

TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: NTT docomo P-04B

To: FCC Part 22: 2009 Subpart H

Test Report Serial No:
RFI-RPT-RP77078JD05A_V2.0

Version 2.0 supersedes all previous versions

**This Test Report Is Issued Under The Authority
Of Brian Watson, COO Payments and
Consultancy:**


pp

| | |
|-----------------------|--|
| Checked By: | R. Graham |
| Signature: |  pp |
| Date of Issue: | 08 April 2010 |

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1. Customer Information

| | |
|----------------------|--|
| Company Name: | Panasonic Mobile Communications Development of Europe Ltd |
| Address: | Panasonic House Willoughby Road Bracknell Berkshire RG12 8FP United Kingdom |

2. Summary of Testing

2.1. General Information

| | |
|---------------------------------|---|
| Specification Reference: | 47CFR22 |
| Specification Title: | Code of Federal Regulations Volume 47 (Telecommunications) 2009: Part 22 Subpart H (Public Mobile Services) |
| Site Registration: | FCC: 209735 |
| Location of Testing: | RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH, United Kingdom |
| Test Dates: | 02 March to 12 March 2010 |

2.2. Summary of Test Results

| FCC Reference (47CFR) | Measurement | Result |
|-----------------------|---|--------|
| Part 15.107 | Receiver/Idle Mode AC Conducted Spurious Emissions | ✓ |
| Part 15.109 | Receiver/Idle Mode Radiated Spurious Emissions | ✓ |
| Part 15.207 | Transmitter AC Conducted Spurious Emissions | ✓ |
| Part 22.913(a) | Transmitter Effective Radiated Power (ERP) | ✓ |
| Part 22.355 | Transmitter Frequency Stability (Temperature & Voltage Variation) | ✓ |
| Part 2.1049 | Transmitter Occupied Bandwidth | ✓ |
| Part 2.1053/22.917 | Transmitter Out of Band Radiated Emissions | ✓ |
| Part 2.1053/22.917 | 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 (2003) |
| Title: | American National Standard Methods of Measurement of Electromagnetic 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: | NTT docomo |
| Model Name or Number: | P-04B |
| IMEI: | 358862030014626 (<i>radiated sample</i>); 358862030014600 (<i>conducted sample</i>) |
| Hardware Version Number: | Rev C |
| Software Version Number: | B-D01WP1-01.01.001 D01WP1_Cv48032102 |
| FCC ID Number: | UCE210027A |

| | |
|------------------------------|------------|
| Description: | Battery |
| Brand Name: | NTT docomo |
| Model Name or Number: | P20 |
| Serial Number: | N/A |

| | |
|------------------------------|--|
| Description: | AC Charger |
| Brand Name: | NTT docomo |
| Model Name or Number: | FOMA AC Adapter 01 for Global use / MAS-BH0008-A 002 |
| Serial Number: | N/A |

| | |
|------------------------------|--------------------|
| Description: | DC Charger |
| Brand Name: | NTT docomo |
| Model Name or Number: | FOMA DC Adapter 02 |
| Serial Number: | N/A |

| | |
|------------------------------|--|
| Description: | Charge/USB Data cable |
| Brand Name: | NTT docomo |
| Model Name or Number: | FOMA USB Cable with Charge Function 02 |
| Serial Number: | N/A |

| | |
|------------------------------|----------------------|
| Description: | Micro SD memory card |
| Brand Name: | Not stated |
| Model Name or Number: | Not stated |
| Serial Number: | Not stated |

| | |
|------------------------------|------------------------|
| Description: | Personal Hands-Free |
| Brand Name: | NTT docomo |
| Model Name or Number: | Stereo Earphone Set 01 |
| Serial Number: | N/A |

3.2. Description of EUT

The equipment under test was a dual mode UMTS/GSM cellular handset with *Bluetooth* and RFID.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

| | | | |
|-------------------------------------|-------------------------------------|-----------------------|--------------------------------|
| Technology Tested: | UMTS | | |
| Type of Radio Device: | Transceiver | | |
| Mode: | UMTS FDD V and UMTS Release 5 HSDPA | | |
| Modulation Type: | QPSK | | |
| Channel Spacing: | 5 MHz | | |
| Power Supply Requirement(s): | Nominal | 3.7 V | |
| | Minimum | 3.4 V | |
| | Maximum | 4.2 V | |
| Transmit Frequency Range: | 824 to 849 MHz | | |
| Transmit Channels Tested: | Channel ID | Channel Number | Channel Frequency (MHz) |
| | Bottom | 4132 | 826.4 |
| | Middle | 4182 | 836.4 |
| | Top | 4233 | 846.6 |
| Receive Frequency Range: | 869 to 894 MHz | | |
| Receive Channels Tested: | Channel ID | Channel Number | Channel Frequency (MHz) |
| | Bottom | 4357 | 871.4 |
| | Middle | 4407 | 881.4 |
| | Top | 4458 | 891.6 |

3.5. Support Equipment

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

| | |
|------------------------------|---------------|
| Description: | Dummy battery |
| Brand Name: | Not stated |
| Model Name or Number: | Not stated |
| Serial Number: | Not stated |

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 and band edge tests were performed with the EUT in Voice (RMC/12.2 kbps) or HSDPA (Sets 1 to 4) modes.
- Transmitter radiated spurious emissions were checked in all modes during prescans. Voice (RMC/12.2 kbps) 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):

- Connected to Rohde & Schwarz CMU 200 Universal Radio Communications Tester, operating in UMTS Band V mode.
- Idle mode and transmitter mode radiated spurious emissions tests were performed with the personal hands free connected to the EUT as this was found to be the worst case during pre-scans. All accessories were individually connected and measurements made during pre-scans to determine the worst case combination.

5. Measurements, Examinations and Derived Results

5.1. General Comment

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%.

5.2. Test Results

5.2.1. Receiver/Idle Mode AC Conducted Spurious Emissions

Test Summary:

| | |
|-------------------|--|
| FCC Part: | 15.107(a) |
| Test Method Used: | As detailed in ANSI C63.4 Section 7 and relevant annexes |

Environmental Conditions:

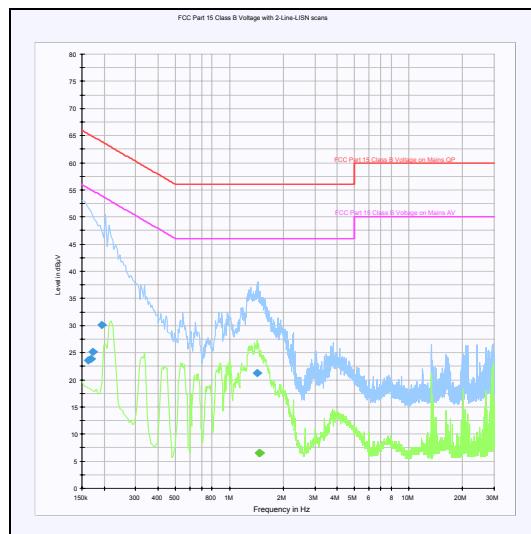
| | |
|------------------------|----|
| Temperature (°C): | 26 |
| Relative Humidity (%): | 28 |

Results: Quasi Peak Detector Measurements

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|------|--------------------|--------------------|-------------|----------|
| 0.163500 | Live | 23.5 | 65.3 | 41.8 | Complied |
| 0.168000 | Live | 23.9 | 65.1 | 41.2 | Complied |
| 0.172500 | Live | 25.1 | 64.8 | 39.7 | Complied |
| 0.195000 | Live | 30.0 | 63.8 | 33.8 | Complied |
| 1.419000 | Live | 21.2 | 56.0 | 34.8 | Complied |

Results: Average Detector Measurements

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|------|--------------------|--------------------|-------------|----------|
| 1.468500 | Live | 6.6 | 46.0 | 39.4 | Complied |
| 1.473000 | Live | 6.6 | 46.0 | 39.4 | Complied |

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

5.2.2. Receiver/Idle Mode Radiated Spurious Emissions

Test Summary:

| | |
|--------------------------|--|
| FCC Part: | 15.109 |
| Frequency Range: | 30 MHz to 1000 MHz |
| Test Method Used: | As detailed in ANSI C63.4 Section 8 and relevant annexes |

Environmental Conditions:

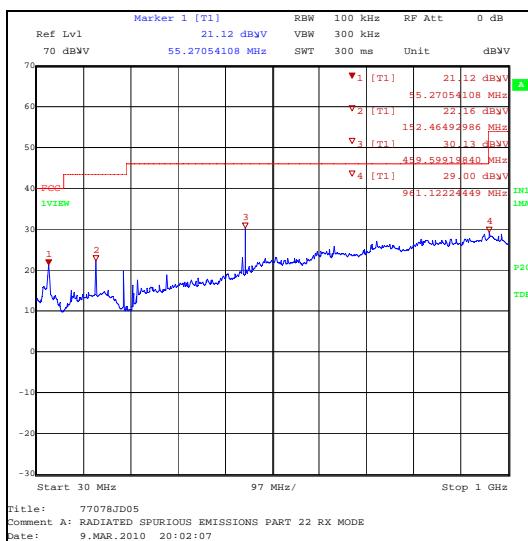
| | |
|-------------------------------|----|
| Temperature (°C): | 24 |
| Relative Humidity (%): | 21 |

Results:

| Frequency (MHz) | Antenna Polarity | Level (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Result |
|-----------------|------------------|----------------------|----------------------|-------------|----------|
| 55.279 | Vertical | 17.9 | 40.0 | 22.1 | Complied |
| 153.261 | Horizontal | 21.1 | 43.5 | 22.4 | Complied |
| 458.775 | Vertical | 28.9 | 46.0 | 17.1 | Complied |
| 961.129 | Vertical | 29.1 | 54.0 | 24.9 | Complied |

Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

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

| | |
|--------------------------|--|
| FCC Part: | 15.109 |
| Frequency Range: | 1 GHz to 12.75 GHz |
| Test Method Used: | As detailed in ANSI C63.4 Section 8 and relevant annexes |

Environmental Conditions:

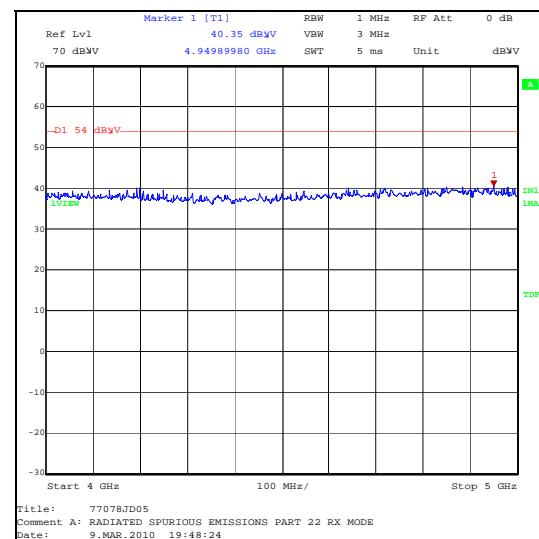
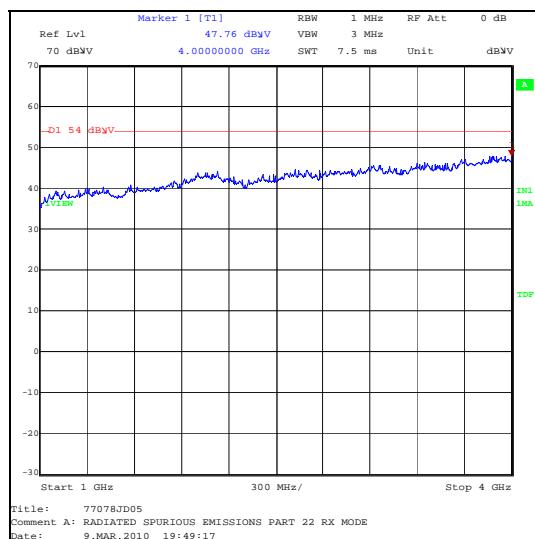
| | |
|-------------------------------|----|
| Temperature (°C): | 24 |
| Relative Humidity (%): | 21 |

Results:

| Frequency (GHz) | Antenna Polarity | Peak Level (dB μ V/m) | Average Limit (dB μ V/m) | Margin (dB) | Result |
|-----------------|------------------|---------------------------|------------------------------|-------------|----------|
| 4.000 | Vertical | 47.8 | 54.0 | 6.2 | Complied |

Note(s):

1. 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. 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.
2. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.



5.2.3. Transmitter AC Conducted Spurious Emissions**Test Summary:**

| | |
|-------------------|--|
| FCC Part: | 15.207(a) |
| Test Method Used: | As detailed in ANSI C63.4 Section 7 and relevant annexes |

Environmental Conditions:

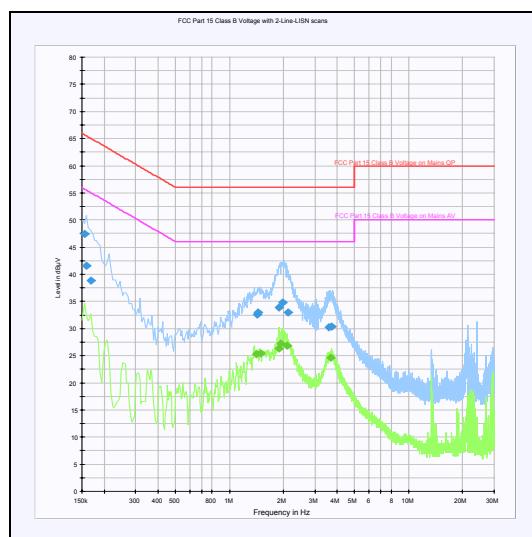
| | |
|------------------------|----|
| Temperature (°C): | 26 |
| Relative Humidity (%): | 28 |

Results: Quasi Peak Detector Measurements

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|---------|--------------------|--------------------|-------------|----------|
| 0.154500 | Live | 47.5 | 65.8 | 18.3 | Complied |
| 0.159000 | Neutral | 41.5 | 65.5 | 24.0 | Complied |
| 0.168000 | Live | 38.8 | 65.1 | 26.3 | Complied |
| 1.419000 | Live | 32.6 | 56.0 | 23.4 | Complied |
| 1.446000 | Live | 33.0 | 56.0 | 23.0 | Complied |
| 1.887000 | Live | 33.8 | 56.0 | 22.2 | Complied |
| 1.968000 | Live | 34.8 | 56.0 | 21.2 | Complied |
| 2.121000 | Live | 33.0 | 56.0 | 23.0 | Complied |
| 3.592500 | Live | 30.3 | 56.0 | 25.7 | Complied |
| 3.718500 | Live | 30.4 | 56.0 | 25.6 | Complied |

Results: Average Detector Measurements

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|------|--------------------|--------------------|-------------|----------|
| 1.410000 | Live | 25.3 | 46.0 | 20.7 | Complied |
| 1.491000 | Live | 25.4 | 46.0 | 20.6 | Complied |
| 1.882500 | Live | 26.3 | 46.0 | 19.7 | Complied |
| 1.936500 | Live | 27.3 | 46.0 | 18.7 | Complied |
| 2.098500 | Live | 26.8 | 46.0 | 19.2 | Complied |
| 3.669000 | Live | 24.7 | 46.0 | 21.3 | Complied |

Transmitter AC Conducted Spurious Emissions (continued)

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

5.2.4. Transmitter Effective Radiated Power (ERP)**Test Summary:**

| | |
|-------------------|---|
| FCC Part: | 22.913(a) |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.17.2 |

Environmental Conditions:

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

Results: Peak

| Modes | | HSDPA | | | | Voice | | | |
|-----------------|---------|----------------|----------------|----------------|----------------|-----------------|----------------|--------|----------|
| Sub-tests | | 1 | 2 | 3 | 4 | RMC 12.2kbps | | | |
| Band | Channel | Power (dBm) | Power (dBm) | Power (dBm) | Power (dBm) | Power (dBm) | Limit (dBm) | Margin | Result |
| V | 4132 | 19.0 | 19.7 | 19.8 | 20.1 | 19.0 | 38.5 | 18.4 | Complied |
| | 4182 | 19.7 | 20.4 | 20.7 | 20.8 | 20.0 | 38.5 | 17.7 | Complied |
| | 4233 | 17.7 | 18.7 | 18.9 | 18.9 | 17.6 | 38.5 | 19.6 | Complied |
| βc | | 2 | 12 | 15 | 15 | | | | |
| βd | | 15 | 15 | 8 | 4 | | | | |
| ΔACK,ΔNACK,ΔCQI | | 8 | 8 | 8 | 8 | | | | |

Results: RMS

| Modes | | HSDPA | | | | Voice | | | |
|-----------------|---------|----------------|----------------|----------------|----------------|-----------------|----------------|--------|----------|
| Sets | | 1 | 2 | 3 | 4 | RMC 12.2kbps | | | |
| Band | Channel | Power (dBm) | Power (dBm) | Power (dBm) | Power (dBm) | Power (dBm) | Limit (dBm) | Margin | Result |
| V | 4132 | 16.1 | 15.9 | 15.9 | 16.0 | 15.3 | 38.5 | 22.4 | Complied |
| | 4182 | 16.9 | 16.2 | 16.7 | 16.7 | 17.3 | 38.5 | 21.2 | Complied |
| | 4233 | 14.8 | 14.7 | 14.7 | 14.8 | 14.8 | 38.5 | 23.7 | Complied |
| βc | | 2 | 12 | 15 | 15 | | | | |
| βd | | 15 | 15 | 8 | 4 | | | | |
| ΔACK,ΔNACK,ΔCQI | | 8 | 8 | 8 | 8 | | | | |

Note(s):

1. All modes were compared on each channel and the highest power recorded was subtracted from the limit to show the margin.

5.2.5. Conducted Average Power Measurement

| Modes | | HSDPA | | | | WCDMA |
|-------------------|---------|---------------------|---------------------|---------------------|---------------------|-------------------------|
| Sets | | 1 | 2 | 3 | 4 | Voice / RMC 12.2kbps |
| Band | Channel | Average Power (dBm) |
| V | 4132 | 23.2 | 21.2 | 19.7 | 19.4 | 23.2 |
| | 4183 | 23.3 | 21.2 | 19.7 | 19.5 | 23.2 |
| | 4233 | 23.4 | 21.4 | 19.9 | 19.6 | 23.3 |
| βc | | 2 | 12 | 15 | 15 | |
| βd | | 15 | 15 | 8 | 4 | |
| ΔACK, ΔNACK, ΔCQI | | 8 | 8 | 8 | 8 | |

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

| | |
|--------------------------|--|
| FCC Part: | 22.355 |
| 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): | 26 |
| Relative Humidity (%): | 28 |

Results: Middle Channel (836.4 MHz)

| Temperature (°C) | Measured Frequency (MHz) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) | Margin (ppm) | Result |
|------------------|--------------------------|----------------------|-----------------------|-------------|--------------|----------|
| -30 | 836.400032 | 32 | 0.04 | 2.5 | 2.46 | Complied |
| -20 | 836.399963 | -34 | 0.04 | 2.5 | 2.46 | Complied |
| -10 | 836.400017 | 17 | 0.02 | 2.5 | 2.48 | Complied |
| 0 | 836.399987 | -13 | 0.02 | 2.5 | 2.48 | Complied |
| 10 | 836.399966 | -34 | 0.04 | 2.5 | 2.46 | Complied |
| 20 | 836.399965 | -35 | 0.04 | 2.5 | 2.46 | Complied |
| 30 | 836.399967 | -33 | 0.04 | 2.5 | 2.46 | Complied |
| 40 | 836.400021 | 21 | 0.03 | 2.5 | 2.47 | Complied |
| 50 | 836.400035 | 35 | 0.04 | 2.5 | 2.46 | Complied |

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

| | |
|-------------------|--|
| FCC Part: | 22.355 |
| 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): | 26 |
| Relative Humidity (%): | 25 |

Results: Middle Channel (836.4 MHz)

| Supply Voltage (V) | Measured Frequency (MHz) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) | Margin (ppm) | Result |
|--------------------|--------------------------|----------------------|-----------------------|-------------|--------------|----------|
| 3.4 | 836.399987 | -16.0 | 0.02 | 2.5 | 2.48 | Complied |
| 4.2 | 836.399987 | -16.0 | 0.02 | 2.5 | 2.48 | Complied |

5.2.8. Transmitter Occupied Bandwidth

Test Summary:

| | |
|--------------------------|--|
| FCC Part: | 2.1049 |
| Test Method Used: | As detailed in ANSI C63.4 Section 13.1.7 and relevant annexes referencing FCC CFR Part 2.1049 (see note below) |

Environmental Conditions:

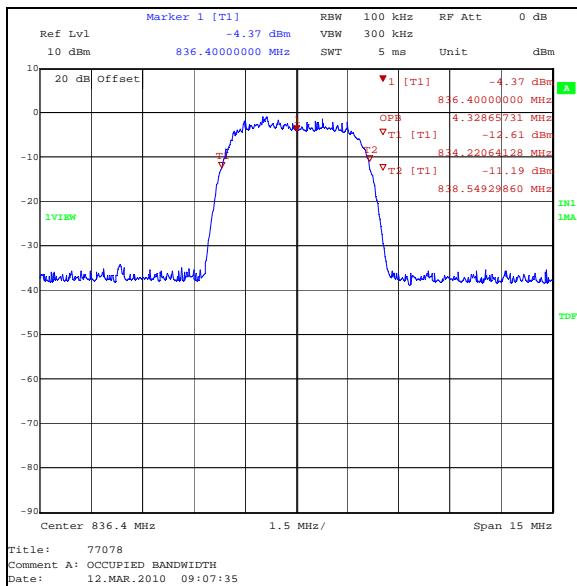
| | |
|-------------------------------|----|
| Temperature (°C): | 21 |
| Relative Humidity (%): | 30 |

Results: RMC/Voice

| Channel | Frequency (MHz) | Occupied Bandwidth (kHz) |
|---------|-----------------|--------------------------|
| Centre | 836.4 | 4328.657 |

Note(s):

1. In lieu of the test method detailed in ANSI C63.4 Section 13.1.7 the 99% occupied bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser

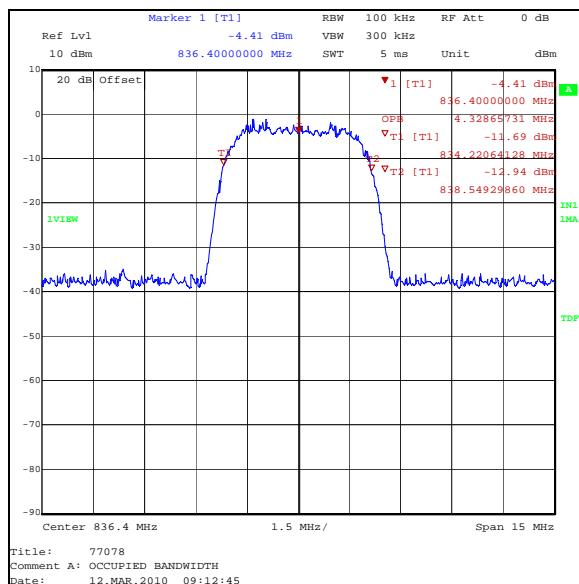


Transmitter Occupied Bandwidth (continued)**Results: HSDPA Sub-test 1**

| Channel | Frequency (MHz) | Occupied Bandwidth (kHz) |
|---------|-----------------|--------------------------|
| Centre | 836.4 | 4328.657 |

Note(s):

1. In lieu of the test method detailed in ANSI C63.4 Section 13.1.7 the 99% occupied bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser

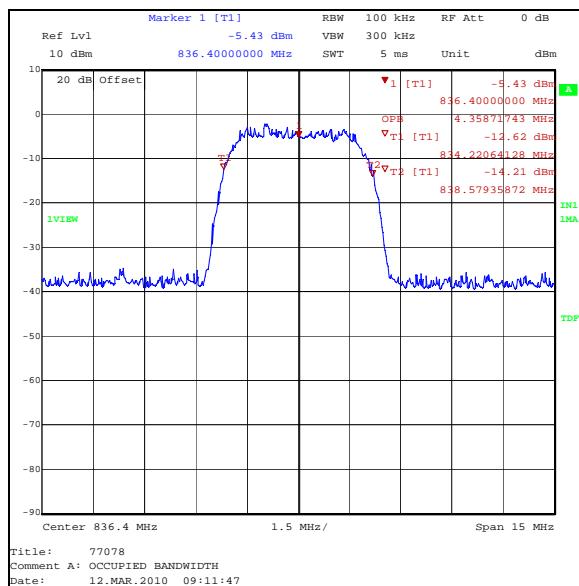


Transmitter Occupied Bandwidth (continued)**Results: HSDPA Sub-test 2**

| Channel | Frequency (MHz) | Occupied Bandwidth (kHz) |
|---------|-----------------|--------------------------|
| Centre | 836.4 | 4358.717 |

Note(s):

1. In lieu of the test method detailed in ANSI C63.4 Section 13.1.7 the 99% occupied bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser

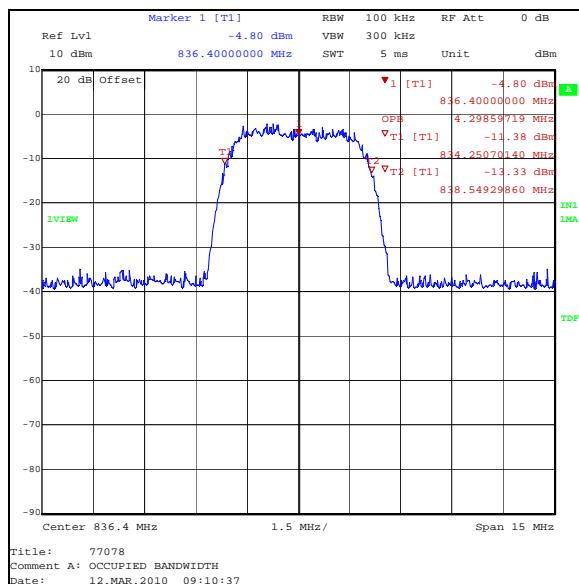


Transmitter Occupied Bandwidth (continued)**Results: HSDPA Sub-test 3**

| Channel | Frequency (MHz) | Occupied Bandwidth (kHz) |
|---------|-----------------|--------------------------|
| Centre | 836.4 | 4298.597 |

Note(s):

1. In lieu of the test method detailed in ANSI C63.4 Section 13.1.7 the 99% occupied bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser

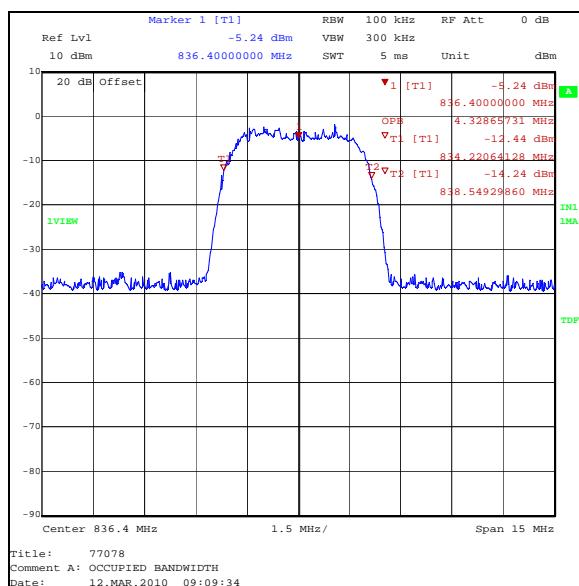


Transmitter Occupied Bandwidth (continued)**Results: HSDPA Sub-test 4**

| Channel | Frequency (MHz) | Occupied Bandwidth (kHz) |
|---------|-----------------|--------------------------|
| Centre | 836.4 | 4328.657 |

Note(s):

1. In lieu of the test method detailed in ANSI C63.4 Section 13.1.7 the 99% occupied bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser



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

| | |
|--------------------------|---|
| FCC Part: | 2.1053 & 22.917 |
| Frequency Range: | 30 MHz to 12.75 GHz |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Part 2.1053 |
| Modulation: | Voice / RMC 12.2 kbps |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 25 |
| Relative Humidity (%): | 18 |

Results: Bottom Channel

| Frequency (MHz) | Peak Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|---------------------------|-------------|-------------|----------|
| 1651.214 | -34.2 | -13.0 | 21.2 | Complied |

Results: Middle Channel

| Frequency (MHz) | Peak Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|---------------------------|-------------|-------------|----------|
| 1671.581 | -33.5 | -13.0 | 20.5 | Complied |

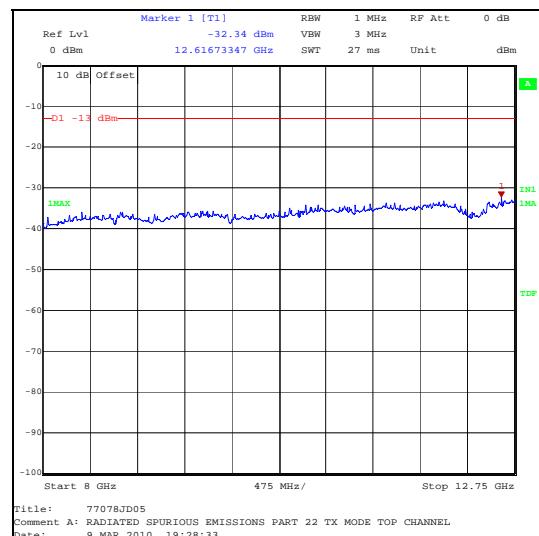
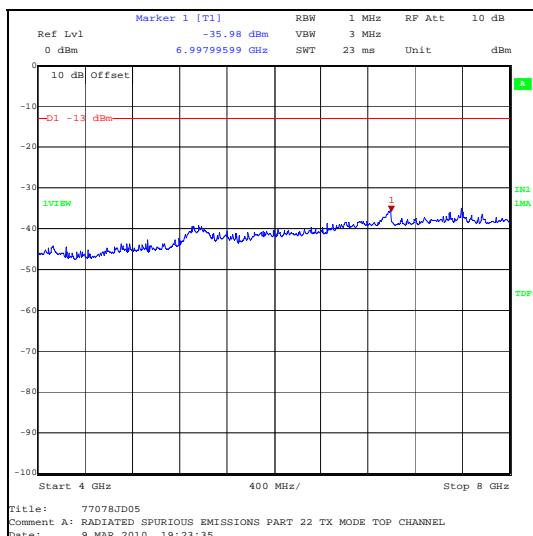
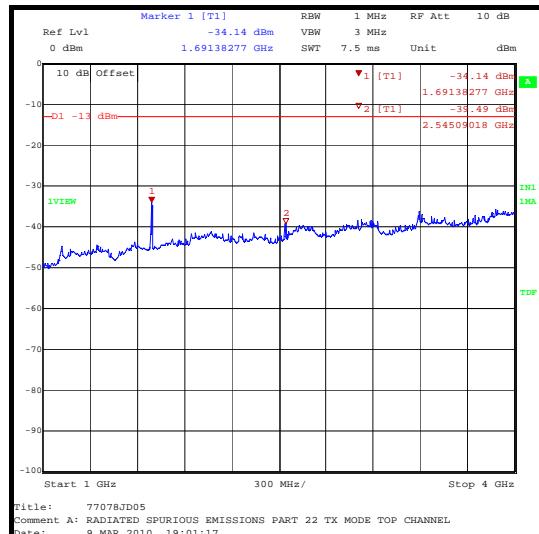
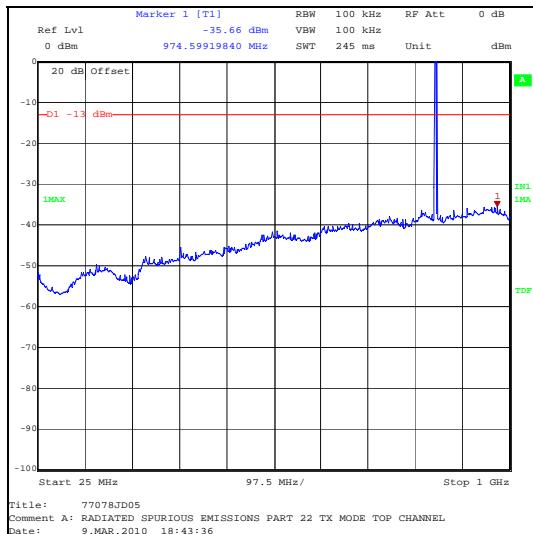
Results: Top Channel

| Frequency (MHz) | Peak Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|---------------------------|-------------|-------------|----------|
| 1691.059 | -33.2 | -13.0 | 20.2 | Complied |

Note(s):

1. The uplink and downlink traffic channels are shown on the 30 MHz to 1 GHz plot.

Transmitter Out of Band Radiated Emissions (continued)



5.2.10. Transmitter Radiated Emissions at Band Edges

Test Summary:

| | |
|--------------------------|---|
| FCC Part: | 2.1053 & 22.917 |
| Test Method Used: | As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Parts 2.1053 and 22.917 |

Environmental Conditions:

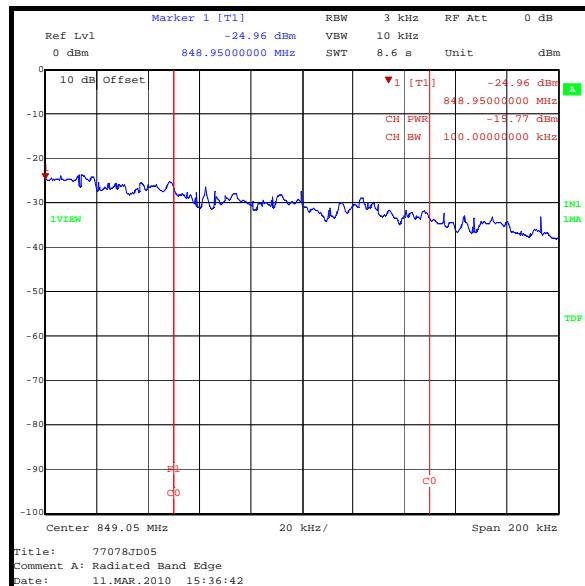
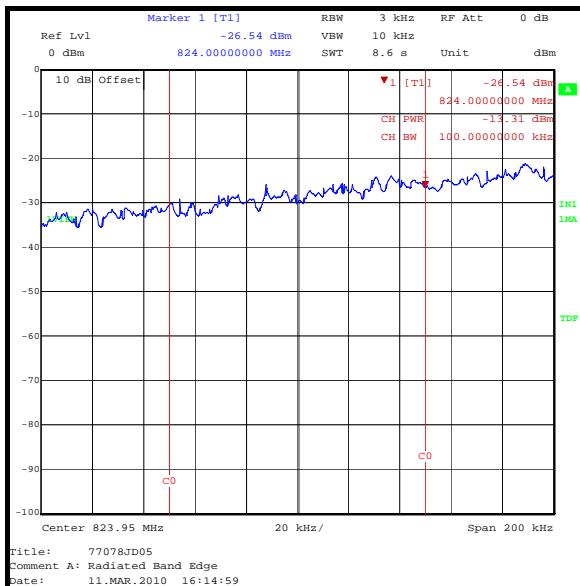
| | |
|------------------------|----|
| Temperature (°C): | 24 |
| Relative Humidity (%): | 20 |

Results: Voice / RMC 12.2 kbps

| Frequency (MHz) | Peak Emission Level (dBm) | Limit (dBm) | Margin (dBm) | Result |
|-----------------|---------------------------|-------------|--------------|----------|
| 824 | -13.3 | -13.0 | 0.3 | Complied |
| 849 | -15.7 | -13.0 | 2.7 | Complied |

Note(s):

1. The band edge result was obtained by integrating the 100 kHz strip immediately adjacent to the band edge using a channel power function of the measurement analyser.



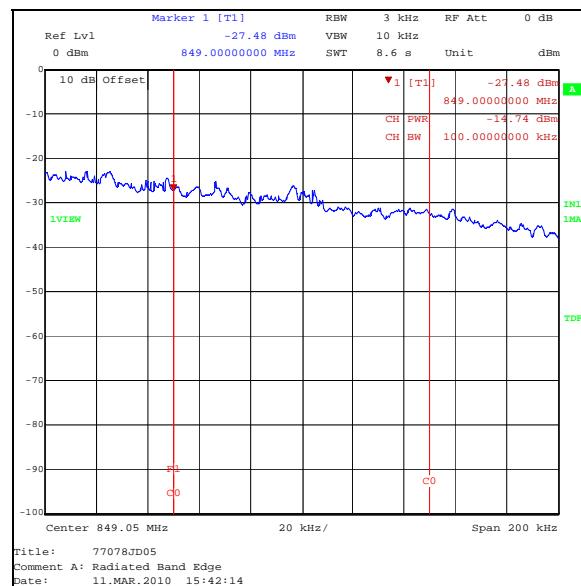
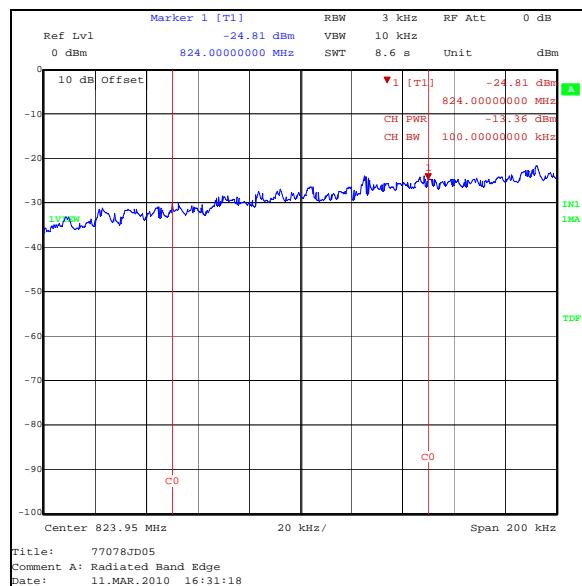
Transmitter Radiated Emissions at Band Edges (continued)

Results: HSDPA Sub-test 1

| Frequency (MHz) | Peak Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|---------------------------|-------------|-------------|----------|
| 824.0 | -13.4 | -13.0 | 0.4 | Complied |
| 849.0 | -14.7 | -13.0 | 1.7 | Complied |

Note(s):

1. The band edge result was obtained by integrating the 100 kHz strip immediately adjacent to the band edge using a channel power function of the measurement analyser.



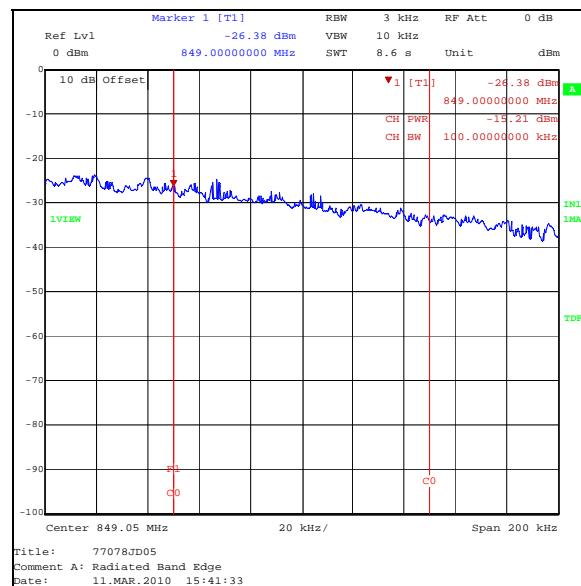
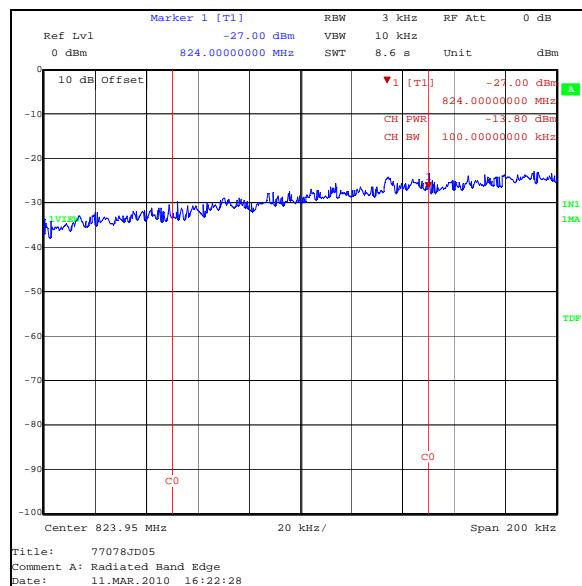
Transmitter Radiated Emissions at Band Edges (continued)

Results: HSDPA Sub-test 2

| Frequency (MHz) | Peak Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|---------------------------|-------------|-------------|----------|
| 824.0 | -13.8 | -13.0 | 0.8 | Complied |
| 849.0 | -15.2 | -13.0 | 2.2 | Complied |

Note(s):

1. The band edge result was obtained by integrating the 100 kHz strip immediately adjacent to the band edge using a channel power function of the measurement analyser.



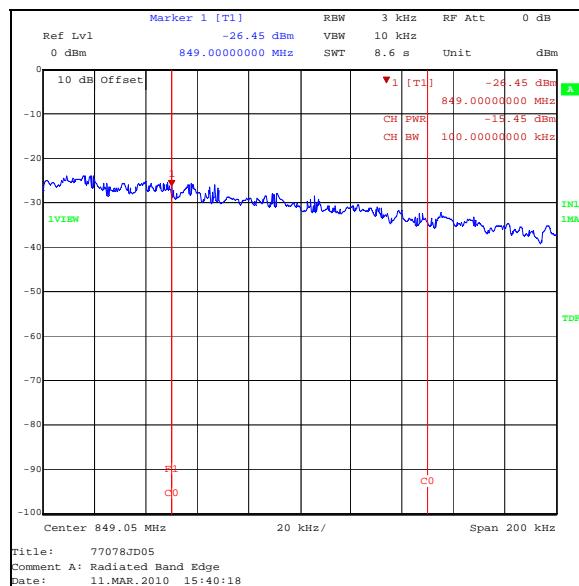
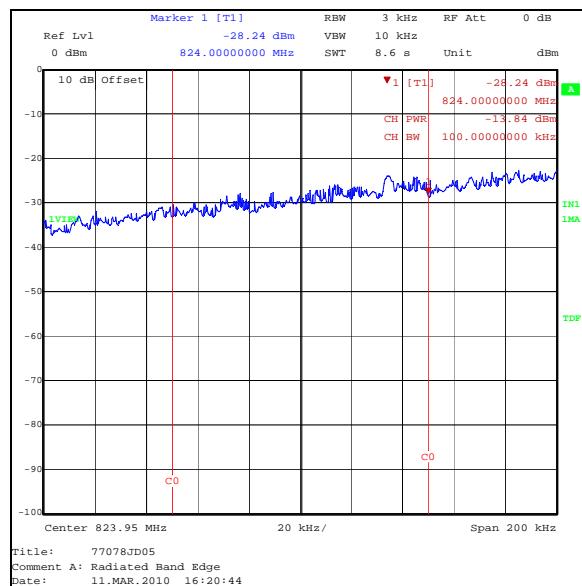
Transmitter Radiated Emissions at Band Edges (continued)

Results: HSDPA Sub-test 3

| Frequency (MHz) | Peak Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|---------------------------|-------------|-------------|----------|
| 824.0 | -13.8 | -13.0 | 0.8 | Complied |
| 849.0 | -15.5 | -13.0 | 2.5 | Complied |

Note(s):

1. The band edge result was obtained by integrating the 100 kHz strip immediately adjacent to the band edge using a channel power function of the measurement analyser.



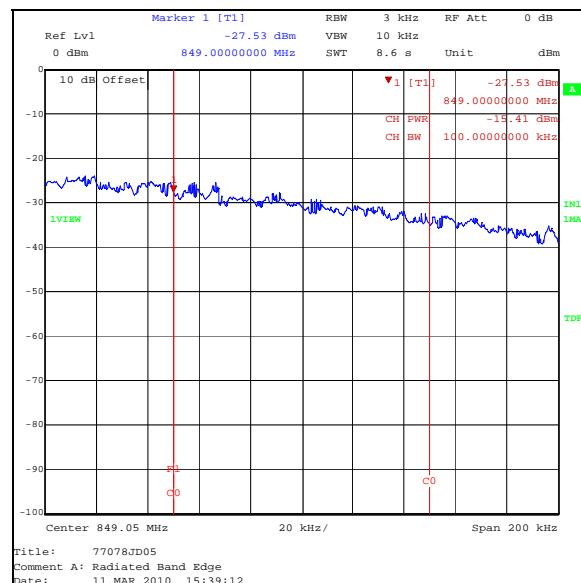
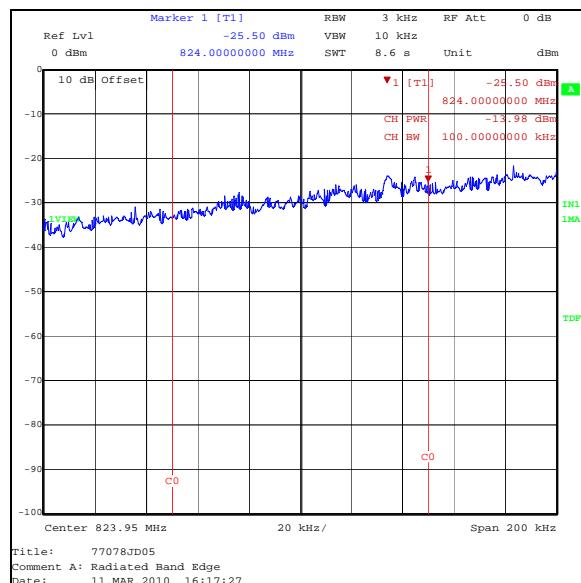
Transmitter Radiated Emissions at Band Edges (continued)

Results: HSDPA Sub-test 4

| Frequency (MHz) | Peak Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|---------------------------|-------------|-------------|----------|
| 824.0 | -14.0 | -13.0 | 1.0 | Complied |
| 849.0 | -15.4 | -13.0 | 2.4 | Complied |

Note(s):

1. The band edge result was obtained by integrating the 100 kHz strip immediately adjacent to the band edge using a channel power function of the measurement analyser.



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) | Not applicable | 95% | ±2.94 dB |
| Frequency Stability | Not applicable | 95% | ±0.92 ppm |
| Occupied Bandwidth | Not applicable | 95% | ±0.92 ppm |
| Radiated Spurious Emissions | 30 MHz to 12.75 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 Last Calibrated | Cal. Interval (Months) |
|---------|-----------------------|-------------------|---------------|------------|-----------------------|------------------------|
| A067 | LISN | Rohde & Schwarz | ESH3-Z5 | 890603/002 | 03 Jun 2009 | 12 |
| A1391 | Attenuator | Huber + Suhner | 757987 | 6810.17.B | Calibrated before use | - |
| A1534 | Pre Amplifier | Hewlett Packard | 8449B OPT H02 | 3008A00405 | Calibrated before use | - |
| A1818 | Antenna | EMCO | 3115 | 00075692 | 27 Nov 2009 | 12 |
| A1830 | Pulse Limiter | Rhode & Schwarz | ESH3-Z2 | 100668 | 01 Mar 2010 | 12 |
| A288 | Antenna | Chase | CBL6111A | 1589 | 13 Mar 2009 | 12 |
| E013 | Environmental Chamber | Sanyo | ATMOS chamber | None | Calibrated before use | - |
| K0002 | 3m RSE Chamber | Rainford EMC | N/A | N/A | 01 Sep 2009 | 12 |
| L1004 | Comms Test Set | Rohde & Schwarz | CMU200 | 117194 | 02 Feb 2010 | 12 |
| M1068 | Thermometer | Iso-Tech | RS55 | 93102884 | 01 Oct 2009 | 12 |
| M1124 | Spectrum Analyser | Rohde & Schwarz | ESIB26 | 100046K | 09 Mar 2009 | 13 |
| M122 | Digital Voltmeter | Fluke | 77 | 64910017 | 23 Jun 2009 | 12 |
| M1379 | Test Receiver | Rohde and Schwarz | ESIB7 | 100330 | 20 Aug 2009 | 12 |
| S0536 | DC Power Supply | TTI | EL302D | 249944 | Calibrated before use | 12 |

Note that asset M1124 indicates it went out of calibration during testing. It shall be noted however that the asset was in calibration for the test for which it was used.

NB In accordance with UKAS requirements all the measurement equipment is on a calibration schedule.