



Test Report: 6W71891


Applicant: Dekolink Wireless Ltd.
16 Bazel St. Qiryat-Arieh
Petah-Tikva
49510 Israel

Apparatus: MW-IBDB-SMR-10W40-PS8

FCC ID: OIWIBDBESMR10W40

In Accordance With: FCC Part 90, Boosters
Private Land Mobile Radio Services

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

Authorized By: 
Roman Kuleba, Wireless Specialist

Date: September 12, 2006

Total Number of Pages: 23

Report Summary

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 90. 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:	MW-IBDB-SMR-10W40-PS8
Specification:	FCC Part 90 Private Land Mobile Radio Services
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-IBDB-SMR-10W40-PS8

1.2 Samples Submitted for Assessment

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

Sample No.	Description	Serial No.
1	ComPact BDA	06076043

The first samples were received on: August 1, 2006

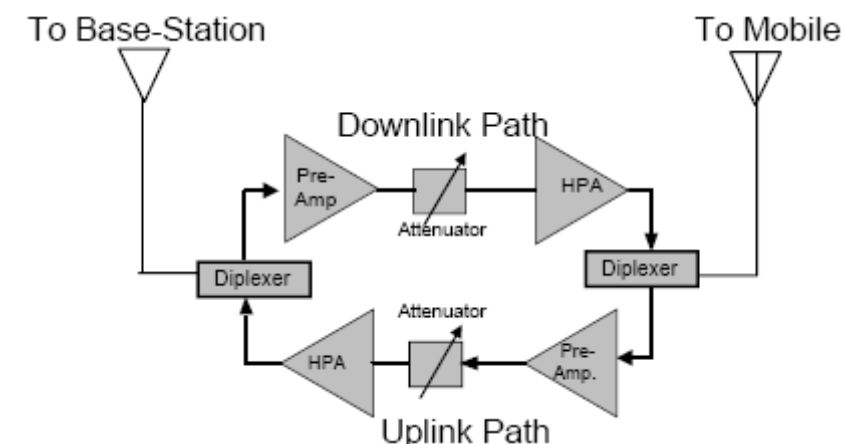
1.3 Theory of Operation

The MW-IBDB-SMR-10W40-PS8 is a bi-directional amplifier. The Signal received at the Base Antenna is amplified and transmitted at the Mobile antenna and the signals at the Mobile antenna are amplified and transmitted via the Base antenna.

1.4 Technical Specifications of the EUT

Manufacturer:	Dekolink Wireless Ltd.
Operating Frequency:	Downlink: 851 – 869MHz Uplink: 806 – 824MHz
Emission Designator:	GXW
Rated Power:	Downlink: 30dBm (1W) Uplink: 24dBm (0.25W)
Measured Power:	Downlink: 25.75dBm Uplink: 21.61dBm
Modulation:	iDEN
Power Source:	120VAC 60Hz

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 90 Private Land Mobile Radio Services
 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	FSP40	FA001920	Mar 17/07
Signal Generator	Rohde & Schwarz	SMIQ03E	FA001269	May 29/07
Signal Generator	Rohde & Schwarz	SMIQ06B	FA001878	June 28/07
Power Meter	HP	E4418B	FA001413	May 15/07
Power Sensor	HP	8487A	FA001908	Apr 6/07
Attenuator	Narda	776B-20	FA001153	COU
Attenuator	Narda	769-20	FA001394	COU
Combiner	Mini-circuits	ZA3PD-2	FA001155	COU
Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	May 16/07
Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	May 16/07
Biconical (1) Antenna	EMCO	3109	FA000805	May 03/07
Log Periodic Antenna #2	EMCO	3148	FA001355	May 16/07
Horn Antenna #1	EMCO	3115	FA000649	Jan. 12/07
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

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

The following technical judgement was made during this assessment:

3.2.1 Technical Judgement 1

The apparatus was previously assessed in Nemko Test Report 4W06835. The applicant is applying for a Class II permissive change because the duplexer has been retuned to allow for a large bandwidth. It was judged that full testing would be required.

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 90 : 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 90 : Test Results

Clause	Test Method	Test Description	Required	Result
90.205	2.1046	Output power	Y	PASS
90.210	2.1051	Conducted spurious emissions	Y	PASS
90.210	2.1053	Radiated spurious emissions	Y	PASS
90.213	2.1055	Frequency stability	N (1)	
90.214	—	Transient Behavior	N	
90.219	—	Use of boosters	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 apparatus does not contain any band translation circuitry.

Appendix A : Test Results

Clause 90.205 Output Power

Applicants for licenses must request and use no more power than the actual power necessary for satisfactory operation. Except where otherwise specifically provided for, the maximum power that will be authorized for new stations authorized after August 16, 1995 is as follows in FCC Part 90.205(a) through (r).

Test Conditions:

Sample Number:	1	Temperature (°C):	24
Date:	August 31, 2006	Humidity (%):	36
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Wireless

Test Results:

	Measured	Rated
Uplink	21.61dBm	24dBm
Downlink	25.75dBm	30dBm

Additional Observations:

Testing was performed with a single iDEN carrier set to the 1dB compression point.

Testing was performed using an average power meter.

Clause 90.210 Conducted Spurious Emissions

Except as indicated elsewhere in this part, transmitters used in the radio services governed by this part must comply with the emission masks outlined in this section. Unless otherwise stated, per paragraphs (d)(4), (e)(4), and (m) of this section, measurements of emission power can be expressed in either peak or average values provided that emission powers are expressed with the same parameters used to specify the unmodulated transmitter carrier power. For transmitters that do not produce a full power unmodulated carrier, reference to the unmodulated transmitter carrier power refers to the total power contained in the channel bandwidth. Unless indicated elsewhere, the Table below specifies the emission masks for equipment operating in the frequency bands governed under this part.

Test Conditions:

Sample Number:	1	Temperature (°C):	24
Date:	August 31, 2006	Humidity (%):	36
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Wireless

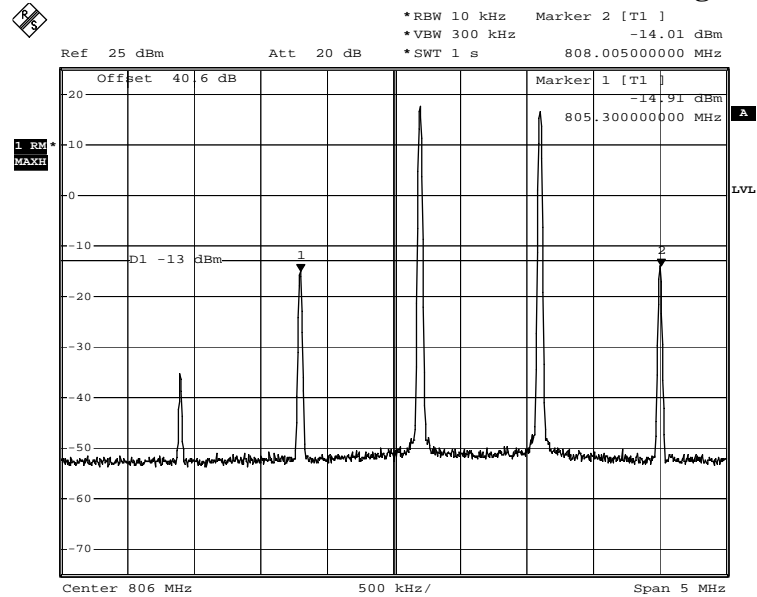
Test Results:

See Attached Plots.

Additional Observations:

Conducted emissions were performed on iDEN modulation and on low, middle and high channels in each band. Only the worst case is shown for each band.

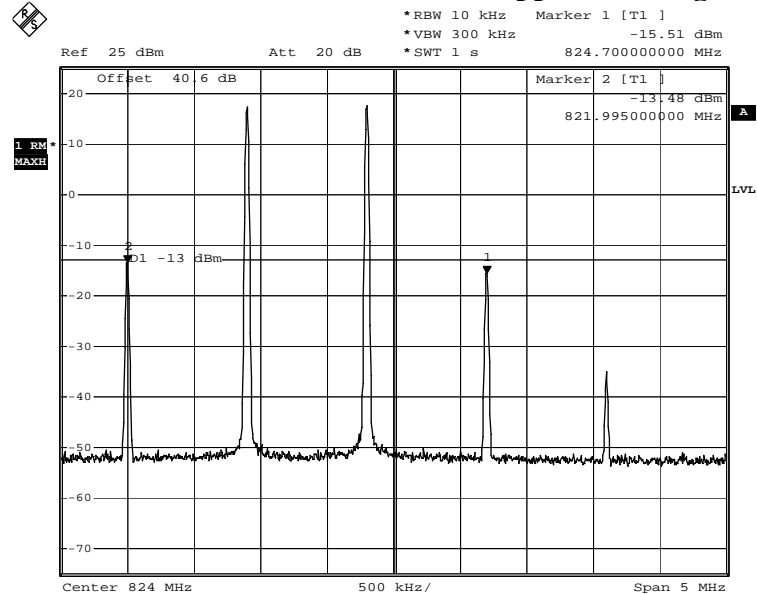
Uplink iDEN 3rd Order Intermodulation – Lower Bandedge



iDEN - Lower Bandedge - Uplink

Date: 31.AUG.2006 19:43:04

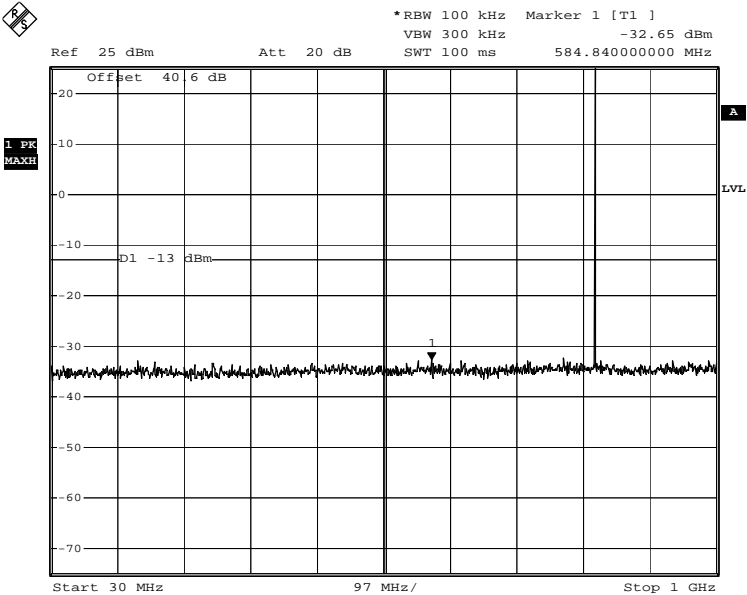
iDEN 3rd Order Intermodulation – Upper Bandedge



iDEN - Upper Bandedge - Uplink

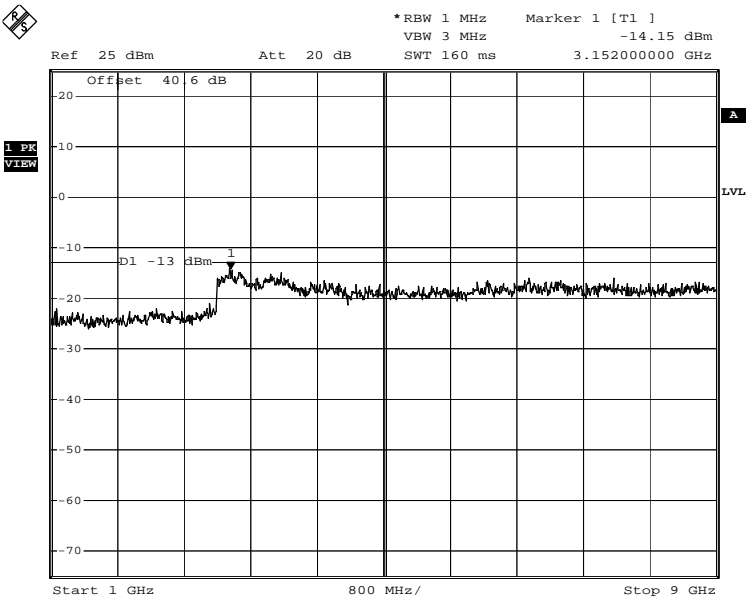
Date: 31.AUG.2006 19:45:48

Conducted Emissions



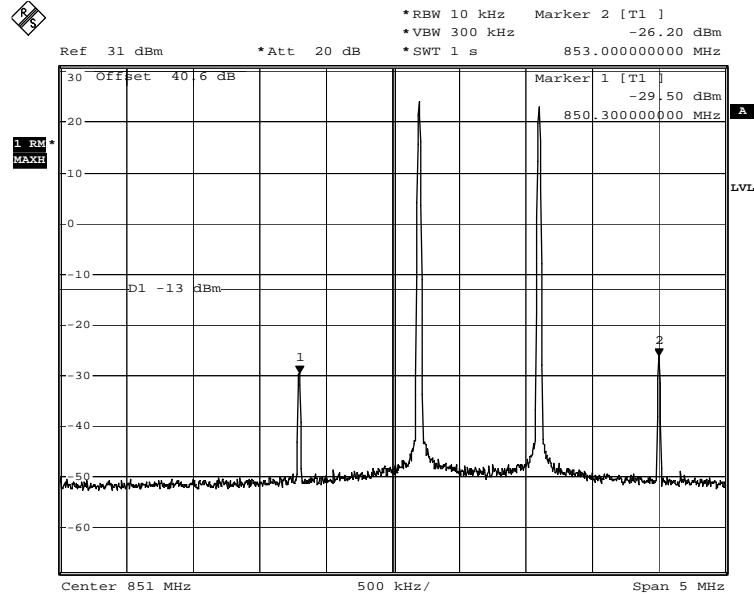
iDEN - High Channel - Uplink

Date: 31.AUG.2006 17:58:35



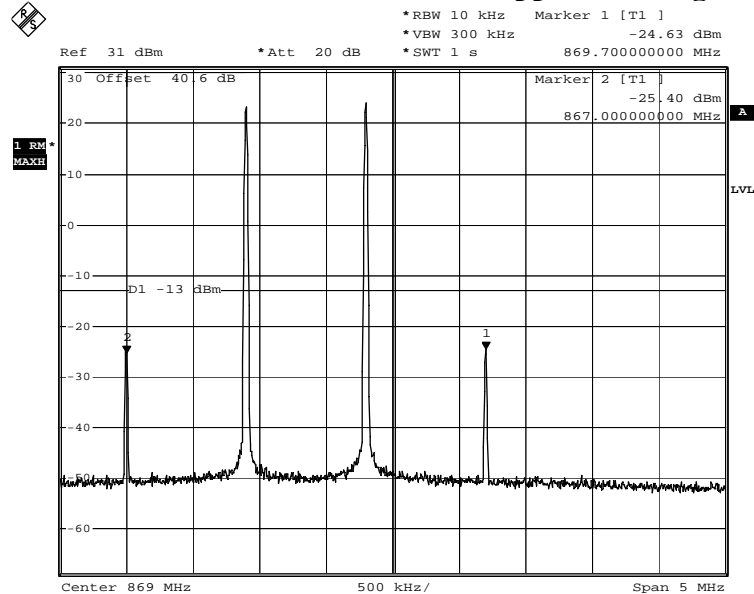
iDEN - High Channel - Uplink

Date: 31.AUG.2006 17:59:00

Downlink:**iDEN 3rd Order Intermodulation – Lower Bandedge**

iDEN - Lower Bandedge - Downlink

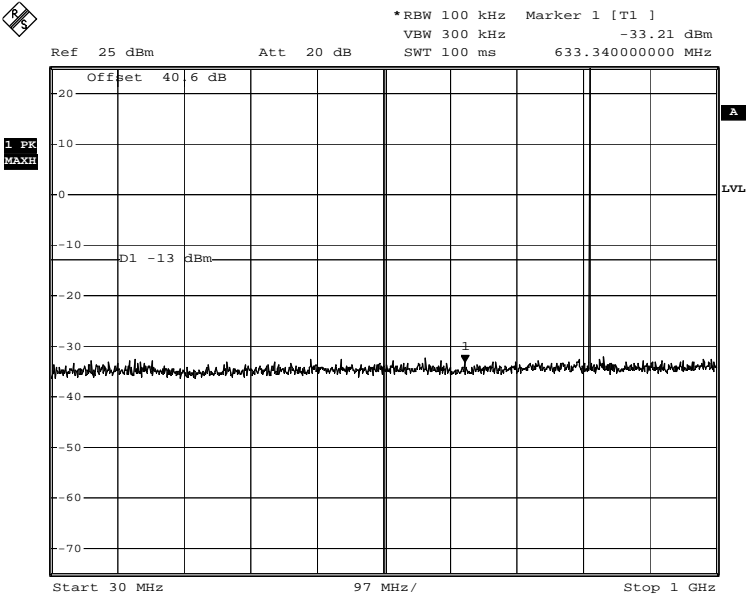
Date: 31.AUG.2006 21:04:40

iDEN 3rd Order Intermodulation – Upper Bandedge

iDEN - Upper Bandedge - Downlink

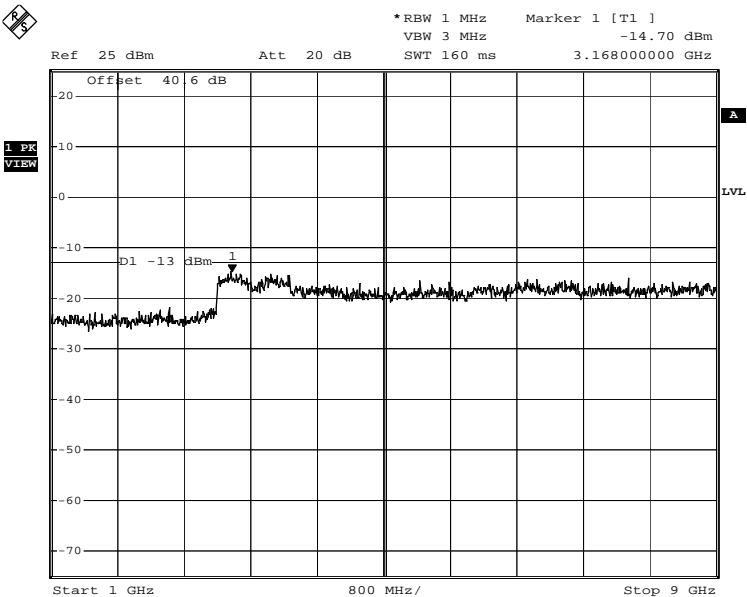
Date: 31.AUG.2006 21:09:14

Conducted Emissions



iDEN - Mid Channel - Uplink

Date: 31.AUG.2006 17:50:27



iDEN - Mid Channel - Uplink

Date: 31.AUG.2006 17:51:00

Clause 90.210 Radiated Spurious Emissions

Except as indicated elsewhere in this part, transmitters used in the radio services governed by this part must comply with the emission masks outlined in this section. Unless otherwise stated, per paragraphs (d)(4), (e)(4), and (m) of this section, measurements of emission power can be expressed in either peak or average values provided that emission powers are expressed with the same parameters used to specify the unmodulated transmitter carrier power. For transmitters that do not produce a full power unmodulated carrier, reference to the unmodulated transmitter carrier power refers to the total power contained in the channel bandwidth. Unless indicated elsewhere, the Table below specifies the emission masks for equipment operating in the frequency bands governed under this part.

Test Conditions:

Sample Number:	1	Temperature (°C):	22
Date:	August 29, 2006	Humidity (%):	45
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 9GHz

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.

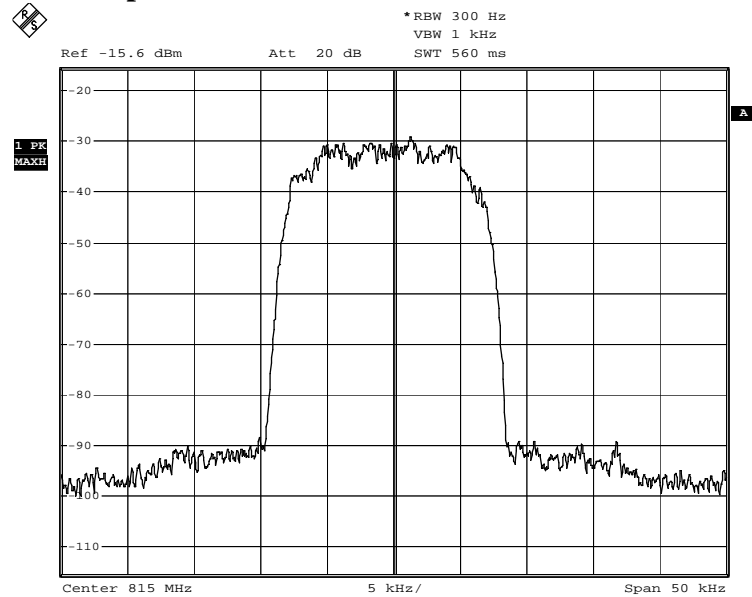
Test Conditions:

Sample Number:	1	Temperature (°C):	24
Date:	August 31, 2006	Humidity (%):	36
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Wireless

Test Results:

See Attached Plots.

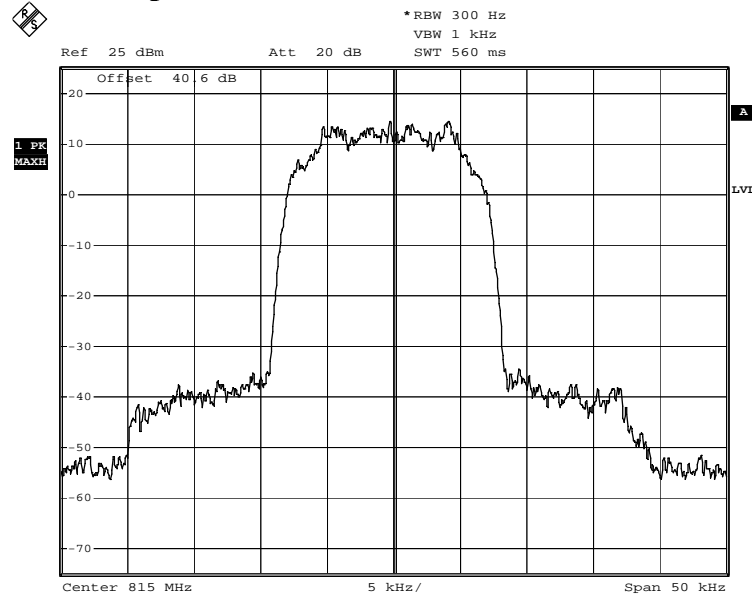
Uplink: iDEN Input



iDEN Input - Uplink

Date: 31.AUG.2006 17:27:38

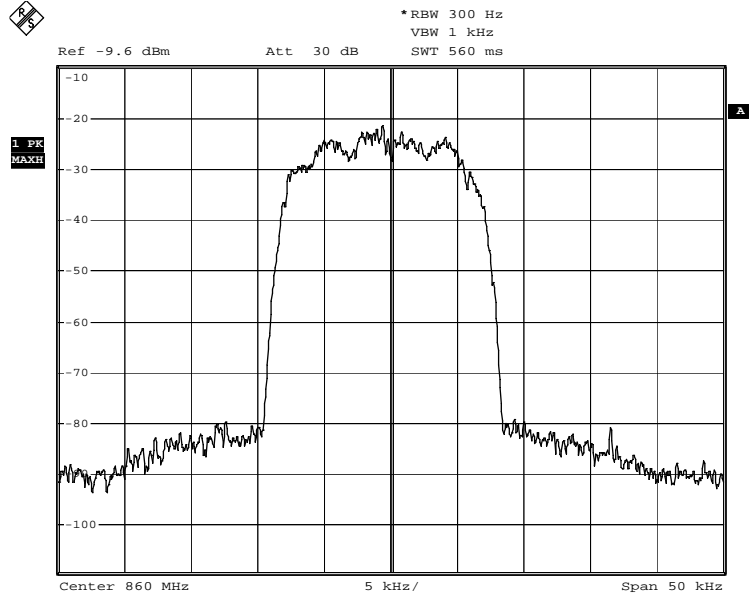
iDEN Output



iDEN Output - Uplink

Date: 31.AUG.2006 17:26:40

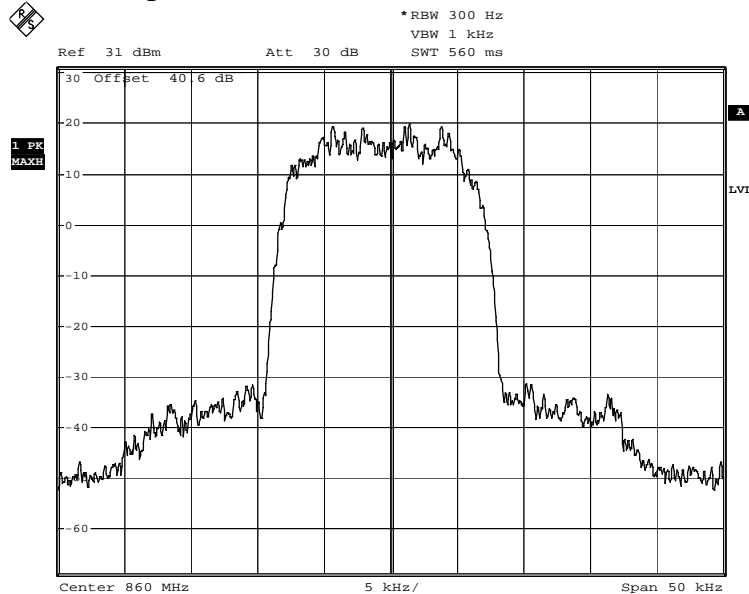
Downlink: iDEN Input



iDEN - Input - Downlink

Date: 31.AUG.2006 20:24:38

iDEN Output



iDEN - Output - Downlink

Date: 31.AUG.2006 20:22:12

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

Plots showing the filter frequency response.
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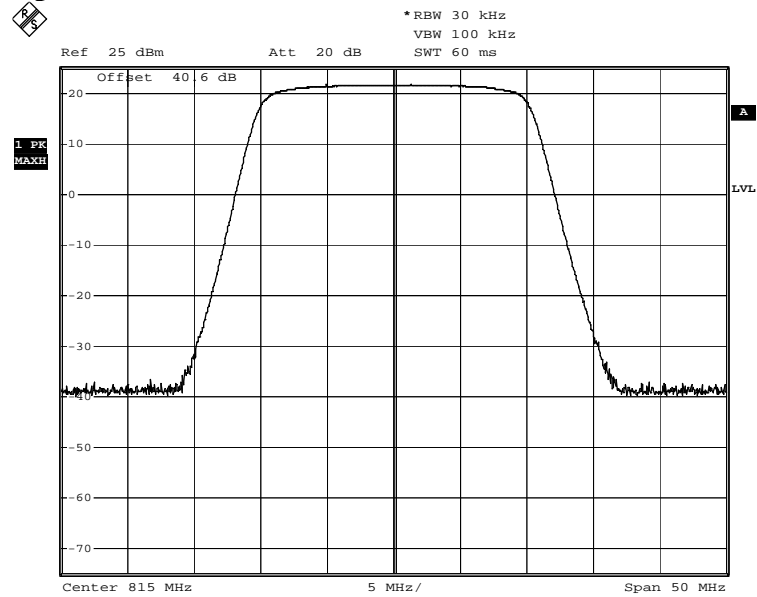
Test Conditions:

Sample Number:	1	Temperature (°C):	24
Date:	August 31, 2006	Humidity (%):	36
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Wireless

Test Results:

See Attached Plots.

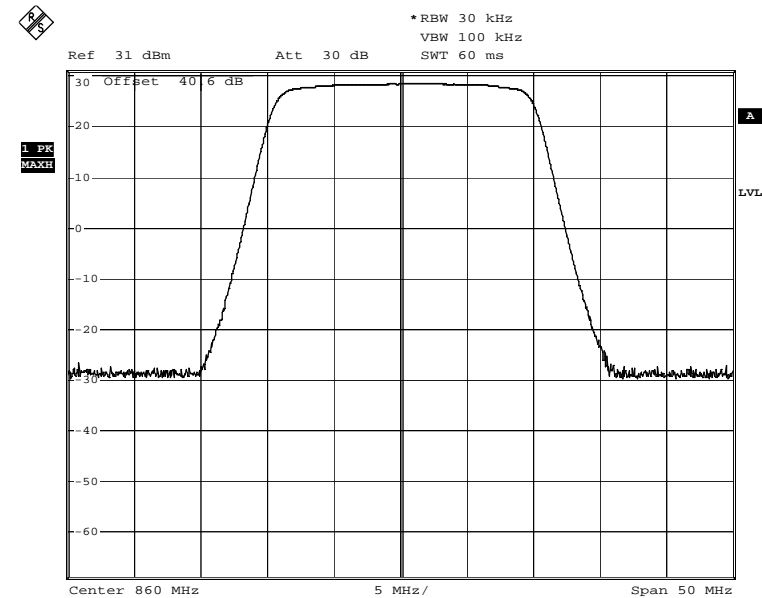
Uplink:



Out-of-Band Reject - Uplink

Date: 31.AUG.2006 17:22:53

Downlink:



Out-of-band Reject - Downlink

Date: 31.AUG.2006 20:13:03

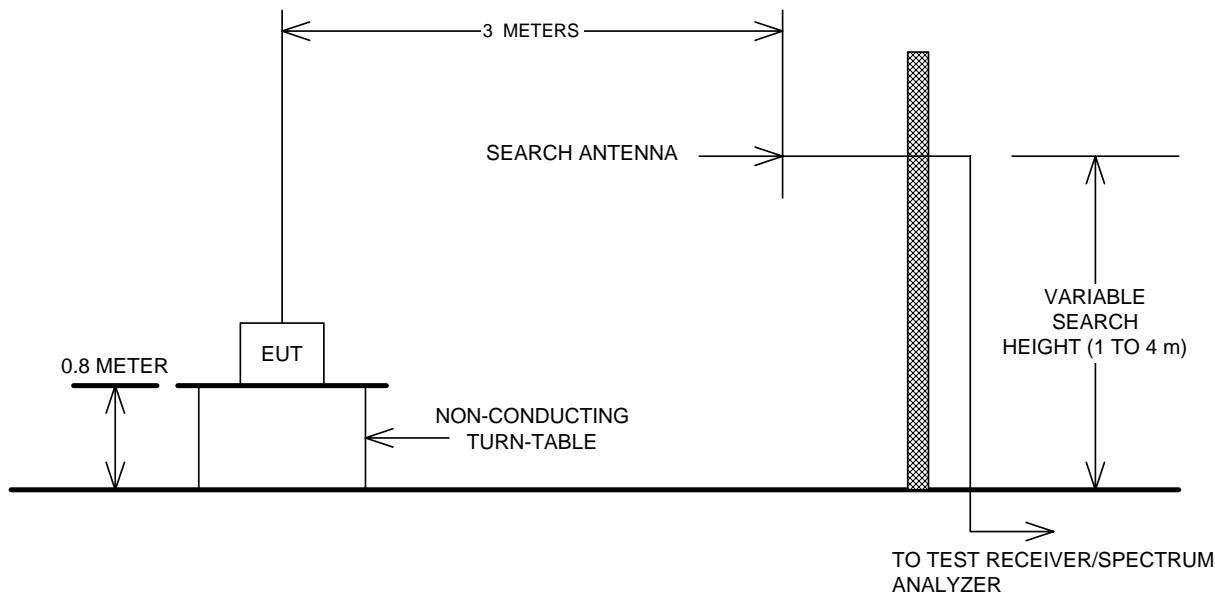
Appendix B : Setup Photographs

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

