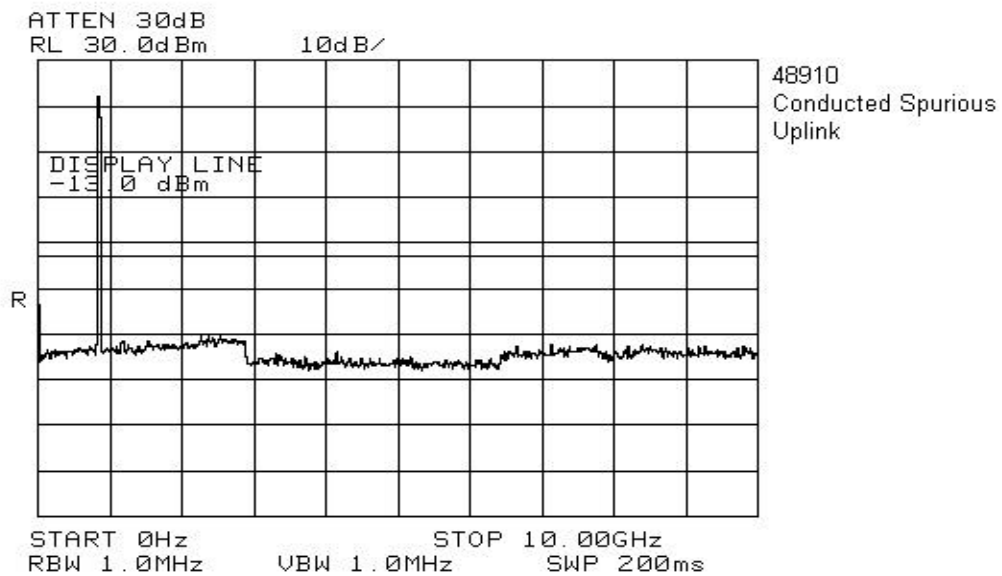
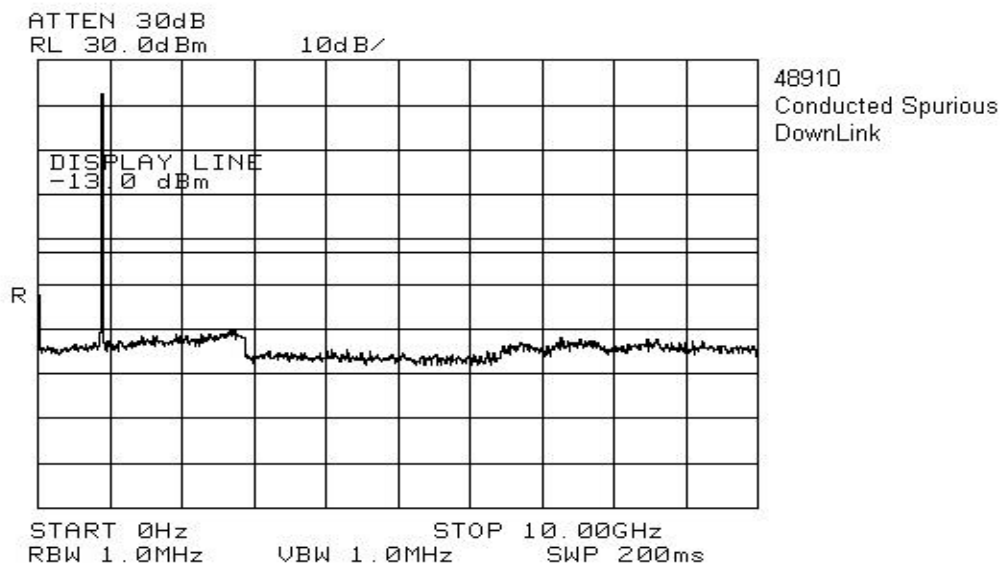
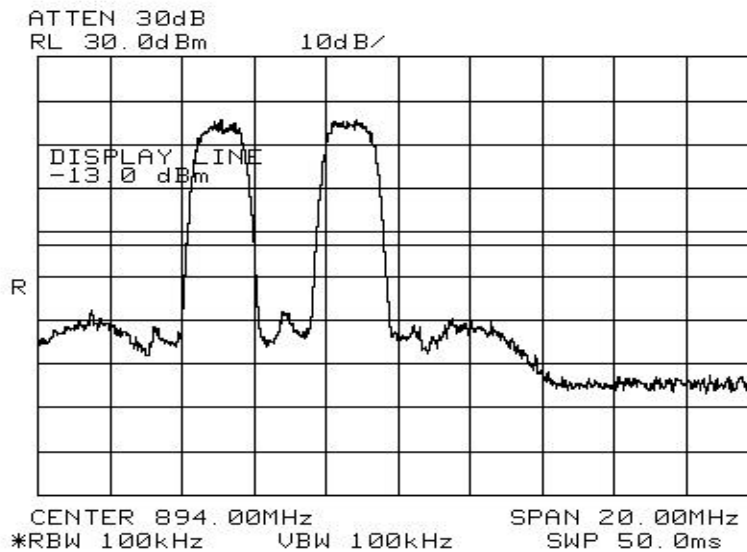


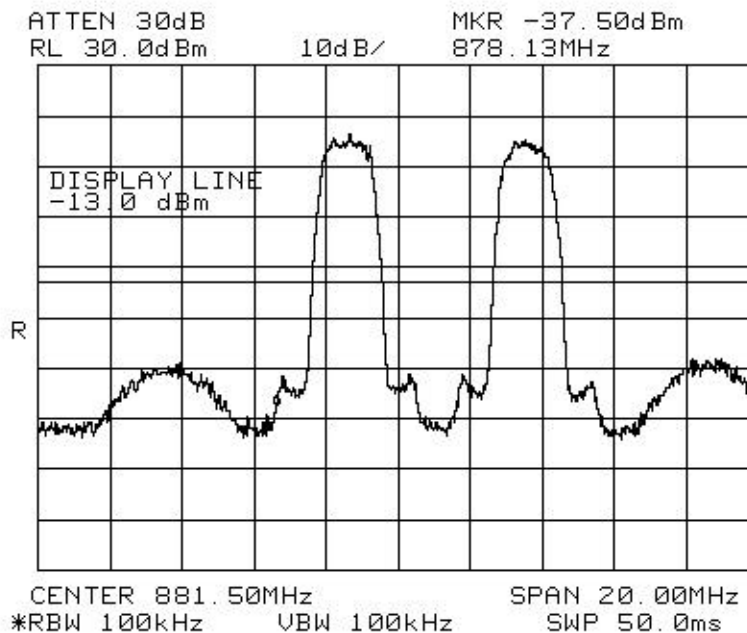
48910



EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

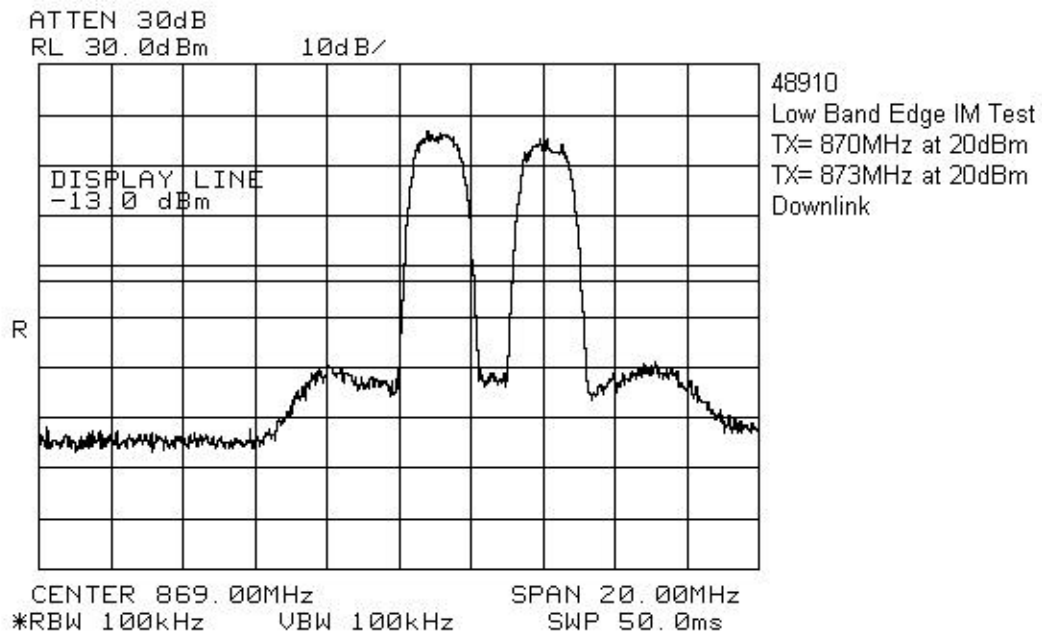


48910
High Band Edge IM Test
TX= 892.61MHz at 20dBm
TX= 889MHz at 20dBm
Downlink

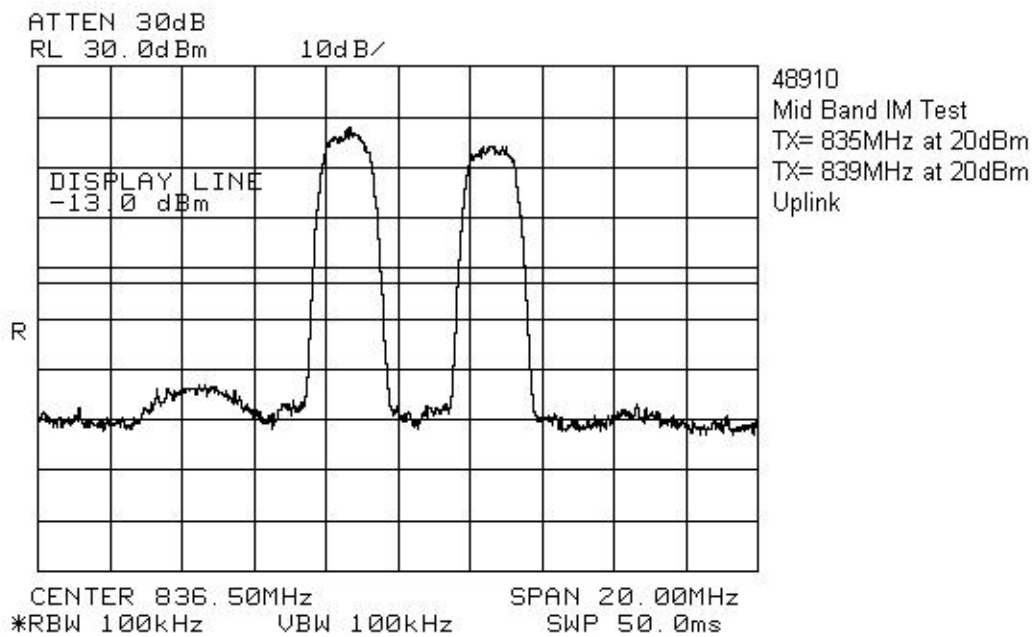
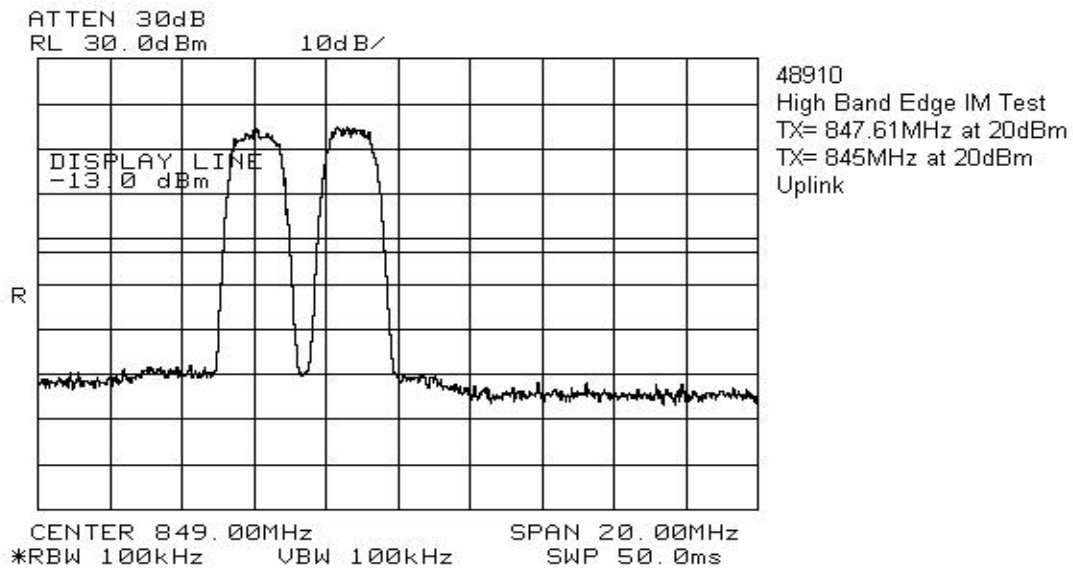


48910
Mid Band IM Test
TX= 880MHz at 20dBm
TX= 885MHz at 20dBm
Downlink

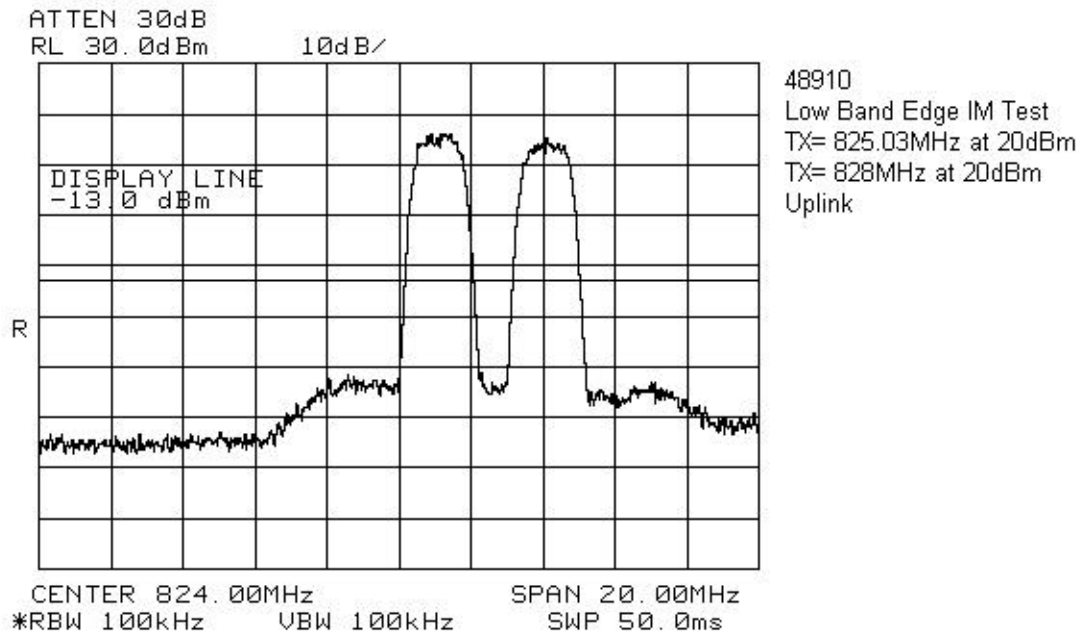
EQUIPMENT: Bi-Directional Amplifiers, 48900 Series



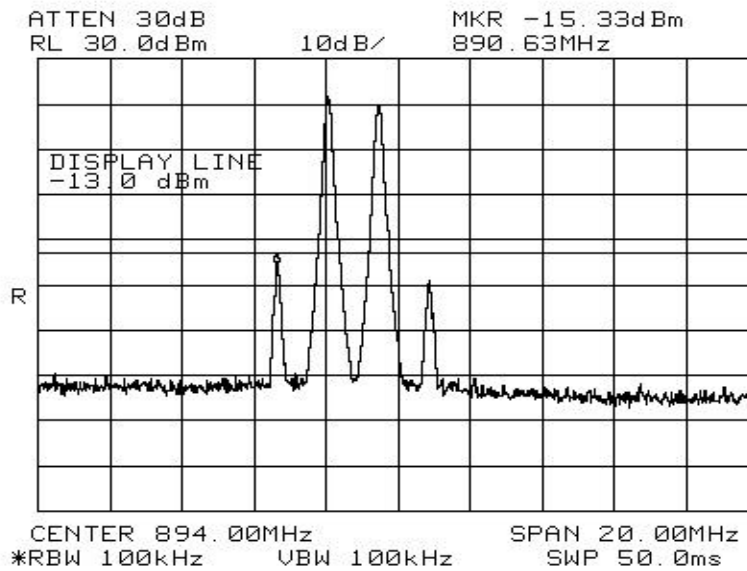
EQUIPMENT: Bi-Directional Amplifiers, 48900 Series



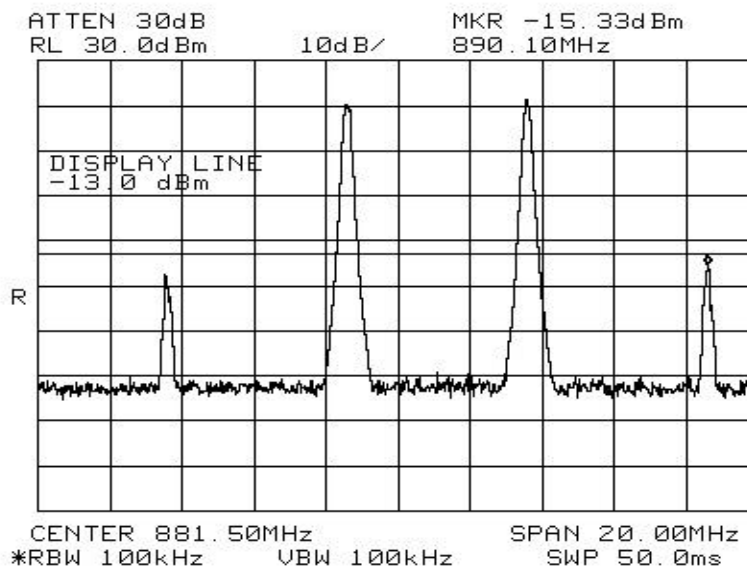
EQUIPMENT: Bi-Directional Amplifiers, 48900 Series



EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

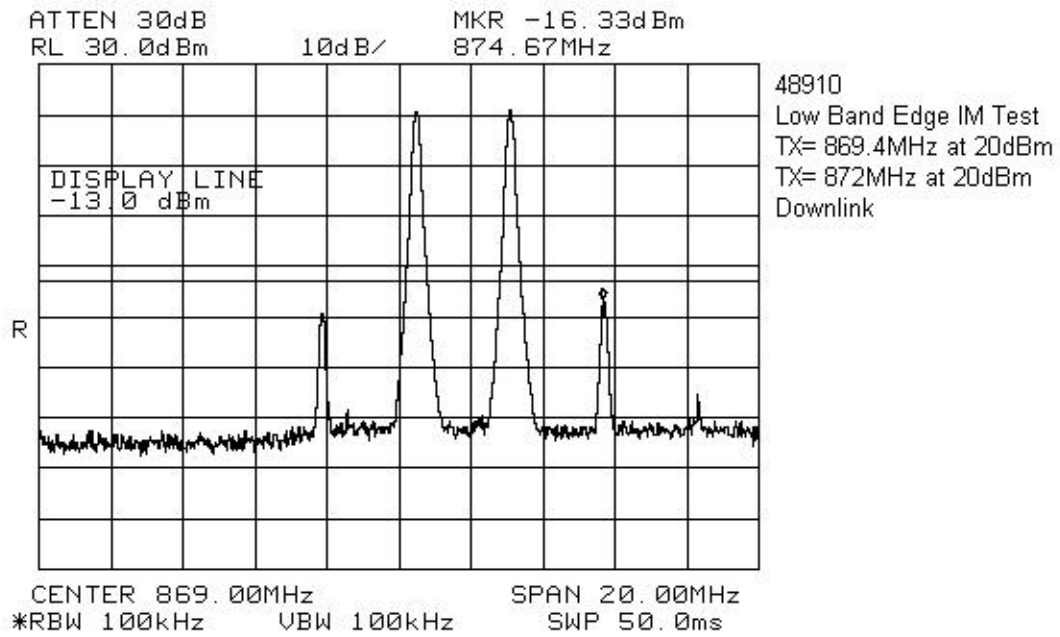


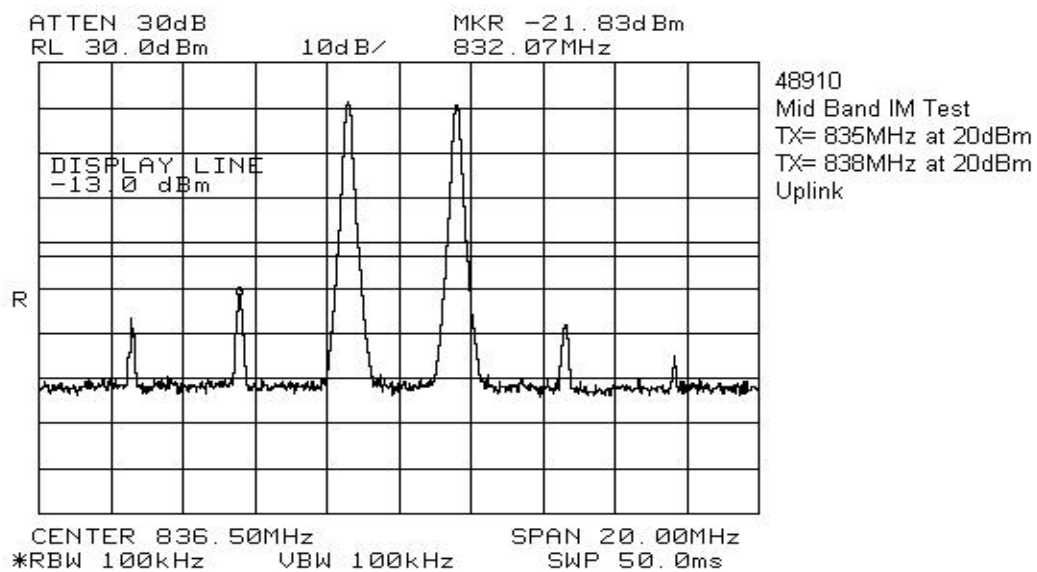
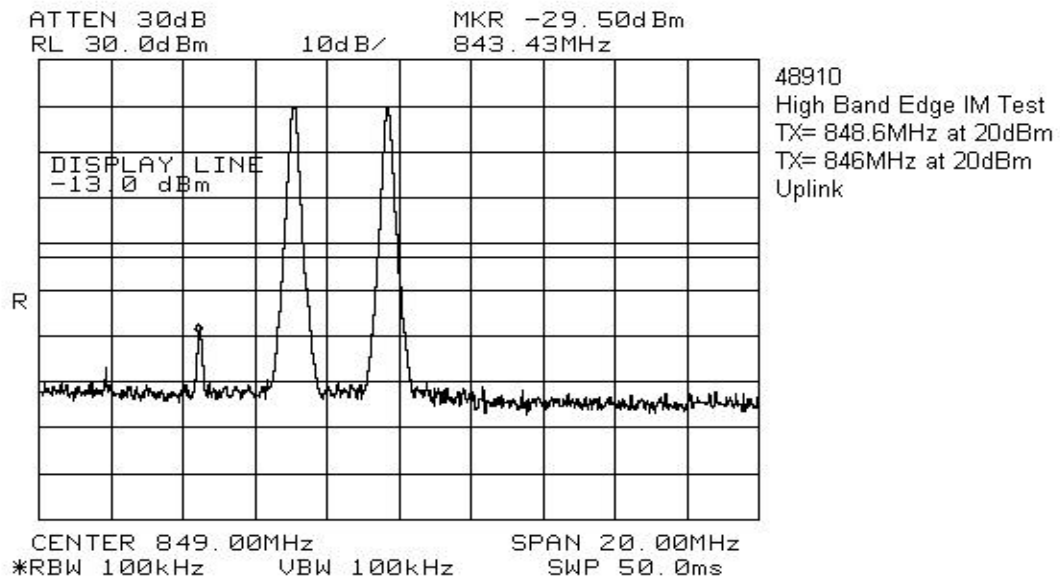
48910
High Band Edge IM Test
TX= 893.4MHz at 20dBm
TX= 892MHz at 20dBm
Downlink



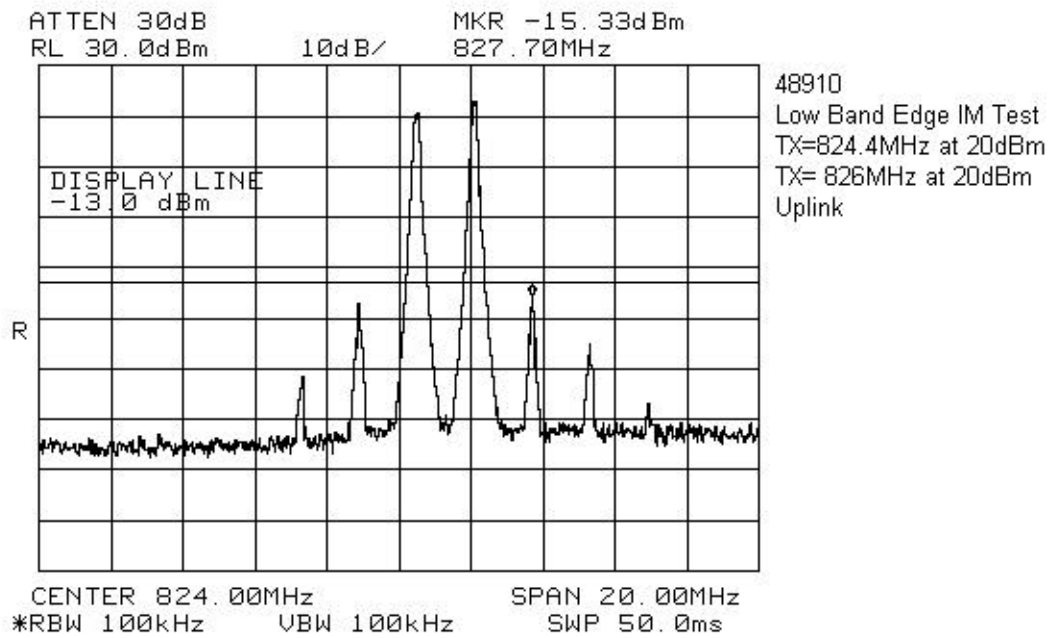
48910
Mid Band IM Test
TX= 880MHz at 20dBm
TX= 885MHz at 20dBm
Downlink

EQUIPMENT: Bi-Directional Amplifiers, 48900 Series



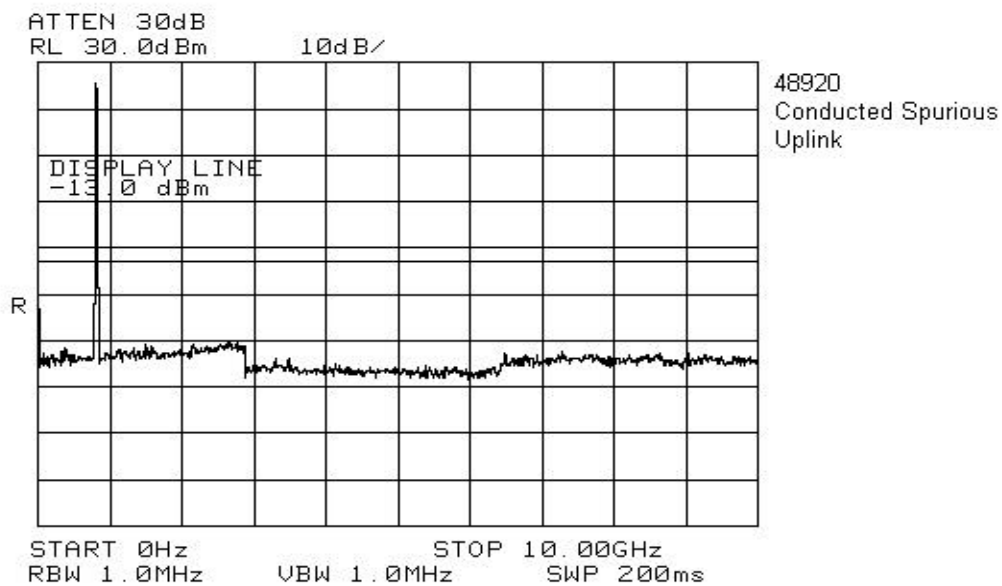
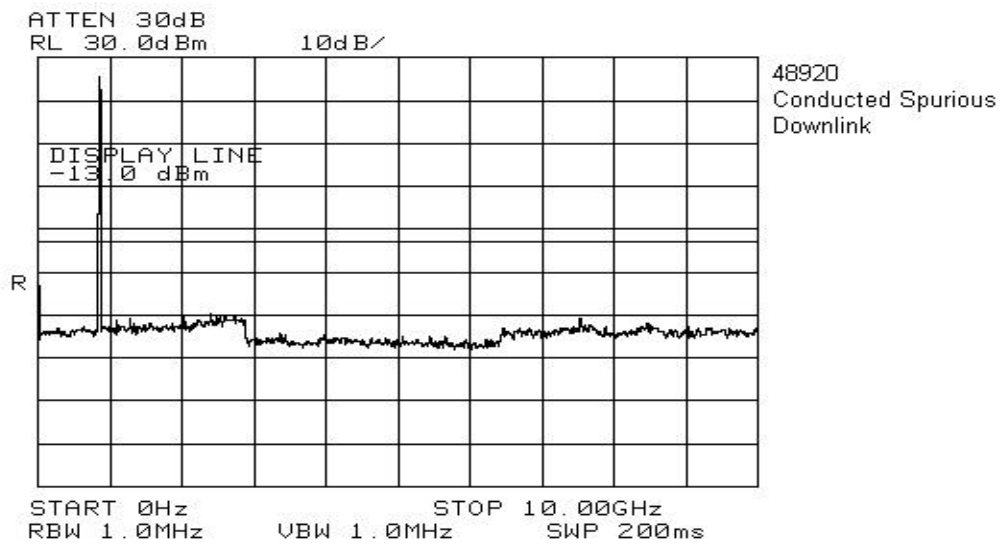
EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

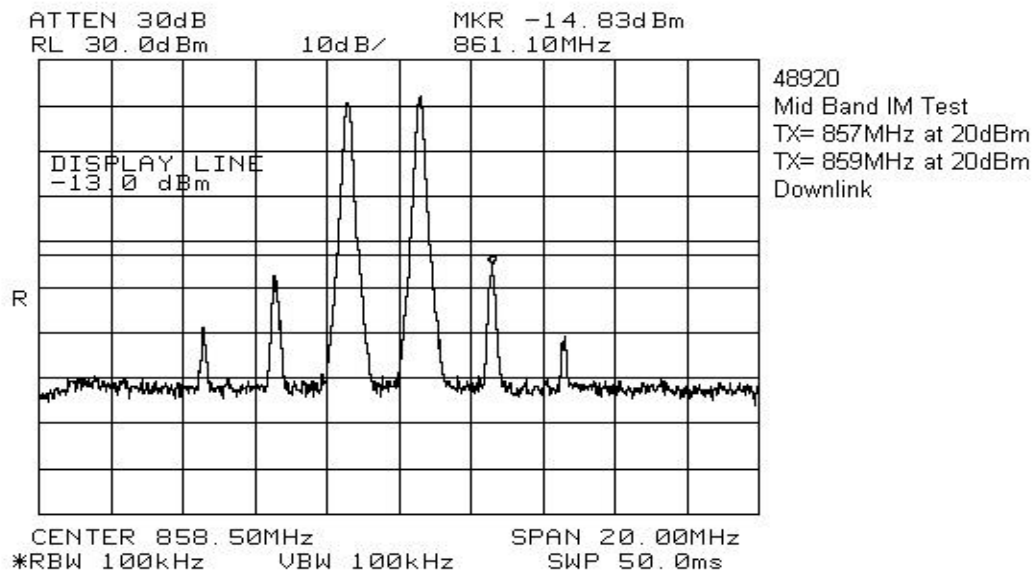
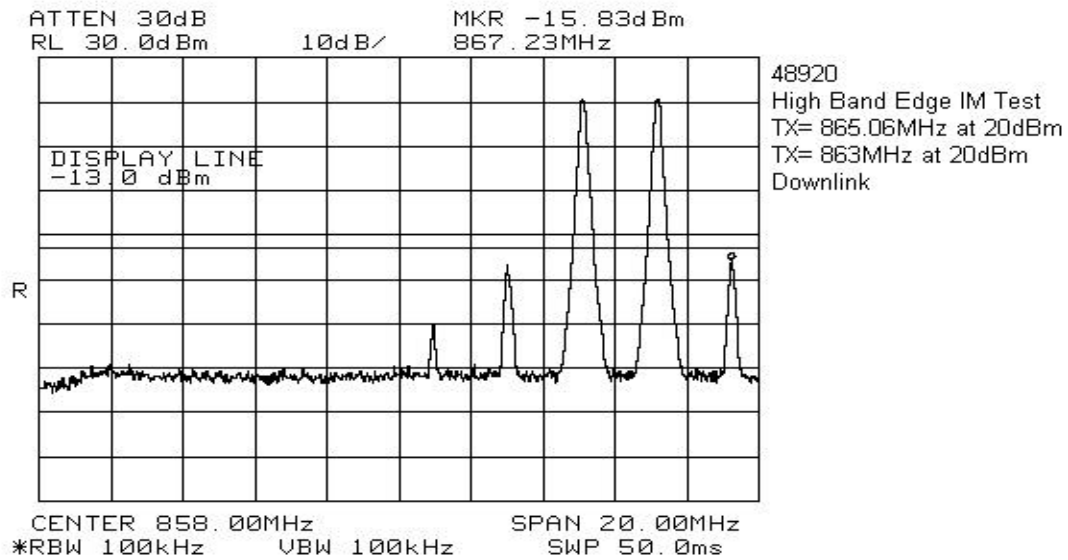


EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

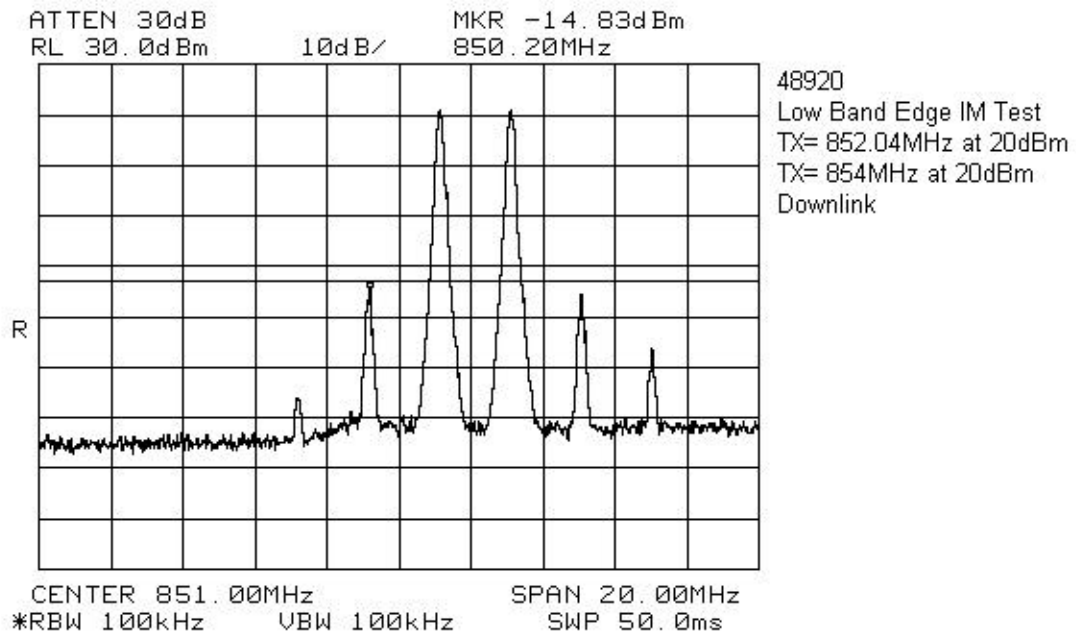
48920



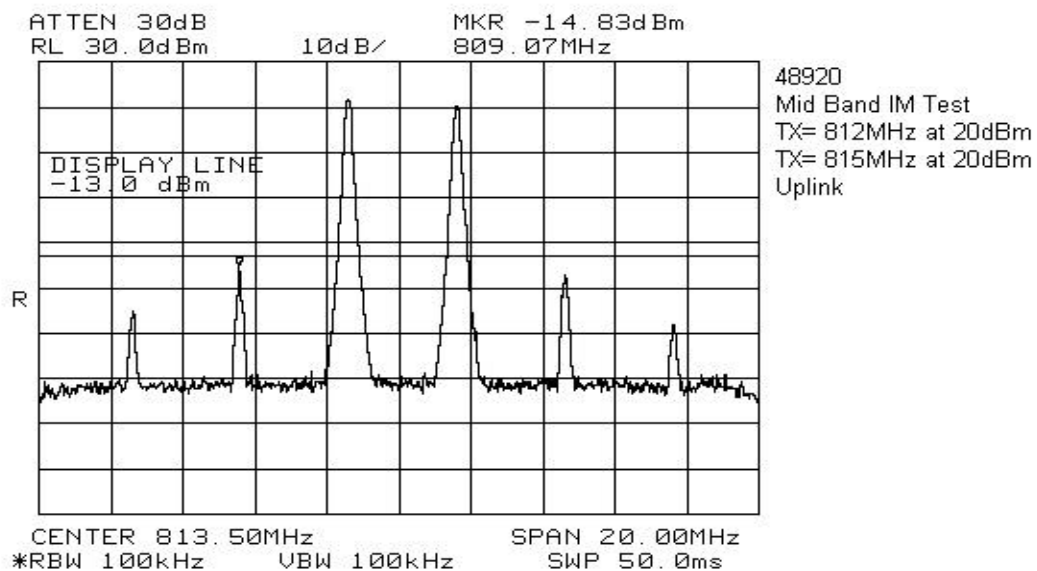
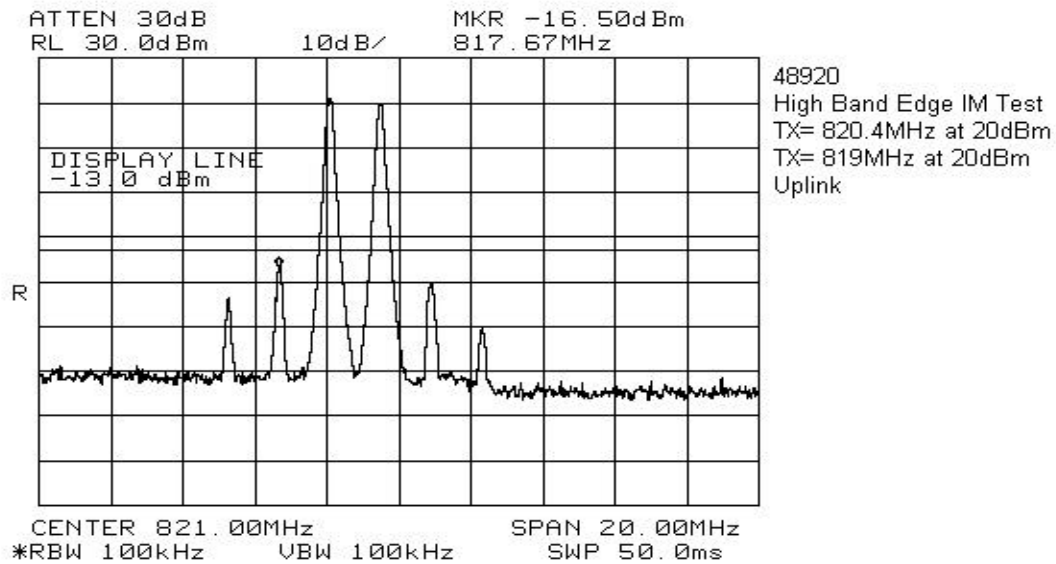
EQUIPMENT: Bi-Directional Amplifiers, 48900 Series



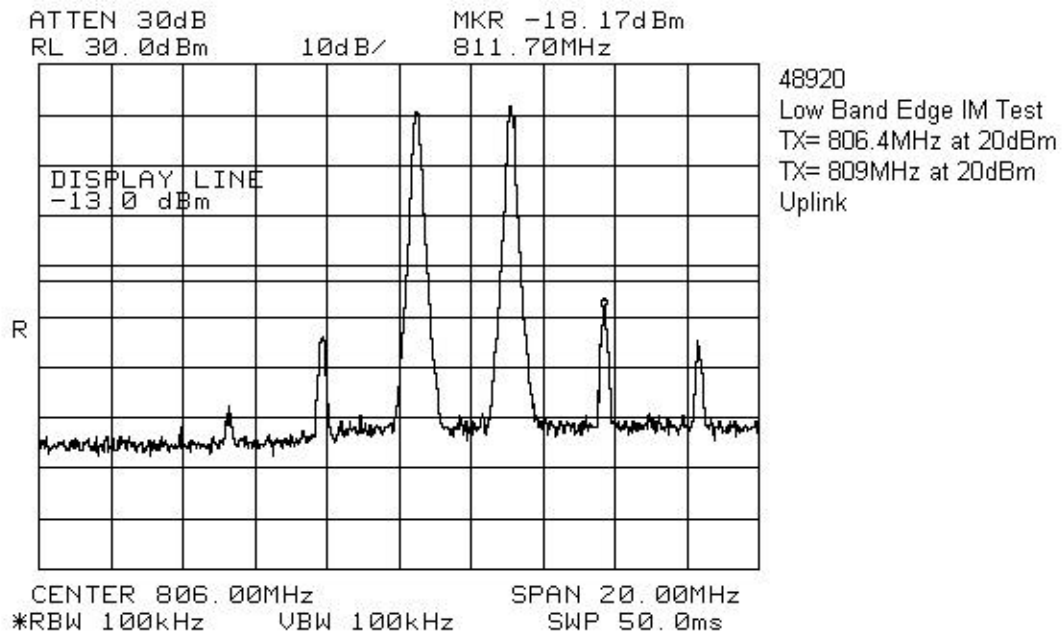
EQUIPMENT: Bi-Directional Amplifiers, 48900 Series



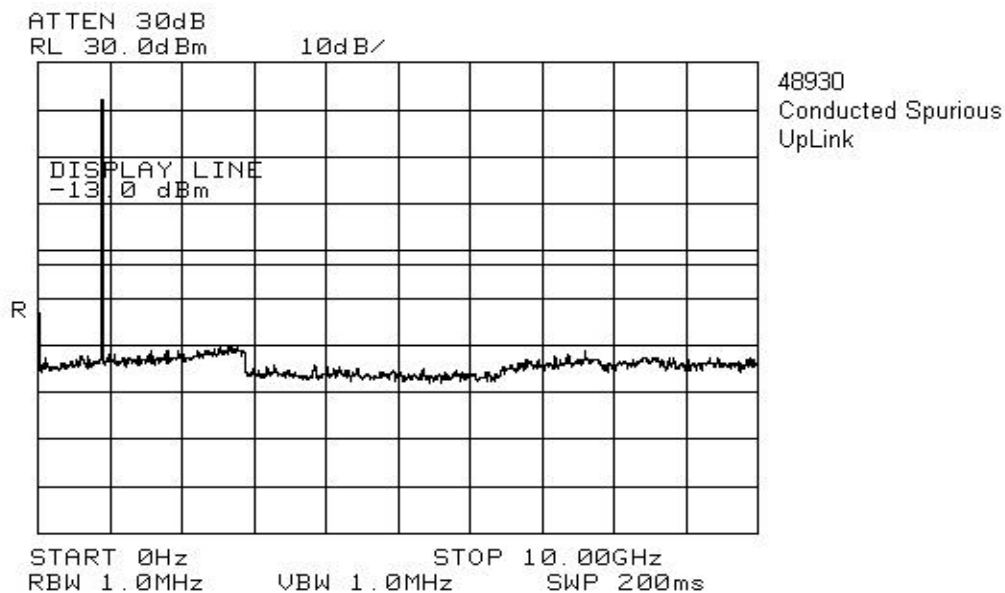
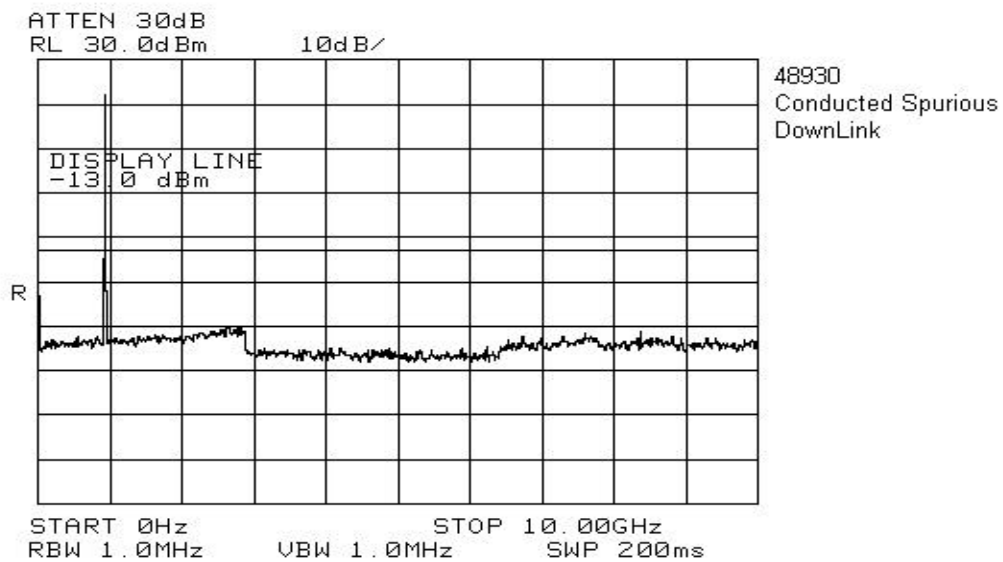
EQUIPMENT: Bi-Directional Amplifiers, 48900 Series



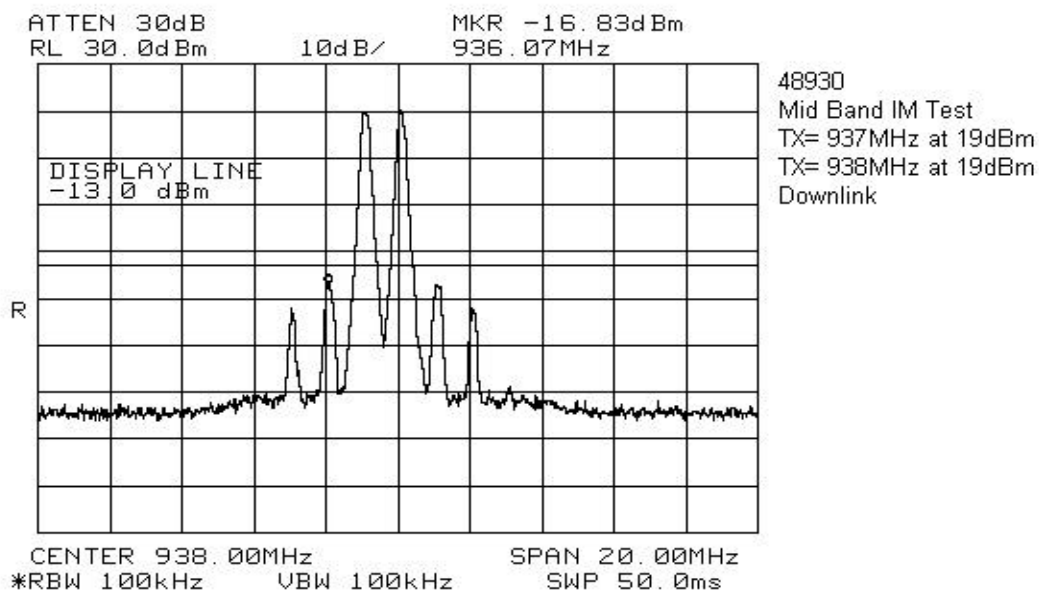
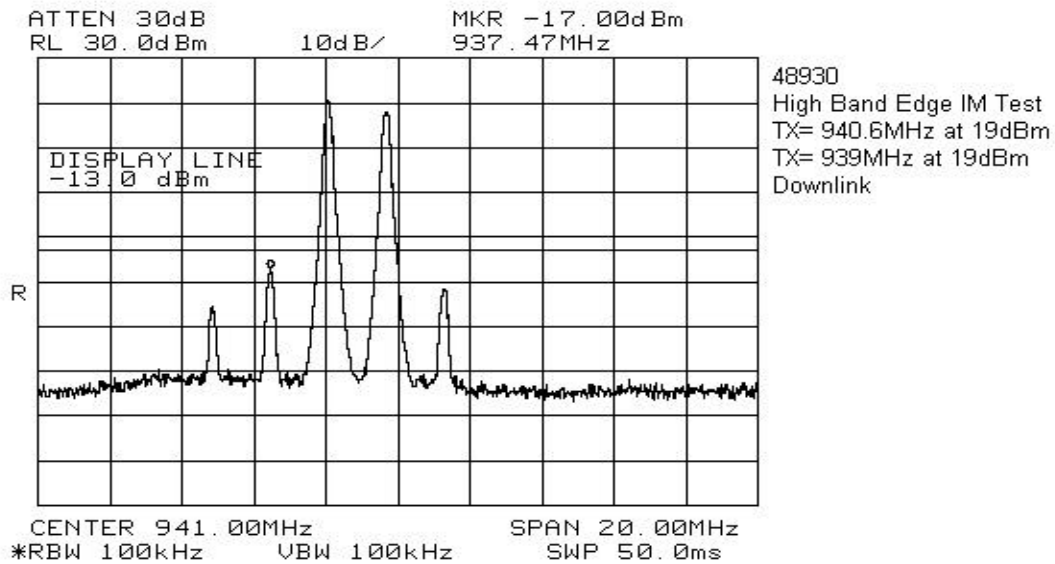
EQUIPMENT: Bi-Directional Amplifiers, 48900 Series



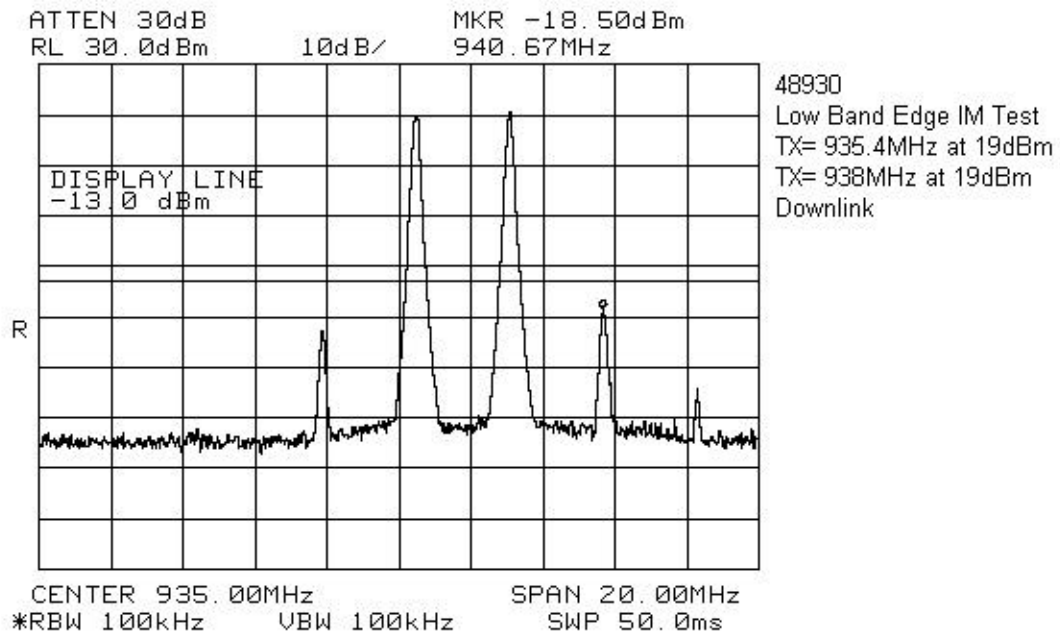
48930

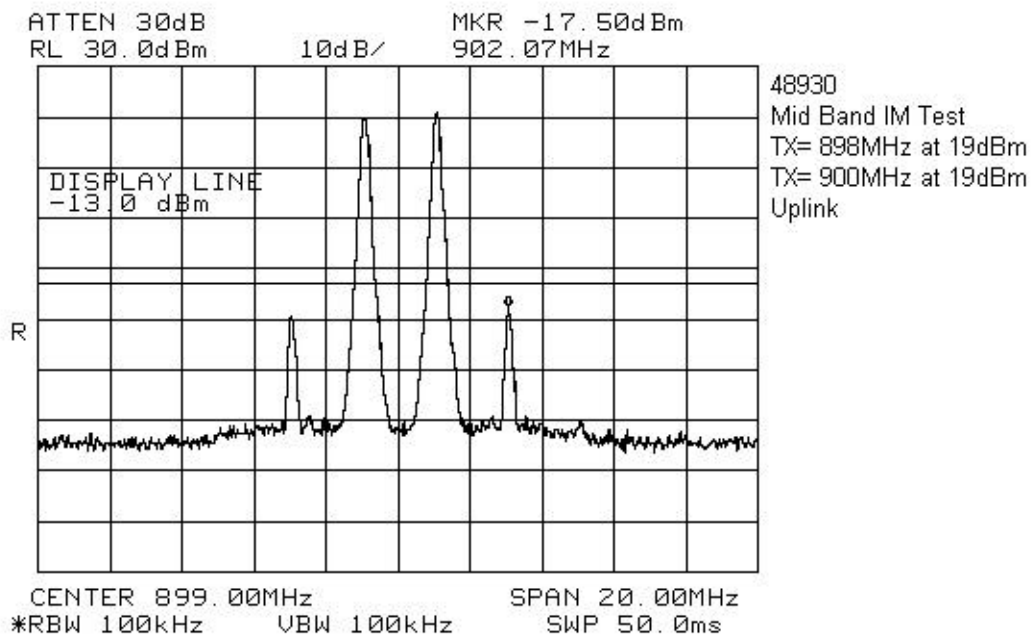
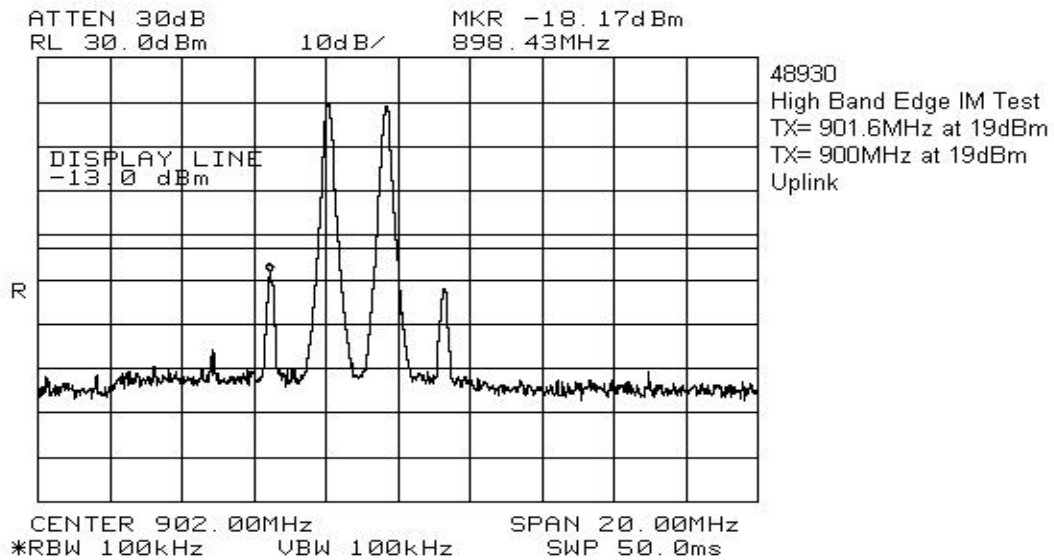


EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

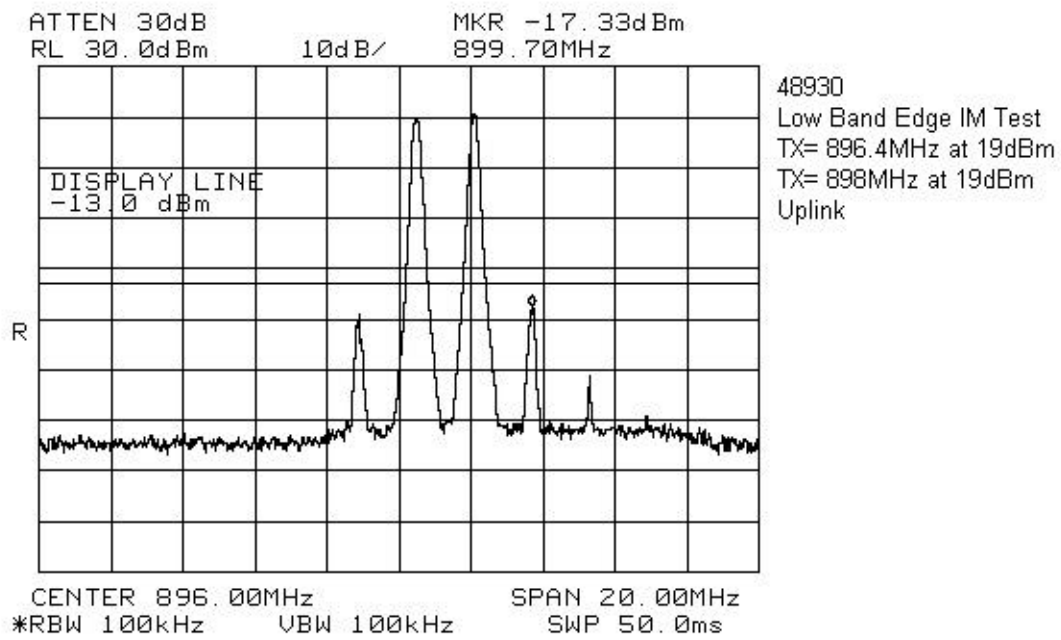


EQUIPMENT: Bi-Directional Amplifiers, 48900 Series



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Section 5. Field Strength of Spurious Emissions

Para. No.: 2.1053

Test Performed By: Glen Westwell	Date of Test: 21 Nov. 2002
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Minimum Standard: Para. No.'s 90.210
22.917

Test Results: Complies.

Measurement Data: See attached tables.

Radiated Spurious Emissions were evaluated using the signal substitution method as per ANSI/TIA/EIA-603.

The spectrum was searched from 30MHz to 10Gz.

EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

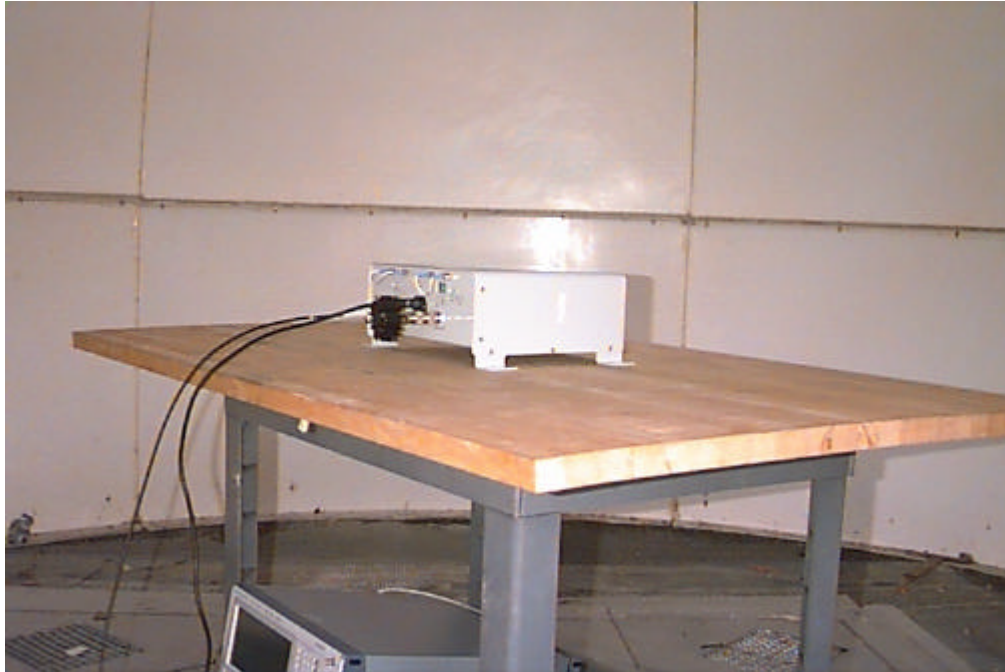
Test Data - Field Strength of Spurious Emissions

Test Distance (meters) : 3		Range: A Tower		Receiver: 8564E		RBW(kHz): 1000		Detector: Peak	
Freq. (MHz)	Ant. *	Pol. (V/H)	RCVD Signal (dBμV)	Signal Substitution Conversion Factor (dB)**	Amp. Gain (dB)***	Dist. Corr. (dB)	Field Strength (dBm)	Limit (dBm)	Margin (dB)
48910									
1670.0	SSV	V	54.7	-117.0			-62.3	-13.0	49.3
1670.0	SSH	H	47.0	-117.3			-70.3	-13.0	57.3
1760.0	SSV	V	N.D.	-115.7			N.D.	-13.0	--
1760.0	SSV	H	N.D.	-116.2			N.D.	-13.0	--
48920									
1716.0	SSV	V	43.8	-116.2			-72.4	-13.0	59.4
1630.0	SSV	V	N.D.	-117.9			N.D.	-13.0	--
48930									
1798.0	SSV	V	N.D.	-115.3			N.D.	-13.0	--
1876.0	SSV	V	33.7	-114.9			-81.2	-13.0	68.2
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									

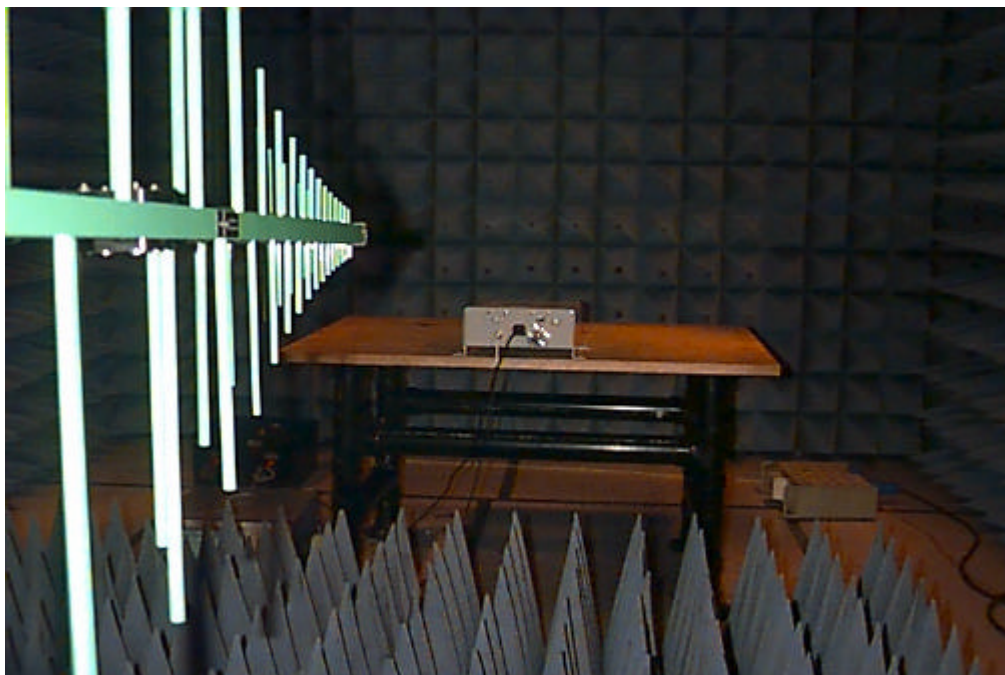
All spurious and harmonic emissions to the 10th harmonic were searched. Only those within 20dB of the limit were reported.

EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

Radiated Test Set Up

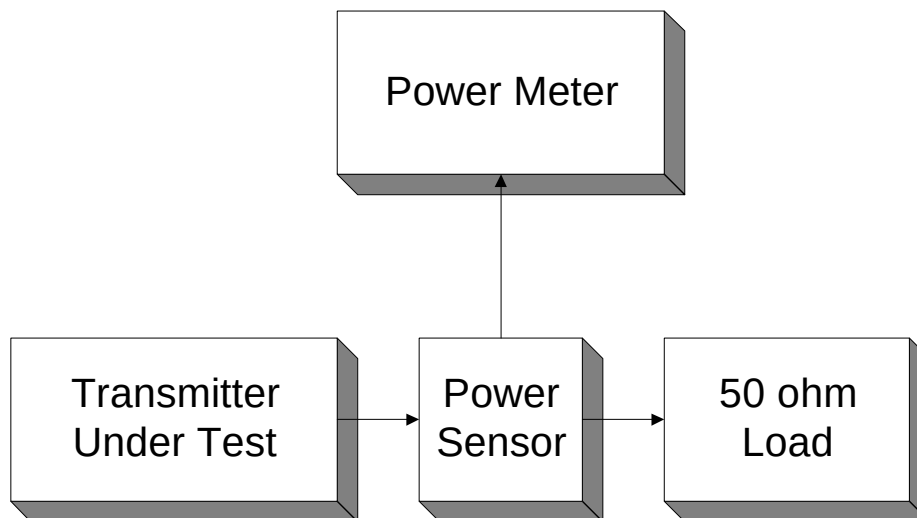


Pre-Scan Set Up

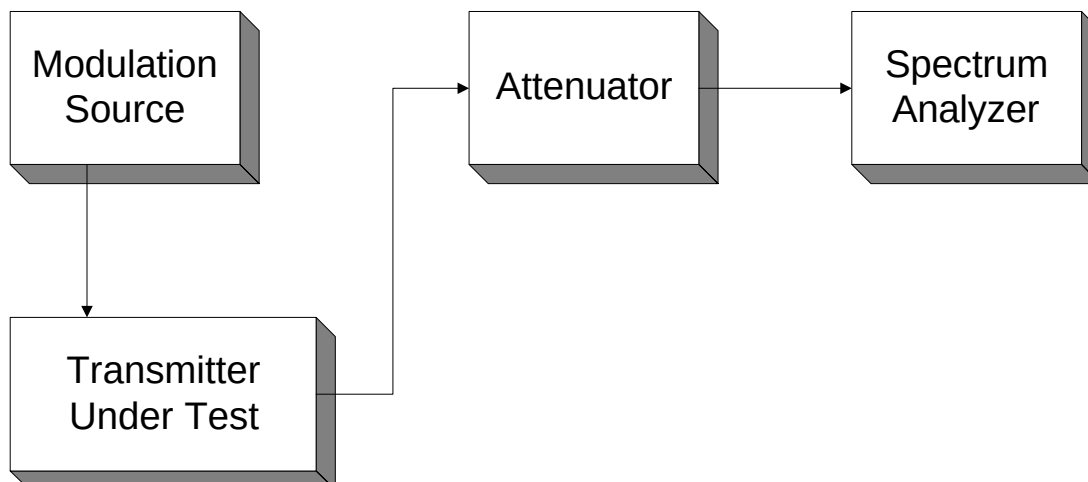


Section 6. Block Diagrams

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

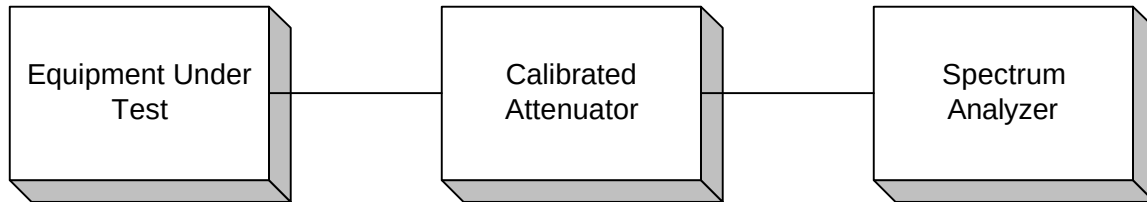


Para. No. 2.1049 - Occupied Bandwidth



EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

Para. No. 2.1051 - Spurious Emissions at Antenna Terminals

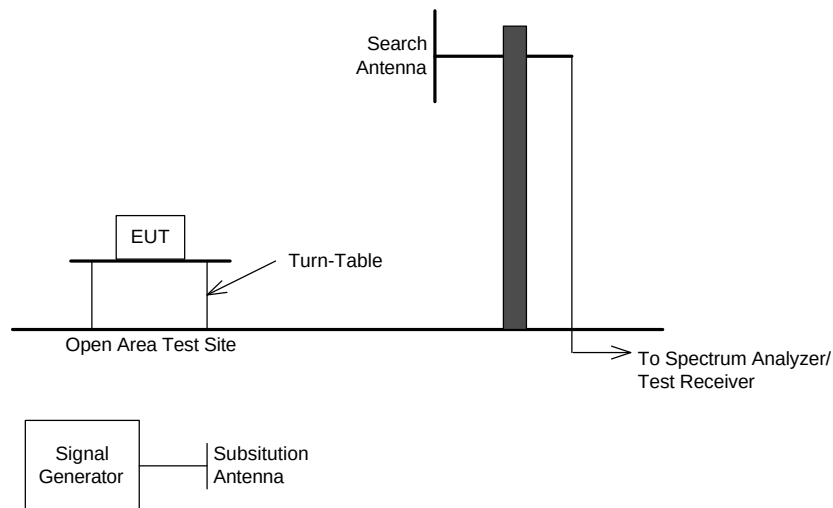


Para. No. 2.1053 - Field Strength of Spurious Radiation

TIA/EIA 603

Effective Radiated Power

Spurious Emissions



EQUIPMENT: Bi-Directional Amplifiers, 48900 Series

Section 7. Test Equipment List

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	15 Jul 02	15 Jul 03
1 Year	Spectrum Analyzer-1	Hewlett Packard	8566B	2311A02238	27 Nov 2001	27 Nov 2002
1 Year	Spectrum Analyzer Display-1	Hewlett Packard	8566B	2314A04759	27 Nov 2001	27 Nov 2002
1 Year	Quasi-peak adapter-1	Hewlett-Packard	85650A	2043A00302	27 Nov 2001	27 Nov 2002
1 Year	Horn Antenna	EMCO #2	3115	4336	Dec. 1/01	Dec. 1/02
1 Year	Power Meter	Hewlett Packard	E4448B	FA001413	Feb 14/02	Feb 14/03
1 Year	RF AMP	JCA	1-2GHz	FA001498	COU	COU
1 Year	RF AMP	JCA	2-4 GHz	FA001496	COU	COU
1 Year	RF AMP	JCA	4-8 GHz	FA001497	COU	COU
1 Year	RF AMP	DBS Microwave	5-18GHz	FA001409	COU	COU
3 Year	RF Generator	Rohde & Schwarz	SIMIQ03	DE22004	Sept. 10/00	Sept. 18/03
3 Year	RF Generator	Rohde & Schwarz	SIMIQ03E	DE24154	Sept. 10/02	Sept. 10/05

NA: Not Applicable

NCR: No Cal Required

COU: CAL On Use