cm separation distance (GSM/GPRS 1900):

Maximum peak output power at antenna input terminal:	**29.90**	(dBm)
Maximum peak output power at antenna input terminal:	**977.24**	(mW)
Antenna gain(typical):	**-4.5**	(dBi)
Maximum antenna gain:	**0.355**	(numeric)
Prediction distance:	**20**	(cm)
Sourse Based Time Average Duty Cycle:	**100**	(%)
Prediction frequency:	**1880**	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	**1.000**	(mW/cm^2)
Power density at prediction frequency:	**0.0690**	(mW/cm^2)
Power density at prediction frequency:	**0.690**	(W/m^2)
Margin of Compliance:	**-11.61**	(dB)

6. Mobile MPE Calculation using a 20cm separation distance (Bluetooth):

Measured Field Strength --Radiated:	**100.4**	(dBuV/m)
Maximum peak output power --Radiated:	**0.0032894**	(W)
Antenna gain(typical):	**0.00**	(dBi)
Maximum antenna gain:	**1.00**	(numeric)
Prediction distance:	**20.00**	(cm)
Prediction frequency:	**319.00**	(MHz)
Limit from table below:	**1**	(mW/cm^2)
Power density at prediction frequency:	**0.00065441**	(mW/cm^2)
Margin of Compliance:	**-31.84**	(dB)

7. Mobile MPE Calculation using a 20cm separation distance (Bluetooth LE):

Measured Field Strength --Radiated:	**86.6**	(dBuV/m)
Maximum peak output power --Radiated:	**0.0001371**	(W)
Antenna gain(typical):	**0.00**	(dBi)
Maximum antenna gain:	**1.00**	(numeric)
Prediction distance:	**20.00**	(cm)
Prediction frequency:	**319.00**	(MHz)
Limit from table below:	**1**	(mW/cm^2)
Power density at prediction frequency:	**0.00002728**	(mW/cm^2)
Margin of Compliance:	**-45.64**	(dB)

***Notes:** Power level and worst case channel information for the cellular radio were derived from the MPE exhibit of the original filing. Antenna gains information of the cellular radio were also derived from this exhibit as well as the CTIA Over The Air Performance Summation Test Report (7 layers, Inc. Project Name: MUS_CALAMP_1310) provided by the client.

Sincerely,

Ferdie S. Custodio
Name
Authorized Signatory
Title: EMC/ Senior Wireless Test Engineer