



Test Report: 6W65937

Applicant: Dekolink Wireless
16 Bazel St., Qiryat Arie
Petah Tikva
49510 Israel

Apparatus: Deko2119 PCS Mini-Repeater
(P/N: MW-CCSR-PCS-1W80-XX-YY-ZZ)

FCC ID: OIWCCSRPCS1W80

In Accordance With: FCC Part 24 Booster,
Subpart E Broadband PCS

Tested By: Nemko Canada Inc.
303 River Road
Ottawa, Ontario
K1V 1H2

Authorized By: 
Jin Xu, Wireless Specialist

Date: June 7, 2006

Total Number of Pages: 31

Report Summary

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 24. Conducted measurements were performed in accordance with ANSI TIA-603-B-2002. Radiated tests were conducted in accordance with ANSI C63.4-2003. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

The assessment summary is as follows:

Apparatus Assessed:	Deko2119 PCS Mini-Repeater (P/N: MW-CCSR-PCS-1W80-XX-YY-ZZ)
Specification:	FCC Part 24 Subpart E Broadband PCS
Compliance Status:	Complies
Exclusions:	None
Non-compliances:	None
Report Release History:	Original Release

Author: Jason Nixon, Telecom Specialist

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025.

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Section 1 : Equipment Under Test

1.1 Product Identification

The Equipment Under Test was identified as follows:

Deko2119 PCS Mini-Repeater
(P/N: MW-CCSR-PCS-1W80-XX-YY-ZZ)

1.2 Samples Submitted for Assessment

The following samples of the apparatus have been submitted for type assessment:

Sample No.	Description	Serial No.
1	DEKO 2119 RF Mini Repeater	06055001

The first samples were received on: May 2, 2006

1.3 Theory of Operation

The EUT is a booster for the Cellular PCS Band. The EUT contains filters, which can be programmed via software to filter different PCS blocks. The filters can be either 5, 10 or 15MHz in size.

1.4 Technical Specifications of the EUT

Manufacturer:	Dekolink Wireless
Operating Frequency:	Uplink: 1850-1910MHz Downlink: 1930-1990MHz
Emission Designator:	F9W, DXW, GXW, G7W
Rated Power:	Uplink: 21dBm (0.126W) Downlink: 21dBm (0.126W)
Measured Power:	Uplink: 21.32dBm Downlink: 21.02dBm
Modulation:	80dB
Power Source:	GSM, GSM EDGE, TDMA, CDMA, WCDMA

Section 2 : Test Conditions

2.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 2 Subpart J, Equipment Authorization Procedures
 FCC Part 24 Subpart E, Broadband PCS
 FCC 2-11-04/EAB/RF Amplifier, Booster, and Repeater Reminder Sheet

2.2 Deviations From Laboratory Test Procedures

No deviations were made from laboratory test procedures.

2.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range : 15 – 30 °C
 Humidity range : 20 - 75 %
 Pressure range : 86 - 106 kPa
 Power supply range : +/- 5% of rated voltages

2.4 Test Equipment

Equipment	Manufacturer	Model No.	Asset/Serial No.	Next Cal.
Spectrum Analyzer	Rohde & Schwarz	FSP	FA001920	March 17/07
Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	May 16/07
Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	May 16/07
Biconical (2) Antenna	EMCO	3109	FA000904	Aug. 26/06
Log Periodic Antenna #1	EMCO	LPA-25	FA000477	Aug. 29/06
Horn Antenna #1	EMCO	3115	FA000649	Jan. 12/07
1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	July 14/06
2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	July 14/06
4.0 – 8.0 GHz Amplifier	JCA	48-600	FA001497	July 14/06
5.0 – 18.0 GHz Amplifier	NARDA	DWT-186N23U40	FA001409	COU
18.0 – 26.0 GHz Amplifier	NARDA	BBS-1826N612	FA001550	COU
18.0 – 40.0GHz Horn Antenna	EMCO	3116	FA001847	May 3/07
Signal Generator	Rohde & Schwarz	SMIQ03E	FA001269	March 29/07
Signal Generator	Rohde & Schwarz	SMIQ06B	FA001878	June 10/06
20dB Attenuator	Mini-circuits	ZA3PD-2	FA001155	COU
20dB Attenuator	Narda	769-20	FA001394	COU
Combiner	Narda	776B-20	FA001153	COU
Power Meter	Agilent	N1911A	FA001946	Dec 28/06
Power Sensor	Agilent	N1922A	FA001947	Dec 8/06

COU – Calibrate on Use

NCR – No Calibration Required

Section 3 : Observations

3.1 Modifications Performed During Assessment

No modifications were performed during assessment.

3.2 Record Of Technical Judgements

No technical judgements were made during the assessment.

3.3 EUT Parameters Affecting Compliance

The user of the apparatus could not alter parameters that would affect compliance.

3.4 Test Deleted

No Tests were deleted from this assessment.

3.5 Additional Observations

There were no additional observations made during this assessment.

Section 4: Results Summary

This section contains the following:

FCC Part 22: Test Results

The column headed 'Required' indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

- N No : not applicable / not relevant.
- Y Yes : Mandatory i.e. the apparatus shall conform to these tests.
- N/T Not Tested, mandatory but not assessed. (See section 3.4 Test deleted)

The results contained in this section are representative of the operation of the apparatus as originally submitted.

4.1 FCC Part 22 : Test Results

Clause	Test Method	Test Description	Required	Result
24.235	2.1055	Frequency stability	Y	PASS (1)
24.232(c)	2.1046	Output power	Y	PASS
24.238(a)	2.1051	Spurious Emissions at the antenna terminal	Y	PASS
24.238(a)	2.1053	Field strength of spurious radiation	Y	PASS
2-11-04/EAB/RF	2.1049	Occupied bandwidth	Y	PASS
2-11-04/EAB/RF	—	Out of band rejection	Y	PASS

Notes:

- (1) The EUT does not band translate, however it does down convert and then up convert. A signal was transmitted through the booster in both directions and there was no offset observed.

Appendix A : Test Results

Clause 24.232(c) Effective Isotropic Radiated Power Limits

Mobile/portable stations are limited to 2 watts EIRP peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.
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Test Conditions:

Sample Number:	1	Temperature:	24
Date:	May 18, 2006	Humidity:	29
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Wireless

Test Results:

Band	Rated Power (dBm)	Measured Power (dBm)
Uplink	21	21.32
Downlink	21	21.02

Clause 24.238(a) Spurious emissions at the antenna terminal

(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

Test Conditions:

Sample Number:	1	Temperature:	24
Date:	May 18, 2006	Humidity:	29
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Wireless

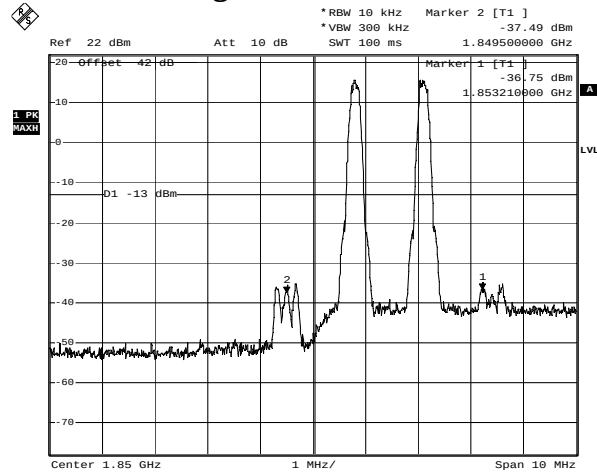
Test Results:

See Attached Plots.

Additional Observations:

Conducted emissions were tested on all modulation types and on low, mid and high channels. Only the worst case from each direction have been included.

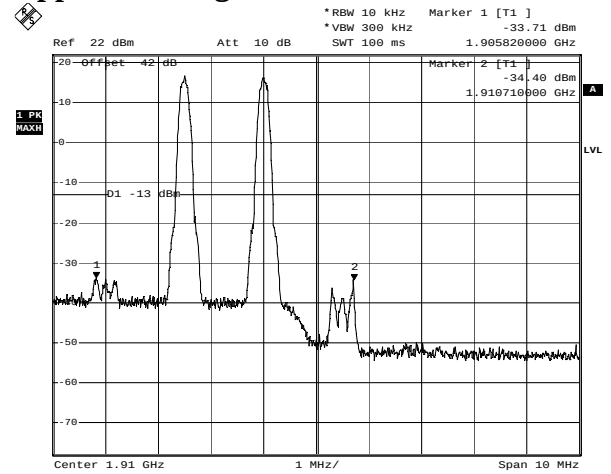
Uplink – GSM Lower Bandedge



GSM Lower Bandedge - Uplink

Date: 18.MAY.2006 19:16:21

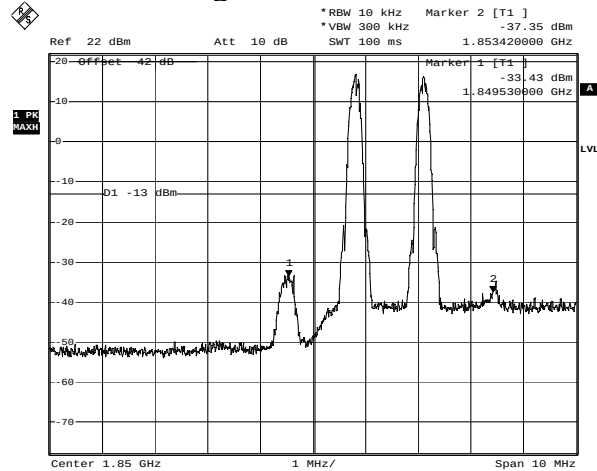
Upper Bandedge



GSM Upper Bandedge - Uplink

Date: 18.MAY.2006 18:59:18

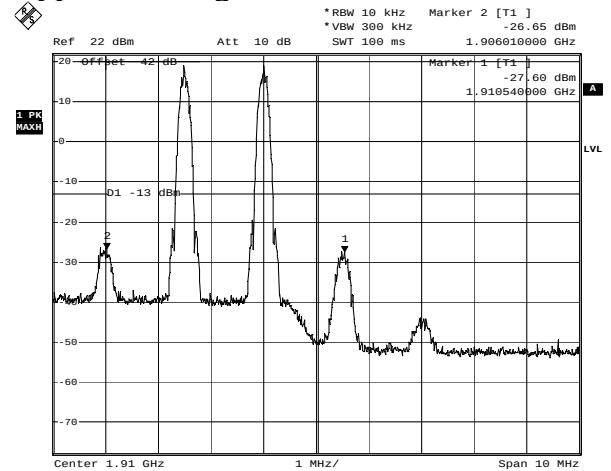
Uplink – GSM EDGE Lower Bandedge



EDGE Lower Bandedge - Uplink

Date: 18.MAY.2006 19:18:25

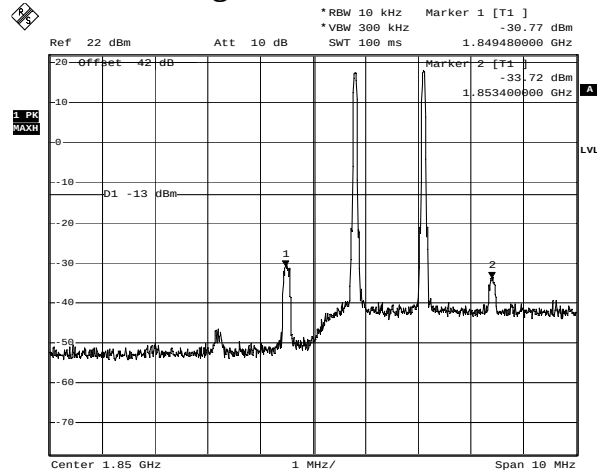
Upper Bandedge



EDGE Upper Bandedge - Uplink

Date: 18.MAY.2006 18:57:26

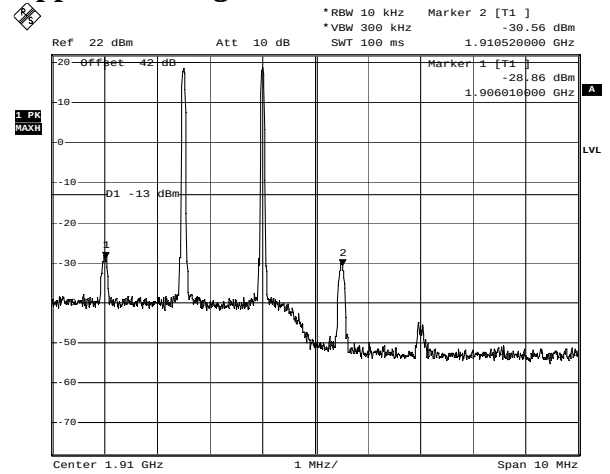
Uplink – TDMA Lower Bandedge



TDMA Lower Bandedge - Uplink

Date: 18.MAY.2006 19:14:31

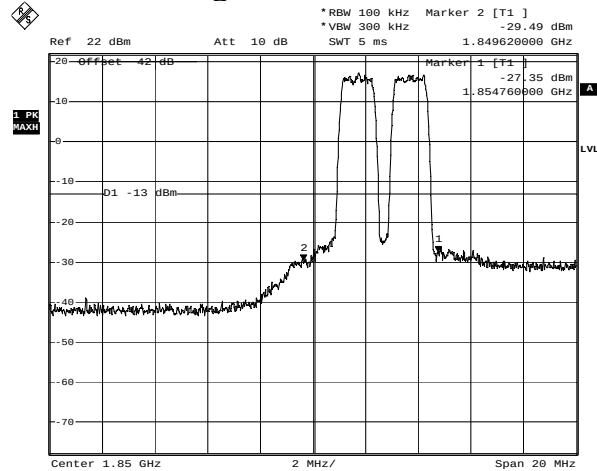
Upper Bandedge



TDMA Upper Bandedge - Uplink

Date: 18.MAY.2006 19:01:26

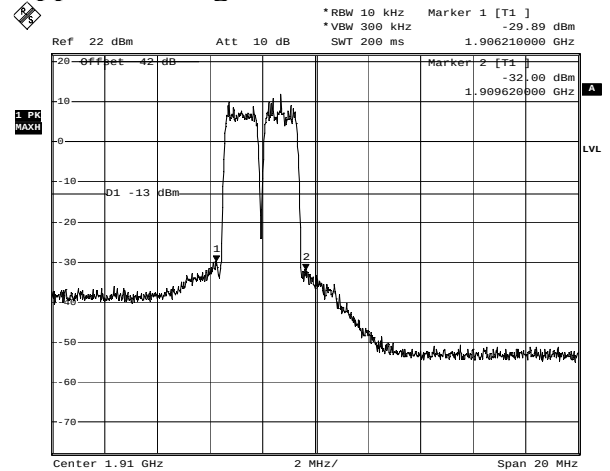
Uplink – CDMA Lower Bandedge



CDMA Lower Bandedge - Uplink

Date: 18.MAY.2006 19:12:07

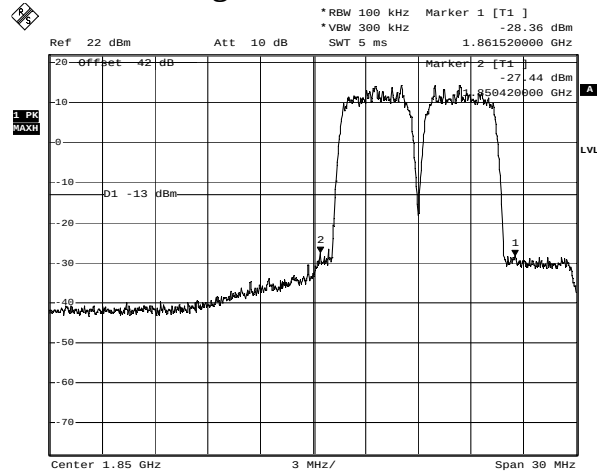
Upper Bandedge



CDMA Upper Bandedge - Uplink

Date: 18.MAY.2006 19:03:47

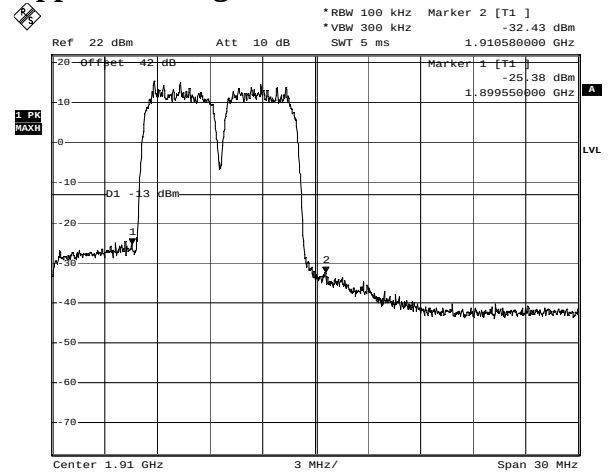
Uplink – WCDMA Lower Bandedge



WCDMA Lower Bandedge - Uplink

Date: 18.MAY.2006 19:09:54

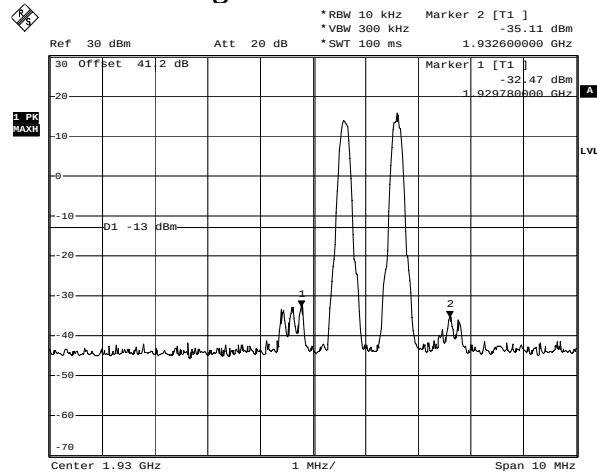
Upper Bandedge



WCDMA Upper Bandedge - Uplink

Date: 18.MAY.2006 19:06:34

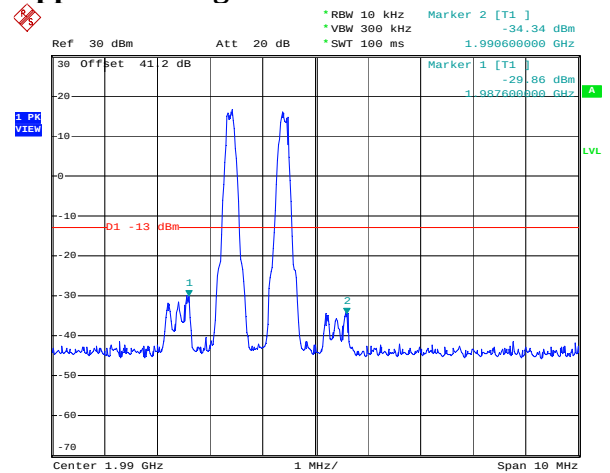
Downlink – GSM Lower Bandedge



GSM Lower Bandedge - Downlink

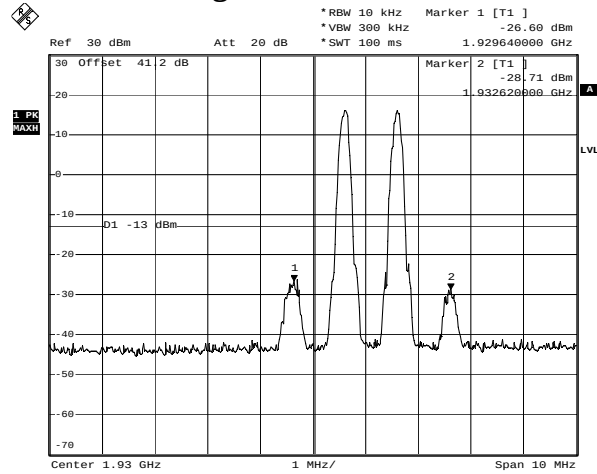
Date: 18.MAY.2006 14:32:47

Upper Bandedge



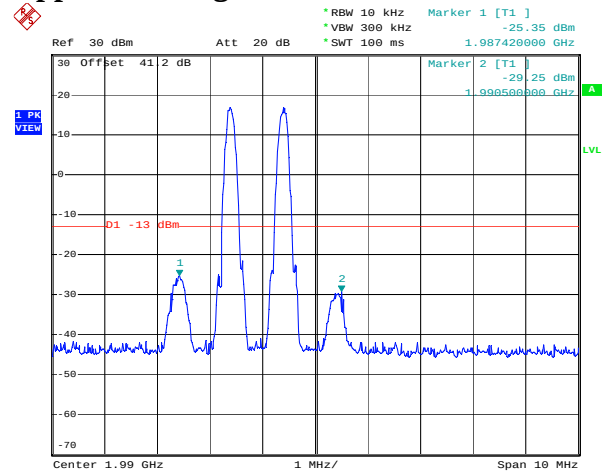
GSM Upper Bandedge - Downlink

Date: 17.MAY.2006 22:19:24

Downlink – GSM EDGE**Lower Bandedge**

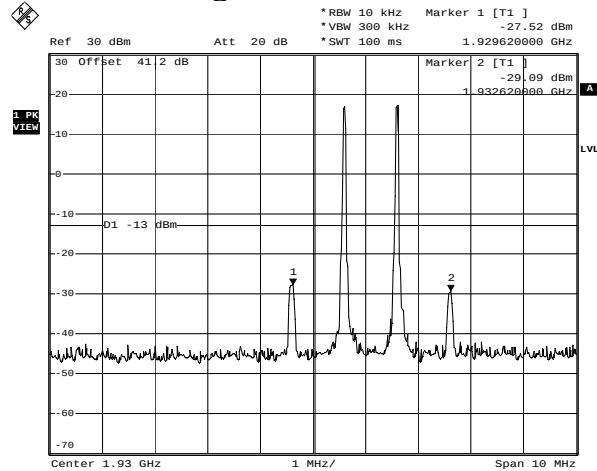
Edge Lower Bandedge - Downlink

Date: 18.MAY.2006 14:28:58

Upper Bandedge

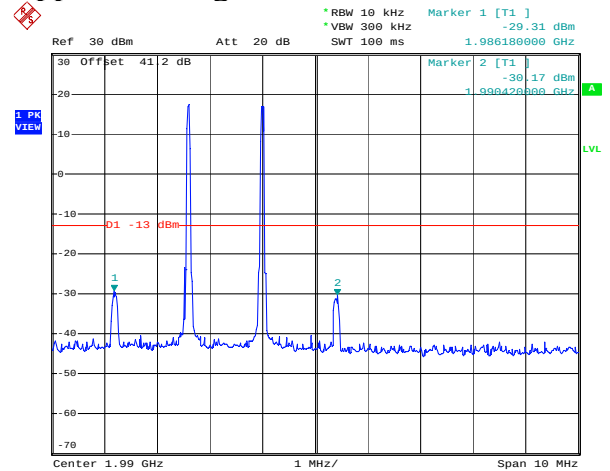
Edge Upper Bandedge - Downlink

Date: 17.MAY.2006 22:21:08

Downlink – TDMA**Lower Bandedge**

TDMA Lower Bandedge - Downlink

Date: 18.MAY.2006 14:35:21

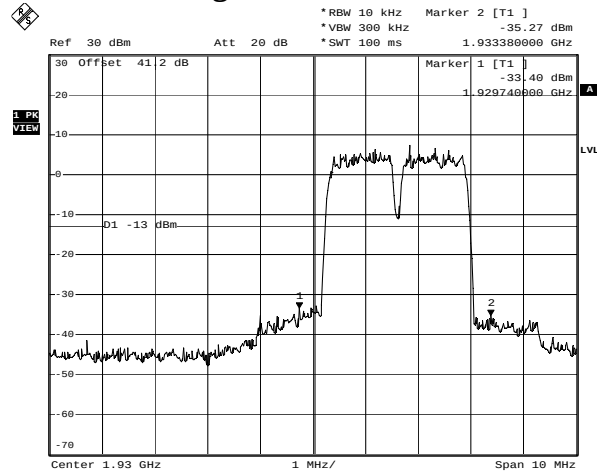
Upper Bandedge

TDMA Upper Bandedge - Downlink

Date: 17.MAY.2006 22:04:40

Downlink – CDMA

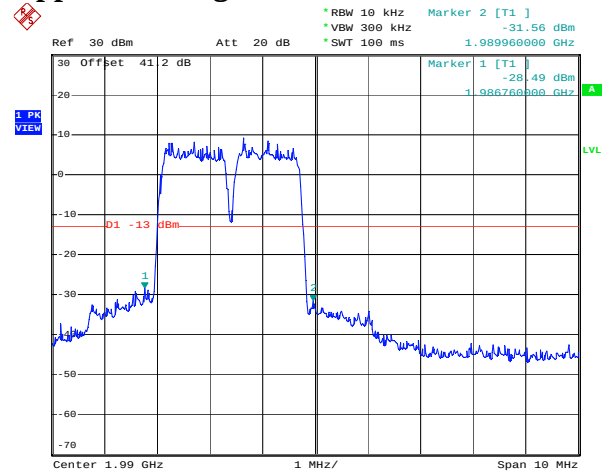
Lower Bandedge



CDMA Lower Bandedge - Downlink

Date: 18.MAY.2006 14:39:28

Upper Bandedge

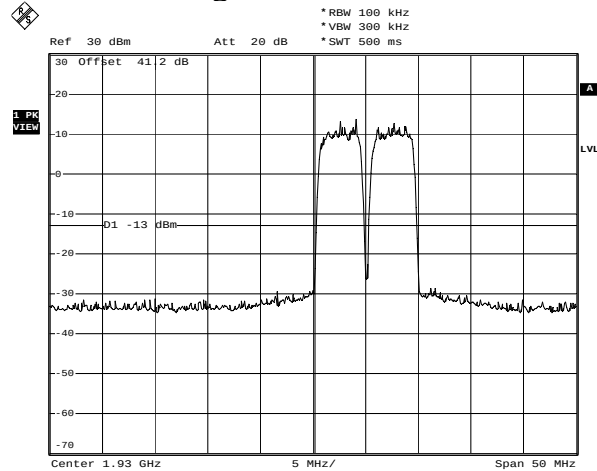


CDMA Upper Bandedge - Downlink

Date: 17.MAY.2006 22:16:14

Downlink – WCDMA

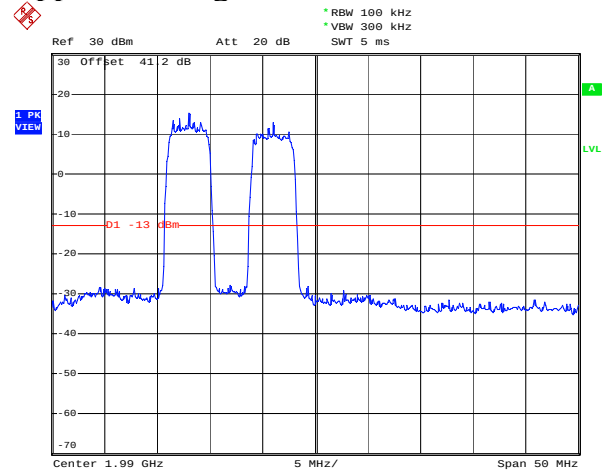
Lower Bandedge



WCDMA Lower Bandedge - Downlink

Date: 18.MAY.2006 14:42:24

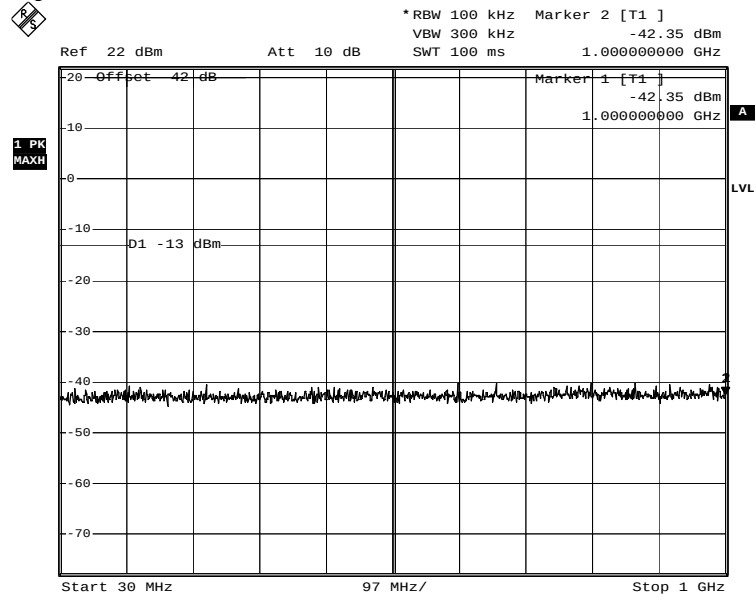
Upper Bandedge



WCDMA Upper Bandedge - Downlink

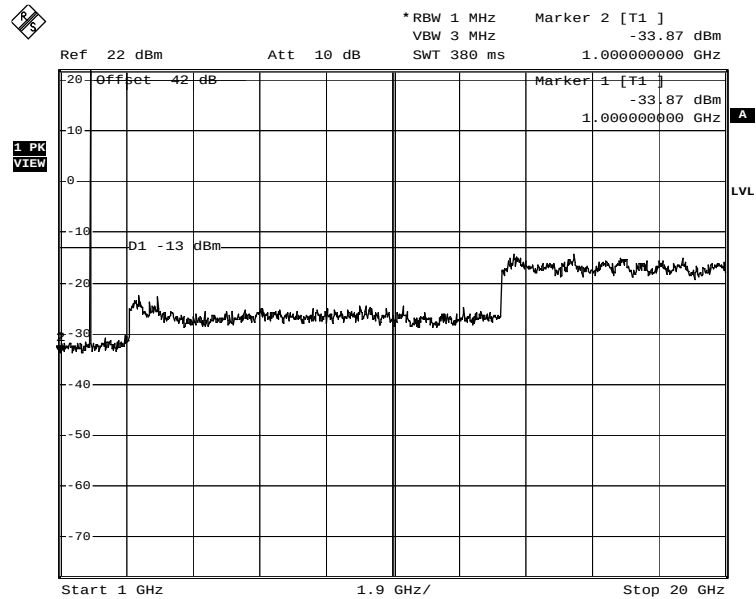
Date: 17.MAY.2006 22:01:05

Uplink



WCDMA Conducted Emissions - Uplink

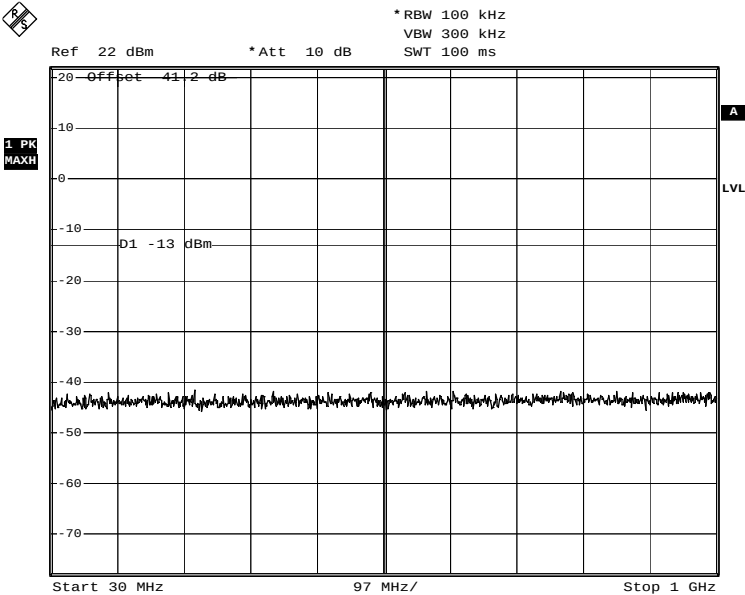
Date: 18.MAY.2006 20:04:28



WCDMA Conducted Emissions - Uplink

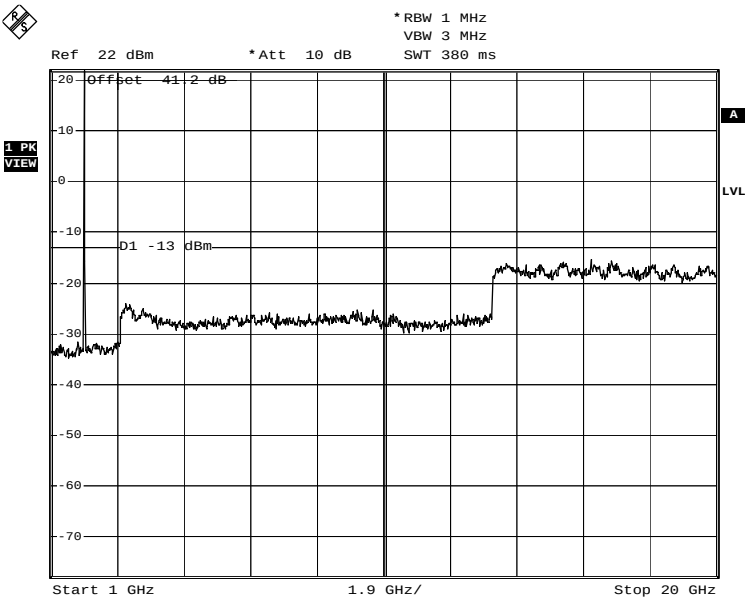
Date: 18.MAY.2006 20:03:55

Downlink



EDGE Conducted Emissions - Mid Channel - Downlink

Date: 18.MAY.2006 15:16:25



EDGE Conducted Emissions - Mid Channel - Downlink

Date: 18.MAY.2006 15:15:55

Clause 24.238(a) Field Strength of spurious radiation

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

Test Conditions:

Sample Number:	1	Temperature:	14
Date:	May 18, 2006	Humidity:	42
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	OATS

Test Results:

No emissions were detected within 20dB below the limit,

Additional Observations:

The Spectrum was searched from 30MHz to 20GHz.

All measurements were performed using a Peak Detector with 100kHz RBW below 1GHz and a 1MHz RBW above 1GHz at a distance of 3 meters.

Clause 2-11-04/EAB/RF Occupied Bandwidth

Using an RBW of 300Hz or 1% of the emission bandwidth, The spectral shape of the output should look similar to the input for all modulations.

Test Conditions:

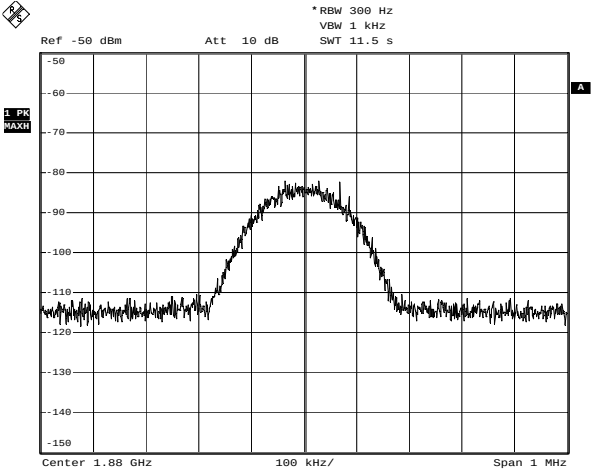
Sample Number:	1	Temperature:	23
Date:	May 17, 2006	Humidity:	25
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Wireless

Test Results:

See Attached Plots.

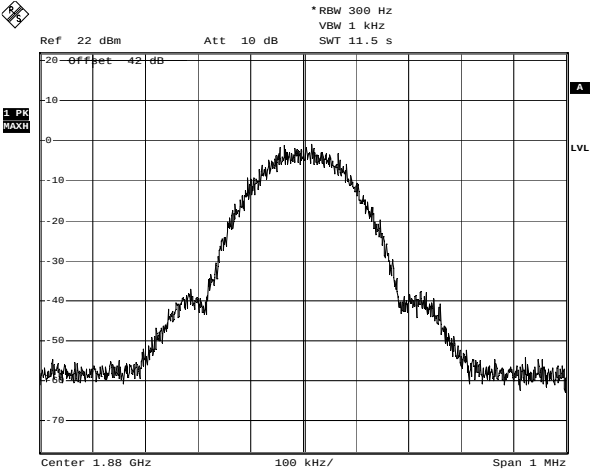
Additional Observations:

Uplink – GSM
Input



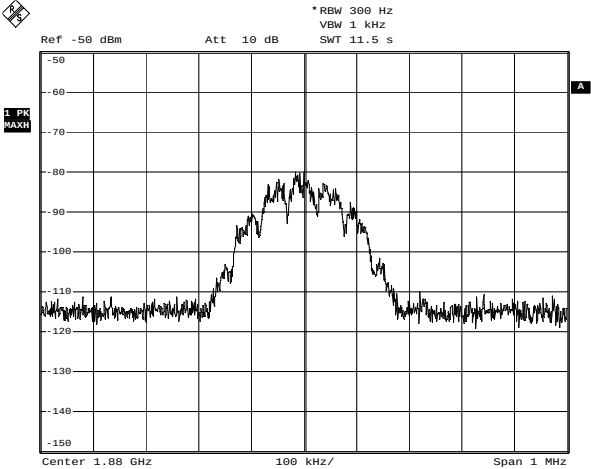
GSM Input - Uplink
Date: 18.MAY.2006 17:34:44

Output



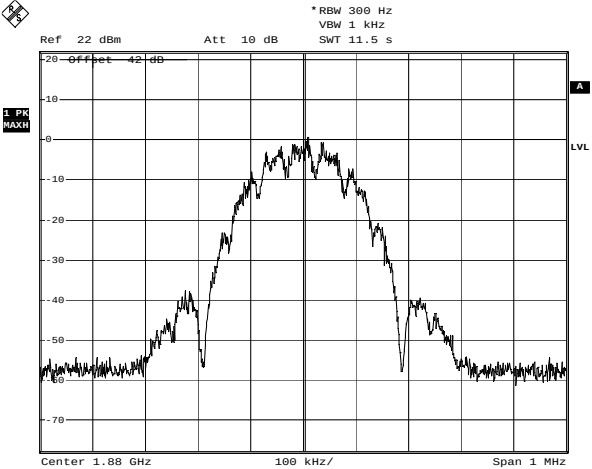
GSM Output - Uplink
Date: 18.MAY.2006 17:33:15

Uplink – GSM EDGE
Input



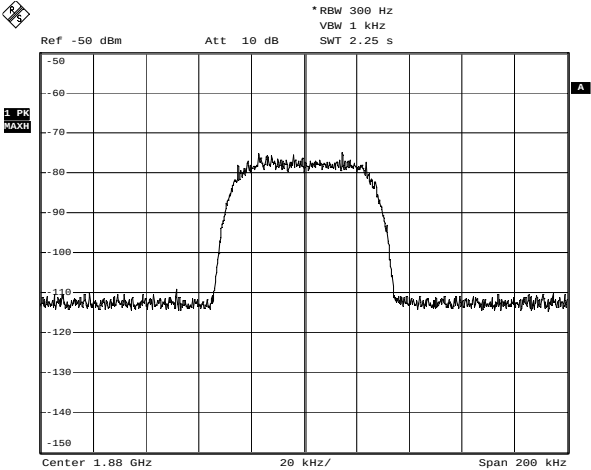
EDGE Input - Uplink
Date: 18.MAY.2006 17:35:36

Output



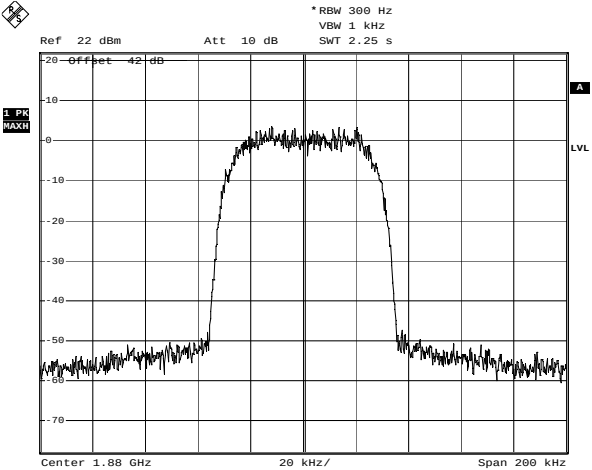
EDGE Output - Uplink
Date: 18.MAY.2006 17:32:13

Uplink – TDMA
Input



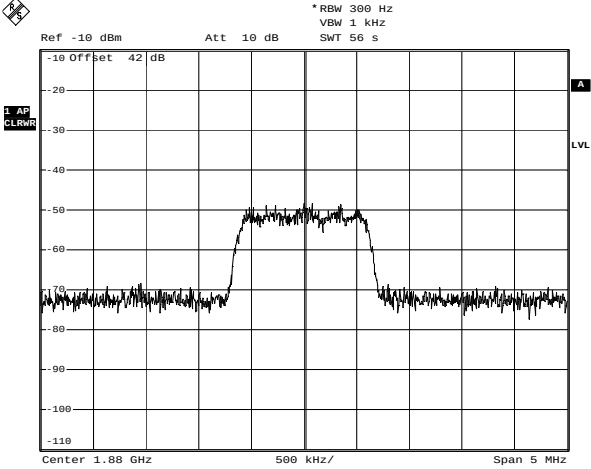
TDMA Input - Uplink
Date: 18.MAY.2006 17:41:46

Output



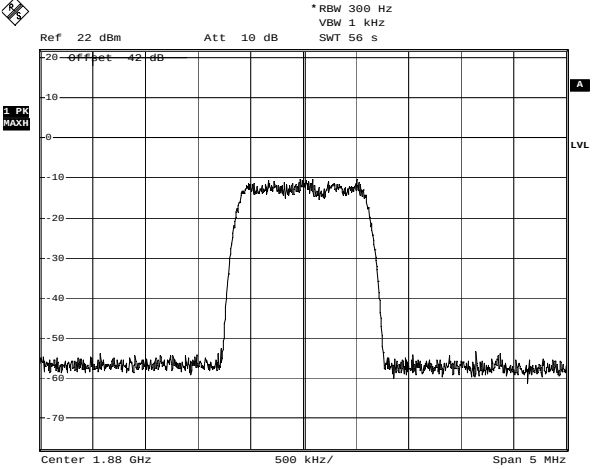
TDMA Output - Uplink
Date: 18.MAY.2006 17:42:50

Uplink – CDMA
Input



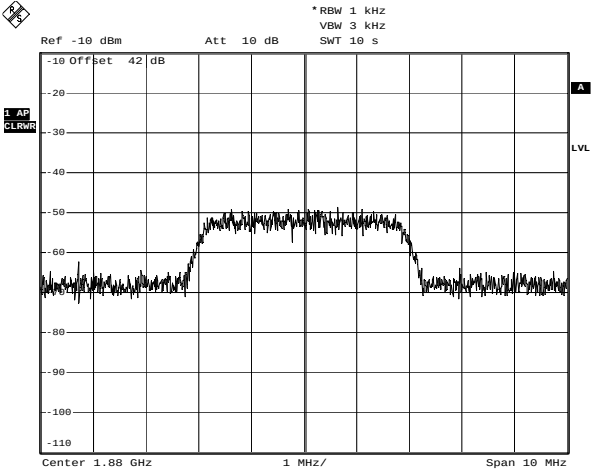
CDMA Input - Uplink
Date: 18.MAY.2006 17:51:07

Output



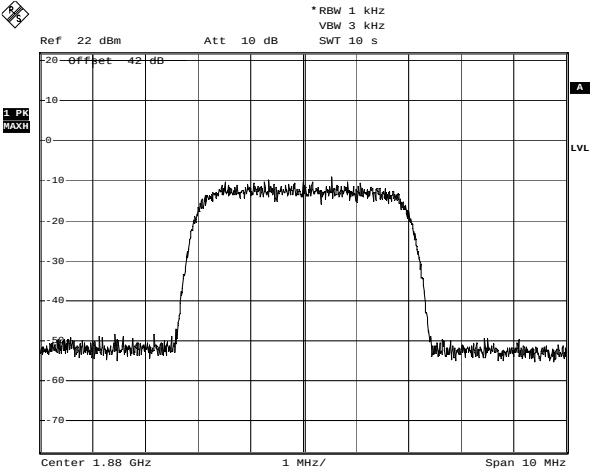
CDMA Output - Uplink
Date: 18.MAY.2006 17:45:49

Uplink – WCDMA
Input



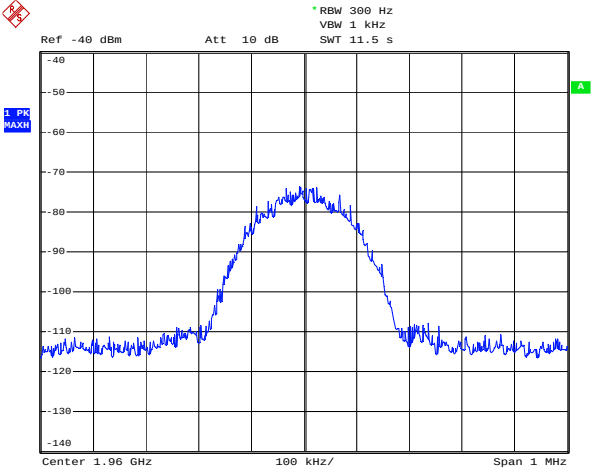
WCDMA Input - Uplink
Date: 18.MAY.2006 17:48:37

Output



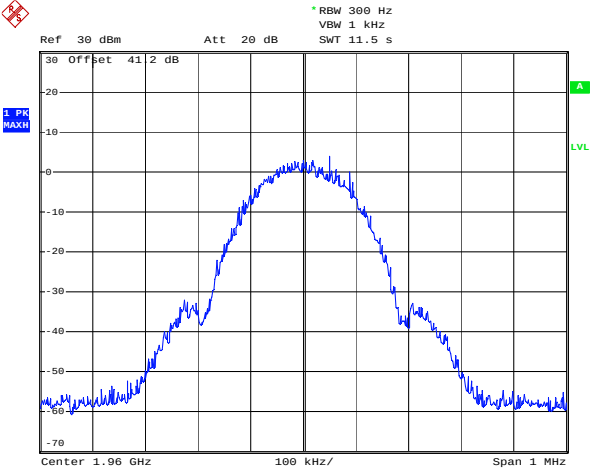
WCDMA Output - Uplink
Date: 18.MAY.2006 17:47:30

Downlink – GSM
Input



GSM Input - Downlink
Date: 17.MAY.2006 21:07:31

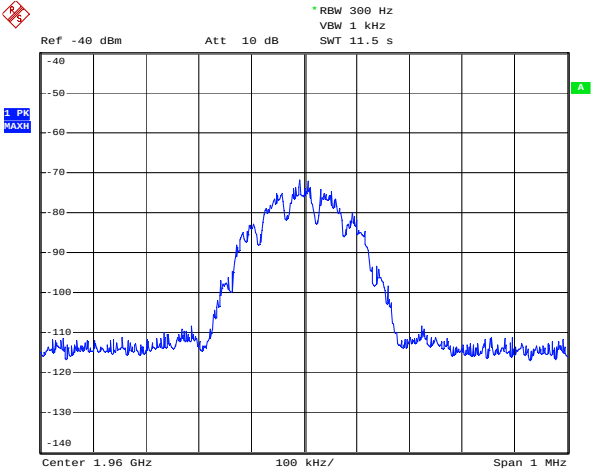
Output



GSM Output - Downlink
Date: 17.MAY.2006 21:05:48

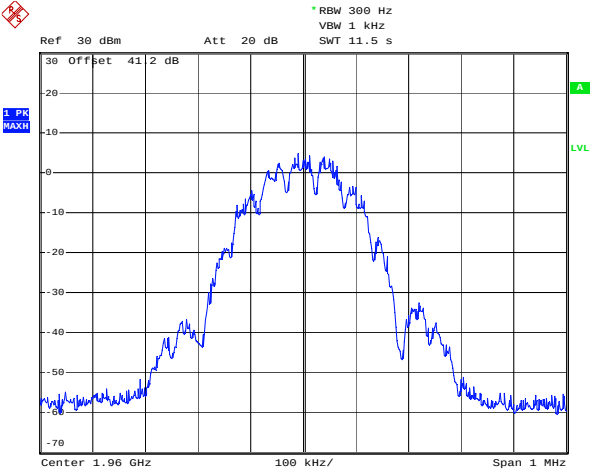
Downlink – GSM EDGE

Input



EDGE Input - Downlink
Date: 17.MAY.2006 21:02:53

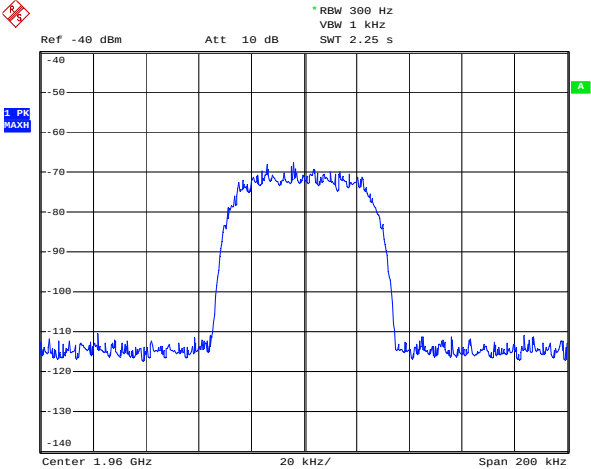
Output



EDGE Output - Downlink
Date: 17.MAY.2006 21:04:33

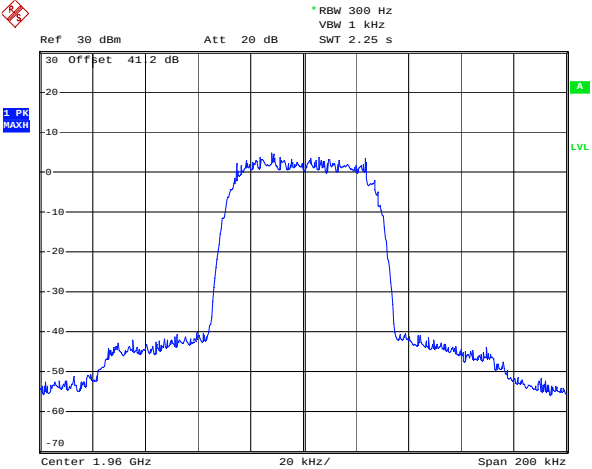
Downlink – TDMA

Input



TDMA Input - Downlink
Date: 17.MAY.2006 21:11:06

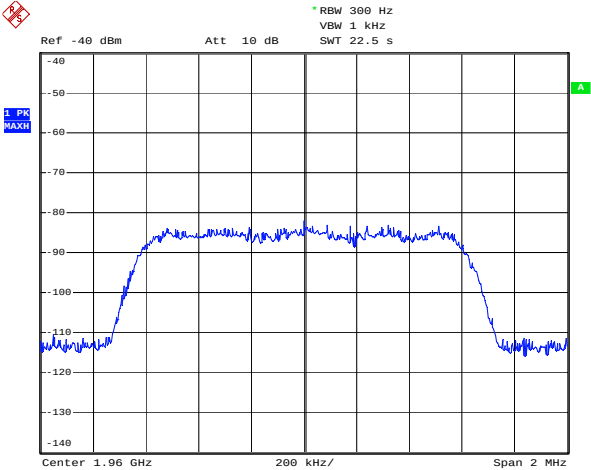
Output



TDMA Output - Downlink
Date: 17.MAY.2006 21:13:52

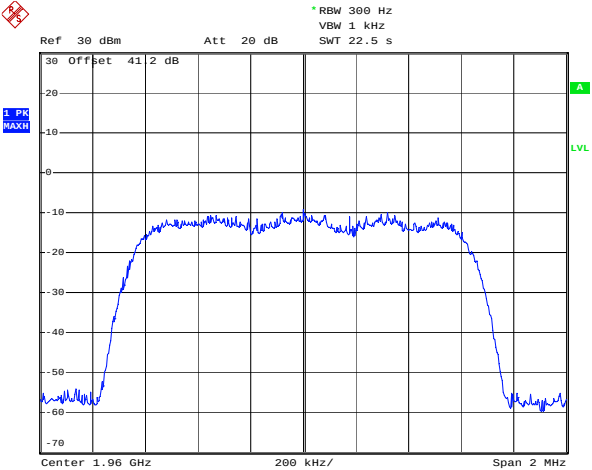
Downlink – CDMA

Input



CDMA Input - Downlink
Date: 17.MAY.2006 21:21:02

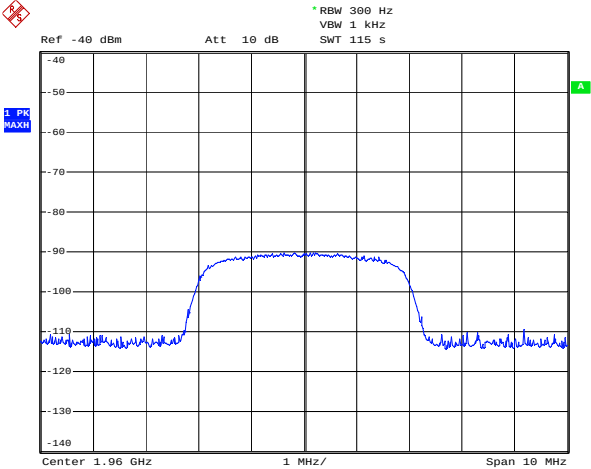
Output



CDMA Output - Downlink
Date: 17.MAY.2006 21:17:05

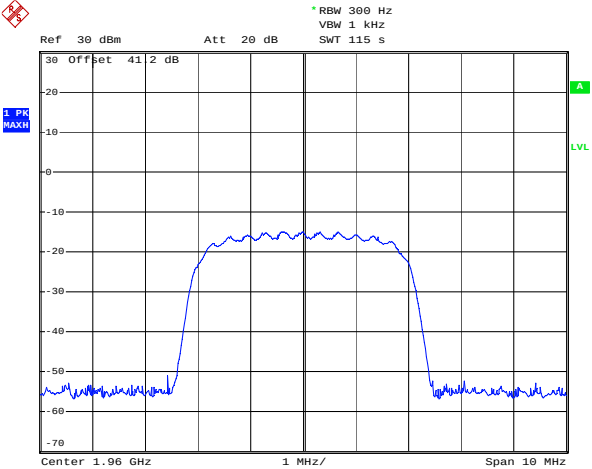
Downlink – WCDMA

Input



WCDMA Input - Downlink
Date: 17.MAY.2006 21:00:05

Output



WCDMA Output - Downlink
Date: 17.MAY.2006 20:54:03

Clause 2-11-04/EAB/RF Out of Band Rejection

Plots showing the filter frequency response.
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Test Conditions:

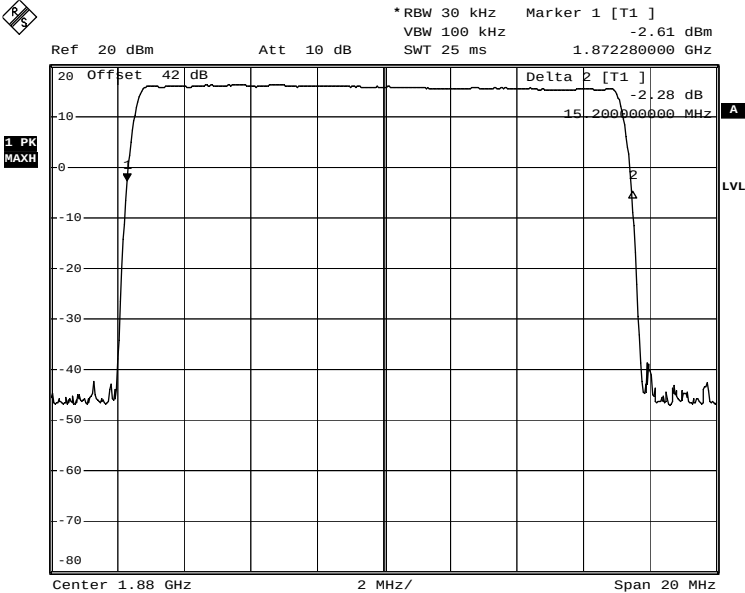
Sample Number:	1	Temperature:	23
Date:	May 17, 2006	Humidity:	25
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Wireless

Test Results:

See Attached Plots.

Additional Observations:

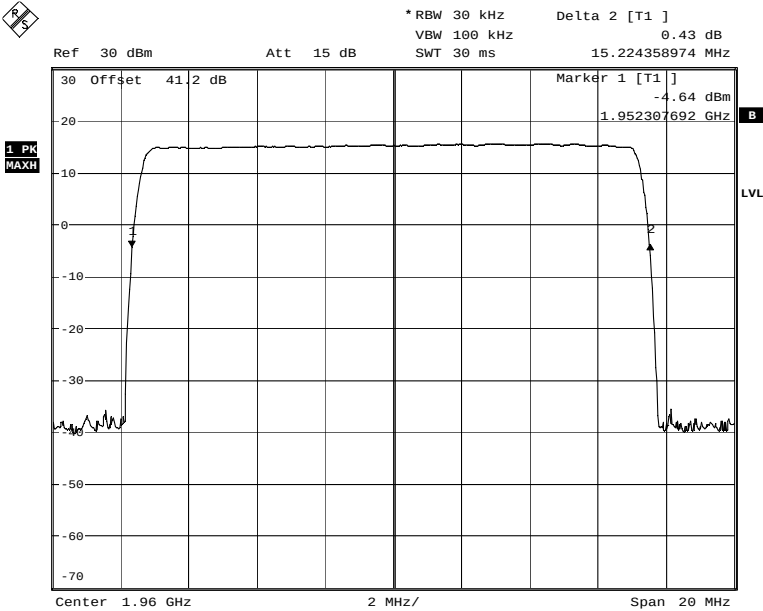
Uplink 20dB Bandwidth – 15MHz Filter



Out-of-Band Reject 15MHz Filter - Uplink

Date: 18.MAY.2006 17:07:14

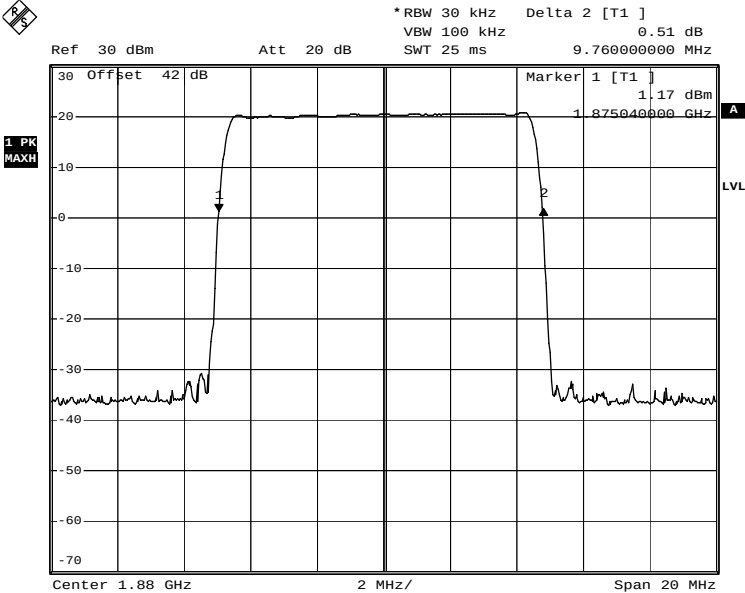
Downlink 20dB Bandwidth – 15MHz Filter



Out-of-band reject 15MHz filter-Downlink

Date: 17.MAY.2006 13:21:50

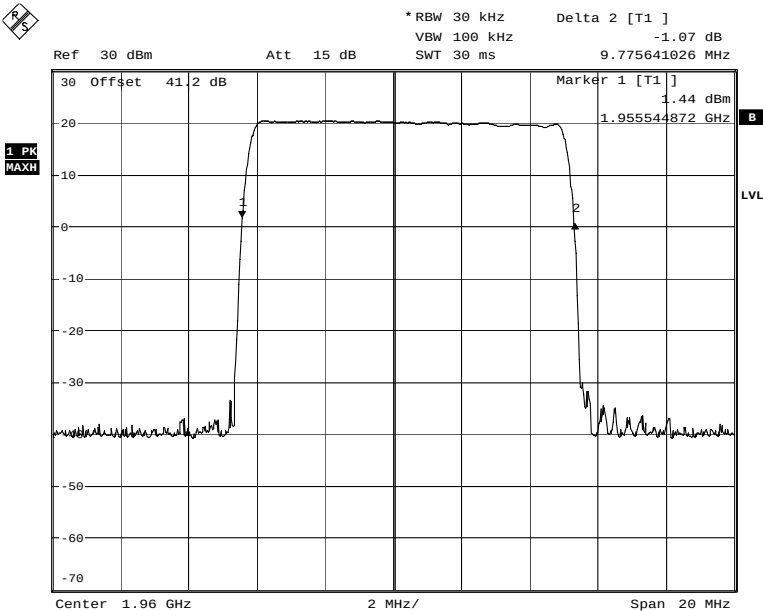
Uplink 20dB Bandwidth – 10MHz Filter



Out-of-Band Reject 10MHz Filter - Uplink

Date: 18.MAY.2006 17:15:55

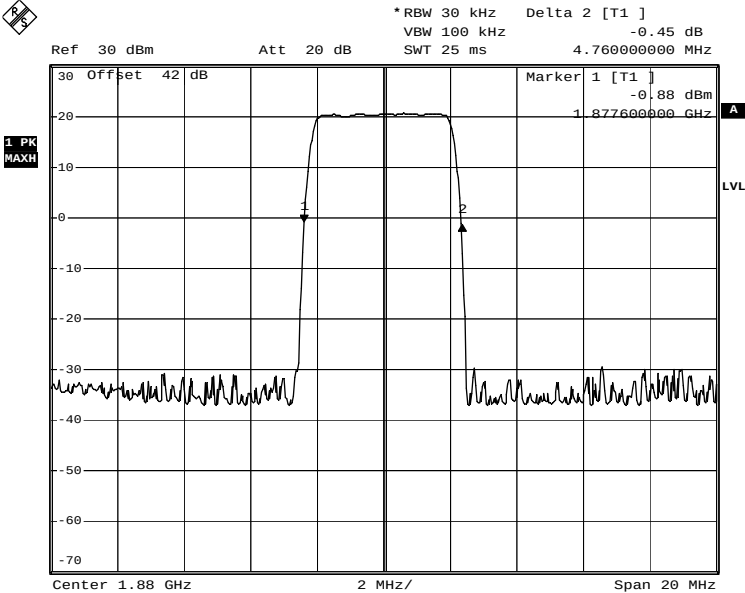
Downlink 20dB Bandwidth – 10MHz Filter



Out-of-band reject 10MHz filter-Downlink

Date: 17.MAY.2006 13:32:13

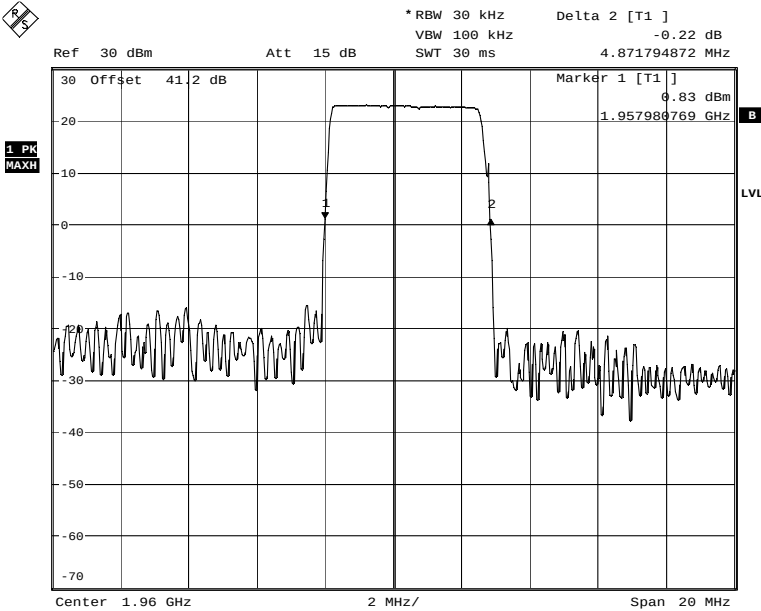
Uplink 20dB Bandwidth – 5MHz Filter



Out-of-Band Reject 5MHz Filter - Uplink

Date: 18.MAY.2006 17:18:39

Downlink 20dB Bandwidth – 5MHz Filter



Out-of-band reject 5MHz filter-Downlink

Date: 17.MAY.2006 13:34:03

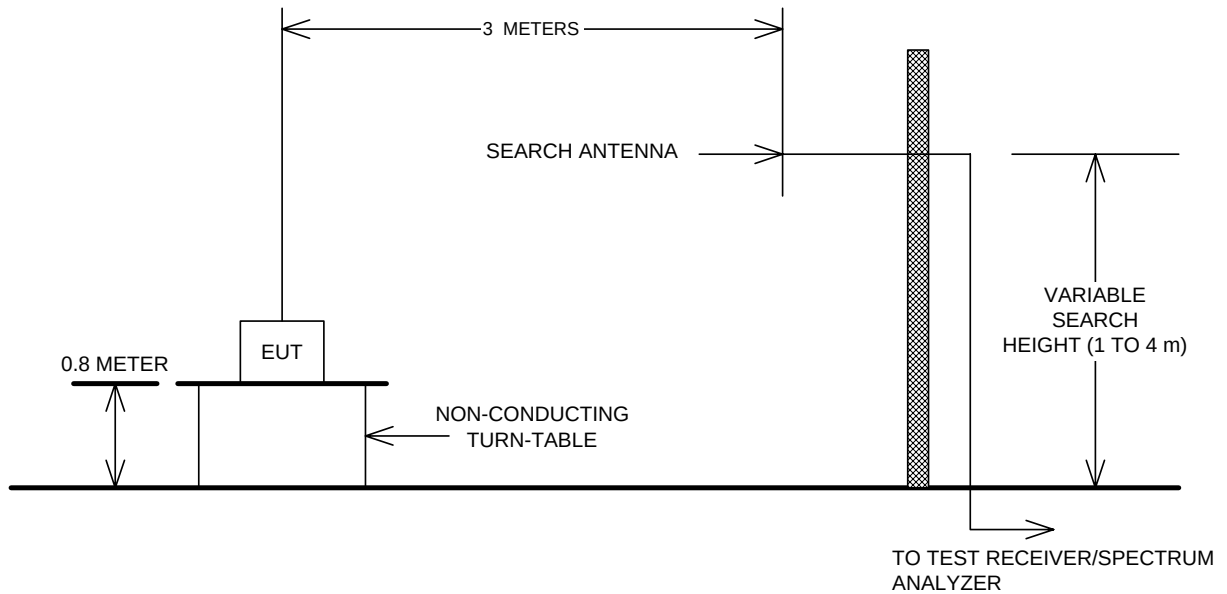
Appendix B : Setup Photographs

Radiated Spurious Emissions Setup:



Appendix C : Block Diagram of Test Setups

Test Site For Radiated Emissions



Conducted Emissions, Output power, Occupied Bandwidth and Out of Band Rejection

