Standards Council of Canada
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Scope of Accreditation 75

Conseil canadien des normes
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Portée d'accréditation 75

TM

Test Report:	6W71892
Applicant:	Dekolink Wireless Ltd. 16 Bazel St. Qiryat-Arieh, Petah-Tikva, Israel 49510
Apparatus:	MW-CSR-PCS-50W90-5-15
FCC ID:	OIWCSRPCS50W90D
In Accordance With:	FCC Part 24, Boosters Subpart E, Broadband PCS
Tested By:	Nemko Canada Inc. 303 River Road Ottawa, Ontario K1V 1H2
Authorized By:	For Roman Kuleba, Wireless Specialist
Date:	November 1, 2006
Total Number of Pages:	32

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 is 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:	MW-CSR-PCS-50W90-5-15
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:

MW-CSR-PCS-50W90-5-15

1.2 Samples Submitted for Assessment

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

Sample No.	Description	Serial No.
1	MW-CSR-PCS-50W90-5-15	None

The first samples were received on: August 1, 2006

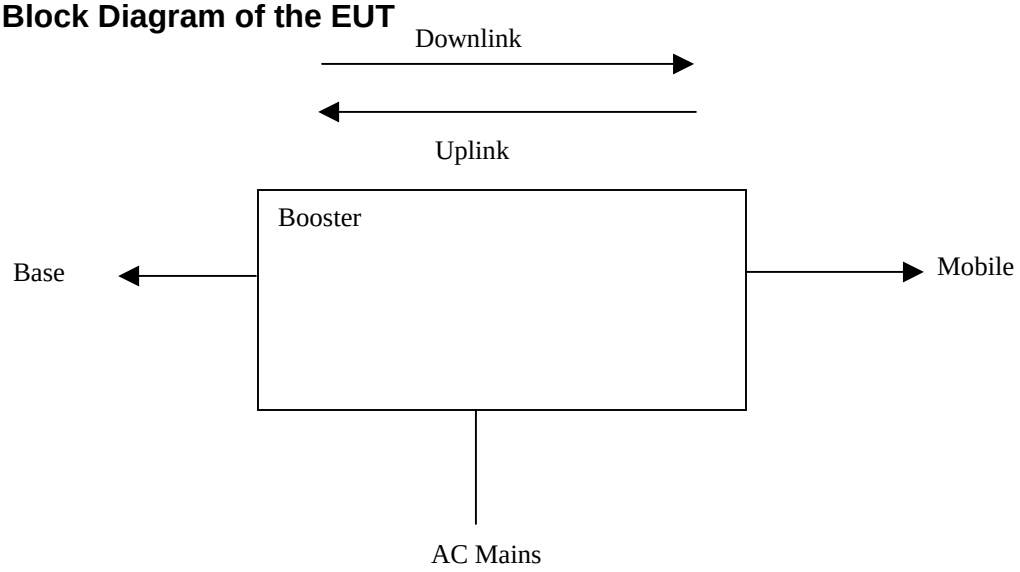
1.3 Theory of Operation

The EUT is a bi-directional booster with two programmable filters. The filters can be moved across the authorized band using software. One filter is 5MHz wide and the other is 15MHz wide.

1.4 Technical Specifications of the EUT

Manufacturer:	Dekolink Wireless Ltd.
Operating Frequency:	Uplink:1850 – 1910MHz Downlink:1930 – 1990MHz
Emission Designator:	F9W, DXW, GXW, G7W
Rated Power:	Uplink: 30dBm (1W) Downlink: 40dBm (10W)
Measured Power:	Uplink: 30.04dBm (1.01W) Downlink: 40.79dBm (11.99W)
Modulation:	GSM, GSM EDGE, TDMA, CDMA, WCDMA
Maximum Rated Gain:	90dB
Power Source:	120VAC

1.5 Block Diagram of the EUT



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 ºC
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	FSP40	FA001920	Mar 17/07
Attenuator	Narda	776B-20	FA001153	COU
Attenuator	Narda	769-20	FA001394	COU
Combiner	Mini-circuits	ZA3PD-2	FA001155	COU
Frequency Counter	HP	5352B	FA001915	Oct 14/06
Signal Generator	Rohde & Schwarz	SMIQ03E	FA001269	May 29/07
Signal Generator	Rohde & Schwarz	SMIQ06B	FA001878	June 28/07
Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	May 16/07
Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	May 16/07
Horn Antenna #2	EMCO	3115	FA000825	Dec. 16/06
18.0 – 40.0GHz Horn Antenna	EMCO	3116	FA001847	May 3/07
1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	Aug. 02/07
2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	Aug. 02/07
4.0 – 8.0 GHz Amplifier	JCA	48-600	FA001497	Aug. 02/07
5.0 – 18.0 GHz Amplifier	NARDA	DWT-186N23U40	FA001409	COU
18.0 – 26.0 GHz Amplifier	NARDA	BBS-1826N612	FA001550	COU
Log Periodic Antenna #2	EMCO	3148	FA001355	May 16/07
Biconical (1) Antenna	EMCO	3109	FA000805	May 03/07

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 24 : 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 24 : Test Results

Clause	Test Method	Test Description	Required	Result
24.235	2.1055	Frequency stability	Y	PASS
24.232	2.1046	Output power	Y	PASS
24.238	2.1051	Conducted spurious emissions	Y	PASS
24.238	2.1053	Radiated spurious emissions	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:

Appendix A : Test Results

Clause 24.235 Frequency Stability

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Conditions:

Sample Number:	1	**Temperature (°C):**	23
Date:	September 13, 2006	**Humidity (%):**	41
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	Wireless

Test Results: The EUT down converts and then up converts the input signal. A CW signal was injected in each direction and measured at the output. The variation of the output signal was less than +/-1Hz.

Clause 24.232 Output Power

(a) Base stations are limited to 1640 watts peak equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below.

(b) Base stations that are located in counties with population densities of 100 persons or fewer per square mile, based upon the most recently available population statistics from the Bureau of the Census, are limited to 3280 watts peak equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT

(c) 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.

Test Conditions:

Sample Number:	1	**Temperature (°C):**	25
Date:	September 11, 2006	**Humidity (%):**	29
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	Wireless

Test Results:

Uplink

Modulation	Measured (dBm)	Rated (dBm)
GSM	28.90	30
GSM EDGE	29.13	30
TDMA	28.88	30
CDMA	30.04	30
WCDMA	30.01	30

Downlink

Modulation	Measured (dBm)	Rated (dBm)
GSM	35.68	40
GSM EDGE	38.38	40
TDMA	38.10	40
CDMA	40.79	40
WCDMA	39.93	40

Additional Observations:

Output power was measured using a single carrier set to the 1dB compression point.

Power was measured using a Peak detector with a 10MHz RBW/VBW.

Clause 24.238 Conducted Spurious Emissions

(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.

(b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

Test Conditions:

Sample Number:	1	**Temperature (°C):**	25
Date:	September 11, 2006	**Humidity (%):**	29
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	Wireless

Test Results:

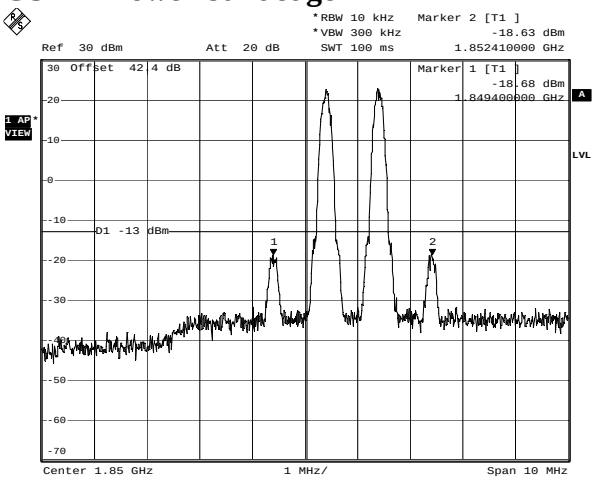
See Attached Plots.

Additional Observations:

Conducted emissions were performed on a low, middle and high channel for each modulation. Only the worst case has been included.

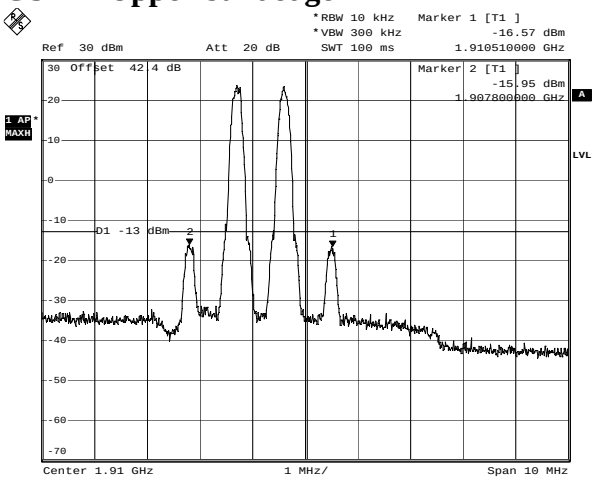
Uplink – 3rd Order Intermodulation

GSM – Lower bandedge



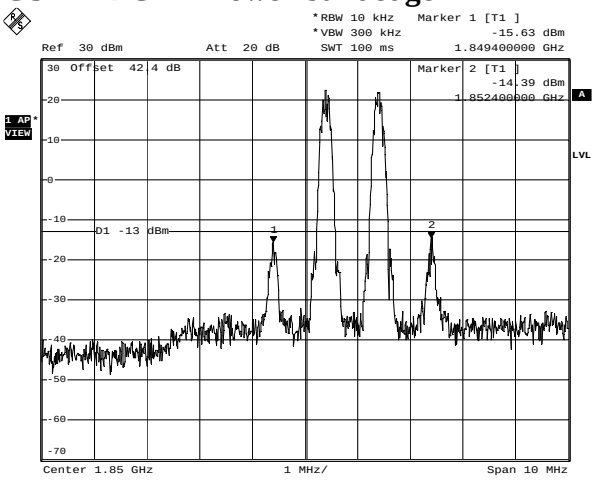
Uplink - GSM - Lower Bandedge
Date: 11.SEP.2006 21:06:28

GSM – Upper bandedge



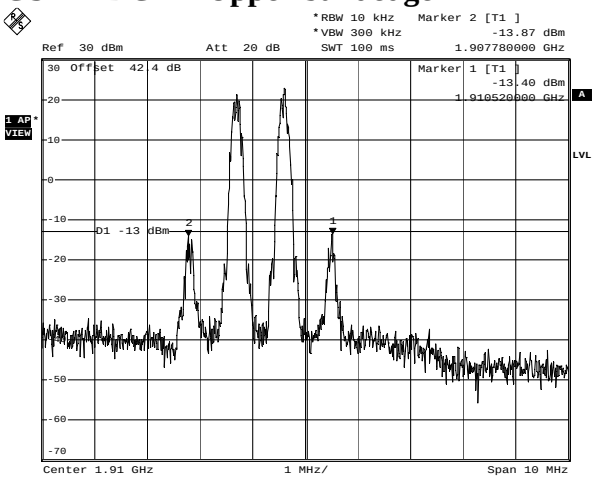
Uplink - GSM - Upper Bandedge
Date: 11.SEP.2006 21:19:40

GSM EDGE – Lower bandedge



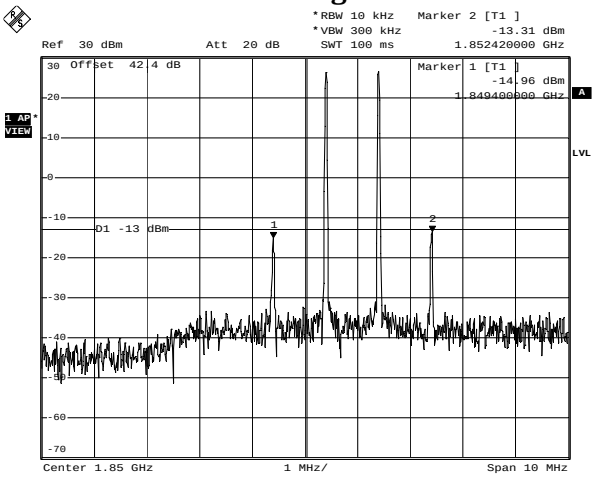
Uplink - GSM EDGE - Lower Bandedge
Date: 11.SEP.2006 21:04:15

GSM EDGE – Upper bandedge



Uplink - GSM EDGE - Upper Bandedge
Date: 11.SEP.2006 21:22:02

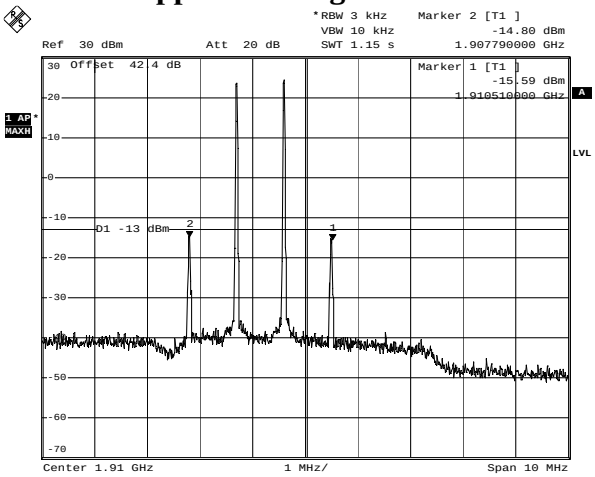
TDMA – Lower bandedge



Uplink - TDMA - Lower Bandedge

Date: 11.SEP.2006 21:02:25

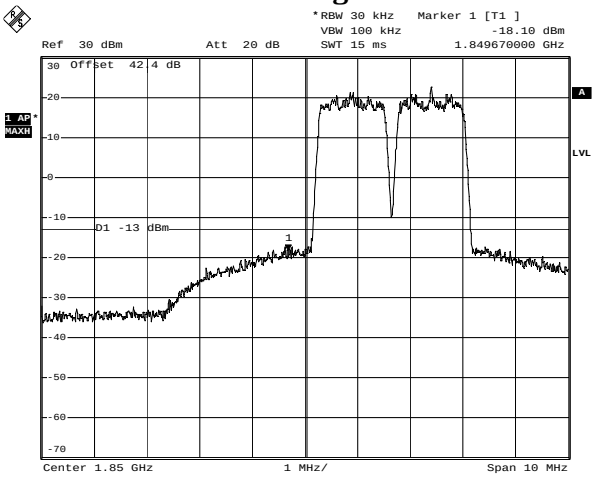
TDMA – Upper bandedge



Uplink - TDMA - Upper Bandedge

Date: 11.SEP.2006 21:25:25

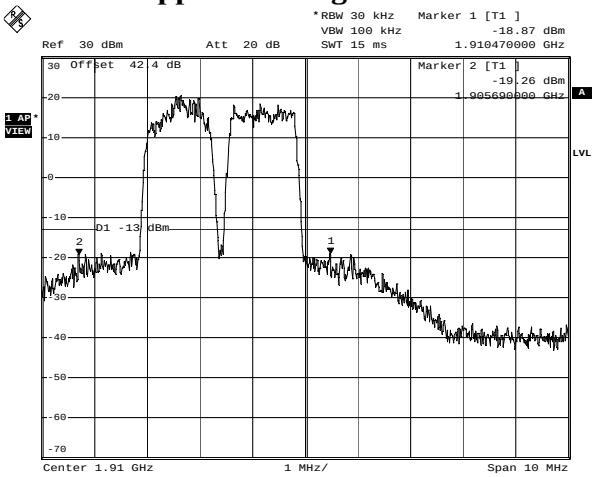
CDMA – Lower bandedge



Uplink - CDMA - Lower Bandedge

Date: 11.SEP.2006 20:59:34

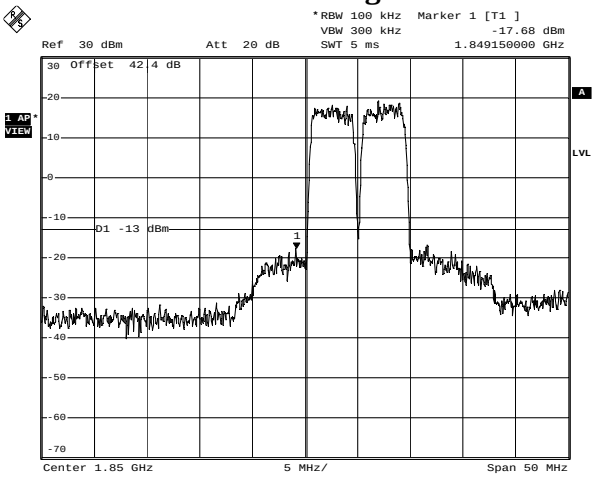
CDMA – Upper bandedge



Uplink - CDMA - Upper Bandedge

Date: 11.SEP.2006 21:29:04

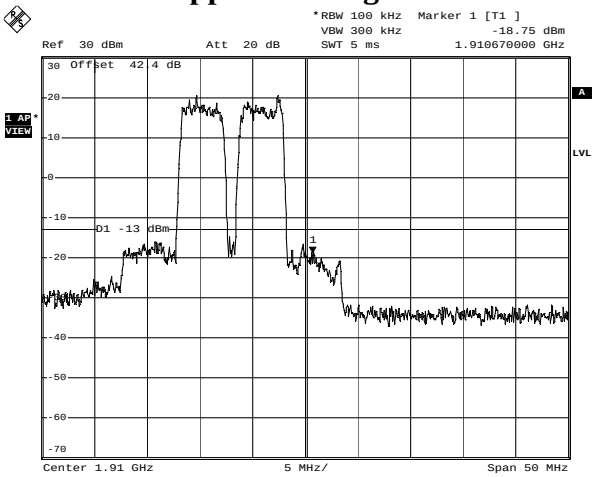
WCDMA – Lower bandedge



Uplink - WCDMA - Lower Bandedge

Date: 11.SEP.2006 20:53:43

WCDMA – Upper bandedge

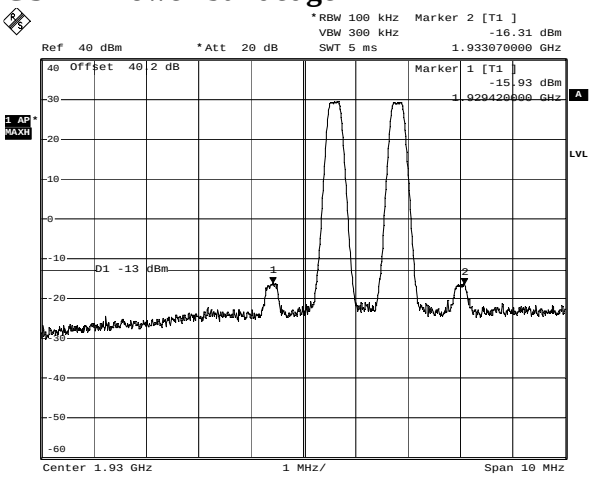


Uplink - WCDMA - Upper Bandedge

Date: 11.SEP.2006 21:31:12

Downlink 3rd Order Intermodulation

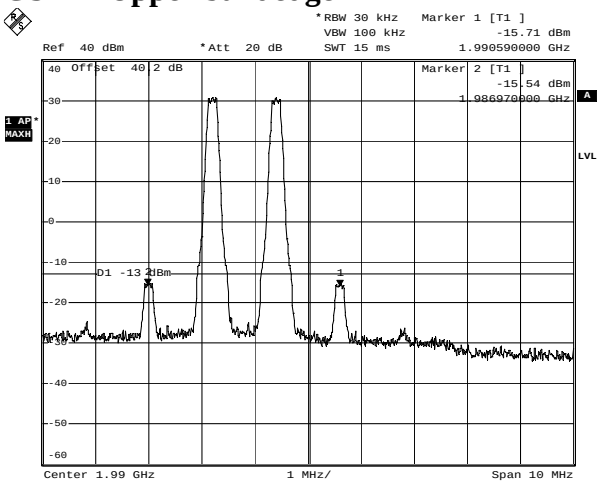
GSM – Lower bandedge



Downlink - GSM - Lower Bandedge

Date: 12.SEP.2006 22:09:20

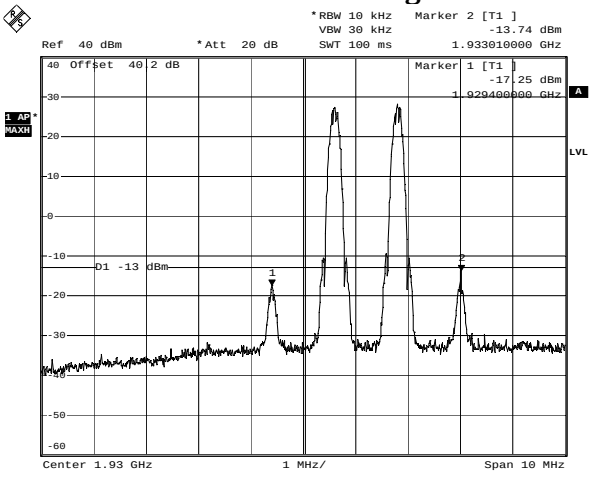
GSM – Upper bandedge



Downlink - GSM - Upper Bandedge

Date: 12.SEP.2006 22:36:21

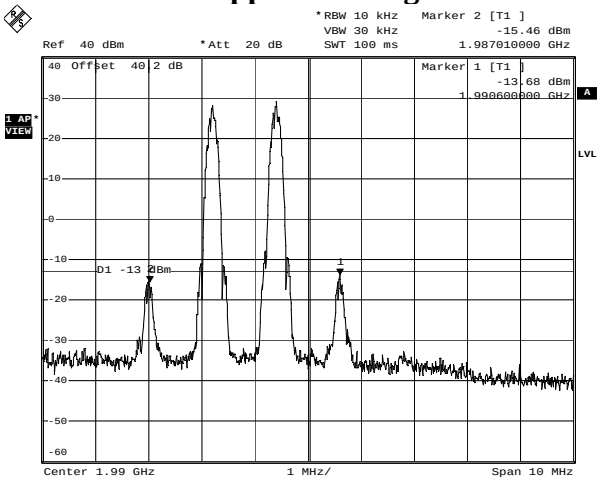
GSM EDGE – Lower bandedge



Downlink - GSM EDGE - Lower Bandedge

Date: 12.SEP.2006 22:12:10

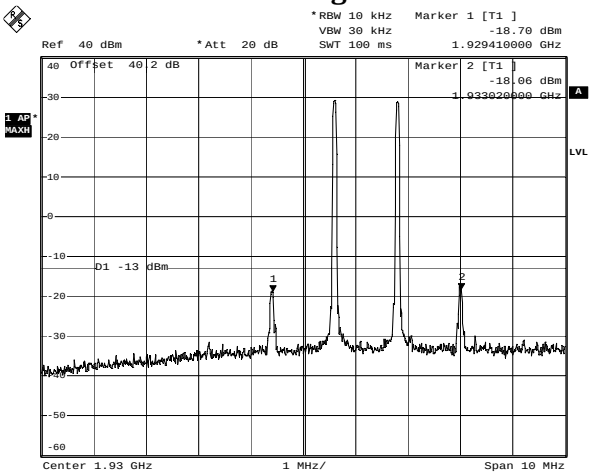
GSM EDGE – Upper bandedge



Downlink - GSM EDGE - Upper Bandedge

Date: 12.SEP.2006 22:38:22

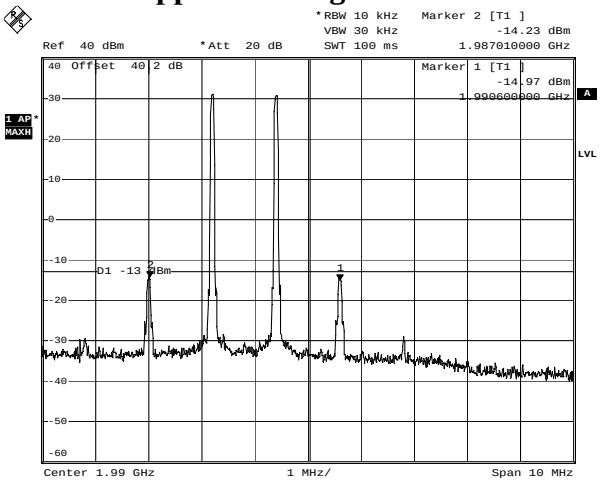
TDMA – Lower bandedge



Downlink - TDMA - Lower Bandedge

Date: 12.SEP.2006 22:14:20

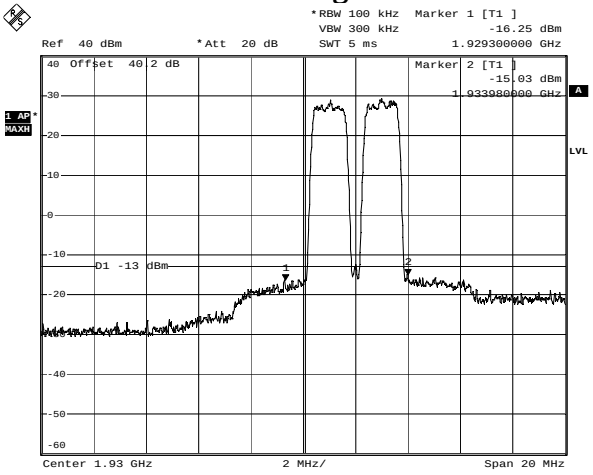
TDMA – Upper bandedge



Downlink - TDMA - Upper Bandedge

Date: 12.SEP.2006 22:34:48

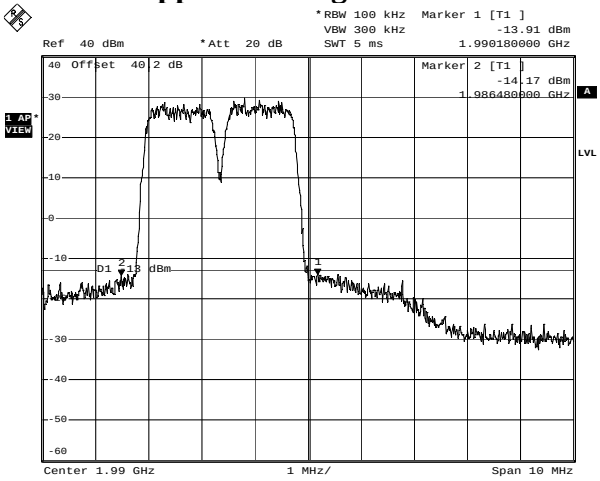
CDMA – Lower bandedge



Downlink - CDMA - Lower Bandedge

Date: 12.SEP.2006 22:02:40

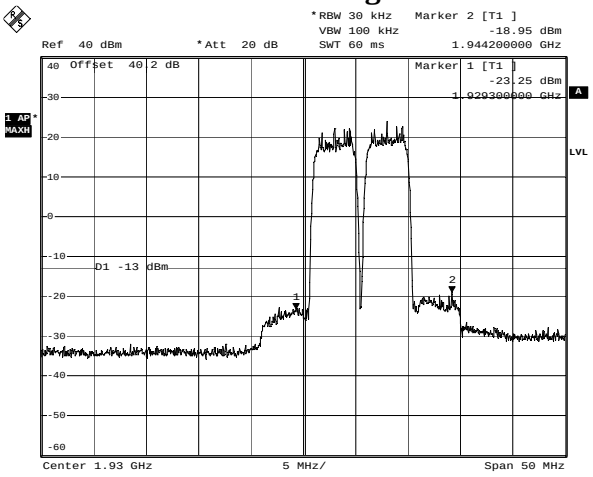
CDMA – Upper bandedge



Downlink - CDMA - Upper Bandedge

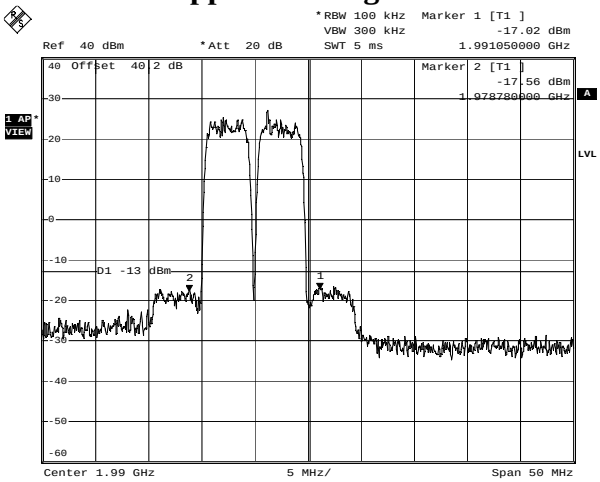
Date: 12.SEP.2006 22:41:12

WCDMA – Lower bandedge



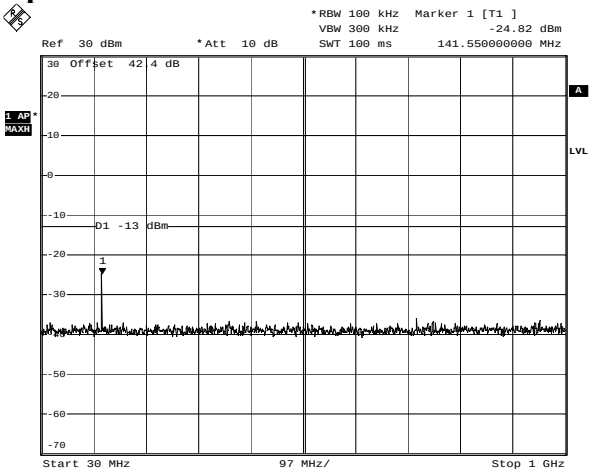
Downlink - WCDMA - Lower Bandedge
Date: 12.SEP.2006 21:59:30

WCDMA – Upper bandedge



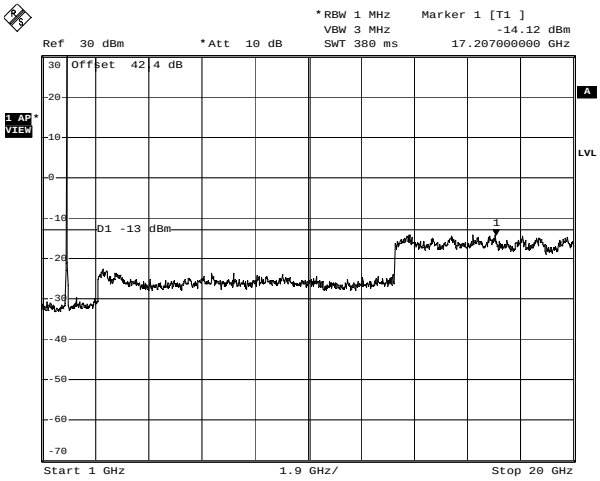
Downlink - WCDMA - Upper Bandedge
Date: 12.SEP.2006 22:44:09

Uplink – Conducted emissions



Uplink - GSM EDGE - Mid Channel

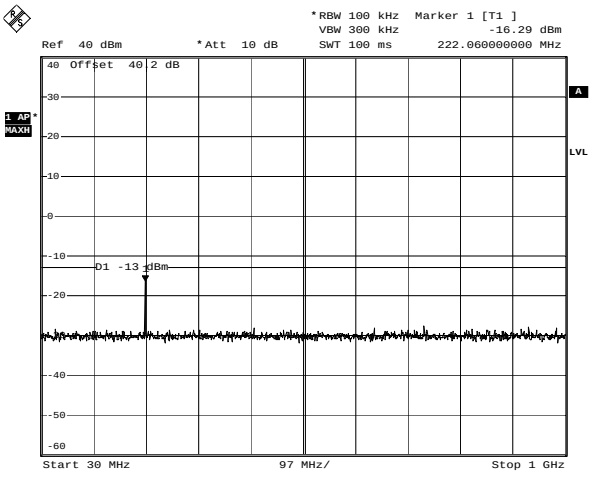
Date: 11.SEP.2006 22:13:03



Uplink - CDMA - Mid Channel

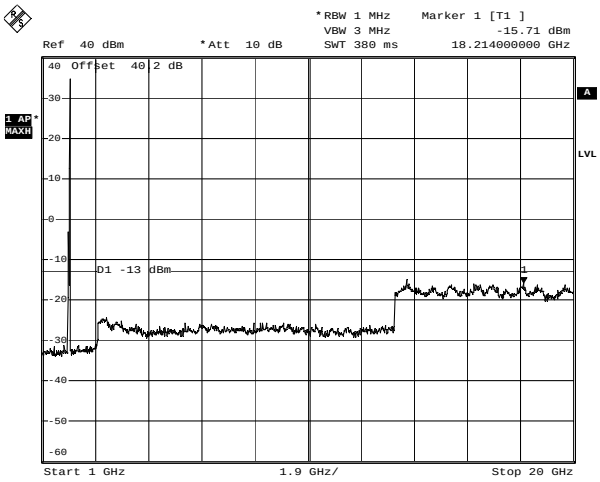
Date: 11.SEP.2006 21:49:49

Downlink – Conducted emissions



Downlink - GSM EDGE - Mid Channel

Date: 13.SEP.2006 16:05:45



Downlink - WCDMA - High Channel

Date: 12.SEP.2006 23:01:26

Clause 24.238 Radiated Spurious Emissions

(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 (°C):**	19
Date:	September 18, 2006	**Humidity (%):**	85
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	OATS

Test Results:

See Attached Table for Results

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.

The EUT was stimulated with a CW signal in a low, middle and high channel.

	Frequency (MHz)	Antenna	Polarity	RCVD Signal (dBuV)	Sig. Sub. Factor	Emission Level (dBm)	Limit (dBm)	Margin (dB)
	Downlink							
1	3860.0000	Horn2	V	75.5	-115.9	-40.4	-13.0	27.4
2	3860.0000	Horn2	H	70.0	-117.0	-47.0	-13.0	34.0
3	3920.0000	Horn2	V	69.5	-116.3	-46.8	-13.0	33.8
4	3920.0000	Horn2	H	80.0	-117.3	-37.3	-13.0	24.3
5	3980.0000	Horn2	V	66.3	-116.7	-50.4	-13.0	37.4
6	3980.0000	Horn2	H	71.3	-117.5	-46.2	-13.0	33.2
	Uplink							
7	3760.0000	Horn2	H	63.7	-116.5	-52.8	-13.0	39.8
8	3820.0000	Horn2	H	62.7	-116.8	-54.1	-13.0	41.1

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:

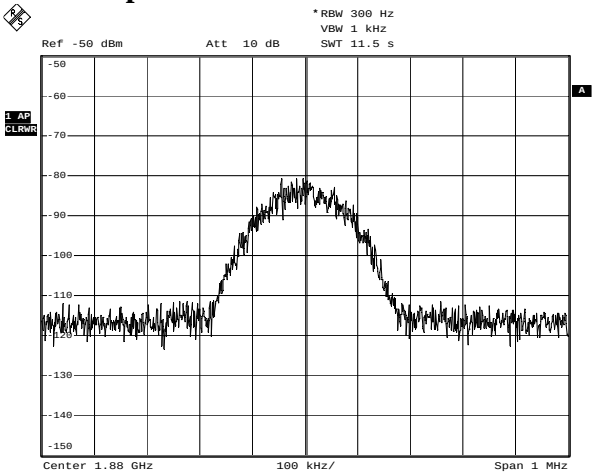
Sample Number:	1	**Temperature (°C):**	25
Date:	September 11, 2006	**Humidity (%):**	29
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	Wireless

Test Results:

See Attached Plots.

Uplink

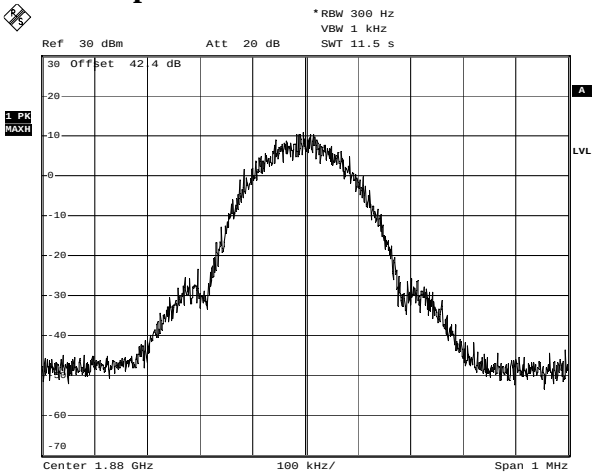
GSM – i/p



Uplink - GSM - Input

Date: 11.SEP.2006 20:02:21

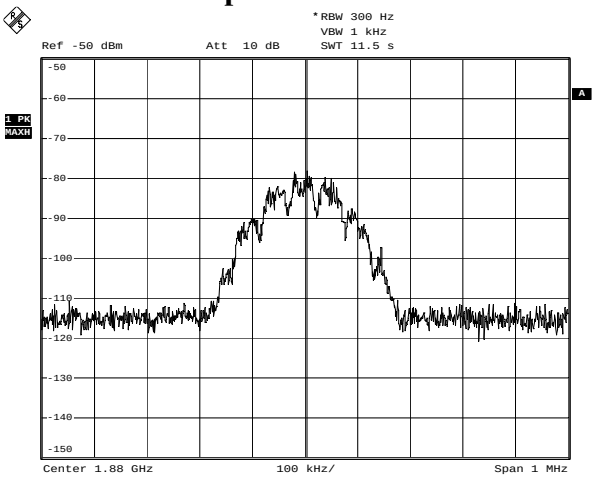
GSM – o/p



Uplink - GSM - Output

Date: 11.SEP.2006 19:57:55

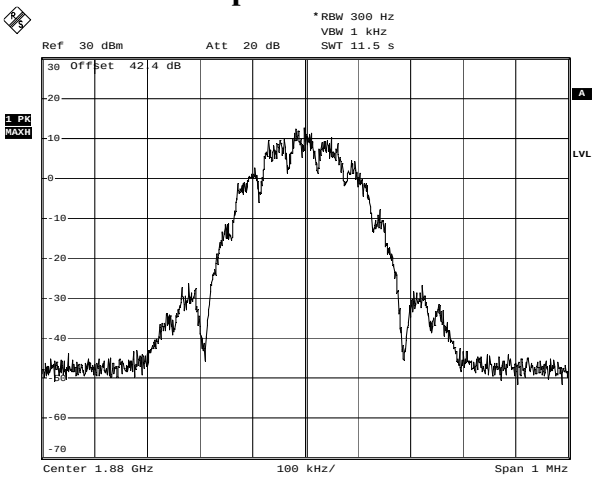
GSM EDGE – i/p



Uplink - GSM EDGE - Input

Date: 11.SEP.2006 20:02:59

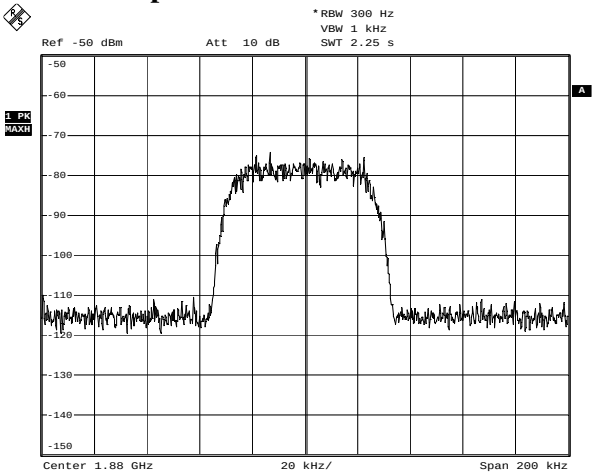
GSM EDGE – o/p



Uplink - GSM EDGE - Output

Date: 11.SEP.2006 19:59:01

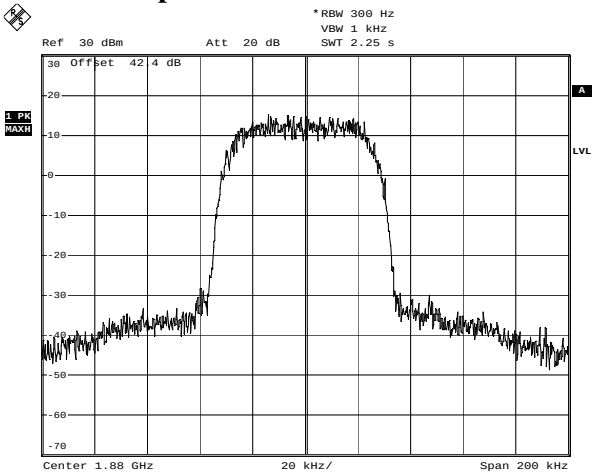
TDMA – i/p



Uplink - TDMA - Input

Date: 11.SEP.2006 20:01:37

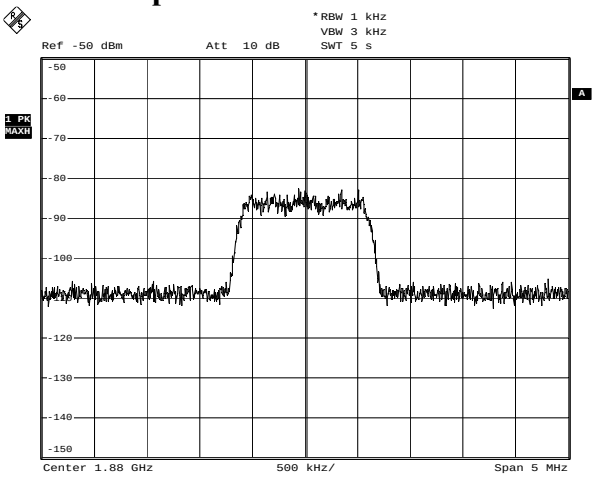
TDMA – o/p



Uplink - TDMA - Output

Date: 11.SEP.2006 19:59:43

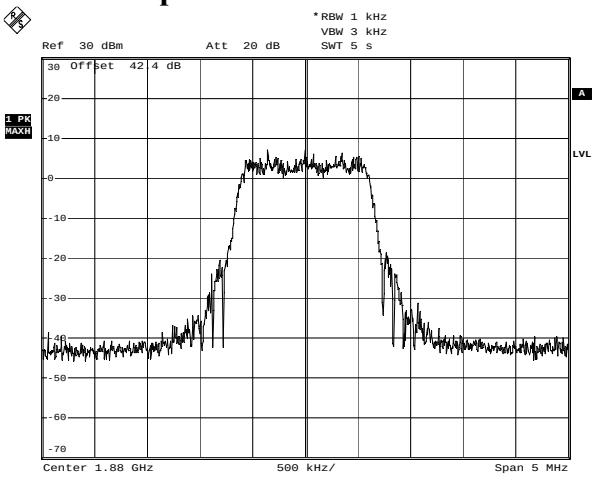
CDMA – i/p



Uplink - CDMA - Input

Date: 11.SEP.2006 20:03:45

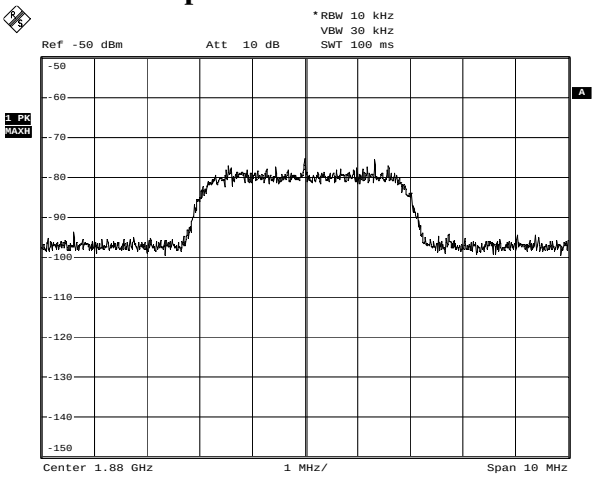
CDMA – o/p



Uplink - CDMA - Output

Date: 11.SEP.2006 19:50:48

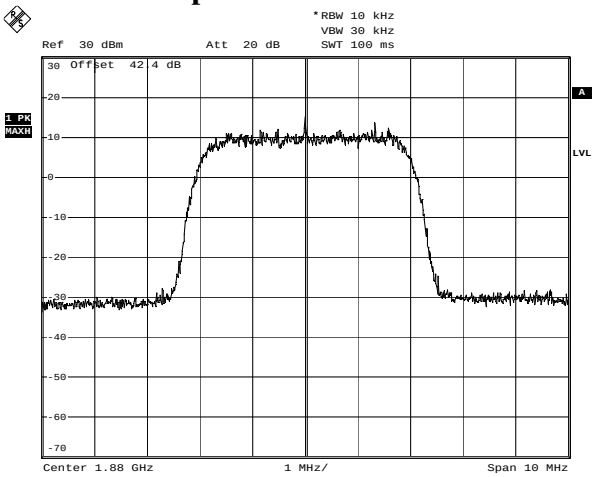
WCDMA – i/p



Uplink - WCDMA - Input

Date: 11.SEP.2006 20:04:14

WCDMA – o/p

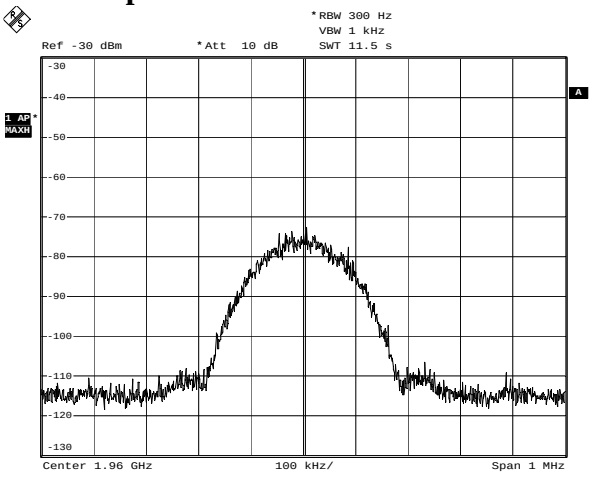


Uplink - WCDMA - Output

Date: 11.SEP.2006 19:49:28

Downlink

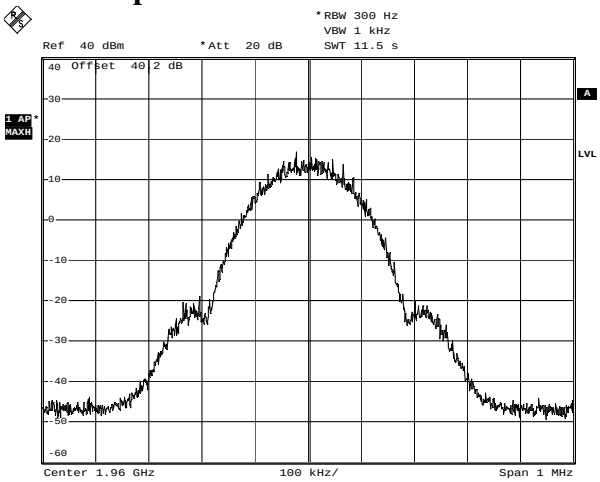
GSM – i/p



Downlink - GSM - Input

Date: 12.SEP.2006 21:45:41

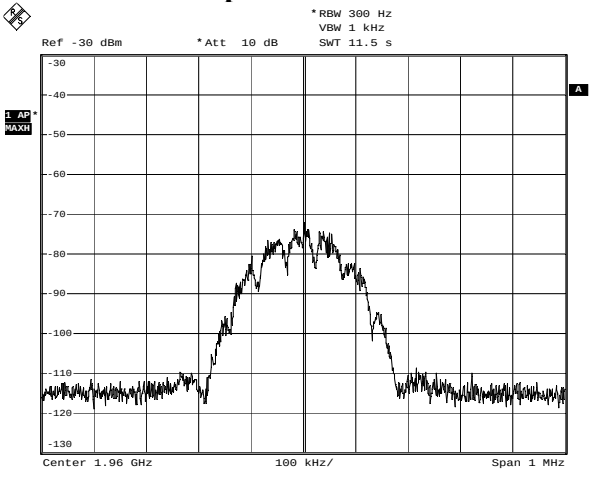
GSM – o/p



Downlink - GSM - Output

Date: 12.SEP.2006 21:08:28

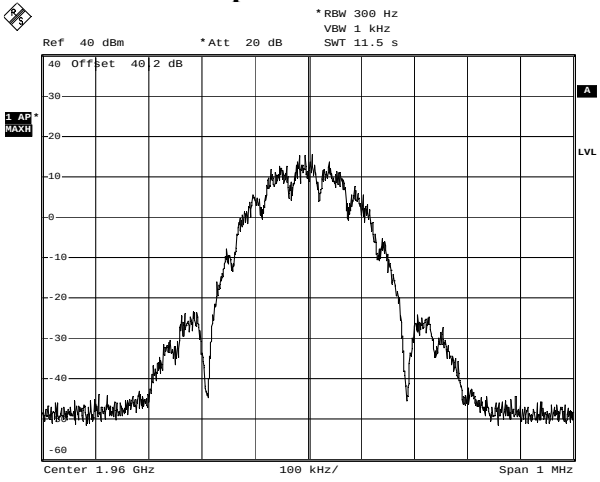
GSM EDGE – i/p



Downlink - GSM EDGE - Input

Date: 12.SEP.2006 21:46:29

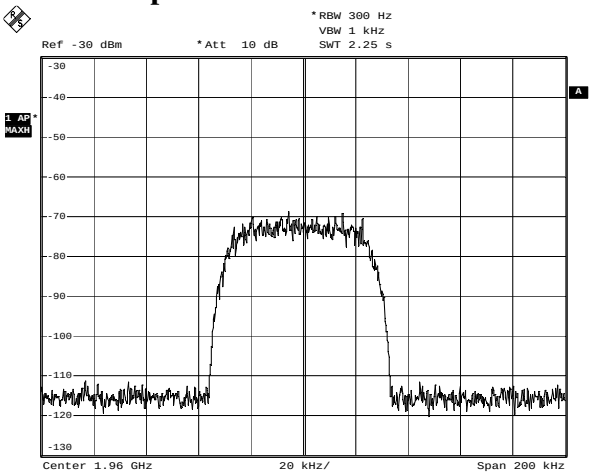
GSM EDGE – o/p



Downlink - GSM EDGE - Output

Date: 12.SEP.2006 21:22:42

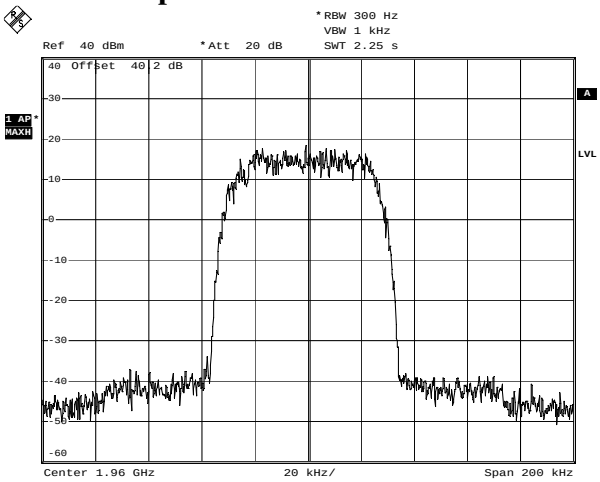
TDMA – i/p



Downlink - TDMA - Input

Date: 12.SEP.2006 21:24:35

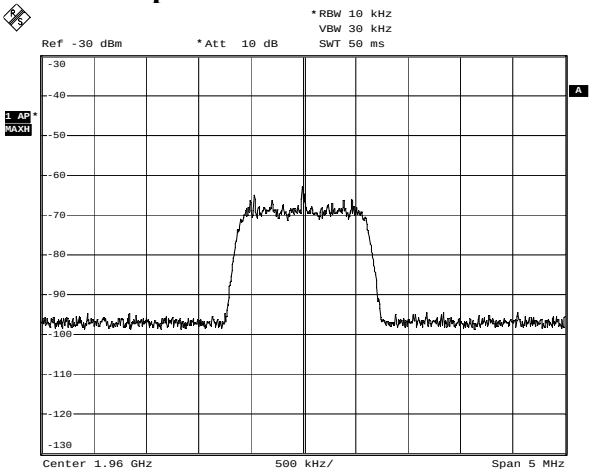
TDMA – o/p



Downlink - TDMA - Output

Date: 12.SEP.2006 21:23:19

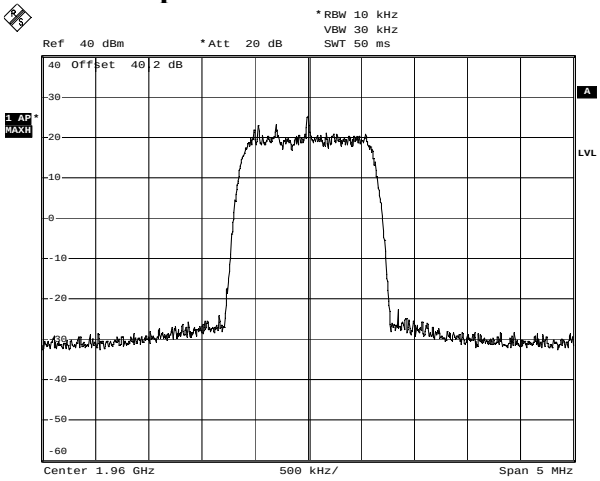
CDMA – i/p



Downlink - CDMA - Input

Date: 12.SEP.2006 21:47:14

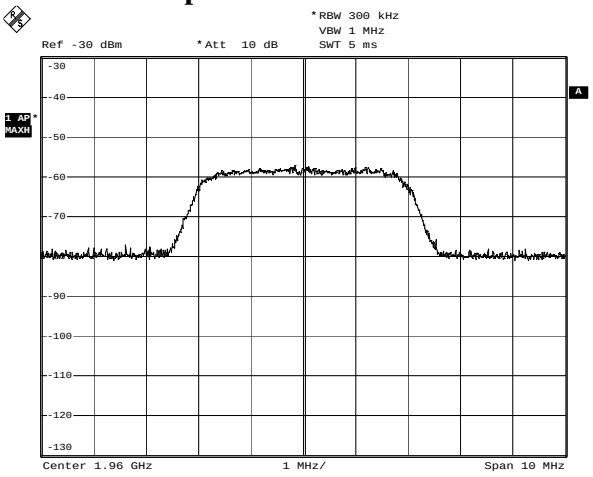
CDMA – o/p



Downlink - CDMA - Output

Date: 12.SEP.2006 21:04:21

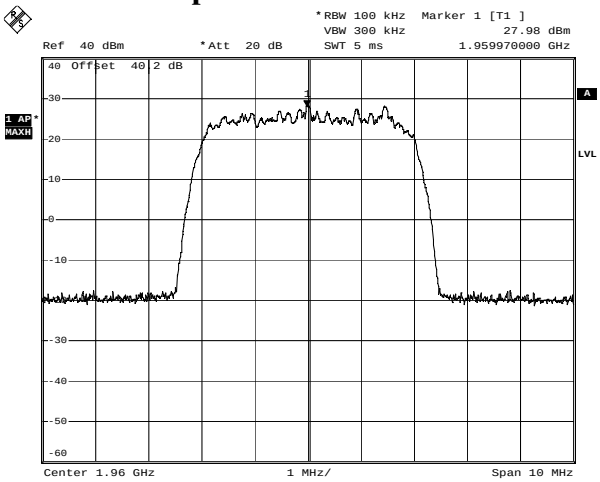
WCDMA – i/p



Downlink - WCDMA - Input

Date: 12.SEP.2006 21:47:42

WCDMA – o/p



Downlink - WCDMA - Output

Date: 12.SEP.2006 21:03:38

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

Plots showing the filter frequency response.

Test Conditions:

Sample Number:	1	**Temperature (°C):**	25
Date:	September 11, 2006	**Humidity (%):**	29
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	Wireless

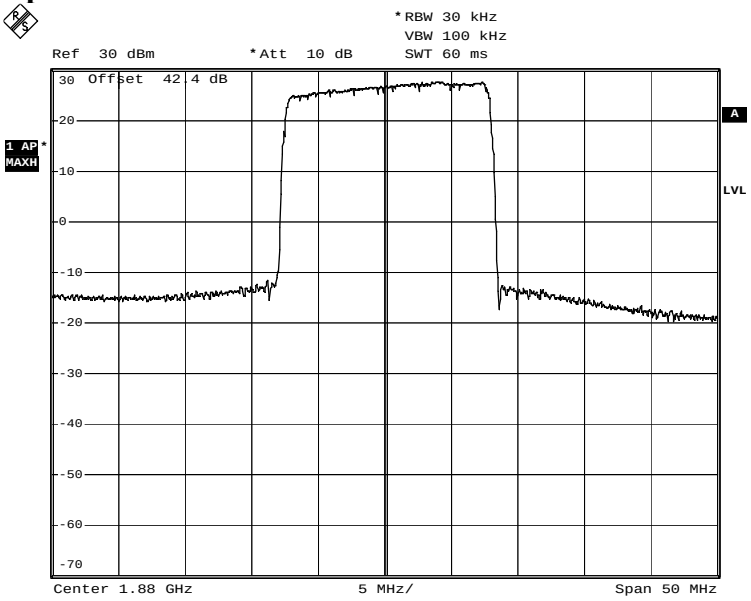
Test Results:

See Attached Plots.

Additional Observations:

The EUT has two different filter settings selectable by software.

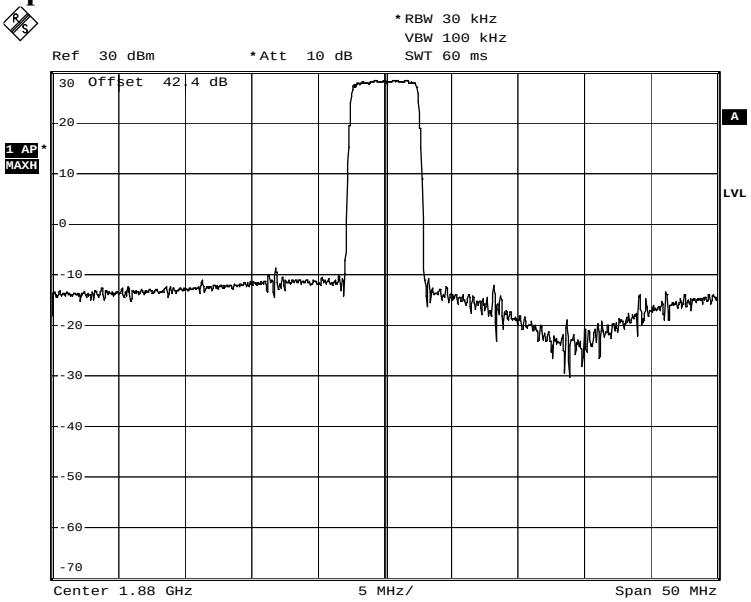
Uplink – 15MHz Filter



Uplink - 15MHz Filter Out-of-Band Reject

Date: 11.SEP.2006 22:26:21

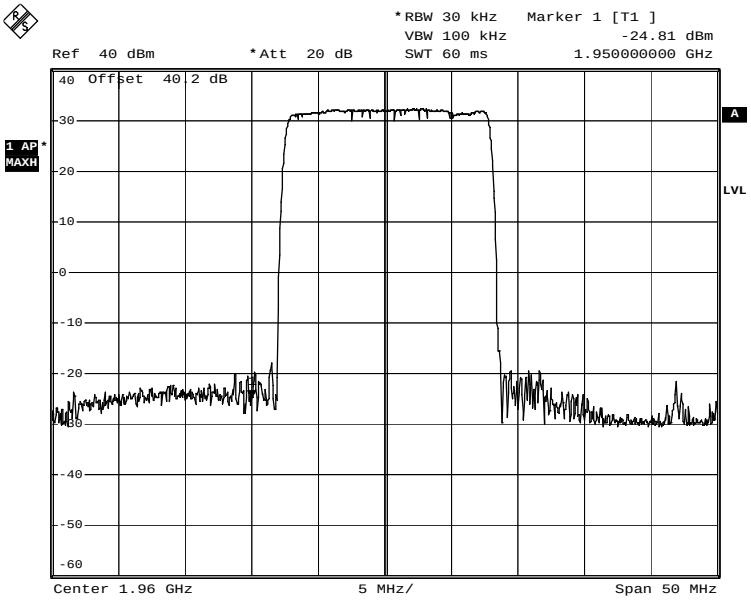
Uplink – 5MHz Filter



Uplink - 5MHz Filter Out-of-Band Reject

Date: 11.SEP.2006 22:30:31

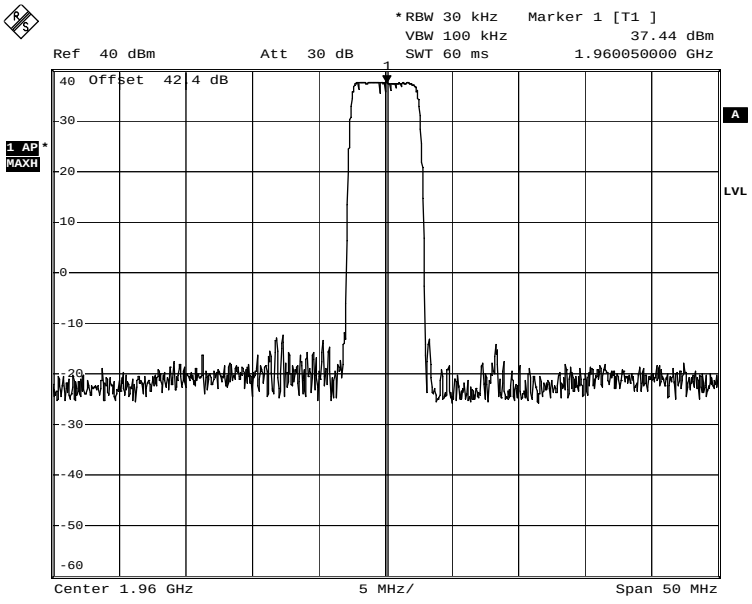
Downlink – 15MHz Filter



Downlink - 15MHz Filter Out-of-Band Reject

Date: 11.SEP.2006 23:09:21

Downlink – 5MHz Filter



Downlink - 5MHz Filter Out-of-Band Reject

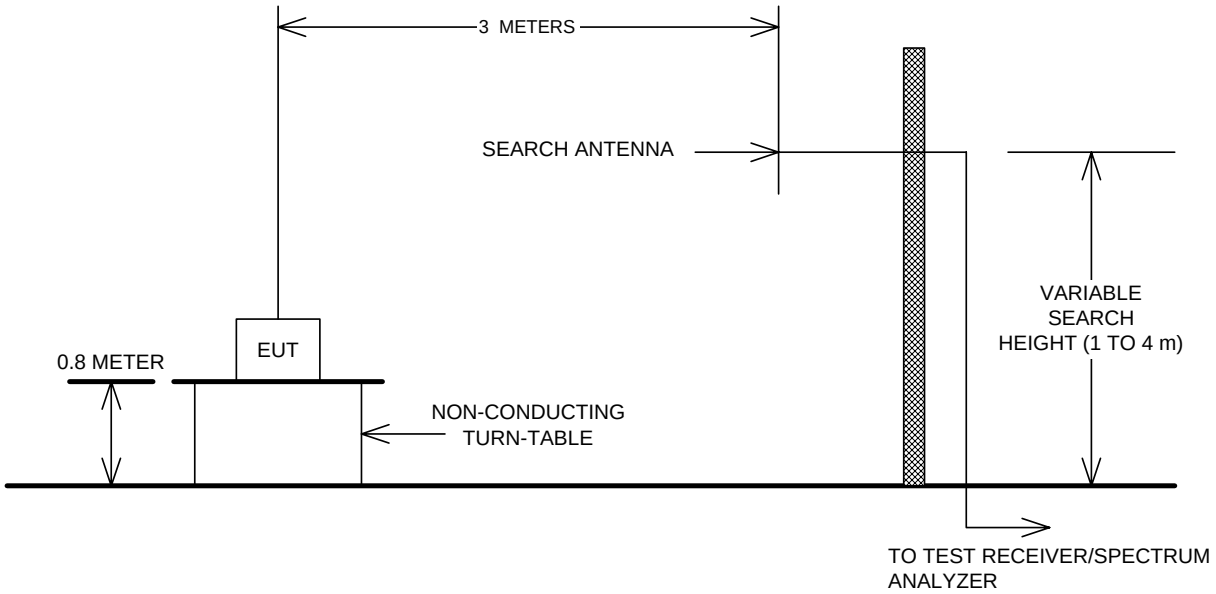
Date: 11.SEP.2006 22:35:51

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