Standards Council of Canada
Accredited Laboratory
Scope of Accreditation 75

Conseil canadien des normes
Laboratoire accrédité
Portée d'accréditation 75

TM

Test Report:	1W04274
Applicant:	Spotwave Wireless Inc. 3701 Carling Avenue Ottawa, Ontario K2H 8S2
Equipment Under Test: (EUT)	SpotCell 100 Low Power Cellular Band Repeater
In Accordance With:	**FCC Part 22, Subpart H**
Tested By:	Nemko Canada Inc. 3325 River Road, R.R. 5 Ottawa, Ontario K1V 1H2
Authorized By:	R. Grant, Wireless Group Manager
Date:	November 28, 2001
Total Number of Pages:	56
Authorized Copy:	Soft Copy

Table of Contents

Section 1. Summary of Test Results **3**

Section 2. General Equipment Specification **5**

Section 3. RF Power Output **6**

Section 4. Occupied Bandwidth **11**

Section 5. Spurious Emissions At Antenna Terminals **24**

Section 6. Field Strength of Spurious Emissions **50**

Section 7. Frequency Stability **53**

Section 8. Block Diagrams **54**

Section 9. Test Equipment List **56**

Section 1. Summary of Test Results

General

All measurements are traceable to national standards.

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 22, Subpart H.

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE.
See " Summary of Test Data".

TESTED BY: DATE: November 26, 2001
Glen Westwell, Wireless Technologist

Nemko Canada Inc., a testing laboratory, is accredited by the Standards Council of Canada. The tests included in this report are within the scope of this accreditation. The results apply only to the samples tested.

Nemko Canada Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the company's employees only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko Canada Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

This report applies only to the items tested.

Summary Of Test Data

Name Of Test	Para. No.	Result
RF Power Output	2.1046	Complies
Audio Frequency Response	2.1047	N/A
Audio Low-Pass Filter Response	2.1047	N/A
Modulation Limiting	2.1047	N/A
Occupied Bandwidth	2.1049	Complies
Spurious Emissions at Antenna Terminals	2.1051	Complies
Field Strength of Spurious Emissions	2.1053	Complies
Frequency Stability	2.1055	Complies
Transient Frequency Behavior	——	N/A

Footnotes For N/A's:

Indoor Temperature: 22 °C
Humidity: 31 %

Outdoor Temperature: 10 °C
Humidity: 38 %

.

Section 2. General Equipment Specification

Manufacturer:	Spotwave Wireless Inc.
Model No.:	SpotCell 100
Serial No.:	DDU S/N QUAL01 SCU S/N B10001
Date Received In Laboratory:	November 13, 2001
Nemko Identification No.:	DDU #1 SDU #2
Supply Input Voltage:	120 VAC
Frequency Range:	Downlink: 869 – 880 MHz 890 – 891.5 MHz Uplink: 824 – 835 MHz 845 – 846.5 MHz
RF Output (Rated):	Downlink: 0dBm Uplink: 20 dBm
Antenna Gain (Integral):	DDU (Uplink) = 10dBi SCU (Downlink) = 3dBi
Emission Designator:	CDMA DXW TDMA F9W AMPS F8W

Section 3. RF Power Output

Para. No.: 2.1046

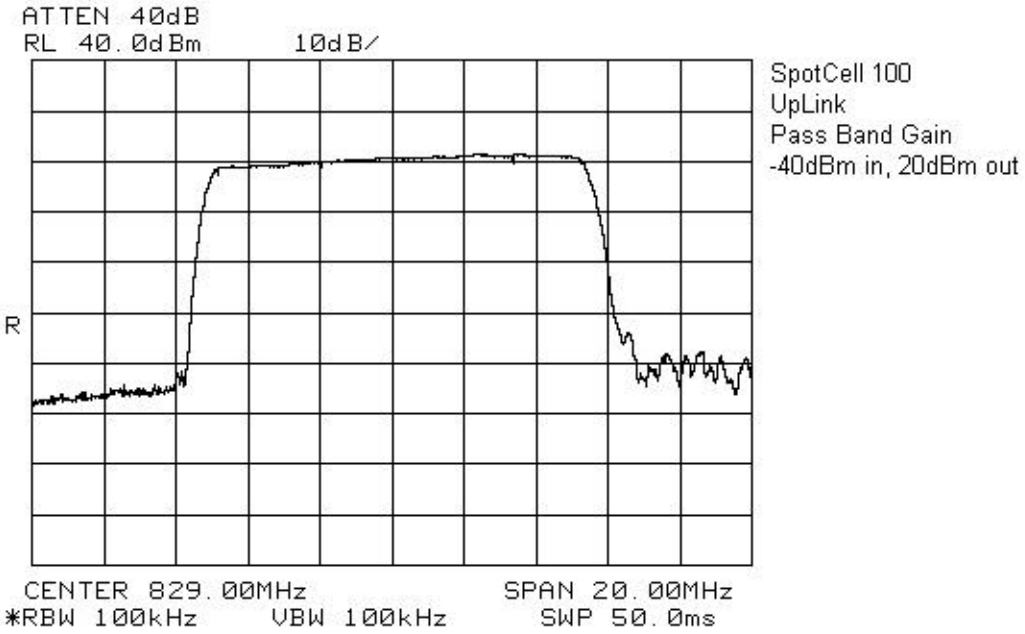
Test Performed By: Glen Westwell	**Date of Test:** November 19, 2001

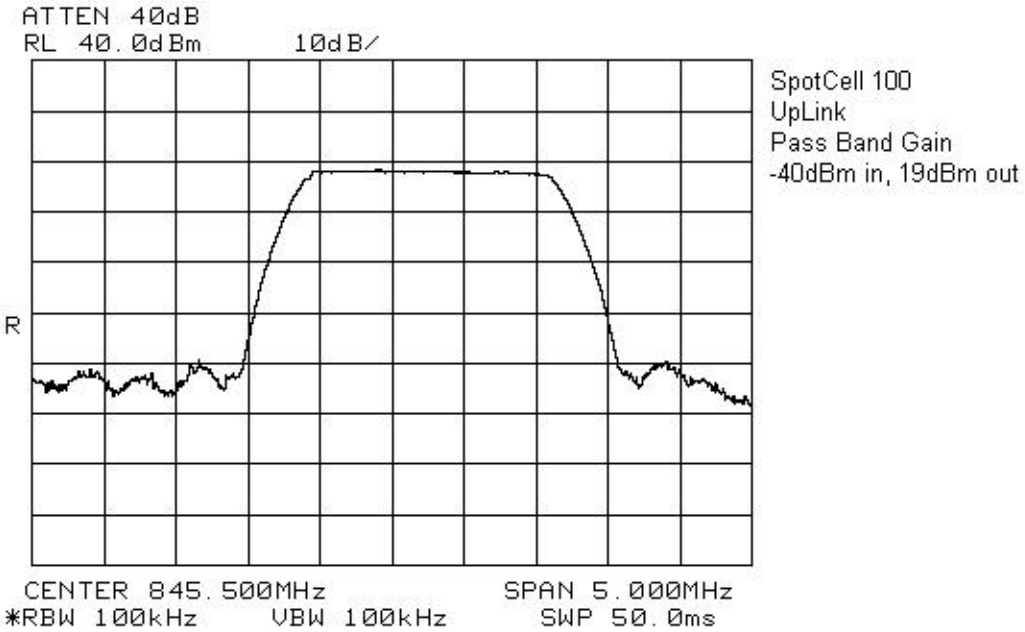
Minimum Standard: 22.913(a)

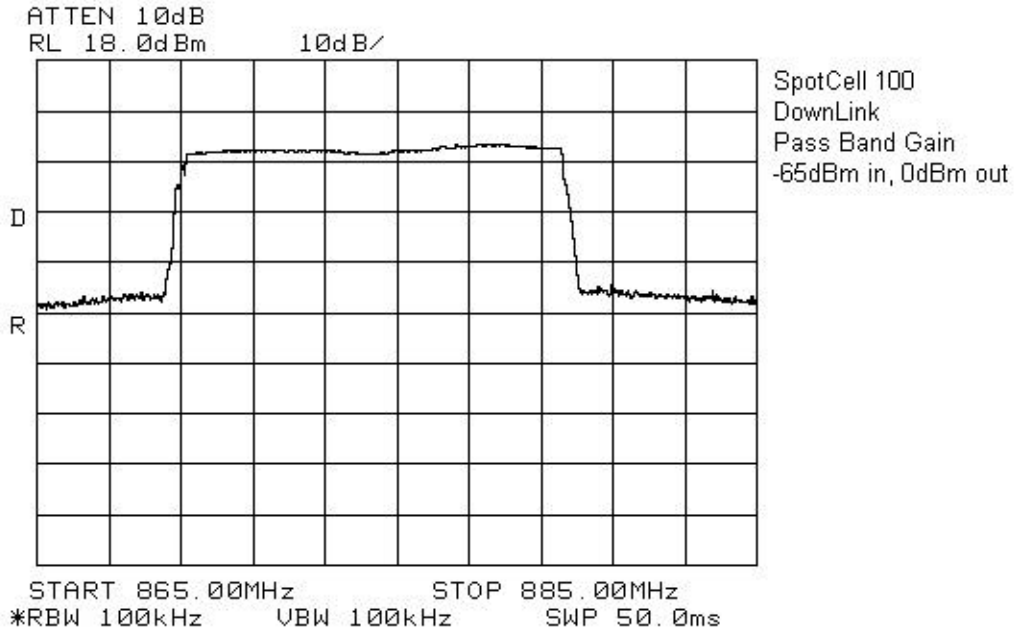
Test Results: Complies.

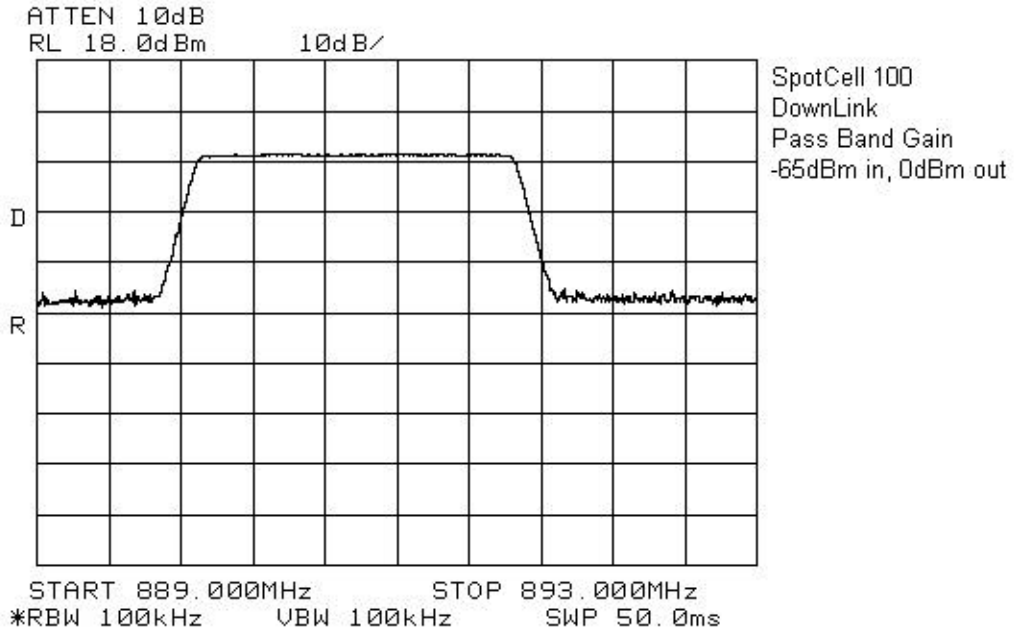
The maximum RF output power is within ± 1dB of the manufacturer's rating. The RF output power is de-rated according to the number of channels via AGE and is equal to Pmax –10LogN.

Pmax = Maximum RF Output Power
N = Number Of Channels


ATTEN 40dB
RL 40.0dBm
10dB/
R
SpotCell 100
UpLink
Pass Band Gain
-40dBm in, 20dBm out
CENTER 829.00MHz
SPAN 20.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms


ATTEN 40dB
RL 40.0dBm
10dB/
R
SpotCell 100
UpLink
Pass Band Gain
-40dBm in, 19dBm out
CENTER 845.500MHz
SPAN 5.000MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms


ATTEN 10dB
RL 18.0dBm
10dB/
D
R
SpotCell 100
DownLink
Pass Band Gain
-65dBm in, 0dBm out
START 865.00MHz
STOP 885.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms


ATTEN 10dB
RL 18.0dBm
10dB/
D
R
SpotCell 100
DownLink
Pass Band Gain
-65dBm in, 0dBm out
START 889.000MHz
STOP 893.000MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms

Section 4. Occupied Bandwidth

Para. No.: 2.1049

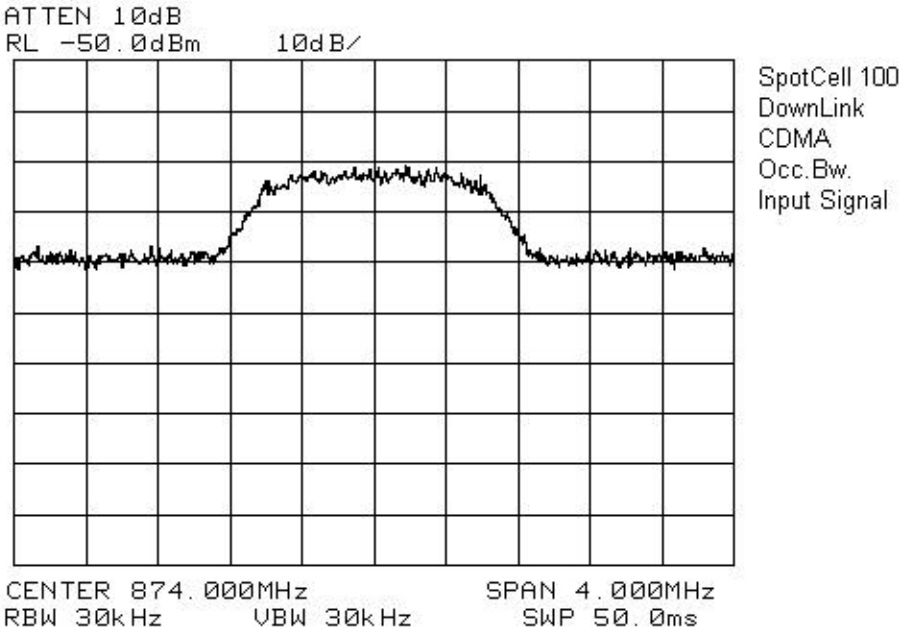
Test Performed By: Glen Westwell	**Date of Test:** November 20, 2001

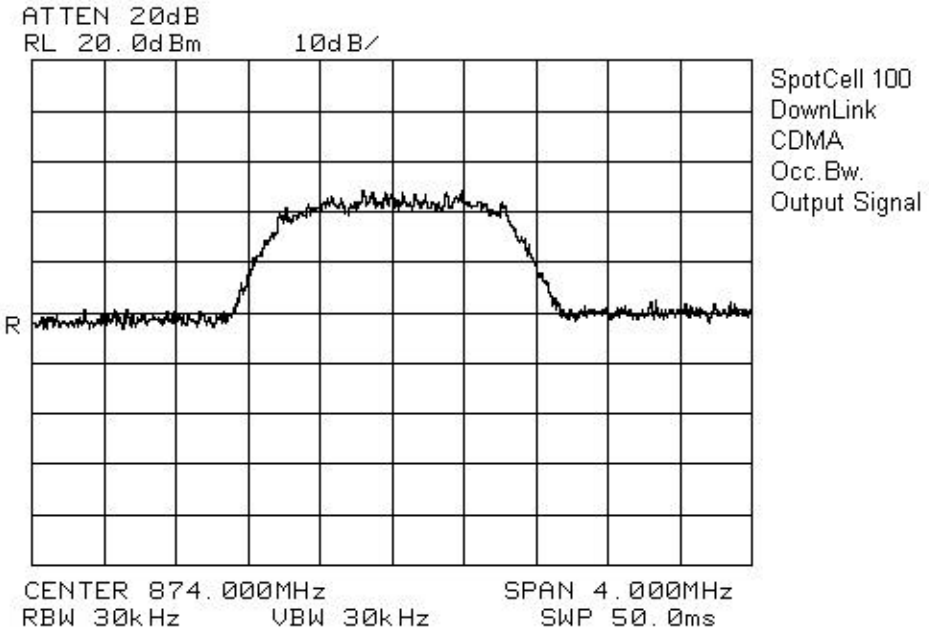
Minimum Standard: 22.917

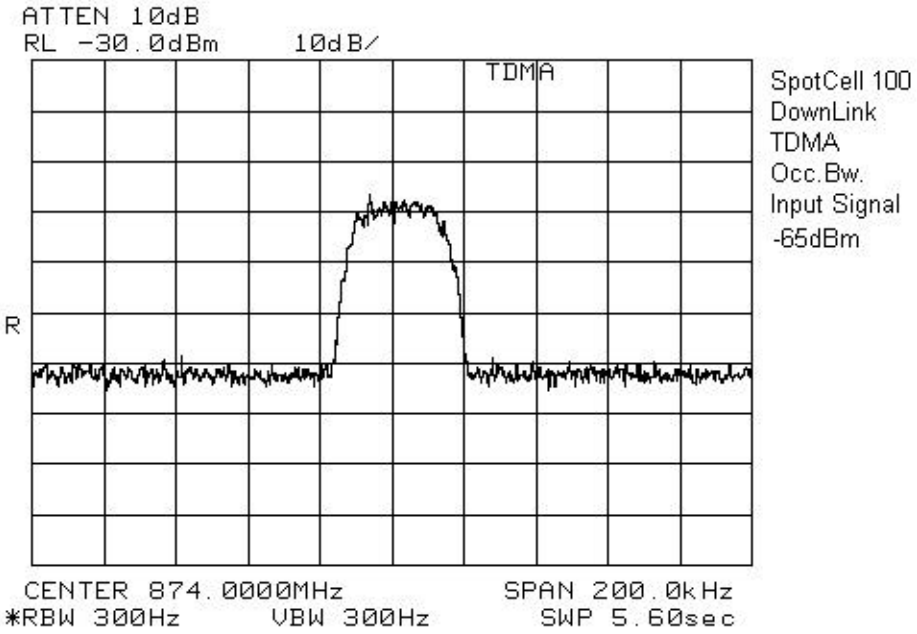
Test Results: Complies.

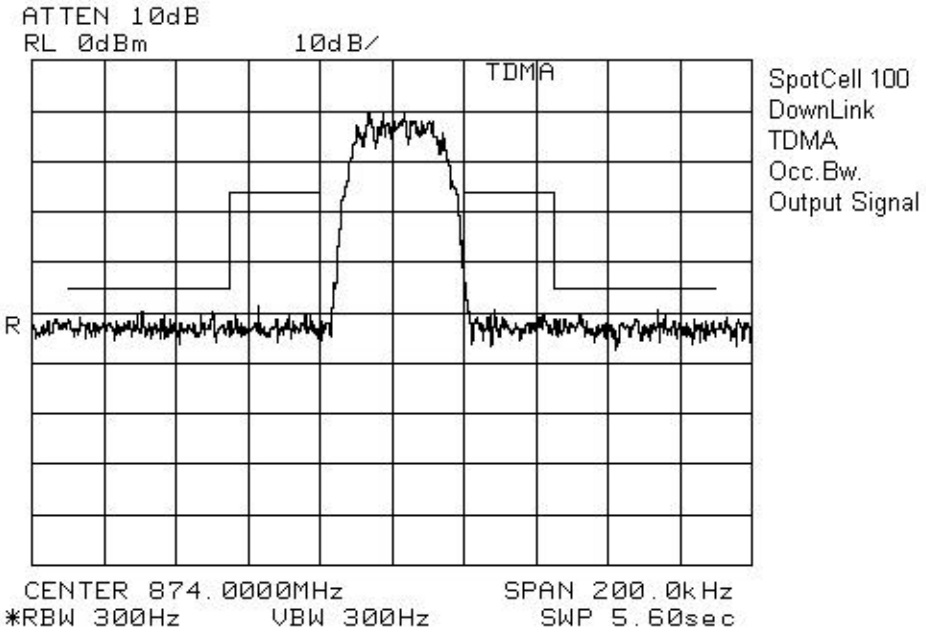
Measurement Data: See attached graphs.

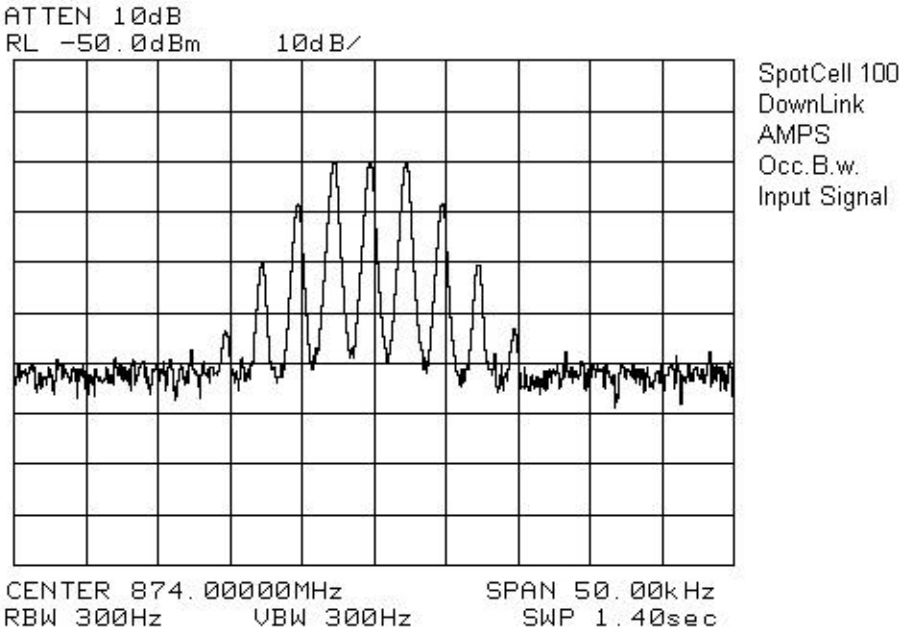
The occupied bandwidth was measured by comparison of input to the output signal. This was done in order to determine if there was any degradation to the output signal due to the amplification through the repeater.

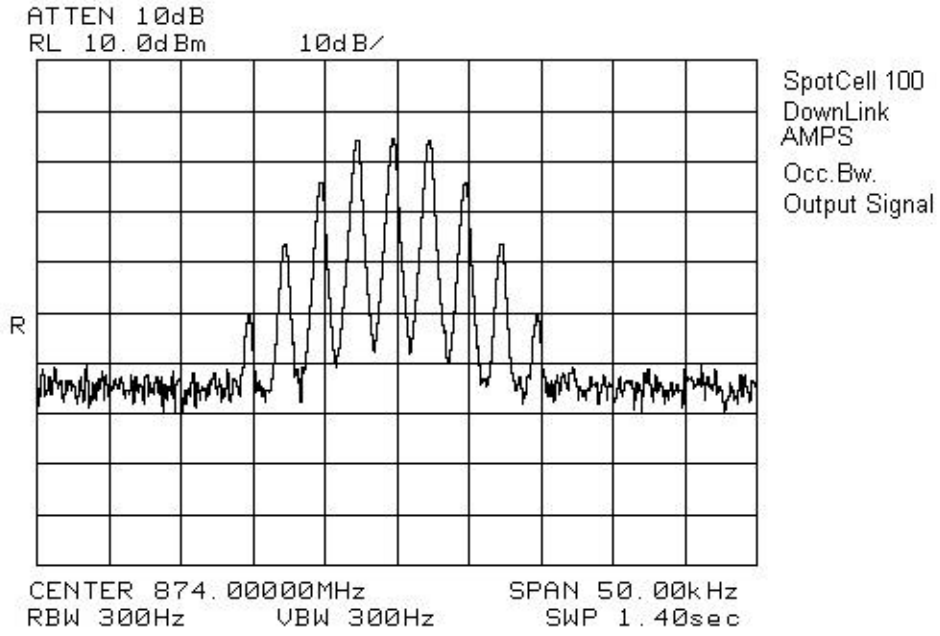

ATTEN 10dB
RL -50.0dBm 10dB/
SpotCell 100
DownLink
CDMA
Occ.Bw.
Input Signal
CENTER 874.000MHz
SPAN 4.000MHz
RBW 30kHz
VBW 30kHz
SWP 50.0ms

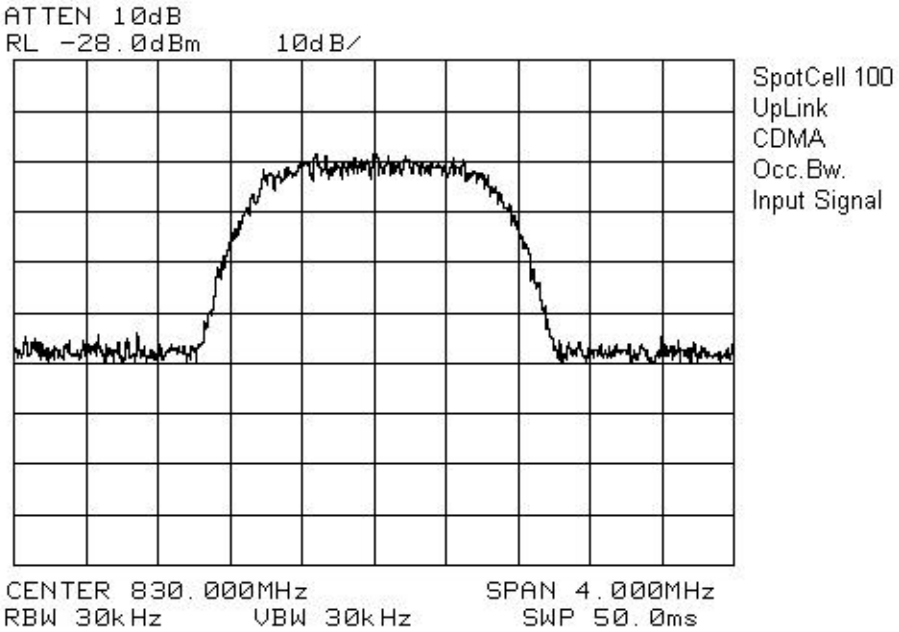

ATTEN 20dB
RL 20.0dBm
10dB/
R
SpotCell 100
DownLink
CDMA
Occ.Bw.
Output Signal
CENTER 874.000MHz
RBW 30kHz
VBW 30kHz
SPAN 4.000MHz
SWP 50.0ms

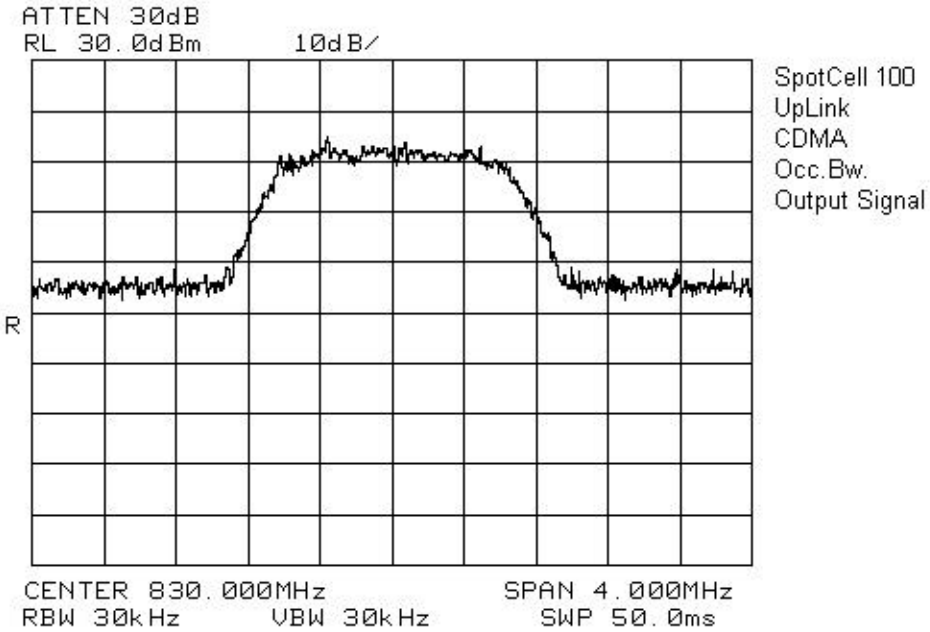

ATTEN 10dB
RL -30.0dBm
10dB/
TDMA
SpotCell 100
DownLink
TDMA
Occ.Bw.
Input Signal
-65dBm
R
CENTER 874.0000MHz
SPAN 200.0kHz
*RBW 300Hz
VBW 300Hz
SWP 5.60sec

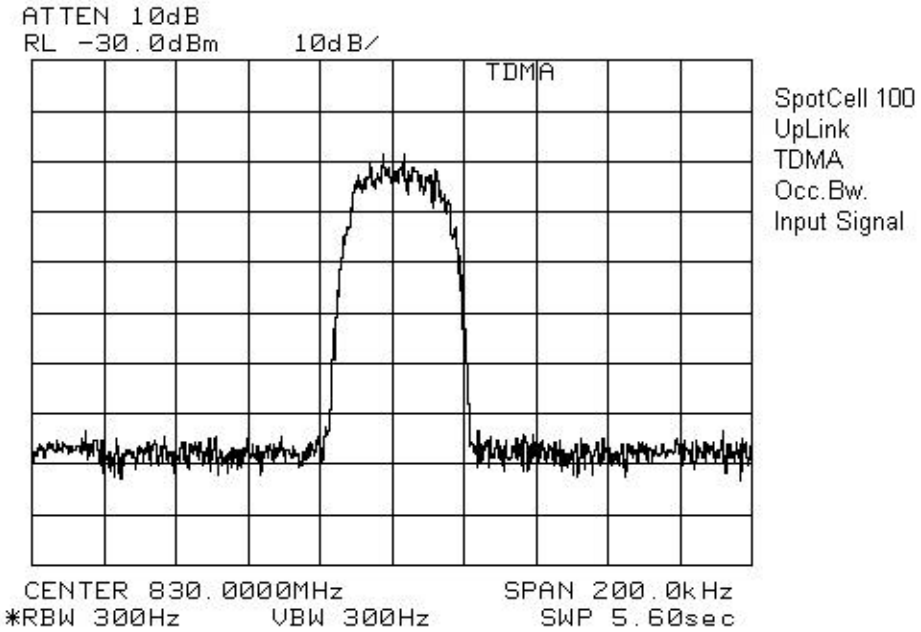

ATTEN 10dB
RL 0dBm
10dB/
TDMA
SpotCell 100
DownLink
TDMA
Occ.Bw.
Output Signal
R
CENTER 874.0000MHz
SPAN 200.0kHz
*RBW 300Hz
VBW 300Hz
SWP 5.60sec

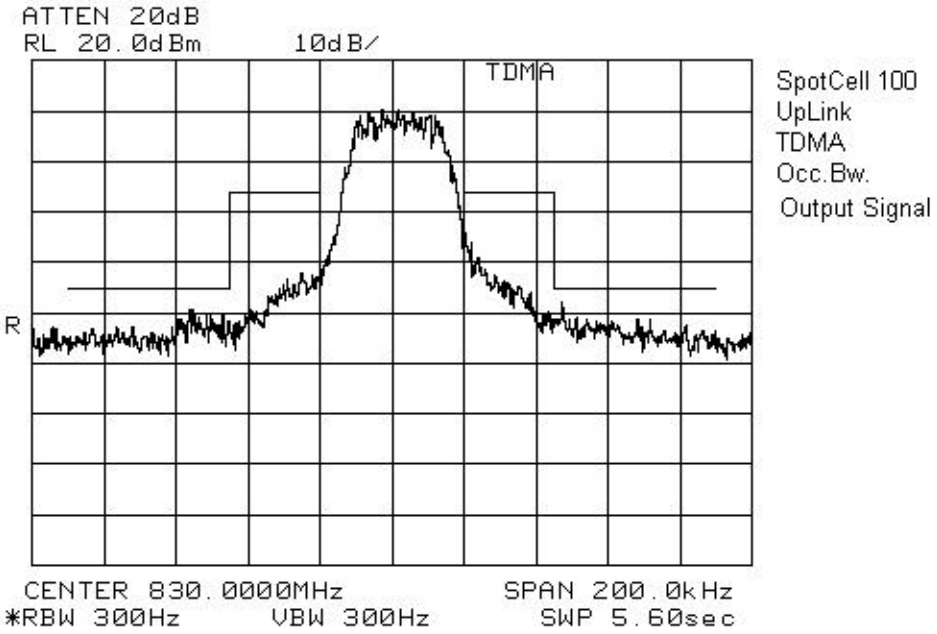

ATTEN 10dB
RL -50.0dBm 10dB/
SpotCell 100
DownLink
AMPS
Occ.B.w.
Input Signal
CENTER 874.00000MHz
SPAN 50.00kHz
RBW 300Hz
VBW 300Hz
SWP 1.40sec

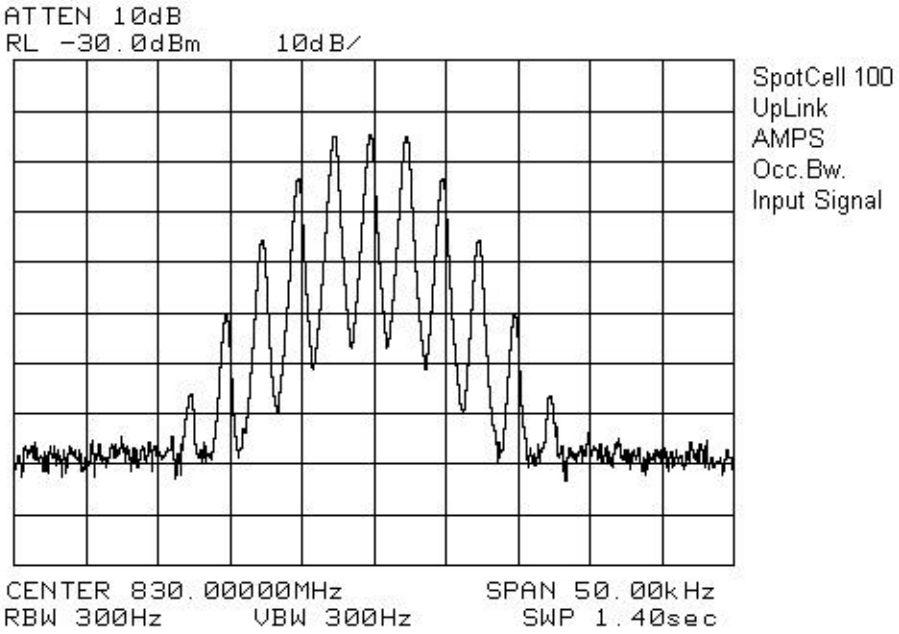

ATTEN 10dB
RL 10.0dBm
10dB/
R
SpotCell 100
DownLink
AMPS
Occ.Bw.
Output Signal
CENTER 874.00000MHz
SPAN 50.00kHz
RBW 300Hz
VBW 300Hz
SWP 1.40sec

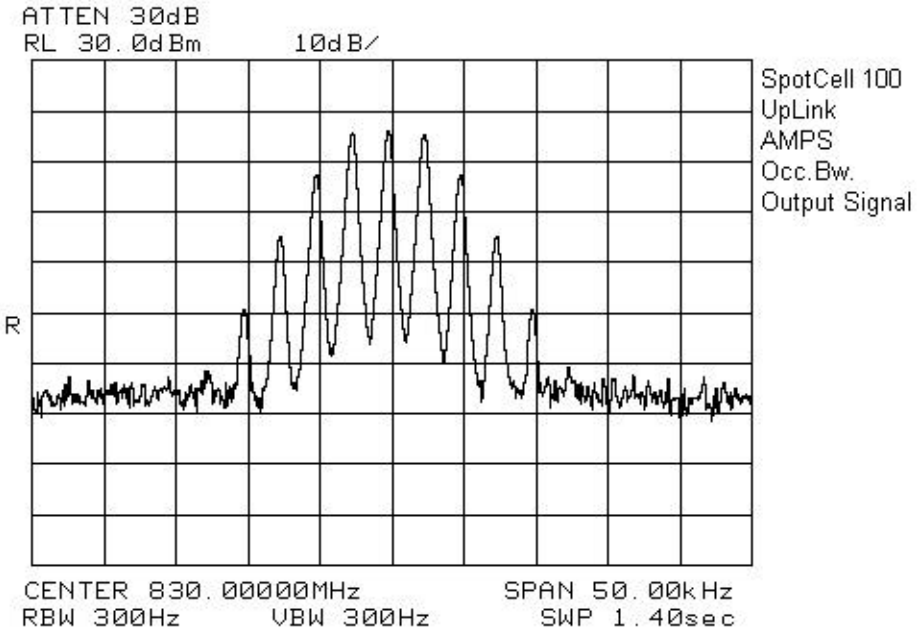

ATTEN 10dB
RL -28.0dBm
10dB/
SpotCell 100
UpLink
CDMA
Occ.Bw.
Input Signal
CENTER 830.000MHz
SPAN 4.000MHz
RBW 30kHz
VBW 30kHz
SWP 50.0ms


ATTEN 30dB
RL 30.0dBm
10dB/
R
SpotCell 100
UpLink
CDMA
Occ.Bw.
Output Signal
CENTER 830.000MHz
SPAN 4.000MHz
RBW 30kHz
VBW 30kHz
SWP 50.0ms


ATTEN 10dB
RL -30.0dBm 10dB/
TDMA
SpotCell 100
UpLink
TDMA
Occ.Bw.
Input Signal
CENTER 830.0000MHz
SPAN 200.0kHz
*RBW 300Hz
VBW 300Hz
SWP 5.60sec


ATTEN 20dB
RL 20.0dBm
10dB/
TDMA
SpotCell 100
UpLink
TDMA
Occ.Bw.
Output Signal
R
CENTER 830.0000MHz
SPAN 200.0kHz
*RBW 300Hz
VBW 300Hz
SWP 5.60sec


ATTEN 10dB
RL -30.0dBm
10dB/
SpotCell 100
UpLink
AMPS
Occ.Bw.
Input Signal
CENTER 830.00000MHz
SPAN 50.00kHz
RBW 300Hz
VBW 300Hz
SWP 1.40sec


ATTEN 30dB
RL 30.0dBm
10dB/
R
SpotCell 100
UpLink
AMPS
Occ.Bw.
Output Signal
CENTER 830.00000MHz
SPAN 50.00kHz
RBW 300Hz
VBW 300Hz
SWP 1.40sec

Section 5. Spurious Emissions At Antenna Terminals

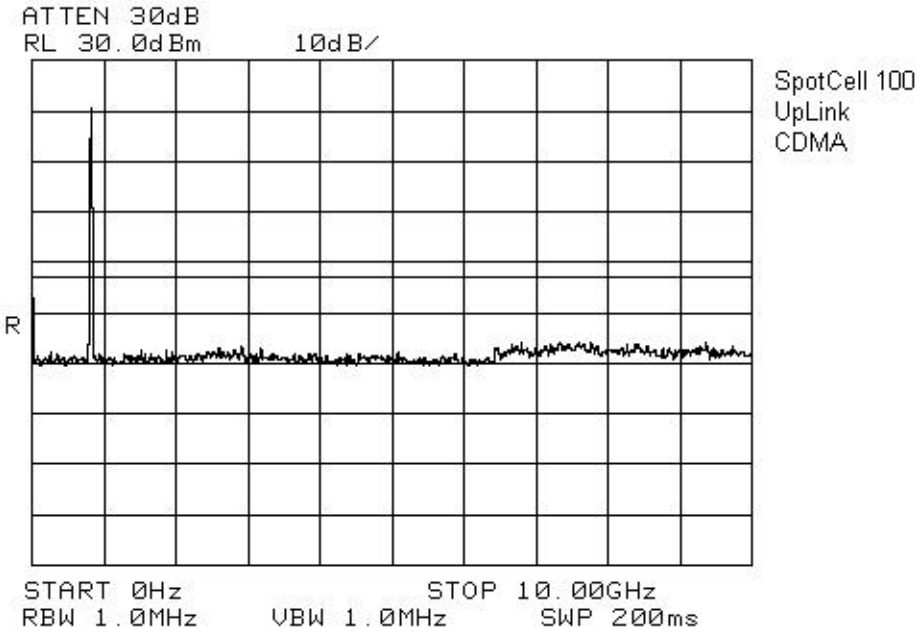
Para. No.: 2.1051

Test Performed By: Glen Westwell	**Date of Test:** November 21, 2001

Minimum Standard: 22.917 (e); -13 dBm
(f); -80 dBm Conducted

Test Results: Complies

Measurement Data: See attached graphs.


ATTEN 30dB
RL 30.0dBm
10dB/
SpotCell 100
UpLink
CDMA
R
START 0Hz
STOP 10.00GHz
RBW 1.0MHz
VBW 1.0MHz
SWP 200ms