



Engineering Solutions & Electromagnetic Compatibility Services

FCC & IC Certification Report

Harris Corporation
221 Jefferson Ridge Parkway
Lynchburg, VA 24501
Contact: Paresh Chauhan
pchauhan@harris.com

XL-200P C1D1 Rebanded

FCC ID: OWDTR-0144-E
IC: 3636B-0144

July 17, 2017

Standards Referenced for this Report	
Part 2: 2016	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
Part 22: 2016	Public Mobile Services
Part 74: 2016	Experimental Radio, Auxiliary, Special Broadcast and Other Program Distributional Services
Part 80: 2016	Stations in the Maritime Services
Part 90: 2016	Private Land Mobile Radio Services
RSS-119 Issue 12	Land Mobile and Fixed Radio Transmitters and Receivers 27.41 to 960.0 MHz
ANSI C63.26: 2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

Report Prepared By: Daniel W. Baltzell

Document Number: 2017006TNF

This report may not be reproduced, except in full, without the full written approval of Rhein Tech Laboratories, Inc. and Harris Corporation. Test results relate only to the item tested.

These tests are accredited and meet the requirements of ISO/IEC 17025 as verified by ANAB. Refer to certificate and scope of accreditation AT-1445.

Frequency Range (MHz)	Rated Conducted Output Power (W)	Frequency Tolerance (ppm)	Transmit Mode	Emission Designator
136 – 174	1 - 6	0.9	2-level FSK 4800 Data/Digital Voice (XNarrowband) / EDACS	7K10F1D/E
400 – 470	1 - 5	0.6	2-level FSK 4800 Data/Digital Voice (XNarrowband) / EDACS	7K10F1D/E
136 – 174	1 - 6	0.9	C4FM Data/Voice / P25 Phase 1	8K40F1D/E
378 – 522	1 - 5	0.6	C4FM Data/Voice / P25 Phase 1	8K40F1D/E
769 – 775 (FCC) 768 – 776 (ISED) 799 – 805 (FCC) 798 – 806 (ISED) 806 – 816 851 – 861	0.5 - 3	0.2	C4FM Data/Voice / P25 Phase 1	8K40F1D/E
136 – 174	1 - 6	0.9	H-CPM (TDMA) Data/Voice / P25 Phase 2	8K10DXW
378 – 522	1 - 5	0.6	H-CPM (TDMA) Data/Voice / P25 Phase 2	8K10DXW
769 – 775 (FCC) 768 – 776 (ISED) 799 – 805 (FCC) 798 – 806 (ISED) 806 – 816 851 – 861	0.5 - 3	0.2	H-CPM (TDMA) Data/Voice / P25 Phase 2	8K10DXW
136 – 174	1 - 6	0.9	Analog FM (Wideband) / EDACS/CONV	16K0F3E
378 – 522	1 - 5	0.6	Analog FM (Wideband) / EDACS/CONV	16K0F3E
806 – 816 851 – 861	0.5 - 3	0.2	Analog FM (Wideband) / EDACS/CONV	16K0F3E
136 – 174	1 - 6	0.9	2-level FSK 9600 Data/Digital Voice (Wideband) / EDACS	16K0F1D/E
378 – 522	1 - 5	0.6	2-level FSK 9600 Data/Digital Voice (Wideband) / EDACS	16K0F1D/E
806 – 816 851 – 861	0.5 - 3	0.2	2-level FSK 9600 Data/Digital Voice (Wideband) / EDACS	16K0F1D/E
136 – 174	1 - 6	0.9	Analog FM (Narrowband) / EDACS/CONV	11K0F3E
378 – 522	1 - 5	0.6	Analog FM (Narrowband) / EDACS/CONV	11K0F3E
769 – 775 (FCC) 768 – 776 (ISED) 799 – 805 (FCC) 798 – 806 (ISED) 806 – 816 851 – 861	0.5 - 3	0.2	Analog FM (Narrowband) / EDACS/CONV	11K0F3E
136 – 174	1 - 6	0.9	2-level FSK 9600 Data/Digital Voice (Narrowband) / EDACS	11K7F1D/E
378 – 522	1 - 5	0.6	2-level FSK 9600 Data/Digital Voice (Narrowband) / EDACS	11K7F1D/E
769 – 775 (FCC) 768 – 776 (ISED) 799 – 805 (FCC) 798 – 806 (ISED) 806 – 816 851 – 861	0.5 - 3	0.2	2-level FSK 9600 Data/Digital Voice (Narrowband) / EDACS	11K7F1D/E

769 – 775 (FCC) 768 – 776 (ISED) 799 – 805 (FCC) 798 – 806 (ISED) 806 – 816 851 – 861	0.5 - 3	0.2	4-level FSK Data/Voice (Narrowband) / OpenSky	8K40F9W
769 – 775 (FCC) 768 – 776 (ISED) 799 – 805 (FCC) 798 – 806 (ISED) 806 – 816 851 – 861	0.5 - 3	0.2	4-level FSK Data/Voice (SMR) / OpenSky	15K4F9W
806 – 809 851 – 854	0.5 - 3	0.2	Analog FM (NPSPAC) / EDACS	14K0F3E
806 – 809 851 – 854	0.5 – 3	0.2	2-level FSK 9600 Data/Digital Voice (NPSPAC) / EDACS	14K0F1D/E
806 – 809 851 – 854	0.5 - 3	0.2	4-level FSK Data/Voice (NPSPAC) / OpenSky	12K1F9W

Note: As this is a combined FCC and ISED test report, there is test data between 768 – and 769 MHz, 775 – 776 MHz, 798 – 799 MHz and 805 – 806 MHz for frequencies that are only authorized for use in Canada; that is, any test data in the aforementioned frequency ranges is not applicable for the FCC, nor authorized for use in the United States.

Table of Contents

1	Test Result Summary	11
2	General Information	11
2.1	Test Facility	11
2.2	Related Submittal(s)/Grant(s)	11
2.3	Grant Notes	11
2.4	Tested System Details	12
3	FCC §2.1033(C)(8) Voltages and Currents Through The Final Amplifying Stage	13
4	FCC §2.1046(a): RF Power Output: Conducted, §90.541: Transmitting Power Limits; §80.215: Transmitter Power; §22.659: Effective Radiated Power Limits; §74.461: Transmitter Power; RSS-119 5.4: Transmitter Power	13
4.1	Test Procedure	13
4.2	Test Data	14
5	FCC §2.1051: Spurious Emissions at Antenna Terminals; §90.210: Emission Limitations; §80.217: Suppression of Interference Aboard Ships; §22.359: Emission Limitations; RSS-119 5.8.9.2: Out-of-band Emission Limit	16
5.1	Test Procedure	16
5.2	Test Data	17
6	FCC §90.543(a): Emission Limitations: ACP Requirements; RSS-119 4.3: Adjacent Channel Power (ACP) Measurement for Equipment in the Bands 768-776 MHz and 798-806 MHz	18
6.1	Test Procedure	18
6.2	Test Data	20
7	FCC §90.210(g) and §2.1053(a): Field Strength of Spurious Radiation; §90.210, §90.543(f)(3): Out of Band Emissions Limit; RSS-119 5.8.9.2: Out-of-band Emission Limit	33
7.1	Test Procedure	33
7.2	Test Data	33
7.2.1	§90.210 Requirements	33
7.2.2	§90.543(f) Requirements	38
8	FCC §2.1049(c)(1): Occupied Bandwidth; §90.543(d), §90.210 Authorized Bandwidth; §74.462: Authorized Bandwidth and Emissions; §80.205: Bandwidths; §80.211: Emission Limitations; RSS-119 5.5: Channel Bandwidth, Authorized Bandwidth, Occupied Bandwidth and Spectrum Masks	40
8.1	Test Procedure	40
8.2	Test Data	42
9	FCC §2.1055: Frequency Stability; §22.355: Frequency Tolerance; §74.464; Frequency Tolerance; §80.209: Frequency Stability; §90.213, §90.539: Frequency Stability; RSS-119 5.3 Transmitter Frequency Stability	151
9.1	Test Procedure	151
9.2	Test Data	152
9.2.1	Frequency Stability/Voltage Variation	155
10	FCC §2.1047(a)(b): Modulation Characteristics; §74.463: Modulation Requirements; §80.213: Modulation Requirements; RSS-119 5.2: Types of Modulation	157
10.1	Test Procedures	157
10.1.1	Audio Frequency Response	157
10.1.2	Audio Low Pass Filter Response	157
10.1.3	Modulation Limiting	157
10.2	Test Data	158
10.2.1	Audio Frequency Response	158
10.2.2	Audio Low Pass Filter Response	165
10.2.3	Modulation Limiting	175

11	FCC §74.462(c): Authorized Bandwidth and Emissions; §90.214: Transient Frequency Response; RSS-119 5.9: Transient Frequency Behavior.....	207
11.1	Test Procedure	207
11.2	Test Data	208
12	FCC §2.202: Necessary Bandwidth and Emission Bandwidth	217
13	Conclusion	219

Table of Figures

Figure 2-1:	Configuration of Tested System.....	12
-------------	-------------------------------------	----

Table of Tables

Table 2-1:	Equipment Under Test (EUT)	12
Table 4-1:	RF Conducted Output Power - Measured	14
Table 4-2:	Test Equipment Used For Testing RF Power Output - Conducted.....	15
Table 5-1:	Test Equipment Used For Testing Spurious Emissions	17
Table 6-1:	Adjacent Channel Power - 775.9875 MHz; P25 Mode; 12.5 kHz Channel Spacing.....	20
Table 6-2:	Adjacent Channel Power - 804.9875 MHz; P25 Mode; 12.5 kHz Channel Spacing.....	21
Table 6-3:	Adjacent Channel Power - 775.9875MHz; C4FM TDMA Phase 2 Mode; 12.5 kHz Channel Spacing	22
Table 6-4:	Adjacent Channel Power - 804.9875 MHz; C4FM TDMA Phase 2 Mode; 12.5 kHz Channel Spacing	23
Table 6-5:	Adjacent Channel Power - 775.9875 MHz; Analog Mode; 12.5 kHz Channel Spacing	24
Table 6-6:	Adjacent Channel Power - 804.9875 MHz; Analog Mode; 12.5 kHz Channel Spacing	25
Table 6-7:	Adjacent Channel Power - 775.9875 MHz; 2 Level FSK 9600 Mode; 12.5 kHz Channel Spacing.....	26
Table 6-8:	Adjacent Channel Power - 804.9875 MHz; 2 Level FSK 9600 Mode; 12.5 kHz Channel Spacing.....	27
Table 6-9:	Adjacent Channel Power - 775.9875 MHz; 4 Level FSK OTP Mode; 12.5 kHz Channel Spacing.....	28
Table 6-10:	Adjacent Channel Power - 804.9875 MHz; 4 Level FSK OTP Mode; 12.5 kHz Channel Spacing	29
Table 6-11:	Adjacent Channel Power - 775.9875 MHz; 4 Level FSK SMR Mode; 25 kHz Channel Spacing	30
Table 6-12:	Adjacent Channel Power - 804.9875 MHz; 4 Level FSK SMR Mode; 25 kHz Channel Spacing	31
Table 6-13:	Test Equipment Used For Testing ACP Requirements.....	32
Table 7-1:	Field Strength of Spurious Radiation; 136 MHz.....	33
Table 7-2:	Field Strength of Spurious Radiation; 138 MHz.....	33
Table 7-3:	Field Strength of Spurious Radiation; 141 MHz.....	34
Table 7-4:	Field Strength of Spurious Radiation; 144 MHz.....	34
Table 7-5:	Field Strength of Spurious Radiation; 156.8 MHz.....	34
Table 7-6:	Field Strength of Spurious Radiation; 162 MHz.....	34
Table 7-7:	Field Strength of Spurious Radiation; 174 MHz.....	34
Table 7-8:	Field Strength of Spurious Radiation; 378 MHz.....	35
Table 7-9:	Field Strength of Spurious Radiation; 406.1 MHz.....	35
Table 7-10:	Field Strength of Spurious Radiation; 418 MHz.....	35
Table 7-11:	Field Strength of Spurious Radiation; 430 MHz.....	35
Table 7-12:	Field Strength of Spurious Radiation; 450 MHz.....	35
Table 7-13:	Field Strength of Spurious Radiation; 454 MHz.....	36
Table 7-14:	Field Strength of Spurious Radiation; 456 MHz.....	36
Table 7-15:	Field Strength of Spurious Radiation; 459.025 MHz	36
Table 7-16:	Field Strength of Spurious Radiation; 459.975 MHz	36
Table 7-17:	Field Strength of Spurious Radiation; 470 MHz.....	36
Table 7-18:	Field Strength of Spurious Radiation; 512 MHz.....	37
Table 7-19:	Field Strength of Spurious Radiation; 522 MHz.....	37
Table 7-20:	Field Strength of Spurious Radiation; 768 MHz.....	37

Table 7-21: Field Strength of Spurious Radiation; 769 MHz.....	37
Table 7-22: Field Strength of Spurious Radiation; 771 MHz.....	37
Table 7-23: Field Strength of Spurious Radiation.....	38
Table 7-24: Test Equipment Used For Testing Field Strength of Spurious Radiation.....	38
Table 8-1: Test Equipment Used For Testing Occupied Bandwidth.....	150
Table 9-1: Temperature Frequency Stability – 162 MHz	152
Table 9-2: Temperature Frequency Stability – 418 MHz	153
Table 9-3: Temperature Frequency Stability – 470 MHz	153
Table 9-4: Temperature Frequency Stability – 768 MHz	153
Table 9-5: Temperature Frequency Stability – 798 MHz	154
Table 9-6: Temperature Frequency Stability – 815 MHz	154
Table 9-7: Temperature Frequency Stability – 860 MHz	154
Table 9-8: Frequency Stability/Voltage Variation – 162 MHz.....	155
Table 9-9: Frequency Stability/Voltage Variation – 418 MHz.....	155
Table 9-10: Frequency Stability/Voltage Variation – 470 MHz.....	155
Table 9-11: Frequency Stability/Voltage Variation – 768 MHz.....	155
Table 9-12: Frequency Stability/Voltage Variation – 798 MHz.....	155
Table 9-13: Frequency Stability/Voltage Variation – 815 MHz.....	156
Table 9-14: Frequency Stability/Voltage Variation – 860 MHz.....	156
Table 9-15: Test Equipment Used For Testing Frequency Stability.....	156
Table 10-1: Test Equipment Used For Modulation Requirements	206
Table 11-1: Test Equipment Used For Testing Transient Frequency Behavior	216

Table of Plots

Plot 6-1: Adjacent Channel Power - 775.9875 MHz; P25 Mode; 12.5 kHz Channel Spacing.....	20
Plot 6-2: Adjacent Channel Power - 804.9875 MHz; P25 Mode; 12.5 kHz Channel Spacing.....	21
Plot 6-3: Adjacent Channel Power - 775.9875MHz; C4FM TDMA Phase 2 Mode; 12.5 kHz Channel Spacing	22
Plot 6-4: Adjacent Channel Power - 804.9875 MHz; C4FM TDMA Phase 2 Mode; 12.5 kHz Channel Spacing	23
Plot 6-5: Adjacent Channel Power - 775.9875 MHz; Analog Mode; 12.5 kHz Channel Spacing	24
Plot 6-6: Adjacent Channel Power - 804.9875 MHz; Analog Mode; 12.5 kHz Channel Spacing	25
Plot 6-7: Adjacent Channel Power - 775.9875 MHz; 2 Level FSK 9600 Mode; 12.5 kHz Channel Spacing.....	26
Plot 6-8: Adjacent Channel Power - 804.9875 MHz; 2 Level FSK 9600 Mode; 12.5 kHz Channel Spacing.....	27
Plot 6-9: Adjacent Channel Power - 775.9875 MHz; 4 Level FSK OTP Mode; 12.5 kHz Channel Spacing.....	28
Plot 6-10: Adjacent Channel Power - 804.9875 MHz; 4 Level FSK OTP Mode; 12.5 kHz Channel Spacing	29
Plot 6-11: Adjacent Channel Power - 775.9875 MHz; 4 Level FSK SMR Mode; 25 kHz Channel Spacing	30
Plot 6-12: Adjacent Channel Power - 804.9875 MHz; 4 Level FSK SMR Mode; 25 kHz Channel Spacing	31
Plot 8-1: Occupied Bandwidth – 150 MHz; Analog WB (Mask B).....	42
Plot 8-2: Occupied Bandwidth – 156.8 MHz; Analog WB (Mask B).....	43
Plot 8-3: Occupied Bandwidth – 162 MHz; Analog WB (Mask B).....	44
Plot 8-4: Occupied Bandwidth – 174 MHz; Analog WB (Mask B).....	45
Plot 8-5: Occupied Bandwidth – 150 MHz; Analog NB (Mask D)	46
Plot 8-6: Occupied Bandwidth – 156.8 MHz; Analog NB (Mask D)	47
Plot 8-7: Occupied Bandwidth – 162 MHz; Analog NB (Mask D)	48
Plot 8-8: Occupied Bandwidth – 174 MHz; Analog NB (Mask D)	49
Plot 8-9: Occupied Bandwidth – 150 MHz; P25; (Mask D).....	50
Plot 8-10: Occupied Bandwidth – 156.8 MHz; P25; (Mask D).....	51
Plot 8-11: Occupied Bandwidth – 162 MHz; P25; (Mask D).....	52
Plot 8-12: Occupied Bandwidth – 174 MHz; P25; (Mask D).....	53
Plot 8-13: Occupied Bandwidth – 150 MHz; CPM TDMA TDMA; (Mask D).....	54
Plot 8-14: Occupied Bandwidth – 156.8 MHz; CPM TDMA TDMA; (Mask D).....	55
Plot 8-15: Occupied Bandwidth – 162 MHz; CPM TDMA TDMA; (Mask D).....	56

Plot 8-16:	Occupied Bandwidth – 174 MHz; CPM TDMA TDMA; (Mask D).....	57
Plot 8-17:	Occupied Bandwidth – 150 MHz; 2-Level FSK 4800; XNB EDACS; (Mask D).....	58
Plot 8-18:	Occupied Bandwidth – 156.8 MHz; 2-Level FSK 4800; XNB EDACS; (Mask D)	59
Plot 8-19:	Occupied Bandwidth – 162 MHz; 2-Level FSK 4800; XNB EDACS; (Mask D)	60
Plot 8-20:	Occupied Bandwidth – 174 MHz; 2-Level FSK 4800; XNB EDACS; (Mask D)	61
Plot 8-21:	Occupied Bandwidth – 150 MHz; 2-Level FSK 9600; WB EDACS; (Mask B).....	62
Plot 8-22:	Occupied Bandwidth – 156.8 MHz; 2-Level FSK 9600; WB EDACS; (Mask B).....	63
Plot 8-23:	Occupied Bandwidth – 162 MHz; 2-Level FSK 9600; WB EDACS; (Mask B).....	64
Plot 8-24:	Occupied Bandwidth – 174 MHz; 2-Level FSK 9600; WB EDACS; (Mask B).....	65
Plot 8-25:	Occupied Bandwidth – 150 MHz; 2-Level FSK 9600; NB EDACS; (Mask D)	66
Plot 8-26:	Occupied Bandwidth – 156.8 MHz; 2-Level FSK 9600; NB EDACS; (Mask D)	67
Plot 8-27:	Occupied Bandwidth – 162 MHz; 2-Level FSK 49600; NB EDACS; (Mask D)	68
Plot 8-28:	Occupied Bandwidth – 174 MHz; 2-Level FSK 9600; NB EDACS; (Mask D)	69
Plot 8-29:	Occupied Bandwidth – 430 MHz; Wideband Analog; Mask B	70
Plot 8-30:	Occupied Bandwidth – 450 MHz; Wideband Analog; Mask B	71
Plot 8-31:	Occupied Bandwidth – 454 MHz; Wideband Analog; Mask B	72
Plot 8-32:	Occupied Bandwidth – 456 MHz; Wideband Analog; Mask B	73
Plot 8-33:	Occupied Bandwidth – 459.025 MHz; Wideband Analog; Mask B	74
Plot 8-34:	Occupied Bandwidth – 459.975MHz; Wideband Analog; Mask B	75
Plot 8-35:	Occupied Bandwidth – 470 MHz; Wideband Analog; Mask B	76
Plot 8-36:	Occupied Bandwidth – 430 MHz; Narrowband Analog; Mask D	77
Plot 8-37:	Occupied Bandwidth – 450 MHz; Narrowband Analog; Mask D	78
Plot 8-38:	Occupied Bandwidth – 454 MHz; Narrowband Analog; Mask D	79
Plot 8-39:	Occupied Bandwidth – 456 MHz; Narrowband Analog; Mask D	80
Plot 8-40:	Occupied Bandwidth – 459.025 MHz; Narrowband Analog; Mask D.....	81
Plot 8-41:	Occupied Bandwidth – 459.975 MHz; Narrowband Analog; Mask D.....	82
Plot 8-42:	Occupied Bandwidth – 470 MHz; Narrowband Analog; Mask D	83
Plot 8-43:	Occupied Bandwidth – 430 MHz; P25; Mask D	84
Plot 8-44:	Occupied Bandwidth – 450 MHz; P25; Mask D	85
Plot 8-45:	Occupied Bandwidth – 454 MHz; P25; Mask D	86
Plot 8-46:	Occupied Bandwidth – 456MHz; P25; Mask D	87
Plot 8-47:	Occupied Bandwidth – 459.025 MHz; P25; Mask D	88
Plot 8-48:	Occupied Bandwidth – 459.975 MHz; P25; Mask D	89
Plot 8-49:	Occupied Bandwidth – 470 MHz; P25; Mask D	90
Plot 8-50:	Occupied Bandwidth – 430 MHz; CPM TDMA; Mask D.....	91
Plot 8-51:	Occupied Bandwidth – 450 MHz; CPM TDMA; Mask D.....	92
Plot 8-52:	Occupied Bandwidth – 454 MHz; CPM TDMA; Mask D.....	93
Plot 8-53:	Occupied Bandwidth – 456MHz; CPM TDMA; Mask D.....	94
Plot 8-54:	Occupied Bandwidth – 459.025 MHz; CPM TDMA; Mask D.....	95
Plot 8-55:	Occupied Bandwidth – 459.975 MHz; CPM TDMA; Mask D.....	96
Plot 8-56:	Occupied Bandwidth – 470 MHz; CPM TDMA; Mask D.....	97
Plot 8-57:	Occupied Bandwidth – 430 MHz; (2-level FSK 9600; NB) EDACS; Mask D.....	98
Plot 8-58:	Occupied Bandwidth – 450 MHz; (2-level FSK 9600; NB) EDACS; Mask D.....	99
Plot 8-59:	Occupied Bandwidth – 454 MHz; (2-level FSK 9600; NB) EDACS; Mask D.....	100
Plot 8-60:	Occupied Bandwidth – 456 MHz; (2-level FSK 9600; NB) EDACS; Mask D.....	101
Plot 8-61:	Occupied Bandwidth – 459.025 MHz; (2-level FSK 9600; NB) EDACS; Mask D.....	102
Plot 8-62:	Occupied Bandwidth – 459.975 MHz; (2-level FSK 9600; NB) EDACS; Mask D.....	103
Plot 8-63:	Occupied Bandwidth – 470 MHz; (2-level FSK 9600; NB) EDACS; Mask D.....	104
Plot 8-64:	Occupied Bandwidth – 430 MHz; (2-level FSK 9600; WB) EDACS; Mask C.....	105
Plot 8-65:	Occupied Bandwidth – 450 MHz; (2-level FSK 9600; WB) EDACS; Mask C.....	106
Plot 8-66:	Occupied Bandwidth – 454 MHz; (2-level FSK 9600; WB) EDACS; Mask C.....	107
Plot 8-67:	Occupied Bandwidth – 456 MHz; (2-level FSK 9600; WB) EDACS; Mask C.....	108
Plot 8-68:	Occupied Bandwidth – 459.025 MHz; (2-level FSK 9600; WB) EDACS; Mask C.....	109
Plot 8-69:	Occupied Bandwidth – 459.975MHz; (2-level FSK 9600; WB) EDACS; Mask C.....	110
Plot 8-70:	Occupied Bandwidth – 470 MHz; (2-level FSK 9600; WB) EDACS; Mask C.....	111

Plot 8-71:	Occupied Bandwidth – 430 MHz; (4-level FSK Data/Voice; NB) OpenSky; Mask D.....	112
Plot 8-72:	Occupied Bandwidth – 450 MHz; (4-level FSK Data/Voice; NB) OpenSky; Mask D.....	113
Plot 8-73:	Occupied Bandwidth – 454 MHz; (4-level FSK Data/Voice; NB) OpenSky; Mask D.....	114
Plot 8-74:	Occupied Bandwidth – 456 MHz; (4-level FSK Data/Voice; NB) OpenSky; Mask D.....	115
Plot 8-75:	Occupied Bandwidth – 459.025 MHz; (4-level FSK Data/Voice; NB) OpenSky; Mask D.....	116
Plot 8-76:	Occupied Bandwidth – 459.975MHz; (4-level FSK Data/Voice; NB) OpenSky; Mask D.....	117
Plot 8-77:	Occupied Bandwidth – 470 MHz; (4-level FSK Data/Voice; NB) OpenSky; Mask D.....	118
Plot 8-78:	Occupied Bandwidth – 815 MHz; Narrowband Analog; Mask D.....	119
Plot 8-79:	Occupied Bandwidth – 815 MHz; Narrowband Analog; Mask B.....	120
Plot 8-80:	Occupied Bandwidth – 860 MHz; Narrowband Analog; Mask D.....	121
Plot 8-81:	Occupied Bandwidth – 860 MHz; Narrowband Analog; Mask B.....	122
Plot 8-82:	Occupied Bandwidth – 815 MHz; Wideband Analog; Mask B.....	123
Plot 8-83:	Occupied Bandwidth – 860 MHz; Wideband Analog; Mask B.....	124
Plot 8-84:	Occupied Bandwidth – 806 MHz; NPSPAC; Mask B.....	125
Plot 8-85:	Occupied Bandwidth – 816 MHz; NPSPAC; Mask B.....	126
Plot 8-86:	Occupied Bandwidth – 851 MHz; NPSPAC; Mask B.....	127
Plot 8-87:	Occupied Bandwidth – 861 MHz; NPSPAC; Mask B.....	128
Plot 8-88:	Occupied Bandwidth – 806 MHz; P25 RND; Mask H.....	129
Plot 8-89:	Occupied Bandwidth – 815 MHz; P25 RND; Mask G.....	130
Plot 8-90:	Occupied Bandwidth – 854 MHz; P25 RND; Mask H.....	131
Plot 8-91:	Occupied Bandwidth – 860 MHz; P25 RND; Mask G.....	132
Plot 8-92:	Occupied Bandwidth – 806 MHz; CPM TDMA; Mask H.....	133
Plot 8-93:	Occupied Bandwidth – 815 MHz; CPM TDMA; Mask G.....	134
Plot 8-94:	Occupied Bandwidth – 854 MHz; CPM TDMA; Mask H.....	135
Plot 8-95:	Occupied Bandwidth – 860 MHz; CPM TDMA; Mask G.....	136
Plot 8-96:	Occupied Bandwidth – 815 MHz; 4-level FSK Data/Voice; NB OpenSky; Mask G.....	137
Plot 8-97:	Occupied Bandwidth – 860 MHz; 4-level FSK Data/Voice; NB OpenSky; Mask G.....	138
Plot 8-98:	Occupied Bandwidth – 815 MHz; 2-level FSK 9600; NB EDACS; Mask G.....	139
Plot 8-99:	Occupied Bandwidth – 860 MHz; 2-level FSK 9600; NB EDACS; Mask G.....	140
Plot 8-100:	Occupied Bandwidth – 815 MHz; 2-level FSK 9600; WB EDACS; Mask G.....	141
Plot 8-101:	Occupied Bandwidth – 860 MHz; 2-level FSK 9600; WB EDACS; Mask G.....	142
Plot 8-102:	Occupied Bandwidth – 806 MHz; 4-level FSK Data/Voice; NB NPSPAC EDACS; Mask H.....	143
Plot 8-103:	Occupied Bandwidth – 815 MHz; 4-level FSK Data/Voice; NB NPSPAC EDACS; Mask G.....	144
Plot 8-104:	Occupied Bandwidth – 851 MHz; 4-level FSK Data/Voice; NB NPSPAC EDACS; Mask H.....	145
Plot 8-105:	Occupied Bandwidth – 806 MHz; 4-level FSK Data/Voice; NPSPAC OpenSky; Mask H.....	146
Plot 8-106:	Occupied Bandwidth – 851 MHz; 4-level FSK Data/Voice; NPSPAC OpenSky; Mask H.....	147
Plot 8-107:	Occupied Bandwidth – 815 MHz; 4-level FSK Data/Voice; SMR OpenSky; Mask G.....	148
Plot 8-108:	Occupied Bandwidth – 860 MHz; 4-level FSK Data/Voice; SMR OpenSky; Mask G.....	149
Plot 10-1:	Modulation Characteristics - Audio Frequency Response - 136 MHz.....	158
Plot 10-2:	Modulation Characteristics - Audio Frequency Response - 418 MHz.....	159
Plot 10-3:	Modulation Characteristics - Audio Frequency Response - 470 MHz.....	160
Plot 10-4:	Modulation Characteristics - Audio Frequency Response - 768 MHz.....	161
Plot 10-5:	Modulation Characteristics - Audio Frequency Response - 798 MHz.....	162
Plot 10-6:	Modulation Characteristics - Audio Frequency Response - 815 MHz.....	163
Plot 10-7:	Modulation Characteristics - Audio Frequency Response - 860 MHz.....	164
Plot 10-8:	Modulation Characteristics – Audio Low Pass Filter - 162 MHz (WB).....	165
Plot 10-9:	Modulation Characteristics – Audio Low Pass Filter - 162 MHz (NB).....	166
Plot 10-10:	Modulation Characteristics – Audio Low Pass Filter - 418 MHz (WB).....	167
Plot 10-11:	Modulation Characteristics – Audio Low Pass Filter - 418 MHz (NB).....	168
Plot 10-12:	Modulation Characteristics – Audio Low Pass Filter - 470 MHz (WB).....	169
Plot 10-13:	Modulation Characteristics – Audio Low Pass Filter - 470 MHz (NB).....	170
Plot 10-14:	Modulation Characteristics – Audio Low Pass Filter – 768 MHz.....	171
Plot 10-15:	Modulation Characteristics – Audio Low Pass Filter - 798 MHz.....	172
Plot 10-16:	Modulation Characteristics – Audio Low Pass Filter - 815 MHz.....	173
Plot 10-17:	Modulation Characteristics – Audio Low Pass Filter - 860 MHz.....	174

Plot 10-18: Modulation Characteristics – Modulation Limiting - 136 MHz; Positive Peak; NB	175
Plot 10-19: Modulation Characteristics – Modulation Limiting - 136 MHz; Negative Peak; NB	176
Plot 10-20: Modulation Characteristics – Modulation Limiting - 136 MHz; Positive Peak; WB	177
Plot 10-21: Modulation Characteristics – Modulation Limiting - 136 MHz; Negative Peak; WB.....	178
Plot 10-22: Modulation Characteristics – Modulation Limiting - 162 MHz; Positive Peak; NB.....	179
Plot 10-23: Modulation Characteristics – Modulation Limiting - 162 MHz; Negative Peak; NB	180
Plot 10-24: Modulation Characteristics – Modulation Limiting - 162 MHz; Positive Peak; WB	181
Plot 10-25: Modulation Characteristics – Modulation Limiting - 162 MHz; Negative Peak; WB.....	182
Plot 10-26: Modulation Characteristics – Modulation Limiting - 418 MHz; Positive Peak; NB.....	183
Plot 10-27: Modulation Characteristics – Modulation Limiting - 418 MHz; Negative Peak; NB	184
Plot 10-28: Modulation Characteristics – Modulation Limiting - 418 MHz; Positive Peak; WB	185
Plot 10-29: Modulation Characteristics – Modulation Limiting - 418 MHz; Negative Peak; WB.....	186
Plot 10-30: Modulation Characteristics – Modulation Limiting - 470 MHz; Positive Peak; NB	187
Plot 10-31: Modulation Characteristics – Modulation Limiting - 470 MHz; Negative Peak; NB	188
Plot 10-32: Modulation Characteristics – Modulation Limiting - 470 MHz; Positive Peak; WB	189
Plot 10-33: Modulation Characteristics – Modulation Limiting - 470 MHz; Negative Peak; WB.....	190
Plot 10-34: Modulation Characteristics – Modulation Limiting - 768 MHz; Positive Peak; NB.....	191
Plot 10-35: Modulation Characteristics – Modulation Limiting - 768 MHz; Negative Peak; NB	192
Plot 10-36: Modulation Characteristics – Modulation Limiting - 798 MHz; Positive Peak; NB.....	193
Plot 10-37: Modulation Characteristics – Modulation Limiting - 798 MHz; Negative Peak; NB	194
Plot 10-38: Modulation Characteristics – Modulation Limiting - 815 MHz; Positive Peak; NB.....	195
Plot 10-39: Modulation Characteristics – Modulation Limiting - 815 MHz; Negative Peak; NB	196
Plot 10-40: Modulation Characteristics – Modulation Limiting - 815 MHz; Positive Peak; WB	197
Plot 10-41: Modulation Characteristics – Modulation Limiting - 815 MHz; Negative Peak; WB.....	198
Plot 10-42: Modulation Characteristics – Modulation Limiting - 816 MHz; Positive Peak; NPSPAC.....	199
Plot 10-43: Modulation Characteristics – Modulation Limiting - 816 MHz; Negative Peak; NPSPAC.....	200
Plot 10-44: Modulation Characteristics – Modulation Limiting - 860 MHz; Positive Peak; NB.....	201
Plot 10-45: Modulation Characteristics – Modulation Limiting - 860 MHz; Negative Peak; NB	202
Plot 10-46: Modulation Characteristics – Modulation Limiting - 860 MHz; Positive Peak; WB	203
Plot 10-47: Modulation Characteristics – Modulation Limiting - 860 MHz; Negative Peak; WB.....	204
Plot 10-48: Modulation Characteristics – Modulation Limiting - 861 MHz; Positive Peak; NPSPAC.....	205
Plot 10-49: Modulation Characteristics – Modulation Limiting - 861 MHz; Negative Peak; NPSPAC	206
Plot 11-1: Transient Frequency Behavior – 150 MHz; High Power; Narrowband; Carrier ON Time	208
Plot 11-2: Transient Frequency Behavior – 162 MHz; High Power; Narrowband; Carrier OFF Time	209
Plot 11-3: Transient Frequency Behavior – 174 MHz; High Power; Wideband; Carrier ON Time	210
Plot 11-4: Transient Frequency Behavior – 174 MHz; High Power; Wideband; Carrier OFF Time.....	211
Plot 11-5: Transient Frequency Behavior – 430 MHz; High Power; Narrowband; Carrier ON Time	212
Plot 11-6: Transient Frequency Behavior – 430 MHz; High Power; Narrowband; Carrier OFF Time	213
Plot 11-7: Transient Frequency Behavior – 512 MHz; High Power; Wideband; Carrier ON Time	214
Plot 11-8: Transient Frequency Behavior – 512 MHz; High Power; Wideband; Carrier OFF Time.....	215

Table of Appendixes

Appendix A:FCC §1.1307, §1.1310, §2.1091, §2.1093: RF Exposure	220
Appendix B:Agency Authorization.....	221
Appendix C: FCC and IC Confidentiality Request Letter.....	222
Appendix D: IC Letters.....	223
Appendix E:Canadian Representative	224
Appendix F:AFC Attestation	225
Appendix G: §90 Subpart R Application Review.....	226
Appendix H: ID Label & Location	227
Appendix I: Operational Description	228
Appendix J: Parts List.....	229
Appendix K:Test / Tune Procedure.....	230
Appendix L:Schematics	231
Appendix M: Block Diagram	232
Appendix N: Manual	233
Appendix O: Test Configuration Photographs.....	234
Appendix P:External Photographs.....	236
Appendix Q: Internal Photographs	237

Table of Photographs

Photograph 1: Radiated Emissions – Front View	234
Photograph 2: Radiated Emissions – Back View.....	235

1 Test Result Summary

Test	IC Reference	FCC Reference	Result
RF Power Output	RSS-119 5.4	2.1046(a), 22.659, 74.461, 80.215, 90.541	Complies
Spurious Emissions at Antenna Terminals	RSS-119 5.8	2.1051, 22.359, 80.217, 90.210	Complies
Field Strength of Spurious Radiation	RSS-119 5.8	2.1053(a), 22.359, 80.211(f)(3), 90.210, 90.543(c)	Complies
Occupied Bandwidth/ Emission Masks	RSS-119 5.5	2.1049(c)(1), 22.359(b), 74.462, 80.205, 80.211, 90.210, 90.543(d),	Complies
Adjacent Channel Power	RSS-119 4.3	90.543	Complies
Frequency Stability vs. Temperature and Voltage	RSS-119 5.3	2.1055, 22.355, 74.464, 80.209, 90.213, 90.539	Complies
Modulation Characteristics	RSS-119 5.2	2.1047(a)(b), 74.463, 80.213	Complies
Transient Frequency Behavior	RSS-119 5.9	74.462(c), 90.214	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-200P C1D1 Rebanded; FCC ID: OWDTR-0144-E, IC: 3636B-0144.**

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 Parts 2, 22, 74, 80 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)

N/A

2.3 Grant Notes

Power is continuously variable from 1 – 6 W for VHF, 1 – 5 W for UHF, and 0.5 – 3 W for 700 and 800 MHz Bands. EF grant note is requested.

2.4 Tested System Details

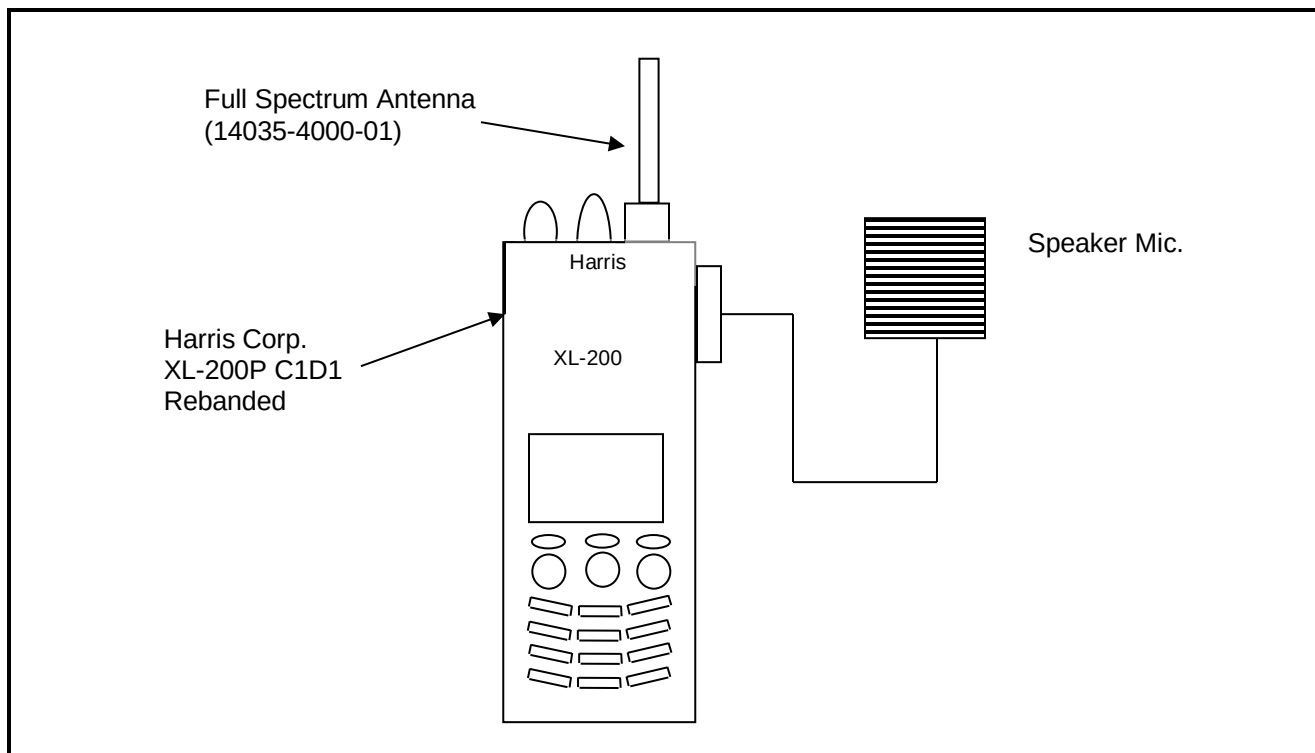
The test sample was received on May 4, 2017. Listed below are the identifiers and descriptions of all equipment, cables, and internal devices used with the EUT for this test, as applicable.

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

Table 2-1: Equipment Under Test (EUT)

Part	Manufacturer	Model	PN/SN	FCC ID	RTL Bar Code
Radio	Harris Corporation	XL-200P C1D1 Rebanded	C1D1/E00009	OWDTR-0144-E	22518
Speaker/Microphone	Harris Corporation	EM105	N/A	N/A	21563
Full-Spectrum Multiband Antenna	Harris Corporation	14035-4000-01	N/A	N/A	22519
Li-Ion Rechargeable Battery	Harris Corporation	N/A	BAT-L-CASE-R-HR003	N/A	21552

Figure 2-1: Configuration of Tested System



3 FCC §2.1033(C)(8) Voltages and Currents Through The Final Amplifying Stage

7.4 V / 1.2 A VHF
7.4 V / 1.4 A UHF
7.4 V / 2.7 A 700 MHz
7.4 V / 2.3 A 800 MHz

4 FCC §2.1046(a): RF Power Output: Conducted, §90.541: Transmitting Power Limits; §80.215: Transmitter Power; §22.659: Effective Radiated Power Limits; §74.461: Transmitter Power; RSS-119 5.4: Transmitter Power

4.1 Test Procedure

ANSI C63-26, section 5.2

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

§80.215 Transmitter Power

(a) Transmitter power shown on the radio station authorization is the maximum power the licensee is authorized to use. Power is expressed in the following terms:

(5) For all other emissions: the carrier power multiplied by 1.67.

(e) Ship stations frequencies above 27500 kHz:

The maximum power must not exceed the values listed below.

(1) Ship stations 156–162 MHz: 25W

(2) Marine utility stations and hand-held portable transmitters: 156–162 MHz: 10W

Maximum Power Authorized to Use: 10.02W for VHF, 8.35W for UHF

Manufacturer's Rated Power: 6.0 W for VHF, 5.0 W for UHF, 3.0 W for 700 Band, and 3.0 W for 800 Band

4.2 Test Data

Table 4-1: RF Conducted Output Power - Measured

Frequency (MHz)	Power (dBm)	Power (W)
136	38.1	6.4
138	38.0	6.4
141	38.0	6.3
144	38.0	6.3
148	37.9	6.1
150	37.8	6.0
156.8	37.8	6.0
162	38.0	6.3
174	38.1	6.4
378	37.1	5.1
406.1	37.2	5.3
418	37.2	5.2
430	37.2	5.2
450	37.1	5.2
454	37.2	5.2
456	37.2	5.3
459.025	37.2	5.2
459.975	37.1	5.2
470	37.2	5.3
512	37.2	5.2
522	37.1	5.1
768	34.2	2.7
769	34.3	2.7
771	34.1	2.6
774.9875	34.4	2.7
776	34.4	2.7
798	34.1	2.6
801	34.1	2.5
805.9875	34.0	2.5
806	34.8	3.0
815	34.8	3.0
851	35.0	3.2
860	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	3/22/18
901139	MCE Weinschel	48-20-34	Attenuator, 20 dB, DC-18 GHz, 100 W	BK5859	3/30/18

Test Personnel:

	
Daniel W. Baltzell	May 5, 2017
EMC Test Engineer	Date of Test

5 FCC §2.1051: Spurious Emissions at Antenna Terminals; §90.210: Emission Limitations; §80.217: Suppression of Interference Aboard Ships; §22.359: Emission Limitations; RSS-119 5.8.9.2: Out-of-band Emission Limit

5.1 Test Procedure

ANSI C63-26, section 5.7

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.

§80.217 Suppression of Interference Aboard Ships

- (a) A voluntarily equipped ship station receiver must not cause harmful interference to any receiver required by statute or treaty.
 (b) The electromagnetic field from receivers required by statute or treaty must not exceed the following value at a distance over sea water of one nautical mile from the receiver:

Frequency of Interfering Emissions	Power to Artificial Antenna in Microwatts
Below 30 MHz	0.1
30 to 100 MHz	3
100 to 300 MHz	1.0
Over 300 MHz	3.0

or

Deliver not more than the following amounts of power, to an artificial antenna having electrical characteristics equivalent to those of the average receiving antenna(s) use on shipboard:

Frequency of Interfering Emissions	Power to Artificial Antenna in Microwatts
Below 30 MHz	400 (4 dBm)
30 to 100 MHz	4,000 (6 dBm)
100 to 300 MHz	40,000 (16 dBm)
Over 300 MHz	400,000 (26 dBm)

5.2 Test Data

Frequency range of measurement per §2.1057: 9 kHz to $10 \times F_c$

Limits: $(43 + 10 \text{ LOG } P(W))$ for wideband and $50 + 10 \text{ LOG } P(W)$ for narrowband

The following channels (in MHz) were investigated:

VHF: 136, 138, 141, 144, 148, 150, 156.8, 162, and 174

UHF: 378, 406.1, 418, 430, 450, 454, 456, 459.025, 459.975, 470, 512, and 522

700 MHz: 768, 769, 771, 774.9875, 776, 798, 801, and 805.9875

800 MHz: 806, 815, 851, and 860

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, no data is shown.

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

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901581	Rohde & Schwarz	FSU	Spectrum Analyzer	1166.1660.50	3/22/18
900948	Weinschel Corp	47-10-43	10 dB Attenuator; 50 W	BH1481	9/1/18
901129	Par Electronics	188-174 (25W)	VHF Notch Filters	N/A	9/26/17
901135	Par Electronics	400-512 (25W)	UHF Notch Filter	N/A	9/26/17
901128	Par Electronics	806-902 (25W)	UHF Notch Filter	N/A	9/26/17

Test Personnel:

Daniel W. Baltzell		May 9, 2017
EMC Test Engineer	Signature	Date of Test

6 FCC §90.543(a): Emission Limitations: ACP Requirements; RSS-119 4.3: Adjacent Channel Power (ACP) Measurement for Equipment in the Bands 768-776 MHz and 798-806 MHz

Effective October 23, 2007, transmitters designed to operate in the 769–774.9875 MHz and 799–805.9875 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

ANSI C63-26, section 6.5.2.4

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 §90.543(b)

Setting Reference Level - §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 <600 kHz - §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 >600 kHz - §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 >600 kHz must be less than the values listed in the table.

6.2 Test Data

Plot 6-1: Adjacent Channel Power - 775.9875 MHz; P25 Mode; 12.5 kHz Channel Spacing

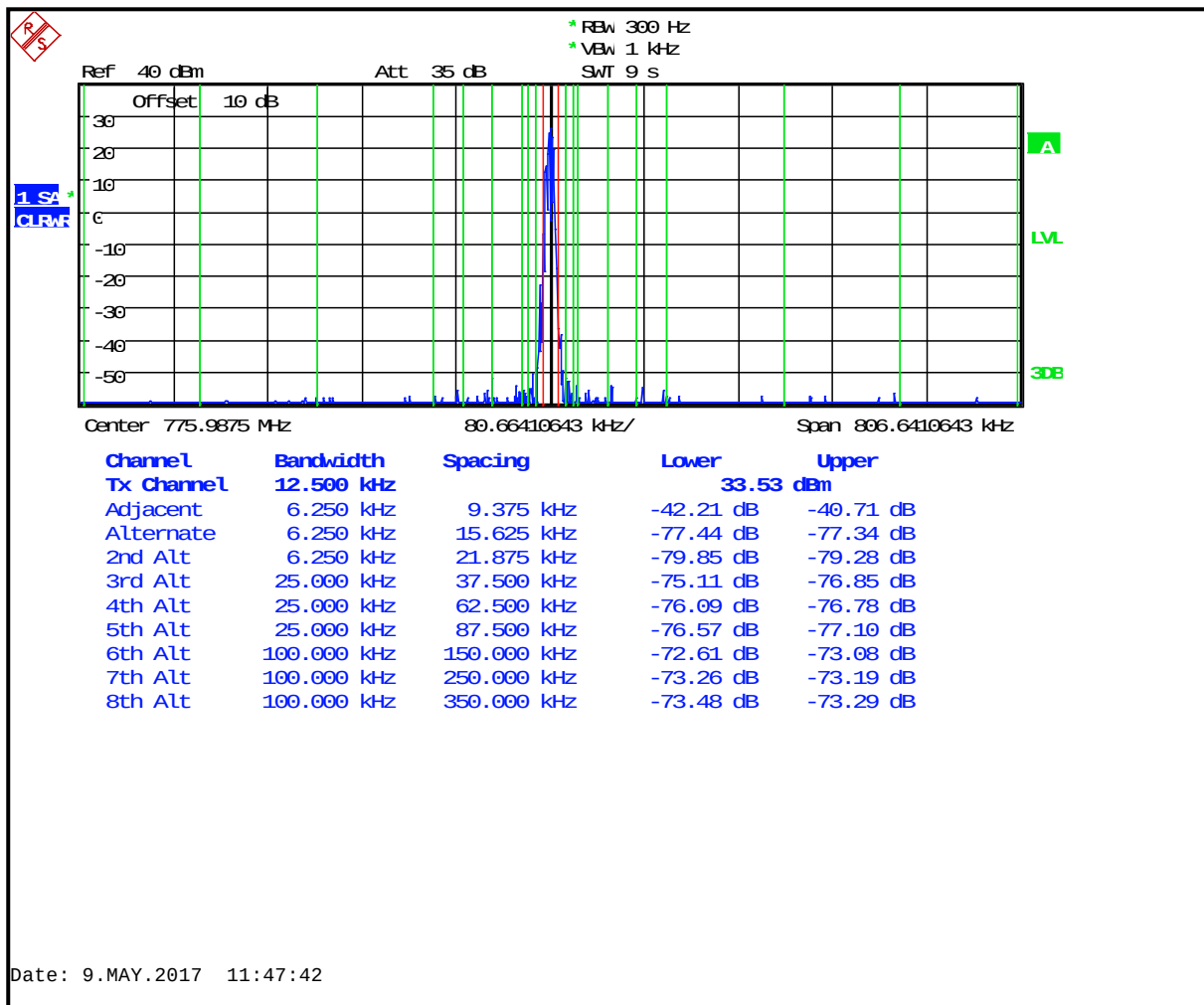


Table 6-1: Adjacent Channel Power - 775.9875 MHz; P25 Mode; 12.5 kHz Channel Spacing

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-100.2
12 MHz to receive band	30(s)	-75	-96.9
In receive band	30(s)	-100	-121.0

Plot 6-2: Adjacent Channel Power - 804.9875 MHz; P25 Mode; 12.5 kHz Channel Spacing

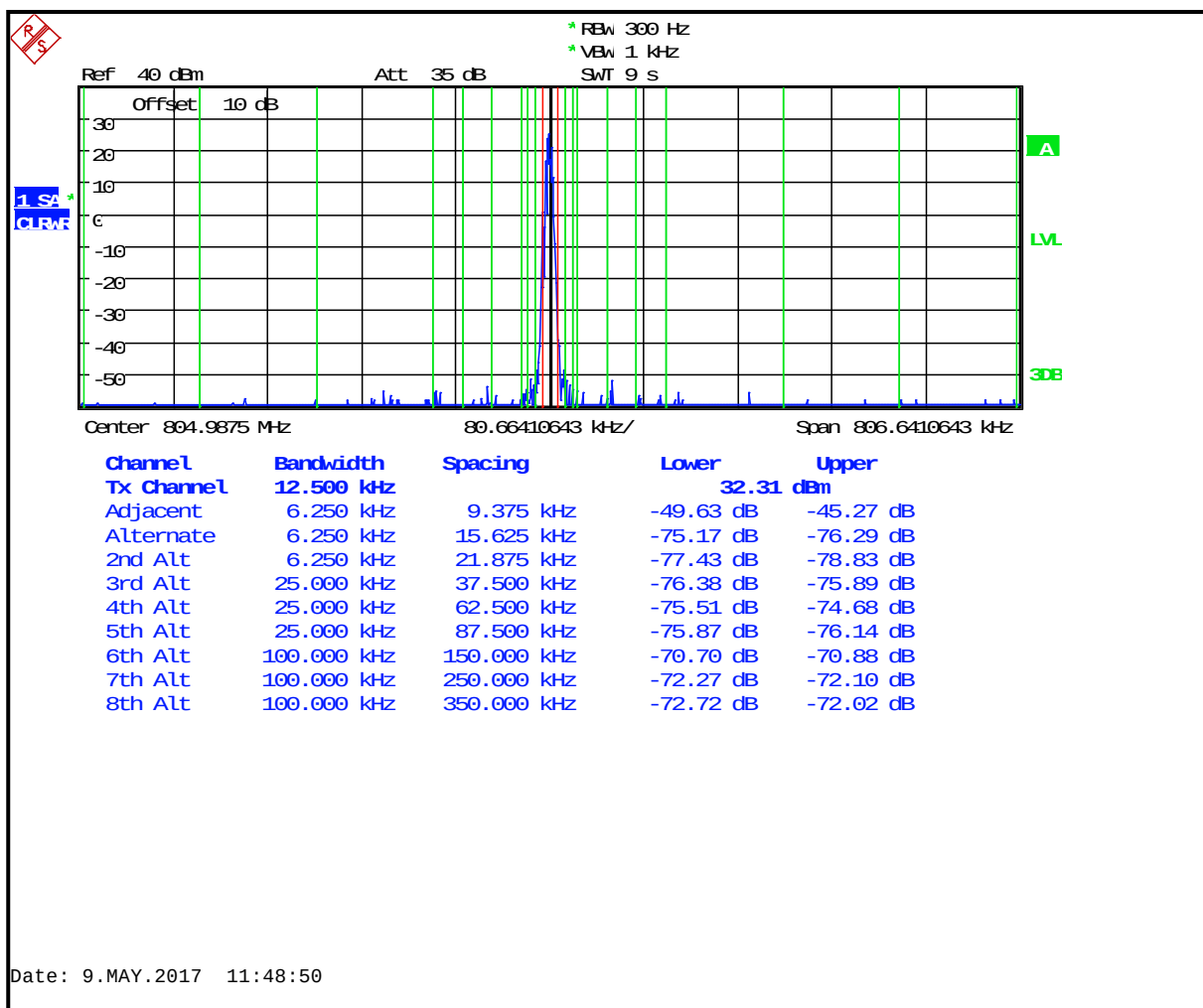


Table 6-2: Adjacent Channel Power - 804.9875 MHz; P25 Mode; 12.5 kHz Channel Spacing

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-103.6
12 MHz to receive band	30(s)	-75	-102.8
In receive band	30(s)	-100	-120.8

Plot 6-3: Adjacent Channel Power - 775.9875MHz; C4FM TDMA Phase 2 Mode; 12.5 kHz Channel Spacing

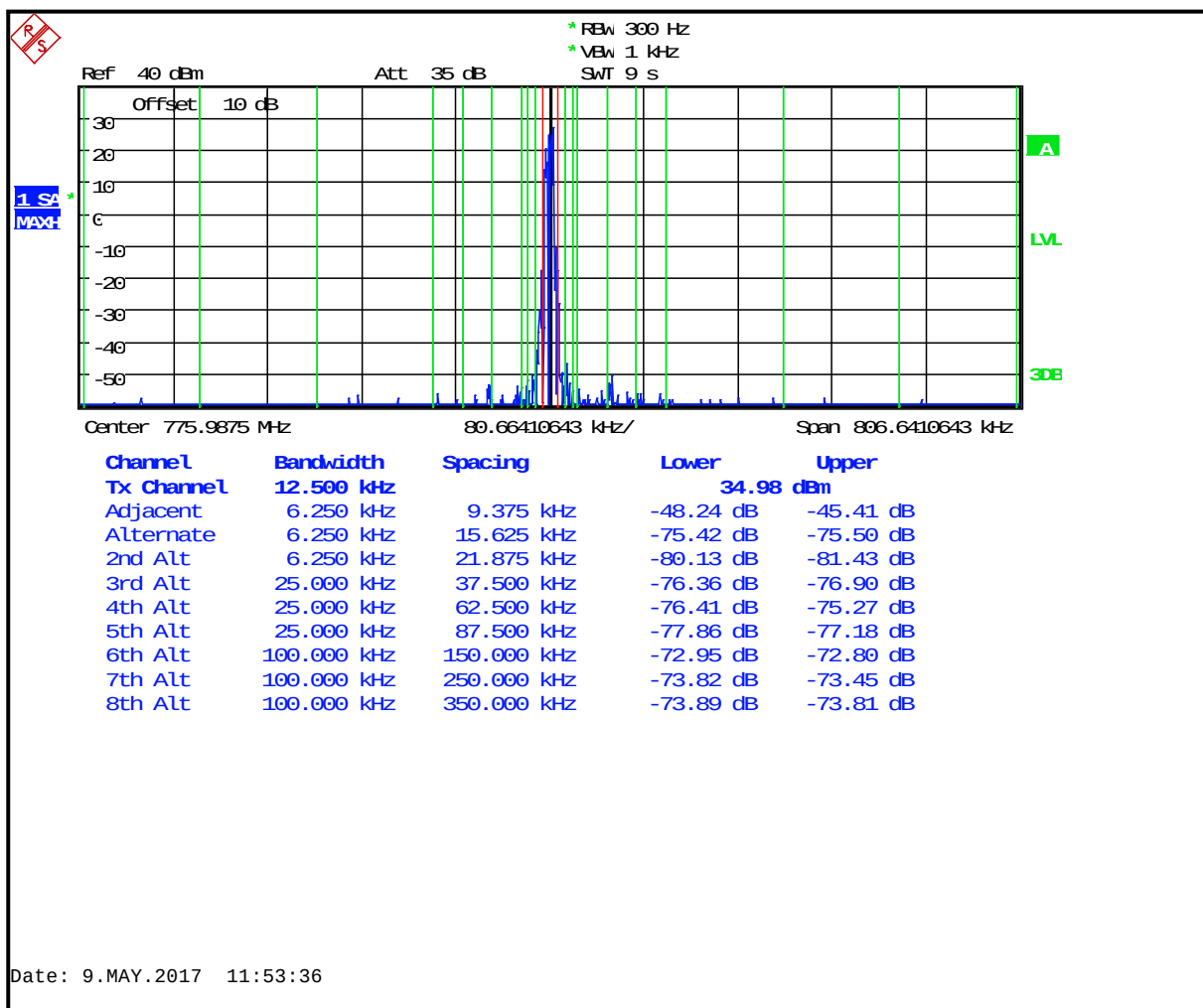


Table 6-3: Adjacent Channel Power - 775.9875MHz; C4FM TDMA Phase 2 Mode; 12.5 kHz Channel Spacing

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-99.4
12 MHz to receive band	30(s)	-75	-101.9
In receive band	30(s)	-100	-103.2

Plot 6-4: Adjacent Channel Power - 804.9875 MHz; C4FM TDMA Phase 2 Mode; 12.5 kHz Channel Spacing

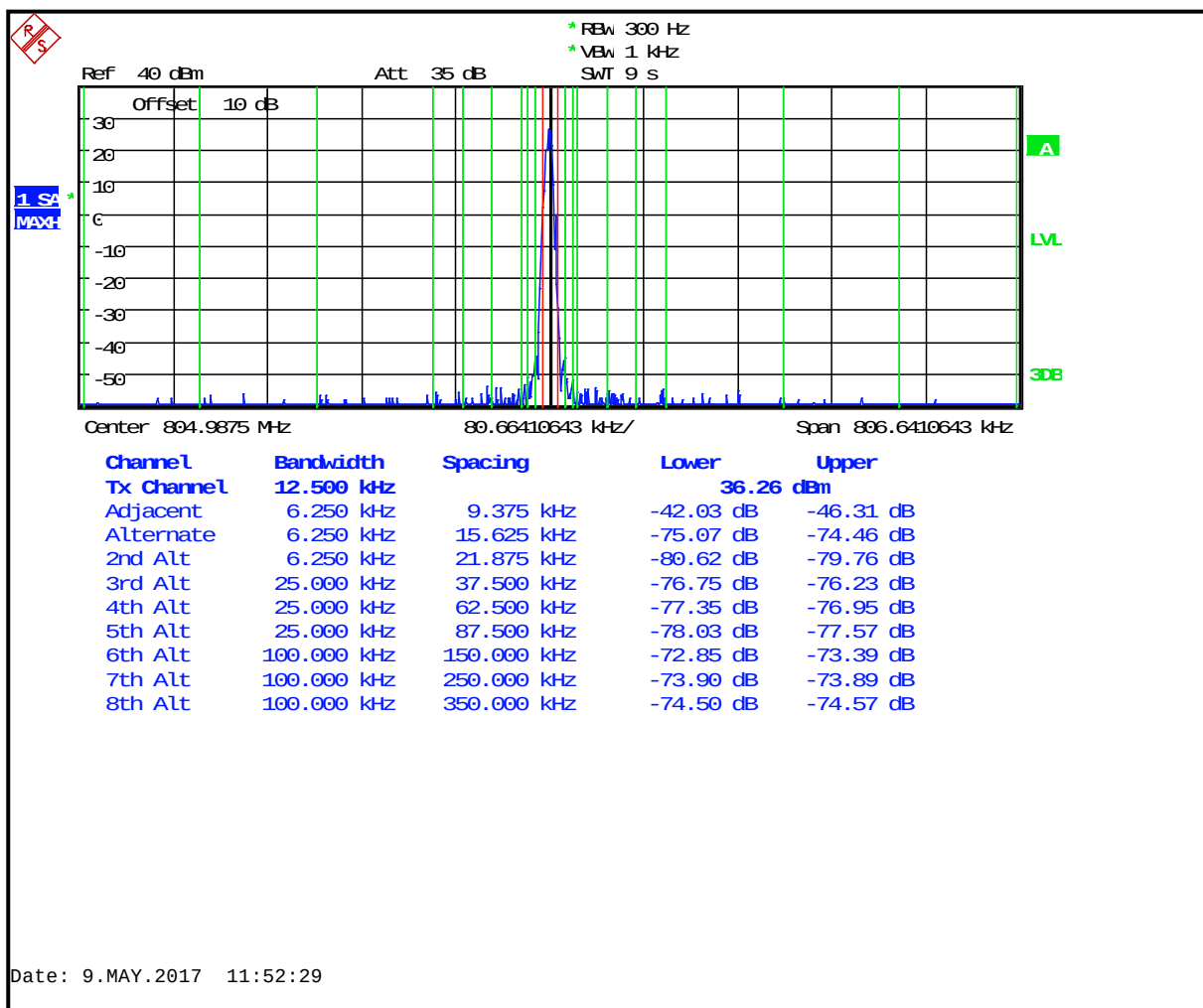


Table 6-4: Adjacent Channel Power - 804.9875 MHz; C4FM TDMA Phase 2 Mode; 12.5 kHz Channel Spacing

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-101.9
12 MHz to receive band	30(s)	-75	-103.8
In receive band	30(s)	-100	-102.8

Plot 6-5: Adjacent Channel Power - 775.9875 MHz; Analog Mode; 12.5 kHz Channel Spacing

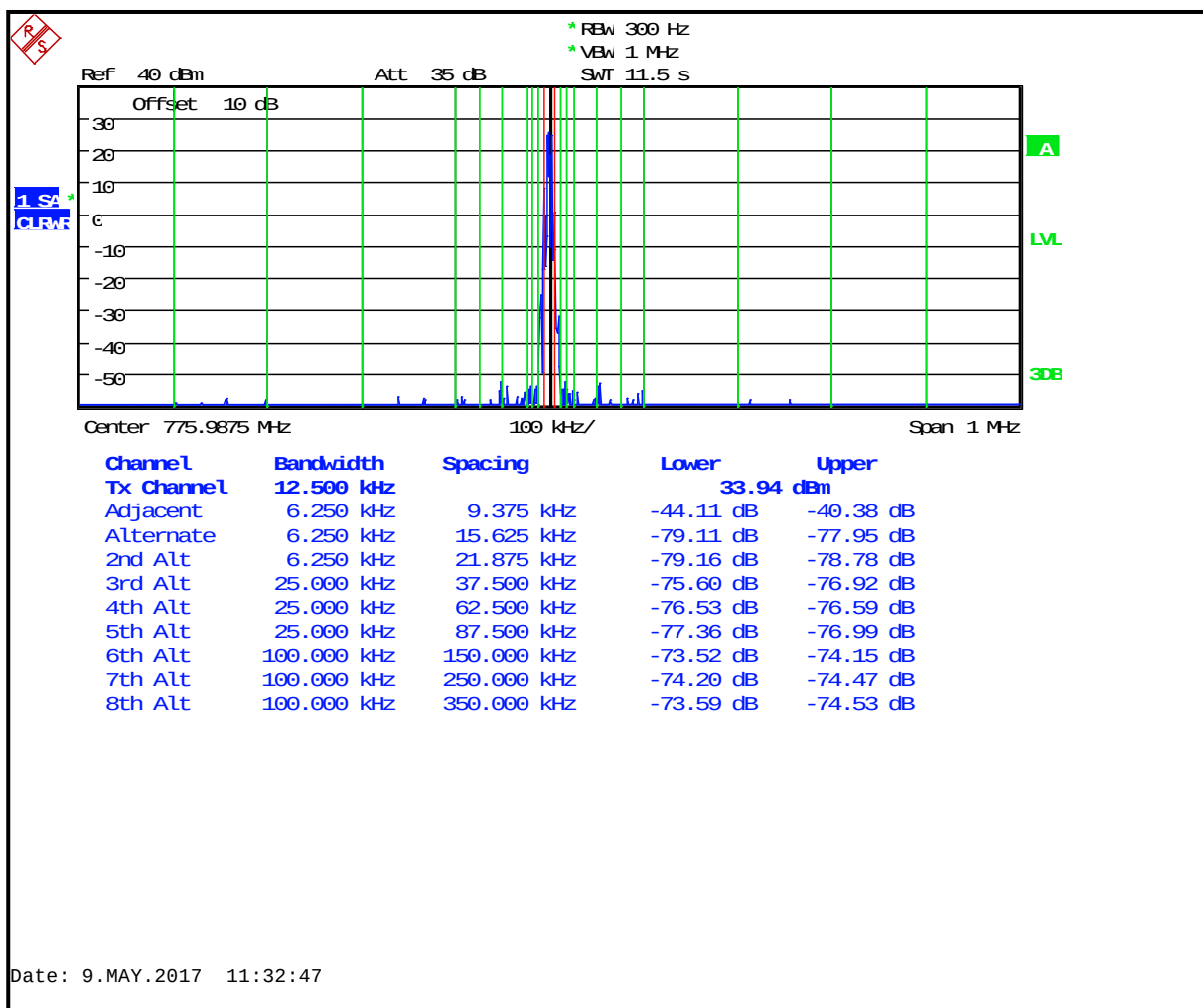


Table 6-5: Adjacent Channel Power - 775.9875 MHz; Analog Mode; 12.5 kHz Channel Spacing

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-101.5
12 MHz to receive band	30(s)	-75	-102.7
In receive band	30(s)	-100	-102.0

Plot 6-6: Adjacent Channel Power - 804.9875 MHz; Analog Mode; 12.5 kHz Channel Spacing

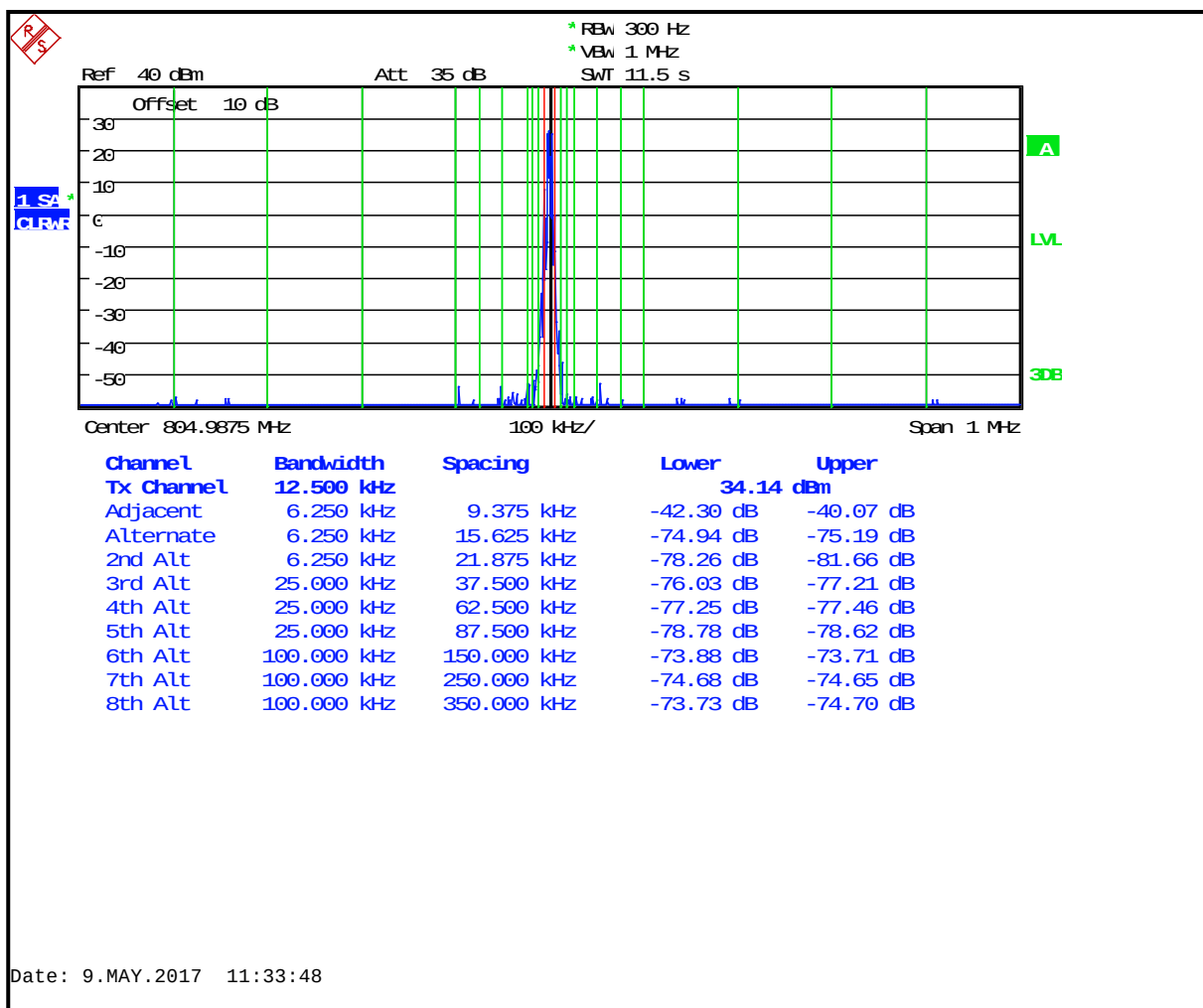


Table 6-6: Adjacent Channel Power - 804.9875 MHz; Analog Mode; 12.5 kHz Channel Spacing

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-100.8
12 MHz to receive band	30(s)	-75	-103.1
In receive band	30(s)	-100	-102.0

Plot 6-7: Adjacent Channel Power - 775.9875 MHz; 2 Level FSK 9600 Mode; 12.5 kHz Channel Spacing

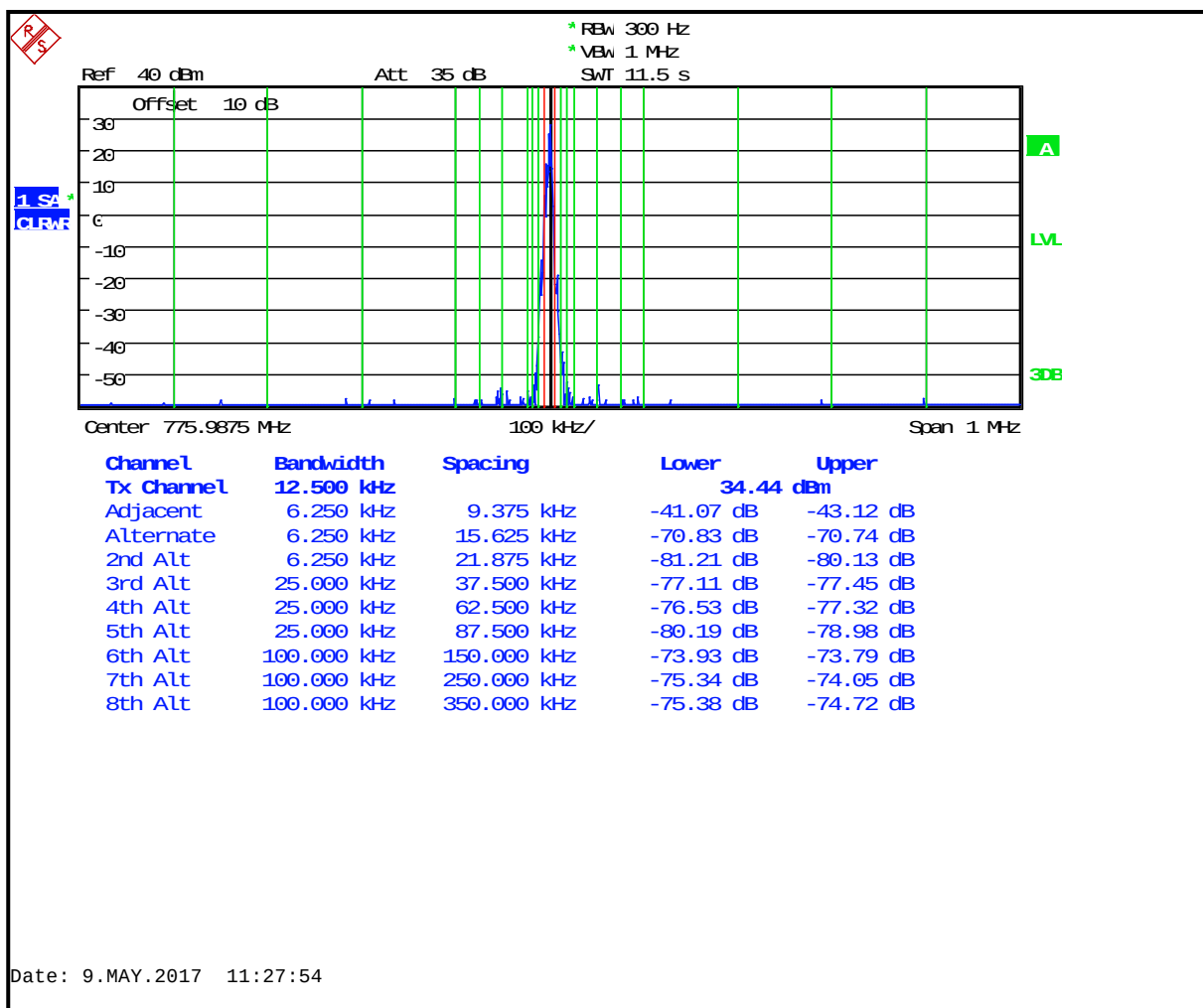


Table 6-7: Adjacent Channel Power - 775.9875 MHz; 2 Level FSK 9600 Mode; 12.5 kHz Channel Spacing

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-83.4
12 MHz to receive band	30(s)	-75	-102.3
In receive band	30(s)	-100	-121.0

Plot 6-8: Adjacent Channel Power - 804.9875 MHz; 2 Level FSK 9600 Mode; 12.5 kHz Channel Spacing

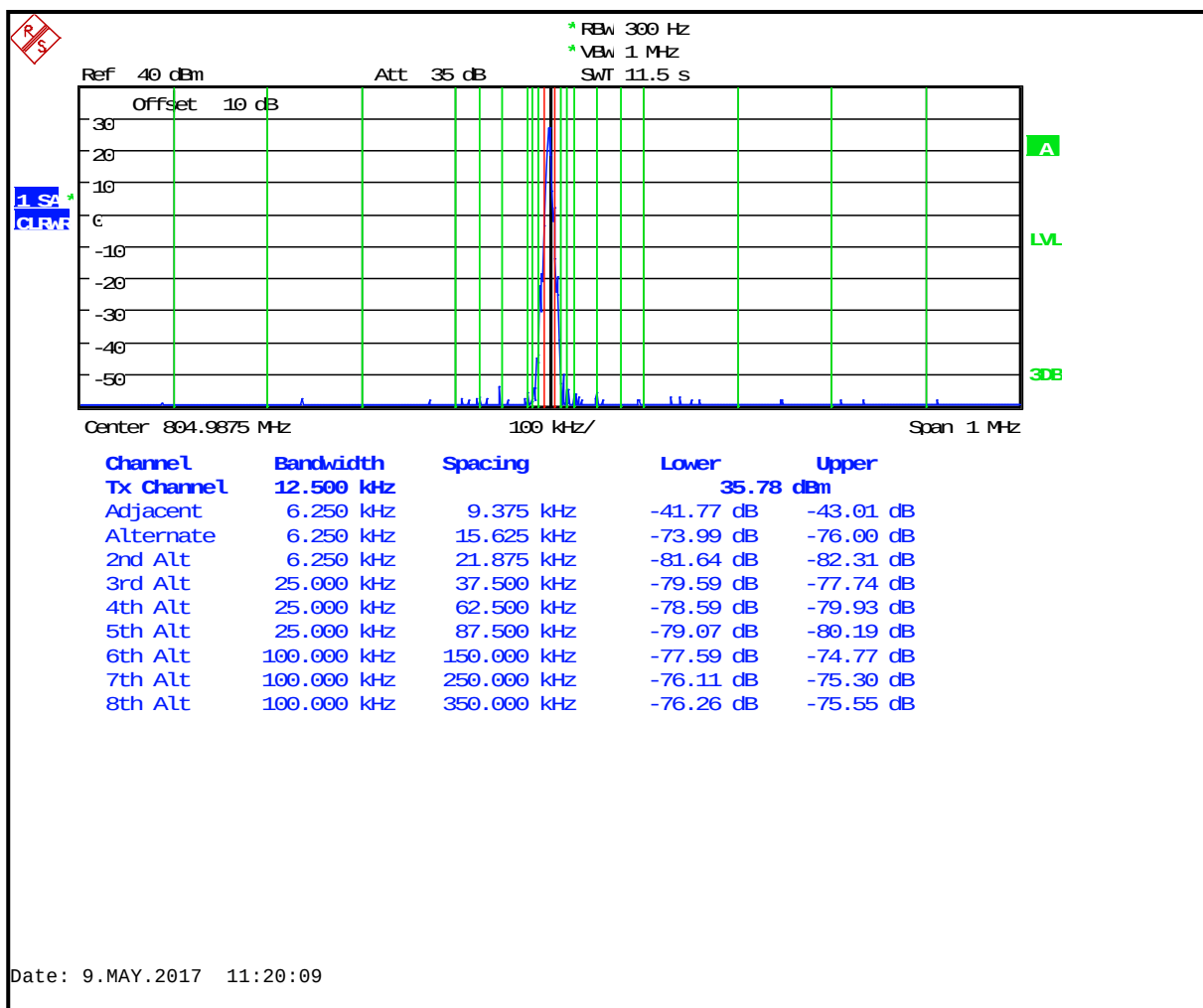


Table 6-8: Adjacent Channel Power - 804.9875 MHz; 2 Level FSK 9600 Mode; 12.5 kHz Channel Spacing

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-101.6
12 MHz to receive band	30(s)	-75	-104.6
In receive band	30(s)	-100	-119.7

Plot 6-9: Adjacent Channel Power - 775.9875 MHz; 4 Level FSK OTP Mode; 12.5 kHz Channel Spacing

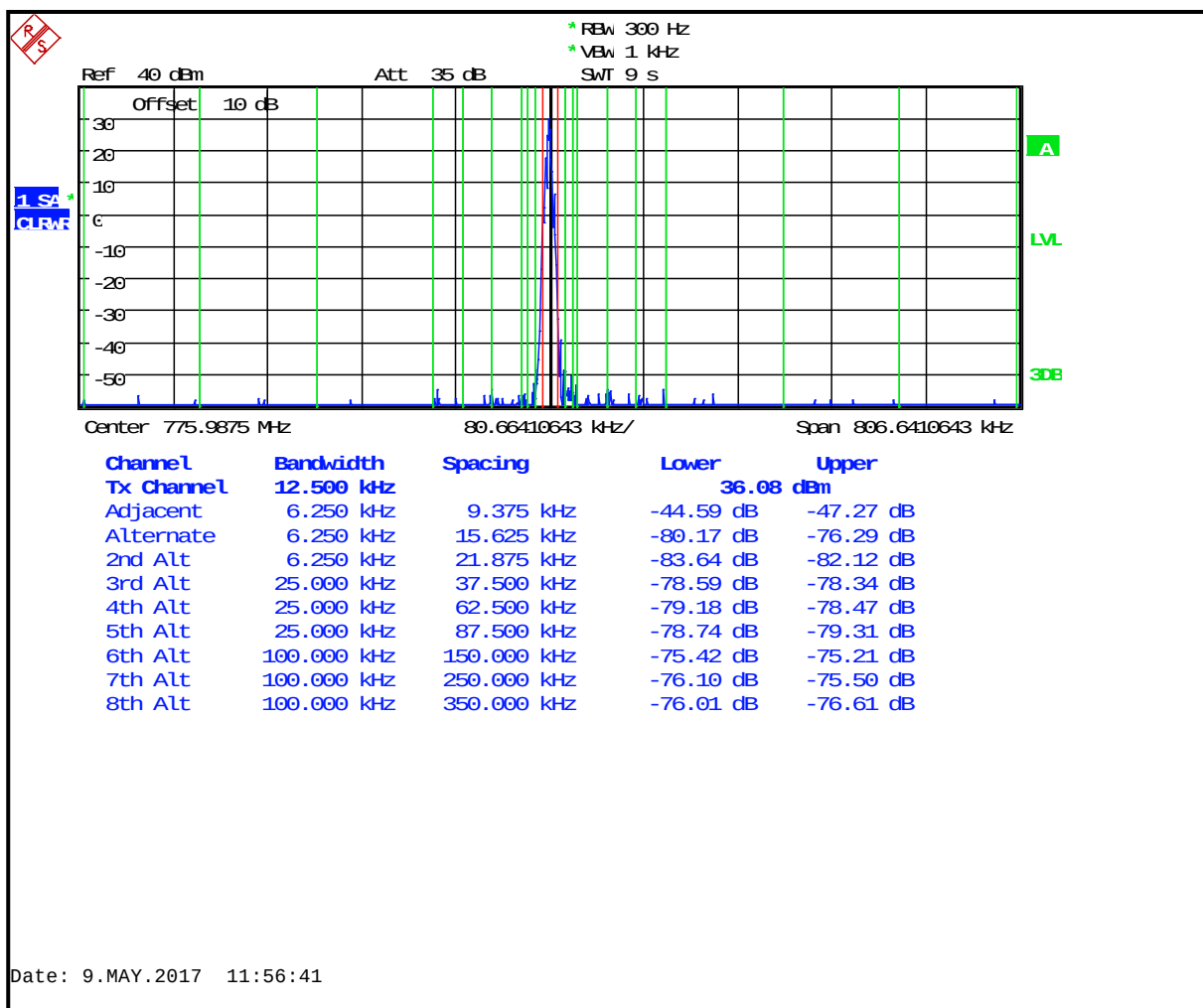


Table 6-9: Adjacent Channel Power - 775.9875 MHz; 4 Level FSK OTP Mode; 12.5 kHz Channel Spacing

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-82.7
12 MHz to receive band	30(s)	-75	-104.8
In receive band	30(s)	-100	-121.2

Plot 6-10: Adjacent Channel Power - 804.9875 MHz; 4 Level FSK OTP Mode; 12.5 kHz Channel Spacing

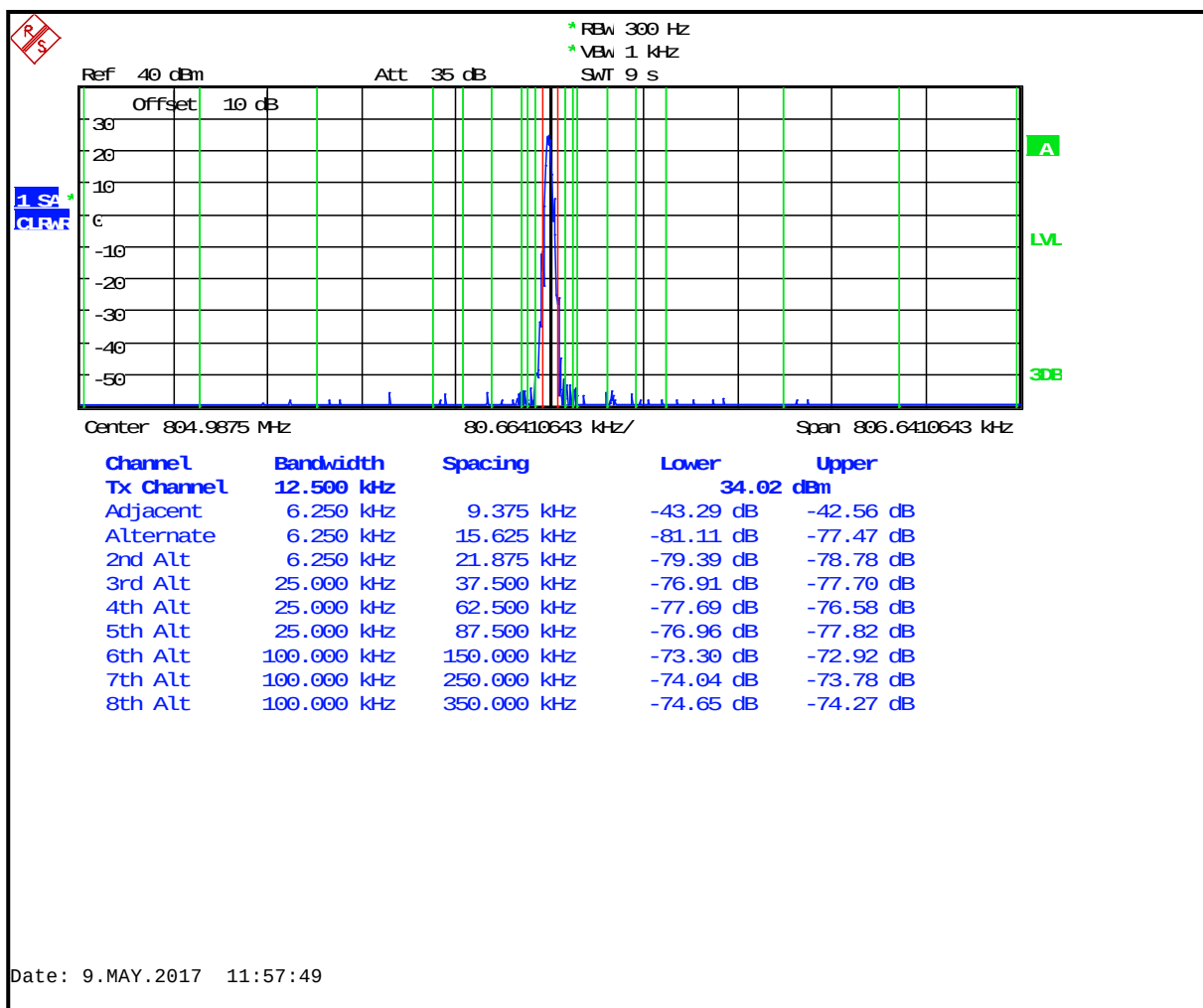


Table 6-10: Adjacent Channel Power - 804.9875 MHz; 4 Level FSK OTP Mode; 12.5 kHz Channel Spacing

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-103.8
12 MHz to receive band	30(s)	-75	-102.4
In receive band	30(s)	-100	-121.5

Plot 6-11: Adjacent Channel Power - 775.9875 MHz; 4 Level FSK SMR Mode; 25 kHz Channel Spacing

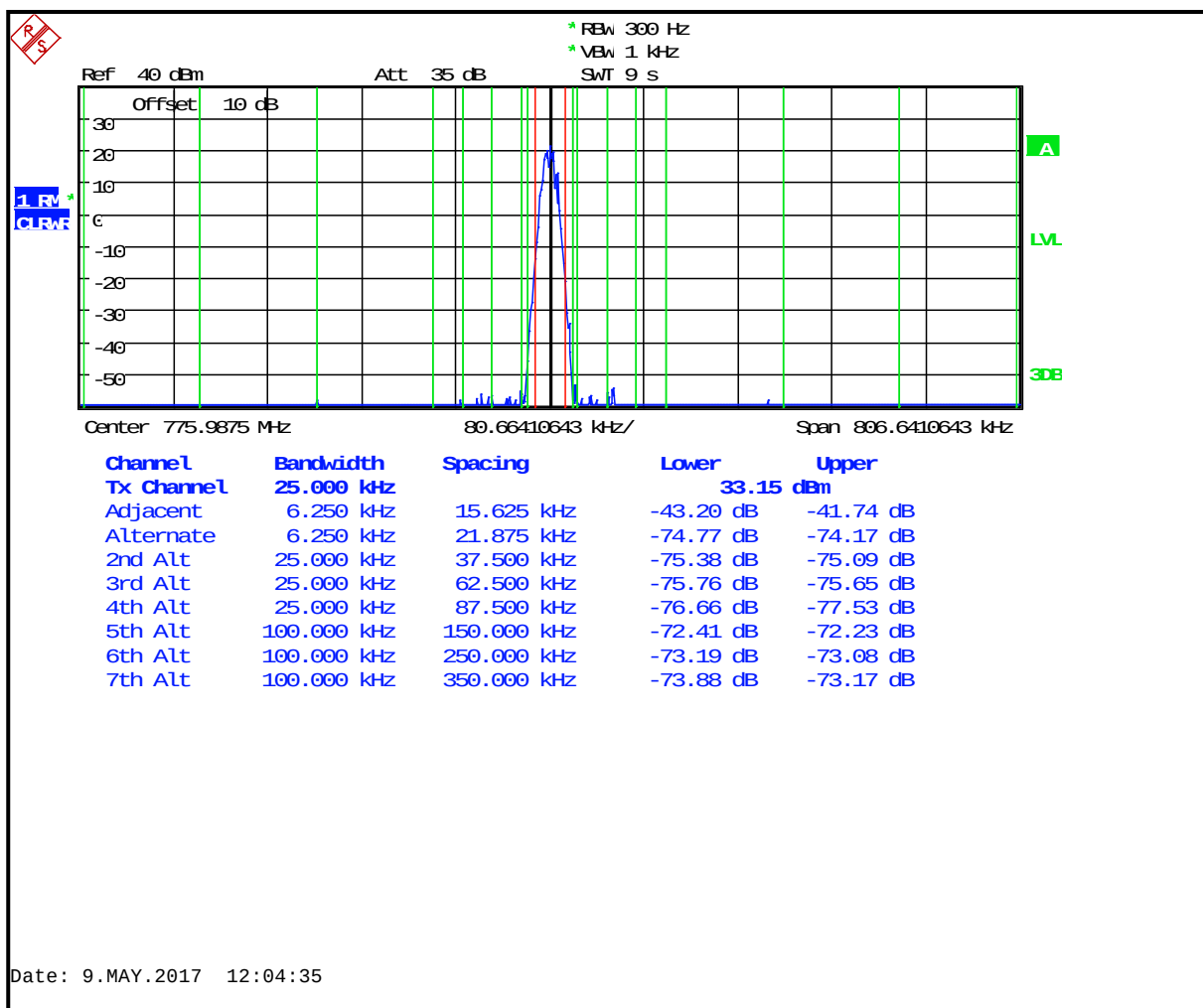


Table 6-11: Adjacent Channel Power - 775.9875 MHz; 4 Level FSK SMR Mode; 25 kHz Channel Spacing

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-83.7
12 MHz to receive band	30(s)	-75	-104.7
In receive band	30(s)	-100	-121.1

Plot 6-12: Adjacent Channel Power - 804.9875 MHz; 4 Level FSK SMR Mode; 25 kHz Channel Spacing

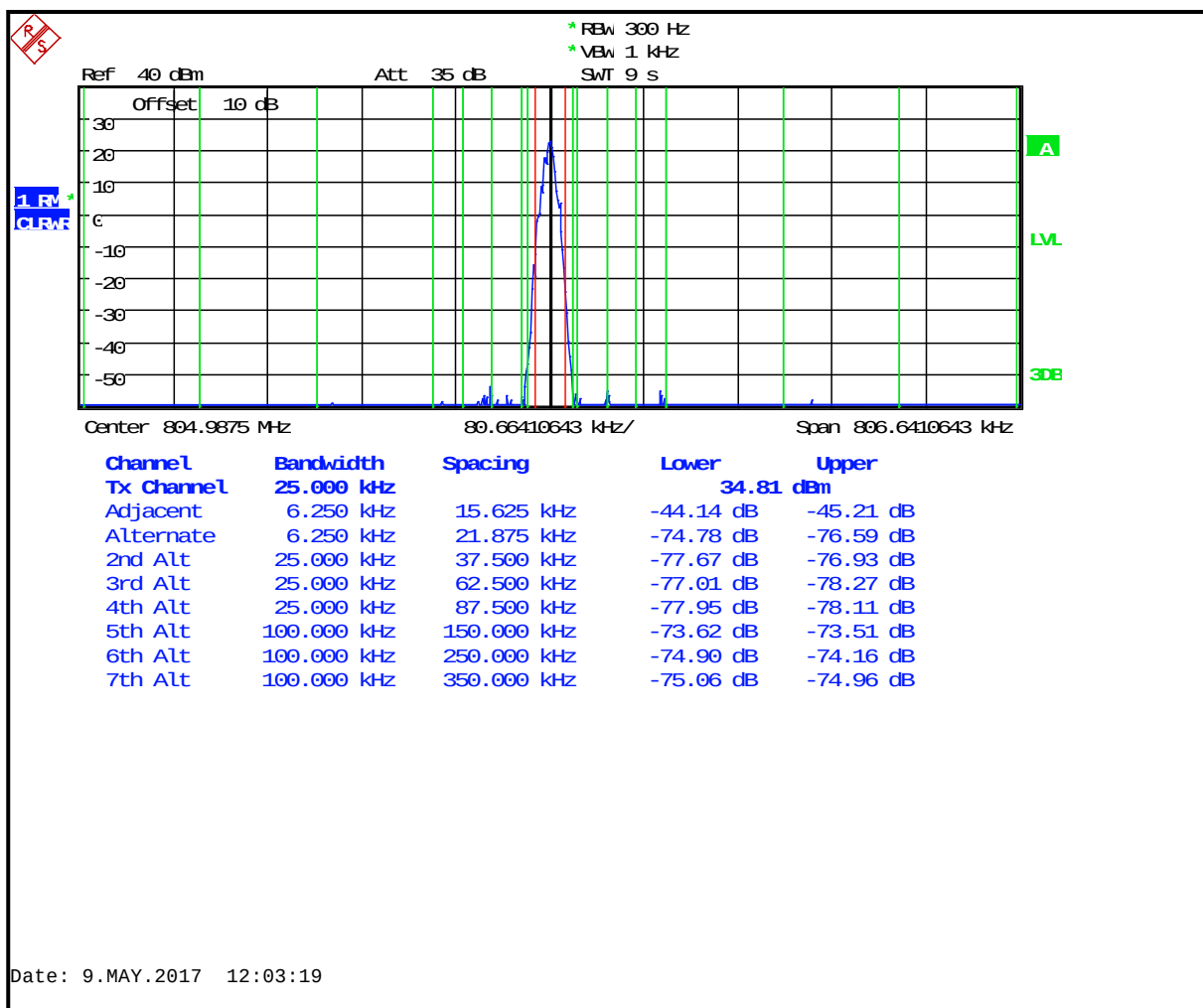


Table 6-12: Adjacent Channel Power - 804.9875 MHz; 4 Level FSK SMR Mode; 25 kHz Channel Spacing

Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-103.7
12 MHz to receive band	30(s)	-75	-104.3
In receive band	30(s)	-100	-114.8

Table 6-13: 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	3/22/18
900948	Weinschel Corp	47-10-43	10 dB Attenuator; 50 W	BH1481	9/1/18

Test Personnel:

Daniel W. Baltzell		May 9, 2017
EMC Test Engineer	Signature	Date of Tests

7 FCC §90.210(g) and §2.1053(a): Field Strength of Spurious Radiation; §90.210, §90.543(f)(3): Out of Band Emissions Limit; RSS-119 5.8.9.2: Out-of-band Emission Limit

7.1 Test Procedure

ANSI C63-26, section 5.5.3

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 and compared to the limit.

For emissions in the 1559-1610 band, §15.543(f) states: “For operations in the 763–774.9875 MHz and 793–805.9875 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 §90.210 Requirements

The magnitude of emissions attenuated more than 20 dB below the FCC limit need not be recorded. The following measurements were attenuated less than 20 dB below the FCC limit and presented as worst case measurements, all others were More than 20 dB below the FCC narrowband limit.

Table 7-1: Field Strength of Spurious Radiation; 136 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
272.000	49.4	-37.0	0.2	-0.5	75.7	-17.6

Table 7-2: Field Strength of Spurious Radiation; 138 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
276.000	60.3	-26.0	0.2	-0.5	64.7	-6.7
414.000	43.2	-36.8	0.2	-0.4	75.4	-17.4

Table 7-3: Field Strength of Spurious Radiation; 141 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
282.000	51.1	-35.0	0.2	-0.6	73.7	-15.7

Table 7-4: Field Strength of Spurious Radiation; 144 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
288.000	46.7	-38.9	0.2	-0.6	77.7	-19.7

Table 7-5: Field Strength of Spurious Radiation; 156.8 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
313.600	47.6	-37.3	0.2	-0.6	75.9	-18.1

Table 7-6: Field Strength of Spurious Radiation; 162 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
324.000	46.2	-38.2	0.2	-0.6	76.9	-19.0

Table 7-7: Field Strength of Spurious Radiation; 174 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
348.000	45.5	-38.2	0.2	-0.5	76.9	-18.8

Table 7-8: Field Strength of Spurious Radiation; 378 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
756.000	37.2	-37.1	0.2	-1.3	75.7	-18.6
1134.000	34.1	-39.5	0.3	4.8	72.1	-15.0

Table 7-9: Field Strength of Spurious Radiation; 406.1 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
812.200	38.8	-35.3	0.3	-1.5	74.3	-17.0
1218.300	37.8	-35.7	0.3	4.9	68.3	-11.1

Table 7-10: Field Strength of Spurious Radiation; 418 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
836.000	40.0	-34.6	0.3	-1.4	73.5	-16.3

Table 7-11: Field Strength of Spurious Radiation; 430 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1290.000	29.2	-44.4	0.3	5.3	76.6	-19.4

Table 7-12: Field Strength of Spurious Radiation; 450 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
900.000	37.1	-37.0	0.3	-1.2	75.6	-18.5
1350.000	32.8	-40.8	0.4	5.9	72.4	-15.3

Table 7-13: Field Strength of Spurious Radiation; 454 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
908.000	41.0	-32.9	0.3	-1.2	71.5	-14.4
1362.000	27.8	-45.6	0.4	6.0	77.1	-19.9

Table 7-14: Field Strength of Spurious Radiation; 456 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
912.000	37.2	-34.4	0.3	-1.2	73.1	-15.9
1368.000	32.6	-43.4	0.4	6.1	74.9	-17.7

Table 7-15: Field Strength of Spurious Radiation; 459.025 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
918.050	40.6	-33.4	0.3	-1.2	72.0	-14.8

Table 7-16: Field Strength of Spurious Radiation; 459.975 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
919.950	38.6	-35.5	0.3	-1.2	74.1	-16.9

Table 7-17: Field Strength of Spurious Radiation; 470 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1410.000	34.8	-38.6	0.4	6.5	69.6	-12.4

Table 7-18: Field Strength of Spurious Radiation; 512 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1024.000	30.0	-43.8	0.3	4.5	76.7	-19.6
1536.000	33.3	-39.5	0.4	7.4	69.7	-12.5

Table 7-19: Field Strength of Spurious Radiation; 522 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1044.000	32.6	-41.3	0.3	4.6	74.1	-17.0
1566.000	26.4	-46.6	0.4	7.6	76.5	-19.4

Table 7-20: Field Strength of Spurious Radiation; 768 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
6144.000	19.2	-51.9	1.2	13.5	73.8	-19.5

Table 7-21: Field Strength of Spurious Radiation; 769 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
6152.000	20.0	-51.0	1.2	13.5	72.9	-18.7

Table 7-22: Field Strength of Spurious Radiation; 771 MHz

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
6168.000	19.3	-51.7	1.2	13.4	73.6	-19.5

7.2.2 §90.543(f) Requirements

The worst-case emissions test data are shown.

Limit: -70 dBW EIRP

Table 7-23: 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)
1586.0	46.8	-49.8	0.4	7.7	-72.5	-2.5
1596.0	33.1	-54.7	0.4	7.7	-77.4	-7.4
1598.0	38.6	-60.3	0.4	7.7	-83.0	-13.0
1602.0	42.5	-51.4	0.4	7.7	-74.1	-4.1
1610.0	45.1	-48.9	0.4	7.7	-71.6	-1.6
1586.0	46.8	-49.8	0.4	7.7	-72.5	-2.5

Table 7-24: Test Equipment Used For Testing Field Strength of Spurious Radiation

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
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	8/3/17
901593	Insulated Wire Inc.	KPS-1503-360-KPR	SMK RF Cables 36"	NA	8/1/17
901242	Rhein Tech Laboratories	WRT-000-0003	Wood rotating table	N/A	N/A
901581	Rohde & Schwarz	FSU	Spectrum Analyzer	1166.1660.50	3/22/18
901582	Rohde & Schwarz	1167.0000.02	Signal Generator	101903	3/20/18
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
901128	Par Electronics	806-902 (25W)	UHF Notch Filter	N/A	9/26/17
901129	Par Electronics	188-174 (25W)	VHF Notch Filters	N/A	9/26/17
901135	Par Electronics	400-512 (25W)	UHF Notch Filter	N/A	9/26/17

Rhein Tech Laboratories, Inc.
360 Herndon Parkway
Suite 1400
Herndon, VA20170
<http://www.rheintech.com>

Client: Harris Corporation
Model: XL-200P C1D1 Rebanded
ID's: OWDTR-0144-E/3636B-0144
Standards: FCC §22, 74, 80, 90/IC RSS-119
Report #: 2017006TNF

Test Personnel:

Daniel W. Baltzell		May 5-23, 2017
Test Engineer	Signature	Dates of Tests

8 FCC §2.1049(c)(1): Occupied Bandwidth; §90.543(d), §90.210 Authorized Bandwidth; §74.462: Authorized Bandwidth and Emissions; §80.205: Bandwidths; §80.211: Emission Limitations; RSS-119 5.5: Channel Bandwidth, Authorized Bandwidth, Occupied Bandwidth and Spectrum Masks

Occupied Bandwidth - Compliance with the Emission Masks

8.1 Test Procedure

ANSI C63.26 5.4

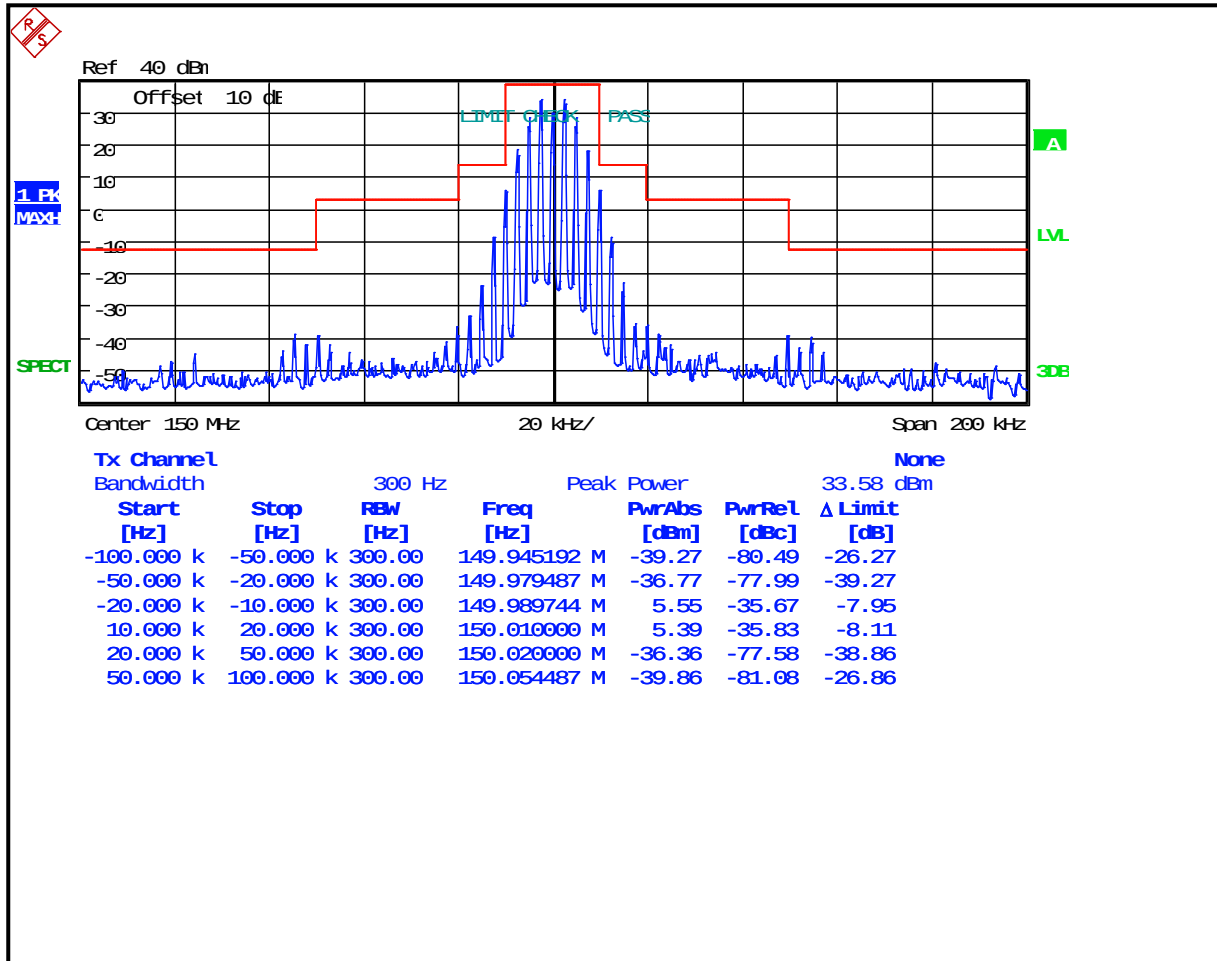
Device with digital modulation: Modulated to its maximum extent using a pseudo-random data sequence.

Applicable FCC 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.		

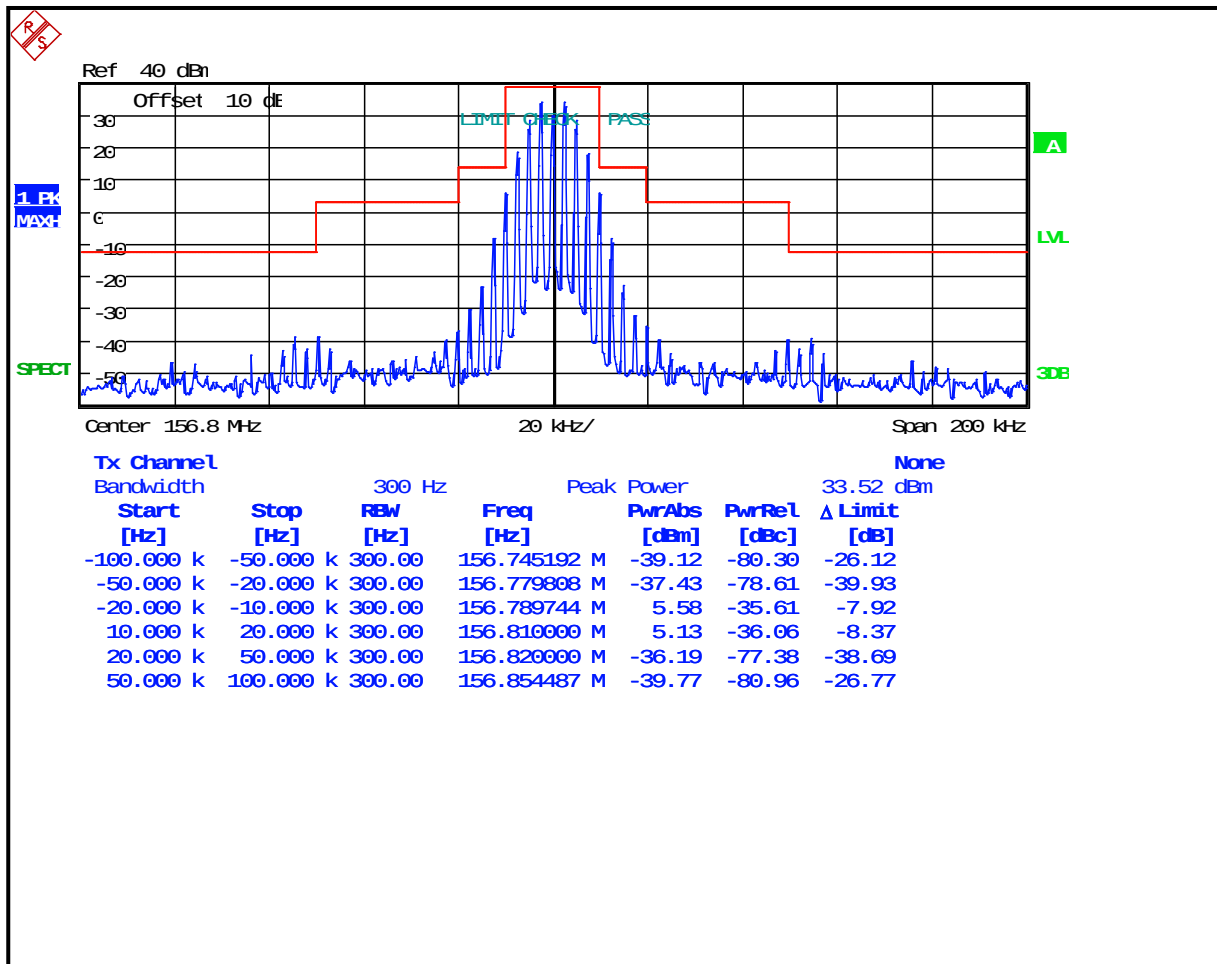
Applicable IC Emission Masks					
Frequency Band (MHz)	Related SRSP for Channeling Plan and ERP	Channel Bandwidth (kHz)	Authorized Bandwidth (kHz)	Masks for Equipment With Audio Filter	Masks for Equipment Without Audio Filter
138-144, 148-149.9, 150.05-174	SRSP-500	30	20	B	C
		15	11.25	D	D
		7.5	6	E	E
406.1-430, 450-470	SRSP-501	25	20 22	B Y	C (G for paging systems) Y
		12.5	11.25	D	D
		6.25	6	E	E
806-821/851-866, 821-824/866-869	SRSP-502	25	20 22	B Y	G Y
		12.5	11.25	D	D
		6.25	6	E	E

8.2 Test Data

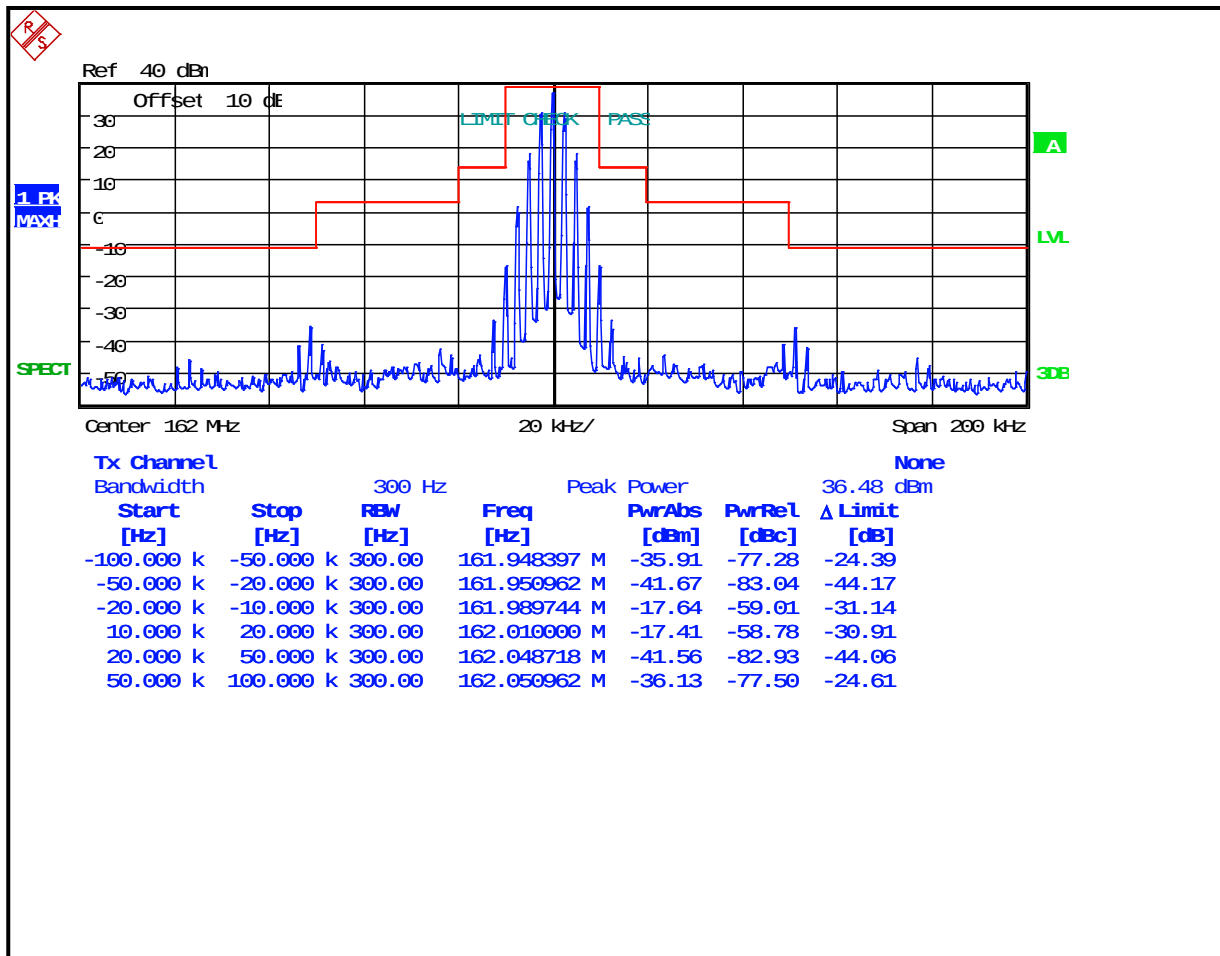
Plot 8-1: Occupied Bandwidth – 150 MHz; Analog WB (Mask B)



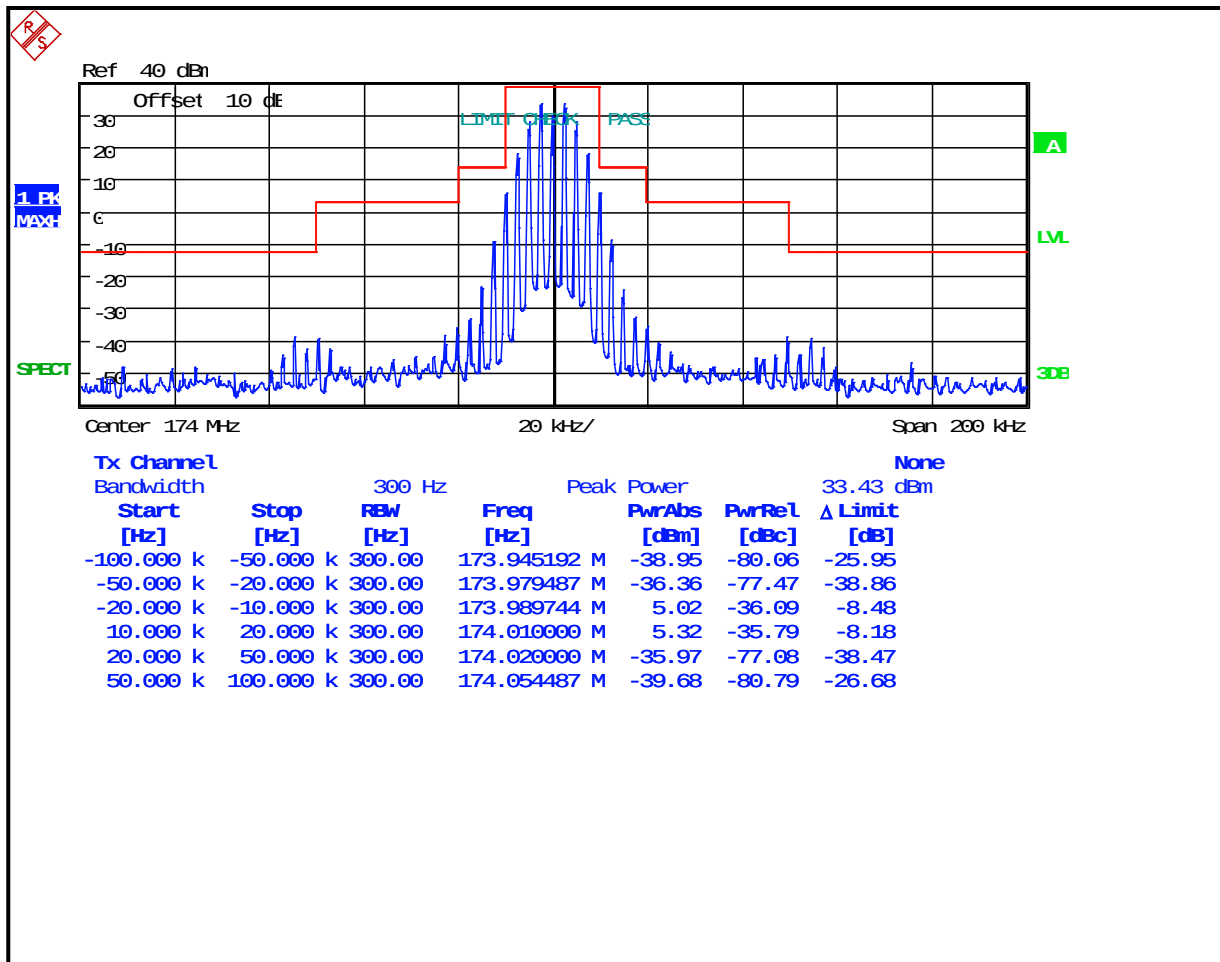
Plot 8-2: Occupied Bandwidth – 156.8 MHz; Analog WB (Mask B)



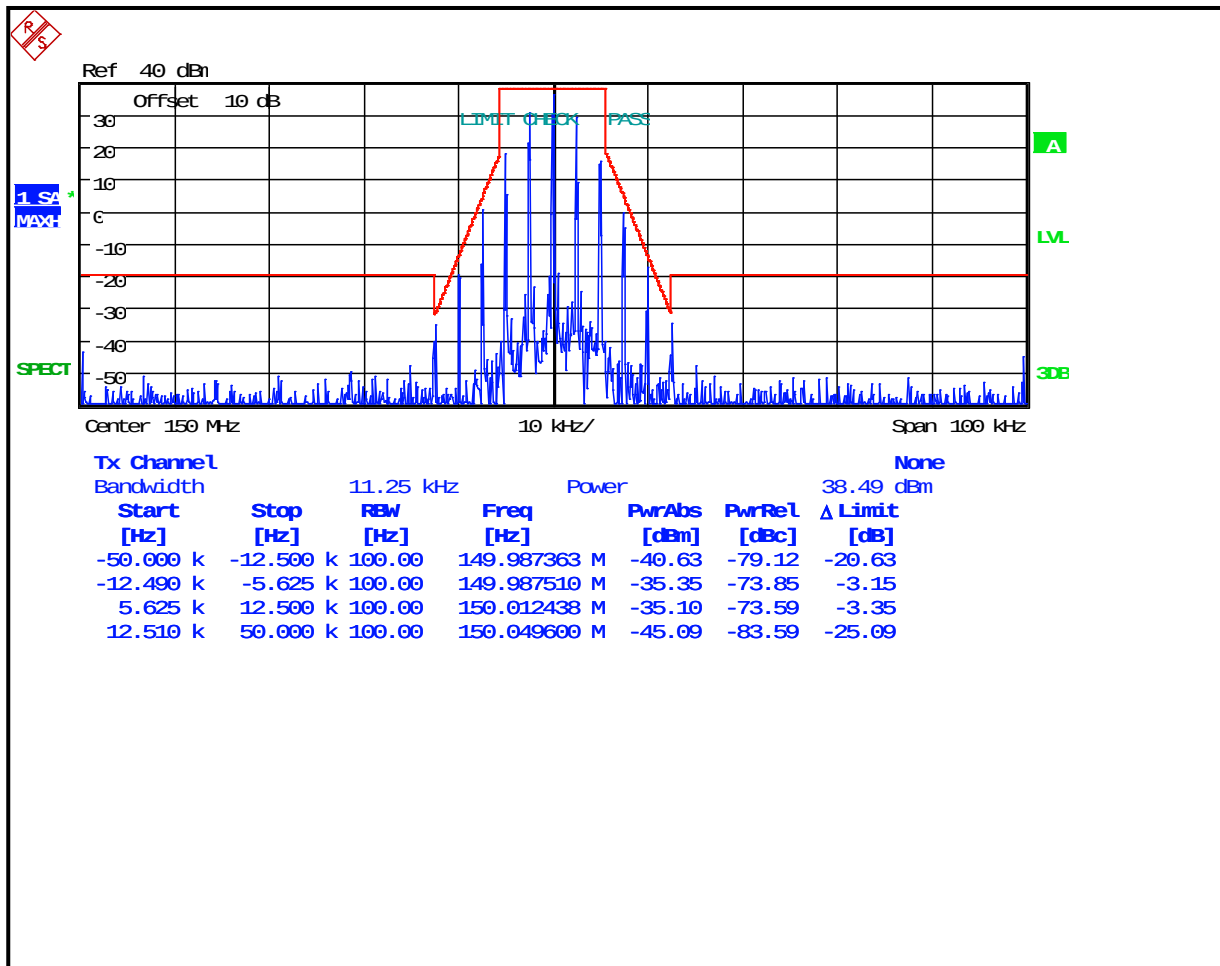
Plot 8-3: Occupied Bandwidth – 162 MHz; Analog WB (Mask B)



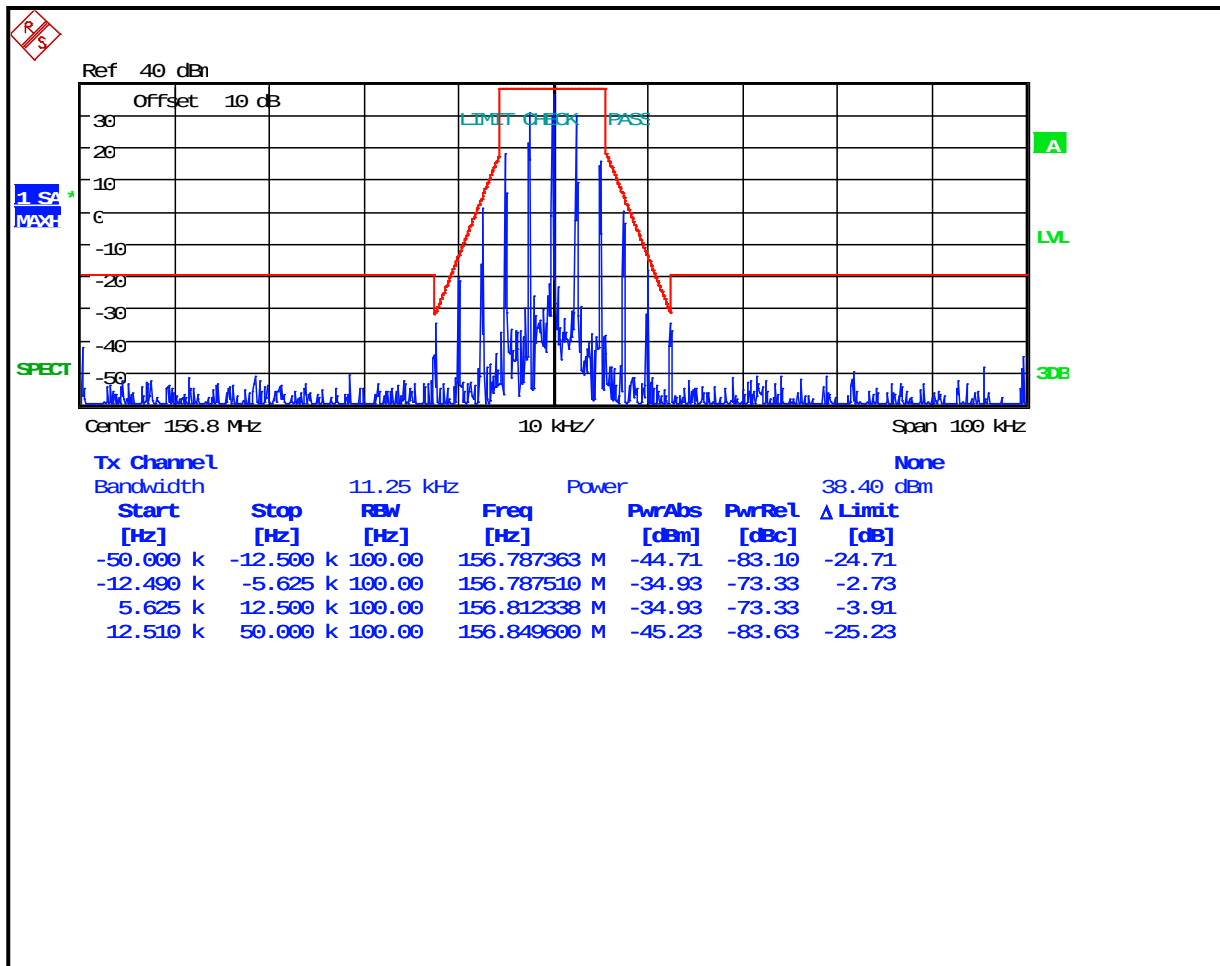
Plot 8-4: Occupied Bandwidth – 174 MHz; Analog WB (Mask B)



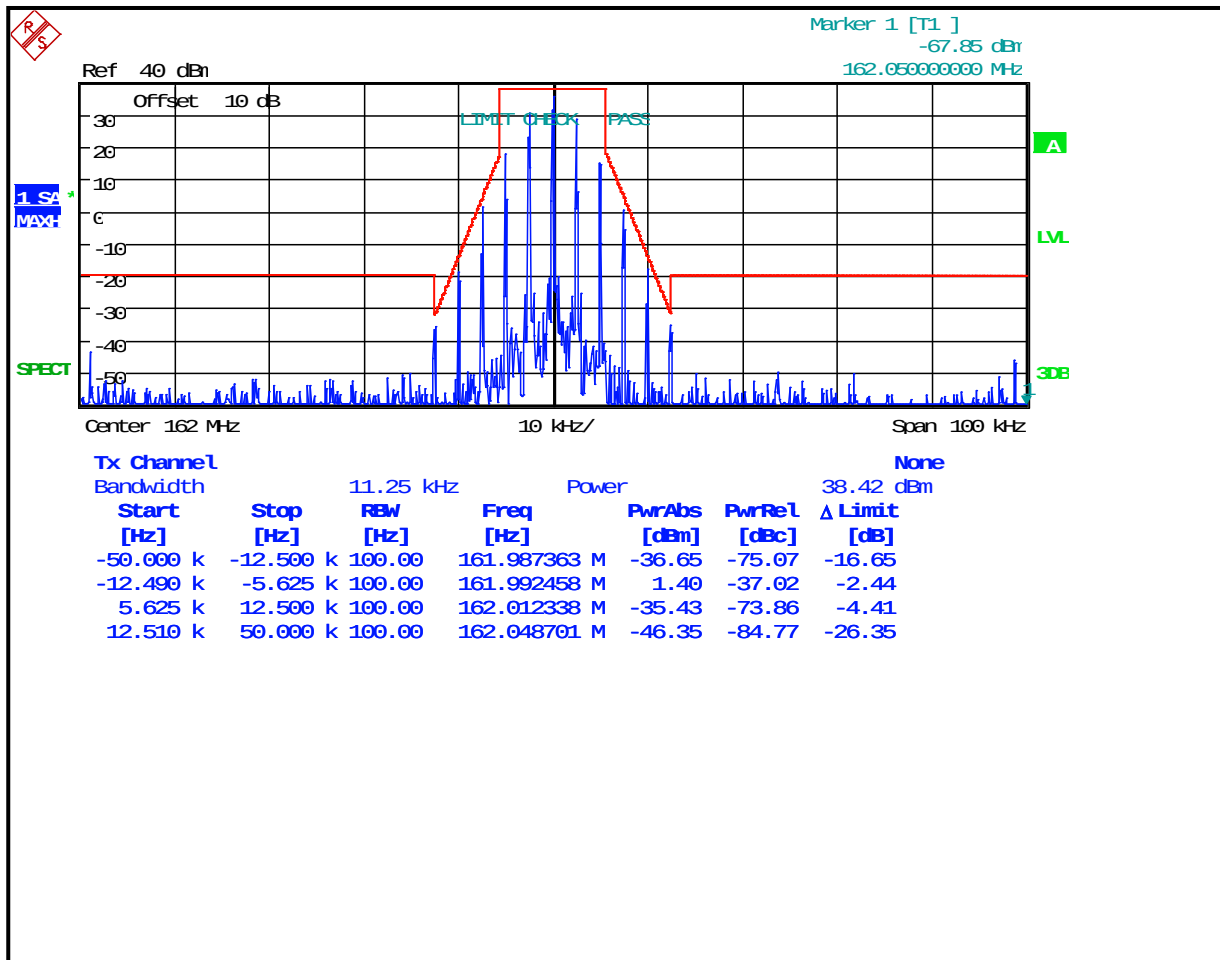
Plot 8-5: Occupied Bandwidth – 150 MHz; Analog NB (Mask D)



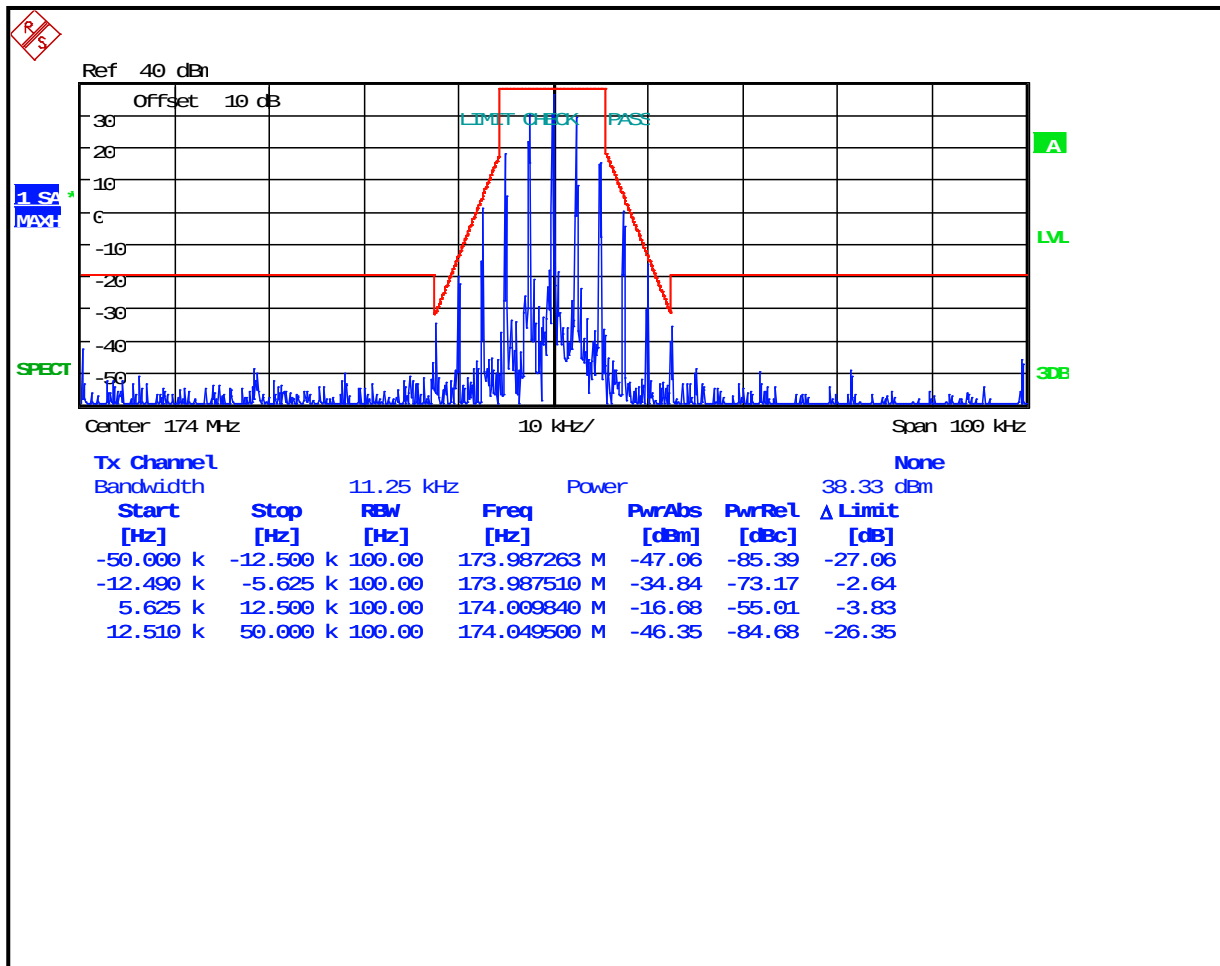
Plot 8-6: Occupied Bandwidth – 156.8 MHz; Analog NB (Mask D)



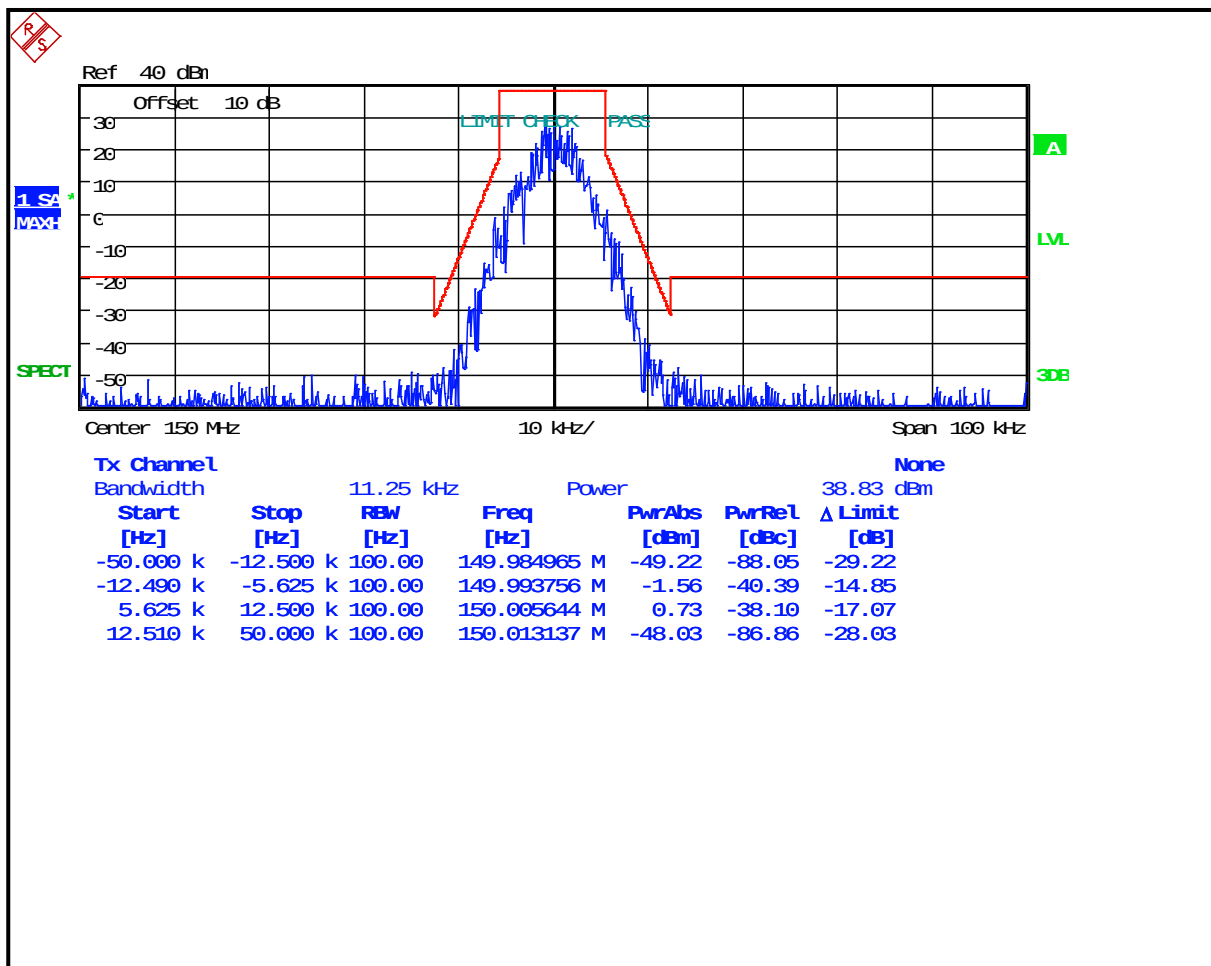
Plot 8-7: Occupied Bandwidth – 162 MHz; Analog NB (Mask D)



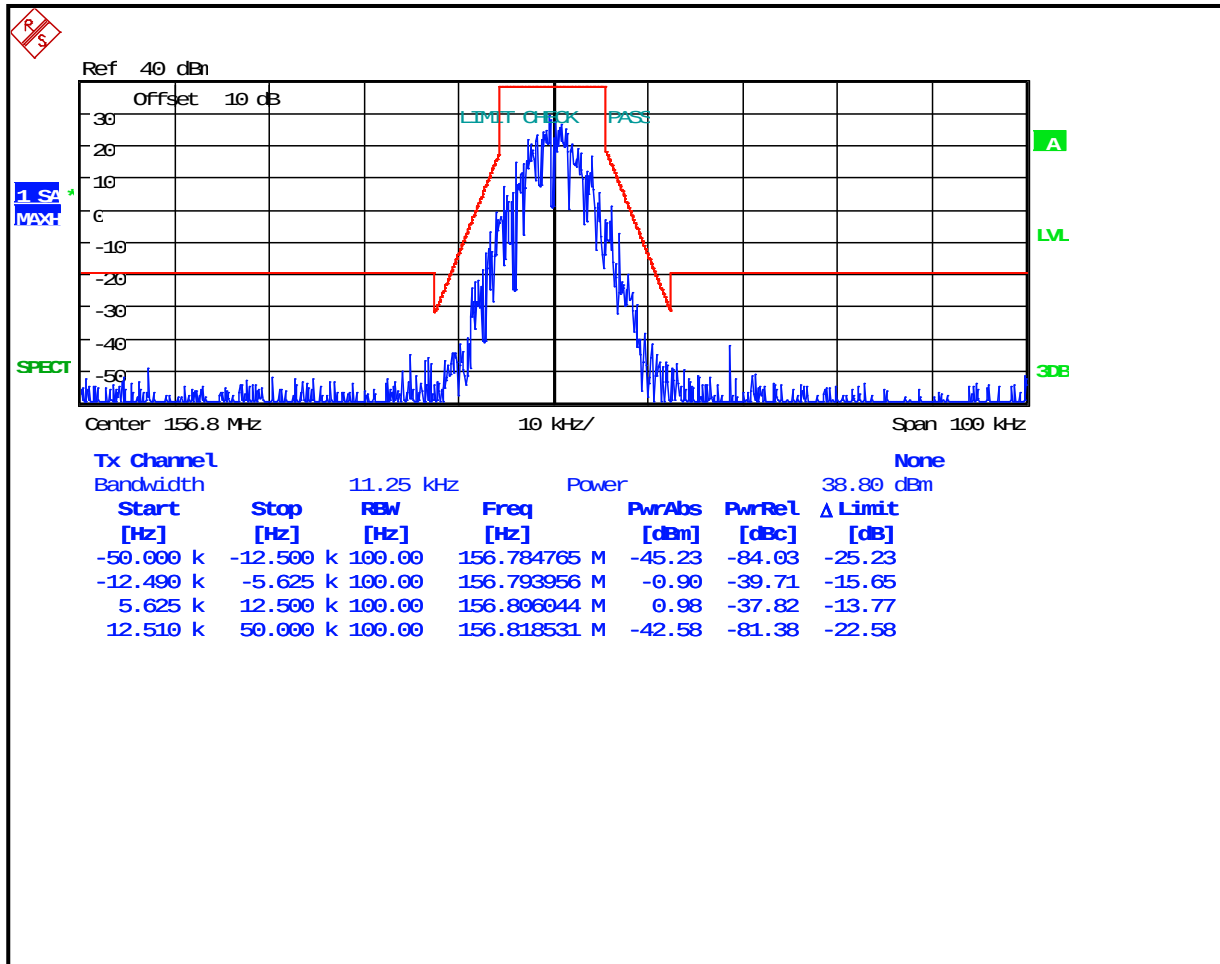
Plot 8-8: Occupied Bandwidth – 174 MHz; Analog NB (Mask D)



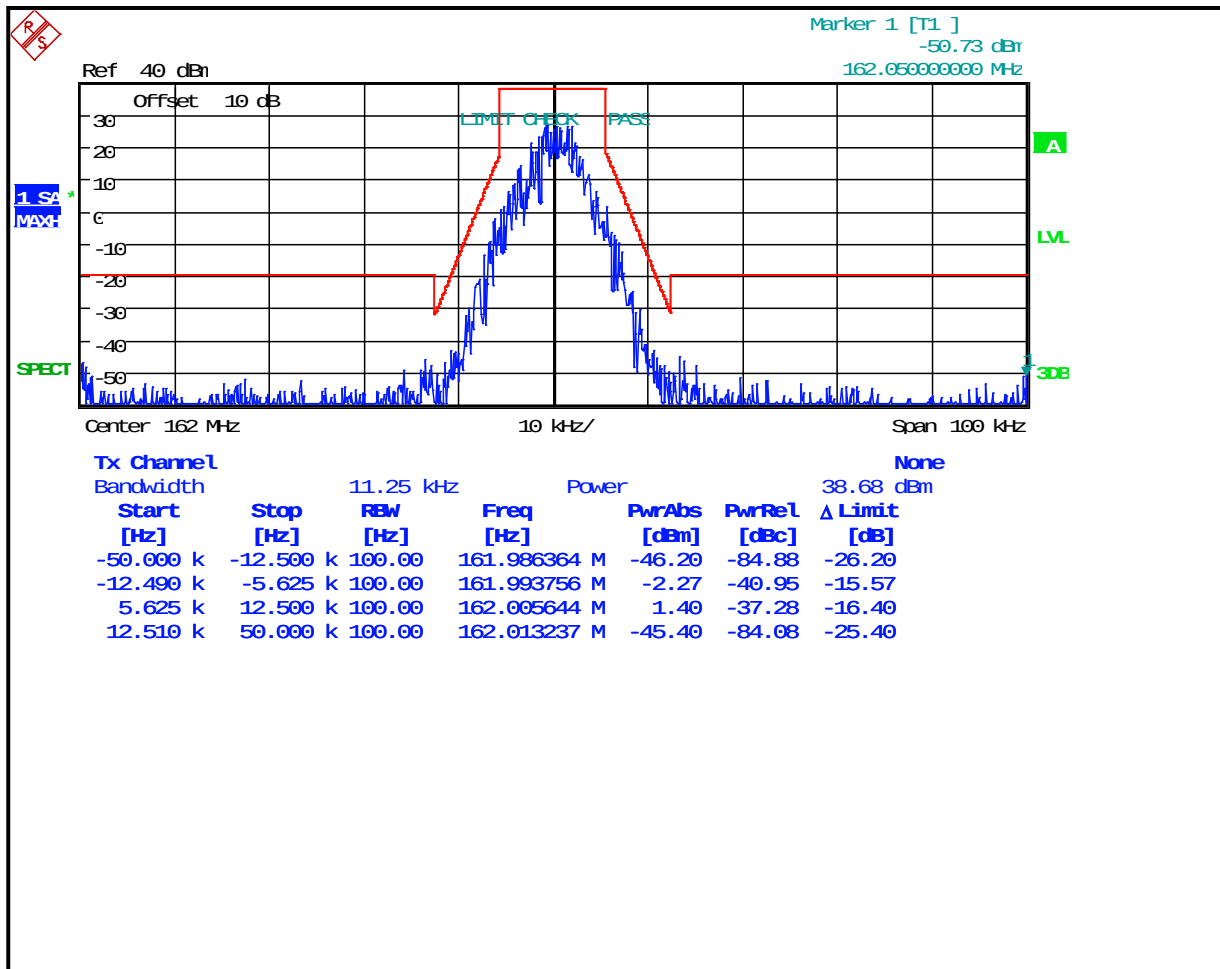
Plot 8-9: Occupied Bandwidth – 150 MHz; P25; (Mask D)



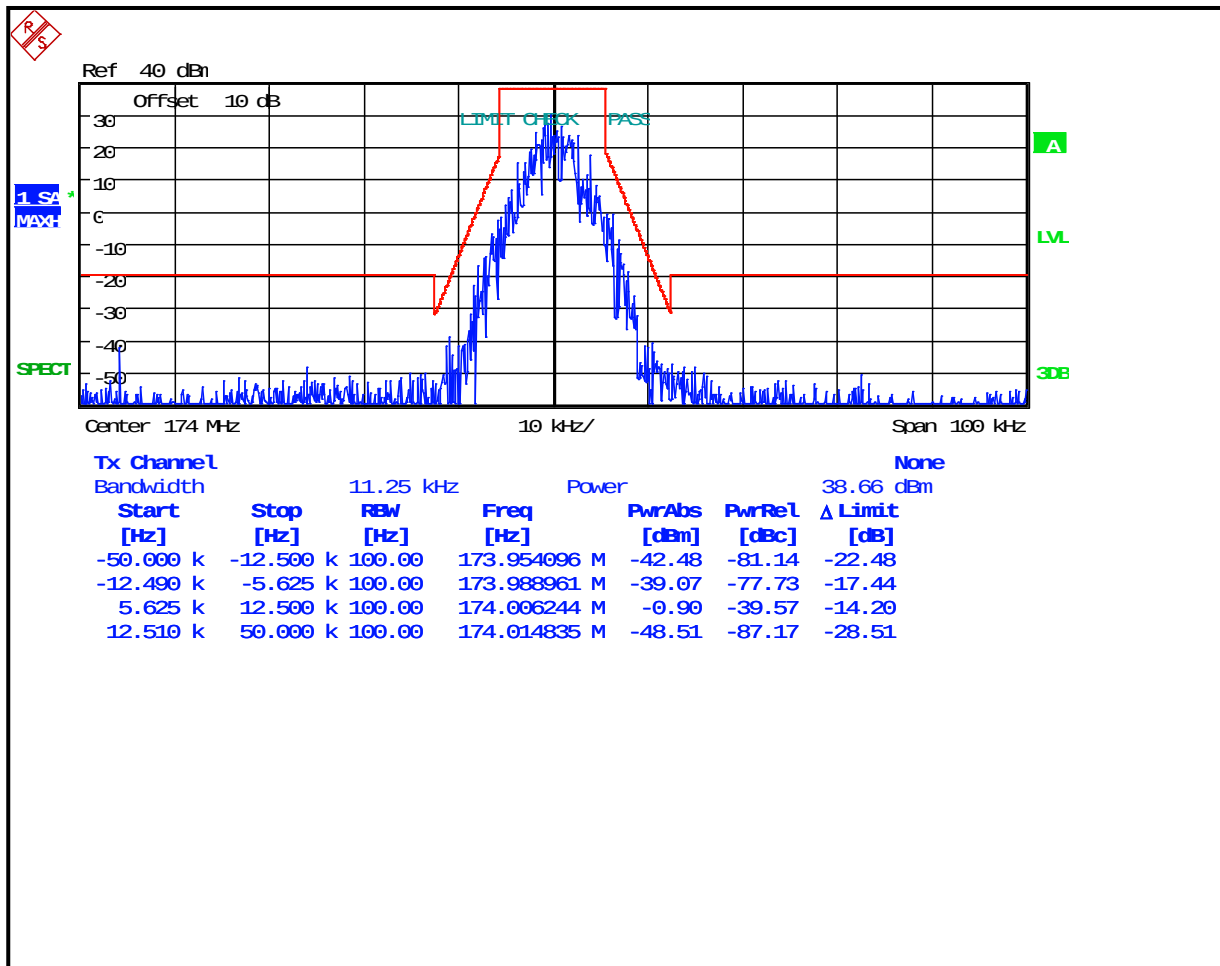
Plot 8-10: Occupied Bandwidth – 156.8 MHz; P25; (Mask D)



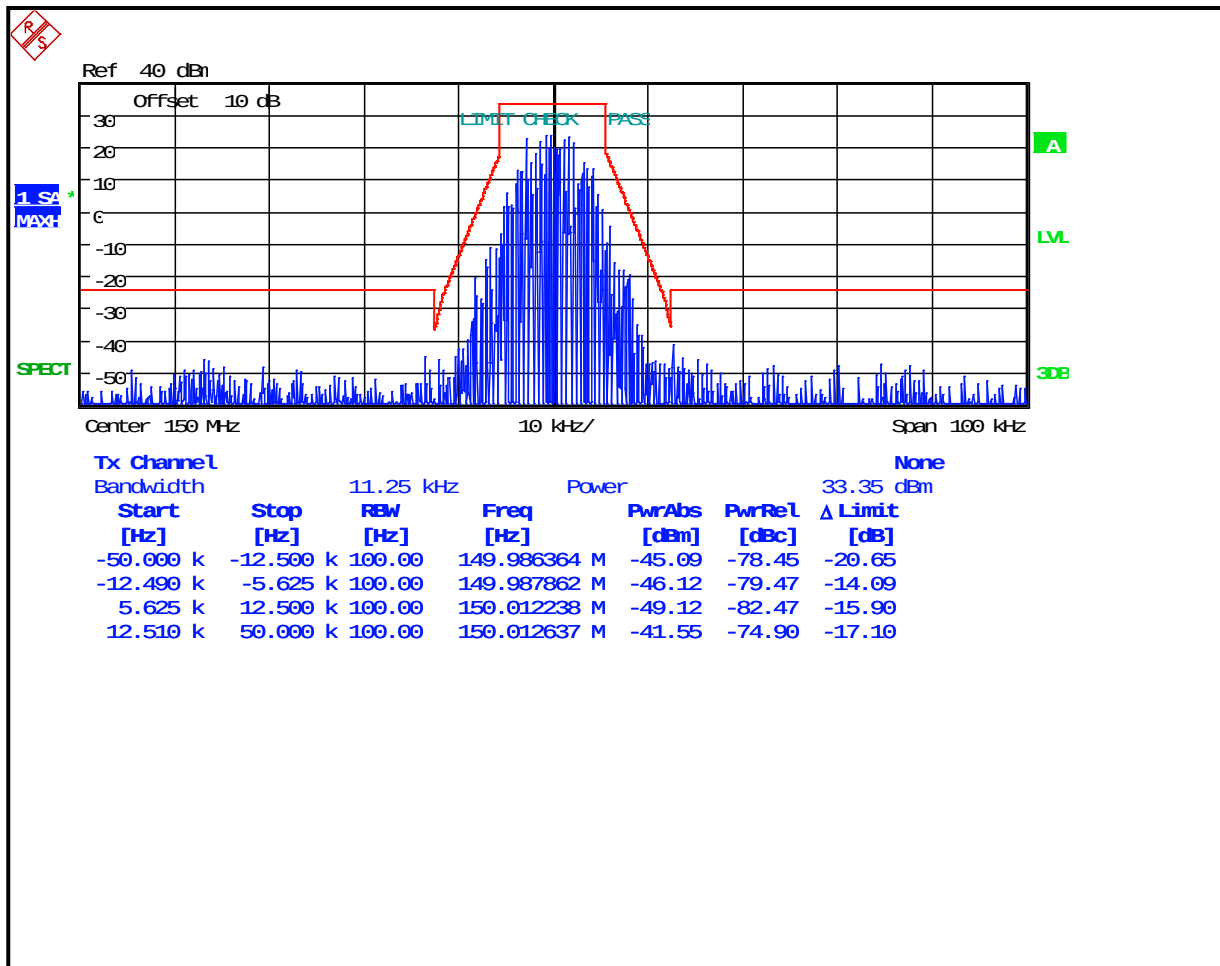
Plot 8-11: Occupied Bandwidth – 162 MHz; P25; (Mask D)



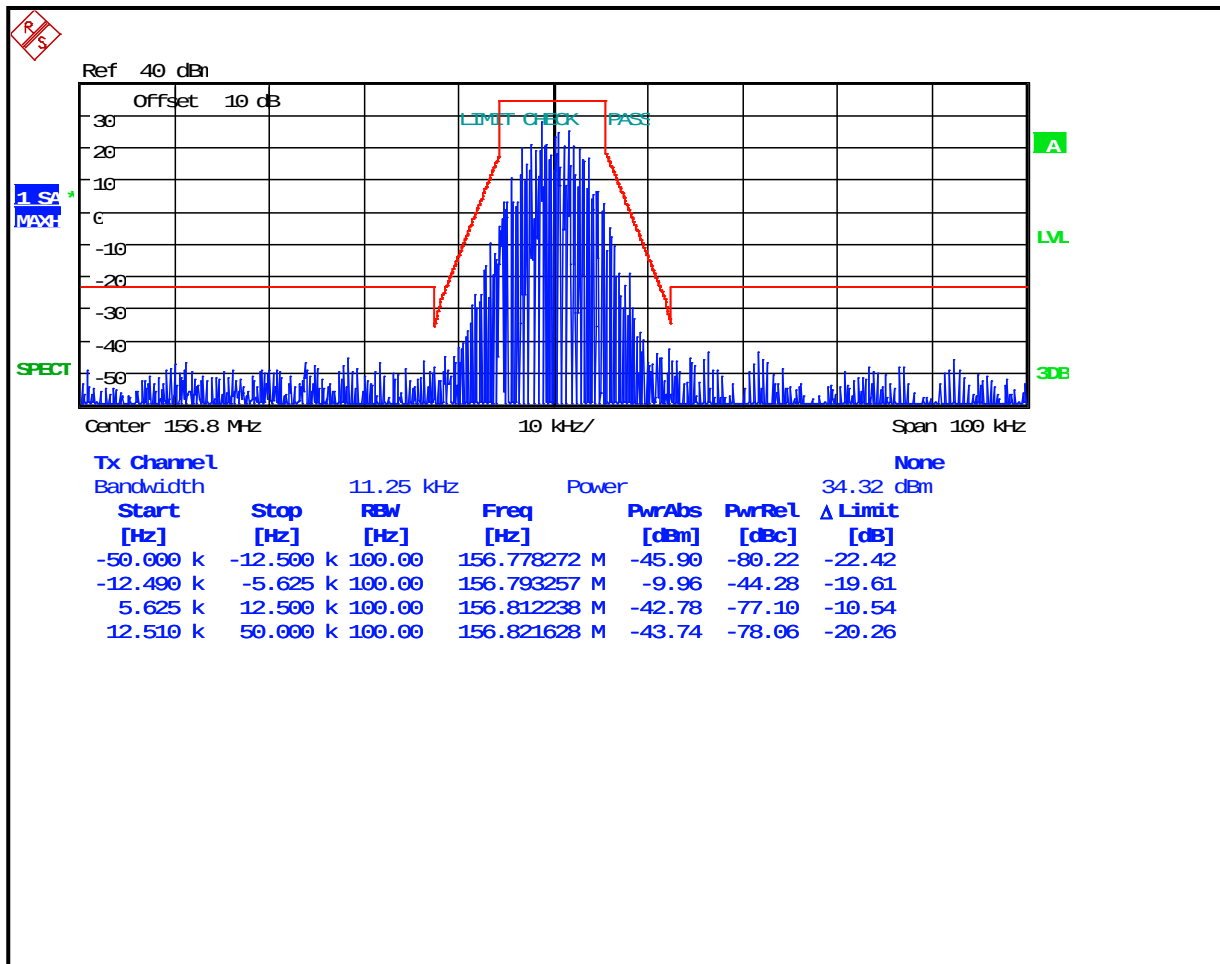
Plot 8-12: Occupied Bandwidth – 174 MHz; P25; (Mask D)



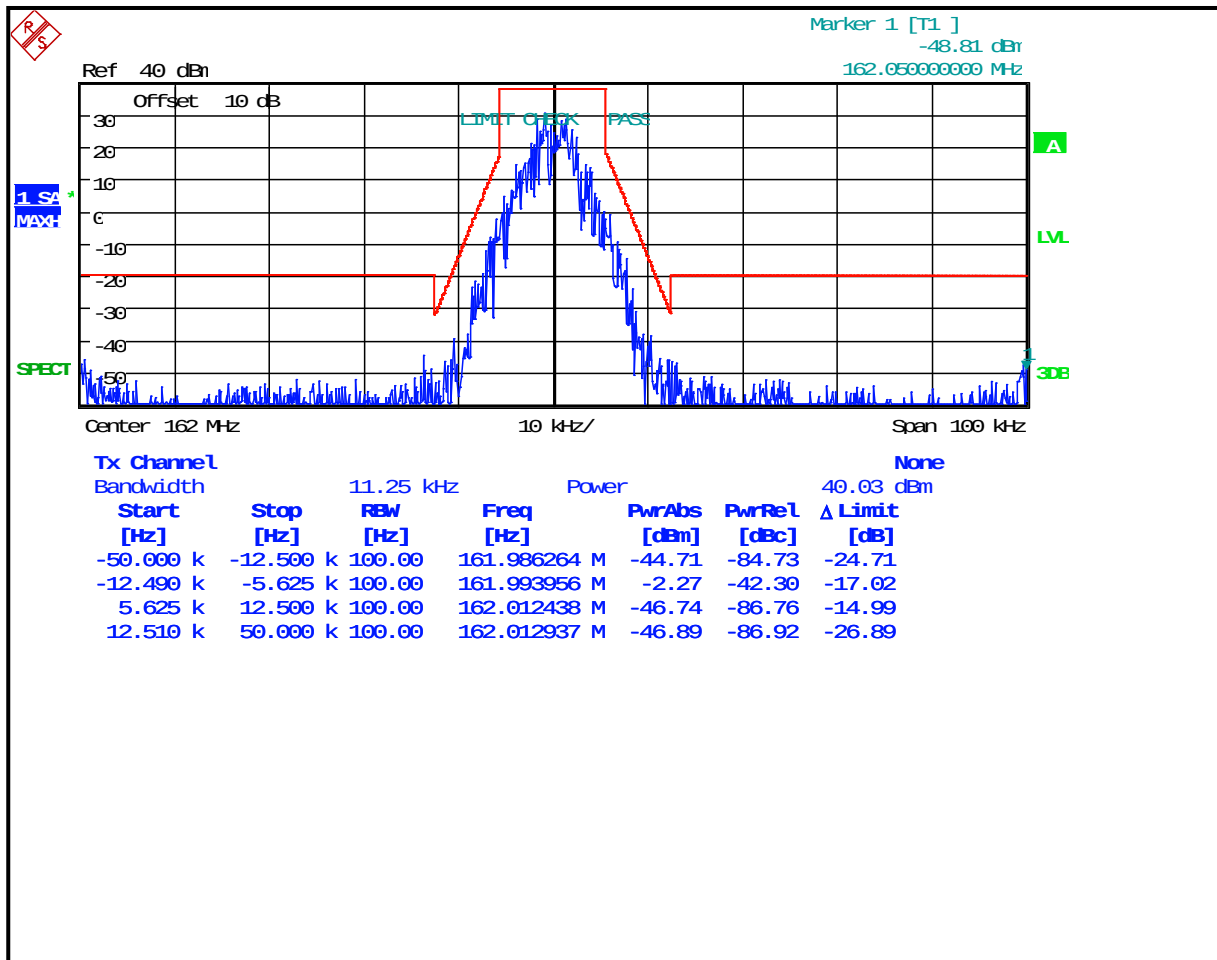
Plot 8-13: Occupied Bandwidth – 150 MHz; CPM TDMA TDMA; (Mask D)



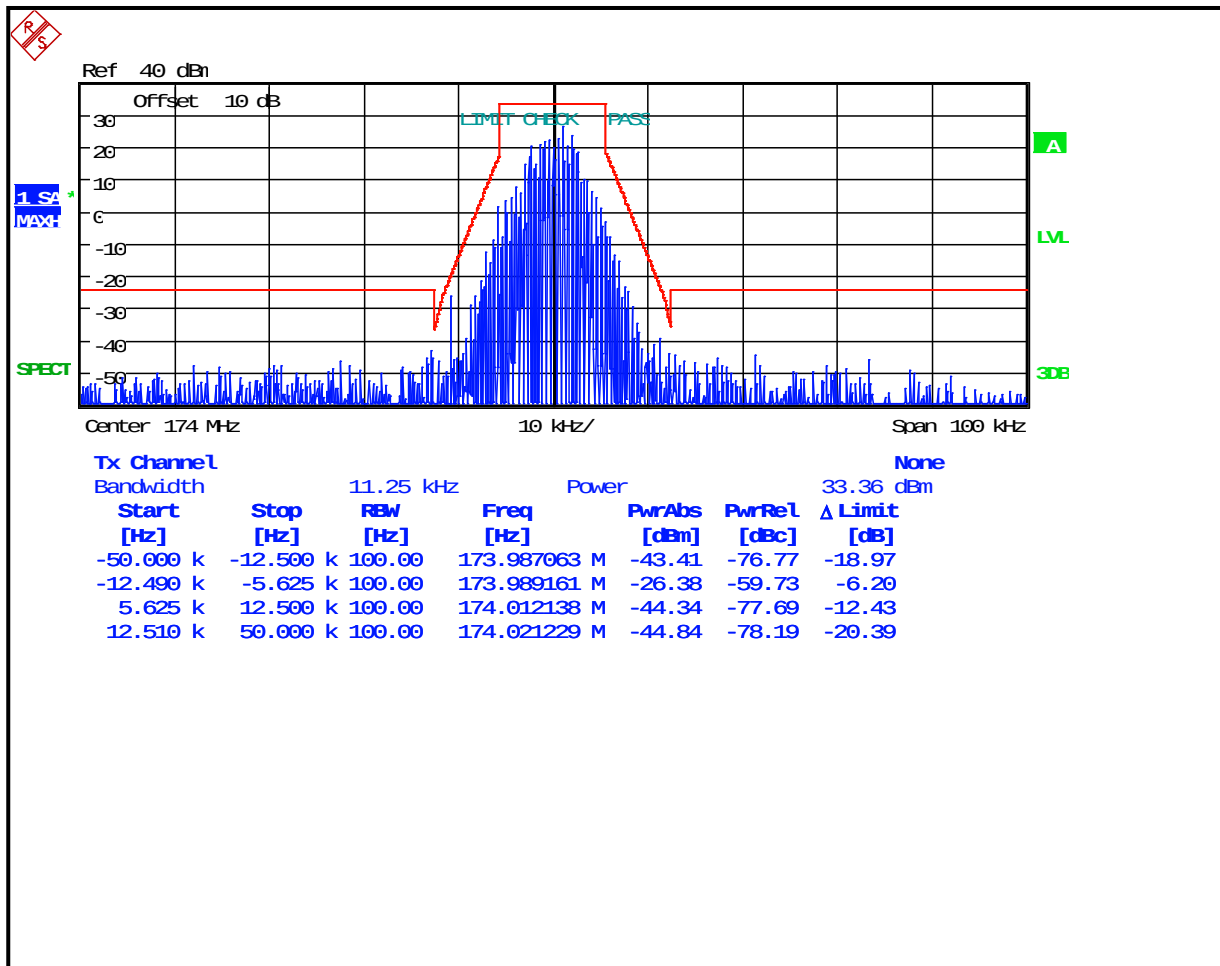
Plot 8-14: Occupied Bandwidth – 156.8 MHz; CPM TDMA TDMA; (Mask D)



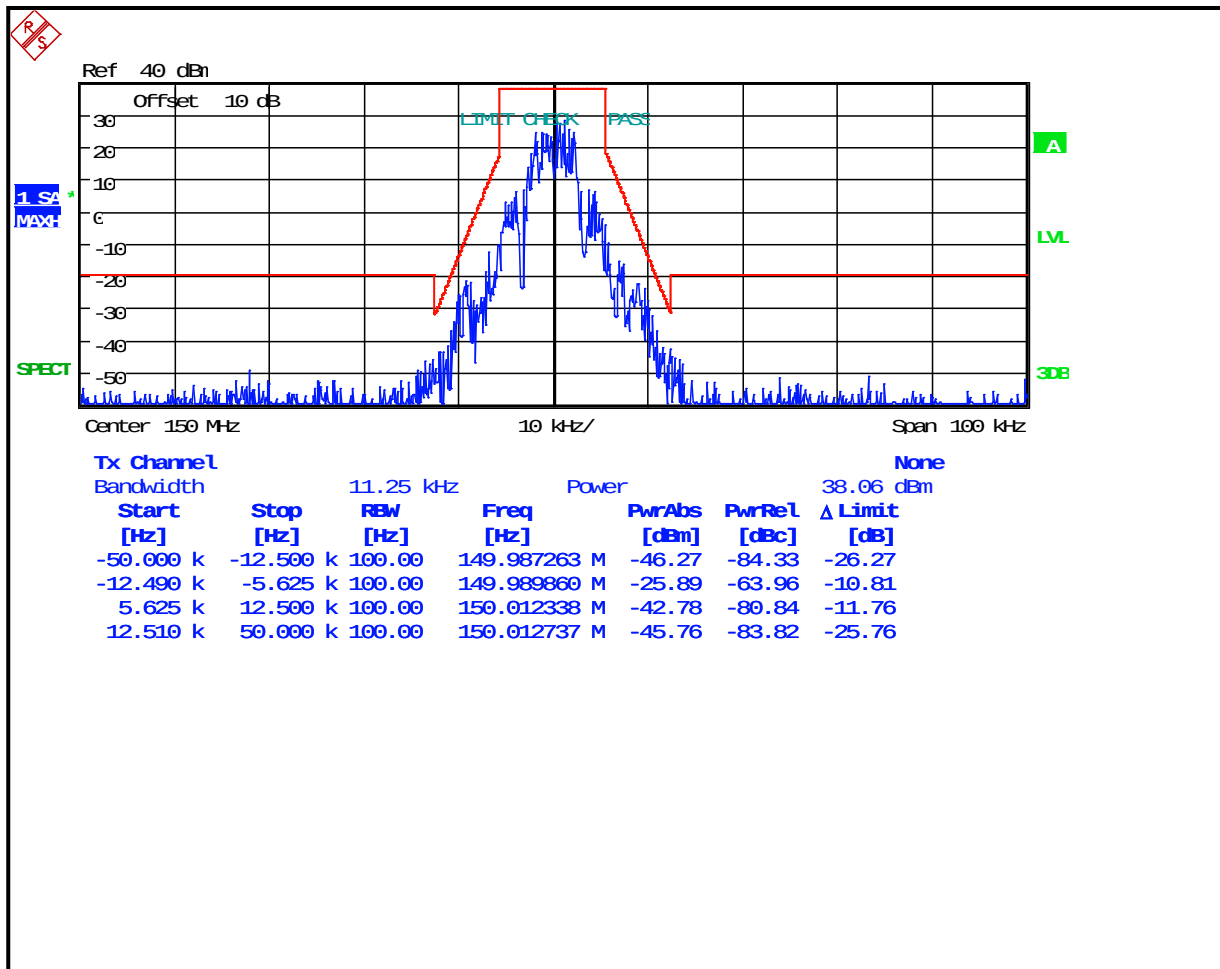
Plot 8-15: Occupied Bandwidth – 162 MHz; CPM TDMA TDMA; (Mask D)



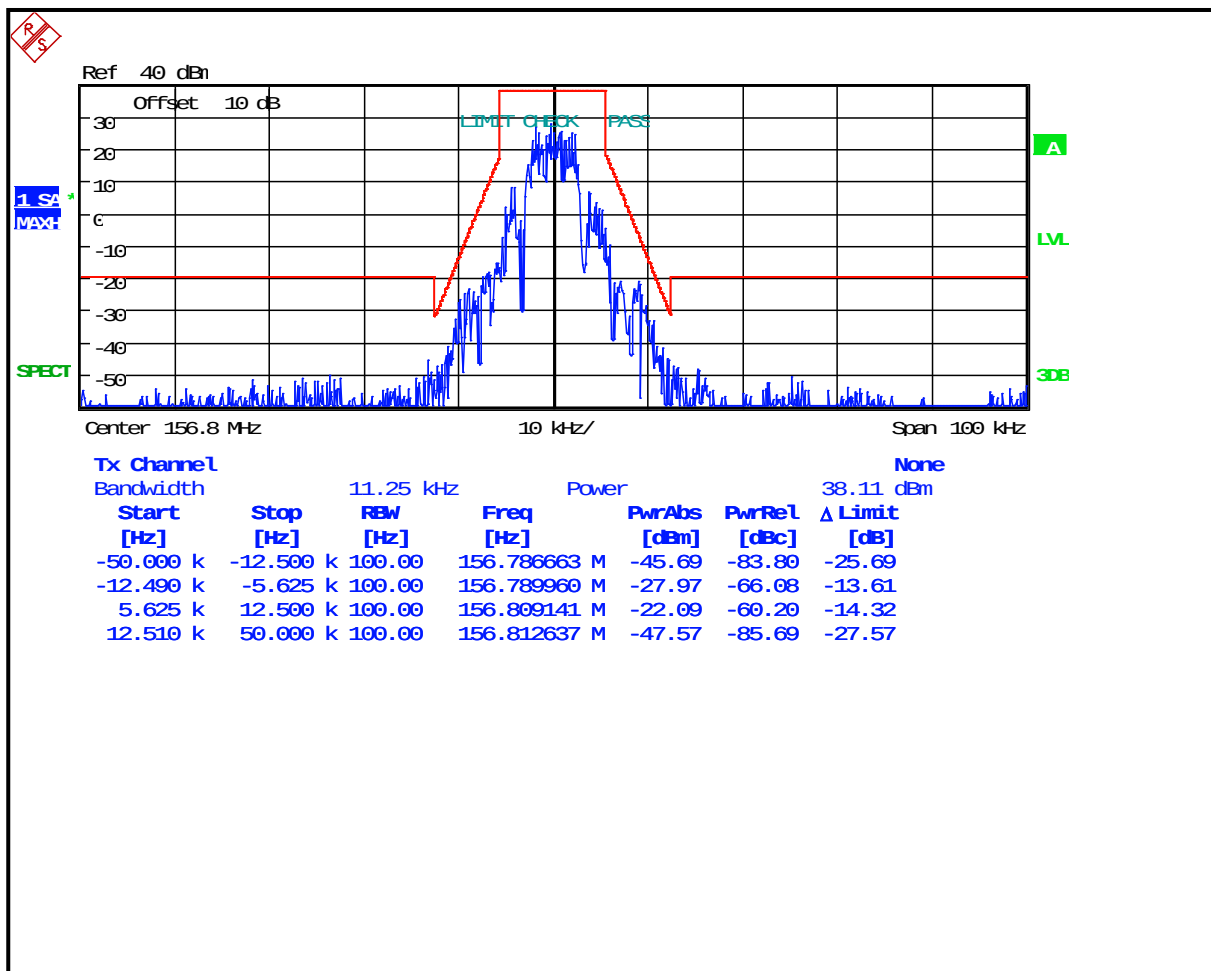
Plot 8-16: Occupied Bandwidth – 174 MHz; CPM TDMA TDMA; (Mask D)



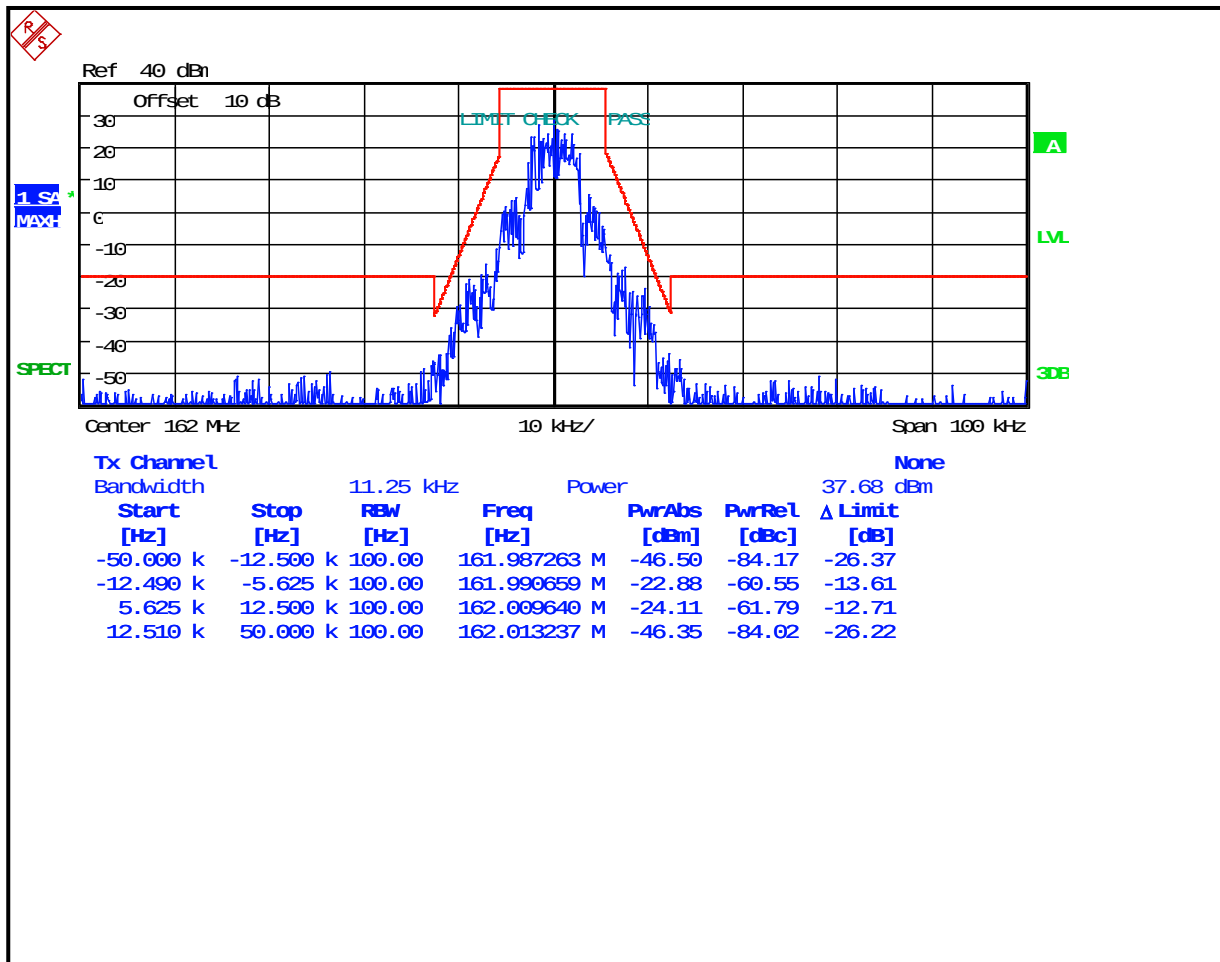
Plot 8-17: Occupied Bandwidth – 150 MHz; 2-Level FSK 4800; XNB EDACS; (Mask D)



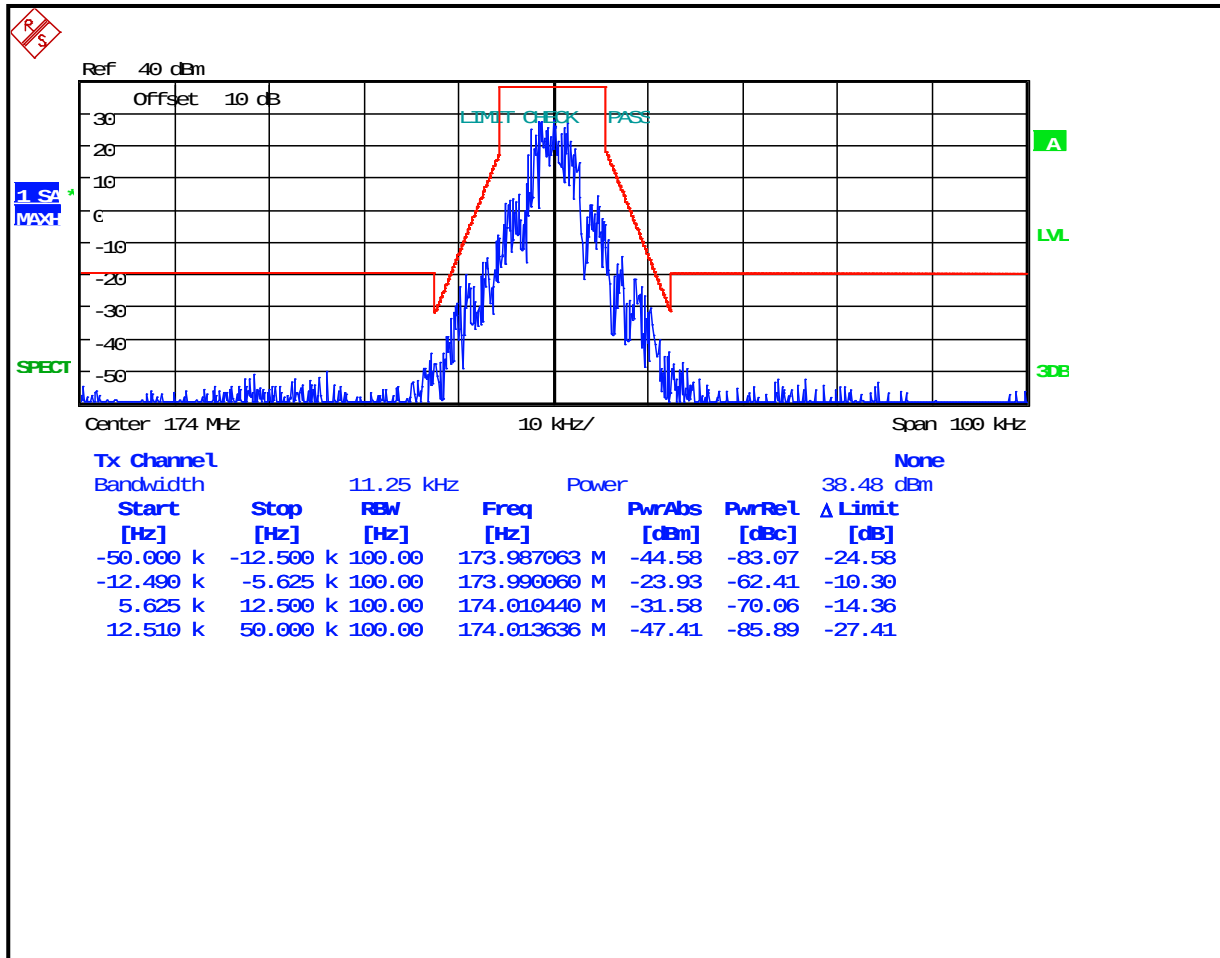
Plot 8-18: Occupied Bandwidth – 156.8 MHz; 2-Level FSK 4800; XNB EDACS; (Mask D)



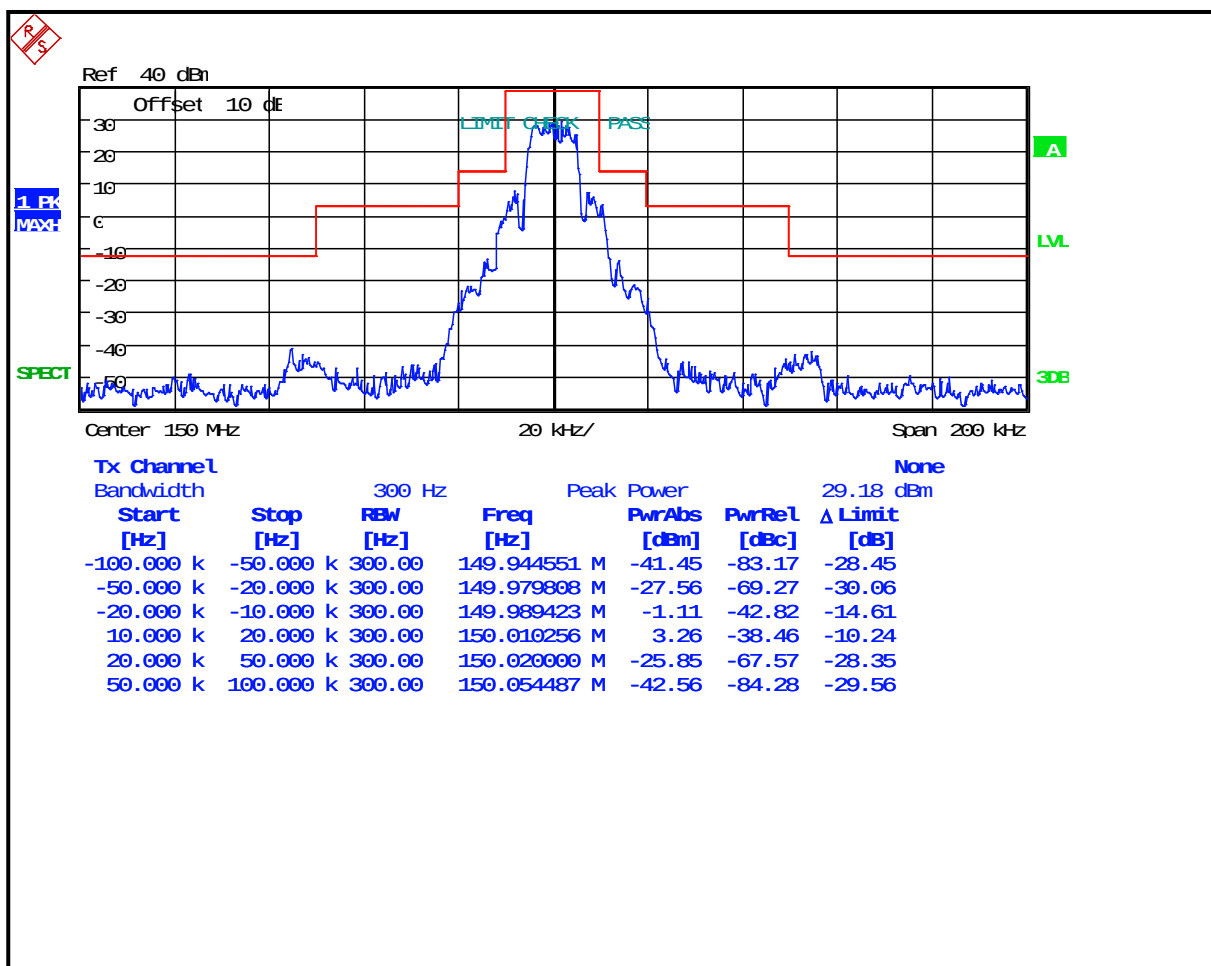
Plot 8-19: Occupied Bandwidth – 162 MHz; 2-Level FSK 4800; XNB EDACS; (Mask D)



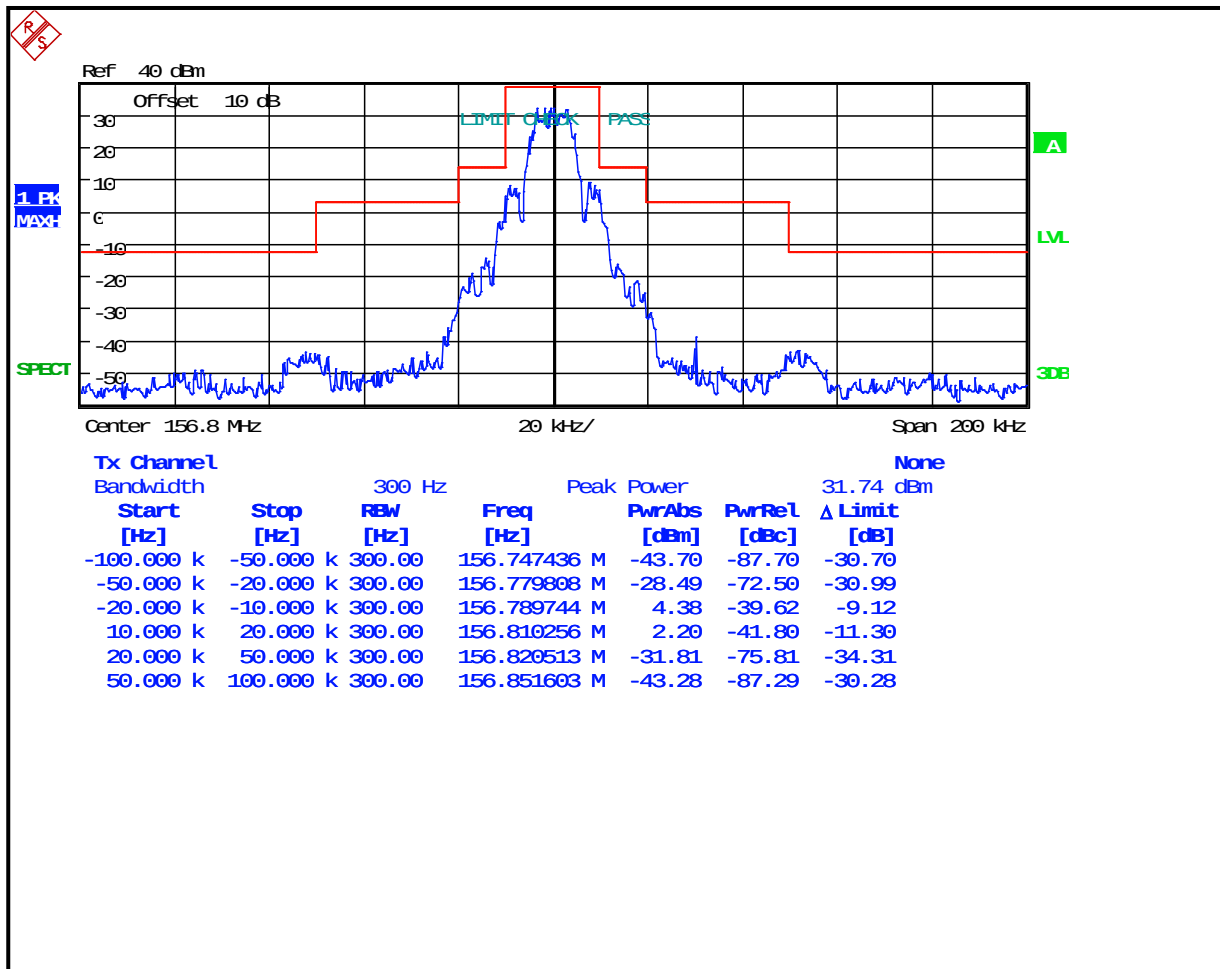
Plot 8-20: Occupied Bandwidth – 174 MHz; 2-Level FSK 4800; XNB EDACS; (Mask D)



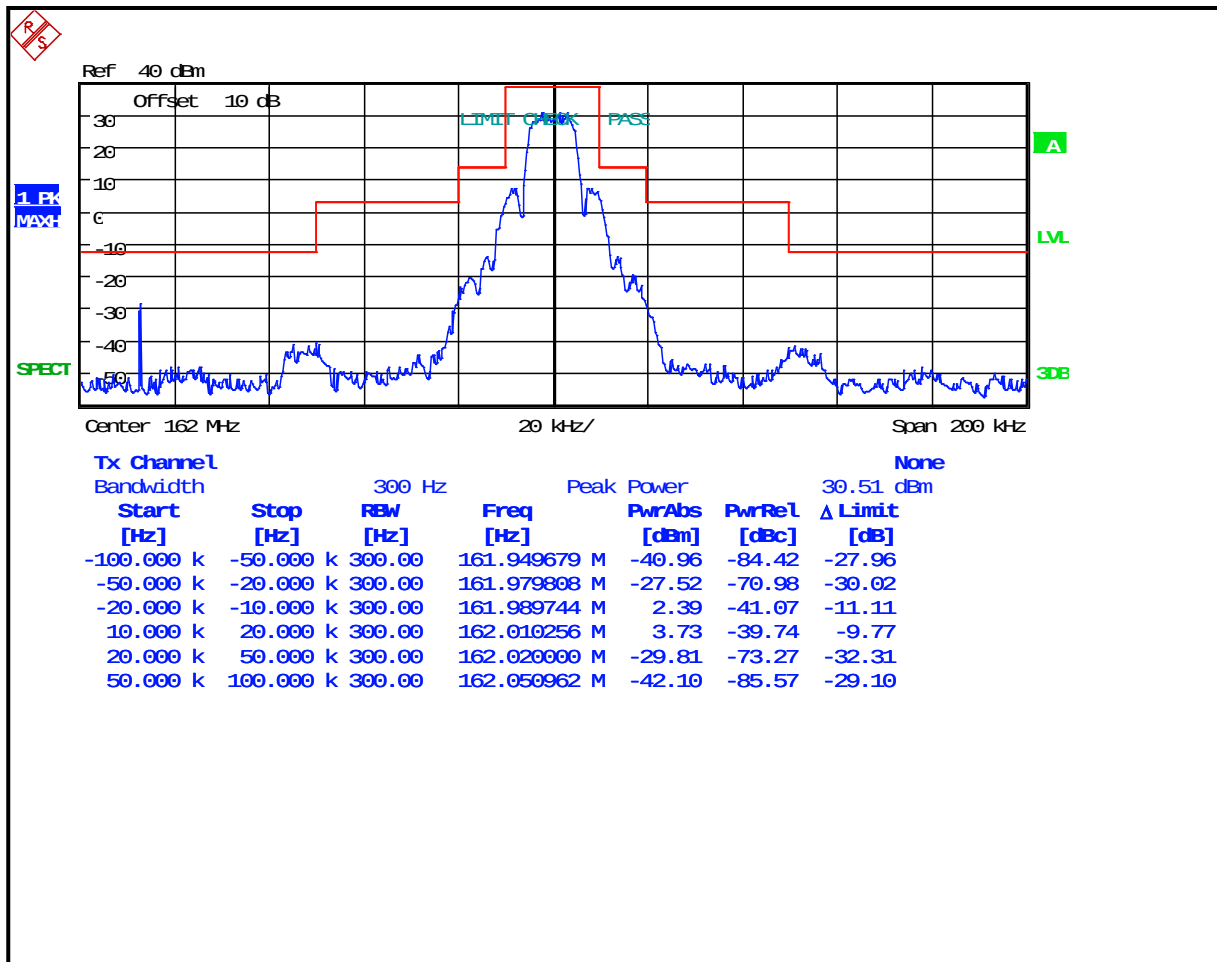
Plot 8-21: Occupied Bandwidth – 150 MHz; 2-Level FSK 9600; WB EDACS; (Mask B)



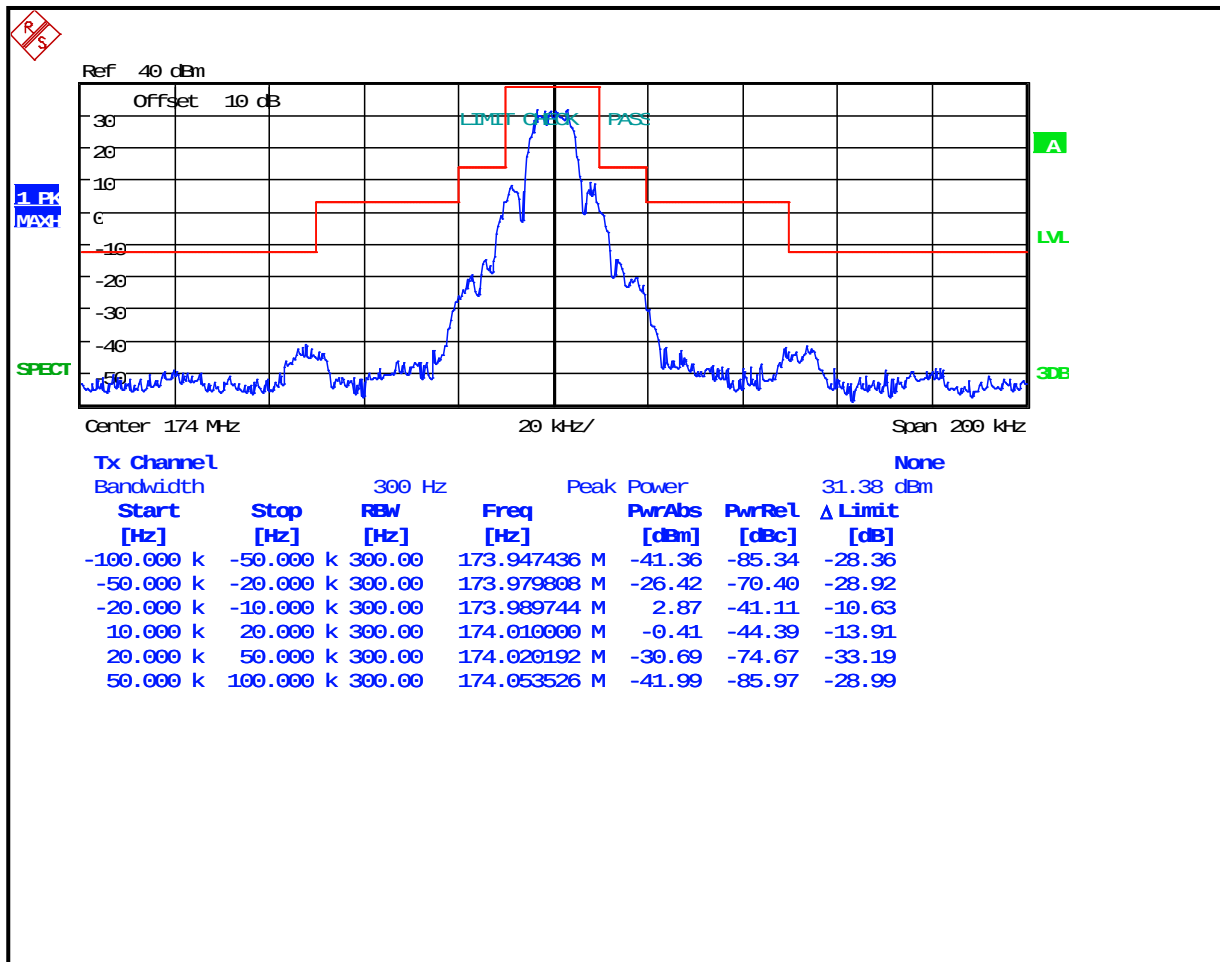
Plot 8-22: Occupied Bandwidth – 156.8 MHz; 2-Level FSK 9600; WB EDACS; (Mask B)



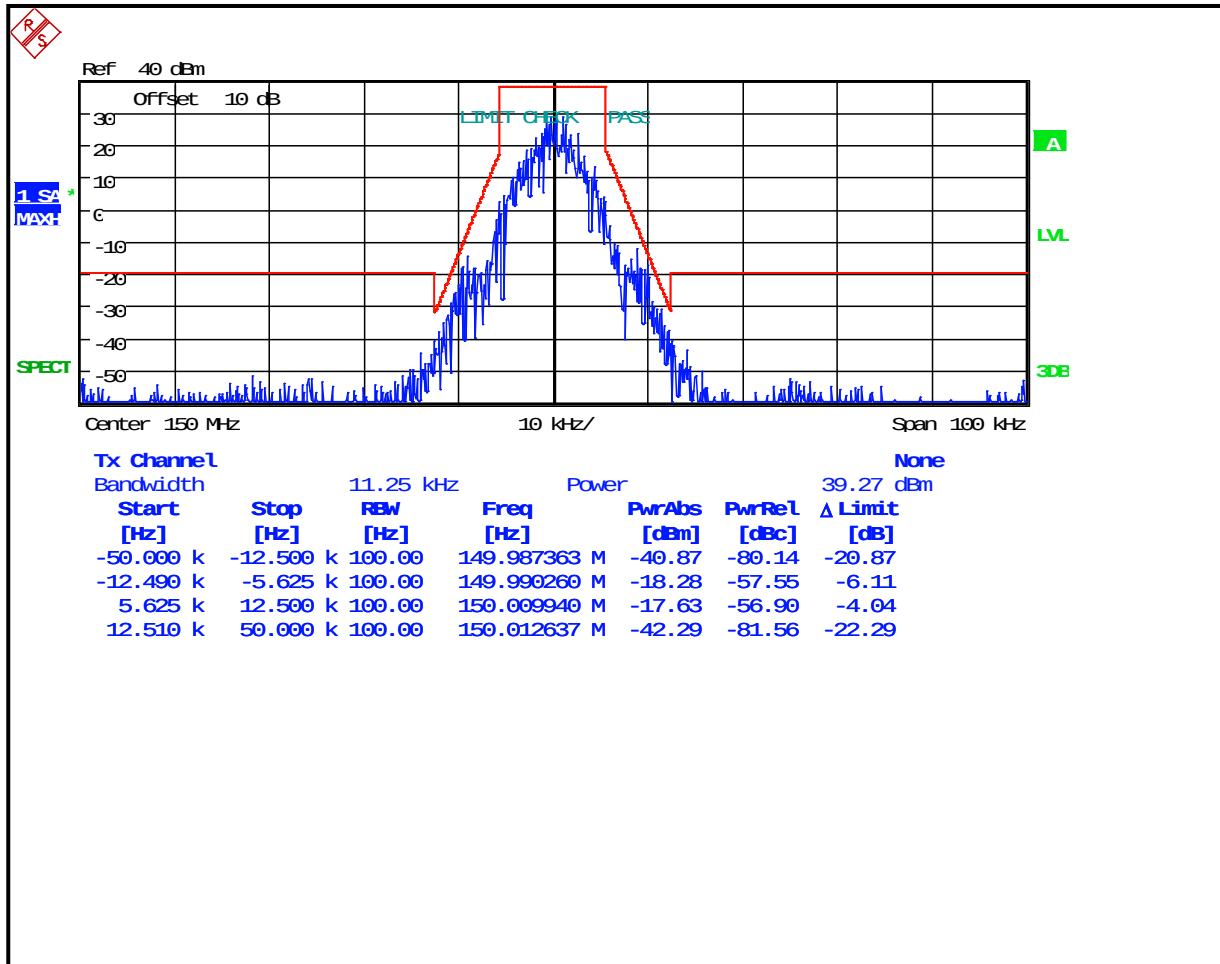
Plot 8-23: Occupied Bandwidth – 162 MHz; 2-Level FSK 9600; WB EDACS; (Mask B)



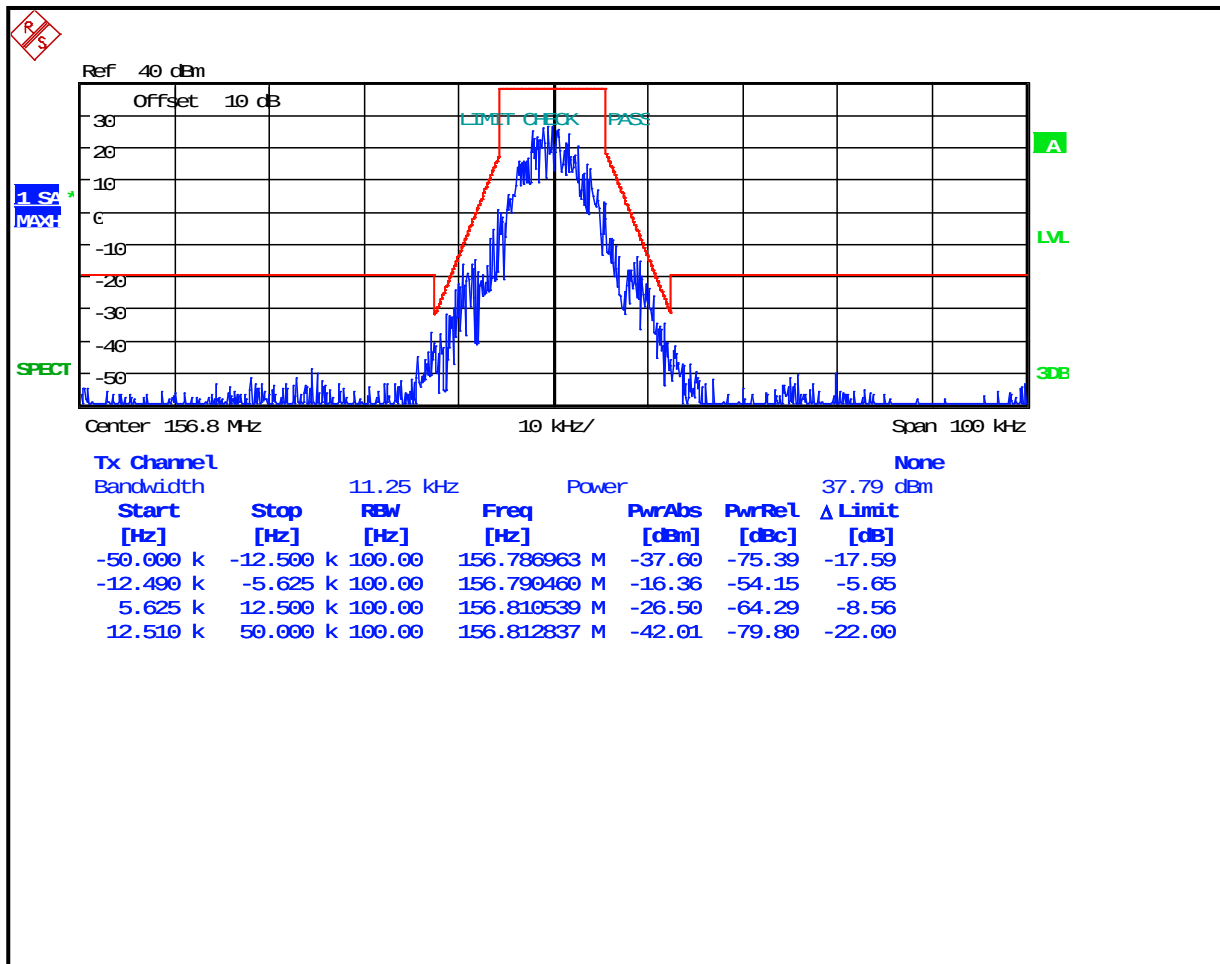
Plot 8-24: Occupied Bandwidth – 174 MHz; 2-Level FSK 9600; WB EDACS; (Mask B)



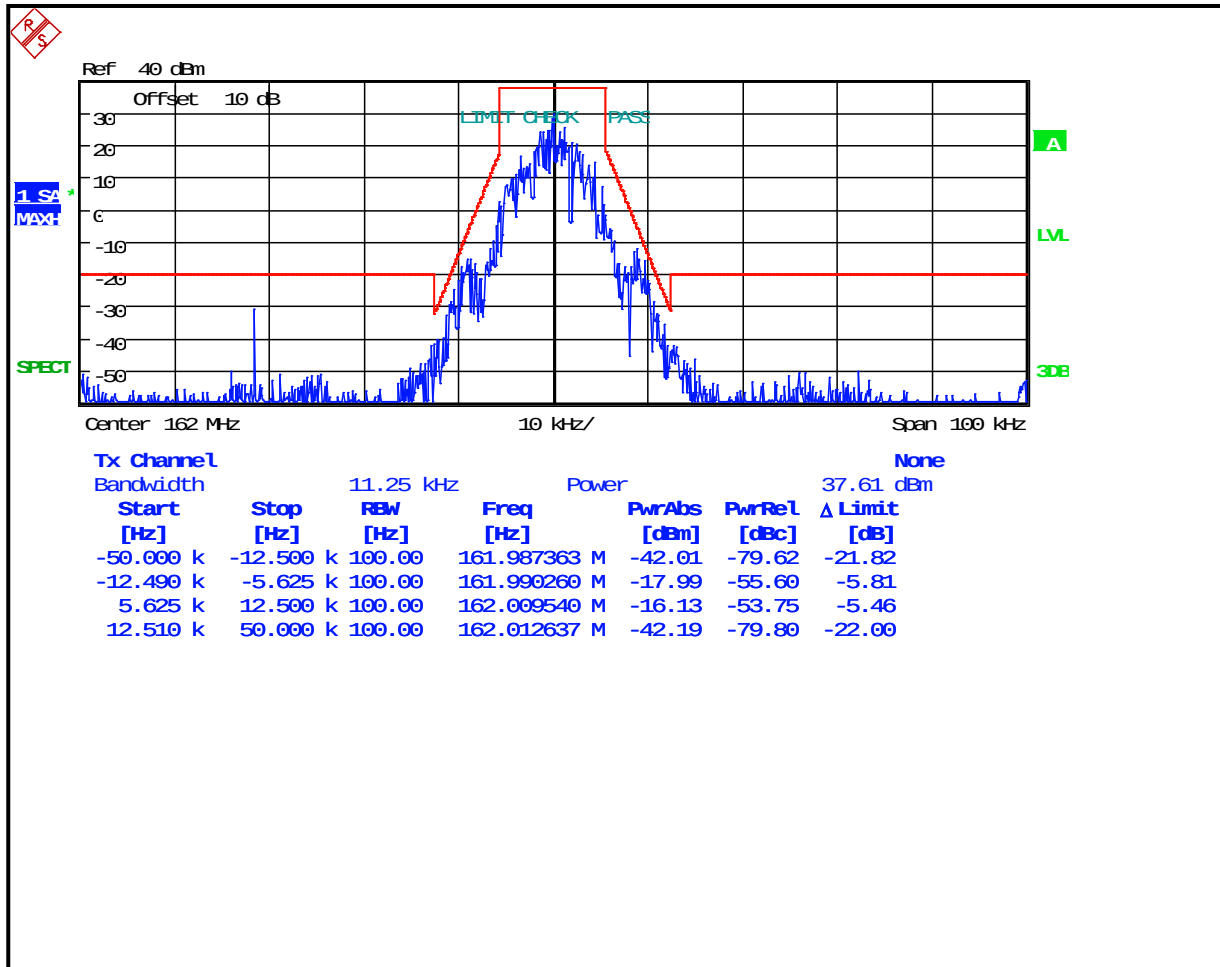
Plot 8-25: Occupied Bandwidth – 150 MHz; 2-Level FSK 9600; NB EDACS; (Mask D)



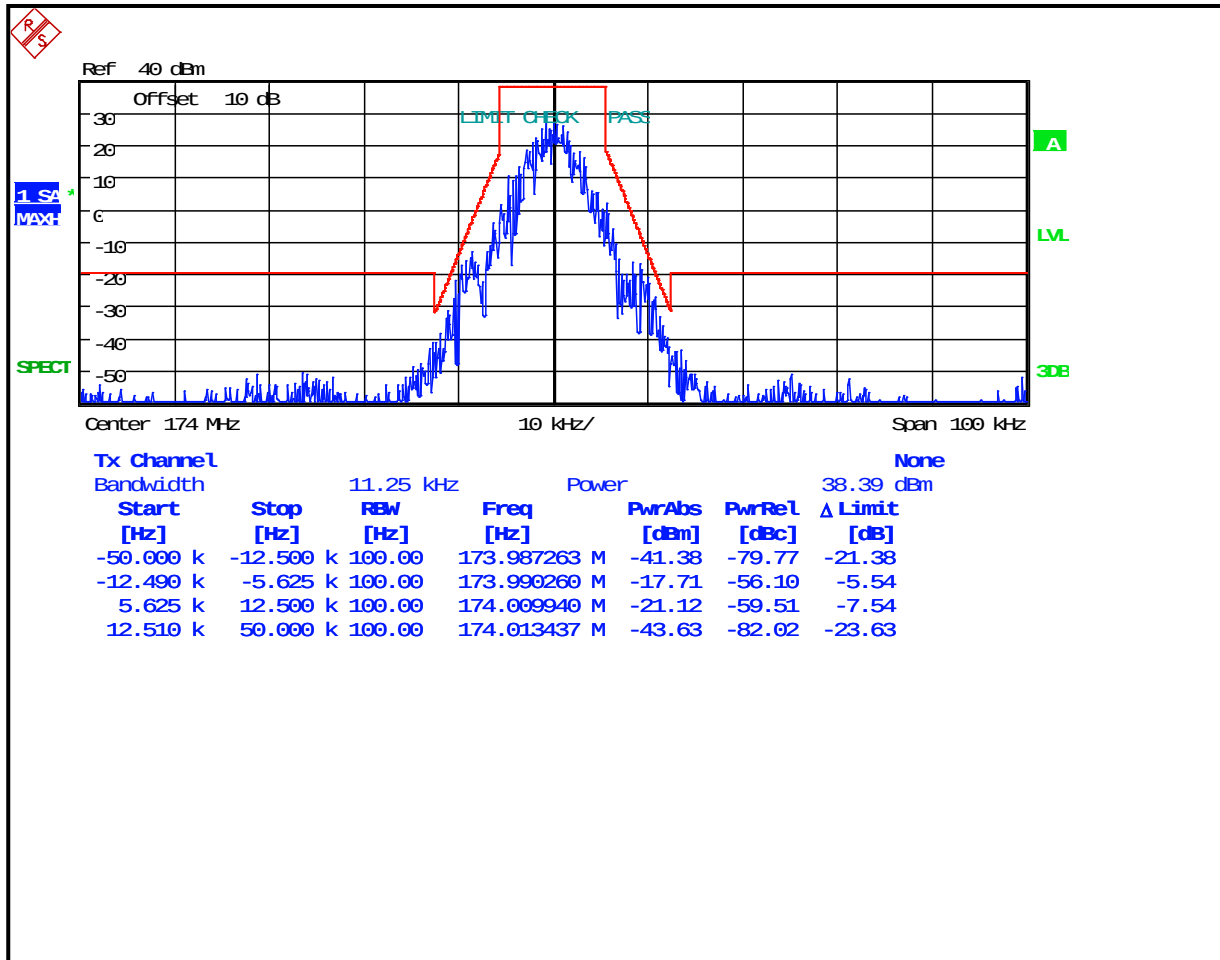
Plot 8-26: Occupied Bandwidth – 156.8 MHz; 2-Level FSK 9600; NB EDACS; (Mask D)



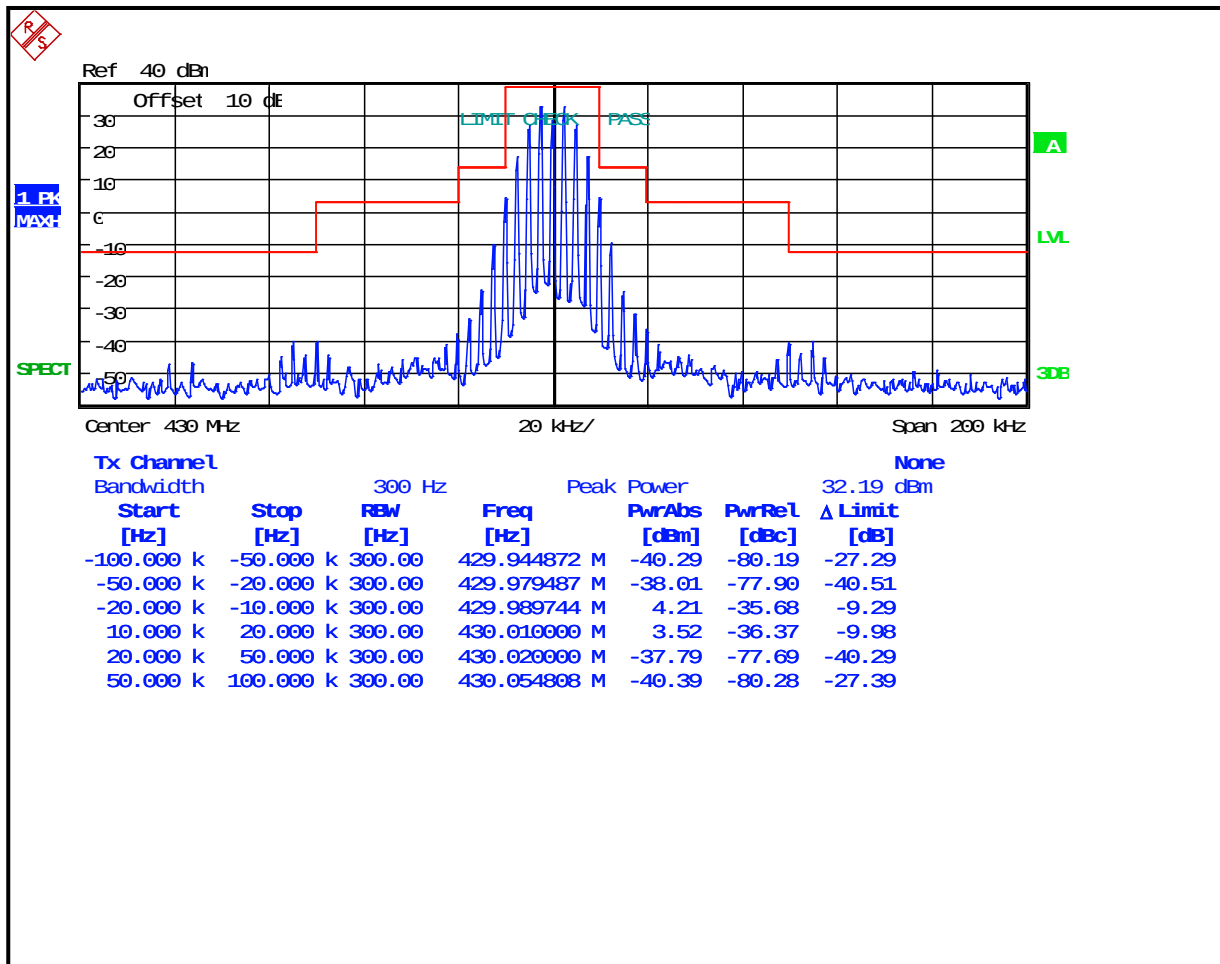
Plot 8-27: Occupied Bandwidth – 162 MHz; 2-Level FSK 49600; NB EDACS; (Mask D)



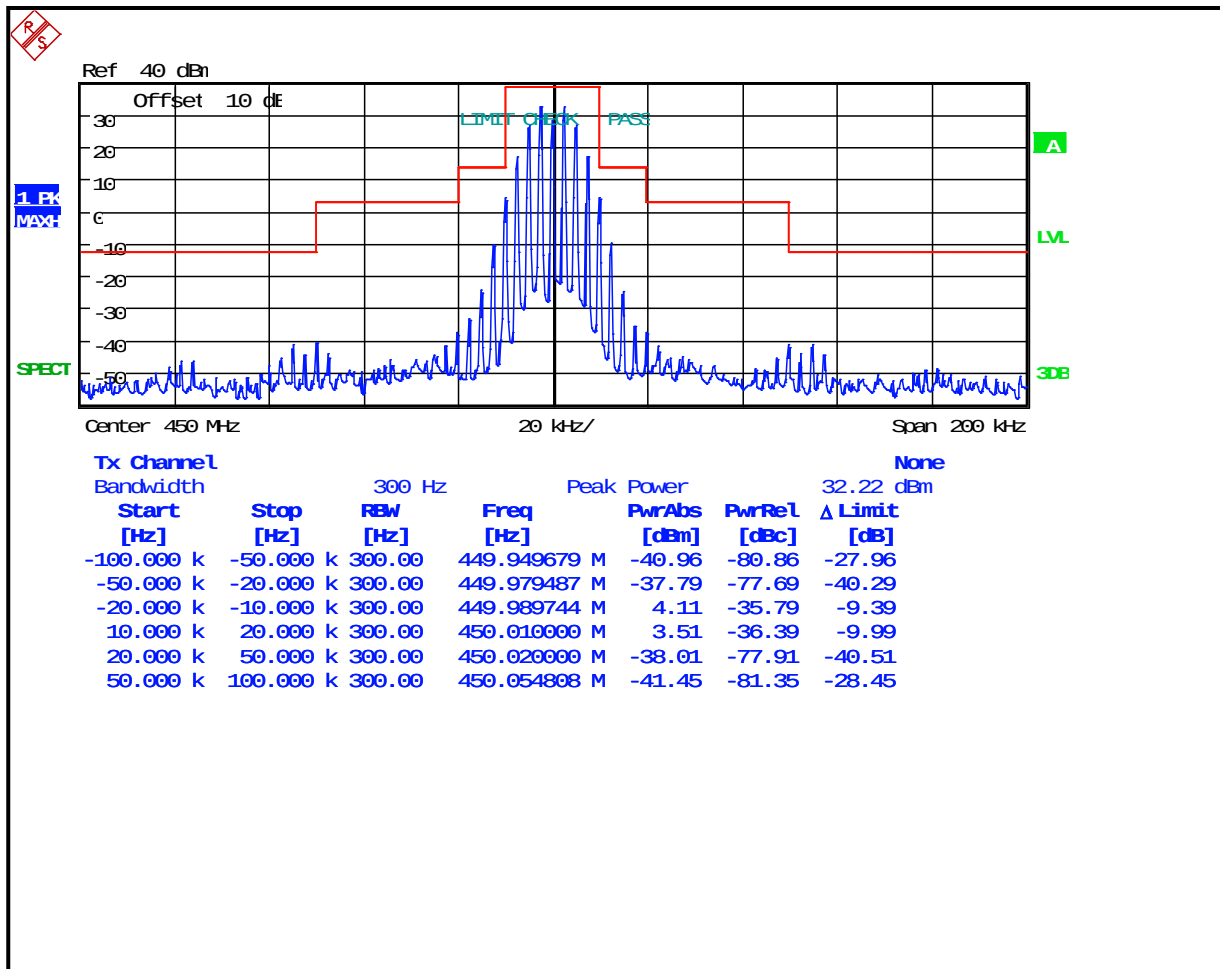
Plot 8-28: Occupied Bandwidth – 174 MHz; 2-Level FSK 9600; NB EDACS; (Mask D)



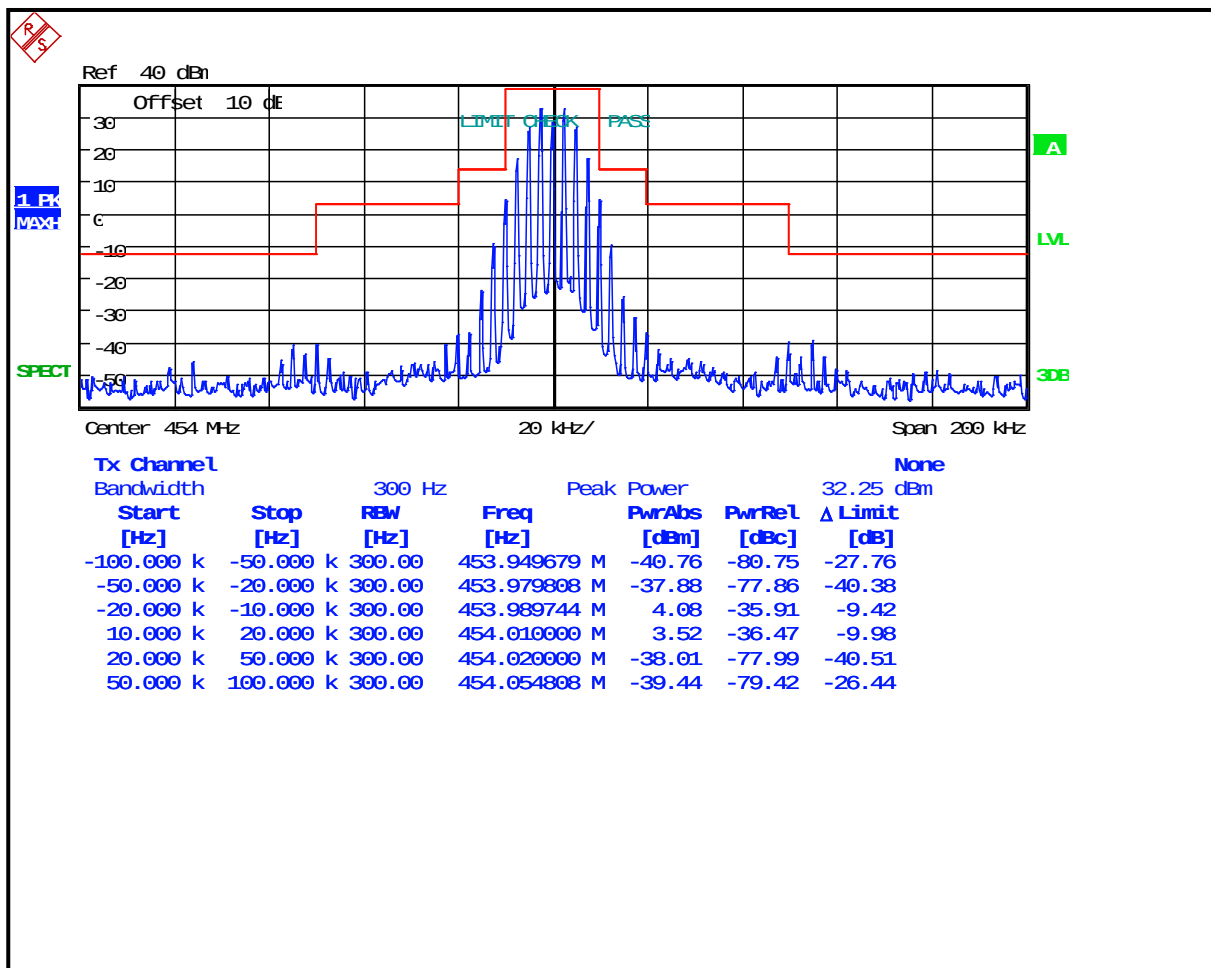
Plot 8-29: Occupied Bandwidth – 430 MHz; Wideband Analog; Mask B



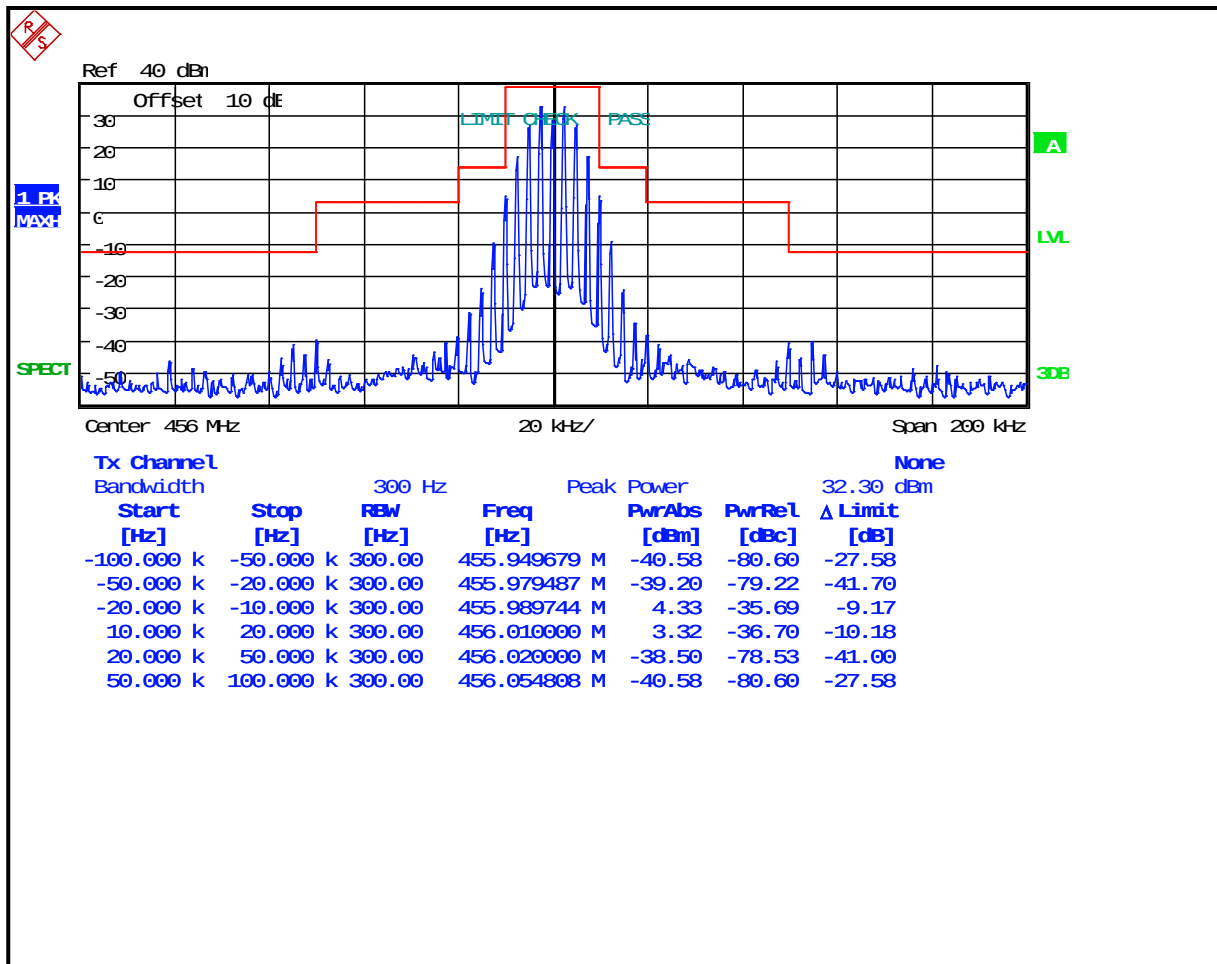
Plot 8-30: Occupied Bandwidth – 450 MHz; Wideband Analog; Mask B



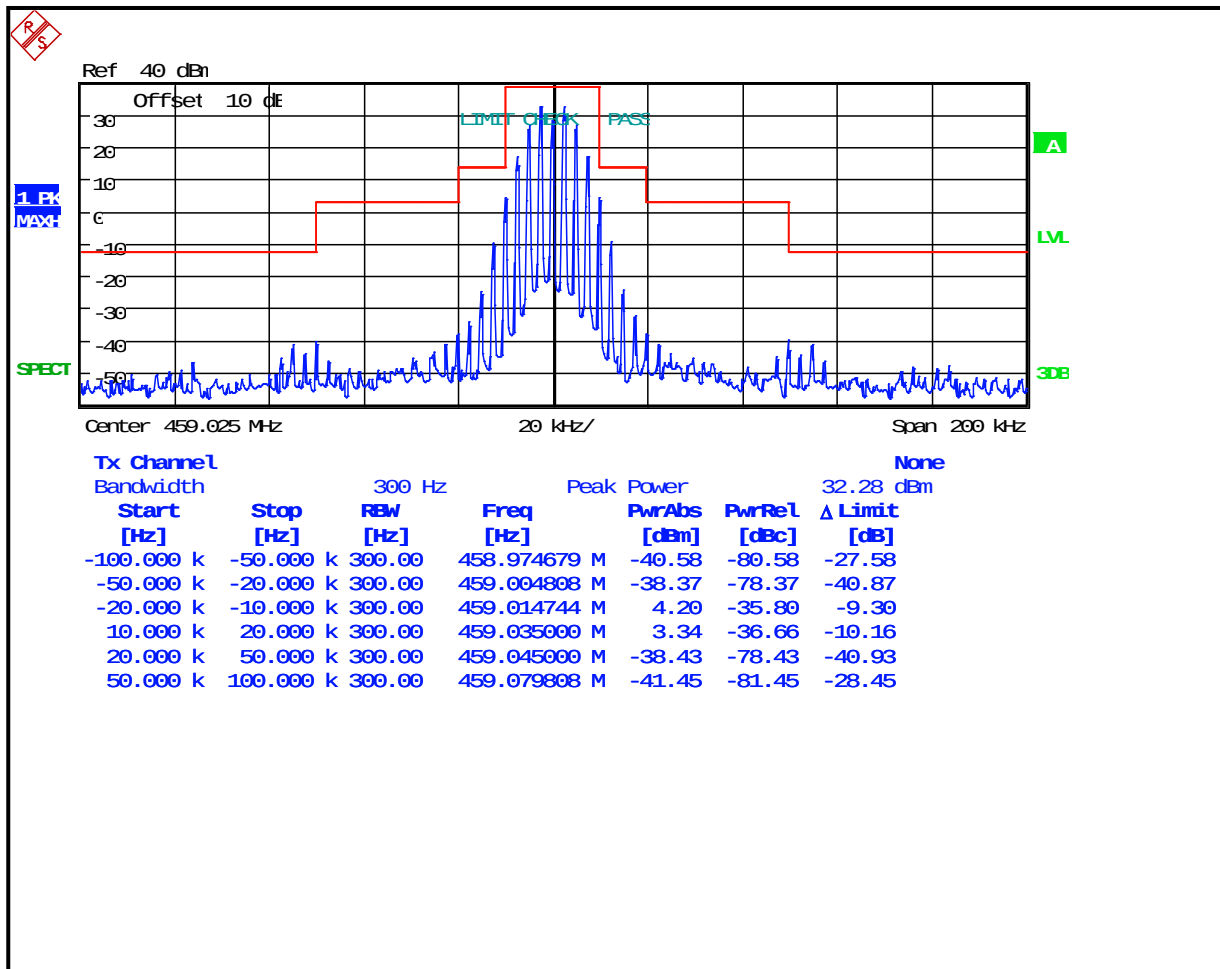
Plot 8-31: Occupied Bandwidth – 454 MHz; Wideband Analog; Mask B



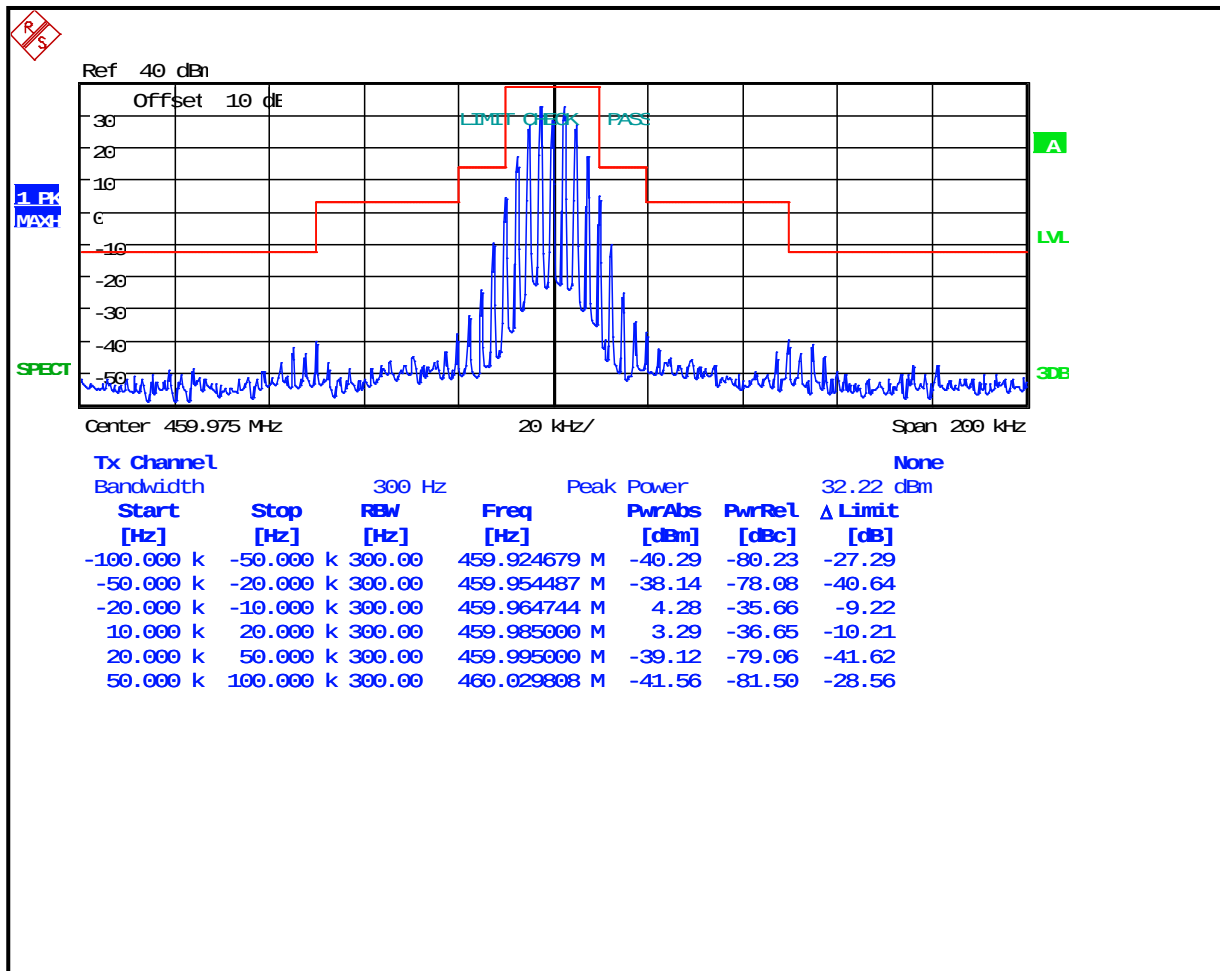
Plot 8-32: Occupied Bandwidth – 456 MHz; Wideband Analog; Mask B



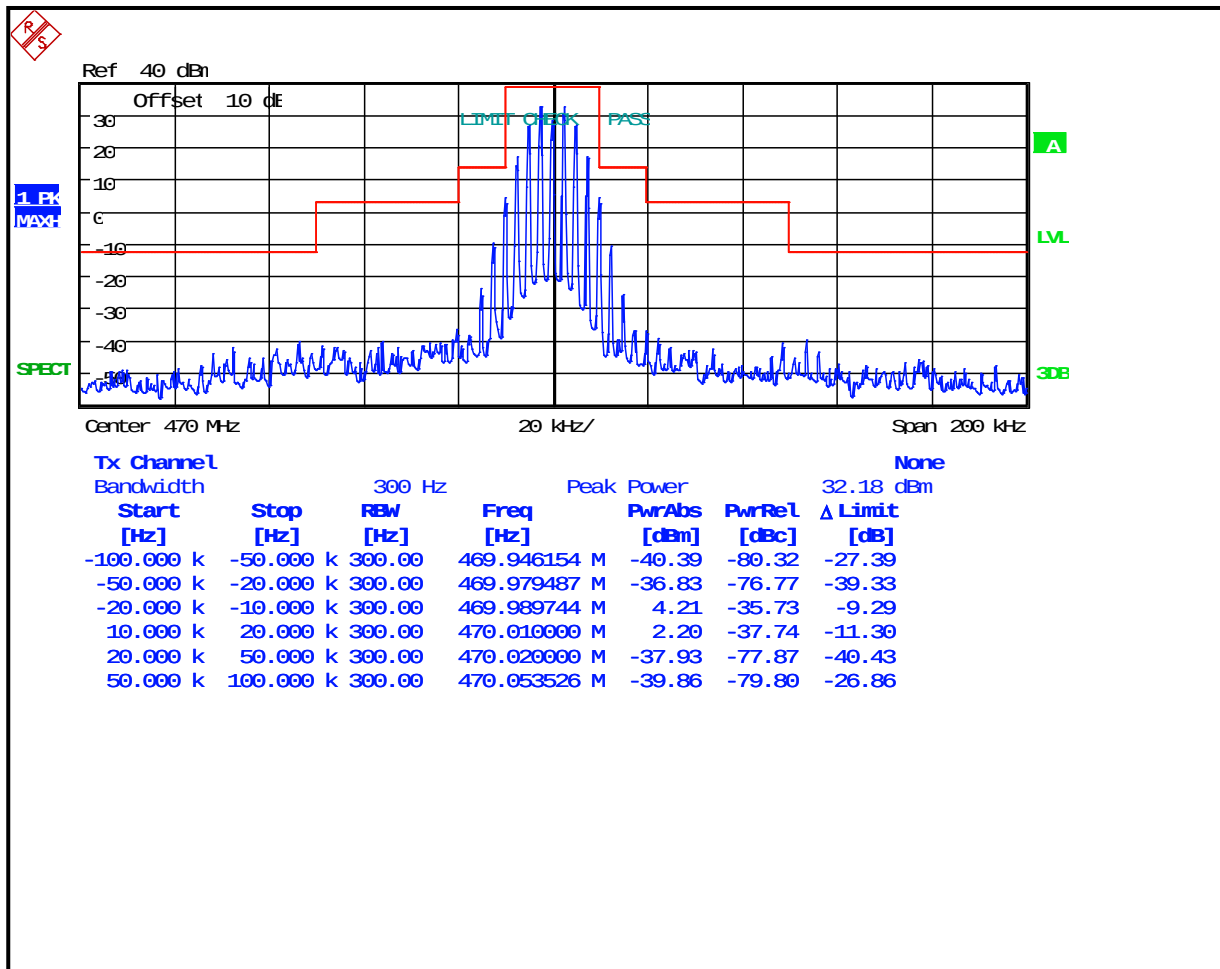
Plot 8-33: Occupied Bandwidth – 459.025 MHz; Wideband Analog; Mask B



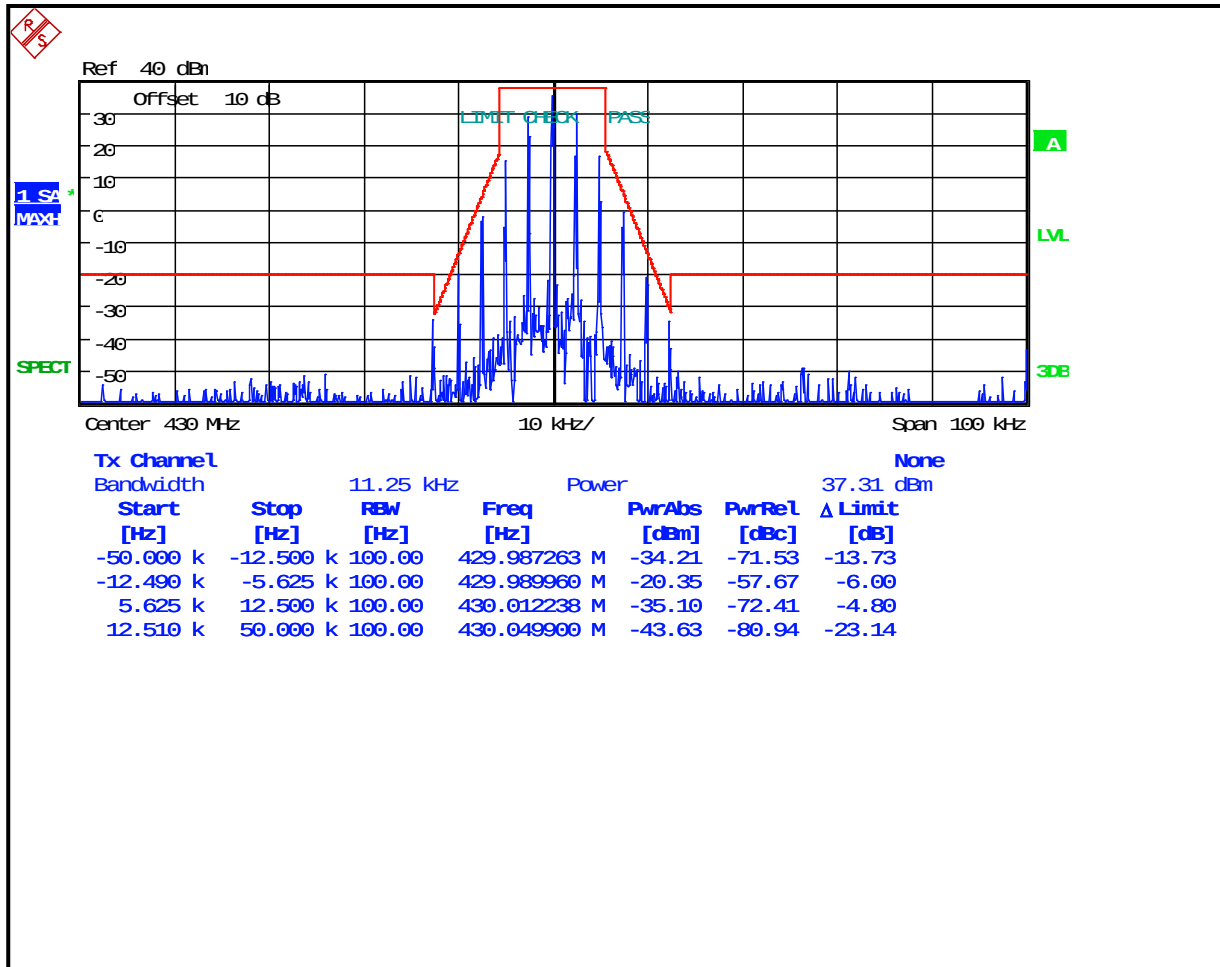
Plot 8-34: Occupied Bandwidth – 459.975MHz; Wideband Analog; Mask B



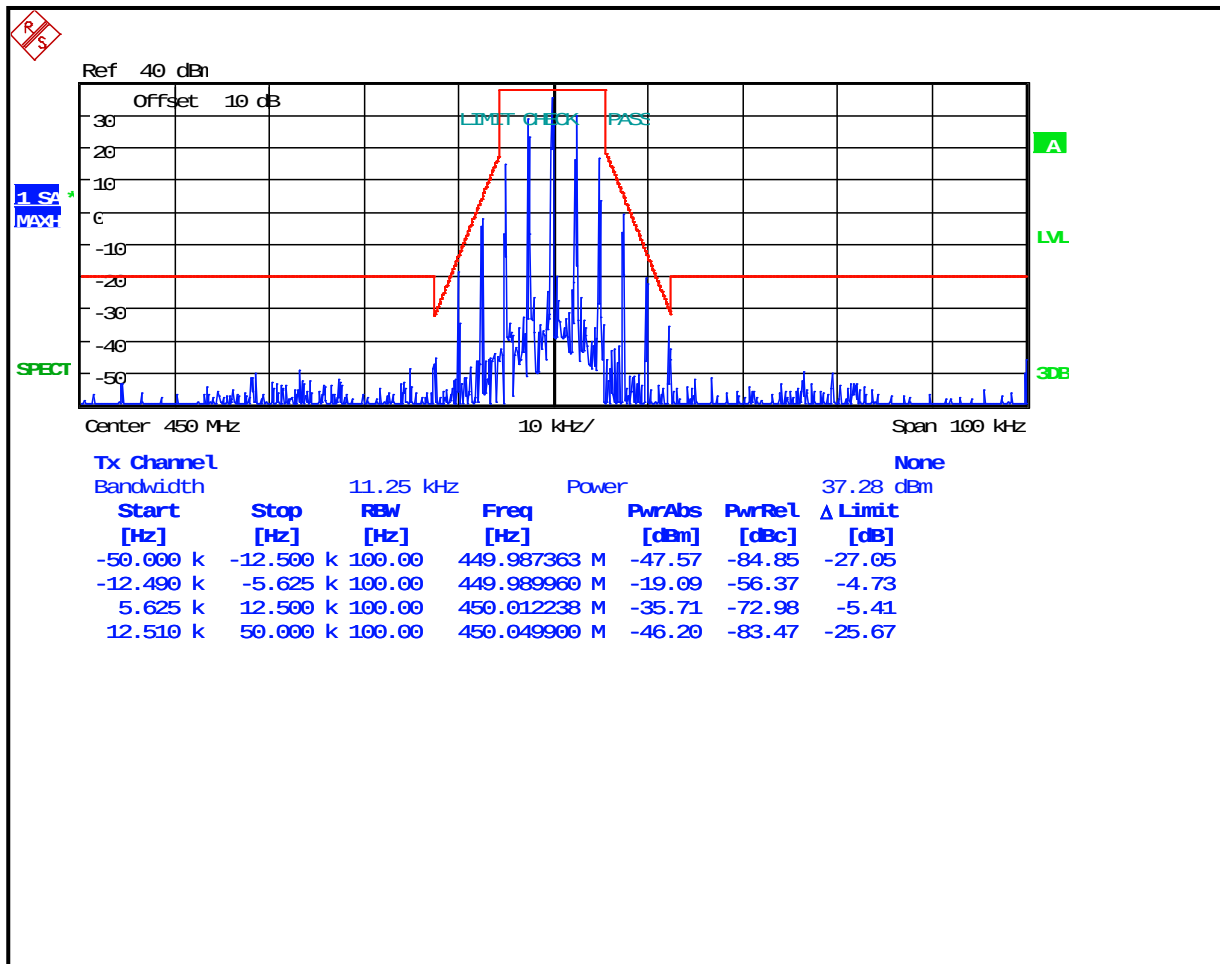
Plot 8-35: Occupied Bandwidth – 470 MHz; Wideband Analog; Mask B



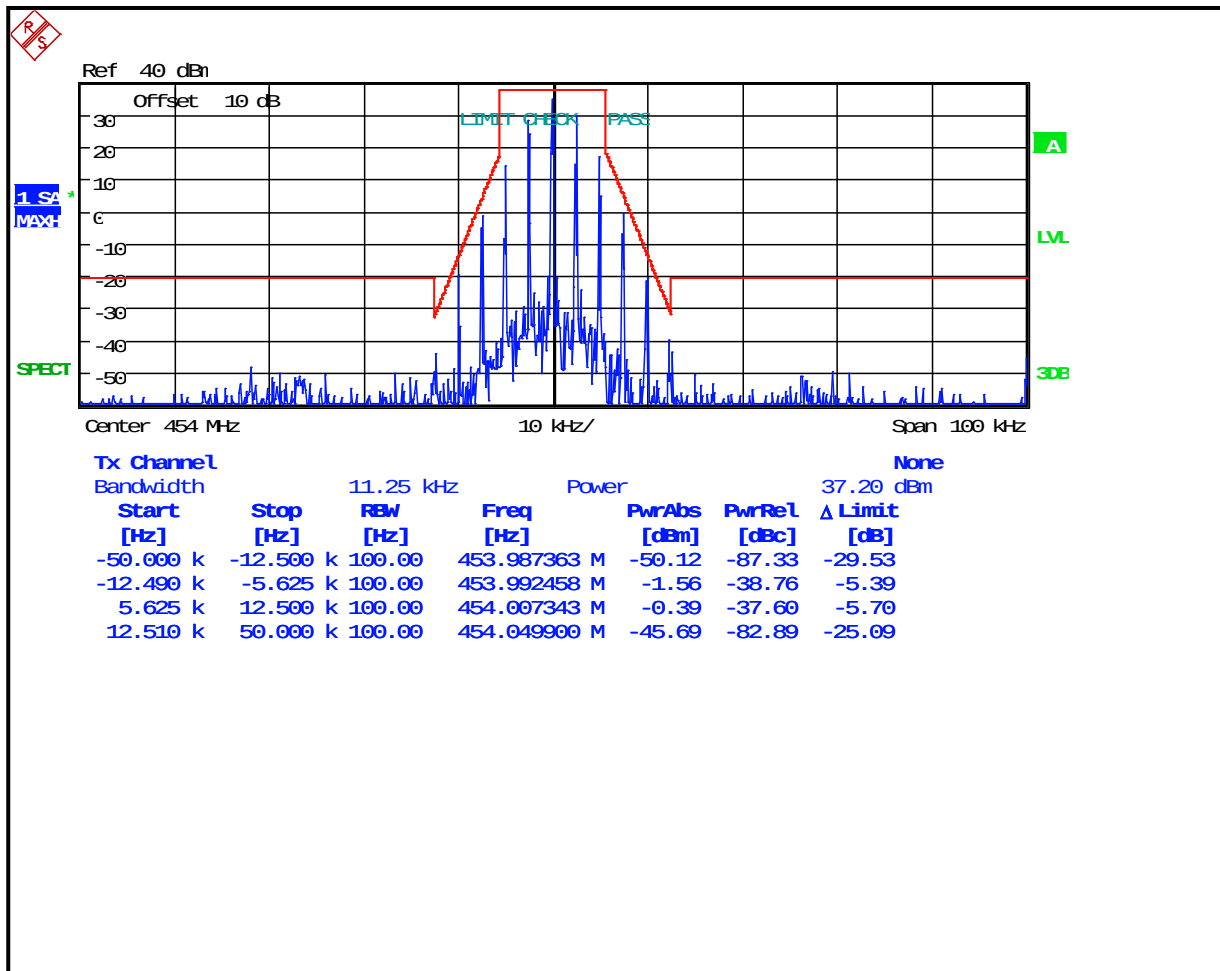
Plot 8-36: Occupied Bandwidth – 430 MHz; Narrowband Analog; Mask D



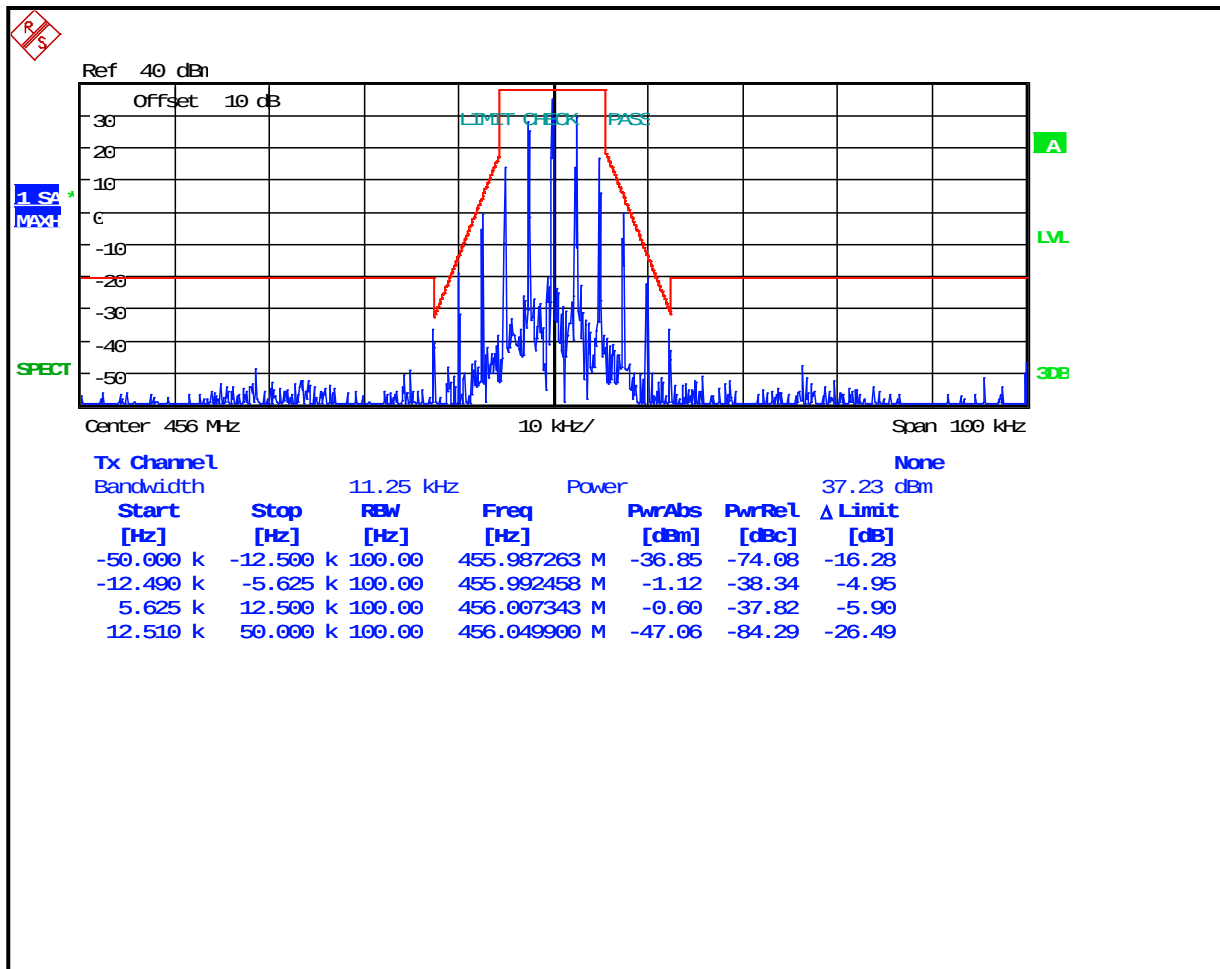
Plot 8-37: Occupied Bandwidth – 450 MHz; Narrowband Analog; Mask D



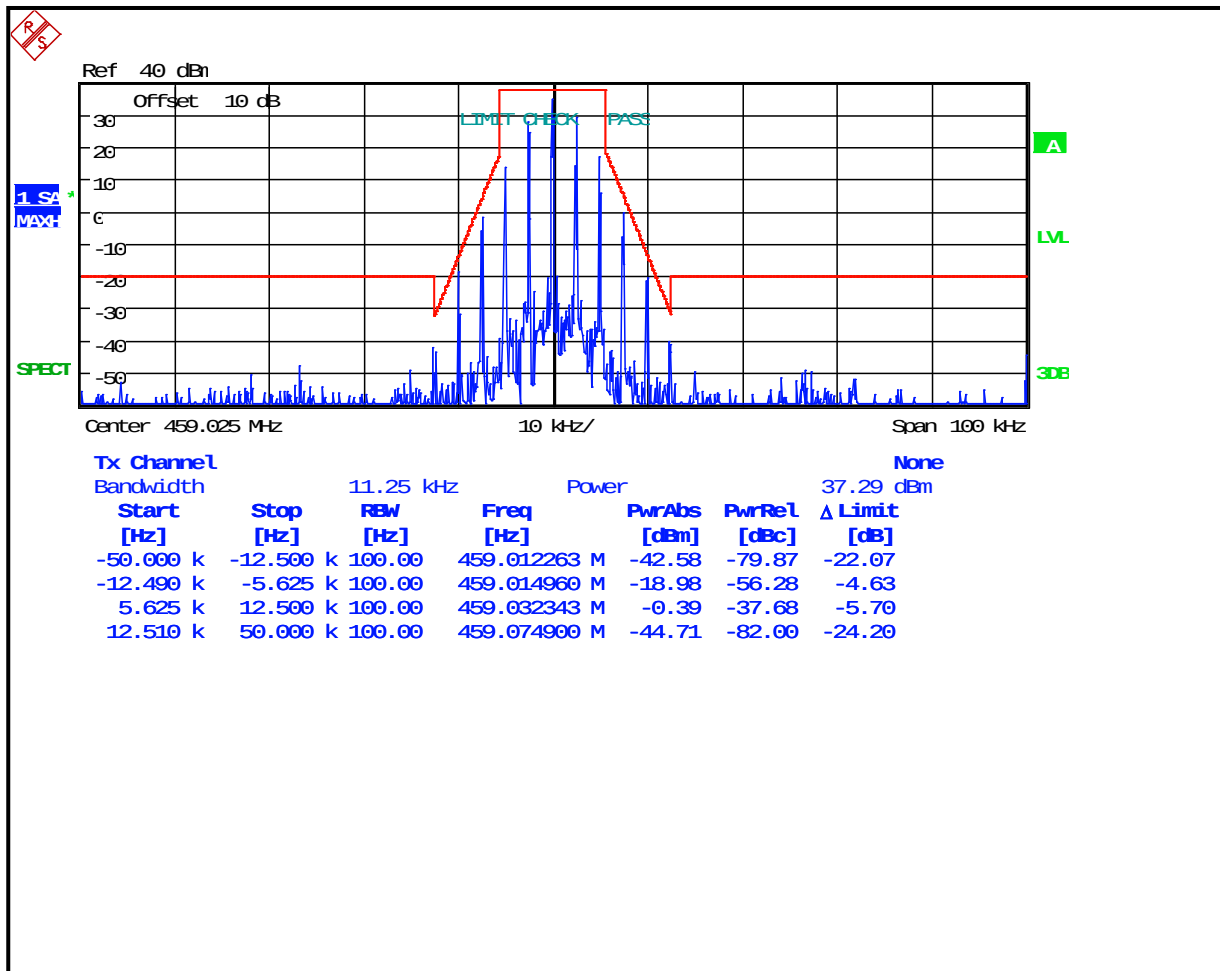
Plot 8-38: Occupied Bandwidth – 454 MHz; Narrowband Analog; Mask D



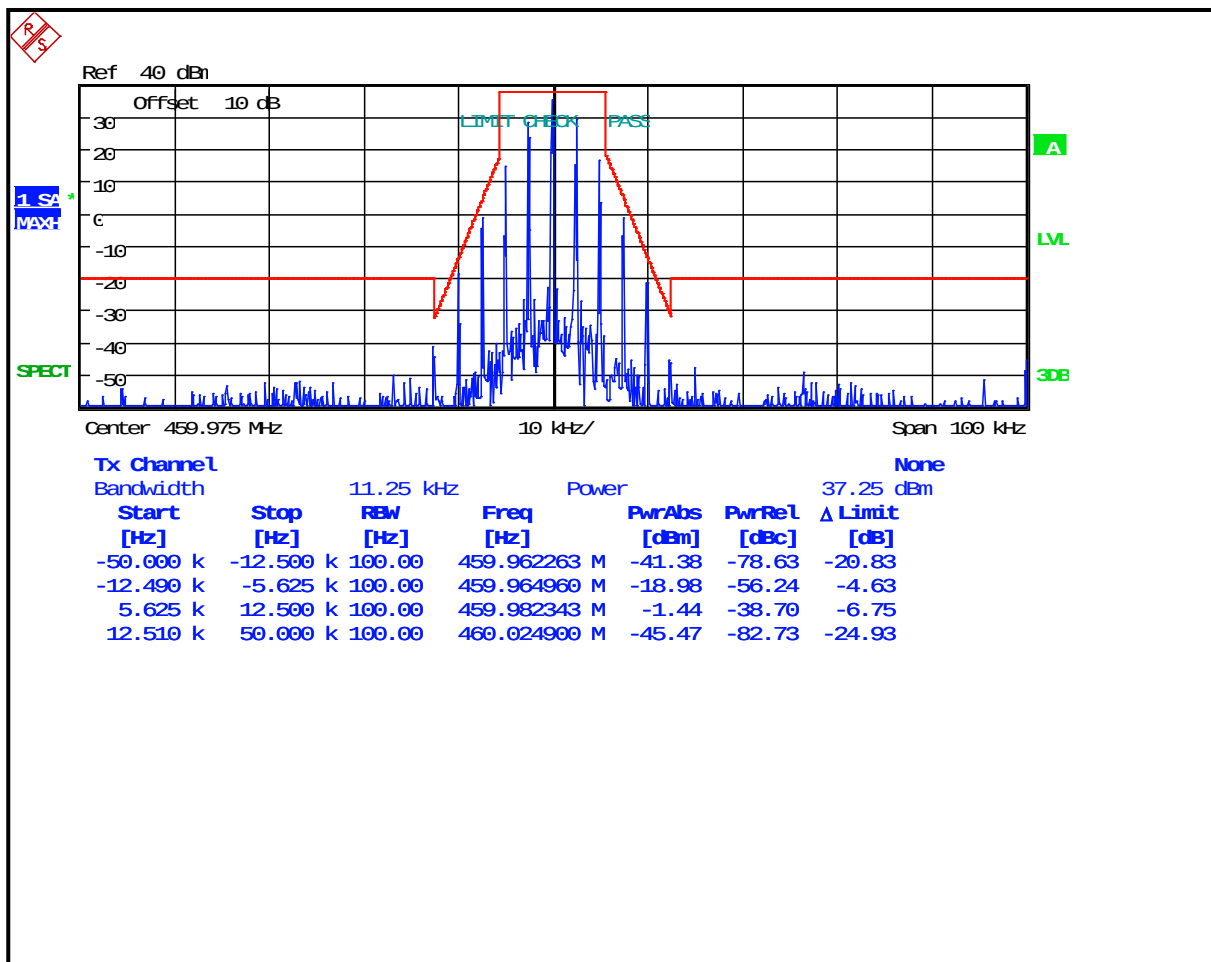
Plot 8-39: Occupied Bandwidth – 456 MHz; Narrowband Analog; Mask D



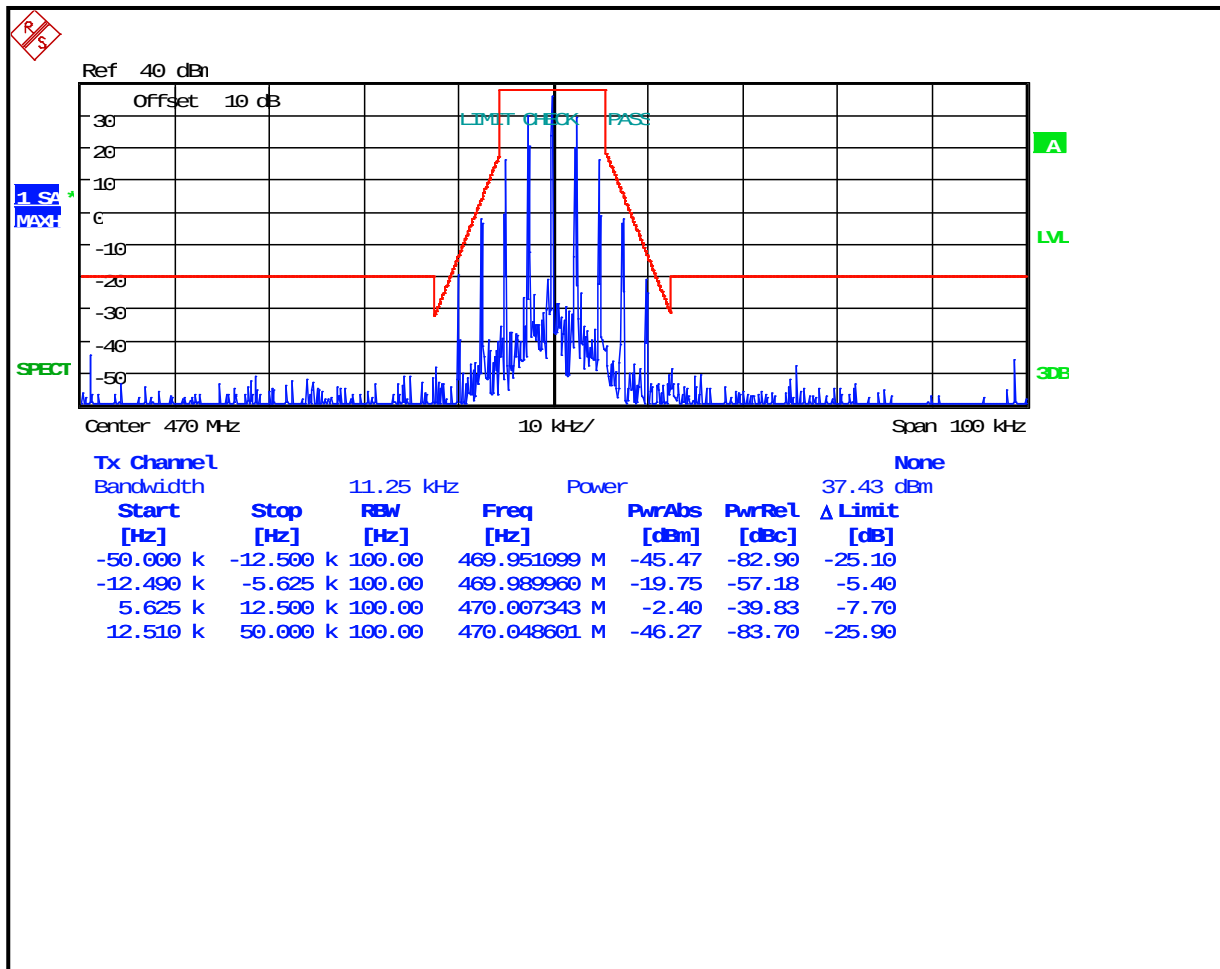
Plot 8-40: Occupied Bandwidth – 459.025 MHz; Narrowband Analog; Mask D



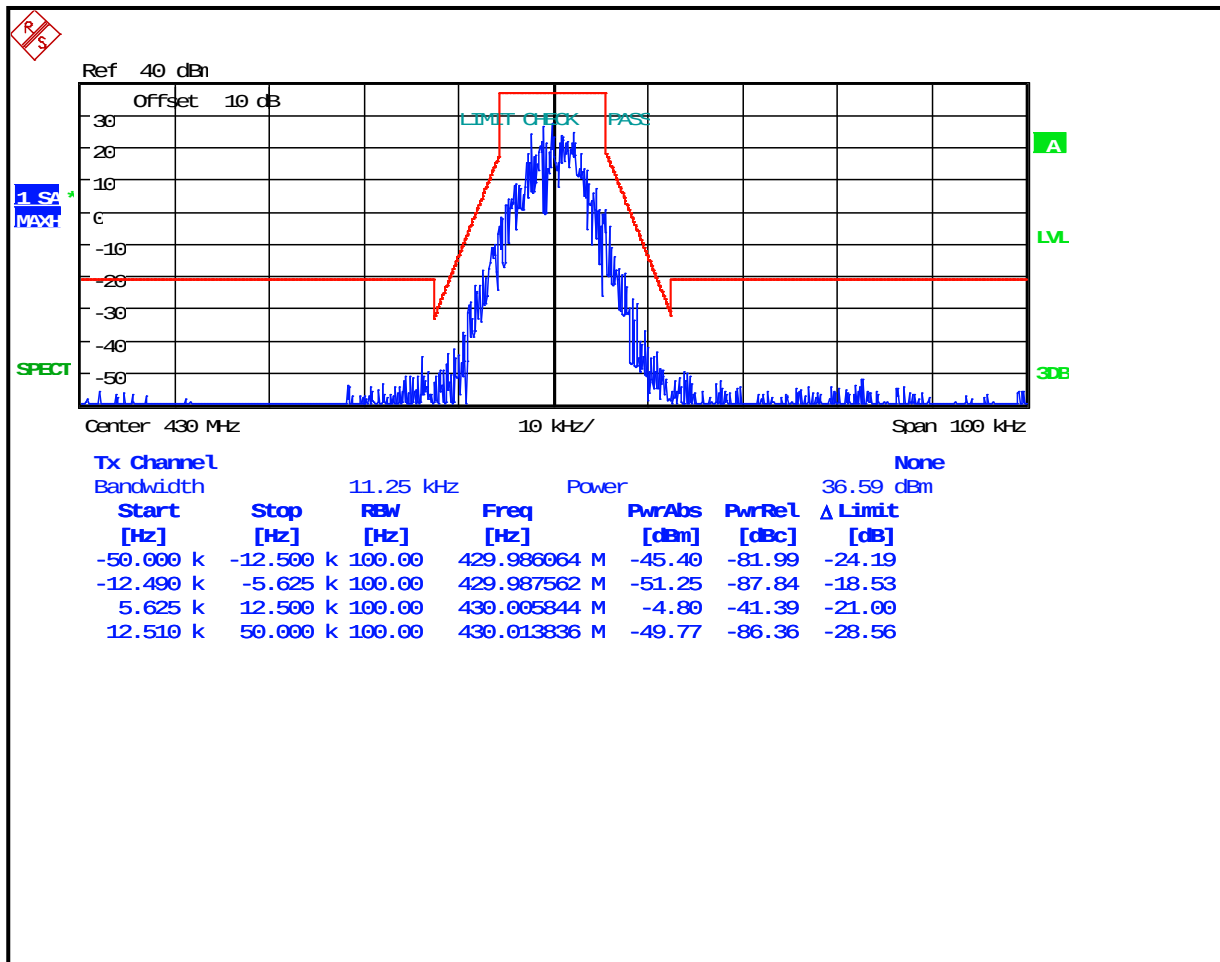
Plot 8-41: Occupied Bandwidth – 459.975 MHz; Narrowband Analog; Mask D



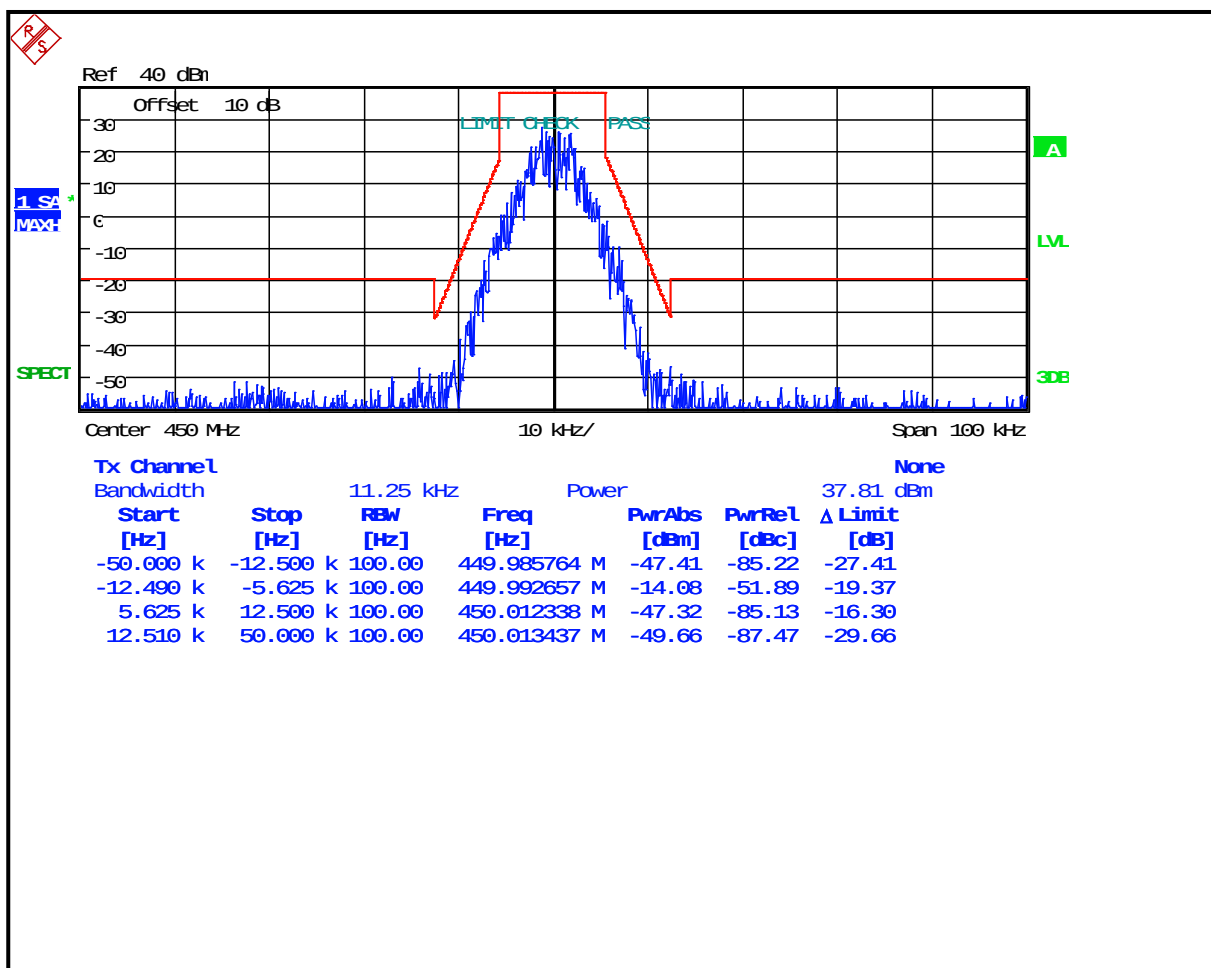
Plot 8-42: Occupied Bandwidth – 470 MHz; Narrowband Analog; Mask D



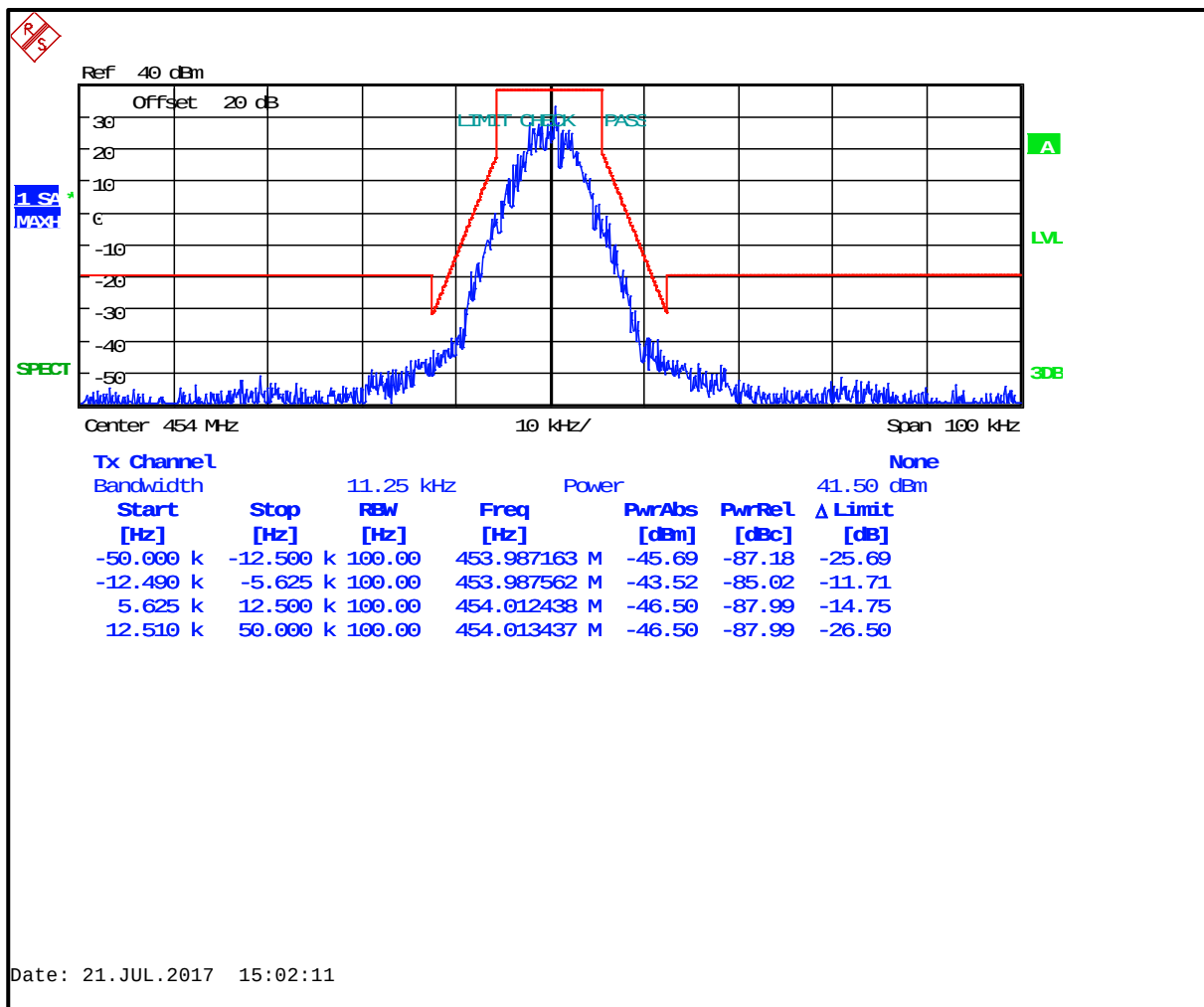
Plot 8-43: Occupied Bandwidth – 430 MHz; P25; Mask D



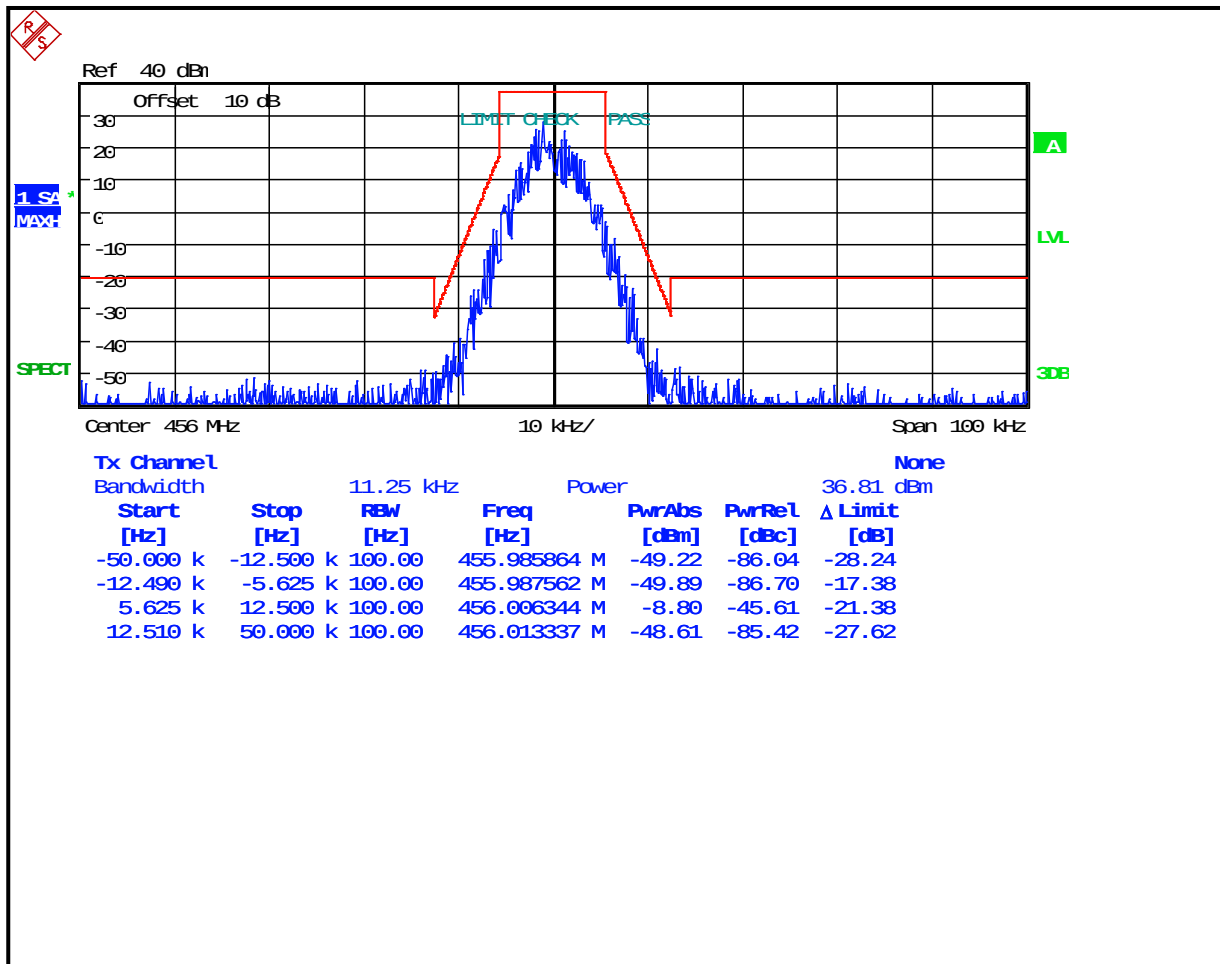
Plot 8-44: Occupied Bandwidth – 450 MHz; P25; Mask D



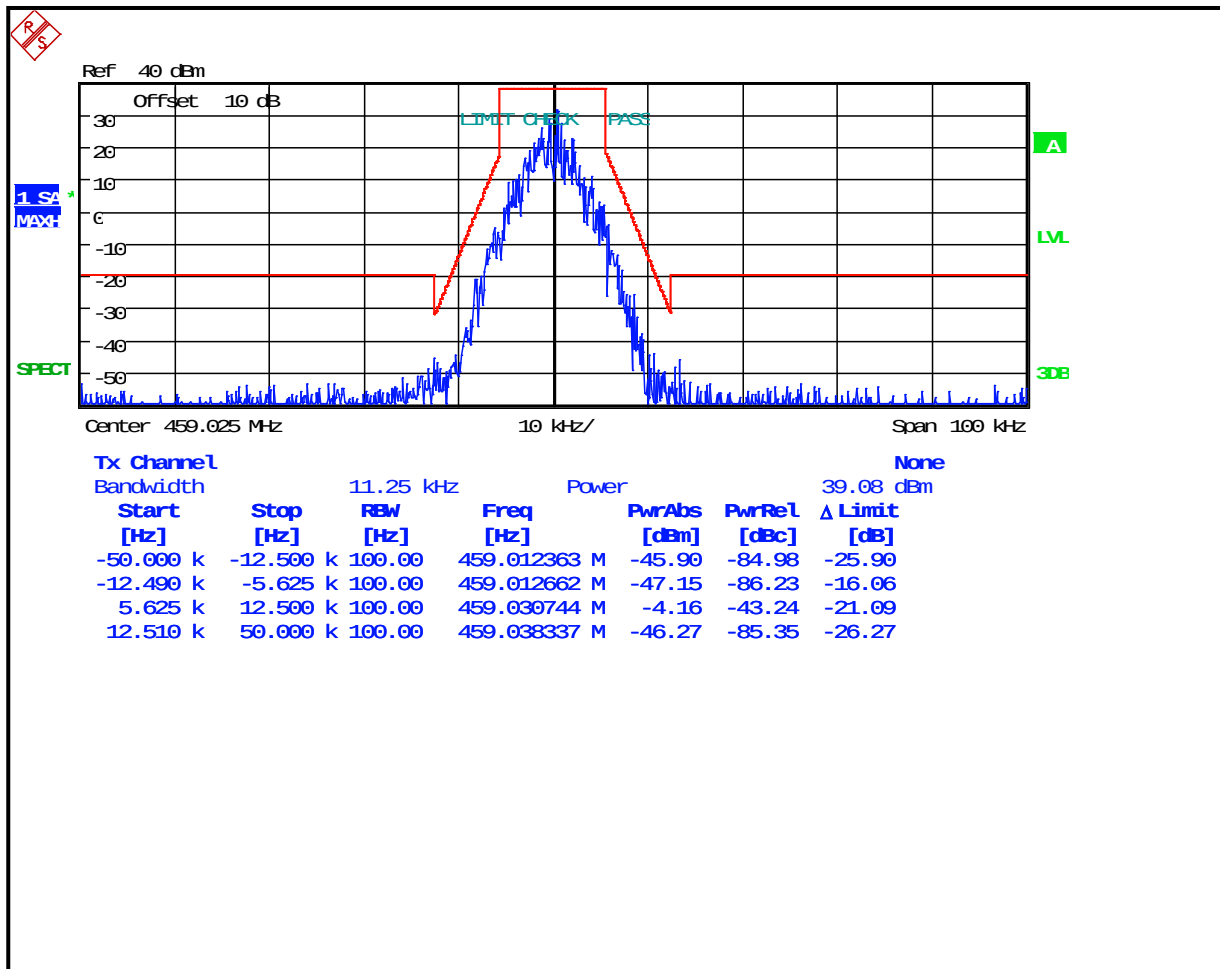
Plot 8-45: Occupied Bandwidth – 454 MHz; P25; Mask D



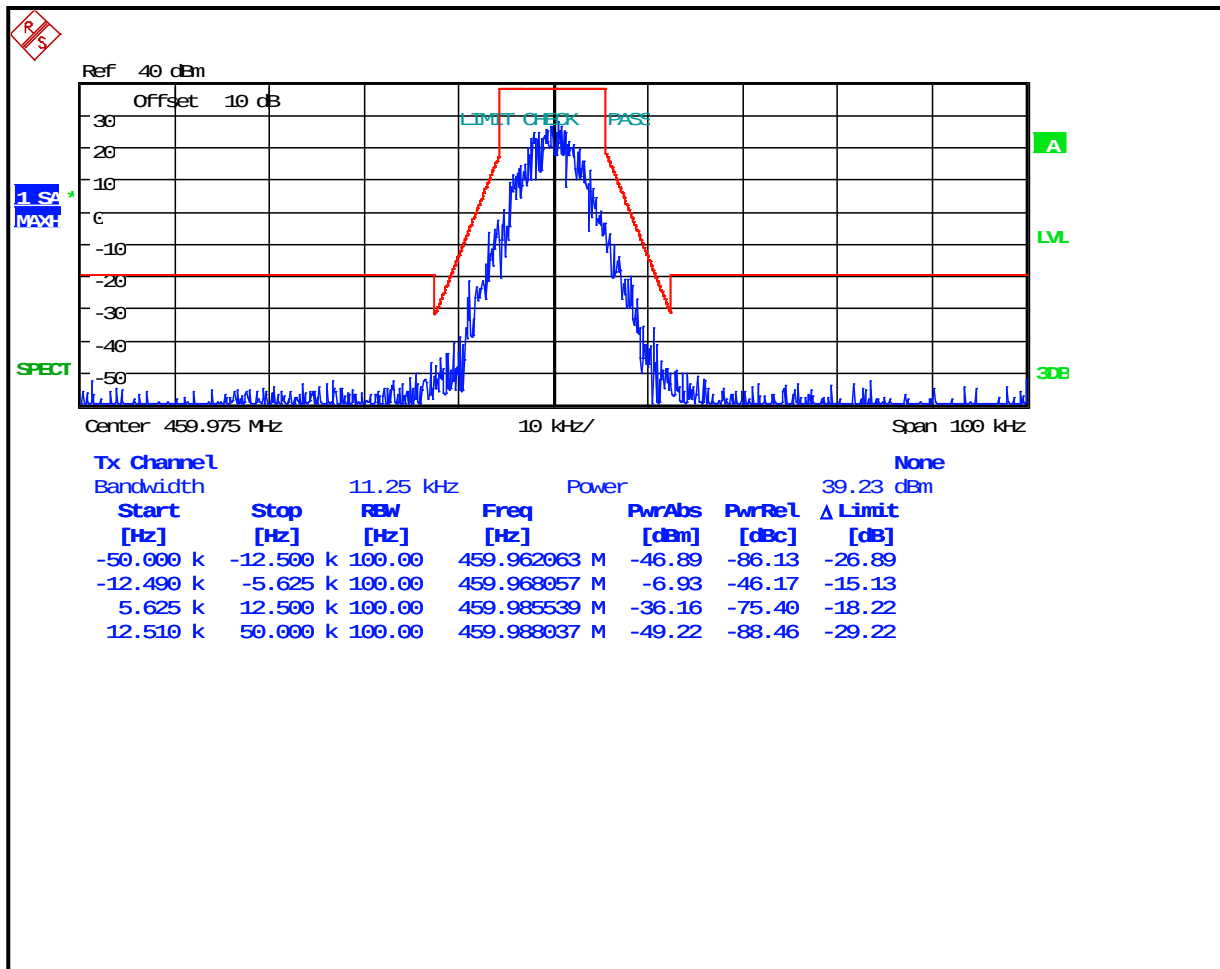
Plot 8-46: Occupied Bandwidth – 456MHz; P25; Mask D



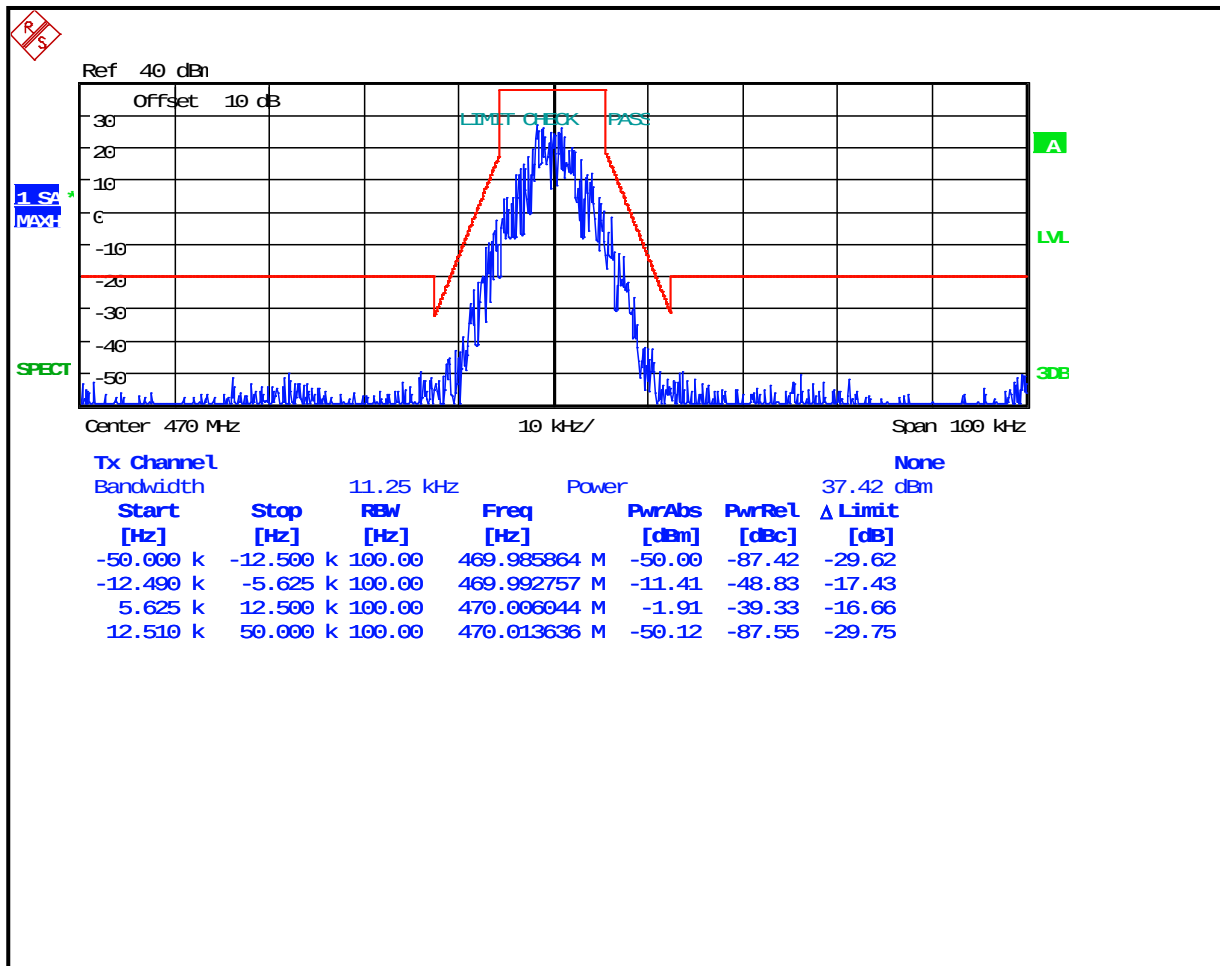
Plot 8-47: Occupied Bandwidth – 459.025 MHz; P25; Mask D



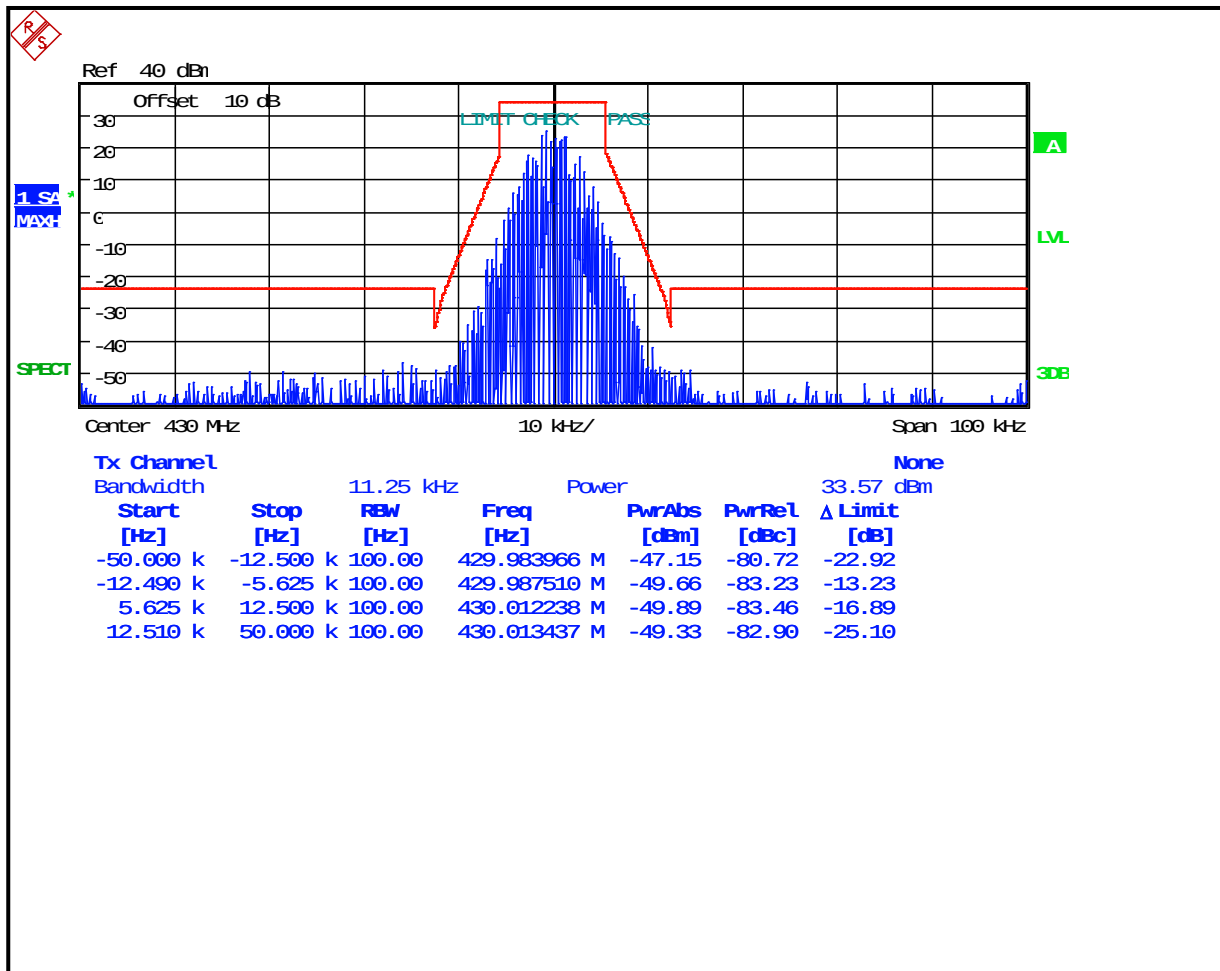
Plot 8-48: Occupied Bandwidth – 459.975 MHz; P25; Mask D



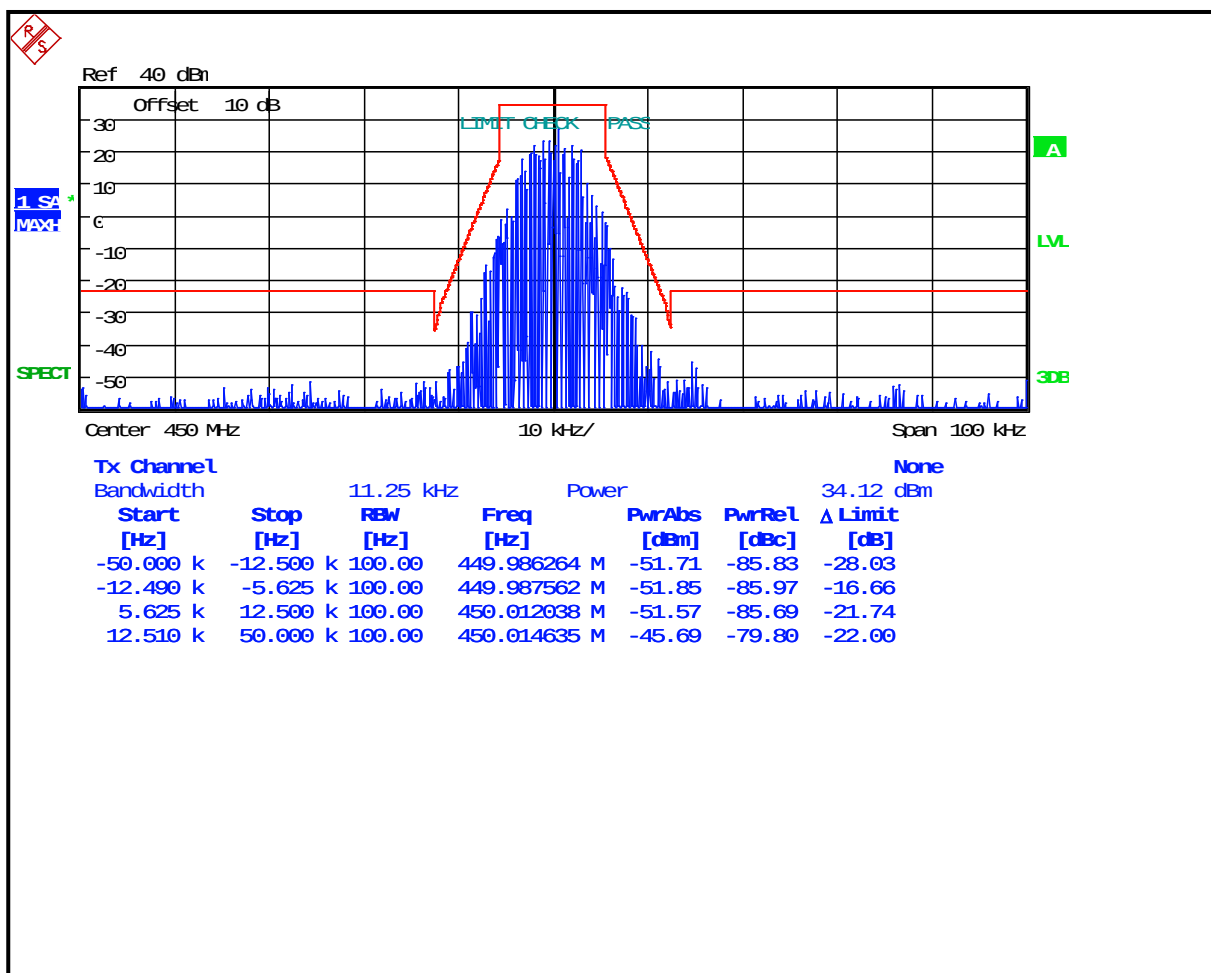
Plot 8-49: Occupied Bandwidth – 470 MHz; P25; Mask D



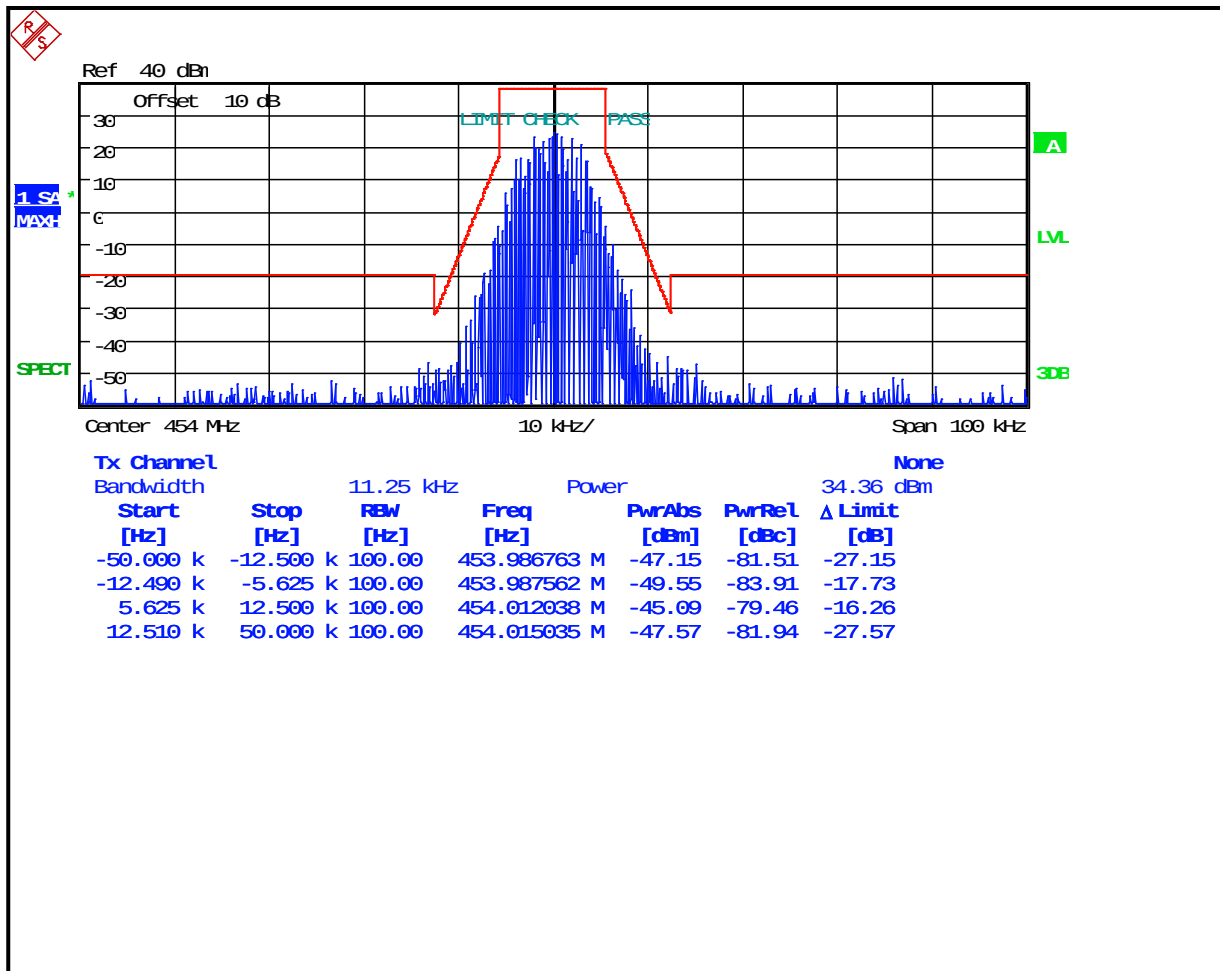
Plot 8-50: Occupied Bandwidth – 430 MHz; CPM TDMA; Mask D



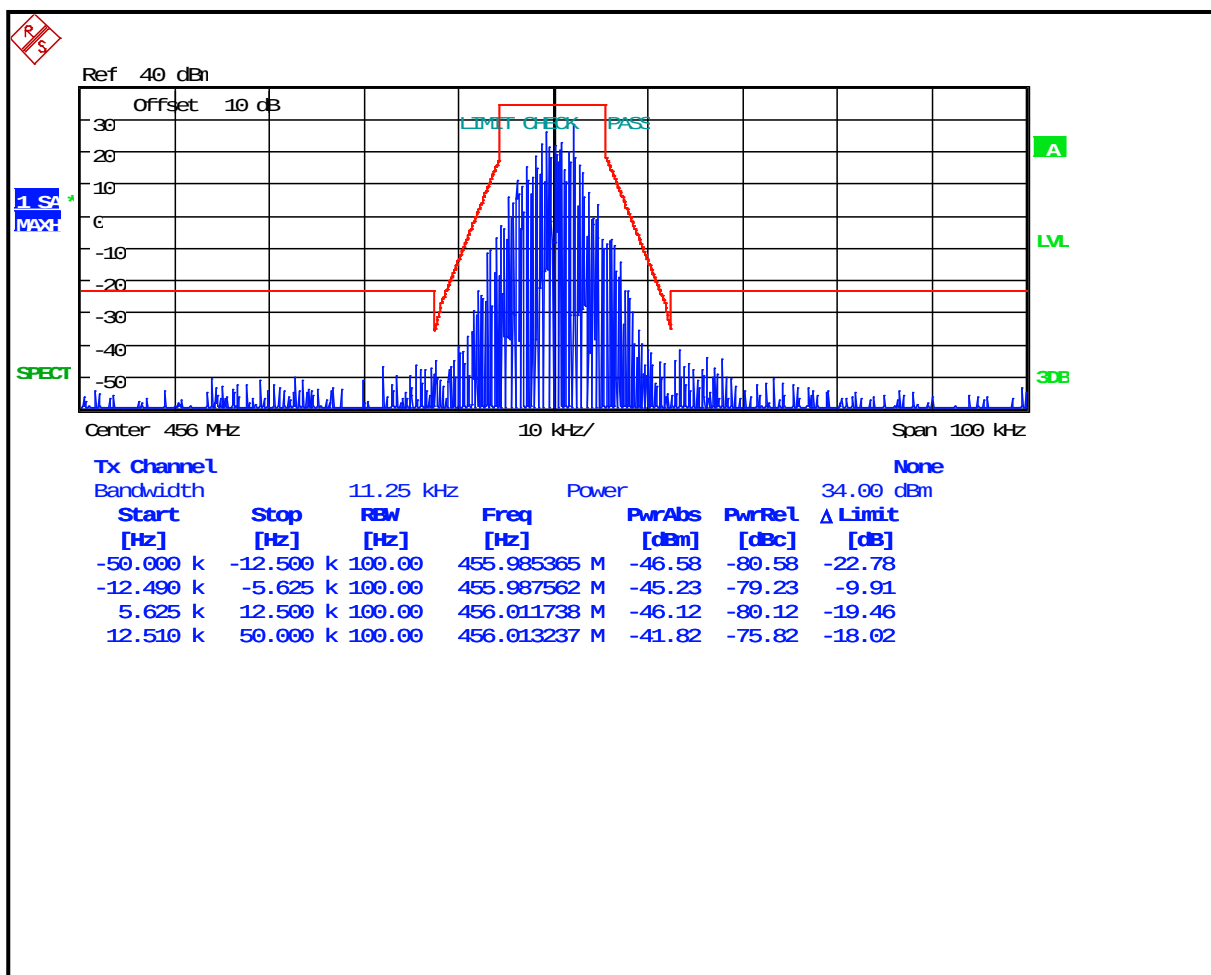
Plot 8-51: Occupied Bandwidth – 450 MHz; CPM TDMA; Mask D



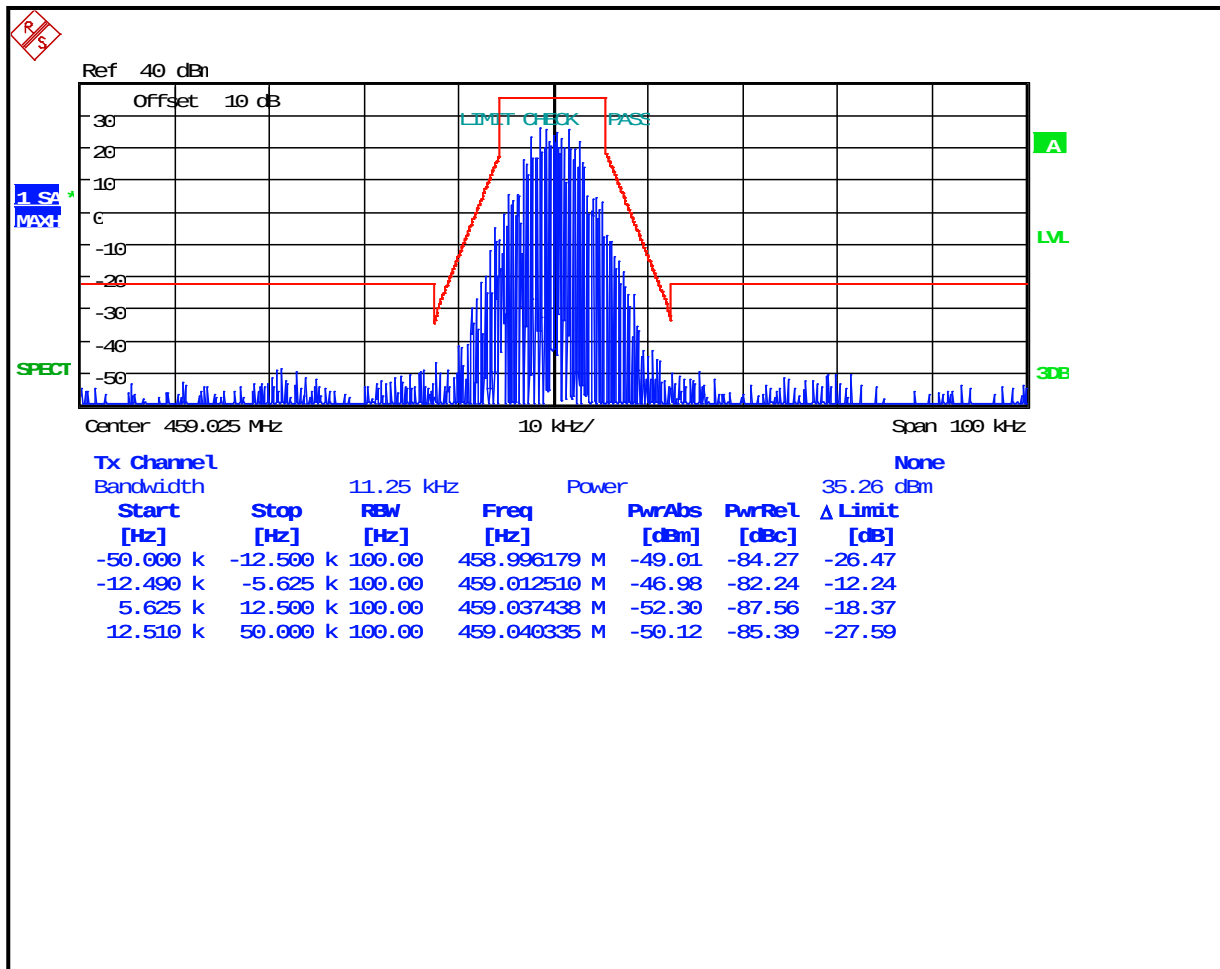
Plot 8-52: Occupied Bandwidth – 454 MHz; CPM TDMA; Mask D



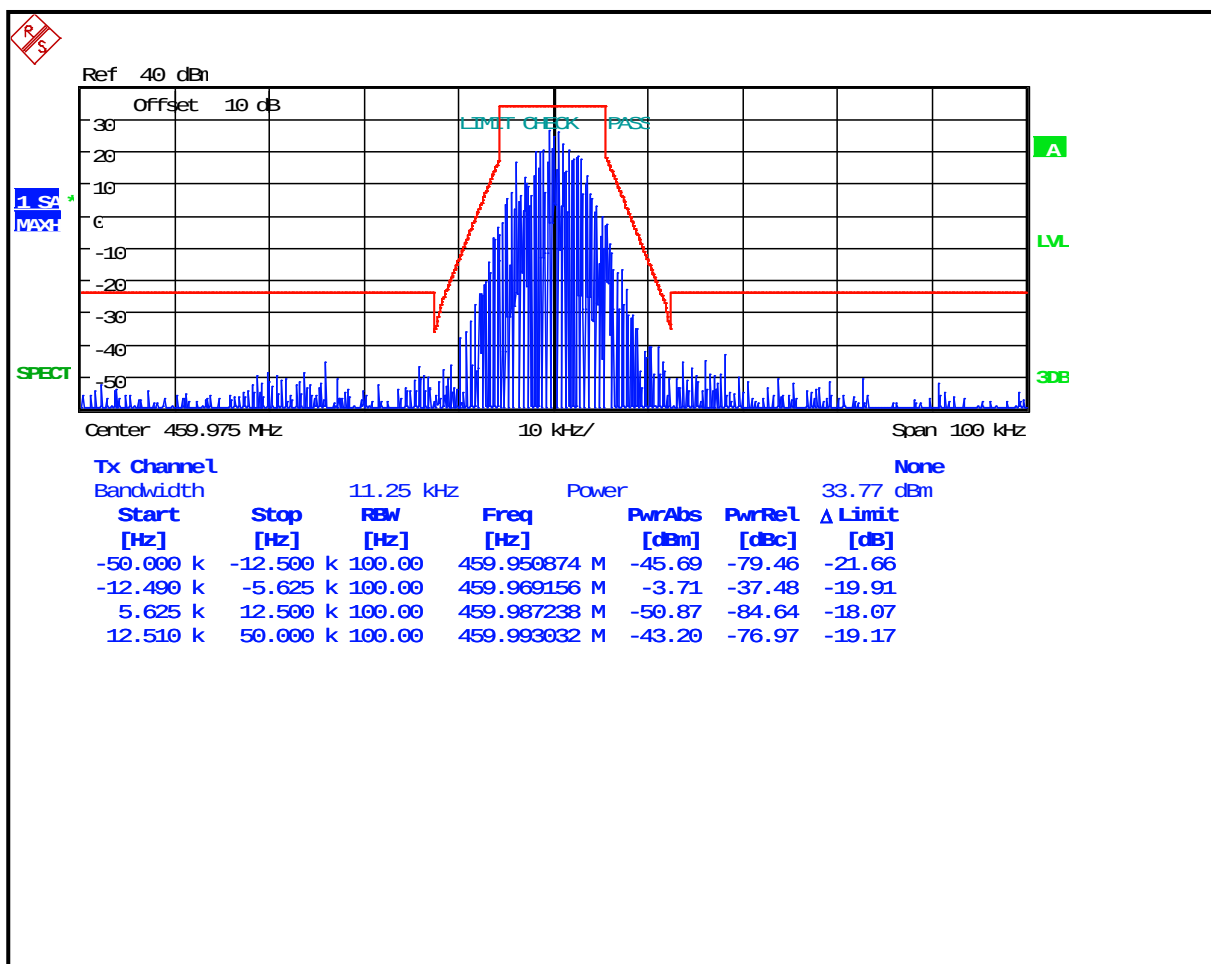
Plot 8-53: Occupied Bandwidth – 456MHz; CPM TDMA; Mask D



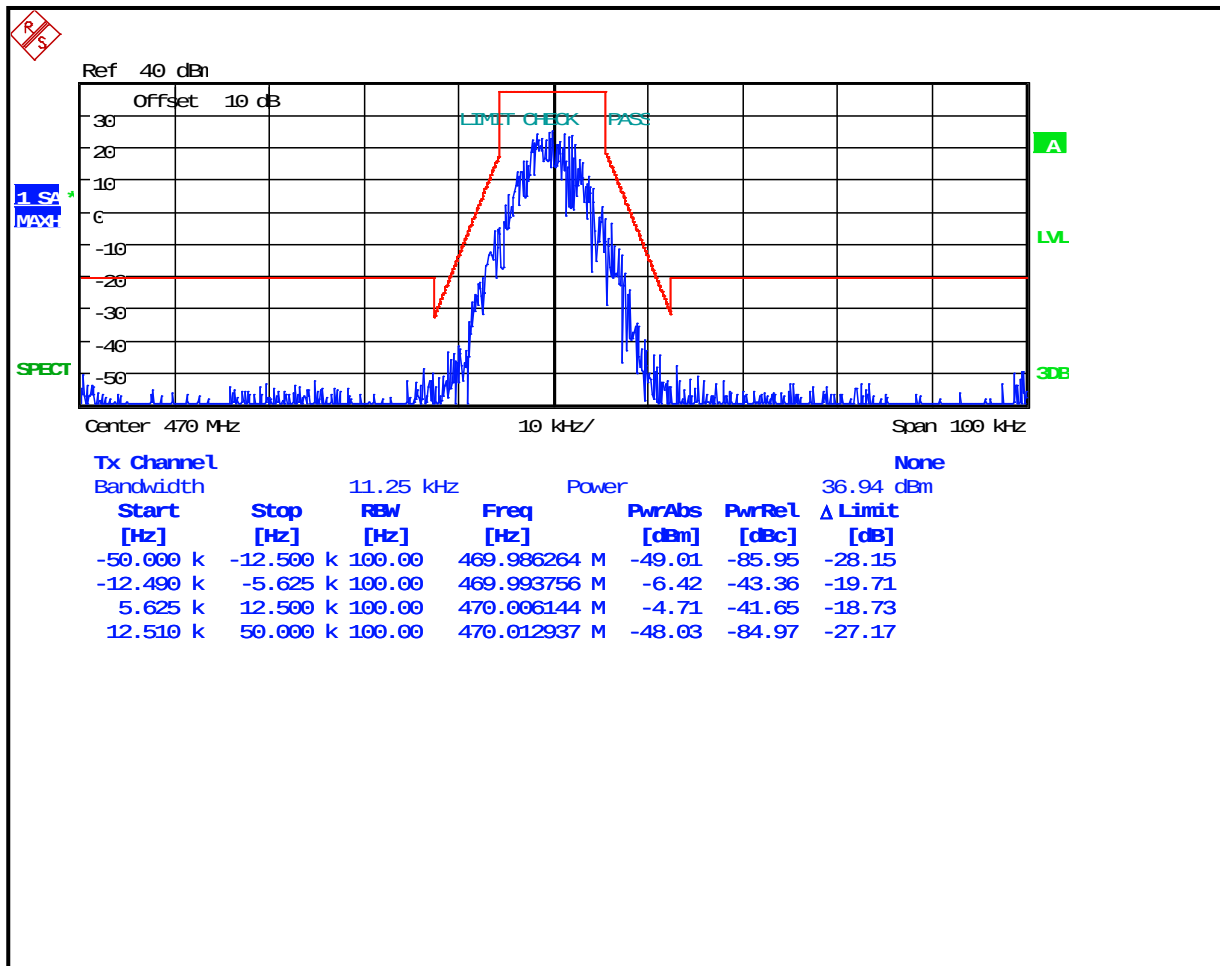
Plot 8-54: Occupied Bandwidth – 459.025 MHz; CPM TDMA; Mask D



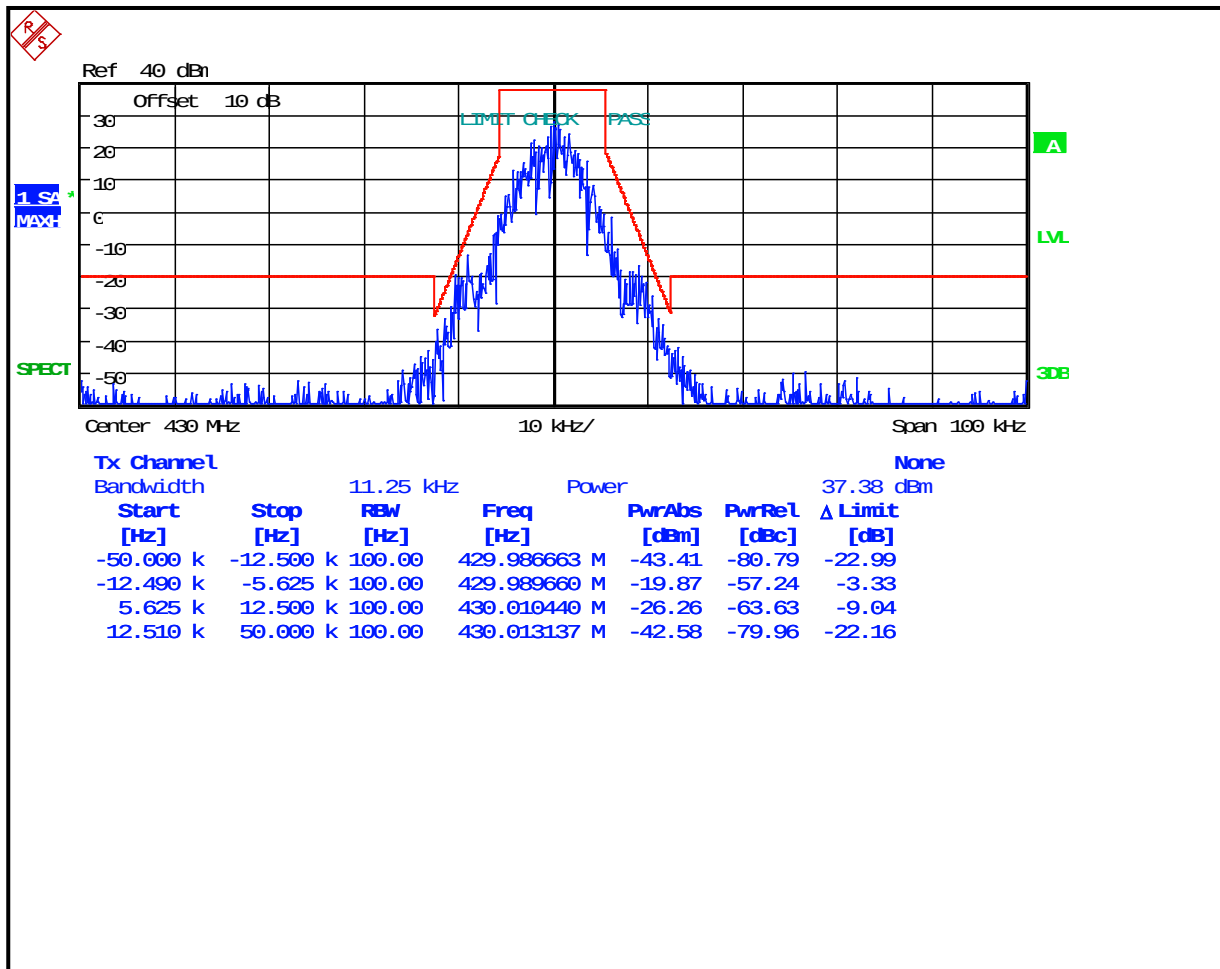
Plot 8-55: Occupied Bandwidth – 459.975 MHz; CPM TDMA; Mask D



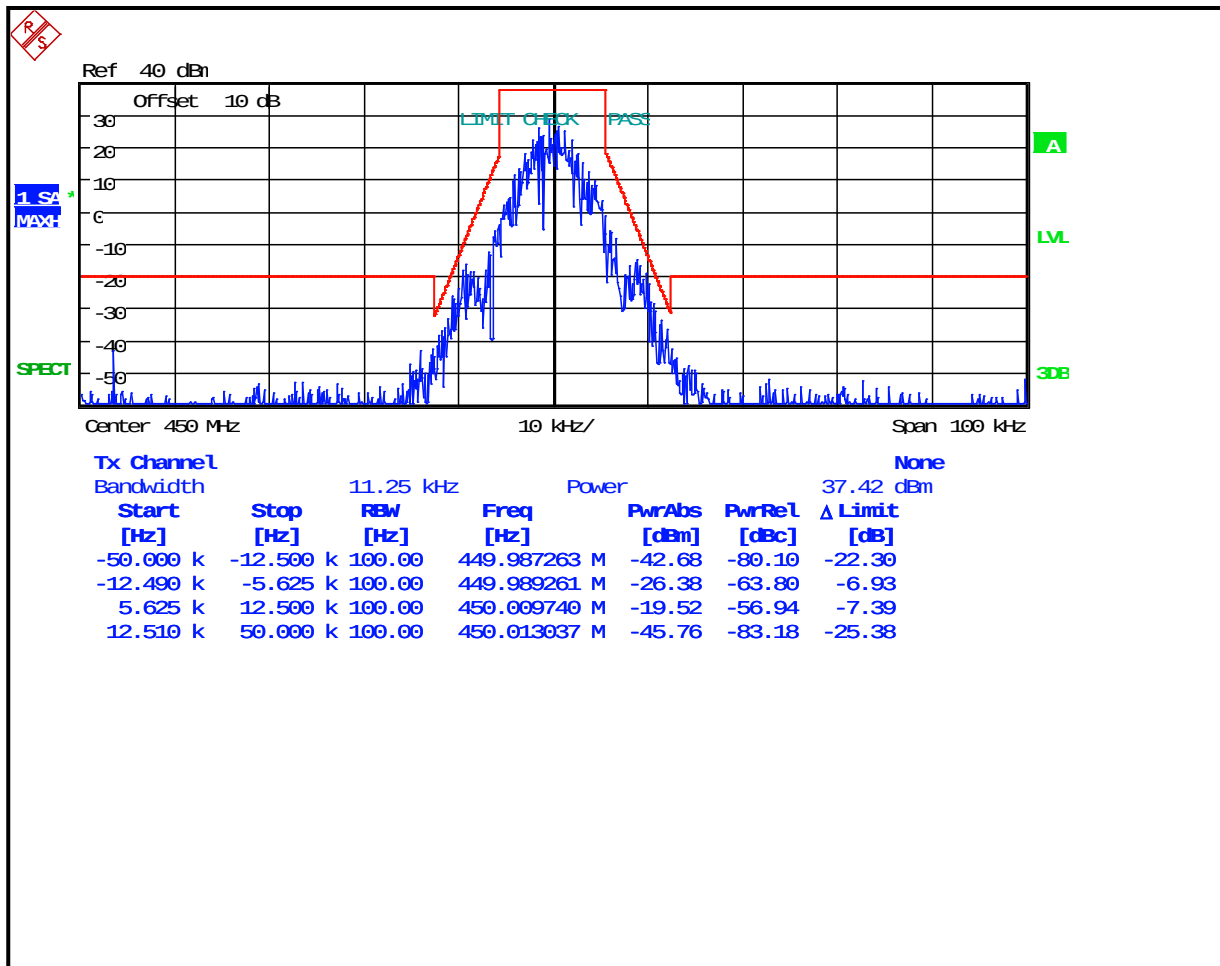
Plot 8-56: Occupied Bandwidth – 470 MHz; CPM TDMA; Mask D



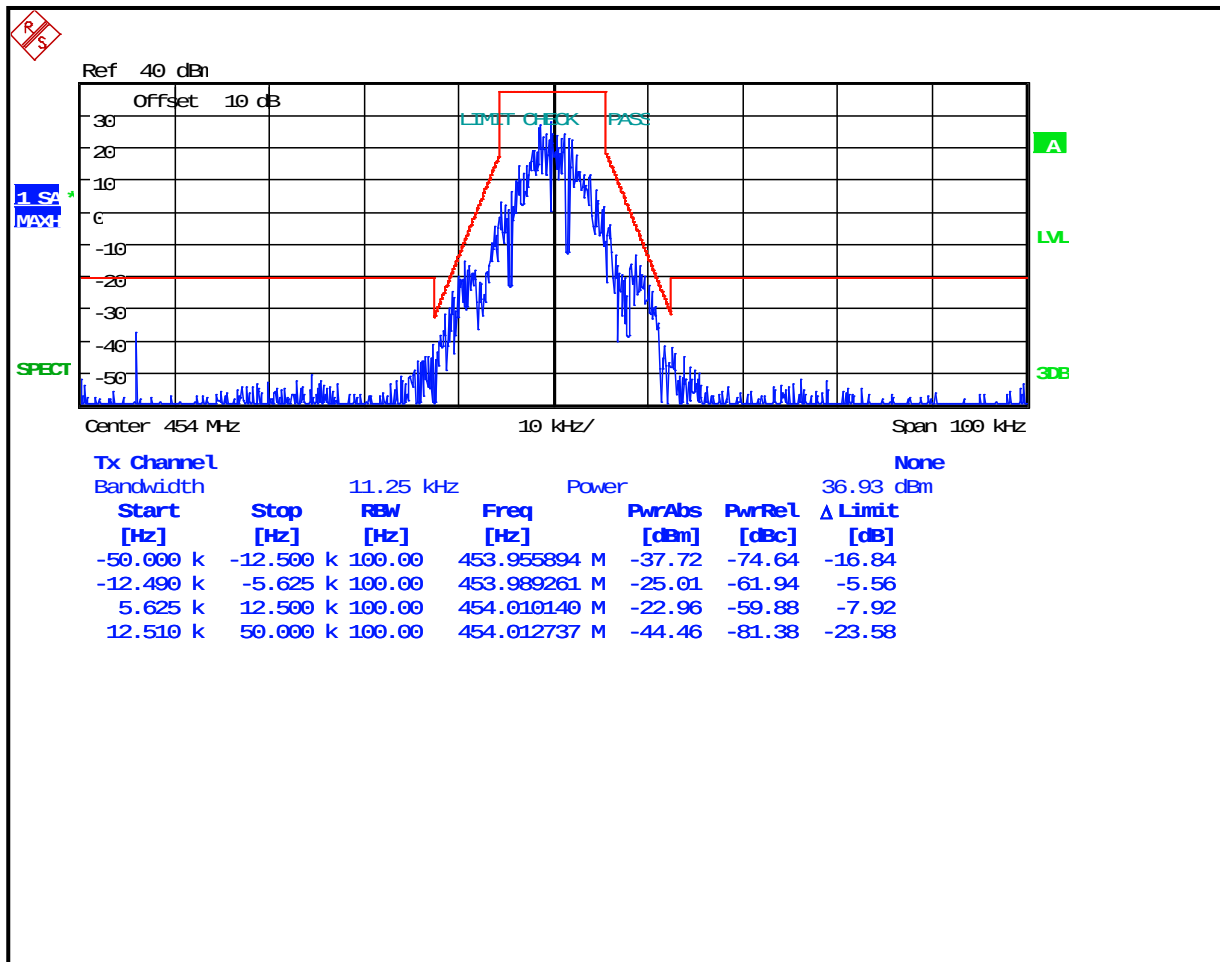
Plot 8-57: Occupied Bandwidth – 430 MHz; (2-level FSK 9600; NB) EDACS; Mask D



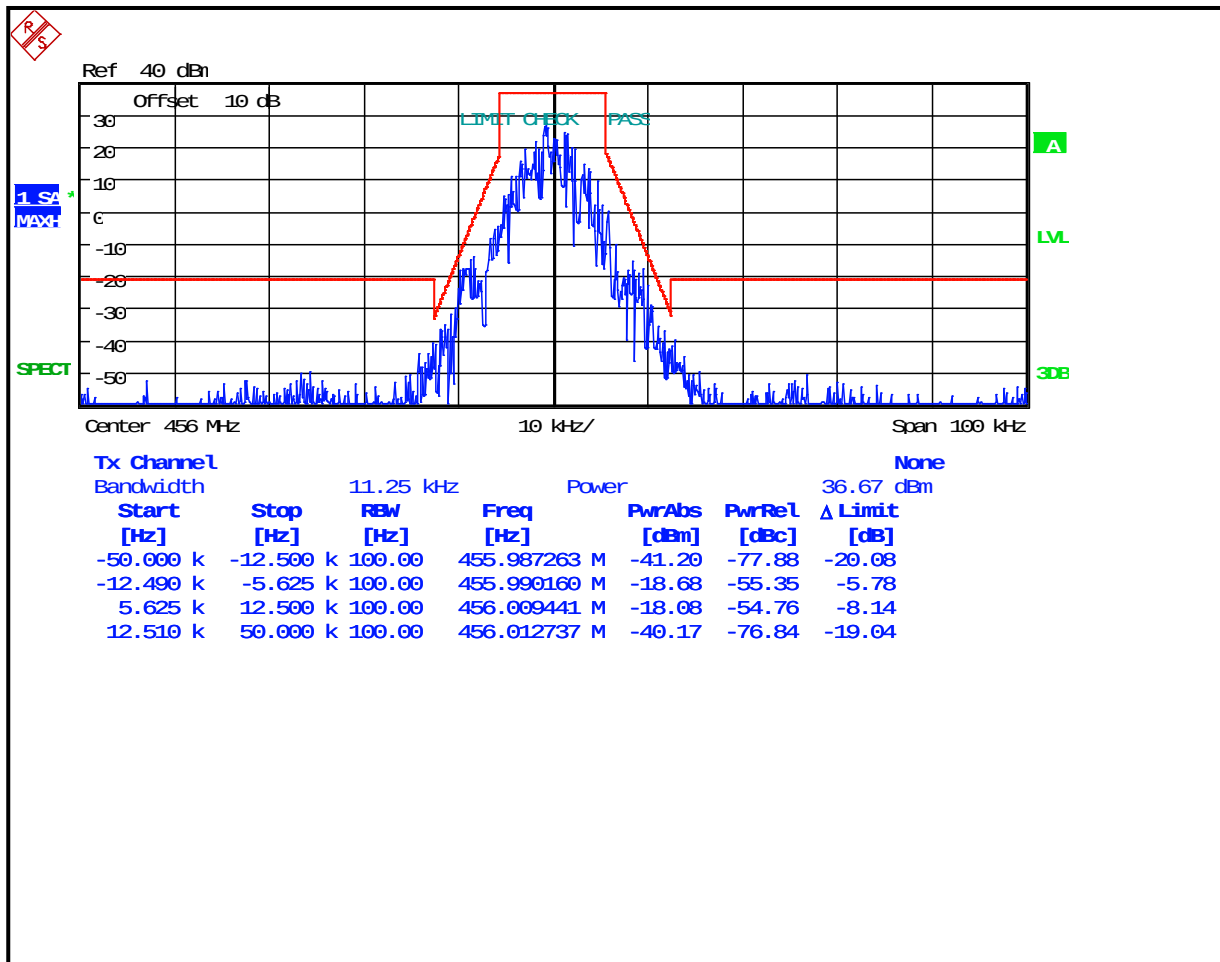
Plot 8-58: Occupied Bandwidth – 450 MHz; (2-level FSK 9600; NB) EDACS; Mask D



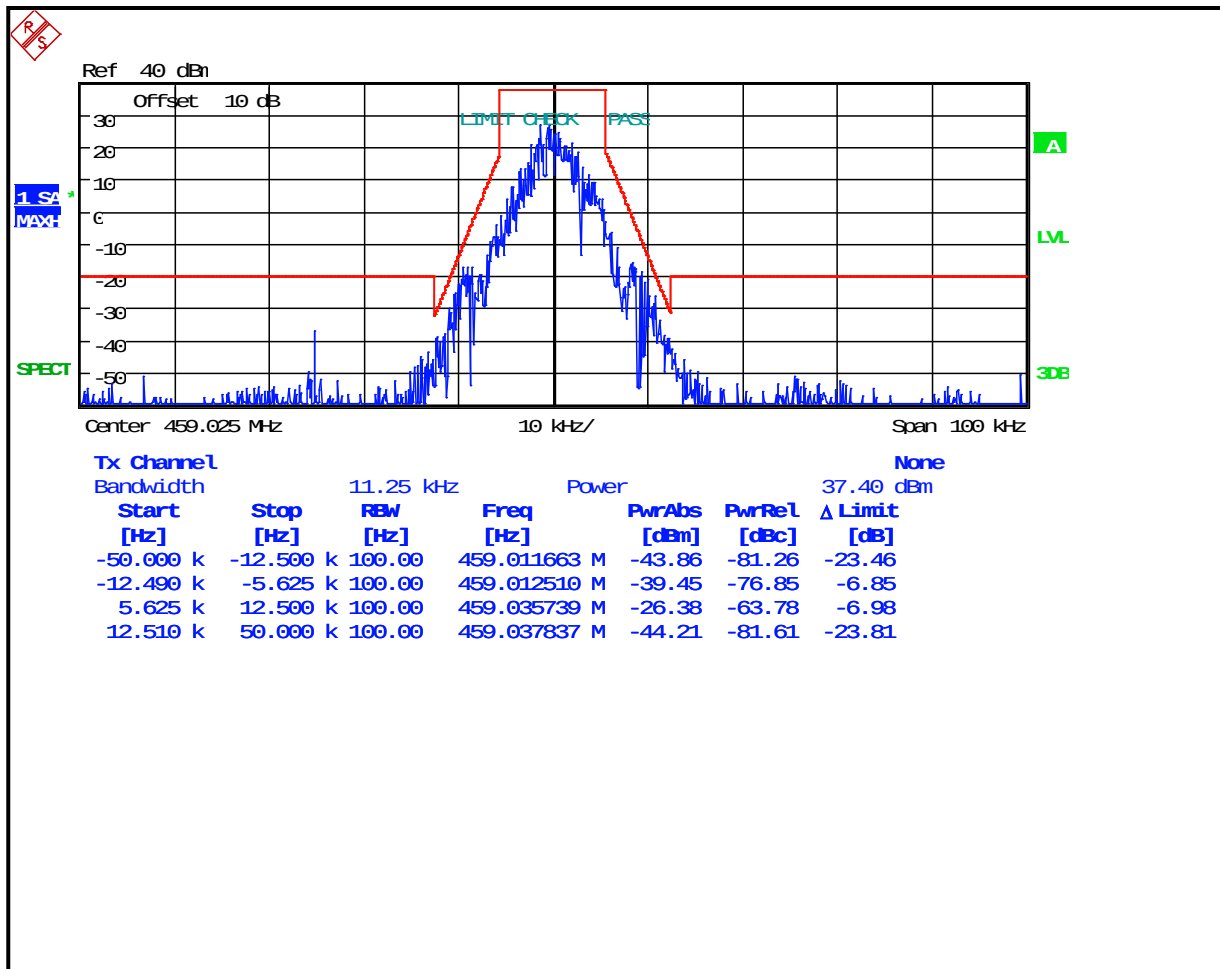
Plot 8-59: Occupied Bandwidth – 454 MHz; (2-level FSK 9600; NB) EDACS; Mask D



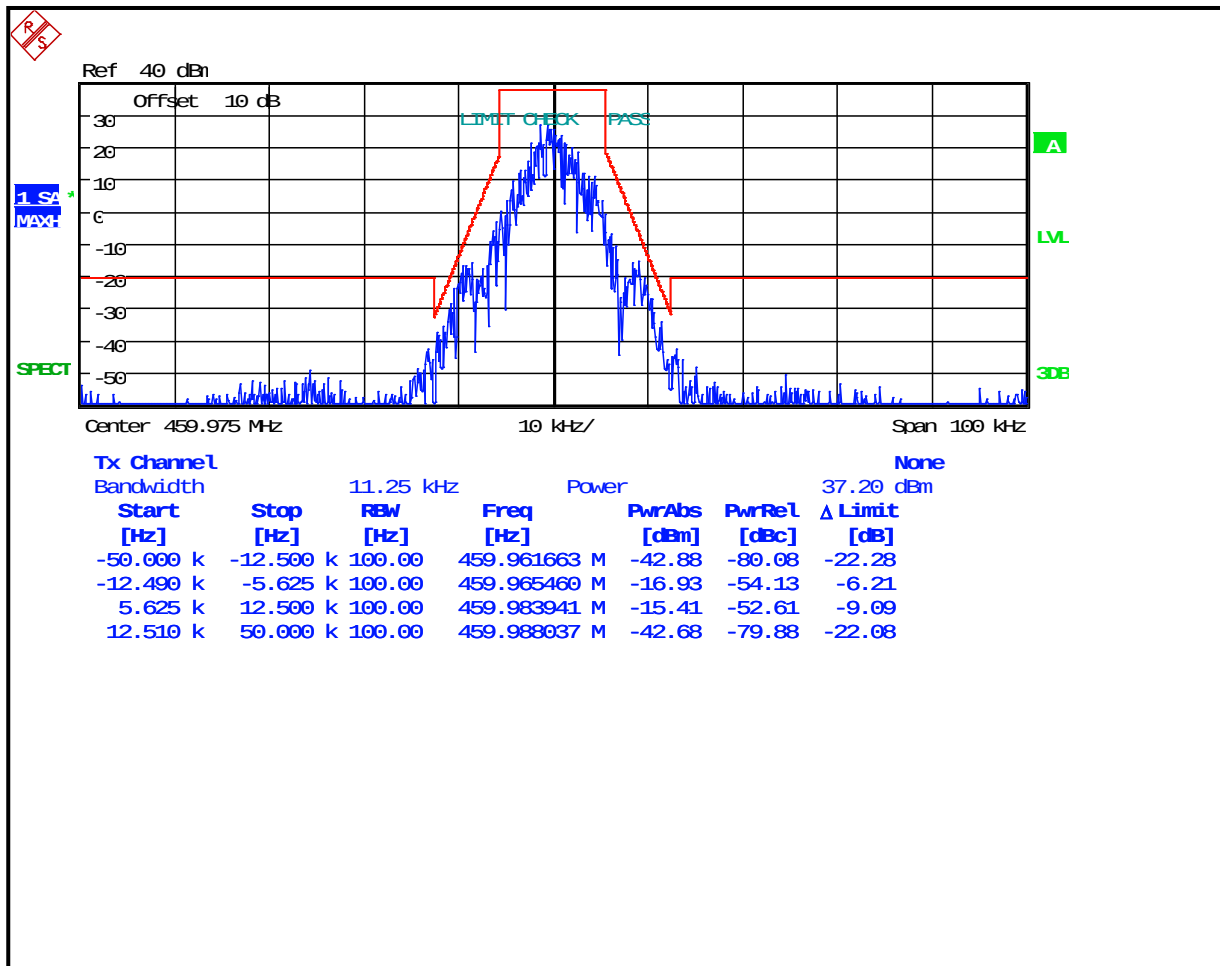
Plot 8-60: Occupied Bandwidth – 456 MHz; (2-level FSK 9600; NB) EDACS; Mask D



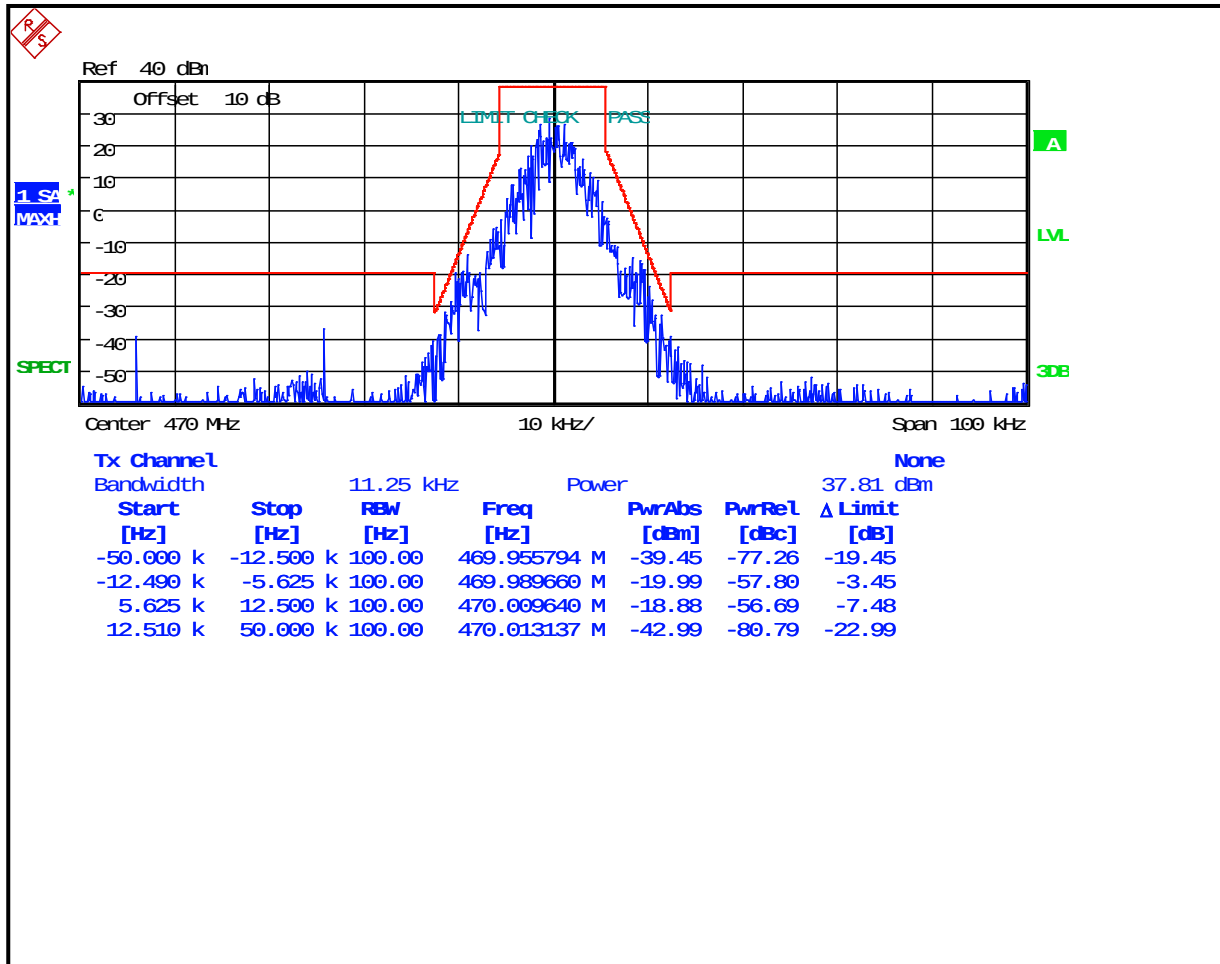
Plot 8-61: Occupied Bandwidth – 459.025 MHz; (2-level FSK 9600; NB) EDACS; Mask D



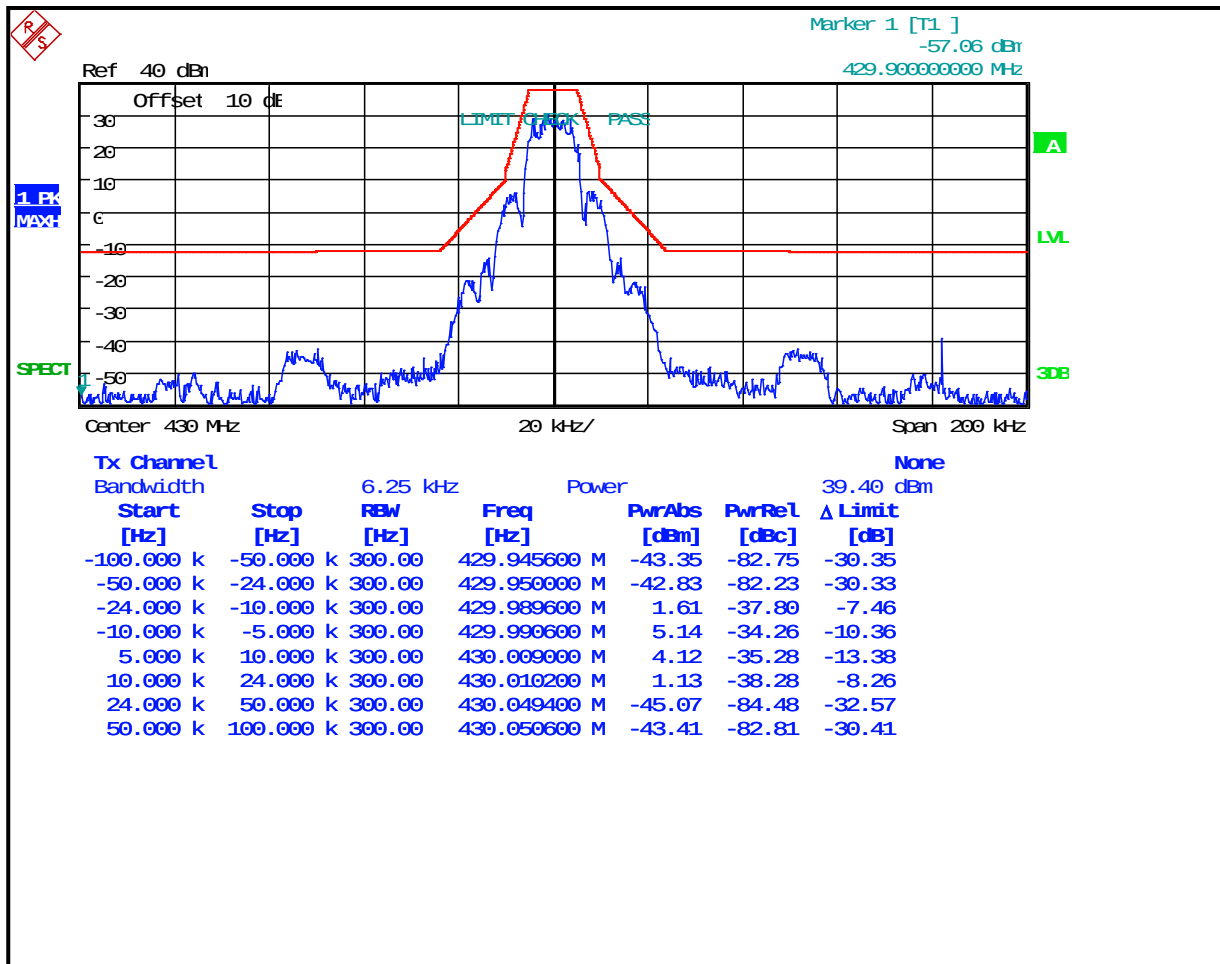
Plot 8-62: Occupied Bandwidth – 459.975 MHz; (2-level FSK 9600; NB) EDACS; Mask D



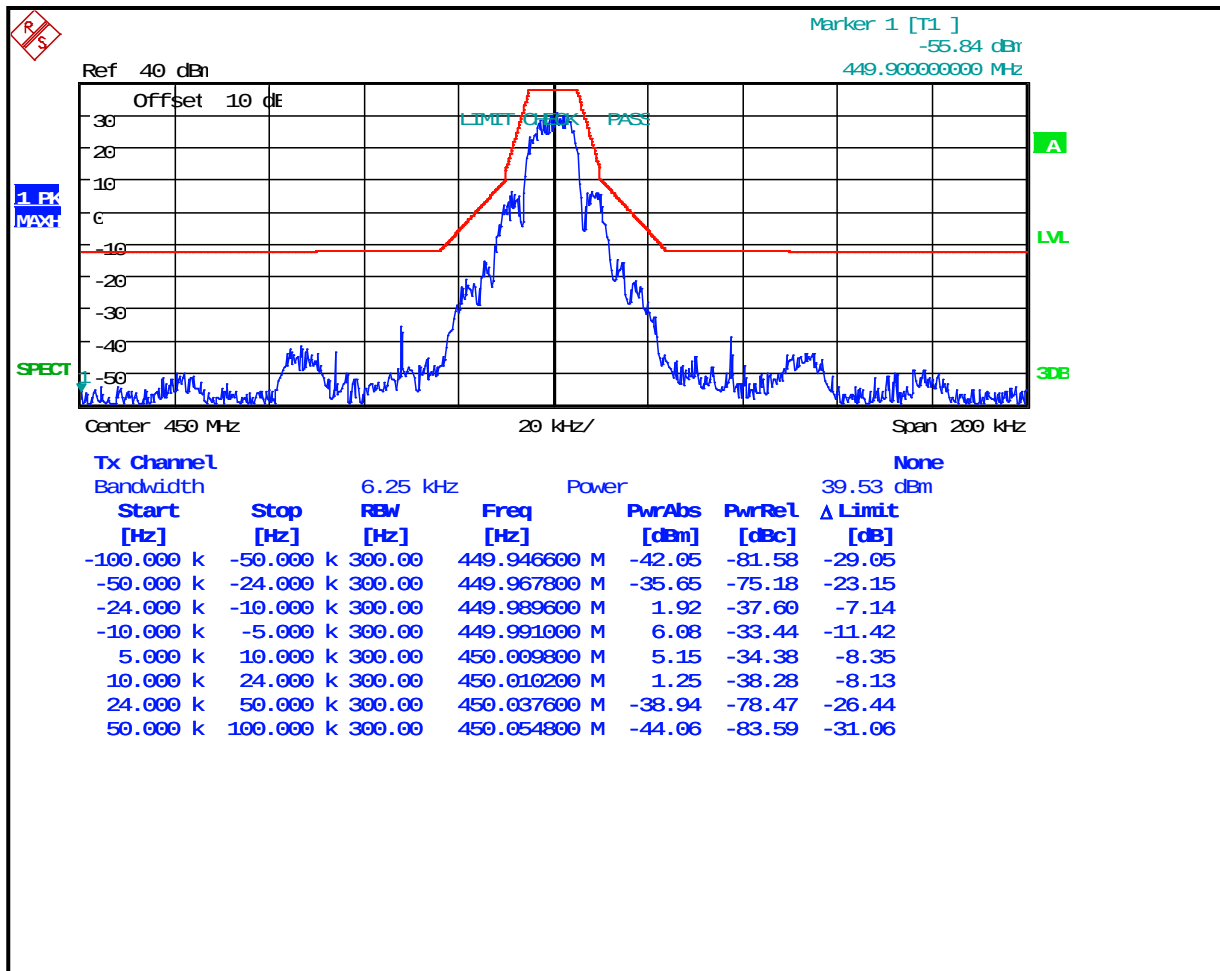
Plot 8-63: Occupied Bandwidth – 470 MHz; (2-level FSK 9600; NB) EDACS; Mask D



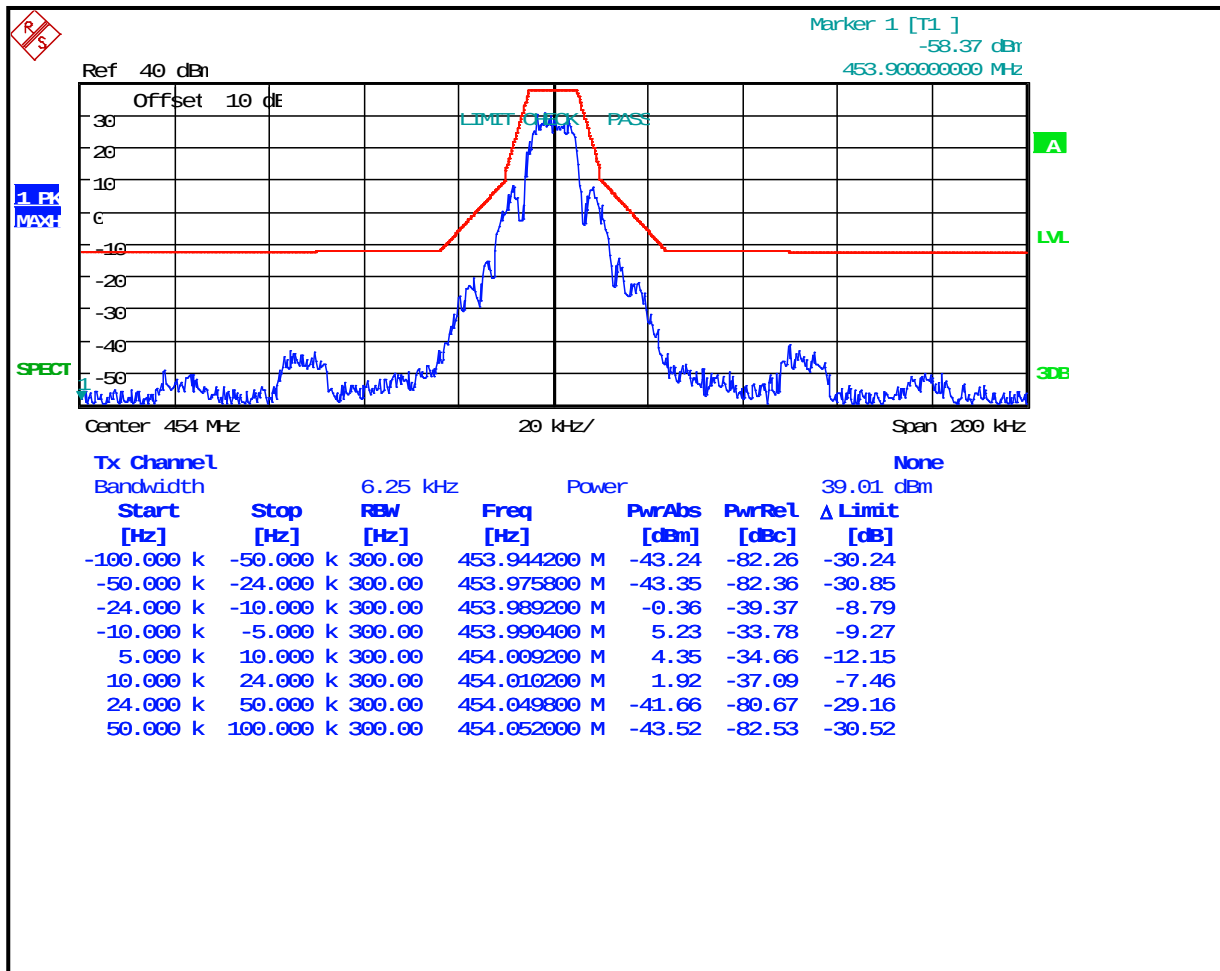
Plot 8-64: Occupied Bandwidth – 430 MHz; (2-level FSK 9600; WB) EDACS; Mask C



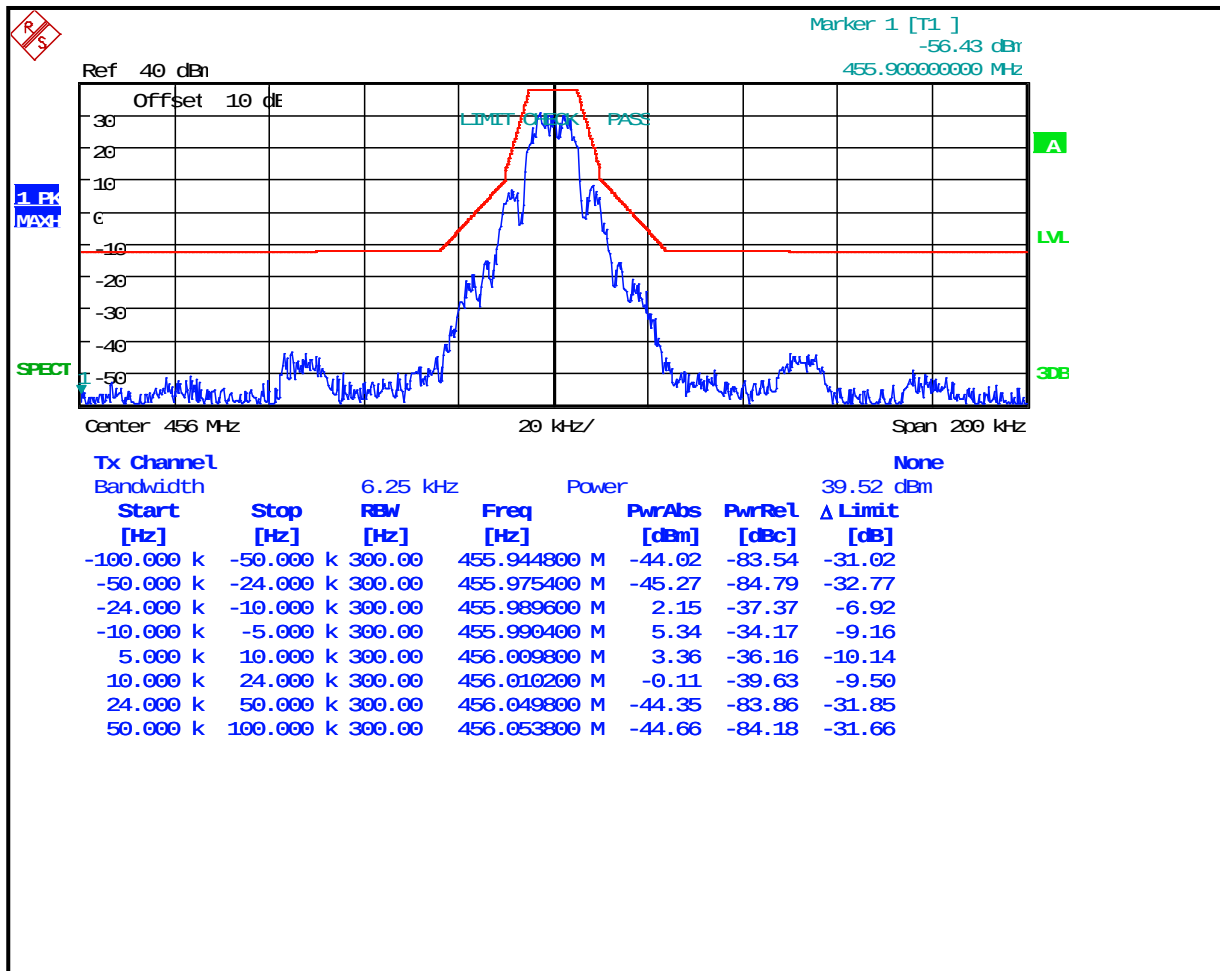
Plot 8-65: Occupied Bandwidth – 450 MHz; (2-level FSK 9600; WB) EDACS; Mask C



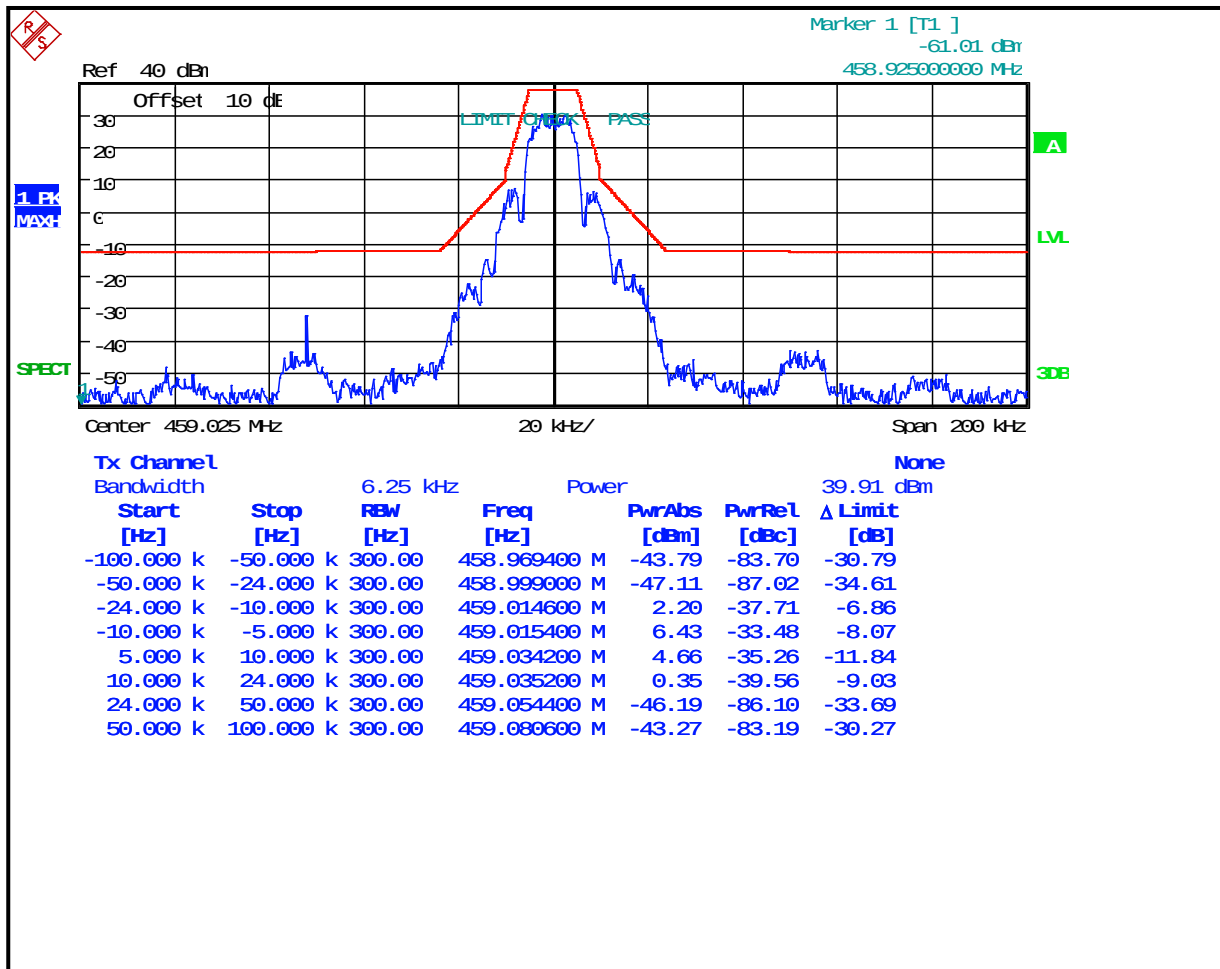
Plot 8-66: Occupied Bandwidth – 454 MHz; (2-level FSK 9600; WB) EDACS; Mask C



Plot 8-67: Occupied Bandwidth – 456 MHz; (2-level FSK 9600; WB) EDACS; Mask C



Plot 8-68: Occupied Bandwidth – 459.025 MHz; (2-level FSK 9600; WB) EDACS; Mask C



Plot 8-69: Occupied Bandwidth – 459.975MHz; (2-level FSK 9600; WB) EDACS; Mask C

