



TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: Enabler HS 3001


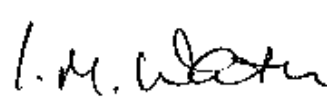
FCC ID: MIVCNN0301

IC Certification Number: 4160A-CNN0301

To: FCC Part 22: 2011, Part 24: 2011, & Industry Canada RSS-132 Issue 2
and RSS-133 Issue 5

Test Report Serial No.:
RFI-RPT-RP86318JD02A V4.0

Version 4.0 Supersedes All Previous Versions

| | |
|---|--|
| <p>This Test Report Is Issued Under The Authority Of John Newell, Group Quality Manager:</p> |  pp |
| <p>Checked By:</p> | <p>Ian Watch</p> |
| <p>Signature:</p> |  |
| <p>Date of Issue:</p> | <p>24 May 2012</p> |

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1. Customer Information





















| | |
|----------------------|---|
| Company Name: | Enfora Inc. |
| Address: | 251 Renner Parkway Richardson Texas TX 75080 |

2. Summary of Testing

2.1. General Information

| | |
|---------------------------------|--|
| Specification Reference: | 47CFR22 |
| Specification Title: | Code of Federal Regulations Volume 47 (Telecommunications) 2011: Part 22 Subpart H (Public Mobile Services) |
| Specification Reference: | 47CFR24 |
| Specification Title: | Code of Federal Regulations Volume 47 (Telecommunications) 2011: Part 24 Subpart E (Personal Communication Services) |
| Specification Reference: | 47CFR15.107 and 47CFR15.109 |
| Specification Title: | Code of Federal Regulations Volume 47 (Telecommunications) 2011: Part 15 Subpart B (Unintentional Radiators) - Sections 15.107 and 15.109 |
| Specification Reference: | RSS-GEN Issue 3 December 2010 |
| Specification Title: | General Requirements and Information for the Certification of Radiocommunication Equipment |
| Specification Reference: | RSS-132 Issue 2 Sep 2005 |
| Specification Title: | Cellular Telephones Employing New Technologies Operating in the Bands 824-849 MHz and 869-894 MHz |
| Specification Reference: | SRSP-503 Issue 7 Sep 2008 |
| Specification Title: | Technical Requirements for Cellular Radiotelephone Systems Operating in the Bands 824 – 849 MHz and 869 – 894 MHz |
| Specification Reference: | RSS-133 Issue 5 Feb 2009 |
| Specification Title: | 2 GHz Personal Communications Services |
| Specification Reference: | SRSP-510 Issue 5 Feb 2009 |
| Specification Title: | Technical Requirements for Personal Communications Services (PCS) in the Bands 1850-1915 MHz and 1930-1995 MHz |
| Site Registration: | FCC: 209735; Industry Canada: 3245B-2 |
| Location of Testing: | RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH |
| Test Dates: | 03 April 2012 to 25 April 2012 |

2.2. Summary of Test Results

| FCC Reference (47CFR) | IC Reference | Measurement | Result |
|---|-------------------------------|---|---|
| Part 22 & RSS-132 | | | |
| Part 15.107(a) | RSS-Gen 7.2.2 | Receiver/Idle Mode AC Conducted Spurious Emissions |  |
| Part 15.109 | RSS-Gen 4.10/6 RSS-132 4.6 | Receiver/Idle Mode Radiated Spurious Emissions |  |
| Part 22.913(a) | RSS-132 4.4 SRSP-503 5.1.3 | Transmitter Output Power (Conducted) |  |
| Part 2.1055/22.355 | RSS-132 4.3 RSS-Gen 4.7 | Transmitter Frequency Stability (Temperature and Voltage Variation) |  |
| Part 2.1049 | RSS-Gen 4.6.1 | Transmitter Occupied Bandwidth |  |
| Part 2.1051/22.917 | RSS-132 4.5 | Transmitter Out of Band Conducted Emissions |  |
| Part 2.1053/22.917 | RSS-132 4.5 | Transmitter Out of Band Radiated Emissions |  |
| Part 2.1051/22.917 | RSS-132 4.5 | Transmitter Band Edge Conducted Emissions |  |
| Part 2.1053/22.917 | RSS-132 4.5 | Transmitter Band Edge Radiated Emissions |  |
| Part 24 & RSS-133 | | | |
| Part 15.107(a) | RSS-Gen 7.2.2 | Receiver/Idle Mode AC Conducted Spurious Emissions |  |
| Part 15.109 | RSS-Gen 4.10/6 RSS-133 4.6 | Receiver/Idle Mode Radiated Spurious Emissions |  |
| Part 24.232 | RSS-133 6.4 SRSP-510 5.1.2 | Transmitter Output Power (Conducted) |  |
| Part 2.1055/24.235 | RSS-133 6.3 RSS Gen 4.7 | Transmitter Frequency Stability (Temperature and Voltage Variation) |  |
| Part 2.1049 | RSS-Gen 4.6.1 | Transmitter Occupied Bandwidth |  |
| Part 2.1051/24.238 | RSS-133 6.5 | Transmitter Out of Band Conducted Emissions |  |
| Part 2.1053/24.238 | RSS-133 6.5 | Transmitter Out of Band Radiated Emissions |  |
| Part 2.1051/24.238 | RSS-133 6.5 | Transmitter Band Edge Conducted Emissions |  |
| Part 2.1053/24.238 | RSS-133 6.5 | Transmitter Band Edge Radiated Emissions |  |
| Key to Results | | | |
|  = Complied  = Did not comply | | | |

2.3. Methods and Procedures

| | |
|-------------------|--|
| Reference: | ANSI/TIA-603-C-2004 |
| Title: | Land Mobile Communications Equipment, Measurements and performance Standards |
| Reference: | ANSI C63.4 (2009) |
| Title: | American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz. |

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

| | |
|----------------------------------|-----------------|
| Brand Name: | Enabler HS 3001 |
| Model Name or Number: | CNN0301-10 |
| Electronic Serial Number: | 804777A6 |
| Hardware Version Number: | 1 |
| Software Version Number: | 10.1 |
| FCC ID: | MIVCNN0301 |
| IC Certification Number: | 4160A-CNN0301 |

| | |
|----------------------------------|-----------------|
| Brand Name: | Enabler HS 3001 |
| Model Name or Number: | CNN0301-10 |
| Electronic Serial Number: | 807FD690 |
| Hardware Version Number: | 1 |
| Software Version Number: | 10.1 |
| FCC ID: | MIVCNN0301 |
| IC Certification Number: | 4160A-CNN0301 |

3.2. Description of EUT

The equipment under test was a CDMA2000 module working in the 850/1900 bands. The EUT did not support EV-DO.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

| | | | |
|-------------------------------------|----------------------|-----------------------|--------------------------------|
| Type of Radio Device: | Transceiver | | |
| Mode: | CDMA2000 | | |
| Modulation Type: | O-QPSK | | |
| Channel Spacing: | 1.25 MHz | | |
| Power Supply Requirement(s): | Nominal | 3.7 V | |
| Technology Tested: | US Cellular 850 | | |
| Transmit Frequency Range: | 824 MHz to 849 MHz | | |
| Transmit Channels Tested: | Channel ID | Channel Number | Channel Frequency (MHz) |
| | Bottom | 1013 | 824.70 |
| | Middle | 384 | 836.51 |
| | Top | 777 | 848.31 |
| Technology Tested: | PCS 1900 | | |
| Transmit Frequency Range: | 1850 MHz to 1910 MHz | | |
| Transmit Channels Tested: | Channel ID | Channel Number | Channel Frequency (MHz) |
| | Bottom | 25 | 1851.25 |
| | Middle | 600 | 1880.00 |
| | Top | 1175 | 1908.75 |

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

| | |
|------------------------------|-------------------|
| Description: | Development Board |
| Brand Name: | Enfora |
| Model Name or Number: | HDK0301MG900 |
| Serial Number: | 111220 |

| | |
|------------------------------|-----------------------|
| Description: | Development Board PSU |
| Brand Name: | CUI |
| Model Name or Number: | EPS050200U-P7P-DB |
| Serial Number: | Not marked or stated |

| | |
|---------------------------------|--------------------------|
| Description: | Laptop PC |
| Brand Name: | Dell D610 |
| Model Name or Number: | PC480NT |
| Serial Number: | CN-0C4708-48643-625-3186 |
| Software Version Number: | Windows XP |

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Receiver/Idle mode.
- Constantly transmitting at full power on bottom, middle and top channels as required.
- Occupied bandwidth, ERP/EIRP and band edge tests were performed with the EUT in SO55 and SO02 modes.
- Transmitter radiated spurious emissions were checked in all modes during pre-scans. SO02 was found to be the worst case and all final measurements were performed with the EUT in this mode.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- The EUT was attached to the development board and configured using the test laptop detailed in section 3.5.
- The development board was powered from 115 V / 60 Hz via a switch mode power supply. Although not part of the EUT, this power supply was tested for AC conducted emissions since it was deemed a representative configuration of a final product into which the module may be installed.
- The EUT antenna port U.FL connector was connected to either the test antenna on the development board or directly to a CDMA2000 system simulator
- The CDMA2000 system simulator was configured operating in transceiver mode.
- For radiated spurious emissions tests the USB and serial ports of the development board were terminated via suitable cables connected to the laptop computer. The customer declared that all other ports on the PCB were suitably terminated.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6. Measurement Uncertainty* for details.

5.2. Test Results - Part 22 & RSS-132**5.2.1. Receiver/Idle Mode AC Conducted Spurious Emissions****Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Mark Percival | Test Date: | 11 April 2012 |
| Test Sample ESN: | 804777A6 | | |

| | |
|-----------------------------------|-------------------------------------|
| FCC Part: | 15.107(a) |
| Industry Canada Reference: | RSS-Gen 7.2.4 |
| Test Method Used: | As detailed in ANSI C63.4 Section 7 |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 28 |
| Relative Humidity (%): | 29 |

Results: Live Quasi Peak

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|------|--------------------|--------------------|-------------|----------|
| 0.856500 | Live | 24.0 | 56.0 | 32.0 | Complied |
| 1.108500 | Live | 21.2 | 56.0 | 34.8 | Complied |
| 1.122000 | Live | 20.0 | 56.0 | 36.0 | Complied |
| 1.158000 | Live | 20.1 | 56.0 | 35.9 | Complied |
| 1.414500 | Live | 20.7 | 56.0 | 35.3 | Complied |
| 2.643000 | Live | 22.4 | 56.0 | 33.6 | Complied |
| 14.752500 | Live | 22.6 | 60.0 | 37.4 | Complied |

Results: Live Average

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|------|--------------------|--------------------|-------------|----------|
| 0.271500 | Live | 27.9 | 51.1 | 23.2 | Complied |
| 1.459500 | Live | 20.1 | 46.0 | 25.9 | Complied |
| 1.473000 | Live | 14.5 | 46.0 | 31.5 | Complied |
| 1.500000 | Live | 23.8 | 46.0 | 22.2 | Complied |
| 6.000000 | Live | 17.7 | 50.0 | 32.3 | Complied |

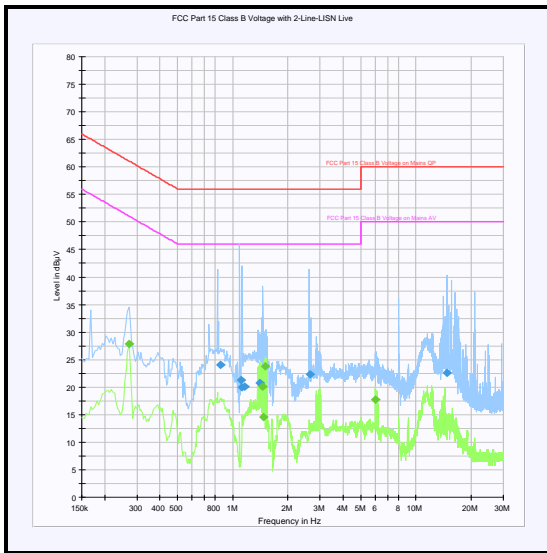
Receiver/Idle Mode AC Conducted Spurious Emissions (continued)

Results: Neutral Quasi Peak

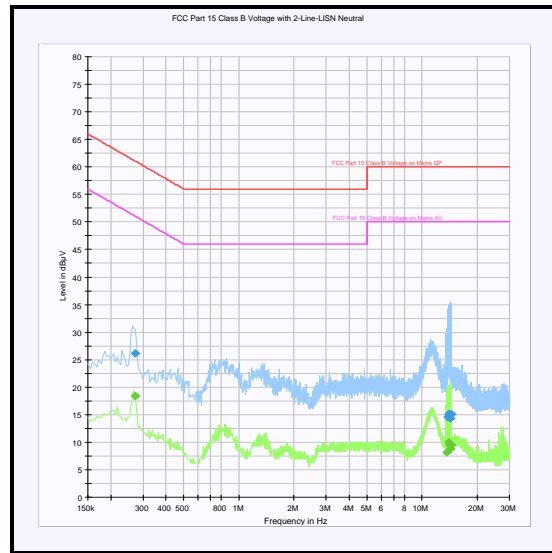
| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|---------|--------------------|--------------------|-------------|----------|
| 0.271500 | Neutral | 26.1 | 61.1 | 35.0 | Complied |
| 13.789500 | Neutral | 14.5 | 60.0 | 45.5 | Complied |
| 13.911000 | Neutral | 15.1 | 60.0 | 44.9 | Complied |
| 14.095500 | Neutral | 14.9 | 60.0 | 45.1 | Complied |
| 14.262000 | Neutral | 14.3 | 60.0 | 45.7 | Complied |
| 14.374500 | Neutral | 15.2 | 60.0 | 44.8 | Complied |

Results: Neutral Average

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|---------|--------------------|--------------------|-------------|----------|
| 0.271500 | Neutral | 18.4 | 51.1 | 32.7 | Complied |
| 13.668000 | Neutral | 8.2 | 50.0 | 41.8 | Complied |
| 13.960500 | Neutral | 9.9 | 50.0 | 40.1 | Complied |
| 14.064000 | Neutral | 9.4 | 50.0 | 40.6 | Complied |
| 14.262000 | Neutral | 8.9 | 50.0 | 41.1 | Complied |
| 14.361000 | Neutral | 9.4 | 50.0 | 40.6 | Complied |



Live



Neutral

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

5.2.2. Receiver/Idle Mode Radiated Spurious Emissions**Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 17 April 2012 |
| Test Sample ESN: | 807FD690 | | |

| | |
|-----------------------------------|-------------------------------------|
| FCC Part: | 15.109 |
| Industry Canada Reference: | RSS-Gen 4.10/6 RSS-132 4.6 |
| Test Method Used: | As detailed in ANSI C63.4 Section 8 |
| Frequency Range: | 30 MHz to 1000 MHz |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 25 |
| Relative Humidity (%): | 29 |

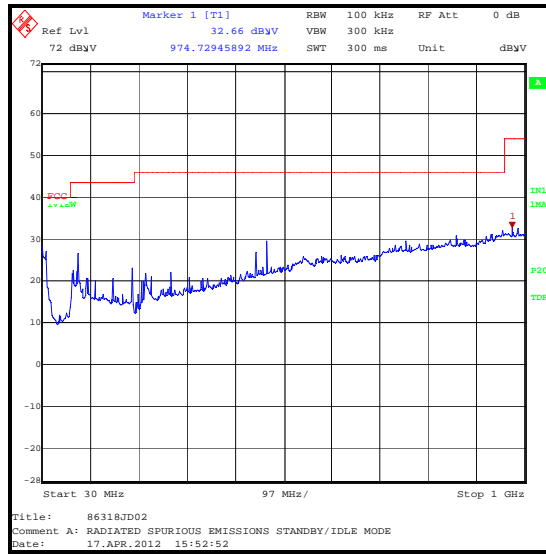
Results:

| Frequency (MHz) | Antenna Polarity | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Result |
|------------------------|-------------------------|--------------------------------------|--------------------------------------|--------------------|---------------|
| 974.729 | Vertical | 32.7 | 54.0 | 21.3 | Complied |

Note(s):

1. All emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor. Therefore the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above.
2. Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Receiver/Idle Mode Radiated Spurious Emissions (continued)



Receiver/Idle Mode Radiated Spurious Emissions (continued)**Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 04 April 2012 |
| Test Sample ESN: | 804777A6 | | |

| | |
|-----------------------------------|-------------------------------------|
| FCC Part: | 15.109 |
| Industry Canada Reference: | RSS-Gen 4.10/6 RSS-132 4.6 |
| Test Method Used: | As detailed in ANSI C63.4 Section 8 |
| Frequency Range: | 1 GHz to 5 GHz |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 24 |
| Relative Humidity (%): | 20 |

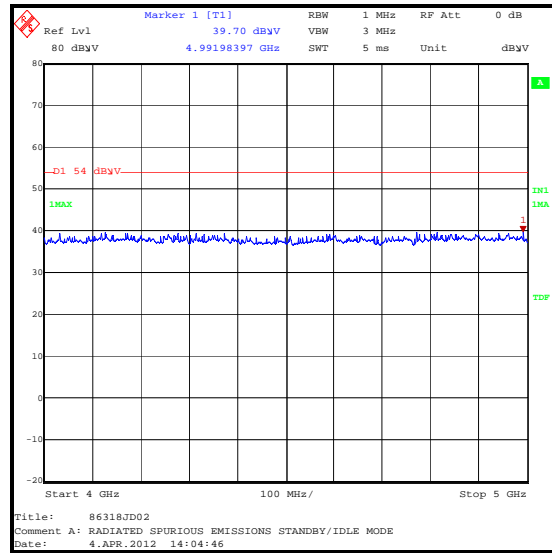
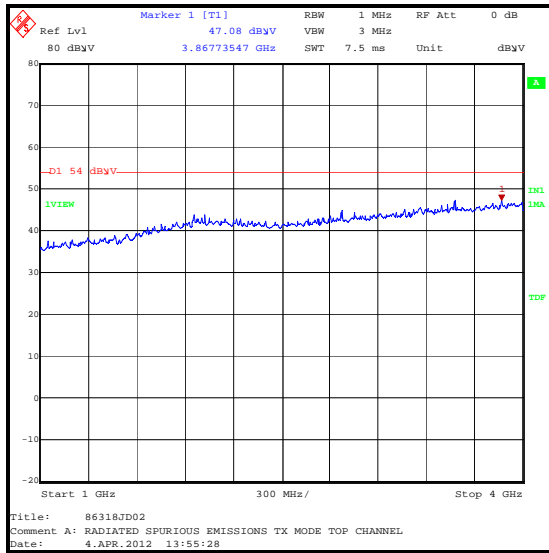
Results:

| Frequency (MHz) | Antenna Polarity | Peak Level (dB μ V/m) | Average Limit (dB μ V/m) | Margin (dB) | Result |
|-----------------|------------------|---------------------------|------------------------------|-------------|----------|
| 3867.735 | Horizontal | 47.1 | 54.0 | 6.9 | Complied |

Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. All spurious emissions were >20 dB below the limit or below the noise floor of the measuring receiver therefore the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above. The peak level was compared to the average limit (as opposed to being compared to the peak limit) because this is the more onerous limit.
3. Pre-scans above 1 GHz were performed in a fully anechoic chamber (RFI Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
4. A wireless communications test set was used to establish a CDMA2000 link with the EUT.
5. The EUT was tested in two service options: SO55 and SO02.
6. The 1 GHz to 4 GHz plot below incorrectly states Tx mode. This is mislabelled and should state standby/idle mode.

Receiver/Idle Mode Radiated Spurious Emissions (continued)



5.2.3. Transmitter Output Power (Conducted)**Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 25 April 2012 |
| Test Sample ESN: | 807FD690 | | |

| | |
|-----------------------------------|---|
| FCC Part: | 22.913(a) |
| Industry Canada Reference: | RSS-132 4.4 SRSP-503 5.1.3 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.17.2 |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 24 |
| Relative Humidity (%): | 33 |

Results: CDMA2000 SO55

| Channel | Frequency (MHz) | Conducted Power (dBm) | ERP Limit (dBm) | Margin (dB) | Result |
|---------|-----------------|-----------------------|-----------------|-------------|----------|
| Bottom | 824.70 | 23.22 | 38.45 | 19.05 | Complied |
| Middle | 836.51 | 23.12 | 38.45 | 18.90 | Complied |
| Top | 848.31 | 22.88 | 38.45 | 19.08 | Complied |

Results: CDMA2000 SO02

| Channel | Frequency (MHz) | Conducted Power (dBm) | ERP Limit (dBm) | Margin (dB) | Result |
|---------|-----------------|-----------------------|-----------------|-------------|----------|
| Bottom | 824.70 | 23.33 | 38.45 | 18.94 | Complied |
| Middle | 836.51 | 23.21 | 38.45 | 18.81 | Complied |
| Top | 848.31 | 23.12 | 38.45 | 18.84 | Complied |

Note(s):

1. SRSP-503 states the limit as an EIRP value of 11.5 Watts (40.6 dBm) which equates to an ERP limit of 7 Watts (38.45 dBm)
2. A wireless communications test set was used to establish a CDMA2000 link with the EUT.
3. The EUT was tested in two service options: SO55 and SO02
4. Conducted measurements were taken using the power measuring function of the communications test set.
5. The conducted power was compared with the ERP limit.

5.2.4. Transmitter Frequency Stability (Temperature Variation)**Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 16 April 2012 |
| Test Sample ESN: | 807FD690 | | |

| | |
|-----------------------------------|--|
| FCC Part: | 2.1055 & 22.355 |
| Industry Canada Reference: | RSS-132 4.3 RSS Gen 4.7 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.2 referencing FCC CFR Part 2.1055 |

Environmental Conditions:

| | |
|----------------------------------|----|
| Nominal Temperature (°C): | 23 |
| Relative Humidity (%): | 27 |

Results: Middle Channel (836.51 MHz)

| Temperature (°C) | Measured Frequency (MHz) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) | Margin (ppm) | Result |
|------------------|--------------------------|----------------------|-----------------------|-------------|--------------|----------|
| -30 | 836.510018 | 18 | 0.0215 | 2.5 | 2.4785 | Complied |
| -20 | 836.510011 | 11 | 0.0131 | 2.5 | 2.4869 | Complied |
| -10 | 836.510012 | 12 | 0.0143 | 2.5 | 2.4857 | Complied |
| 0 | 836.510014 | 14 | 0.0167 | 2.5 | 2.4833 | Complied |
| 10 | 836.510009 | 09 | 0.0108 | 2.5 | 2.4892 | Complied |
| 20 | 836.510007 | 07 | 0.0084 | 2.5 | 2.4916 | Complied |
| 30 | 836.510010 | 10 | 0.0120 | 2.5 | 2.4880 | Complied |
| 40 | 836.510016 | 16 | 0.0191 | 2.5 | 2.4809 | Complied |
| 50 | 836.510013 | 13 | 0.0155 | 2.5 | 2.4845 | Complied |

Note(s):

1. Temperature was monitored throughout the test with a calibrated digital thermometer.
2. Frequency stability was measured using the frequency error function on the communications test set.

5.2.5. Transmitter Frequency Stability (Voltage Variation)**Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 16 April 2012 |
| Test Sample ESN: | 807FD690 | | |

| | |
|-----------------------------------|--|
| FCC Part: | 2.1055 & 22.355 |
| Industry Canada Reference: | RSS-132 4.3 RSS-Gen 4.7 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.2 referencing FCC CFR Part 2.1055 |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 23 |
| Relative Humidity (%): | 27 |

Results: Middle Channel (836.51 MHz)

| Supply Voltage (V) | Measured Frequency (MHz) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) | Margin (ppm) | Result |
|--------------------|--------------------------|----------------------|-----------------------|-------------|--------------|----------|
| 3.3 | 836.510011 | 11 | 0.0131 | 2.5 | 2.4869 | Complied |
| 4.2 | 836.510015 | 15 | 0.0179 | 2.5 | 2.4821 | Complied |

Note(s):

1. Voltage was monitored throughout the test with a calibrated digital voltmeter.
2. Frequency stability was measured using the frequency error function on the communications test set.

5.2.6. Transmitter Occupied Bandwidth**Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 03 April 2012 |
| Test Sample ESN: | 804777A6 | | |

| | |
|-----------------------------------|--|
| FCC Part: | 2.1049 |
| Industry Canada Reference: | RSS-Gen 4.6.1 |
| Test Method Used: | As detailed in ANSI C63.4 Section 13.7 referencing FCC CFR Part 2.1049 |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 23 |
| Relative Humidity (%): | 26 |

Results: CDMA2000 SO55 Voice

| Channel | Frequency (MHz) | Occupied Bandwidth (kHz) |
|---------|-----------------|--------------------------|
| Bottom | 824.70 | 1286.573 |
| Middle | 836.51 | 1286.573 |
| Top | 848.31 | 1286.573 |

Results: CDMA2000 SO02 Data

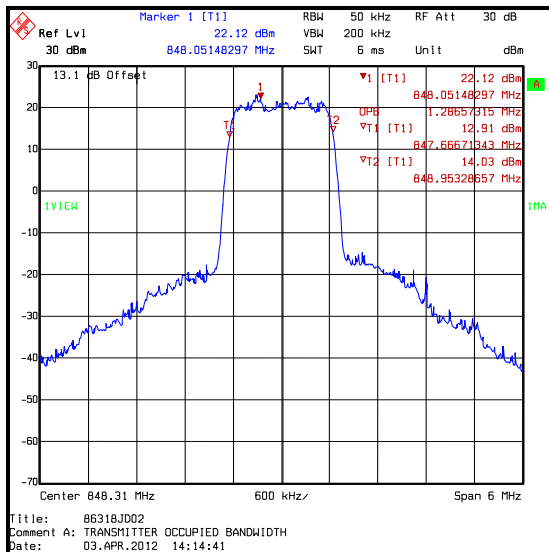
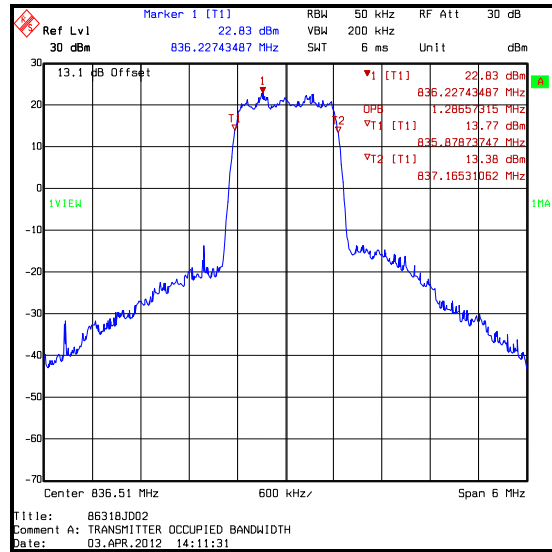
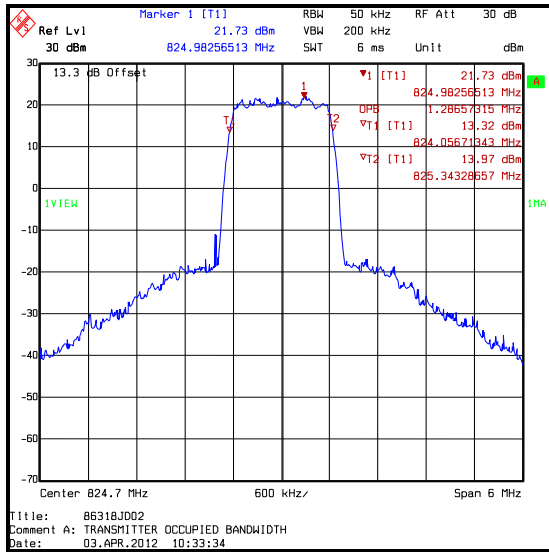
| Channel | Frequency (MHz) | Occupied Bandwidth (kHz) |
|---------|-----------------|--------------------------|
| Bottom | 824.70 | 1298.597 |
| Middle | 836.51 | 1310.621 |
| Top | 848.31 | 1310.621 |

Note(s):

1. In lieu of the test method detailed in ANSI C63.4 Section 13.7, the 99% occupied bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser.
2. A wireless communications test set was used to establish a CDMA2000 link with the EUT.
3. The EUT was tested in two service options: SO55 and SO02.
4. A suitable power coupler was used to maintain a link between the communication test set and the EUT. The coupled port along with RF cables was calibrated and the resulting loss added as a reference offset to the measurements.

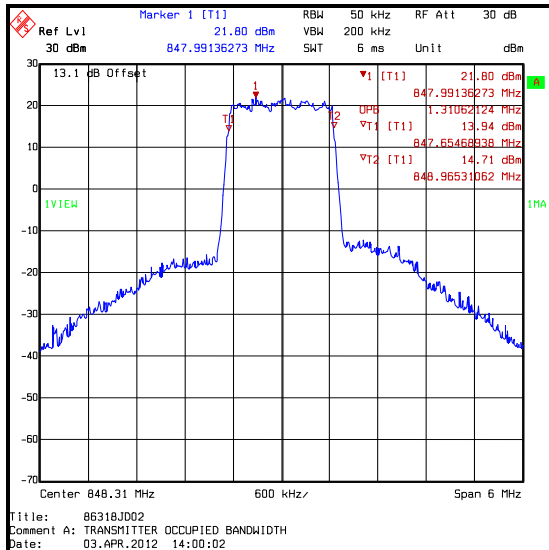
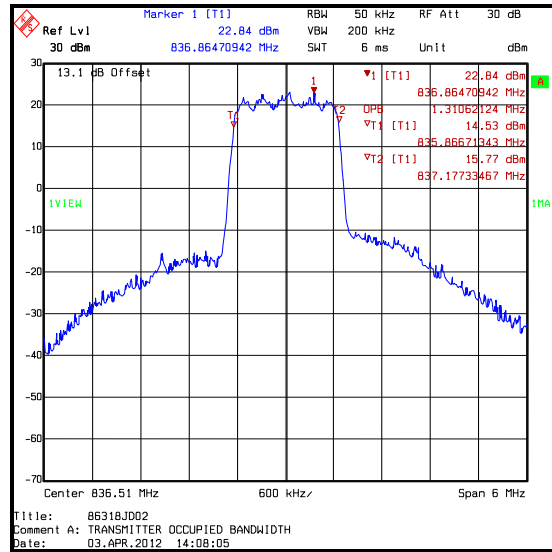
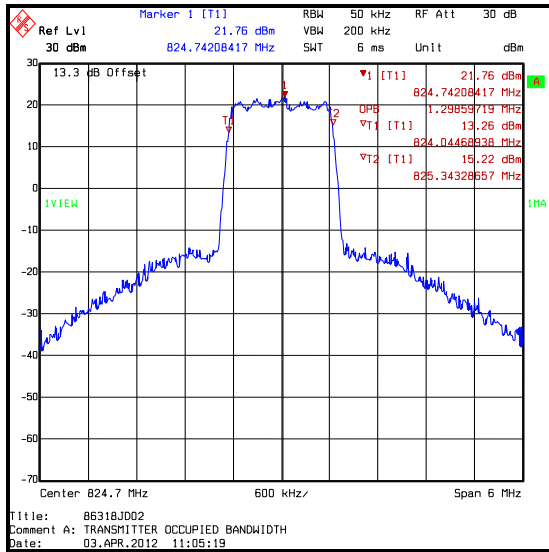
Transmitter Occupied Bandwidth (continued)

CDMA2000 SO55 (Voice)



Transmitter Occupied Bandwidth (continued)

CDMA2000 SO02 (Data)



5.2.7. Transmitter Conducted Emissions**Test Summary:**

| | | | |
|--------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 17 April 2012 |
| Test Sample IMEI: | 807FD690 | | |

| | |
|-----------------------------------|---|
| FCC Part: | 2.1051 & 22.917 |
| Industry Canada Reference: | RSS-132 4.5 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.13 referencing FCC CFR Parts 2.1051 and 22.917 |
| Frequency Range: | 1 MHz to 9 GHz |
| Configuration: | CDMA 2000 Service Option 02 |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 25 |
| Relative Humidity (%): | 29 |

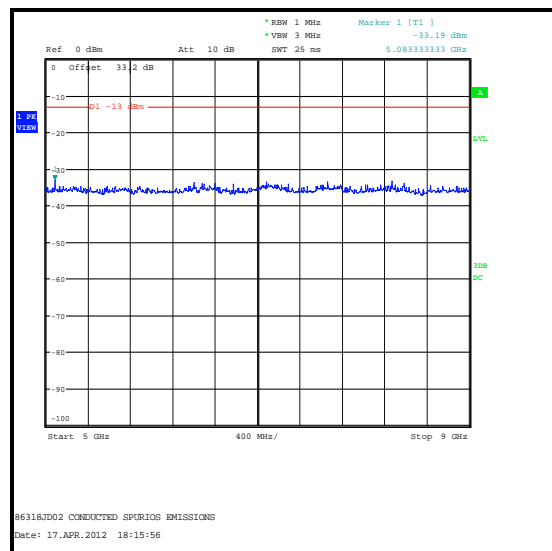
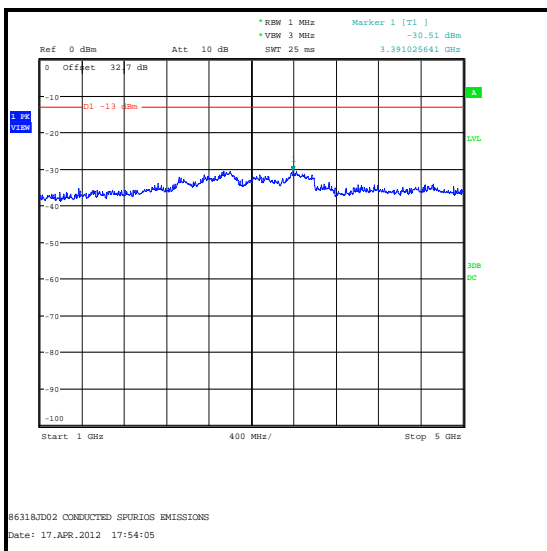
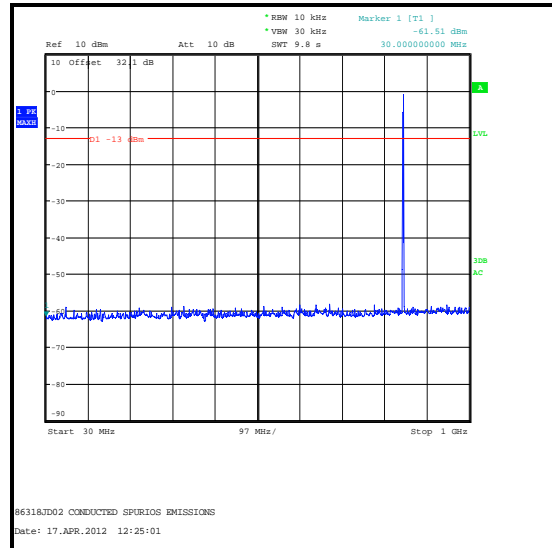
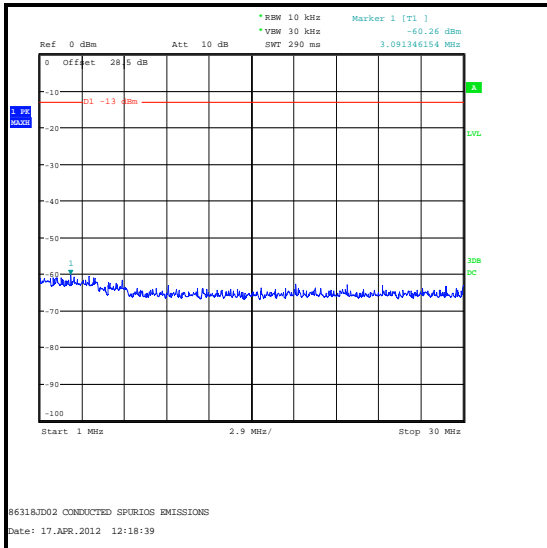
Results:

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|------------------------|-------------------------|--------------------|--------------------|---------------|
| 3391.026 | -30.5 | -13.0 | 17.5 | Complied |

Note(s):

1. The uplink traffic channel is shown on the 30 MHz to 1 GHz plot.
2. No spurious emissions were detected above the noise floor of the measuring receiver therefore the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above.

Transmitter Conducted Emissions (Continued)



5.2.8. Transmitter Out of Band Radiated Emissions**Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|----------------------------------|
| Test Engineer: | Patrick Jones | Test Date: | 04 April 2012 & 17 April 2012 |
| Test Sample ESN: | 804777A6 | | |

| | |
|-----------------------------------|---|
| FCC Part: | 2.1053 & 22.917 |
| Industry Canada Reference: | RSS-132 4.5 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Part 2.1053 |
| Frequency Range: | 30 MHz to 9 GHz |
| Configuration: | CDMA2000 Service Option 02 |

Environmental Conditions:

| | |
|-------------------------------|---------|
| Temperature (°C): | 24 & 23 |
| Relative Humidity (%): | 20 & 28 |

Results: Bottom Channel

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 4965.931 | -48.7 | -13.0 | 35.7 | Complied |

Results: Middle Channel

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 5015.529 | -46.1 | -13.0 | 33.1 | Complied |

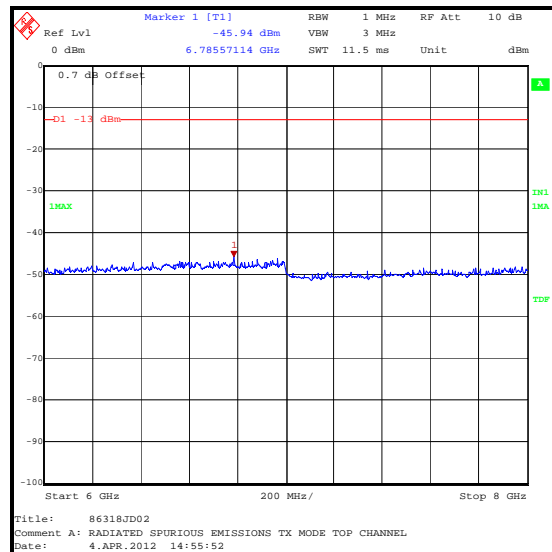
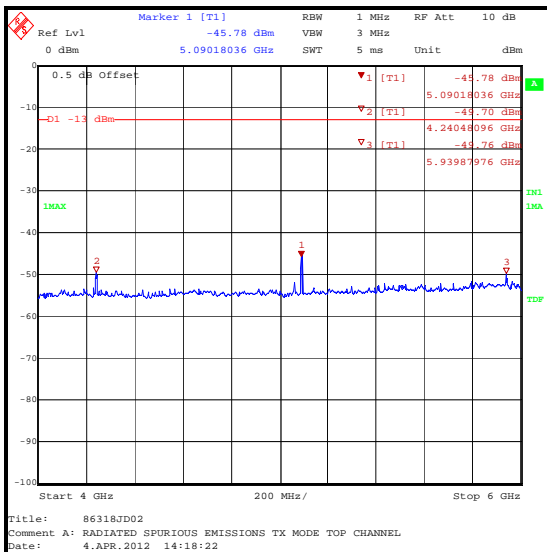
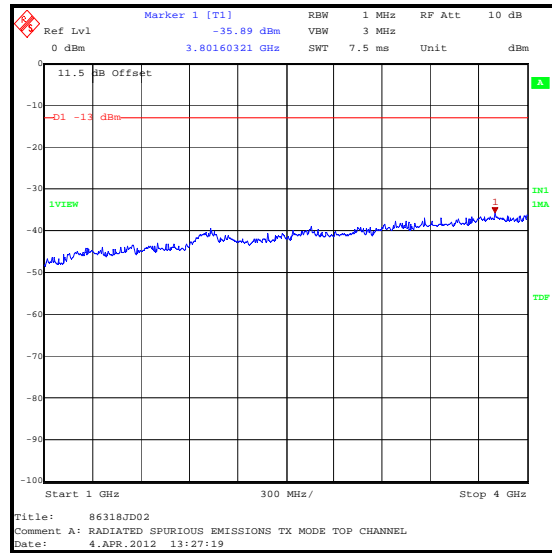
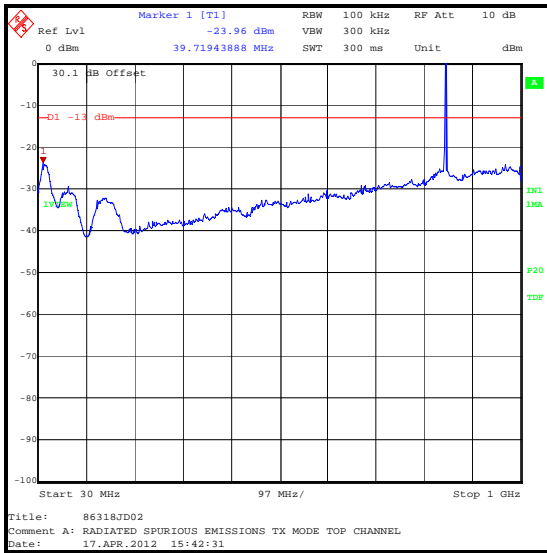
Results: Top Channel

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 5087.926 | -44.4 | -13.0 | 31.4 | Complied |

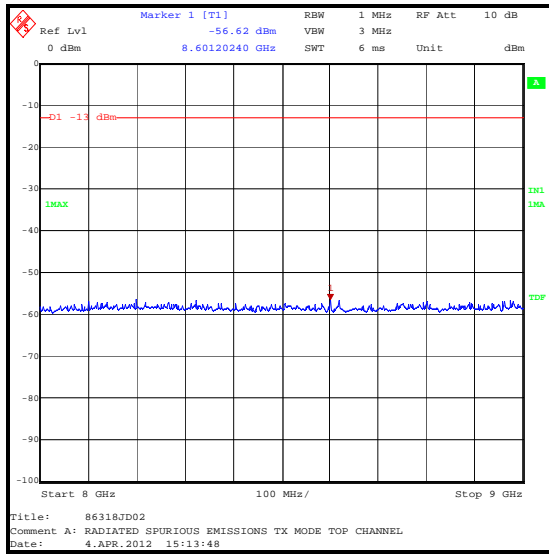
Transmitter Out of Band Radiated Emissions (continued)**Note(s):**

1. The uplink traffic channel is shown on the 30 MHz to 1 GHz plot.
2. All other emissions were >20 dB below the limit or below the noise floor of the measuring receiver.
3. Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
4. Pre-scans above 1 GHz were performed in a fully anechoic chamber (RFI Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Transmitter Out of Band Radiated Emissions (continued)



Transmitter Out of Band Radiated Emissions (continued)



5.2.9. Transmitter Band Edge Conducted Emissions

Test Summary:

| | | | |
|-------------------------|---------------|-------------------|----------------------------------|
| Test Engineer: | Patrick Jones | Test Date: | 04 April 2012 & 05 April 2012 |
| Test Sample ESN: | 804777A6 | | |

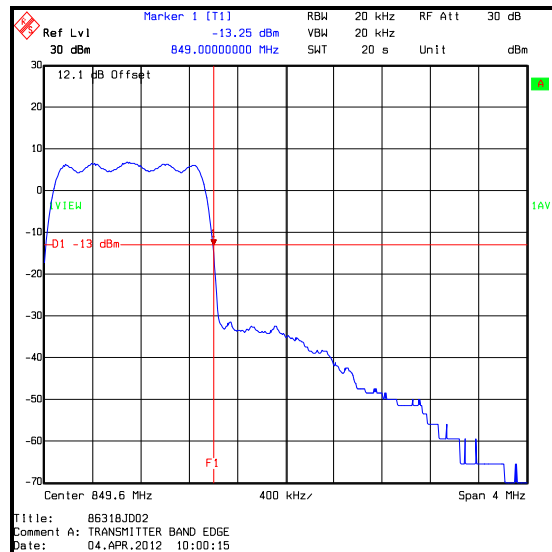
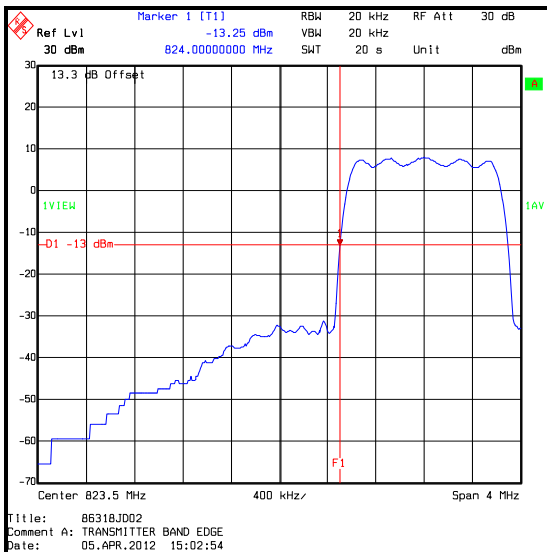
| | |
|-----------------------------------|---|
| FCC Part: | 2.1051 & 22.917 |
| Industry Canada Reference: | RSS-132 4.5 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.13 referencing FCC CFR Parts 2.1051 and 22.917 |

Environmental Conditions:

| | |
|-------------------------------|---------|
| Temperature (°C): | 24 & 25 |
| Relative Humidity (%): | 20 & 27 |

Results: CDMA2000 SO55

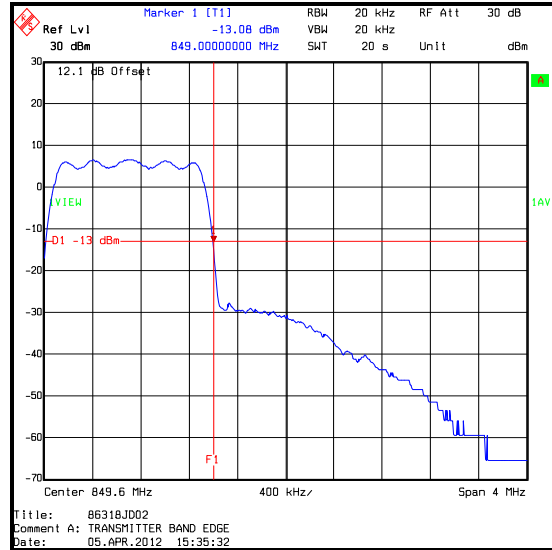
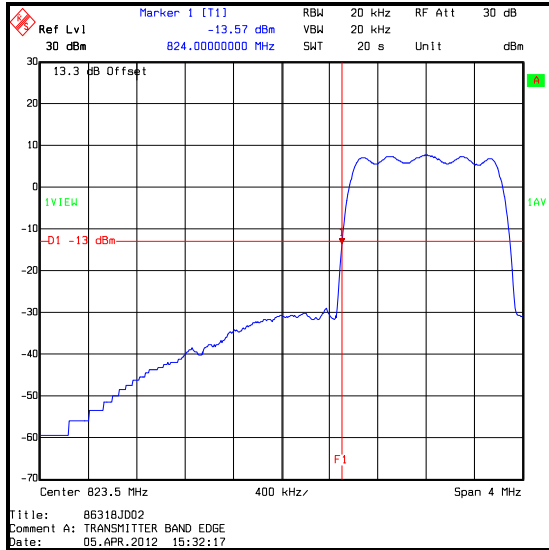
| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 824 | -13.3 | -13.0 | 0.3 | Complied |
| 849 | -13.3 | -13.0 | 0.3 | Complied |



Transmitter Band Edge Conducted Emissions (continued)

Results: CDMA2000 S002

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 824 | -13.8 | -13.0 | 0.8 | Complied |
| 849 | -13.1 | -13.0 | 0.1 | Complied |



5.2.10. Transmitter Band Edge Radiated Emissions

Test Summary:

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 17 April 2012 |
| Test Sample ESN: | 807FD690 | | |

| | |
|-----------------------------------|---|
| FCC Part: | 2.1053 & 22.917 |
| Industry Canada Reference: | RSS-132 4.5 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Part 22.917 |

Environmental Conditions:

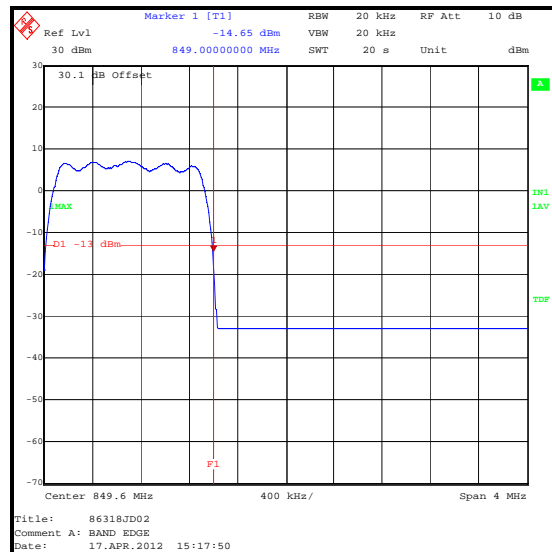
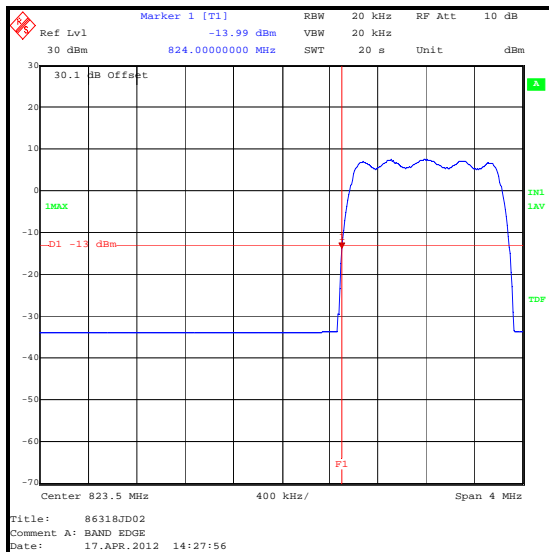
| | |
|-------------------------------|----|
| Temperature (°C): | 23 |
| Relative Humidity (%): | 28 |

Results: CDMA2000 SO55

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 824 | -14.0 | -13.0 | 1.0 | Complied |
| 849 | -14.7 | -13.0 | 1.7 | Complied |

Note(s):

- For the above measurements the EUT was fitted with an antenna with a gain of -1.67 dBi on the lowest channel, and -1.36 dBi on the top channel.



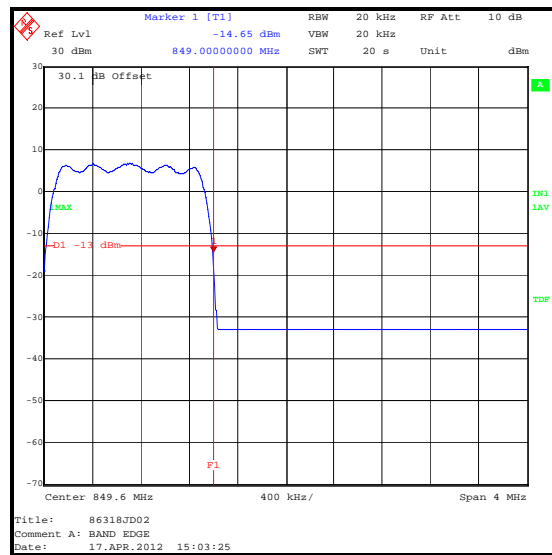
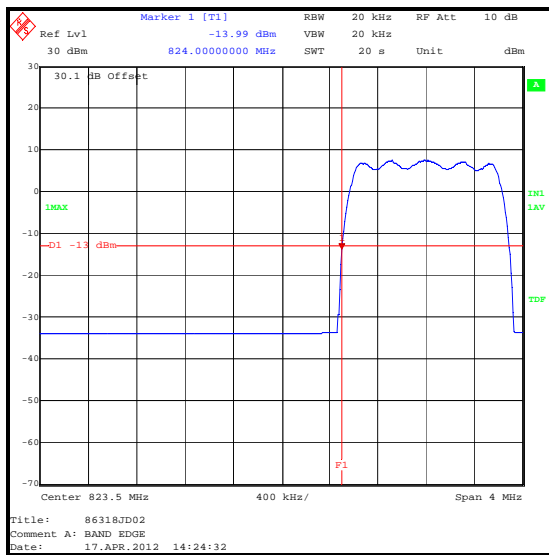
Transmitter Band Edge Radiated Emissions (continued)

Results: CDMA2000 S002

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 824 | -14.0 | -13.0 | 1.0 | Complied |
| 849 | -14.7 | -13.0 | 1.7 | Complied |

Note(s):

- For the above measurements the EUT was fitted with an antenna with a gain of -1.67 dBi on the lowest channel, and -1.36 dBi on the top channel.



5.3. Test Results - Part 24 & RSS-133**5.3.1. Receiver/Idle Mode Radiated Spurious Emissions****Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 17 April 2012 |
| Test Sample ESN: | 807FD690 | | |

| | |
|-----------------------------------|-------------------------------------|
| FCC Part: | 15.109 |
| Industry Canada Reference: | RSS-Gen 4.10/6 RSS-133 4.6 |
| Test Method Used: | As detailed in ANSI C63.4 Section 8 |
| Frequency Range: | 30 MHz to 1000 MHz |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 25 |
| Relative Humidity (%): | 29 |

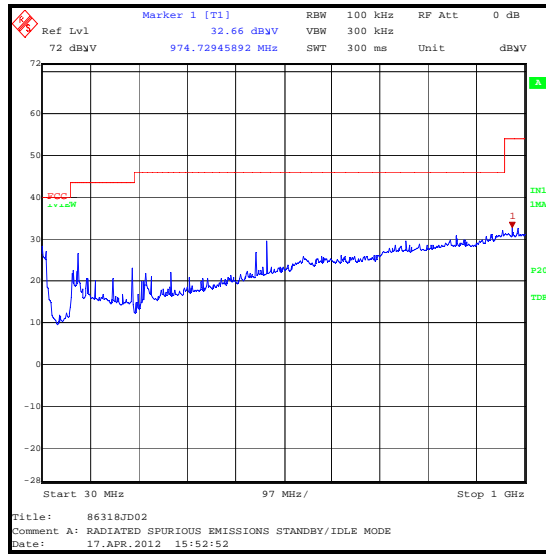
Results:

| Frequency (MHz) | Antenna Polarity | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Result |
|------------------------|-------------------------|--------------------------------------|--------------------------------------|--------------------|---------------|
| 974.729 | Vertical | 32.7 | 54.0 | 21.3 | Complied |

Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. All emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor therefore the highest noise floor level was recorded in the above table.
3. Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Receiver/Idle Mode Radiated Spurious Emissions (continued)



Receiver/Idle Mode Radiated Spurious Emissions (continued)**Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 04 April 2012 |
| Test Sample ESN: | 804777A6 | | |

| | |
|-----------------------------------|-------------------------------------|
| FCC Part: | 15.109 |
| Industry Canada Reference: | RSS-Gen 4.10/6 RSS-133 4.6 |
| Test Method Used: | As detailed in ANSI C63.4 Section 8 |
| Frequency Range: | 1 GHz to 10 GHz |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 24 |
| Relative Humidity (%): | 20 |

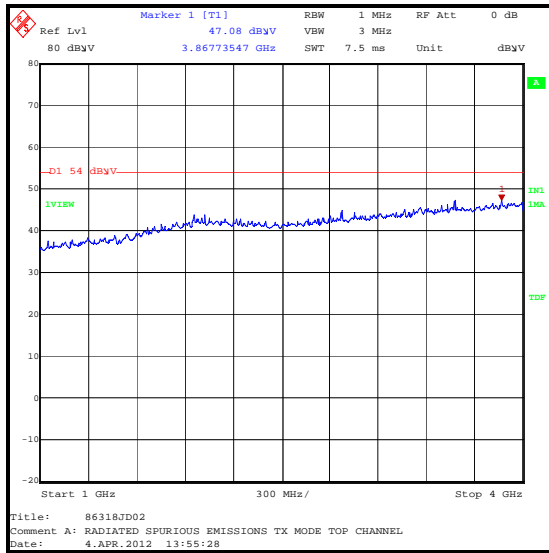
Results:

| Frequency (MHz) | Antenna Polarity | Average Level (dB μ V/m) | Average Limit (dB μ V/m) | Margin (dB) | Result |
|-----------------|------------------|------------------------------|------------------------------|-------------|----------|
| 6921.843 | Horizontal | 35.6 | 54.0 | 18.4 | Complied |

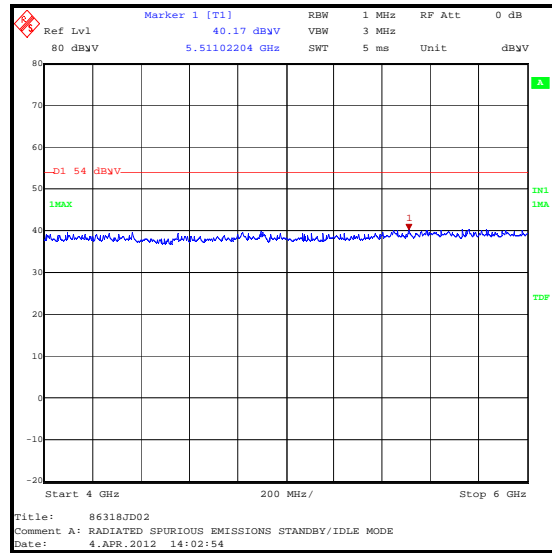
Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. All spurious emissions were >20 dB below the limit or were below the noise floor of the measuring receiver and therefore the highest noise floor reading of the measuring receiver was recorded as shown in the table above.
3. For the plots below the peak level was compared to the average limit because this is the more onerous limit, with the exception of the 6 GHz to 8 GHz plot which compared the average level to the average limit (due to the highest noise floor).
4. Pre-scans above 1 GHz were performed in a fully anechoic chamber (RFI Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
5. The 1 GHz to 4 GHz plot below incorrectly states Tx mode. This is mislabelled and should state standby/idle mode.

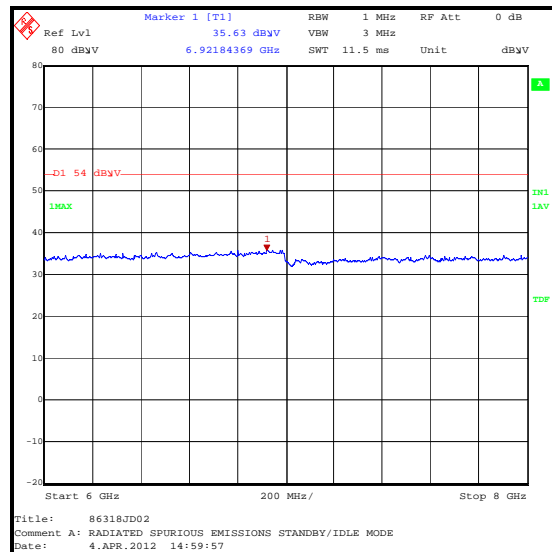
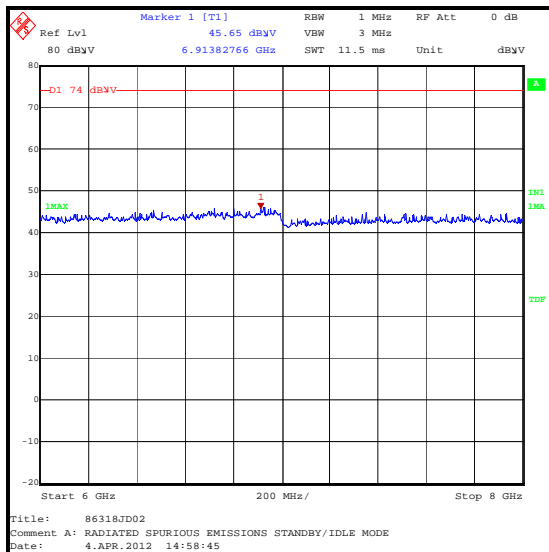
Receiver/Idle Mode Radiated Spurious Emissions (continued)



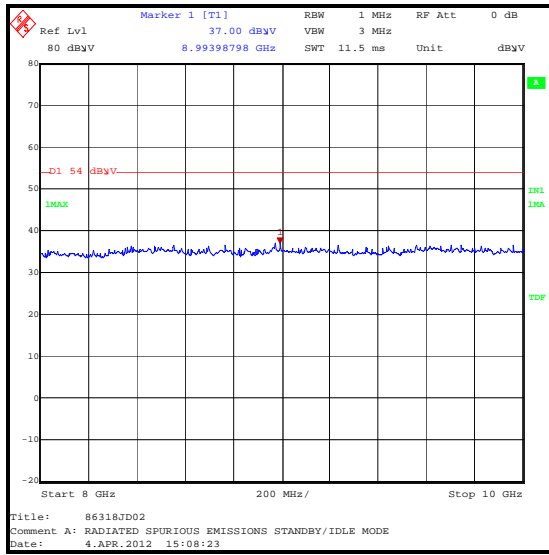
Peak Detector



Average Detector



Receiver/Idle Mode Radiated Spurious Emissions (continued)



5.3.2. Transmitter Output Power (Conducted)**Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 25 April 2012 |
| Test Sample ESN: | 807FD690 | | |

| | |
|-----------------------------------|---|
| FCC Part: | 24.232 |
| Industry Canada Reference: | RSS-133 6.4 SRSP-510 5.1.2 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.17.2 |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 24 |
| Relative Humidity (%): | 33 |

Results: CDMA2000 SO55

| Channel | Frequency (MHz) | Conducted Power (dBm) | EIRP Limit (dBm) | Margin (dB) | Result |
|---------|-----------------|-----------------------|------------------|-------------|----------|
| Bottom | 1851.25 | 22.8 | 33.0 | 10.2 | Complied |
| Middle | 1880.00 | 22.7 | 33.0 | 10.3 | Complied |
| Top | 1908.75 | 22.5 | 33.0 | 10.5 | Complied |

Results: CDMA2000 SO02

| Channel | Frequency (MHz) | Conducted Power (dBm) | EIRP Limit (dBm) | Margin (dB) | Result |
|---------|-----------------|-----------------------|------------------|-------------|----------|
| Bottom | 1851.25 | 22.9 | 33.0 | 10.1 | Complied |
| Middle | 1880.00 | 22.6 | 33.0 | 10.4 | Complied |
| Top | 1908.75 | 22.6 | 33.0 | 10.4 | Complied |

Note(s):

1. A wireless communications test set was used to establish a CDMA2000 link with the EUT.
2. The EUT was tested in two service options: SO55 and SO02
3. Conducted measurements were taken using the power measuring function of the communications test set.
4. The conducted power was compared with the EIRP limit.

5.3.3. Transmitter Frequency Stability (Temperature Variation)**Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 16 April 2012 |
| Test Sample ESN: | 807FD690 | | |

| | |
|-----------------------------------|--|
| FCC Part: | 2.1055 & 24.235 |
| Industry Canada Reference: | RSS-133 6.3 RSS Gen 4.7 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.2 referencing FCC CFR Part 2.1055 |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 23 |
| Relative Humidity (%): | 27 |

Results: Middle Channel (1880.00 MHz)

| Temperature (°C) | Measured Frequency (MHz) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) | Margin (ppm) | Result |
|------------------|--------------------------|----------------------|-----------------------|-------------|--------------|----------|
| -30 | 1879.999980 | -20 | 0.0106 | 2.5 | 2.4894 | Complied |
| -20 | 1879.999983 | -17 | 0.0090 | 2.5 | 2.4910 | Complied |
| -10 | 1879.999988 | -12 | 0.0064 | 2.5 | 2.4936 | Complied |
| 0 | 1879.999986 | -14 | 0.0074 | 2.5 | 2.4926 | Complied |
| 10 | 1879.999982 | -18 | 0.0096 | 2.5 | 2.4904 | Complied |
| 20 | 1879.999987 | -13 | 0.0069 | 2.5 | 2.4931 | Complied |
| 30 | 1879.999983 | -17 | 0.0090 | 2.5 | 2.4910 | Complied |
| 40 | 1879.999982 | -18 | 0.0096 | 2.5 | 2.4904 | Complied |
| 50 | 1879.999985 | -15 | 0.0080 | 2.5 | 2.4920 | Complied |

Note(s):

1. Temperature was monitored throughout the test with a calibrated digital thermometer.
2. Frequency stability was measured using the frequency error function on the communications test set.

5.3.4. Transmitter Frequency Stability (Voltage Variation)**Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 16 April 2012 |
| Test Sample ESN: | 807FD690 | | |

| | |
|-----------------------------------|--|
| FCC Part: | 2.1055 & 24.235 |
| Industry Canada Reference: | RSS-133 6.3 RSS Gen 4.7 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.2 referencing FCC CFR Part 2.1055 |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 23 |
| Relative Humidity (%): | 27 |

Results: Middle Channel (1880.00 MHz)

| Supply Voltage (V) | Measured Frequency (MHz) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) | Margin (ppm) | Result |
|--------------------|--------------------------|----------------------|-----------------------|-------------|--------------|----------|
| 3.3 | 1879.999986 | -14 | 0.0074 | 2.5 | 2.4926 | Complied |
| 4.2 | 1879.999981 | -19 | 0.0101 | 2.5 | 2.4899 | Complied |

Note(s):

1. Voltage was monitored throughout the test with a calibrated digital voltmeter.
2. Frequency stability was measured using the frequency error function on the communications test set.

5.3.5. Transmitter Occupied Bandwidth**Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 03 April 2012 |
| Test Sample ESN: | 804777A6 | | |

| | |
|-----------------------------------|--|
| FCC Part: | 2.1049 |
| Industry Canada Reference: | RSS-Gen 4.6.1 |
| Test Method Used: | As detailed in ANSI C63.4 Section 13.7 referencing FCC CFR Part 2.1049 |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 24 |
| Relative Humidity (%): | 26 |

Results: CDMA2000 SO55 (Voice)

| Channel | Frequency (MHz) | Occupied Bandwidth (kHz) |
|---------|-----------------|--------------------------|
| Bottom | 1851.25 | 1286.573 |
| Middle | 1880.00 | 1286.573 |
| Top | 1908.75 | 1286.573 |

Results: CDMA2000 SO02 Data

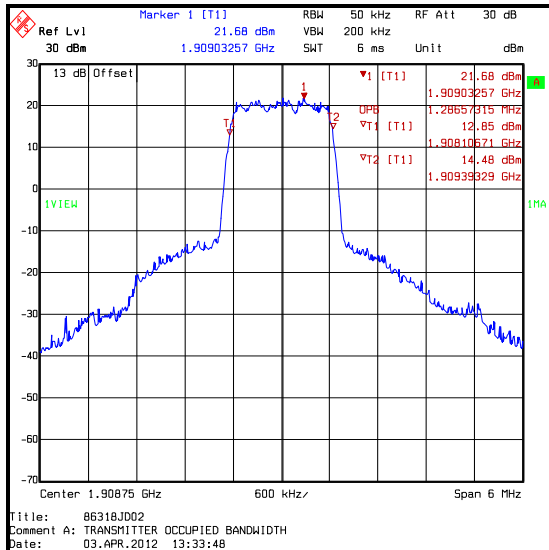
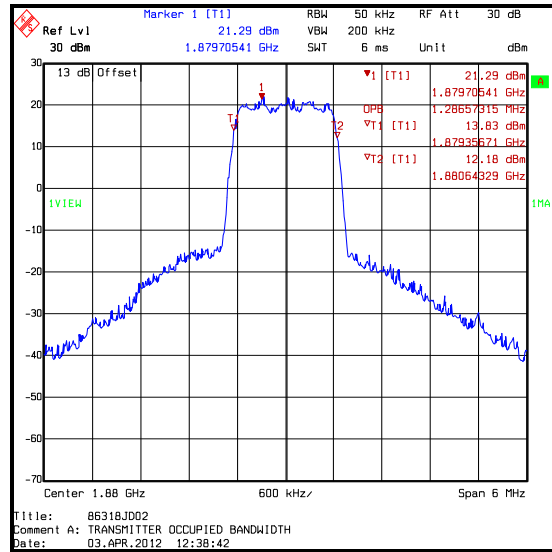
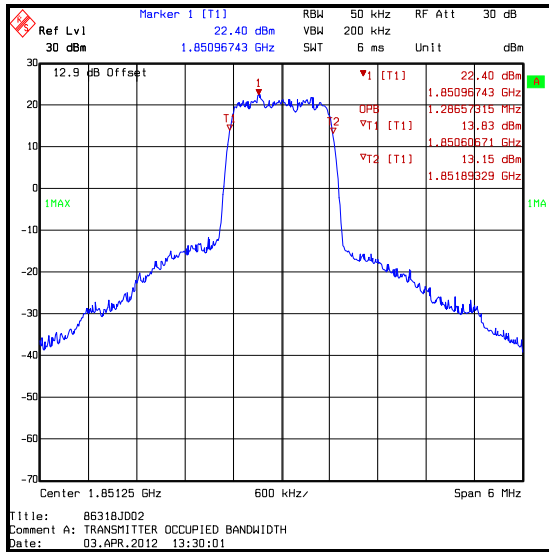
| Channel | Frequency (MHz) | Occupied Bandwidth (kHz) |
|---------|-----------------|--------------------------|
| Bottom | 1851.25 | 1310.621 |
| Middle | 1880.00 | 1310.621 |
| Top | 1908.75 | 1310.621 |

Note(s):

1. In lieu of the test method detailed in ANSI C63.4 Section 13.7, the 99% occupied bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser.
2. A wireless communications test set was used to establish a CDMA2000 link with the EUT.
3. The EUT was tested in two service options: SO55 and SO02.
4. A suitable power coupler was used to maintain a link between the communication test set and the EUT. The coupled port along with RF cables was calibrated and the resulting loss added as a reference offset to the measurements.

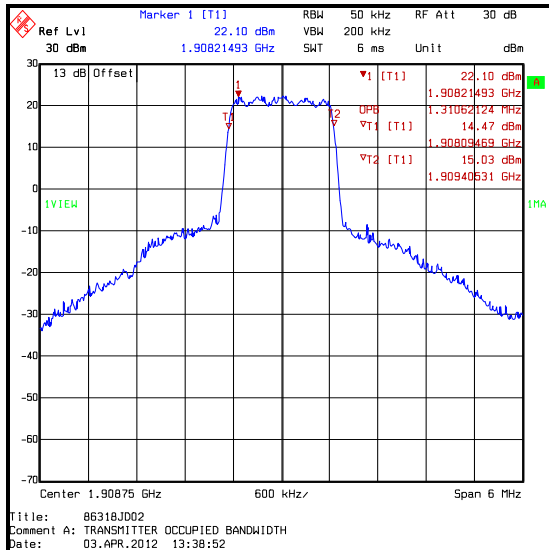
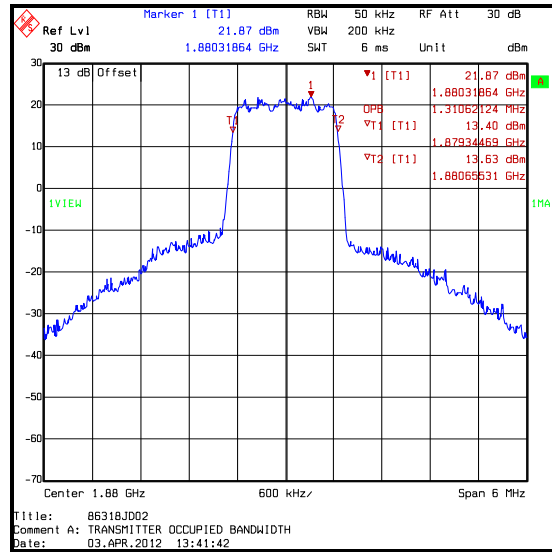
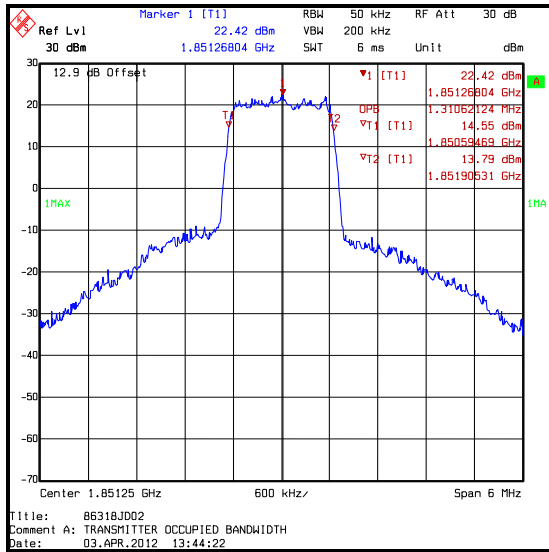
Transmitter Occupied Bandwidth (continued)

CDMA2000 SO55 (Voice)



Transmitter Occupied Bandwidth (continued)

CDMA2000 SO02 (Data)



5.3.6. Transmitter Conducted Emissions**Test Summary:**

| | | | |
|--------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 17 April 2012 |
| Test Sample IMEI: | 807FD690 | | |

| | |
|-----------------------------------|---|
| FCC Part: | 2.1051 & 24.238 |
| Industry Canada Reference: | RSS-133 6.5 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.13 referencing FCC CFR Parts 2.1051 and 24.238 |
| Frequency Range: | 1 MHz to 20 GHz |
| Configuration: | CDMA2000 SO02 |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 25 |
| Relative Humidity (%): | 29 |

Results: Bottom Channel

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 3702.612 | -29.6 | -13.0 | 16.6 | Complied |

Results: Middle Channel

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 3760.449 | -29.1 | -13.0 | 16.1 | Complied |

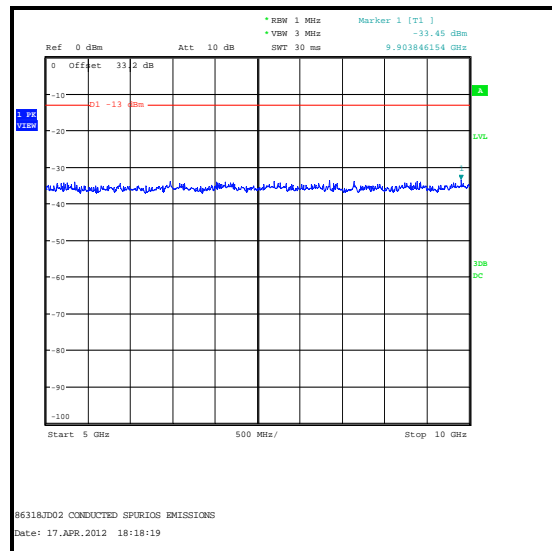
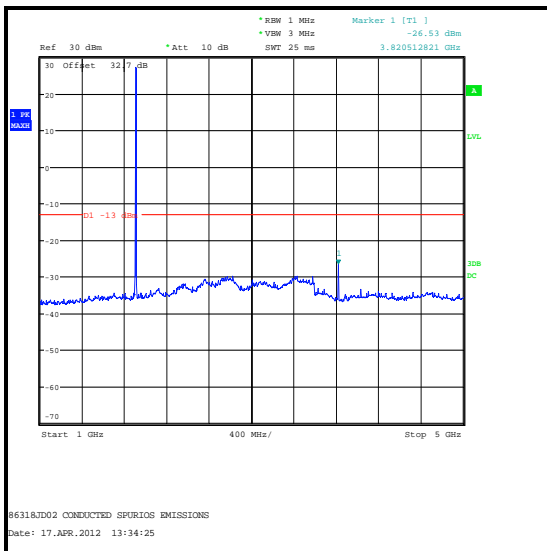
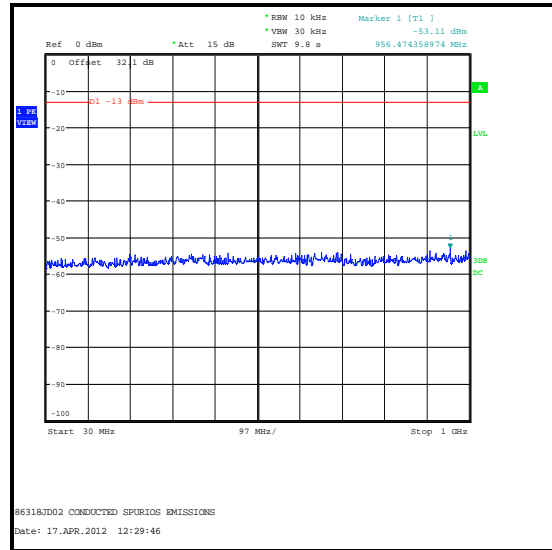
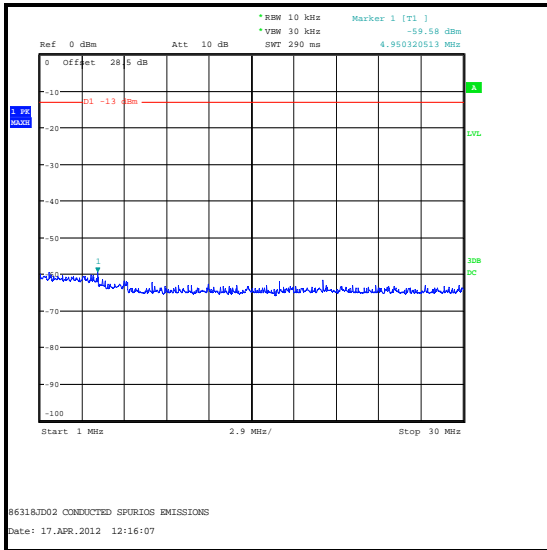
Results: Top Channel

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 3818.109 | -28.0 | -13.0 | 15.0 | Complied |

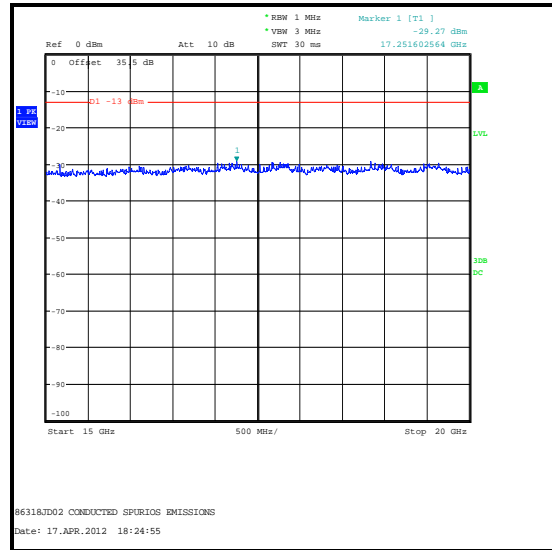
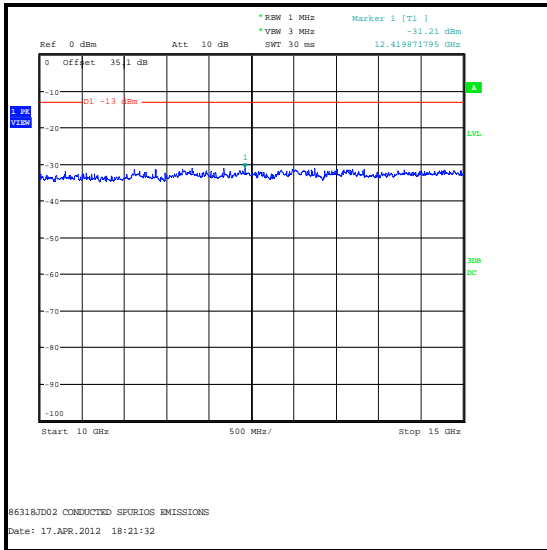
Note(s):

1. The emission at 1908.75 shown on the 1 GHz to 5 GHz plot is the EUT fundamental.

Transmitter Conducted Emissions (Continued)



Transmitter Conducted Emissions (Continued)



5.3.7. Transmitter Out of Band Radiated Emissions**Test Summary:**

| | | | |
|-------------------------|---------------|-------------------|----------------------------------|
| Test Engineer: | Patrick Jones | Test Date: | 04 April 2012 & 17 April 2012 |
| Test Sample ESN: | 804777A6 | | |

| | |
|-----------------------------------|---|
| FCC Part: | 2.1053 & 24.238 |
| Industry Canada Reference: | RSS-133 6.5 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Parts 2.1053 and 24.238 |
| Frequency Range: | 30 MHz to 20 GHz |
| Configuration: | CDMA2000 SO02 |

Environmental Conditions:

| | |
|-------------------------------|---------|
| Temperature (°C): | 24 & 23 |
| Relative Humidity (%): | 20 & 28 |

Results: Bottom Channel

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 3702.236 | -34.1 | -13.0 | 21.1 | Complied |
| 5554.982 | -40.4 | -13.0 | 27.4 | Complied |
| 7403.818 | -29.4 | -13.0 | 16.4 | Complied |
| 9257.789 | -36.5 | -13.0 | 23.5 | Complied |
| 11109.480 | -37.3 | -13.0 | 24.3 | Complied |

Results: Middle Channel

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 3759.899 | -32.5 | -13.0 | 19.5 | Complied |
| 5641.058 | -38.8 | -13.0 | 25.8 | Complied |
| 7519.802 | -30.5 | -13.0 | 17.5 | Complied |
| 9399.934 | -35.2 | -13.0 | 22.2 | Complied |
| 11279.857 | -35.9 | -13.0 | 22.9 | Complied |

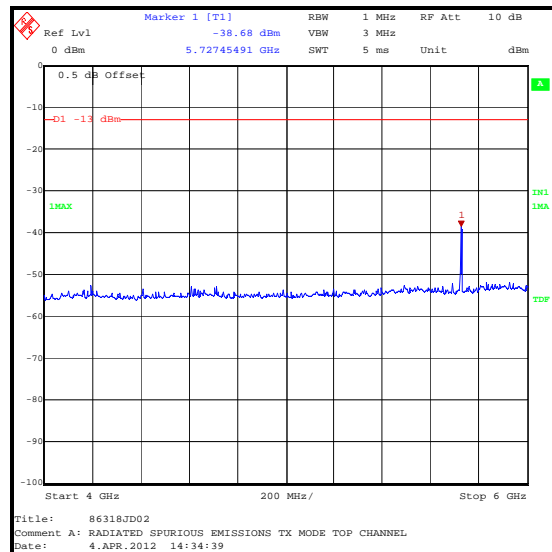
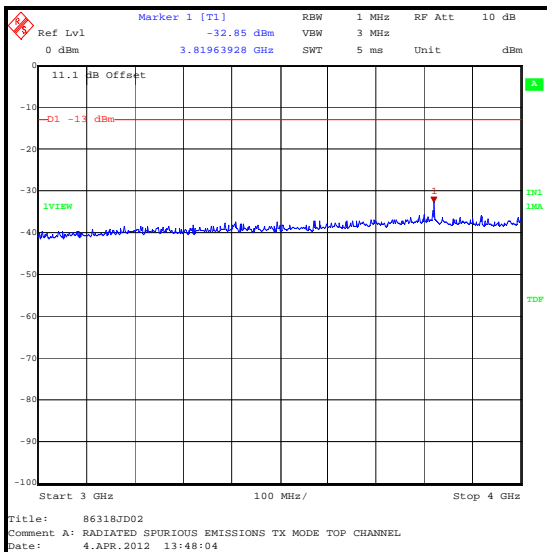
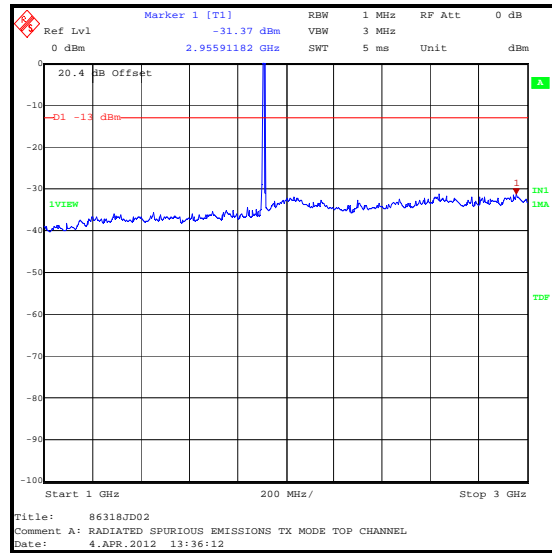
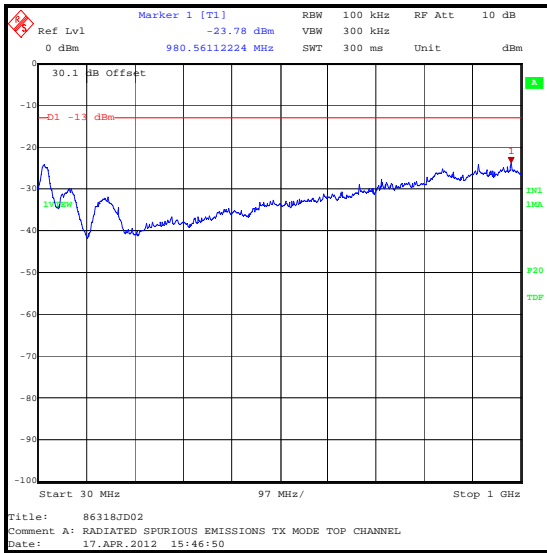
Transmitter Out of Band Radiated Emissions (continued)**Results: Top Channel**

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 3818.327 | -31.0 | -13.0 | 18.0 | Complied |
| 5726.201 | -37.8 | -13.0 | 24.8 | Complied |
| 7635.421 | -28.1 | -13.0 | 15.1 | Complied |
| 9543.513 | -32.1 | -13.0 | 19.1 | Complied |
| 11452.626 | -31.9 | -13.0 | 18.9 | Complied |

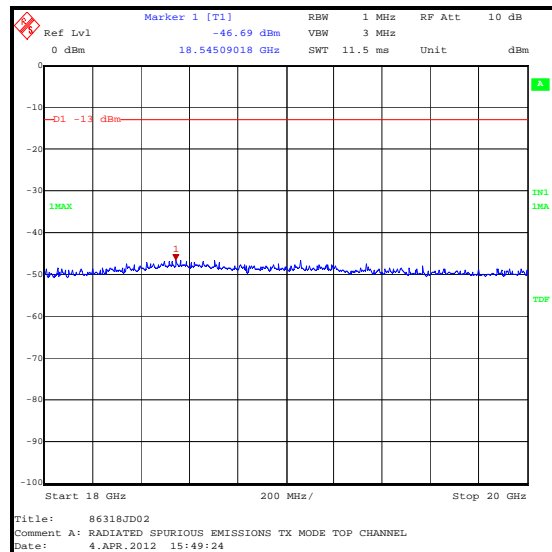
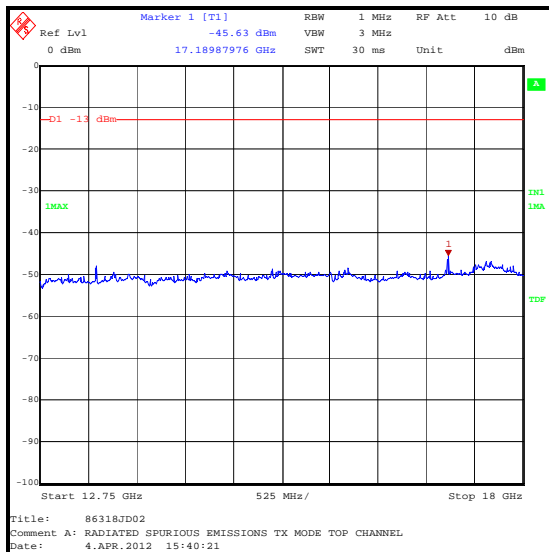
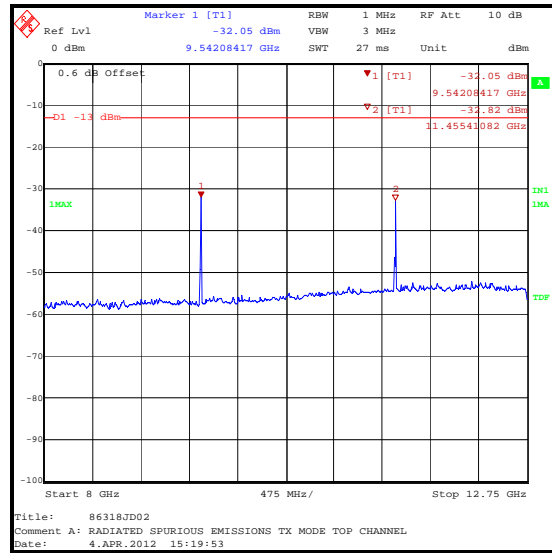
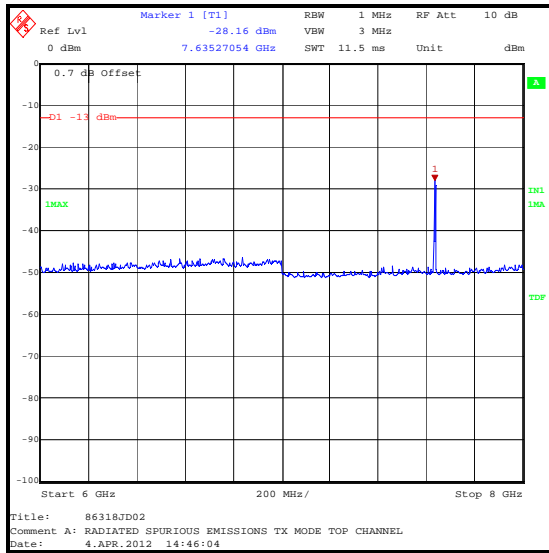
Note(s):

1. The uplink traffic channel is shown on the 1 GHz to 3 GHz plot.
2. Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
3. Pre-scans above 1 GHz were performed in a fully anechoic chamber (RFI Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Transmitter Out of Band Radiated Emissions (continued)



Transmitter Out of Band Radiated Emissions (continued)



5.3.8. Transmitter Band Edge Conducted Emissions

Test Summary:

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 17 April 2012 |
| Test Sample ESN: | 807FD690 | | |

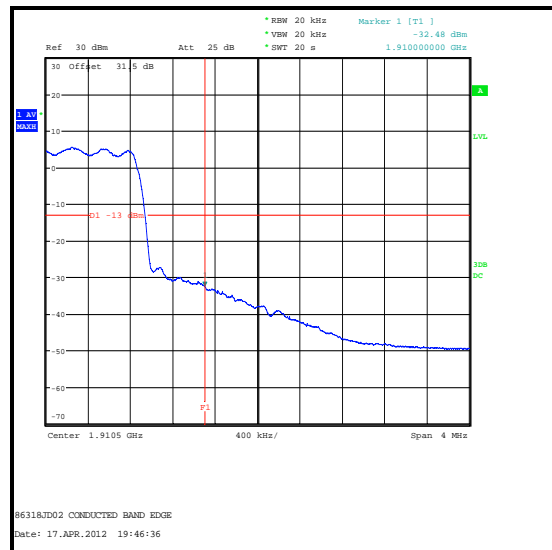
| | |
|-----------------------------------|---|
| FCC Part: | 2.1051 & 24.238 |
| Industry Canada Reference: | RSS-133 6.5 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.13 referencing FCC CFR Parts 2.1051 and 24.238 |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 24 |
| Relative Humidity (%): | 28 |

Results: CDMA2000 SO55

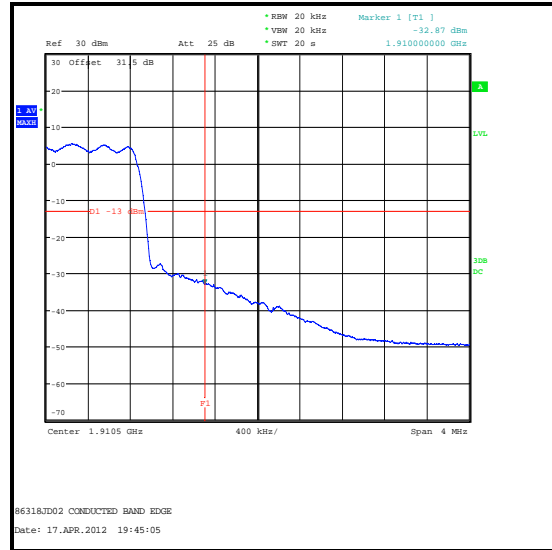
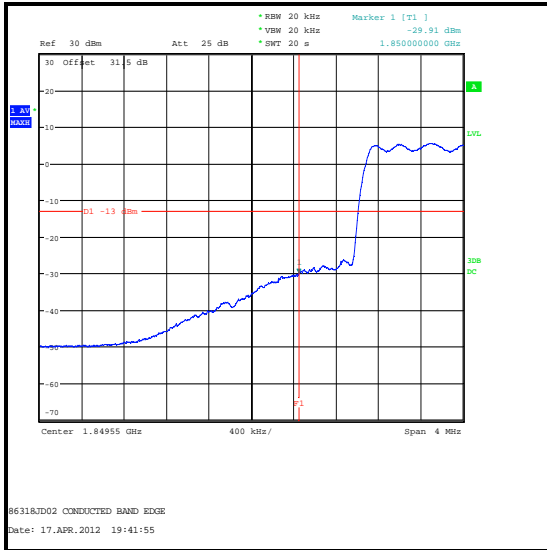
| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 1850 | -30.5 | -13.0 | 17.5 | Complied |
| 1910 | -32.5 | -13.0 | 19.5 | Complied |



Transmitter Band Edge Conducted Emissions (continued)

Results: CDMA2000 S002

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 1850 | -29.9 | -13.0 | 16.9 | Complied |
| 1910 | -32.9 | -13.0 | 19.9 | Complied |



5.3.9. Transmitter Band Edge Radiated Emissions

Test Summary:

| | | | |
|-------------------------|---------------|-------------------|---------------|
| Test Engineer: | Patrick Jones | Test Date: | 04 April 2012 |
| Test Sample ESN: | 804777A6 | | |

| | |
|-----------------------------------|---|
| FCC Part: | 2.1053 & 24.238 |
| Industry Canada Reference: | RSS-133 6.5 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Parts 2.1053 and 24.238 |

Environmental Conditions:

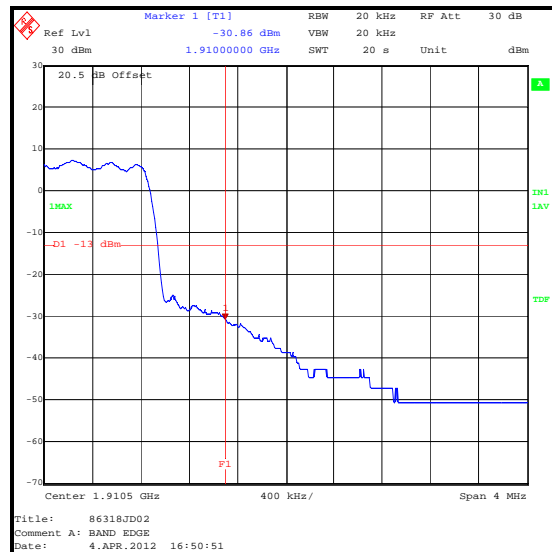
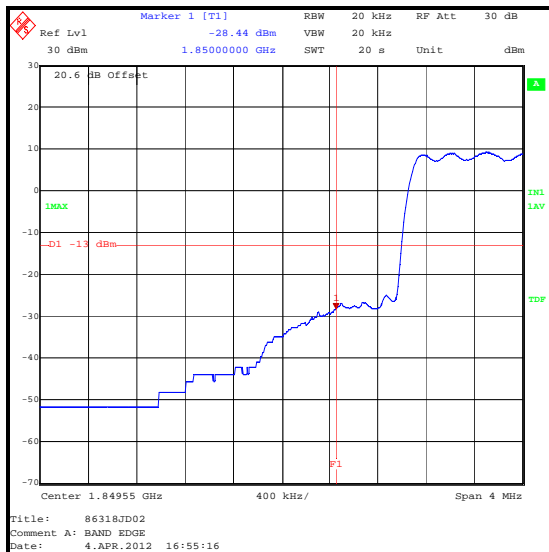
| | |
|-------------------------------|----|
| Temperature (°C): | 24 |
| Relative Humidity (%): | 20 |

Results: CDMA2000 SO55

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 1850 | -28.4 | -13.0 | 15.4 | Complied |
| 1910 | -30.9 | -13.0 | 17.9 | Complied |

Note(s):

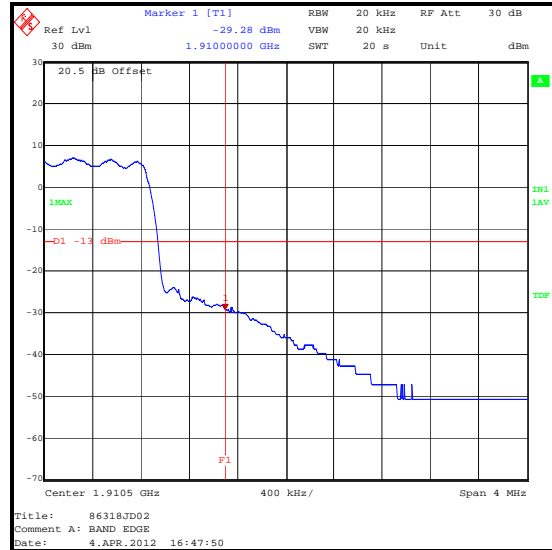
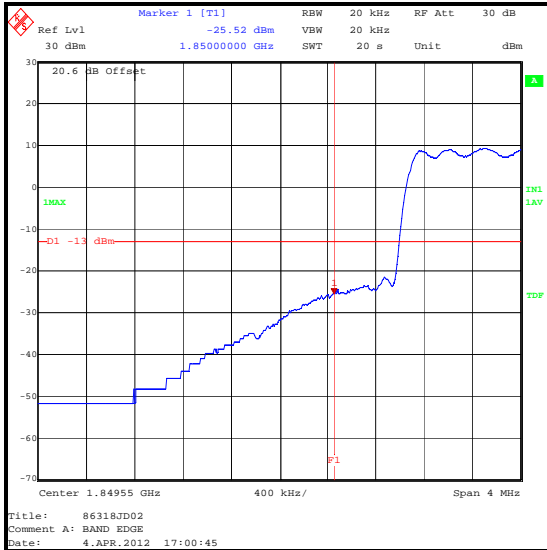
- For the above measurements the EUT was fitted with an antenna with a gain of -2.37 dBi on the lowest channel, and -2.04 dBi on the top channel.



Transmitter Band Edge Radiated Emissions (continued)

Results: CDMA2000 S002

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|------------------|-------------|-------------|----------|
| 1850 | -25.5 | -13.0 | 12.5 | Complied |
| 1910 | -29.3 | -13.0 | 16.3 | Complied |



6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document "approximately" is interpreted as meaning "effectively" or "for most practical purposes".

| Measurement Type | Range | Confidence Level (%) | Calculated Uncertainty |
|---|-----------------------------------|-----------------------------|-------------------------------|
| AC Conducted Spurious Emissions | 0.15 MHz to 30 MHz | 95% | ±3.25 dB |
| Effective Radiated Power (ERP) | 824 to 849 MHz | 95% | ±2.94 dB |
| Effective Isotropic Radiated Power (EIRP) | 1850 to 1910 MHz | 95% | ±2.94 dB |
| Conducted Output Power | 824 to 849 MHz / 1850 to 1910 MHz | 95% | ±0.27 dB |
| Frequency Stability | 824 to 849 MHz / 1850 to 1910 MHz | 95% | ±0.92 ppm |
| Occupied Bandwidth | 824 to 849 MHz / 1850 to 1910 MHz | 95% | ±0.92 ppm |
| Conducted Spurious Emissions | 1 MHz to 20 GHz | 95% | ±2.64 dB |
| Radiated Spurious Emissions | 30 MHz to 20 GHz | 95% | ±2.94 dB |

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

Appendix 1. Test Equipment Used

| RFI No. | Instrument | Manufacturer | Type No. | Serial No. | Date Calibration Due | Cal. Interval (months) |
|----------------|--------------------------|---------------------|-----------------|-------------------|-----------------------------|-------------------------------|
| A067 | LISN | Rohde & Schwarz | ESH3-Z5 | 890603/002 | 02 Jun 2012 | 12 |
| A1393 | Attenuator | Huber & Suhner | 757456 | 6820.17.B | 08 Jul 2012 | 12 |
| A1396 | Attenuator | Huber & Suhner | 757987 | 6810.17.B | 08 Jul 2012 | 12 |
| A1534 | Pre Amplifier | Hewlett Packard | 8449B | 3008A00405 | 09 Oct 2012 | 12 |
| A1537 | Dual Directional Coupler | Hewlett Packard | 778D | 1144A05122 | Calibrated before use | - |
| A1818 | Antenna | EMCO | 3115 | 00075692 | 09 Oct 2012 | 12 |
| A1830 | Pulse Limiter | Rohde & Schwarz | ESH3-Z2 | 100668 | 25 Feb 2013 | 12 |
| A1834 | Attenuator | Hewlett Packard | 8491B | 10444 | 29 Jan 2013 | 12 |
| A1974 | High Pass Filter | AtlanTec RF | AFH-01000 | 090000283 | 15 Mar 2013 | 12 |
| A1975 | High Pass Filter | AtlanTec RF | AFH-03000 | 090424010 | 15 Mar 2013 | 12 |
| A1981 | High Pass Filter | AtlanTec RF | AFH-05000 | 09110200090 | 15 Mar 2013 | 12 |
| A1996 | 10 dB Attenuator | Huber & Suhner | 6810.17.B | 301749 | 03 Apr 2013 | 12 |
| A1998 | 20 dB Attenuator | Huber & Suhner | 6820.17.B | 07101 | 03 Apr 2013 | 12 |
| A2001 | 30 dB Attenuator | Huber & Suhner | 6830.17.B | 07031 | 20 Mar 2013 | 12 |
| A2056 | 10 dB Attenuator | Atlantic Microwave | WA-54-10-12 | A2056 | 15 Jun 2012 | 12 |
| A2072 | Directional Coupler | Narda | 4242B | 03549 | Calibrated before use | - |
| A253 | Antenna | Flann | 12240-20 | 128 | 09 Oct 2012 | 12 |
| A254 | Antenna | Flann | 14240-20 | 139 | 09 Oct 2012 | 12 |
| A255 | Antenna | Flann | 16240-20 | 519 | 09 Oct 2012 | 12 |
| A256 | Antenna | Flann | 18240-20 | 400 | 09 Oct 2012 | 12 |
| A288 | Antenna | Chase | CBL6111A | 1589 | 19 Aug 2012 | 12 |
| A436 | Antenna | Flann | 20240-20 | 330 | 09 Oct 2012 | 12 |
| A553 | Antenna | Chase | CBL6111A | 1593 | 15 Feb 2013 | 12 |
| G0543 | Amplifier | Sonoma | 310N | 230801 | 13 Apr 2013 | 12 |
| K0001 | 5 m RSE Chamber | Rainford EMC | N/A | N/A | 29 May 2012 | 12 |
| K0002 | 3 m RSE Chamber | Rainford EMC | N/A | N/A | 09 Oct 2012 | 12 |
| L1058 | Comms. Test Set | Rohde & Schwarz | CMU 200 | 111379 | 16 Mar 2013 | 12 |
| M1124 | Spectrum Analyser | Rohde & Schwarz | ESI26 | 100046K | 29 Jun 2012 | 12 |
| M1251 | Digital Multimeter | Fluke | 175 | 89170179 | 29 Jul 2012 | 12 |
| M127 | Spectrum Analyser | Rohde & Schwarz | FSEB 30 | 842 659/016 | 08 Nov 2012 | 12 |
| M1273 | Test Receiver | Rohde & Schwarz | ESIB 26 | 100275 | 03 Feb 2013 | 12 |
| M1379 | Test Receiver | Rohde & Schwarz | ESIB7 | 100330 | 20 Sep 2012 | 12 |
| M1630 | Test Receiver | Rohde & Schwarz | ESU40 | 100233 | 06 Feb 2013 | 12 |

| RFI No. | Instrument | Manufacturer | Type No. | Serial No. | Date Calibration Due | Cal. Interval (months) |
|---------|---------------------|-----------------|----------|-------------|----------------------|------------------------|
| M1643 | Digital Thermometer | Fluke | 52II | 18890136 | 16 Mar 2013 | 12 |
| A032 | Antenna | EMCO | 3115 | 2874 | 13 Mar 2013 | 36 |
| A1299 | Antenna | Schaffner | CBL6143 | 5094 | 25 Aug 2012 | 12 |
| G017 | Signal Generator | Rohde & Schwarz | SMH | 863 771/023 | 13 Jun 2012 | 24 |
| G085 | Signal Generator | Hewlett Packard | 83650L | 3614A00104 | 09 Nov 2012 | 24 |

NB In accordance with UKAS requirements all the measurement equipment is on a calibration schedule. All test equipment was within the current or previous calibration period on the date of testing.