



# Nemko



**Test Report:**

2W06066

**Applicant:**

Dekolink Wireless LTD.  
16 Bazel St. Qiryat-Arieh  
Petah-Tikva, 49510  
Israel

**Equipment Under Test:  
(EUT)**

MW FBDA-800AB-50W-DIV  
Fiber Optic Repeater System

**FCC ID:**

OIWFBD800AB50WD

**In Accordance With:**

**FCC Part 22, Subpart H**

**Tested By:**

Nemko Canada Inc.  
303 River Road, R.R. 5  
Ottawa, Ontario K1V 1H2

**Authorized By:**

Glen Westwell, Wireless Technologist

**Date:**

12 June 2002

**Total Number of Pages:**

23

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**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.**

The EUT is a repeater which connects to a base station, therefore only the Downlink direction was tested.



TESTED BY: \_\_\_\_\_

Kevin Carr, EMC/EMI Specialist

DATE: 12 June 2002

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.

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This report applies only to the items tested.

## Summary Of Test Data

Name Of Test	Para. No.	Result
RF Power Output	2.1046	Complied
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	Complied
Spurious Emissions at Antenna Terminals	2.1051	Complied
Field Strength of Spurious Emissions	2.1053	Complied
Frequency Stability	2.1055	Complied
Transient Frequency Behavior	—	N/A

**Note:** The EUT is a repeater which connects to a base station therefore only the Downlink direction was tested.

**Indoor**      Temperature: 23°C  
                    Humidity: 37%

**Outdoor**      Temperature: 19.7°C  
                    Humidity: 85%

**Section 2. General Equipment Specification**

<b>Manufacturer:</b>	Dekolink Wireless LTD.
<b>Model No.:</b>	MW FBDA-800AB-50W-DIV
<b>Serial No.:</b>	02051001
<b>Date Received In Laboratory:</b>	5 June 2002
<b>Nemko Identification No.:</b>	1
<b>Supply Input Voltage:</b>	120 VAC, 50 Hz
<b>Frequency Range:</b>	Downlink: 869-894 MHz
<b>RF Output (Rated):</b>	Downlink, CDMA: 10Watts, 40dBm Downlink, TDMA: 8.5Watts, 39.3dBm Downlink, AMPS: 8.5Watts, 39.3dBm
<b>Emission Designator</b>	CDMA, DXW TDMA, F9W AMPS, F8W

**Note:** The EUT is a repeater which connects to a base station therefore only the Downlink direction was tested.

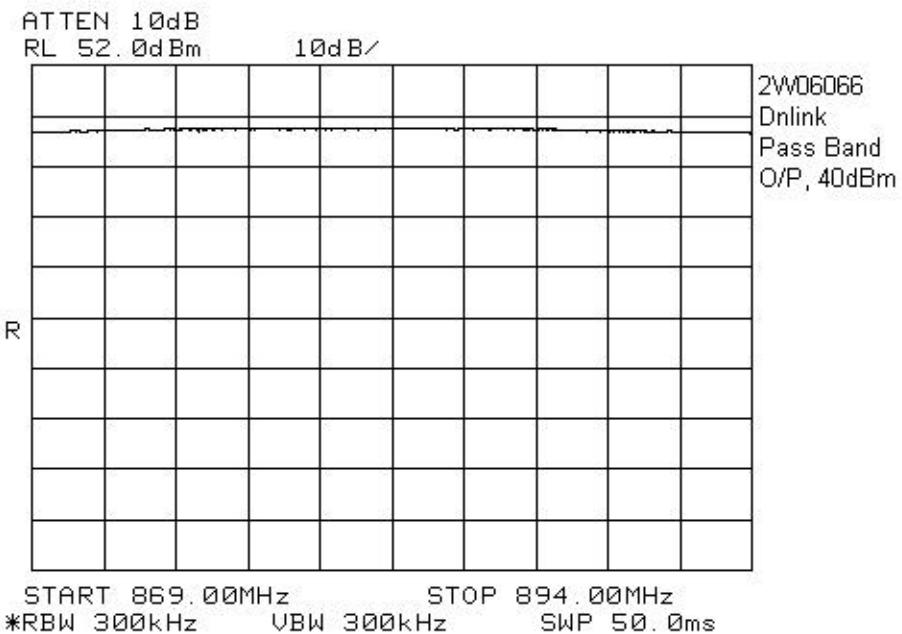
**Section 3. RF Power Output****Para. No.: 2.1046**

<b>Test Performed By:</b> Kevin Carr	<b>Date of Test:</b> 10 June 2002
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**Minimum Standard:** 22.913(a)**Test Results:** Complied.

**Measurement Data:** See Attached Graphs. The maximum RF output power is within  $\pm 1\text{dB}$  of the manufacturer's rating. The RF output power is de-rated according to the number of channels via AGC and is equal to  $P_{\text{max}} - 10\log N$ .

$P_{\text{max}}$  = Maximum RF Output Power  
 $N$  = Number Of Channels

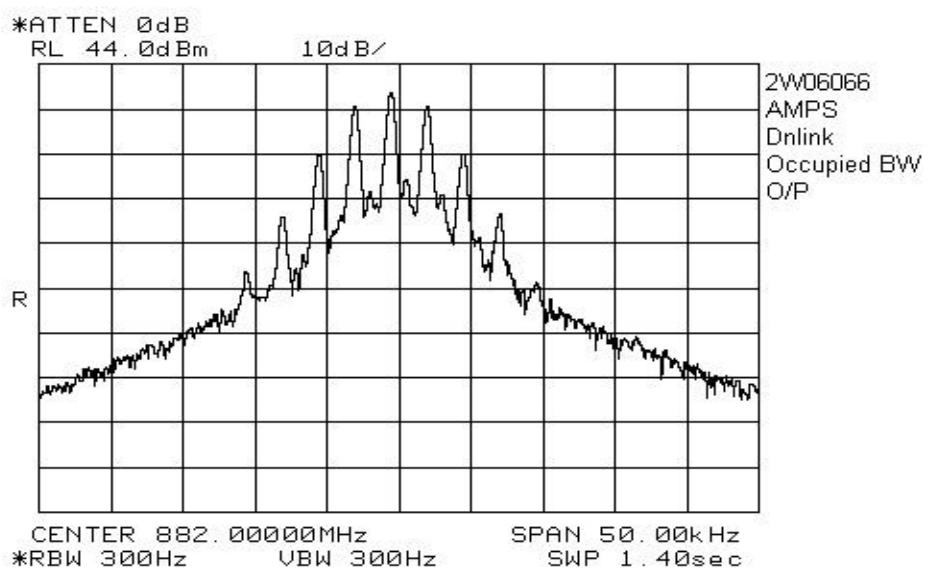
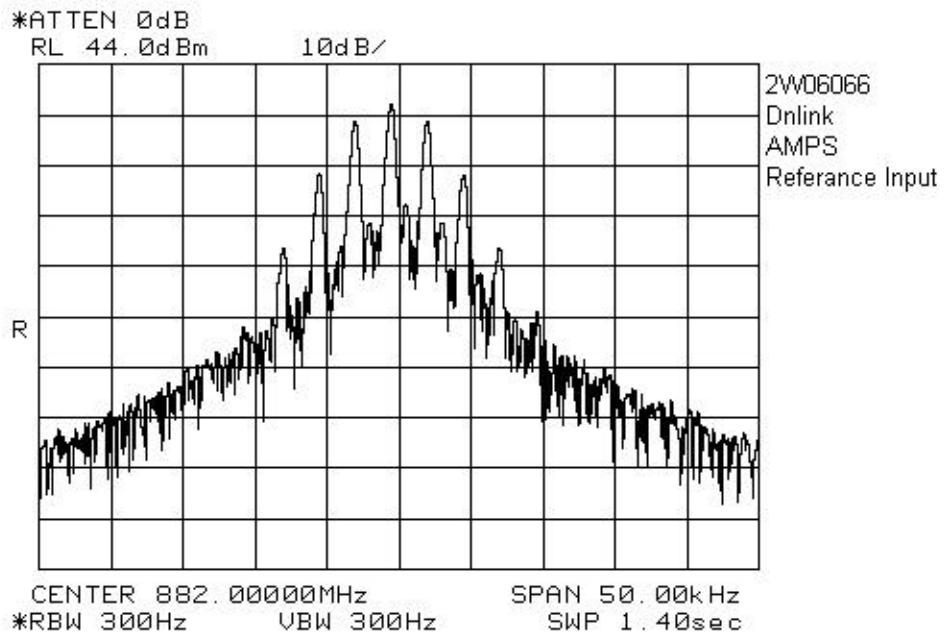


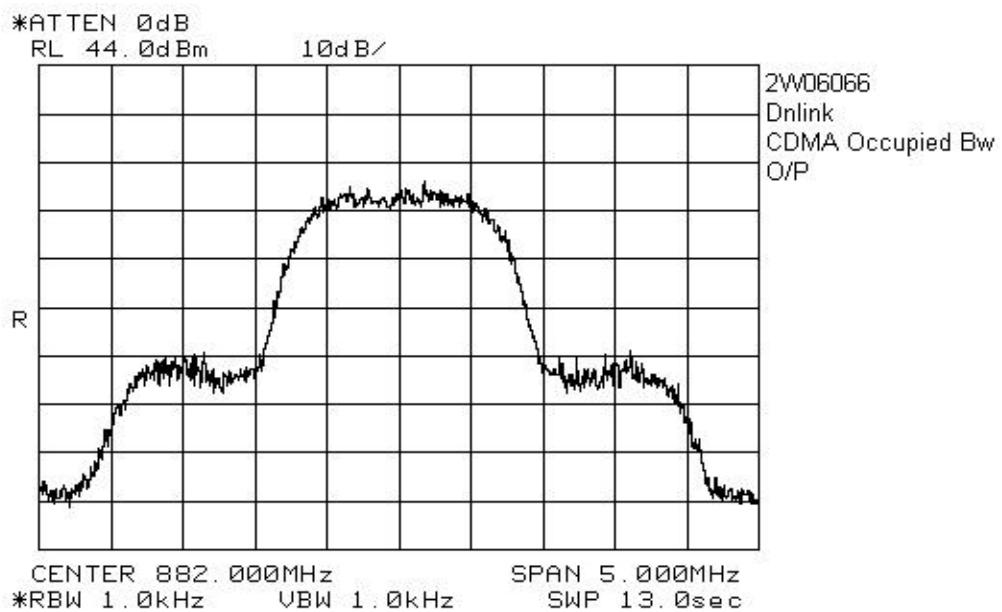
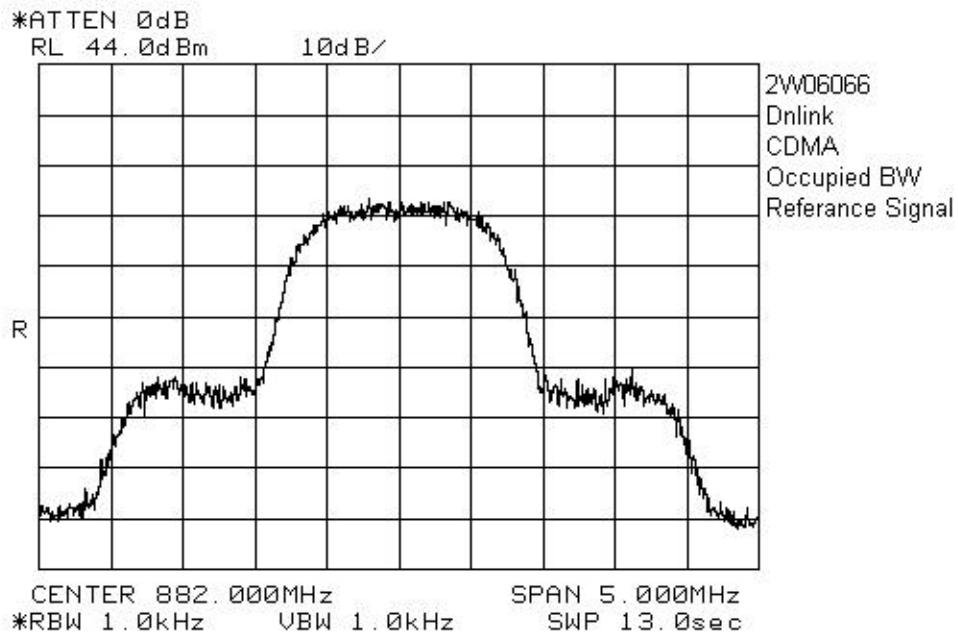
**Section 4.        Occupied Bandwidth****Para. No.: 2.1049**

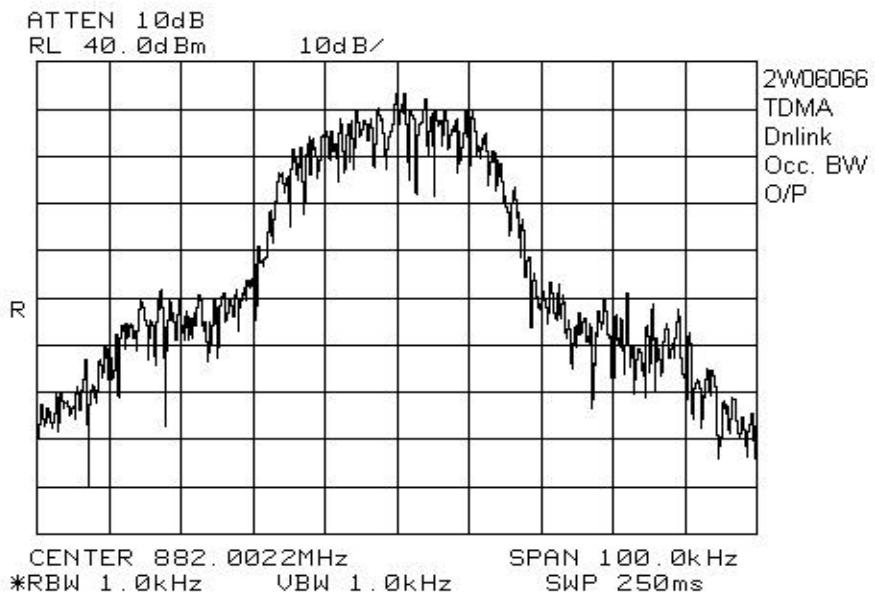
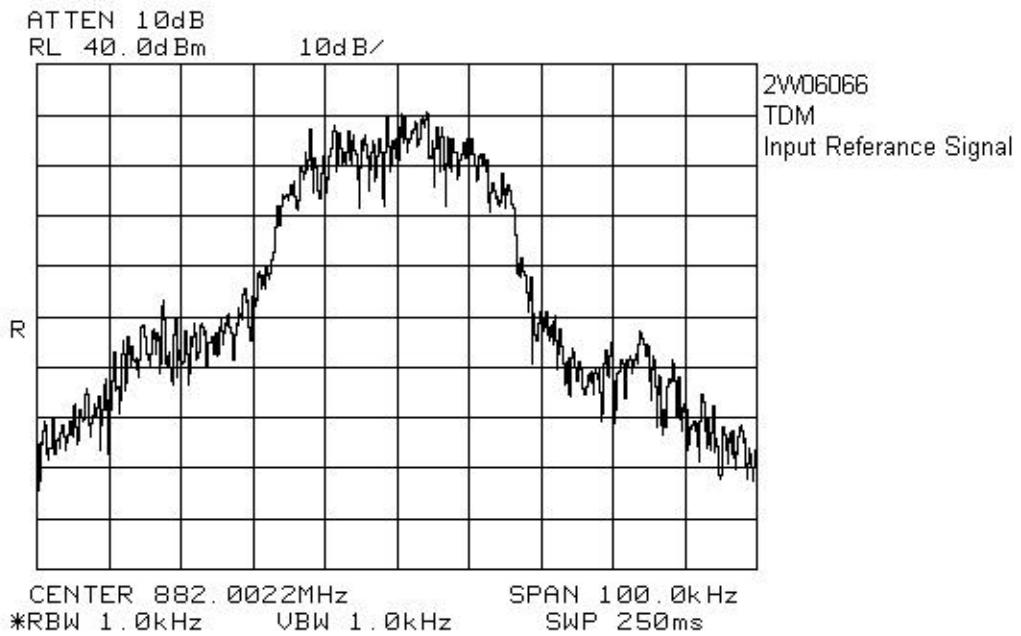
<b>Test Performed By:</b> Kevin Carr	<b>Date of Test:</b> 10 June 2002
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**Minimum Standard:**        22.917, Input vs Output**Test Results:**        Complied.**Measurement Data:**        See attached graphs.

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.





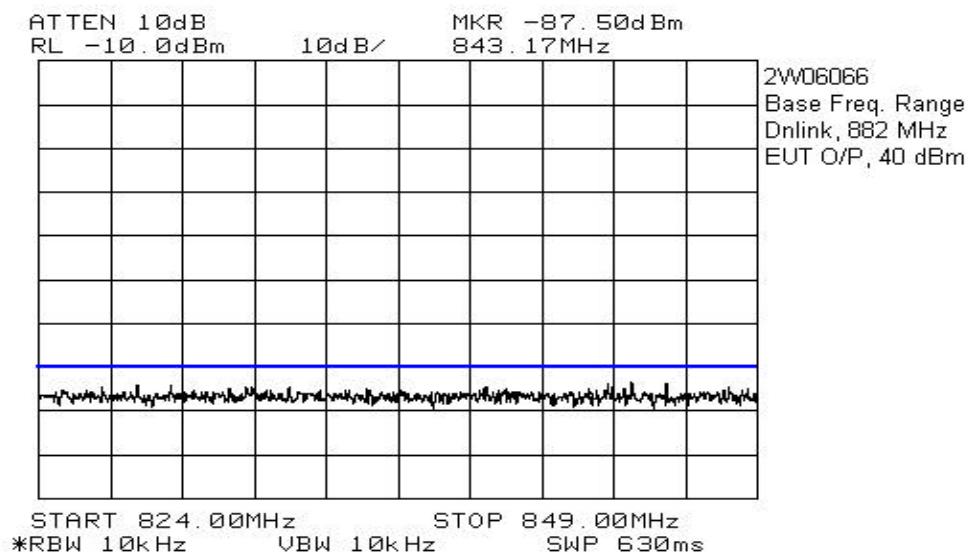
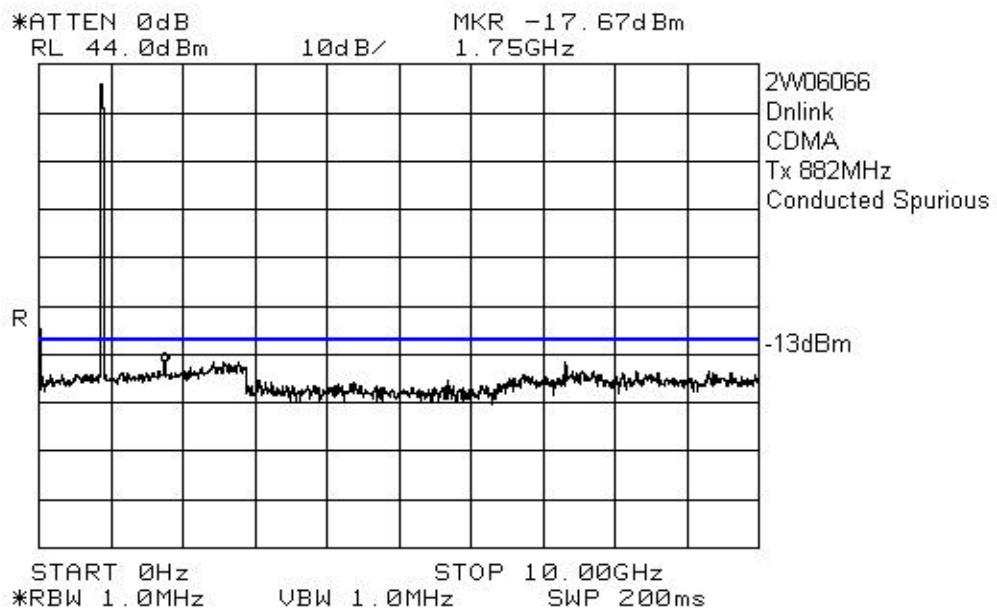


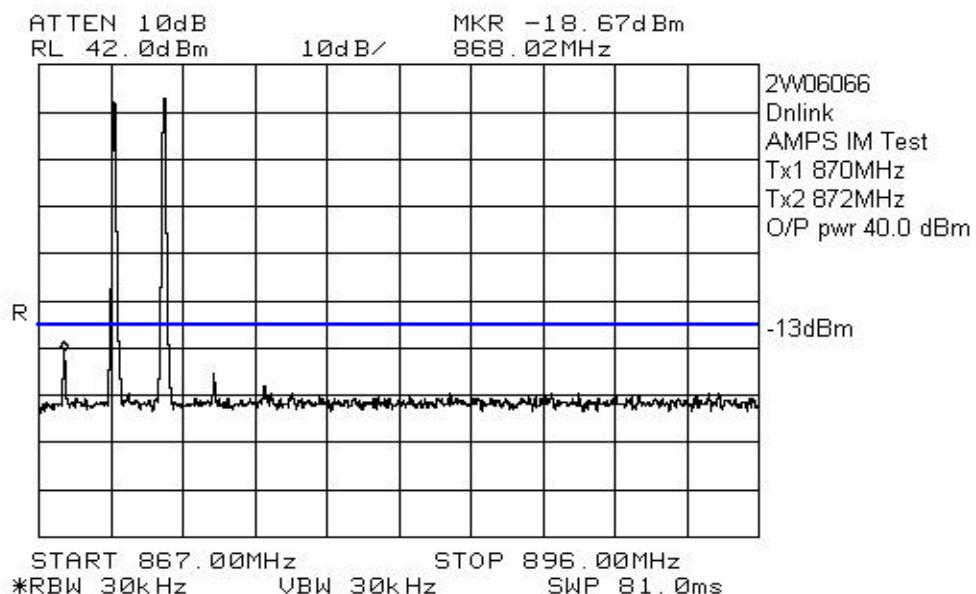
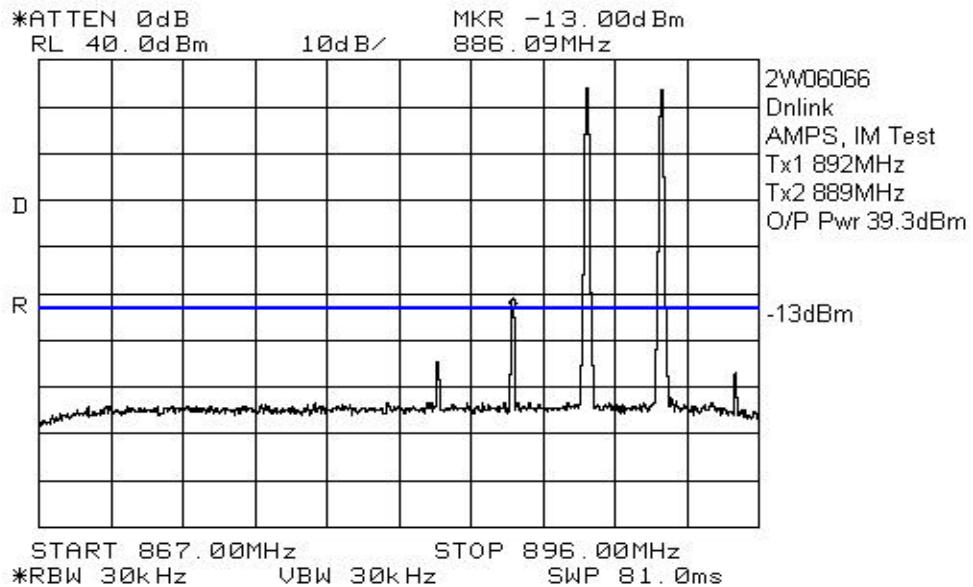
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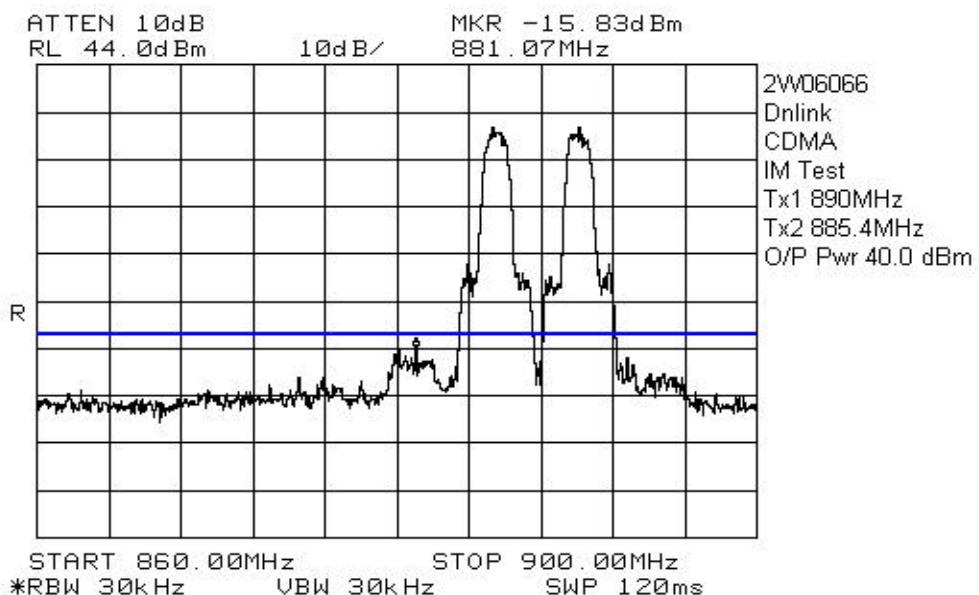
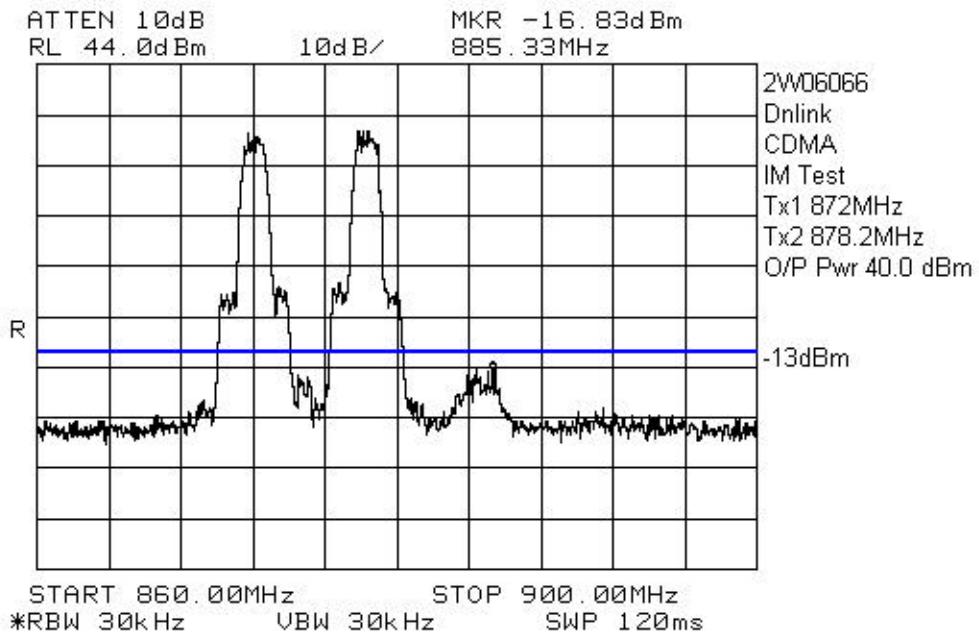
**Section 5. Spurious Emissions at Antenna Terminals****Para. No.: 2.1051**

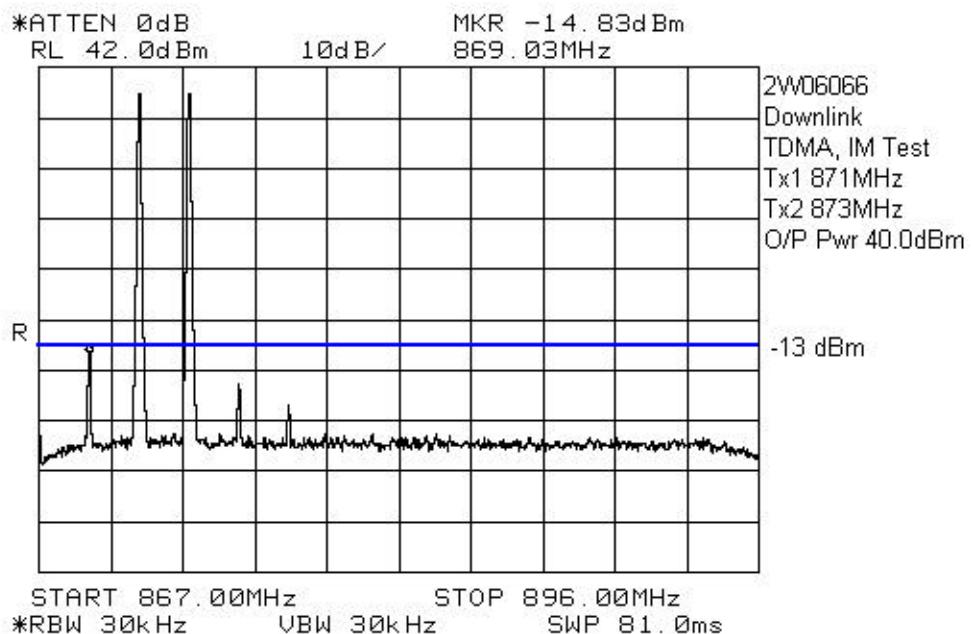
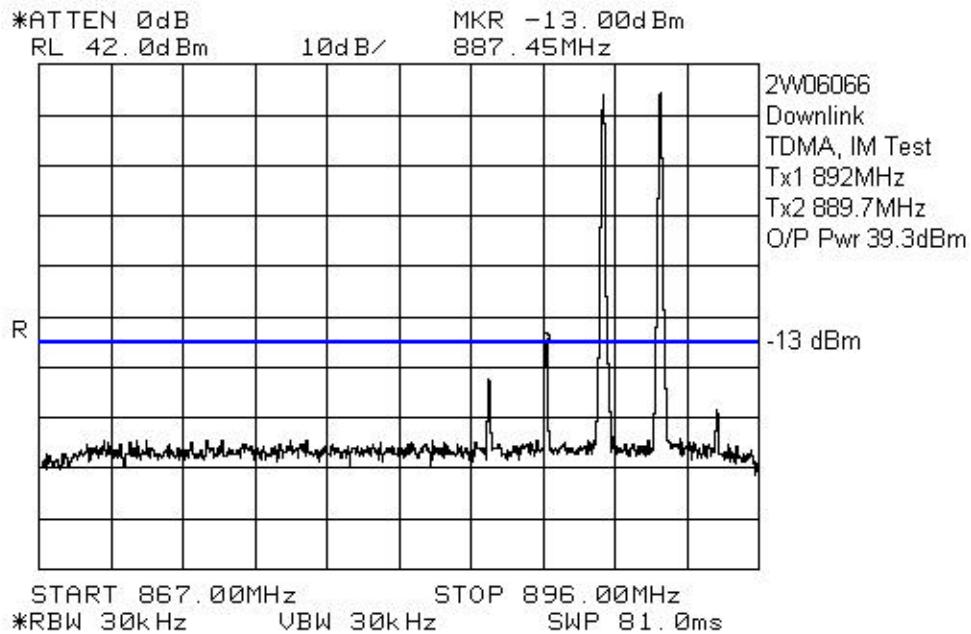
<b>Test Performed By:</b> Kevin Carr	<b>Date of Test:</b> 10 June 2002
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**Minimum Standard:** 22.917(e); -13 dBm  
(f); -80dbm, Conducted**Test Results:** Complied.**Measurement Data:** See Attached Graphs. Only worst case has been reported.

**Spurious Emissions-Conducted**

**3<sup>rd</sup> Order Intermodulation Plots**

*EQUIPMENT: MW FBDA-800AB-50W-DIV*

*EQUIPMENT: MW FBDA-800AB-50W-DIV*

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**Section 6. Field Strength of Spurious Emissions****Para. No.: 2.1053**

<b>Test Performed By:</b> Kevin Carr	<b>Date of Test:</b> 11 June 2002
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**Minimum Standard:** 22.917(e), -13dBm**Test Results:** Complied.**Measurement Data:** See attached data.

**Test Data-Field Strength of Spurious Emissions**

Test Distance (meters) : 3		Range: A		Receiver: HP8564E			RBW(kHz): 1000		Detector: Peak	
No.	Freq. (MHz)	Ant. *	Pol (V/H)	RCVD Signal (dB $\mu$ V)	Conv. Factor (dB)**	Amp. Gain (dB)** *	Dist. Corr . (dB)	Signal Strength (dBm)	Limit (dBm)	Margin (dB)
1	1764	SSV	V	92.8	-116.1			-23.3	-13	10.3
2	1764	SSH	H	78.3	-116.7			-38.4	-13	25.4
3	2646	SSV	V	73.3	-123			-49.7	-13	36.7
4	2646	SSH	H	63.5	-123.8			-60.3	-13	47.3
5	3528	SSV	V	63	-119.9			-56.9	-13	43.9
6	3528	SSH	H	62	-121.9			-59.9	-13	46.9

**Notes:**

B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole

\* Re-measured using dipole antenna.

\*\* Includes cable loss when amplifier is not used.

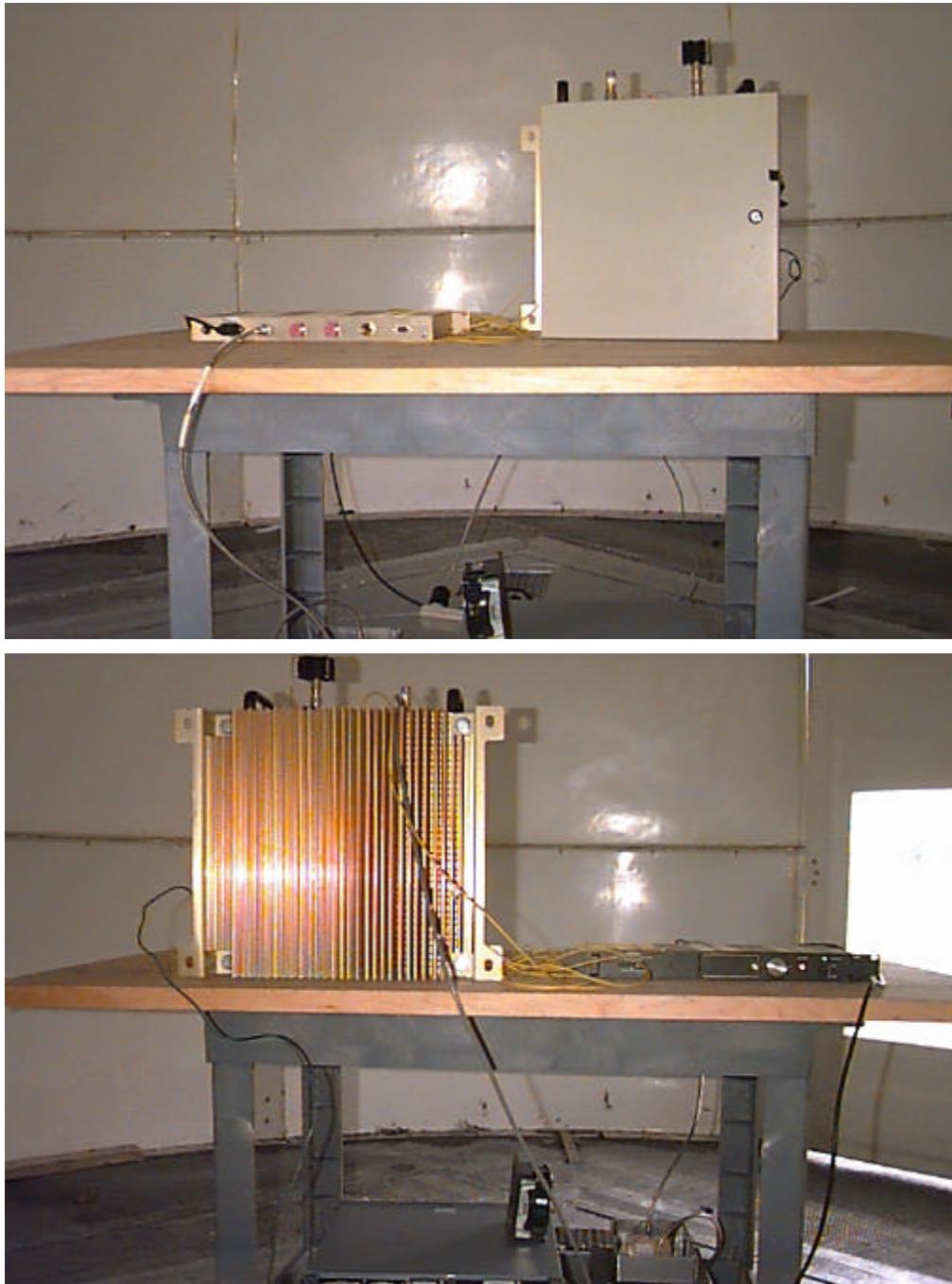
\*\*\* Includes cable loss.

() Denotes failing emission level.

N.D. = Not Detected

All spurious and harmonic emissions to the 10<sup>th</sup> harmonic for the downlink were searched.

## Radiated Spurious Emissions-Photograph



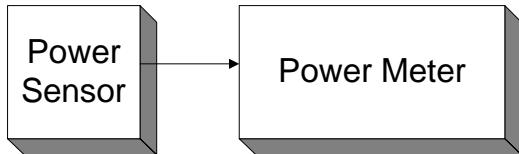
**Section 7. Frequency Stability****Para. No.: 2.1055**

<b>Test Performed By:</b> Kevin Carr	<b>Date of Test:</b> 11 June 2002
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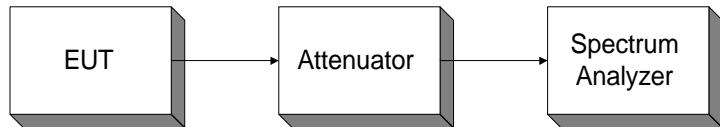
**Minimum Standard:** 22.355, 1.5ppm**Test Results:** Complied. The maximum frequency drift was 0Hz.**Measurement Data:** Temperature Range : -20Deg. C to 50 Deg. C, Ref. Client Documentation  
Downlink, Test Frequency: 882MHz

## **Section 8. Block Diagrams**

### **Para. No. 2.1046 - R.F. Power Output**

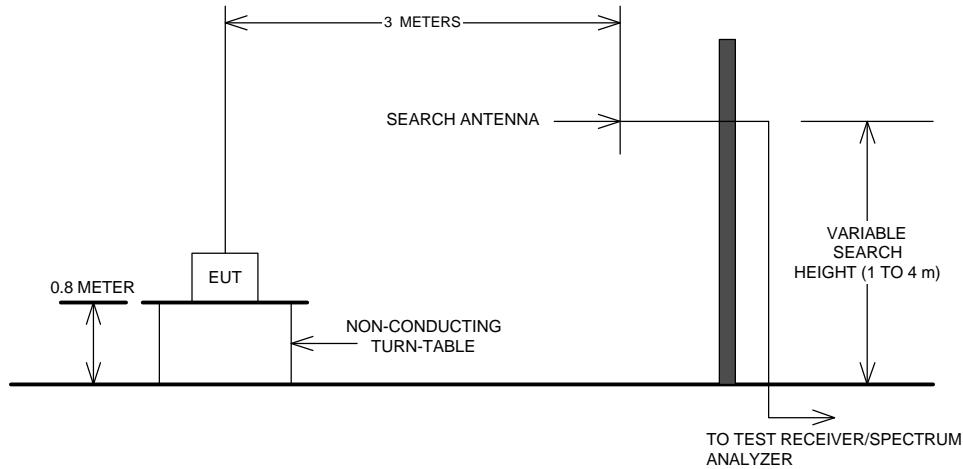
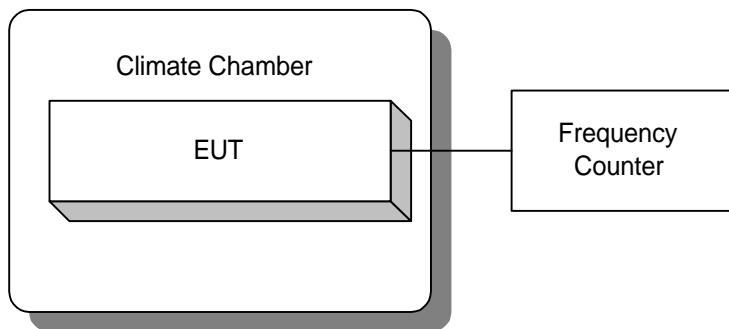


### **Para. No. 2.1049 - Occupied Bandwidth**



### **Para. No. 2.1051 - Spurious Emissions at Antenna Terminals**



**Para. No. 2.1053 - Field Strength of Spurious Radiation****Para. No. 2.1055 - Frequency Stability**

**Section 9. Test Equipment List**

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.
1 Year	Spectrum Analyzer	Hewlett Packard	8564E	3846A01407	Mar. 6/02	Mar. 6/03
1 Year	Climate Chamber	Thermotron	SM-16C	15649-S	COU	COU
1 Year	Attenuator	Narda	768-20	9507	Oct. 12/00	Oct. 12/01
1 Year	Attenuator	Narda	768-10	9709	COU	COU
1 Year	Attenuator	Narda	769-20	4153	COU	COU
1 Year	Horn Antenna	EMCO #2	3115	4336	Dec. 1/01	Dec. 1/02
1 Year	50 ohm Combiner Pad	Mini Circuits	ZA3PD-2	9746	Oct. 7/99	Oct. 7/00
3 Year	Signal Generator	Rohde & Schwarz	SM1Q03	DE22004	Sept. 18/00	Sept. 18/03
3 Year	Signal Generator	Rhode & Schwarz	SM1Q03E	FA001269	Oct. 4/99	Oct. 4/02
1 Year	RF AMP	JCA	2-4 GHz	FA001496	COU	COU
1 Year	RF AMP	JCA	1-2 GHz	FA001498	COU	COU
1 Year	RF AMP	JCA	4-8 GHz	FA001497	COU	COU
1 Year	Frequency Counter	Hewlett Packard	HP5350A	2444A00135	11 Jan 2002	11 Jan 2003
	Power Supply	Hewlett Packard	6274B	2552A-08243	NCR	NCR
1 Year	Notch Filter	K&L	3TNF-500/1000	137	Aug. 23/99	Aug. 23/00
	High Pass Filter (1.7GHz)	K&L	3DH1-2000	FA001434	COU	COU
1 Year	Power Meter	Hewlett Packard	E4418B	FA001413	Sept. 27/01	Sept. 27/02
COU	Pre-Amp	H.D. Communications	12594	1002	COU	COU
COU	Pre-Amp	H.D. Communications	12594	1001	COU	COU
COU	Isolator	Narda	CIC01A8010-02	FA001580	COU	COU
COU	Isolator	Narda	CIC01A8010-02	FA001579	COU	COU
1 Year	Power Sensor	Hewlett Packard	8487A	FA001419	Sept. 27/01	Sept. 27/02

NA: Not Applicable

NCR: No Cal Required

COU: CAL On Use