Nemko Test Report No.:	3L0075RUS1Rev2
Applicant:	Communication Components, Inc. 89 Leuning Street Second Floor Hackensack, NJ 07606
Equipment Under Test:	100Watt Amplifier
In Accordance With:	FCC Part 24, Subpart E
Tested By:	Nemko Dallas Inc. 802 N. Kealy Lewisville, Texas 75057-3136
	Jon- Till
Authorized By:	Tom Tidwell, Frontline Manager
Date:	1/23/04
Total Number of Pages:	30

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FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

**EQUIPMENT:** 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

# Section 1. Summary of Test Results

Manufacturer:	Communication Components, Inc.		
Model No.:	100 Watt Amplifier		
Serial No.:	None		
General:	All measurements are traceable to	nation	al standards.
	re conducted on a sample of the equipment the FCC Part 24, Subpart E.	for the p	ourpose of demonstrating
$\boxtimes$	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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FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

**EQUIPMENT:** 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

# **Summary Of Test Data**

	PARA.		
NAME OF TEST	NO.	SPEC.	RESULT
RF Power Output	24.232	100W	Complies
Occupied Bandwidth (CDMA)	24.238	Input/Output	Complies
Spurious Emissions at Antenna	24.238(a)	-13 dBm	Complies
Terminals	( /		1
Field Strength of Spurious	24.238(a)	-13 dBm	Complies
Emissions	24.230(a)	E.I.R.P.	Compiles
Frequency Stability	24.235	N/A	N/A

### **Footnotes:**

(1) Modulation characteristics were not tested since the E.U.T. amplifies but does not produce a modulated waveform.

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

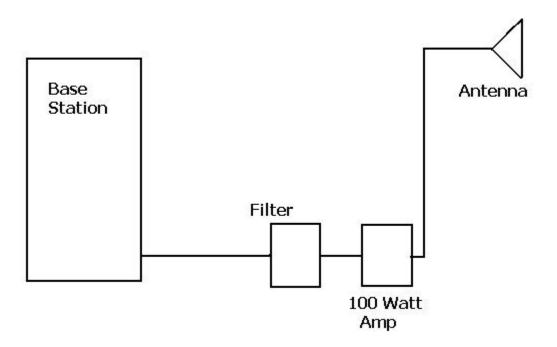
#### Section 2. **General Equipment Specification**

Supply Voltage Input:				
Frequency Bands:	Downlink:	Block A:	1930 – 1945 MHz	
		Block D:	1945 – 1950 MHz	
		Block B:	1950 – 1965 MHz	
		Block E:	1965 – 1970 MHz	
		Block F:	1970 – 1975 MHz	
		Block C:	1975 – 1990 MHz	
		1930.2 to 1989.8	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 E:	1890 – 1895 MHz	
-		Block F:	1895 – 1910 MHz	
-		CDMA	GSM	EDGE
		( <b>F9W</b> )	(GXW)	( <b>G7W</b> )
_				
Output Impedance:		50 ohms		
-		Per channel:	NA W	
_		Total:	NA W	
-		Per channel:	100 W	
		Total:	100 W	
_				
		<b>F1-F1</b>	F1-F2	N/A
		Software	Duplexer	Fullband
Note This!'e'	tooted asia - DCC	blook Clare the t		installed to a differen
Note – This amplifier was compliance for spurious e		DIOCK HITERS that	must be usea when	i installed to achieve

# **Description of Operation**

The device is a 100 Watt base station amplifier operating in the PCS band used with CDMA signals.

## **System Diagram**



FCC PART 24, SUBPART E

BROADBAND PCS REPEATERS

**EQUIPMENT:** 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

# Section 3. RF Power Output

NAME OF TEST: RF Power Output PARA. NO.: 2.1046

TESTED BY: David Light DATE: 5/18/03

**Test Results:** Complies.

**Measurement Data:** 

	Modulation Type	Single Channel Output Power (dBm)	Two channel Output Power (dBm)	Composite Output Power (dBm)
Uplink	CDMA	N/A	N/A	N/A
Downlink	CDMA	50	46.1	49.1

**Equipment Used:** 1036-1604-1628-1064

**Measurement Uncertainty:** +/- 1.6 dB

**Temperature:** 22 °C

**Relative** 40 %

**Humidity:** 

FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

**EQUIPMENT:** 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

# Section 4. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth (CDMA) PARA. NO.: 2.1049

TESTED BY: David Light DATE: 5/18/03

**Test Results:** Complies.

**Test Data:** See attached plot(s).

**Equipment Used:** 1036-1064-1604-1628

**Measurement Uncertainty:** +/- 1.6 dB

**Temperature:** 22 °C

**Relative Humidity:** 40 %

# FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

# **EQUIPMENT:** 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

Test Data – Occupied Bandwidth



### Nemko Dallas, Inc.

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

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

Page <u>1</u> of <u>6</u>													
								C	omplete				
ob No.: 3100	)75r			Date:	5/18/2003								
Specification: PT	24		Temp	perature(°C):	22								
	ce Walker	R		Humidity(%)	40								
	SAMPLIFIER			_									
Configuration: TX													
Sample Number:	1												
	Lab 1				RBW: R	efer to plots		Meas	urement				
_	er to plots				_	efer to plots			istance:		n		
Test Equipment <b>U</b>	Used												
Antenna:				Direct	ional Coupler:	1055							
Pre-Amp:					Cable #1:	1628							
ilter:					Cable #2:								
Receiver:	1036				Cable #3:								
Attenuator #1	1064				Cable #4:								
	1604				Mixer:	,							
Additional equipment					· · · =								
Measurement Uncerta		dB											
		Mar	ker	1 [T1]		RBW		Hz	RF		10	dВ	
Ref Lv					.61 dBm	VBW	300 k			ixer	- 10		
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53.4 50 63.4	dB Offs	see t					▼ 1	ΓT 1	1	<b>ス</b> ⊏	F 1	dBm	
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46.6			<u> </u>										l
	1.943 0	5Hz			246	kHz/				Span 2	. 46	MHz	-
			1 0							•			
ate:	18.MAY		12	2:20:30									
Notes: OU	TPUT CDMA												

FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

# EQUIPMENT: 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

# **Test Data – Occupied Bandwidth**



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		allas, Inc.												
<b>Data Plo</b>	<u>t</u>				Occ	cupied Ba	<u>ndwidth</u>							
Page 2	of 6						_							
Job No.:	310075	5r			Date: 5/	18/2003								
Specification:	PT 24			Temp	erature(°C): 22									
Tested By:	Lance	Walker	Re	elative H	Iumidity(%) 40	1								
E.U.T.:	PCS A	MPLIFIER												
Configuration:	TX													
			M = =		1 [T1]		RBW	30 k		0.0	Att	10	дΒ	
Ref	Lvl		IIai	Kei		.48 dBm	VBW	300 K			ixer	- 10		
	.4 d	Bm		1	.943000		SWT	3			ni t		dBm	
53.4		dB Offs										_		
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								CU	PWR		1.94300		GHz	
40							1	CH	BW		1.23000		dBm MHz	
								CIT	DW		1.23000		11112	
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46.6				Ĭ										
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Date:		18.MAY 2	בחחי	1つ	:22:12						•			
Notes:	INPU	T CDMA												
L														

FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

EQUIPMENT: 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

# Section 5. Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions @ Antenna Terminals PARA. NO.: 2.1051

TESTED BY: David Light DATE: 5/18/03

**Test Results:** Complies.

**Test Data:** See attached plot(s).

**Equipment Used:** 1036-1604-1064-1628

**Measurement Uncertainty:** +/- 1.6 dB

**Temperature:** 22 °C

Relative 40 %

**Humidity:** 



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Nemko Dallas, Inc.

Data Plot			<u>Spuri</u>	ious Emis	ssions at	Antenna T	<u> Terminals</u>				
Page 1 of Job No.: Specification: Tested By: E.U.T.:	5 3L0075R PT 24 David Ligh PCS AMP	it	-	Date:erature(°C):umidity(%)	5/18/2003 22 40			Complete Preliminary:			
Configuration: Sample Number: Location: Detector Type:	1 Lab 1 Refer to plo	ots			-	Refer to plots		Measurement Distance		1	
Test Equipme Antenna: Pre-Amp: Filter: Receiver: Attenuator #1 Attenuator #2: Additional equip	1036 1064 1604 ment used:	- - - -		Directi	Cable #1: Cable #2: Cable #3: Cable #4: Mixer:	1055 1628					
		+/-1.7 d	<u> </u>			RBW VBW SWT		Hz M	F Att ixer nit	10 dB -10 dBm dBm	
50 63 40 ——	3.4 dB	Offse	e t	LI	MIT CHE	ECK : P	ASSED				A
30								مر کم	LOW MANAGEMENT PARTY AND THE P	mount	
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Date:	18	93 GH: .MAY 2	003 11	:52:58	246	kHz/			Span 2	.46 MHz	J
Notes:			MA - CHAN T AT ANTEN		NAL						

FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

# EQUIPMENT: 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

Test plots – Spurious Emissions at Antenna Terminals



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Nemko Dallas, Inc.

Page 2 of 5         Date: 5/18/2003           ob No.:         3L0075R         Date: 5/18/2003           pecification:         PT 24         Temperature(°C): 22           ested By:         David Light         Relative Humidity(%) 40           JU.T.:         PCS AMP           onfiguration:         TX           Ref Lvl         VBW         30 kHz         RF Att         10 dB           53.4 dBm         SWT         28 ms         Unit         dBm           53.4 dB         Offset         LINIT CHECK         PASSED	Nemko Dallas, Inc.  Data Plot	Snurious Emissions at Au	ntonna Torminala	
b No.: 31.0075R		Spurious Emissions at Ai	itemia Terminais	
PT24   Temperature**(C): 22		Date: 5/18/2003		
David Light   Relative Humidity(%) 30				
Ref Lv1		<del></del>		
REBW 300 kHz RF Att 10 dBm 53.4 dBm SHT 28 ms Unit dBm 53.4 dB Offset Littly CHECK : PASSED  40  40  40  40  40  40  40  40  40  4	U.T.: PCS AMP			
Ref Lv1  53.4 dBm  53.4 dBm  53.4 dB Offset  LITIT CHECK: PASSED  40  30  20  10  10  10  10  10  10  10  10  1	onfiguration: TX			
Ref Lv1	^		DRII 30 LH- DE	A++ 10 dB
33.4 63.4 dB Offset LIMIT CHECK: PASSED  40 30 20 10 10 10 10 10 10 10 10 10 10 10 10 10	Ref Lvl			
50	53.4 dBm		SWT 28 ms Uni	t dBm
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10 LOBNDEOS				
1 MHz/ Span 10 MHz  1 MHz/ Span 10 MHz  1 MHz/ Span 10 MHz  1 MTERMODULATION CHARACTERISTICS - LOWER BANDEDGE - CDMA  TX A 1931.5 AND 1933.5 MHz	10		<del>-                                    </del>	EVI
10				\a.
-20 -30 -40 6.6 Center 1.93 GHz 1 MHz Span 10 MHz ate: 18.MAY 2003 14:56:31  Notes: INTERMODULATION CHARACTERISTICS - LOWER BANDEDGE - CDMA TX A 1931.5 AND 1933.5 MHz	0	<del>-                                      </del>	1000	- Way
-20 -30 -40 6.6 Center 1.93 GHz 1 MHz Span 10 MHz ate: 18.MAY 2003 14:56:31  Notes: INTERMODULATION CHARACTERISTICS - LOWER BANDEDGE - CDMA TX A 1931.5 AND 1933.5 MHz				Y
-20 -30 -40 6.6 Center 1.93 GHz 1 MHz/ Span 10 MHz ate: 18.MAY 2003 14:56:31  Notes: INTERMODULATION CHARACTERISTICS - LOWER BANDEDGE - CDMA TX A 1931.5 AND 1933.5 MHz	-10			
-30 -40 -40 -6.6 Center 1.93 GHz 1 MHz/ Span 10 MHz ate: 18.MAY 2003 14:56:31  Notes: INTERMODULATION CHARACTERISTICS - LOWER BANDEDGE - CDMA TX A 1931.5 AND 1933.5 MHz	LUBNUEUG	J.M.		
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-40 -65.6 Center 1.93 GHz 1 MHz/ Span 10 MHz ate: 18.MAY 2003 14:56:31  Notes: INTERMODULATION CHARACTERISTICS - LOWER BANDEDGE - CDMA TX A 1931.5 AND 1933.5 MHz		ar a		
-40 -6.6 Center 1.93 GHz 1 MHz/ Span 10 MHz ate: 18.MAY 2003 14:56:31  Notes: INTERMODULATION CHARACTERISTICS - LOWER BANDEDGE - CDMA TX A 1931.5 AND 1933.5 MHz	-30			
-40 -6.6 Center 1.93 GHz 1 MHz/ Span 10 MHz ate: 18.MAY 2003 14:56:31  Notes: INTERMODULATION CHARACTERISTICS - LOWER BANDEDGE - CDMA TX A 1931.5 AND 1933.5 MHz	Land Land and Assess CAM	My manhappy		
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TX A 1931.5 AND 1933.5 MHz			NEED CE. COMA	
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# FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

# **EQUIPMENT:** 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2



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Nemko Dallas, Inc.

est Plot:

Page 4 of 5

Spurious Emissions at Antenna Terminals

Test Plot:	<b>Spurious Emissions at </b>	<u>Antenna Ter</u>	<u>minals</u>			
Page <u>4</u> of <u>5</u> lob No.: <u>3L0075R</u>	Date: 5/18/2003					
Specification: PT 24	Temperature(°C): 22					
Tested By: David Light	Relative Humidity(%) 40					
E.U.T.: PCS AMP						
Configuration: TX						
^		RBW	30 kHz	RF Att	10 dB	
Ref Lvl		VBW	300 kHz	Mixer	-10 dBm	
53.4 dBm		SWT	14 ms	Unit	dBm	
53.4 50 63.4 dB Offs	= <b>b</b> +					
50 63.4 GB Uffs	LIMIT CHE	CK : PAS	SED			A
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			More	muchan	an Australia	
-40	1			U		
46.6						
Center 1.99 G	Hz 492	kHz/		Span (	4.92 MHz	
ate: 18.MAY	2003 14:38:23					
Notes: Lower bandedge	CDMA - CHANNEL 1175					
100 WATT OUT	PUT AT ANTENNA TERMINAL					

# FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

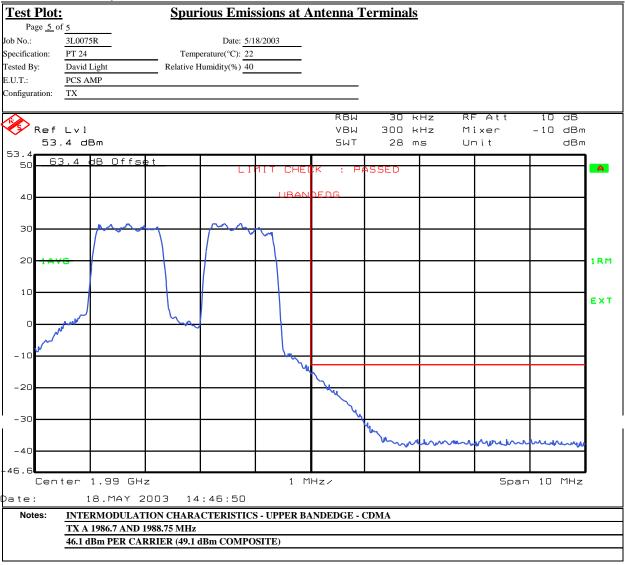
## EQUIPMENT: 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2



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# FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

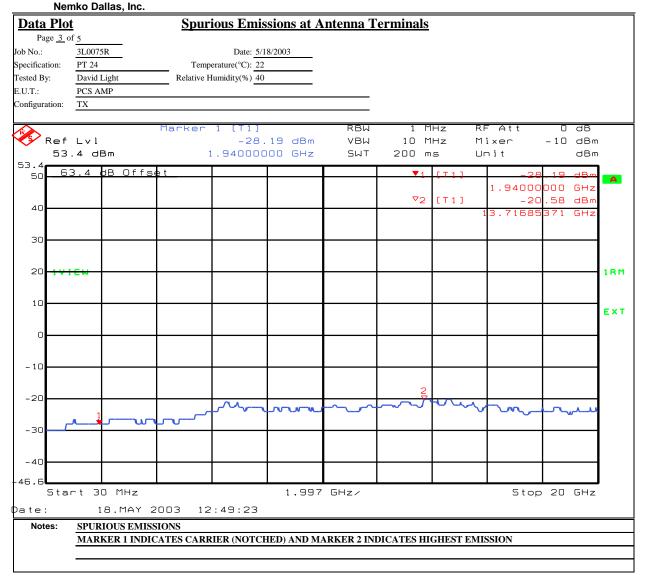
## EQUIPMENT: 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2



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Fax: (972) 436-2667



Test plots – Spurious Emissions at Antenna Terminals

FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

**EQUIPMENT:** 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

Section 6. **Field Strength of Spurious** 

NAME OF TEST: Field Strength of Spurious Emissions PARA. NO.: 2.1051

TESTED BY: David Light DATE: 5/18/03

Complies. **Test Results:** 

**Test Data:** See attached table.

**Equipment Used:** 1464-1016-1484-1485-993

**Measurement Uncertainty:** +/- 1.6 dB

**Temperature:** 22 °C

**Relative Humidity:** 40 %

FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

**EQUIPMENT:** 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

### **Test Data - Radiated Emissions**

# (N) Nemko

Nemko Dallas Inc

#### Dallas Headquarters:

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	EIRP Substitu	<u>ıtion Metho</u>	<u>od</u>
of <u>1</u>			Complete X
3L0075R	Date: 5/18/03		Preliminary
PT 24	Temperature(°C): 22		
David Light	Relative Humidity(%) 40		
PCS AMLIFIER			
TX			
1			
AC 3	RBW:	1 MHz	Measurement
Peak	VBW:	1 MHz	Distance: 3 m
ent Used			
1013	Directional Coupler:		
1016	Cable #1:	1485	
	Cable #2:	1484	
1036	Cable #3:		
	Cable #4:		
	Mixer:		
ment used:	_		
ncertainty: +/-1.7 d	В	<u> </u>	
	3L0075R PT 24 David Light PCS AMLIFIER TX  1 AC 3 Peak  1013 1016 1036	### Date: 5/18/03  PT 24	Date: 5/18/03   PT 24   Temperature(°C): 22   David Light   Relative Humidity(%)   40   PCS AMLIFIER     TX

Frequency	Meter Reading	Correction Factor	Pre-Amp Gain	Substitution Antenna Gain	EIRP	EIRP	Polarity	Comments
(MHz)	(dBm)	(dB)	(dB)	(dBi)	(dBm)	(mW)		
3920	-40.0	43.3	33	10.7	-19.0	0.01	V	
5880	-45.0	39.8	31.6	11.4	-25.4	0.00	V	
7840	-48.0	41.8	32.9	11.3	-27.8	0.00	V	NOISE FLOOR
9800	-48.0	41.8	34.5	12.4	-28.3	0.00	V	NOISE FLOOR
11760	-47.0	42.8	33.1	12.6	-24.7	0.00	V	NOISE FLOOR
13720	-46.0	47.7	32.8	12.7	-18.4	0.01	V	NOISE FLOOR
15680	-49.0	44.3	34.1	15.0	-23.8	0.00	V	NOISE FLOOR
17640	-48.0	50.3	34.3	12.5	-19.5	0.01	V	NOISE FLOOR
3920	-52.0	35.5	33	10.7	-38.8	0.00	Н	NOISE FLOOR
5880	-50.0	37.8	31.6	11.4	-32.4	0.00	Н	NOISE FLOOR
7840	-48.0	41.5	32.9	11.3	-28.1	0.00	Н	NOISE FLOOR
9800	-48.0	43.3	34.5	12.4	-26.8	0.00	Н	NOISE FLOOR
11760	-47.0	47.0	33.1	12.6	-20.5	0.01	H	NOISE FLOOR
13720	-46.0	47.7	32.8	12.7	-18.4	0.01	Н	NOISE FLOOR
15680	-49.0	45.5	34.1	15.0	-22.6	0.01	Н	NOISE FLOOR
17640	-48.0	53.5	34.3	12.5	-16.3	0.02	Н	NOISE FLOOR

# **Photographs of Test Setup**





FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

**EQUIPMENT:** 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

# Section 8. Test Equipment List

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006	12/18/01	12/19/03
1604	ATTENUATOR	NARDA 776B-20	NONE	N/A	N/A
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	02/11/03	02/11/05
1064	ATTENUATOR	NARDA 776B-20	NONE	CBU	N/A
1628	CABLE, 6 ft	MEGAPHASE TM26 S1S5 72	N/A	03/05/03	03/04/04
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006	12/18/01	12/19/03
1055	DUAL DIRECTIONAL COUPLER	NARDA 3022	73393	Cal Not Req	N/A
1054	DUAL DIRECTIONAL COUPLER	NARDA 3020A	34366	Cal Not Req	N/A
1484	Cable 2.0-18.0 Ghz	Storm PR90-010-072	N/A	07/15/02	07/15/03
1485	Cable 2.0-18.0 Ghz	Storm PR90-010-216	N/A	07/15/02	07/15/03
1304	HORN ANTENNA	ELECTRO METRICS RGA-60	6151	07/30/01	07/31/03
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	07/15/02	07/15/03

FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

**EQUIPMENT:** 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

# **ANNEX A - TEST DETAILS**

FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

**EQUIPMENT:** 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

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.

Integral Antenna:

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.

FCC PART 24, SUBPART E

**BROADBAND PCS REPEATERS** 

**EQUIPMENT:** 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

### 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:**

### **CDMA**

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.

FCC PART 24, SUBPART E

**BROADBAND PCS REPEATERS** 

**EQUIPMENT:** 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

NAME OF TEST: Spurious Emission at Antenna Terminals PARA. NO.: 2.1051

**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  $43 + 10 \log (P) dB$ .

### **Method Of Measurement:**

Spectrum analyzer settings:

<u>CDMA</u> <u>GSM</u>

RBW: 1 MHz (> 1 MHz from Band Edge)
RBW: 1 MHz (> 1 MHz from Band Edge)
RBW: 3 kHz (< 1 MHz from Band Edge)
RBW: 3 kHz (< 1 MHz from Band Edge)

 $VBW: \ge RBW$   $VBW: \ge RBW$  Sweep: Auto Sweep: Auto

Video Avg: 6 Sweeps 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.

FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

EQUIPMENT: 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

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:** 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.

FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

EQUIPMENT: 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

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

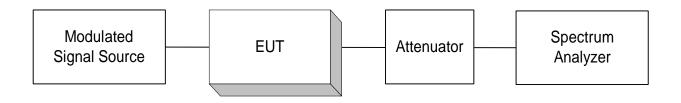
The input voltage to the E.U.T. is set to S.T.V. and the temperature of the environmental chamber is varied in 10 degree steps from -30 degrees C to +50 degrees C. The E.U.T. is allowed to stabilize at each temperature and the frequency is measured in 30 second intervals for a period of 5 minutes.

FCC PART 24, SUBPART E BROADBAND PCS REPEATERS

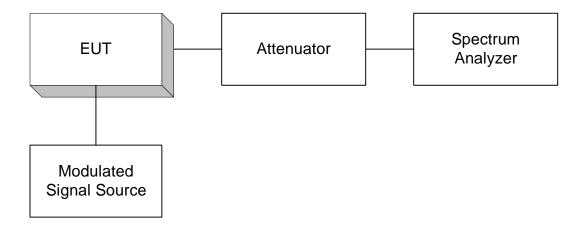
**EQUIPMENT:** 100 Watt Amplifier Test Report Number 3L0075RUS1Rev2

**ANNEX B - TEST DIAGRAMS** 

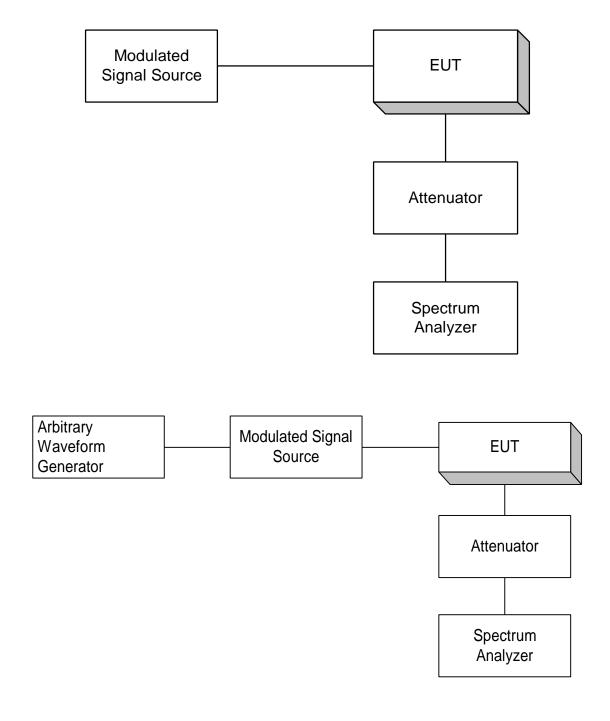
Para. No. 2.985 - R.F. Power Output



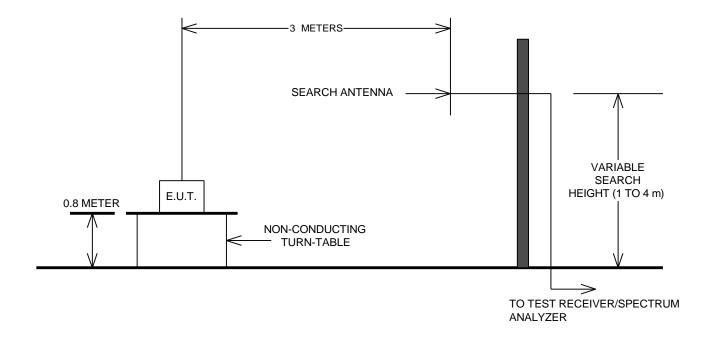
Para. No. 2.989 - Occupied Bandwidth



Para. No. 2.991 Spurious Emissions at Antenna Terminals



Para. No. 2.993 - Field Strength of Spurious Radiation



Para. No. 2.995 - Frequency Stability

