

KTL Test Report No.:

0L0494RUS1

Applicant:

Andrew Corporation

FCC ID.:

KUWPCSSSR1900

Equipment Under Test:

PCS Side-to-Side Repeater

In Accordance With:

FCC Part 24, Subpart E
Broadband PCS Repeaters

Tested By:

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



Authorized By:

Tom Tidwell, RF Group Manager

Date:

12/28/00

Total Number of Pages:

91

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

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EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

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Section 1. Summary of Test Results

Manufacturer: Andrew Corporation

Model No.: PCSSSR1900

Sample No.: 45

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.

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".



NVLAP LAB CODE: 100426-0

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EQUIPMENT: PCS Side-to-Side Repeater**FCC ID: KUWPCSSSR1900****PROJECT NO.: 0L0494RUS1****Summary Of Test Data**

NAME OF TEST	PARA. NO.	SPEC.	MEAS.	RESULT
RF Power Output	24.232	100W	0.1W eirp	Complies
Occupied Bandwidth (CDMA)	24.238	Input/Output	Plots	Complies
Occupied Bandwidth (GSM)	24.238	Input/Output	Plots	Complies
Occupied Bandwidth (NADC)	24.238	Input/Output	Plots	Complies
Spurious Emissions at Antenna Terminals	24.238(a)	-13 dBm	-13 dBm (See plots)	Complies
Field Strength of Spurious Emissions	24.238(a)	-13 dBm E.I.R.P.	-16 dBm	Complies
Frequency Stability	24.235	N/A	N/A	N/A

Footnotes:

- (1) Modulation characteristics were not tested since the E.U.T. processes but does not produce a modulated waveform.
- (2) Frequency stability was not tested since the E.U.T. processes but does not produce a modulated waveform.

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

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

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Section 2. General Equipment Specification

Supply Voltage Input:	120 VAC		
Frequency Bands: Downlink:	<input checked="" type="checkbox"/>	Block A :	1930 – 1945 MHz
	<input checked="" type="checkbox"/>	Block D :	1945 – 1950 MHz
	<input checked="" type="checkbox"/>	Block B :	1950 – 1965 MHz
	<input checked="" type="checkbox"/>	Block E :	1965 – 1970 MHz
	<input checked="" type="checkbox"/>	Block F :	1970 – 1975 MHz
	<input checked="" type="checkbox"/>	Block C :	1975 – 1990 MHz
Frequency Bands: Uplink:	<input checked="" type="checkbox"/>	Block A :	1850 – 1865 MHz
	<input checked="" type="checkbox"/>	Block B :	1865 – 1870 MHz
	<input checked="" type="checkbox"/>	Block C :	1870 – 1885 MHz
	<input checked="" type="checkbox"/>	Block D :	1885 – 1890 MHz
	<input checked="" type="checkbox"/>	Block E :	1890 – 1895 MHz
	<input checked="" type="checkbox"/>	Block F :	1895 – 1910 MHz
Type of Modulation and Designator:	CDMA (G7W) <input checked="" type="checkbox"/>	GSM (GXW) <input checked="" type="checkbox"/>	NADC (DXW) <input checked="" type="checkbox"/>
System Gain:	45 dB / 50 dB		
Output Impedance:	50 ohms		
Max Input:	-35 dBm		
RF Output (Rated): Uplink	0.0126 W @ antenna input		
RF Output (Rated): Downlink	0.0126 W @ antenna input		
Frequency Translation:	F1-F1 <input type="checkbox"/>	F1-F2 <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Band Selection:	Software <input type="checkbox"/>	Duplexer <input checked="" type="checkbox"/>	Fullband <input type="checkbox"/>

KTL Dallas

FCC PART 24, SUBPART E
BROADBAND PCS REPEATERS

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Description of Modifications For Class II Permissive Change

Not Applicable

KTL Dallas

FCC PART 24, SUBPART E
BROADBAND PCS REPEATERS

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Modifications Made During Testing

Not Applicable

EQUIPMENT: **PCS Side-to-Side Repeater***FCC ID:* **KUWPCSSSR1900**PROJECT NO.: **0L0494RUS1**

Description of Operation

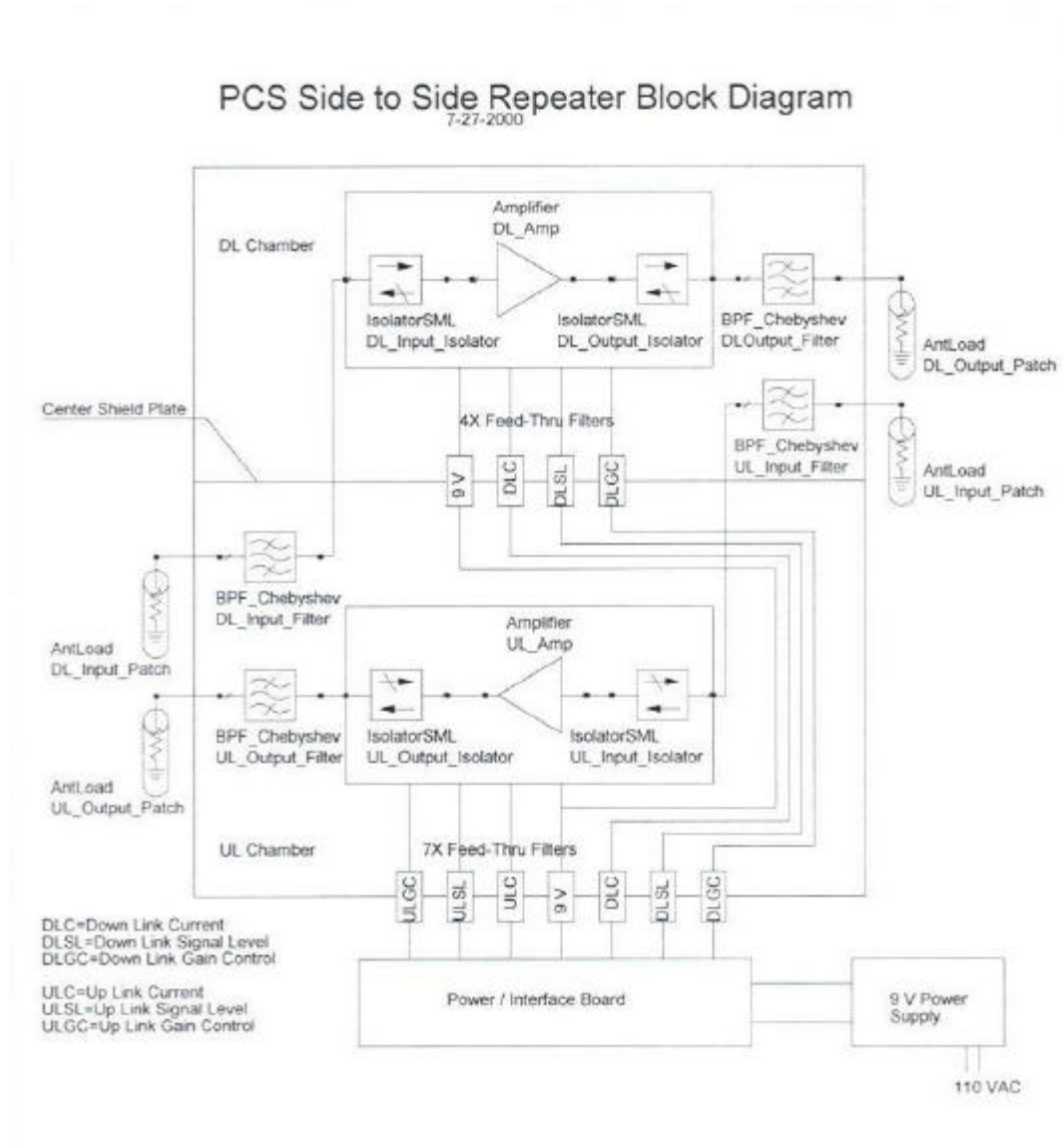
Separate antennas provide receive and transmit functions for the complementary uplink and downlink bands. In operation, the appropriate receive antenna feeds its' signal to a band pass filter that functions to reject undesired signals and isolate the complementary band's signal. The signal from the band pass filter feeds an amplifier with an AGC loop that limits maximum output power to approximately 100 milliwatts eirp (+11.5 dBm + 7.5 dBi antenna gain). The amplifier output feeds a second band pass filter functioning to limit spurious amplifier output signals and further isolate the complementary band's signal. The complementary band's signal path is identical to that previously described, except in the reverse direction. Both amplifiers include crude RSSI circuitry and over-current protection circuitry.

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

System Diagram



EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Section 3. RF Power Output

NAME OF TEST: RF Power Output	PARA. NO.: 2.1046
TESTED BY: David Light	DATE: 12/4/00

Test Results: Complies.

Measurement Data:

	Modulation Type	Per Channel Output Power (dBm)	Composite Output Power (dBm)
Uplink	CDMA	8.0 (2 Carriers)	11.0
Downlink	CDMA	8.0 (2 Carriers)	11.0
Uplink	GSM	4.5 (5 Carriers)	11.5
Downlink	GSM	4.5 (5 Carriers)	11.5
Uplink	NADC	8.0 (2 Carriers)	11.0
Downlink	NADC	8.0 (2 Carriers)	11.0

Equipment Used: 1036-1045-1466-1052-1053-1083

Measurement Uncertainty: +/- 1.6 dB

Temperature: 22 °C

Relative Humidity: 50 %

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Section 4. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth (CDMA)	PARA. NO.: 2.1049
TESTED BY: David Light	DATE: 12/04/00

Test Results: Complies.

Test Data: See attached plot(s).

Equipment Used: 1036-1045-1466-1052-1053-1083

Measurement Uncertainty: +/- 1.6 dB

Temperature: 22 °C

Relative Humidity: 50 %

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth - CDMA

Test Plot: Occupied Bandwidth - CDMA

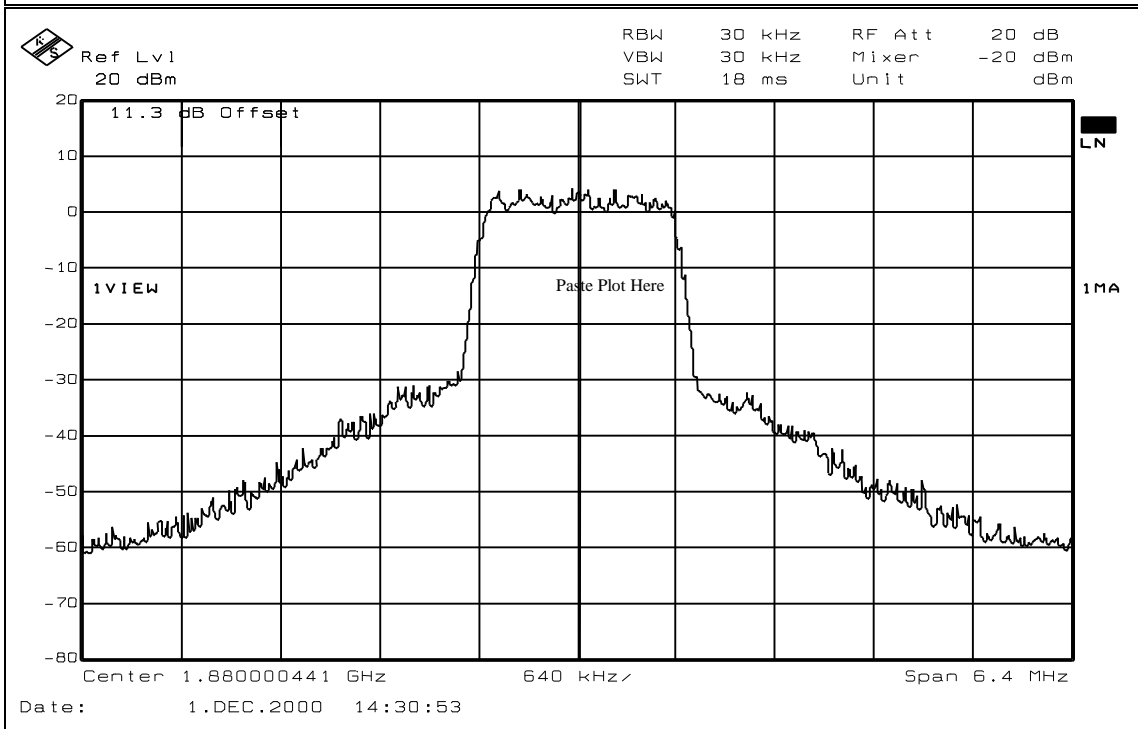
Page 1 of 4

Job No.: 0L0494R Date: 12/01/00
 Specification: PART 24 Temperature(°C): 22
 Tested By: David Light Relative Humidity(%) 50
 E.U.T.: PCS REPEATER
 Configuration: TRANSMIT MID BAND
 Serial Number: 45
 Location: Lab 1 RBW: 30 kHz
 Detector Type: Peak VBW: 30 kHz

Test Equipment Used

Antenna: #N/A Directional Coupler: #N/A
 Pre-Amp: #N/A Cable #1: 1045
 Filter: #N/A Cable #2: #N/A
 Receiver: 1036 Cable #3: #N/A
 Attenuator #1: 1466 Cable #4: #N/A
 Attenuator #2: #N/A Mixer: #N/A

Additional equipment used: _____
 Measurement Uncertainty: #N/A



Notes: _____

OUTPUT - UPLINK - CDMA

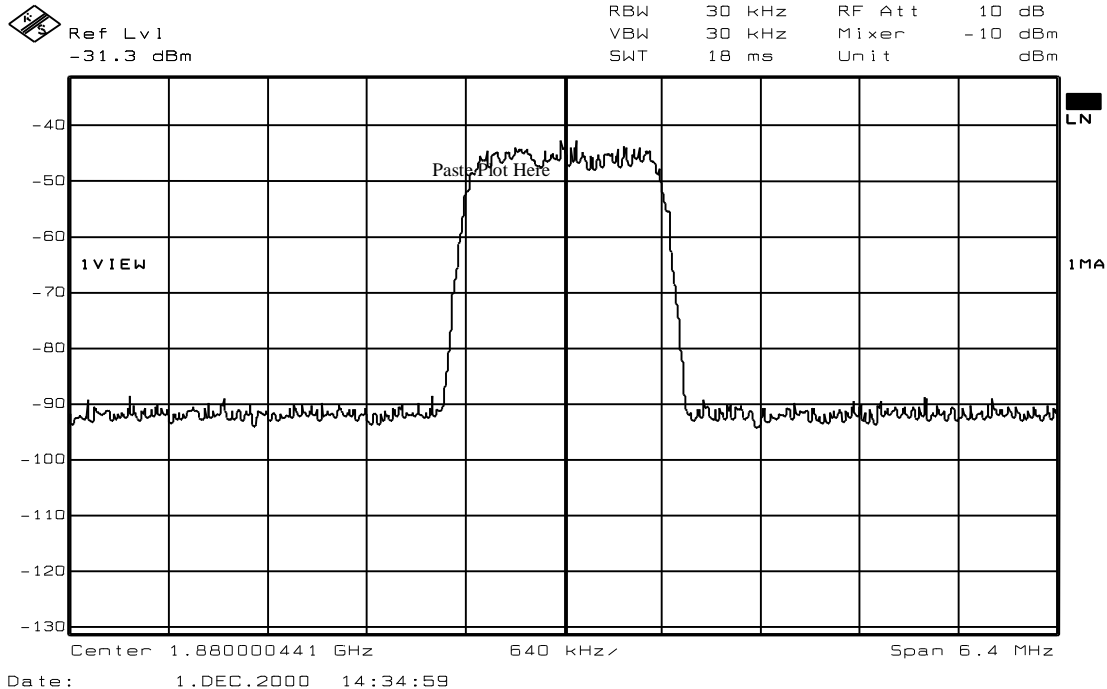
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth - CDMA

Test Plot: Occupied Bandwidth - CDMA	
Page 2 of 4	
Job No.: 0L0494R	Date: 12/1/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT MID BAND	



Notes:	INPUT - UPLINK - CDMA

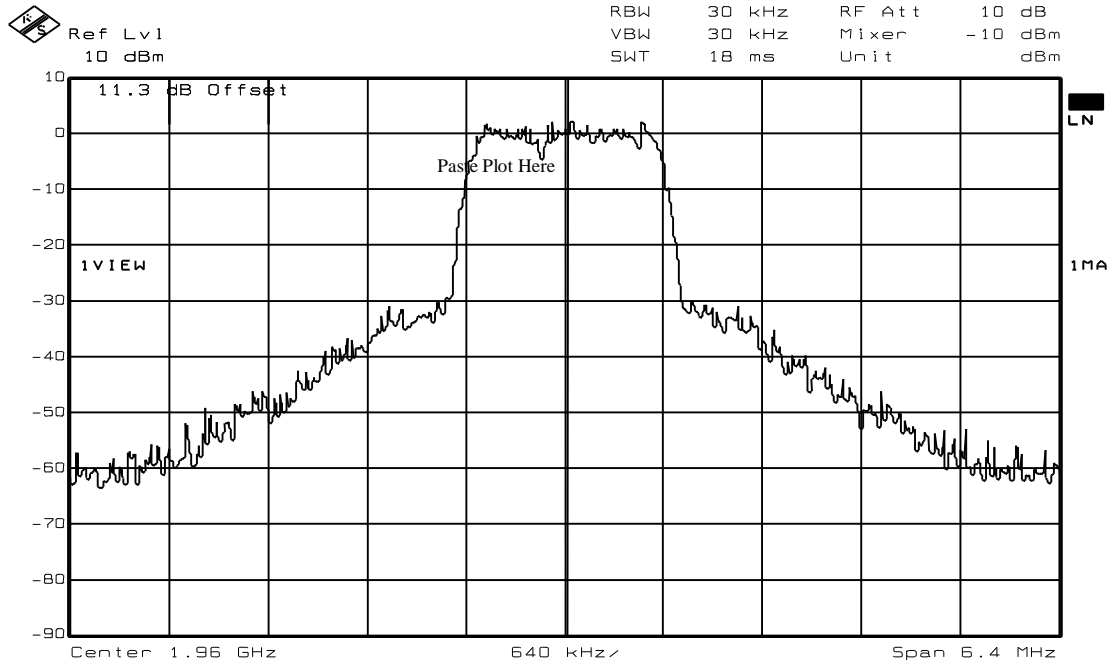
EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Test Data- Occupied Bandwidth - CDMA

Test Plot: Occupied Bandwidth - CDMA	
Page 3 of 4	
Job No.: 0L0494R	Date: 12/1/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT MID BAND	



Date: 1.DEC.2000 14:41:11

Notes:	OUTPUT - DOWNLINK - CDMA

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

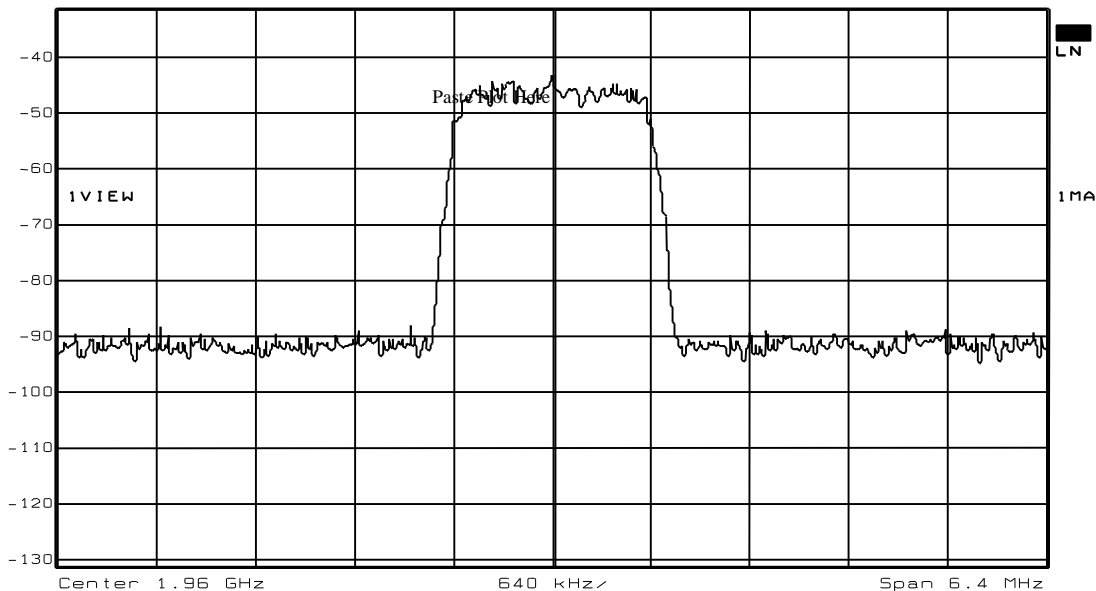
PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth - CDMA

Test Plot: Occupied Bandwidth - CDMA	
Page 4 of 4	
Job No.: 0L0494R	Date: 12/1/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT MID BAND	



Ref Lvl	RBW	30 kHz	RF Att	10 dB
-31.3 dBm	VBW	30 kHz	Mixer	-10 dBm
	SWT	18 ms	Unit	dBm



Date: 1.DEC.2000 14:38:51

Notes:	INPUT - DOWNLINK - CDMA

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth – CDMA – High Gain Repeater

<u>Test Plot: Occupied Bandwidth - CDMA</u>	
Page 1 of 4	
Job No.: 0L0494R	Date: 12/01/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.:	
Configuration: <u>TRANSMIT MID BAND</u>	
Serial Number: <u>45</u>	
Location: <u>Lab 1</u>	RBW: <u>30 kHz</u>
Detector Type: <u>Peak</u>	VBW: <u>30 kHz</u>
Test Equipment Used	
Antenna: <u>#N/A</u>	Directional Coupler: <u>#N/A</u>
Pre-Amp: <u>#N/A</u>	Cable #1: <u>1045</u>
Filter: <u>#N/A</u>	Cable #2: <u>#N/A</u>
Receiver: <u>1036</u>	Cable #3: <u>#N/A</u>
Attenuator #1: <u>1466</u>	Cable #4: <u>#N/A</u>
Attenuator #2: <u>#N/A</u>	Mixer: <u>#N/A</u>
Additional equipment used:	
Measurement Uncertainty: <u>#N/A</u>	

	RBW	30 kHz	RF Att	20 dB
	VBW	30 kHz	Mixer	-10 dBm
	SWT	18 ms	Unit	dBm

11.3 dB Offset

Center 1.88 GHz 640 kHz/ Span 6.4 MHz

Date: 5 .DEC. 2000 15:01:10

Notes:	OUTPUT - UPLINK - CDMA

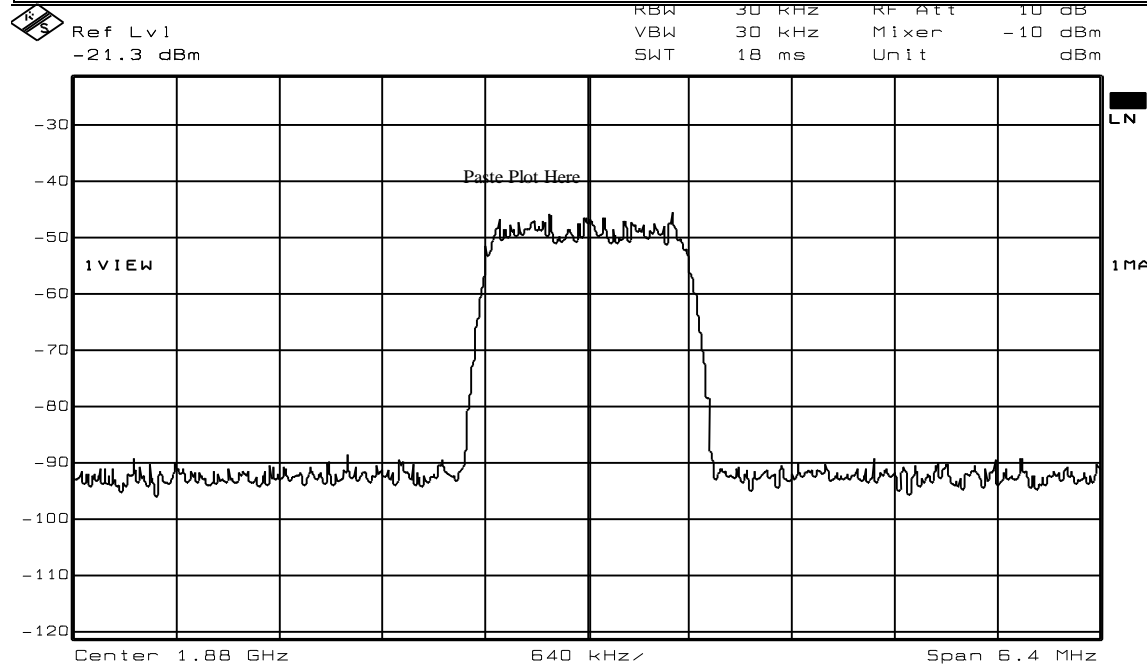
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth - CDMA- High Gain Repeater

Test Plot: Occupied Bandwidth - CDMA	
Page 2 of 4	
Job No.: 0L0494R	Date: 12/1/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.:	
Configuration: TRANSMIT MID BAND	



Date: 5 . DEC . 2000 15:08:02

Notes:	INPUT - UPLINK - CDMA

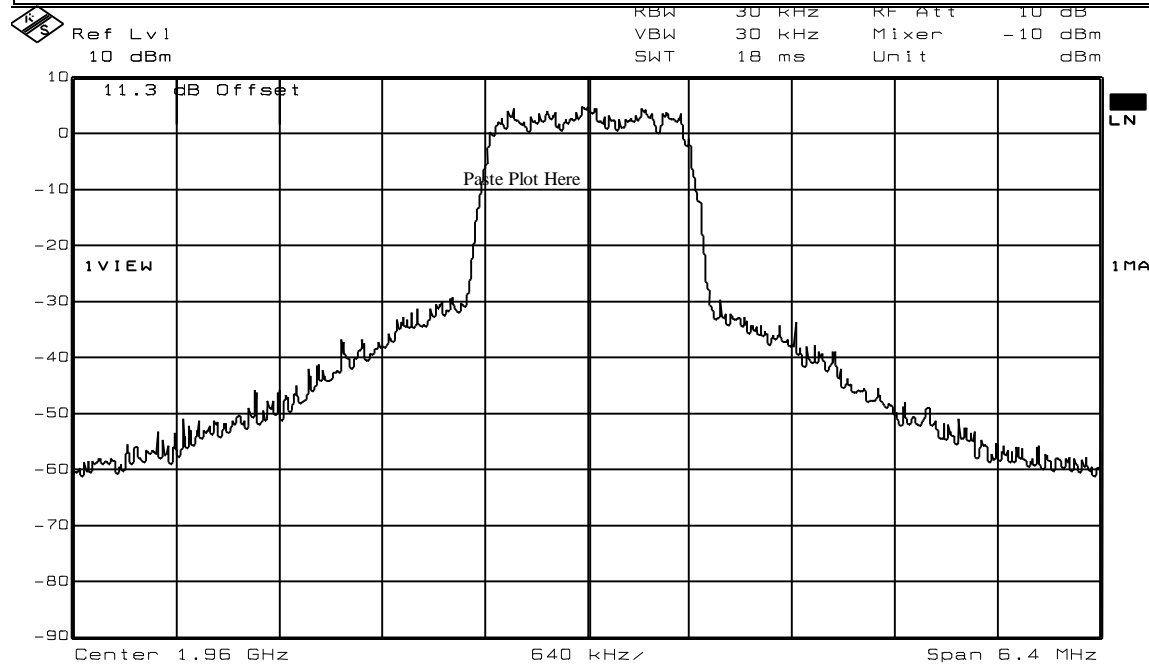
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth - CDMA- High Gain Repeater

Test Plot: Occupied Bandwidth - CDMA	
Page 3 of 4	
Job No.: 0L0494R	Date: 12/1/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.:	
Configuration: TRANSMIT MID BAND	



Date: 5.DEC.2000 15:32:52

Notes:	OUTPUT - DOWNLINK - CDMA

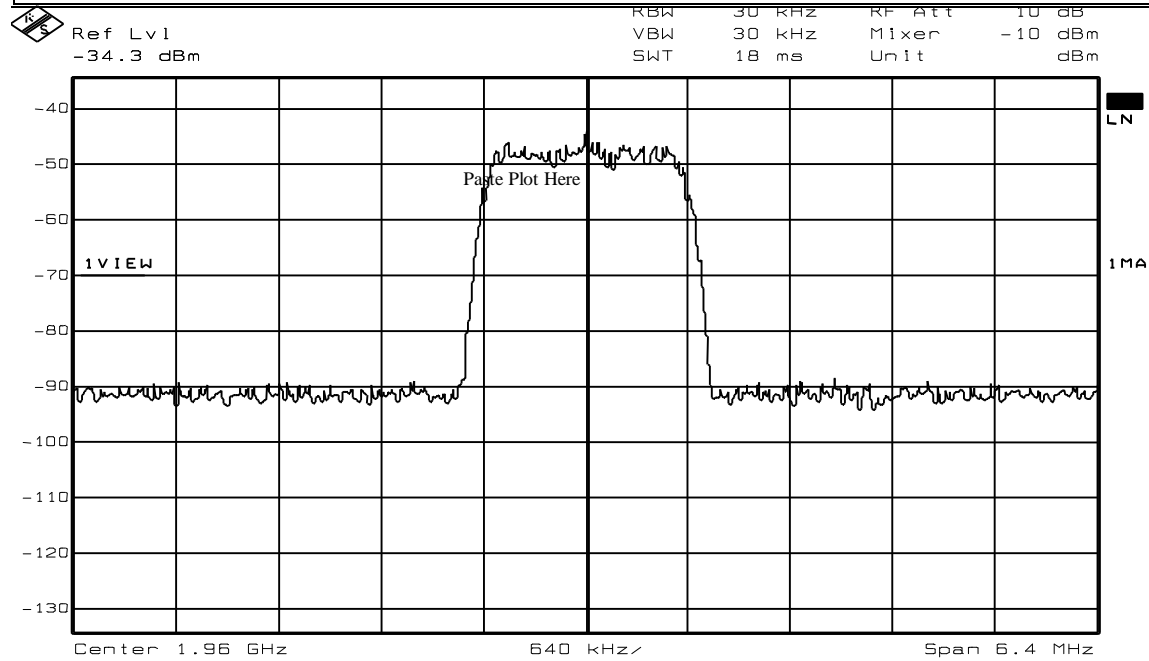
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth - CDMA- High Gain Repeater

Test Plot: Occupied Bandwidth - CDMA	
Page 4 of 4	
Job No.: 0L0494R	Date: 12/1/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.:	
Configuration: TRANSMIT MID BAND	



Date: 5.DEC.2000 15:34:22

Notes:	INPUT - DOWNLINK - CDMA

EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

NAME OF TEST: Occupied Bandwidth (GSM)	PARA. NO.: 2.1049
TESTED BY: David Light	DATE: 12/01/00

Test Results: Complies.

Test Data: See attached plot(s).

Equipment Used:

Measurement Uncertainty: +/- 1.6 dB

Temperature: 22 °C

Relative Humidity: 50 %

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth - GSM

Test Plot: Occupied Bandwidth - GSM

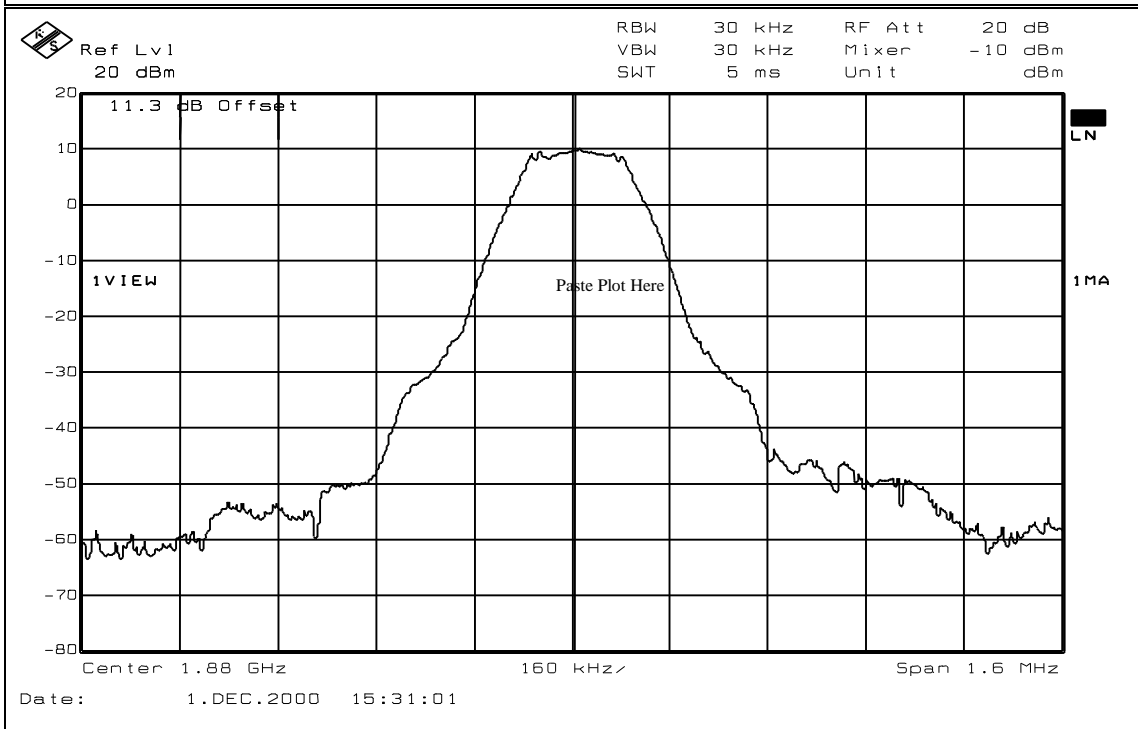
Page 1 of 4

Job No.: 0L0494R Date: 12/01/00
 Specification: PART 24 Temperature(°C): 22
 Tested By: David Light Relative Humidity(%) 50
 E.U.T.: PCS REPEATER
 Configuration: TRANSMIT MID BAND
 Serial Number: 45
 Location: Lab 1 RBW: 30 kHz
 Detector Type: Peak VBW: 30 kHz

Test Equipment Used

Antenna: #N/A Directional Coupler: #N/A
 Pre-Amp: #N/A Cable #1: 1045
 Filter: #N/A Cable #2: #N/A
 Receiver: 1036 Cable #3: #N/A
 Attenuator #1: 1466 Cable #4: #N/A
 Attenuator #2: #N/A Mixer: #N/A

Additional equipment used: _____
 Measurement uncertainty: #N/A



Notes: _____

OUTPUT - UPLINK - GSM

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

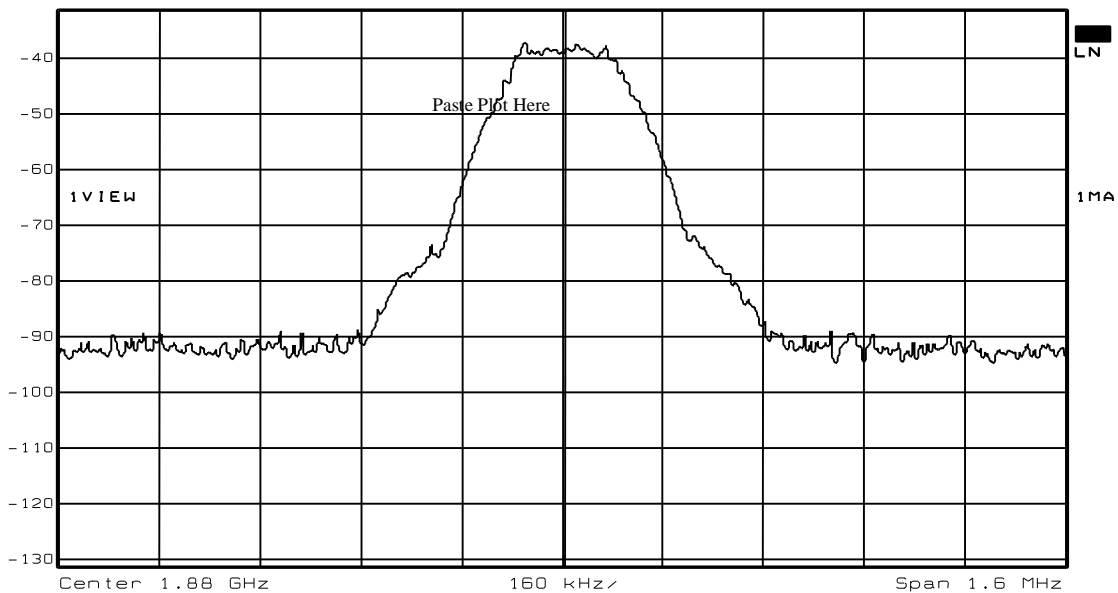
PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth - GSM

Test Plot: Occupied Bandwidth - GSM	
Page 2 of 4	
Job No.: 0L0494R	Date: 12/1/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT MID BAND	



Ref Lvl	RBW	30 kHz	RF Att	10 dB
-31.3 dBm	VBW	30 kHz	Mixer	-10 dBm
	SWT	5 ms	Unit	dBm



Date: 1.DEC.2000 15:35:21

Notes:	INPUT - UPLINK - GSM

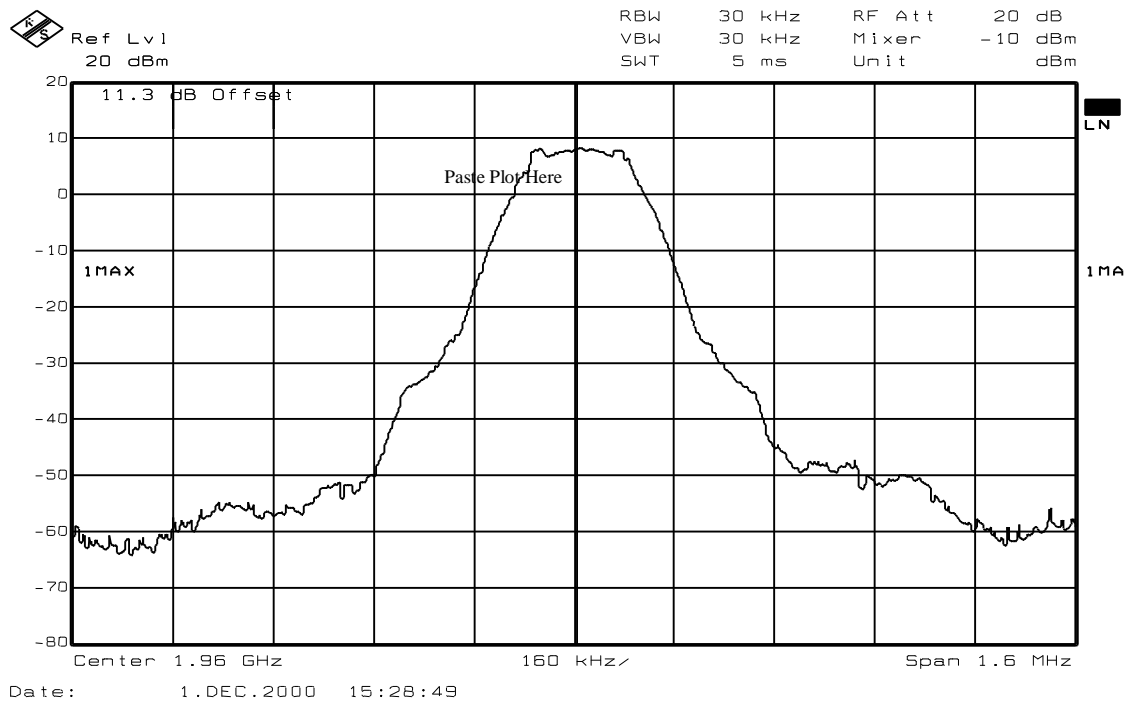
EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Test Data- Occupied Bandwidth - GSM

Test Plot: Occupied Bandwidth - GSM	
Page 3 of 4	
Job No.: 0L0494R	Date: 12/1/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT MID BAND	



Notes:	OUTPUT - DOWNLINK - GSM

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

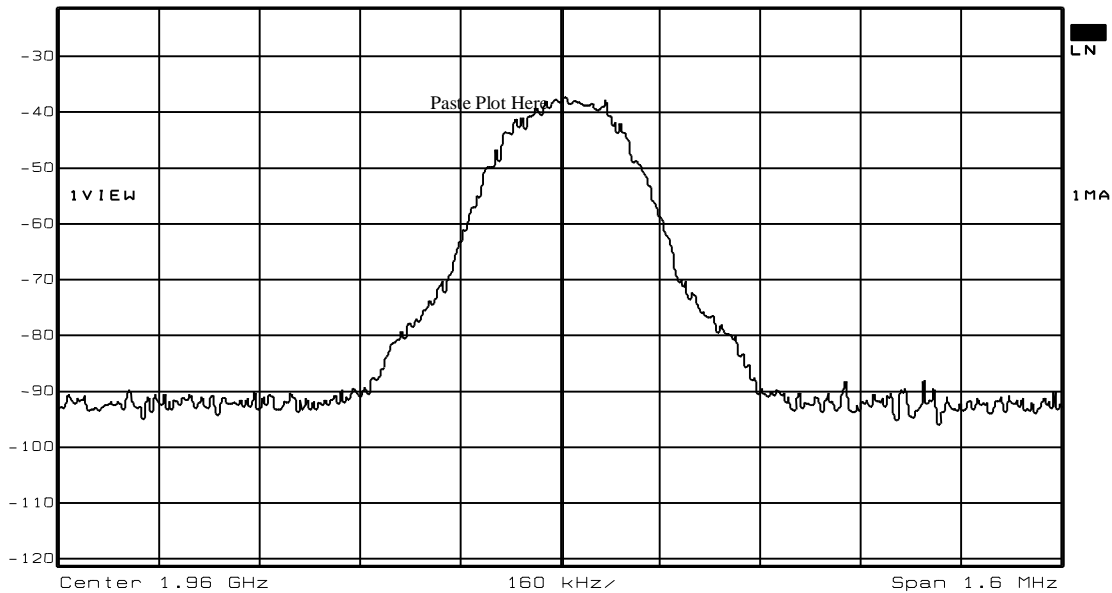
Test Data- Occupied Bandwidth - GSM

Test Plot: Occupied Bandwidth - GSM	
Page 4 of 4	
Job No.: 0L0494R	Date: 12/1/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT MID BAND	



Ref Lvl
-21.3 dBm

RBW	30 kHz	RF Att	10 dB
VBW	30 kHz	Mixer	-10 dBm
SWT	5 ms	Unit	dBm



Date: 1.DEC.2000 15:26:46

Notes:	INPUT - DOWNLINK - GSM

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth – GSM

Test Plot: Occupied Bandwidth - GSM	
Page 1 of 4	
Job No.: 0L0494R	Date: 12/01/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER - HIGH GAIN	
Configuration: TRANSMIT MID BAND	
Serial Number: 45	
Location: Lab 1	RBW: 30 kHz
Detector Type: Peak	VBW: 30 kHz
Test Equipment Used	
Antenna: #N/A	Directional Coupler: #N/A
Pre-Amp: #N/A	Cable #1: 1045
Filter: #N/A	Cable #2: #N/A
Receiver: 1036	Cable #3: #N/A
Attenuator #1: 1466	Cable #4: #N/A
Attenuator #2: #N/A	Mixer: #N/A
Additional equipment used:	
Measurement	
Uncertainty: #N/A	

Ref Lvl	RBW	30 kHz	RF Att	20 dB
20 dBm	VBW	30 kHz	Mixer	-10 dBm
	SWT	5 ms	Unit	dBm

Center 1.88 GHz 160 kHz/ Span 1.6 MHz

Date: 5 . DEC . 2000 15 : 12 : 19

Notes:	OUTPUT - UPLINK - GSM

EQUIPMENT: **PCS Side-to-Side Repeater**

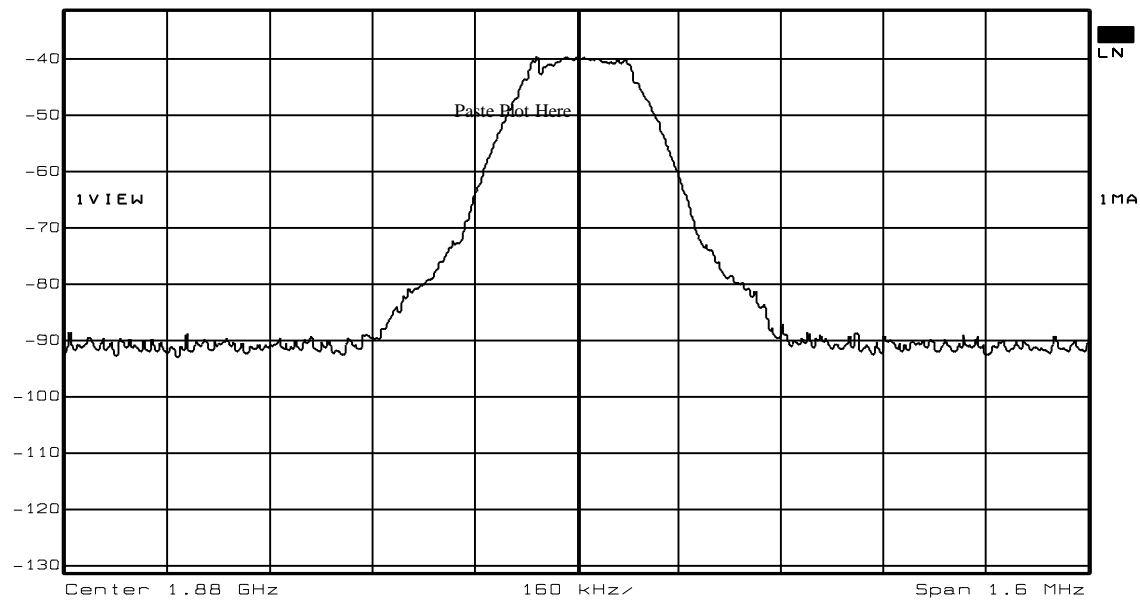
FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth – GSM

Test Plot: Occupied Bandwidth - GSM
 Page 2 of 4
 Job No.: 0L0494R Date: 12/1/00
 Specification: PART 24 Temperature(°C): 22
 Tested By: David Light Relative Humidity(%) 50
 E.U.T.: PCS REPEATER - HIGH GAIN
 Configuration: TRANSMIT MID BAND

Ref Lvl	-31.3 dBm	RBW	30 kHz	RF Att	10 dB
		VBW	30 kHz	Mixer	-10 dBm
		SWT	5 ms	Unit	dBm



Date: 5.DEC.2000 15:13:59

Notes:	INPUT - UPLINK - GSM

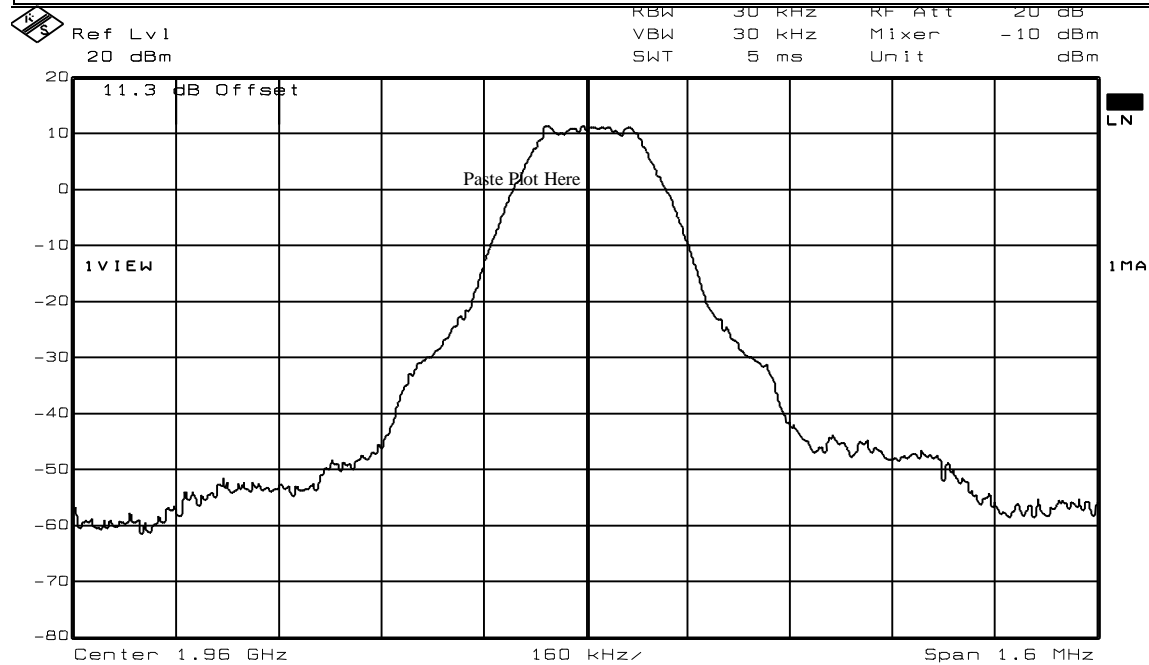
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth – GSM

Test Plot: Occupied Bandwidth - GSM	
Page 3 of 4	
Job No.: 0L0494R	Date: 12/1/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER - HIGH GAIN	
Configuration: TRANSMIT MID BAND	



Date: 5.DEC.2000 15:28:10

Notes:	OUTPUT - DOWNLINK - GSM

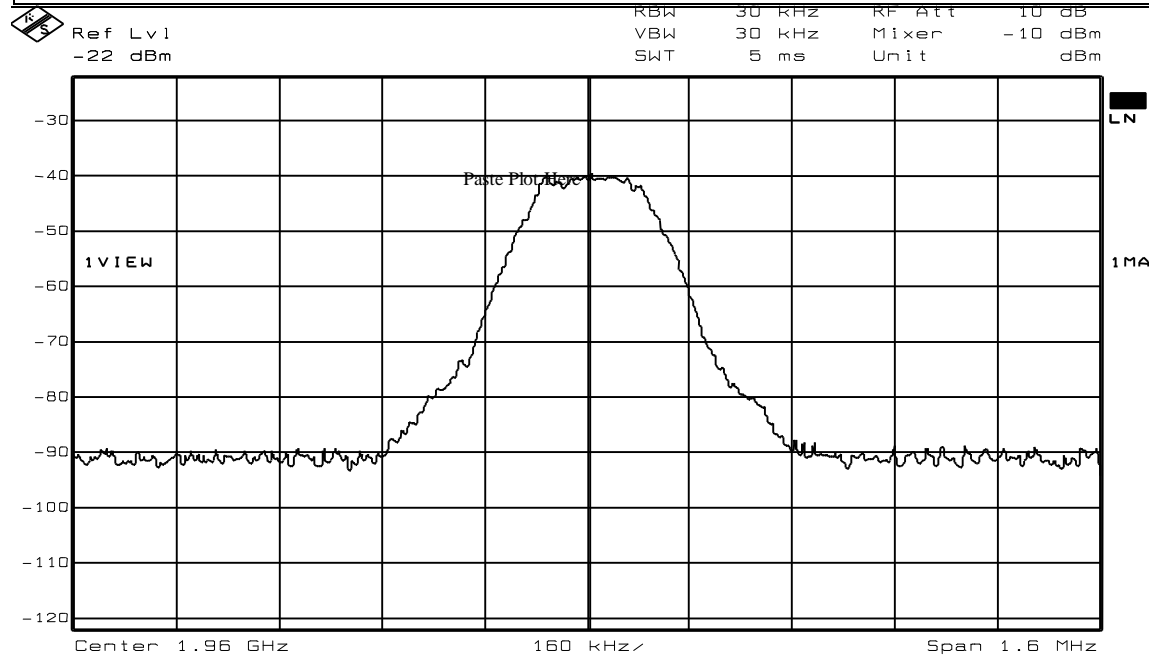
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth – GSM

Test Plot: Occupied Bandwidth - GSM	
Page 4 of 4	
Job No.: <u>0L0494R</u>	Date: <u>12/1/00</u>
Specification: <u>PART 24</u>	Temperature(°C): <u>22</u>
Tested By: <u>David Light</u>	Relative Humidity(%) <u>50</u>
E.U.T.: <u>PCS REPEATER - HIGH GAIN</u>	
Configuration: <u>TRANSMIT MID BAND</u>	



Date: 5 . DEC . 2000 15 : 29 : 54

Notes:	INPUT - DOWNLINK - GSM

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

NAME OF TEST: Occupied Bandwidth (NADC)	PARA. NO.: 2.1049
TESTED BY: David Light	DATE: 12/01/00

Test Results: Complies.

Test Data: See attached plot(s).

Equipment Used:

Measurement Uncertainty: +/- 1.6 dB

Temperature: 22 °C

Relative Humidity: 50 %

EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Test Data- Occupied Bandwidth - NADC

Test Plot: Occupied Bandwidth - TDMA

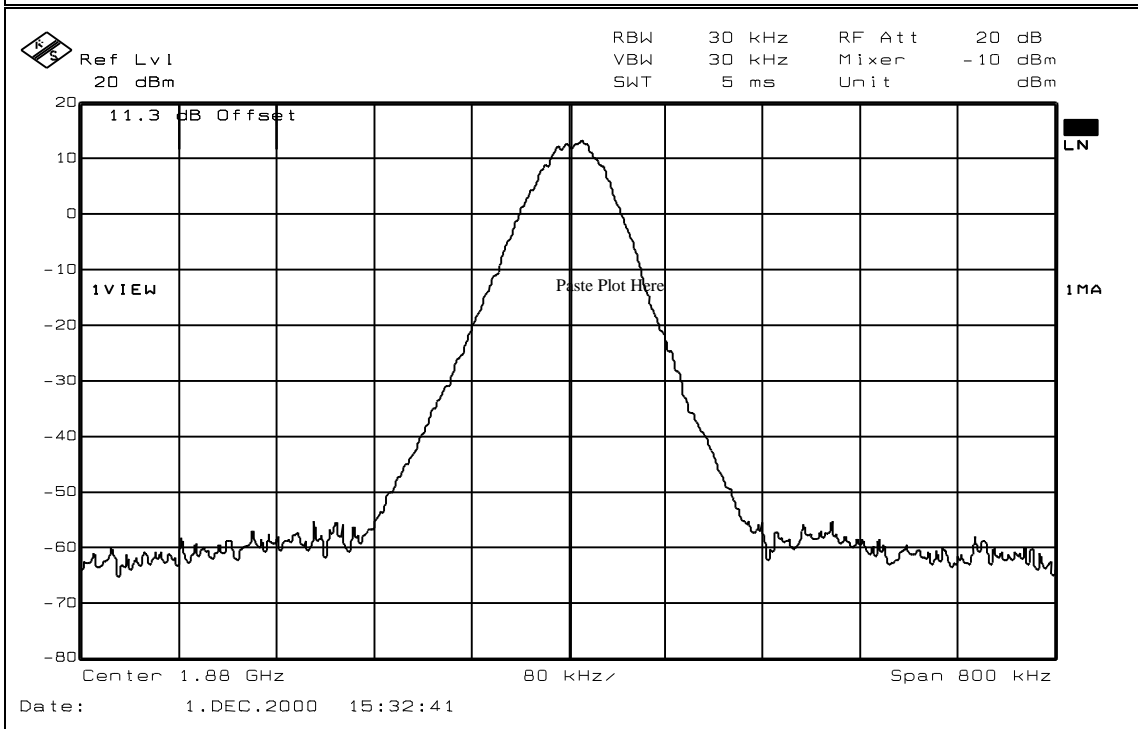
Page 1 of 4

Job No.: 0L0494R Date: 12/01/00
 Specification: PART 24 Temperature(°C): 22
 Tested By: David Light Relative Humidity(%) 50
 E.U.T.: PCS REPEATER
 Configuration: TRANSMIT MID BAND
 Serial Number: 45
 Location: Lab 1 RBW: 30 kHz
 Detector Type: Peak VBW: 30 kHz

Test Equipment Used

Antenna: #N/A	Directional Coupler: #N/A
Pre-Amp: #N/A	Cable #1: 1045
Filter: #N/A	Cable #2: #N/A
Receiver: 1036	Cable #3: #N/A
Attenuator #1: 1466	Cable #4: #N/A
Attenuator #2: #N/A	Mixer: #N/A

Additional equipment used: _____
 Measurement Uncertainty: #N/A



Notes: _____

OUTPUT - UPLINK - TDMA

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

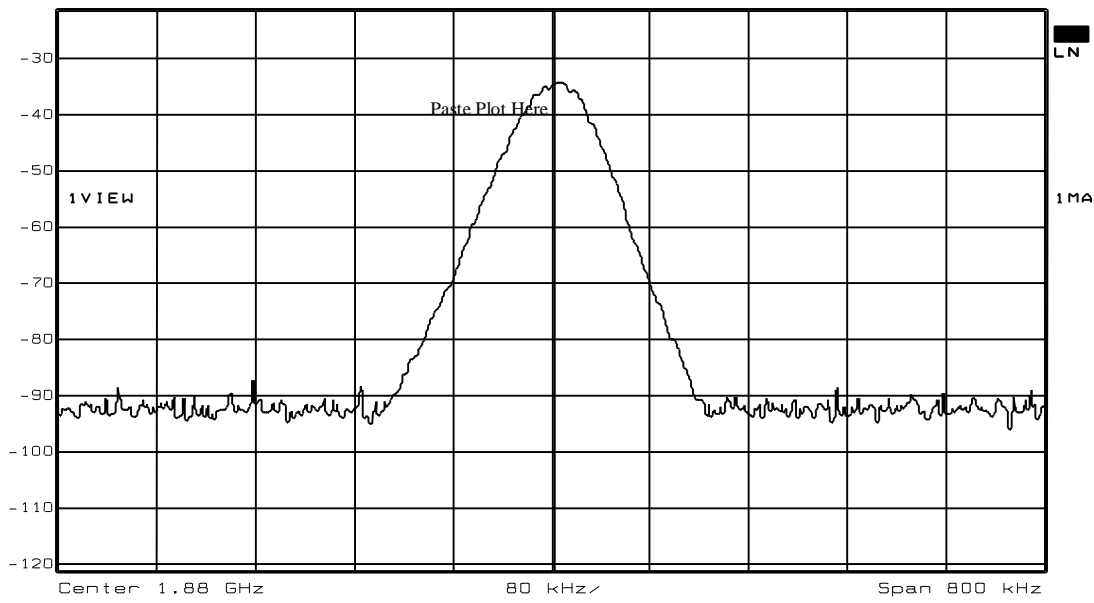
PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth - NADC

Test Plot: Occupied Bandwidth - TDMA	
Page 2 of 4	
Job No.: 0L0494R	Date: 12/1/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT MID BAND	



Ref Lvl	RBW	30 kHz	RF Att	10 dB
-21.3 dBm	VBW	30 kHz	Mixer	-10 dBm
	SWT	5 ms	Unit	dBm



Date: 1 .DEC. 2000 15:34:18

Notes:	INPUT - UPLINK - TDMA

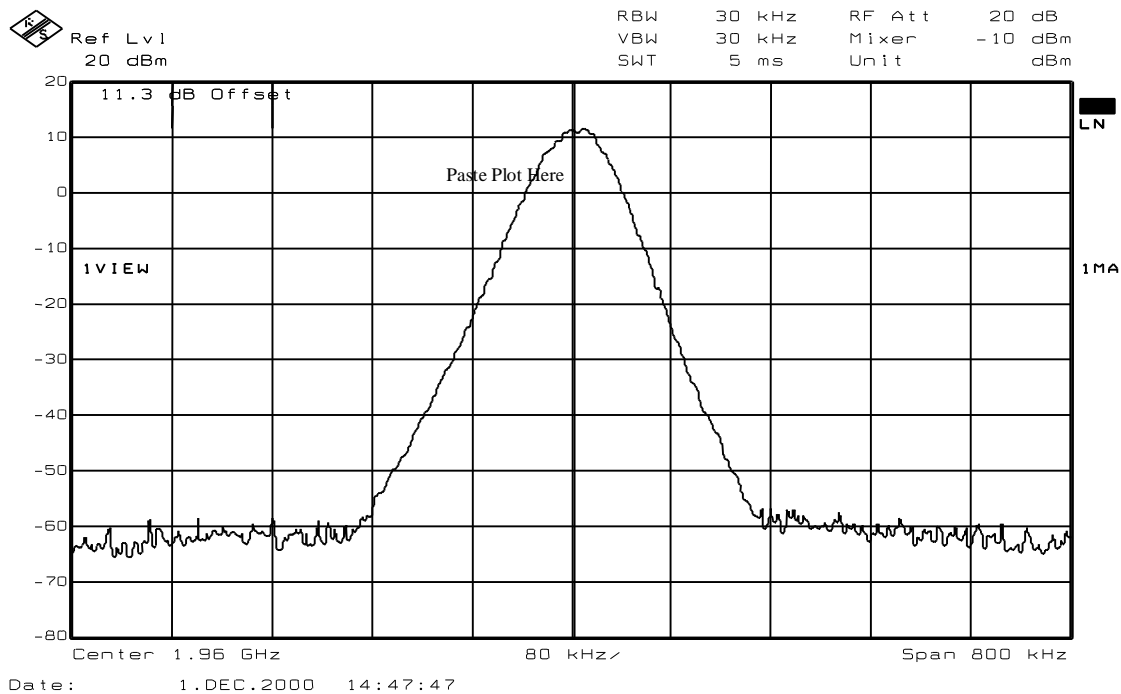
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth - NADC

Test Plot: Occupied Bandwidth - TDMA	
Page 3 of 4	
Job No.: 0L0494R	Date: 12/1/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT MID BAND	



Notes:	OUTPUT - DOWNLINK - TDMA

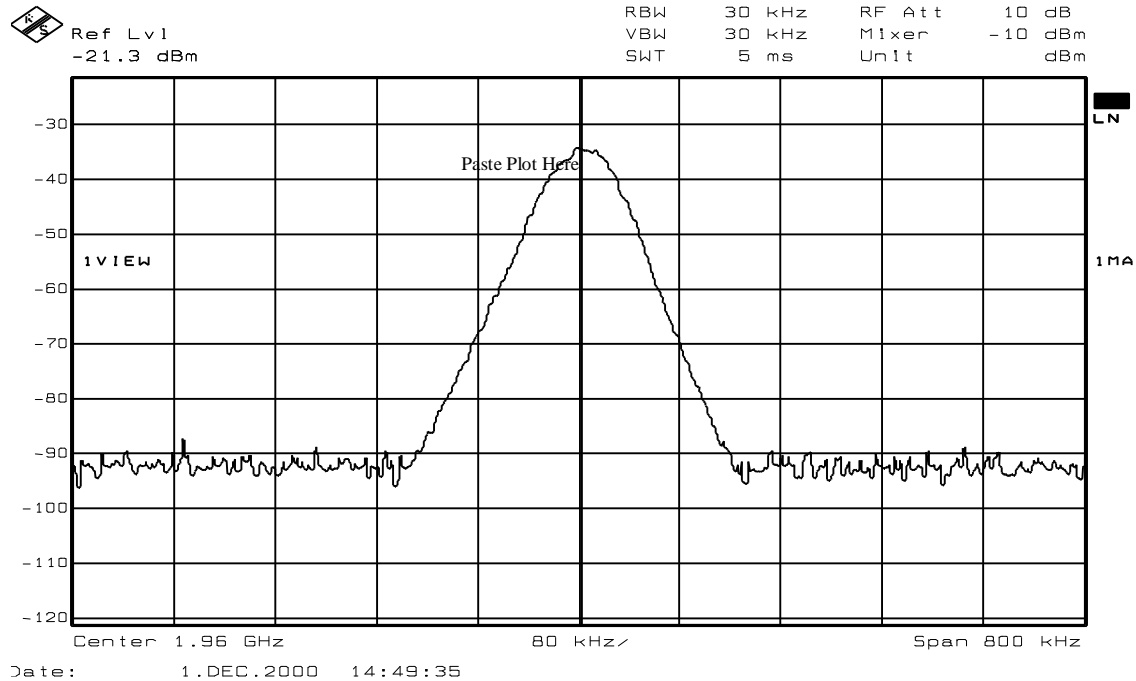
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth - NADC

Test Plot: Occupied Bandwidth - TDMA	
Page 4 of 4	
Job No.: 0L0494R	Date: 12/1/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT MID BAND	



Notes:	INPUT - DOWNLINK - TDMA

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth – NADC

Test Plot: Occupied Bandwidth - TDMA

Page 1 of 4

Job No.: 0L0494R Date: 12/01/00
 Specification: PART 24 Temperature(°C): 22
 Tested By: David Light Relative Humidity(%) 50
 E.U.T.: PCS REPEATER - HIGH GAIN
 Configuration: TRANSMIT MID BAND
 Serial Number: 45
 Location: Lab 1 RBW: 30 kHz
 Detector Type: Peak VBW: 30 kHz

Test Equipment Used

Antenna: #N/A Directional Coupler: #N/A
 Pre-Amp: #N/A Cable #1: 1045
 Filter: #N/A Cable #2: #N/A
 Receiver: 1036 Cable #3: #N/A
 Attenuator #1: 1466 Cable #4: #N/A
 Attenuator #2: #N/A Mixer: #N/A
 Additional equipment used:
 Measurement
 Uncertainty: #N/A

Ref Lvl	RBW	30 kHz	RF Att	20 dB
20 dBm	VBW	30 kHz	Mixer	-10 dBm
	SWT	5 ms	Unit	dBm

11.3 dB Offset

1 VIEW

Paste Plot Here

Center 1.88 GHz 80 kHz Span 800 kHz

Date: 5 .DEC. 2000 15:16:25

Notes: OUTPUT - UPLINK - TDMA

EQUIPMENT: **PCS Side-to-Side Repeater**

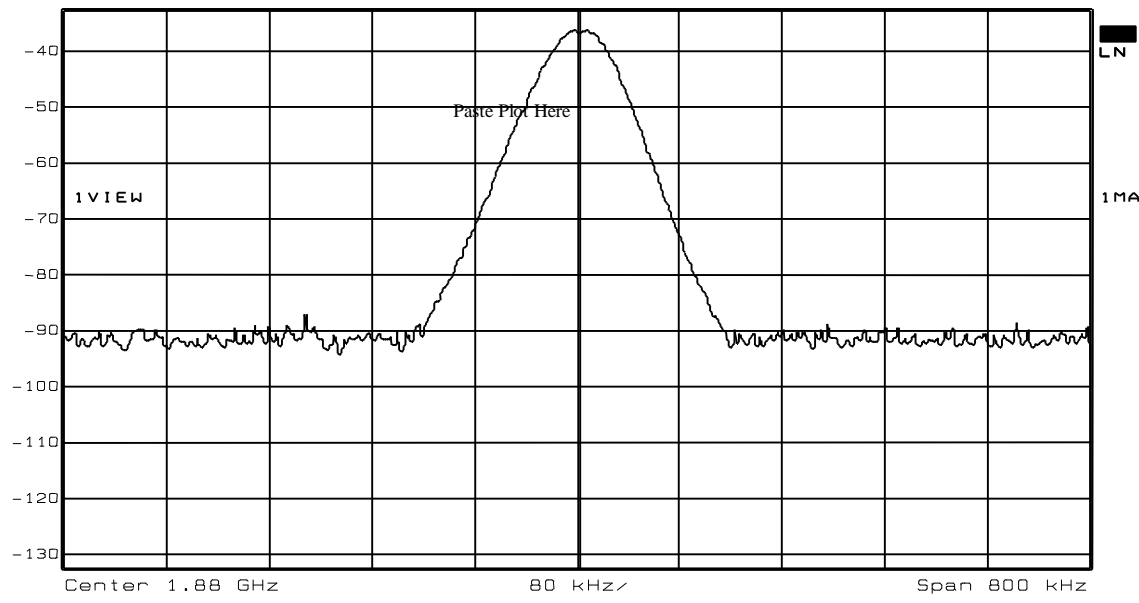
FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth – NADC

Test Plot: Occupied Bandwidth - TDMA
 Page 2 of 4
 Job No.: 0L0494R Date: 12/1/00
 Specification: PART 24 Temperature(°C): 22
 Tested By: David Light Relative Humidity(%) 50
 E.U.T.: PCS REPEATER - HIGH GAIN
 Configuration: TRANSMIT MID BAND

Ref Lvl	-32.6 dBm	RBW	30 kHz	RF Att	10 dB
		VBW	30 kHz	Mixer	-10 dBm
		SWT	5 ms	Unit	dBm



Date: 5.DEC.2000 15:18:26

Notes:	INPUT - UPLINK - TDMA

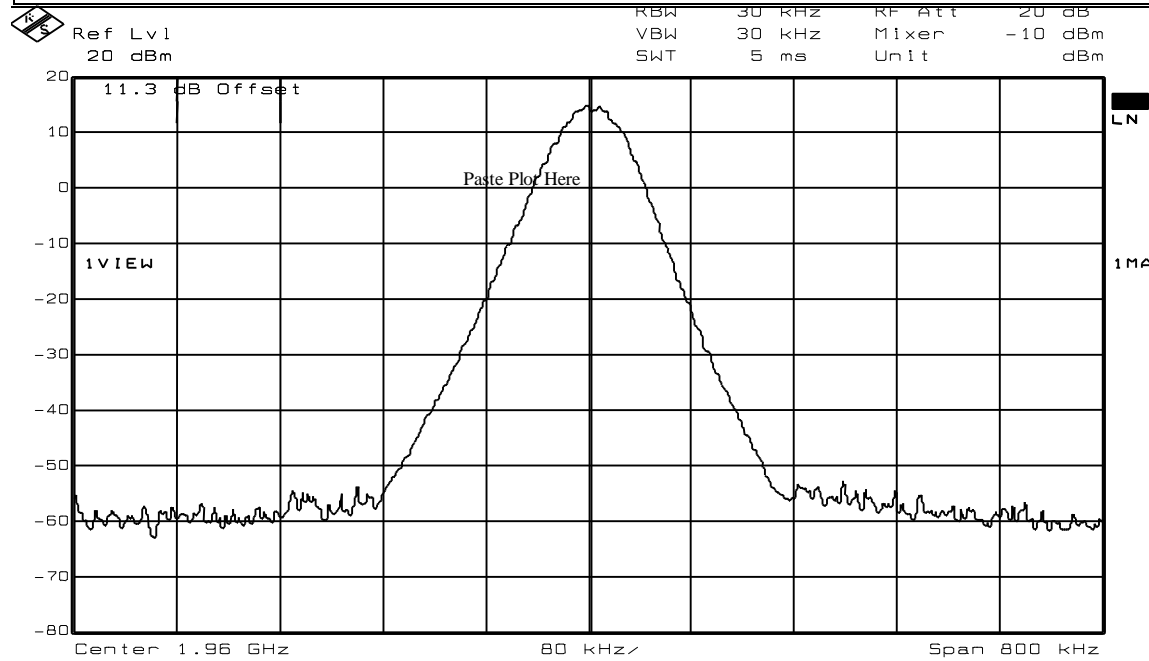
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth – NADC

Test Plot: Occupied Bandwidth - TDMA
 Page 3 of 4
 Job No.: 0L0494R Date: 12/1/00
 Specification: PART 24 Temperature(°C): 22
 Tested By: David Light Relative Humidity(%) 50
 E.U.T.: PCS REPEATER - HIGH GAIN
 Configuration: TRANSMIT MID BAND



Date: 5.DEC.2000 15:23:03

Notes:	OUTPUT - DOWNLINK - TDMA

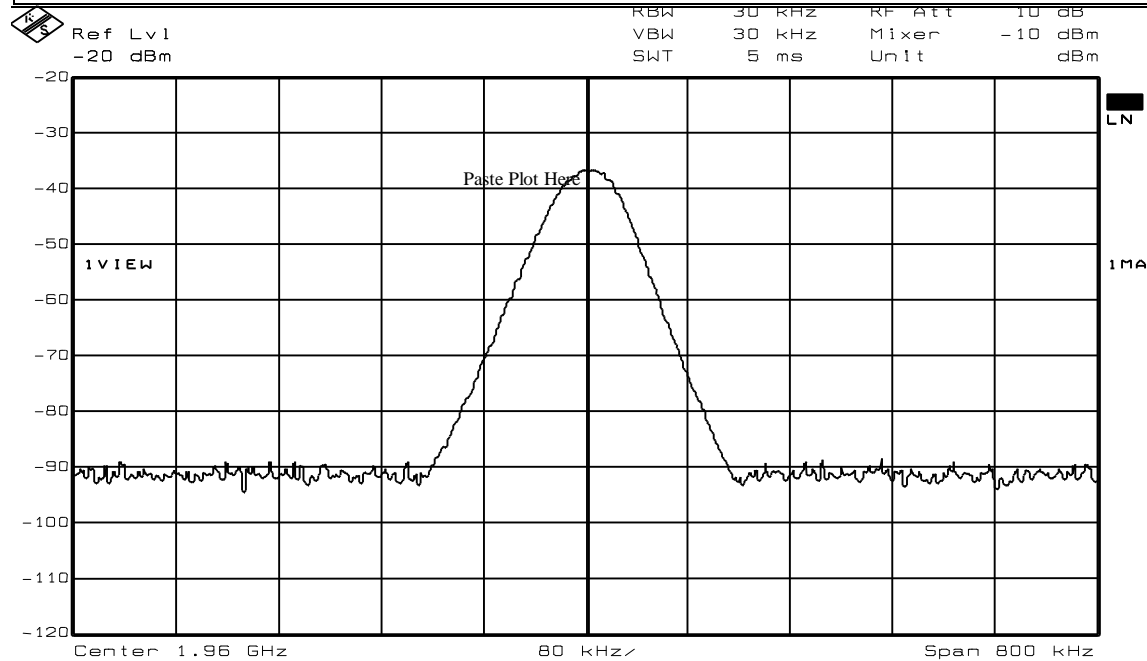
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data- Occupied Bandwidth – NADC

Test Plot: Occupied Bandwidth - TDMA
 Page 4 of 4
 Job No.: 0L0494R Date: 12/1/00
 Specification: PART 24 Temperature(°C): 22
 Tested By: David Light Relative Humidity(%) 50
 E.U.T.: PCS REPEATER - HIGH GAIN
 Configuration: TRANSMIT MID BAND



Notes: INPUT - DOWNLINK - TDMA

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Section 5. Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions @ Antenna Terminals	PARA. NO.: 2.1051
TESTED BY: David Light	DATE: 12/04/00

Test Results: Complies.

Test Data: See attached plot(s).

Equipment Used: 1036-1045-1466-1052-1053-1083

Measurement Uncertainty: +/- 1.6 dB

Temperature: 22 °C

Relative Humidity: 50 %

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Antenna Port Spurious Emissions - CDMA

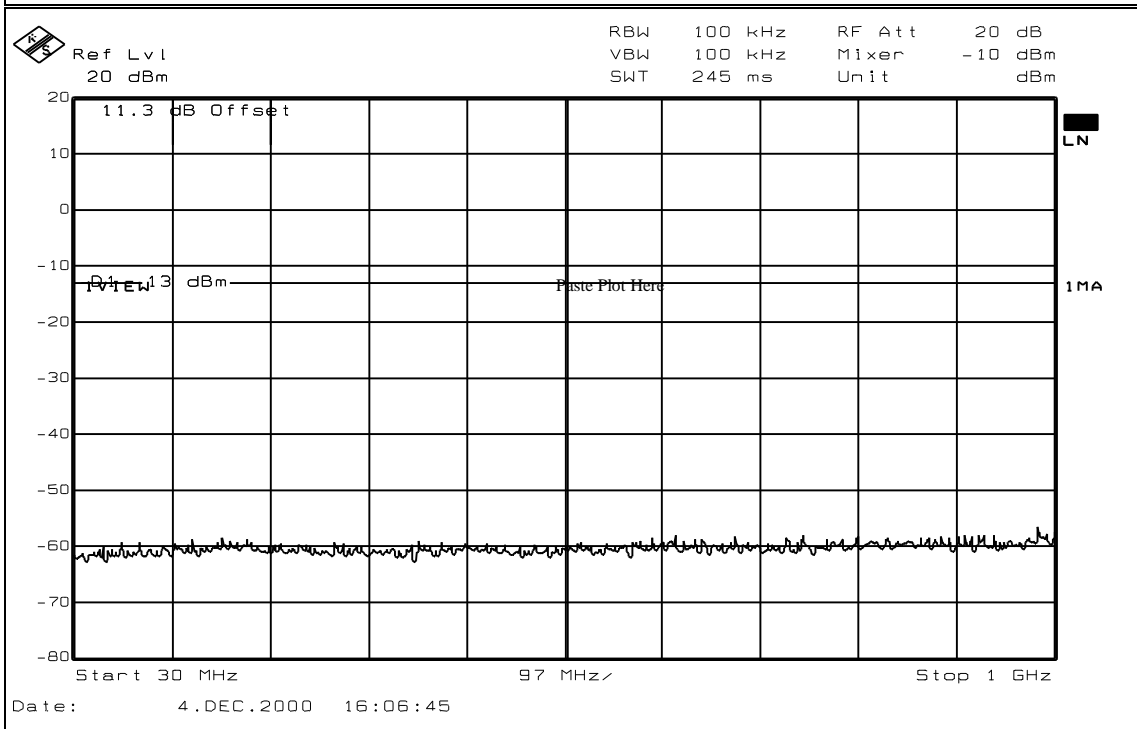
Page 1 of 4

Job No.: 0L0494R Date: 12/04/00
 Specification: PART 24 Temperature(°C): 22
 Tested By: David Light Relative Humidity(%) 50
 E.U.T.: PCS REPEATER
 Configuration: TRANSMIT 2 CDMA CARRIERS AT MAX POWER
 Serial Number: 45
 Location: Lab 1 RBW: 100 kHz < 1 GHz, 1 MHz > 1 GHz
 Detector Type: Peak VBW: 100 kHz < 1 GHz, 1 MHz > 1 GHz

Test Equipment Used

Antenna: #N/A	Directional Coupler: #N/A
Pre-Amp: #N/A	Cable #1: 1045
Filter: #N/A	Cable #2: #N/A
Receiver: 1036	Cable #3: #N/A
Attenuator #1: 1466	Cable #4: #N/A
Attenuator #2: #N/A	Mixer: #N/A

Additional equipment used: _____
 Measurement Uncertainty: #N/A



Notes: _____ UPLINK

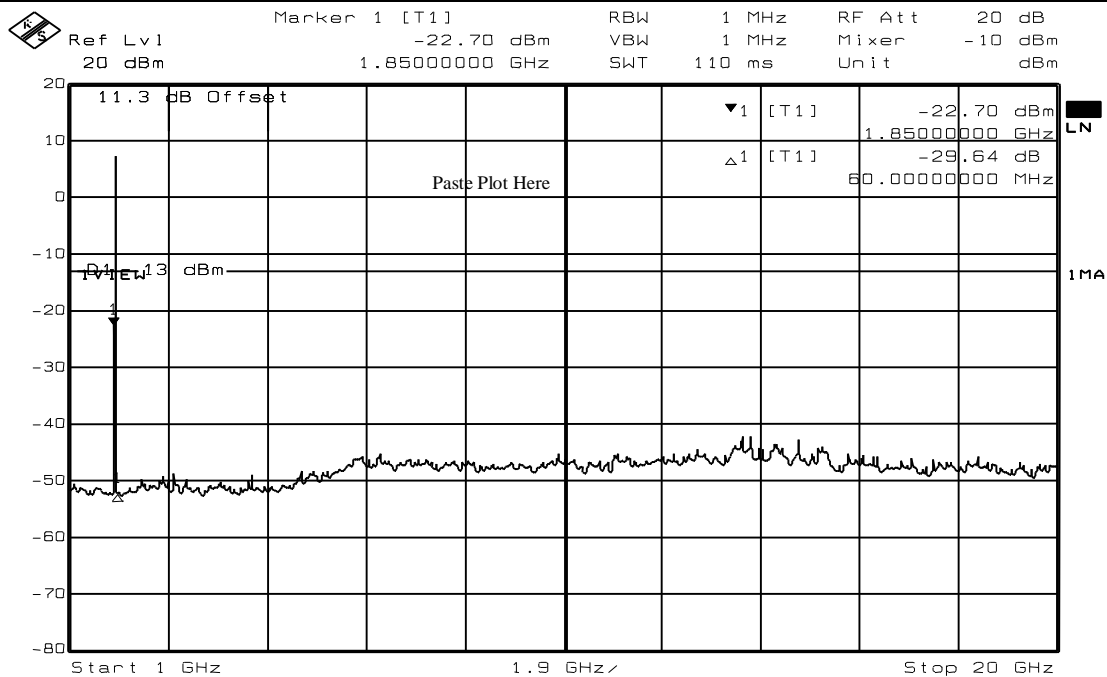
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Antenna Port Spurious Emissions - CDMA	
Page 2 of 4	
Job No.: 0L0494R	Date: 12/4/00
Specification: PART 24	Temperature(°C): 1/22/00
Tested By: David Light	Relative Humidity(%) 2/19/00
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT 2 CDMA CARRIERS AT MAX POWER	



Date: 4.DEC.2000 16:07:53

Notes:	UPLINK
	MARKERS INDICATE TRANSMIT BAND

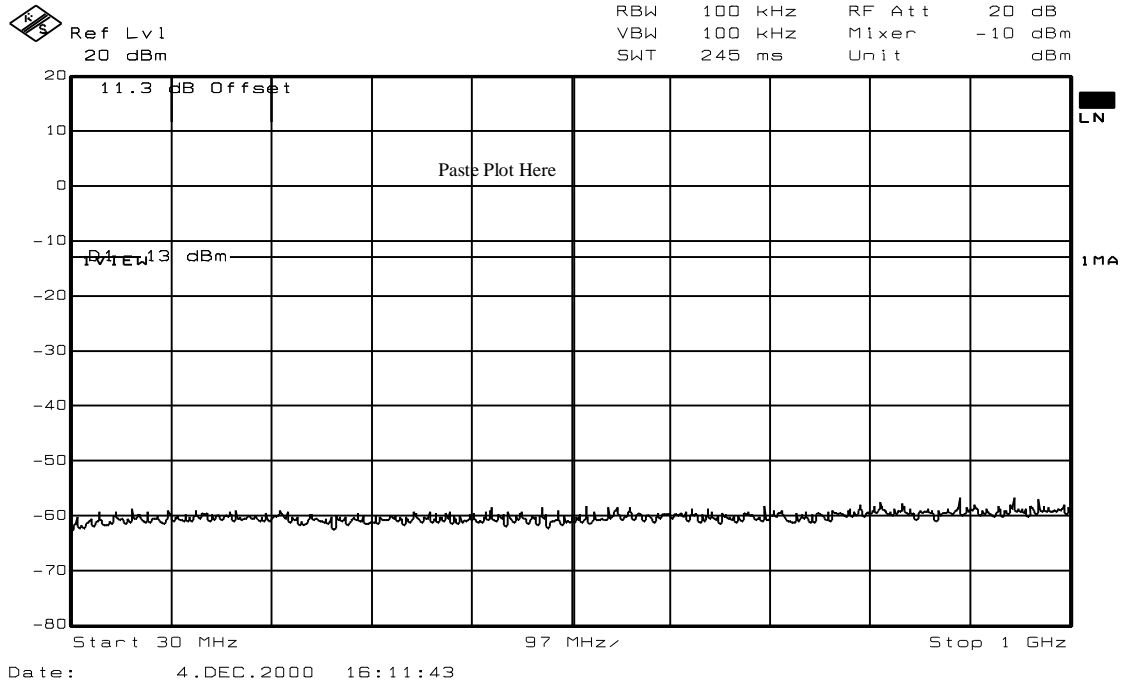
EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Antenna Port Spurious Emissions - CDMA	
Page 3 of 4	
Job No.: 0L0494R	Date: 12/4/00
Specification: PART 24	Temperature(°C): 1/22/00
Tested By: David Light	Relative Humidity(%) 2/19/00
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT 2 CDMA CARRIERS AT MAX POWER	



Notes:	DOWNLINK

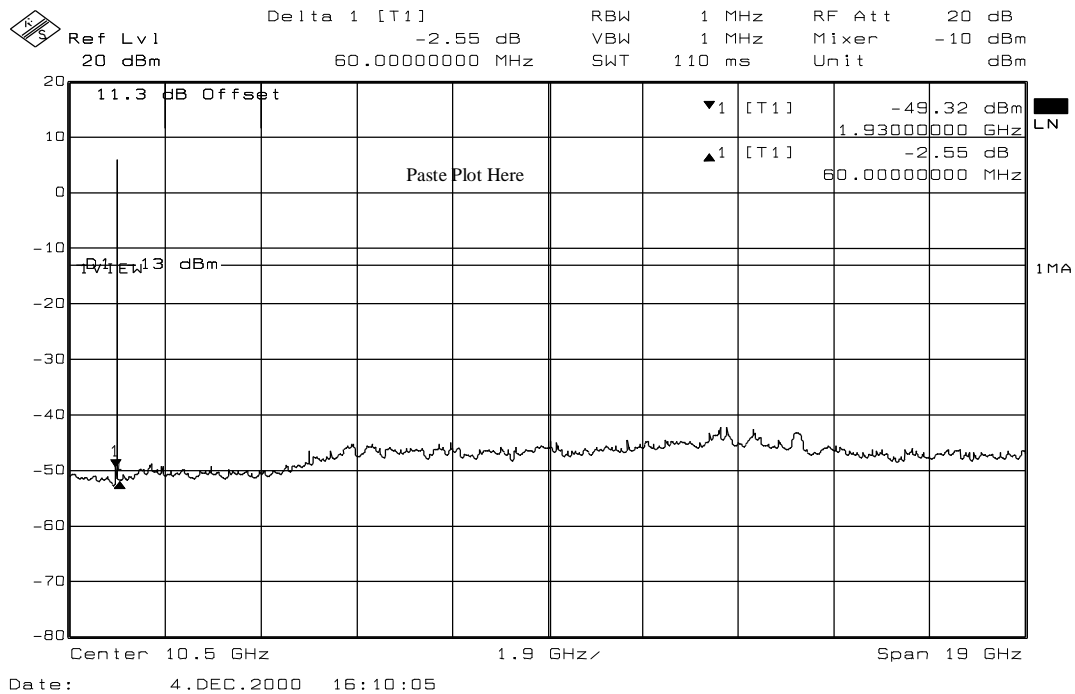
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Antenna Port Spurious Emissions - CDMA	
Page 4 of 4	
Job No.: 0L0494R	Date: 12/4/00
Specification: PART 24	Temperature(°C): 1/22/00
Tested By: David Light	Relative Humidity(%) 2/19/00
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT 2 CDMA CARRIERS AT MAX POWER	



Notes:	DOWNLINK
	MARKERS INDICATE TRANSMIT BAND

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - CDMA - Inband			
Page 1 of 2			
Job No.:	0L0494R	Date:	12/04/00
Specification:	PART 24	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%):	50
E.U.T.:	PCS REPEATER		
Configuration:	TRANSMIT 2 CARRIERS		
Serial Number:	45		
Location:	Lab 1	RBW:	30 kHz
Detector Type:	Peak	VBW:	30 kHz
Test Equipment Used			
Antenna:	#N/A	Directional Coupler:	#N/A
Pre-Amp:	#N/A	Cable #1:	1045
Filter:	#N/A	Cable #2:	#N/A
Receiver:	1036	Cable #3:	#N/A
Attenuator #1:	1466	Cable #4:	#N/A
Attenuator #2:	#N/A	Mixer:	#N/A
Additional equipment used:	_____		
Measurement Uncertainty:	#N/A		

	<table style="width: 100%; border-collapse: collapse;"> <tr> <td>RBW</td> <td>30 kHz</td> <td>RF Att</td> <td>10 dB</td> </tr> <tr> <td>VBW</td> <td>30 kHz</td> <td>Mixer</td> <td>-10 dBm</td> </tr> <tr> <td>SWT</td> <td>170 ms</td> <td>Unit</td> <td>dBm</td> </tr> </table>	RBW	30 kHz	RF Att	10 dB	VBW	30 kHz	Mixer	-10 dBm	SWT	170 ms	Unit	dBm
RBW	30 kHz	RF Att	10 dB										
VBW	30 kHz	Mixer	-10 dBm										
SWT	170 ms	Unit	dBm										

Ref Lvl 10 dBm	Start 1.85 GHz 6 MHz Stop 1.91 GHz
Date:	4.DEC.2000 10:34:46
Notes:	UPLINK - 2 CARRIERS

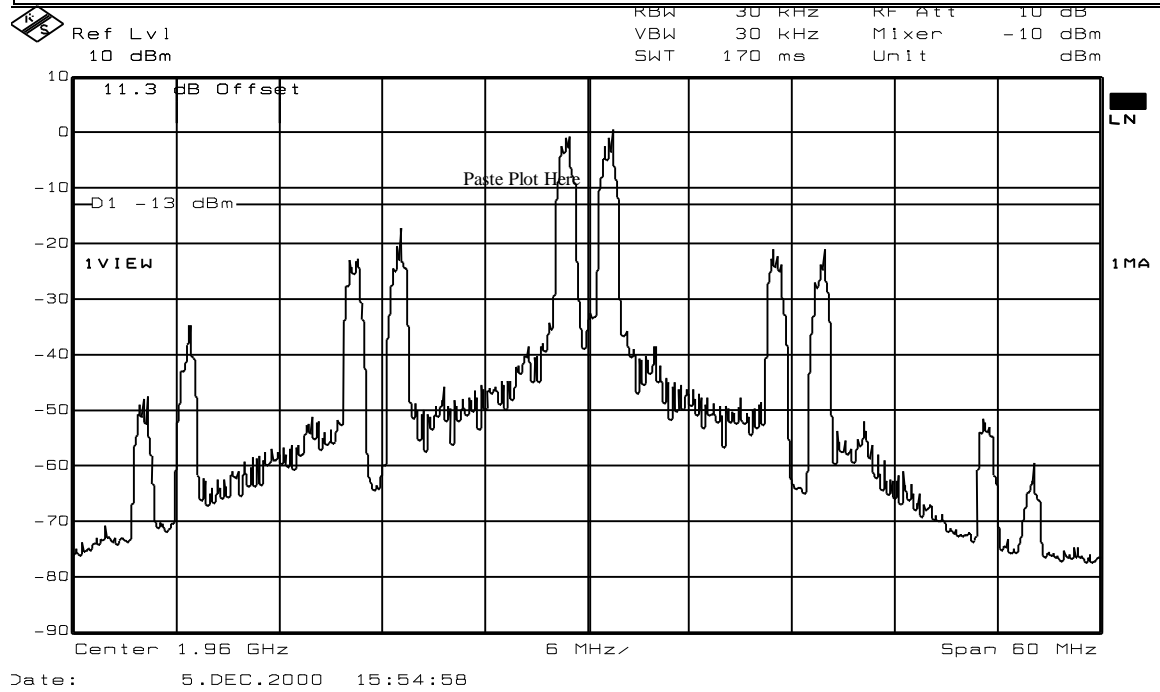
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - CDMA - Inband	
Page 2 of 2	
Job No.: 0L0494R	Date: 12/4/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER - HIGH GAIN	
Configuration: TRANSMIT 2 CARRIERS	



Notes:	DOWNLINK - 2 CARRIERS

EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - CDMA - Out of Band

Page 1 of 2

Job No.: 0L0494R Date: 12/06/00
 Specification: PART 24 Temperature(°C): 22
 Tested By: David Light Relative Humidity(%) 50
 E.U.T.: PCS REPEATER
 Configuration: TRANSMIT 2 CARRIERS
 Serial Number: 45
 Location: Lab 1 RBW: 30 kHz
 Detector Type: Peak VBW: 30 kHz

Test Equipment Used

Antenna: #N/A Directional Coupler: #N/A
 Pre-Amp: #N/A Cable #1: 1045
 Filter: #N/A Cable #2: #N/A
 Receiver: 1036 Cable #3: #N/A
 Attenuator #1: 1466 Cable #4: #N/A
 Attenuator #2: #N/A Mixer: #N/A
 Additional equipment used:
 Measurement
 Uncertainty: #N/A

Ref Lvl	20 dBm	RBW	30 kHz	RF Att	20 dB
		VBW	30 kHz	Mixer	-10 dBm
		SWT	56 ms	Unit	dBm

Center 1.91 GHz 1.968 MHz Span 19.68 MHz

Date: 6.DEC.2000 13:57:05

Notes: UPLINK - 2 CARRIERS

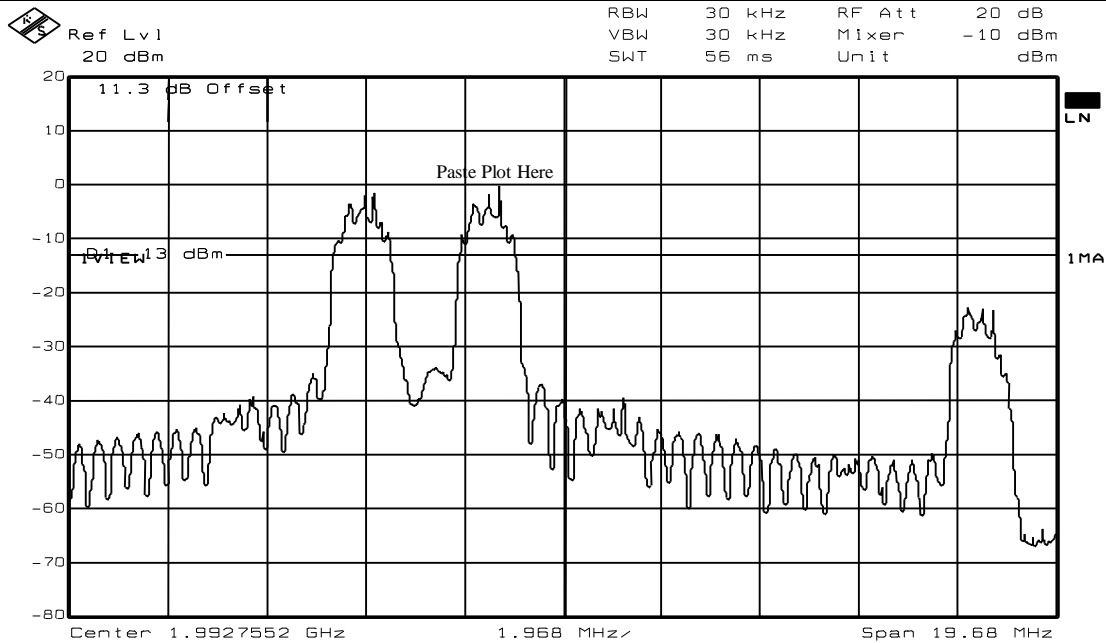
EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - CDMA - Out of Band			
Page 2 of 2			
Job No.:	0L0494R	Date:	12/6/00
Specification:	PART 24	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%)	50
E.U.T.:	PCS REPEATER		
Configuration:	TRANSMIT 2 CARRIERS		



Date: 6.DEC.2000 13:59:15

Notes:	DOWNLINK - 2 CARRIERS

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: BAND EDGES - CDMA			
Page 1 of 4			
Job No.:	0L0494R	Date:	1206/00
Specification:	PART 24	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%):	50
E.U.T.:	PCS REPEATER		
Configuration:	TRANSMIT CDMA FULL POWER		
Serial Number:	2		
Location:	Lab 1	RBW:	30 kHz
Detector Type:	Peak	VBW:	30 kHz
Test Equipment Used			
Antenna:	#N/A	Directional Coupler:	#N/A
Pre-Amp:	#N/A	Cable #1:	1045
Filter:	#N/A	Cable #2:	#N/A
Receiver:	1036	Cable #3:	#N/A
Attenuator #1:	1466	Cable #4:	#N/A
Attenuator #2:	#N/A	Mixer:	#N/A
Additional equipment used:			
Measurement Uncertainty:	#N/A		

	RBW	30 kHz	RF Att	20 dB
	VBW	30 kHz	Mixer	-10 dBm
	SWT	7 ms	Unit	dBm

Center 1.93 GHz 246 kHz/ Span 2.46 MHz

Date: 6.DEC.2000 10:19:29

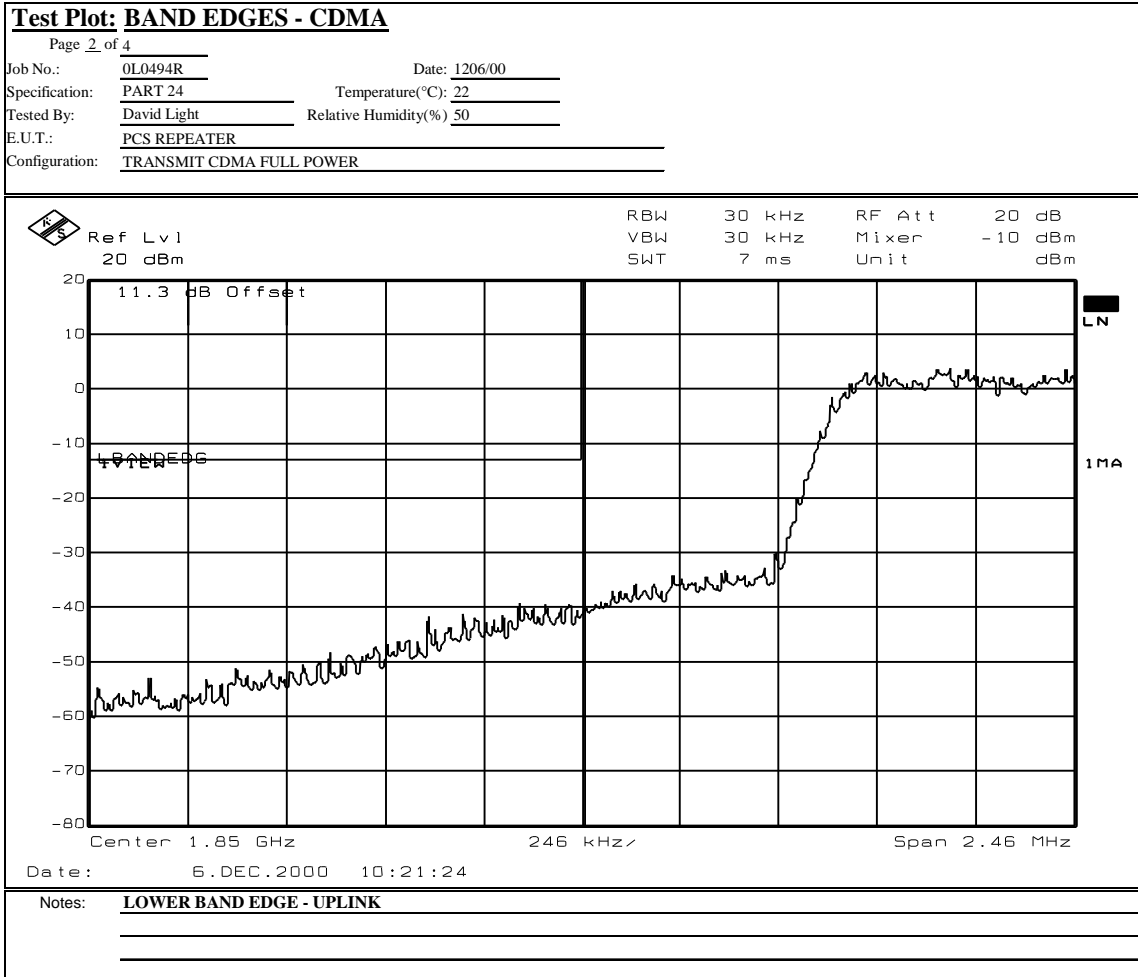
Notes: LOWER BAND EDGE - DOWNLINK

EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Test Data - Spurious Emissions at Antenna Terminals

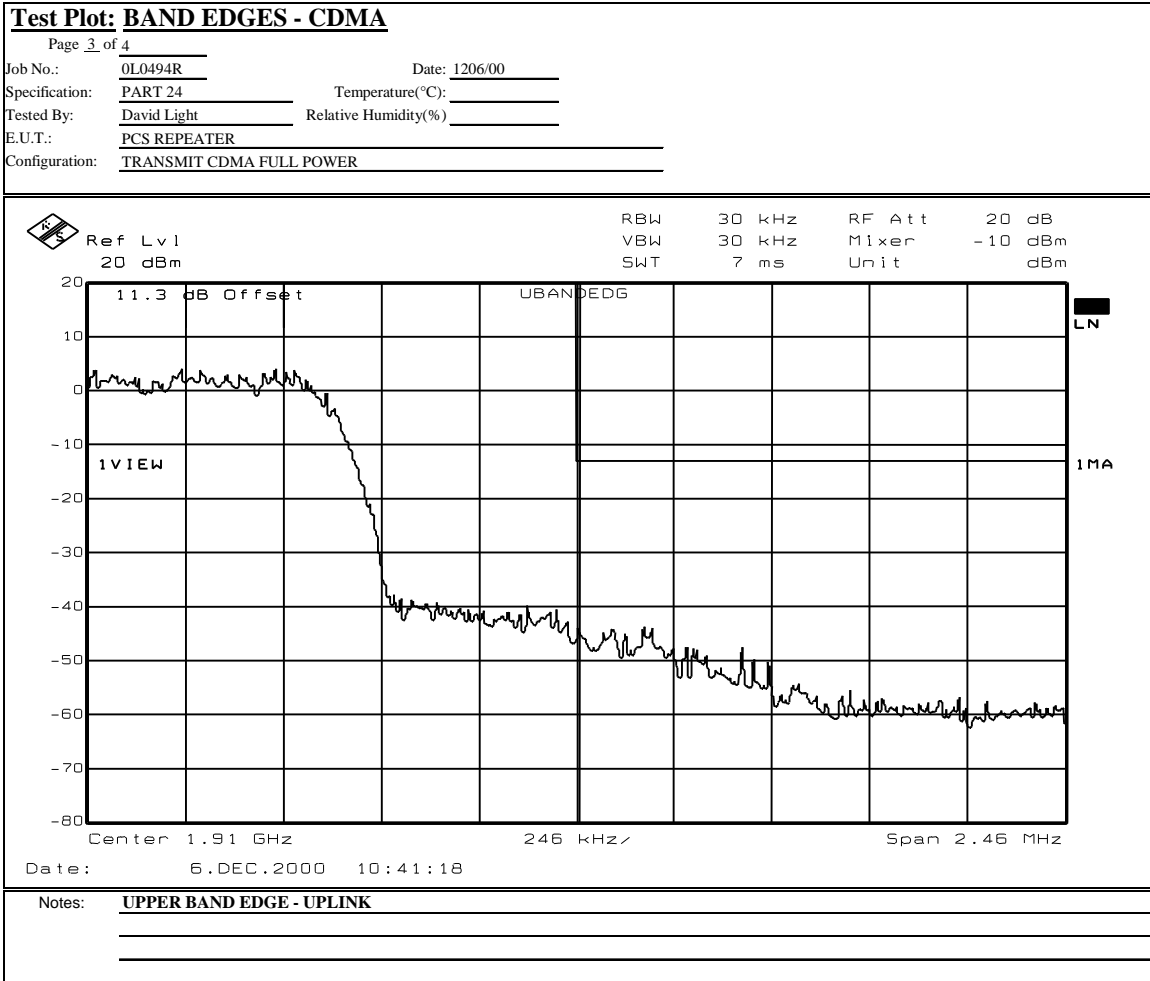


EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Test Data - Spurious Emissions at Antenna Terminals

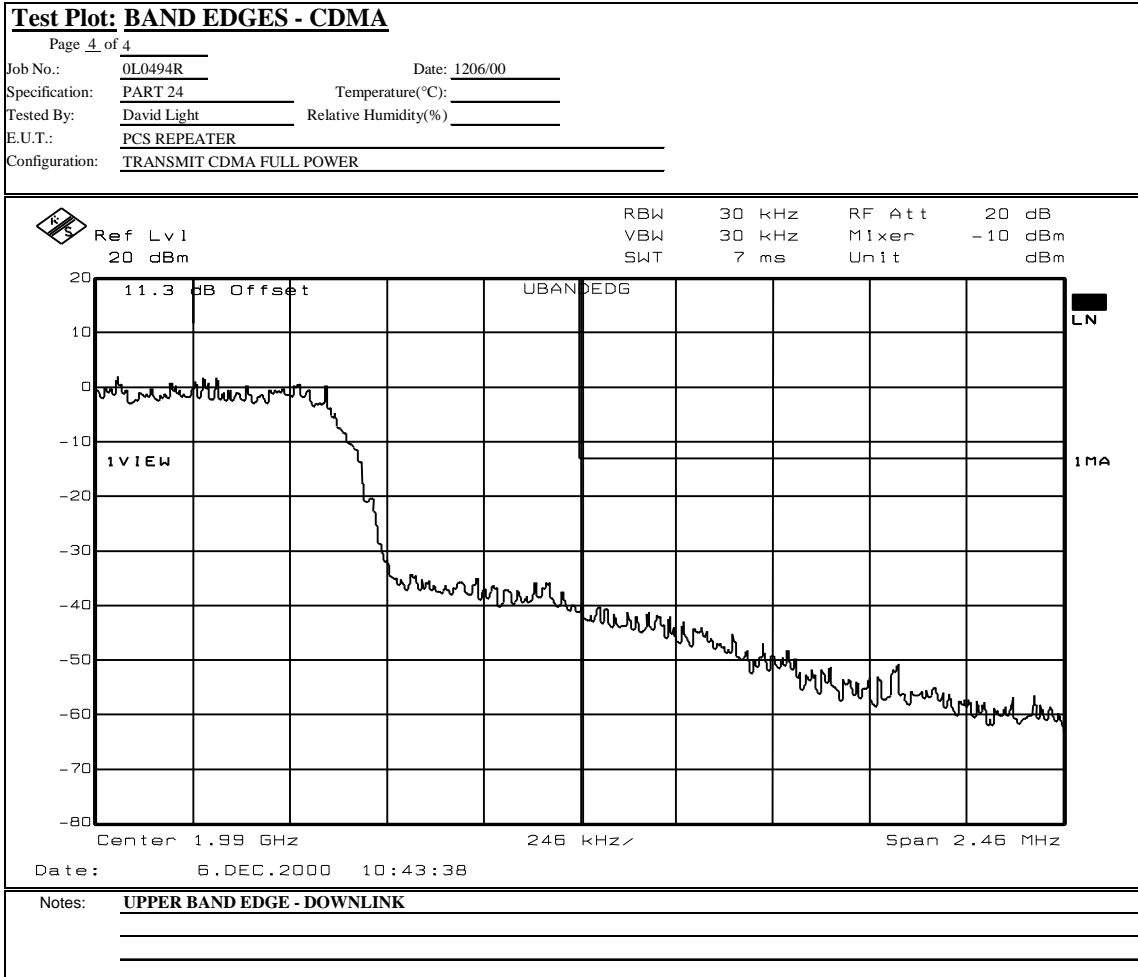


EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals



EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Antenna Port Spurious Emissions - GSM

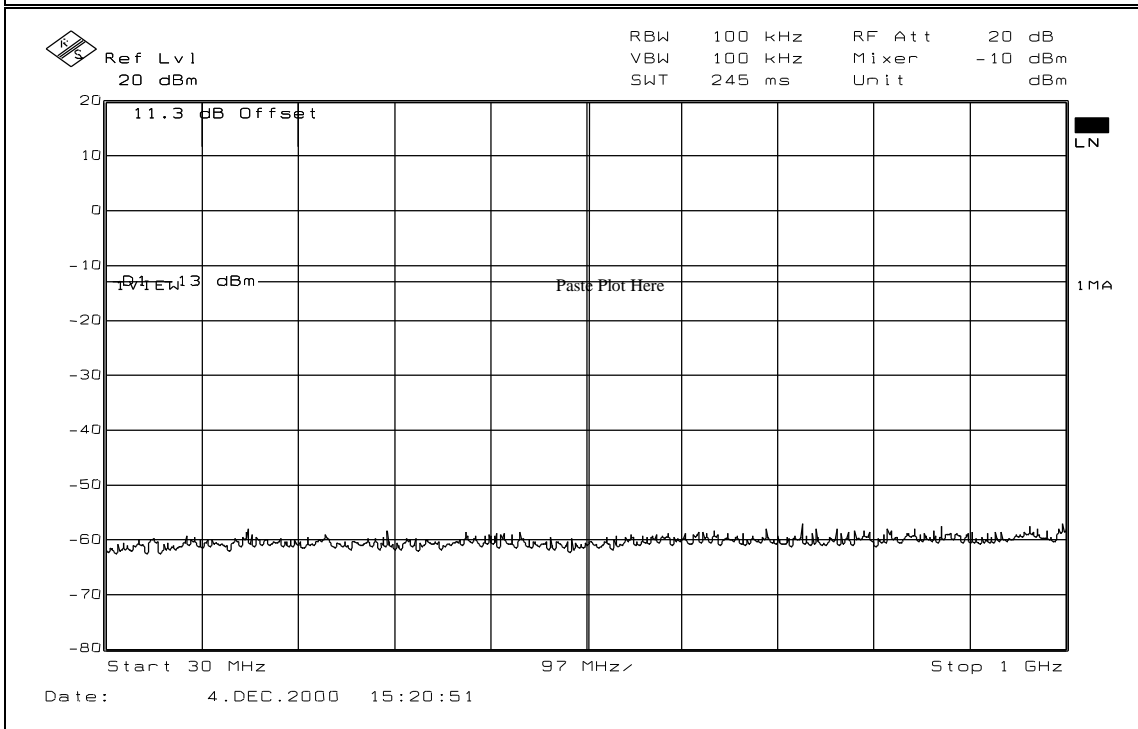
Page 1 of 4

Job No.: 0L0494R Date: 12/04/00
 Specification: PART 24 Temperature(°C): 22
 Tested By: David Light Relative Humidity(%) 50
 E.U.T.: PCS REPEATER
 Configuration: TRANSMIT 5 GSM CARRIERS AT MAX POWER
 Serial Number: 45
 Location: Lab 1 RBW: 100 kHz < 1 GHz, 1 MHz > 1 GHz
 Detector Type: Peak VBW: 100 kHz < 1 GHz, 1 MHz > 1 GHz

Test Equipment Used

Antenna: #N/A	Directional Coupler: #N/A
Pre-Amp: #N/A	Cable #1: 1045
Filter: #N/A	Cable #2: #N/A
Receiver: 1036	Cable #3: #N/A
Attenuator #1: 1466	Cable #4: #N/A
Attenuator #2: #N/A	Mixer: #N/A

Additional equipment used: _____
 Measurement Uncertainty: #N/A



Notes: _____ UPLINK

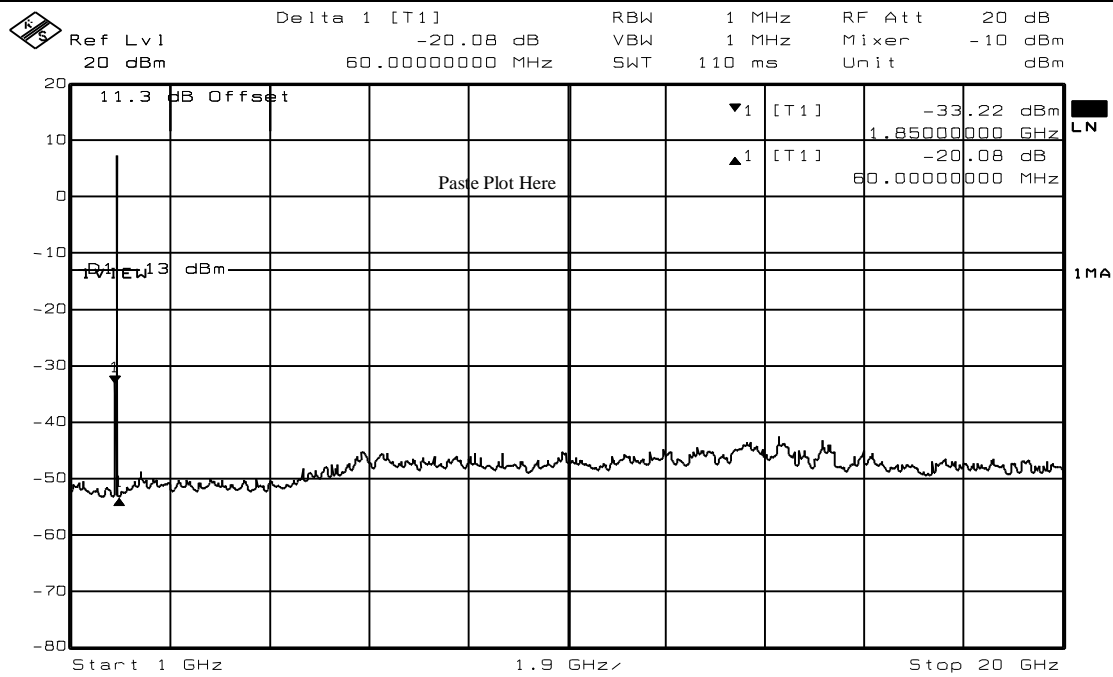
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Antenna Port Spurious Emissions - GSM	
Page 2 of 4	
Job No.: 0L0494R	Date: 12/4/00
Specification: PART 24	Temperature(°C): 1/22/00
Tested By: David Light	Relative Humidity(%) 2/19/00
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT 5 GSM CARRIERS AT MAX POWER	



Date: 4.DEC.2000 15:19:56

Notes:	UPLINK
	MARKERS INDICATE TRANSMIT BAND

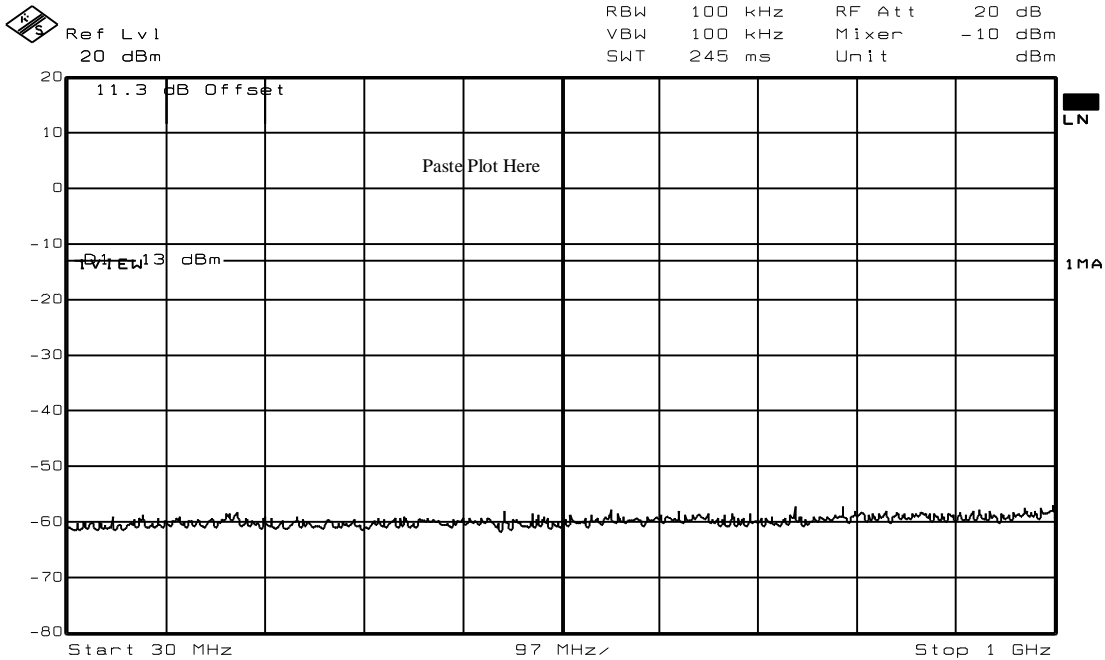
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Antenna Port Spurious Emissions - GSM	
Page 3 of 4	
Job No.: 0L0494R	Date: 12/4/00
Specification: PART 24	Temperature(°C): 1/22/00
Tested By: David Light	Relative Humidity(%) 2/19/00
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT 5 GSM CARRIERS AT MAX POWER	



Date: 4 . DEC . 2000 15 : 15 : 27

Notes:	DOWNLINK

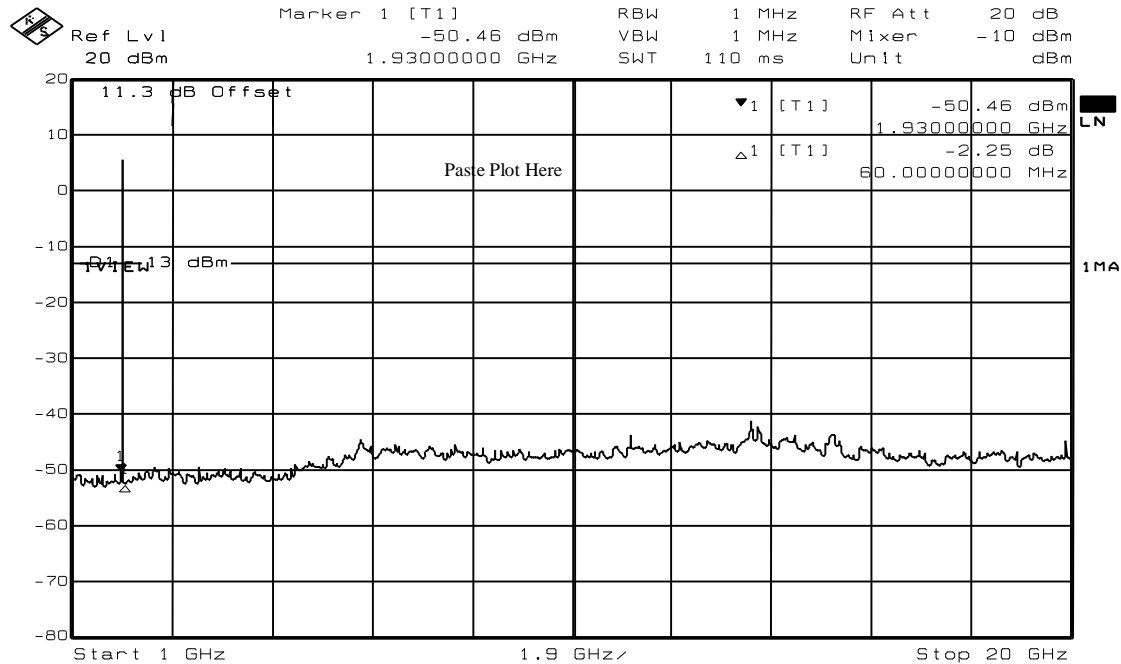
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Antenna Port Spurious Emissions - GSM	
Page 4 of 4	
Job No.:	0L0494R
Specification:	PART 24
Tested By:	David Light
E.U.T.:	PCS REPEATER
Configuration:	TRANSMIT 5 GSM CARRIERS AT MAX POWER
Date:	12/4/00
Temperature(°C):	1/22/00
Relative Humidity(%):	2/19/00



Date: 4.DEC.2000 15:17:10

Notes:	DOWNLINK
	MARKERS INDICATE TRANSMIT BAND

EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - GSM - Inband			
Page 1 of 2			
Job No.: 0L0494R	Date: 12/04/00		
Specification: PART 24	Temperature(°C): 22		
Tested By: David Light	Relative Humidity(%) 50		
E.U.T.: PCS REPEATER			
Configuration: TRANSMIT 5 CARRIERS			
Serial Number: 45			
Location: Lab 1	RBW: 30 kHz		
Detector Type: Peak	VBW: 30 kHz		
Test Equipment Used			
Antenna: #N/A	Directional Coupler: #N/A		
Pre-Amp: #N/A	Cable #1: 1045		
Filter: #N/A	Cable #2: #N/A		
Receiver: 1036	Cable #3: #N/A		
Attenuator #1: 1466	Cable #4: #N/A		
Attenuator #2: #N/A	Mixer: #N/A		
Additional equipment used: _____			
Measurement Uncertainty: #N/A			

	<table style="width: 100%; border: none;"> <tr> <td style="padding: 2px;">Ref Lvl</td> <td style="padding: 2px;">RBW</td> <td style="padding: 2px;">30 kHz</td> <td style="padding: 2px;">RF Att</td> <td style="padding: 2px;">10 dB</td> </tr> <tr> <td style="padding: 2px;">10 dBm</td> <td style="padding: 2px;">VBW</td> <td style="padding: 2px;">30 kHz</td> <td style="padding: 2px;">Mixer</td> <td style="padding: 2px;">-10 dBm</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">SWT</td> <td style="padding: 2px;">170 ms</td> <td style="padding: 2px;">Unit</td> <td style="padding: 2px;">dBm</td> </tr> </table>	Ref Lvl	RBW	30 kHz	RF Att	10 dB	10 dBm	VBW	30 kHz	Mixer	-10 dBm		SWT	170 ms	Unit	dBm	
Ref Lvl	RBW	30 kHz	RF Att	10 dB													
10 dBm	VBW	30 kHz	Mixer	-10 dBm													
	SWT	170 ms	Unit	dBm													
<div style="display: flex; justify-content: space-between;"> 11.3 dB Offset LN </div>																	
<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Start 1.85 GHz</td> <td style="width: 33%;">6 MHz</td> <td style="width: 33%;">Stop 1.91 GHz</td> </tr> </table>				Start 1.85 GHz	6 MHz	Stop 1.91 GHz											
Start 1.85 GHz	6 MHz	Stop 1.91 GHz															
Date: 4.DEC.2000 9:35:42																	
Notes: UPLINK - FIVE CARRIERS																	

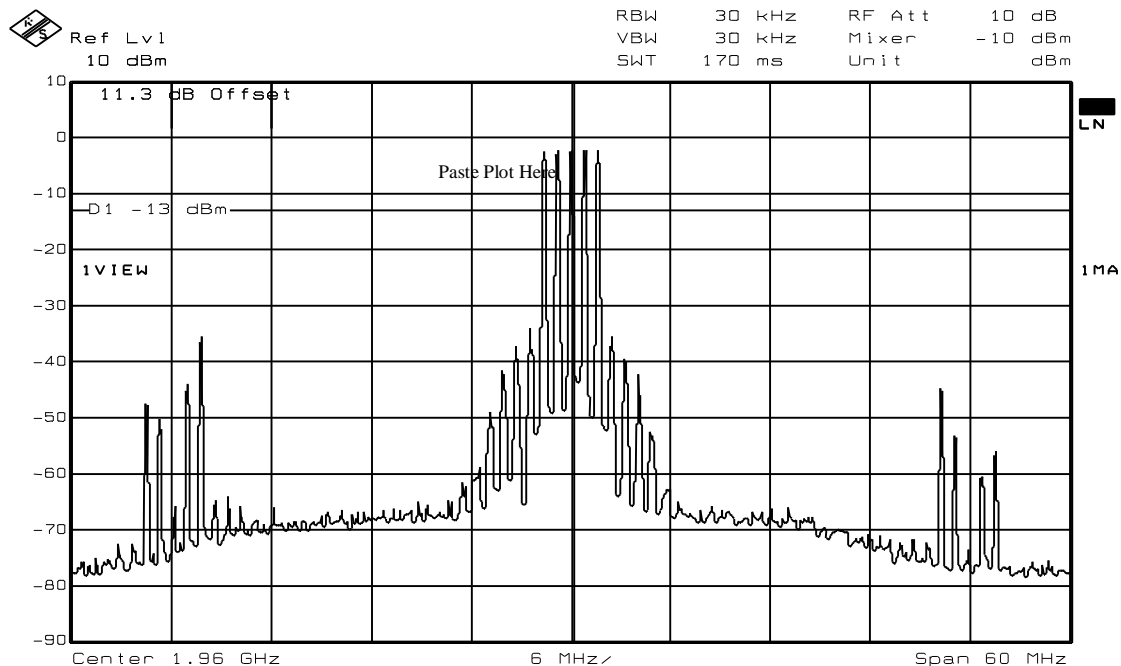
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - GSM - Inband	
Page 2 of 2	
Job No.: 0L0494R	Date: 12/4/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT 5 CARRIERS	



Date: 4.DEC.2000 9:38:53

Notes:	DOWNLINK - 5 CARRIERS

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

<u>Test Plot: Intermodulation Characteristics - GSM - Inband</u>													
Page 1 of 2													
Job No.:	0L0494R												
Specification:	PART 24												
Tested By:	David Light												
E.U.T.:	PCS REPEATER - HIGH GAIN												
Configuration:	TRANSMIT 5 CARRIERS												
Serial Number:	45												
Location:	Lab 1												
Detector Type:	Peak												
Date:	12/04/00												
Temperature(°C):	22												
Relative Humidity(%):	50												
RBW:	30 kHz												
VBW:	30 kHz												
<u>Test Equipment Used</u>													
Antenna:	#N/A												
Pre-Amp:	#N/A												
Filter:	#N/A												
Receiver:	1036												
Attenuator #1:	1466												
Attenuator #2:	#N/A												
Additional equipment used:													
Measurement Uncertainty:	#N/A												
Directional Coupler:	#N/A												
Cable #1:	1045												
Cable #2:	#N/A												
Cable #3:	#N/A												
Cable #4:	#N/A												
Mixer:	#N/A												
<table border="0" style="width: 100%;"> <tr> <td>RBW</td> <td>30 kHz</td> <td>RF Att</td> <td>10 dB</td> </tr> <tr> <td>VBW</td> <td>30 kHz</td> <td>Mixer</td> <td>-10 dBm</td> </tr> <tr> <td>SWT</td> <td>170 ms</td> <td>Unit</td> <td>dBm</td> </tr> </table>		RBW	30 kHz	RF Att	10 dB	VBW	30 kHz	Mixer	-10 dBm	SWT	170 ms	Unit	dBm
RBW	30 kHz	RF Att	10 dB										
VBW	30 kHz	Mixer	-10 dBm										
SWT	170 ms	Unit	dBm										
<table border="0" style="width: 100%;"> <tr> <td>Ref Lvl</td> <td>10 dBm</td> </tr> <tr> <td>11.3 dB Offset</td> <td></td> </tr> <tr> <td>D1 -13 dBm</td> <td></td> </tr> </table>		Ref Lvl	10 dBm	11.3 dB Offset		D1 -13 dBm							
Ref Lvl	10 dBm												
11.3 dB Offset													
D1 -13 dBm													
<p>Center 1.88 GHz 6 MHz/ Span 60 MHz</p>													
Date: 5.DEC.2000 16:06:22													
Notes: <u>UPLINK - FIVE CARRIERS</u>													

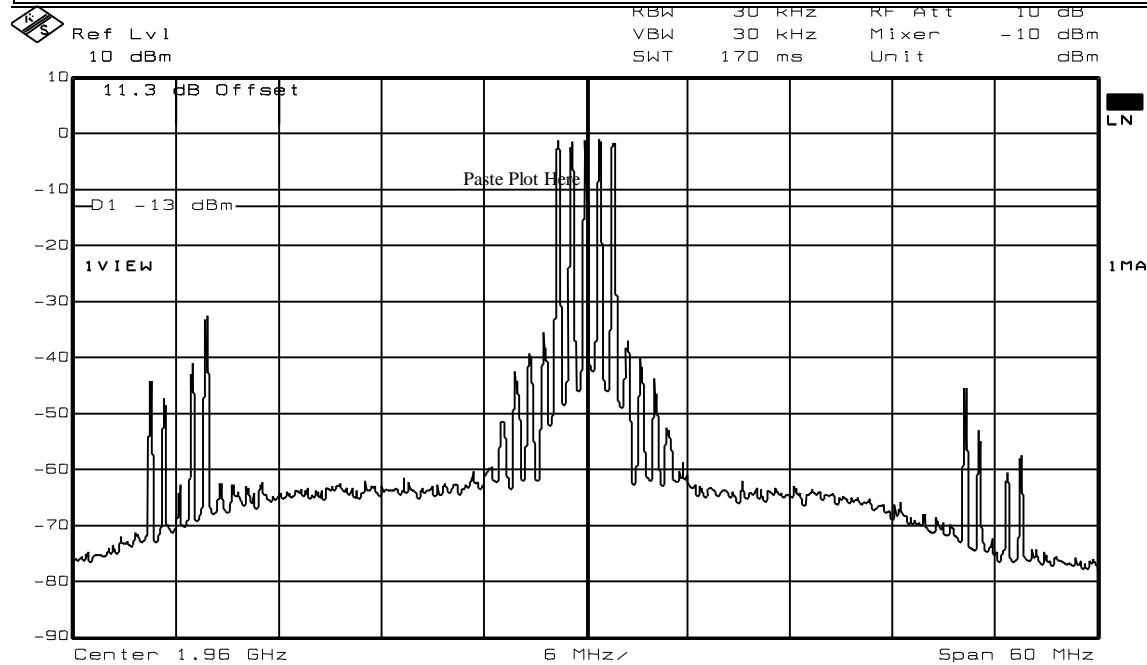
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - GSM - Inband	
Page 2 of 2	
Job No.: 0L0494R	Date: 12/4/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER - HIGH GAIN	
Configuration: TRANSMIT 5 CARRIERS	



Date: 5.DEC.2000 16:07:46

Notes:	DOWNLINK - 5 CARRIERS

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - GSM - Out of Band

Page 1 of 2

Job No.: 0L0494R Date: 12/06/00
 Specification: PART 24 Temperature(°C): 22
 Tested By: David Light Relative Humidity(%) 50
 E.U.T.: PCS REPEATER
 Configuration: TRANSMIT 5 CARRIERS
 Serial Number: 45
 Location: Lab 1 RBW: 30 kHz
 Detector Type: Peak VBW: 30 kHz

Test Equipment Used

Antenna: #N/A Directional Coupler: #N/A
 Pre-Amp: #N/A Cable #1: 1045
 Filter: #N/A Cable #2: #N/A
 Receiver: 1036 Cable #3: #N/A
 Attenuator #1: 1466 Cable #4: #N/A
 Attenuator #2: #N/A Mixer: #N/A
 Additional equipment used:
 Measurement
 Uncertainty: #N/A

Ref Lvl	10 dBm	RBW	30 kHz	RF Att	10 dB
		VBW	30 kHz	Mixer	-10 dBm
		SWT	56 ms	Unit	dBm

Center 1.91 GHz 2 MHz Span 20 MHz

Date: 6.DEC.2000 11:16:38

Notes: UPLINK - FIVE CARRIERS

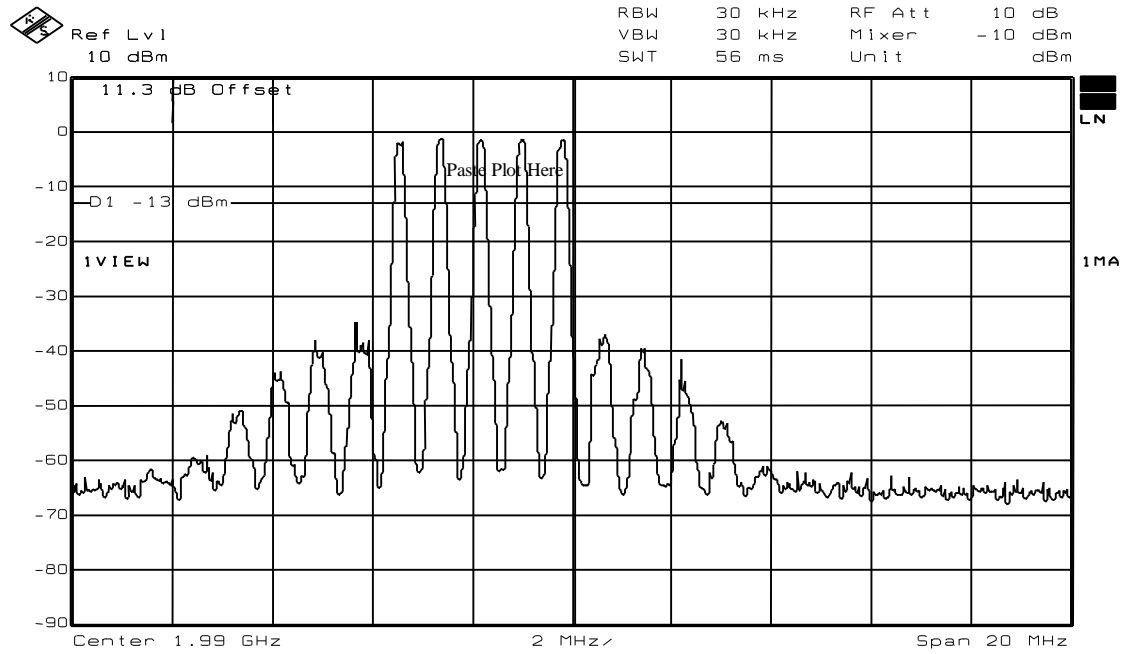
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - GSM - Out of Band	
Page 2 of 2	
Job No.: 0L0494R	Date: 12/6/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT 5 CARRIERS	



Date: 6.DEC.2000 11:13:43

Notes:	DOWNLINK - 5 CARRIERS

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: BAND EDGES - GSM			
Page 1 of 4			
Job No.:	0L0494R	Date:	1206/00
Specification:	PART 24	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%):	50
E.U.T.:	PCS REPEATER		
Configuration:	TRANSMIT GSM FULL POWER		
Serial Number:	2		
Location:	Lab 1	RBW:	30 kHz
Detector Type:	Peak	VBW:	30 kHz
Test Equipment Used			
Antenna:	#N/A	Directional Coupler:	#N/A
Pre-Amp:	#N/A	Cable #1:	1045
Filter:	#N/A	Cable #2:	#N/A
Receiver:	1036	Cable #3:	#N/A
Attenuator #1:	1466	Cable #4:	#N/A
Attenuator #2:	#N/A	Mixer:	#N/A
Additional equipment used:			
Measurement Uncertainty:	#N/A		

	Ref Lvl 20 dBm	RBW 30 kHz VBW 30 kHz SWT 5 ms	RF Att 20 dB Mixer -10 dBm Unit dBm
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Center 1.93 GHz 100 kHz/ Span 1 MHz

Date: 6.DEC.2000 10:13:16

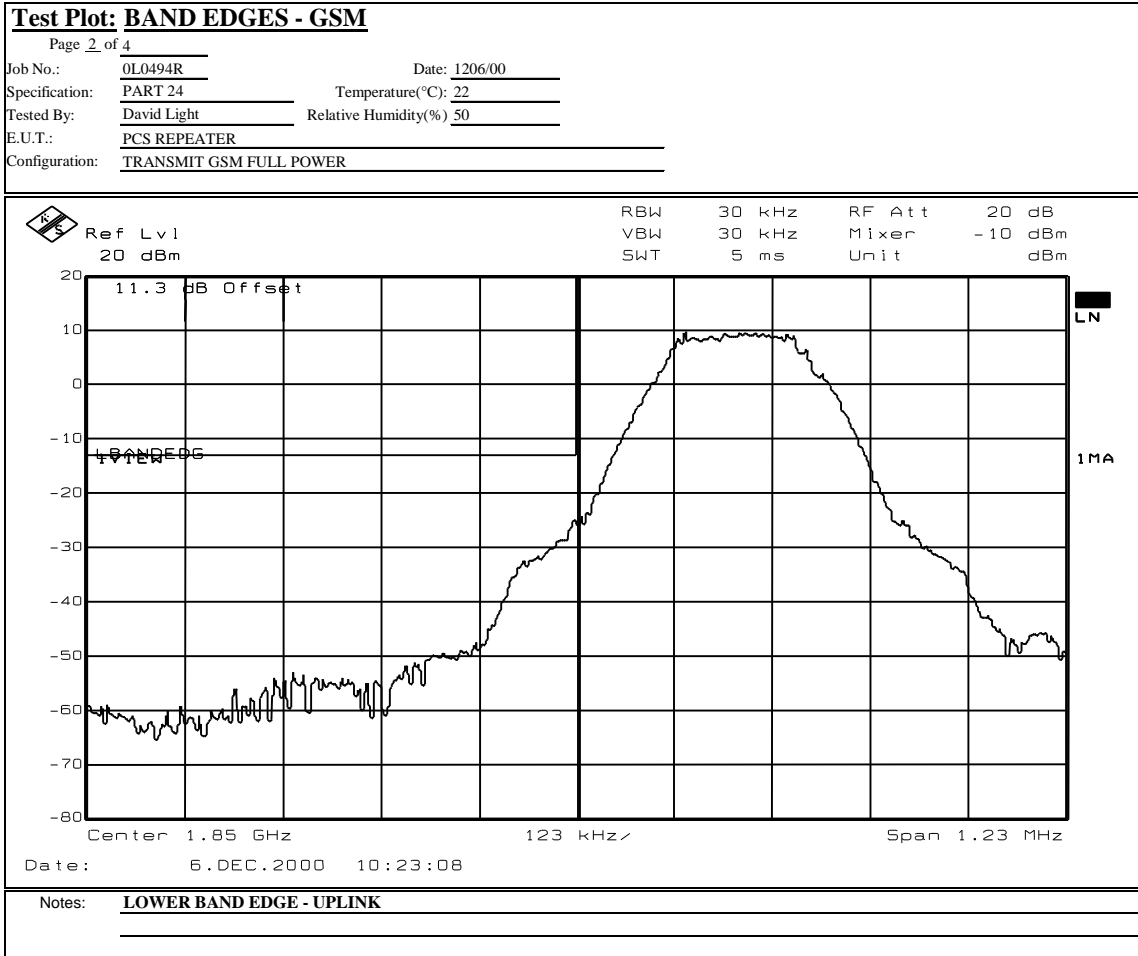
Notes: LOWER BAND EDGE - DOWNLINK

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

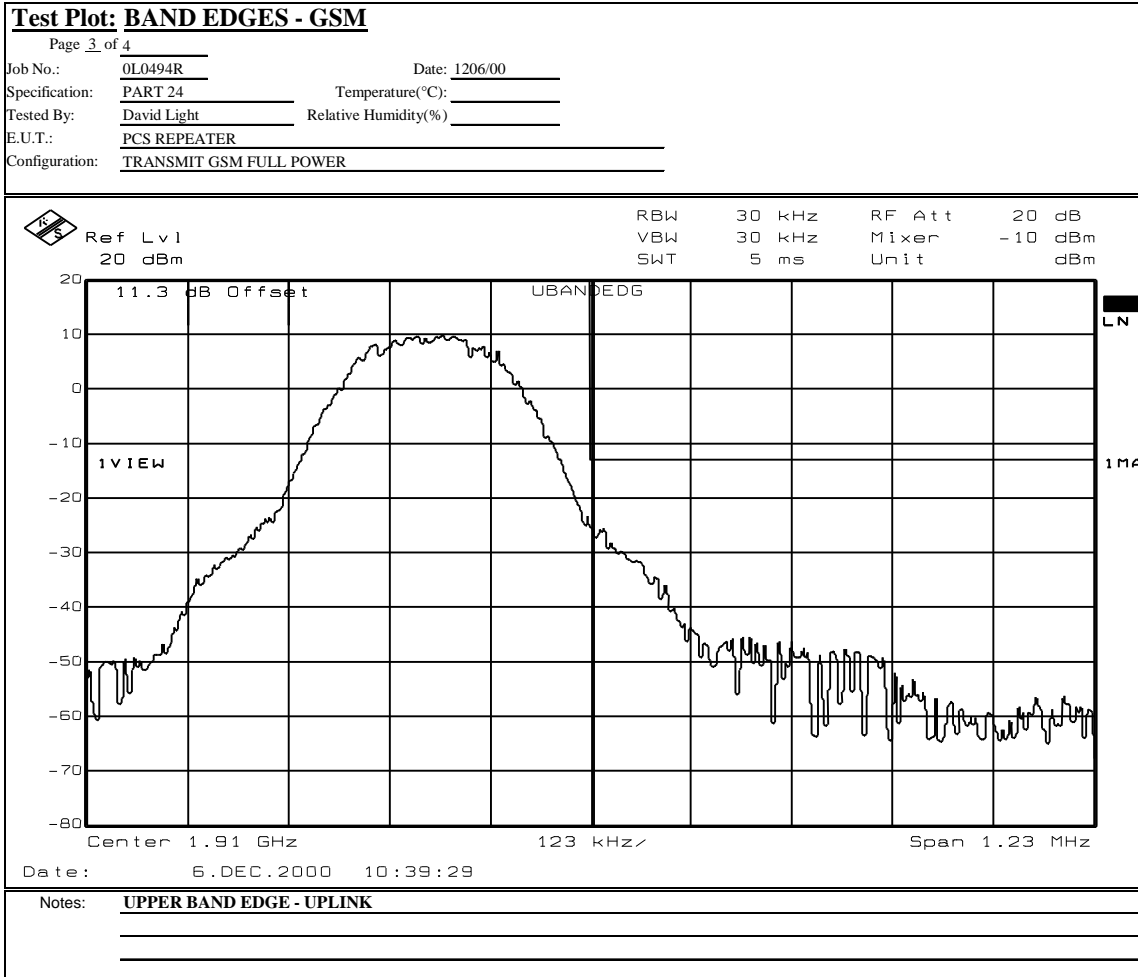


EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

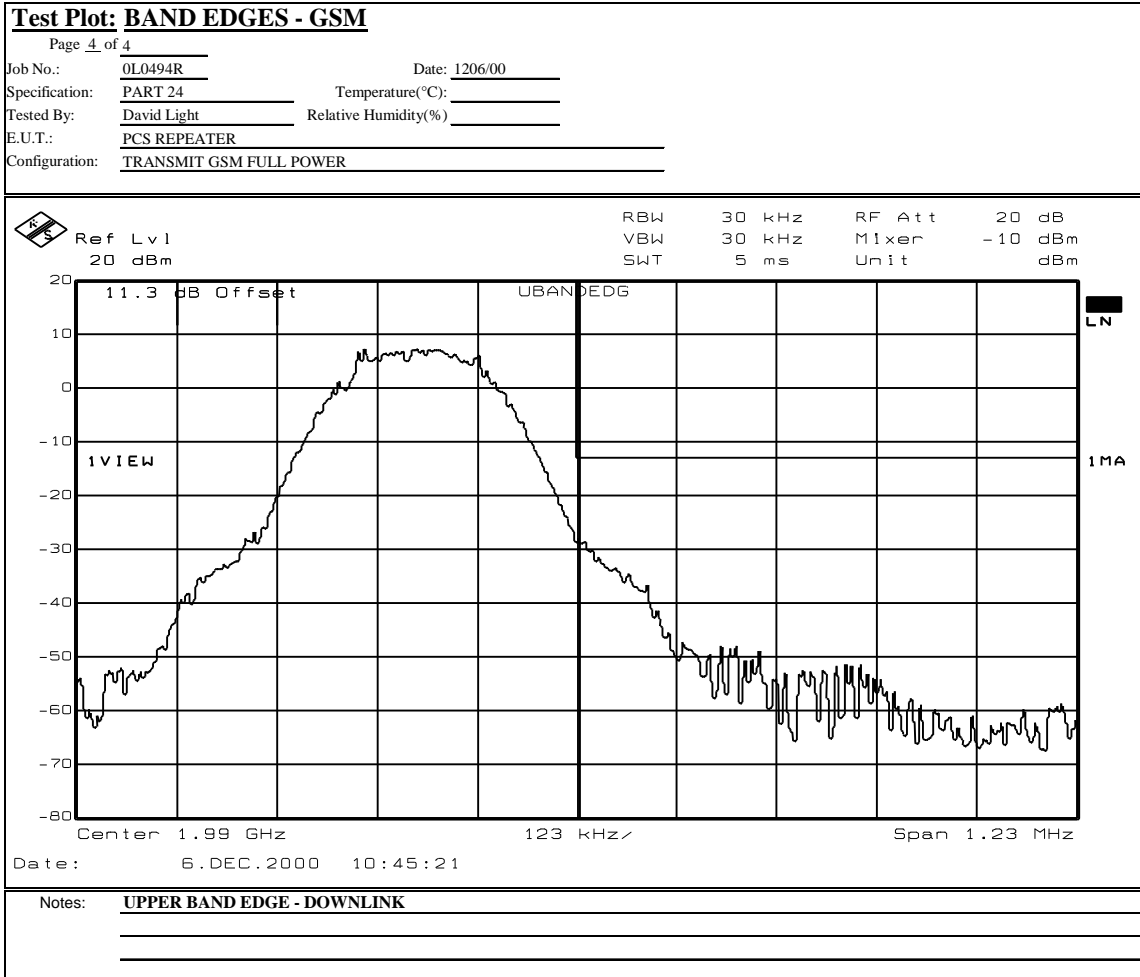


EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Test Data - Spurious Emissions at Antenna Terminals



EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Antenna Port Spurious Emissions - TDMA

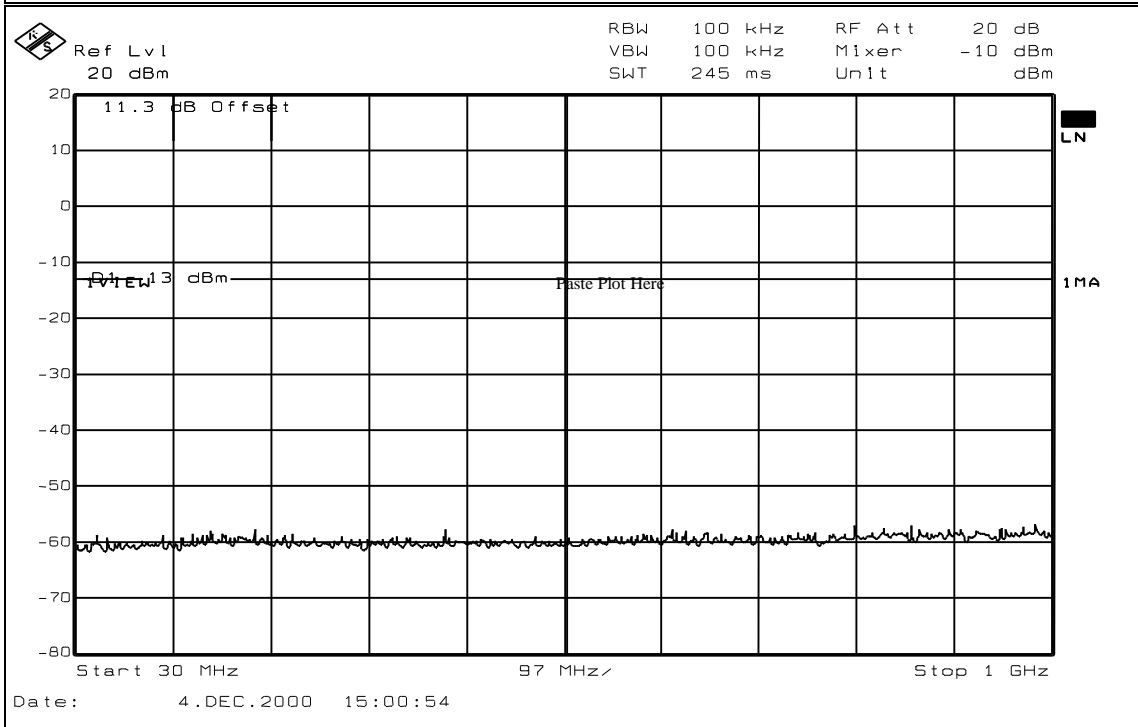
Page 1 of 4

Job No.: 0L0494R Date: 12/04/00
 Specification: PART 24 Temperature(°C): 22
 Tested By: David Light Relative Humidity(%) 50
 E.U.T.: PCS REPEATER
 Configuration: TRANSMIT 2 TDMA CARRIERS AT MAX POWER
 Serial Number: 45
 Location: Lab 1 RBW: 100 kHz < 1 GHz, 1 MHz > 1 GHz
 Detector Type: Peak VBW: 100 kHz < 1 GHz, 1 MHz > 1 GHz

Test Equipment Used

Antenna: #N/A Directional Coupler: #N/A
 Pre-Amp: #N/A Cable #1: 1045
 Filter: #N/A Cable #2: #N/A
 Receiver: 1036 Cable #3: #N/A
 Attenuator #1: 1466 Cable #4: #N/A
 Attenuator #2: #N/A Mixer: #N/A

Additional equipment used: _____
 Measurement uncertainty: #N/A



Date: 4 . DEC . 2000 15:00:54

Notes: _____ UPLINK

EQUIPMENT: PCS Side-to-Side Repeater

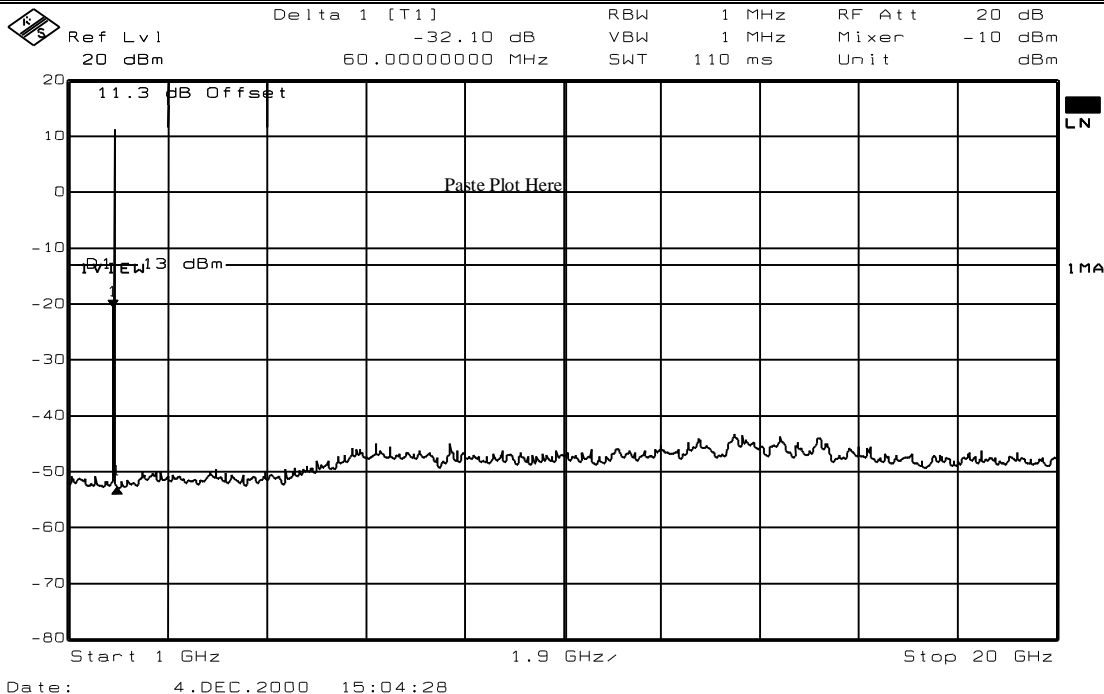
FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Antenna Port Spurious Emissions - TDMA

Page 2 of 4
Job No.: 0L0494R Date: 12/4/00
Specification: PART 24 Temperature(°C): 1/22/00
Tested By: David Light Relative Humidity(%) 2/19/00
E.U.T.: PCS REPEATER
Configuration: TRANSMIT 2 TDMA CARRIERS AT MAX POWER



Notes: UPLINK
MARKERS INDICATE TRANSMIT BAND

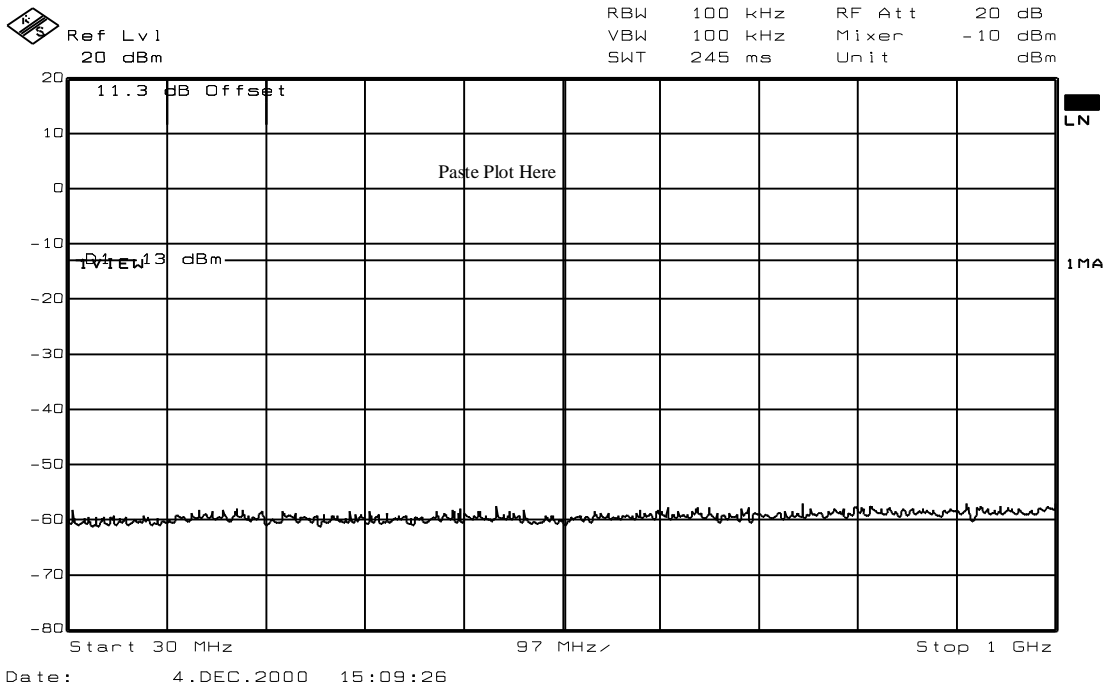
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Antenna Port Spurious Emissions - TDMA	
Page 3 of 4	
Job No.: 0L0494R	Date: 12/4/00
Specification: PART 24	Temperature(°C): 1/22/00
Tested By: David Light	Relative Humidity(%) 2/19/00
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT 2 TDMA CARRIERS AT MAX POWER	



Notes:	DOWNLINK

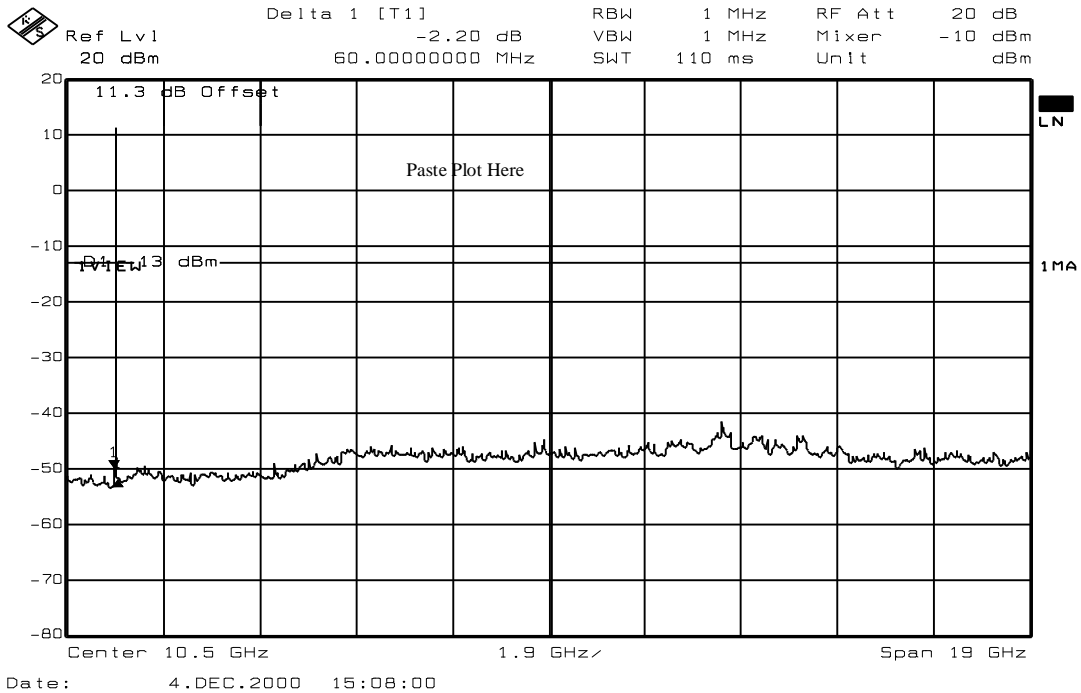
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Antenna Port Spurious Emissions - TDMA	
Page 4 of 4	
Job No.:	0L0494R
Specification:	PART 24
Tested By:	David Light
E.U.T.:	PCS REPEATER
Configuration:	TRANSMIT 2 TDMA CARRIERS AT MAX POWER
Date:	12/4/00
Temperature(°C):	1/22/00
Relative Humidity(%)	2/19/00



Notes:	DOWNLINK
	MARKERS INDICATE TRANSMIT BAND

EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - TDMA - Inband


Page 1 of 2

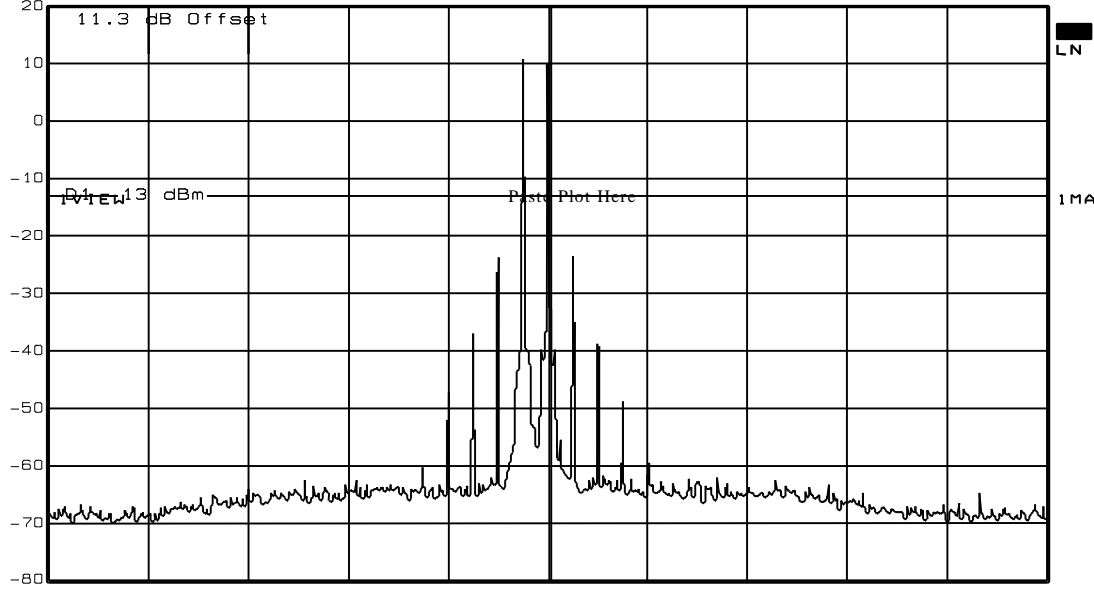
Job No.: 0L0494R Date: 12/04/00
 Specification: PART 24 Temperature(°C): 22
 Tested By: David Light Relative Humidity(%) 50
 E.U.T.: PCS REPEATER
 Configuration: TRANSMIT 2 CARRIERS
 Serial Number: 45
 Location: Lab 1 RBW: 30 kHz
 Detector Type: Peak VBW: 30 kHz

Test Equipment Used

Antenna: #N/A Directional Coupler: #N/A
 Pre-Amp: #N/A Cable #1: 1045
 Filter: #N/A Cable #2: #N/A
 Receiver: 1036 Cable #3: #N/A
 Attenuator #1: 1466 Cable #4: #N/A
 Attenuator #2: #N/A Mixer: #N/A

Additional equipment used: _____
 Measurement uncertainty: #N/A

	Ref Lvl 20 dBm	RBW 30 kHz	RF Att 20 dB
		VBW 30 kHz	Mixer -10 dBm
		SWT 170 ms	Unit dBm



Center 1.88 GHz 6 MHz Span 60 MHz

Date: 4 .DEC. 2000 14:46:13

Notes: UPLINK - 2 CARRIERS

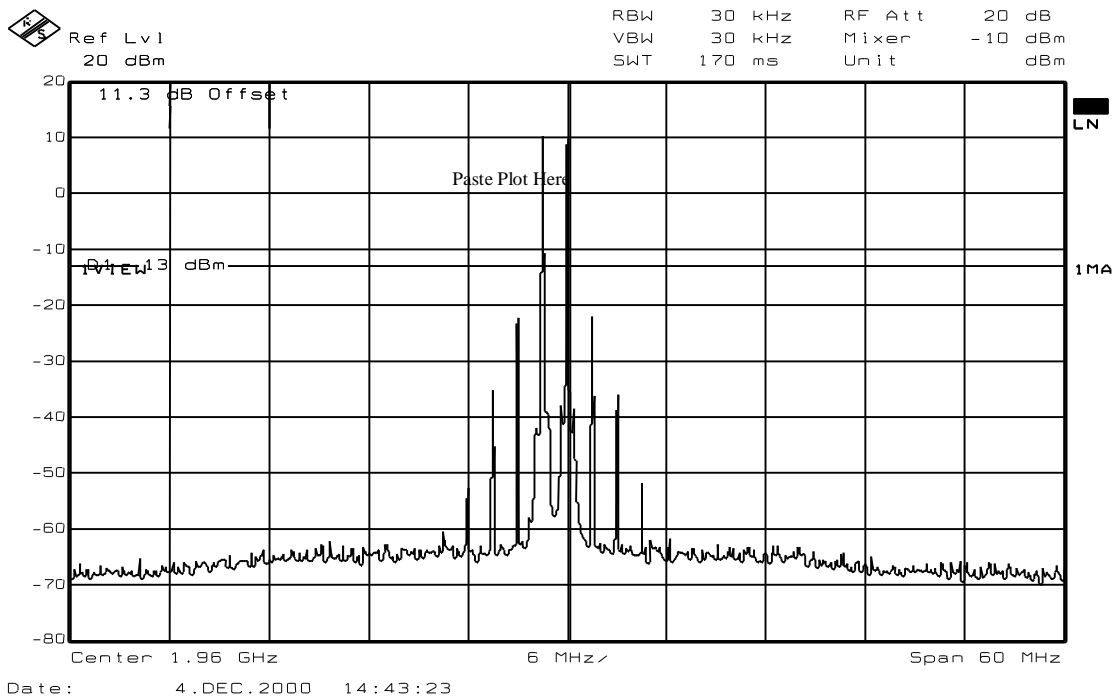
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - TDMA - Inband	
Page 2 of 2	
Job No.: 0L0494R	Date: 12/4/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER	
Configuration: TRANSMIT 2 CARRIERS	



Notes:	DOWNLINK - 2 CARRIERS

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - TDMA - Inband			
Page 1 of 2			
Job No.: 0L0494R	Date: 12/04/00		
Specification: PART 24	Temperature(°C): 22		
Tested By: David Light	Relative Humidity(%) 50		
E.U.T.: PCS REPEATER - HIGH GAIN			
Configuration: TRANSMIT 2 CARRIERS			
Serial Number: 45			
Location: Lab 1	RBW: 30 kHz		
Detector Type: Peak	VBW: 30 kHz		
Test Equipment Used			
Antenna: #N/A	Directional Coupler: #N/A		
Pre-Amp: #N/A	Cable #1: 1045		
Filter: #N/A	Cable #2: #N/A		
Receiver: 1036	Cable #3: #N/A		
Attenuator #1: 1466	Cable #4: #N/A		
Attenuator #2: #N/A	Mixer: #N/A		
Additional equipment used:			
Measurement Uncertainty: #N/A			
Notes: _____			
UPLINK - 2 CARRIERS			

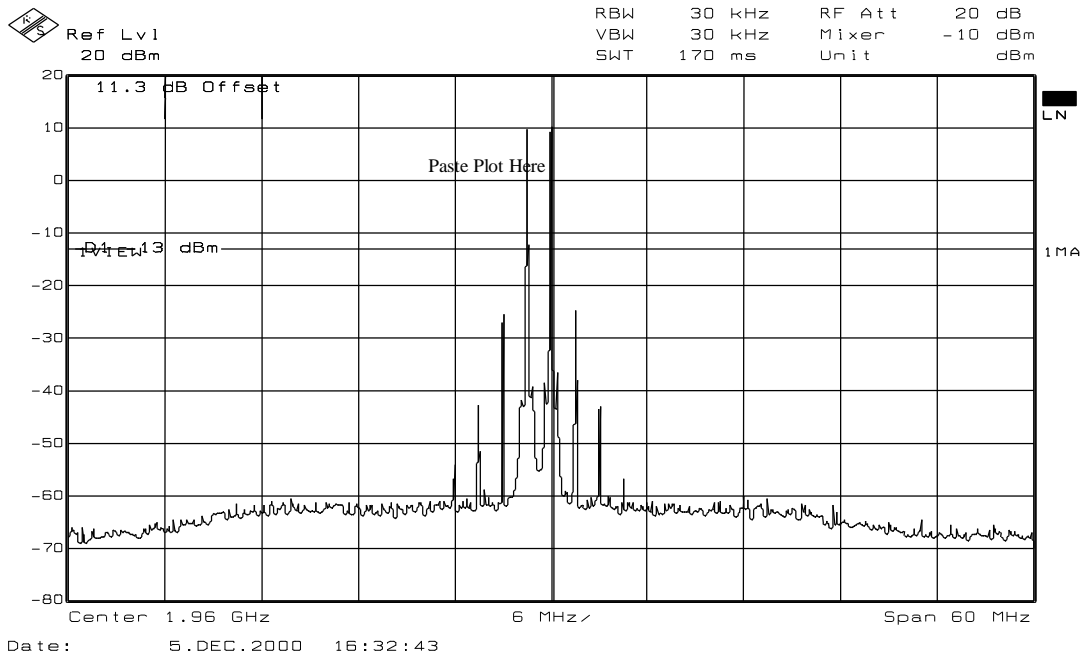
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - TDMA - Inband	
Page 2 of 2	
Job No.: 0L0494R	Date: 12/4/00
Specification: PART 24	Temperature(°C): 22
Tested By: David Light	Relative Humidity(%) 50
E.U.T.: PCS REPEATER - HIGH GAIN	
Configuration: TRANSMIT 2 CARRIERS	



Notes:	DOWNLINK - 2 CARRIERS

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - TDMA - Out of Band

Page 1 of 2

Job No.:	0L0494R	Date:	12/06/00
Specification:	PART 24	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%):	50
E.U.T.:	PCS REPEATER		
Configuration:	TRANSMIT 2 CARRIERS		
Serial Number:	45		
Location:	Lab 1	RBW:	30 kHz
Detector Type:	Peak	VBW:	30 kHz

Test Equipment Used

Antenna:	#N/A	Directional Coupler:	#N/A
Pre-Amp:	#N/A	Cable #1:	1045
Filter:	#N/A	Cable #2:	#N/A
Receiver:	1036	Cable #3:	#N/A
Attenuator #1:	1466	Cable #4:	#N/A
Attenuator #2:	#N/A	Mixer:	#N/A
Additional equipment used:			
Measurement Uncertainty:	#N/A		

	Ref Lvl	RBW	30 kHz	RF Att	20 dB
	20 dBm	VBW	30 kHz	Mixer	-10 dBm
		SWT	56 ms	Unit	dBm

Center 1.91 GHz 1.968 MHz Span 19.68 MHz

Date: 6.DEC.2000 14:07:21

Notes: _____ UPLINK - 2 CARRIERS

Notes: _____

Notes: _____

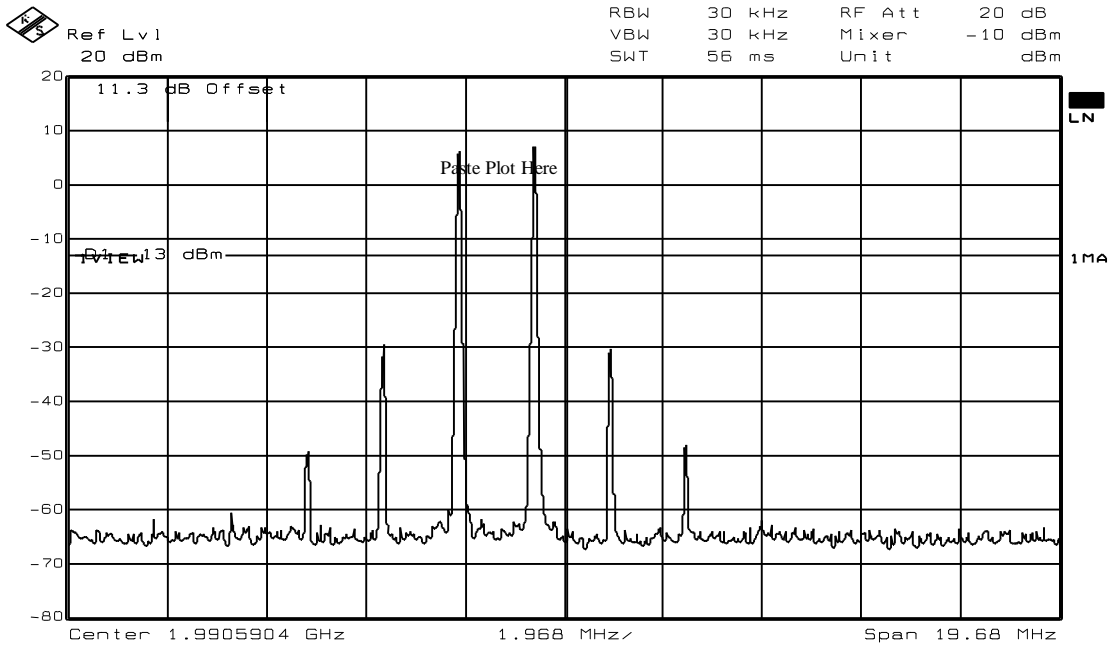
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Test Data - Spurious Emissions at Antenna Terminals

Test Plot: Intermodulation Characteristics - TDMA - Out of Band			
Page 2 of 2			
Job No.:	0L0494R	Date:	12/6/00
Specification:	PART 24	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%)	50
E.U.T.:	PCS REPEATER		
Configuration:	TRANSMIT 2 CARRIERS		



Date: 6 . DEC . 2000 14:05:42

Notes:	DOWNLINK - 2 CARRIERS

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Section 6. Field Strength of Spurious

NAME OF TEST: Field Strength of Spurious Emissions	PARA. NO.: 2.1051
TESTED BY: Kevin Rose	DATE: 12/5/00

Test Results: Complies.

Test Data: See attached table.

Measurement Uncertainty: +/- 3.6 dB

Temperature: 21 °C

Relative Humidity: 45 %

EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Test Data – Field Strength of Spurious

Field Strength of Spurious Emissions										
Page <u>1</u> of <u>1</u>								Complete <u>X</u>		
Job No.:	<u>0L0494R</u>	Date:	<u>12/5/00</u>			Preliminary				
Specification:	<u>Part 22</u>	Temperature(°C):	<u>21</u>							
Tested By:	<u>David Light</u>	Relative Humidity(%):	<u>45</u>							
E.U.T.:	<u>PCSSSR Repeater</u>									
Configuration:	<u>Transmitting 1.960/1.880 GHz</u>									
Sample Number:	<u>1</u>									
Location:	<u>Lab 3</u>	RBW:	<u>1 MHz</u>			Measurement Distance	<u>3 m</u>			
Detector Type:	<u>Average</u>	VBW:	<u>1 MHz</u>							
Test Equipment Used										
Antenna:	<u>993</u>	Directional Coupler:	<u>#N/A</u>							
Pre-Amp:	<u>#N/A</u>	Cable #1:	<u>1484</u>							
Filter:	<u>#N/A</u>	Cable #2:	<u>1485</u>							
Receiver:	<u>1464</u>	Cable #3:	<u>#N/A</u>							
Attenuator #1:	<u>#N/A</u>	Cable #4:	<u>#N/A</u>							
Attenuator #2:	<u>#N/A</u>	Mixer:	<u>#N/A</u>							
Additional equipment used:	<u></u>									
Measurement Uncertainty:	<u>+/-2.3 dB</u>									
Frequency (MHz)	Meter Reading (dBm)	Correction Factor (dB)		Pre-Amp Gain (dB)	Substitution Antenna Gain (dBd)		ERP (dBm)	ERP (mW)	Polarity	Comments
1880	-23.8	33.0			6.7		15.9	38.90	V	
1880	-23.3	35.7			6.7		19.1	81.28	H	
3760	-72.5	34.8			7.5		-30.2	0.000955	H	
5640	-74.8	36.1			9.3		-29.4	0.001148	H	
3760	-72.8	41.7			7.5		-23.6	0.004365	V	
5640	-75.0	40.4			9.3		-25.3	0.002951	V	
1960	-23.6	36.4			6.8		19.6	91.20	H	
3920	-71.5	35.1			7.9		-28.5	0.001413	H	
5880	-71.5	36.5			9.4		-25.6	0.002754	H	
7840	-71.2	41.4			9.7		-20.1	0.009772	H	
9800	-72.8	42.6			10.5		-19.7	0.010715	H	
1960	-23.1	33.7			6.8		17.4	54.95	V	
3920	-72.8	42.7			7.9		-22.2	0.006026	V	
5880	-73.2	38.0			9.4		-25.8	0.002630	V	
7840	-73.0	41.5			9.7		-21.8	0.006607	V	
9800	-72.8	40.9			10.5		-21.4	0.007244	V	
Notes: _____										

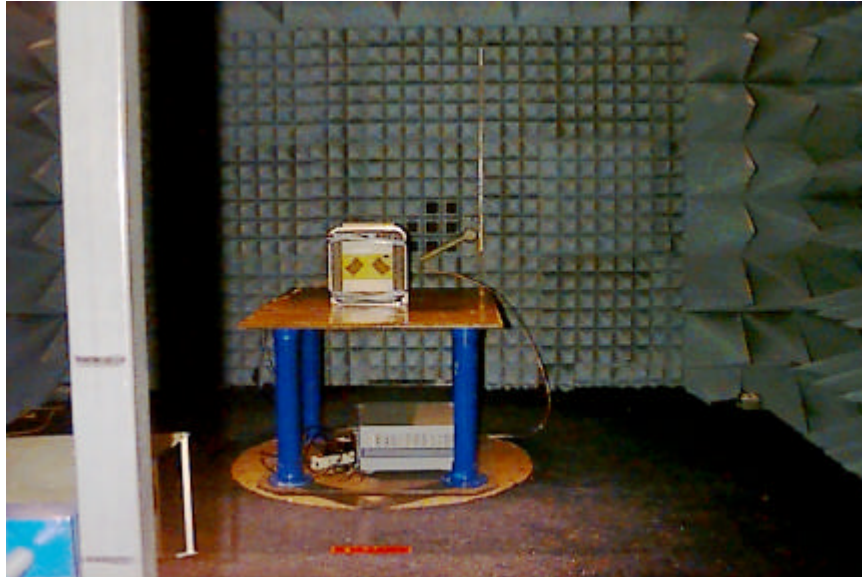
EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

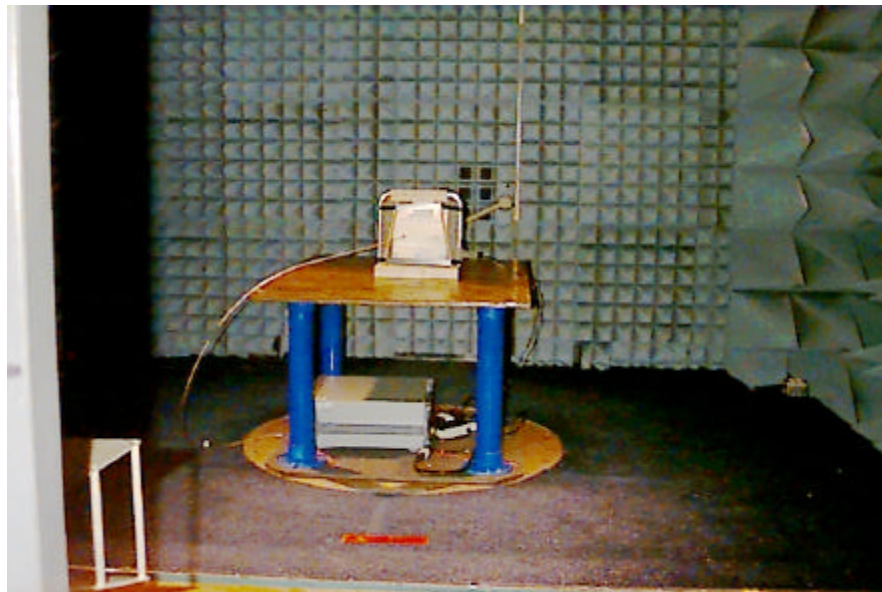
PROJECT NO.: **0L0494RUS1**

Photographs of Test Setup

FRONT VIEW



REAR VIEW



EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Section 7. Frequency Stability

NAME OF TEST: Frequency Stability	PARA. NO.: 2.1055
TESTED BY:	DATE:

Test Results: Complies.

Measurement Data: See attached file.

Not Applicable

Standard Test Frequency: MHz

Standard Test Voltage:

Equipment Used:

Measurement Uncertainty: +/- 1.6 dB

Lab Temperature: °C

Relative Humidity: %

EQUIPMENT: PCS Side-to-Side Repeater

FCC ID: KUWPCSSSR1900

PROJECT NO.: 0L0494RUS1

Section 8. Test Equipment List

KTL ID	Description	Manufacturer Model Number	Serial Number	Calibration Date
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006	06/14/99 2 YR CYCLE
1045	CABLE 2m	Astrolab 32027-2-29094-72TC	N/A	05/23/00
1466	10 db Attenuator DC 8.0 Ghz	Midwest Microwave 292/10db	NONE	CBU
993	Horn antenna	A.H. Systems SAS-200/571	XXX	07/16/99 2 YR CYCLE
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	11/03/99 2 YR CYCLE
1484	Cable 2.0-18.0 Ghz	Storm PR90-010-072	N/A	05/25/00
1485	Cable 2.0-18.0 Ghz	Storm PR90-010-216	N/A	05/25/00
1052	I/Q MODULATION GENERATOR	Rhode & Schwarz AMIQ	DE30619	09/25/00
1053	SIGNAL GENERATOR	ROHDE & SCHWARZ SMIQ 03	DE22081	CNR
1083	Cable 2m	Astrolab 32027-2-29094-72TC	N/A	05/23/00

KTL Dallas

FCC PART 24, SUBPART E
BROADBAND PCS REPEATERS

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

ANNEX A - TEST DETAILS

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

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

If the antenna is not detachable from the circuit then the Peak Power Output is derived from the peak radiated field strength of the fundamental emission by using the plane wave relation $GP/4\pi R^2 = E^2/120\pi$ and proceeding as follows:

$$P = \frac{E^2 R^2}{30G} = \frac{E^2 3^2}{30G}$$

where,

P = the equivalent isotropic radiated power in watts

E = the maximum measured field strength in V/m

R = the measurement range (3 meters)

G = the numeric gain of the transmit antenna in relation to an isotropic radiator

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.1047
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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: \geq RBW

Span: 5 MHz

Sweep: Auto

Mask: Set markers to -26 dB from peak of CW.

GSM

RBW: 3 kHz

VBW: \geq RBW

Span: 2 MHz

Sweep: Auto

Mask: Set markers to -26 dB from peak of CW.

NADC

RBW: 1 kHz

VBW: \geq RBW

Span: 1 MHz

Sweep: Auto

Mask: Set markers to -26 dB from peak of CW.

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

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:

CDMA

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

GSM

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.

KTL Dallas

FCC PART 24, SUBPART E
BROADBAND PCS REPEATERS

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

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.

The maximum received level is measured using a horn antenna. A substitution horn antenna is fed with a substitution signal to transmit at the measured spurious frequency. The gain of the substitution antenna with reference to a dipole is known.

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

NAME OF TEST: Frequency Stability	PARA. NO.: 2.1055
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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.

KTL Dallas

FCC PART 24, SUBPART E
BROADBAND PCS REPEATERS

EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

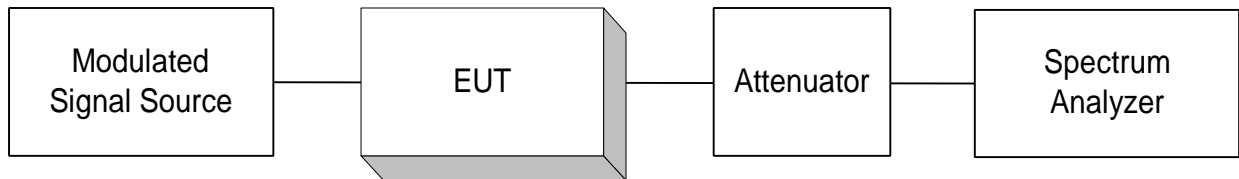
ANNEX B - TEST DIAGRAMS

EQUIPMENT: **PCS Side-to-Side Repeater**

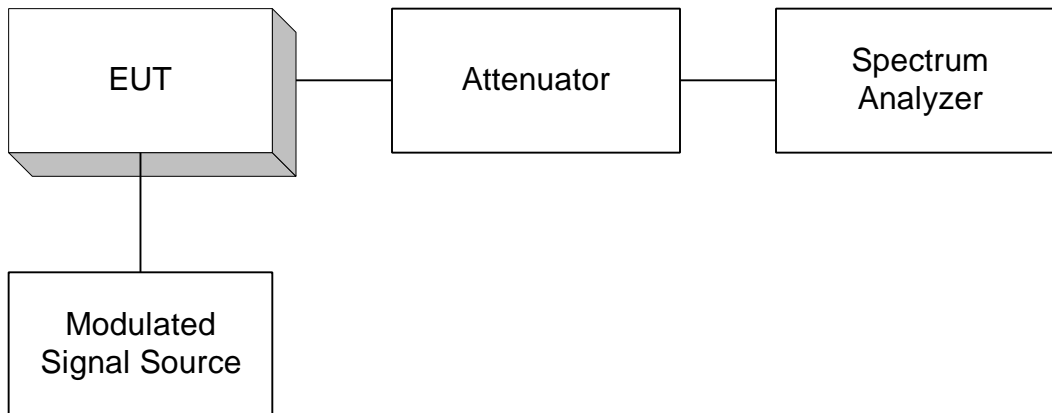
FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

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



Para. No. 2.989 - Occupied Bandwidth

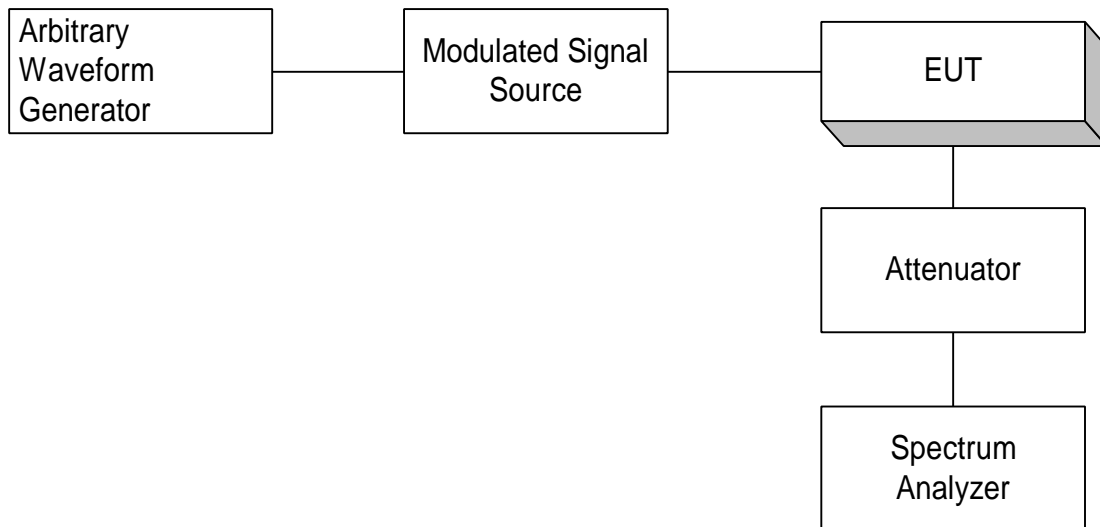
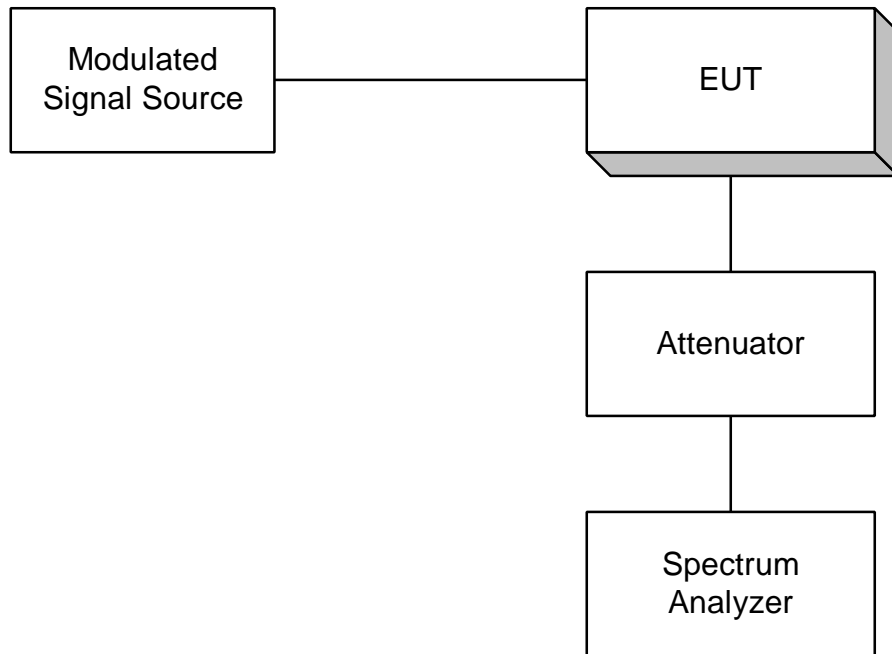


EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Para. No. 2.991 Spurious Emissions at Antenna Terminals

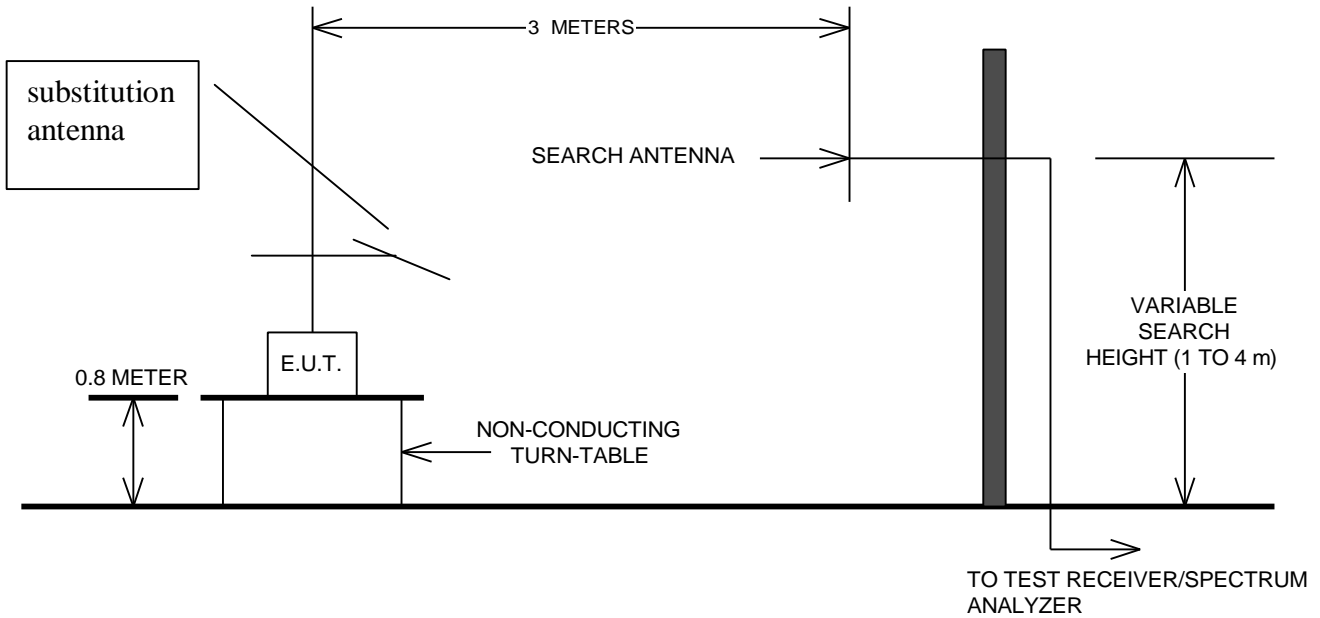


EQUIPMENT: **PCS Side-to-Side Repeater**

FCC ID: **KUWPCSSSR1900**

PROJECT NO.: **0L0494RUS1**

Para. No. 2.993 - Field Strength of Spurious Radiation



Para. No. 2.995 - Frequency Stability

