Nemko Test Report No.:	4L0134RUS1				
Applicant:	Communication Components, Inc 89 Leuning Street Second Floor Hackensack, NJ 07606				
Equipment Under Test:	DAB-1819-125				

In Accordance With:

FCC Part 24, Subpart E Broadband PCS Amplifiers

Tested By:

Nemko Dallas Inc. 802 N. Kealy Lewisville, Texas 75057-3136

7.--7:10

Tom Tidwell, Frontline Group Manager

Date:

Authorized By:

3/22/04

Total Number of Pages:

Table of Contents

Section 1.	Summary of Test Results	3
Section 2.	General Equipment Specification	5
Section 3.	RF Power Output	7
Section 4.	Occupied Bandwidth	8
Section 5.	Spurious Emissions at Antenna Terminals	13
Section 6.	Field Strength of Spurious	24
Section 7.	Test Equipment List	27
ANNEX A -	TEST DETAILS	28
ANNEX B -	TEST DIAGRAMS	34

Nemko Dallas

EQUIPMENT: **DAB-1819-125**

Section 1. Summary of Test Results

Manufacturer: Communication Components

Model No.: DAB-1819-125

Serial No.: E005730

General: All measurements are traceable to national standards.

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 24, Subpart E.

\boxtimes	New Submission	\boxtimes	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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Summary Of Test Data

NAME OF TEST	PARA. NO.	SPEC.	RESULT
RF Power Output	24.232	100W	Complies
Occupied Bandwidth	24.238	Input/Output	Complies
Spurious Emissions at Antenna Terminals	24.238(a)	-13 dBm	Complies
Field Strength of Spurious Emissions	24.238(a)	-13 dBm E.I.R.P.	Complies
Frequency Stability	24.235		NA

Measurement uncertainty for each test configuration is expressed to 95% probability.

Section 2. General Equipment Specification

Frequency Bands: Downlink: Block A: 1930 – 1945 MHz Block D 1945 – 1950 MHz Block B: 1950 – 1965 MHz Block F: 1970 – 1975 MHz Block C 1975 – 1990 MHz Block C: 1975 – 1990 MHz Block B: 1865 – 1870 MHz Block C: 1975 – 1990 MHz Block C: 1975 – 1990 MHz Block C: 1865 – 1870 MHz Block C: 1865 – 1870 MHz Block C: 1865 – 1870 MHz Block C: 1870 – 1885 MHz Block D: 1885 – 1890 MHz Block D: 1885 – 1890 MHz Block F: 1890 – 1895	Supply Voltage Input:	120 VAC
Frequency Bands: Uplink: Block D 1945 – 1950 MHz Block E 1965 – 1970 MHz Block C 1975 – 1990 MHz Block C 1975 – 1990 MHz Block R I 1975 – 1990 MHz Block R I 1975 – 1990 MHz Block R I 1975 – 1990 MHz Block C I 1975 – 1990 MHz Block D I 1865 – 1870 MHz Block D I 1865 – 1870 MHz Block D I 1885 – 1890 MHz Block F I 1890 – 1885 MHz Block F I 1890 – 1895 MHz Block F I 1895 – 1910 MHz CDMA CSM CDMA (GXW) (GXW) (G7W) Block F I 1895 – 1910 MHz Block F I 1895 – 1910 MHz Block F I 1895 – 1910 MHz CDMA CSM (GXW) (G7W) Block F I 1895 – 1910 MHz Block F I 1895 – 1910 MHz Block F I 1895 – 1910 MHz Statistical Mathematical Mathmathematica	Frequency Bands: Downlink:	Block A: 1930 – 1945 MHz
Block B: 1950 - 1965 MHz Block E 1965 - 1970 MHz Block F: 1975 - 1990 MHz Block C 1975 - 1990 MHz Block B: 1865 - 1870 MHz Block B: 1865 - 1870 MHz Block C 1870 - 1885 MHz Block C 1870 - 1885 MHz Block C 1870 - 1885 MHz Block E: 1890 - 1895 MHz Block F: 1890 - 1895 MHz Block F: <t< th=""><th></th><th></th></t<>		
Frequency Bands: Uplink: Block F: 1970 - 1975 MHz Block C 1975 - 1990 MHz Block C 1975 - 1990 MHz Block B: 1865 - 1870 MHz Block C 1870 - 1885 MHz Block D 1885 - 1890 MHz Block D 1885 - 1890 MHz Block F: 1890 - 1895 MHz Block F: 1890 - 1895 MHz Block F: 1890 - 1895 MHz Block F: 1895 - 1910 MHz Type of Modulation and Designator: CDMA GSM (GXW) (G7W) Image: Comparison of the second sec		
Frequency Bands: Uplink: Block C 1975 - 1990 MHz Block C 1975 - 1990 MHz Block A 1850 - 1865 MHz Block B: 1865 - 1870 MHz Block C 1870 - 1885 MHz Block C 1870 - 1885 MHz Block C 1870 - 1885 MHz Block E: 1890 - 1895 MHz Block F: 1890 - 1895 MHz Block F: 1895 - 1910 MHz CDMA GSM EDGE (G7W) Block F: 1895 - 1910 MHz CDMA GSM Block F: 1895 - 1910 MHz Block F: 1895 - 1910 MHz Block F: 1895 - 1910 MHz CDMA GSM (G7W) Image: Sold Max Block F: 1895 - 1910 MHz Sold Max CDMA (GXW) (G7W) Image: Sold Max Image: Sold Max Block F: 1895 - 1910 MHz Sold Max Per channel: NA RF Output (Rated): Downlink Per channel: 62.5 W Total: 125 W NA		Block E 1965 – 1970 MHz
Frequency Bands: Uplink: Block A 1850 - 1865 MHz Block B: 1865 - 1870 MHz Block C 1870 - 1885 MHz Block D 1885 - 1890 MHz Block D 1885 - 1890 MHz Block E: 1890 - 1895 MHz Block F: 1895 - 1910 MHz Block F: 1895 - 1910 MHz Output Impedance: CDMA GSW (G7W) CDMput (Rated): Uplink Per channel: NA W Per channel: 62.5 W Total: 125 W Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz (Bandedges) to achieve compliance when using GSM or EDGEE modulation. F1-F1 F1-F2 N/A		Block F : 1970 – 1975 MHz
Image: Solution of the second state		Block C 1975 – 1990 MHz
Block A 1030 = 1003 MHz Block B: 1865 = 1870 MHz Block C 1870 - 1885 MHz Block D 1885 - 1890 MHz Block E: 1890 - 1895 MHz Block F: 1895 - 1910 MHz CDMA GSM EDGE (F9W) (GXW) (G7W) Coutput Impedance: 50 ohms RF Output (Rated): Uplink Per channel: NA W Per channel: 02.5 W NA RF Output (Rated): Downlink Per channel: 62.5 W Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz (Bandedges) to achieve compliance when using GSM or EDGE modulation. F1-F1 F1-F2 N/A	Francisco Dendes - Unlinks	
Block C 1870 - 1885 MHz Block C 1885 - 1890 MHz Block D 1885 - 1890 MHz Block E: 1890 - 1895 MHz Block F: 1890 - 1895 MHz Block F: 1890 - 1895 MHz Block F: 1895 - 1910 MHz CDMA GSM EDGE (F9W) (GXW) (G7W) Dutput Impedance: 50 ohms RF Output (Rated): Uplink Per channel: NA Per channel: 62.5 W Total: Total: 125 Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz 1989.8 MHz Block F1-F1 F1-F1 F1-F2	Frequency Bands: Uplink:	Block A 1850 – 1865 MHz
District C Block D 1885 - 1890 MHz Block E: 1895 - 1895 MHz Block F: 1895 - 1910 MHz CDMA GSM EDGE (F9W) (GXW) (GXW) (G7W) Output Impedance: 50 ohms RF Output (Rated): Uplink Per channel: NA W Total: NA W Per channel: 62.5 W Total: 125 W Power output need to 33.2 dBm at 1930.2 and 1939.8 MHz (Bandedges) to achieve compliance when using GSM or EDGE modulation.		Block B: 1865 – 1870 MHz
Type of Modulation and Designator: CDMA GSM EDGE (F9W) (GXW) (GXW) (G7W) Image: Solution of Modulation and Designator: CDMA (F9W) (GXW) (GXW) <th></th> <th>Block C 1870 – 1885 MHz</th>		Block C 1870 – 1885 MHz
Down L. Block F: 1895 – 1910 MHz Type of Modulation and Designator: CDMA (F9W) GSM (GXW) EDGE (G7W) Output Impedance: 50 ohms RF Output (Rated): Uplink Per channel: NA W Total: NA W RF Output (Rated): Downlink Per channel: 62.5 W Total: 125 W Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz (Bandedges) to achieve compliance when using GSM or EDGE modulation. F1-F1 F1-F2 N/A		Block D 1885 – 1890 MHz
Type of Modulation and Designator: CDMA (F9W) GSM (GXW) EDGE (G7W) Output Impedance: 50 ohms RF Output (Rated): Uplink Per channel: NA W Total: NA W RF Output (Rated): Downlink Per channel: 62.5 W Total: 125 W Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz (Bandedges) to achieve compliance when using GSM or EDGE modulation. F1-F1 F1-F2 N/A		Block E: 1890 – 1895 MHz
Type of Modulation and Designator: (F9W) (GXW) (G7W) Output Impedance: 50 ohms RF Output (Rated): Uplink Per channel: NA W Total: NA W V V V RF Output (Rated): Downlink Per channel: 62.5 W V Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz (Bandedges) to achieve compliance when using GSM or EDGE modulation. F1-F1 F1-F2 N/A		Block F : 1895 – 1910 MHz
Output Impedance: 50 ohms RF Output (Rated): Uplink Per channel: NA W Total: NA W RF Output (Rated): Downlink Per channel: 62.5 W Total: 125 W Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz (Bandedges) to achieve compliance when using GSM or EDGE modulation. F1-F1 F1-F2		CDMA GSM EDGE
Output Impedance: 50 ohms RF Output (Rated): Uplink Per channel: NA W Total: NA W RF Output (Rated): Downlink Per channel: 62.5 W Total: 125 W Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz (Bandedges) to achieve compliance when using GSM or EDGE modulation. F1-F1 F1-F2	Type of Modulation and Designator:	(F9W) (GXW) (G7W)
RF Output (Rated): Uplink Per channel: NA W RF Output (Rated): Downlink Per channel: 62.5 W Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz (Bandedges) to achieve compliance when using GSM or EDGE modulation. F1-F1 F1-F2 N/A		
RF Output (Rated): Uplink Per channel: NA W RF Output (Rated): Downlink Per channel: 62.5 W Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz (Bandedges) to achieve compliance when using GSM or EDGE modulation. F1-F1 F1-F2 N/A		
RF Output (Rated): Oplink Total: NA W RF Output (Rated): Downlink Per channel: 62.5 W Total: 125 W Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz (Bandedges) to achieve compliance when using GSM or EDGE modulation. F1-F1 F1-F2 N/A	Output Impedance:	50 ohms
RF Output (Rated): Oplink Total: NA W RF Output (Rated): Downlink Per channel: 62.5 W Total: 125 W Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz (Bandedges) to achieve compliance when using GSM or EDGE modulation. F1-F1 F1-F2 N/A		Por channel: NA W
RF Output (Rated): Downlink Total: 125 W Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz (Bandedges) to achieve compliance when using GSM or EDGE modulation. F1-F1 F1-F2 N/A	RF Output (Rated): Uplink	
RF Output (Rated): Downlink Total: 125 W Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz (Bandedges) to achieve compliance when using GSM or EDGE modulation. F1-F1 F1-F2 N/A		
Power output needs to be lowered to 33.2 dBm at 1930.2 and 1989.8 MHz (Bandedges) to achieve compliance when using GSM or EDGE modulation.F1-F1F1-F2N/A	RF Output (Rated): Downlink	
GSM or EDGE modulation. F1-F1 F1-F2 N/A		Power output needs to be lowered to 33.2 dBm at 1930.2 and
F1-F1 F1-F2 N/A		
	Francisco Francisco de Constante	
	Frequency I ranslation:	
Software Duplexer Fullband		Software Dupleyer Fullband
Band Selection:	Band Selection:	

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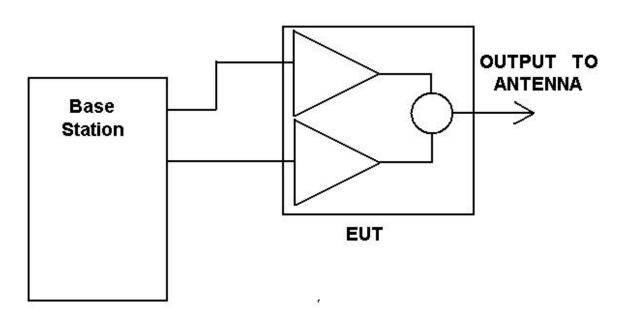
EQUIPMENT: **DAB-1819-125**

FCC PART 24, SUBPART E BROADBAND PCS REPEATERS TEST REPORT NO.: 4L0134RUS1

Description of EUT

The device is a base station amplifier operating in the PCS band utilizing GSM and GSM EDGE technology. Each input outputs 62.5 Watts single carrier only and input into a combiner prior to output. The device is rated at 125 Watts combined power.

System Diagram



Section 3. RF Power Output

PARA. NO.: 2.1046

TESTED BY: David Light

DATE: 3/12/04

Test Results: Complies.

Measurement Data:

	Modulation Type	Per Channel Output Power (dBm)	Composite Output Power (dBm)
Uplink	GSM	NA	NA
Downlink	GSM	62.5	125
Uplink	GSM EDGE	NA	NA
Downlink	GSM EDGE	62.5	125

Note – The device was tested at 125 Watts max power to compensate for any insertion loss prior to antenna input.

Reduced Power measurements at Band Edges

	Modulation Type	Single Channel Output Power (1930.2MHz)	Single Channel Output Power (1989.8MHz)	
Downlink	EDGE	33.2dBm	33.2dBm	
Downlink	GSM	33.2dBm	33.2dBm	

Equipment Used: 1464-1064-1055-1626

Measurement Uncertainty: +/- 1.7 dB

Temperature: 22 ?C

Relative Humidity: 40%

Section 4. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.1049
TESTED BY: David Light	DATE:3/12/04
5	

Test Results: Complies.

Test Data:See attached plot(s).

EQUIPMENT: DAB-1819-125



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

INCIN		llas, Inc.									
<u>Data Plot</u>					<u>Occup</u>	ied Bar	ldwidth				
Page 1 of	4								C	Complete	Х
ob No.:	3L00751	ર			Date: 3/1				Preli	ninary:	
pecification:	PT 24			Femperature	(°C):	22					
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0		L POWER						-			
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Notes:			EDGE, 62.5								

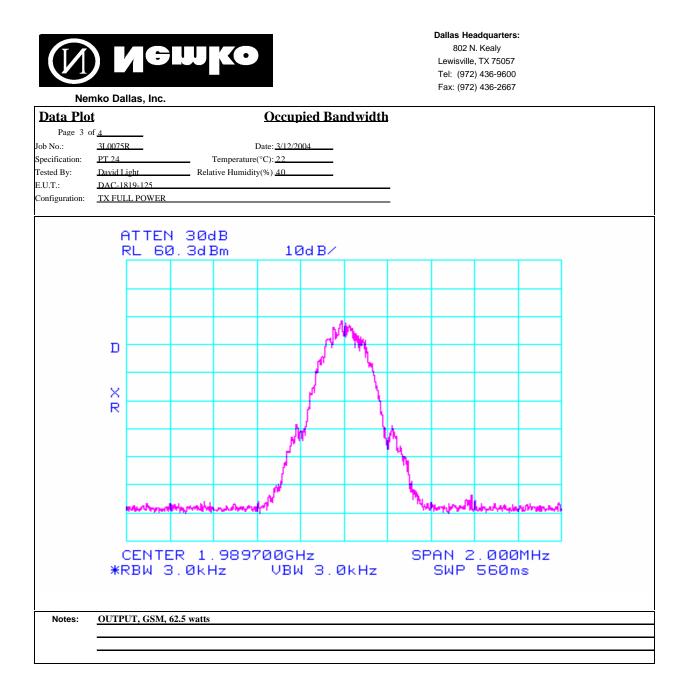
EQUIPMENT: DAB-1819-125



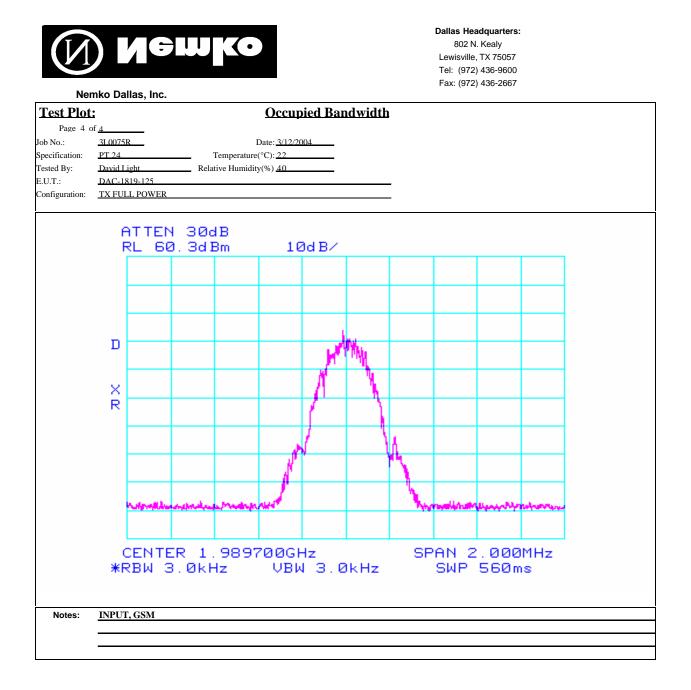
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Ne	m <mark>ko D</mark> a	Illas, Inc.										
Data Plot	t				Occur	oied Baı	ndwidth	1				
Page 2								_				
b No.:	3L0075	R]	Date: 3/12/20	004						
ecification:	<u>PT 24</u>			Temperature	(°C): <u>22</u>							
ested By:	David I	light	Rela	lative Humidity(%) <u>40</u>								
.U.T.:		819-125						_				
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Notes:	INDU	F, GSM EI	CE									
NOTES:	INPU	I, GOM EL	GĽ									

EQUIPMENT: DAB-1819-125



EQUIPMENT: DAB-1819-125



Section 5. Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions @ Antenna Terminals	PARA. NO.: 2.1051
TESTED BY: David Light	DATE: 3/12/04

Test Results:

Complies.

Test Data:

See attached plot(s).

Nerr		las, Inc.		(0		Dallas Headquarters: 802 N. Kealy Lewisville, TX 75057 Tel: (972) 436-9600 Fax: (972) 436-2667						
Data Plot Page 1 of Job No.: Specification: Tested By: E.U.T.: Configuration:	3L00751 PT 24 David L DAC-18	ight	-	E Temperature	Date: 3/	Termin	Serminals. Complete X Preliminary:					
Sample Number: Location: Detector Type:	Lab 2 Peak	2				RBW: 3 VBW: 3		-		asurement Distance: <u>N</u>	Am	
Cest Equipme Antenna: Pre-Amp: Pilter: Receiver: Attenuator #1 Attenuator #2: Additional equipm Measurement Uni	1464 1064 ment used		<u>dB</u>			Cable #3: Cable #4:		-				
			4 30d 3.3d1		10	∂d B∕		KR - .990		I3d Bm iHz		
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			ER 1. 3.ØkH) 0kHz	SP		2.000 560m		
Notes:			2.5 W (48 d n) Compos		, 1989.7 and	d 1989.1 M	Hz, GSM F	CDGE				

		llas, Inc.		K.			Dallas Headquarters: 802 N. Kealy Lewisville, TX 75057 Tel: (972) 436-9600 Fax: (972) 436-2667						
Data Plot			S	purious	Emissi	ons at A	ntenna	Termir	nals_				
Page -2 o Job No.: Specification: Tested By: E.U.T.: Configuration:	3L00751 PT 24 David L DAC-18	ight 319-125		I Temperature(ative Humidity	-			-					
		ATTEN RL 60			10	3d B∕		KR - .930					
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		lin jud	and a part of		aler-pape	4. Maypagell							
				. 9300 Hz			l)kHz	SP	AN 2 SWP	.000 560n			
Notes:				dBm) each, site power	1930.3 an	d 1930.9 M	IHz, GSM]	EDGE					

Ner		Allas, Inc.		KO		Dallas Headquarters: 802 N. Kealy Lewisville, TX 75057 Tel: (972) 436-9600 Fax: (972) 436-2667							
Data Plo			5	Spurious	Emiss	ions at A	Antenna	Term	inals				
Page 3 of bb No.: pecification: ested By: .U.T.: onfiguration:	<u>3L0075</u> <u>PT 24</u> <u>David I</u> <u>DAC-1</u>	<u>R</u>		Temperature lative Humidit									
			4 100 3.3d)		10	∂d B∕		KR 1 . 960	L.800 GHz	dBm			
	D	DIS -13	PLAY Ødi	LINE Bm									
	X R												
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	9 *F	STAR RBW 1	Г 301 L.ØМI	MHz Hz	VΒΝ	 1.e			20.00 SWP	0GHz 400r	ns		
Notes:	-			2.5 W each, NOTCHED		mposite, GS	SM EDGE						

Dallas Headquarters:

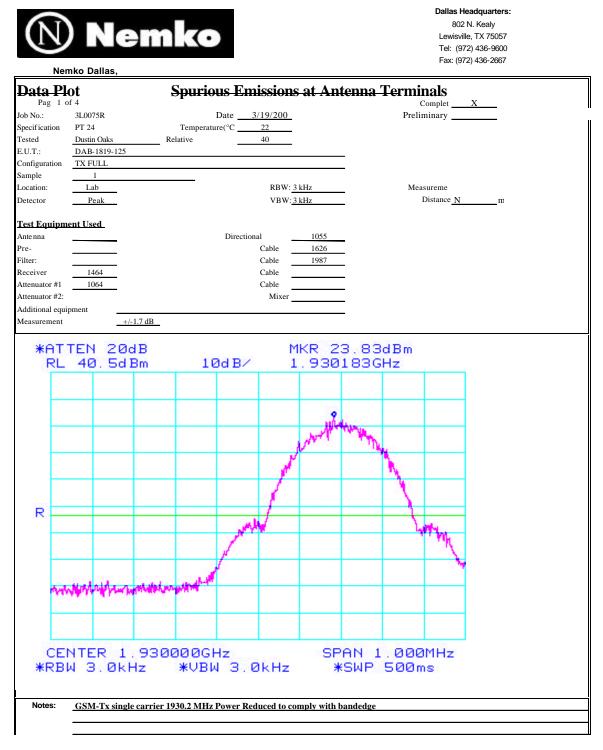
EQUIPMENT: DAB-1819-125

Nerr	nko Dall			K 0						8 Lewis Tel:	02 N. Kealy sville, TX 75 (972) 436-9 (972) 436-2	6057 1600
Data Plot Page 1 of			S	purious	Emiss	ions at A	Antenna	a Termi		Complete		
ob No.: Specification: Fested By: E.U.T.: Configuration: Sample Number:		ght		E Temperature ttive Humidit	(°C):	3/12/2004 22 40		_	Prel	iminary:		
ocation: Detector Type:	Lab 2 Peak					RBW: <u>3</u> VBW: <u>3</u>		_	Me	asurement Distance: <u>N</u>	NA	m
Cest Equipme antenna: re-Amp: ilter: ecceiver: acceiver: attenuator #1 attenuator #2: additional equipm feasurement Un	1464 1064 nent used:		7 dB		Directior	aal Coupler: Cable #1: Cable #2: Cable #3: Cable #4: Mixer:	1626	_				
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				. 9900 Iz		Hz W 3.0)kHz	SF	AN 2 SWP	.000 560m		I
Notes:				dBm) each site power	, 1989.7 a	und 1989.1 N	IHz, GSM					

		las, Inc.		KO					802 N Lewisville, Tel: (972)	adquarters: . Kealy , TX 75057) 436-9600) 436-2667		
Data Plot			S	purious	Emissio	ons at A	ntenna	Termin	<u>als</u>			
Page -2 o Job No.: Specification: Tested By: E.U.T.: Configuration:	<u>3L0075F</u> <u>PT24</u> <u>David Li</u> DAC-18	ight 19-125		E Temperature(tive Humidity								
	F F	ATTEN	4 30d 0.3d1	d B Bm	10	∂d B∕		KR - .930				
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				. 9300 Hz)kHz	SP		.000 560m		
Notes:		carriers, 6 htts (51 dBi		dBm) each, site power	1930.3 and	d 1930.9 M	Hz, GSM					

Ner		Ilas, Inc.		KO		Dallas Headquarters: 802 N. Kealy Lewisville, TX 75057 Tel: (972) 436-9600 Fax: (972) 436-2667							
Data Plo			<u>S</u>	purious	Emissi	ons at A	ntenna	Termi	nals_				
Page 3 of ob No.: Specification: Fested By: E.U.T.: Configuration:	DAC-1	R	Rela	E Temperature(ative Humidity				-					
			4 100 2.3d		10	2d B∕		KR 9 .960	9.47c Hz	Bm			
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	X R												
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	ç ¥F	STAR RBW :	T 301 L.0MH	MHz Hz	ŲВИ	 V 1.0	ST MHz	0P 2	0.00 SWP)GHz 400n	าร		
Notes:	-			.5 W each, 1 NOTCHED)	25 W con	1posite, GS	M						

Test Data - Band Edge at 1930.2, reduced power - GSM



Test Data - Band Edge at 1989.8, reduced power - GSM



 Ballas Headquarters:

 802 N. Kealy

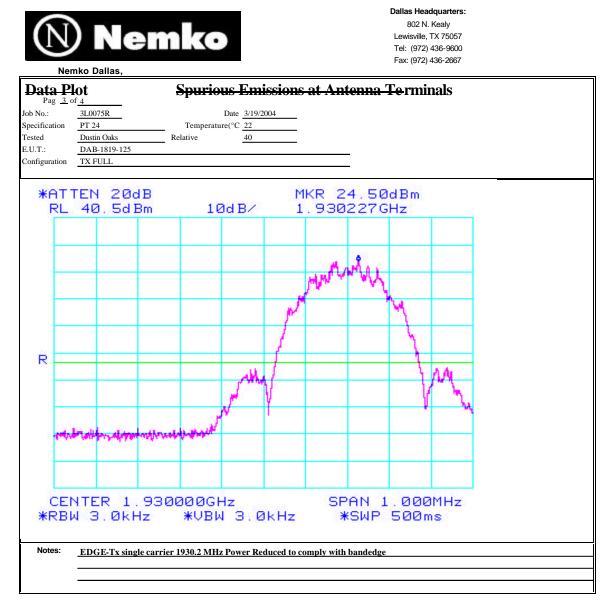
 Lewisville, TX 75057

 Tel: (972) 436-9600

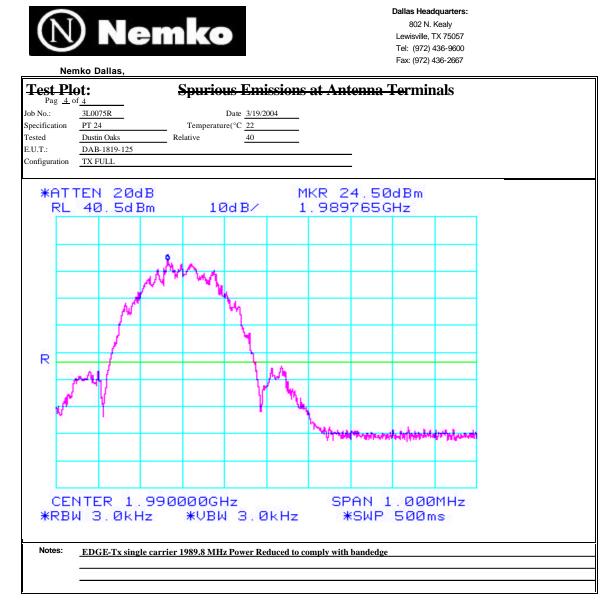
 Fax: (972) 436-2667

Nemko Dallas,	
Data Plot Pag <u>2 of 4</u>	Spurious Emissions at Antenna Terminals
Job No.: <u>3L0075R</u> Specification <u>PT 24</u> Tested <u>Dustin Oaks</u> E.U.T.: <u>DAB-1819-125</u> Configuration <u>TX FULL</u>	Date 3/19/2004 Temperature(°C 22 Relative 40
*ATTEN 20d RL 40.5dB	
R	
CENTER 1. *RBW 3.0kH	990000GHz SPAN 1.000MHz z *VBW 3.0kHz *SWP 500ms
Notes: <u>GSM-Tx single c</u>	arrier 1989.8 MHz Power Reduced to comply with bandedge
]	

Test Data – Band Edge at 1930.2, reduced power - EDGE



Test Data - Band Edge at 1989.8, reduced power - EDGE



Section 6. Field Strength of Spurious

NAME OF TEST: Field Strength of Spurious Emissions	PARA. NO.: 2.1051
TESTED BY: David Light	DATE: 3/12/04

Test Results:

Complies.

Test Data:

See attached table.

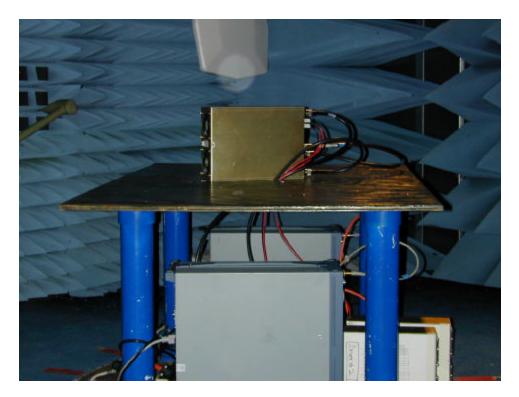
EQUIPMENT: DAB-1819-125

Test Data - Radiated Spurious Emissions

	nko Dalla	em s, Inc.	ŀ	21204	titution		Lew Tel: Fax Complete	as Headquart 802 N. Kealy /isville, TX 75 (972) 436-96 : (972) 436-26	057
Tested By:	David Light		elative Humidity(%)						
E.U.T.: Configuration:	DAB-1819-1 Tx FULL PC	125 DWER CW INTO LOA	D			-			
Sample No:	1	WERCEW INTO EOM	D			-			
Location:	AC 3			RBW:	1 MHz	_	Measurement		
Detector Type:	Peak			VBW:	1 MHz	-	Distance:	3	m
<u>Test Equipr</u>	nent Used								
Antenna:	1304		D	irectional Coupler:		_			
Pre-Amp:	1016			Cable #1:		-			
Filter:	1059			Cable #2:	1485	_			
Receiver:	1464			Cable #3:		-			
Attenuator #1				Cable #4:		-			
Attenuator #2: Additional equip Measurement Ur		+/-1.7 dB		wixer:		-			
Frequency	Meter Reading	Substitution Level	Pre-Amp Gain	Substitution Antenna Gain	EIRP	Limit	Margin	Polarity	Comments
(MHz)	(dBm)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)		
5880	-33.0	-24.8	31.6	9.3	-24.8	-13.0	-11.7667	v	
7840	-42.7	-33.8	32.9	9.2	- 33.8	-13.0	-20.7667	v	
9800	-56.3	-49.0	34.5	10.3	- 49.0	-13.0	-35.9667	v	
5880	-38.7	-32.5	31.6	9.3	- 32.5	-13.0	-19.4667	Н	
7840	-39.3	-30.7	32.9	9.2	- 30.7	-13.0	-17.7000	Н	
9800	-57.8	-49.0	34.5	10.3	- 49.0	-13.0	-35.9667	Н	
Notes		wer at 1960 and 19		ported. Noise floo	or was at least	t 20 dB below	spec limit		

Photographs of Test Setup





Section 7. Test Equipment List

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	02/11/03	02/11/05
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	10/27/03	10/26/04
1304	HORN ANTENNA	ELECTRO METRICS RGA-60	6151	09/22/03	09/22/05
1484	Cable 2.0-18.0 Ghz	Storm PR90-010-072	N/A	07/24/03	07/23/04
1485	Cable 2.0-18.0 Ghz	Storm PR90-010-216	N/A	07/24/03	07/23/04
1055	DUAL DIRECTIONAL COUPLER	NARDA 3022	73393	CBU	N/A
1626	CABLE, 5 ft	MEGAPHASE 10311 1GVT4	N/A	CBU	N/A
1064	ATTENUATOR	NARDA 776B-20	NONE	CBU	N/A

ANNEX A - TEST DETAILS

NAME OF TEST: RF Power Output

PARA. NO.: 2.1046

Minimum Standard: Para. No.24.232. Base stations are limited to 1640 watts peak E.I.R.P. with an antenna height up to 300 meters HAAT. In no case may the peak output power of a base station transmitter exceed 100 watts.

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: Occupied Bandwidth

PARA. NO.: 2.1047

Minimum Standard: Para. No. 24.238(b). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB.

Method Of Measurement:

<u>CDMA</u>

Spectrum analyzer settings: RBW: 30 kHz VBW: ? RBW Span: 5 MHz Sweep: Auto Mask: Set markers to -26 dB from peak of CW.

<u>GSM</u>

RBW: 3 kHz VBW: ? RBW Span: 2 MHz Sweep: Auto Mask: Set markers to -26 dB from peak of CW.

NADC

RBW: 1 kHz VBW: ? RBW Span: 1 MHz Sweep: Auto Mask: Set markers to -26 dB from peak of CW.

Nemko Dallas

FCC PART 24, SUBPART E BROADBAND PCS REPEATERS TEST REPORT NO.: **4L0134RUS1**

NAME OF TEST: Spurious Emission at AntennaPARA. NO.: 2.1051Terminals

Minimum Standard:

licensee's

Para. No.24.238(a). On any frequency outside a

frequency block, the power of any emission shall be attenuated below the transmitter power by at least $43 + 10 \log (P) dB$.

Method Of Measurement:

Spectrum analyzer settings:

<u>CDMA</u>

RBW: 1 MHz (> 1 MHz from Band Edge) RBW: 30 kHz (< 1MHz from Band Edge) VBW: ? RBW Sweep: Auto Video Avg: 6 Sweeps

<u>GSM</u>

RBW: 1 MHz (> 1 MHz from Band Edge) RBW: 3 kHz (< 1 MHz from Band Edge) VBW: ? RBW Sweep: Auto Video Avg: Disabled

NADC

RBW: 1 MHz (> 1 MHz from Band Edge) RBW: 3 kHz (< 1 MHz from Band Edge) VBW: ? RBW Sweep: Auto Video Avg: Disabled

To demonstrate compliance at band edges the frequency of the input signal is set to the lowest and highest assigned channel and the center frequency of the spectrum analyzer is set to the upper and lower edges of the appropriate frequency block.

NAME OF TEST: Field Strength of Spurious Radiation PARA. NO.: 2.1053

Minimum Standard:	Para. No.24.238(a). On any frequency outside a licensee's
	frequency block, the power of any emission shall be attenuated
	below the transmitter power by at least 43 + 10 log (P) dB.

Test Method:

The antenna substitution method was used. This method is described in EIA/TIA 603B.

NAME OF TEST: Frequency Stability

PARA. NO.: 2.1055

Minimum Standard: Para. No. 24.235. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Method Of Measurement:

Frequency Stability With Voltage Variation

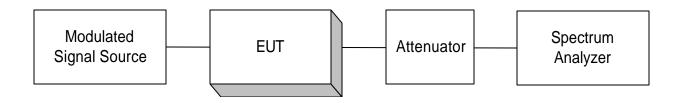
The E.U.T. is placed in an environmental chamber and allowed to stabilize at +20 degrees Celsius for at least 15 minutes. The frequency counter and signal generator are phase locked with the same 10 MHz reference frequency by connecting the 10 MHz ref. out of the counter to the 10 MHz ref, in of the signal generator. With the voltage input to the E.U.T. set to 85% S.T.V., the frequency is measured in 30 second intervals for a period of 5 minutes. This procedure is repeated at 100% S.T.V. and 115% S.T.V.

Frequency Stability With Temperature Variation

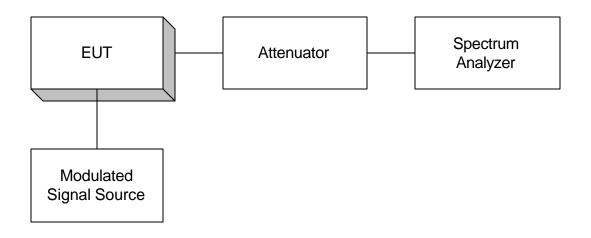
The input voltage to the E.U.T. is set to S.T.V. and the temperature of the environmental chamber is varied in 10 degree steps from -30 degrees C to +50 degrees C. The E.U.T. is allowed to stabilize at each temperature and the frequency is measured in 30 second intervals for a period of 5 minutes.

ANNEX B - TEST DIAGRAMS

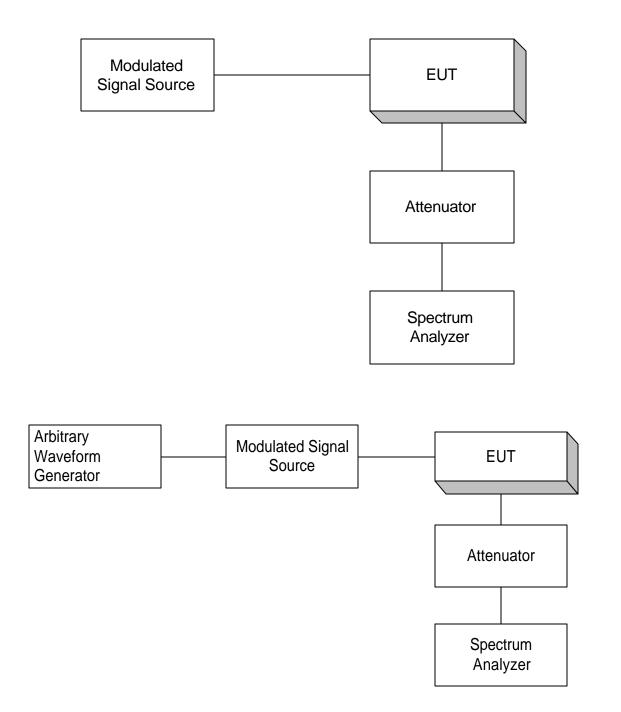
Para. No. 2.985 - R.F. Power Output



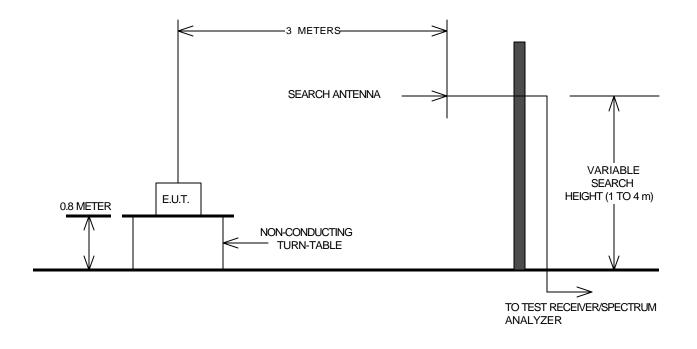
Para. No. 2.989 - Occupied Bandwidth



Para. No. 2.991 Spurious Emissions at Antenna Terminals



Para. No. 2.993 - Field Strength of Spurious Radiation



Para. No. 2.995 - Frequency Stability

