



Nemko

Test Report:

4W07892, ISSUE 2

Applicant:

G-Wave Inc.
15 Ron's Edge Road
Springfield, NJ 07081

**Equipment Under Test:
(EUT)**

BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A,
BDA-PCS/C-.5/2W-70-A, BDA-PCS/D-.5/2W-70-A,
BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A

FCC ID:

Q8KPCS2W70A

In Accordance With:

FCC Part 24, Subpart E

Tested By:

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

Authorized By:

Glen Westwell, Wireless Specialist

Date:

12 March 2004

Total Number of Pages:

40

*EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A*

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*EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A*

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 24, Subpart E.

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. NONE
See " Summary of Test Data".



TESTED BY: _____
Kevin Carr, EMC/EMI/Wireless Specialist

DATE: 12 March 2004

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This report applies only to the items tested.

*EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A*

Summary Of Test Data

Name Of Test	Para. No.	Result
RF Power Output	2.1046	Complied
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	N/A(1)

Footnotes For N/A's:

N/A(1) – The EUT is a F1 – F1 BDA

Test Conditions:

Indoor Temperature: 24°C
 Humidity: 13%

Outdoor Temperature: 3°C
 Humidity: 93%

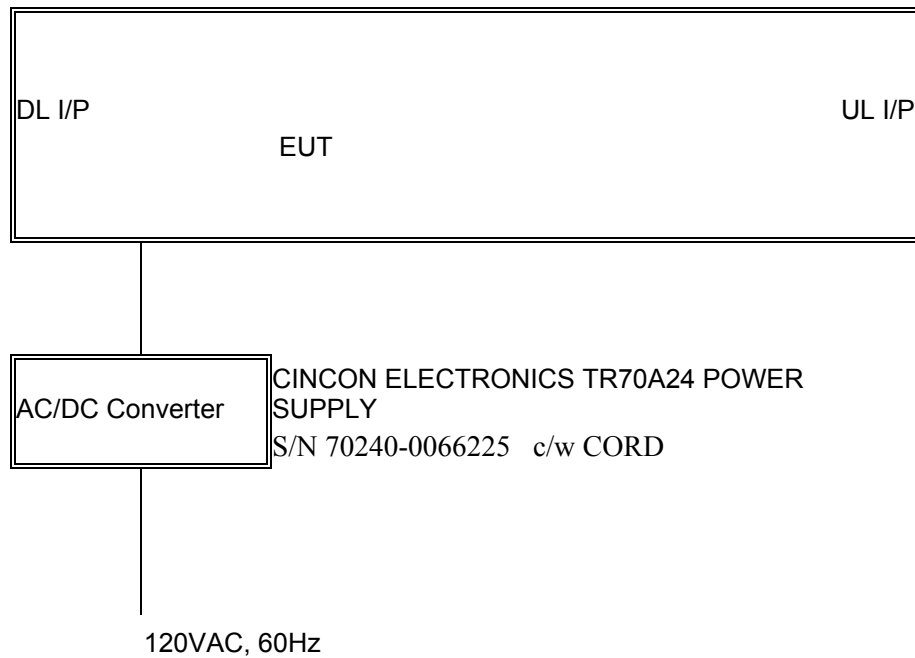
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BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A*

Section 2. General Equipment Specification

Manufacturer:	G-Wave Inc.
Model No.'s Tested:	BDA-PCS/A-.5/2W-70-A BDA-PCS/B-.5/2W-70-A BDA-PCS/C-.5/2W-70-A
Serial No.:	04021001 04021001 04021002
Date Received In Laboratory:	23 Feb. 2004
Nemko Identification No.:	1, 2, 4, 7
Supply Voltage:	120VAC, 60Hz
Frequency Range:	Uplink: 1850 – 1910MHz Downlink: 1930 – 1990MHz
RF Output Power (Rated)	Uplink: 18.0dBm, Total Composite Power, 2 Tones Downlink: 27.0 dBm, Total Composite Power, 2 Tones
RF Output Power (measured)	Uplink: 18.5dBm, Total Composite Power, 2 Tones Downlink: 27.2 dBm, Total Composite Power, 2 Tones
Emission Designator:	DXW, F9W, GXW

*EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A*

Block Diagram



*EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A*

Section 3. RF Power Output

Para. No.: 2.1046

Test Performed By: Kevin Carr	Date of Test: 25 Feb. 2004
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Minimum Standard: Para. No.: 24.232.

Test Results: Complied

Measurement Data: See attached chart, 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} = Max. RF output power
N = Number of Channels

	Channel	Rated	Measured	Delta
		dBm	dBm	dB
UL	Low	18.0	17.9	0.1
	Mid	18.0	17.5	0.5
	High	18.0	18.5	0.5
DL	Low	27.0	27.2	0.2
	Mid	27.0	26.2	0.8
	High	27.0	27.1	0.1

*EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A*

Section 4. Occupied Bandwidth

Para. No.: 2.1049

Test Performed By: Kevin Carr	Date of Test: 25 Feb. 2004
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Minimum Standard: Para. No.: 24.238.

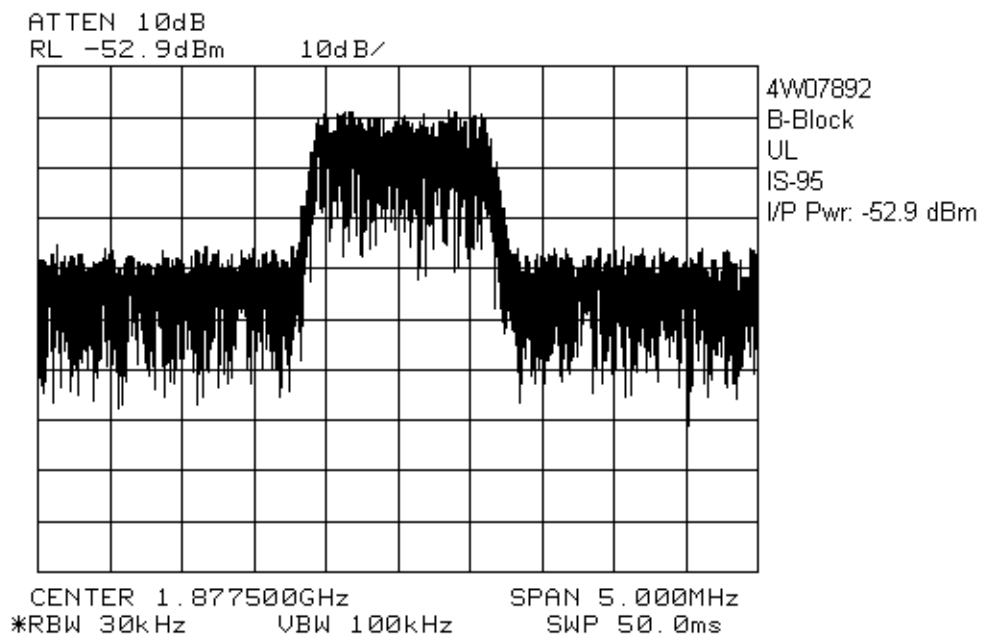
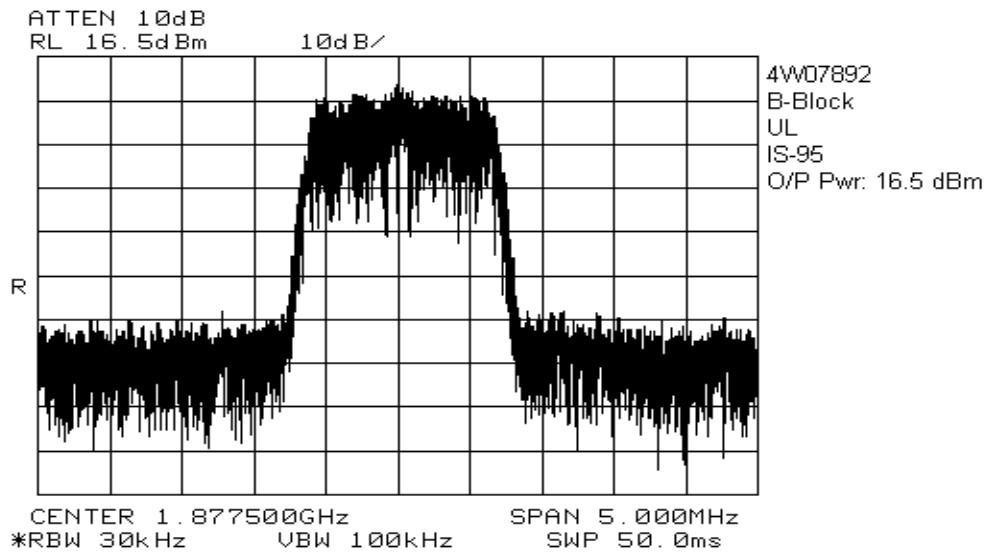
Test Results: Complied

Test Data: See attached graph(s).

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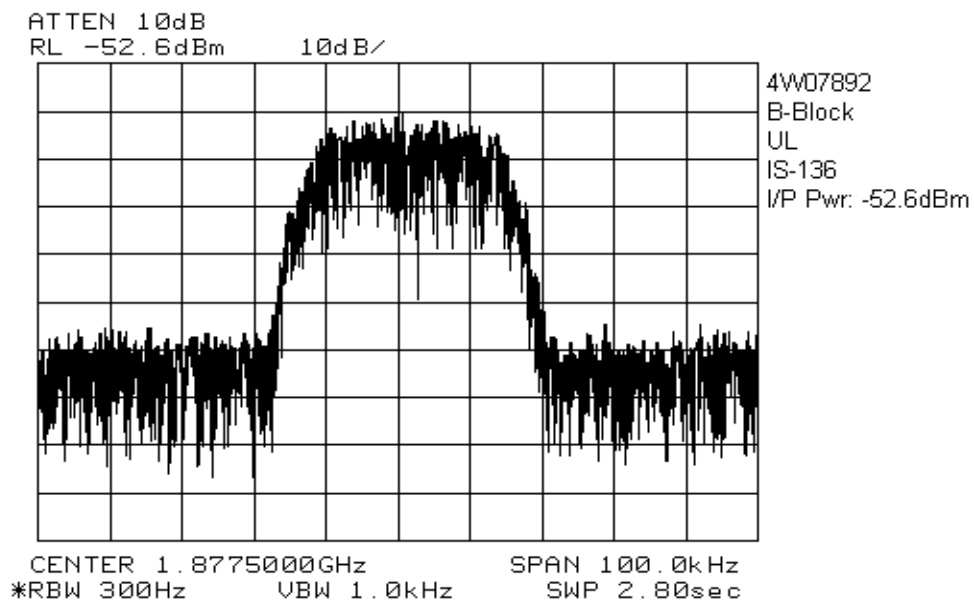
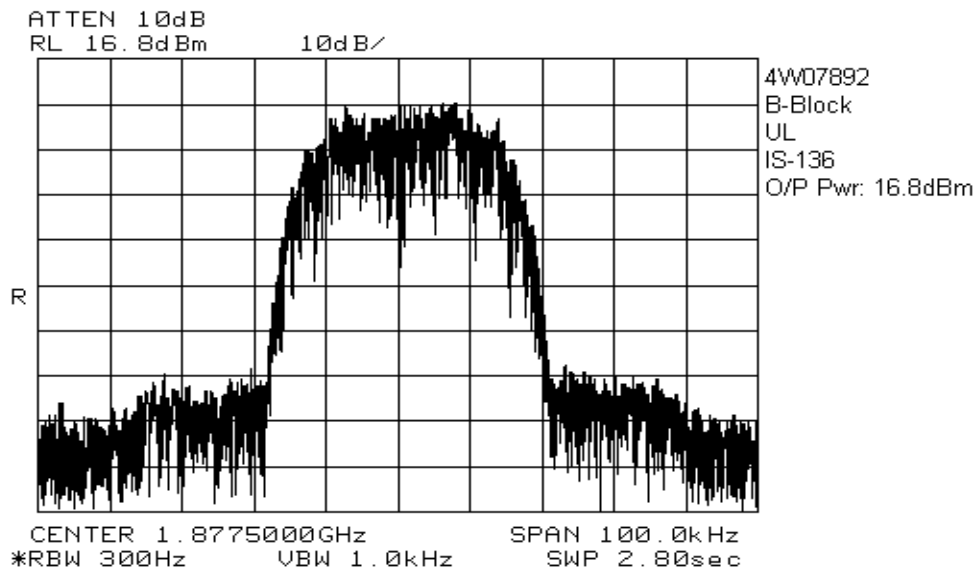
Uplink

IS – 95



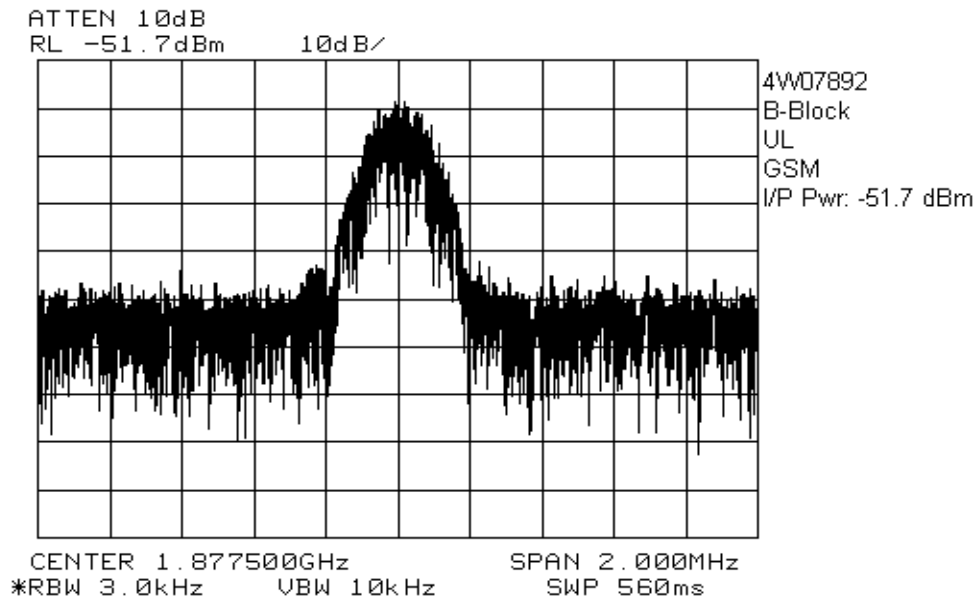
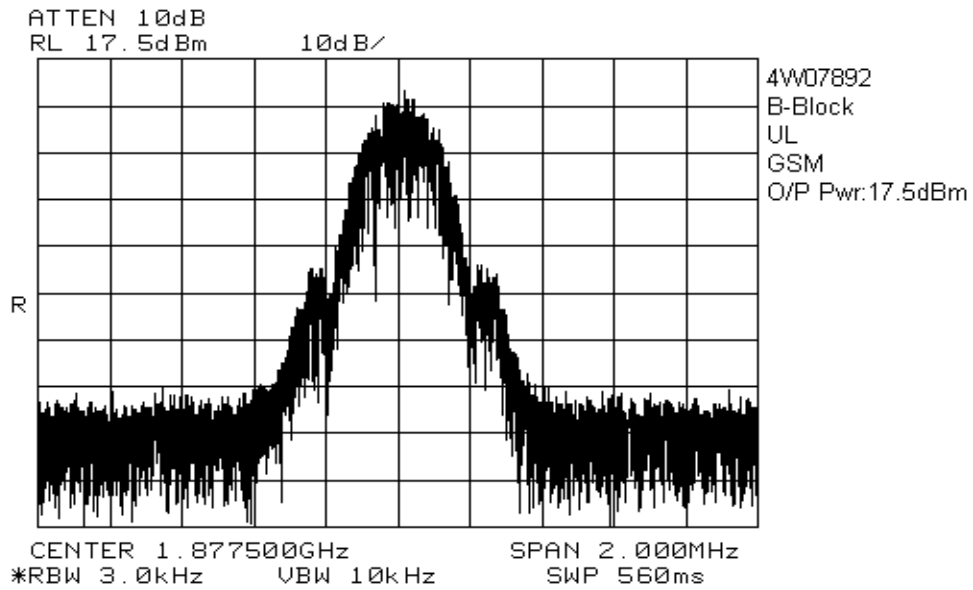
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BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A

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EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
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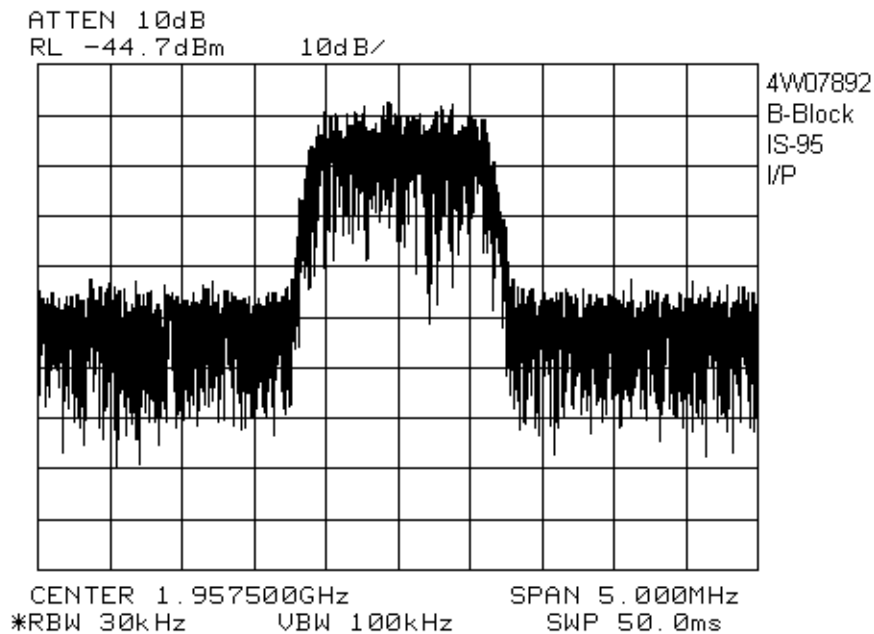
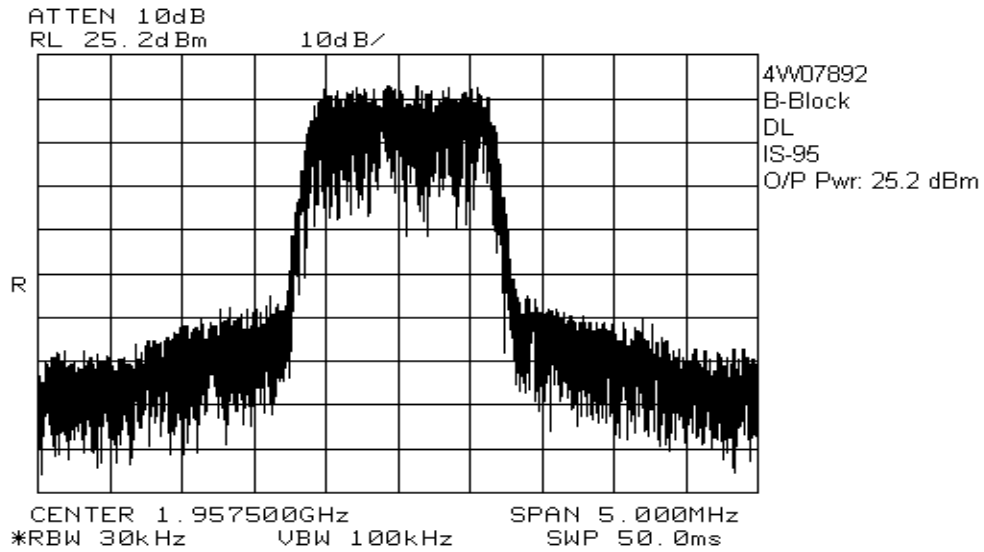
GSM



EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
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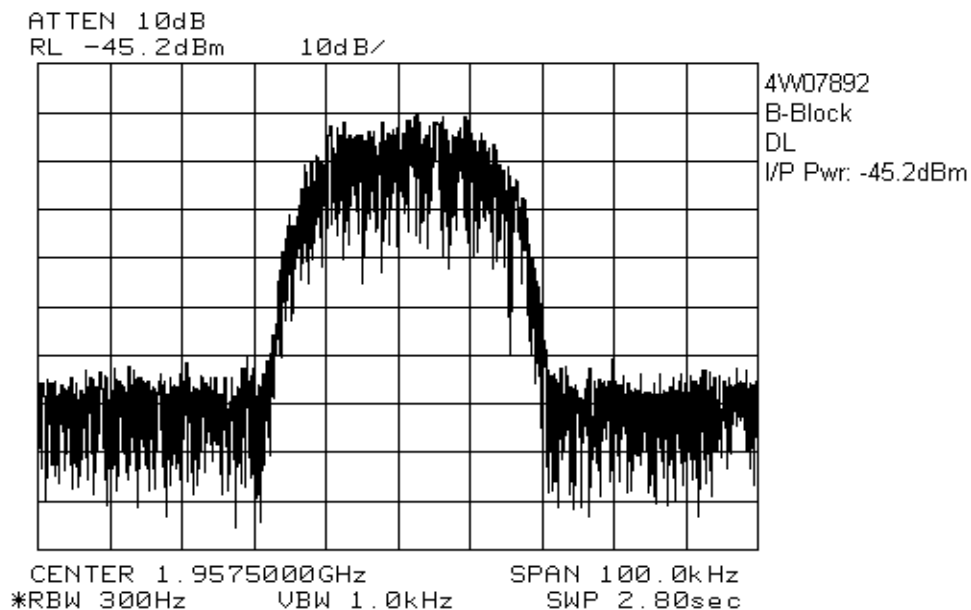
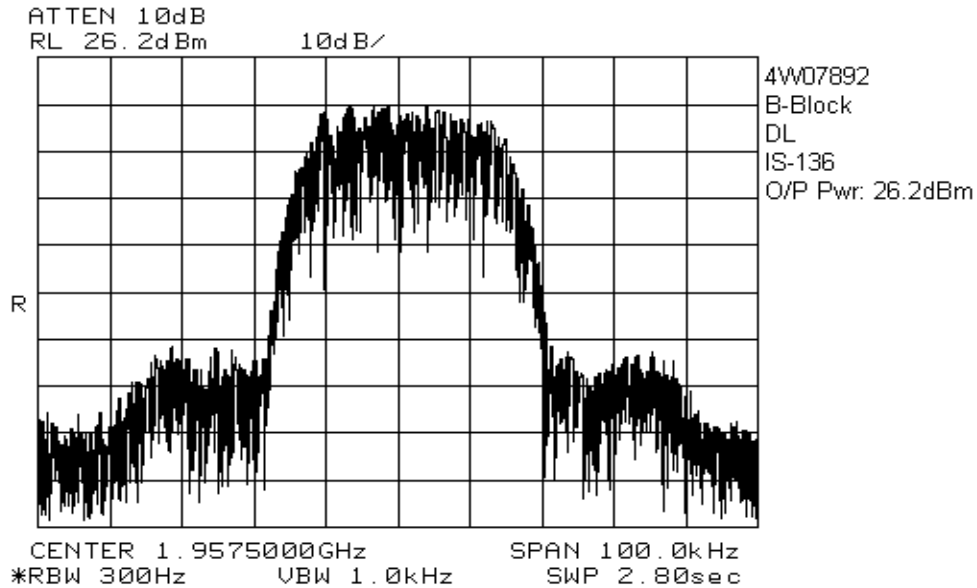
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IS – 95



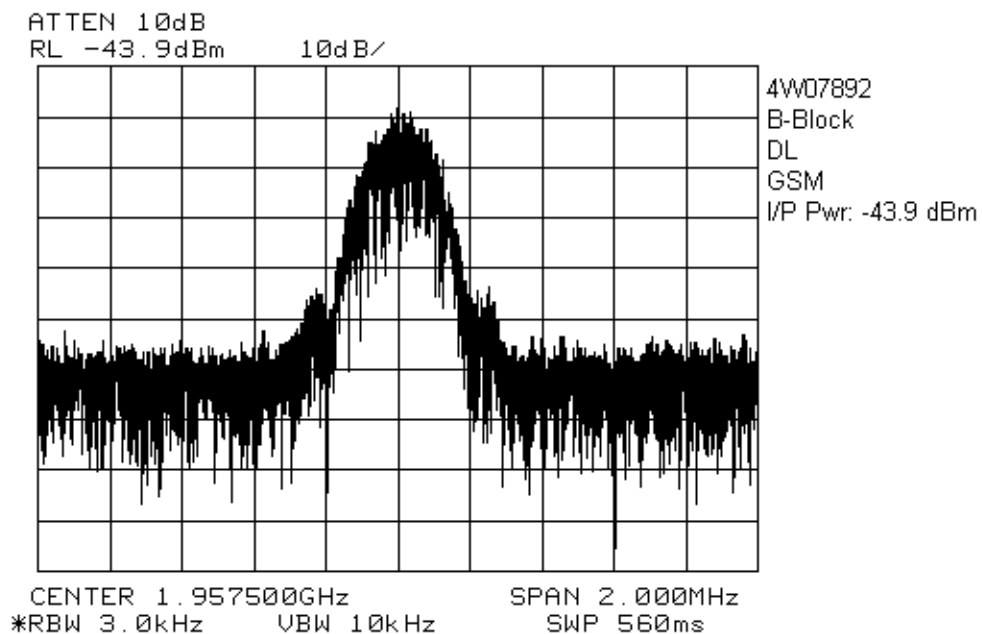
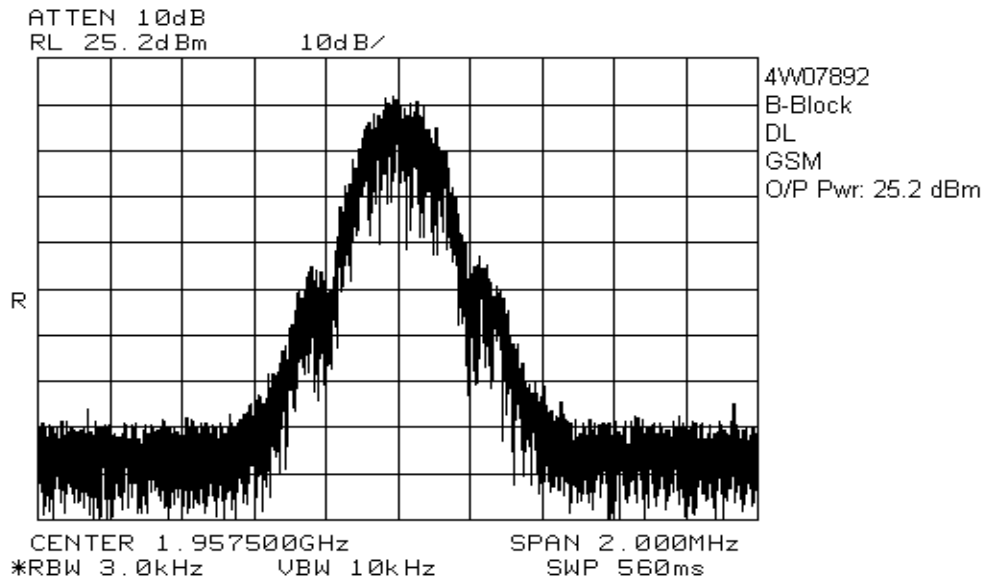
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BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A

IS – 136



EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A

GSM



*EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A*

Section 5. Spurious Emissions at Antenna Terminals

Para. No.: 2.1051

Test Performed By: Kevin Carr	Date of Test: 25 Feb. 2004
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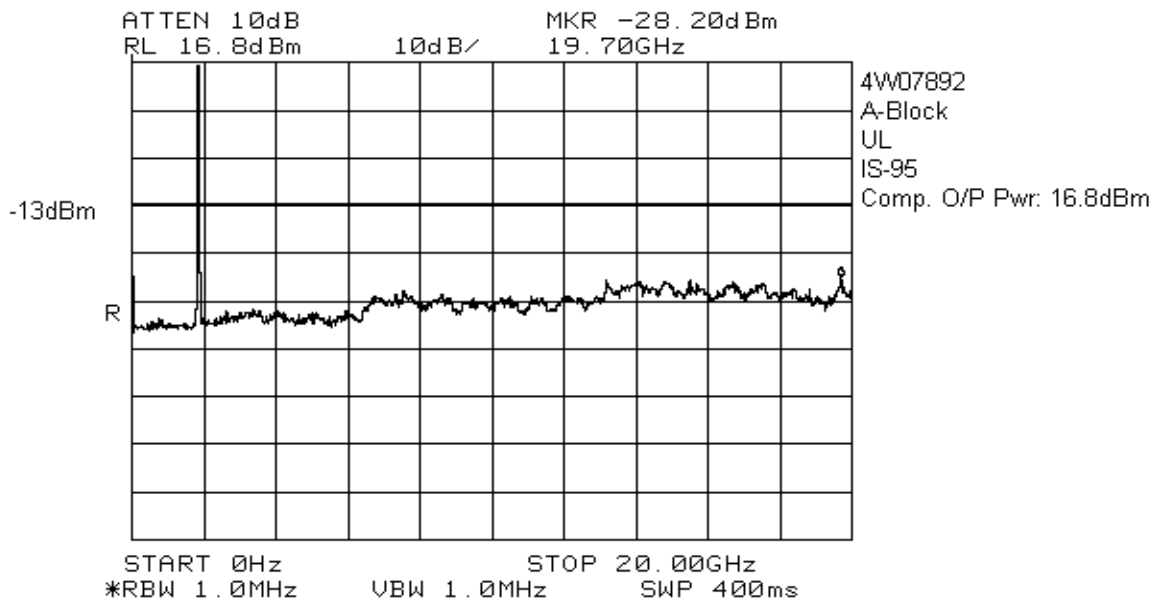
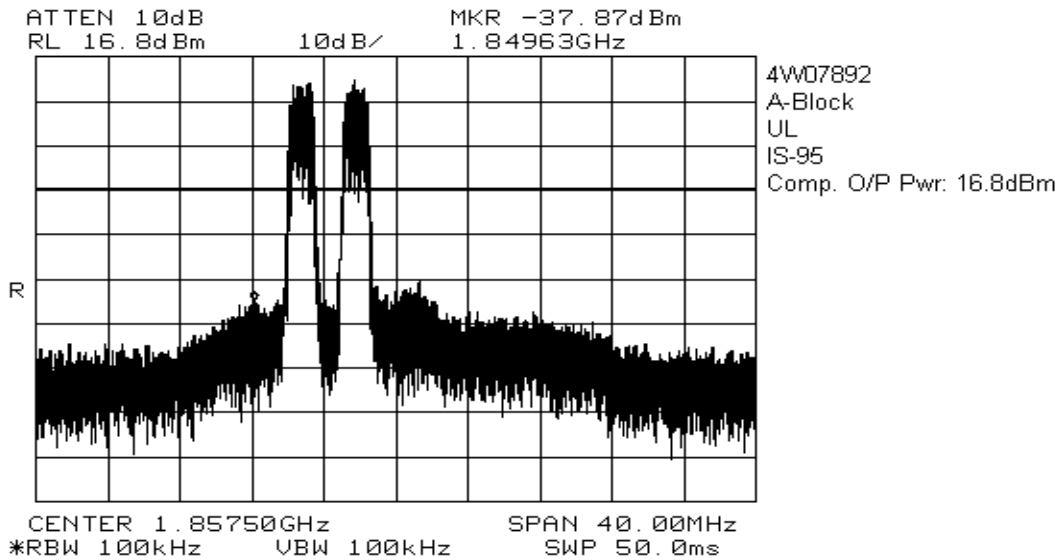
Minimum Standard: Para. No.: 24.238.

Test Results: Complied

Test Data: See attached graph(s).

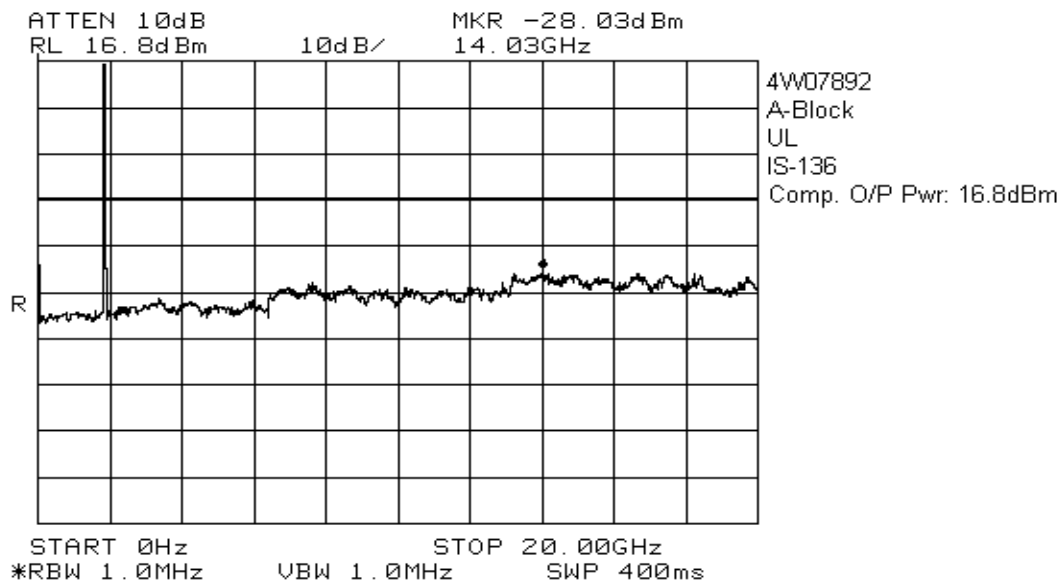
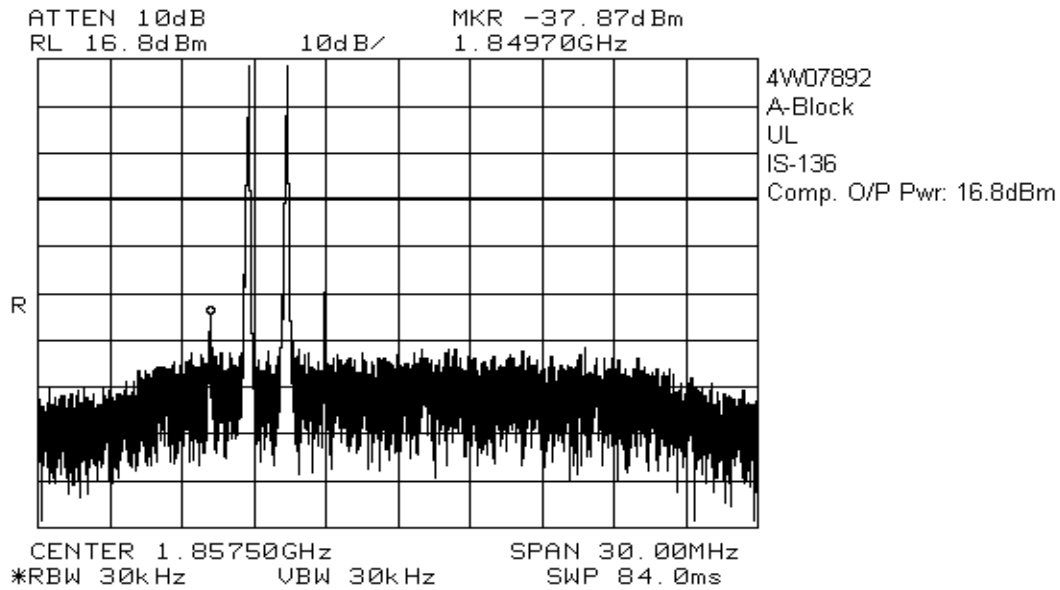
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BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A

Uplink
A-Block
IS - 95



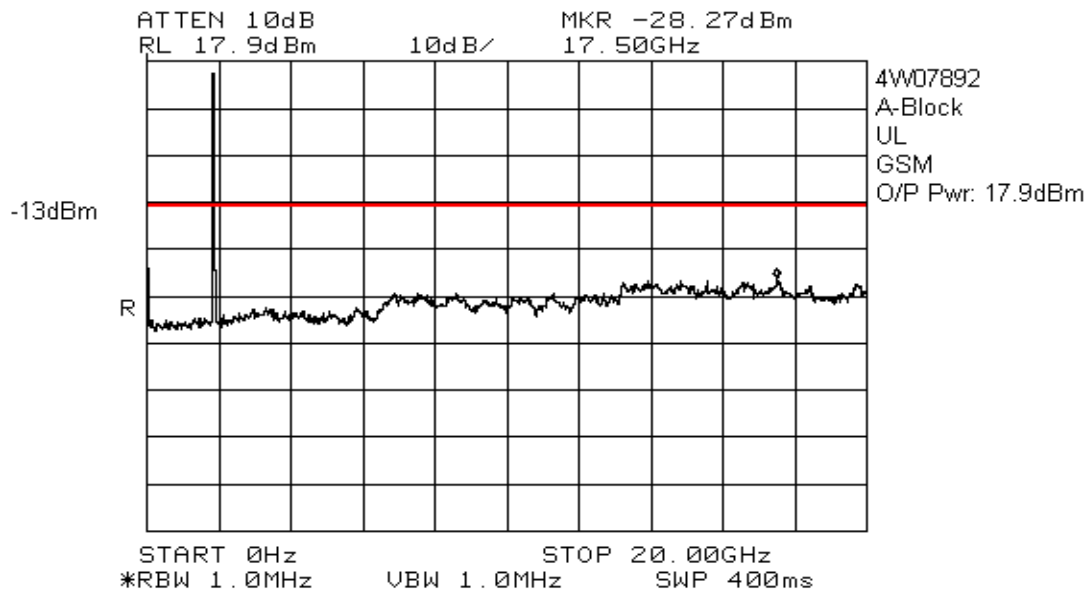
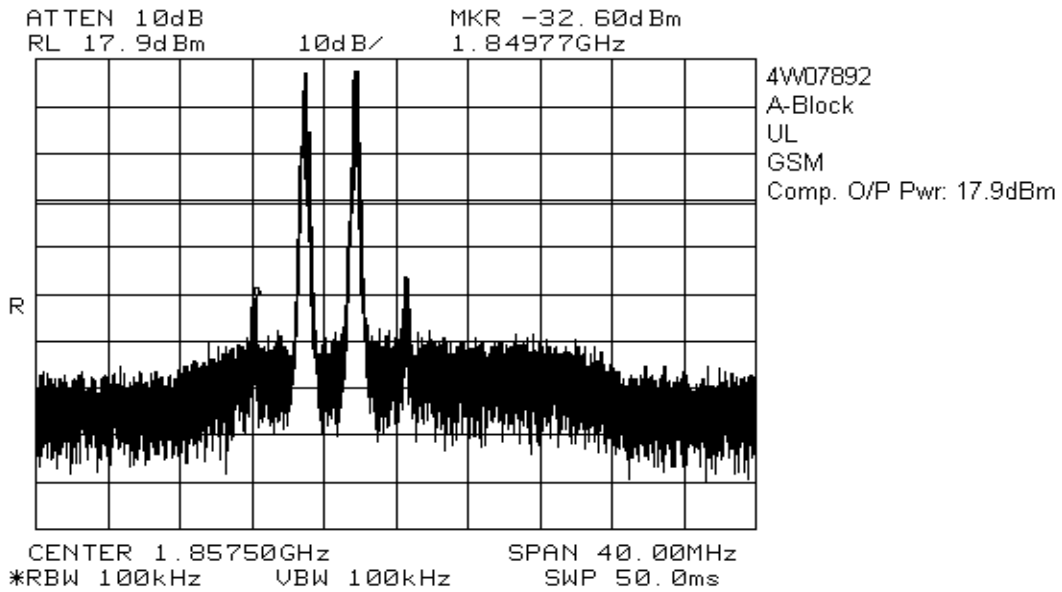
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BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A

IS – 136



EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
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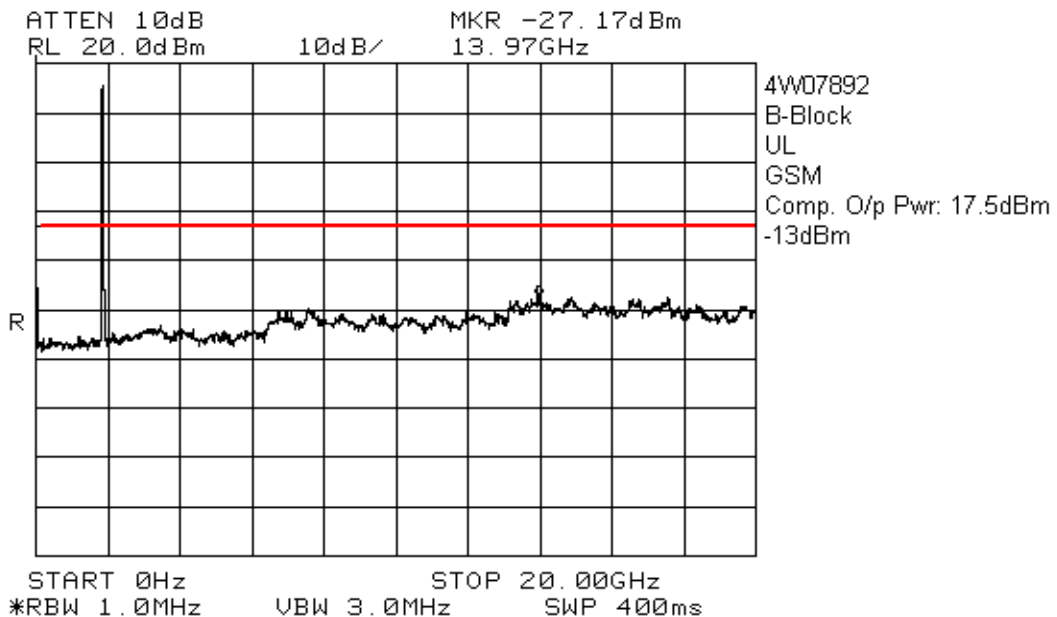
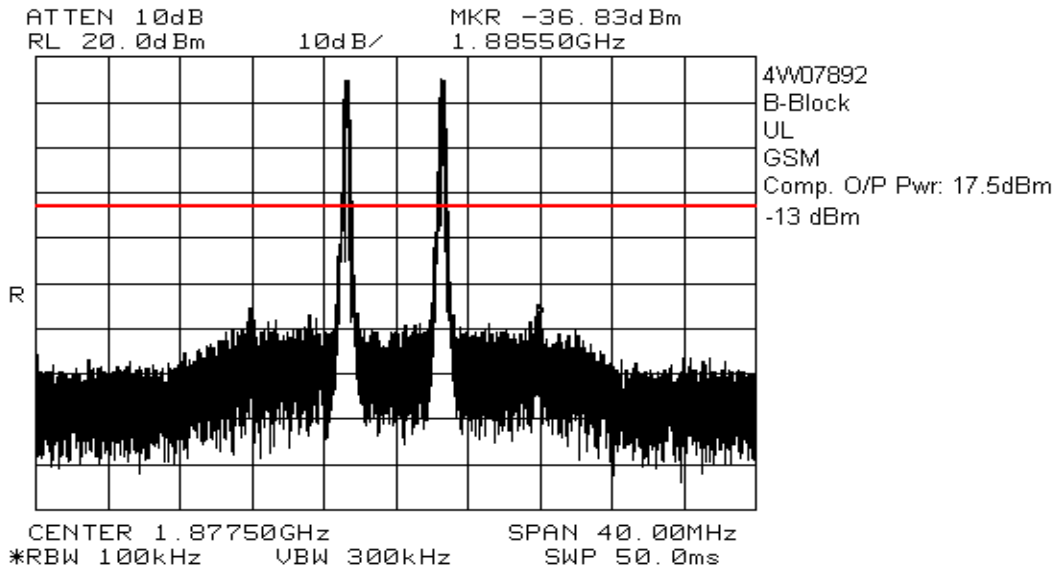
GSM



EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
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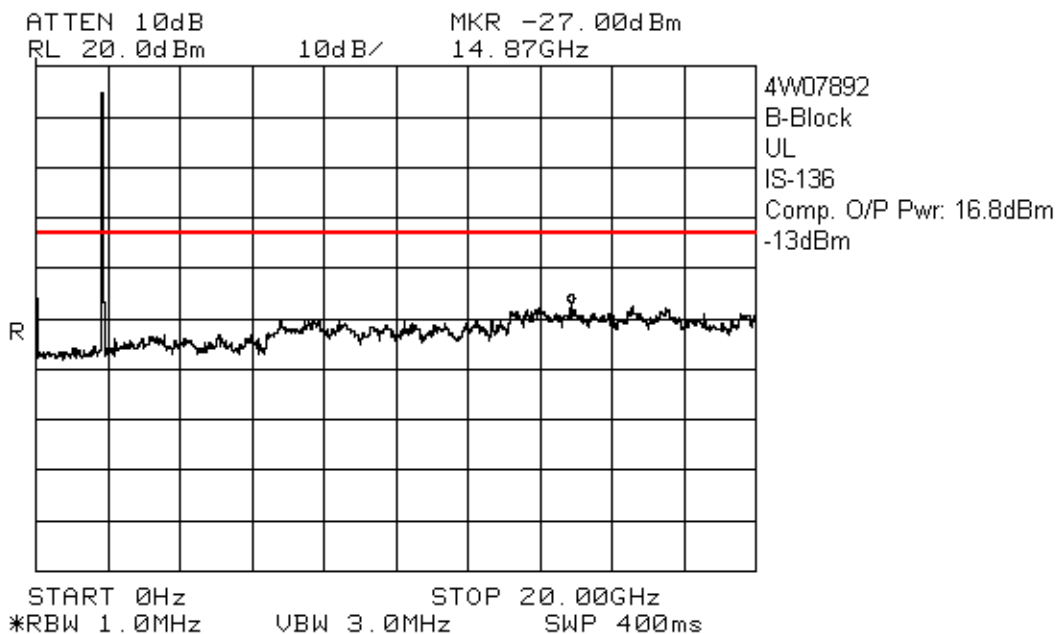
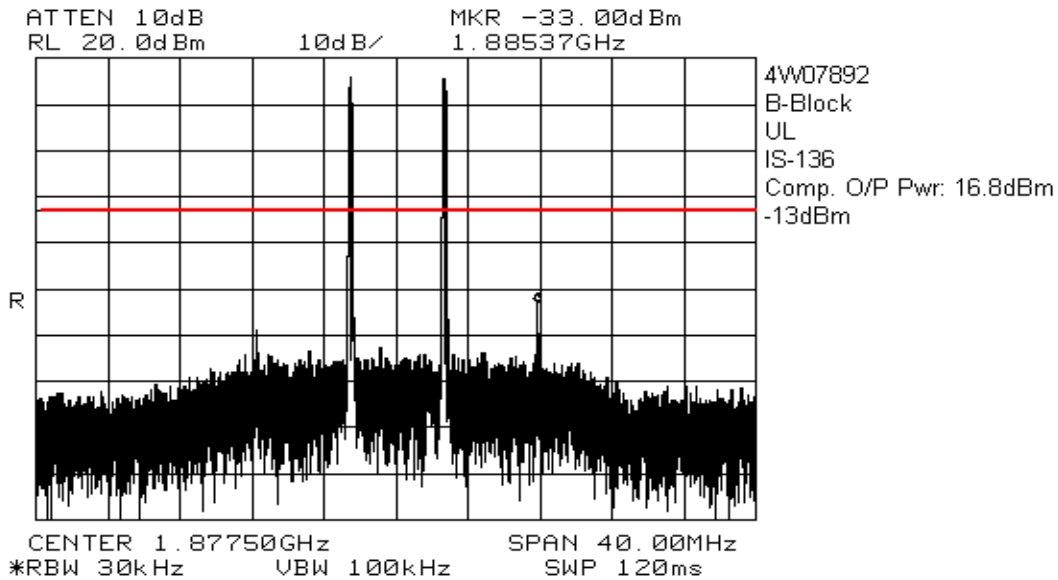
B-Block

IS – 95



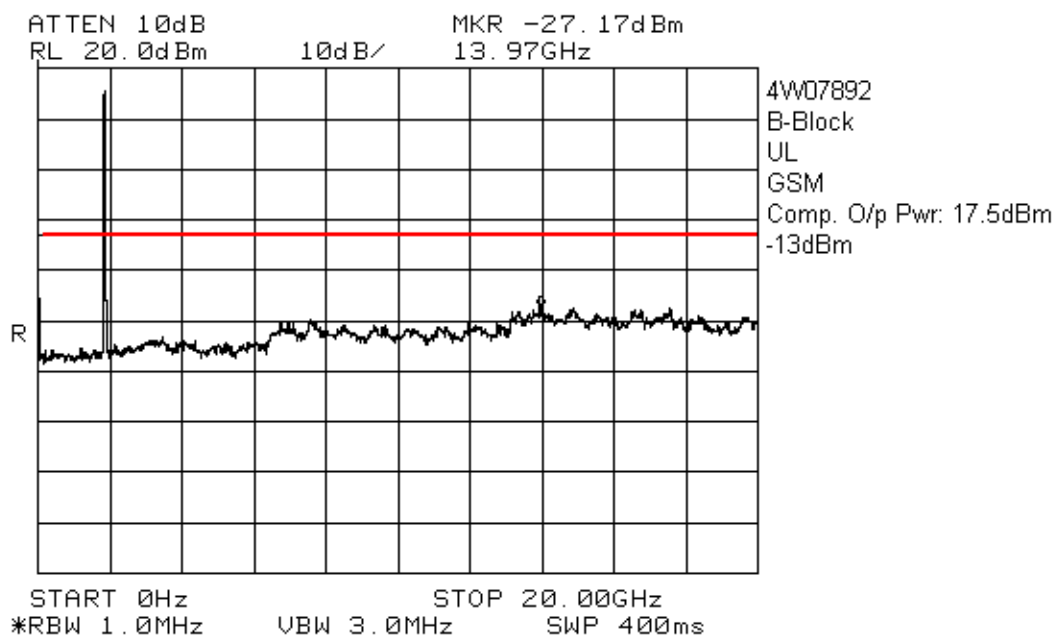
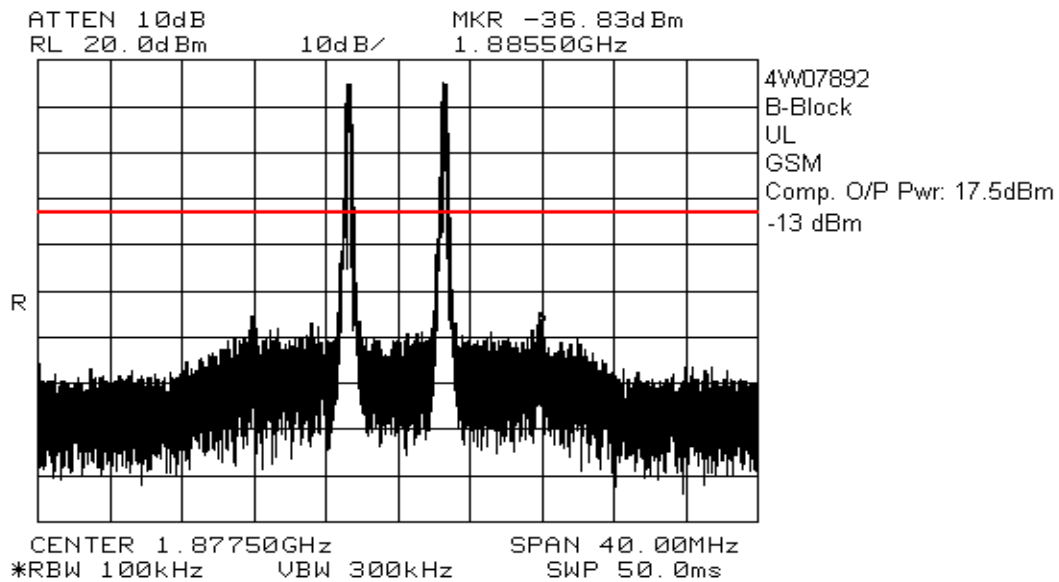
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IS – 136



EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
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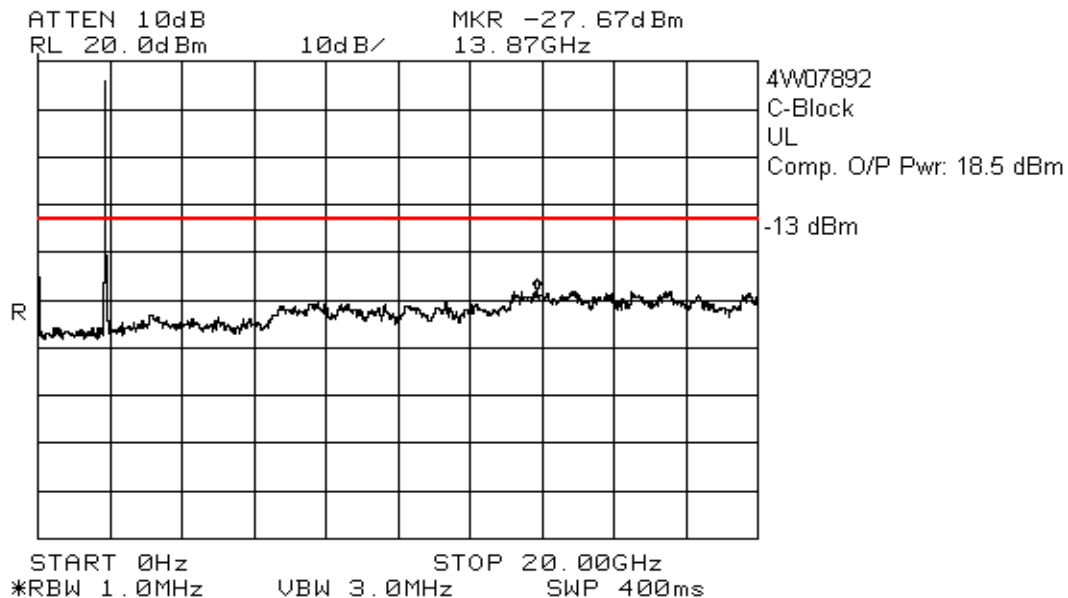
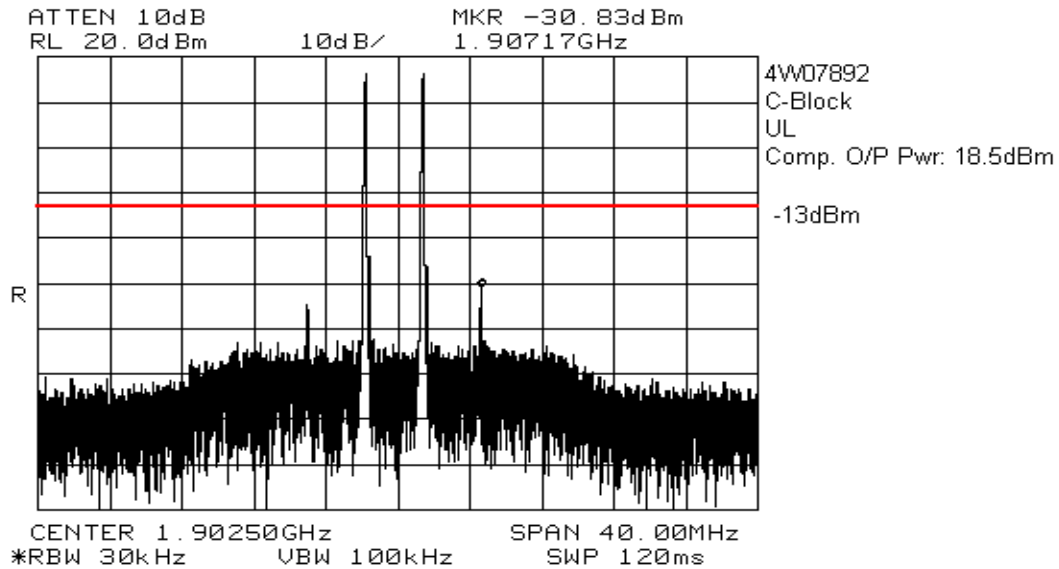
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EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
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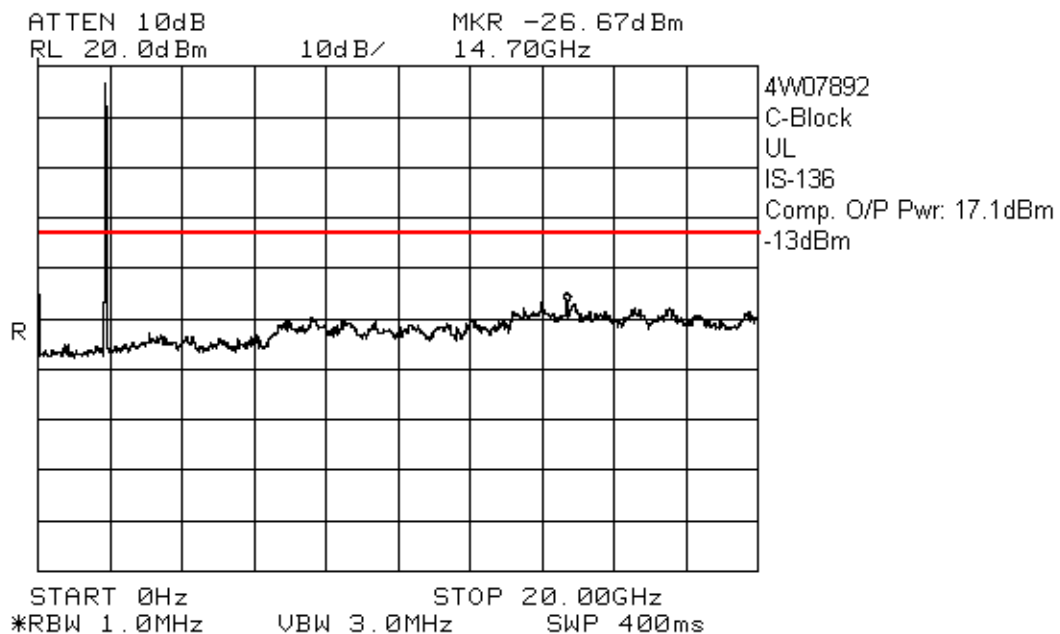
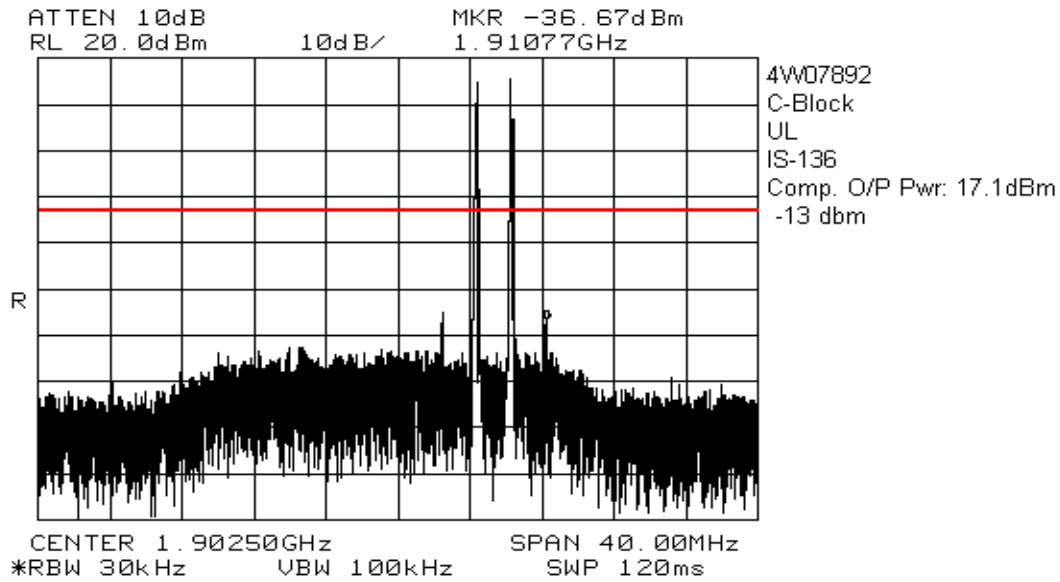
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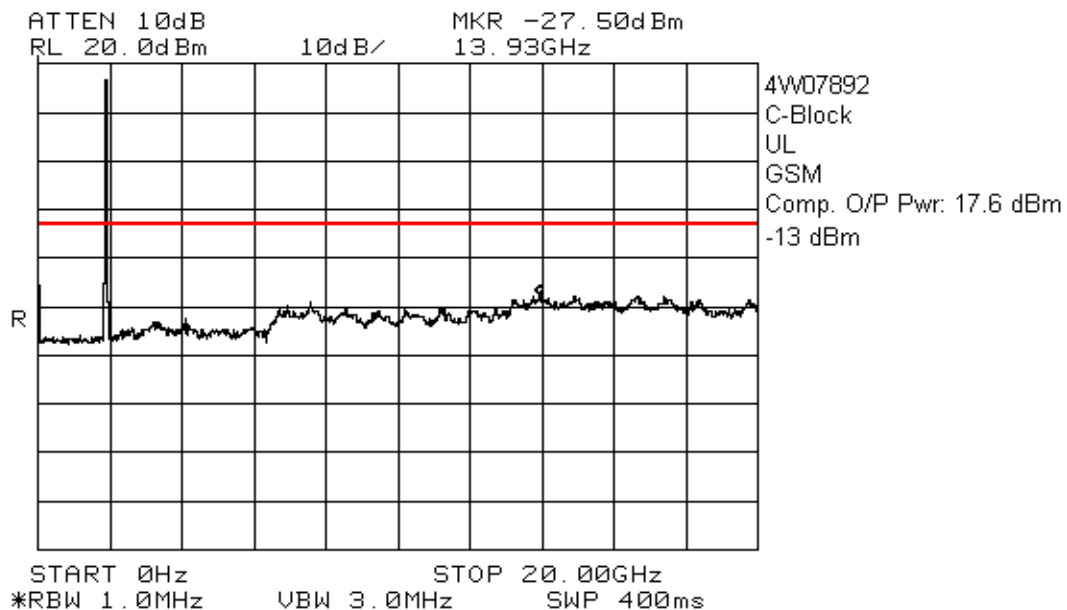
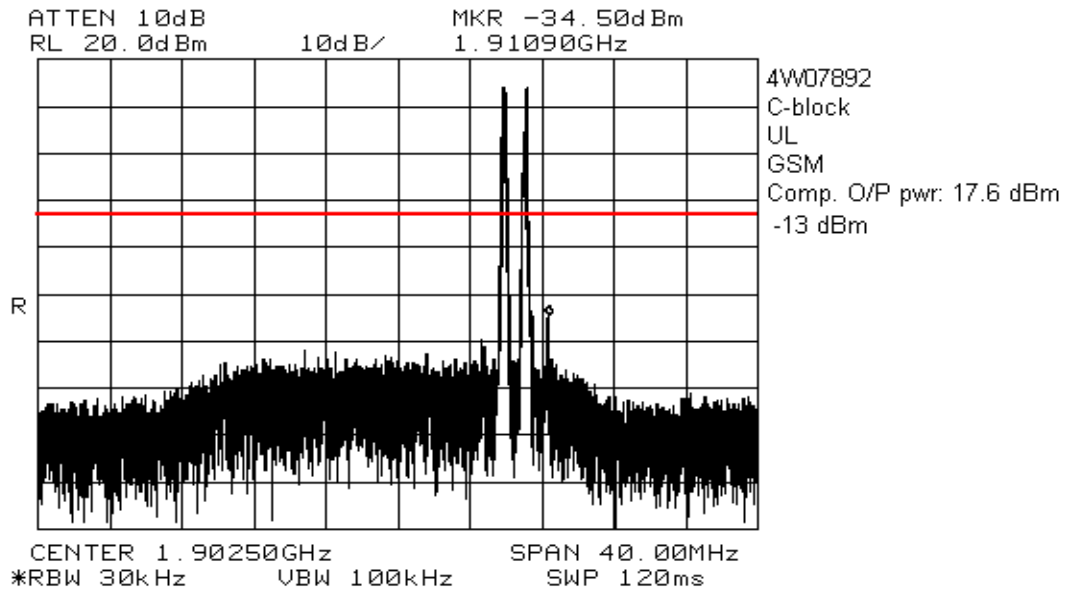
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IS – 136



EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
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GSM

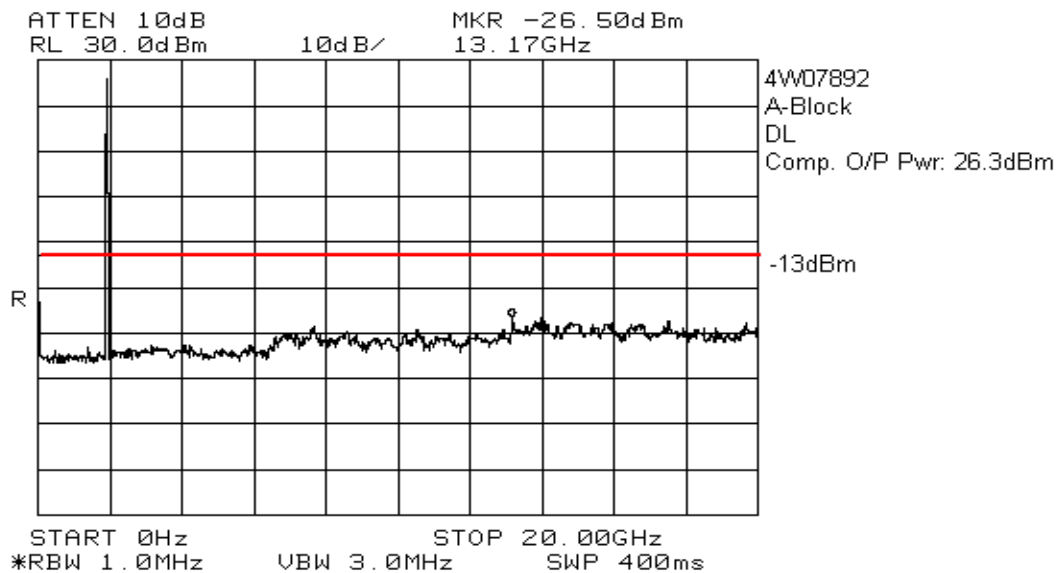
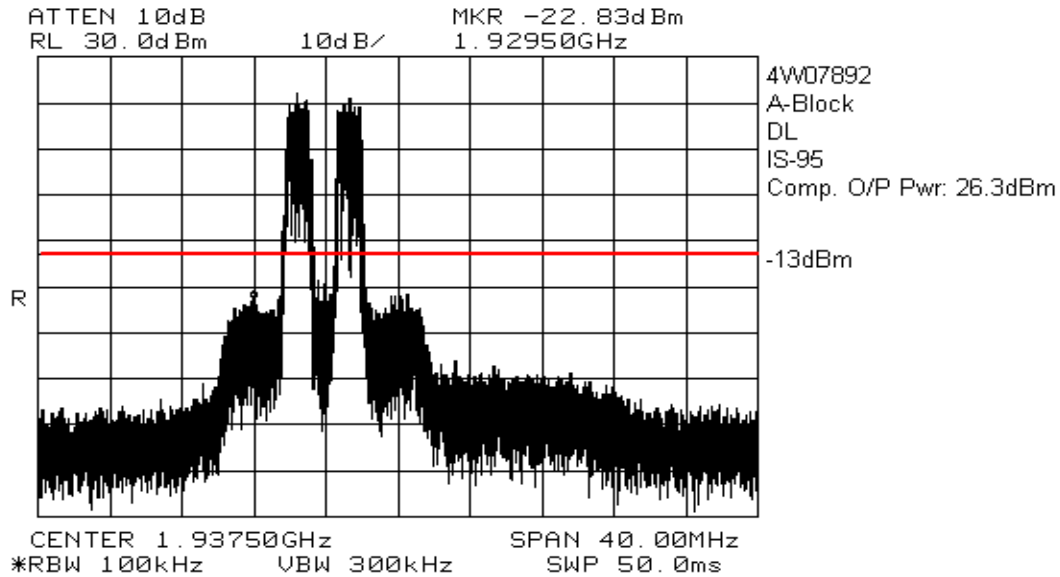


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Downlink

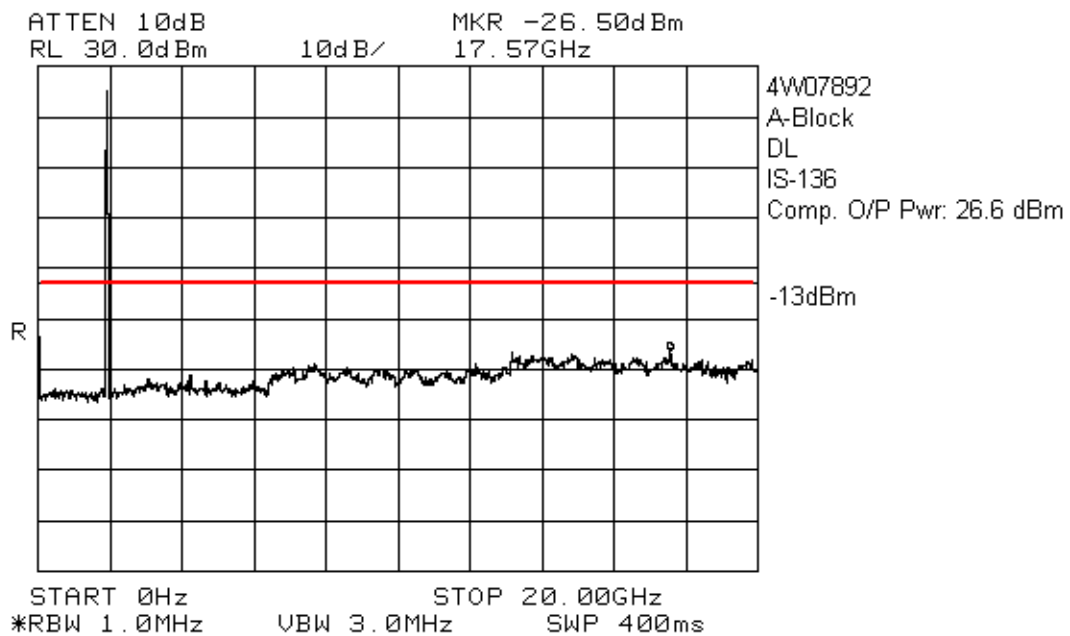
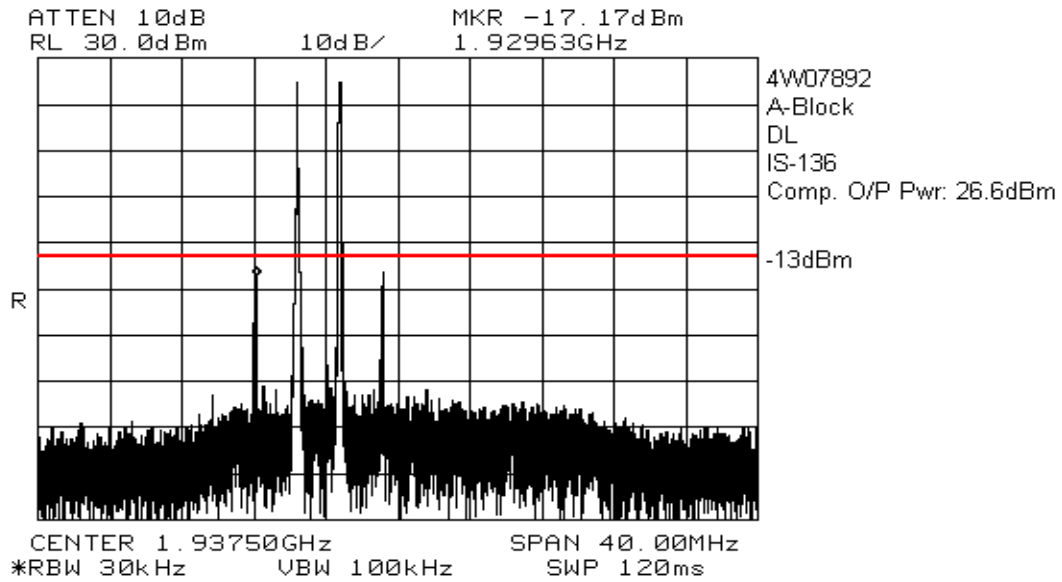
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IS - 95



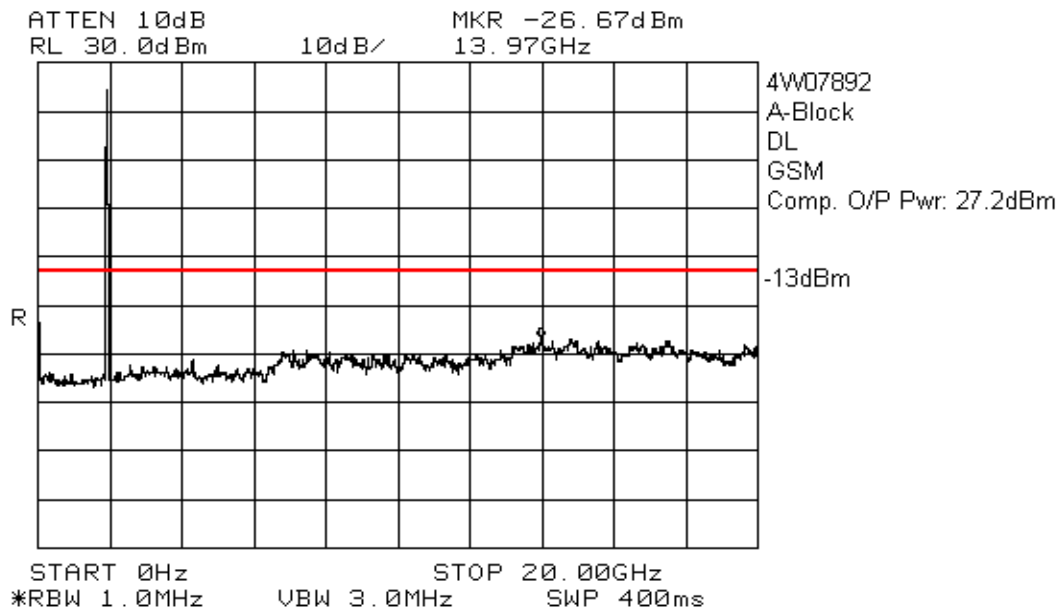
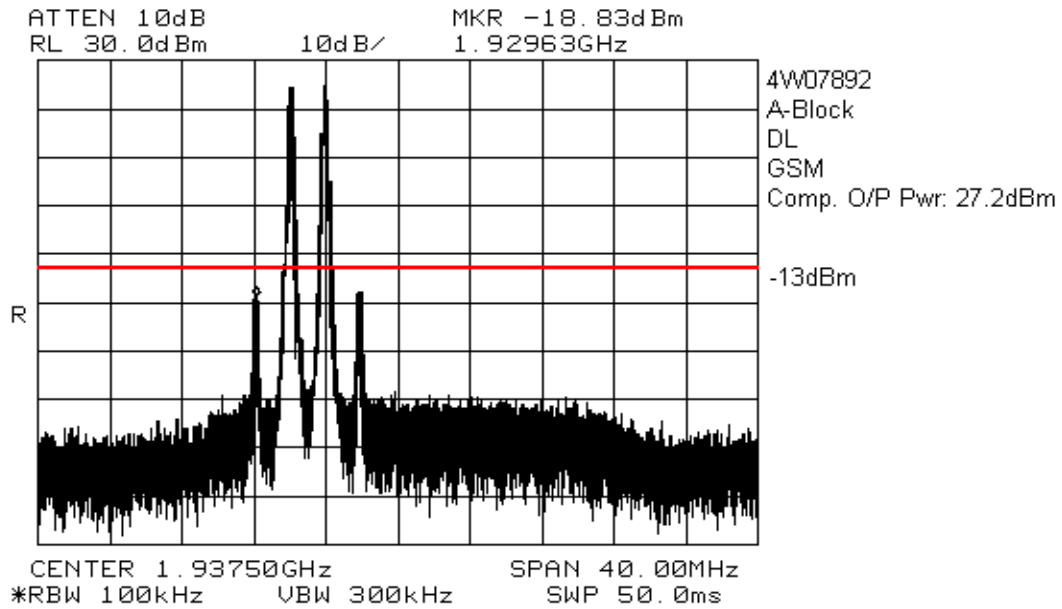
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IS – 136



EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
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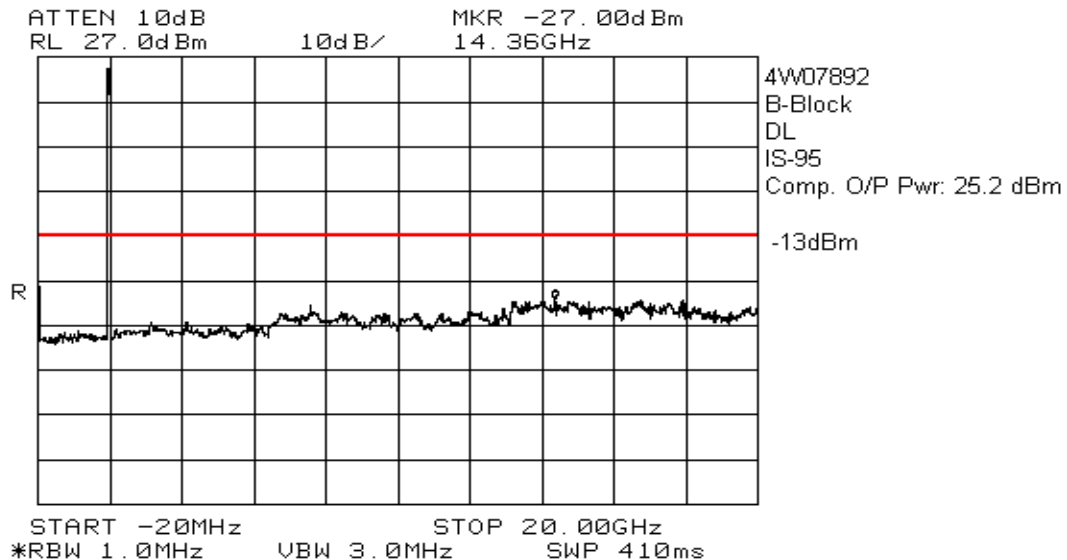
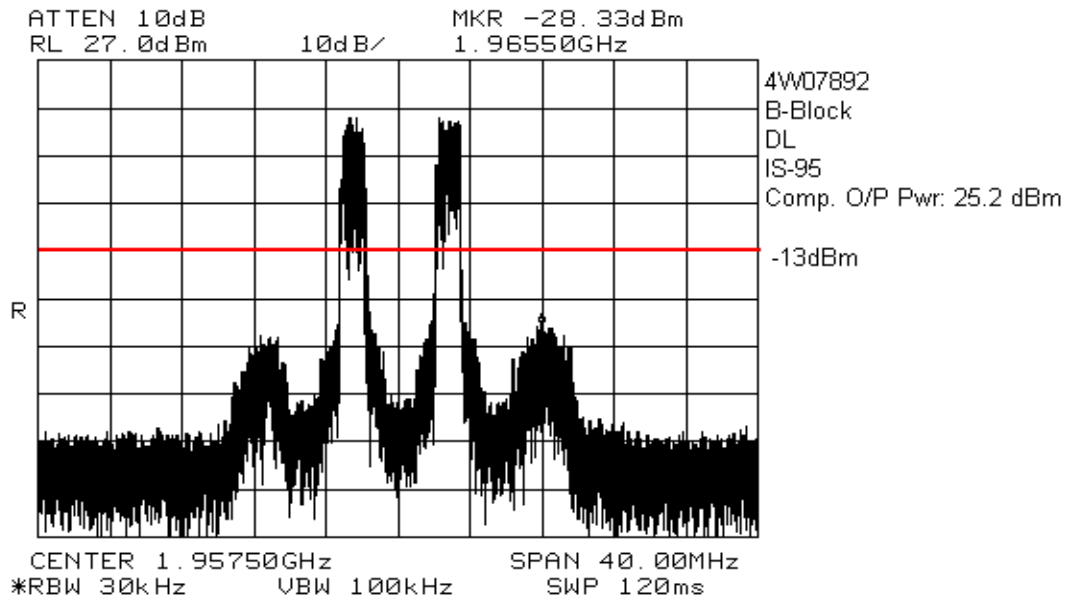
GSM



EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A

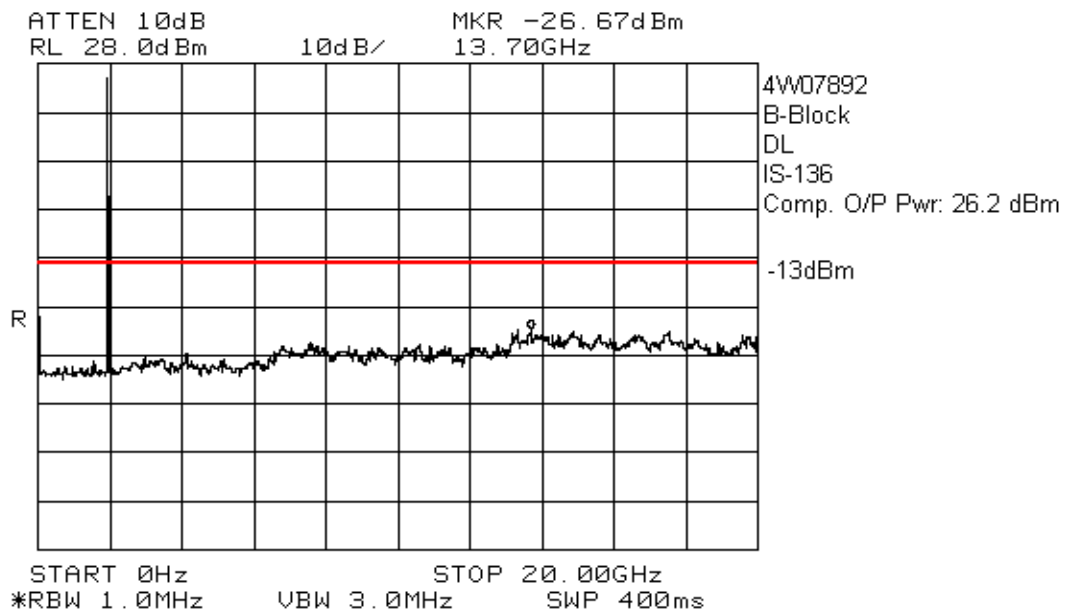
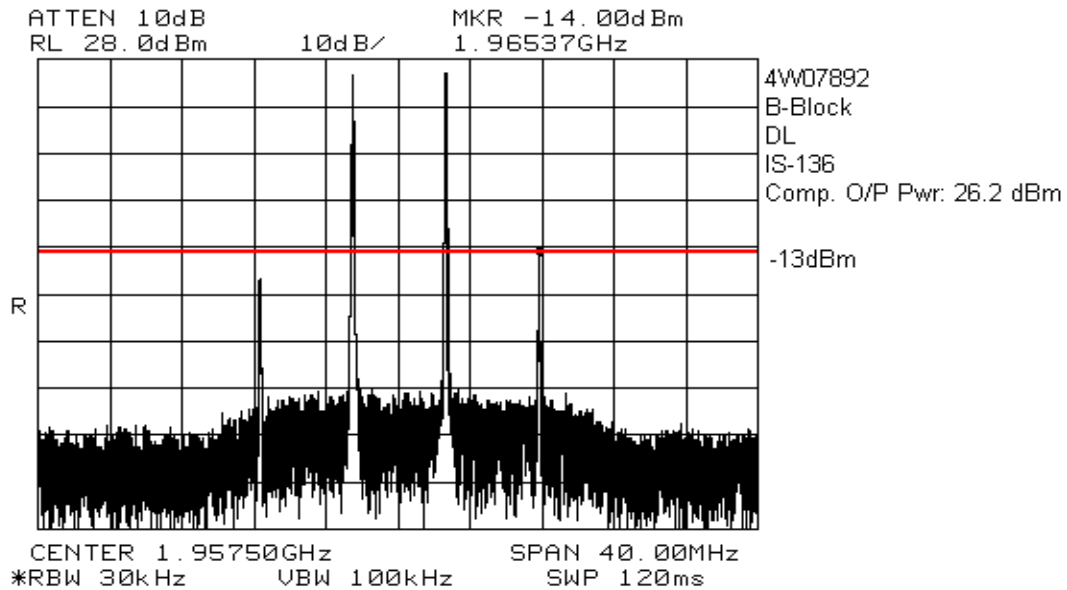
B-Block

IS – 95



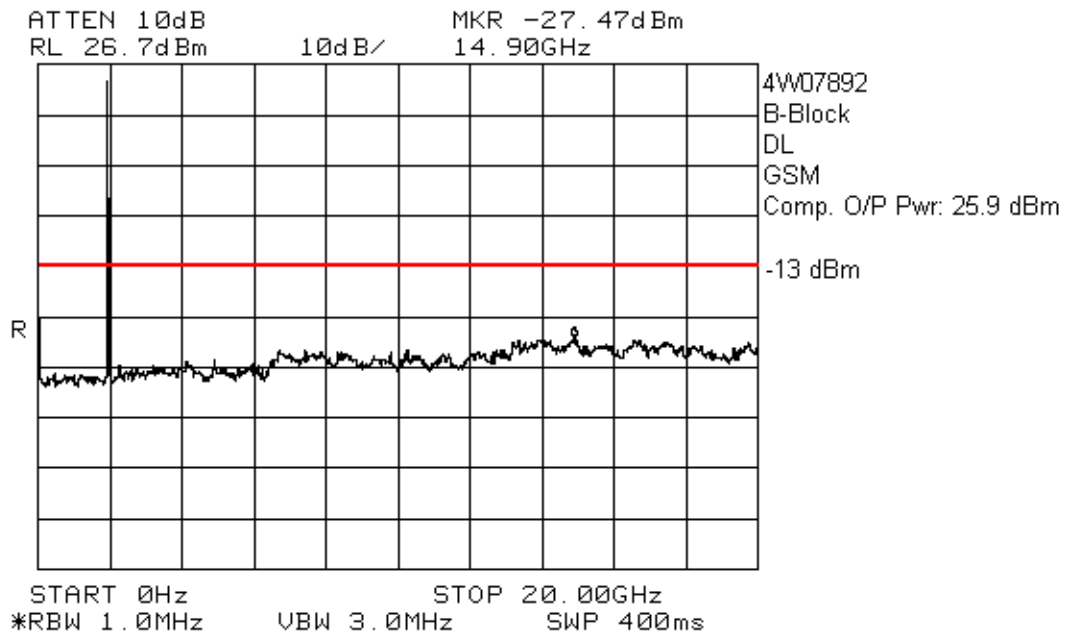
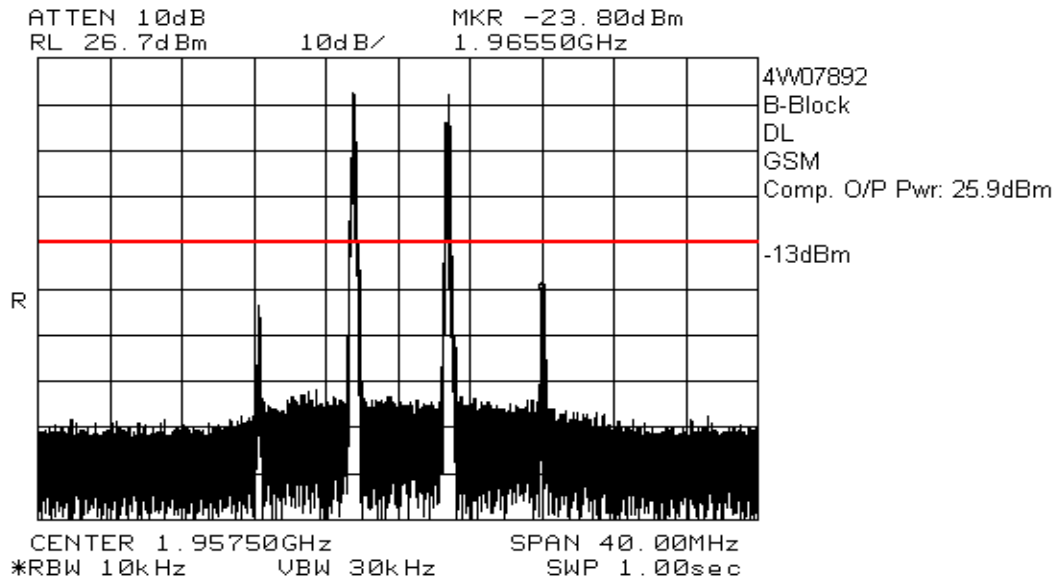
EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A

IS – 136



EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A

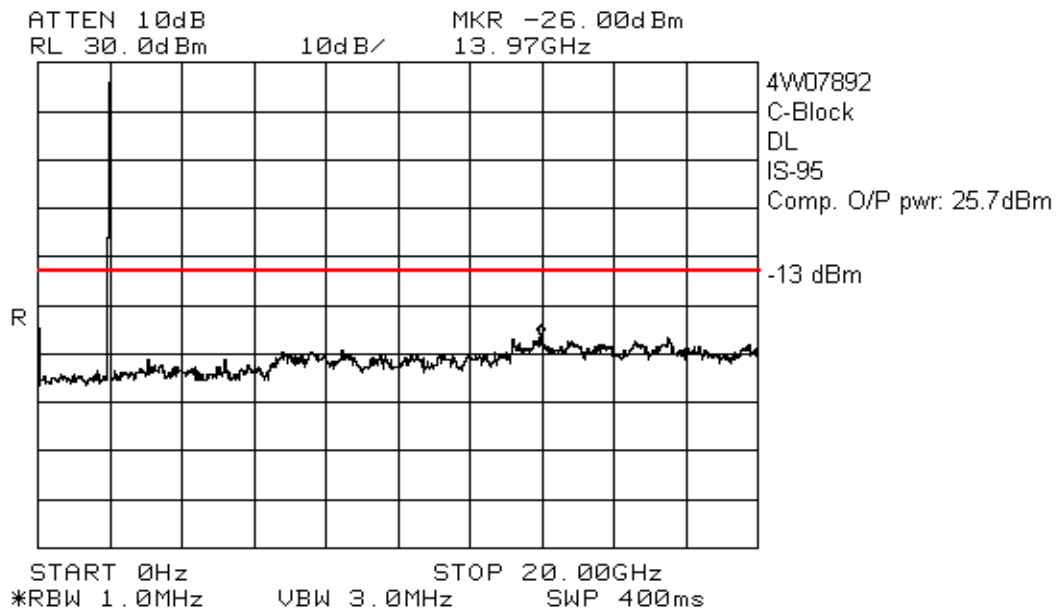
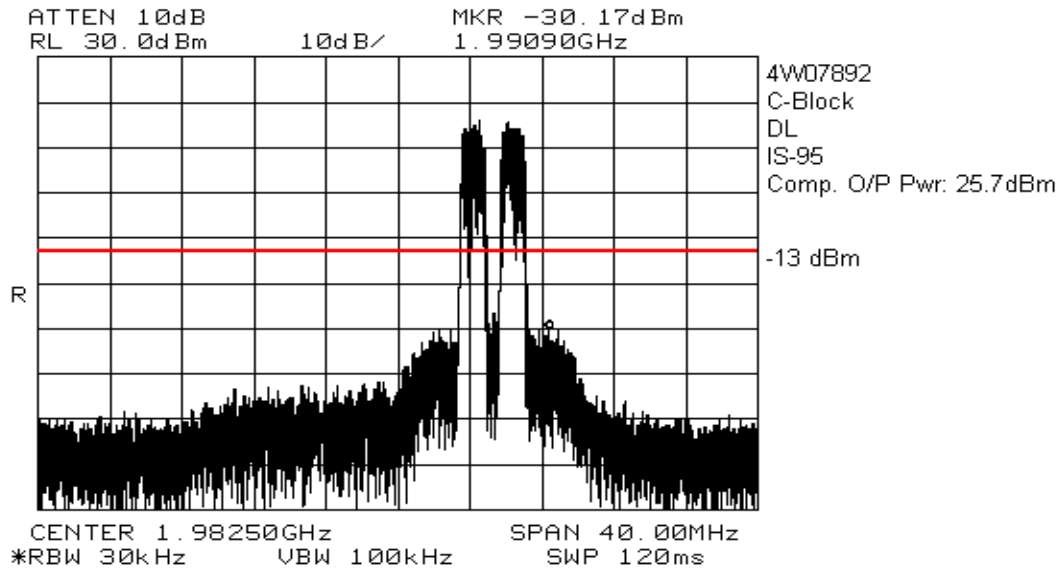
GSM



EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A

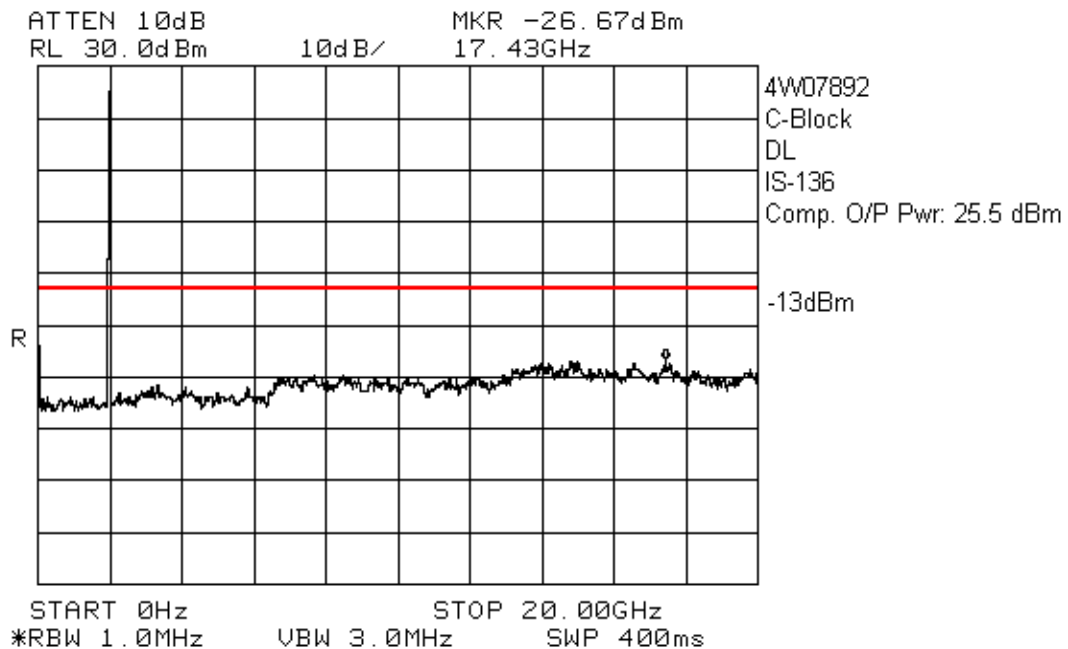
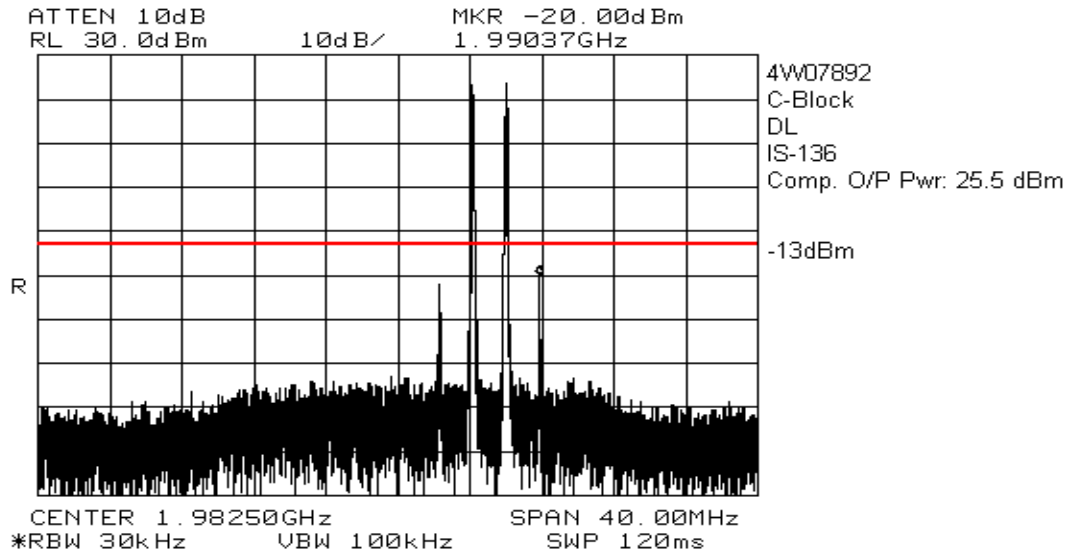
C-Block

IS - 95



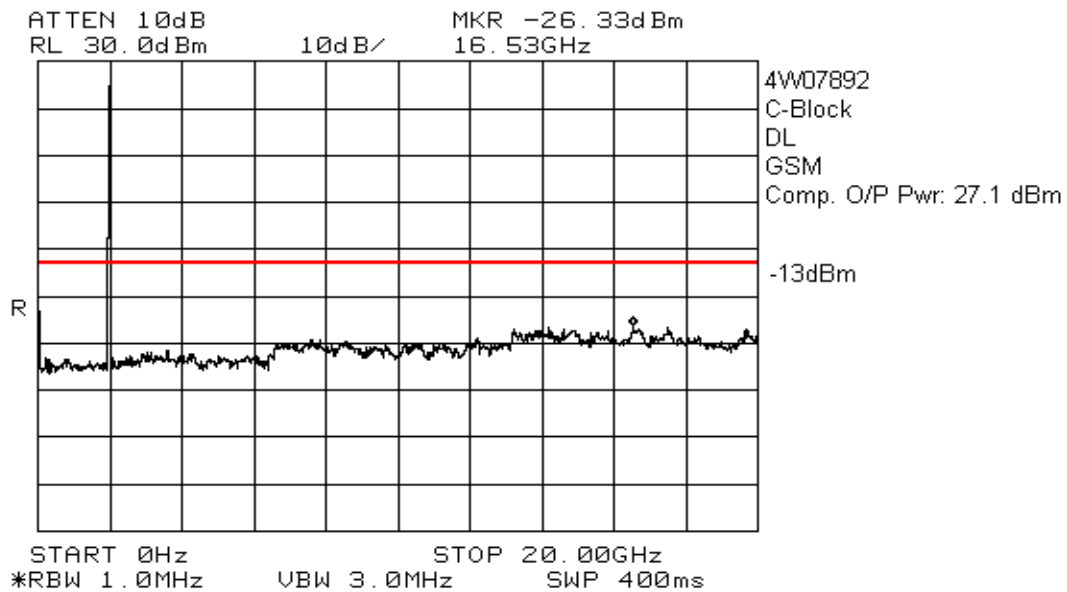
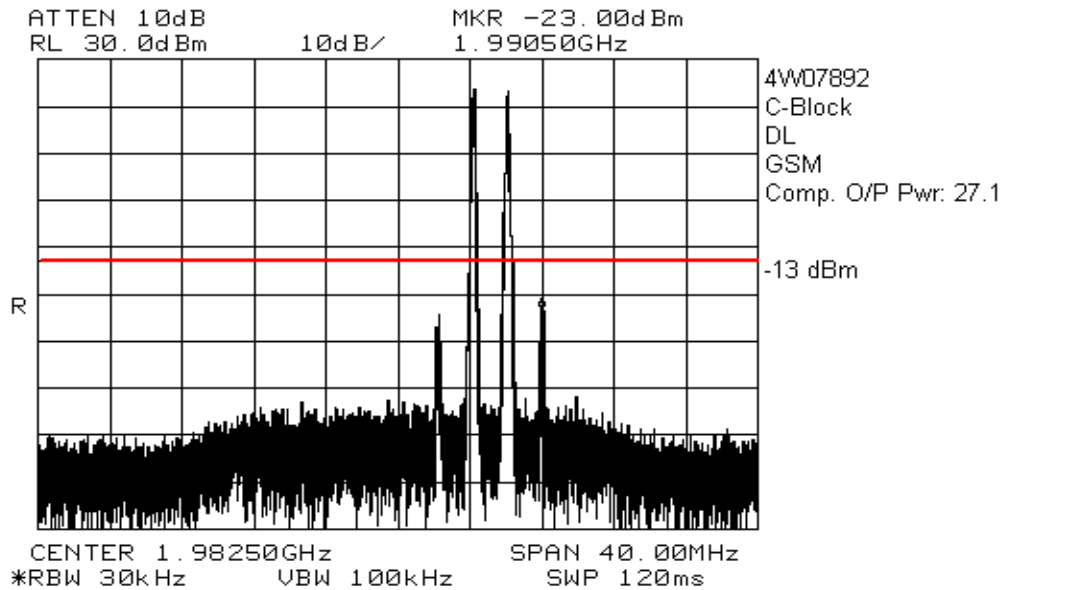
EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A

IS – 136



EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A

GSM



*EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A*

Section 6. Field Strength of Spurious

Para. No.: 2.1053

Test Performed By: Kevin Carr	Date of Test: 4 Mar. 2004
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Minimum Standard: Para. No.: 24.238.

Test Results: Complied

Test Data: See attached plots and chart. The EUT was searched up to the 10th
Harmonic. All emissions within 20 dB of the limit have been
reported

*EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A*

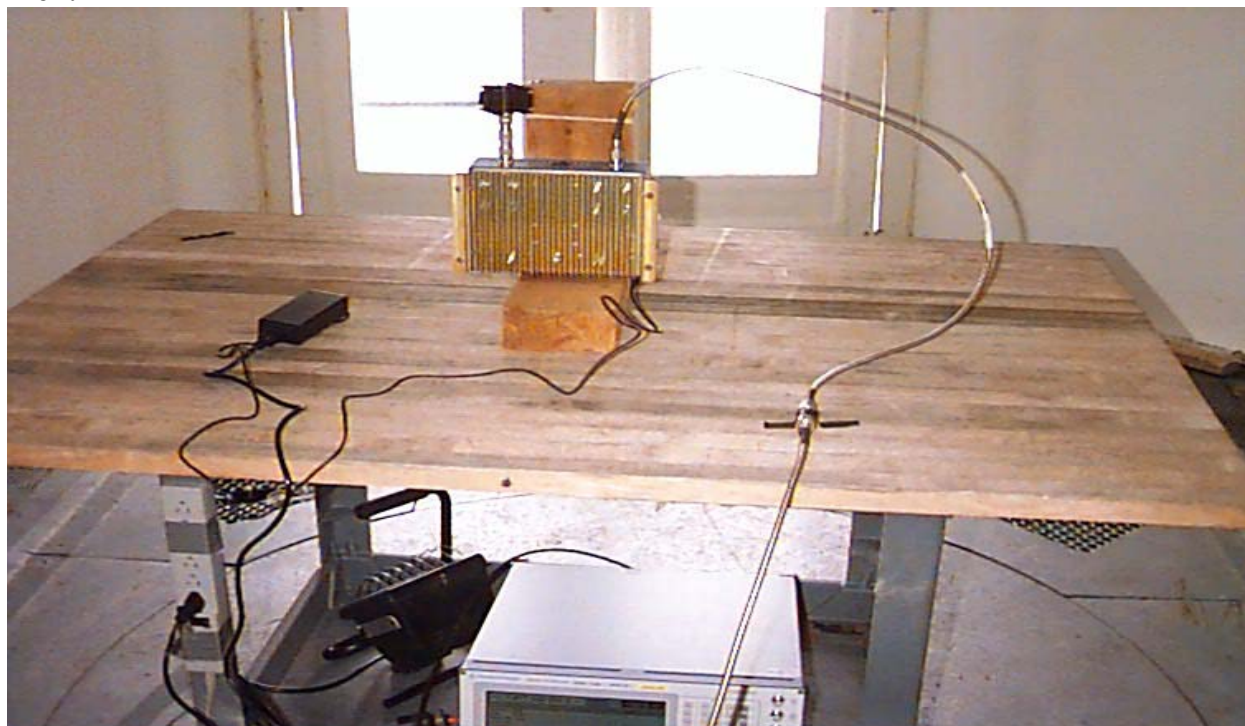
BDA-PCS/B-1/1W-80-B

Radiated Disturbance Test Data:

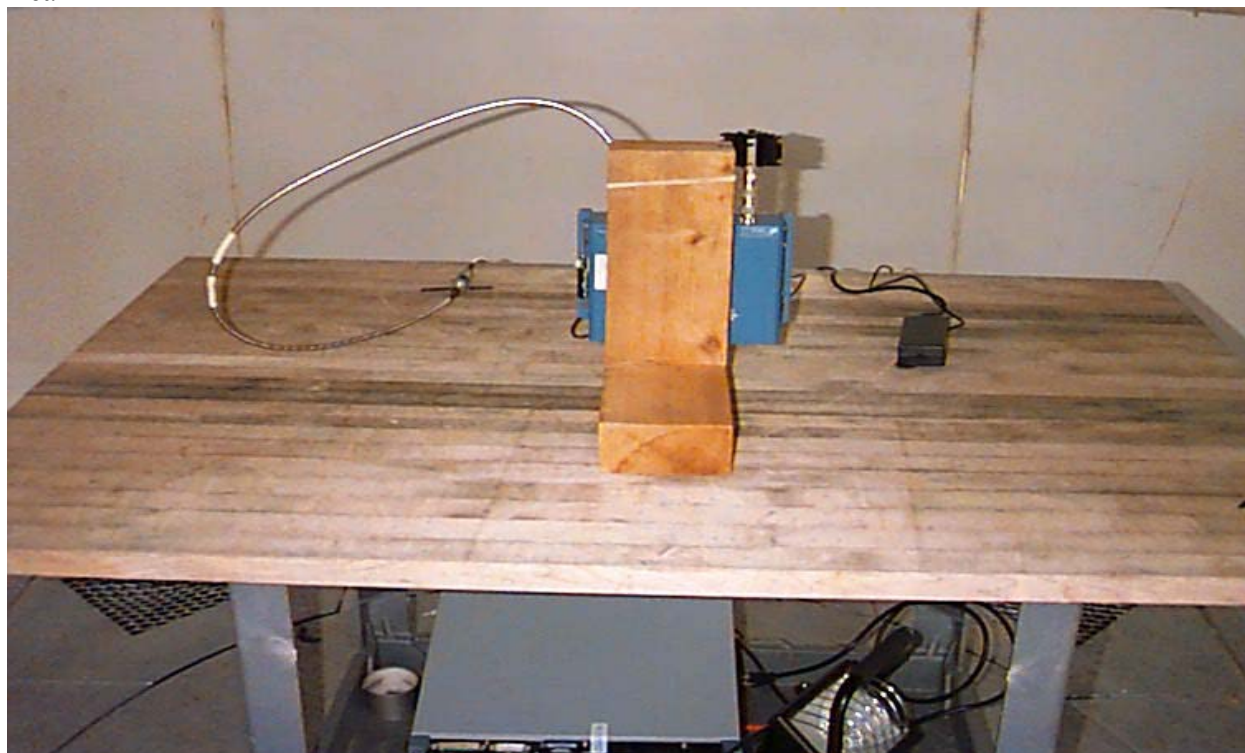
Test Date: 4 Mar. 2004									
Engineer's Name: Kevin Carr									
Temperature (C°): Indoor: 24 Outdoor: 3						Humidity %: Indoor: 13 Outdoor: 93			
Tested as per Table Top									
Test Distance (meters): 3						Range: 1			
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBμV)	Sig Sub. Factor (dB)	Signal Substitution Power (dBm)	Limit (dBm)	Margin (dB)	Detector	Amp.
3755.0000	Hrn2	V	58.0	-116.4	-58.4	-13.0	45.4	Peak	2 – 4 GHz
3755.0000	Hrn2	H	60.7	-119.5	-58.8	-13.0	45.8	Peak	2 – 4 GHz
5632.5000	Hrn2	V	54.0	-109.2	-55.2	-13.0	42.2	Peak	4 – 8 GHz
5632.5000	Hrn2	H	54.0	-107.3	-53.3	-13.0	40.3	Peak	4 – 8 GHz
7510.0000	Hrn2	V	56.0	-104.7	-48.7	-13.0	35.7	Peak	4 – 8 GHz
7510.0000	Hrn2	H	54.5	-104.0	-49.5	-13.0	36.5	Peak	4 – 8 GHz
3915.0000	Hrn2	V	59.0	-116.0	-57.0	-13.0	44.0	Peak	2 – 4 GHz
3915.0000	Hrn2	H	61.0	-117.9	-56.9	-13.0	43.9	Peak	2 – 4 GHz
5872.5000	Hrn2	V	55.2	-109.5	-54.3	-13.0	41.3	Peak	4 – 8 GHz
5872.5000	Hrn2	H	57.3	-107.1	-49.8	-13.0	36.8	Peak	4 – 8 GHz
7829.0000	Hrn2	V	56.0	-103.1	-47.1	-13.0	34.1	Peak	4 – 8 GHz
7829.0000	Hrn2	H	56.5	-104.2	-47.7	-13.0	34.7	Peak	4 – 8 GHz
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									

*EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A*

OAT's Set-Up Photo
Front



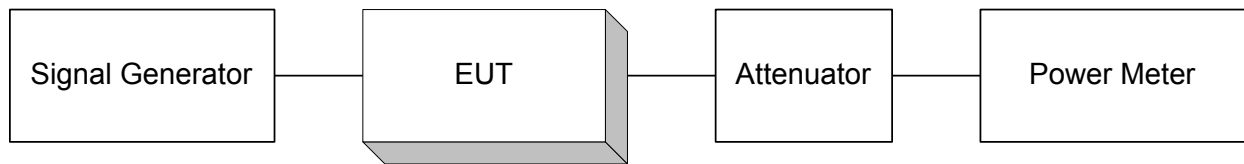
Rear



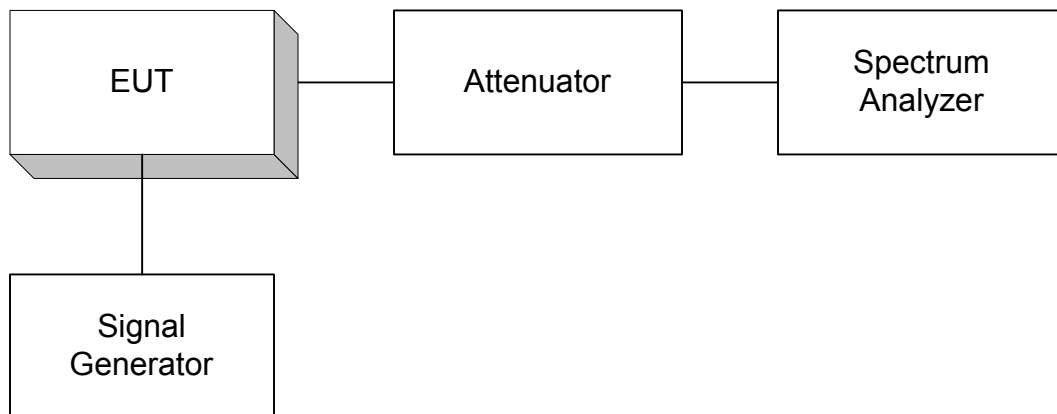
*EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A*

Section 7. Block Diagrams

Para. No. 1046 - R.F. Power Output

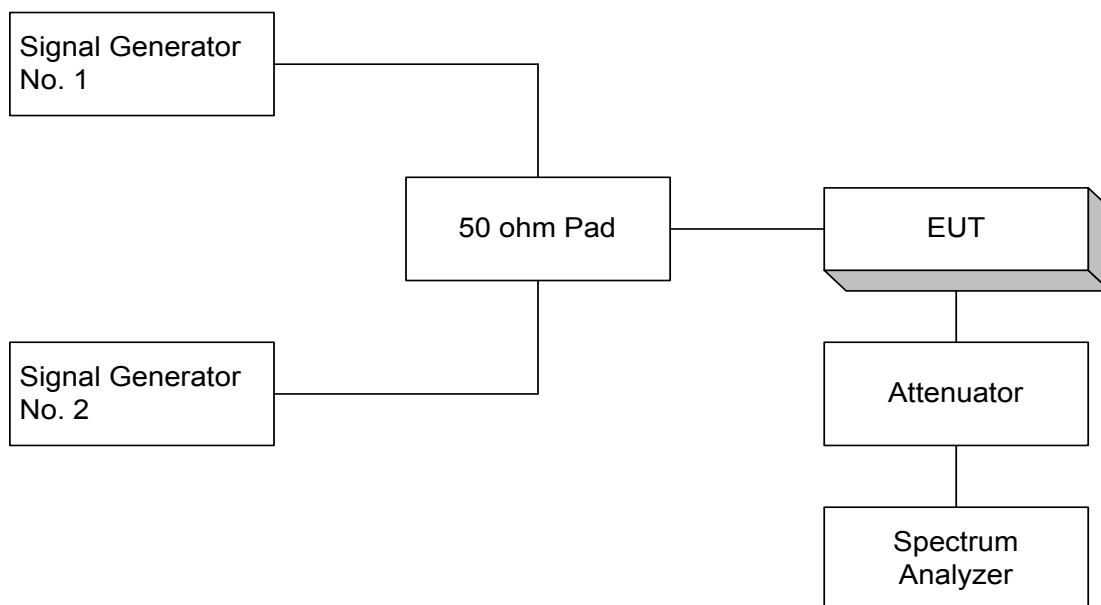
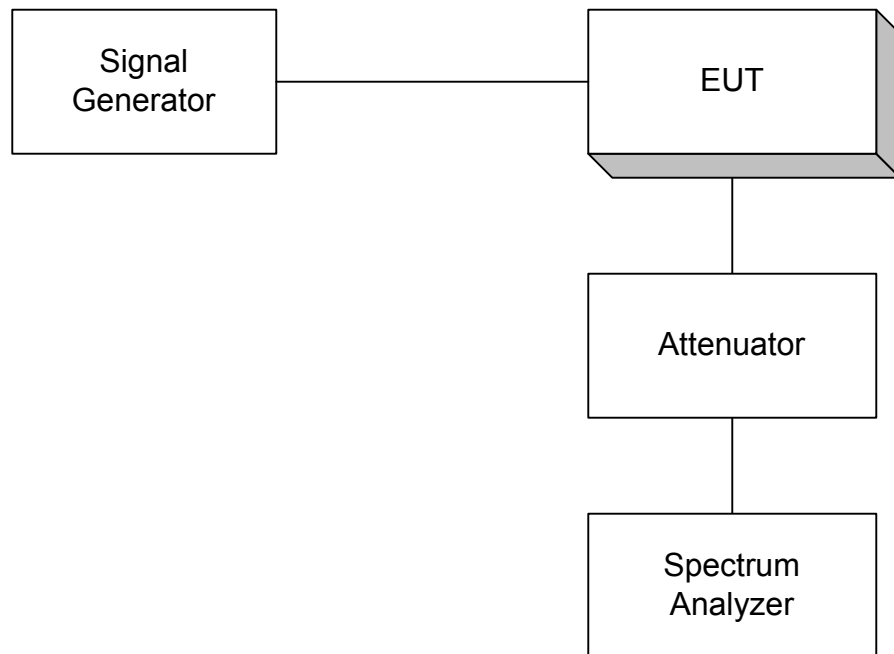


Para. No. 2.1049 - Occupied Bandwidth



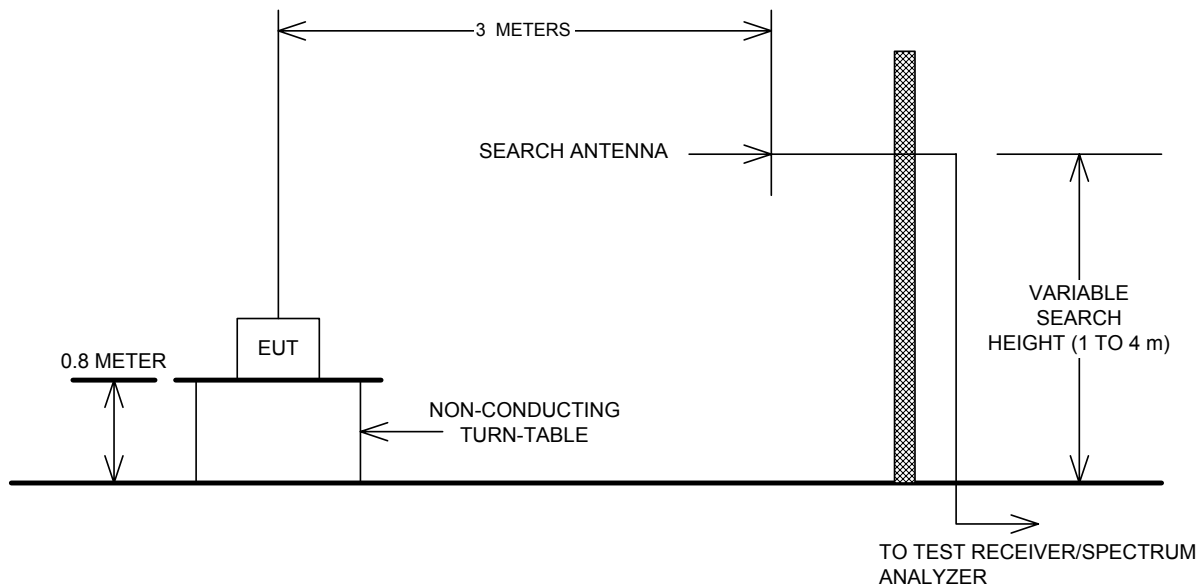
*EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A*

Para. No. 2.1051 - Spurious Emissions at Antenna Terminals



*EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A*

Para. No. 2.1053 - Field Strength of Spurious Radiation



EQUIPMENT: BDA-PCS/A-.5/2W-70-A, BDA-PCS/B-.5/2W-70-A, BDA-PCS/C-.5/2W-70-A,
BDA-PCS/D-.5/2W-70-A, BDA-PCS/E-.5/2W-70-A, BDA-PCS/F-.5/2W-70-A

Section 8. Test Equipment List

CAL Cycle	Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
1 Year	Spectrum Analyzer	Hewlett-Packard	8565E	FA000981	July. 03/03	July. 03/04
1 Year	Horn Antenna #2	EMCO	3115	FA000825	Dec. 10/03	Dec. 10/04
1 Year	Horn 18 – 40 GHz	Electro-Metrics	3116	FA001847	Jan. 19/04	Jan. 19/05
1 Year	1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	June. 18/03	June. 18/04
1 Year	2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	June. 18/03	June. 18/04
1 Year	4.0 – 8.0 GHz Amplifier	JCA	48-600	FA001497	June. 18/03	June. 18/04
3 Year	Signal Generator	Rohde & Schwarz	SMIQ03	FA001091	Sept. 25/03	Sept. 25/06
1 Year	Signal Generator	Rohde & Schwarz	SMIQ03E	FA001269	Jan. 09/04	Jan. 09/05
COU	Coupler	Mini-Circuits	15542	FA001155	COU	COU
COU	Isolator	Narda	1530-10W	FA001585	COU	COU
COU	Isolator	Narda	1530-10W	FA001586	COU	COU
COU	Attn	Weinschel Corp.	47-10-34	FA001740	COU	COU
COU	Attn	Narda	769-20	FA001394	COU	COU
COU	5.0 – 18.0 GHz Amplifier	NARDA	DWT-186N23U40	FA001409	COU	COU
COU	18.0 – 26.0 GHz Amplifier	NARDA	BBS-1826N612	FA001550	COU	COU
Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use, OUT = Out For CAL/Repair						