

**FCC Part 24E  
Transmitter Certification**

**Test Report**

**FCC ID: DNY020MPBE**

**FCC Rule Part: CFR 47 Part 24 Subpart E**

**ACS Report Number: 07-0091-24E-A**

Manufacturer: EMS Wireless  
Equipment Type: PCS Bi-Directional Repeater  
Tradename: MirrorCell® II  
Model: 020MPBE

Test Begin Date: March 13, 2007

Test End Date: April 13, 2007

Report Issue Date: April 23, 2007



FOR THE SCOPE OF ACCREDITATION UNDER LAB Code 200612

A handwritten signature in black ink, appearing to read "Jeff Woods", is written over a horizontal line.

**Prepared by:** \_\_\_\_\_  
**Jeff Woods**  
**Wireless Certifications Engineer**  
**ACS, Inc.**

A handwritten signature in black ink, appearing to read "J. Kirby Munroe", is written over a horizontal line.

**Reviewed by:** \_\_\_\_\_  
**J. Kirby Munroe**  
**Manager Wireless Certifications**  
**ACS, Inc.**

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This report contains **32** pages

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# 1.0 Occupied Bandwidth (Input vs. Output)

## 1.1 Uplink

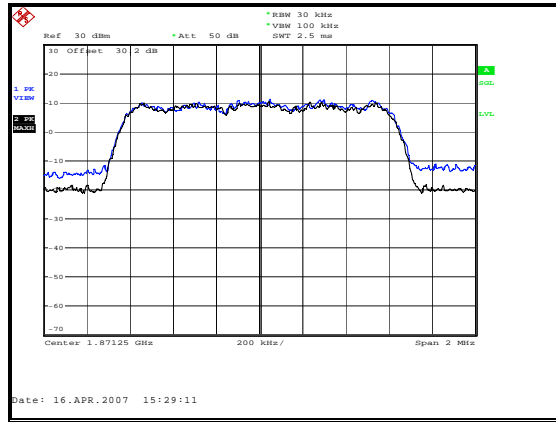


Figure 1: Occupied Bandwidth - Uplink CDMA Low Channel

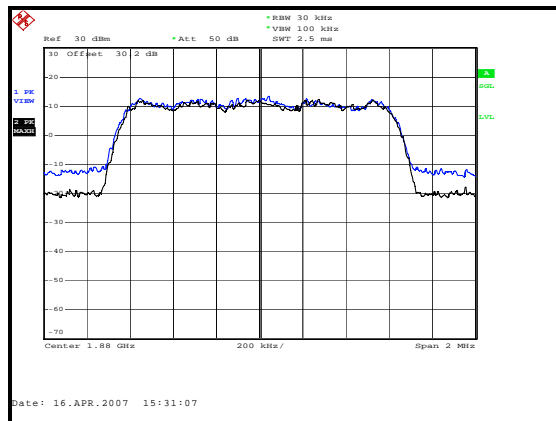


Figure 2: Occupied Bandwidth - Uplink CDMA Mid Channel

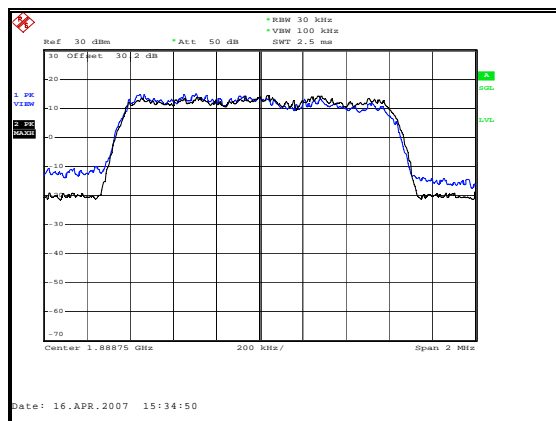


Figure 3: Occupied Bandwidth - Uplink CDMA High Channel

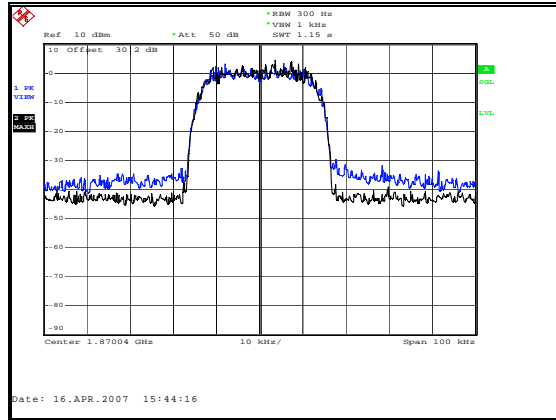


Figure 4: Occupied Bandwidth - Uplink TDMA Low Channel

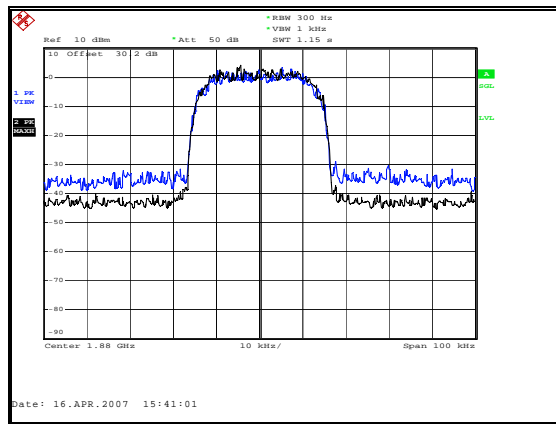


Figure 5: Occupied Bandwidth - Uplink TDMA Mid Channel

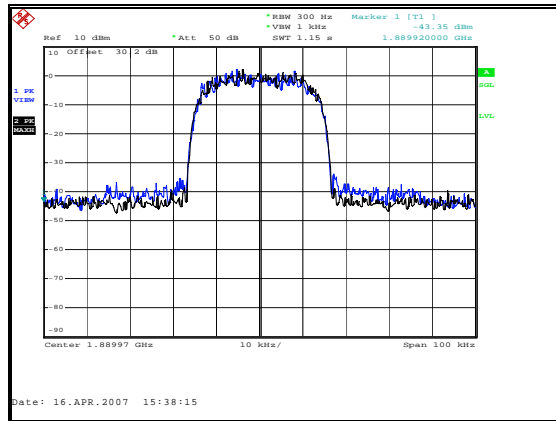


Figure 6: Occupied Bandwidth - Uplink TDMA High Channel

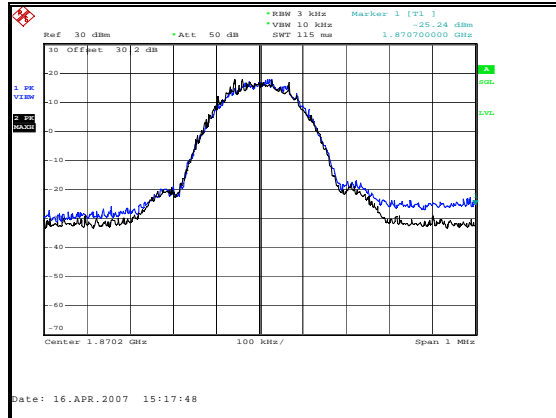


Figure 7: Occupied Bandwidth - Uplink GSM Low Channel

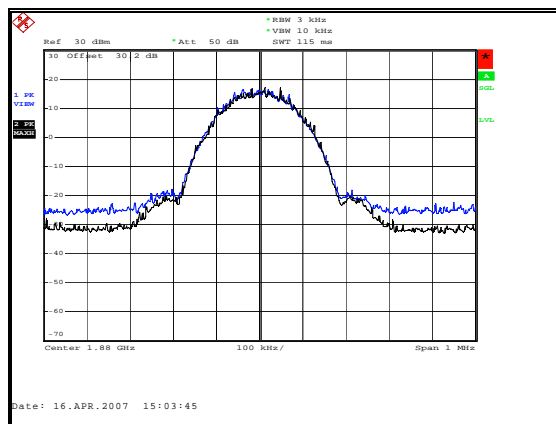


Figure 8: Occupied Bandwidth - Uplink GSM Mid Channel

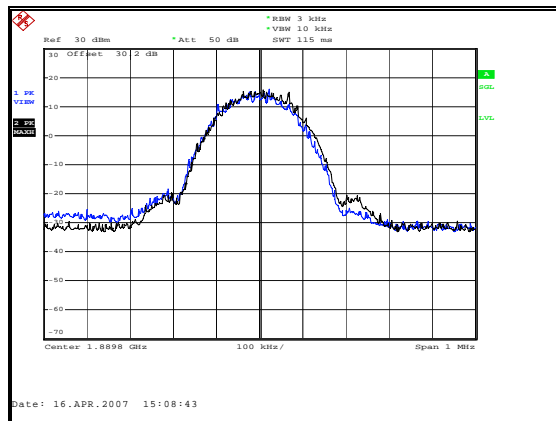


Figure 9: Occupied Bandwidth - Uplink GSM High Channel

1.2 Downlink

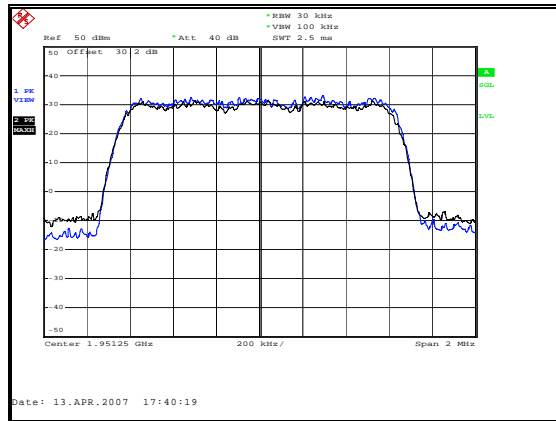


Figure 10: Occupied Bandwidth - Downlink CDMA Low Channel

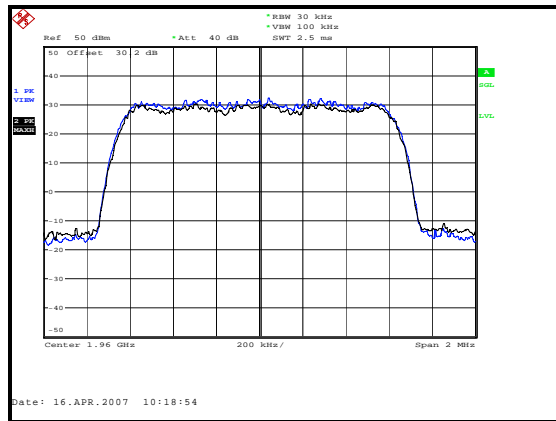


Figure 11: Occupied Bandwidth - Downlink CDMA Mid Channel

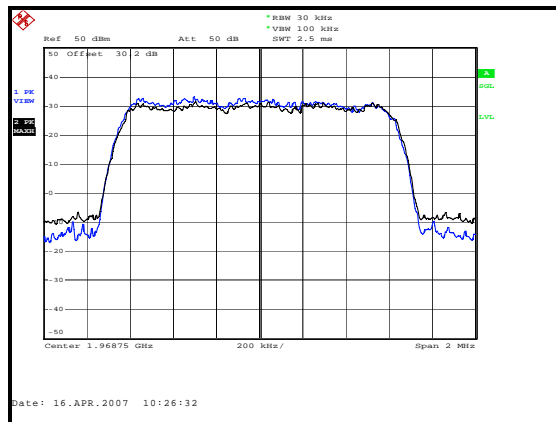


Figure 12: Occupied Bandwidth - Downlink CDMA High Channel

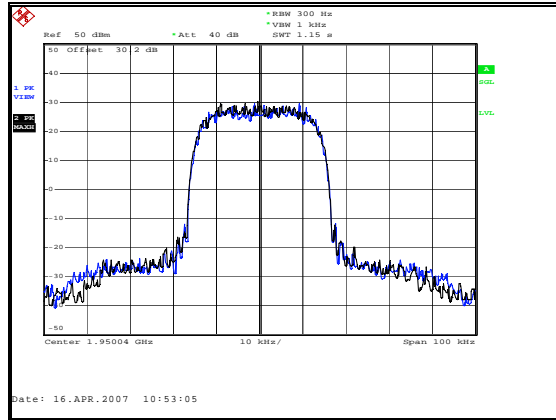


Figure 13: Occupied Bandwidth - Downlink TDMA Low Channel

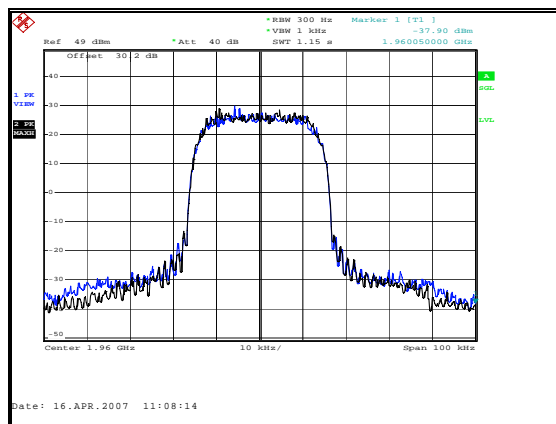


Figure 14: Occupied Bandwidth - Downlink TDMA Mid Channel

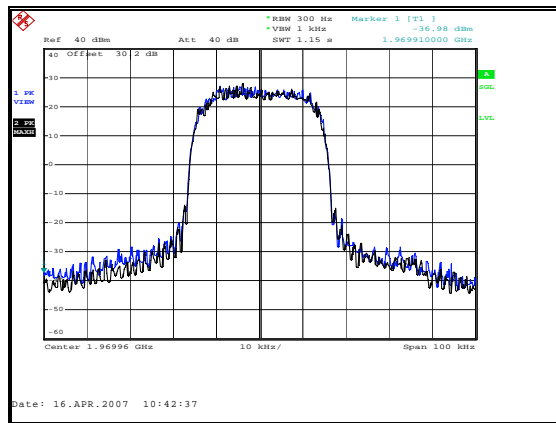


Figure 15: Occupied Bandwidth - Downlink TDMA High Channel

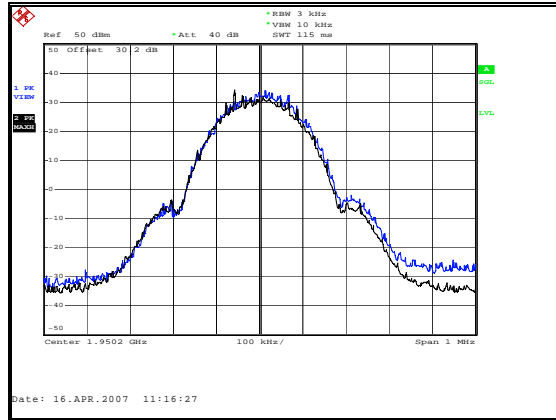


Figure 16: Occupied Bandwidth - Downlink GSM Low Channel

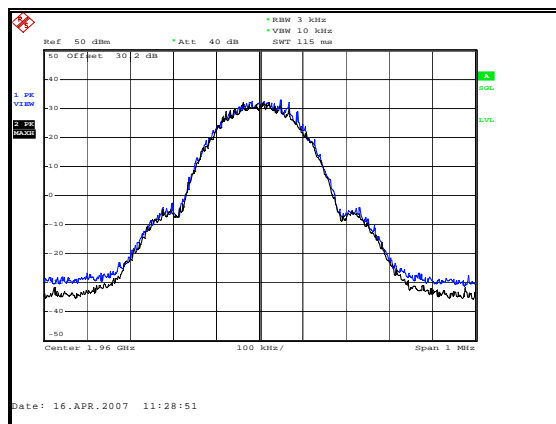


Figure 17: Occupied Bandwidth - Downlink GSM Mid Channel

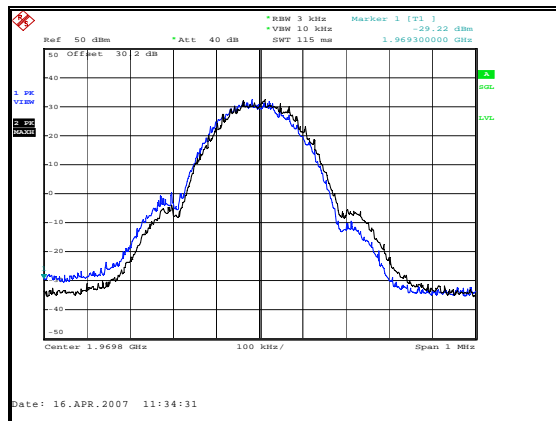


Figure 18: Occupied Bandwidth - Downlink GSM High Channel



## 2.0 Spurious Emissions at Antenna Terminals and Inter-modulation Products

### 2.1 CDMA Uplink

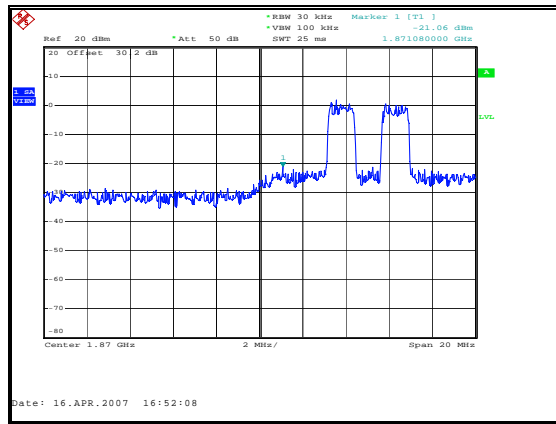


Figure 19: Spurious Emissions - Uplink CDMA Low Channel – Inter-modulation In Band

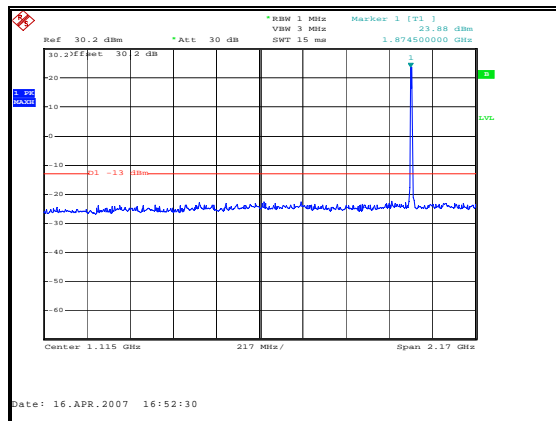


Figure 20: Spurious Emissions - Uplink CDMA Low Channel – Inter-modulation - 30MHz to 2.2GHz

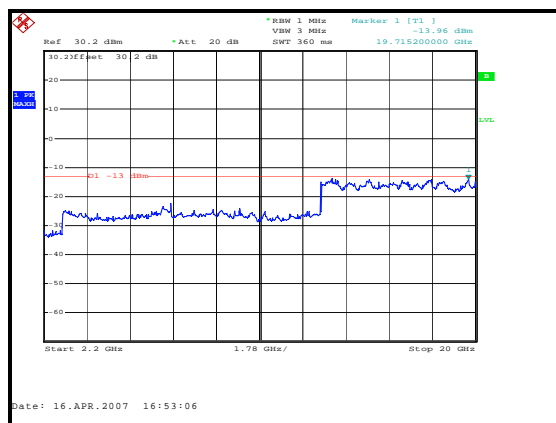


Figure 21: Spurious Emissions - Uplink CDMA Low Channel – Inter-modulation – 2.2 to 20GHz

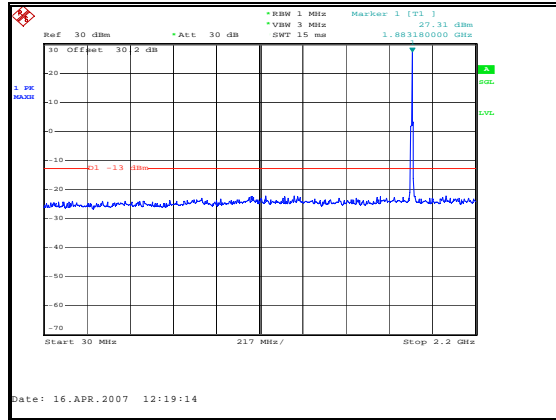


Figure 22: Spurious Emissions - Uplink CDMA Mid Channel – 30MHz to 2.2GHz

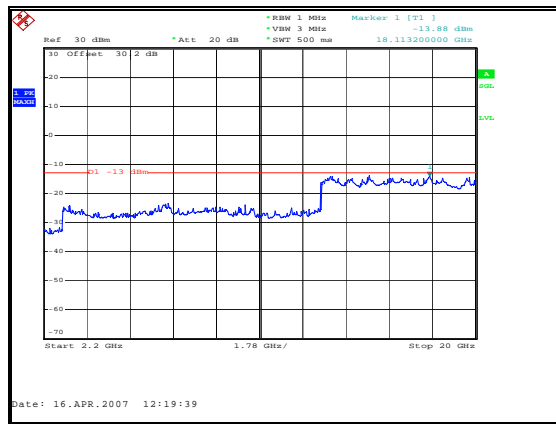


Figure 23: Spurious Emissions - Uplink CDMA Mid Channel – 2.2 to 20GHz

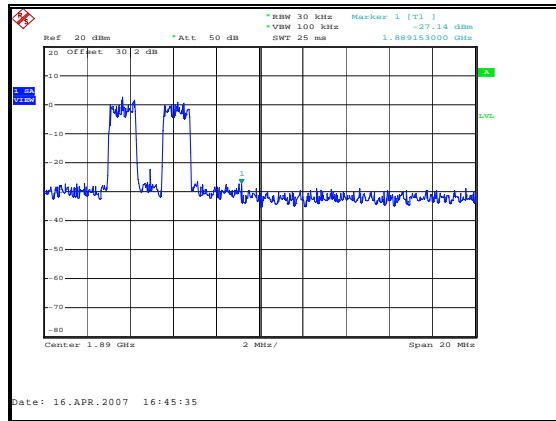


Figure 24: Spurious Emissions - Uplink CDMA High Channel – Inter-modulation In Band

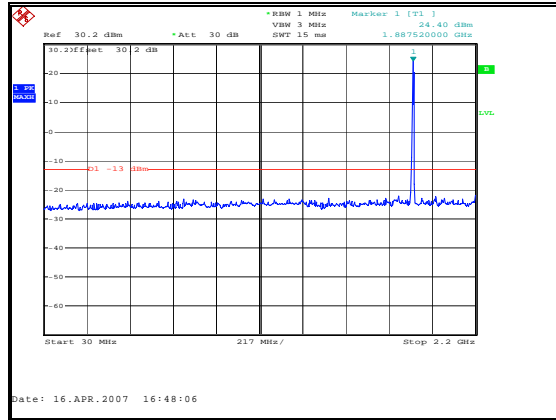


Figure 25: Spurious Emissions - Uplink CDMA High Channel – Inter-modulation - 30MHz to 2.2GHz

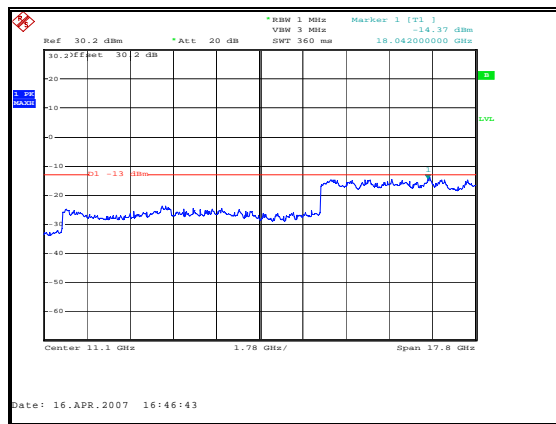


Figure 26: Spurious Emissions - Uplink CDMA High Channel – Inter-modulation – 2.2 to 20GHz

2.2 TDMA Uplink

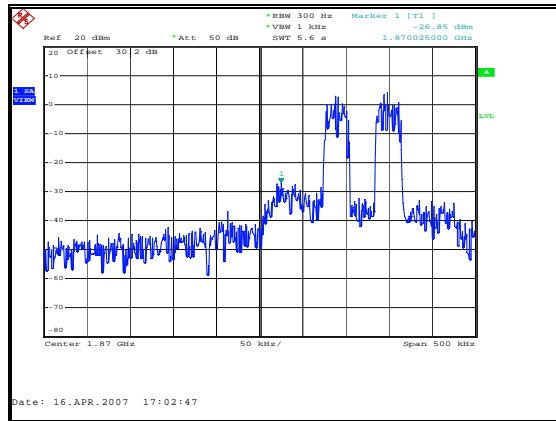


Figure 27: Spurious Emissions - Uplink TDMA Low Channel – Inter-modulation In Band

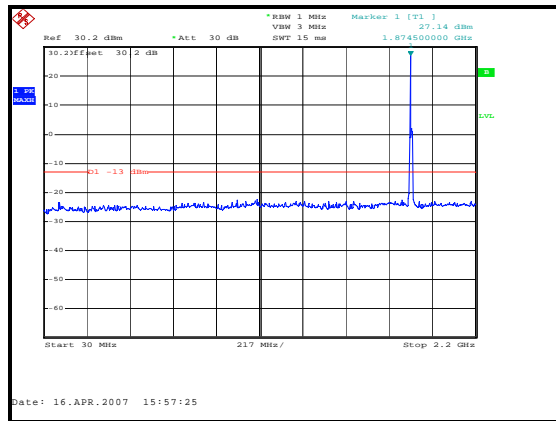


Figure 28: Spurious Emissions - Uplink TDMA Low Channel – Inter-modulation - 30MHz to 2.2GHz

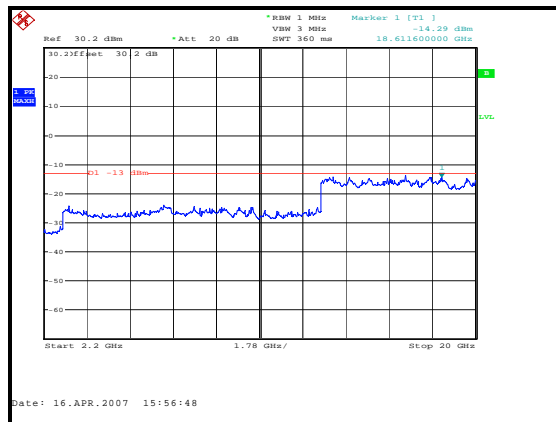


Figure 29: Spurious Emissions - Uplink TDMA Low Channel – Inter-modulation – 2.2 to 20GHz

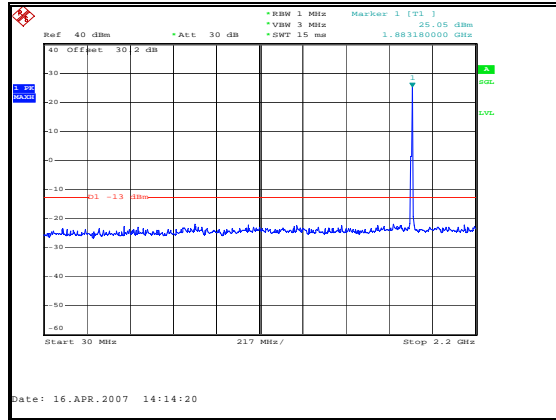


Figure 30: Spurious Emissions - Uplink TDMA Mid Channel – 30MHz to 2.2GHz

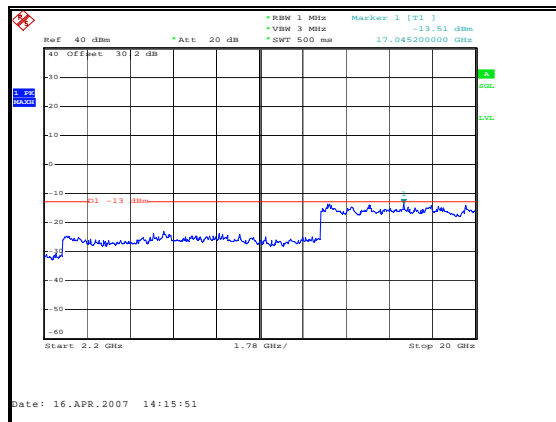


Figure 31: Spurious Emissions - Uplink TDMA Mid Channel – 2.2 to 20GHz

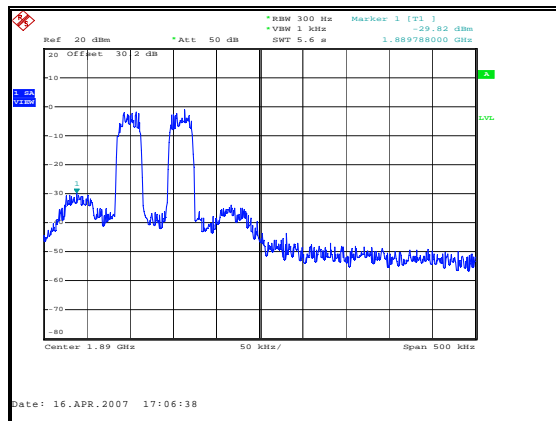


Figure 32: Spurious Emissions - Uplink TDMA High Channel – Inter-modulation In Band

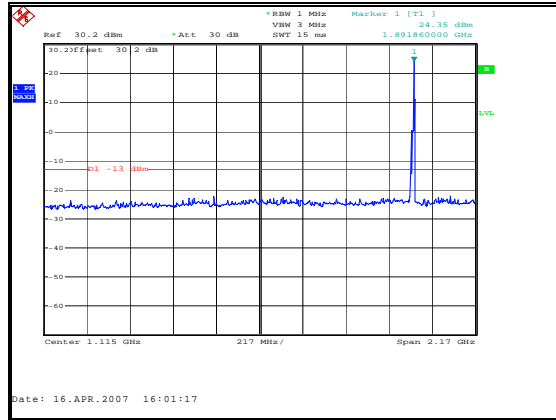


Figure 33: Spurious Emissions - Uplink TDMA High Channel – Inter-modulation - 30MHz to 2.2GHz

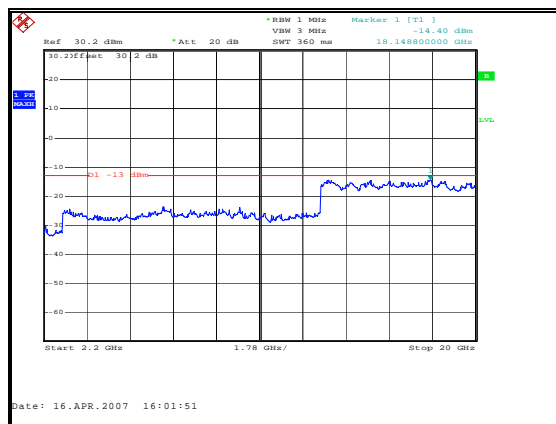


Figure 34: Spurious Emissions - Uplink TDMA High Channel – Inter-modulation – 2.2 to 20GHz

### 2.3 GSM Uplink

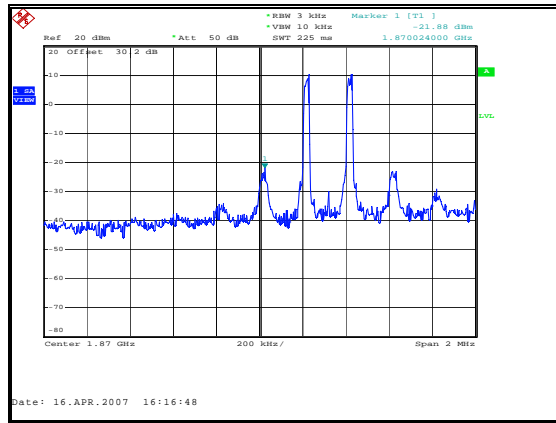


Figure 35: Spurious Emissions - Uplink GSM Low Channel – Inter-modulation In Band

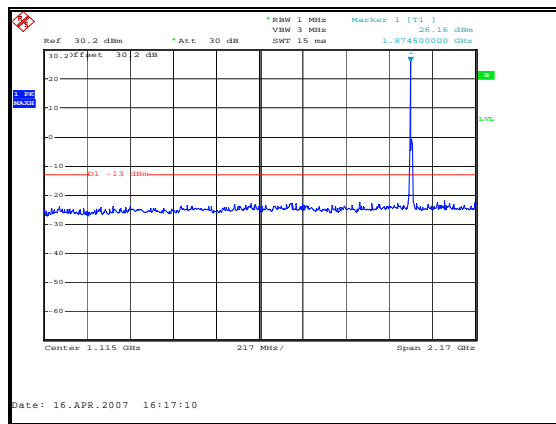


Figure 36: Spurious Emissions - Uplink GSM Low Channel – Inter-modulation - 30MHz to 2.2GHz

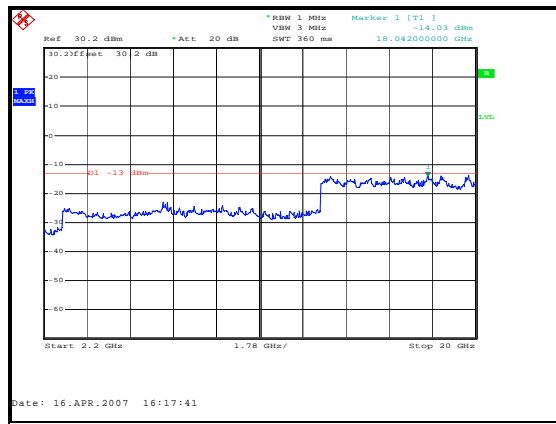


Figure 37: Spurious Emissions - Uplink GSM Low Channel – Inter-modulation – 2.2 to 20GHz

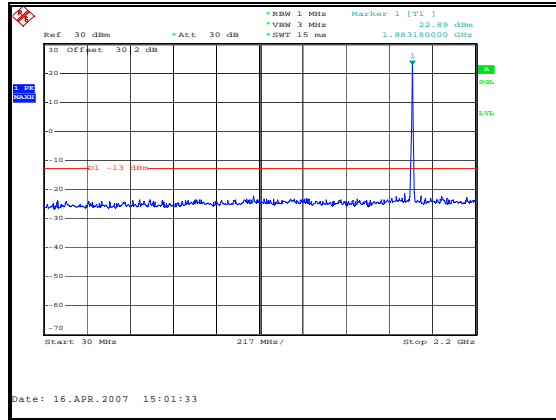


Figure 38: Spurious Emissions - Uplink GSM Mid Channel – 30MHz to 2.2GHz

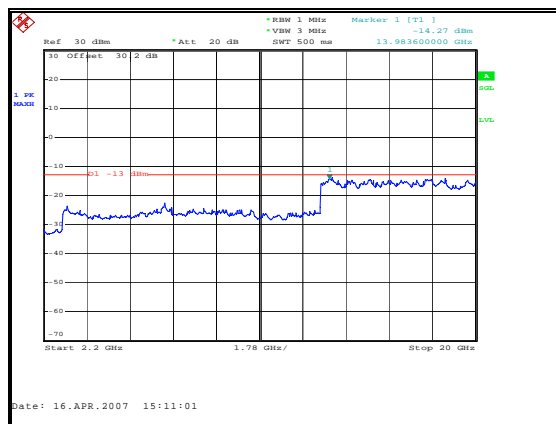


Figure 39: Spurious Emissions - Uplink GSM Mid Channel – 2.2 to 20GHz

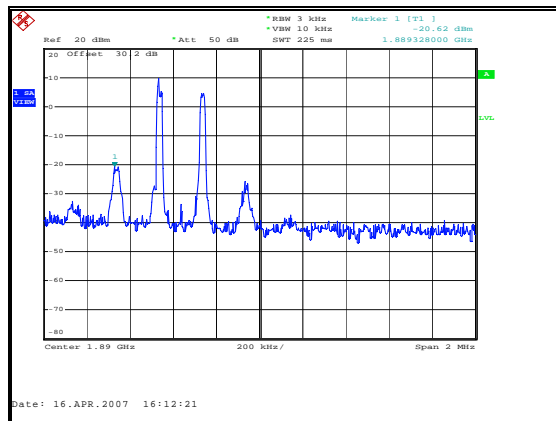


Figure 40: Spurious Emissions - Uplink GSM High Channel – Inter-modulation In Band



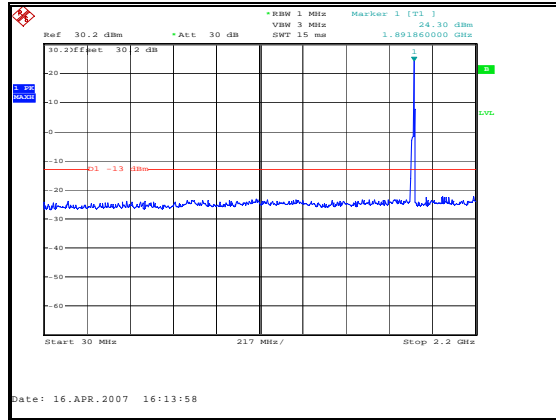


Figure 41: Spurious Emissions - Uplink GSM High Channel – Inter-modulation - 30MHz to 2.2GHz

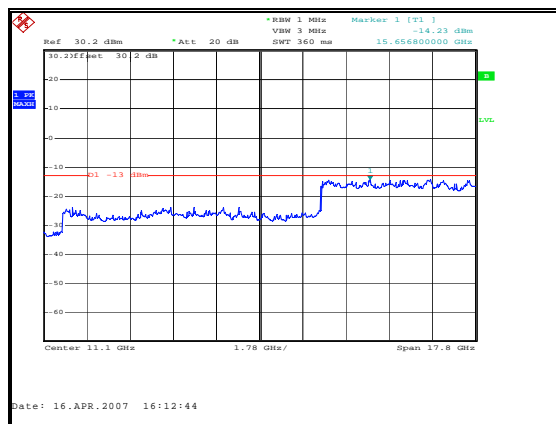


Figure 42: Spurious Emissions - Uplink GSM High Channel – Inter-modulation – 2.2 to 20GHz

2.4 CDMA Downlink

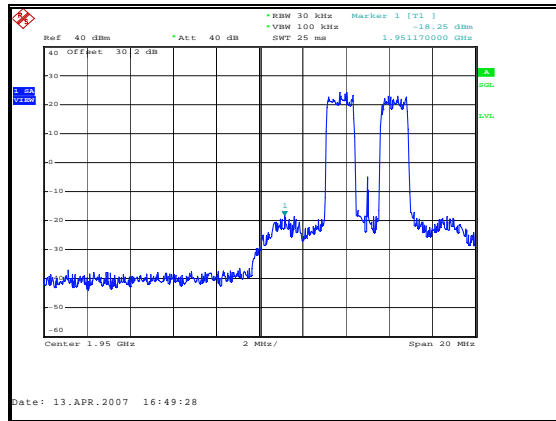


Figure 43: Spurious Emissions - Downlink CDMA Low Channel – Inter-modulation In Band

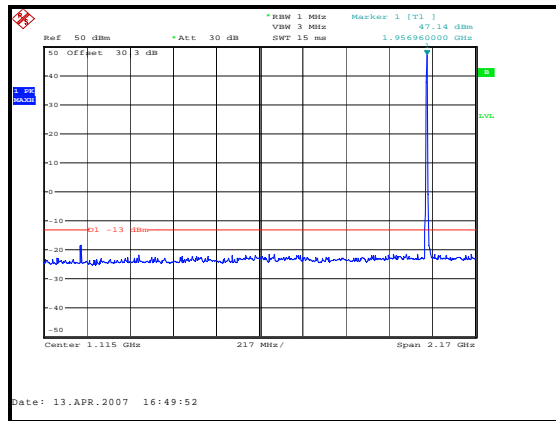


Figure 44: Spurious Emissions-Downlink CDMA Low Channel-Inter-modulation-30MHz to 2.2GHz

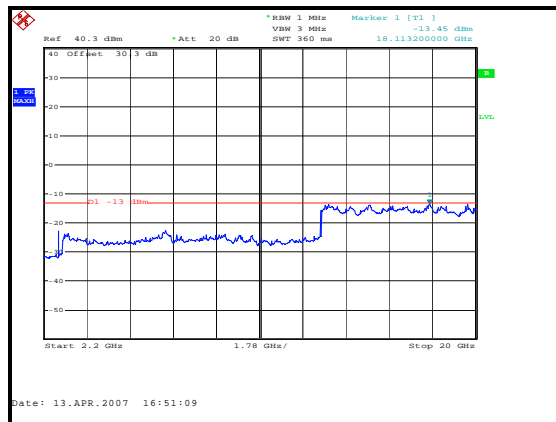


Figure 45: Spurious Emissions - Downlink CDMA Low Channel – Inter-modulation – 2.2 to 20GHz

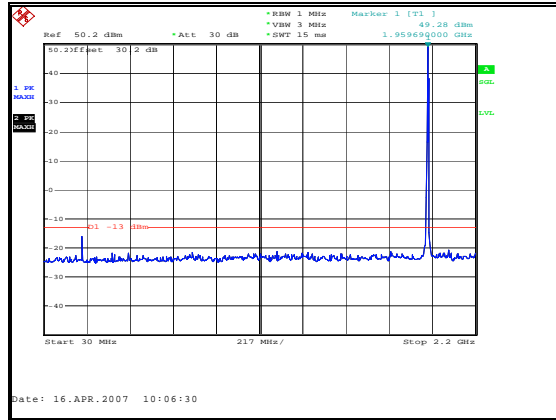


Figure 46: Spurious Emissions - Downlink CDMA Mid Channel – 30MHz to 2.2GHz

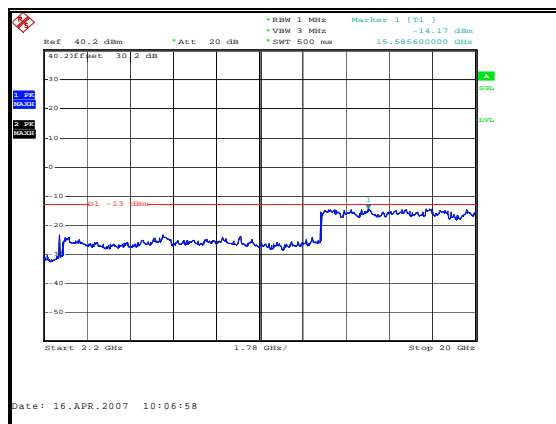


Figure 47: Spurious Emissions - Downlink CDMA Mid Channel – 2.2 to 20GHz

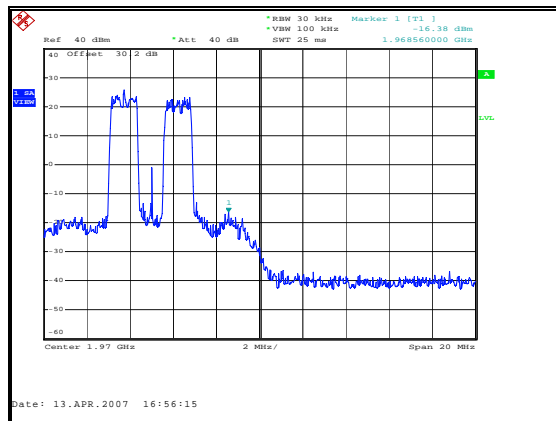


Figure 48: Spurious Emissions - Downlink CDMA High Channel – Inter-modulation In Band

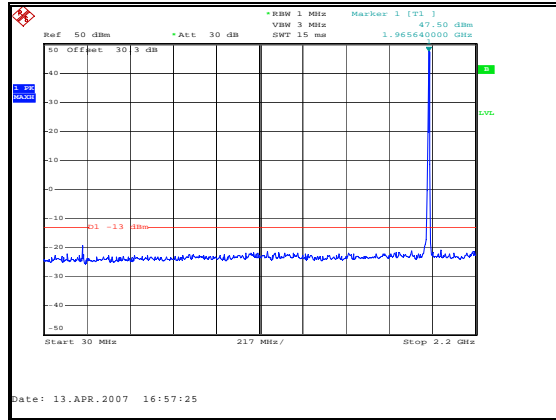


Figure 49: Spurious Emissions-Downlink CDMA High Channel-Inter-modulation-30MHz to 2.2GHz

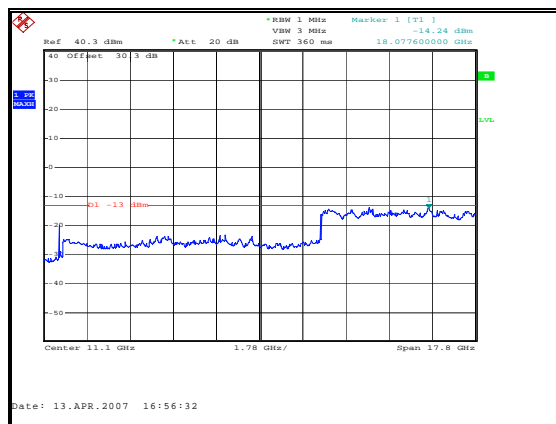


Figure 50: Spurious Emissions - Downlink CDMA High Channel - Inter-modulation - 2.2 to 20GHz

2.5 TDMA Downlink

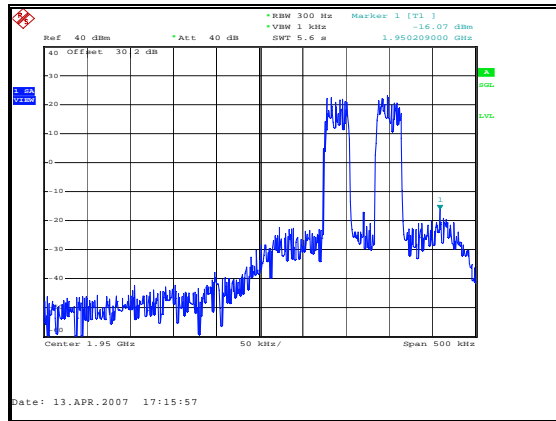


Figure 51: Spurious Emissions - Downlink TDMA Low Channel – Inter-modulation In Band

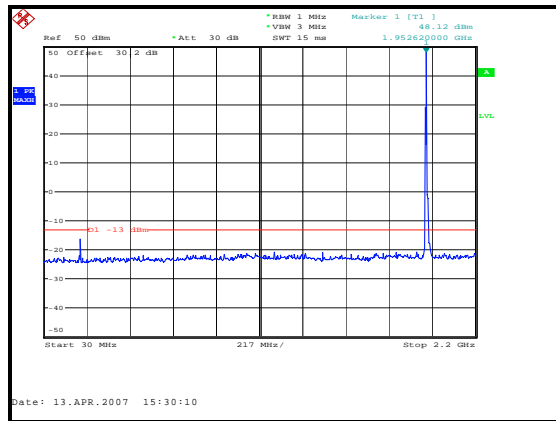


Figure 52: Spurious Emissions - Downlink TDMA Low Channel–Inter-modulation-30MHz to 2.2GHz

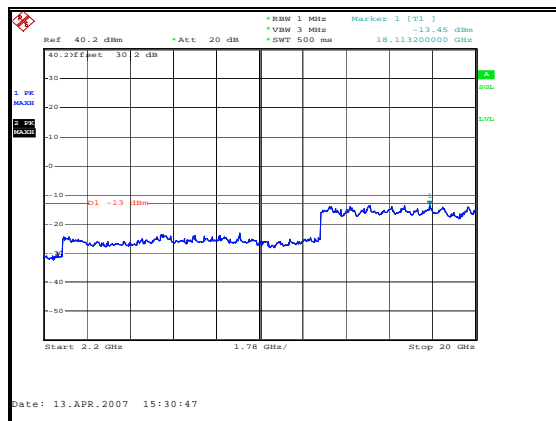


Figure 53: Spurious Emissions - Downlink TDMA Low Channel – Inter-modulation – 2.2 to 20GHz

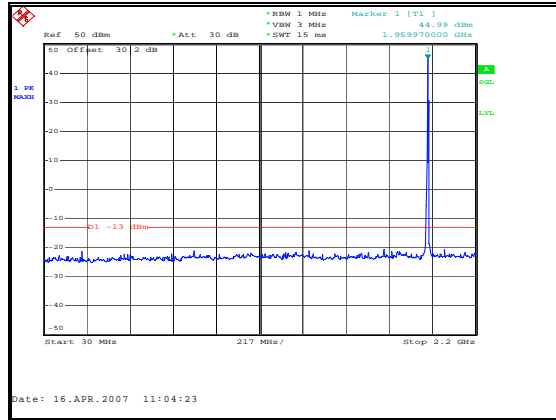


Figure 54: Spurious Emissions - Downlink TDMA Mid Channel – 30MHz to 2.2GHz

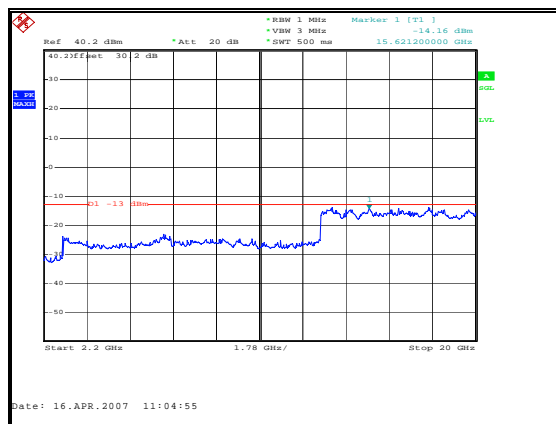


Figure 55: Spurious Emissions - Downlink TDMA Mid Channel – 2.2 to 20GHz

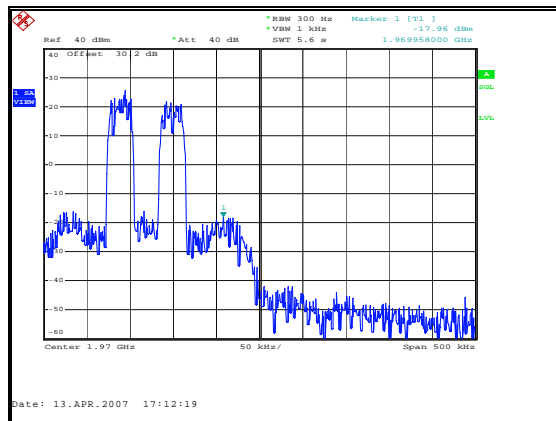


Figure 56: Spurious Emissions - Downlink TDMA High Channel – Inter-modulation In Band

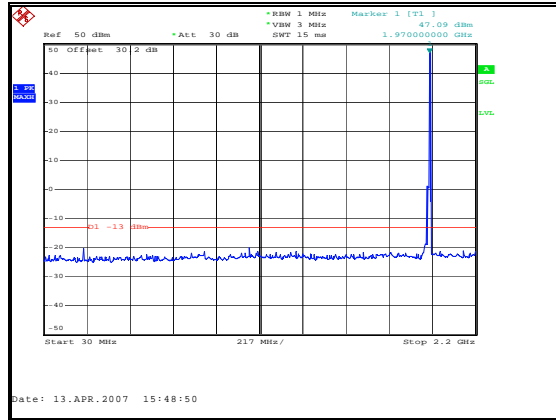


Figure 57: Spurious Emissions-Downlink TDMA High Channel-Inter-modulation-30MHz to 2.2GHz

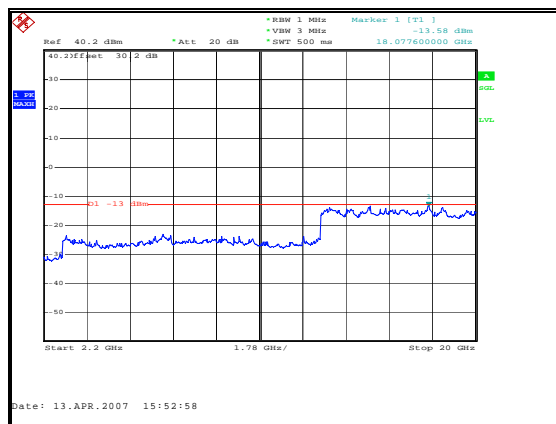


Figure 58: Spurious Emissions - Downlink TDMA High Channel - Inter-modulation - 2.2 to 20GHz

2.6 GSM Downlink

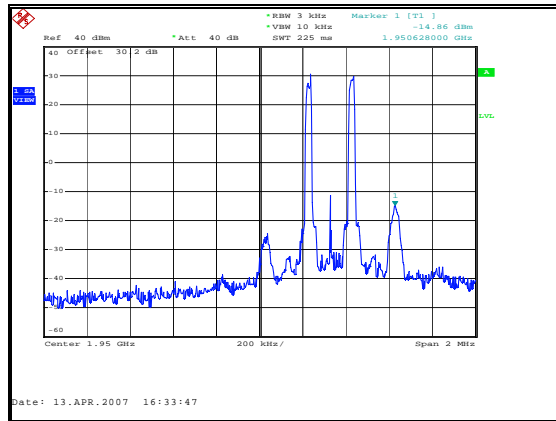


Figure 59: Spurious Emissions - Downlink GSM Low Channel – Inter-modulation In Band

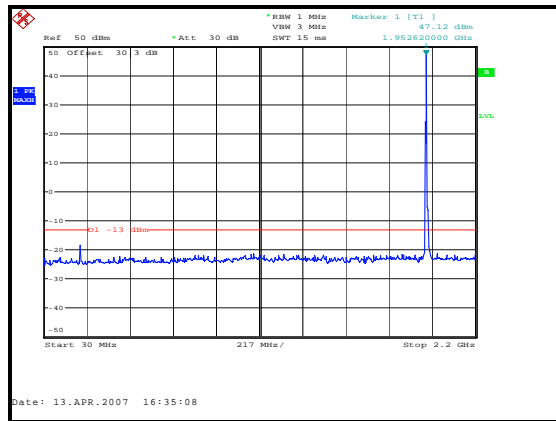


Figure 60: Spurious Emissions - Downlink GSM Low Channel – Inter-modulation-30MHz to 2.2GHz

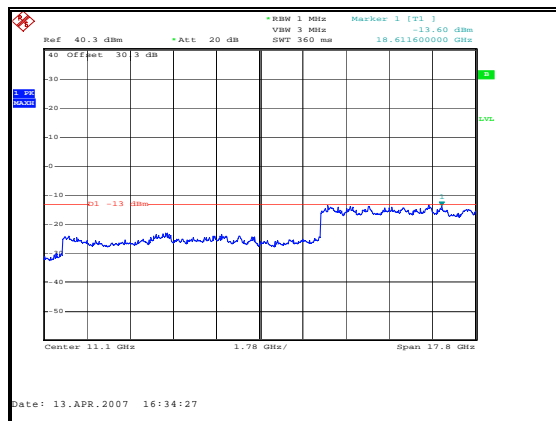


Figure 61: Spurious Emissions - Downlink GSM Low Channel – Inter-modulation – 2.2 to 20GHz



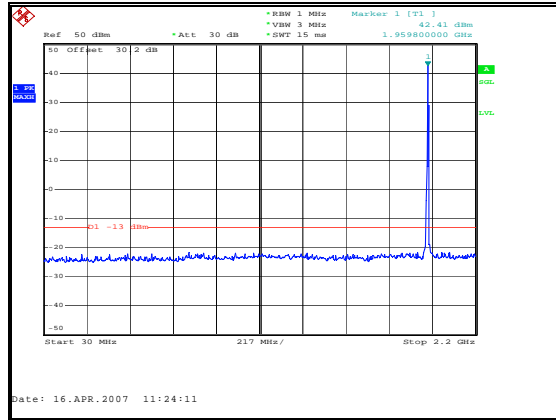


Figure 62: Spurious Emissions - Downlink GSM Mid Channel – 30MHz to 2.2GHz

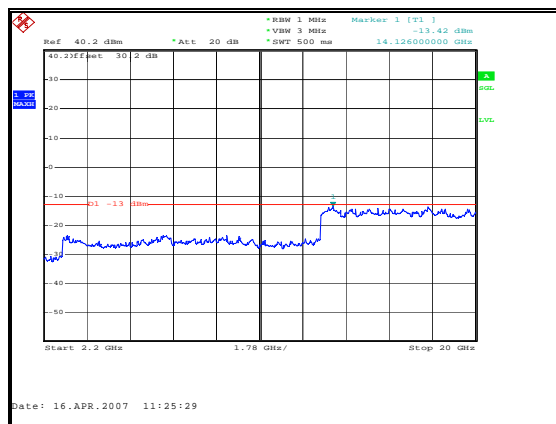


Figure 63: Spurious Emissions - Downlink GSM Mid Channel – 2.2 to 20GHz

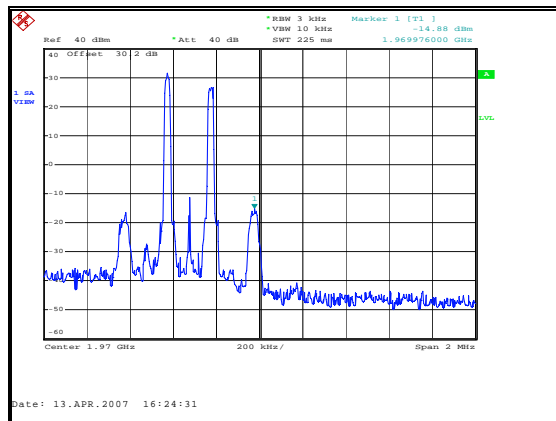


Figure 64: Spurious Emissions - Downlink GSM High Channel – Inter-modulation In Band

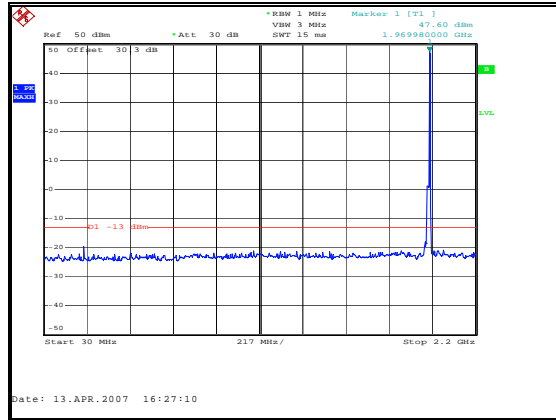


Figure 65: Spurious Emissions - Downlink GSM High Channel – Inter-modulation-30MHz to 2.2GHz

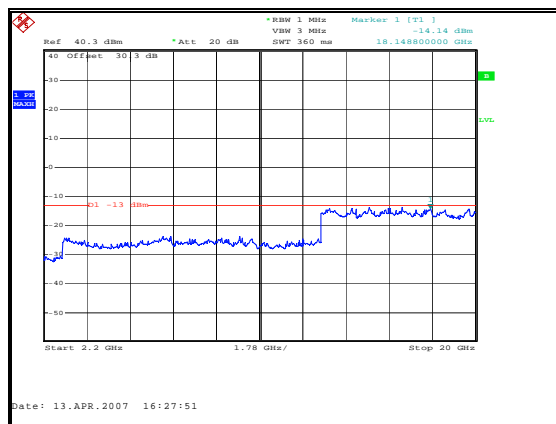


Figure 66: Spurious Emissions - Downlink GSM High Channel – Inter-modulation – 2.2 to 20GHz

### 3.0 Band-edge

#### 3.1 CDMA Uplink

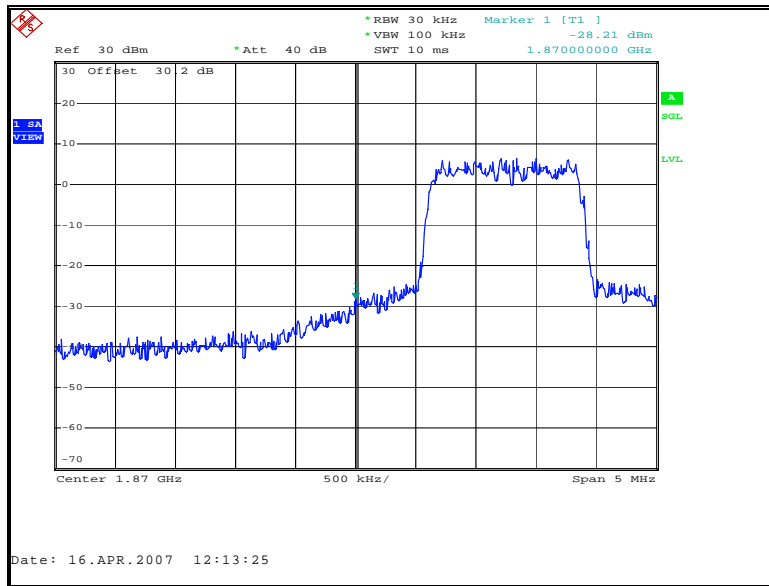


Figure 67: Band-Edge Uplink CDMA Low Channel

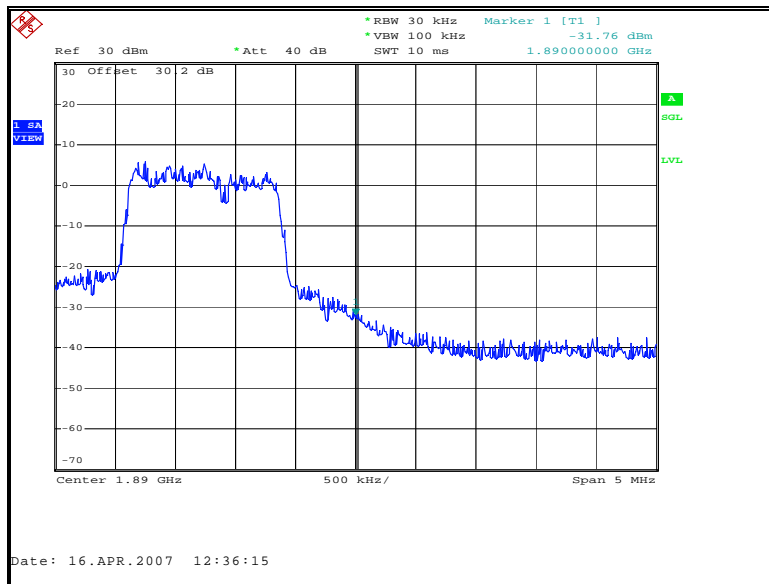


Figure 68: Band-Edge Uplink CDMA High Channel

### 3.2 TDMA Uplink

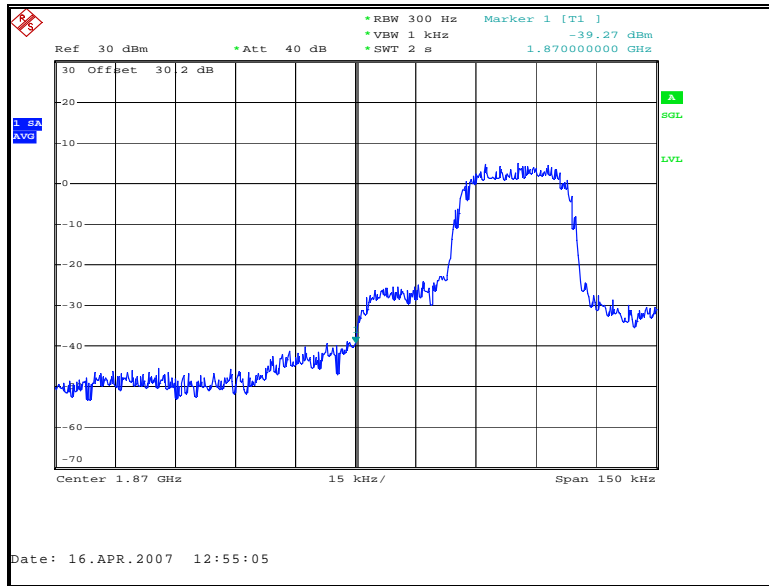


Figure 69: Band-Edge Uplink TDMA Low Channel

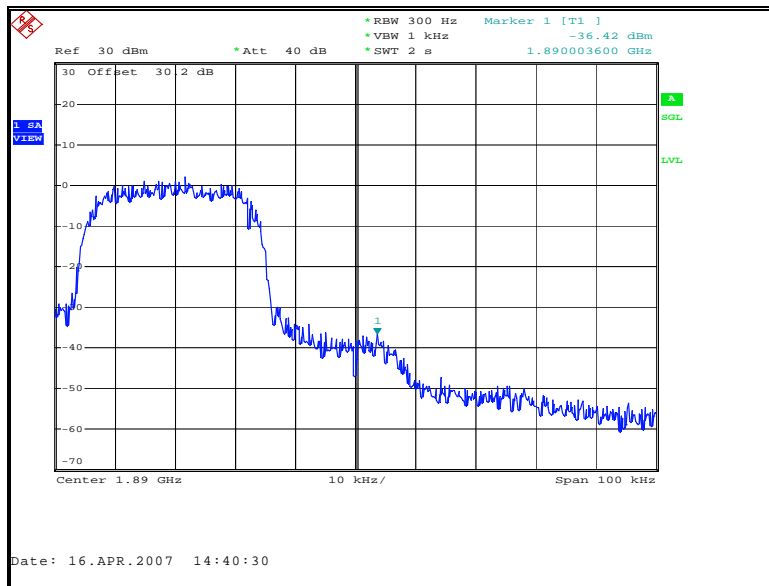


Figure 70: Band-Edge Uplink TDMA High Channel

### 3.3 GSM Uplink

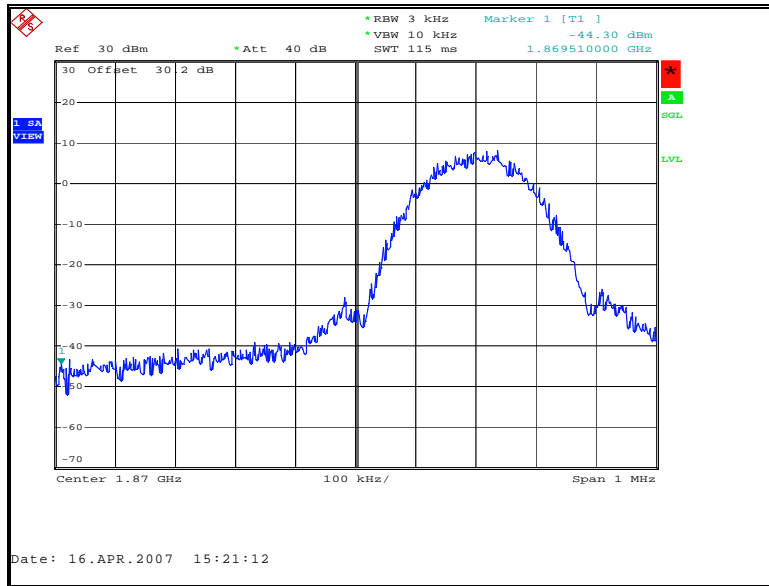


Figure 71: Band-Edge Uplink GSM Low Channel

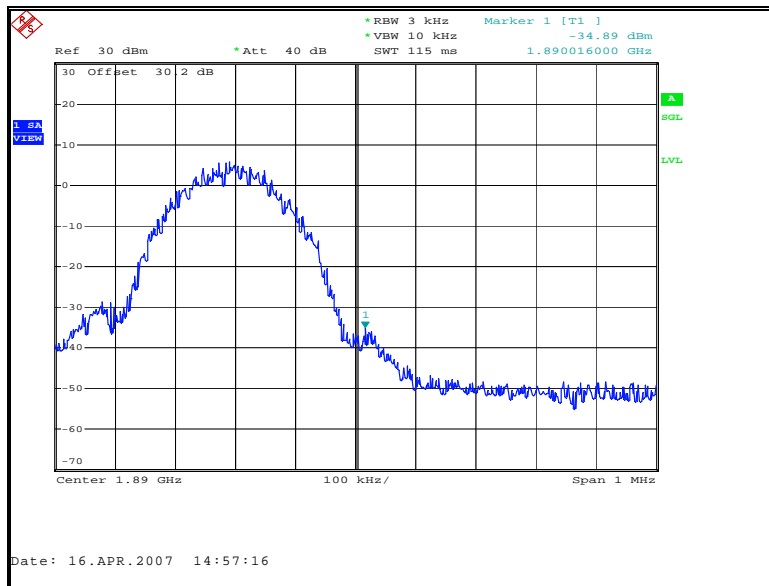


Figure 72: Band-Edge Uplink GSM High Channel

### 3.4 CDMA Downlink

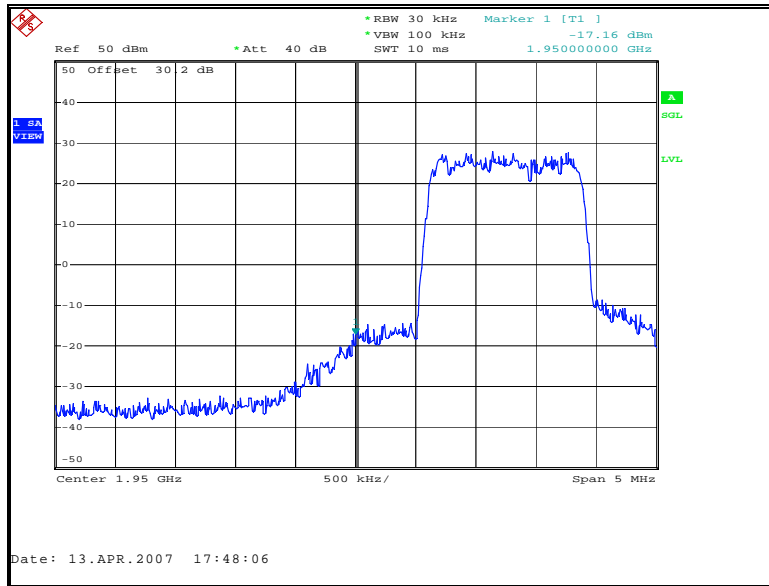


Figure 73: Band-Edge Downlink CDMA Low Channel

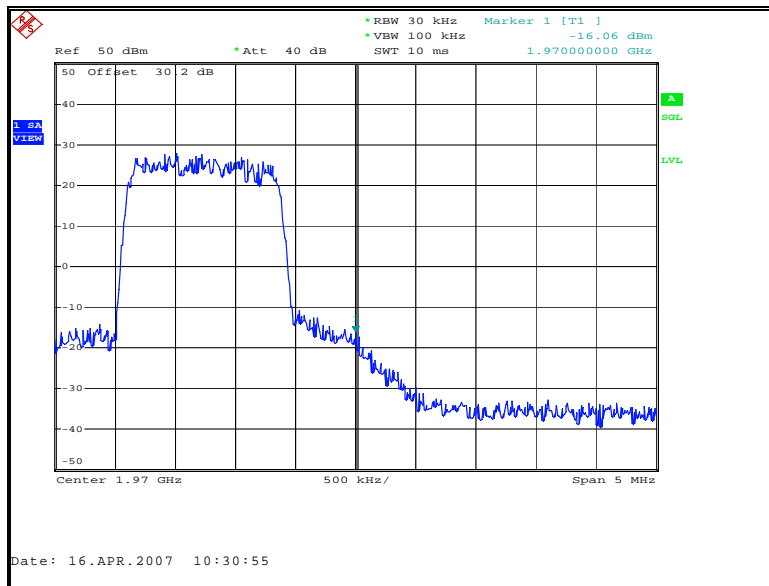


Figure 74: Band-Edge Downlink CDMA High Channel

3.5 TDMA Downlink

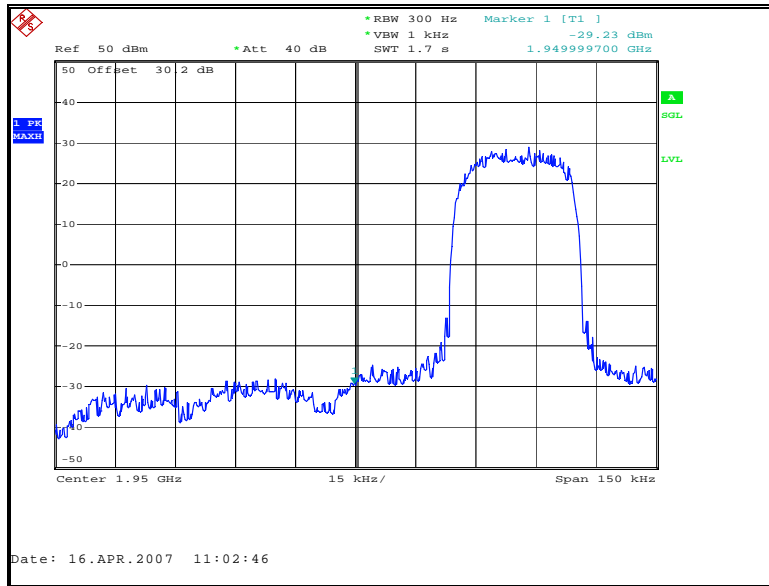


Figure 75: Band-Edge Downlink TDMA Low Channel

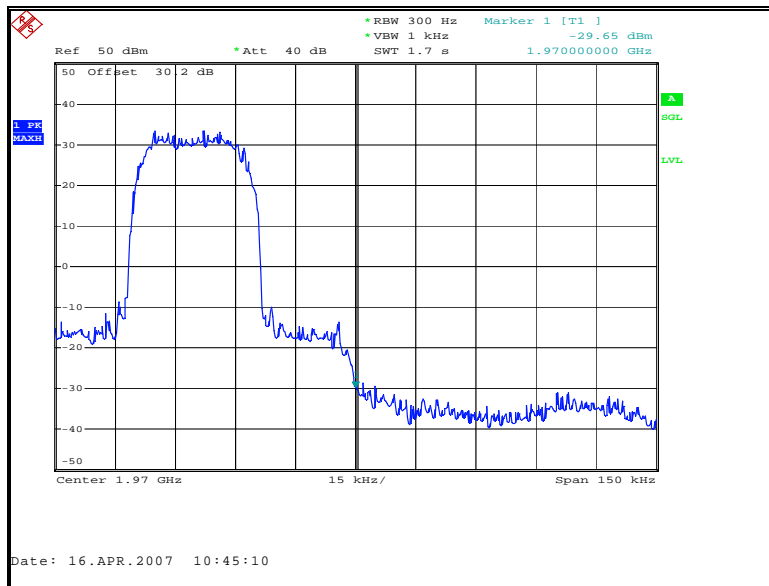


Figure 76: Band-Edge Downlink TDMA High Channel

3.6 GSM Downlink

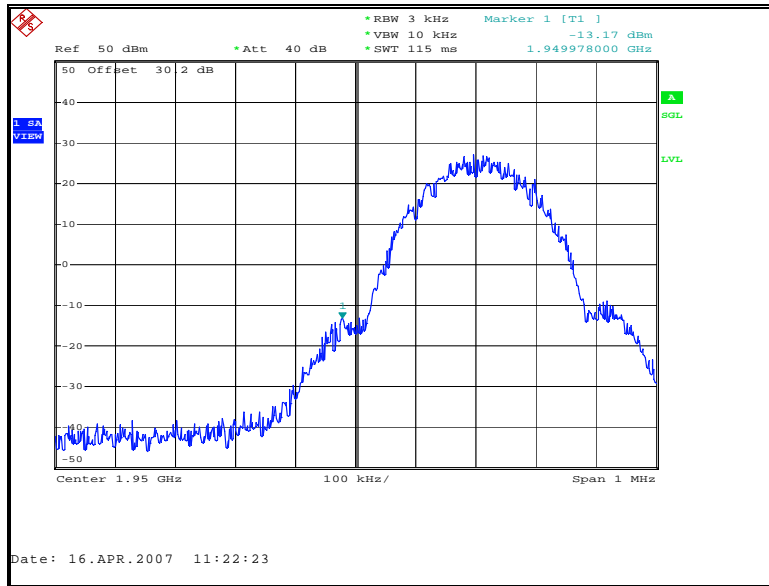


Figure 77: Band-Edge Downlink GSM Low Channel

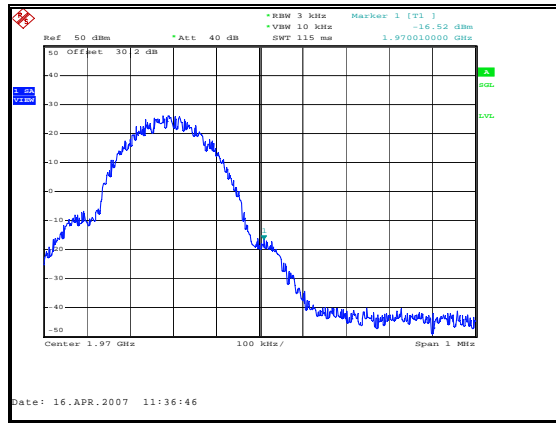


Figure 78: Band-Edge Downlink GSM High Channel

**END REPORT**