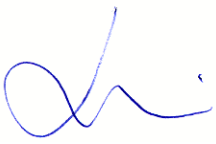
Test Report:	6W76214.1
Applicant:	Spotwave Wireless Inc. 1 Hines Road Ottawa, Ontario K2K 3C7
Apparatus:	Spotcell DU 167/267
FCC ID:	P3YSPOTCELL0009
In Accordance With:	FCC Part 90, Boosters Private Land Mobile Radio Services Class II Permissive Change
Tested By:	Nemko Canada Inc. 303 River Road Ottawa, Ontario K1V 1H2
Authorized By:	 Jin Xu, Wireless Specialist
Date:	November 17, 2006
Total Number of Pages:	16

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 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: Spotcell DU 167/267

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.

TABLE OF CONTENTS

Section 1 : Equipment Under Test

1.1 Product Identification

The Equipment Under Test was identified as follows:

Spotcell DU 167/267

1.2 Samples Submitted for Assessment

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

Sample No.	Description	Serial No.
1	CU unit	B00646060010110043
2	DU unit	None
8	Baknor Power supply	C006210005

The first samples were received on: November 8, 2006

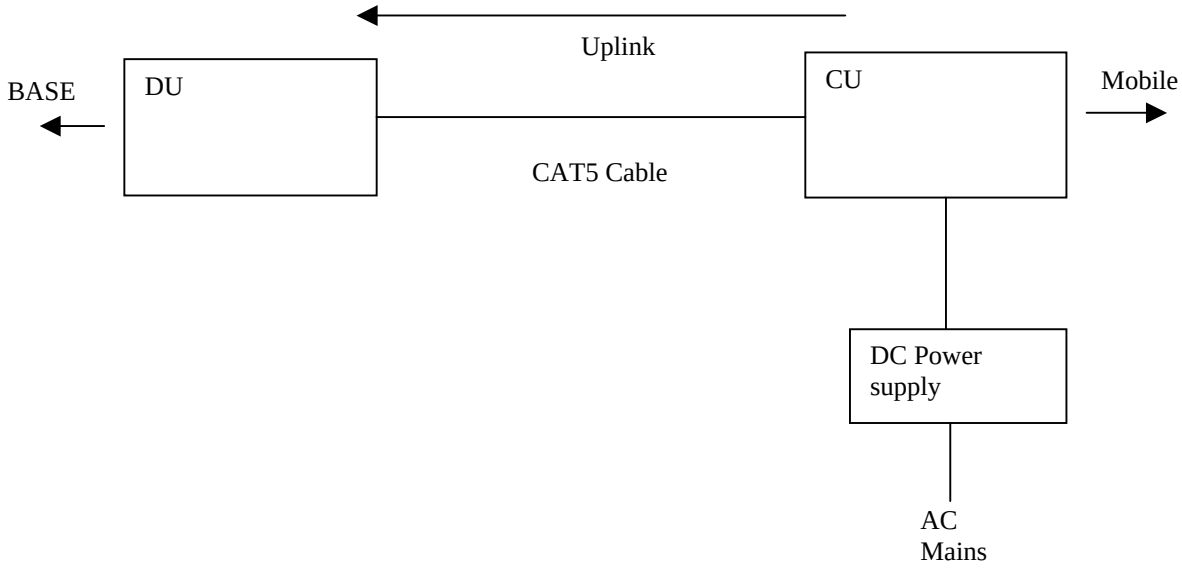
1.3 Theory of Operation

The EUT is a bi-directional booster. Signals received at the CU antenna are amplified and transmitted out the DU antenna, and signals received at the DU antenna are amplified and transmitted out the CU antenna.

1.4 Technical Specifications of the EUT

Manufacturer:	Spotwave Wireless Inc.
Operating Frequency:	Uplink: 806-821MHz
Emission Designator:	G9W
Rated Power:	Uplink: 30dBm
Measured Power:	Uplink: 29.43dBm
Modulation:	4FSK

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 ^{o}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 Analyser	R&S	ESU26	FA002043	Oct 24/07
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

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

This report covers emissions in the Uplink direction. The Spotcell DU works in combination with the Spotcell CU (FCC ID: P3YSPOTCELL0009) to provide a bi-directional booster. Signals were injected via a Spotcell CU unit.

3.2.2 Technical Judgement 2

This assessment is being performed as a class II permissive change to add the G9W emission designator to the already approved system. It was judged that only output power, conducted emissions and occupied bandwidth would be the only tests required to show compliance, as the remainder are not performed under modulation.

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	N	
90.213	2.1055	Frequency stability	N	
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	N	

Notes:

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 & 2	**Temperature:**	20
Date:	November 9, 2006	**Humidity:**	34
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	Wireless

Test Results:

	4FSK
Uplink	
806MHz	29.32dBm
815MHz	29.43dBm
821MHz	28.10dBm

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.

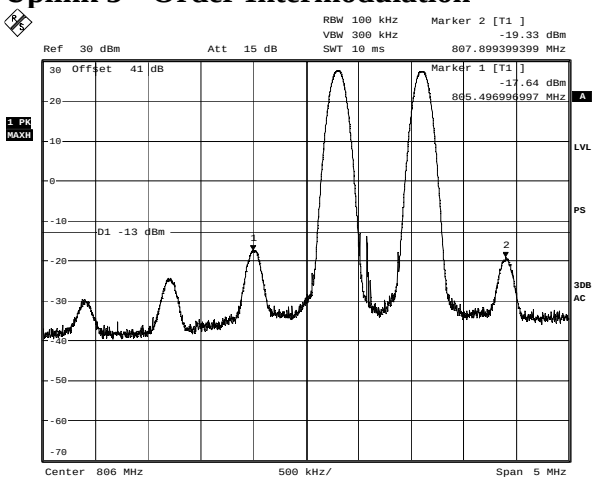
Test Conditions:

Sample Number:	1 & 2	**Temperature:**	20
Date:	November 9, 2006	**Humidity:**	34
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	Wireless

Test Results:

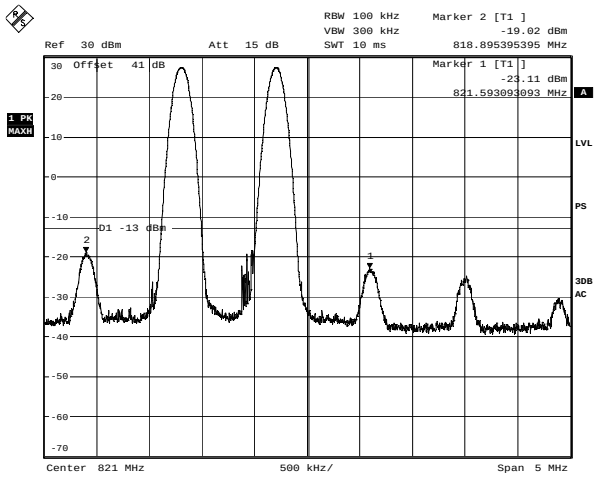
See Attached Plots.

Uplink 3rd Order Intermodulation



Uplink - 4FSK - 3rd Order Intermodulation

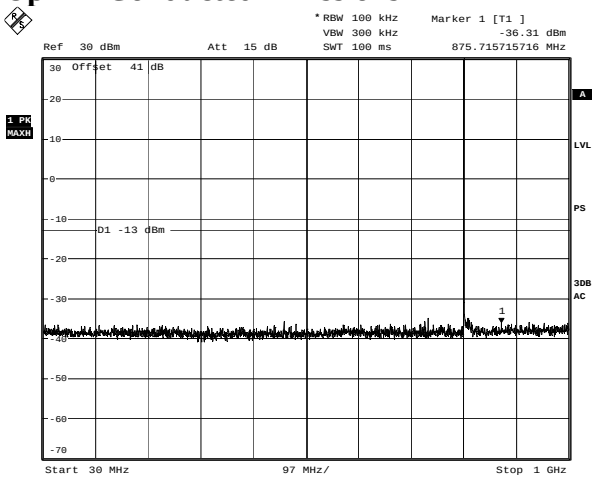
Date: 9.NOV.2006 19:15:40



Uplink - 4FSK - 3rd Order Intermodulation

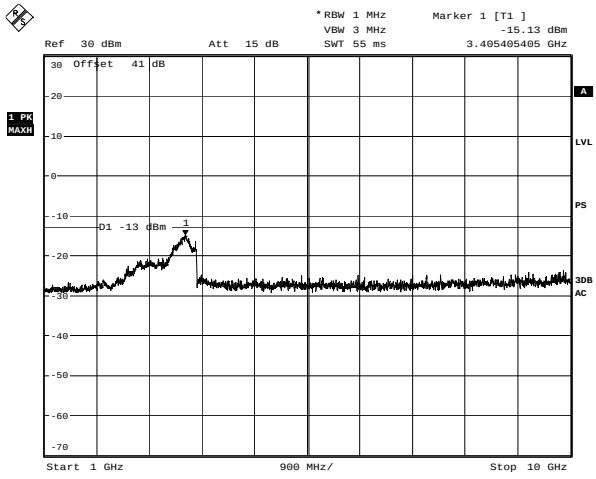
Date: 9.NOV.2006 19:24:25

Uplink Conducted Emissions



Uplink - 4FSK - Low Channel - Conducted Emissions

Date: 9.NOV.2006 19:28:38



Uplink - 4FSK - Low Channel - Conducted Emissions

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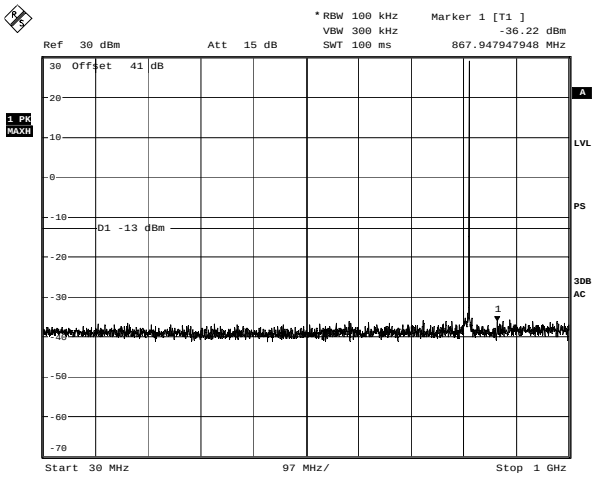
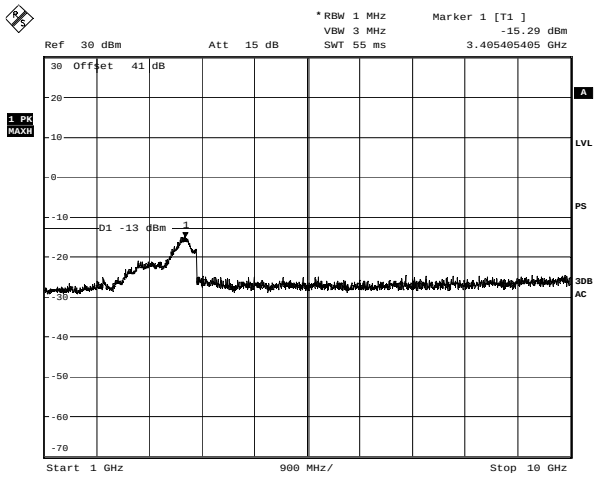


Uplink - 4FSK - Mid Channel - Conducted Emissions

Date: 9.NOV.2006 19:27:51



Uplink - 4FSK - Mid Channel - Conducted Emissions

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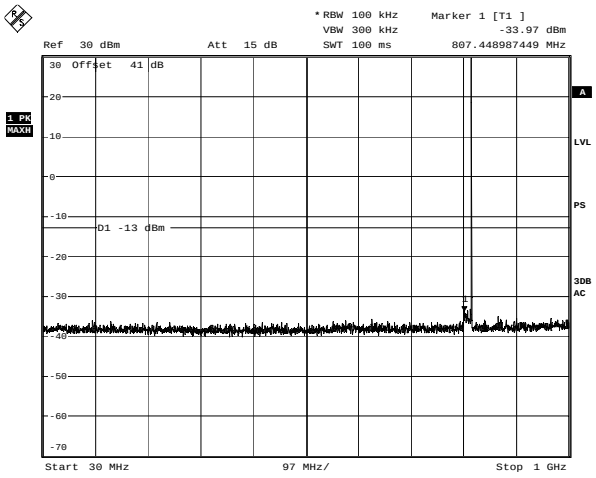
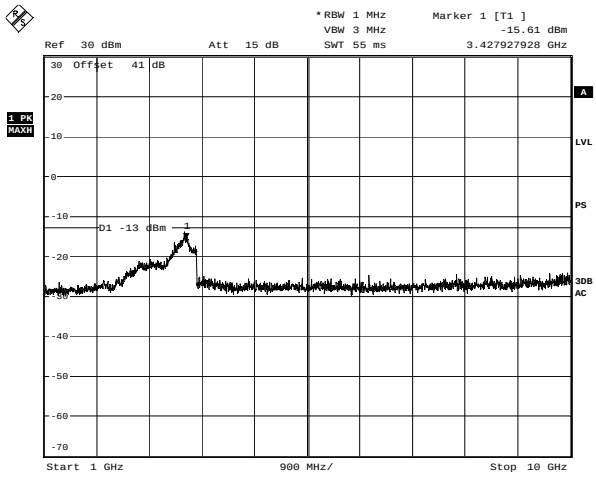


Uplink - 4FSK - High Channel - Conducted Emissions

Date: 9.NOV.2006 19:26:32



Uplink - 4FSK - High Channel - Conducted Emissions

Date: 9.NOV.2006 19:26:56

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:

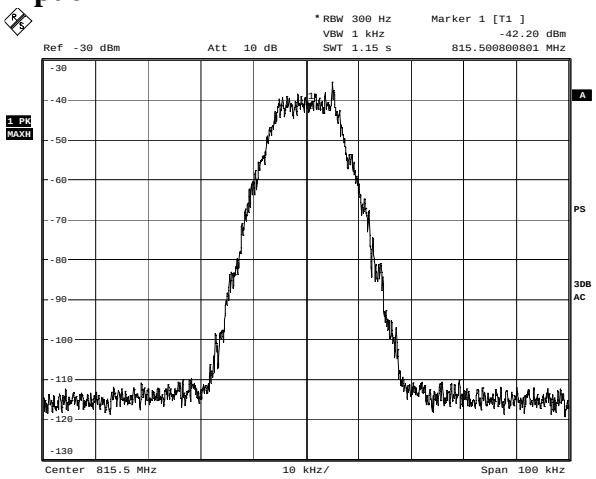
Sample Number:	1 & 2	**Temperature (°C):**	20
Date:	November 9, 2006	**Humidity (%):**	34
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	Wireless

Test Results:

See Attached Plots.

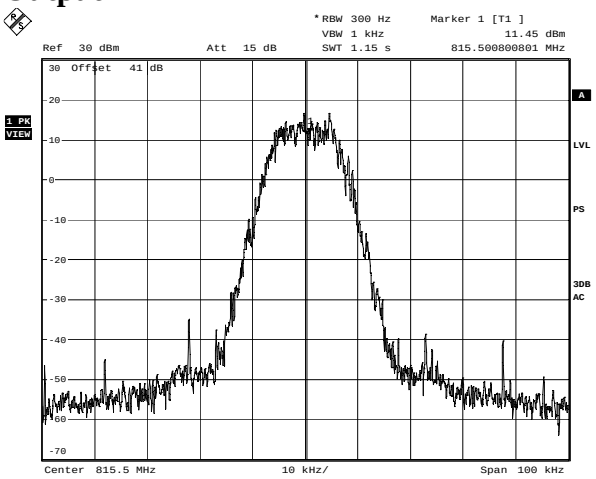
Uplink

Input



Uplink - 4FSK - Input
Date: 9.NOV.2006 19:06:10

Output



Uplink - 4FSK - Output
Date: 9.NOV.2006 19:04:41

Appendix B : Block Diagram of Test Setups

Conducted Emissions, Output power, Occupied Bandwidth