

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:	RF Power Output		
Customer:	Cellular Specialties, Inc.	Job No:	R-4067N
Test Sample:	Bidirectional Amplifier		
Model No:	565SMR	Serial No:	SMR2
Test Specification:	FCC Part 2 Paragraph: 2.1046		
Operating Mode:	Amplifying input signal		
Technician:	T. Firkowski	Date:	12/6/02
Notes:	Uplink Frequency: 813.5 MHz Downlink Frequency: 858.5 MHz		

Test Frequency	Power In @ 1 dB compression	Power Output	Gain						
MHz	dBm	dBm	dB						
(Uplink)									
813.5000	-29.33	33.74	63.07						
(Downlink)									
858.5000	-30.33	32.74	63.07						

12:32:33 DEC 06, 2002

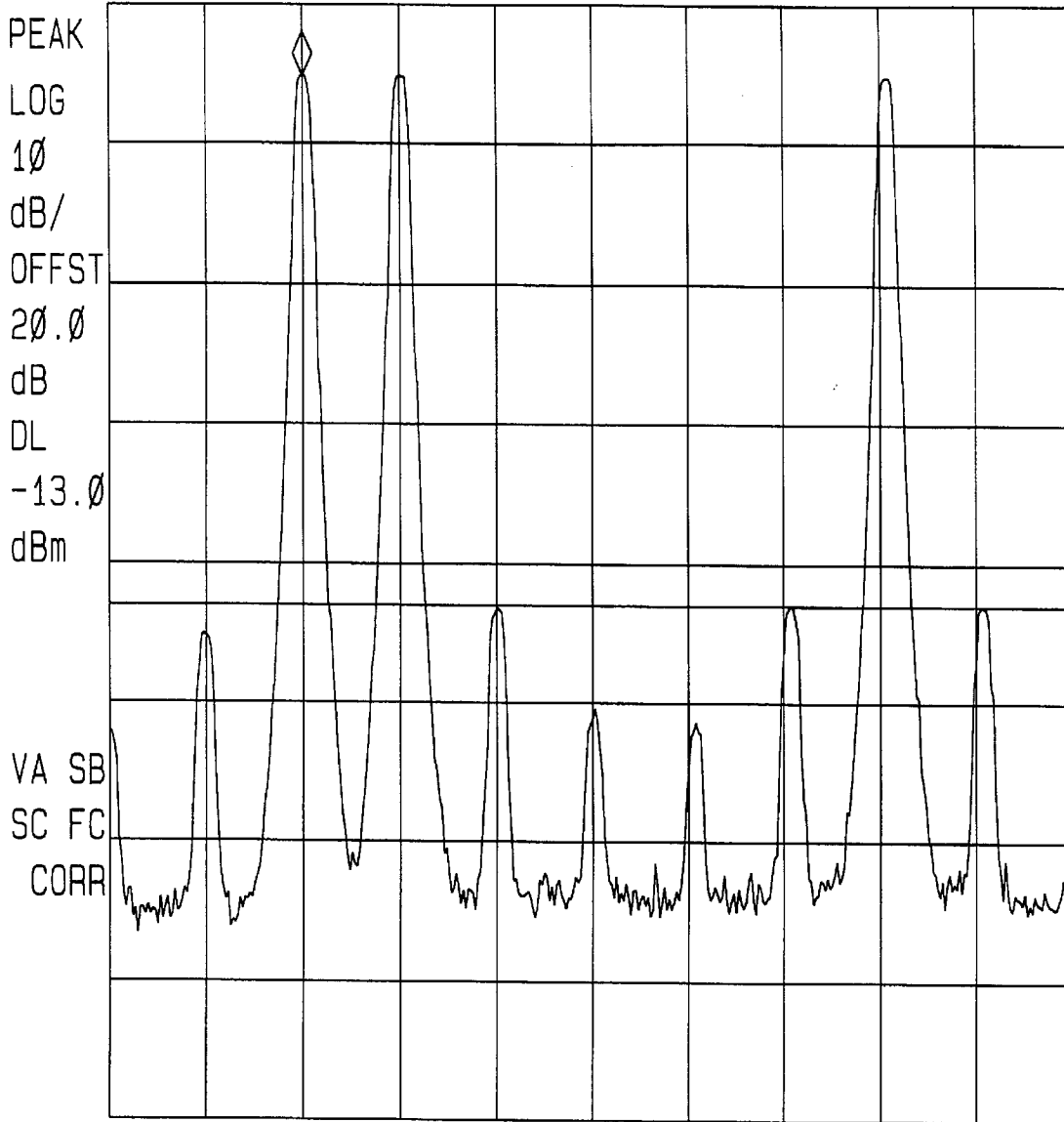
hp

MKR 809.00 MHz

REF 30.0 dBm

AT 20 dB

24.84 dBm



START 806.00 MHz

STOP 821.00 MHz

#RES BW 100 KHz

VBW 300 KHz

SWP 20.0 msec

Customer:	Cellular Specialties, Inc.
Test Sample:	Bidirectional Amplifier
Model No:	565SMR
Test Method:	Intermodulation Characteristics, FCC Part 2, para 2.1047
Notes:	Uplink Frequency Range: 806-821 MHz
Date:	12/6/02
Tech:	T. Firkowski
Sheet:	1 of 6



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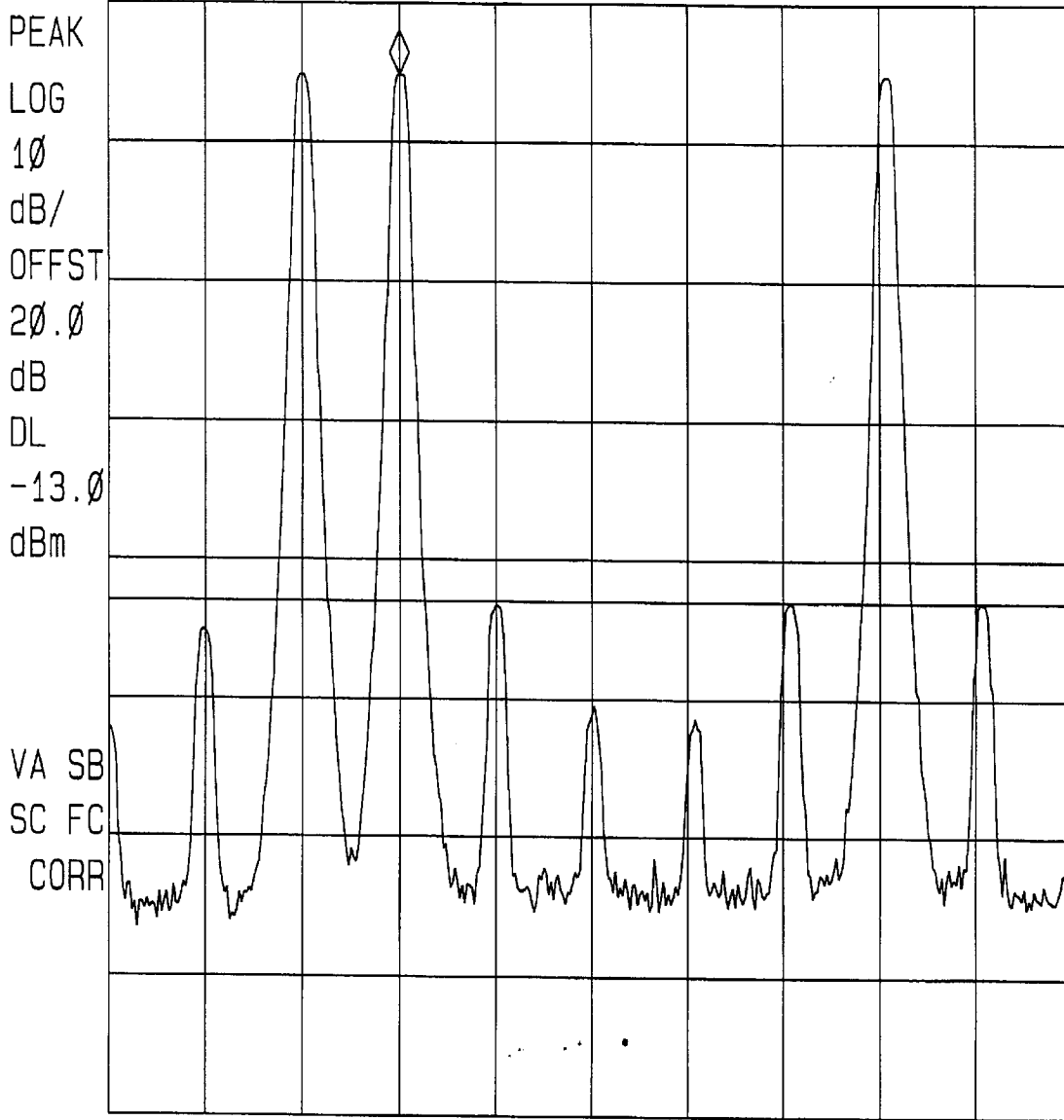
12: 32: 33 DEC 06, 2002

REF 30.0 dBm

AT 20 dB

MKR 810.50 MHz

24.84 dBm



START 806.00 MHz

STOP 821.00 MHz

#RES BW 100 kHz

VBW 300 kHz

SWP 20.0 msec

Customer:	Cellular Specialties, Inc.
Test Sample:	Bidirectional Amplifier
Model No:	565SMR
Test Method:	Intermodulation Characteristics, FCC Part 2, para 2.1047
Notes:	Uplink Frequency Range: 806-821 MHz
Date:	12/6/02
Tech:	T. Firkowski
Sheet:	2 of 6



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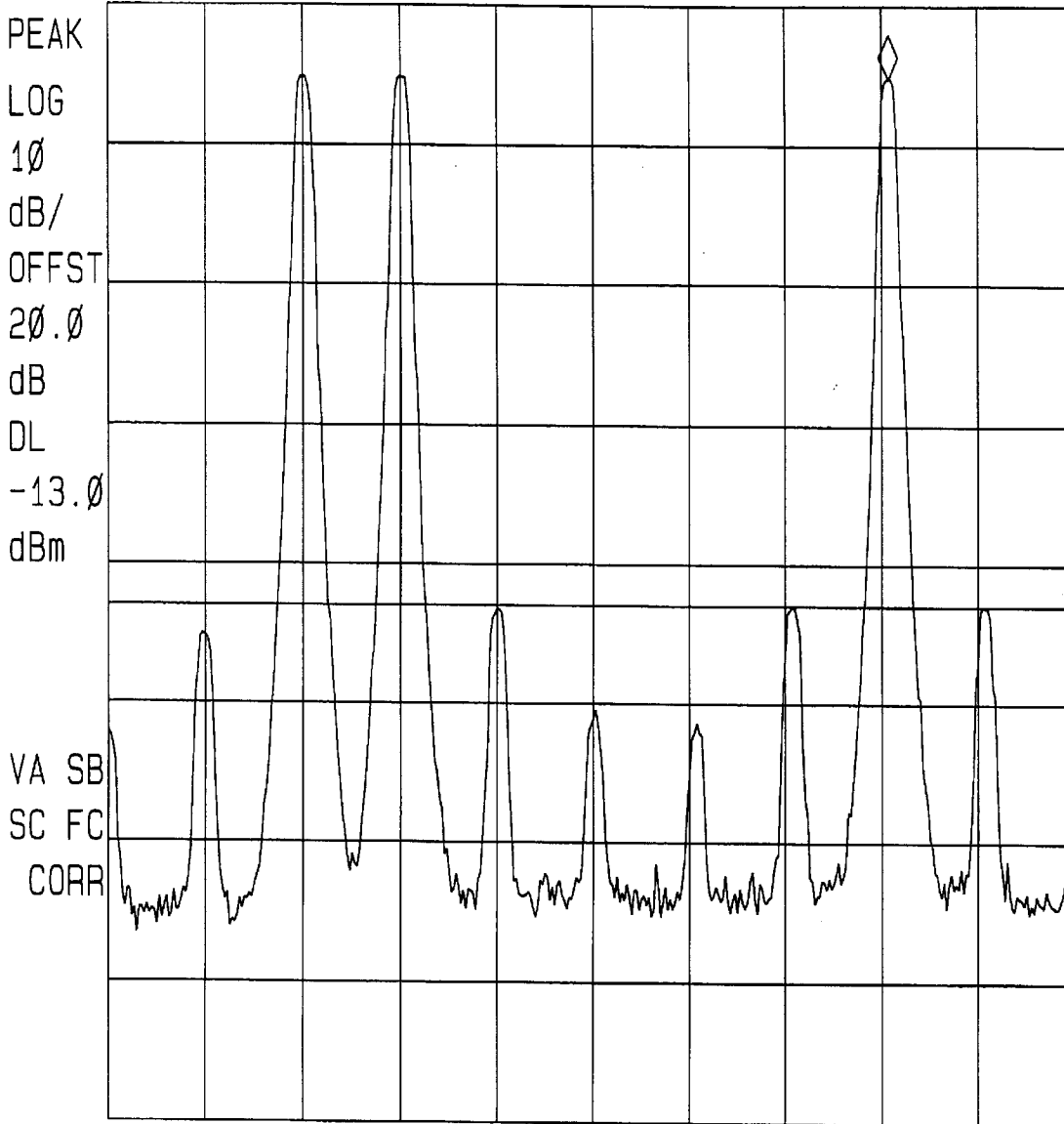
12:35:21 DEC 06, 2002

MKR 818.11 MHz

REF 30.0 dBm

AT 20 dB

24.79 dBm



START 806.00 MHz

STOP 821.00 MHz

#RES BW 100 kHz

VBW 300 kHz

SWP 20.0 msec

Customer: Cellular Specialties, Inc.
 Test Sample: Bidirectional Amplifier
 Model No: 565SMR
 Test Method: Intermodulation Characteristics, FCC Part 2, para 2.1047
 Notes: Uplink Frequency Range: 806-821 MHz



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Report No R-4067N

Date: 12/6/02

Tech: T. Firkowski

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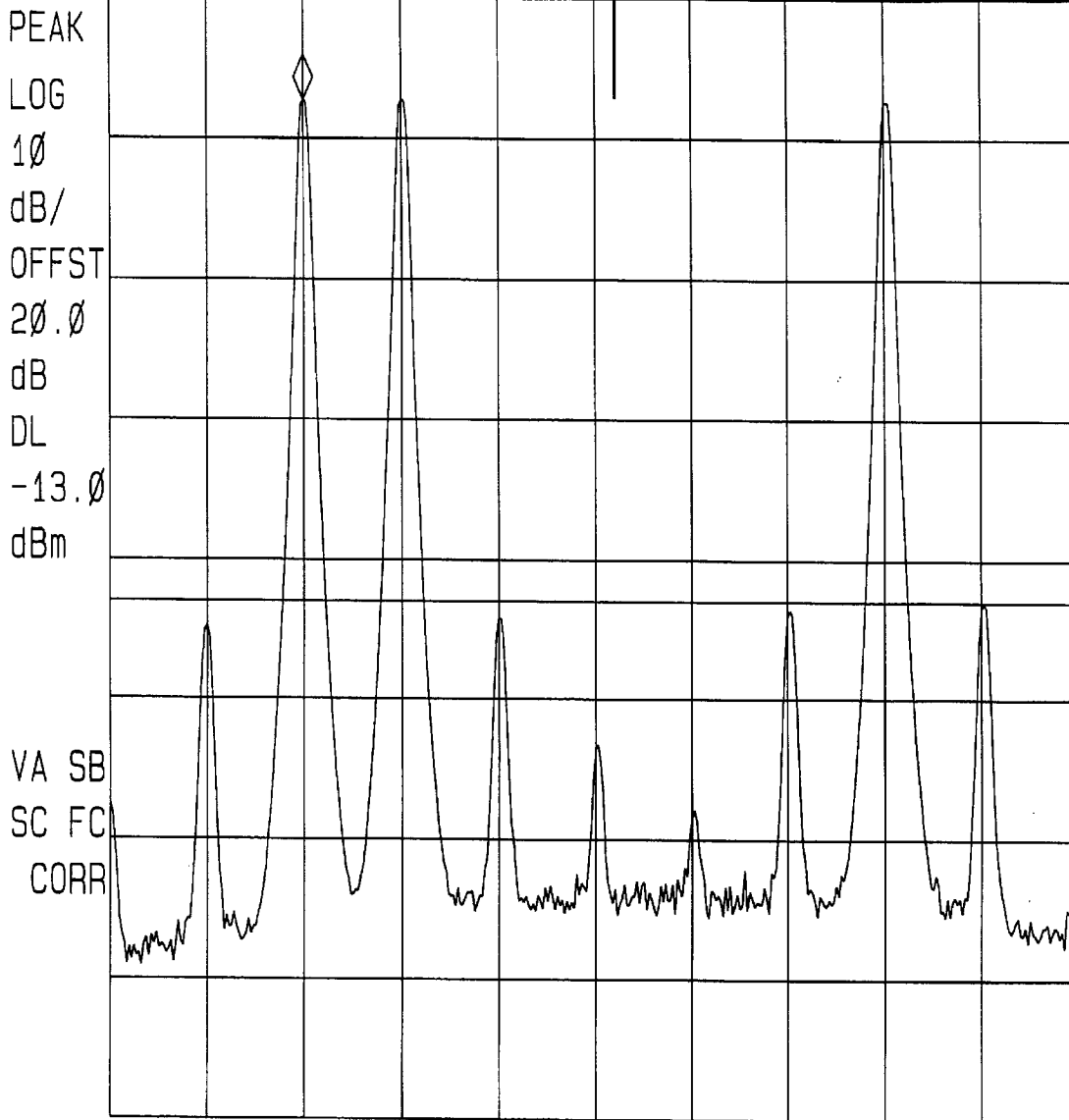
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REF 30.0 dBm

AT 20 dB

MKR 854.00 MHz

22.72 dBm



START 851.00 MHz

STOP 866.00 MHz

#RES BW 100 kHz

VBW 300 kHz

SWP 20.0 msec

Customer:	Cellular Specialties, Inc.
Test Sample:	Bidirectional Amplifier
Model No:	565SMR
Test Method:	Intermodulation Characteristics, FCC Part 2, para 2.1047
Notes:	Downlink Frequency Range: 851 - 866 MHz
Date:	12/6/02
Tech:	T. Firkowski
Sheet:	4 of 6



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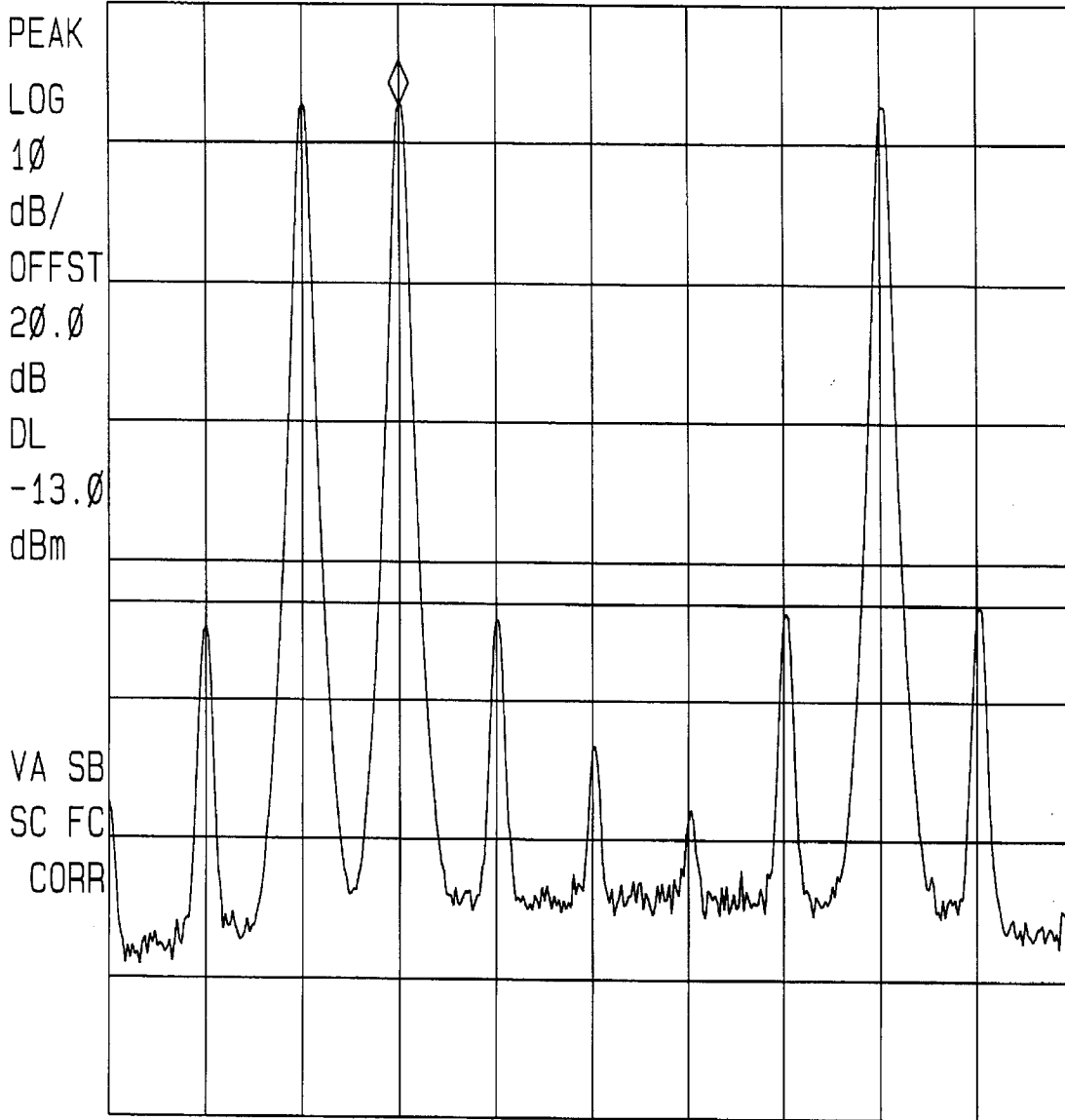
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MKR 855.50 MHz

REF 30.0 dBm

AT 20 dB

22.70 dBm



START 851.00 MHz

STOP 866.00 MHz

#RES BW 100 kHz

VBW 300 kHz

SWP 20.0 msec

Customer:	Cellular Specialties, Inc.
Test Sample:	Bidirectional Amplifier
Model No:	565SMR
Test Method:	Intermodulation Characteristics, FCC Part 2, para 2.1047
Notes:	Downlink Frequency Range: 851 - 866 MHz
Date:	12/6/02
Tech:	T. Firkowski
Sheet:	5 of 6



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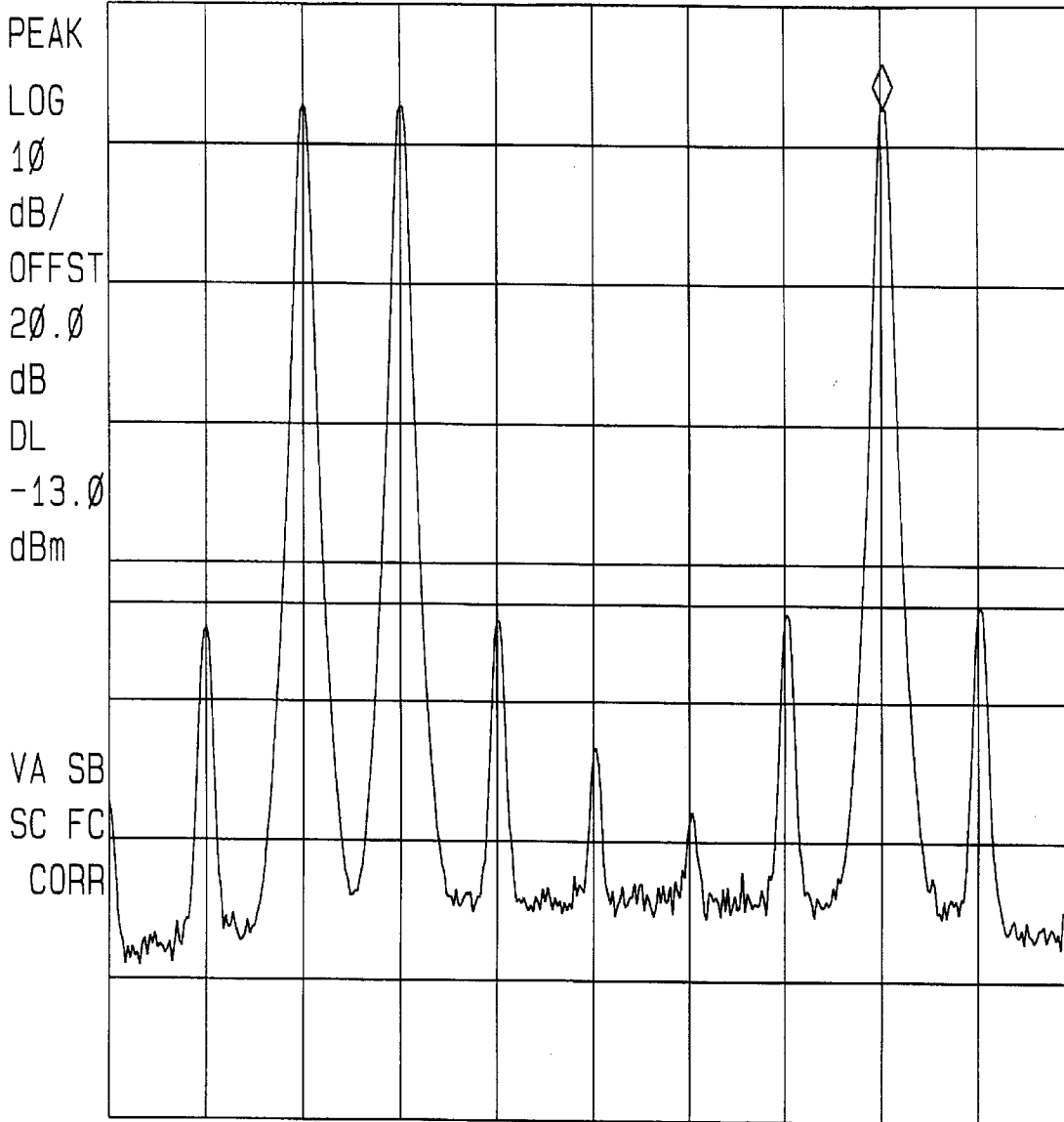
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MKR 863.04 MHz

REF 30.0 dBm

AT 20 dB

22.70 dBm



START 851.00 MHz

STOP 866.00 MHz

#RES BW 100 kHz

VBW 300 kHz

SWP 20.0 msec

Customer:	Cellular Specialties, Inc.
Test Sample:	Bidirectional Amplifier
Model No:	565SMR
Test Method:	Intermodulation Characteristics, FCC Part 2, para 2.1047
Notes:	Downlink Frequency Range: 851 - 866 MHz
Date:	12/6/02
Tech:	T. Firkowski
Sheet:	6 of 6

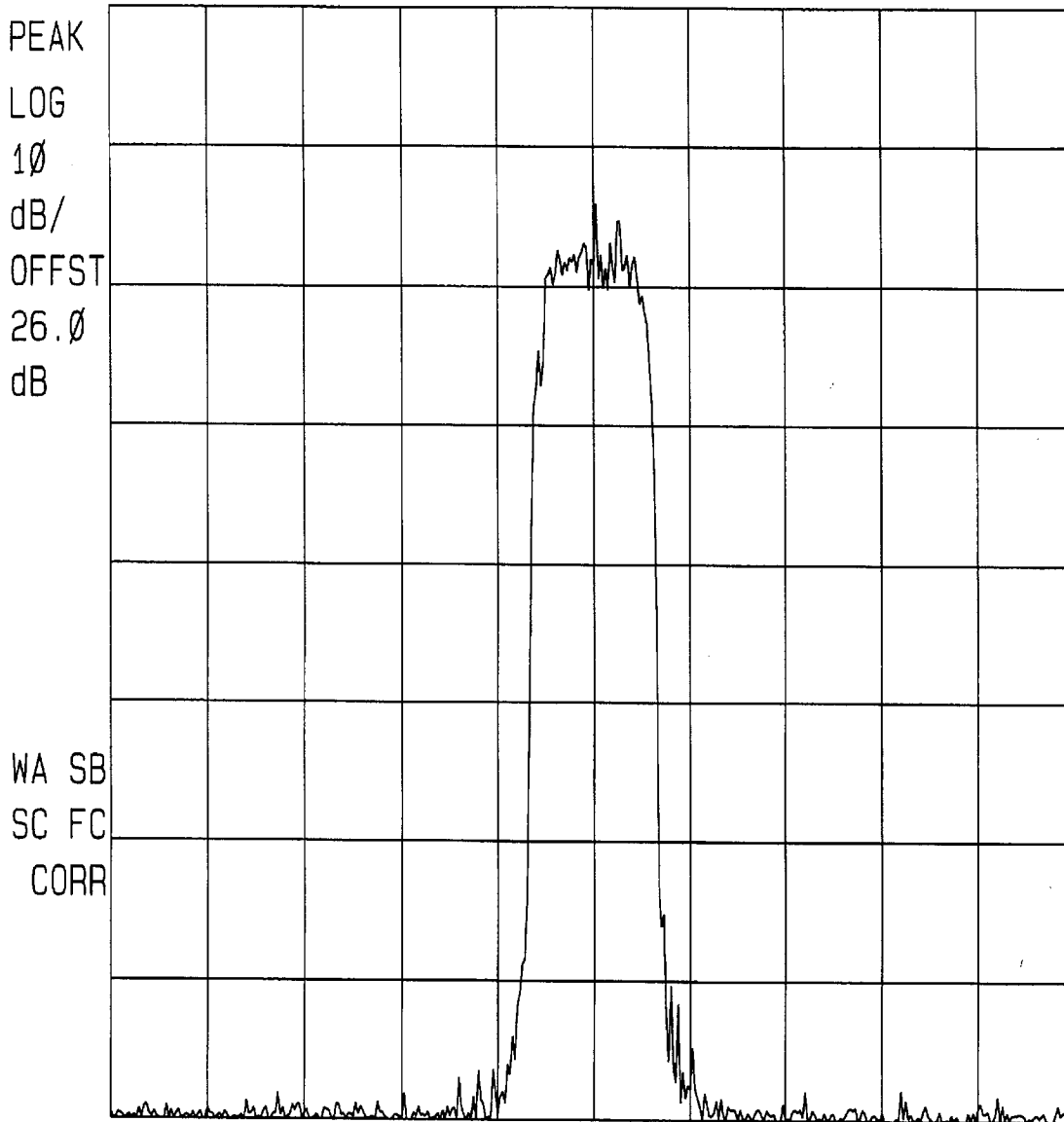


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Report No R-4067N

12: 14: 46 DEC 19, 2002

REF -9.0 dBm #AT 0 dB



CENTER 813.5000 MHz

SPAN 250.0 kHz

#RES BW 300 Hz

VBW 1 kHz

SWP 8.33 sec

Customer:	Cellular Specialties, Inc.
Test Sample:	Bidirectional Amplifier
Model No:	565SMR
Test Method:	Occupied Bandwidth, FCC Part 2, para 2.1049
Notes:	Uplink Frequency 813.5 MHz Modulation: TDMA input
Date:	12/19/02
Tech:	T. Firkowski
Sheet:	1 of 4

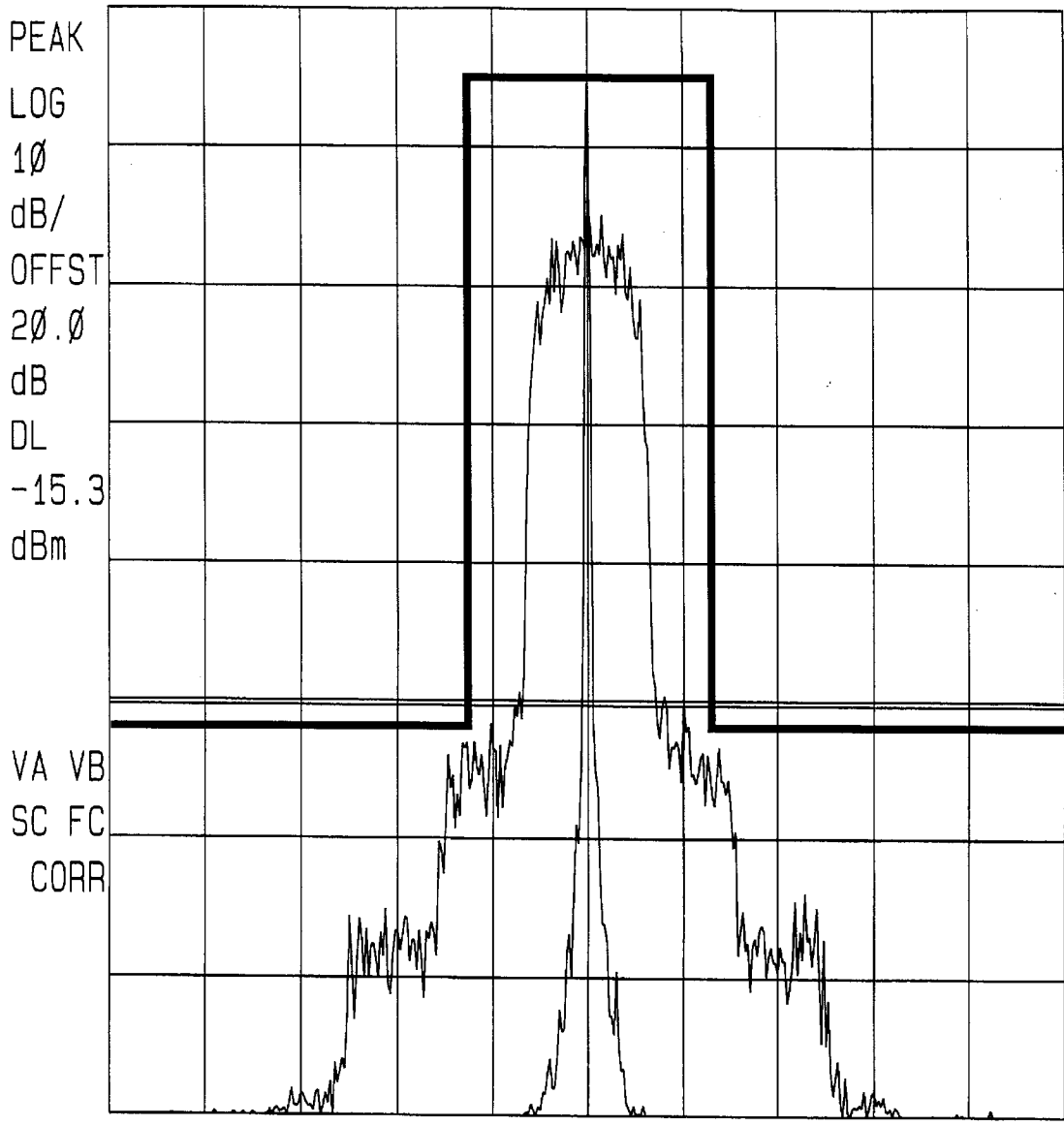


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Report No R-4067N

12: 12: 51 DEC 19, 2002

REF 35.0 dBm AT 30 dB



CENTER 813.5000 MHz

SPAN 250.0 kHz

#RES BW 300 Hz

VBW 1 kHz

SWP 8.33 sec

Customer: Cellular Specialties, Inc.
 Test Sample: Bidirectional Amplifier
 Model No: 565SMR
 Test Method: Occupied Bandwidth, FCC Part 2, para 2.1049
 Notes: Uplink Frequency: 813.5 MHz
 Modulation: TDMA Output

Date: 12/19/02 Tech: T. Firkowski Sheet 2 of 4

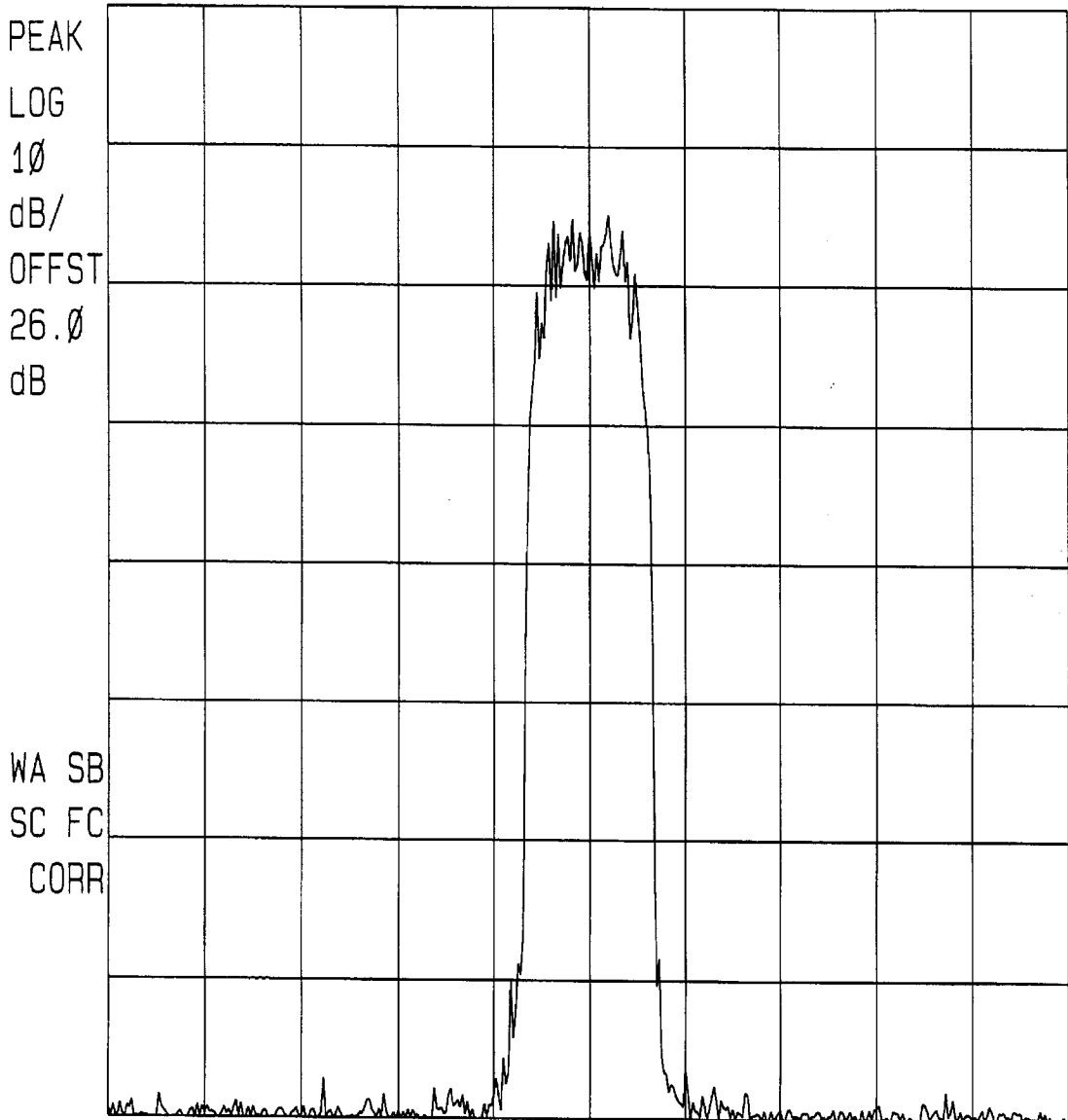


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Report No R-4067N

12: 25: 19 DEC 19, 2002

REF -9.0 dBm #AT 0 dB



CENTER 858.5000 MHz

SPAN 250.0 kHz

#RES BW 300 Hz

VBW 1 kHz

SWP 8.33 sec

Customer:	Cellular Specialties, Inc.
Test Sample:	Bidirectional Amplifier
Model No:	565SMR
Test Method:	Occupied Bandwidth, FCC Part 2, para 2.1049
Notes:	Downlink Frequency 858.5 MHz Modulation: TDMA Input
Date:	12/19/02
Tech:	T. Firkowski
Sheet:	3 of 4

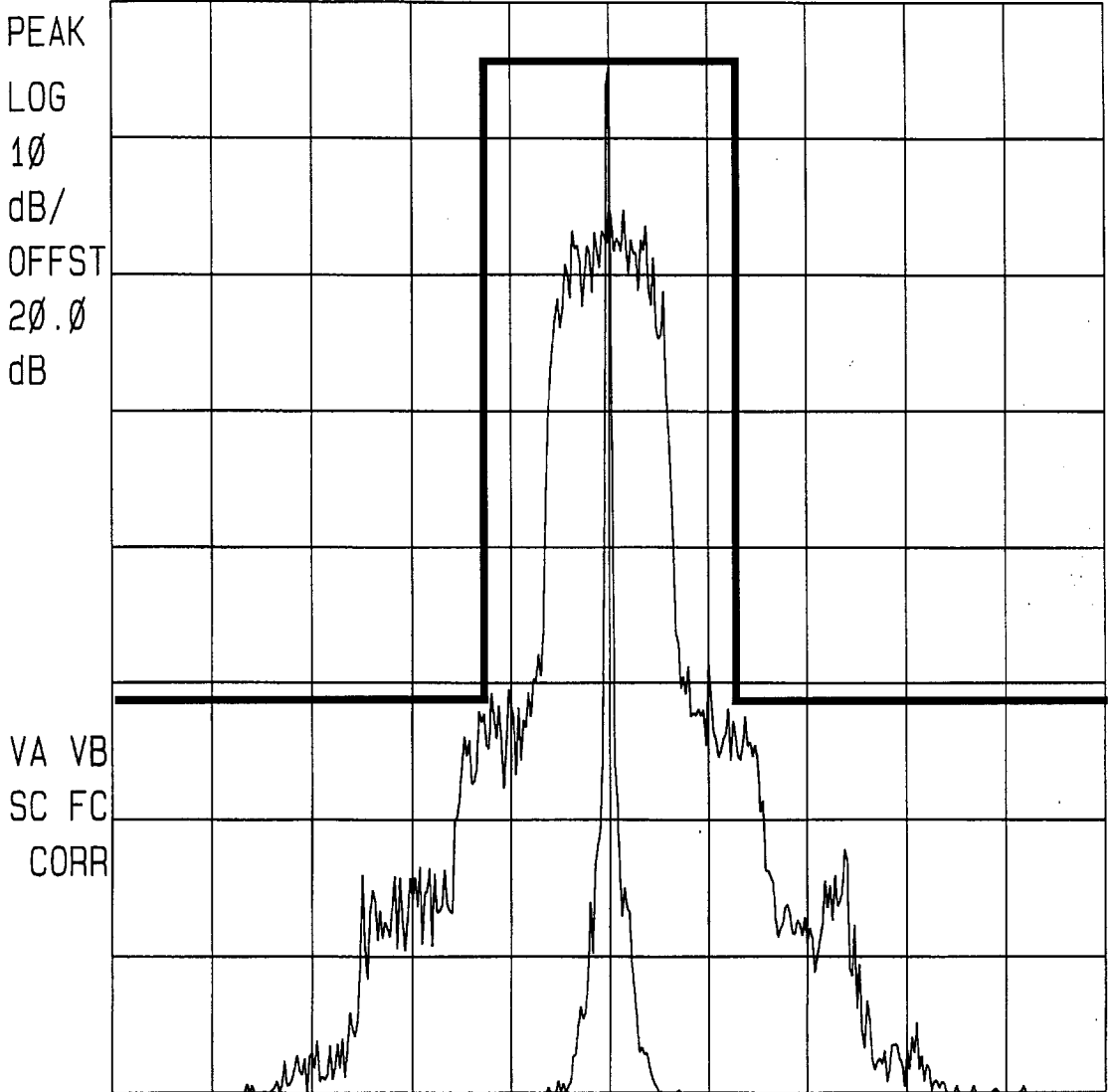


Retlif Testing Laboratories

Report No R-4067N

12: 23: 25 DEC 19, 2002
HP

REF 35.0 dBm AT 30 dB



CENTER 858.5000 MHz
#RES BW 300 Hz

VBW 1 kHz

SPAN 250.0 kHz
SWP 8.33 sec

Customer: Cellular Specialties, Inc.
Test Sample: Bidirectional Amplifier
Model No: 565SMR
Test Method: Occupied Bandwidth, FCC Part 2, para 2.1049
Notes: Downlink Frequency 858.5 MHz
Modulation: TDMA Output



Retlif Testing Laboratories

Report No. R-4067N

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Spurious Emissions at the Antenna Terminals 30 MHz to 8.66 GHz	
Customer:	Cellular Specialties, Inc.	Job No: R-4067N
Test Sample:	Bidirectional Amplifier	
Model No:	565SMR	Serial No: SMR2
Test Specification:	FCC Part 2 Paragraph: 2.1051	
Operating Mode:	Amplifying input signal	
Technician:	T. Firkowski <i>TF</i>	Date: 12/6/02
Notes:	Uplink Frequency: 813.5 MHz Downlink Frequency: 858.5 MHz	

Uplink Input Signal	Test Frequency	Harmonic Frequencies	Reading	Limit	Downlink Input Signal	Test Frequency	Harmonic Frequencies	Reading	Limit
dBm	MHz	MHz	dBm	dBm	dBm	MHz	MHz	dBm	dBm
-29.33	813.50				-30.33	858.50			
		1627.00	-25.35	-13.0			1717.00	-32.04	-13.0
		2440.50	-22.70				2575.50	-24.38	
		3254.00	<-45				3434.00	<-45	
		4067.50	<-45				4292.50	<-45	
		4881.00	<-45				5151.00	<-45	
		5694.50	<-45				6009.50	<-45	
		6508.00	<-40				6868.00	<-43	
		7321.50	<-40				7726.50	<-40	
-29.33	813.50	8135.00	<-40	-13.0	-30.33	858.50	8585.00	<-40	-13.0

EQUIPMENT LIST

Antenna Conducted Spurious Emissions

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
4895	Spectrum Analyzer	Hewlett Packard	9kHz - 22GHz	8593EM	2/13/02	2/13/03
4935	6.0 dB Attenuator	JFW Inc.	DC - 2 GHz	50FH-006-50N	1/25/02	1/25/03
4962	Attenuator	Narda	DC - 18 GHz	757C-20dB	11/6/02	11/6/03
530A	AM/FM Signal Generator	Marconi Instru.	10 kHz - 1.2 GHz	2023	7/10/02	7/10/03

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Frequency Stability	
Customer:	Cellular Specialties, Inc.	Job No: R-4067N
Test Sample:	Bidirectional Amplifier	
Model No:	565SMR	Serial No: SMR2
Test Specification:	Fcc Part 2 Paragraph: 2.1055	
Operating Mode:	Amplifying input signal	
Technician:	T. Firkowski	Date: 12/10/02
Notes:	Uplink Frequency: 813.5 MHz Nominal Input Voltage: 115 VAC Downlink Frequency: 858.5 MHz	

Temp	Test Frequency	Input Level	Output Level	Frequency @ 97.75 VAC	Frequency @ 103.50 VAC	Frequency @ 109.25 VAC	Frequency @ 115 VAC	Frequency @ 120.75 VAC	Frequency @ 126.50 VAC	Frequency @ 132.25 VAC
C	MHz	dBm	dBm	MHz	MHz	MHz	MHz	MHz	MHz	MHz
	(Uplink)									
-30	813.5	-56.43	15.58	813.500	813.500	813.500	813.500	813.500	813.500	813.500
-20			15.65	813.500	813.500	813.500	813.500	813.500	813.500	813.500
-10			15.02	813.500	813.500	813.500	813.500	813.500	813.500	813.500
0			14.42	813.500	813.500	813.500	813.500	813.500	813.500	813.500
10			14.33	813.500	813.500	813.500	813.500	813.500	813.500	813.500
20			14.24	813.500	813.500	813.500	813.500	813.500	813.500	813.500
30			14.14	813.500	813.500	813.500	813.500	813.500	813.500	813.500
40			13.93	813.500	813.500	813.500	813.500	813.500	813.500	813.500
50	813.5	-56.43	12.99	813.500	813.500	813.500	813.500	813.500	813.500	813.500
	(Downlink)									
-30	858.5	-56.15	14.59	858.500	858.500	858.500	858.500	858.500	858.500	858.500
-20			14.66	858.500	858.500	858.500	858.500	858.500	858.500	858.500
-10			14.60	858.500	858.500	858.500	858.500	858.500	858.500	858.500
0			13.93	858.500	858.500	858.500	858.500	858.500	858.500	858.500
10			13.88	858.500	858.500	858.500	858.500	858.500	858.500	858.500
20			13.75	858.500	858.500	858.500	858.500	858.500	858.500	858.500
30			13.60	858.500	858.500	858.500	858.500	858.500	858.500	858.500
40			13.24	858.500	858.500	858.500	858.500	858.500	858.500	858.500
50	858.5	-56.15	12.58	858.500	858.500	858.500	858.500	858.500	858.500	858.500