FCC Certification Test Report

For the

Applied Micro Design Inc.

1465 DL

FCC ID: 2AES2-1465

WLL Report# **13947-01 Rev 2**
May 29, 2015

Re-issued September 17, 2015

Prepared for:

Applied Micro Design Inc.
19516 Amaranth Drive
Germantown, MD, 20874

Prepared By:
Washington Laboratories, Ltd.
7560 Lindbergh Drive
Gaithersburg, Maryland 20879

Testing Certificate AT-1448

FCC Certification Test Report

For the

Applied Micro Design Inc.

1465 DL

WLL Report# **13947-01 Rev 1**

May 29, 2015

Re-issued September 17, 2015

Prepared by:

Steven Dovell
Compliance Engineer

Reviewed by:

Steven D. Koster
Vice President

Abstract

This report has been prepared on behalf of Applied Micro Design Inc. to support the attached Application for Equipment Authorization. The test report and application are submitted for a Class B Industrial Signal Booster under Part 90.219 (2013) of the FCC Rules and Regulations of the FCC rules. The test report was constructed with guidance from KDB 935210 D05 Industrial Booster Basic Measurement v01 DR07-42107.

Testing was performed at Washington Laboratories, Ltd, 7560 Lindbergh Drive, Gaithersburg, MD 20879.

Washington Laboratories, Ltd. has been accepted by the FCC and approved by ACLASS under Certificate AT-1448 as an independent FCC test laboratory.

These tests are accredited and meet the requirements of ISO/IEC 17025:2005 as verified by the ANSI-ASQ National Accreditation Board/ACLASS. Refer to certificate and scope of accreditation AT-1448.

Revision History	Reason	Date
Rev 0	Initial Release	May 29, 2015
Rev 1	Updated due to ACB comments	July 27, 2015
Rev 2	Updated due to FCC comments	September 17, 2015

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1 Introduction

1.1 Compliance Statement

The Applied Micro Design Inc. 1465 DL was tested to the requirements of Part 90.219 Private Land Mobile Radio Services Subpart I--Private Land Mobile Radio Services general technical requirements section of the FCC Rules and Regulations (4/2013).

1.2 Test Scope Summary

The following tests were performed using the applicable parts of the FCC rules and KDB 935210 D05 Indus Booster Basic Meas v01 DR07-42107 as guidance:

§ 90.219	Use of signal boosters
§ 90.210	Emission masks
KDB 935210	Test Methods for PLMRS/PSRS Repeater/Amplifier and Industrial Booster Devices

1.3 Contract Information

Customer:	Applied Micro Design Inc. 19516 Amaranth Drive Germantown, MD, 20874
Purchase Order Number:	Deposit
Quotation Number:	68736

1.4 Test Dates

Testing was performed on the following date(s):	4/20/15 – 5/19/15

1.5 Test and Support Personnel

Washington Laboratories, Ltd.	Steven Dovell
Customer Representative	Stan Mantel

1.6 Abbreviations

A	**A**mpere
ac	**al**ternating **c**urrent
AM	**A**mplitude **M**odulation
Amps	**Amp**ere**s**
b/s	**b**its per **s**econd
BW	**B**and**W**idth
CE	**C**onducted **E**mission
cm	**c**enti**m**eter
CW	**C**ontinuous **W**ave
dB	**d**eci**B**el
dc	**d**irect **c**urrent
EMI	**E**lectro**m**agnetic **I**nterference
EUT	**E**quipment **U**nder **T**est
FM	**F**requency **M**odulation
G	**g**iga - prefix for 10^9 multiplier
Hz	**H**ertz
IF	**I**ntermediate **F**requency
k	**k**ilo - prefix for 10^3 multiplier
LISN	**L**ine **I**mpedance **S**tabilization **N**etwork
M	**M**ega - prefix for 10^6 multiplier
m	**m**eter
µ	**m**icro - prefix for 10^{-6} multiplier
NB	**N**arrow**b**and
QP	**Q**uasi-**P**eak
RE	**R**adiated **E**missions
RF	**R**adio **F**requency
rms	**r**oot-**m**ean-**s**quare
SN	**S**erial **N**umber
S/A	**S**pectrum **A**nalyzer
V	**V**olt

2 Equipment Under Test

2.1 EUT Identification

The results obtained relate only to the item(s) tested.

Table 1: Overview of 1465 DL, Equipment Under Test

ITEM	DESCRIPTION
Manufacturer:	Applied Micro Design Inc.
EUT Name	1465 DL
FCC ID:	2AES2-1465
Model:	1465 DL
FCC Rule Parts:	Part 90.219
-20dB Bandwidth Frequency Range:	Window 1: 482.726800MHz – 485.033200MHz Window 2: 484.609400MHz – 487.914100MHz Window 3: 482.287500MHz – 483.112170MHz Window 4: 460.166600MHZ – 463.453300MHz Window 6: 452.871500MHz – 454.191400MHz Window 7: 850.630000MHz – 853.380000MHz Window 8:
Intended Frequencies	**Window 1:** 483.0125 MHz, 484.3813 MHz, 484.7313 MHz, 484.7625 MHz **Window 2:** 485.0625 MHz, 485.1875 MHz, 485.2625 MHz, 486.0188 MHz, 486.1125 MHz, 486.1375MHz, 486.2625 MHz, 486.7375 MHz, 487.1375 MHz, 487.2625 MHz, 487.4875 MHz **Window 3:** 482.6875 MHz, 482.7125 MHz **Window 4:** 460.4875 MHz, 462.9500 MHz, 462.9750 MHz, 463.0000 MHz, 463.0250 MHz, 463.0500 MHz, 463.0750 MHz, 463.1000 MHz, 463.1250 MHz, 463.1500 MHz, 463.1750 MHz **Window 6:** 453.2125 MHz, 453.8625 MHz **Window 7:** 851.0125 MHz, 851.5125 MHz, 853.0125 MHz **Window 8:** 477.8375 MHz, 477.9125 MHz, 478.2125 MHz
Measured Output	21.212 dBm/carrier

Modulation:	FM Audio
Window Bandpass:	Window 1: 2.3064MHz Window 2: 3.3047MHz Window 3: 824.620kHz Window 4: 3.28670MHz Window 6: 1.3199MHz Window 7: 2.7500MHz
Keying:	Automatic
Type of Information:	Audio
Equipment Class	B9B
Antenna Type	DAS (leaky coax)
Antenna Connector	N connector
Frequency Tolerance:	AMP
Emission Designator:	F3E
Power Source & Voltage:	120VAC

2.2 EUT Description

The Applied Micro Design 1465 DL is an Industrial Booster system operating Class B for an in building wireless communication for public safety distribution. It consist of multiple frequency bands broken into 11 windows (see Table 1). Each window consists of a DSP card that provides band limiting. Each DSP card feeds into an amplifier and each amplifier is combined to the antenna connection.

The Downlink signal of the system originates from a fiber optic link. The booster receives its input from a Fiber-to-RF converter. This level is set as -10dBm at the time of installation. The Downlink feeds a DAS of leaky coax at a level of 20dBm/carrier.

The Uplink system is a receive only system receiving its signal from the DAS. The receive signal is amplified and connected to a RF-to-Fiber converter via coax. The uplink does not transmit.

Due to the restricted nature of this installation, The FCC has allowed the Downlink booster to be tested at the predefined input level of -10dBm. This was the test method agreed in correspondence with the FCC via testing guidance KDB inquiry.

2.3 Test Configuration

See attached document: "1465-WTC4-System-Diagram-rev9.pdf"

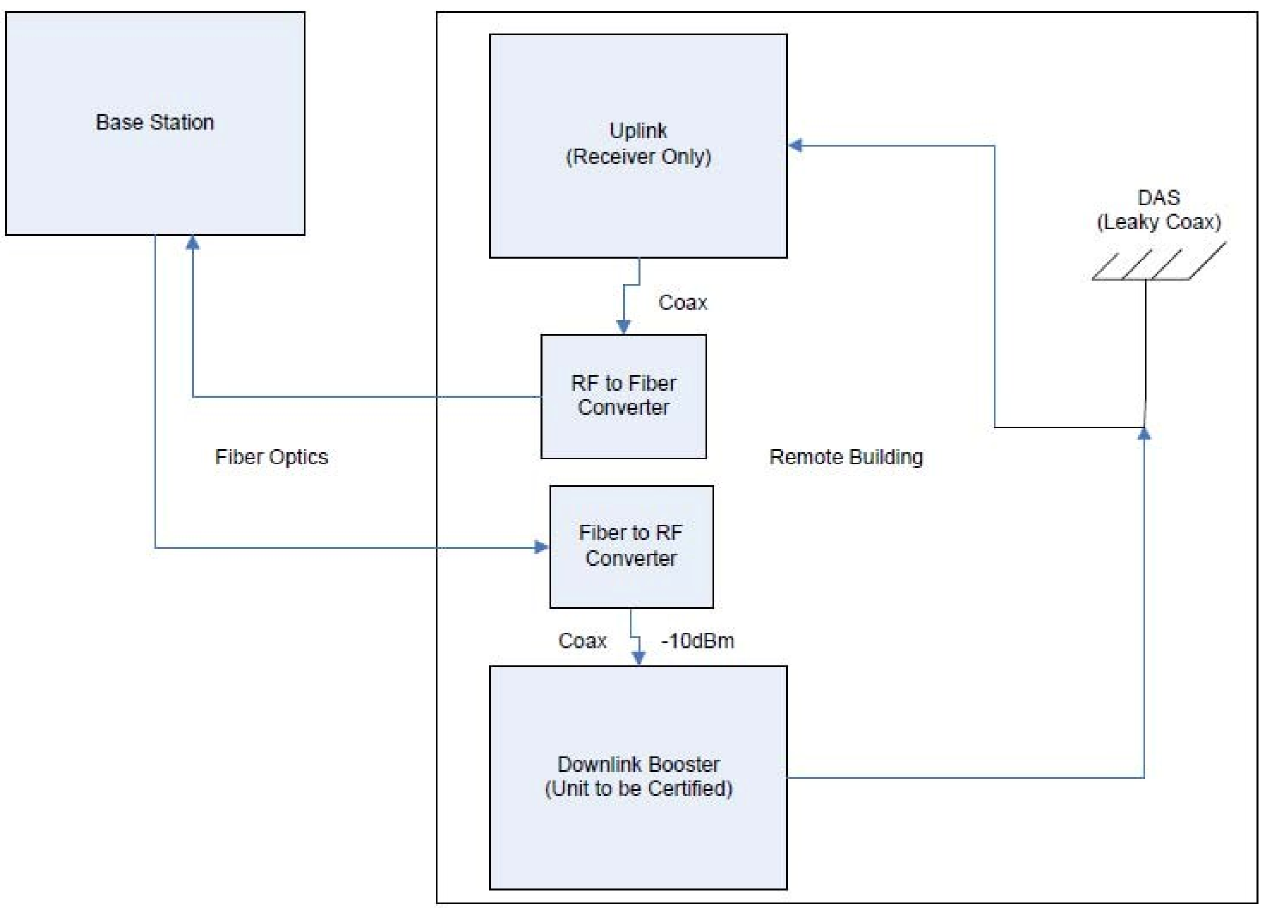

Figure 1: Simplified Top Level Block Diagram

2.4 Equipment Configuration

The EUT was comprised of the following equipment. (All Modules, PCBs, etc. listed were considered as part of the EUT, as tested.)

Table 2: Equipment Configuration

Name / Description	Model Number	Serial Number
UL Card Cage, 4 cards	1465DSP-4-2-P	0115-003
UL Card Cage, 3 cards	1465DSP-3-2-P	0115-004
UL Card Cage, 4 card	1465DSP-4-2-P	0115-005
Dual Power Amplifier	1465PAD-3-1-400	0115-018
Dual Power Amplifier	1465PAD-2-1-400	0115-019
Single Power Amplifier	1465PAS-4-800	0115-015
CBC-Combiner	1465CCS-4-400	0115-025

2.5 Support Equipment

The following support equipment was used during testing:

Table 3: Support Equipment

Name / Description	Model Number	Serial Number
Industrial Computer		149D456X012610
Industrial Computer All in one	N117e	S1446001013116-12146002

2.6 EUT Modifications

The following modifications were necessary for the EUT to comply with requirements.

To meet the mask requirements of FCC 90.210, the PLL filter was adjusted.

To meet the intermodulation requirements, a 10dB attenuator was added to the front end of the DSP cards and 10dB of gain was added to the final stage of the DSP cards.

2.7 Test Location

All measurements herein were performed at Washington Laboratories, Ltd. test center in Gaithersburg, MD. Washington Laboratories, Ltd. has been accepted by the FCC and approved by ACLASS under Certificate AT-1448 as an independent FCC test laboratory.

2.8 Measurement Uncertainty

All results reported herein relate only to the equipment tested. The basis for uncertainty calculation uses ANSI/NCSL Z540-2-1997 with a type B evaluation of the standard uncertainty. Elements contributing to the standard uncertainty are combined using the method described in Equation 1 to arrive at the total standard uncertainty. The standard uncertainty is multiplied by the coverage factor to determine the expanded uncertainty which is generally accepted for use in commercial, industrial, and regulatory applications and when health and safety are concerned (see Equation 2). A coverage factor was selected to yield a 95% confidence in the uncertainty estimation.

Equation 1: Standard Uncertainty

$$u_c = \pm\sqrt{\frac{a^2}{{div_a}^2} + \frac{b^2}{{div_b}^2} + \frac{c^2}{{div_c}^2} + \ldots\ldots}$$

Where u_c = standard uncertainty

a, b, c,.. = individual uncertainty elements

$Div_{a,\,b,\,c}$ = the individual uncertainty element divisor based on the probability distribution

Divisor = 1.732 for rectangular distribution

Divisor = 2 for normal distribution

Divisor = 1.414 for trapezoid distribution

Equation 2: Expanded Uncertainty

$$U = ku_c$$

Where U = expanded uncertainty

k = coverage factor

$k \leq 2$ for 95% coverage (ANSI/NCSL Z540-2 Annex G)

u_c = standard uncertainty

The measurement uncertainty complies with the maximum allowed uncertainty from CISPR 16-4-2. Measurement uncertainty is not used to adjust the measurements to determine compliance. The expanded uncertainty values for the various scopes in the WLL accreditation are provided in Table 4 below.

Table 4: Expanded Uncertainty List

Scope	Standard(s)	Expande d
Radiated Emissions	FCC Part 15	4.55 dB

3 Test Equipment

Test Name: Conducted Emissions Voltage		Test Date: 04/20/2015	
Asset #	**Manufacturer/Model**	**Description**	**Cal. Due**
124	SOLAR - 8012-50-R-24-BNC	LISN	7/31/2015
125	SOLAR - 8028-50-TS-24-BNC	LISN	8/1/2015
126	SOLAR - 8028-50-TS-24-BNC	LISN	8/1/2015
68	HP - 85650A	ADAPTER QP	6/30/2015
72	HP - 8568B	ANALYZER SPECTRUM	6/30/2015
53	HP - 11947A	LIMITER TRANSIENT	9/18/2015

Test Name: Radiated Emissions		Test Date: 04/20/2015	
Asset #	**Manufacturer/Model**	**Description**	**Cal. Due**
68	HP - 85650A	ADAPTER QP	6/30/2015
72	HP - 8568B	ANALYZER SPECTRUM	6/30/2015
70	HP - 85685A	PRESELECTOR RF W/OPT 8ZE	6/30/2015
382	SUNOL SCIENCES CORPORATION - JB1	ANTENNA BICONLOG	8/26/2015
7	ARA - LPB-2520	ANTENNA BICONILOG ANTENNA	4/30/2015
4	ARA - DRG-118/A	ANTENNA DRG 1-18GHZ	8/20/2015
625	CHROMA - 66202	AC POWER METER	12/15/2015
823	AGILENT - N9010A	EXA SPECTRUM ANALYZER	6/6/2015
478	RHODE SCHWARZ - SMT 06	SIGNAL GENERATOR	5/31/2015
66	B&Z - BZ-01002650-401545-282525	PRE-AMPLIFIER RF. 1-26.5GHZ	10/23/2015
803	R&S - SMR 40	SIGNAL GENERATOR 1 - 40GHZ	9/22/2016

Test Name: **Bench Conducted**		Test Date: **05/15/2015**	
Asset #	**Manufacturer/Model**	**Description**	**Cal. Due**
00075	HP - 8648C	GENERATOR RF SIGNAL	5/9/2015
00823	AGILENT - N9010A	EXA SPECTRUM ANALYZER	6/6/2015
00528	AGILENT - E4446A	3HZ - 44GHZ ANALYZER SPECTRUM	4/23/2016
I/D 1121131019	MARCONI INSTRUMENTS - 2024	GENERATOR RF SIGNAL	10/31/2015
I/D 203001	IFR 1032	GENERATOR RF SIGNAL	CAL IN TEST
N/A	MINI CIRCUITS 15542	RF SIGNAL COMBINER	CAL IN TEST

4 Test Results

Windows 1, 2, 3, 4, 6, 8 & 11 were tested individually. Windows 7, 9 and 12 are identical and only window 7 was tested beyond out of band rejection.

4.1 Measuring the EUT AGC threshold:

Procedure: KDB 935210 D05 Indus Booster Basic Meas v01 DR07-42107: Section 4.2

Testing at and above the AGC threshold is required. The AGC threshold shall be determined by applying the procedure defined in 3.2 with the signal generator configured to produce either a test signal defined in Table 1 or a CW input signal, as appropriate.

Section 3.2 states:

a) Connect a signal generator to the input of the EUT.
b) Connect a spectrum analyzer or power meter to the output of the EUT using appropriate attenuation as necessary.
c) The signal generator should initially be configured to produce either of the required test signals (i.e., broadband or narrowband).
d) Set the signal generator frequency to the center frequency of the EUT operating band.
e) While monitoring the output power of the EUT, measured using the methods of 3.5.3 or 3.5.4, increase the input level until a 1 dB increase in the input signal power no longer causes a 1 dB increase in the output signal power.
f) Record this level as the AGC threshold level.

Each window was connected to a signal generator set to the center frequency and producing a CW signal of the window under test. The output of the system was connected to the input of the spectrum analyzer through appropriate attenuation, with offsets set in the spectrum analyzer to compensate for the attenuation. The above procedure was followed. The results can be found in Table 5.

Table 5: AGC Threshold Levels

Window	Center Freq. (MHz)	Measured AGC input (dBm)	Power Out (dBm)
1	483.88	-6	21.01
2	486.26175	-6	22.35
3	482.69986	-6	21.29
4	461.80995	-4	20.77
6	453.53145	-6	20.25
8	478.02215	-6	21.3
10	453.64745	-6	19.97
7, 9, 12	852.005	-4	21.94
11	852.54	-4	21.8

4.2 PLMRS device out-of-band rejection

Procedure: KDB 935210 D05 Indus Booster Basic Meas v01 DR07-42107: Section 4.3

Section 4.3 Specifies the following procedure:

a) Connect a signal generator to the input of the EUT.

b) Configure a swept CW signal with the following parameters:

c) Frequency range = ± 250 % of the manufacturer's pass band.

d) The CW amplitude will be 3 dB below the AGC threshold (see 4.2) and but not activate the AGC threshold throughout the test.

e) Dwell time = approx. 10 ms.

f) Frequency step = 50 kHz.

g) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation.

h) Set the resolution bandwidth of the spectrum analyzer between 1 % and 5 % of the manufacturer's pass band with the video bandwidth set to 3 × RBW.

i) Set the detector to Peak and the trace to Max-Hold.

j) After the trace is completely filled, place a marker at the peak amplitude, which is designated as f_0, and with two additional markers (use the marker-delta method) at the 20 dB bandwidth (i.e., at the points where the gain has fallen by 20 dB)

Table 6 provides the peak amplitude (F_0) as well as center frequency of the window ($F_{c)}$, the low end of the frequency band (F_L), the high end of the frequency band (F_H) and the overall bandwidth of the window (B_w). See Figure 2 through Figure 12 for plots of the measurements.

Table 6: Out of Band Rejection

Window	F_0 (MHz)	F_L (MHz)	F_H (MHz)	F_C (MHz)	Bw (MHz)	Power (dBm)
1	483.20090	482.72680	485.03320	483.88000	2.31	20.1
2	485.10030	484.60940	487.91410	486.26175	3.30	21.1
3	482700410	482.28755	483.11217	482.69986	0.82462	19.4
4	460.6406	460.1666	463.4533	461.80995	3.2867	19.7
6	453.3406	452.8715	454.1914	453.53145	1.3199	18.5
8	478.02165	477.61083	478.43347	478.02215	0.82264	19.4
10	453.65002	453.23079	454.06411	453.64745	0.83332	17.0
7, 9, 12	851.00000	850.63	853.38	852.005	2.75	18.5
11	851.40000	850.89	854.19	852.54	3.3	18.5

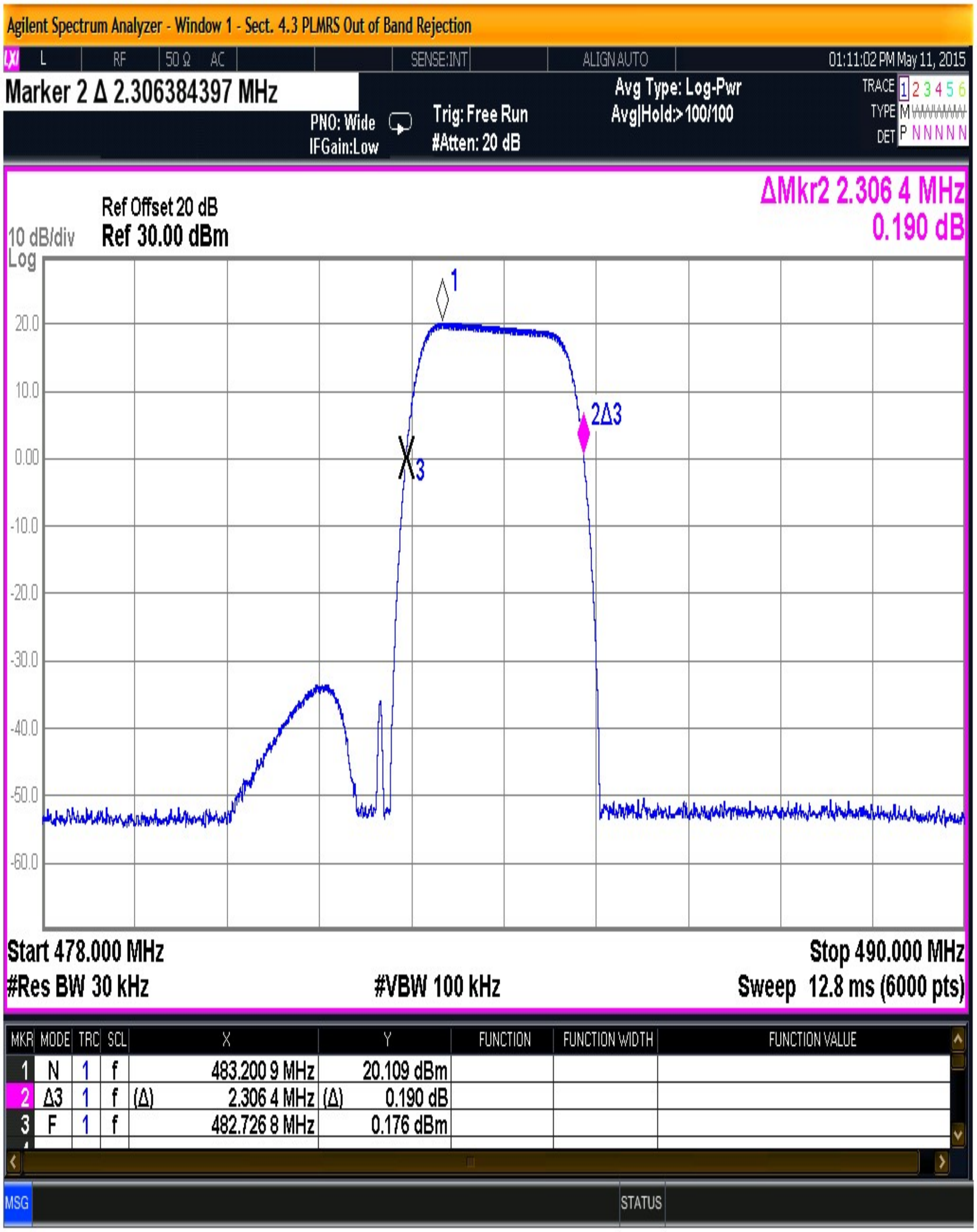

Figure 2. Window 1 - Sect. 4.3 PLMRS Out of Band Rejection

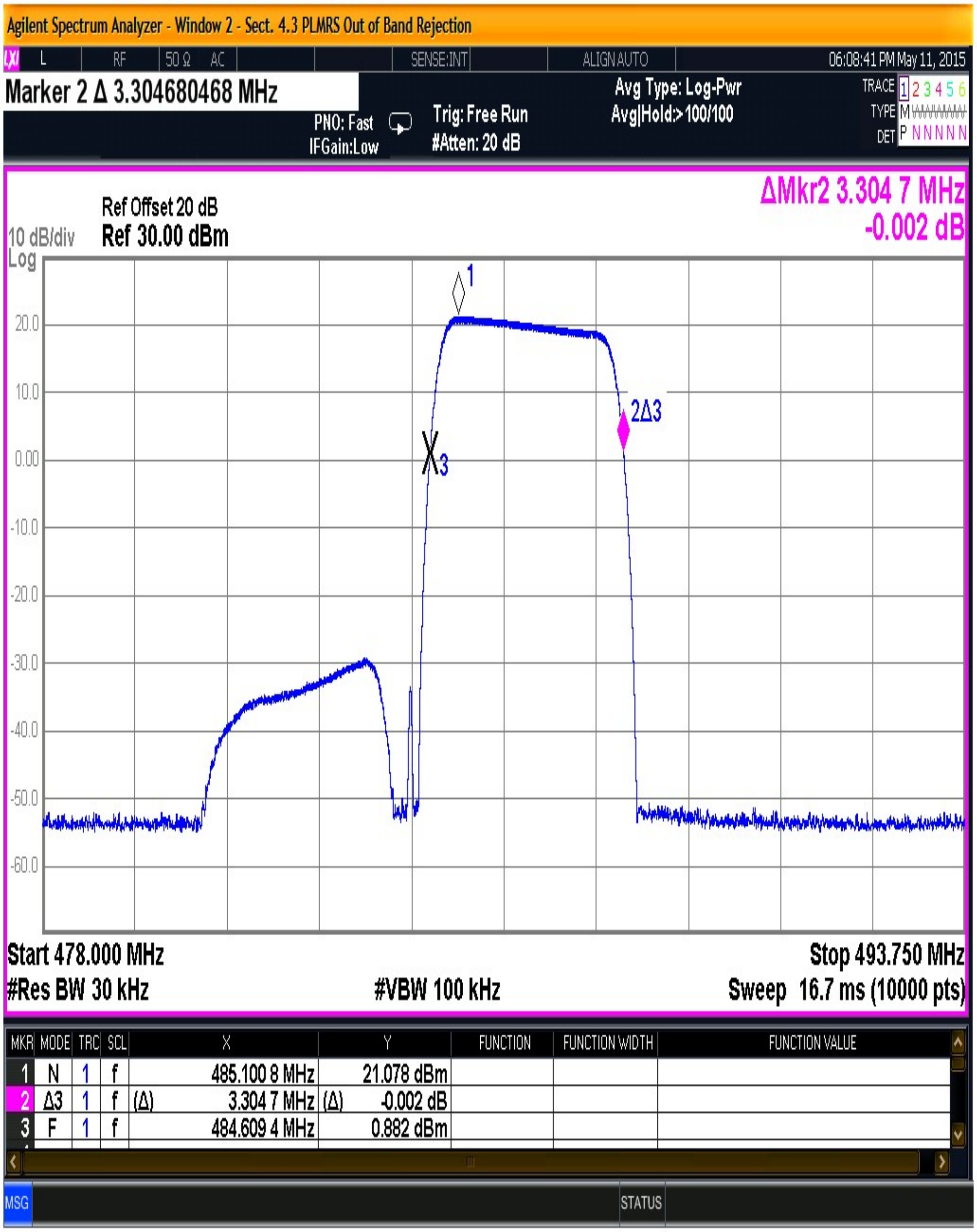

Figure 3. Window 2 - Sect. 4.3 PLMRS Out of Band Rejection

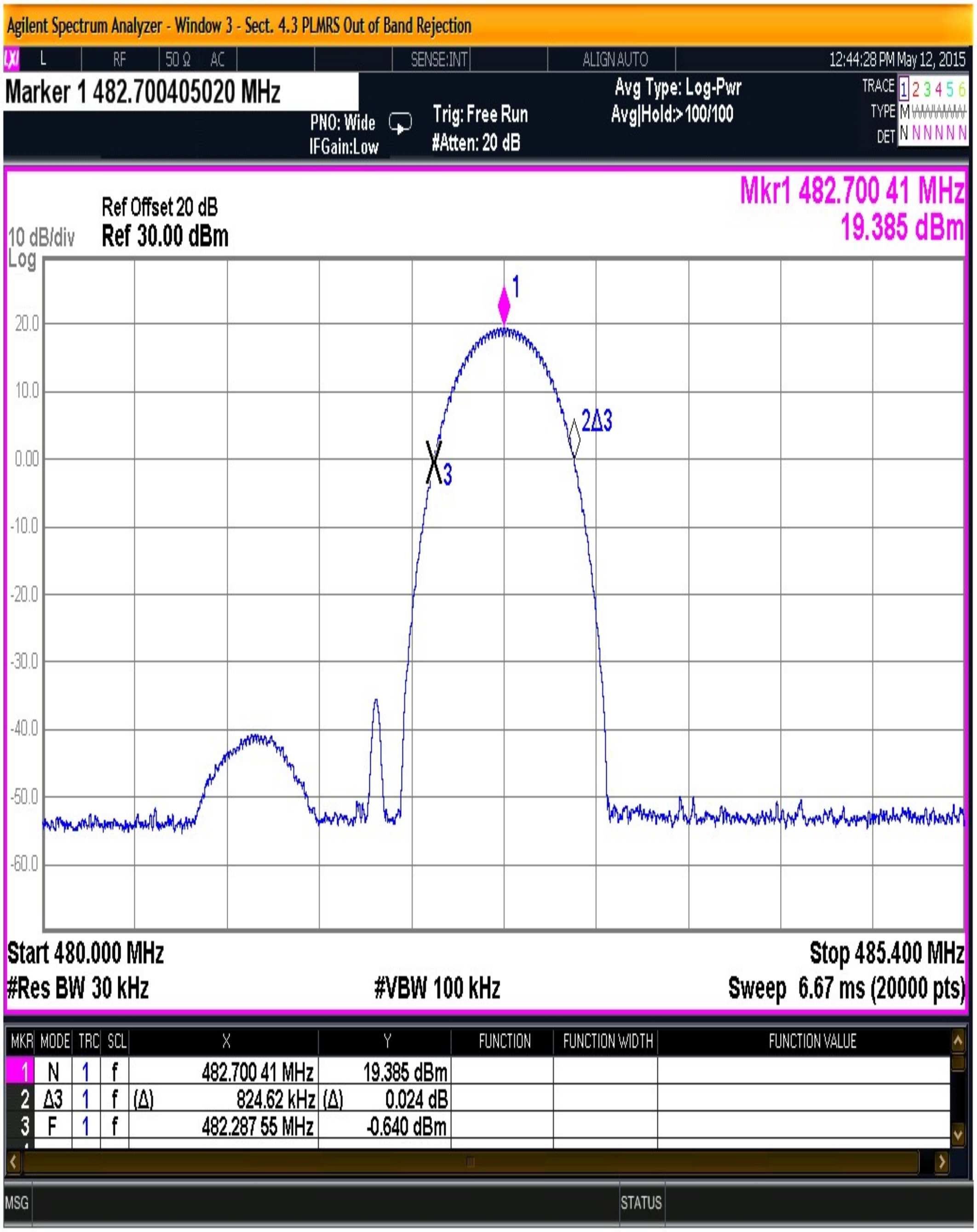

Figure 4. Window 3 - Sect. 4.3 PLMRS Out of Band Rejection

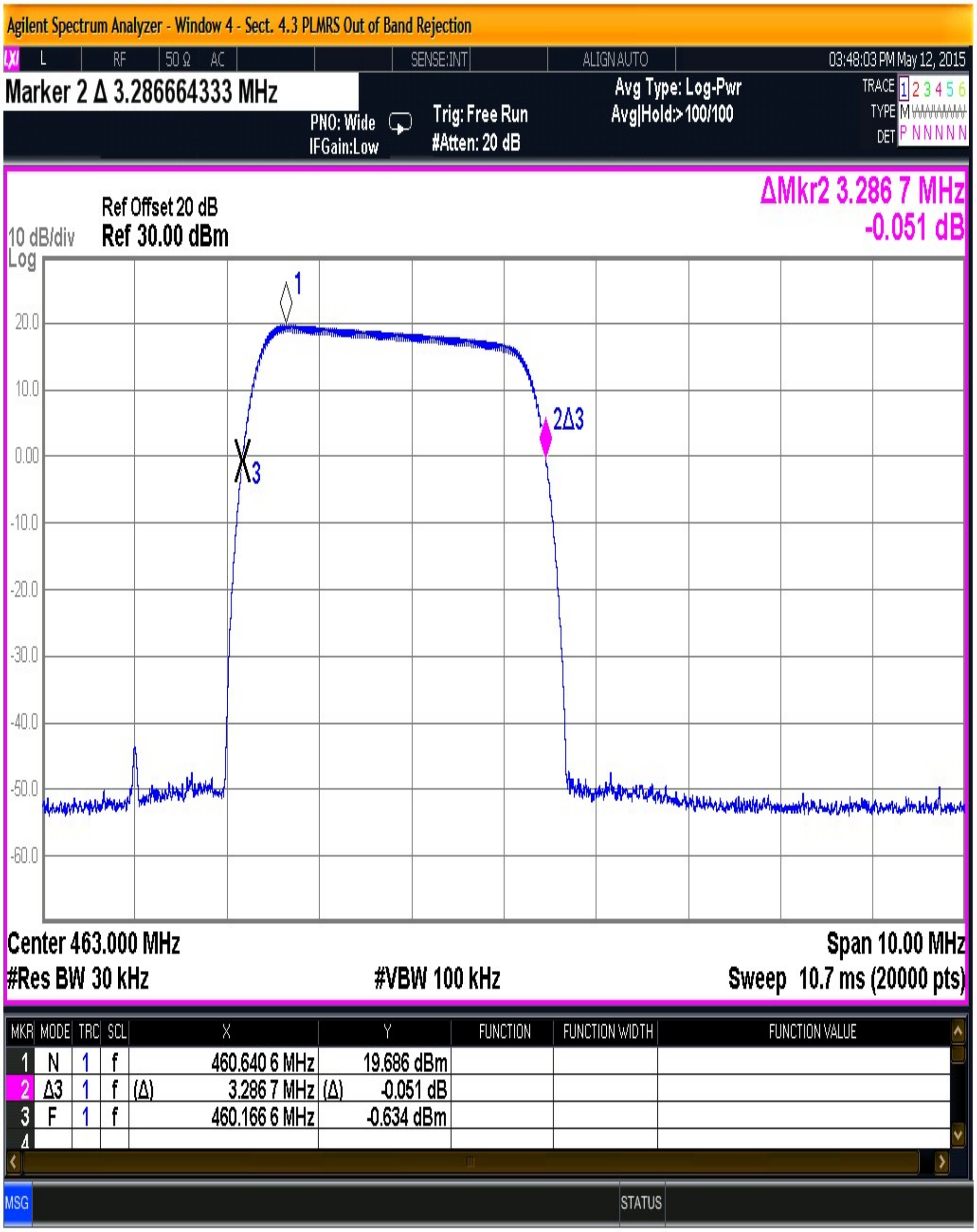

Figure 5. Window 4 - Sect. 4.3 PLMRS Out of Band Rejection

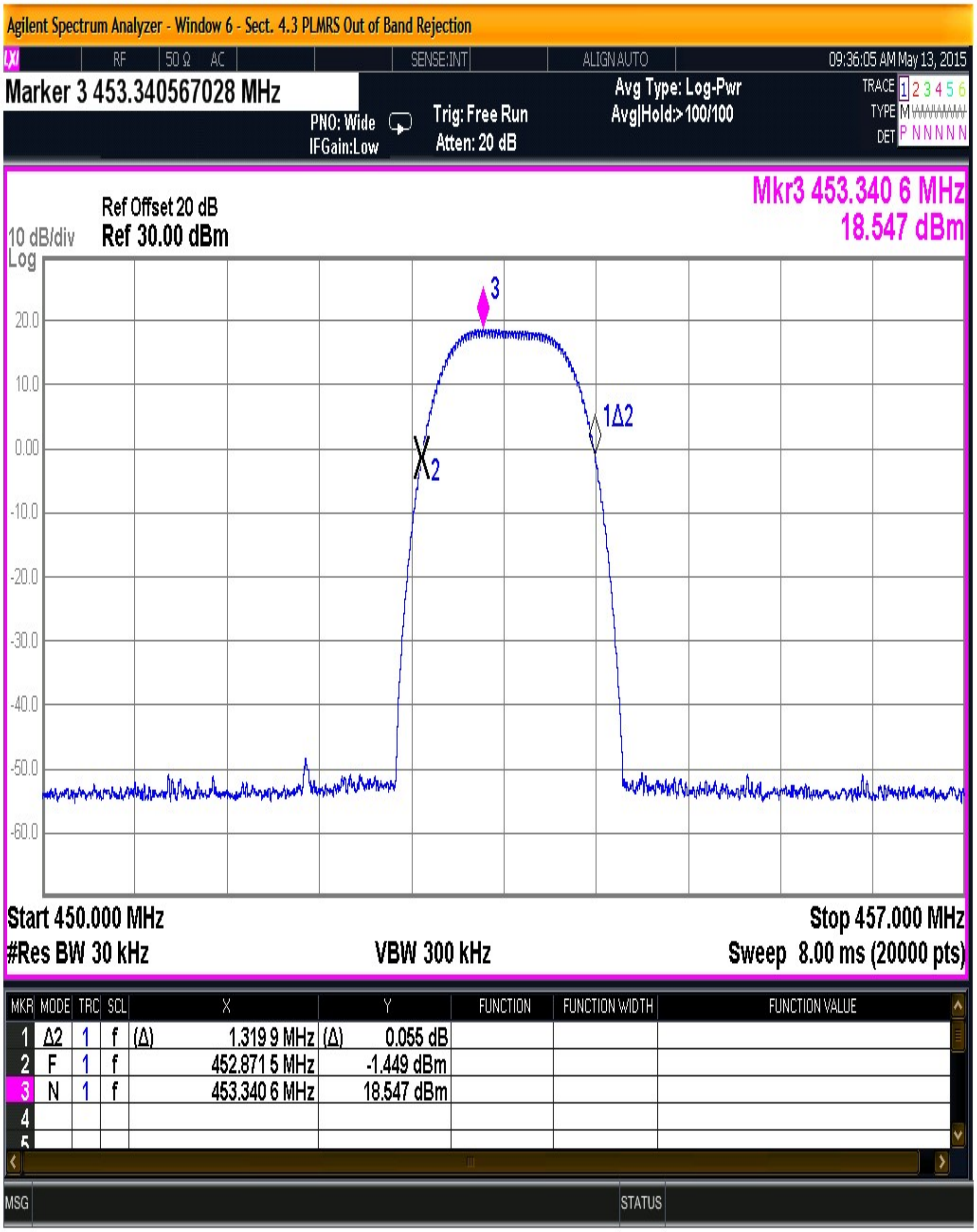

Figure 6. Window 6 - Sect. 4.3 PLMRS Out of Band Rejection

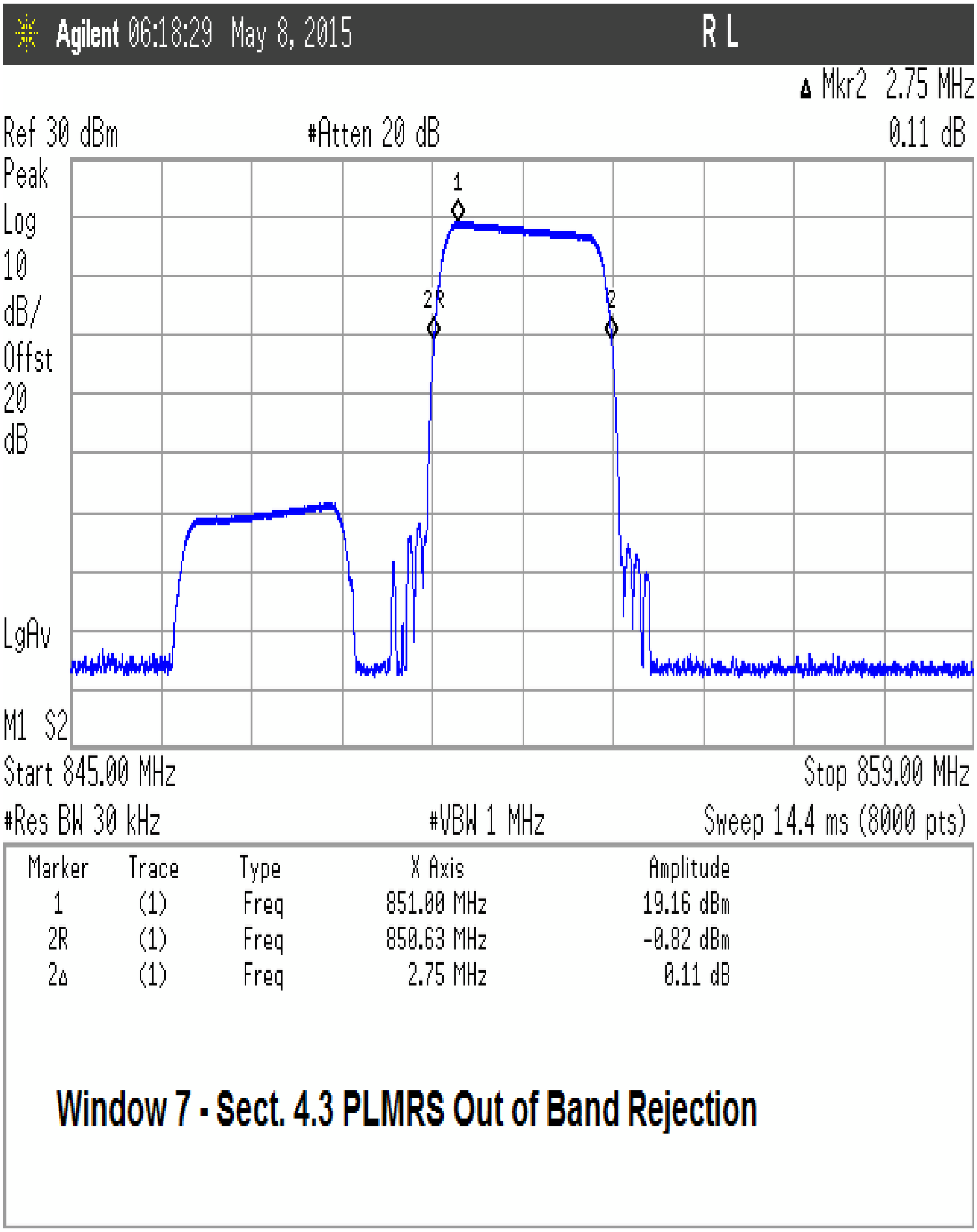

Figure 7. Window 7 - Sect. 4.3 PLMRS Out of Band Rejection

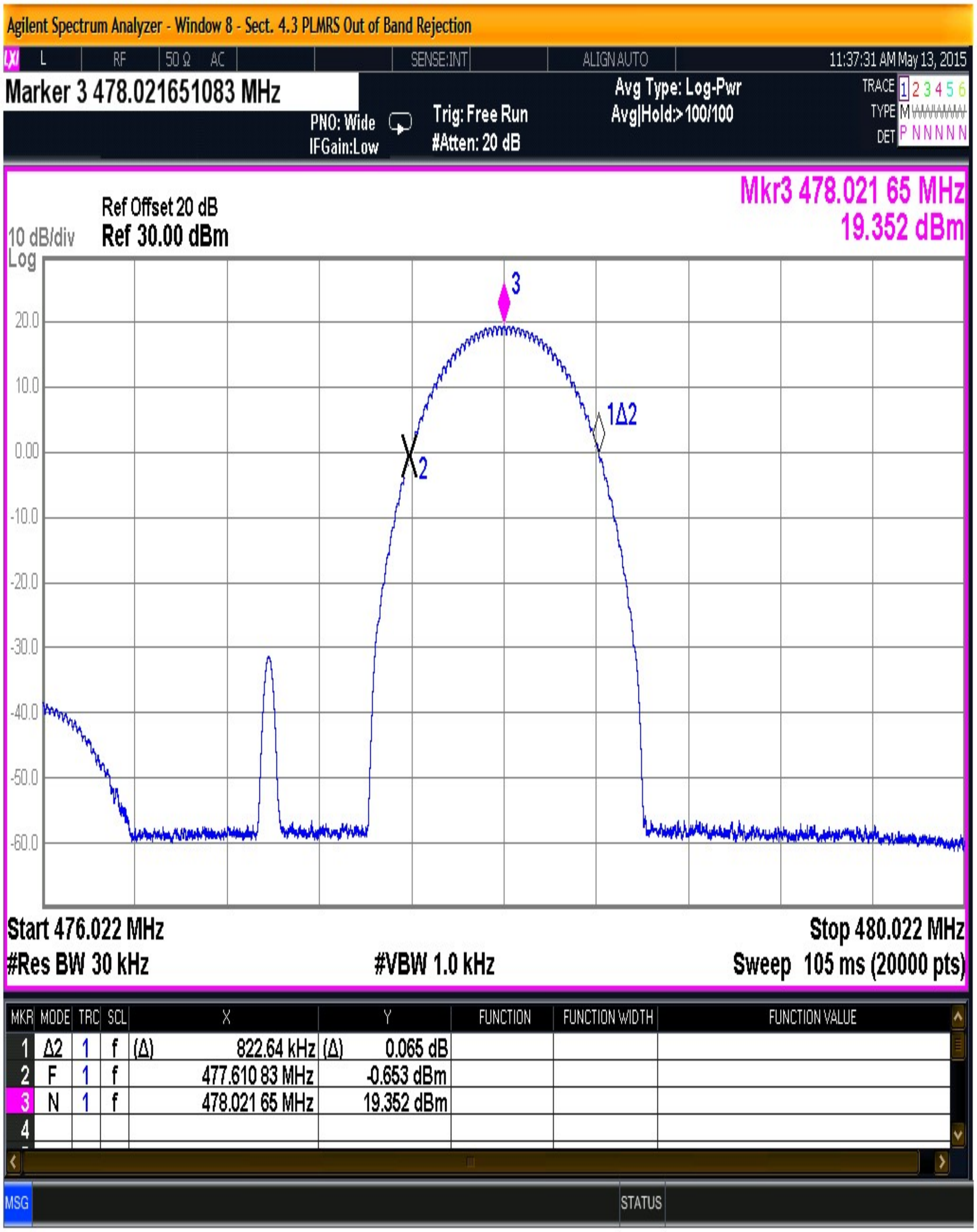

Figure 8. Window 8 - Sect. 4.3 PLMRS Out of Band Rejection

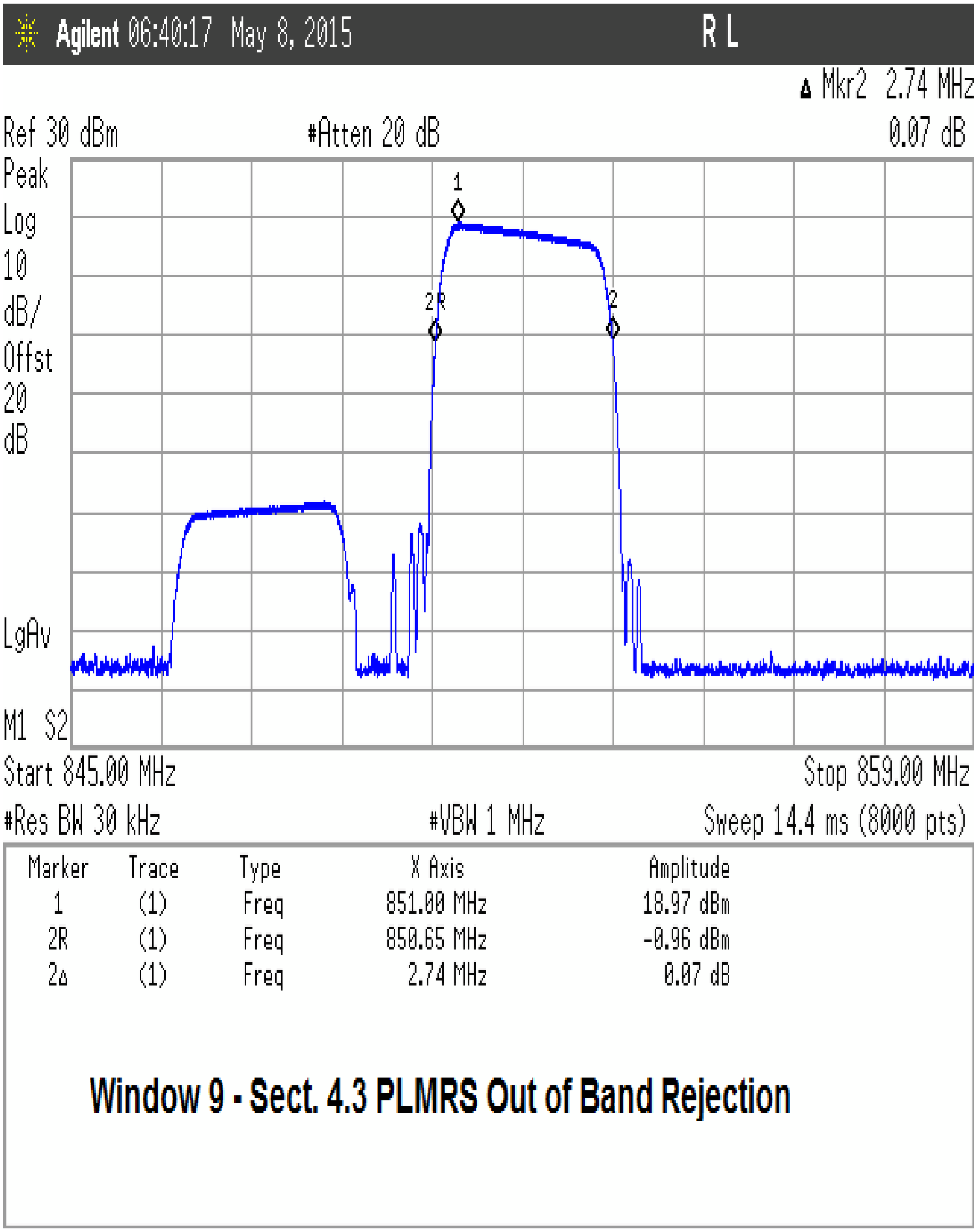

Figure 9. Window 9 - Sect. 4.3 PLMRS Out of Band Rejection

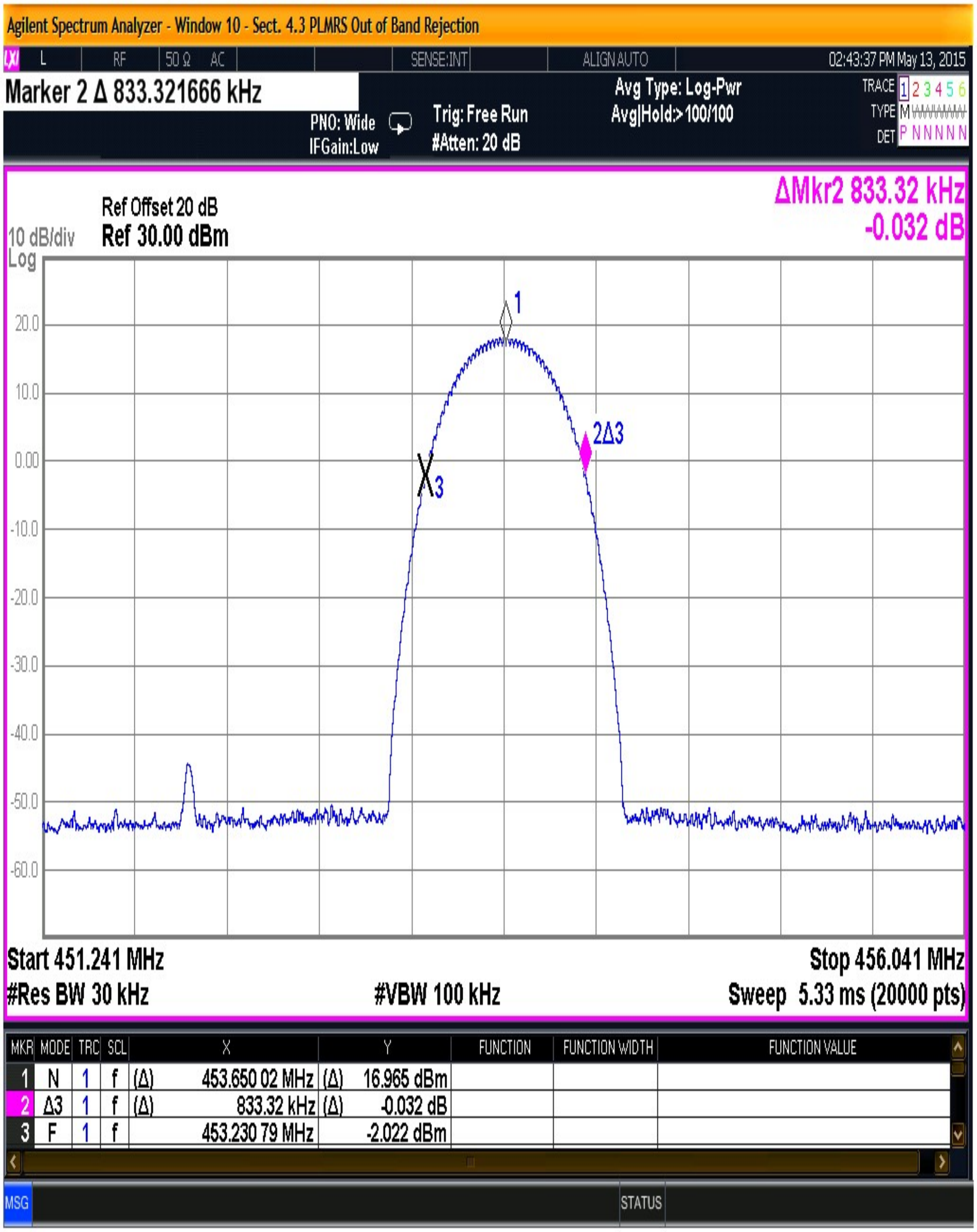

Figure 10. Window 10 - Sect. 4.3 PLMRS Out of Band Rejection

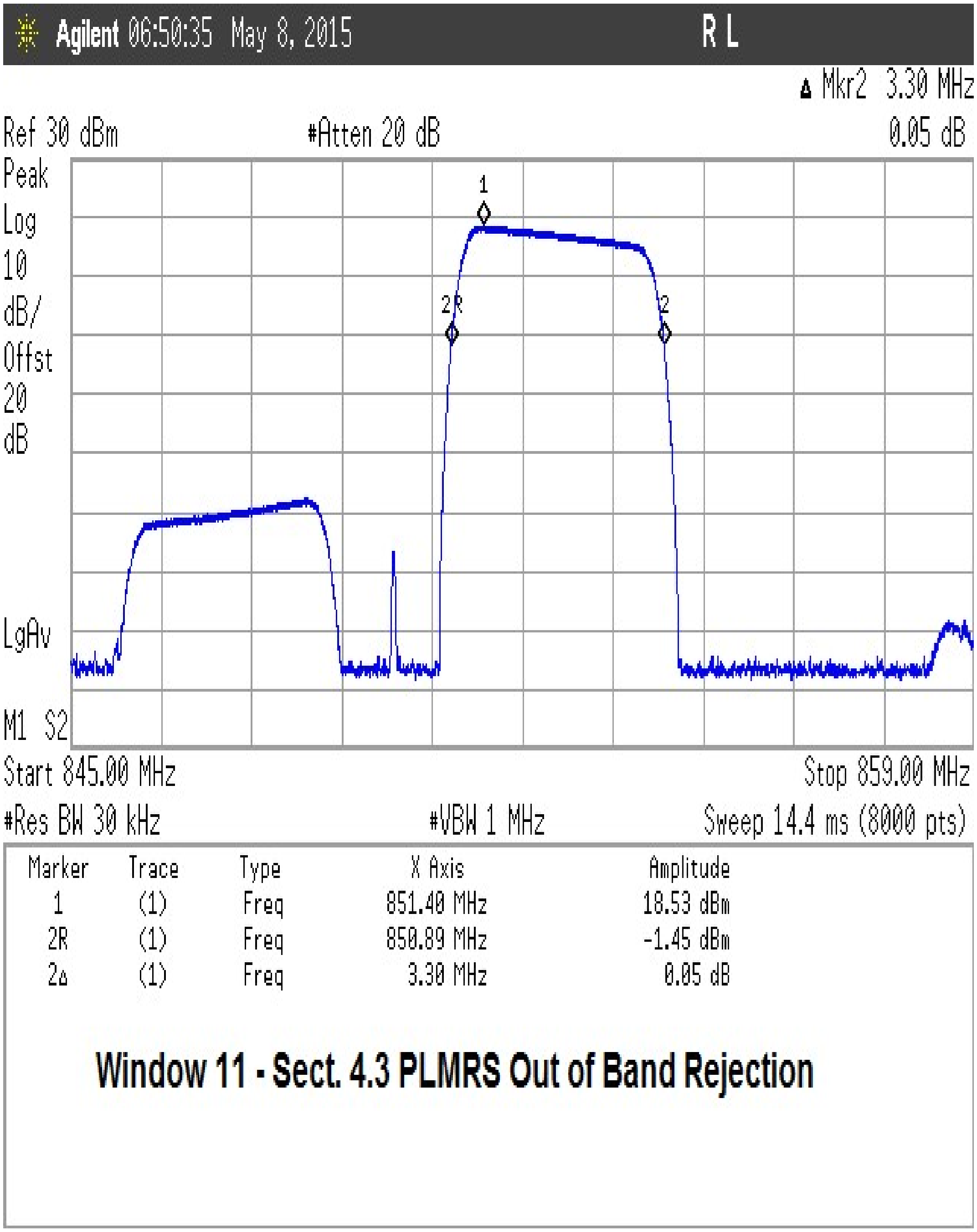

Figure 11. Window 11 - Sect. 4.3 PLMRS Out of Band Rejection

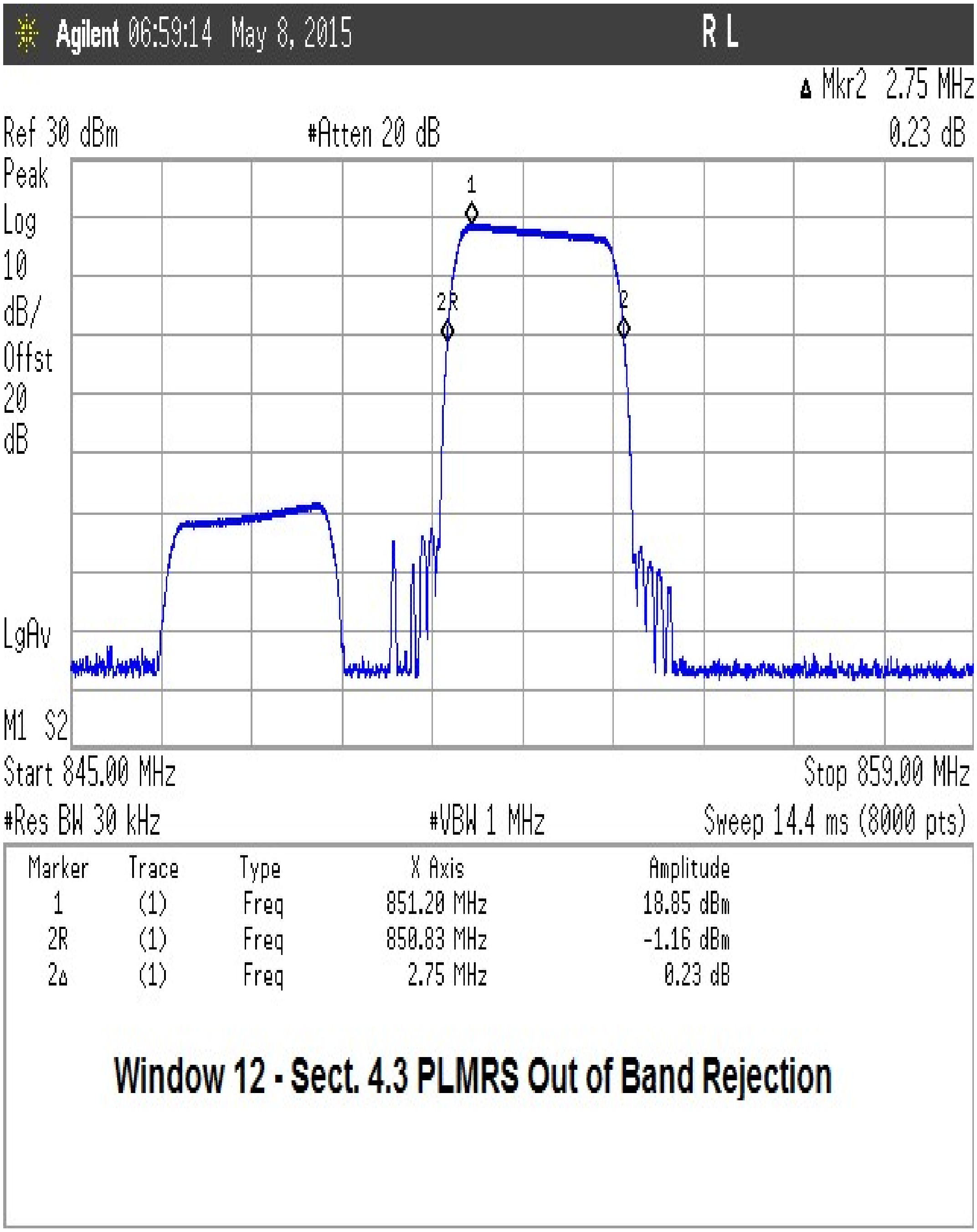

Figure 12. Window 12 - Sect. 4.3 PLMRS Out of Band Rejection

4.3 EUT input-versus-output signal comparison

Procedure: KDB 935210 D05 Indus Booster Basic Meas v01 DR07-42107: Section 4.4

Section 4.3 Specifies that the emissions mask of the EUT output shall be measured for the following public safety signal types.

Table 7: Test Signals for PLMRS Devices

Emission Designator	Modulation	Occupied Bandwidth	Channel Bandwidth	Audio Frequency
16K0F3E	FM	16 kHz	25 kHz	1 kHz
11K3F3E	FM	11.3 kHz	12.5 kHz	1 kHz
4K00F1E	FM	4 kHz	6.25 kHz	1 kHz
N/A	CW	N/A	N/A	N/A

The signal generator was configured to produce a FM signal with the appropriate deviation that created an signal with the occupied bandwidths listed in Table 7.

§ 90.210 Emission masks (c), (d), (e) and (h) were used.

The following procedure was used :

a) Connect a signal generator to the input of the EUT.
b) Configure the signal generator to transmit the appropriate test signal associated with the public safety emission designation (see Table 1).
c) Configure the signal level to be just below the AGC threshold (see results from 4.2).
d) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation as necessary.
e) Set the spectrum analyzer center frequency to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between 2 times to 5 times the EBW (or OBW).
f) The nominal resolution bandwidth (RBW) shall 300 Hz for 16K0F3E and 100 Hz for all other emissions types.
g) Set the reference level of the spectrum analyzer to accommodate the maximum input amplitude level.
h) Set spectrum analyzer detection mode to peak, and trace mode to max hold.
i) Allow the trace to fully stabilize.
j) Confirm that the signal is contained within the appropriate emissions mask.
k) Use the marker function to determine the maximum emission level and record the associated frequency as f_0.
l) Capture the emissions mask plot for inclusion in the test report (output signal spectra).
m) Measure the EUT input signal power (signal generator output signal) directly from the signal generator using power measurement guidance provided in KDB Publication 971168 (input signal spectra).
n) Compare the spectral plot of the output signal (determined in step k), to the input signal (determined in step l) to affirm they are similar.
o) Repeat steps b) to n) for all authorized operational bands and emissions types (see applicable regulatory specifications, e.g., §90.210).

p) Include all accumulated spectral plots depicting EUT input signal and EUT output signal in the test report and note any observed dissimilarities.

4.3.1 Results:

In all cases, the output matched the input with the exception of amplitude as would be expected in a booster. See Figure 13 through Figure 24 for the plots that support this conclusion.

Note: Windows 7, 9, and 12 are identical. Window 7 data represents all three windows.

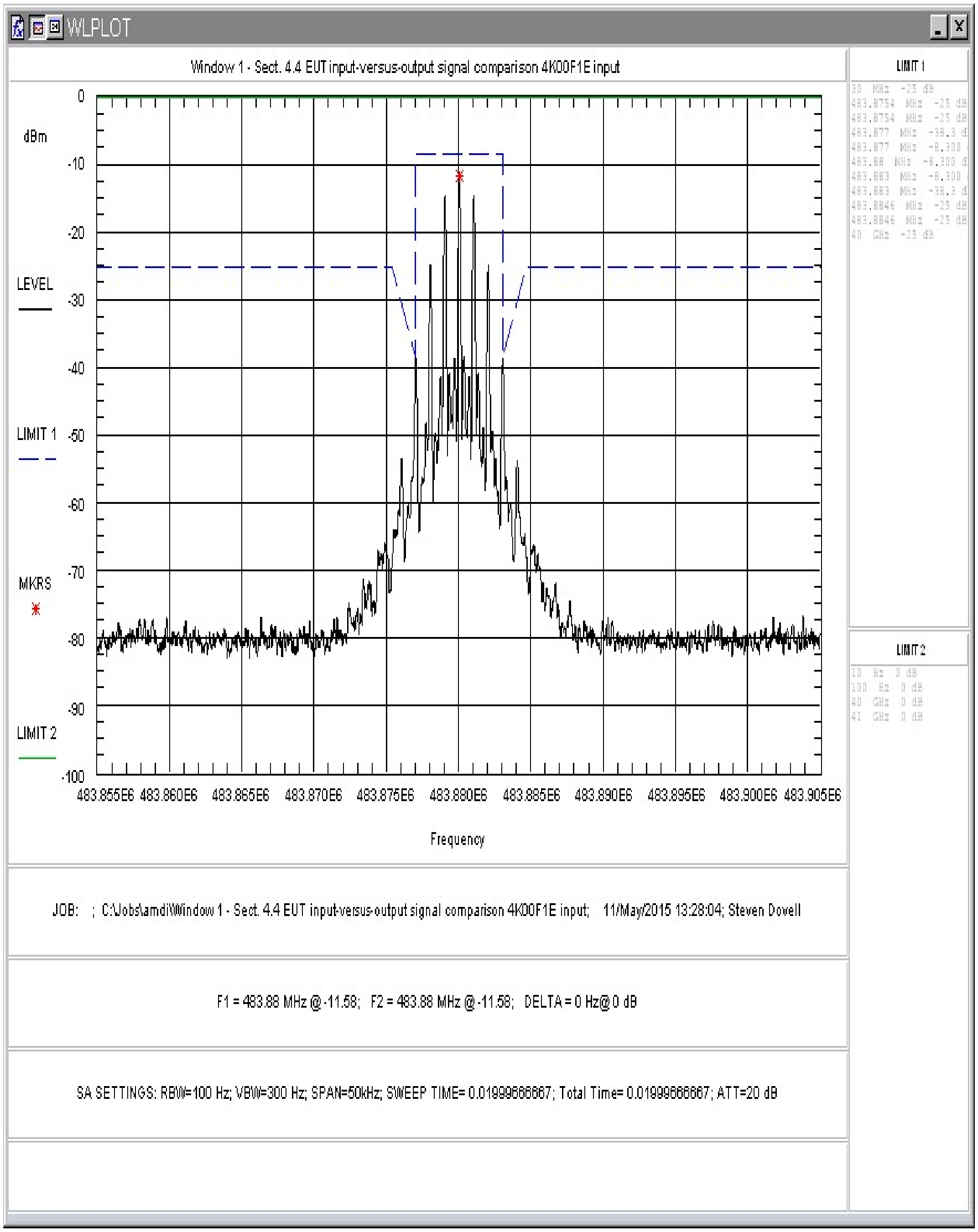

Figure 13. Window 1 - Sect. 4.4 EUT input-versus-output signal comparison 4K00F1E input

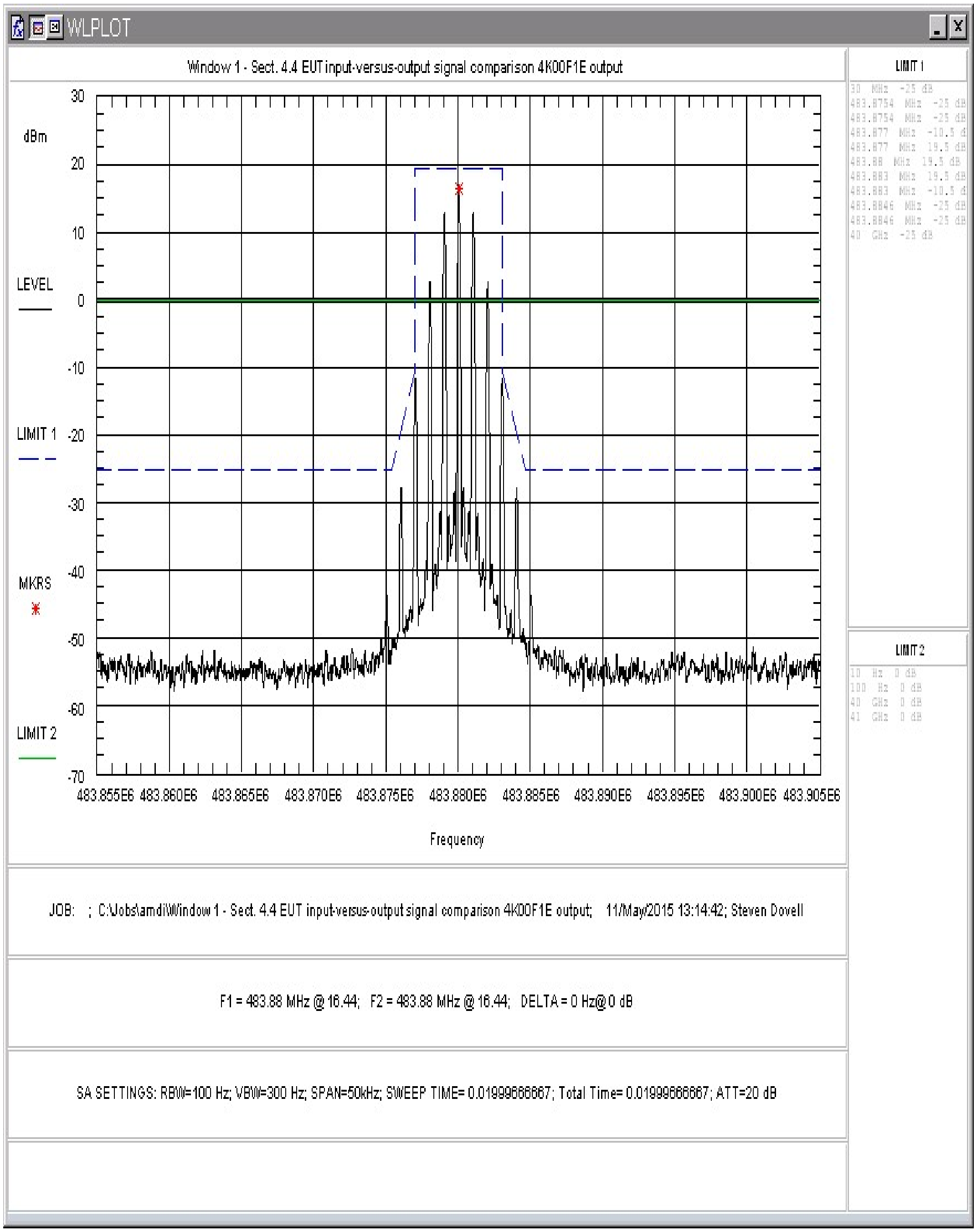

Figure 14. Window 1 - Sect. 4.4 EUT input-versus-output signal comparison 4K00F1E output

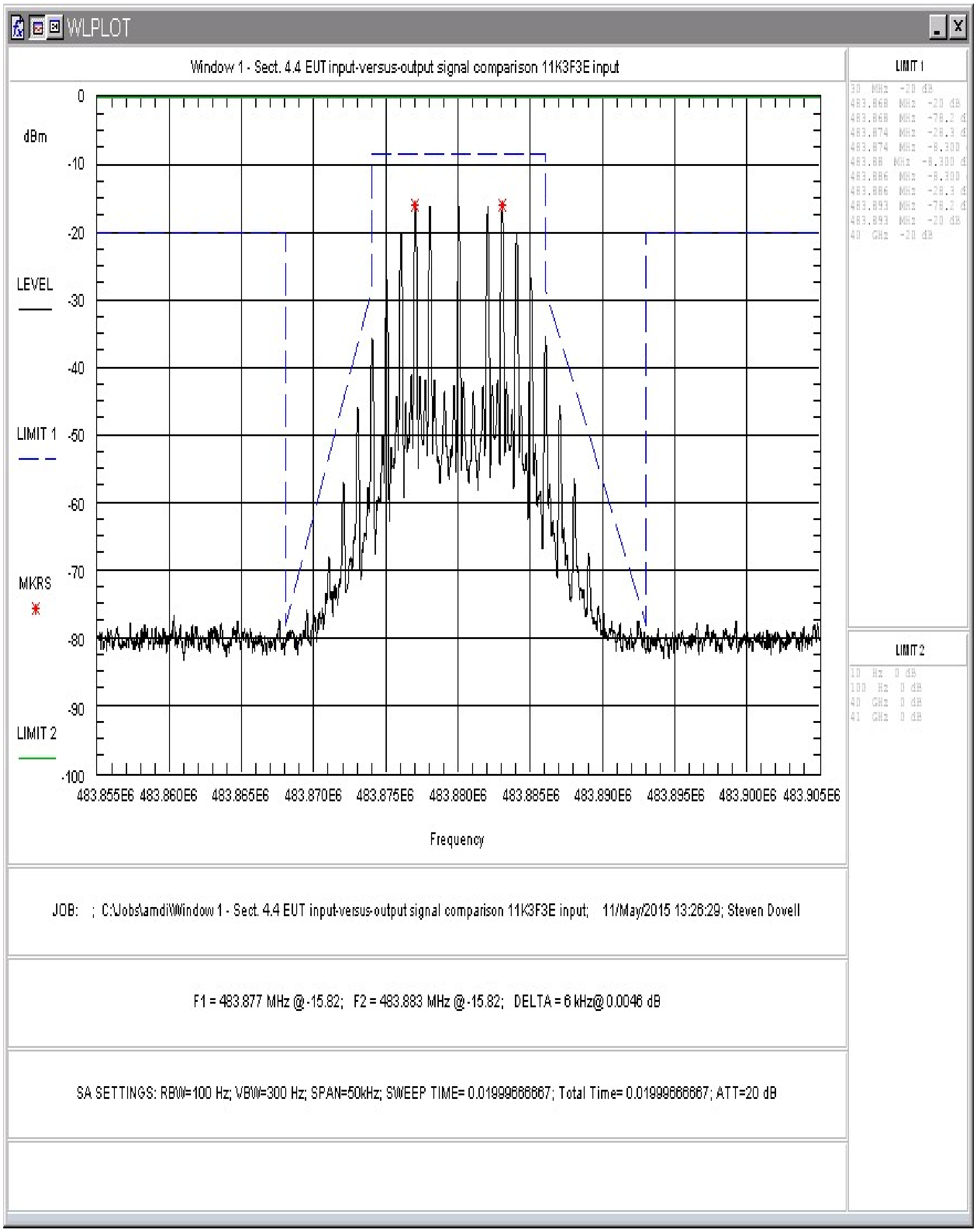

Figure 15. Window 1 - Sect. 4.4 EUT input-versus-output signal comparison 11K3F3E input

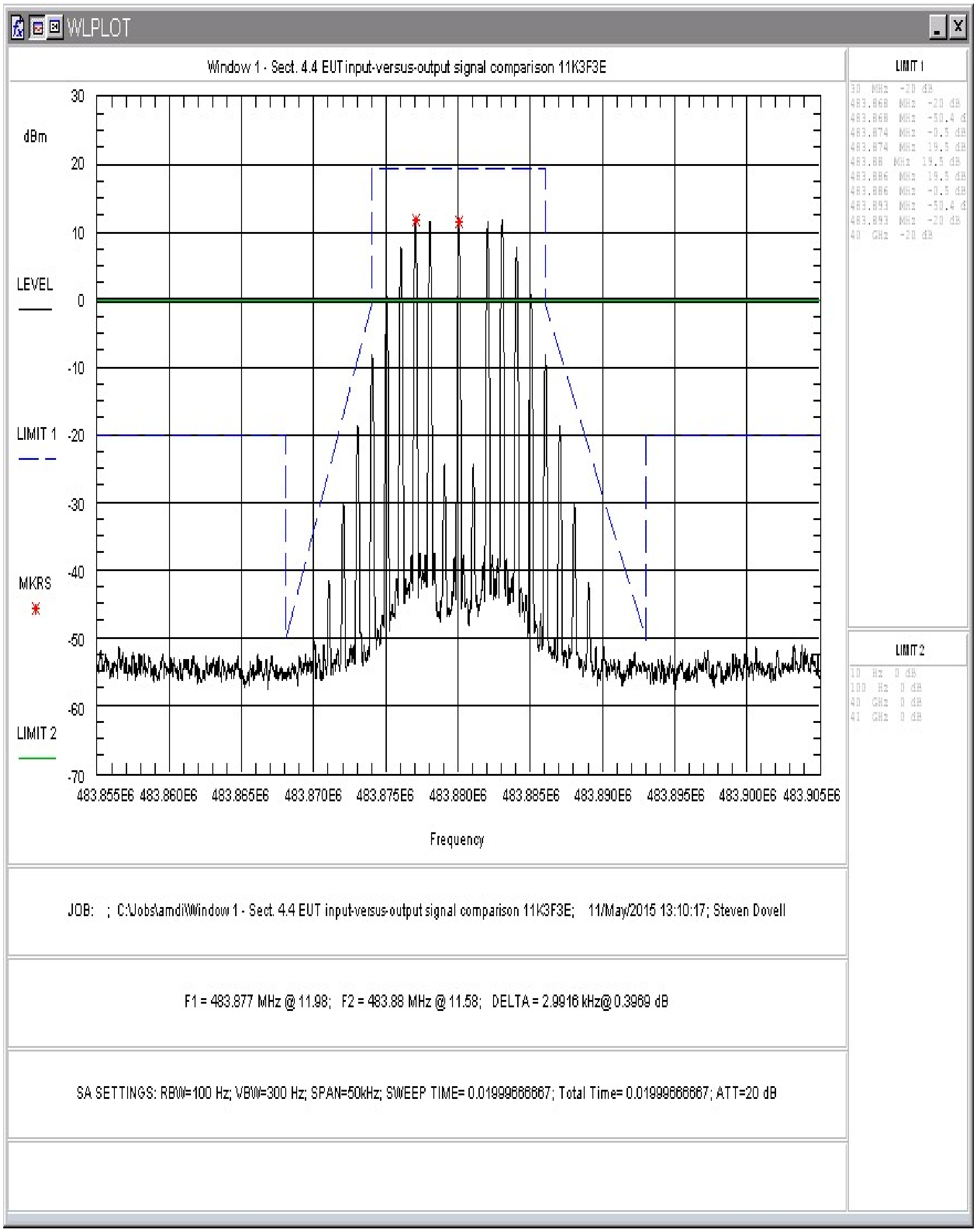

Figure 16. Window 1 - Sect. 4.4 EUT input-versus-output signal comparison 11K3F3E output

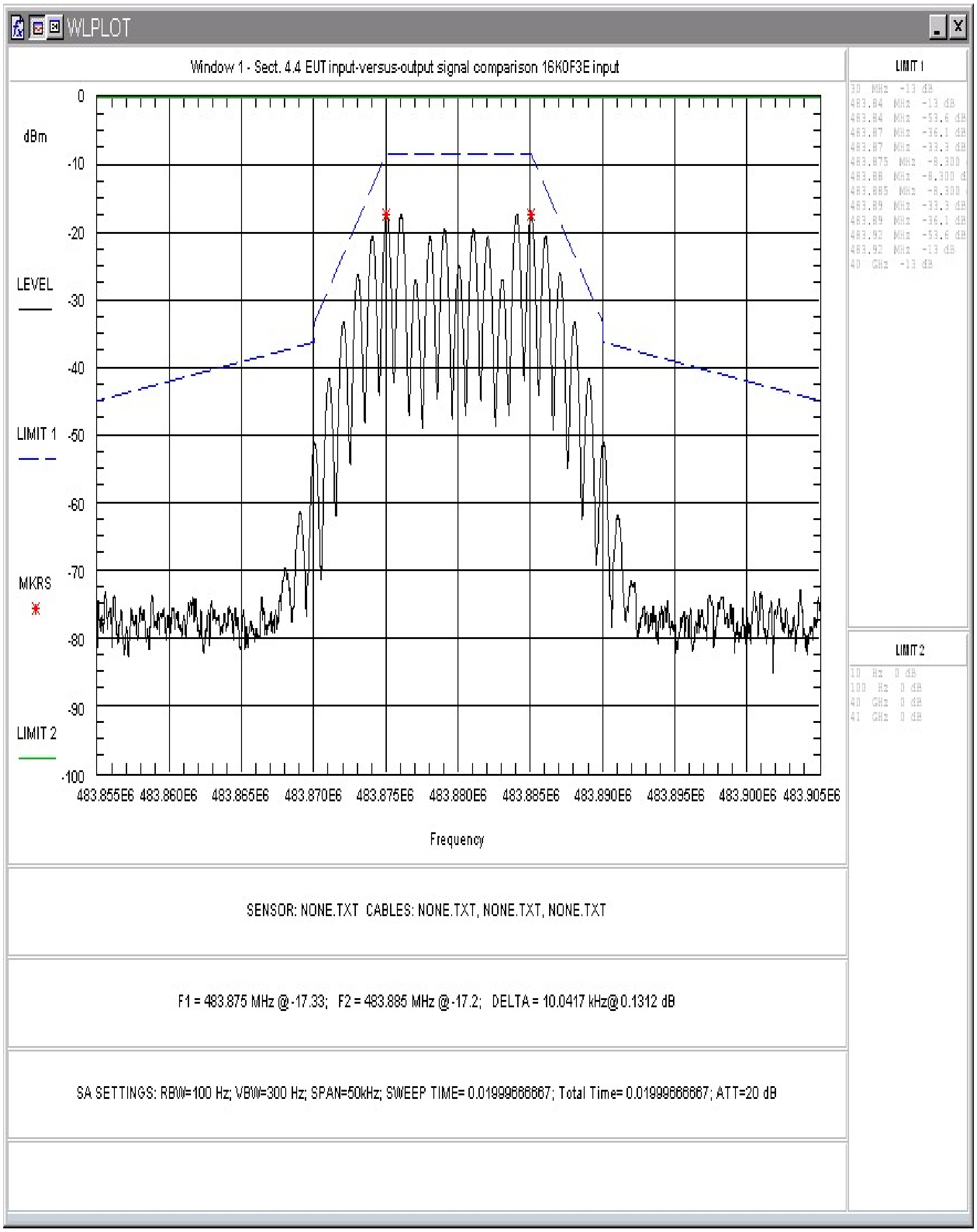

Figure 17. Window 1 - Sect. 4.4 EUT input-versus-output signal comparison 16K0F3E input

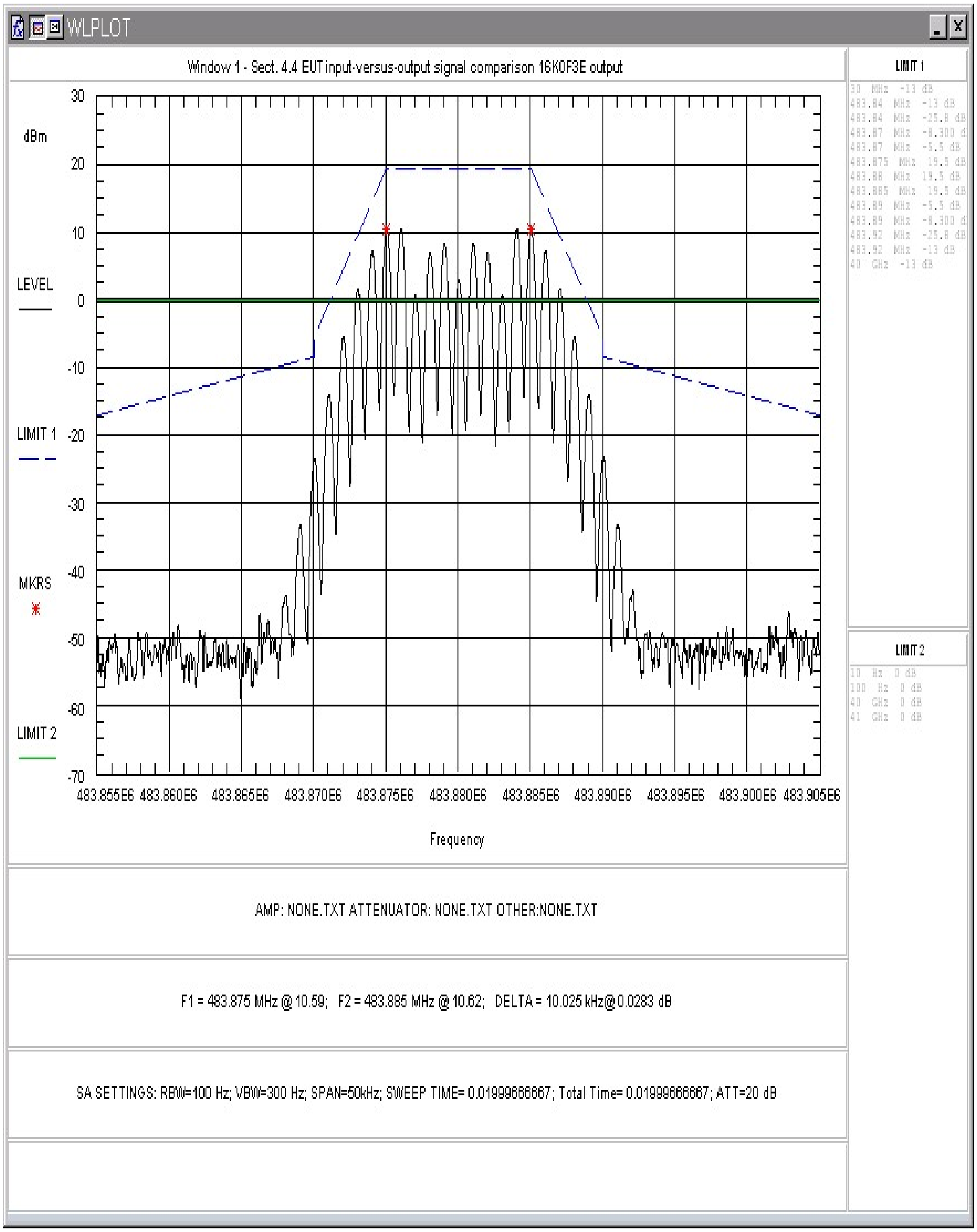

Figure 18. Window 1 - Sect. 4.4 EUT input-versus-output signal comparison 16K0F3E output

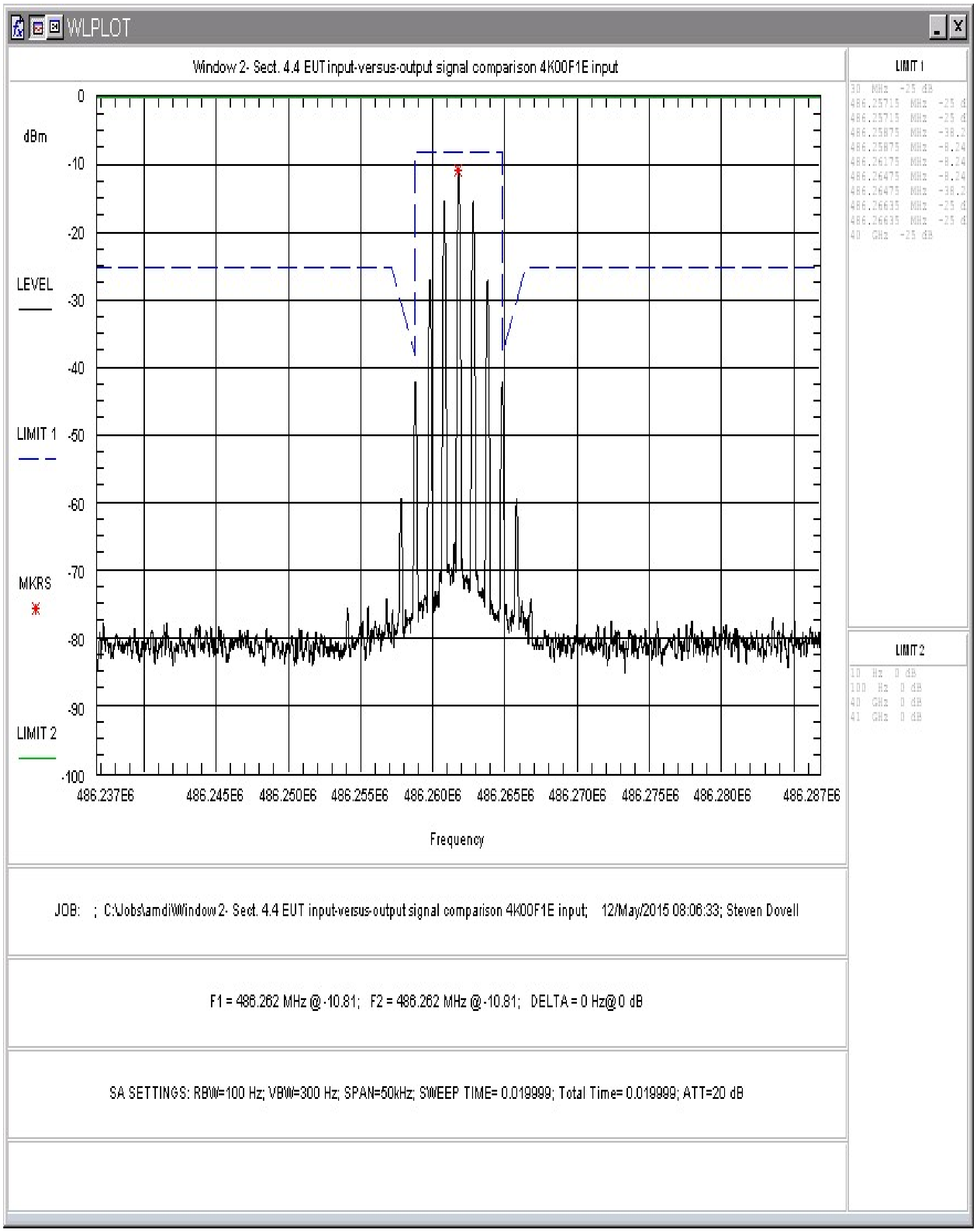

Figure 19. Window 2- Sect. 4.4 EUT input-versus-output signal comparison 4K00F1E input

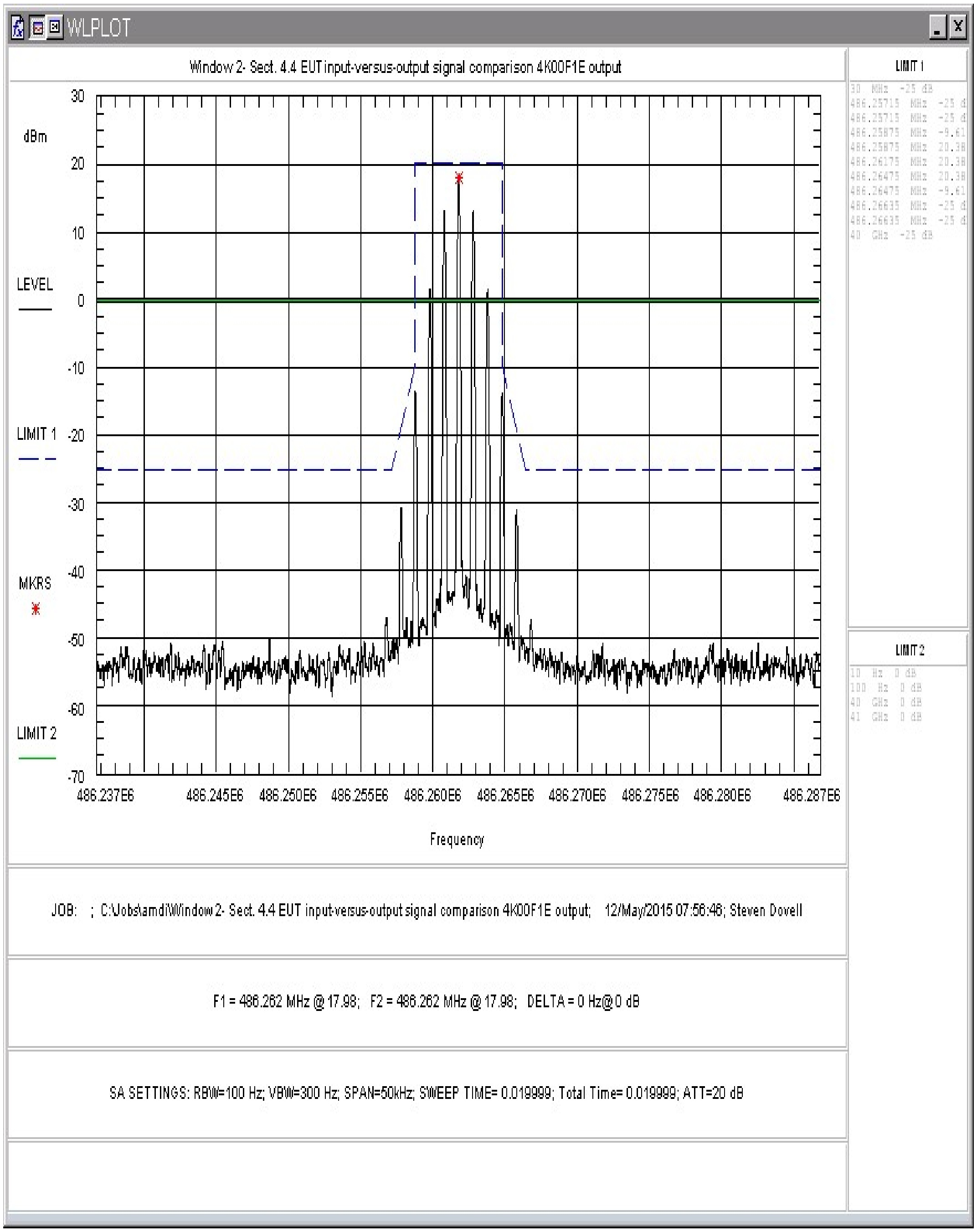

Figure 20. Window 2- Sect. 4.4 EUT input-versus-output signal comparison 4K00F1E output

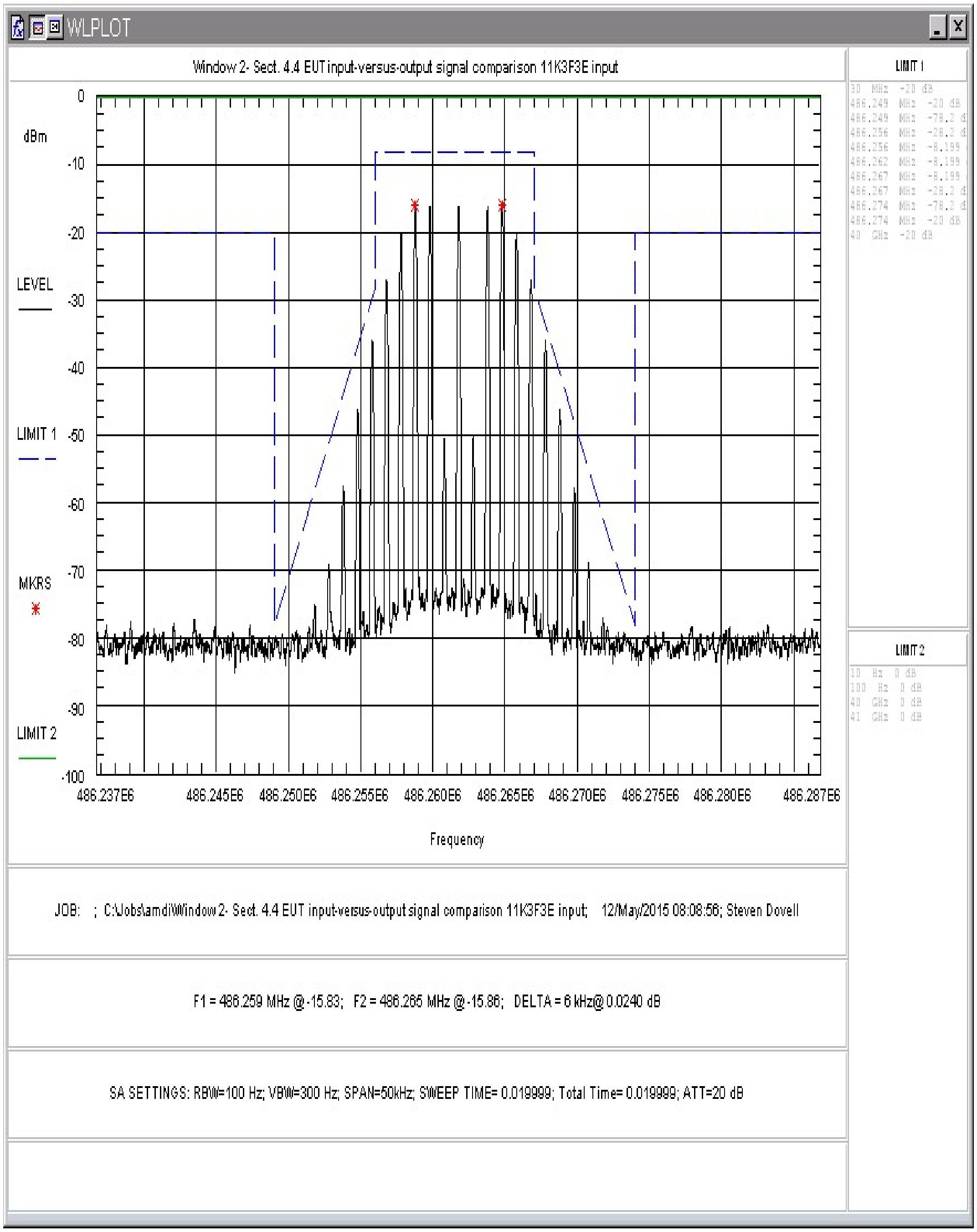

Figure 21. Window 2- Sect. 4.4 EUT input-versus-output signal comparison 11K3F3E input

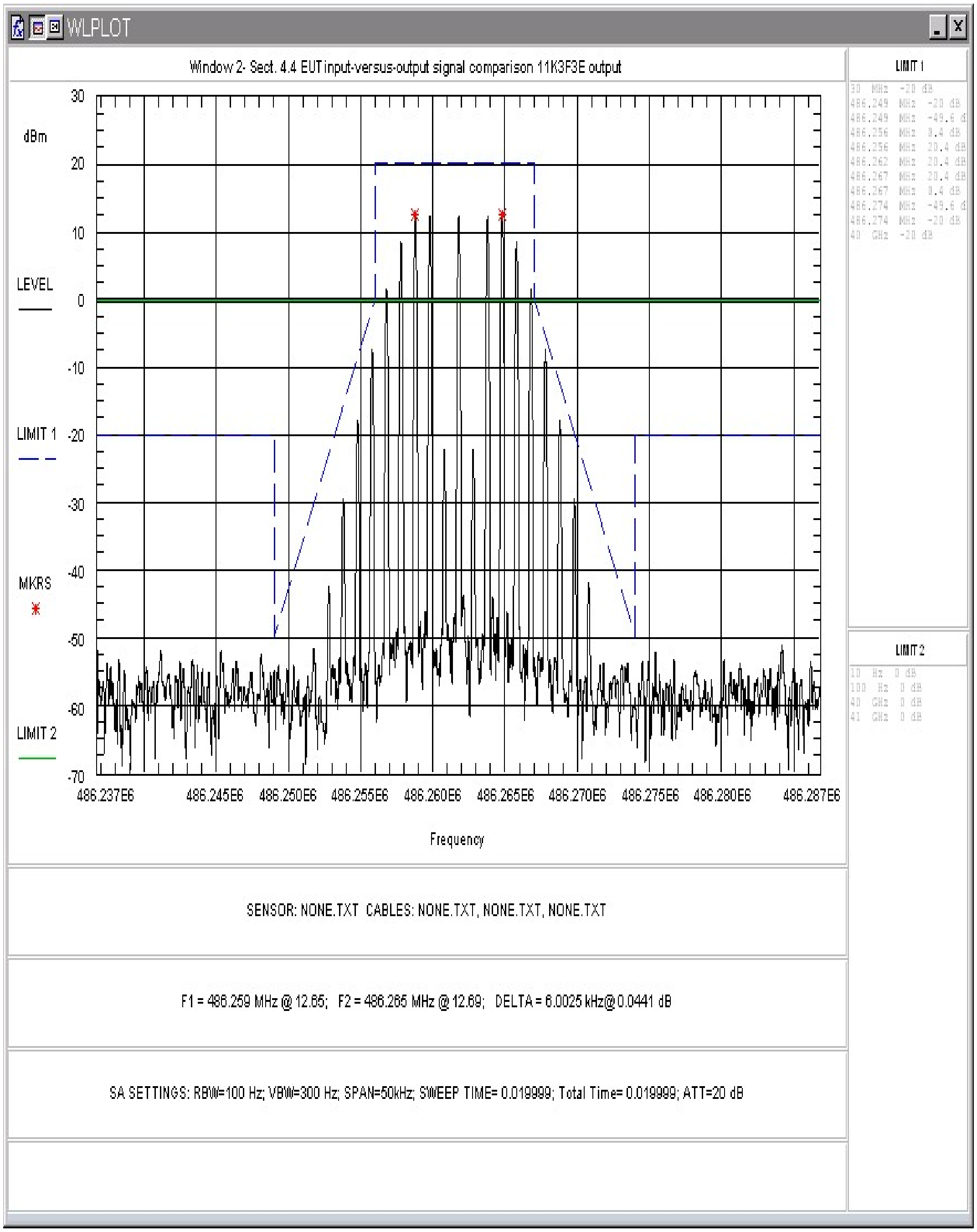

Figure 22. Window 2- Sect. 4.4 EUT input-versus-output signal comparison 11K3F3E output

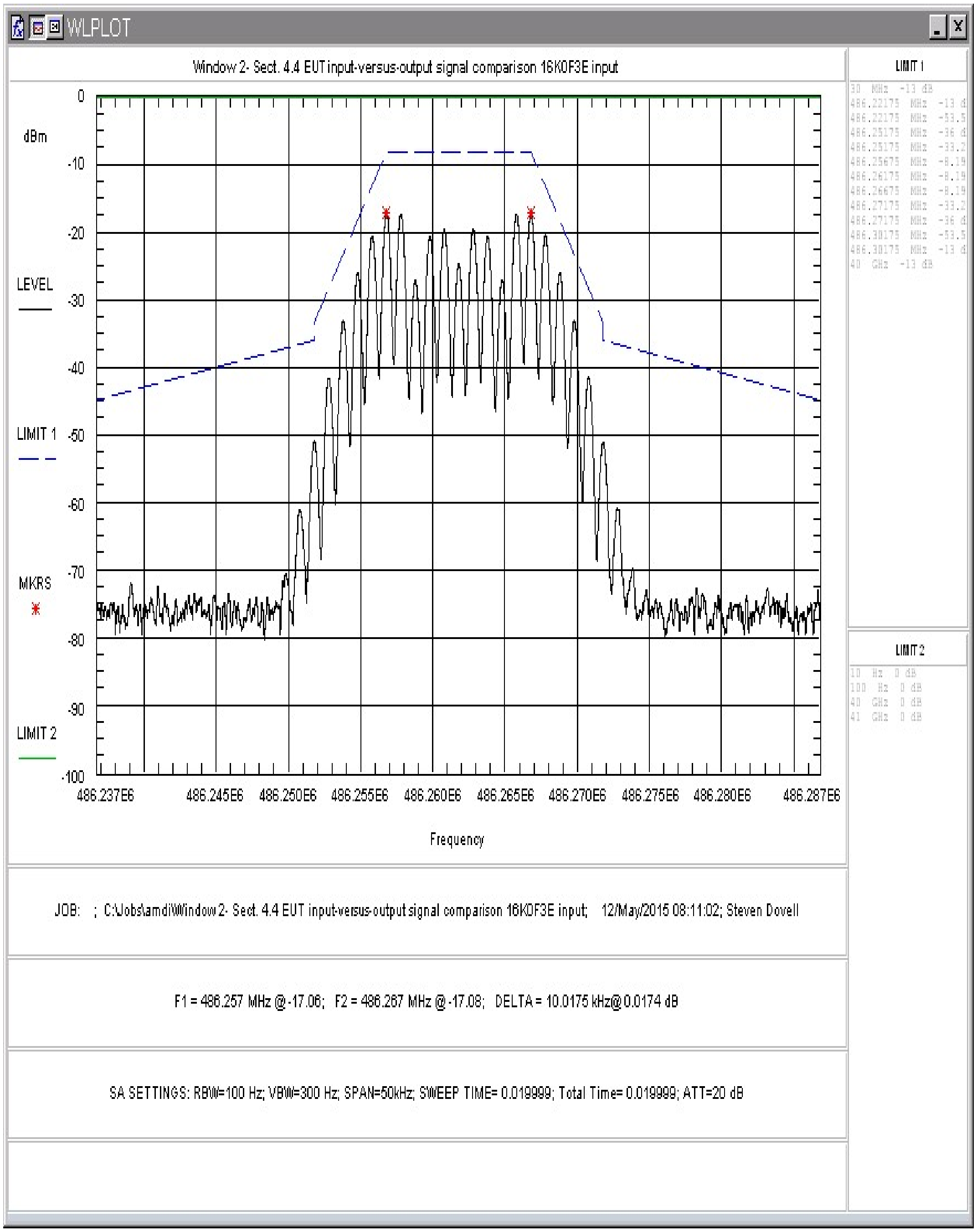

Figure 23. Window 2- Sect. 4.4 EUT input-versus-output signal comparison 16K0F3E input

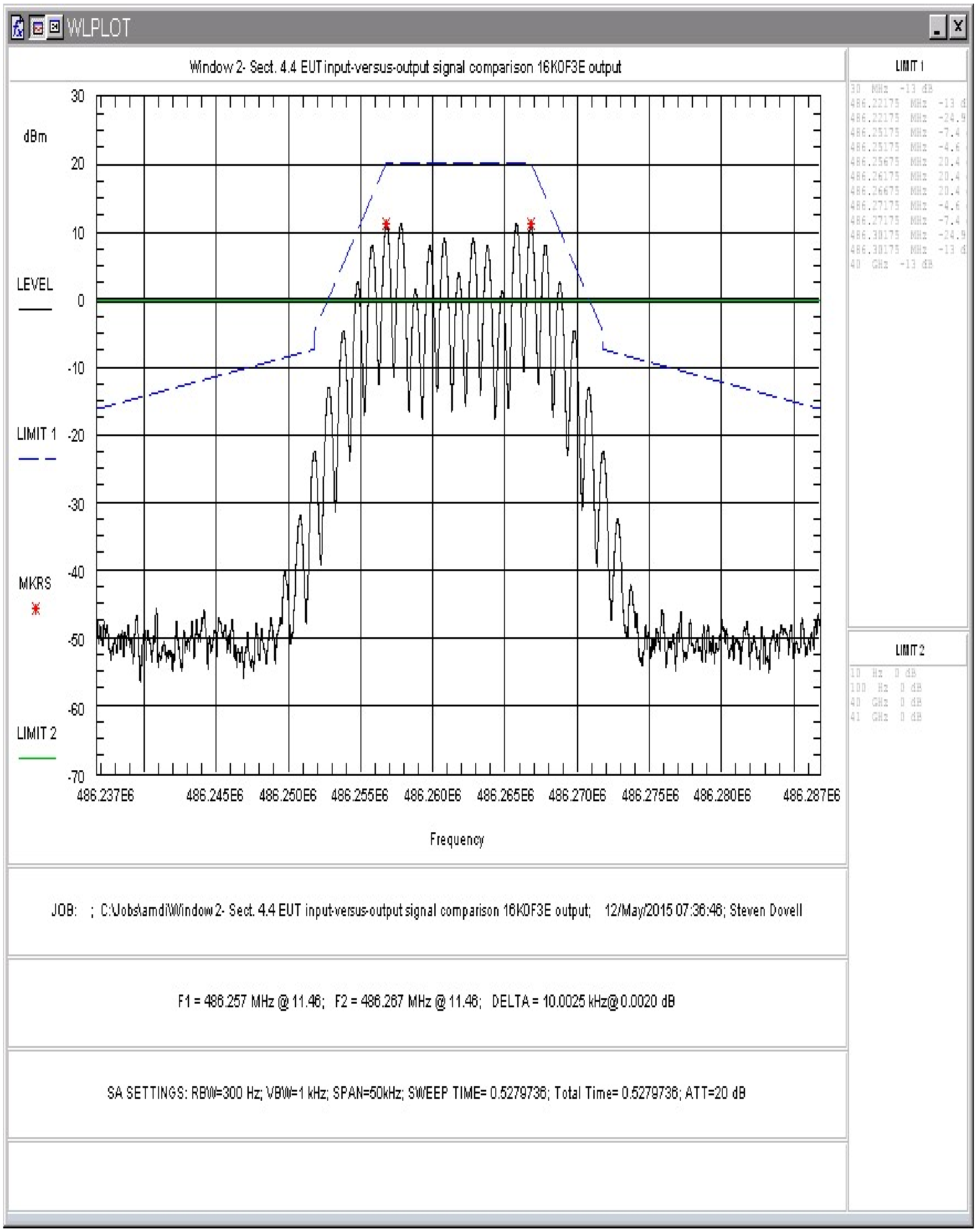

Figure 24. Window 2- Sect. 4.4 EUT input-versus-output signal comparison 16K0F3E output

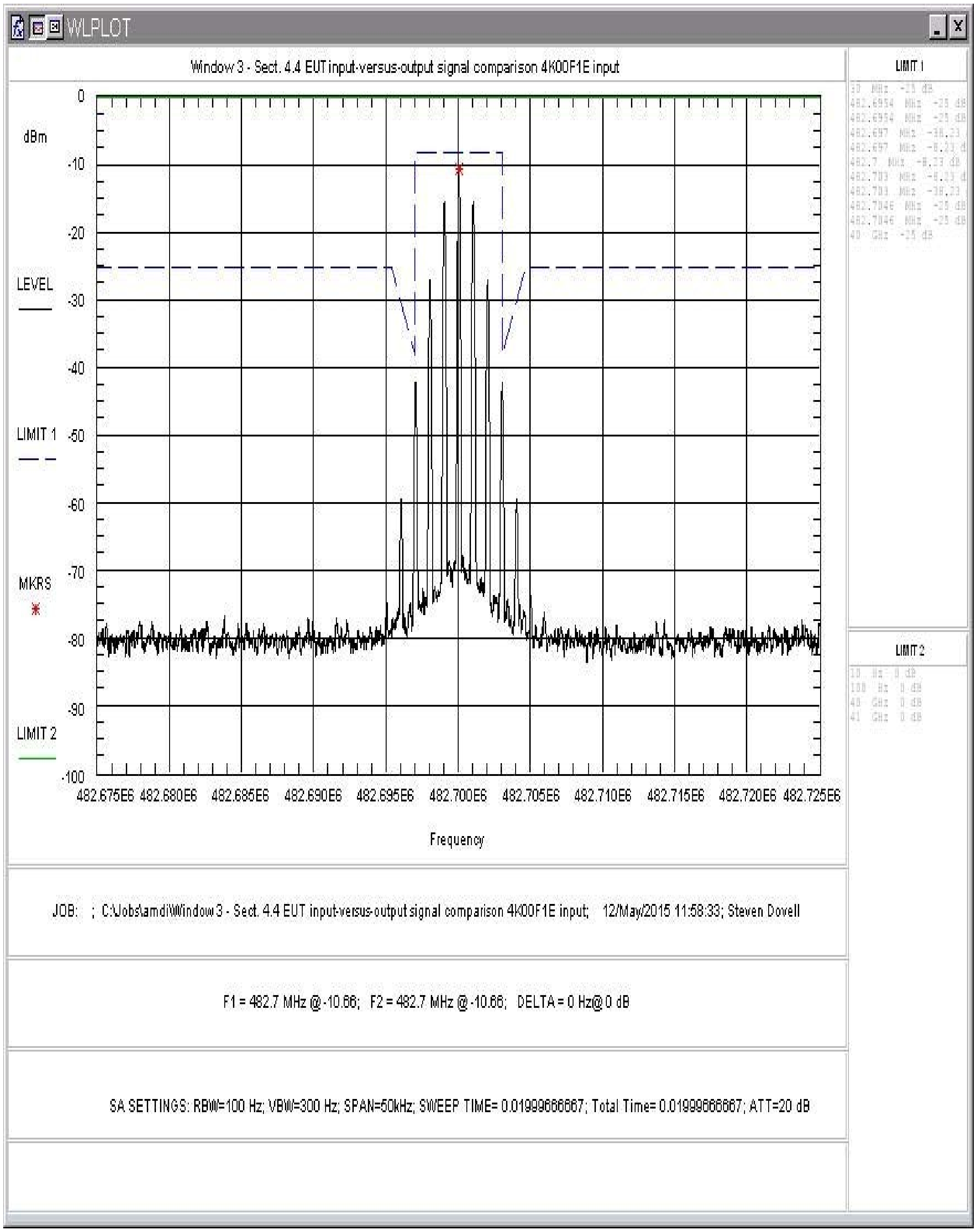

Figure 25. Window 3 - Sect. 4.4 EUT input-versus-output signal comparison 4K00F1E input

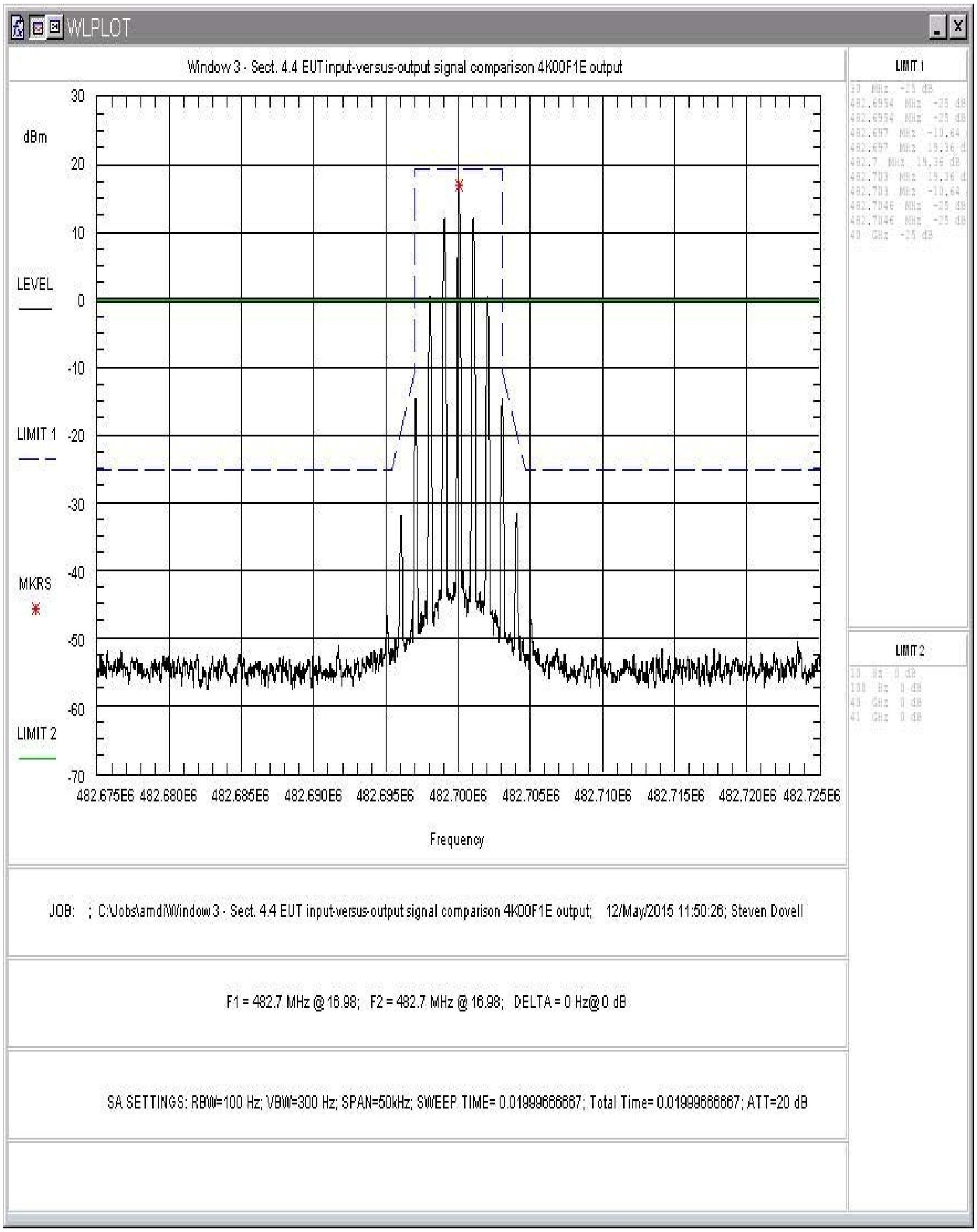

Figure 26. Window 3 - Sect. 4.4 EUT input-versus-output signal comparison 4K00F1E output

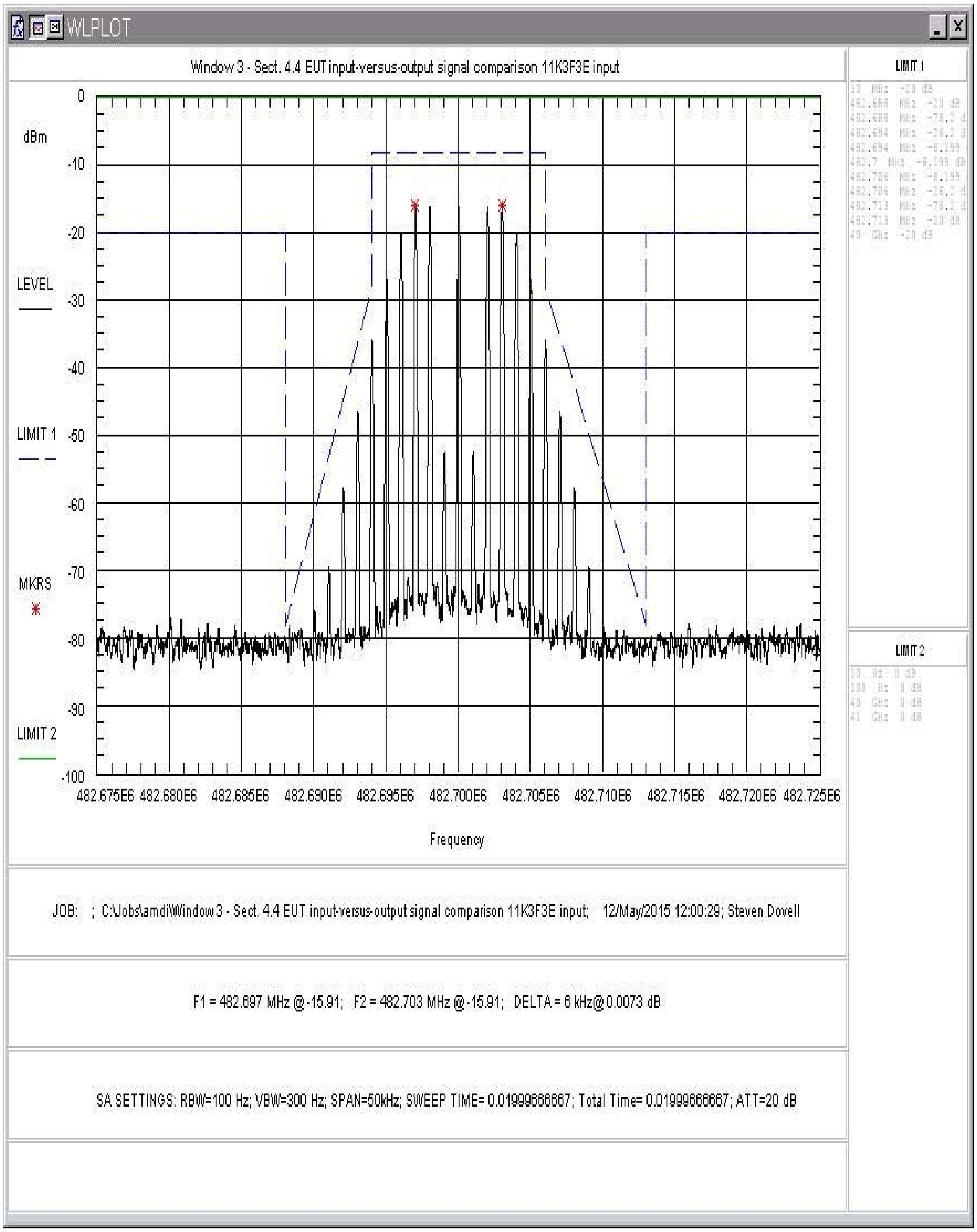

Figure 27. Window 3 - Sect. 4.4 EUT input-versus-output signal comparison 11K3F3E input

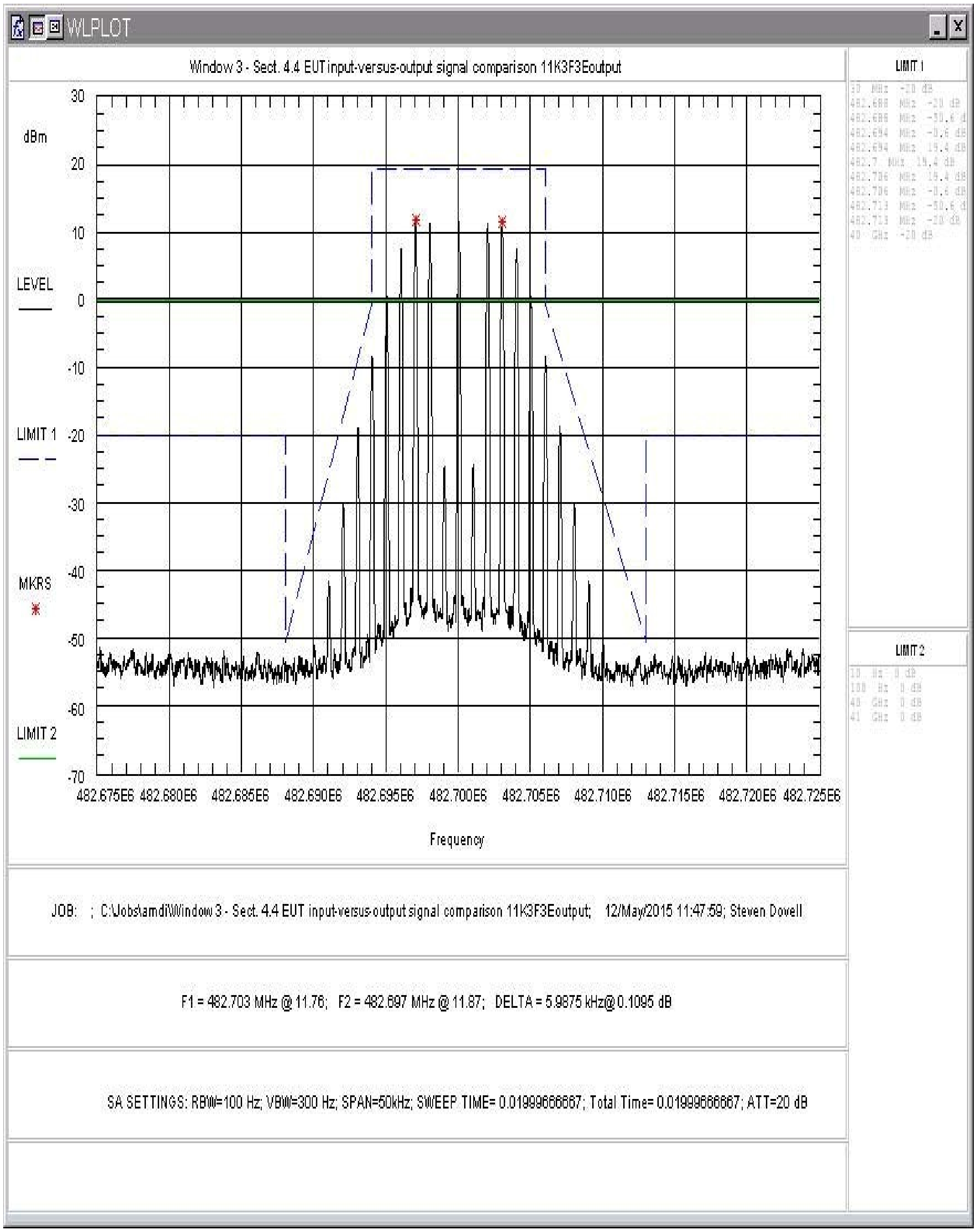

Figure 28. Window 3 - Sect. 4.4 EUT input-versus-output signal comparison 11K3F3Eoutput

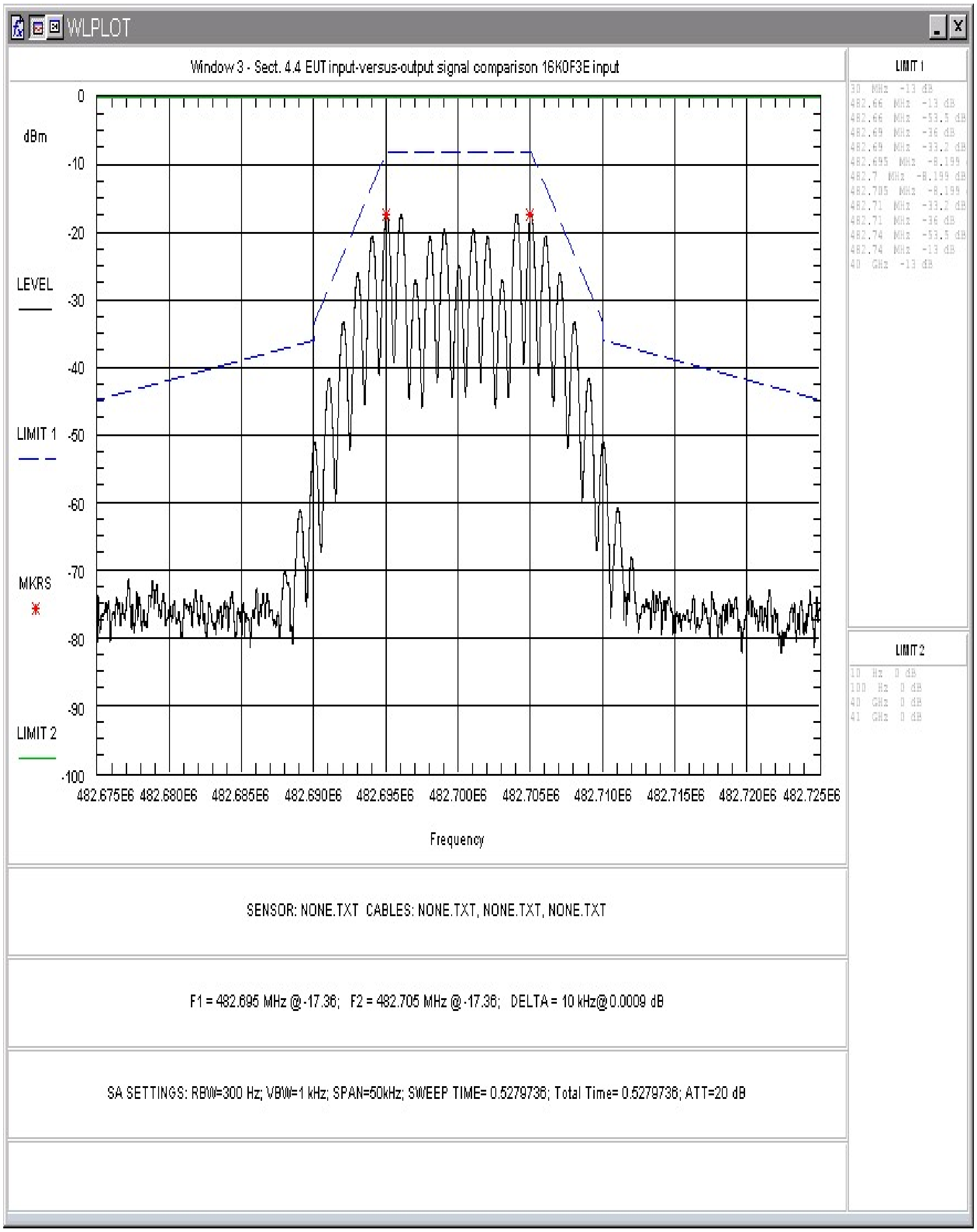

Figure 29. Window 3 - Sect. 4.4 EUT input-versus-output signal comparison 16K0F3E input

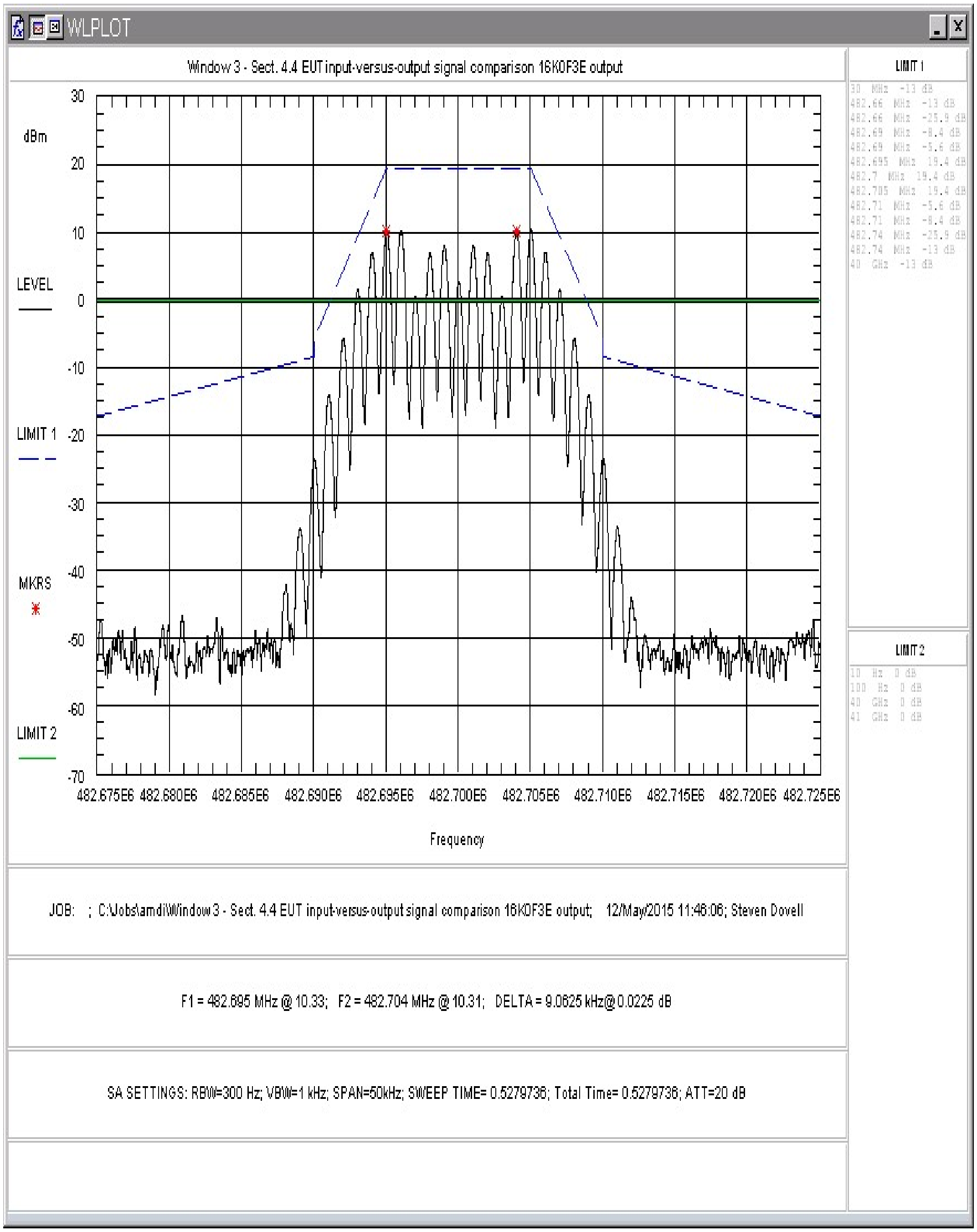

Figure 30. Window 3 - Sect. 4.4 EUT input-versus-output signal comparison 16K0F3E output

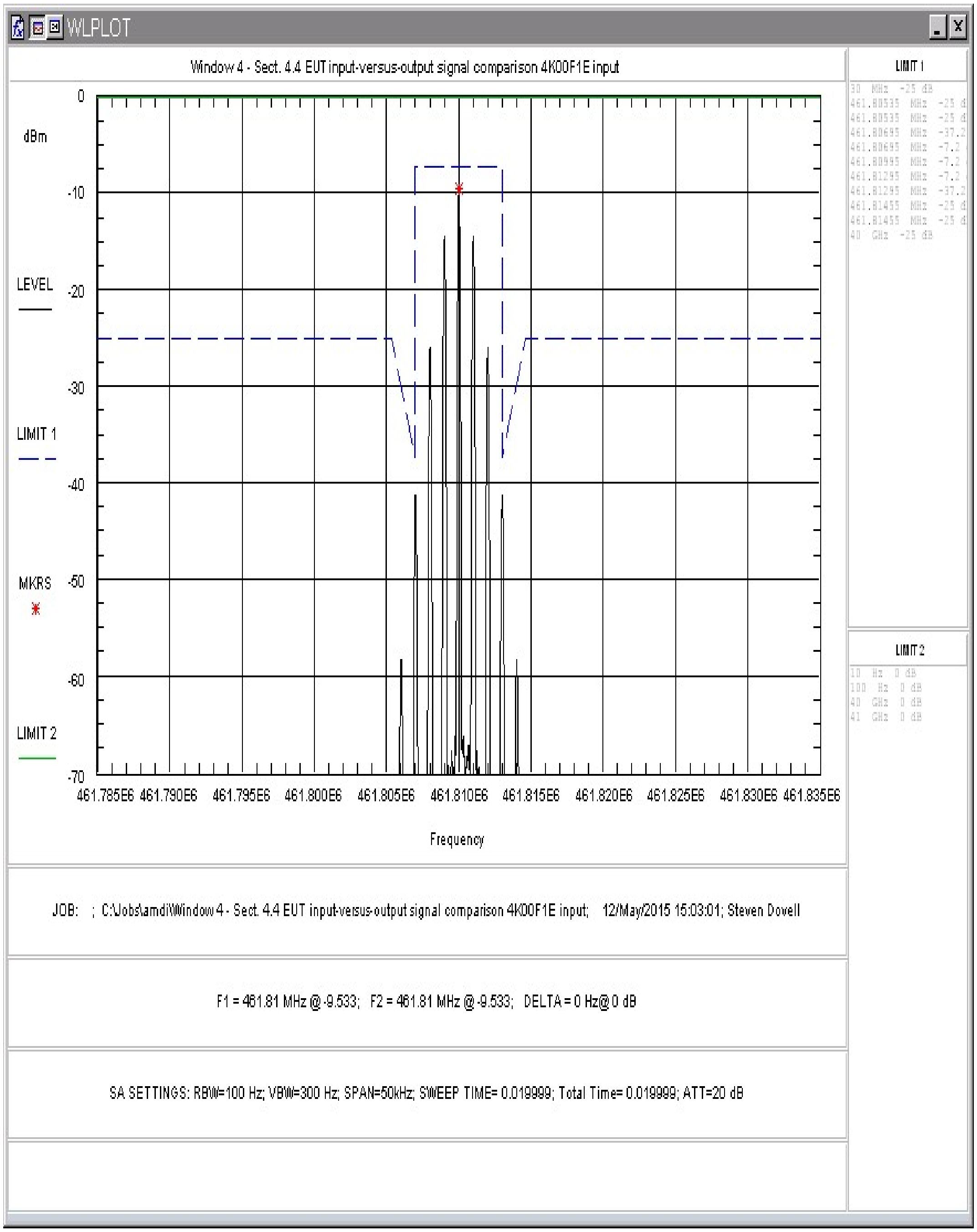

Figure 31. Window 4 - Sect. 4.4 EUT input-versus-output signal comparison 4K00F1E input

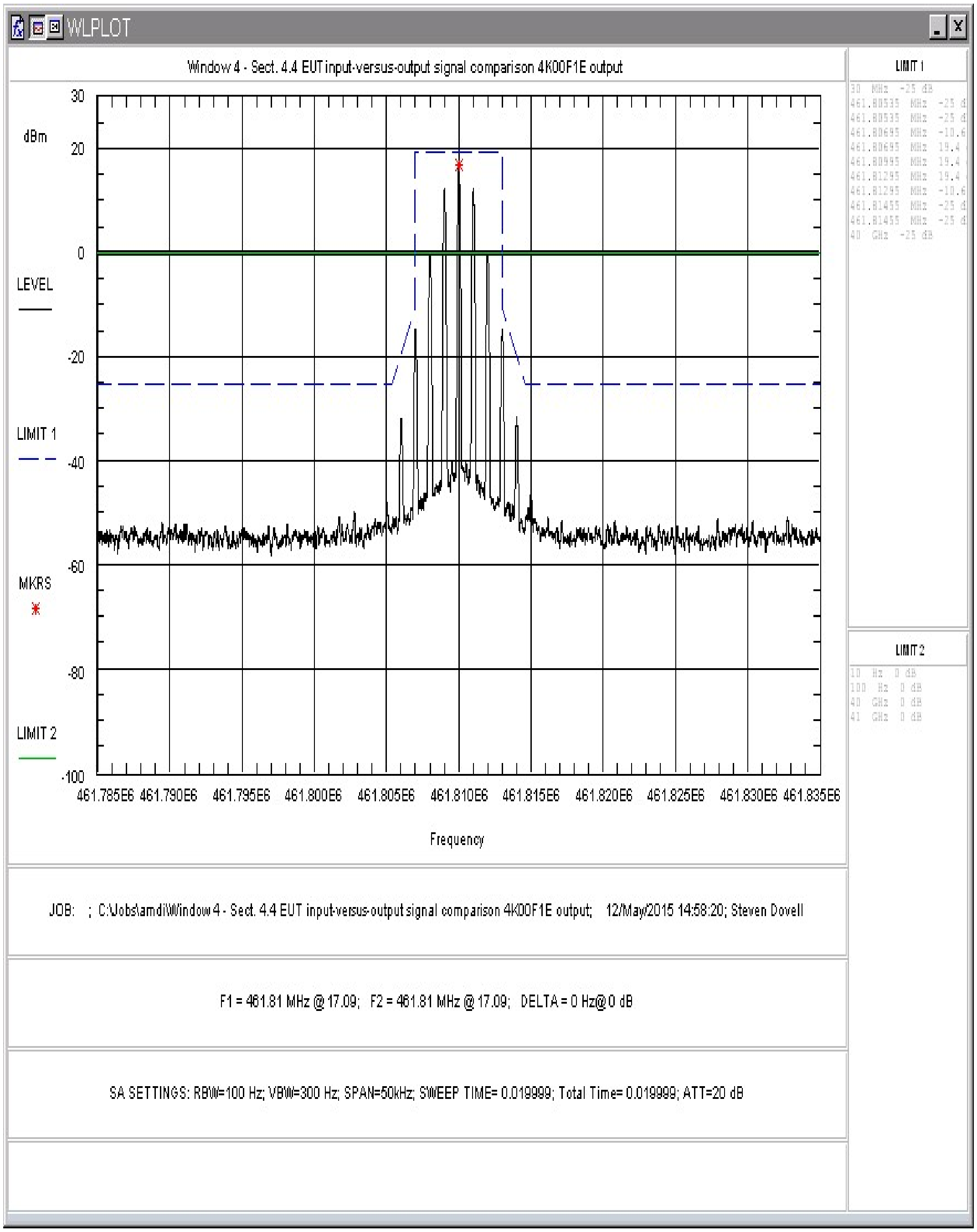

Figure 32. Window 4 - Sect. 4.4 EUT input-versus-output signal comparison 4K00F1E output

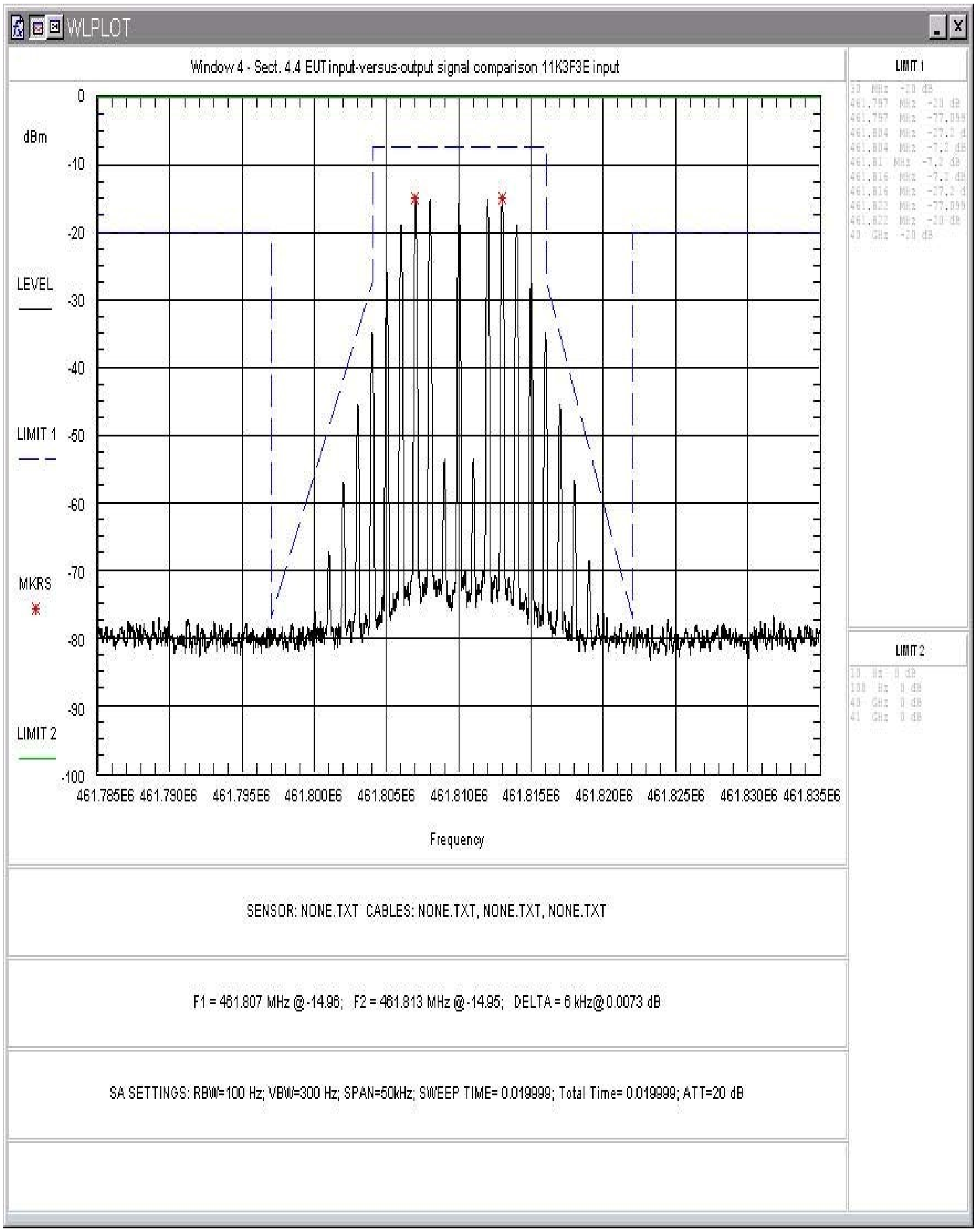

Figure 33. Window 4 - Sect. 4.4 EUT input-versus-output signal comparison 11K3F3E input

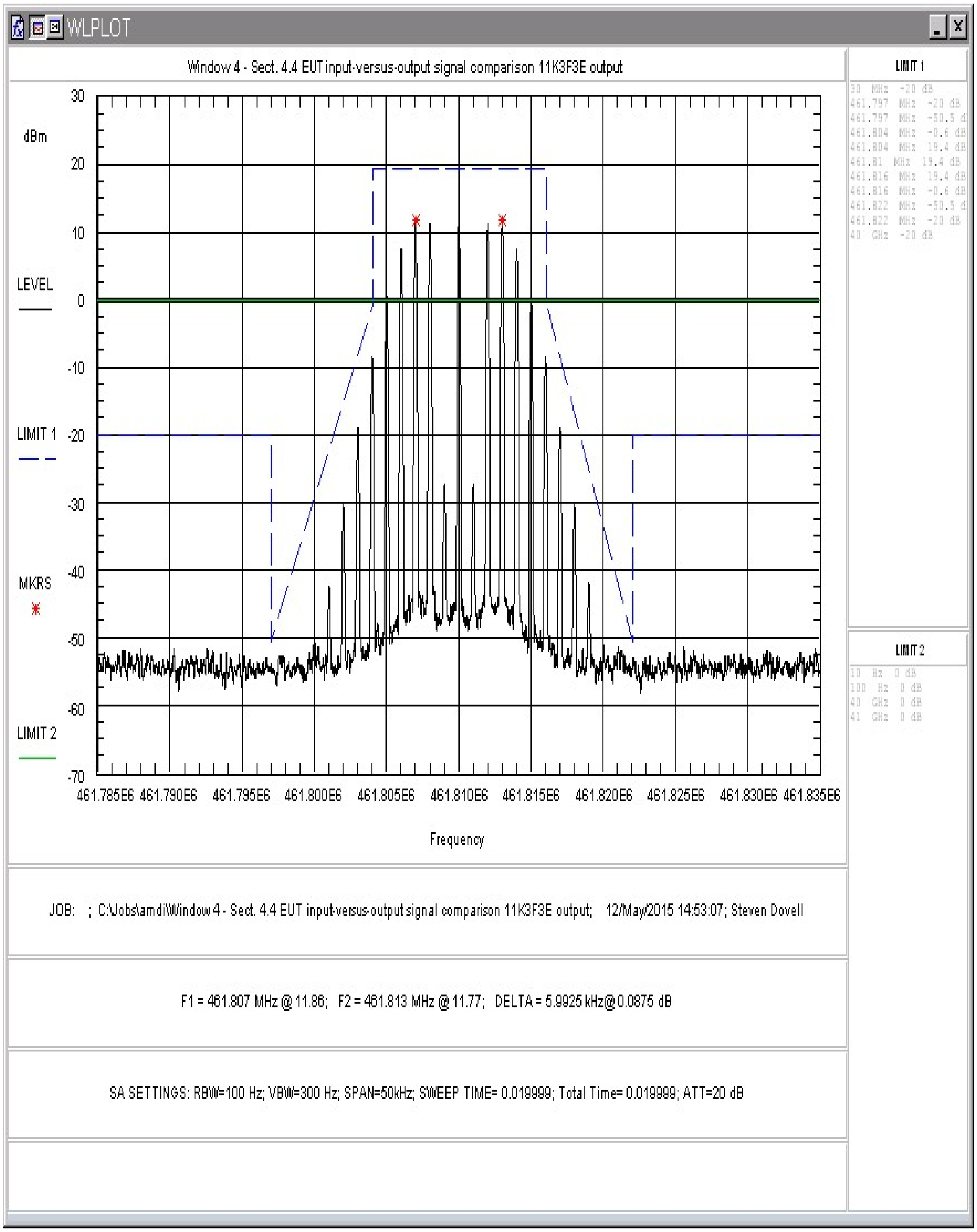

Figure 34. Window 4 - Sect. 4.4 EUT input-versus-output signal comparison 11K3F3E output

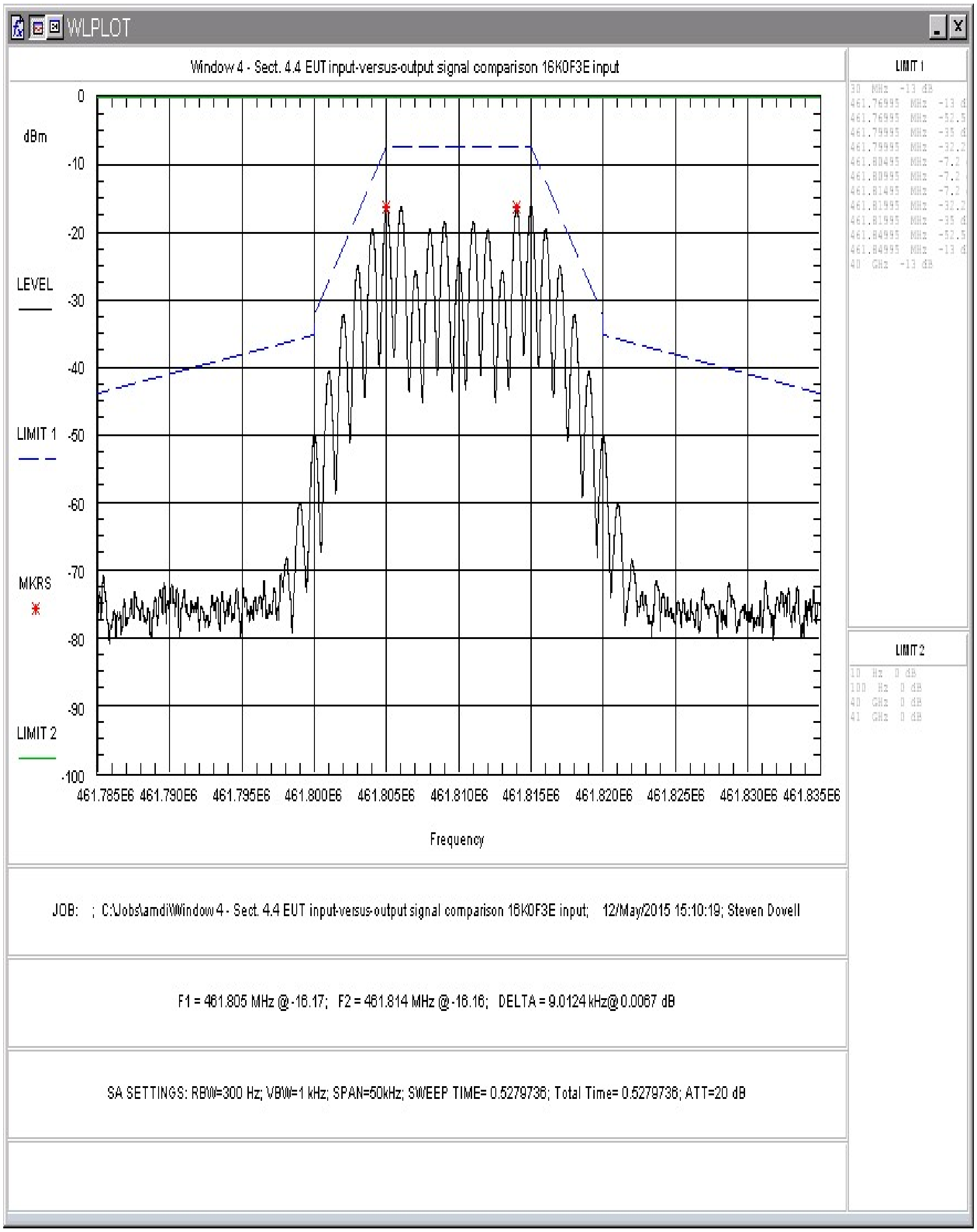

Figure 35. Window 4 - Sect. 4.4 EUT input-versus-output signal comparison 16K0F3E input

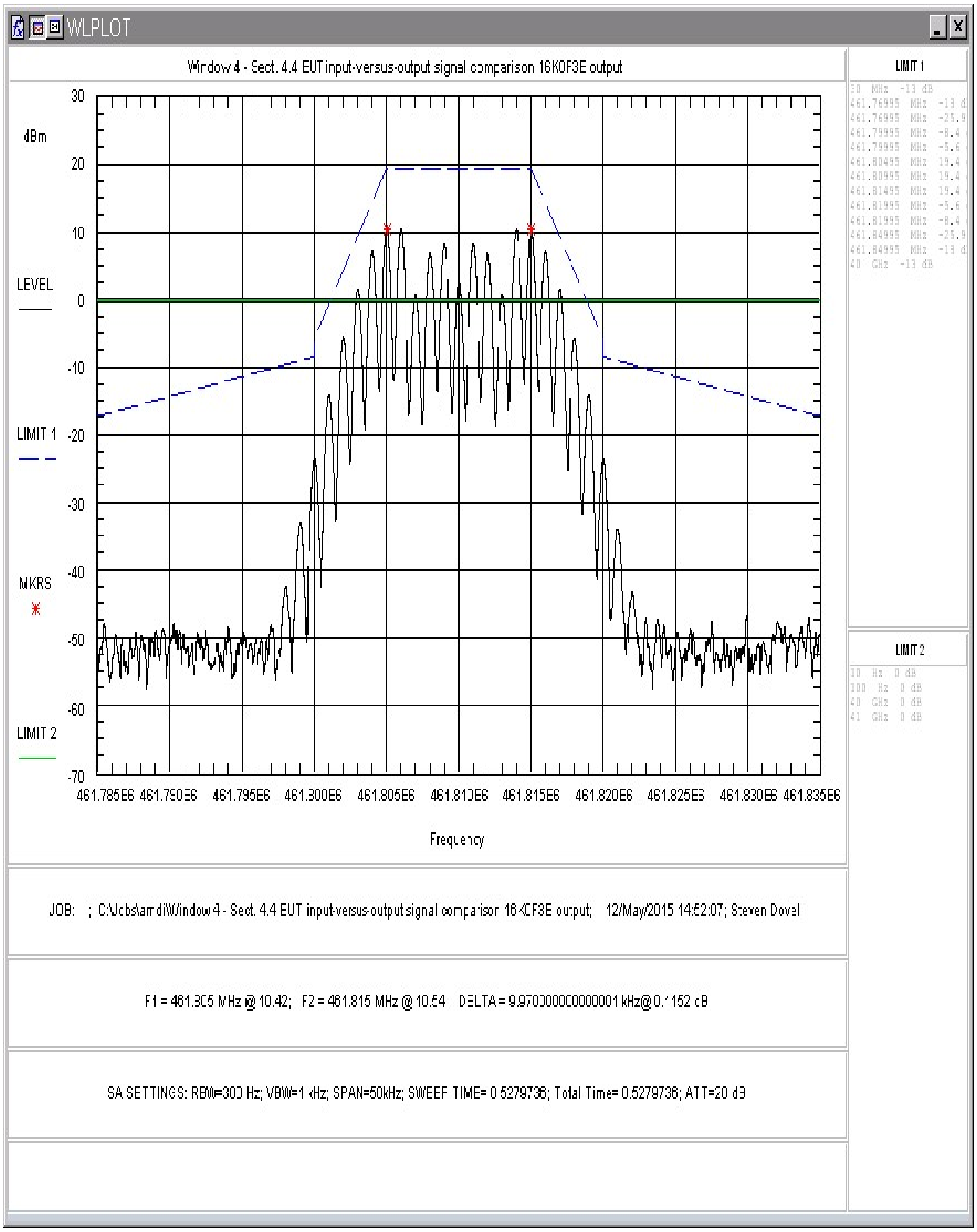

Figure 36. Window 4 - Sect. 4.4 EUT input-versus-output signal comparison 16K0F3E output

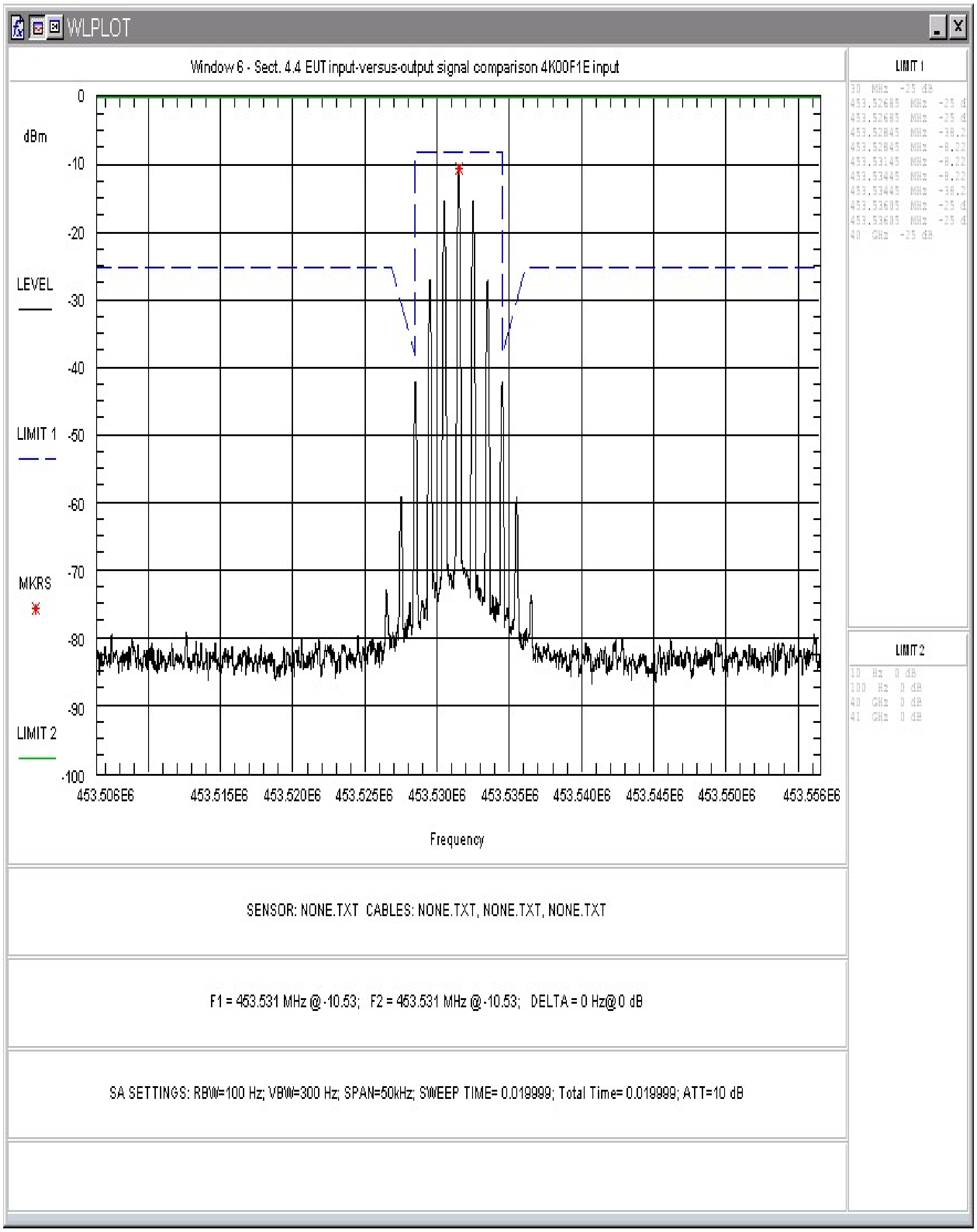

Figure 37. Window 6 - Sect. 4.4 EUT input-versus-output signal comparison 4K00F1E input

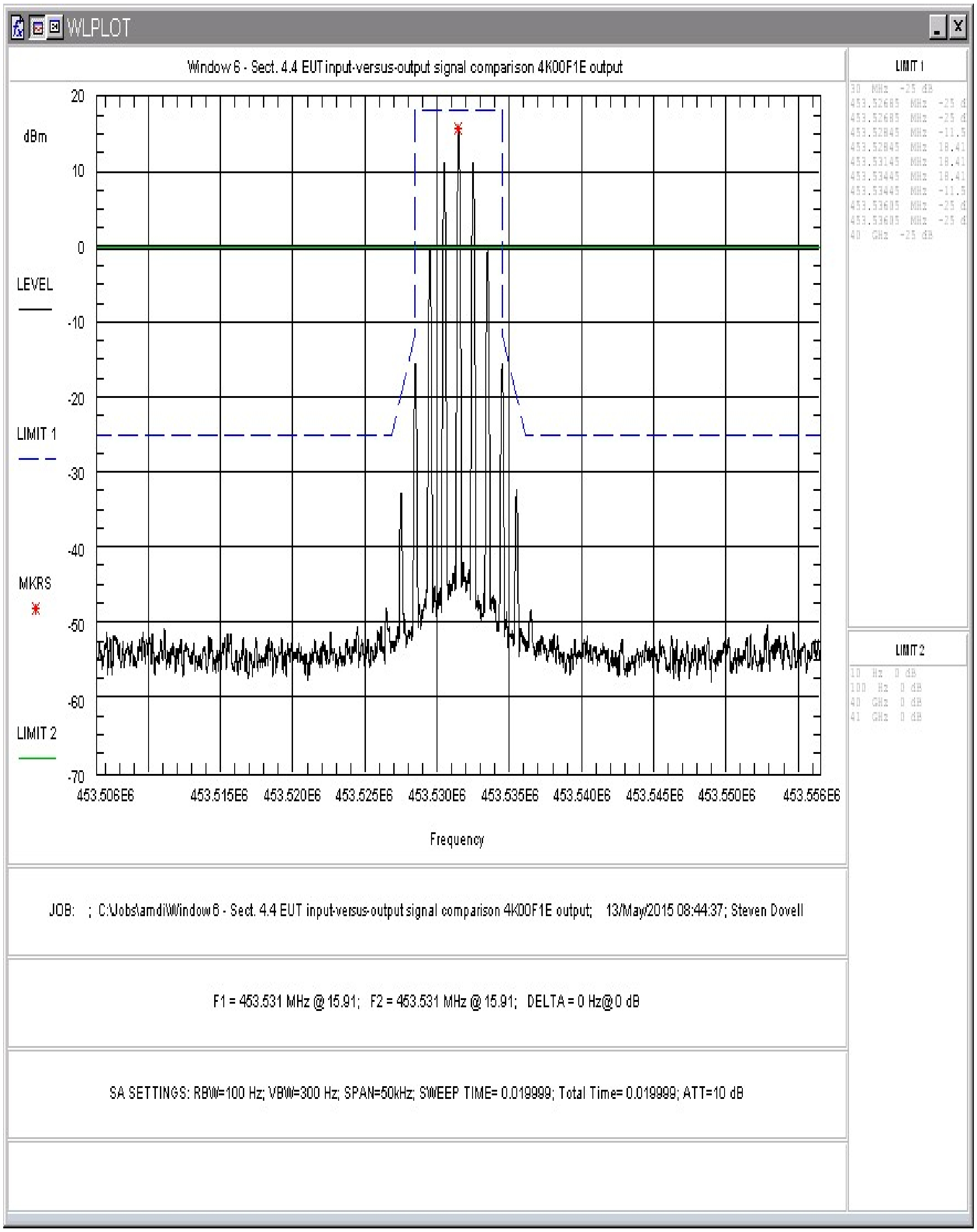

Figure 38. Window 6 - Sect. 4.4 EUT input-versus-output signal comparison 4K00F1E output

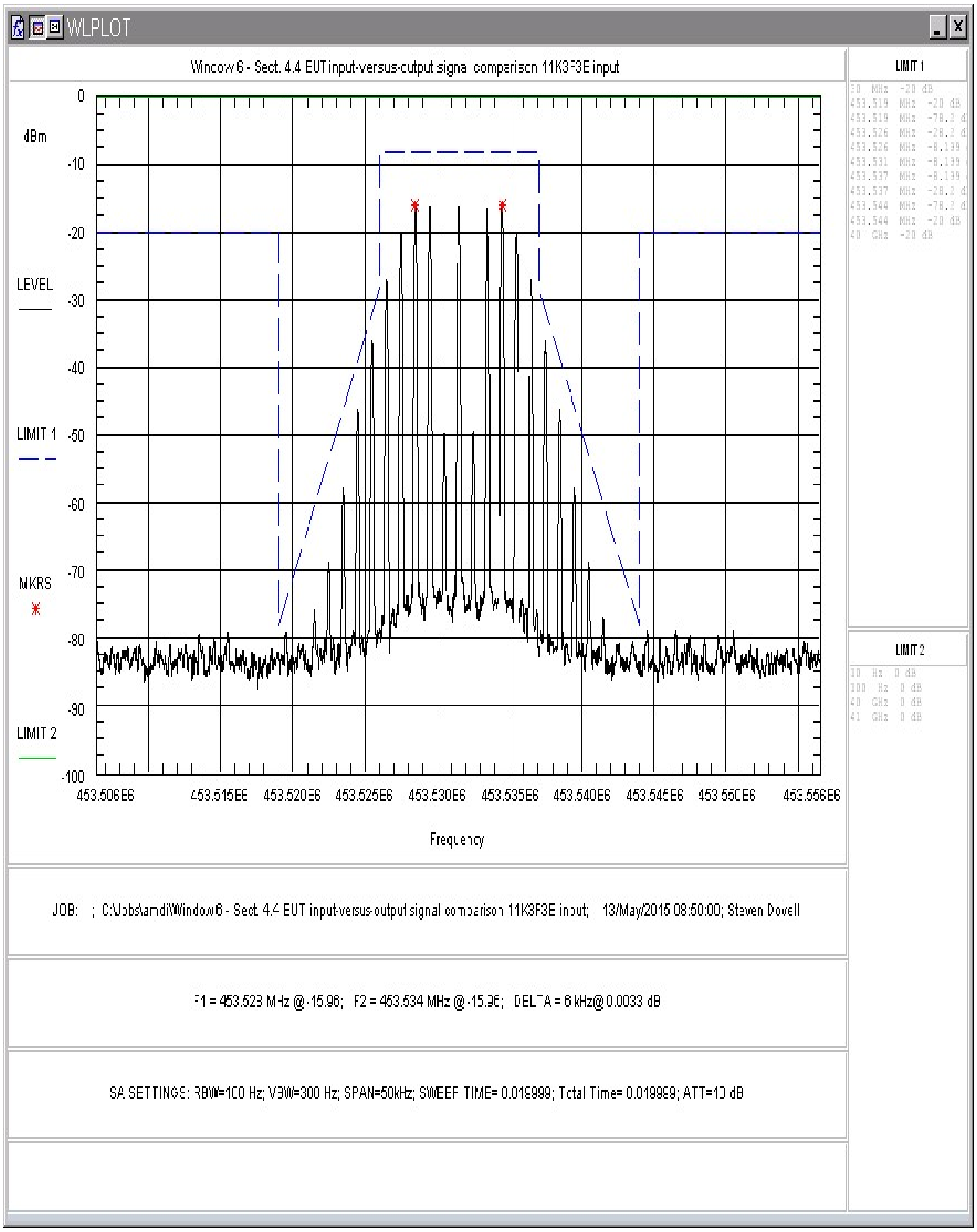

Figure 39. Window 6 - Sect. 4.4 EUT input-versus-output signal comparison 11K3F3E input

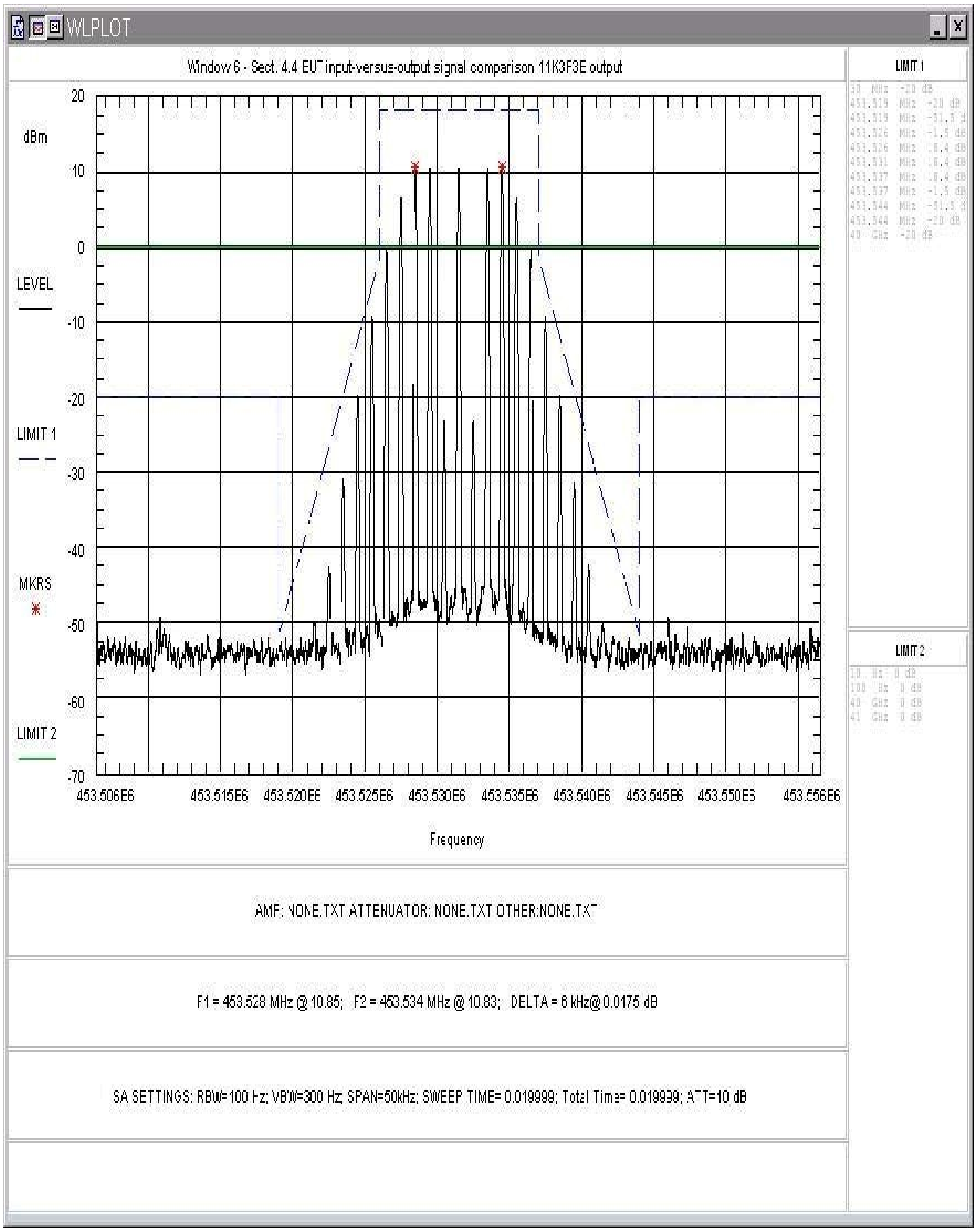

Figure 40. Window 6 - Sect. 4.4 EUT input-versus-output signal comparison 11K3F3E output