



AirCard 881 Additional Test Report

FCC ID: N7NAC881

Prepared by
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September 12, 2007

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1 Introduction

This document provides additional test data for AirCard 881 wireless modem in response to FCC's request. All measurements in this report were made in HSPA Sub-Test 5 as we have observed it represents the worst-case scenario. Please refer to the previously submitted test report for test setup, test parameters, and all other equipment details.

2 Test Summary

Test	FCC RULE	DESCRIPTION OF TEST	RESULT	PAGE
1	2.1049	OBW	Complies	4 - 7
2	22.917 24.238	Emission	Complies	8 - 20
3	22H/24E	Block Edge	Complies	21 - 23

The tests described in this report were performed by Mr. Philip Wright at:

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3 Occupied Bandwidth

FCC 2.1046

3.1 Test Results

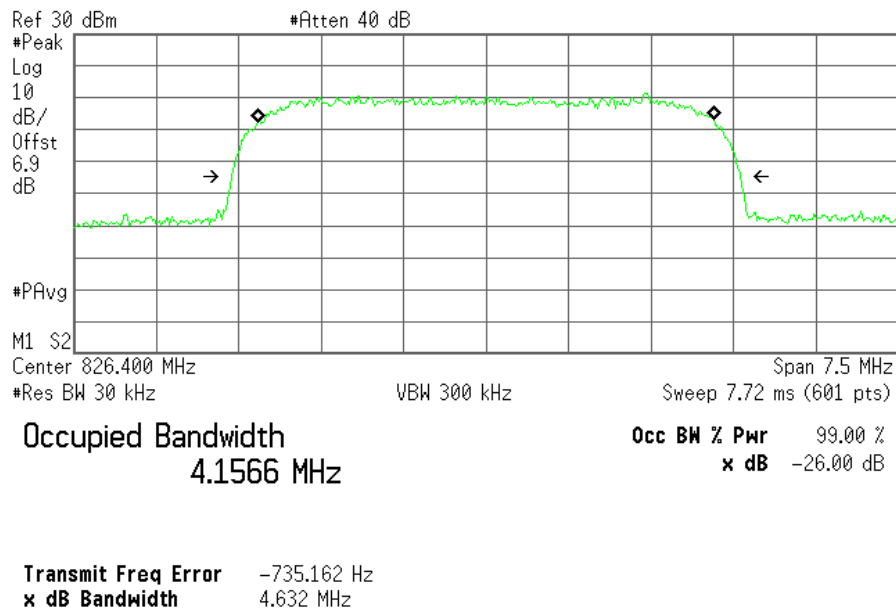
Performance of the UMTS 850 HSPA and UMTS 1900 HSPA are shown below.

Frequency (MHz)	Channel	99% Occupied Bandwidth (MHz)	-26dBc Occupied Bandwidth (MHz)
826.4	4132	4.1566	4.632
836.4	4182	4.1582	4.618
846.6	4233	4.1654	4.638
1852.4	9262	4.1623	4.627
1880.0	9400	4.1726	4.641
1907.6	9538	4.1654	4.643

HSPA Occupied Bandwidth, Cellular Low channel 4132, 826.4 MHz, 99% bandwidth

Agilent 16:42:24 11 Sep 2007

L



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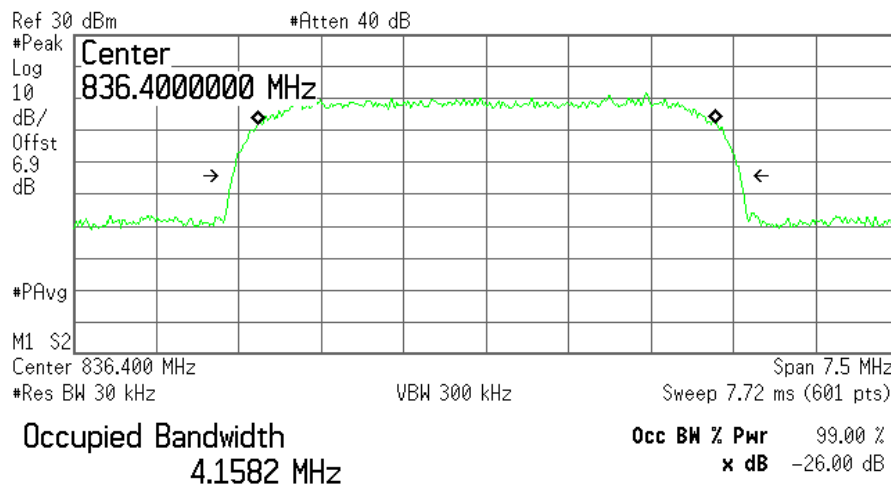
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HSPA Occupied Bandwidth, Cellular Middle channel 4182, 836.4 MHz, 99% bandwidth

* Agilent 16:47:41 11 Sep 2007

L

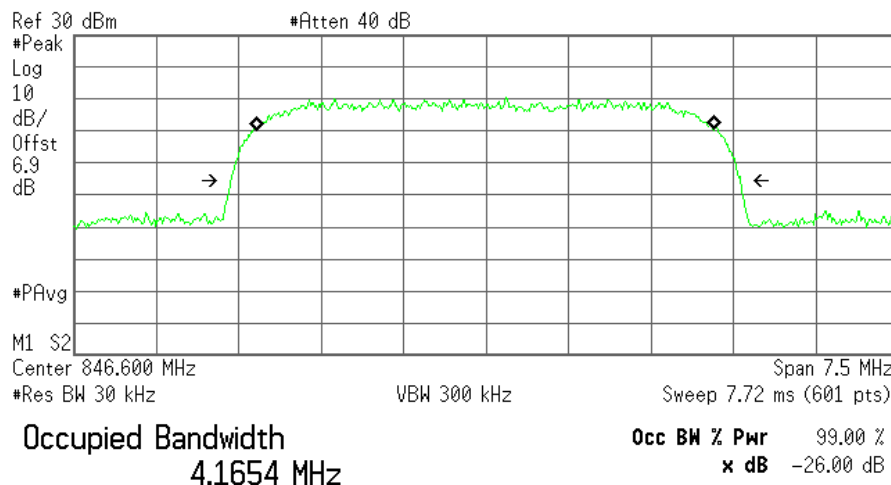


Transmit Freq Error 9.157 kHz
x dB Bandwidth 4.618 MHz

HSPA Occupied Bandwidth, Cellular High channel 4233, 846.6 MHz, 99% bandwidth

* Agilent 10:34:34 12 Sep 2007

L



Transmit Freq Error -4.381 kHz
x dB Bandwidth 4.638 MHz

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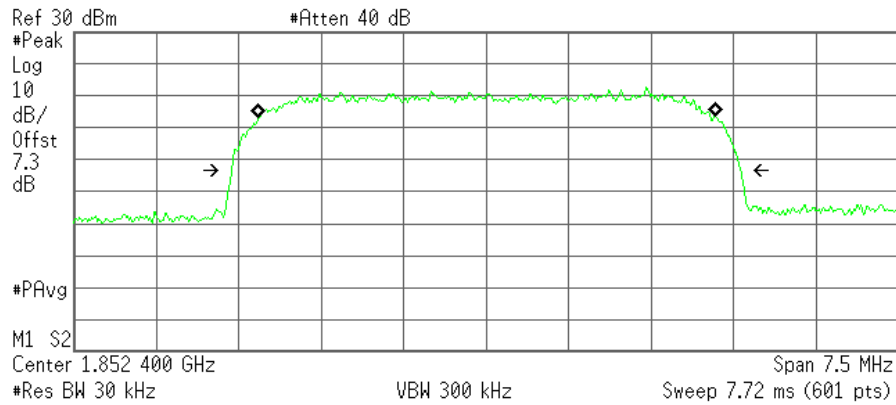
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HSPA Occupied Bandwidth, PCS Low channel 9262, 1852.4 MHz, 99% bandwidth

* Agilent 10:31:43 12 Sep 2007

L



Occupied Bandwidth
4.1623 MHz

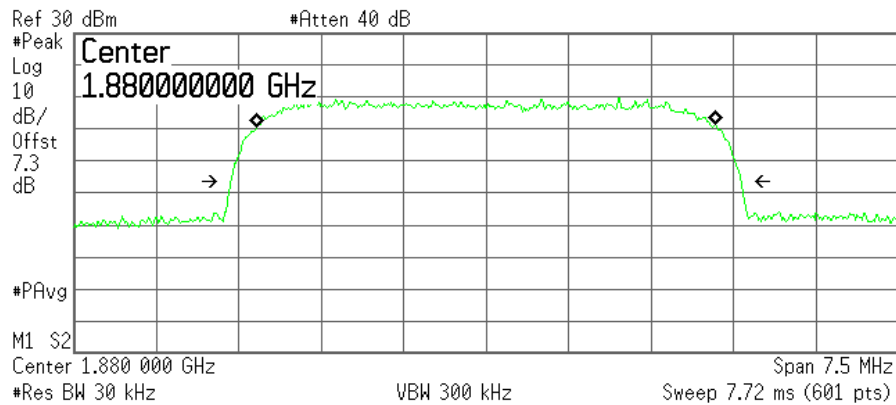
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 11.976 kHz
x dB Bandwidth 4.627 MHz

HSPA Occupied Bandwidth, PCS Middle channel 9400, 1880 MHz, 99% bandwidth

* Agilent 17:07:08 11 Sep 2007

L



Occupied Bandwidth
4.1726 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 2.485 kHz
x dB Bandwidth 4.641 MHz

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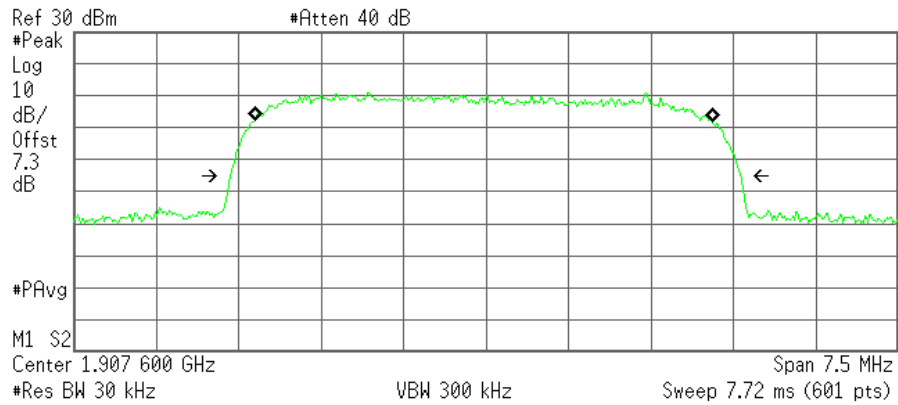
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HSPA Occupied Bandwidth, PCS High channel 9538, 1907.6 MHz, 99% bandwidth

* Agilent 17:21:06 11 Sep 2007

L



Occupied Bandwidth
4.1654 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -21.610 kHz
x dB Bandwidth 4.643 MHz

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4 Out of Band Emissions at Antenna Terminals

FCC 22.901(d), 22.917, 24.238(a)

4.1 Test Results

Refer to the following plots.

- **UMTS Cellular Band**

Plot Number	Description
4.2.1 – 4.2.3	HSPA Mode, Low Channel, 826.4 MHz
4.2.4 – 4.2.6	HSPA Mode, Middle Channel, 836.4 MHz
4.2.7 – 4.2.9	HSPA Mode, High Channel, 846.6 MHz

- **UMTS PCS Band**

Plot Number	Description
4.2.10 – 4.2.12	HSPA Mode, Low Channel, 1852.4 MHz
4.2.13 – 4.2.15	HSPA Mode, Middle Channel, 1880.0 MHz
4.2.16– 4.2.18	HSPA Mode, High Channel, 1907.6 MHz

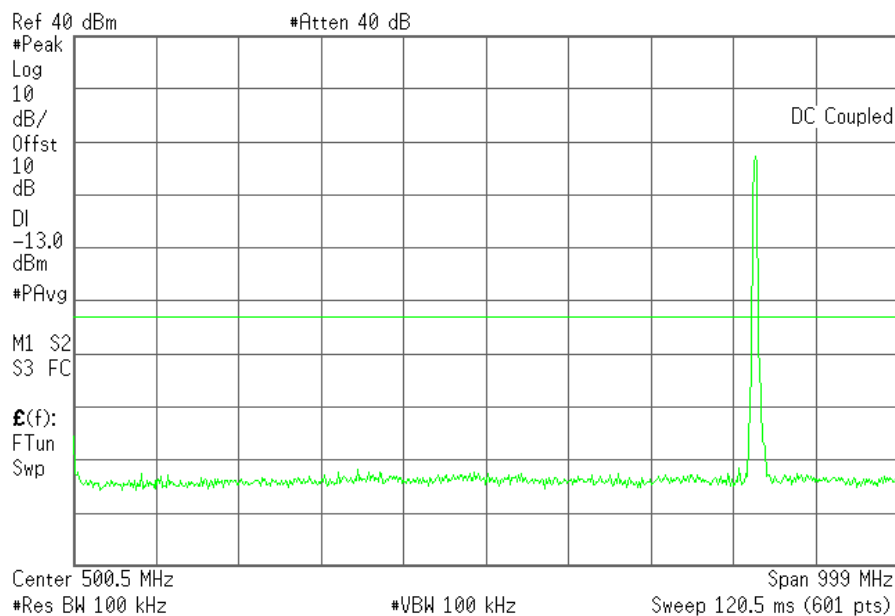
4.2 Test Plots

Plot 4.2.1) Out of Band Emissions at Antenna Terminals

HSPA, Low channel 4132, 826.4 MHz, 1 MHz to 1 GHz

✱ Agilent 08:38:44 12 Sep 2007

L



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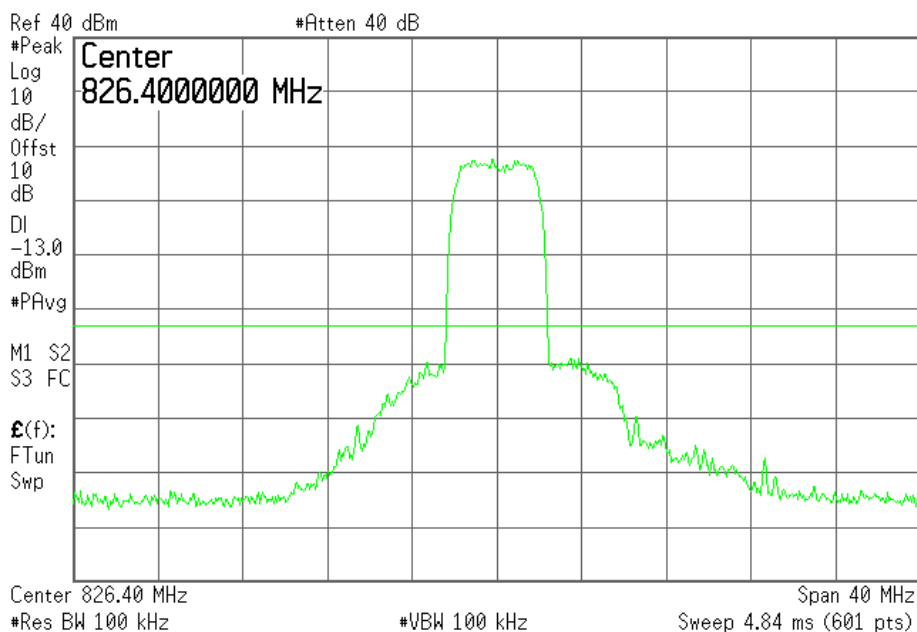
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Plot 4.2.2) Out of Band Emissions at Antenna Terminals

HSPA, Low channel 4132, 826.4 MHz, TX signal +/- 20 MHz

* Agilent 08:39:39 12 Sep 2007

L



The strong emission shown in each case is the carrier signal.

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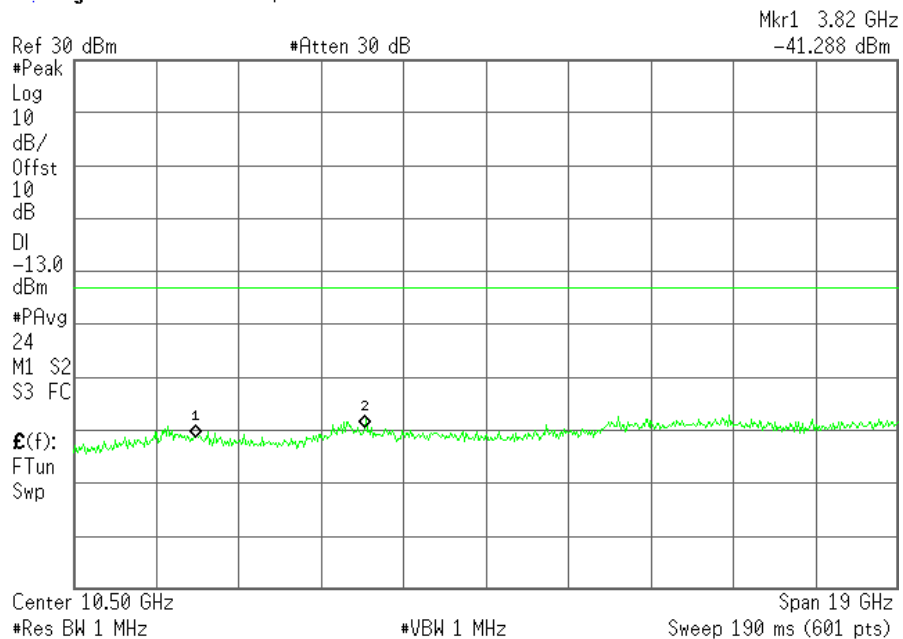
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Plot 4.2.3) Out of Band Emissions at Antenna Terminals

HSPA, Low channel 4132, 826.4 MHz, 1 GHz to 20 GHz

Agilent 08:40:29 12 Sep 2007

L



Cellular Harmonics for Ch. 128 (824.2 MHz)	Level (dBm)
Second	--
Third	--
All others	< -30dBm up to 20GHz

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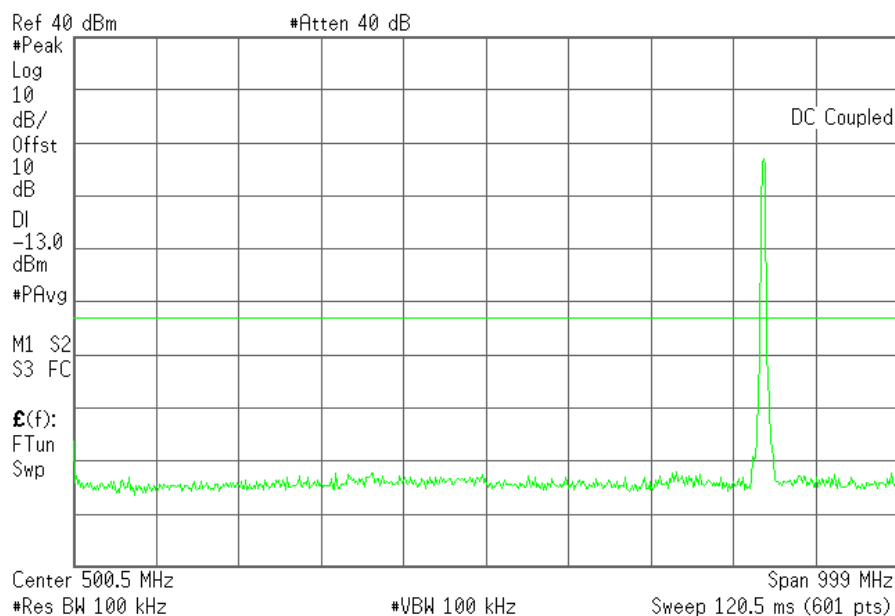
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Plot 4.2.4) Out of Band Emissions at Antenna Terminals

HSPA, Middle channel 4182, 836.4 MHz, 1 MHz to 1 GHz

* Agilent 08:22:27 12 Sep 2007

L

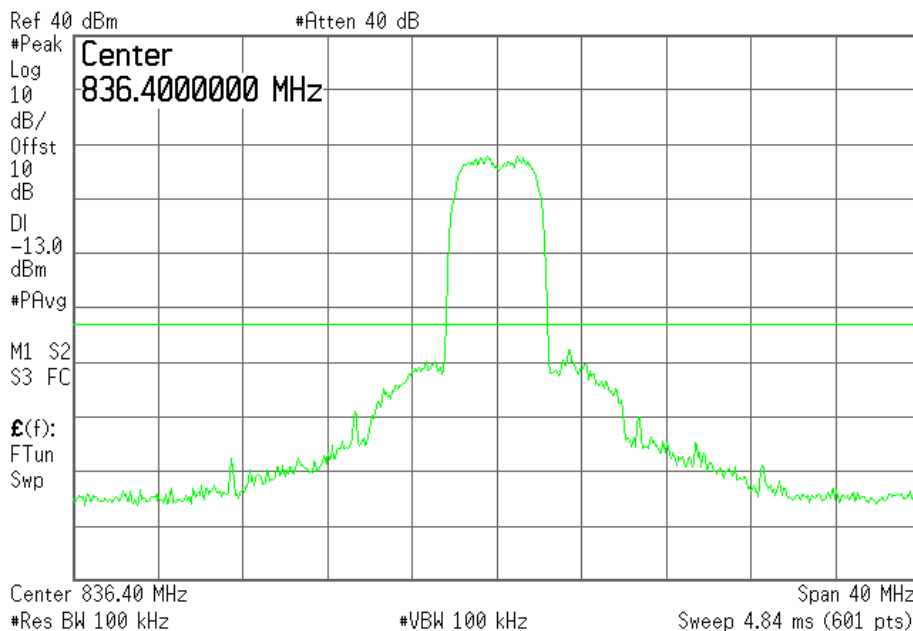


Plot 4.2.5) Out of Band Emissions at Antenna Terminals

HSPA, Middle channel 4182, 836.4 MHz, TX signal +/- 20 MHz

* Agilent 08:21:28 12 Sep 2007

L



The strong emission shown in each case is the carrier signal.

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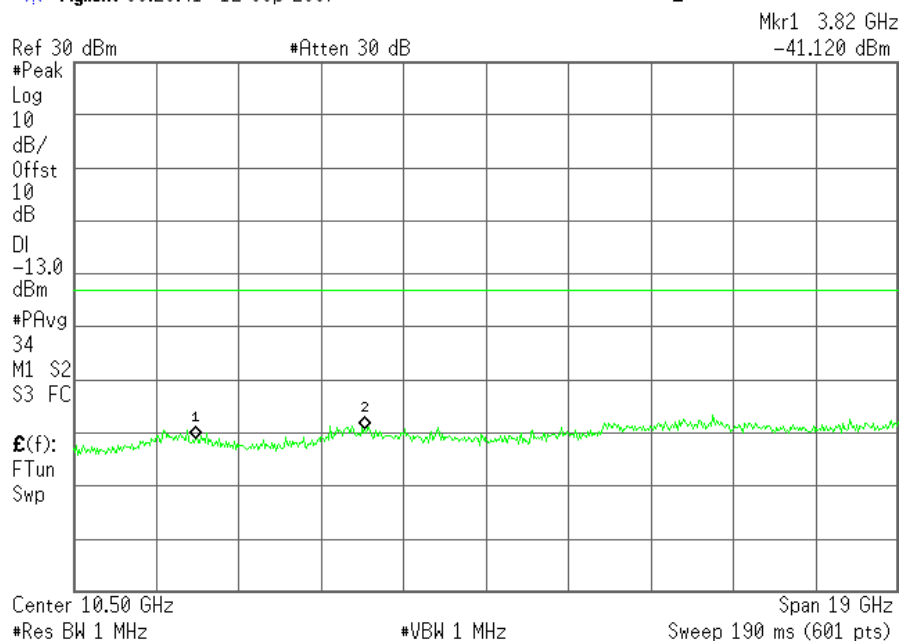
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Plot 4.2.6) Out of Band Emissions at Antenna Terminals

HSPA, Middle channel 4182, 836.4 MHz, 1 GHz to 20 GHz

* Agilent 08:20:41 12 Sep 2007

L



Cellular Harmonics for Ch. 190 (836.6 MHz)	Level (dBm)
Second	--
Third	--
All others	< -30dBm up to 20GHz

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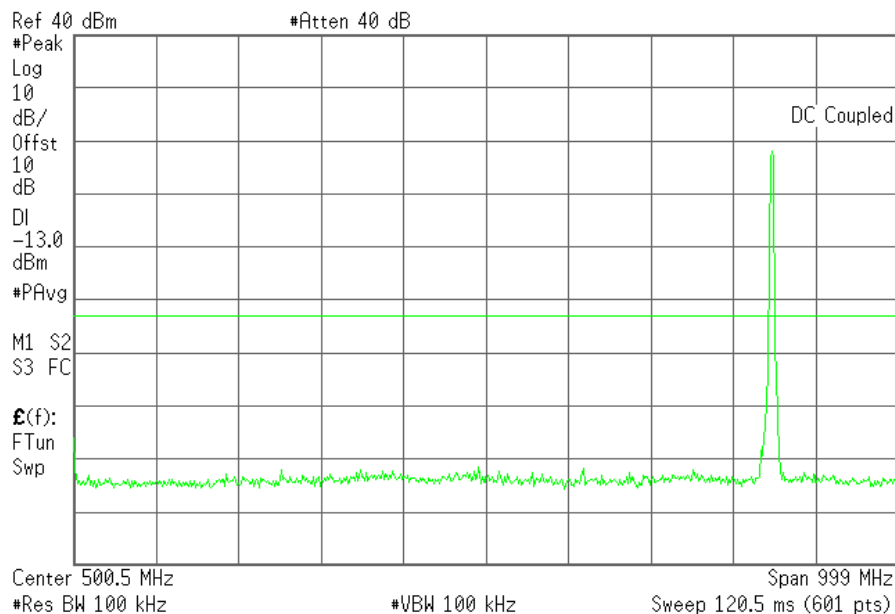
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Plot 4.2.7) Out of Band Emissions at Antenna Terminals

HSPA, High Channel 4233, 846.6 MHz, 1 MHz to 1 GHz

* Agilent 08:16:01 12 Sep 2007

L

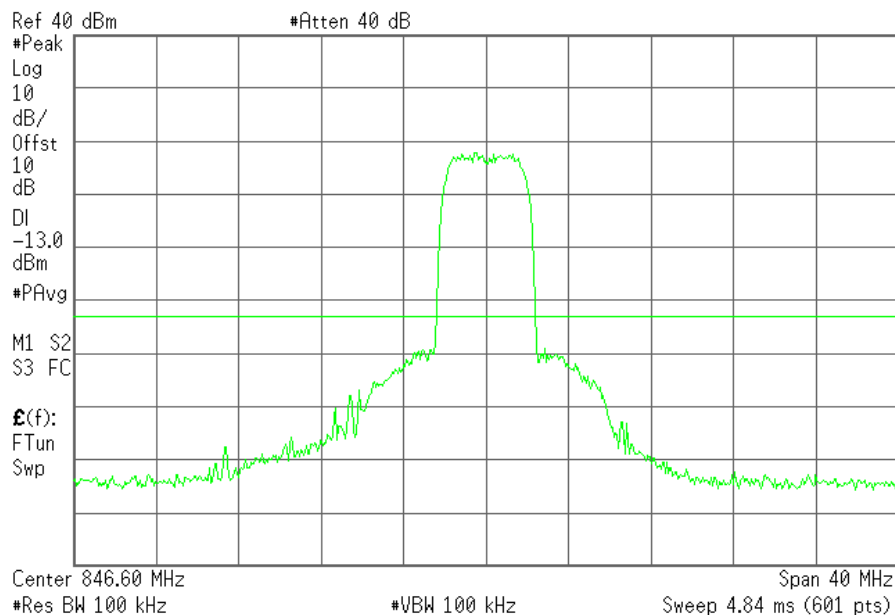


Plot 4.2.8) Out of Band Emissions at Antenna Terminals

HSPA, High Channel 4233, 846.6 MHz, TX signal +/- 20 MHz

* Agilent 08:18:11 12 Sep 2007

L



The strong emission shown in each case is the carrier signal.

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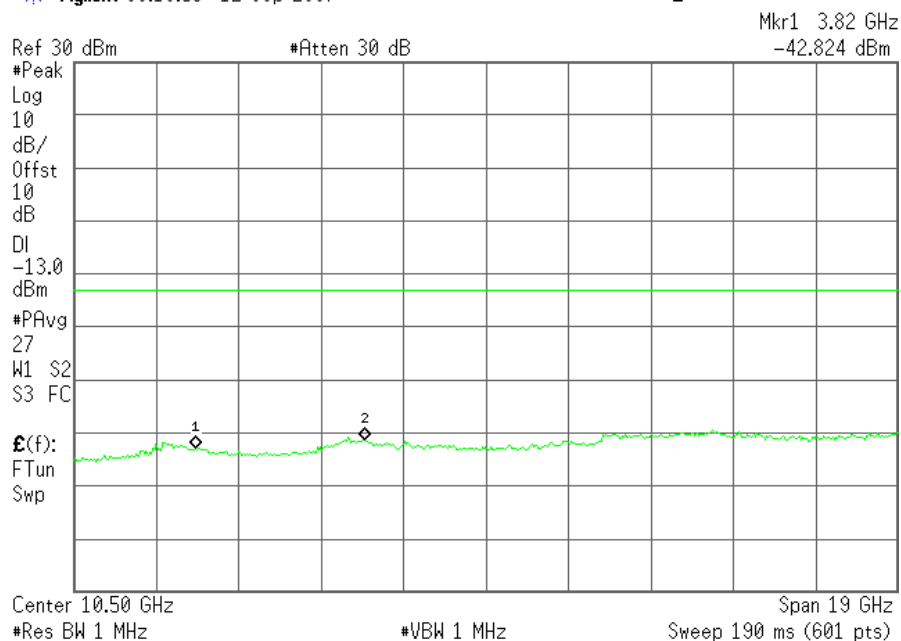
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Plot 4.2.9) Out of Band Emissions at Antenna Terminals

HSPA, High Channel 4233, 846.6 MHz, 1 GHz to 20 GHz

* Agilent 08:18:53 12 Sep 2007

L



Cellular Harmonics for Ch. 251 (848.8 MHz)	Level (dBm)
Second	--
Third	--
All others	< -30dBm up to 20GHz

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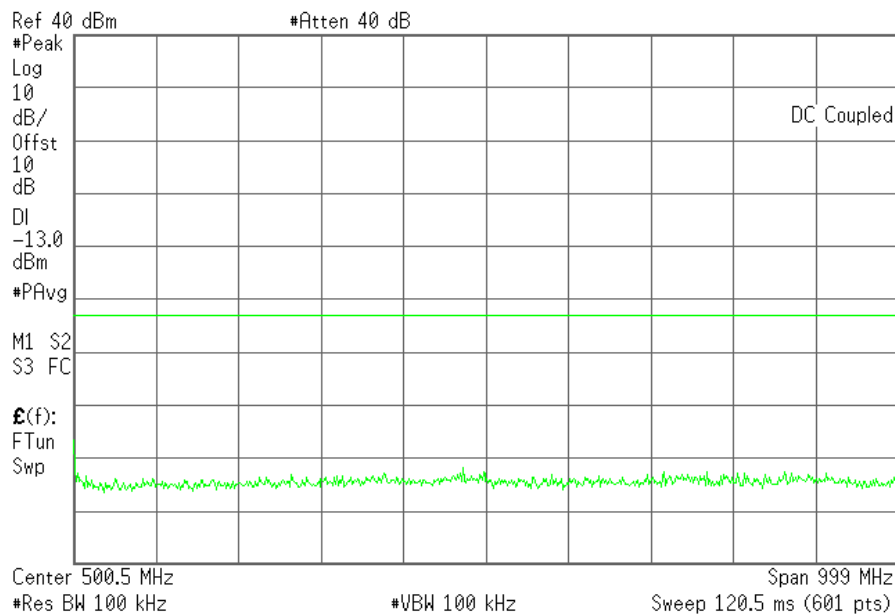
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Plot 4.2.10) Out of Band Emissions at Antenna Terminals

HSPA, Low channel 9262, 1852.4 MHz, 1 MHz to 1 GHz

Agilent 08:05:54 12 Sep 2007

L

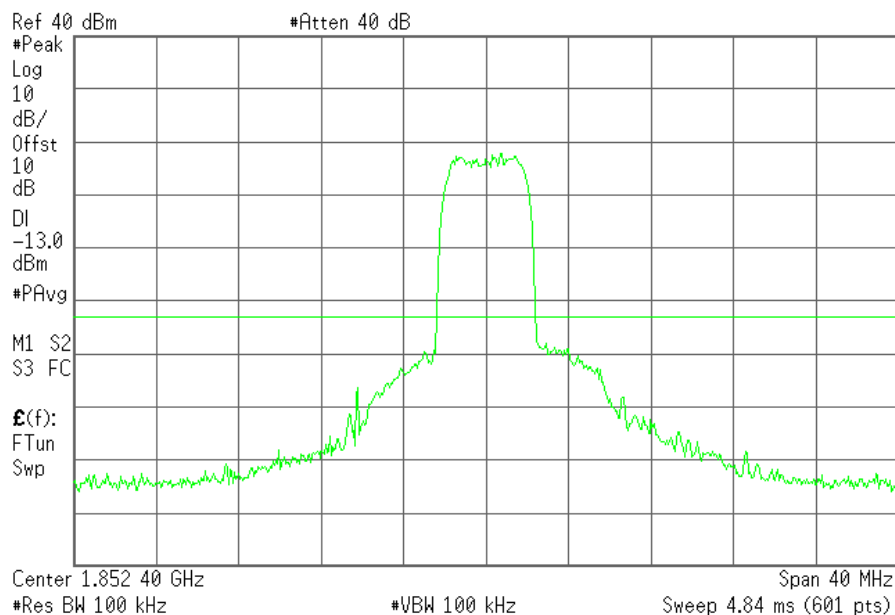


Plot 4.2.11) Out of Band Emissions at Antenna Terminals

HSPA, Low channel 9262, 1852.4 MHz, TX signal +/- 20 MHz

Agilent 08:05:11 12 Sep 2007

L



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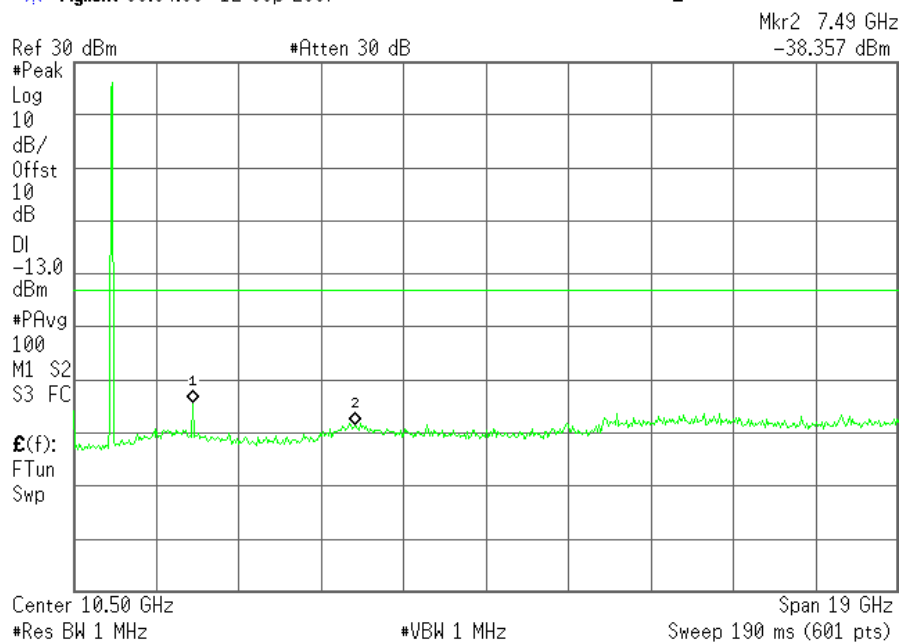
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Plot 4.2.12) Out of Band Emissions at Antenna Terminals

HSPA, Low channel 9262, 1852.4 MHz, 1 GHz to 20 GHz

* Agilent 08:04:06 12 Sep 2007

L



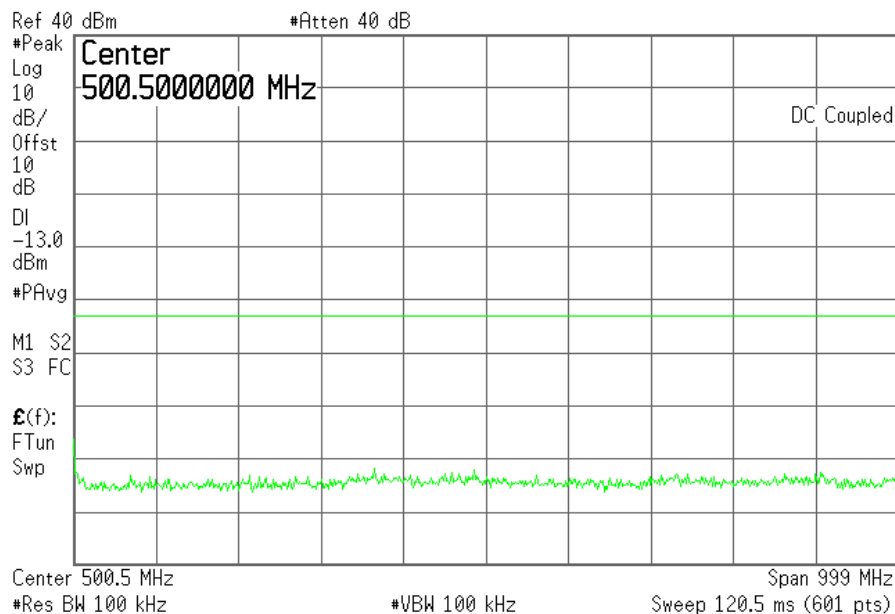
The strong emission shown is the carrier signal.

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Plot 4.2.13) Out of Band Emissions at Antenna Terminals

HSPA, Middle channel 9400, 1880 MHz, 1 MHz to 1 GHz

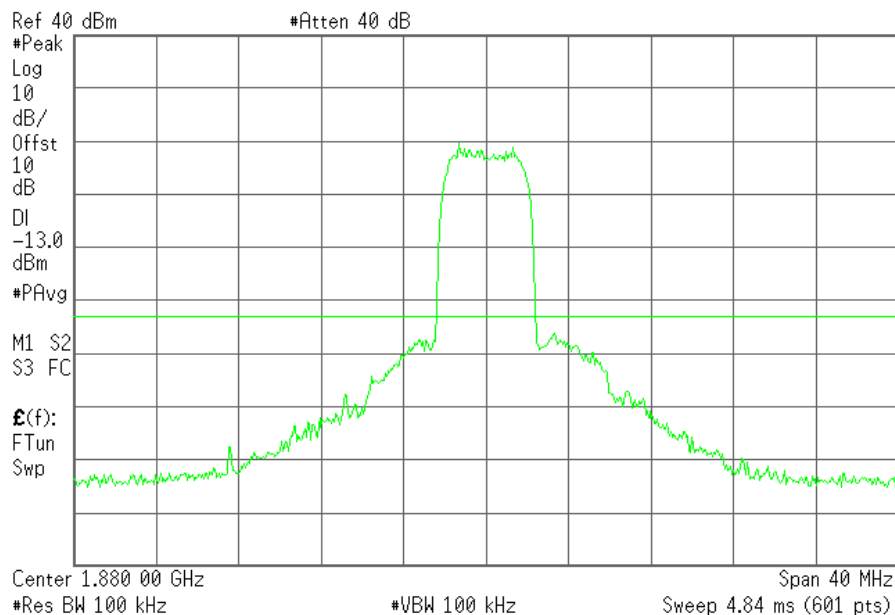
* Agilent 08:00:20 12 Sep 2007 L



Plot 4.2.14) Out of Band Emissions at Antenna Terminals

HSPA, Middle channel 9400, 1880 MHz, TX signal +/- 20 MHz

* Agilent 07:59:11 12 Sep 2007 L



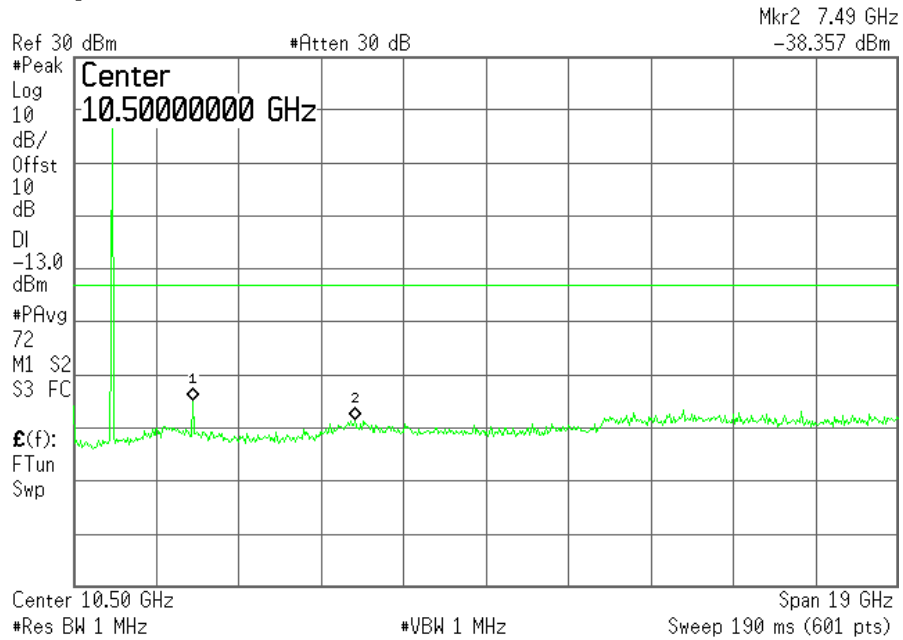
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Plot 4.2.15) Out of Band Emissions at Antenna Terminals

HSPA, Middle channel 9400, 1880 MHz, 1 GHz to 20 GHz

* Agilent 08:02:00 12 Sep 2007

L



The strong emission shown is the carrier signal.

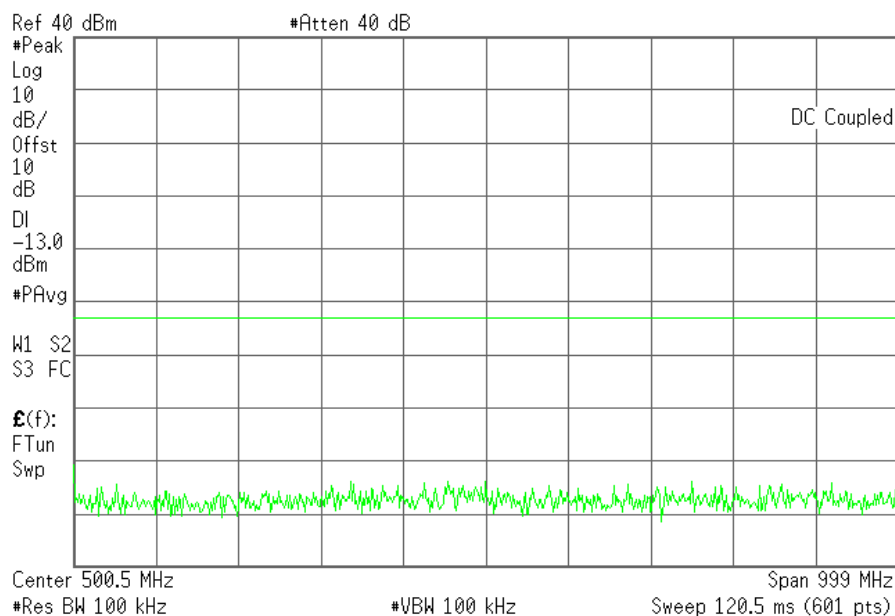
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Plot 4.2.16) Out of Band Emissions at Antenna Terminals

HSPA, High channel 9538, 1907.6 MHz, 1 MHz to 1 GHz

* Agilent 17:30:40 11 Sep 2007

L

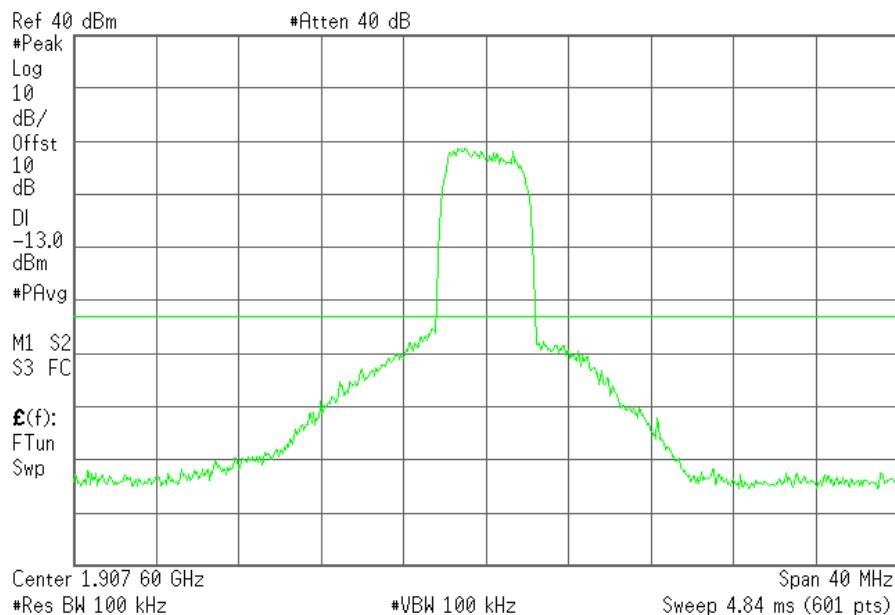


Plot 4.2.17) Out of Band Emissions at Antenna Terminals

HSPA, High channel 9538, 1907.6 MHz, TX signal +/- 20 MHz

* Agilent 17:35:11 11 Sep 2007

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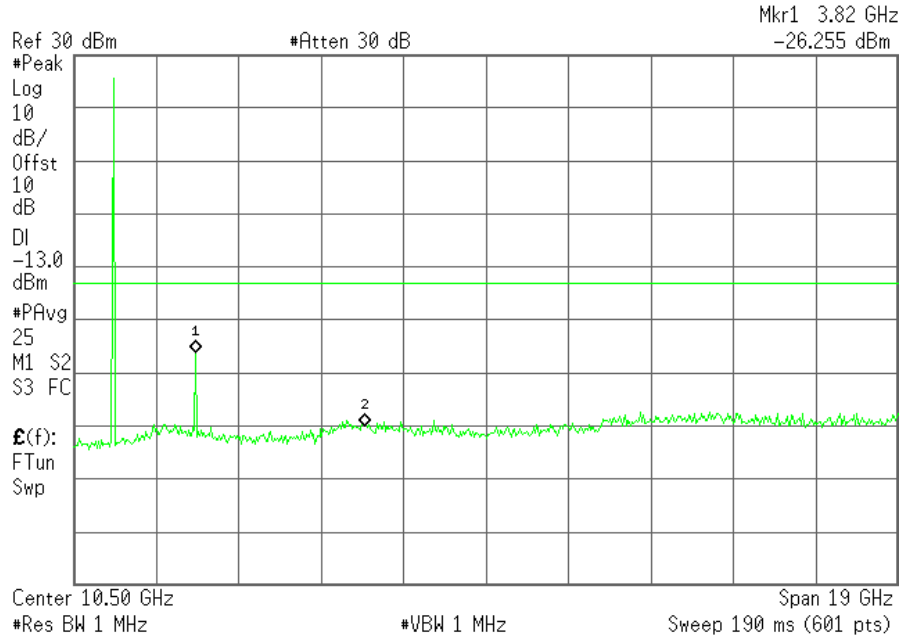
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Plot 4.2.18) Out of Band Emissions at Antenna Terminals

HSPA, High channel 9538, 1907.6 MHz, 1 GHz to 20 GHz

* Agilent 17:36:30 11 Sep 2007

L



The strong emission shown is the carrier signal.

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5 Block Edge Compliance

FCC part 22H/24E

5.1 Test Results

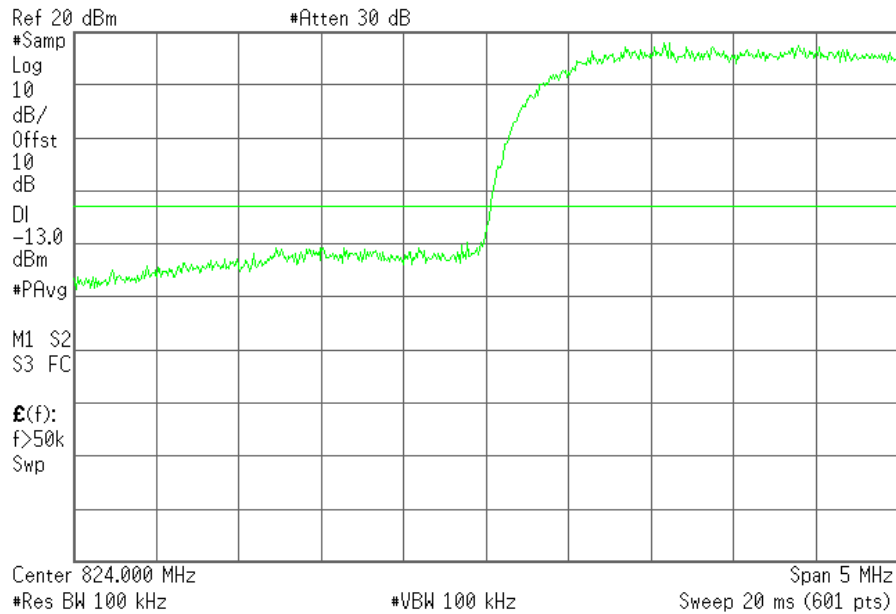
Block Test	Frequency Boundaries (MHz)	Channels Tested	Corresponding Plots	Result
1	HSPA: Below 824MHz, above 849MHz	4132, 4233	5.2.1, 5.2.2	Complies
2	HSPA: Below 1850MHz, above 1910MHz	9262, 9538	5.2.3, 5.2.4	Complies

5.2 Test Plots

Plot 5.2.1) HSPA; Cellular low channel, below 824 MHz

Agilent 08:42:46 12 Sep 2007

L

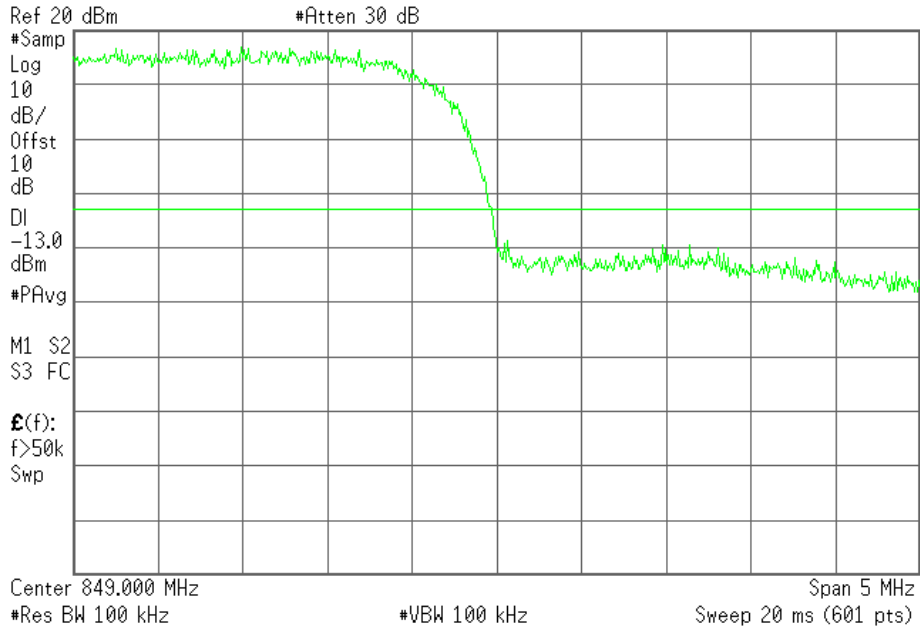


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Plot 5.2.2) HSPA; Cellular high channel, above 849 MHz

* Agilent 08:47:00 12 Sep 2007

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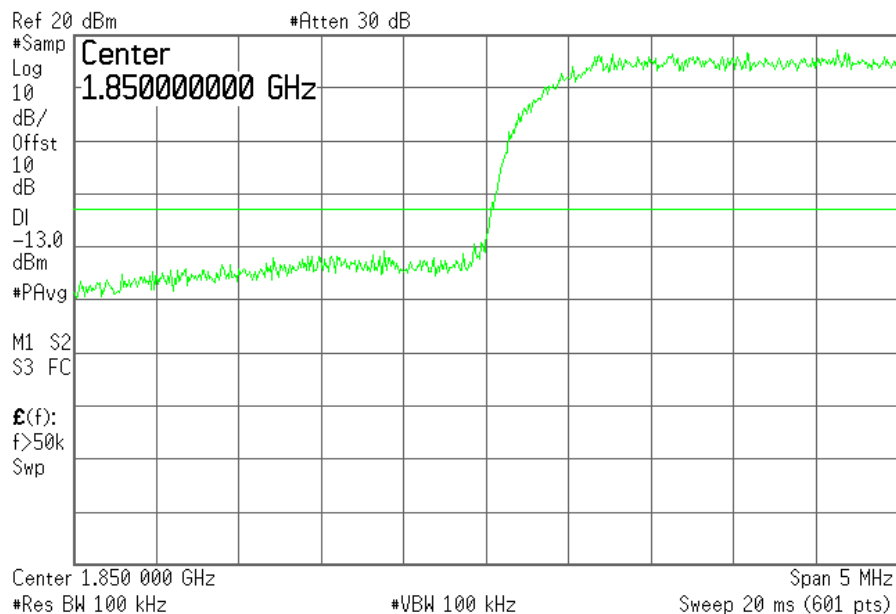
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Plot 5.2.3) HSPA; PCS low channel, below 1850 MHz

* Agilent 08:49:11 12 Sep 2007

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Plot 5.2.4) HSPA; PCS high channel, above 1910 MHz

* Agilent 08:50:46 12 Sep 2007

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