Test Report:	3W07175
Applicant:	Dekolink Wireless Ltd. 16 Bazel St. Qiryat-Arieh Petah-Tikva, Israel, 49510
Equipment Under Test: (EUT)	MW-CBDA-SMR-1W80-PS9
In Accordance With:	**FCC Part 90, Subpart I** Private Land Mobile Repeater
Tested By:	Nemko Canada Inc. 303 River Road, R.R. 5 Ottawa, Ontario K1V 1H2
Authorized By:	 Glen Westwell, Wireless Technologist
Date:	9 June 2003
Total Number of Pages:	30

Table of Contents

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

A	M	P	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: 9 June 2003
Kevin Carr, EMC Specialist

Summary Of Test Data

Name Of Test	Para. No.	Result
RF Power Output	2.1046	Complied
Occupied Bandwidth	2.1409	Complied
Spurious Emissions at Antenna Terminals	2.15051	Complied
Field Strength of Spurious Emissions	2.1053	Complied
Frequency Stability	2.1055	N/A

Footnotes For N/A's:
The EUT is a f1-f1 amplifier, therefore frequency stability was not performed.

Deviation:
A QAM signal was substituted for Iden Modulation

Test Conditions:

Indoor	Temperature:	22°C
	Humidity:	37%
Outdoor	Temperature:	17°C
	Humidity:	65%

.

Section 2. General Equipment Specification

Manufacturer:	Dekolink Wireless Ltd.
Model No.:	MW-CBDA-SMR-1W80-PS9
Serial No.:	03051240
Date Received In Laboratory:	2 June 2003
Nemko Identification No.:	1
Supply Voltage Input:	120VAC, 60Hz
Frequency Range:	DL: 935 – 941 MHz UL: 896 – 902 MHz
RF Power Output (rated):	DL And UL : 24.0 dBm,
RF Power Output (Measured):	DL And UL: 24.0 dBm
Emission Designator:	F3E, F1D, F1E, GXW

Section 3. RF Power Output

Para. No.: 2.1046

Test Performed By: Kevin Carr	**Date of Test: 2 June 2003**

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

Test Results: Complied. The maximum RF output power is within ± 1dB of the manufacturer's rating. The RF output power is de-rated according to the number of channels via AGC and is equal to Pmax – 10LogN.

Pmax = Maximum RF Output Power
N = Number Of Channels

Measurement Data:

Frequency (MHz)	Measured Power (dBm)	Rated Power (dBm)	Measured Rated (dB)
899.0	24.0	24.0	0.0
938.0	24.0	24.0	0.0

Section 4. Occupied Bandwidth

Para. No.: 2.1049

Test Performed By: Kevin Carr	**Date of Test: 3 June 2003**

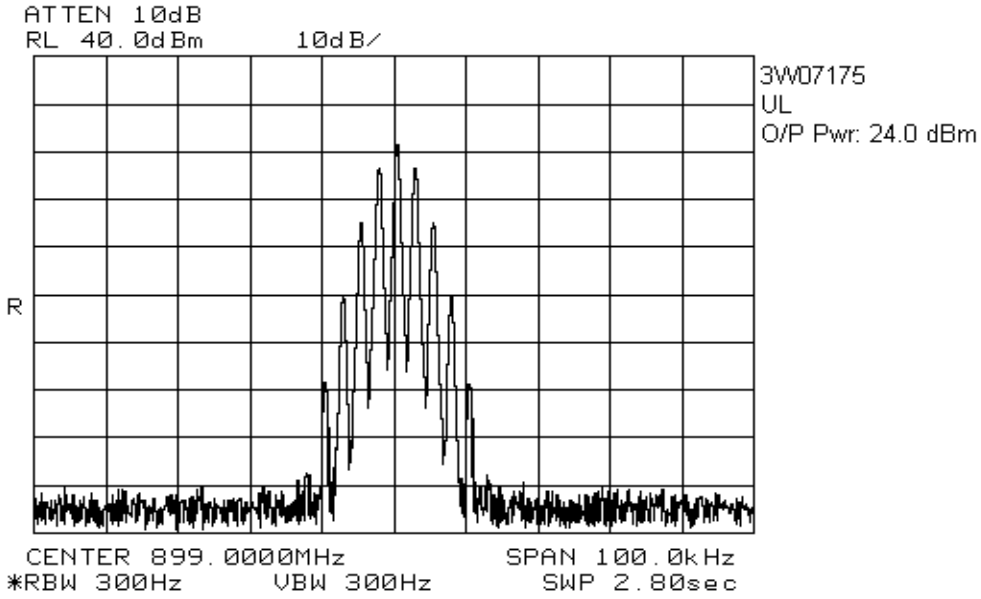
Minimum Standard: Para. No. 90.210

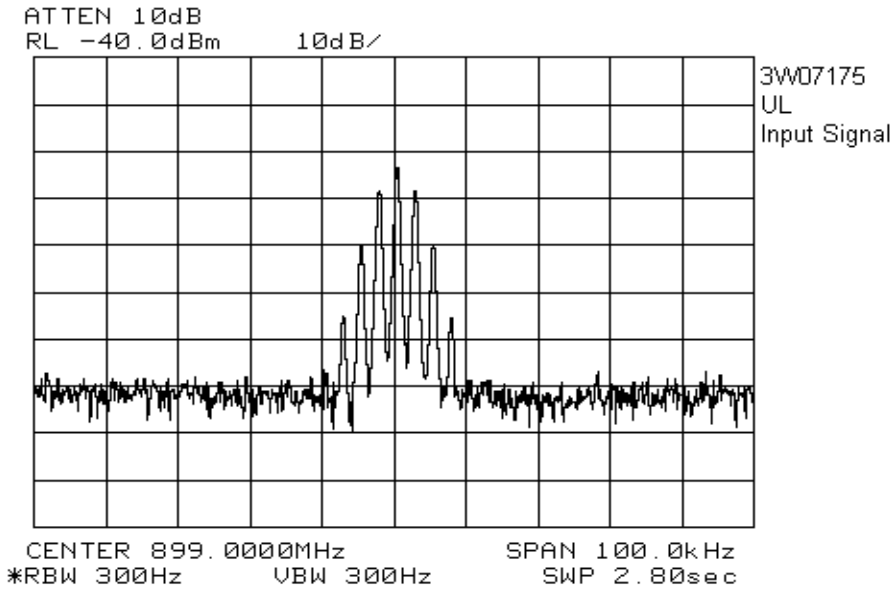
Test Results: Complies.

Measurement Data: See attached graphs.

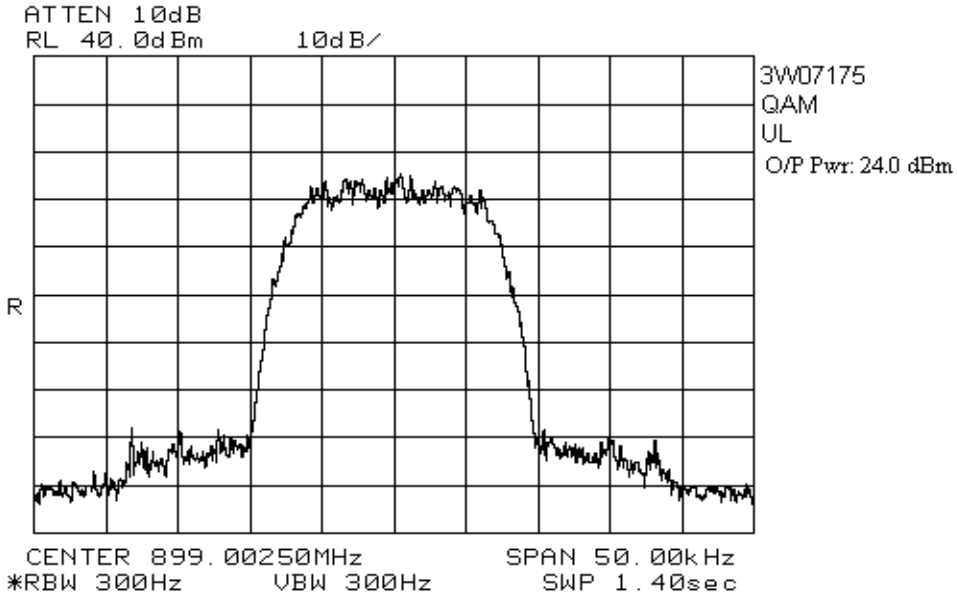
The occupied bandwidth was measured by comparison of input to the output signal. This was done in order to determine if there was any degradation to the output signal due to the amplification through the repeater.

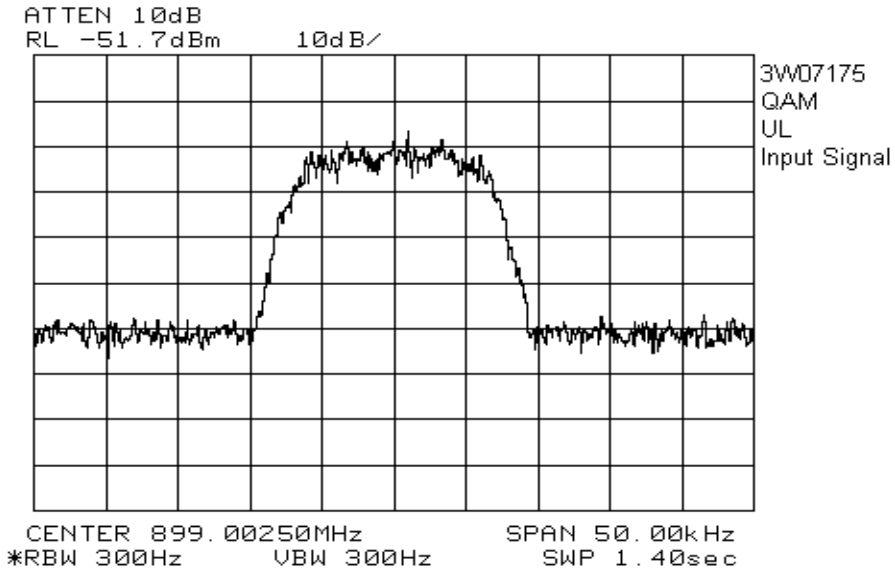
Uplink, F3E

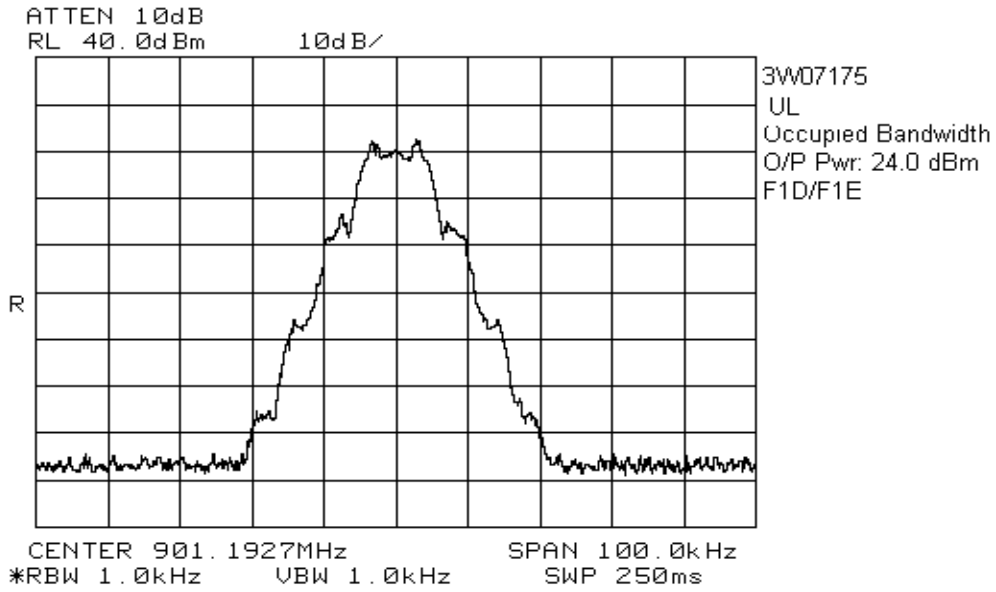

ATTEN 10dB
RL 40.0dBm
10dB/
3W07175
UL
O/P Pwr: 24.0 dBm
R
CENTER 899.0000MHz
SPAN 100.0kHz
*RBW 300Hz
VBW 300Hz
SWP 2.80sec

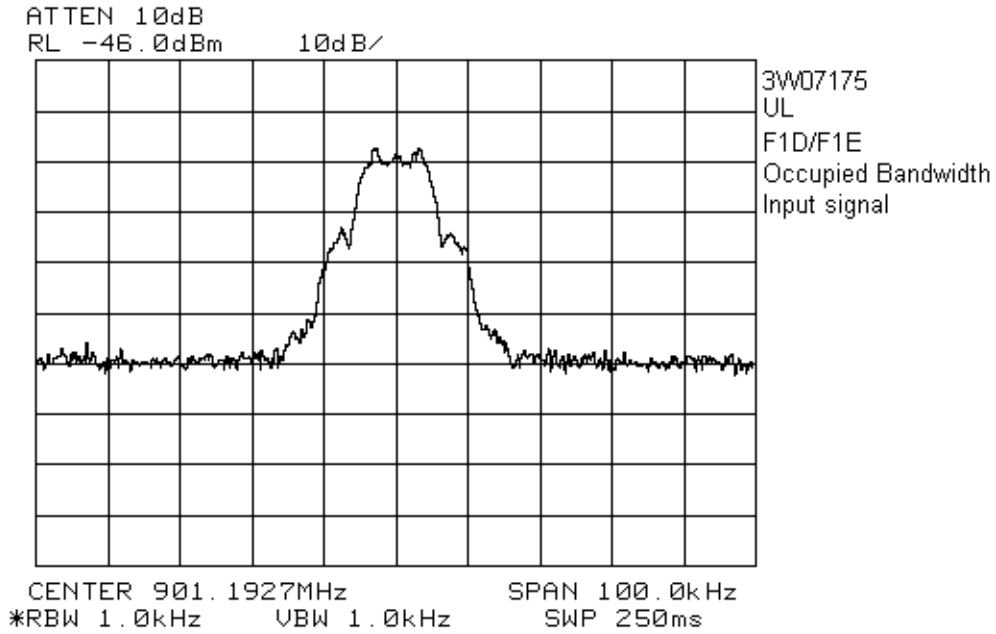

ATTEN 10dB
RL -40.0dBm
10dB/
3W07175
UL
Input Signal
CENTER 899.0000MHz
SPAN 100.0kHz
*RBW 300Hz
VBW 300Hz
SWP 2.80sec

Uplink

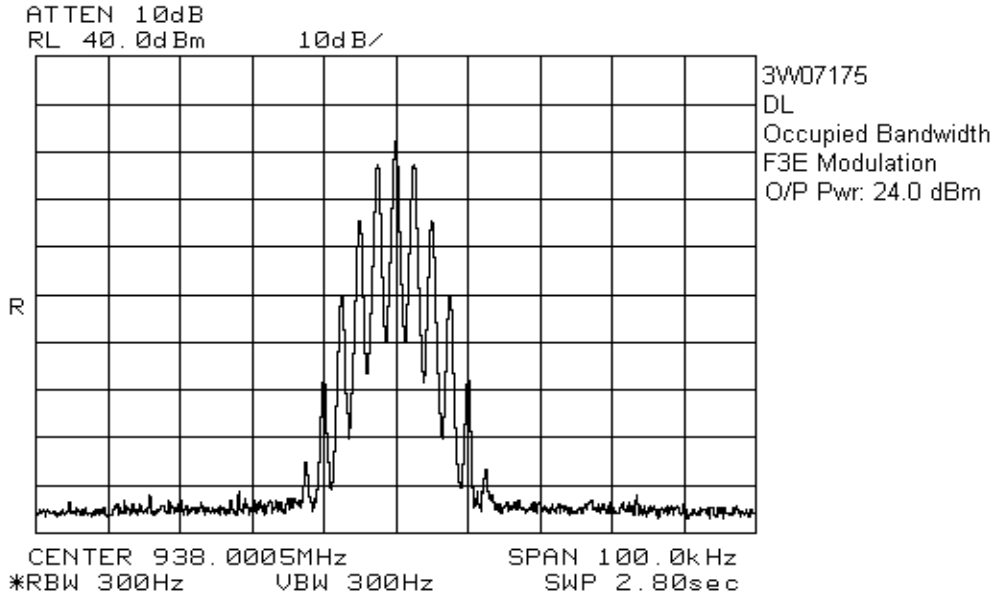

ATTEN 10dB
RL 40.0dBm
10dB/
3W07175
QAM
UL
O/P Pwr: 24.0 dBm
R
CENTER 899.00250MHz
SPAN 50.00kHz
*RBW 300Hz
VBW 300Hz
SWP 1.40sec

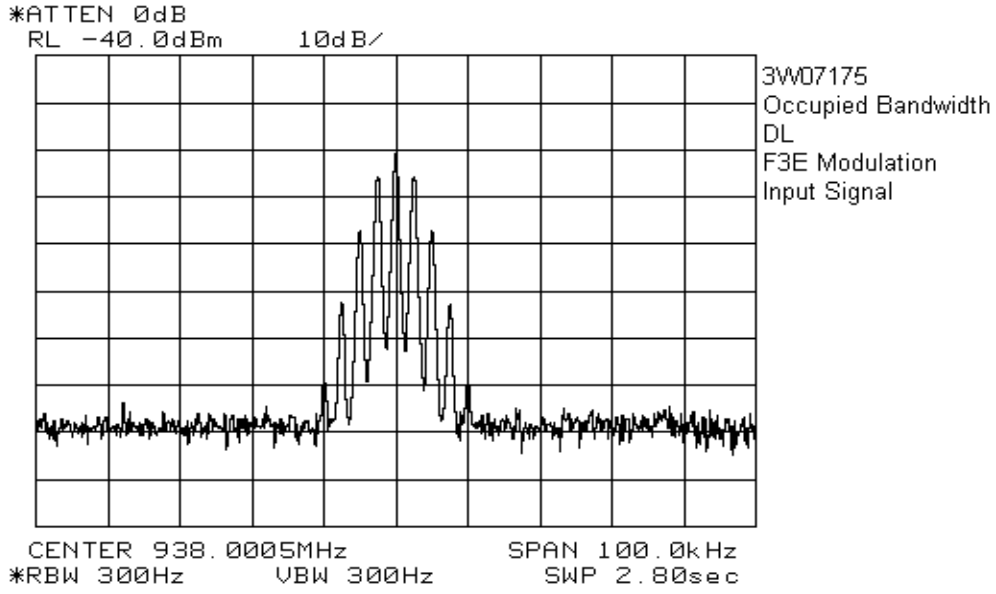

ATTEN 10dB
RL -51.7dBm
10dB/
3W07175
QAM
UL
Input Signal
CENTER 899.00250MHz
SPAN 50.00kHz
*RBW 300Hz
VBW 300Hz
SWP 1.40sec

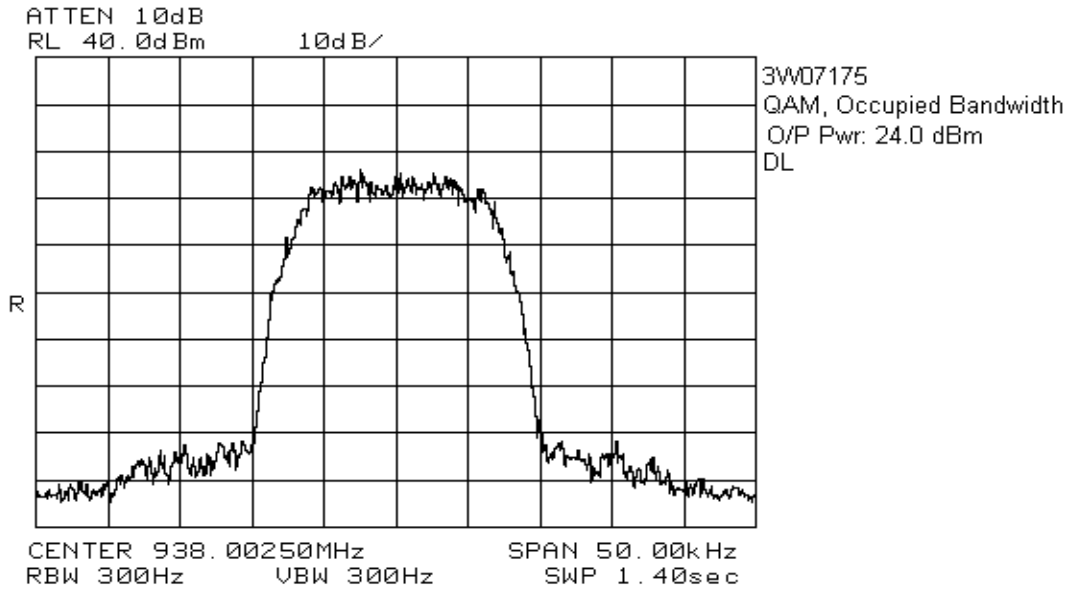

ATTEN 10dB
RL 40.0dBm
10dB/
R
3W07175
UL
Occupied Bandwidth
O/P Pwr: 24.0 dBm
F1D/F1E
CENTER 901.1927MHz
SPAN 100.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 250ms

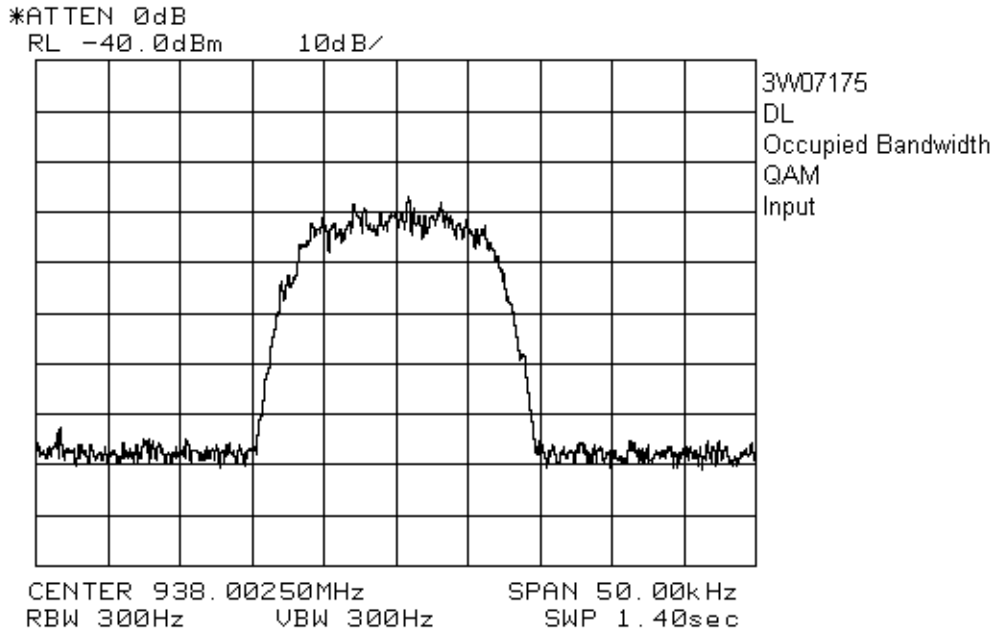

ATTEN 10dB
RL -46.0dBm
10dB/
3W07175
UL
F1D/F1E
Occupied Bandwidth
Input signal
CENTER 901.1927MHz
SPAN 100.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 250ms

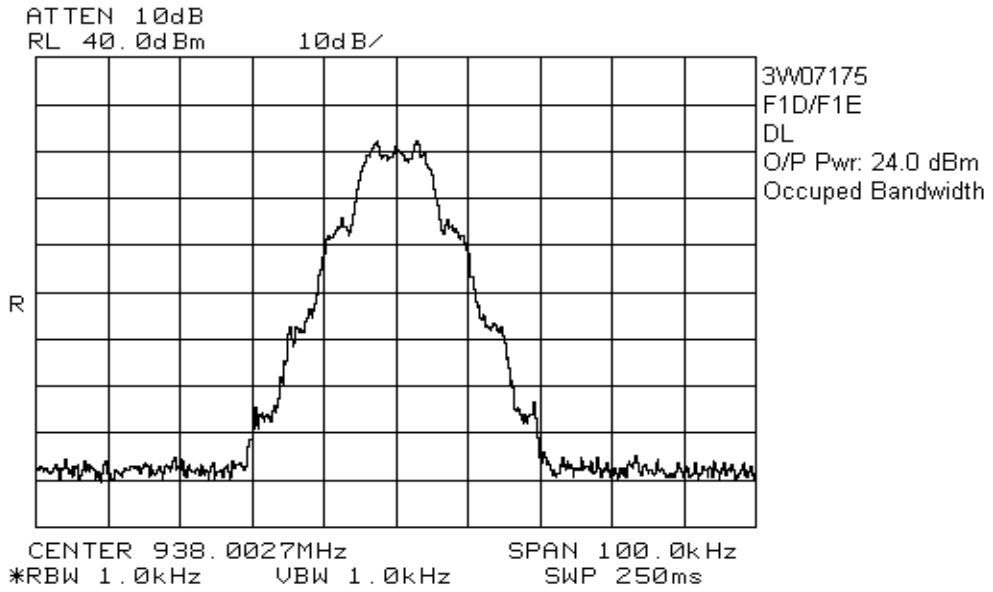
Downlink

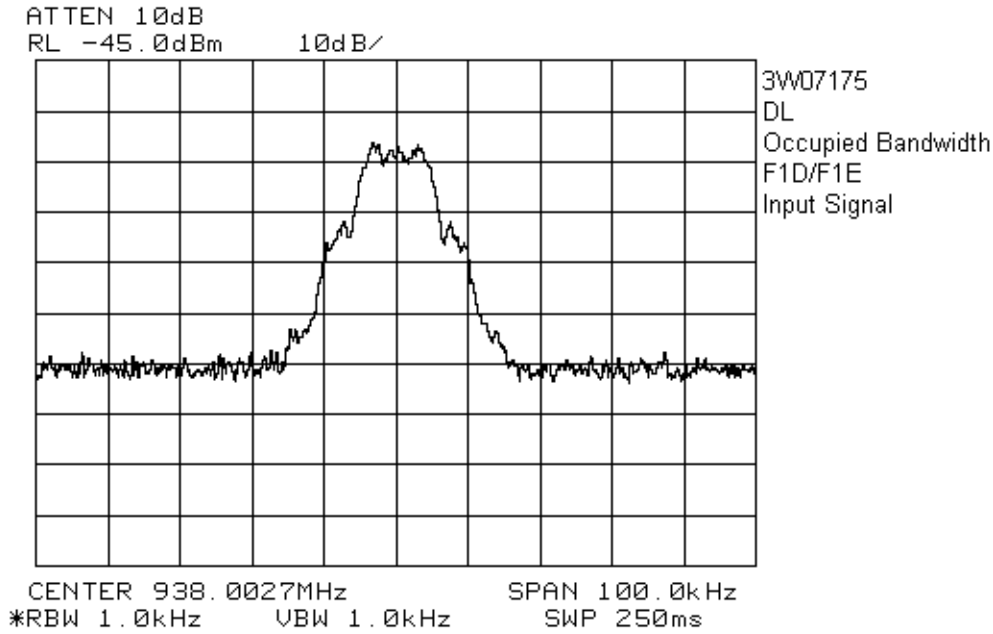

ATTEN 10dB
RL 40.0dBm
10dB/
R
3W07175
DL
Occupied Bandwidth
F3E Modulation
O/P Pwr: 24.0 dBm
CENTER 938.0005MHz
SPAN 100.0kHz
*RBW 300Hz
VBW 300Hz
SWP 2.80sec


*ATTEN 0dB
RL -40.0dBm
10dB/
3W07175
Occupied Bandwidth
DL
F3E Modulation
Input Signal
CENTER 938.0005MHz
SPAN 100.0kHz
*RBW 300Hz
VBW 300Hz
SWP 2.80sec


ATTEN 10dB
RL 40.0dBm
10dB/
R
3W07175
QAM, Occupied Bandwidth
O/P Pwr: 24.0 dBm
DL
CENTER 938.00250MHz
SPAN 50.00kHz
RBW 300Hz
VBW 300Hz
SWP 1.40sec


*ATTEN 0dB
RL -40.0dBm
10dB/
3W07175
DL
Occupied Bandwidth
QAM
Input
CENTER 938.00250MHz
SPAN 50.00kHz
RBW 300Hz
VBW 300Hz
SWP 1.40sec


ATTEN 10dB
RL 40.0dBm
10dB/
R
3W07175
F1D/F1E
DL
O/P Pwr: 24.0 dBm
Occuped Bandwidth
CENTER 938.0027MHz
SPAN 100.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 250ms


ATTEN 10dB
RL -45.0dBm
10dB/
3W07175
DL
Occupied Bandwidth
F1D/F1E
Input Signal
CENTER 938.0027MHz
SPAN 100.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 250ms

Section 5. Spurious Emissions at Antenna Terminals

Para. No.: 2.1051

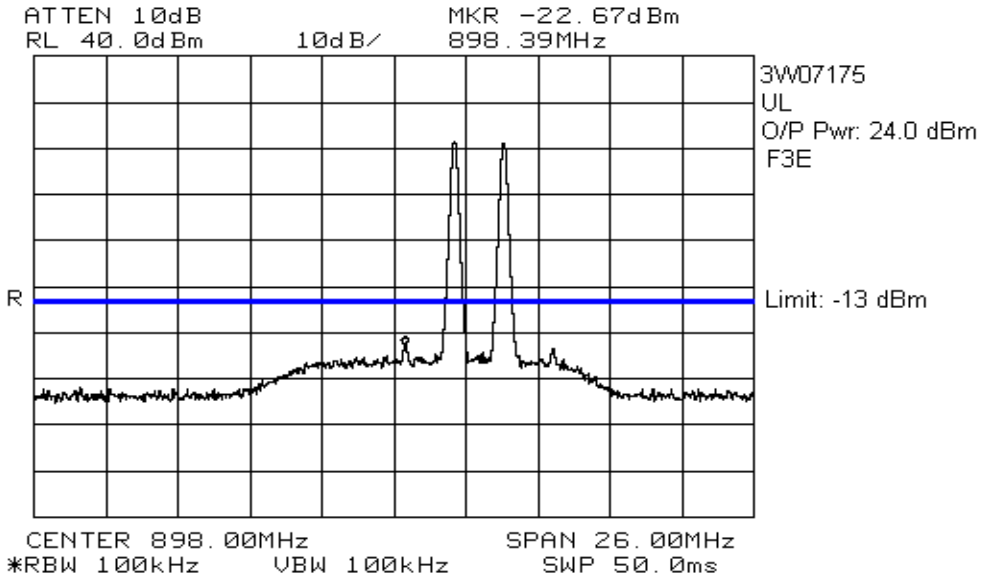
Test Performed By: Kevin Carr	**Date of Test: 3 June 2003**

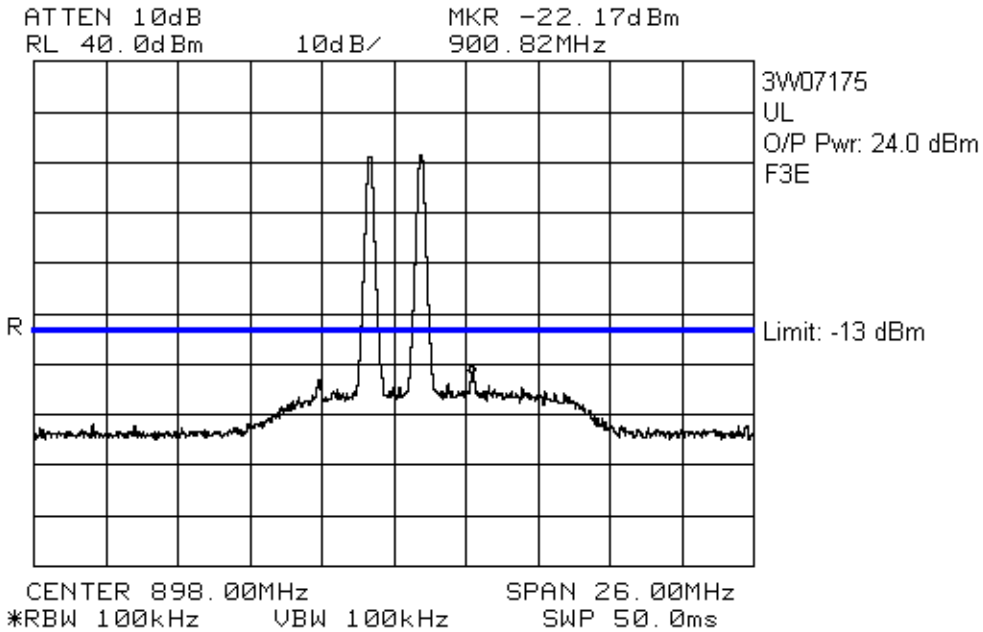
Minimum Standard: -13 dBm

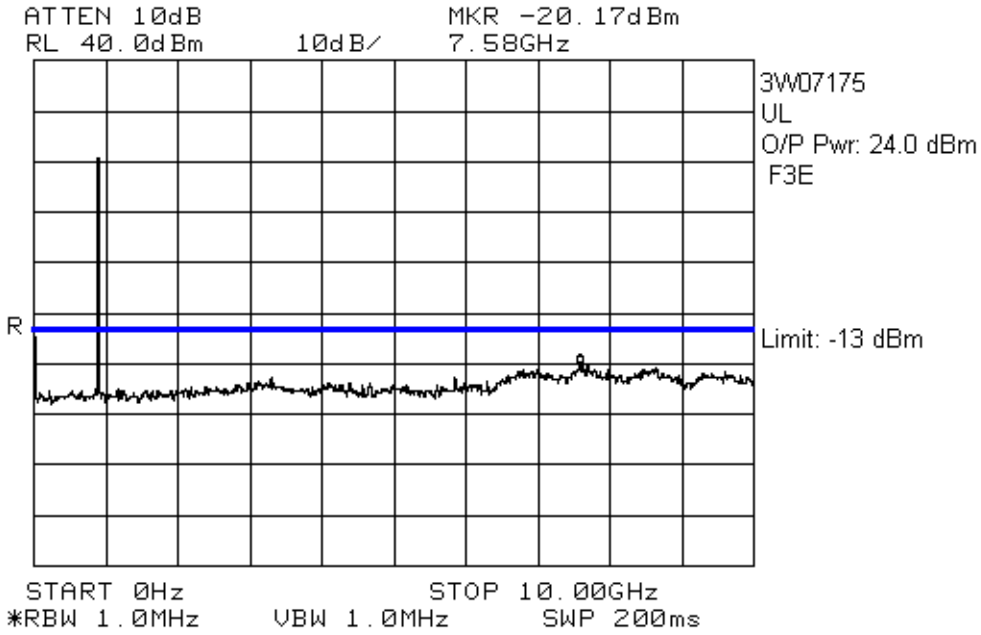
Test Results: Complies.

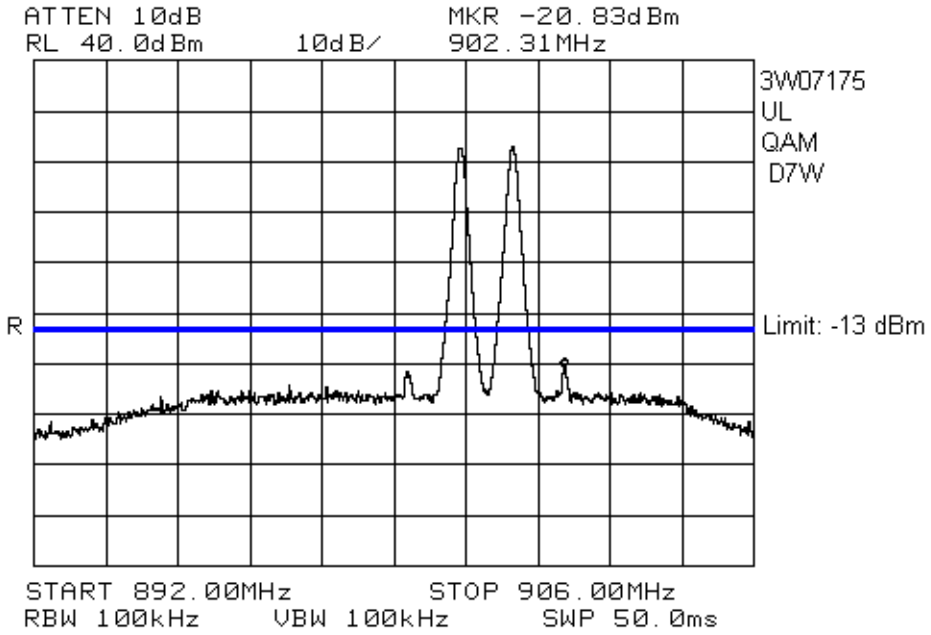
Measurement Data: See attached charts.

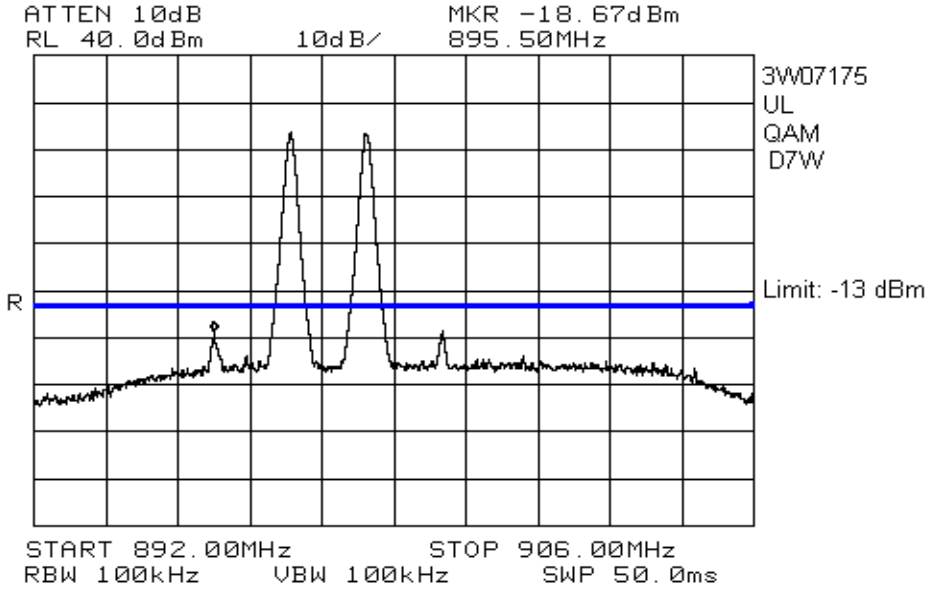
Uplink

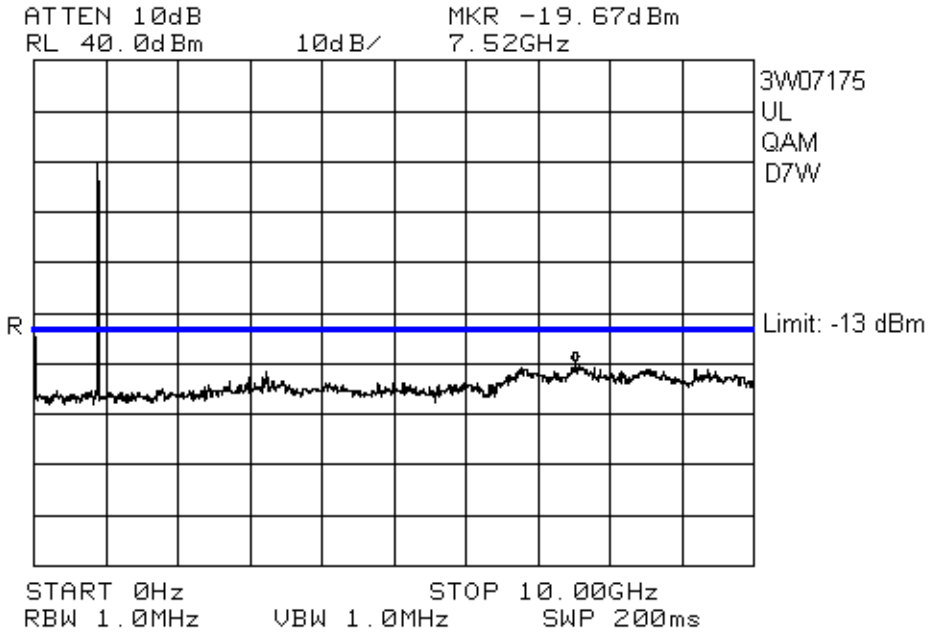

ATTEN 10dB
RL 40.0dBm
10dB/
MKR -22.67dBm
898.39MHz
3W07175
UL
O/P Pwr: 24.0 dBm
F3E
R
Limit: -13 dBm
CENTER 898.00MHz
SPAN 26.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms

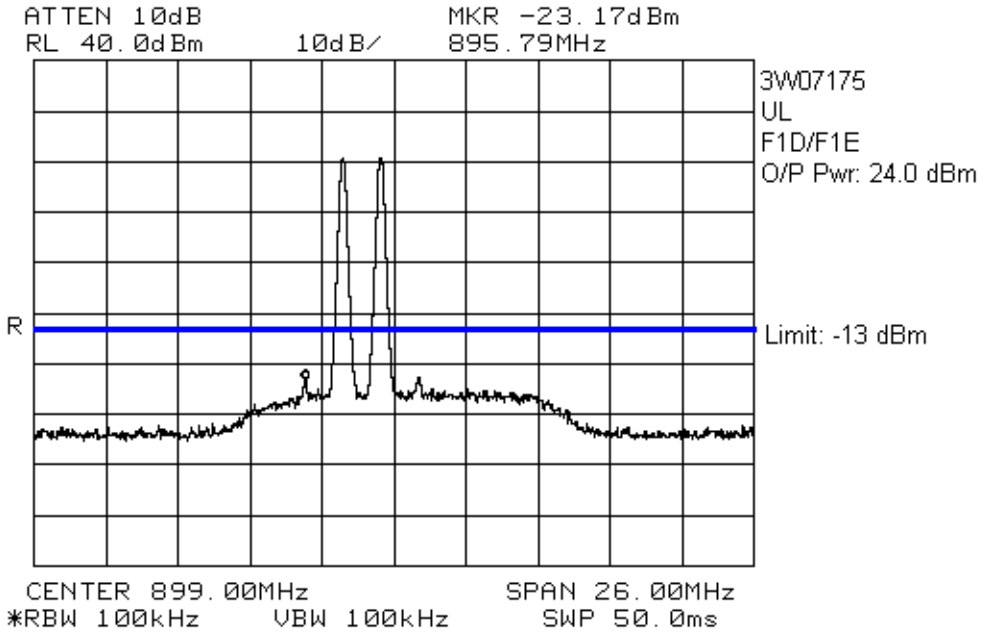

ATTEN 10dB
RL 40.0dBm
10dB/
MKR -22.17dBm
900.82MHz
3W07175
UL
O/P Pwr: 24.0 dBm
F3E
R
Limit: -13 dBm
CENTER 898.00MHz
SPAN 26.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms

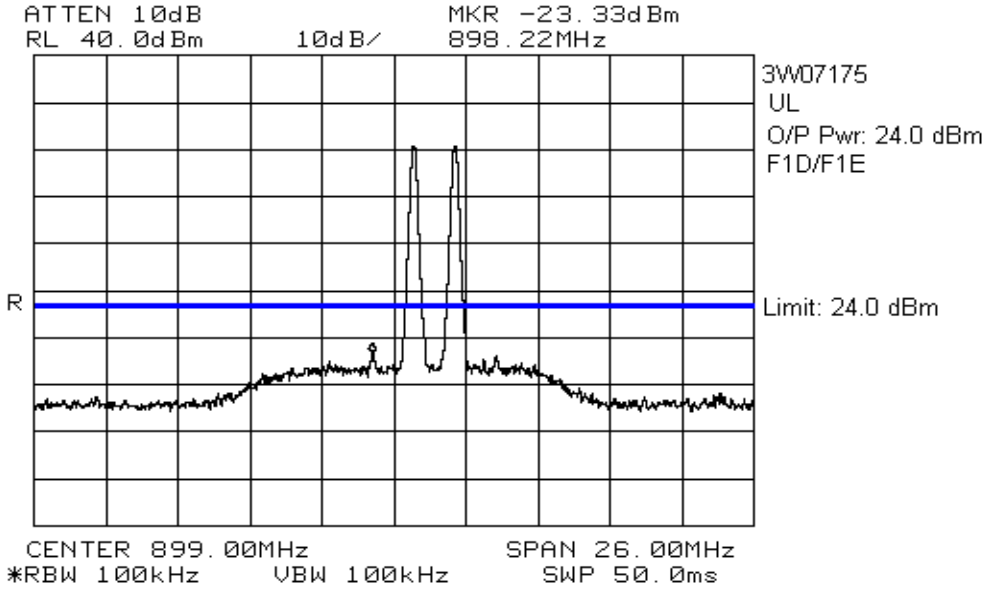

ATTEN 10dB
RL 40.0dBm
10dB/
MKR -20.17dBm
7.58GHz
3W07175
UL
O/P Pwr: 24.0 dBm
F3E
R
Limit: -13 dBm
START 0Hz
STOP 10.00GHz
*RBW 1.0MHz
VBW 1.0MHz
SWP 200ms

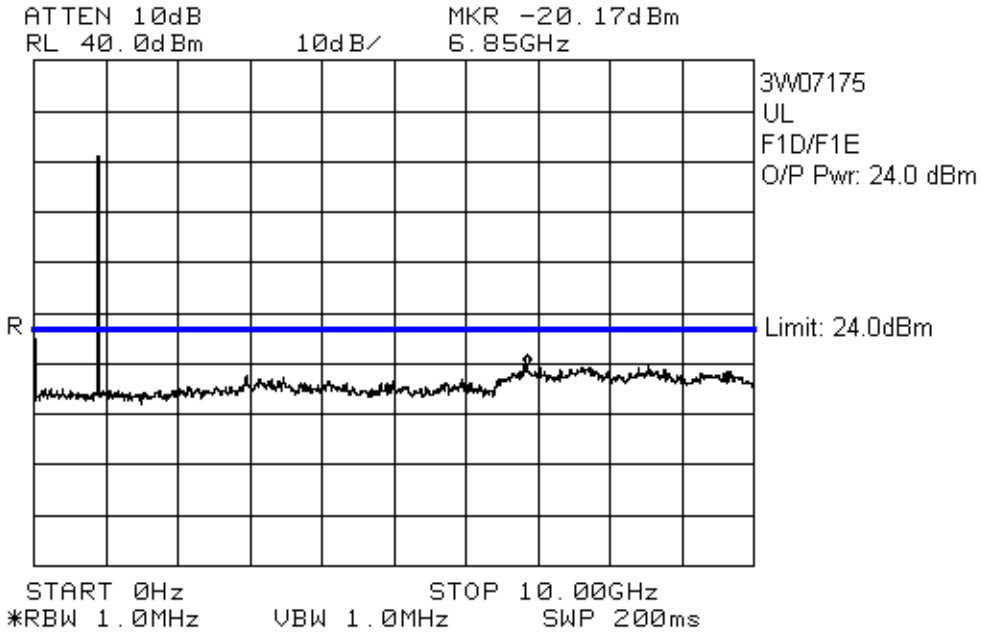

ATTEN 10dB
RL 40.0dBm
10dB/
MKR -20.83dBm
902.31MHz
3W07175
UL
QAM
D7W
R
Limit: -13 dBm
START 892.00MHz
STOP 906.00MHz
RBW 100kHz
VBW 100kHz
SWP 50.0ms


ATTEN 10dB
RL 40.0dBm
10dB/
MKR -18.67dBm
895.50MHz
3W07175
UL
QAM
D7W
R
Limit: -13 dBm
START 892.00MHz
STOP 906.00MHz
RBW 100kHz
VBW 100kHz
SWP 50.0ms

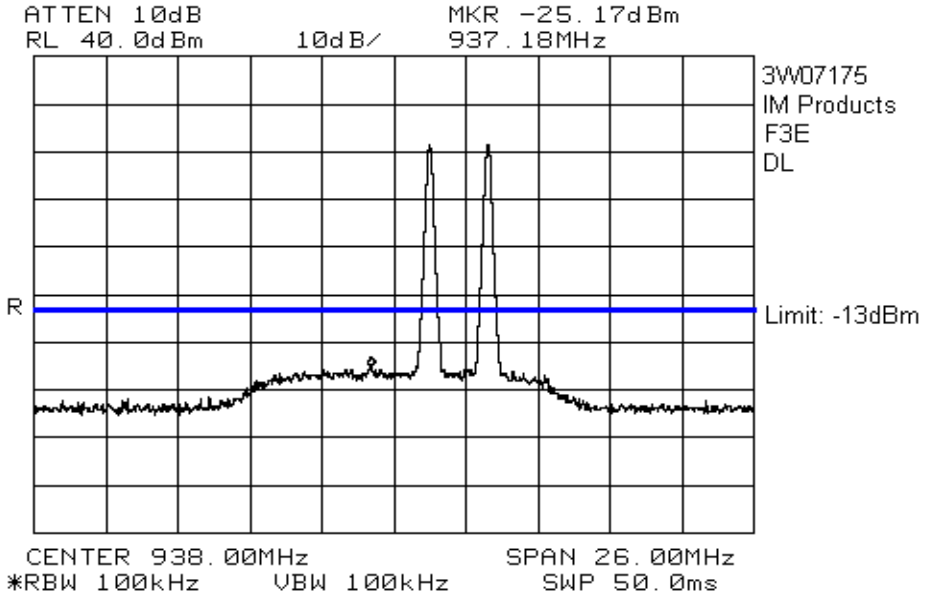

ATTEN 10dB
RL 40.0dBm
10dB/
MKR -19.67dBm
7.52GHz
3W07175
UL
QAM
D7W
R
Limit: -13 dBm
START 0Hz
STOP 10.00GHz
RBW 1.0MHz
VBW 1.0MHz
SWP 200ms

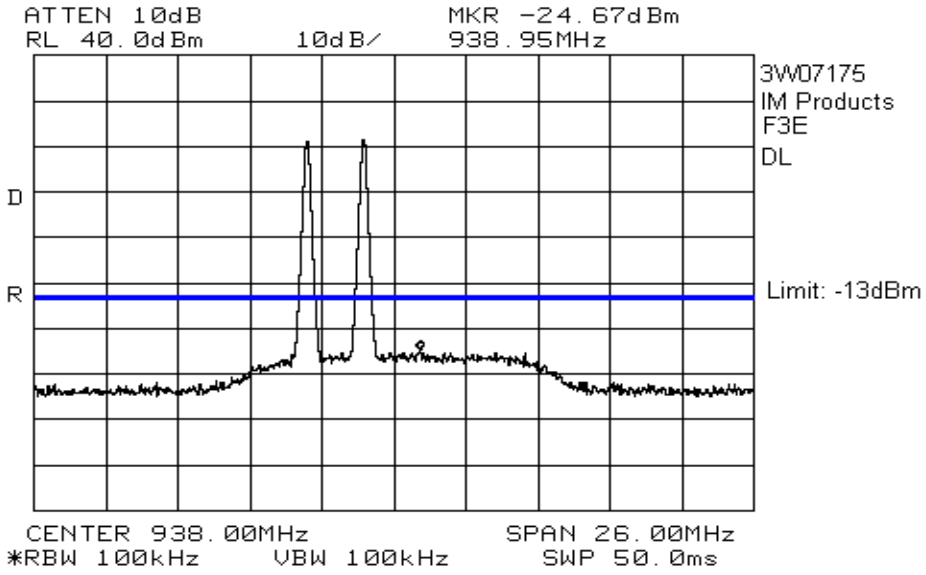

ATTEN 10dB
RL 40.0dBm
10dB/
MKR -23.17dBm
895.79MHz
3W07175
UL
F1D/F1E
O/P Pwr: 24.0 dBm
R
Limit: -13 dBm
CENTER 899.00MHz
SPAN 26.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms

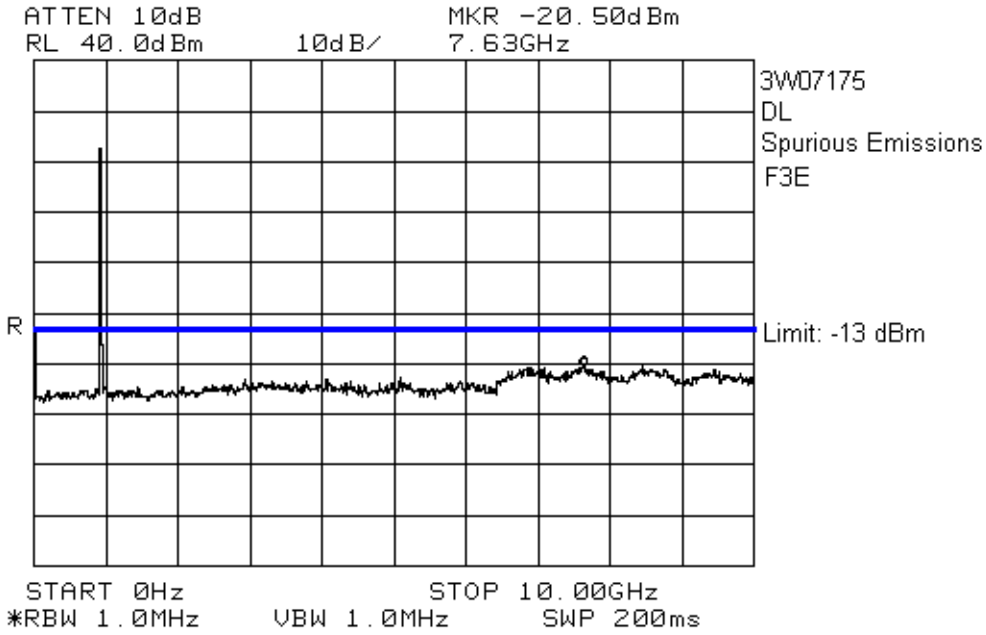

ATTEN 10dB
RL 40.0dBm
10dB/
MKR -23.33dBm
898.22MHz
3W07175
UL
O/P Pwr: 24.0 dBm
F1D/F1E
R
Limit: 24.0 dBm
CENTER 899.00MHz
SPAN 26.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms

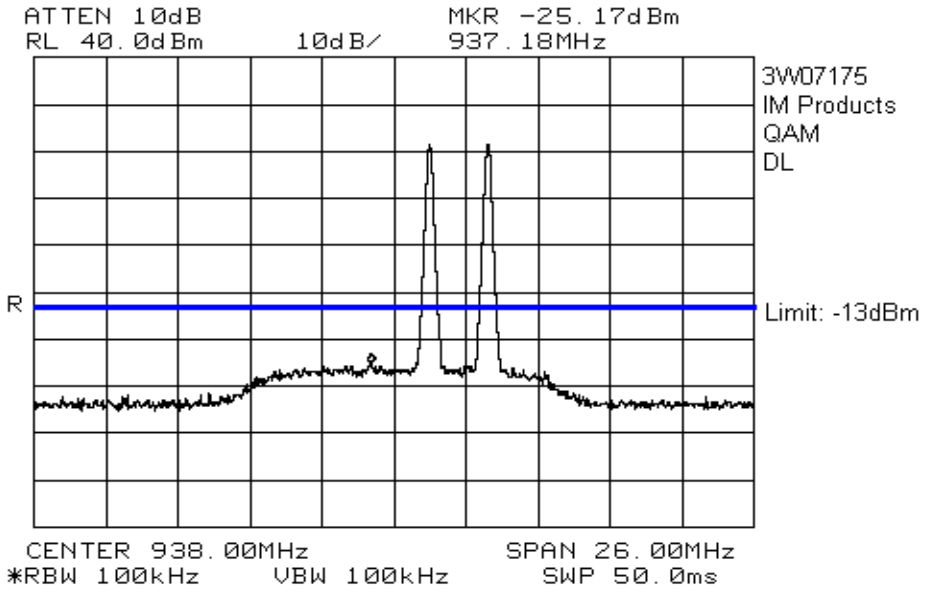

ATTEN 10dB
RL 40.0dBm
10dB/
MKR -20.17dBm
6.85GHz
3W07175
UL
F1D/F1E
O/P Pwr: 24.0 dBm
R
Limit: 24.0dBm
START 0Hz
STOP 10.00GHz
*RBW 1.0MHz
VBW 1.0MHz
SWP 200ms

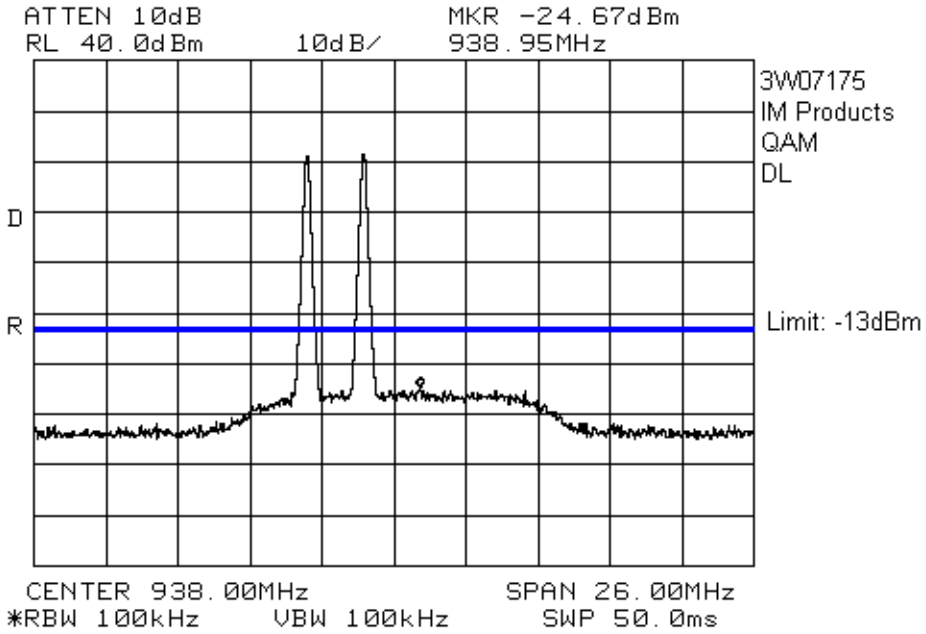
Downlink

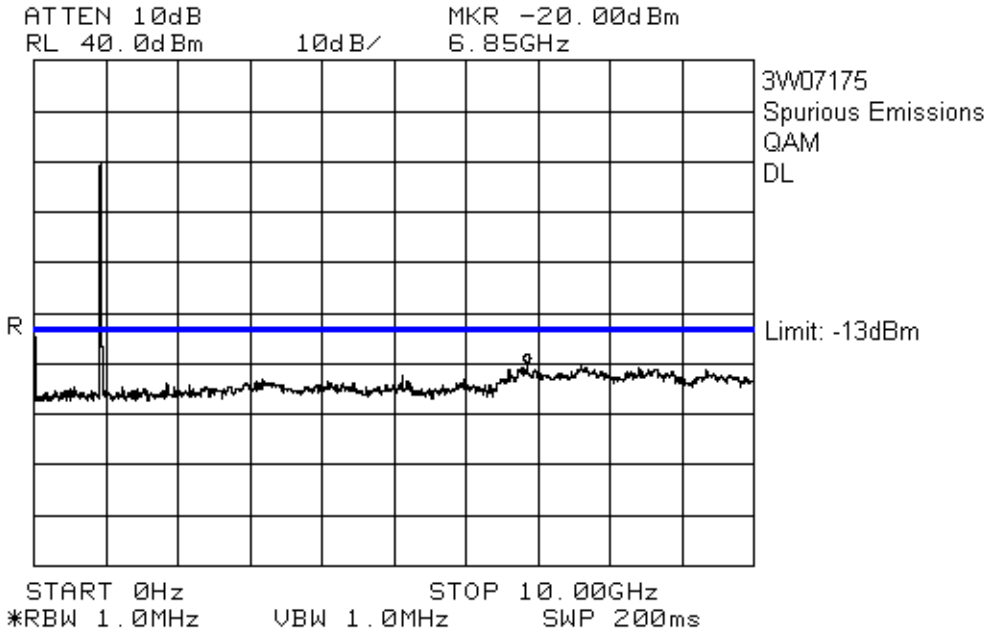

ATTEN 10dB
RL 40.0dBm
10dB/
MKR -25.17dBm
937.18MHz
3W07175
IM Products
F3E
DL
R
Limit: -13dBm
CENTER 938.00MHz
SPAN 26.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms

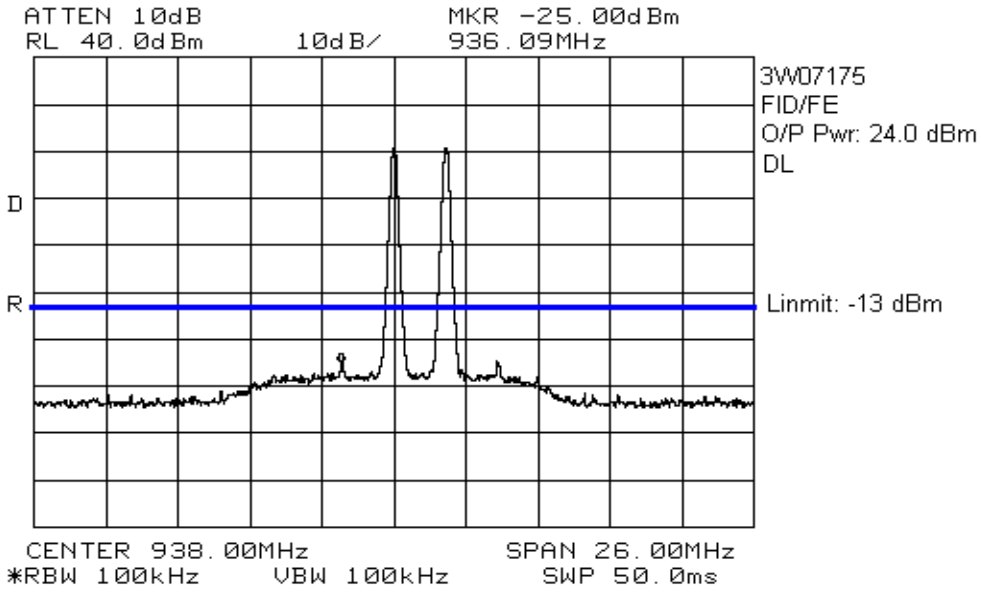

ATTEN 10dB
RL 40.0dBm
10dB/
MKR -24.67dBm
938.95MHz
3W07175
IM Products
F3E
DL
D
R
Limit: -13dBm
CENTER 938.00MHz
SPAN 26.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms

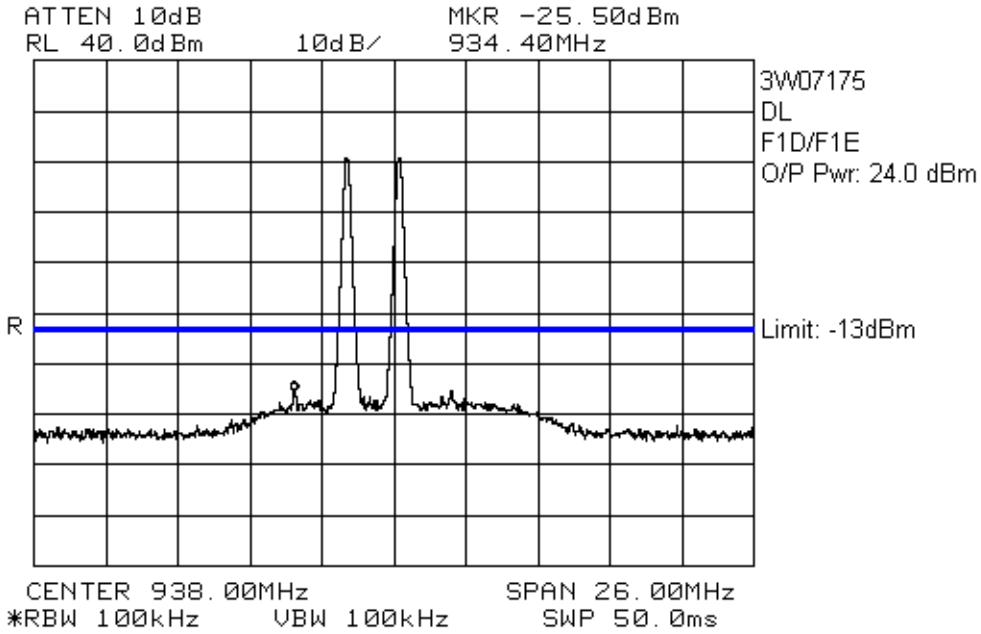

ATTEN 10dB
RL 40.0dBm
10dB/
MKR -20.50dBm
7.63GHz
3W07175
DL
Spurious Emissions
F3E
R
Limit: -13 dBm
START 0Hz
STOP 10.00GHz
*RBW 1.0MHz
VBW 1.0MHz
SWP 200ms

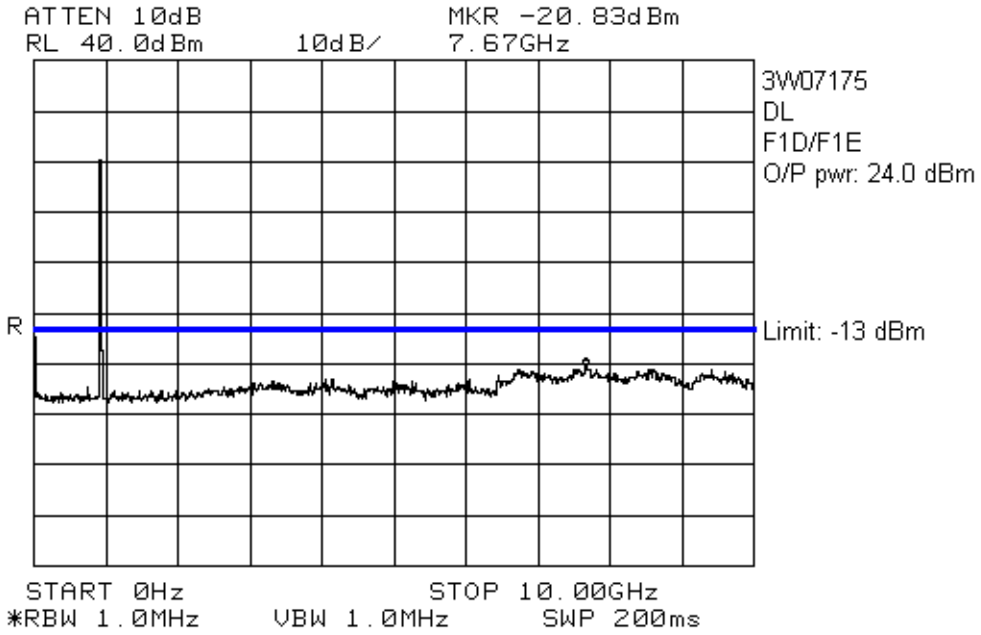

ATTEN 10dB
RL 40.0dBm
10dB/
MKR -25.17dBm
937.18MHz
3W07175
IM Products
QAM
DL
R
Limit: -13dBm
CENTER 938.00MHz
SPAN 26.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms


ATTEN 10dB
RL 40.0dBm
10dB/
MKR -24.67dBm
938.95MHz
3W07175
IM Products
QAM
DL
D
R
Limit: -13dBm
CENTER 938.00MHz
SPAN 26.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms


ATTEN 10dB
RL 40.0dBm
10dB/
MKR -20.00dBm
6.85GHz
3W07175
Spurious Emissions
QAM
DL
R
Limit: -13dBm
START 0Hz
STOP 10.00GHz
*RBW 1.0MHz
VBW 1.0MHz
SWP 200ms


ATTEN 10dB
RL 40.0dBm
10dB/
MKR -25.00dBm
936.09MHz
3W07175
FID/FE
O/P Pwr: 24.0 dBm
DL
D
R
Linmit: -13 dBm
CENTER 938.00MHz
SPAN 26.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms


ATTEN 10dB
RL 40.0dBm
10dB/
MKR -25.50dBm
934.40MHz
3W07175
DL
F1D/F1E
O/P Pwr: 24.0 dBm
R
Limit: -13dBm
CENTER 938.00MHz
SPAN 26.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms


ATTEN 10dB
RL 40.0dBm
10dB/
MKR -20.83dBm
7.67GHz
3W07175
DL
F1D/F1E
O/P pwr: 24.0 dBm
R
Limit: -13 dBm
START 0Hz
STOP 10.00GHz
*RBW 1.0MHz
VBW 1.0MHz
SWP 200ms

Section 6. Field Strength of Spurious Emissions

Para. No.: 2.993

Test Performed By: Kevin Carr	**Date of Test: 5 June 2003**

Minimum Standard: Para. No. 90.210, -13 dBm

Test Results: Complies.

Measurement Data: See attached Table.

Test Data - Radiated Emissions

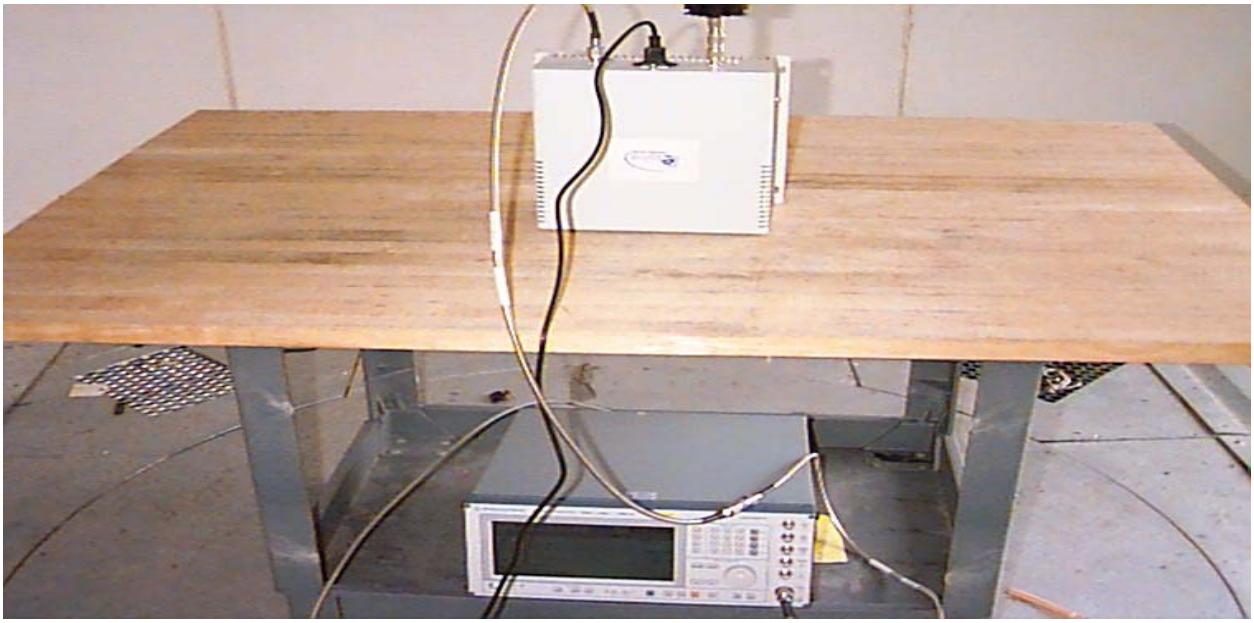
Test Date: 5 May 2003									
Engineer's Name: Kevin Carr									
Temperature (C°): Outdoor: 17						Humidity %: Outdoor: 65			
Measurement Bandwidth = 100/1000 kHz									
Tested as per (Table Top/Floor Standing): Table Top									
Test Distance (meters): 3						Range: A			
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBμV)	Sig Sub. Factor (dB)	Cable Loss (dB)	Signal Substitution Power (dBm)	Limit (dBm)	Margin (dB)	Detector
Uplink									
2694.0000	Horn2	V	62.8	-127.5	7.6	-57.2	-13.0	44.2	Peak
2694.0000	Horn2	H	62.8	-128.7	7.6	-58.3	-13.0	45.3	Peak
3592.0000	Horn2	V	61.2	-125.3	7.4	-56.7	-13.0	43.7	Peak
3592.0000	Horn2	H	59.8	-127.0	7.4	-59.9	-13.0	46.9	Peak
4490.0000	Horn2	V	57.8	-120.4	7.3	-55.3	-13.0	42.3	Peak
4490.0000	Horn2	H	57.8	-121.0	7.3	-55.9	-13.0	42.9	Peak
Downlink									
2814.0000	Horn2	V	61.5	-127.3	5.8	-60.0	-13.0	47.0	Peak
2814.0000	Horn2	H	61.2	-129.1	5.8	-62.1	-13.0	49.1	Peak
3752.0000	Horn2	V	60.3	-124.1	6.8	-57.0	-13.0	44.0	Peak
3752.0000	Horn2	H	60.3	-125.4	6.8	-58.3	-13.0	45.3	Peak
4690.0000	Horn2	V	57.5	-121.2	8.0	-55.7	-13.0	42.7	Peak
4690.0000	Horn2	H	57.8	-121.4	8.0	-55.6	-13.0	42.6	Peak
Digital									
31.5670	BC1	V	29.3	-88.4	0.7	-58.4	-13.0	45.4	Peak
31.5670	BC1	H	29.0	-82.5	0.7	-52.8	-13.0	39.8	Peak
30.8380	BC1	V	29.2	-88.9	0.7	-59.0	-13.0	46.0	Peak
30.8380	BC1	H	29.0	-82.6	0.7	-52.9	-13.0	39.9	Peak
32.0000	BC1	V	29.5	-88.1	0.7	-57.9	-13.0	44.9	Peak
32.0000	BC1	H	29.8	-82.5	0.7	-51.9	-13.0	38.9	Peak

Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole
Note 2: Detector Legend: Peak: 100 kHz RBW/VBW for emissions below 1 GHz, Peak: 1.0 MHz RBW/VBW for emissions above 1GHz
Note 3: All emissions were searched to the 10th harmonic

Notes:	AGC On

Photographs of Test Setup (Worst Case Configuration)

Front View



Rear View

Section 7. Test Equipment List

Equipment List – Prescan for Radiated Emissions (Shielded Chamber)

CAL Cycle	Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
1 Year	Spectrum Analyzer	Hewlett-Packard	8564E	FA001367	May. 13/03	May. 13/04
1Year (Rental)	Spectrum Analyzer	Agilent	8564E	3943A01794	April. 14/03	April. 14/04
NCR	Bilog	Schaffner	CBL6112B	FA001504	NCR	NCR
1 Year	Horn Antenna #2	EMCO	3115	FA000825	Dec. 09/02	Dec. 09/03
NCR	0.1 – 1300 MHz Amplifier	Hewlett Packard	8447D	FA001748	NCR	NCR
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

Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use, OUT = Out For CAL/Repair

Equipment List - Radiated Emissions

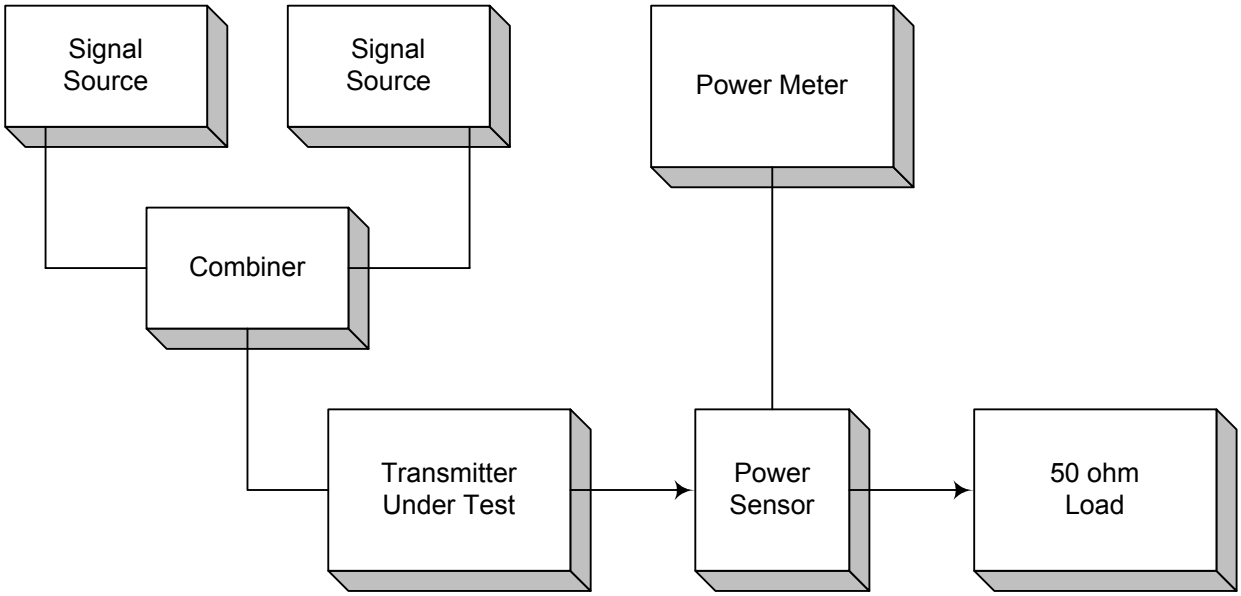
CAL Cycle	Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
1 Year	Spectrum Analyzer	Hewlett-Packard	8564E	FA001367	May. 13/03	May. 13/04
1 Year	Biconical (1) Antenna	EMCO	3109	FA000805	April. 15/03	April. 15/04
1 Year	Horn Antenna #2	EMCO	3115	FA000825	Dec. 09/02	Dec. 09/03
1 Year	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

Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use, OUT = Out For CAL/Repair

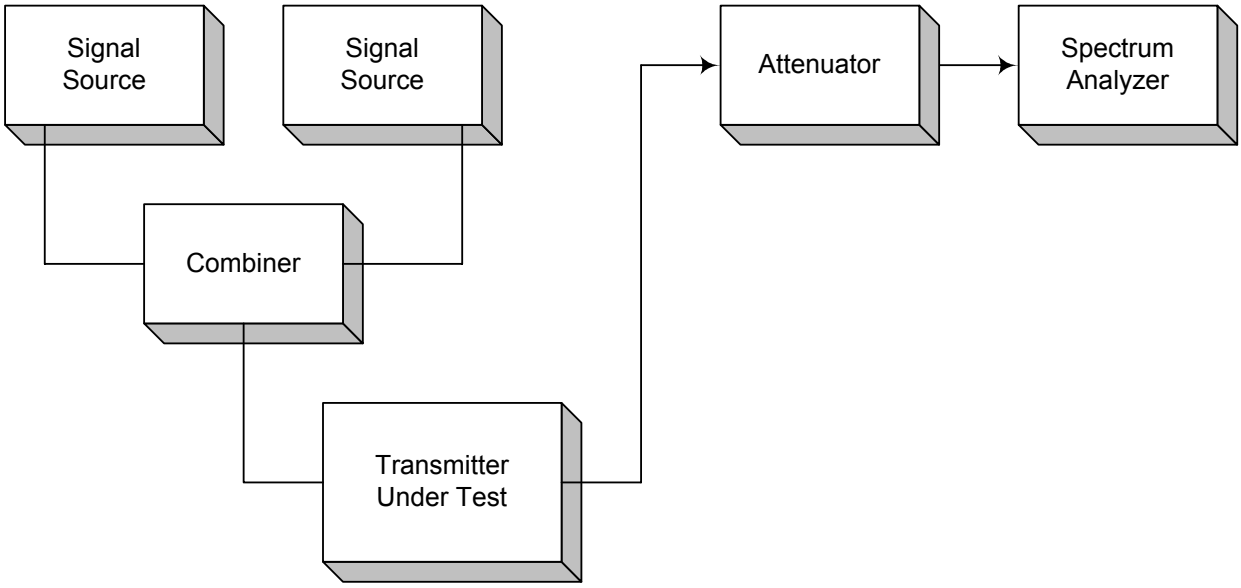
Annex A

Test Diagrams

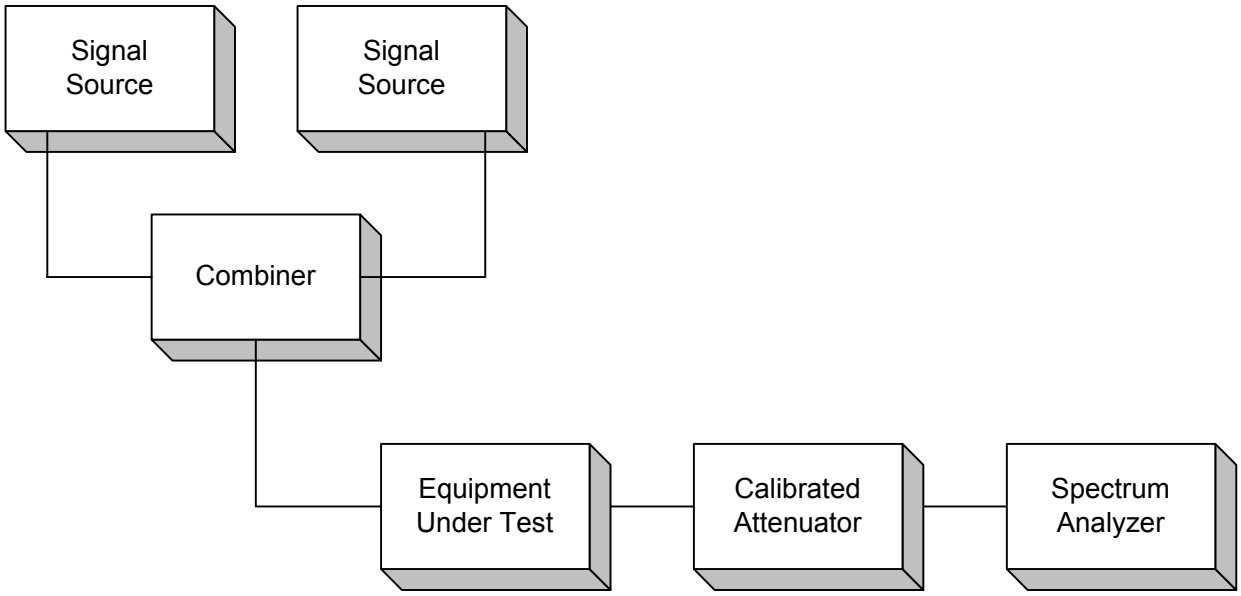
Para. No. 2.985 - R.F. Power Output



Para. No. 2.989 - Occupied Bandwidth



Para. No. 2.991 - Spurious Emissions at Antenna Terminals



Para. No. 2.993 - Field Strength of Spurious Radiation