

## Radiated Restricted Band Measurements

### §15.205 / §15.209



Special attention is made for the EUT's harmonic and spurious radiated emission in the restricted bands of operations. The EUT was tested from 9kHz and up to the 10<sup>th</sup> harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHZ. Above 1 GHz, average measurement was used, using RBW = 1MHz, VBW = 10Hz and linearly polarized horn antennas. All harmonics/spurs are at least 20dB below the highest emission in the authorized band using RBW = 100kHz. In addition, peak measurements were taken to ensure that the peak levels are not more than 20dB above the average limit. All out of band emissions, other than those created by the spreading sequence, data sequence, and the carrier modulation must not exceed the limits show in Table A-4 per Section 15.209.

| Frequency         | F/S<br>[ $\mu\text{V}/\text{m}$ ] | Measured Distance<br>[Meters] |
|-------------------|-----------------------------------|-------------------------------|
| 0.009 – 0.490 MHz | 2400/F (kHz)                      | 300                           |
| 0.490 – 1.705 MHz | 24000/F (kHz)                     | 30                            |
| 1.705 – 30.00 MHz | 30                                | 30                            |
| 30.00 – 88.00 MHz | 100                               | 3                             |
| 88.00 – 216.0 MHz | 150                               | 3                             |
| 216.0 – 960.0 MHz | 200                               | 3                             |
| Above 960.0 MHz   | 500                               | 3                             |

**Table A-4. Radiated Limits**

### TEST MEASUREMENT EQUIPMENT

|                  |  |
|------------------|--|
| Agilent E4448A   | PSA Spectrum Analyzer 3Hz - 50GHz                |
| HP 8566B         | Spectrum Analyzer 100 Hz - 22GHz                 |
| HP 83017A        | Microwave Preamplifier 40dB Gain (0.5 - 26.5GHz) |
| EMCO 3115        | Horn Antenna (1 - 18GHz)                         |
| EMCO 3116        | Horn Antenna (18GHz - 40GHz)                     |
| HP 8493B         | 10dB Attenuator                                  |
| MicroCoax Cables | Low Loss Microwave Cables (1 - 26.5GHz)          |

|                                      |   |  |   |                                 |
|--------------------------------------|---|--|---|---------------------------------|
| PCTEST™ PT. 15.247<br>BT TEST REPORT |  | BLUETOOTH SUPPLEMENTAL DATA                                |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0607270639       | Test Dates:<br>July 27, 2006  | EUT Type:<br>Single-Band PCS GSM/EDGE Phone with Bluetooth | FCC ID: A3LSGHI310  | Page 1 of 3                     |

## Radiated Restricted Band Measurements (Cont'd)

§15.205 / §15.209

Mode: Bluetooth

Measurement Distance: 3 Meters

Operating Frequency: 2480MHz



Channel: 78

| Frequency [MHz] | Level [dBm] | AFCL [dB] | Pol. [H/V] | Field Strength [dB $\mu$ V/m] | Field Strength [ $\mu$ V/m] | Margin [dB] |
|-----------------|-------------|-----------|------------|-------------------------------|-----------------------------|-------------|
| 2483.89         | -114.73     | 30.81     | V          | 23.08                         | 14.26                       | -30.90      |
| 2486.24         | -115.40     | 30.82     | V          | 22.42                         | 13.21                       | -31.56      |
| 2489.21         | -114.91     | 30.83     | V          | 22.92                         | 14.00                       | -31.06      |
| 2491.78         | -116.06     | 30.83     | V          | 21.77                         | 12.26                       | -32.21      |
| 2493.18         | -115.24     | 30.85     | H          | 22.61                         | 13.51                       | -31.37      |
| 2494.63         | -115.37     | 30.86     | V          | 22.49                         | 13.32                       | -31.49      |

**Table A-8. Radiated Restricted Band Measurements at 3-meters**

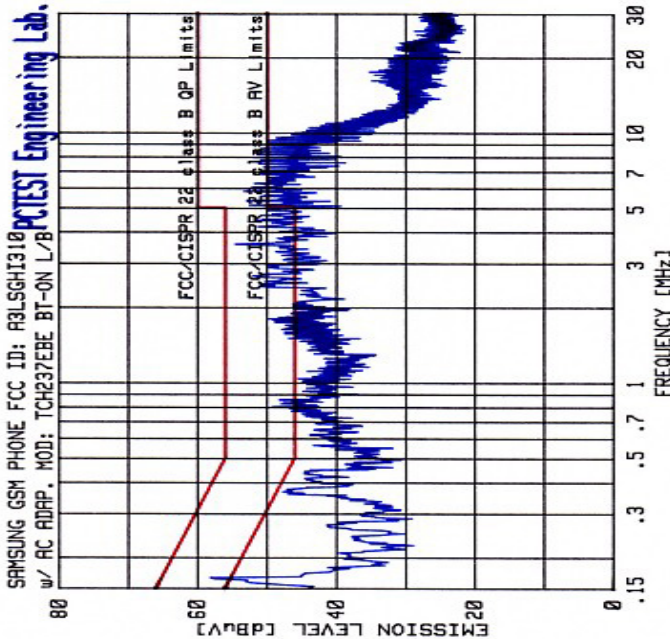
**NOTES:**

1. The antenna is manipulated through typical positions, polarity and length during the testing.
2. The EUT is supplied with the minimal AC voltage or/and a new/fully re-charged battery.
3. The spectrum is measured from 9kHz up to the 10<sup>th</sup> harmonic and the worst-case emissions are reported.
4. Above 1 GHz the limit is 500 $\mu$ V/m.
5. < -135 dBm is below the analyzer measurement floor level.
6. The peak emissions above 1 GHz are not more than 20 dB above the average limit.

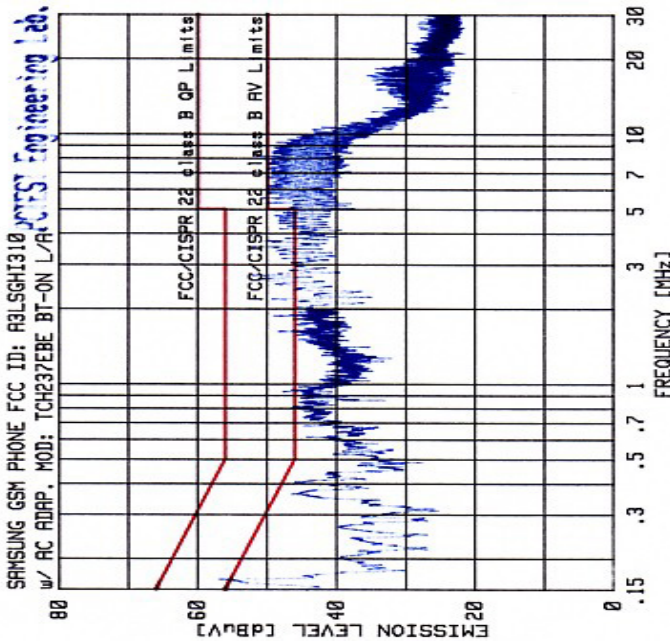
|                                       |   |  |   |                                 |
|---------------------------------------|---|--|---|---------------------------------|
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# Line-Conducted Test Data

§15.207



| No. | Freq. [MHz] | Quasi-Pk [dBuV] | Limit [dBuV] | Margin [dB] | Average [dBuV] | Limit [dBuV] | Margin [dB] |
|-----|-------------|-----------------|--------------|-------------|----------------|--------------|-------------|
| 1   | 3.470       | 41.51           | 56.00        | -14.49      | 29.52          | 46.00        | -16.48      |
| 2   | 2.575       | 42.36           | 56.00        | -13.64      | 29.63          | 46.00        | -16.37      |
| 3   | 4.346       | 41.56           | 56.00        | -14.44      | 28.76          | 46.00        | -17.24      |
| 4   | 4.188       | 40.68           | 56.00        | -15.32      | 28.54          | 46.00        | -17.46      |
| 5   | 2.325       | 37.77           | 56.00        | -18.23      | 30.20          | 46.00        | -15.80      |
| 6   | 4.561       | 41.16           | 56.00        | -14.84      | 28.81          | 46.00        | -17.19      |
| 7   | 2.843       | 39.62           | 56.00        | -16.38      | 26.77          | 46.00        | -19.23      |
| 8   | 1.772       | 41.70           | 56.00        | -14.30      | 28.69          | 46.00        | -17.31      |
| 9   | 4.770       | 41.09           | 56.00        | -14.91      | 28.40          | 46.00        | -17.60      |
| 10  | 5.712       | 42.40           | 60.00        | -17.60      | 31.03          | 50.00        | -18.97      |



| No. | Freq. [MHz] | Quasi-Pk [dBuV] | Limit [dBuV] | Margin [dB] | Average [dBuV] | Limit [dBuV] | Margin [dB] |
|-----|-------------|-----------------|--------------|-------------|----------------|--------------|-------------|
| 1   | 3.453       | 38.99           | 56.00        | -17.01      | 28.36          | 46.00        | -17.64      |
| 2   | 2.634       | 40.80           | 56.00        | -15.20      | 27.90          | 46.00        | -18.10      |
| 3   | 2.519       | 40.96           | 56.00        | -15.04      | 28.64          | 46.00        | -16.36      |
| 4   | 3.547       | 39.57           | 56.00        | -16.43      | 27.98          | 46.00        | -18.02      |
| 5   | 2.099       | 35.67           | 56.00        | -20.33      | 23.60          | 46.00        | -22.40      |
| 6   | 1.856       | 39.51           | 56.00        | -16.49      | 27.99          | 46.00        | -18.01      |
| 7   | 4.857       | 38.86           | 56.00        | -17.14      | 27.71          | 46.00        | -18.29      |
| 8   | 4.632       | 38.92           | 56.00        | -17.08      | 27.77          | 46.00        | -18.23      |
| 9   | 2.429       | 39.74           | 56.00        | -16.26      | 29.19          | 46.00        | -16.81      |
| 10  | 3.415       | 39.09           | 56.00        | -16.91      | 26.76          | 46.00        | -19.24      |

**Notes:**

1. All Modes of operation were investigated and the worst-case emissions are reported.
2. The limit for Class B device(s) from 150kHz to 30MHz are Specified in EN55022.
3. Line A = Phase; Line B = Neutral
4. Deviations to the Specifications: None.

|                                      |                              |  |                    |                                 |
|--------------------------------------|------------------------------|--|--------------------|---------------------------------|
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