



March 23, 2015

TUV SUD BABT
Octagon House, Concorde Way
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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-2630GBT

IC: 5843C-2630GBT

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

| Mode | Output Power | Antenna Gain | Power Density (mW/cm ²) |
|---------------|-------------------------|--------------|--|
| GSM/GPRS 850 | 32.3dBm (837.0 MHz) | -6.1 dBi* | 0.0207 |
| GSM/GPRS 1900 | 29.7dBm (1880.0 MHz) | -5.3 dBi* | 0.0137 |
| 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 | 0.0207 | 0.558 | 0.0207 |
| Bluetooth | 0.00065441 | 1.0 | 0.00065441 |
| Sum of the ratios (should be <1.0) | | | 0.02135441 |

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: | 32.3 | (dBm) |
| Maximum peak output power at antenna input terminal: | 1698.24 | (mW) |
| Antenna gain(typical): | -6.1 | (dBi) |
| Maximum antenna gain: | 0.245 | (numeric) |
| Prediction distance: | 20 | (cm) |
| Source Based Time Average Duty Cycle: | 25 | (%) |
| Prediction frequency: | 837 | (MHz) |
| MPE limit for uncontrolled exposure at prediction frequency: | 0.558 | (mW/cm ²) |
| Power density at prediction frequency: | 0.0207 | (mW/cm ²) |
| Power density at prediction frequency: | 0.207 | (W/m ²) |
| Margin of Compliance: | -14.3 | (dB) |

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

| | | |
|--|--------|-----------------------|
| Maximum peak output power at antenna input terminal: | 29.7 | (dBm) |
| Maximum peak output power at antenna input terminal: | 933.25 | (mW) |
| Antenna gain(typical): | -5.3 | (dBi) |
| Maximum antenna gain: | 0.295 | (numeric) |
| Prediction distance: | 20 | (cm) |
| Source Based Time Average Duty Cycle: | 25 | (%) |
| Prediction frequency: | 1880 | (MHz) |
| MPE limit for uncontrolled exposure at prediction frequency: | 1.000 | (mW/cm ²) |
| Power density at prediction frequency: | 0.0137 | (mW/cm ²) |
| Power density at prediction frequency: | 0.137 | (W/m ²) |
| Margin of Compliance: | -18.63 | (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 test reports of the original filing. Antenna gains information of the cellular radio were derived from a reference cellular module testing using CTIA over the Air Performance Summation Test Report (7 layers, Inc. Project Name: MUS_CALAMP_1407) provided by the client.

Sincerely,



Juan M. Gonzalez

Name

Authorized Signatory

Title: Commercial/Wireless EMC Lab Manager