

FCC and ISED Test Report

Apple Inc
Model: A3137

In accordance with FCC 47 CFR Part 15E,
ISED RSS-248 and ISED RSS-GEN
(6 GHz WLAN)

Prepared for: Apple Inc
One Apple Park Way
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California
95014
USA



TUV SUD
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SIGNATURE

NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
James O'Reilly	RF Engineer	Authorised Signatory	27 October 2024

Signatures in this approval box have checked this document in line with the requirements of TUV SUD document control rules.

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 15E, ISED RSS-248 and ISED RSS-GEN. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Report Generation	Lauren Walters	27 October 2024	

FCC Accreditation

553713/UK2026 Concorde Park, Fareham Test Laboratory

ISED Accreditation

28798/UK0003 Concorde Park, Fareham Test Laboratory

EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15E: 2023, ISED RSS-248: Issue 2 (2022-12) and ISED RSS-GEN: Issue 5 (2018-04) + A2 (2021-02) for the tests detailed in section 1.3.



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1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	25-September-2024
2	Updated sections 1.3, 1.8, 2.3 and 3	08-October-2024
3	Updated section 2.9	24-October-2024
4	Addition of limit to result tables in section 2.1.6	27-October-2024

Table 1

1.2 Introduction

Applicant	Apple Inc
Manufacturer	Apple Inc
EUT/Sample Identification	Refer to section 1.6
Test Specification/Issue/Date	FCC 47 CFR Part 15E: 2023 ISED RSS-248: Issue 2 (2022-12) ISED RSS-GEN: Issue 5 (2018-04) + A2 (2021-02)
Start of Test	28-April-2024
Finish of Test	19-September-2024
Name of Engineer(s)	Feda Hussein, Stefan Gilfedder, David Hill, Akhil Rajendran Bhaskaran Nair, Ahmed Al Derdiri, Colin Brain, Ioan-Alexandru Bogatu, Morsalin Hossain, Ian Hart, Vineeth Nagaraj, Jayvir Makwana and Philip Harrison
Related Document(s)	ANSI C63.10 (2020) KDB 662911 D01 v02r01 KDB 789033 D02 v02r01 KDB 987594 D02 v02r01 KDB 987594 DR03-45383



1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15E, ISED RSS-248 and ISED RSS-GEN is shown below.

Section	Specification Clause			Test Description	Result	Comments/Base Standard
	Part 15E	RSS-248	RSS-GEN			
Configuration and Mode: 6 GHz WLAN						
-	15.203	-	-	Antenna Requirement	N/T	The device complies with the provisions of this section, as it uses permanently attached integral antennas.
2.1	15.407 (a)	4.4	6.7	Emission Bandwidth	Pass	KDB 789033 D02 v02r01
2.2	15.407(a)	4.5	6.12	Dual Client Test	Pass	KDB 987594 D02 v02r01
2.3	15.407 (d)(10)	-	-	Transmit Power Control	Pass	KDB 987594 DR03-45383
2.4	15.407 (a)	4.5	6.12	Maximum Conducted Output Power	Pass	KDB 662911 D01 v02r01 KDB 789033 D02 v02r01
2.5	15.407 (a)	4.5	-	Maximum Conducted Power Spectral Density	Pass	KDB 662911 D01 v02r01 KDB 789033 D02 v02r01
2.6	15.407 (b)	4.6	6.13	Authorised Band Edges	Pass	ANSI C63.10 (2020) KDB 789033 D02 v02r01
2.7	15.209 and 15.407 (b)	4.6	6.13 and 8.9	Spurious Radiated Emissions	Pass	ANSI C63.10 (2020) KDB 789033 D02 v02r01
2.8	15.407 (b)	4.6	6.13	Unwanted Emissions within the 5925-7125 MHz band	Pass	KDB 987594 D02 v02
2.9	15.407 (d)(6)	4.7	-	Contention Based Protocol	Pass	KDB 987594 D02 v02

Table 2



1.4 Product Information

1.4.1 Technical Description

The equipment under test (EUT) was a desktop computer.

1.4.2 Test Modes

The EUT's 6 GHz 802.11 radio supported SISO (Single Input/Single Output) and 2x2 MIMO (Multiple Input/Multiple Output) modes. 802.11a supports 20 MHz bandwidth only. 802.11ax supported 20 MHz, 40 MHz, 80 MHz and 160 MHz bandwidths.

802.11a mode supported SISO operation only. 802.11ax supported SISO, Cyclic Delay Diversity (CDD) and Space Division Multiplexing (SDM) modes. It also supported Transmit Beamforming (TxBF) mode on 20 MHz, 40 MHz and 80 MHz bandwidths. The EUT supported 802.11ax Single User (SU) and Multi-User (MU) with all Resource Unit (RU) sizes from 26 subcarriers, up to the maximum allowed, dependent on channel bandwidth.

The EUT is categorized as a Dual Client (6CD) operating in the 5.925-7.125 GHz bands. It will operate under the control of a Low Power Indoor (LPI) access point, or a standard power access point.

The EUT can also operate as a Very Low Power (6VL) device.

The EUT uses different output powers per core dependent on how many cores are used. The EUT also uses different power tables for Cyclic Delay Diversity (CDD), Space Division Multiplexing (SDM) and Transmit Beamforming (TxBF) modes. It uses the same conducted power across all cores in any given mode, but due to the different antenna gains the radiated powers per core differ.

After preliminary investigations were performed to find worst-case operation, the EUT was tested in the following modes:

SISO Modes (Core 0 or 1):

- 802.11a – 12 Mbps
- 802.11ax HE20 SU – MCS2x1
- 802.11ax HE40 SU – MCS2x1
- 802.11ax HE80 SU – MCS2x1
- 802.11ax HE160 SU – MCS2x1
- 802.11ax HE20 MU RU26/52/106 – MCS2x1

2x2 MIMO Modes (Core 0+1 for U-NII-5 / 6 / 7 / 8):

- 802.11ax HE20 SU – CDD (MCS2x1), SDM (MCS2x2) and TxBF (MCS2x1)
- 802.11ax HE40 SU – CDD (MCS2x1), SDM (MCS2x2) and TxBF (MCS2x1)
- 802.11ax HE80 SU – CDD (MCS2x1), SDM (MCS2x2) and TxBF (MCS2x1)
- 802.11ax HE160 SU – CDD (MCS2x1) and SDM (MCS2x2)
- 802.11ax HE20 MU RU26/52/106 – CDD (MCS2x1) and SDM (MCS2x2)

*Note: The RU offset for bottom and middle channels were placed in the lowest position and on the top channel, the offset was placed in the upper most position.



1.4.3 Test Setup

For conducted tests the EUT antennas were disconnected and replaced with U.FL to SMA test cables to enable conducted testing on each core. The loss of these test cables were known and compensated for in any conducted measurements.

For all testing except Contention Based Protocol the EUT was put into a continuous transmit test mode with the chipset manufacturer's test commands. The EUT then transmitted the required type of packeted 802.11 data frames of fixed length, containing the standard headers and with pseudo-random data content, ensuring the measured signals were representative and contained all the symbols at the highest power control level.

The test setup used for Contention Based Protocol is described in the test result section of the present document.

1.4.4 Antenna Gain Table

Antenna Port	Frequency Range (MHz)	Peak Gain (dBi)	Conducted Cable Loss (dB)
Core 0	5925 to 6105	3.40	1.90
	6105 to 6265	2.40	1.93
	6265 to 6425	2.90	2.06
	6425 to 6525	4.50	2.10
	6525 to 6875	3.80	2.21
	6875 to 7125	3.20	2.36
Core 1	5925 to 6105	4.40	2.25
	6105 to 6265	4.20	2.30
	6265 to 6425	5.70	2.28
	6425 to 6525	4.60	2.19
	6525 to 6875	4.00	2.18
	6875 to 7125	4.40	2.43

Table 3

1.5 Deviations from the Standard

No deviations from the applicable test standard were made during testing.



1.6 Identification of the EUT

The table below details identification of the EUT(s) that have been used to carry out the testing within this report.

Model: A3137			
Serial Number	Hardware Version	Software Version	Firmware
DMKVPMJ9XD	REV1.0	24A81452a	23.10.787.0.41.51.135
H6D001F73D	REV1.0	24A81452a	23.30.16
G63HC93373	REV1.0	24A81452a	23.30.16
FV5VYV72RL	REV1.0	24A81452a	23.30.16
LQ9QKVW0H6	REV1.0	24A81452a	23.30.16
G5022YM6RR	REV1.0	24A81452a	23.30.16
MHCWWV5343	REV1.0	24A240	23.10.849.0.41.51.149
M42K4610G2	REV1.0	24A81452a	23.30.16
JGKM3PYTDT	REV1.0	24E100	23.10.889.3

Table 4

1.7 EUT Modification Record

The table below details modifications made to the EUT during the test programme.

The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
Model: A3137, Serial Number: FV5VYV72RL			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3137, Serial Number: G63HC93373			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3137, Serial Number: M42K4610G2			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3137, Serial Number: LQ9QKVW0H6			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3137, Serial Number: DMKVPMJ9XD			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3137, Serial Number: H6D001F73D			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3137, Serial Number: MHCWWV5343			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3137, Serial Number: G5022YM6RR			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3137, Serial Number: JGKM3PYTDT			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 5



1.8 Test Location

TÜV SÜD conducted the following tests at our Concorde Park Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: 6 GHz WLAN		
Emission Bandwidth	Feda Hussein	UKAS
Dual Client Test	Stefan Gilfedder	UKAS
Transmit Power Control	Philip Harrison	UKAS
Maximum Conducted Output Power	David Hill and Feda Hussein	UKAS
Maximum Conducted Power Spectral Density	David Hill and Feda Hussein	UKAS
Authorised Band Edges	Akhil Rajendran Bhaskaran Nair, Ahmed Al Derdiri, Colin Brain, Ioan- Alexandru Bogatu and Morsalin Hossain	UKAS
Spurious Radiated Emissions	Akhil Rajendran Bhaskaran Nair, Ian Hart, Morsalin Hossain and Vineeth Nagaraj	UKAS
Unwanted Emissions within the 5925-7125 MHz band	David Hill, Feda Hussein and Jayvir Makwana	UKAS
Contention Based Protocol	Stefan Gilfedder	UKAS

Table 6

Office Address:

TÜV SÜD
Concorde Park
Concorde Way
Fareham
Hampshire
PO15 5FG
United Kingdom



2 Test Details

2.1 Emission Bandwidth

2.1.1 Specification Reference

FCC 47 CFR Part 15E, Clause 15.407 (a)
ISED RSS-248, Clause 4.4
ISED RSS-GEN, Clause 6.7

2.1.2 Equipment Under Test and Modification State

A3137, S/N: H6D001F73D - Modification State 0
A3137, S/N: MHCWWV5343 - Modification State 0
A3137, S/N: G5022YM6RR - Modification State 0

2.1.3 Date of Test

26-June-2024 to 19-September-2024

2.1.4 Test Method

The test was performed in accordance with KDB 789033 D02, clause II.C.1 for 26 dB bandwidth and clause D for 99% occupied bandwidth.

2.1.5 Environmental Conditions

Ambient Temperature	21.4 - 22.4 °C
Relative Humidity	48.5 - 59.1 %



2.1.6 Test Results

6 GHz WLAN

SISO

Protocol	26 dB Bandwidth (MHz)	
	Minimum	Maximum
802.11a LPI	20.880	21.120
802.11ax HE20 SU LPI	21.240	21.540
802.11ax HE40 SU LPI	41.760	42.120
802.11ax HE80 SU LPI	82.500	82.940
802.11ax HE160 SU LPI	166.740	167.580
802.11a SP	21.000	32.720
802.11ax HE20 SU SP	21.480	34.900
802.11ax HE40 SU SP	42.120	73.220
802.11ax HE80 SU SP	82.720	140.280
802.11ax HE160 SU SP	166.740	168.000

Table 7 - 26 dB Bandwidth Summary Results - SISO

Protocol	99% Bandwidth (MHz)	
	Minimum	Maximum
802.11a LPI	16.680	16.680
802.11ax HE20 SU LPI	18.960	19.080
802.11ax HE40 SU LPI	37.920	38.040
802.11ax HE80 SU LPI	77.000	77.440
802.11ax HE160 SU LPI	156.660	156.660
802.11a SP	16.740	17.440
802.11ax HE20 SU SP	19.020	19.300
802.11ax HE40 SU SP	37.920	38.500
802.11ax HE80 SU SP	77.440	77.840
802.11ax HE160 SU SP	156.240	156.660

Table 8 - 99% Bandwidth Summary Results - SISO

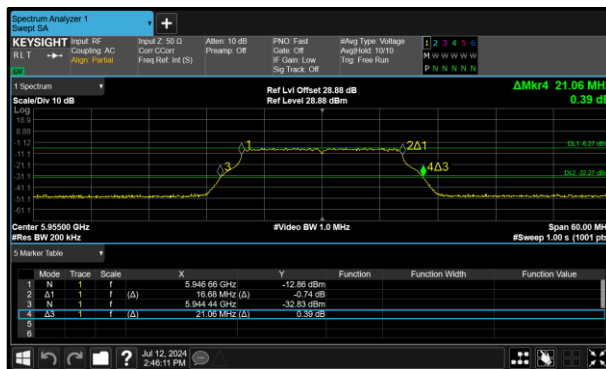


Figure 1 - 802.11a LPI Minimum 99% OBW

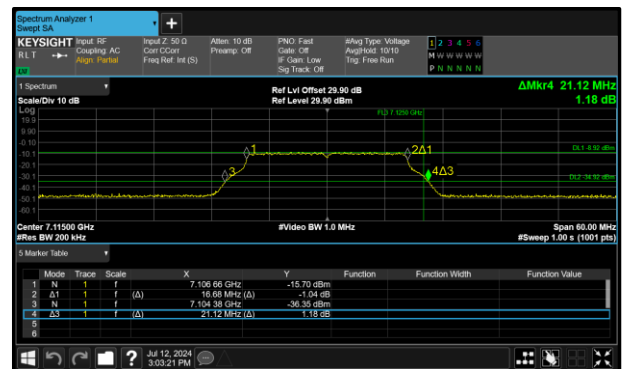


Figure 2 - 802.11a LPI Maximum 99% OBW

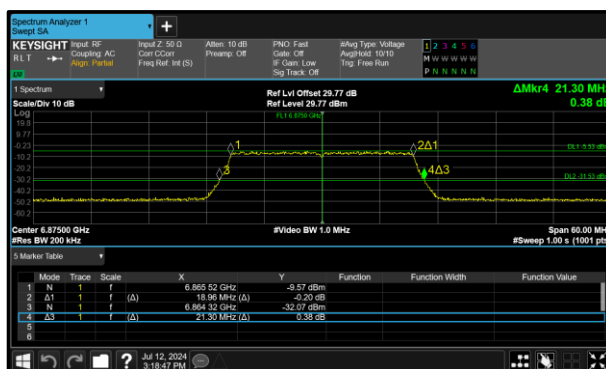


Figure 3 - 802.11ax HE20 SU LPI Minimum 99% OBW

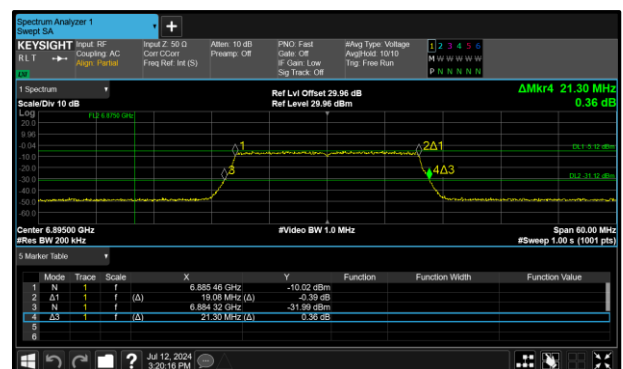


Figure 4 - 802.11ax HE20 SU LPI Maximum 99% OBW

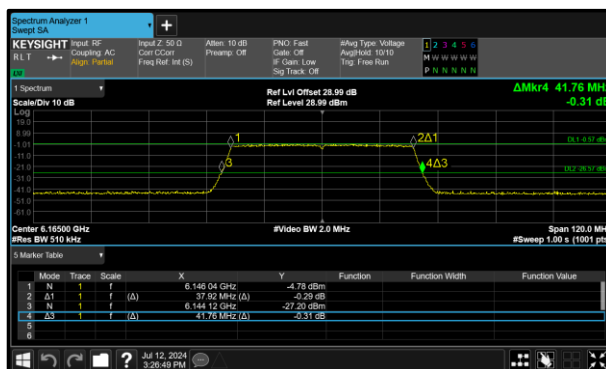


Figure 5 - 802.11ax HE40 SU LPI Minimum 99% OBW

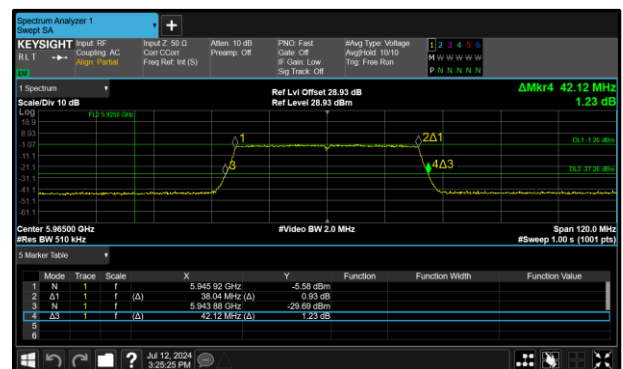


Figure 6 - 802.11ax HE40 SU LPI Maximum 99% OBW

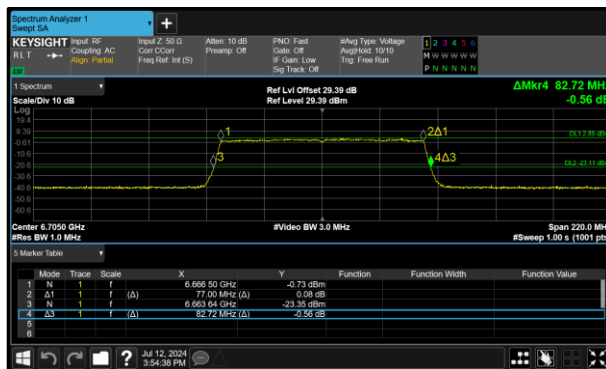


Figure 7 - 802.11ax HE80 SU LPI Minimum 99% OBW

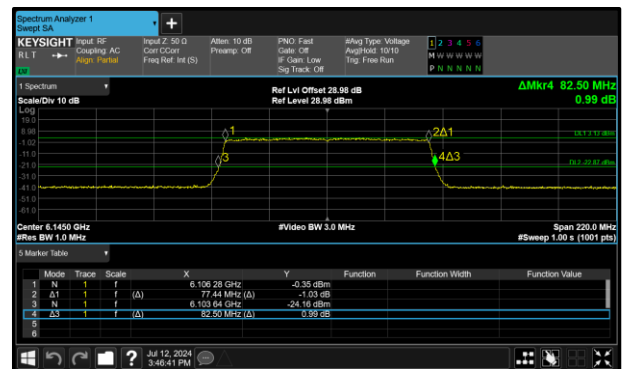


Figure 8 - 802.11ax HE80 SU LPI Maximum 99% OBW

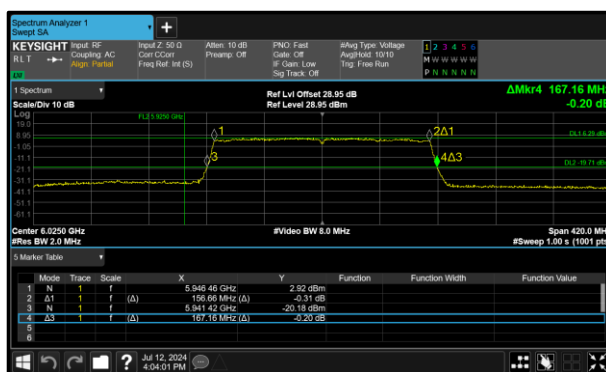


Figure 9 - 802.11ax HE160 SU LPI Minimum 99% OBW

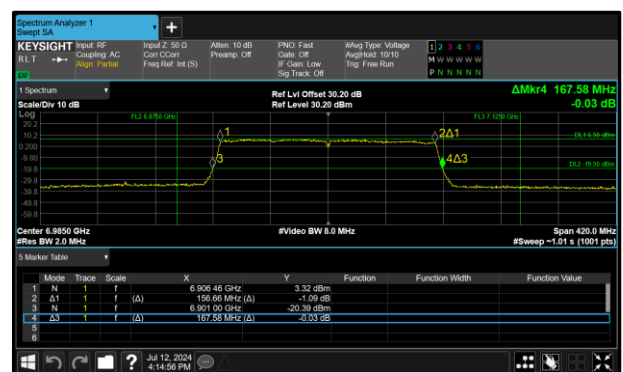


Figure 10 - 802.11ax HE160 SU LPI Maximum 99% OBW

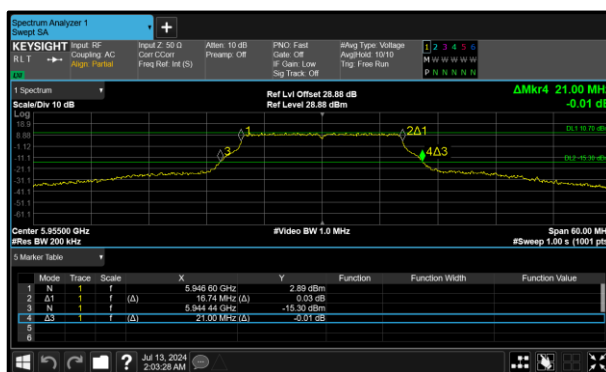


Figure 11 - 802.11a SP Minimum 99% OBW

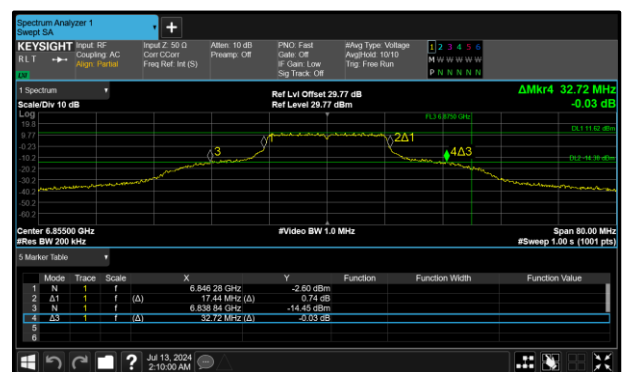


Figure 12 - 802.11a SP Maximum 99% OBW

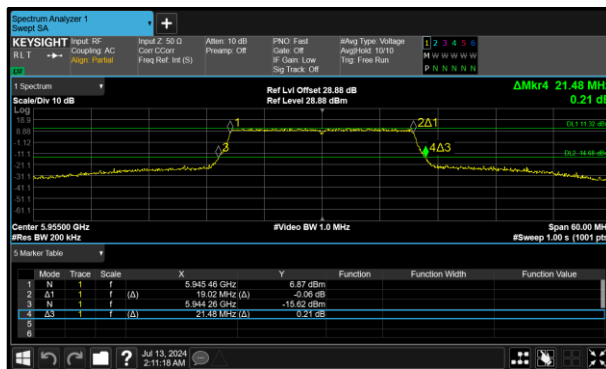


Figure 13 - 802.11ax HE20 SU SP Minimum 99% OBW

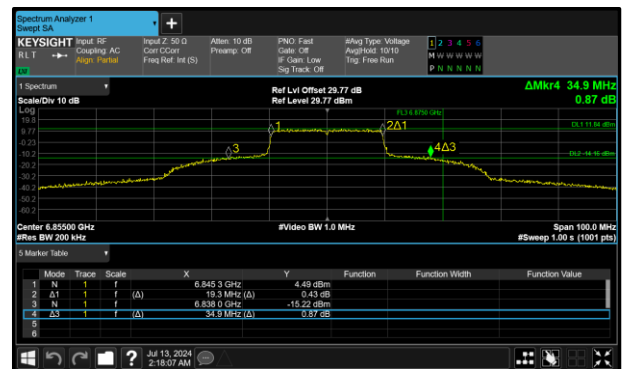


Figure 14 - 802.11ax HE20 SU SP Maximum 99% OBW

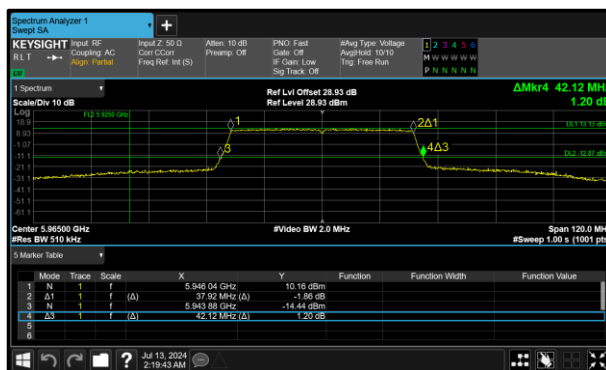


Figure 15 - 802.11ax HE40 SU SP Minimum 99% OBW

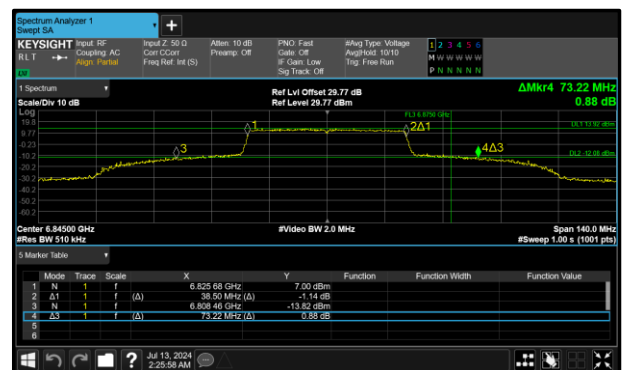


Figure 16 - 802.11ax HE40 SU SP Maximum 99% OBW

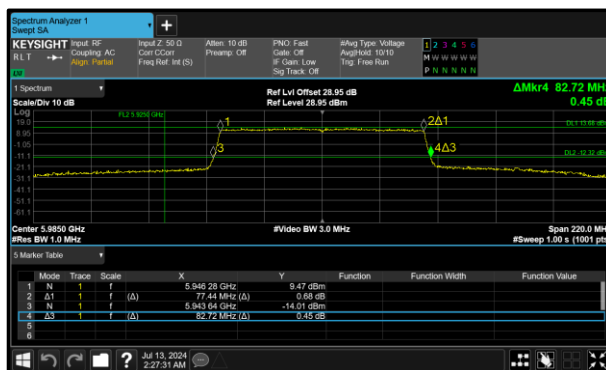


Figure 17 - 802.11ax HE80 SU SP Minimum 99% OBW

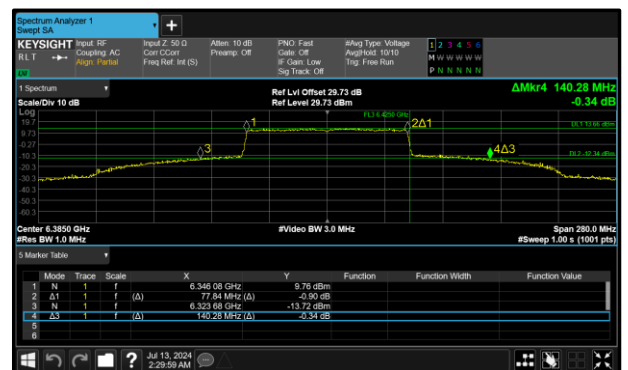


Figure 18 - 802.11ax HE80 SU SP Maximum 99% OBW

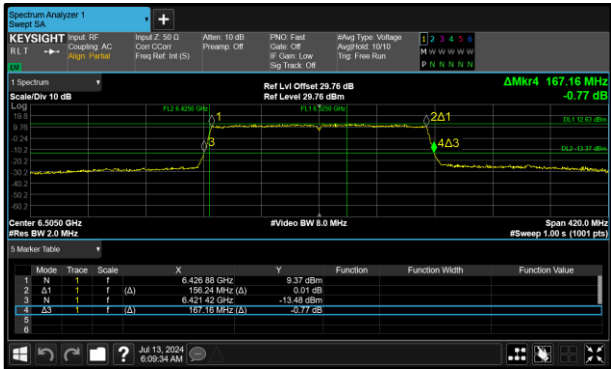


Figure 19 - 802.11ax HE160 SU SP Minimum 99% OBW

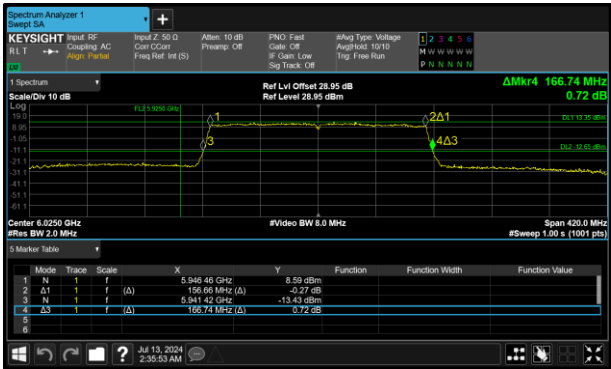


Figure 20 - 802.11ax HE160 SU SP Maximum 99% OBW



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz 6.875-7.125 GHz	Band:	U-NII-5 U-NII-6 U-NII-7 U-NII-8
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11a LPI	Duty Cycle (%):	-
Data Rate:	12 Mbps	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	B Core 1	Active Chain(s):	1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5955	-	21.060	-	-	320.00
6175	-	21.000	-	-	320.00
6415	-	20.940	-	-	320.00
6435	-	21.000	-	-	320.00
6475	-	21.000	-	-	320.00
6515	-	20.880	-	-	320.00
6535	-	21.000	-	-	320.00
6695	-	21.000	-	-	320.00
6855	-	21.060	-	-	320.00
6875	-	21.000	-	-	320.00
6895	-	21.000	-	-	320.00
6995	-	20.940	-	-	320.00
7115	-	21.120	-	-	320.00

Table 9 - 26 dB Bandwidth Results



Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5955	-	16.680	-	-	320.00
6175	-	16.680	-	-	320.00
6415	-	16.680	-	-	320.00
6435	-	16.680	-	-	320.00
6475	-	16.680	-	-	320.00
6515	-	16.680	-	-	320.00
6535	-	16.680	-	-	320.00
6695	-	16.680	-	-	320.00
6855	-	16.680	-	-	320.00
6875	-	16.680	-	-	320.00
6895	-	16.680	-	-	320.00
6995	-	16.680	-	-	320.00
7115	-	16.680	-	-	320.00

Table 10 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz 6.875-7.125 GHz	Band:	U-NII-5 U-NII-6 U-NII-7 U-NII-8
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE20 SU LPI	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	B Core 1	Active Chain(s):	1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5955	-	21.360	-	-	320.00
6175	-	21.360	-	-	320.00
6415	-	21.480	-	-	320.00
6435	-	21.360	-	-	320.00
6475	-	21.420	-	-	320.00
6515	-	21.240	-	-	320.00
6535	-	21.360	-	-	320.00
6695	-	21.300	-	-	320.00
6855	-	21.420	-	-	320.00
6875	-	21.300	-	-	320.00
6895	-	21.300	-	-	320.00
6995	-	21.300	-	-	320.00
7095	-	21.540	-	-	320.00

Table 11 - 26 dB Bandwidth Results



Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5955	-	19.020	-	-	320.00
6175	-	19.020	-	-	320.00
6415	-	19.020	-	-	320.00
6435	-	19.020	-	-	320.00
6475	-	19.020	-	-	320.00
6515	-	19.020	-	-	320.00
6535	-	19.020	-	-	320.00
6695	-	19.020	-	-	320.00
6855	-	19.020	-	-	320.00
6875	-	18.960	-	-	320.00
6895	-	19.080	-	-	320.00
6995	-	19.020	-	-	320.00
7095	-	19.020	-	-	320.00

Table 12 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz 6.875-7.125 GHz	Band:	U-NII-5 U-NII-6 U-NII-7 U-NII-8
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE40 SU LPI	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	B Core 1	Active Chain(s):	1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5965	-	42.120	-	-	320.00
6165	-	41.760	-	-	320.00
6405	-	42.000	-	-	320.00
6445	-	41.880	-	-	320.00
6485	-	41.880	-	-	320.00
6525	-	41.880	-	-	320.00
6565	-	42.000	-	-	320.00
6685	-	42.000	-	-	320.00
6845	-	42.000	-	-	320.00
6885	-	42.000	-	-	320.00
6925	-	42.120	-	-	320.00
7005	-	41.760	-	-	320.00
7085	-	42.000	-	-	320.00

Table 13 - 26 dB Bandwidth Results



Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5965	-	38.040	-	-	320.00
6165	-	37.920	-	-	320.00
6405	-	37.920	-	-	320.00
6445	-	37.920	-	-	320.00
6485	-	38.040	-	-	320.00
6525	-	38.040	-	-	320.00
6565	-	37.920	-	-	320.00
6685	-	38.040	-	-	320.00
6845	-	38.040	-	-	320.00
6885	-	38.040	-	-	320.00
6925	-	38.040	-	-	320.00
7005	-	37.920	-	-	320.00
7085	-	38.040	-	-	320.00

Table 14 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz 6.875-7.125 GHz	Band:	U-NII-5 U-NII-6 U-NII-7 U-NII-8
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE80 SU LPI	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	B Core 1	Active Chain(s):	1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5985	-	82.720	-	-	320.00
6145	-	82.500	-	-	320.00
6385	-	82.940	-	-	320.00
6465	-	82.500	-	-	320.00
6545	-	82.720	-	-	320.00
6625	-	82.940	-	-	320.00
6705	-	82.720	-	-	320.00
6785	-	82.720	-	-	320.00
6865	-	82.500	-	-	320.00
6945	-	82.500	-	-	320.00
7025	-	82.720	-	-	320.00

Table 15 - 26 dB Bandwidth Results



Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5985	-	77.220	-	-	320.00
6145	-	77.440	-	-	320.00
6385	-	77.220	-	-	320.00
6465	-	77.440	-	-	320.00
6545	-	77.440	-	-	320.00
6625	-	77.440	-	-	320.00
6705	-	77.000	-	-	320.00
6785	-	77.220	-	-	320.00
6865	-	77.220	-	-	320.00
6945	-	77.220	-	-	320.00
7025	-	77.220	-	-	320.00

Table 16 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz 6.875-7.125 GHz	Band:	U-NII-5 U-NII-6 U-NII-7 U-NII-8
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE160 SU LPI	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	B Core 1	Active Chain(s):	1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6025	-	167.160	-	-	320.00
6185	-	166.740	-	-	320.00
6345	-	167.580	-	-	320.00
6505	-	166.740	-	-	320.00
6665	-	166.740	-	-	320.00
6825	-	166.740	-	-	320.00
6985	-	167.580	-	-	320.00

Table 17 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6025	-	156.660	-	-	320.00
6185	-	156.660	-	-	320.00
6345	-	156.660	-	-	320.00
6505	-	156.660	-	-	320.00
6665	-	156.660	-	-	320.00
6825	-	156.660	-	-	320.00
6985	-	156.660	-	-	320.00

Table 18 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-6 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11a SP	Duty Cycle (%):	-
Data Rate:	12 Mbps	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	B Core 1	Active Chain(s):	1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5955	-	21.000	-	-	320.00
6175	-	21.300	-	-	320.00
6415	-	22.080	-	-	320.00
6535	-	22.260	-	-	320.00
6695	-	22.920	-	-	320.00
6855	-	32.720	-	-	320.00

Table 19 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5955	-	16.740	-	-	320.00
6175	-	16.800	-	-	320.00
6415	-	16.800	-	-	320.00
6435	-	17.100	-	-	320.00
6475	-	16.980	-	-	320.00
6515	-	16.920	-	-	320.00
6535	-	16.860	-	-	320.00
6695	-	16.920	-	-	320.00
6855	-	17.440	-	-	320.00

Table 20 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-6 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE20 SU SP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	B Core 1	Active Chain(s):	1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6535	-	21.900	-	-	320.00
5955	-	21.480	-	-	320.00
6175	-	21.540	-	-	320.00
6415	-	22.080	-	-	320.00
6855	-	34.900	-	-	320.00
6695	-	22.860	-	-	320.00

Table 21 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6535	-	19.140	-	-	320.00
5955	-	19.020	-	-	320.00
6175	-	19.080	-	-	320.00
6415	-	19.140	-	-	320.00
6435	-	19.140	-	-	320.00
6475	-	19.200	-	-	320.00
6515	-	19.140	-	-	320.00
6855	-	19.300	-	-	320.00
6695	-	19.140	-	-	320.00

Table 22 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-6 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE40 SU SP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	B Core 1	Active Chain(s):	1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5965	-	42.120	-	-	320.00
6165	-	42.360	-	-	320.00
6405	-	68.320	-	-	320.00
6565	-	43.320	-	-	320.00
6685	-	43.200	-	-	320.00
6845	-	73.220	-	-	320.00

Table 23 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5965	-	37.920	-	-	320.00
6165	-	38.040	-	-	320.00
6405	-	38.360	-	-	320.00
6445	-	38.400	-	-	320.00
6485	-	38.160	-	-	320.00
6525	-	38.160	-	-	320.00
6565	-	38.160	-	-	320.00
6685	-	38.160	-	-	320.00
6845	-	38.500	-	-	320.00

Table 24 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-6 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE80 SU SP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	B Core 1	Active Chain(s):	1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5985	-	82.720	-	-	320.00
6145	-	83.160	-	-	320.00
6385	-	140.280	-	-	320.00
6625	-	97.680	-	-	320.00
6705	-	100.980	-	-	320.00
6785	-	130.560	-	-	320.00

Table 25 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5985	-	77.440	-	-	320.00
6145	-	77.440	-	-	320.00
6385	-	77.840	-	-	320.00
6465	-	77.760	-	-	320.00
6545	-	77.440	-	-	320.00
6625	-	77.440	-	-	320.00
6705	-	77.440	-	-	320.00
6785	-	77.760	-	-	320.00

Table 26 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-6 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE160 SU SP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	B Core 1	Active Chain(s):	1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6025	-	166.740	-	-	320.00
6185	-	166.740	-	-	320.00
6345	-	168.000	-	-	320.00
6665	-	166.740	-	-	320.00

Table 27 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6025	-	156.660	-	-	320.00
6185	-	156.660	-	-	320.00
6345	-	156.660	-	-	320.00
6505	-	156.240	-	-	320.00
6665	-	156.660	-	-	320.00

Table 28 - 99% Bandwidth Results



Protocol	26 dB Bandwidth (MHz)	
	Minimum	Maximum
802.11a VLP	21.000	21.120
802.11ax HE20 SU VLP	21.360	21.480
802.11ax HE40 SU VLP	41.760	42.120
802.11ax HE80 SU VLP	82.500	82.940
802.11ax HE160 SU VLP	166.740	167.580

Table 29 - 26dB Bandwidth Summary Results - SISO

Protocol	99% Bandwidth (MHz)	
	Minimum	Maximum
802.11a VLP	16.680	16.680
802.11ax HE20 SU VLP	19.020	19.080
802.11ax HE40 SU VLP	37.920	38.160
802.11ax HE80 SU VLP	77.000	77.440
802.11ax HE160 SU VLP	156.660	156.660

Table 30 - 99% Bandwidth Summary Results - SISO

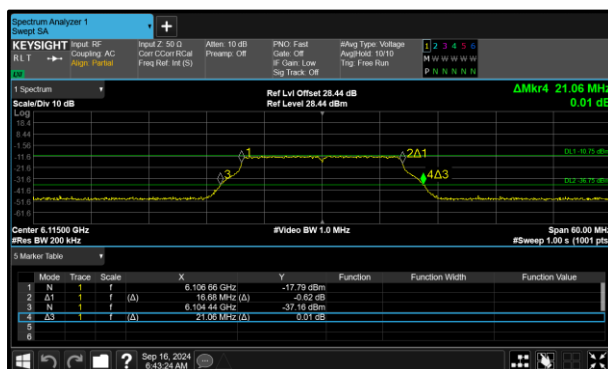


Figure 21 - 802.11a VLP Minimum 99% OBW

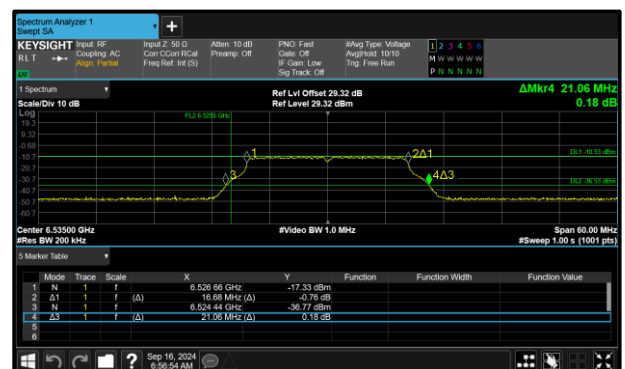


Figure 22 - 802.11a VLP Maximum 99% OBW

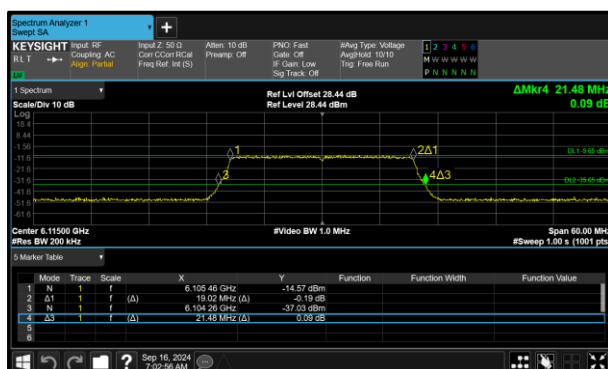


Figure 23 - 802.11ax HE20 SU VLP Minimum 99% OBW

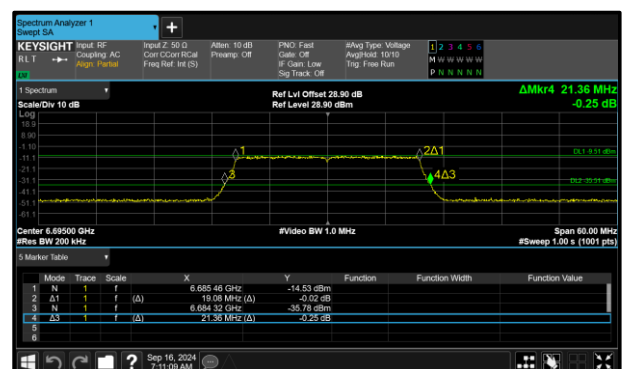


Figure 24 - 802.11ax HE20 SU VLP Maximum 99% OBW

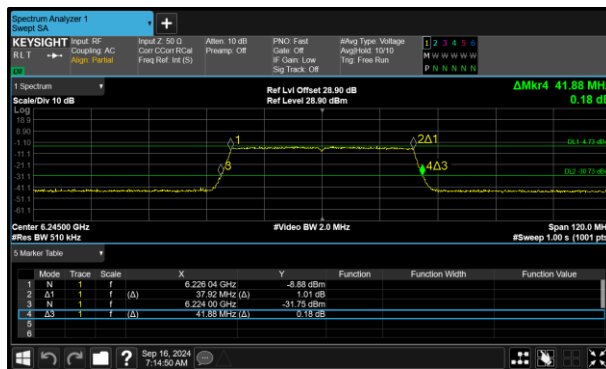


Figure 25 - 802.11ax HE40 SU VLP Minimum 99% OBW

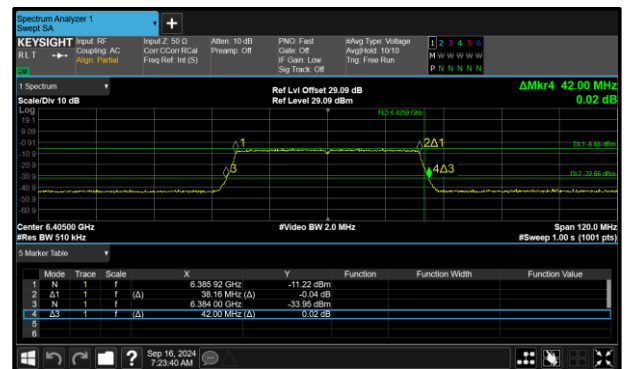


Figure 26 - 802.11ax HE40 SU VLP Maximum 99% OBW

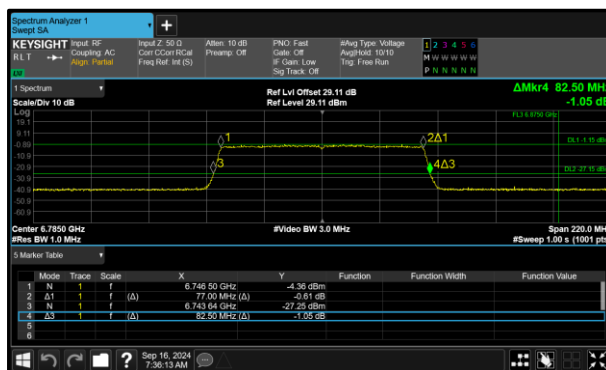


Figure 27 - 802.11ax HE80 SU VLP Minimum 99% OBW



Figure 28 - 802.11ax HE80 SU VLP Maximum 99% OBW

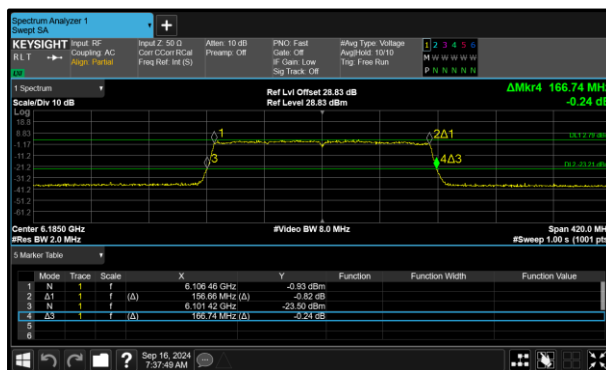


Figure 29 - 802.11ax HE160 SU VLP Minimum 99% OBW

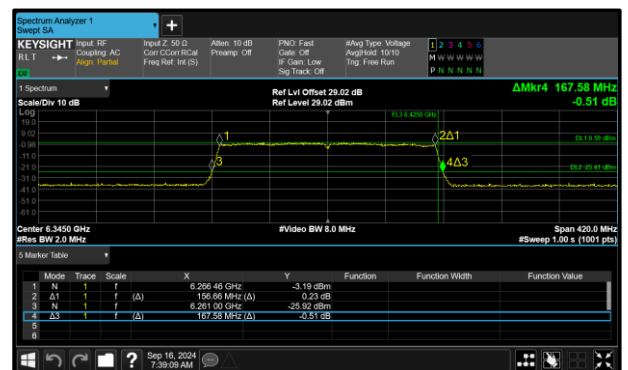


Figure 30 - 802.11ax HE160 SU VLP Maximum 99% OBW



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11a VLP	Duty Cycle (%):	-
Data Rate:	12 Mbps	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	A B (Core 0 Core 1)	Active Chain(s):	0 1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6115	-	21.060	-	-	320.00
6255	-	21.120	-	-	320.00
6415	-	21.000	-	-	320.00
6535	-	21.060	-	-	320.00
6695	-	21.060	-	-	320.00
6855	-	21.060	-	-	320.00

Table 31 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6115	-	16.680	-	-	320.00
6255	-	16.680	-	-	320.00
6415	-	16.680	-	-	320.00
6535	-	16.680	-	-	320.00
6695	-	16.680	-	-	320.00
6855	-	16.680	-	-	320.00

Table 32 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE20 SU VLP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	A B (Core 0 Core 1)	Active Chain(s):	0 1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6115	-	21.480	-	-	320.00
6255	-	21.480	-	-	320.00
6415	-	21.360	-	-	320.00
6535	-	21.420	-	-	320.00
6695	-	21.360	-	-	320.00
6855	-	21.360	-	-	320.00

Table 33 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6115	-	19.020	-	-	320.00
6255	-	19.020	-	-	320.00
6415	-	19.020	-	-	320.00
6535	-	19.020	-	-	320.00
6695	-	19.080	-	-	320.00
6855	-	19.020	-	-	320.00

Table 34 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE40 SU VLP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	A B (Core 0 Core 1)	Active Chain(s):	0 1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6125	-	41.760	-	-	320.00
6245	-	41.880	-	-	320.00
6405	-	42.000	-	-	320.00
6565	-	42.000	-	-	320.00
6685	-	41.880	-	-	320.00
6845	-	42.120	-	-	320.00

Table 35 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6125	-	38.040	-	-	320.00
6245	-	37.920	-	-	320.00
6405	-	38.160	-	-	320.00
6565	-	38.160	-	-	320.00
6685	-	38.040	-	-	320.00
6845	-	37.920	-	-	320.00

Table 36 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE80 SU VLP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	A B (Core 0 Core 1)	Active Chain(s):	0 1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6145	-	82.940	-	-	320.00
6225	-	82.720	-	-	320.00
6385	-	82.500	-	-	320.00
6625	-	82.720	-	-	320.00
6705	-	82.720	-	-	320.00
6785	-	82.500	-	-	320.00

Table 37 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6145	-	77.220	-	-	320.00
6225	-	77.220	-	-	320.00
6385	-	77.220	-	-	320.00
6625	-	77.440	-	-	320.00
6705	-	77.440	-	-	320.00
6785	-	77.000	-	-	320.00

Table 38 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE160 SU VLP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	A B (Core 0 Core 1)	Active Chain(s):	0 1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6185	-	166.740	-	-	320.00
6345	-	167.580	-	-	320.00
6665	-	166.740	-	-	320.00

Table 39 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6185	-	156.660	-	-	320.00
6345	-	156.660	-	-	320.00
6665	-	156.660	-	-	320.00

Table 40 - 99% Bandwidth Results



MIMO CDD

Protocol	26 dB Bandwidth (MHz)	
	Minimum	Maximum
802.11ax HE20 SU LPI	21.180	21.480
802.11ax HE40 SU LPI	41.760	42.240
802.11ax HE80 SU LPI	82.500	83.380
802.11ax HE160 SU LPI	166.320	167.580
802.11ax HE20 SU SP	21.060	21.420
802.11ax HE40 SU SP	41.760	42.240
802.11ax HE80 SU SP	82.500	130.560
802.11ax HE160 SU SP	166.320	167.160

Table 41 - 26 dB Bandwidth Summary Results - MIMO CDD

Protocol	99% Bandwidth (MHz)	
	Minimum	Maximum
802.11ax HE20 SU LPI	19.020	19.080
802.11ax HE40 SU LPI	37.920	38.160
802.11ax HE80 SU LPI	77.220	77.440
802.11ax HE160 SU LPI	156.240	156.660
802.11ax HE20 SU SP	19.020	19.080
802.11ax HE40 SU SP	37.920	38.040
802.11ax HE80 SU SP	77.220	77.760
802.11ax HE160 SU SP	156.240	156.660

Table 42 - 99% Bandwidth Summary Results - MIMO CDD

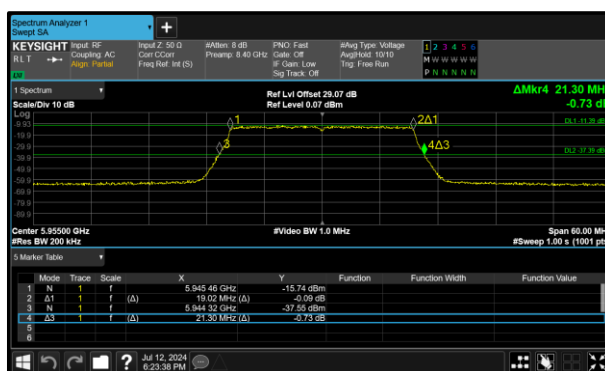


Figure 31 - 802.11ax HE20 SU LPI Minimum 99% OBW

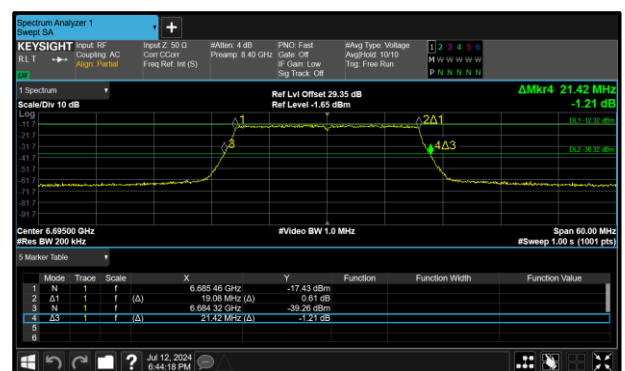


Figure 32 - 802.11ax HE20 SU LPI Maximum 99% OBW

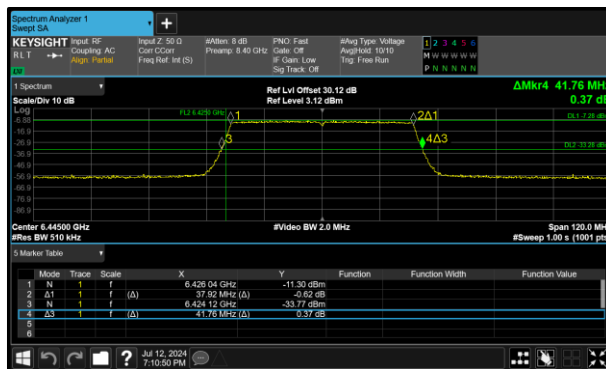


Figure 33 - 802.11ax HE40 SU LPI Minimum 99% OBW

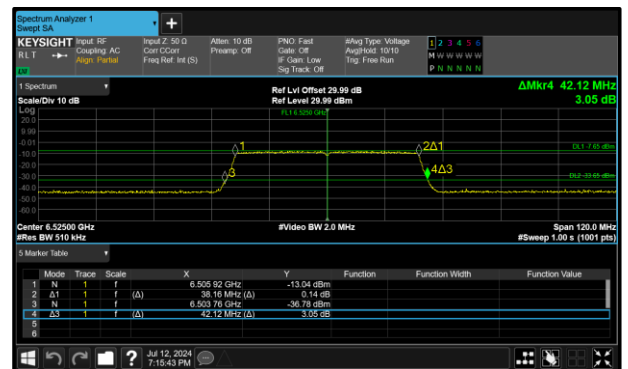


Figure 34 - 802.11ax HE40 SU LPI Maximum 99% OBW

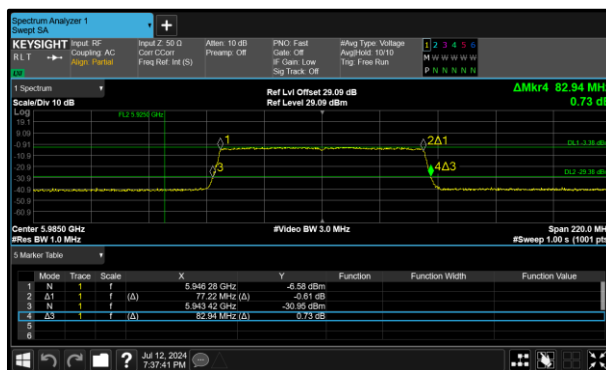


Figure 35 - 802.11ax HE80 SU LPI Minimum 99% OBW

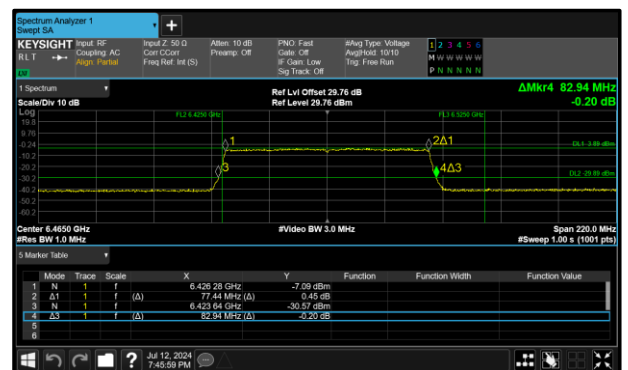


Figure 36 - 802.11ax HE80 SU LPI Maximum 99% OBW

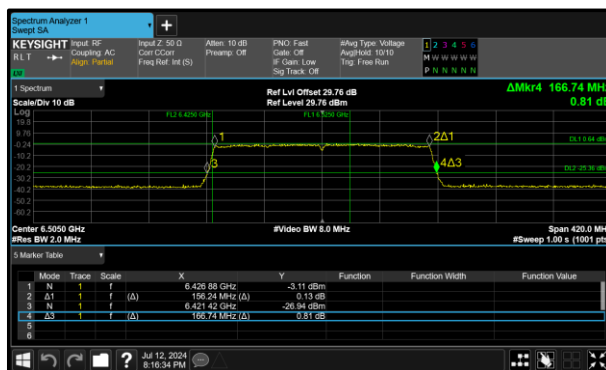


Figure 37 - 802.11ax HE160 SU LPI Minimum 99% OBW

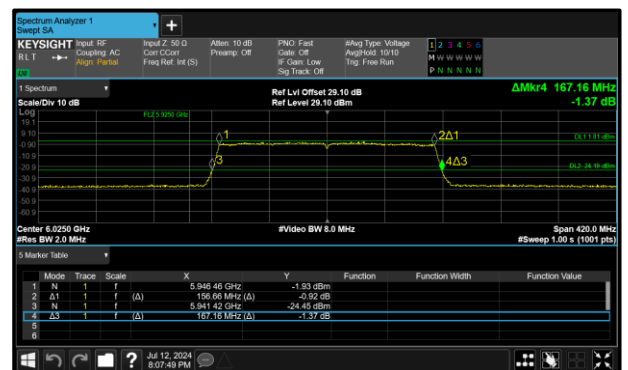


Figure 38 - 802.11ax HE160 SU LPI Maximum 99% OBW

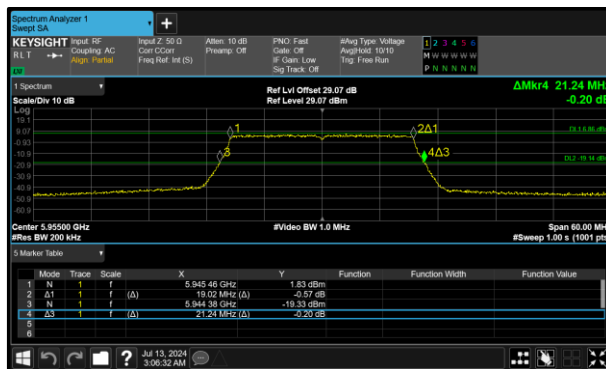


Figure 39 - 802.11ax HE20 SU SP Minimum 99% OBW



Figure 40 - 802.11ax HE20 SU SP Maximum 99% OBW

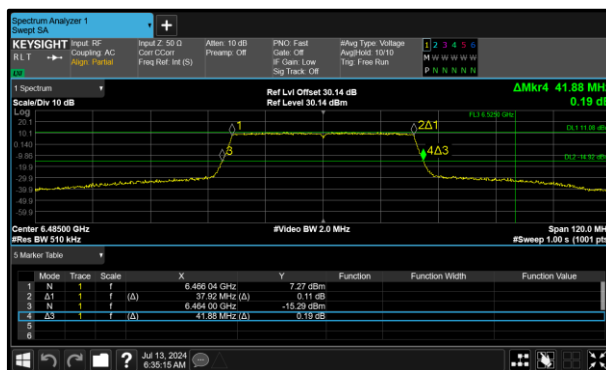


Figure 41 - 802.11ax HE40 SU SP Minimum 99% OBW

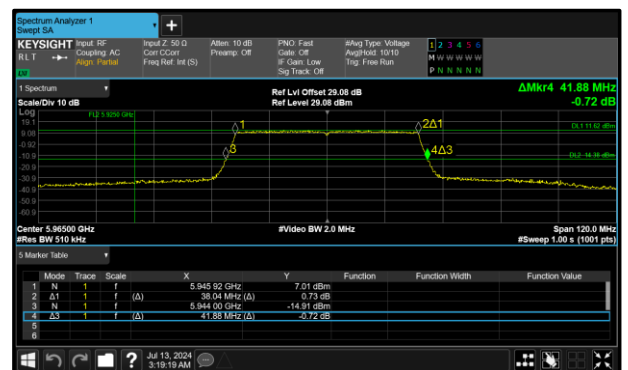


Figure 42 - 802.11ax HE40 SU SP Maximum 99% OBW

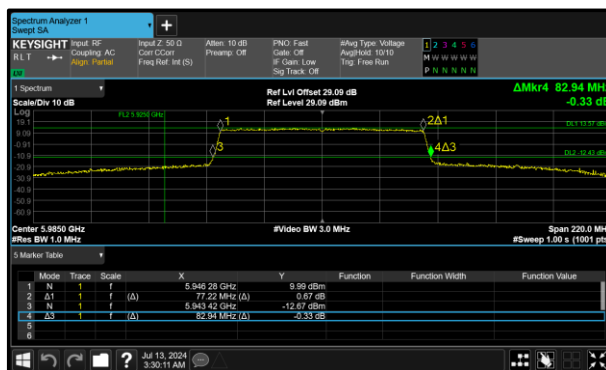


Figure 43 - 802.11ax HE80 SU SP Minimum 99% OBW

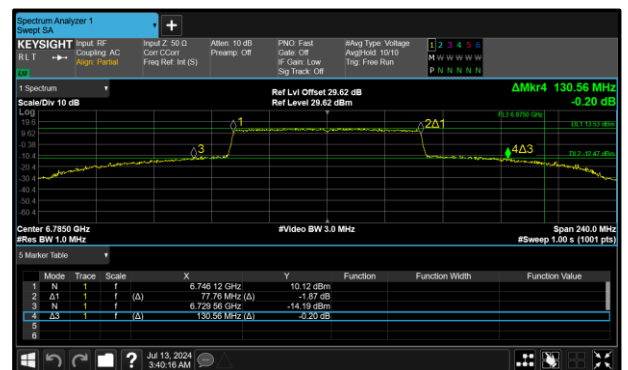


Figure 44 - 802.11ax HE80 SU SP Maximum 99% OBW

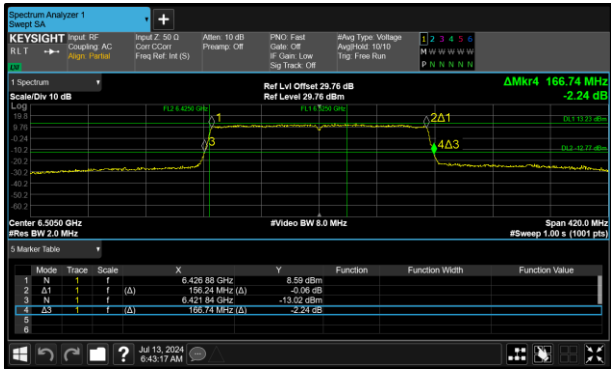


Figure 45 - 802.11ax HE160 SU SP Minimum 99% OBW

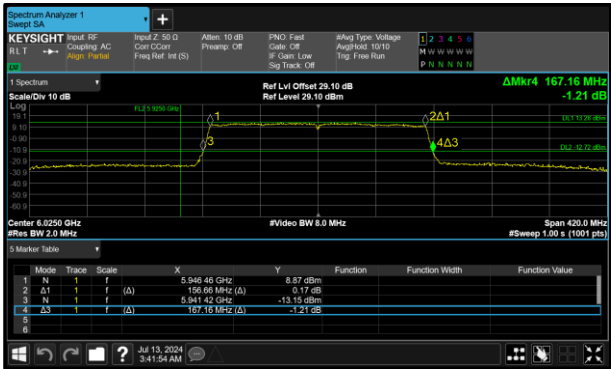


Figure 46 - 802.11ax HE160 SU SP Maximum 99% OBW



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz 6.875-7.125 GHz	Band:	U-NII-5 U-NII-6 U-NII-7 U-NII-8
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE20 SU LPI	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	-
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5955	21.300	21.360	-	-	320.00
6175	21.360	21.360	-	-	320.00
6415	21.240	21.360	-	-	320.00
6435	21.360	21.360	-	-	320.00
6475	21.360	21.300	-	-	320.00
6515	21.360	21.360	-	-	320.00
6535	21.300	21.240	-	-	320.00
6695	21.240	21.420	-	-	320.00
6855	21.240	21.300	-	-	320.00
6875	21.300	21.420	-	-	320.00
6895	21.240	21.240	-	-	320.00
6995	21.180	21.300	-	-	320.00
7095	21.240	21.480	-	-	320.00

Table 43 - 26 dB Bandwidth Results



Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5955	19.020	19.020	-	-	320.00
6175	19.020	19.020	-	-	320.00
6415	19.020	19.020	-	-	320.00
6435	19.020	19.020	-	-	320.00
6475	19.020	19.020	-	-	320.00
6515	19.020	19.020	-	-	320.00
6535	19.020	19.020	-	-	320.00
6695	19.020	19.080	-	-	320.00
6855	19.020	19.020	-	-	320.00
6875	19.020	19.020	-	-	320.00
6895	19.020	19.020	-	-	320.00
6995	19.020	19.020	-	-	320.00
7095	19.020	19.080	-	-	320.00

Table 44 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz 6.875-7.125 GHz	Band:	U-NII-5 U-NII-6 U-NII-7 U-NII-8
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE40 SU LPI	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	-
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5965	42.000	42.120	-	-	320.00
6165	42.000	41.880	-	-	320.00
6405	42.120	42.000	-	-	320.00
6445	41.760	42.000	-	-	320.00
6485	42.000	42.120	-	-	320.00
6525	42.120	42.120	-	-	320.00
6565	41.760	41.880	-	-	320.00
6685	42.120	42.120	-	-	320.00
6845	42.000	42.000	-	-	320.00
6885	42.000	42.120	-	-	320.00
6925	41.880	42.120	-	-	320.00
7005	42.240	42.120	-	-	320.00
7085	41.760	42.120	-	-	320.00

Table 45 - 26 dB Bandwidth Results



Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5965	38.040	38.040	-	-	320.00
6165	38.040	38.040	-	-	320.00
6405	38.040	38.040	-	-	320.00
6445	37.920	38.040	-	-	320.00
6485	38.040	38.040	-	-	320.00
6525	38.160	38.040	-	-	320.00
6565	38.040	38.040	-	-	320.00
6685	38.040	38.040	-	-	320.00
6845	38.040	38.040	-	-	320.00
6885	38.040	38.040	-	-	320.00
6925	37.920	38.040	-	-	320.00
7005	38.040	38.040	-	-	320.00
7085	37.920	38.040	-	-	320.00

Table 46 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz 6.875-7.125 GHz	Band:	U-NII-5 U-NII-6 U-NII-7 U-NII-8
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE80 SU LPI	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	-
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5985	82.940	82.940	-	-	320.00
6145	82.500	82.940	-	-	320.00
6385	83.380	82.940	-	-	320.00
6465	83.160	82.940	-	-	320.00
6545	82.720	83.160	-	-	320.00
6625	82.720	82.940	-	-	320.00
6705	82.940	82.720	-	-	320.00
6785	82.720	82.720	-	-	320.00
6865	82.720	82.720	-	-	320.00
6945	82.500	82.500	-	-	320.00
7025	82.500	82.720	-	-	320.00

Table 47 - 26 dB Bandwidth Results



Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5985	77.220	77.220	-	-	320.00
6145	77.220	77.220	-	-	320.00
6385	77.220	77.220	-	-	320.00
6465	77.220	77.440	-	-	320.00
6545	77.220	77.220	-	-	320.00
6625	77.220	77.440	-	-	320.00
6705	77.220	77.220	-	-	320.00
6785	77.220	77.220	-	-	320.00
6865	77.220	77.220	-	-	320.00
6945	77.220	77.220	-	-	320.00
7025	77.220	77.220	-	-	320.00

Table 48 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz 6.875-7.125 GHz	Band:	U-NII-5 U-NII-6 U-NII-7 U-NII-8
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE160 SU LPI	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	-
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6185	166.740	166.740	-	-	320.00
6025	167.160	167.160	-	-	320.00
6345	167.580	167.160	-	-	320.00
6505	166.740	166.740	-	-	320.00
6665	166.740	166.740	-	-	320.00
6825	167.160	166.320	-	-	320.00
6985	167.580	166.740	-	-	320.00

Table 49 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6185	156.660	156.660	-	-	320.00
6025	156.660	156.660	-	-	320.00
6345	156.660	156.660	-	-	320.00
6505	156.660	156.240	-	-	320.00
6665	156.660	156.240	-	-	320.00
6825	156.660	156.660	-	-	320.00
6985	156.660	156.660	-	-	320.00

Table 50 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-6 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE20 SU SP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	-
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6535	21.240	21.300	-	-	320.00
5955	21.240	21.300	-	-	320.00
6175	21.360	21.420	-	-	320.00
6415	21.060	21.360	-	-	320.00
6695	21.420	21.420	-	-	320.00
6855	21.240	21.420	-	-	320.00

Table 51 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5955	19.020	19.020	-	-	320.00
6175	19.020	19.020	-	-	320.00
6415	19.020	19.080	-	-	320.00
6435	19.020	19.020	-	-	320.00
6475	19.020	19.020	-	-	320.00
6515	19.020	19.020	-	-	320.00
6535	19.020	19.020	-	-	320.00
6695	19.020	19.020	-	-	320.00
6855	19.020	19.020	-	-	320.00

Table 52 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-6 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE40 SU SP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	-
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5965	41.880	42.240	-	-	320.00
6165	41.880	41.760	-	-	320.00
6405	42.000	42.000	-	-	320.00
6565	42.120	42.000	-	-	320.00
6685	42.120	41.880	-	-	320.00
6845	41.880	41.880	-	-	320.00

Table 53 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5965	38.040	38.040	-	-	320.00
6165	38.040	38.040	-	-	320.00
6405	38.040	38.040	-	-	320.00
6445	38.040	38.040	-	-	320.00
6485	37.920	38.040	-	-	320.00
6525	38.040	38.040	-	-	320.00
6565	38.040	38.040	-	-	320.00
6685	38.040	38.040	-	-	320.00
6845	38.040	38.040	-	-	320.00

Table 54 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-6 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE80 SU SP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	-
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5985	82.940	82.500	-	-	320.00
6145	83.600	83.380	-	-	320.00
6385	82.940	82.940	-	-	320.00
6625	108.900	97.240	-	-	320.00
6705	108.680	88.440	-	-	320.00
6785	111.100	130.560	-	-	320.00

Table 55 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
5985	77.220	77.220	-	-	320.00
6145	77.440	77.440	-	-	320.00
6385	77.220	77.440	-	-	320.00
6465	77.660	77.440	-	-	320.00
6545	77.440	77.440	-	-	320.00
6625	77.660	77.440	-	-	320.00
6705	77.660	77.440	-	-	320.00
6785	77.660	77.760	-	-	320.00

Table 56 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.425-6.525 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-6 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE160 SU SP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	-
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6025	167.160	166.320	-	-	320.00
6185	166.740	166.740	-	-	320.00
6345	167.160	167.160	-	-	320.00
6665	167.160	166.320	-	-	320.00

Table 57 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6025	156.660	156.660	-	-	320.00
6185	156.660	156.660	-	-	320.00
6345	156.660	156.660	-	-	320.00
6505	156.660	156.240	-	-	320.00
6665	156.660	156.660	-	-	320.00

Table 58 - 99% Bandwidth Results



Protocol	26 dB Bandwidth (MHz)	
	Minimum	Maximum
802.11ax HE40 SU VLP	41.760	42.600
802.11ax HE80 SU VLP	82.280	83.160
802.11ax HE160 SU VLP	165.900	167.580

Table 59 - 26dB Bandwidth Summary Results - MIMO CDD

Protocol	99% Bandwidth (MHz)	
	Minimum	Maximum
802.11ax HE40 SU VLP	38.040	38.280
802.11ax HE80 SU VLP	77.220	77.440
802.11ax HE160 SU VLP	156.660	156.660

Table 60 - 99% Bandwidth Summary Results - MIMO CDD

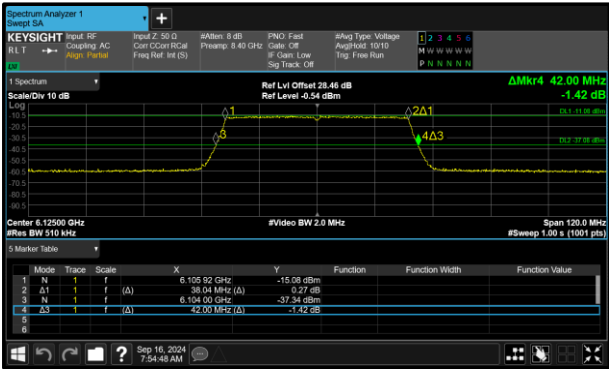


Figure 47 - 802.11ax HE40 SU VLP Minimum 99% OBW

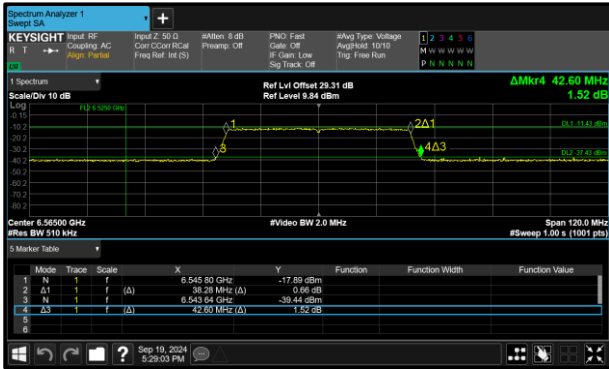


Figure 48 - 802.11ax HE40 SU VLP Maximum 99% OBW

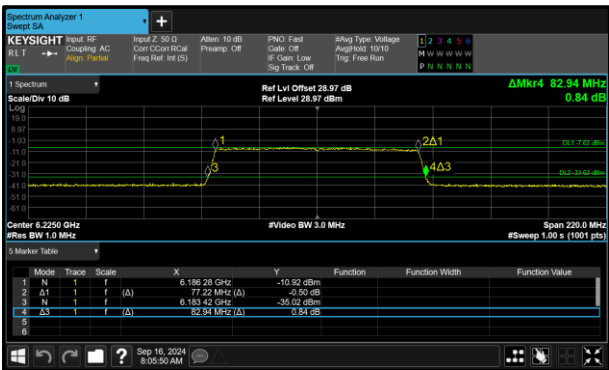


Figure 49 - 802.11ax HE80 SU VLP Minimum 99% OBW

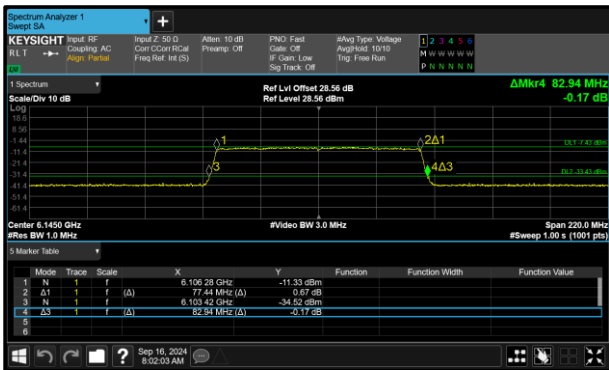


Figure 50 - 802.11ax HE80 SU VLP Maximum 99% OBW

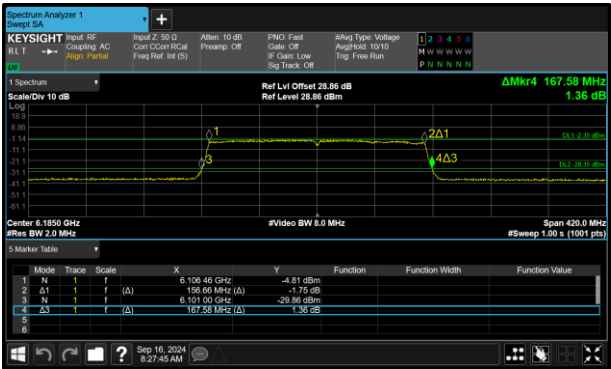


Figure 51 - 802.11ax HE160 SU VLP Minimum
99% OBW

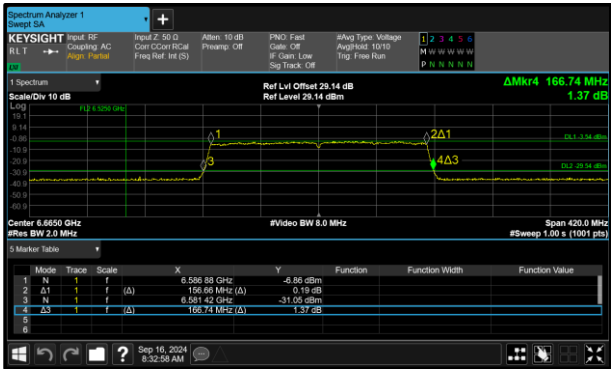


Figure 52 - 802.11ax HE160 SU VLP Maximum
99% OBW



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE40 SU VLP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	-
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6125	42.000	41.760	-	-	320.00
6205	41.760	41.880	-	-	320.00
6245	41.880	41.880	-	-	320.00
6565	42.000	42.600	-	-	320.00
6685	42.480	42.120	-	-	320.00
6845	42.000	42.480	-	-	320.00

Table 61 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6125	38.040	38.040	-	-	320.00
6205	38.040	38.040	-	-	320.00
6245	38.040	38.040	-	-	320.00
6565	38.160	38.280	-	-	320.00
6685	38.160	38.160	-	-	320.00
6845	38.160	38.280	-	-	320.00

Table 62 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE80 SU VLP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	-
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6145	82.940	83.160	-	-	320.00
6225	82.940	82.940	-	-	320.00
6385	82.720	82.720	-	-	320.00
6625	82.940	82.940	-	-	320.00
6705	82.280	82.940	-	-	320.00
6785	82.940	82.940	-	-	320.00

Table 63 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6145	77.440	77.440	-	-	320.00
6225	77.220	77.220	-	-	320.00
6385	77.220	77.220	-	-	320.00
6625	77.440	77.220	-	-	320.00
6705	77.440	77.440	-	-	320.00
6785	77.440	77.220	-	-	320.00

Table 64 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	5.925-6.425 GHz 6.525-6.875 GHz	Band:	U-NII-5 U-NII-7
Limit Clause(s):	15.407 (a)(11) RSS-248 4.4	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE160 SU VLP	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	-
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6185	167.580	165.900	-	-	320.00
6345	167.580	166.740	-	-	320.00
6665	167.160	166.740	-	-	320.00

Table 65 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (MHz)
	A	B	C	D	
6185	156.660	156.660	-	-	320.00
6345	156.660	156.660	-	-	320.00
6665	156.660	156.660	-	-	320.00

Table 66 - 99% Bandwidth Results

MIMO SDM

Protocol	26 dB Bandwidth (MHz)	
	Minimum	Maximum
802.11ax HE20 SU LPI	21.180	21.540
802.11ax HE40 SU LPI	41.640	42.120
802.11ax HE80 SU LPI	82.280	83.380
802.11ax HE160 SU LPI	165.900	167.160
802.11ax HE20 SU SP	21.240	21.480
802.11ax HE40 SU SP	42.120	68.600
802.11ax HE80 SU SP	82.500	122.640
802.11ax HE160 SU SP	166.320	167.160

Table 67 - 26 dB Bandwidth Summary Results - MIMO SDM

Protocol	99% Bandwidth (MHz)	
	Minimum	Maximum
802.11ax HE20 SU LPI	19.020	19.080
802.11ax HE40 SU LPI	37.920	38.160
802.11ax HE80 SU LPI	77.220	77.440
802.11ax HE160 SU LPI	156.240	156.660
802.11ax HE20 SU SP	19.020	19.080
802.11ax HE40 SU SP	38.040	38.360
802.11ax HE80 SU SP	77.220	77.880
802.11ax HE160 SU SP	156.240	156.660

Table 68 - 99% Bandwidth Summary Results - MIMO SDM

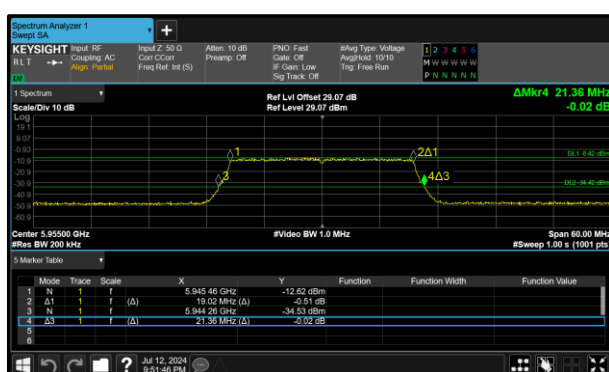


Figure 53 - 802.11ax HE20 SU LPI Minimum 99% OBW

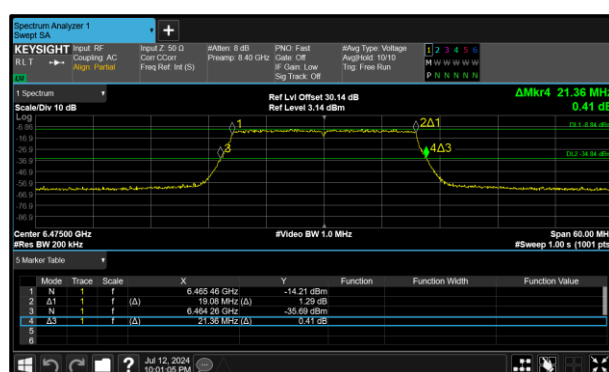


Figure 54 - 802.11ax HE20 SU LPI Maximum 99% OBW

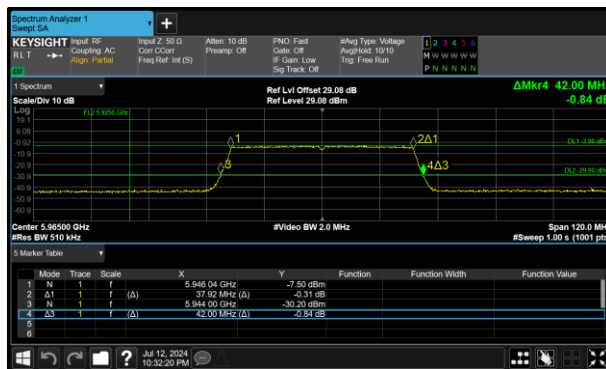


Figure 55 - 802.11ax HE40 SU LPI Minimum 99% OBW

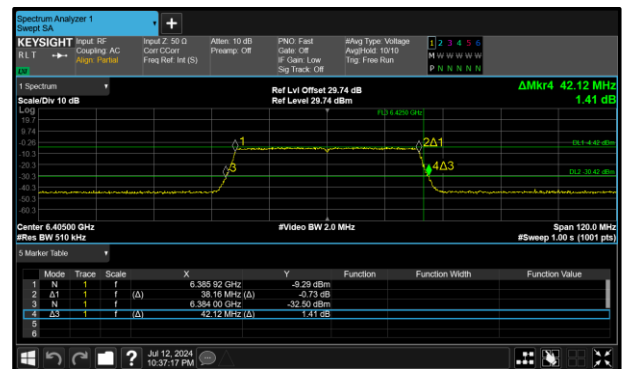


Figure 56 - 802.11ax HE40 SU LPI Maximum 99% OBW

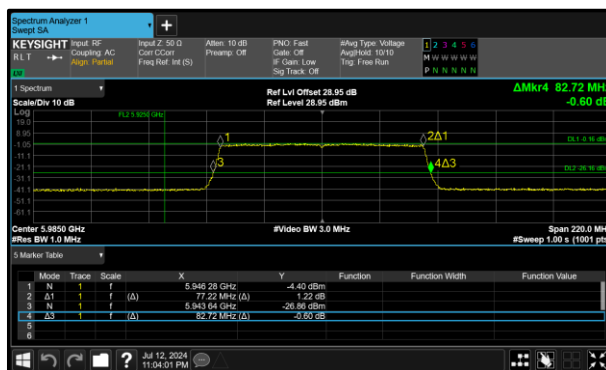


Figure 57 - 802.11ax HE80 SU LPI Minimum 99% OBW

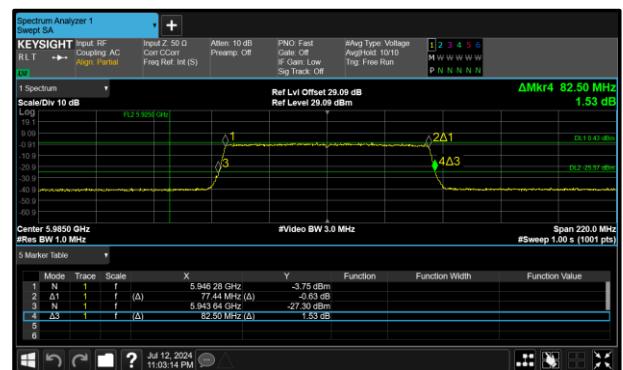


Figure 58 - 802.11ax HE80 SU LPI Maximum 99% OBW

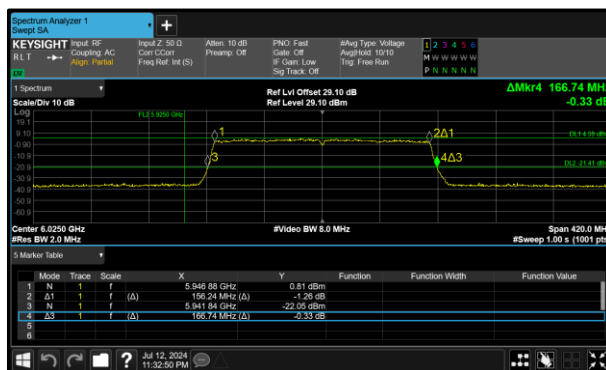


Figure 59 - 802.11ax HE160 SU LPI Minimum 99% OBW

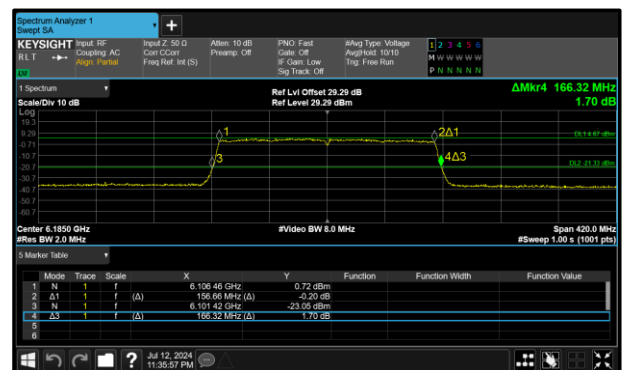


Figure 60 - 802.11ax HE160 SU LPI Maximum 99% OBW