

**Advanced  
Compliance Laboratory**

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## ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

of

Product: Cardiobelt  
Model No. : CSPU  
FCC ID:U6LCPU31

June 20, 2007

This report concerns (check one): Original grant \_\_\_\_\_ Class II change  x   
Equipment type: Low Power Transmitter

Deferred grant requested per 47 CF 0.457(d)(1)(ii)? yes \_\_\_\_\_ no  x   
If yes, defer until: \_\_\_\_\_ (date)  
Company agrees to notify the Commission by \_\_\_\_\_ (date)  
of the intended date of announcement of the product so that the grant can be  
issued on that date.

Transition Rules Request per 15.37? yes \_\_\_\_\_ no  x   
If no, assumed Part 15, Subpart B for unintentional radiators - the new 47 CFR  
[10-1-90 Edition] provision.

|                      |                           |
|----------------------|---------------------------|
| Report prepared for: | Monebo Technologies, Inc. |
| Report prepared by:  | Advanced Compliance Lab   |
| Report number:       | 0048-070620-01            |

**The test result in this report IS supported and covered by the NVLAP accreditation**

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## 1. TEST RESULT CERTIFICATION

**COMPANY NAME:** Monebo Technologies, Inc.  
1800 Barton Creek blvd  
Austin, TX 78735 U.S.A.

**EUT DESCRIPTION:** Cardiobelt

**MODEL:** CSPU

**DATE TESTED:** June 1, 2007 to June 10, 2007

| APPLICABLE STANDARDS  |                         |
|-----------------------|-------------------------|
| STANDARD              | TEST RESULTS            |
| FCC PART 15 SUBPART C | NO NON-COMPLIANCE NOTED |

Advanced Compliance Laboratory, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Advanced Compliance Laboratory, Inc. (ACL) and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by ACL, Advanced Compliance Laboratory, Inc. will constitute fraud and shall nullify the document.

Approved & Released For ACL By:

Tested By:



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Wei Li  
Manager  
Advanced Compliance Laboratory, Inc.



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Edward Lee  
EMC Engineer

## 2. EUT DESCRIPTION

The EUT is a Bluetooth Module operating in the 2402-2480 MHz band.

This RF section of Bluetooth module is electrically identical to its previous version granted by FCC with FCC ID: U6LPU31, the only changes being the electrical and mechanical changes in digital hosting circuitry section that do not change the basic frequency determining and stabilizing circuitry, frequency multiplication stages, basic modulator circuit or maximum power at antenna port. As a result of this modification, the filed strength /spurious emissions and band edge testing has been performed to verify compliance. The other original test results continue to be representative of the changed equipment.

The transmitter has a maximum peak conducted output power at antenna port as follows:

| Frequency Range<br>(MHz) | Output Power<br>(dBm) | Output Power<br>(mW) |
|--------------------------|-----------------------|----------------------|
| 2402 - 2480              | 2.12                  | 1.63                 |

The radio utilizes an integral antenna with a maximum gain of 0 dBi.

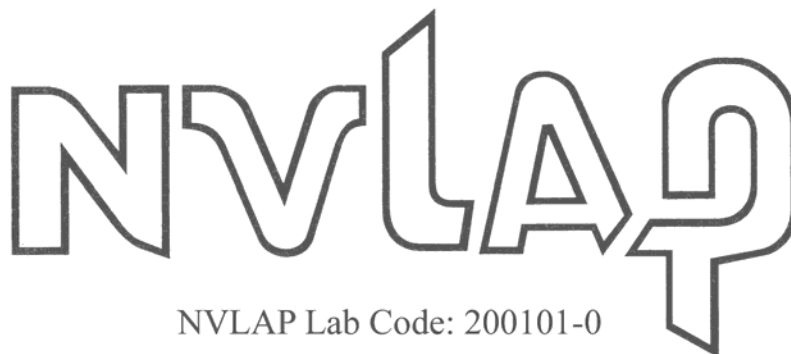
### 3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4/2003, FCC CFR 47 Part 2 and FCC CFR 47 Part 15.

### 4. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at Somerset, New Jersey, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

ACL is accredited by NVLAP, Laboratory Code 200101-0. The full accreditation can be viewed at <http://www.ac-lab.com>



No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government.

## 5. CALIBRATION AND UNCERTAINTY

### 5.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 5.2. MEASUREMENT UNCERTAINTY

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in Advanced Compliance Lab. Doc. No. 0048-01-01.

|                                 | Prob. Dist. | Uncertainty(dB) | Uncertainty(dB) | Uncertainty(dB) |
|---------------------------------|-------------|-----------------|-----------------|-----------------|
|                                 |             | 30-1000MHz      | 1-6.5GHz        | Conducted       |
| Combined Std. Uncertainty $u_c$ | norm.       | $\pm 2.36$      | $\pm 2.99$      | $\pm 1.83$      |

### 5.3. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| Manufacture        | Model   | Serial No. | Description                           | Last Cal<br>dd/mm/<br>yy | Cal Due<br>dd/mm/<br>yy |
|--------------------|---------|------------|---------------------------------------|--------------------------|-------------------------|
| HP                 | HP8546A | 3448A00290 | EMI Receiver                          | 12/01/07                 | 12/01/08                |
| HP                 | E4432B  | US38220355 | 250K-3GHz Signal Generator            | 17/09/06                 | 17/09/07                |
| R &S               | ESPI7   | 6001       | 9KHz-7GHz EMI Receiver                | 15/06/06                 | 15/06/07                |
| EMCO               | 3104C   | 9307-4396  | 20-300MHz Biconical Antenna           | 12/02/07                 | 12/02/08                |
| EMCO               | 3146    | 9008-2860  | 200-1000MHz Log-Periodic Antenna      | 09/02/07                 | 09/02/08                |
| Fischer Custom     | LISN-2  | 900-4-0008 | Line Impedance Stabilization Networks | 23/08/06                 | 23/08/07                |
| Fischer Custom     | LISN-2  | 900-4-0009 | Line Impedance Stabilization Networks | 23/08/06                 | 23/08/07                |
| EMCO               | 6502    | 2665       | 10KHz-30MHz Active Loop Antenna       | 27/02/07                 | 27/02/08                |
| EMCO               | 3115    | 4945       | Double Ridge Guide Horn Antenna       | 11/08/06                 | 11/08/07                |
| HP                 | 8569B   | 2607A02802 | 1GHz-22GHz Spectrum Analyzer          | 10/02/07                 | 10/02/08                |
| Advantest          | R3271   | 5003583    | 100Hz-26.5GHz Spectrum Analyzer       | 30/04/07                 | 30/04/08                |
| HP                 | E8254A  | US42110367 | Signal Generator                      | 23/03/07                 | 23/03/08                |
| EMCO               | 3116    | 4943       | Double Ridge Guide Horn Antenna       | 11/01/07                 | 11/01/08                |
| Scientific-Atlanta | 12A-18  | 441        | Wave Guide Horn Antenna               | 04/08/06                 | 04/08/07                |

All Test Equipment Used are Calibrated Traceable to NIST Standards.

## **6. SETUP OF EQUIPMENT UNDER TEST**

### **SUPPORT EQUIPMENT**

n/a

### **TEST SETUP**

The EUT was configured for testing in a typical fashion (as a customer would normally use it with its typical hosting device/enclosure). Its antenna was permanently located on PCB board.  
EUT is powered by DC battery when it is in operating mode.



## **7. APPLICABLE LIMITS AND TEST RESULTS**

### **7.1. Band Edge Compliance**

#### **LIMIT**

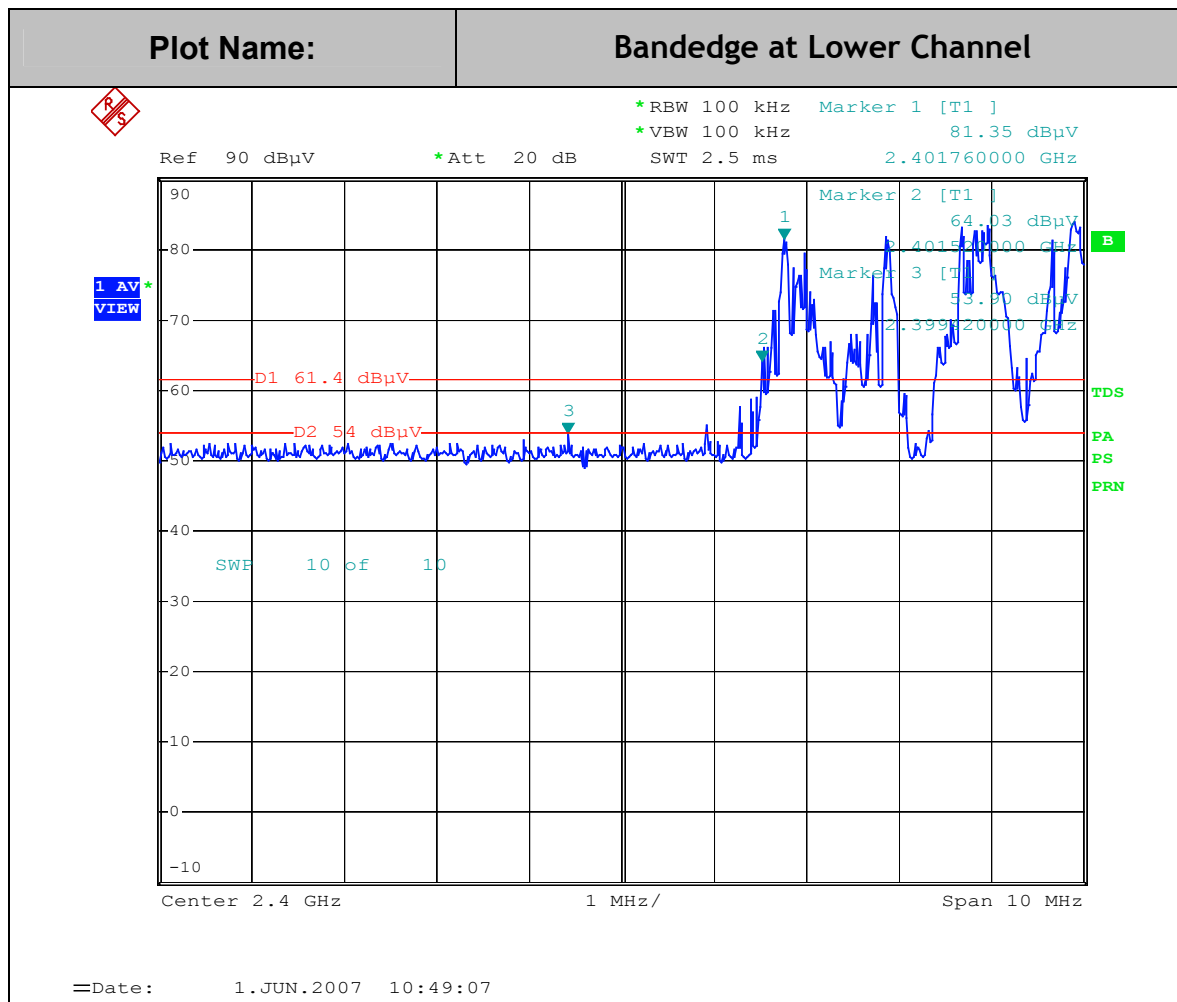
None; for reporting purposes only.

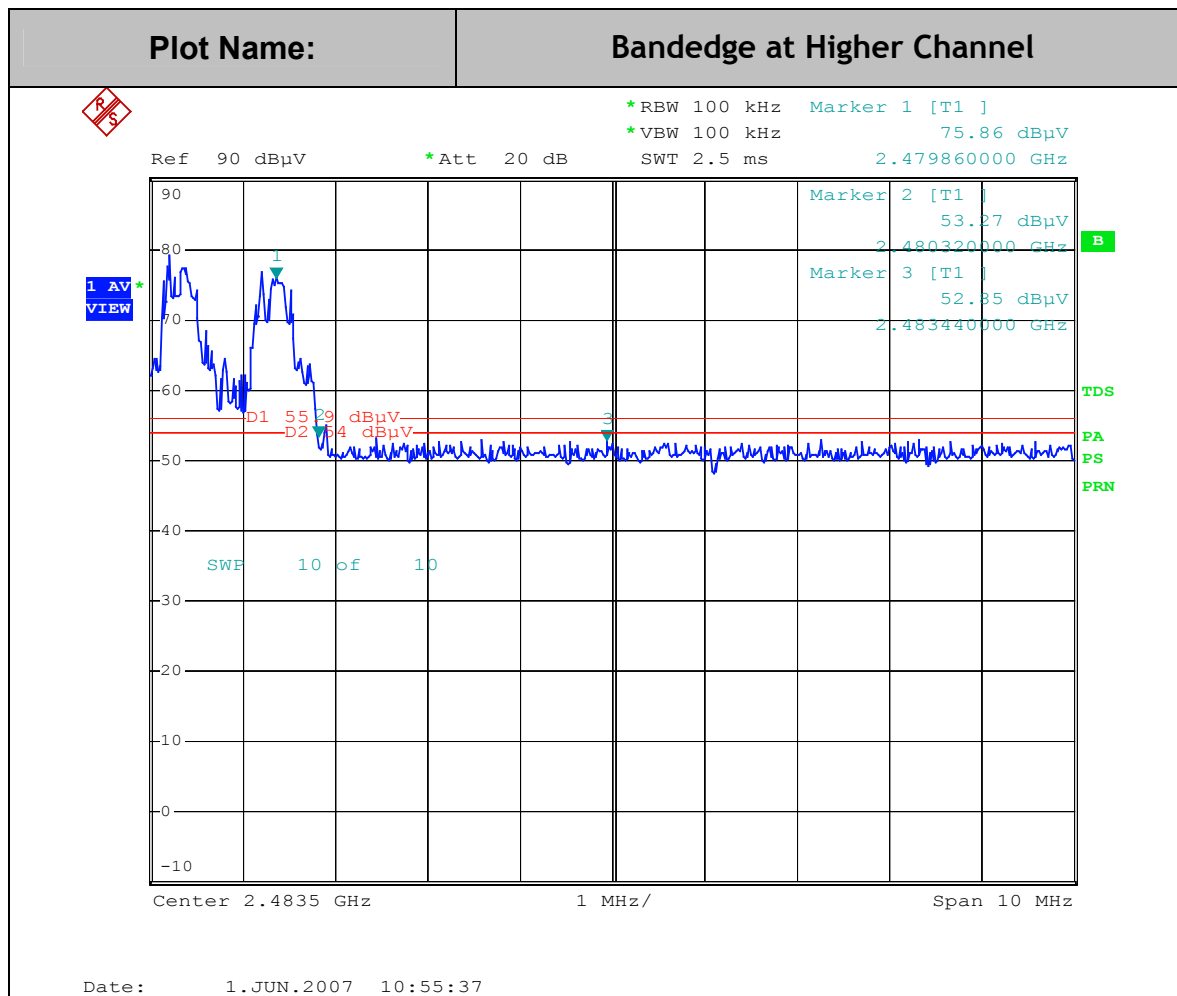
#### **TEST PROCEDURE**

The transmitter radiated emissions are measured at 3m distance by using spectrum analyzer.

#### **RESULTS**

No non-compliance noted:





## 7.2. RADIATED EMISSIONS

### 7.2.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS

#### LIMITS

§15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz                        | MHz                   | MHz             | GHz              |
|----------------------------|-----------------------|-----------------|------------------|
| 0.090 - 0.110              | 16.42 - 16.423        | 399.9 - 410     | 4.5 - 5.15       |
| <sup>1</sup> 0.495 - 0.505 | 16.69475 - 16.69525   | 608 - 614       | 5.35 - 5.46      |
| 2.1735 - 2.1905            | 16.80425 - 16.80475   | 960 - 1240      | 7.25 - 7.75      |
| 4.125 - 4.128              | 25.5 - 25.67          | 1300 - 1427     | 8.025 - 8.5      |
| 4.17725 - 4.17775          | 37.5 - 38.25          | 1435 - 1626.5   | 9.0 - 9.2        |
| 4.20725 - 4.20775          | 73 - 74.6             | 1645.5 - 1646.5 | 9.3 - 9.5        |
| 6.215 - 6.218              | 74.8 - 75.2           | 1660 - 1710     | 10.6 - 12.7      |
| 6.26775 - 6.26825          | 108 - 121.94          | 1718.8 - 1722.2 | 13.25 - 13.4     |
| 6.31175 - 6.31225          | 123 - 138             | 2200 - 2300     | 14.47 - 14.5     |
| 8.291 - 8.294              | 149.9 - 150.05        | 2310 - 2390     | 15.35 - 16.2     |
| 8.362 - 8.366              | 156.52475 - 156.52525 | 2483.5 - 2500   | 17.7 - 21.4      |
| 8.37625 - 8.38675          | 156.7 - 156.9         | 2655 - 2900     | 22.01 - 23.12    |
| 8.41425 - 8.41475          | 162.0125 - 167.17     | 3260 - 3267     | 23.6 - 24.0      |
| 12.29 - 12.293             | 167.72 - 173.2        | 3332 - 3339     | 31.2 - 31.8      |
| 12.51975 - 12.52025        | 240 - 285             | 3345.8 - 3358   | 36.43 - 36.5     |
| 12.57675 - 12.57725        | 322 - 335.4           | 3600 - 4400     | ( <sup>2</sup> ) |
| 13.36 - 13.41              |                       |                 |                  |

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> Above 38.6

§15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(meters) |
|--------------------|--------------------------------------|----------------------------------|
| 30 - 88            | 100 **                               | 3                                |
| 88 - 216           | 150 **                               | 3                                |
| 216 - 960          | 200 **                               | 3                                |
| Above 960          | 500                                  | 3                                |

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

## **TEST PROCEDURE**

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 10 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

## **RESULTS**

No non-compliance noted:

## 7.2.2. TRANSMITTER RADIATED EMISSIONS ABOVE 1 GHZ

### HARMONICS AND SPURIOUS EMISSIONS\*

#### A. Transmitting Mode

| Freq.<br>(MHz)   | Position<br>(H,V-X,<br>Y,Z) | Dist.<br>(m) | D Corr<br>(dB) | Peak<br>(dBuV/m) | Avg.<br>(dBuV/m) | Corr.<br>Peak.<br>(dBuV/m) | PK<br>Lim<br>(dBu<br>V/m) | Avg.L<br>im<br>(dBuV<br>/m) | PK Mar<br>(dBuV/m) | Avg.Mar.<br>(dBuV/m) |
|--|-----------------------------|--------------|----------------|------------------|------------------|----------------------------|---------------------------|-----------------------------|--------------------|----------------------|
| Low Channel Harmonics  |                             |              |                |                  |                  |                            |                           |                             |                    |                      |
| 4804   | H,Z                         | 1            | -10.5          | <b>58.0</b>      |                  | 47.5                       | 74                        | 54                          | -26.5              | -6.5**               |
| 4804   | V,X                         | 1            | -10.5          | <b>56.5</b>      |                  | 46.0                       | 74                        | 54                          | -28.0              | -8.0                 |
| Mid Channel Harmonics  |                             |              |                |                  |                  |                            |                           |                             |                    |                      |
| 4882   | H,Z                         | 1            | -10.5          | <b>57.2</b>      |                  | 46.7                       | 74                        | 54                          | -27.3              | -7.3                 |
| 4882   | V,X                         | 1            | -10.5          | <b>56.0</b>      |                  | 45.5                       | 74                        | 54                          | -28.5              | -8.5                 |
| High Channel Harmonics   |                             |              |                |                  |                  |                            |                           |                             |                    |                      |
| 4960   | H,Z                         | 1            | -10.5          | <b>55.4</b>      |                  | 44.9                       | 74                        | 54                          | -29.1              | -9.1                 |
| 4960   | V,X                         | 1            | -10.5          | <b>55.0</b>      |                  | 44.5                       | 74                        | 54                          | -29.5              | -9.5                 |
| No other harmonics or spurious emissions were detected in the rest band above system floor, noise above -20dB to the limit. This applies to the restricted Bands, 2310-2390MHz & 2483.5-2500MHz. |                             |              |                |                  |                  |                            |                           |                             |                    |                      |
|  |                             |              |                |                  |                  |                            |                           |                             |                    |                      |
|  |                             |              |                |                  |                  |                            |                           |                             |                    |                      |

#### B. No-Tx Mode

| Freq.<br>(MHz)  | Position<br>(H,V-X,<br>Y,Z) | Dist.<br>(m) | D Corr<br>(dB) | Peak<br>(dBuV/m) | Quasi-Peak<br>(dBuV/m) | Avg.<br>(dBuV/m) | FCC-15<br>3m Lim<br>(dBuV/m) | Mar.<br>(dBuV/m) |
|---|-----------------------------|--------------|----------------|------------------|------------------------|------------------|------------------------------|------------------|
| No other harmonics or spurious emissions were detected in the rest band above system floor, noise above -20dB to the limit. |                             |              |                |                  |                        |                  |                              |                  |
|   |                             |              |                |                  |                        |                  |                              |                  |

\* EUT was placed inside its plastic hosting enclosure during the test, which is the typical configuration for this EUT's application. The presence of this plastic enclosure will not affect the testing result.

\*\*Using the peak reading for Avg. margin calculation since the peak reading is under average limit.

### **7.10.3.        WORST-CASE RADIATED EMISSIONS BELOW 1 GHz**

**SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)**  
**SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)**

|   |
|---|
| No significant emissions were detected in this band above system floor, noise above -20dB to the limit. |
|---|