CERTIFICATE #3478.01

TEST REPORT

EUT Description	**WLAN and BT, 2x2 PCIe M.2 1216 SD adapter card**
Brand Name	**Intel® Wi-Fi 6E AX211**
Model Name	**AX211D2WH**
FCC ID	**PD9AX211D2H**
Date of Test Start/End	**2022-02-01 / 2023-12-05**
Features	**802.11ax, Tri Band, 2x2 Wi-Fi 6E + Bluetooth® 5.2** (see section 5)

Applicant	**Intel Corporation SAS**
Address	**425 Rue de Goa – Le Cargo B6 – 06600 Antibes, FRANCE**
Contact Person	**Benjamin Lavenant**
Telephone/Fax/ Email	**Benjamin.lavenant@intel.com**

Reference Standards	**FCC CFR Title 47 Part 15 E** (see section 1)

Test Report identification	**220117-04.TR16**
Revision Control	**Rev. 01** **This test report revision replaces any previous test report revision** (see section 8)

The test results relate only to the samples tested.
Reference to accreditation shall be used only by full reproduction of test report.

Issued by	Reviewed by
Digitally signed by Requin Date: 2023.12.06 18:13:10 +01'00'	Digitally signed by zayd Date: 2023.12.06 18:43:39 +01'00'
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1. Standards, reference documents and applicable test methods

FCC	1. FCC Title 47 eCFR part 15 – Subpart E - Unlicensed National Information Infrastructure Devices. 2021-10-01 edition 2. FCC OET KDB 987594 D01 U-NII 6GHz General Requirements v01r02 3. FCC OET KDB 987594 D02 U-NII 6 GHz EMC Measurement v01r01 4. FCC OET KDB 987594 D03 U-NII 6 GHz QA v01 5. FCC OET KDB 987594 D04 UN6GHZ Pre-Approval Guidance Checklist v01 6. FCC OET KDB 789033 D02 v02r01 - General U-NII Test Procedures New Rules – Guidelines for compliance testing of Unlicensed National Information Infrastructure (U-NII) Devices. 7. FCC OET KDB 662911 D01 v02r01 - Emissions Testing of Transmitters with Multiple Outputs in the Same Band. 8. ANSI C63.10-2013 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

2. General conditions, competences and guarantees

- ✓ Intel Corporation SAS Wireless RF Lab (Intel WRF Lab) is an ISO/IEC 17025:2017 laboratory accredited by the American Association for Laboratory Accreditation (A2LA) with the certificate number 3478.01.
- ✓ Intel Corporation SAS Wireless RF Lab (Intel WRF Lab) is an Accredited Test Firm recognized by the FCC, with Designation Number FR0011.
- ✓ Intel WRF Lab only provides testing services and is committed to providing reliable, unbiased test results and interpretations.
- ✓ Intel WRF Lab is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.
- ✓ Intel WRF Lab has developed calibration and proficiency programs for its measurement equipment to ensure correlated and reliable results to its customers.
- ✓ This report is only referred to the item that has undergone the test.
- ✓ This report does not imply an approval of the product by the Certification Bodies or competent Authorities.

3. Environmental Conditions

- ✓ At the site where the measurements were performed the following limits were not exceeded during the tests:

Temperature	21.1 ºC ± 2.5 ºC
Humidity	30.3% ± 14.3%

4. Test samples

Sample	Control #	Description	Model	Serial #	Date of receipt	Note
#01	220117-04.S05	WiFi 6E Module	AX211D2WH	2C0DA7F5B9B4	2022-01-19	Used for RF Conducted except for CBP tests
	180000-01.S01	Adapter 1216SD to M.2	Adapter M2	N/A	2017-08-09	
	170000-01.S02	Laptop	Latitude E5450	21HTPF2	2017-03-28	
	200611-01.S12	Extender	XVT EXTENDER SNJ A4	-	2020-11-30	
#02	220117-04.S08	WiFi 6E Module	AX211D2WH	2C0DA7F5B8CE	2022-01-19	Used for Contention-based protocol test case
	170000-01.S18	Laptop	Latitude E5470	4L1BVF2	2019-05-23	
	200611-01.S13	Extender	XVT EXTENDER SNJ A4	-	2020-11-30	

5. EUT Features

The herein information is provided by the customer

Intel WRF Lab declines any responsibility for the accuracy of the stated customer provided information, especially if it has any impact on the correctness of test results presented in this report.

Brand Name	Intel® Wi-Fi 6E AX211
Model Name	AX211D2WH
Software Version	DRTU_11195_99_2100_51G
Driver Version	99.0.63.5
Prototype / Production	Production
Supported Radios	802.11b/g/n/ax: 2.4GHz (2400.0 – 2483.5 MHz) 802.11a/n/ac/ax: 5.2GHz (5150.0 – 5350.0 MHz) 5.6GHz (5470.0 – 5725.0 MHz) 5.8GHz (5725.0 – 5895.0 MHz) 802.11ax: 6.0GHz (5925.0 - 7125.0MHz) Bluetooth 5.2: 2.4GHz (2400.0 – 2483.5 MHz)
Antenna Information	

Transmitter	Ant 1 (A) / Aux SISO Mode	Ant 2 (B) / Main SISO Mode	Ant 1 (A) / Aux MIMO Mode	Ant 2 (B) / Main MIMO Mode
Manufacturer	Intel	Intel	Intel	Intel
PIFA antenna	PIFA antenna	PIFA antenna	PIFA antenna	PIFA antenna
SN	NA	NA	NA	NA
Declared Antenna gain (dBi)	+8.10	+8.10	+8.10 (Completely uncorrelated)	+8.10 (Completely uncorrelated)

MIMO mode signal: Completely uncorrelated.

6. Remarks and comments

1. This report only presents the conducted measurements for UNII 5 to 8 bands, for radiated spurious measurements refer to report number 220117-04.TR17.
2. Full and Partial RU's are supported. Full RU was completely tested as this was considered worse case. Target powers for Full are higher than partial RU. Spot checking was done to confirm this during testing for power and PSD. Complete partial RU testing is provided as part of the emissions mask.

7. Test Verdicts summary

The statement of conformity to applicable standards in the table below are based on the measured values, without taking into account the measurement uncertainties.

7.1. 802.11 ax – U-NII-5 to U-NII-8

FCC part	Test name	Verdict
15.407 (a) (10)	Channel bandwidth	P
15.407 (a) (8)	Maximum output power	P
15.407 (a) (8)	Power spectral density	P
15.407 (b) (5)	Undesirable emissions limits: out of band (conducted)	P
15.407 (b) (6)	In-Band Emissions (Mask)	P
15.407 (d) (6)	Contention based protocol	P

P: Pass
F: Fail
NM: Not Measured
NA: Not Applicable

8. Document Revision History

Revision #	Modified by	Revision Details
Rev. 00	V. Kaculini	First Issue
Rev. 01	C. REQUIN	Applicant Update – Front Page Standard update – Section 1 Add In-band mask results for the partial RUs in section C.1.3.

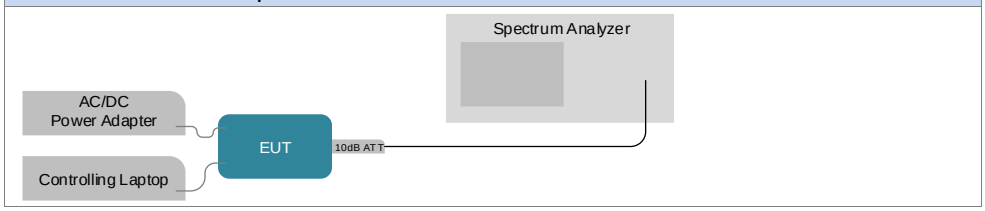
Annex A. Test & System Description

A.1 Measurement System

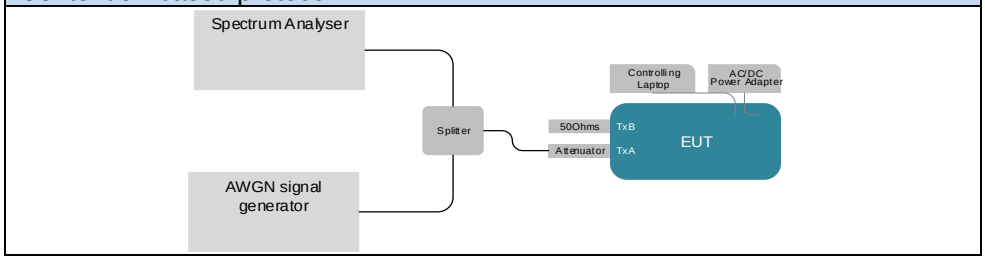
Measurements were performed using these following setup.

The DUT was installed in a test fixture and this test fixture is connected to a laptop computer and AC/DC power adapter. The laptop computer was used to configure the EUT to continuously transmit at a specified output power using all different modes and modulation schemes, using the Intel proprietary tool DRTU.

Conducted test setup



Contention-based protocol



A.2 Test Equipment List

Conducted setup

ID#	Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
265-000	Spectrum Analyzer	FSV30	101318	Rohde & Schwarz	2020-05-28	2022-05-28
019-000	RF cable 100cm	PE360-100CM	N/A	PASTERNACK	2021-08-04	2022-08-04
019-002	10dB Attenuator + MH4	N/A	N/A	N/A	2021-08-04	2022-08-04
322-000	Temp & Humidity Logger	RA12E-TH1-RAS	RA12-B89702	AVTECH	2021-09-02	2023-09-02
413-000	Measurement SW v1.5.4.2	Octopi	N/A	Step AT	N/A	N/A

*The equipment were used only on the calibration period
N/A: not applicable

Contention-based protocol

ID#	Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
098-000	Vector Signal generator	SMW200A	103732	Rohde & Schwarz	2021-02-04	2023-02-04
134-000	Spectrum Analyzer	FSV13	103308	Rohde & Schwarz	2021-04-21	2023-04-21
018-004	50 Ohm Load	-	-	-	2022-02-04	2022-08-04
018-000*	2 Way SMA Power Divider	PE2084	-	Pasternack	2022-02-04	2022-08-04
349-000	Temp & Humidity Logger	RA12E-TH1-RAS	RA12-D4F8C3	Avtech	2021-07-30	2023-07-30
018-005*	Cable SMA Male to SMA Male 45CM	FMC0202085-18	-	Fairview Microwave	2022-02-04	2022-08-04
018-006*	Cable SMA Male to SMA Male 45CM	FMC0202085-18	-	Fairview Microwave	2022-02-04	2022-08-04
016-003*	Cable SMA Male to SMA Male 45CM	FMC0202085-18	-	Fairview Microwave	2022-02-04	2022-08-04

N/A: Not Applicable
*The equipment were used only on their calibration period

A.3 Measurement Uncertainty Evaluation

The system uncertainty evaluation is shown in the table below with a coverage factor of k = 2 to indicate a 95% level of confidence:

Measurement type	Uncertainty	Unit
Timing	±0.12	%
Power Spectral density	±1.47	dB
Occupied bandwidth	±2.07	%
Conducted Power	±1.03	dB
Undesirable emissions limits: out of band (conducted)	±1.67	dB
Contention Based Protocol	±1.21	dB

Annex B. Test Results

The herein test results were performed by:

Test case measurement	Test Personnel
Maximum output power	C.Requin . V.Kaculini
26dB and 99% Bandwidth measurement	C.Requin . V.Kaculini
Maximum power spectral density	C.Requin . V.Kaculini
Undesirable emissions limits: out of band (conducted)	C.Requin . V.Kaculini
In-Band Emissions Mask	C.Requin . V.Kaculini
Contention-based Protocol	G. Roustan

B.1 Test Conditions

For the 802.11ax20 (20 MHz channel bandwidth), 802.11ax40 (40MHz channel bandwidth), 802.11ax80 (80MHz channel bandwidth) and 802.11ax160 (160MHz channel bandwidth) modes the EUT can transmit at both CHAIN A and CHAIN B RF outputs individually, and also simultaneously.

The following data rates were selected based on preliminary testing that identified those rates as the worst cases for output power and spurious levels at the band edges:

Transmission	Mode	Bandwidth (MHz)	Worst Case Data Rate
SISO	802.11ax	20/40/80/160	HE0
MIMO	802.11ax	20/40/80/160	HE0

B.2 Test Results Tables

B.2.1 26dB & 99% Bandwidth

Test limits

Part	Limits
FCC 15.407 (a) (10)	The maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 megahertz.

Test procedure

The conducted setup shown in section *Test & System Description* was used to measure the 26dB & 99% bandwidth. The antenna terminal of the EUT is connected to the spectrum analyzer through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.

See Annex C.1.1 for the screenshot results[1]

Results tables

Max value	Maximum bandwidth value highlighted per mode and channel bandwidth over uninterrupted UNII-5 – 8 bands

[1] Only the worst-case plots per mode and channel bandwidth were reported over uninterrupted UNII-5 – 8 bands

Band	Mode & BW[MHz]	Channel	Frequency [MHz]	Rate	RU config.	Antenna	26dB BW [MHz]	99% BW [MHz]
UNII5	802.11ax20	1	5955	HE0	FullBW	SISO A	25.80	19.08
UNII5	802.11ax20	1	5955	HE0	FullBW	SISO B	25.90	19.08
UNII5	802.11ax20	1	5955	HE0	FullBW	MIMO A	25.55	19.12
UNII5	802.11ax20	1	5955	HE0	FullBW	MIMO B	24.80	19.16
UNII5	802.11ax20	45	6175	HE0	FullBW	SISO A	25.30	19.04
UNII5	802.11ax20	45	6175	HE0	FullBW	SISO B	25.70	19.08
UNII5	802.11ax20	45	6175	HE0	FullBW	MIMO A	25.35	19.12
UNII5	802.11ax20	45	6175	HE0	FullBW	MIMO B	26.50	19.04
UNII5	802.11ax20	93	6415	HE0	FullBW	SISO A	26.00	19.16
UNII5	802.11ax20	93	6415	HE0	FullBW	SISO B	25.90	19.08
UNII5	802.11ax20	93	6415	HE0	FullBW	MIMO A	24.70	19.12
UNII5	802.11ax20	93	6415	HE0	FullBW	MIMO B	26.30	19.16
UNII5	802.11ax40	3	5965	HE0	FullBW	SISO A	46.53	37.76
UNII5	802.11ax40	3	5965	HE0	FullBW	SISO B	46.53	37.92
UNII5	802.11ax40	3	5965	HE0	FullBW	MIMO A	46.75	37.92
UNII5	802.11ax40	3	5965	HE0	FullBW	MIMO B	45.43	37.92
UNII5	802.11ax40	43	6165	HE0	FullBW	SISO A	46.75	38.08
UNII5	802.11ax40	43	6165	HE0	FullBW	SISO B	46.42	38.16
UNII5	802.11ax40	43	6165	HE0	FullBW	MIMO A	47.41	38.00
UNII5	802.11ax40	43	6165	HE0	FullBW	MIMO B	45.87	37.92
UNII5	802.11ax40	91	6405	HE0	FullBW	SISO A	46.75	38.08
UNII5	802.11ax40	91	6405	HE0	FullBW	SISO B	46.09	38.00
UNII5	802.11ax40	91	6405	HE0	FullBW	MIMO A	45.87	37.84
UNII5	802.11ax40	91	6405	HE0	FullBW	MIMO B	46.31	37.92
UNII5	802.11ax80	7	5985	HE0	FullBW	SISO A	83.98	76.68
UNII5	802.11ax80	7	5985	HE0	FullBW	SISO B	83.98	76.80
UNII5	802.11ax80	7	5985	HE0	FullBW	MIMO A	87.40	76.68
UNII5	802.11ax80	7	5985	HE0	FullBW	MIMO B	84.36	76.68
UNII5	802.11ax80	39	6145	HE0	FullBW	SISO A	83.79	76.68
UNII5	802.11ax80	39	6145	HE0	FullBW	SISO B	83.60	76.68
UNII5	802.11ax80	39	6145	HE0	FullBW	MIMO A	86.45	76.80
UNII5	802.11ax80	39	6145	HE0	FullBW	MIMO B	83.60	76.80
UNII5	802.11ax80	87	6385	HE0	FullBW	SISO A	84.55	76.80
UNII5	802.11ax80	87	6385	HE0	FullBW	SISO B	83.22	76.68
UNII5	802.11ax80	87	6385	HE0	FullBW	MIMO A	86.45	76.68
UNII5	802.11ax80	87	6385	HE0	FullBW	MIMO B	85.50	76.44
UNII5	802.11ax160	15	6025	HE0	FullBW	SISO A	165.00	154.50
UNII5	802.11ax160	15	6025	HE0	FullBW	SISO B	165.00	154.50
UNII5	802.11ax160	15	6025	HE0	FullBW	MIMO A	165.33	154.50
UNII5	802.11ax160	15	6025	HE0	FullBW	MIMO B	164.67	154.50
UNII5	802.11ax160	79	6345	HE0	FullBW	SISO A	164.67	155.00
UNII5	802.11ax160	79	6345	HE0	FullBW	SISO B	165.66	154.75
UNII5	802.11ax160	79	6345	HE0	FullBW	MIMO A	164.34	155.00
UNII5	802.11ax160	79	6345	HE0	FullBW	MIMO B	165.66	154.25

Band	Mode & BW[MHz]	Channel	Frequency [MHz]	Rate	RU config.	Antenna	26dB BW [MHz]	99% BW [MHz]
UNII6	802.11ax20	97	6435	HE0	FullBW	SISO A	25.25	19.16
UNII6	802.11ax20	97	6435	HE0	FullBW	SISO B	25.90	19.00
UNII6	802.11ax20	97	6435	HE0	FullBW	MIMO A	24.40	19.16
UNII6	802.11ax20	97	6435	HE0	FullBW	MIMO B	24.95	19.12
UNII6	802.11ax20	105	6475	HE0	FullBW	SISO A	25.95	19.08
UNII6	802.11ax20	105	6475	HE0	FullBW	SISO B	25.05	19.00
UNII6	802.11ax20	105	6475	HE0	FullBW	MIMO A	24.80	19.16
UNII6	802.11ax20	105	6475	HE0	FullBW	MIMO B	24.60	19.08
UNII6	802.11ax20	113	6515	HE0	FullBW	SISO A	25.30	19.00
UNII6	802.11ax20	113	6515	HE0	FullBW	SISO B	25.50	19.08
UNII6	802.11ax20	113	6515	HE0	FullBW	MIMO A	26.20	19.04
UNII6	802.11ax20	113	6515	HE0	FullBW	MIMO B	26.55	19.12
UNII6	802.11ax40	99	6445	HE0	FullBW	SISO A	46.20	37.92
UNII6	802.11ax40	99	6445	HE0	FullBW	SISO B	46.53	37.92
UNII6	802.11ax40	99	6445	HE0	FullBW	MIMO A	46.31	38.00
UNII6	802.11ax40	99	6445	HE0	FullBW	MIMO B	45.98	37.92
UNII6	802.11ax40	107	6485	HE0	FullBW	SISO A	45.65	37.92
UNII6	802.11ax40	107	6485	HE0	FullBW	SISO B	46.86	37.92
UNII6	802.11ax40	107	6485	HE0	FullBW	MIMO A	46.53	38.00
UNII6	802.11ax40	107	6485	HE0	FullBW	MIMO B	46.09	37.92
UNII6	802.11ax80	103	6465	HE0	FullBW	SISO A	85.31	76.80
UNII6	802.11ax80	103	6465	HE0	FullBW	SISO B	85.69	76.92
UNII6	802.11ax80	103	6465	HE0	FullBW	MIMO A	84.17	76.80
UNII6	802.11ax80	103	6465	HE0	FullBW	MIMO B	83.41	76.92
UNII6	802.11ax80	119	6545	HE0	FullBW	SISO A	84.74	76.80
UNII6	802.11ax80	119	6545	HE0	FullBW	SISO B	83.98	76.80
UNII6	802.11ax80	119	6545	HE0	FullBW	MIMO A	85.50	76.80
UNII6	802.11ax80	119	6545	HE0	FullBW	MIMO B	84.74	76.68
UNII6	802.11ax160	111	6505	HE0	FullBW	SISO A	164.34	155.00
UNII6	802.11ax160	111	6505	HE0	FullBW	SISO B	164.67	155.00
UNII6	802.11ax160	111	6505	HE0	FullBW	MIMO A	165.33	154.75
UNII6	802.11ax160	111	6505	HE0	FullBW	MIMO B	164.34	155.00

Band	Mode & BW[MHz]	Channel	Frequency [MHz]	Rate	RU config.	Antenna	26dB BW [MHz]	99% BW [MHz]
UNII7	802.11ax20	117	6535	HE0	FullBW	SISO A	25.90	19.08
UNII7	802.11ax20	117	6535	HE0	FullBW	SISO B	25.60	19.08
UNII7	802.11ax20	117	6535	HE0	FullBW	MIMO A	23.90	19.08
UNII7	802.11ax20	117	6535	HE0	FullBW	MIMO B	23.95	19.04
UNII7	802.11ax20	149	6695	HE0	FullBW	SISO A	26.15	19.08
UNII7	802.11ax20	149	6695	HE0	FullBW	SISO B	26.05	19.08
UNII7	802.11ax20	149	6695	HE0	FullBW	MIMO A	23.85	19.16
UNII7	802.11ax20	149	6695	HE0	FullBW	MIMO B	24.50	19.24
UNII7	802.11ax20	181	6855	HE0	FullBW	SISO A	25.15	19.16
UNII7	802.11ax20	181	6855	HE0	FullBW	SISO B	26.05	19.00
UNII7	802.11ax20	181	6855	HE0	FullBW	MIMO A	25.95	19.16
UNII7	802.11ax20	181	6855	HE0	FullBW	MIMO B	24.05	19.16
UNII7	802.11ax40	115	6525	HE0	FullBW	SISO A	45.54	37.76
UNII7	802.11ax40	115	6525	HE0	FullBW	SISO B	48.40	37.92
UNII7	802.11ax40	115	6525	HE0	FullBW	MIMO A	45.43	37.92
UNII7	802.11ax40	115	6525	HE0	FullBW	MIMO B	46.75	37.84
UNII7	802.11ax40	147	6685	HE0	FullBW	SISO A	45.98	37.92
UNII7	802.11ax40	147	6685	HE0	FullBW	SISO B	46.20	37.92
UNII7	802.11ax40	147	6685	HE0	FullBW	MIMO A	45.54	37.84
UNII7	802.11ax40	147	6685	HE0	FullBW	MIMO B	44.66	37.92
UNII7	802.11ax40	179	6845	HE0	FullBW	SISO A	45.98	37.84
UNII7	802.11ax40	179	6845	HE0	FullBW	SISO B	46.31	37.76
UNII7	802.11ax40	179	6845	HE0	FullBW	MIMO A	46.97	38.00
UNII7	802.11ax40	179	6845	HE0	FullBW	MIMO B	46.64	38.08
UNII7	802.11ax80	135	6625	HE0	FullBW	SISO A	86.26	76.92
UNII7	802.11ax80	135	6625	HE0	FullBW	SISO B	84.17	76.92
UNII7	802.11ax80	135	6625	HE0	FullBW	MIMO A	85.88	76.80
UNII7	802.11ax80	135	6625	HE0	FullBW	MIMO B	86.26	76.68
UNII7	802.11ax80	167	6785	HE0	FullBW	SISO A	83.79	76.80
UNII7	802.11ax80	167	6785	HE0	FullBW	SISO B	86.07	76.92
UNII7	802.11ax80	167	6785	HE0	FullBW	MIMO A	86.83	76.80
UNII7	802.11ax80	167	6785	HE0	FullBW	MIMO B	83.41	76.68
UNII7	802.11ax160	143	6665	HE0	FullBW	SISO A	165.00	154.50
UNII7	802.11ax160	143	6665	HE0	FullBW	SISO B	164.34	154.77
UNII7	802.11ax160	143	6665	HE0	FullBW	MIMO A	165.33	154.75
UNII7	802.11ax160	143	6665	HE0	FullBW	MIMO B	164.67	154.50

Band	Mode & BW[MHz]	Channel	Frequency [MHz]	Rate	RU config.	Antenna	26dB BW [MHz]	99% BW [MHz]
UNII8	802.11ax20	185	6875	HE0	FullBW	SISO A	27.05	19.08
UNII8	802.11ax20	185	6875	HE0	FullBW	SISO B	26.80	19.04
UNII8	802.11ax20	185	6875	HE0	FullBW	MIMO A	47.35	19.12
UNII8	802.11ax20	185	6875	HE0	FullBW	MIMO B	25.65	19.04
UNII8	802.11ax20	209	6995	HE0	FullBW	SISO A	25.75	19.04
UNII8	802.11ax20	209	6995	HE0	FullBW	SISO B	25.50	19.00
UNII8	802.11ax20	209	6995	HE0	FullBW	MIMO A	37.20	19.08
UNII8	802.11ax20	209	6995	HE0	FullBW	MIMO B	36.95	19.12
UNII8	802.11ax20	229	7095	HE0	FullBW	SISO A	25.00	19.04
UNII8	802.11ax20	229	7095	HE0	FullBW	SISO B	25.80	19.08
UNII8	802.11ax20	229	7095	HE0	FullBW	MIMO A	24.95	19.12
UNII8	802.11ax20	229	7095	HE0	FullBW	MIMO B	25.65	19.08
UNII8	802.11ax20	233	7115	HE0	FullBW	SISO A	26.20	19.08
UNII8	802.11ax20	233	7115	HE0	FullBW	SISO B	26.05	19.08
UNII8	802.11ax20	233	7115	HE0	FullBW	MIMO A	37.70	19.04
UNII8	802.11ax20	233	7115	HE0	FullBW	MIMO B	43.65	19.08
UNII8	802.11ax40	187	6885	HE0	FullBW	SISO A	46.09	38.00
UNII8	802.11ax40	187	6885	HE0	FullBW	SISO B	46.75	37.84
UNII8	802.11ax40	187	6885	HE0	FullBW	MIMO A	47.41	37.92
UNII8	802.11ax40	187	6885	HE0	FullBW	MIMO B	47.63	38.00
UNII8	802.11ax40	227	7085	HE0	FullBW	SISO A	44.77	38.00
UNII8	802.11ax40	227	7085	HE0	FullBW	SISO B	44.88	38.00
UNII8	802.11ax40	227	7085	HE0	FullBW	MIMO A	46.20	37.92
UNII8	802.11ax40	227	7085	HE0	FullBW	MIMO B	45.87	37.92
UNII8	802.11ax80	183	6865	HE0	FullBW	SISO A	85.12	76.68
UNII8	802.11ax80	183	6865	HE0	FullBW	SISO B	85.50	76.80
UNII8	802.11ax80	183	6865	HE0	FullBW	MIMO A	86.26	76.80
UNII8	802.11ax80	183	6865	HE0	FullBW	MIMO B	86.45	76.68
UNII8	802.11ax80	199	6945	HE0	FullBW	SISO A	86.07	76.68
UNII8	802.11ax80	199	6945	HE0	FullBW	SISO B	86.83	76.80
UNII8	802.11ax80	199	6945	HE0	FullBW	MIMO A	86.83	76.92
UNII8	802.11ax80	199	6945	HE0	FullBW	MIMO B	87.40	76.56
UNII8	802.11ax80	215	7025	HE0	FullBW	SISO A	85.12	76.68
UNII8	802.11ax80	215	7025	HE0	FullBW	SISO B	83.79	76.68
UNII8	802.11ax80	215	7025	HE0	FullBW	MIMO A	88.54	76.68
UNII8	802.11ax80	215	7025	HE0	FullBW	MIMO B	87.02	76.92
UNII8	802.11ax160	207	6985	HE0	FullBW	SISO A	165.33	154.75
UNII8	802.11ax160	207	6985	HE0	FullBW	SISO B	165.00	154.75
UNII8	802.11ax160	207	6985	HE0	FullBW	MIMO A	164.67	154.50
UNII8	802.11ax160	207	6985	HE0	FullBW	MIMO B	164.67	154.75

B.2.2 Maximum Output power & Maximum power spectral Density

Test limits

Part	Limits
FCC 15.407 (a) (8)	For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum power spectral density must not exceed −1 dBm e.i.r.p. in any 1-megahertz band, and the maximum e.i.r.p. over the frequency band of operation must not exceed 24 dBm.

Test procedure

The Maximum Conducted Output Power was measured using the channel integration method over the entire 99% occupied bandwidth according to section E) 2) d) (Method SA-2) of KDB 789033
The maximum power spectral density (PSD) was measured using the method according to section F) (Method SA-2) of KDB 789033

In the *measure-and-sum* approach for MIMO mode, the conducted emission level (e.g., transmit power or power in specified bandwidth) is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically in linear power units to determine the total emission level from the device. When MIMO mode is running each single antenna conducted output power is reduced by 3dBi such that MIMO mode does not exceed the output of a single chain in SISO mode. SISO A pwr = SISO B pwr = MIMO pwr (1/2 A pwr + 1/2 B pwr).

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain (+8.10dBi) to the measured conducted power in accordance with KDB 662911 D01 v02r01. All transmit signals are completely uncorrelated with each other. Therefore, Directional gain = G_{ANT} = +8.10 dBi.
Per KDB 662911 D01 v02r01, MIMO Spatial diversity applies as completely uncorrelated, neither beamforming, whether fixed or adaptative, nor Cyclic Delay Diversity (CDD) technique are used. For further details, refer to 'MIMO Theory of Operation' document.

The conducted setup shown in section *Test & System Description* was used to measure the maximum conducted output power and power spectral density. The antenna terminal of the EUT is connected to the spectrum analyser through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.

See Annex C.1.2 for the screenshot results.

Results tables

Duty cycle

Mode	Rate	Antenna	Duty Cycle [%]
802.11ax20	HE0	SISO A	98.4
		SISO B	98.4
		MIMO A	98.6
		MIMO B	98.6
802.11ax40	HE0	SISO A	98.4
		SISO B	98.4
		MIMO A	98.3
		MIMO B	98.3
802.11ax80	HE0	SISO A	98.4
		SISO B	98.4
		MIMO A	98.4
		MIMO B	98.4
802.11ax160	HE0	SISO A	98.4
		SISO B	98.4
		MIMO A	98.3
		MIMO B	98.3

Maximum output power

UNII5

UNII	Mode	BW [MHz]	Rate	Ch#	Freq [MHz]	RU config	Chain	Ouput Power [dBm]	Max(1) Ouput Power [dBm]	Antenna Gain (dBi)	Max(1) EIRP [dBm]	Max(1) Output Power [mW]	Max(1). EIRP [mW]
UNII5	802.11ax	20	HE0	1	5955	Full BW	SISO A	2.55	2.55	8.10	10.65	1.80	11.61
							SISO B	2.34	2.34		10.44	1.71	11.07
							MIMO A	-0.63	-0.63		7.47	0.86	5.58
							MIMO B	-0.63	-0.63		7.47	0.86	5.58
							Combined A+B	2.38	2.38		10.48	1.73	11.17
				45	6175		SISO A	2.44	2.44		10.54	1.75	11.32
							SISO B	2.24	2.24		10.34	1.67	10.81
							MIMO A	-0.81	-0.81		7.29	0.83	5.36
							MIMO B	-0.93	-0.93		7.17	0.81	5.21
							Combined A+B	2.14	2.14		10.24	1.64	10.57
				93	6415		SISO A	2.36	2.36		10.46	1.72	11.12
							SISO B	2.16	2.16		10.26	1.64	10.62
							MIMO A	-0.77	-0.77		7.33	0.84	5.41
							MIMO B	-0.76	-0.76		7.34	0.84	5.42
							Combined A+B	2.25	2.25		10.35	1.68	10.83
	802.11ax	40	HE0	3	5965	Full BW	SISO A	5.27	5.27		13.37	3.37	21.73
							SISO B	5.48	5.48		13.58	3.53	22.80
							MIMO A	2.69	2.69		10.79	1.86	11.99
							MIMO B	2.12	2.12		10.22	1.63	10.52
							Combined A+B	5.42	5.42		13.52	3.49	22.51
				43	6165		SISO A	5.42	5.42		13.52	3.48	22.49
							SISO B	5.32	5.32		13.42	3.40	21.98
							MIMO A	2.24	2.24		10.34	1.67	10.81
							MIMO B	2.63	2.63		10.73	1.83	11.83
							Combined A+B	5.45	5.45		13.55	3.51	22.64
				91	6405		SISO A	5.26	5.26		13.36	3.36	21.68
							SISO B	5.56	5.56		13.66	3.60	23.23
							MIMO A	2.07	2.07		10.17	1.61	10.40
							MIMO B	2.62	2.62		10.72	1.83	11.80
							Combined A+B	5.36	5.36		13.46	3.44	22.20
	802.11ax	80	HE0	7	5985	Full BW	SISO A	7.84	7.84		15.94	6.08	39.26
							SISO B	7.87	7.87		15.97	6.12	39.54
							MIMO A	4.66	4.66		12.76	2.92	18.88
							MIMO B	4.87	4.87		12.97	3.07	19.82
							Combined A+B	7.78	7.78		15.88	5.99	38.70
				39	6145		SISO A	7.86	7.86		15.96	6.11	39.45
							SISO B	7.83	7.83		15.93	6.07	39.17
							MIMO A	4.85	4.85		12.95	3.05	19.72
							MIMO B	4.77	4.77		12.87	3.00	19.36
							Combined A+B	7.82	7.82		15.92	6.05	39.09
				87	6385		SISO A	7.48	7.48		15.58	5.60	36.14
							SISO B	7.71	7.71		15.81	5.90	38.11
							MIMO A	4.59	4.59		12.69	2.88	18.58
							MIMO B	4.69	4.69		12.79	2.94	19.01
							Combined A+B	7.65	7.65		15.75	5.82	37.59
	802.11ax	160	HE0	15	6025	Full BW	SISO A	10.46	10.46		18.56	11.12	71.78
							SISO B	10.20	10.20		18.30	10.47	67.61
							MIMO A	7.45	7.45		15.55	5.56	35.89
							MIMO B	7.33	7.33		15.43	5.41	34.91
							Combined A+B	10.40	10.40		18.50	10.97	70.81
				79	6345		SISO A	10.44	10.44		18.54	11.07	71.45
							SISO B	10.24	10.24		18.34	10.57	68.23
							MIMO A	7.45	7.45		15.55	5.56	35.89

							MIMO B	7.29	7.29		15.39	5.36	34.59
							Combined A+B	10.38	10.38		18.48	10.92	70.49

(1) Value compensated with the duty cycle
(2) Max/Min value highlighted per mode/bandwidth

UNII6

UNII	Mode	BW [MHz]	Rate	Ch#	Freq [MHz]	RU config	Chain	Ouput Power [dBm]	Max(1) Ouput Power [dBm]	Antenna Gain (dBi)	Max(1) EIRP [dBm]	Max(1) Output Power [mW]	Max(1). EIRP [mW]
UNII6	802.11ax	20	HE0	97	6435	Full BW	SISO A	2.19	2.19	8.10	10.29	1.66	10.69
							SISO B	2.55	2.55		10.65	1.80	11.61
							MIMO A	-0.88	-0.88		7.22	0.82	5.27
							MIMO B	-0.90	-0.90		7.20	0.81	5.25
							Combined A+B	2.12	2.12		10.22	1.63	10.52
				105	6475		SISO A	2.57	2.57		10.67	1.81	11.67
							SISO B	2.37	2.37		10.47	1.73	11.14
							MIMO A	-0.75	-0.75		7.35	0.84	5.43
							MIMO B	-0.89	-0.89		7.21	0.81	5.26
							Combined A+B	2.19	2.19		10.29	1.66	10.69
				113	6515		SISO A	2.30	2.30		10.40	1.70	10.96
							SISO B	2.58	2.58		10.68	1.81	11.69
							MIMO A	-0.66	-0.66		7.44	0.86	5.55
							MIMO B	-0.76	-0.76		7.34	0.84	5.42
							Combined A+B	2.30	2.30		10.40	1.70	10.97
	802.11ax	40	HE0	99	6445	Full BW	SISO A	5.33	5.33		13.43	3.41	22.03
							SISO B	5.32	5.32		13.42	3.40	21.98
							MIMO A	1.94	1.94		10.04	1.56	10.09
							MIMO B	2.45	2.45		10.55	1.76	11.35
							Combined A+B	5.21	5.21		13.31	3.32	21.44
				107	6485		SISO A	5.16	5.16		13.26	3.28	21.18
							SISO B	5.29	5.29		13.39	3.38	21.83
							MIMO A	2.41	2.41		10.51	1.74	11.25
							MIMO B	2.51	2.51		10.61	1.78	11.51
							Combined A+B	5.47	5.47		13.57	3.52	22.75
	802.11ax	80	HE0	103	6465	Full BW	SISO A	7.89	7.89		15.99	6.15	39.72
							SISO B	7.66	7.66		15.76	5.83	37.67
							MIMO A	4.60	4.60		12.70	2.88	18.62
							MIMO B	4.65	4.65		12.75	2.92	18.84
							Combined A+B	7.64	7.64		15.74	5.80	37.46
				119	6545	Full BW	SISO A	7.42	7.42		15.52	5.52	35.65
							SISO B	7.88	7.88		15.98	6.14	39.63
							MIMO A	4.77	4.77		12.87	3.00	19.36
							MIMO B	4.89	4.89		12.99	3.08	19.91
							Combined A+B	7.84	7.84		15.94	6.08	39.27
	802.11ax	160	HE0	111	6505	Full BW	SISO A	10.60	10.60		18.70	11.48	74.13
							SISO B	10.28	10.28		18.38	10.67	68.87
							MIMO A	7.21	7.21		15.31	5.26	33.96
							MIMO B	7.48	7.48		15.58	5.60	36.14
							Combined A+B	10.36	10.36		18.46	10.86	70.10

(1) Value compensated with the duty cycle
(2) Max/Min value highlighted per mode/bandwidth

UNII7

UNII	Mode	BW [MHz]	Rate	Ch#	Freq [MHz]	RU config	Chain	Ouput Power [dBm]	Max(1) Ouput Power [dBm]	Antenna Gain (dBi)	Max(1) EIRP [dBm]	Max(1) Output Power [mW]	Max(1). EIRP [mW]
UNII7	802.11ax	20	HE0	117	6535	Full BW	SISO A	2.29	2.29	8.10	10.39	1.69	10.94
							SISO B	2.46	2.46		10.56	1.76	11.38
							MIMO A	-1.30	-1.30		6.80	0.74	4.79
							MIMO B	-0.56	-0.56		7.54	0.88	5.68
							Combined A+B	2.10	2.10		10.20	1.62	10.46
				149	6695		SISO A	2.34	2.34		10.44	1.71	11.07
							SISO B	2.26	2.26		10.36	1.68	10.86
							MIMO A	-1.30	-1.30		6.80	0.74	4.79
							MIMO B	-0.93	-0.93		7.17	0.81	5.21
							Combined A+B	1.90	1.90		10.00	1.55	10.00
				181	6855		SISO A	2.41	2.41		10.51	1.74	11.25
							SISO B	2.47	2.47		10.57	1.77	11.40
							MIMO A	-0.59	-0.59		7.51	0.87	5.64
							MIMO B	-0.80	-0.80		7.30	0.83	5.37
							Combined A+B	2.32	2.32		10.42	1.70	11.01
	802.11ax	40	HE0	115	6525	Full BW	SISO A	5.17	5.17		13.27	3.29	21.23
							SISO B	5.42	5.42		13.52	3.48	22.49
							MIMO A	2.17	2.17		10.27	1.65	10.64
							MIMO B	2.45	2.45		10.55	1.76	11.35
							Combined A+B	5.32	5.32		13.42	3.41	21.99
				147	6685		SISO A	5.21	5.21		13.31	3.32	21.43
							SISO B	5.06	5.06		13.16	3.21	20.70
							MIMO A	2.08	2.08		10.18	1.61	10.42
							MIMO B	2.31	2.31		10.41	1.70	10.99
							Combined A+B	5.21	5.21		13.31	3.32	21.41
				179	6845		SISO A	5.07	5.07		13.17	3.21	20.75
							SISO B	5.54	5.54		13.64	3.58	23.12
							MIMO A	2.30	2.30		10.40	1.70	10.96
							MIMO B	2.41	2.41		10.51	1.74	11.25
							Combined A+B	5.37	5.37		13.47	3.44	22.21
		80	HE0	135	6625	Full BW	SISO A	7.45	7.45		15.55	5.56	35.89
							SISO B	7.78	7.78		15.88	6.00	38.73
							MIMO A	4.88	4.88		12.98	3.08	19.86
							MIMO B	4.74	4.74		12.84	2.98	19.23
							Combined A+B	7.82	7.82		15.92	6.05	39.09
				167	6785		SISO A	7.46	7.46		15.56	5.57	35.97
							SISO B	7.81	7.81		15.91	6.04	38.99
							MIMO A	4.79	4.79		12.89	3.01	19.45
							MIMO B	4.56	4.56		12.66	2.86	18.45
							Combined A+B	7.69	7.69		15.79	5.87	37.90
		160	HE0	143	6665	Full BW	SISO A	10.38	10.38		18.48	10.91	70.47
							SISO B	10.17	10.17		18.27	10.40	67.14
							MIMO A	7.30	7.30		15.40	5.37	34.67
							MIMO B	7.47	7.47		15.57	5.58	36.06
							Combined A+B	10.40	10.40		18.50	10.96	70.73

(1) Value compensated with the duty cycle
(2) Max/Min value highlighted per mode/bandwidth

UNII8

UNII	Mode	BW [MHz]	Rate	Ch#	Freq [MHz]	RU config	Chain	Ouput Power [dBm]	Max(1) Ouput Power [dBm]	Antenna Gain (dBi)	Max(1) EIRP [dBm]	Max(1) Output Power [mW]	Max(1). EIRP [mW]
UNII8	802.11ax	20	HE0	185	6875	Full BW	SISO A	2.39	2.39	8.10	10.49	1.73	11.19
							SISO B	2.31	2.31		10.41	1.70	10.99
							MIMO A	-0.94	-0.94		7.16	0.81	5.20
							MIMO B	-0.67	-0.67		7.43	0.86	5.53
							Combined A+B	2.21	2.21		10.31	1.66	10.73
				209	6995		SISO A	2.78	2.78		10.88	1.90	12.25
							SISO B	2.55	2.55		10.65	1.80	11.61
							MIMO A	-0.67	-0.67		7.43	0.86	5.53
							MIMO B	-0.77	-0.77		7.33	0.84	5.41
							Combined A+B	2.29	2.29		10.39	1.69	10.94
				229	7095		SISO A	2.55	2.55		10.65	1.80	11.61
							SISO B	2.53	2.53		10.63	1.79	11.56
							MIMO A	-0.23	-0.23		7.87	0.95	6.12
							MIMO B	-0.34	-0.34		7.76	0.92	5.97
							Combined A+B	2.73	2.73		10.83	1.87	12.09
				233	7115		SISO A	-1.92	-1.92		6.18	0.64	4.15
							SISO B	-1.98	-1.98		6.12	0.63	4.09
							MIMO A	-4.27	-4.27		3.83	0.37	2.42
							MIMO B	-5.22	-5.22		2.88	0.30	1.94
							Combined A+B	-1.71	-1.71		6.39	0.67	4.36
	802.11ax	40	HE0	187	6885	Full BW	SISO A	5.35	5.35		13.45	3.43	22.13
							SISO B	5.17	5.17		13.27	3.29	21.23
							MIMO A	2.36	2.36		10.46	1.72	11.12
							MIMO B	2.35	2.35		10.45	1.72	11.09
							Combined A+B	5.37	5.37		13.47	3.44	22.21
				227	7085		SISO A	5.82	5.82		13.92	3.82	24.66
							SISO B	5.70	5.70		13.80	3.72	23.99
							MIMO A	2.58	2.58		10.68	1.81	11.69
							MIMO B	2.56	2.56		10.66	1.80	11.64
							Combined A+B	5.58	5.58		13.68	3.61	23.34
	802.11ax	80	HE0	183	6865	Full BW	SISO A	7.76	7.76		15.86	5.97	38.55
							SISO B	7.80	7.80		15.90	6.03	38.90
							MIMO A	4.57	4.57		12.67	2.86	18.49
							MIMO B	4.56	4.56		12.66	2.86	18.45
							Combined A+B	7.58	7.58		15.68	5.72	36.94
				199	6945		SISO A	7.98	7.98		16.08	6.28	40.55
							SISO B	7.79	7.79		15.89	6.01	38.82
							MIMO A	4.91	4.91		13.01	3.10	20.00
							MIMO B	4.81	4.81		12.91	3.03	19.54
							Combined A+B	7.87	7.87		15.97	6.12	39.54
				215	7025		SISO A	8.01	8.01		16.11	6.32	40.83
							SISO B	8.11	8.11		16.21	6.47	41.78
							MIMO A	4.96	4.96		13.06	3.13	20.23
							MIMO B	5.07	5.07		13.17	3.21	20.75
							Combined A+B	8.03	8.03		16.13	6.35	40.98
	802.11ax	160	HE0	207	6985	Full BW	SISO A	10.24	10.24		18.34	10.57	68.23
							SISO B	10.25	10.25		18.35	10.59	68.39
							MIMO A	7.54	7.54		15.64	5.68	36.64
							MIMO B	7.67	7.67		15.77	5.85	37.76
							Combined A+B	10.62	10.62		18.72	11.52	74.40

(1) Value compensated with the duty cycle
(2) Max/Min value highlighted per mode/bandwidth

Maximum Power Spectral Density (PSD)

UNII5

UNII	Mode_BW	Rate	Channel	Freq. [MHz]	RU config.	Antenna	PSD [dBm/MHz]	Max(1) PSD [dBm/MHz]	Antenna Gain (dBi)	Max(1) PSD EIRP [dBm/MHz]
UNII5	802.11ax20	HE0	1	5955	FullBW	SISO A	-9.27	-9.27		-1.17
UNII5	802.11ax20	HE0	1	5955	FullBW	SISO B	-9.38	-9.38		-1.28
UNII5	802.11ax20	HE0	1	5955	FullBW	MIMO A	-12.50	-12.50		-4.40
UNII5	802.11ax20	HE0	1	5955	FullBW	MIMO B	-12.33	-12.33		-4.23
UNII5	802.11ax20	HE0	1	5955	FullBW	Combined A+B	-9.40	-9.40		-1.30
UNII5	802.11ax20	HE0	45	6175	FullBW	SISO A	-9.22	-9.22		-1.12
UNII5	802.11ax20	HE0	45	6175	FullBW	SISO B	-9.53	-9.53		-1.43
UNII5	802.11ax20	HE0	45	6175	FullBW	MIMO A	-12.45	-12.45		-4.35
UNII5	802.11ax20	HE0	45	6175	FullBW	MIMO B	-12.54	-12.54		-4.44
UNII5	802.11ax20	HE0	45	6175	FullBW	Combined A+B	-9.48	-9.48		-1.38
UNII5	802.11ax20	HE0	93	6415	FullBW	SISO A	-9.25	-9.25		-1.15
UNII5	802.11ax20	HE0	93	6415	FullBW	SISO B	-9.71	-9.71		-1.61
UNII5	802.11ax20	HE0	93	6415	FullBW	MIMO A	-12.50	-12.50		-4.40
UNII5	802.11ax20	HE0	93	6415	FullBW	MIMO B	-12.53	-12.53		-4.43
UNII5	802.11ax20	HE0	93	6415	FullBW	Combined A+B	-9.50	-9.50		-1.40
UNII5	802.11ax40	HE0	3	5965	FullBW	SISO A	-9.49	-9.49		-1.39
UNII5	802.11ax40	HE0	3	5965	FullBW	SISO B	-9.42	-9.42		-1.32
UNII5	802.11ax40	HE0	3	5965	FullBW	MIMO A	-12.23	-12.23		-4.13
UNII5	802.11ax40	HE0	3	5965	FullBW	MIMO B	-12.66	-12.66		-4.56
UNII5	802.11ax40	HE0	3	5965	FullBW	Combined A+B	-9.43	-9.43		-1.33
UNII5	802.11ax40	HE0	43	6165	FullBW	SISO A	-9.42	-9.42		-1.32
UNII5	802.11ax40	HE0	43	6165	FullBW	SISO B	-9.52	-9.52		-1.42
UNII5	802.11ax40	HE0	43	6165	FullBW	MIMO A	-12.66	-12.66		-4.56
UNII5	802.11ax40	HE0	43	6165	FullBW	MIMO B	-12.30	-12.30		-4.20
UNII5	802.11ax40	HE0	43	6165	FullBW	Combined A+B	-9.47	-9.47		-1.37
UNII5	802.11ax40	HE0	91	6405	FullBW	SISO A	-9.41	-9.41		-1.31
UNII5	802.11ax40	HE0	91	6405	FullBW	SISO B	-9.26	-9.26		-1.16
UNII5	802.11ax40	HE0	91	6405	FullBW	MIMO A	-12.52	-12.52	8.10	-4.42
UNII5	802.11ax40	HE0	91	6405	FullBW	MIMO B	-12.23	-12.23		-4.13
UNII5	802.11ax40	HE0	91	6405	FullBW	Combined A+B	-9.36	-9.36		-1.26
UNII5	802.11ax80	HE0	7	5985	FullBW	SISO A	-9.21	-9.21		-1.11
UNII5	802.11ax80	HE0	7	5985	FullBW	SISO B	-9.25	-9.25		-1.15
UNII5	802.11ax80	HE0	7	5985	FullBW	MIMO A	-12.51	-12.51		-4.41
UNII5	802.11ax80	HE0	7	5985	FullBW	MIMO B	-12.34	-12.34		-4.24
UNII5	802.11ax80	HE0	7	5985	FullBW	Combined A+B	-9.41	-9.41		-1.31
UNII5	802.11ax80	HE0	39	6145	FullBW	SISO A	-9.36	-9.36		-1.26
UNII5	802.11ax80	HE0	39	6145	FullBW	SISO B	-9.23	-9.23		-1.13
UNII5	802.11ax80	HE0	39	6145	FullBW	MIMO A	-12.25	-12.25		-4.15
UNII5	802.11ax80	HE0	39	6145	FullBW	MIMO B	-12.32	-12.32		-4.22
UNII5	802.11ax80	HE0	39	6145	FullBW	Combined A+B	-9.27	-9.27		-1.17
UNII5	802.11ax80	HE0	87	6385	FullBW	SISO A	-9.67	-9.67		-1.57
UNII5	802.11ax80	HE0	87	6385	FullBW	SISO B	-9.35	-9.35		-1.25
UNII5	802.11ax80	HE0	87	6385	FullBW	MIMO A	-12.24	-12.24		-4.14
UNII5	802.11ax80	HE0	87	6385	FullBW	MIMO B	-12.45	-12.45		-4.35
UNII5	802.11ax80	HE0	87	6385	FullBW	Combined A+B	-9.33	-9.33		-1.23
UNII5	802.11ax160	HE0	15	6025	FullBW	SISO A	-9.29	-9.29		-1.19
UNII5	802.11ax160	HE0	15	6025	FullBW	SISO B	-9.64	-9.64		-1.54
UNII5	802.11ax160	HE0	15	6025	FullBW	MIMO A	-12.29	-12.29		-4.19
UNII5	802.11ax160	HE0	15	6025	FullBW	MIMO B	-12.30	-12.30		-4.20
UNII5	802.11ax160	HE0	15	6025	FullBW	Combined A+B	-9.28	-9.28		-1.18
UNII5	802.11ax160	HE0	79	6345	FullBW	SISO A	-9.34	-9.34		-1.24
UNII5	802.11ax160	HE0	79	6345	FullBW	SISO B	-9.60	-9.60		-1.50
UNII5	802.11ax160	HE0	79	6345	FullBW	MIMO A	-12.44	-12.44		-4.34
UNII5	802.11ax160	HE0	79	6345	FullBW	MIMO B	-12.56	-12.56		-4.46
UNII5	802.11ax160	HE0	79	6345	FullBW	Combined A+B	-9.49	-9.49		-1.39

(1) Value compensated with the duty cycle

UNII6

UNII	Mode_BW	Rate	Channel	Freq. [MHz]	RU config.	Antenna	PSD [dBm/MHz]	Max(1) PSD [dBm/MHz]	Antenna Gain (dBi)	Max(1) PSD EIRP [dBm/MHz]
UNII6	802.11ax20	HE0	97	6435	FullBW	SISO A	-9.66	-9.66	8.10	-1.56
UNII6	802.11ax20	HE0	97	6435	FullBW	SISO B	-9.38	-9.38		-1.28
UNII6	802.11ax20	HE0	97	6435	FullBW	MIMO A	-12.49	-12.49		-4.39
UNII6	802.11ax20	HE0	97	6435	FullBW	MIMO B	-12.69	-12.69		-4.59
UNII6	802.11ax20	HE0	97	6435	FullBW	Combined A+B	-9.58	-9.58		-1.48
UNII6	802.11ax20	HE0	105	6475	FullBW	SISO A	-9.28	-9.28		-1.18
UNII6	802.11ax20	HE0	105	6475	FullBW	SISO B	-9.45	-9.45		-1.35
UNII6	802.11ax20	HE0	105	6475	FullBW	MIMO A	-12.50	-12.50		-4.40
UNII6	802.11ax20	HE0	105	6475	FullBW	MIMO B	-12.72	-12.72		-4.62
UNII6	802.11ax20	HE0	105	6475	FullBW	Combined A+B	-9.60	-9.60		-1.50
UNII6	802.11ax20	HE0	113	6515	FullBW	SISO A	-9.39	-9.39		-1.29
UNII6	802.11ax20	HE0	113	6515	FullBW	SISO B	-9.22	-9.22		-1.12
UNII6	802.11ax20	HE0	113	6515	FullBW	MIMO A	-12.43	-12.43		-4.33
UNII6	802.11ax20	HE0	113	6515	FullBW	MIMO B	-12.51	-12.51		-4.41
UNII6	802.11ax20	HE0	113	6515	FullBW	Combined A+B	-9.46	-9.46		-1.36
UNII6	802.11ax40	HE0	99	6445	FullBW	SISO A	-9.52	-9.52		-1.42
UNII6	802.11ax40	HE0	99	6445	FullBW	SISO B	-9.51	-9.51		-1.41
UNII6	802.11ax40	HE0	99	6445	FullBW	MIMO A	-12.69	-12.69		-4.59
UNII6	802.11ax40	HE0	99	6445	FullBW	MIMO B	-12.42	-12.42		-4.32
UNII6	802.11ax40	HE0	99	6445	FullBW	Combined A+B	-9.54	-9.54		-1.44
UNII6	802.11ax40	HE0	107	6485	FullBW	SISO A	-9.74	-9.74		-1.64
UNII6	802.11ax40	HE0	107	6485	FullBW	SISO B	-9.59	-9.59		-1.49
UNII6	802.11ax40	HE0	107	6485	FullBW	MIMO A	-12.33	-12.33		-4.23
UNII6	802.11ax40	HE0	107	6485	FullBW	MIMO B	-12.26	-12.26		-4.16
UNII6	802.11ax40	HE0	107	6485	FullBW	Combined A+B	-9.28	-9.28		-1.18
UNII6	802.11ax80	HE0	103	6465	FullBW	SISO A	-9.30	-9.30		-1.20
UNII6	802.11ax80	HE0	103	6465	FullBW	SISO B	-9.52	-9.52		-1.42
UNII6	802.11ax80	HE0	103	6465	FullBW	MIMO A	-12.51	-12.51		-4.41
UNII6	802.11ax80	HE0	103	6465	FullBW	MIMO B	-12.53	-12.53		-4.43
UNII6	802.11ax80	HE0	103	6465	FullBW	Combined A+B	-9.51	-9.51		-1.41
UNII6	802.11ax80	HE0	119	6545	FullBW	SISO A	-9.67	-9.67		-1.57
UNII6	802.11ax80	HE0	119	6545	FullBW	SISO B	-9.31	-9.31		-1.21
UNII6	802.11ax80	HE0	119	6545	FullBW	MIMO A	-12.41	-12.41		-4.31
UNII6	802.11ax80	HE0	119	6545	FullBW	MIMO B	-12.24	-12.24		-4.14
UNII6	802.11ax80	HE0	119	6545	FullBW	Combined A+B	-9.31	-9.31		-1.21
UNII6	802.11ax160	HE0	111	6505	FullBW	SISO A	-9.30	-9.30		-1.20
UNII6	802.11ax160	HE0	111	6505	FullBW	SISO B	-9.58	-9.58		-1.48
UNII6	802.11ax160	HE0	111	6505	FullBW	MIMO A	-12.51	-12.51		-4.41
UNII6	802.11ax160	HE0	111	6505	FullBW	MIMO B	-12.21	-12.21		-4.11
UNII6	802.11ax160	HE0	111	6505	FullBW	Combined A+B	-9.35	-9.35		-1.25

(1) Value compensated with the duty cycle

UNII7

UNII	Mode_BW	Rate	Channel	Freq. [MHz]	RU config.	Antenna	PSD [dBm/MHz]	Max(1) PSD [dBm/MHz]	Antenna Gain (dBi)	Max(1) PSD EIRP [dBm/MHz]
UNII7	802.11ax20	HE0	117	6535	FullBW	SISO A	-9.43	-9.43		-1.33
UNII7	802.11ax20	HE0	117	6535	FullBW	SISO B	-9.31	-9.31		-1.21
UNII7	802.11ax20	HE0	117	6535	FullBW	MIMO A	-13.09	-13.09		-4.99
UNII7	802.11ax20	HE0	117	6535	FullBW	MIMO B	-12.35	-12.35		-4.25
UNII7	802.11ax20	HE0	117	6535	FullBW	Combined A+B	-9.69	-9.69		-1.59
UNII7	802.11ax20	HE0	149	6695	FullBW	SISO A	-9.39	-9.39		-1.29
UNII7	802.11ax20	HE0	149	6695	FullBW	SISO B	-9.48	-9.48		-1.38
UNII7	802.11ax20	HE0	149	6695	FullBW	MIMO A	-13.12	-13.12		-5.02
UNII7	802.11ax20	HE0	149	6695	FullBW	MIMO B	-12.62	-12.62		-4.52
UNII7	802.11ax20	HE0	149	6695	FullBW	Combined A+B	-9.85	-9.85		-1.75
UNII7	802.11ax20	HE0	181	6855	FullBW	SISO A	-9.45	-9.45		-1.35
UNII7	802.11ax20	HE0	181	6855	FullBW	SISO B	-9.34	-9.34		-1.24
UNII7	802.11ax20	HE0	181	6855	FullBW	MIMO A	-12.44	-12.44		-4.34
UNII7	802.11ax20	HE0	181	6855	FullBW	MIMO B	-12.68	-12.68		-4.58
UNII7	802.11ax20	HE0	181	6855	FullBW	Combined A+B	-9.55	-9.55		-1.45
UNII7	802.11ax40	HE0	115	6525	FullBW	SISO A	-9.56	-9.56		-1.46
UNII7	802.11ax40	HE0	115	6525	FullBW	SISO B	-9.51	-9.51		-1.41
UNII7	802.11ax40	HE0	115	6525	FullBW	MIMO A	-12.72	-12.72		-4.62
UNII7	802.11ax40	HE0	115	6525	FullBW	MIMO B	-12.46	-12.46		-4.36
UNII7	802.11ax40	HE0	115	6525	FullBW	Combined A+B	-9.58	-9.58		-1.48
UNII7	802.11ax40	HE0	147	6685	FullBW	SISO A	-9.60	-9.60		-1.50
UNII7	802.11ax40	HE0	147	6685	FullBW	SISO B	-9.78	-9.78		-1.68
UNII7	802.11ax40	HE0	147	6685	FullBW	MIMO A	-12.68	-12.68	8.10	-4.58
UNII7	802.11ax40	HE0	147	6685	FullBW	MIMO B	-12.51	-12.51		-4.41
UNII7	802.11ax40	HE0	147	6685	FullBW	Combined A+B	-9.58	-9.58		-1.48
UNII7	802.11ax40	HE0	179	6845	FullBW	SISO A	-9.57	-9.57		-1.47
UNII7	802.11ax40	HE0	179	6845	FullBW	SISO B	-9.25	-9.25		-1.15
UNII7	802.11ax40	HE0	179	6845	FullBW	MIMO A	-12.61	-12.61		-4.51
UNII7	802.11ax40	HE0	179	6845	FullBW	MIMO B	-12.42	-12.42		-4.32
UNII7	802.11ax40	HE0	179	6845	FullBW	Combined A+B	-9.50	-9.50		-1.40
UNII7	802.11ax80	HE0	135	6625	FullBW	SISO A	-9.54	-9.54		-1.44
UNII7	802.11ax80	HE0	135	6625	FullBW	SISO B	-9.24	-9.24		-1.14
UNII7	802.11ax80	HE0	135	6625	FullBW	MIMO A	-12.39	-12.39		-4.29
UNII7	802.11ax80	HE0	135	6625	FullBW	MIMO B	-12.39	-12.39		-4.29
UNII7	802.11ax80	HE0	135	6625	FullBW	Combined A+B	-9.38	-9.38		-1.28
UNII7	802.11ax80	HE0	167	6785	FullBW	SISO A	-9.55	-9.55		-1.45
UNII7	802.11ax80	HE0	167	6785	FullBW	SISO B	-9.37	-9.37		-1.27
UNII7	802.11ax80	HE0	167	6785	FullBW	MIMO A	-12.28	-12.28		-4.18
UNII7	802.11ax80	HE0	167	6785	FullBW	MIMO B	-12.39	-12.39		-4.29
UNII7	802.11ax80	HE0	167	6785	FullBW	Combined A+B	-9.32	-9.32		-1.22
UNII7	802.11ax160	HE0	143	6665	FullBW	SISO A	-9.63	-9.63		-1.53
UNII7	802.11ax160	HE0	143	6665	FullBW	SISO B	-9.71	-9.71		-1.61
UNII7	802.11ax160	HE0	143	6665	FullBW	MIMO A	-12.36	-12.36		-4.26
UNII7	802.11ax160	HE0	143	6665	FullBW	MIMO B	-12.27	-12.27		-4.17
UNII7	802.11ax160	HE0	143	6665	FullBW	Combined A+B	-9.30	-9.30		-1.20

(1) Value compensated with the duty cycle

UNII8

UNII	Mode_BW	Rate	Channel	Freq. [MHz]	RU config.	Antenna	PSD [dBm/MHz]	Max(1) PSD [dBm/MHz]	Antenna Gain (dBi)	Max(1) PSD EIRP [dBm/MHz]
UNII8	802.11ax20	HE0	185	6875	FullBW	SISO A	-9.48	-9.48	8.10	-1.38
UNII8	802.11ax20	HE0	185	6875	FullBW	SISO B	-9.55	-9.55		-1.45
UNII8	802.11ax20	HE0	185	6875	FullBW	MIMO A	-12.67	-12.67		-4.57
UNII8	802.11ax20	HE0	185	6875	FullBW	MIMO B	-12.43	-12.43		-4.33
UNII8	802.11ax20	HE0	185	6875	FullBW	Combined A+B	-9.54	-9.54		-1.44
UNII8	802.11ax20	HE0	209	6995	FullBW	SISO A	-9.21	-9.21		-1.11
UNII8	802.11ax20	HE0	209	6995	FullBW	SISO B	-9.33	-9.33		-1.23
UNII8	802.11ax20	HE0	209	6995	FullBW	MIMO A	-12.62	-12.62		-4.52
UNII8	802.11ax20	HE0	209	6995	FullBW	MIMO B	-12.75	-12.75		-4.65
UNII8	802.11ax20	HE0	209	6995	FullBW	Combined A+B	-9.67	-9.67		-1.57
UNII8	802.11ax20	HE0	229	7095	FullBW	SISO A	-9.54	-9.54		-1.44
UNII8	802.11ax20	HE0	229	7095	FullBW	SISO B	-9.54	-9.54		-1.44
UNII8	802.11ax20	HE0	229	7095	FullBW	MIMO A	-12.33	-12.33		-4.23
UNII8	802.11ax20	HE0	229	7095	FullBW	MIMO B	-12.33	-12.33		-4.23
UNII8	802.11ax20	HE0	229	7095	FullBW	Combined A+B	-9.32	-9.32		-1.22
UNII8	802.11ax20	HE0	233	7115	FullBW	SISO A	-14.01	-14.01		-5.91
UNII8	802.11ax20	HE0	233	7115	FullBW	SISO B	-14.00	-14.00		-5.90
UNII8	802.11ax20	HE0	233	7115	FullBW	MIMO A	-16.31	-16.31		-8.21
UNII8	802.11ax20	HE0	233	7115	FullBW	MIMO B	-17.17	-17.17		-9.07
UNII8	802.11ax20	HE0	233	7115	FullBW	Combined A+B	-13.71	-13.71		-5.61
UNII8	802.11ax40	HE0	187	6885	FullBW	SISO A	-9.47	-9.47		-1.37
UNII8	802.11ax40	HE0	187	6885	FullBW	SISO B	-9.68	-9.68		-1.58
UNII8	802.11ax40	HE0	187	6885	FullBW	MIMO A	-12.52	-12.52		-4.42
UNII8	802.11ax40	HE0	187	6885	FullBW	MIMO B	-12.37	-12.37		-4.27
UNII8	802.11ax40	HE0	187	6885	FullBW	Combined A+B	-9.43	-9.43		-1.33
UNII8	802.11ax40	HE0	227	7085	FullBW	SISO A	-9.33	-9.33		-1.23
UNII8	802.11ax40	HE0	227	7085	FullBW	SISO B	-9.35	-9.35		-1.25
UNII8	802.11ax40	HE0	227	7085	FullBW	MIMO A	-12.45	-12.45		-4.35
UNII8	802.11ax40	HE0	227	7085	FullBW	MIMO B	-12.59	-12.59		-4.49
UNII8	802.11ax40	HE0	227	7085	FullBW	Combined A+B	-9.51	-9.51		-1.41
UNII8	802.11ax80	HE0	183	6865	FullBW	SISO A	-9.48	-9.48		-1.38
UNII8	802.11ax80	HE0	183	6865	FullBW	SISO B	-9.37	-9.37		-1.27
UNII8	802.11ax80	HE0	183	6865	FullBW	MIMO A	-12.56	-12.56		-4.46
UNII8	802.11ax80	HE0	183	6865	FullBW	MIMO B	-12.56	-12.56		-4.46
UNII8	802.11ax80	HE0	183	6865	FullBW	Combined A+B	-9.55	-9.55		-1.45
UNII8	802.11ax80	HE0	199	6945	FullBW	SISO A	-9.25	-9.25		-1.15
UNII8	802.11ax80	HE0	199	6945	FullBW	SISO B	-9.64	-9.64		-1.54
UNII8	802.11ax80	HE0	199	6945	FullBW	MIMO A	-12.56	-12.56		-4.46
UNII8	802.11ax80	HE0	199	6945	FullBW	MIMO B	-12.62	-12.62		-4.52
UNII8	802.11ax80	HE0	199	6945	FullBW	Combined A+B	-9.58	-9.58		-1.48
UNII8	802.11ax80	HE0	215	7025	FullBW	SISO A	-9.23	-9.23		-1.13
UNII8	802.11ax80	HE0	215	7025	FullBW	SISO B	-9.26	-9.26		-1.16
UNII8	802.11ax80	HE0	215	7025	FullBW	MIMO A	-12.41	-12.41		-4.31
UNII8	802.11ax80	HE0	215	7025	FullBW	MIMO B	-12.36	-12.36		-4.26
UNII8	802.11ax80	HE0	215	7025	FullBW	Combined A+B	-9.37	-9.37		-1.27
UNII8	802.11ax160	HE0	207	6985	FullBW	SISO A	-9.66	-9.66		-1.56
UNII8	802.11ax160	HE0	207	6985	FullBW	SISO B	-9.73	-9.73		-1.63
UNII8	802.11ax160	HE0	207	6985	FullBW	MIMO A	-12.38	-12.38		-4.28
UNII8	802.11ax160	HE0	207	6985	FullBW	MIMO B	-12.35	-12.35		-4.25
UNII8	802.11ax160	HE0	207	6985	FullBW	Combined A+B	-9.35	-9.35		-1.25

(1) Value compensated with the duty cycle

B.2.3 Emissions mask

Test limits

FCC part	Limits
15.407 (b) (6)	For transmitters operating within the 5.925-7.125 GHz bands: Power spectral density must be suppressed by 20 dB at 1 MHz outside of channel edge, by 28 dB at one channel bandwidth from the channel center, and by 40 dB at one- and one-half times the channel bandwidth away from channel center. At frequencies between one megahertz outside an unlicensed device's channel edge and one channel bandwidth from the center of the channel, the limits must be linearly interpolated between 20 dB and 28 dB suppression, and at frequencies between one and one- and one-half times an unlicensed device's channel bandwidth, the limits must be linearly interpolated between 28 dB and 40 dB suppression. Emissions removed from the channel center by more than one- and one-half times the channel bandwidth must be suppressed by at least 40 dB.

Test procedure

The conducted setup shown in section *Test & System Description* was used to measure the unwanted mask emissions. The antenna terminal of the EUT is connected to the spectrum analyzer through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss and the declared antenna gain.

The nominal bandwidth was used to construct the mask according to KDB 987594 D02.

See Section C.1.3 for the screenshot results.

B.2.4 Contention-based protocol

Test limits

Indoor access points, subordinate devices and client devices operating in the 5.925-7.125 GHz band are required to use technologies that include a contention-based protocol to avoid co-channel interference with incumbent devices sharing the band. To ensure incumbent co-channel operations are detected in a technology-agnostic manner, unlicensed devices are required to detect co-channel radio frequency energy (energy detect) and avoid simultaneous transmission.
Unlicensed indoor low-power devices must detect co-channel radio frequency power that is at least -62 dBm or lower. Upon detection of energy in the band, unlicensed low power indoor devices must vacate the channel and stay off the channel as long as detected radio frequency power is equal to or greater than the threshold (-62 dBm).

Test procedure

The contention-based protocol setup shown in section *Test & System Description* was used to measure the contention-based protocol. The EUT ceased transmission when the AWGN source signal level described in table result below is set to transmit.
Incumbent signal is emulated by using a 10MHz bandwidth AWGN source generated by the vector signal generator.
The EUT is transmitting at the maximum possible payload and the spectrum analyzer monitors the transmissions in response to the AWGN signal. Insertion loss of the test setup were considered on the spectrum analyser reading.

Result Tables

Contention-based Protocol Threshold minimum level

UNII	Channel	Bandwidth [MHz]	EUT Freq [MHz] f_{c1}	Incumbent Placement/Frequency [MHz] f_{c2}		Threshold level of AWGN incumbent (dBm) at antenna level*see note below	Status of EUT transmision
5	45	20	6175	$f_{c1} = f_{c2}$	6175	-63.9	**Ceased**
						-64.9	Minimal
						-65.9	Minimal
						-66.9	Normal
6	105	20	6475	$f_{c1} = f_{c2}$	6475	-63.6	**Ceased**
						-64.6	Minimal
						-65.6	Minimal
						-66.6	Normal
7	149	20	6695	$f_{c1} = f_{c2}$	6695	-63.3	**Ceased**
						-64.3	Minimal
						-65.3	Minimal
						-66.3	Normal
8	209	20	6995	$f_{c1} = f_{c2}$	6995	-63.9	**Ceased**
						-64.9	Minimal
						-65.9	Minimal
						-66.9	Normal
5	15	160	6025	Lower edge	5950	-62.7	**Ceased**
						-63.7	Minimal
						-64.7	Normal
				$f_{c1} = f_{c2}$	6025	-66.0	**Ceased**
						-67.0	Minimal
						-68.0	Normal
				Upper edge	6100	-63.1	**Ceased**
						-64.1	Minimal
						-65.1	Normal
6-7	111	160	6505	Lower edge	6430	-62.4	**Ceased**
						-63.4	Minimal
						-64.4	Normal
				$f_{c1} = f_{c2}$	6505	-65.0	**Ceased**
						-66.0	Minimal
						-67.0	Normal
				Upper edge	6580	-62.9	**Ceased**
						-63.9	Minimal
						-64.9	Normal
7	143	160	6665	Lower Edge	6590	-62.1	**Ceased**
						-63.1	Minimal
						-64.1	Normal
				$f_{c1} = f_{c2}$	6665	-64.9	**Ceased**
						-65.9	Minimal
						-66.9	Normal
				Upper edge	6740	-62.7	**Ceased**
						-63.7	Minimal
						-64.7	Normal
8	207	160	6985	Lower Edge	6910	-62.0	**Ceased**
						-63.0	Minimal
						-64.0	Normal
				$f_{c1} = f_{c2}$	6985	-64.7	**Ceased**
						-65.7	Minimal
						-66.7	Normal
				Upper edge	7060	-63.9	**Ceased**
						-64.9	Minimal
						-65.9	Normal

Note : EUT antenna gain +8.10dBi considered in the measurement path loss.

Summary table

Bandwidth	UNII Sub-band	Channel	EUT Freq [MHz] f_{c1}	Incumbent Placement/Frequency [MHz] f_{c2}		Incumbent Threshold level of AWGN interference at antenna level (dBm)*see note below	Number of iterations	Detection Probability (%)	Limit (%)	Verdict
20MHz	5	45	6175	$f_{c1} = f_{c2}$	6175	-63.9	10	100	90	PASS
	6	105	6475	$f_{c1} = f_{c2}$	6475	-63.6	10	100	90	PASS
	7	149	6695	$f_{c1} = f_{c2}$	6695	-63.3	10	100	90	PASS
	8	209	6995	$f_{c1} = f_{c2}$	6995	-63.9	10	100	90	PASS
160MHz	5	15	6025	Lower edge	5950	-62.7	10	100	90	PASS
				$f_{c1} = f_{c2}$	6025	-66.0	10	100	90	PASS
				Upper edge	6100	-63.1	10	100	90	PASS
	6-7	111	6505	Lower edge	6430	-62.4	10	100	90	PASS
				$f_{c1} = f_{c2}$	6505	-65.0	10	100	90	PASS
				Upper edge	6580	-62.9	10	100	90	PASS
	7	143	6665	Lower Edge	6590	-62.1	10	100	90	PASS
				$f_{c1} = f_{c2}$	6665	-64.9	10	100	90	PASS
				Upper edge	6740	-62.7	10	100	90	PASS
	8	207	6985	Lower edge	6910	-62.0	10	100	90	PASS
				$f_{c1} = f_{c2}$	6985	-64.7	10	100	90	PASS
				Upper edge	7060	-63.9	10	100	90	PASS

Note : EUT antenna gain = +8.10dBi considered in the measurement path loss.

See Section C.1.4 for the screenshot results.

B.2.5 Undesirable emission limits : Conducted

Test limits

FCC part	Limits
15.407 (b) (5)	For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of −27 dBm/MHz.
15.35 (b)	Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, e.g., see §§ 15.250, 15.252, 15.253(d), 15.255, 15.256, and 15.509 through 15.519, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device, e.g., the total peak power level

Test procedure

The conducted setup shown in section *Test & System Description* was used to measure undesirable emissions on the out of band domain. The antenna terminal of the EUT is connected to the spectrum analyzer through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss and the declared antenna gain.

For the lower and upper side of the out of band, the integration method was used as defined in the out of band measurements section II.G.3.d of KDB 789033. Tests were performed using both RMS and peak detectors.

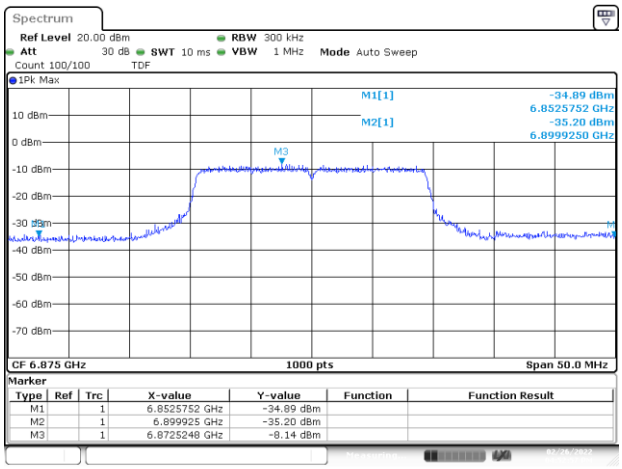
For out of band emission measurements in MIMO mode the emission level of individual output is adjusted by 10 log (N_{ant}) = 3dB for N_{ant} = 2 which is equivalent to compare the individual output emission level to the limit minus 3dB. The same approach is applied for peak and RMS detectors.

See Section C.1.5 for the screenshot results.

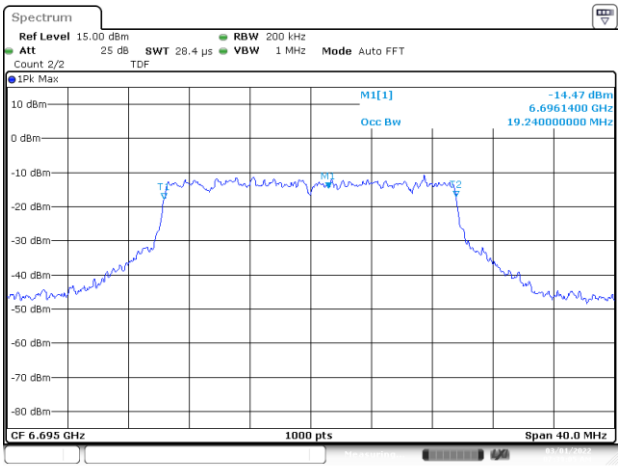
Annex C. System Plots

C.1.1 26dB & 99% bandwidth

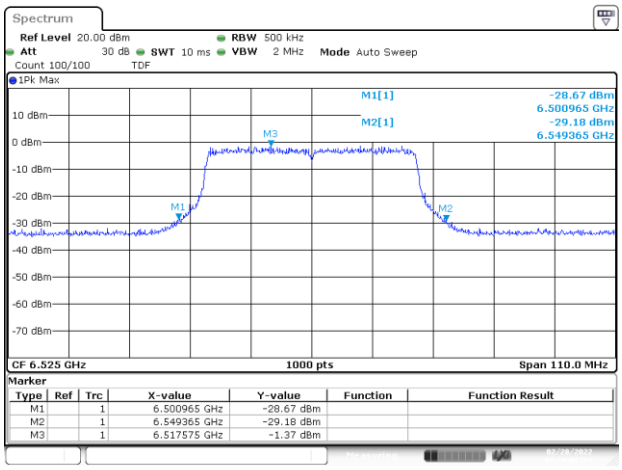
UNII8 MIMO A 802.11ax20 ch185 6875MHz 26dB



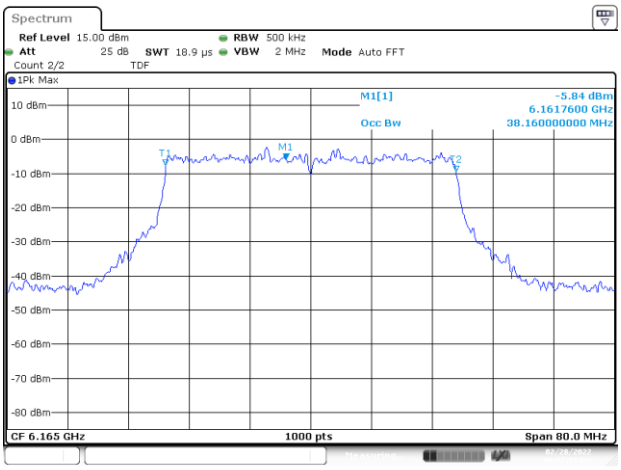
UNII7 MIMO B 802.11ax20 ch149 6695MHz 99%



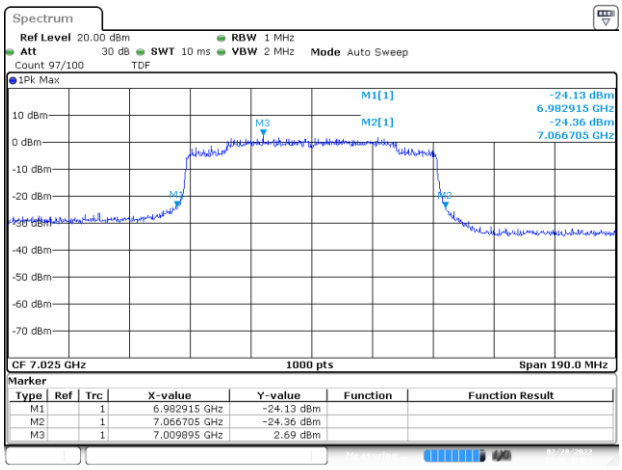
UNII7 SISO B 802.11ax40 ch115 6525MHz 26dB



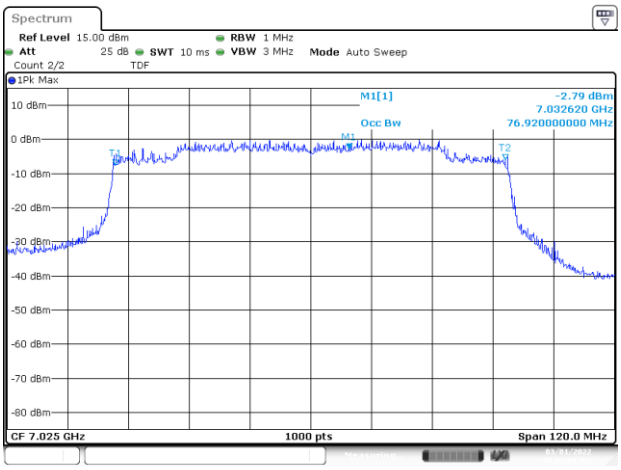
UNII5 SISO B 802.11ax40 ch43 6165MHz 99%



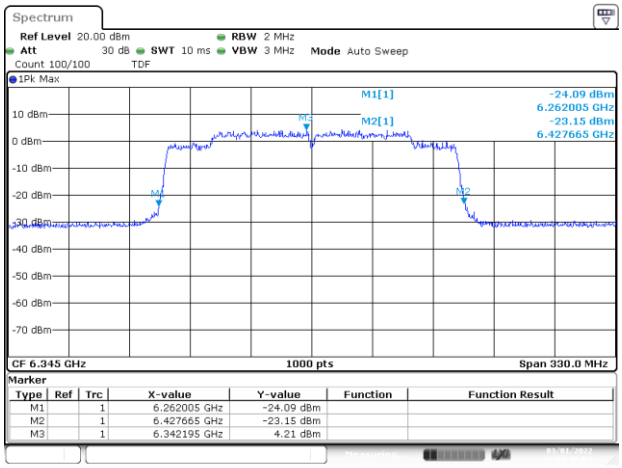
UNII8 MIMO A 802.11ax80 ch215 7025MHz 26 dB



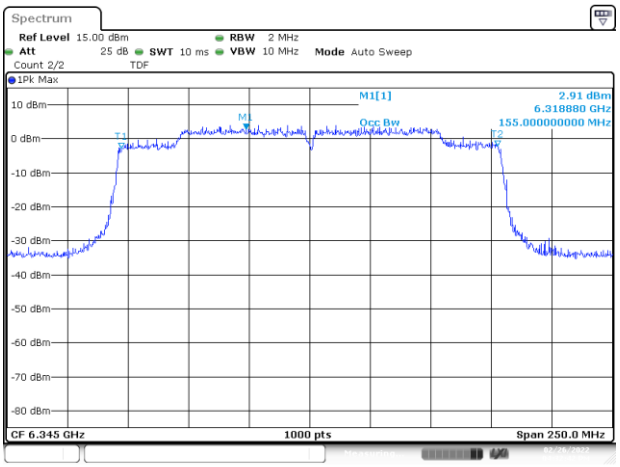
UNII8 MIMO B 802.11ax80 ch215 7025MHz 99%



UNII5 MIMO B 802.11ax160 ch79 6345MHz 26dB



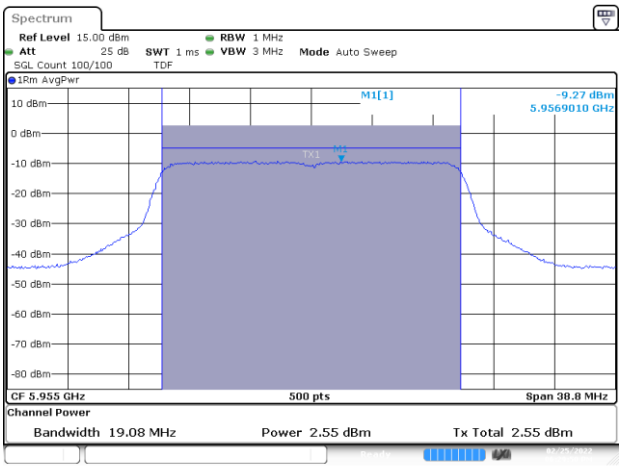
UNII5 MIMO A 802.11ax160 ch79 6345MHz 99%



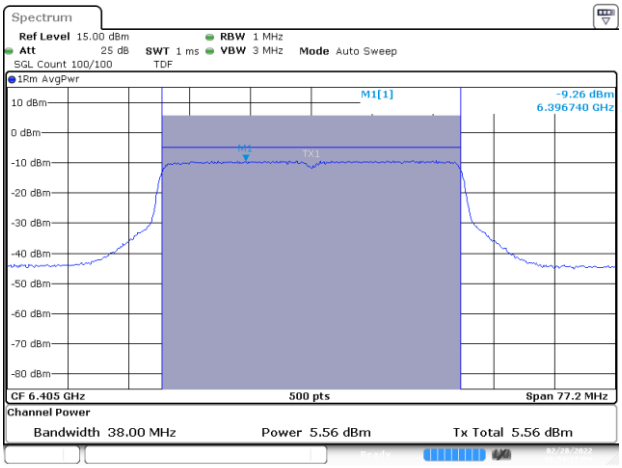
C.1.2 Maximum Output Power & Maximum power spectral Density

UNII5

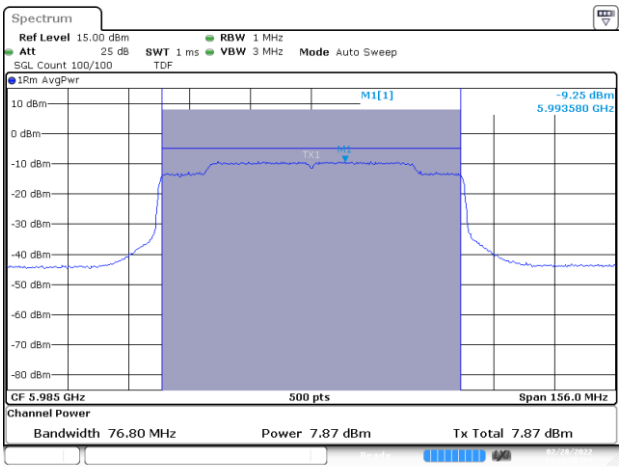
SISO-A-802.11ax-20MHz-Ch1-5955MHz-HE0



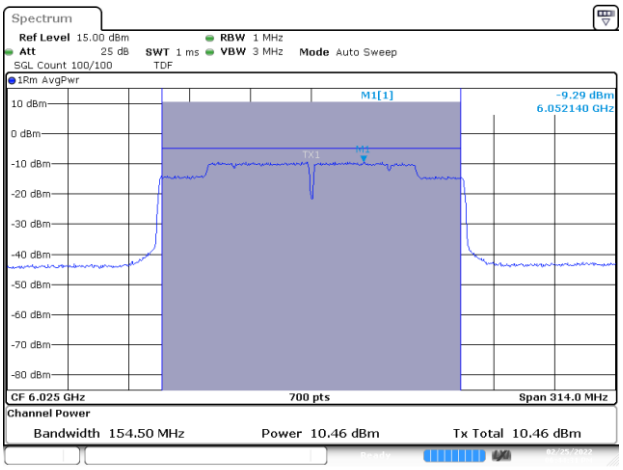
SISO-B-802.11ax-40MHz-Ch91-6405MHz-HE0



SISO-B-802.11ax-80MHz-Ch7-5985MHz-HE0

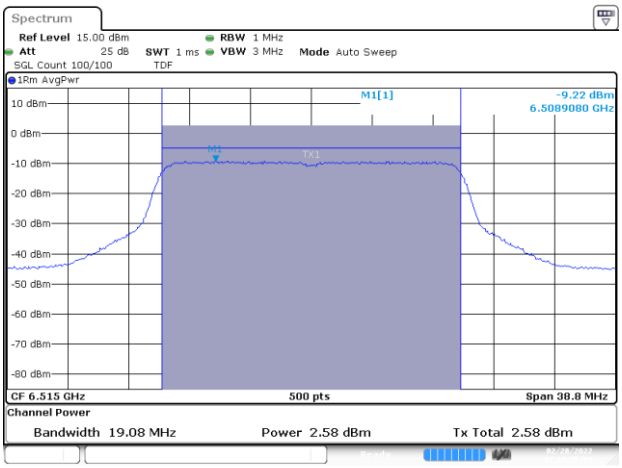


SISO-A-802.11ax-160MHz-Ch15-6025MHz-HE0

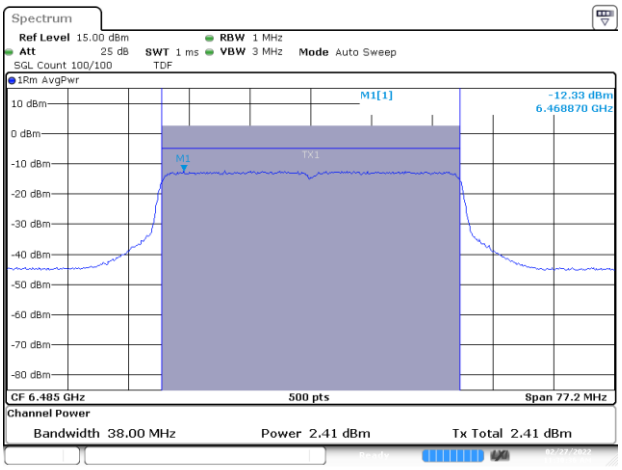


UNII6

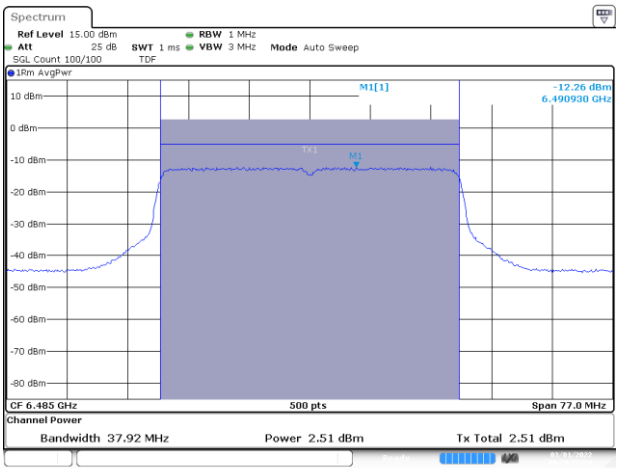
SISO B-802.11ax-20MHz-Ch113-6515MHz-HE0



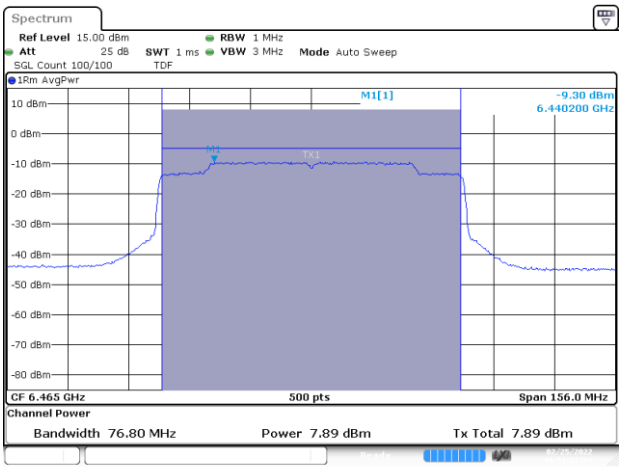
MIMO A-802.11ax-40MHz-Ch107-6485MHz-HE0



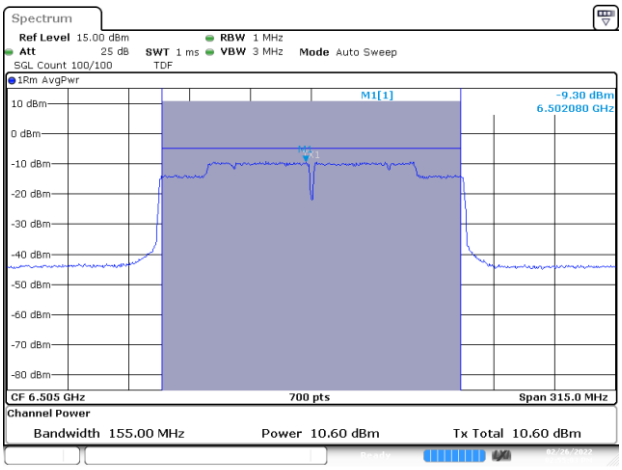
MIMO B-802.11ax-40MHz-Ch107-6485MHz-HE0



SISO A-802.11ax-80MHz-Ch103-6465MHz-HE0

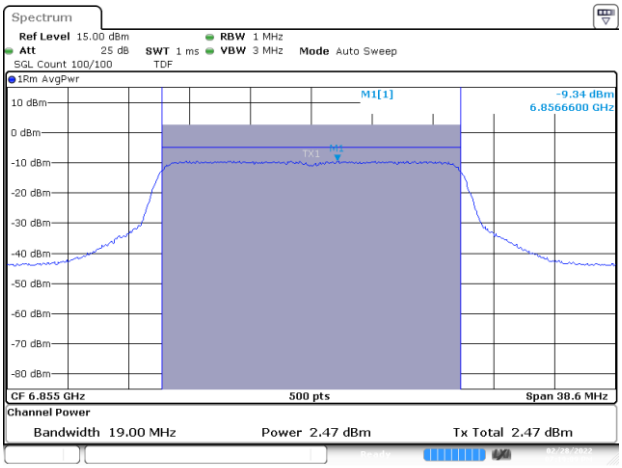


SISO A-802.11ax-160MHz-Ch111-6505MHz-HE0

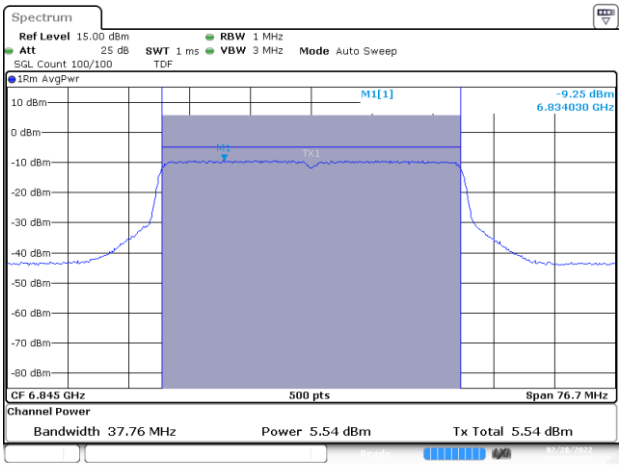


UNII7

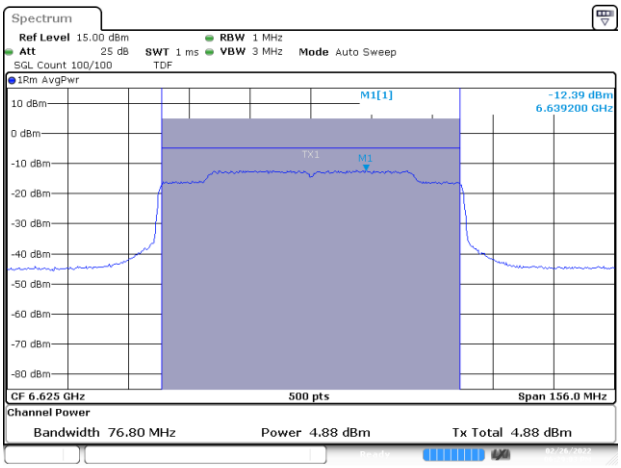
SISO B-802.11ax-20MHz-Ch181-6855MHz-HE0



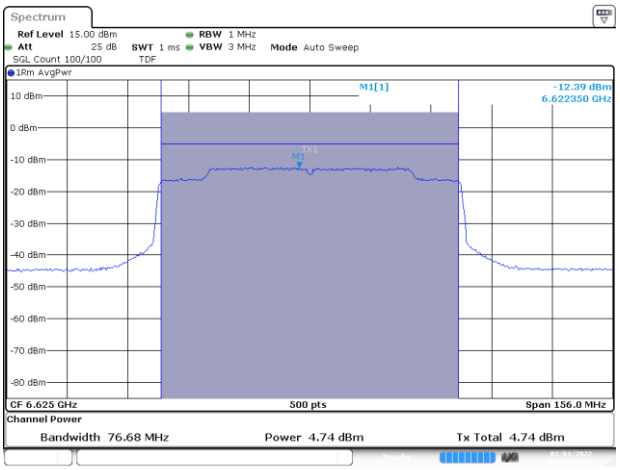
SISO B-802.11ax-40MHz-Ch179-6845MHz-HE0



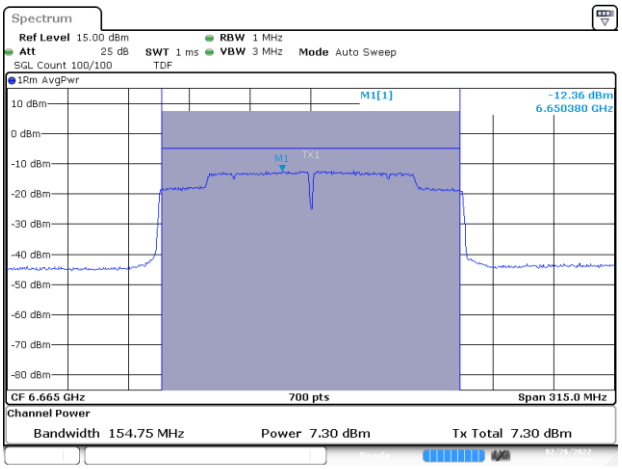
MIMO A-802.11ax-80MHz-Ch135-6625MHz-HE0



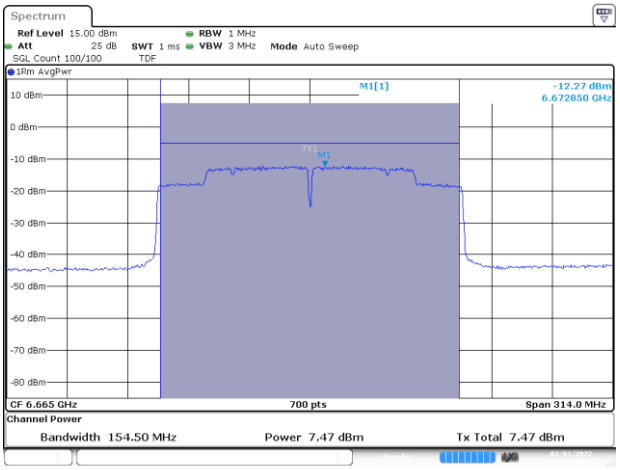
MIMO B-802.11ax-80MHz-Ch135-6625MHz-HE0



MIMO A-802.11ax-160MHz-Ch143-6665MHz-HE0

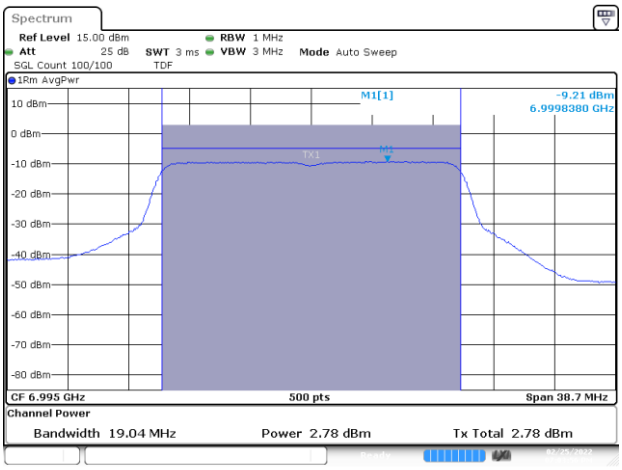


MIMO A-802.11ax-160MHz-Ch143-6665MHz-HE0

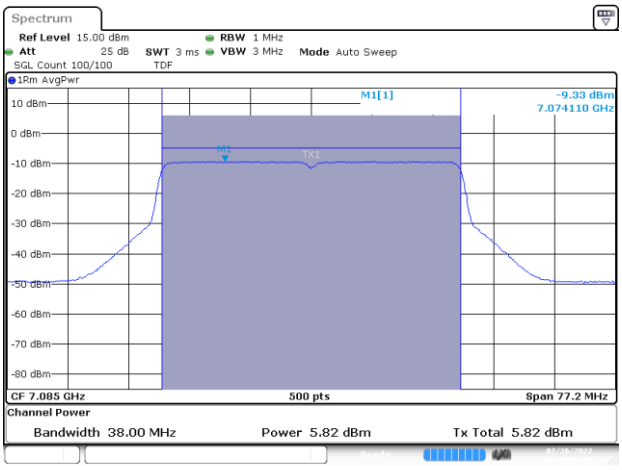


UNII8

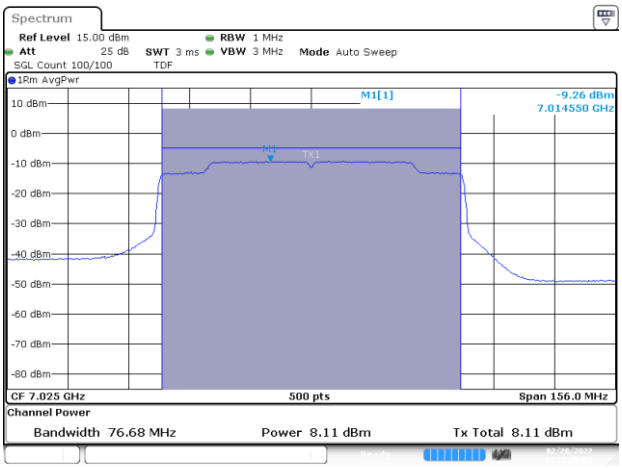
SISO A-802.11ax-20MHz-Ch209-6995MHz-HE0



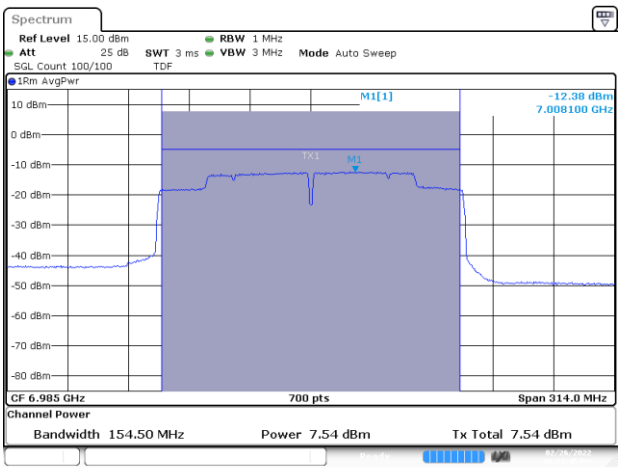
SISO A-802.11ax-40MHz-Ch227-7085MHz-HE0



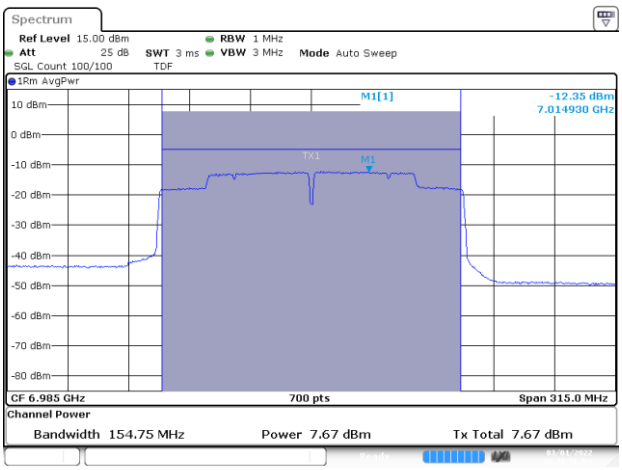
SISO B-802.11ax-80MHz-Ch215-7025MHz-HE0



MIMO A-802.11ax-160MHz-Ch207-6985MHz-HE0



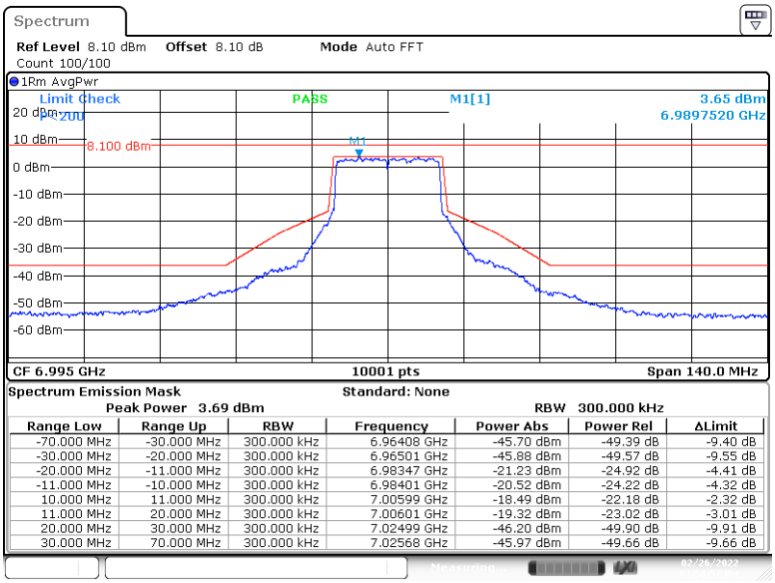
MIMO B-802.11ax-160MHz-Ch207-6985MHz-HE0



C.1.3 In-Band Emissions (Mask)

SISO-A, 802.11ax20, HE0

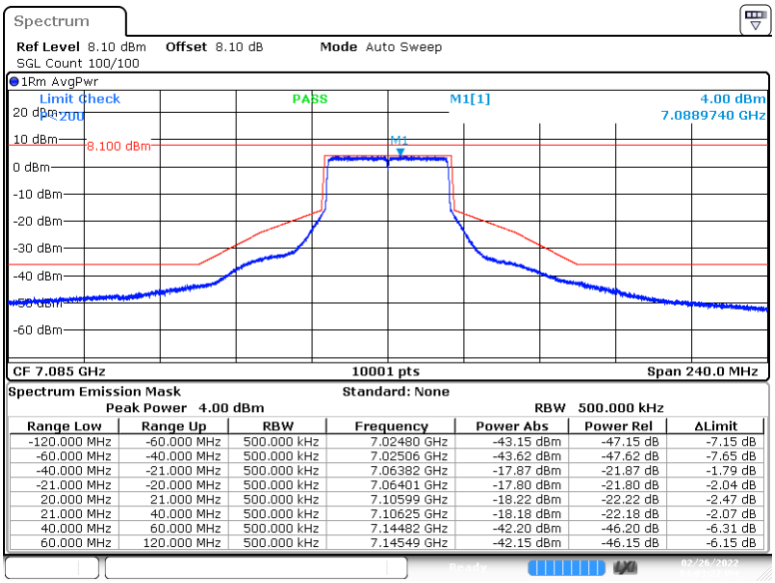
Channel 209



Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-70.000 MHz	-30.000 MHz	300.000 kHz	6.96408 GHz	-45.70 dBm	-49.39 dB	-9.40 dB
-30.000 MHz	-20.000 MHz	300.000 kHz	6.96501 GHz	-45.88 dBm	-49.57 dB	-9.55 dB
-20.000 MHz	-11.000 MHz	300.000 kHz	6.98347 GHz	-21.23 dBm	-24.92 dB	-4.41 dB
-11.000 MHz	-10.000 MHz	300.000 kHz	6.98401 GHz	-20.52 dBm	-24.22 dB	-4.32 dB
10.000 MHz	11.000 MHz	300.000 kHz	7.00599 GHz	-18.49 dBm	-22.18 dB	-2.32 dB
11.000 MHz	20.000 MHz	300.000 kHz	7.00601 GHz	-19.32 dBm	-23.02 dB	-3.01 dB
20.000 MHz	30.000 MHz	300.000 kHz	7.02499 GHz	-46.20 dBm	-49.90 dB	-9.91 dB
30.000 MHz	70.000 MHz	300.000 kHz	7.02568 GHz	-45.97 dBm	-49.66 dB	-9.66 dB

SISO-A, 802.11ax40, HE0

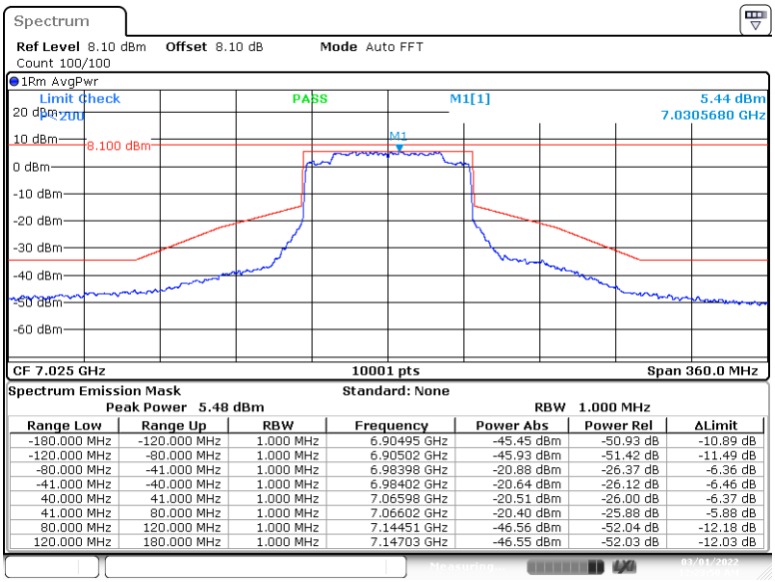
Channel 227



Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-120.000 MHz	-60.000 MHz	500.000 kHz	7.02480 GHz	-43.15 dBm	-47.15 dB	-7.15 dB
-60.000 MHz	-40.000 MHz	500.000 kHz	7.02506 GHz	-43.62 dBm	-47.62 dB	-7.65 dB
-40.000 MHz	-21.000 MHz	500.000 kHz	7.06382 GHz	-17.87 dBm	-21.87 dB	-1.79 dB
-21.000 MHz	-20.000 MHz	500.000 kHz	7.06401 GHz	-17.80 dBm	-21.80 dB	-2.04 dB
20.000 MHz	21.000 MHz	500.000 kHz	7.10599 GHz	-18.22 dBm	-22.22 dB	-2.47 dB
21.000 MHz	40.000 MHz	500.000 kHz	7.10625 GHz	-18.18 dBm	-22.18 dB	-2.07 dB
40.000 MHz	60.000 MHz	500.000 kHz	7.14482 GHz	-42.20 dBm	-46.20 dB	-6.31 dB
60.000 MHz	120.000 MHz	500.000 kHz	7.14549 GHz	-42.15 dBm	-46.15 dB	-6.15 dB

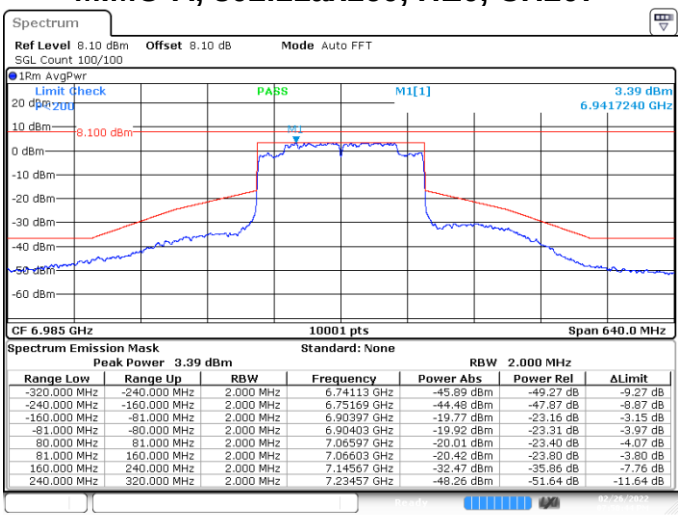
SISO-B, 802.11ax80, HE0

Channel 215



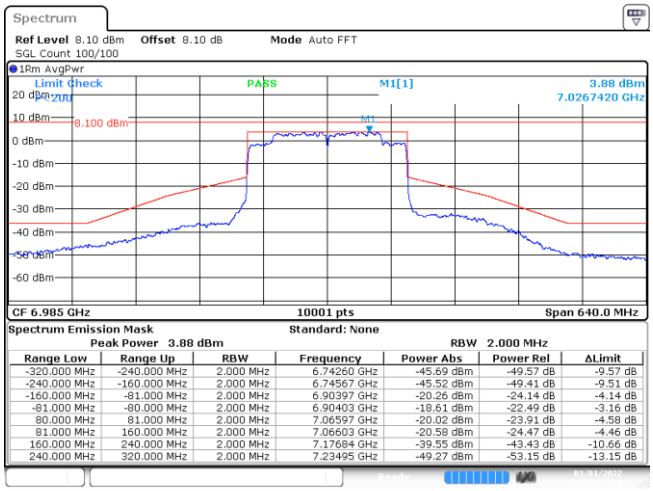
Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-180.000 MHz	-120.000 MHz	1.000 MHz	6.90495 GHz	-45.45 dBm	-50.93 dB	-10.89 dB
-120.000 MHz	-80.000 MHz	1.000 MHz	6.90502 GHz	-45.93 dBm	-51.42 dB	-11.49 dB
-80.000 MHz	-41.000 MHz	1.000 MHz	6.98398 GHz	-20.88 dBm	-26.37 dB	-6.36 dB
-41.000 MHz	-40.000 MHz	1.000 MHz	6.98402 GHz	-20.64 dBm	-26.12 dB	-6.46 dB
40.000 MHz	41.000 MHz	1.000 MHz	7.06598 GHz	-20.51 dBm	-26.00 dB	-6.37 dB
41.000 MHz	80.000 MHz	1.000 MHz	7.06602 GHz	-20.40 dBm	-25.88 dB	-5.88 dB
80.000 MHz	120.000 MHz	1.000 MHz	7.14451 GHz	-46.56 dBm	-52.04 dB	-12.18 dB
120.000 MHz	180.000 MHz	1.000 MHz	7.14703 GHz	-46.55 dBm	-52.03 dB	-12.03 dB

MIMO-A, 802.11ax160, HE0, CH207

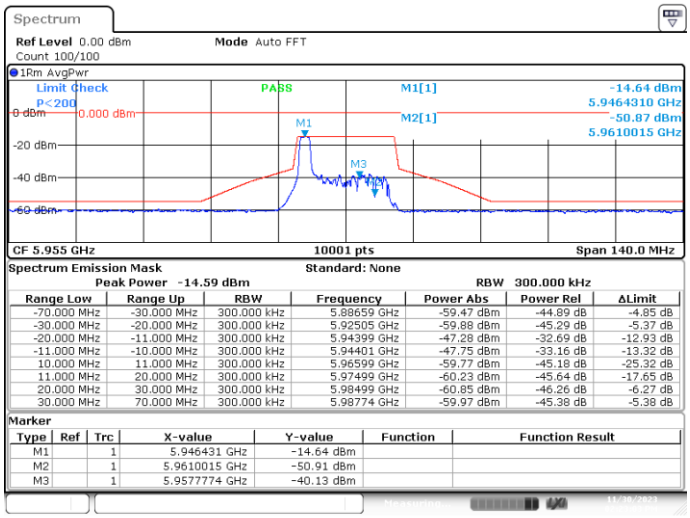


Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-320.000 MHz	-240.000 MHz	2.000 MHz	6.74113 GHz	-45.89 dBm	-49.27 dB	-9.27 dB
-240.000 MHz	-160.000 MHz	2.000 MHz	6.75169 GHz	-44.48 dBm	-47.87 dB	-8.87 dB
-160.000 MHz	-81.000 MHz	2.000 MHz	6.90397 GHz	-19.77 dBm	-23.16 dB	-3.15 dB
-81.000 MHz	-80.000 MHz	2.000 MHz	6.90403 GHz	-19.92 dBm	-23.31 dB	-3.97 dB
80.000 MHz	81.000 MHz	2.000 MHz	7.06597 GHz	-20.01 dBm	-23.40 dB	-4.07 dB
81.000 MHz	160.000 MHz	2.000 MHz	7.06603 GHz	-20.42 dBm	-23.80 dB	-3.80 dB
160.000 MHz	240.000 MHz	2.000 MHz	7.14567 GHz	-32.47 dBm	-35.86 dB	-7.76 dB
240.000 MHz	320.000 MHz	2.000 MHz	7.23457 GHz	-48.26 dBm	-51.64 dB	-11.64 dB

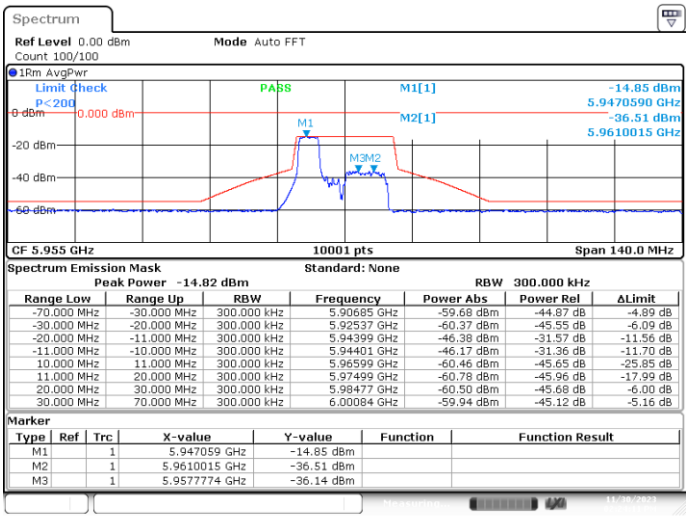
MIMO-B, 802.11ax160, HE0, CH207



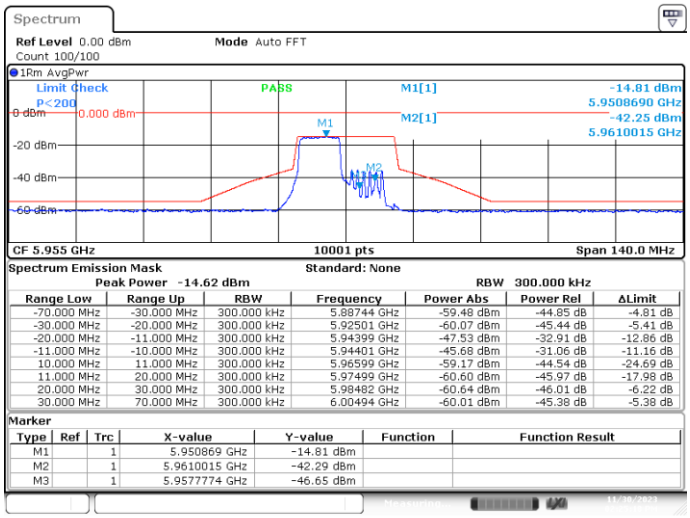
Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-320.000 MHz	-240.000 MHz	2.000 MHz	6.74260 GHz	-45.69 dBm	-49.57 dB	-9.57 dB
-240.000 MHz	-160.000 MHz	2.000 MHz	6.74567 GHz	-45.52 dBm	-49.41 dB	-9.51 dB
-160.000 MHz	-81.000 MHz	2.000 MHz	6.90397 GHz	-20.26 dBm	-24.14 dB	-4.14 dB
-81.000 MHz	-80.000 MHz	2.000 MHz	6.90403 GHz	-18.61 dBm	-22.49 dB	-3.16 dB
80.000 MHz	81.000 MHz	2.000 MHz	7.06597 GHz	-20.02 dBm	-23.91 dB	-4.58 dB
81.000 MHz	160.000 MHz	2.000 MHz	7.06603 GHz	-20.58 dBm	-24.47 dB	-4.46 dB
160.000 MHz	240.000 MHz	2.000 MHz	7.17684 GHz	-39.55 dBm	-43.43 dB	-10.66 dB
240.000 MHz	320.000 MHz	2.000 MHz	7.23495 GHz	-49.27 dBm	-53.15 dB	-13.15 dB



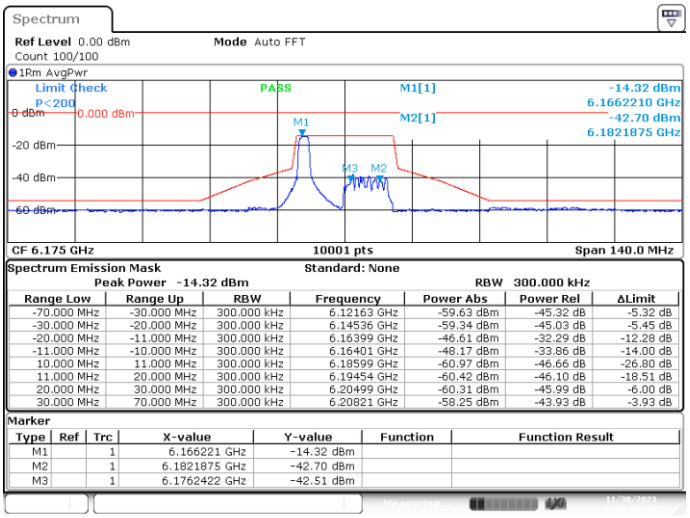
SISO-A, 802.11ax20-MCS0, Ch1-2m-0



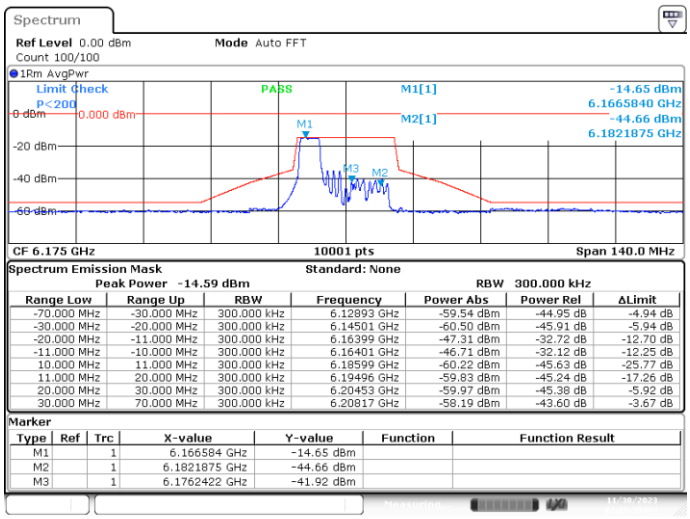
SISO-A, 802.11ax20-MCS0, Ch1-4m-37



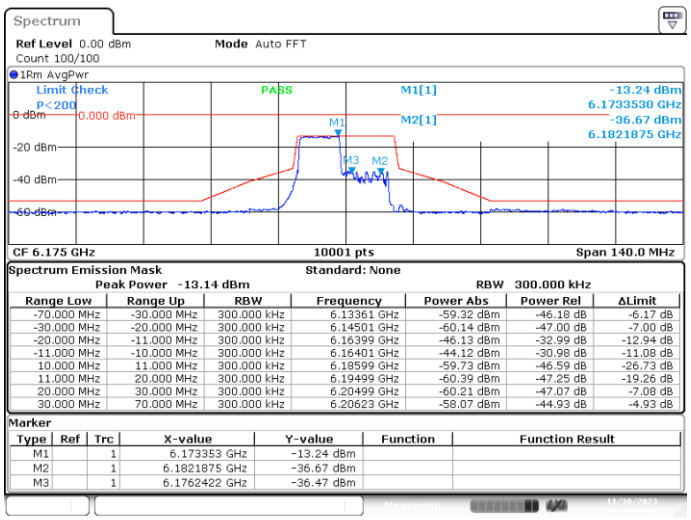
SISO-A, 802.11ax20-MCS0, Ch1-8m-53



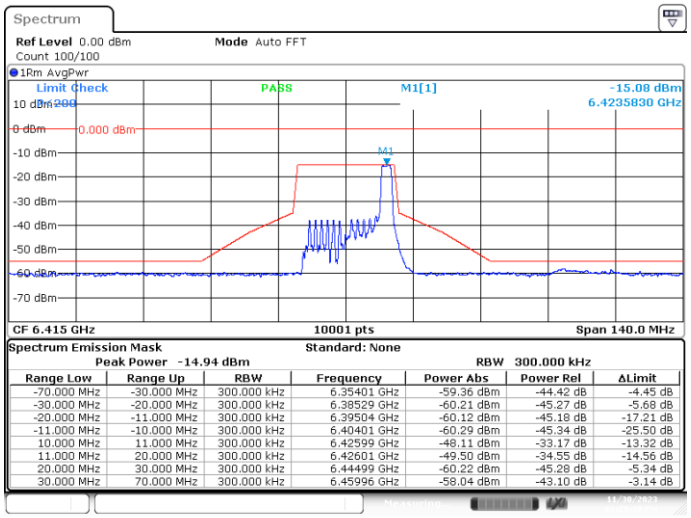
SISO-A, 802.11ax20-MCS0, Ch45-2m-0



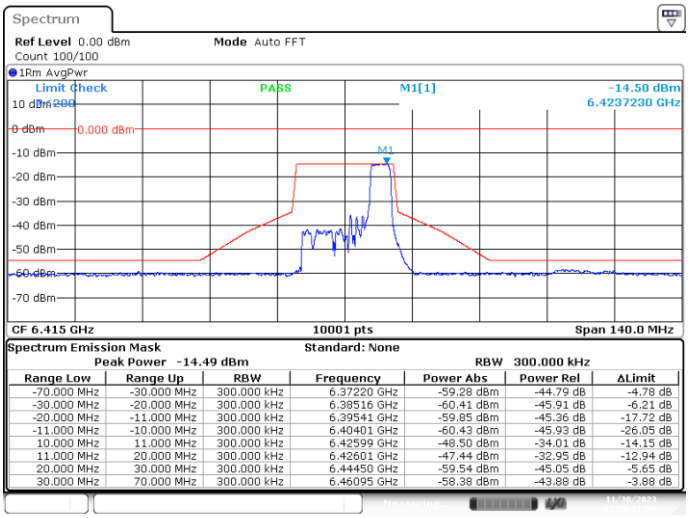
SISO-A, 802.11ax20-MCS0, Ch45-4m-37



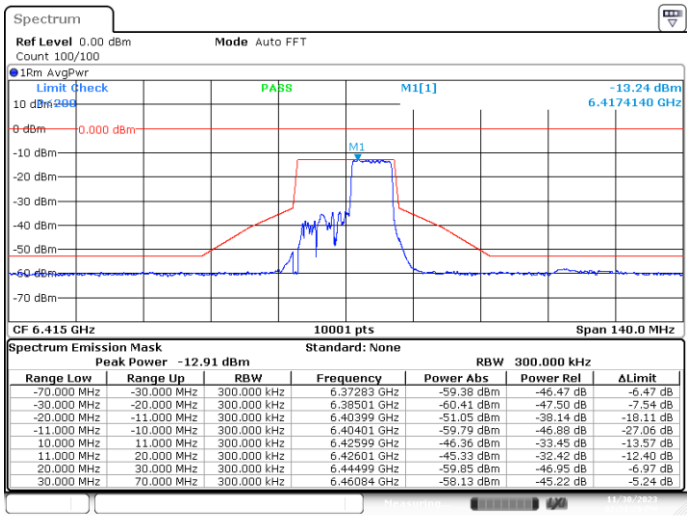
SISO-A, 802.11ax20-MCS0, Ch45-8m-53



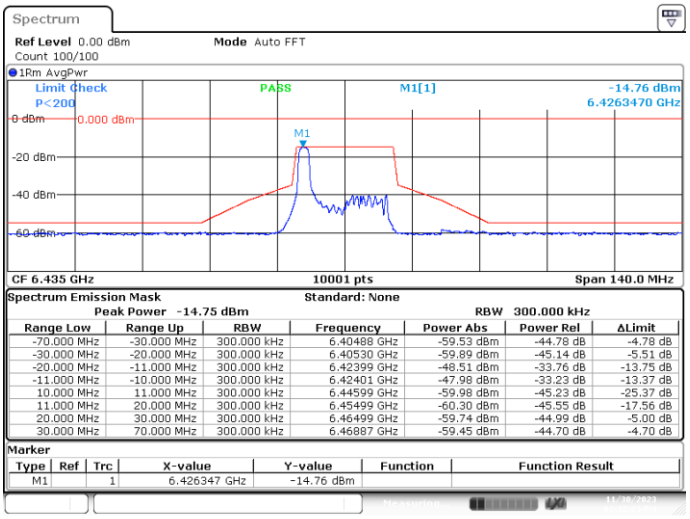
SISO-A, 802.11ax20-MCS0, Ch93-2m-0



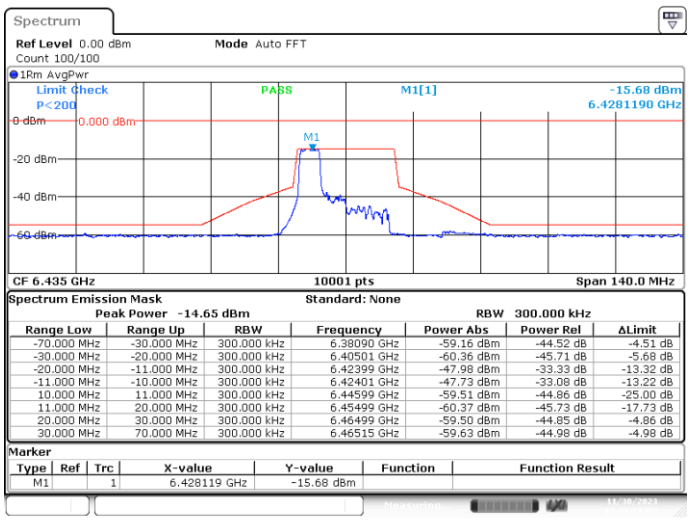
SISO-A, 802.11ax20-MCS0, Ch93-4m-37



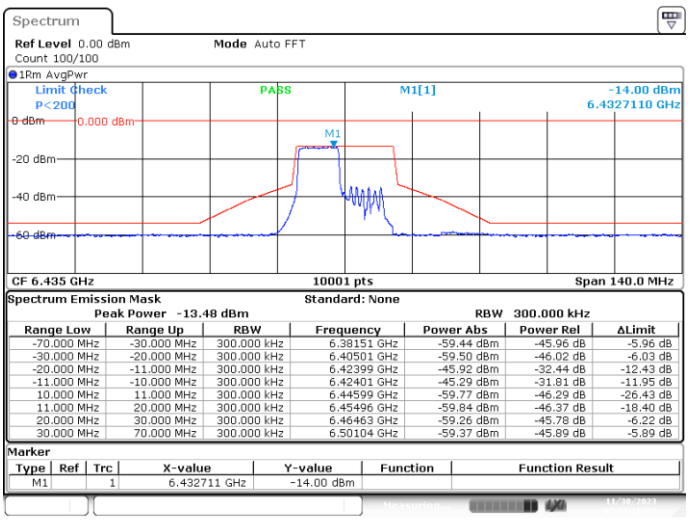
SISO-A, 802.11ax20-MCS0, Ch93-8m-53



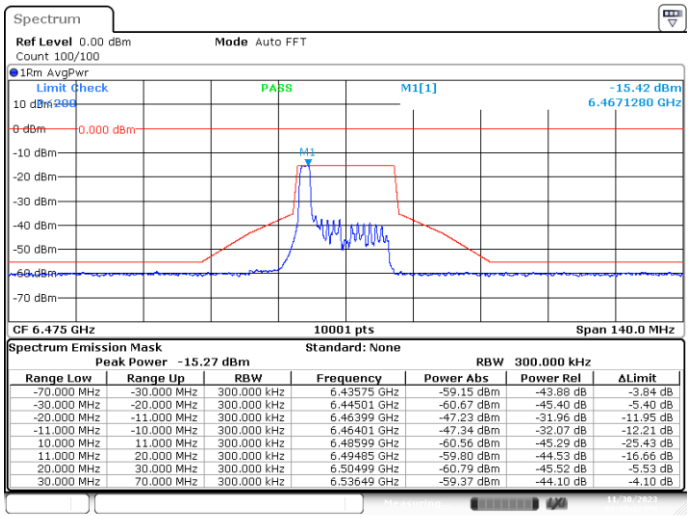
SISO-A, 802.11ax20-MCS0, Ch97-2m-0



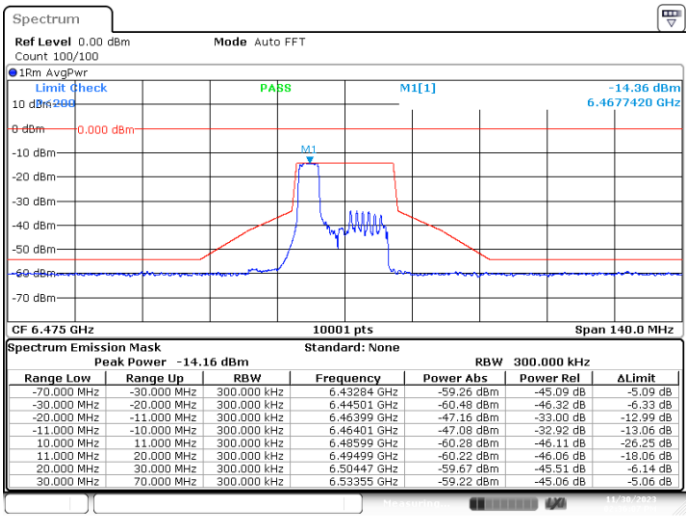
SISO-A, 802.11ax20-MCS0, Ch97-4m-37



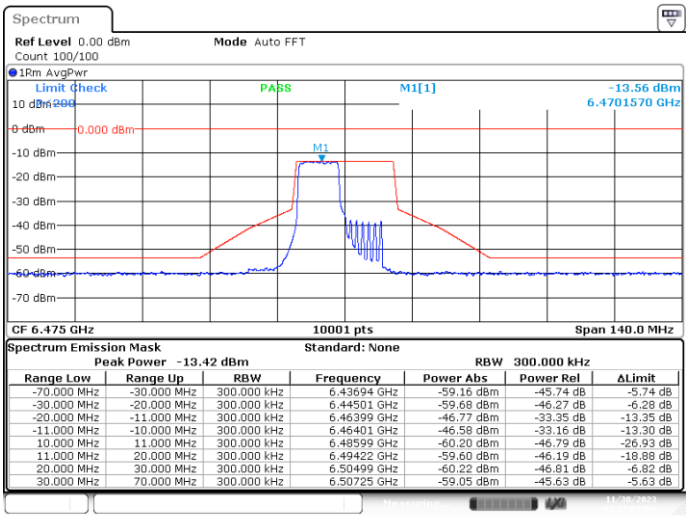
SISO-A, 802.11ax20-MCS0, Ch97-8m-53



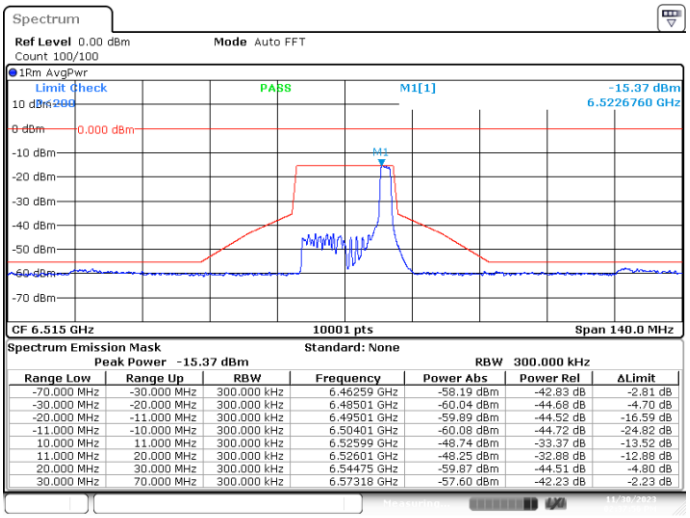
SISO-A, 802.11ax20-MCS0, Ch105-2m-0



SISO-A, 802.11ax20-MCS0, Ch105-4m-37

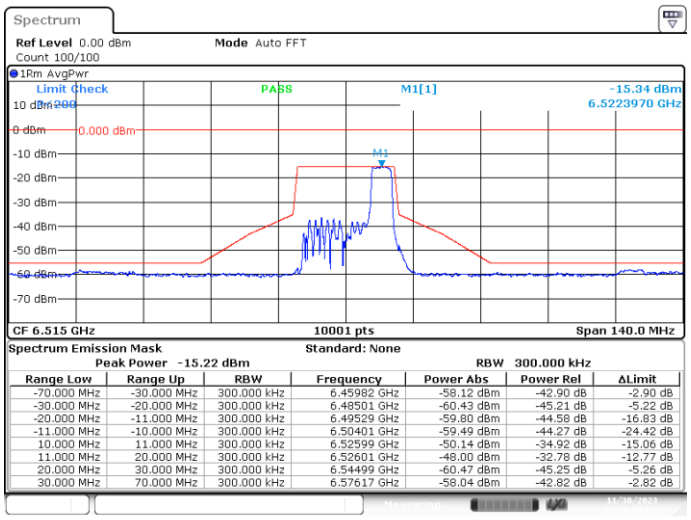


SISO-A, 802.11ax20-MCS0, Ch105-8m-53



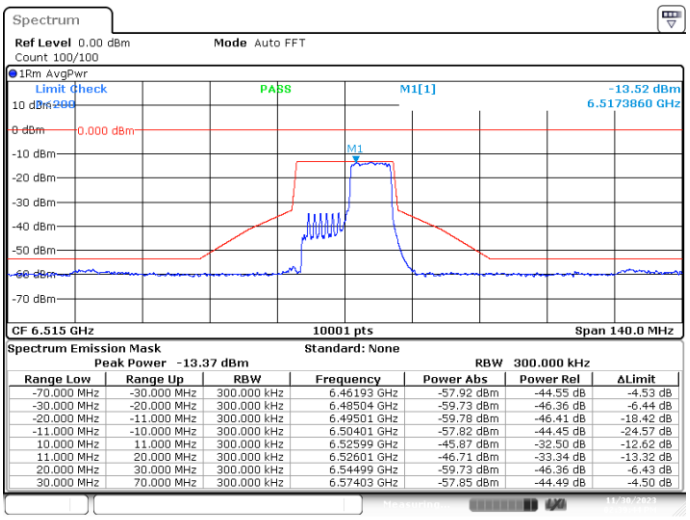
Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-70.000 MHz	-30.000 MHz	300.000 kHz	6.46259 GHz	-58.19 dBm	-42.83 dB	-2.81 dB
-30.000 MHz	-20.000 MHz	300.000 kHz	6.48501 GHz	-60.04 dBm	-44.68 dB	-4.70 dB
-20.000 MHz	-11.000 MHz	300.000 kHz	6.49501 GHz	-59.89 dBm	-44.52 dB	-16.59 dB
-11.000 MHz	-10.000 MHz	300.000 kHz	6.50401 GHz	-60.08 dBm	-44.72 dB	-24.82 dB
10.000 MHz	11.000 MHz	300.000 kHz	6.52599 GHz	-48.74 dBm	-33.37 dB	-13.52 dB
11.000 MHz	20.000 MHz	300.000 kHz	6.52601 GHz	-48.25 dBm	-32.88 dB	-12.88 dB
20.000 MHz	30.000 MHz	300.000 kHz	6.54475 GHz	-59.87 dBm	-44.51 dB	-4.80 dB
30.000 MHz	70.000 MHz	300.000 kHz	6.57318 GHz	-57.60 dBm	-42.23 dB	-2.23 dB

SISO-A, 802.11ax20-MCS0, Ch113-2m-0



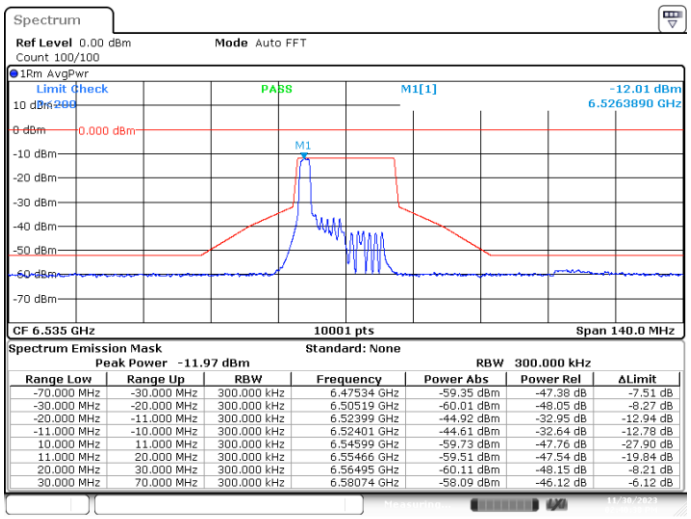
Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-70.000 MHz	-30.000 MHz	300.000 kHz	6.45982 GHz	-58.12 dBm	-42.90 dB	-2.90 dB
-30.000 MHz	-20.000 MHz	300.000 kHz	6.48501 GHz	-60.43 dBm	-45.21 dB	-5.22 dB
-20.000 MHz	-11.000 MHz	300.000 kHz	6.49529 GHz	-59.80 dBm	-44.58 dB	-16.83 dB
-11.000 MHz	-10.000 MHz	300.000 kHz	6.50401 GHz	-59.49 dBm	-44.27 dB	-24.42 dB
10.000 MHz	11.000 MHz	300.000 kHz	6.52599 GHz	-50.14 dBm	-34.92 dB	-15.06 dB
11.000 MHz	20.000 MHz	300.000 kHz	6.52601 GHz	-48.00 dBm	-32.78 dB	-12.77 dB
20.000 MHz	30.000 MHz	300.000 kHz	6.54499 GHz	-60.47 dBm	-45.25 dB	-5.26 dB
30.000 MHz	70.000 MHz	300.000 kHz	6.57617 GHz	-58.04 dBm	-42.82 dB	-2.82 dB

SISO-A, 802.11ax20-MCS0, Ch113-4m-37



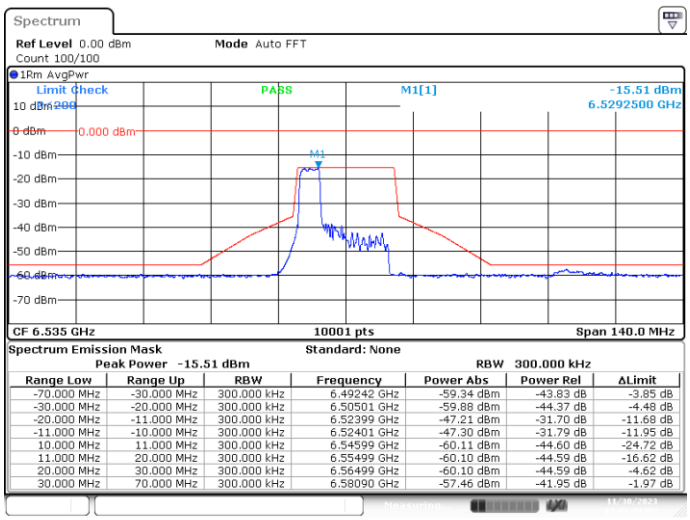
Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-70.000 MHz	-30.000 MHz	300.000 kHz	6.46193 GHz	-57.92 dBm	-44.55 dB	-4.53 dB
-30.000 MHz	-20.000 MHz	300.000 kHz	6.48504 GHz	-59.73 dBm	-46.36 dB	-6.44 dB
-20.000 MHz	-11.000 MHz	300.000 kHz	6.49501 GHz	-59.78 dBm	-46.41 dB	-18.42 dB
-11.000 MHz	-10.000 MHz	300.000 kHz	6.50401 GHz	-57.82 dBm	-44.45 dB	-24.57 dB
10.000 MHz	11.000 MHz	300.000 kHz	6.52599 GHz	-45.87 dBm	-32.50 dB	-12.62 dB
11.000 MHz	20.000 MHz	300.000 kHz	6.52601 GHz	-46.71 dBm	-33.34 dB	-13.32 dB
20.000 MHz	30.000 MHz	300.000 kHz	6.54499 GHz	-59.73 dBm	-46.36 dB	-6.43 dB
30.000 MHz	70.000 MHz	300.000 kHz	6.57403 GHz	-57.85 dBm	-44.49 dB	-4.50 dB

SISO-A, 802.11ax20-MCS0, Ch113-8m-53



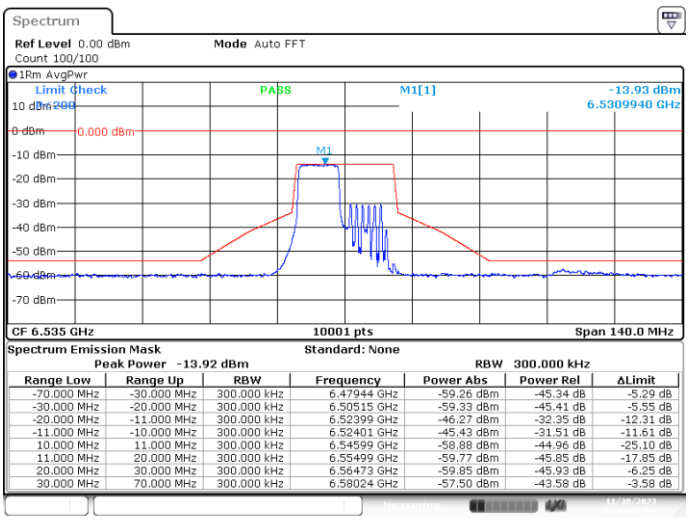
Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-70.000 MHz	-30.000 MHz	300.000 kHz	6.47534 GHz	-59.35 dBm	-47.38 dB	-7.51 dB
-30.000 MHz	-20.000 MHz	300.000 kHz	6.50519 GHz	-60.01 dBm	-48.05 dB	-8.27 dB
-20.000 MHz	-11.000 MHz	300.000 kHz	6.52399 GHz	-44.92 dBm	-32.95 dB	-12.94 dB
-11.000 MHz	-10.000 MHz	300.000 kHz	6.52401 GHz	-44.61 dBm	-32.64 dB	-12.78 dB
10.000 MHz	11.000 MHz	300.000 kHz	6.54599 GHz	-59.73 dBm	-47.76 dB	-27.90 dB
11.000 MHz	20.000 MHz	300.000 kHz	6.55466 GHz	-59.51 dBm	-47.54 dB	-19.84 dB
20.000 MHz	30.000 MHz	300.000 kHz	6.56495 GHz	-60.11 dBm	-48.15 dB	-8.21 dB
30.000 MHz	70.000 MHz	300.000 kHz	6.58074 GHz	-58.09 dBm	-46.12 dB	-6.12 dB

SISO-A, 802.11ax20-MCS0, Ch117-2m-0



Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-70.000 MHz	-30.000 MHz	300.000 kHz	6.49242 GHz	-59.34 dBm	-43.83 dB	-3.85 dB
-30.000 MHz	-20.000 MHz	300.000 kHz	6.50501 GHz	-59.88 dBm	-44.37 dB	-4.48 dB
-20.000 MHz	-11.000 MHz	300.000 kHz	6.52399 GHz	-47.21 dBm	-31.70 dB	-11.68 dB
-11.000 MHz	-10.000 MHz	300.000 kHz	6.52401 GHz	-47.30 dBm	-31.79 dB	-11.95 dB
10.000 MHz	11.000 MHz	300.000 kHz	6.54599 GHz	-60.11 dBm	-44.60 dB	-24.72 dB
11.000 MHz	20.000 MHz	300.000 kHz	6.55499 GHz	-60.10 dBm	-44.59 dB	-16.62 dB
20.000 MHz	30.000 MHz	300.000 kHz	6.56499 GHz	-60.10 dBm	-44.59 dB	-4.62 dB
30.000 MHz	70.000 MHz	300.000 kHz	6.58090 GHz	-57.46 dBm	-41.95 dB	-1.97 dB

SISO-A, 802.11ax20-MCS0, Ch117-4m-37



Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-70.000 MHz	-30.000 MHz	300.000 kHz	6.47944 GHz	-59.26 dBm	-45.34 dB	-5.29 dB
-30.000 MHz	-20.000 MHz	300.000 kHz	6.50515 GHz	-59.33 dBm	-45.41 dB	-5.55 dB
-20.000 MHz	-11.000 MHz	300.000 kHz	6.52399 GHz	-46.27 dBm	-32.35 dB	-12.31 dB
-11.000 MHz	-10.000 MHz	300.000 kHz	6.52401 GHz	-45.43 dBm	-31.51 dB	-11.61 dB
10.000 MHz	11.000 MHz	300.000 kHz	6.54599 GHz	-58.88 dBm	-44.96 dB	-25.10 dB
11.000 MHz	20.000 MHz	300.000 kHz	6.55499 GHz	-59.77 dBm	-45.85 dB	-17.85 dB
20.000 MHz	30.000 MHz	300.000 kHz	6.56473 GHz	-59.85 dBm	-45.93 dB	-6.25 dB
30.000 MHz	70.000 MHz	300.000 kHz	6.58024 GHz	-57.50 dBm	-43.58 dB	-3.58 dB

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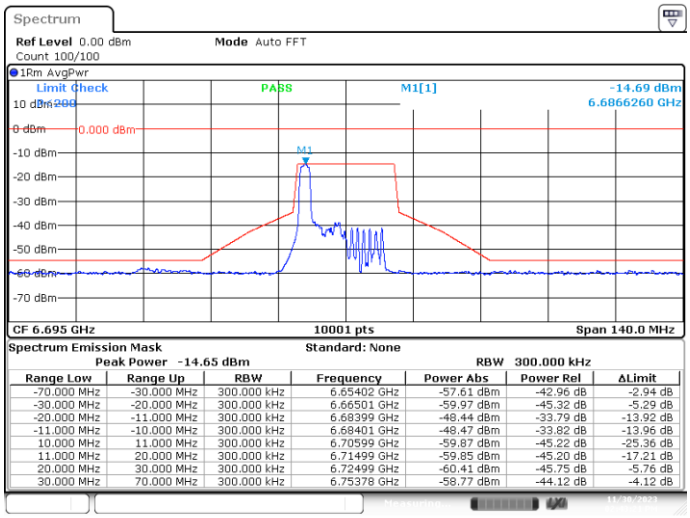

Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-70.000 MHz	-30.000 MHz	300.000 kHz	6.65402 GHz	-57.61 dBm	-42.96 dB	-2.94 dB
-30.000 MHz	-20.000 MHz	300.000 kHz	6.66501 GHz	-59.97 dBm	-45.32 dB	-5.29 dB
-20.000 MHz	-11.000 MHz	300.000 kHz	6.68399 GHz	-48.44 dBm	-33.79 dB	-13.92 dB
-11.000 MHz	-10.000 MHz	300.000 kHz	6.68401 GHz	-48.47 dBm	-33.82 dB	-13.96 dB
10.000 MHz	11.000 MHz	300.000 kHz	6.70599 GHz	-59.87 dBm	-45.22 dB	-25.36 dB
11.000 MHz	20.000 MHz	300.000 kHz	6.71499 GHz	-59.85 dBm	-45.20 dB	-17.21 dB
20.000 MHz	30.000 MHz	300.000 kHz	6.72499 GHz	-60.41 dBm	-45.75 dB	-5.76 dB
30.000 MHz	70.000 MHz	300.000 kHz	6.75378 GHz	-58.77 dBm	-44.12 dB	-4.12 dB

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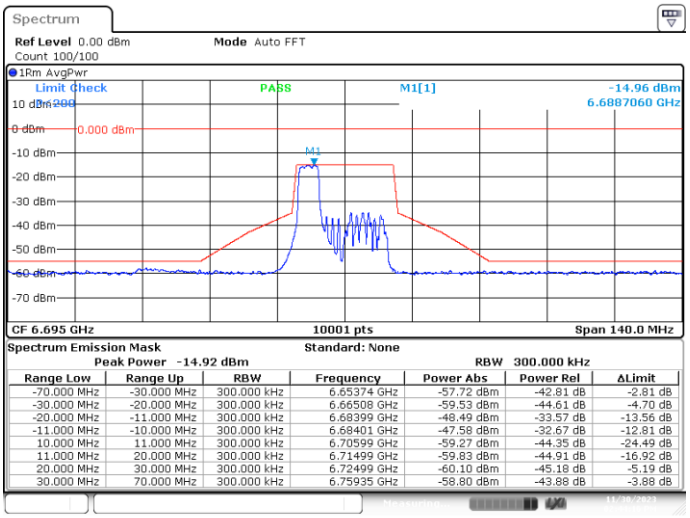

Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-70.000 MHz	-30.000 MHz	300.000 kHz	6.65374 GHz	-57.72 dBm	-42.81 dB	-2.81 dB
-30.000 MHz	-20.000 MHz	300.000 kHz	6.66508 GHz	-59.53 dBm	-44.61 dB	-4.70 dB
-20.000 MHz	-11.000 MHz	300.000 kHz	6.68399 GHz	-48.49 dBm	-33.57 dB	-13.56 dB
-11.000 MHz	-10.000 MHz	300.000 kHz	6.68401 GHz	-47.58 dBm	-32.67 dB	-12.81 dB
10.000 MHz	11.000 MHz	300.000 kHz	6.70599 GHz	-59.27 dBm	-44.35 dB	-24.49 dB
11.000 MHz	20.000 MHz	300.000 kHz	6.71499 GHz	-59.83 dBm	-44.91 dB	-16.92 dB
20.000 MHz	30.000 MHz	300.000 kHz	6.72499 GHz	-60.10 dBm	-45.18 dB	-5.19 dB
30.000 MHz	70.000 MHz	300.000 kHz	6.75935 GHz	-58.80 dBm	-43.88 dB	-3.88 dB

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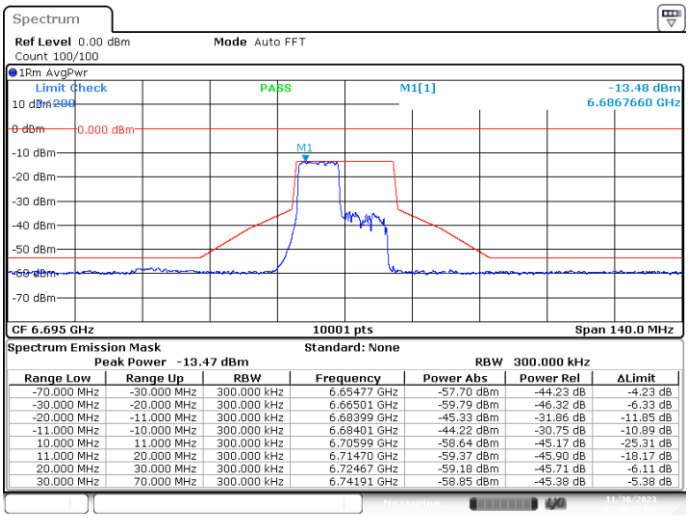

Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-70.000 MHz	-30.000 MHz	300.000 kHz	6.65477 GHz	-57.70 dBm	-44.23 dB	-4.23 dB
-30.000 MHz	-20.000 MHz	300.000 kHz	6.66501 GHz	-59.79 dBm	-46.32 dB	-6.33 dB
-20.000 MHz	-11.000 MHz	300.000 kHz	6.68399 GHz	-45.33 dBm	-31.86 dB	-11.85 dB
-11.000 MHz	-10.000 MHz	300.000 kHz	6.68401 GHz	-44.22 dBm	-30.75 dB	-10.89 dB
10.000 MHz	11.000 MHz	300.000 kHz	6.70599 GHz	-58.64 dBm	-45.17 dB	-25.31 dB
11.000 MHz	20.000 MHz	300.000 kHz	6.71470 GHz	-59.37 dBm	-45.90 dB	-18.17 dB
20.000 MHz	30.000 MHz	300.000 kHz	6.72467 GHz	-59.18 dBm	-45.71 dB	-6.11 dB
30.000 MHz	70.000 MHz	300.000 kHz	6.74191 GHz	-58.85 dBm	-45.38 dB	-5.38 dB

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