

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Amplifying signal				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C Relative Humidity 17.5%				
Notes	Uplink Output: 806.01250MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)

#Atten: 30 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

LVI **PASS**

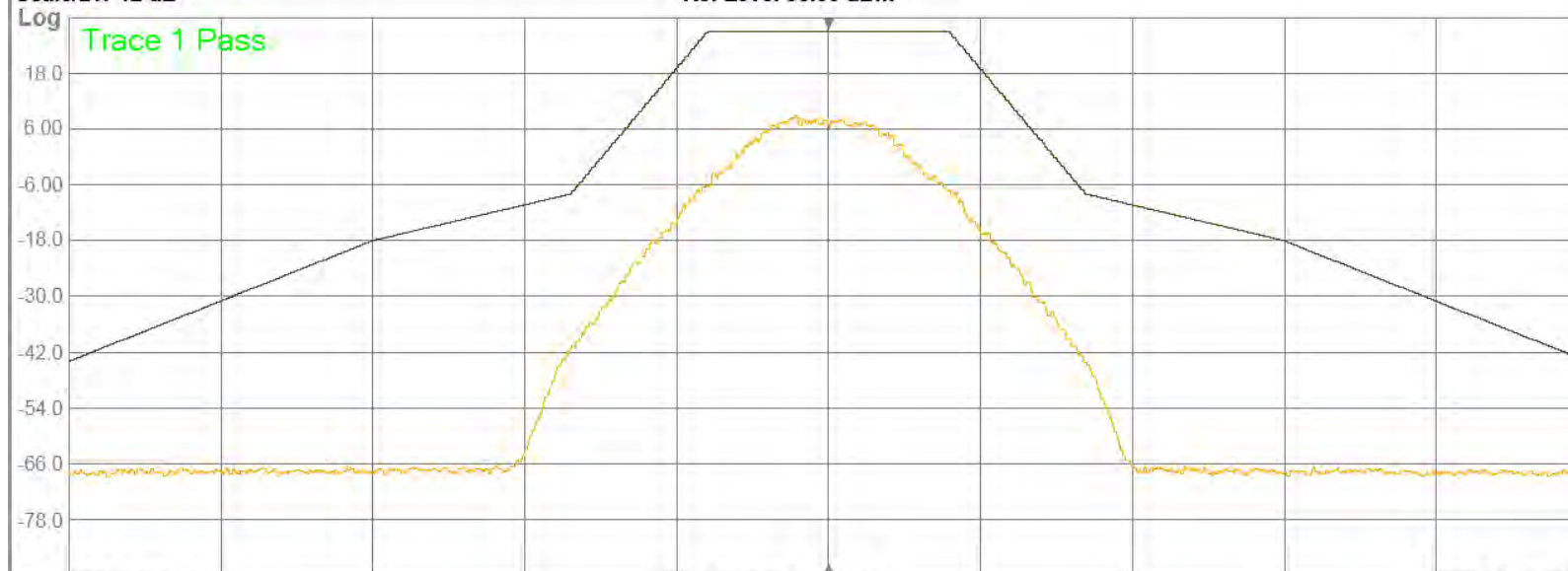
1 Spectrum

Scale/Div 12 dB

Log

Trace 1 Pass

Ref Lvl Offset 10.55 dB
Ref Level 30.00 dBm



Center 806.01250 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017 9:19:10 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison			
Customer	Westell, Inc.	Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier			
Model Number	BDA510-S8	Serial No.	CPG62990	
Operating Mode	Signal Generator Output			
Test Specification	Nemko Test Plan 317856-2			
Technician	T. Hannemann	Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C	Relative Humidity 17.5%		
Notes	Uplink Input: 806.01250MHz	Modulation:8K10F1D	Authorized BW: 11.25kHz	Emission Mask: H

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 0 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

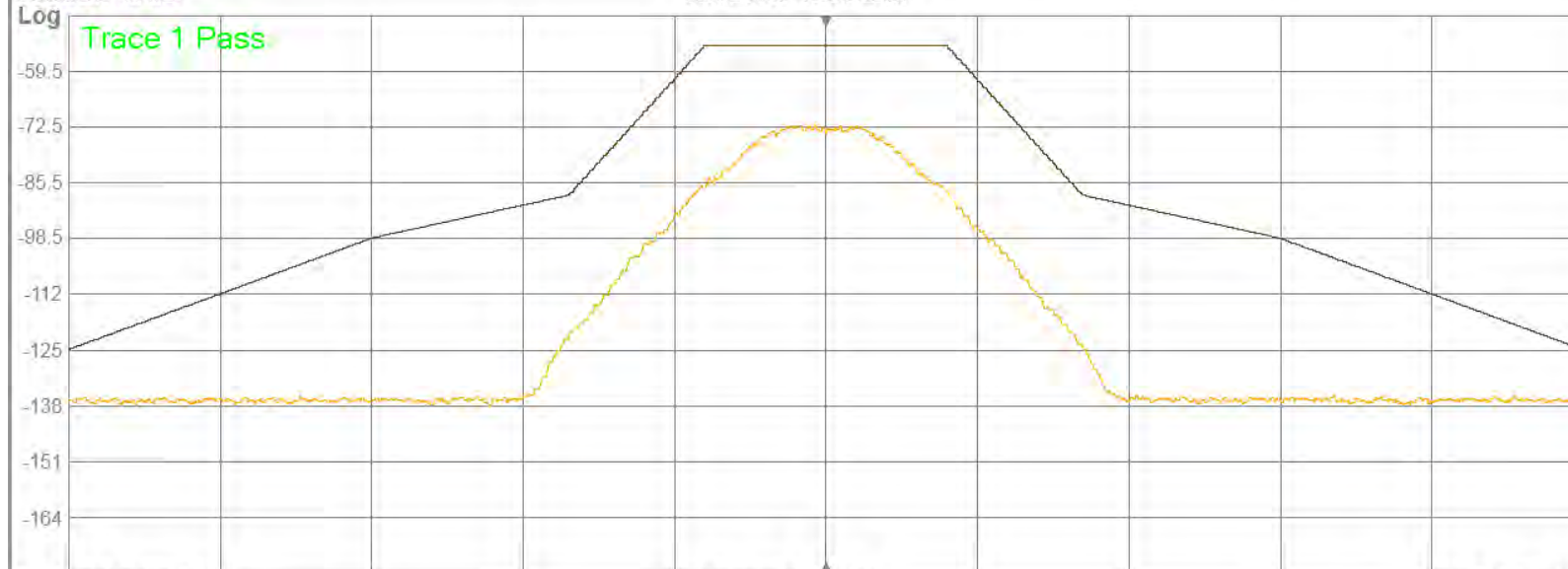
1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

L17 **PASS**

1 Spectrum

Scale/Div 13 dB

Ref Level -46.54 dBm



Center 806.01250 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017 8:05:10 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Amplifying signal, AGC Activated				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C Relative Humidity 17.5%				
Notes	Uplink Output: 806.01250MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)

#Atten: 30 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

LVI **PASS**

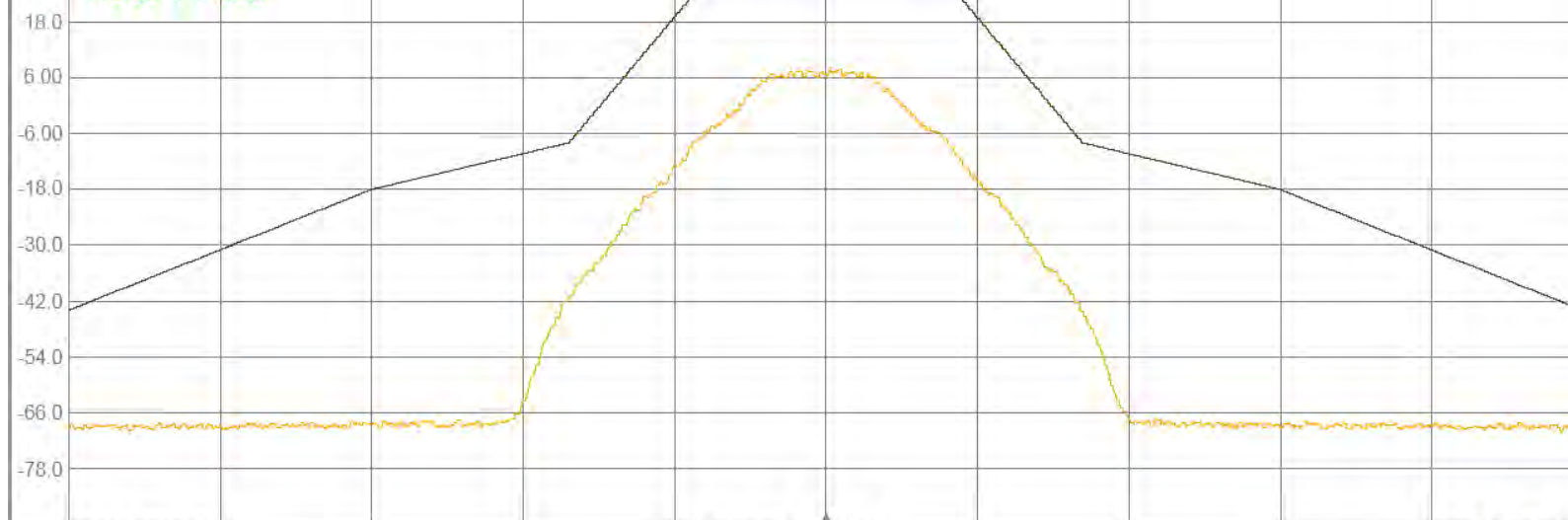
1 Spectrum

Scale/Div 12 dB

Log

Ref Lvl Offset 10.55 dB
Ref Level 30.00 dBm

Trace 1 Pass



Center 811.00000 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017 9:16:59 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison			
Customer	Westell, Inc.	Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier			
Model Number	BDA510-S8	Serial No.	CPG62990	
Operating Mode	Signal Generator Output, AGC Activated			
Test Specification	Nemko Test Plan 317856-2			
Technician	T. Hannemann	Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C	Relative Humidity 17.5%		
Notes	Uplink Input: 806.01250MHz	Modulation:8K10F1D	Authorized BW: 11.25kHz	Emission Mask: H

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 0 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

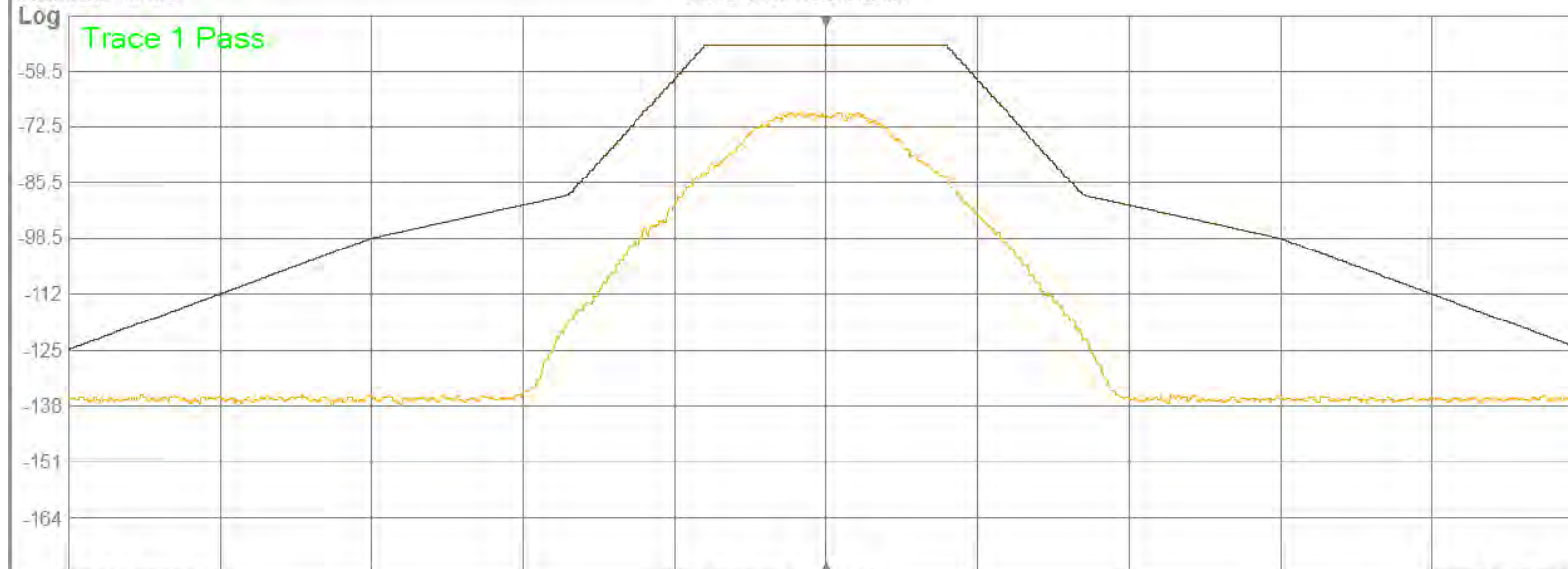
1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

L17 **PASS**

1 Spectrum

Scale/Div 13 dB

Ref Level -46.54 dBm



Center 811.00000 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017 8:18:09 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Amplifying signal				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C Relative Humidity 17.5%				
Notes	Uplink Output: 811.000MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 0 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

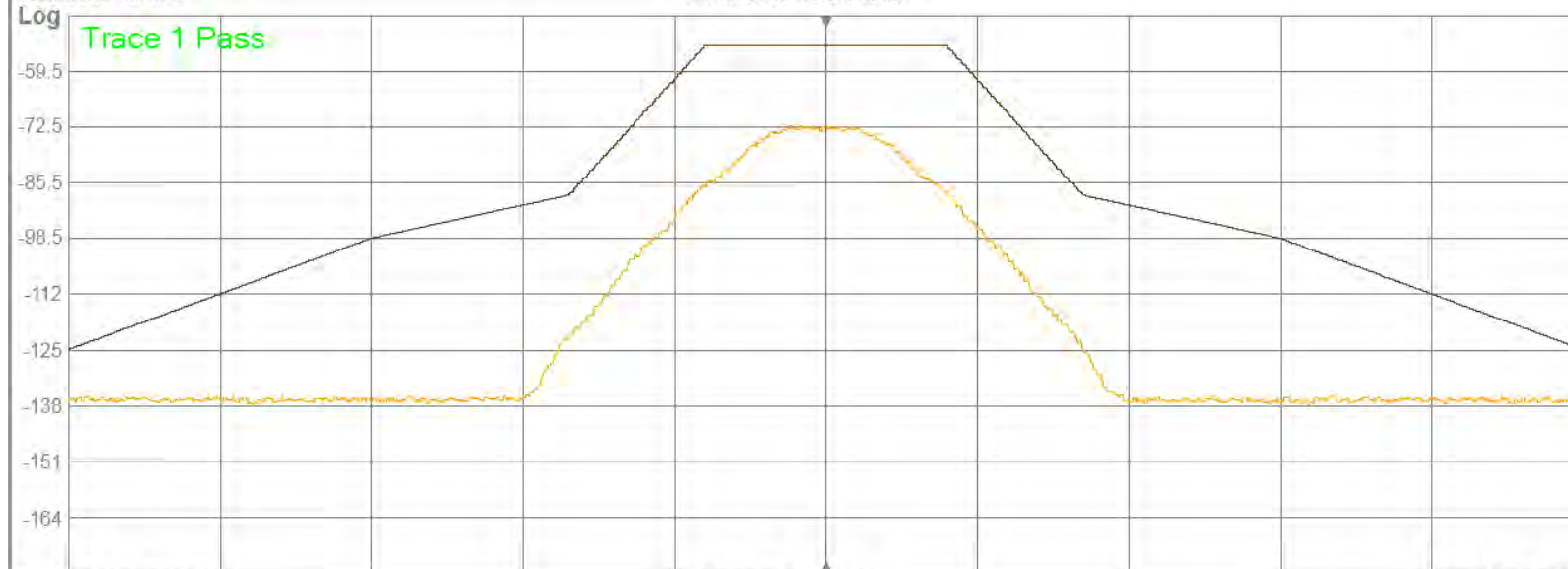
1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

L17 **PASS**

1 Spectrum

Scale/Div 13 dB

Ref Level -46.54 dBm



Center 811.00000 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017
8:17:33 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Signal Generator Output				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C		Relative Humidity 17.5%		
Notes	Uplink Input: 811.000MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 0 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

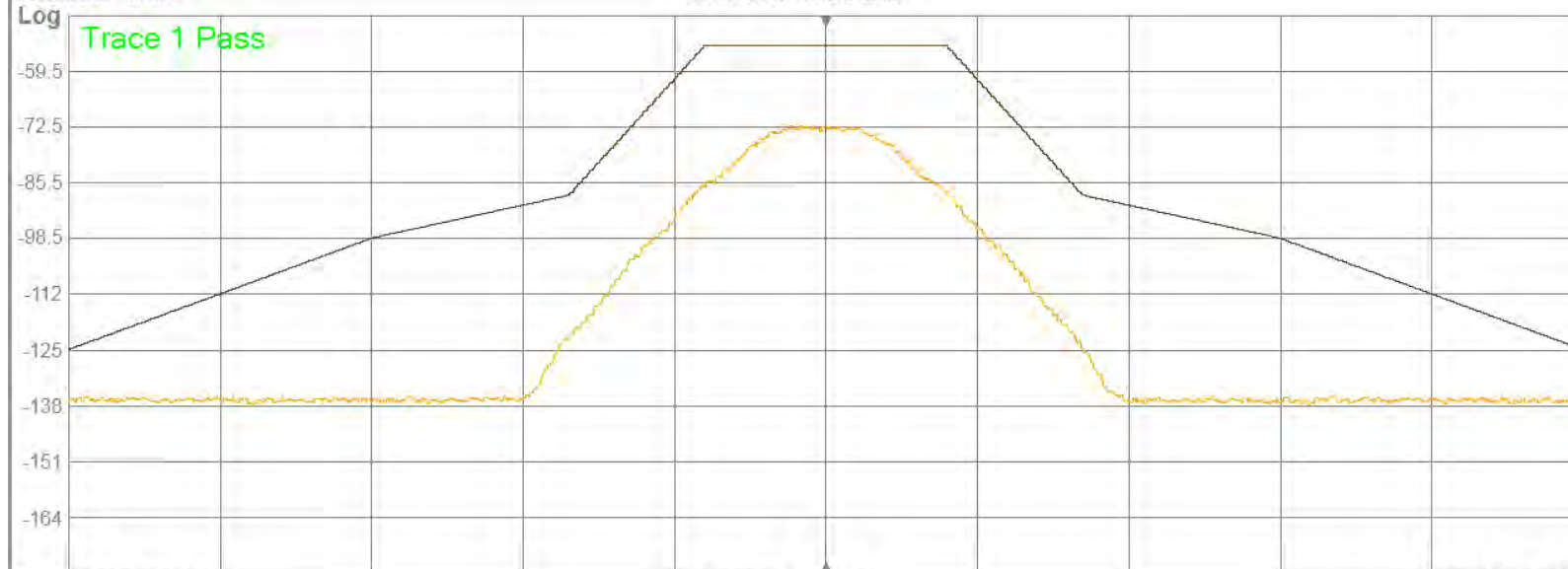
1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

L17 **PASS**

1 Spectrum

Scale/Div 13 dB

Ref Level -46.54 dBm



Center 811.00000 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017
8:17:33 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Amplifying signal, AGC Activated				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C		Relative Humidity 17.5%		
Notes	Uplink Output: 811.000MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)

#Atten: 30 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

LVI **PASS**

1 Spectrum

Scale/Div 12 dB

Log

Ref Lvl Offset 10.55 dB
Ref Level 30.00 dBm

Trace 1 Pass



Center 811.00000 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017 9:16:59 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Signal Generator Output, AGC Activated				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C		Relative Humidity 17.5%		
Notes	Uplink Input: 811.000MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 0 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

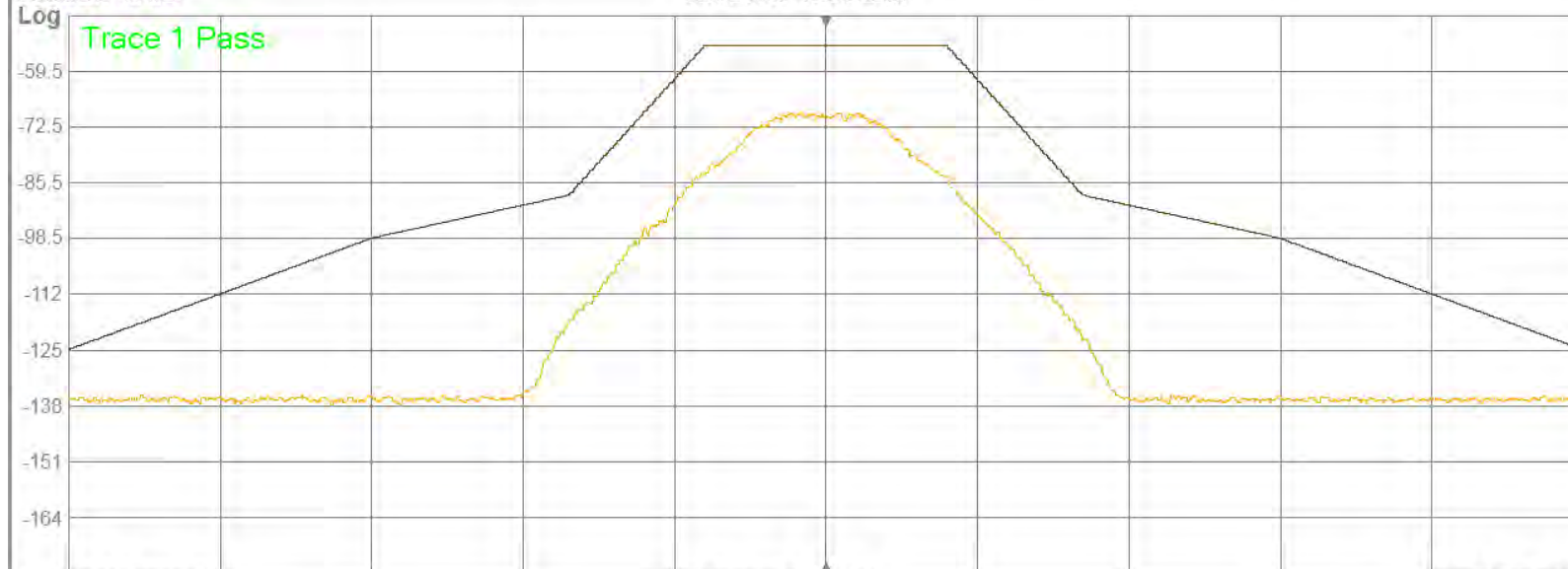
1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

L17 **PASS**

1 Spectrum

Scale/Div 13 dB

Ref Level -46.54 dBm



Center 811.00000 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017 8:18:09 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Amplifying signal				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C Relative Humidity 17.5%				
Notes	Uplink Output: 815.98750MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 30 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

LVI **PASS**

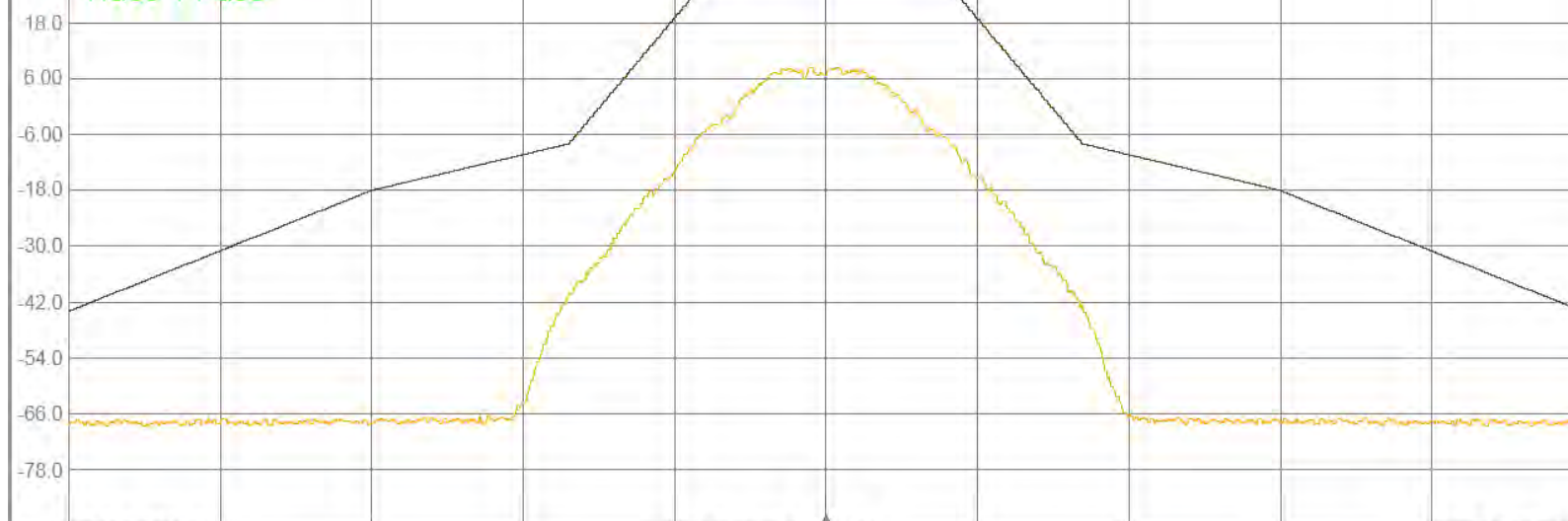
1 Spectrum

Scale/Div 12 dB

Log

Ref Lvl Offset 10.55 dB
Ref Level 30.00 dBm

Trace 1 Pass



Center 815.98750 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017 9:14:09 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison			
Customer	Westell, Inc.	Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier			
Model Number	BDA510-S8	Serial No.	CPG62990	
Operating Mode	Signal Generator Output			
Test Specification	Nemko Test Plan 317856-2			
Technician	T. Hannemann	Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C	Relative Humidity 17.5%		
Notes	Uplink Input: 815.98750MHz	Modulation:8K10F1D	Authorized BW: 11.25kHz	Emission Mask: H

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 0 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

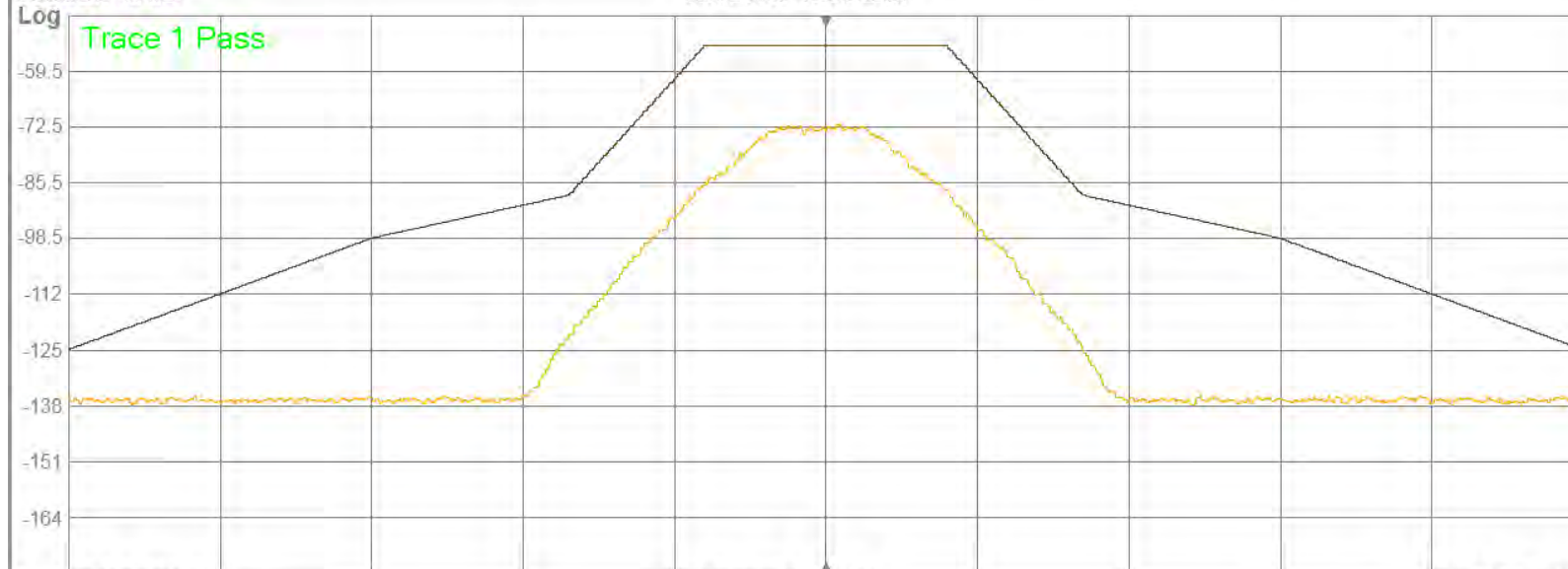
1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

L17 **PASS**

1 Spectrum

Scale/Div 13 dB

Ref Level -46.54 dBm



Center 815.98750 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017 8:21:01 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Amplifying signal, AGC Activated				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C Relative Humidity 17.5%				
Notes	Uplink Output: 815.98750MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 30 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

LVI **PASS**

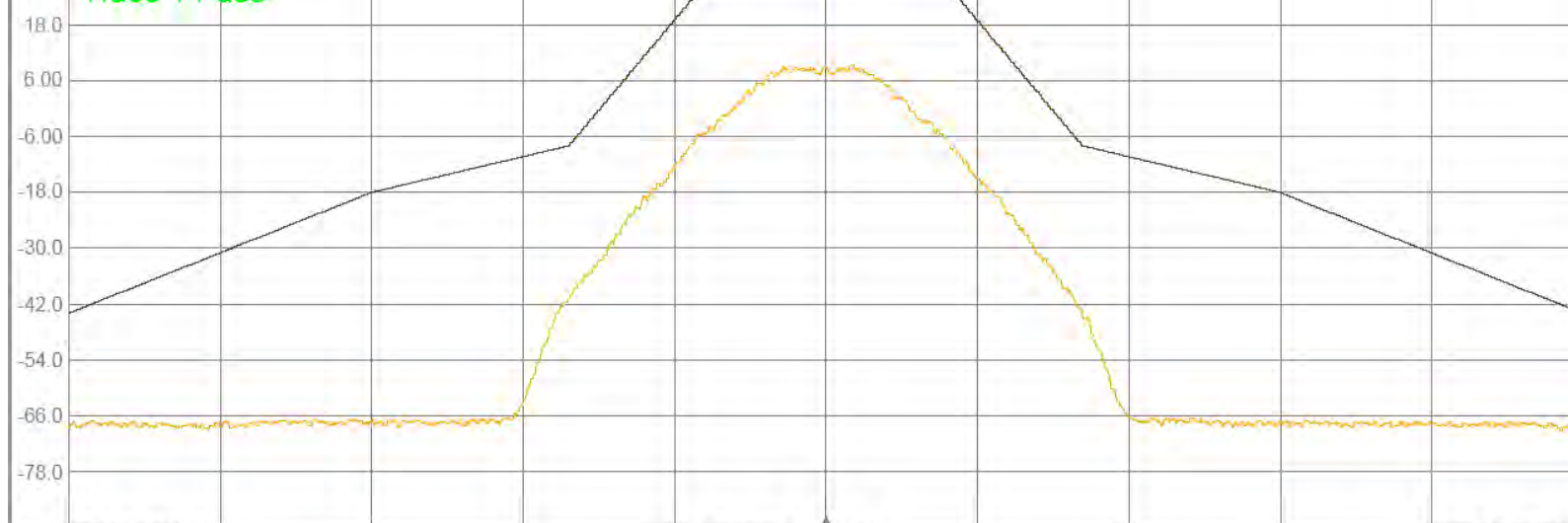
1 Spectrum

Scale/Div 12 dB

Log

Ref Lvl Offset 10.55 dB
Ref Level 30.00 dBm

Trace 1 Pass



Center 815.98750 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017 9:15:03 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison			
Customer	Westell, Inc.	Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier			
Model Number	BDA510-S8	Serial No.	CPG62990	
Operating Mode	Signal Generator Output, AGC Activated			
Test Specification	Nemko Test Plan 317856-2			
Technician	T. Hannemann	Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C	Relative Humidity 17.5%		
Notes	Uplink Input: 815.98750MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H			

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 0 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

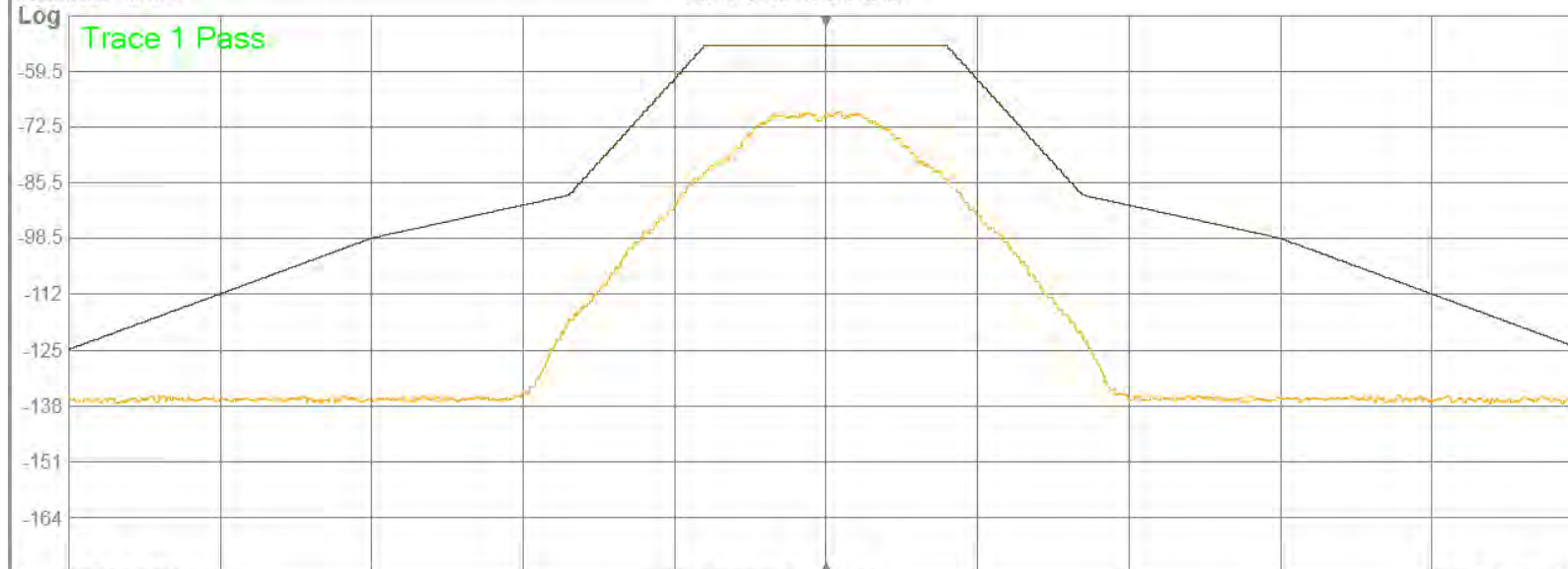
1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

L17 **PASS**

1 Spectrum

Scale/Div 13 dB

Ref Level -46.54 dBm



Center 815.98750 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017
8:23:56 AM

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RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Amplifying signal				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C Relative Humidity 17.5%				
Notes	Downlink Output: 851.01250MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 30 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Ave/Hold: >100/100
Trig: Free Run

1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

LVI **PASS**

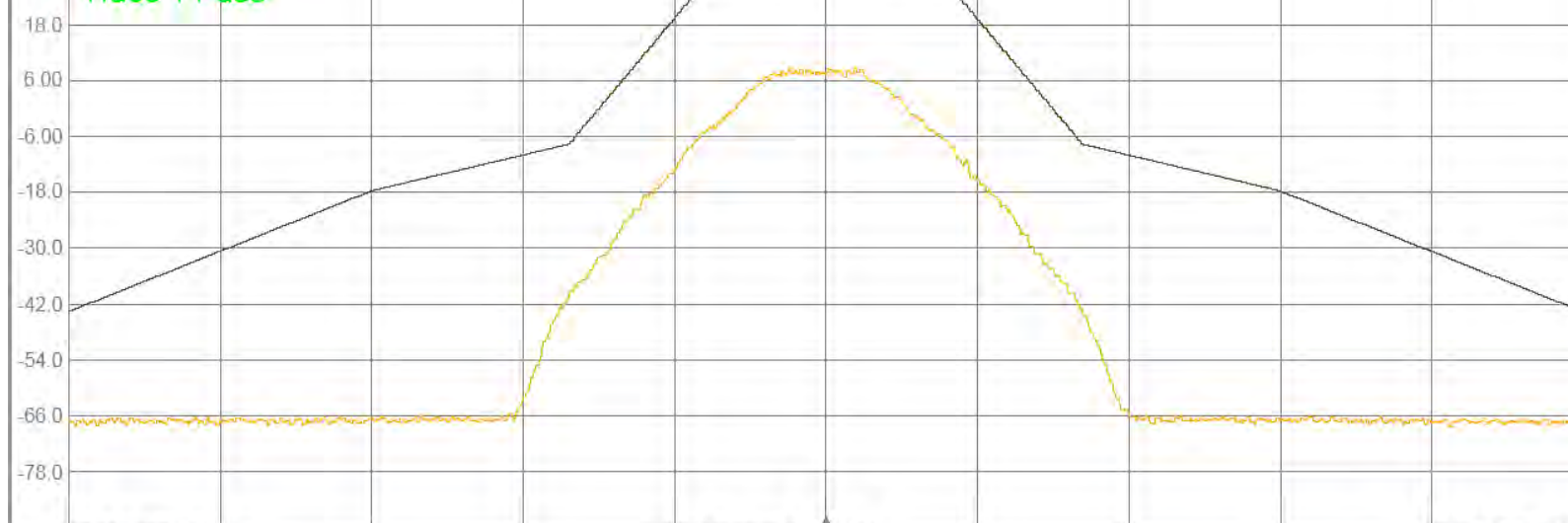
1 Spectrum

Scale/Div 12 dB

Log

Ref Lvl Offset 10.55 dB
Ref Level 30.00 dBm

Trace 1 Pass



Center 851.01250 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017
8:58:50 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison			
Customer	Westell, Inc.	Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier			
Model Number	BDA510-S8	Serial No.	CPG62990	
Operating Mode	Signal Generator Output			
Test Specification	Nemko Test Plan 317856-2			
Technician	T. Hannemann	Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C	Relative Humidity 17.5%		
Notes	Downlink Input: 851.01250MHz	Modulation:8K10F1D	Authorized BW: 11.25kHz	Emission Mask: H

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 0 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

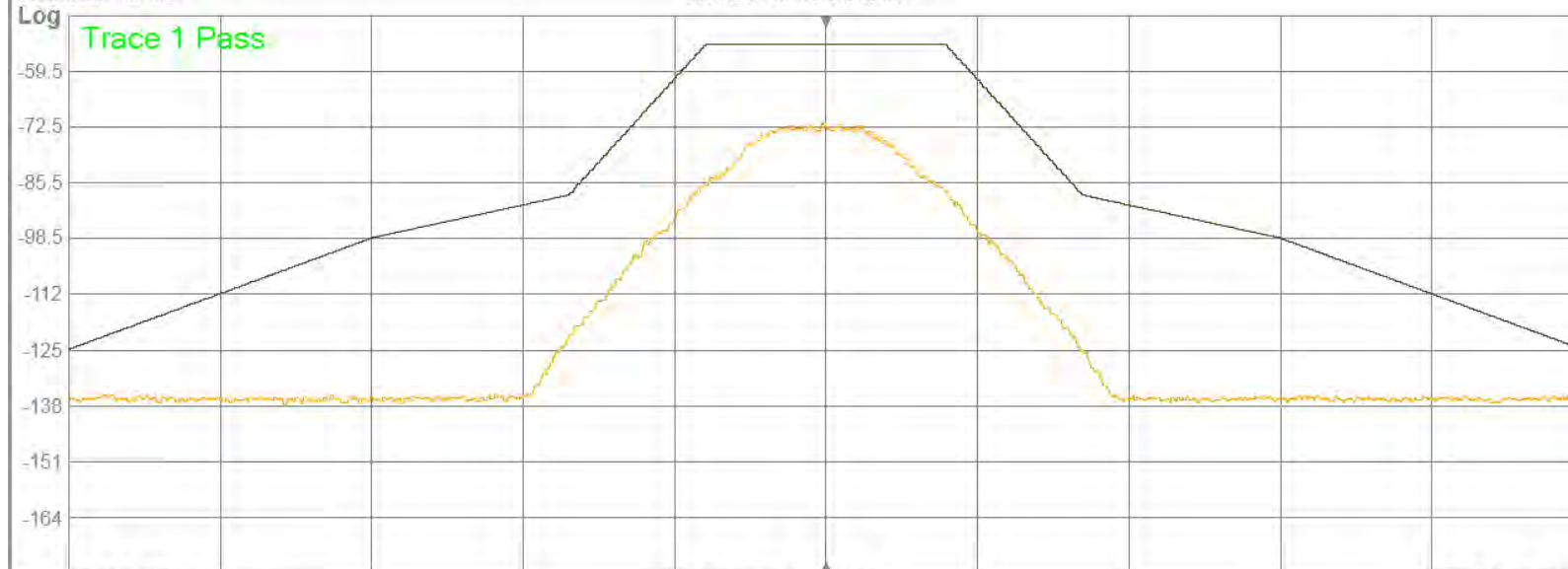
1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

L17 **PASS**

1 Spectrum

Scale/Div 13 dB

Ref Level -46.54 dBm



Center 851.01250 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017 8:28:08 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Amplifying signal, AGC Activated				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C		Relative Humidity 17.5%		
Notes	Downlink Output: 851.01250MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 30 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

LVI **PASS**

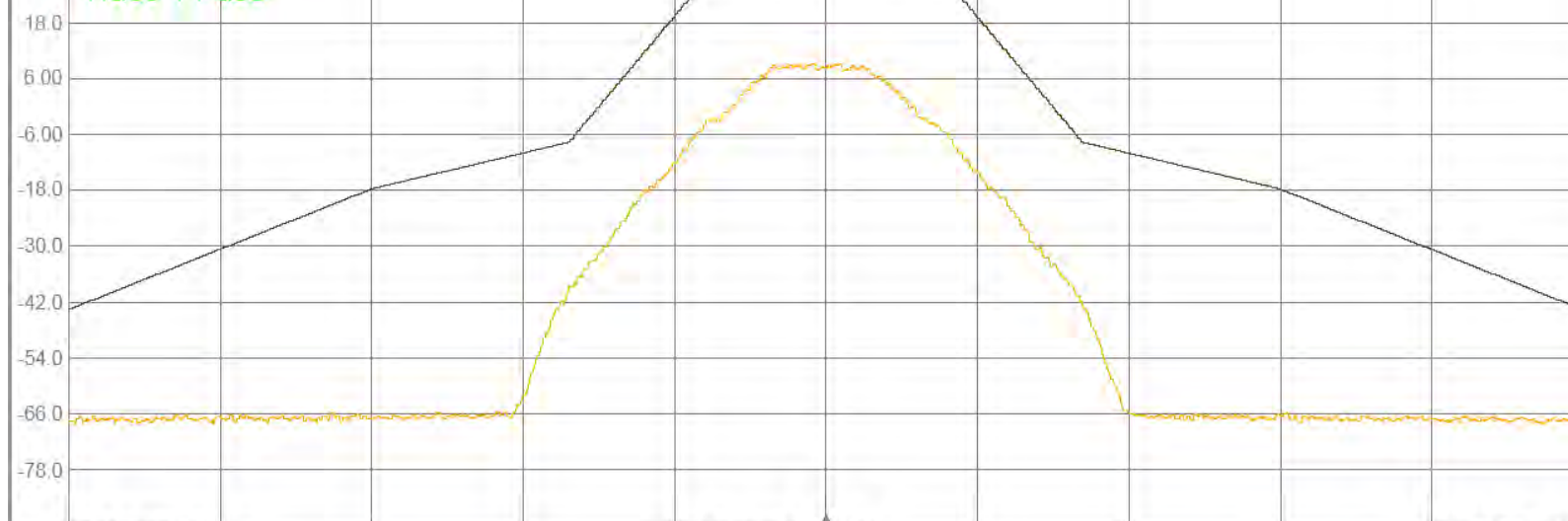
1 Spectrum

Scale/Div 12 dB

Log

Ref Lvl Offset 10.55 dB
Ref Level 30.00 dBm

Trace 1 Pass



Center 851.01250 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017 8:59:15 AM

Navigation icons: Grid, Pointer, Zoom, Pan, etc.

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison			
Customer	Westell, Inc.	Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier			
Model Number	BDA510-S8	Serial No.	CPG62990	
Operating Mode	Signal Generator Output, AGC Activated			
Test Specification	Nemko Test Plan 317856-2			
Technician	T. Hannemann	Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C	Relative Humidity 17.5%		
Notes	Downlink Input: 851.01250MHz	Modulation:8K10F1D	Authorized BW: 11.25kHz	Emission Mask: H

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)

#Atten: 0 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

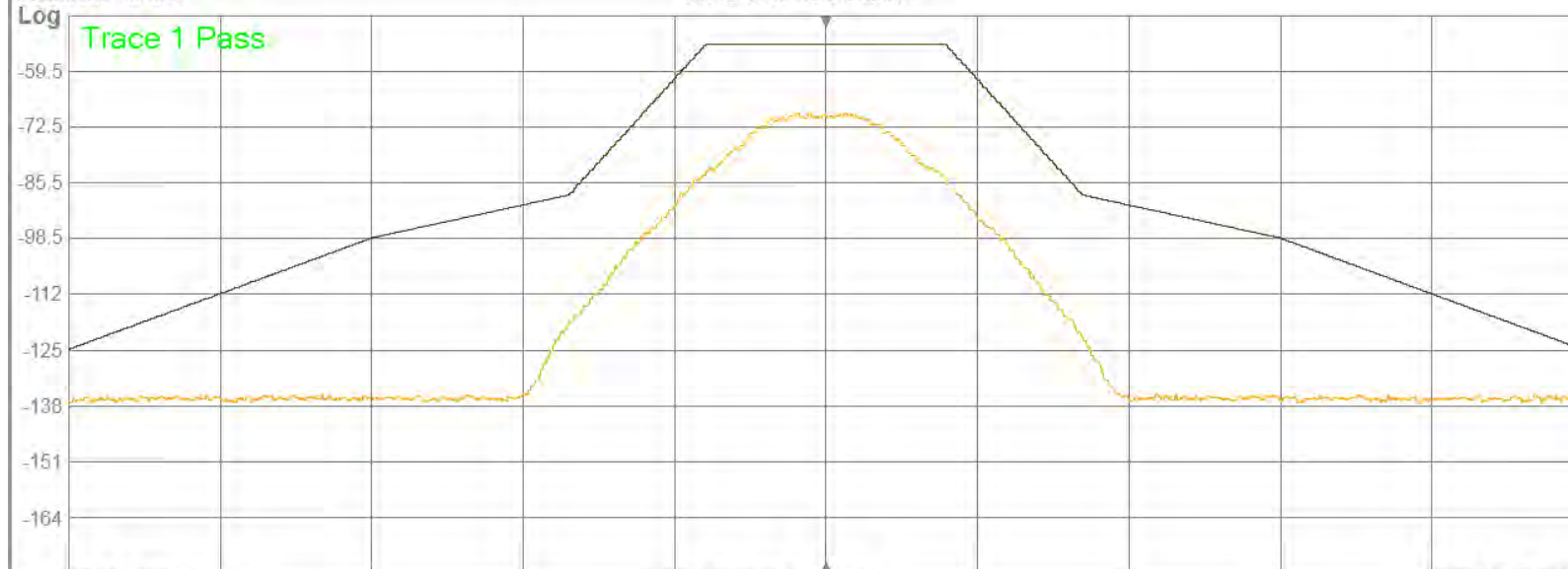
1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

L17 **PASS**

1 Spectrum

Scale/Div 13 dB

Ref Level -46.54 dBm



Center 851.01250 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017 8:31:02 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Amplifying signal				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C		Relative Humidity 17.5%		
Notes	Downlink Output: 856.000MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 30 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg|Hold:>100/100
Trig: Free Run

1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

LVI **PASS**

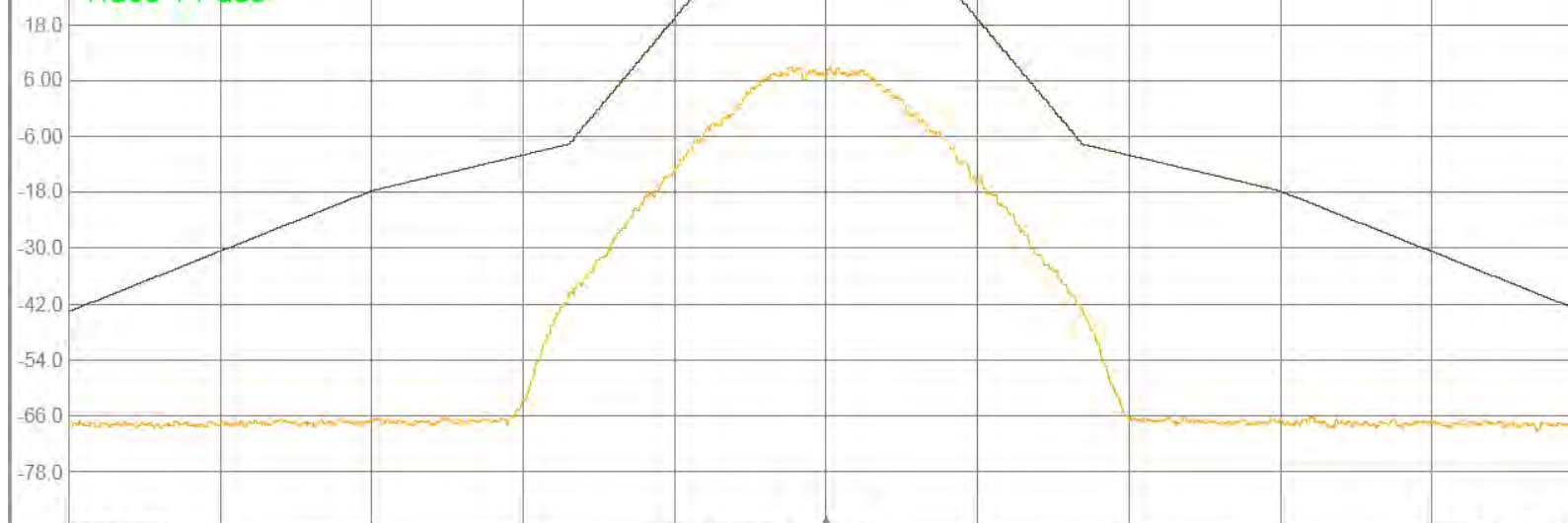
1 Spectrum

Scale/Div 12 dB

Log

Ref Lvl Offset 10.55 dB
Ref Level 30.00 dBm

Trace 1 Pass



Center 856.00000 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017
8:54:40 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Signal Generator Output				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C Relative Humidity 17.5%				
Notes	Downlink Input: 856.000MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 0 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

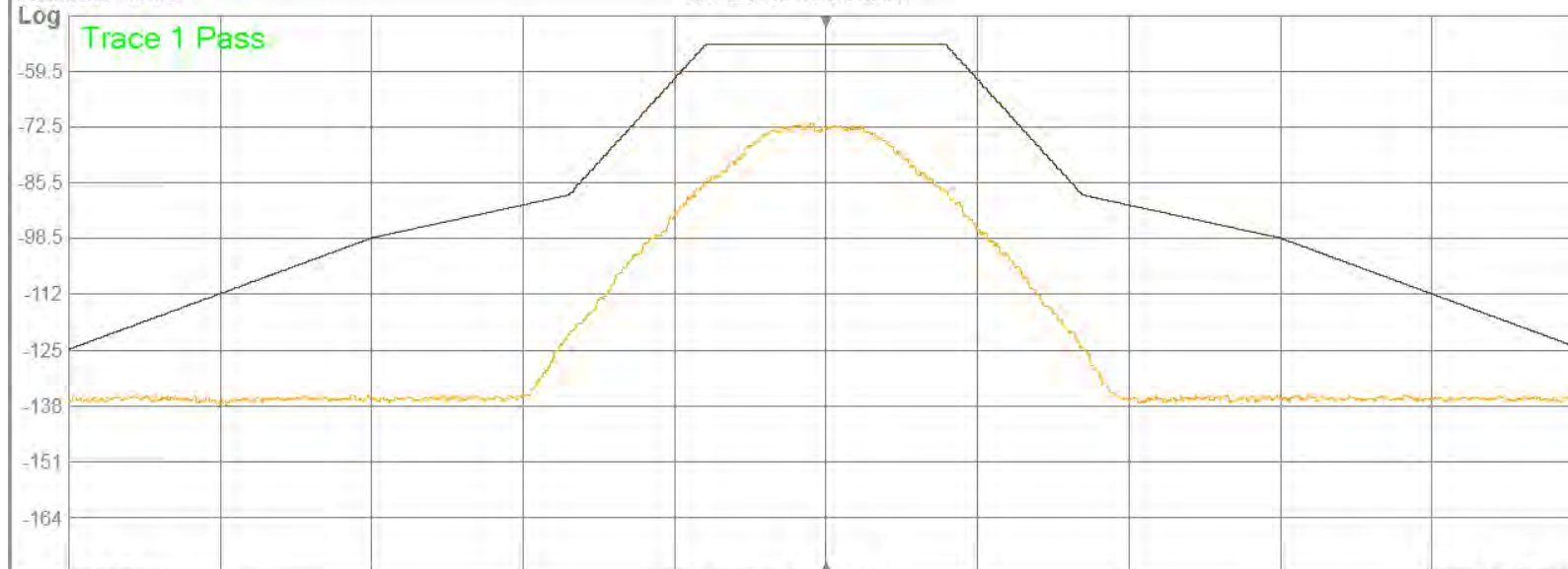
1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

L17 **PASS**

1 Spectrum

Scale/Div 13 dB

Ref Level -46.54 dBm



Center 856.00000 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017 8:32:56 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Amplifying signal, AGC Activated				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C Relative Humidity 17.5%				
Notes	Downlink Output: 856.000MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 30 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

LVI **PASS**

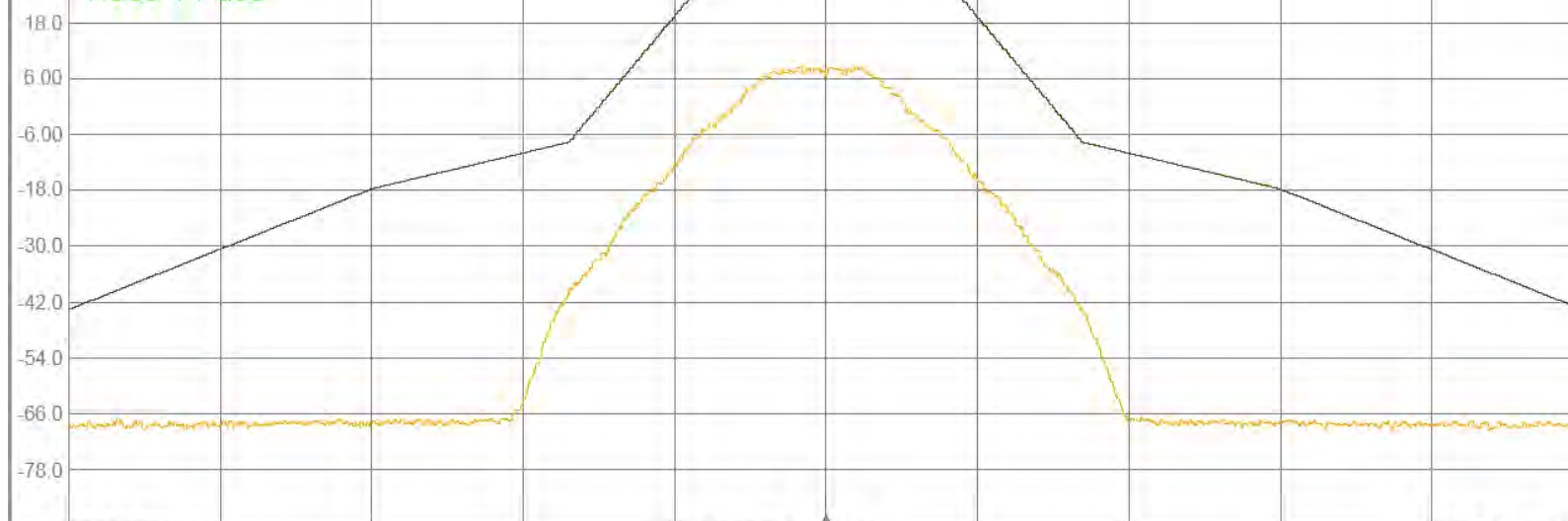
1 Spectrum

Scale/Div 12 dB

Log

Ref Lvl Offset 10.55 dB
Ref Level 30.00 dBm

Trace 1 Pass



Center 856.00000 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017
8:52:47 AM



RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Signal Generator Output, AGC Activated				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C		Relative Humidity 17.5%		
Notes	Downlink Input: 856.000MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 0 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

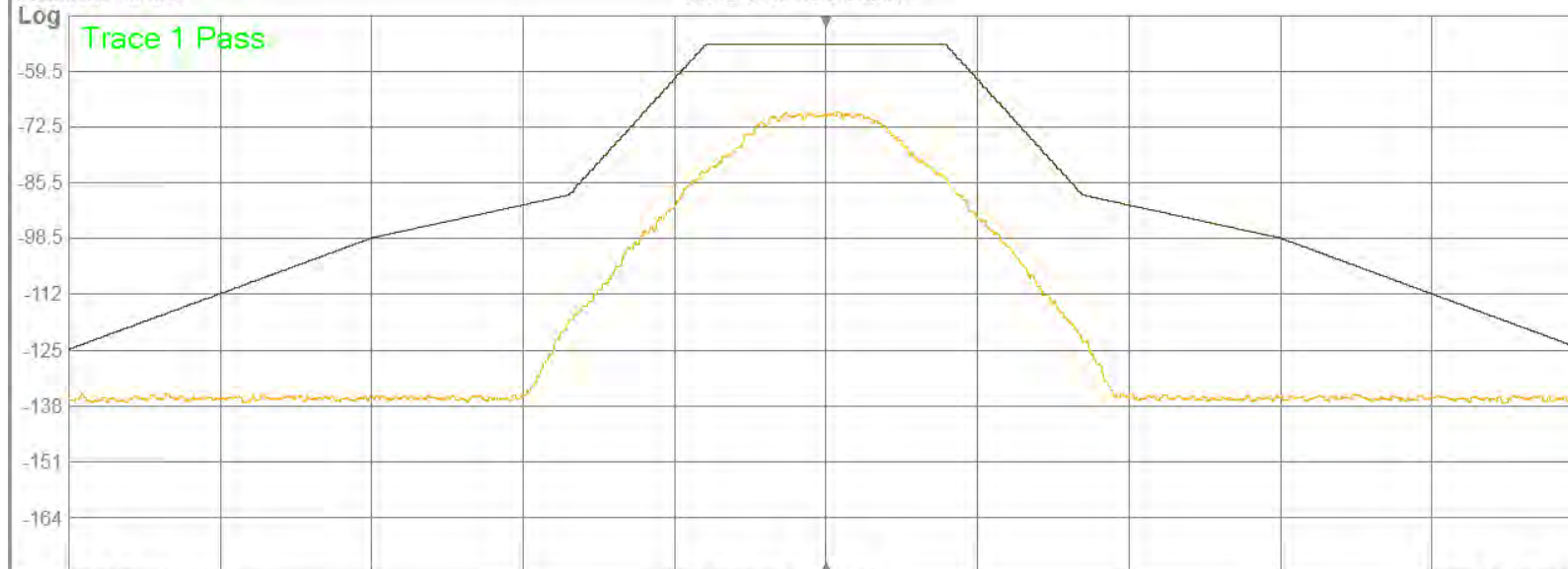
1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

L17 **PASS**

1 Spectrum

Scale/Div 13 dB

Ref Level -46.54 dBm



Center 856.00000 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017 8:32:26 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Amplifying signal				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C		Relative Humidity 17.5%		
Notes	Downlink Output: 860.98750MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 30 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

LVI **PASS**

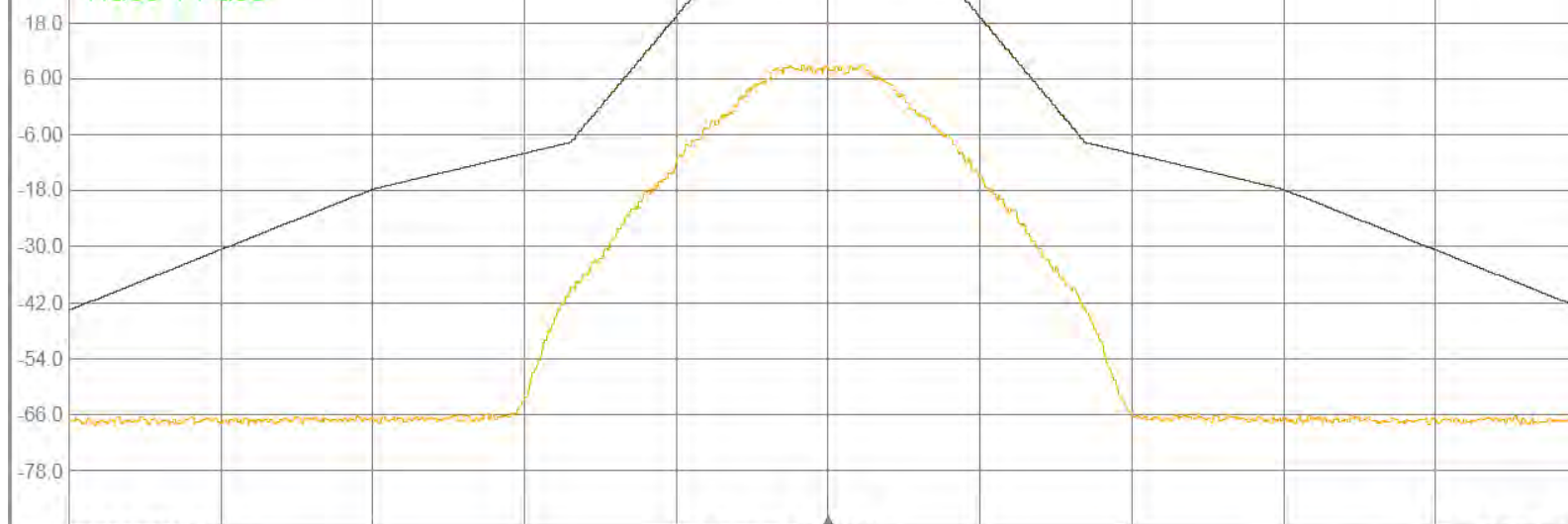
1 Spectrum

Scale/Div 12 dB

Log

Ref Lvl Offset 10.55 dB
Ref Level 30.00 dBm

Trace 1 Pass



Center 860.98750 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017
8:45:59 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Signal Generator Output				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C Relative Humidity 17.5%				
Notes	Downlink Input: 860.98750MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)

#Atten: 0 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg|Hold:>100/100
Trig: Free Run

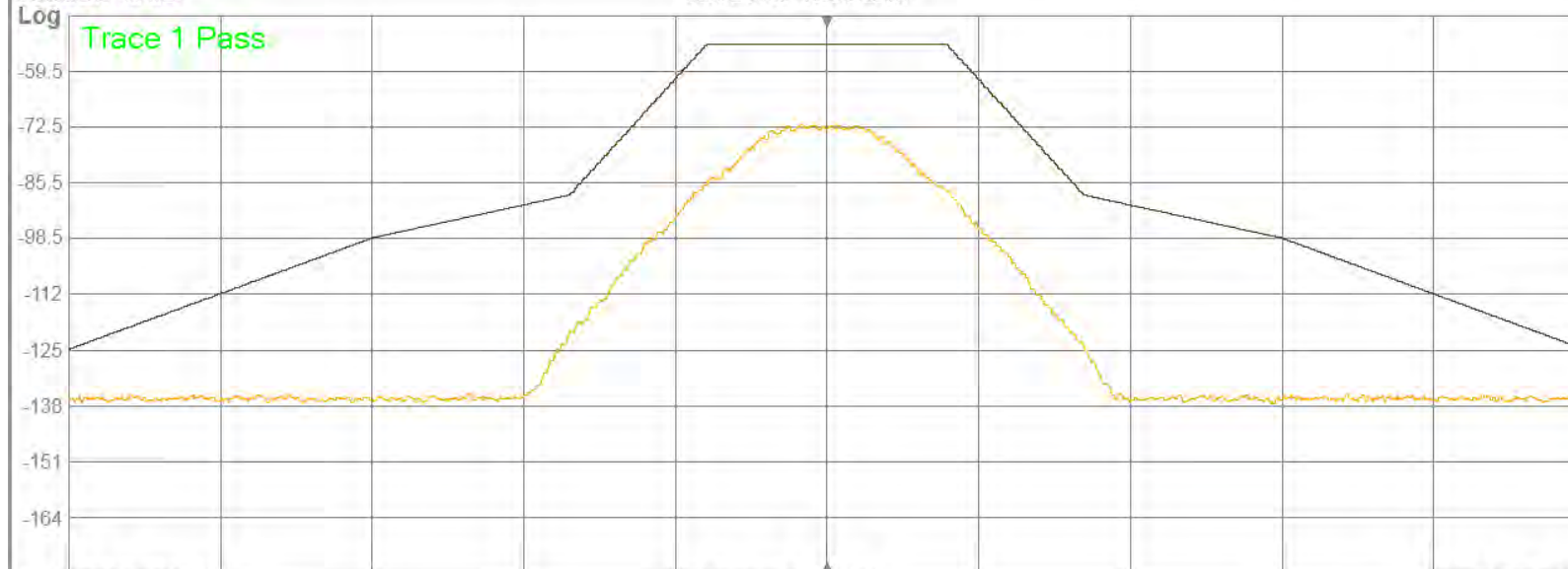
1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

LVT **PASS**

1 Spectrum

Scale/Div 13 dB

Ref Level -46.54 dBm



Center 860.98750 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017
8:36:43 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison				
Customer	Westell, Inc.		Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier				
Model Number	BDA510-S8		Serial No.	CPG62990	
Operating Mode	Amplifying signal, AGC Activated				
Test Specification	Nemko Test Plan 317856-2				
Technician	T. Hannemann		Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C		Relative Humidity 17.5%		
Notes	Downlink Output: 860.98750MHz Modulation:8K10F1D Authorized BW: 11.25kHz Emission Mask: H				

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 30 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

LVI **PASS**

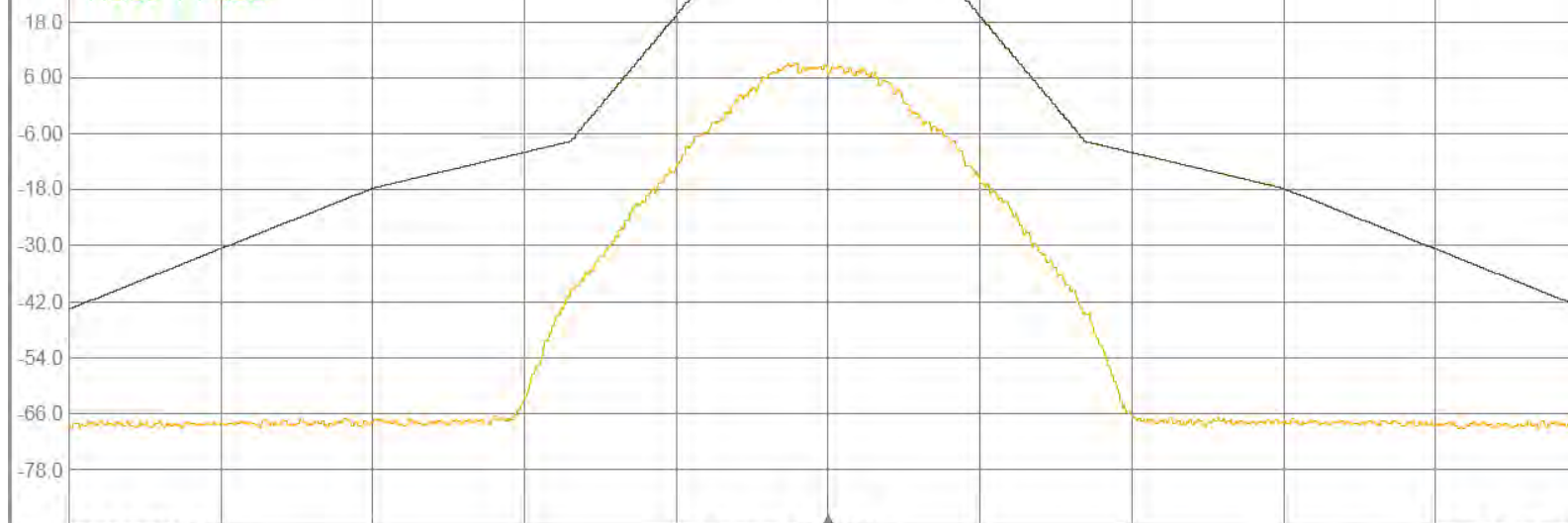
1 Spectrum

Scale/Div 12 dB

Log

Ref Lvl Offset 10.55 dB
Ref Level 30.00 dBm

Trace 1 Pass



Center 860.98750 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017
8:49:38 AM

RETLIF TESTING LABORATORIES

Test Method	Input-vs-Output Signal Comparison			
Customer	Westell, Inc.	Job No.	R-6142N-1	
Test Sample	Bi-Directional Amplifier			
Model Number	BDA510-S8	Serial No.	CPG62990	
Operating Mode	Signal Generator Output, AGC Activated			
Test Specification	Nemko Test Plan 317856-2			
Technician	T. Hannemann	Date	January 17 th , 2017	
Climatic Conditions	Temperature 22.3°C	Relative Humidity 17.5%		
Notes	Downlink Input: 860.98750MHz	Modulation:8K10F1D	Authorized BW: 11.25kHz	Emission Mask: H

Spectrum Analyzer 1
Swept SA

KEYSIGHT

Input: RF
Coupling: AC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref. Int (S)

#Atten: 0 dB
Preamp: Off

PNO: Best Close
Gate: Off
IF Gain: Auto
Sig Track: Off

Avg Type: Log-Power
Avg/Hold: >100/100
Trig: Free Run

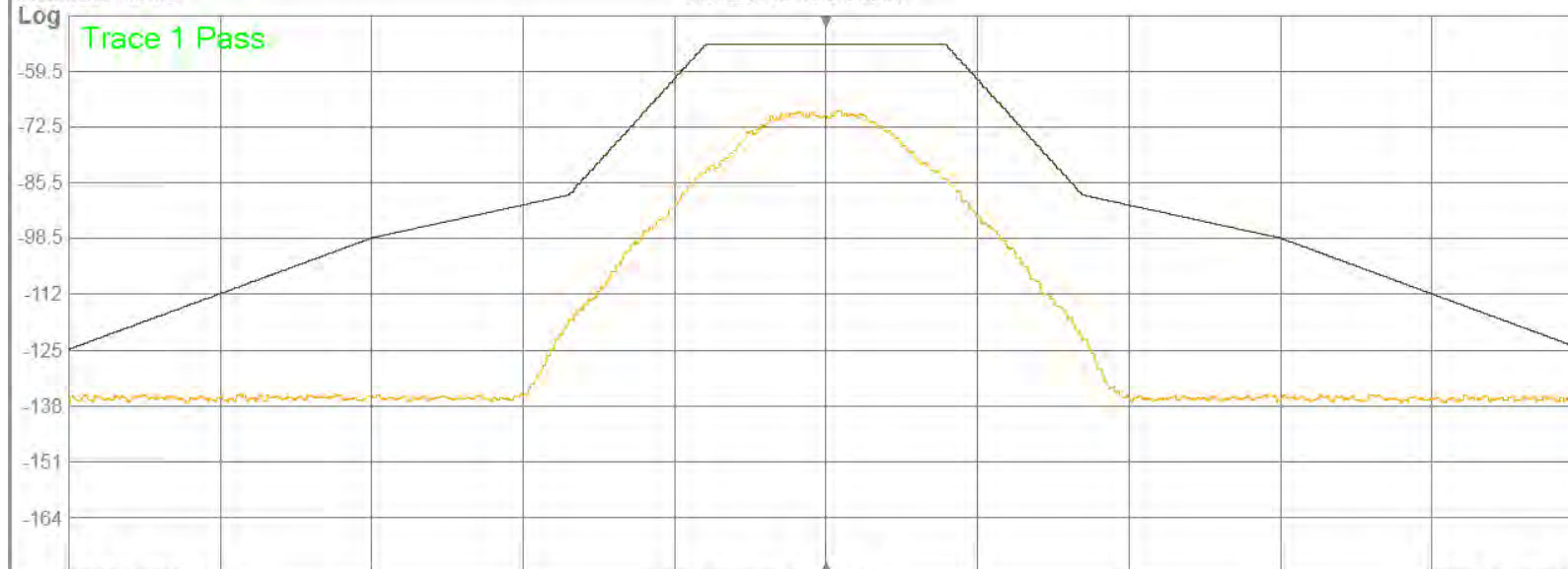
1	2	3	4	5	6
A	W	W	W	W	W
P	N	N	N	N	N

L17 **PASS**

1 Spectrum

Scale/Div 13 dB

Ref Level -46.54 dBm



Center 860.98750 MHz
#Res BW 100 Hz

#Video BW 300 Hz

Span 50.00 kHz
Sweep (FFT) ~19.9 ms (1001 pts)

Jan 17, 2017
8:38:01 AM

Test Photographs
Mean Output Power and Amplifier/Booster Gain



Test Setup



Retlif Testing Laboratories

Report No. R-6142N-1, Rev. A

**Mean Output Power and Amplifier/Booster Gain
Test Data**

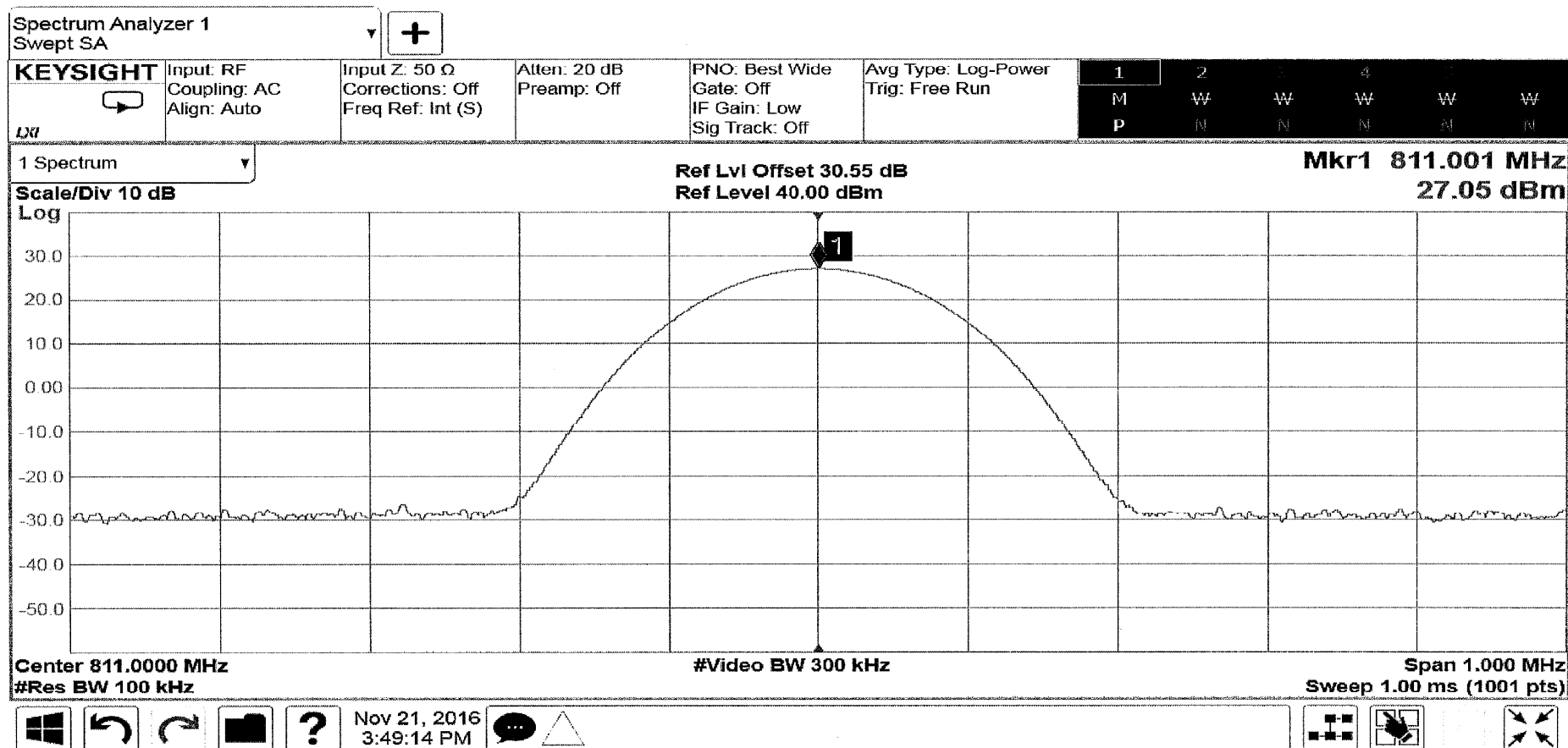


Retlif Testing Laboratories

Report No. R-6142N-1, Rev. A

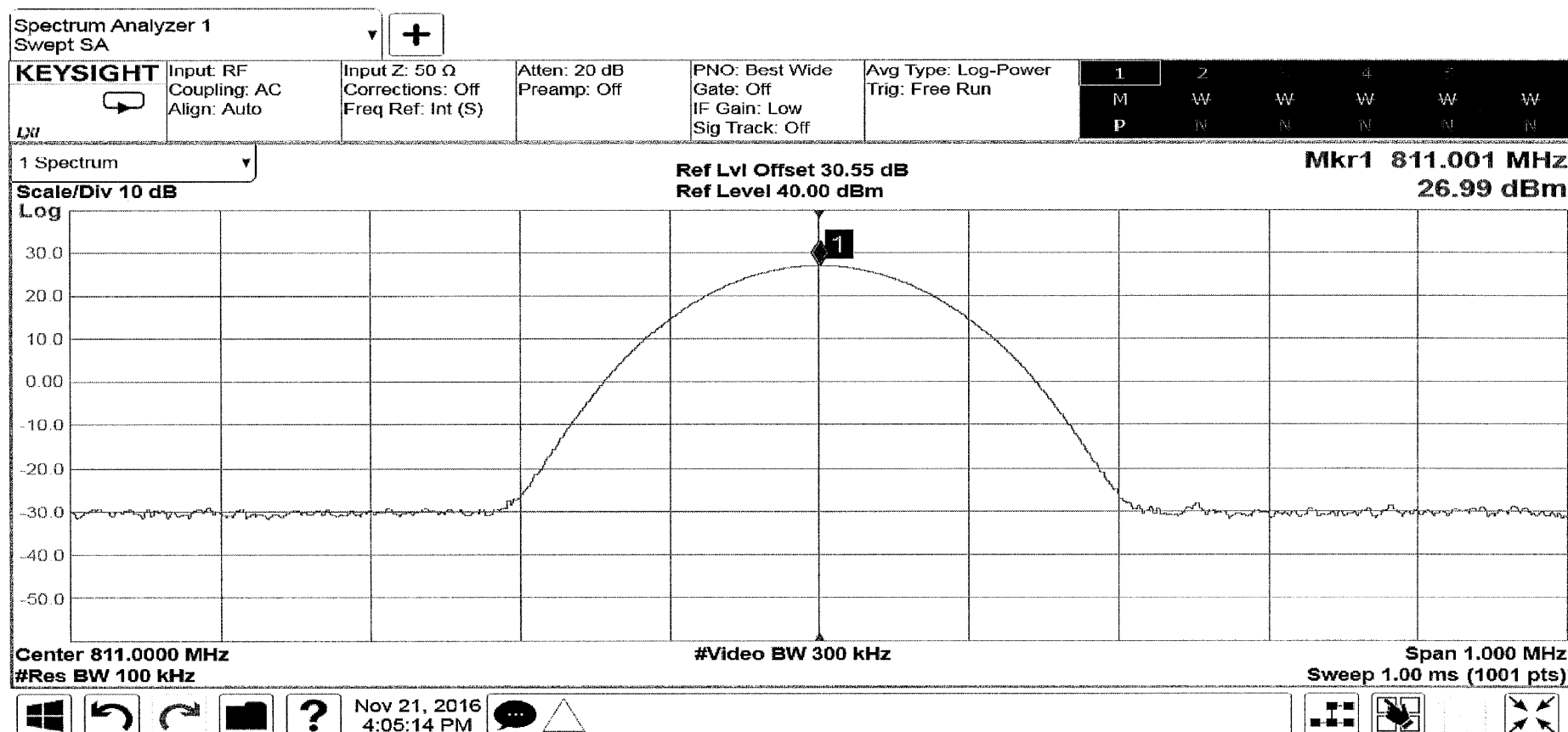
RETLIF TESTING LABORATORIES

Test Method	Mean Output Power and Amplifier-Booster Gain		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying CW signal at 811 MHz		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 21 st , 2016
Climatic Conditions	Temp: 19.0 °C Relative Humidity: 31.3 %		
Notes	Uplink Signal Generator Setting: -54.20dBm (-53.35dBm measured signal generator output) Amplifier Output: 27.05dBm Gain: 80.40dB		



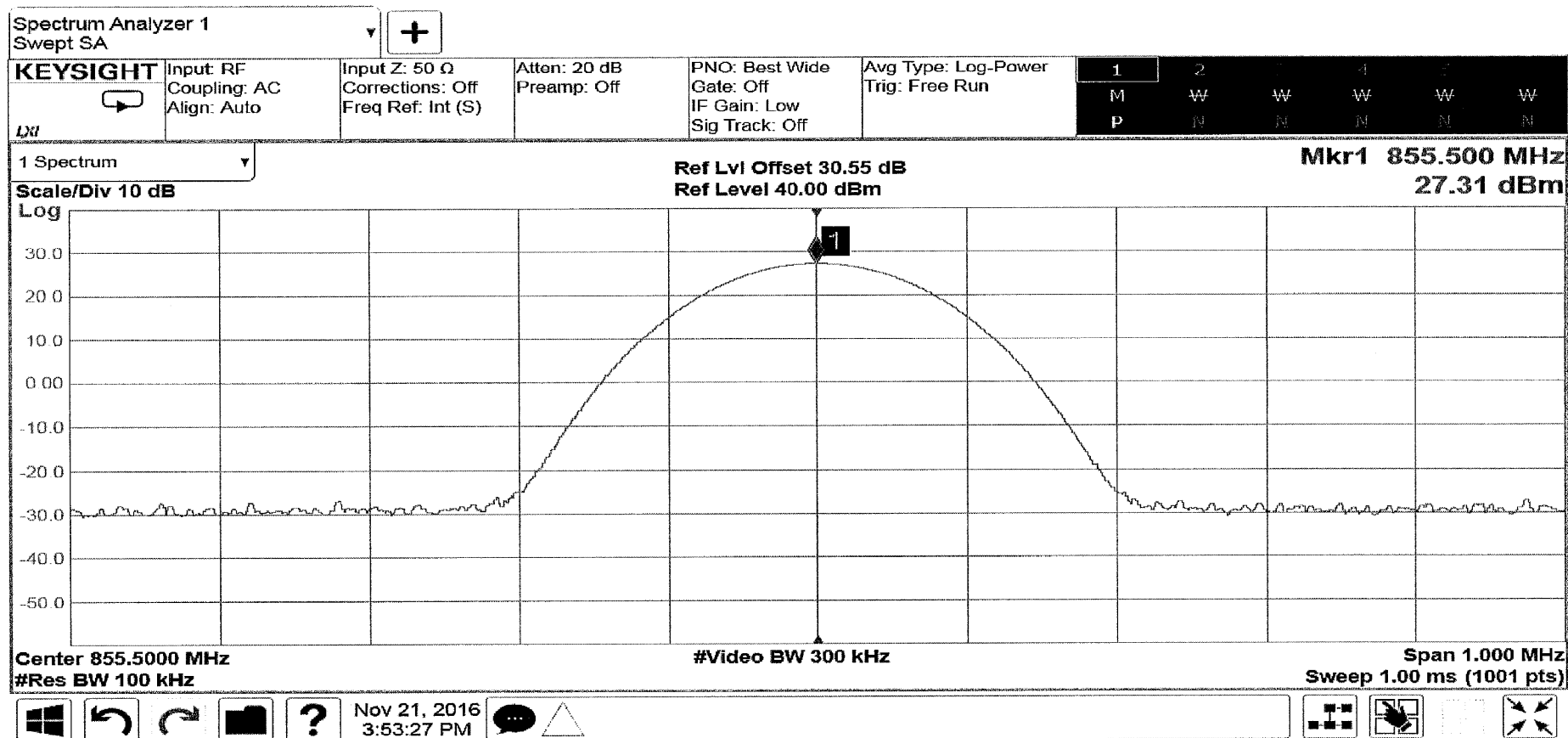
RETLIF TESTING LABORATORIES

Test Method	AGC Threshold		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying CW signal at 811 MHz, AGC Activated		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 21 st , 2016
Climatic Conditions	Temp: 19.0 °C Relative Humidity: 31.3 %		
Notes	Uplink with AGC Signal Generator Setting: -51.20dBm (-50.35dBm measured signal generator output) Amplifier Output: 26.99dBm Gain: 77.34dB		



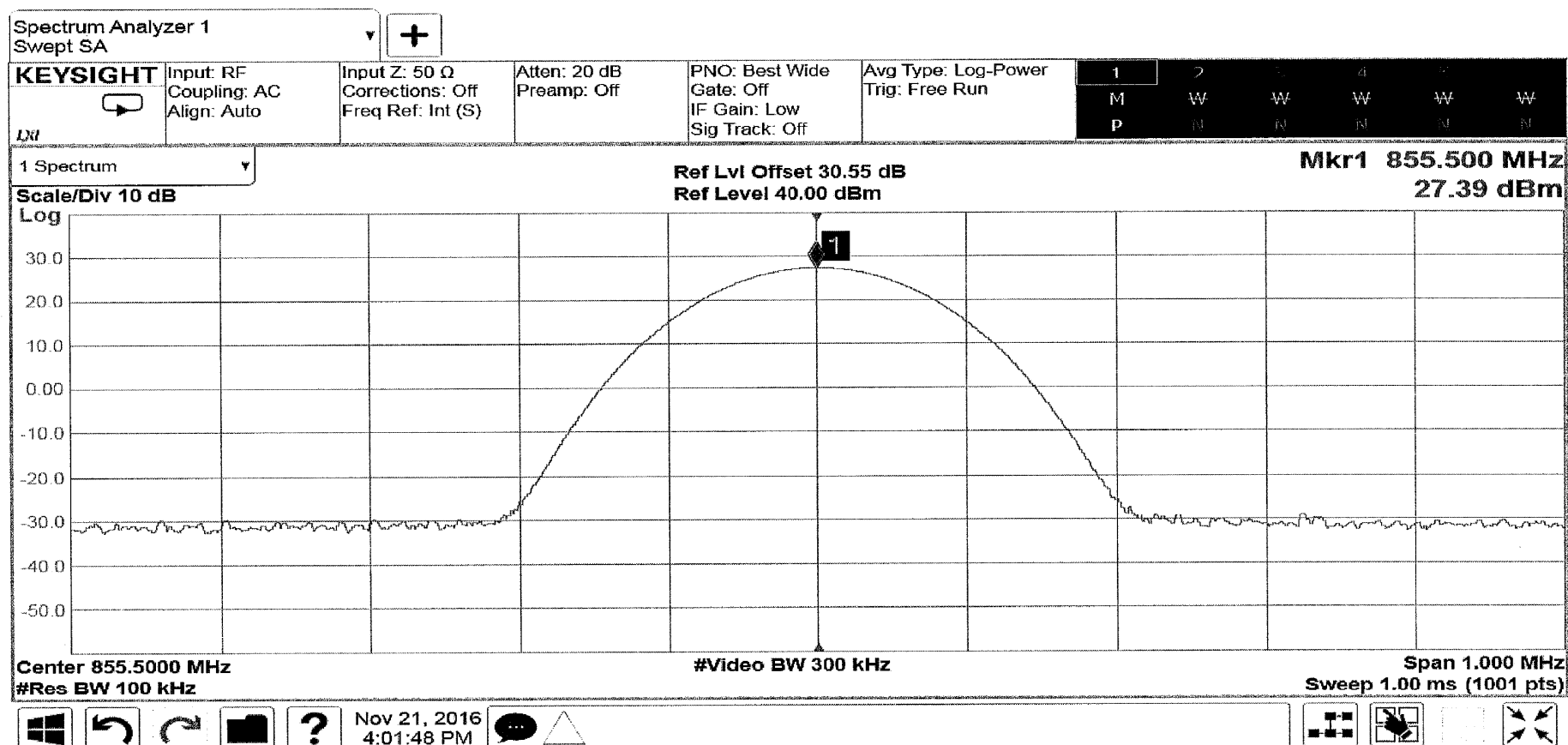
RETLIF TESTING LABORATORIES

Test Method	AGC Threshold		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying CW signal at 855.5 MHz		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 21 st , 2016
Climatic Conditions	Temp: 19.0 °C Relative Humidity: 31.3 %		
Notes	Downlink Signal Generator Setting: -54.00dBm (-53.31dBm measured signal generator output) Amplifier Output: 27.31dBm Gain: 80.62dB		



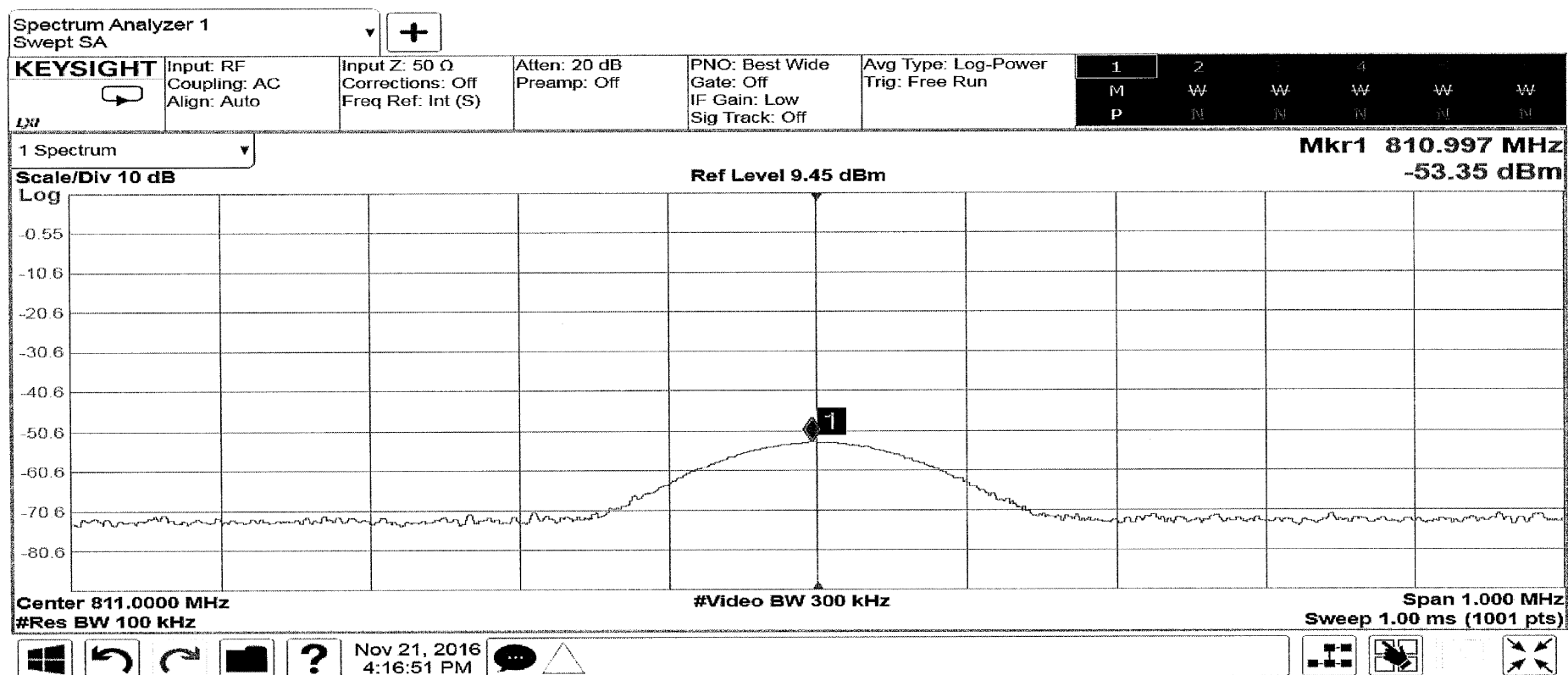
RETLIF TESTING LABORATORIES

Test Method	AGC Threshold		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying CW signal at 855.5 MHz, AGC Activated		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 21 st , 2016
Climatic Conditions	Temp: 19.0 °C Relative Humidity: 31.3 %		
Notes	Downlink with AGC Signal Generator Setting: -51.00dBm (-50.31dBm measured signal generator output) Amplifier Output: 27.39dBm Gain: 77.70dB		



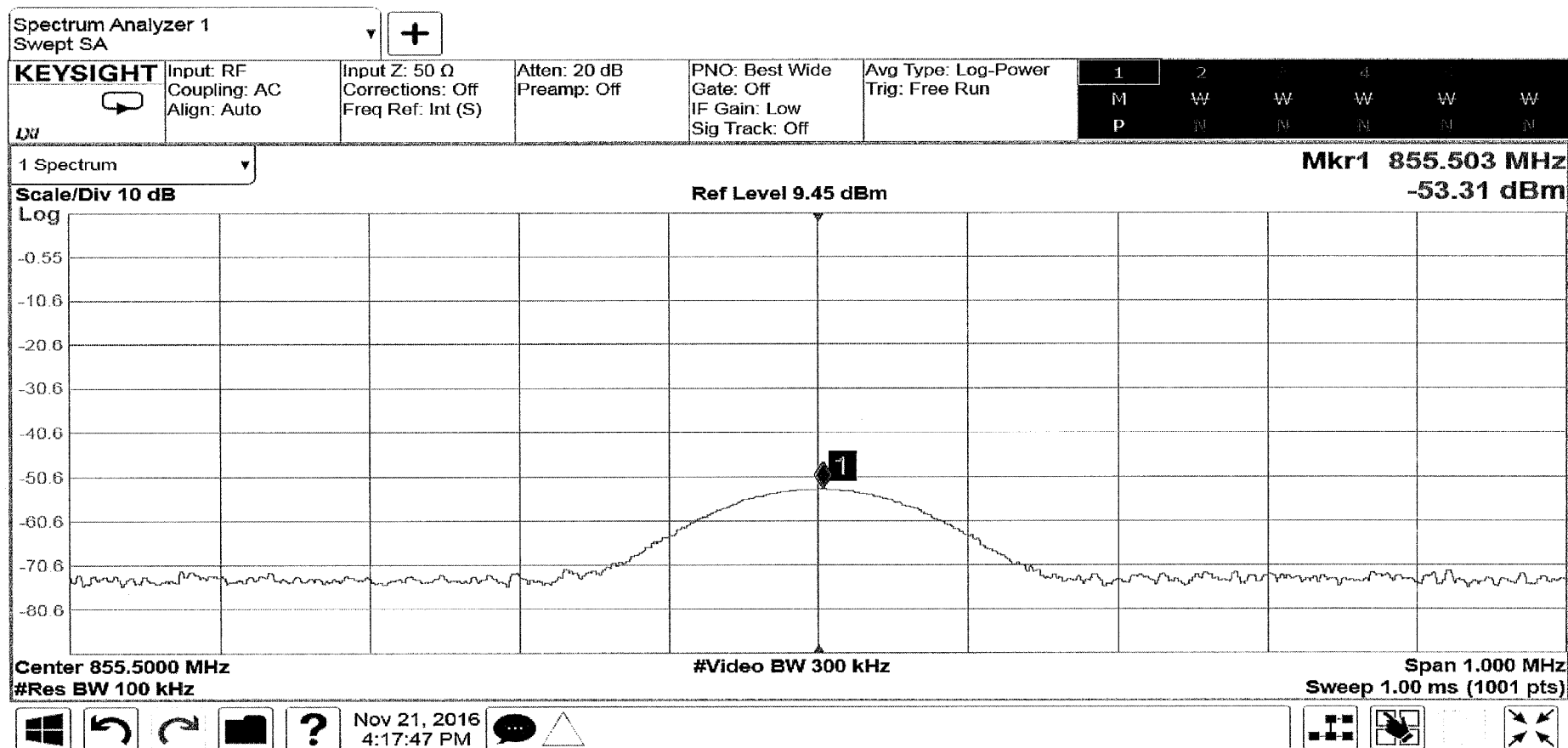
RETLIF TESTING LABORATORIES

Test Method Customer Test Sample Model Number Operating Mode Test Specification Technician Climatic Conditions Notes	Mean Output Power and Amplifier-Booster Gain		
	Westell, Inc.	Job No.	R-6142N-1
	Bi-Directional Amplifier		
	BDA510-S8	Serial No.	CPG62990
	Signal Generator Output Measurement at 811 MHz		
	Nemko Test Plan 317856-2		
	M. Seamans	Date	November 21 st , 2016
	Temp: 19.0 °C Relative Humidity: 31.3 %		
	Signal Generator Output: -53.35dBm		



RETLIF TESTING LABORATORIES

Test Method	Mean Output Power and Amplifier-Booster Gain		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Signal Generator Output Measurement at 855.5 MHz		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 21 st , 2016
Climatic Conditions	Temp: 19.0 °C Relative Humidity: 31.3 %		
Notes	Signal Generator Output: -53.31dBm		



Test Photographs

Noise Figure Measurements



Test Configuration



Retlif Testing Laboratories

Report No. R-6142N-1, Rev. A

**Noise Figure Measurements
Test Data**

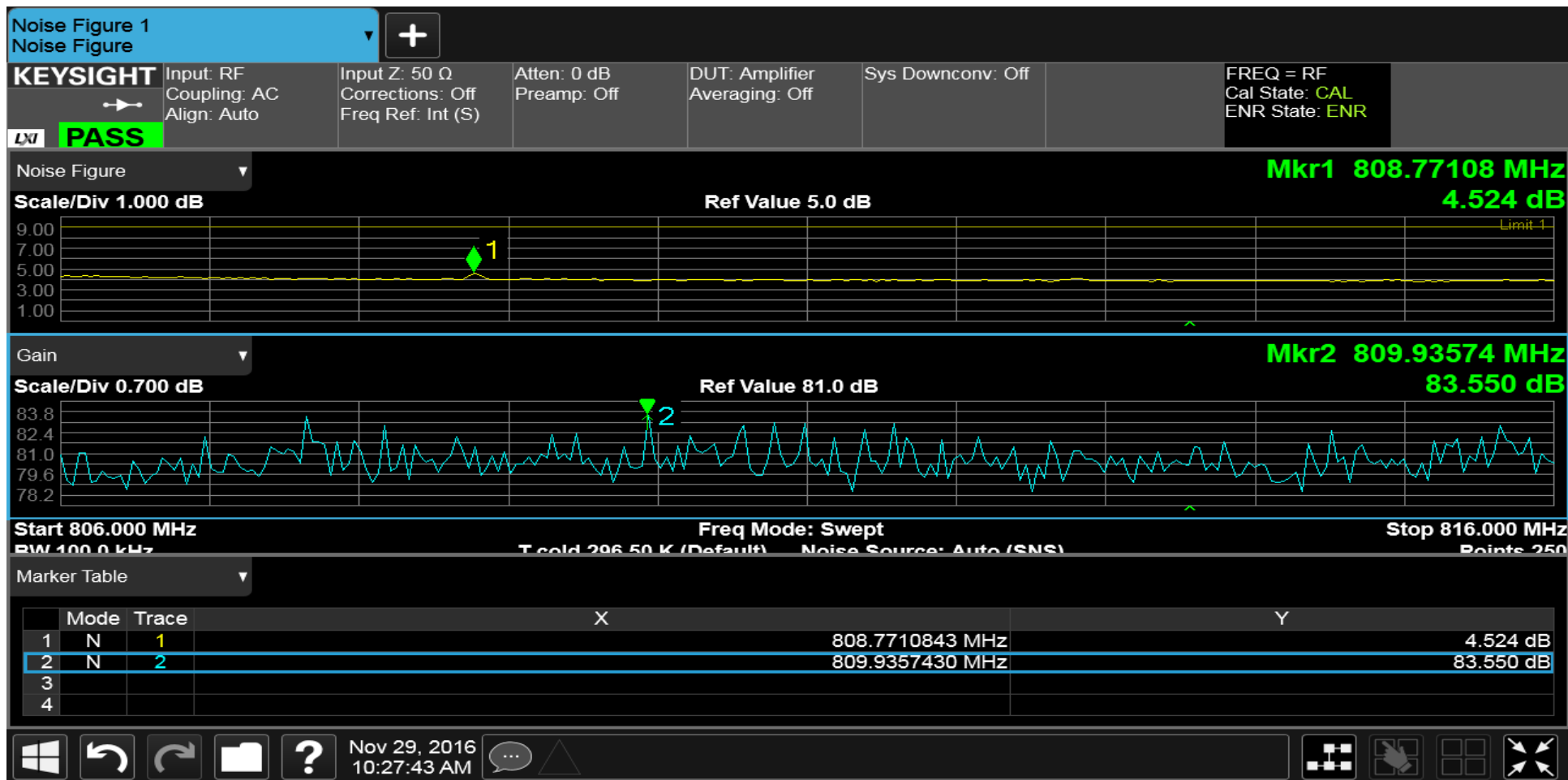


Retlif Testing Laboratories

Report No. R-6142N-1, Rev. A

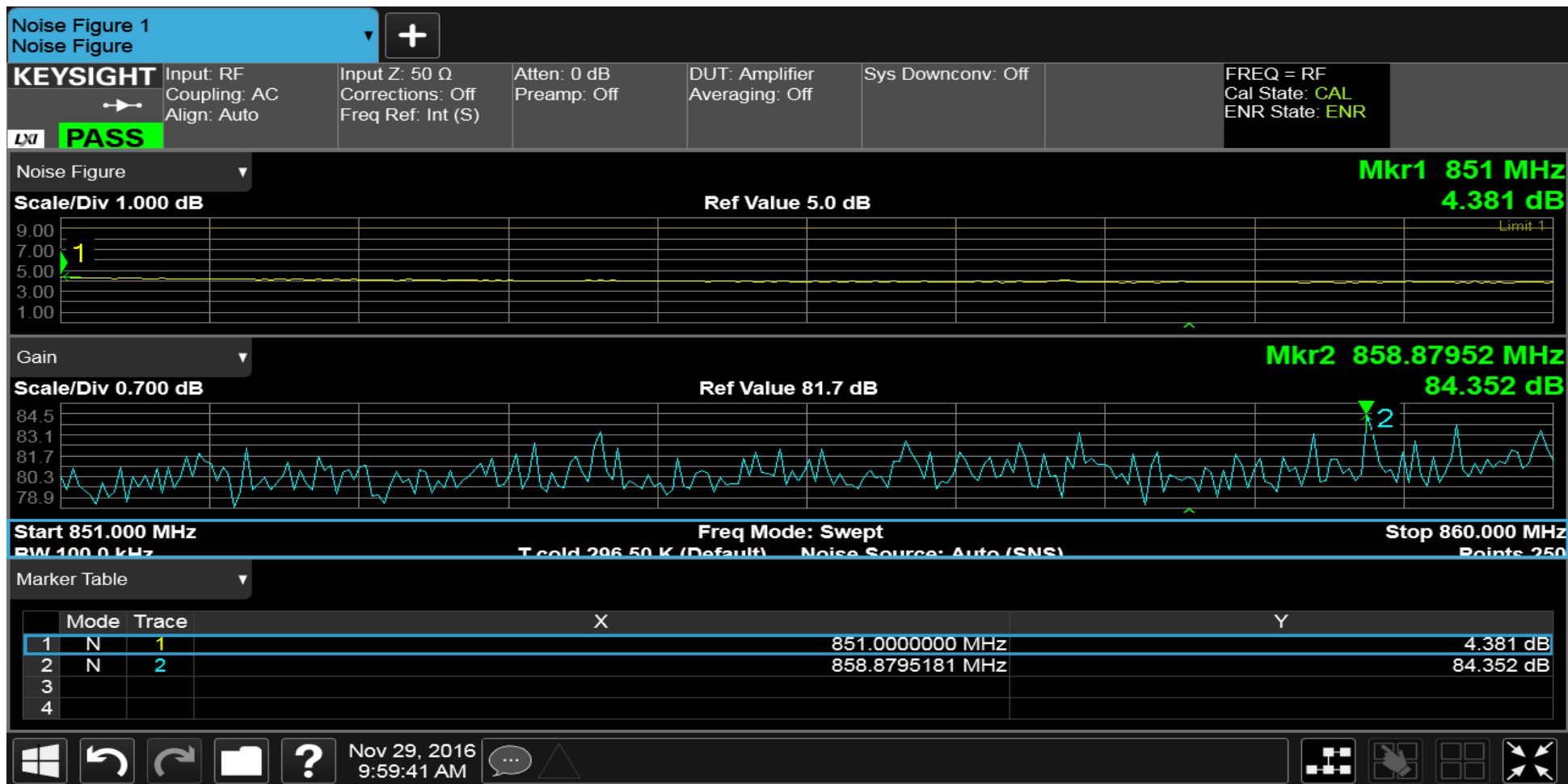
RETLIF TESTING LABORATORIES

Test Method	Noise Figure		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 29 th , 2016
Climatic Conditions	Temp: 20.6 °C Relative Humidity: 28.6 %		
Notes	Uplink Noise Figure: 4.524dB Gain: 83.55dB		



RETLIF TESTING LABORATORIES

Test Method	Noise Figure		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 29 th , 2016
Climatic Conditions	Temp: 20.6 °C Relative Humidity: 28.6 %		
Notes	Downlink Noise Figure: 4.381dB Gain: 84.352dB		



Test Photographs
Measuring Out-of-Band/Out-of-Block (including intermodulation)
Emissions and Spurious Emissions



Out of Band/Out of Block, Test Setup



Spurious Emissions Conducted, Test Setup



Retlif Testing Laboratories

Report No. R-6142N-1, Rev. A

Test Photographs
Measuring Out-of-Band/Out-of-Block (including intermodulation)
Emissions and Spurious Emissions



Spurious Emissions, Radiated, Test Setup



Spurious Emissions, Biconical, 30 MHz to 200 MHz, Horizontal Polarization



Retlif Testing Laboratories

Report No. R-6142N-1, Rev. A

Test Photographs
Measuring Out-of-Band/Out-of-Block (including intermodulation)
Emissions and Spurious Emissions



Spurious Emissions, Biconical, 30 MHz to 200 MHz, Vertical Polarization



Spurious Emissions, Log Periodic, 200 MHz to 1 GHz, Horizontal Polarization



Retlif Testing Laboratories

Report No. R-6142N-1, Rev. A

Test Photographs
Measuring Out-of-Band/Out-of-Block (including intermodulation)
Emissions and Spurious Emissions



Spurious Emissions, Log Periodic, 200 MHz to 1 GHz, Vertical Polarization



Spurious Emissions, Double Ridge Guide, 1-10 GHz, Horizontal Polarization



Retlif Testing Laboratories

Report No. R-6142N-1, Rev. A

Test Photographs
Measuring Out-of-Band/Out-of-Band (including intermodulation)
Emissions and Spurious Emissions



Spurious Emissions, Double Ridge Guide, 1-10 GHz, Vertical Polarization



Retlif Testing Laboratories

Report No. R-6142N-1, Rev. A

**Measuring Out-of-Band/Out-of-Block (including intermodulation)
Emissions and Spurious Emissions
Test Data**



Retlif Testing Laboratories

Report No. R-6142N-1, Rev. A

**Measuring Out-of-Band/Out-of-Block
Test Data**

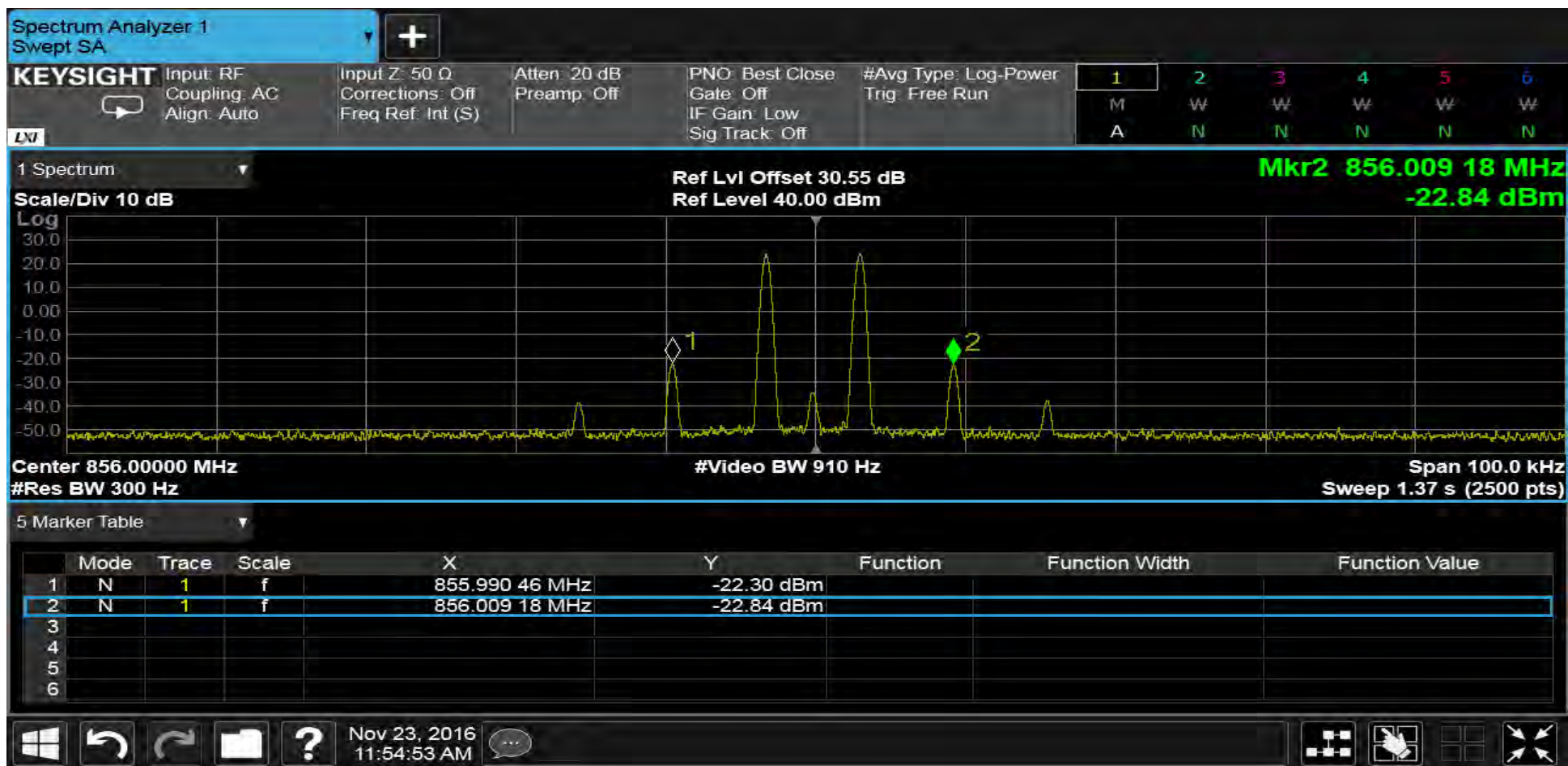


Retlif Testing Laboratories

Report No. R-6142N-1, Rev. A

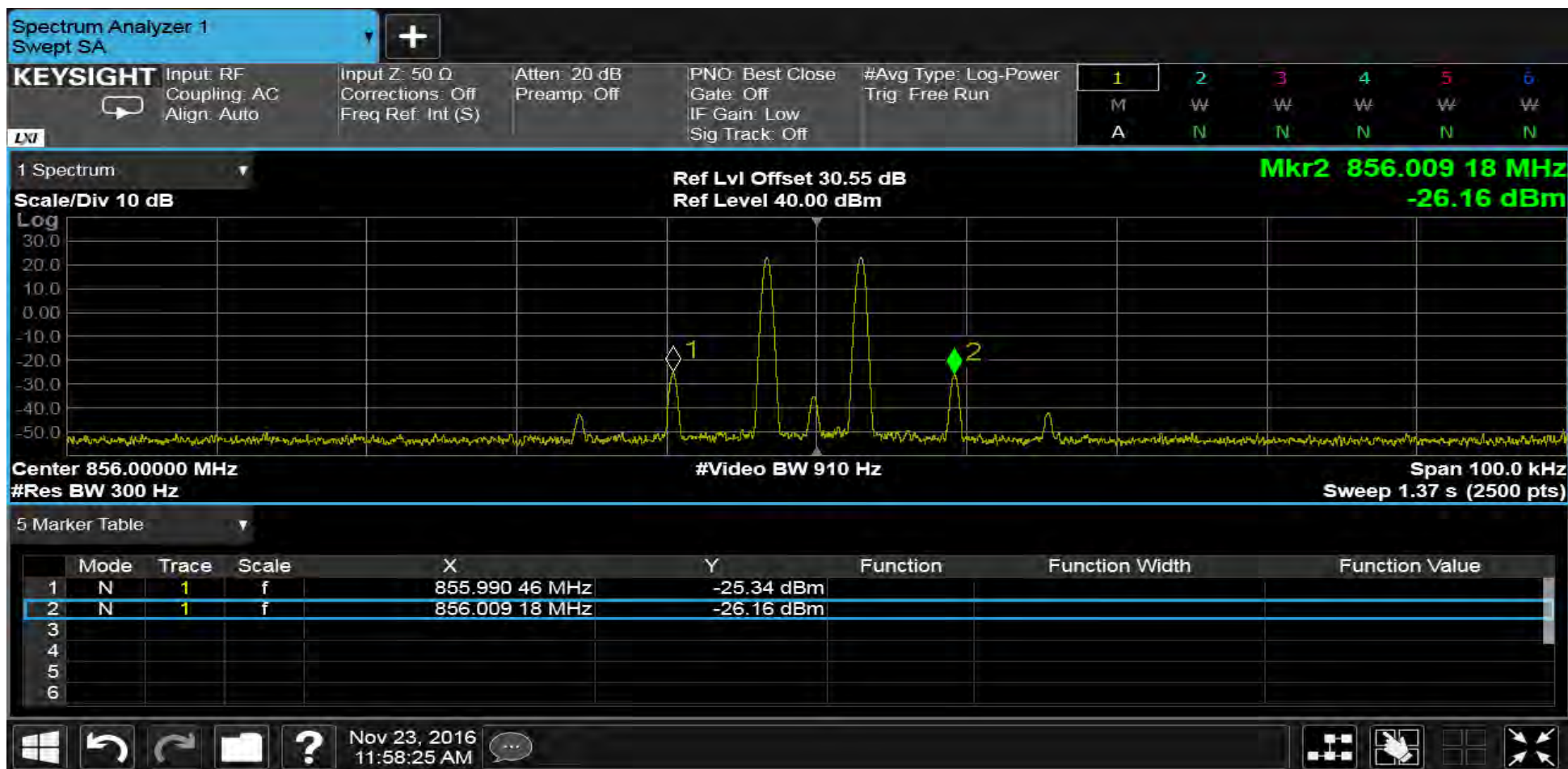
RETLIF TESTING LABORATORIES

Test Method	Out-of-Band/Out-of-Block		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying Mutli-tone signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23 rd , 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Downlink: Multi-tone CW signals; 855.996875 MHz and 856.003125 MHz 4K00F1E FM 6.25kHz		



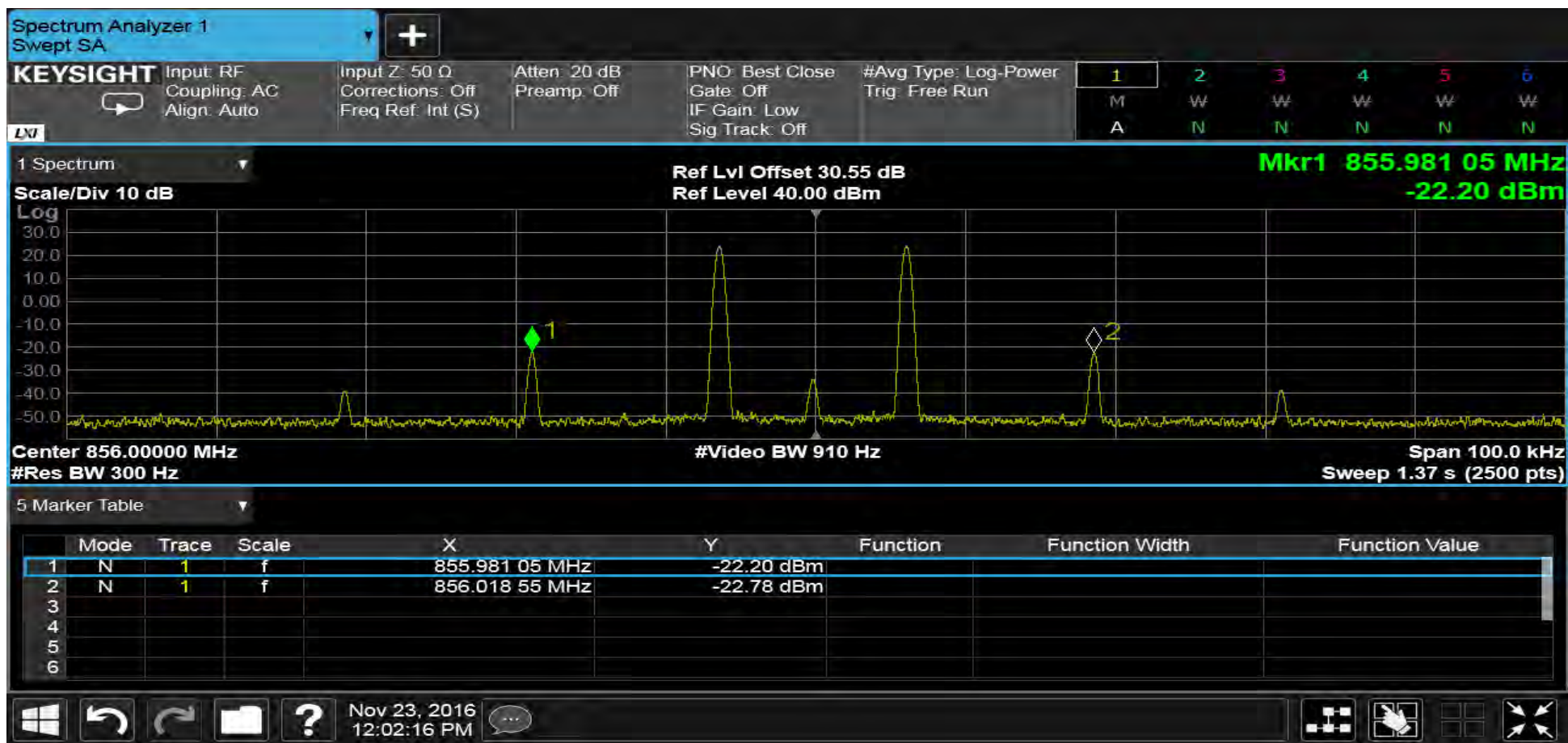
RETLIF TESTING LABORATORIES

Test Method	Out-of-Band/Out-of-Block		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying Mutli-tone signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23rd, 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Downlink: Multi-tone CW signals; 855.996875 MHz and 856.003125 MHz 4K00F1E FM 6.25kHz AGC Activated		



RETLIF TESTING LABORATORIES

Test Method	Out-of-Band/Out-of-Block		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying Mutli-tone signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23rd, 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Downlink: Multi-tone CW signals; 855.993750 MHz and 856.006250 MHz 11K3F3E FM 12.5kHz		



RETLIF TESTING LABORATORIES

Test Method	Out-of-Band/Out-of-Block		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying Mutli-tone signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23rd, 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Downlink: Multi-tone CW signals; 855.993750 MHz and 856.006250 MHz 11K3F3E FM 12.5kHz AGC Activated		



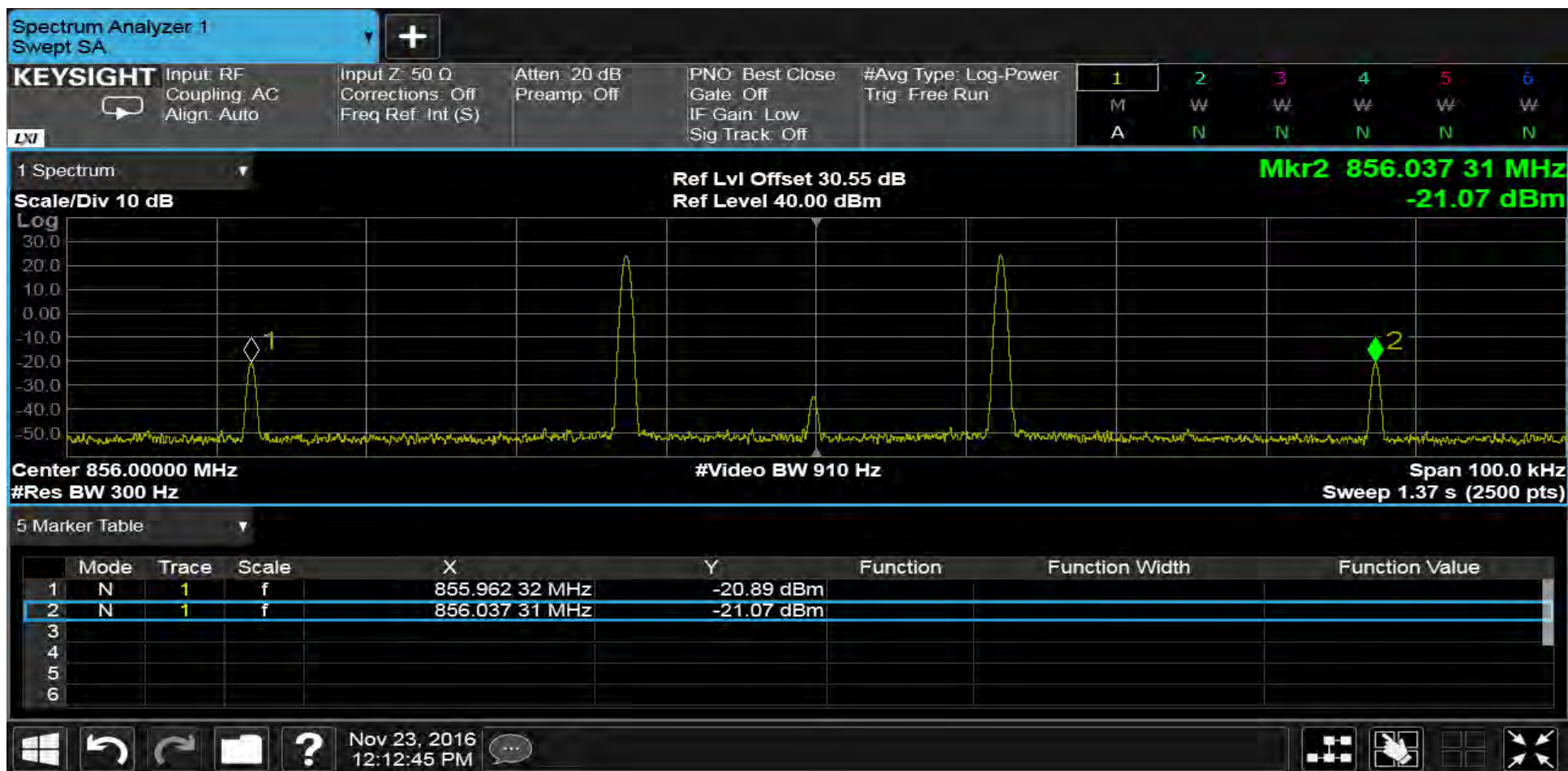
RETLIF TESTING LABORATORIES

Test Method	Out-of-Band/Out-of-Block		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying Mutli-tone signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23rd, 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Downlink: Multi-tone CW signals; 855.98750 MHz and 856.012500 MHz 16K0F3E FM 25kHz		



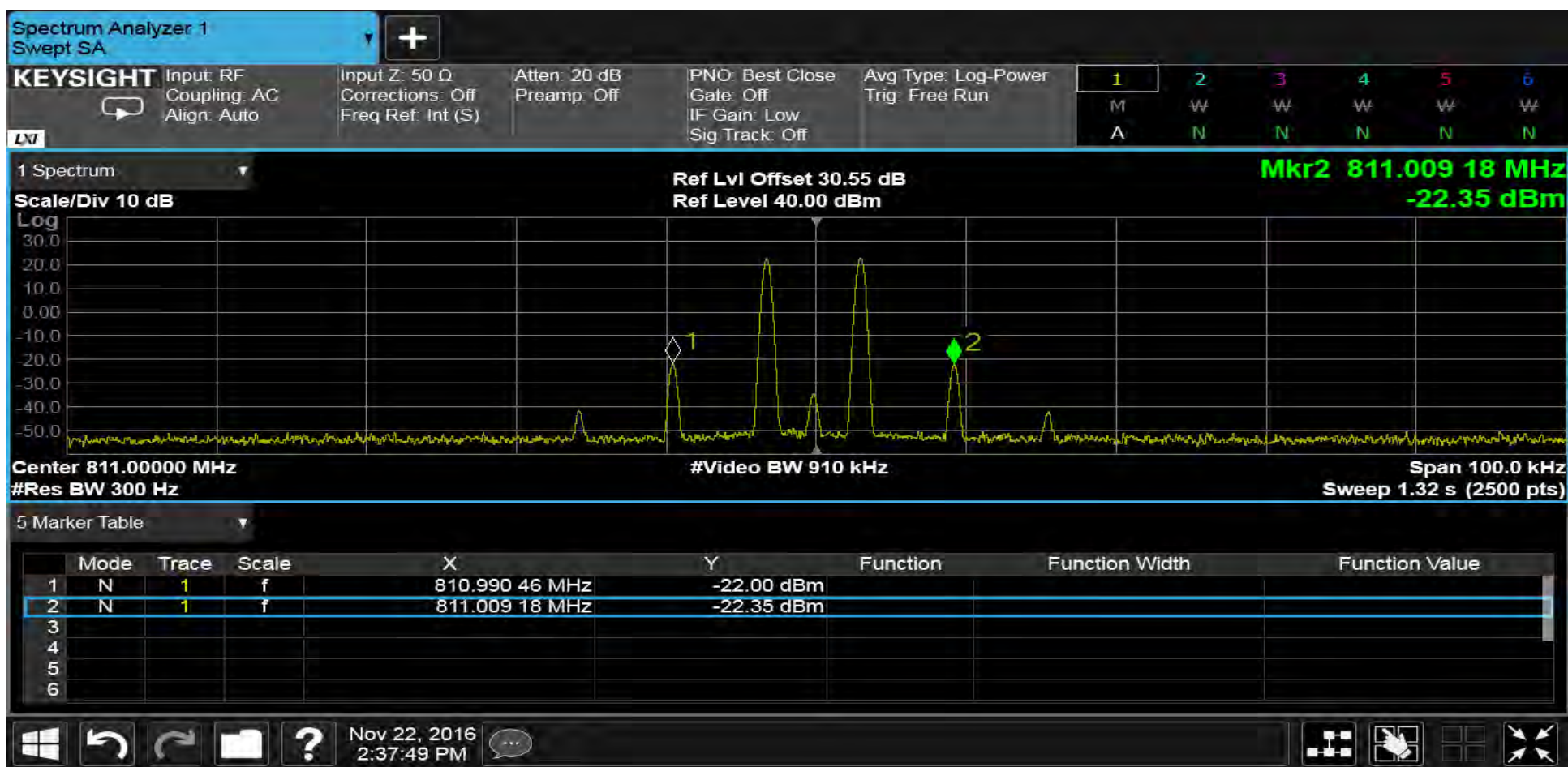
RETLIF TESTING LABORATORIES

Test Method	Out-of-Band/Out-of-Block		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying Mutli-tone signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23rd, 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Downlink: Multi-tone CW signals; 855.98750 MHz and 856.012500 MHz 16K0F3E FM 25kHz AGC Activated		



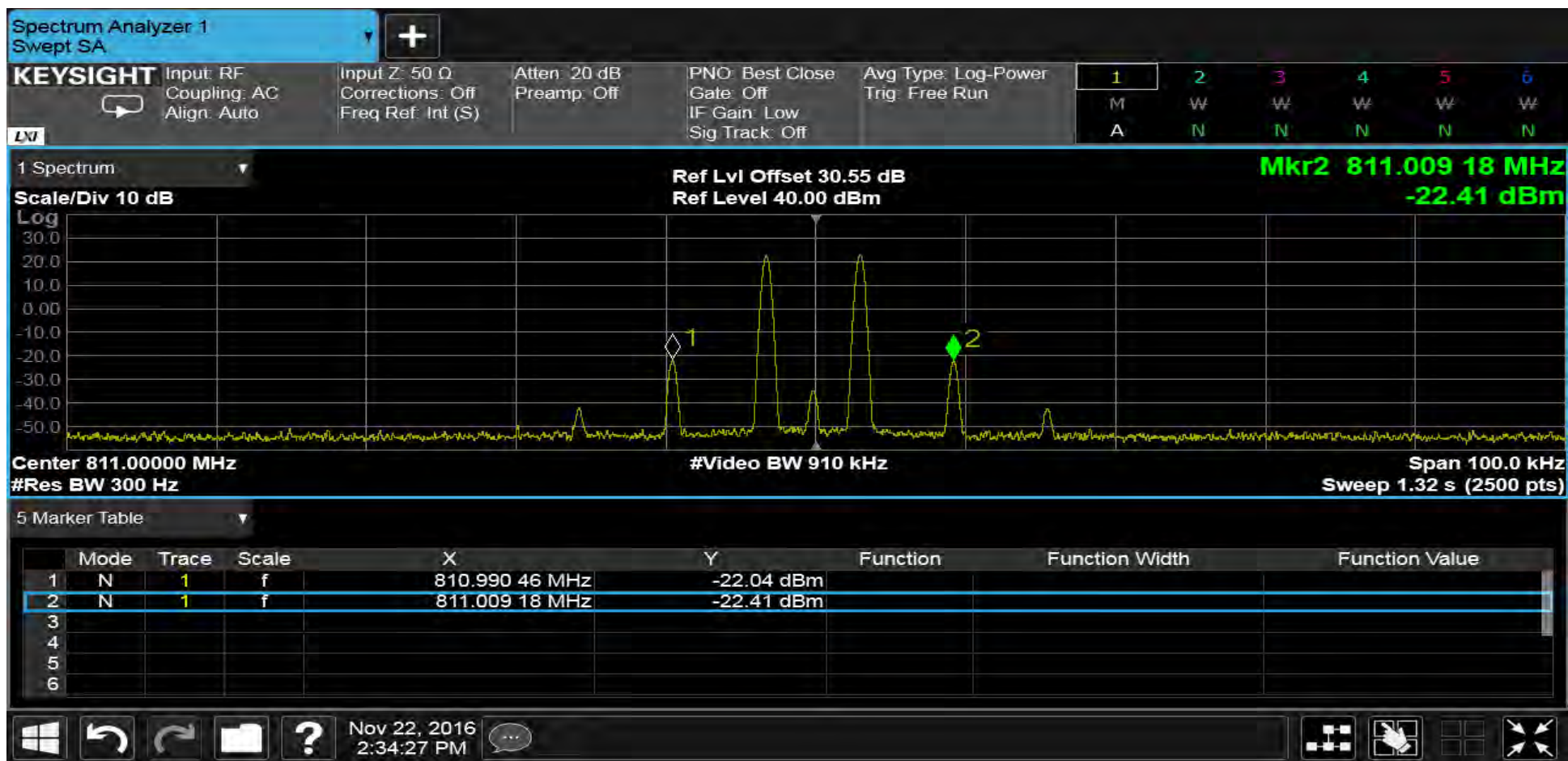
RETLIF TESTING LABORATORIES

Test Method	Out-of-Band/Out-of-Block		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying Mutli-tone signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23 rd , 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Uplink: Multi-tone CW signals; 810.996875 MHz and 811.003125 MHz 4K00F1E FM 6.25kHz		



RETLIF TESTING LABORATORIES

Test Method	Out-of-Band/Out-of-Block		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying Mutli-tone signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23 rd , 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Uplink: Multi-tone CW signals; 810.996875 MHz and 811.003125 MHz 4K00F1E FM 6.25kHz AGC Activated		



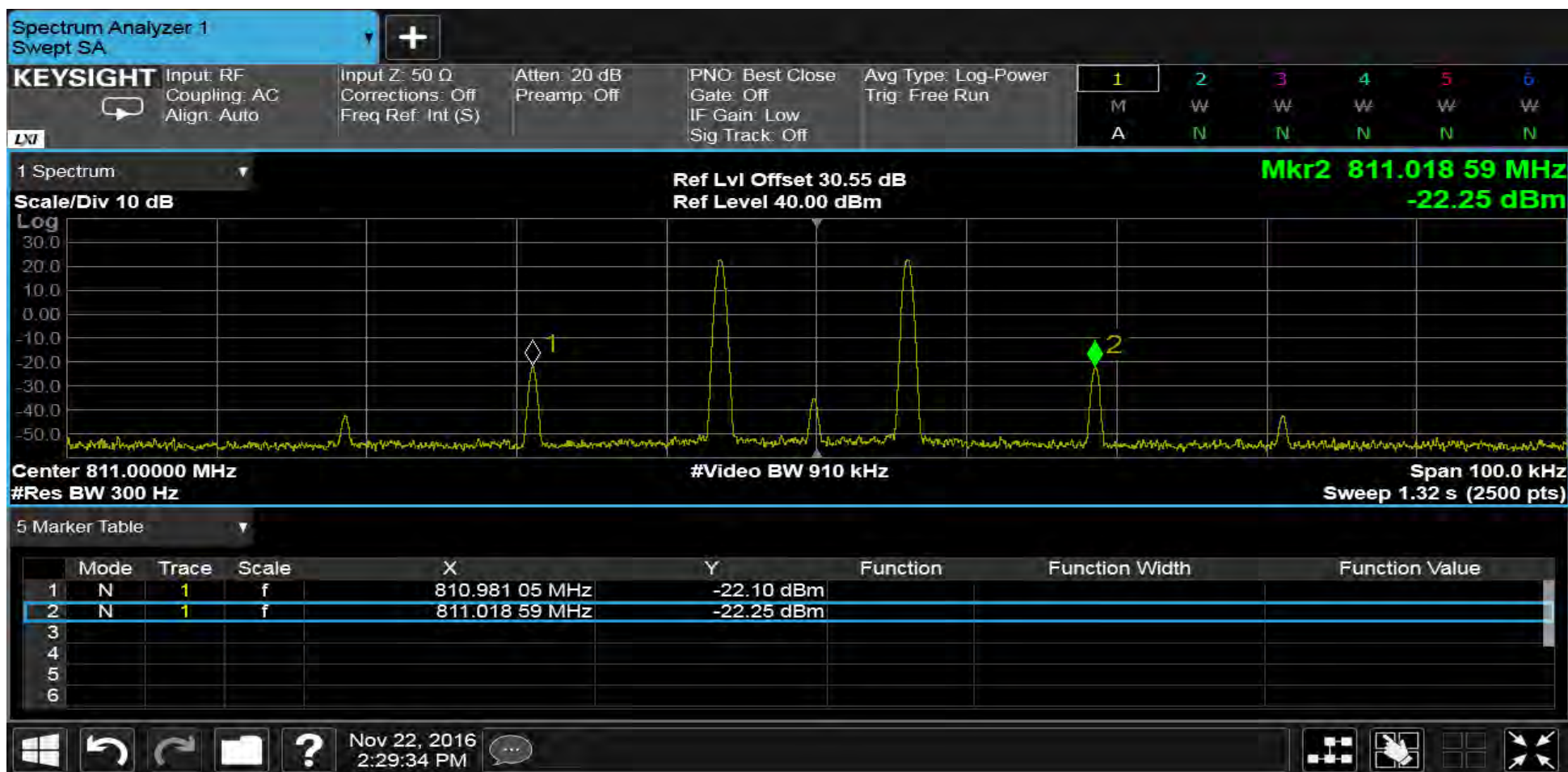
RETLIF TESTING LABORATORIES

Test Method	Out-of-Band/Out-of-Block		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying Mutli-tone signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23rd, 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Uplink: Multi-tone CW signals; 810.993750 MHz and 811.003125 MHz 11K3F3E FM 12.5kHz		



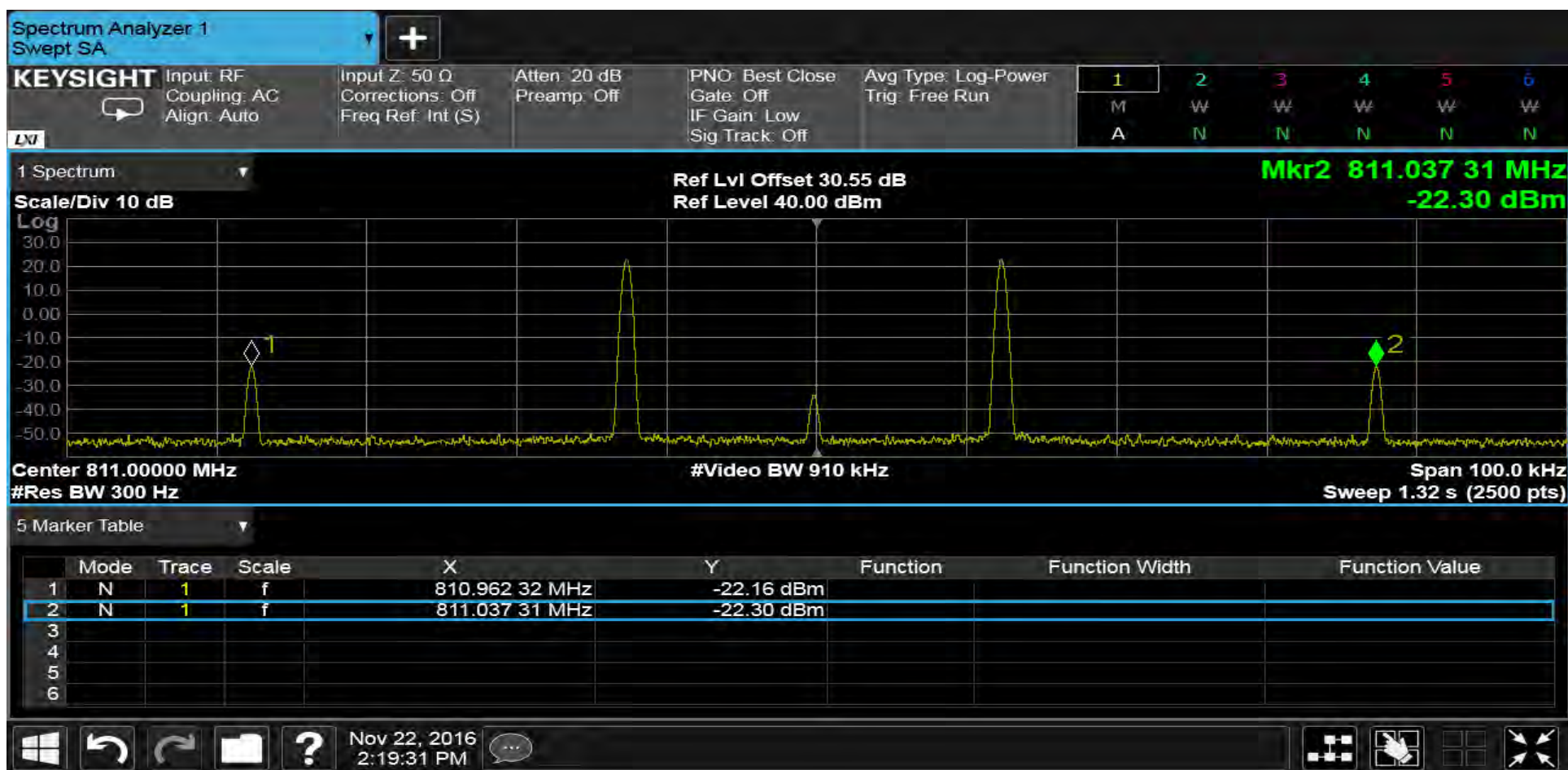
RETLIF TESTING LABORATORIES

Test Method	Out-of-Band/Out-of-Block		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying Mutli-tone signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23rd, 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Uplink: Multi-tone CW signals; 810.993750 MHz and 811.003125 MHz 11K3F3E FM 12.5kHz AGC Activated		



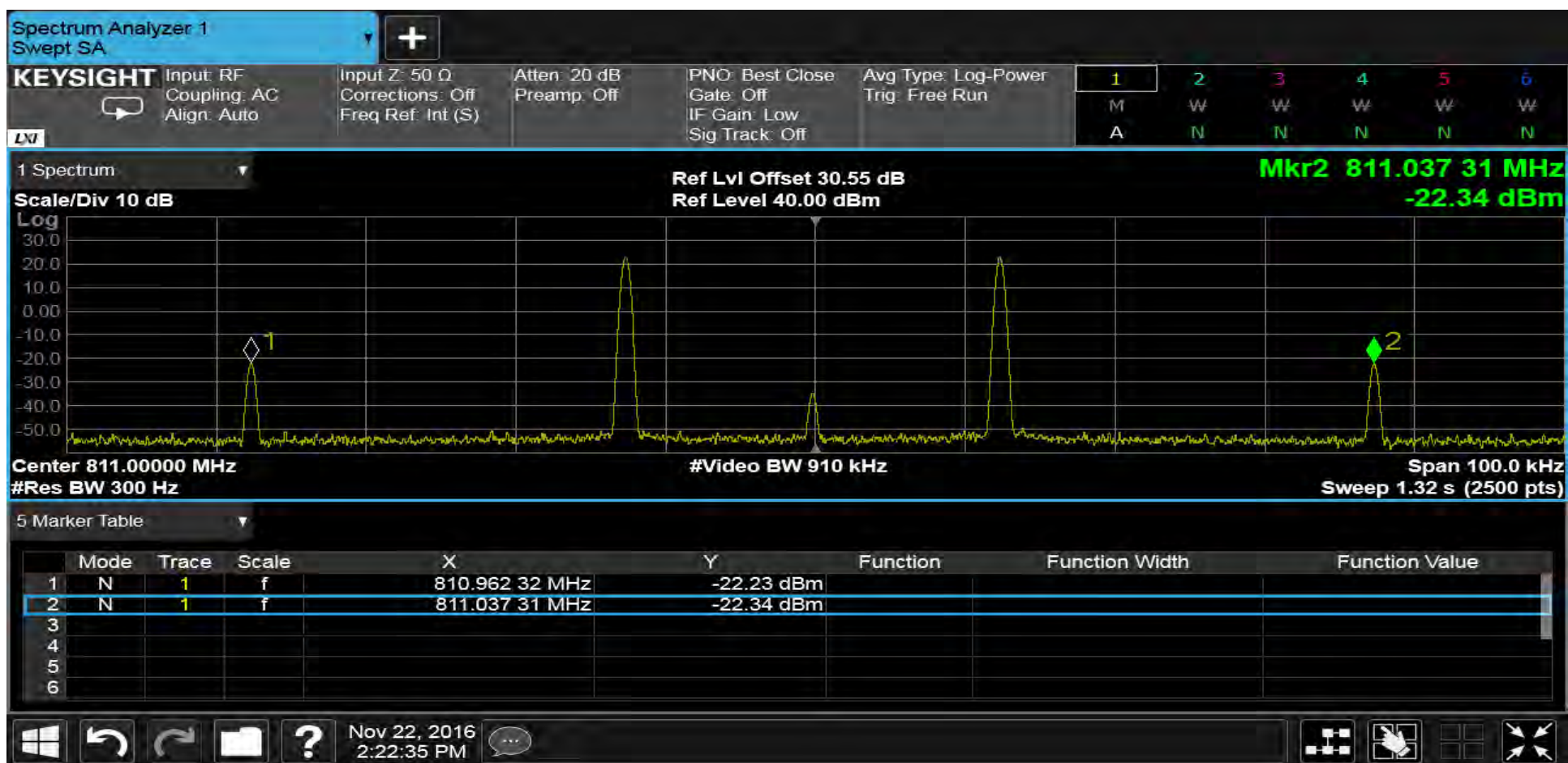
RETLIF TESTING LABORATORIES

Test Method	Out-of-Band/Out-of-Block		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying Mutli-tone signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23rd, 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Uplink: Multi-tone CW signals; 810.98750 MHz and 811.012500 MHz 16K0F3E FM 25kHz		



RETLIF TESTING LABORATORIES

Test Method	Out-of-Band/Out-of-Block		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying Mutli-tone signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23rd, 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Uplink: Multi-tone CW signals; 810.98750 MHz and 811.012500 MHz 16K0F3E FM 25kHz AGC Activated		



**Spurious Emissions Conducted
Test Data**



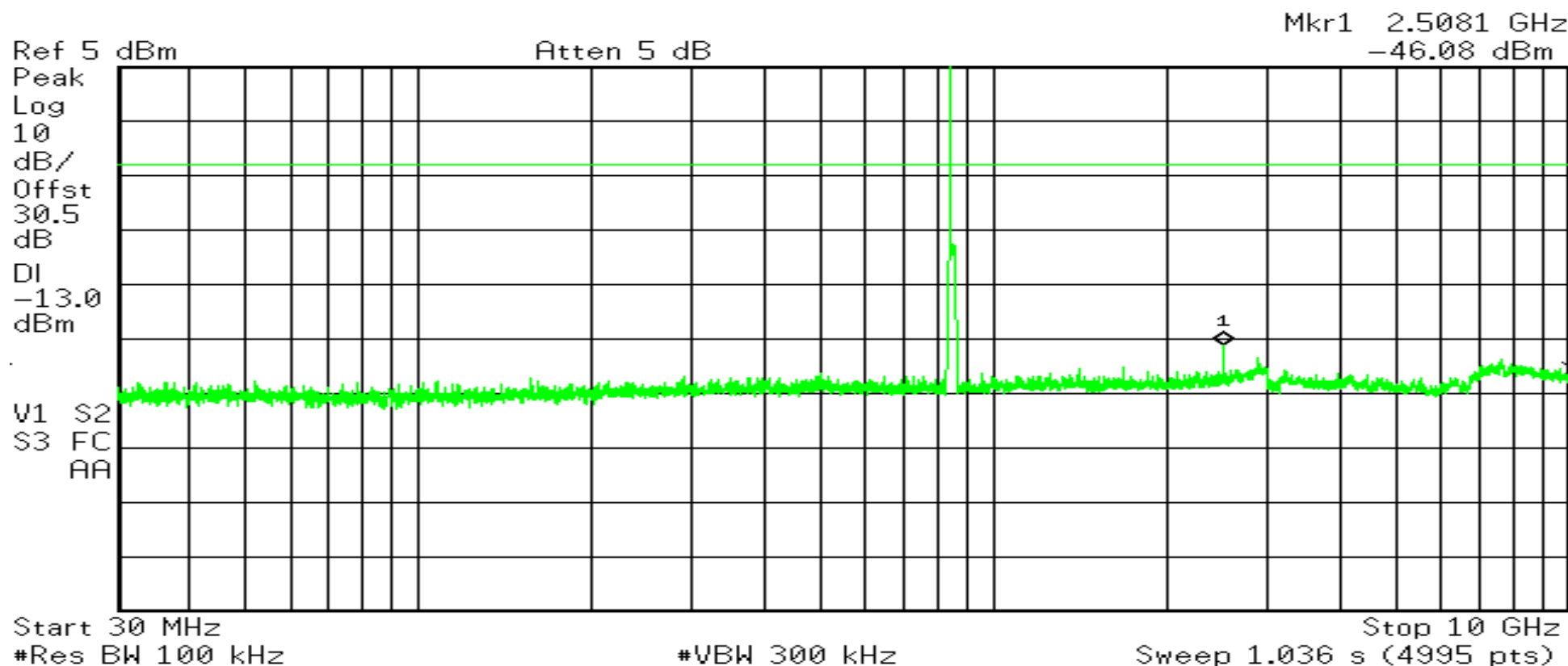
Retlif Testing Laboratories

Report No. R-6142N-1, Rev. A

RETLIF TESTING LABORATORIES

Test Method	Spurious Emissions Conducted		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying CW signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23 rd , 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Downlink: 851.00625 MHz		

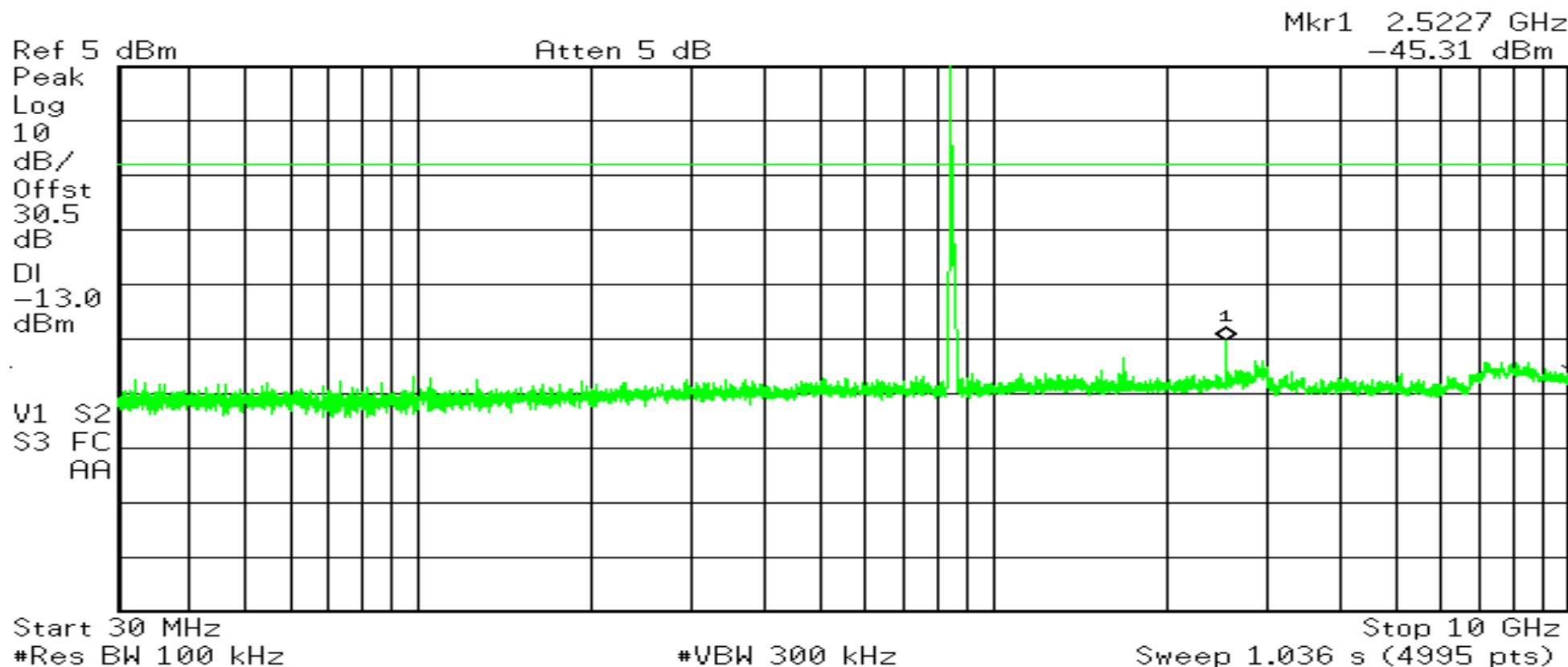
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RETLIF TESTING LABORATORIES

Test Method	Spurious Emissions Conducted		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying CW signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23rd, 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Downlink: 856.00000 MHz		

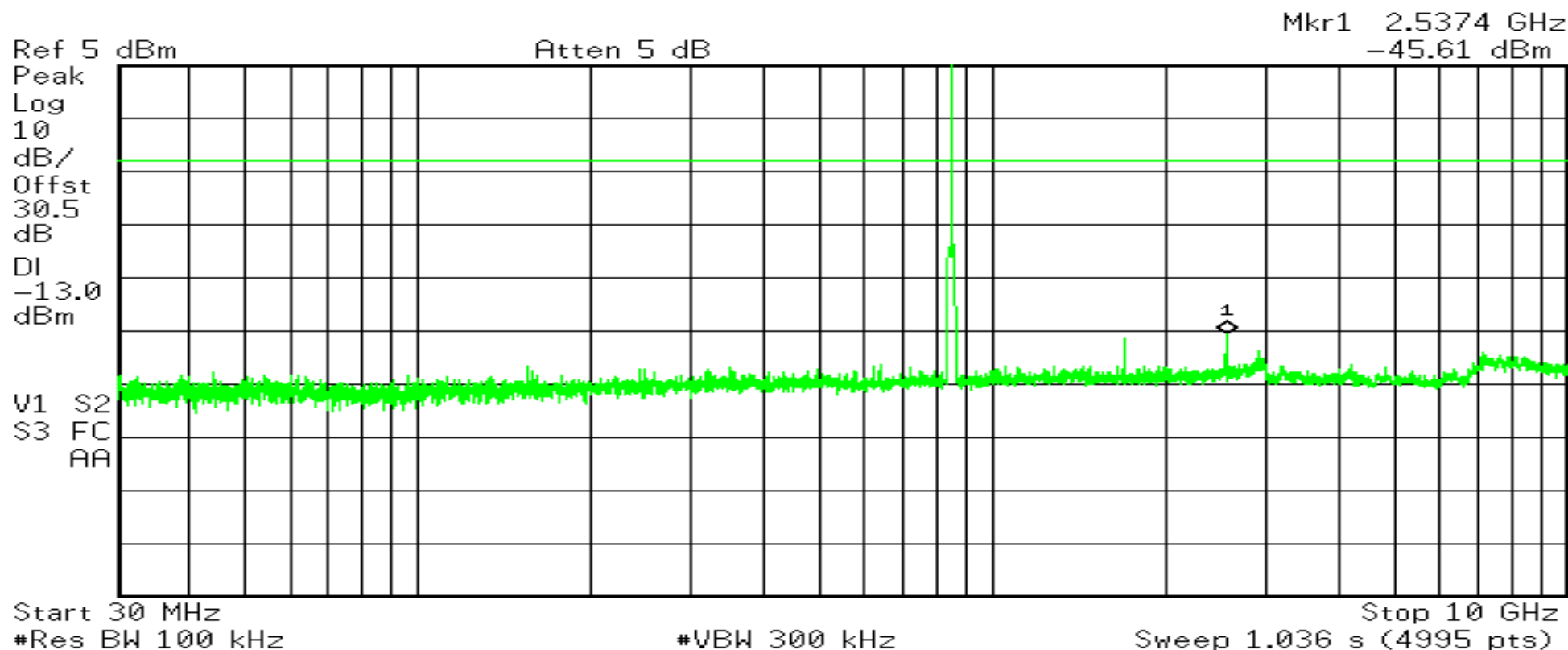
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RETLIF TESTING LABORATORIES

Test Method	Spurious Emissions Conducted		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying CW signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23rd, 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Downlink: 860.993750 MHz		

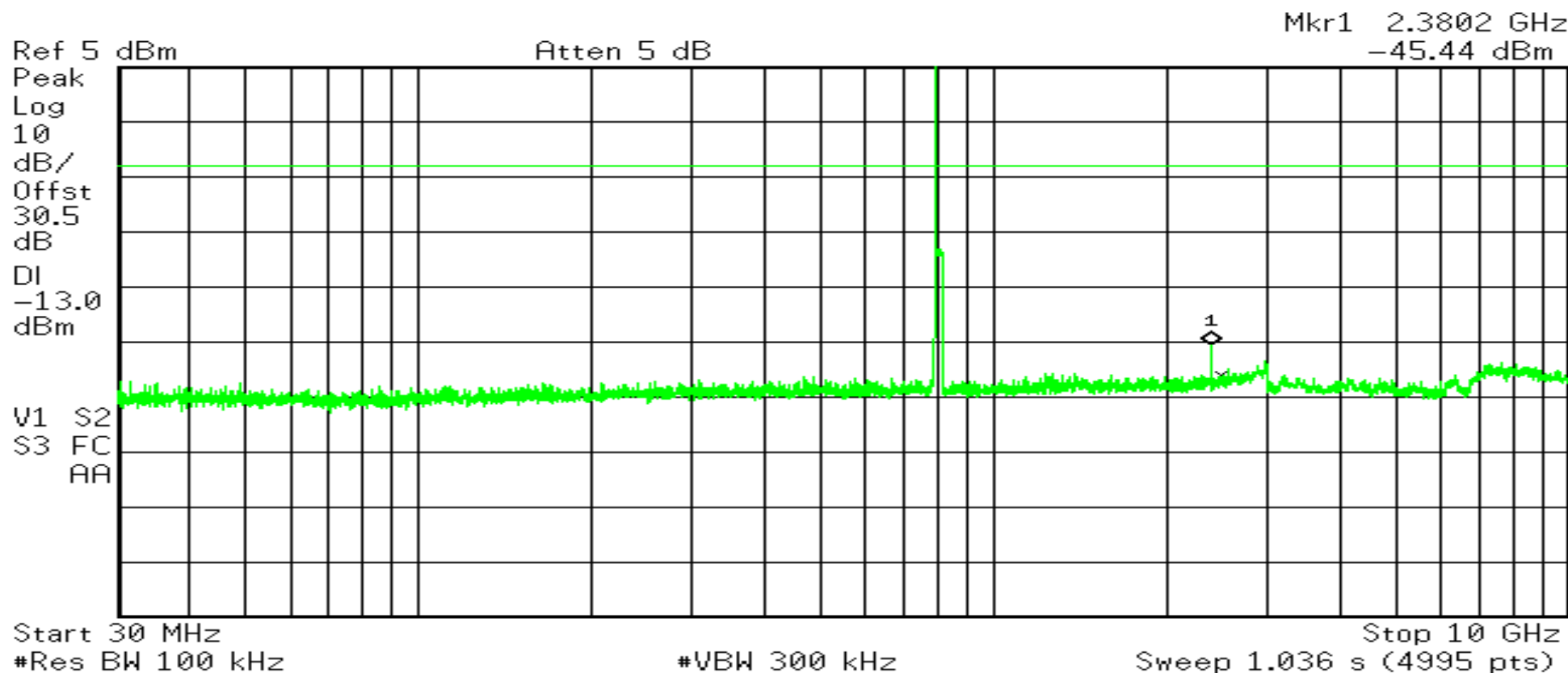
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RETLIF TESTING LABORATORIES

Test Method	Spurious Emissions Conducted		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying CW signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23rd, 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Uplink: 806.00625 MHz		

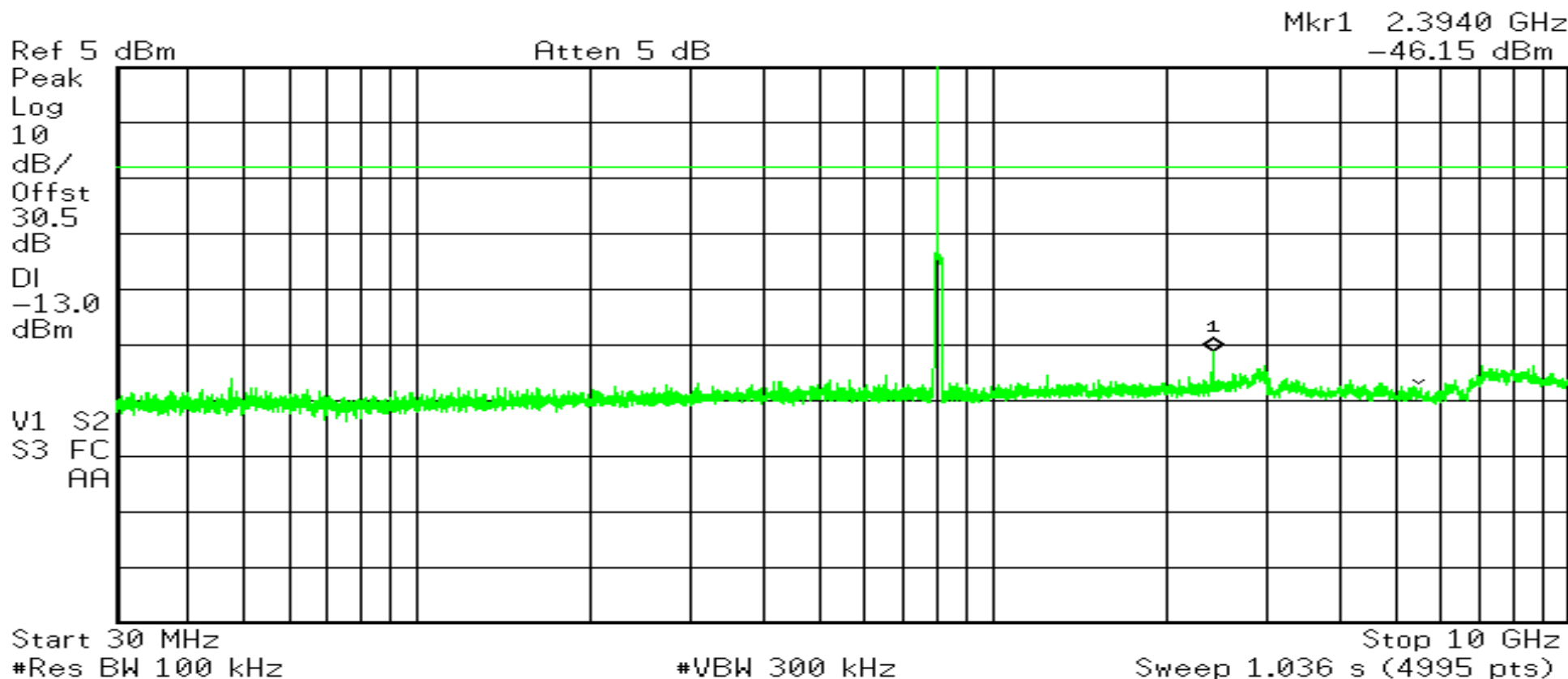
Agilent 12:46:12 Nov 23, 2016



RETLIF TESTING LABORATORIES

Test Method	Spurious Emissions Conducted		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying CW signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23rd, 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Uplink: 811.00000 MHz		

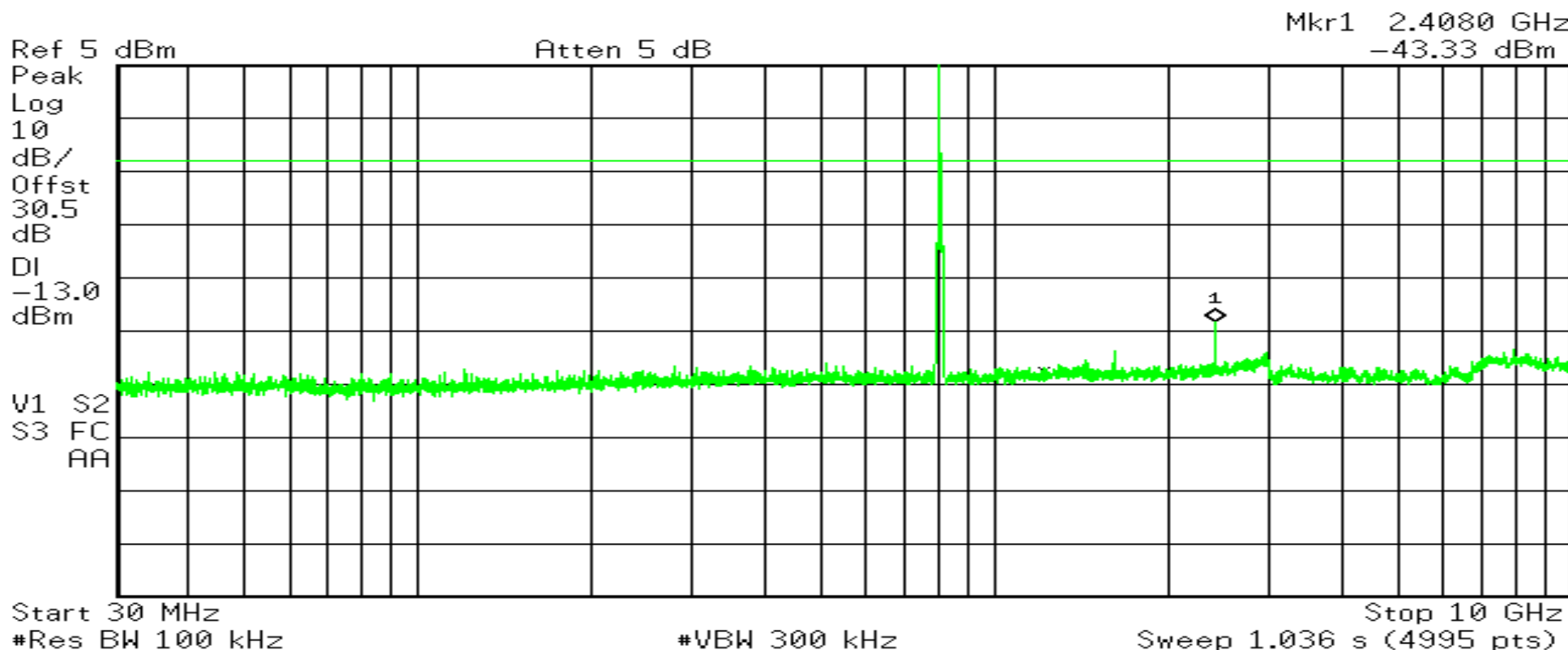
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RETLIF TESTING LABORATORIES

Test Method	Spurious Emissions Conducted		
Customer	Westell, Inc.	Job No.	R-6142N-1
Test Sample	Bi-Directional Amplifier		
Model Number	BDA510-S8	Serial No.	CPG62990
Operating Mode	Amplifying CW signals		
Test Specification	Nemko Test Plan 317856-2		
Technician	M. Seamans	Date	November 23rd, 2016
Climatic Conditions	Temp: 20.1 °C Relative Humidity: 28.3 %		
Notes	Uplink: 815.99375 MHz		

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**Field Strength of Spurious Emissions
Test Data**



Retlif Testing Laboratories

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RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Spurious Emissions Radiated
Customer	Westell, Inc.
Job Number	R-6142N-1
Test Sample	Bi-Directional Amplifier
Model Number	BDA510-S8
Serial Number	CPG62990
Test Specification	Nemko Test Plan 317856-2
Operating Mode	Amplifying signals
Technician	M. Seamans
Date	December 2 nd , 2016

Notes: Antenna Test Distance: 3 meters

Detector: Peak

Input frequencies tested: (Downlink) 851.00625 MHz, 856.000 MHz, 860.993750 MHz,
(Uplink) 806.00625 MHz, 811.000MHz, 815.99375 MHz

TEST PARAMETERS

Frequency	Antenna Position	Antenna Ref Level	Signal Gen Level					Limit
MHz	(H/V) / Position	dBuV	dBm					dBm
30.00	-	-	-					-13.00
	-	-	-					
	-	-	-					
	-	-	-					
	-	-	-					
	-	-	-					
	-	-	-					
	-	-	-					
10000.00	-	-	-					-13.00

No EUT emissions within 20 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum.

Data Sheet 1 of 1



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