



Nemko

Test Report:

2W06467

Applicant:

Radio Frequency Systems
4100 SW Research Way
Corvallis, OR 97333 USA

**Equipment Under Test:
(EUT)**

Bi-Directional Amplifiers, 48900 Series
48910, 48920 & 48930

FCC ID:

IWD48900

In Accordance With:

FCC Part 22 & FCC Part 90

Tested By:

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

Authorized By:

Kevin Carr, EMC Specialist

Date:

27 November 2002

Total Number of Pages:

50

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EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

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 and FCC Part 90 for family listing.

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: _____
Glen Westwell, Wireless Technologist

DATE: 27 November 2002

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This report applies only to the items tested.

EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

Summary Of Test Data

Name Of Test	Para. No.	Result
RF Power Output	2.1046	Complies
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	N/A

Notes:

(1) These amplifiers do not translate the RF input, therefore frequency stability is not applicable.

Test Conditions:**Indoor**

Temperature: 23°C

Humidity: 46%

Outdoor

Temperature: 3°C

Humidity: 65%

.

Section 2. General Equipment Specification

Manufacturer: Radio Frequency Systems

Model No.: 48910, 48920 & 48930

Date Received In Laboratory: 28 Oct. 2002

Nemko Identification No.: #1,2 & 3

Frequency Range: **48910** (Part 22)
824-849MHz (Uplink)
869-894MHz (Downlink)
48920 (Part 90)
806-821MHz (Uplink)
851-866MHz (Downlink)
48930 (Part 90)
896-901MHz (Uplink)
935-940MHz (Downlink)

RF Output Power: 48910 = 23dBm
48920 = 23dBm
48930 = 22dBm

Emission Designator (modulation): 48910 = F3E (AMPS)
F9W (TDMA)
DXW (CDMA)
48920 & 48930
= F3E
D7W

Section 3. RF Power Output

Para. No.: 2.1046

Test Performed By: Glen Westwell	Date of Test: 18 Nov 2002
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Minimum Standard: 22.913(a), 90.635

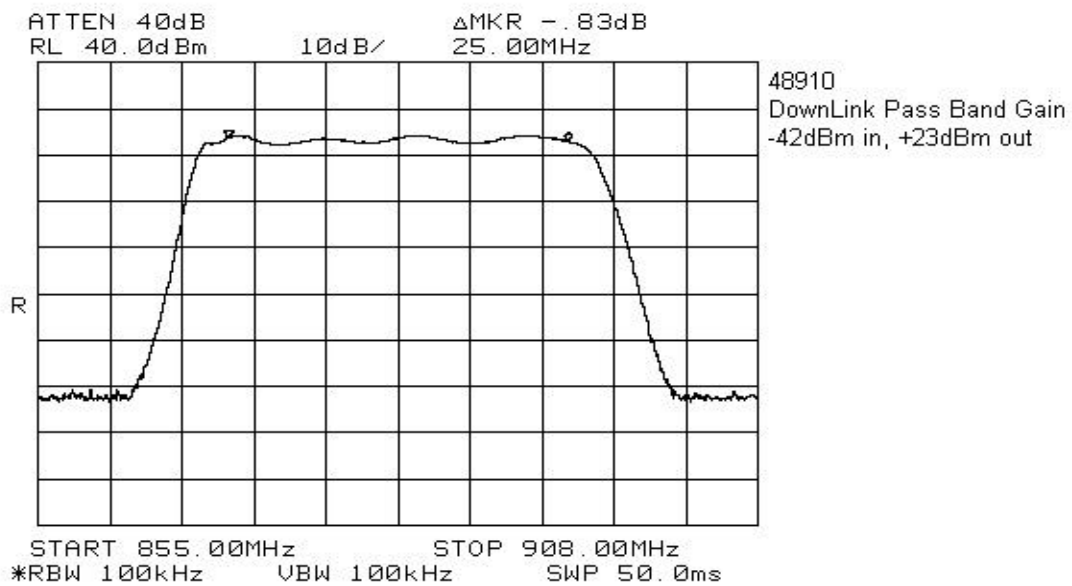
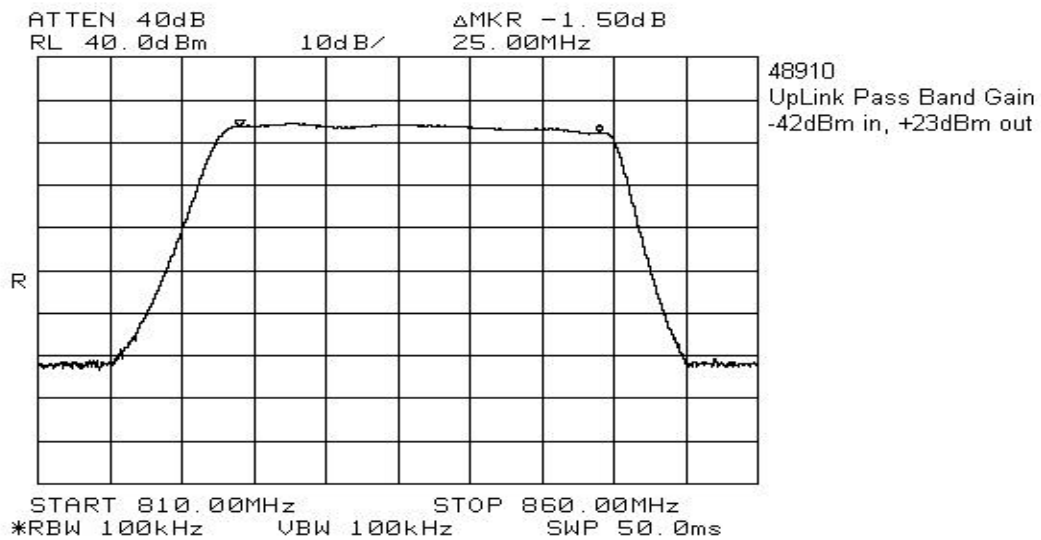
Test Results: Complies.

The maximum RF output power is within ± 1 dB of the manufacturer's rating. The RF output power is de-rated according to the number of channels via AGE and is equal to $P_{max} - 10\log N$.

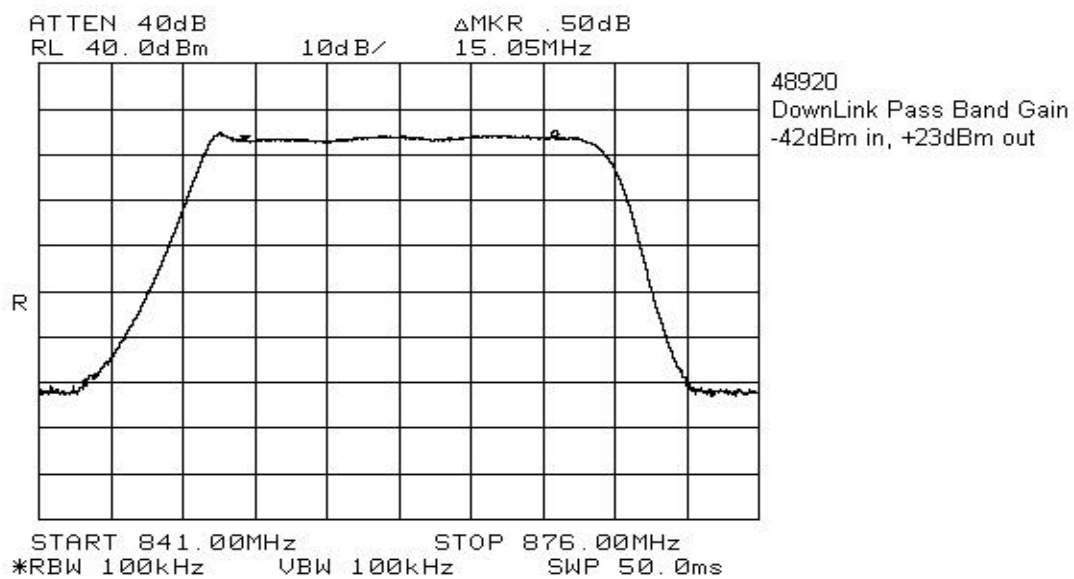
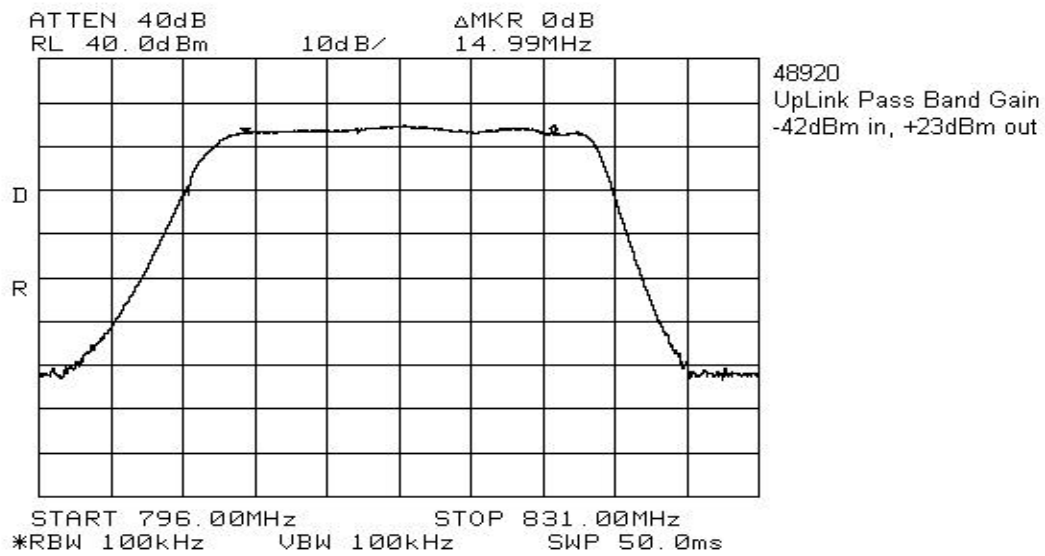
P_{max} = Maximum RF Output Power

N = Number Of Channels

48910

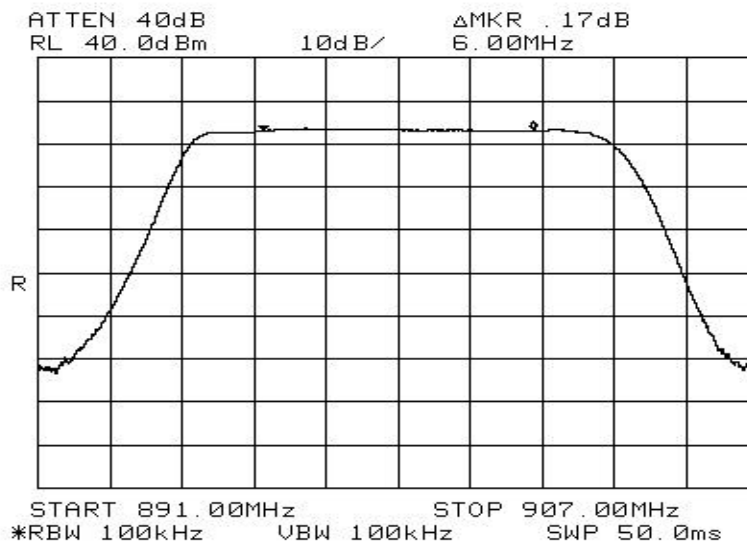


48920



EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

48930



48930
UpLink Pass Band Gain
-42dBm in, +22dBm out



48930
DownLink Pass Band Gain
-42dBm in, +22dBm out

Section 4. Occupied Bandwidth

Para. No.: 2.1049

Test Performed By: Glen Westwell	Date of Test: 18 Nov 2002
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Minimum Standard:	Para. No.'s	90.669
		22.917

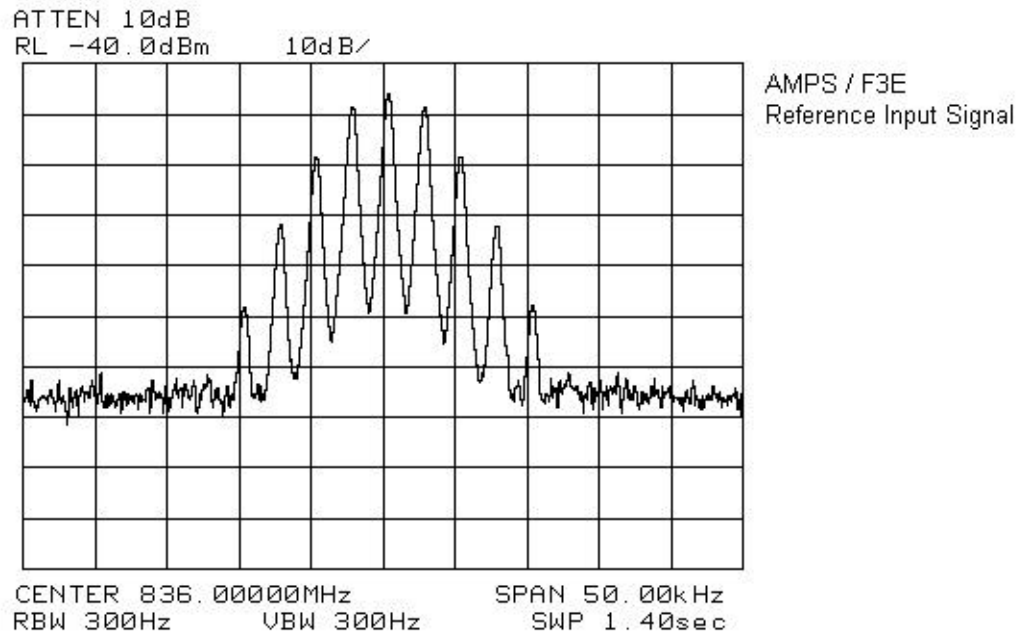
Test Results: Complies.

Measurement Data: See attached graphs.

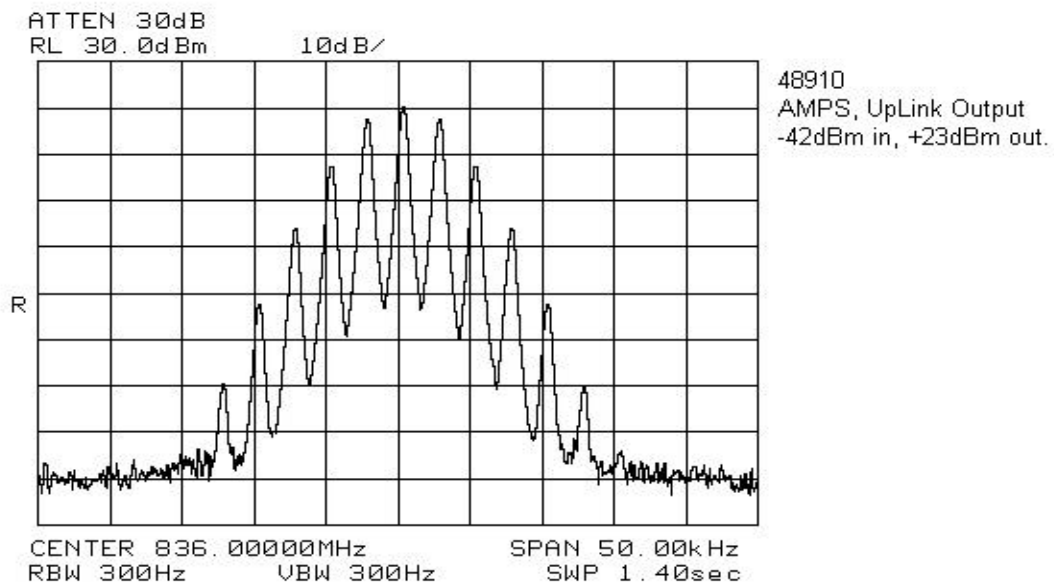
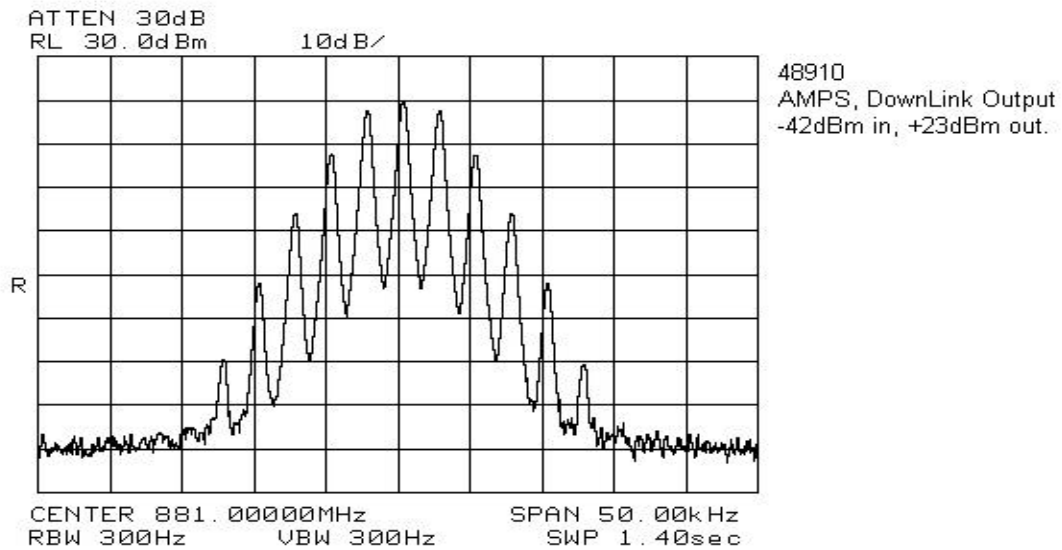
The occupied bandwidth was measured by comparison of input to the output signal. This was done in order to determine if there was any degradation to the output signal due to the amplification through the repeater.

EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

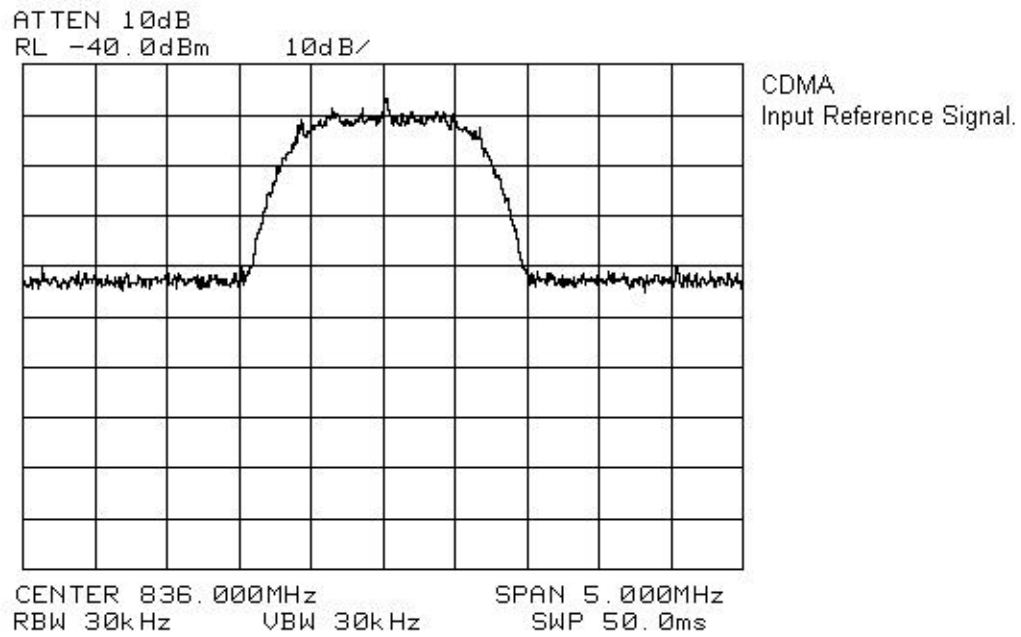
48910



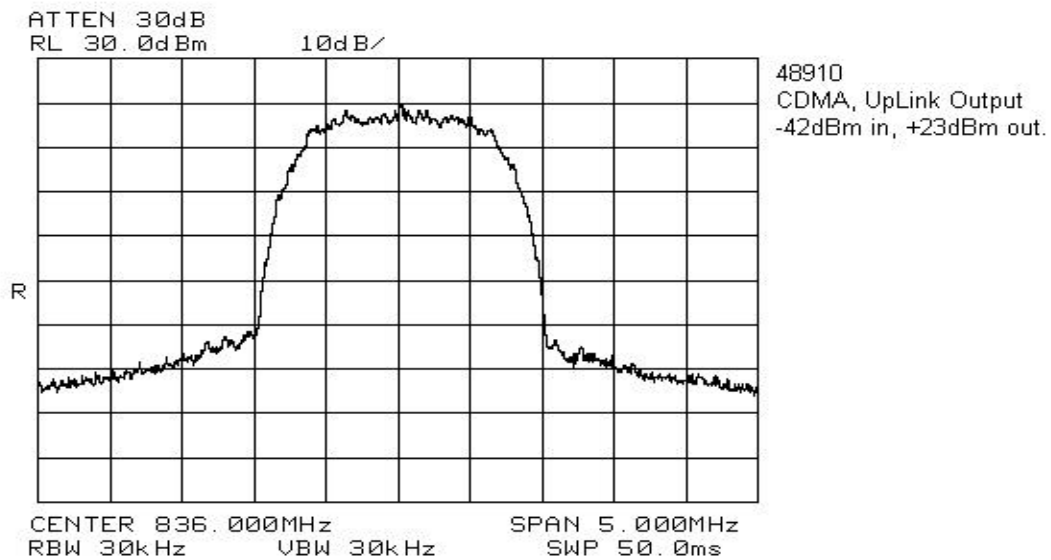
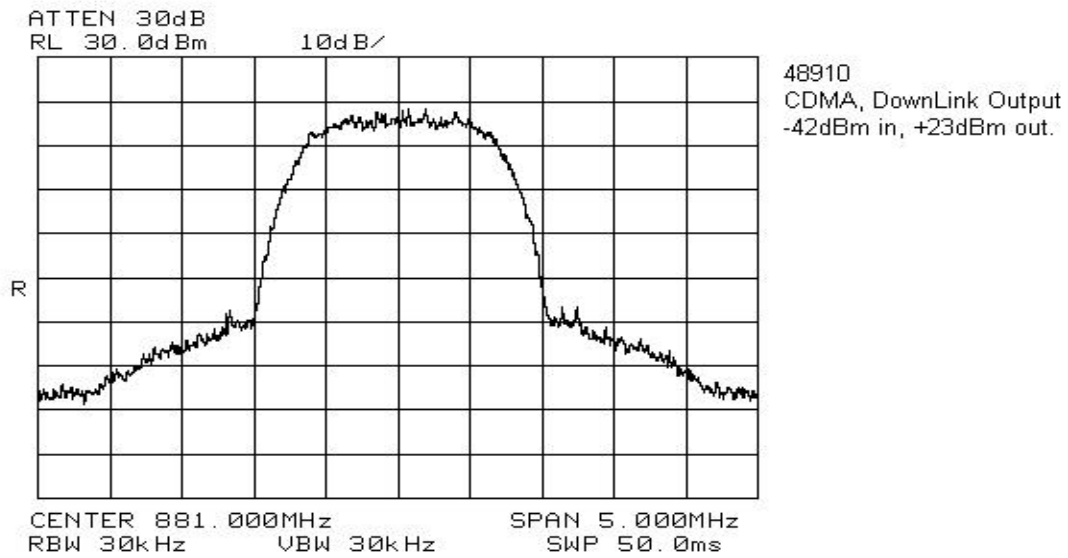
EQUIPMENT: Bi-Directional Amplifiers, 48900 Series



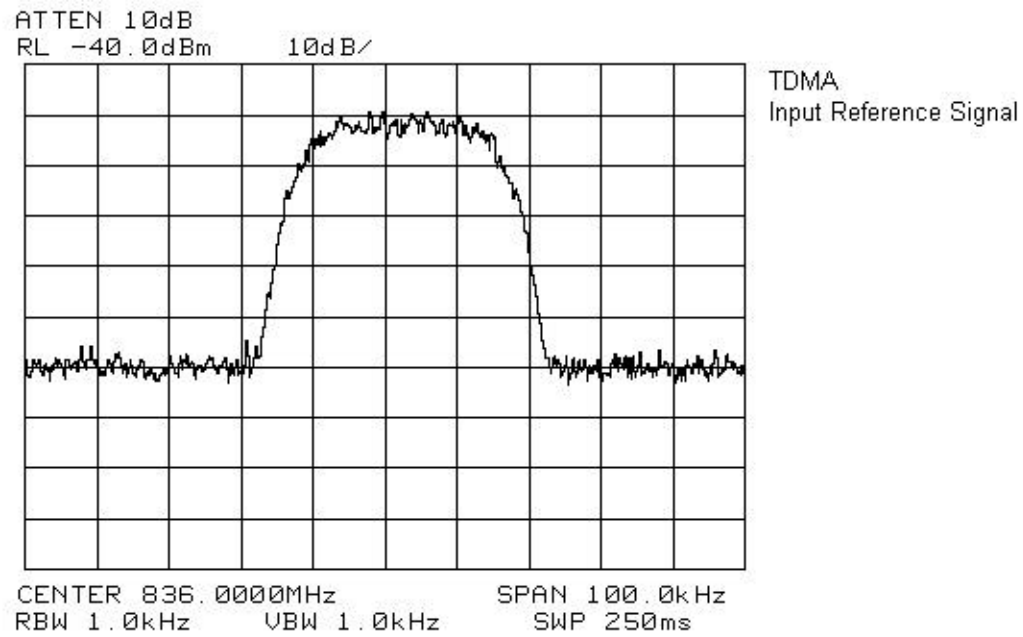
EQUIPMENT: Bi-Directional Amplifiers, 48900 Series



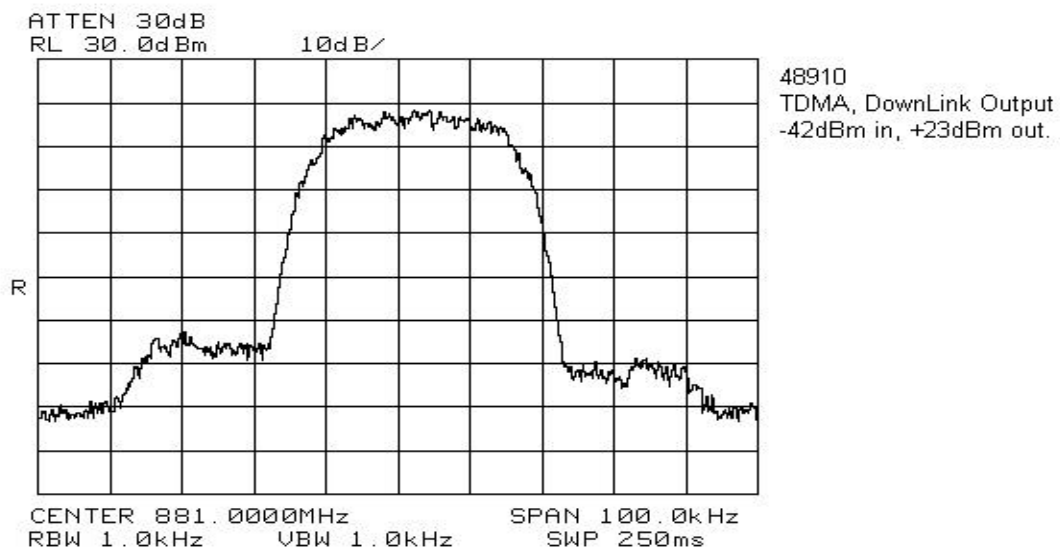
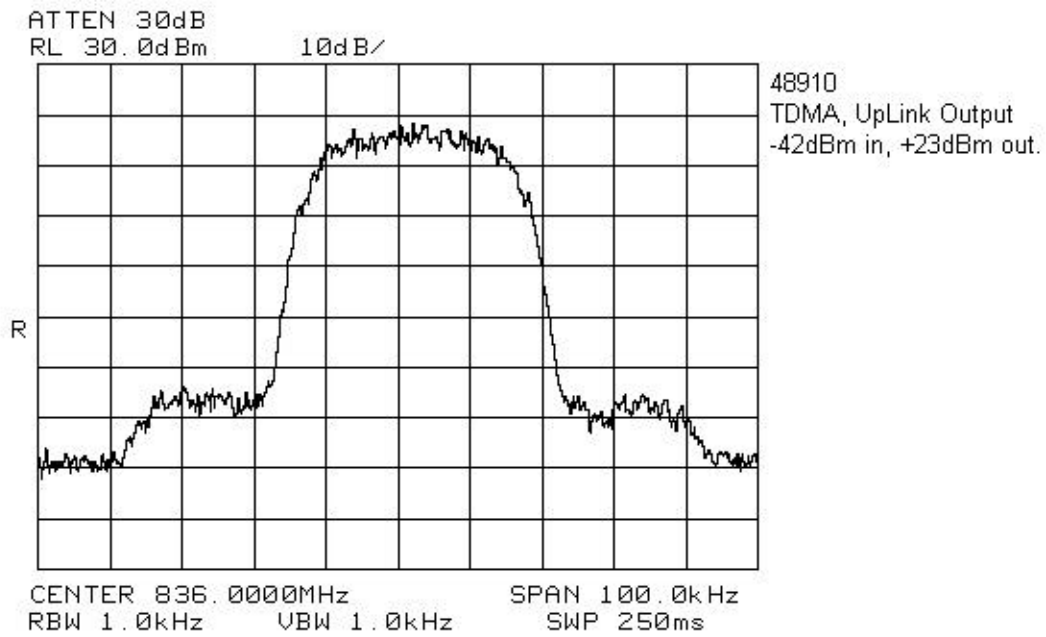
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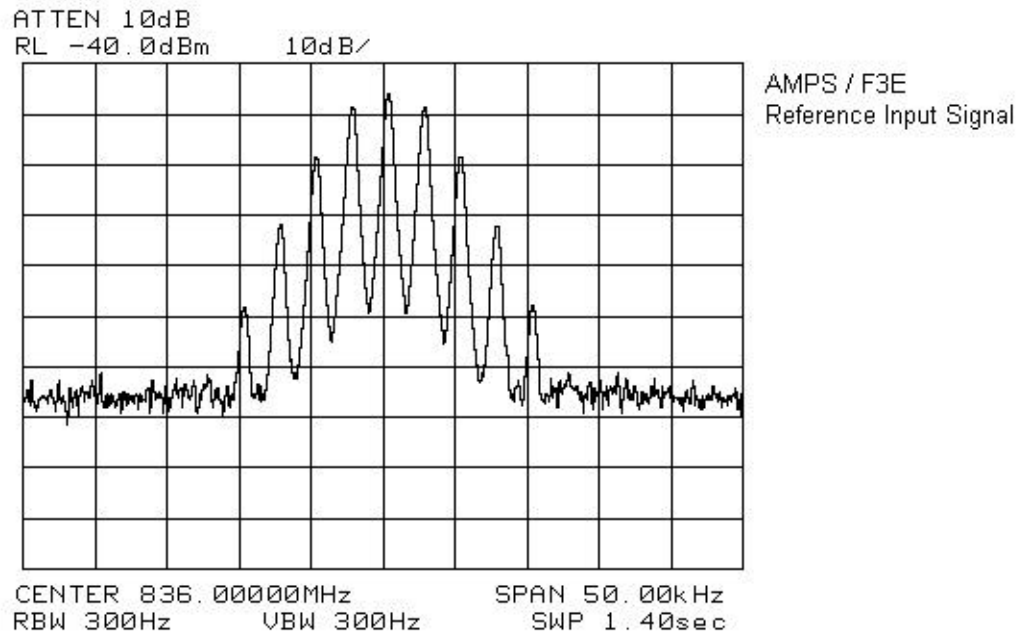


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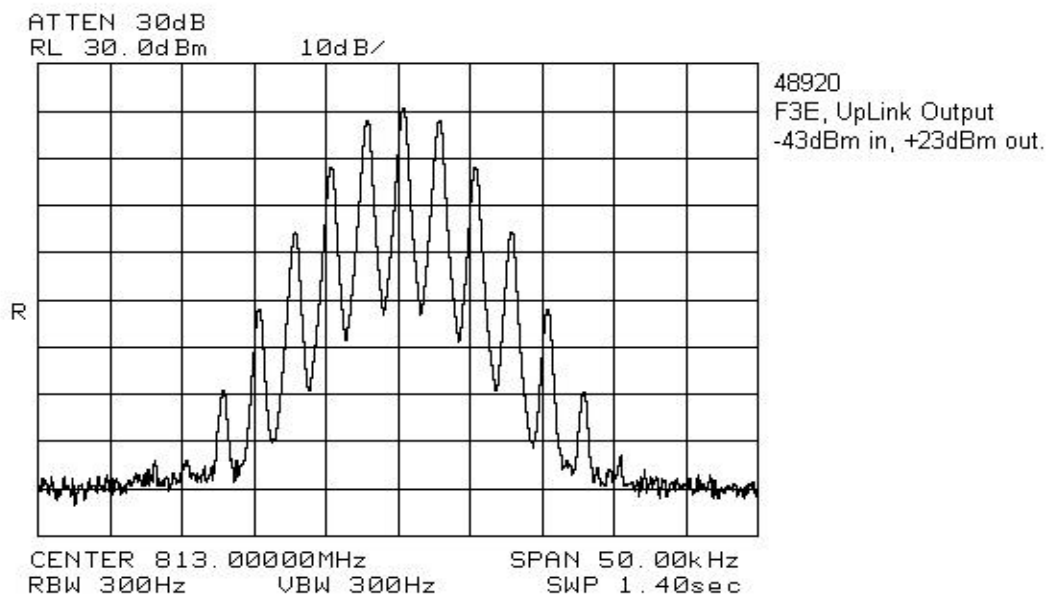
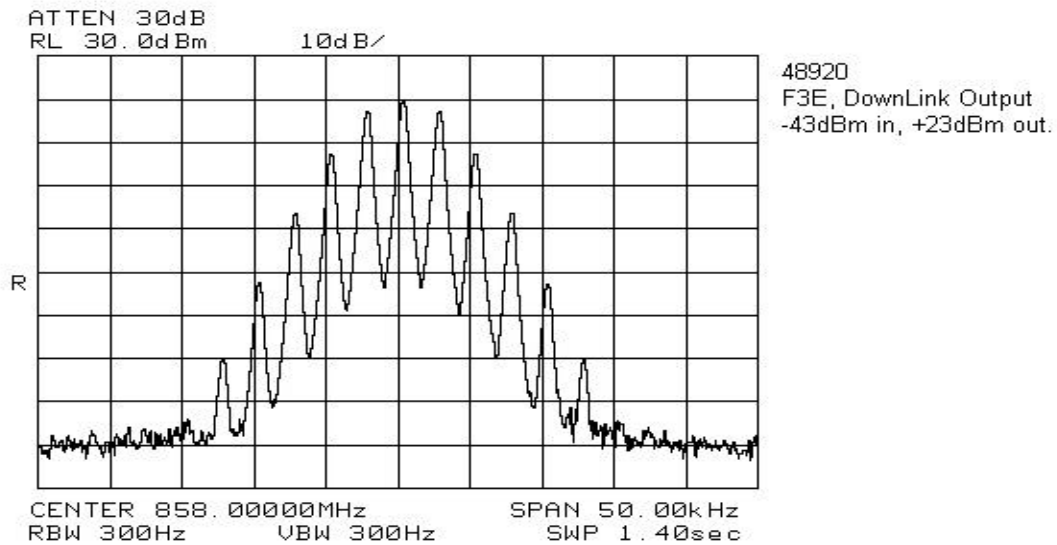


EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

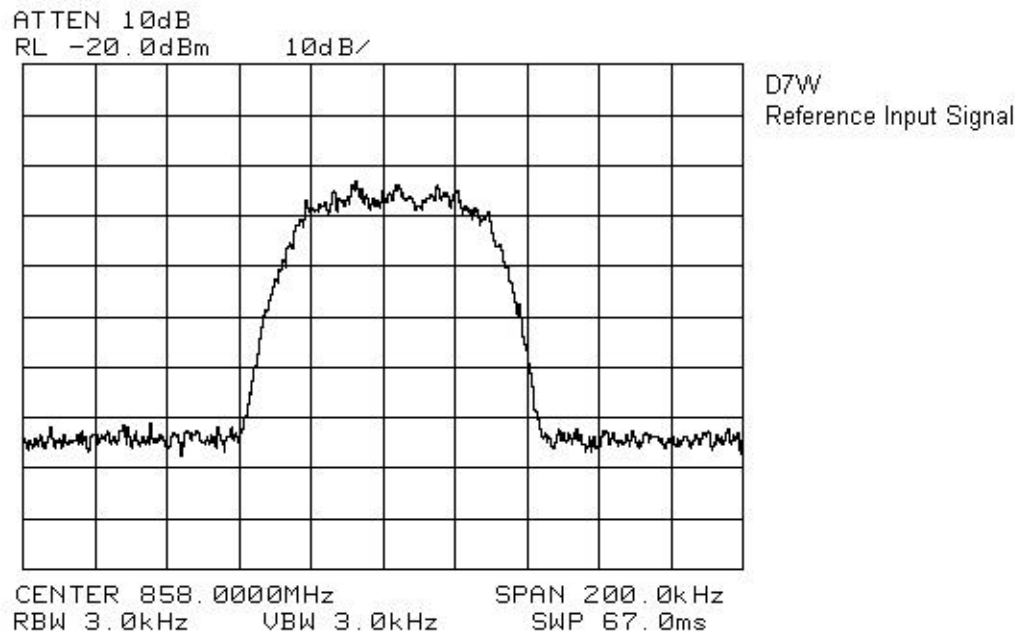
48920



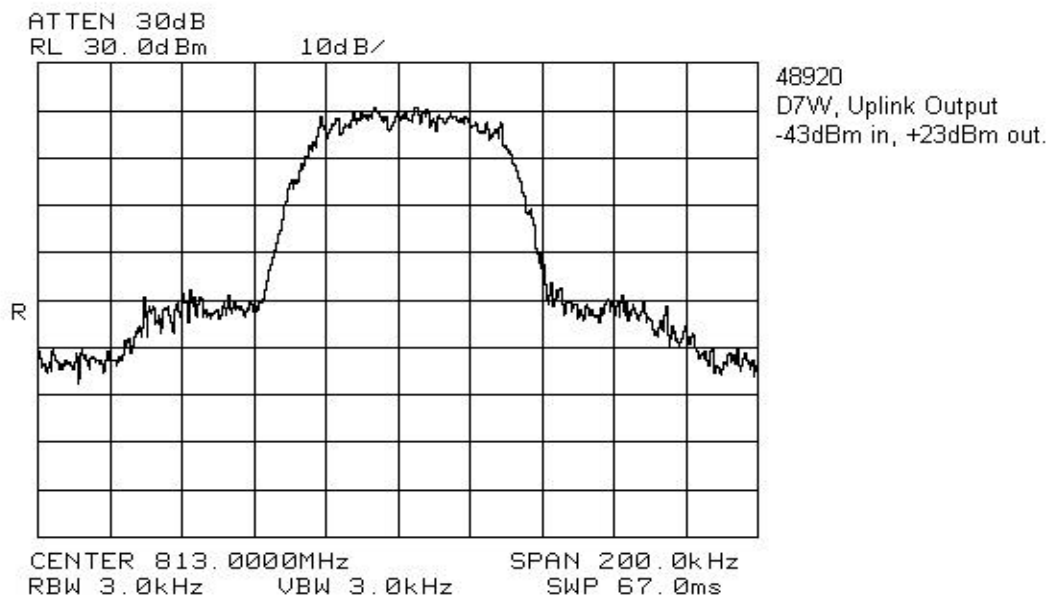
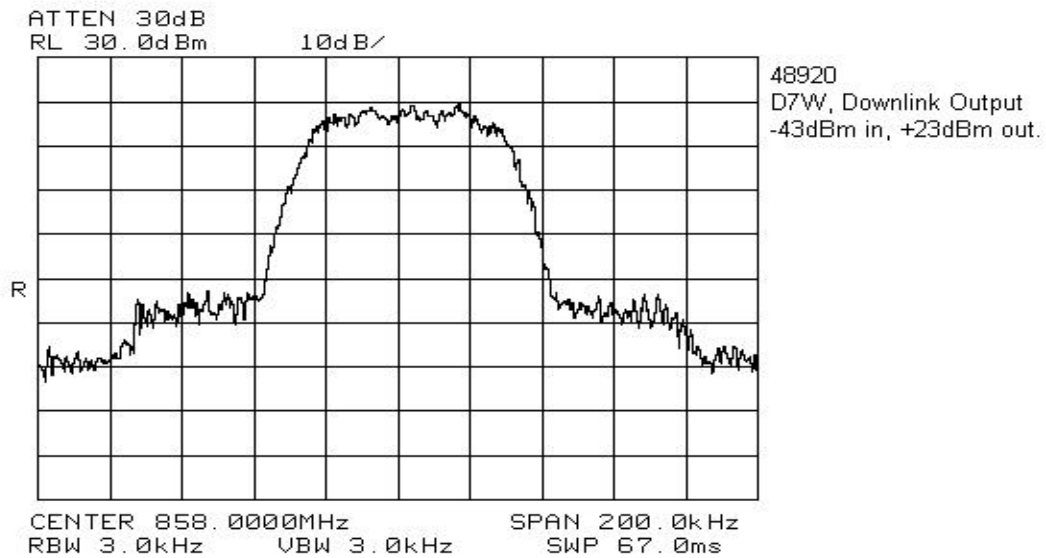
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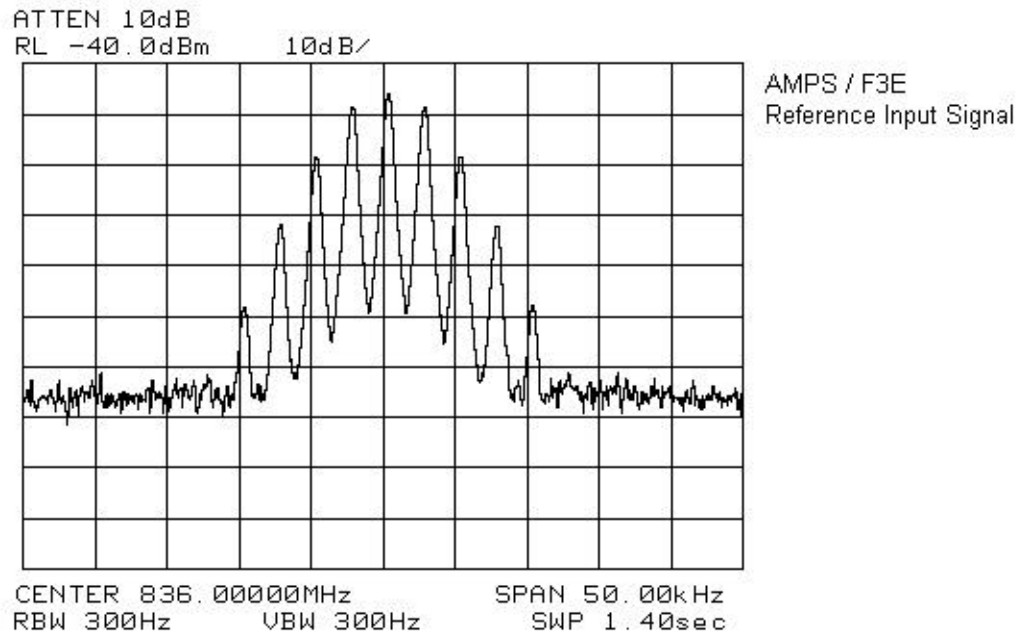


EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

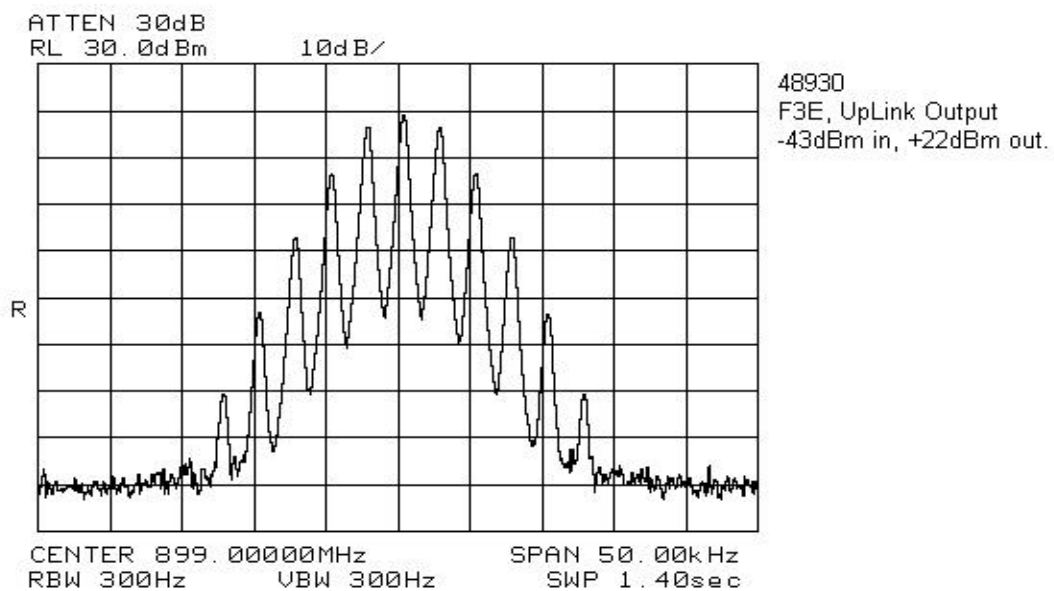
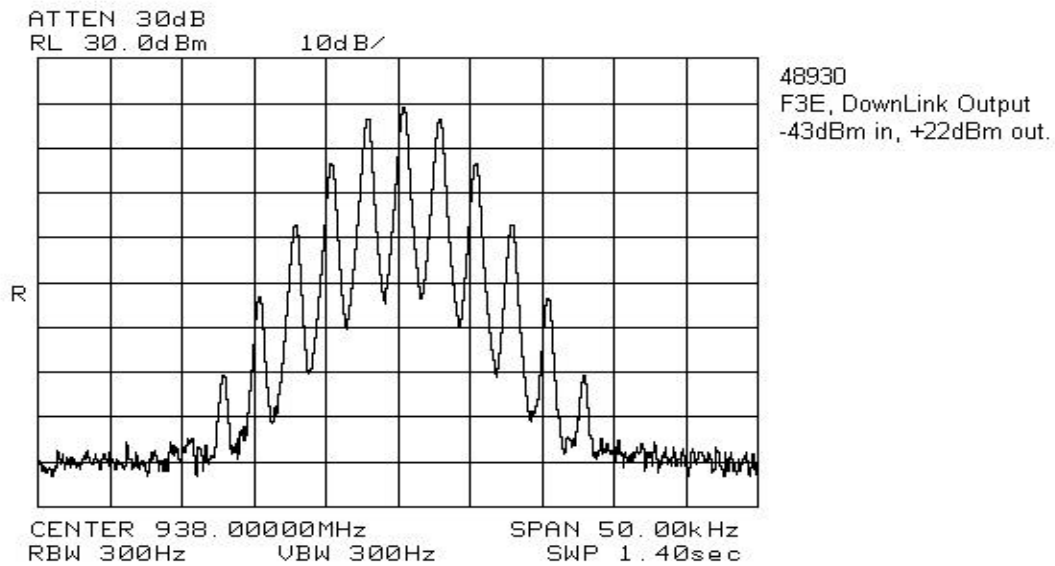


EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

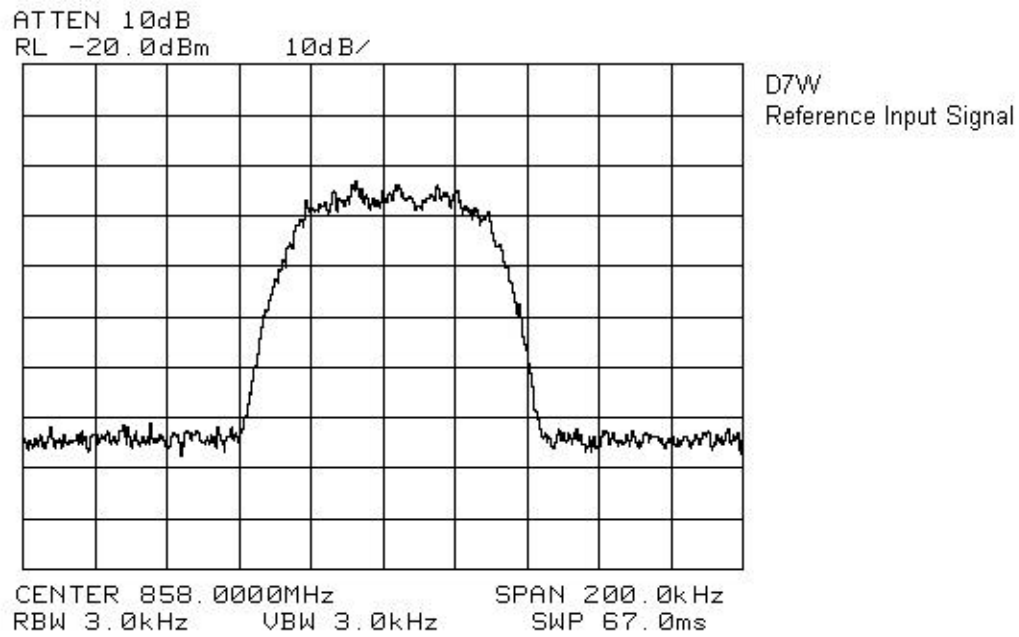
48930



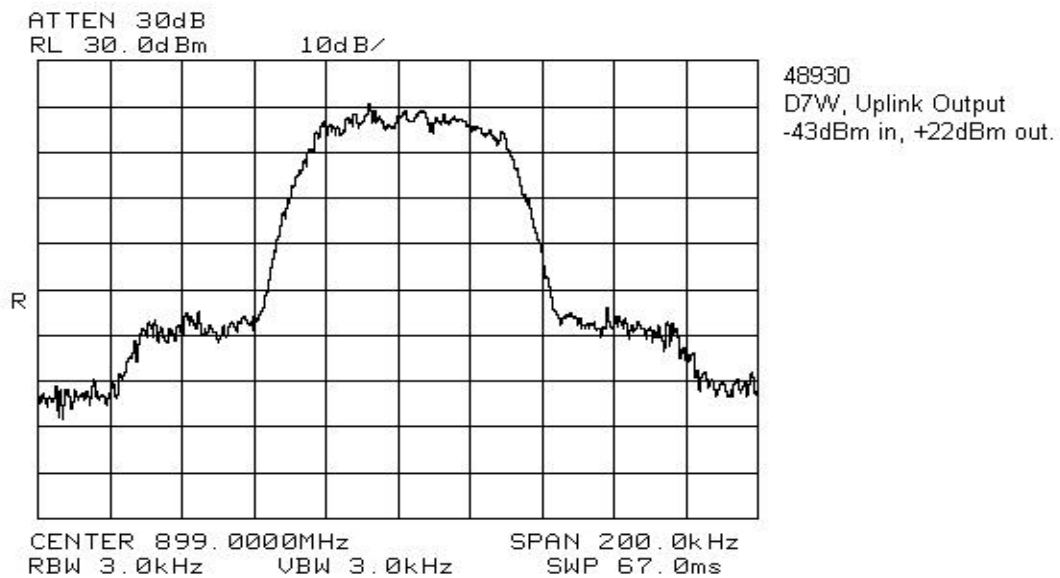
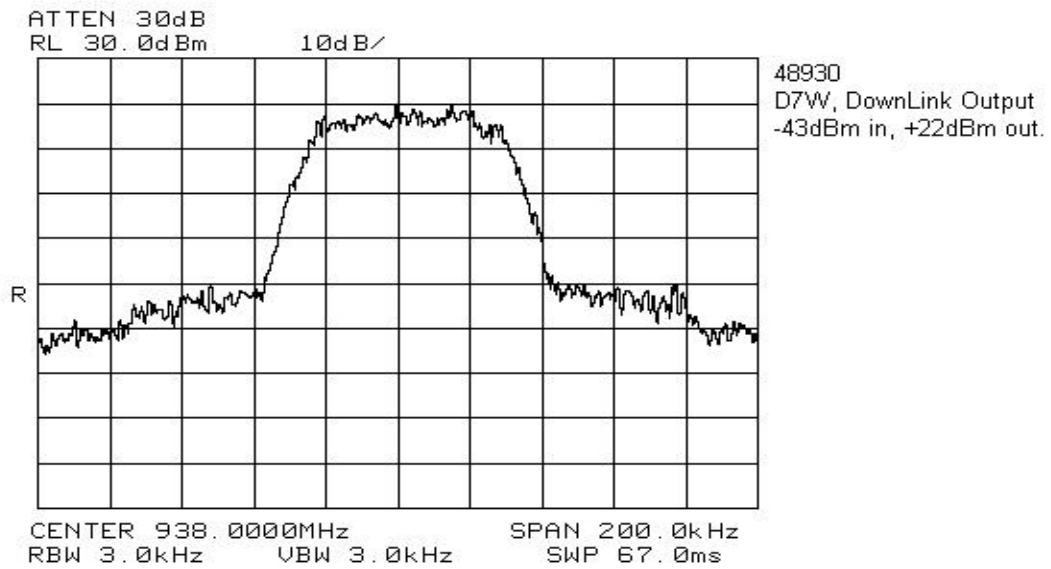
EQUIPMENT: Bi-Directional Amplifiers, 48900 Series



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Section 8. Spurious Emissions at Antenna Terminals

Para. No.: 2.1051

Test Performed By: Glen Westwell	Date of Test: 20 Nov 2002
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Minimum Standard: Para. No.'s 90.210
22.917

Test Results: Complies.

Measurement Data: See attached graphs (worst case).