

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

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EQUIPMENT: **BRITECELL FAST****PROJECT NO.: 3L0032RUS1**

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

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EQUIPMENT: **BRITECELL FAST****PROJECT NO.: 3L0032RUS1**

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:

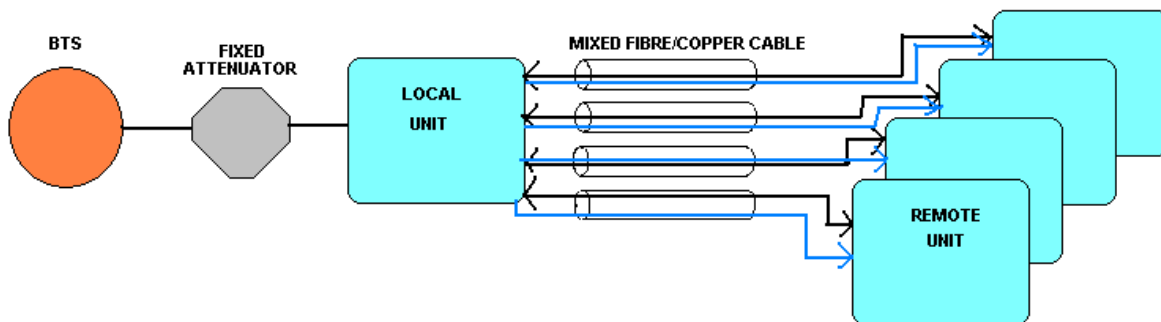
- (1) Since the E.U.T. does not contain modulation circuitry modulation testing was not performed.
- (2) Since the E.U.T. is not a keyed carrier system, Transient Frequency Behavior was not performed.

EQUIPMENT: BRITECELL FASTPROJECT NO.: 3L0032RUS1

Theory of Operation

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

System Diagram



EQUIPMENT: **BRITECELL FAST****PROJECT NO.: 3L0032RUS1**

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°C

EQUIPMENT: **BRITECELL FAST**

PROJECT NO.: 3L0032RUS1

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).

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test data – Occupied Bandwidth



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Fax: (972) 436-2667

Data Plot		Occupied Bandwidth	
Page <u>1</u> of <u>8</u>		Complete <u>x</u>	
Job No.: <u>3L0032R</u>	Date: <u>2/12/2003</u>	Preliminary: <u> </u>	
Specification: <u>PARTS 22 & 90</u>	Temperature(°C): <u>20</u>		
Tested By: <u>David Light</u>	Relative Humidity(%) <u>30</u>		
E.U.T.: <u>REPEATER</u>			
Configuration: <u>TX FULL POWER (INPUT VS. OUTPUT)</u>			
Sample Number: <u>1</u>			
Location: <u>Lab 1</u>	RBW: <u>Refer to plots</u>	Measurement	
Detector Type: <u>Peak</u>	VBW: <u>Refer to plots</u>	Distance: <u> </u> m	
Test Equipment Used			
Antenna: <u> </u>	Directional Coupler: <u> </u>		
Pre-Amp: <u> </u>	Cable #1: <u>1628</u>		
Filter: <u> </u>	Cable #2: <u> </u>		
Receiver: <u>1036</u>	Cable #3: <u> </u>		
Attenuator #1: <u>1064</u>	Cable #4: <u> </u>		
Attenuator #2: <u>1604</u>	Mixer: <u> </u>		
Additional equipment used: <u> </u>			
Measurement Uncertainty: <u>+/-1.7 dB</u>			
Date: <u>12.FEB.2003 09:14:32</u>			
Notes: <u>OUTPUT ANALOG (2.5 kHz Tone / 2 kHz Deviation)</u>			
<u> </u>			
<u> </u>			

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

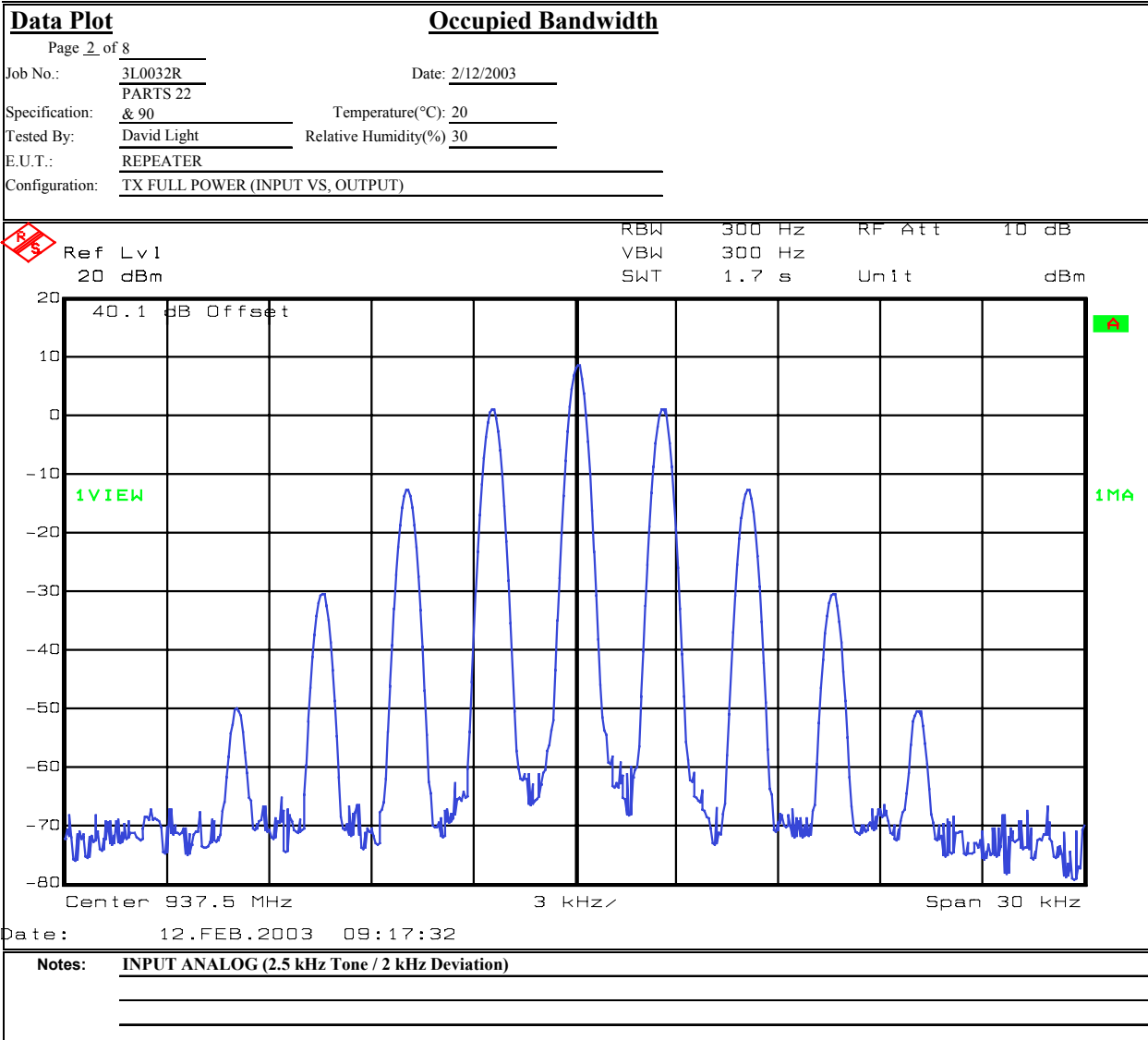
Test data – Occupied Bandwidth



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EQUIPMENT: BRITECELL FAST

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Test data – Occupied Bandwidth



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Dallas Headquarters:

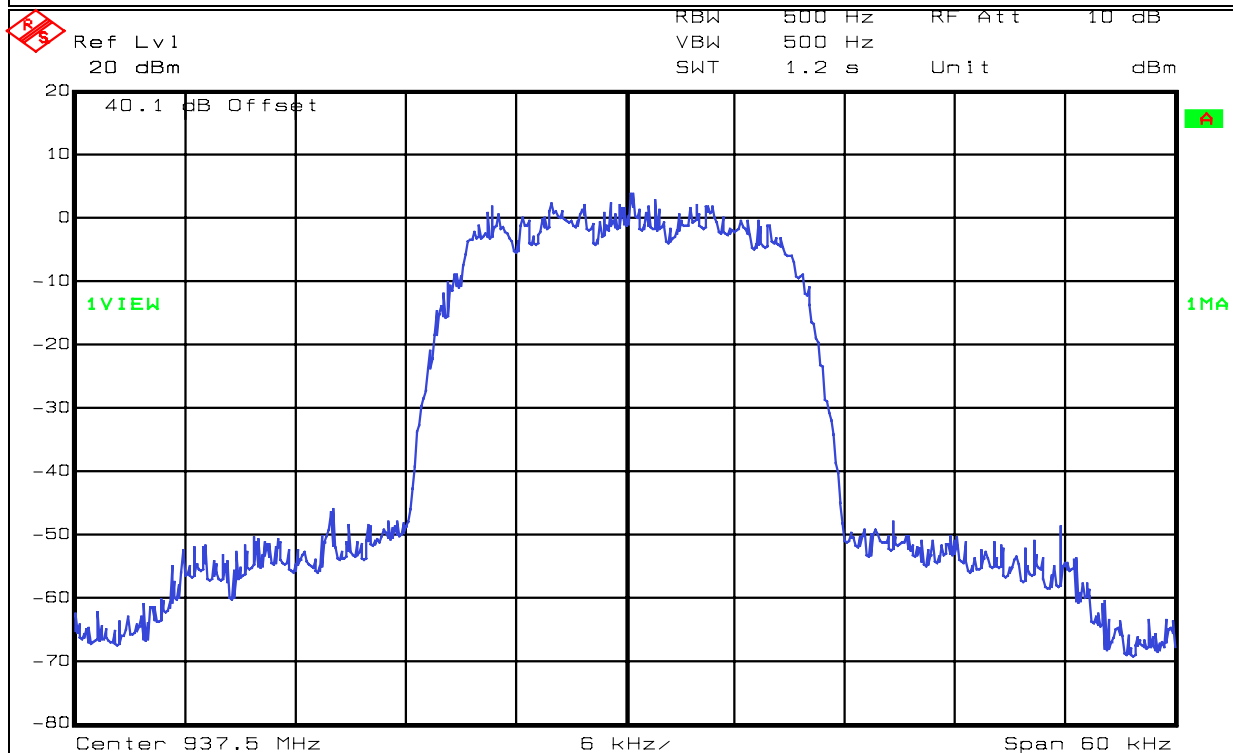
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Data Plot

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)



Date: 12.FEB.2003 09:22:32

Notes: iDEN Output

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test data – Occupied Bandwidth



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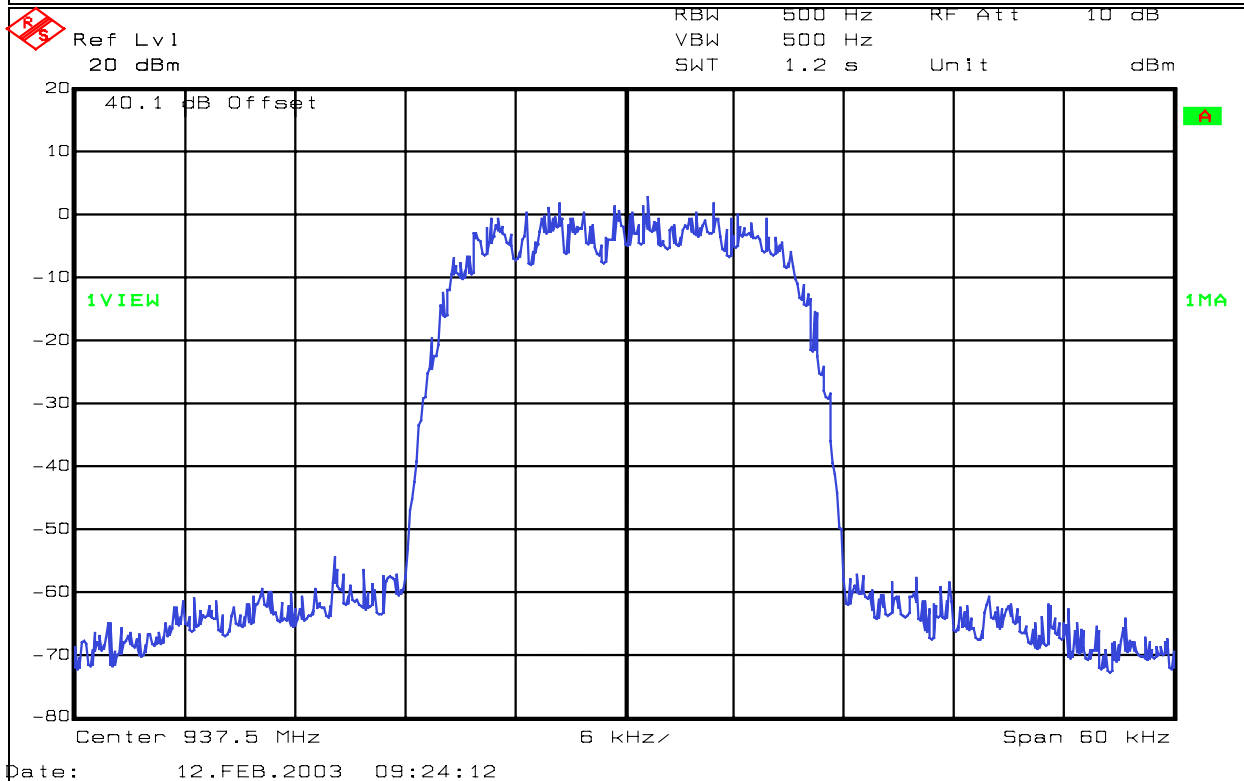
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Test Plot:**Occupied Bandwidth**

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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: iDEN Input

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test data – Occupied Bandwidth



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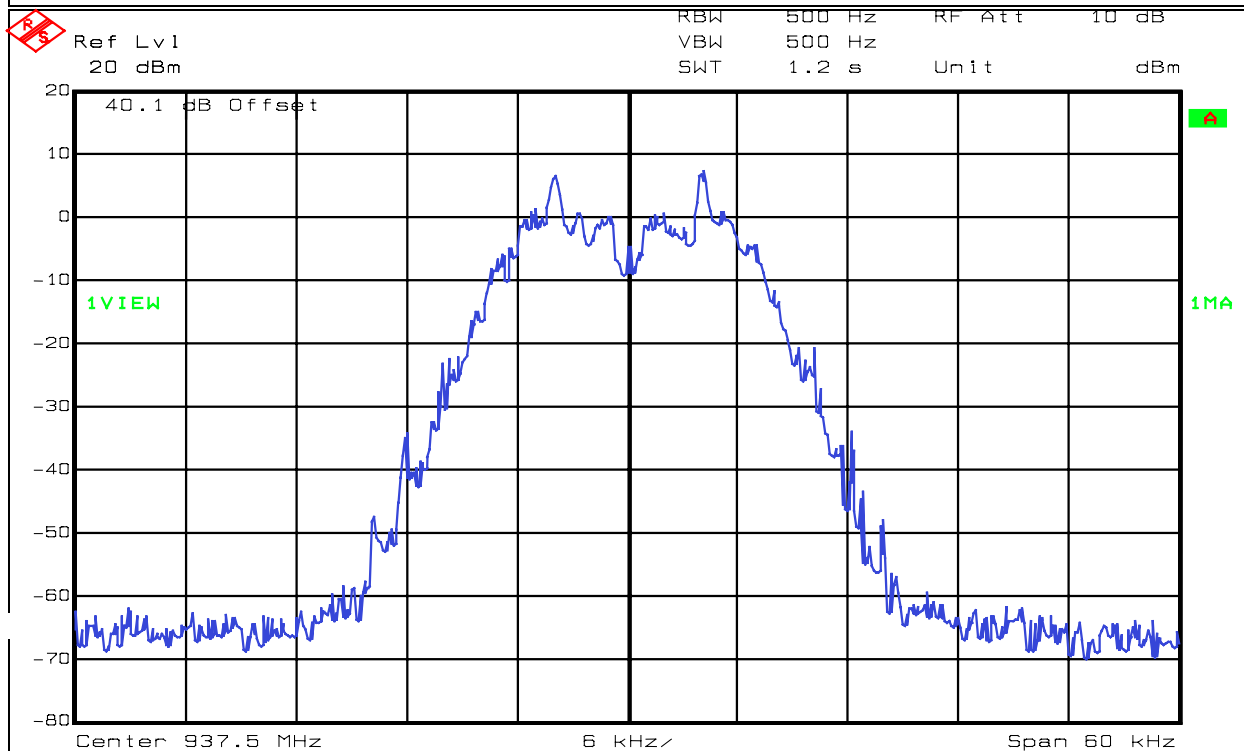
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Test Plot: **Occupied Bandwidth**

Page 5 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)



Date: 12.FEB.2003 11:11:59

Notes: 2FSK Output

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test data – Occupied Bandwidth



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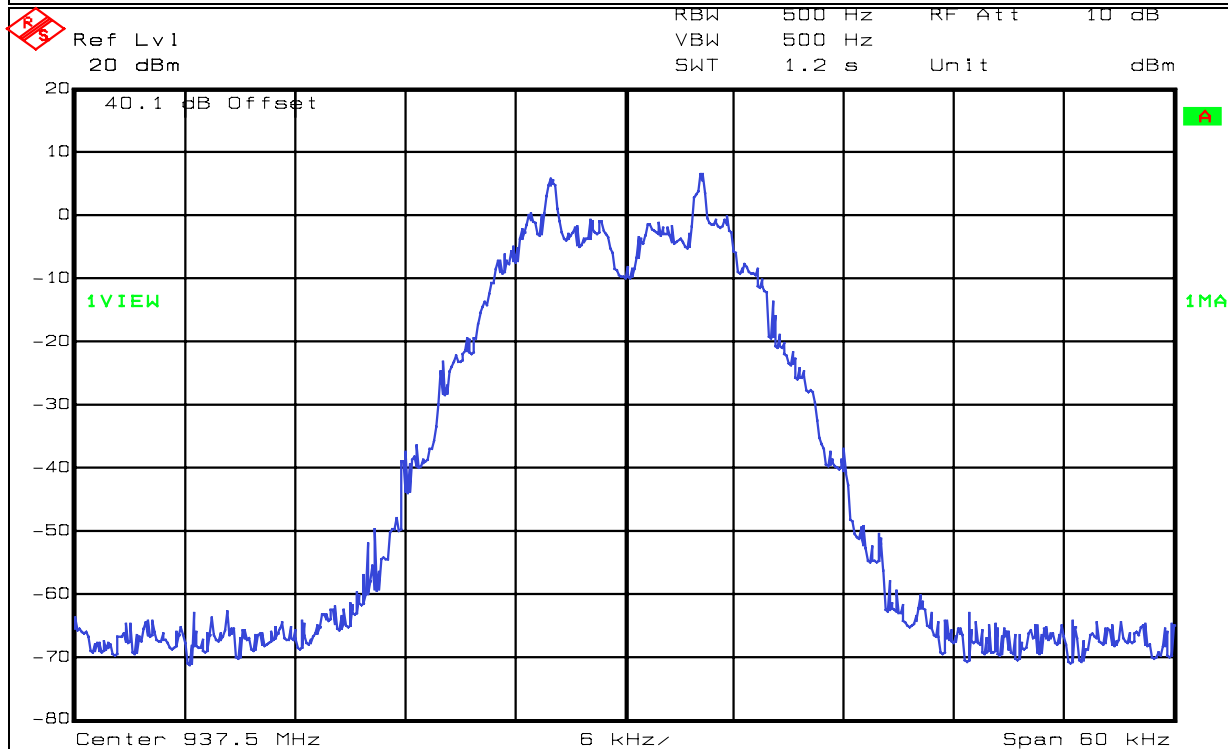
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Test Plot:**Occupied Bandwidth**

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)



Date: 12.FEB.2003 11:15:33

Notes: 2FSK Input

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test data – Occupied Bandwidth



Dallas Headquarters:

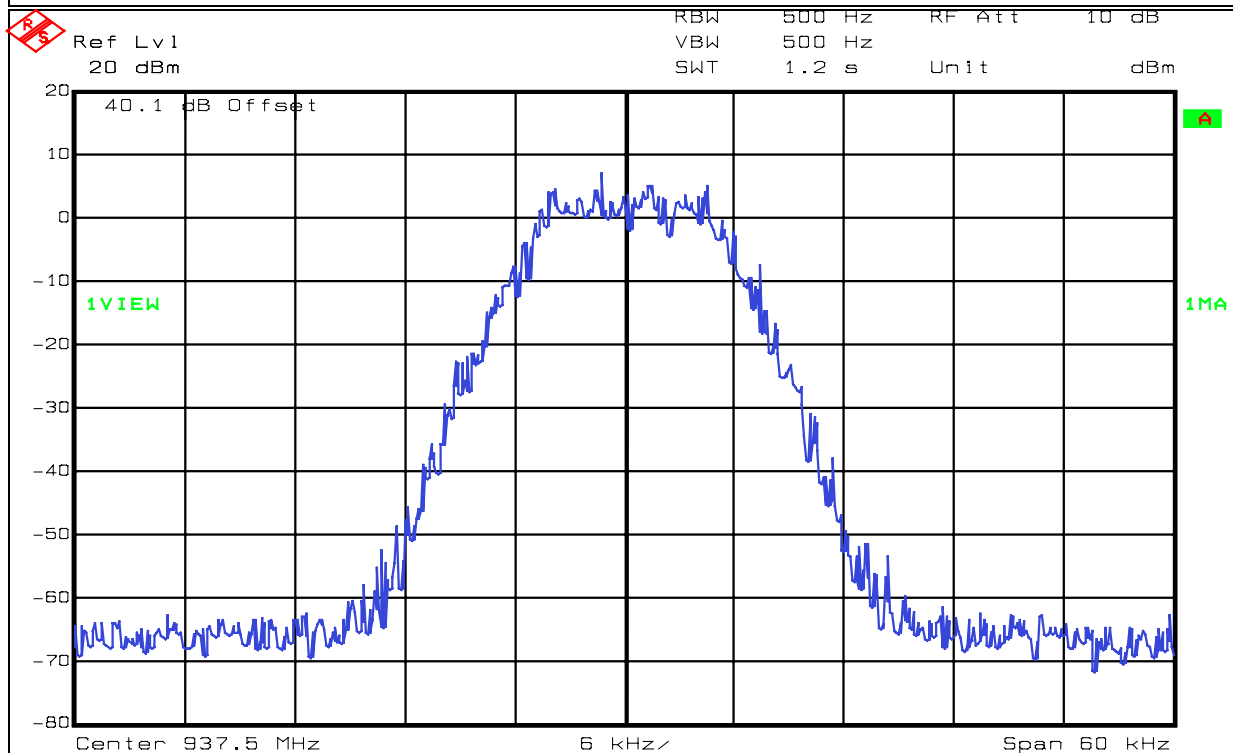
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Test Plot: **Occupied Bandwidth**

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



Date: 12.FEB.2003 11:18:30

Notes: 4FSK Output

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test data – Occupied Bandwidth



Dallas Headquarters:

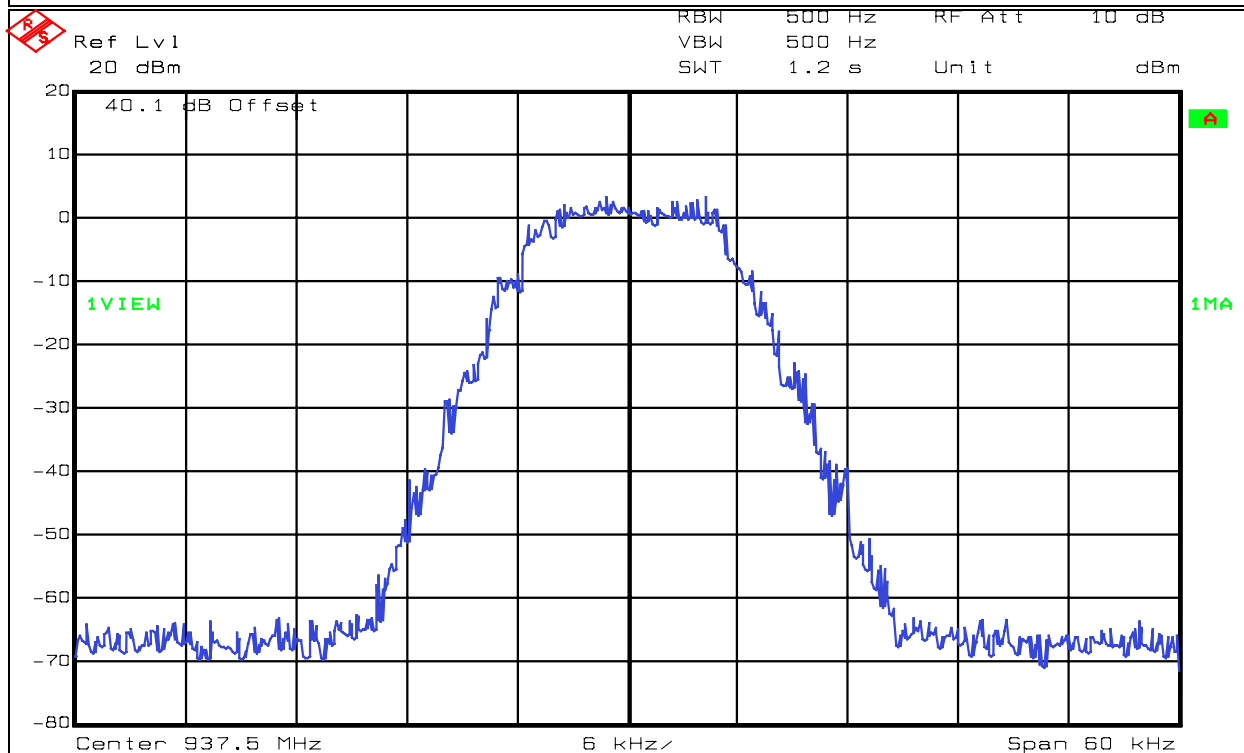
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Test Plot:**Occupied Bandwidth**

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



Date: 12.FEB.2003 11:16:47

Notes: 4FSK Input

EQUIPMENT: **BRITECELL FAST**

PROJECT NO.: 3L0032RUS1

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).

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

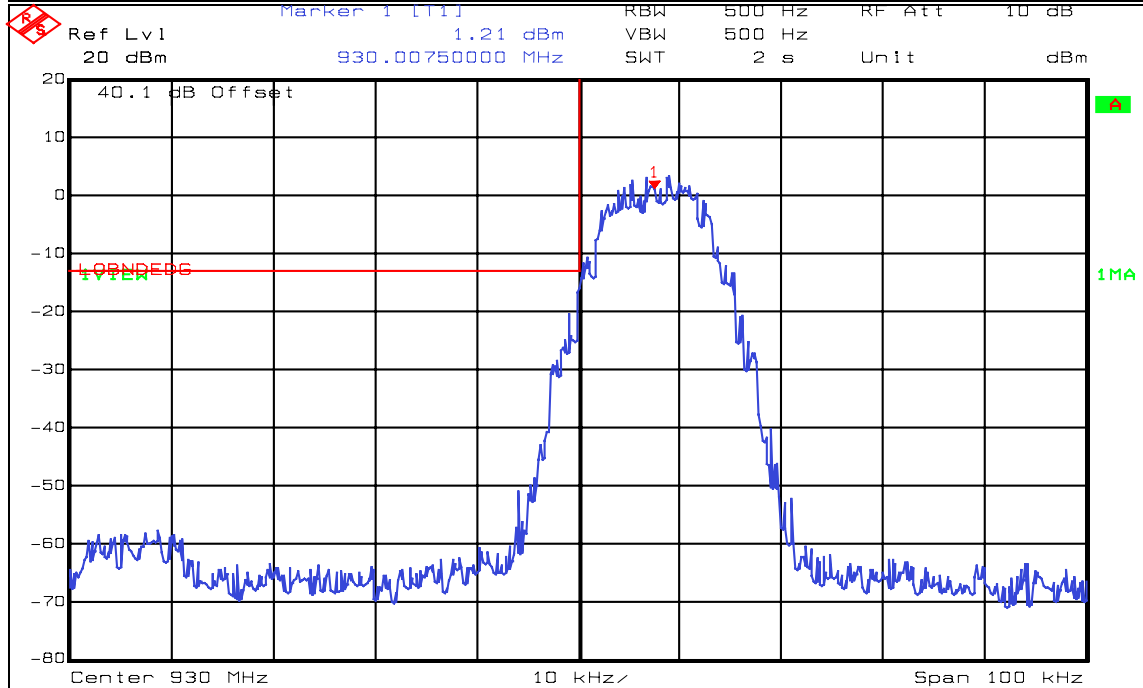
Test Data – Spurious Emissions at Antenna Terminals



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Data Plot		Bandedges	
Page 1 of 6			
Job No.: 3L0032R	Date: 2/12/2003	Complete: ☒	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			
			
Date: 12.FEB.2003 11:42:53			
Notes: LOWER BANDEDGE			
4FSK			

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test Data – Spurious Emissions at Antenna Terminals



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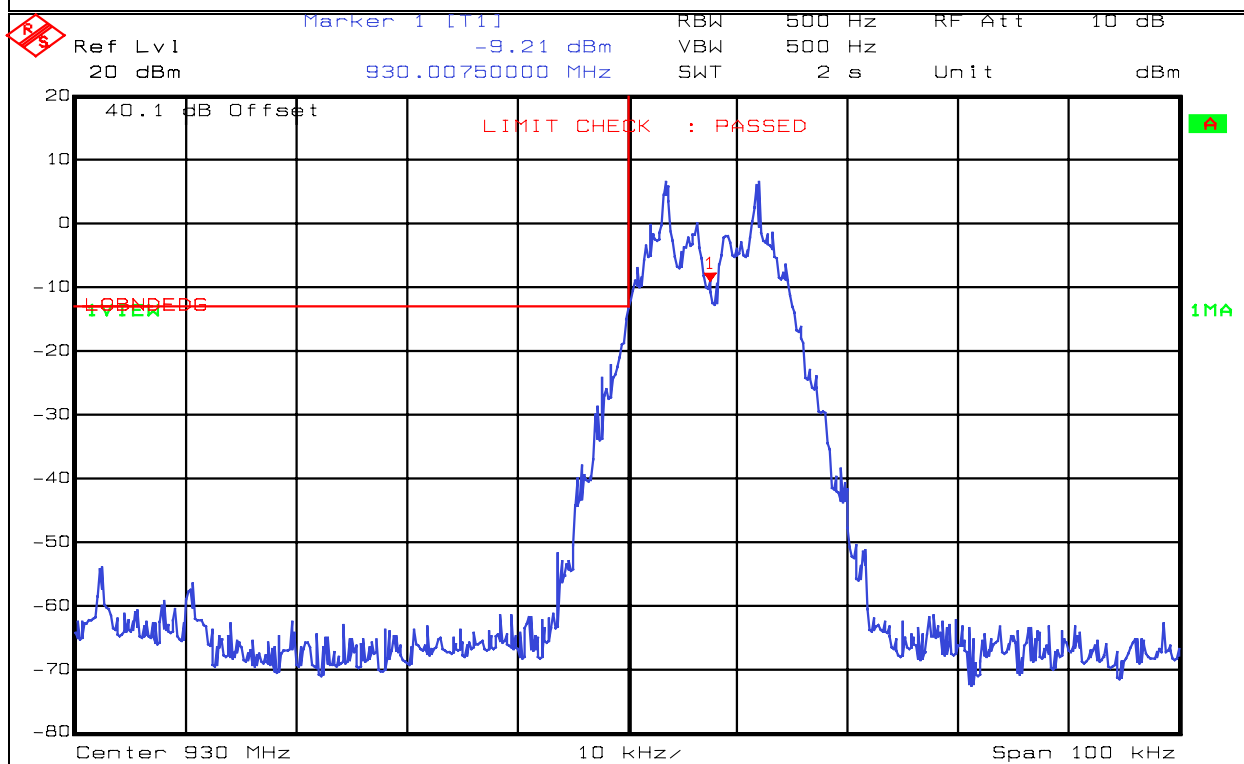
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Data Plot

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)



Date: 12.FEB.2003 11:43:50

Notes: LOWER BANDEDGE
2FSK

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

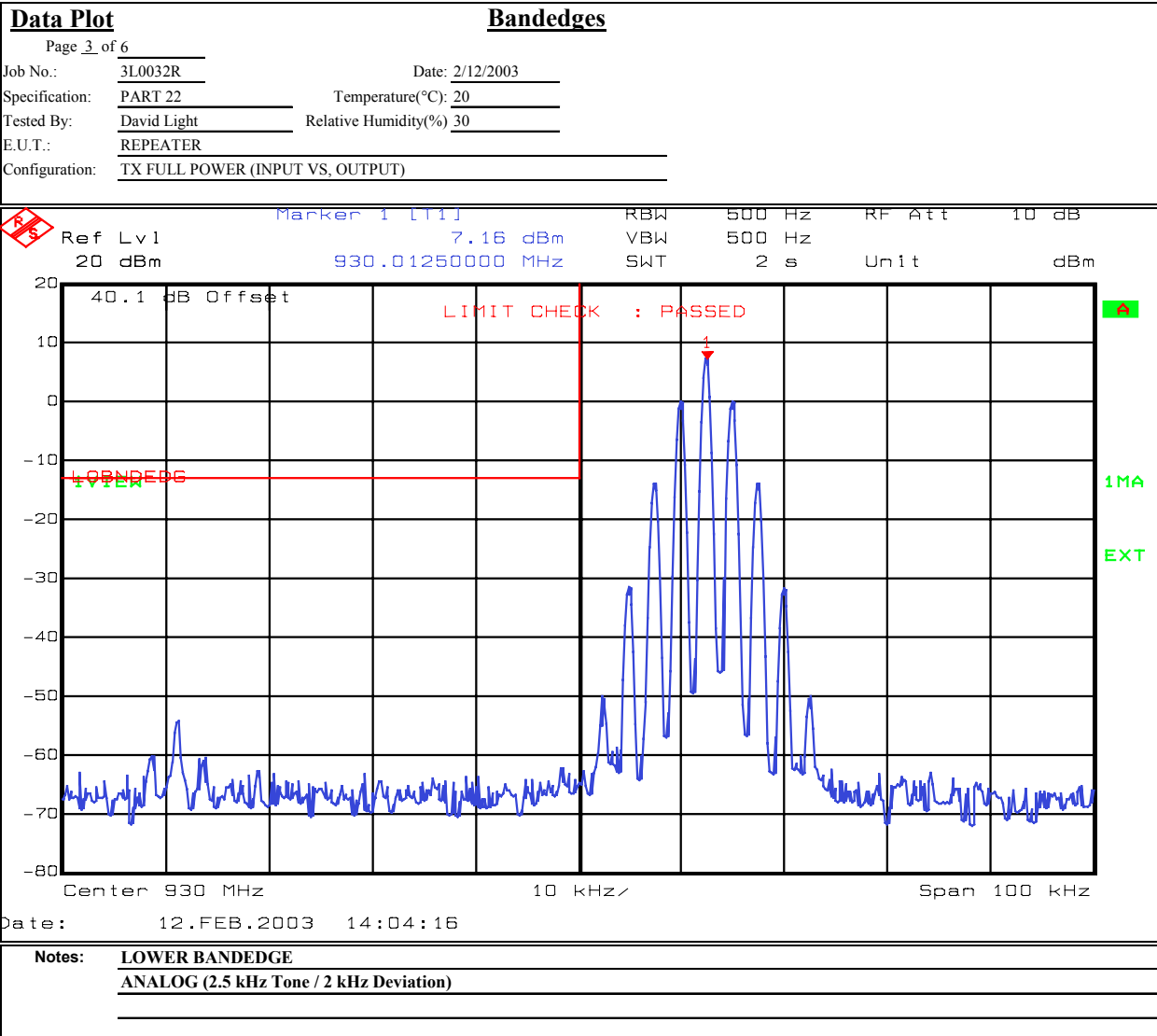
Test Data – Spurious Emissions at Antenna Terminals



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EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test Data – Spurious Emissions at Antenna Terminals



Dallas Headquarters:

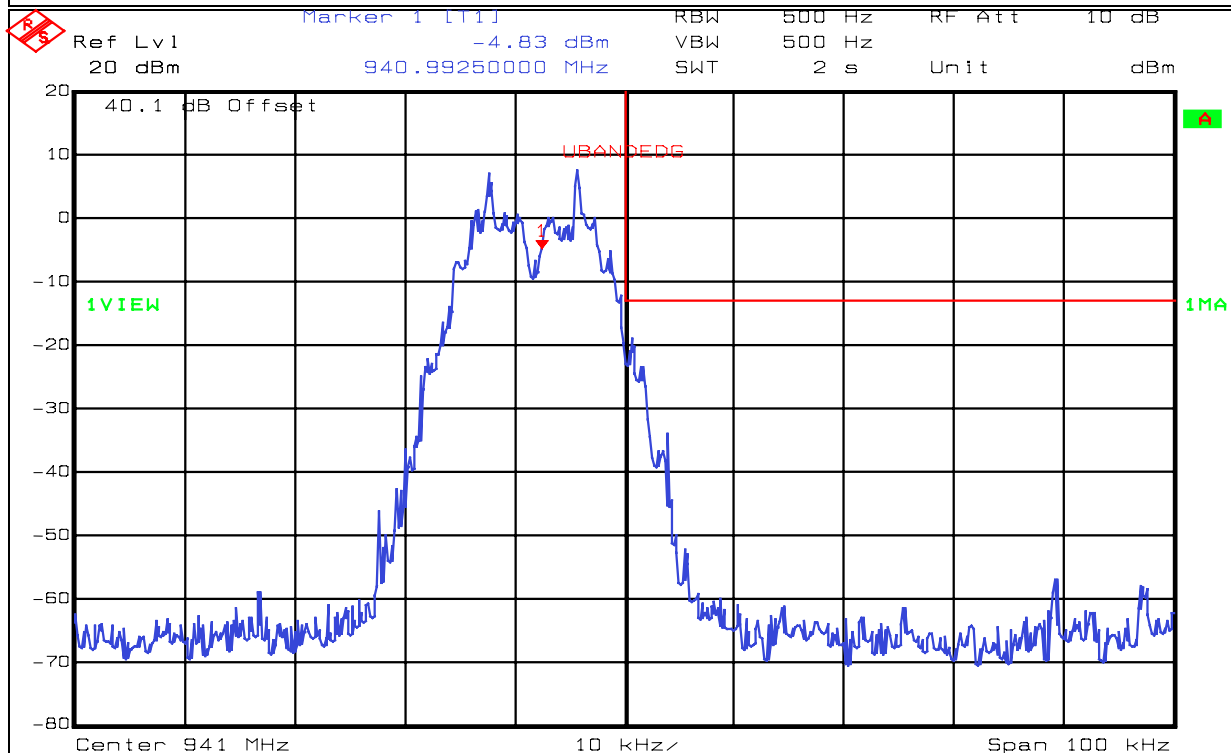
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Test Plot:**Bandedges**

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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)



Date: 12.FEB.2003 11:48:23

Notes: UPPER BANDEGE
2FSK

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test Data – Spurious Emissions at Antenna Terminals



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Dallas Headquarters:

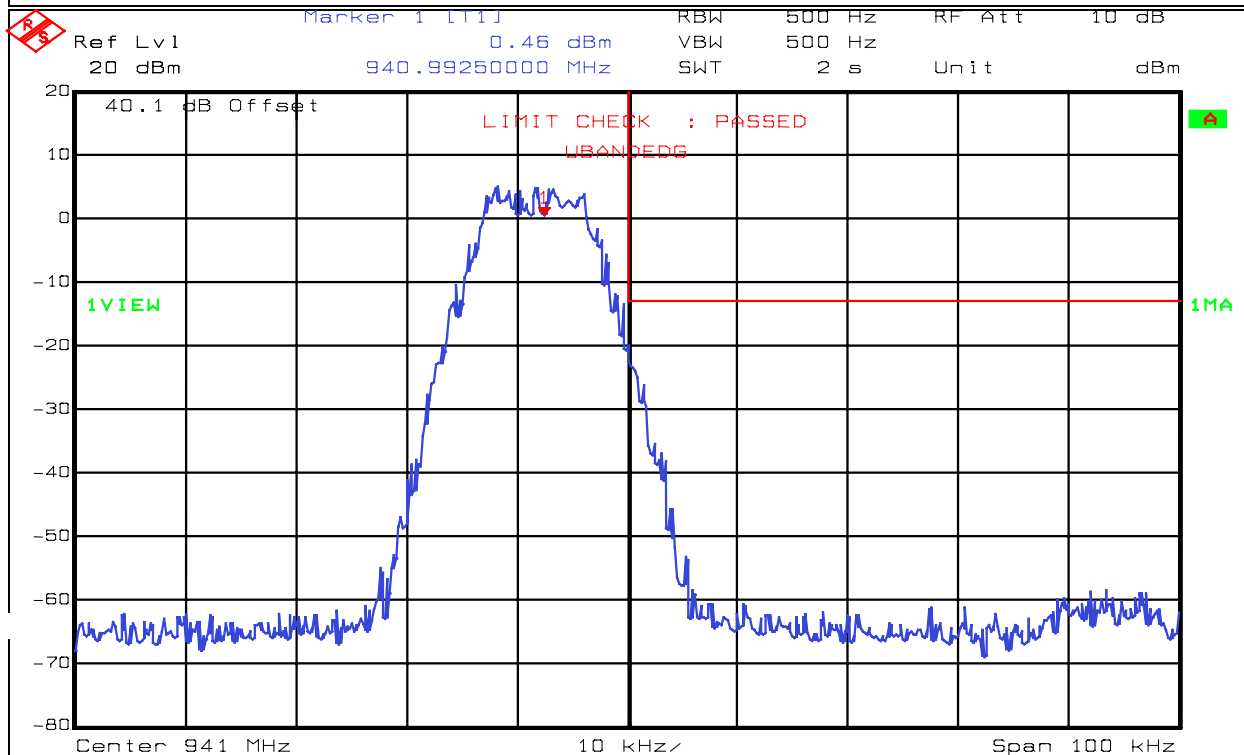
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Test Plot:

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)



Date: 12.FEB.2003 11:49:38

Notes: UPPER BANDEGE
4FSK

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test Data – Spurious Emissions at Antenna Terminals



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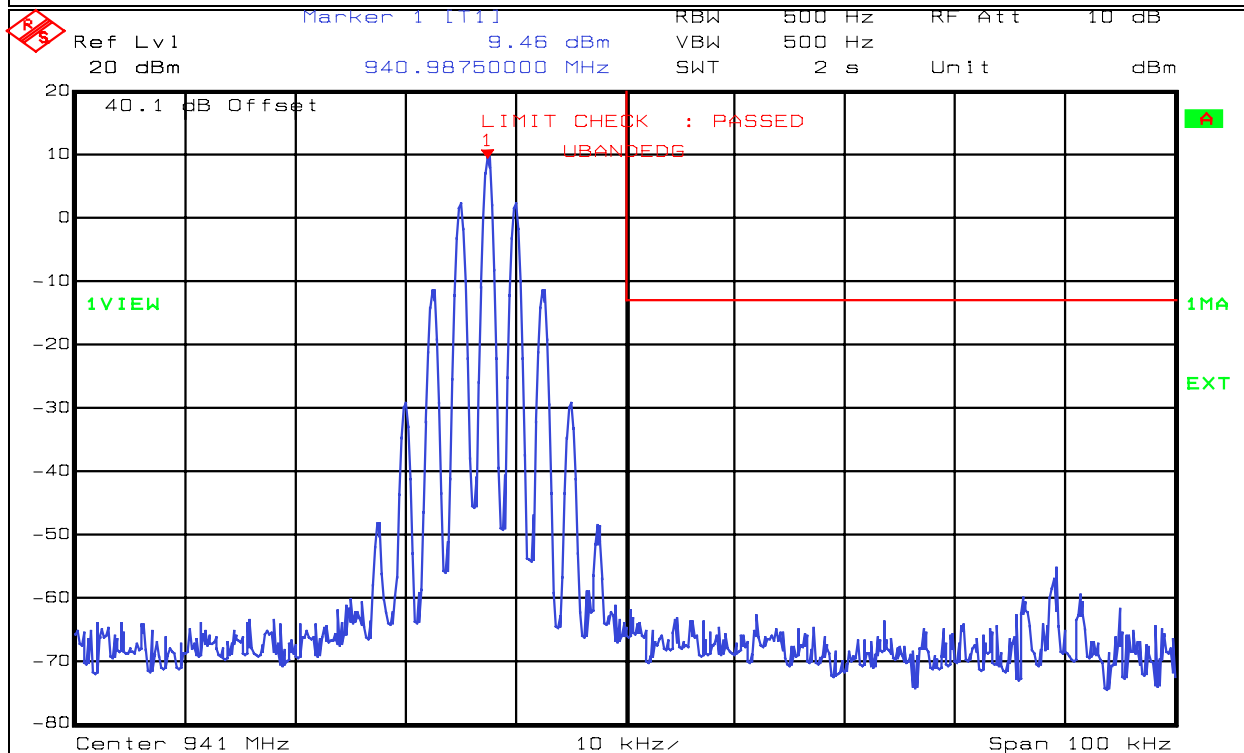
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Test Plot:

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)



Date: 12.FEB.2003 14:02:11

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

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test Data – Spurious Emissions at Antenna Terminals



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Data Plot

Page 1 of 6

Intermodulation Characteristics

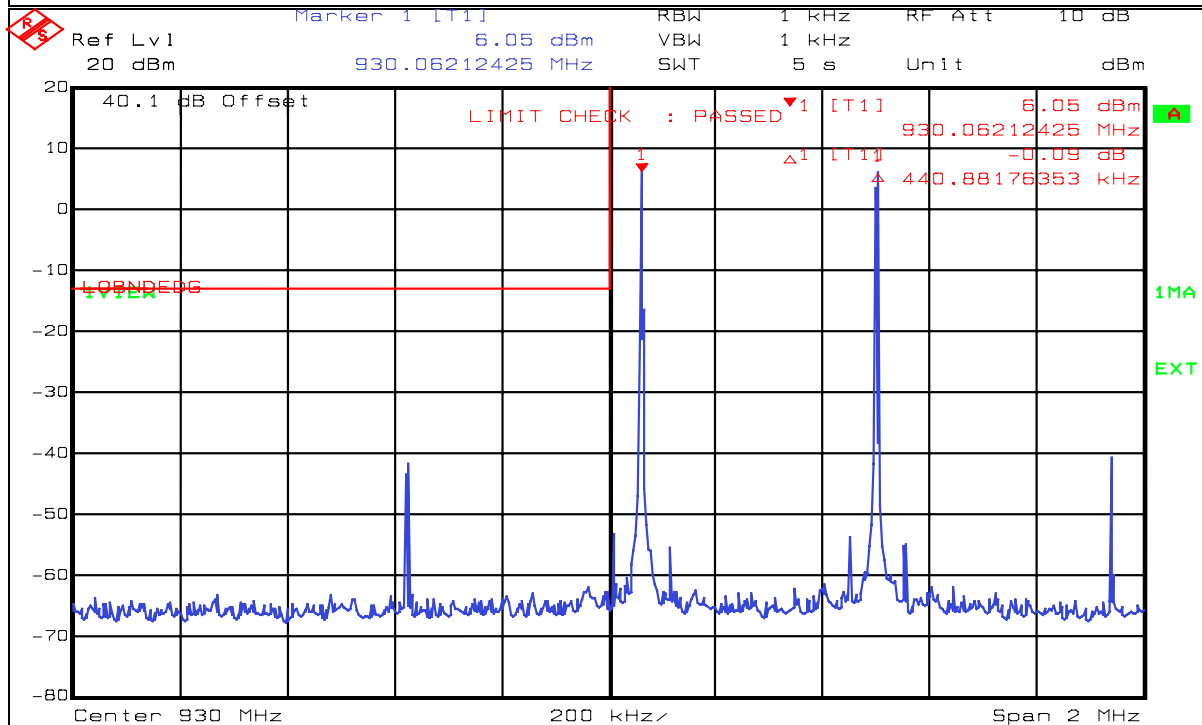
Job No.: 3L0032R Date: 2/12/2003
Specification: PART 22 Temperature(°C): 20
Tested By: David Light Relative Humidity(%): 30
E.U.T.: REPEATER
Configuration: TX FULL POWER (INPUT VS. OUTPUT)
Sample Number: 1
Location: Lab 1 RBW: Refer to plots
Detector Type: Peak VBW: Refer to plots

Complete ☒ x
Preliminary: ☐

Measurement
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



Date: 12.FEB.2003 14:14:48

Notes: LOWER BANDEDGE
Analog

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

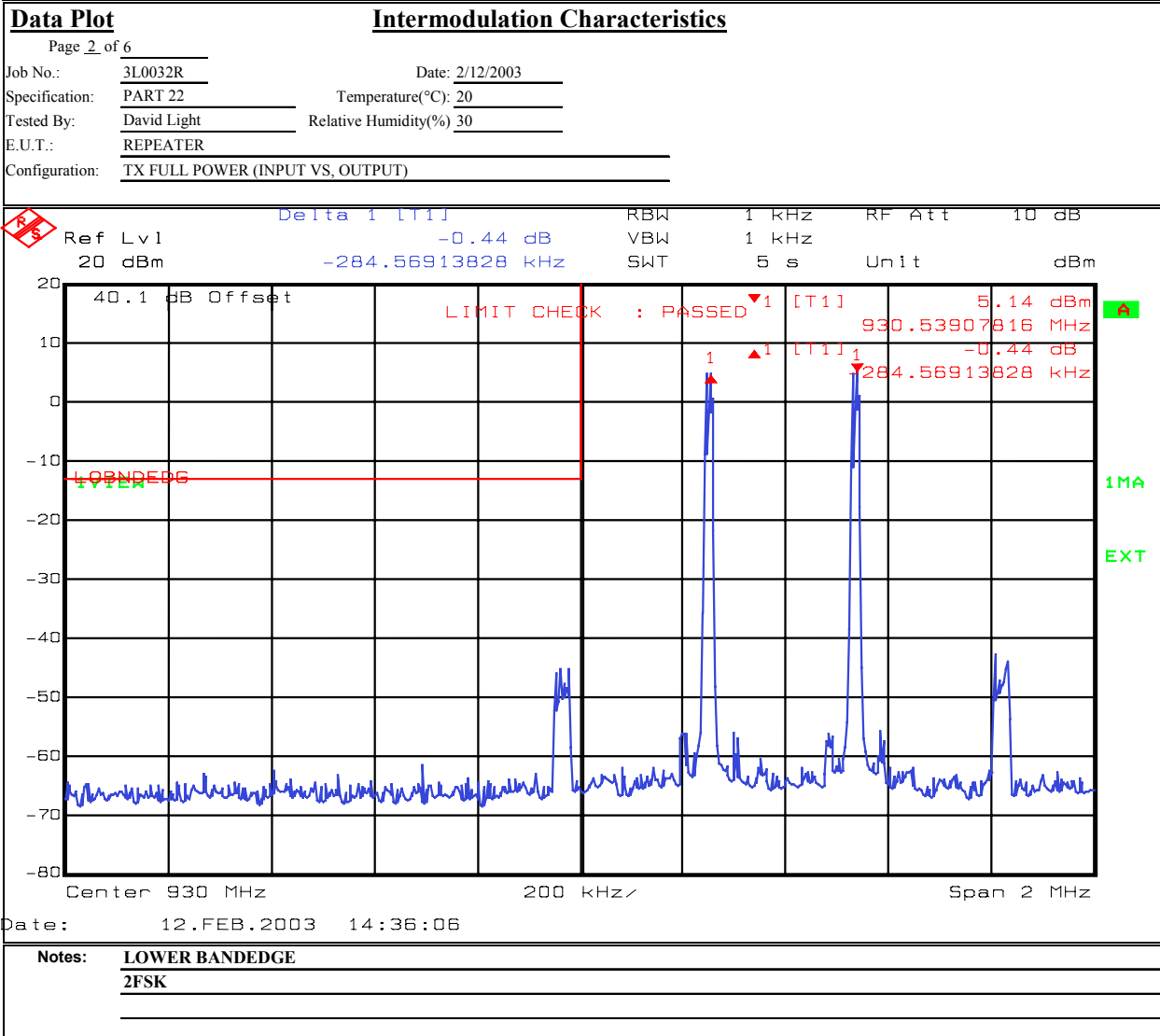
Test Data – Spurious Emissions at Antenna Terminals



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EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

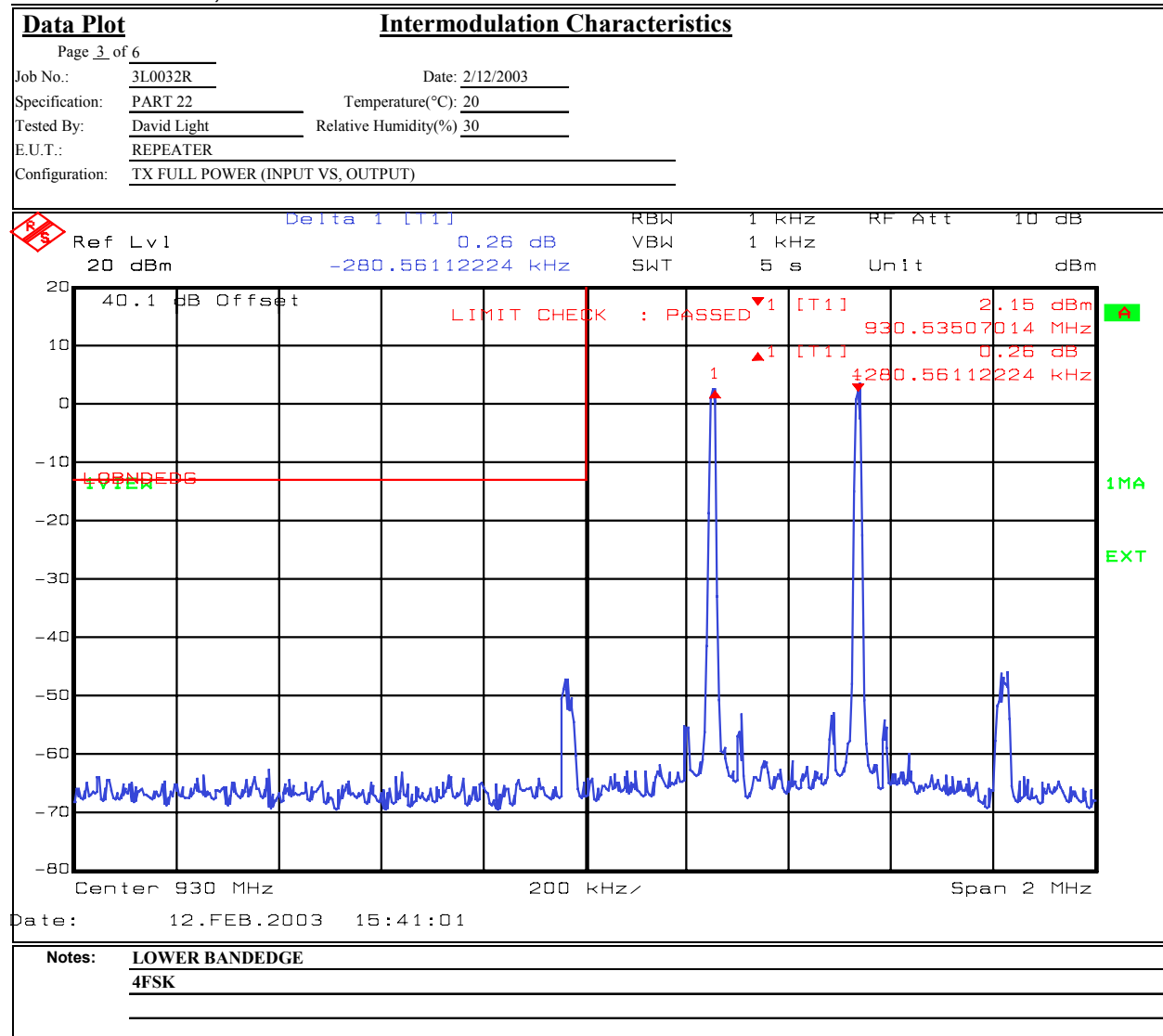
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EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test Data – Spurious Emissions at Antenna Terminals



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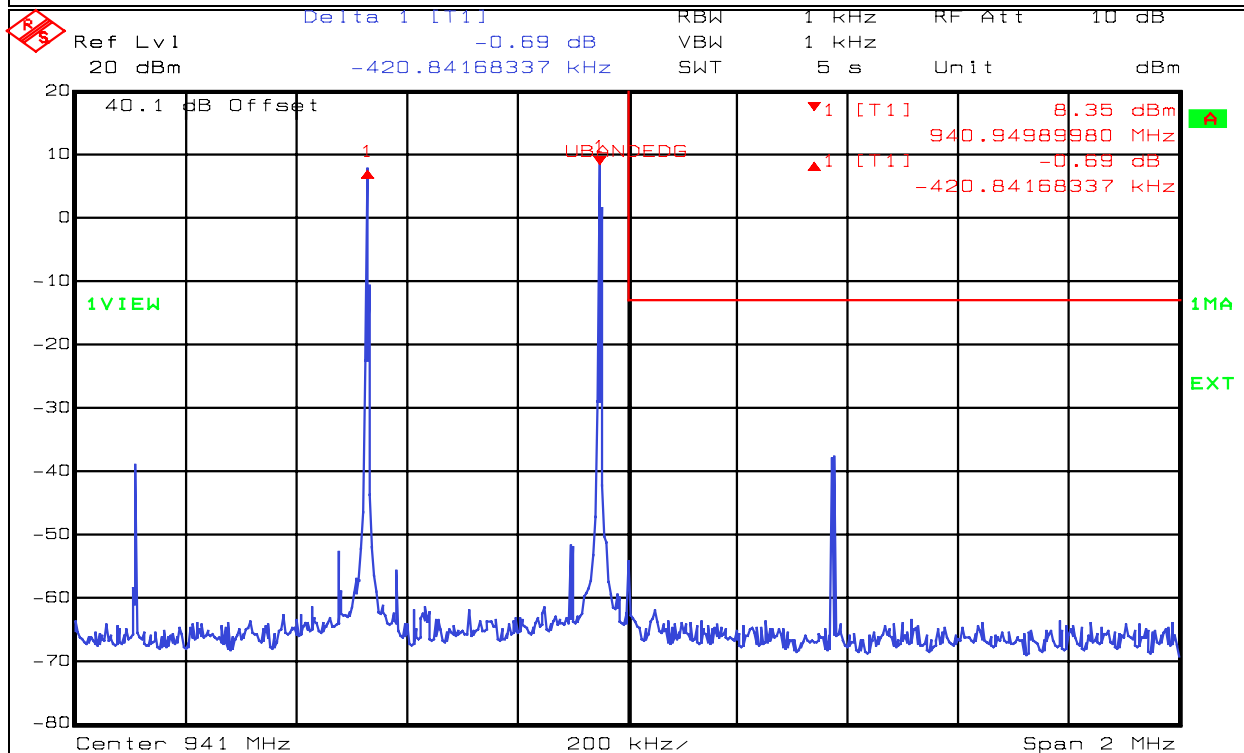
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

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)



Date: 12.FEB.2003 14:18:00

Notes: UPPER BANDEGE
Analog

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test Data – Spurious Emissions at Antenna Terminals



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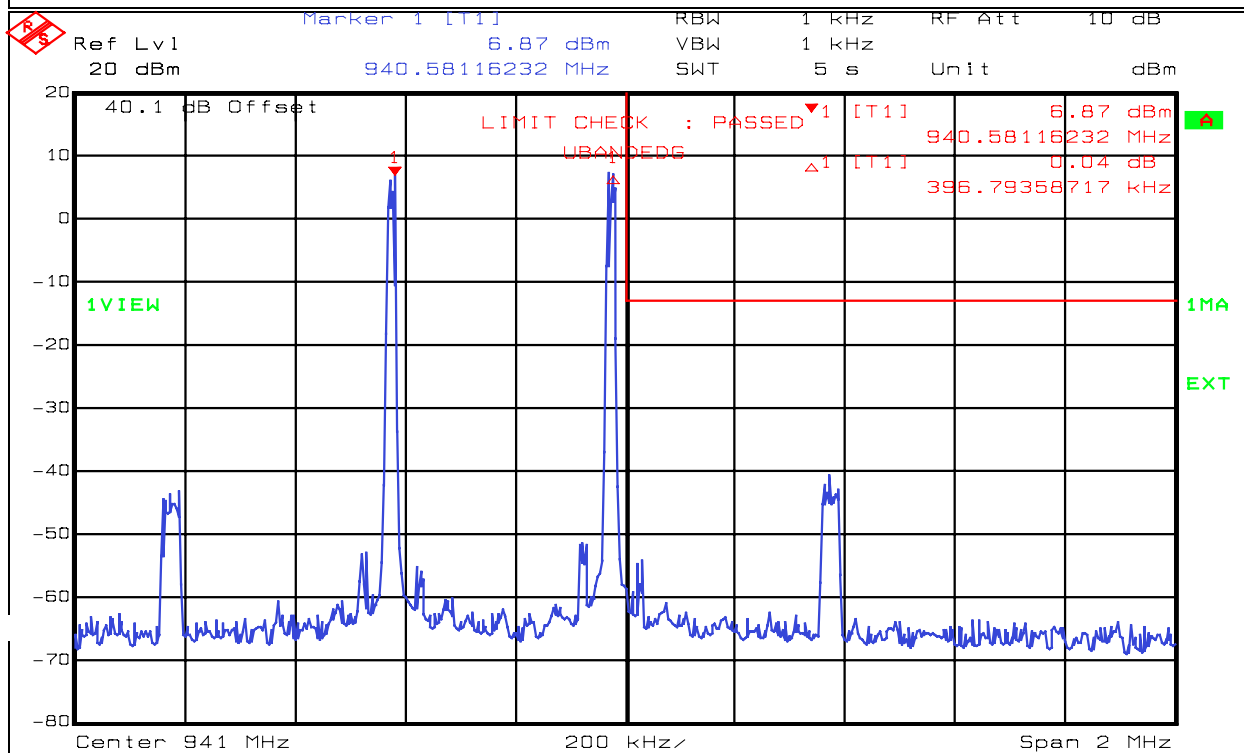
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Fax: (972) 436-2667

Test Plot:

Intermodulation Characteristics

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)



Date: 12.FEB.2003 15:51:59

Notes: UPPER BANDEGE
2FSK

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test Data – Spurious Emissions at Antenna Terminals



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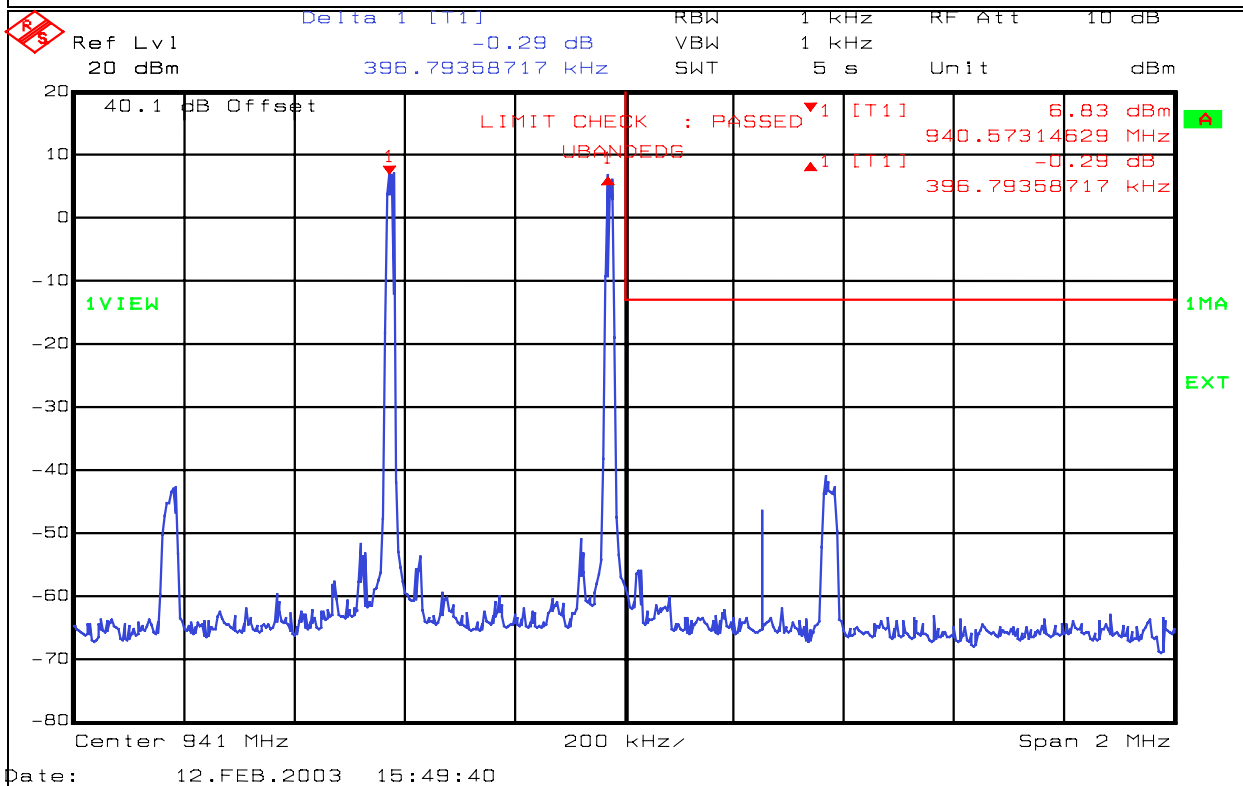
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Test Plot:

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 BANDEGE
4FSK

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test Data – Spurious Emissions at Antenna Terminals



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Data Plot

Page 1 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)

Sample Number: 1
Location: Lab 1
Detector Type: Peak

RBW: Refer to plots
VBW: Refer to plots

Complete: x
Preliminary:

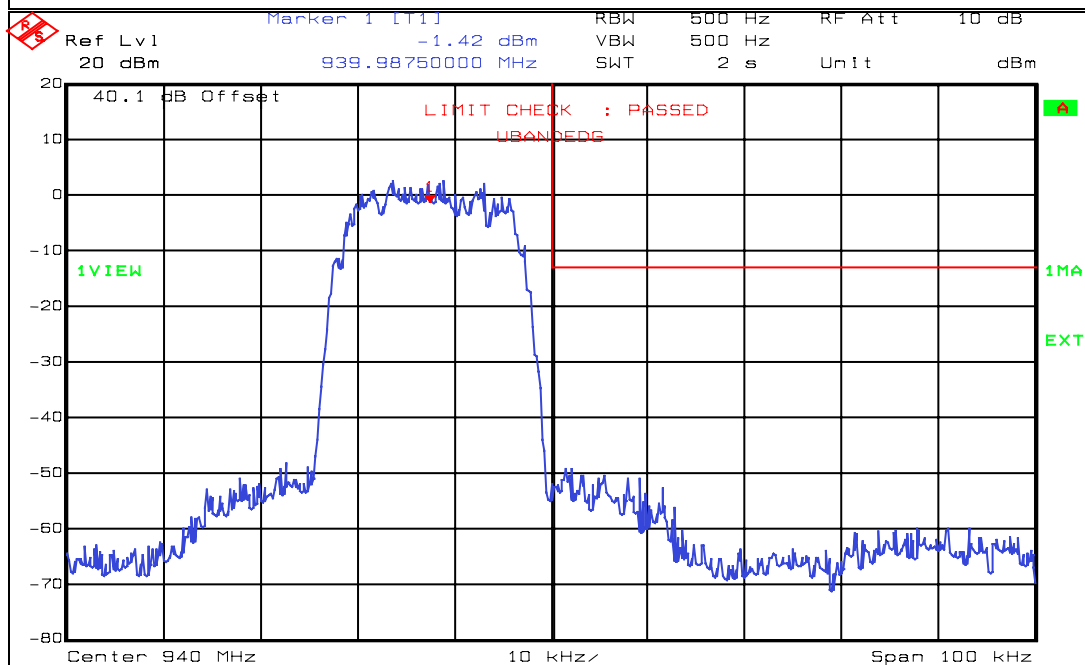
Measurement
Distance: m

Test Equipment Used

Antenna:
Pre-Amp:
Filter:
Receiver: 1036
Attenuator #1: 1064
Attenuator #2: 1604

Directional Coupler:
Cable #1: 1628
Cable #2:
Cable #3:
Cable #4:
Mixer:

Additional equipment used:
Measurement Uncertainty: +/-1.7 dB



Date: 12.FEB.2003 12:09:39

Notes: UPPER BANDEGE
iDEN

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

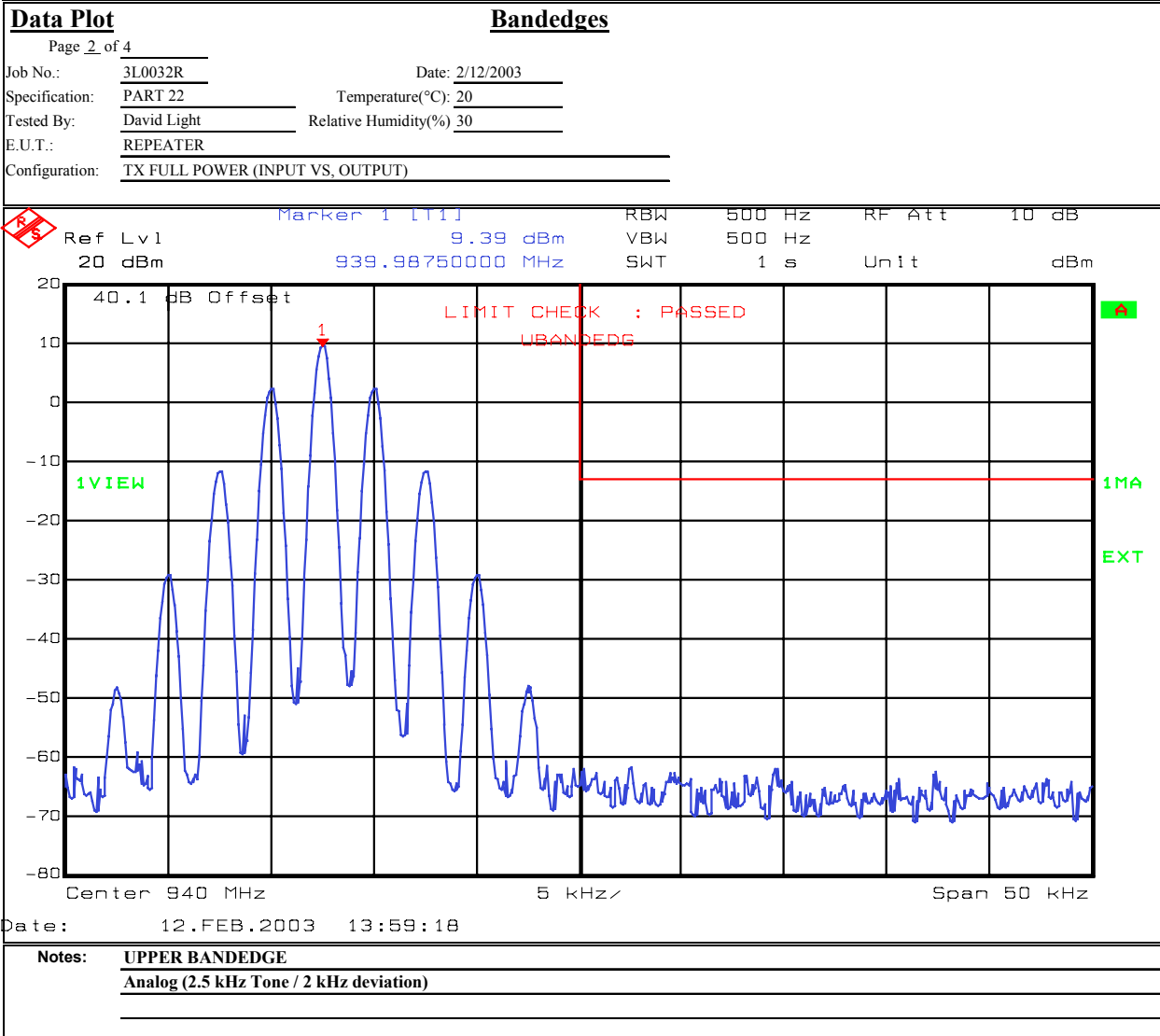
Test Data – Spurious Emissions at Antenna Terminals



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EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test Data – Spurious Emissions at Antenna Terminals



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Fax: (972) 436-2667

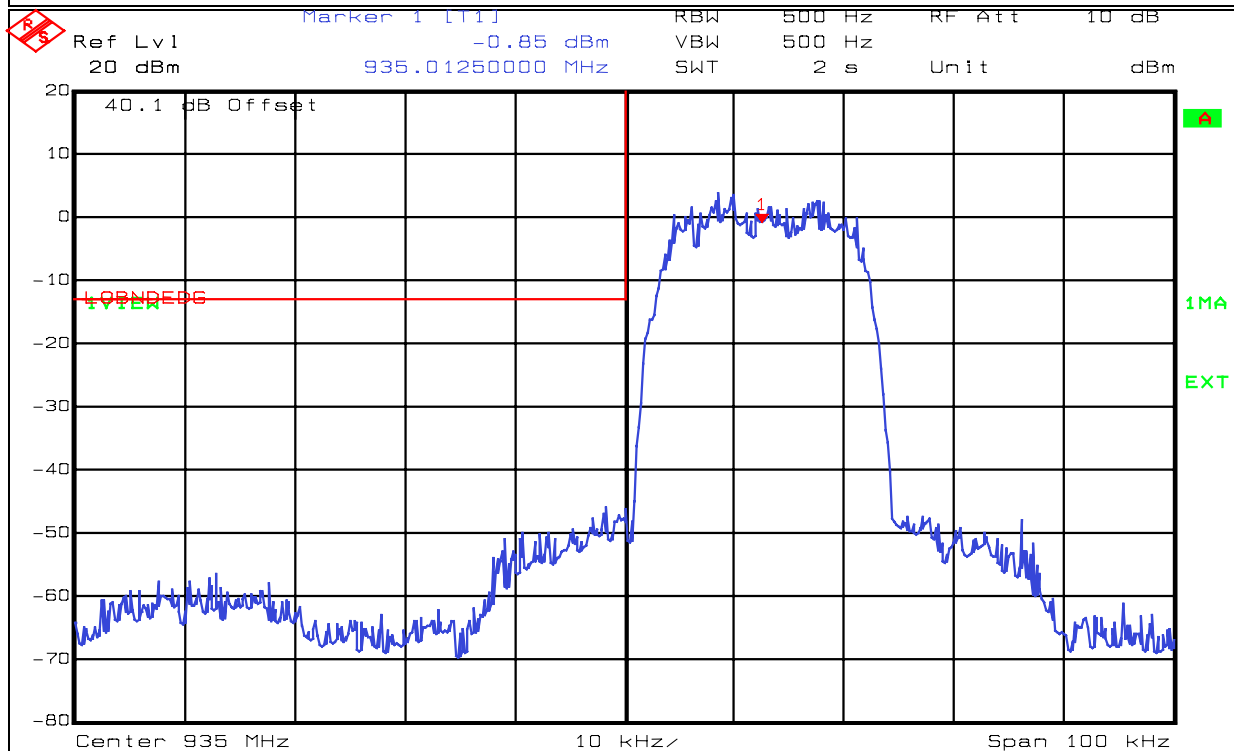
Nemko Dallas, Inc.

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)



Date: 12.FEB.2003 13:50:39

Notes: LOWER BANDEDGE
iDEN

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test Data – Spurious Emissions at Antenna Terminals



Dallas Headquarters:

802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
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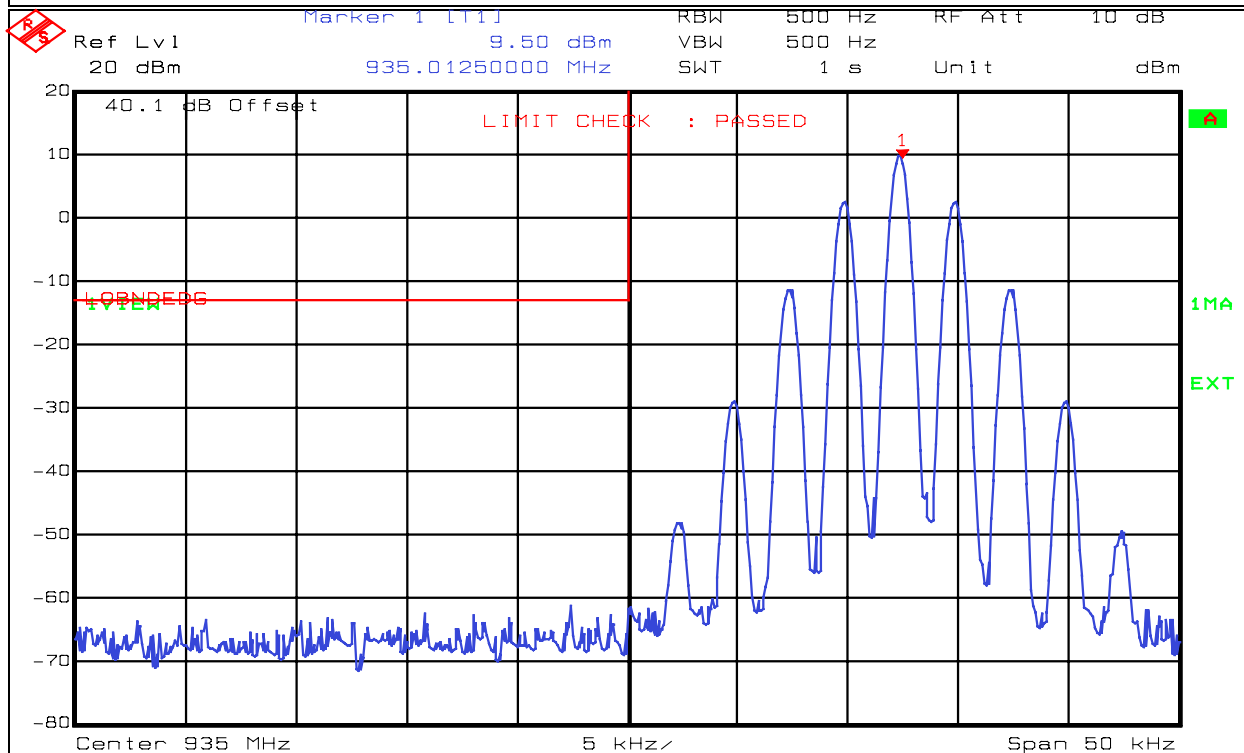
Nemko Dallas, Inc.

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)



Date: 12.FEB.2003 13:56:11

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

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test Data – Spurious Emissions at Antenna Terminals



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Lewisville, TX 75057
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Data Plot		Intermodulation Characteristics	
Page 1 of 6		Complete ☒ x	
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)		
Sample Number:	1		
Location:	Lab 1	RBW:	Refer to plots
Detector Type:	Peak	VBW:	Refer to plots
Measurement 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		
Ref Lvl 20 dBm Delta 1 [T1] RBW 1 kHz RF Att 10 dB Unit dBm Center 935 MHz 200 kHz Span 2 MHz			
Date: 12.FEB.2003 16:02:39			
Notes: LOWER BANDEDGE			
Analog			

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

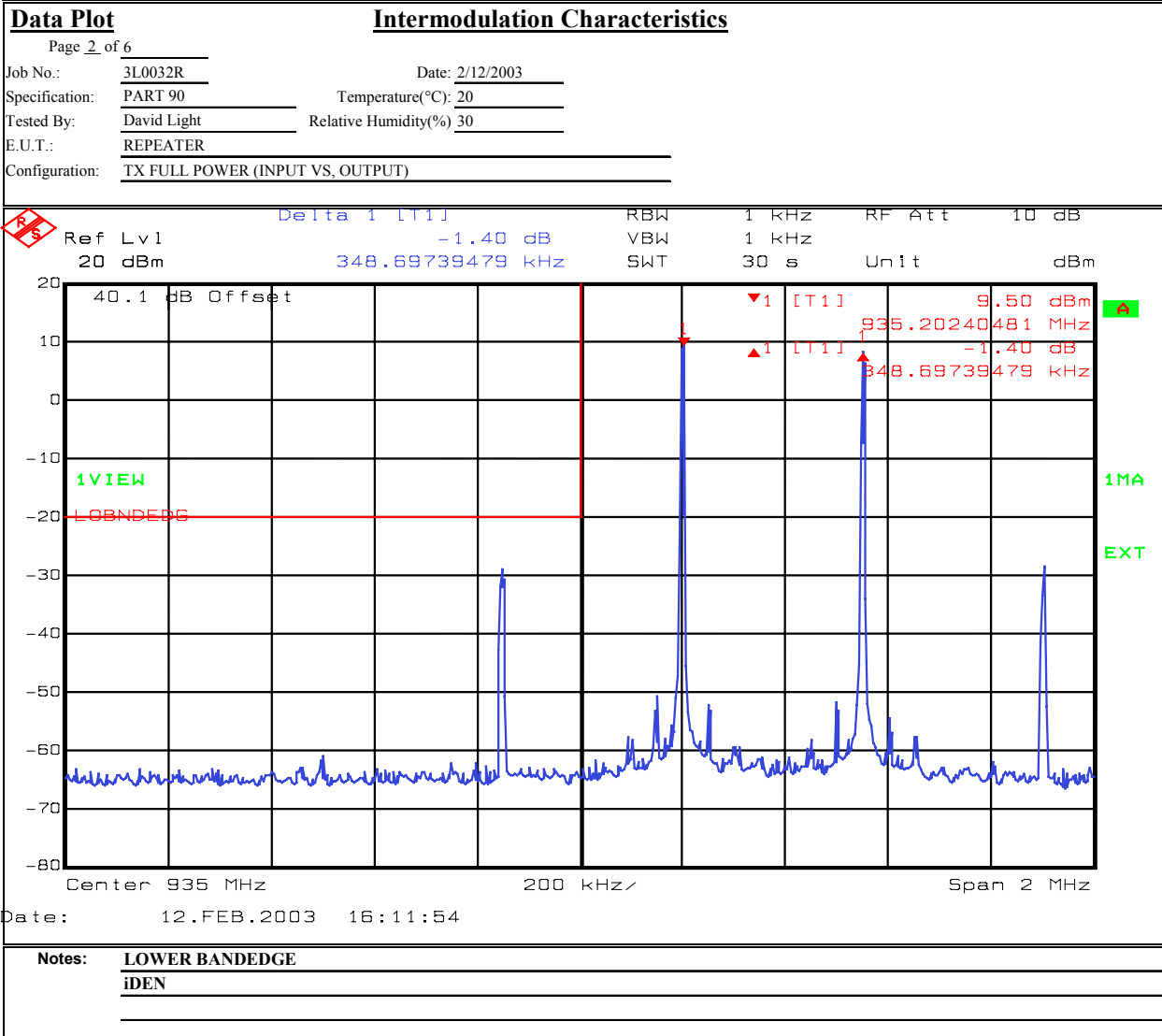
Test Data – Spurious Emissions at Antenna Terminals



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Lewisville, TX 75057
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Nemko Dallas, Inc.



EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test Data – Spurious Emissions at Antenna Terminals



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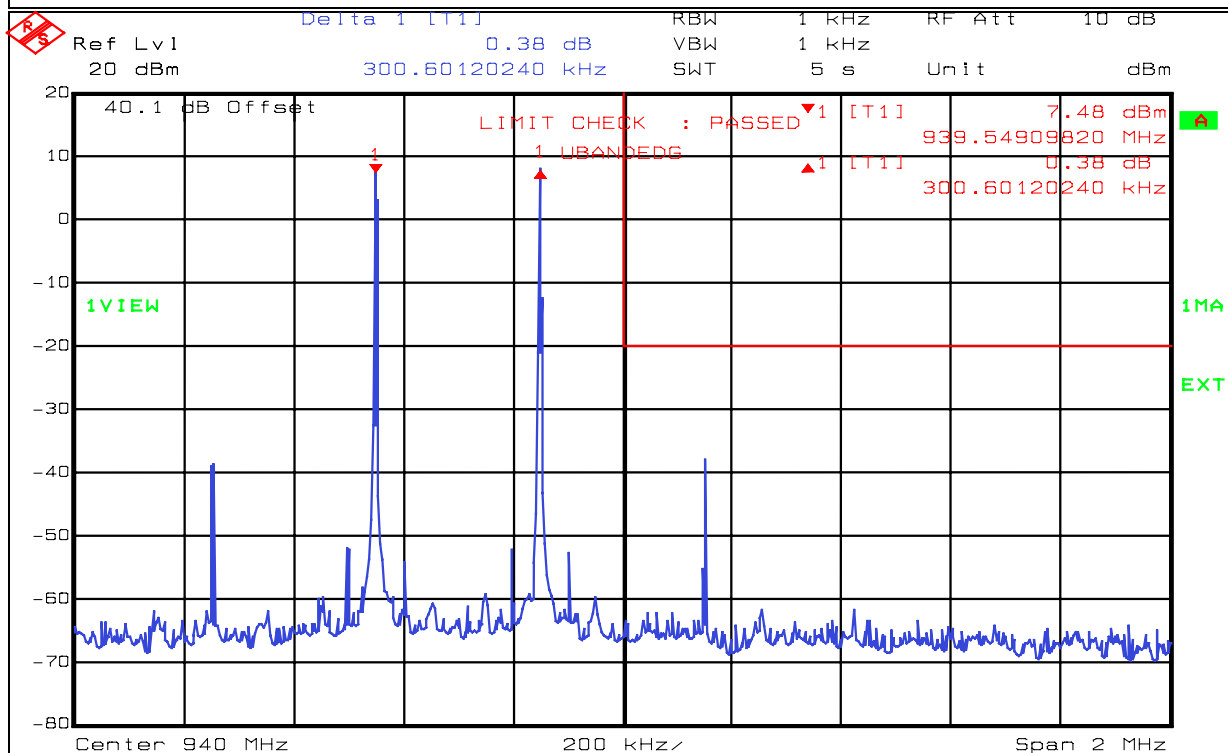
Nemko Dallas, Inc.

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)



Date: 12.FEB.2003 15:59:49

Notes: UPPER Bandedge

Analog

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

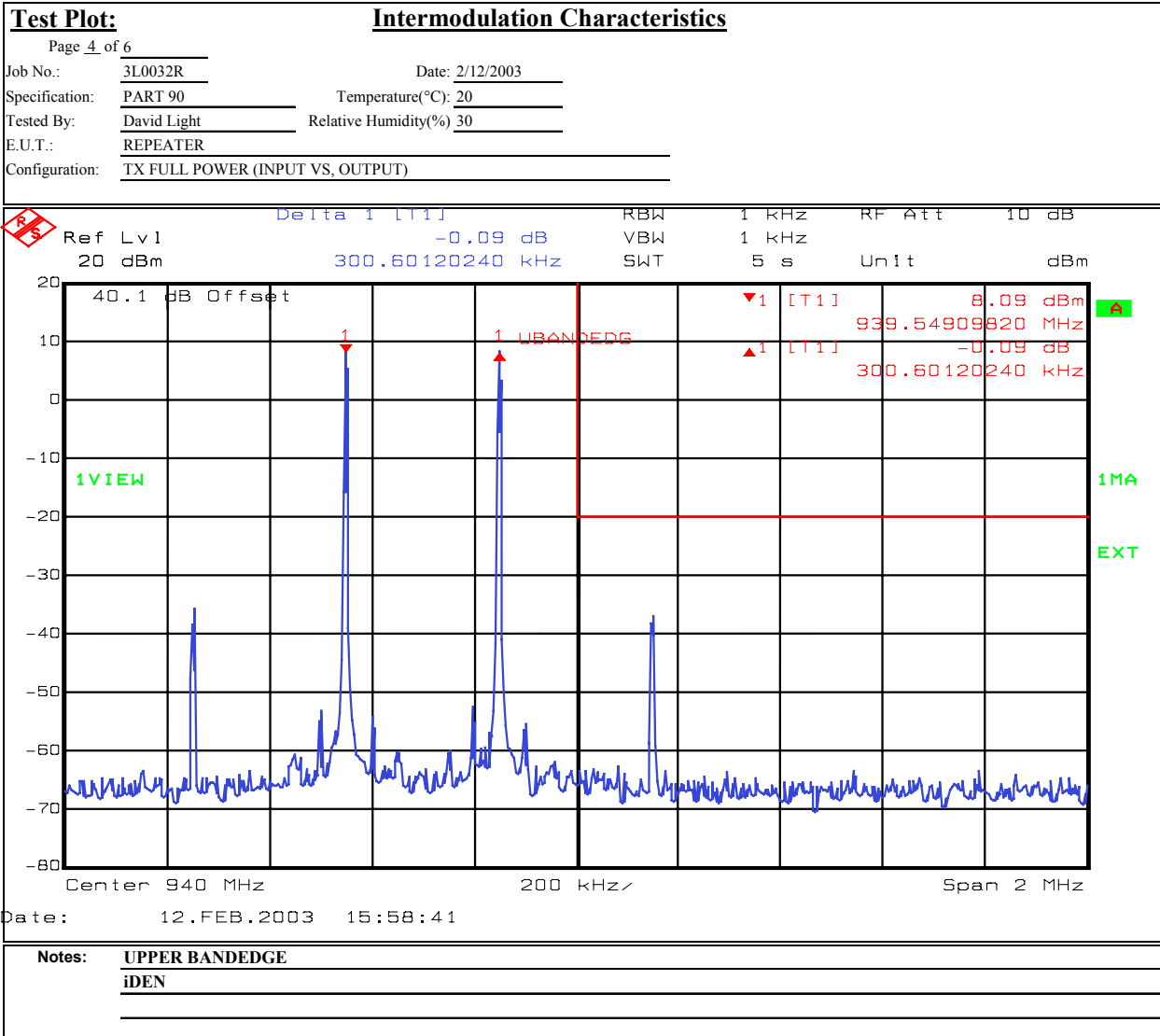
Test Data – Spurious Emissions at Antenna Terminals



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EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

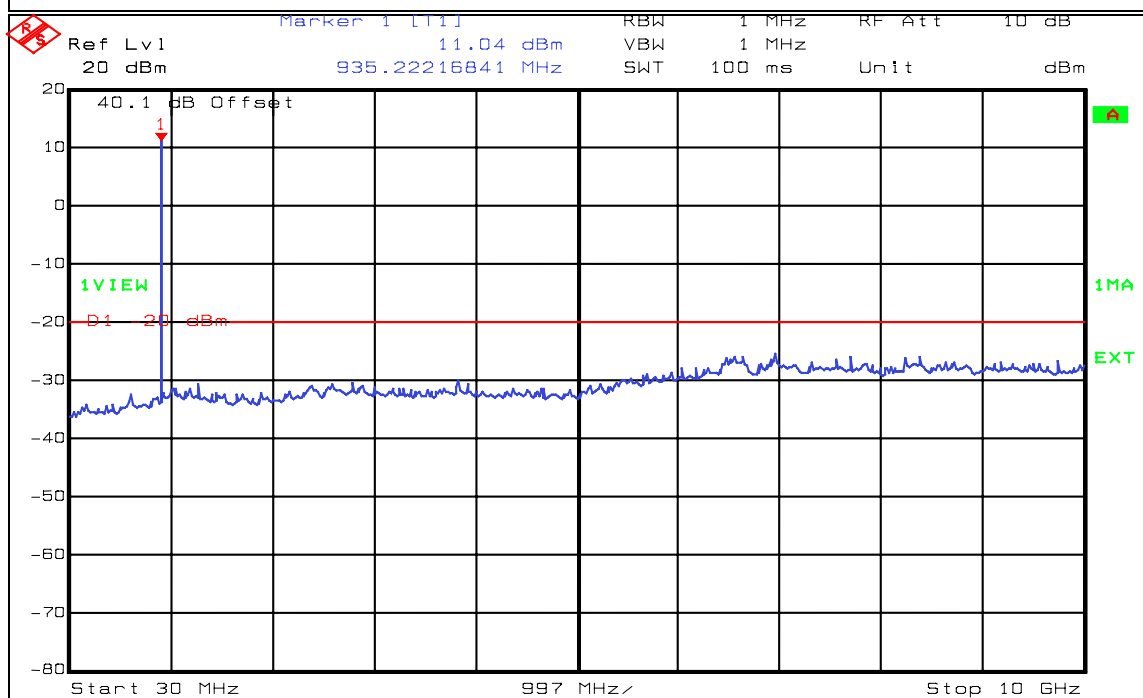
Test Data – Spurious Emissions at Antenna Terminals



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Dallas Headquarters:

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

Data Plot		Intermodulation Characteristics	
Page 1 of 6		Complete ☒ Preliminary ☐	
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)			
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			
			
Date: 12.FEB.2003 16:16:16			
Notes: Analog			

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

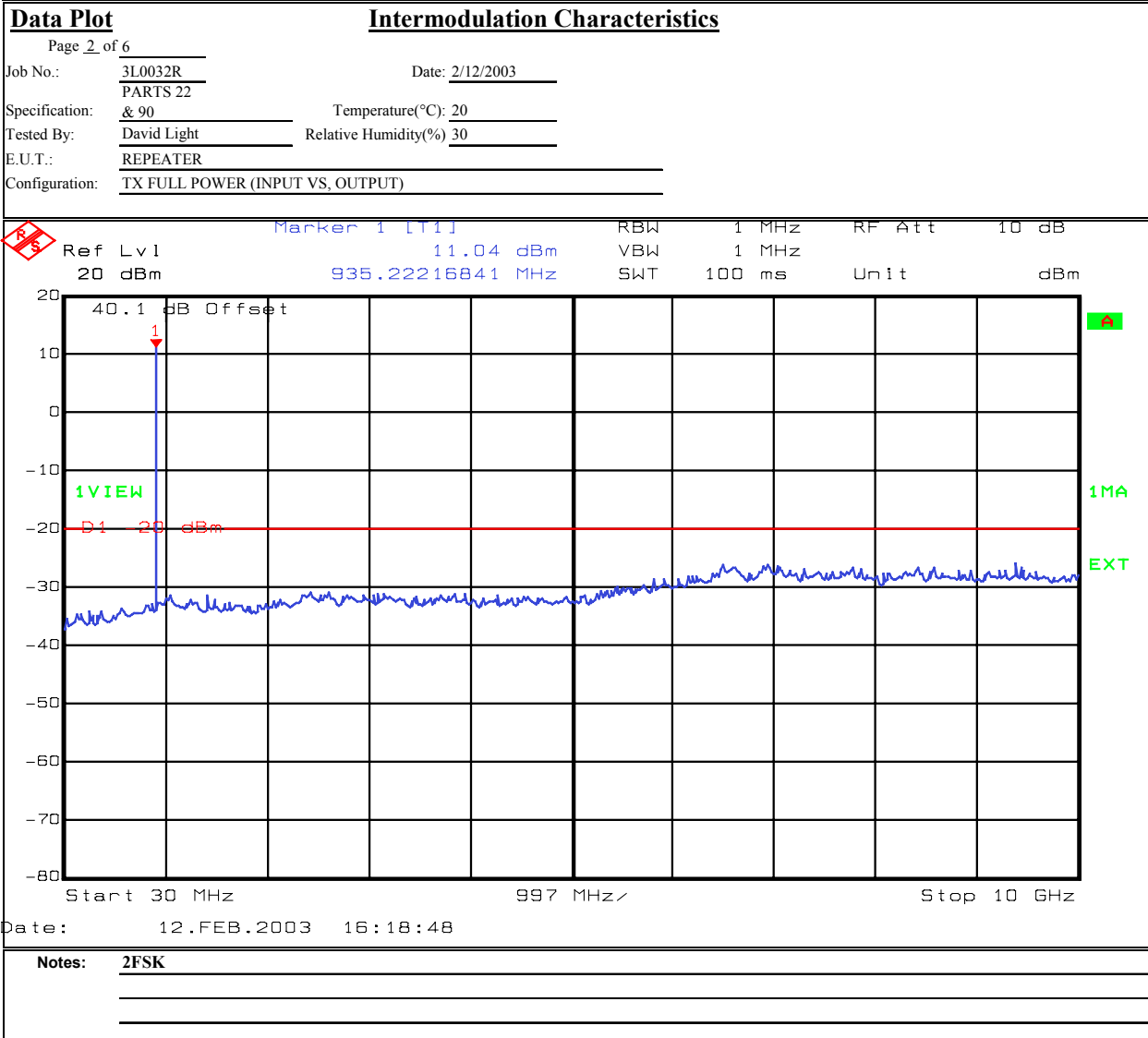
Test Data – Spurious Emissions at Antenna Terminals



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Lewisville, TX 75057
Tel: (972) 436-9600
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Nemko Dallas, Inc.



EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

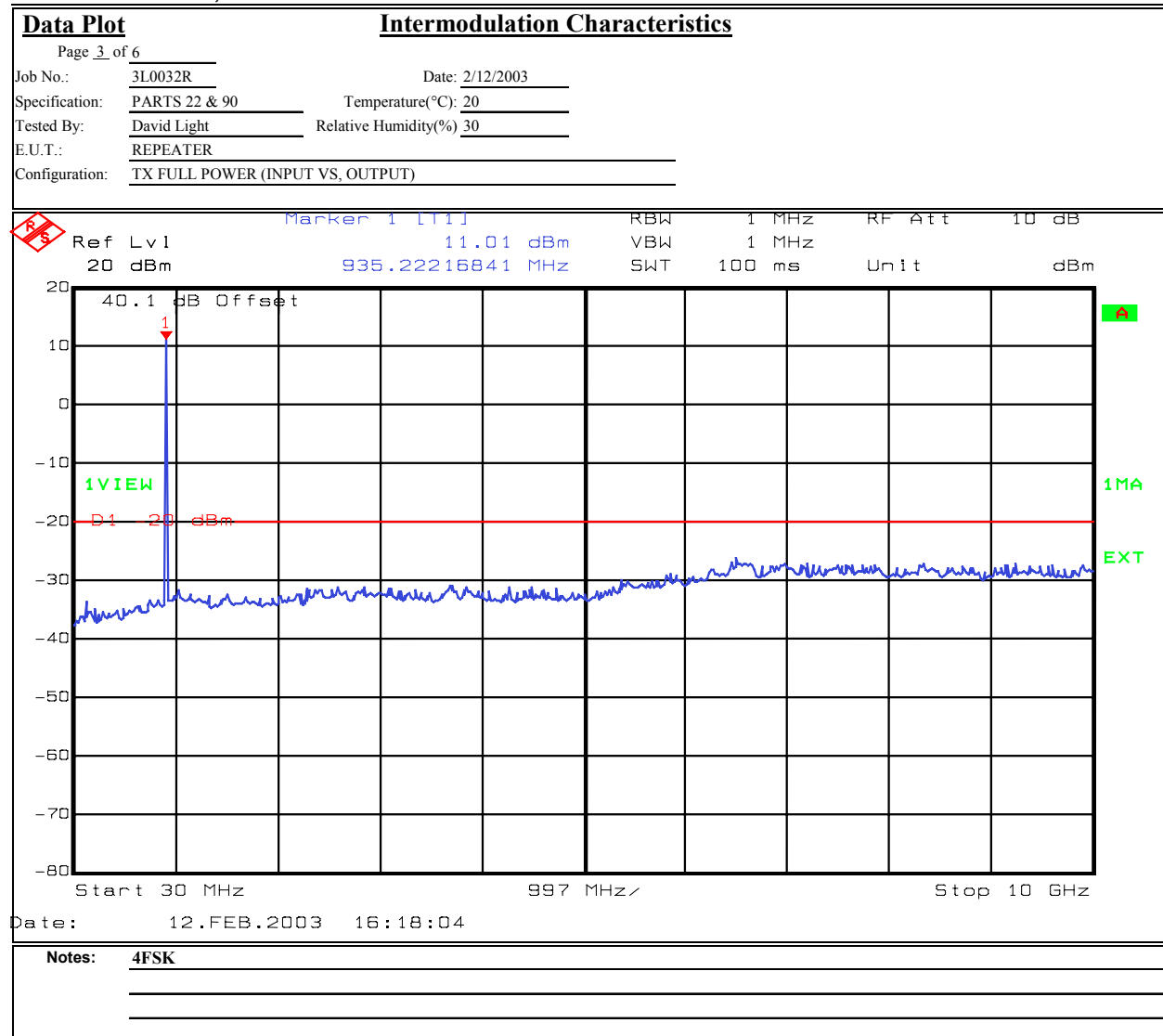
Test Data – Spurious Emissions at Antenna Terminals



Nemko Dallas, Inc.

Dallas Headquarters:

802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
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EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Test Data – Spurious Emissions at Antenna Terminals



Nemko Dallas, Inc.

Dallas Headquarters:

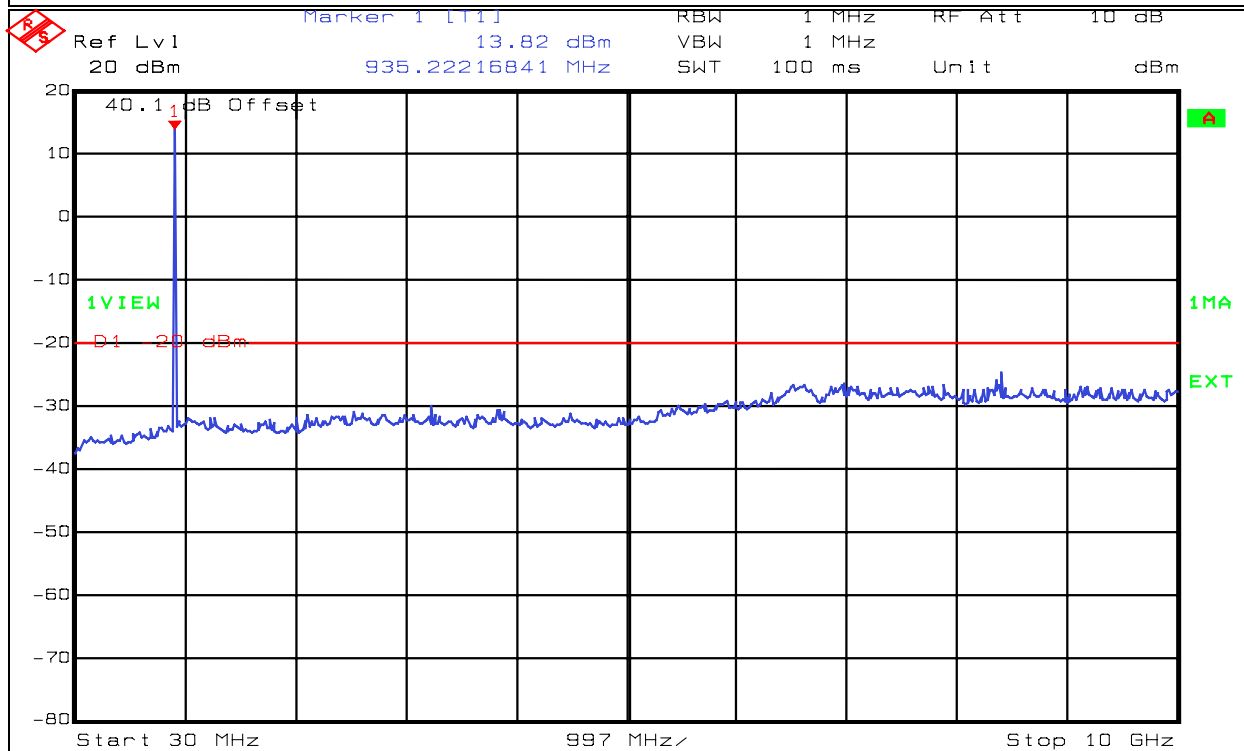
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

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)



Date: 12.FEB.2003 16:17:09

Notes: iDEN

EQUIPMENT: BRITECELL FASTPROJECT NO.: 3L0032RUS1

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°C

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Photographs of Test Setup



EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1



EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

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.

EQUIPMENT: BRITECELL FASTPROJECT NO.: 3L0032RUS1

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

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

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.

PROJECT NO.: 3L0032RUS1

PARA. NO.: 2.991

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.

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

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

EQUIPMENT: BRITECELL FASTPROJECT NO.: 3L0032RUS1

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

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

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

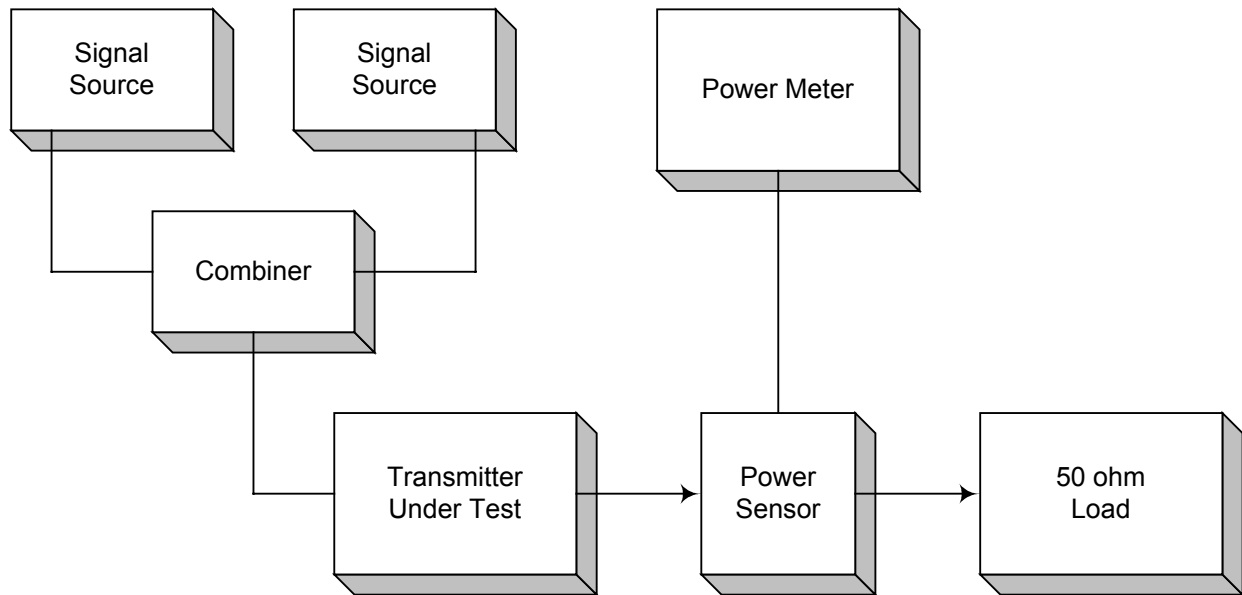
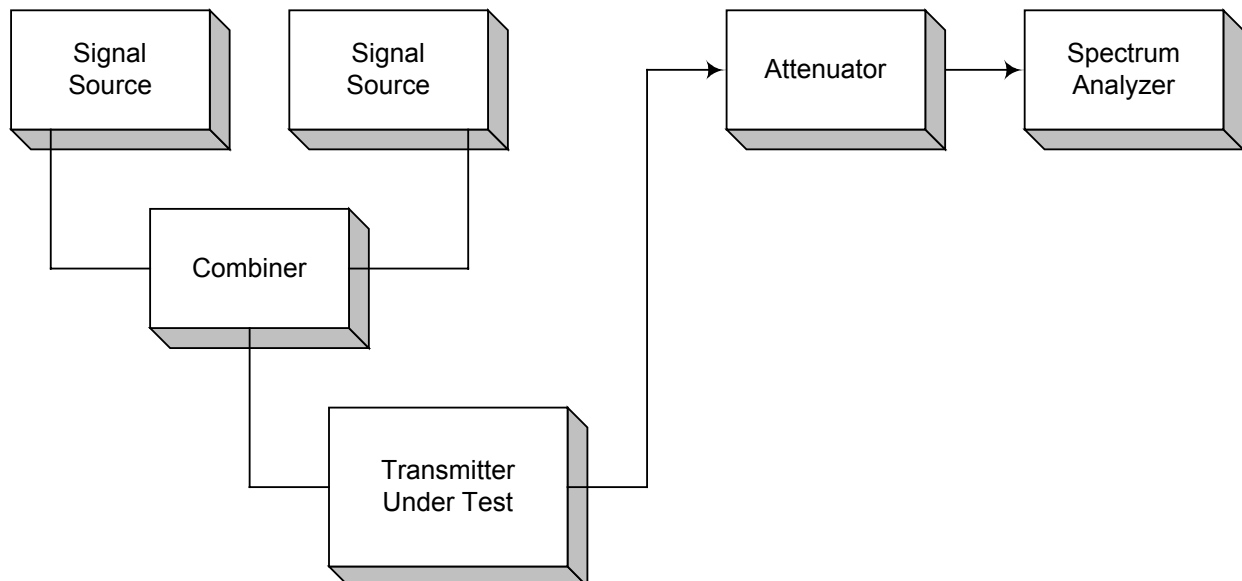
Minimum Standard: Para. No. 990.213. The transmitter carrier frequency shall remain within the assigned frequency below in ppm.

Table 2

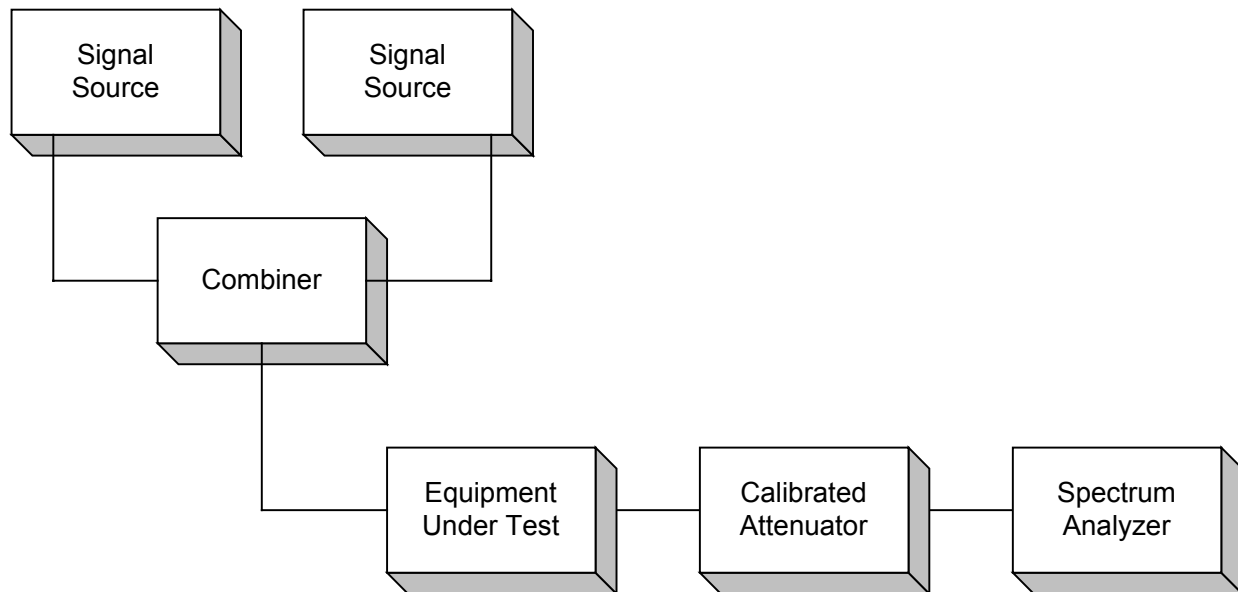
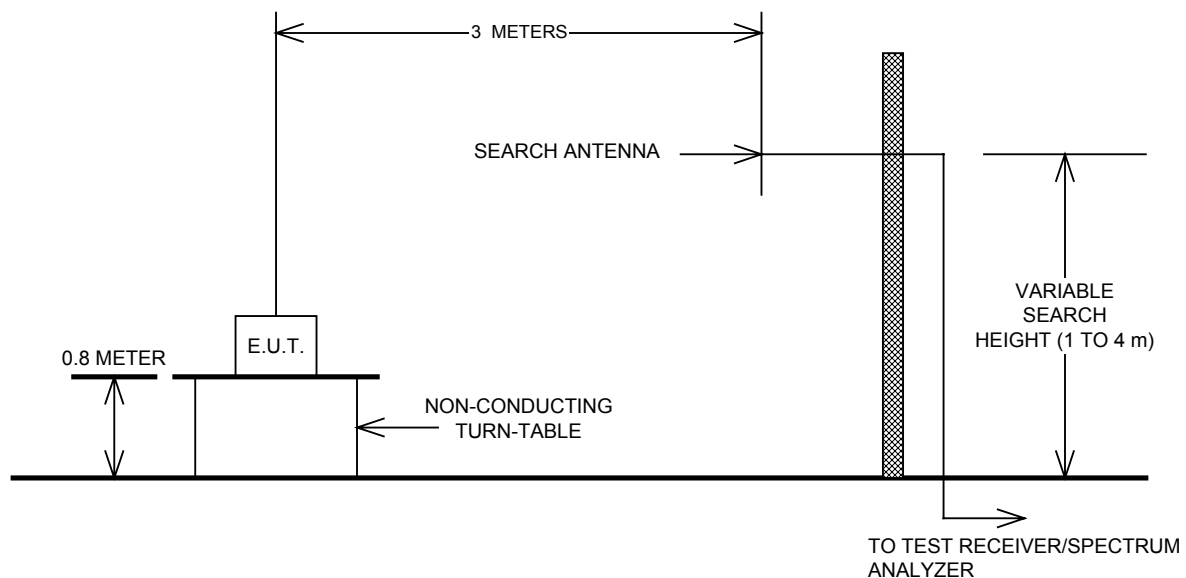
Frequency Band (MHz)	Fixed And Base Stations	Mobile Stations	
		> 2 Watts o/p pwr	< 2 Watts o/p pwr
Below 25	100	100	200
25 - 50	20	20	50
72 - 76	5	-	50
150 - 174	5	5	5
220 - 222	0.1	1.5	1.5
421 - 512	2.5	5	5
806 - 821	1.5	2.5	2.5
821 - 824	1.0	1.5	15
851 - 866	1.5	2.5	2.5
866 - 869	1.0	1.5	1.5
869 - 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

EQUIPMENT: BRITECELL FASTPROJECT NO.: 3L0032RUS1

Para. No. 2.985 - R.F. Power Output**Para. No. 2.989 - Occupied Bandwidth**

EQUIPMENT: BRITECELL FASTPROJECT NO.: 3L0032RUS1

Para. No. 2.991 - Spurious Emissions at Antenna Terminals**Para. No. 2.993 - Field Strength of Spurious Radiation**

EQUIPMENT: BRITECELL FAST

PROJECT NO.: 3L0032RUS1

Para. No. 2.995 - Frequency Stability

