



Engineering Solutions & Electromagnetic Compatibility Services

FCC & IC Certification Report

**Harris Corporation
221 Jefferson Ridge Parkway
Lynchburg, VA 24501**

**MODEL: XL-185P 7/8 Non-Rebanded C1D2
Portable Land Mobile Radio**

**FCC ID: OWDTR-0148-E
IC: 3636B-0148**

July 21, 2017

Standards Referenced for this Report	
Part 2: 2016	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
Part 90: 2016	Private Land Mobile Radio Services
ANSI/TIA-603-D 2010	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
Industry Canada RSS-119 Issue 12	Land Mobile and Fixed Equipment Operating in the Frequency Range 27.41-960 MHz

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Document Number: 2017070TNF

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Frequency Range (MHz)	Rated Conducted Output Power (W)	Frequency Tolerance (ppm)	Transmit Mode	Emission Designator
769 – 775 (FCC) 768 – 776 (ISED) 799 – 805 (FCC) 798 – 806 (ISED) 806 – 824 851 – 869	0.5-3	0.8	Analog Voice; NB	11K0F3E
769 – 775 (FCC) 768 – 776 (ISED) 799 – 805 (FCC) 798 – 806 (ISED) 806 – 824 851 – 869	0.5-3	0.8	EDACS 2-Level FSK 9600 Data/Digital Voice; NB	11K7F1D/E
769 – 775 (FCC) 768 – 776 (ISED) 799 – 805 (FCC) 798 – 806 (ISED) 806 – 824 851 – 869	0.5-3	0.8	OpenSky; 4-level FSK Data/Voice [SMR]; WB	15K4F9W
769 – 775 (FCC) 768 – 776 (ISED) 799 – 805 (FCC) 798 – 806 (ISED) 806 – 824 851 – 869	0.5-3	0.8	OpenSky; 4-level FSK Data/Voice [Narrowband]; WB	8K40F9W
769 – 775 (FCC) 768 – 776 (ISED) 799 – 805 (FCC) 798 – 806 (ISED) 806 – 824 851 – 869	0.5-3	0.8	4-level C4FM Data/Voice; P25 Phase 1	8K40F1D/E
769 – 775 (FCC) 768 – 776 (ISED) 799 – 805 (FCC) 798 – 806 (ISED) 806 – 824 851 – 869	0.5-3	0.8	4-level H-CPM (TDMA) Data/Voice; P25 Phase 2	8K10DXW
806 – 824 851 – 869	0.5-3	0.6	Analog Voice; WB	16K0F3E
806 – 824 851 – 869	0.5-3	0.6	EDACS 2-Level FSK 9600 Data/Digital Voice; WB	16K0F1D/E

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Client: Harris Corporation
Model: XL-185P 7/8 NRB C1D2
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Standards: FCC Parts 2, 90/IC RSS-119
Report #: 2017070TNF

806 – 824 851 – 869	0.5-3	0.6	EDACS Analog Voice (NPSPAC)	14K0F3E
806 – 824 851 – 869	0.5-3	0.6	EDACS 2-Level FSK 9600 Data/Digital Voice (NPSPAC)	14K0F1D/E
806 – 824 851 – 869	0.5-3	0.5	OpenSky; 4-level FSK Data/Voice [NPSPAC]; WB	12K1F9W

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1 Test Result Summary

Test	FCC & IC References	Result
RF Power Output	FCC 2.1046(a), 90.541(b), 90.542(a)(6) IC RSS-119 5.4	Complies
Spurious Emissions at Antenna Terminals	FCC 2.1051, 90.210, IC RSS-119 5.8:	Complies
Field Strength of Spurious Radiation	FCC 2.1053(a), 90.543(c), (d), and (f) IC RSS-119 5.8, IC RSS-119 5.11	Complies
Occupied Bandwidth/Emission Masks	FCC 2.1049(c)(1), 90.210 IC RSS-119 5.8	Complies
Adjacent Channel Power	FCC 90.543(b) IC RSS-119 5.8.9	Complies
Frequency Stability vs. Temperature and Voltage	FCC 2.1055, 90.213, 90.539 IC RSS-119 5.3	Complies
Modulation Characteristics	FCC 2.1047(a)(b)	Complies
Transient Frequency Response	FCC 90.214 IC RSS-119 5.9	Complies

2 General Information

The following Certification Report is prepared on behalf of **Harris Corporation** in accordance with the Federal Communications Commission and Industry Canada rules and regulations. The Equipment Under Test (EUT) was the **XL-185P 7/8 Non-Rebanded C1D2 Portable Land Mobile Radio; FCC ID: OWDTR-0148-E, IC: 3636B-0148.**

The radio is subject to FCC DoC. DoC testing was performed and the data is contained in a separate DoC report.

All measurements contained in this application were conducted in accordance with the applicable sections of FCC Rules and Regulations CFR 47 §2 and 90. Calibration checks are performed regularly on the instruments, and all accessories including high pass filter, coaxial attenuator, preamplifier and cables.

2.1 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the parking lot of Rhein Tech Laboratories, Inc. 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report submitted to, and approved by, the Federal Communications Commission to perform AC line conducted and radiated emissions testing.

2.2 Related Submittal(s)/Grant(s)

This FCC and IC application includes an Industry Canada Family Certification application, which includes 4 model numbers under IC: 3636B-0148:

XS-PFS2M, XS-PFS2Y, XS-PPS2M, XS-PPS2Y

2.3 Grant Notes

Manufacturer's Rated Power:

700 MHz Bands: 3W
800 MHz Bands: 3W

2.4 Tested System Details

The test sample was received on December 18, 2015. Listed below are the identifiers and descriptions of all equipment, cables, and internal devices used with the EUT for this test, as applicable.

The EUT includes a System model and a Scan model, the difference being that the System model has a DTMF keypad. The System model is considered to be representative of the radio family and to have the worst case emissions, and was therefore used for testing.

The device was programmed for multiple modes of operation and modulation types.

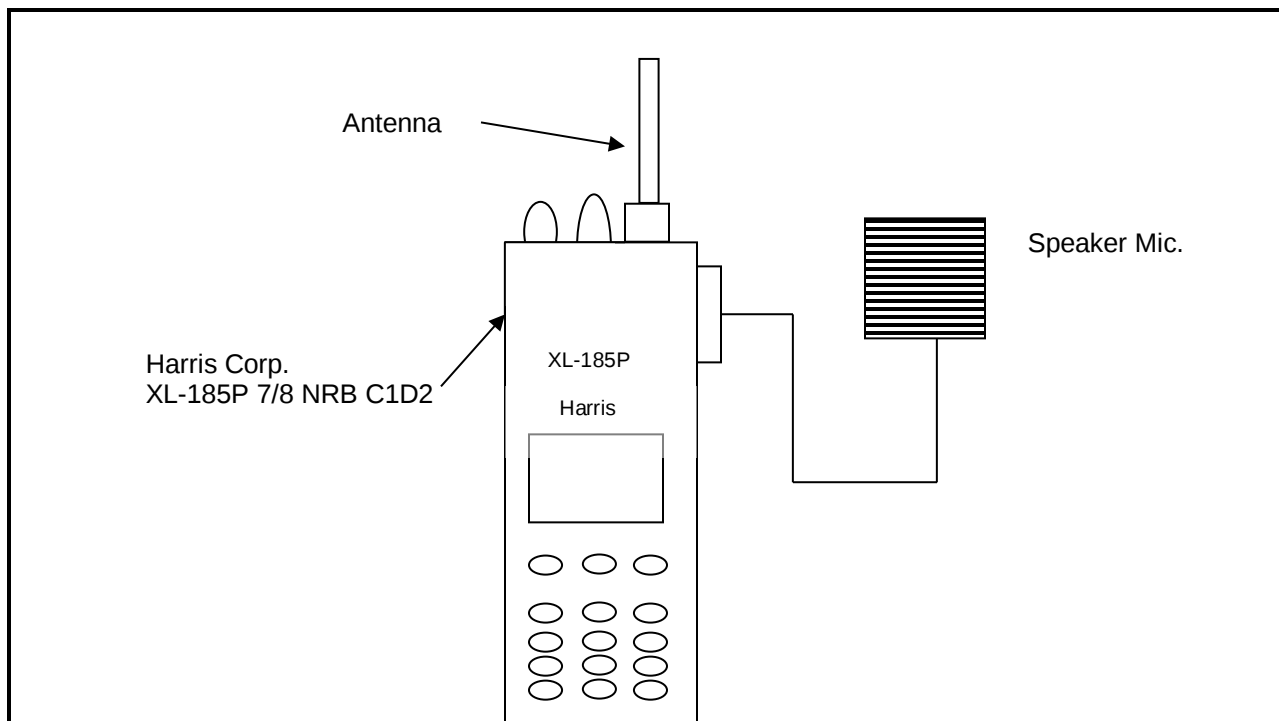
Table 2-1: Equipment Under Test (EUT)

Part	Manufacturer	Model	SN	FCC ID	RTL Bar Code
Radio	Harris Corporation	XL-185P 7/8 NRB C1D2	A-40184xxxxxx (System)	OWDTR-0148-E	21965

Table 2-2: Auxiliary Equipment

Part	Manufacturer	Model	PN/SN	FCC ID	RTL Bar Code
AC Adapter	FP	FWA020012A	002844	N/A	21549
Charger	Harris Corporation	Single Bay Charger	14035-1800-01/00060	N/A	21550
Speaker/Microphone	Harris Corporation	EM105	N/A	N/A	21563
Full-Spectrum Multiband Antenna	Harris Corporation	14035-4000-01	T1-11	N/A	21556
Antenna (762-870 MHz)	Harris Corporation	14035-4440-02	N/A	N/A	21719
7.2V Li-Ion Battery	Harris Corporation	Li-Ion	22	N/A	21551
7.2V Li-Ion Battery	Harris Corporation	BAT	L-CASE-R-HR003	N/A	21552
Battery Eliminator	Harris Corporation	N/A	14035-4300-01	N/A	21553
Audio Breakout	Harris Corporation	12082-7980-01	ENG027	N/A	20599
Power Supply	Alinco	DM-33MVT 32A	1638	N/A	901124

Figure 2-1: Configuration of Tested System



3 FCC Rules and Regulations Part 2.1033(C)(8): Voltages and Currents Through The Final Amplifying Stage

700 MHz: 7.4 V / 1.79 A

800 MHz: 7.4 V / 1.55 A

4 FCC Rules and Regulations Part 2.1046(a): RF Power Output: Conducted, Part 90.541(b)/90.542(a)(6)

4.1 Test Procedure

TIA-603-D 2010, section 2.2.1

The EUT was connected to a coaxial attenuator having a 50 Ω load impedance.

Manufacturer's Rated Power:

700 MHz Bands: 3W

800 MHz Bands: 3W

4.2 Test Data

Table 4-1: RF Conducted Output Power - Measured

Frequency (MHz)	Power (dBm)	Power (W)
768.0125	34.3	2.7
769.0125	34.4	2.8
771.0125	34.4	2.8
775.0125	34.4	2.8
775.9875	34.4	2.8
798.0125	34.4	2.8
799.0125	34.4	2.8
806.0125	34.9	3.1
815.0000	35.0	3.2
823.9875	35.0	3.2
851.0125	35.0	3.2
860.0000	34.9	3.1
868.9875	34.9	3.1
806.0125	34.9	3.1
815.0000	35.0	3.2
823.9875	35.0	3.2

Notes: Data presented is for Analog mode. All other modes were investigated and found to have equivalent power within measurement tolerances.

Table 4-2: Test Equipment Used For Testing RF Power Output - Conducted

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901581	Rohde & Schwarz	FSU	Spectrum Analyzer	1166.1660.50	11/13/16
900948	Weinschel Corporation	47-10-43	Attenuator DC-18 GHz 10 dB 50W	BH1487	9/10/16
901536	Weinschel Corporation	48-40-34	Attenuator DC-18 GHz 40 dB 100W	CB6627	9/11/16

Test Personnel:

Daniel Baltzell EMC Test Engineer	 Signature	December 13, 2014; January 8, 2016 Dates of Test
--------------------------------------	--	--

5 FCC Rules and Regulations Part 2.1051: Spurious Emissions at Antenna Terminals; Part 90.210: Emission Limitations

5.1 Test Procedure

TIA-603-D 2010, Section 2.2.13

The transmitter is terminated with a 50 Ω load and interfaced with a spectrum analyzer.

Device with digital modulation: Modulated to its maximum extent using a pseudo-random data sequence.

5.2 Test Data

Frequency range of measurement per Part 2.1057: 9 kHz to 10 x Fc

Limits: (43 + 10 LOG P(W)) for wideband and 50 + 10 LOG P(W)) for narrowband

The following channels (in MHz) were investigated:

700 MHz: 768.0125, 769.0125, 771.0125, 775.0125, 775.9875, 798.0125, 799.0125, 801.0125, 805.0125, 805.9875

800 MHz: 806.0125, 815.0000, 823.9875, 851.0125, 860.0000, and 868.9875

Both high and low power settings were checked; high power was found to be worst case. All modes were investigated and analog mode is presented as representative data.

All frequencies were found to be greater than 20 dB below the limit; per FCC 2.1051 no data is being reported.

Table 5-1: Test Equipment Used For Testing Spurious Emissions

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901129	Par Electronics	188-174 (25W)	VHF Notch Filters	N/A	9/16/16
901135	Par Electronics	400-512 (25W)	UHF Notch Filter	N/A	9/16/16
901128	Par Electronics	806-902 (25W)	UHF Notch Filter	N/A	9/16/16
901581	Rohde & Schwarz	FSU	Spectrum Analyzer	1166.1660.50	11/13/16
900948	Weinschel Corporation	47-10-43	Attenuator DC-18 GHz 10 dB 50W	BH1487	9/10/16
900819	Weinschel Corporation	2	10 dB Attenuator; 5 W	BF0830	9/10/16
901536	Weinschel Corporation	48-40-34	Attenuator DC-18 GHz 40 dB 100W	CB6627	9/11/16

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

Client: Harris Corporation
Model: XL-185P 7/8 NRB C1D2
IDs: - OWDTR-0148-E/3636B-0148
Standards: FCC Parts 2, 90/IC RSS-119
Report #: 2017070TNF

Test Personnel:

Daniel Baltzell EMC Test Engineer	 Signature	December 18, 2014 and January 8, 2016 Dates of Test
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6 FCC Rules and Regulations Part 90.543(a): Emission Limitations: ACP Requirements

Effective October 23, 2007, transmitters designed to operate in the 769–775 MHz and 799–805 MHz frequency bands must meet the emission limitations in paragraphs (a) through (d) of this section. Transmitters operating in the 763–768 MHz and 793–798 MHz bands must meet the emission limitations in (e) of this section.

6.1 Test Procedure

Device with digital modulation: Modulated to its maximum extent using a pseudo-random data sequence.

For a Portable transmitter designed to operate with a 12.5 kHz channel bandwidth, the ACP shall be in accordance with the values in the following table:

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP Relative (dBc)
(+/-)9.375	6.25	-40
(+/-)15.625	6.25	-60
(+/-)21.875	6.25	-60
(+/-)37.5	25	-60
(+/-)62.5	25	-65
(+/-)87.5	25	-65
(+/-)150	100	-65
(+/-)250	100	-65
(+/-)350	100	-65
>400 kHz to 12 MHz	30(s)	-75
12 MHz to paired receive band	30(s)	-75
In the paired receive band	30(s)	-100

For a Portable transmitter designed to operate with a 25 kHz channel bandwidth, the ACP shall be in accordance with the values in the following table:

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP Relative (dBc)
(+/-)15.625	6.25	-40
(+/-)21.875	6.25	-60
(+/-)37.5	25	-60
(+/-)62.5	25	-65
(+/-)87.5	25	-65
(+/-)150	100	-65
(+/-)250	100	-65
(+/-)350	100	-65
>400 kHz to 12 MHz	30(s)	-75
12 MHz to paired receive band	30(s)	-75
In the paired receive band	30(s)	-100

FCC Rules and Regulations Part 90.543(b)

Setting Reference Level - Part 90.543(b)(1): Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth to the channel size. Set the frequency offset of the measurement to zero and adjust the center frequency of the spectrum analyzer to give the power level in the measurement bandwidth. Record this power as the reference power level.

Measuring the power level at the frequency offset <400 kHz - Part 90.543(b)(2): Using a spectrum analyzer capable of adjacent channel power (ACP) measurements, set the measurement bandwidth as shown in table. Measure ACP in dBm. These measurements are made at maximum power. Calculate the coupled power by subtracting the measurements made in this step from the reference power level. The absolute ACP values must be less than the values given in the table for each condition.

Measuring the power level at the frequency offset >400 kHz - Part 90.543(b)(3): Set the spectrum analyzer to 30 kHz resolution bandwidth, 1 MHz video bandwidth and sample detection mode. Sweep +/- 6 MHz from the carrier frequency. Set the reference level to the RMS value of the transmitter power and note the power. The response at frequencies >400 kHz must be less than the values listed in the table.

6.2 Test Data

Plot 6-1: Adjacent Channel Power – 768.0125 MHz; Narrowband Analog; <400 kHz

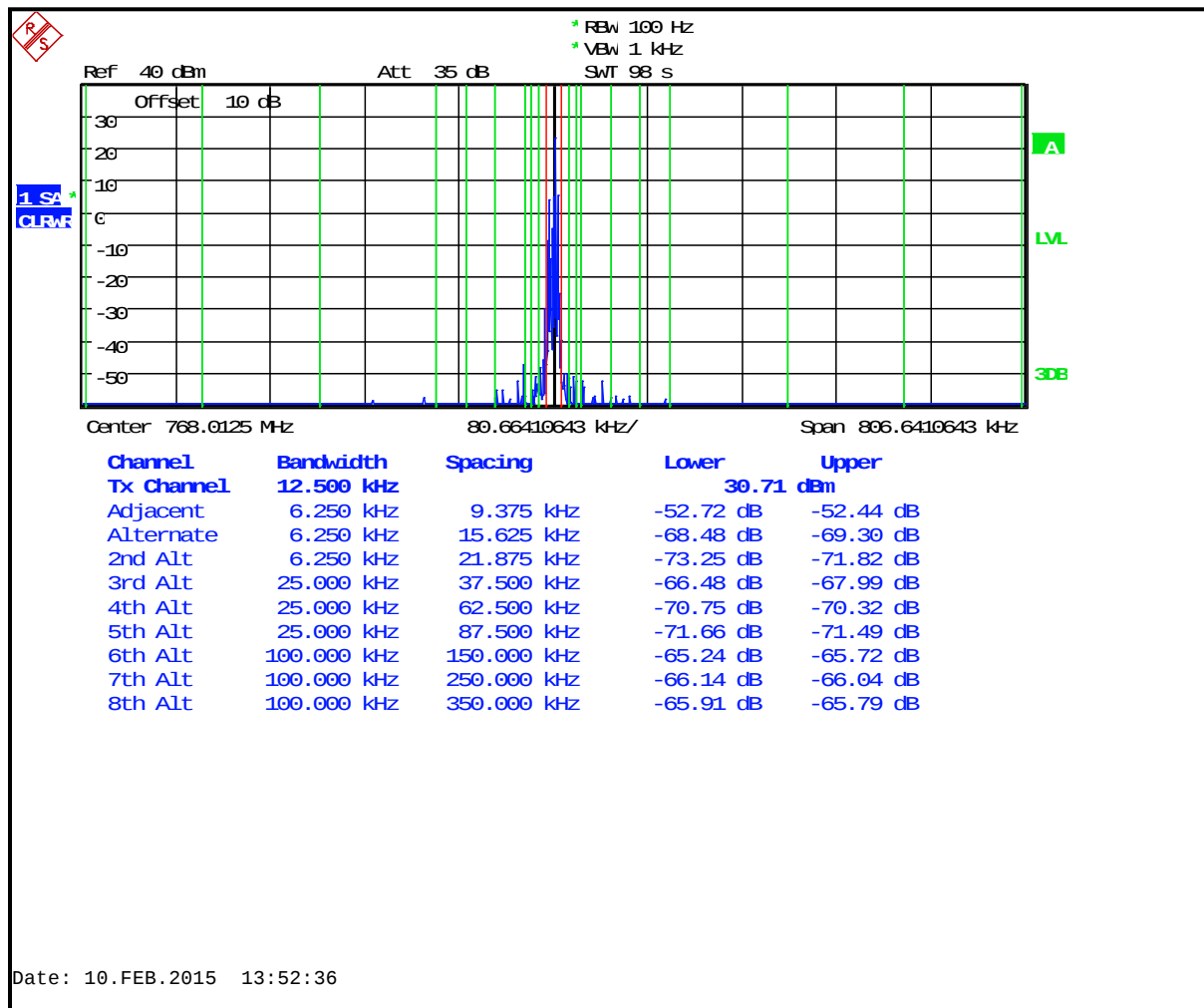


Table 6-1: Adjacent Channel Power – 768.0125 MHz; Narrowband Analog; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-82.1
12 MHz to receive band	30(s)	-75	-102.5
In receive band	30(s)	-100	-111.8

Plot 6-2: Adjacent Channel Power – 769.0125 MHz; Narrowband Analog; <400 kHz

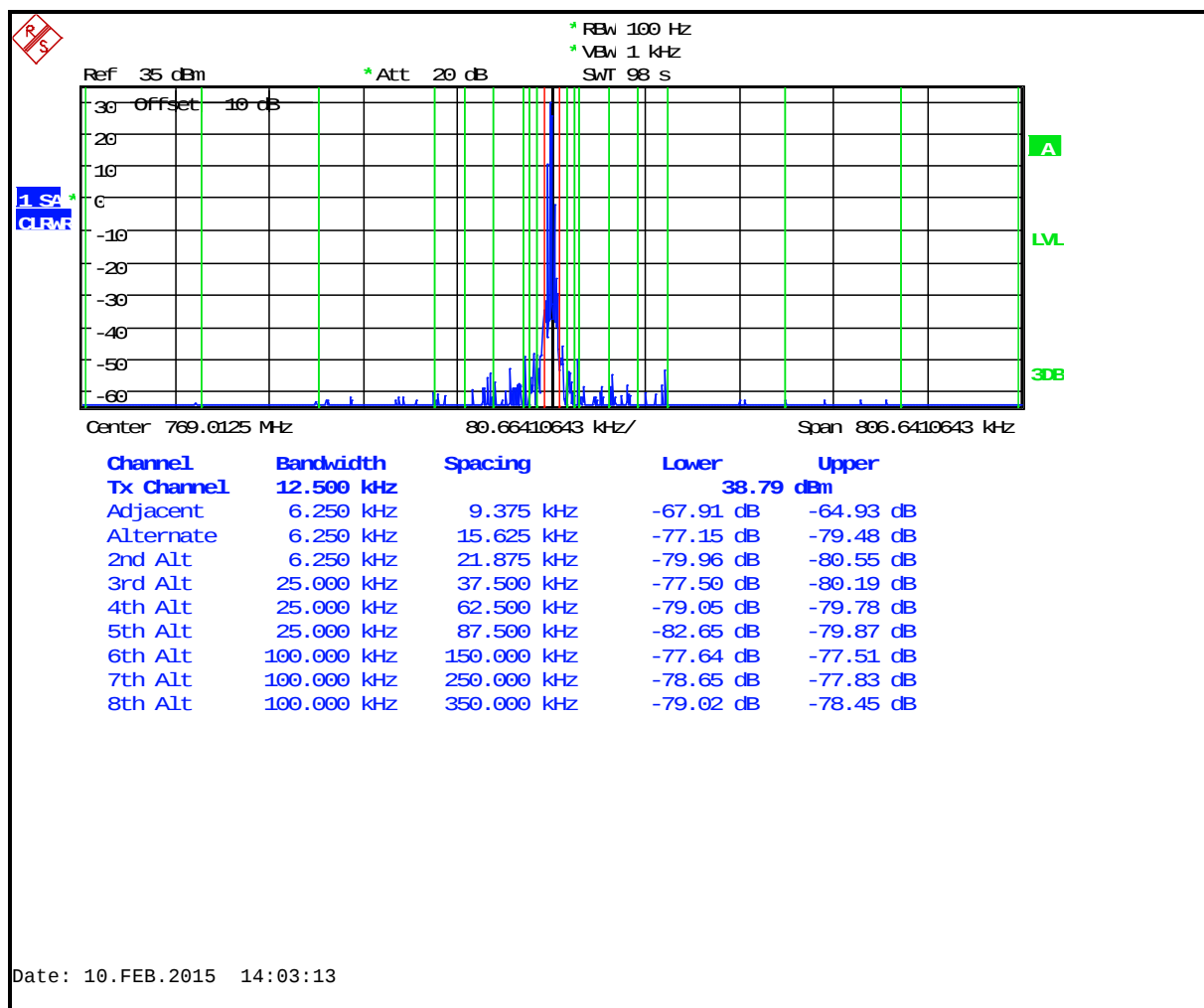


Table 6-2: Adjacent Channel Power – 769.0125 MHz; Narrowband Analog; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.7
12 MHz to receive band	30(s)	-75	-105.3
In receive band	30(s)	-100	-111.9

Plot 6-3: Adjacent Channel Power – 771.0125 MHz; Narrowband Analog; <400 kHz

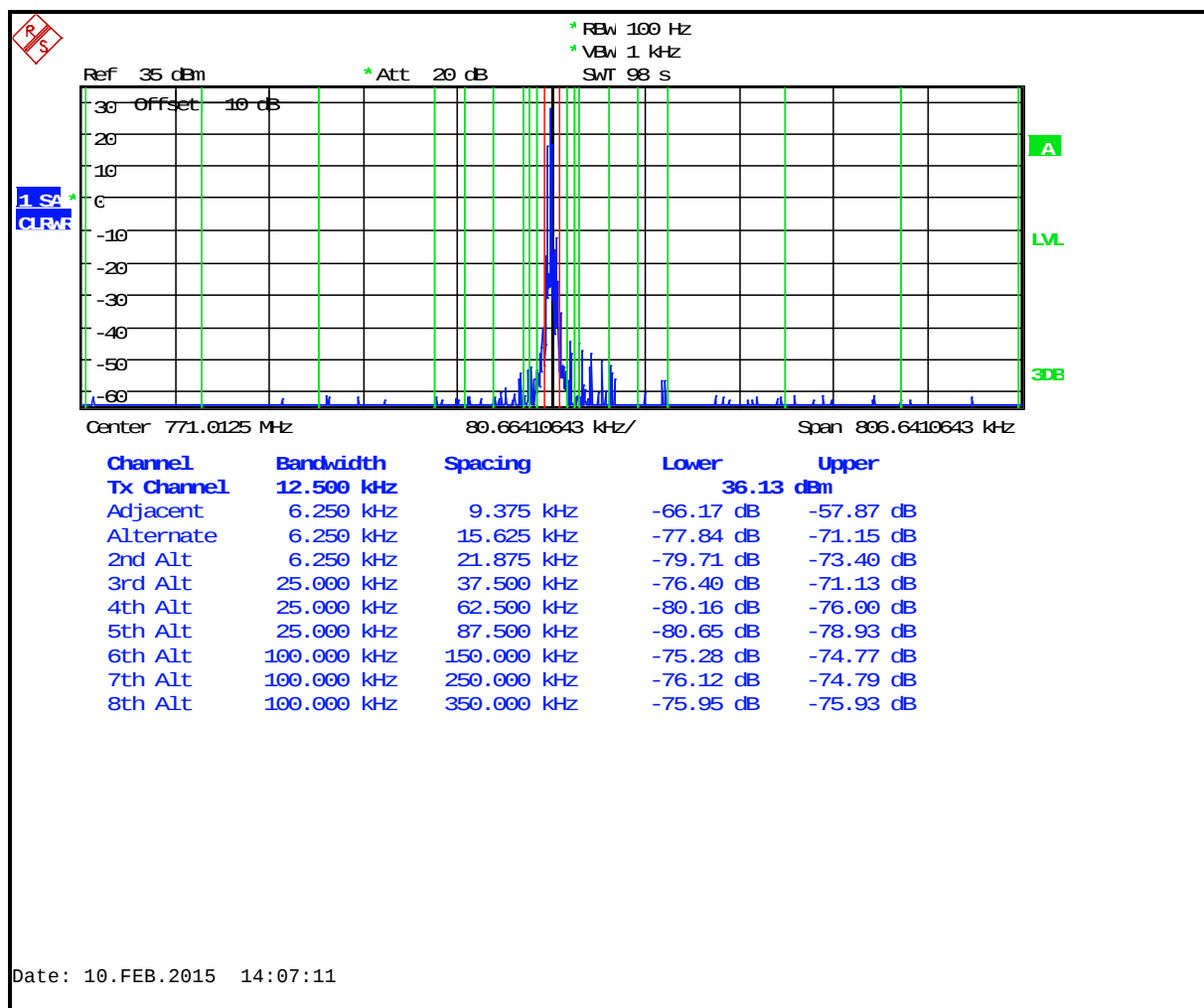


Table 6-3: Adjacent Channel Power – 771.0125 MHz; Narrowband Analog; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.4
12 MHz to receive band	30(s)	-75	-107.3
In receive band	30(s)	-100	-111.2

Plot 6-4: Adjacent Channel Power – 775.0125 MHz; Narrowband Analog; <400 kHz

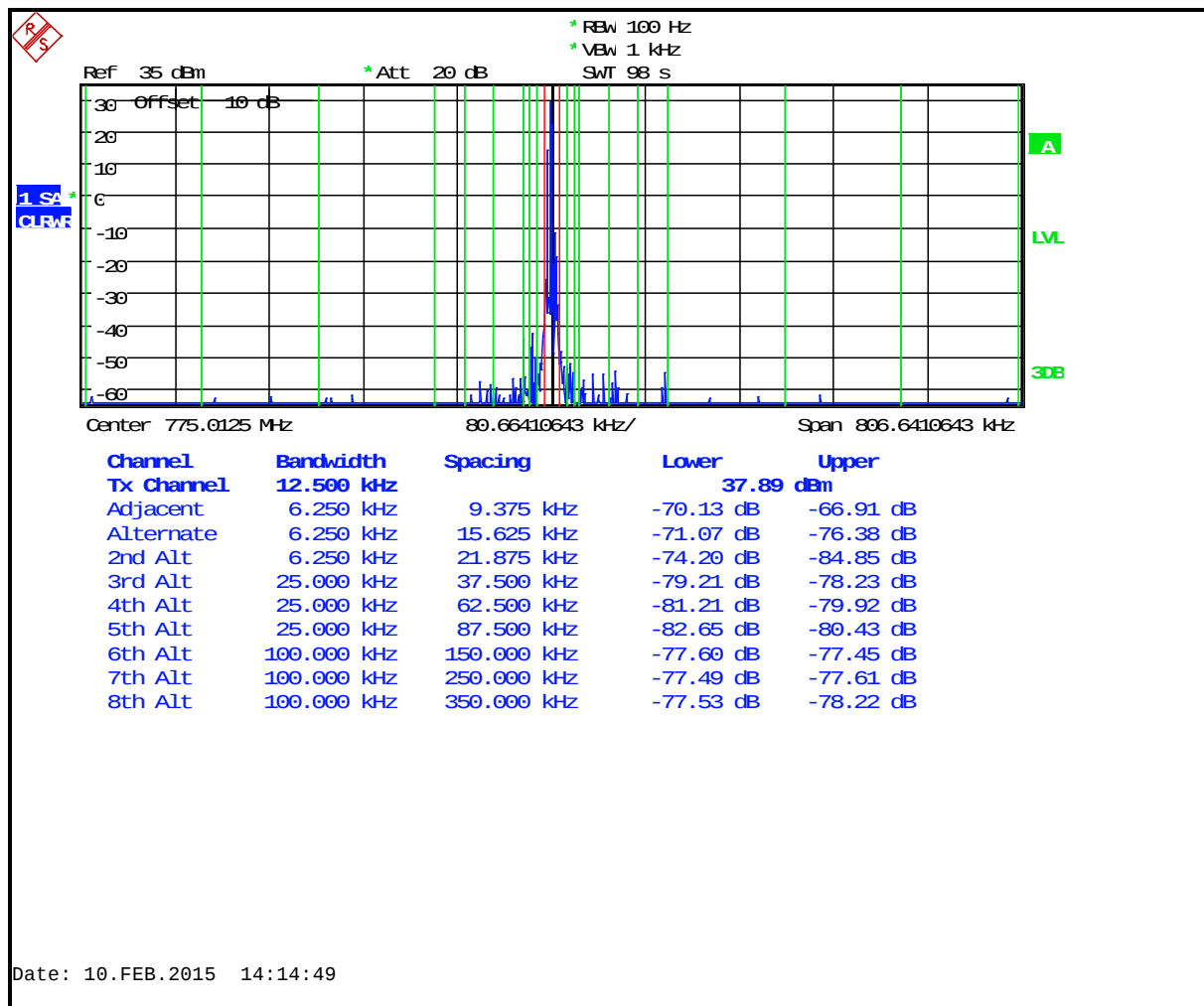


Table 6-4: Adjacent Channel Power – 775.0125 MHz; Narrowband Analog; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-82.0
12 MHz to receive band	30(s)	-75	-104.7
In receive band	30(s)	-100	-110.1

Plot 6-5: Adjacent Channel Power – 775.9875 MHz; Narrowband Analog; <400 kHz

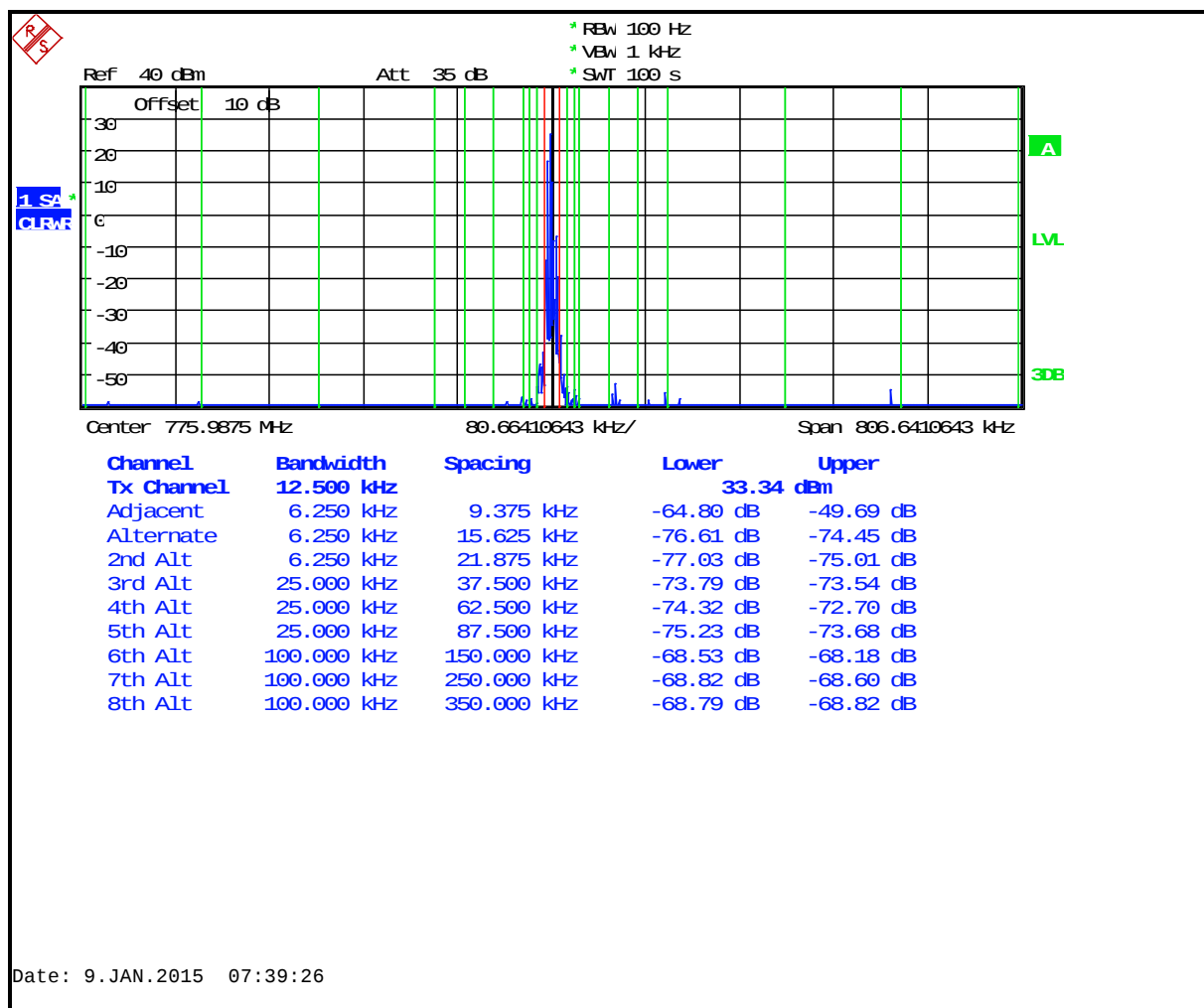


Table 6-5: Adjacent Channel Power – 775.9875 MHz; Narrowband Analog; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-81.4
12 MHz to receive band	30(s)	-75	-101.4
In receive band	30(s)	-100	-107.8

Plot 6-6: Adjacent Channel Power – 798.0125 MHz; Narrowband Analog; <400 kHz

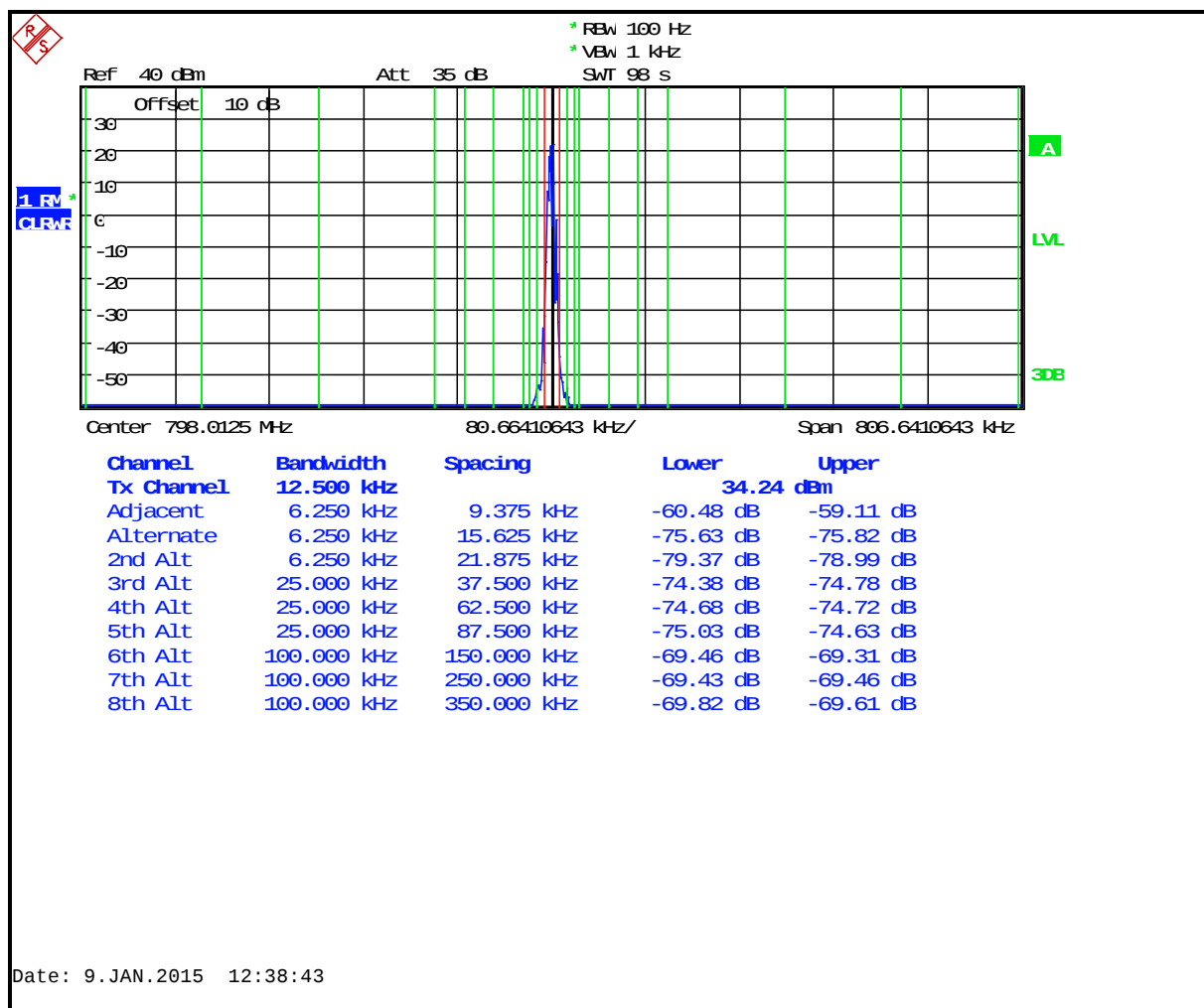


Table 6-6: Adjacent Channel Power – 798.0125 MHz; Narrowband Analog; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.4
12 MHz to receive band	30(s)	-75	-99.3
In receive band	30(s)	-100	-102.4

Plot 6-7: Adjacent Channel Power – 799.0125 MHz; Narrowband Analog; <400 kHz

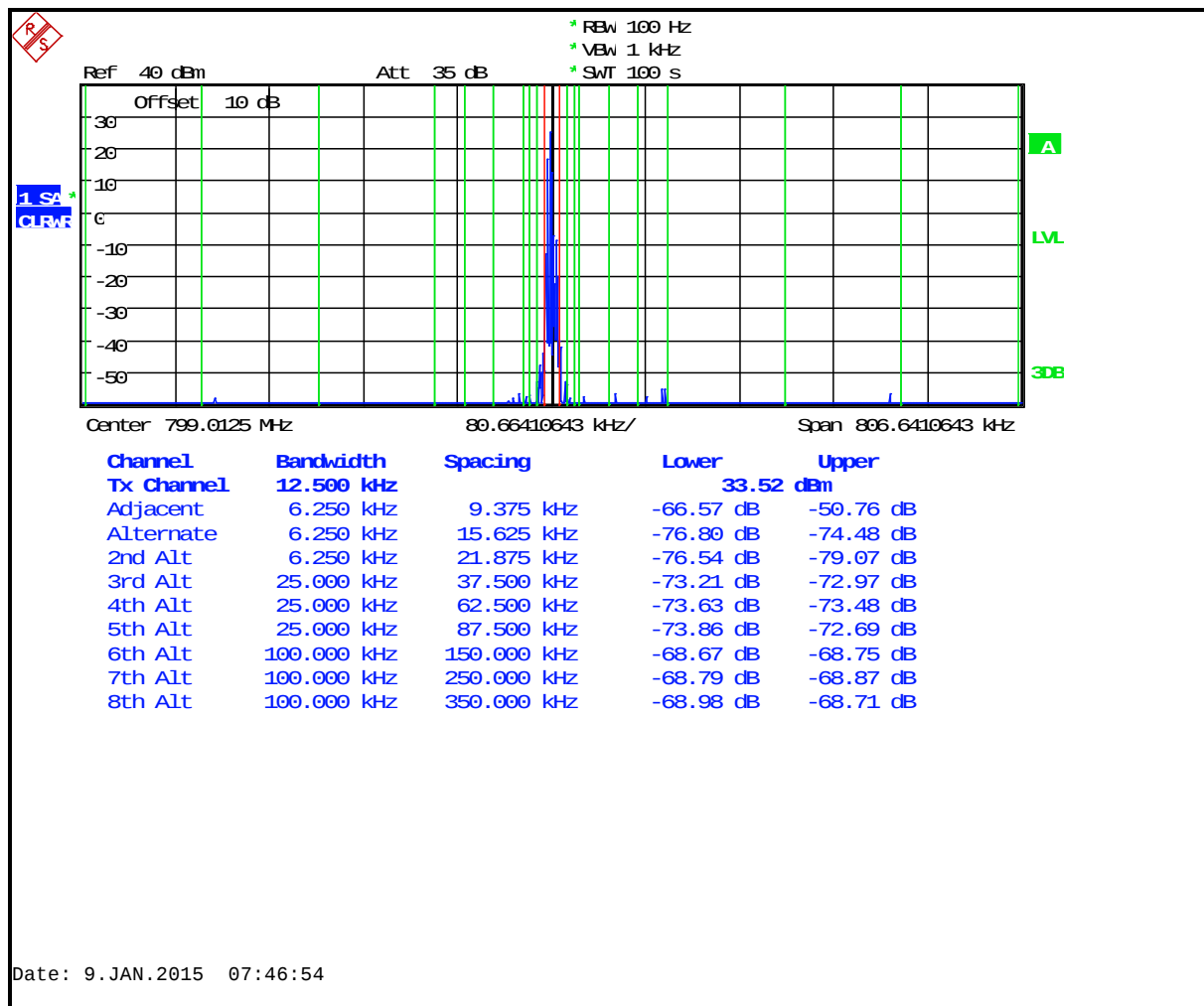


Table 6-7: Adjacent Channel Power – 799.0125 MHz; Narrowband Analog; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-79.5
12 MHz to receive band	30(s)	-75	-99.5
In receive band	30(s)	-100	-101.8

Plot 6-8: Adjacent Channel Power – 801.0125 MHz; Narrowband Analog; <400 kHz

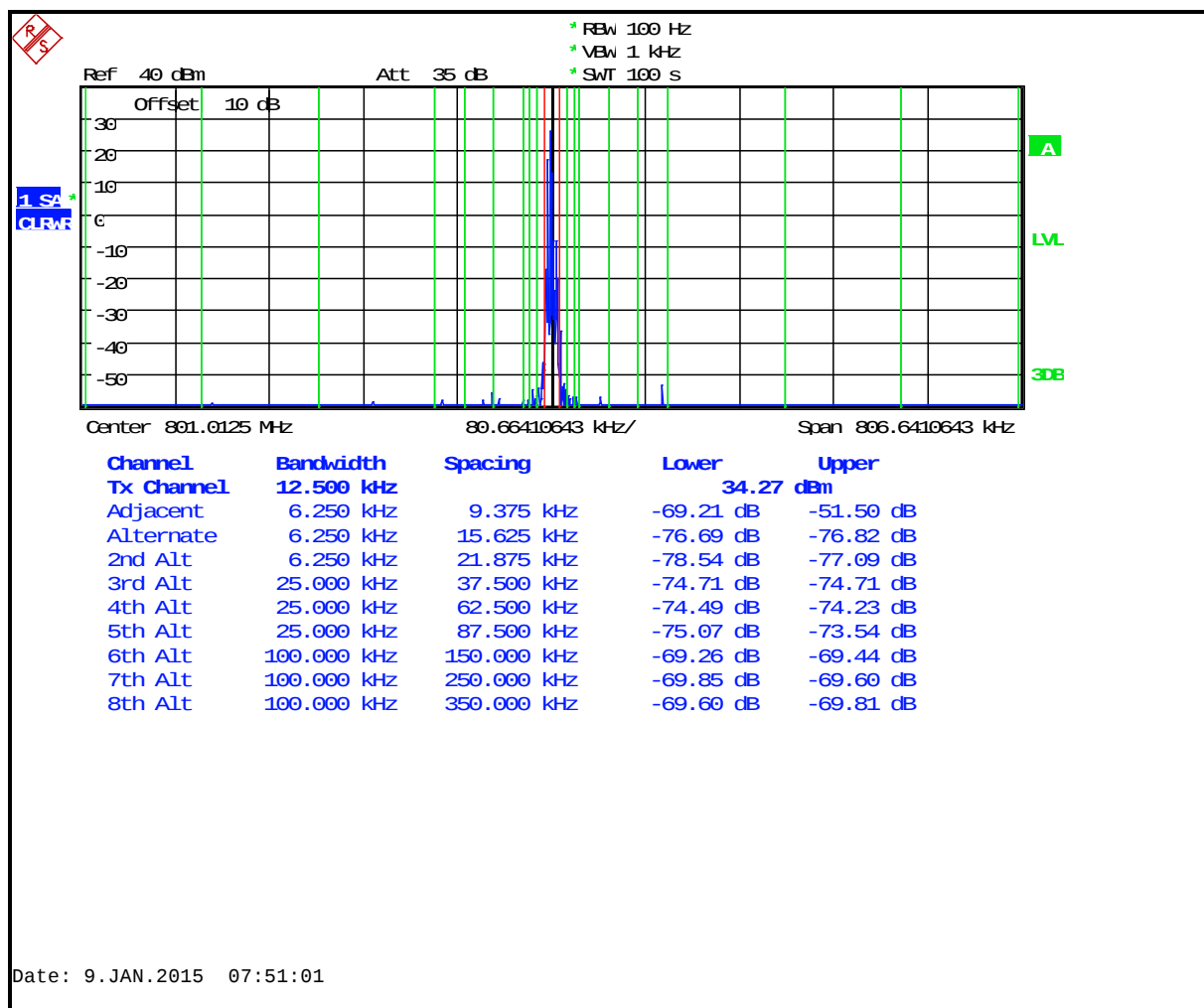


Table 6-8: Adjacent Channel Power – 801.0125 MHz; Narrowband Analog; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-82.1
12 MHz to receive band	30(s)	-75	-101.4
In receive band	30(s)	-100	-105.8

Plot 6-9: Adjacent Channel Power – 805.0125 MHz; Narrowband Analog; <400 kHz

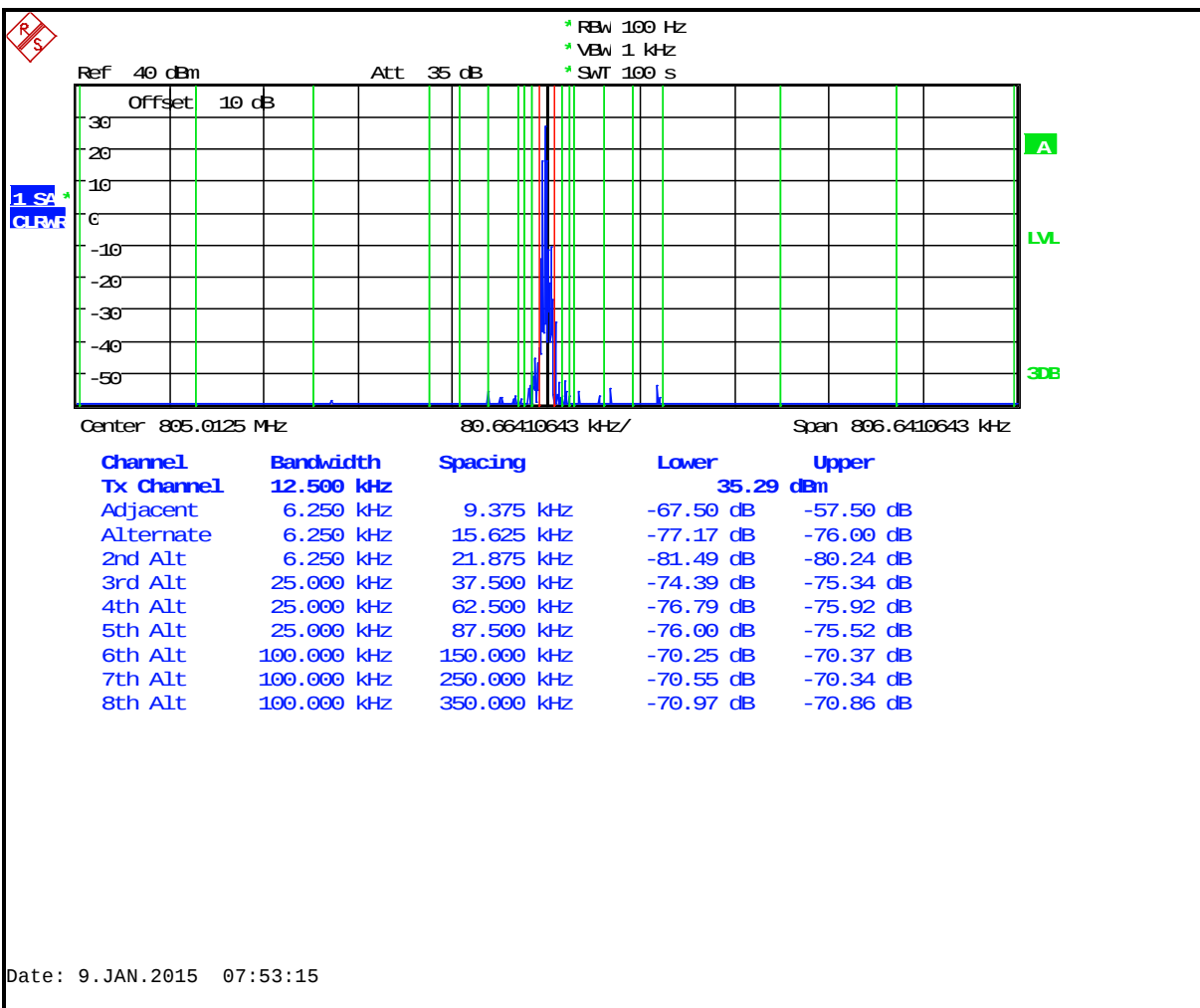


Table 6-9: Adjacent Channel Power – 805.0125 MHz; Narrowband Analog; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-81.3
12 MHz to receive band	30(s)	-75	-93.6
In receive band	30(s)	-100	-107.6

Plot 6-10: Adjacent Channel Power – 805.9875 MHz; Narrowband Analog; <400 kHz

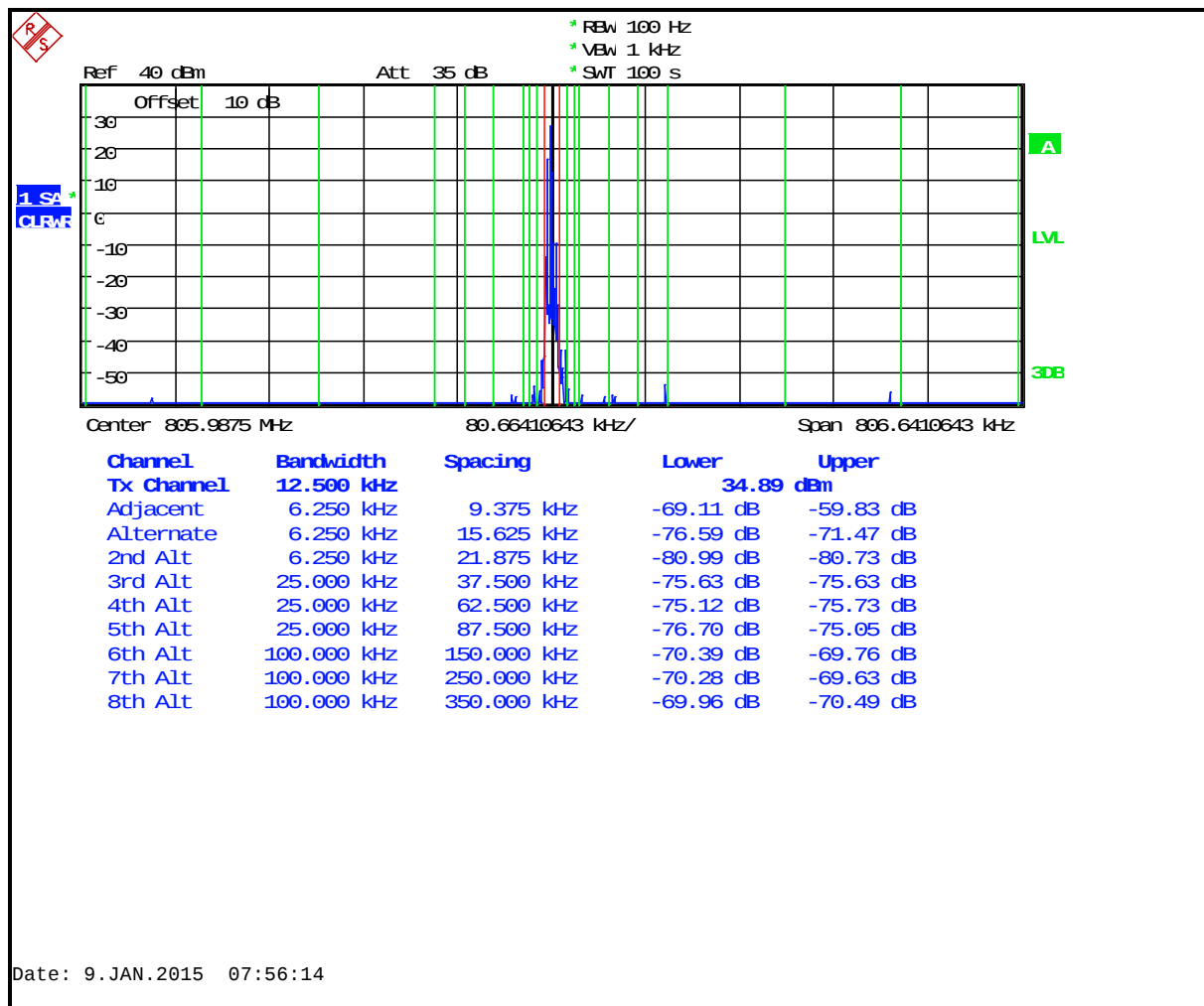


Table 6-10: Adjacent Channel Power – 805.9875 MHz; Narrowband Analog; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-77.1
12 MHz to receive band	30(s)	-75	-95.1
In receive band	30(s)	-100	-106.6

Plot 6-11: Adjacent Channel Power – 768.0125 MHz; EDACS 2-Level FSK 9600; <400 kHz

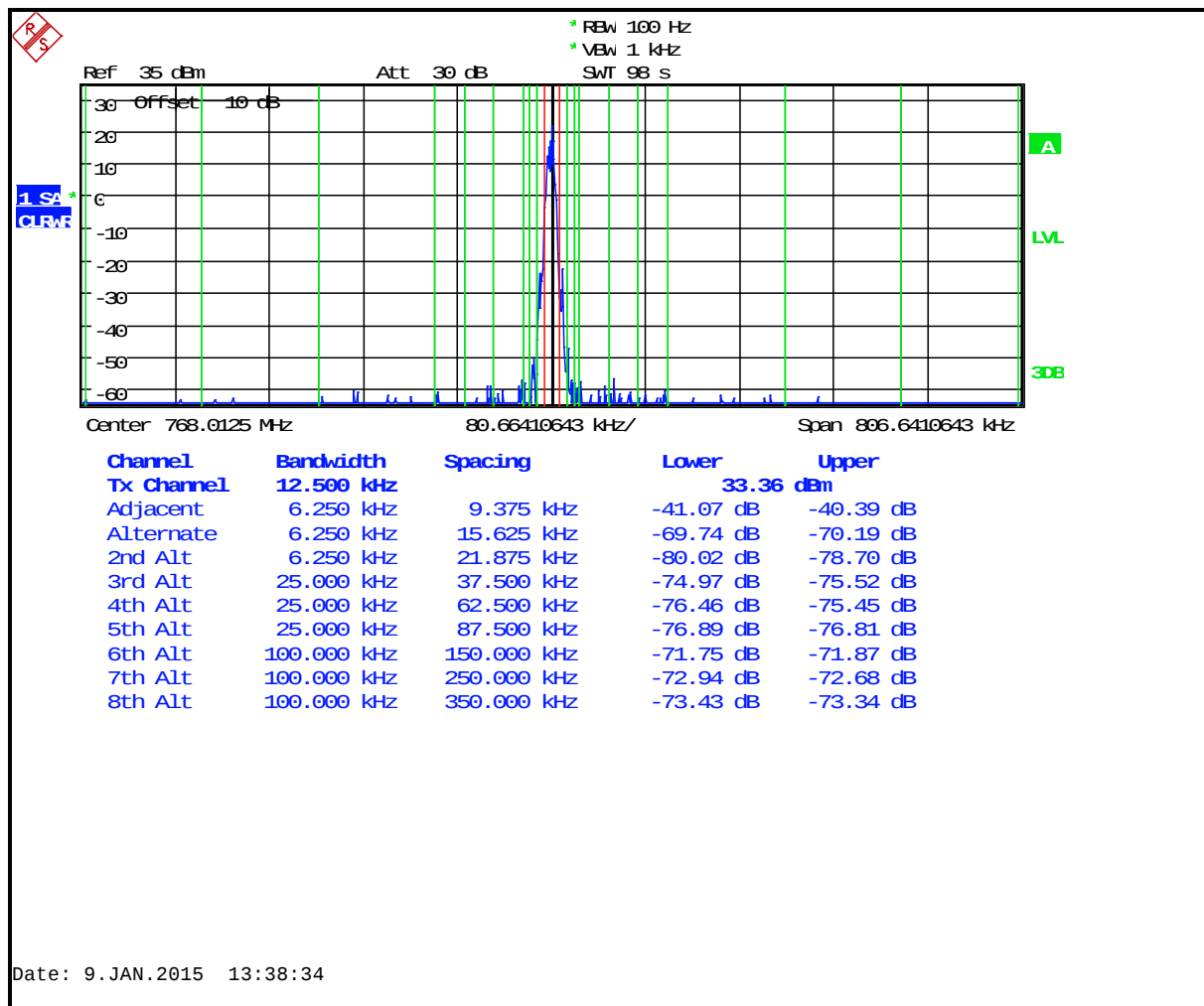


Table 6-11: Adjacent Channel Power – 768.0125 MHz; EDACS 2-Level FSK 9600; 400 kHz–RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-86.2
12 MHz to receive band	30(s)	-75	-105.2
In receive band	30(s)	-100	-107.0

Plot 6-12: Adjacent Channel Power – 769.0125 MHz; EDACS 2-Level FSK 9600; <400 kHz

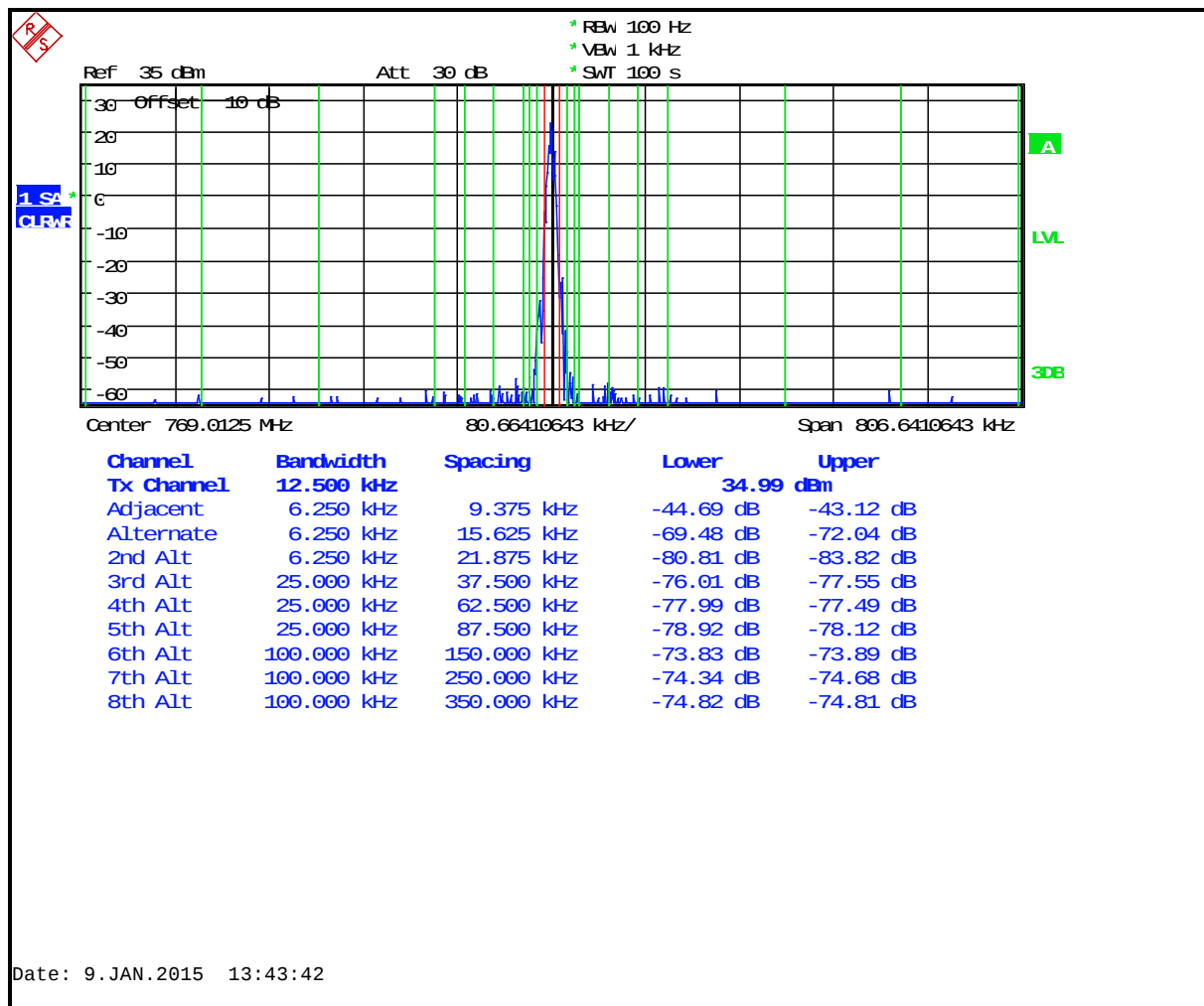


Table 6-12: Adjacent Channel Power – 769.0125 MHz; EDACS 2-Level FSK 9600; 400 kHz–RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.4
12 MHz to receive band	30(s)	-75	-106.4
In receive band	30(s)	-100	-105.7

Plot 6-13: Adjacent Channel Power – 771.0125 MHz; EDACS 2-Level FSK 9600; <400 kHz

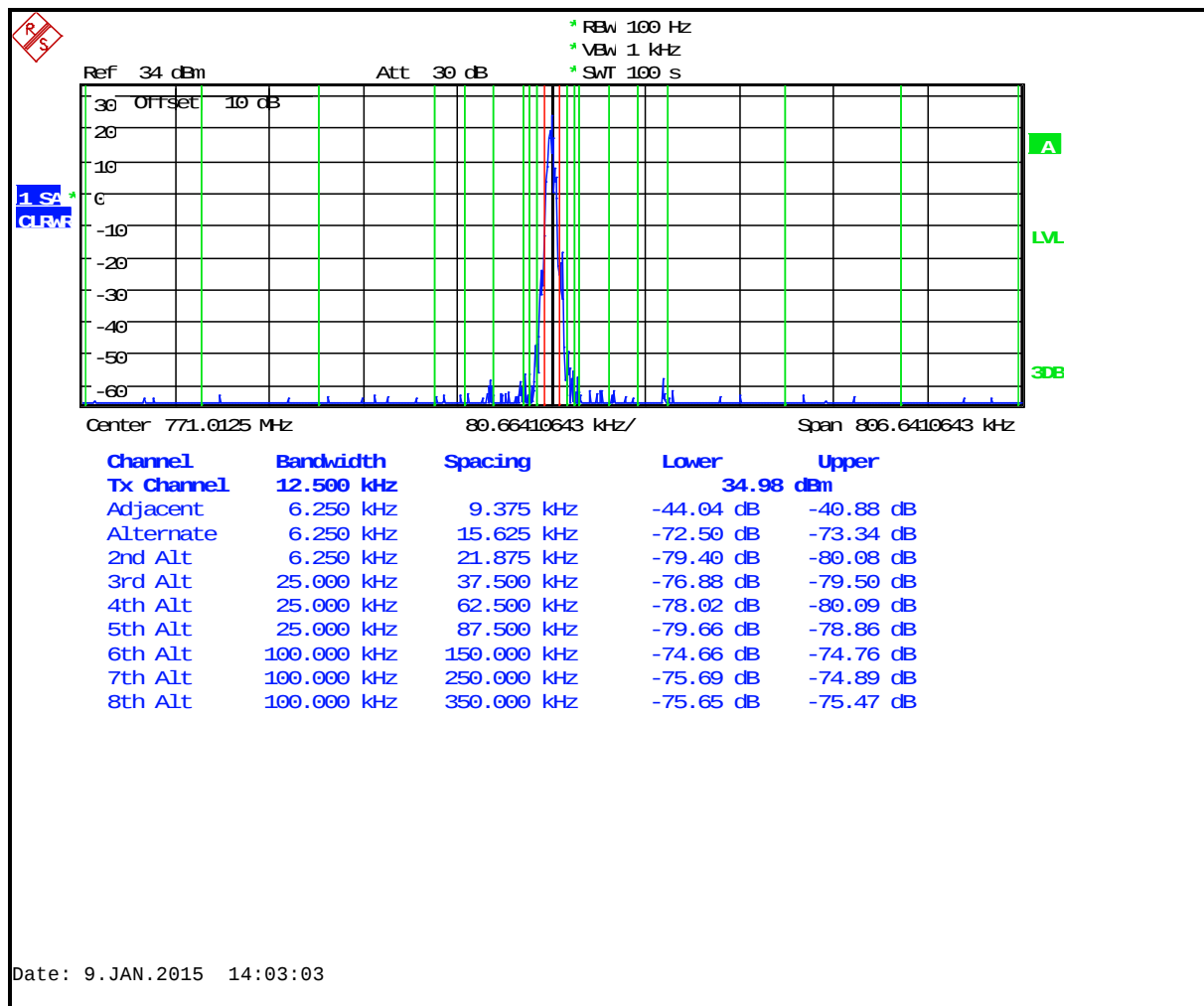


Table 6-13: Adjacent Channel Power – 771.0125 MHz; EDACS 2-Level FSK 9600; 400 kHz–RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-83.8
12 MHz to receive band	30(s)	-75	-107.3
In receive band	30(s)	-100	-107.2

Plot 6-14: Adjacent Channel Power – 775.0125 MHz; EDACS 2-Level FSK 9600; <400 kHz

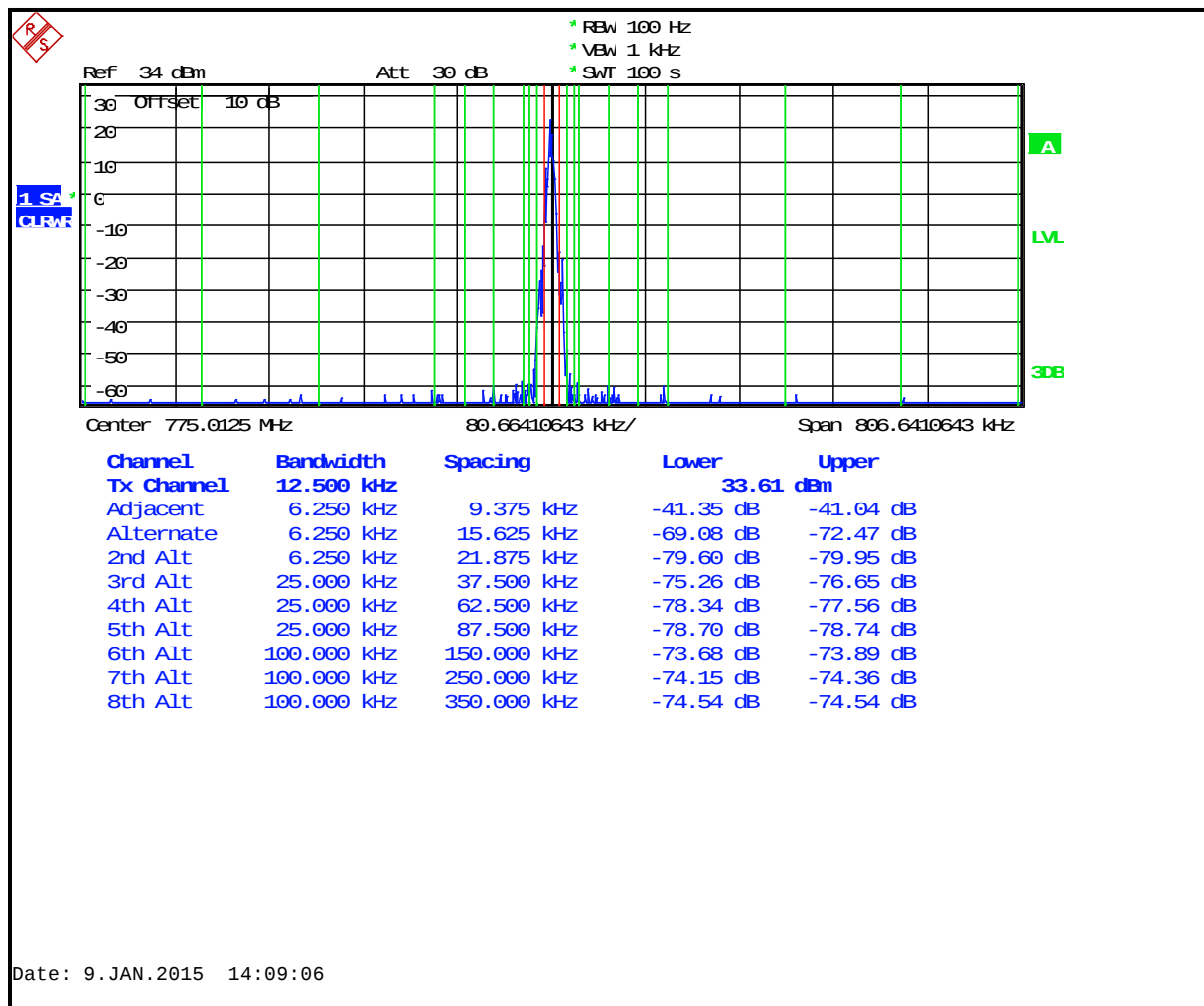


Table 6-14: Adjacent Channel Power – 775.0125 MHz; EDACS 2-Level FSK 9600; 400 kHz–RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.3
12 MHz to receive band	30(s)	-75	-104.0
In receive band	30(s)	-100	-107.1

Plot 6-15: Adjacent Channel Power – 775.9875 MHz; EDACS 2-Level FSK 9600; <400 kHz

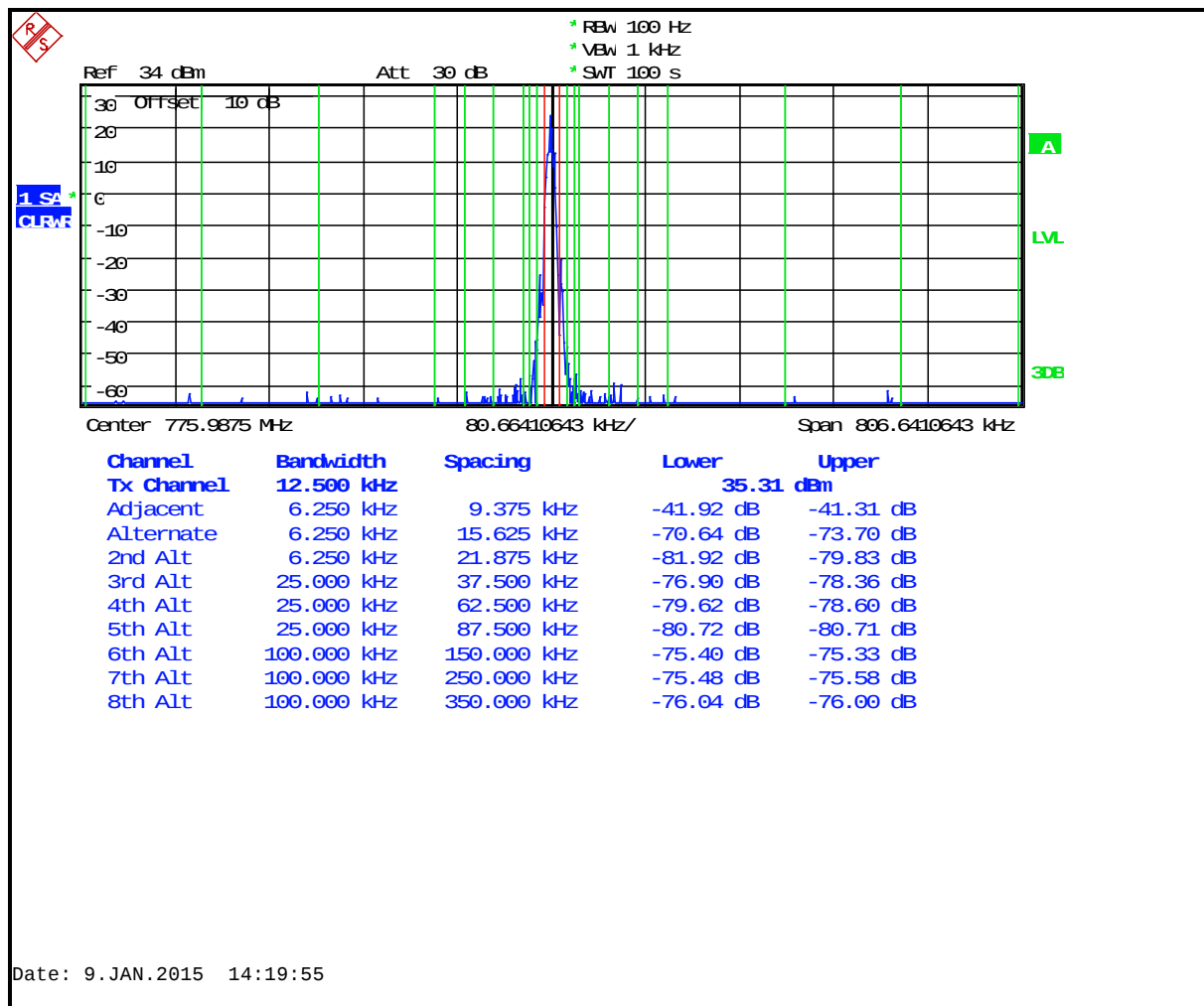


Table 6-15: Adjacent Channel Power – 775.9875 MHz; EDACS 2-Level FSK 9600; 400 kHz–RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-78.7
12 MHz to receive band	30(s)	-75	-101.4
In receive band	30(s)	-100	-106.7

Plot 6-16: Adjacent Channel Power – 798.0125 MHz; EDACS 2-Level FSK 9600; <400 kHz

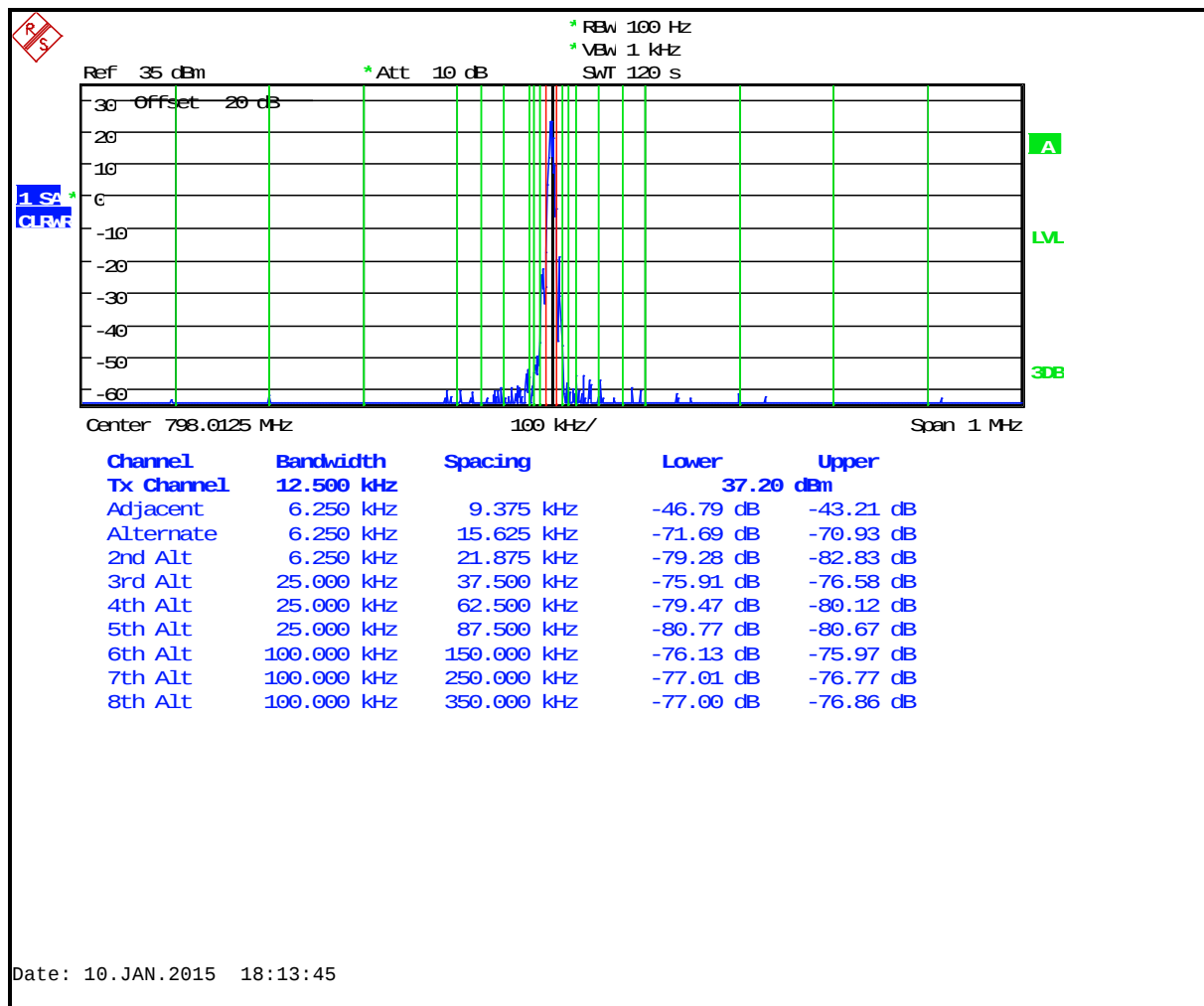


Table 6-16: Adjacent Channel Power – 798.0125 MHz; EDACS 2-Level FSK 9600; 400 kHz–RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-85.6
12 MHz to receive band	30(s)	-75	-98.0
In receive band	30(s)	-100	-101.0

Plot 6-17: Adjacent Channel Power – 799.0125 MHz; EDACS 2-Level FSK 9600; <400 kHz

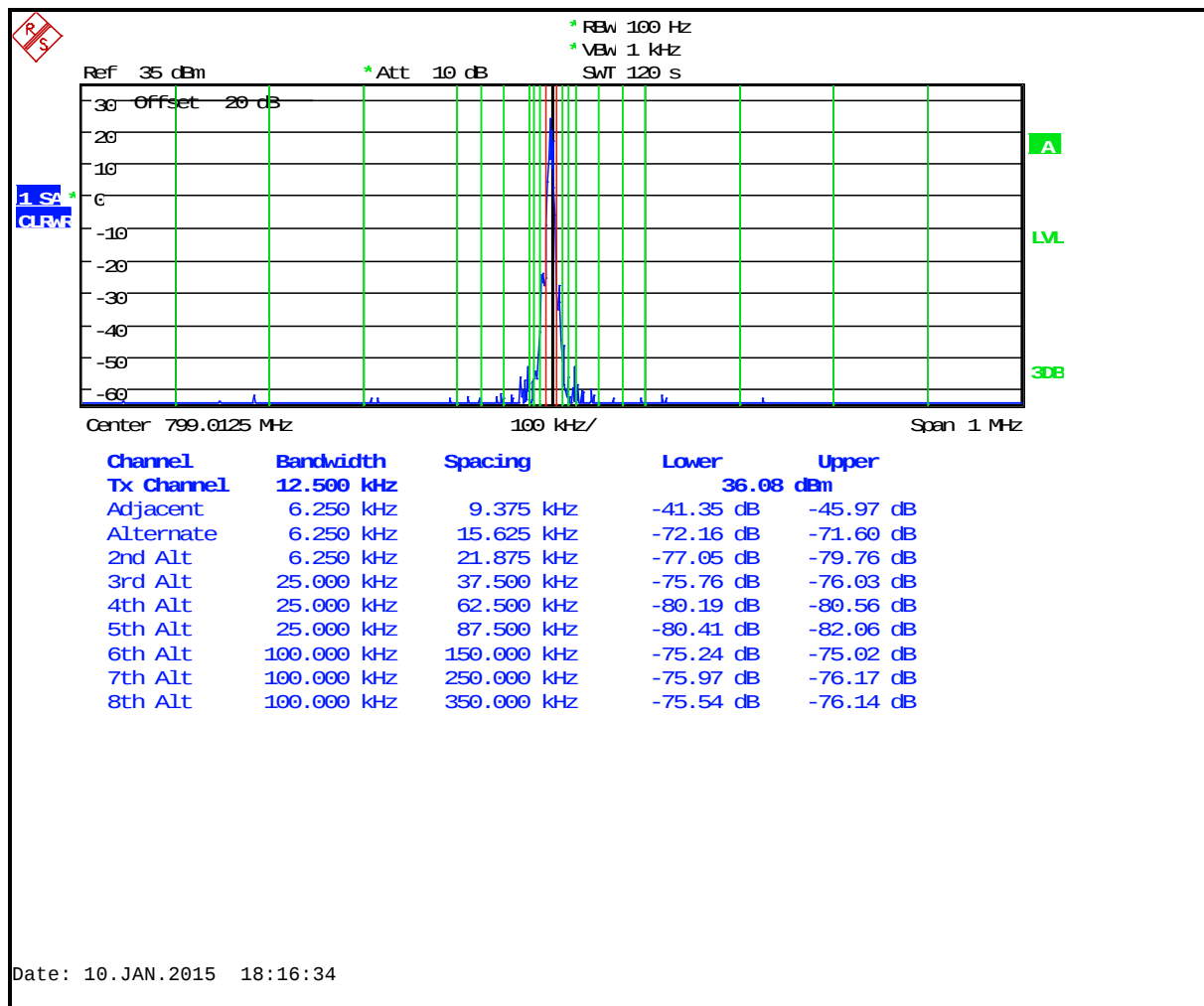


Table 6-17: Adjacent Channel Power – 799.0125 MHz; EDACS 2-Level FSK 9600; 400 kHz–RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-81.0
12 MHz to receive band	30(s)	-75	-100.1
In receive band	30(s)	-100	-103.7

Plot 6-18: Adjacent Channel Power – 801.0125 MHz; EDACS 2-Level FSK 9600; <400 kHz

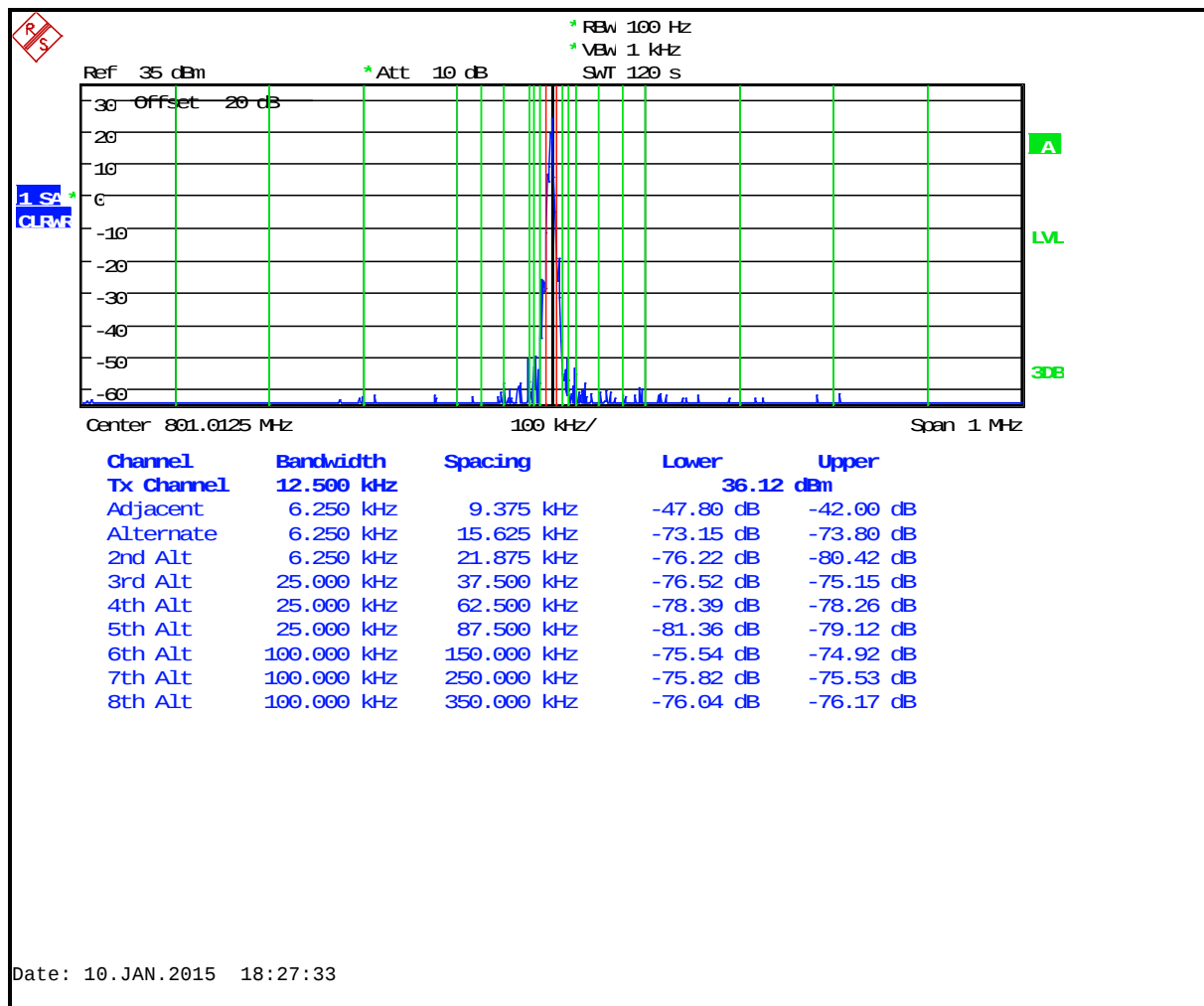


Table 6-18: Adjacent Channel Power – 801.0125 MHz; EDACS 2-Level FSK 9600; 400 kHz–RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-81.3
12 MHz to receive band	30(s)	-75	-99.9
In receive band	30(s)	-100	-107.8

Plot 6-19: Adjacent Channel Power – 805.0125 MHz; EDACS 2-Level FSK 9600; <400 kHz

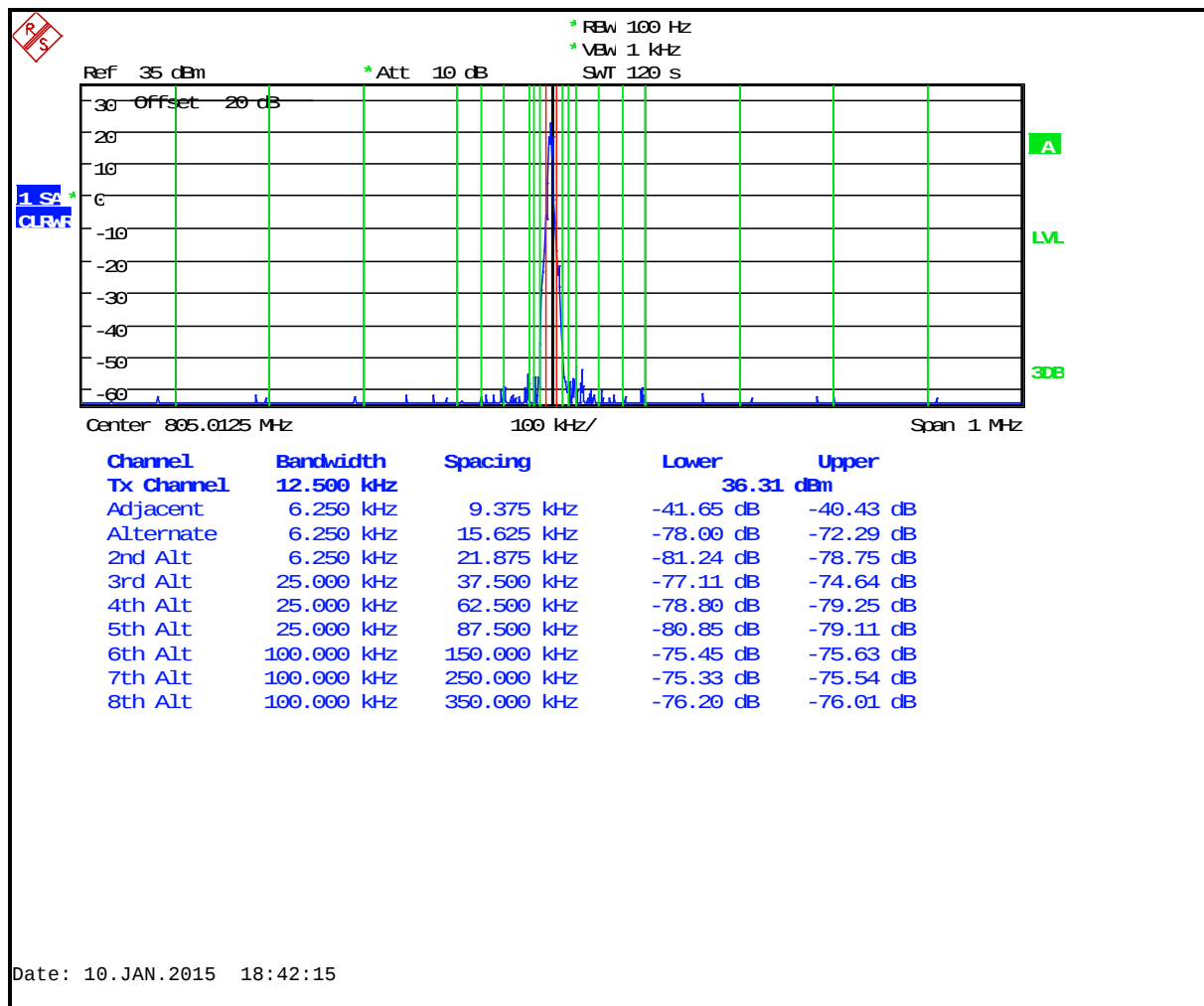


Table 6-19: Adjacent Channel Power – 805.0125 MHz; EDACS 2-Level FSK 9600; 400 kHz–RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.6
12 MHz to receive band	30(s)	-75	-94.5
In receive band	30(s)	-100	-108.0

Plot 6-20: Adjacent Channel Power – 805.9875 MHz; EDACS 2-Level FSK 9600; <400 kHz

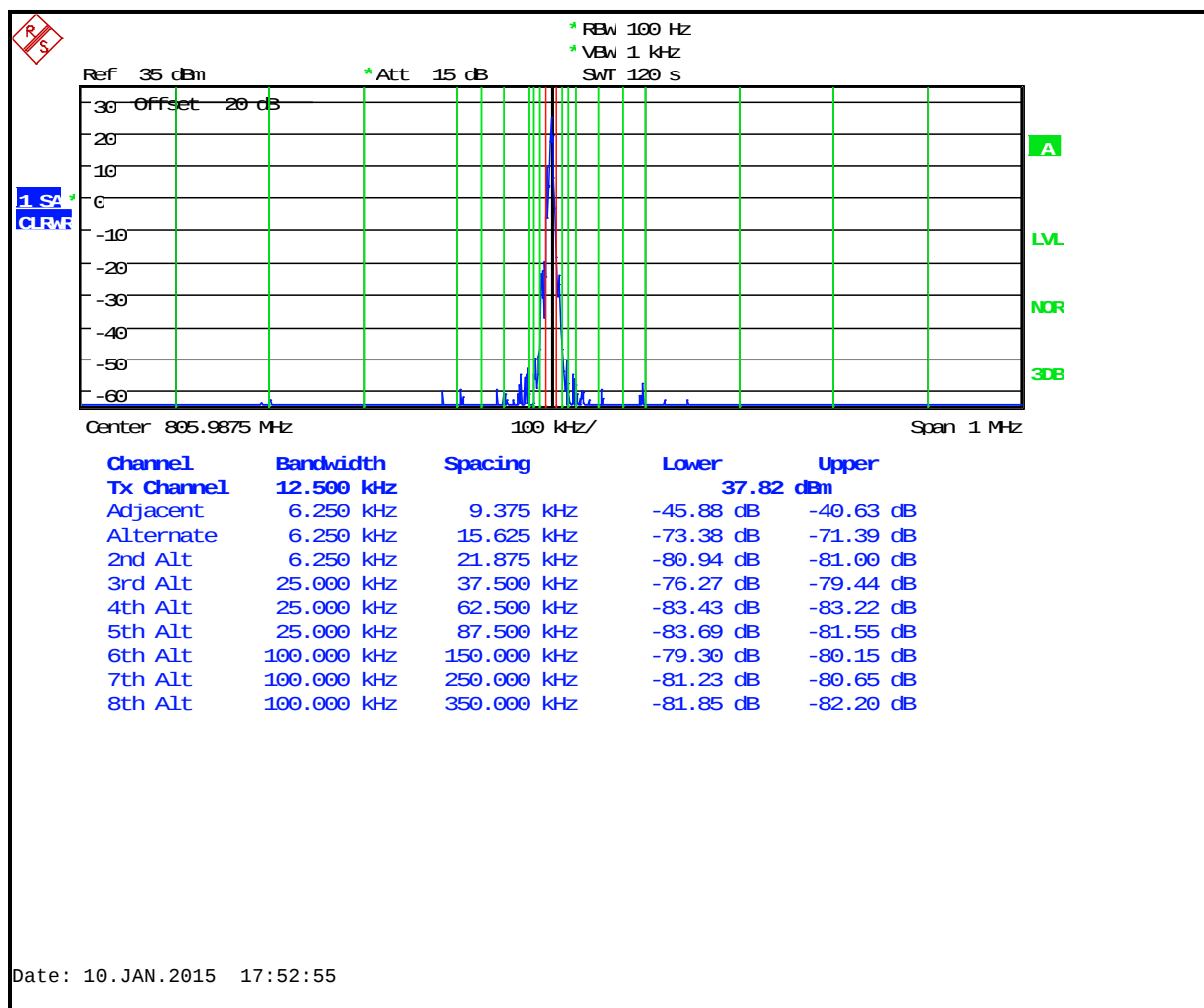


Table 6-20: Adjacent Channel Power – 805.9875 MHz; EDACS 2-Level FSK 9600; 400 kHz–RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-79.2
12 MHz to receive band	30(s)	-75	-94.1
In receive band	30(s)	-100	-107.3

Plot 6-21: Adjacent Channel Power – 768.0125 MHz; OTP SMR; <400 kHz

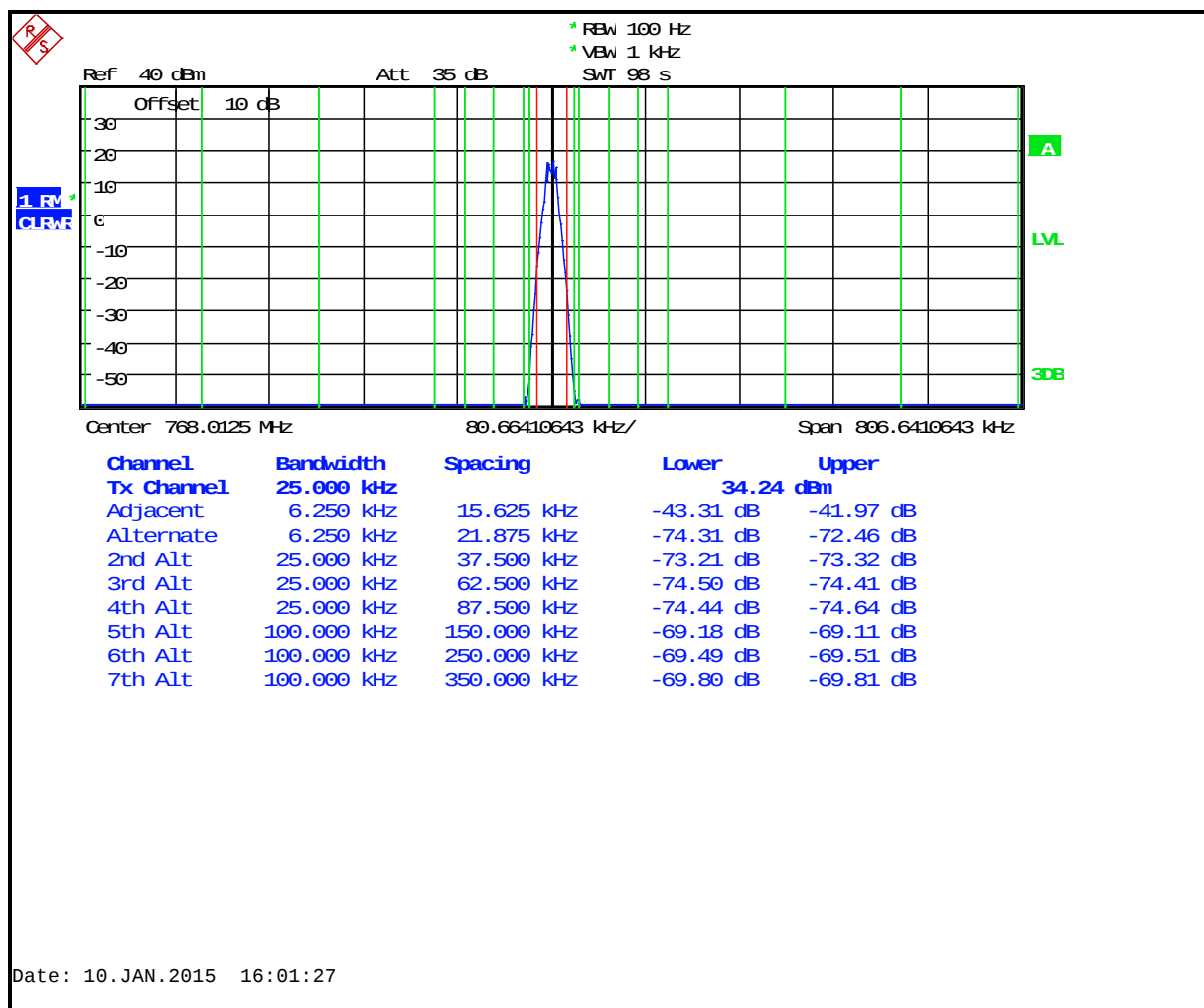


Table 6-21: Adjacent Channel Power – 768.0125 MHz; OTP SMR; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-86.3
12 MHz to receive band	30(s)	-75	-107.1
In receive band	30(s)	-100	-107.1

Plot 6-22: Adjacent Channel Power – 769.0125 MHz; OTP SMR; <400 kHz

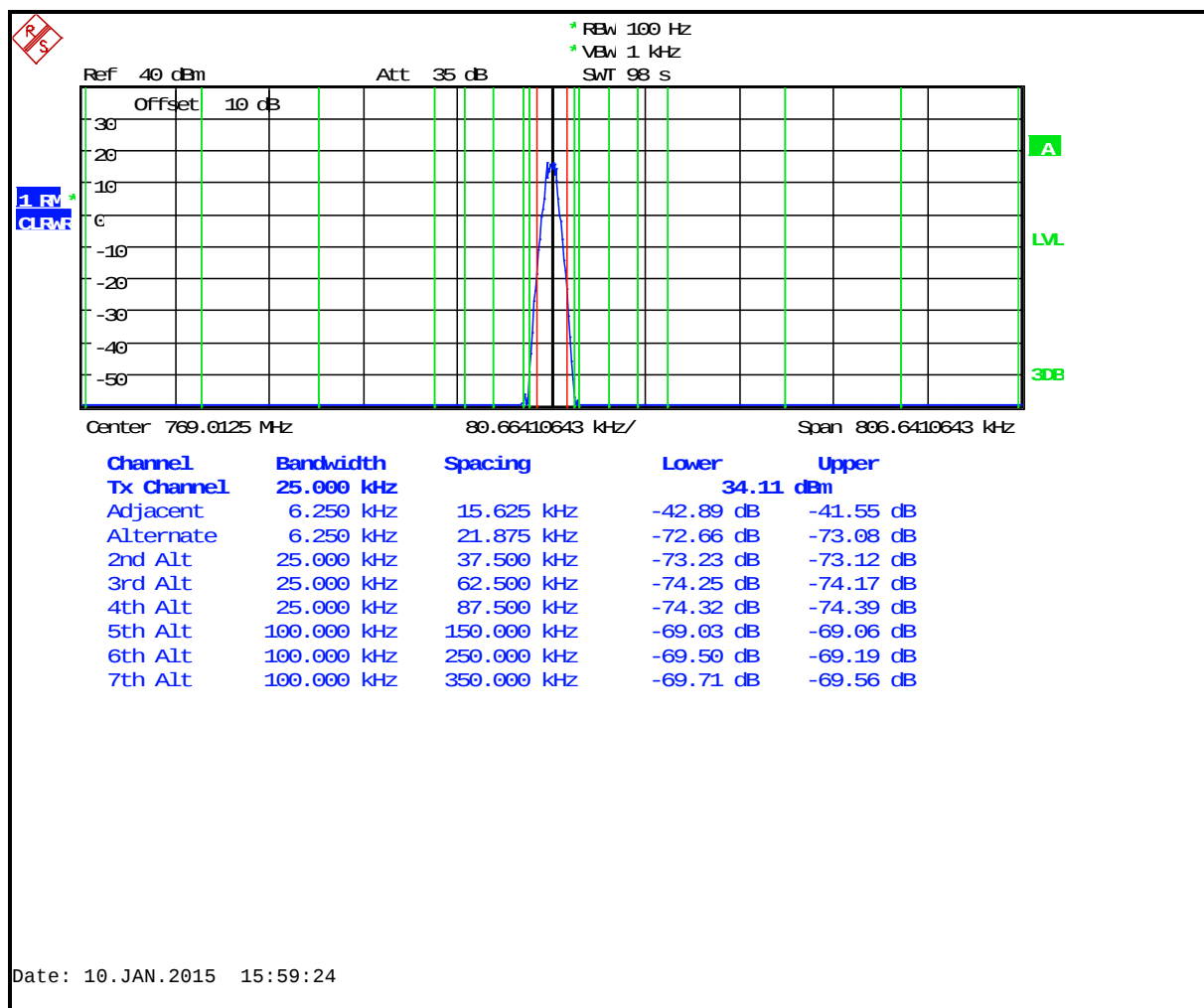


Table 6-22: Adjacent Channel Power – 769.0125 MHz; OTP SMR; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-78.6
12 MHz to receive band	30(s)	-75	-106.4
In receive band	30(s)	-100	-107.4

Plot 6-23: Adjacent Channel Power – 771.0125 MHz; OTP SMR; <400 kHz

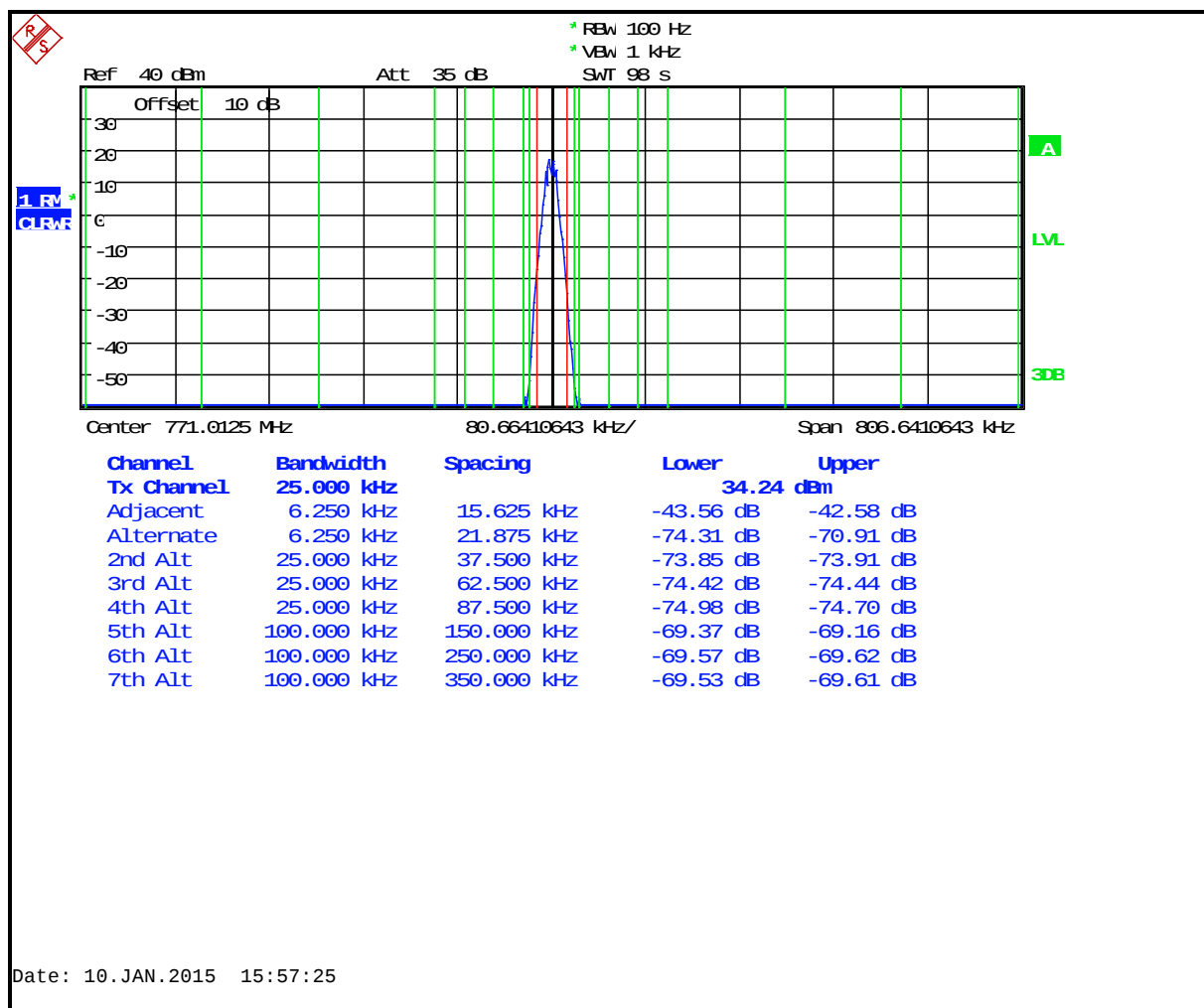


Table 6-23: Adjacent Channel Power – 771.0125 MHz; OTP SMR; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.5
12 MHz to receive band	30(s)	-75	-106.7
In receive band	30(s)	-100	-107.9

Plot 6-24: Adjacent Channel Power – 775.0125 MHz; OTP SMR; <400 kHz

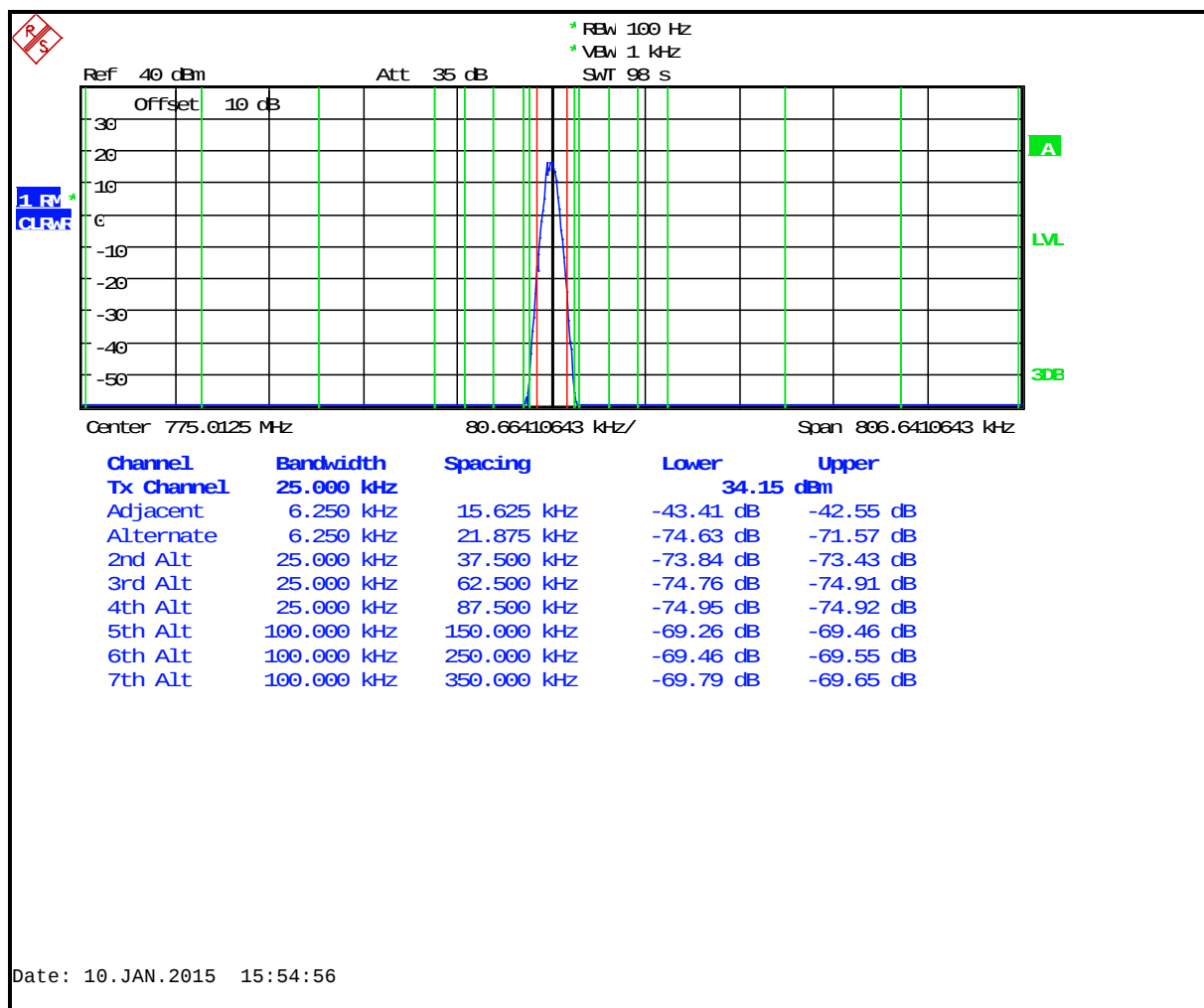


Table 6-24: Adjacent Channel Power – 775.0125 MHz; OTP SMR; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-81.1
12 MHz to receive band	30(s)	-75	-104.8
In receive band	30(s)	-100	-105.8

Plot 6-25: Adjacent Channel Power – 775.9875 MHz; OTP SMR; <400 kHz

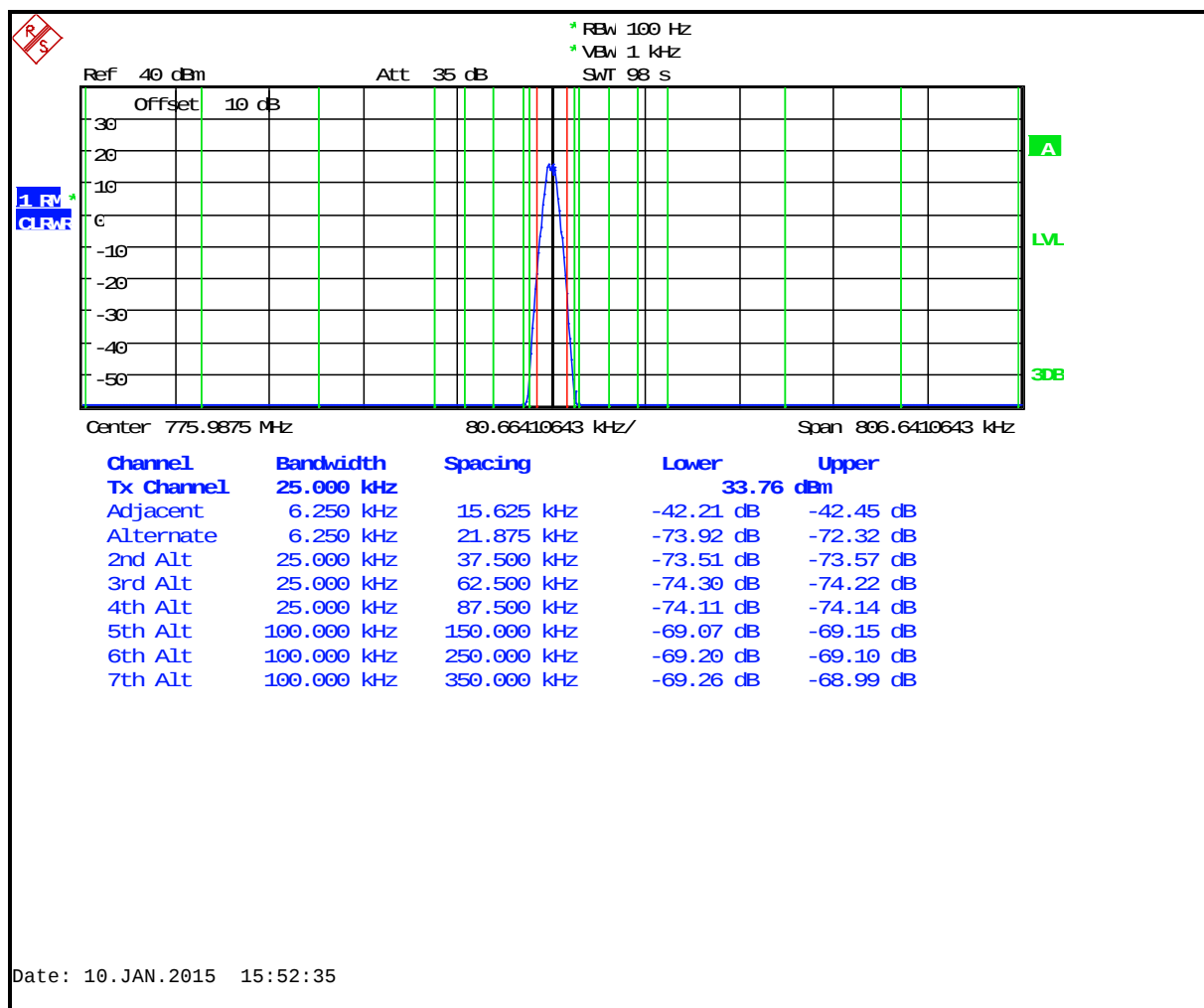


Table 6-25: Adjacent Channel Power – 775.9875 MHz; OTP SMR; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	80.4
12 MHz to receive band	30(s)	-75	102.1
In receive band	30(s)	-100	106.9

Plot 6-26: Adjacent Channel Power – 798.0125 MHz; OTP SMR; <400 kHz

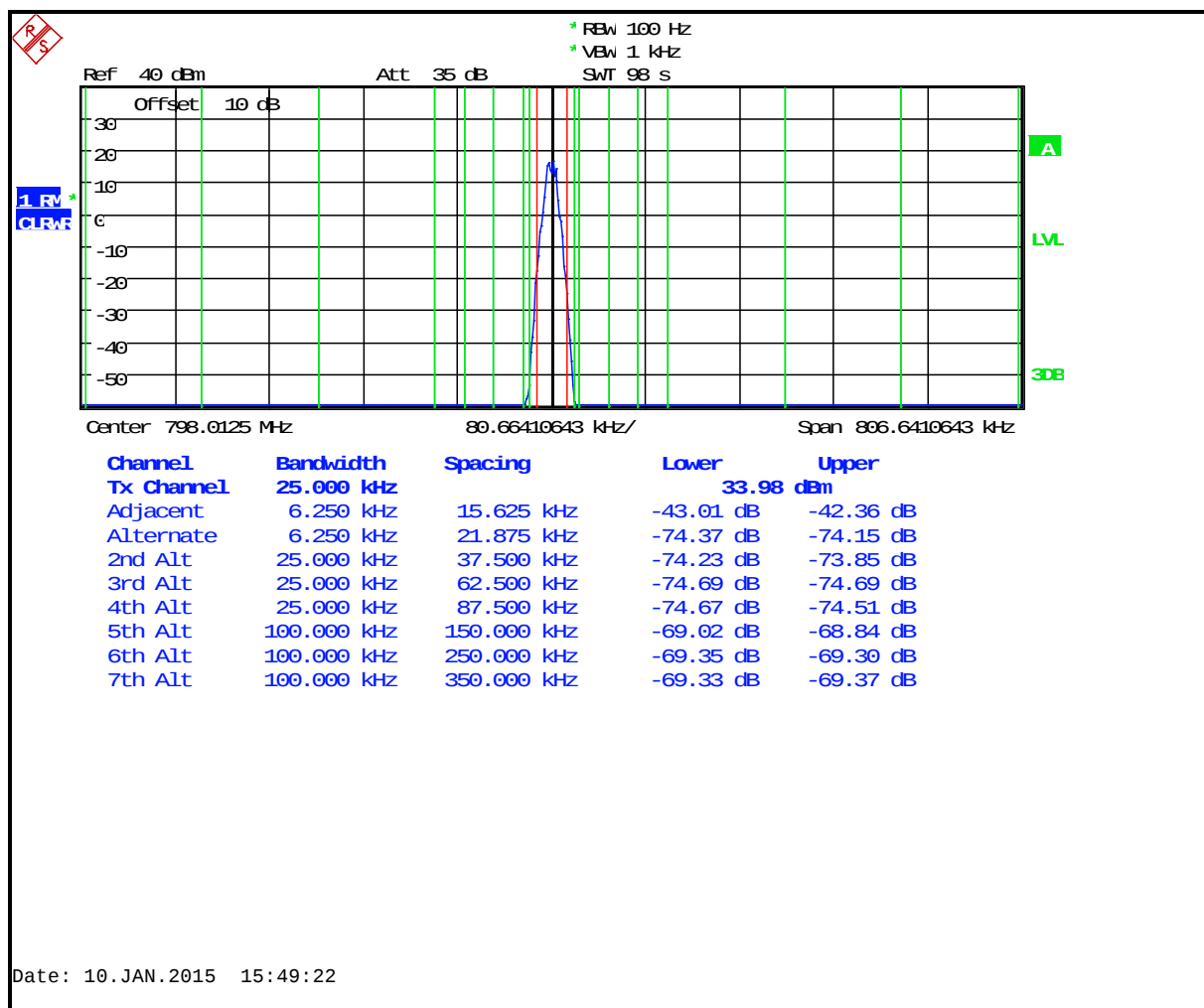


Table 6-26: Adjacent Channel Power – 798.0125 MHz; OTP SMR; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-79.0
12 MHz to receive band	30(s)	-75	-98.7
In receive band	30(s)	-100	-101.8

Plot 6-27: Adjacent Channel Power – 799.0125 MHz; OTP SMR; <400 kHz

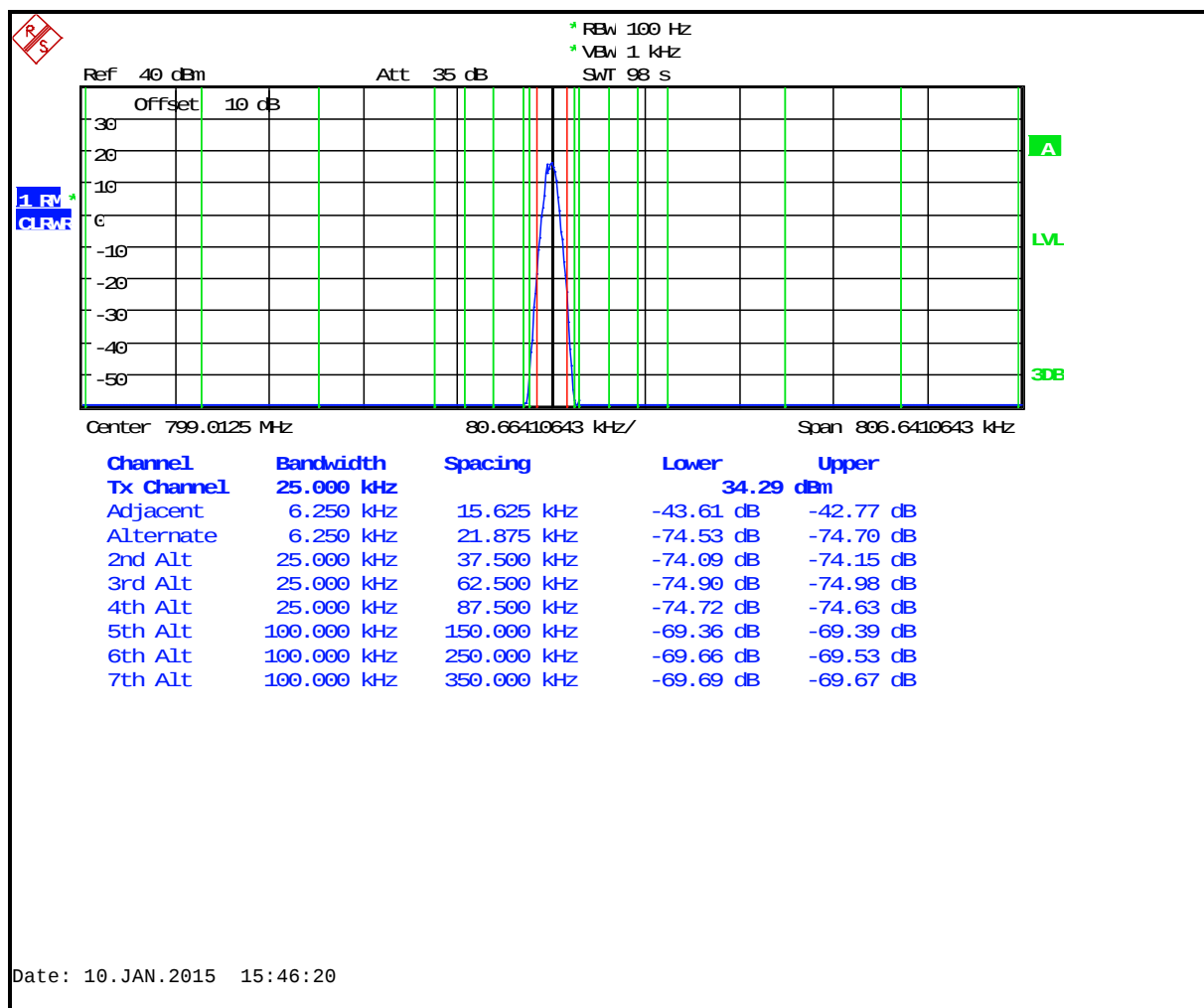


Table 6-27: Adjacent Channel Power – 799.0125 MHz; OTP SMR; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.6
12 MHz to receive band	30(s)	-75	-97.4
In receive band	30(s)	-100	-102.1

Plot 6-28: Adjacent Channel Power – 801.0125 MHz; OTP SMR; <400 kHz

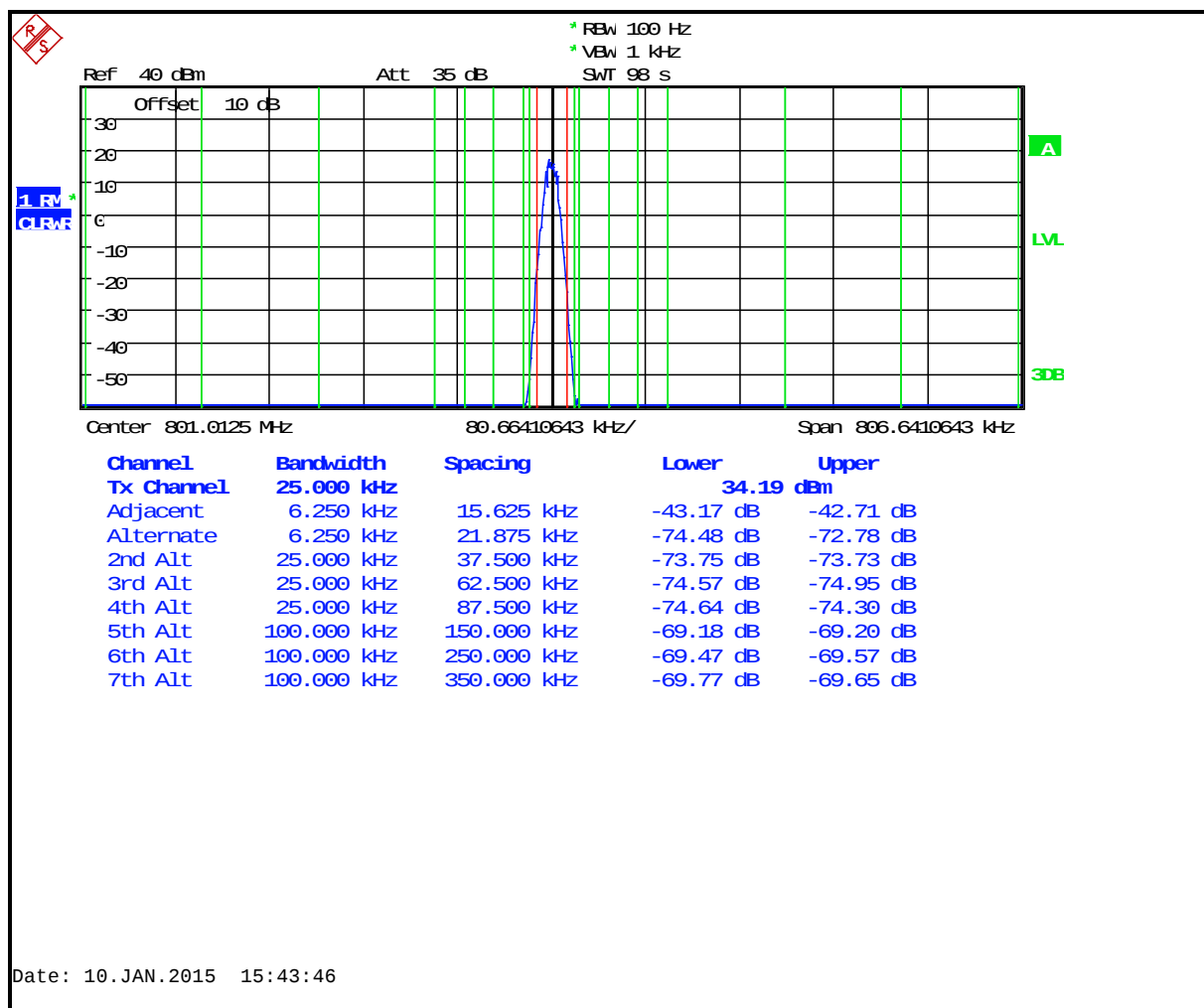


Table 6-28: Adjacent Channel Power – 801.0125 MHz; OTP SMR; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.1
12 MHz to receive band	30(s)	-75	-99.1
In receive band	30(s)	-100	-106.7

Plot 6-29: Adjacent Channel Power – 805.0125 MHz; OTP SMR; <400 kHz

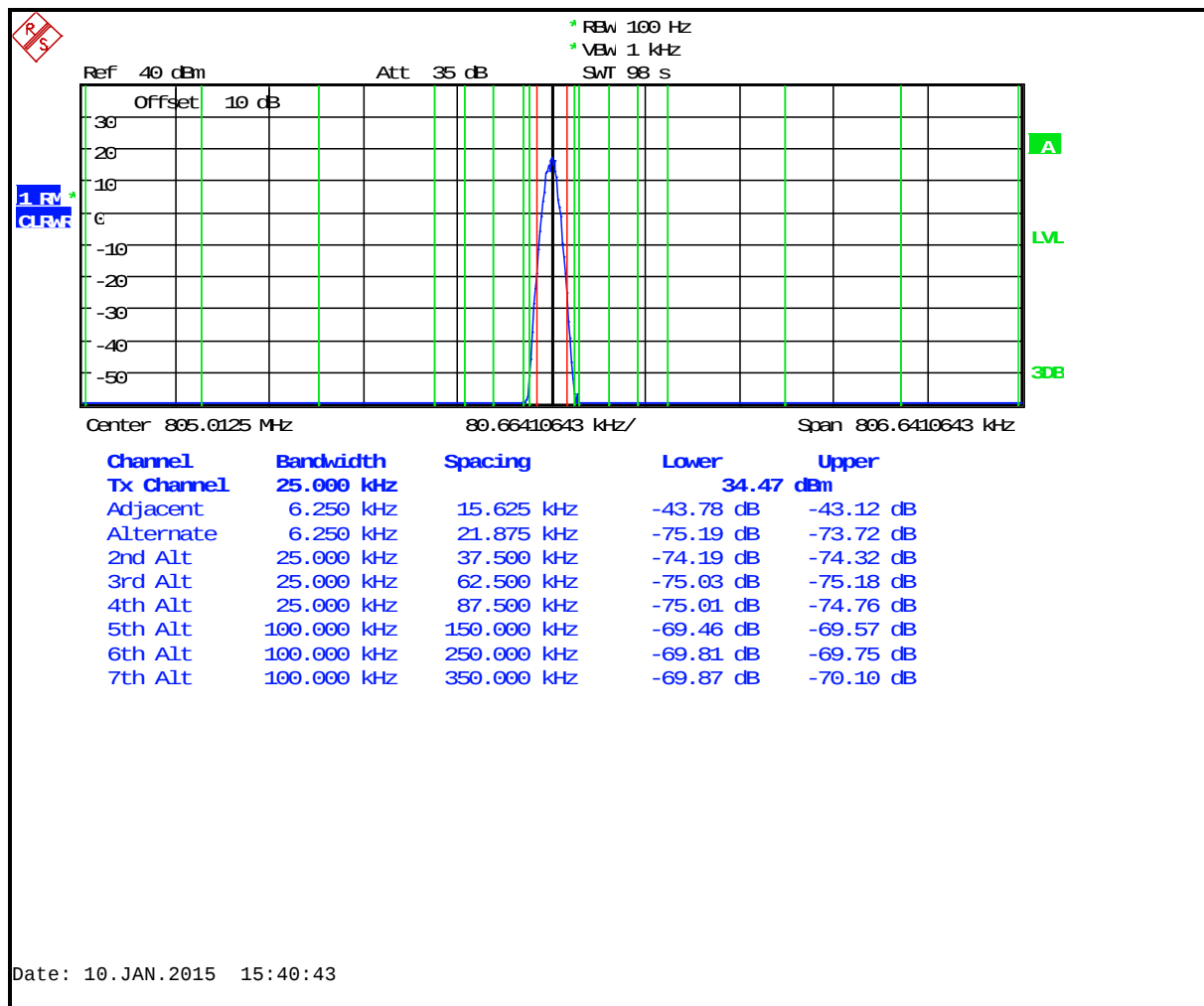


Table 6-29: Adjacent Channel Power – 805.0125 MHz; OTP SMR; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-78.7
12 MHz to receive band	30(s)	-75	-96.1
In receive band	30(s)	-100	-106.1

Plot 6-30: Adjacent Channel Power – 805.9875 MHz; OTP SMR; <400 kHz

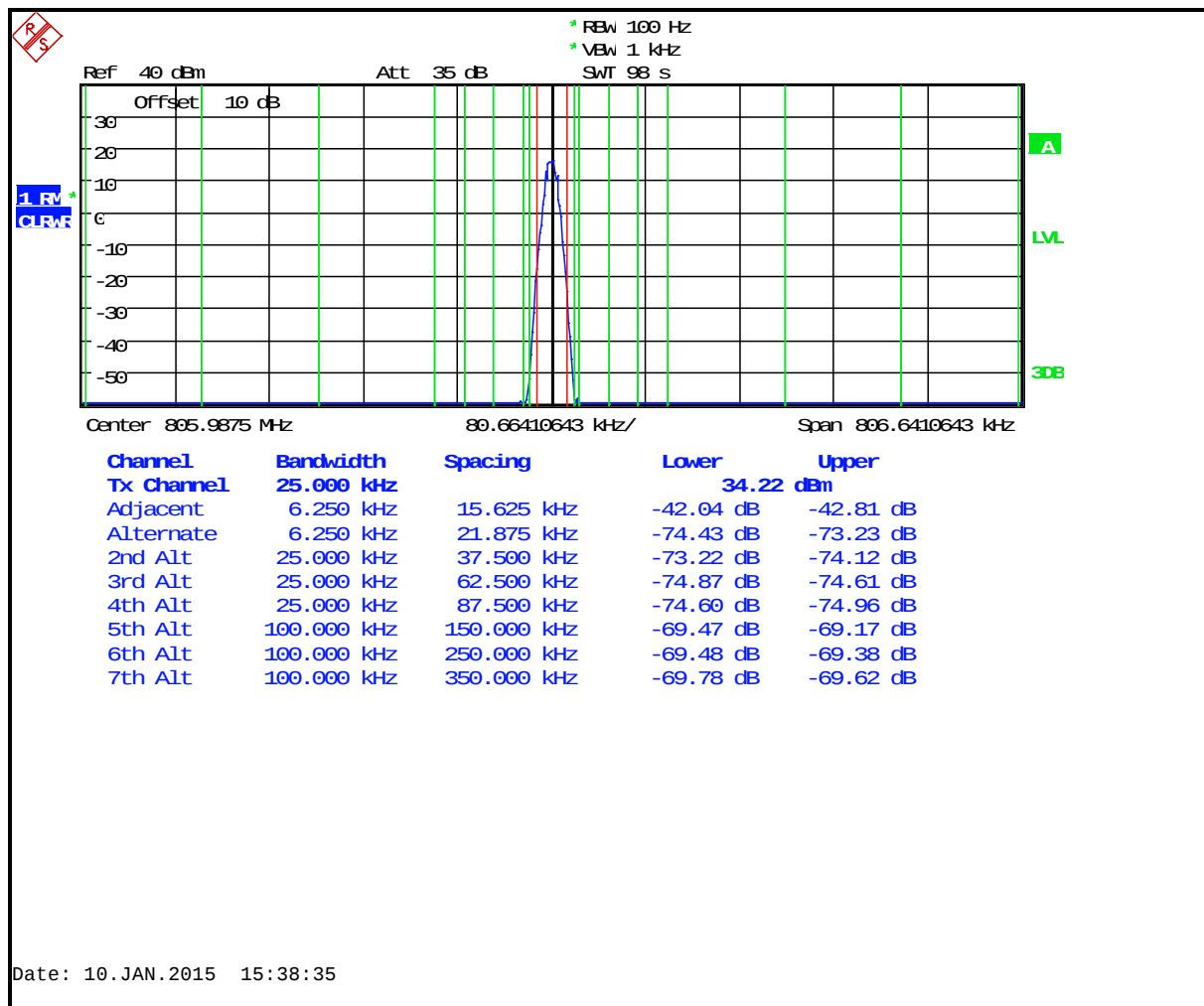


Table 6-30: Adjacent Channel Power – 805.9875 MHz; OTP SMR; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.5
12 MHz to receive band	30(s)	-75	-95.4
In receive band	30(s)	-100	-106.2

Plot 6-31: Adjacent Channel Power – 768.0125 MHz; OTP Narrowband; <400 kHz

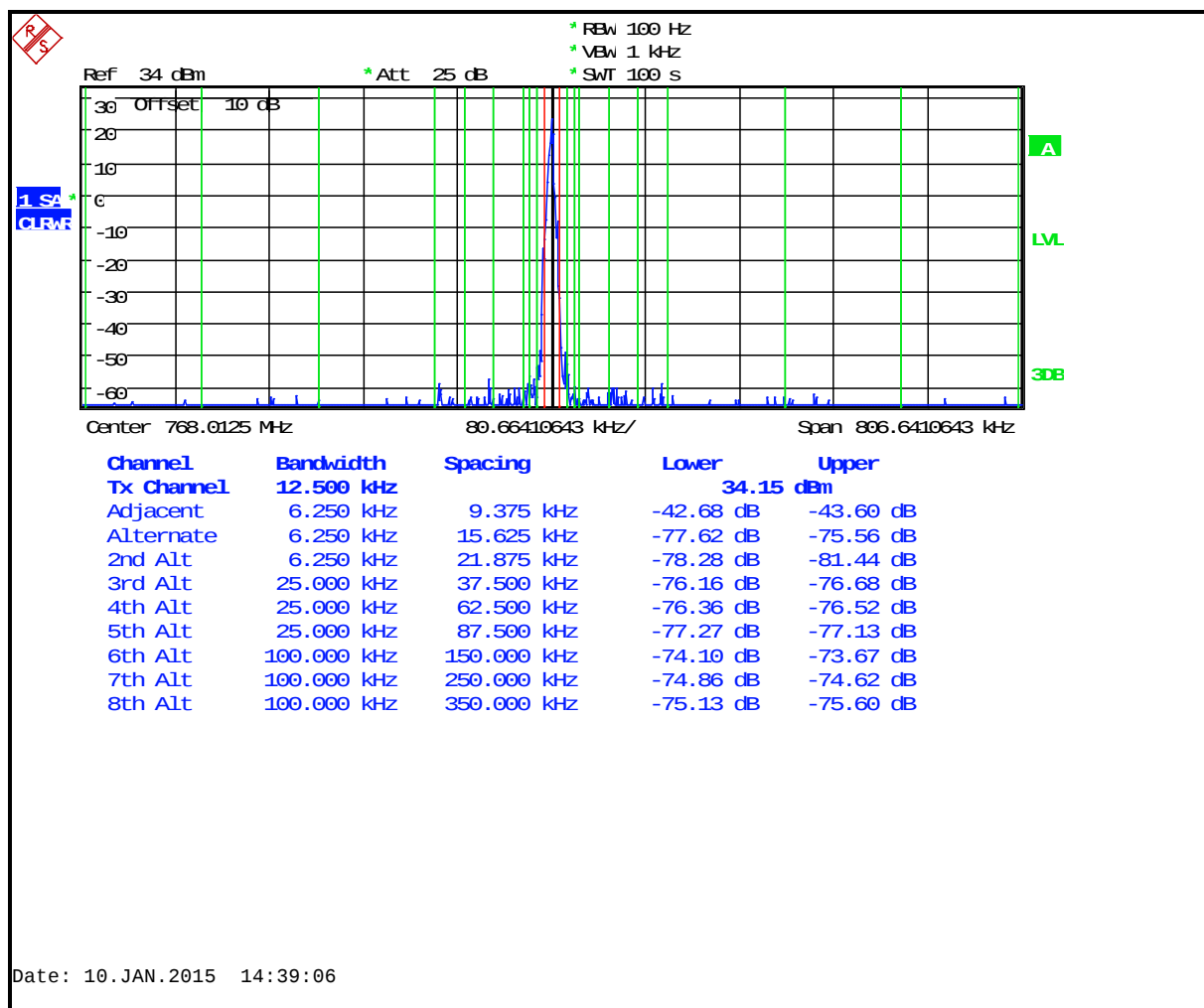


Table 6-31: Adjacent Channel Power – 768.0125 MHz; OTP Narrowband; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-86.6
12 MHz to receive band	30(s)	-75	-106.2
In receive band	30(s)	-100	-106.3

Plot 6-32: Adjacent Channel Power – 769.0125 MHz; OTP Narrowband; <400 kHz

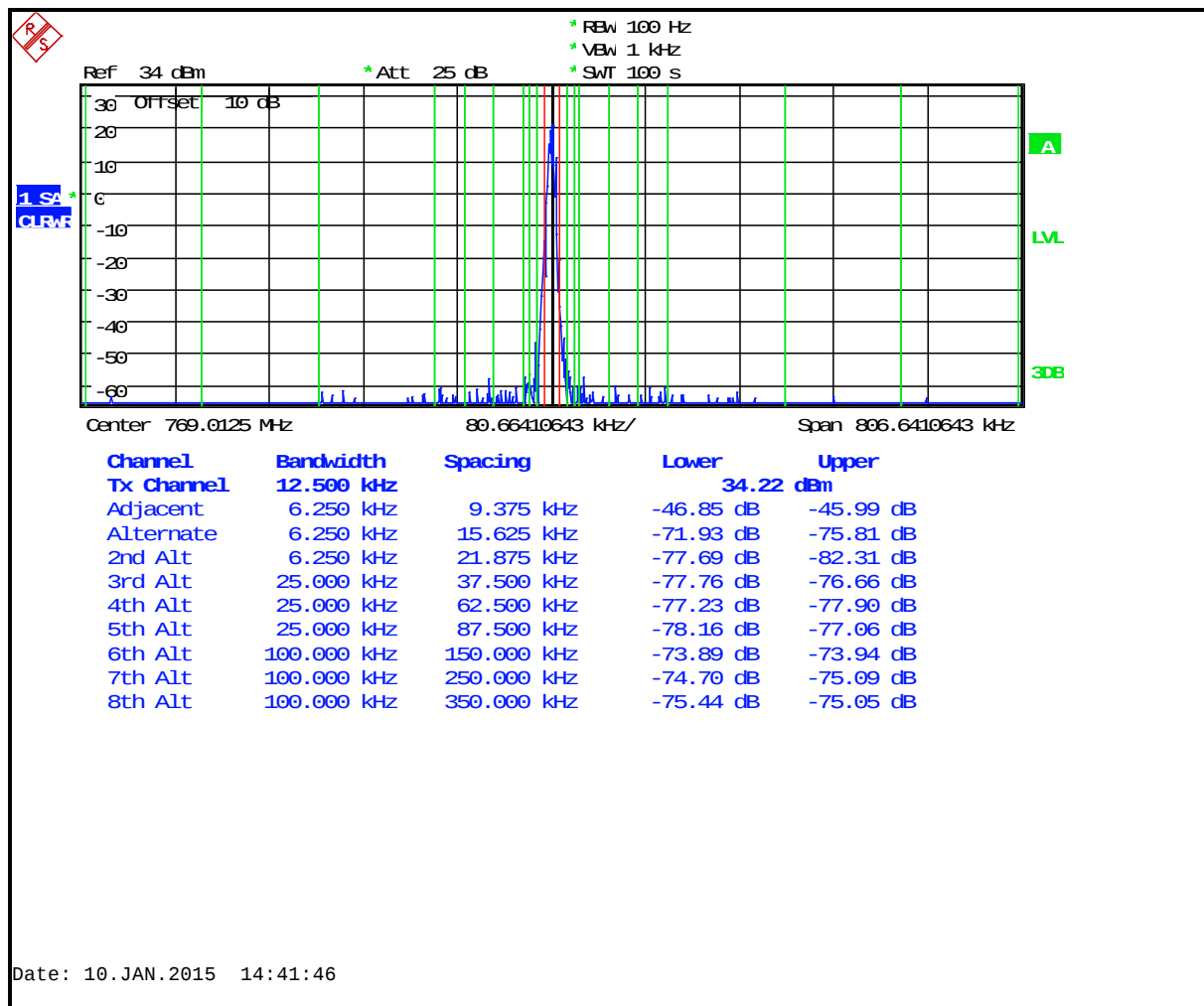


Table 6-32: Adjacent Channel Power – 769.0125 MHz; OTP Narrowband; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-79.9
12 MHz to receive band	30(s)	-75	-107.1
In receive band	30(s)	-100	-104.3

Plot 6-33: Adjacent Channel Power – 771.0125 MHz; OTP Narrowband; <400 kHz

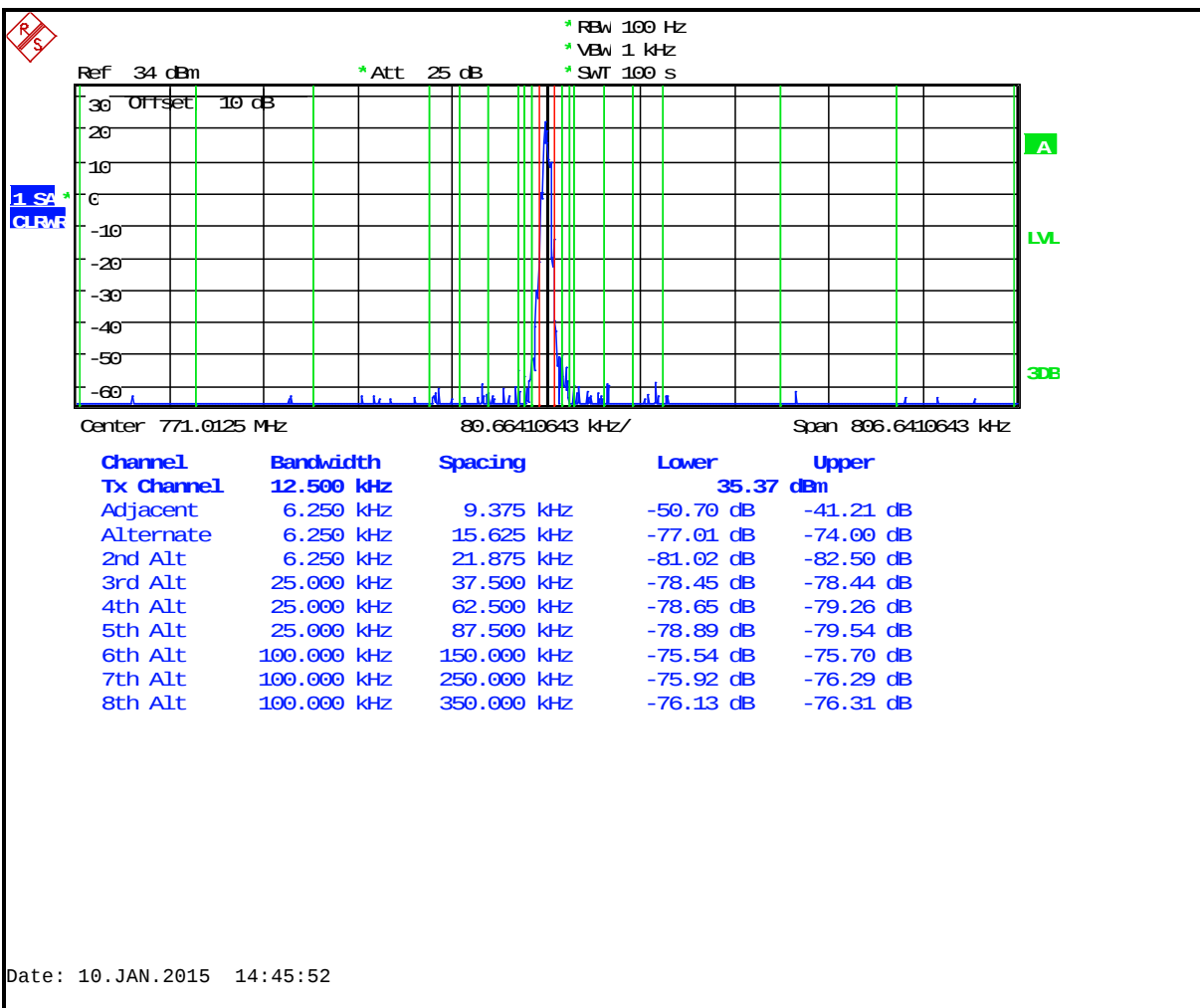


Table 6-33: Adjacent Channel Power – 771.0125 MHz; OTP Narrowband; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.2
12 MHz to receive band	30(s)	-75	-106.2
In receive band	30(s)	-100	-106.5

Plot 6-34: Adjacent Channel Power – 775.0125 MHz; OTP Narrowband; <400 kHz

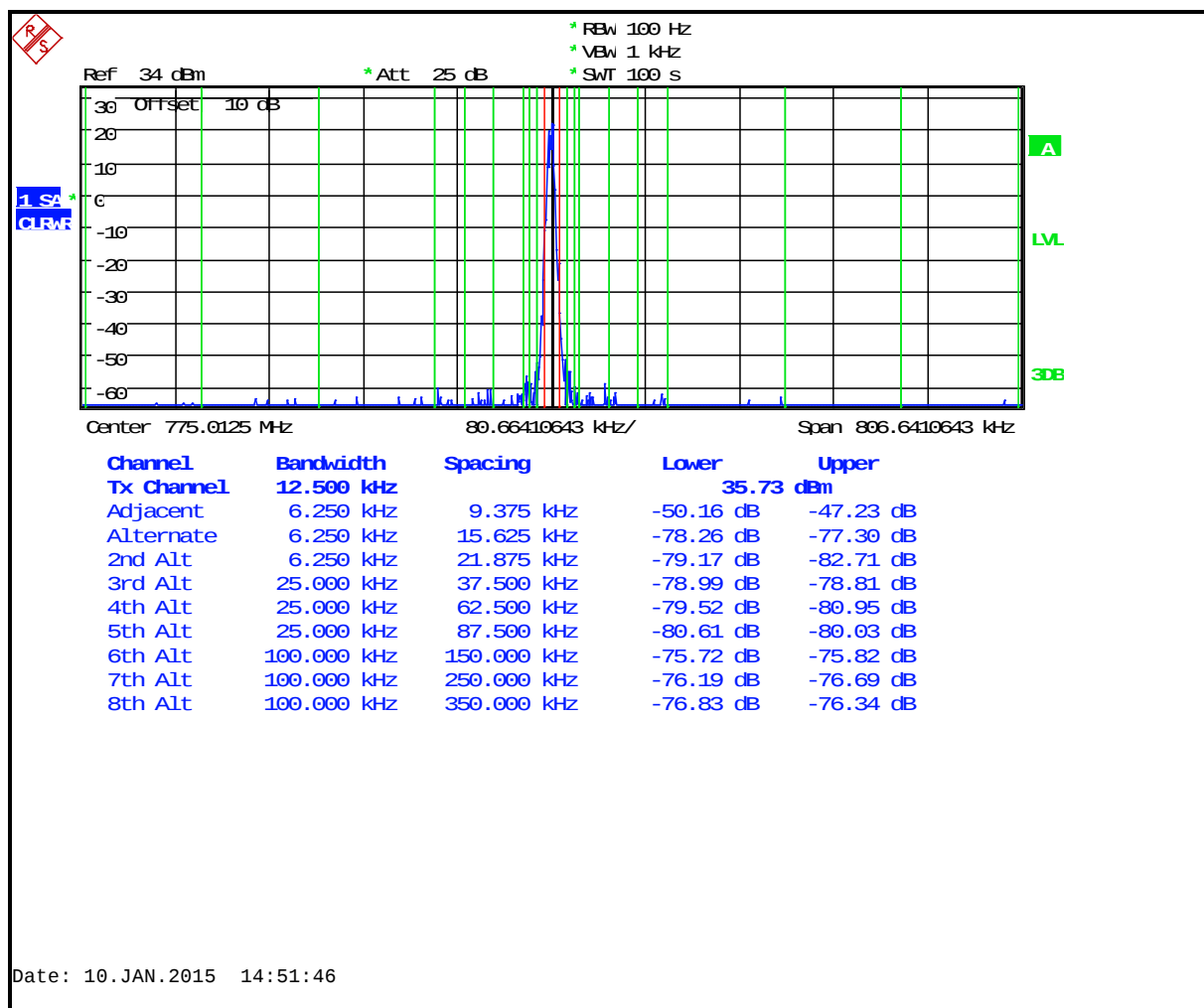


Table 6-34: Adjacent Channel Power – 775.0125 MHz; OTP Narrowband; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-79.7
12 MHz to receive band	30(s)	-75	-104.0
In receive band	30(s)	-100	-107.2

Plot 6-35: Adjacent Channel Power – 775.9875 MHz; OTP Narrowband; <400 kHz

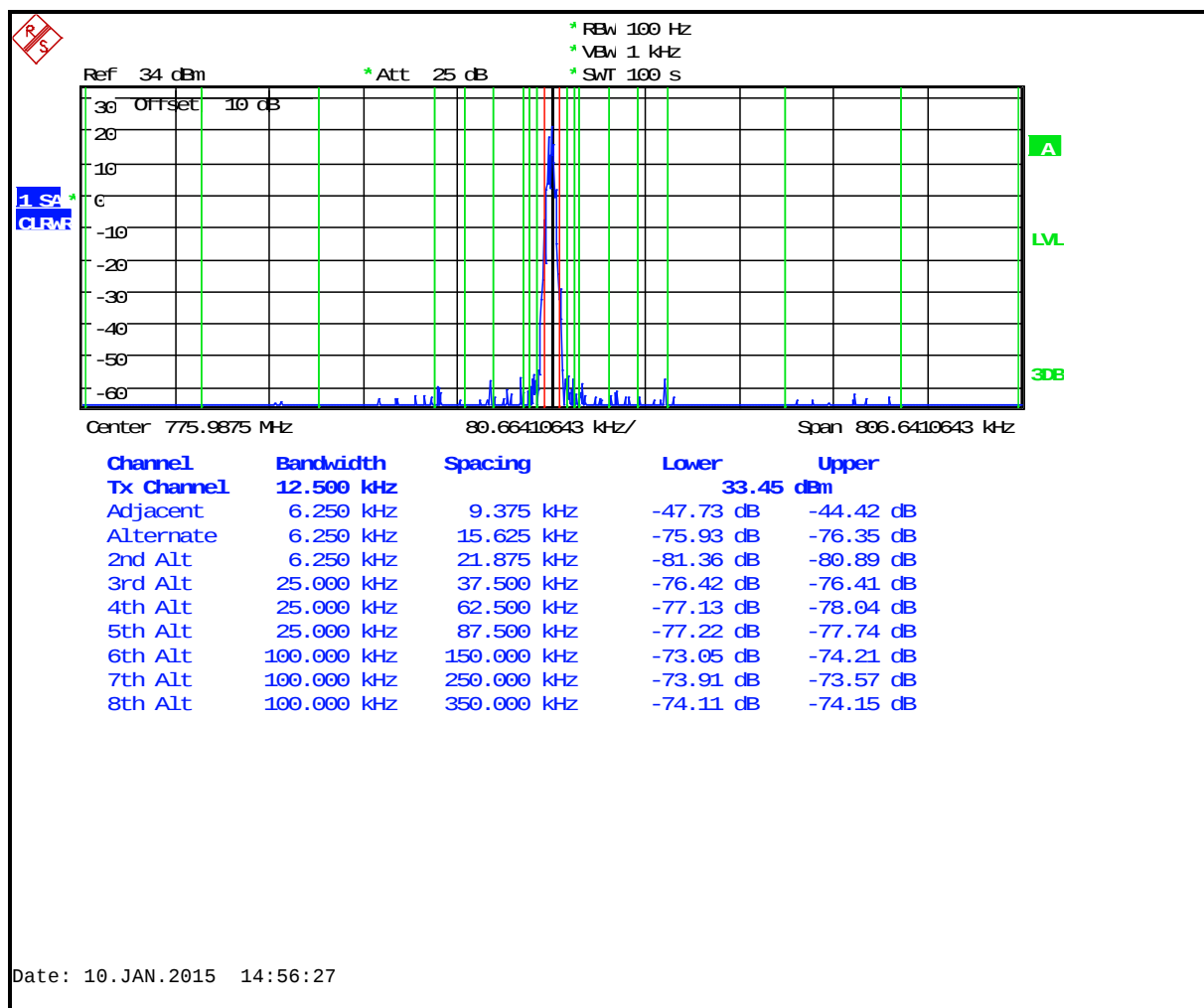


Table 6-35: Adjacent Channel Power – 775.9875 MHz; OTP Narrowband; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-81.7
12 MHz to receive band	30(s)	-75	-100.1
In receive band	30(s)	-100	-106.3

Plot 6-36: Adjacent Channel Power – 798.0125 MHz; OTP Narrowband; <400 kHz

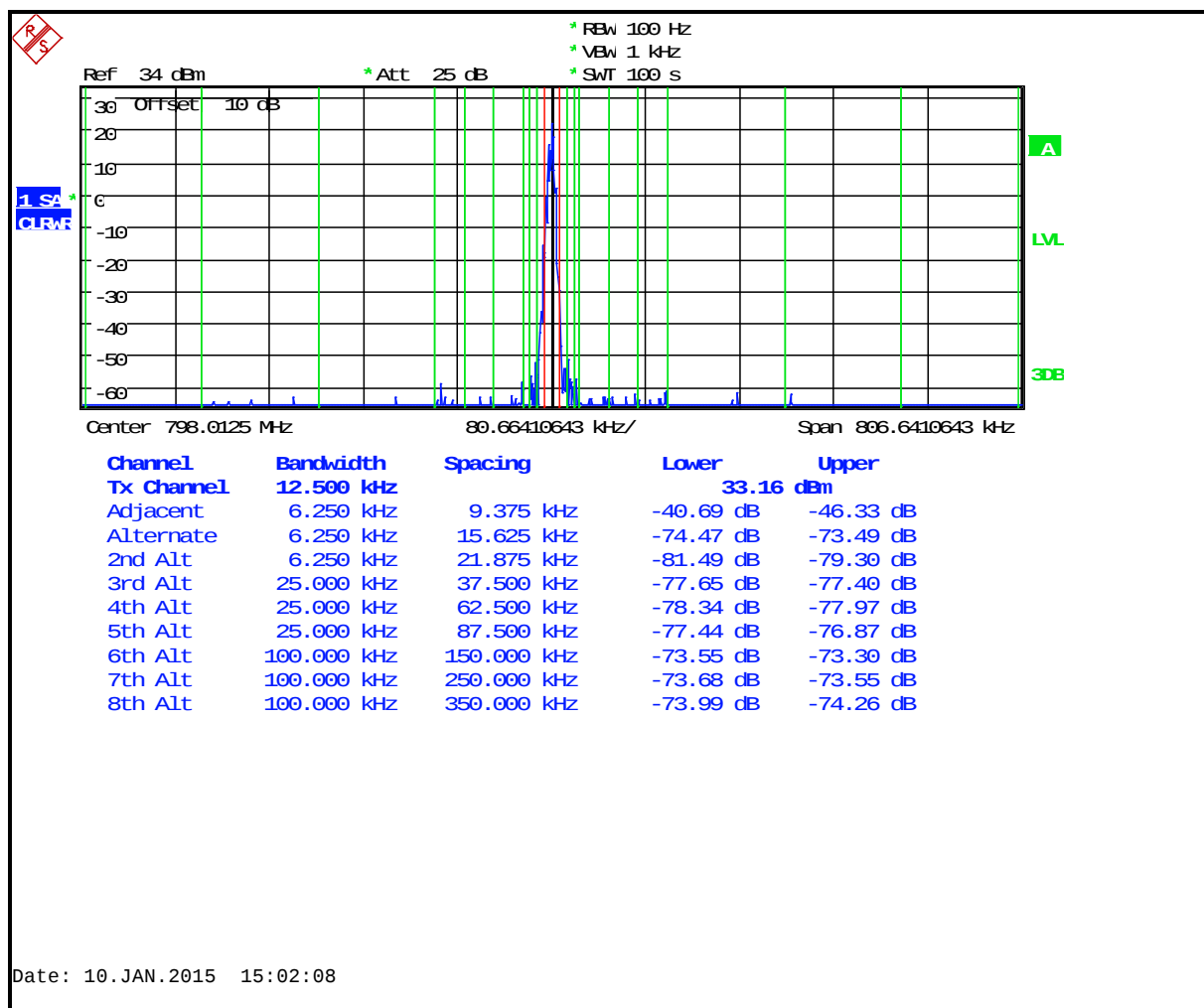


Table 6-36: Adjacent Channel Power – 798.0125 MHz; OTP Narrowband; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.3
12 MHz to receive band	30(s)	-75	-98.6
In receive band	30(s)	-100	-101.8

Plot 6-37: Adjacent Channel Power – 799.0125 MHz; OTP Narrowband; <400 kHz

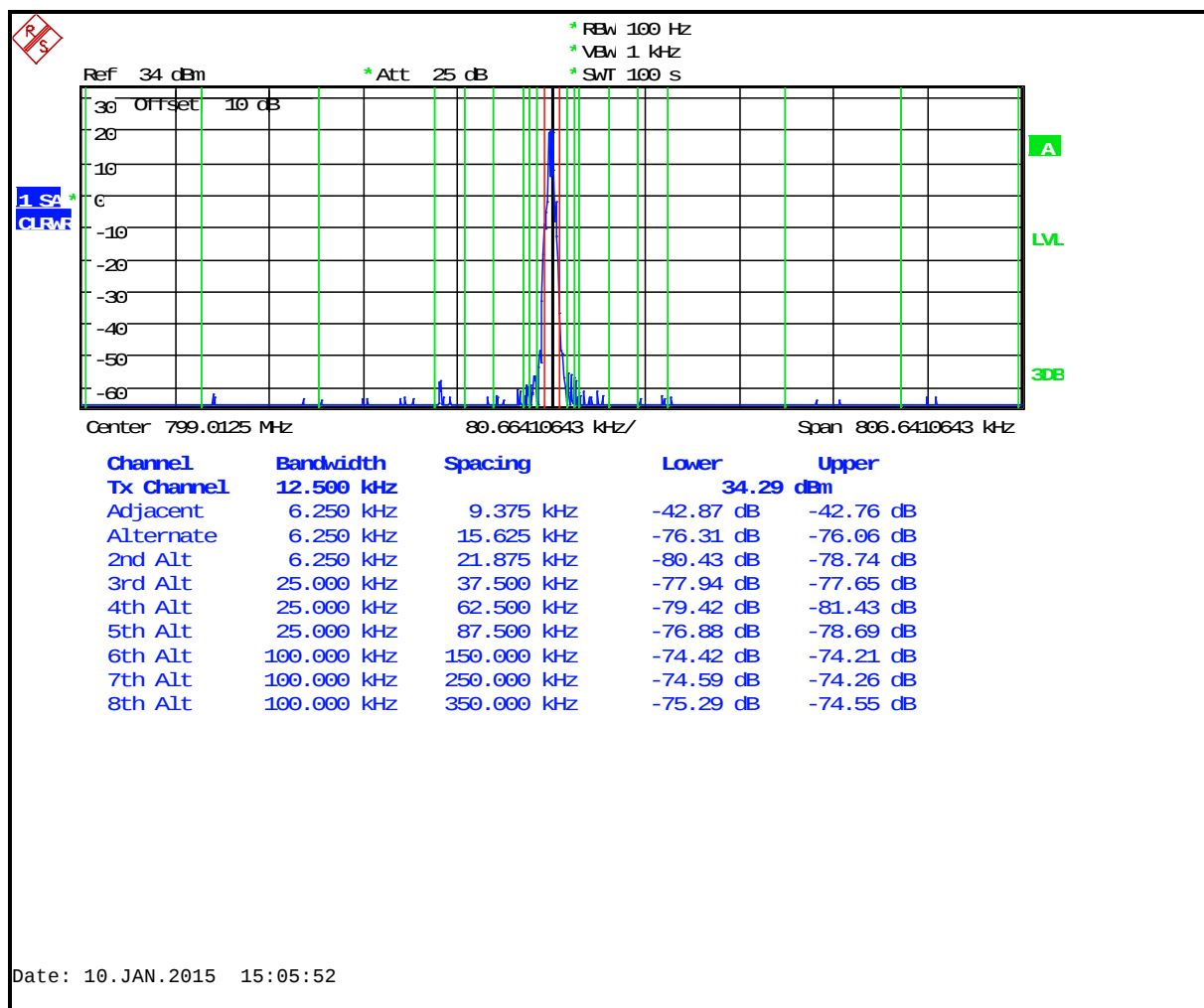


Table 6-37: Adjacent Channel Power – 799.0125 MHz; OTP Narrowband; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.0
12 MHz to receive band	30(s)	-75	-98.7
In receive band	30(s)	-100	-102.6

Plot 6-38: Adjacent Channel Power – 801.0125 MHz; OTP Narrowband; <400 kHz

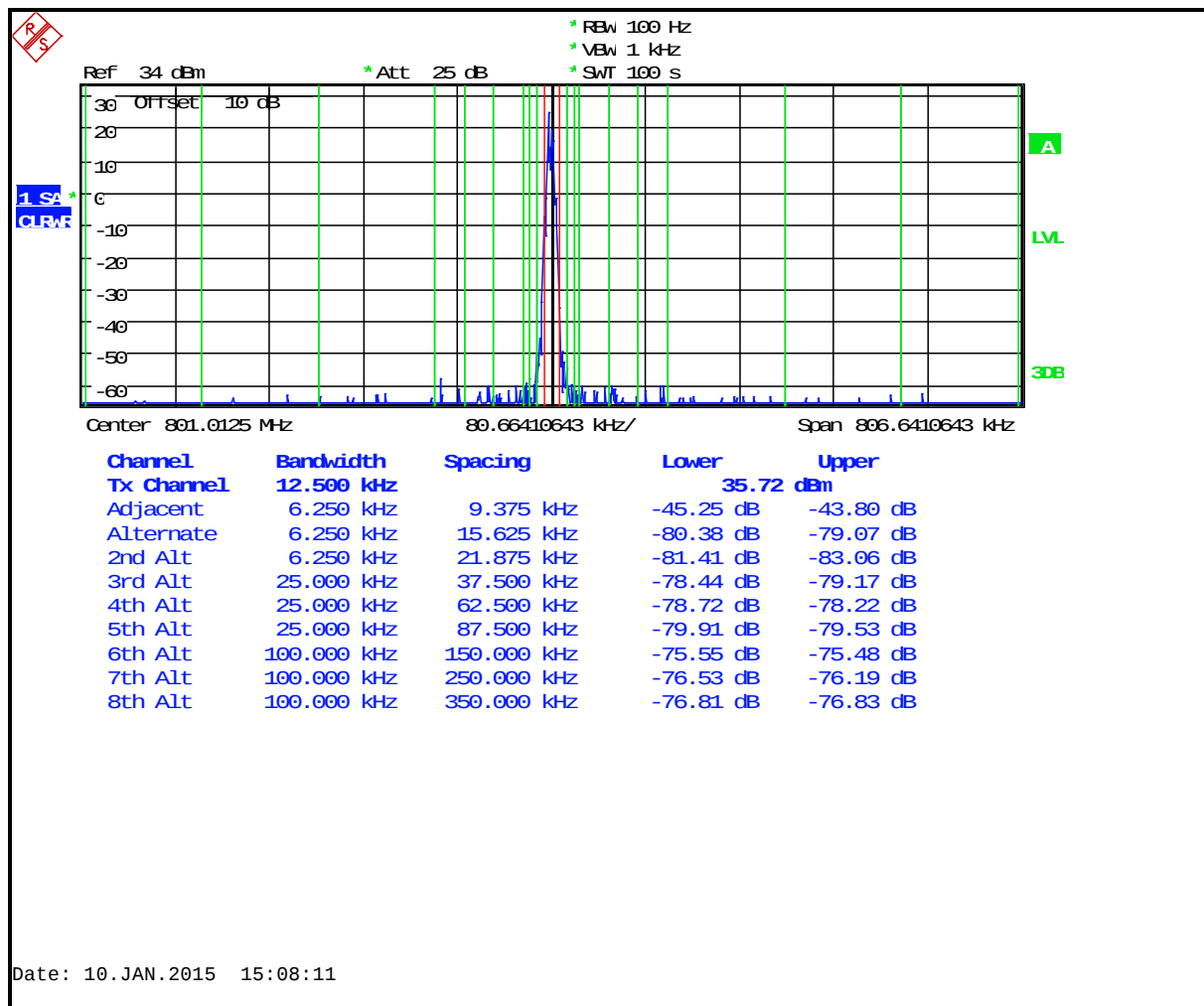


Table 6-38: Adjacent Channel Power – 801.0125 MHz; OTP Narrowband; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.7
12 MHz to receive band	30(s)	-75	-98.9
In receive band	30(s)	-100	-102.8

Plot 6-39: Adjacent Channel Power – 805.0125 MHz; OTP Narrowband; <400 kHz

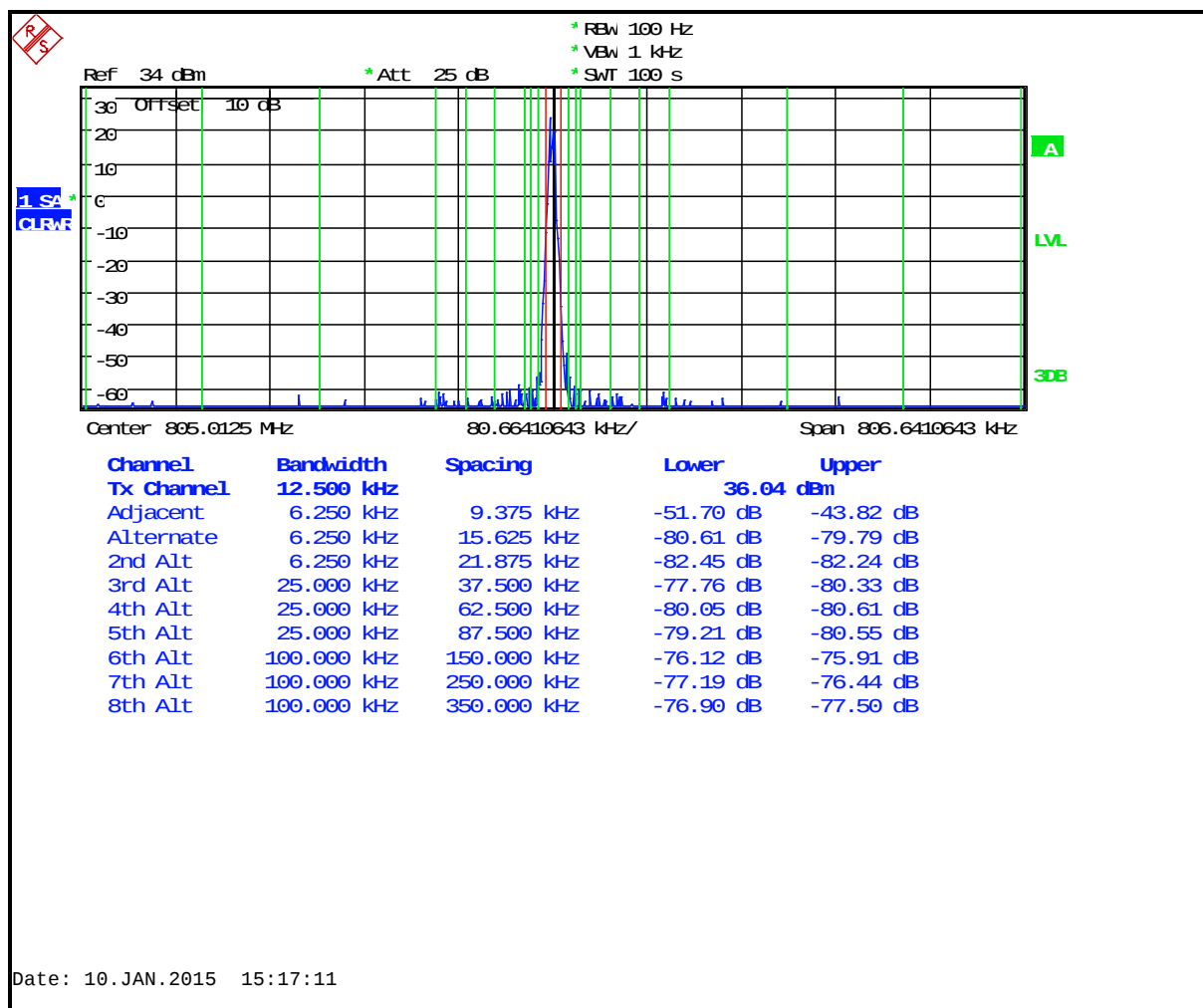


Table 6-39: Adjacent Channel Power – 805.0125 MHz; OTP Narrowband; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-79.4
12 MHz to receive band	30(s)	-75	-94.7
In receive band	30(s)	-100	-106.0

Plot 6-40: Adjacent Channel Power – 805.9875 MHz; OTP Narrowband; <400 kHz

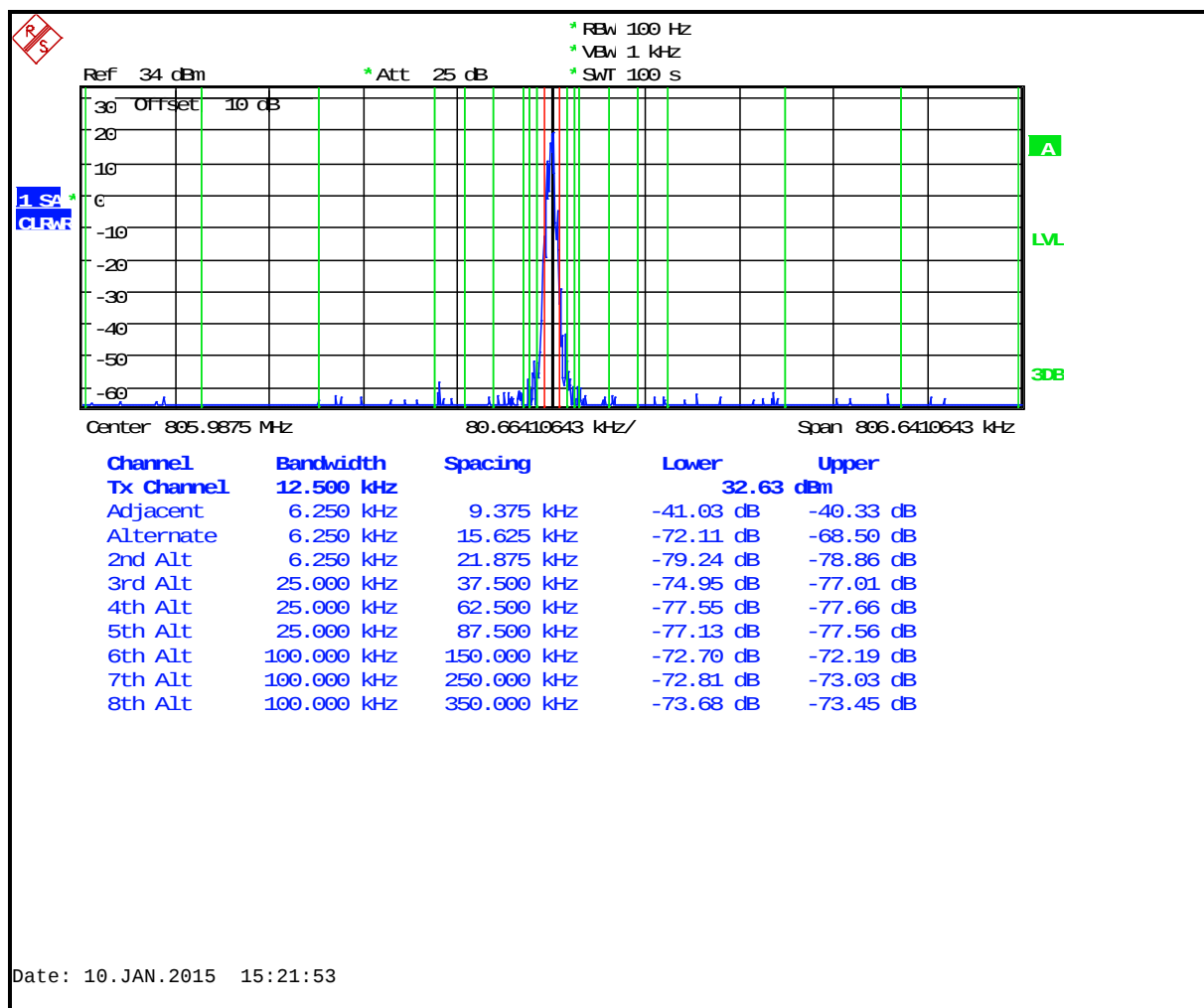


Table 6-40: Adjacent Channel Power – 805.9875 MHz; OTP Narrowband; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.0
12 MHz to receive band	30(s)	-75	-93.4
In receive band	30(s)	-100	-107.2

Plot 6-41: Adjacent Channel Power – 768.0125 MHz; P25; <400 kHz

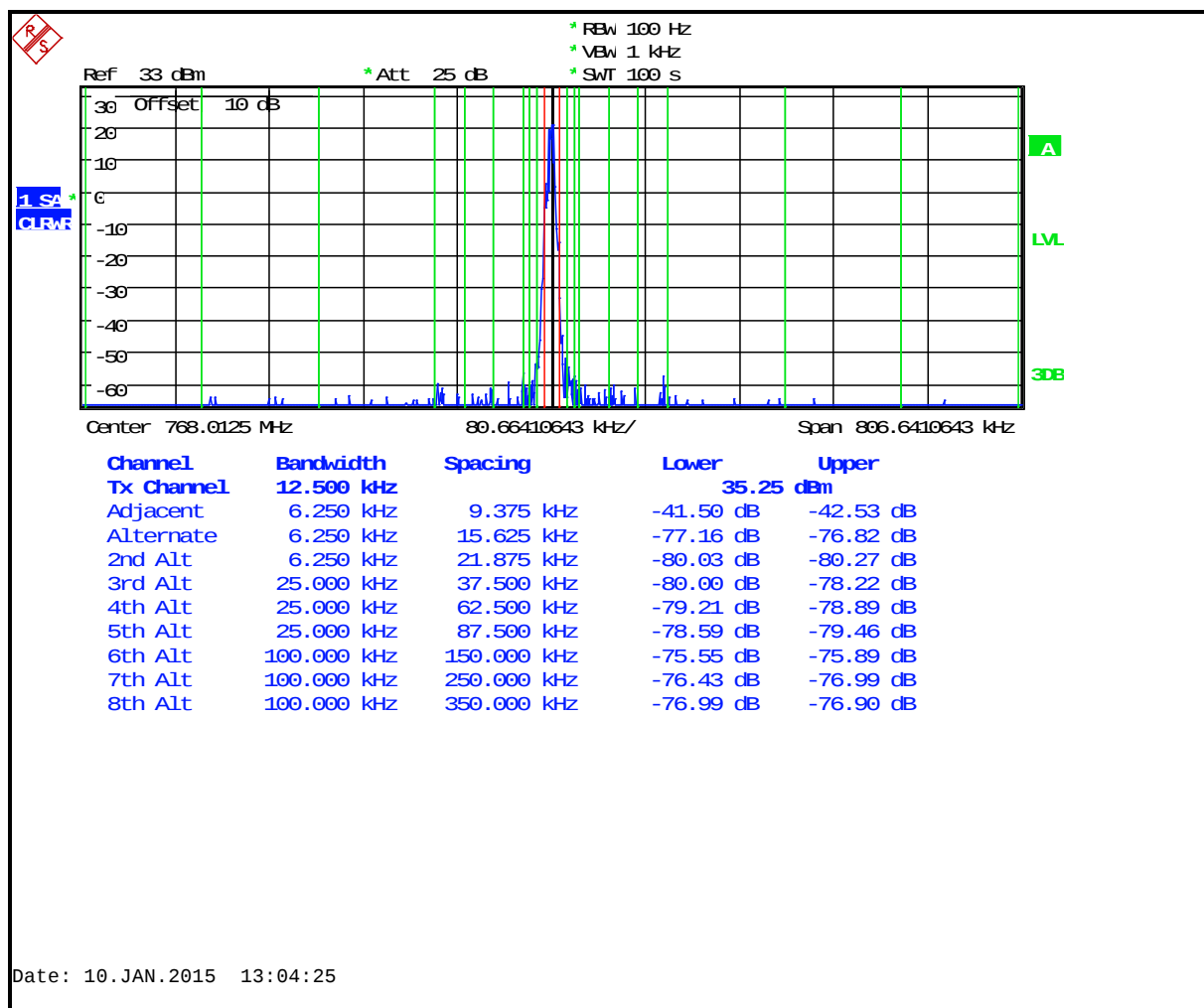


Table 6-41: Adjacent Channel Power – 768.0125 MHz; P25; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-86.1
12 MHz to receive band	30(s)	-75	-108.3
In receive band	30(s)	-100	-107.5

Plot 6-42: Adjacent Channel Power – 769.0125 MHz; P25; <400 kHz

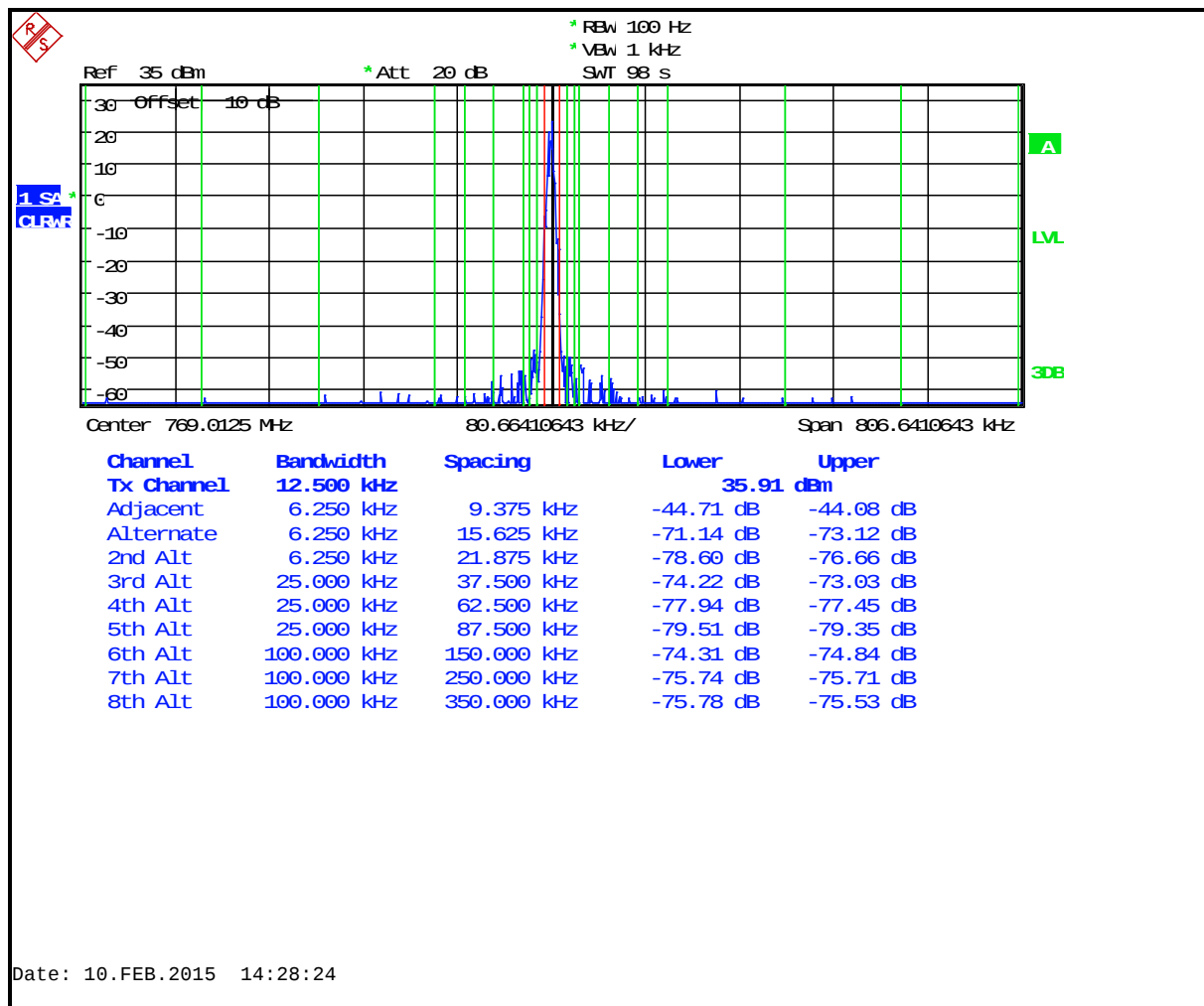


Table 6-42: Adjacent Channel Power – 769.0125 MHz; P25; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-79.6
12 MHz to receive band	30(s)	-75	-105.0
In receive band	30(s)	-100	-107.0

Plot 6-43: Adjacent Channel Power – 771.0125 MHz; P25; <400 kHz

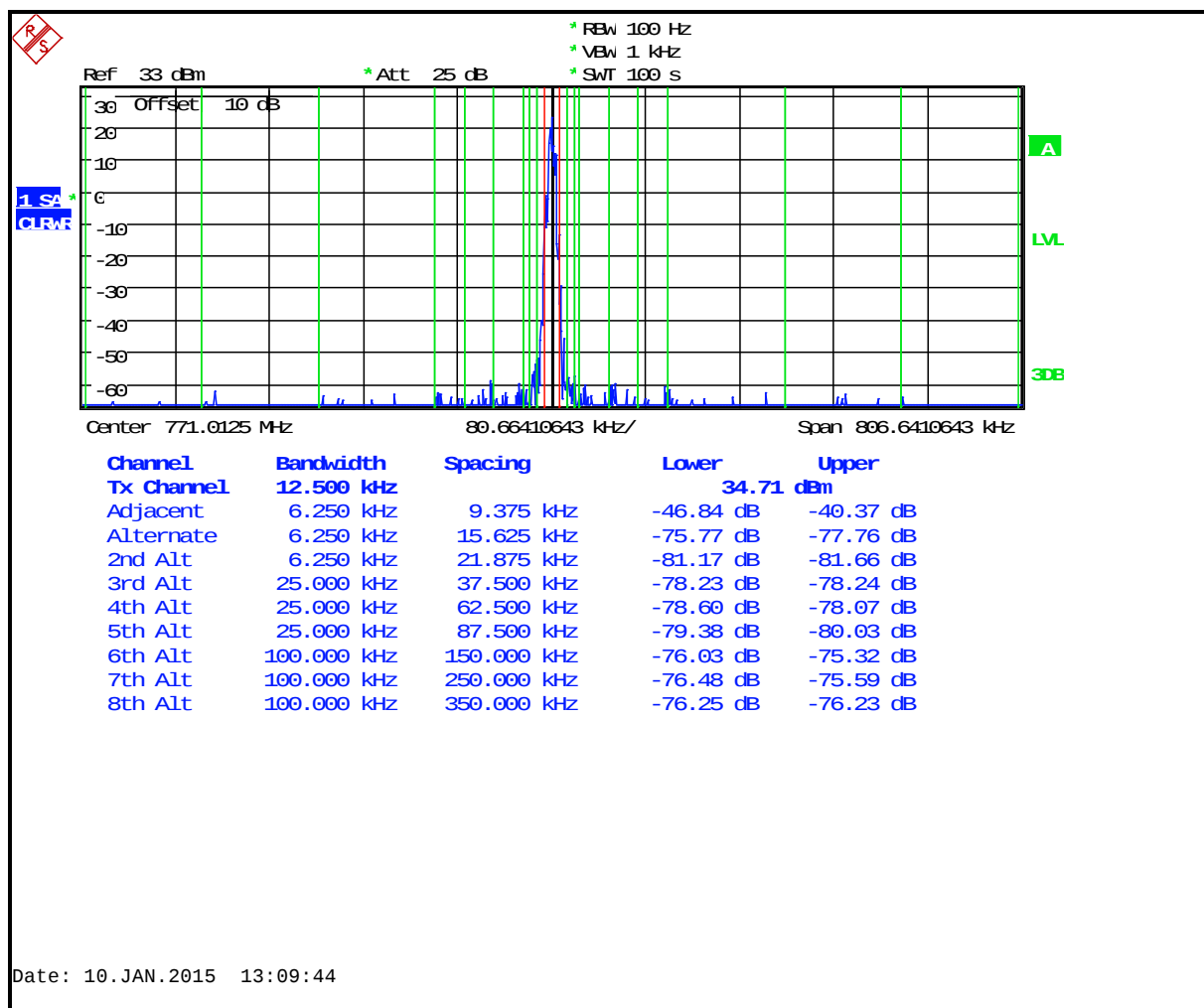


Table 6-43: Adjacent Channel Power – 771.0125 MHz; P25; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-82.6
12 MHz to receive band	30(s)	-75	-106.8
In receive band	30(s)	-100	-106.5

Plot 6-44: Adjacent Channel Power – 775.0125 MHz; P25; <400 kHz

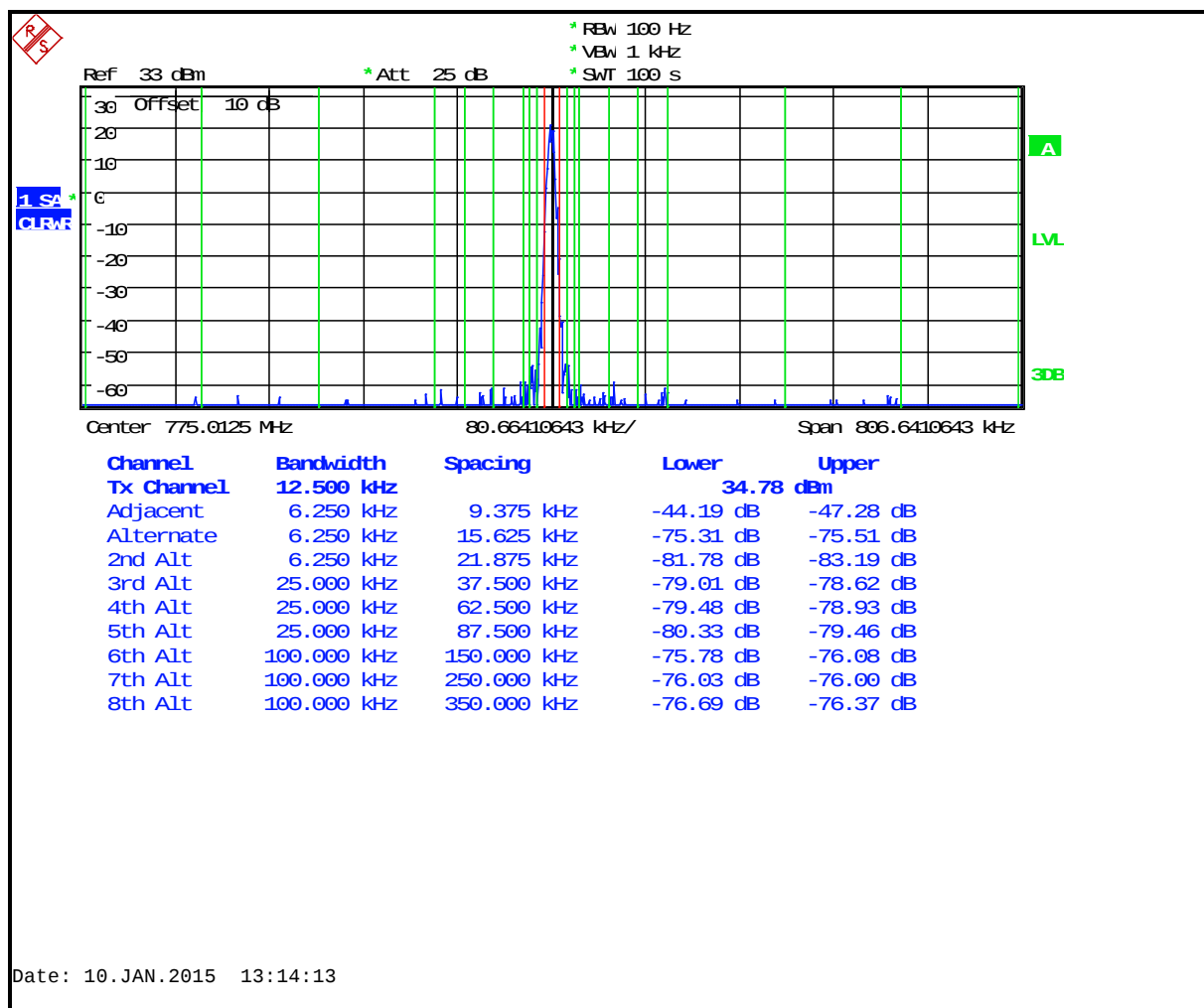


Table 6-44: Adjacent Channel Power – 775.0125 MHz; P25; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-77.2
12 MHz to receive band	30(s)	-75	-103.0
In receive band	30(s)	-100	-107.5

Plot 6-45: Adjacent Channel Power – 775.9875 MHz; P25; <400 kHz

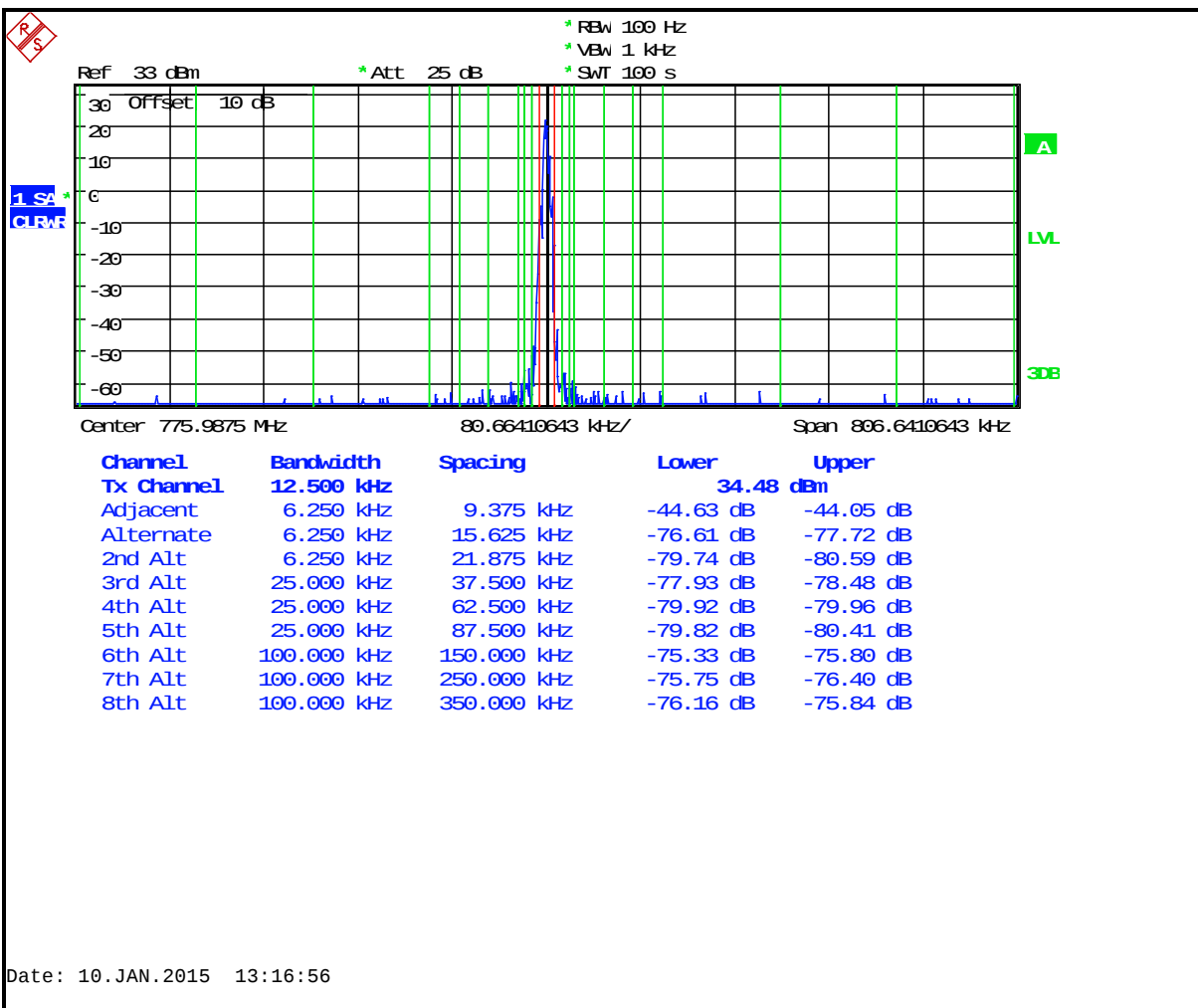


Table 6-45: Adjacent Channel Power – 775.9875 MHz; P25; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-79.7
12 MHz to receive band	30(s)	-75	-101.2
In receive band	30(s)	-100	-106.1

Plot 6-46: Adjacent Channel Power – 798.0125 MHz; P25; <400 kHz

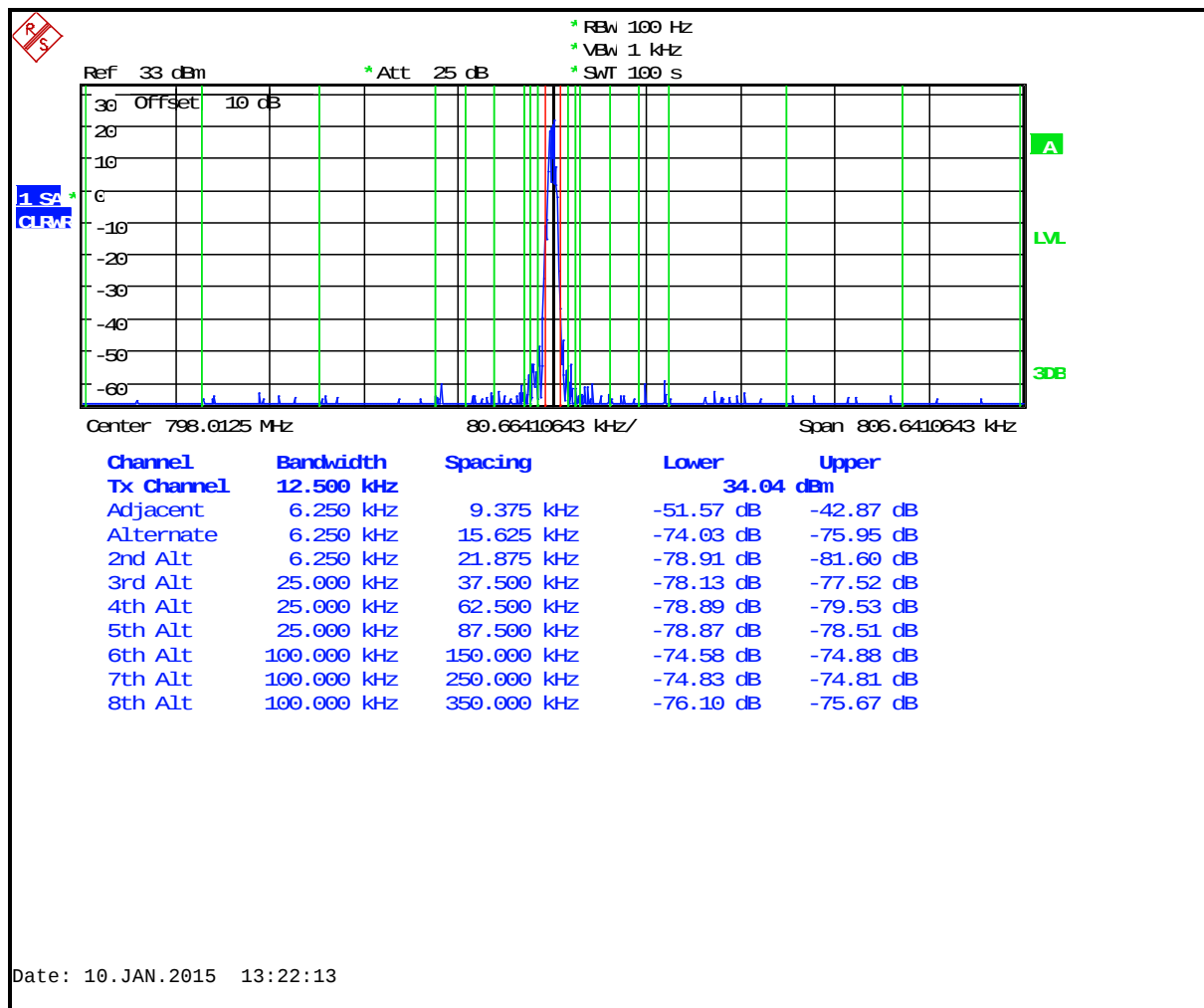


Table 6-46: Adjacent Channel Power – 798.0125 MHz; P25; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-78.6
12 MHz to receive band	30(s)	-75	-96.4
In receive band	30(s)	-100	-100.9

Plot 6-47: Adjacent Channel Power – 799.0125 MHz; P25; <400 kHz

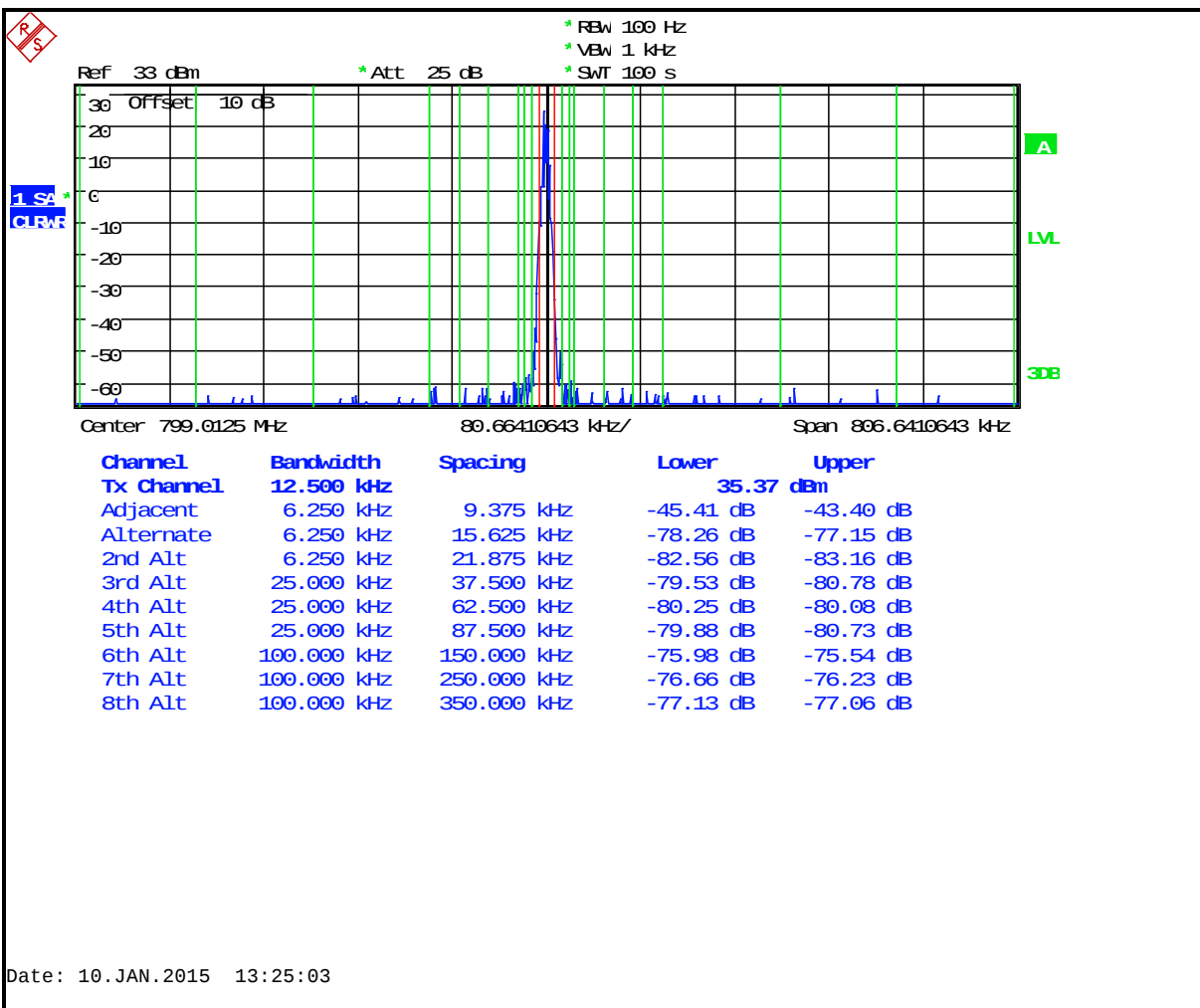


Table 6-47: Adjacent Channel Power – 799.0125 MHz; P25; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-81.6
12 MHz to receive band	30(s)	-75	-99.1
In receive band	30(s)	-100	-101.6

Plot 6-48: Adjacent Channel Power – 801.0125 MHz; P25; <400 kHz

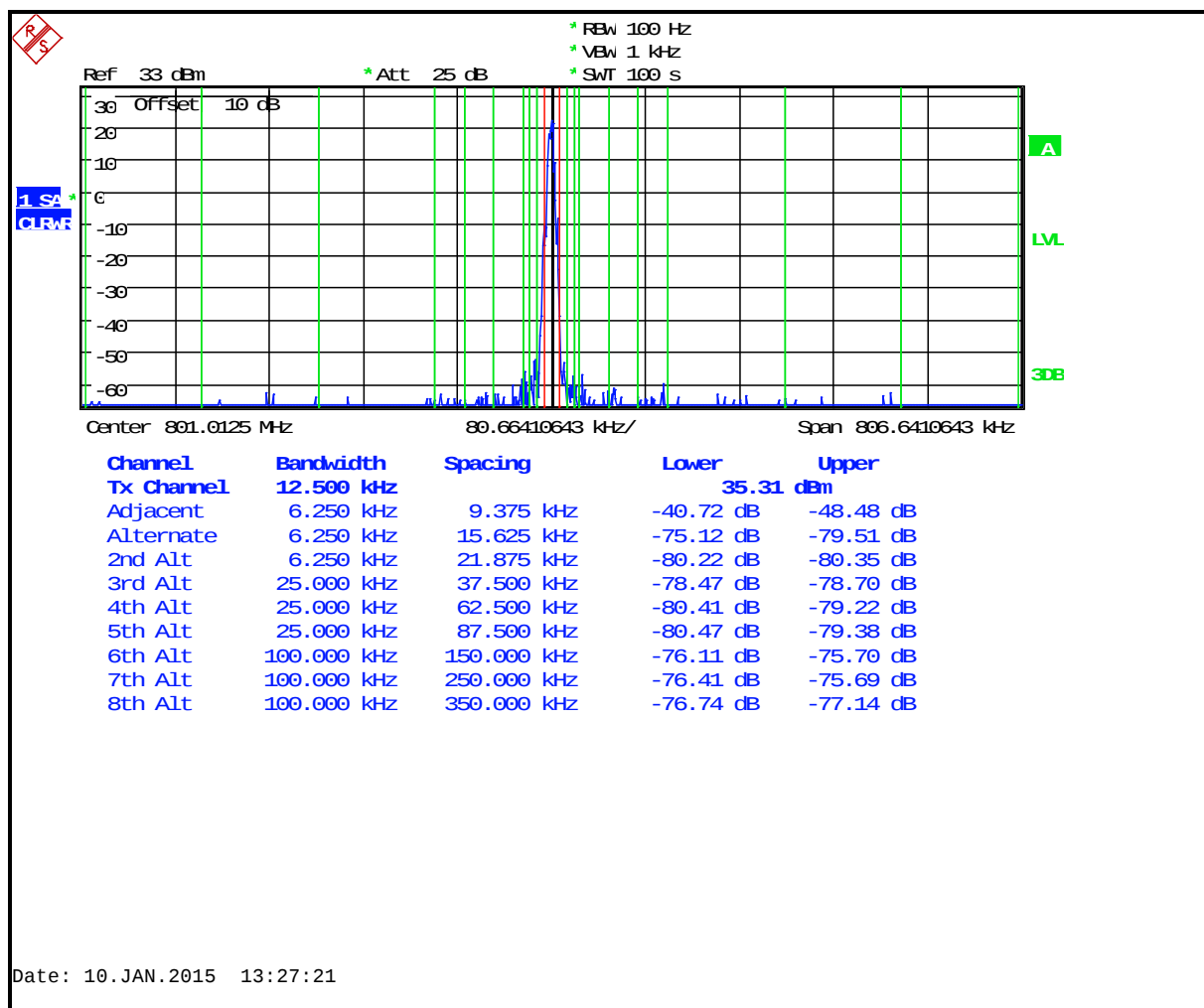


Table 6-48: Adjacent Channel Power – 801.0125 MHz; P25; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-81.9
12 MHz to receive band	30(s)	-75	-100.0
In receive band	30(s)	-100	-105.8

Plot 6-49: Adjacent Channel Power – 805.0125 MHz; P25; <400 kHz

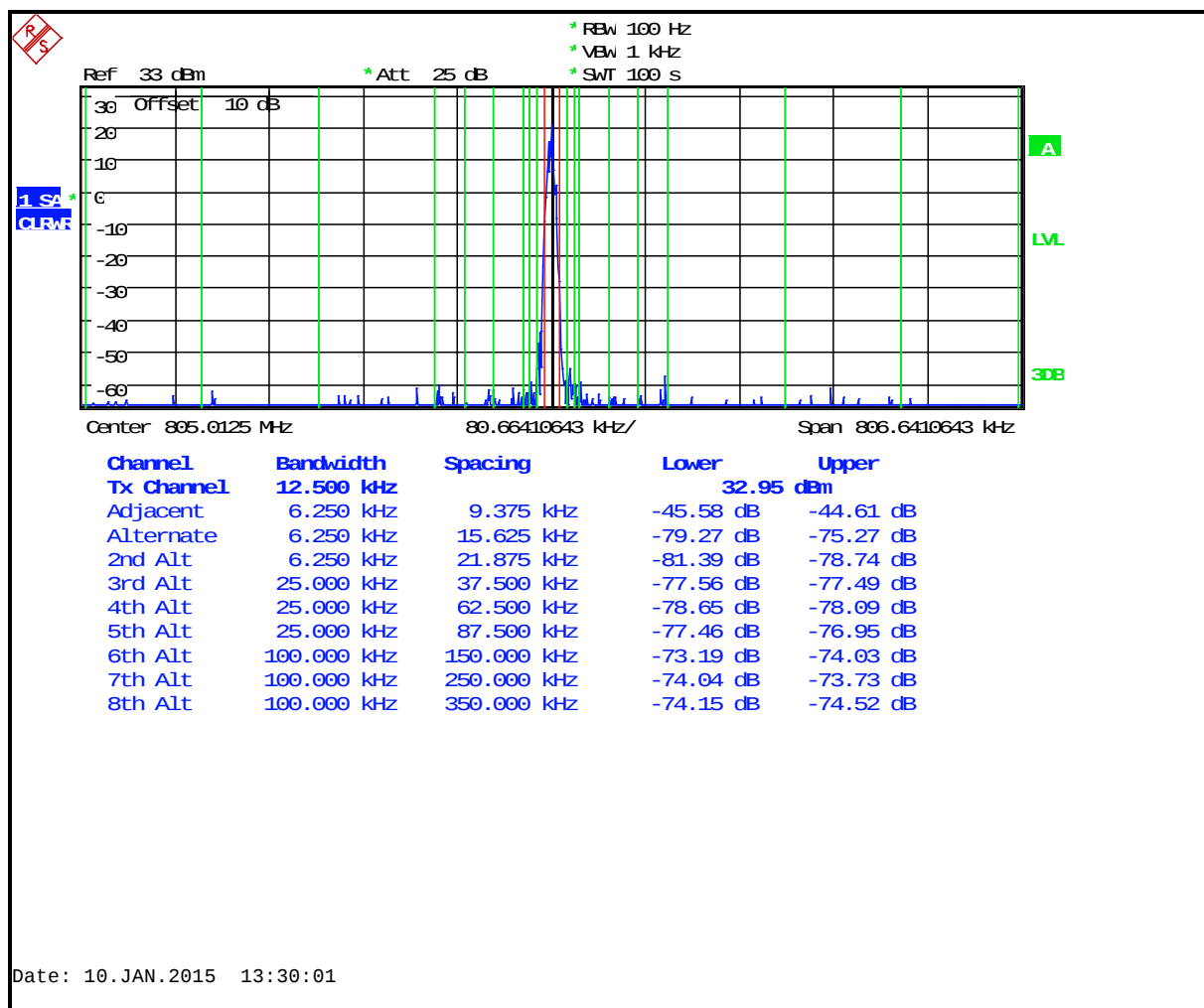


Table 6-49: Adjacent Channel Power – 805.0125 MHz; P25; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-79.9
12 MHz to receive band	30(s)	-75	-96.5
In receive band	30(s)	-100	-107.4

Plot 6-50: Adjacent Channel Power – 805.9875 MHz; P25; <400 kHz

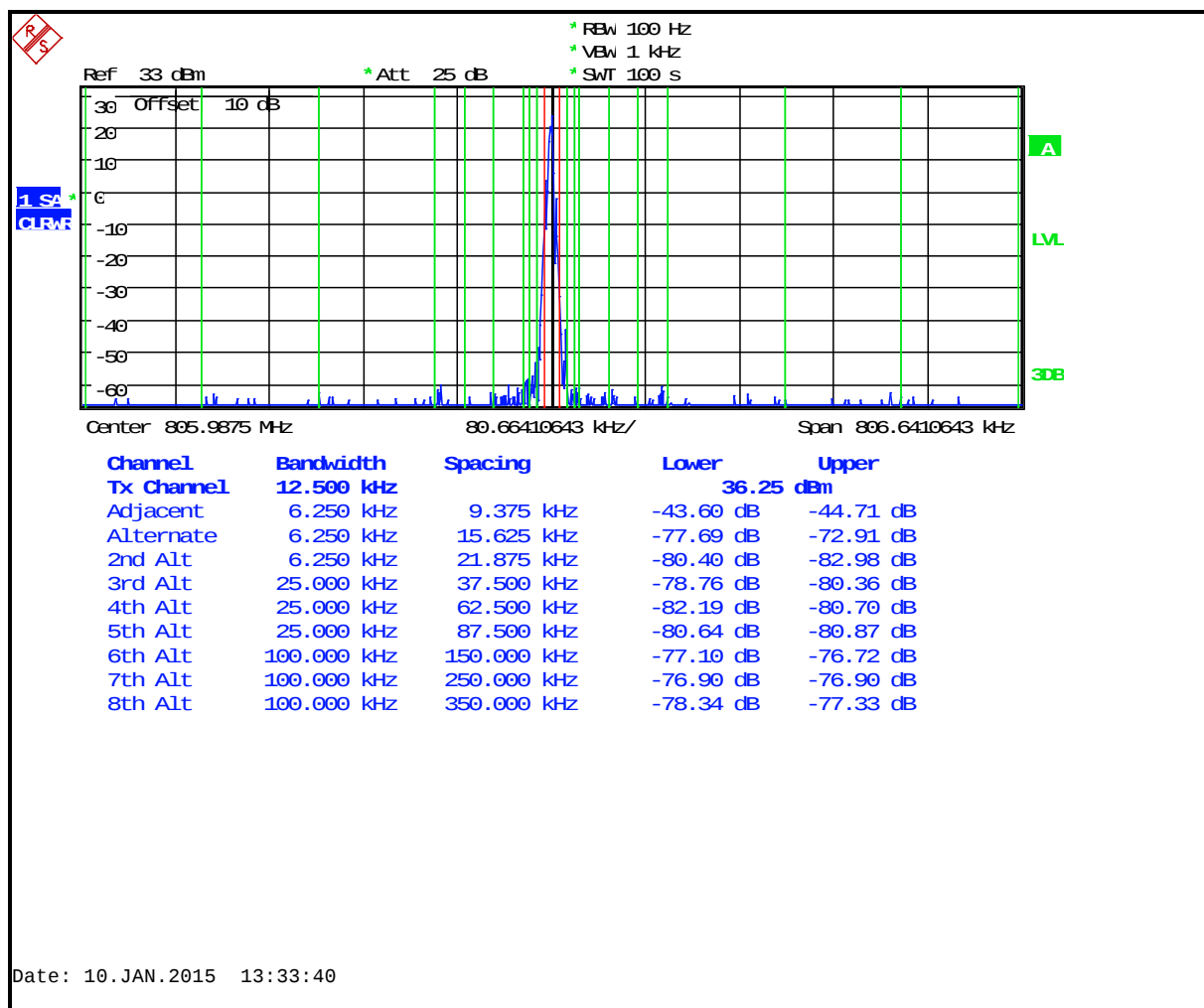


Table 6-50: Adjacent Channel Power – 805.9875 MHz; P25; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.2
12 MHz to receive band	30(s)	-75	-95.8
In receive band	30(s)	-100	-106.8

Plot 6-51: Adjacent Channel Power – 768.0125 MHz; P25 Phase 2; <400 kHz

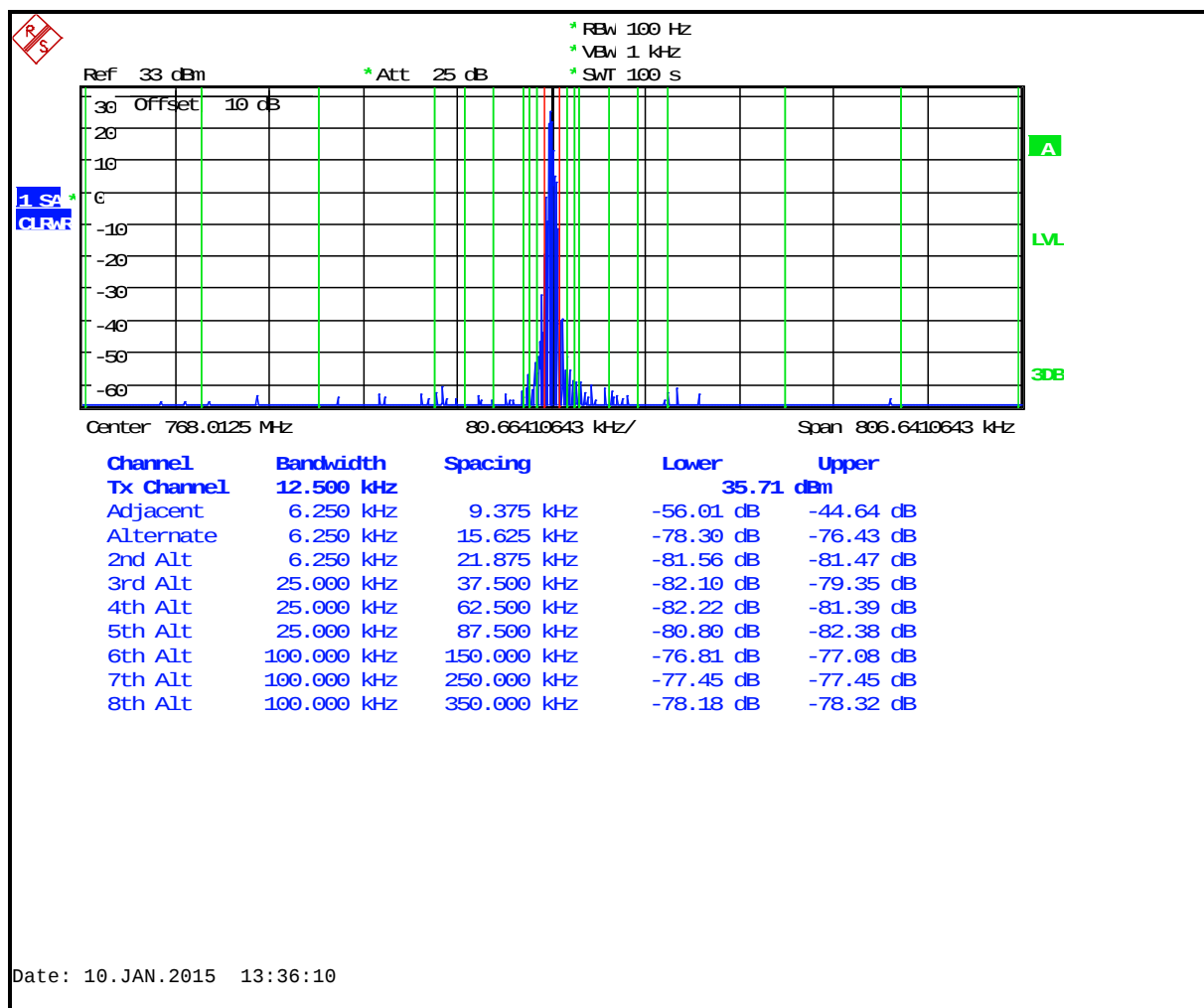


Table 6-51: Adjacent Channel Power – 768.0125 MHz; P25 Phase 2; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-87.3
12 MHz to receive band	30(s)	-75	-108.6
In receive band	30(s)	-100	-107.8

Plot 6-52: Adjacent Channel Power – 769.0125 MHz; P25 Phase 2; <400 kHz

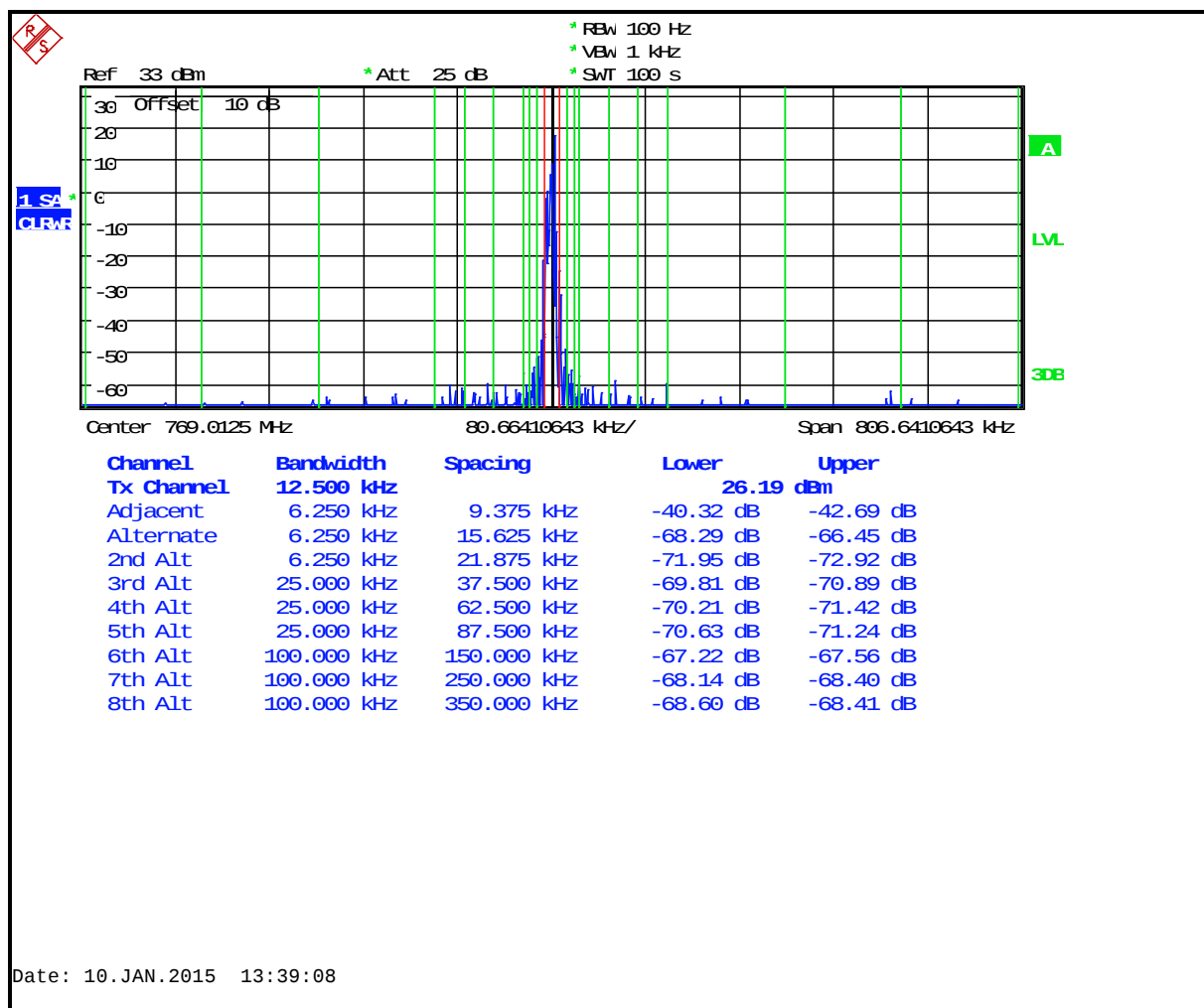


Table 6-52: Adjacent Channel Power – 769.0125 MHz; P25 Phase 2; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-79.5
12 MHz to receive band	30(s)	-75	-105.1
In receive band	30(s)	-100	-108.7

Plot 6-53: Adjacent Channel Power – 771.0125 MHz; P25 Phase 2; <400 kHz

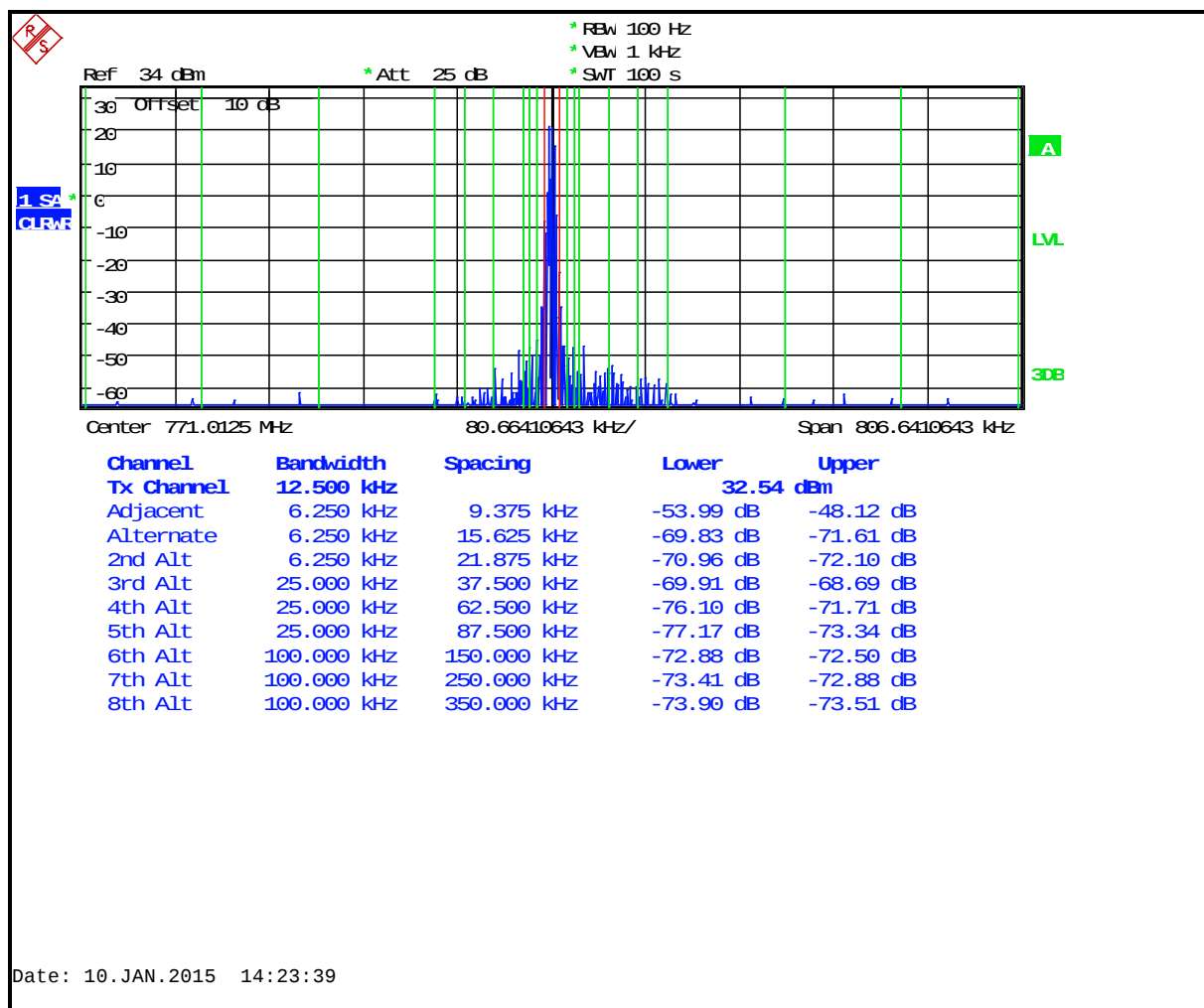


Table 6-53: Adjacent Channel Power – 771.0125 MHz; P25 Phase 2; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-81.1
12 MHz to receive band	30(s)	-75	-106.1
In receive band	30(s)	-100	-107.2

Plot 6-54: Adjacent Channel Power – 775.0125 MHz; P25 Phase 2; <400 kHz

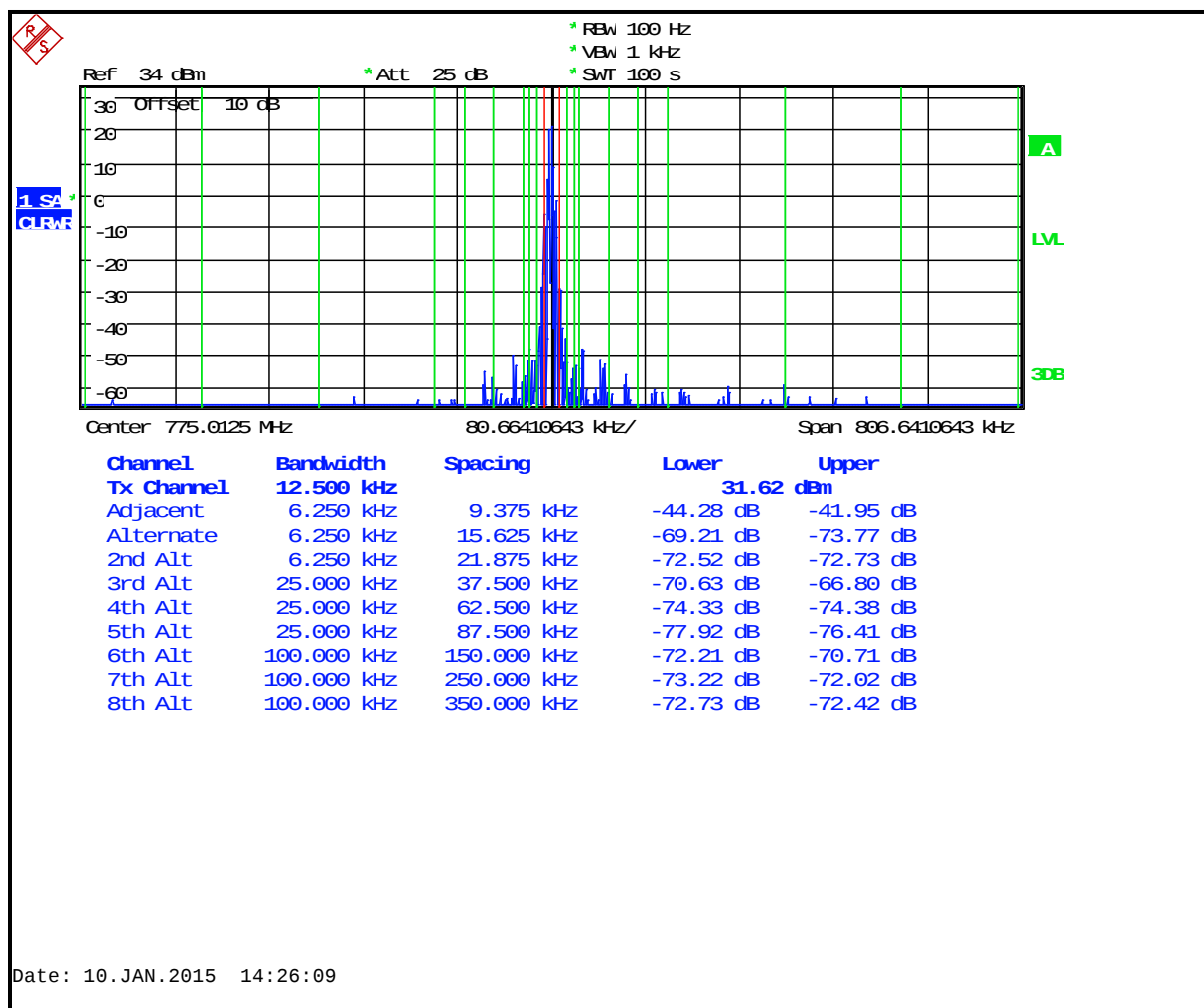


Table 6-54: Adjacent Channel Power – 775.0125 MHz; P25 Phase 2; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.5
12 MHz to receive band	30(s)	-75	-101.9
In receive band	30(s)	-100	-105.4

Plot 6-55: Adjacent Channel Power – 775.9875 MHz; P25 Phase 2; <400 kHz

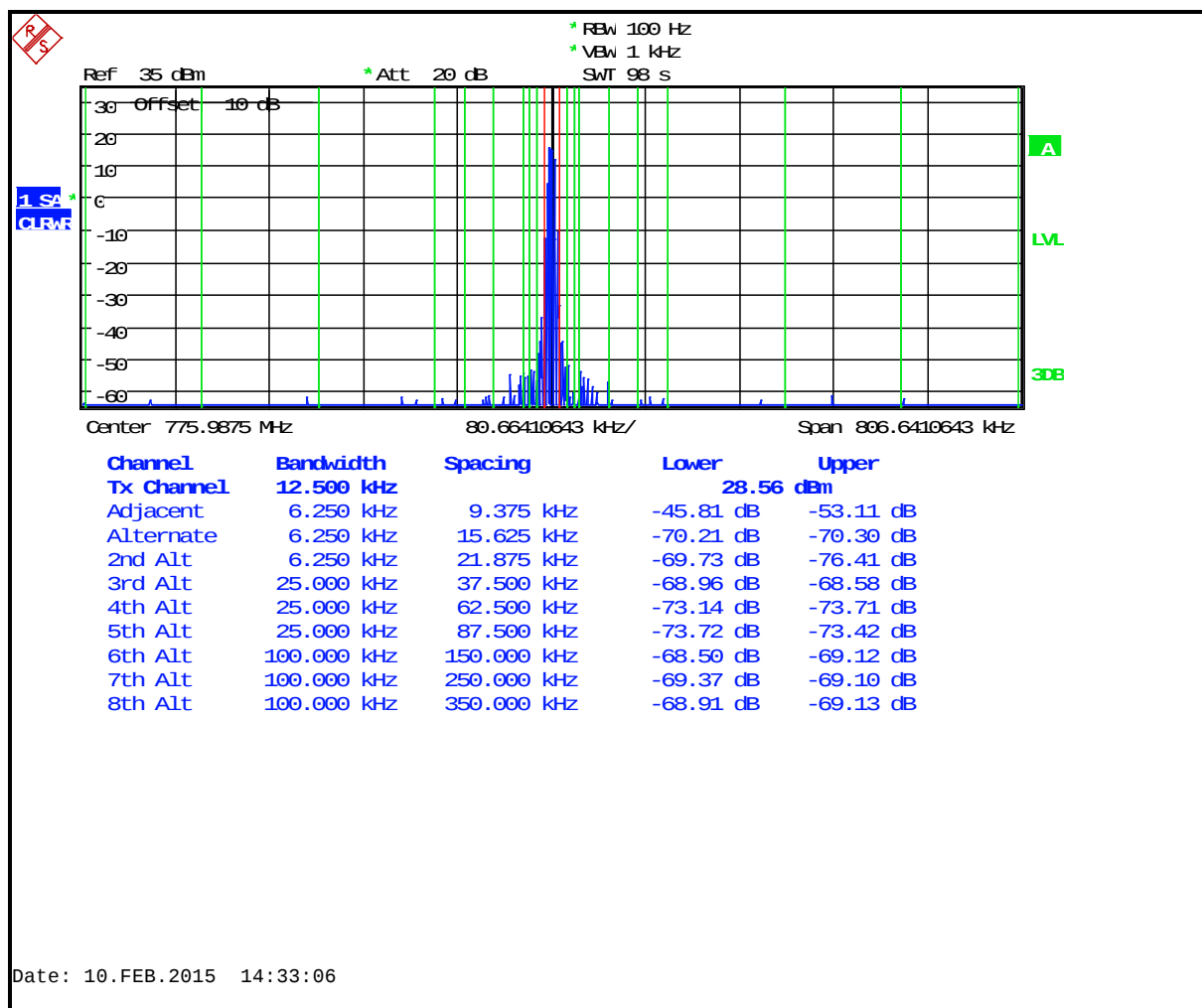


Table 6-55: Adjacent Channel Power – 775.9875 MHz; P25 Phase 2; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.6
12 MHz to receive band	30(s)	-75	-100.1
In receive band	30(s)	-100	-105.2

Plot 6-56: Adjacent Channel Power – 798.0125 MHz; P25 Phase 2; <400 kHz

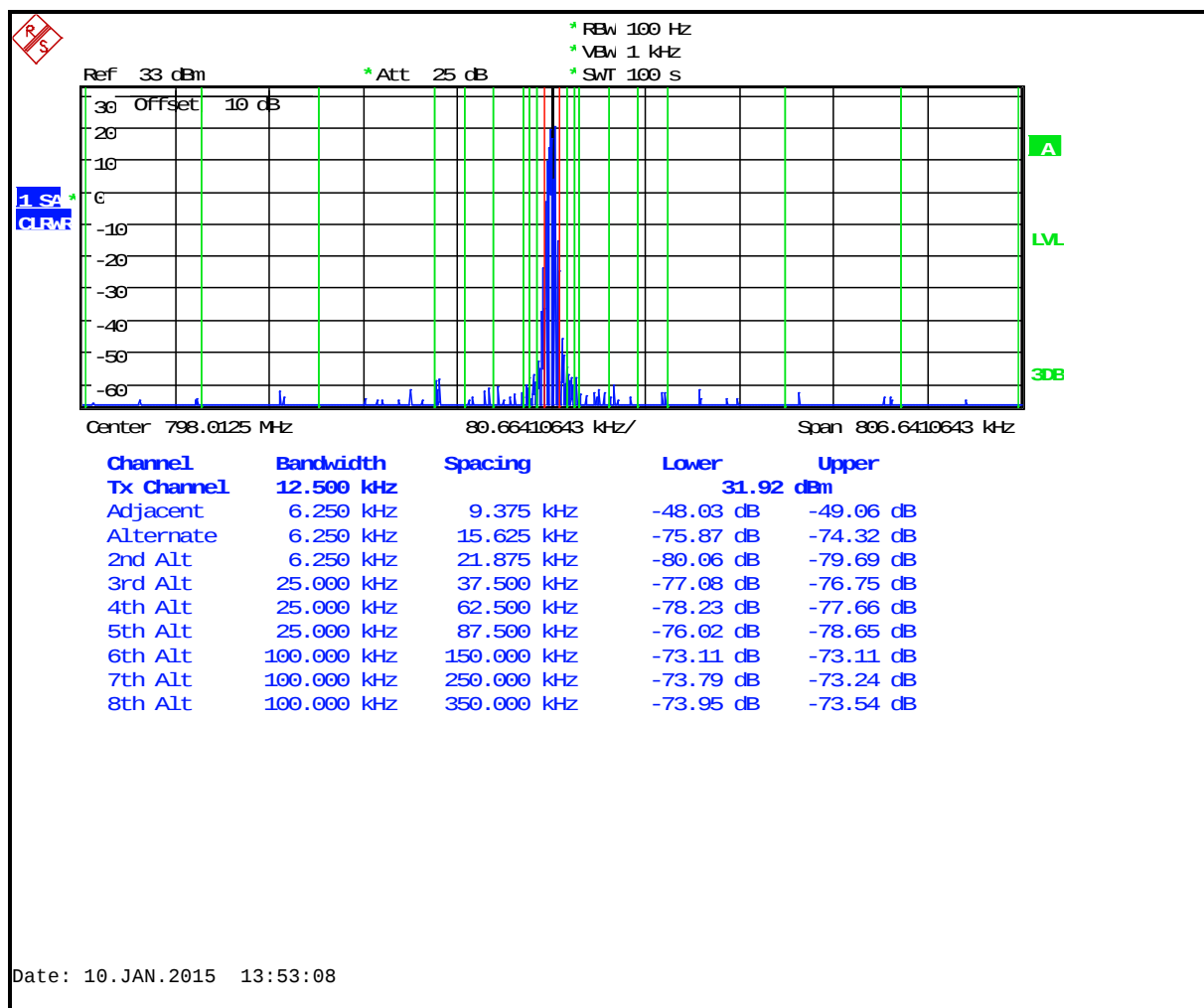


Table 6-56: Adjacent Channel Power – 798.0125 MHz; P25 Phase 2; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-80.6
12 MHz to receive band	30(s)	-75	-101.4
In receive band	30(s)	-100	-101.7

Plot 6-57: Adjacent Channel Power – 799.0125 MHz; P25 Phase 2; <400 kHz

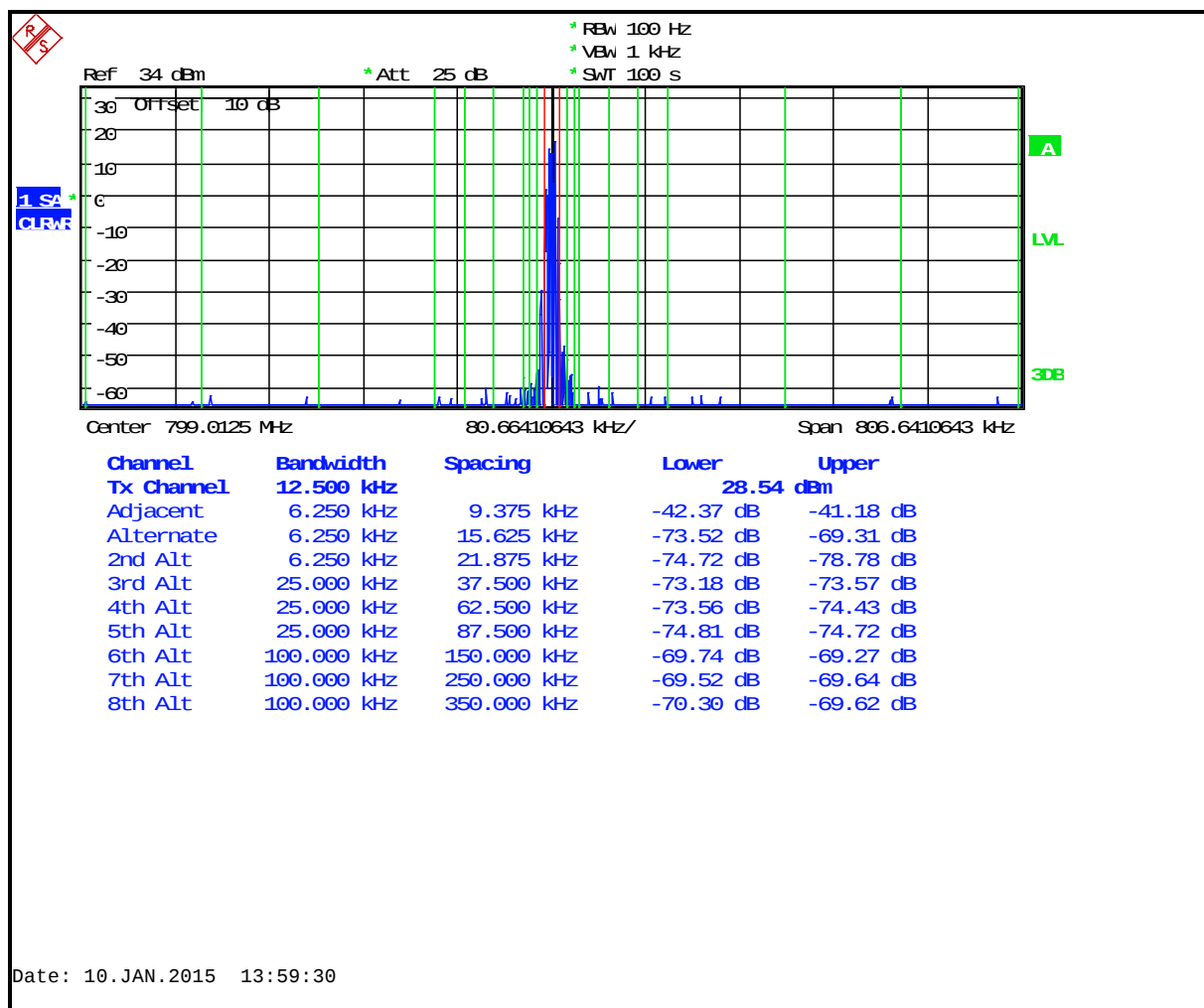


Table 6-57: Adjacent Channel Power – 799.0125 MHz; P25 Phase 2; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-81.4
12 MHz to receive band	30(s)	-75	-99.1
In receive band	30(s)	-100	-103.0

Plot 6-58: Adjacent Channel Power – 801.0125 MHz; P25 Phase 2; <400 kHz

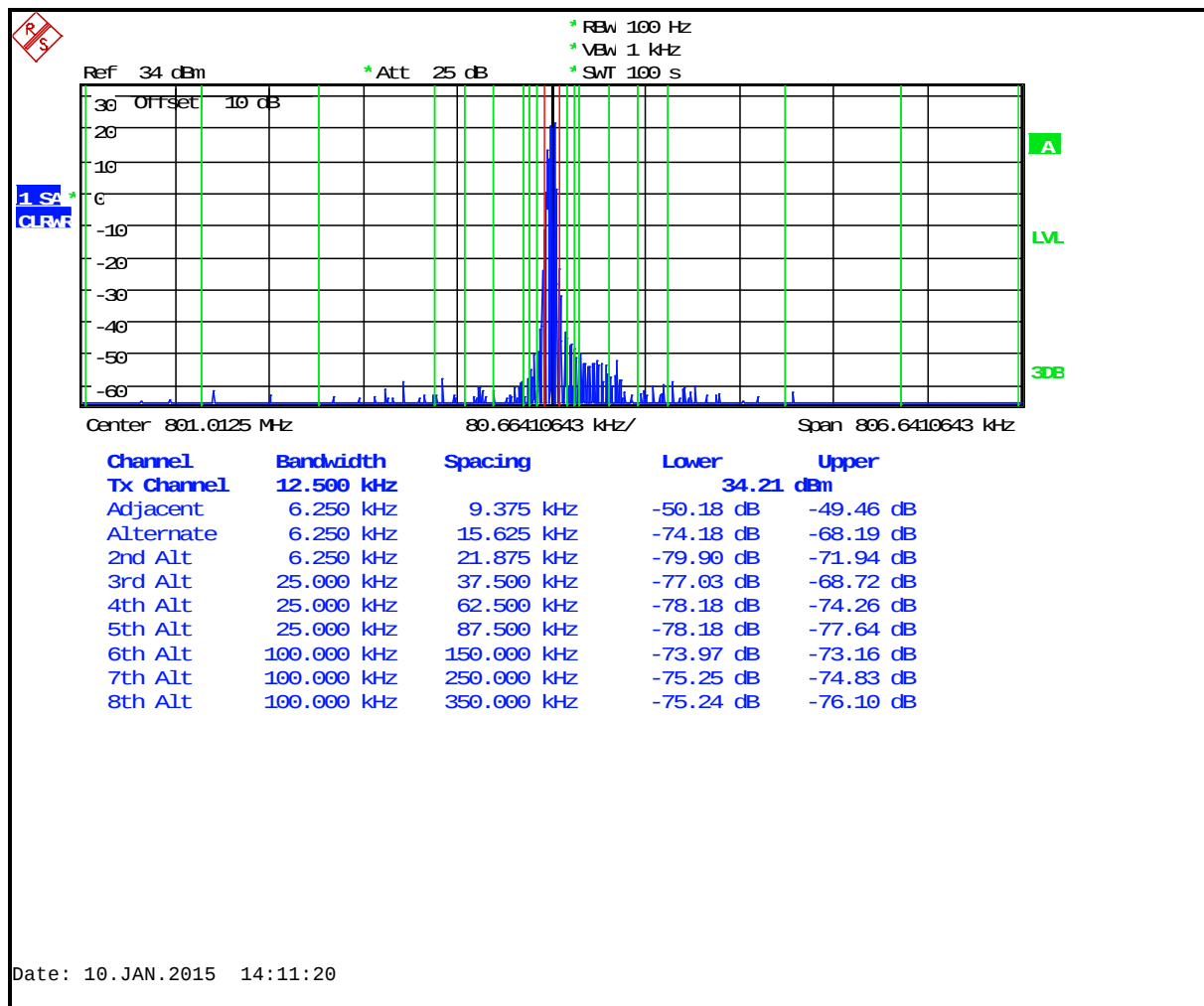


Table 6-58: Adjacent Channel Power – 801.0125 MHz; P25 Phase 2; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-83.1
12 MHz to receive band	30(s)	-75	-100.4
In receive band	30(s)	-100	-106.0

Plot 6-59: Adjacent Channel Power – 805.0125 MHz; P25 Phase 2; <400 kHz

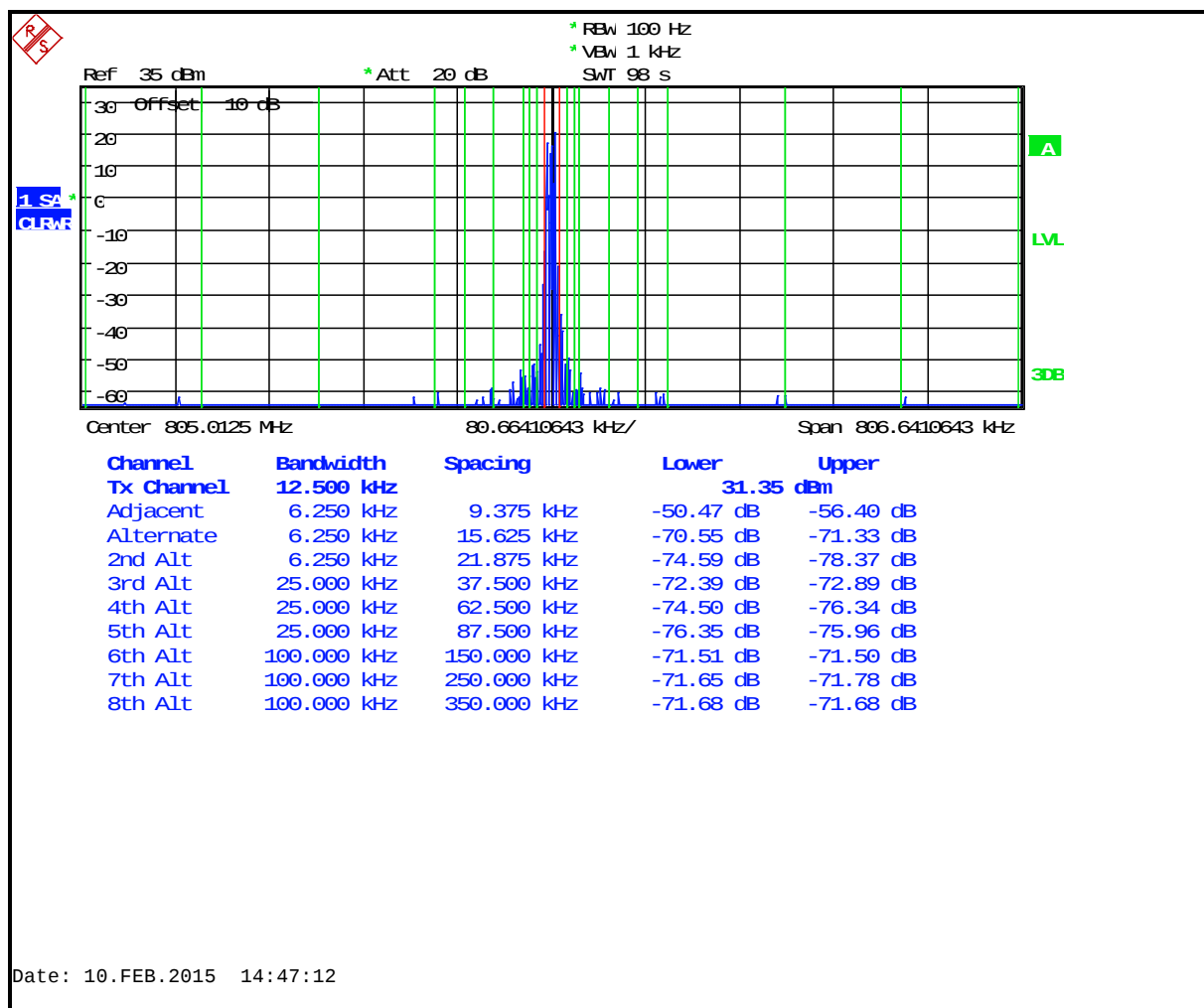


Table 6-59: Adjacent Channel Power – 805.0125 MHz; P25 Phase 2; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-81.7
12 MHz to receive band	30(s)	-75	-96.2
In receive band	30(s)	-100	-107.7

Plot 6-60: Adjacent Channel Power – 805.9875 MHz; P25 Phase 2; <400 kHz

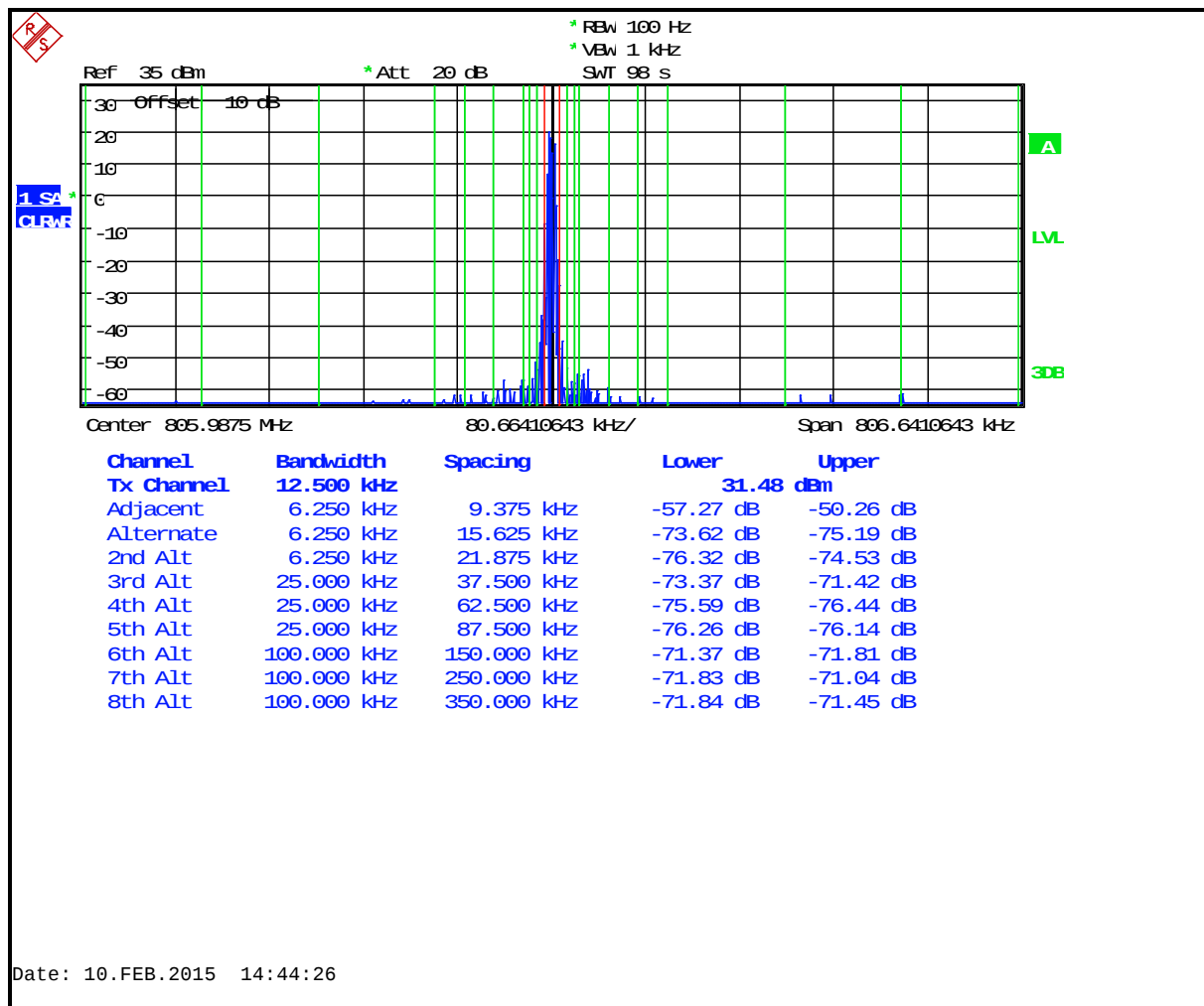


Table 6-60: Adjacent Channel Power – 805.9875 MHz; P25 Phase 2; 400 kHz – RX band

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-81.0
12 MHz to receive band	30(s)	-75	-94.8
In receive band	30(s)	-100	-105.2

Table 6-61: Test Equipment Used For Testing ACP Requirements

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901581	Rohde & Schwarz	FSU	Spectrum Analyzer	1166.1660.50	11/13/15
900948	Weinschel Corporation	47-10-43	Attenuator DC-18 GHz 10 dB 50W	BH1487	6/16/15
900819	Weinschel Corporation	2	10 dB Attenuator; 5 W	BF0830	7/1/15
901139	Weinschel Corporation	48-20-34 DC-18GHz	Attenuator, 100W 20dB	BK5859	3/25/16

Test Personnel:

Daniel Baltzell		January 9-10 & February 10, 2015
EMC Test Engineer	Signature	Dates of Tests

7 FCC Rules and Regulations Part 90.210(g) and Part 2.1053(a): Field Strength of Spurious Radiation; Part 90.543(f): Out of Band Emissions Limit

7.1 Test Procedure

TIA-603-D 2010, section 2.2.12

Analog Modulation: The transmitter is terminated with a 50 Ω load and is modulated with a 2,500 Hz sine wave at an input level 16 dB greater than that required to produce 50% of the rated system deviation at 1,000 Hz.

Device with digital modulation: Modulated to its maximum extent using a pseudo-random data sequence – 19,200 bps for OTP and 9,600 bps for P25 and EDACS modes.

The spurious emissions levels were measured, and the device under test was replaced by a substitution antenna connected to a signal generator. This signal generator level was then corrected by subtracting the cable loss from the substitution antenna to the signal generator, and the gain of the antenna (dBi) was added to achieve the EIRP level, then converted from the corrected signal generator level (dBm) to dBW for the GNSS band and compared to the limit.

For emissions in the 1559-1610 band, Part 15.543(f) states: "For operations in the 763–775 MHz and 793–805 MHz bands, all emissions including harmonics in the band 1559–1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation."

7.2 Test Data

7.2.1 CFR 47 Part 90.210 Requirements

The magnitude of emissions attenuated more than 20 dB below the FCC limit need not be recorded.

The following emissions were found to be within a 20 dB margin of the limit. All other emissions are not listed.

Table 7-1: Field Strength of Spurious Radiation – 806.0125 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Substitution Measurement (dBm)	Substitution Cable Loss (dB)	Substitution Antenna Gain (dBi)	Corrected Signal Generator Level (dBd)	Margin (dB)
2418.038	41.7	-34.7	0.5	9.5	69.6	-14.7

Table 7-2: Field Strength of Spurious Radiation – 815 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Substitution Measurement (dBm)	Substitution Cable Loss (dB)	Substitution Antenna Gain (dBi)	Corrected Signal Generator Level (dBd)	Margin (dB)
2445.000	31.6	-46.8	0.5	9.5	72.8	-17.8

Table 7-3: Field Strength of Spurious Radiation – 823.9875 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Substitution Measurement (dBm)	Substitution Cable Loss (dB)	Substitution Antenna Gain (dBi)	Corrected Signal Generator Level (dBd)	Margin (dB)
2471.963	34.6	-41.8	0.5	9.5	67.8	-12.8

Table 7-4: Field Strength of Spurious Radiation – 851.0125 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Substitution Measurement (dBm)	Substitution Cable Loss (dB)	Substitution Antenna Gain (dBi)	Corrected Signal Generator Level (dBd)	Margin (dB)
2553.038	31.0	-45.2	0.5	9.5	71.2	-16.2

Table 7-5: Field Strength of Spurious Radiation – 860 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Substitution Measurement (dBm)	Substitution Cable Loss (dB)	Substitution Antenna Gain (dBi)	Corrected Signal Generator Level (dBd)	Margin (dB)
2580.000	33.2	-45.3	0.5	9.6	71.1	-16.2

Table 7-6: Field Strength of Spurious Radiation – 868.9875 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Substitution Measurement (dBm)	Substitution Cable Loss (dB)	Substitution Antenna Gain (dBi)	Corrected Signal Generator Level (dBd)	Margin (dB)
2606.963	35.7	-42.3	0.5	9.6	68.1	-13.2

7.2.2 CFR 47 Part 90.543(f) Requirements

The worst-case emissions test data are shown.

Limit: -80 dBW EIRP for discrete emissions

Table 7-7: Field Strength of Spurious Radiation

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBW)	Margin (dB)
1536.025	25.6	-48.6	0.4	8.0	-71.0	-1.0
1538.025	22.8	-51.8	0.4	8.0	-74.2	-4.2
1542.025	23.5	-50.7	0.4	8.1	-73.0	-3.0
1596.025	23.1	-52.0	0.4	8.8	-73.6	-3.6
1598.025	26.1	-48.8	0.4	8.9	-70.3	-0.3
1602.025	22.0	-52.8	0.4	8.9	-74.3	-4.3

Table 7-8: Test Equipment Used for Testing Field Strength of Spurious Radiation

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900932	Hewlett Packard	8449B OPT H02	Preamplifier (1 - 26.5 GHz)	3008A00505	9/10/16
900878	Rhein Tech Laboratories	AM3-1197-0005	3 meter antenna mast, polarizing	OATS1	N/A
901592	Insulated Wire Inc.	KPS-1503-3600-KPR	SMK RF Cables 20'	NA	9/4/16
901593	Insulated Wire Inc.	KPS-1503-360-KPR	SMK RF Cables 36"	NA	9/4/16
901594	Insulated Wire Inc.	KPS-1503-360-KPR	SMK RF Cables 36"	NA	9/4/16
901242	Rhein Tech Laboratories	WRT-000-0003	Wood rotating table	N/A	N/A
901581	Rohde & Schwarz	FSU	Spectrum Analyzer	1166.1660.50	11/13/16
901582	Rohde & Schwarz	1167.0000.02	Signal Generator	101903	11/14/16
900791	Chase	CBL6111B	Bilog Antenna (30 MHz – 2000 MHz)	N/A	6/11/17
900321	EMCO	3161-03	Horn Antennas (4 – 8 GHz)	9508-1020	4/9/18
900323	EMCO	3160-07	Horn Antennas (8.2 – 12 GHz)	9605-1054	4/9/18
900772	EMCO	3161-02	Horn Antenna (2 - 4 GHz)	9804-1044	4/9/18
901132	Par Electronics	806-902 (25W)	UHF Notch Filter	N/A	9/16/16
901133	Par Electronics	806-902 (25W)	UHF Notch Filter	N/A	9/16/16

Test Personnel:

Daniel Baltzell		January 13-February 9, 2015, January 12, 2016
Test Engineer	Signature	Dates of Tests

8 FCC Rules and Regulations Part 2.1049(c)(1): Occupied Bandwidth; Part 90.210: Authorized Bandwidth

Occupied Bandwidth - Compliance with the Emission Masks

8.1 Test Procedure

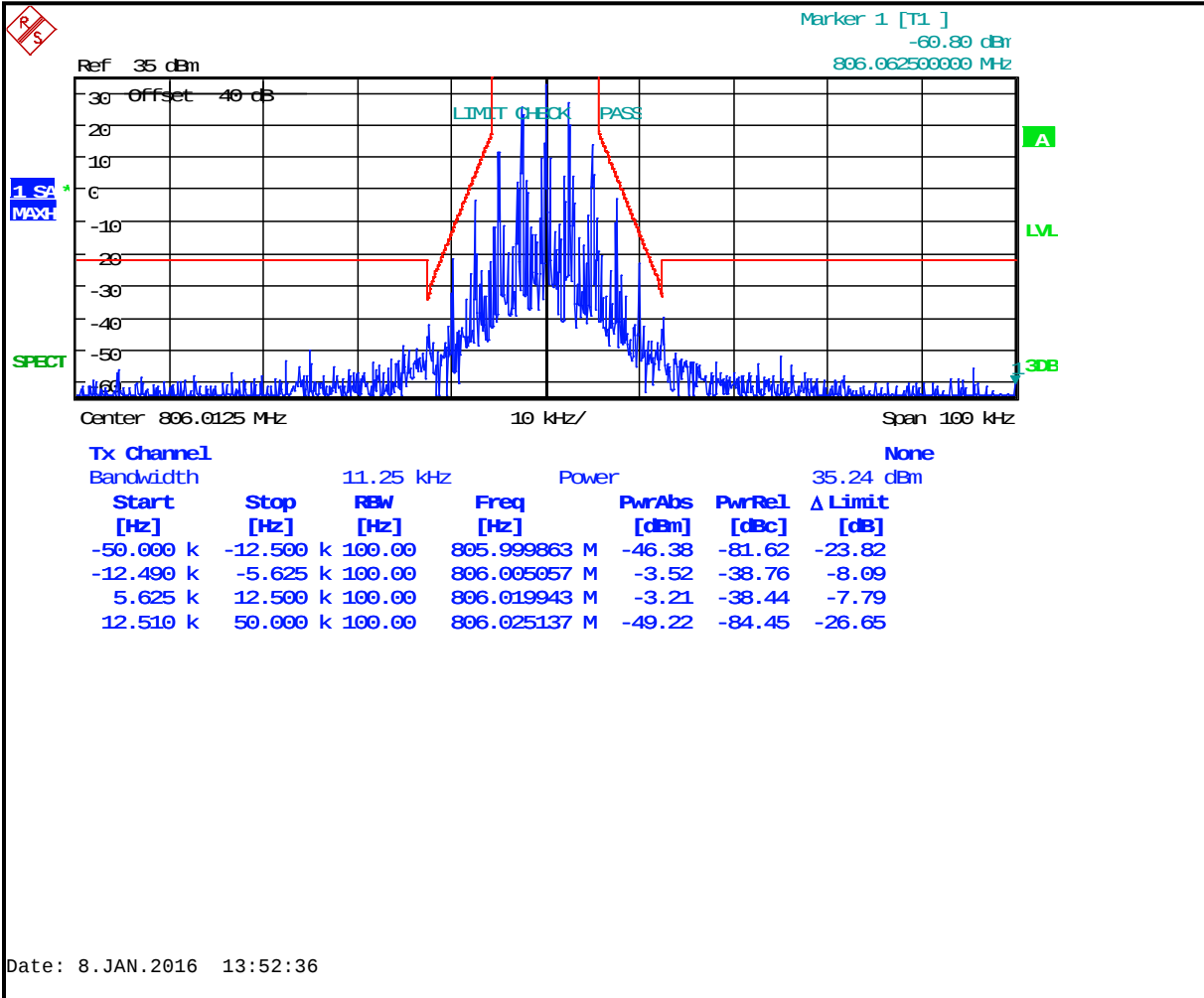
TIA-603-D 2010, section 2.2.11 and TIA/EIA-102.CAAA-2002 section 2.2.5

Device with digital modulation: Modulated to its maximum extent using a pseudo-random data sequence.

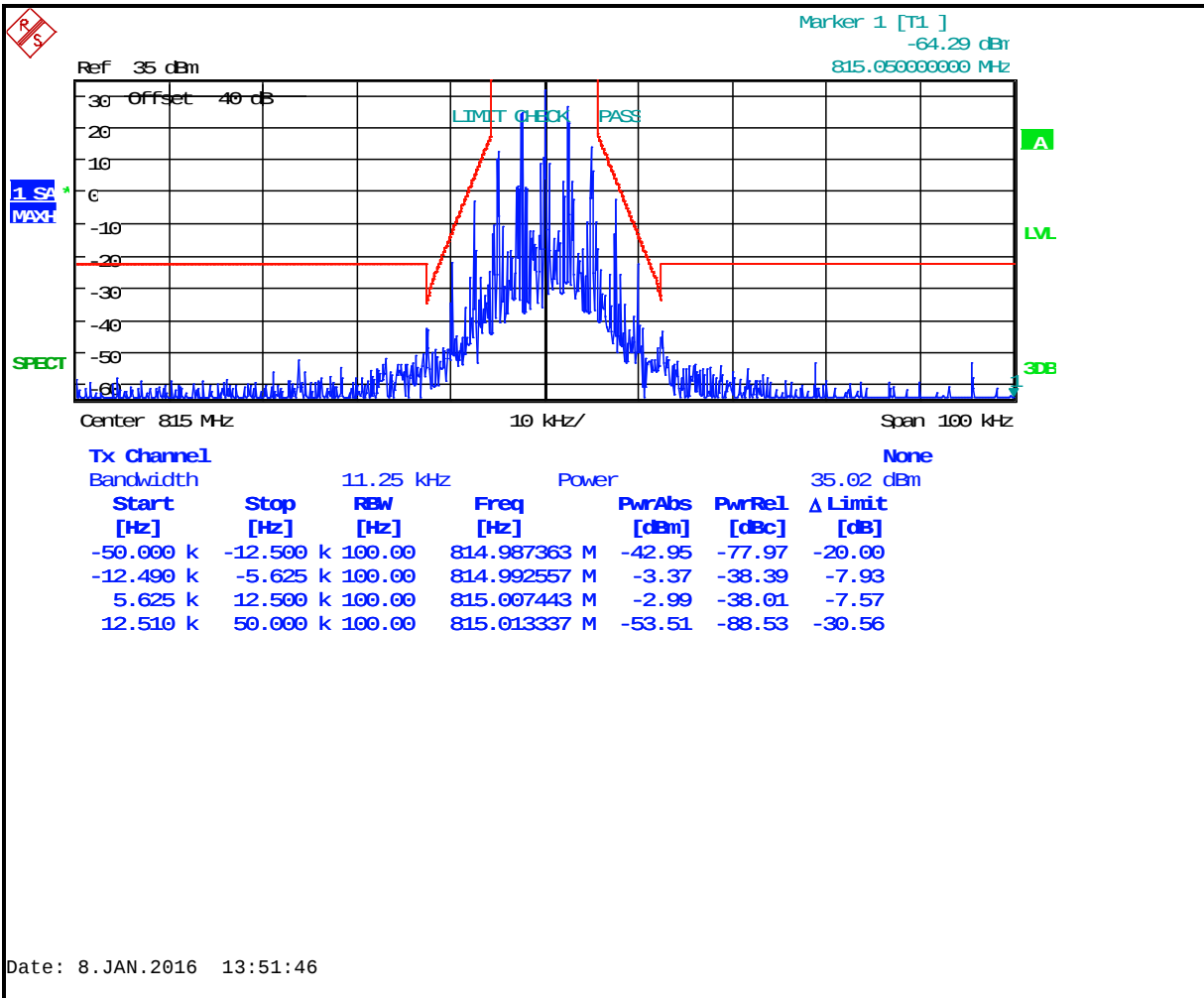
Applicable Emission Masks		
Frequency Band (MHz)	Mask for Equipment with Audio Low Pass Filter	Mask for Equipment Without Audio Low Pass Filter
Below 25 ¹	A or B	A or C
25–50.....	B	C
72–76.....	B	C
150–174 ²	B, D, or E	C, D, or E
150 Paging-only	B	C
220–222	F	F
421–512 ²	B, D, or E	C, D, or E
450 Paging-only	B	G
806–809/851–854	B	H
809–824/854–869 ³	B	G
896–901/935–940	I	J
902–928	K	K
929–930	B	G
4940–4990 MHz	L or M	L or M
5850–5925 ⁴		
All other bands	B	C
1 Equipment using single sideband J3E emission must meet the requirements of Emission Mask A. Equipment using other emissions must meet the requirements of Emission Mask B or C, as applicable. 2 Equipment designed to operate with a 25 kHz channel bandwidth must meet the requirements of Emission Mask B or C, as applicable. Equipment designed to operate with a 12.5 kHz channel bandwidth must meet the requirements of Emission Mask D, and equipment designed to operate with a 6.25 kHz channel bandwidth must meet the requirements of Emission Mask E. 3 Equipment used in this licensed to EA or non-EA systems shall comply with the emission mask provisions of § 90.691. 4 DSRCS Roadside Units equipment in the 5850–5925 MHz band is governed under subpart M of this part.		

8.2 Test Data

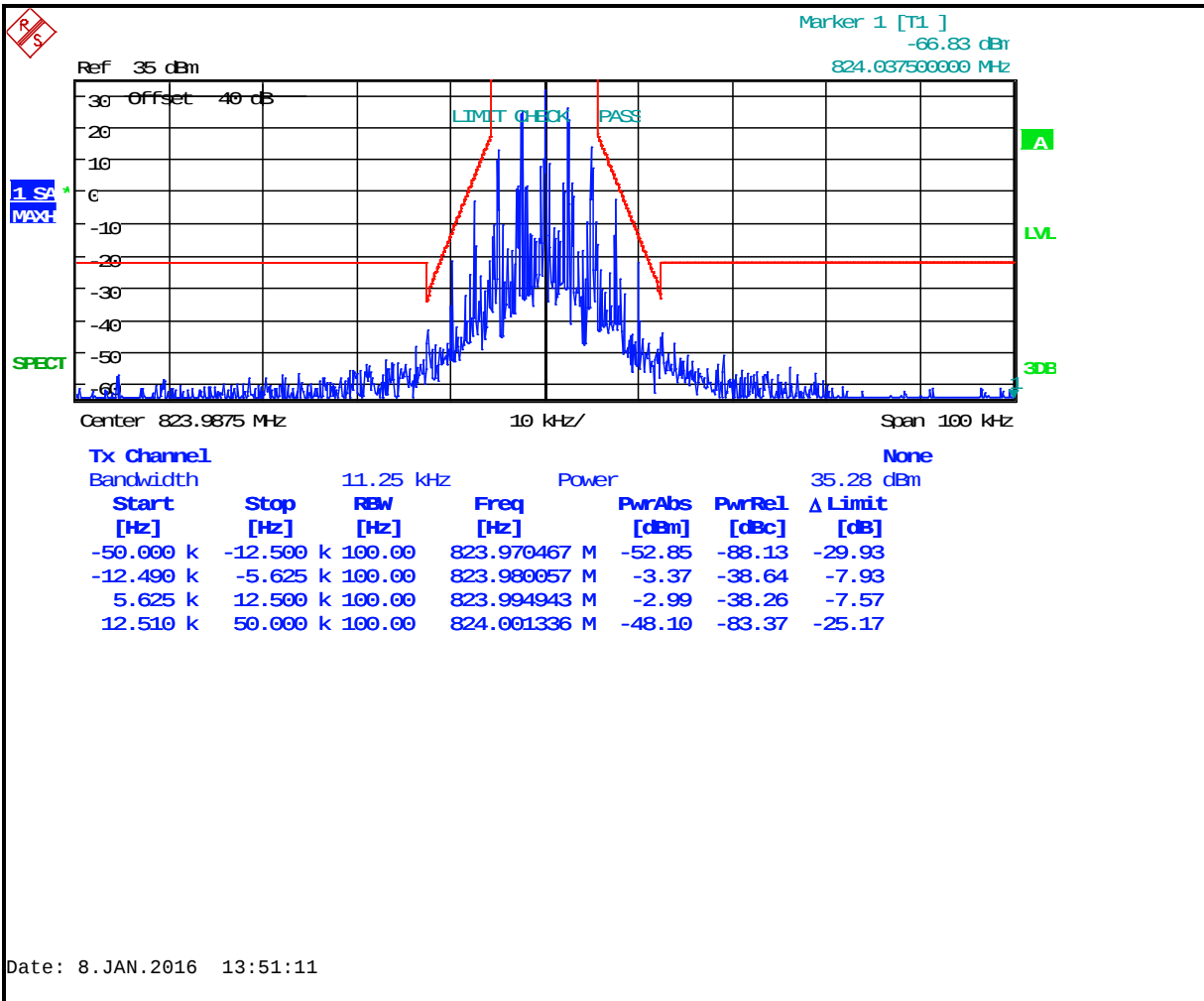
Plot 8-1: Occupied Bandwidth – 806.0125 MHz; Narrowband Analog (Mask D)



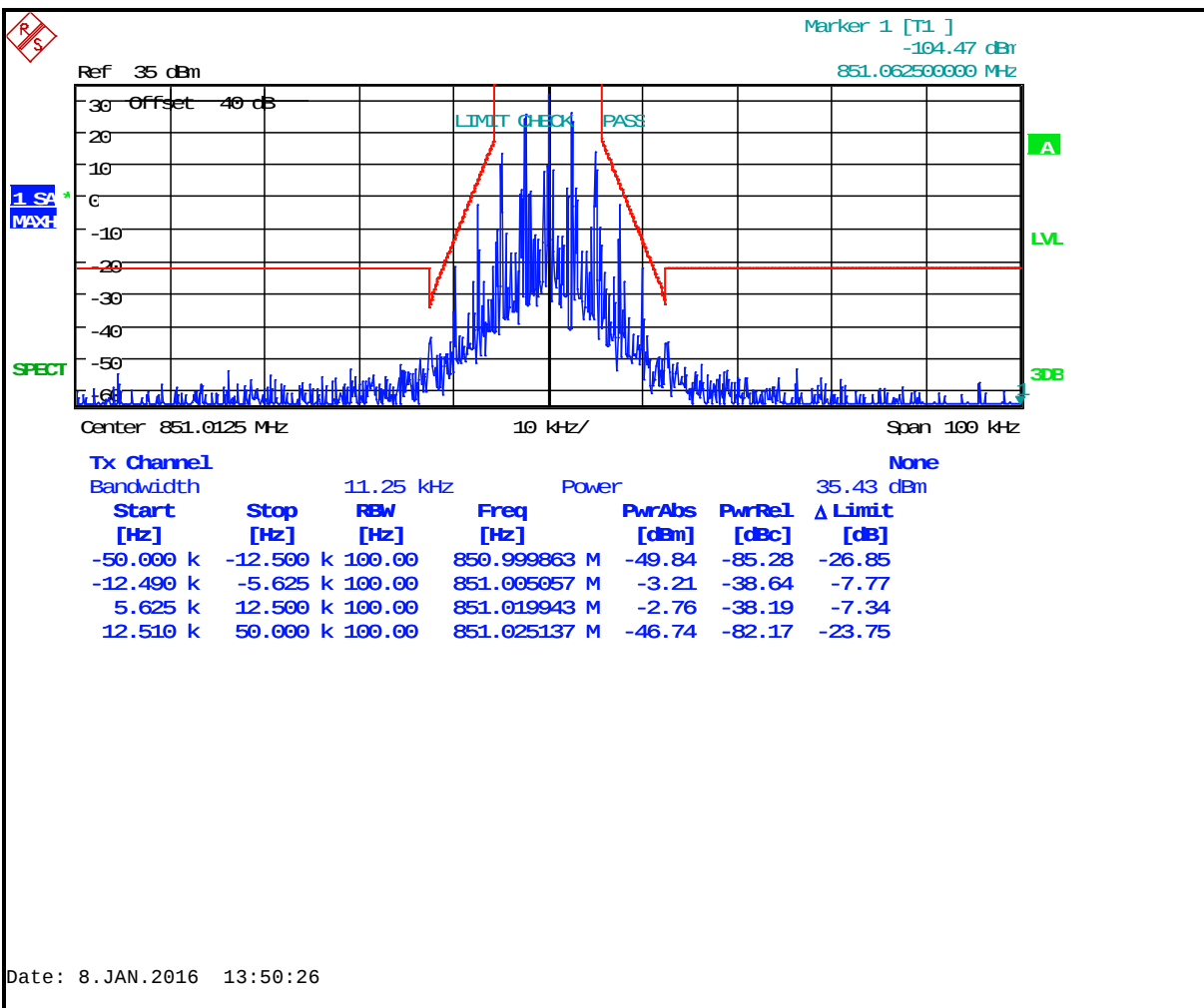
Plot 8-2: Occupied Bandwidth – 815.0000 MHz; Narrowband Analog (Mask D)



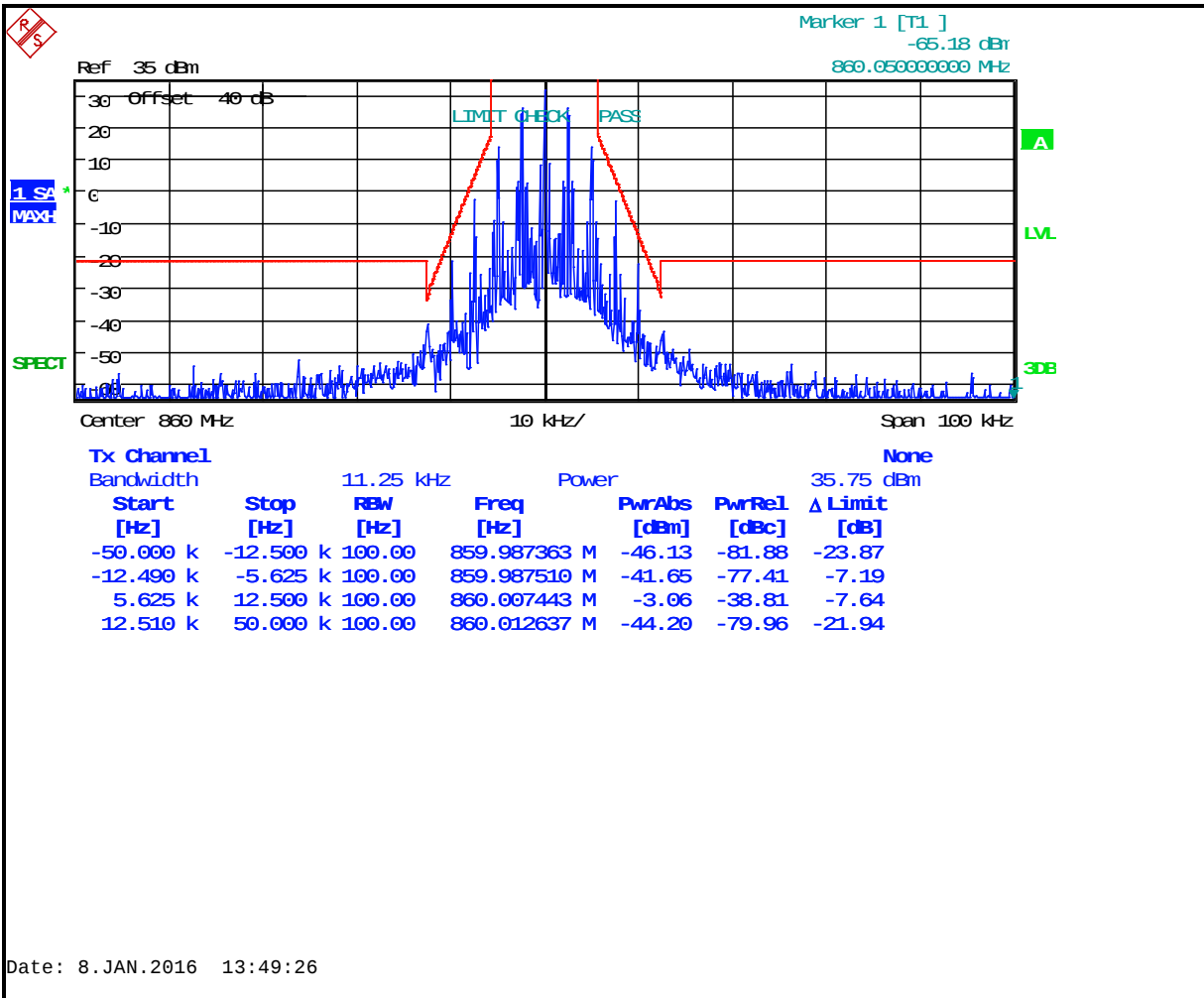
Plot 8-3: Occupied Bandwidth – 823.9875 MHz; Narrowband Analog (Mask D)



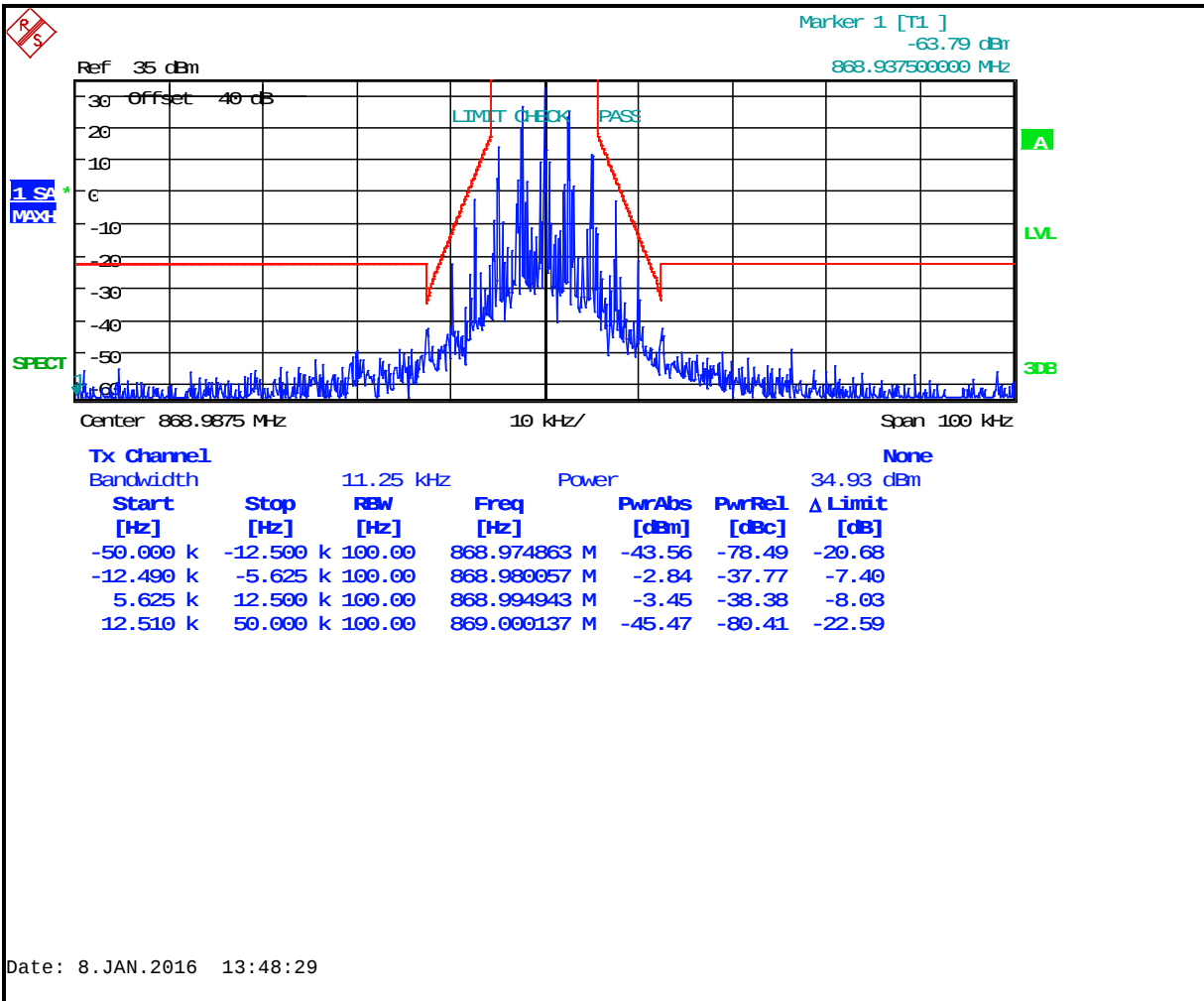
Plot 8-4: Occupied Bandwidth – 851.0125 MHz; Narrowband Analog (Mask D)



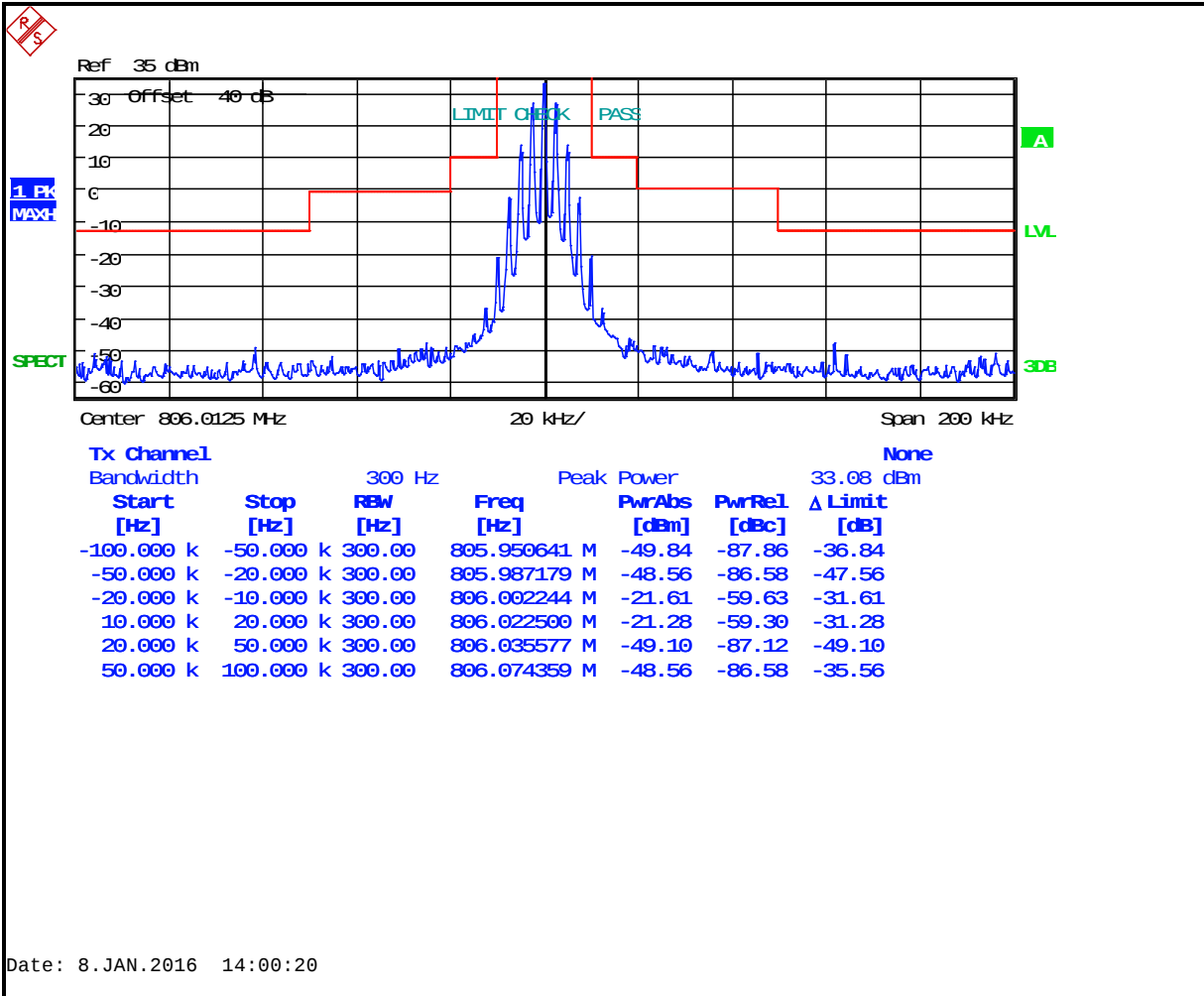
Plot 8-5: Occupied Bandwidth – 860.0000 MHz; Narrowband Analog (Mask D)



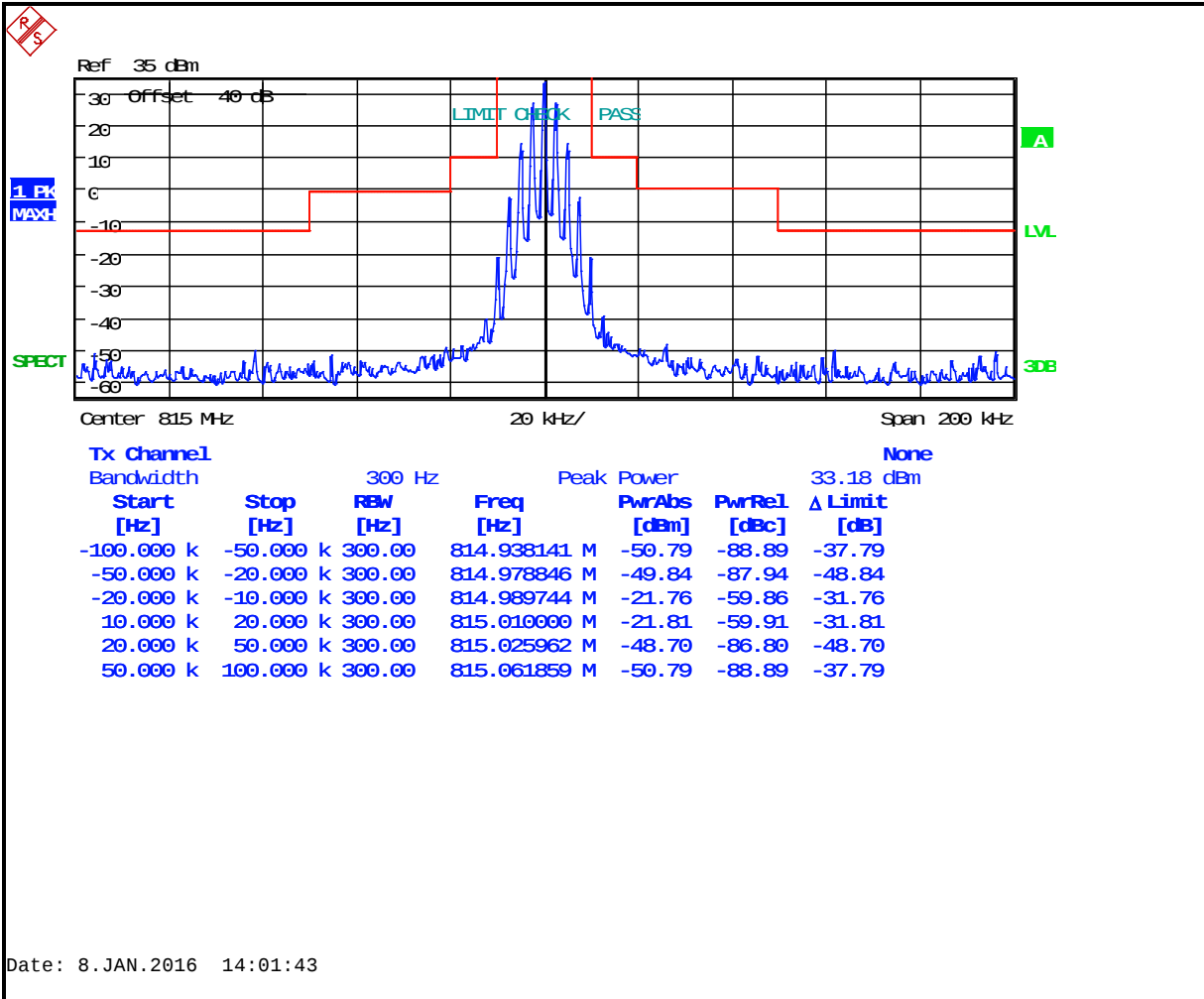
Plot 8-6: Occupied Bandwidth – 868.9875 MHz; Narrowband Analog (Mask D)



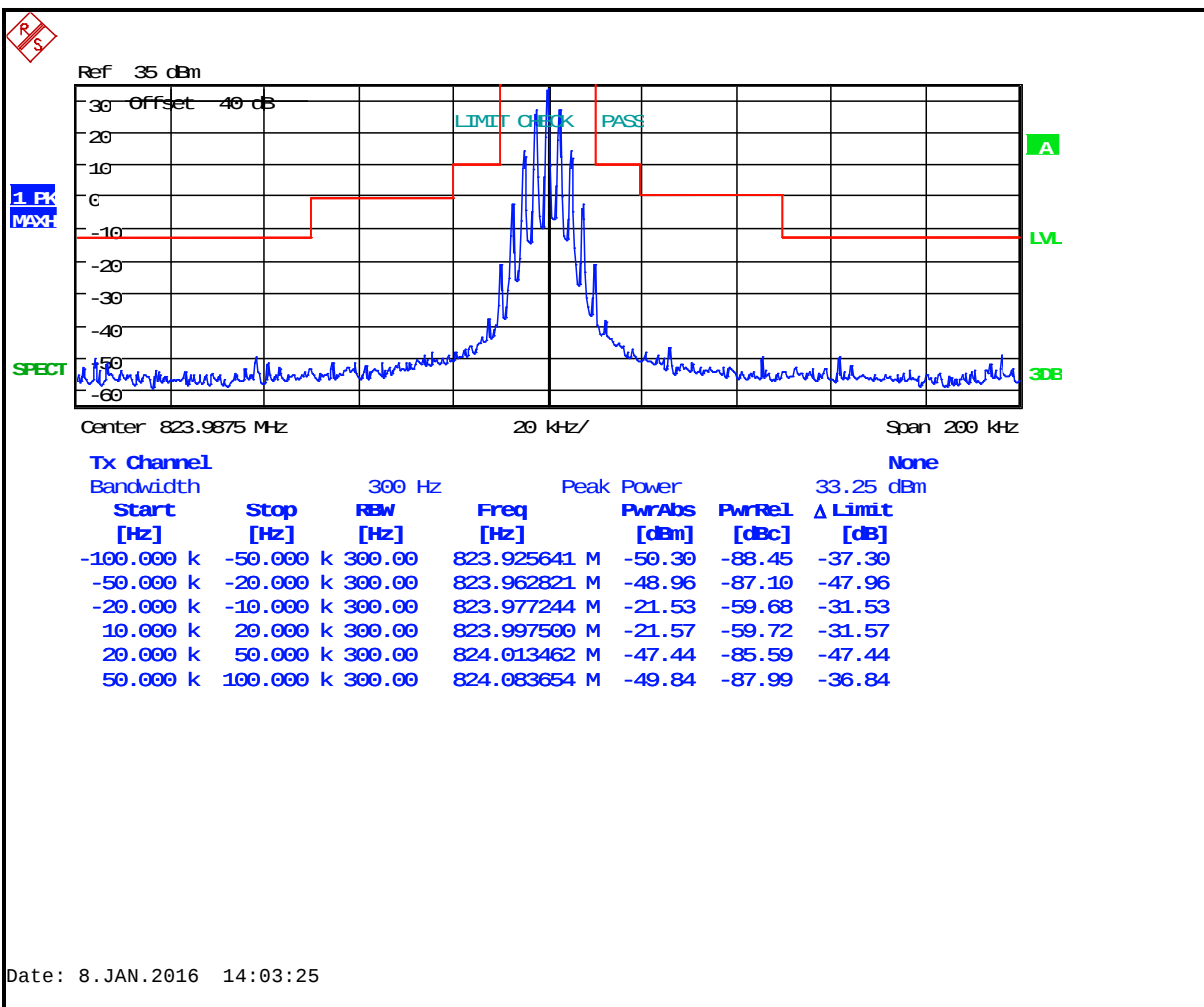
Plot 8-7: Occupied Bandwidth – 806.0125 MHz; Narrowband Analog (Mask B)



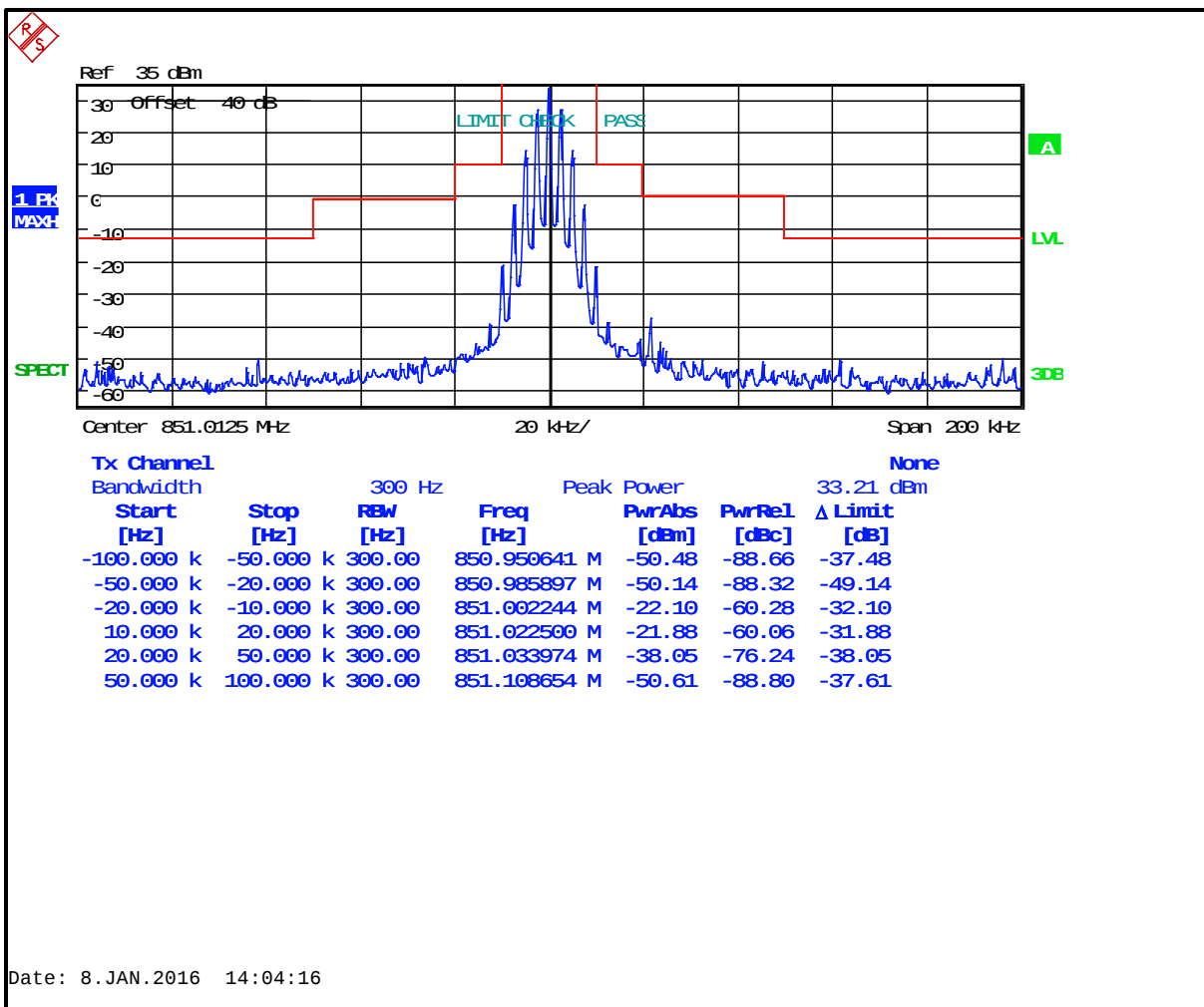
Plot 8-8: Occupied Bandwidth – 815.0000 MHz; Narrowband Analog (Mask B)



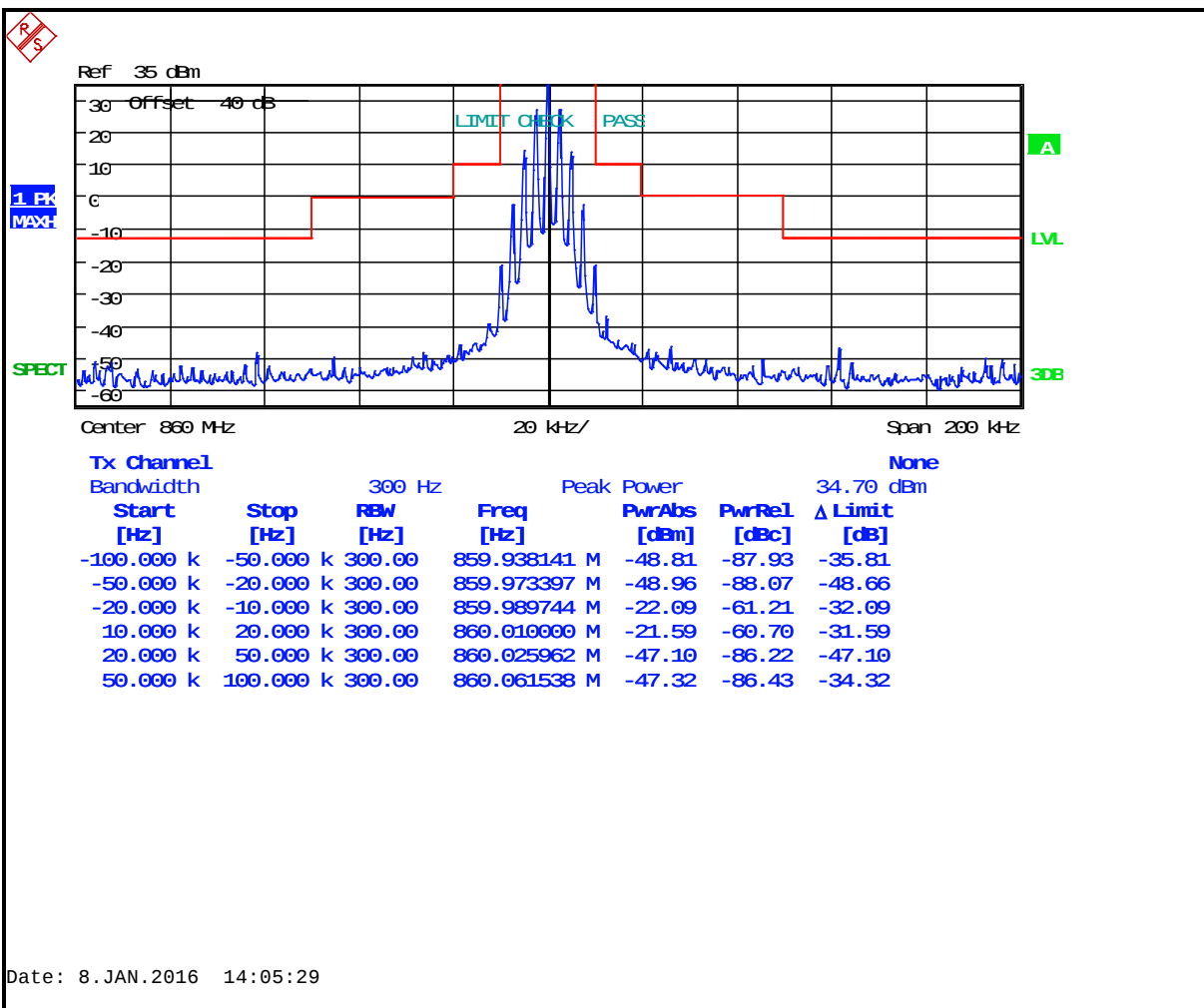
Plot 8-9: Occupied Bandwidth – 823.9875 MHz; Narrowband Analog (Mask B)



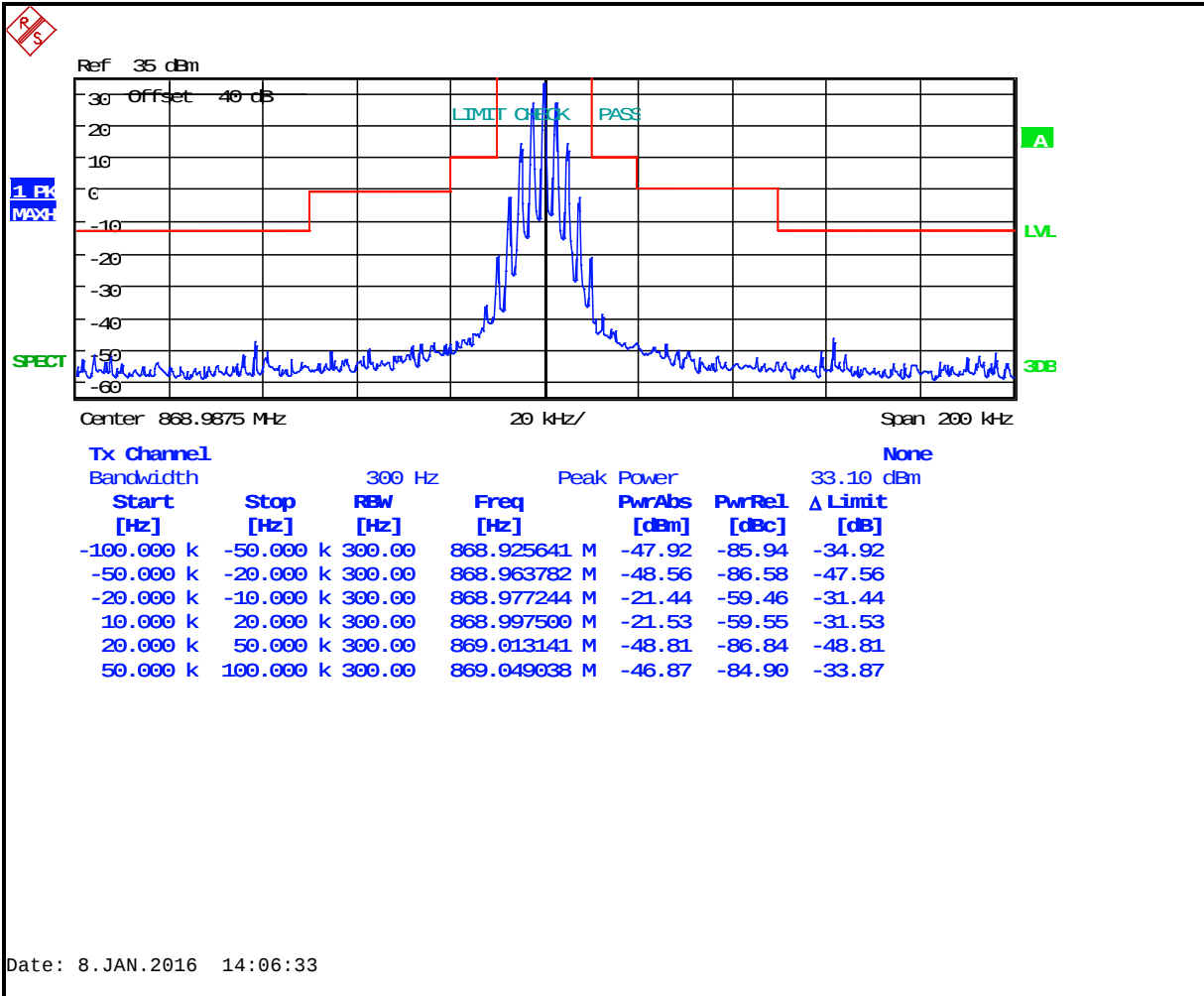
Plot 8-10: Occupied Bandwidth – 851.0125 MHz; Narrowband Analog (Mask B)



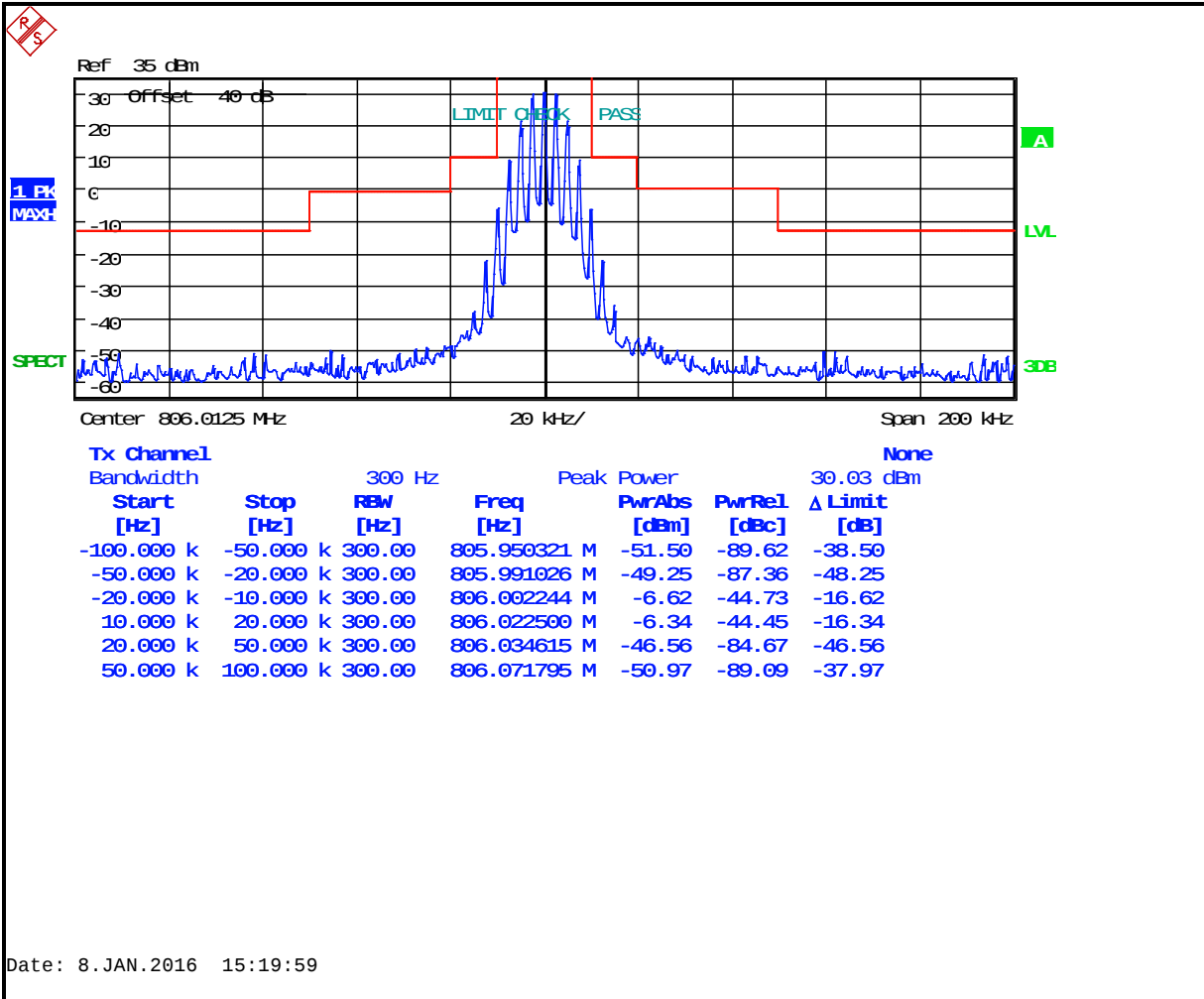
Plot 8-11: Occupied Bandwidth – 860.0000 MHz; Narrowband Analog (Mask B)



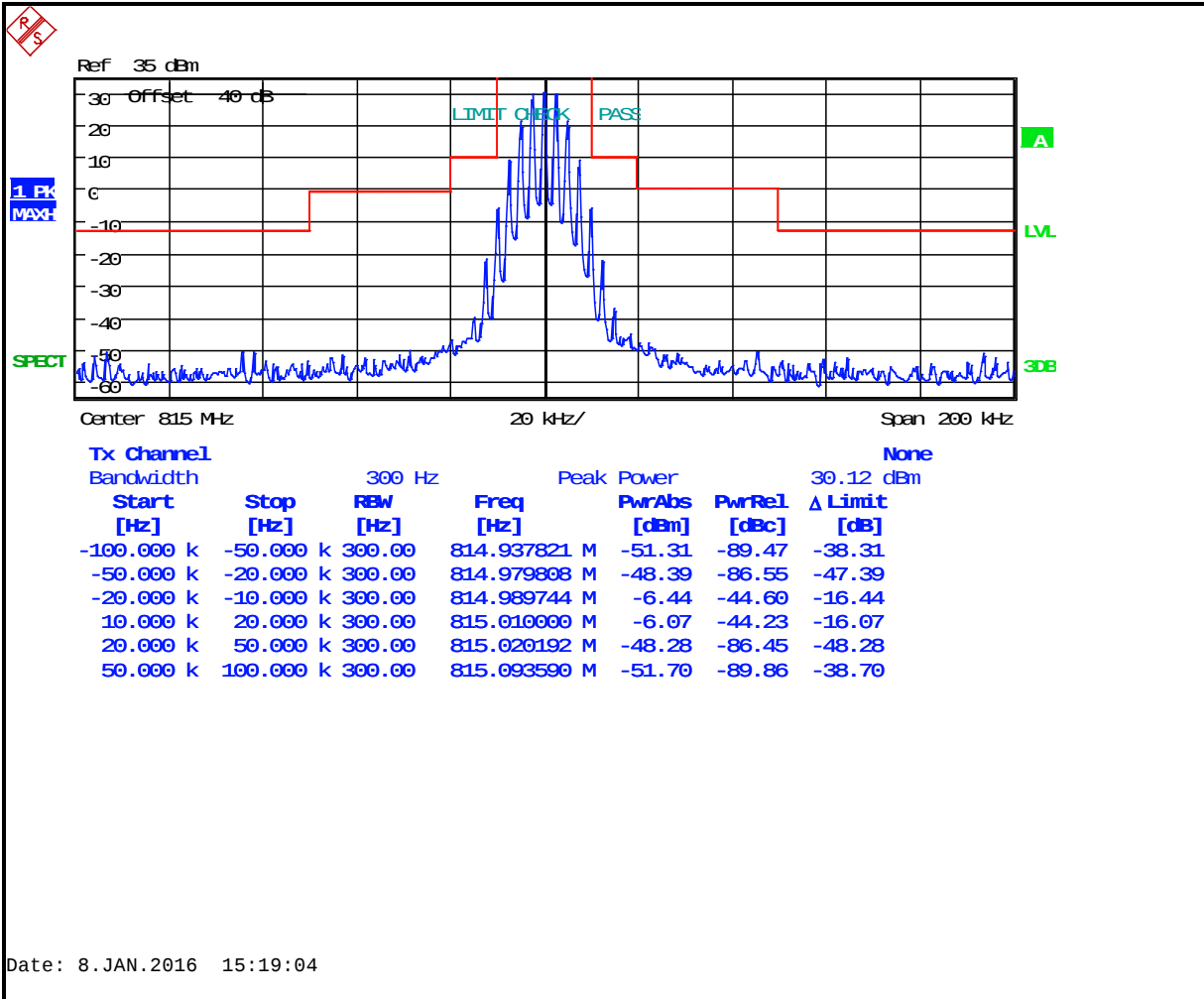
Plot 8-12: Occupied Bandwidth – 868.9875 MHz; Narrowband Analog (Mask B)



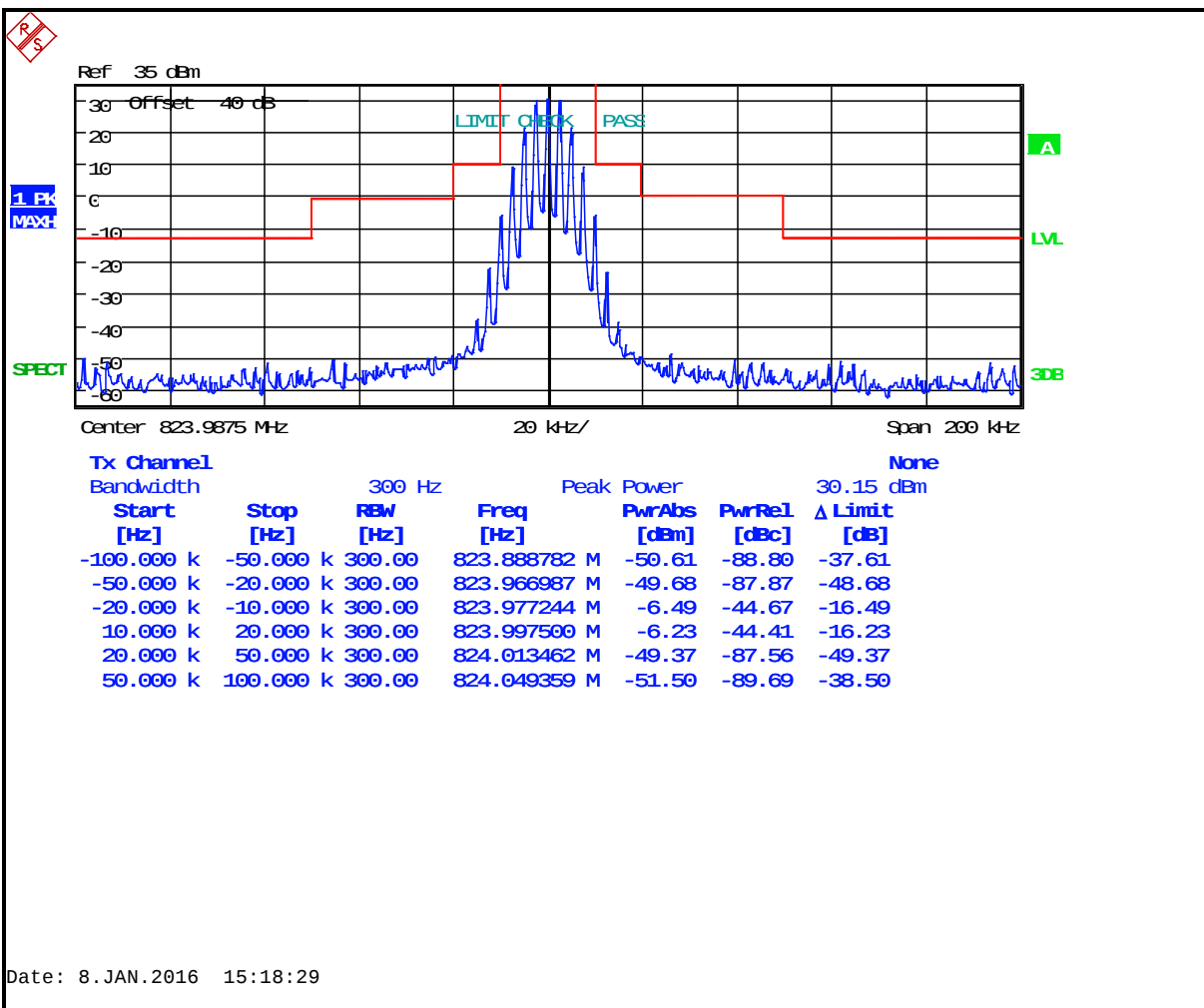
Plot 8-13: Occupied Bandwidth – 806.0125 MHz; NPSPAC Analog (Mask B)



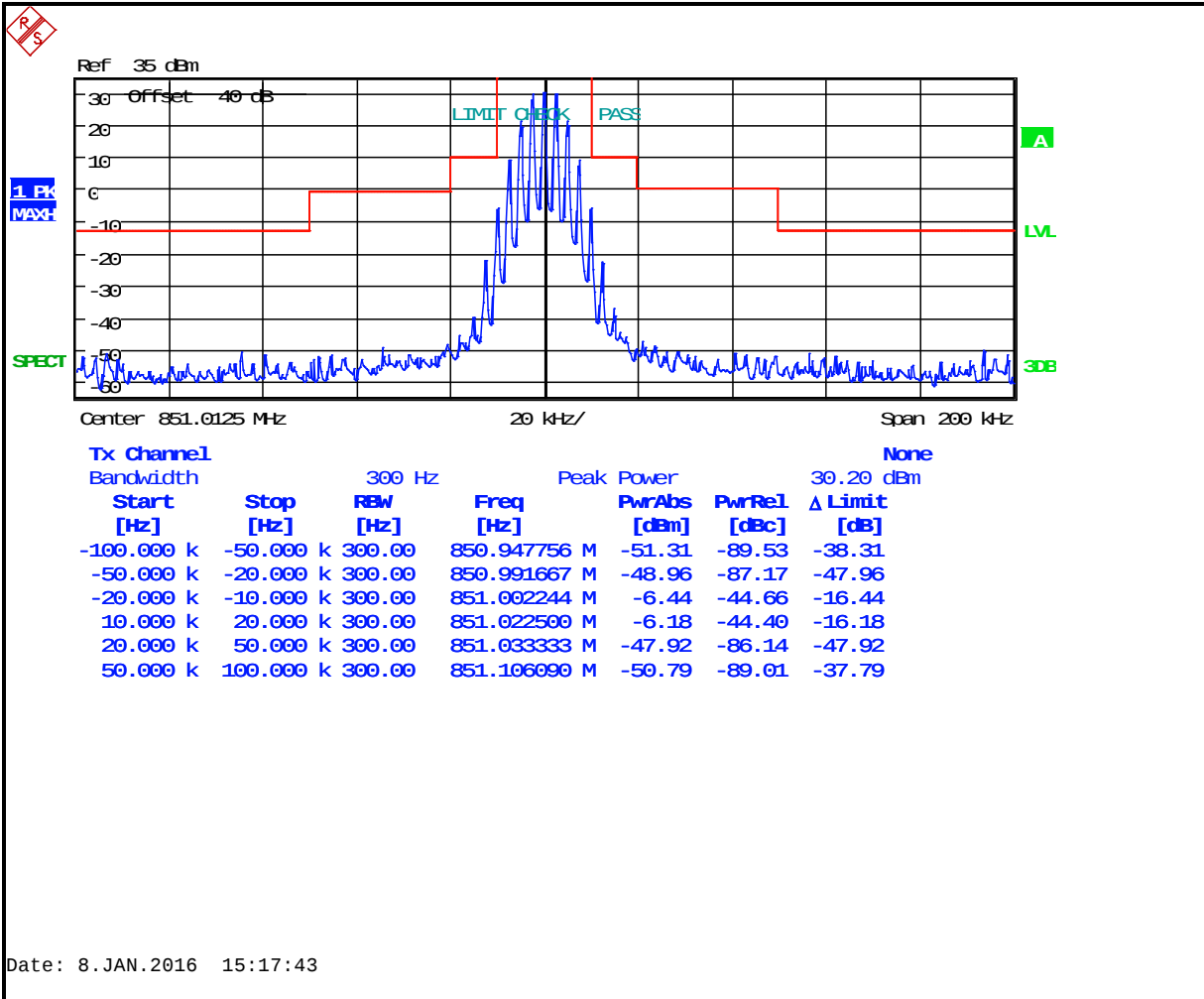
Plot 8-14: Occupied Bandwidth – 815.0000 MHz; NPSPAC Analog (Mask B)



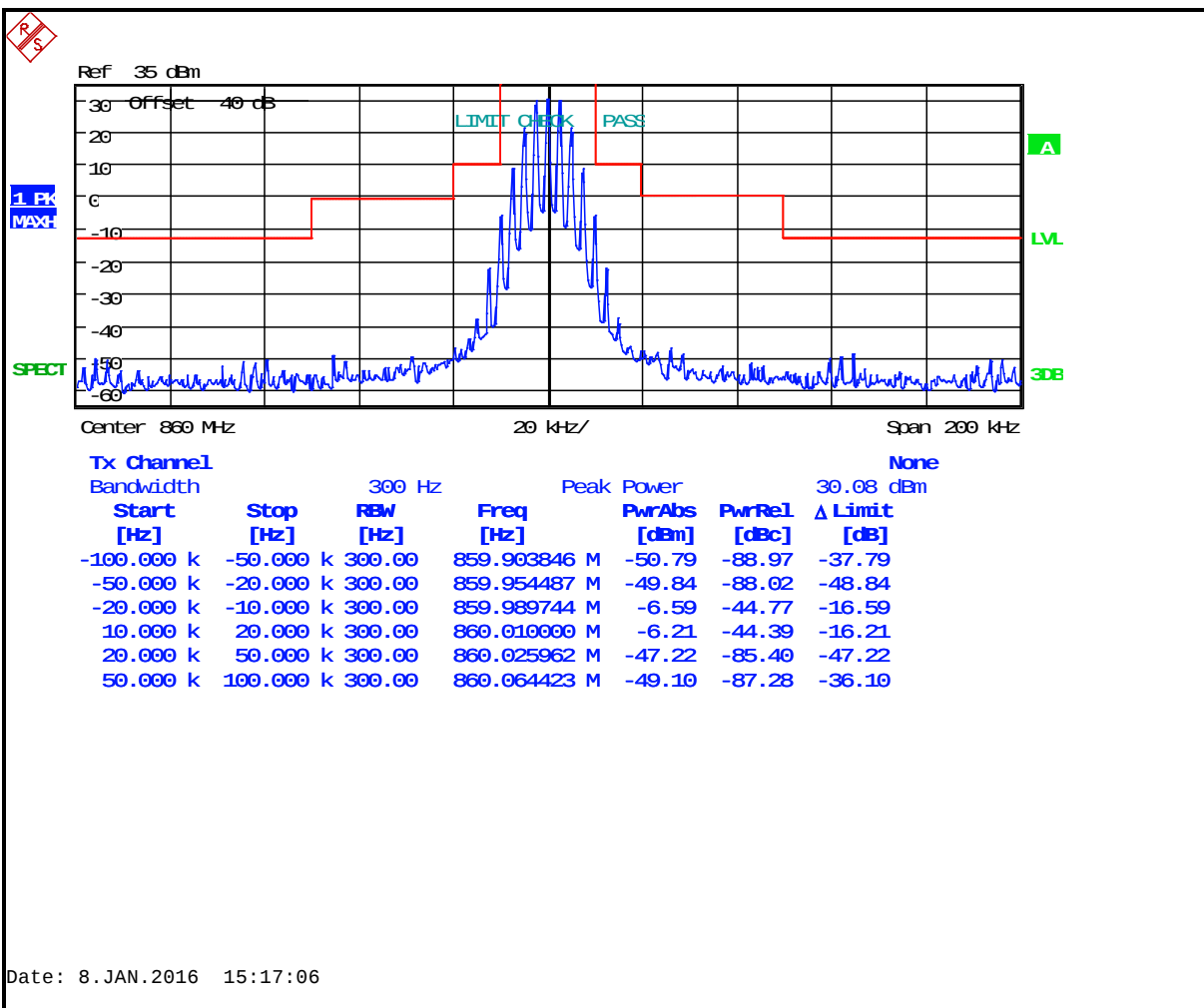
Plot 8-15: Occupied Bandwidth – 823.9875 MHz; NPSPAC Analog (Mask B)



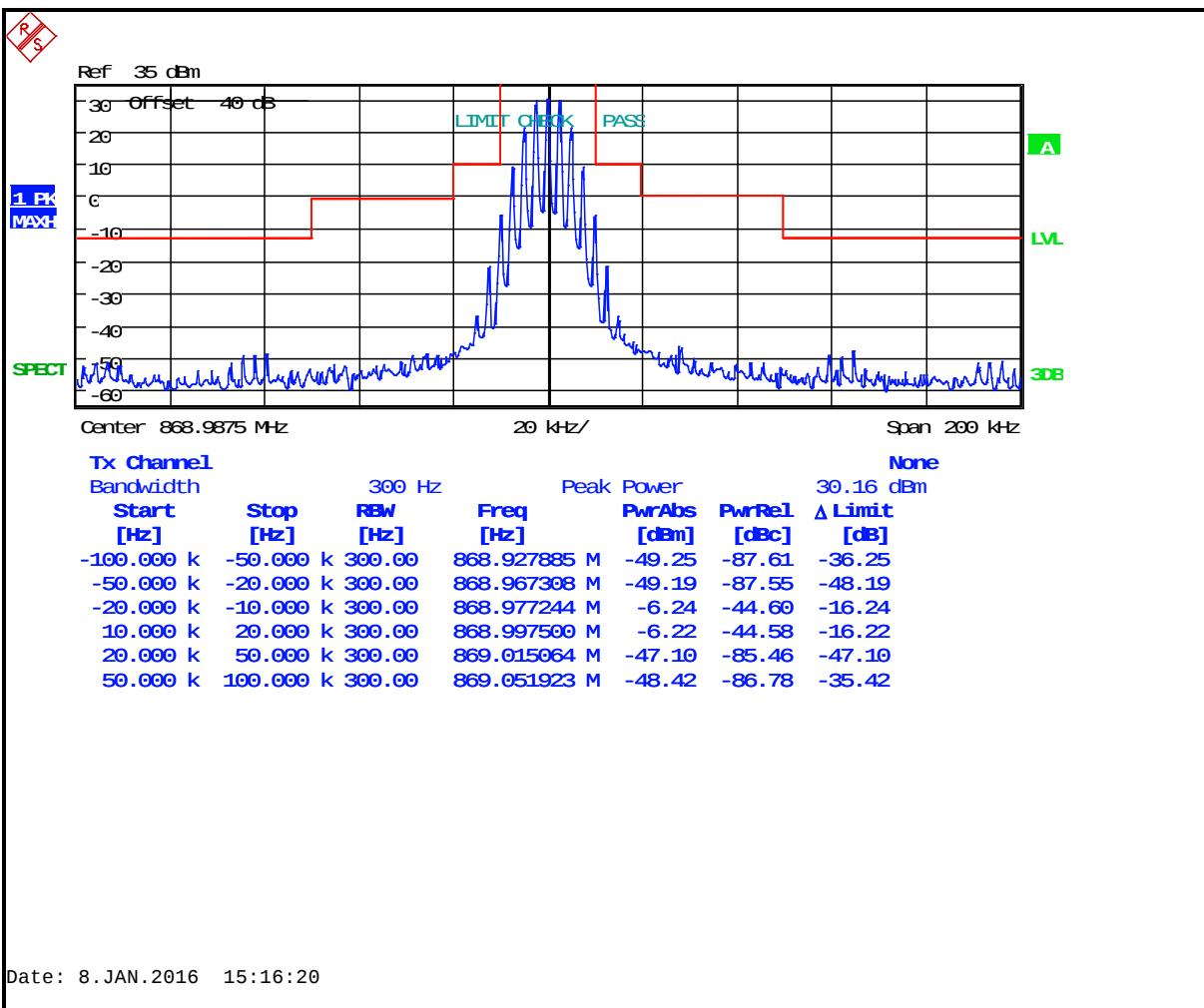
Plot 8-16: Occupied Bandwidth – 851.0125 MHz; NPSPAC Analog (Mask B)



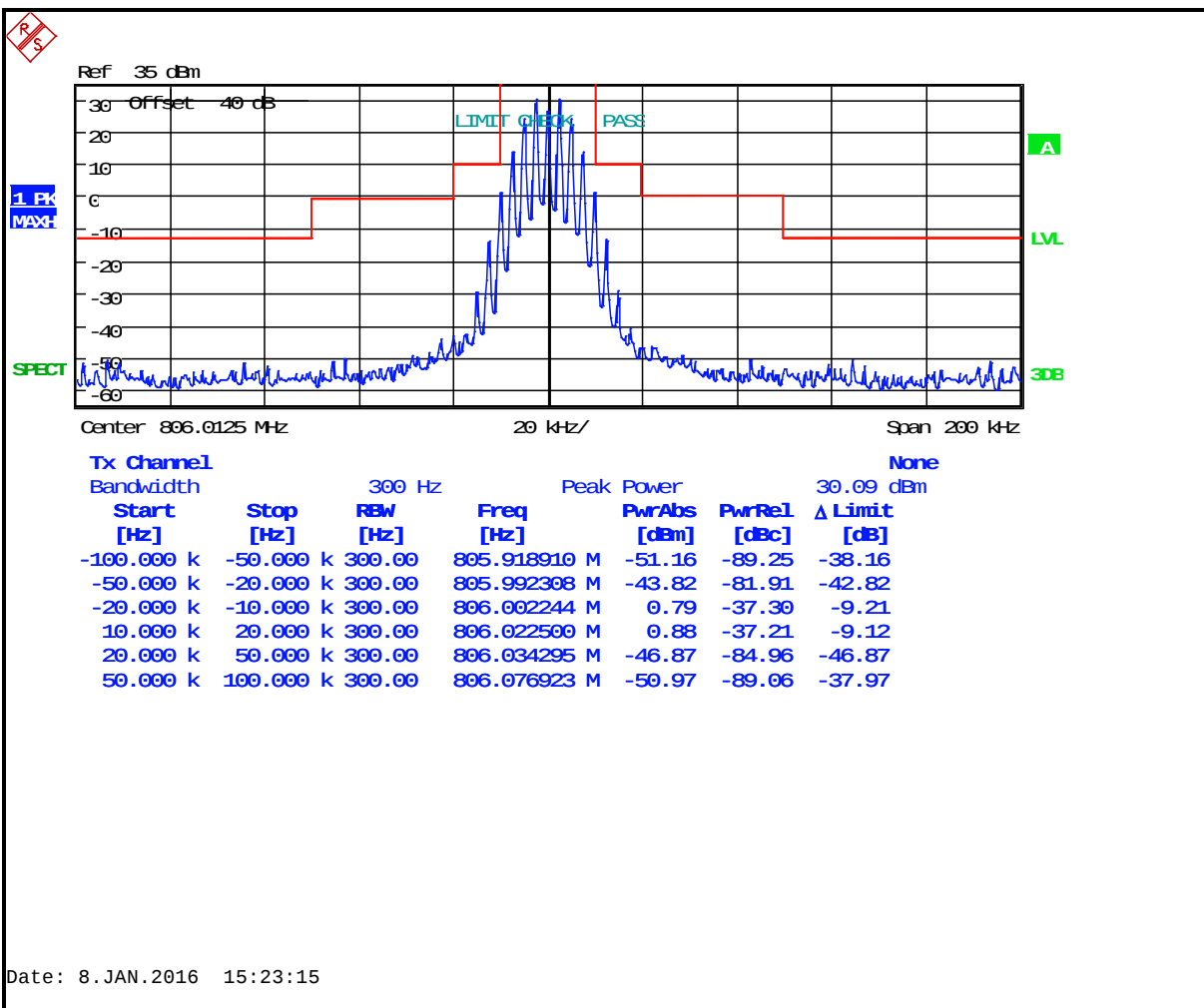
Plot 8-17: Occupied Bandwidth – 860.0000 MHz; NPSPAC Analog (Mask B)



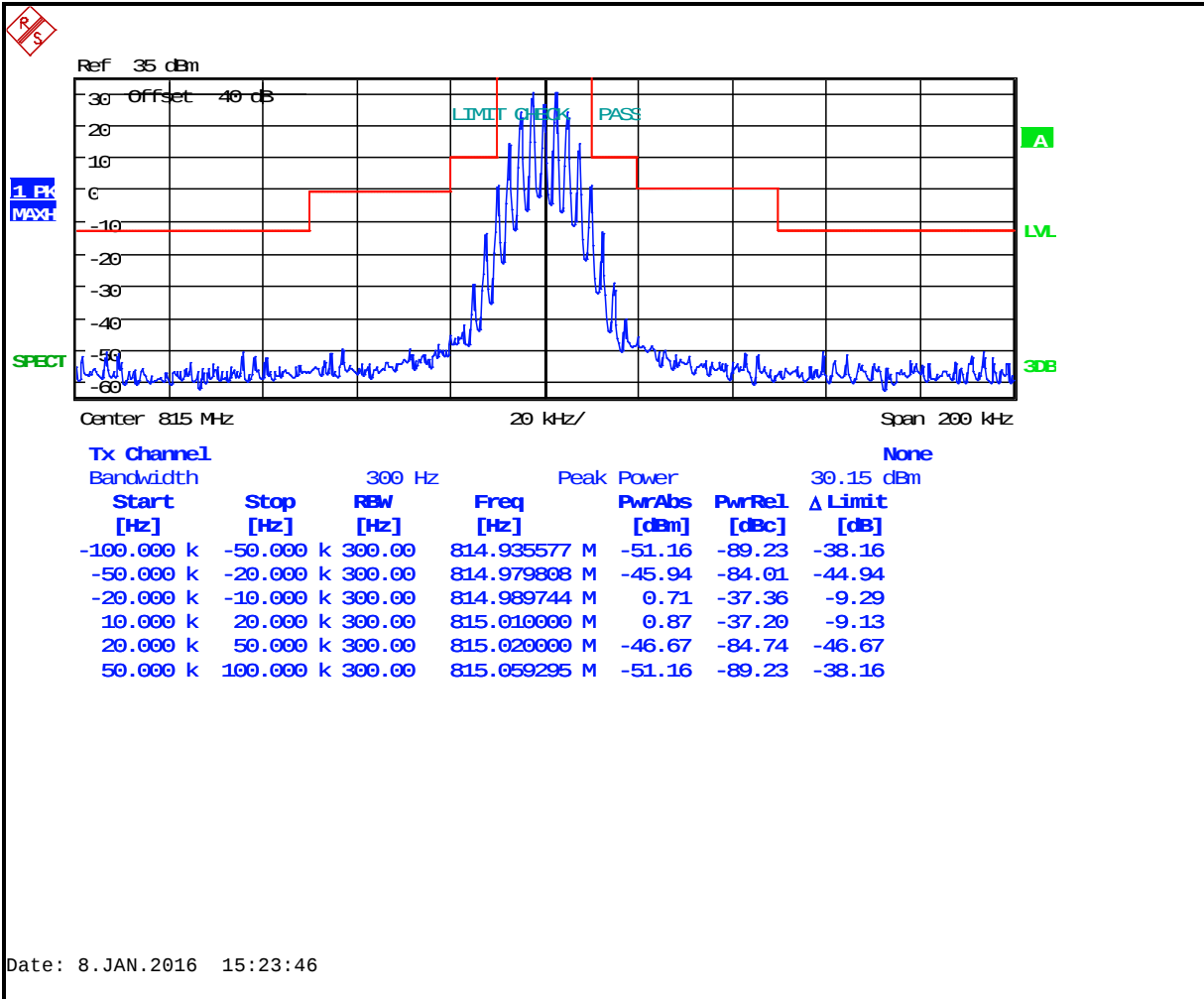
Plot 8-18: Occupied Bandwidth – 868.9875 MHz; NPSPAC Analog (Mask B)



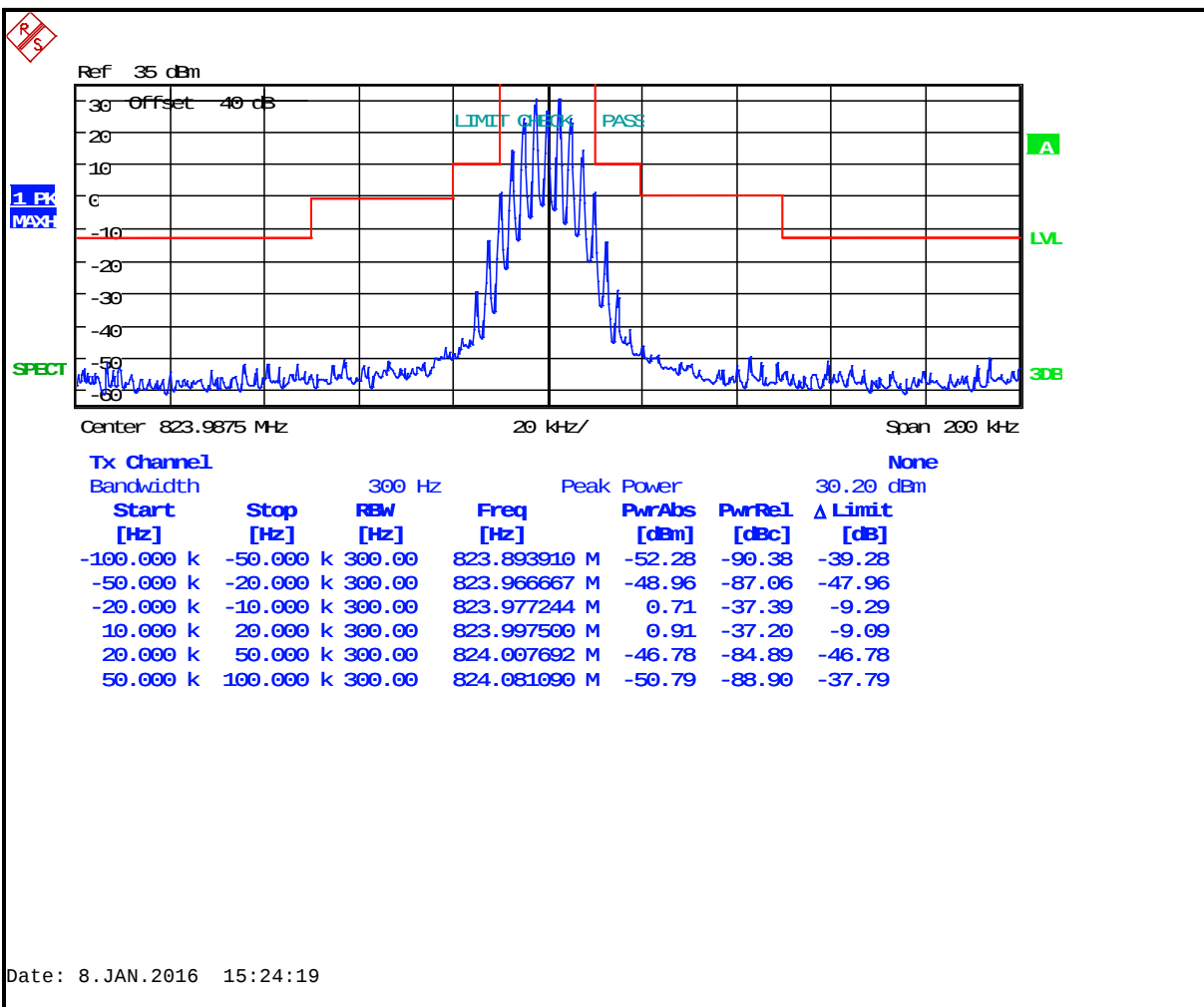
Plot 8-19: Occupied Bandwidth – 806.0125 MHz; Wideband Analog (Mask B)



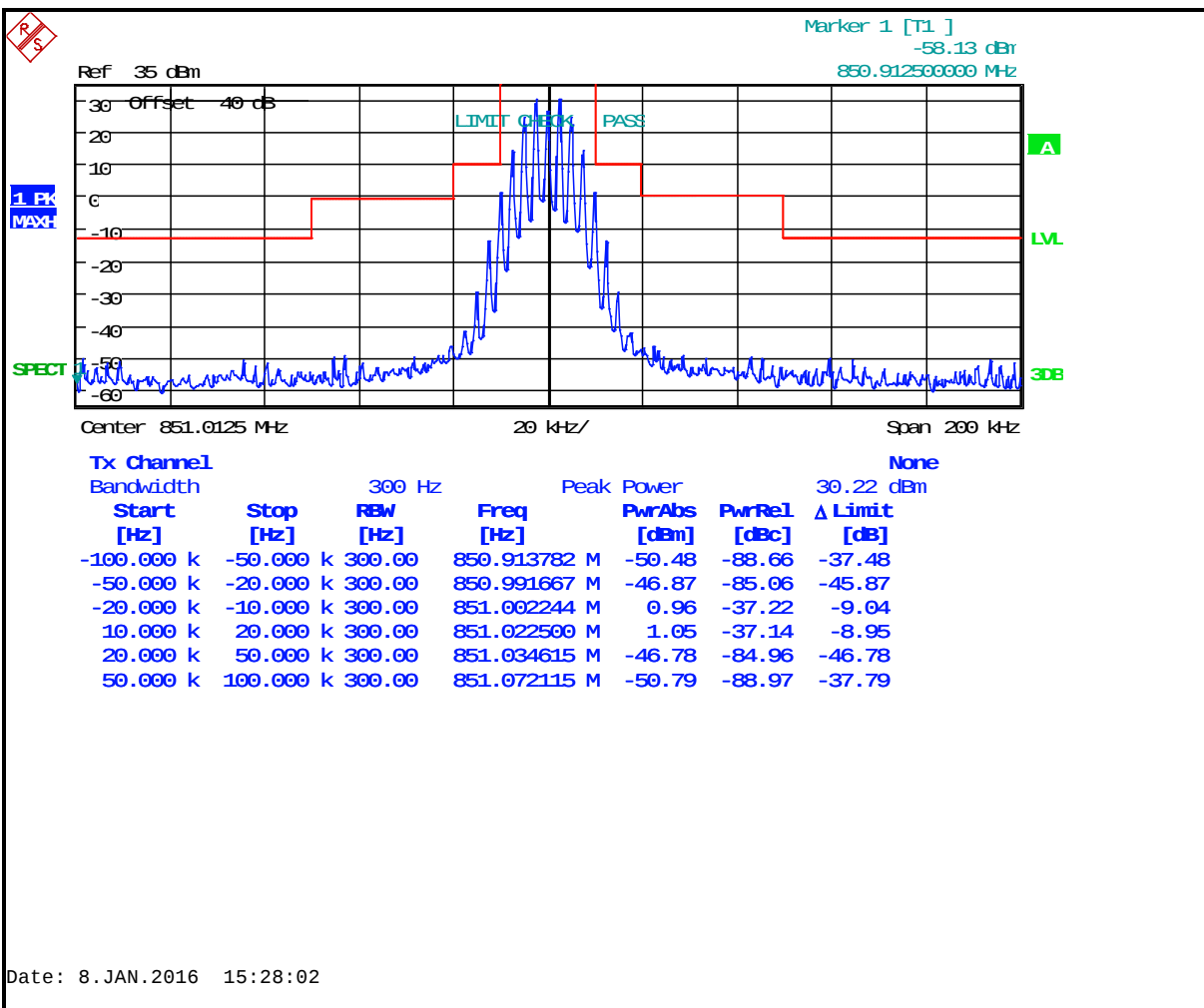
Plot 8-20: Occupied Bandwidth – 815.0000 MHz; Wideband Analog (Mask B)



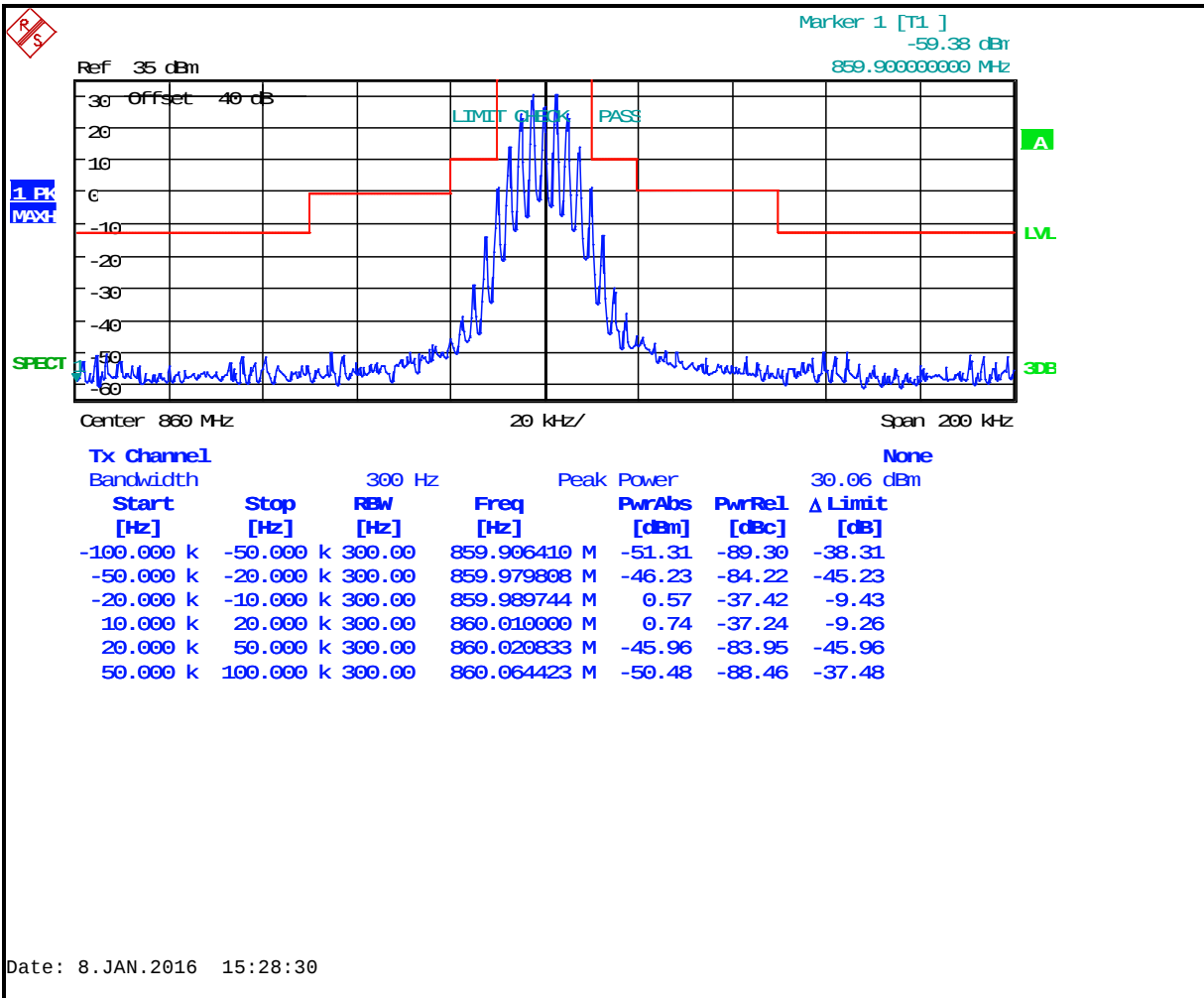
Plot 8-21: Occupied Bandwidth – 823.9875 MHz; Wideband Analog (Mask B)



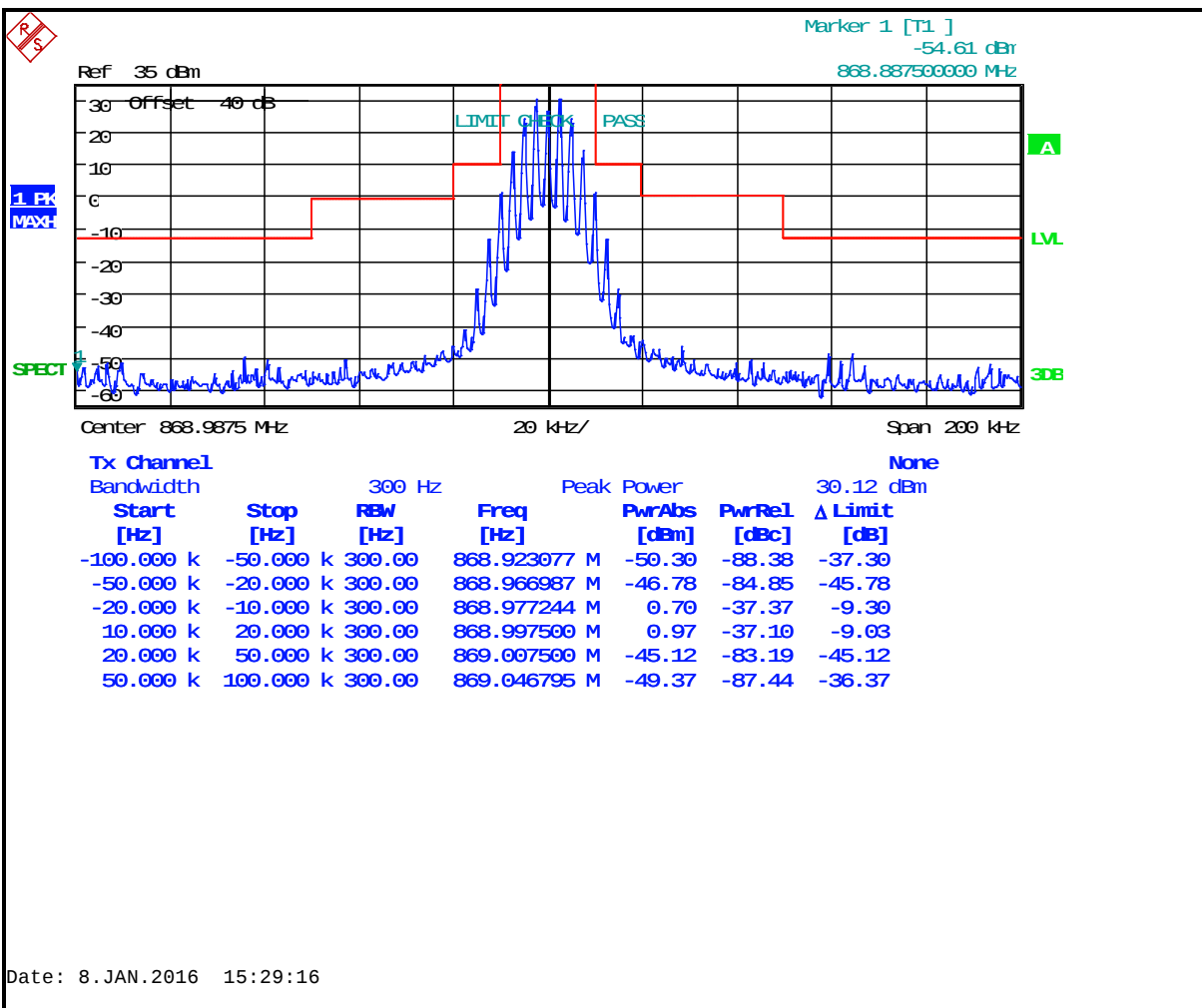
Plot 8-22: Occupied Bandwidth – 851.0125 MHz; Wideband Analog (Mask B)



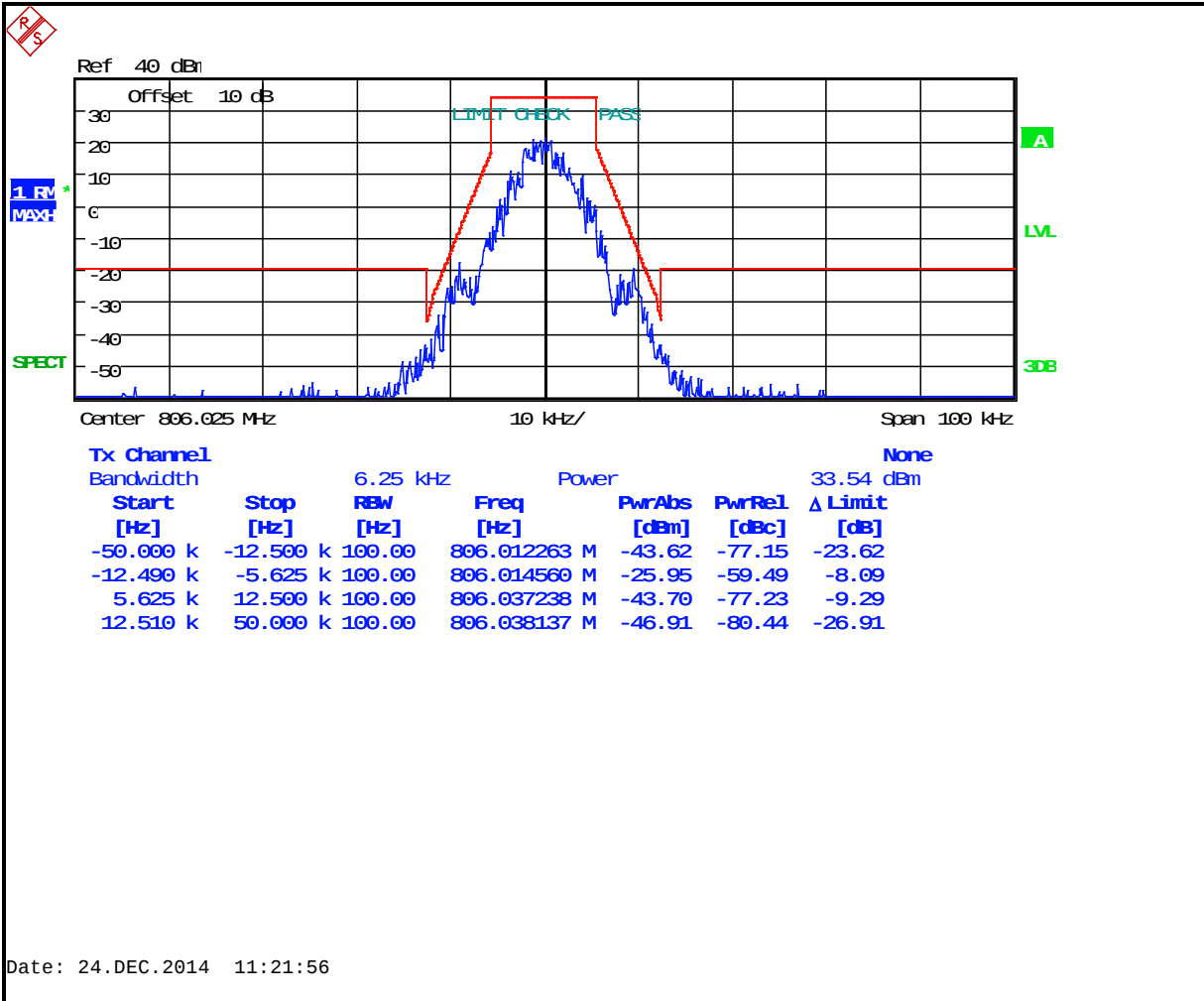
Plot 8-23: Occupied Bandwidth – 860.0000 MHz; Wideband Analog (Mask B)



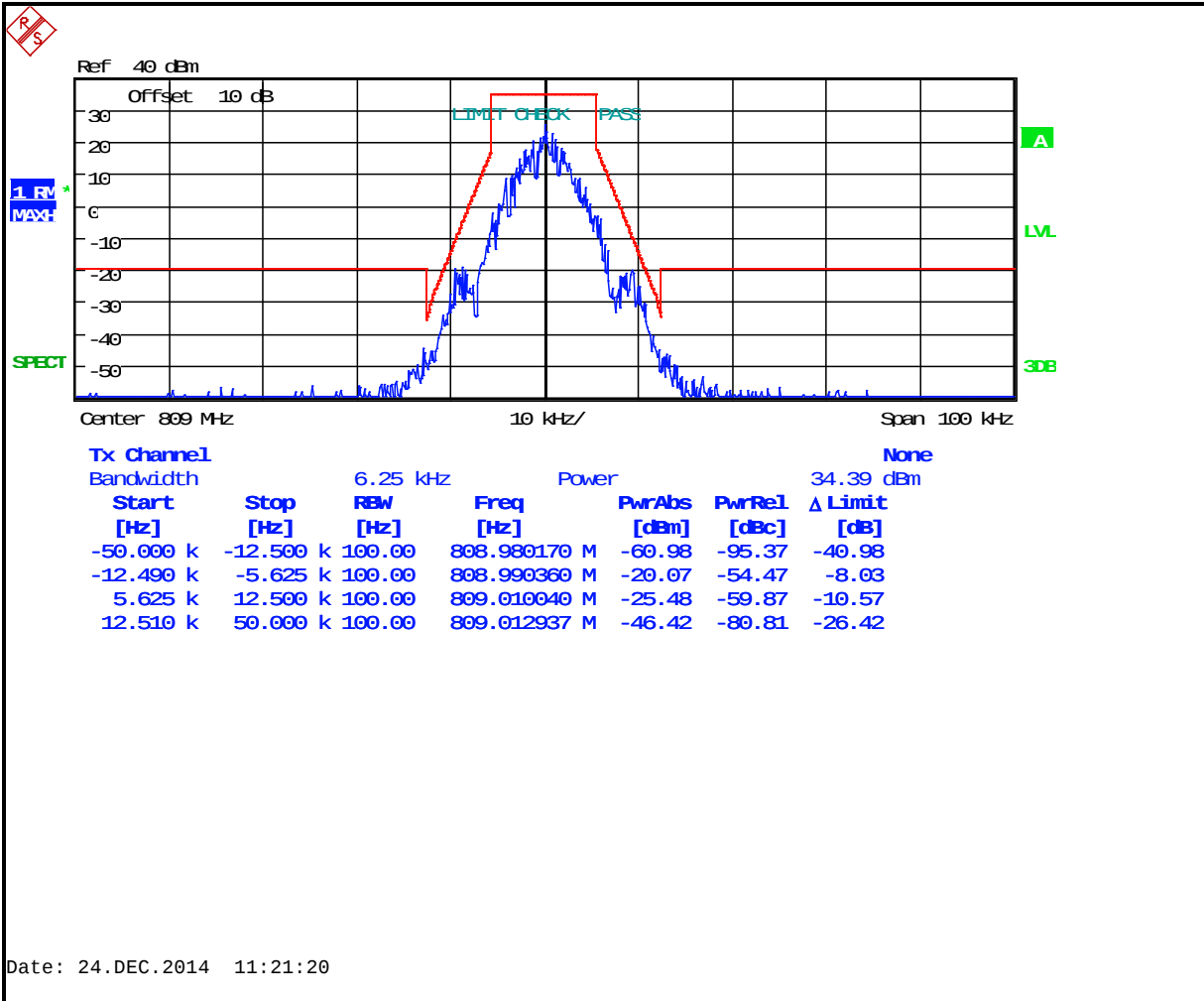
Plot 8-24: Occupied Bandwidth – 868.9875 MHz; Wideband Analog (Mask B)



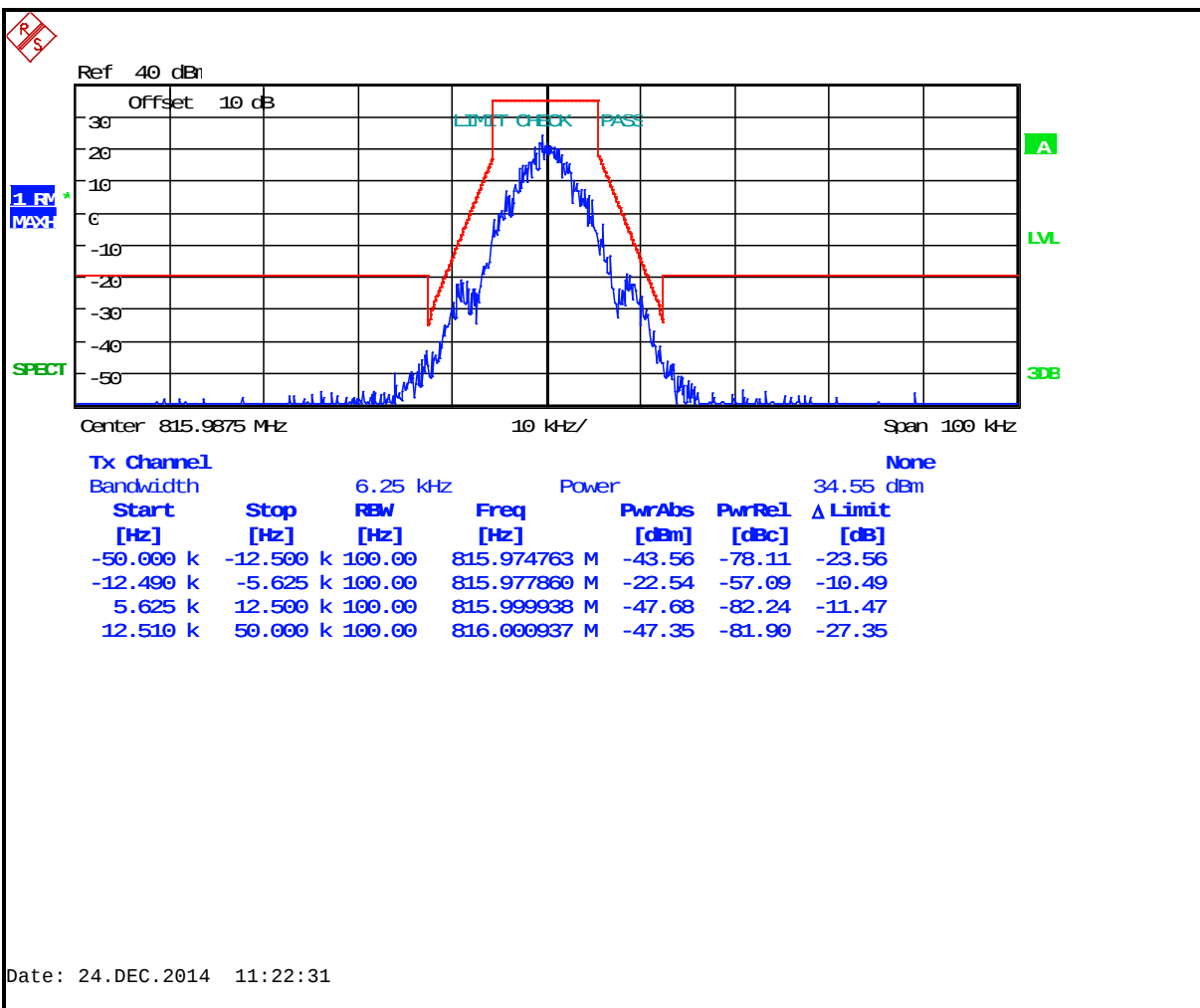
Plot 8-25: Occupied Bandwidth – 806.0250 MHz; EDACS Narrowband 2-level FSK 9600 (Mask D)



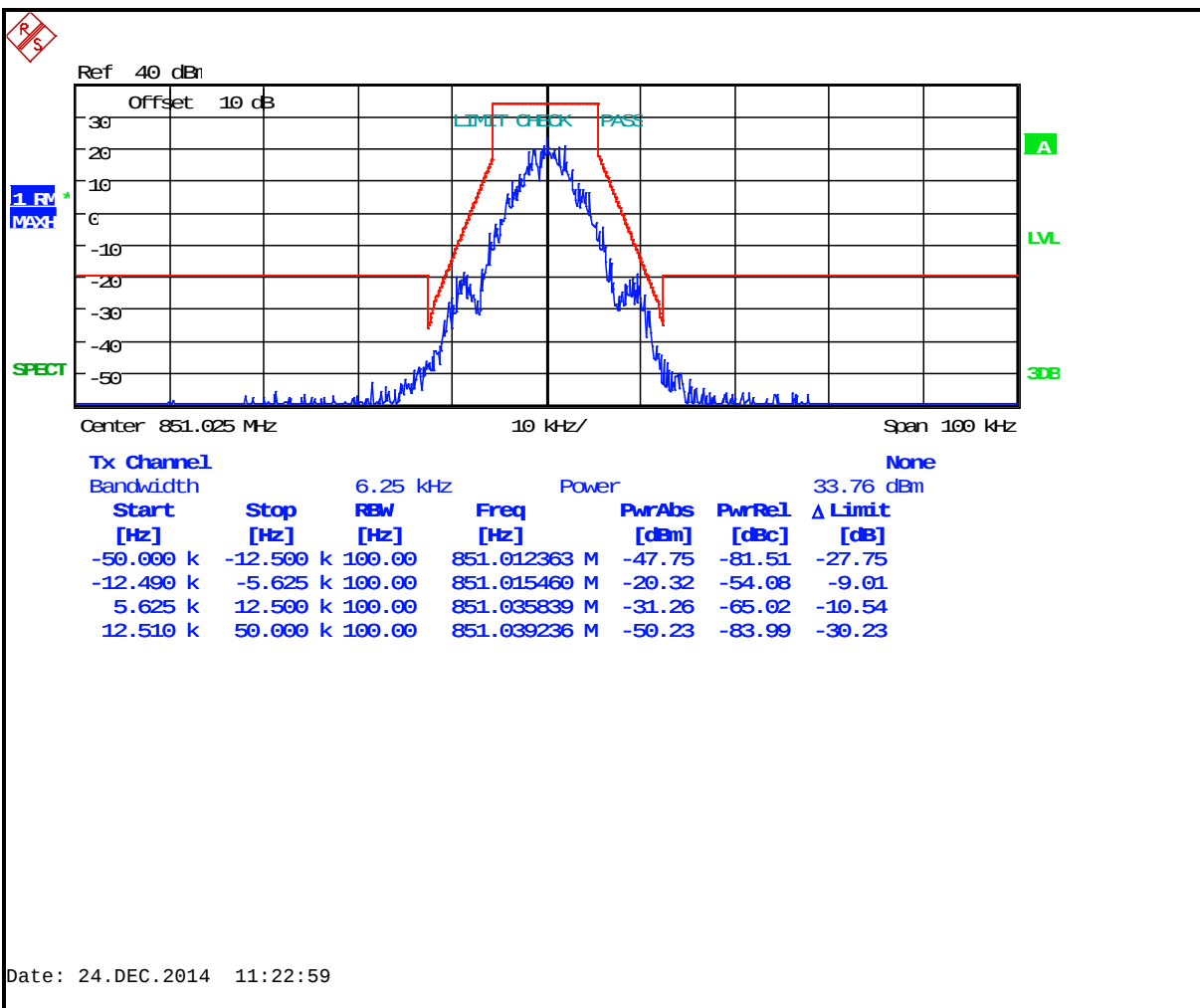
Plot 8-26: Occupied Bandwidth – 809.0000 MHz; EDACS Narrowband 2-level FSK 9600 (Mask D)



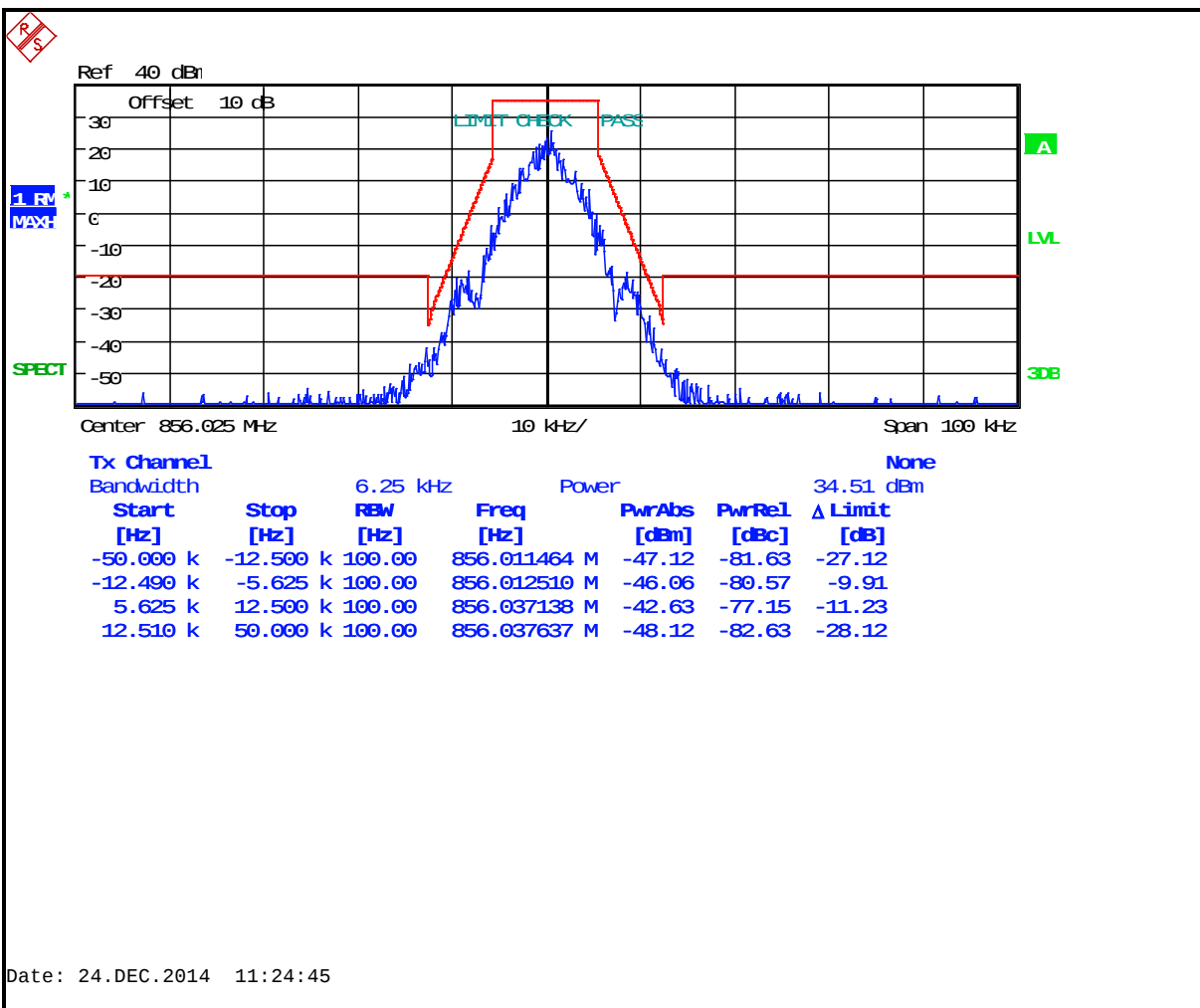
Plot 8-27: Occupied Bandwidth – 815.9875 MHz; EDACS Narrowband 2-level FSK 9600 (Mask D)



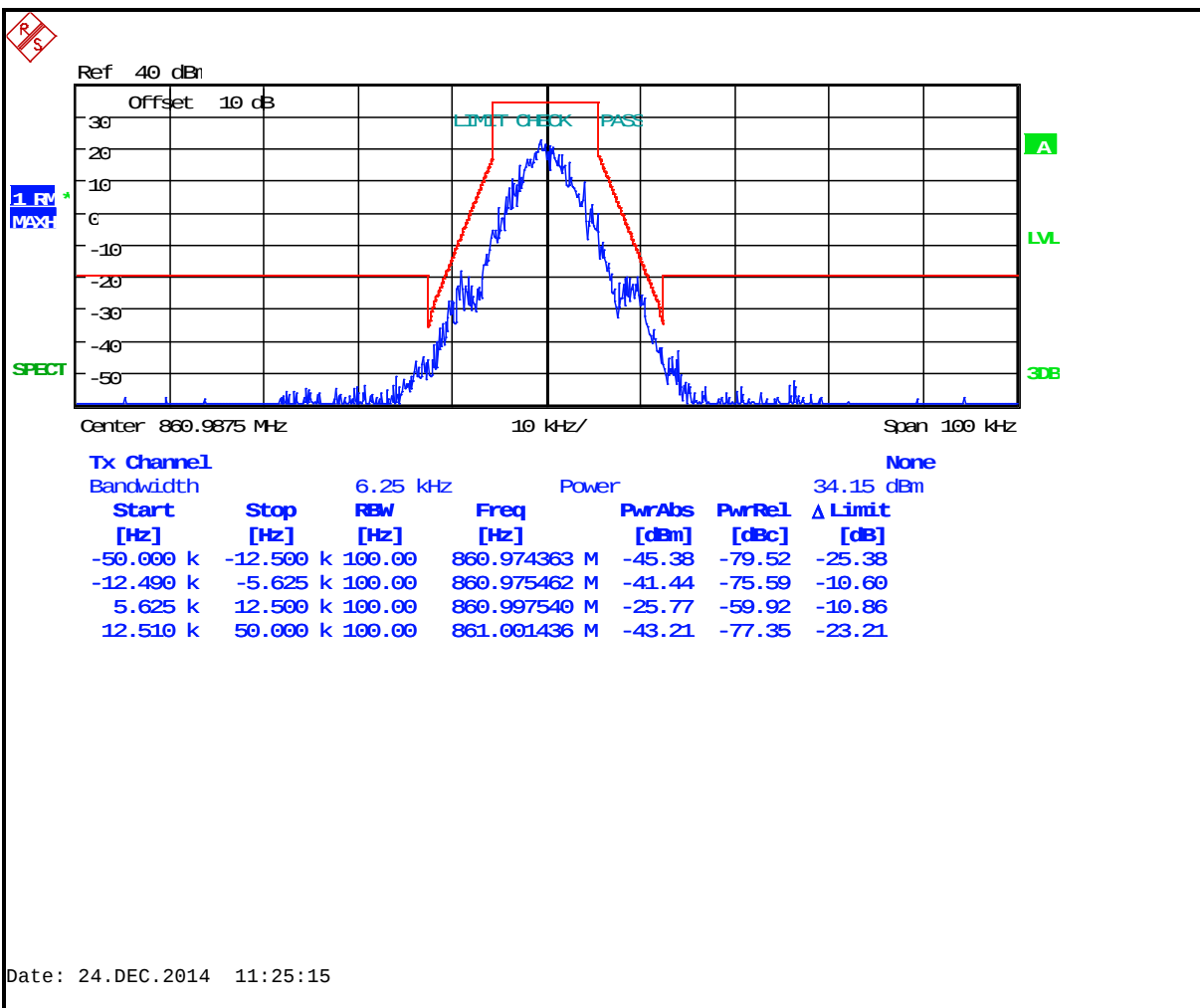
Plot 8-28: Occupied Bandwidth – 851.0250 MHz; EDACS Narrowband 2-level FSK 9600 (Mask D)



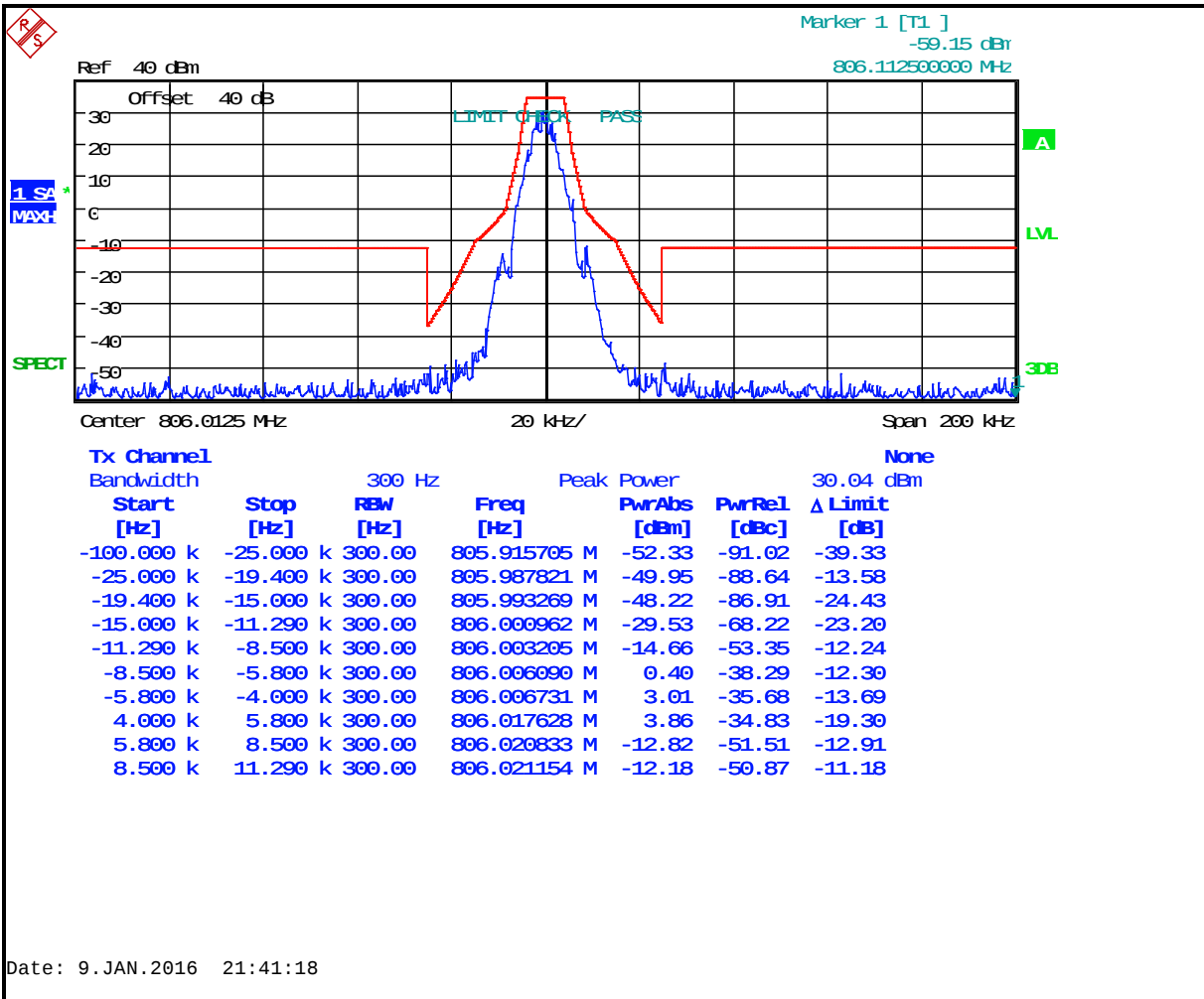
Plot 8-29: Occupied Bandwidth – 856.0250 MHz; EDACS Narrowband 2-level FSK 9600 (Mask D)



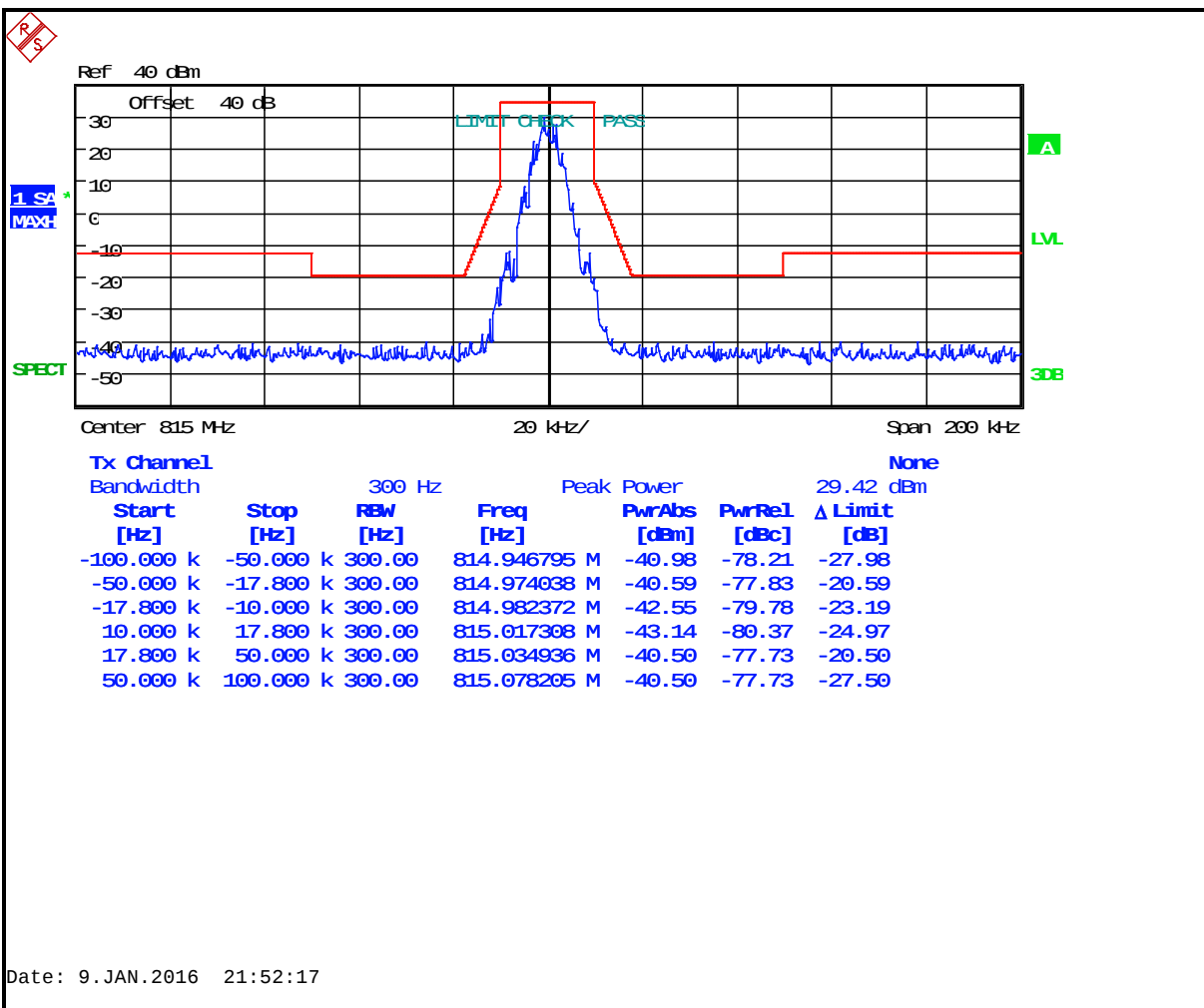
Plot 8-30: Occupied Bandwidth – 860.9875 MHz; EDACS Narrowband 2-level FSK 9600 (Mask D)



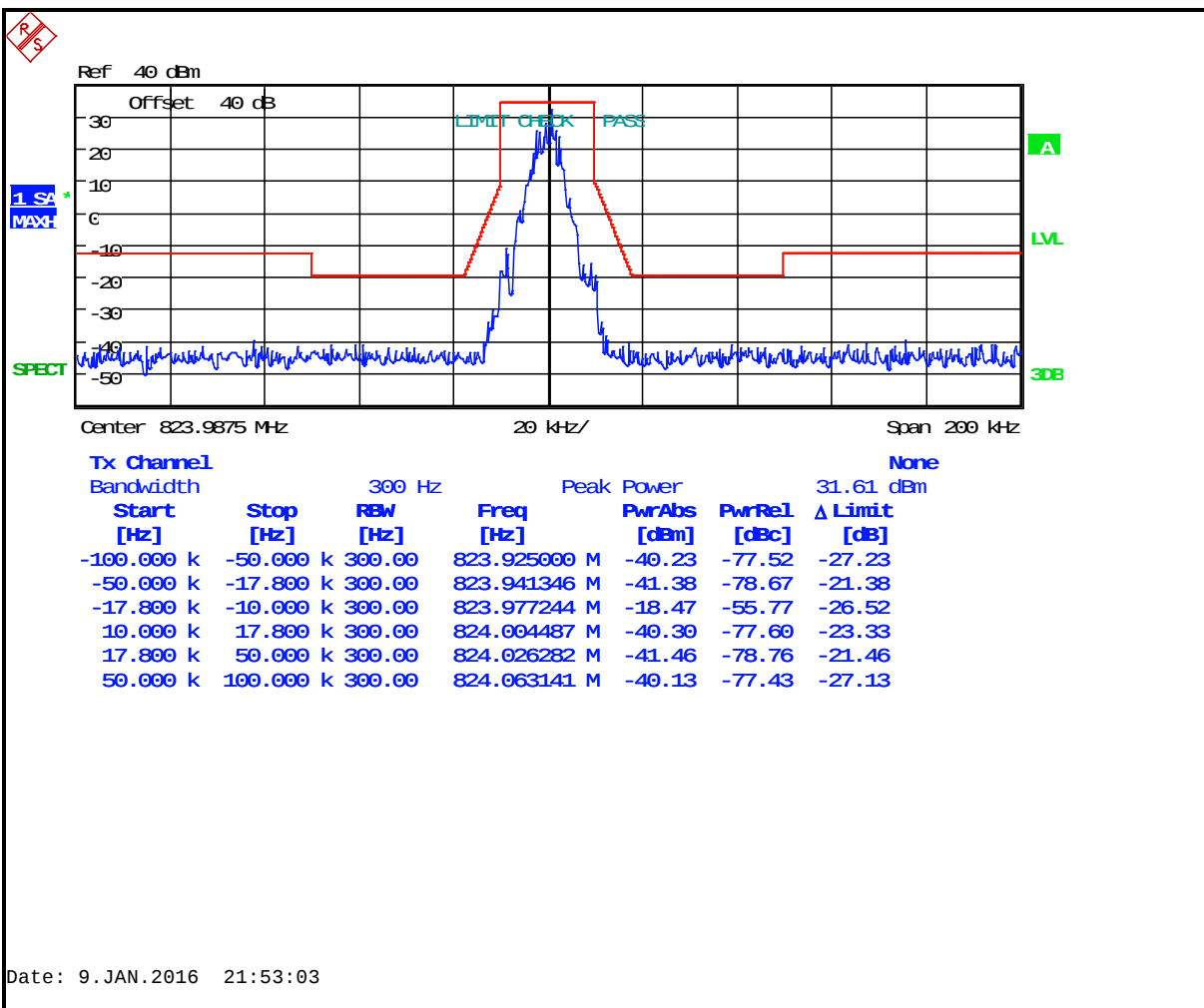
Plot 8-31: Occupied Bandwidth – 806.0125 MHz; EDACS Narrowband 2-level FSK 9600 (Mask H)



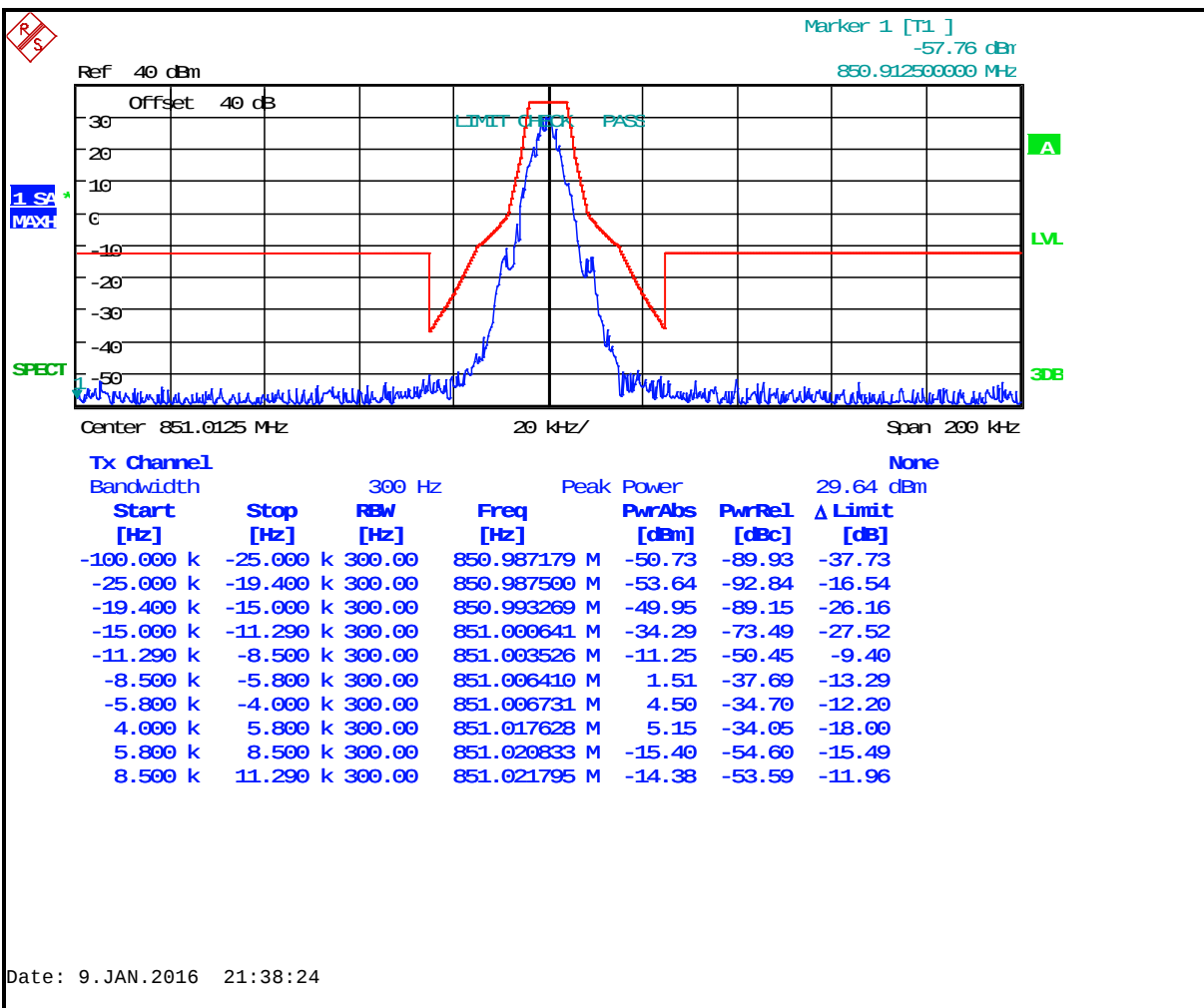
Plot 8-32: Occupied Bandwidth – 815.0000 MHz; EDACS Narrowband 2-level FSK 9600 (Mask G)



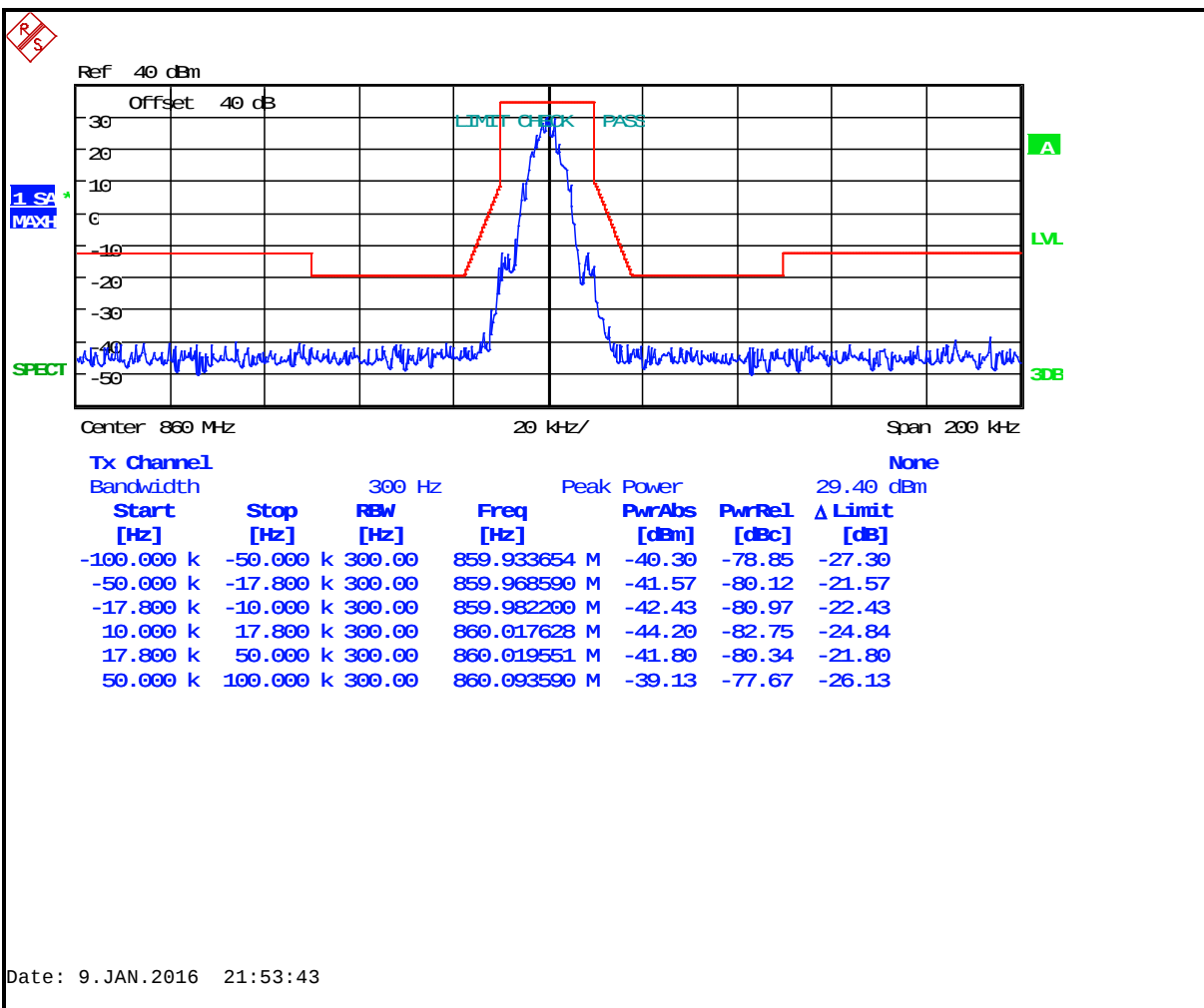
Plot 8-33: Occupied Bandwidth – 823.9875 MHz; EDACS Narrowband 2-level FSK 9600 (Mask G)



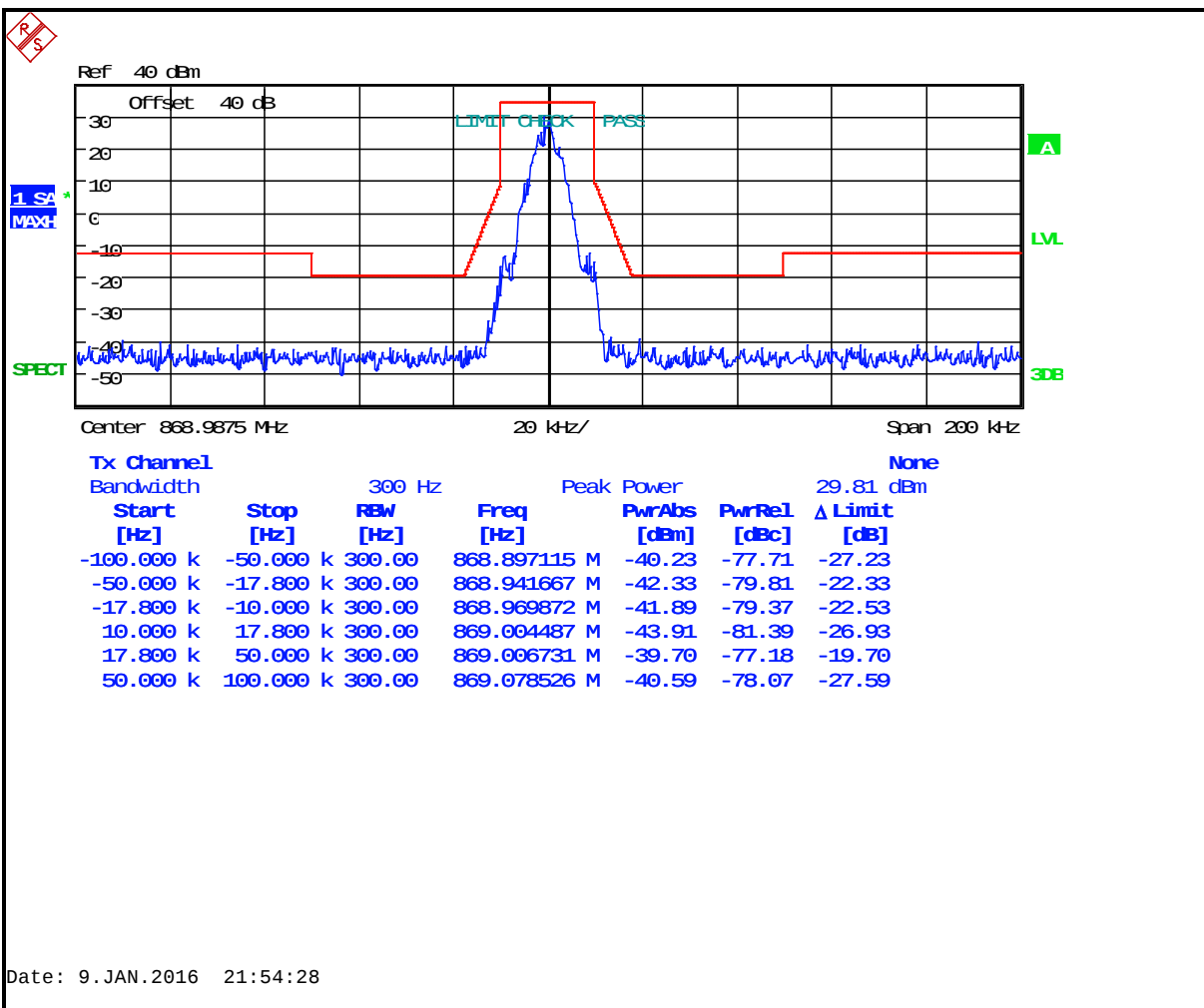
Plot 8-34: Occupied Bandwidth – 851.0125 MHz; EDACS Narrowband 2-level FSK 9600 (Mask H)



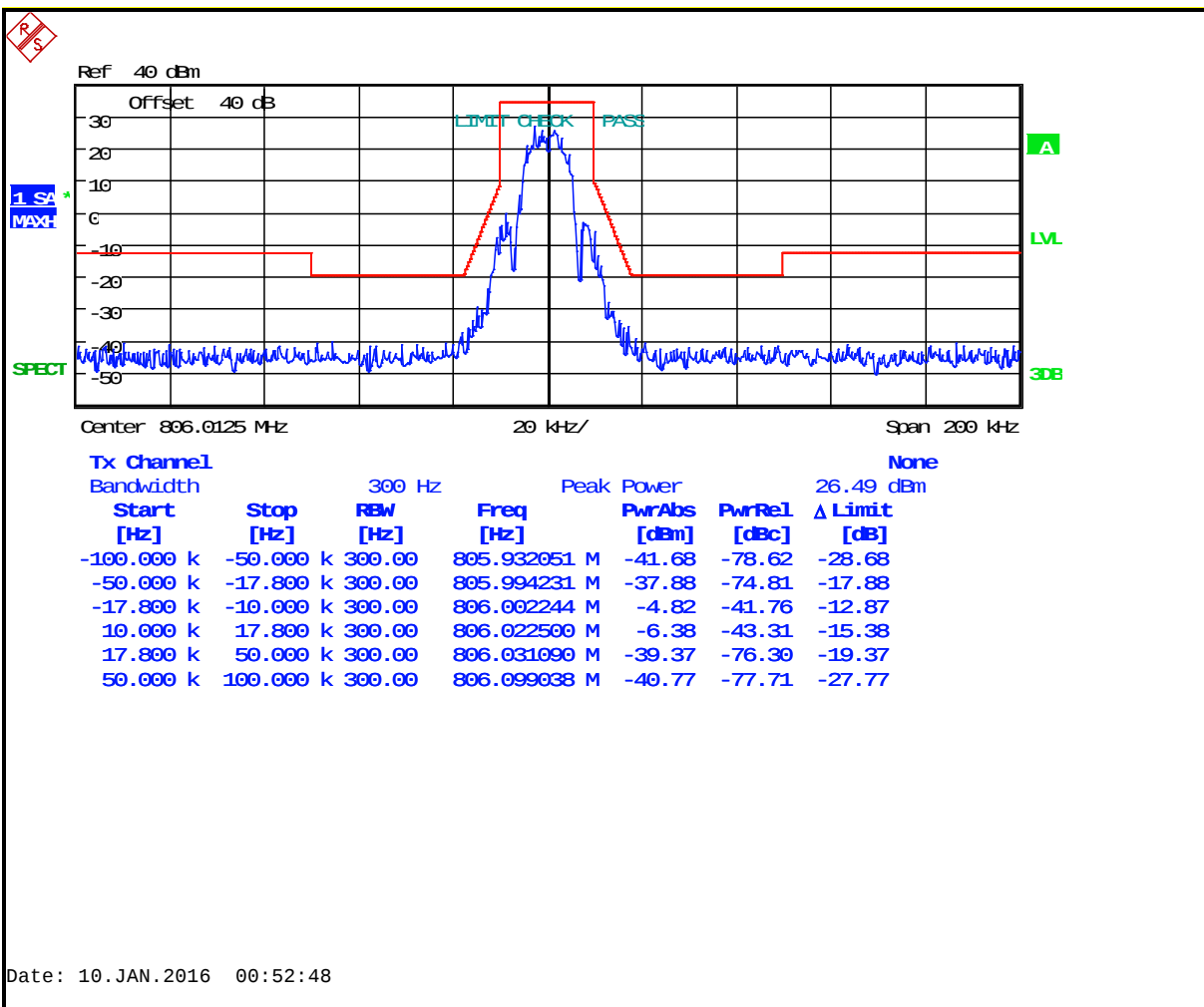
Plot 8-35: Occupied Bandwidth – 860.0000 MHz; EDACS Narrowband 2-level FSK 9600 (Mask G)



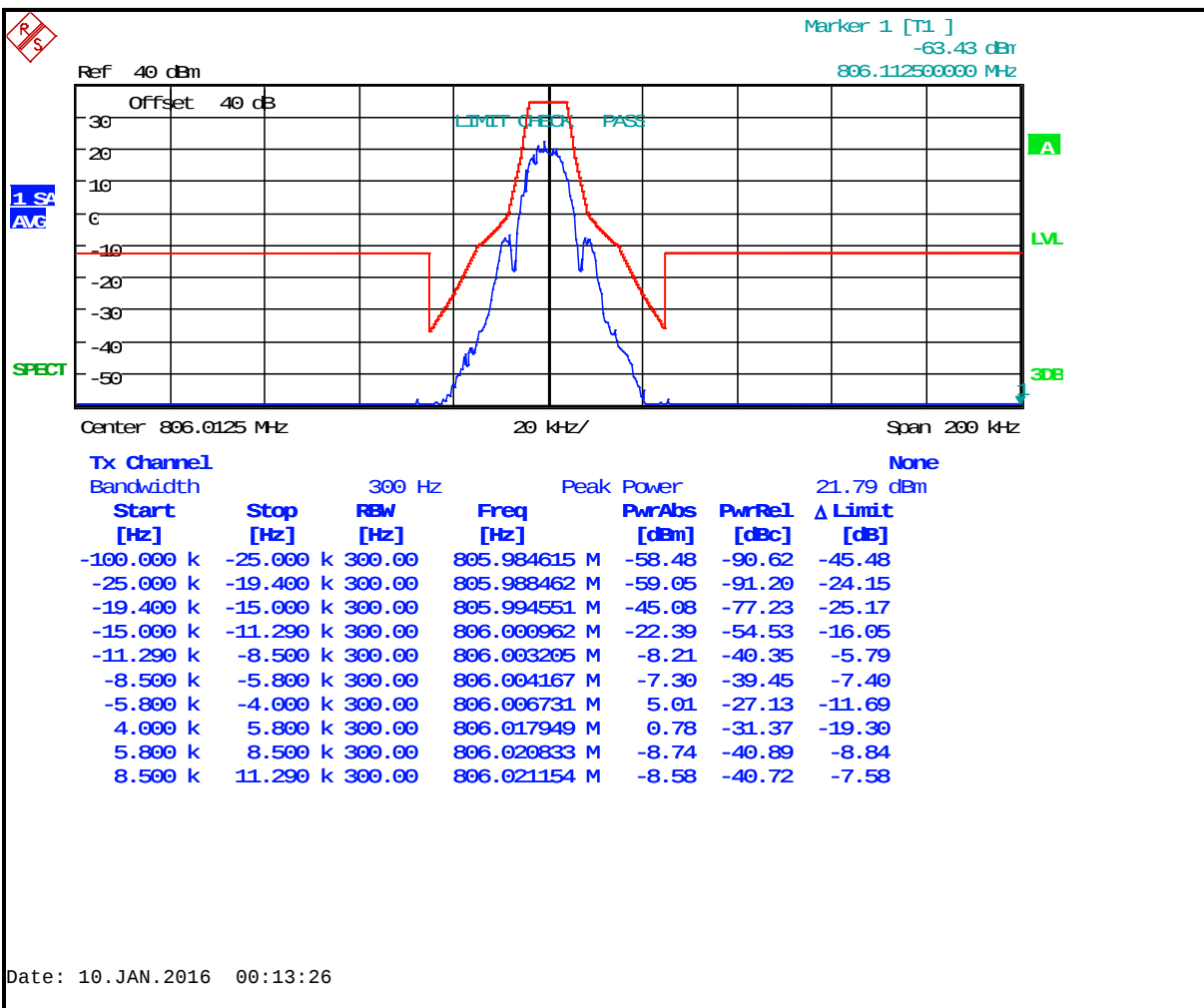
Plot 8-36: Occupied Bandwidth – 868.9875 MHz; EDACS Narrowband 2-level FSK 9600 (Mask G)



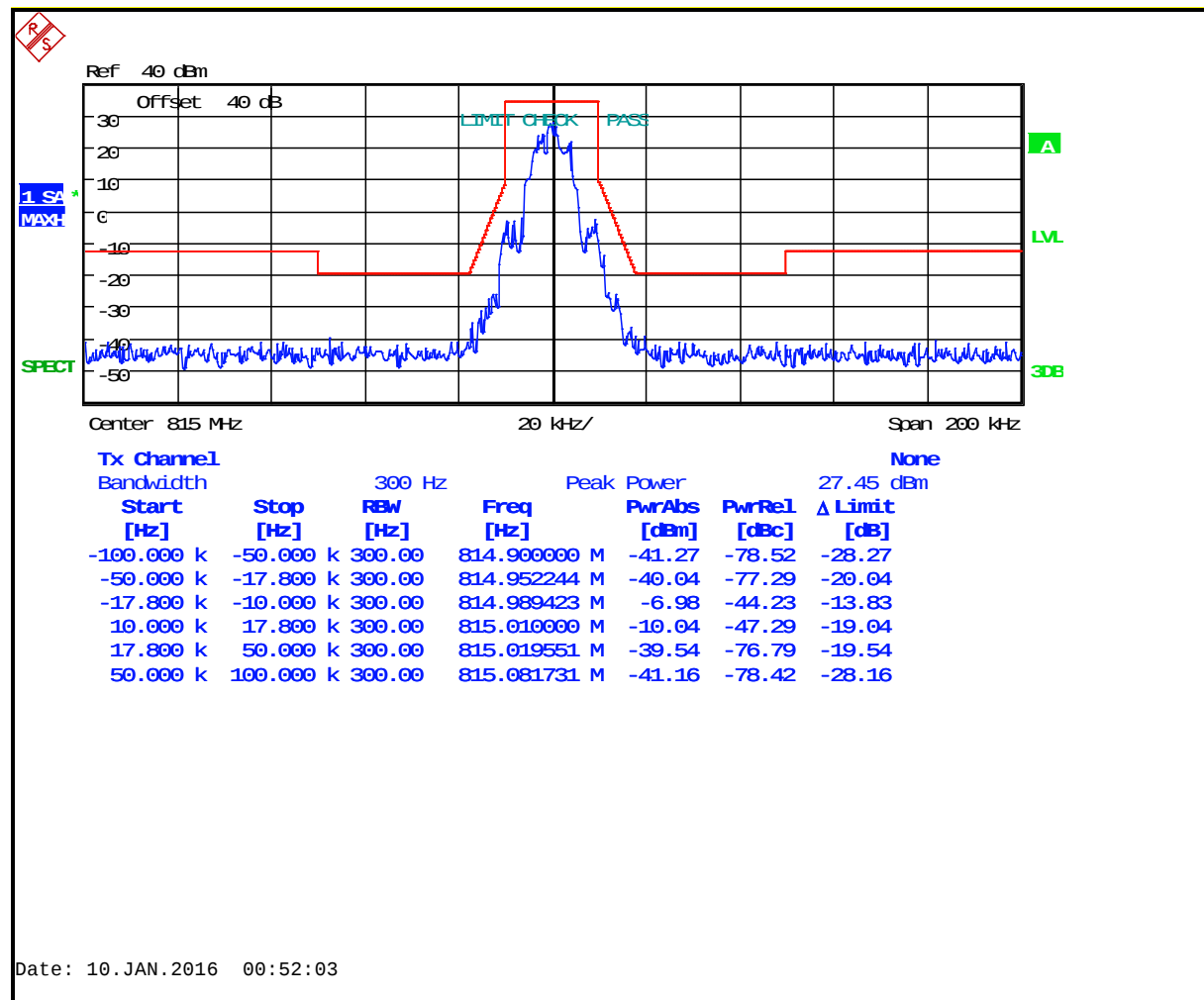
Plot 8-37: Occupied Bandwidth – 806.0125 MHz; EDACS NPSPAC 2-level FSK 9600 (Mask G)



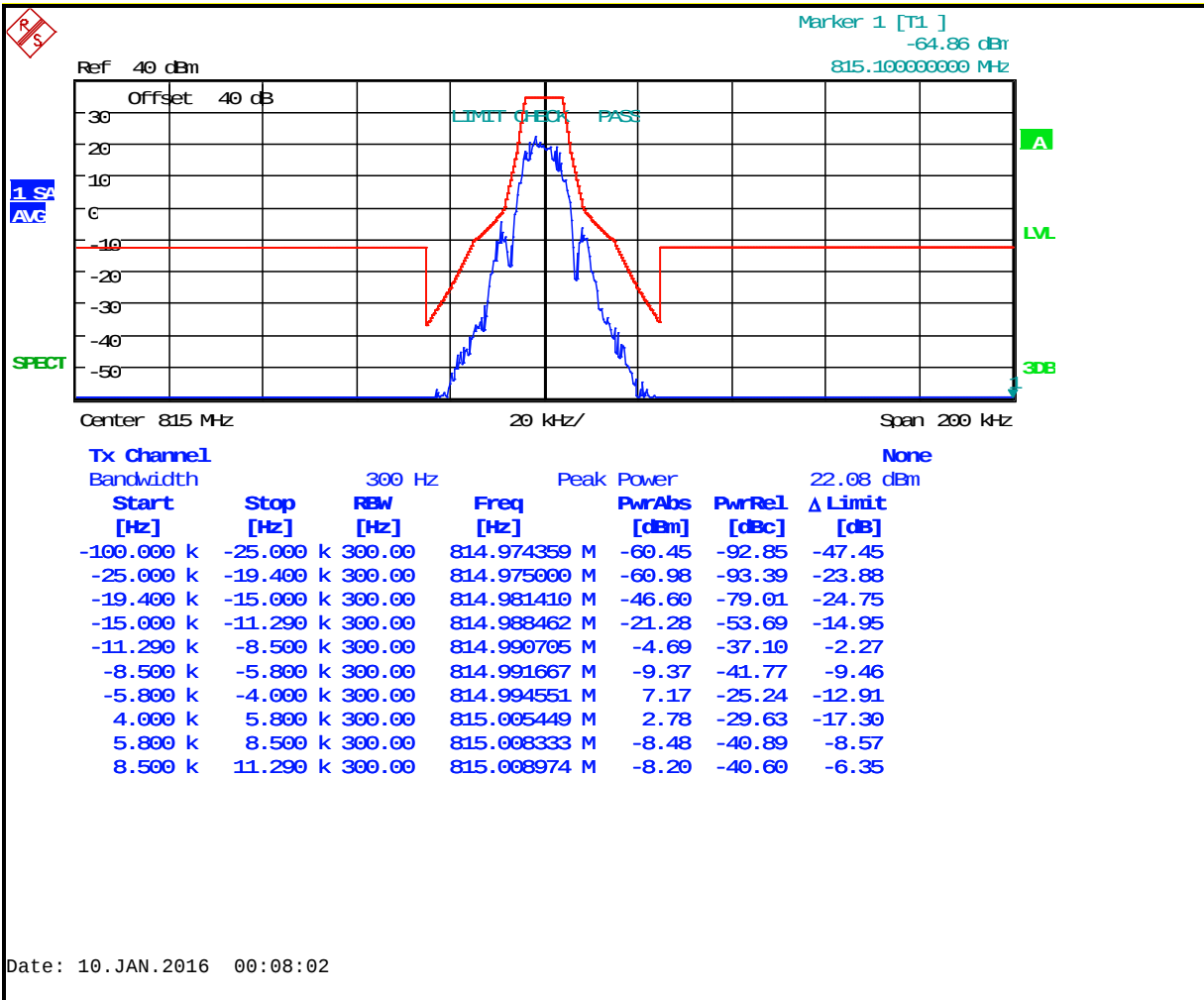
Plot 8-38: Occupied Bandwidth – 806.0125 MHz; EDACS NPSPAC 2-level FSK 9600 (Mask H)



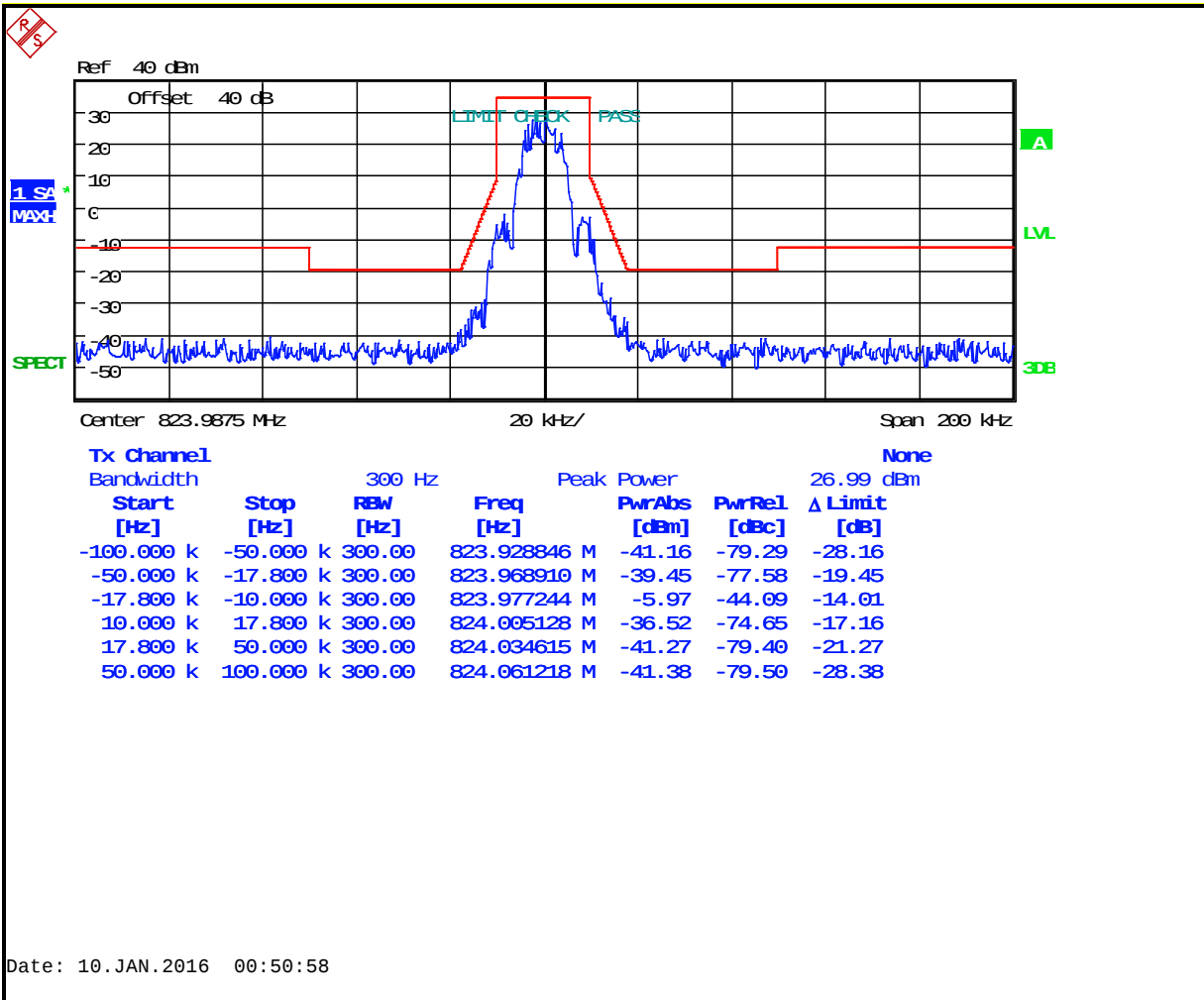
Plot 8-39: Occupied Bandwidth – 815.0000 MHz; EDACS NPSPAC 2-level FSK 9600 (Mask G)



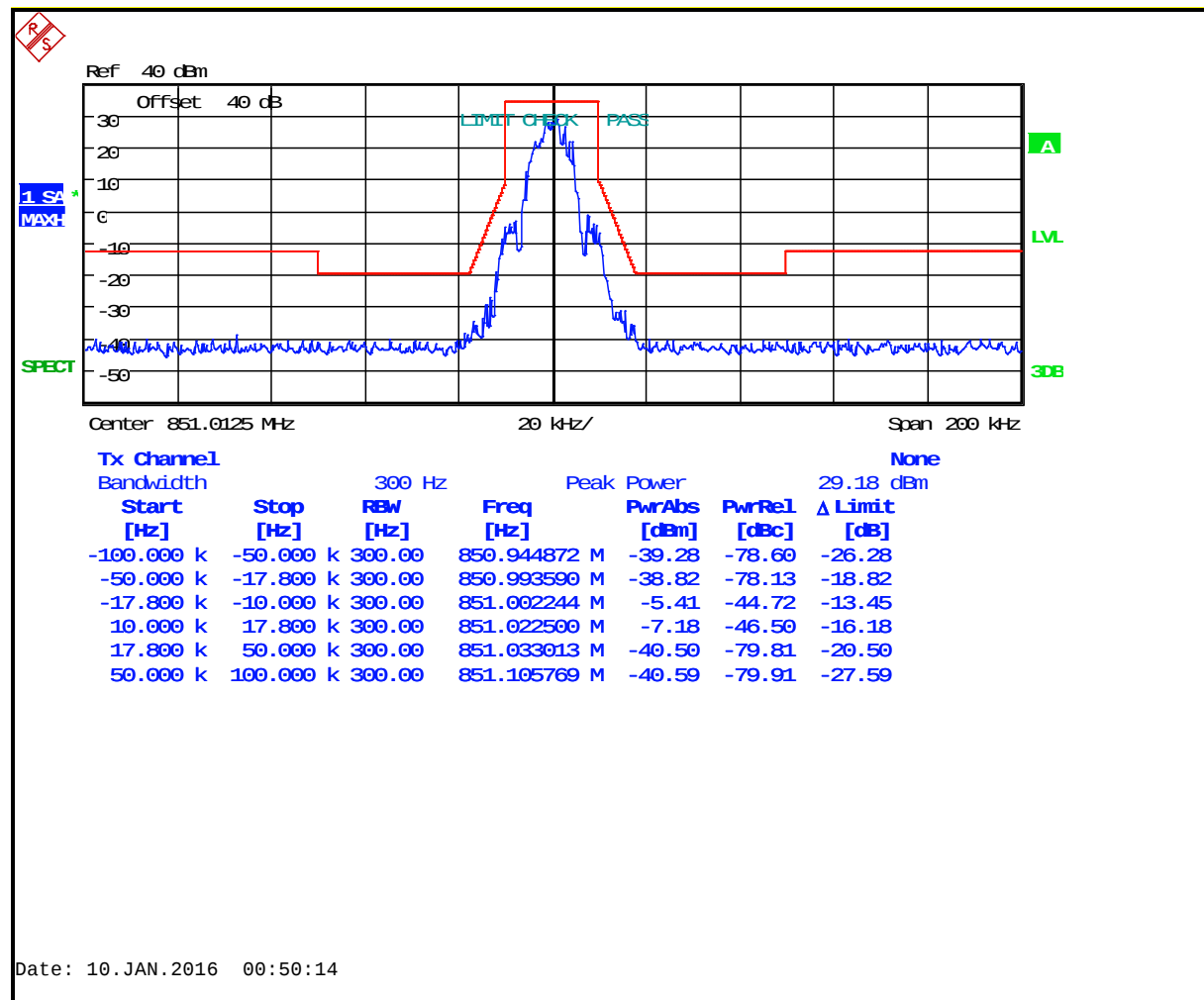
Plot 8-40: Occupied Bandwidth – 815.0000 MHz; EDACS NPSPAC 2-level FSK 9600 (Mask H)



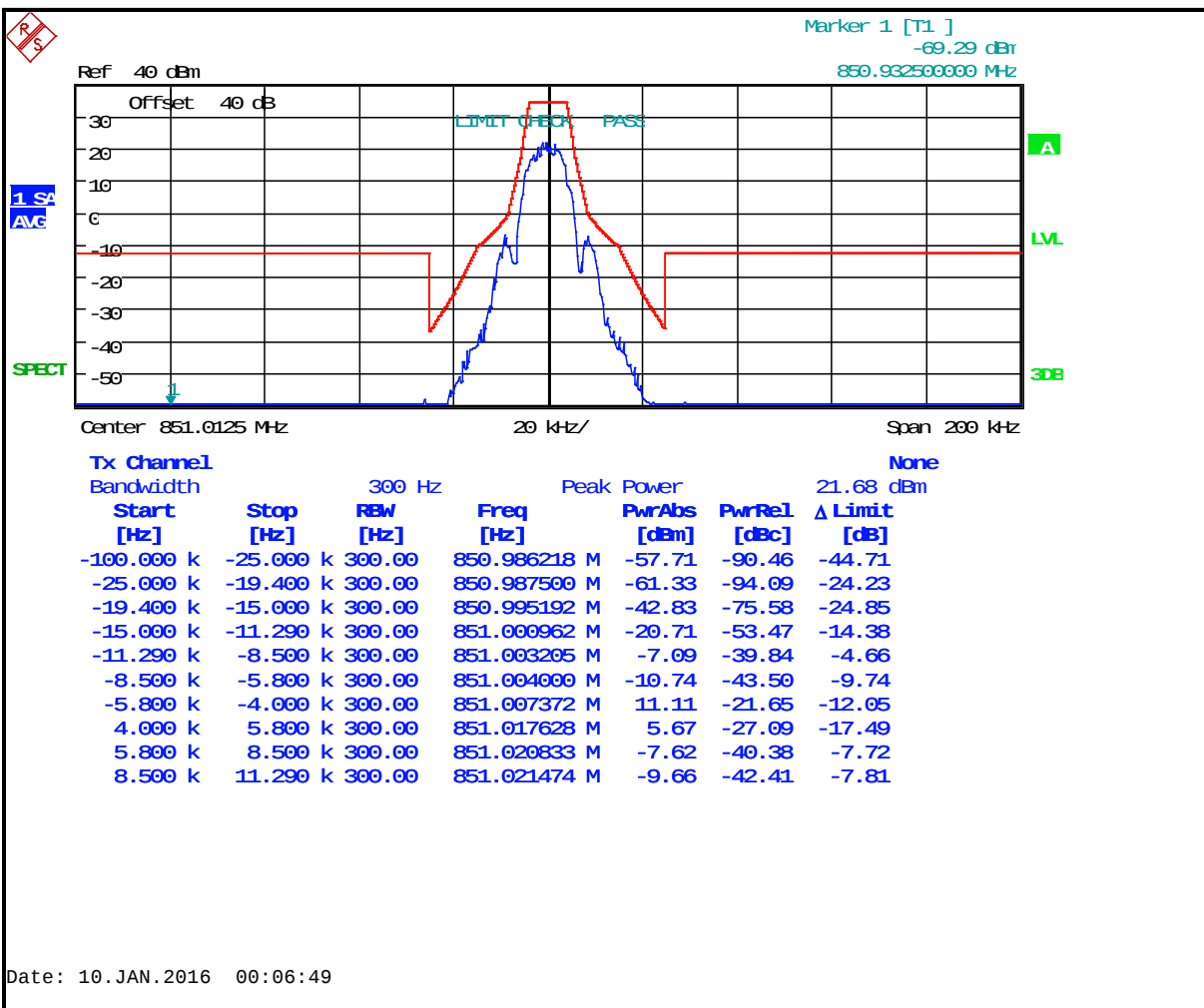
Plot 8-41: Occupied Bandwidth – 823.9875 MHz; EDACS NPSPAC 2-level FSK 9600 (Mask G)



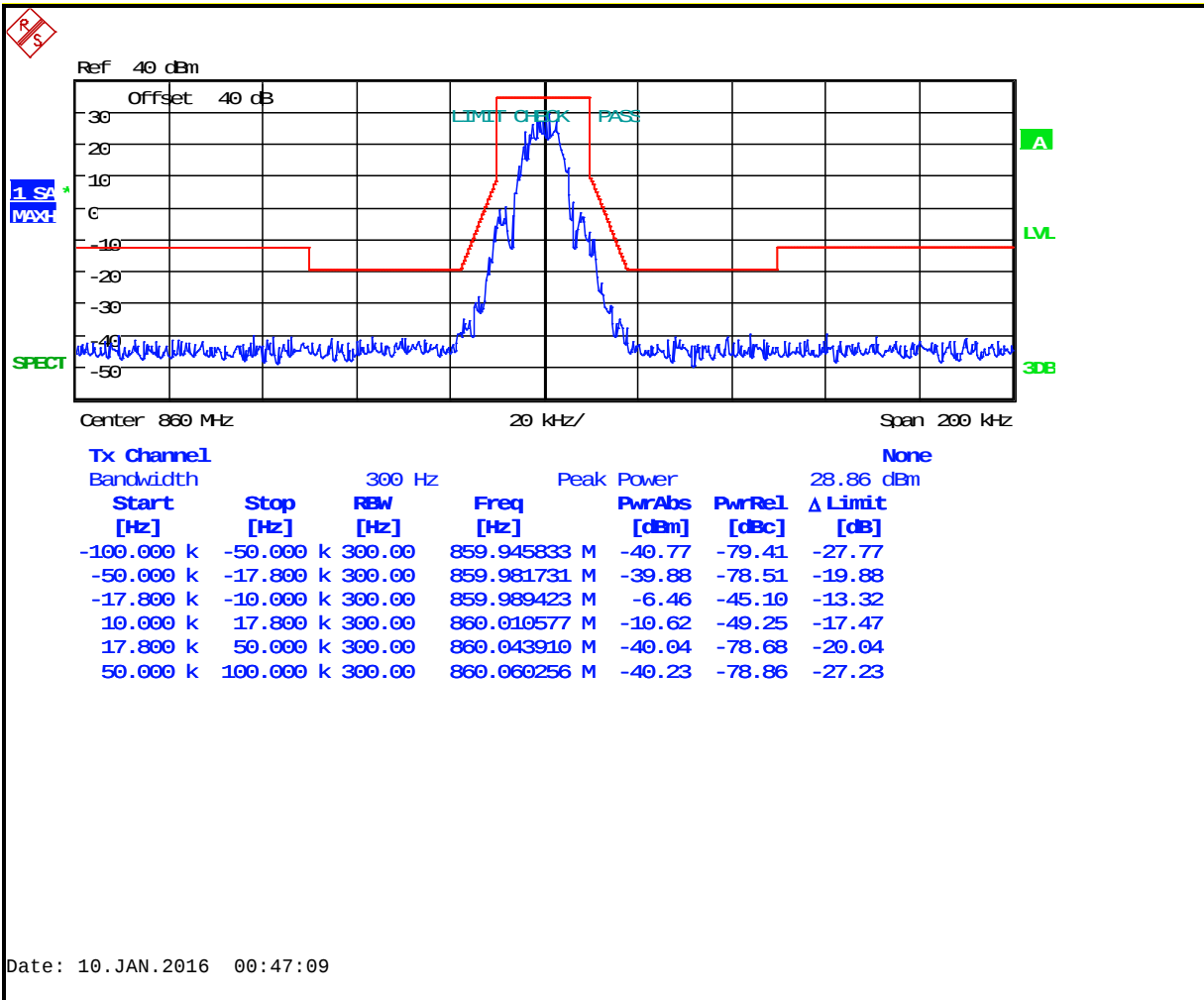
Plot 8-42: Occupied Bandwidth – 851.0125 MHz; EDACS NPSPAC 2-level FSK 9600 (Mask G)



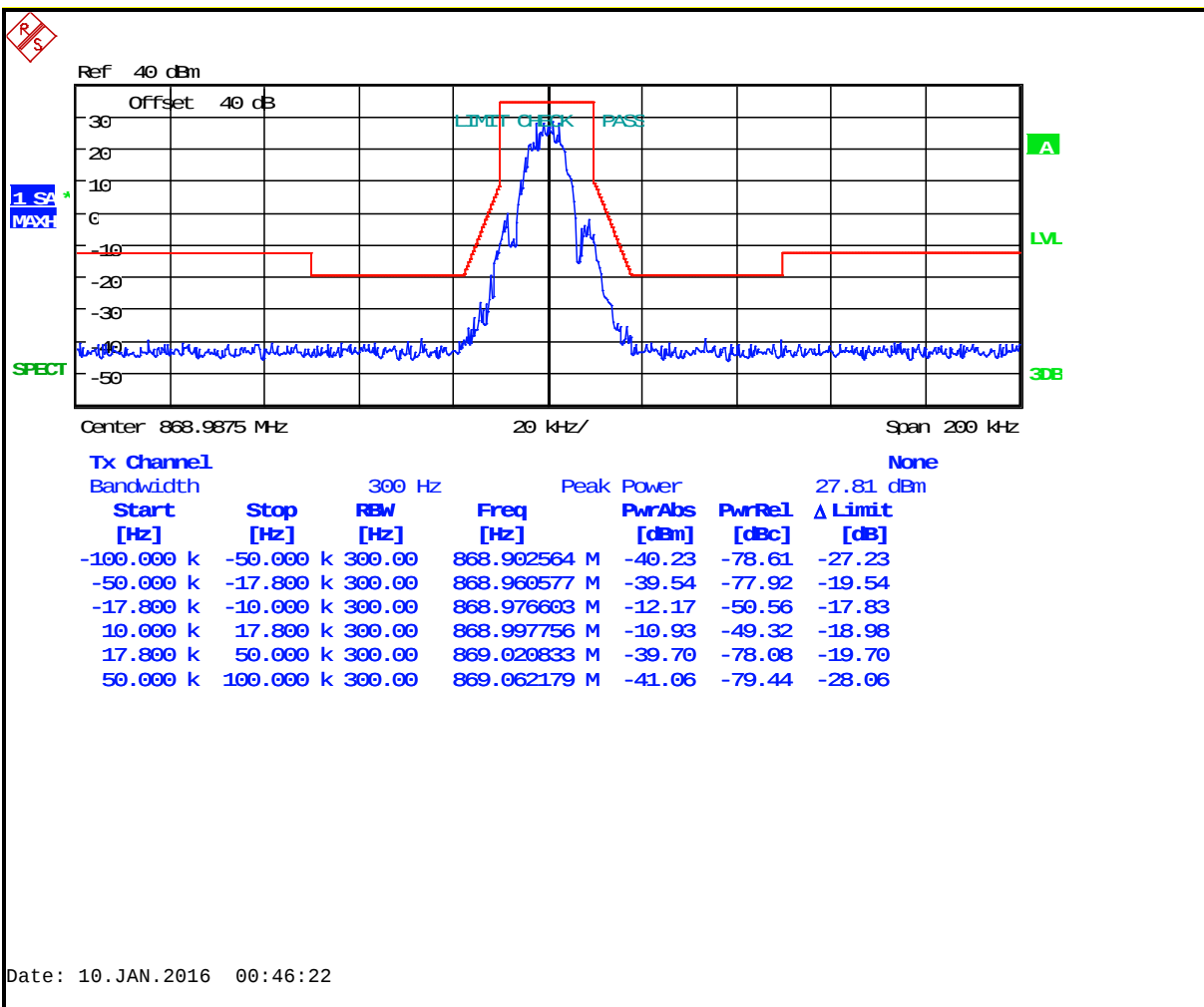
Plot 8-43: Occupied Bandwidth – 851.0125 MHz; EDACS NPSPAC 2-level FSK 9600 (Mask H)



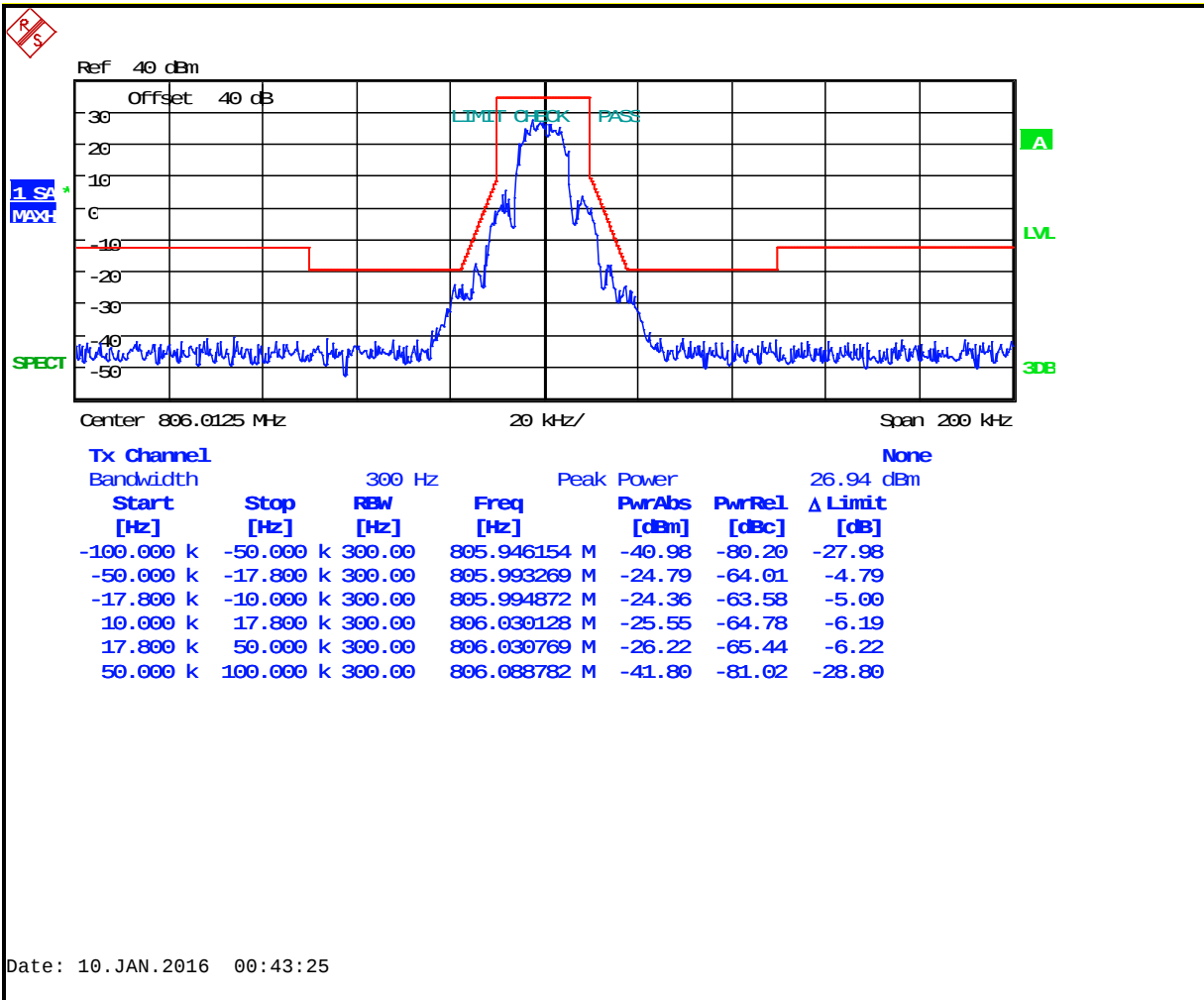
Plot 8-44: Occupied Bandwidth – 860.0000 MHz; EDACS NPSPAC 2-level FSK 9600 (Mask G)



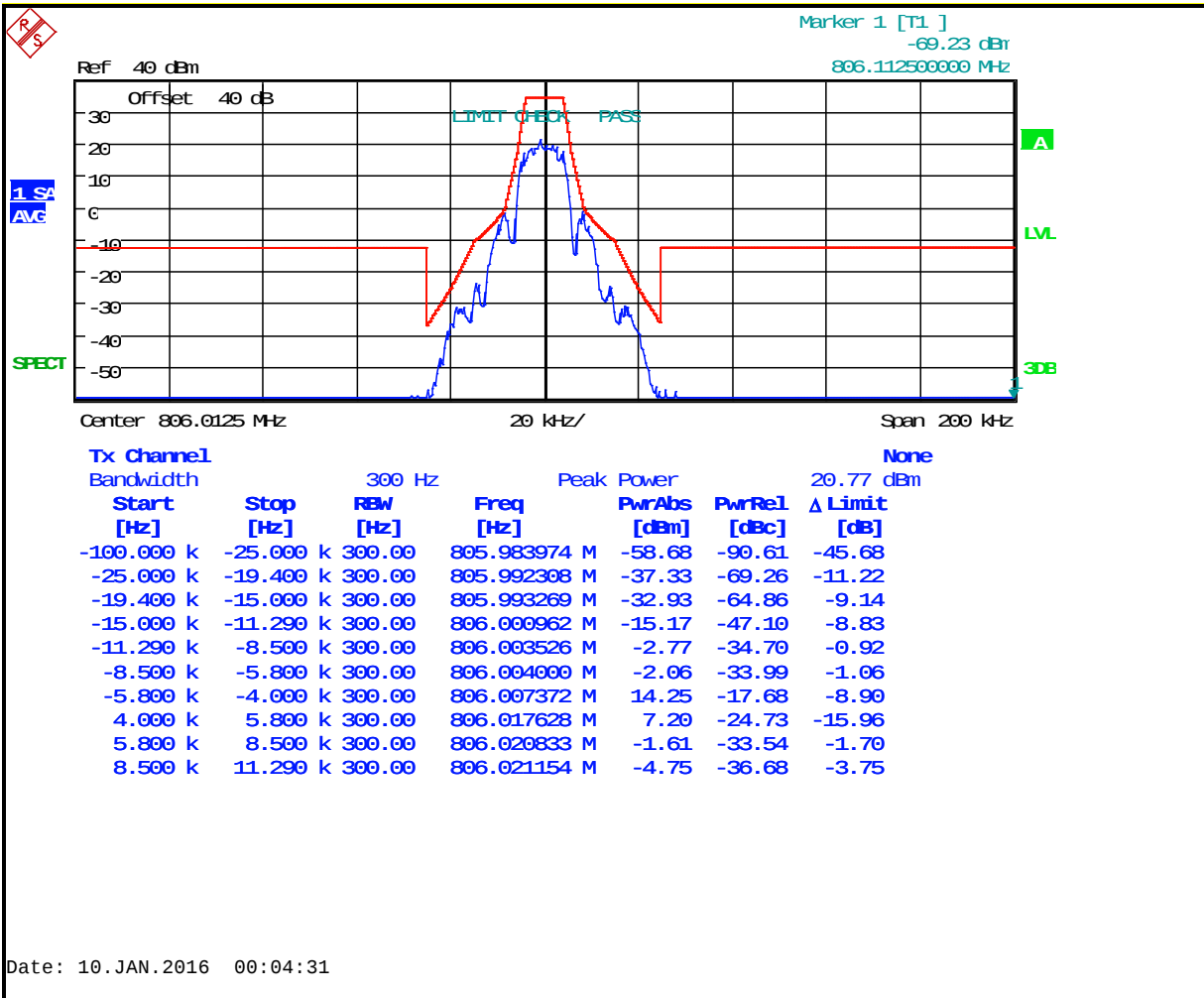
Plot 8-45: Occupied Bandwidth – 868.9875 MHz; EDACS NPSPAC 2-level FSK 9600 (Mask G)



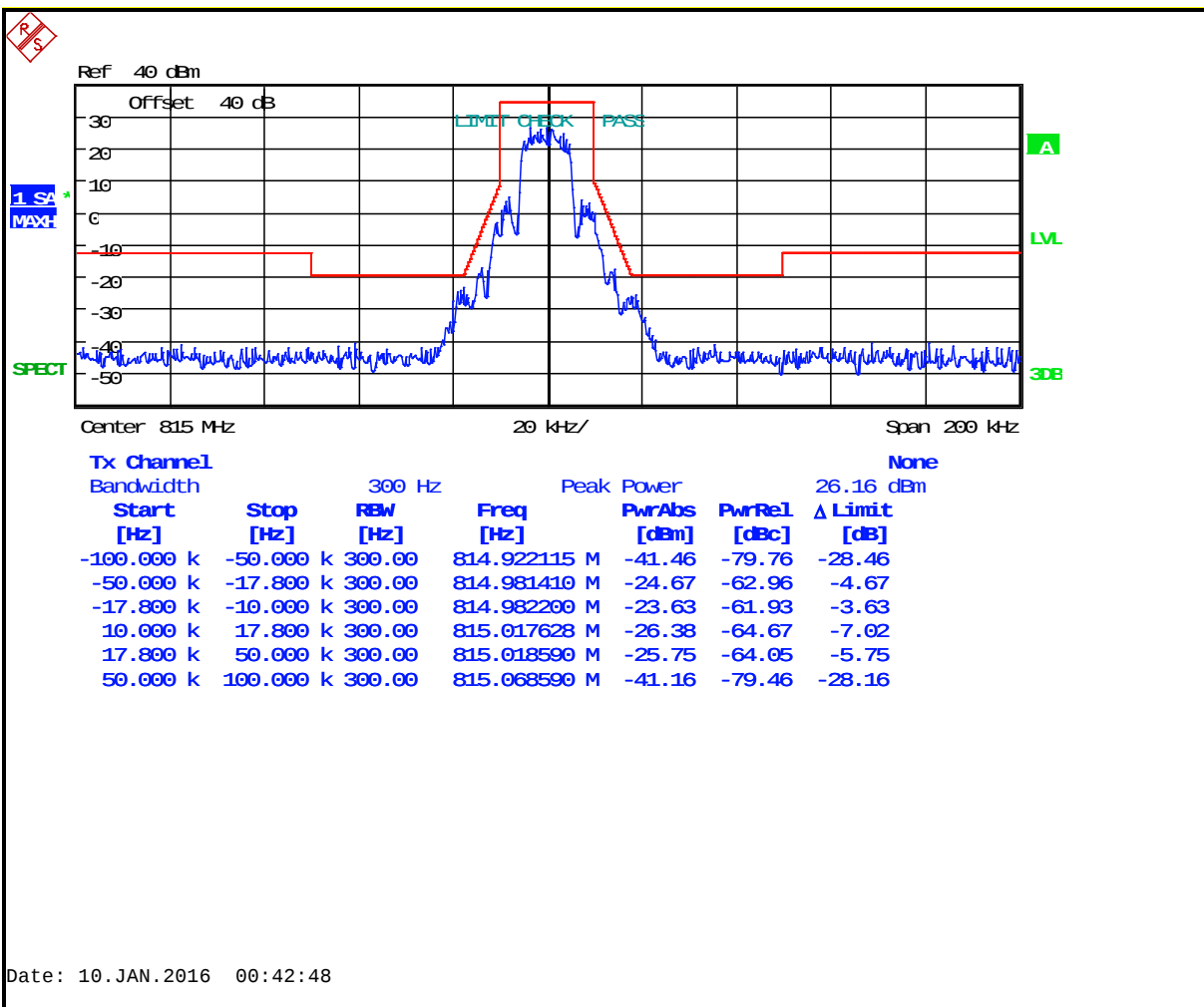
Plot 8-46: Occupied Bandwidth – 806.0125 MHz; EDACS Wideband 2-level FSK 9600 (Mask G)



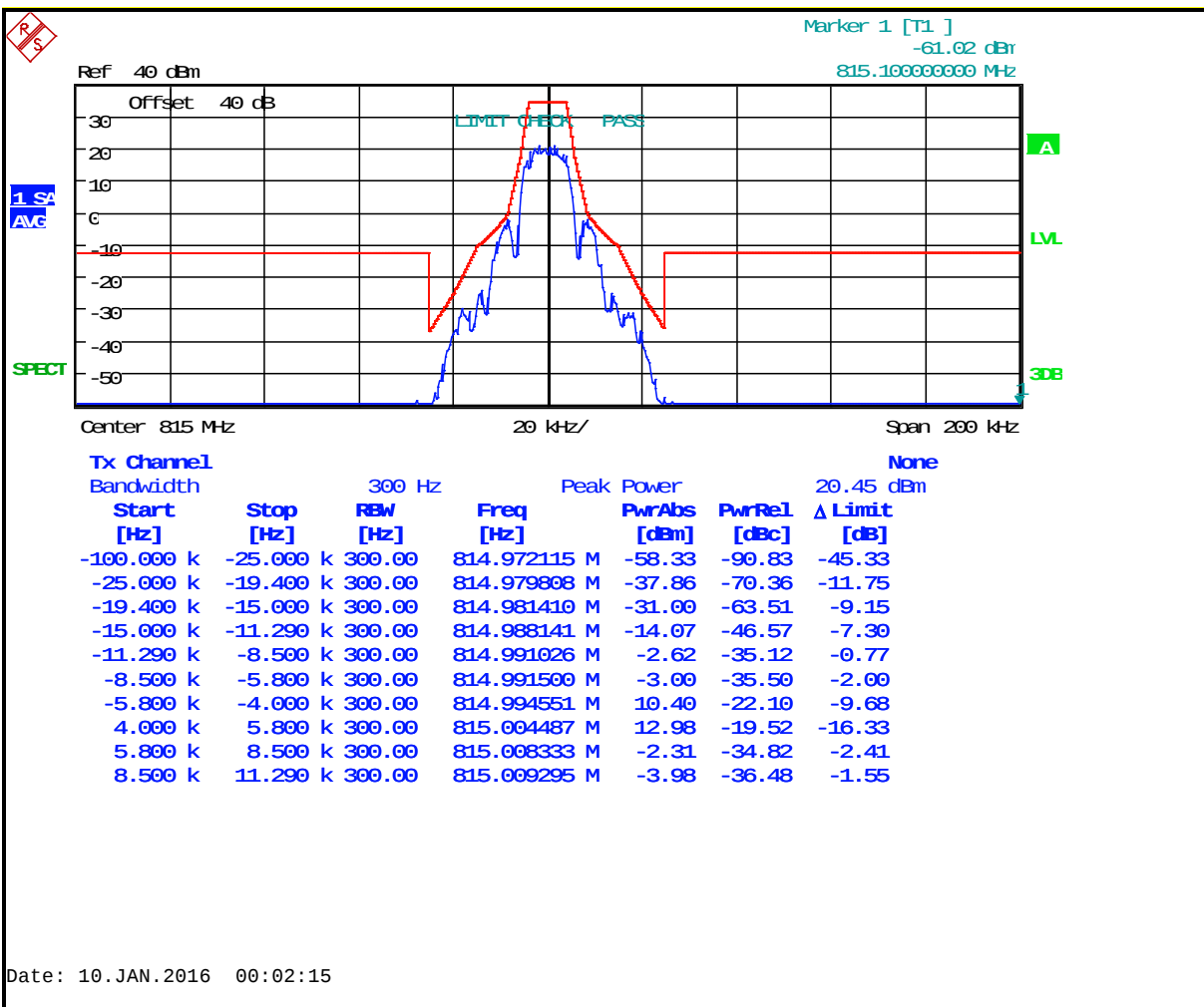
Plot 8-47: Occupied Bandwidth – 806.0125 MHz; EDACS Wideband 2-level FSK 9600 (Mask H)



Plot 8-48: Occupied Bandwidth – 815.0000 MHz; EDACS Wideband 2-level FSK 9600 (Mask G)



Plot 8-49: Occupied Bandwidth – 815.0000 MHz; EDACS Wideband 2-level FSK 9600 (Mask H)



Plot 8-50: Occupied Bandwidth – 823.9875 MHz; EDACS Wideband 2-level FSK 9600 (Mask G)

