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REPORT OF MEASUREMENTS for

CELLULAR SPECIALTIES, INC. DIGITAL REPEATER

MODEL: CSI-DSP85-25X-S8

FCC ID: NVRC SI-DSP25XS8

IC: 4307A-DSP25XS8

Company Name: Cellular Specialties, Inc.

Date of Report: November 29, 2010

Test Report No: R-5408N

Test Start Date: November 3, 2010

Test Finish Date: November 9, 2010

Test Technicians: M. Seamans. T. Hannemann

Laboratory Supervisor: T. Hannemann

Report Prepared By: J. Ramsey

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We certify that this report is a true report of the results obtained from the tests of the equipment stated and relates only to the equipment tested. We further certify that the measurements shown in this report were made in accordance with the procedures indicated and vouch for the qualifications of all Retlif Testing Laboratories personnel taking them.



Scott Wentworth
Branch Manager
NVLAP Approved Signatory



Todd Hannemann
Laboratory Supervisor
iNARTE Certified ATL-0255-T

Non-Warranty Provision

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This test report contains only findings and results arrived at after employing the specific test procedures and standards listed herein. It is not intended to constitute a recommendation, endorsement, or certification of the product or material tested. This report must not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the U.S. Government.



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Test Report No. R-5408N

CERTIFICATION APPLICATION SUMMARY

Applicant/Manufacturer: Cellular Specialties
670 North Commercial Street
Manchester, NH 03101

Equipment under Test (EUT): The EUT is a Digital Repeater System operating in the 800 MHz smr band.

Model: CSI-DSP85-25X-S8

FCC ID Number: FCC ID: NVRC SI-DSP25XS8

IC ID Number: 4307A-DSP25XS8

Applicable Test Standards: FCC Parts 2 & 90, RSS-131, Issue 2

Measurement Procedure: ANSI/TIA-603-C-2004
RSS-131, Issue 2

Device Classification: Mobile

EUT Frequency Range Band: Uplink: 806 MHz to 824 MHz
Downlink: 851 MHz to 859 MHz

Power Output Rating for Certification Grant based on Intermodulation Data Composite Power: Uplink: 1.44W
Downlink: 1.30W

Modulation Type: TDMA (DXW)

RF Exposure + Antenna Installation: See Attached Installation/Users Manual and MPE Evaluation

Measurements Required by FCC: See Report Section 1 (Summary of Test Program)
- RF Power Output
- Occupied Bandwidth
- Intermodulation Characteristics
- Frequency Stability
- Spurious Emissions at Antenna Terminals
- Effective Radiated Power of Spurious Radiation

Additional Measurements Required by RSS -131:
- Mean Output Power
- Passband Gain & Bandwidth
- Spurious Emissions (two tone)
- 99% Bandwidth



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SECTION 1 SUMMARY OF TEST PROGRAM

OCCUPIED BANDWIDTH

Measurement Procedure:

For Occupied Bandwidth, measurements were made to compare the input signal to the output signal. The signal generator output was connected to the spectrum analyzer. A TDMA modulation signal was then applied to the carrier. Waveforms were then noted on an X-Y plot. Next, the signal generator was connected to the EUT and the output of the EUT was connected to the spectrum analyzer. The output waveform after amplification was then compared to the original input signal to ensure that no significant differences occurred between the input signal and the amplified signal. Testing was performed at three frequencies within each passband (uplink and downlink). See Occupied Bandwidth Data.

SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Measurement Procedure:

The signal generator output was connected in turn to the uplink and downlink input ports of the EUT. The input power level was at the maximum level which was ascertained during the Power Output test. A spectrum analyzer was connected to the output of the EUT. The input test frequencies used were three frequencies (low, mid & high) within each passband (uplink and downlink). The level of any spurious emission was recorded. Testing was performed in the frequency range of 30MHz to 9GHz. Testing was performed for TDMA modulation type. The spurious emissions limit is -13dBm as specified in FCC Part 90. All emissions were below the specified -13dBm limit. See attached test data.

EFFECTIVE RADIATED POWER OF SPURIOUS RADIATION

Measurement Procedure:

The test sample was placed on an 80cm high wooden test stand which was located 3 meters from the test antenna on an FCC listed test site. A signal generator was connected to the input of the amplifier. The signal generator output was set to provide the input power level necessary to achieve maximum output power of the amplifier at 3 frequencies (low, mid & high) within each passband (uplink and downlink). The effective radiated power of each out of band spurious emission was measured using the substitution method specified in ANSI/TIA-603-C-2004. The frequency range of the test was 30MHz – 9GHz. The limit for out of band spurious emissions is -13dBm as specified in Part 90. All emissions were below the specified -13dBm limit. See attached test data.



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RF POWER OUTPUT (Composite Power)

Measurement Procedure:

The RF Power Output test was performed using RMS channel power measurements of a single TDMA channel. The measurements were taken with the AGC turned off at maximum output power with all spurious emissions below the -13dBm limit. The measured output power matched the manufacturer's rated output power. See attached test data.

INTERMODULATION CHARACTERISTICS (TWO TONE)

Measurement Procedure:

Two signals were injected, in turn, to each uplink and downlink frequency band via a two way power combiner. Testing was performed at both the low band edge and high band edge of each pass band. The output of each signal generator was adjusted so that the two output fundamental frequencies were equal in magnitude. Testing was performed for TDMA Modulation type. At the maximum specified input power levels all intermodulation products were at -13dBm or below. See attached test data.

FREQUENCY STABILITY MEASUREMENTS

Measurement Procedure:

The test sample was placed into a temperature chamber with the AC input power supplied through a variable power source. A signal generator was used to provide the input signal and the output was measured with a frequency counter. With the test sample operating at maximum output power the test sample's output frequency was measured and recorded at the extremes of the temperature range and at 10 degree increments from -30 degrees C to +50 degrees C while the AC input voltage was varied from 85 to 115% of nominal. The output frequency for both the uplink and downlink stayed within the assigned frequency band. See attached test data.



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MEAN POWER OUTPUT (RSS-131)

Measurement Procedure:

Two signals were injected, in turn, to each uplink and downlink frequency band via a two way power combiner so that the two input signals were equal in magnitude. A spectrum analyzer was connected to the test sample output. The frequencies of the two input signals were adjusted so that they and the 3rd order intermodulation frequencies were within the passband of the test sample. The level of the input signals were increased until either of the intermodulation products equaled -13dBm. The mean output power (P_{mean}) was calculated using the formula (P_{mean} = P₀₁ + 3dB). Testing was performed for TDMA Modulation types. The P_{mean} did not exceed the manufacturers rated output power. See attached test data.

PASSBAND GAIN & BANDWIDTH (RSS-131)

Measurement Procedure:

A signal generator output was connected in turn to the uplink and downlink input ports of the EUT. A spectrum analyzer was connected to the output of the EUT. With the internal gain of the test sample set to nominal the 20dB bandwidth (point where the gain has fallen by 20dB) of the EUT was measured and recorded. The gain versus frequency response of the amplifier from the mid-band frequency (f₀) of the passband up to at least f₀ ± 250% of the 20dB bandwidth was measured and recorded. See Passband Gain & Bandwidth Data.

SPURIOUS EMISSIONS (RSS-131)

Measurement Procedure:

Spurious emissions from the EUT were measured using the two tone method specified for the Mean Power Output measurement with the two tones set to the required levels. A spectrum analyzer configured with a resolution bandwidth of 100kHz was used to measure spurious emissions in the frequency range of 30MHz to 5 times the highest passband frequency. All emissions were below the specified -13dBm limit. See attached test data.

99% BANDWIDTH (RSS-131)

Measurement Procedure:

A signal generator output was connected in turn to the uplink and downlink input ports of the EUT. A spectrum analyzer was connected to the output of the EUT. With the internal gain of the test sample set to nominal the 99% bandwidth of the EUT was measured and recorded.



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SECTION 2 EQUIPMENT LISTS

Spurious Radiated Emissions

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1232	AGILENT / HP	PRE-AMPLIFIER	1 - 26.5GHz	8449B	4/22/2010	4/22/2011
3258	EMCO	DOUBLE RIDGE GUIDE	1 - 18 GHz	3115	1/14/2010	1/14/2011
5053	EMCO	BICONILOG ANTENNA	26 MHz - 3 GHz	3142C	4/21/2010	4/21/2011
5070	ROHDE & SCHWARZ	EMI TEST RECEIVER	20 Hz - 40 GHz	ESIB40	1/14/2009	3/14/2011

Mean Power Output

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1345	NARDA	ATTENUATOR	DC - 18GHz	776B-30	8/10/2010	8/10/2011
5030C	NARDA	10DB ATTENUATOR	DC - 12.4 GHz	757C-10	8/10/2010	8/10/2011
5070	ROHDE & SCHWARZ	EMI TEST RECEIVER	20 Hz - 40 GHz	ESIB40	1/14/2009	3/14/2011

RF Power Output

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1345	NARDA	ATTENUATOR	DC - 18GHz	776B-30	8/10/2010	8/10/2011
5030C	NARDA	10DB ATTENUATOR	DC - 12.4 GHz	757C-10	8/10/2010	8/10/2011
5070	ROHDE & SCHWARZ	EMI TEST RECEIVER	20 Hz - 40 GHz	ESIB40	1/14/2009	3/14/2011

Frequency Stability

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1345	NARDA	ATTENUATOR	DC - 18GHz	776B-30	8/10/2010	8/10/2011
5070	ROHDE & SCHWARZ	EMI TEST RECEIVER	20 Hz - 40 GHz	ESIB40	1/14/2009	3/14/2011
5070F	MICRO-COAX	COAXIAL CABLE	10 kHz - 18 GHz	UFB311A2-0720-50U50U	1/5/2010	1/5/2011
5070G	MICRO-COAX	COAXIAL CABLE	10 kHz - 18 GHz	UFB311A2-0720-50U50U	1/5/2010	1/5/2011
5137	NARDA	10DB ATTENUATOR	DC - 11 GHz	768-10	8/10/2010	8/10/2011
	AGILENT	VECTOR SIGNAL GENERATOR	100 kHz - 3 GHz	N5182A	3/23/2009	3/23/2011



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Occupied Bandwidth

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1345	NARDA	ATTENUATOR	DC - 18GHz	776B-30	8/10/2010	8/10/2011
5030C	NARDA	10DB ATTENUATOR	DC - 12.4 GHz	757C-10	8/10/2010	8/10/2011
5070	ROHDE & SCHWARZ	EMI TEST RECEIVER	20 Hz - 40 GHz	ESIB40	1/14/2009	3/14/2011

Spurious Emissions Antenna Ports

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1345	NARDA	ATTENUATOR	DC - 18GHz	776B-30	8/10/2010	8/10/2011
5030C	NARDA	10DB ATTENUATOR	DC - 12.4 GHz	757C-10	8/10/2010	8/10/2011
5070	ROHDE & SCHWARZ	EMI TEST RECEIVER	20 Hz - 40 GHz	ESIB40	1/14/2009	3/14/2011

Passband Gain and Bandwidth

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1345	NARDA	ATTENUATOR	DC - 18GHz	776B-30	8/10/2010	8/10/2011
5030C	NARDA	10DB ATTENUATOR	DC - 12.4 GHz	757C-10	8/10/2010	8/10/2011
5070	ROHDE & SCHWARZ	EMI TEST RECEIVER	20 Hz - 40 GHz	ESIB40	1/14/2009	3/14/2011



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**SETUP PHOTOGRAPH
SPURIOUS RADIATED EMISSIONS**



Test Setup



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**SETUP PHOTOGRAPHS
SPURIOUS RADIATED EMISSIONS**



Horizontal Antenna Polarization



Vertical Antenna Polarization



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**SETUP PHOTOGRAPHS
SPURIOUS RADIATED EMISSIONS**



Horizontal Antenna Polarization



Vertical Antenna Polarization



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**SETUP PHOTOGRAPH
OCCUPIED BANDWIDTH**



Test Setup



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SETUP PHOTOGRAPH
SPURIOUS EMISSIONS AT ANTENNA TERMINALS, RF POWER OUTPUT,
INTERMODULATION CHARACTERISTICS, PASSBAND GAIN, MEAN POWER



Test Setup



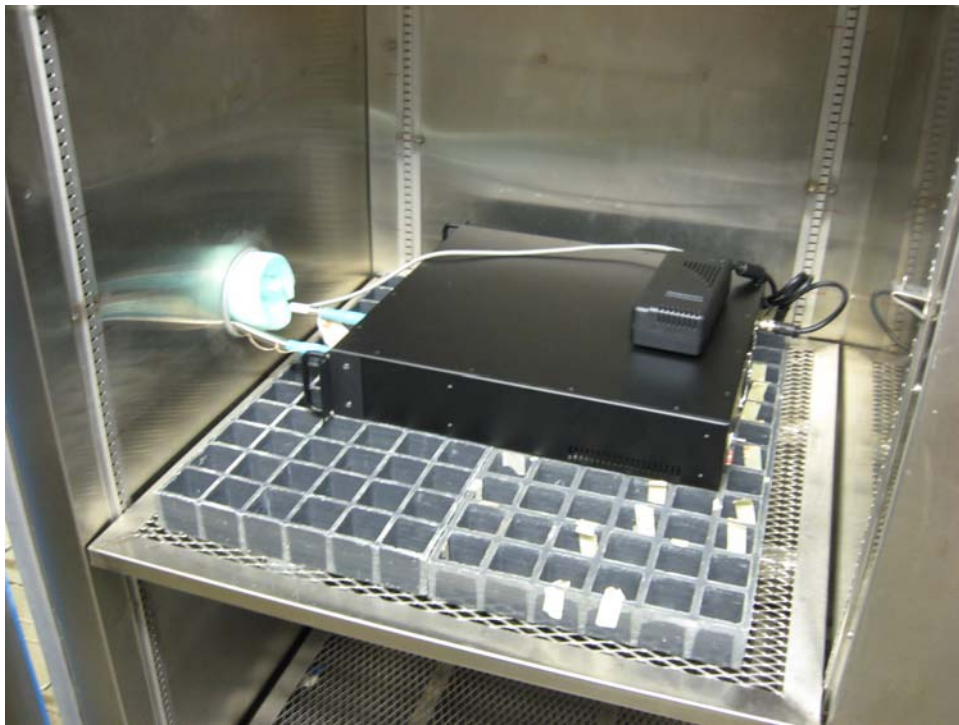
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**SETUP PHOTOGRAPH
FREQUENCY STABILITY**



Test Setup



Test Setup



Retlif Testing Laboratories

Test Report No. R-5408N

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:	RF Power Output		
Customer:	Cellular Specialties, Inc.	Job No:	R-5408N
Test Sample:	Digital Repeater		
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2 Paragraph: 2.1046		
Operating Mode:	Amplifying input signal		
Technician:	M.Seamans	Date:	11/3/2010
Notes:	Uplink Frequency Range: 806-824 MHz Downlink Frequency Range: 851-869 MHz Modulation: TDMA		

Test Frequency	Measured Level	Level								
MHz	dBm	mW								
(Uplink) Low										
808.00	31.97	1573.98								
(Uplink) Mid										
815.00	31.95	1566.75								
(Uplink) High										
822.00	31.57	1435.49								
(Downlink) Low										
853.00	31.14	1300.2								
(Downlink) Mid										
860.00	31.87	1538.2								
(Downlink) High										
867.00	32.85	1927.5								

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

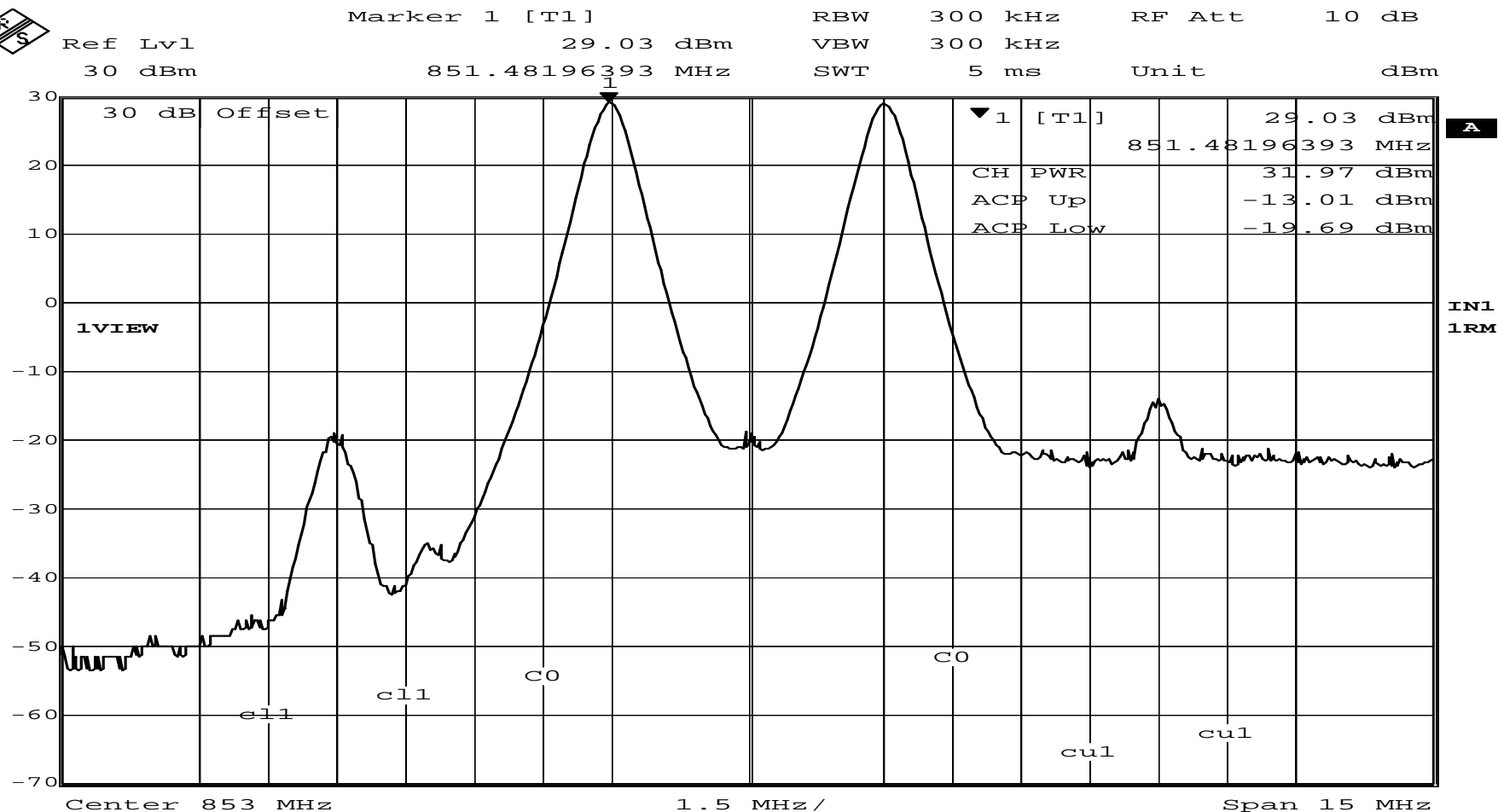
Test Method:	Mean Power		
Customer:	Cellular Specialties, Inc.	Job No:	R-5408N
Test Sample:	Digital Repeater		
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	RSS-131 Paragraph: 4.3		
Operating Mode:	Amplifying input signal		
Technician:	M.Seamans	Date:	11/3/2010
Notes:	Uplink Frequency Range: 806-824 MHz Downlink Frequency Range: 851-869 MHz Modulation: TDMA		

Test Frequency	Measured Level (p1)	Add 3dB	Mean Power							
MHz	dBm	dB	dBm							
(Uplink) Low										
808.00	28.29	3.00	31.29							
(Uplink) Mid										
815.00	28.74	3.00	31.74							
(Uplink) High										
822.00	29.94	3.00	32.94							
(Downlink) Low										
853.00	29.03	3.0	32.03							
(Downlink) Mid										
860.00	28.65	3.0	31.65							
(Downlink) High										
867.00	28.79	3.0	31.79							

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Inter-modulation Characteristics				
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater	Job No:	R-5408N
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001	Technician:	M.Seamans
Test Specification:	FCC Part 2	Paragraph:	2.1047	Date:	11/3/2010
Operating Mode:	Amplifying input signal				
Notes:	TDMA - Downlink (851-869MHz)				

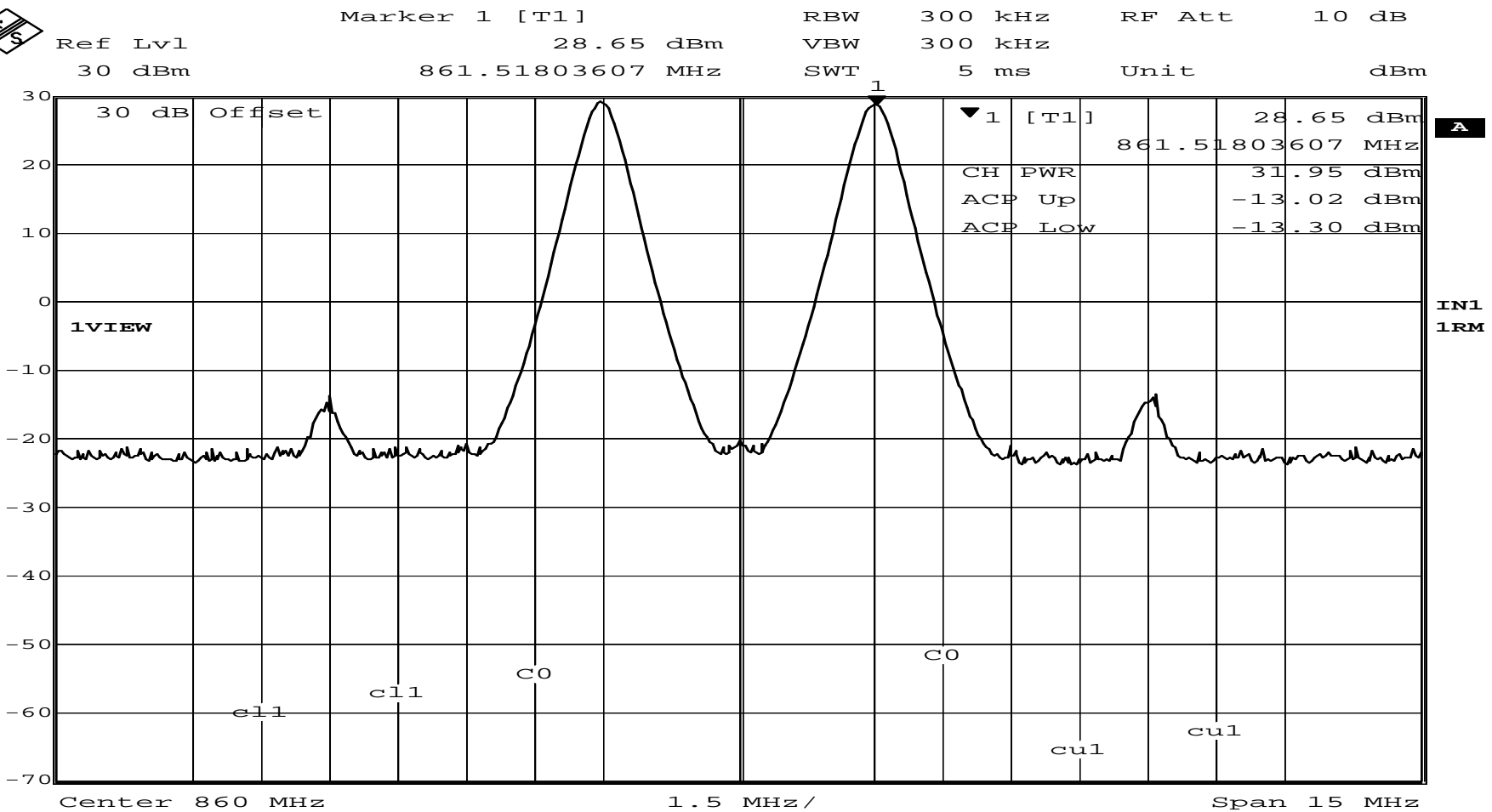


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RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Inter-modulation Characteristics			
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater	
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001	
Test Specification:	FCC Part 2	Paragraph:	2.1047	
Operating Mode:	Amplifying input signal			
Notes:	TDMA - Downlink (851-869MHz)			
Job No:	R-5408N		Technician:	M.Seamans
Date:	11/3/2010			

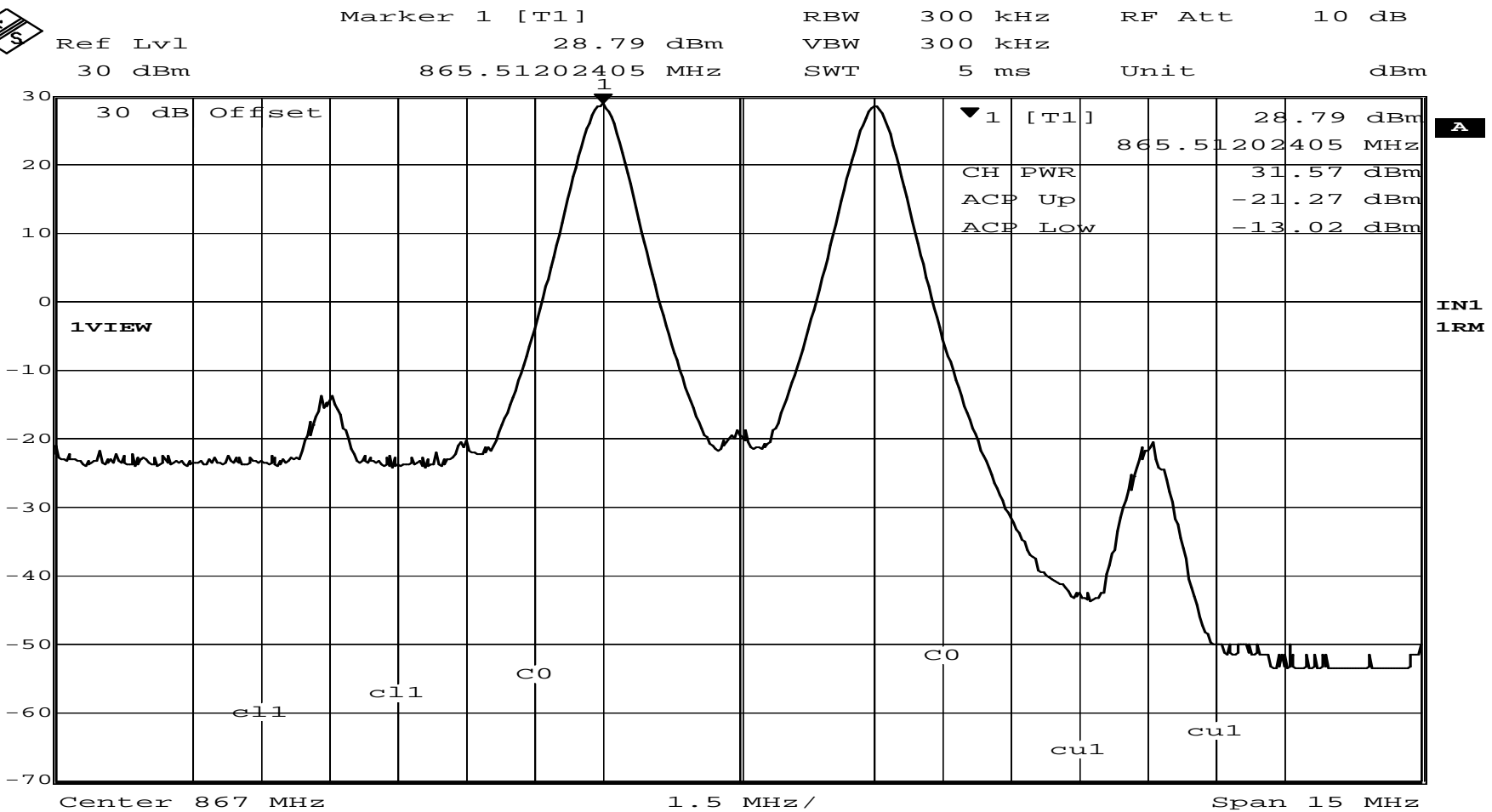


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RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Inter-modulation Characteristics		
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2	Paragraph: 2.1047	Date:
Operating Mode:	Amplifying input signal		
Notes:	TDMA - Downlink (851-869MHz)		

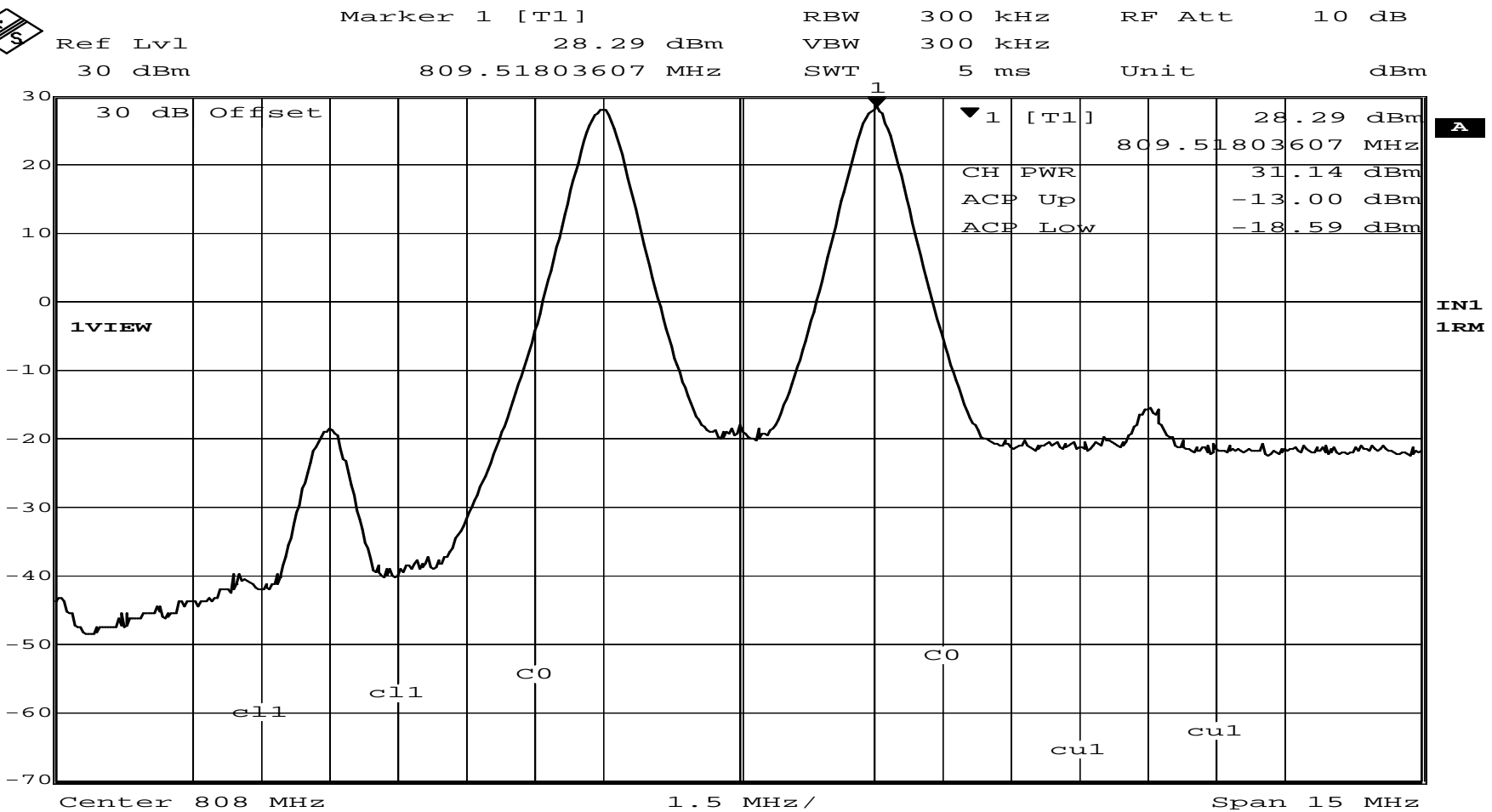


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RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Inter-modulation Characteristics		
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2	Paragraph: 2.1047	Date:
Operating Mode:	Amplifying input signal		
Notes:	TDMA - Uplink (806-824MHz)		

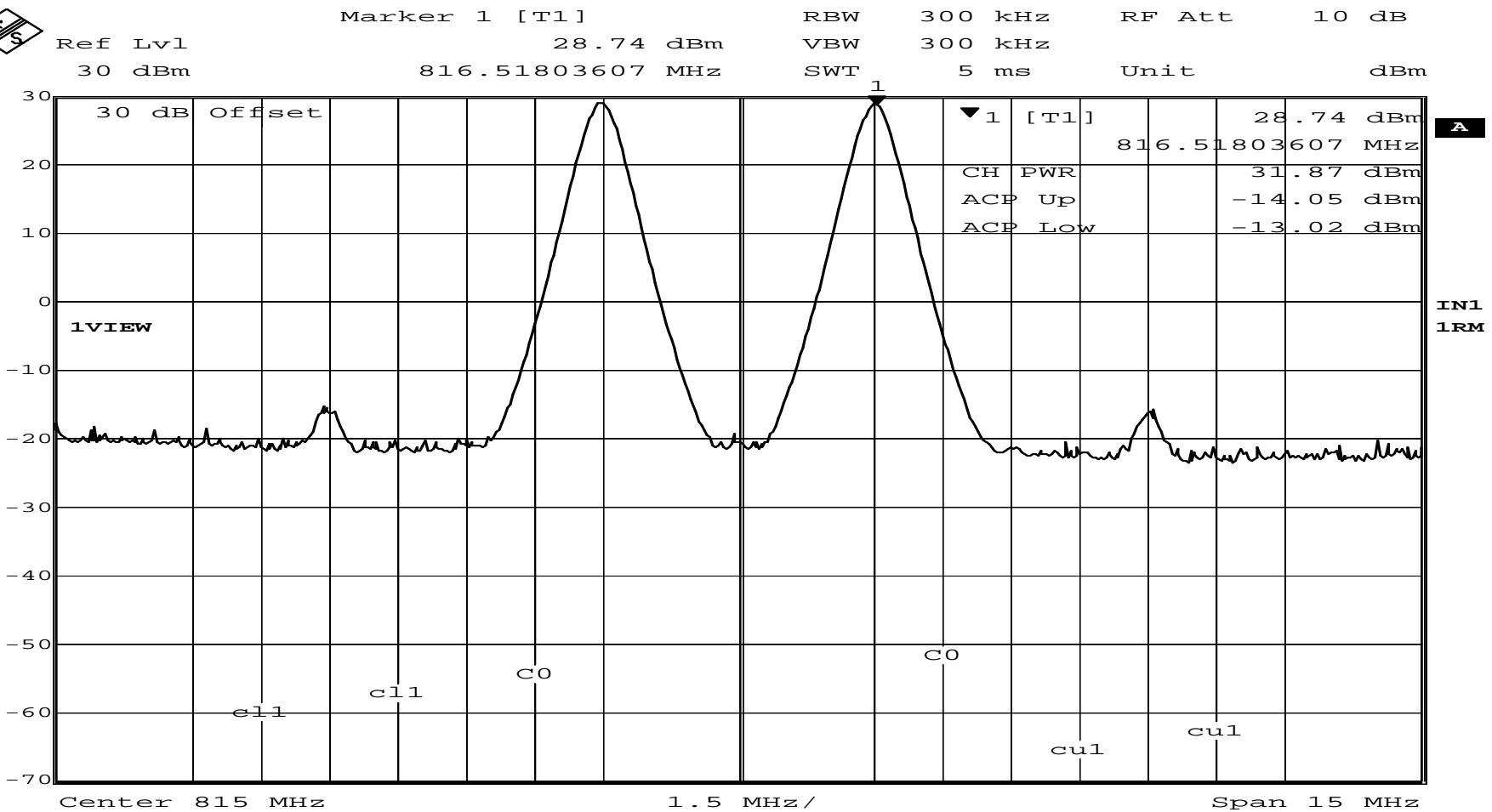


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RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Inter-modulation Characteristics		
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2	Paragraph: 2.1047	Date:
Operating Mode:	Amplifying input signal		
Notes:	TDMA - Uplink (806-824MHz)		

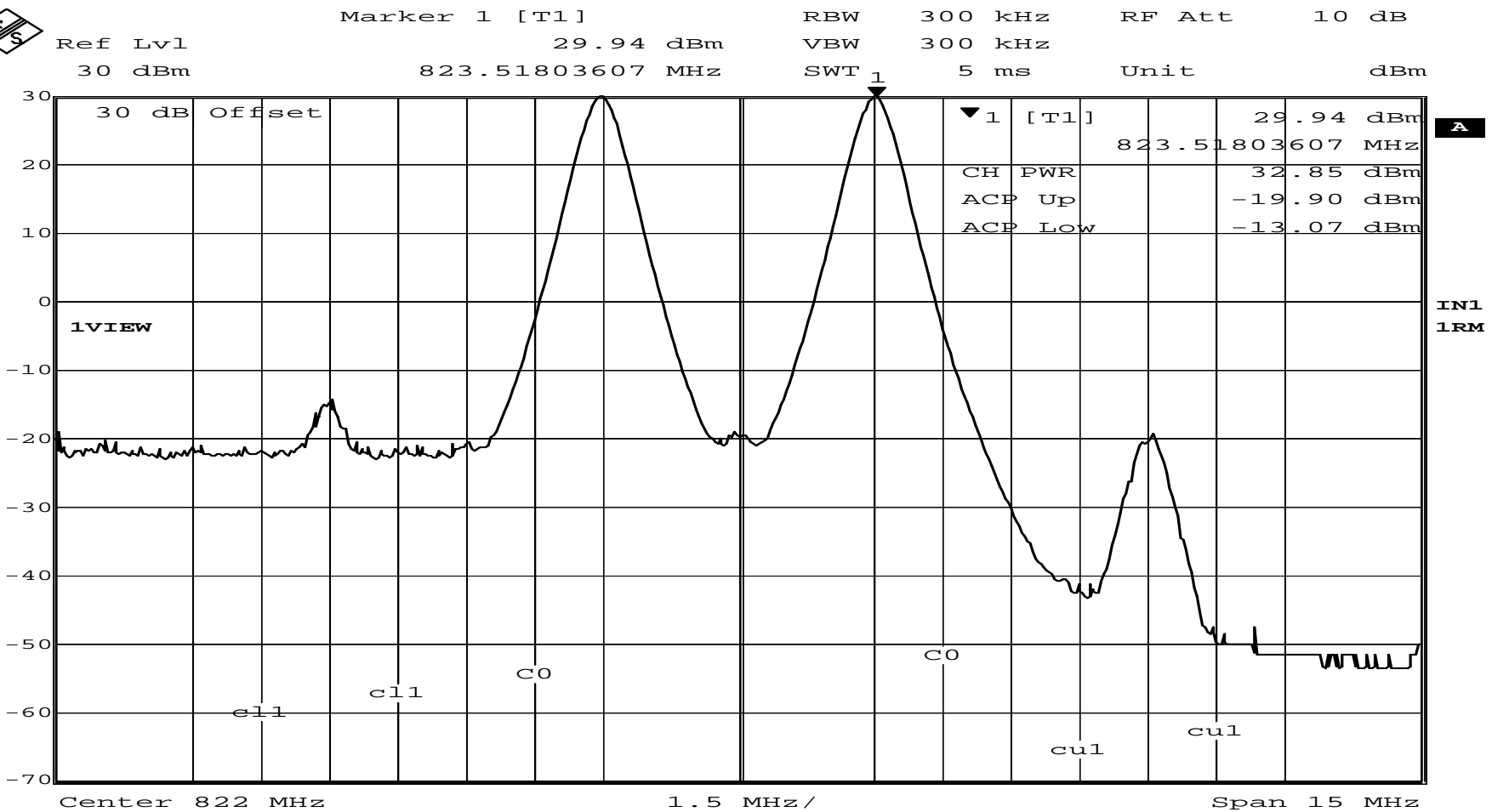


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RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Inter-modulation Characteristics			
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater	
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001	
Test Specification:	FCC Part 2	Paragraph:	2.1047	
Operating Mode:	Amplifying input signal			
Notes:	TDMA - Uplink (806-824MHz)			
Job No:	R-5408N		Technician:	M.Seamans
Date:	11/3/2010			



Date: 3.NOV.2010 11:23:03

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Frequency Stability		
Customer:	Cellular Specialties, Inc.	Job No:	R-5408N
Test Sample:	Digital Repeater		
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2 Paragraph: 2.1055		
Operating Mode:	Amplifying input signal		
Technician:	M.Seamans	Date:	11/5/2010
Notes:	Uplink Frequency 815 MHz Nominal Voltage = 120 VAC Downlink Frequency 860 MHz		

Temp	Test Frequency			Frequency @ 102 VAC	Frequency @ 108 VAC	Frequency @ 114 VAC	Frequency @ 120 VAC	Frequency @ 126 VAC	Frequency @ 132 VAC	Frequency @ 138 VAC
C	MHz			MHz	MHz	MHz	MHz	MHz	MHz	MHz
	(Uplink)									
-30	815.0000			815.00250	815.00250	815.00250	815.00250	815.00250	815.00250	815.00250
-20				815.00260	814.99500	814.99500	814.99500	815.00250	814.99500	814.99500 #
-10				815.00000	815.00000	815.00000	815.00000	815.00000	815.00000	815.00000
0				815.00250	815.00250	815.00250	815.00250	815.00250	815.00250	815.00250
10				815.00000	815.00000	815.00000	815.00000	815.00000	815.00000	815.00000
20				815.00000	815.00000	815.00000	815.00000	815.00000	815.00000	815.00000
30				815.00000	815.00000	815.00000	815.00000	815.00000	815.00000	815.00000
40				814.99500	814.99500	814.99500	814.99500	814.99500	814.99500	814.99500
50	815.0000			814.99750	814.99750	814.99500	814.99500	814.99500	814.99500	814.99500
	(Downlink)									
-30	860.0000			860.00250	860.00250	860.00250	860.00250	860.00250	860.00250	860.00250
-20				860.00000	860.00000	860.00000	860.00000	860.00000	860.00000	860.00000
-10				860.00000	860.00000	860.00000	860.00000	860.00000	860.00000	860.00000
0				860.00500	860.00500	860.00500	860.00500	860.00500	860.00500	860.00500
10				860.00000	860.00000	860.00000	860.00000	860.00000	860.00000	860.00000
20				860.00000	860.00000	860.00000	860.00000	860.00000	860.00000	860.00000
30				860.00000	860.00000	860.00000	860.00000	860.00000	860.00000	860.00000
40				859.99750	859.99750	859.99750	859.99750	859.99750	859.99500	859.99500
50	860.0000			859.99750	859.99750	859.99750	859.99750	859.99750	859.99750	859.99750

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Spurious Emissions at the Antenna Terminals 30 MHz to 9 GHz		
Customer:	Cellular Specialties, Inc.	Job No:	R-5408N
Test Sample:	Digital Repeater		
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2 Paragraph: 2.1051		
Operating Mode:	Amplifying input signal		
Technician:	M.Seamans	Date:	11/3/2010
Notes:	Uplink Frequency: 806-824 MHz Downlink Frequency: 851-869 MHz TDMA modulation *-33.00dBm is the Noise floor of instrument		

Uplink Input Signal	Test Frequency	Frequencies	Reading	Limit	Downlink Input Signal	Test Frequency	Frequencies	Reading	Limit	
dBm	MHz	MHz	dBm	dBm	dBm	MHz	MHz	dBm	dBm	
-53.50	808.00				-57.00	853.00				
		1616.00	-33.00	-13.0			1706.00	-33.00	-13.0	
		2424.00	-33.00				2559.00	-33.00		
		3232.00	-33.00				3412.00	-33.00		
		4040.00	-33.00				4265.00	-33.00		
		4848.00	-33.00				5118.00	-33.00		
		5656.00	-33.00				5971.00	-33.00		
		6464.00	-33.00				6824.00	-33.00		
		7272.00	-33.00				7677.00	-33.00		
-53.50	808.00	8080.00	-33.00	-13.0	-57.00	853.00	8530.00	-33.00	-13.0	
-53.50	815.00				-57.00	860.00				
		3465.00	-33.00	-13.0			4265.00	-33.00	-13.0	
		5197.50	-33.00				6397.50	-33.00		
		6930.00	-33.00				8530.00	-33.00		
		8662.50	-33.00				10662.50	-33.00		
		10395.00	-33.00				12795.00	-33.00		
		12127.50	-33.00				14927.50	-33.00		
		13860.00	-33.00				17060.00	-33.00		
		15592.50	-33.00				19192.50	-33.00		
-53.50	815.00	17325.00	-33.00	-13.0	-57.00	860.00	21325.00	-33.00	-13.0	
-53.50	822.00				-57.00	867.00				
		3508.00	-33.00	-13.0			4308.00	-33.00	-13.0	
		5262.00	-33.00				6462.00	-33.00		
		7016.00	-33.00				8616.00	-33.00		
		8770.00	-33.00				10770.00	-33.00		
		10524.00	-33.00				12924.00	-33.00		
		12278.00	-33.00				15078.00	-33.00		
		14032.00	-33.00				17232.00	-33.00		
		15786.00	-33.00				19386.00	-33.00		
-53.50	822.00	17540.00	-33.00	-13.0	-57.00	867.00	21540.00	-33.00	-13.0	

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Spurious Emissions at the Antenna Terminals 30 MHz to 9 GHz		
Customer:	Cellular Specialties, Inc.	Job No:	R-5408N
Test Sample:	Digital Repeater		
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	RSS-131 Paragraph: 4.4		
Operating Mode:	Amplifying input signal		
Technician:	M.Seamans	Date:	11/3/2010
Notes:	Uplink Frequency: 806-824 MHz Downlink Frequency: 851-869 MHz TDMA modulation *-33.00dBm is the Noise floor of instrument		

Uplink Input Signal	Test Frequency	Frequencies	Reading	Limit	Downlink Input Signal	Test Frequency	Frequencies	Reading	Limit	
dBm	MHz	MHz	dBm	dBm	dBm	MHz	MHz	dBm	dBm	
-53.50	808.00				-57.00	853.00				
		1616.00	-33.00	-13.0			1706.00	-33.00	-13.0	
		2424.00	-33.00				2559.00	-33.00		
		3232.00	-33.00				3412.00	-33.00		
		4040.00	-33.00				4265.00	-33.00		
		4848.00	-33.00				5118.00	-33.00		
		5656.00	-33.00				5971.00	-33.00		
		6464.00	-33.00				6824.00	-33.00		
		7272.00	-33.00				7677.00	-33.00		
-53.50	808.00	8080.00	-33.00	-13.0	-57.00	853.00	8530.00	-33.00	-13.0	
-53.50	815.00				-57.00	860.00				
		3465.00	-33.00	-13.0			4265.00	-33.00	-13.0	
		5197.50	-33.00				6397.50	-33.00		
		6930.00	-33.00				8530.00	-33.00		
		8662.50	-33.00				10662.50	-33.00		
		10395.00	-33.00				12795.00	-33.00		
		12127.50	-33.00				14927.50	-33.00		
		13860.00	-33.00				17060.00	-33.00		
		15592.50	-33.00				19192.50	-33.00		
-53.50	815.00	17325.00	-33.00	-13.0	-57.00	860.00	21325.00	-33.00	-13.0	
-53.50	822.00				-57.00	867.00				
		3508.00	-33.00	-13.0			4308.00	-33.00	-13.0	
		5262.00	-33.00				6462.00	-33.00		
		7016.00	-33.00				8616.00	-33.00		
		8770.00	-33.00				10770.00	-33.00		
		10524.00	-33.00				12924.00	-33.00		
		12278.00	-33.00				15078.00	-33.00		
		14032.00	-33.00				17232.00	-33.00		
		15786.00	-33.00				19386.00	-33.00		
-53.50	822.00	17540.00	-33.00	-13.0	-57.00	867.00	21540.00	-33.00	-13.0	

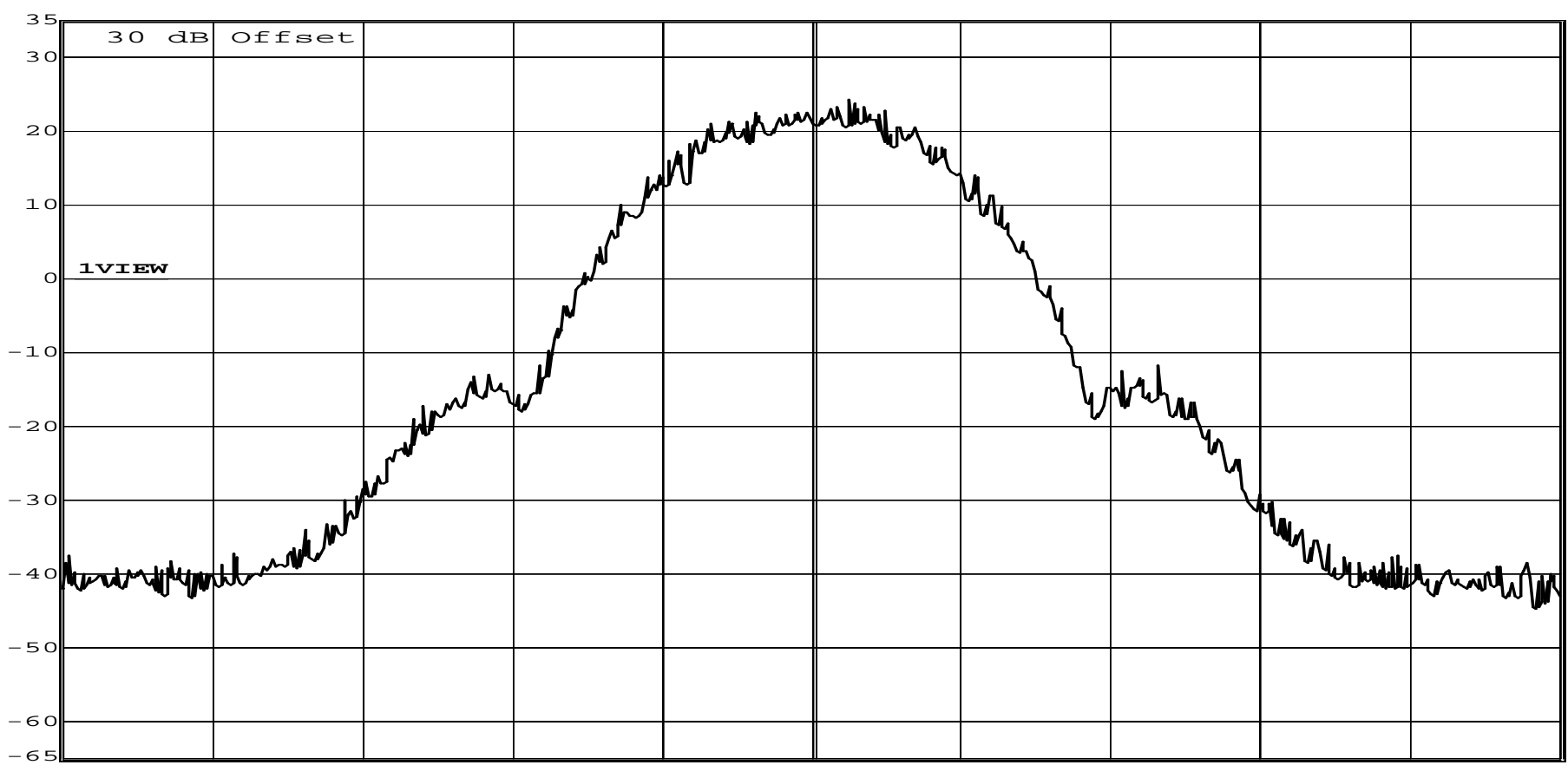
RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater
Digital Repeater	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2	Paragraph: 2.1049	Date:
Operating Mode:	Amplifying input signal		
Notes:	TDMA - Downlink, Output Signal		
Job No:	R-5372N		Technician:
		M.Seamans	



Ref Lvl 35 dBm RBW 3 kHz RF Att 20 dB
 VBW 10 kHz
 SWT 280 ms Unit dBm



Date: 3.NOV.2010 15:34:32

RETLIF TESTING LABORATORIES

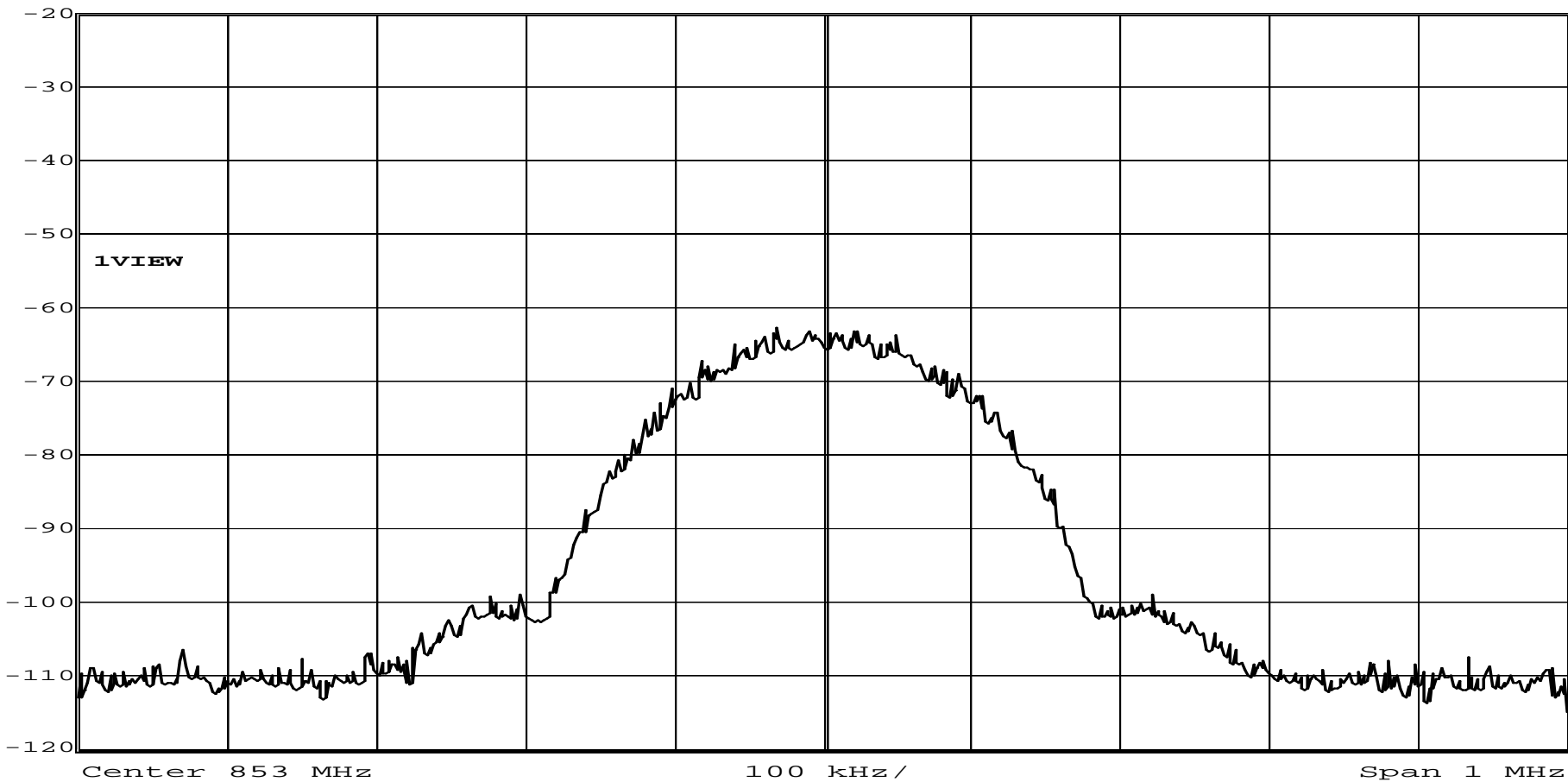
EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2	Paragraph: 2.1049	Date: 11/3/2010
Operating Mode:	Amplifying input signal		
Notes:	TDMA - Downlink, Input Signal		



Ref Lvl
-20 dBm

RBW 3 kHz RF Att 0 dB
 VBW 10 kHz
 SWT 280 ms Unit dBm



A

IN1
1MA

Date: 3.NOV.2010 15:31:06

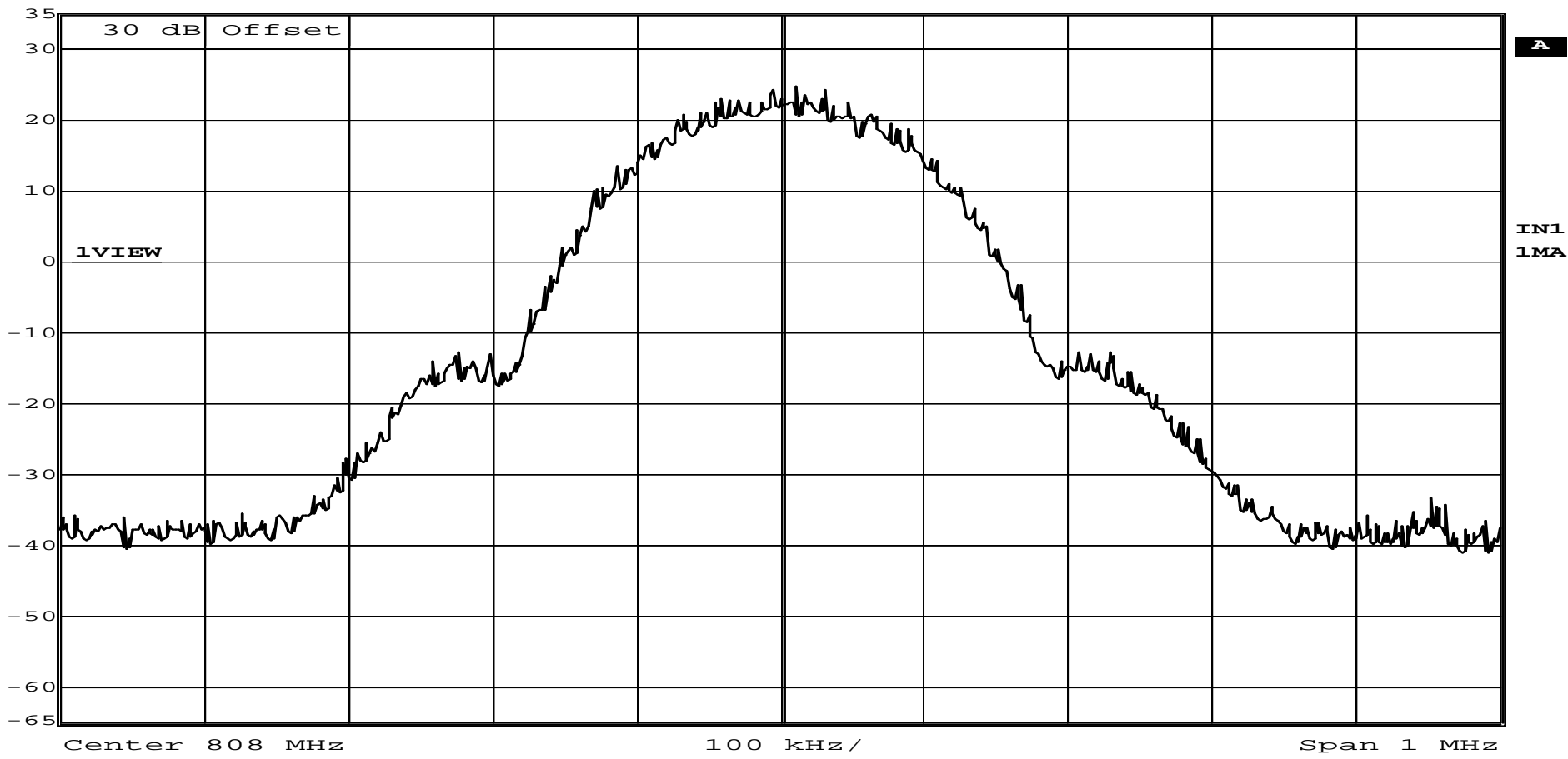
RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth			
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater	
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001	
Test Specification:	FCC Part 2	Paragraph:	2.1049	
Operating Mode:	Amplifying input signal			
Notes:	TDMA - Uplink, Output Signal			
Job No:	R-5372N		Technician:	M.Seamans
Date:	11/3/2010			



Ref Lvl 35 dBm	RBW 3 kHz	RF Att 20 dB	Unit dBm
	VBW 10 kHz		
	SWT 280 ms		



Date: 3.NOV.2010 15:35:56

RETLIF TESTING LABORATORIES

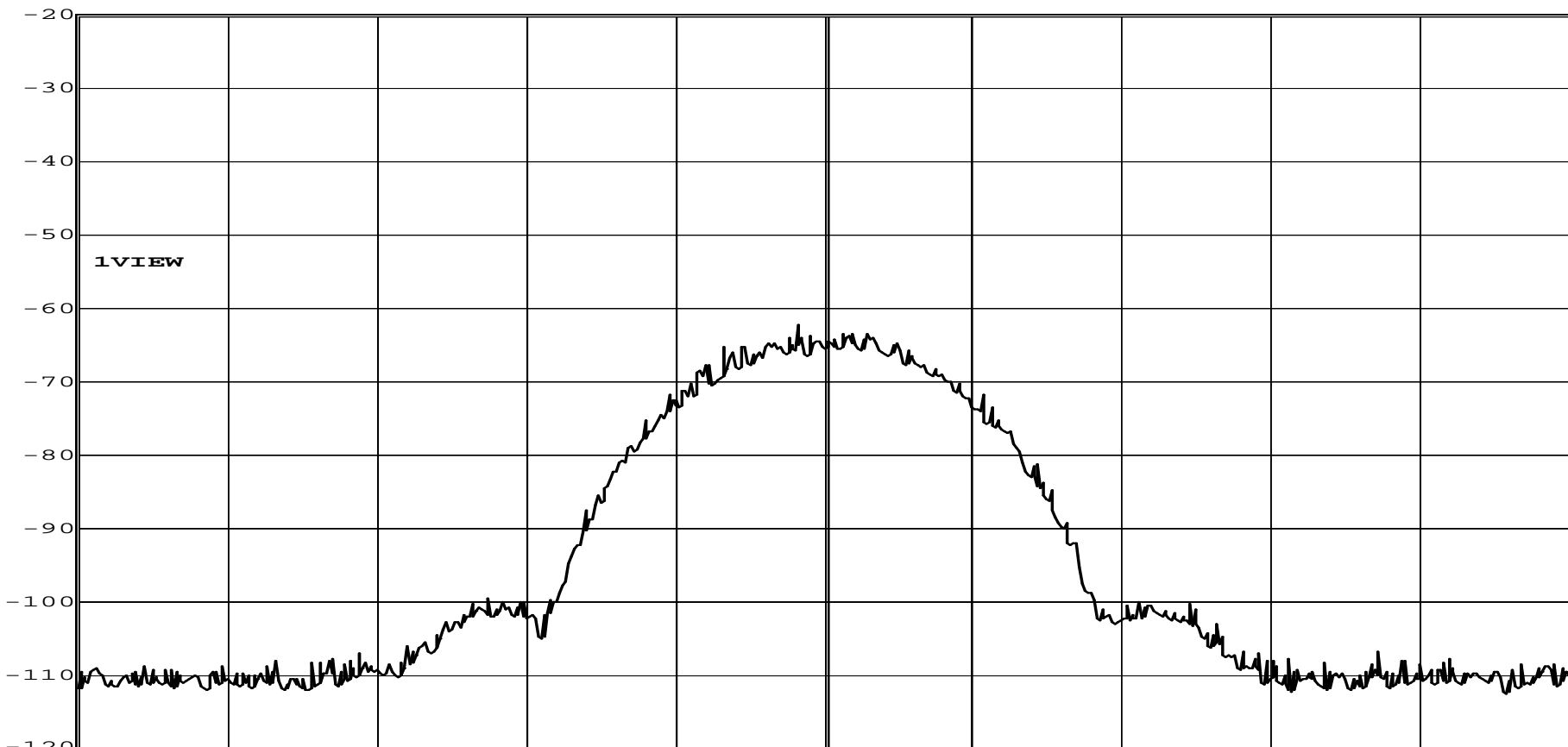
EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2	Paragraph:	2.1049
Operating Mode:	Amplifying input signal		
Notes:	TDMA - Uplink, Input Signal		
	Job No:	R-5372N	
	Technician:	M.Seamans	
	Date:	11/3/2010	



Ref Lvl
-20 dBm

RBW 3 kHz RF Att 0 dB
 VBW 10 kHz
 SWT 280 ms Unit dBm



Center 808 MHz
100 kHz/
Span 1 MHz

Date: 3.NOV.2010 15:29:56

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater
Digital Repeater	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2	Paragraph: 2.1049	Date:
Operating Mode:	Amplifying input signal		
Notes:	TDMA - Downlink, Output Signal		
Job No:	R-5372N		Technician:
			M.Seamans

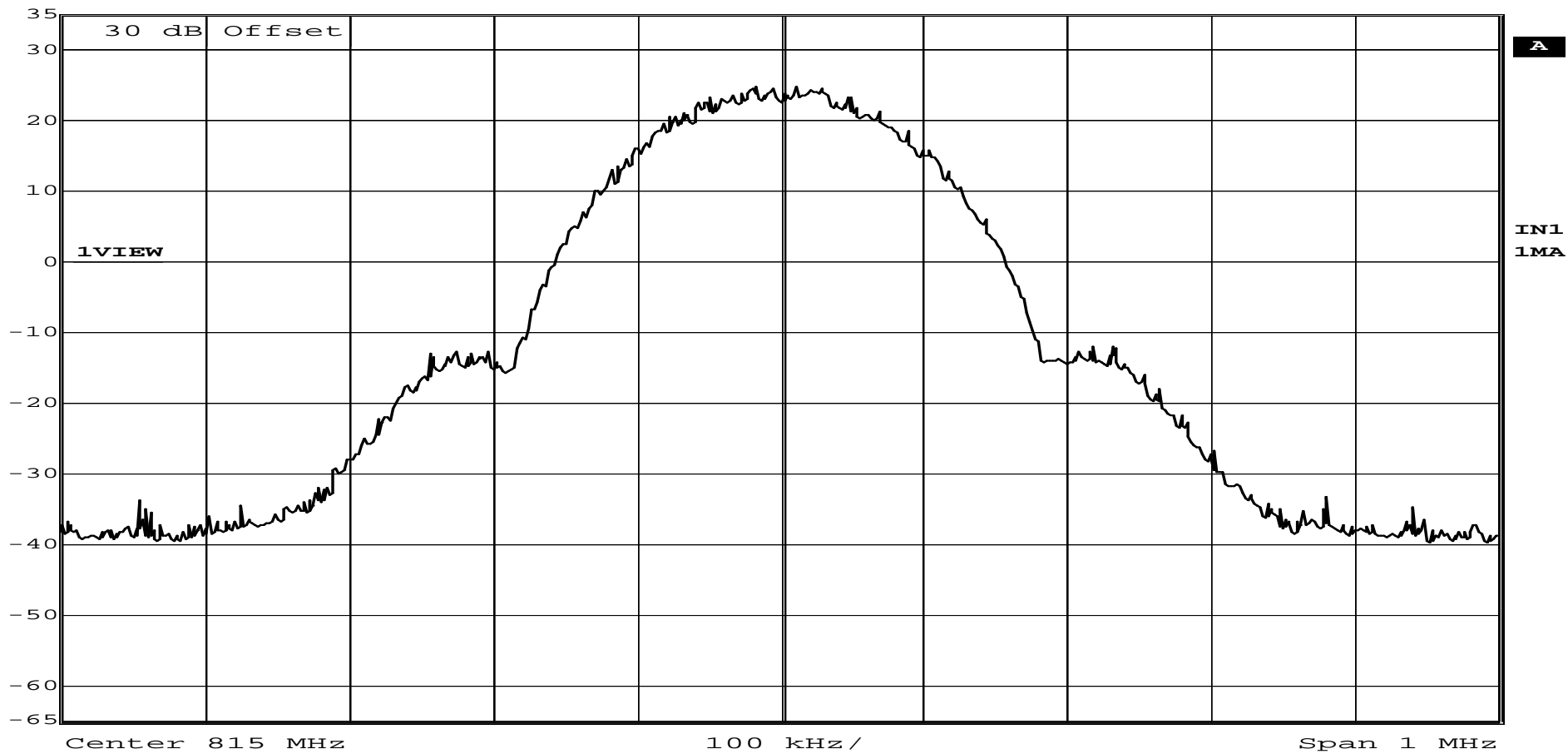


Ref Lvl
35 dBm

RBW 3 kHz RF Att 20 dB

VBW 10 kHz

SWT 280 ms Unit dBm



Date: 3.NOV.2010 15:06:28

RETLIF TESTING LABORATORIES

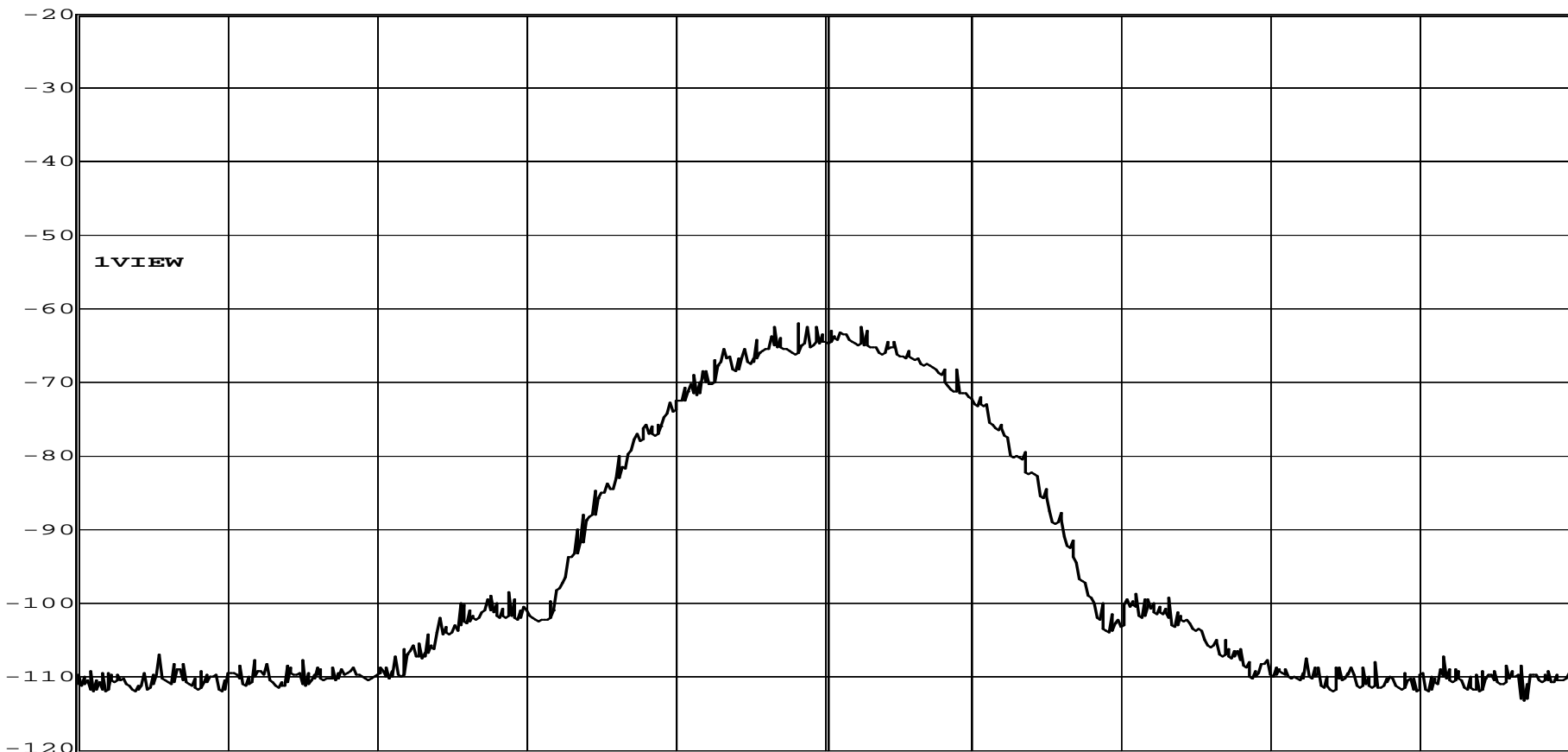
EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2	Paragraph: 2.1049	Date: 11/3/2010
Operating Mode:	Amplifying input signal		
Notes:	TDMA - Downlink, Input Signal		



Ref Lvl
-20 dBm

RBW 3 kHz RF Att 0 dB
 VBW 10 kHz
 SWT 280 ms Unit dBm



Center 815 MHz
100 kHz/
Span 1 MHz

Date: 3.NOV.2010 15:10:34

RETLIF TESTING LABORATORIES

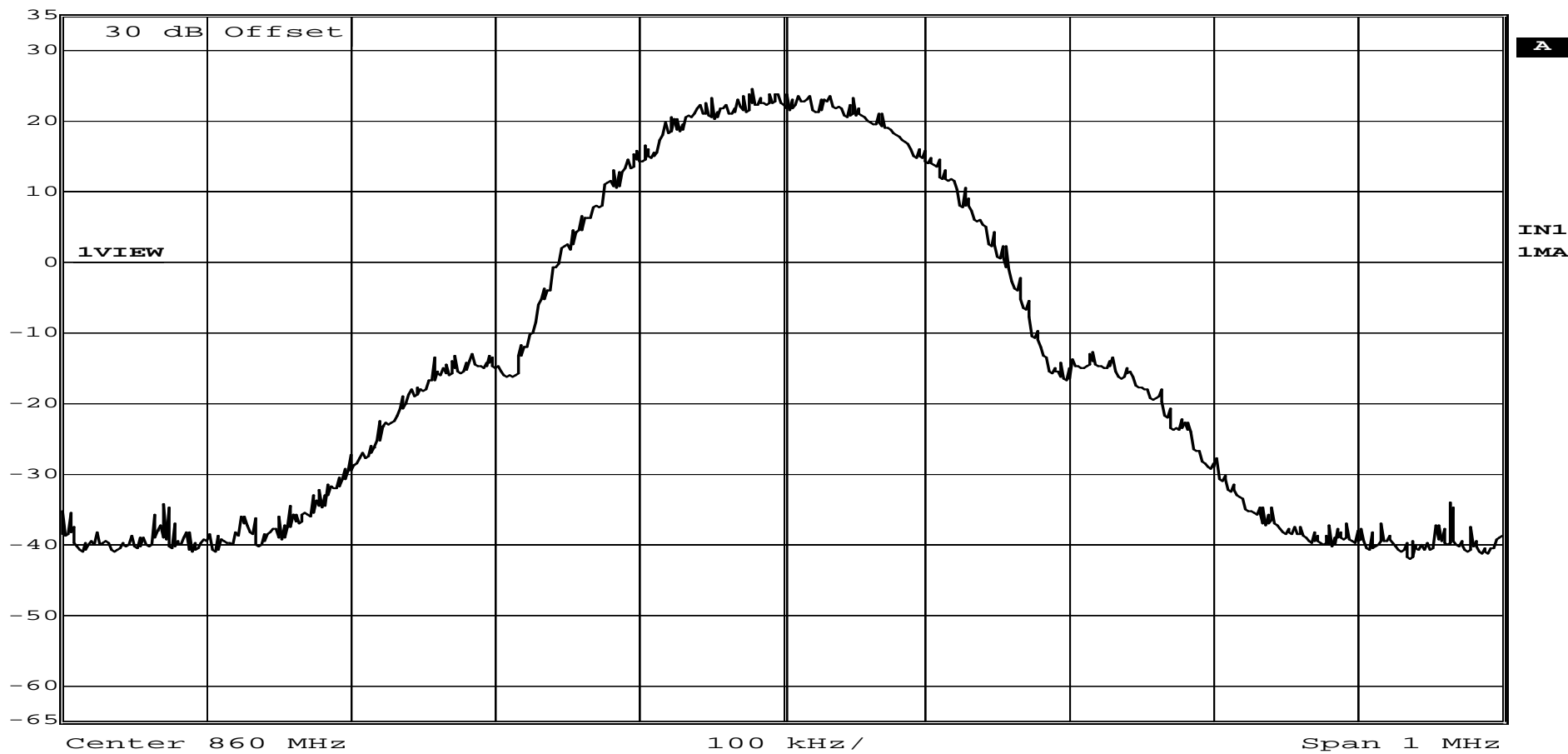
EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2	Paragraph: 2.1049	Date:
Operating Mode:	Amplifying input signal		
Notes:	TDMA - Uplink, Output Signal		
Job No:	R-5372N		Technician:
		M.Seamans	



Ref Lvl
35 dBm

RBW 3 kHz RF Att 20 dB
 VBW 10 kHz
 SWT 280 ms Unit dBm



Date: 3.NOV.2010 15:07:32

RETLIF TESTING LABORATORIES

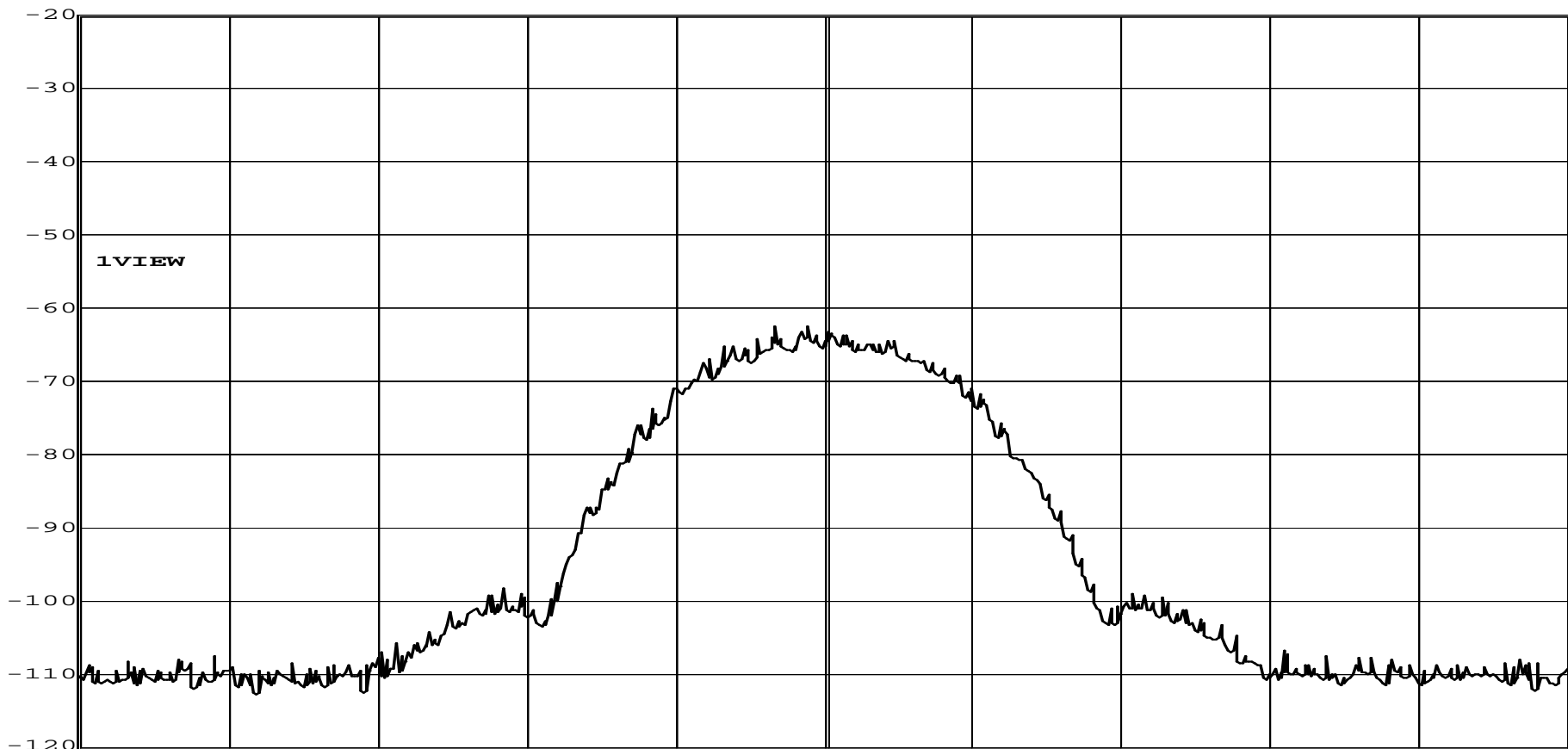
EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2	Paragraph: 2.1049	Date:
Operating Mode:	Amplifying input signal		
Notes:	TDMA - Uplink, Input Signal		
Job No:	R-5372N		Technician:
		M.Seamans	



Ref Lvl
-20 dBm

RBW 3 kHz RF Att 0 dB
 VBW 10 kHz
 SWT 280 ms Unit dBm



Center 860 MHz

100 kHz/

Span 1 MHz

Date: 3.NOV.2010 15:09:51

RETLIF TESTING LABORATORIES

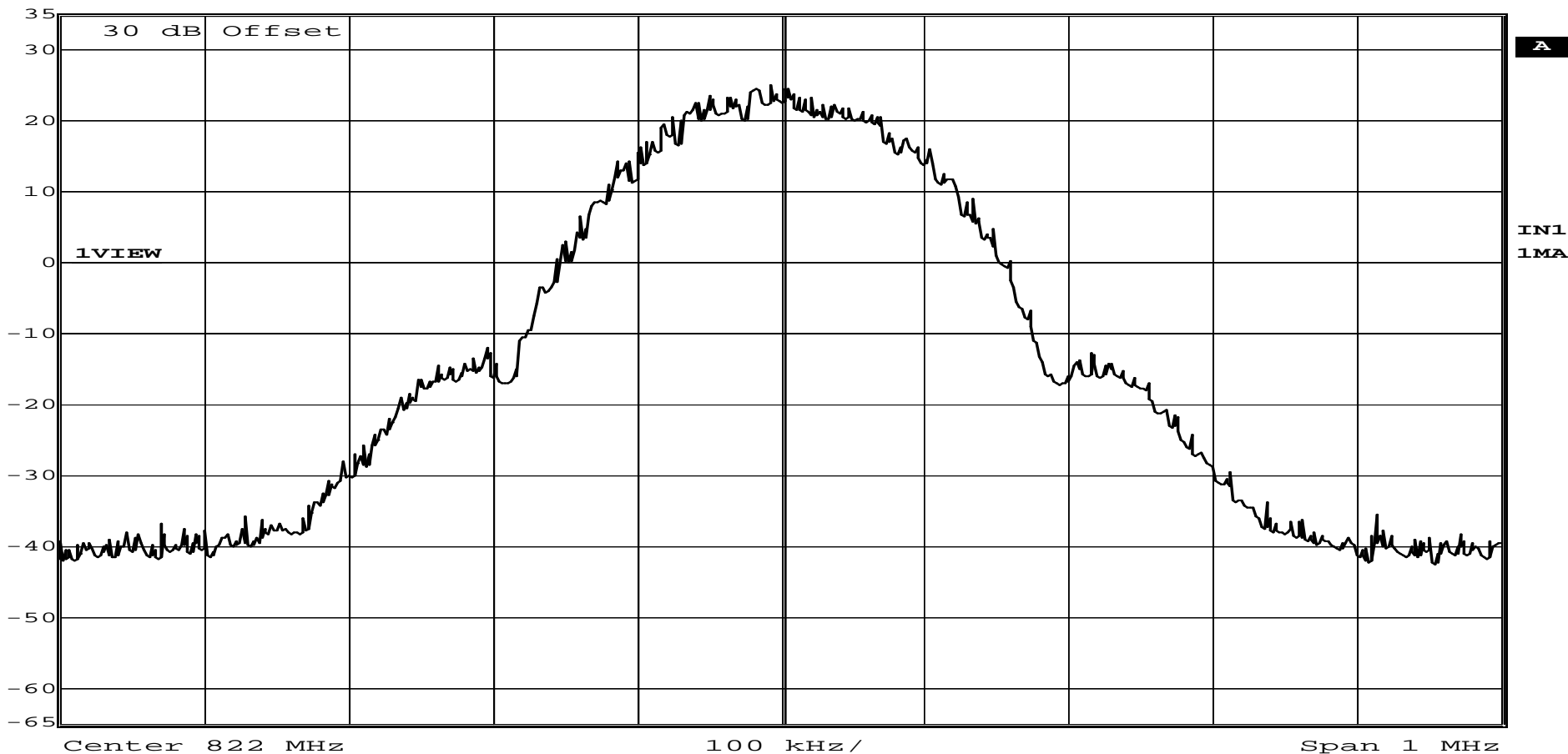
EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater
Digital Repeater	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2	Paragraph: 2.1049	Date:
Operating Mode:	Amplifying input signal		
Notes:	TDMA - Downlink, Output Signal		
	Job No:	R-5372N	
	Technician:	M.Seamans	



Ref Lvl
35 dBm

RBW 3 kHz RF Att 20 dB
 VBW 10 kHz
 SWT 280 ms Unit dBm



Date: 3.NOV.2010 15:36:21

RETLIF TESTING LABORATORIES

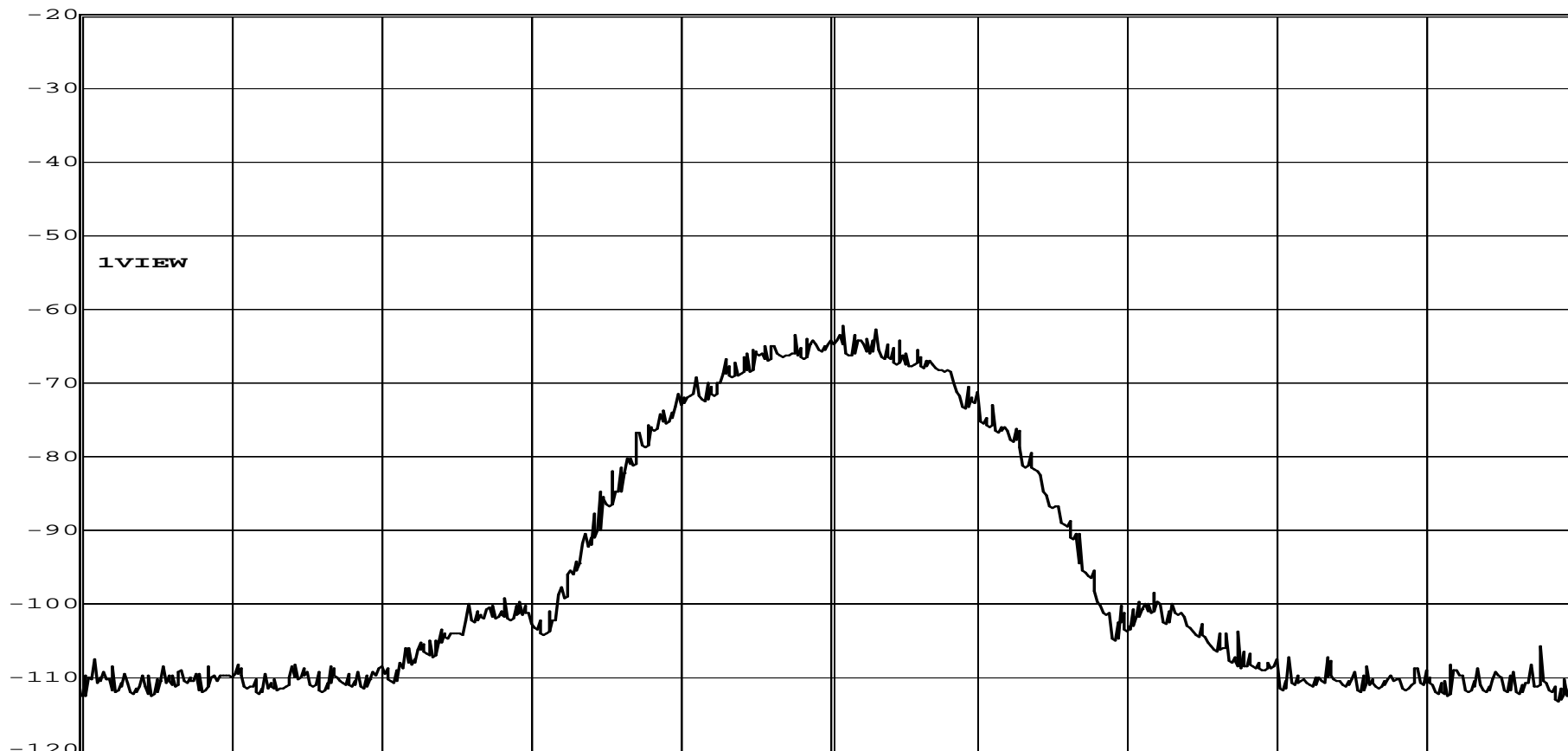
EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001
Test Specification:	FCC Part 2	Paragraph: 2.1049	Date:
Operating Mode:	Amplifying input signal		
Notes:	TDMA - Downlink, Input Signal		
Job No:	R-5372N		Technician:
		M.Seamans	



Ref Lvl
-20 dBm

RBW 3 kHz RF Att 0 dB
VBW 10 kHz
SWT 280 ms Unit dBm



Date: 3.NOV.2010 15:30:30

RETLIF TESTING LABORATORIES

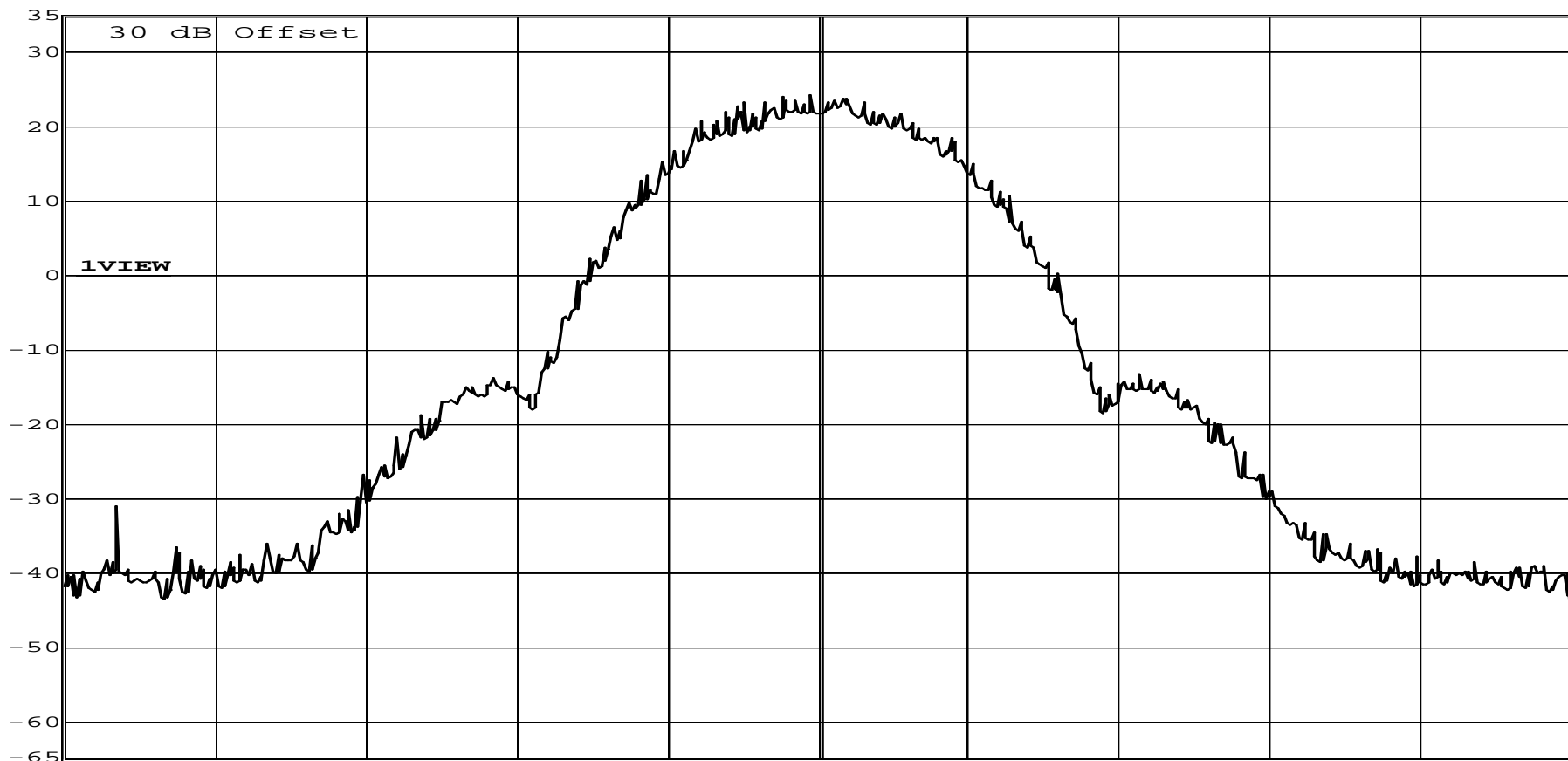
EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth			
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater	
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001	
Test Specification:	FCC Part 2	Paragraph:	2.1049	
Operating Mode:	Amplifying input signal			
Notes:	TDMA - Uplink, Output Signal			
Job No:	R-5372N		Technician:	M.Seamans
Date:	11/3/2010			



Ref Lvl
35 dBm

RBW 3 kHz RF Att 20 dB
 VBW 10 kHz
 SWT 280 ms Unit dBm



A

IN1
1MA

Center 867 MHz

100 kHz/

Span 1 MHz

Date: 3.NOV.2010 15:34:58

RETLIF TESTING LABORATORIES

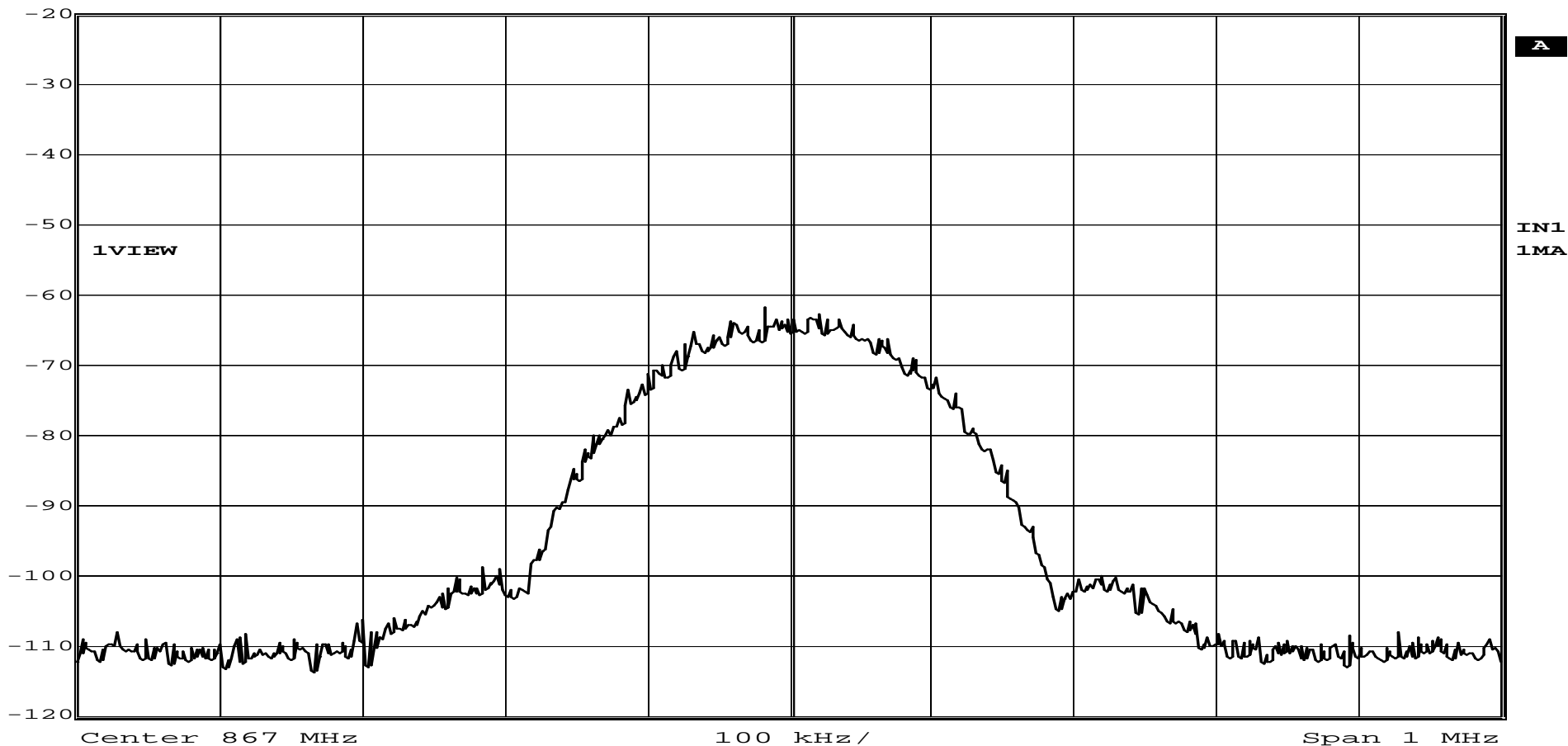
EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth				
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater	Job No:	R-5372N
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001	Technician:	M.Seamans
Test Specification:	FCC Part 2	Paragraph:	2.1049	Date:	11/3/2010
Operating Mode:	Amplifying input signal				
Notes:	TDMA - Uplink, Input Signal				



Ref Lvl
-20 dBm

RBW 3 kHz RF Att 0 dB
VBW 10 kHz
SWT 280 ms Unit dBm



Date: 3.NOV.2010 15:31:42

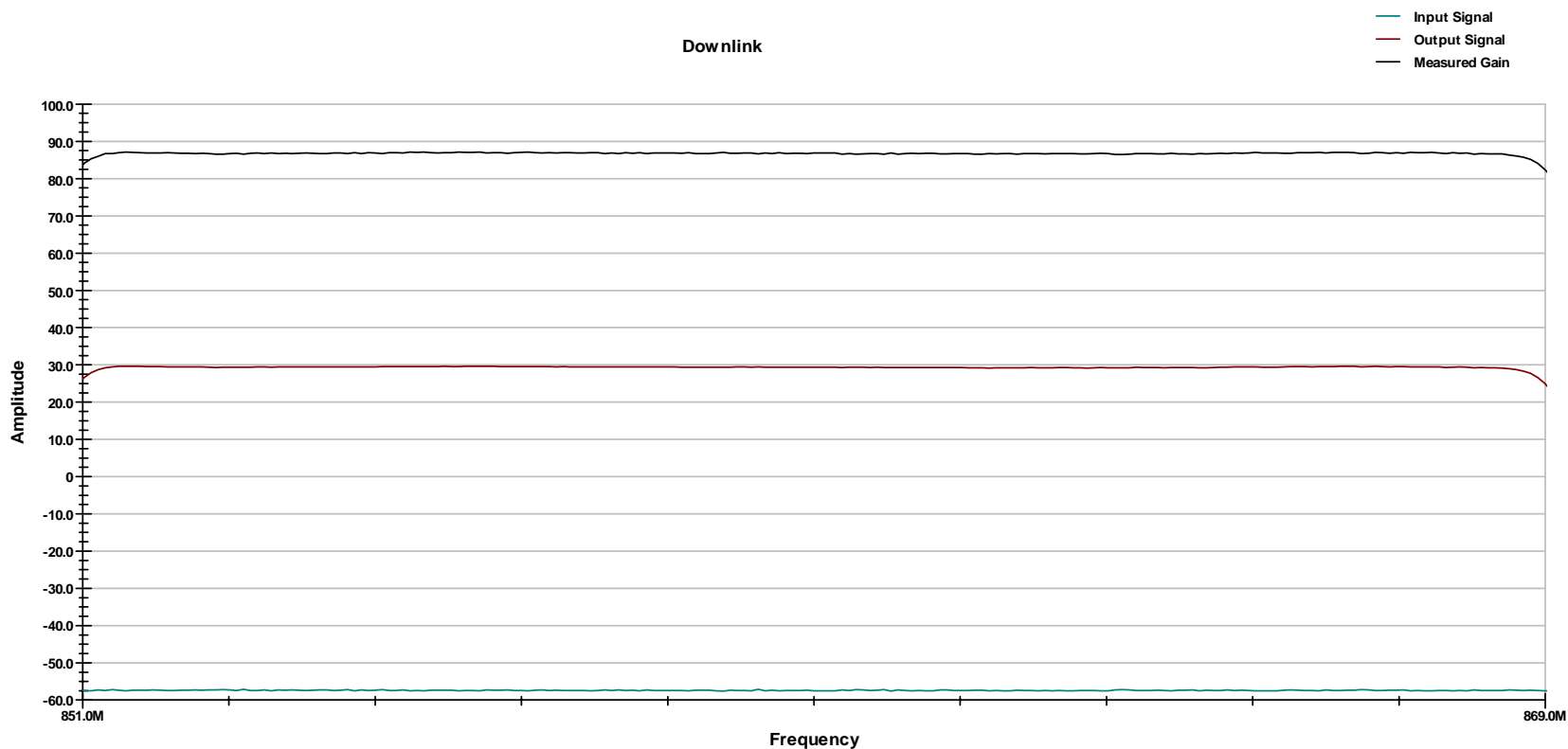
RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Passband Gain and Bandwidth				
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater	Job No:	R-5408N
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001	Technician:	T. Hannemann
Test Specification:	RSS			Date:	11/8/2010
Operating Mode:	Amplifying input signal				
Notes:	Downlink				

Passband Gain Plot

Downlink



Graph Start and Stop Frequencies are Band Edges

Operator: T. Hannemann

Customer: Cellular Specialties, Inc.

02:57:07 PM, Monday, November 08, 2010

Job Number: R-5408N

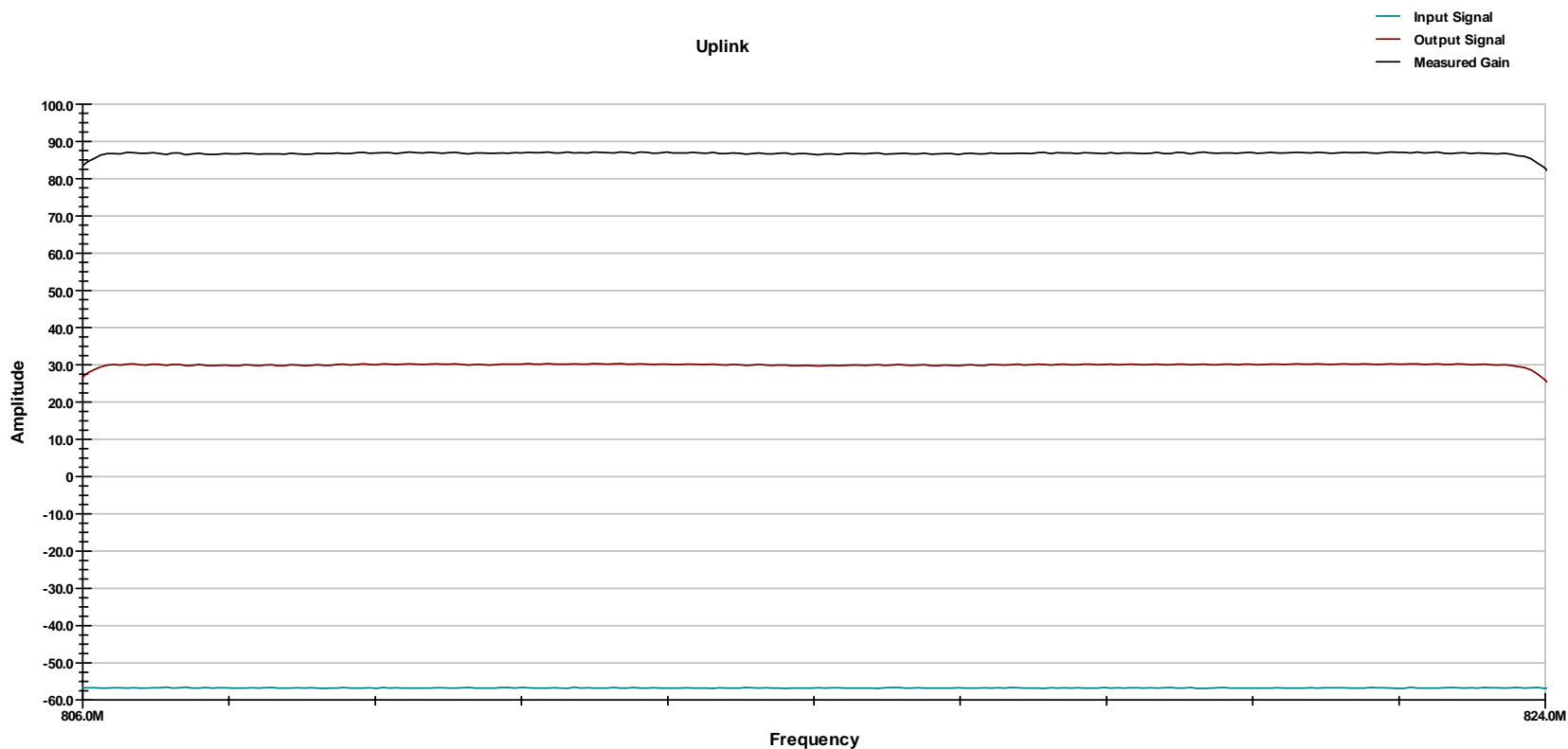
RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Passband Gain and Bandwidth				
Customer:	Cellular Specialties, Inc.	Test Sample:	Digital Repeater	Job No:	R-5408N
Model No:	CSI-DSP85-25X-S8	Serial No:	C0000001	Technician:	T. Hannemann
Test Specification:	RSS			Date:	11/8/2010
Operating Mode:	Amplifying input signal				
Notes:	Uplink				

Passband Gain Plot

Uplink



Graph Start and Stop Frequencies are Band Edges

Operator: T. Hannemann

Customer: Cellular Specialties, Inc.

02:57:07 PM, Monday, November 08, 2010

Job Number: R-5408N