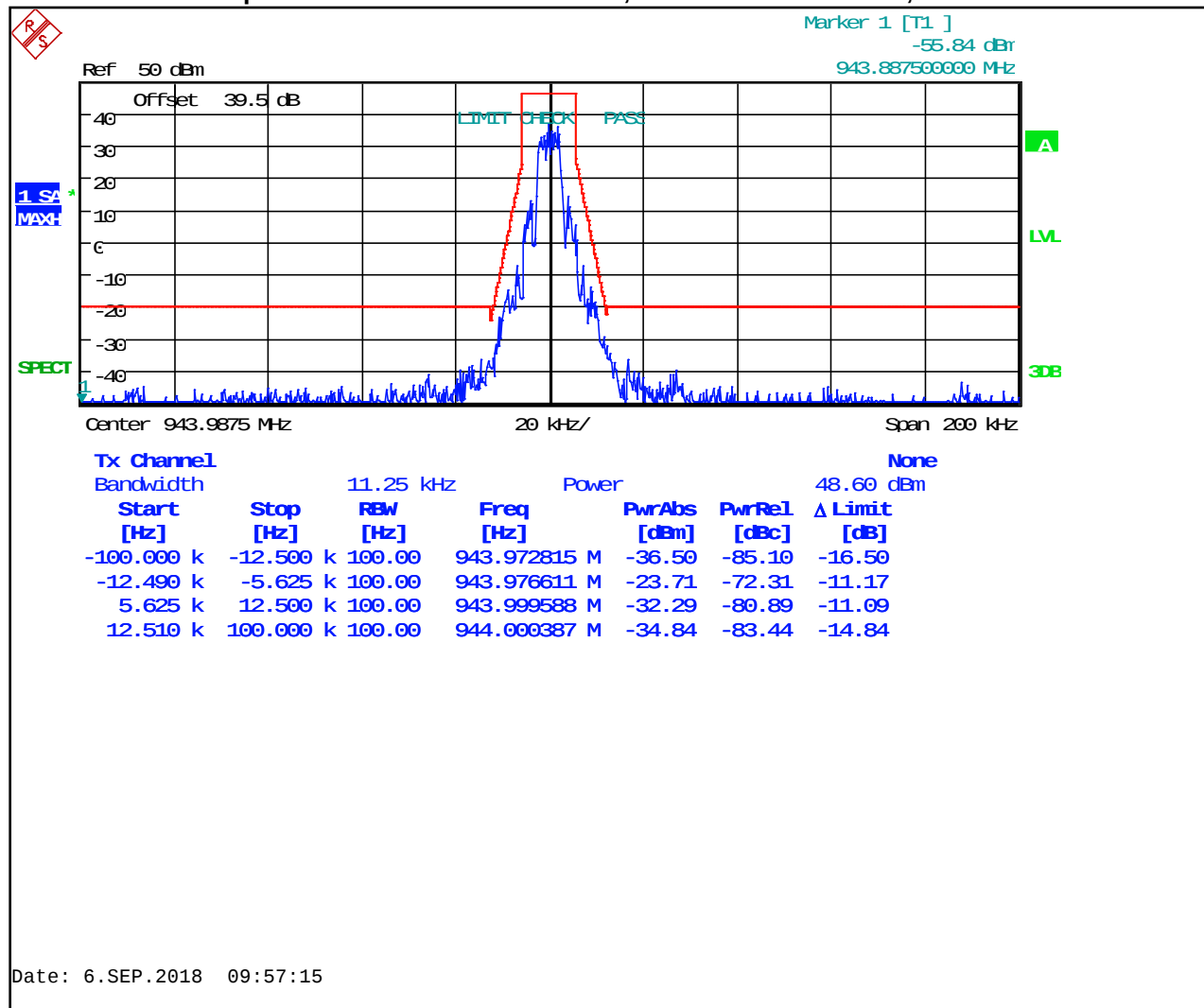
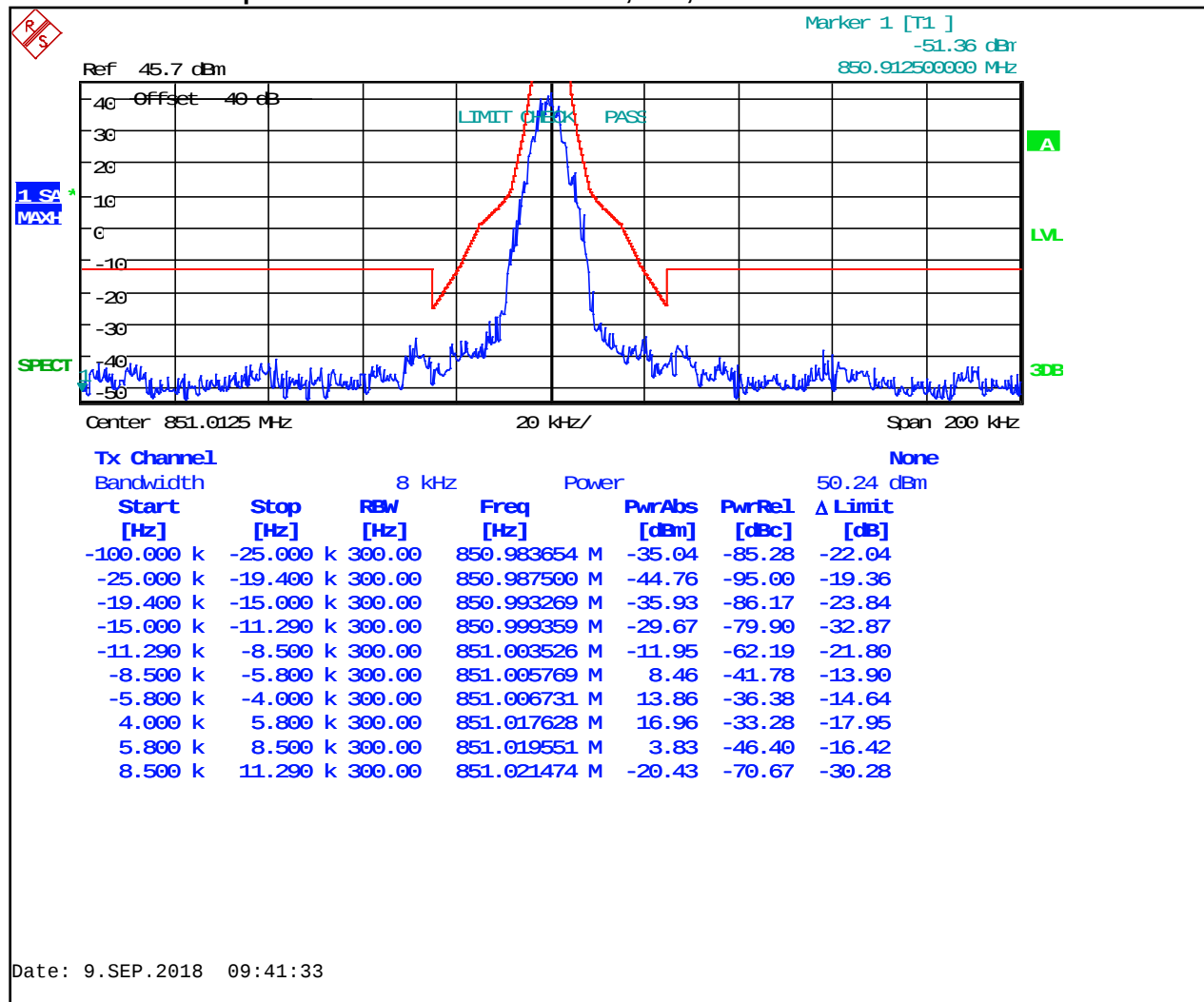


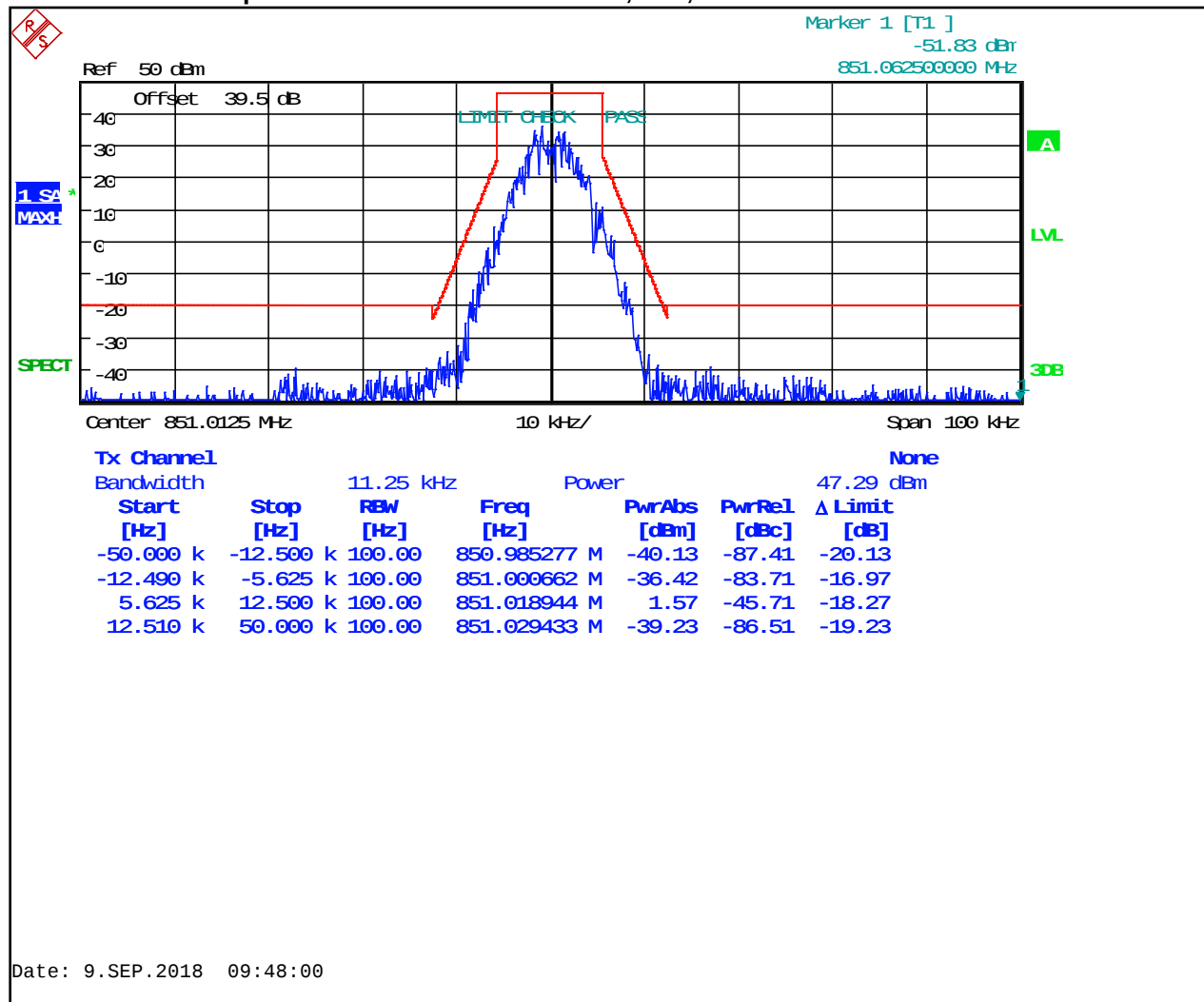
Plot 8-67: Occupied Bandwidth – 943.9875 MHz; 2-Level FSK 4800 XNB; Mask D



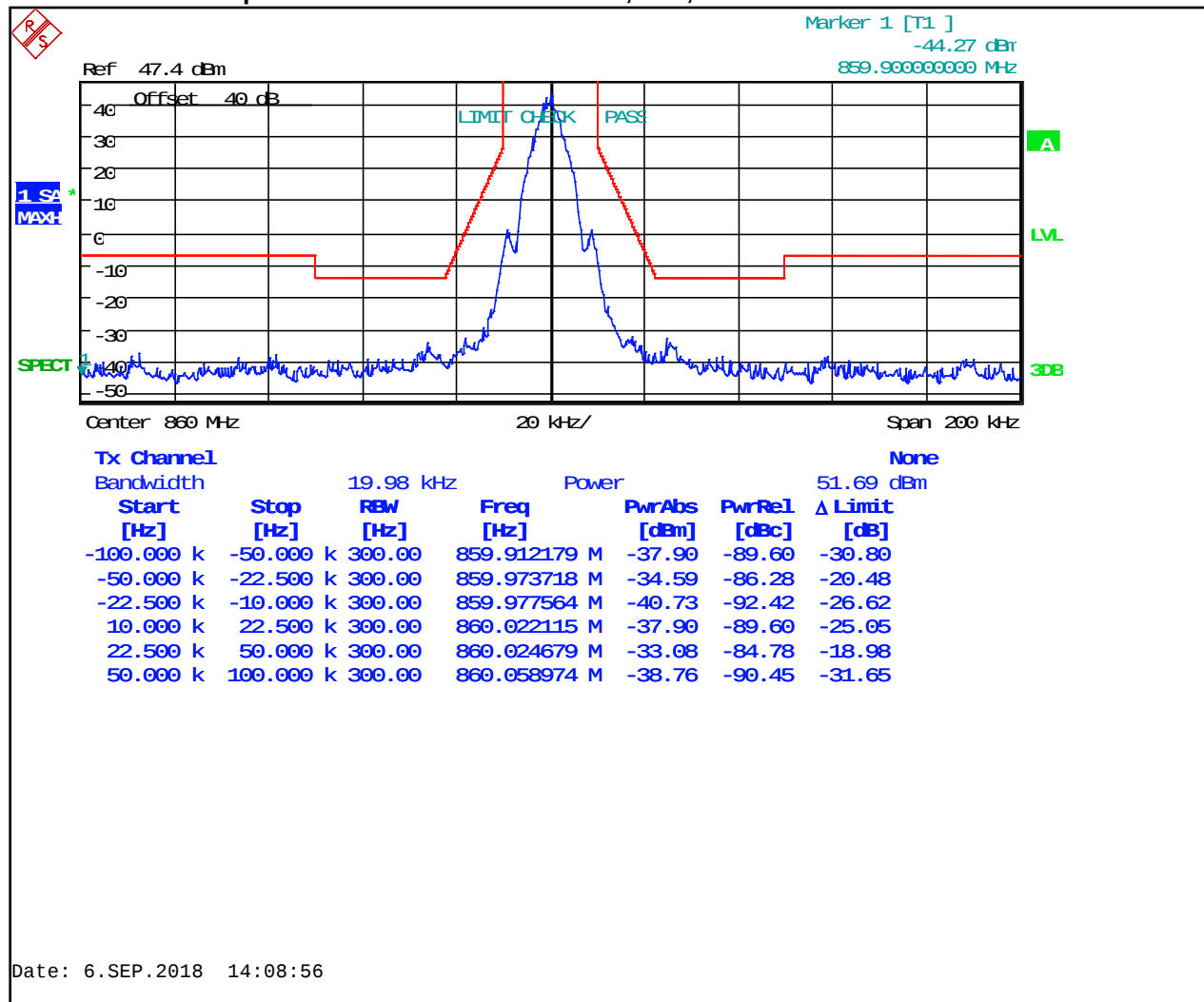
Plot 8-68: Occupied Bandwidth – 851.0125 MHz; P25; Mask H



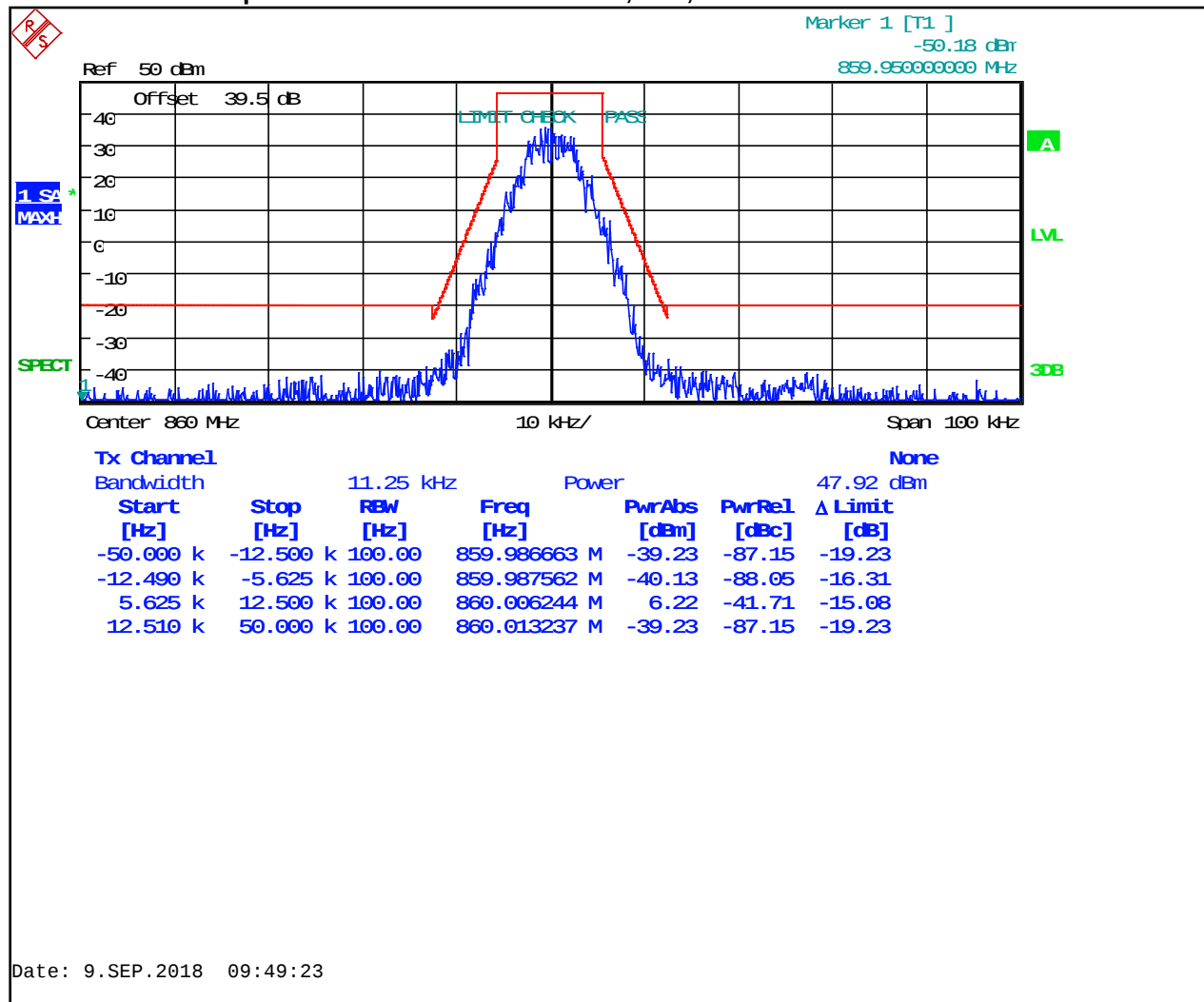
Plot 8-69: Occupied Bandwidth – 851.0125 MHz; P25; Mask D



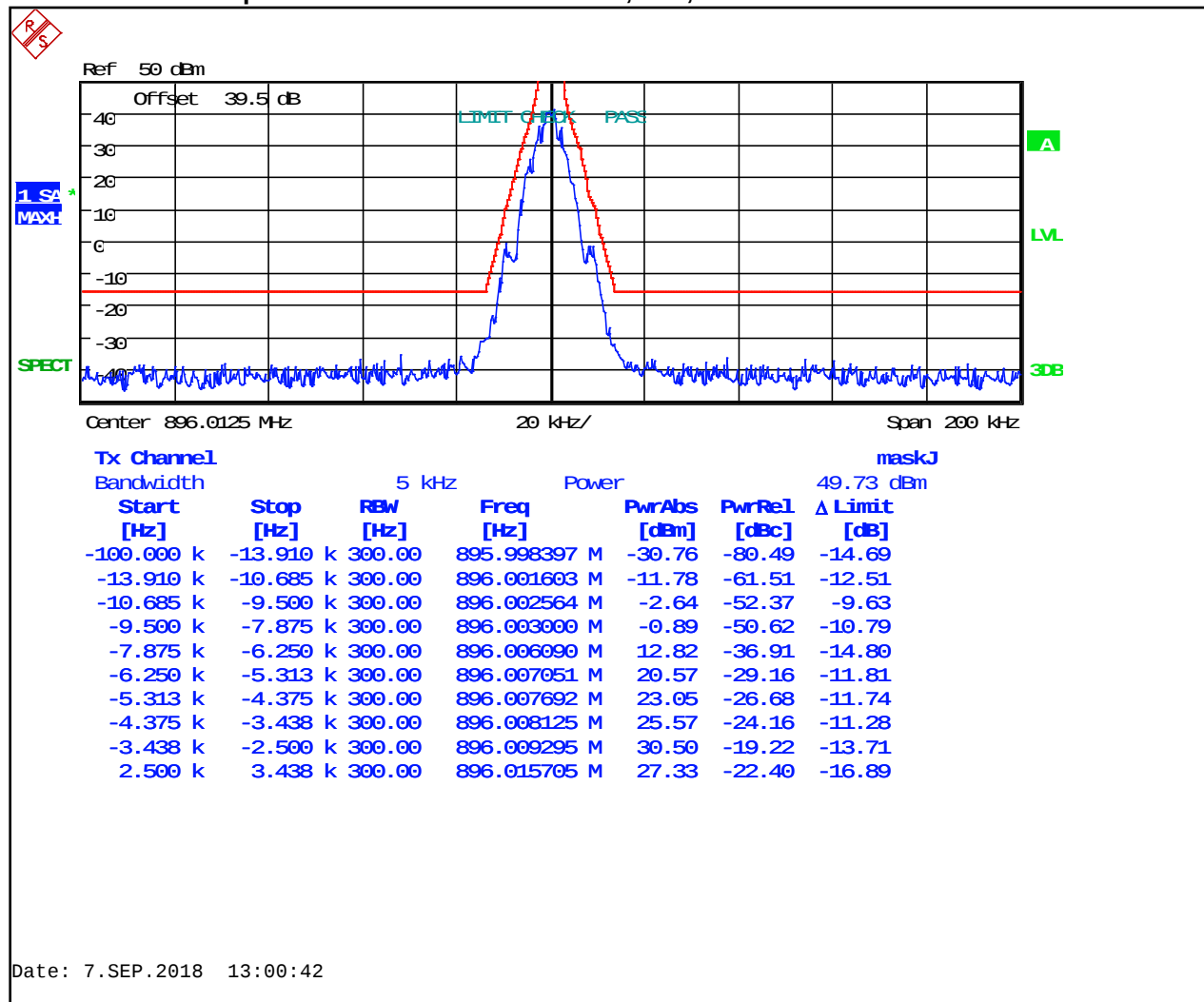
Plot 8-70: Occupied Bandwidth – 860.0000 MHz; P25; Mask G



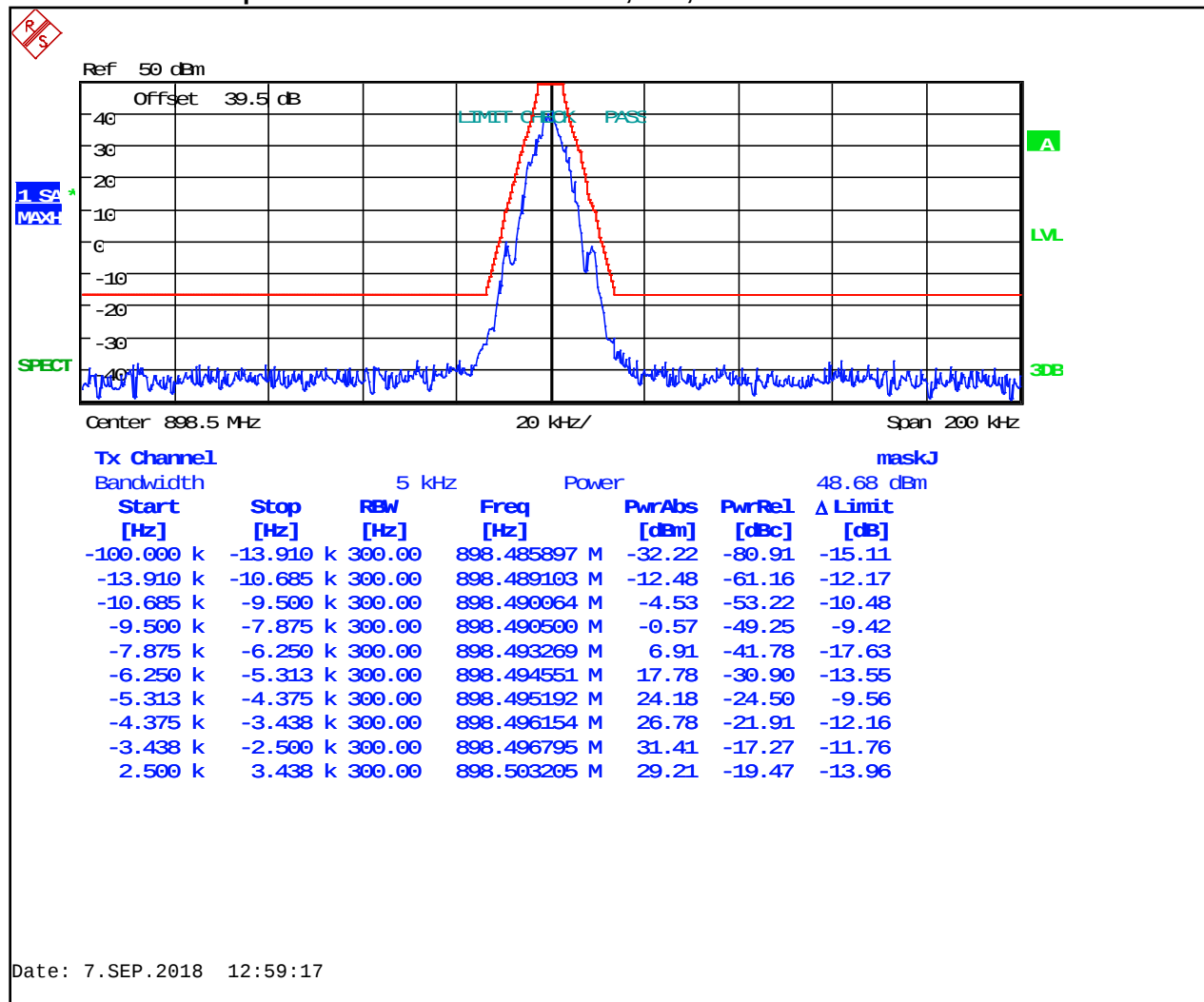
Plot 8-71: Occupied Bandwidth – 860.0000 MHz; P25; Mask D



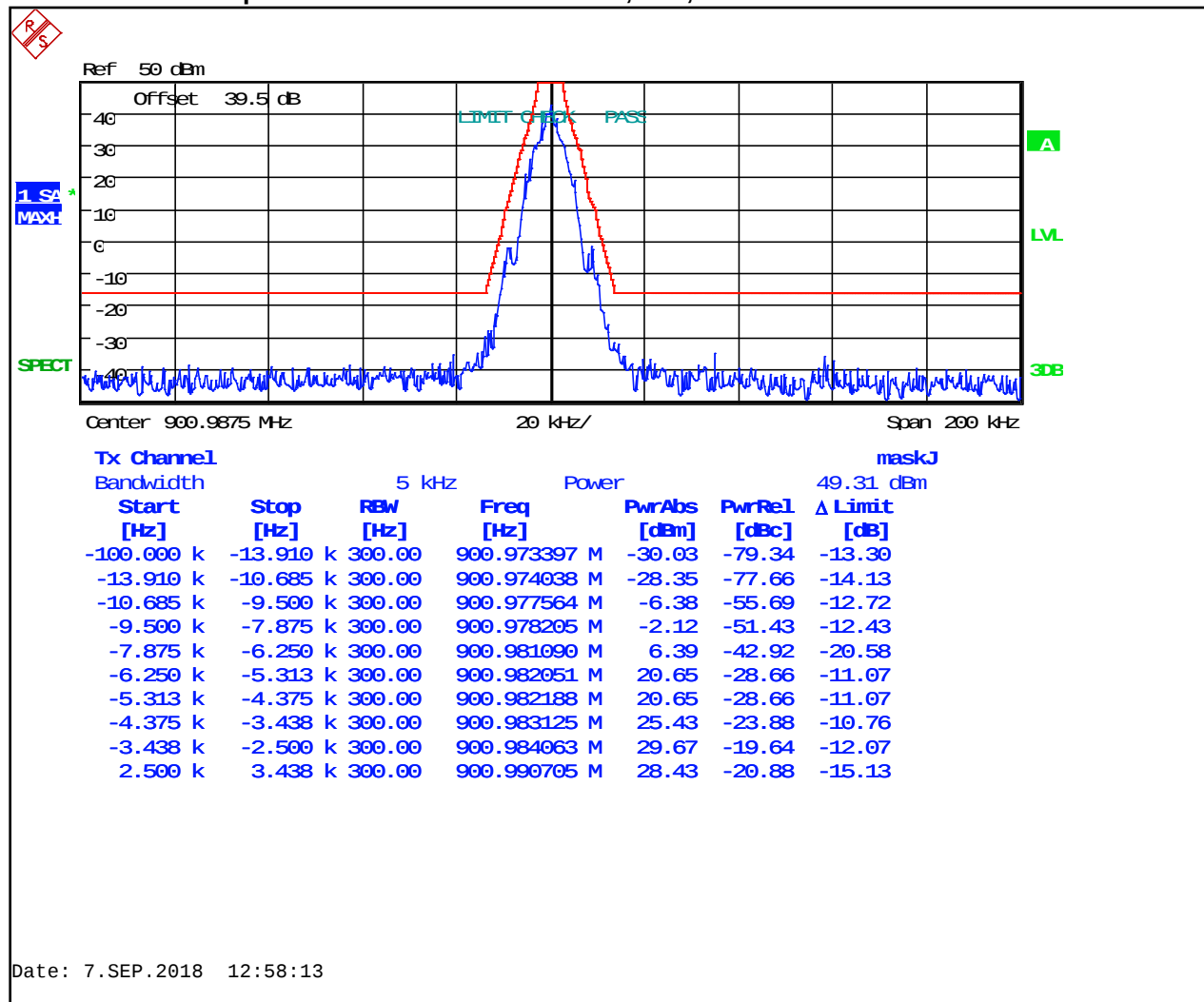
Plot 8-72: Occupied Bandwidth – 896.0125 MHz; P25; Mask J



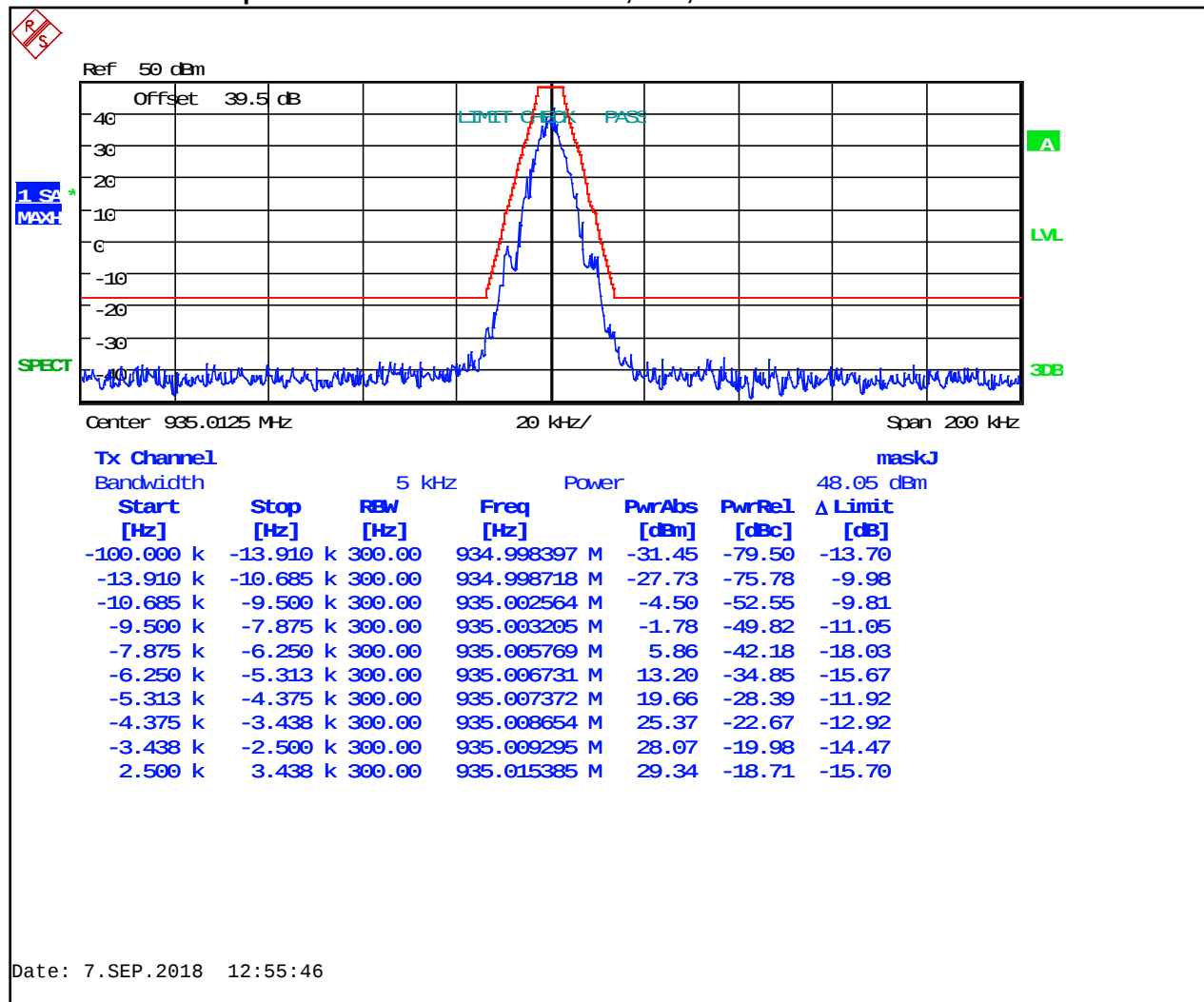
Plot 8-73: Occupied Bandwidth – 898.5000 MHz; P25; Mask J



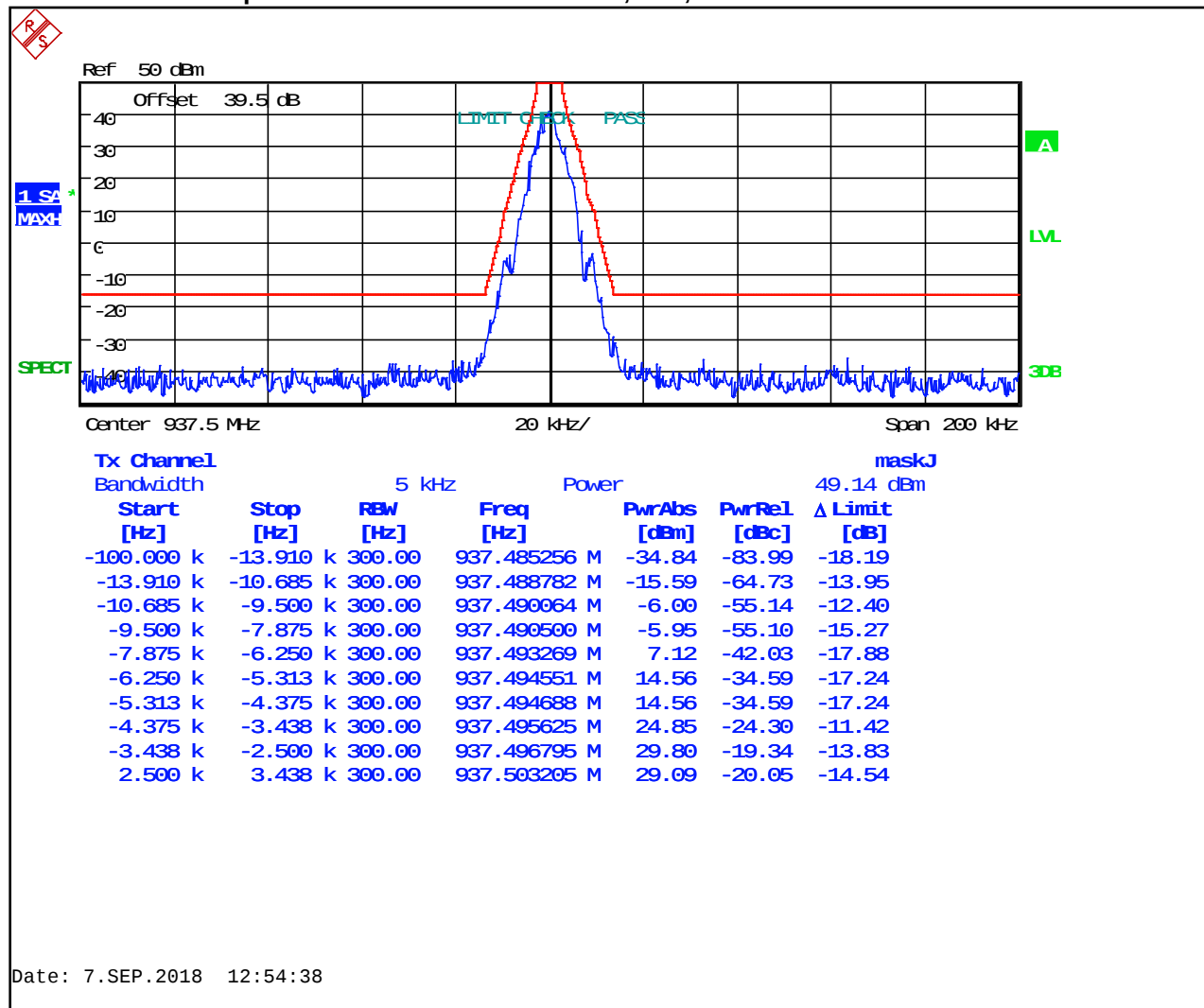
Plot 8-74: Occupied Bandwidth – 900.9875 MHz; P25; Mask J



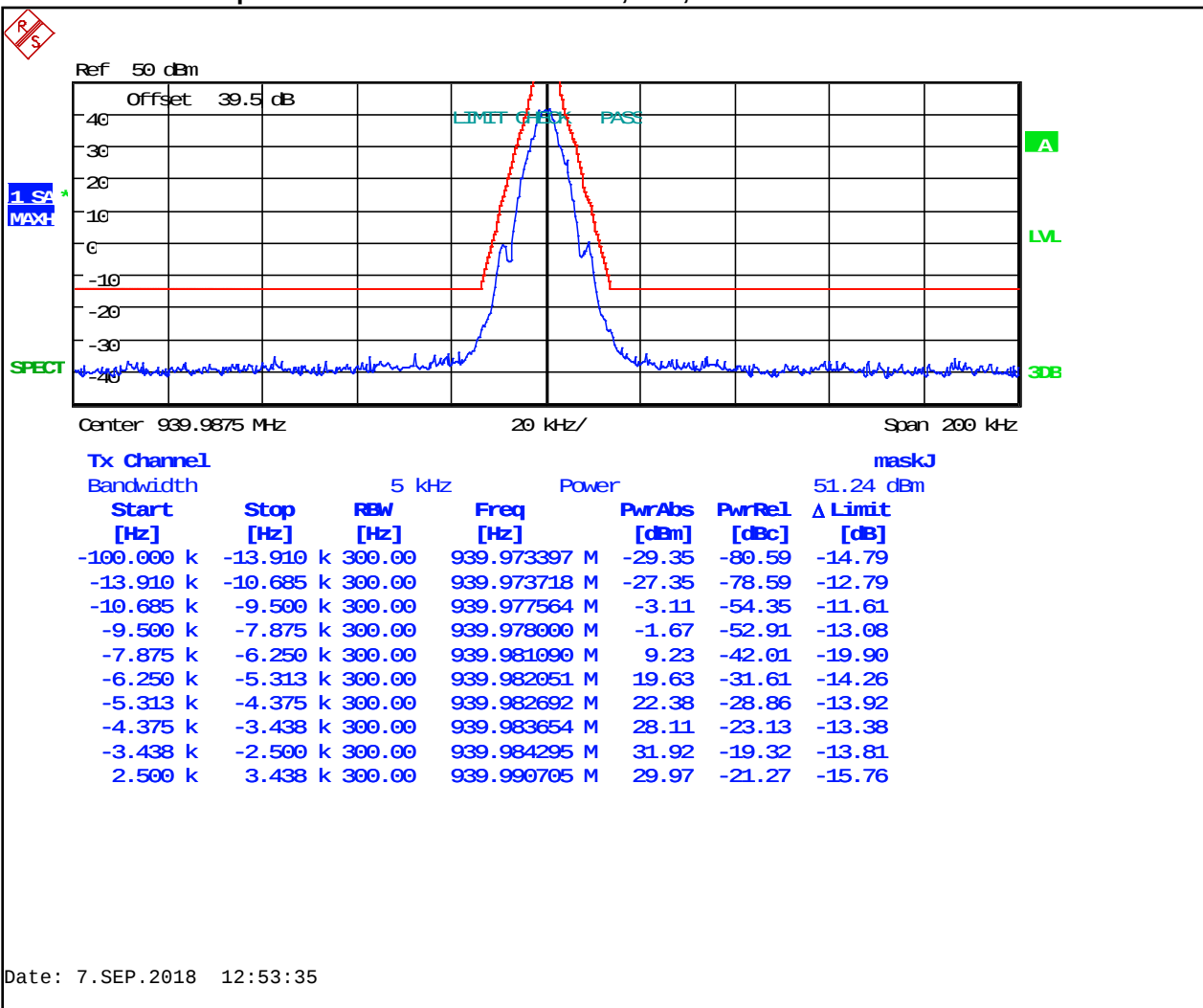
Plot 8-75: Occupied Bandwidth – 935.0125 MHz; P25; Mask J



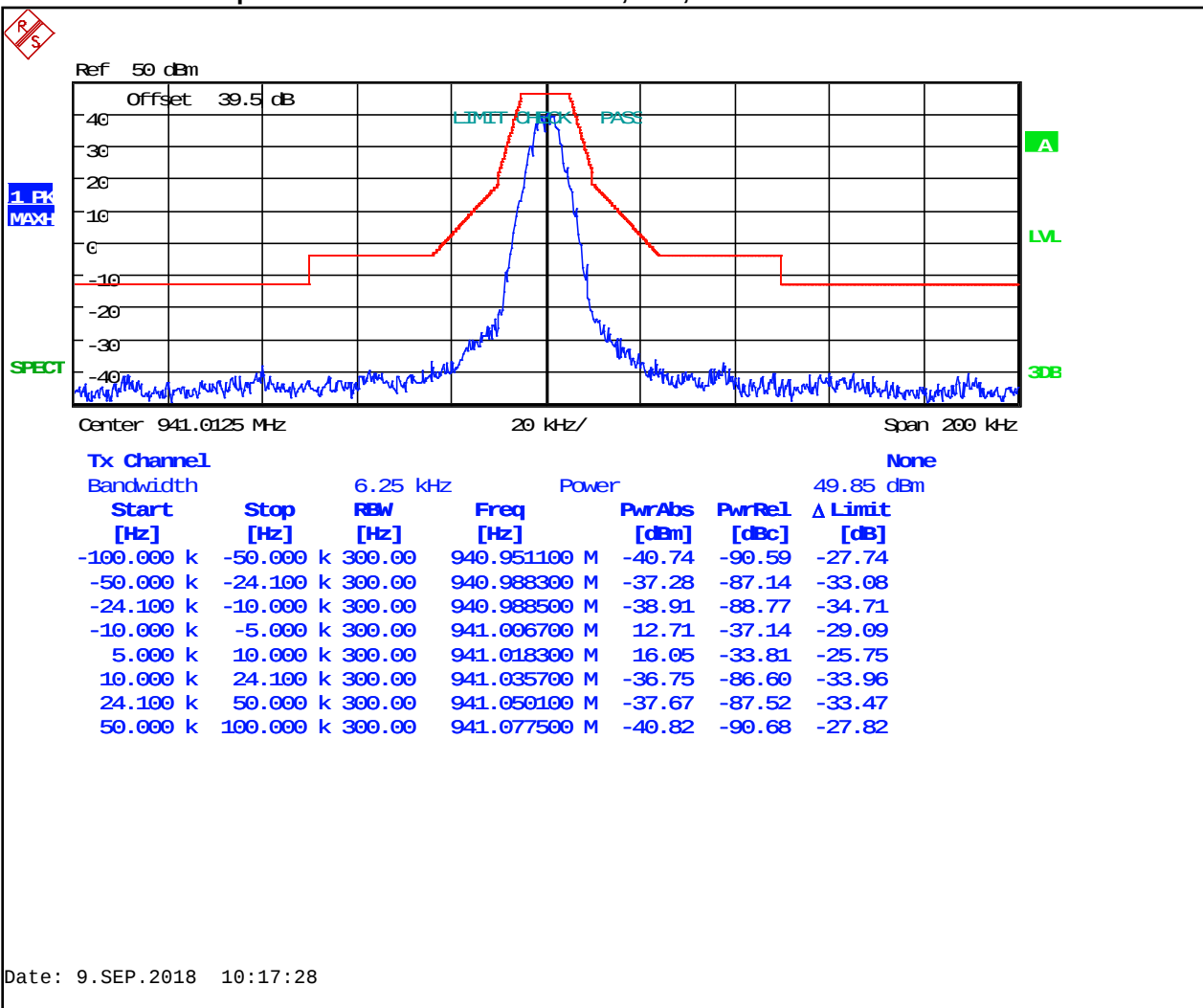
Plot 8-76: Occupied Bandwidth – 937.5000 MHz; P25; Mask J



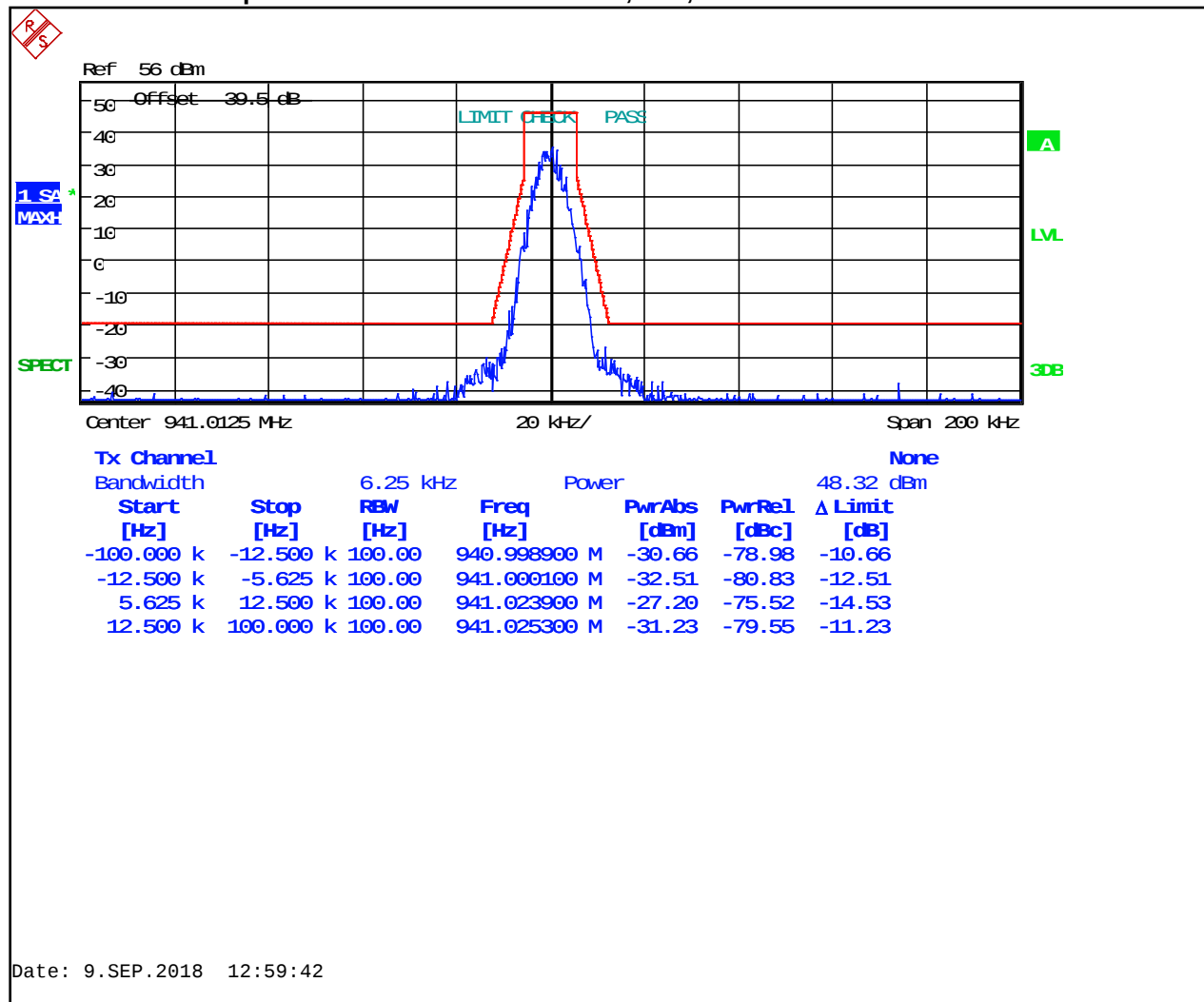
Plot 8-77: Occupied Bandwidth – 939.9875 MHz; P25; Mask J



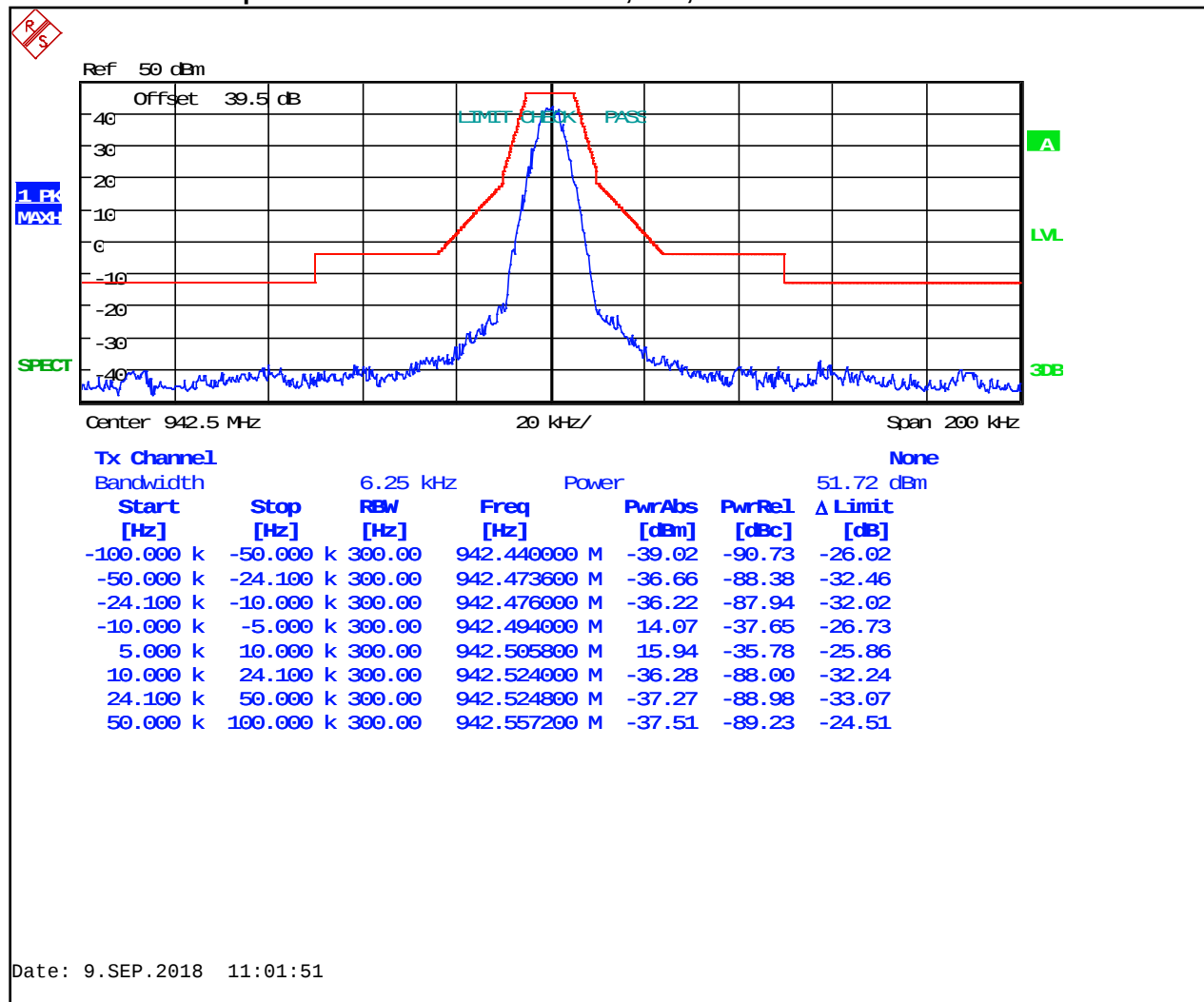
Plot 8-78: Occupied Bandwidth – 941.0125 MHz; P25; Mask C



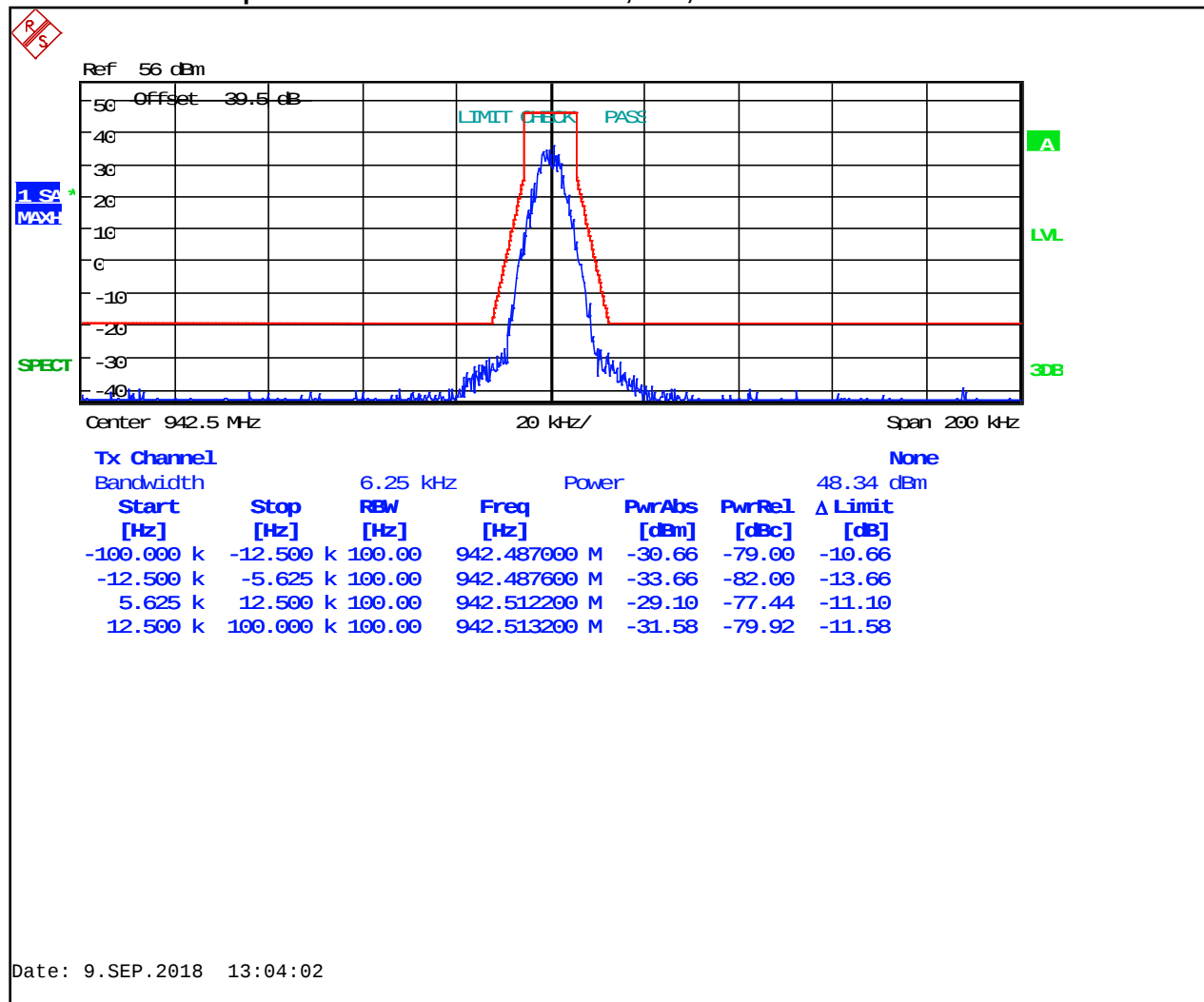
Plot 8-79: Occupied Bandwidth – 941.0125 MHz; P25; Mask D



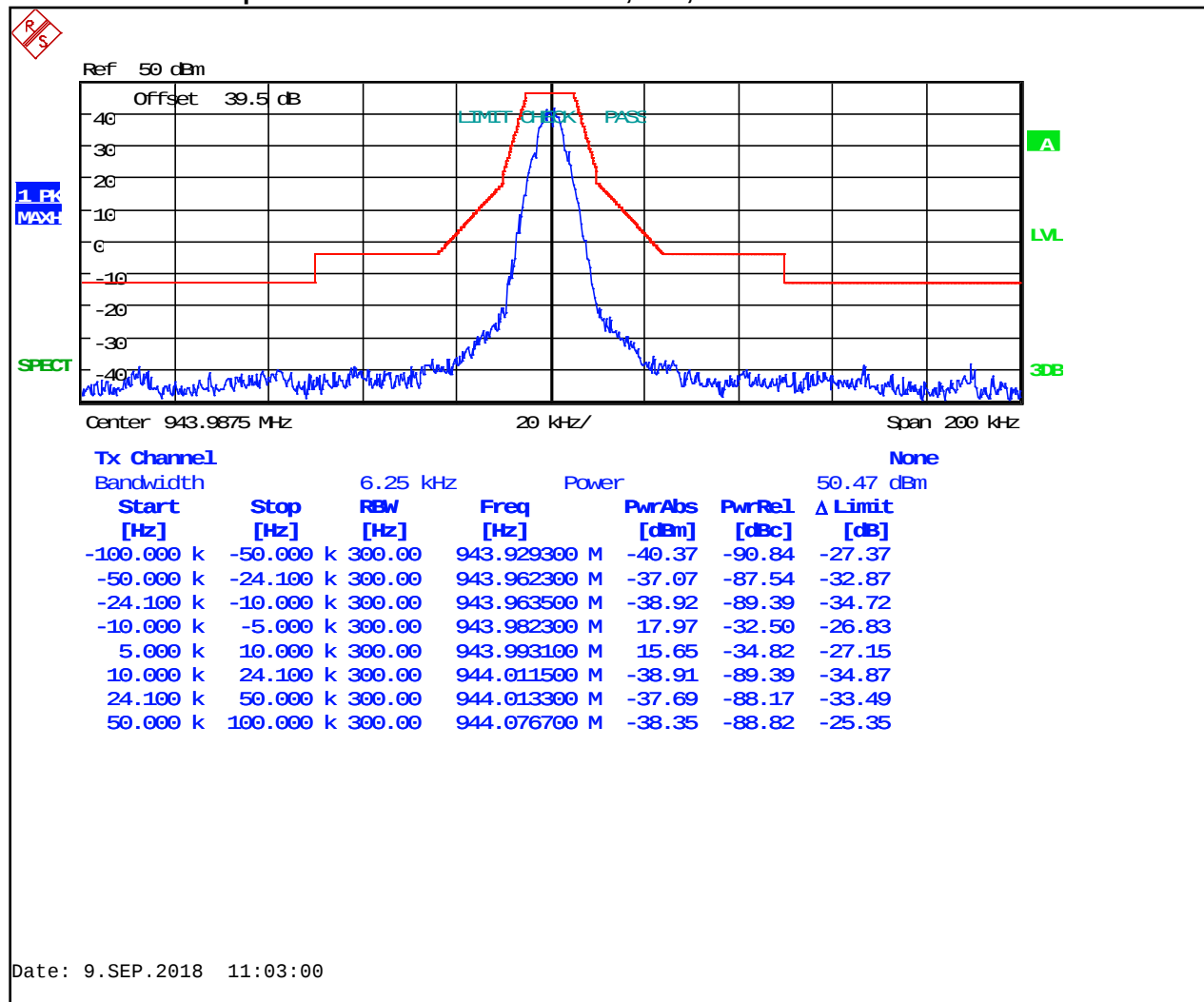
Plot 8-80: Occupied Bandwidth – 942.5000 MHz; P25; Mask C



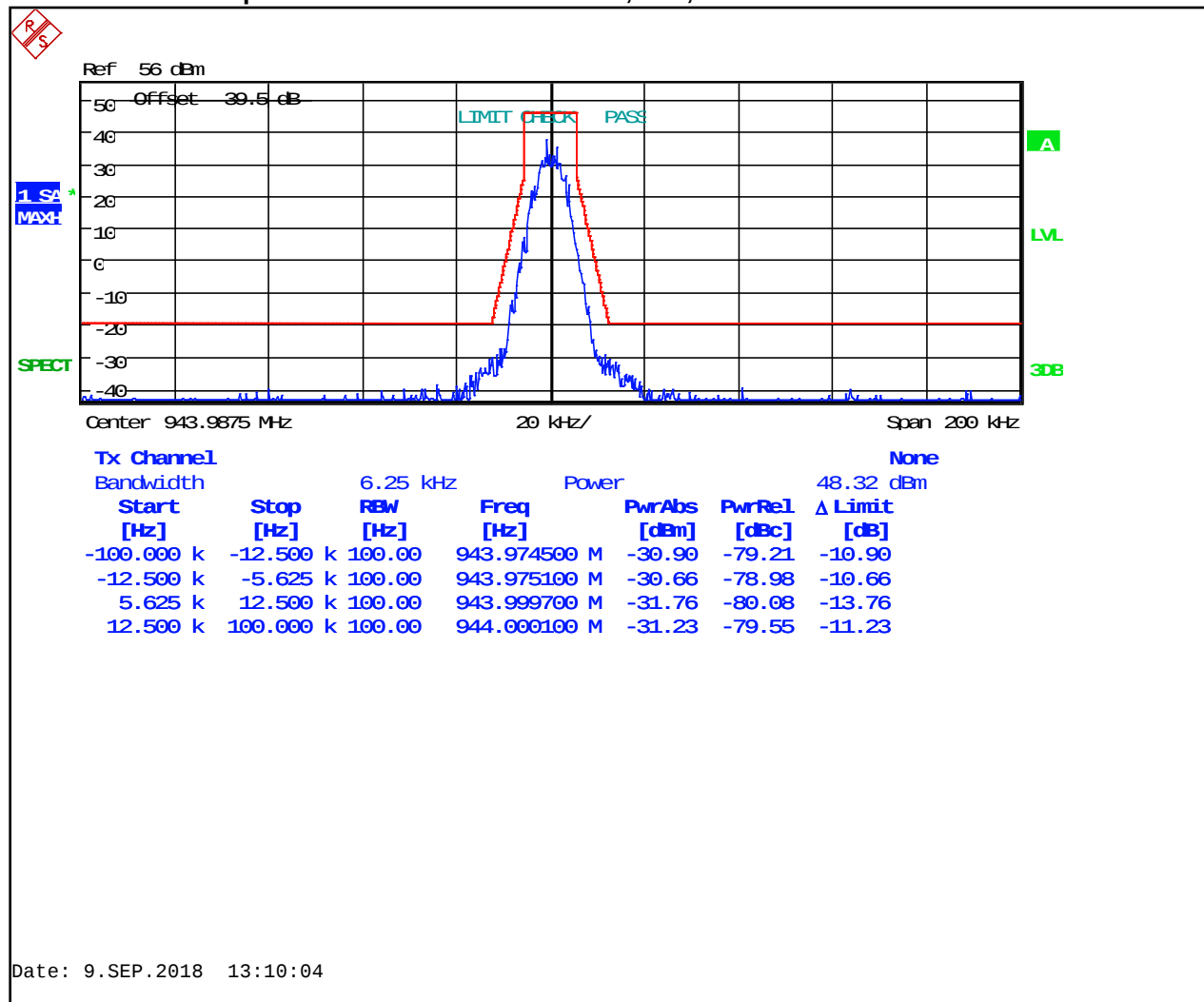
Plot 8-81: Occupied Bandwidth – 942.5000 MHz; P25; Mask D



Plot 8-82: Occupied Bandwidth – 943.9875 MHz; P25; Mask C



Plot 8-83: Occupied Bandwidth – 943.9875 MHz; P25; Mask D



Ref 45.7 dBm

Offset 40 dB

Marker 1 [T1] -48.19 dBm

850.912500000 MHz

LIMIT CHECK PASS

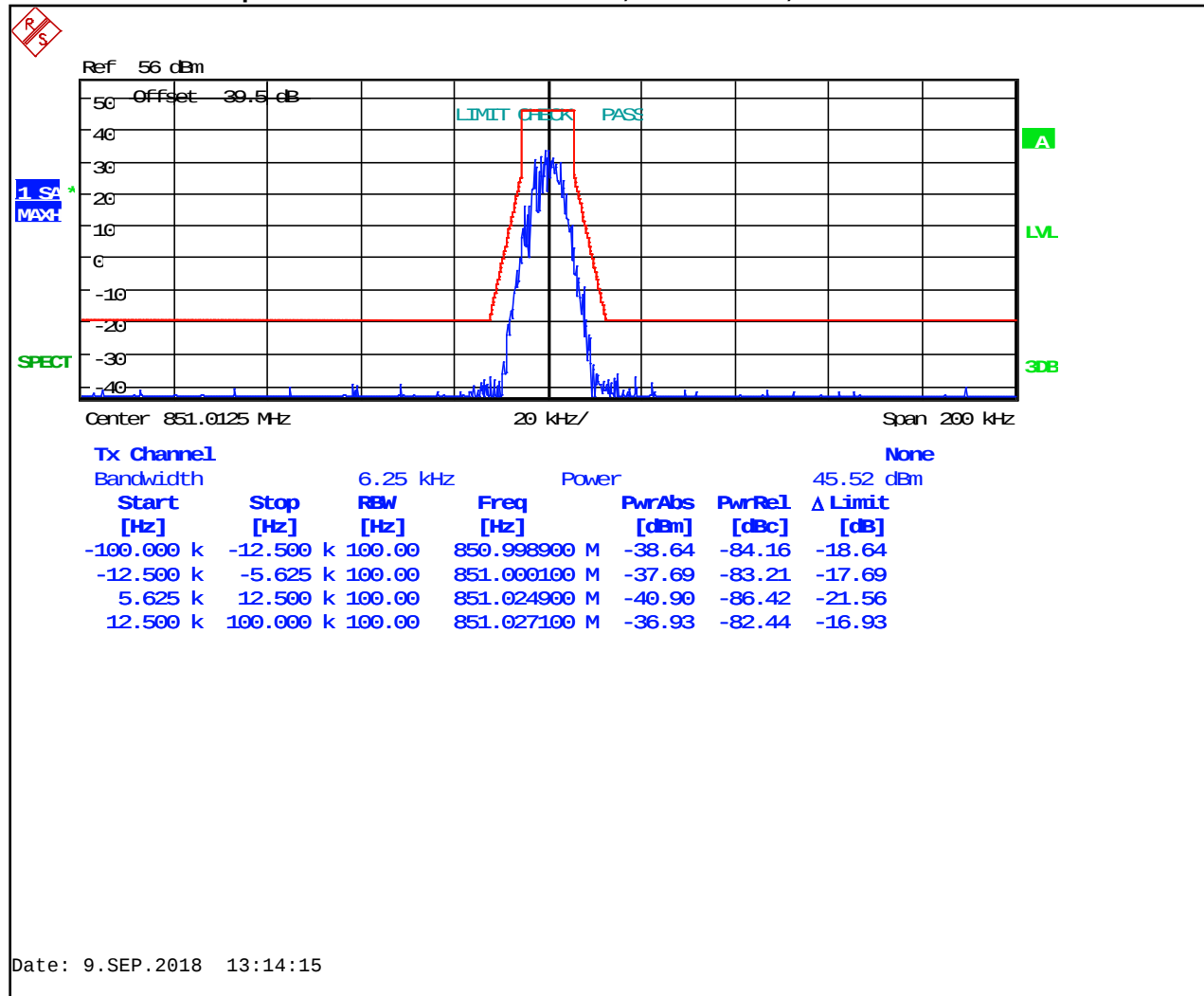
Center 851.0125 MHz 20 kHz/ Span 200 kHz

Tx Channel

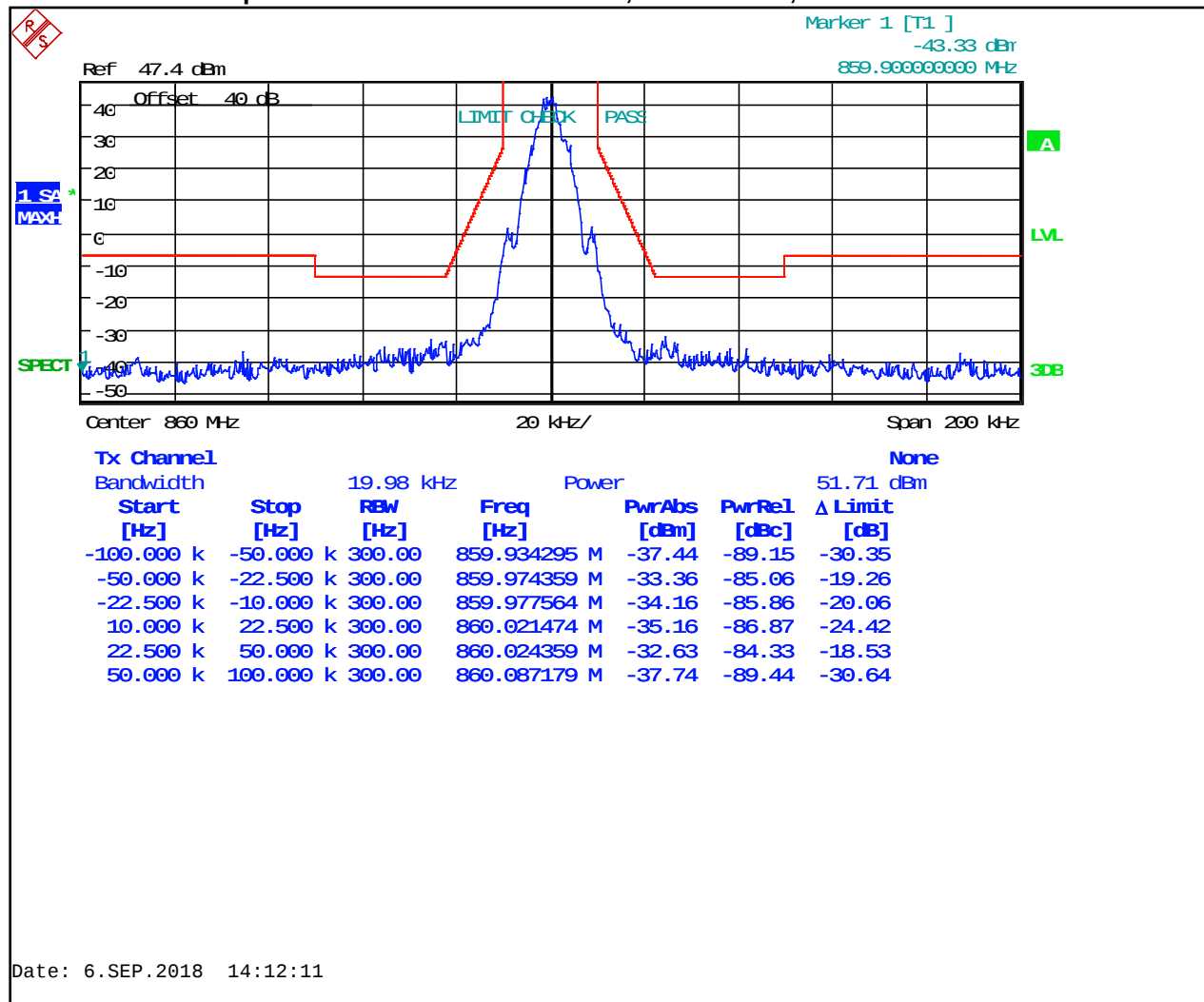
Bandwidth 8 kHz Power 50.51 dBm

Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	PwrRel [dBc]	Δ Limit [dB]
-100.000 k	-25.000 k	300.00	850.986218 M	-33.96	-84.47	-20.96
-25.000 k	-19.400 k	300.00	850.987821 M	-37.30	-87.81	-12.63
-19.400 k	-15.000 k	300.00	850.993100 M	-37.30	-87.81	-24.70
-15.000 k	-11.290 k	300.00	850.998077 M	-33.00	-83.51	-34.48
-11.290 k	-8.500 k	300.00	851.003526 M	-12.38	-62.89	-22.23
-8.500 k	-5.800 k	300.00	851.006090 M	7.59	-42.92	-16.89
-5.800 k	-4.000 k	300.00	851.007051 M	18.91	-31.59	-12.94
-4.000 k	-5.800 k	300.00	851.016667 M	23.60	-26.90	-20.50
-5.800 k	8.500 k	300.00	851.018300 M	8.29	-42.22	-20.21
8.500 k	11.290 k	300.00	851.021154 M	-19.46	-69.97	-30.16

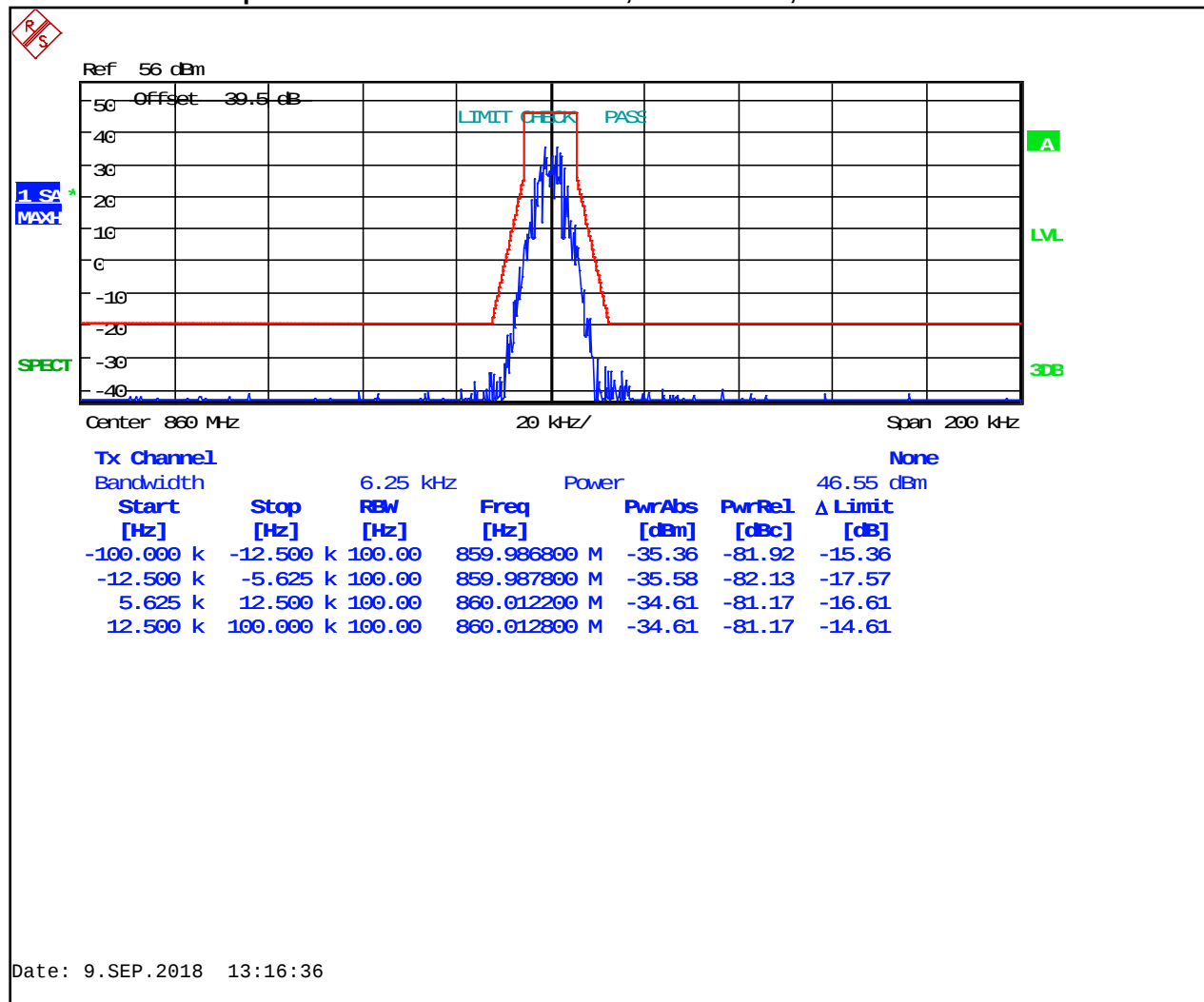
Plot 8-85: Occupied Bandwidth – 851.0125 MHz; P25 Phase 2; Mask D



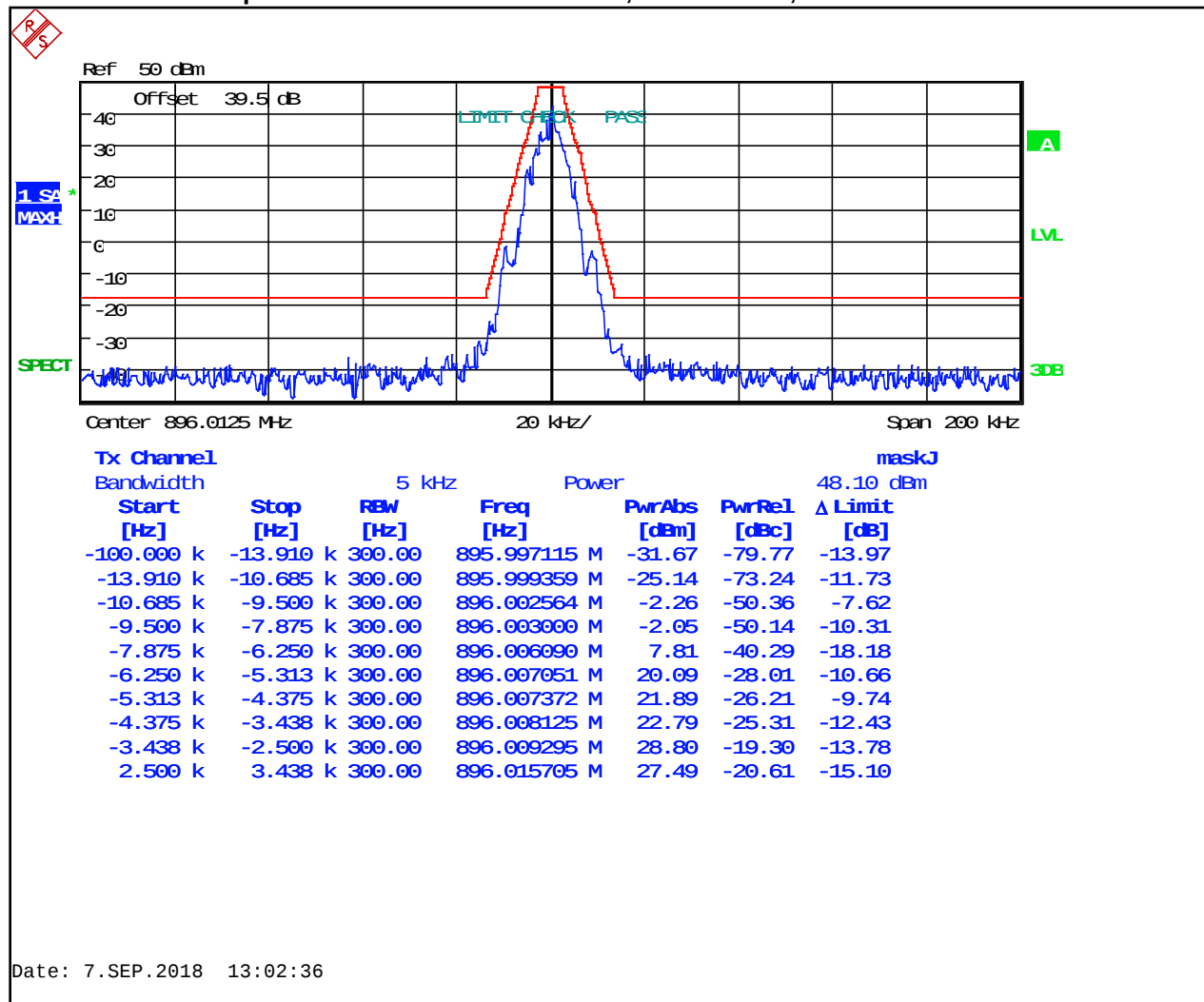
Plot 8-86: Occupied Bandwidth – 860.0000 MHz; P25 Phase 2; Mask G



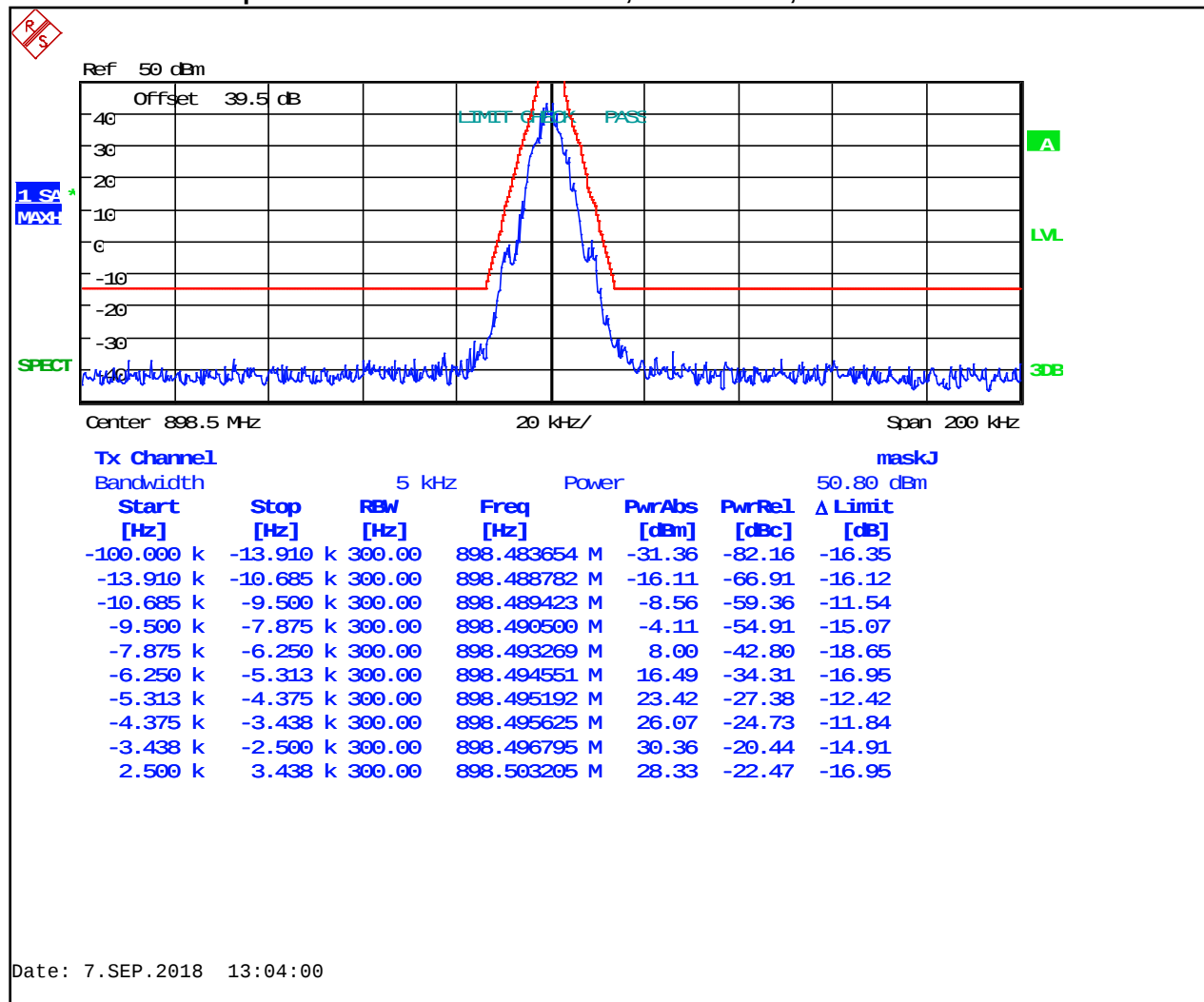
Plot 8-87: Occupied Bandwidth – 860.0000 MHz; P25 Phase 2; Mask D



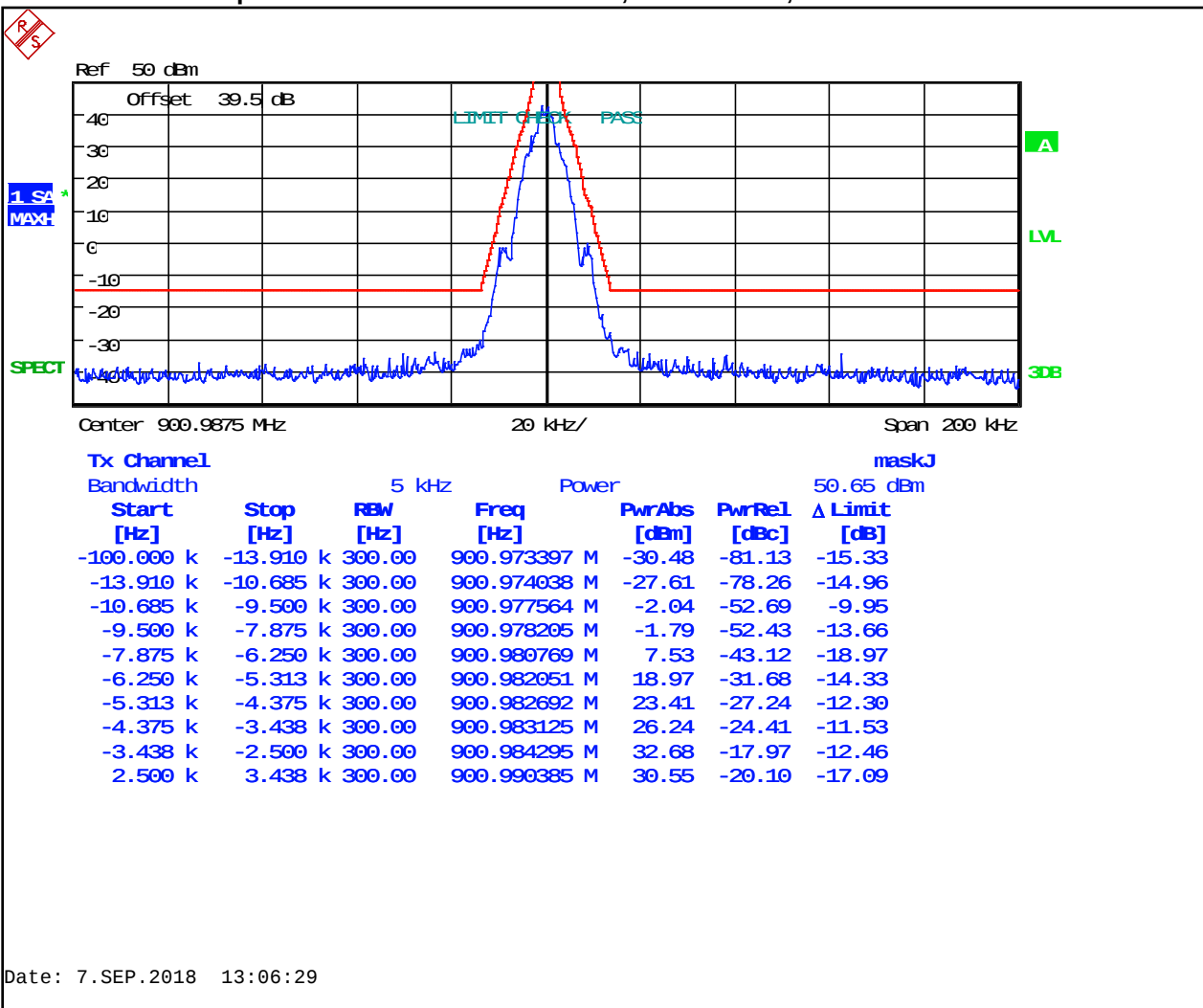
Plot 8-88: Occupied Bandwidth – 896.0125 MHz; P25 Phase 2; Mask J



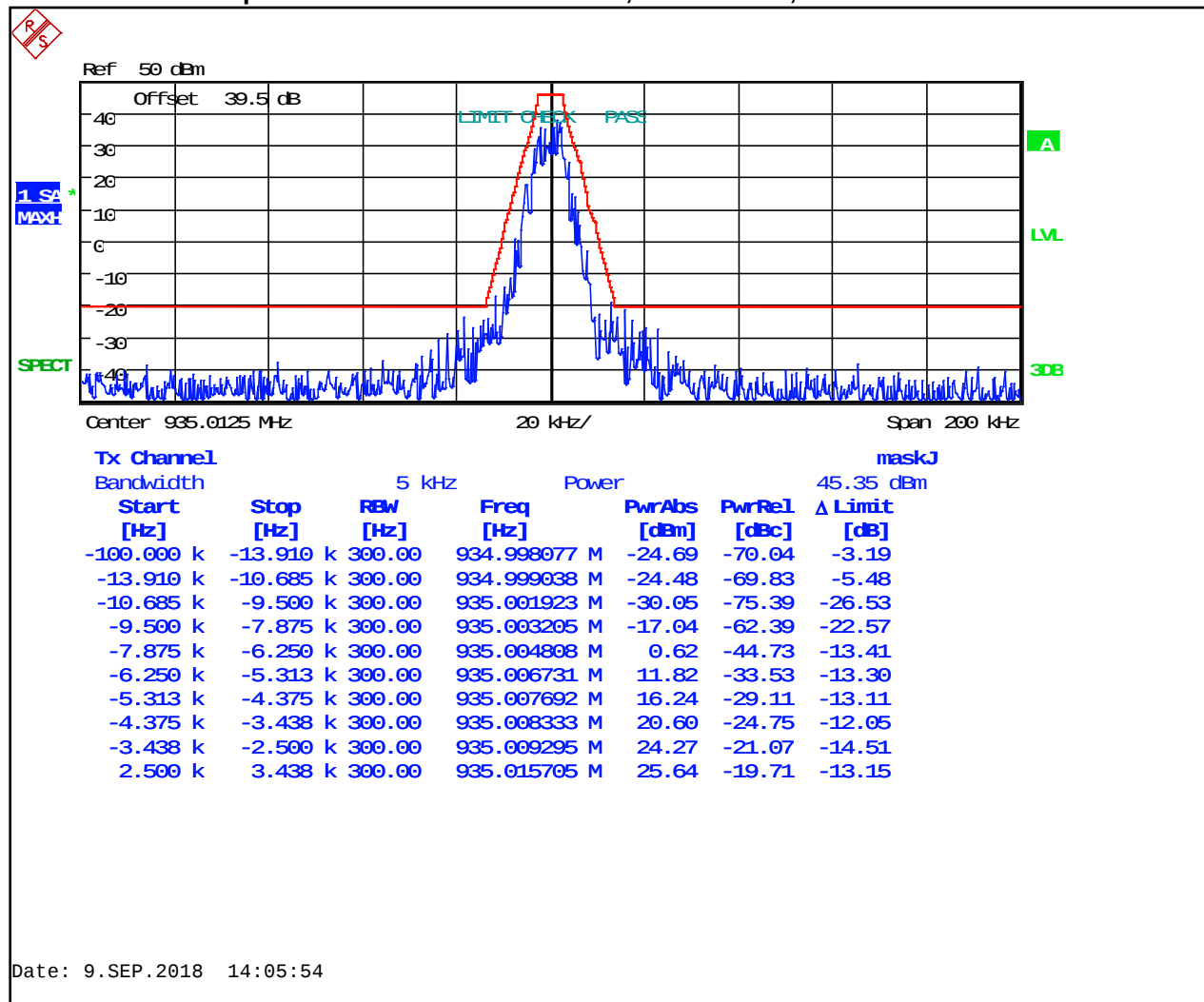
Plot 8-89: Occupied Bandwidth – 898.5000 MHz; P25 Phase 2; Mask J



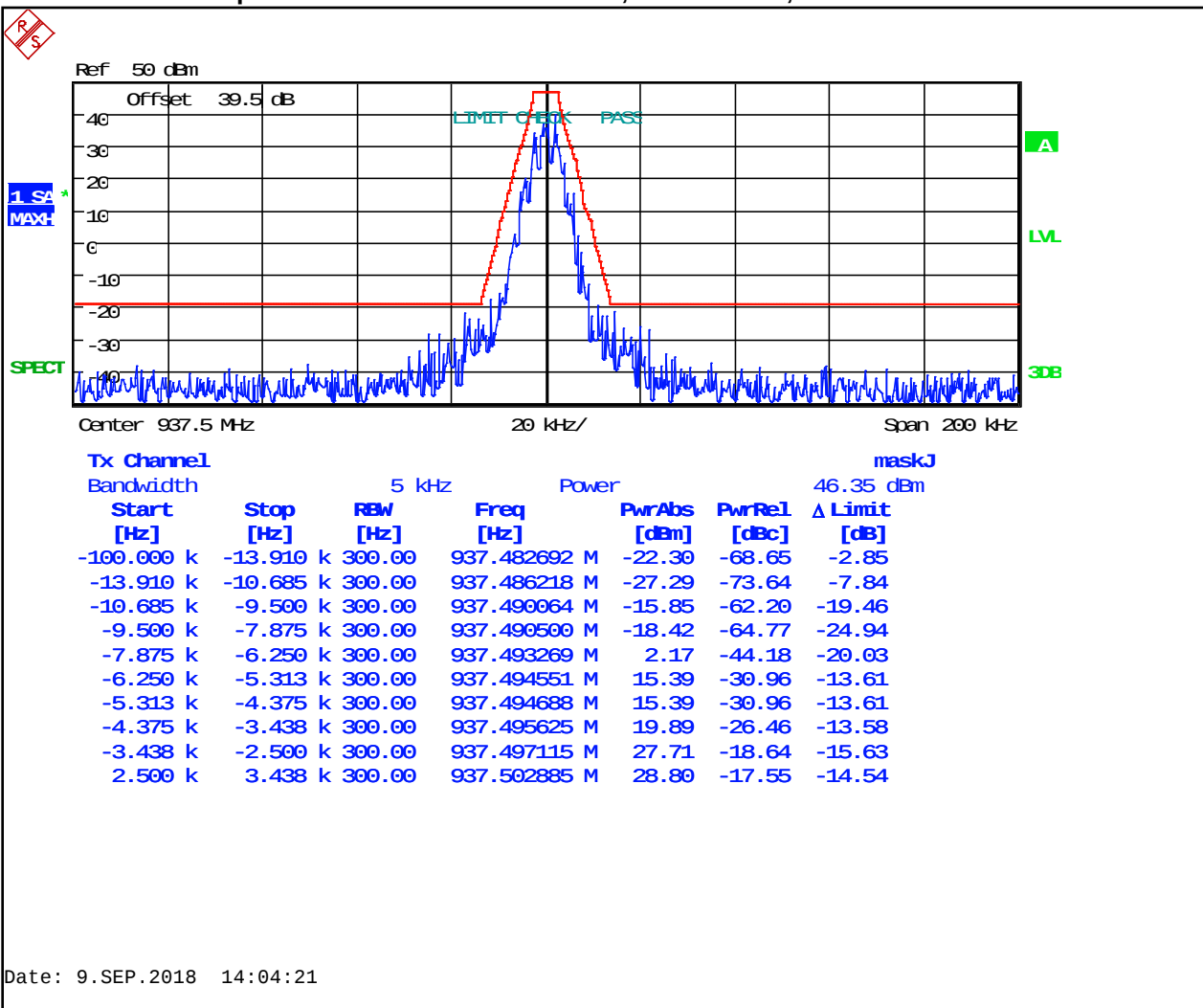
Plot 8-90: Occupied Bandwidth – 900.9875 MHz; P25 Phase 2; Mask J



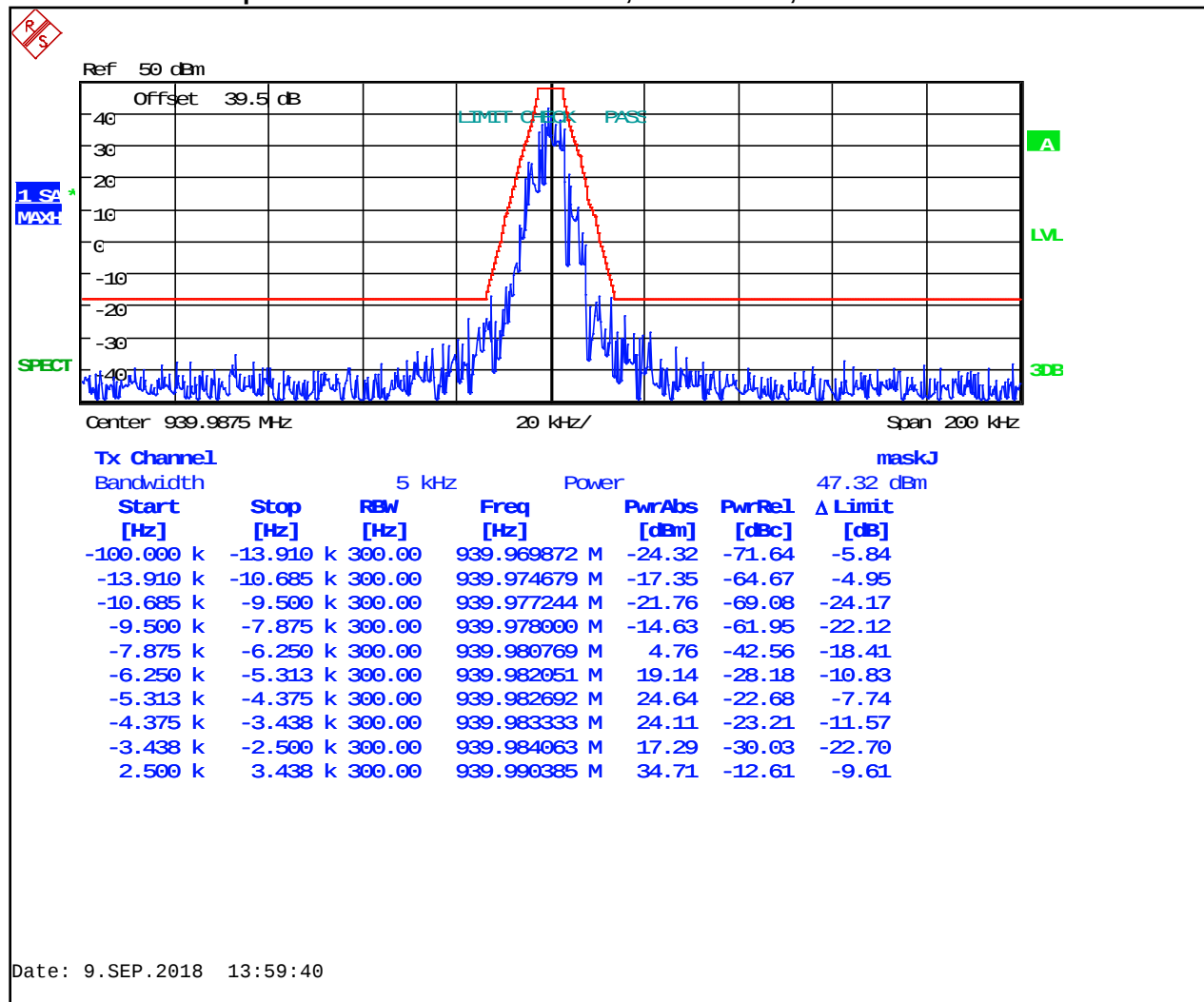
Plot 8-91: Occupied Bandwidth – 935.0125 MHz; P25 Phase 2; Mask J



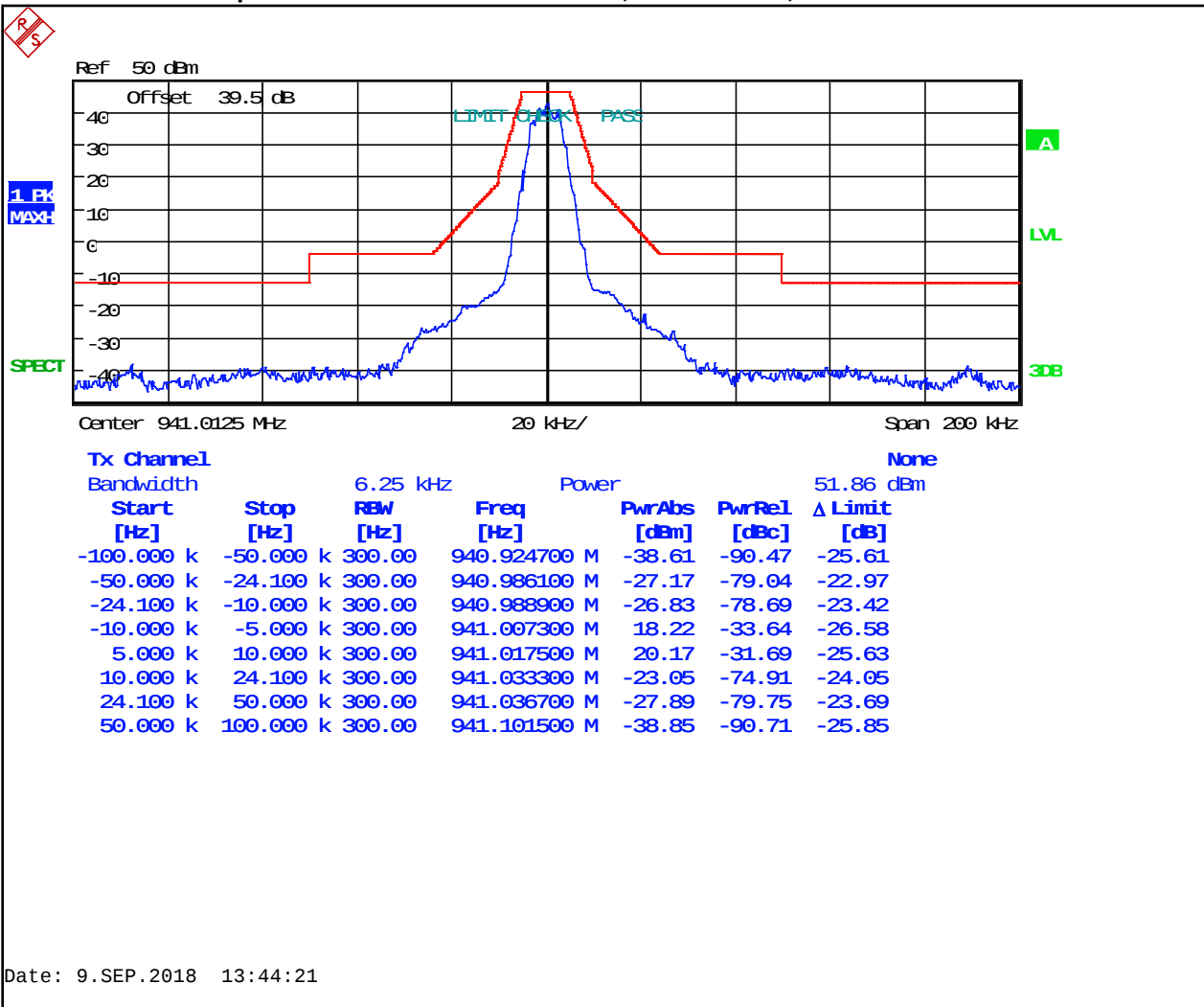
Plot 8-92: Occupied Bandwidth – 937.5000 MHz; P25 Phase 2; Mask J



Plot 8-93: Occupied Bandwidth – 939.9875 MHz; P25 Phase 2; Mask J



Plot 8-94: Occupied Bandwidth – 941.0125 MHz; P25 Phase 2; Mask C



Ref 56 dBm

Offset 39.5 dB

LIMIT CHECK PASS

Center 941.0125 MHz

20 kHz/

Span 200 kHz

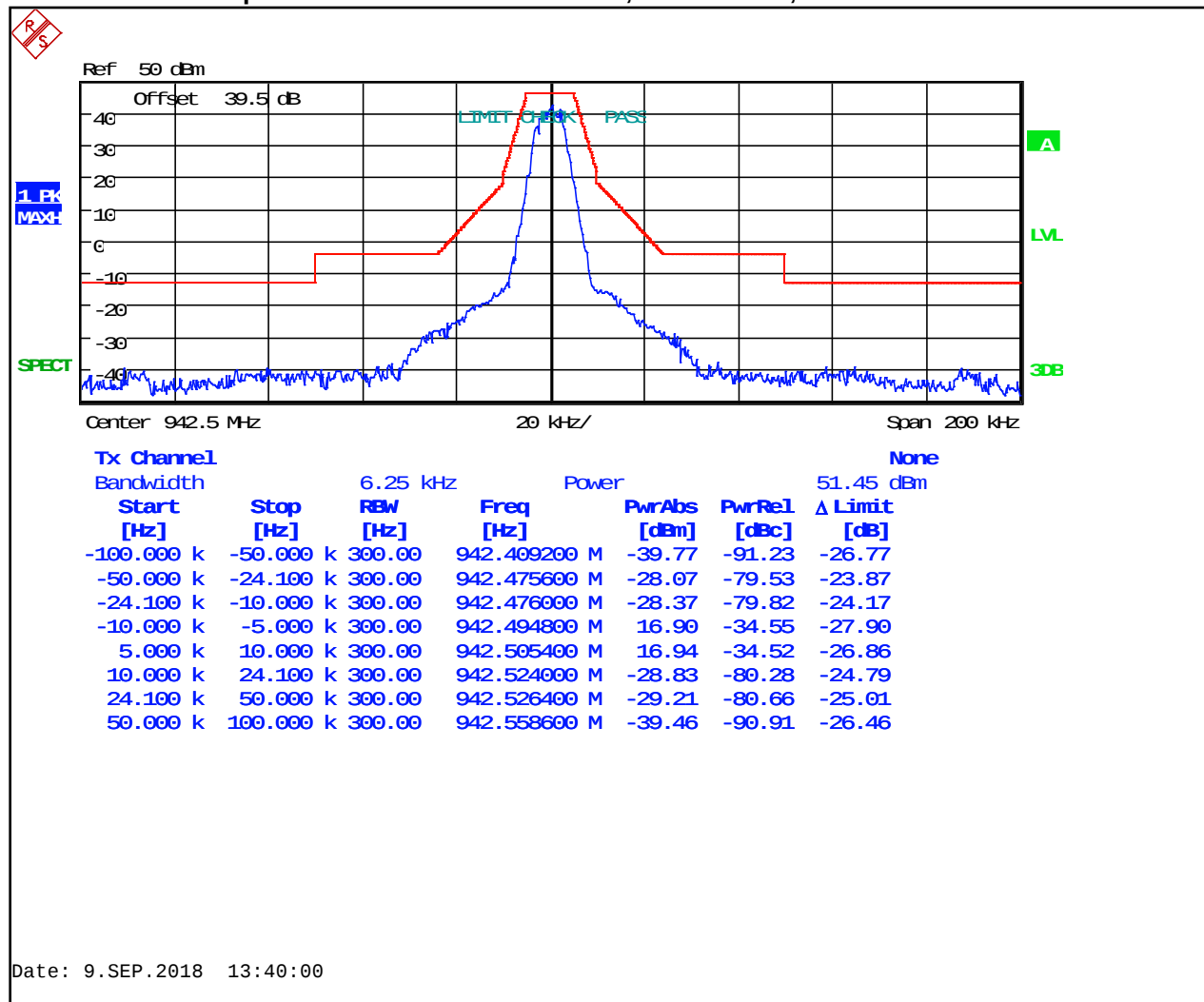
Tx Channel

Bandwidth 6.25 kHz

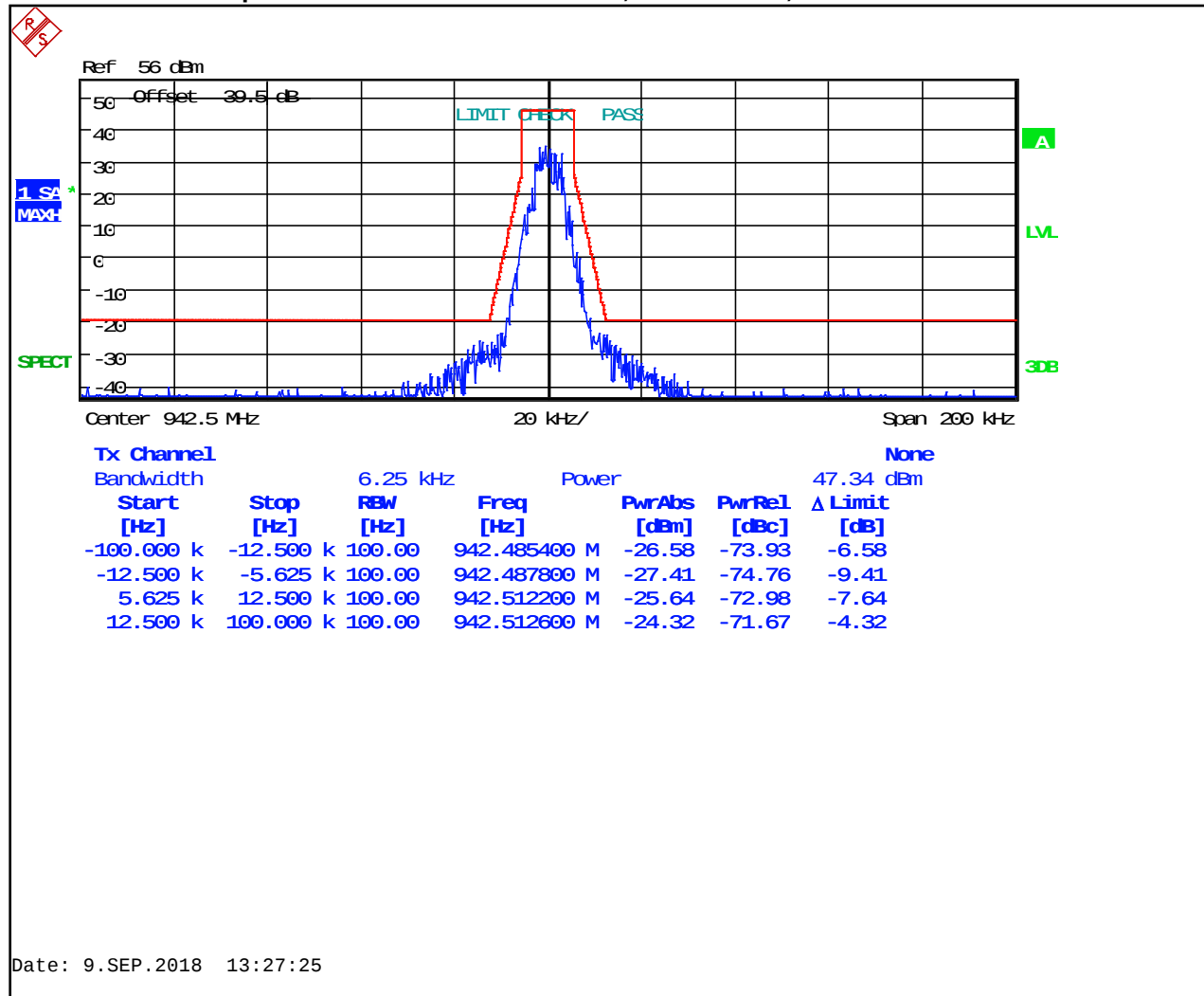
Power 47.99 dBm

Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	PwrRel [dBc]	Δ Limit [dB]
-100.000 k	-12.500 k	100.00	940.998500 M	-26.10	-74.08	-6.10
-12.500 k	-5.625 k	100.00	941.000300 M	-27.10	-75.08	-9.09
5.625 k	12.500 k	100.00	941.024900 M	-26.10	-74.08	-6.76
12.500 k	100.000 k	100.00	941.025300 M	-24.17	-72.16	-4.17

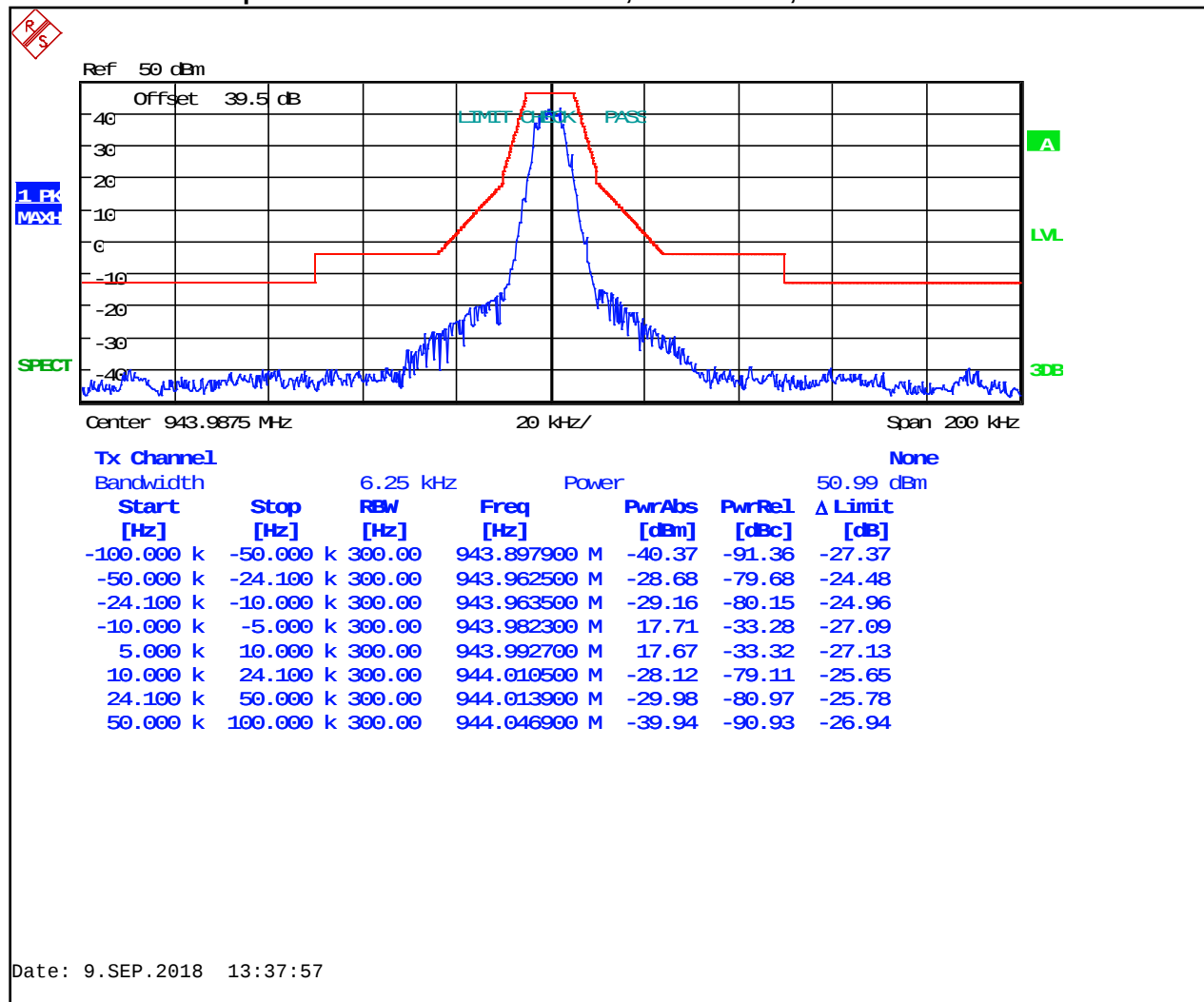
Plot 8-96: Occupied Bandwidth – 942.5000 MHz; P25 Phase 2; Mask C



Plot 8-97: Occupied Bandwidth – 942.5000 MHz; P25 Phase 2; Mask D



Plot 8-98: Occupied Bandwidth – 943.9875 MHz; P25 Phase 2; Mask C



Ref 56 dBm

Offset 39.5 dB

LIMIT CHECK PASS

Center 943.9875 MHz

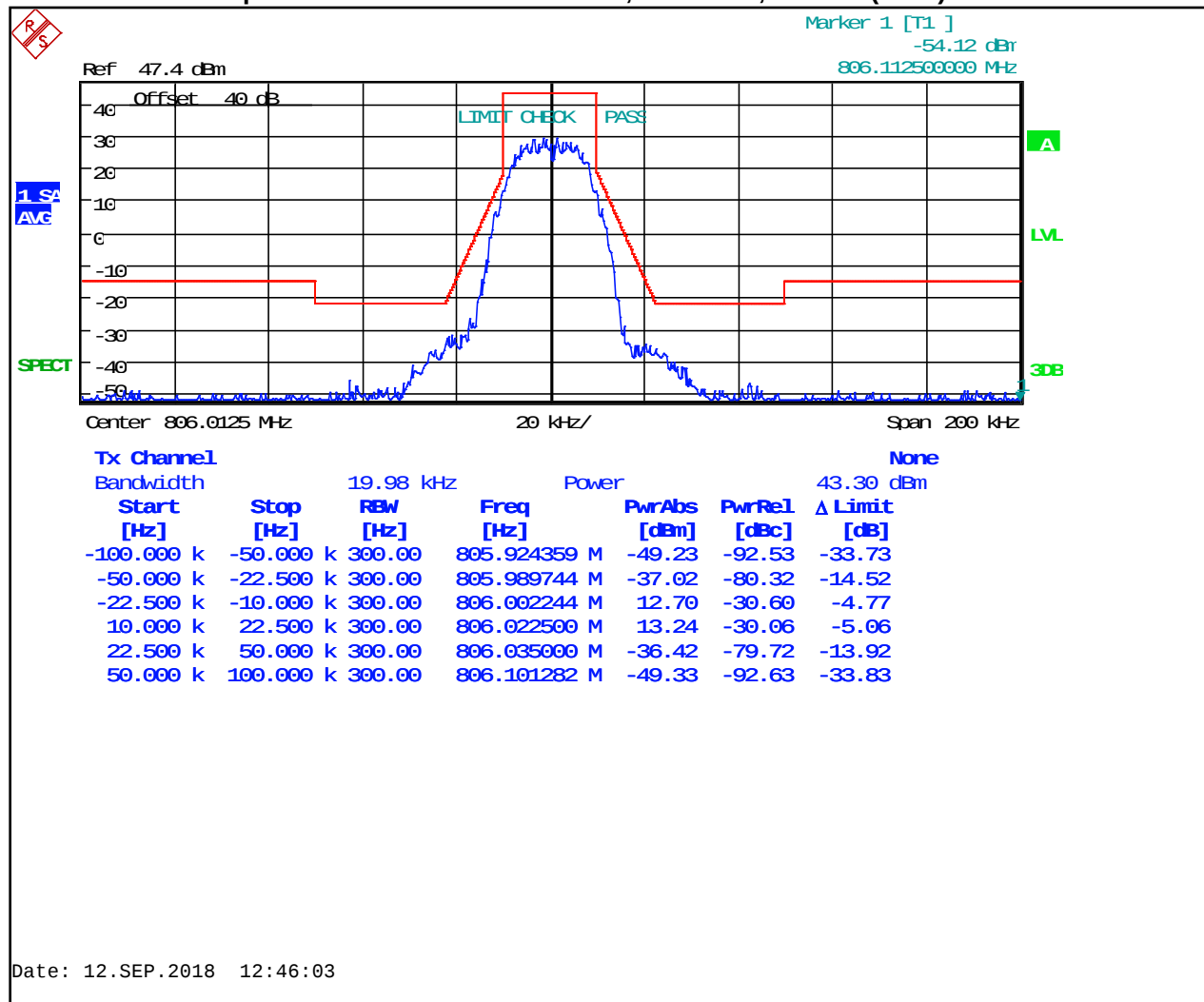
Span 200 kHz

Bandwidth 6.25 kHz

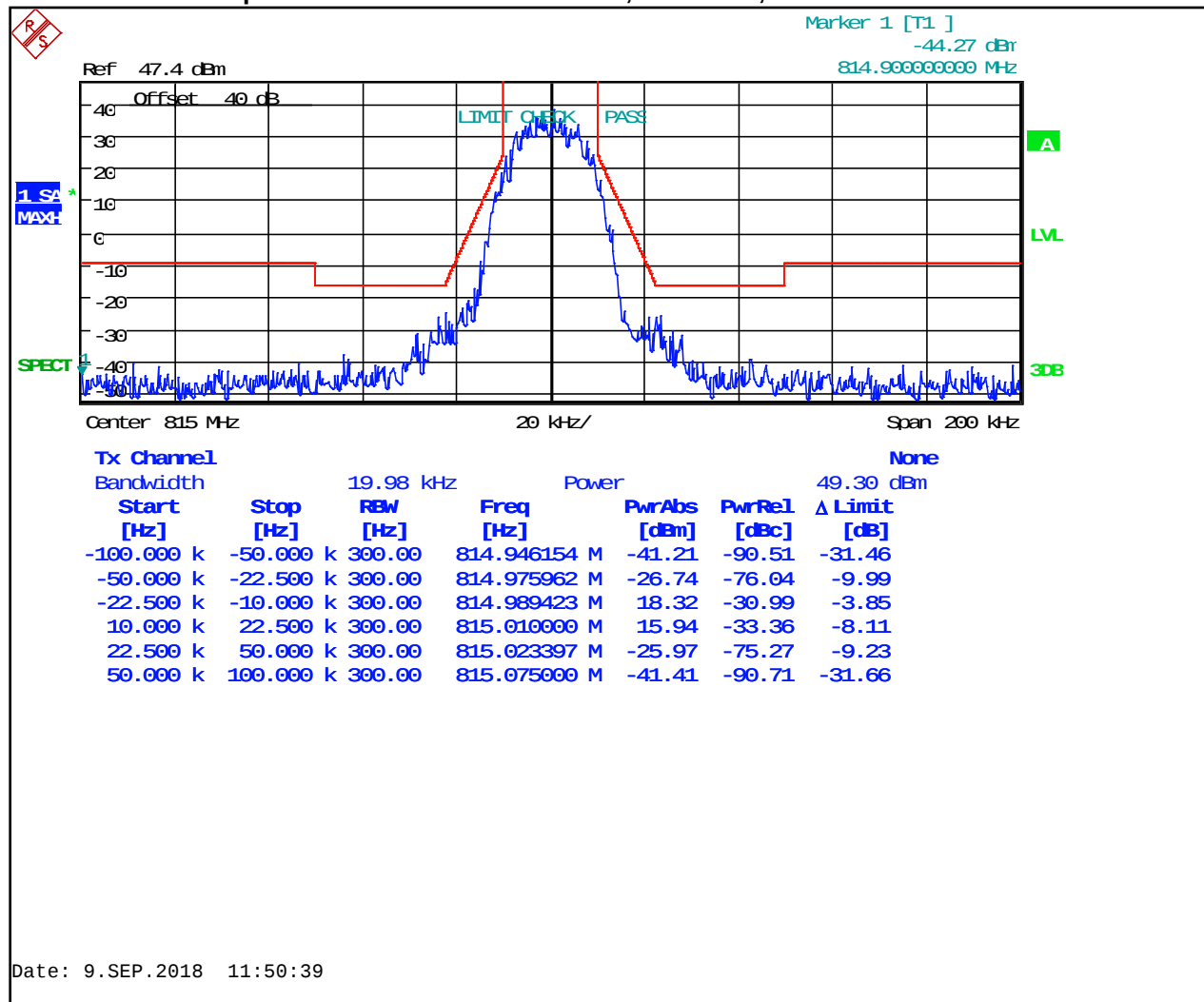
Power 48.71 dBm

Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	PwrRel [dBc]	Δ Limit [dB]
-100.000 k	-12.500 k	100.00	943.974900 M	-26.10	-74.80	-6.10
-12.500 k	-5.625 k	100.00	943.975100 M	-27.10	-75.80	-7.10
5.625 k	12.500 k	100.00	943.999900 M	-24.32	-73.03	-4.99
12.500 k	100.000 k	100.00	944.000100 M	-24.79	-73.50	-4.79

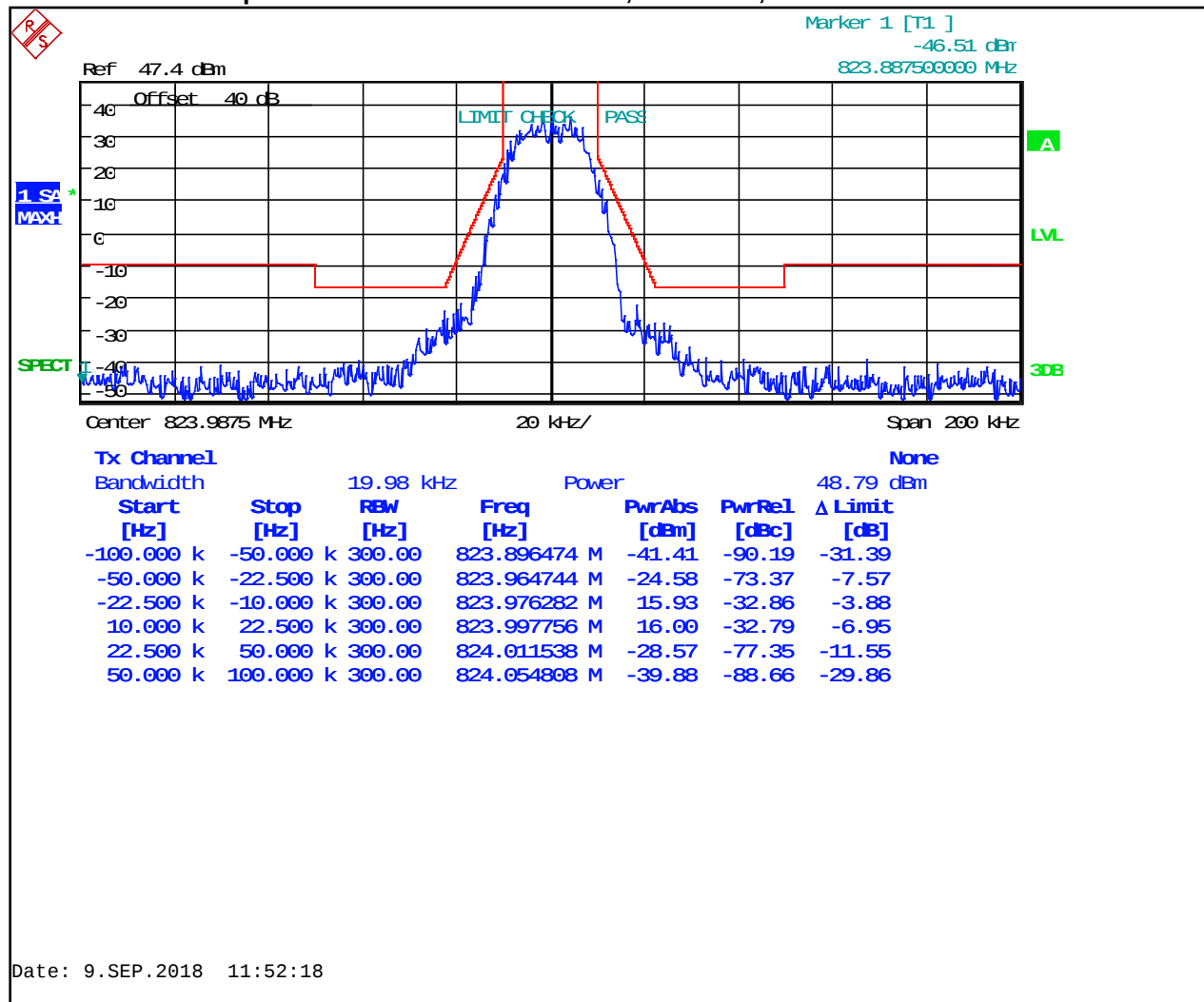
Plot 8-100: Occupied Bandwidth – 806.0125 MHz; HVD SMR; Mask G (ISED)



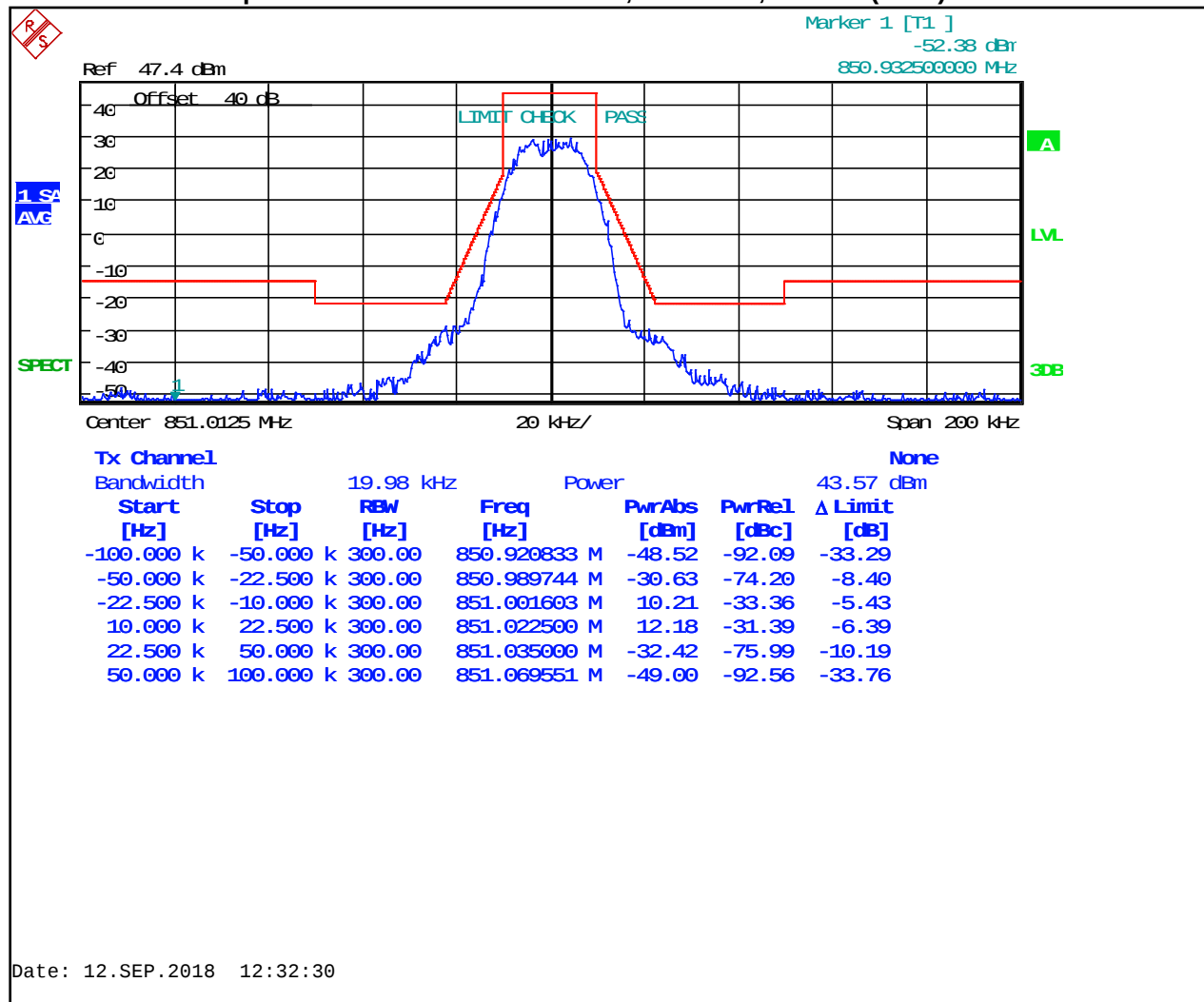
Plot 8-101: Occupied Bandwidth – 815.0000 MHz; HVD SMR; Mask G



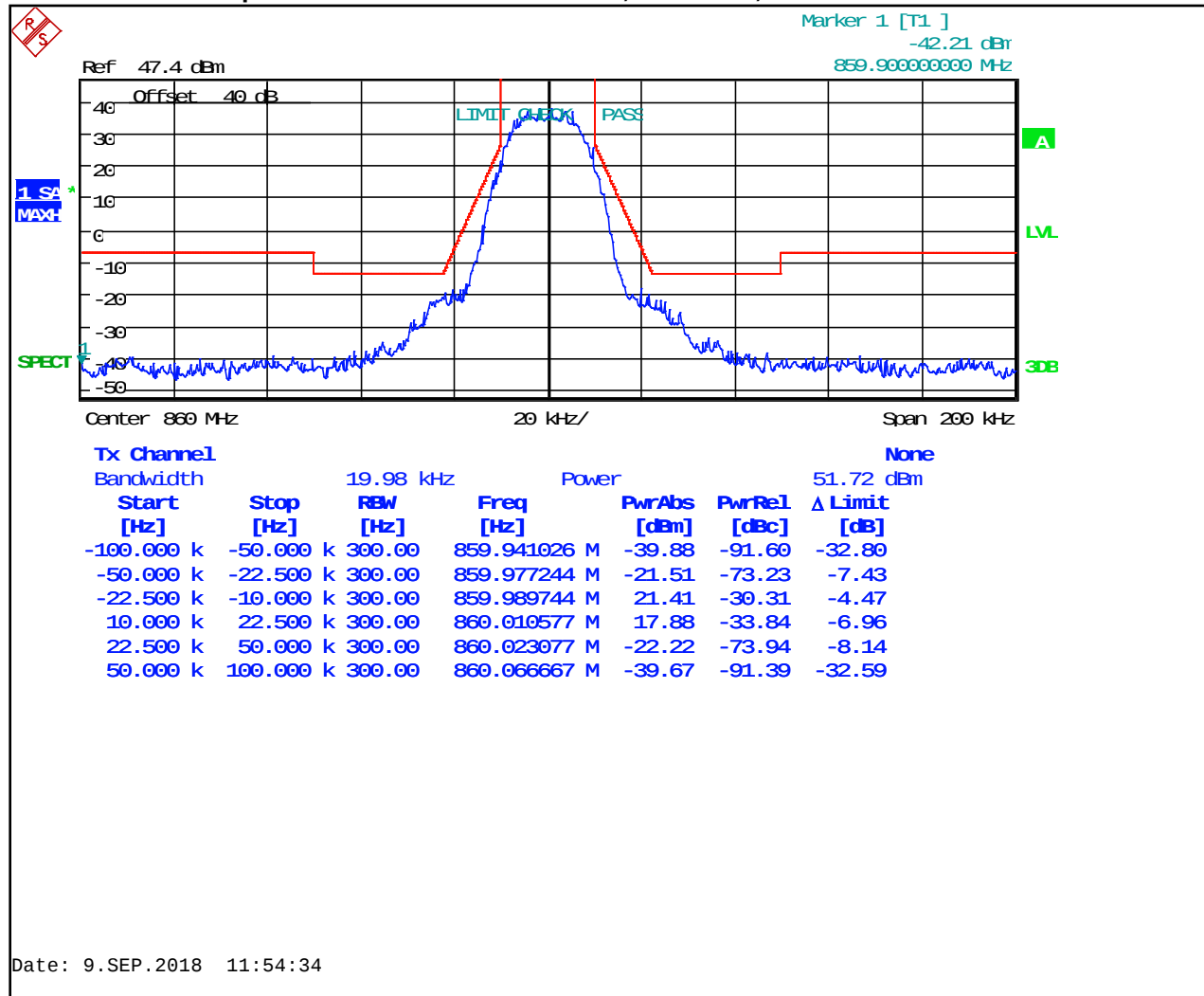
Plot 8-102: Occupied Bandwidth – 823.9875 MHz; HVD SMR; Mask G



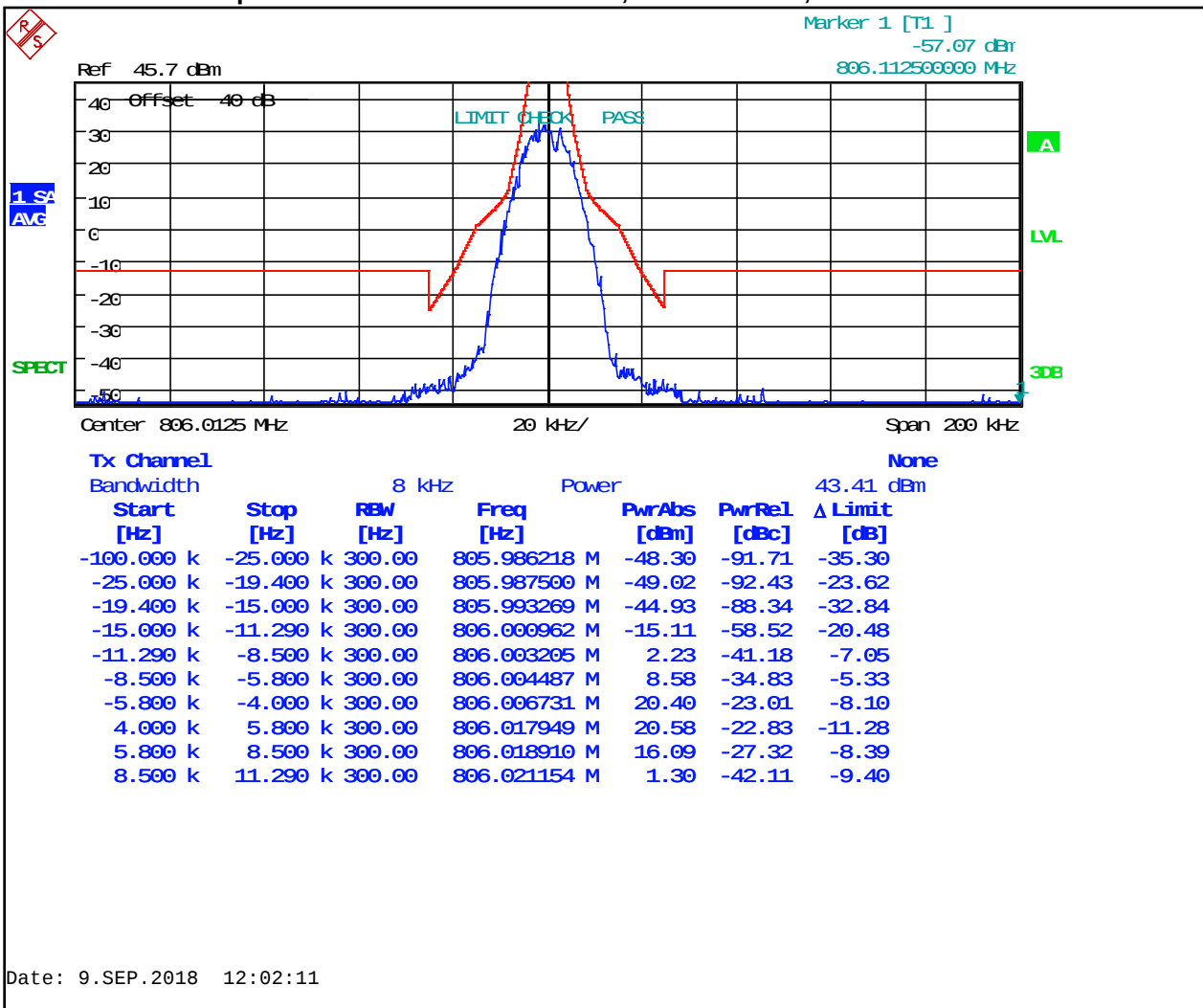
Plot 8-103: Occupied Bandwidth – 851.0125 MHz; HVD SMR; Mask G (ISED)



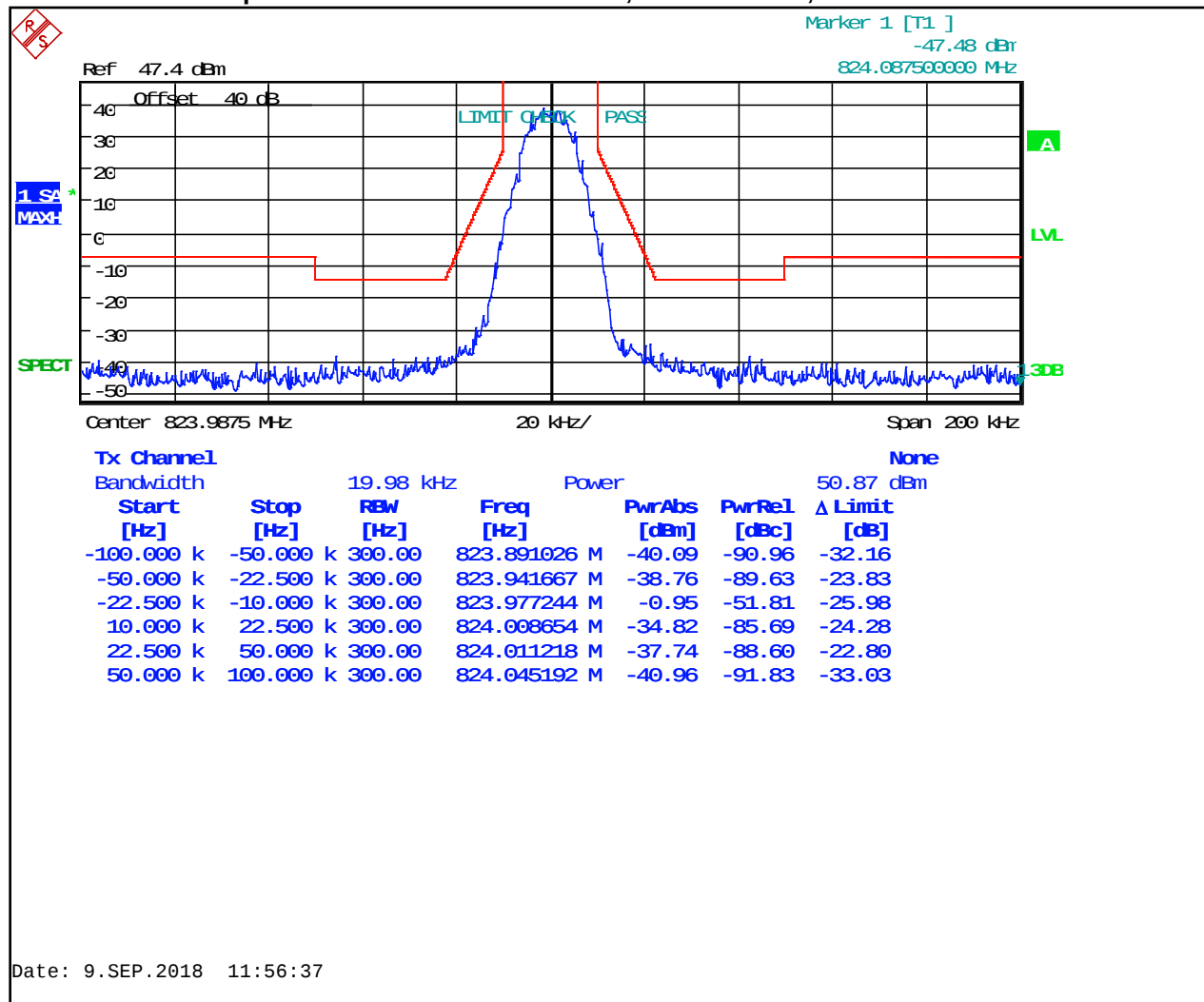
Plot 8-104: Occupied Bandwidth – 860.0000 MHz; HVD SMR; Mask G



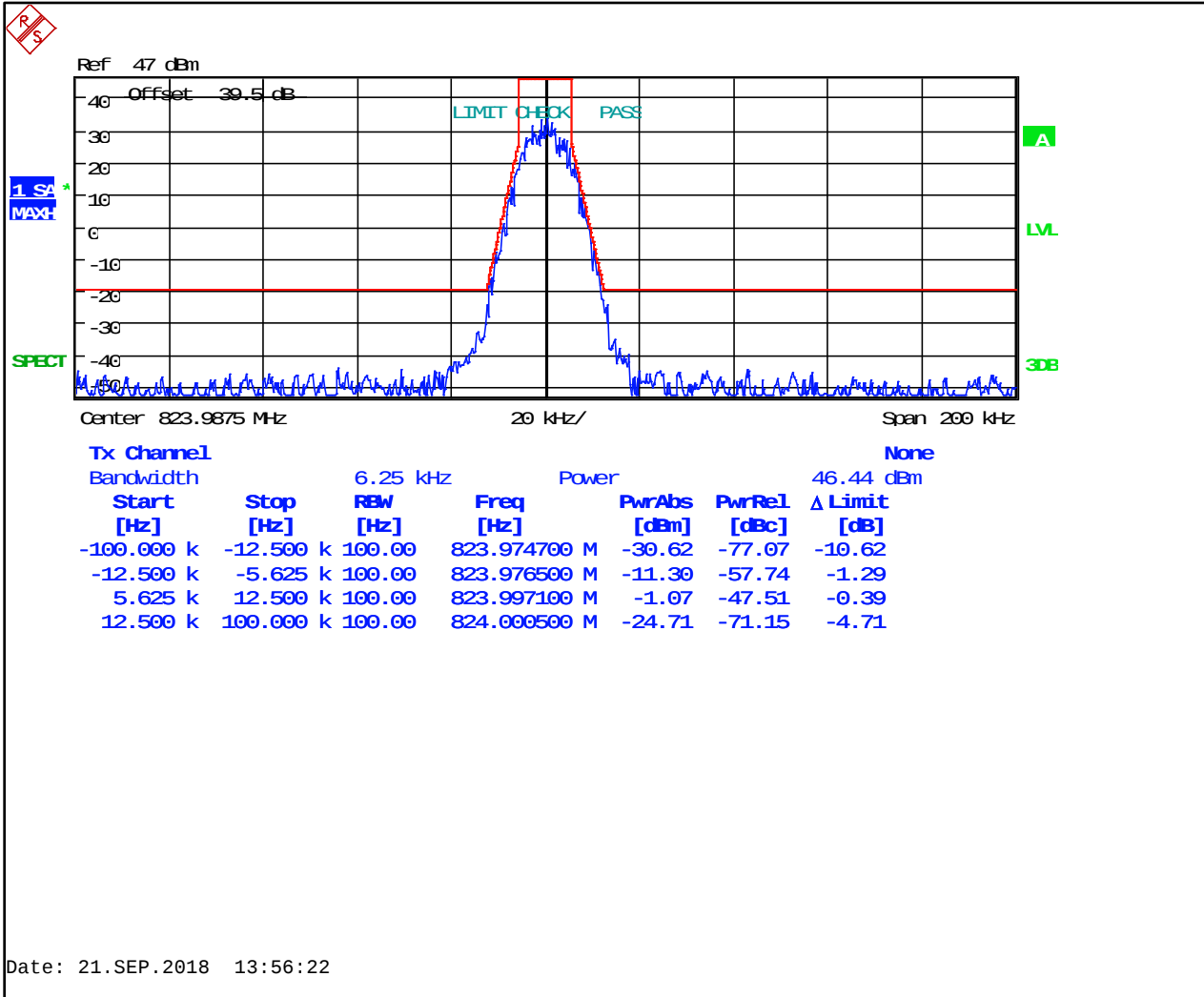
Plot 8-105: Occupied Bandwidth – 806.0125 MHz; HVD NPSPAC; Mask H



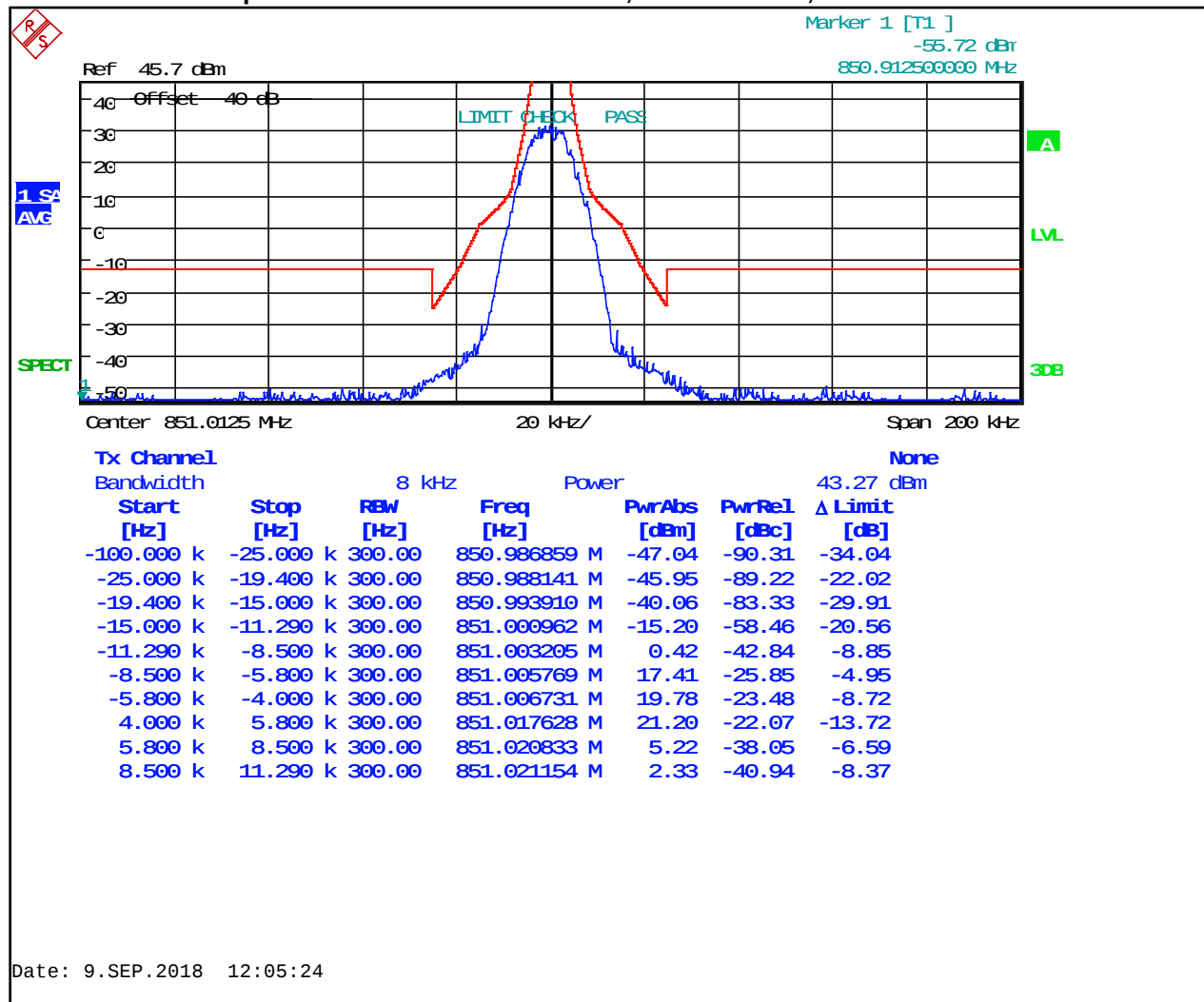
Plot 8-107: Occupied Bandwidth – 823.9875 MHz; HVD NPSPAC; Mask G



Plot 8-108: Occupied Bandwidth – 823.9875 MHz; HVD NPSPAC; Mask D (ISED)



Plot 8-109: Occupied Bandwidth – 851.0125 MHz; HVD NPSPAC; Mask H



Ref 47 dBm

Offset 39.5 dB

LIMIT CHECK PASS

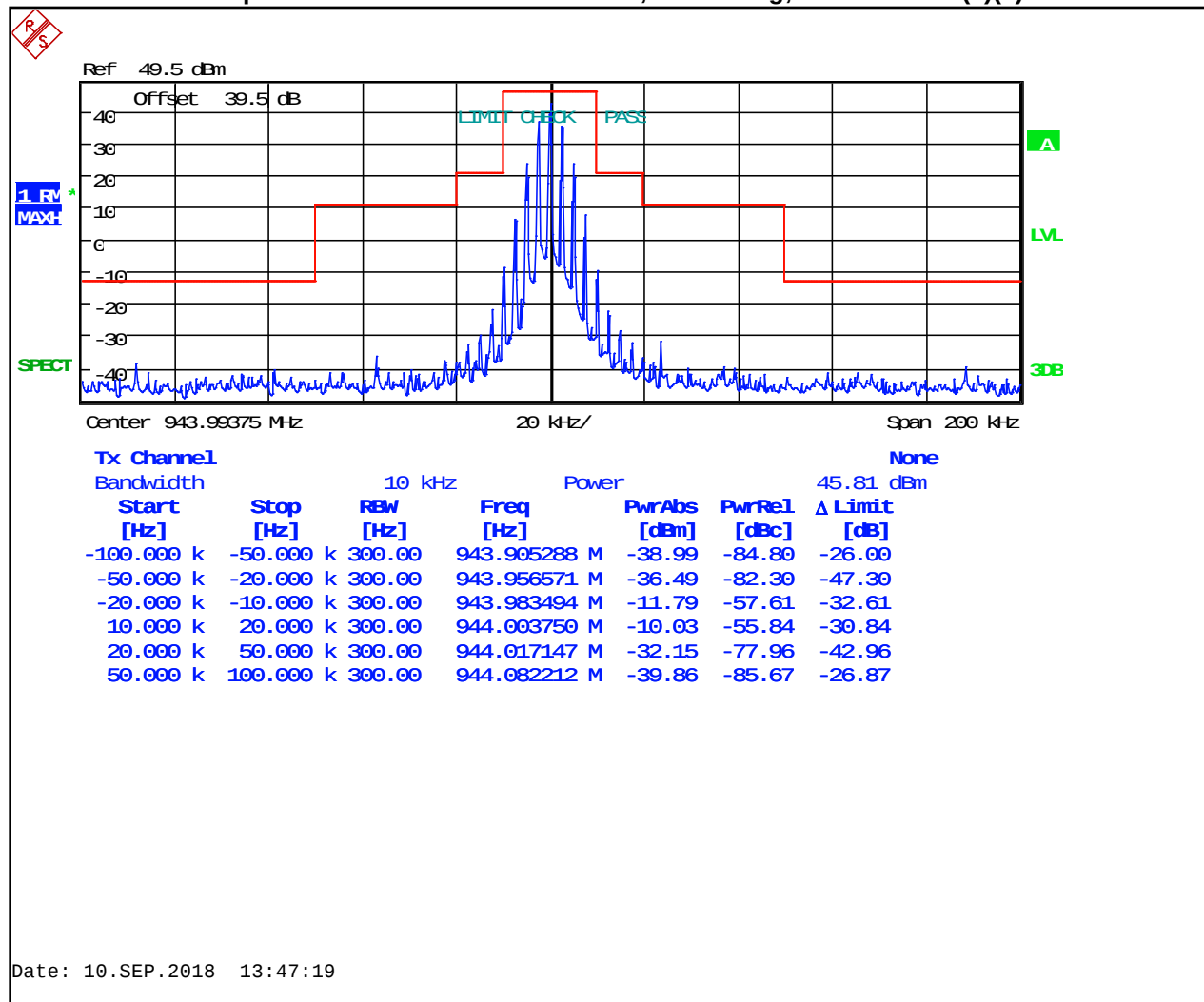
Center 851.0125 MHz 20 kHz/ Span 200 kHz

Tx Channel

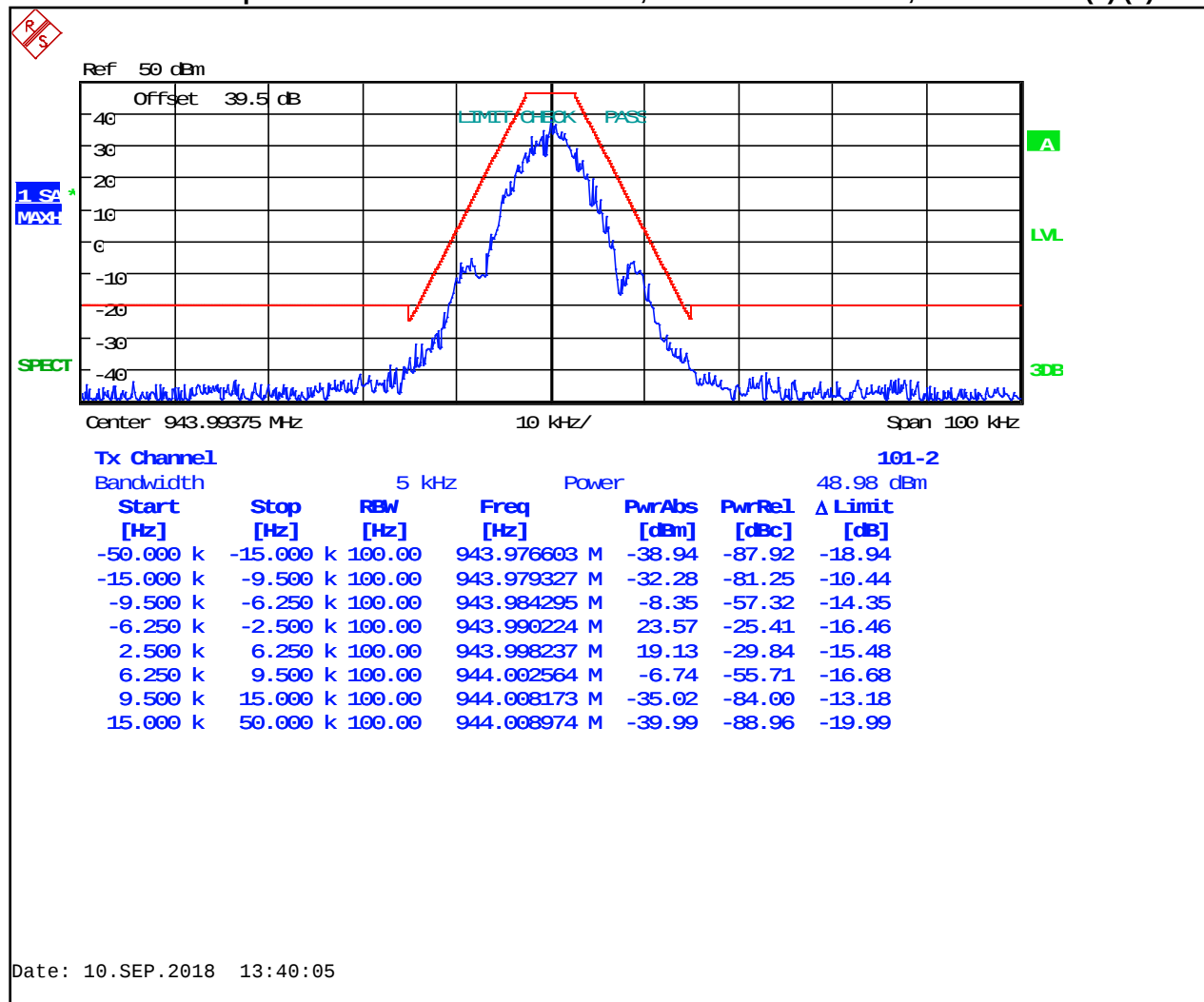
Bandwidth 6.25 kHz Power 45.58 dBm

Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	PwrRel [dBc]	Δ Limit [dB]
-100.000 k	-12.500 k	100.00	850.999500 M	-26.65	-72.23	-6.65
-12.500 k	-5.625 k	100.00	851.001500 M	-10.37	-55.95	-0.37
5.625 k	12.500 k	100.00	851.022100 M	-0.83	-46.42	-0.15
12.500 k	100.000 k	100.00	851.025300 M	-30.09	-75.67	-10.09

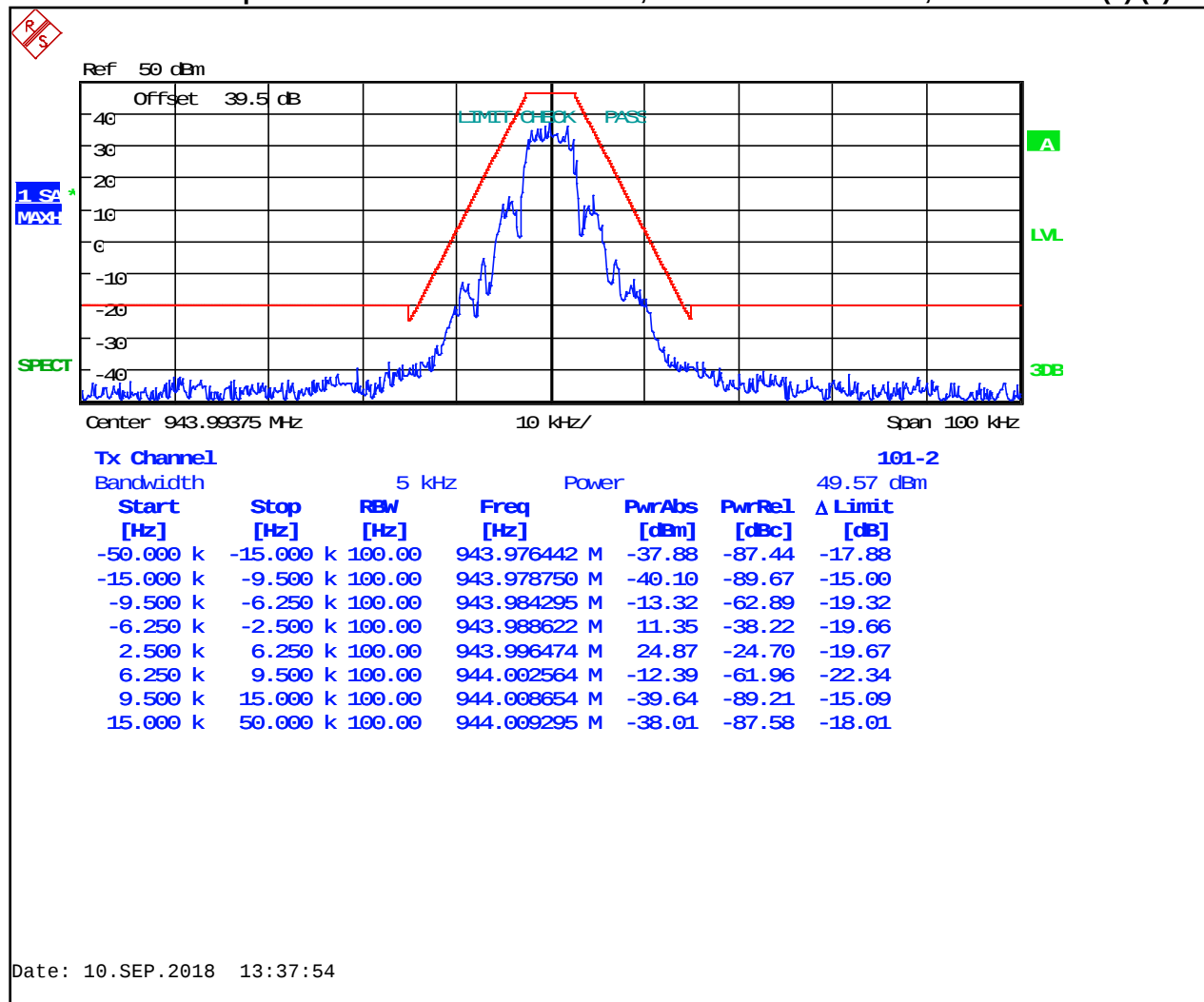
Plot 8-111: Occupied Bandwidth – 943.99375 MHz; NB Analog; Mask 101.111(a)(1)



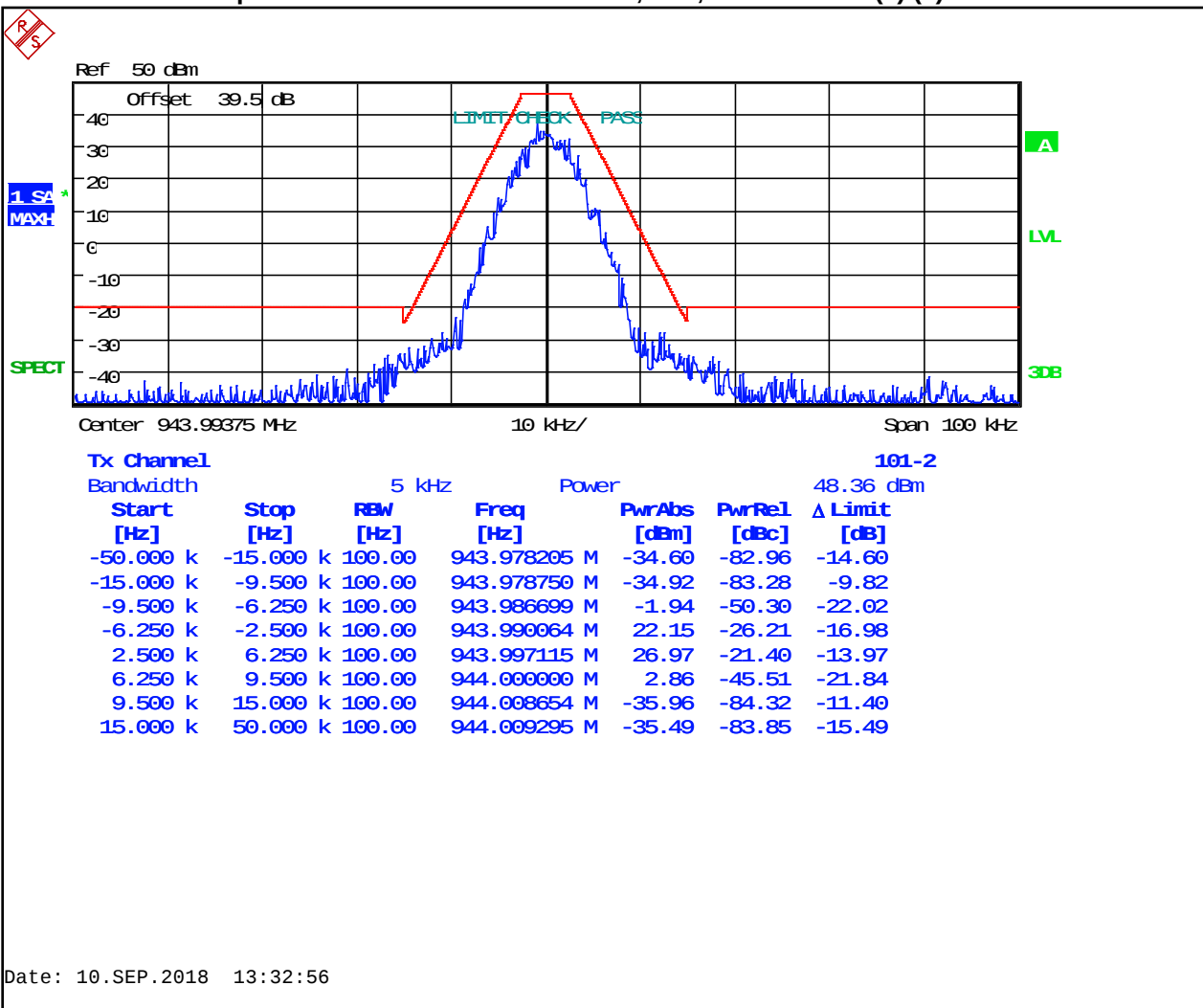
Plot 8-112: Occupied Bandwidth – 943.99375 MHz; 2-Level FSK 9600 NB; Mask 101.111(a) (5)



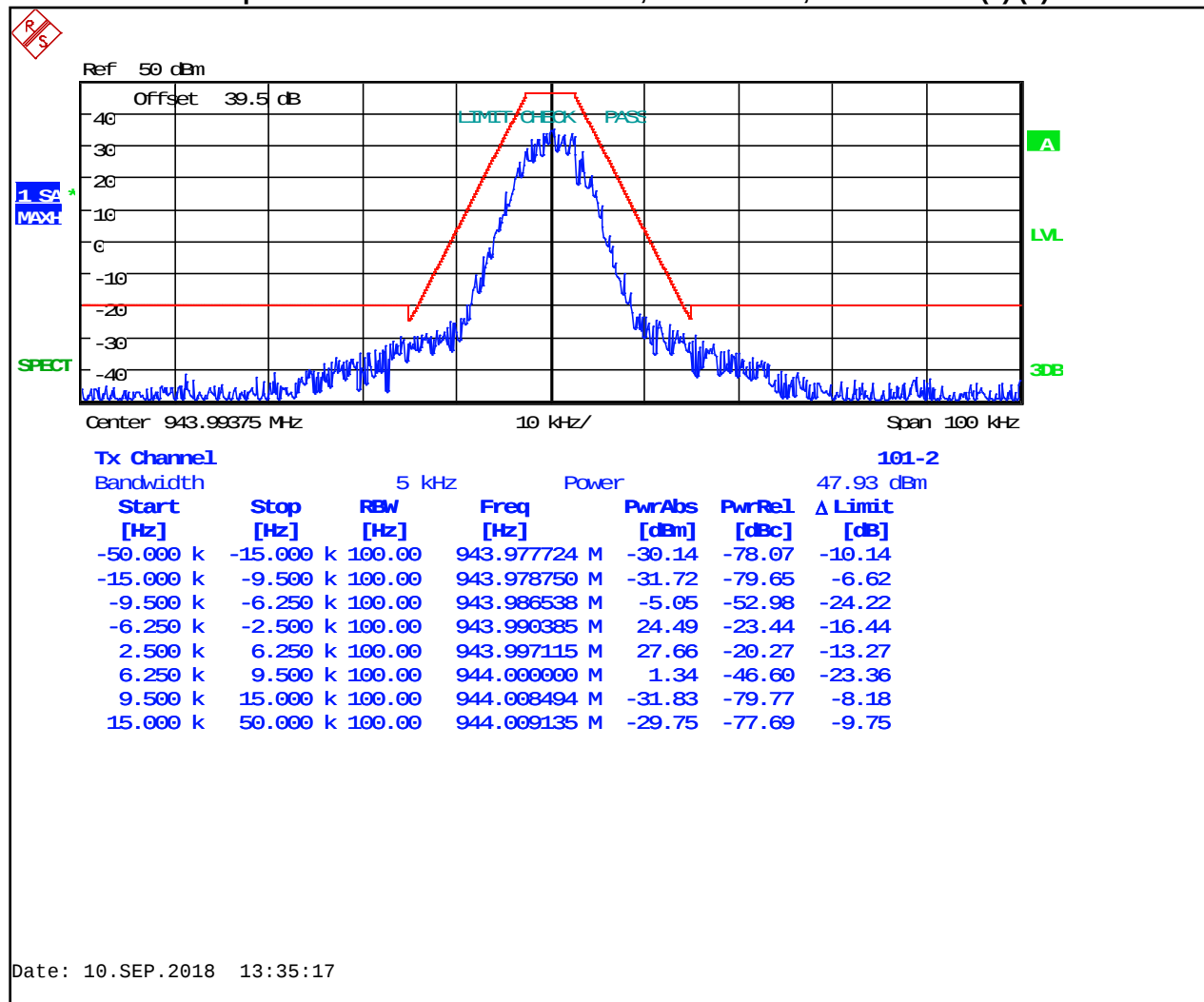
Plot 8-113: Occupied Bandwidth – 943.99375 MHz; 2-Level FSK 4800 XNB; Mask 101.111(a) (5)



Plot 8-114: Occupied Bandwidth – 943.99375 MHz; P25; Mask 101.111(a) (5)



Plot 8-115: Occupied Bandwidth – 943.99375 MHz; P25 Phase 2; Mask 101.111(a) (5)



Measurement uncertainties shown for these tests are expanded uncertainties expressed at the 95% confidence level using a coverage factor K=2. Measurement uncertainty: ± 0.5 Hz

Results: Pass

Table 8-1: Test Equipment Used For Testing Occupied Bandwidth

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901581	Rohde & Schwarz	FSU	Spectrum Analyzer	1166.1660.50	4/26/21
901724	Weinschel Corp.	48-20-34 DC-18GHz	Attenuator, 100W 20dB	CJ8921	8/7/19
901057	Hewlett Packard	3336B	Synthesizer/Level Generator	2514A02585	1/31/20

Test Personnel:

Daniel Baltzell		September 4-10, 21, 2018
EMC Test Engineer	Signature	Dates of Test

9 FCC Part 2.1055: Frequency Stability; Part 90.213, Part 90.539: Frequency Stability; Part 101.107: Frequency Tolerance; ISED RSS-119 5.3: Transmitter Frequency Stability

9.1 Test Procedure

ANSI C63.26, section 5.6

The carrier frequency stability is the ability of the transmitter to maintain an assigned carrier frequency.

The EUT was evaluated over the temperature range -30°C to +60°C. The AFC was not locked to the base station.

The temperature was initially set to -30°C and a 1-hour period was observed for stabilization of the EUT. The frequency stability was measured within one minute after application of primary power to the transmitter. The temperature was raised at intervals of 10 degrees centigrade through the range. A ½-hour period was observed to stabilize the EUT at each measurement step and the frequency stability was measured within one minute after application of primary power to the transmitter. Additionally, the power supply voltage of the EUT was varied +/-15% nominal input voltage.

Part 90.213 Frequency Stability

(a) Unless noted elsewhere, transmitters used in the services governed by this part must have a minimum frequency stability as specified in the following table.

MINIMUM FREQUENCY STABILITY [Parts per million (ppm)]			
Frequency range (MHz)	Fixed and base stations	Mobile stations	
		Over 2 watts output power	2 watts or less output power
Below 25	1,2,3 100	100	200
25-50	20	20	50
72-76	5		50
150-174	5,11 5	6 5	4,6 50
216-220	1.0		1.0
220-222 ¹²	0.1	1.5	1.5
421-512	7,11,14 2.5	8 5	8 5
806-809	14 1.0	1.5	1.5
809-824	14 1.5	2.5	2.5
851-854	1.0	1.5	1.5
854-869	1.5	2.5	2.5
896-901	14 0.1	1.5	1.5
902-928	2.5	2.5	2.5
929-930 ¹³	2.5	2.5	2.5
935-940	1.5		
1427-1435	0.1	1.5	1.5
Above 2450 ¹⁰	9 300	300	300

Part 90.213: Mobile stations over 2 W operating power - 1.5 ppm (806-809 MHz, 851-854 MHz, 896-901 MHz, and 935-940 MHz); 2.5 ppm (809-824 MHz, and 854-869 MHz)

Part 90.539 Frequency Stability

Transmitters designed to operate in 769-775 MHz and 799-805 MHz frequency bands must meet the frequency stability requirements in this section.

(a) Mobile, portable and control transmitters must normally use automatic frequency control (AFC) to lock on to the base station signal.

(b) The frequency stability of base transmitters operating in the narrowband segment must be 100 parts per billion or better.

(c) The frequency stability of mobile, portable and control transmitters operating in the narrowband segment must be 400 parts per billion or better when AFC is locked to the base station. When AFC is not locked to the base station, the frequency stability must be at least 1.0 ppm for 6.25 kHz, 1.5 ppm for 12.5 kHz (2 channel aggregate), and 2.5 ppm for 25 kHz (4 channel aggregate).

The EUT was tested while the AFC was not locked, therefore, the limit is 1.5 ppm. The worst-case deviation was found to be 0.13 ppm.

Part 101.107 Frequency tolerance

(a) The carrier frequency of each transmitter authorized in these services must be maintained within the following percentage of the reference frequency except as otherwise provided in paragraph (b) of this section or in the applicable subpart of this part (unless otherwise specified in the instrument of station authorization the reference frequency will be deemed to be the assigned frequency):

Frequency (MHz)	Frequency Tolerance (percent)
941.5 to 944	0 .00025

9.2 Test Data

Table 9-1: Temperature Frequency Stability – 772 MHz

Temperature (°C)	Measured Frequency (Hz)	ppm
-30	772.000004	0.01
-20	772.000000	0.00
-10	772.000051	0.07
0	771.999992	-0.01
10	771.999945	-0.07
20 (reference)	772.000000	0.00
30	772.000004	0.01
40	772.000043	0.06
50	772.000070	0.09
55	772.000070	0.09
60	772.000027	0.04

Table 9-2: Temperature Frequency Stability – 815 MHz

Temperature (°C)	Measured Frequency (Hz)	ppm
-30	815.000008	0.01
-20	815.000000	0.00
-10	815.000000	0.00
0	815.000004	0.00
10	814.999945	-0.07
20 (reference)	815.000000	0.00
30	814.999996	0.00
40	815.000039	0.05
50	815.000089	0.11
55	815.000059	0.07
60	815.000043	0.05

Table 9-3: Temperature Frequency Stability – 937.5 MHz

Temperature (°C)	Measured Frequency (Hz)	ppm
-30	937.500031	0.03
-20	937.500000	0.00
-10	937.500016	0.02
0	937.500027	0.03
10	937.499949	-0.05
20 (reference)	937.500000	0.00
30	937.500031	0.03
40	937.500051	0.05
50	937.500125	0.13
55	937.500086	0.09
60	937.500063	0.07

Measurement uncertainties shown for these tests are expanded uncertainties expressed at the 95% confidence level using a coverage factor K=2. Measurement uncertainty: ± 0.5 Hz

Results: Pass

Table 9-4: Test Equipment Used For Testing Temperature Frequency Stability

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901350	Meterman	33XR	Multimeter	040402802	4/26/19
901672	Rohde & Schwarz	FSEM30	Spectrum Analyzer	FSEM30	4/17/19
901724	API Weinschel, Inc.	48-40-34	40 dB 100W Attenuator	CJ8921	8/7/19
901124	Alinco	DM-33MVT 32A	Power Supply	1638	Not Required

Test Personnel:

 Daniel Baltzell EMC Test Engineer	Signature	September 3, 2018 Date of Test
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9.2.1 Frequency Stability/Voltage Variation

Table 9-5: Frequency Stability/Voltage Variation – 772 MHz

Voltage (VDC)	Measured Frequency (Hz)	ppm
11.56	772.000004	0.01
13.6(reference)	772.000000	0.00
15.64	772.000000	0.00

Table 9-6: Frequency Stability/Voltage Variation – 815 MHz

Voltage (VDC)	Measured Frequency (Hz)	ppm
11.56	815.000008	0.01
13.6(reference)	815.000000	0.00
15.64	815.000000	0.00

Table 9-7: Frequency Stability/Voltage Variation – 937.5 MHz

Voltage (VDC)	Measured Frequency (Hz)	ppm
11.56	937.500031	0.03
13.6(reference)	937.500000	0.00
15.64	937.500000	0.00

Measurement uncertainties shown for these tests are expanded uncertainties expressed at the 95% confidence level using a coverage factor K=2. Measurement uncertainty: ± 0.5 Hz

Results: Pass

Table 9-8: Test Equipment Used For Testing Frequency Stability/Voltage Variation

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901350	Meterman	33XR	Multimeter	040402802	4/26/19
901672	Rohde & Schwarz	FSEM30	Spectrum Analyzer	FSEM30	4/17/19
901724	API Weinschel, Inc.	48-40-34	40 dB 100W Attenuator	CJ8921	8/7/19
901124	Alinco	DM-33MVT 32A	Power Supply	1638	Not Required

Test Personnel:

Daniel Baltzell		September 3, 2018
EMC Test Engineer	Signature	Date of Test

10 FCC Part 2.1047: Modulation Characteristics; ISSED RSS-119 5.2: Types of Modulation

10.1 Test Procedures

10.1.1 Audio Frequency Response

ANSI C63.26 2015, section 5.3.3

The audio frequency response is the degree of closeness to which the frequency deviation of the transmitter follows a prescribed characteristic.

The input audio level at 1000 Hz was set to produce 20% of the rated system deviation. This point is shown as the 0 dB reference level, noted DEVref. The audio signal generator was varied from 100 Hz to 5 kHz with the input level held constant. The deviation in kHz was recorded using a modulation analyzer as DEVfreq. The response in dB relative to 1 kHz was calculated as follows:

Audio Frequency Response = 20 LOG (DEVfreq/DEVref)

10.1.2 Audio Low Pass Filter Response

ANSI C63.26 2015, section 5.3

The Audio Low Pass Filter Response is the frequency response of the post limiter low pass filter circuit above 3000 Hz.

10.1.3 Modulation Limiting

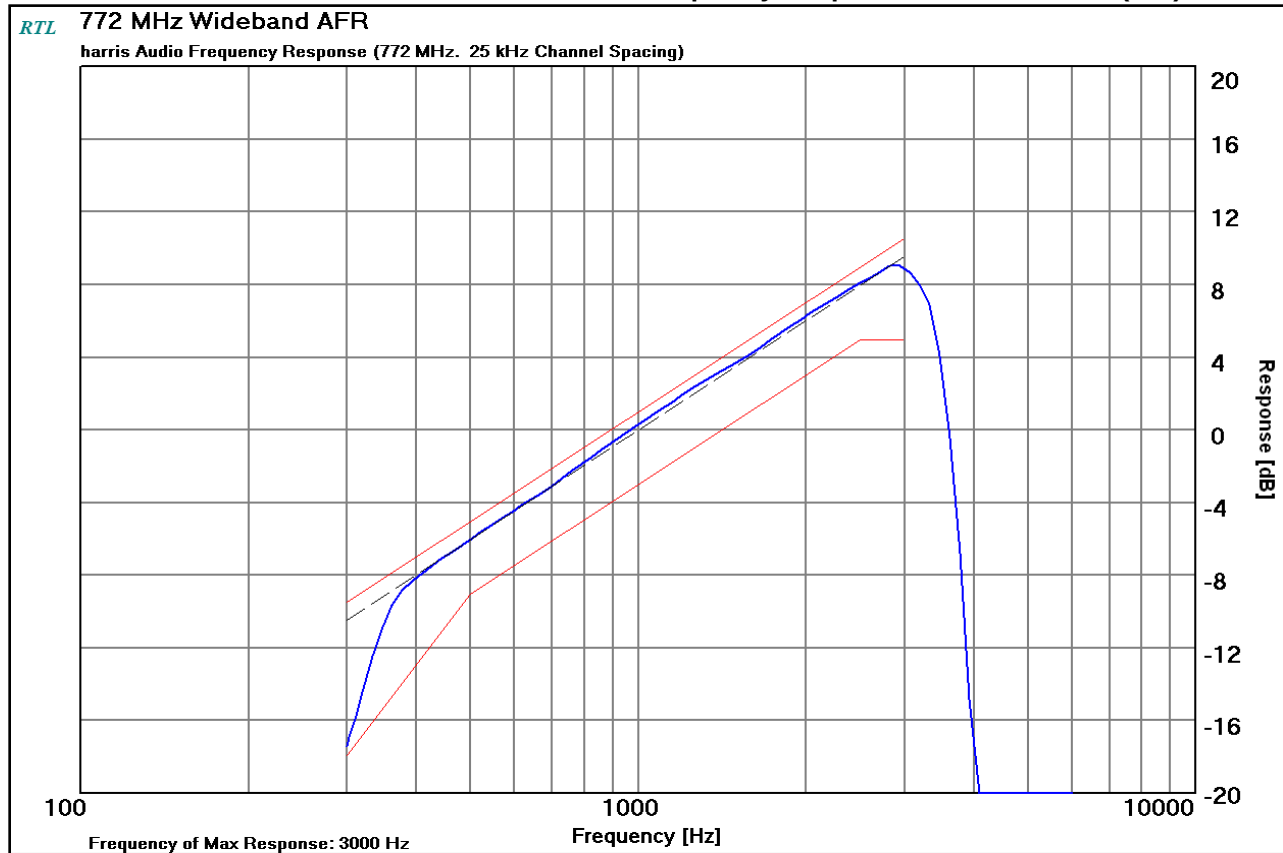
ANSI C63.26 2015, section 5.3.2

The transmitter was adjusted for full rated system deviation. The audio input level was adjusted for 60% of rated system deviation at 1000 Hz. Using this level (0 dB) as a reference, the audio input level was varied from the reference +/-20 dB for modulation frequencies of 300 Hz, 1,000 Hz, and 2,500 Hz. The system deviation obtained as a function of the input level was recorded. Both positive and negative peak deviations were recorded.

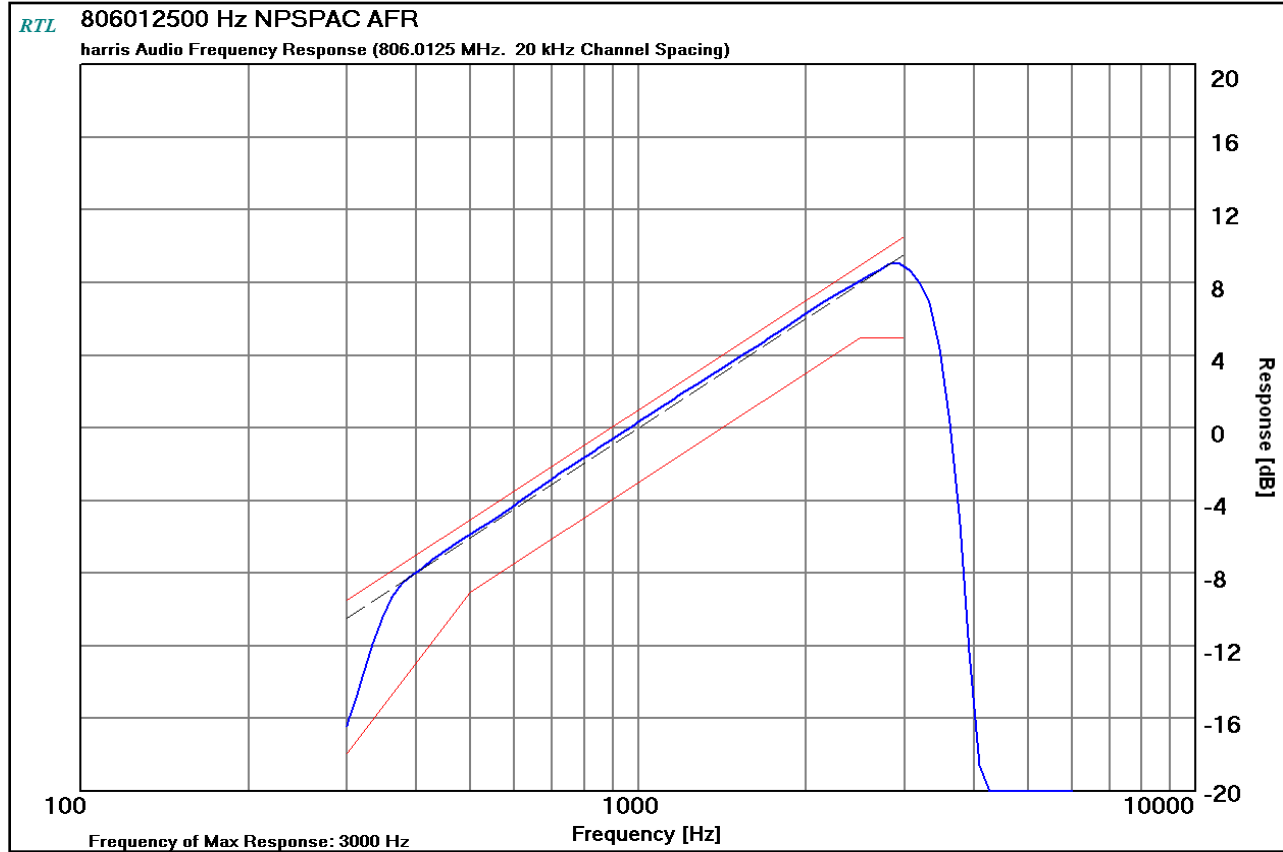
10.2 Test Data

10.2.1 Audio Frequency Response

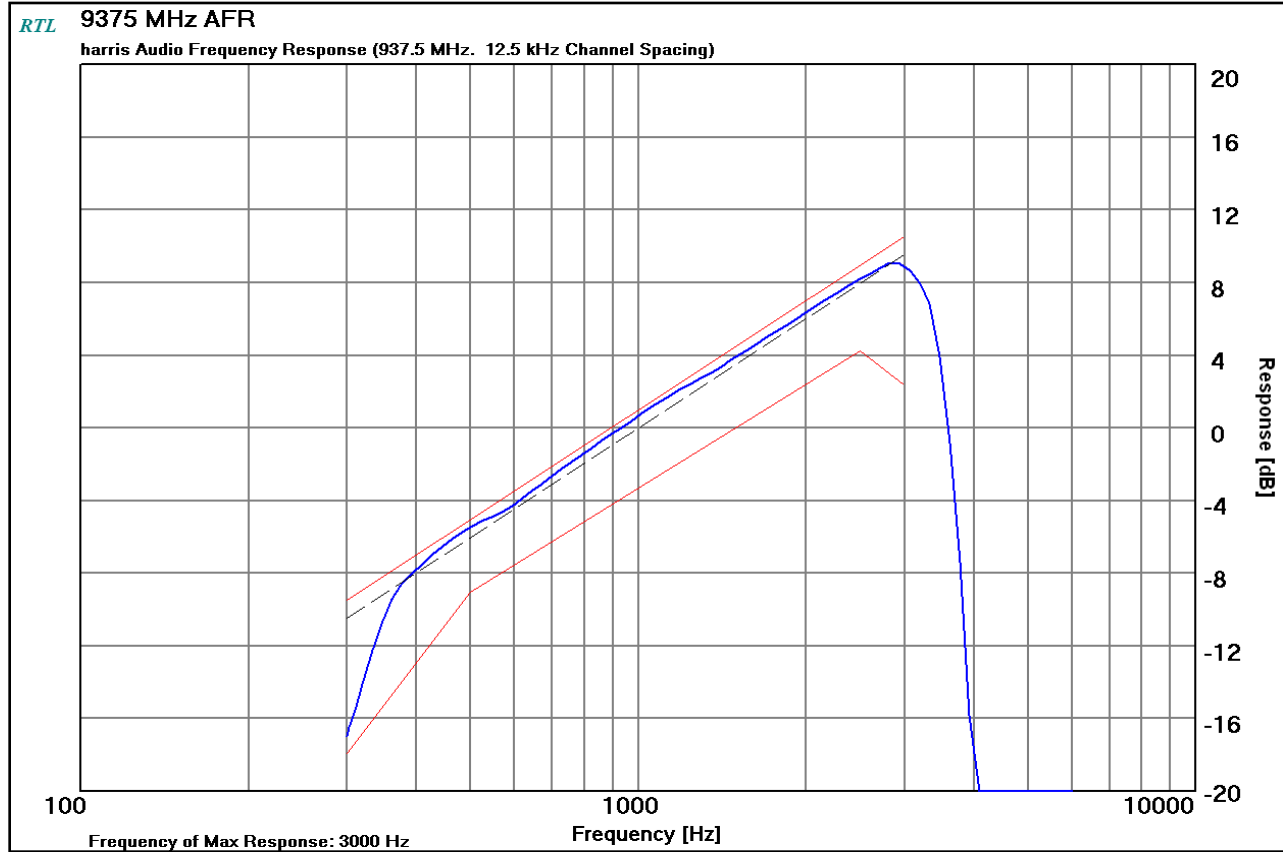
Plot 10-1: Modulation Characteristics - Audio Frequency Response – 772.0000 MHz (WB)



Plot 10-2: Modulation Characteristics - Audio Frequency Response – 806.0125 MHz (NPSPAC)

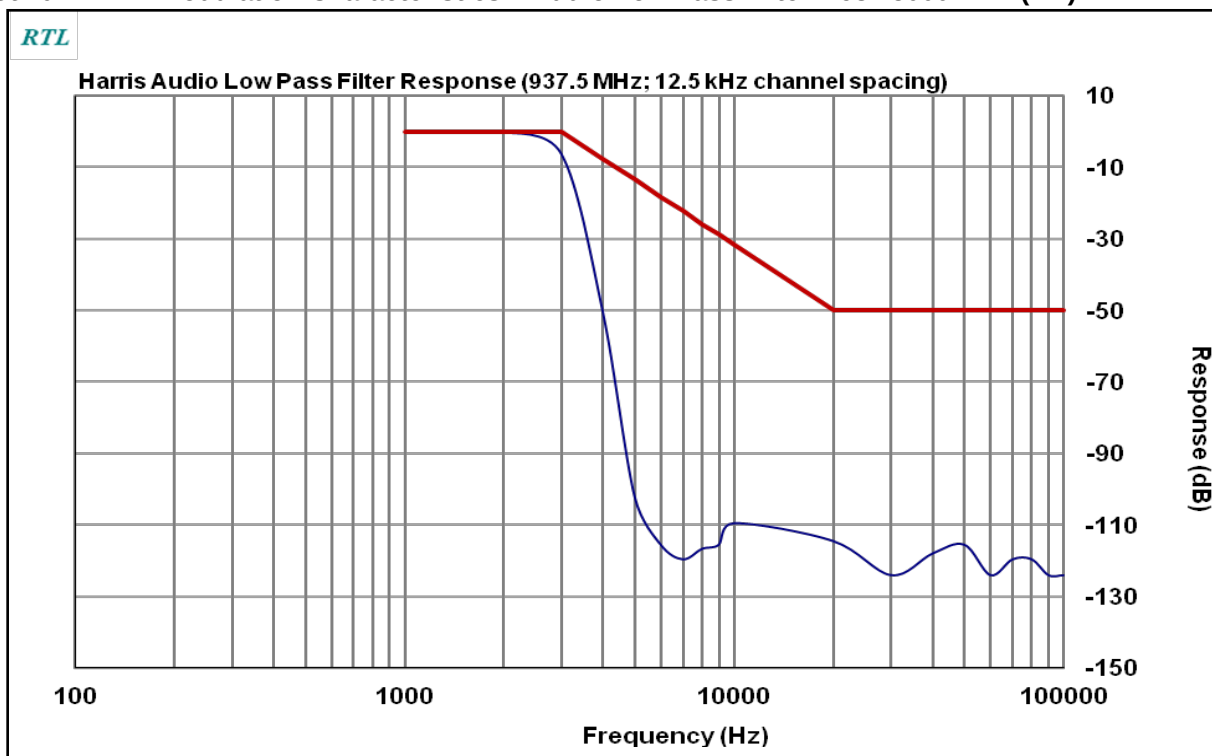


Plot 10-3: Modulation Characteristics - Audio Frequency Response – 937.5000 MHz (NB)

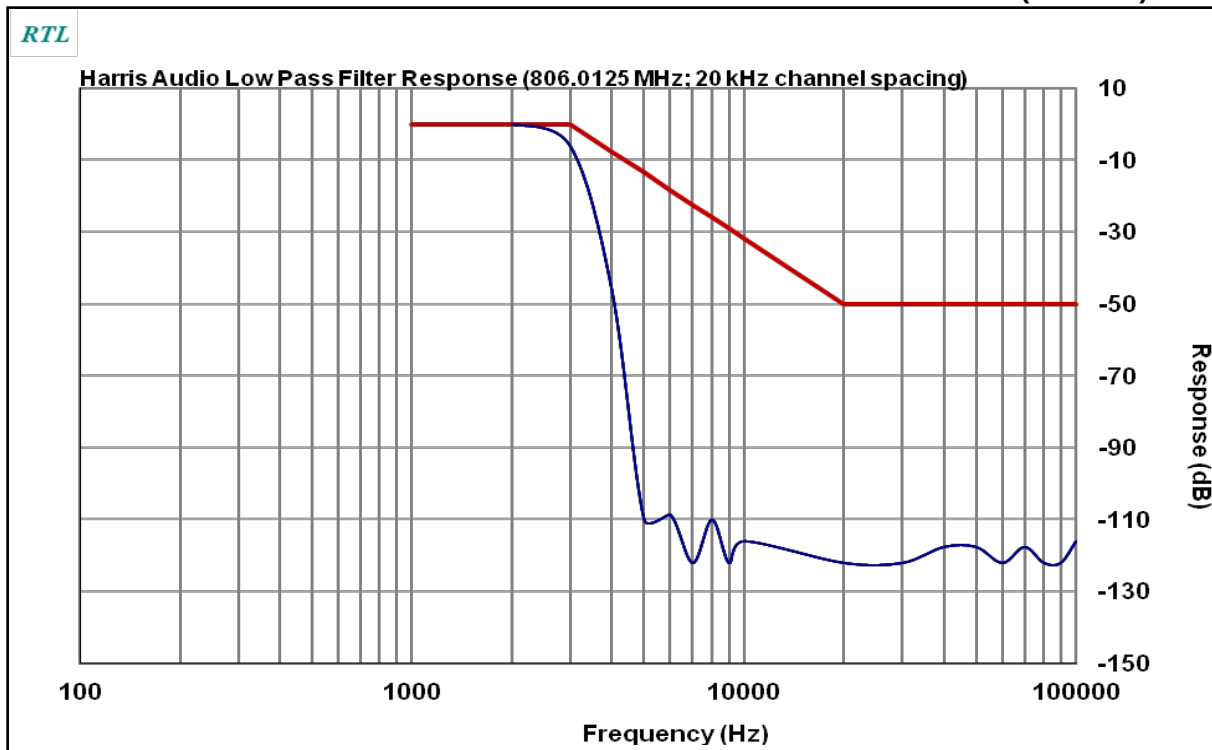


10.2.2 Audio Low Pass Filter Response

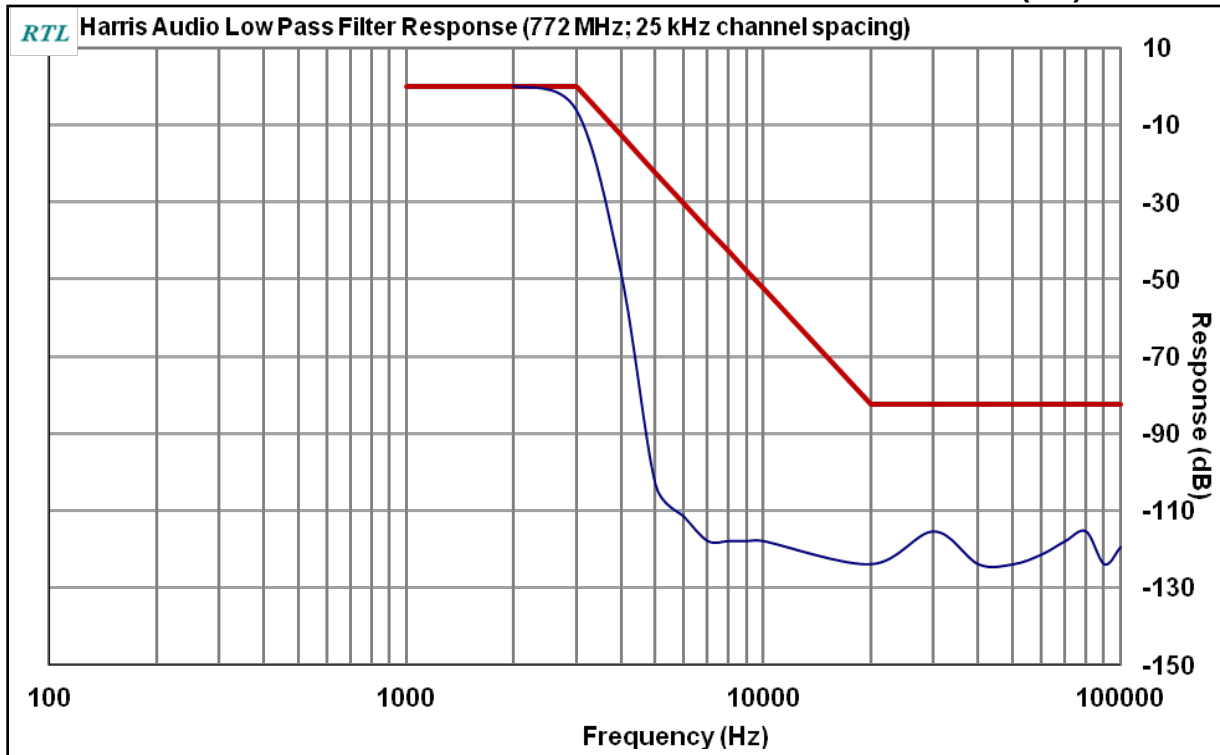
Plot 10-4: Modulation Characteristics – Audio Low Pass Filter – 937.5000 MHz (NB)



Plot 10-5: Modulation Characteristics – Audio Low Pass Filter – 806.0125 MHz (NPSPAC)

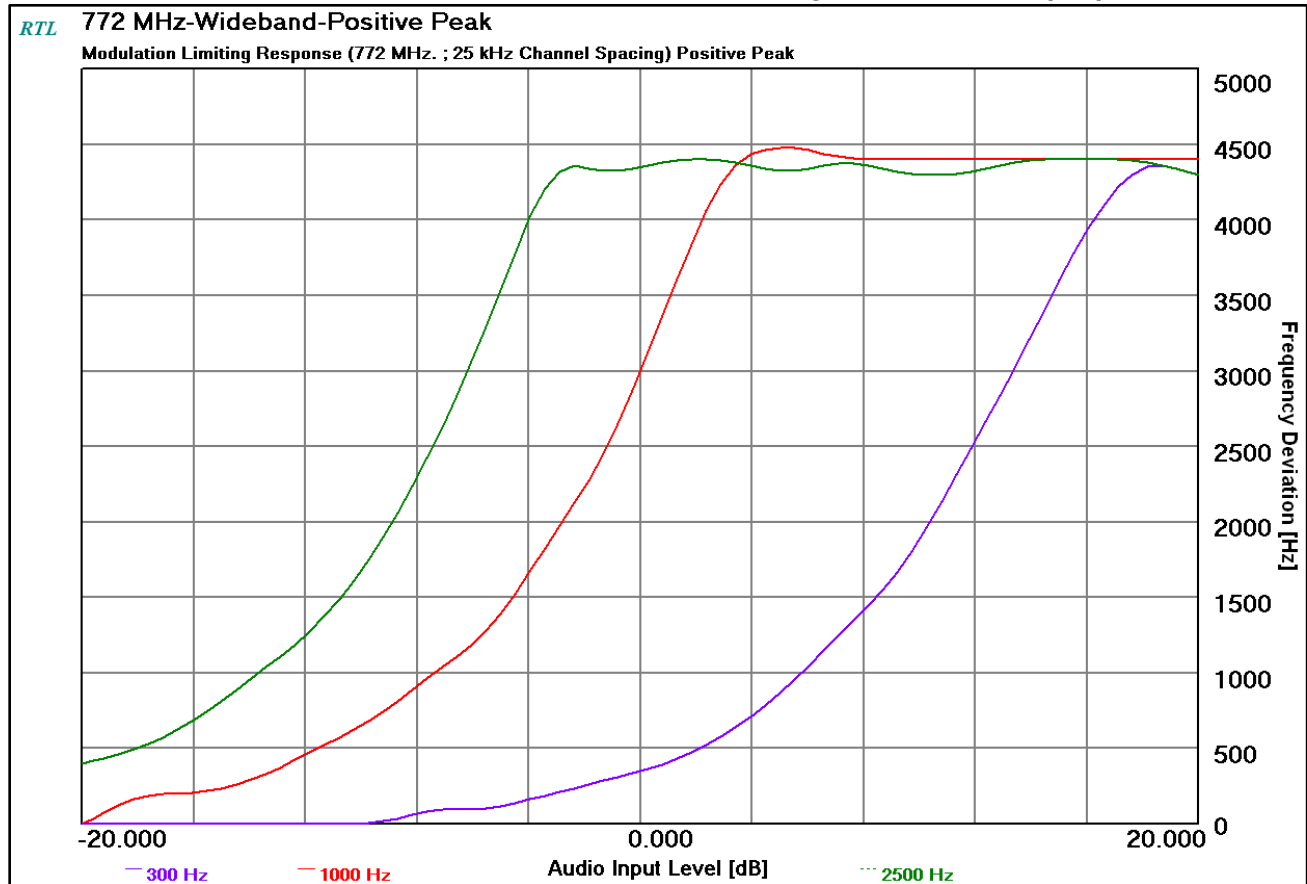


Plot 10-6: Modulation Characteristics – Audio Low Pass Filter – 772.0000 MHz (WB)

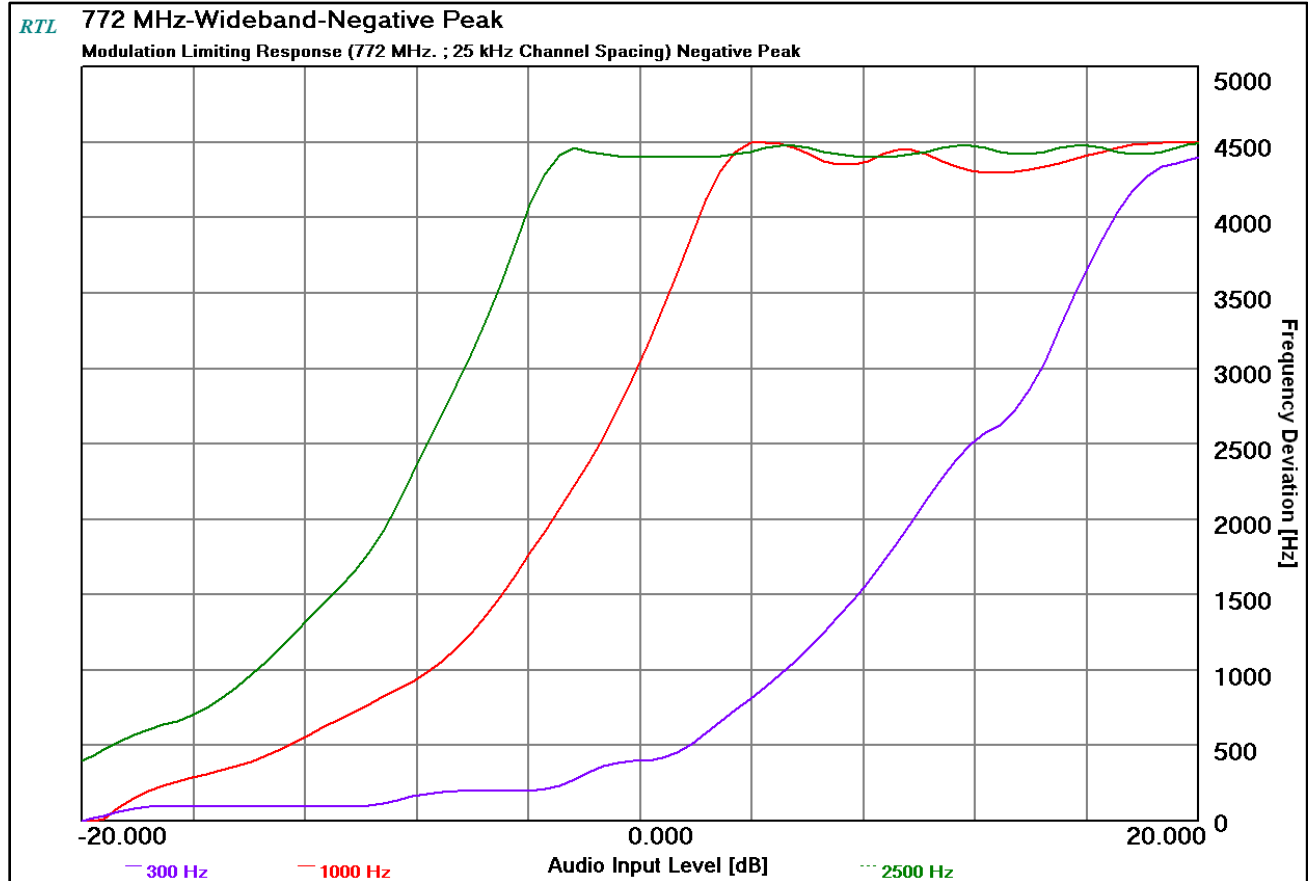


10.2.3 Modulation Limiting

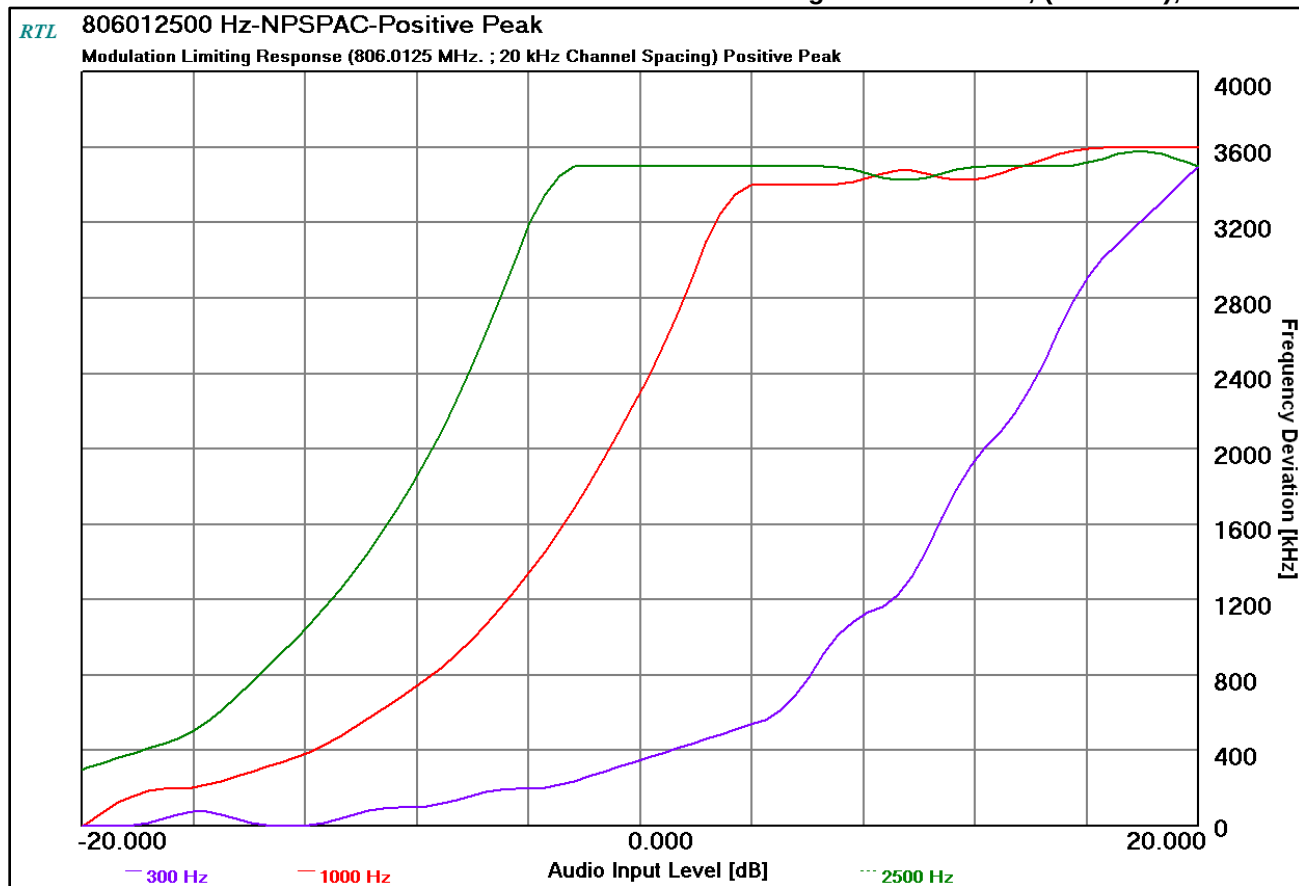
Plot 10-7: Modulation Characteristics – Modulation Limiting – 772.0000 MHz; (WB); Positive Peak



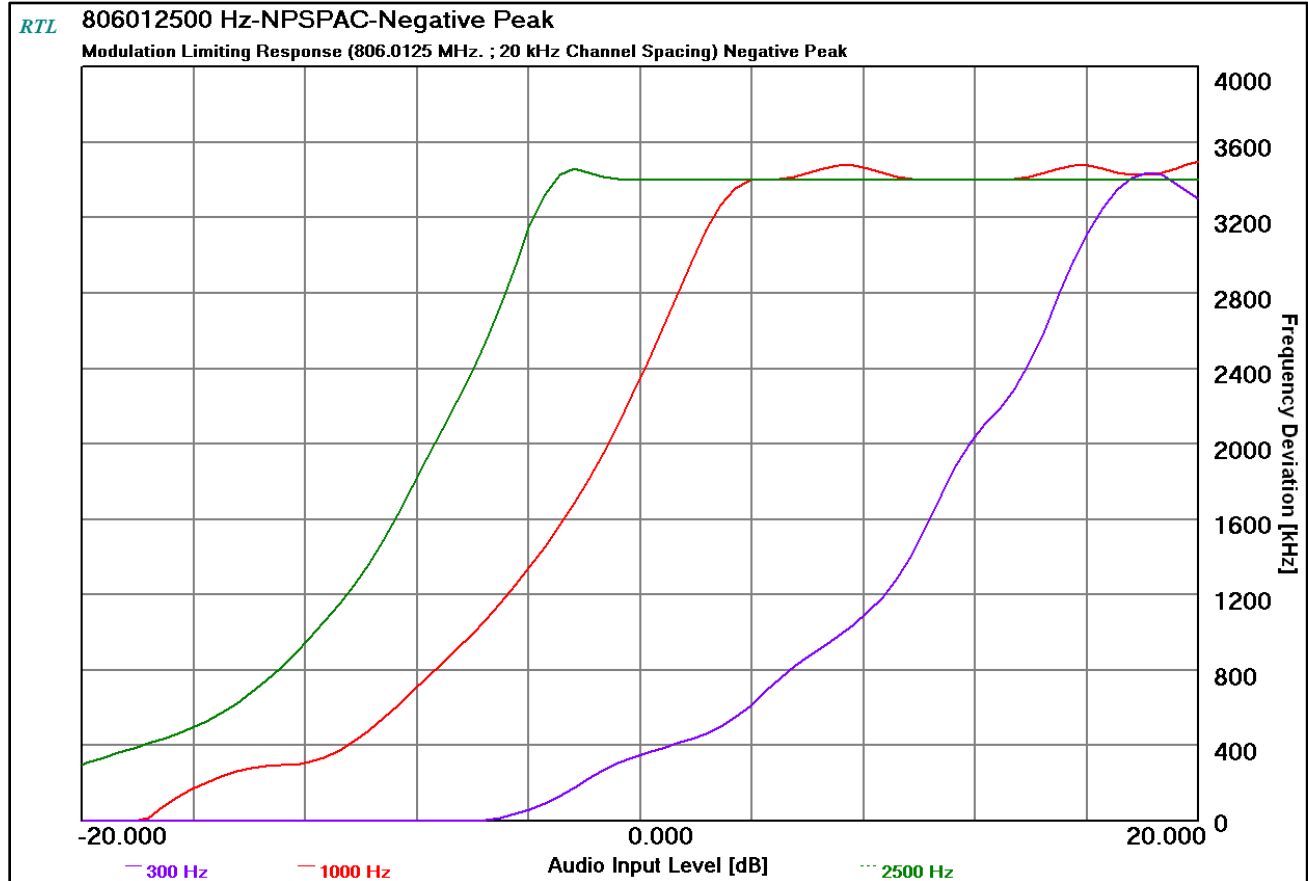
Plot 10-8: Modulation Characteristics – Modulation Limiting - 772.0000 MHz; (WB) Negative Peak



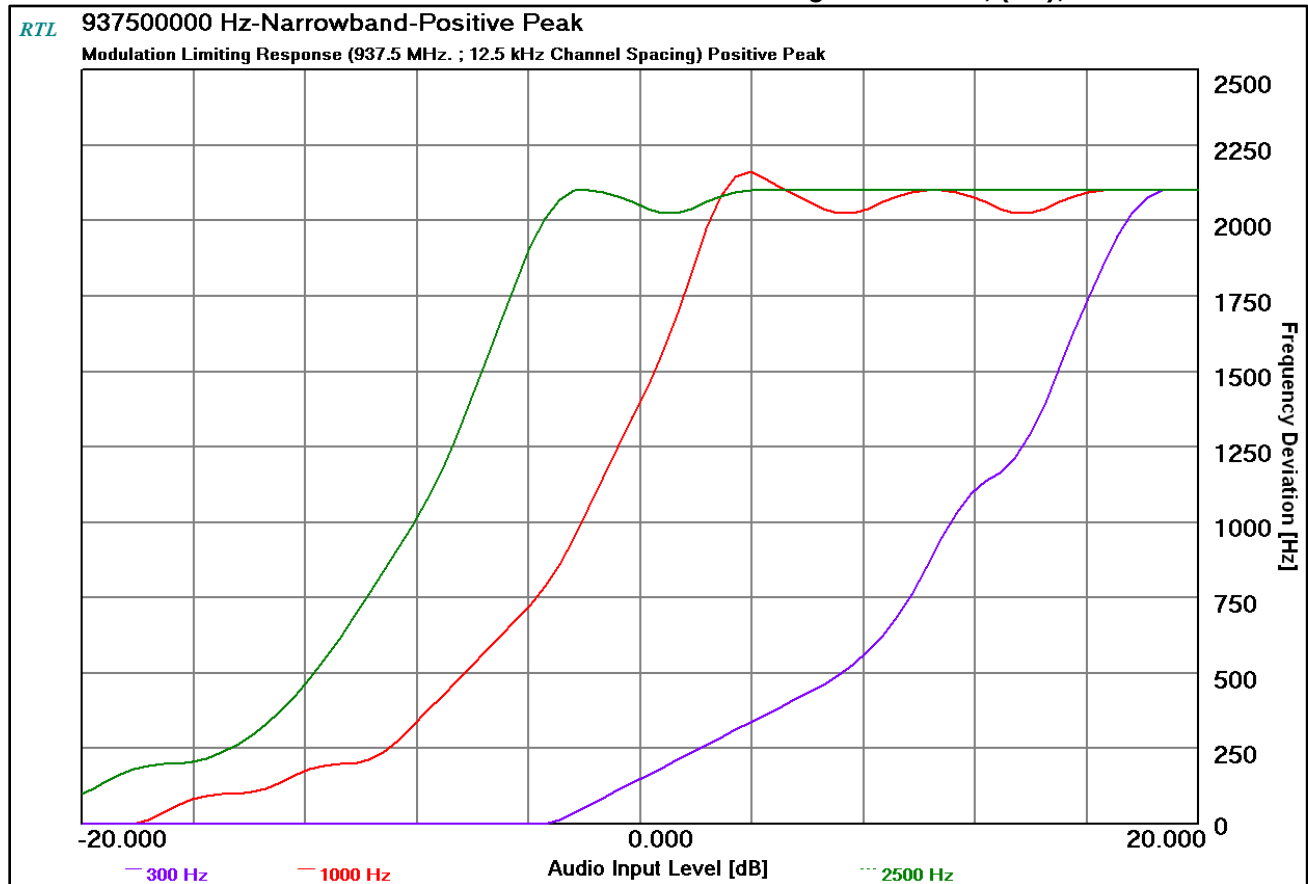
Plot 10-9: Modulation Characteristics – Modulation Limiting – 806.0125 MHz; (NPSPAC); Positive Peak



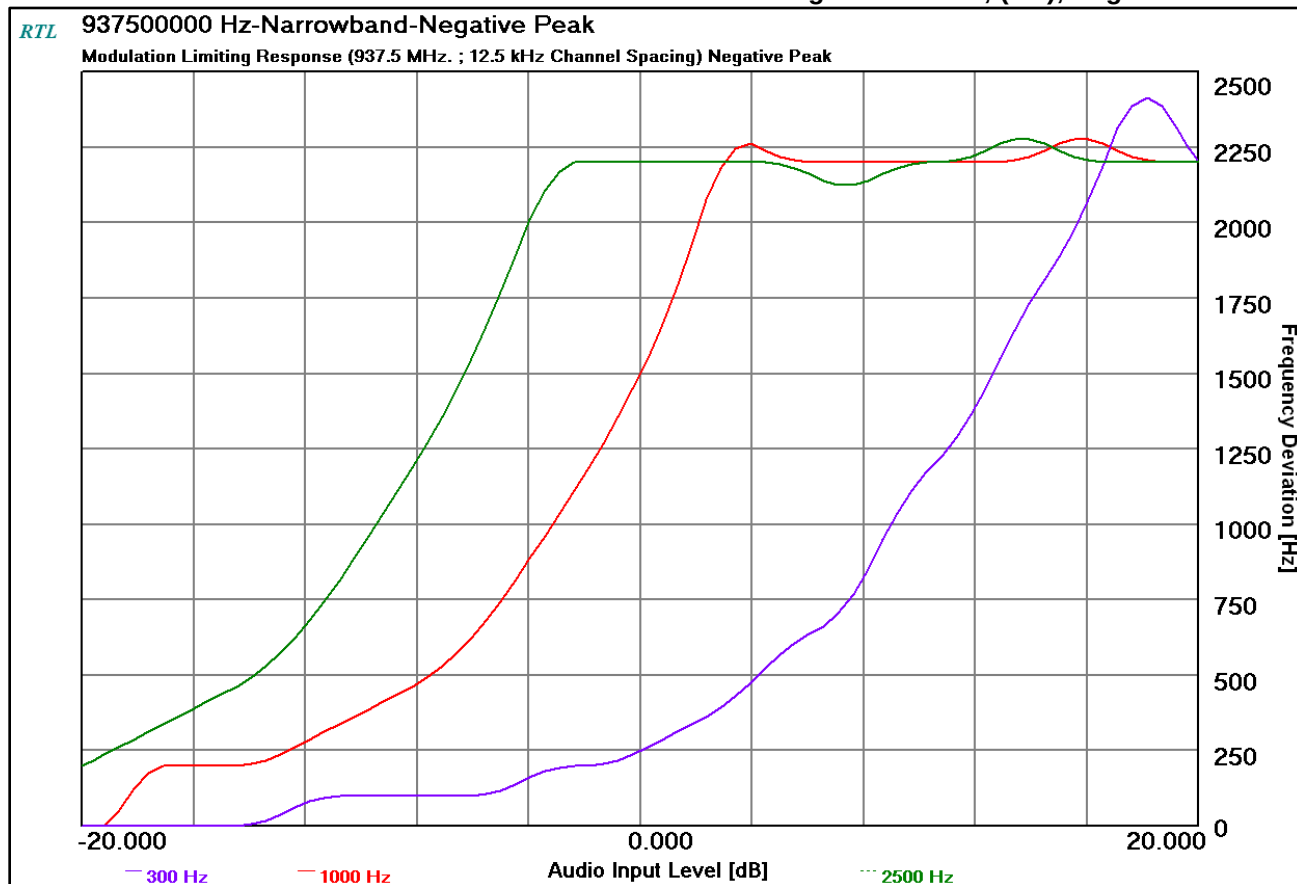
Plot 10-10: Modulation Characteristics – Modulation Limiting – 806.0125 MHz; (NPSPAC); Negative Peak



Plot 10-11: Modulation Characteristics – Modulation Limiting – 937.5 MHz; (NB); Positive Peak



Plot 10-12: Modulation Characteristics – Modulation Limiting – 937.5 MHz; (NB); Negative Peak



Measurement uncertainties shown for these tests are expanded uncertainties expressed at the 95% confidence level using a coverage factor K=2. Measurement uncertainty: ± 0.5 Hz/ ± 0.5 dB

Results: Pass

Table 10-1: Test Equipment Used For Testing Modulation Requirements

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901057	Hewlett Packard	3336B	Synthesizer/ Level Generator	2514A02585	1/31/20
901118	Hewlett Packard	8901A Opt. 002-003	Modulation Analyzer	2406A00178	1/31/20
901724	Weinschel Corporation	47-20-34	Attenuator DC-18 GHz 20 dB 100W	BK5859	8/7/19

Test Personnel:

Daniel Baltzell
EMC Test Engineer

Signature

September 11, 2018
Date of Test

11 FCC Part 2.202: Necessary Bandwidth and Emission Bandwidth

Voice – 12.5 kHz channel separation

Calculation:

Max modulation (M) in kHz: 3.0
Max deviation (D) in kHz: 2.5
Constant factor (K): 1 (assumed)
 $B_n = 2 \times M + 2 \times D \times K = 11.0 \text{ kHz}$
Emission designator: 11K0F3E

Voice – 25 kHz channel separation (NPSPAC)

Calculation:

Max modulation (M) in kHz: 3.0
Max deviation (D) in kHz: 4
Constant factor (K): 1 (assumed)
 $B_n = 2 \times M + 2 \times D \times K = 14.0 \text{ kHz}$
Emission designator: 14K0F3E

Voice – 25 kHz channel separation

Calculation:

Max modulation (M) in kHz: 3.0
Max deviation (D) in kHz: 5
Constant factor (K): 1 (assumed)
 $B_n = 2 \times M + 2 \times D \times K = 16.0 \text{ kHz}$
Emission designator: 16K0F3E

P25 – 9600 bps

Calculation:

Data rate in bps (R) = 9600
Peak deviation of carrier (D) = 1800
 $B_n = [9600 / \log_2(4) + 2 (1800) (1)] = 8.400 \text{ kHz}$
Emission designator: 8K40F1D, 8K40F1E

P25 Phase 2 Data/Voice (H-CPM TDMA)

Calculation:

Data rate in bps (R) = 12000
Peak deviation of carrier (D) = 1050
 $B_n = [12000 / \log_2(4) + 2 (1050) (1)] = 8.1 \text{ kHz}$
Emission designator: 8K10DXW

2-level FSK 9600 Data/Digital Voice (NB)

Calculation:

Data rate in bps (R) = 9600
Peak deviation of carrier (D) = 3450
 $B_n = [9600 / \log_2(4) + 2 (3450) (1)] = 11.700 \text{ kHz}$
Emission designator: 11K7F1D, 11K7F1E

2-level FSK 9600 Data/Digital Voice (WB)

Calculation:

Data rate in bps (R) = 9600
Peak deviation of carrier (D) = 5600
 $B_n = [9600 / \log_2(4) + 2 (5600) (1)] = 16.000 \text{ kHz}$
Emission designator: 16K0F1D, 16K0F1E

2-level FSK 9600 Data/Digital Voice (NPSPAC)

Calculation:

Data rate in bps (R) = 9600

Peak deviation of carrier (D) = 4600

$B_n = [9600/\log_2(4) + 2 (4600) (1)] = 14.000 \text{ kHz}$

Emission designator: 14K0F1D, 14K0F1E

2-level FSK 4800 Data/Digital Voice (XNB)

Calculation:

Data rate in bps (R) = 4800

Peak deviation of carrier (D) = 1800

$B_n = [4800/\log_2(4) + 2 (2350) (1)] = 7.100 \text{ kHz}$

Emission designator: 7K10F1D, 7K10F1E

HVD SMR

Calculation:

Data rate in bps (R) = 19200

Signaling states (S) = 4

$B_n = 2(19200)(.96)/\log_2(4) = 18.5 \text{ kHz}$

Emission designator: 18K5F1W

HVD NPSPAC

Calculation:

Data rate in bps (R) = 19200

Signaling states (S) = 4

$B_n = 2(19200)(.67)/\log_2(4) = 12.9 \text{ kHz}$

Emission designator: 12K9F1W

12 Conclusion

The data in this measurement report shows that the Harris Corporation XL-185M, Model #/HVIN XT-MPS1M, FCC ID: OWDTR-0160-E, IC: 3636B-0160, complies with the applicable requirements of Parts 2, 90 and 101 of the FCC Rules and Industry Canada RSS-119.

Rhein Tech Laboratories, Inc.
360 Herndon Parkway
Suite 1400
Herndon, VA 20170
<http://www.rheintech.com>

Client: Harris Corporation
Model #/HVIN: XT-MPS1M
ID's: OWDTR-0160-E/3636B-0160
Standards: FCC Part 90, 101/ISED RSS-119
Report #: 2018025TNB

Appendix A: FCC Part 1.1307, 1.1310, 2.1091, 2.1093: RF Exposure

Please refer to the MPE evaluation submitted with this application.

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Client: Harris Corporation
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ID's: OWDTR-0160-E/3636B-0160
Standards: FCC Part 90, 101/ISED RSS-119
Report #: 2018025TNB

Appendix B: Agency Authorization

Please refer to the following page.

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Model #/HVIN: XT-MPS1M
ID's: OWDTR-0160-E/3636B-0160
Standards: FCC Part 90, 101/ISED RSS-119
Report #: 2018025TNB

Appendix C: FCC and ISED Confidentiality Request Letter

Please refer to the following pages.

Rhein Tech Laboratories, Inc.
360 Herndon Parkway
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Client: Harris Corporation
Model #/HVIN: XT-MPS1M
ID's: OWDTR-0160-E/3636B-0160
Standards: FCC Part 90, 101/ISED RSS-119
Report #: 2018025TNB

Appendix D: ISED Letters

Please refer to the following pages.

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ID's: OWDTR-0160-E/3636B-0160
Standards: FCC Part 90, 101/ISED RSS-119
Report #: 2018025TNB

Appendix E: Canadian Based Representative Attestation Letter

Please refer to the following page.

Rhein Tech Laboratories, Inc.
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Client: Harris Corporation
Model #/HVIN: XT-MPS1M
ID's: OWDTR-0160-E/3636B-0160
Standards: FCC Part 90, 101/ISED RSS-119
Report #: 2018025TNB

Appendix F: Attestation Letters

Please refer to the following page.

Rhein Tech Laboratories, Inc.
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Client: Harris Corporation
Model #/HVIN: XT-MPS1M
ID's: OWDTR-0160-E/3636B-0160
Standards: FCC Part 90, 101/ISED RSS-119
Report #: 2018025TNB

Appendix G: ID Label & Location

Please refer to the following pages.

Rhein Tech Laboratories, Inc.
360 Herndon Parkway
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<http://www.rheintech.com>

Client: Harris Corporation
Model #/HVIN: XT-MPS1M
ID's: OWDTR-0160-E/3636B-0160
Standards: FCC Part 90, 101/ISED RSS-119
Report #: 2018025TNB

Appendix H: Operational Description

Please refer to the following pages.

Rhein Tech Laboratories, Inc.
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Model #/HVIN: XT-MPS1M
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Standards: FCC Part 90, 101/ISED RSS-119
Report #: 2018025TNB

Appendix I: Parts List

Please refer to the following pages.

Rhein Tech Laboratories, Inc.
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<http://www.rheintech.com>

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Model #/HVIN: XT-MPS1M
ID's: OWDTR-0160-E/3636B-0160
Standards: FCC Part 90, 101/ISED RSS-119
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Appendix J: Test / Tune Procedure

Please refer to the following pages.

Rhein Tech Laboratories, Inc.
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Standards: FCC Part 90, 101/ISED RSS-119
Report #: 2018025TNB

Appendix K: Schematics

Please refer to the following pages.

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Standards: FCC Part 90, 101/ISED RSS-119
Report #: 2018025TNB

Appendix L: Block Diagrams

Please refer to the following pages.

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Model #/HVIN: XT-MPS1M
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Standards: FCC Part 90, 101/ISED RSS-119
Report #: 2018025TNB

Appendix M: Manual

Please refer to the following pages.

Appendix N: Test Configuration Photographs

Photograph 1: Radiated Emissions (Spurious/Harmonics) – Front View



Photograph 2: Radiated Emissions (Spurious/Harmonics) – Back View



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Standards: FCC Part 90, 101/ISED RSS-119
Report #: 2018025TNB

Appendix O: External Photographs

Please refer to the following pages.

Rhein Tech Laboratories, Inc.
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Model #/HVIN: XT-MPS1M
ID's: OWDTR-0160-E/3636B-0160
Standards: FCC Part 90, 101/ISED RSS-119
Report #: 2018025TNB

Appendix P: Internal Photographs

Please refer to the following pages.