

Nemko Test Report: 1L0016RUS2

Applicant: Allen Telecom Systems

**Equipment Under Test:
(E.U.T.)** MR803P-TR

In Accordance With: **FCC Part 90, Subpart I**
Private Land Mobile Repeater

Tested By: Nemko Dallas Inc.
802 N. Kealy
Lewisville, TX 75057-3136

Authorized By:



Tom Tidwell, Wireless Group Manager

Date: 12/13/01

Total Number of Pages: 49

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EQUIPMENT: MR803P-TR

PROJECT NO.: 1L0016RUS2

Section 1. Summary of Test Results

Manufacturer: Allen Telecom

Model No.: MR803P-TR

Serial No.: 13

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.

See “ Summary of Test Data”.

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EQUIPMENT: MR803P-TR

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Summary Of Test Data

NAME OF TEST	PARA. NO.	SPEC.	RESULT
RF Power Output	90.205		
Audio Frequency Response	TIA EIA-603.3.2.6	N/A	N/A
Audio Low-Pass Filter Response	TIA EIA-603.3.2.6	N/A	N/A
Modulation Limiting	TIA EIA-603.3.2.6	N/A	N/A
Occupied Bandwidth	90.210	Plots	Complies
Spurious Emissions at Antenna Terminals	90.210	-13 dBm	Complies
Field Strength of Spurious Emissions	90.210	-13 dBm	Complies
Frequency Stability	90.213	N/A	N/A
Transient Frequency Behavior	90.214	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.
 - (3) The EUT is an F1-F1 repeater
- .

Section 2. General Equipment Specification

Transmitter

Supply Voltage Input: 115 Vac

Frequency Range:	Uplink	806-824 MHz
	Downlink	851-869 MHz
Tunable Bands:		15 MHz

20 dB Passband:

Type(s) of Modulation:	F3E (Voice)	F1D	F2D	D7W (QAM)	Other
	☒	☐	☐	☒	☐

Gain: 70 dB

Output Impedance: 50 ohms

RF Power Output (rated): **Single:** 34 dBm

Channel Spacing(s): 12.5 kHz

Operator Selection of Operating Frequency: Software

Power Output Adjustment Capability: Software

Frequency Translation:	F1-F1	F1-F2	N/A
	☒	☐	☐

Band Selection:	Software	Duplexer Change	Fullband Coverage
	☒	☐	☐

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FCC PART 90, SUBPART I
PRIVATE LAND MOBILE REPEATER

EQUIPMENT: **MR803P-TR**

PROJECT NO.: **1L0016RUS2**

Description of Modifications For Class II Permissive Change

Not Applicable

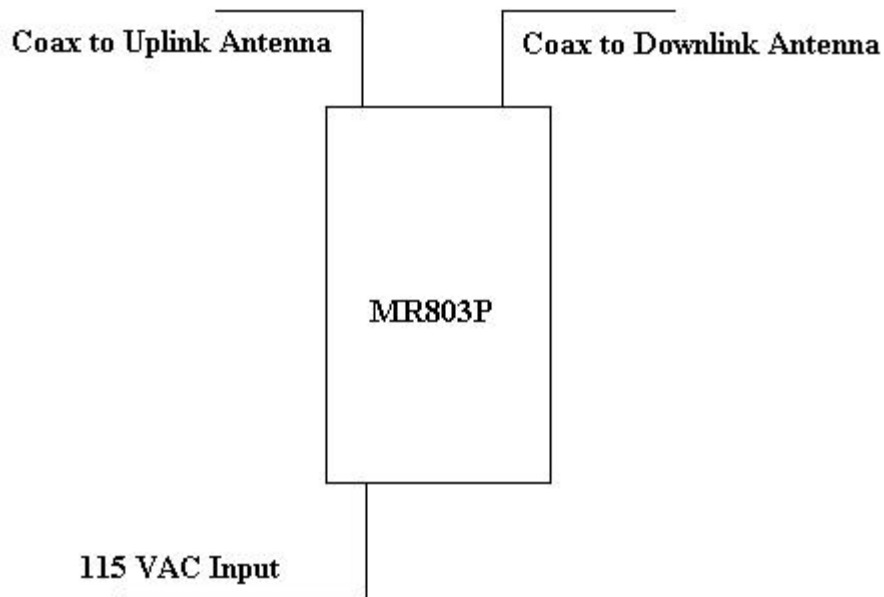
Modifications Made During Testing

Not Applicable

Theory of Operation

The repeater MRx03P is a band selective amplifier which bi-directionally amplifies signals between a base transceiver station and mobile stations in the corresponding network. It can provide highly selective amplification, thus enabling radio coverage in regions where satisfactory quality of communication is disabled.

System Diagram



EQUIPMENT: MR803P-TR

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Section 3. RF Power Output

NAME OF TEST: RF Power Output	PARA. NO.: 2.985
TESTED BY: David Light	DATE: 7/25/01

Test Results: Complies.

Measurement Data:

Downlink

Frequency (MHz)	Modulation	Measured Power (dBm)	Rated Power (dBm)	Measured/Rated (dB)
851.6	IDEN	33.4	34	0.98/1
861.6	IDEN	34.0	34	1/1
868.6	IDEN	33.3	34	0.98/1
851.6	Voice	34.0	34	1/1
861.6	Voice	34.5	34	1/1
868.6	Voice	34.3	34	1/1

Uplink

Frequency (MHz)	Modulation	Measured Power (dBm)	Rated Power (dBm)	Measured/Rated (dB)
806.6	IDEN	33.7	34	0.99/1
816.6	IDEN	34.1	34	1/1
823.6	IDEN	34.1	34	1/1
851.6	Voice	34.3	34	1/1
861.6	Voice	34.6	34	1/1
868.6	Voice	34.0	34	1/1

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FCC PART 90, SUBPART I
PRIVATE LAND MOBILE REPEATER

EQUIPMENT: **MR803P-TR**

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Section 4. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.989
TESTED BY: Chinda Poy	DATE: 7/11/01

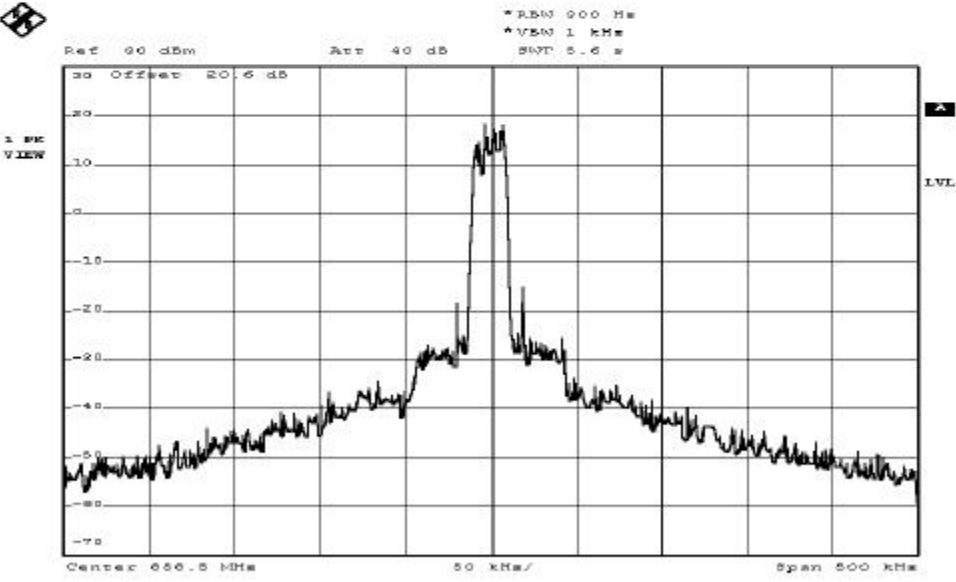
Test Results: Complies.

Test Data: See attached graph(s).

EQUIPMENT: MR803P-TR

PROJECT NO.: 1L0016RUS2

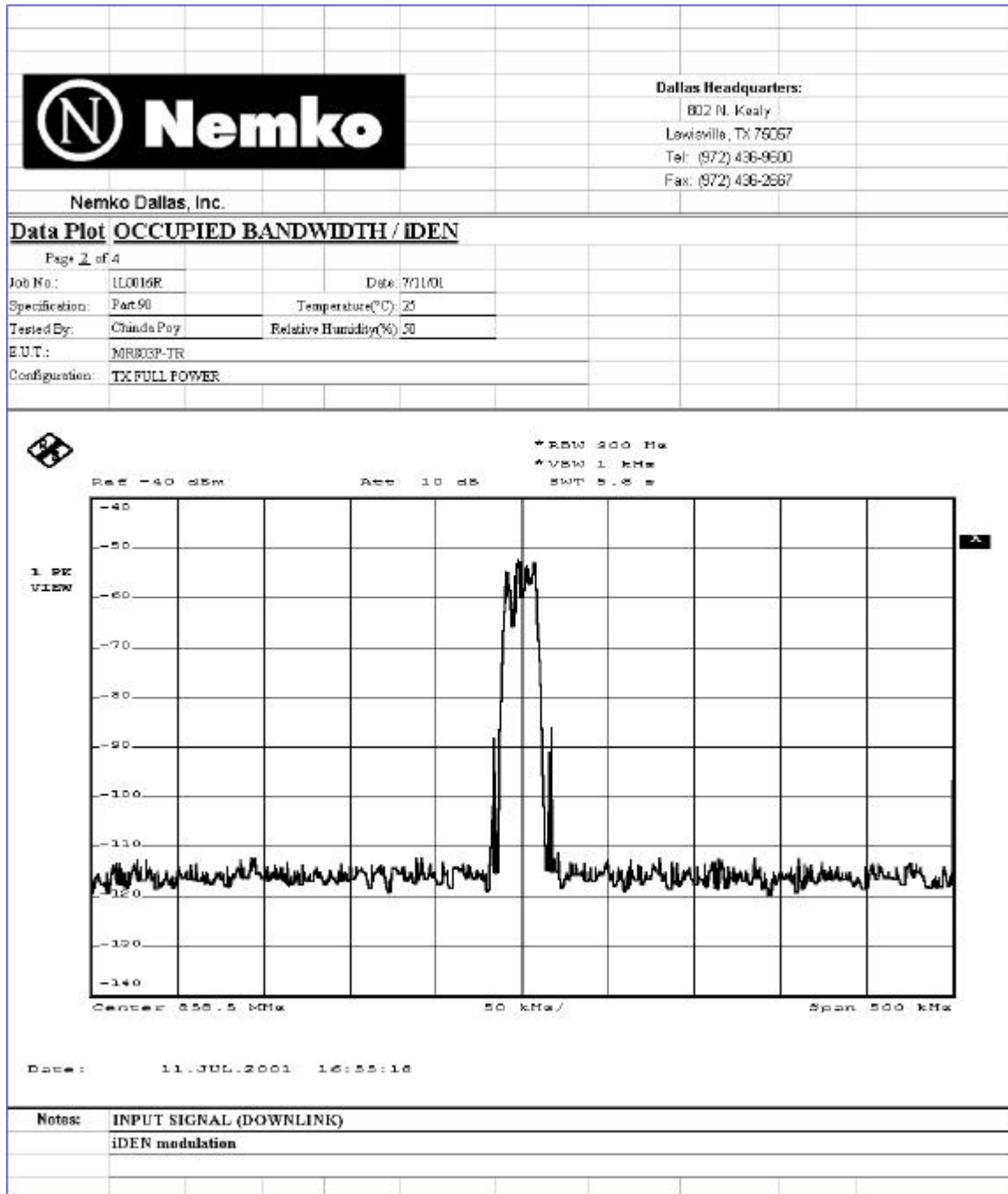
Test Data – Occupied Bandwidth

		Dallas Headquarters:	
		802 N. Keady Lewisville, TX 75067 Tel: (972) 436-9800 Fax: (972) 436-2667	
Nemko Dallas, Inc.			
Data Plot OCCUPIED BANDWIDTH / IDEN			
Page 1 of 4		Complete	X
Job No:	1L0016R	Date:	7/11/01
Specification:	Part 90	Temperature (°C):	23
Tested By:	Chinda Fay	Relative Humidity (%):	50
EUT:	MR803P-TR		
Configuration:	TX FULL POWER		
Sample Number:	801		
Location:	Lab 1	RBW:	refer to plots
Detection Type:	Peak	VBW:	Refer to plots
Test Equipment Used			
Antenna:		Directional Coupler:	
Pre-Amp:		Cable #1:	1002
Filter:		Cable #2:	
Receiver:	3632P	Cable #3:	
Attenuator #1:	16dB	Cable #4:	
Attenuator #2:		Mixer:	
Additional equipment used:			
Measurement Uncertainty: ± 1.5 dB			
			
Date: 11 JUL 2001 16:52:07			
Notes: OUTPUT SIGNAL (DOWNLINK)			
IDEN modulation			

EQUIPMENT: MR803P-TR

PROJECT NO.: 1L0016RUS2

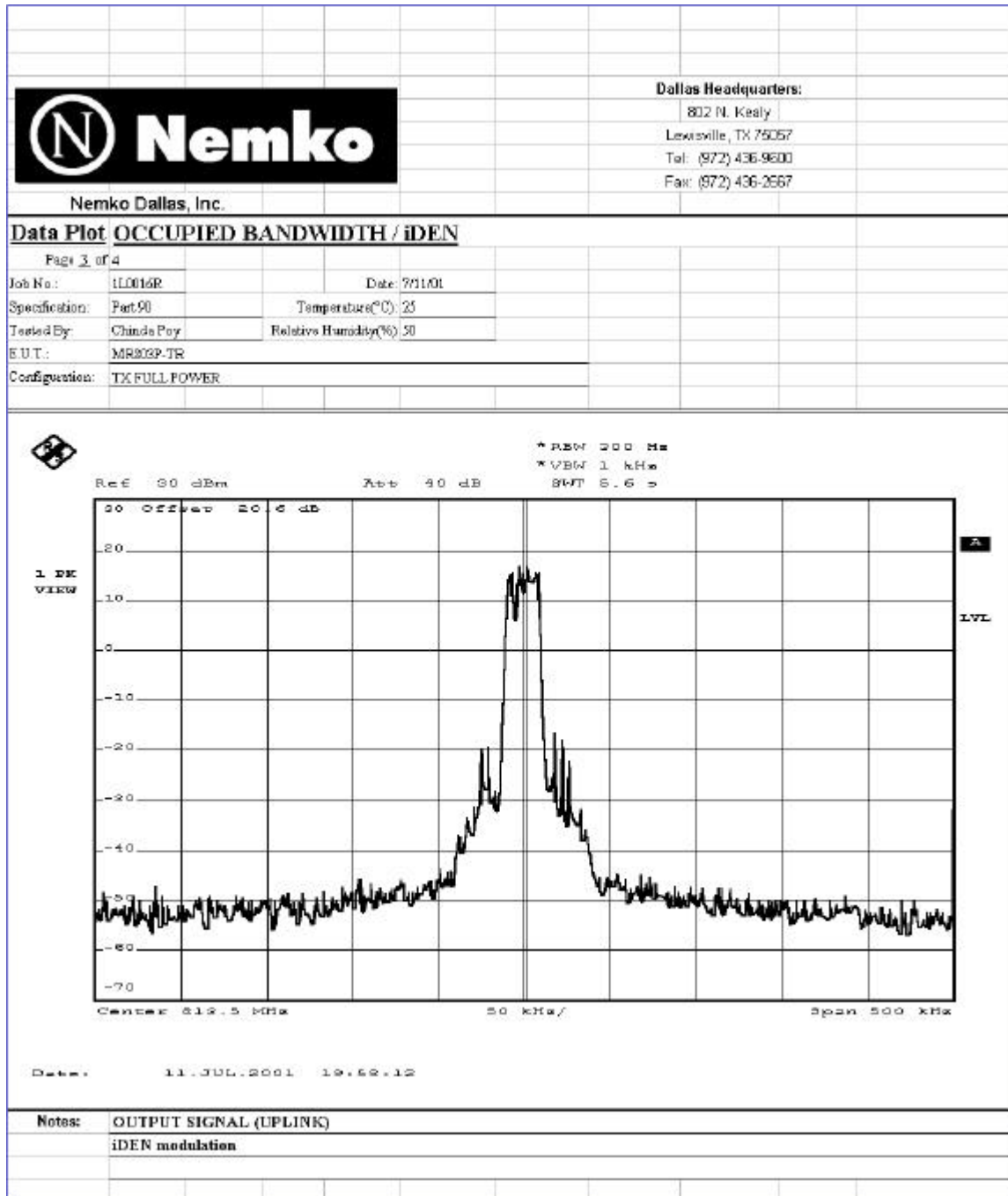
Test Data – Occupied Bandwidth



EQUIPMENT: MR803P-TR

PROJECT NO.: 1L0016RUS2

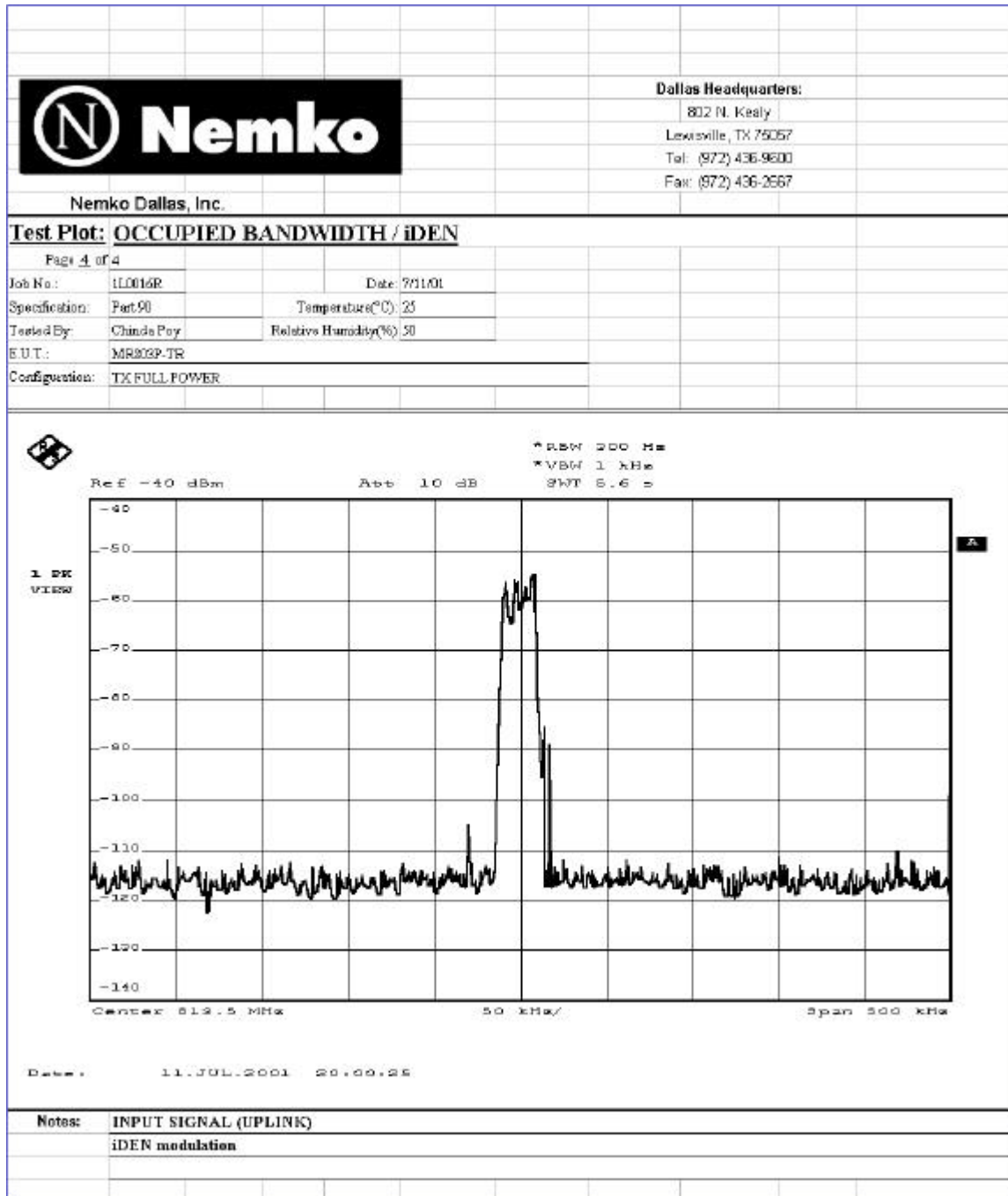
Test Data – Occupied Bandwidth



EQUIPMENT: MR803P-TR

PROJECT NO.: 1L0016RUS2

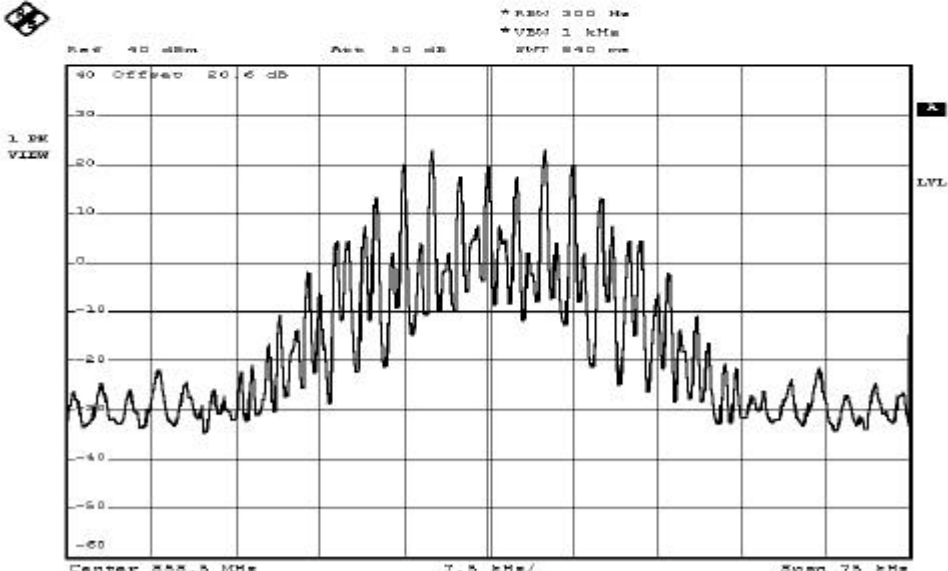
Test Data – Occupied Bandwidth



EQUIPMENT: MR803P-TR

PROJECT NO.: 1L0016RUS2

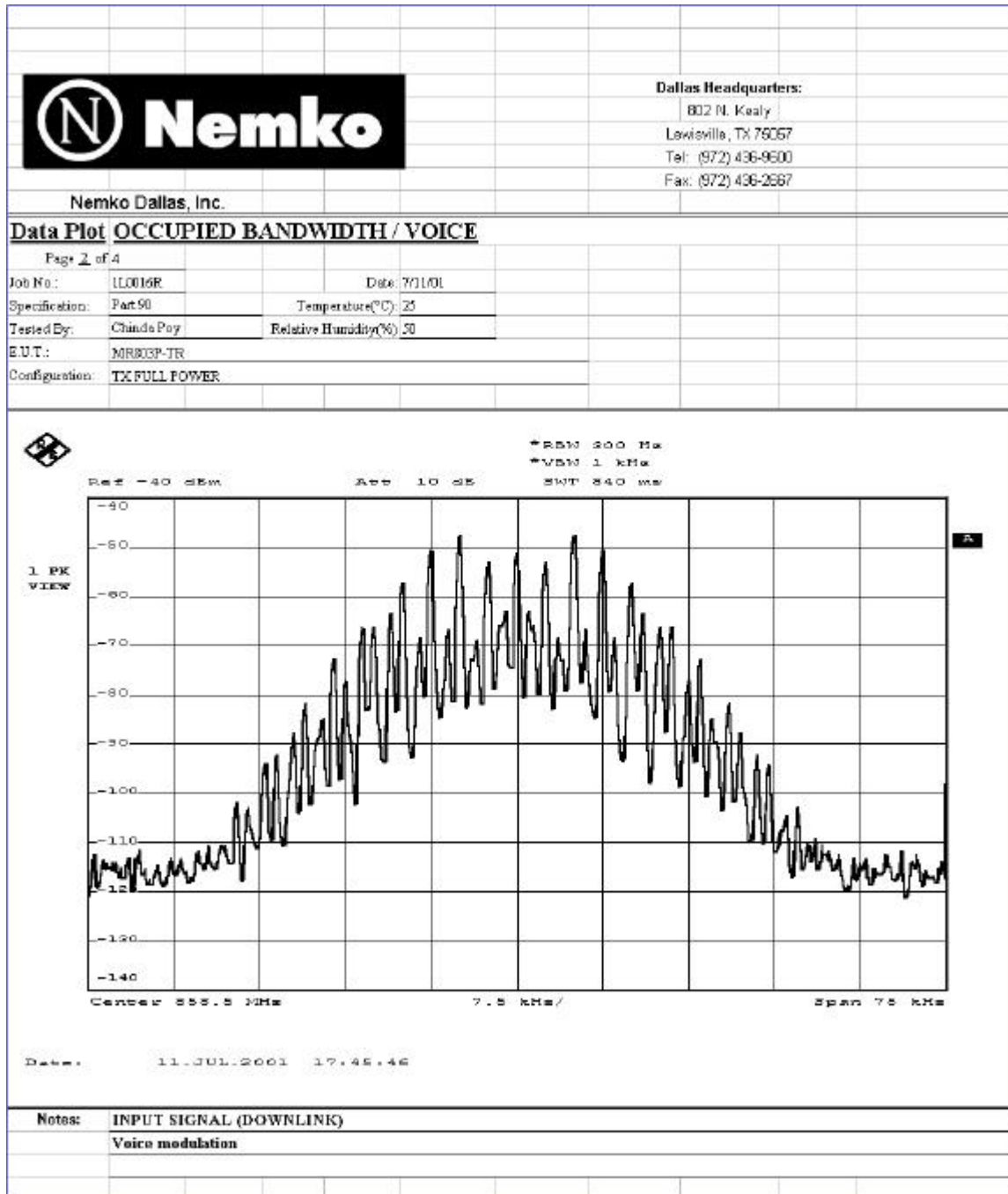
Test Data – Occupied Bandwidth

		Dallas Headquarters:	
		602 N. Keady Lewisville, TX 75057 Tel: (972) 435-9600 Fax: (972) 435-2667	
Nemko Dallas, Inc.			
Data Plot OCCUPIED BANDWIDTH / VOICE			
Page 1 of 4		Complete ☒	
Job No:	1L0016R	Date:	7/11/01
Specification:	Part 90	Temperature(°C):	25
Tested By:	ChindaFoy	Relative Humidity(%):	50
EUT:	MR803P-TR		
Configuration:	TX FULL POWER		
Sample Number:			
Location:	Lab 1	REFF:	Refer to plots
Deterioration Type:	Peak	VEFF:	Refer to plots
Test Equipment Used			
Antenna:		Directional Coupler:	
Pre-Amp:		Cable #1:	1062
Filter:		Cable #2:	
Receiver:	36329	Cable #3:	
Attenuator #1:	1604	Cable #4:	
Attenuator #2:		Mixer:	
Additional equipment used:			
Measurement Uncertainty:	±3.6 dB		
 1.0W VIEW Center 855.5 MHz 7.5 kHz Span 75 kHz Date: 11-JUL-2001 17:25:25			
Notes: OUTPUT SIGNAL (DOWNLINK) Voice modulation			

EQUIPMENT: MR803P-TR

PROJECT NO.: 1L0016RUS2

Test Data – Occupied Bandwidth



PROJECT NO.: 1L0016RUS2

Voice modulation

Dallas Headquarters:

802 N. Kealy

Lewisville, TX 75057

Tel: (972) 436-9600

Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot OCCUPIED BANDWIDTH / VOICE

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Job No.: IL0016R Date: 7/11/01

Specification: Part 90 Temperature(°C): 23

Tested By: Chinda Poy Relative Humidity(%): 50

E.U.T.: MR903P-TR

Configuration: TX FULL POWER

* RESW 200 Hz

* VIEW 1 kHz

SWT 510 ms

Ref 10 dBm

Att 80 dB

1 PK
VIEW

The figure is a spectral plot titled "OCCUPIED BANDWIDTH / VOICE". The vertical axis represents signal level in dBm, ranging from -60 to 40. The horizontal axis represents frequency in MHz, ranging from approximately 810 to 825 MHz. The plot shows a noisy signal with a peak level around 20 dBm. Below the plot, there are labels: "Center 812.5 MHz", "7.5 kHz/", and "Span 7.5 kHz".

Date: 11.JUL.2001 20:18:28

Notes: OUTPUT SIGNAL (UPLINK)

Voice modulation

EQUIPMENT: MR803P-TR

PROJECT NO.: 1L0016RUS2

Test Data – Occupied Bandwidth

