



Engineering Solutions & Electromagnetic Compatibility Services

FCC & ISED Class 2 Permissive Change Report

Harris Corporation
221 Jefferson Ridge Parkway
Lynchburg, VA 24501

Model: XL-185P
7/800 MHz C1D1 Rebanded

FCC ID: OWDTR-0154-E
IC: 3636B-0154

December 5, 2018

Standards Referenced for this Report	
Part 2: 2017	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
Part 90: 2017	Private Land Mobile Radio Services
RSS-119 Issue 12 2015	Land Mobile and Fixed Equipment Operating in the Frequency Range 27.41-960 MHz
RSS-Gen Issue 5 2018	General Requirements for Compliance of Radio Apparatus
ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

Frequency Range (MHz)	Rated Transmit Power (W) (Conducted)	Frequency Tolerance (ppm)	Mode	Emission Designator (Transmit Mode)
806-816; 851-861	0.5 – 3.0	0.2	HVD-TDMA SMR	18K5F1W
806-816; 851-861	0.5 – 3.0	0.2	HVD-TDMA NPSPAC	12K9F1W

Report Prepared By: Daniel Baltzell

Document Number: 2018111

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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.

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1 Test Result Summary

Test	FCC Reference	ISED Reference	Result
Spurious Emissions at Antenna Terminals	2.1051	RSS-119 5.8	Complies
Occupied Bandwidth/Emission Masks	2.1049, 90.210	RSS-119 5.5	Complies

2 General Information

The following Class 2 Permissive Change Report is prepared on behalf of Harris Corporation in accordance with the Federal Communications Commission and ISED rules and regulations. The Equipment Under Test (EUT) was the XL-185P; FCC ID: OWDTR-0154-E, IC: 3636B-0154.

The purpose of this Class 2 Permissive Change is to add emission designator 18K5F1W (HVD-TDMA SMR) and 12K9F1W (HVD-TDMA NPSPAC).

All measurements contained in this application were conducted in accordance with the applicable sections of FCC Rules and Regulations CFR 47 Parts 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)

The original FCC and ISED certifications were granted October 12, 2017. The Harris model numbers included in this ISED family certification are XS-PFS1P-C1D1, XS-PFS1Y-C1D1 and XS-PFS1M-C1D1.

2.3 Grant Notes

Power is continuously variable from 0.5 – 3 W for 700 and 800 MHz bands.

3 Tested System Details

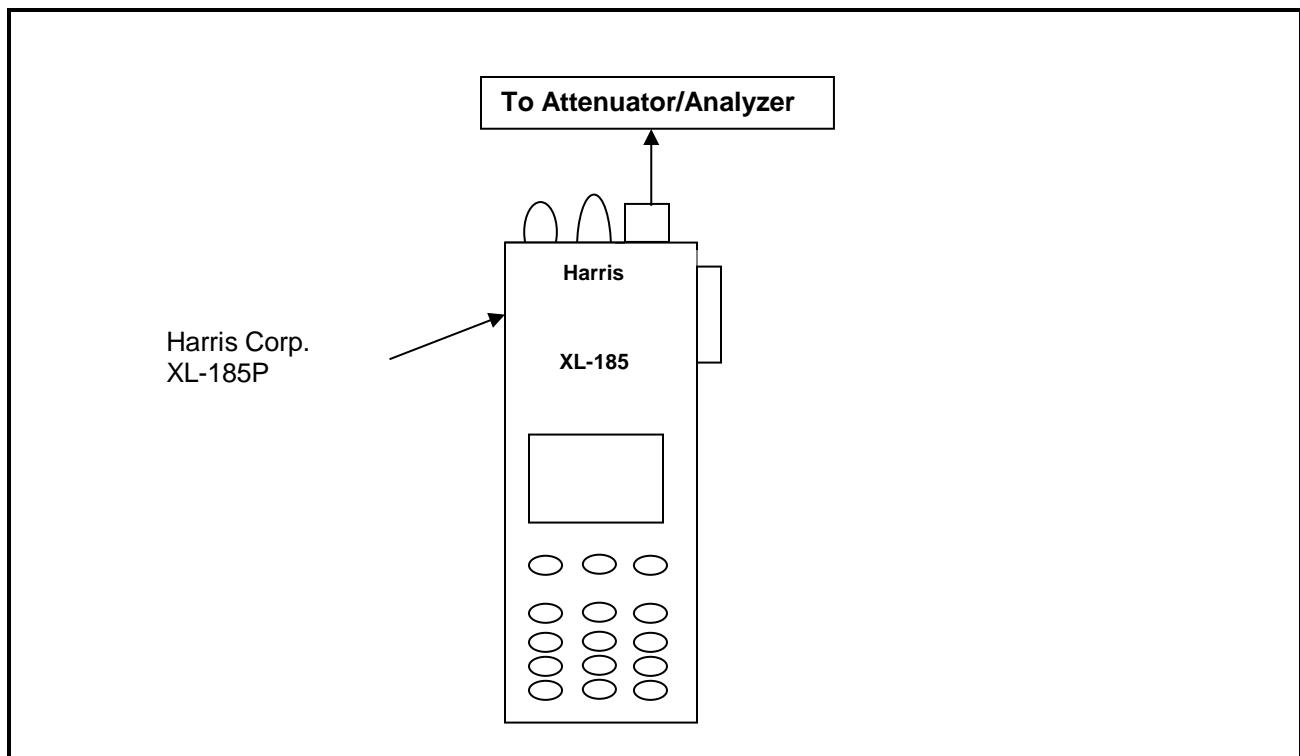
The test sample was received on July 25, 2018. Listed below are the identifiers and descriptions of all equipment, cables, and internal devices used with the EUT for this test, as applicable.

The device was programmed for multiple test patterns, commands using the HVD-TDMA mode were used.

Table 3-1: Equipment Under Test (EUT)

Part	Manufacturer	Model	PN/SN	FCC ID	RTL Bar Code
XL-185P	Harris Corporation	14035-1030-01 Rev A	A4030A000253	OWDTR-0154-E	23017
Li-Ion Rechargeable Battery	Harris Corporation	14035-4010-05 Rev	010499	N/A	23022

Figure 3-1: Configuration of Tested System



4 FCC Rules and Regulations §2.1051: Spurious Emissions at Antenna Terminals; §90.210: Emissions Masks; RSS-119 §4.2: Transmitter Unwanted Emissions

4.1 Test Procedure

The transmitter is terminated with a 50 Ω load and interfaced with a signal analyzer. The device uses digital modulation modulated to its maximum extent using a pseudo random data sequence.

4.2 Test Data

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

Limit: $P(\text{dBm}) - (43 + 10 \times \text{LOG } P(\text{W}))$

The worst case (unwanted emissions) channels are shown. The magnitude of emissions attenuated more than 20 dB below the FCC limit need not be recorded.

No Emissions were found greater than 20 dB below the limit.

Table 4-1: 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	4/26/21
901724	Weinschel Corp	48-40-34	Attenuator, 40 dB, 100W	CJ8921	8/1/19
901128	Par Electronics	806-902 (25W)	UHF Notch Filter	N/A	8/21/18

Test Personnel:

Daniel Baltzell EMC Test Engineer	 Signature	August 2, 2018 Date of Test
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5 FCC Rules and Regulations §2.1049(c)(1); §90.210; RSS-119 §5.8: Occupied Bandwidth

5.1 Test Procedure

Notes: FCC 90.210 specifies masks G and H for the 800 MHz band operation of this equipment; RSS-119 specifies Mask G; all data is presented on the following pages.

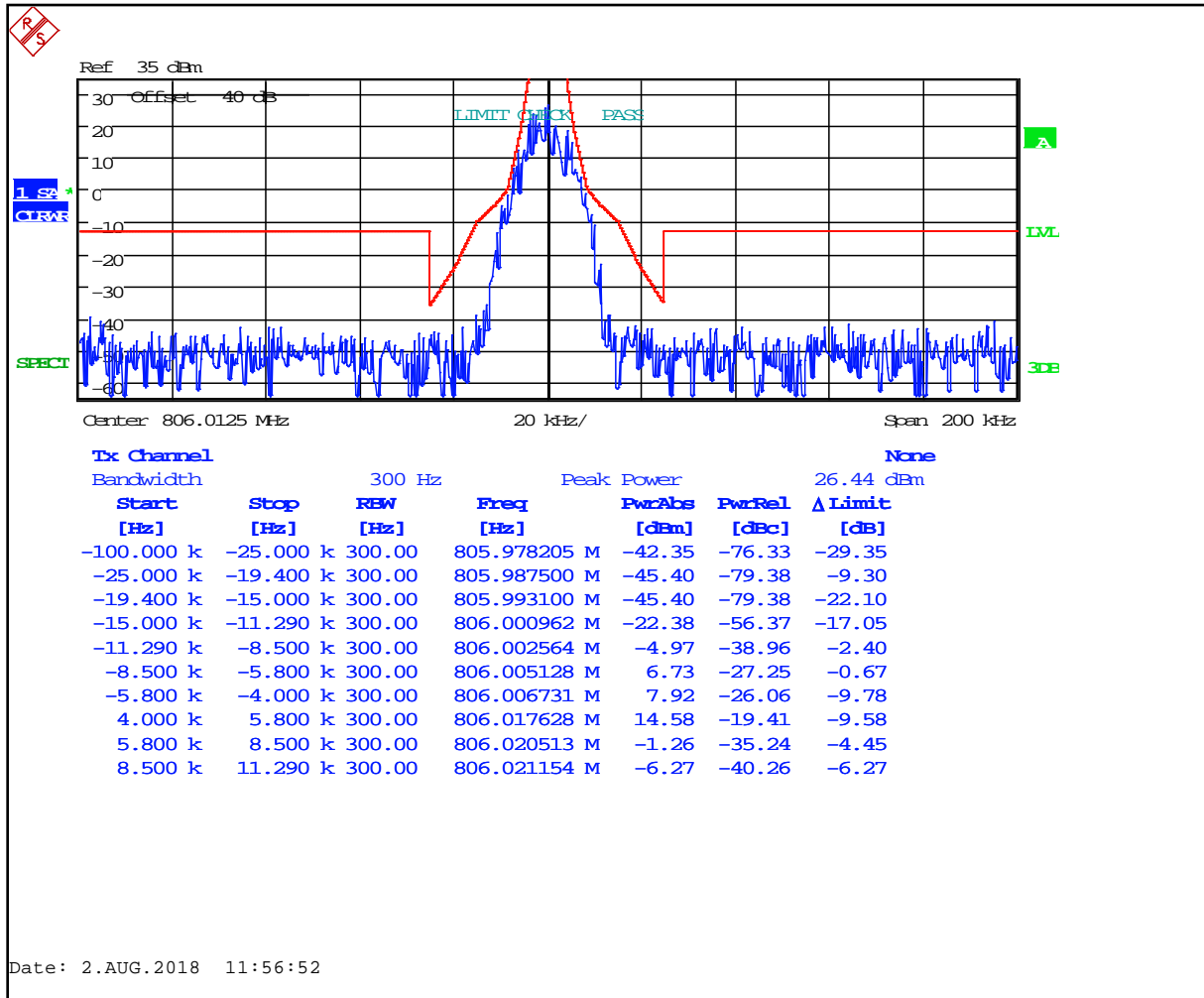
FCC §90.210

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

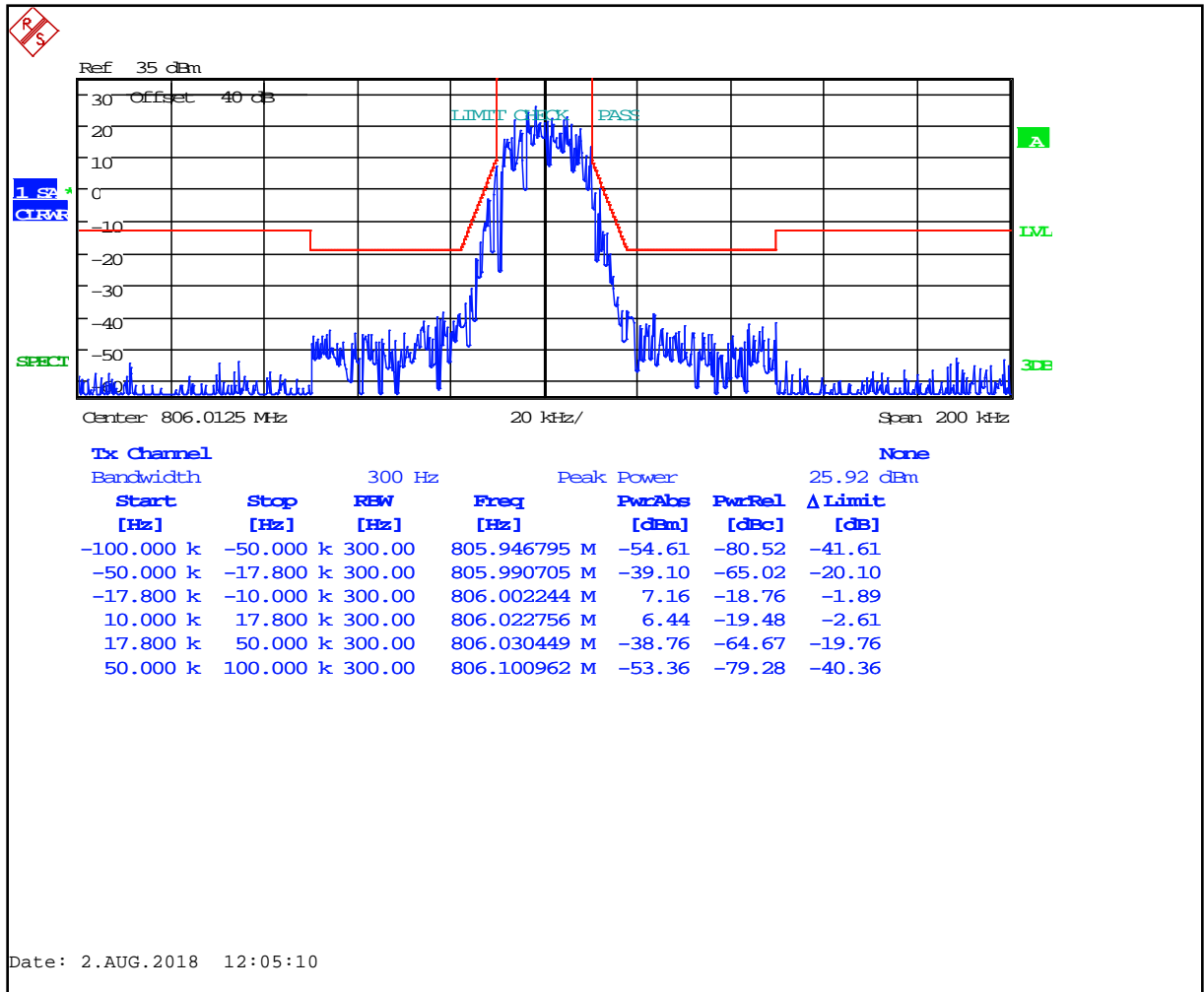
¹ Equipment using single sideband J3E emission must meet the requirements of Emission Mask A. Equipment using other emissions must meet the requirements of Emission Mask B or C, as applicable.
² Equipment designed to operate with a 25 kHz channel bandwidth must meet the requirements of Emission Mask 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 Unit equipment in the 5850–5925 MHz band is governed under subpart M of this part.

5.2 Test Data

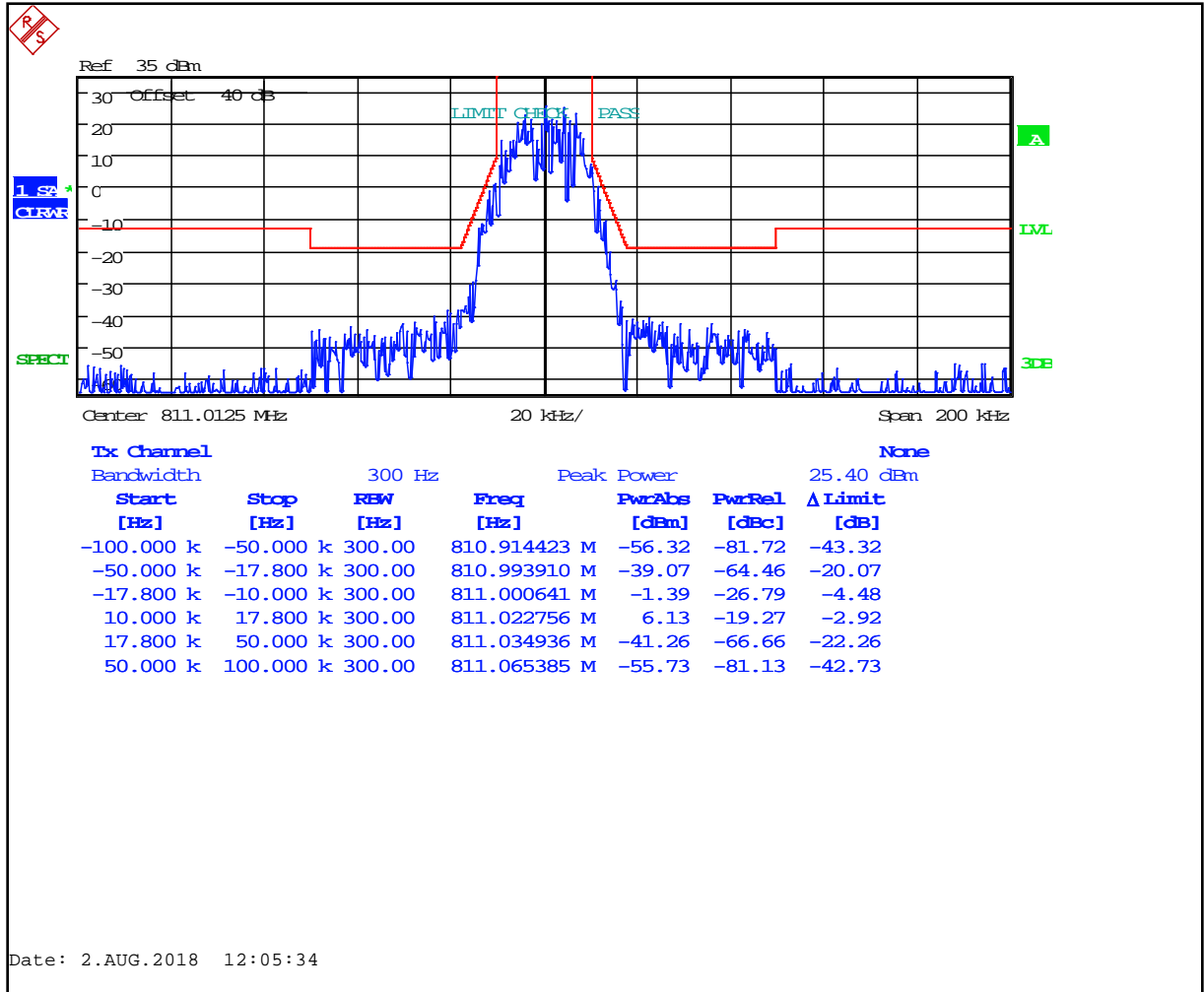
Plot 5-1: Occupied Bandwidth – HVD-TDMA NPSPAC; 806.0125 MHz; Mask H



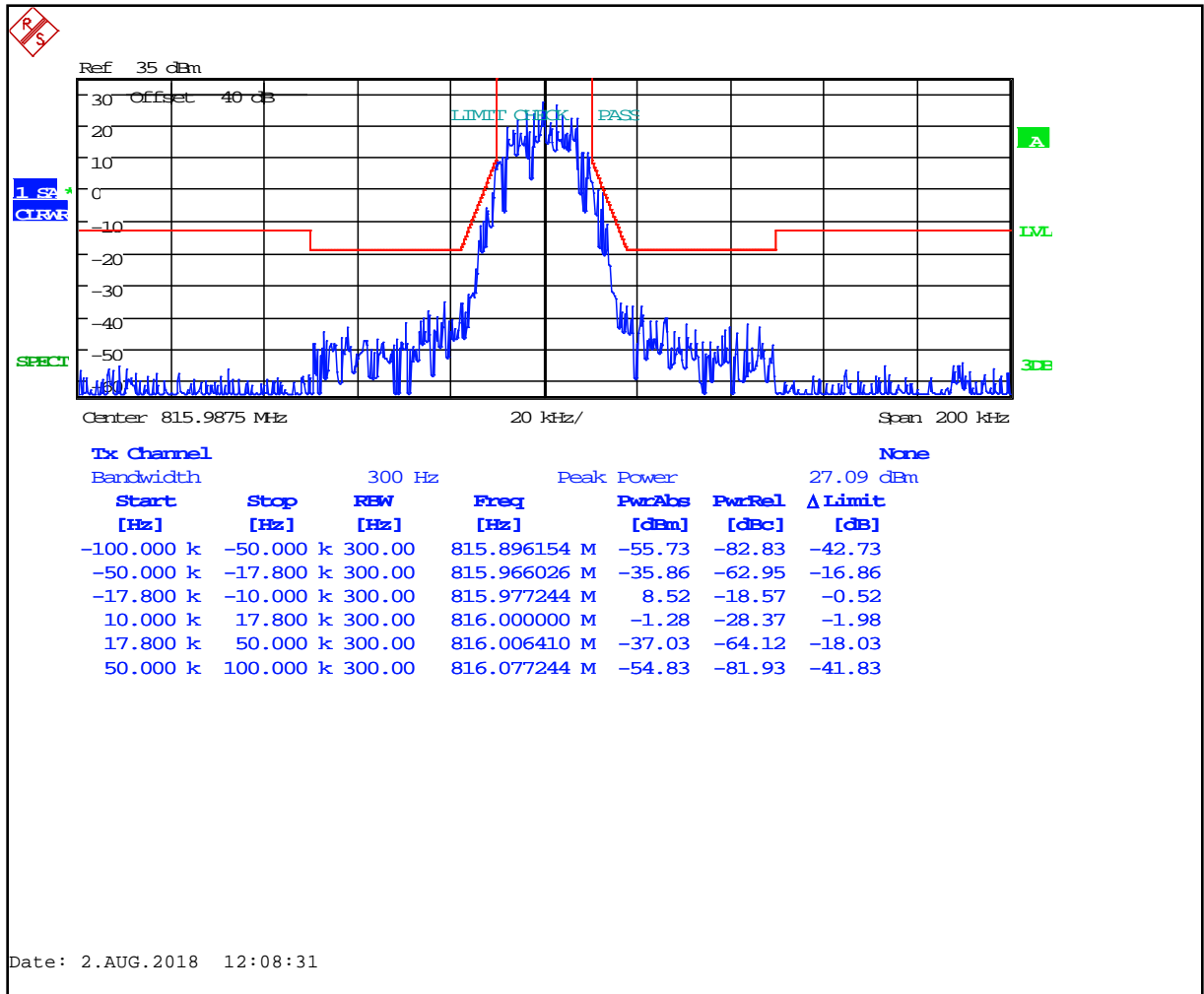
Plot 5-2: Occupied Bandwidth – HVD-TDMA SMR; 806.0125 MHz; Mask G (ISED)



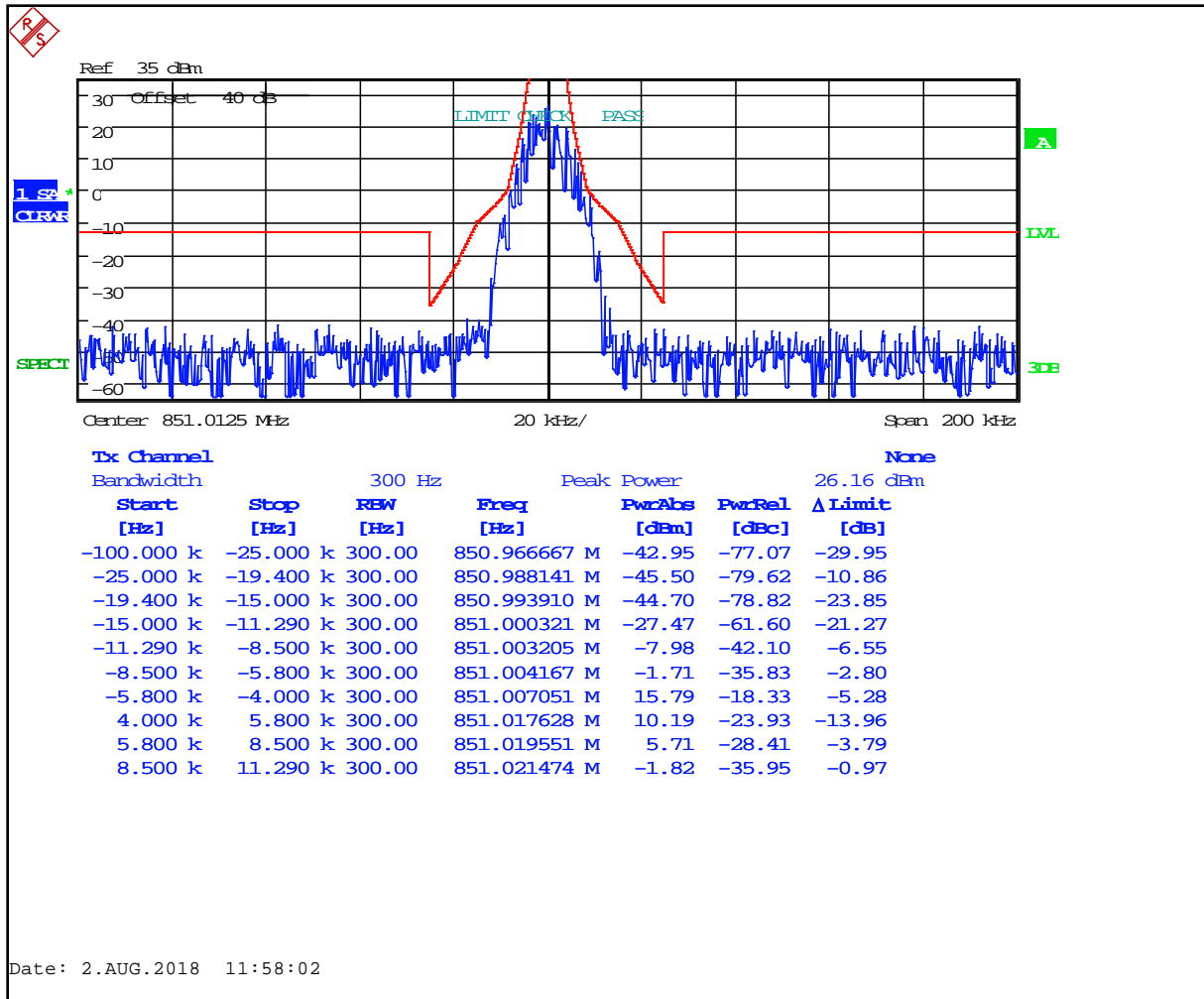
Plot 5-3: Occupied Bandwidth – HVD-TDMA SMR; 811.0125 MHz; Mask G



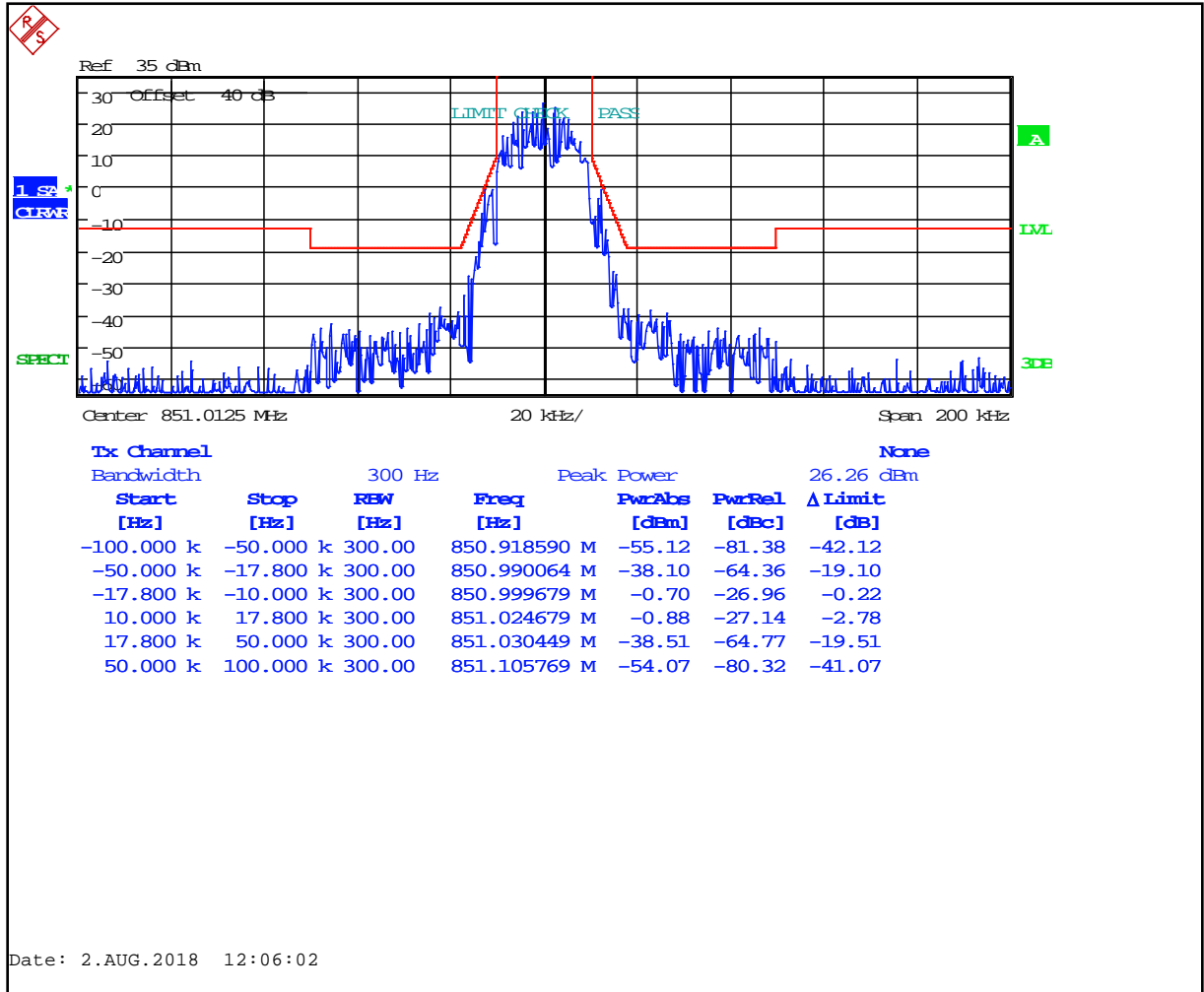
Plot 5-4: Occupied Bandwidth – HVD-TDMA SMR; 815.9875 MHz; Mask G



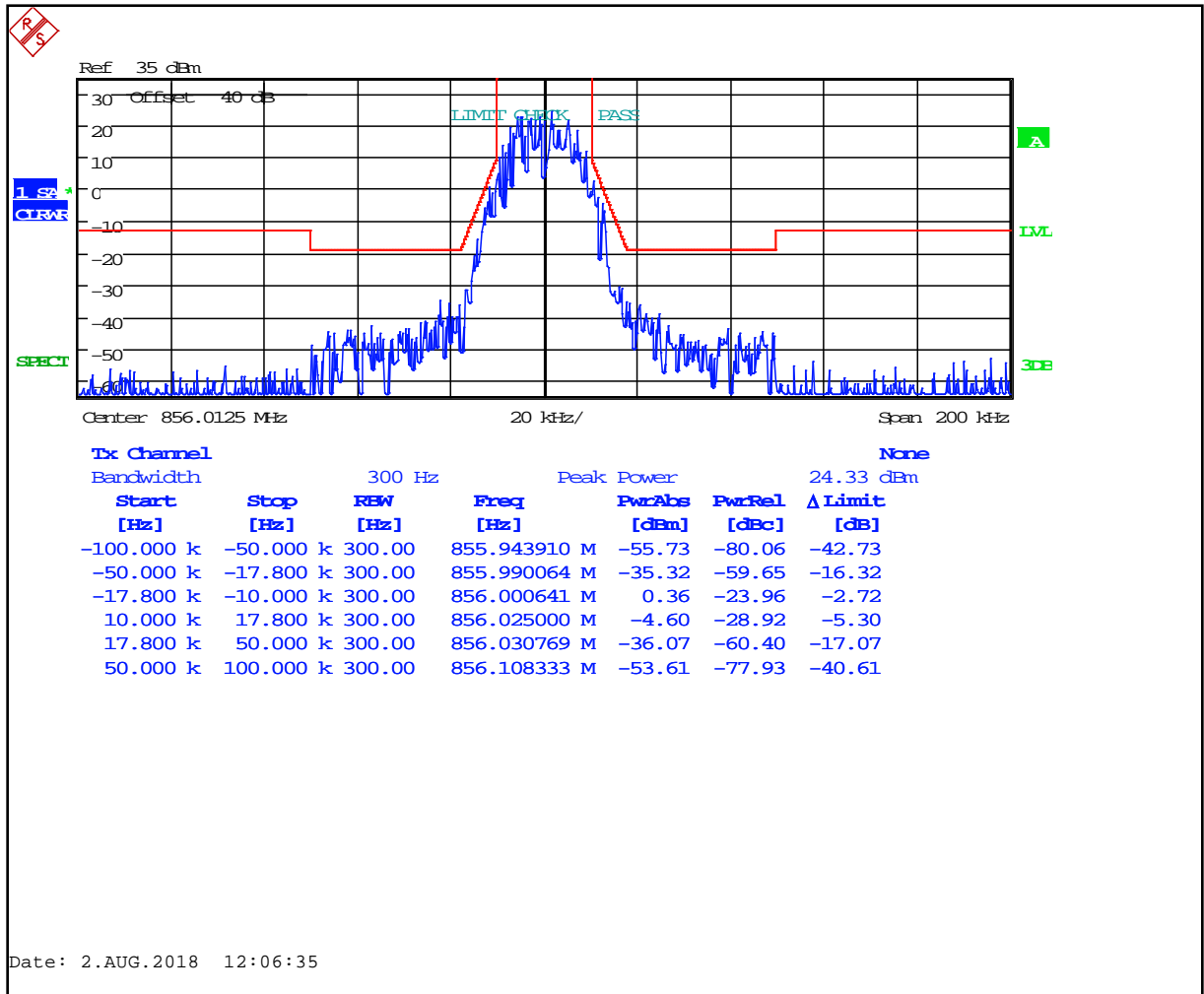
Plot 5-5: Occupied Bandwidth – HVD-TDMA NPSPAC; 851.0125 MHz; Mask H



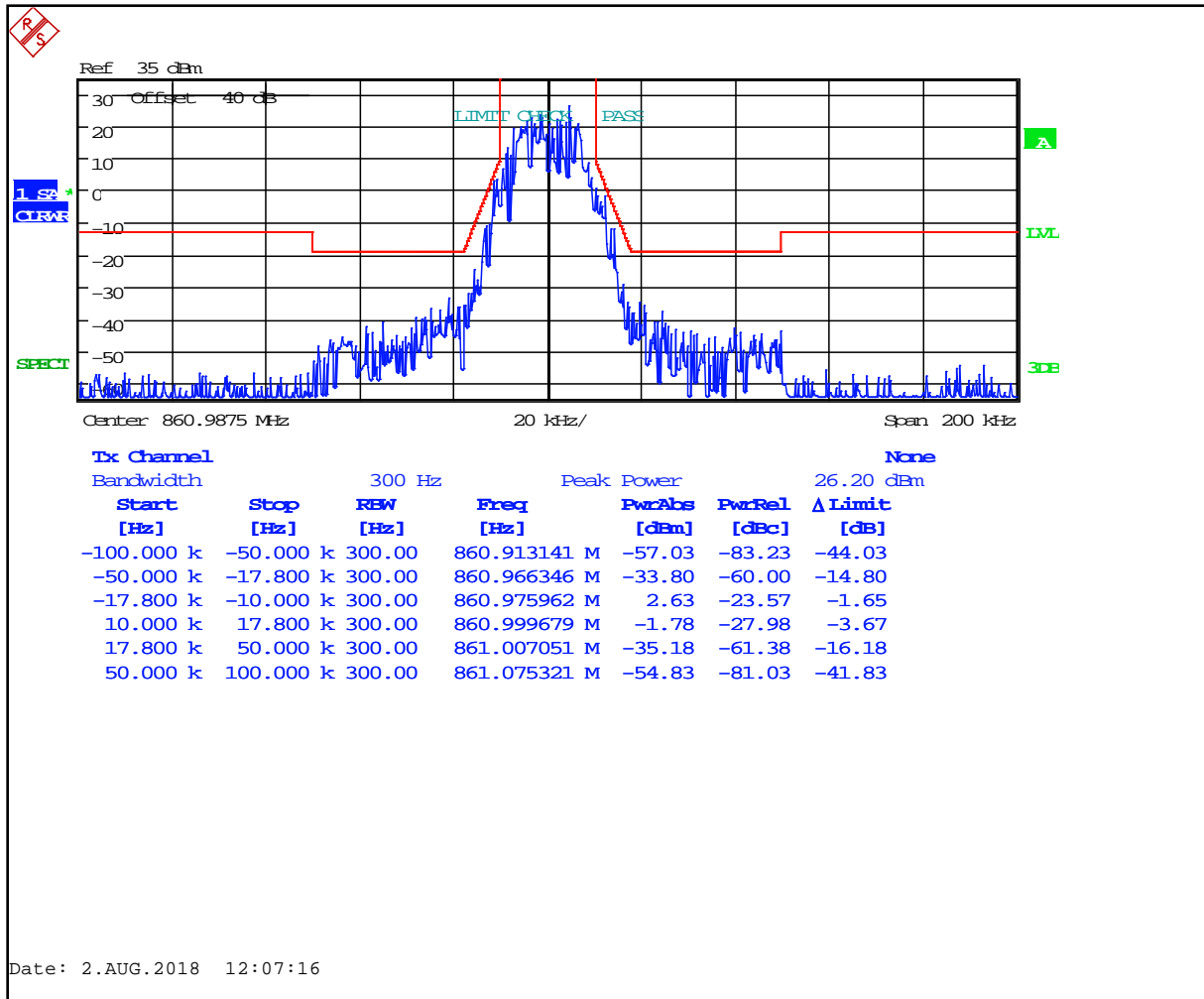
Plot 5-6: Occupied Bandwidth – HVD-TDMA SMR; 851.0125 MHz; Mask G (ISED)



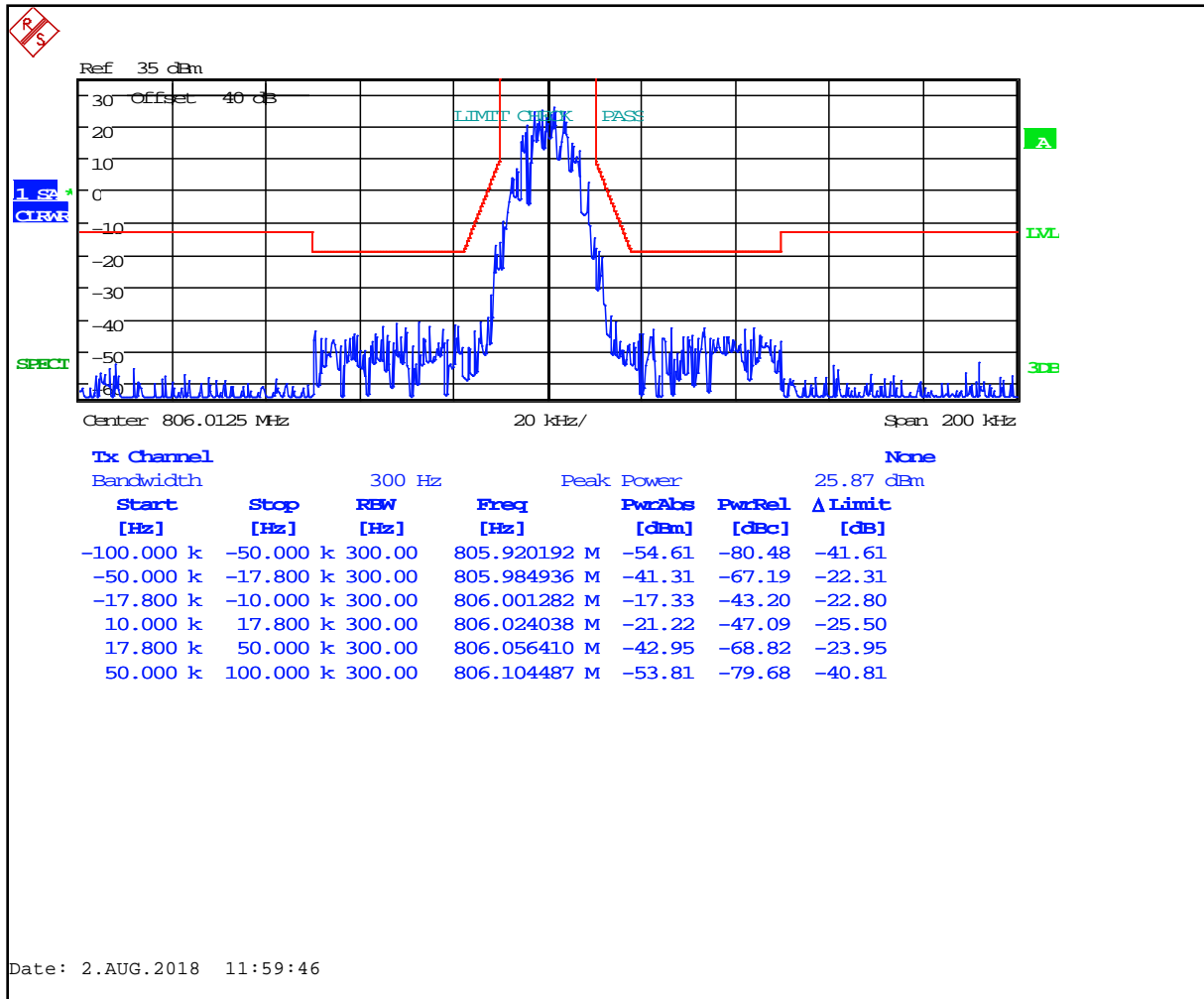
Plot 5-7: Occupied Bandwidth – HVD-TDMA SMR; 856.0125 MHz; Mask G



Plot 5-8: Occupied Bandwidth – HVD-TDMA SMR; 860.9875 MHz; Mask G



Plot 5-9: Occupied Bandwidth – HVD-TDMA NPSPAC; 806.0125 MHz; Mask G (ISED)



Plot 5-10: Occupied Bandwidth – HVD-TDMA NPSPAC; 851.0125 MHz; Mask G (ISED)

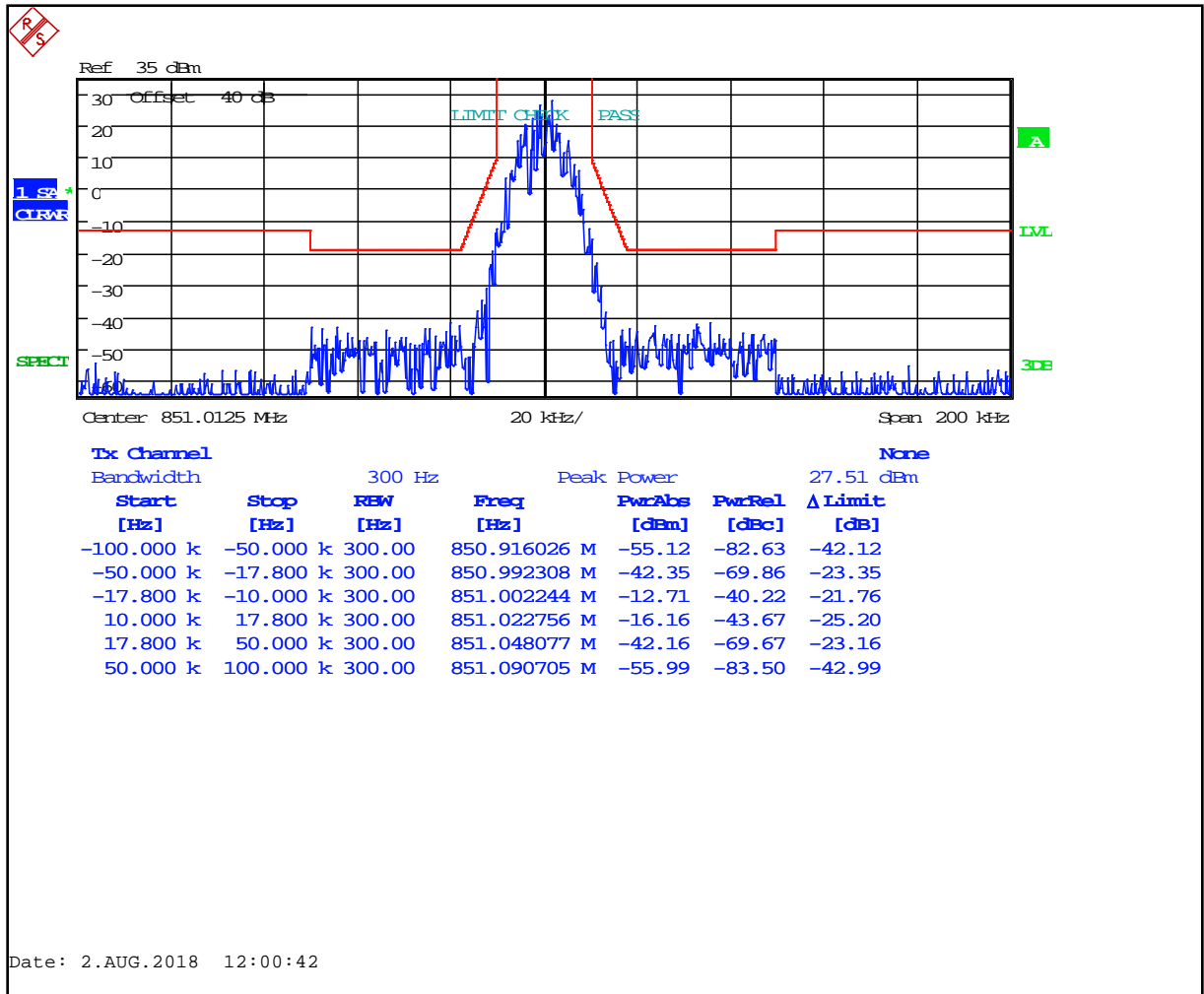


Table 5-1: Test Equipment Used for Testing Occupied Bandwidth

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901581	Rohde & Schwarz	FSU	Spectrum Analyzer	1166.1660.50	4/26/21
901724	Weinschel Corp	48-40-34	Attenuator, 40 dB, 100W	CJ8921	8/1/19

Test Personnel:

Daniel Baltzell Test Engineer	 Signature	August 2, 2018 Date of Test
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6 Conclusion

The data in this Class 2 measurement report shows that the Harris Corporation XL-185P; FCC ID: OWDTR-0154-E, IC: 3636B-0154, complies with the applicable requirements of FCC Parts 90 and 2, and ISED RSS-119 for a Class 2 permissive change.