Nemko Test Report:	3L0032RUS1
Applicant:	Allen Telecom 108 Rand Park Drive Suite 240 Garner, NC 27529
Equipment Under Test: (E.U.T.)	BRITECELL FAST
In Accordance With:	**FCC Parts 24 and 90**
Tested By:	Nemko Dallas Inc. 802 N. Kealy Lewisville, TX 75057-3136
Authorized By:	 Tom Tidwell, Frontline Manager
Date:	2/26/03
Total Number of Pages:	56

Table of Contents

Section 1. Summary of Test Results

Manufacturer: Allen Telecom

Model No.: BRITECELL FAST Dual Band

Serial No.: None

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

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

Summary Of Test Data

NAME OF TEST	PARA. NO.	SPEC.	RESULT
RF Power Output	24.132(a)	7 Watts ERP	Complies
	90.635	500 Watts ERP	Complies
Occupied Bandwidth	24.131	Input vs. Output	Complies
	90.210(j)	Input vs. Output	Complies
Spurious Emissions at Antenna Terminals	24.133 (a)(1)	-20 dBm	Complies
	90.210(j)		Complies
Field Strength of Spurious Emissions	24.133 (a)(1)	-20 dBm	Complies
	90.210(j)		Complies
Frequency Stability	24.135	N/A	N/A
	90.213	N/A	N/A
Transient Frequency Behavior		N/A	N/A
		N/A	N/A

Footnotes For N/A's:

(1) Since the E.U.T. does not contain modulation circuitry modulation testing was not performed.
(2) Since the E.U.T. is not a keyed carrier system, Transient Frequency Behavior was not performed.

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Section 2. General Equipment Specification

Transmitter

Supply Voltage Input:	28 Vdc
Frequency Range:	930-931 MHz, 940-941 MHz Part 24 935-940 MHz Part 90
Tunable Bands:	Full band coverage

Type(s) of Modulation:

F3E (Voice)	F1D	F2D	D7W (QAM)	Other
☒	☒	☒	☒	☐

Gain:	0 dB
Maximum Input:	+27 dBm (1 tone CW)
Output Impedance:	50 ohms
RF Power Output:	18 mW
Operator Selection of Operating Frequency:	None
Power Output Adjustment Capability:	Manual attenuation setting

Frequency Translation:

F1-F1	F1-F2	N/A
☒	☐	☐

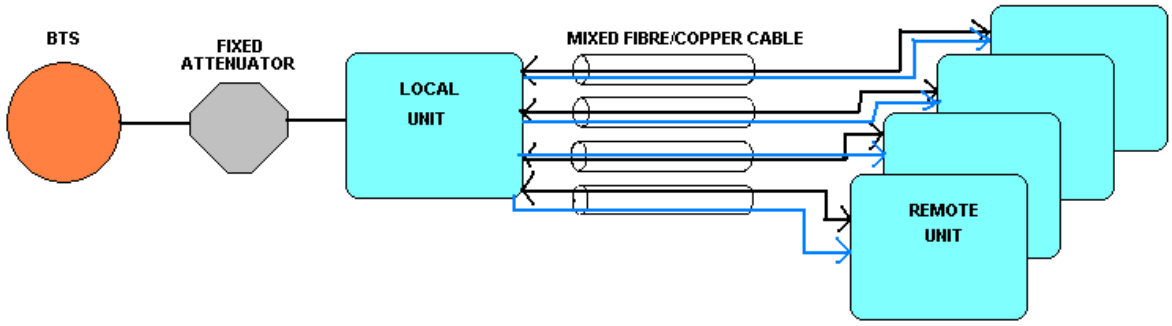
Band Selection:

Software	Duplexer Change	Fullband Coverage
☐	☐	☒

Theory of Operation

BRITECELL™ FAST is a plug and play fibre optic distributed antenna kit.

System Diagram



Section 3. RF Power Output

NAME OF TEST: RF Power Output	PARA. NO.: 2.985
TESTED BY: David Light	DATE: 2/12/2003

Test Results: Complies.

Measurement Data:

Modulation	Measured Power (dBm)	Measured Power (mW)
Analog	11.4	13.9
2FSK	11.5	14.1
4FSK	11.5	14.1
iDEN	14.0	25.1

Test equipment used: 1046 1064 1604 1082

Test conditions:

Relative Humidity 20%
Temperature: 24^{O}C

Section 4. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.989
TESTED BY: David Light	DATE: 2/12/03

Test Results: Complies.

Test Data: See attached graph(s).

Test data – Occupied Bandwidth

Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot **Occupied Bandwidth**

Page 1 of 8 Complete x

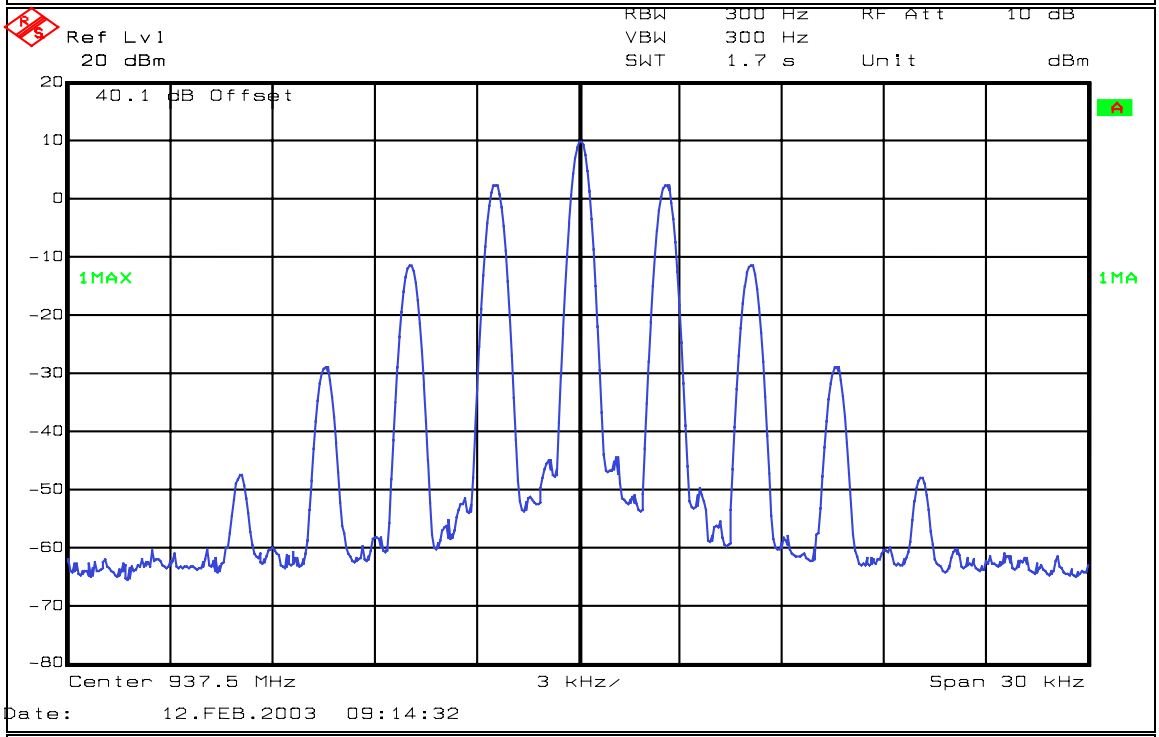
Job No.:	3L0032R	Date:	2/12/2003	Preliminary:	
Specification:	PARTS 22 & 90	Temperature(°C):	20		
Tested By:	David Light	Relative Humidity(%)	30		
E.U.T.:	REPEATER				
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)				
Sample Number:	1				
Location:	Lab 1	RBW:	Refer to plots	Measurement	
Detector Type:	Peak	VBW:	Refer to plots	Distance:	m

Test Equipment Used

Antenna:		Directional Coupler:	
Pre-Amp:		Cable #1:	1628
Filter:		Cable #2:	
Receiver:	1036	Cable #3:	
Attenuator #1	1064	Cable #4:	
Attenuator #2:	1604	Mixer:	

Additional equipment used:

Measurement Uncertainty: +/-1.7 dB



Notes: **OUTPUT ANALOG (2.5 kHz Tone / 2 kHz Deviation)**

Test data – Occupied Bandwidth

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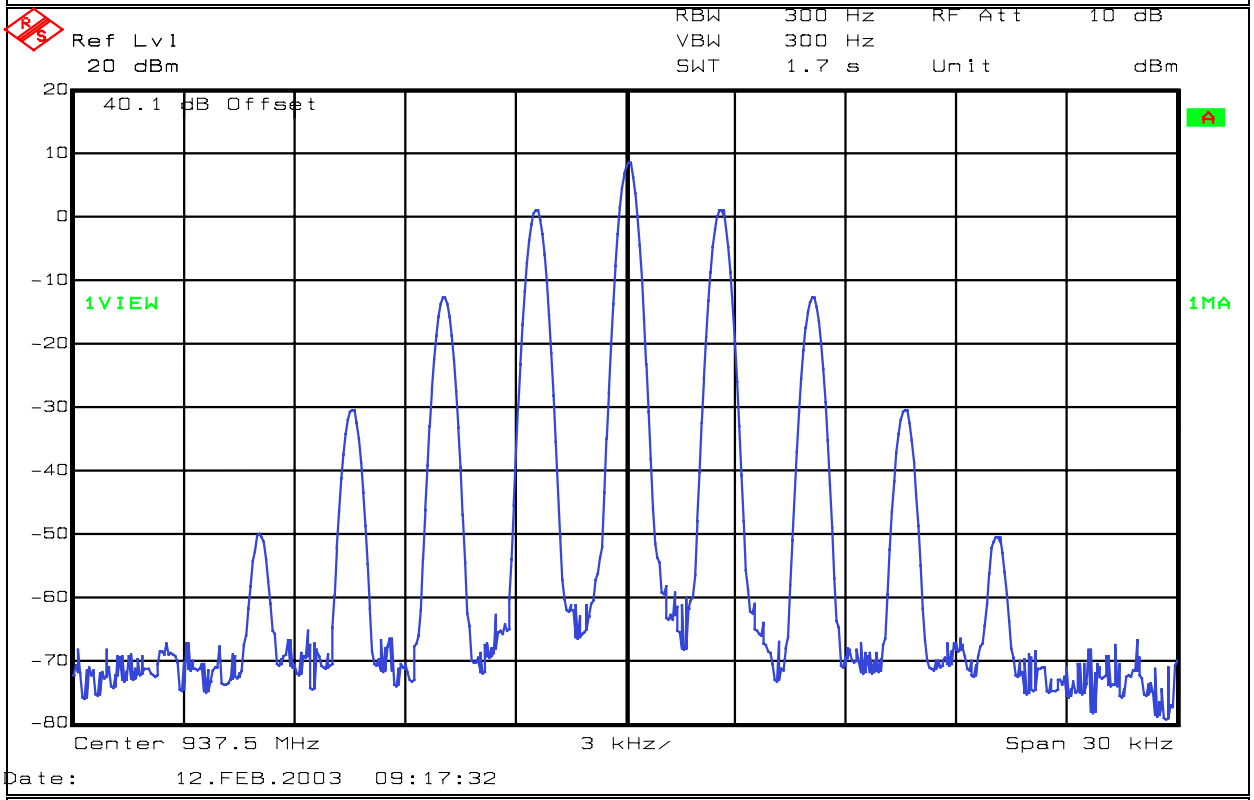
Data Plot **Occupied Bandwidth**

Page 2 of 8

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PARTS 22 & 90	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **INPUT ANALOG (2.5 kHz Tone / 2 kHz Deviation)**

Test data – Occupied Bandwidth

Nemko Dallas, Inc.

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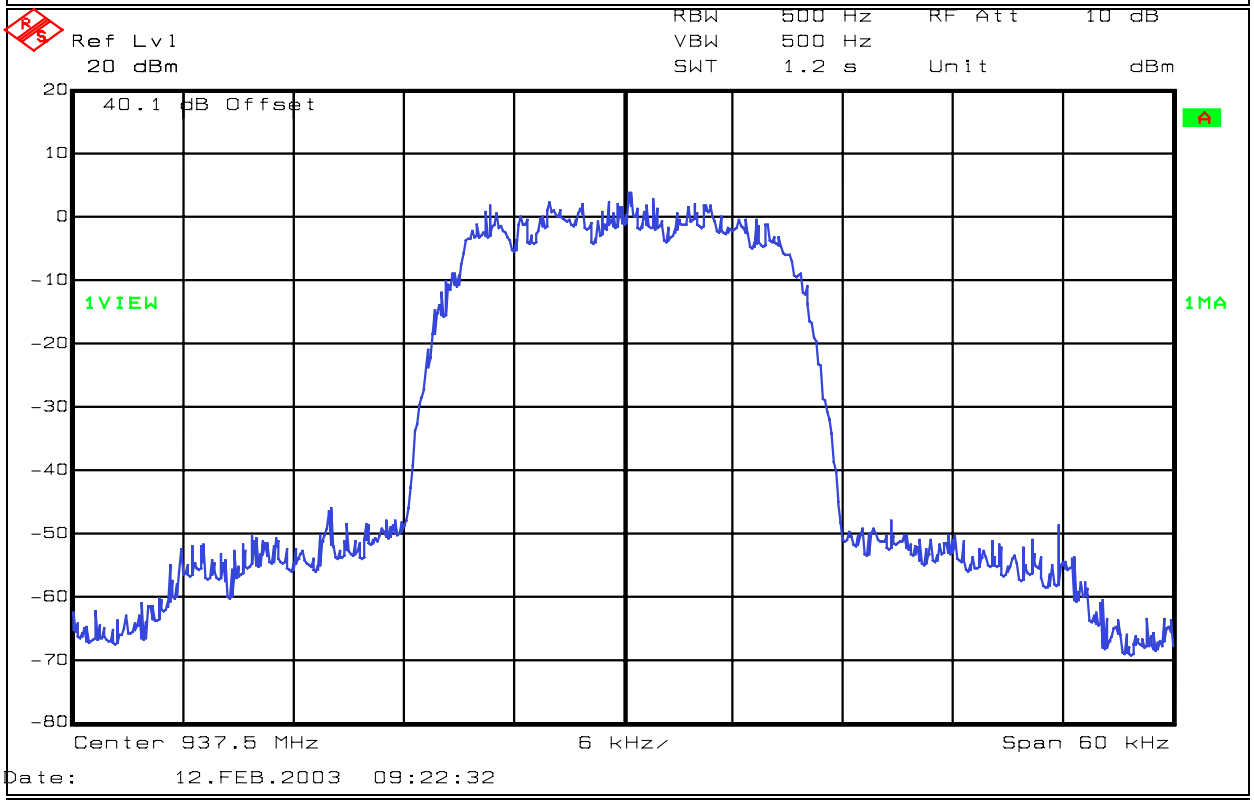
Data Plot **Occupied Bandwidth**

Page 3 of 8

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PARTS 22 & 90	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **iDEN Output**

Test data – Occupied Bandwidth

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Nemko Dallas, Inc.

Test Plot: **Occupied Bandwidth**

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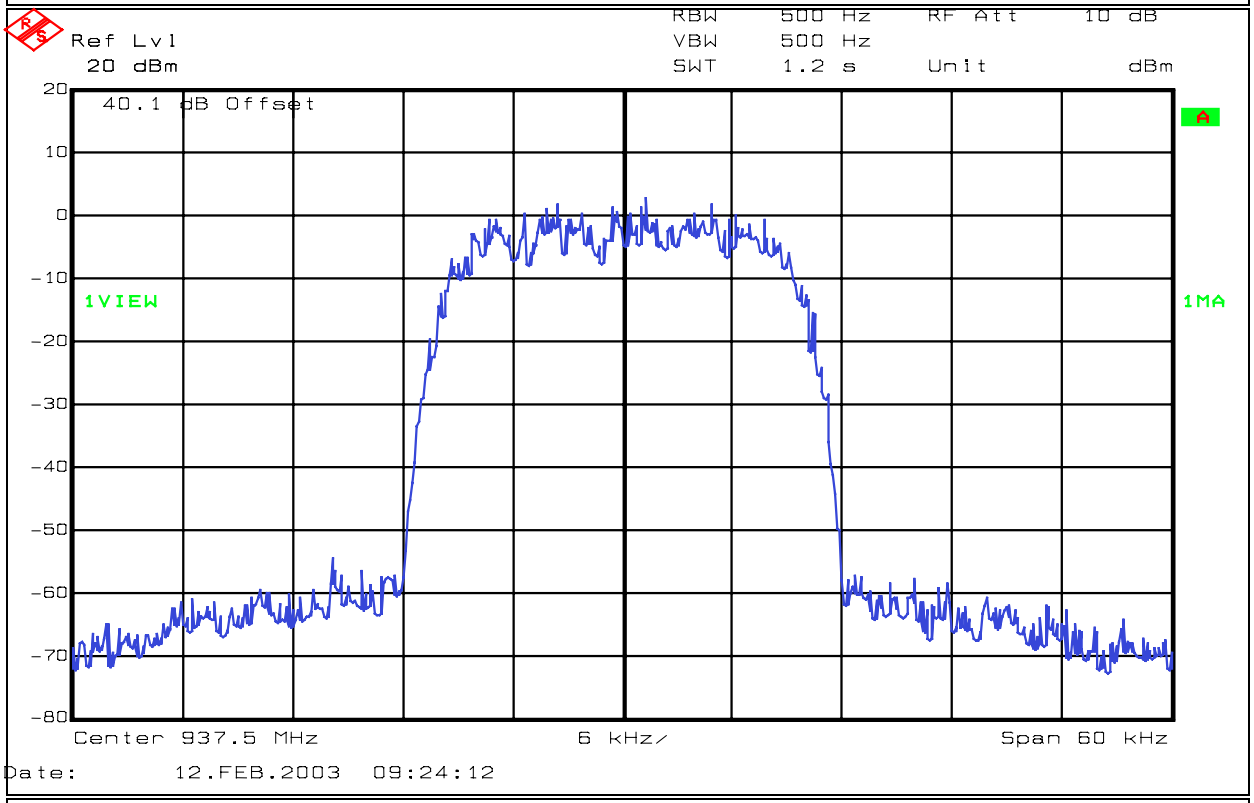
Job No.:	3L0032R	Date:	2/12/2003
Specification:	PARTS 22 & 90	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **iDEN Input**

Test data – Occupied Bandwidth

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Test Plot: **Occupied Bandwidth**

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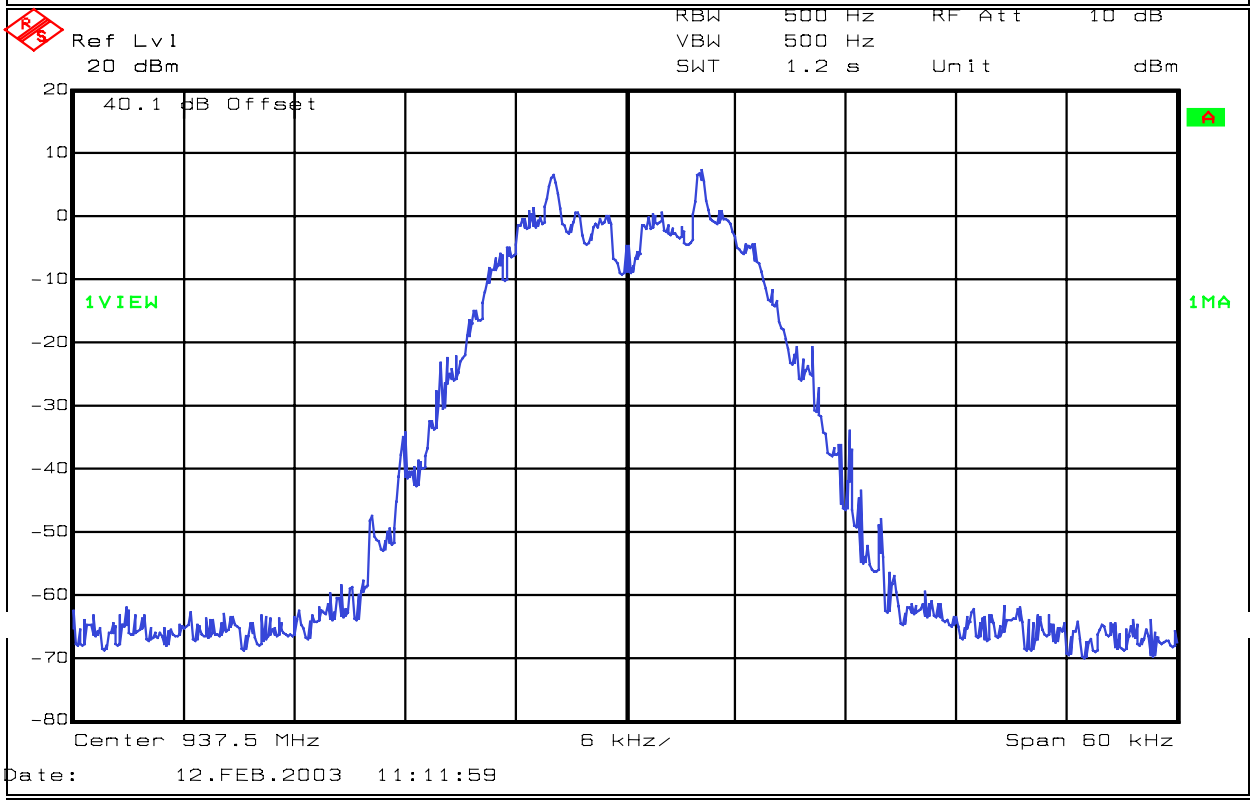
Job No.:	3L0032R	Date:	2/12/2003
Specification:	PARTS 22 & 90	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **2FSK Output**

Test data – Occupied Bandwidth

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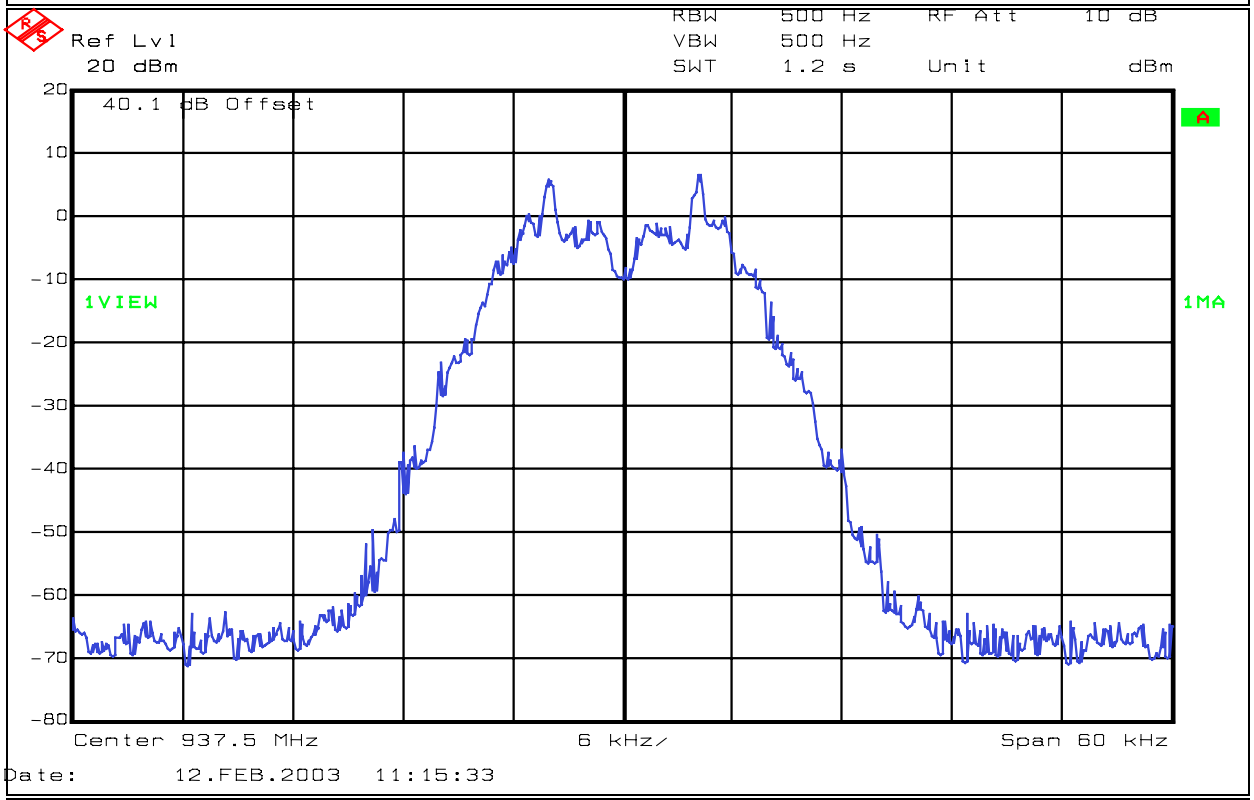
Tel: (972) 436-9600
Fax: (972) 436-2667

Nemko Dallas, Inc.

Test Plot: **Occupied Bandwidth**

Page 6 of 8

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PARTS 22 & 90	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **2FSK Input**

Test data – Occupied Bandwidth

Nemko Dallas, Inc.

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Fax: (972) 436-2667

Test Plot: **Occupied Bandwidth**

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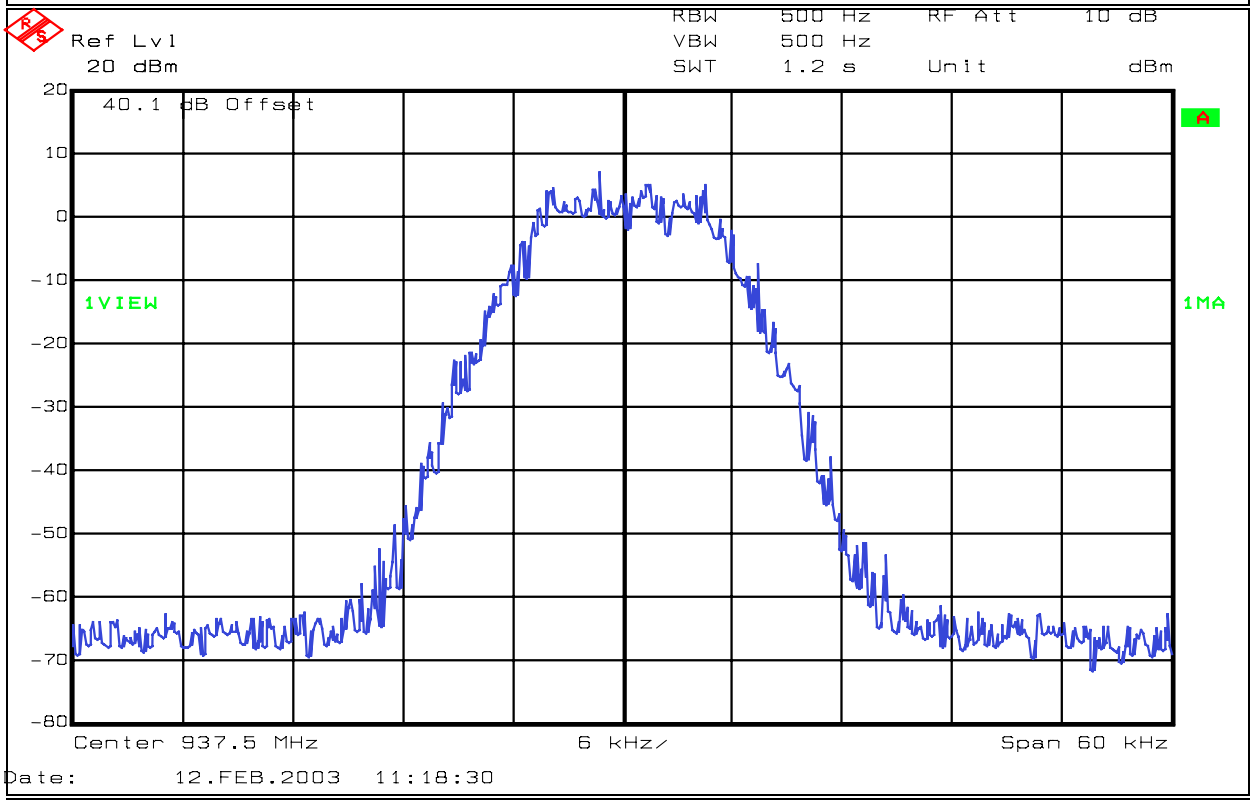
Job No.: 3L0032R Date: 2/12/2003

Specification: PARTS 22 & 90 Temperature(°C):

Tested By: David Light Relative Humidity(%)

E.U.T.: REPEATER

Configuration: TX FULL POWER (INPUT VS, OUTPUT)



Notes: **4FSK Output**

Test data – Occupied Bandwidth

Nemko Dallas, Inc.

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Lewisville, TX 75057
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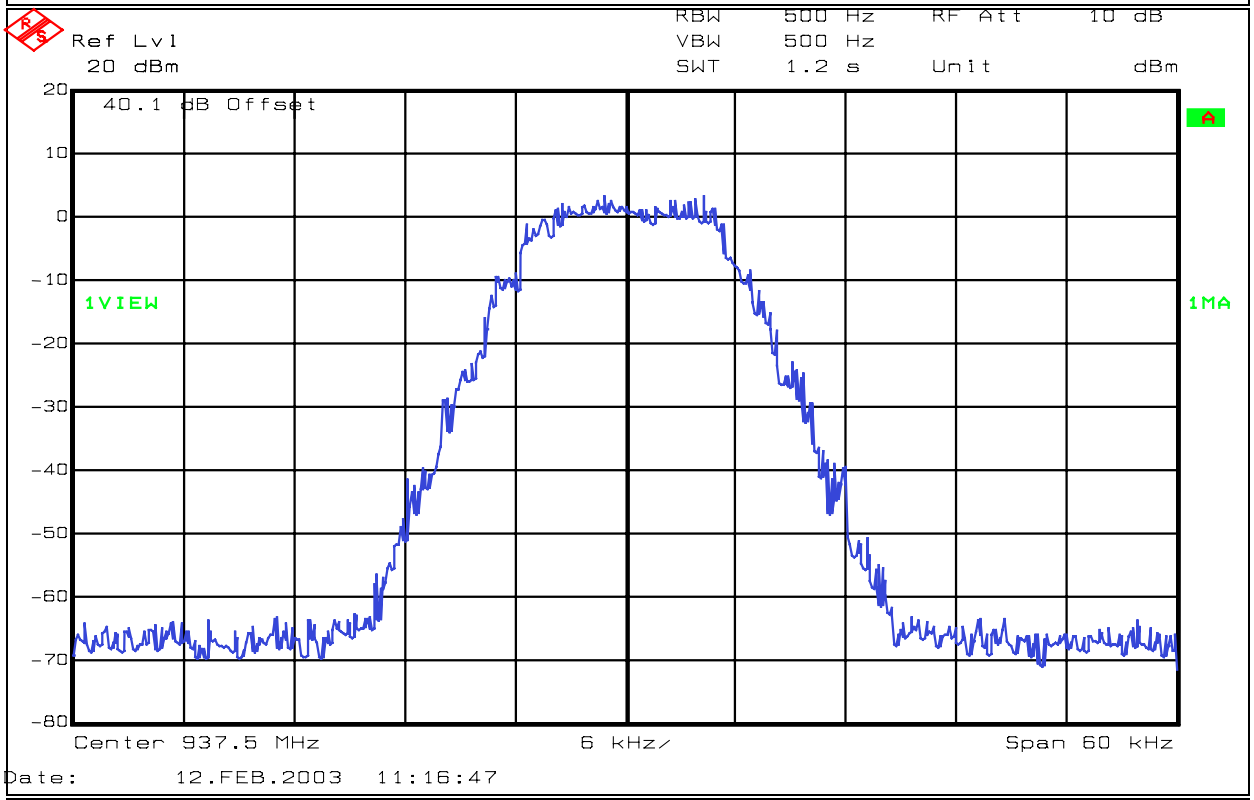
Fax: (972) 436-2667

Test Plot: **Occupied Bandwidth**

Page 8 of 8

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PARTS 22 & 90	Temperature(°C):	
Tested By:	David Light	Relative Humidity(%)	
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **4FSK Input**

Section 5. Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions @ Antenna Terminals	PARA. NO.: 2.991
TESTED BY: David Light	DATE: 2/10/03

Test Results: Complies.

Test Data: See attached graph(s).

Test Data – Spurious Emissions at Antenna Terminals

Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
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Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot **Bandedges**

Page 1 of 6 Complete x

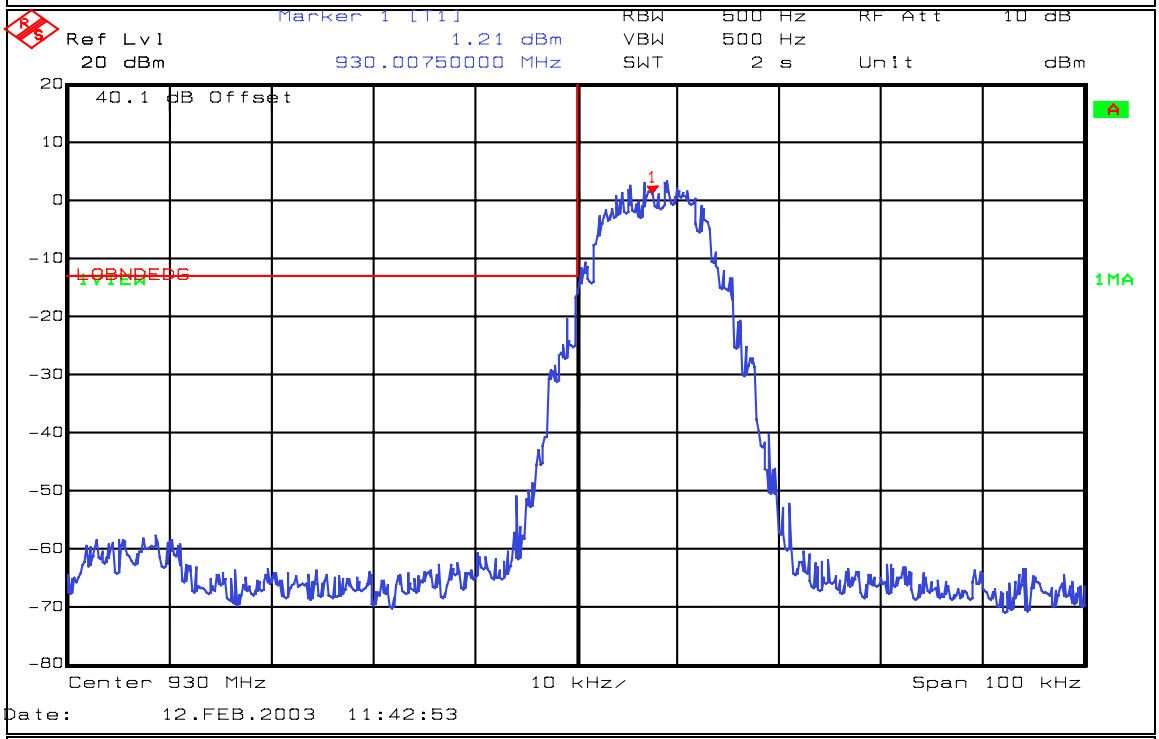
Job No.:	3L0032R	Date:	2/12/2003	Preliminary:	
Specification:	PART 22	Temperature(°C):	20		
Tested By:	David Light	Relative Humidity(%)	30		
E.U.T.:	REPEATER				
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)				
Sample Number:	1				
Location:	Lab 1	RBW:	Refer to plots	Measurement	
Detector Type:	Peak	VBW:	Refer to plots	Distance:	m

Test Equipment Used

Antenna:		Directional Coupler:	
Pre-Amp:		Cable #1:	1628
Filter:		Cable #2:	
Receiver:	1036	Cable #3:	
Attenuator #1	1064	Cable #4:	
Attenuator #2:	1604	Mixer:	

Additional equipment used:

Measurement Uncertainty: +/-1.7 dB



Notes: **LOWER BANDEDGE**
4FSK

Test Data – Spurious Emissions at Antenna Terminals

Nemko

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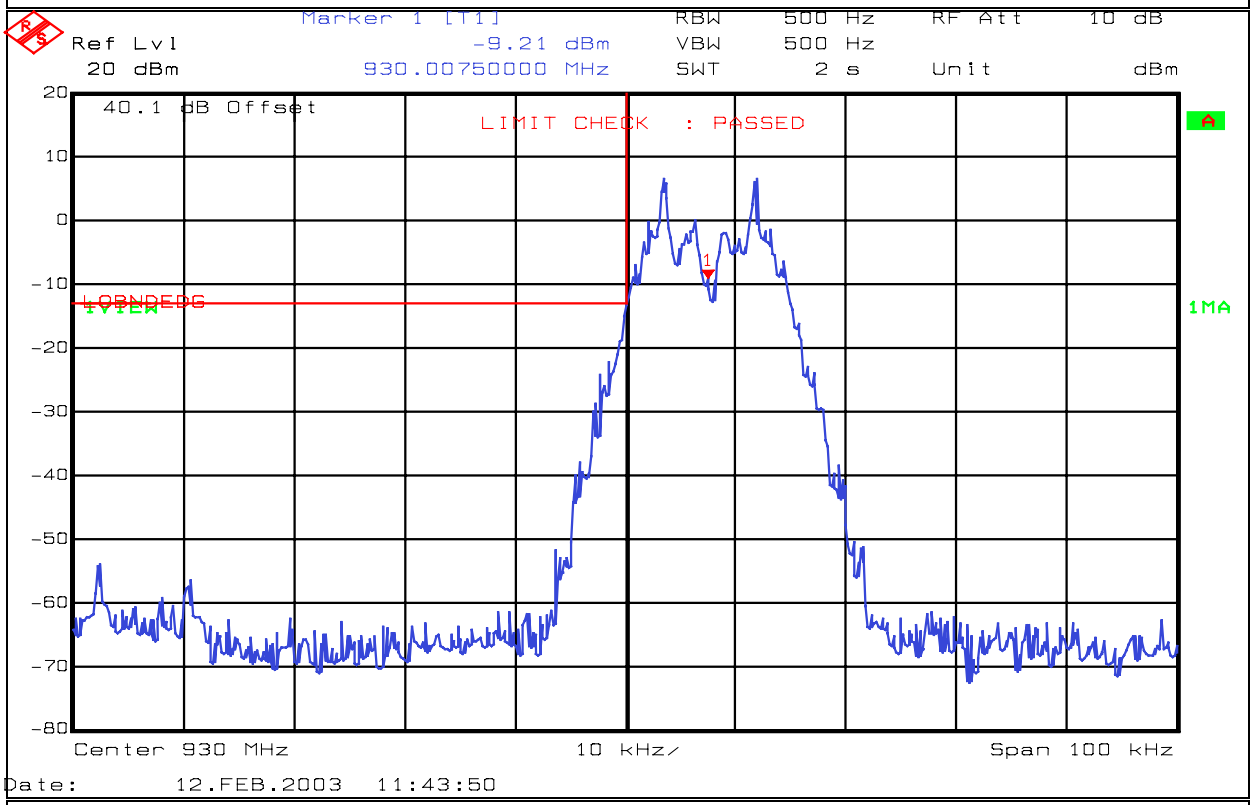
Nemko Dallas, Inc.

Data Plot **Bandedges**

Page 2 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 22	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **LOWER BANDEDGE**
2FSK

Test Data – Spurious Emissions at Antenna Terminals

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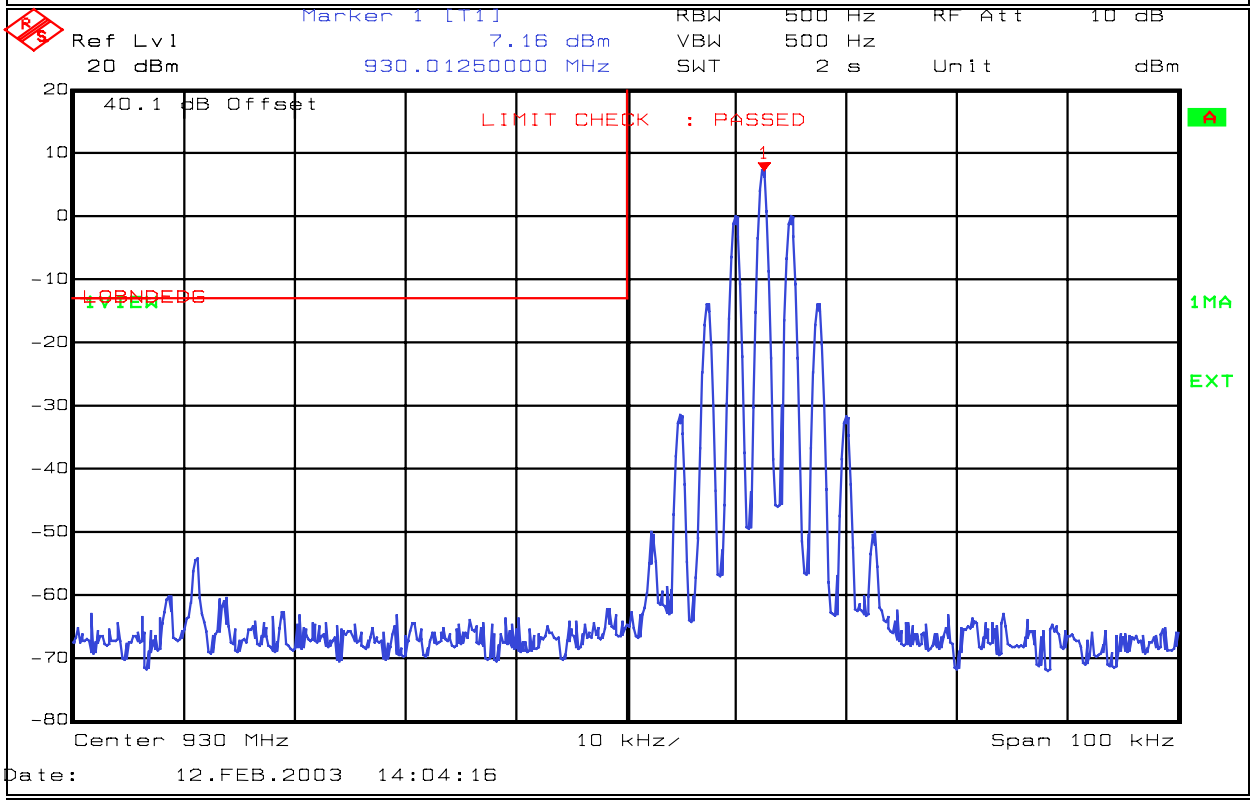
Data Plot **Bandedges**

Page 3 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 22	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **LOWER BANDEDGE**
ANALOG (2.5 kHz Tone / 2 kHz Deviation)

Test Data – Spurious Emissions at Antenna Terminals

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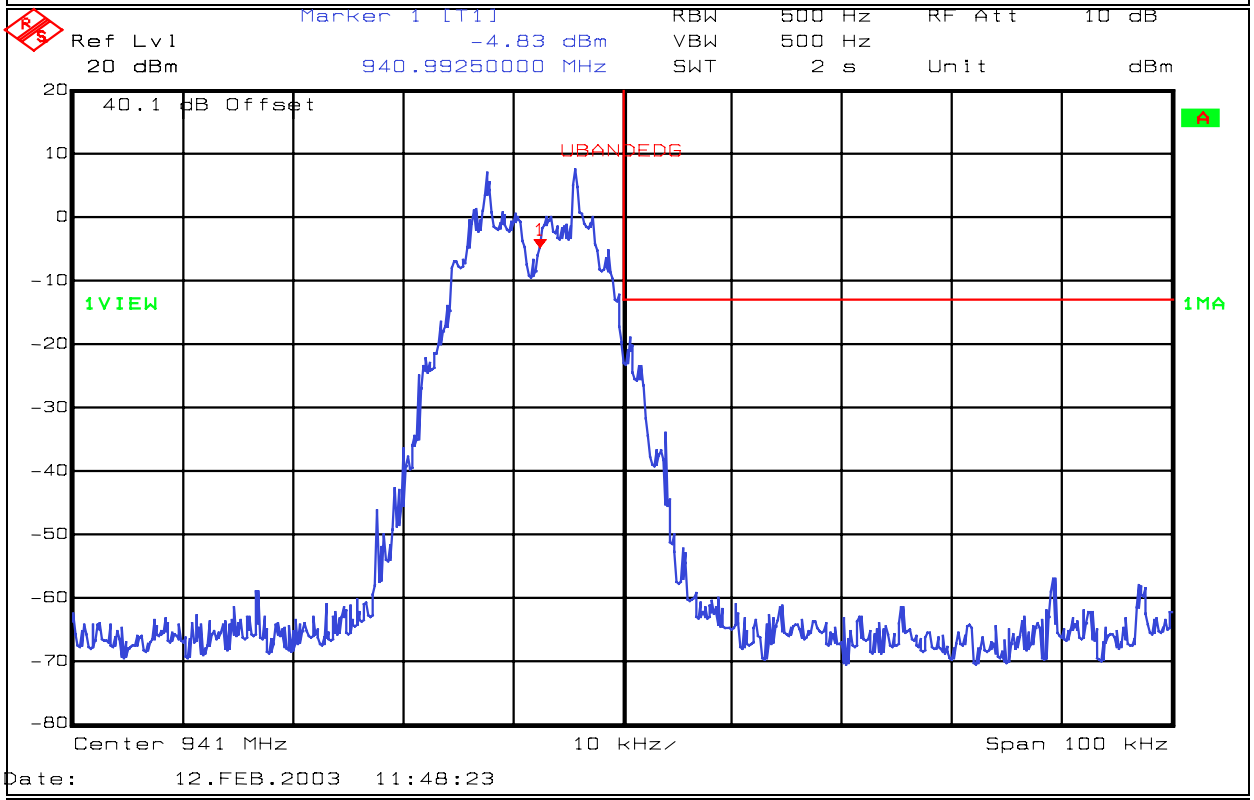
Nemko Dallas, Inc.

Test Plot: **Bandedges**

Page 4 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 22	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **UPPER BANDEDGE**
2FSK

Test Data – Spurious Emissions at Antenna Terminals

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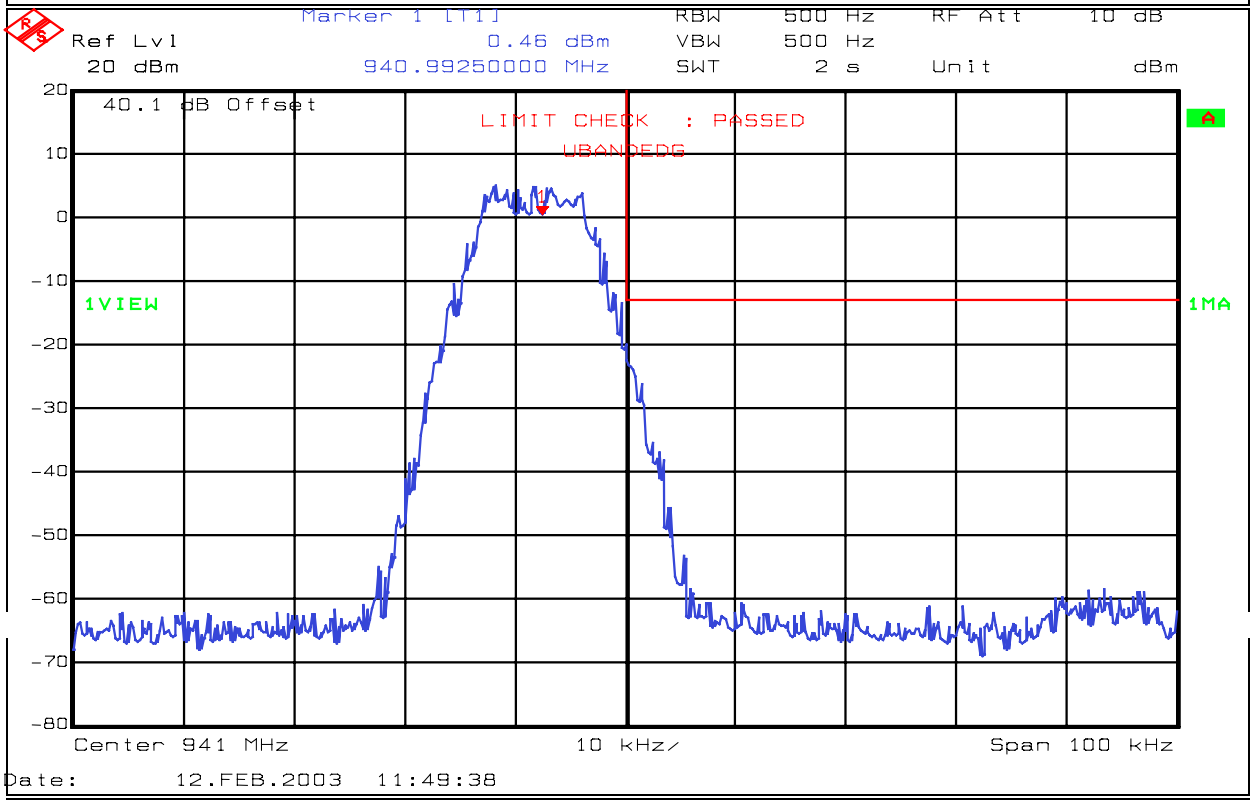
Nemko Dallas, Inc.

Test Plot: **Bandedges**

Page 5 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 22	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **UPPER BANDEDGE**
4FSK

Test Data – Spurious Emissions at Antenna Terminals

Nemko Dallas, Inc.

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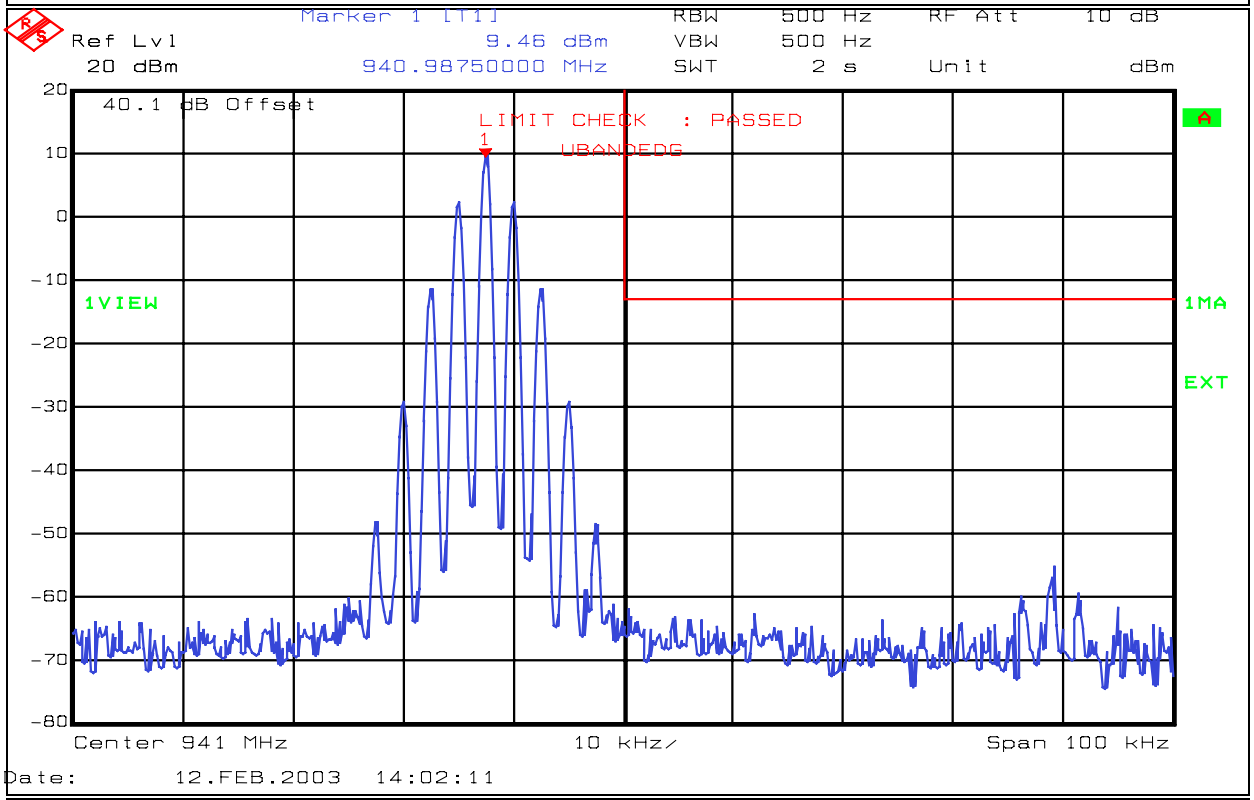
Test Plot: **Bandedges**

Page 6 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 22	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **UPPER BANDEDGE**
ANALOG (2.5 kHz Tone / 2 kHz Deviation)

Test Data – Spurious Emissions at Antenna Terminals

Dallas Headquarters:
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Nemko Dallas, Inc.

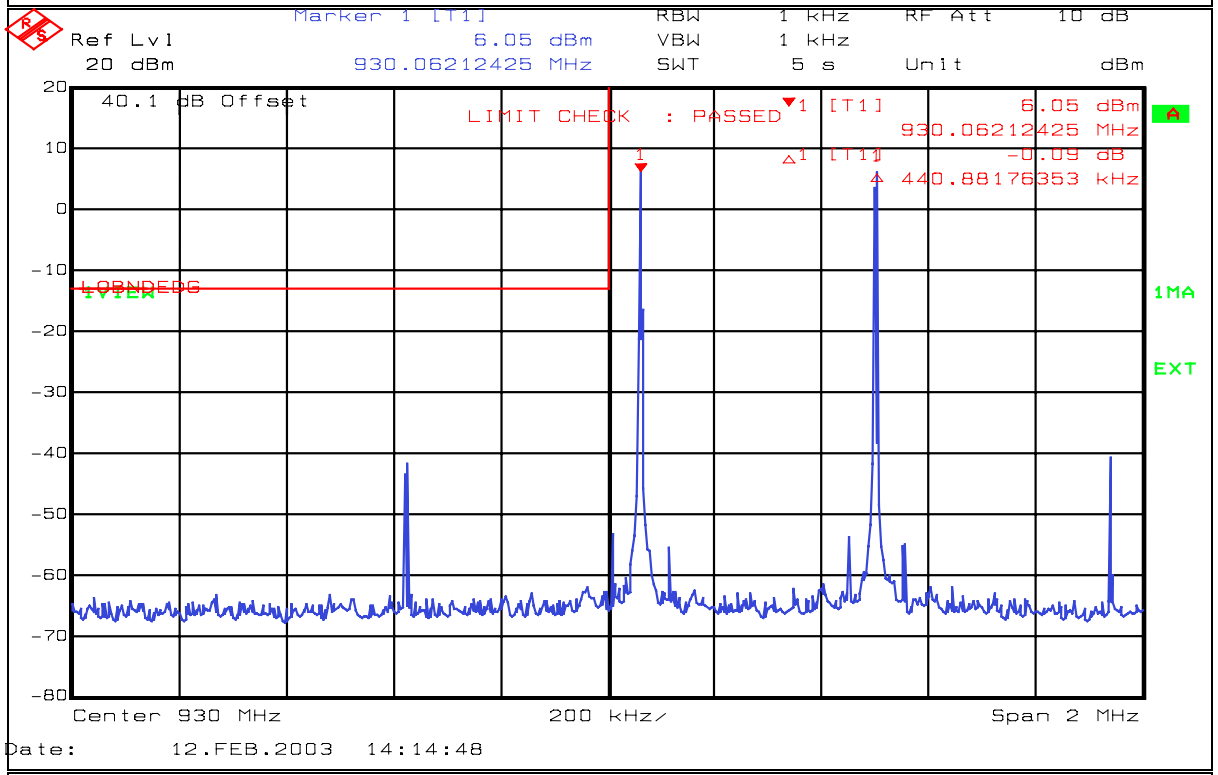
Data Plot **Intermodulation Characteristics**

Page 1 of 6 Complete x

Job No.:	3L0032R	Date:	2/12/2003	Preliminary:	
Specification:	PART 22	Temperature(°C):	20		
Tested By:	David Light	Relative Humidity(%)	30		
E.U.T.:	REPEATER				
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)				
Sample Number:	1				
Location:	Lab 1	RBW:	Refer to plots	Measurement Distance:	m
Detector Type:	Peak	VBW:	Refer to plots		

Test Equipment Used

Antenna:		Directional Coupler:	
Pre-Amp:		Cable #1:	1628
Filter:		Cable #2:	
Receiver:	1036	Cable #3:	
Attenuator #1	1064	Cable #4:	
Attenuator #2:	1604	Mixer:	
Additional equipment used:			
Measurement Uncertainty:	+/-1.7 dB		



Notes: **LOWER BANDEDGE**
Analog

Test Data – Spurious Emissions at Antenna Terminals

Nemko

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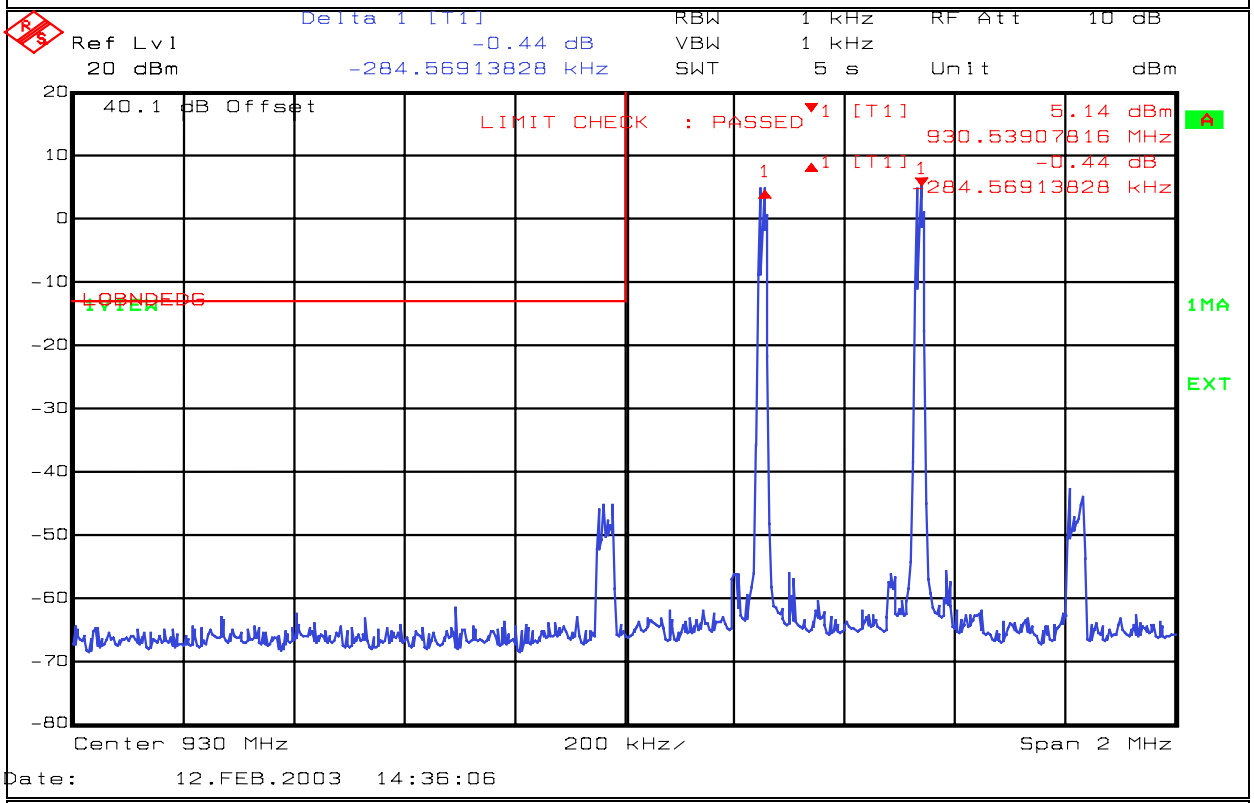
Nemko Dallas, Inc.

Data Plot **Intermodulation Characteristics**

Page 2 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 22	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **LOWER BANDEDGE**
2FSK

Test Data – Spurious Emissions at Antenna Terminals

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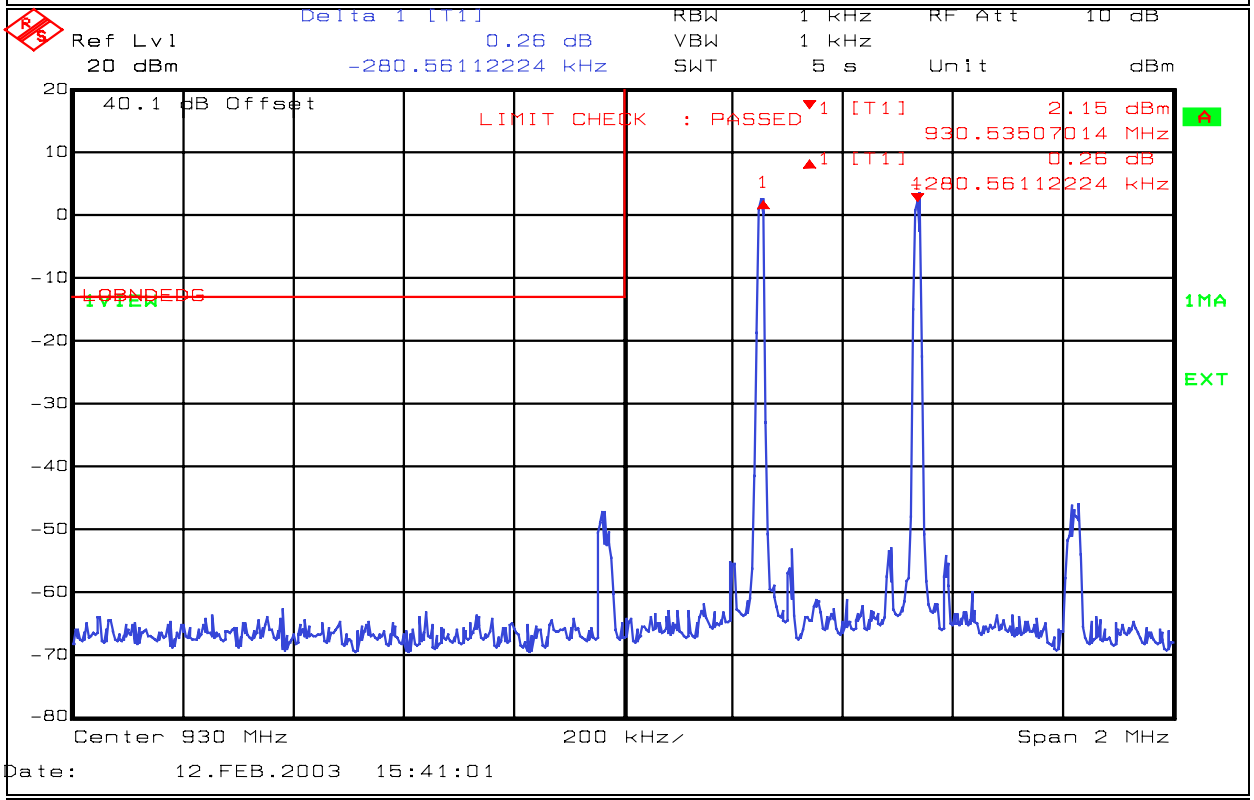
Data Plot **Intermodulation Characteristics**

Page 3 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 22	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **LOWER BANDEDGE**
4FSK

Test Data – Spurious Emissions at Antenna Terminals

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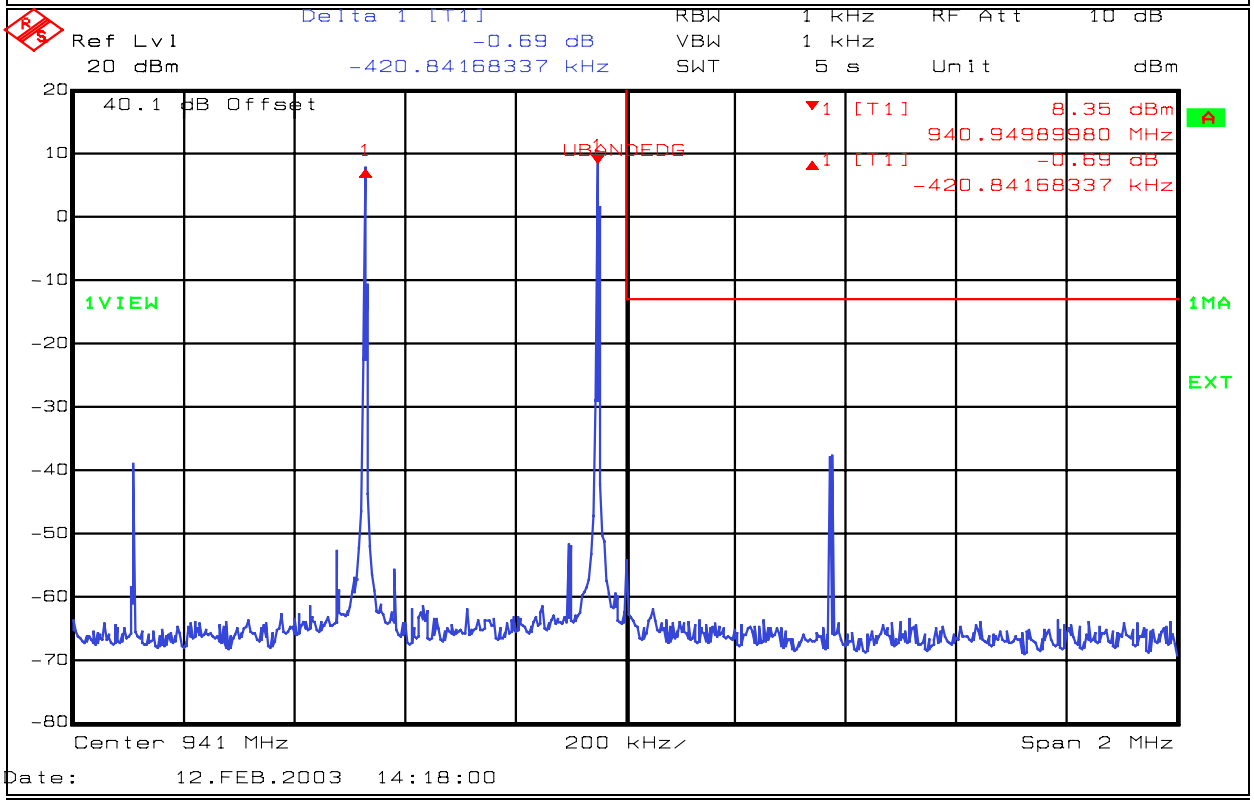
Nemko Dallas, Inc.

Test Plot: **Intermodulation Characteristics**

Page 4 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 22	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **UPPER BANDEDGE**
Analog

Test Data – Spurious Emissions at Antenna Terminals

Nemko Dallas, Inc.

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Test Plot: **Intermodulation Characteristics**

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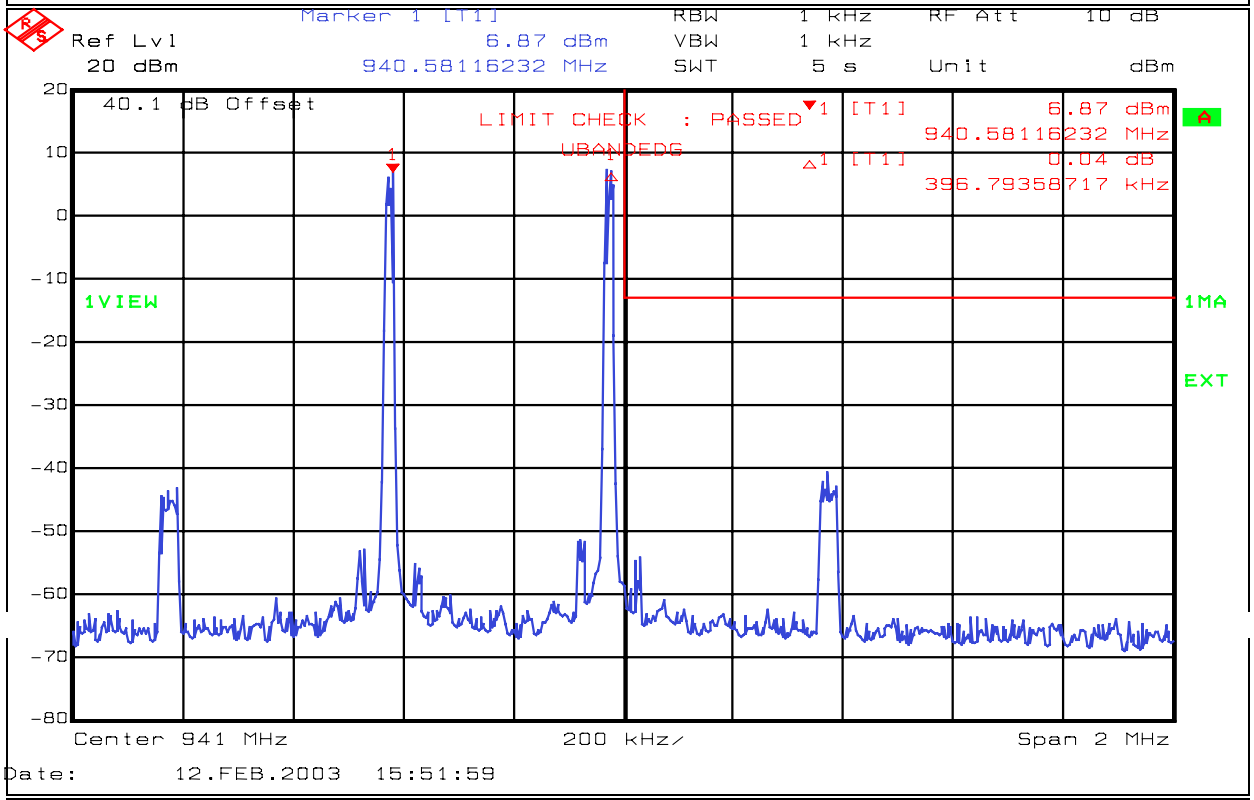
Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 22	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **UPPER BANDEDGE**
2FSK

Test Data – Spurious Emissions at Antenna Terminals

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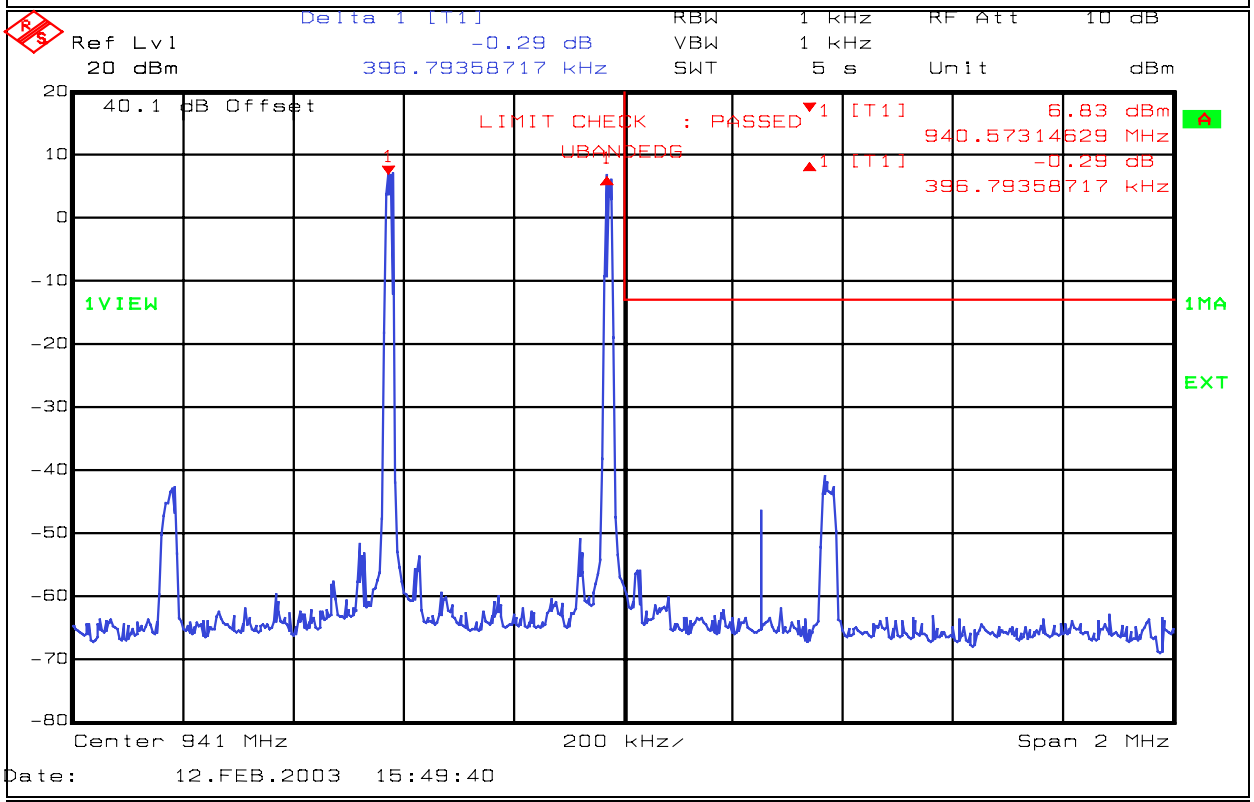
Test Plot: **Intermodulation Characteristics**

Page 6 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 22	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **UPPER BANDEDGE**
4FSK

Test Data – Spurious Emissions at Antenna Terminals

Nemko Dallas, Inc.

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Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

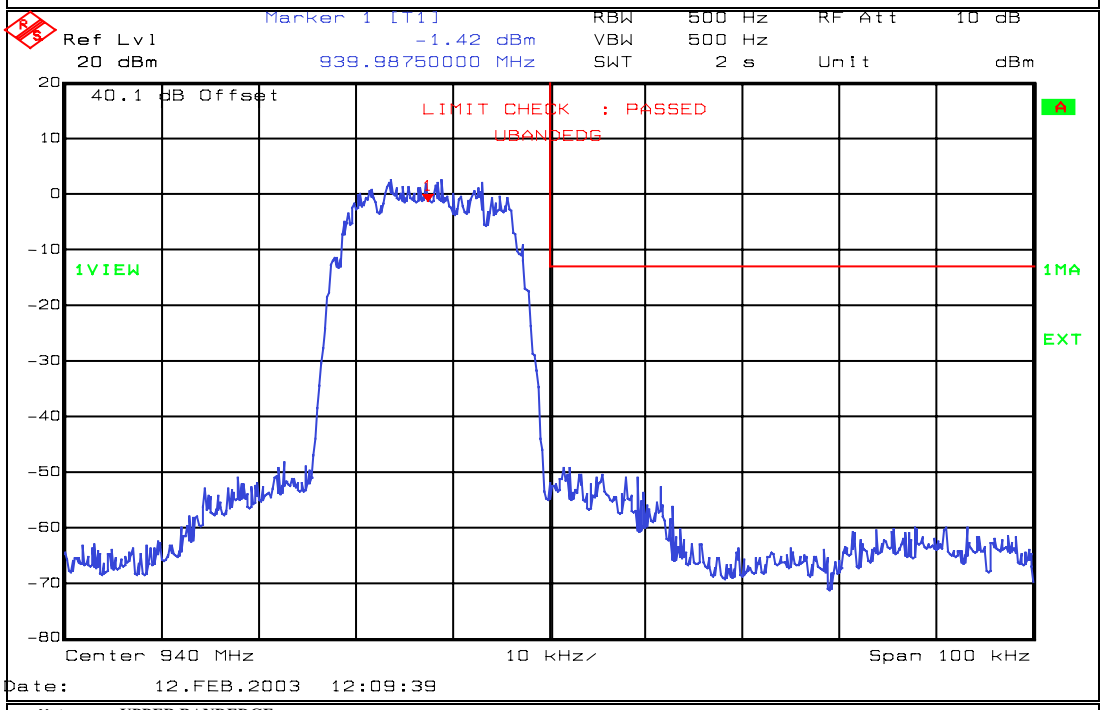
Data Plot **Bandedges**

Page 1 of 4 Complete x

Job No.:	3L0032R	Date:	2/12/2003	Preliminary:	
Specification:	PART 22	Temperature(°C):	20		
Tested By:	David Light	Relative Humidity(%)	30		
E.U.T.:	REPEATER				
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)				
Sample Number:	1				
Location:	Lab 1	RBW:	Refer to plots	Measurement	
Detector Type:	Peak	VBW:	Refer to plots	Distance:	m

Test Equipment Used

Antenna:		Directional Coupler:	
Pre-Amp:		Cable #1:	1628
Filter:		Cable #2:	
Receiver:	1036	Cable #3:	
Attenuator #1	1064	Cable #4:	
Attenuator #2:	1604	Mixer:	
Additional equipment used:			
Measurement Uncertainty:	+/-1.7 dB		



Notes: **UPPER BANDEDGE**
iDEN

Test Data – Spurious Emissions at Antenna Terminals

Dallas Headquarters:
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Lewisville, TX 75057
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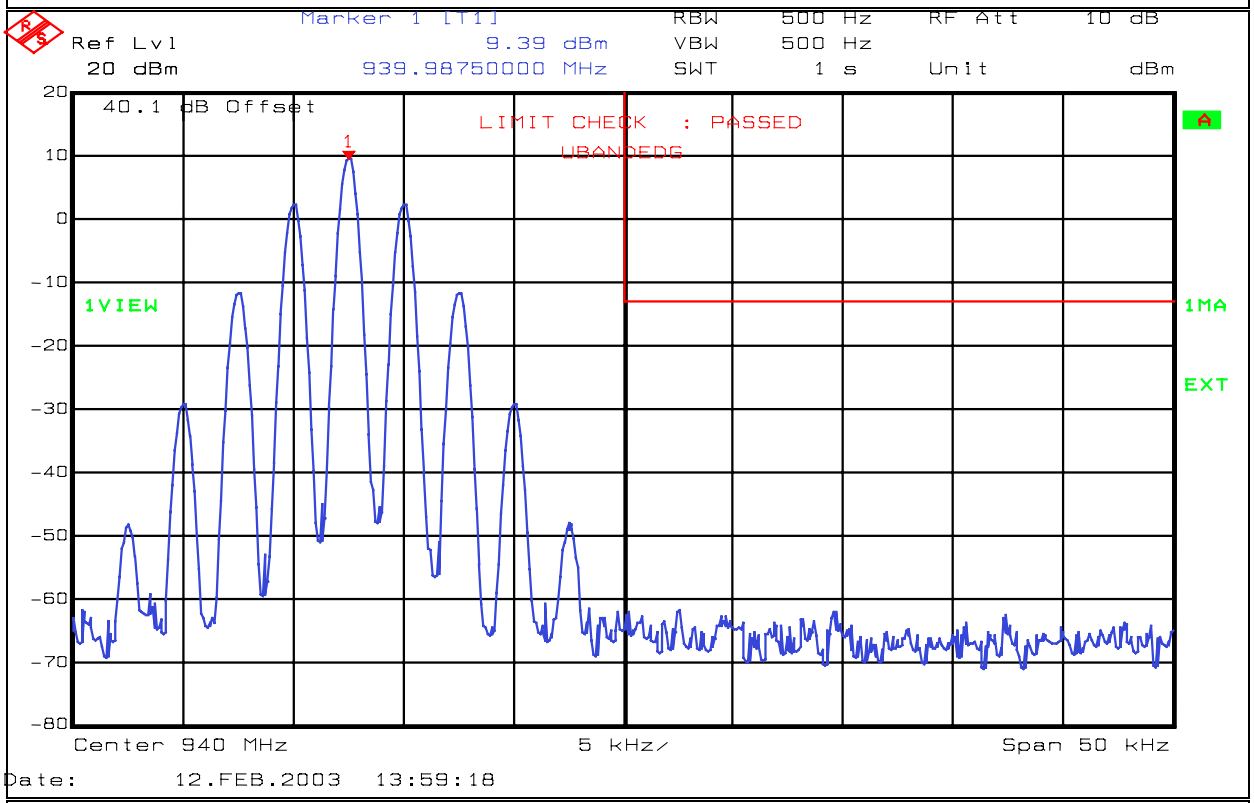
Nemko Dallas, Inc.

Data Plot **Bandedges**

Page 2 of 4

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 22	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **UPPER BANDEDGE**
Analog (2.5 kHz Tone / 2 kHz deviation)

Test Data – Spurious Emissions at Antenna Terminals

Nemko Dallas, Inc.

Dallas Headquarters:
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Lewisville, TX 75057
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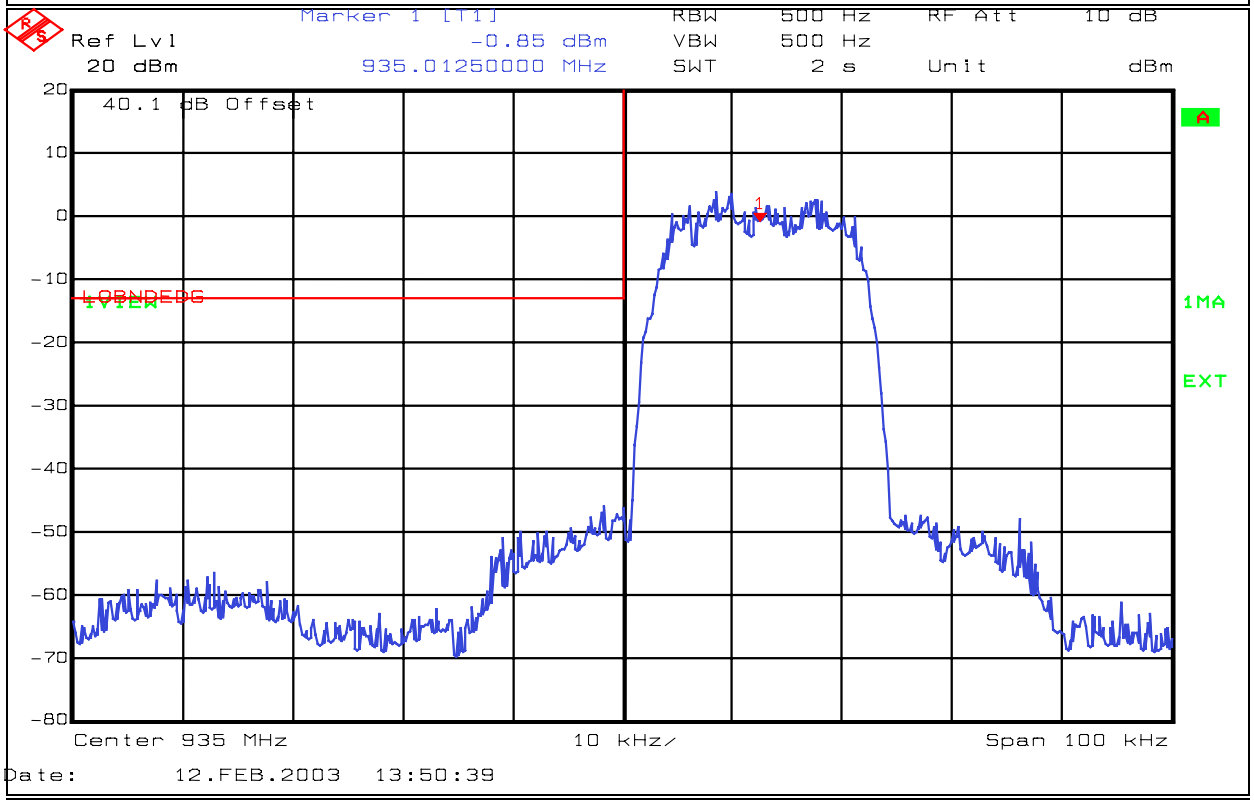
Data Plot **Bandedges**

Page 3 of 4

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 22	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **LOWER BANDEDGE**
iDEN

Test Data – Spurious Emissions at Antenna Terminals

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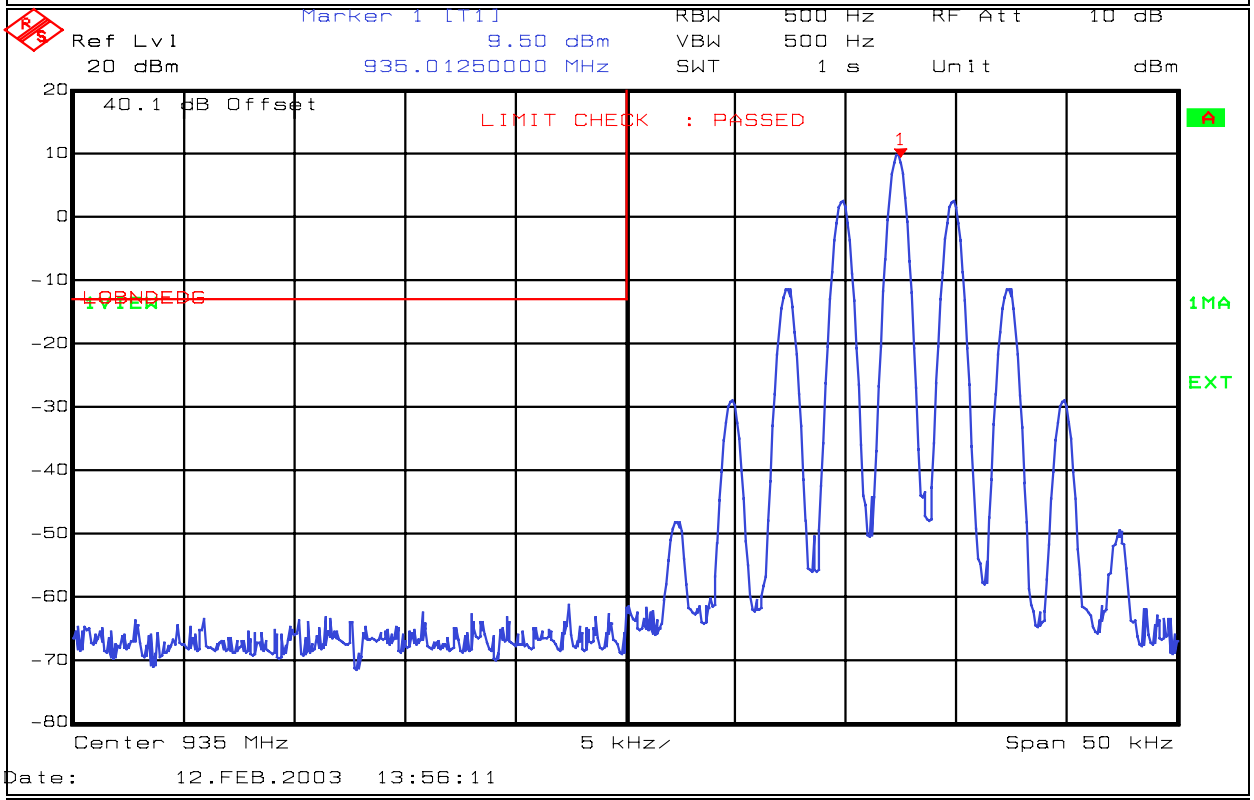
Test Plot: **Bandedges**

Page 4 of 4

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 22	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **LOWER BANDEDGE**
ANALOG (2.5 kHz Tone / 2 kHz Deviation)

Test Data – Spurious Emissions at Antenna Terminals

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Nemko Dallas, Inc.

Data Plot **Intermodulation Characteristics**

Page 1 of 6 Complete x

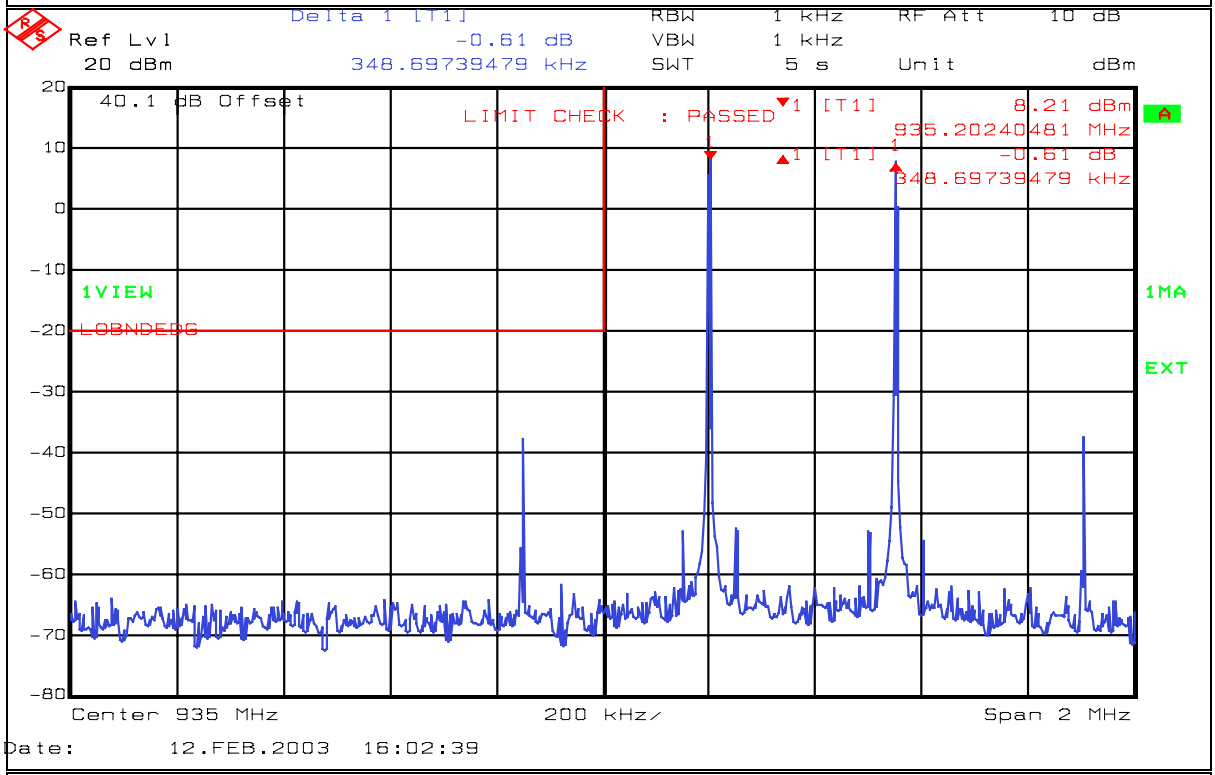
Job No.:	3L0032R	Date:	2/12/2003	Preliminary:	
Specification:	PART 90	Temperature(°C):	20		
Tested By:	David Light	Relative Humidity(%)	30		
E.U.T.:	REPEATER				
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)				
Sample Number:	1				
Location:	Lab 1	RBW:	Refer to plots	Measurement Distance:	m
Detector Type:	Peak	VBW:	Refer to plots		

Test Equipment Used

Antenna:		Directional Coupler:	
Pre-Amp:		Cable #1:	1628
Filter:		Cable #2:	
Receiver:	1036	Cable #3:	
Attenuator #1	1064	Cable #4:	
Attenuator #2:	1604	Mixer:	

Additional equipment used:

Measurement Uncertainty: +/-1.7 dB



Notes: **LOWER BANDEDGE**
Analog

Test Data – Spurious Emissions at Antenna Terminals

Nemko

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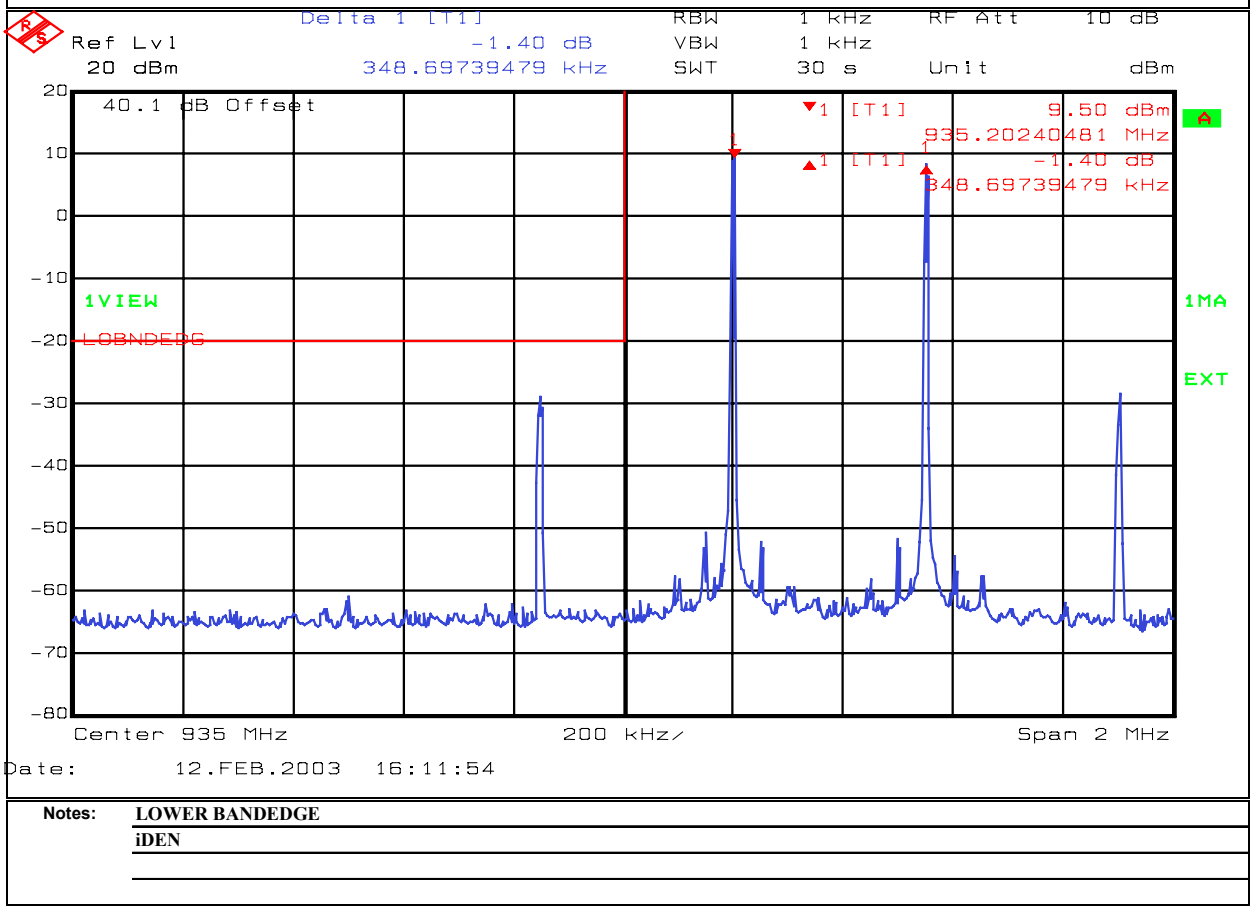
Nemko Dallas, Inc.

Data Plot **Intermodulation Characteristics**

Page 2 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 90	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **LOWER BANDEDGE**
iDEN

Test Data – Spurious Emissions at Antenna Terminals

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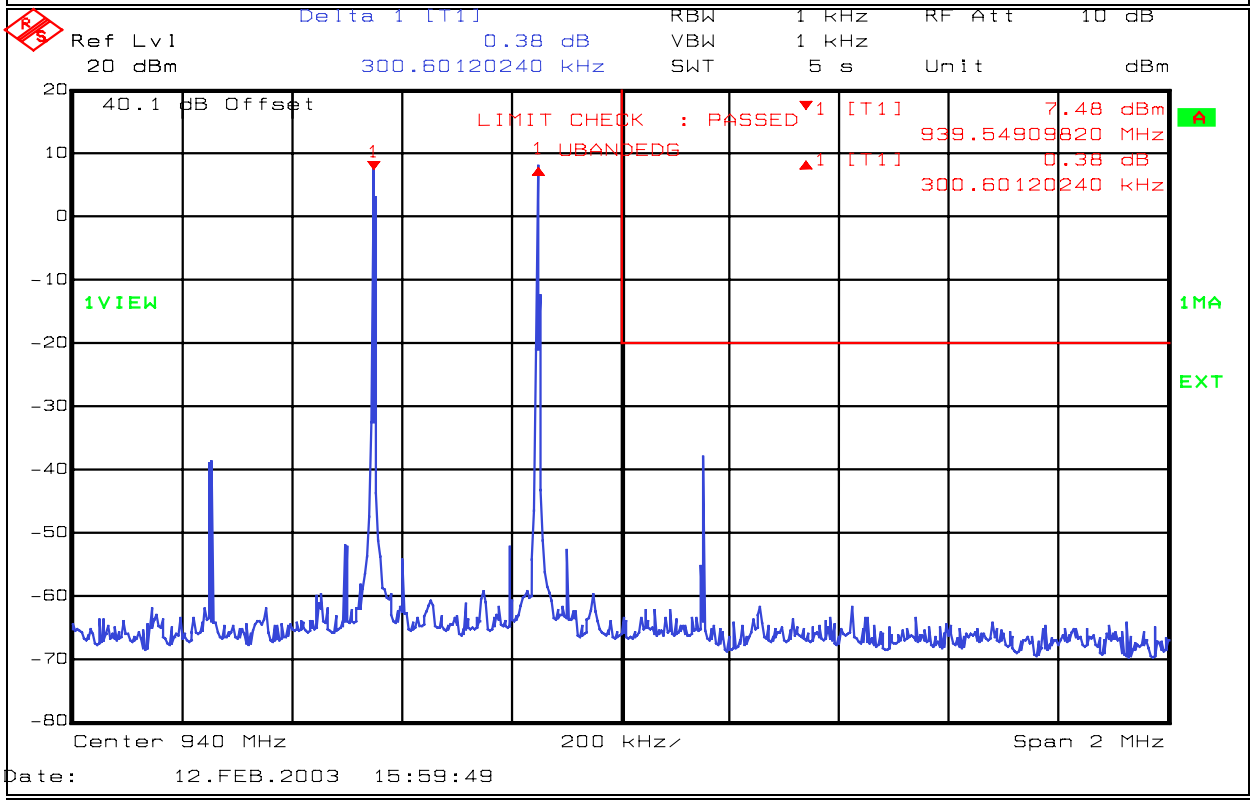
Data Plot **Intermodulation Characteristics**

Page 3 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 90	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **UPPER BANDEDGE**
Analog

Test Data – Spurious Emissions at Antenna Terminals

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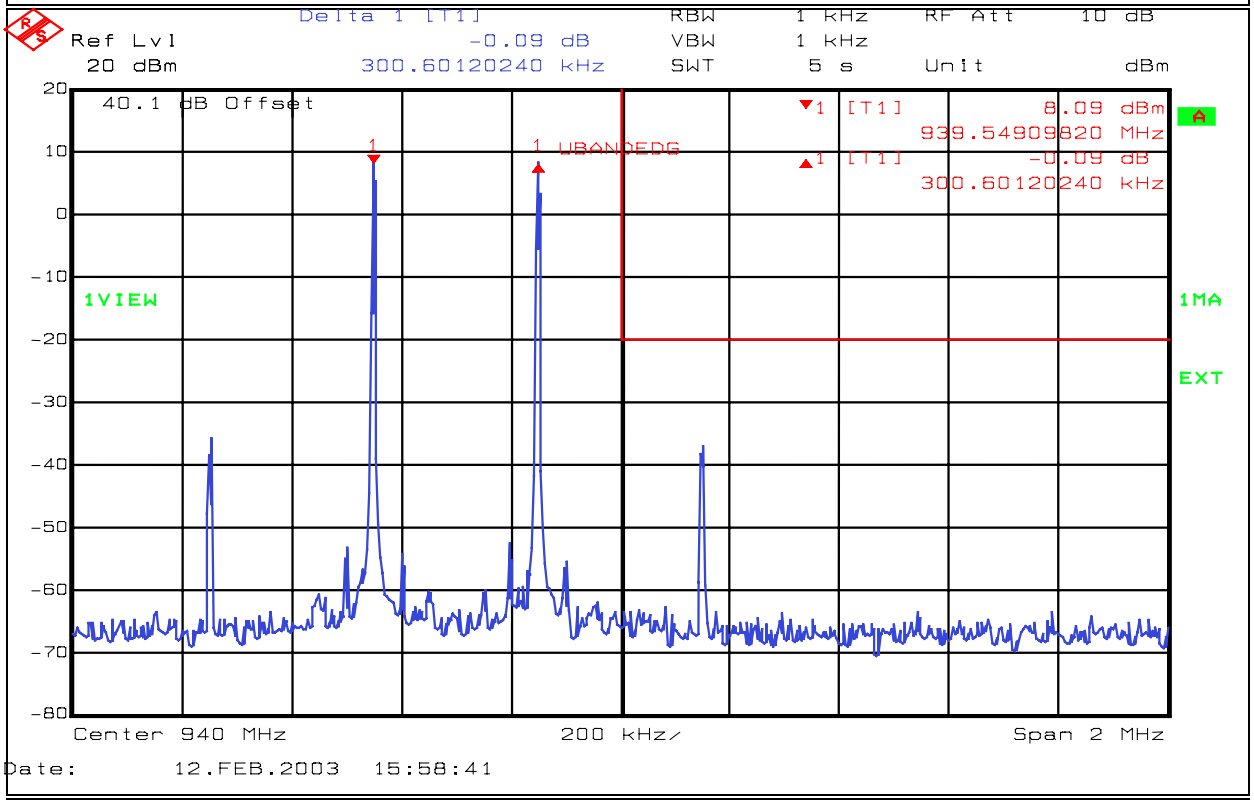
Nemko Dallas, Inc.

Test Plot: **Intermodulation Characteristics**

Page 4 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PART 90	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **UPPER BANDEDGE**
iDEN

Test Data – Spurious Emissions at Antenna Terminals

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Data Plot **Intermodulation Characteristics**

Page 1 of 6 Complete x

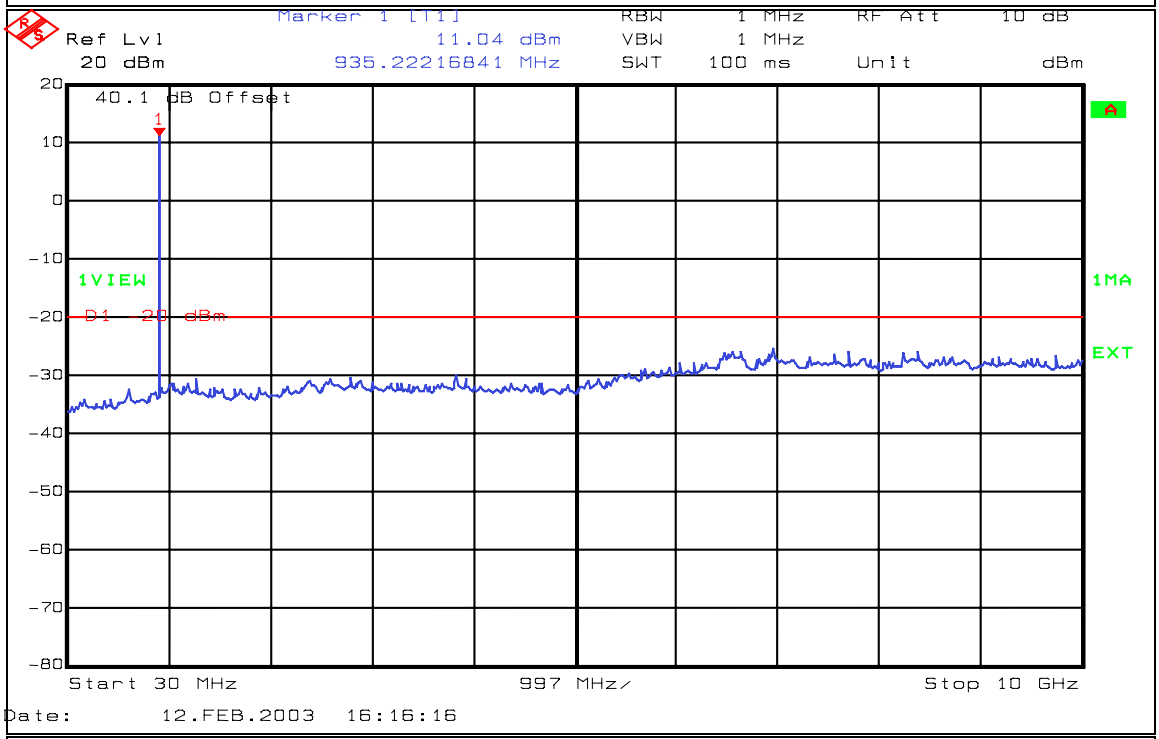
Job No.:	3L0032R	Date:	2/12/2003	Preliminary:	
Specification:	PARTS 22 & 90	Temperature(°C):	20		
Tested By:	David Light	Relative Humidity(%)	30		
E.U.T.:	REPEATER				
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)				
Sample Number:	1				
Location:	Lab 1	RBW:	Refer to plots	Measurement	
Detector Type:	Peak	VBW:	Refer to plots	Distance:	m

Test Equipment Used

Antenna:		Directional Coupler:	
Pre-Amp:		Cable #1:	1628
Filter:		Cable #2:	
Receiver:	1036	Cable #3:	
Attenuator #1	1064	Cable #4:	
Attenuator #2:	1604	Mixer:	

Additional equipment used:

Measurement Uncertainty: +/-1.7 dB



Notes: **Analog**

Test Data – Spurious Emissions at Antenna Terminals

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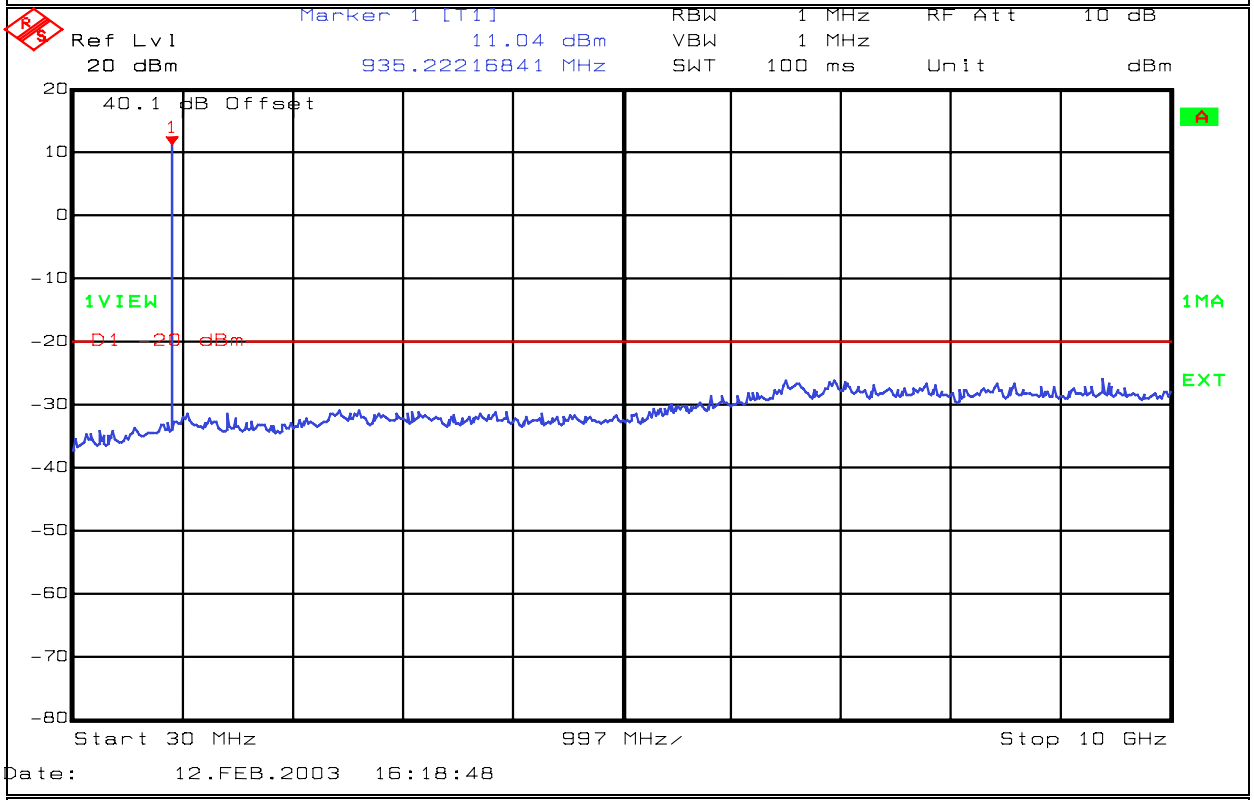
Nemko Dallas, Inc.

Data Plot **Intermodulation Characteristics**

Page 2 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PARTS 22 & 90	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **2FSK**

Test Data – Spurious Emissions at Antenna Terminals

Nemko Dallas, Inc.

Dallas Headquarters:
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Lewisville, TX 75057
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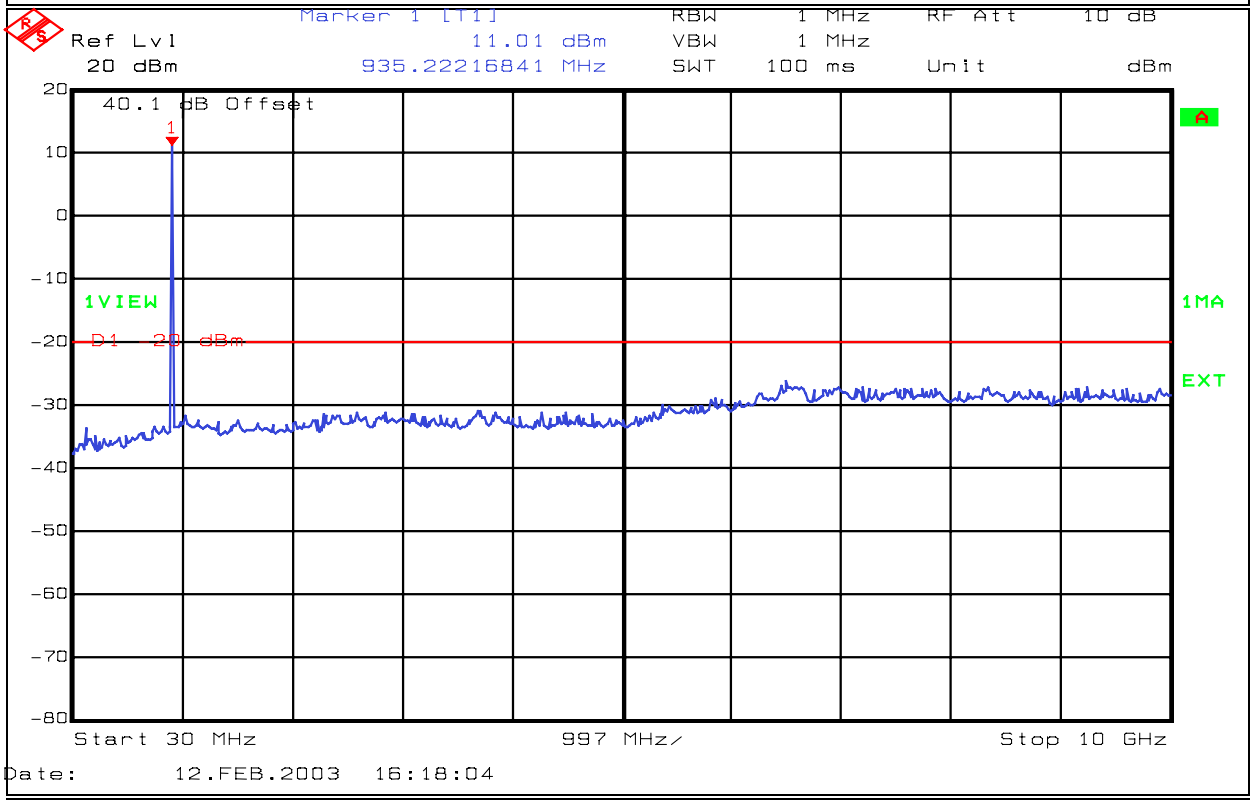
Fax: (972) 436-2667

Data Plot **Intermodulation Characteristics**

Page 3 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PARTS 22 & 90	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: **4FSK**

Test Data – Spurious Emissions at Antenna Terminals

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Lewisville, TX 75057
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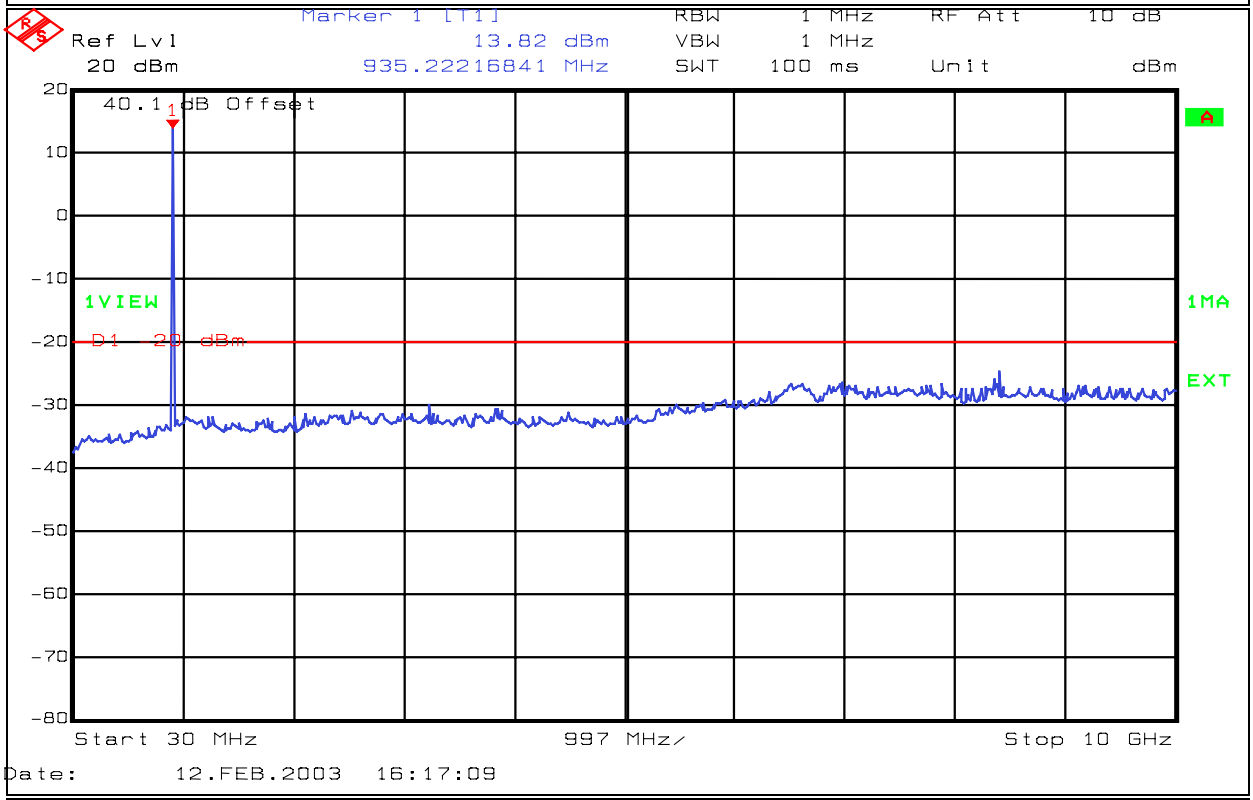
Fax: (972) 436-2667

Nemko Dallas, Inc.

Test Plot: **Intermodulation Characteristics**

Page 4 of 6

Job No.:	3L0032R	Date:	2/12/2003
Specification:	PARTS 22 & 90	Temperature(°C):	20
Tested By:	David Light	Relative Humidity(%)	30
E.U.T.:	REPEATER		
Configuration:	TX FULL POWER (INPUT VS, OUTPUT)		



Notes: iDEN

Section 6. Field Strength of Spurious Emissions

NAME OF TEST: Field Strength of Spurious Emissions	PARA. NO.: 2.993
TESTED BY: David Light	DATE: 2/26/03

Test Results: Complies.

Test Data: There were no emissions detected above the noise floor which was at least 20 dB below the spec limit.

Test equipment used: 1036-1484-1485-1304-1016

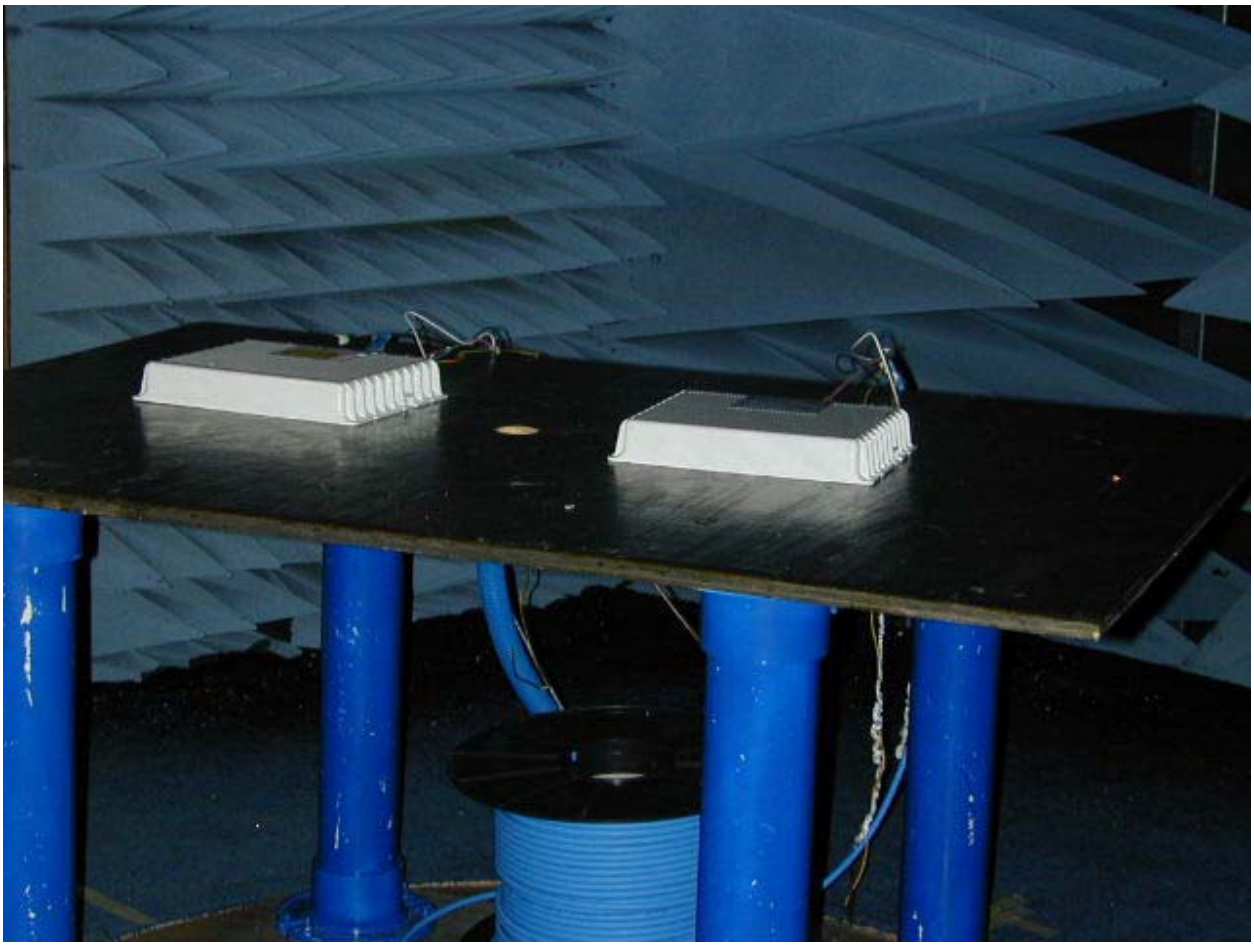
Test Method: TIA/EIA-603-1992, Section 2.2.12

The antenna substitution method was used to determine the equivalent radiated power at spurious frequencies. The spurious emissions were measured at a distance of 3 meters. The EUT was then replaced with a reference substitution antenna with a known gain referenced to a dipole. This antenna was fed with a signal at the spurious frequency. The level of the signal was adjusted to repeat the previously measured level. The resulting erp is the signal level fed to the reference antenna corrected for gain referenced to a dipole.

Test conditions:

Relative humidity: 20%
Temperature: 22^{o}C

Photographs of Test Setup



Section 7. Frequency Stability

NAME OF TEST: Frequency Stability	PARA. NO.: 2.995
TESTED BY:	DATE:

Test Results: Not Applicable. The EUT does not translate the frequency of the rf signal.

Measurement Data: See attached tables.

Section 8. Test Equipment List

Nemko ID	Description	Manufacturer Model Number	Serial Number
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006
1484	Cable 2.0-18.0 Ghz	Storm PR90-010-072	N/A
1485	Cable 2.0-18.0 Ghz	Storm PR90-010-216	N/A
1304	HORN ANTENNA	ELECTRO METRICS RGA-60	6151
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159
1046	Flex cable 1m	Astrolab Inc. 32022-2-29094K-1M	N/A
1082	CABLE 2m	Astrolab 32027-2-29094-72TC	N/A
1604	ATTENUATOR	NARDA 776B-20	NONE
1064	ATTENUATOR	NARDA 776B-20	NONE
1628	CABLE, 6 ft	MEGAPHASE TM26 S1S5 72	N/A

ANNEX A - TEST METHODOLOGIES

NAME OF TEST: RF Power Output	**PARA. NO.: 2.985**

Minimum Standard: Para. No. 90.205(a). The maximum allowable station ERP is dependent upon the stations HAAT and required service area and will be authorized in accordance with Table 1 of 90.205(d).

Method Of Measurement:

Detachable Antenna:
The peak power at antenna terminals is measured using an in-line peak power meter. Power output is measured with the maximum rated input level.

NAME OF TEST: Spurious Emissions at Antenna Terminals PARA. NO.: 2.991

Test Method: RBW: 1% of emission bandwidth in the 0 - 1 GHz range.
1 MHz at frequencies above 1 GHz.

VBW: $\Rightarrow$ RBW

The spectrum is searched up to 10 times the fundamental frequency.

NAME OF TEST: Occupied Bandwidth **PARA. NO.: 2.989**

Minimum Standard: Para. No. 90.210, see table 1 below for applicable mask.

Table 1

Frequency Band (MHz)	Mask for equipment with Low Pass Filter	Mask for equipment without Low Pass Filter
Below 25	A or B	A or C
25 - 50	B	C
72 - 76	B	C
150 - 174	B, D or E	C, D or E
150 Paging only	B	C
220 - 222	F	F
421 - 512	B, D or E	C, D or E
450 paging only	B	H
806 - 821/ 851 - 866	B	G
821 - 824/ 866 - 869	B	H
896 - 901/ 935 - 940	I	J
902 - 928	K	K
929 - 930	B	G
Above 940	B	C
All other bands	B	C

NAME OF TEST: Field Strength of Spurious **PARA. NO.: 2.993**

Test Method: TIA/EIA-603-1992, Section 2.2.12

The antenna substitution method was used to determine the equivalent radiated power at spurious frequencies. The spurious emissions were measured at a distance of 3 meters. The EUT was then replaced with a reference substitution antenna with a known gain referenced to a dipole. This antenna was fed with a signal at the spurious frequency. The level of the signal was adjusted to repeat the previously measured level. The resulting erp is the signal level fed to the reference antenna corrected for gain referenced to a dipole.

Minimum Standard: Para. No. 90.210, see table 1 for applicable mask.

MASK	Spurious Limit
A,B,C,G,H,I	-13dBm
D,J	-20dBm
E,F,K	-25dBm

NAME OF TEST: Frequency Stability **PARA. NO.: 2.995**

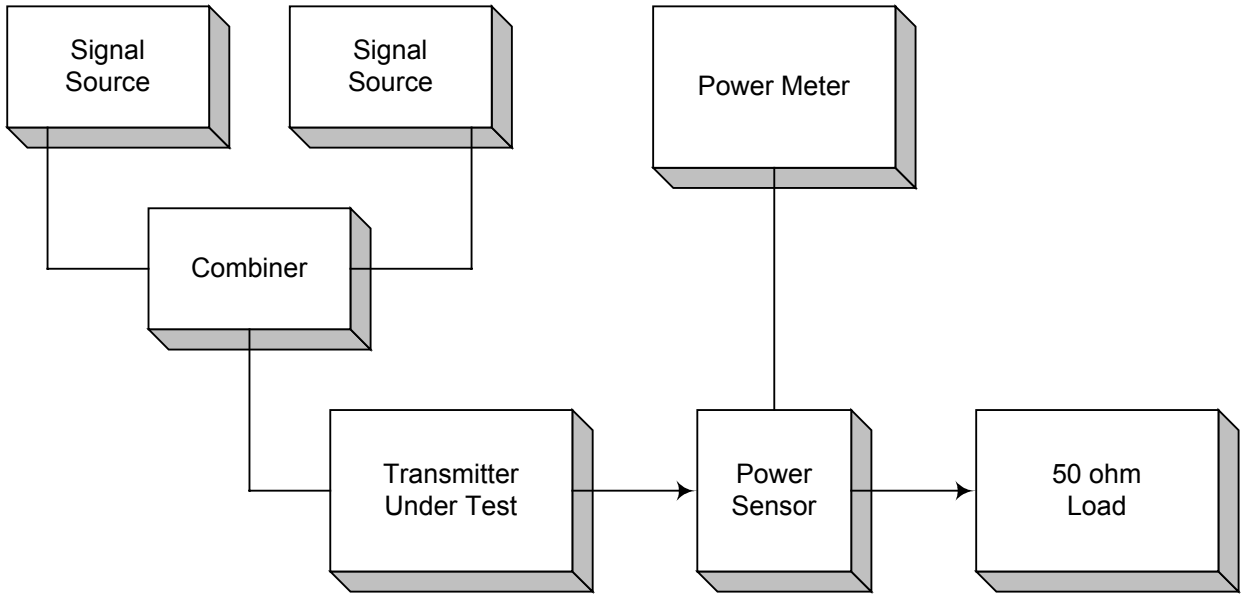
Minimum Standard: Para. No. 990.213. The transmitter carrier frequency shall remain within the assigned frequency below in ppm.

Table 2

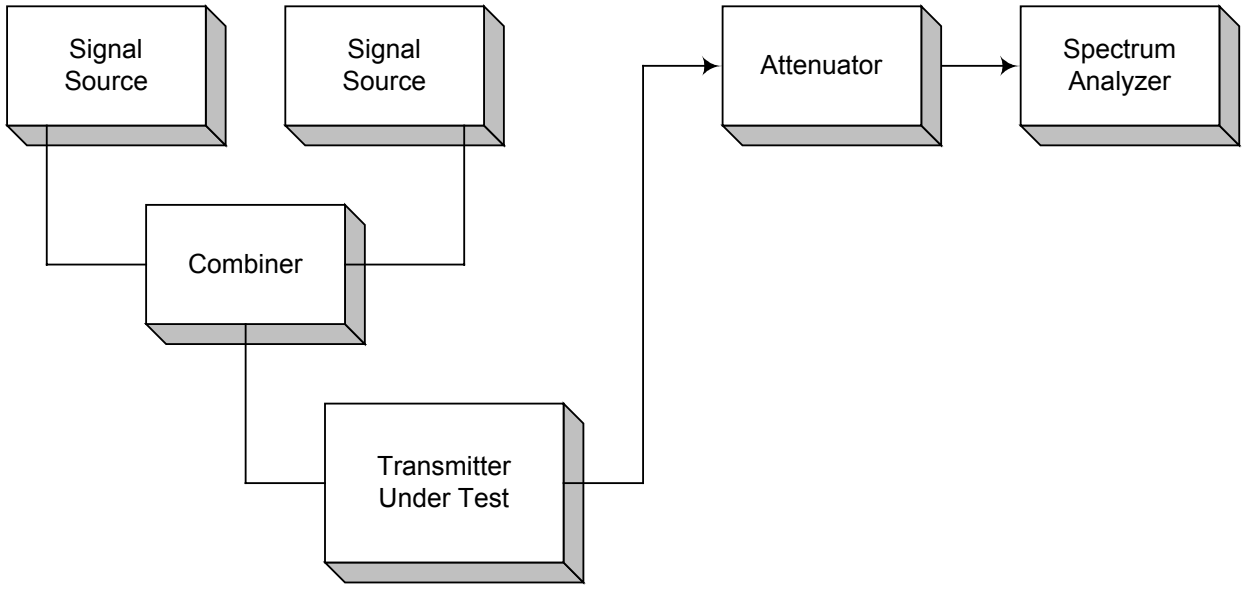
Frequency Band (MHz)	Fixed And Base Stations	Mobile Stations	
		> 2 Watts o/p pwr	< 2 Watts o/p pwr
Below 25	100	100	200
25 - 50	20	20	50
72 - 76	5	-	50
150 - 174	5	5	5
220 - 222	0.1	1.5	1.5
421 - 512	2.5	5	5
806 - 821	1.5	2.5	2.5
821 - 824	1.0	1.5	15
851 - 866	1.5	2.5	2.5
866 - 869	1.0	1.5	1.5
869 - 901	0.1	1.5	1.5
902 - 928	2.5	2.5	2.5
929 - 930	1.5	-	-
935 - 940	0.1	1.5	1.5
1427 - 1435	300	300	300
Above 2450	-	-	-

ANNEX B - TEST DIAGRAMS

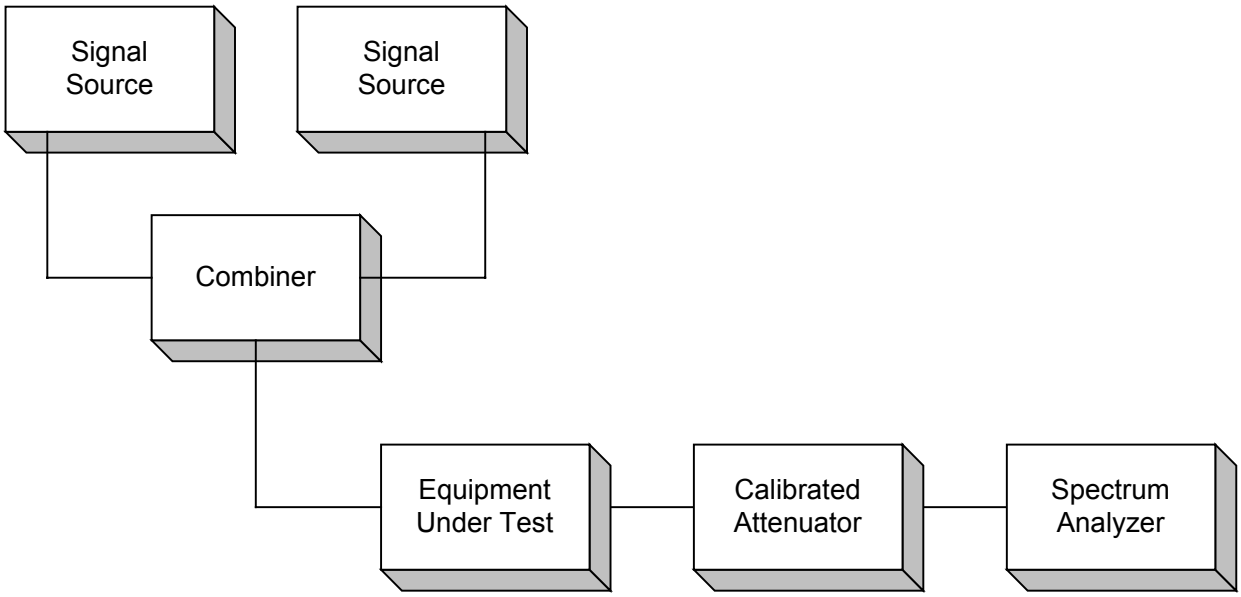
Para. No. 2.985 - R.F. Power Output



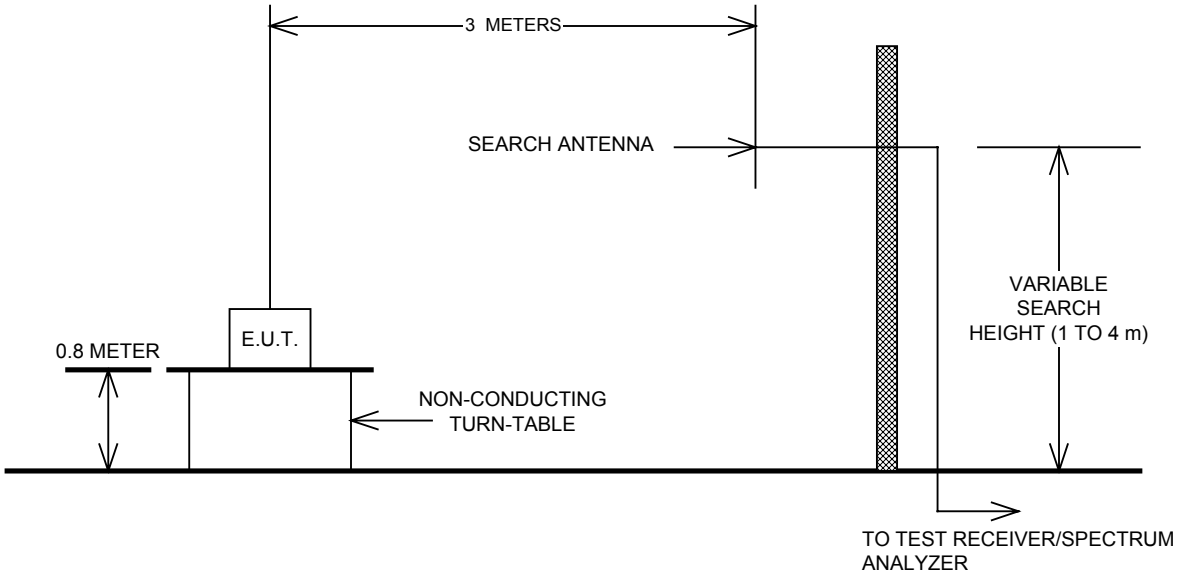
Para. No. 2.989 - Occupied Bandwidth



Para. No. 2.991 - Spurious Emissions at Antenna Terminals



Para. No. 2.993 - Field Strength of Spurious Radiation



Para. No. 2.995 - Frequency Stability