



Nemko

Test Report:

3W06834

Applicant:

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

**Equipment Under Test:
(EUT)**

MW-CBDA-SMR-10W80-PS9 &
MW-IBDB-SMR-10W40-PS9
Bi-Directional Amplifier

FCC ID:

OIWCBDAPS910W80

In Accordance With:

FCC Part 90, Subpart I
SMR Services

Tested By:

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

Authorized By:

Russell Grant, Senior Technical Assessor

Date:

30 April 2003

Total Number of Pages:

35

EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

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EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

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 90, Subpart I.



New Submission



Production Unit



Class II Permissive Change



Pre-Production Unit



Equipment Code

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: 30 April 2003
Glen Westwell, Wireless Technologist

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This report applies only to the items tested.

EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

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

Footnotes For N/A's:

All Tests were conducted with the AGC circuitry enabled, and verified with AGC disabled.
The EUT is a fl-fl amplifier, as such frequency stability was not performed.

Deviation

A QAM signal was substituted for IDen Modulation

Indoor Temperature: 23°C
 Humidity: 15%

Outdoor Temperature: 7°C
 Humidity: 95%

EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

Comparison between CBDA 10W8 PS9 and IBDB 10W40 PS9

	CBDA 10W80 PS9	IBDB 10W40 PS9	COMMENTS
Uplink Preamp	300HA65000	300LA37000	1
Uplink Amp.	300DA47000	300DA49000	2
Downlink Preamp	300HA65000	300LA36000	1
Downlink Amp.	151099113	1510992250	3

1. 300HA65000 is our typical Preamp with 45dB gain and 30 dB step Attenuator.
300LA36000 is same PCB and Mechanical construction bur only the step attenuator is installed- no gain.
300LA37000 is again same as 300HA65000 unit but only 16 dB gain- only one amplification stage.
2. 300DA47000 is our typical “1W” amplifier and the 300DA 49000 is the same unit with less gain. The output circuit of both units is identical.
3. 151099113 and 1510992250 are two CAT. No. of the same amplifier, the difference was made for logistic reasons only, so we can consider them identical.

EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

Section 2. General Equipment Specification

Manufacturer:	Dekolink Wireless Ltd.
Model No.	MW-CBDA-SMR-10W80-PS9 MW-IBDB-SMR-10W40-PS9
Serial No:	03031177 03031178
Date Received In Laboratory:	09 April 2003
Nemko Identification No.:	1&2
Supply Voltage:	120VAC, 60Hz
Frequency Range:	Downlink: 935-940 MHz Uplink: 869-901 MHz
RF Output Power (Rated):	Downlink: 30.0dBm Uplink: 24dBm
RF Output Power (Measured):	Downlink: 29.7dBm Uplink : 24.1dBm
Emission Designator:	F9W, D7W

EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

Section 3. RF Power Output

Para. No.: 2.1046

Test Performed By: Glen Westwell

Date of Test: 30 April 2003

Minimum Standard: Para. No. 90.205(a).

Test Results: Complied.

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 AGC and is equal to $P_{\max} - 10\log N$.

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

MW-CBDA-SMR-10W80-PS9

Frequency (MHz)	Measured Power (dBm)	Measured Power (Watts)
896	23.6	0.229
898.5	24.0	0.251
901	23.9	0.245
935	29.5	0.891
937.5	29.6	0.912
940	29.6	0.912

MW-IBDB-SMR-10W40-PS9

Frequency (MHz)	Measured Power (dBm)	Measured Power (Watts)
896	23.7	0.234
898.5	24.1	0.257
901	24.0	0.251
935	29.4	0.871
937.5	29.7	0.933
940	29.6	0.912

EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

Section 4. Occupied Bandwidth

Para. No.: 2.1049

Test Performed By: Glen Westwell	Date of Test: 28 April 2003
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Minimum Standard: Para. No. 90.210

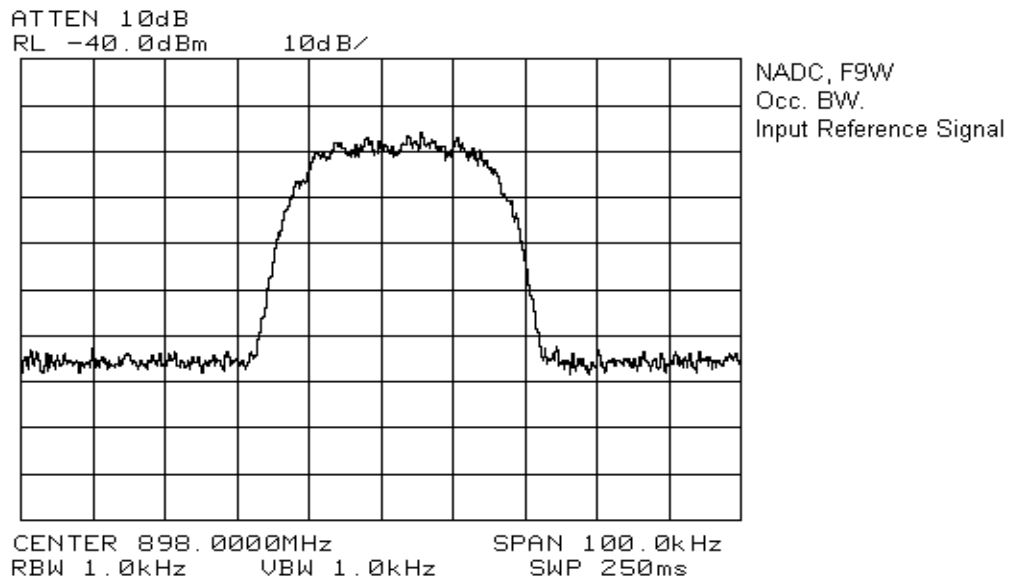
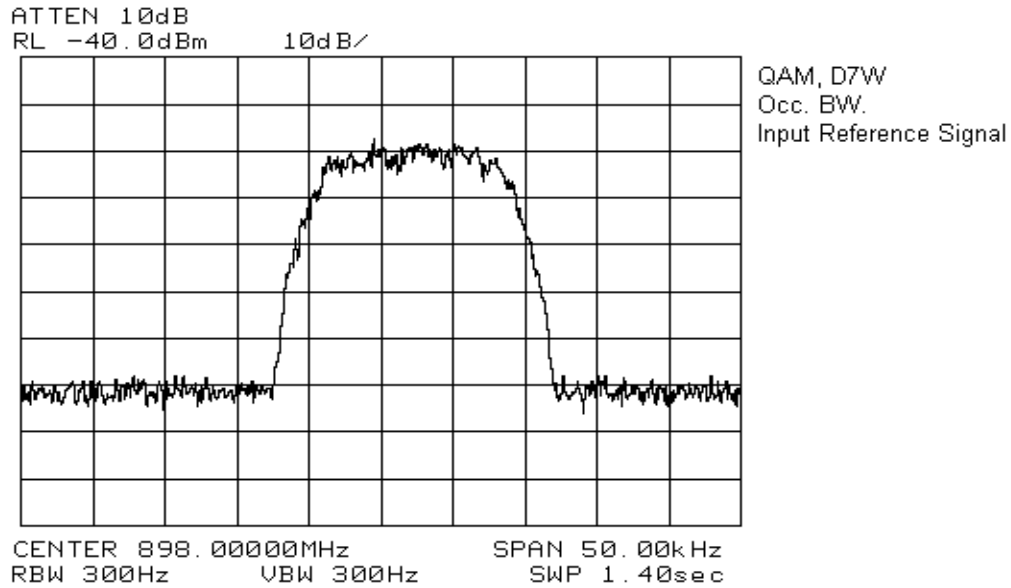
Test Results: Complied.

Measurement Data: See attached graphs.

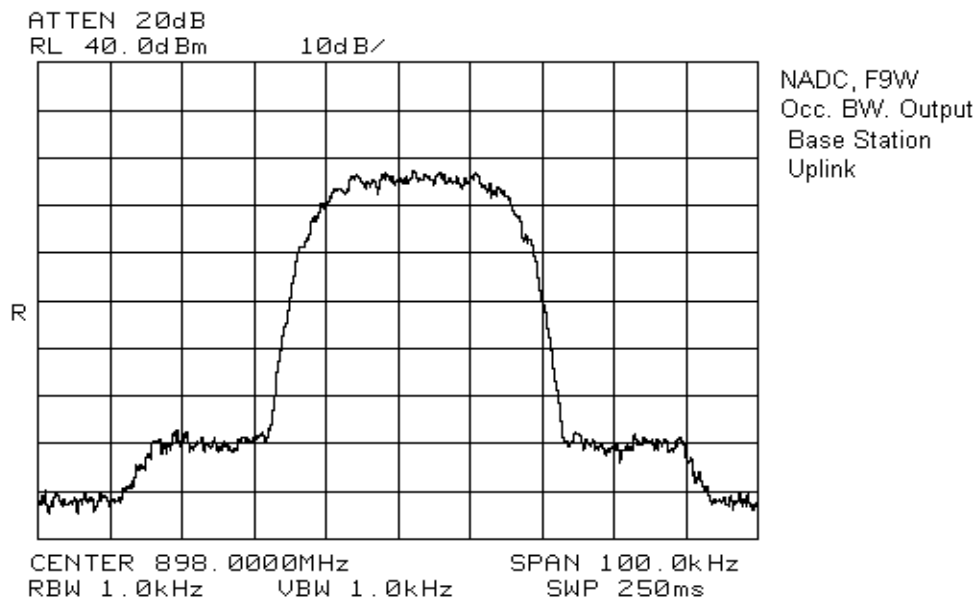
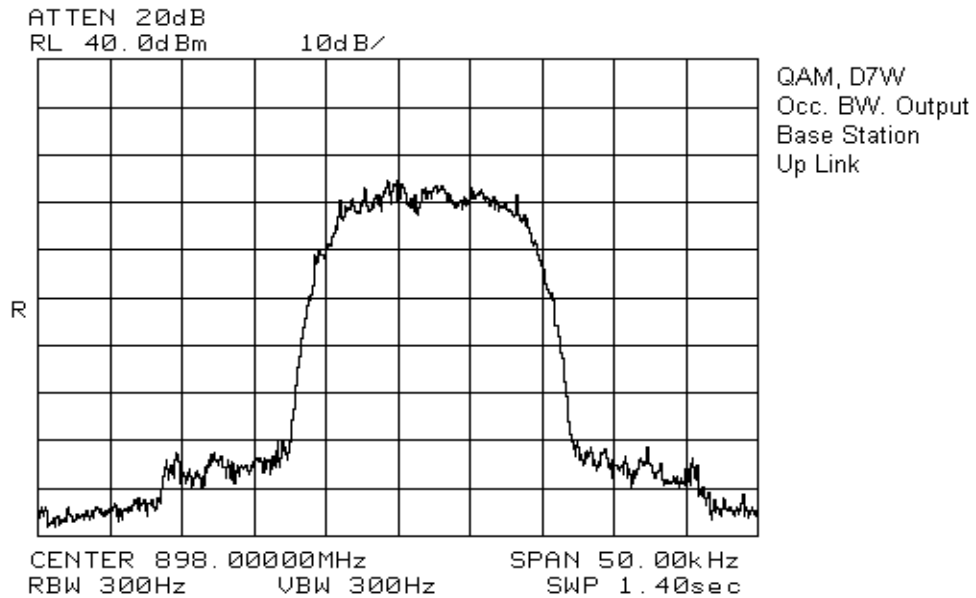
The occupied bandwidth was measured by comparison of input to the output signal. This was done in order to determine if there was any degradation to the output signal due to the amplification through the repeater.

EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

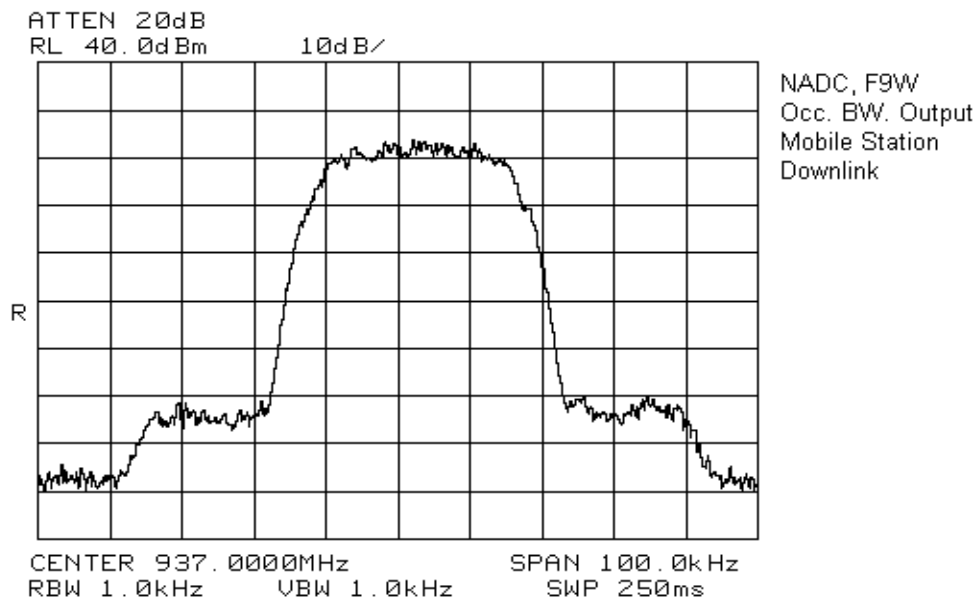
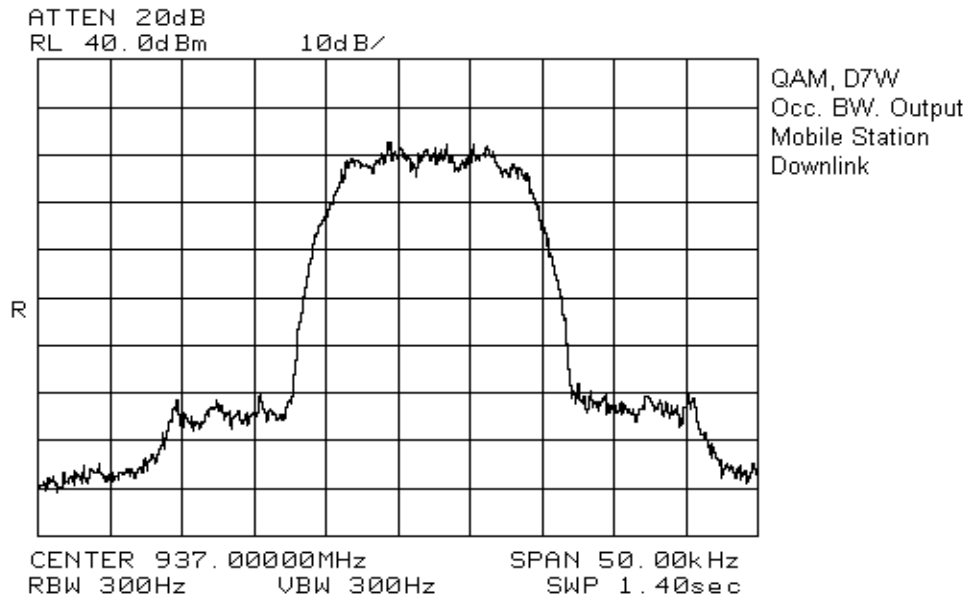
MW-CBDA-SMR-10W80-PS9



EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

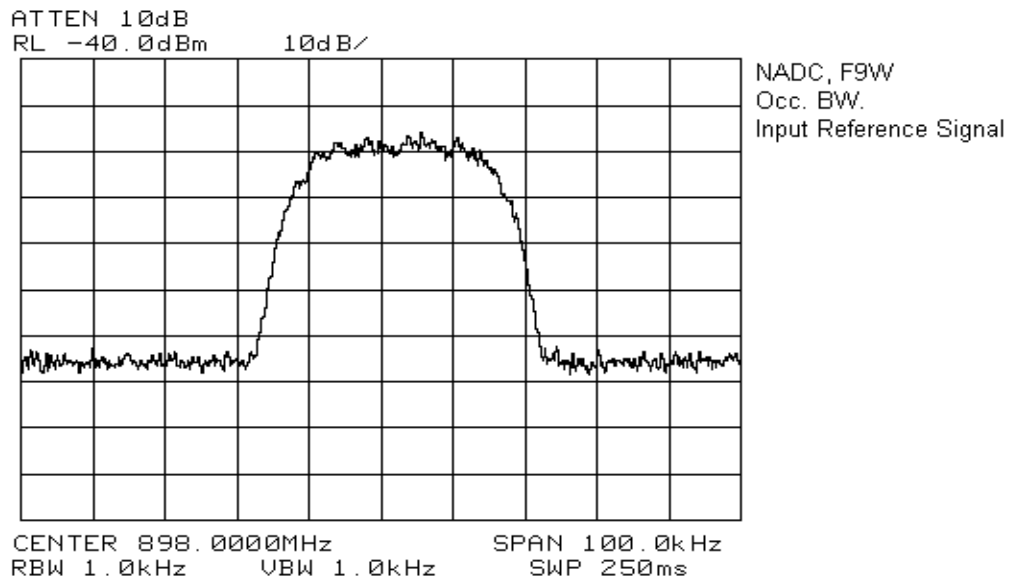
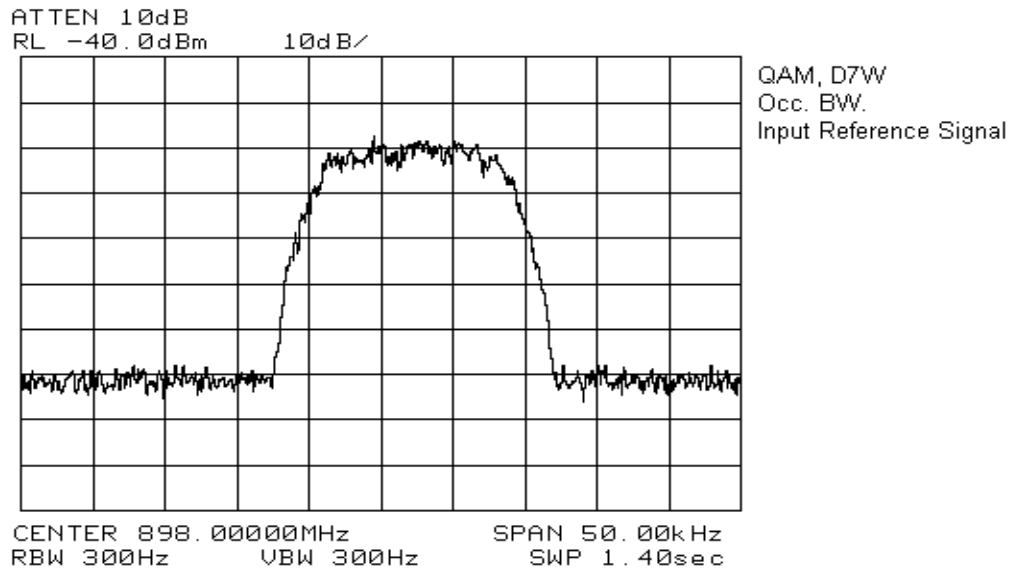


EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

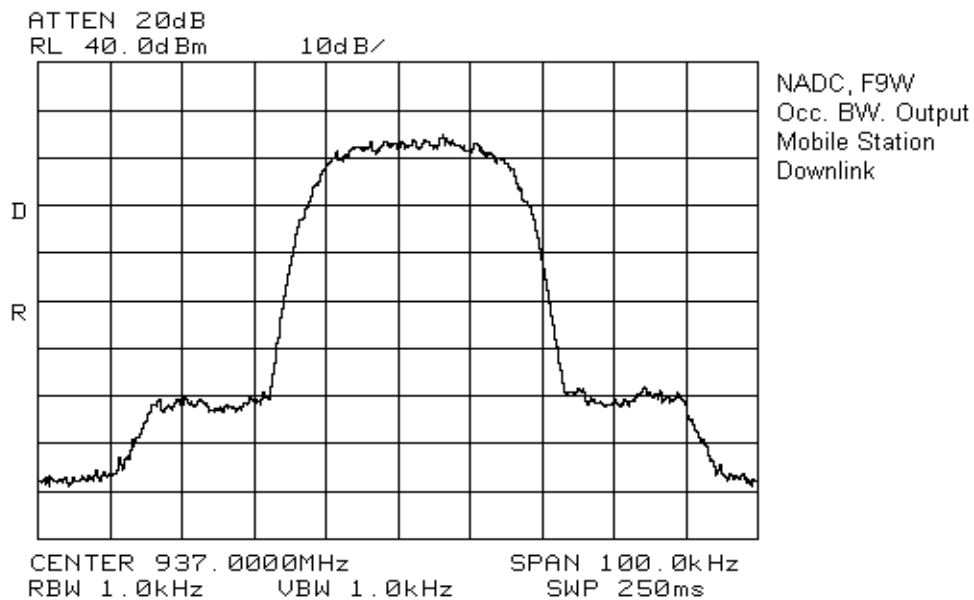
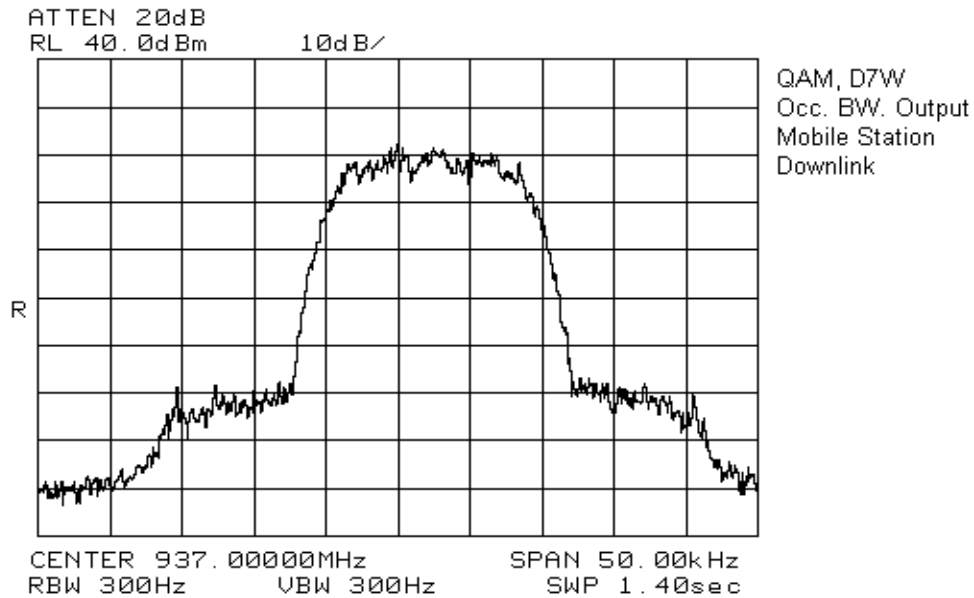


EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

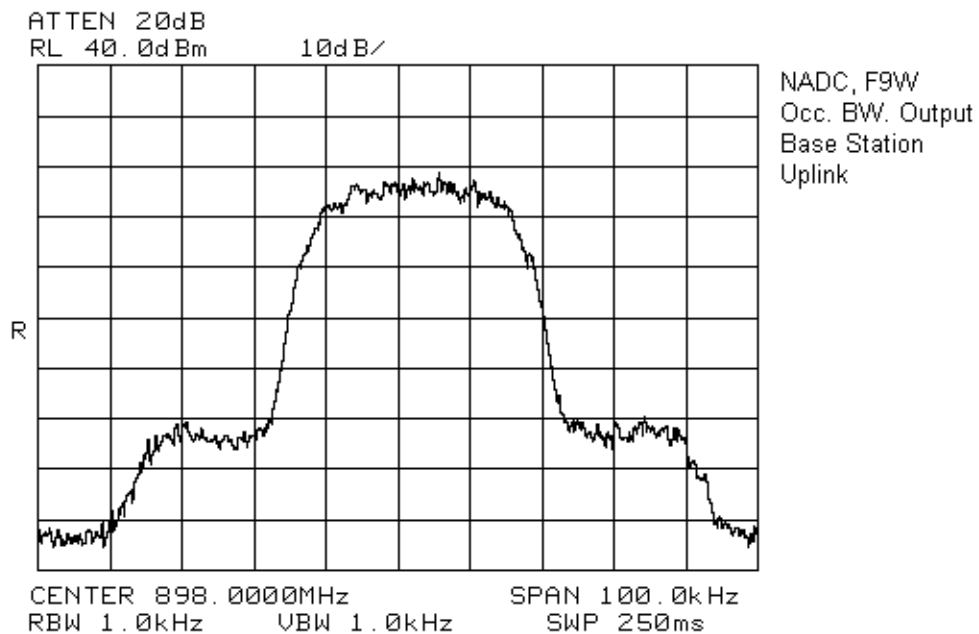
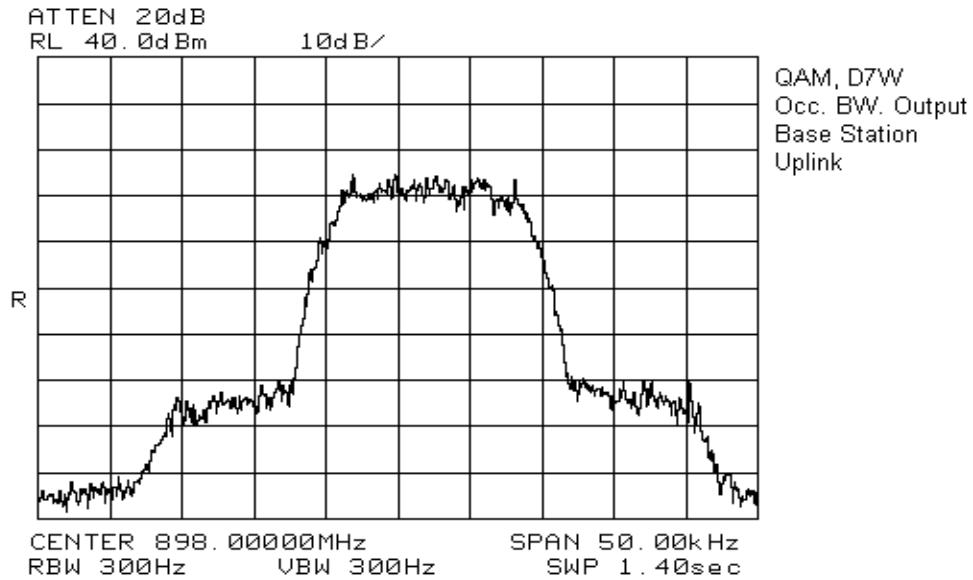
MW-IBDB-SMR-10W40-PS9



EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9



EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9



EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

Section 5. Spurious Emissions at Antenna Terminals

Para. No.: 2.1051

Test Performed By: Glen Westwell	Date of Test: 29 April 2003
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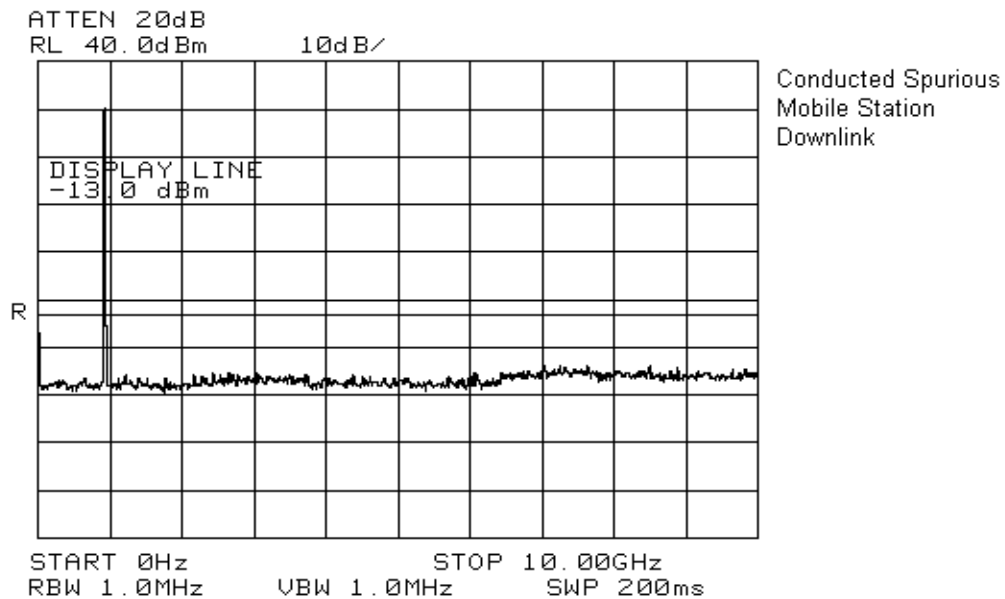
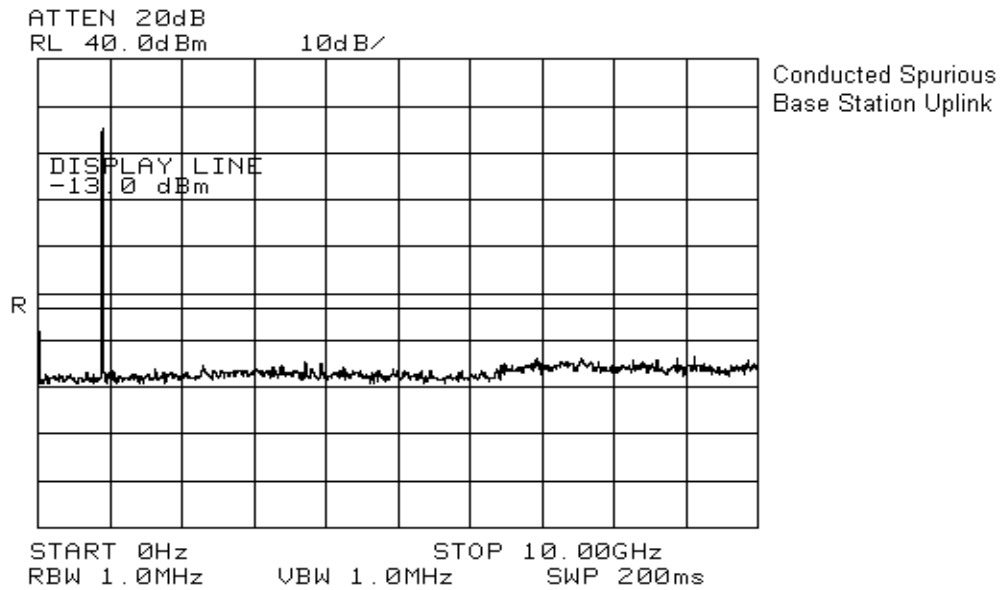
Minimum Standard: -13 dBm

Test Results: Complied.

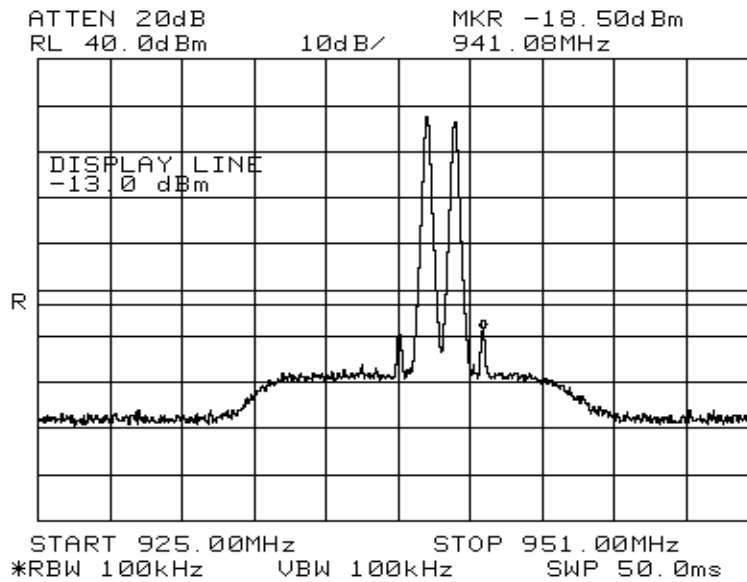
Measurement Data: See attached graph(s).

EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

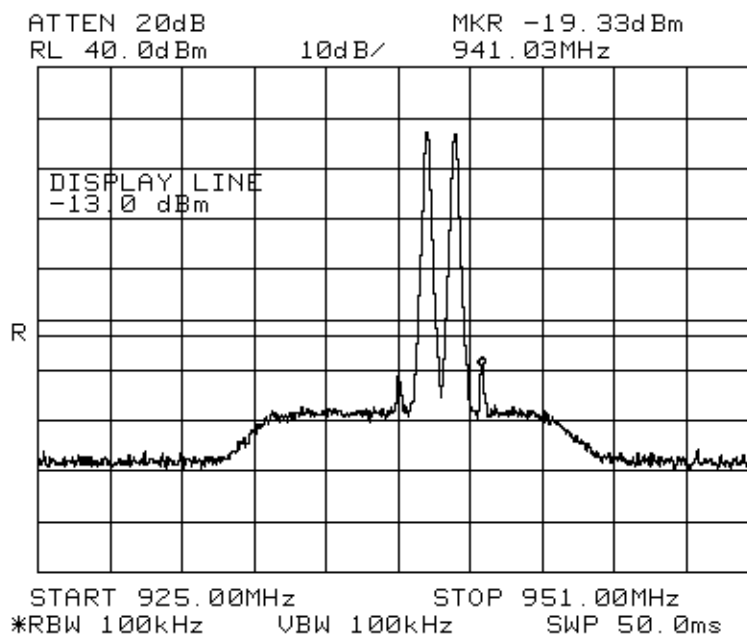
MW-CBDA-SMR-10W80-PS9



EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

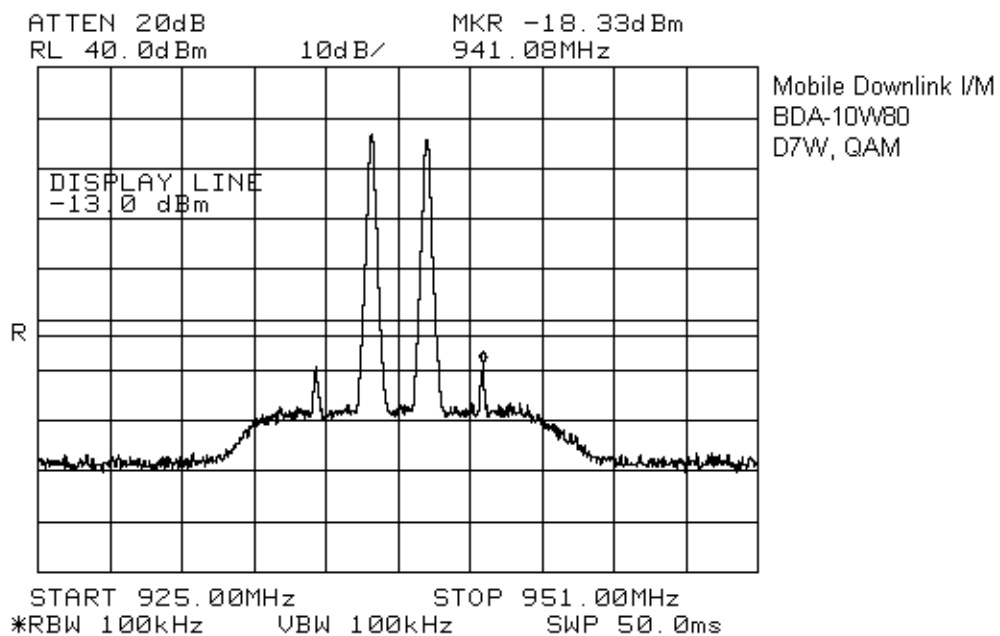
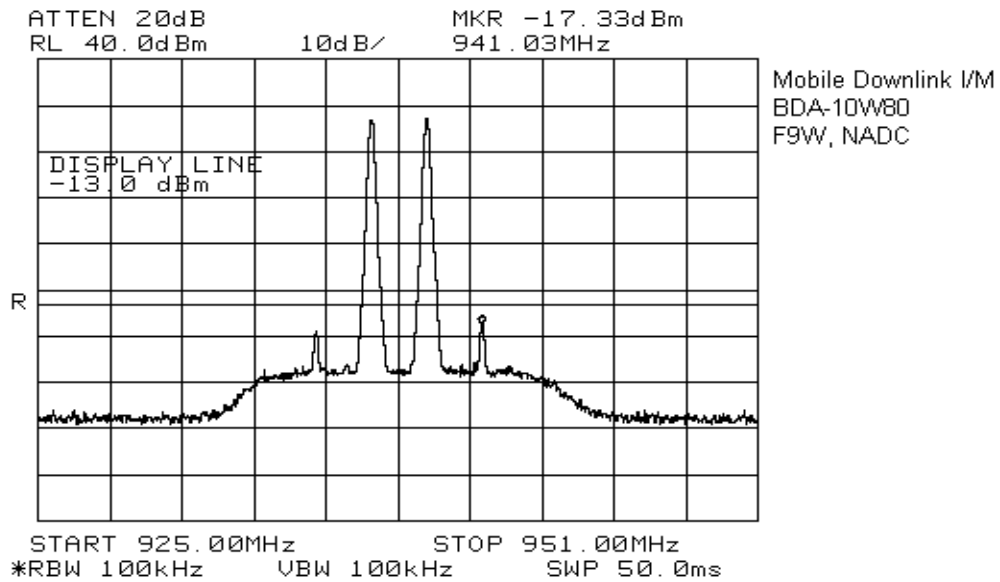


Mobile Downlink I/M
BDA-10W80
F9W, NADC

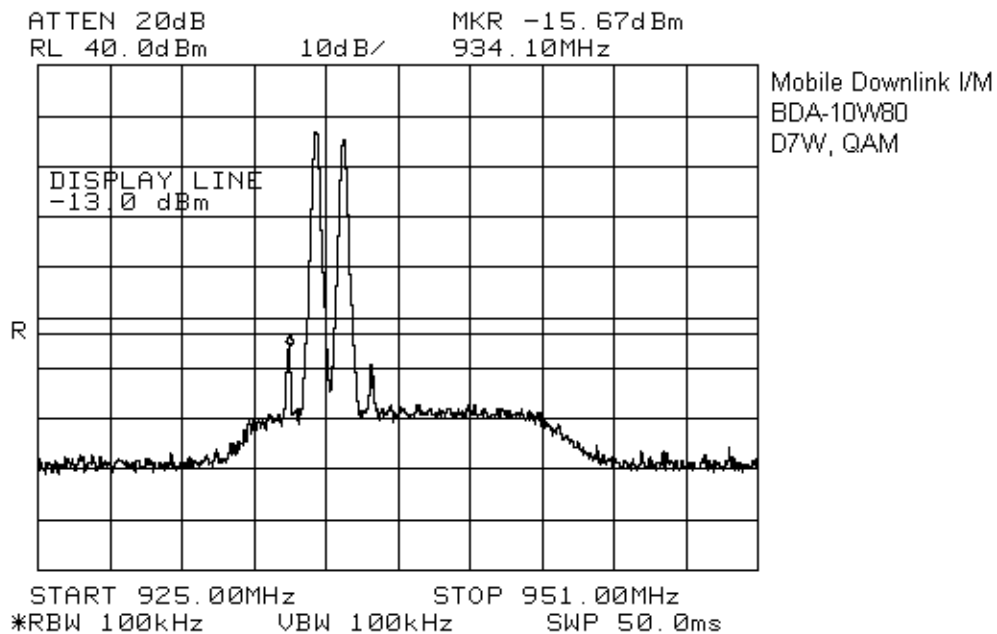
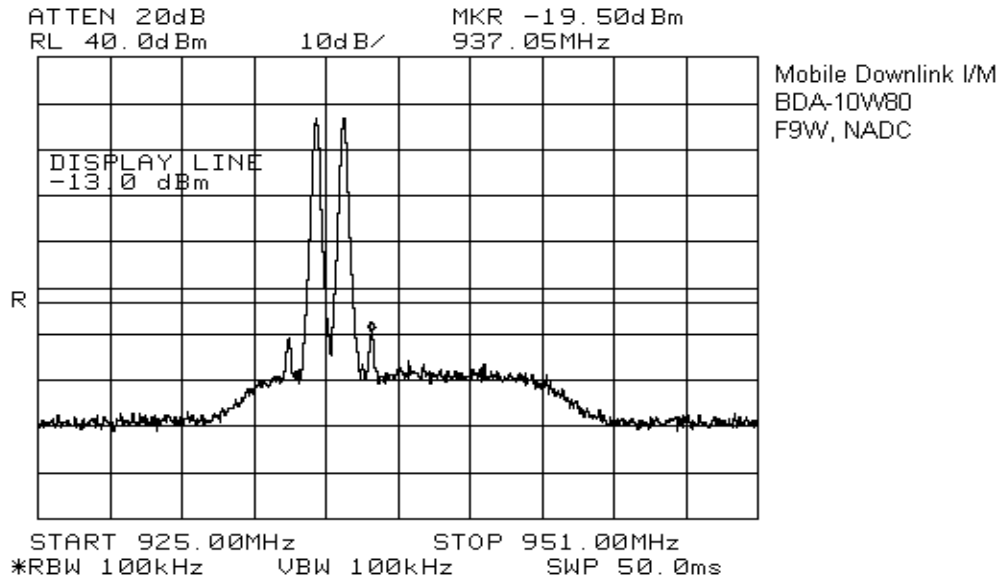


Mobile Downlink I/M
BDA-10W80
D7W, QAM

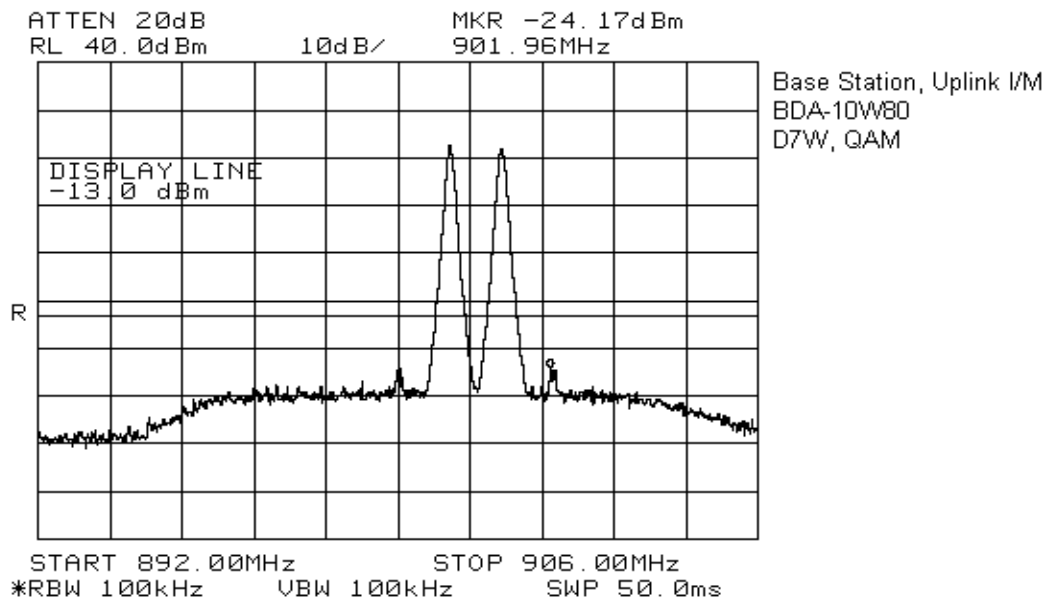
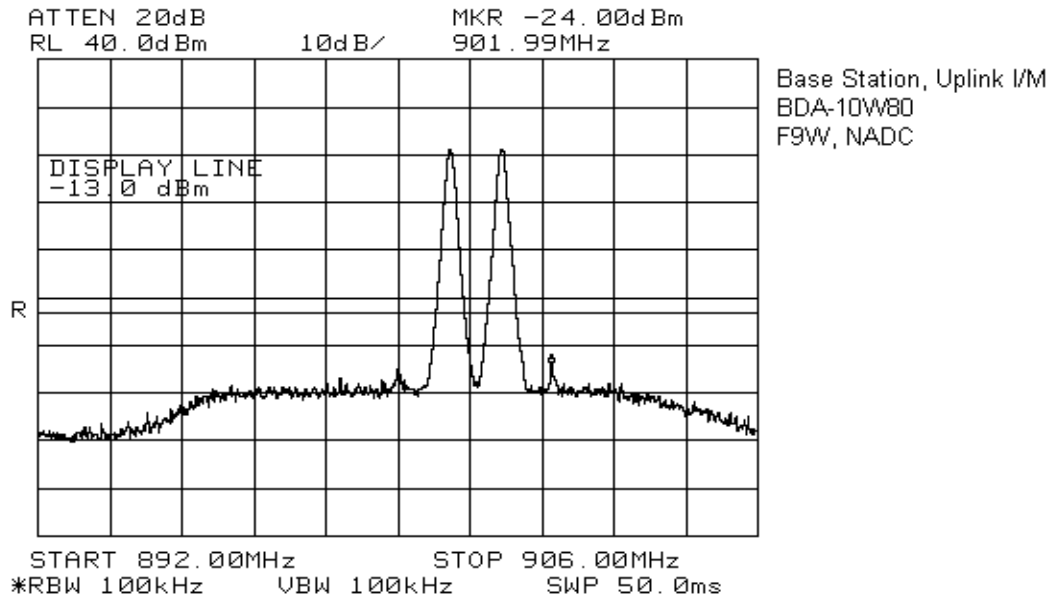
EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9



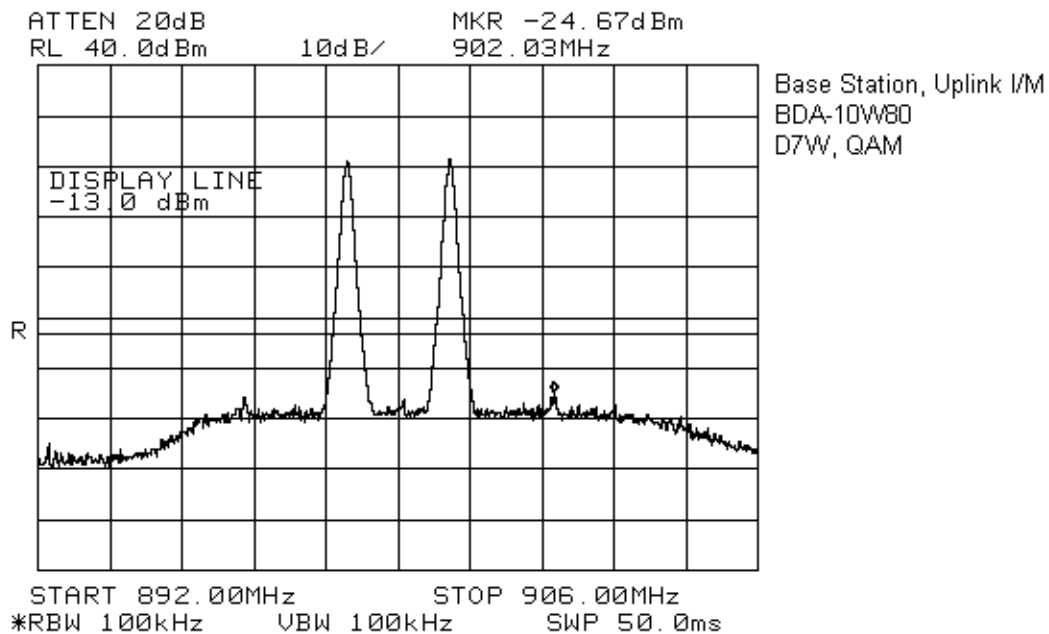
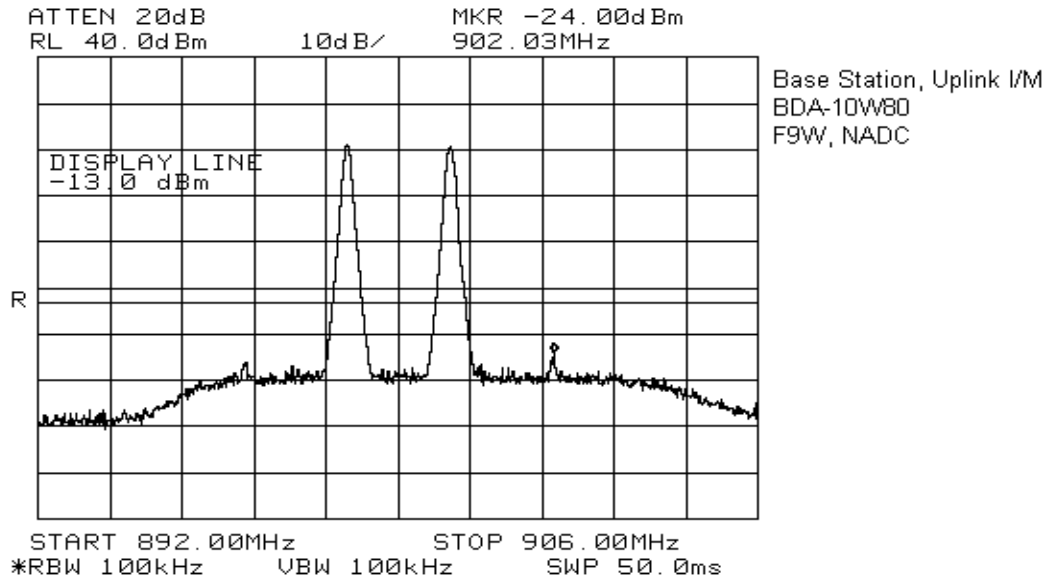
EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9



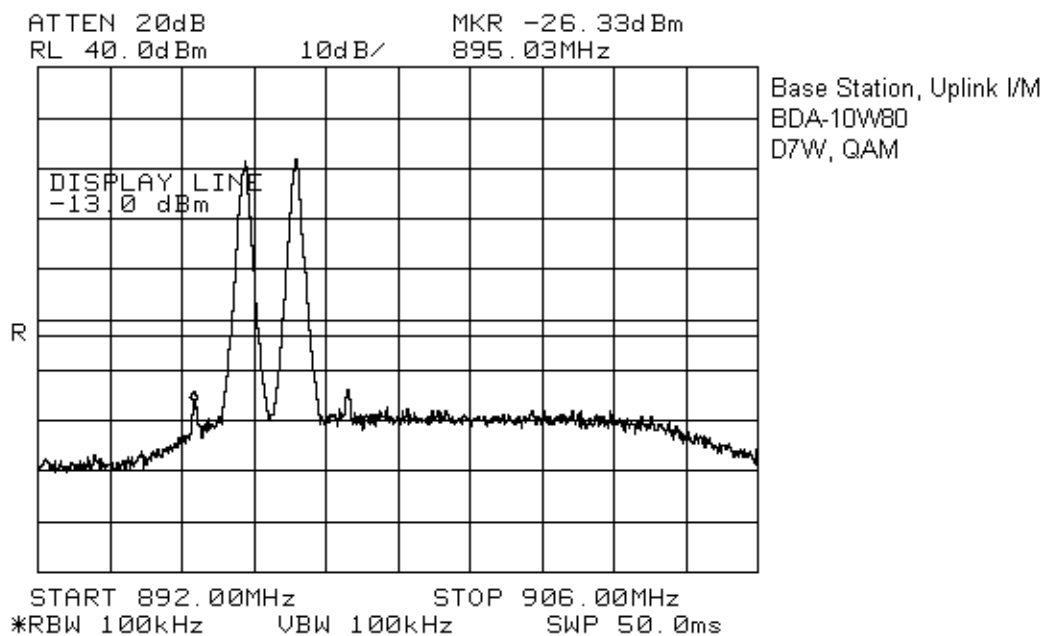
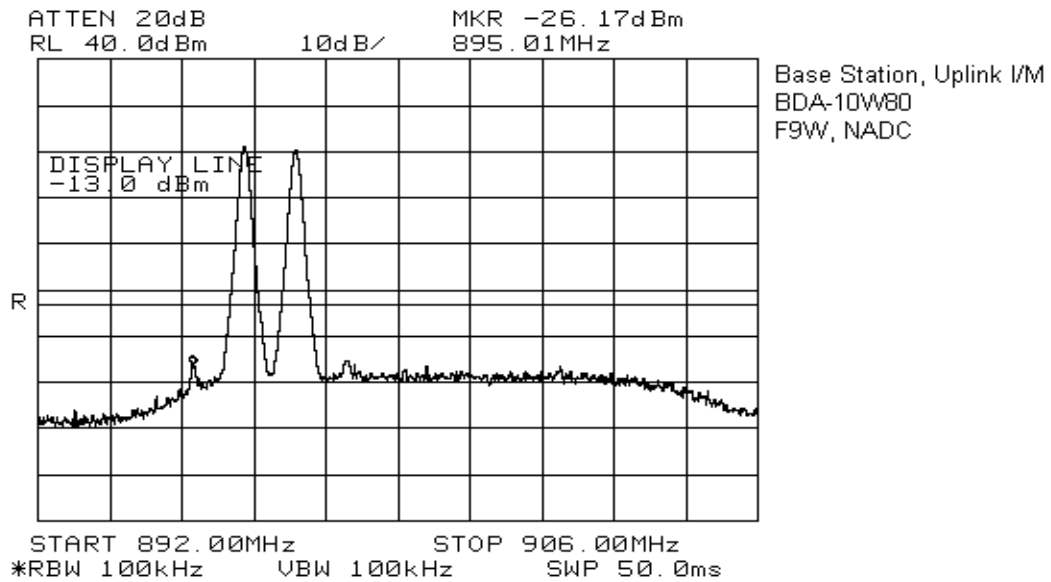
EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9



EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

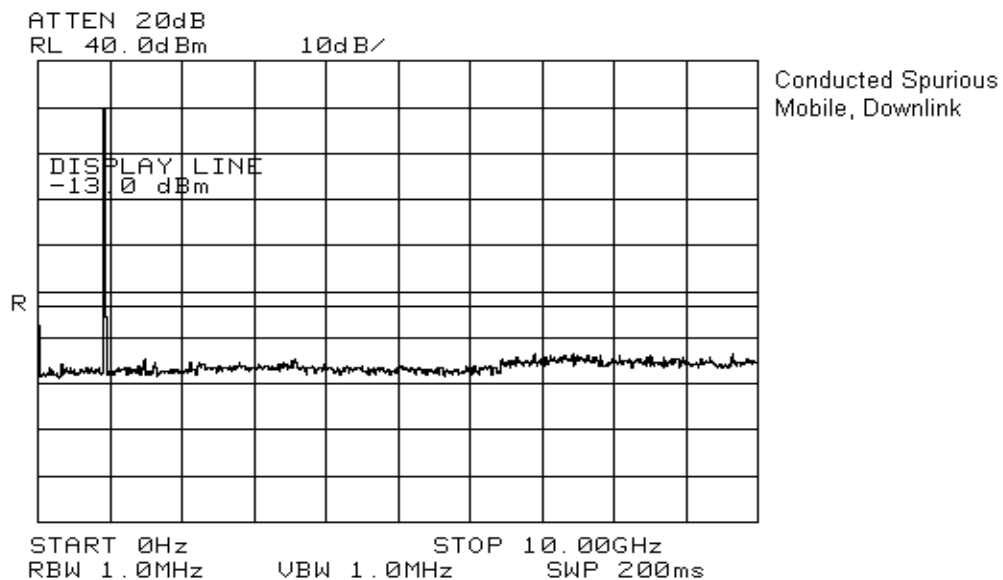
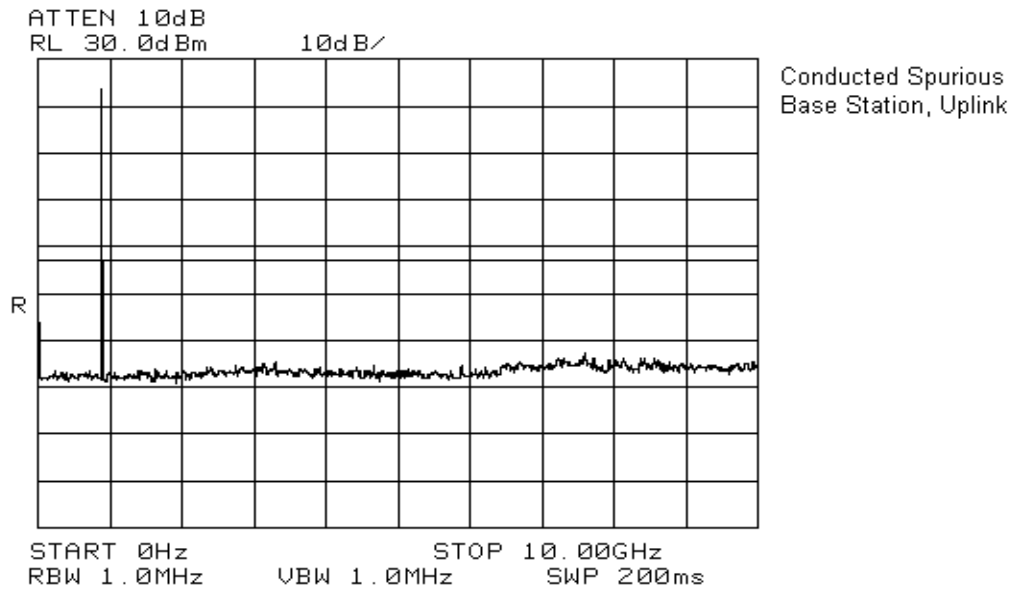


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MW-IBDB-SMR-10W40-PS9

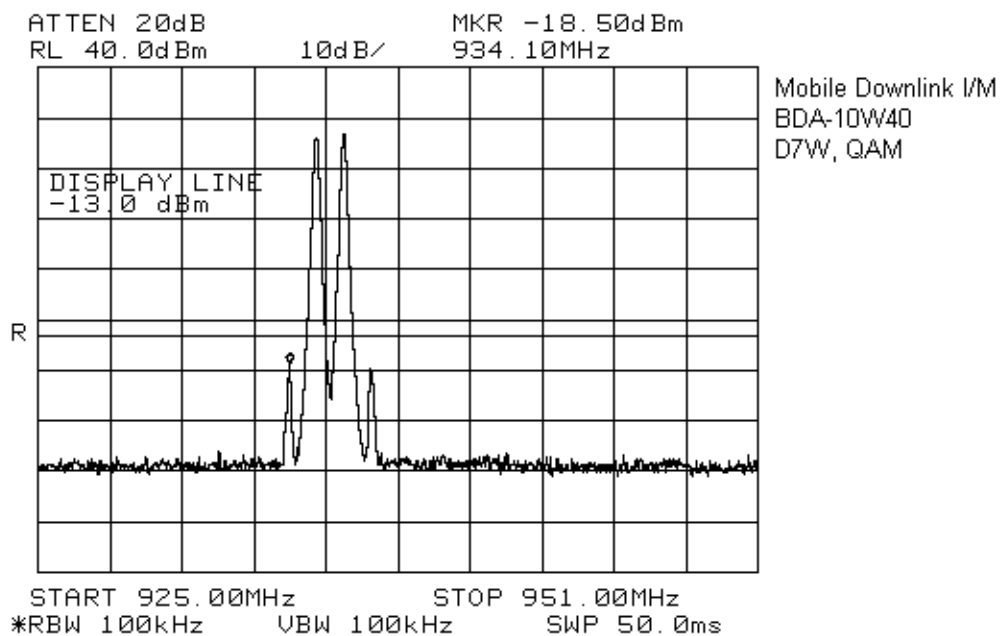
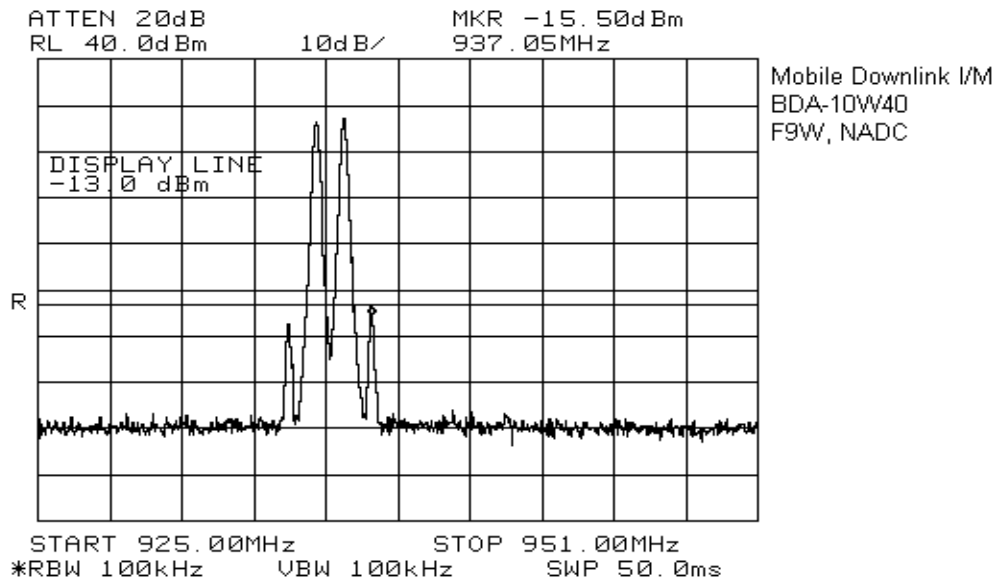


EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

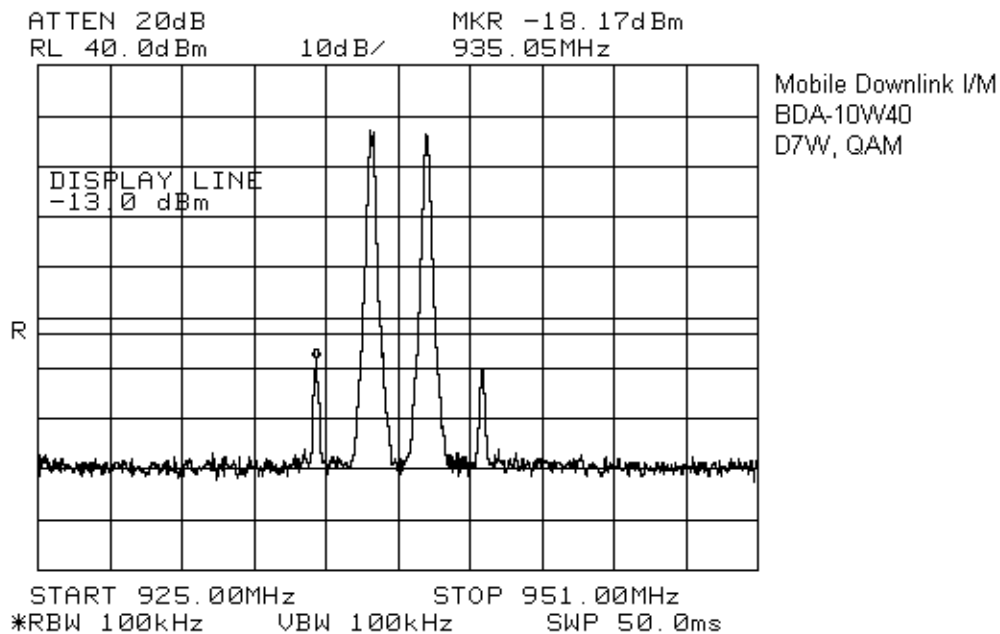
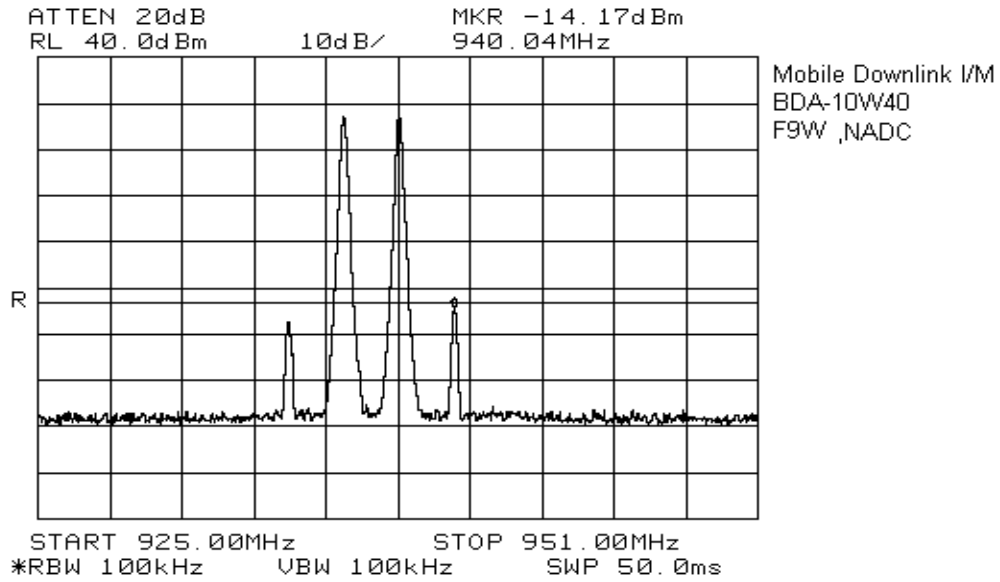
MW-IBDB-SMR-10W40-PS9



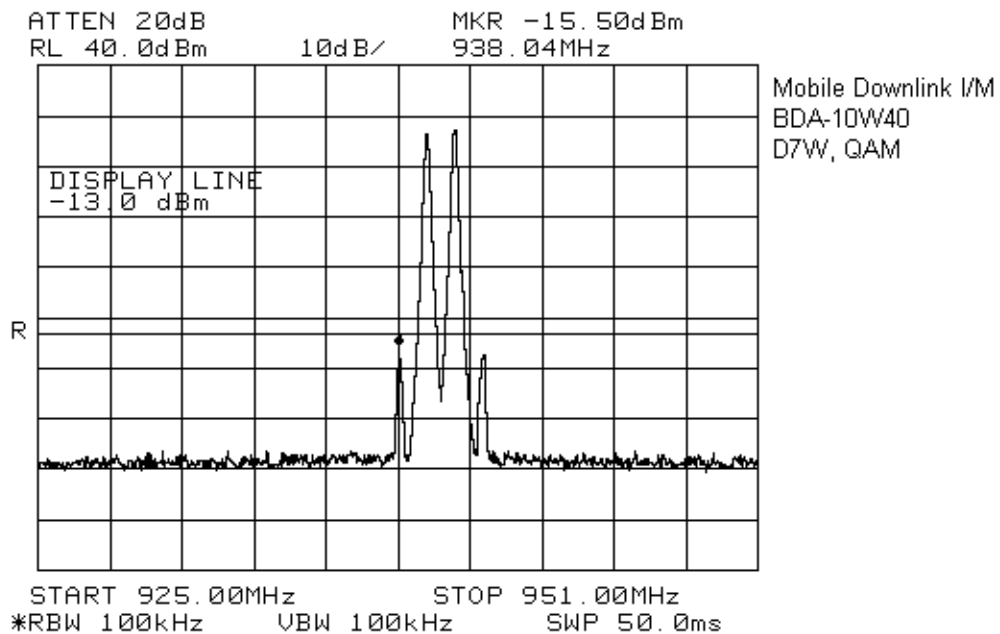
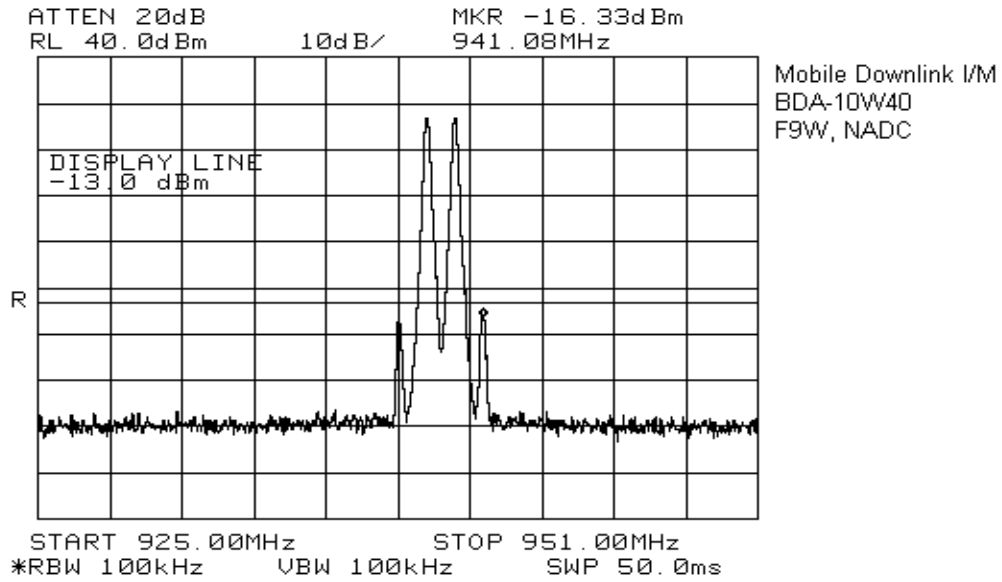
EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9



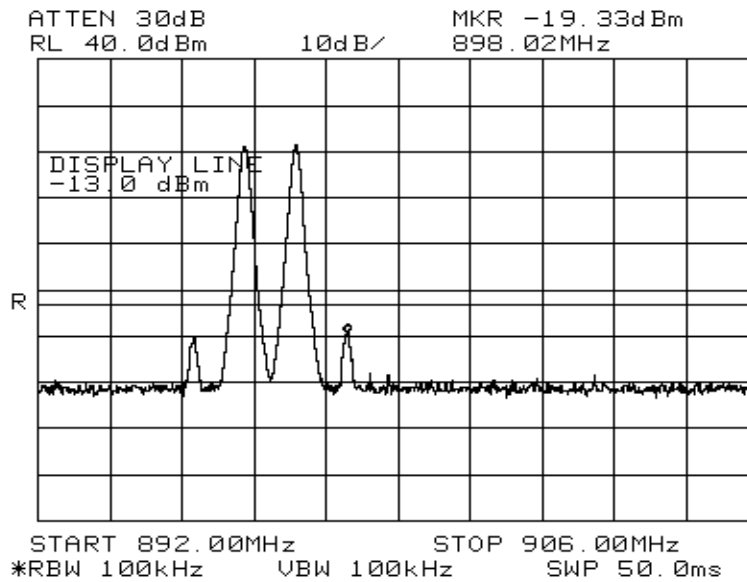
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MW-IBDB-SMR-10W40-PS9



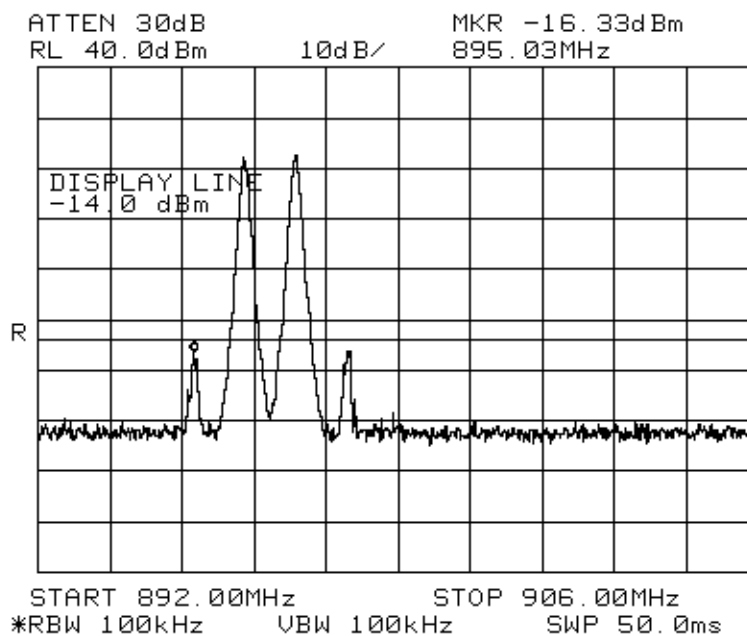
EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9



EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

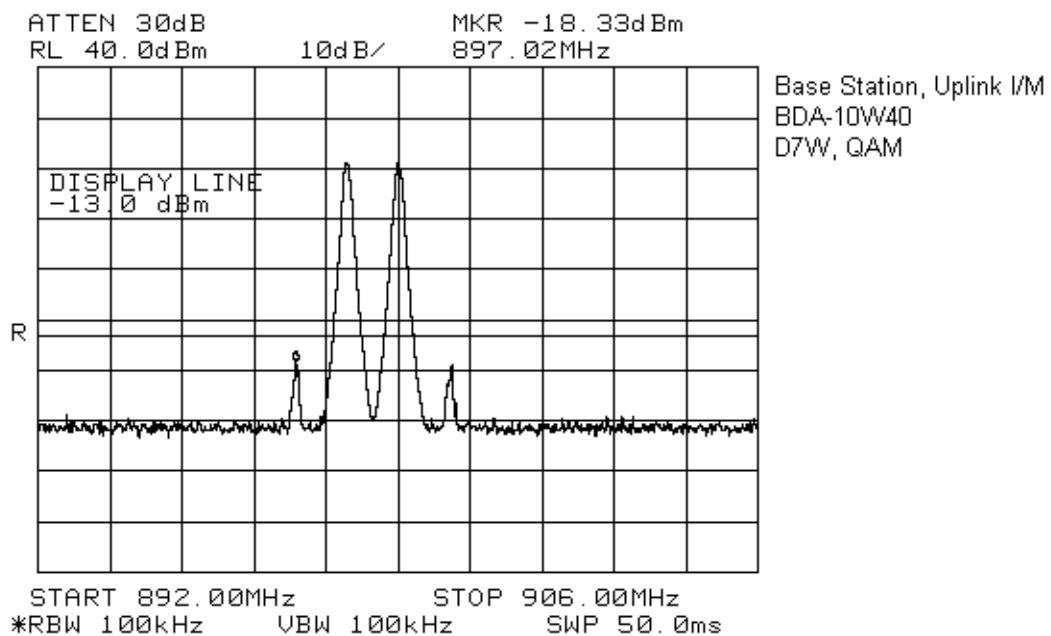
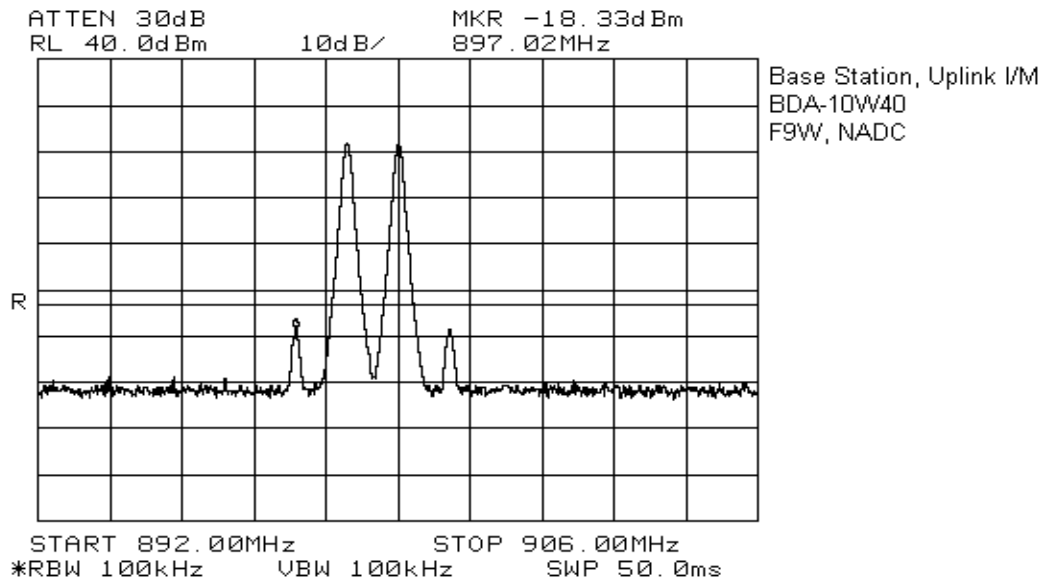


Base Station, Uplink I/M
BDA-10W40
F9W, NADC

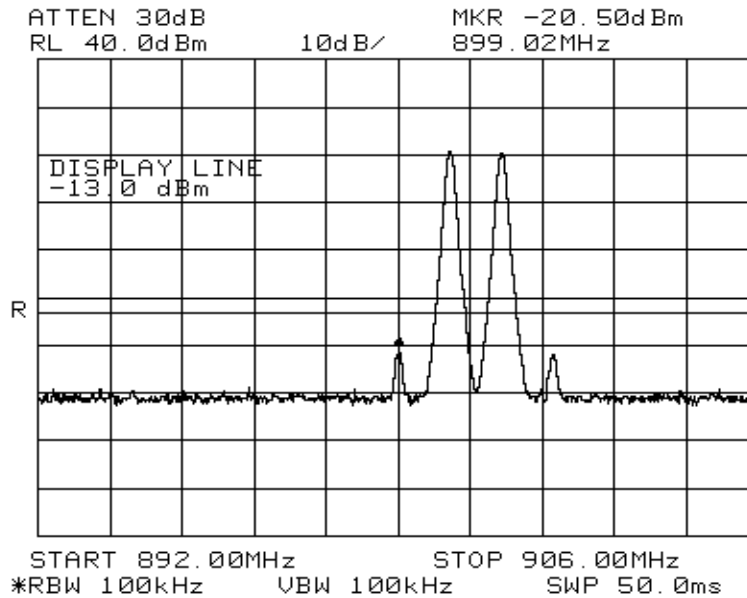


Base Station, Uplink I/M
BDA-10W40
D7W, QAM

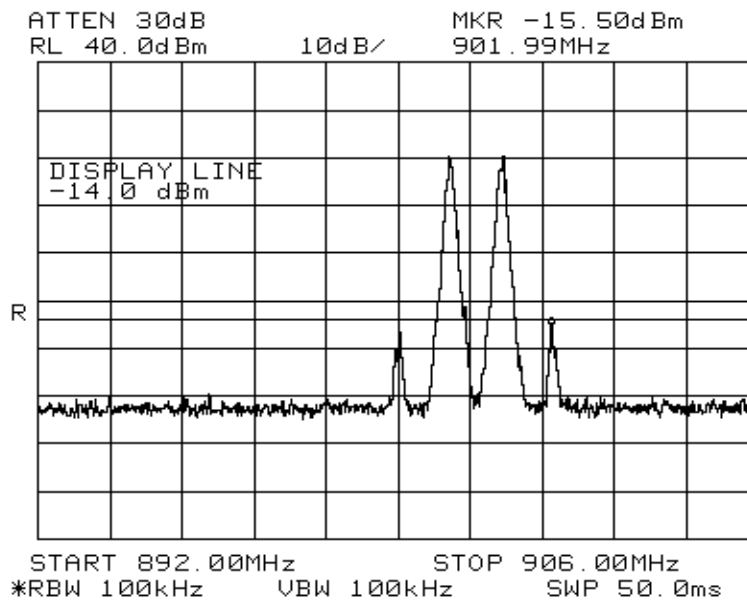
EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9



EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9



Base Station, Uplink I/M
BDA-10W40
F9W, NADC



Base Station, Uplink I/M
BDA-10W40
D7W, QAM

EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

Section 6. Field Strength of Spurious Emissions

Para. No.: 2.1053

Test Performed By: Glen Westwell	Date of Test: 29 April 2003
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Minimum Standard: Para. No. 90.210

Test Results: Complied.

Measurement Data: See attached graph(s).

All emissions were searched to the 10th harmonic for both the MW-CBDA-SMR-10W80-PS9 & the MW-IBDB-SMR-10W40-PS9 Bi-Directional amplifiers.
Worst case data has been presented.

EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

Test Data - Radiated Emissions

Test Date: 29 April 2003									
Engineer's Name: Glen Westwell									
Temperature (C°): Indoor: 23 , Outdoor: 10						Humidity %: Indoor: 40 , Outdoor: 45			
Measurement Bandwidth = 100/1000 kHz									
Tested as per (Table Top/Floor Standing): Table Top									
Test Distance (meters): 3						Range: A			
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBμV)	Sig Sub. Factor (dB)	Cable Loss (dB)	Signal Substitution Power (dBm)	Limit (dBm)	Margin (dB)	Detector
41.470	BC1	V	57.0	-85.8	0.8	-28.0	-13	15.0	Peak
41.470	BC1	H	48.3	-81.5	0.8	-32.4	-13	19.4	Peak
2814.00	Hrn1	V	43.5	-127.3	5.8	-78.0	-13	65.0	Peak
2814.00	Hrn1	H	38.2	-127.3	5.8	-83.3	-13	70.3	Peak
Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole									
Note 2: Detector Legend: Q-Peak = 120 kHz RBW, Average = 1.0 MHz RBW									
Notes:		AGC On							

EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

Photographs of Test Setup

Pre-Scan



OATS



EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

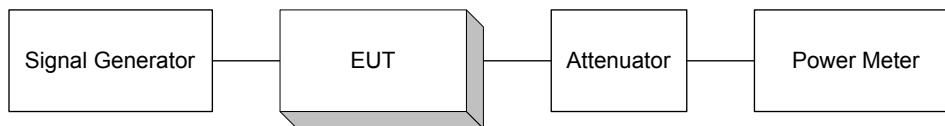
Section 7. Test Equipment List

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	15 Jul 02	15 Jul 03
Extended	Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	Nov. 27/01	May. 27/03
Extended	Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	Nov. 27/01	May. 27/03
NCR	Bilog	Schaffner	CBL6112B	FA001504	NCR	NCR
1 Year	Biconical (1) Antenna	EMCO	3109	FA000805	Aug. 22/02	Aug. 22/03
1 Year	Horn Antenna	EMCO #2	3115	FA000825	09 Dec 02	09 Dec 03
1 Year	1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	June. 04/02	June. 04/03
1 Year	2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	June. 04/02	June. 04/03
1 Year	4.0 – 8.0 GHz Amplifier	JCA	48-600	FA001497	June. 04/02	June. 04/03
1 Year	RF AMP	DBS Microwave	5-18GHz	FA001409	COU	COU
1 Year	Signal Generator	Rhode & Schwarz	SM1Q03E	FA001269	06 Dec 02	06 Dec 03
1 Year	Signal Generator	Rohde & Schwarz	SM1Q03	FA001091	18 Sep 00	18 Sep 03
1 Year	Power Meter	Hewlett Packard	E4418B	FA001678	01 Apr 03	01 Apr 04
1 Year	Power Sensor	Hewlett Packard	8487A	FA001741	28 Mar 03	28 Mar 04
1 Year	RF Millivoltmeter	Rohde & Schwarz	URV5	FA001570	10 Apr 03	10 Apr 04
1 Year	Power Sensor	Rohde & Schwarz	URV5-Z5	FA000419	10 Apr 03	10 Apr 04

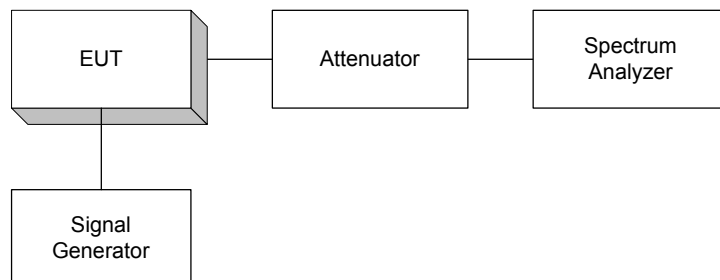
EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

Section 8. Block Diagrams

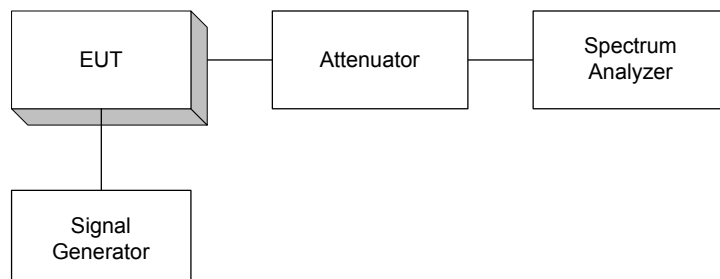
Para. No. 2.1046 - R.F. Power Output



Para. No. 2.1049 - Occupied Bandwidth



Para. No. 2.1051 - Spurious Emissions at Antenna Terminals



EQUIPMENT: MW-CBDA-SMR-10W80-PS9
MW-IBDB-SMR-10W40-PS9

Para. No. 2.1053 - Field Strength of Spurious Radiation

TIA/EIA 603

Effective Radiated Power

Spurious Emissions

