

<b>KTL Test Report:</b>	0R02415
<b>Applicant:</b>	Elisra Electronics System Inc. 48 Mitzva Kadesh Street Bene Beraq, Israel 51203
<b>Equipment Under Test: (E.U.T.)</b>	MW-CBDA-SMR-1W60PS-8
<b>FCC ID:</b>	OIWCBDASMRPS8
<b>In Accordance With:</b>	<b>FCC Part 90, Subpart I</b> Private Land Mobile Repeater
<b>Tested By:</b>	KTL Ottawa Inc. 3325 River Road, R.R. 5 Ottawa, Ontario K1V 1H2
<b>Authorized By:</b>	  R. Grant, Wireless Group Manager
<b>Date:</b>	
<b>Total Number of Pages:</b>	30

*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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EQUIPMENT: MW-CBDA-SMR-1W60PS-8  
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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 90, Subpart I.



New Submission



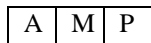
Production Unit



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".



**NVLAP LAB CODE: 100351-0**

TESTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
Kevin Carr, Technologist

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This report applies only to the items tested.

*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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**Summary Of Test Data**

<b>Name Of Test</b>	<b>Para. No.</b>	<b>Result</b>
RF Power Output	2.1046	Complies
Audio Frequency Response	2.1047	Not Applicable
Audio Low-Pass Filter Response	2.1047	Not Applicable
Modulation Limiting	2.1047	Not Applicable
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	Not Applicable
Transient Frequency Behavior	—	Not Applicable

**Footnotes For N/A's:**

**Indoor**                      Temperature: 24 °C  
                                    Humidity:     30 %

**Outdoor**                    Temperature: 15 °C  
                                    Humidity:     30 %

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*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
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**Section 2. General Equipment Specification**

**Manufacturer:** Elisra Electronic Systems Ltd.

**Model No.:** MW-CBDA-SMR-1W60PS-8

**Serial No.:** 00041001

**Date Received In Laboratory:** April 3, 2000

**KTL Identification No.:** Item #1

**Transmitter**

**Supply Voltage Input:** 120 VAC, 60 Hz

**Frequency Range:** UL-806 - 824 MHz  
DL-851-869 MHz

**Tunable Bands:** 2

**Type(s) of Modulation:** F3E, F1E, F1D

**Gain:** 60 dB Nominal

**Output Impedance:** 50 ohm

**RF Power Output (rated):** Total Composite: 27.0 dBm

**Operator Selection of Operating Frequency:** None

**Power Output Adjustment Capability:** AGC. The RF output power per channel decreases as the number of channels increases according to the following formula:

$$P = \frac{0.50W}{N} \text{ Where } N = \text{Number of Channels}$$

**Frequency Translation:** None

**Band Selection:** None

*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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

<b>Test Performed By:</b> Kevin Carr	<b>Date of Test:</b> April 18, 2000
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**Minimum Standard:** Para. No. 90.205  $\pm$  1 dB Rated**Test Results:** Complies. The measured RF power output is within 0 dB of the manufacturer's rating of RF power output.**Measurement Data:**

<b>Frequency (MHz)</b>	<b>Measured Power (dBm)</b>	<b>Rated Power (dBm)</b>	<b>Measured Rated (dB)</b>
860	27.0	27.0	0.0
815	27.0	27.0	0.0

*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDA-SMRPS8*

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## **Section 4.        Occupied Bandwidth**

**Para. No.: 2.1049**

<b>Test Performed By:</b> Kevin Carr	<b>Date of Test:</b> April 18, 2000
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**Minimum Standard:**        Para. No. 90.210

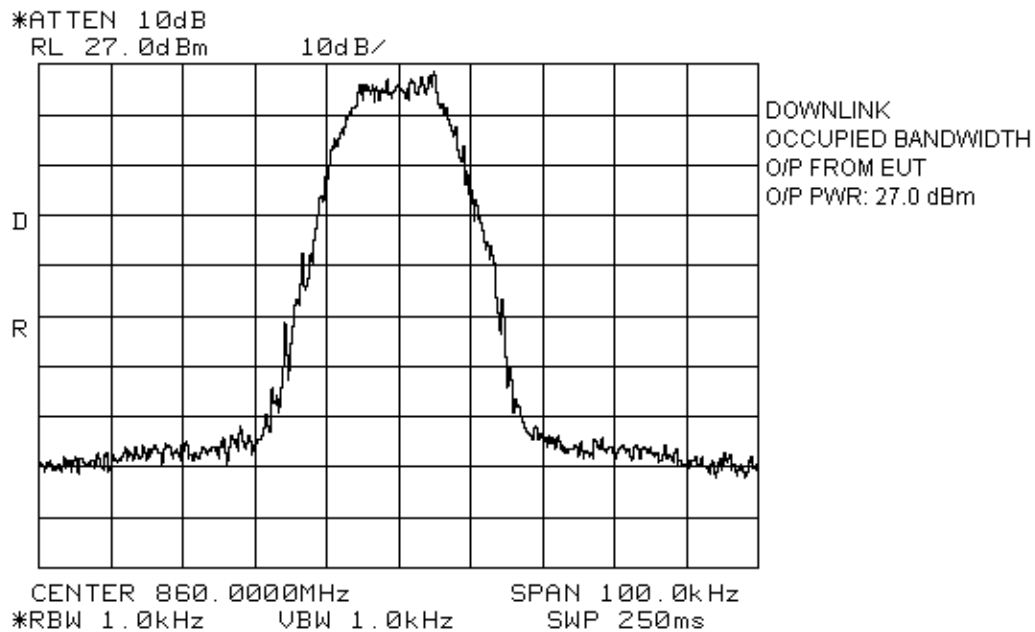
**Test Results:**                Complies. There is no degradation in the occupied bandwidth due to amplification through the repeater. This equipment is a repeater and does not have any frequency generating or modulation circuits, therefore measurements were made to compare the input to the output.

**Measurement Data:**        See attached graph(s).

*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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**FIE/F1D Modulation**

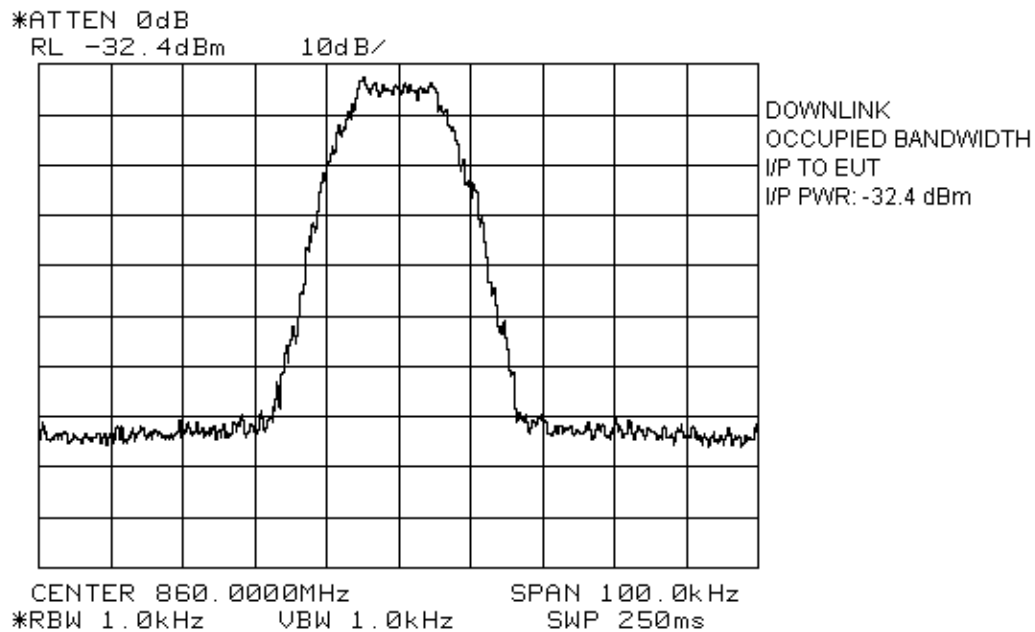




*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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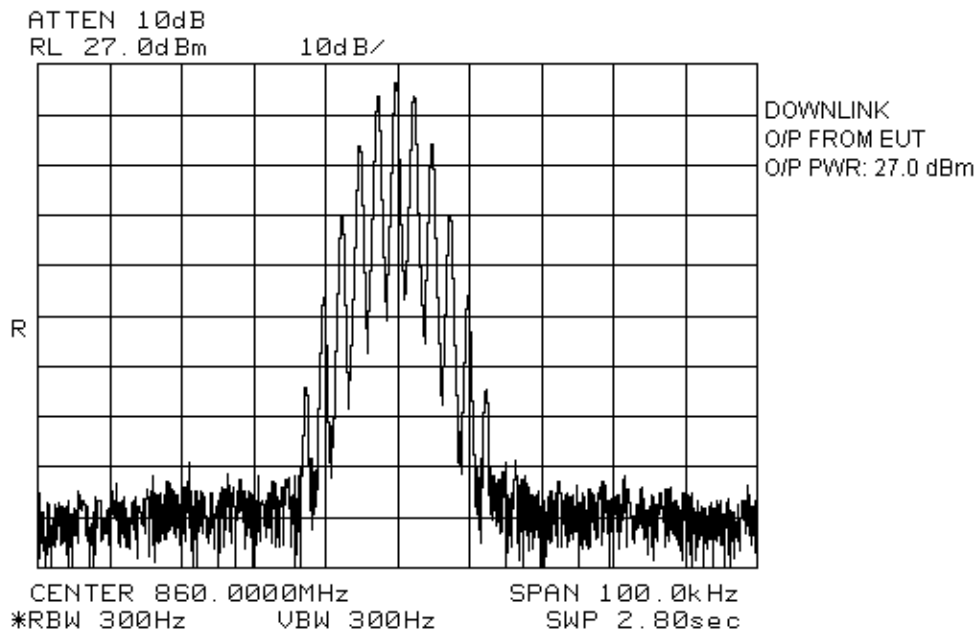
**FIE/F1D Modulation**



*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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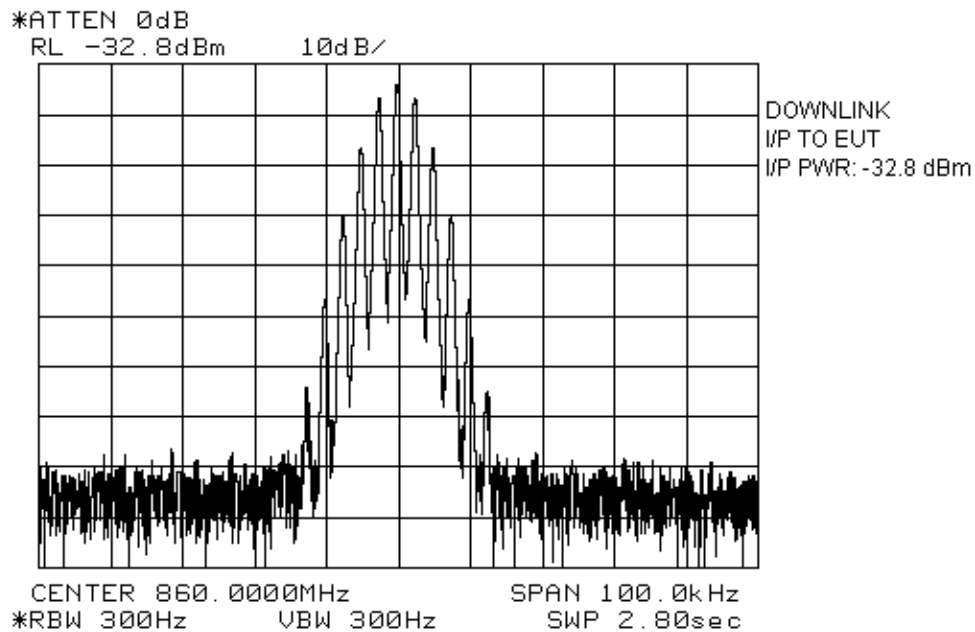
**F3E Modulation**



*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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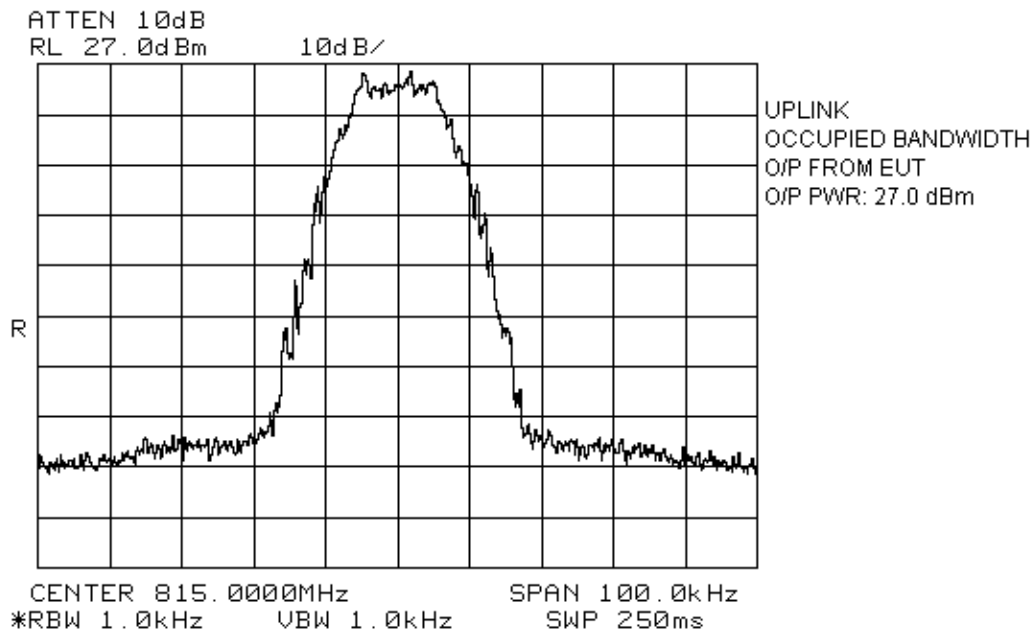
**F3E Modulation**



*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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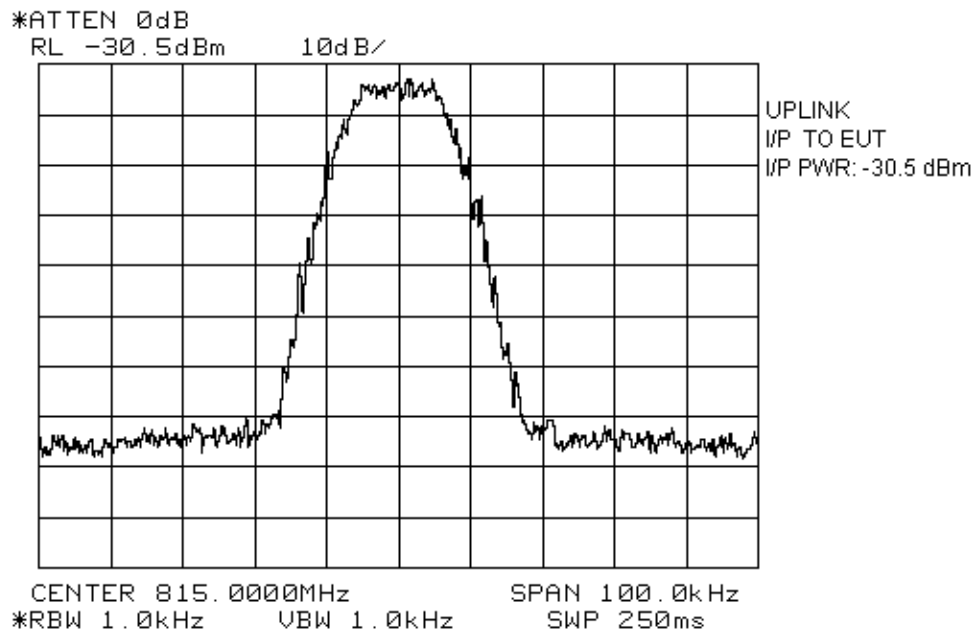
**FIE/F1D Modulation**



*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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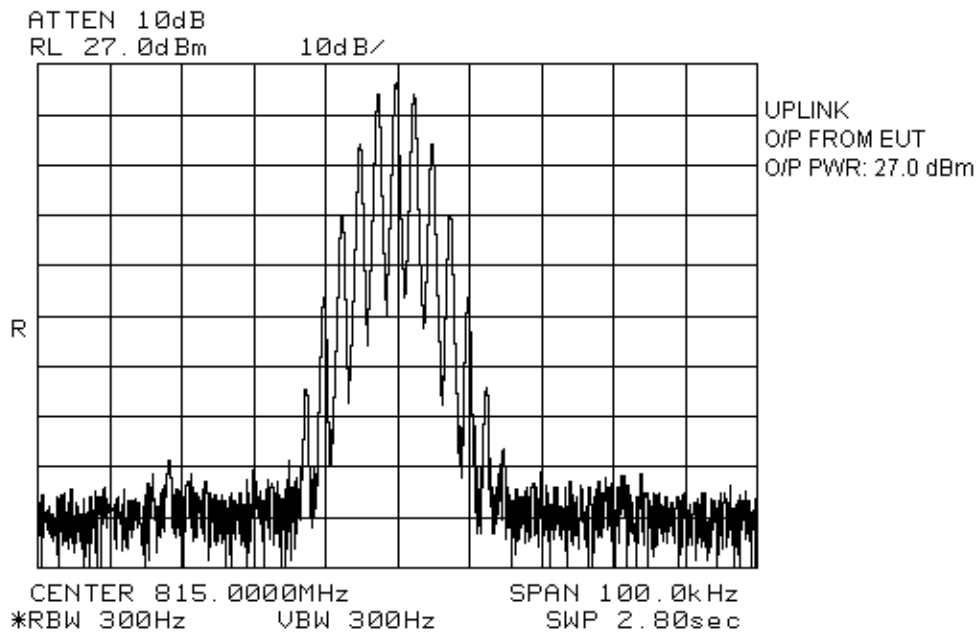
**FIE/F1D Modulation**



*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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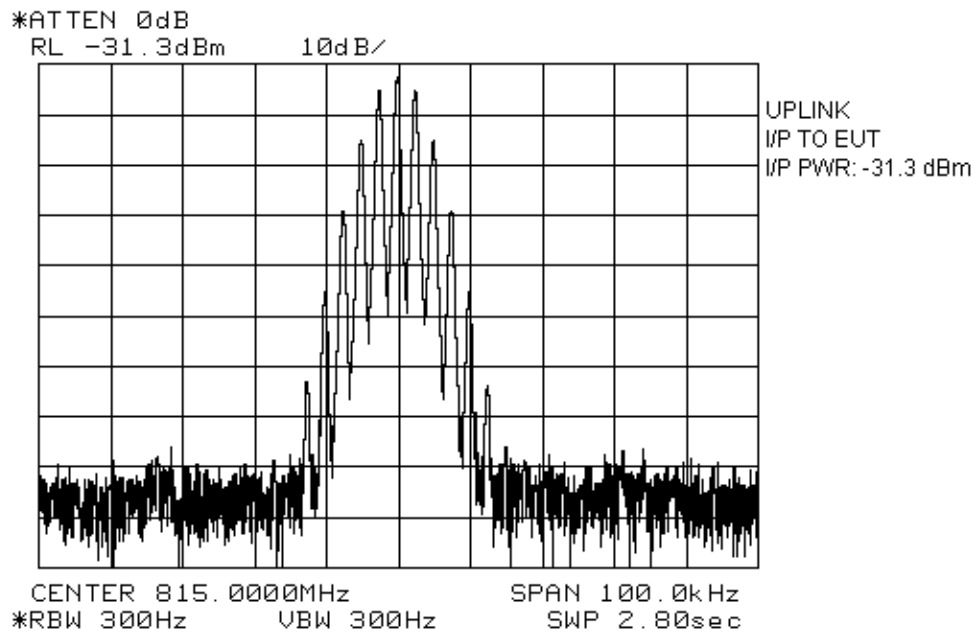
**F3E Modulation**



EQUIPMENT: MW-CBDA-SMR-1W60PS-8  
FCC ID: OIWCBDASMRPS8

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### F3E Modulation



*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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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> April 18, 2000
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**Minimum Standard:**        90.210(g)(h) –13 dBm

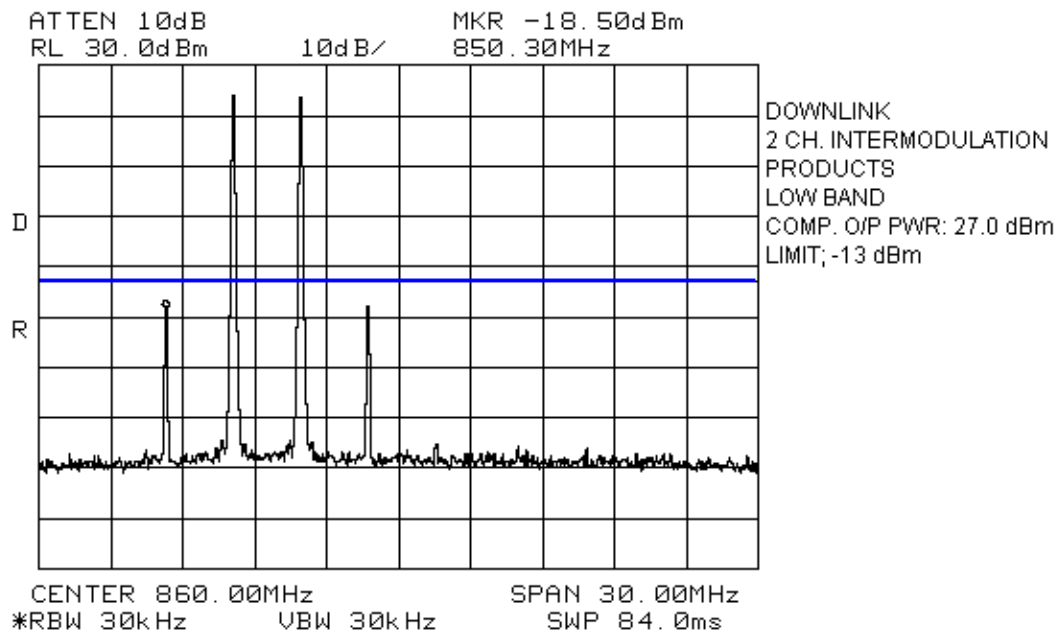
**Test Results:**                Complies.

**Measurement Data:**        See attached graph(s).

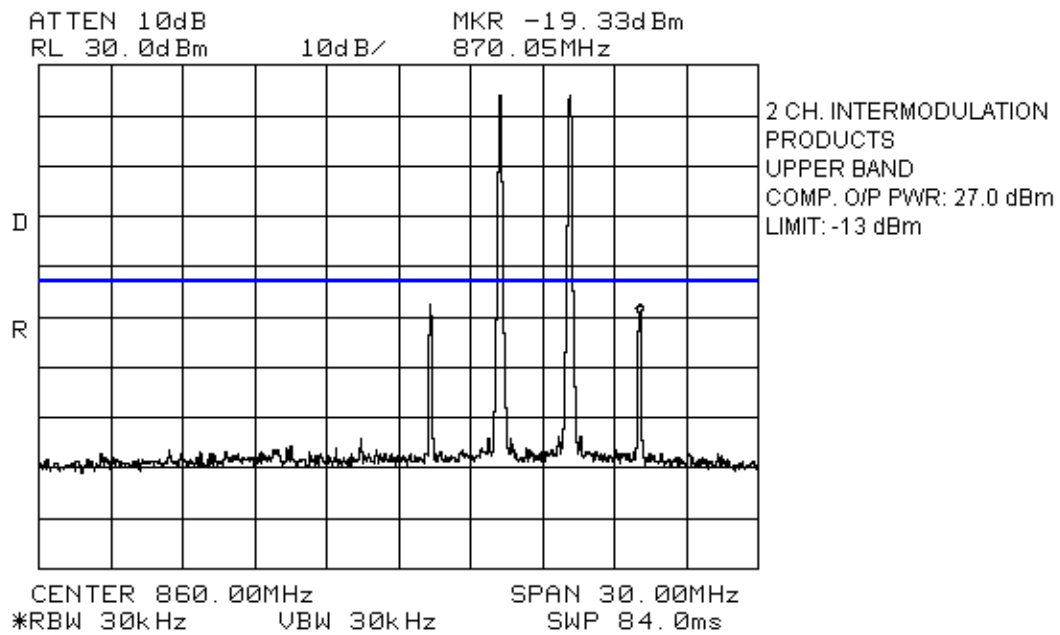


EQUIPMENT: MW-CBDA-SMR-1W60PS-8  
FCC ID: OIWCBDASMRPS8

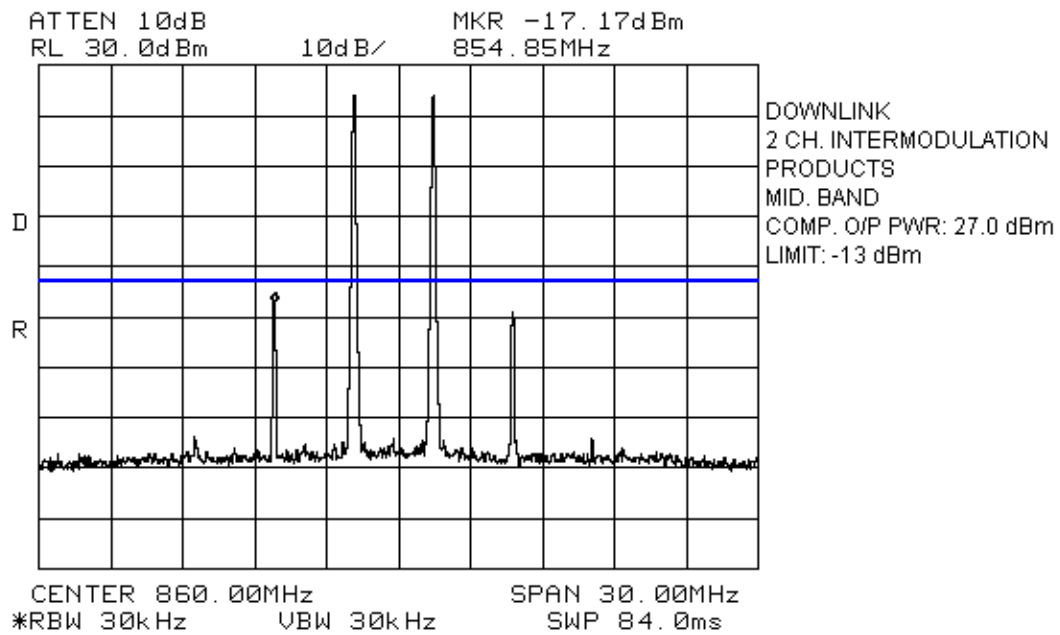
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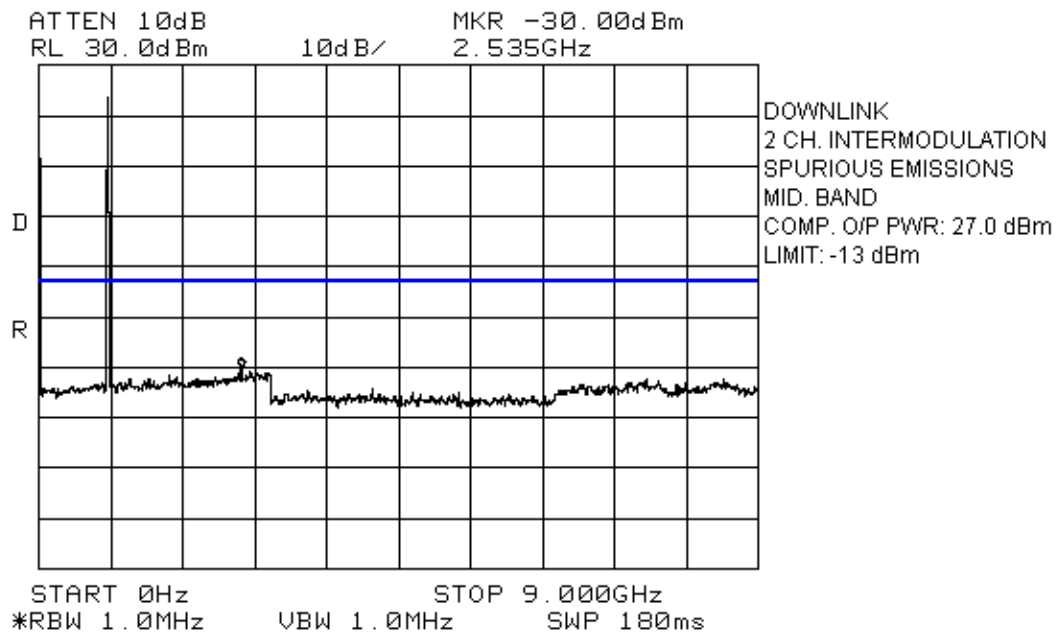
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FCC ID: OIWCBDASMRPS8



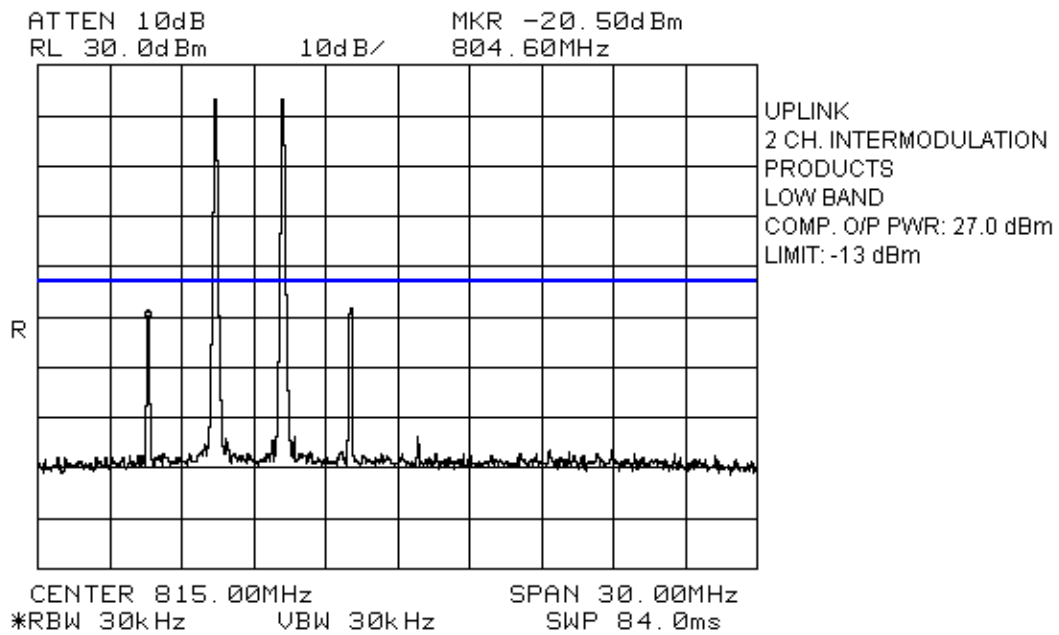
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FCC ID: OIWCBDASMRPS8



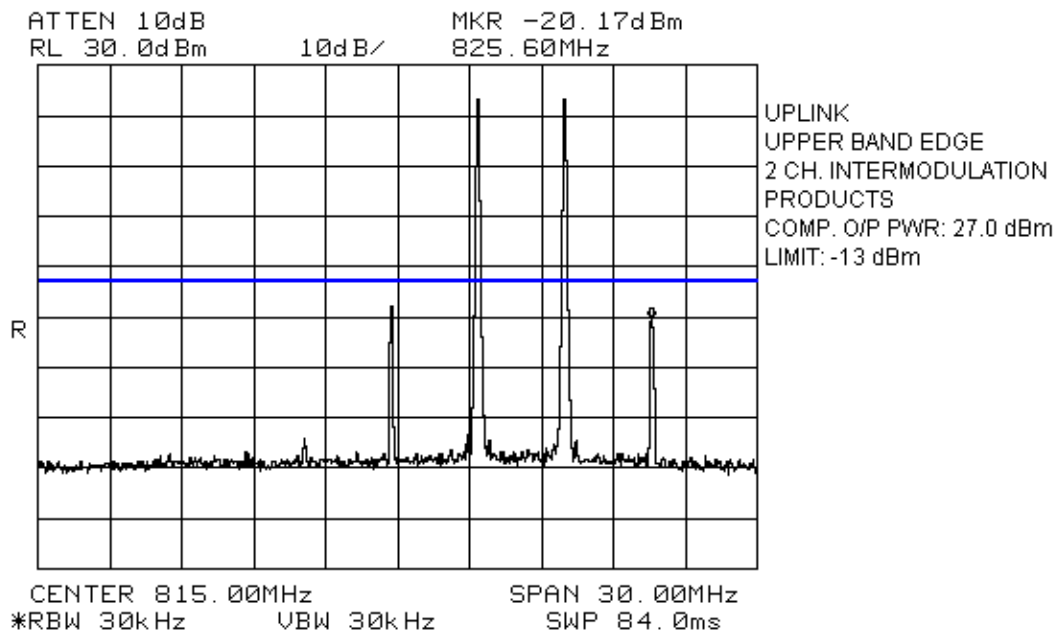
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FCC ID: OIWCBDASMRPS8



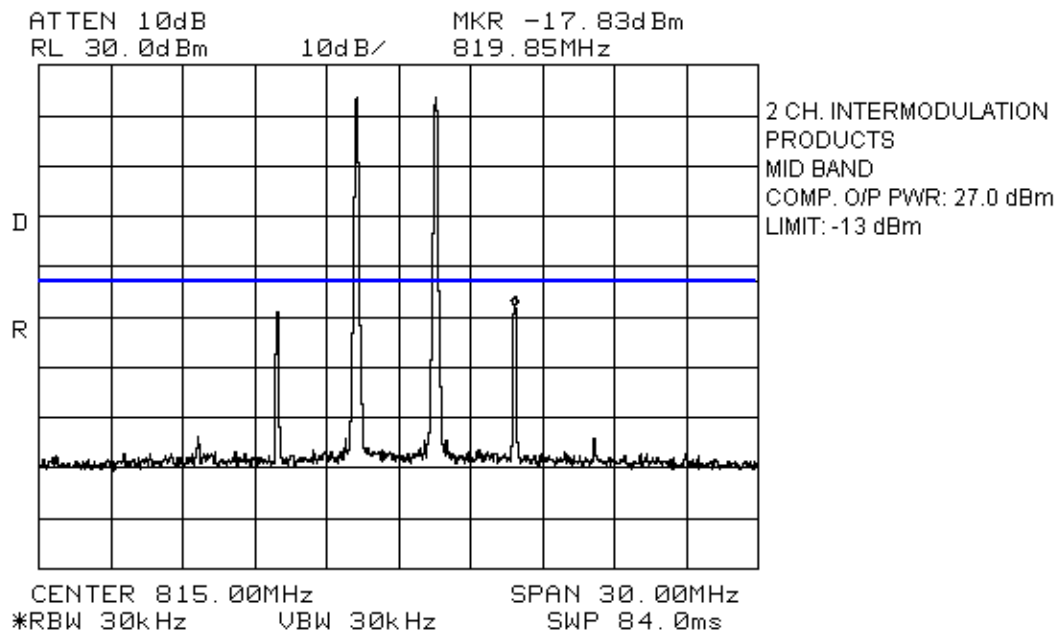
EQUIPMENT: MW-CBDA-SMR-1W60PS-8  
FCC ID: OIWCBDASMRPS8



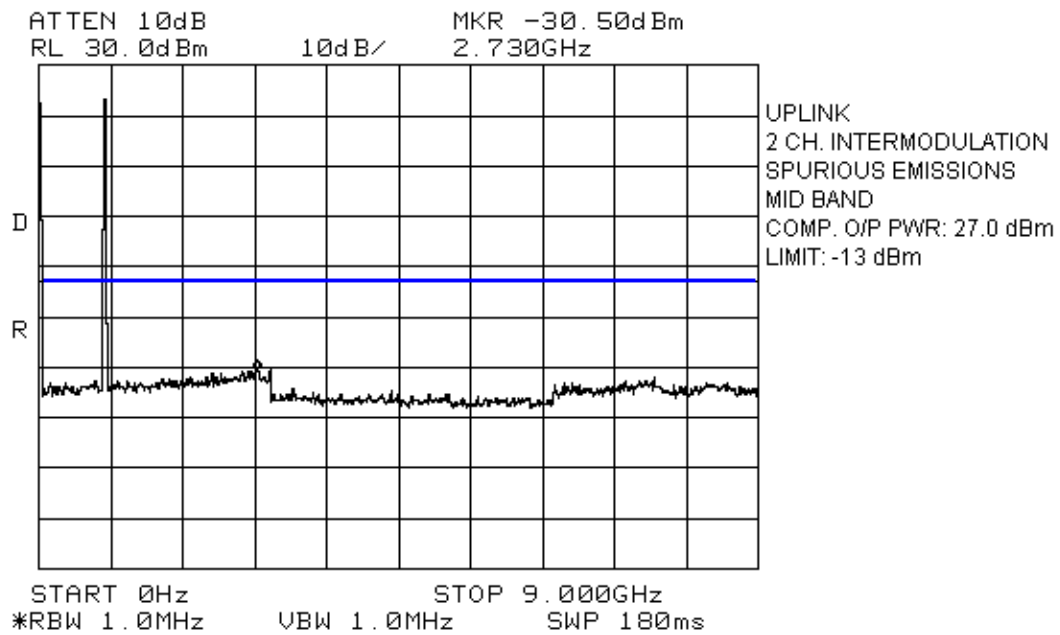
EQUIPMENT: MW-CBDA-SMR-1W60PS-8  
FCC ID: OIWCBDASMRPS8



EQUIPMENT: MW-CBDA-SMR-1W60PS-8  
FCC ID: OIWCBDASMRPS8



EQUIPMENT: MW-CBDA-SMR-1W60PS-8  
FCC ID: OIWCBDASMRPS8





*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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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> April 18, 2000
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**Minimum Standard:**        Para. No. 90.210 (g)(h)

84.4 dB $\mu$ V/m @ 3m < 1 GHz  
82.2 dB $\mu$ V/m @ 3m > 1 GHz

**Test Results:**                Complies. No emissions were detected within 20 dB of the  
specification limit.

**Measurement Data:**        See attached table.

*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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**Section 7. Test Equipment List**

<b>CAL CYCLE</b>	<b>EQUIPMENT</b>	<b>MANUFACTURER</b>	<b>MODEL</b>	<b>SERIAL</b>	<b>LAST CAL.</b>	<b>NEXT CAL.</b>
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	June 16/99	June 16/00
1 Year	Attenuator	Narda	768-10	9707	Aug. 23/99	Aug. 23/00
1 Year	Attenuator	Narda	768-10	9709	Oct. 8/99	Oct. 8/00
2 Year	RF Millivoltmeter	Rohde & Schwarz	URV5	FA000420	Oct. 6/99	Oct. 6/01
2 Year	Insertion Unit	Rohde & Schwarz	URV5-Z4	FA000905	Oct. 6/99	Oct. 6/01
1 Year	Receiver	Rohde & Schwarz	ESVP	892661/014	Mar. 29/99	Mar. 29/00
1 Year	Horn Antenna	EMCO #2	3115	4336	Nov. 11/99	Nov. 11/00
	50 $\Omega$ Termination	Wilton	26N50	605248	N/A	N/A
1 Year	50 ohm Combiner Pad	Mini Circuits	ZA3PD-2	9746	Oct. 7/99	Oct. 7/00
3 Year	Signal Generator	Rohde & Schwarz	SM1Q03	1084-8004-03	Sept. 17/97	Sept. 17/00
3 Year	RF Generator	Rohde & Schwarz	SIMIQ03E	DE24154	Oct. 4/99	Oct. 4/01

NA: Not Applicable  
NCR: No Cal Required  
COU: CAL On Use

**KTL Ottawa**

FCC PART 90, SUBPART I  
PRIVATE LAND MOBILE REPEATER  
PROJECT NO.: 0R02415  
ANNEX A

*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

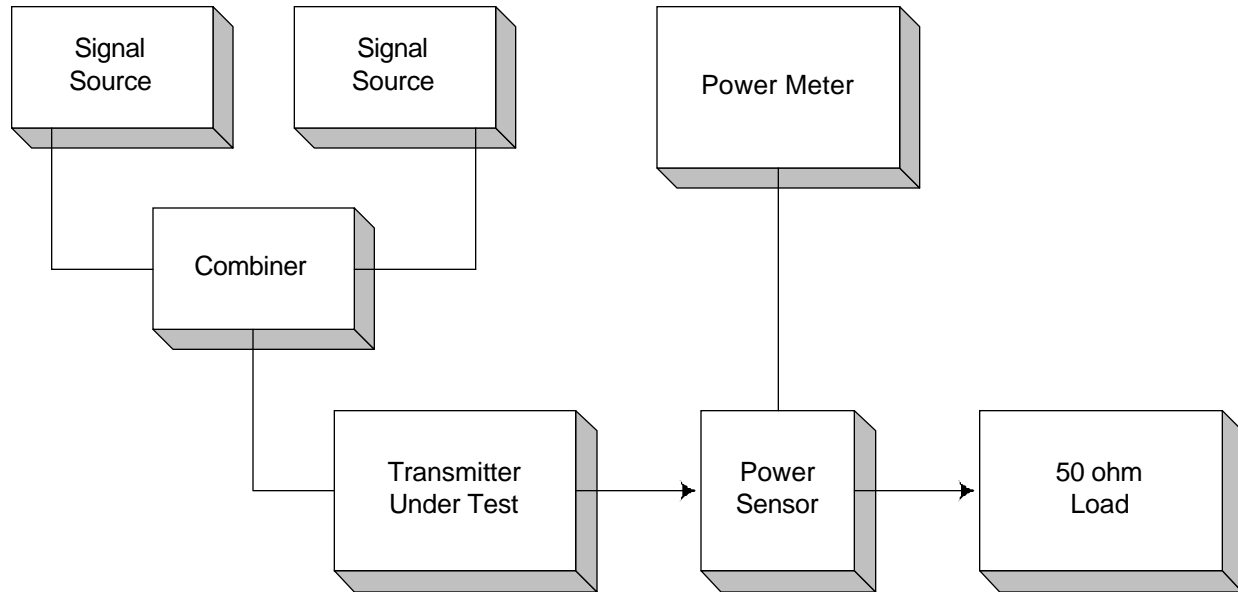
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**Annex A**  
**Test Diagrams**

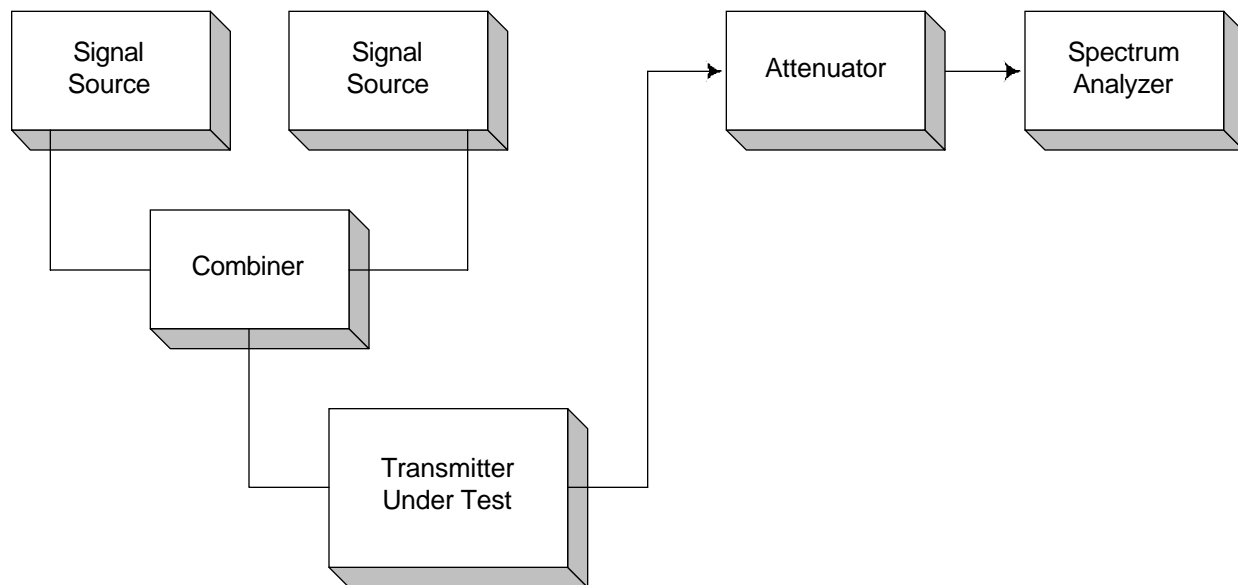
*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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



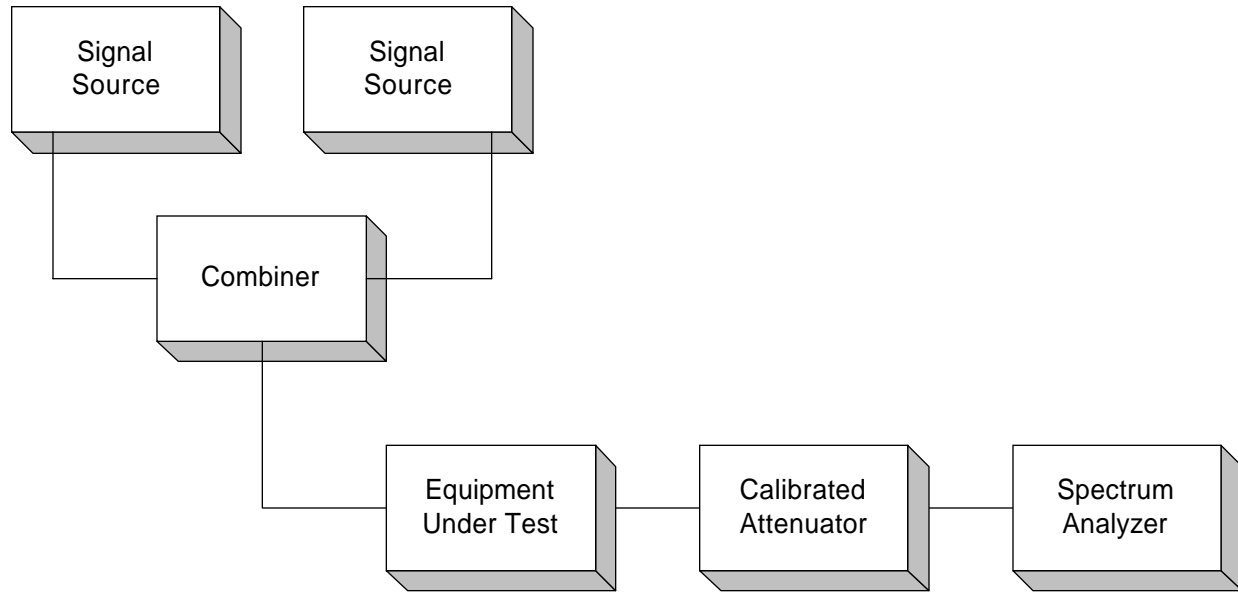
**Para. No. 2.1049 - Occupied Bandwidth**



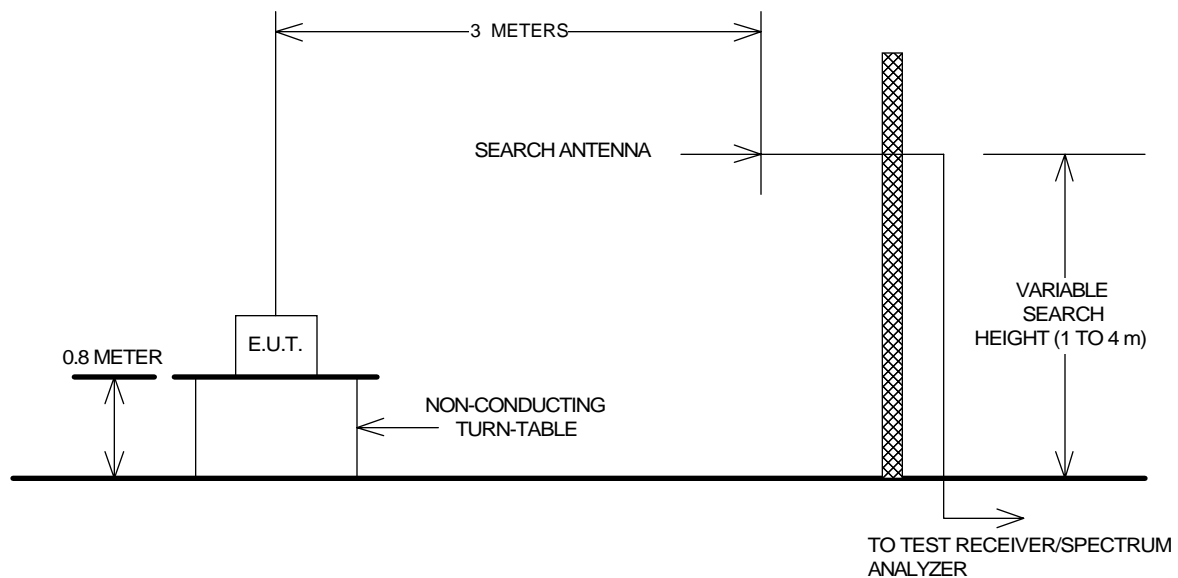
*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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



**Para. No. 2.1053 - Field Strength of Spurious Radiation**



*EQUIPMENT: MW-CBDA-SMR-1W60PS-8*  
*FCC ID: OIWCBDASMRPS8*

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**Para. No. 2.1055 - Frequency Stability**

