

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart E (Section 15.407)
Report No.: RFBARR-WTW-P21060023Z
FCC ID: RAS-MT7922A12L
Product: 2TX 11ax (WiFi6E) BW160+BT/BLE Combo Card
Brand: MediaTek
Model No.: MT7922A12L
Received Date: 2025/8/15
Test Date: 2025/8/26 ~ 2025/11/17
Issued Date: 2025/11/28
Applicant: MediaTek Inc.
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FCC Registration / 788550 / TW0003
Designation Number:

Approved by: _____

Jeremy Lin

, Date: _____

2025/11/28

Jeremy Lin / Project Engineer

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Prepared by : Vera Huang / Specialist



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Release Control Record

Issue No.	Description	Date Issued
RFBARR-WTW-P21060023Z	Original Release	2025/11/28

1 Certificate

Product: 2TX 11ax (WiFi6E) BW160+BT/BLE Combo Card

Brand: MediaTek

Test Model: MT7922A12L

Sample Status: Engineering sample

Applicant: MediaTek Inc.

Test Date: 2025/8/26 ~ 2025/11/17

Standard: 47 CFR FCC Part 15, Subpart E (Section 15.407)

Measurement ANSI C63.10-2020

procedure: KDB 987594 D02 U-NII 6 GHz EMC Measurement v03

KDB 789033 D02 General UNII Test Procedure New Rules v02r01

KDB 662911 D01 Multiple Transmitter Output v02r01

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
Clause	Test Item	Result	Remark
15.407(a)(9)	Maximum RF Output Power	Pass	Meet the requirement of limit.
15.407(a)(9)	Maximum Power Spectral Density	Pass	Meet the requirement of limit.
15.407(a)(11)	Emission Bandwidth	Pass	Meet the requirement of limit.
---	Occupied Bandwidth	-	Reference only.
15.407(b)(9)	AC Power Conducted Emissions	Pass	Minimum passing margin is -13.75 dB at 0.49347 MHz
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -1.3 dB at 298.69 MHz
15.407(b)(6) 15.407(b)(10)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.2 dB at 7125.00 MHz
15.407(b)(7)	In-Band Emission Mask	Pass	Meet the requirement of limit.
15.407(d)(6)	Contention-based Protocol	Pass	Meet the requirement of limit.
15.407(d)(10)	TPC mechanism	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is i-pex (MHF) / IPEX-4L / IPEX not a standard connector.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Specification	Expanded Uncertainty (k=2) (±)
Occupied Bandwidth	-	72 Hz
Contention-based Protocol	-	2.7 dB
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.90 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	2.44 dB
	30 MHz ~ 1 GHz	2.95 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	2TX 11ax (WiFi6E) BW160+BT/BLE Combo Card
Brand	MediaTek
Test Model	MT7922A12L
Status of EUT	Engineering sample
Power Supply Rating	3.3 Vdc from host equipment
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: up to 54 Mbps 802.11ax: up to 2401.9 Mbps
Operating Frequency	5.955 GHz ~ 6.415 GHz 6.435 GHz ~ 6.525 GHz 6.535 GHz ~ 6.865 GHz 6.875 GHz ~ 7.115 GHz
Number of Channel	802.11a/ax (HE20): 59 802.11ax (HE40): 29 802.11ax (HE80): 14 802.11ax (HE160): 7
Output Power	5.955 GHz ~ 6.415 GHz: EIRP: 24.321 mW (13.86 dBm) 6.435 GHz ~ 6.525 GHz: EIRP: 23.497 mW (13.71 dBm) 6.535 GHz ~ 6.865 GHz: EIRP: 23.822 mW (13.77 dBm) 6.875 GHz ~ 7.115 GHz: EIRP: 22.593 mW (13.54 dBm)
Equipment Class	6VL: 15E 6 GHz Very low power device

Note:

1. This is a supplementary report of BV CPS report No.: RFBARR-WTW-P21060023U. The differences compared with original report is adding VLP via software change. Therefore, WLAN 6G for VLP was performed on full testing.
2. There are Bluetooth and WLAN (2.4GHz & 5GHz & 5.9GHz & 6GHz) technology used for the EUT.
3. Simultaneously transmission condition.

Condition	Technology	
1	WLAN (5GHz)	Bluetooth
2	WLAN (6GHz)	Bluetooth

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

4. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Ant. Set	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	Cable Length (mm)
1	Chain0	PSA	RFMTA340718EMLB302	3.18 4.92	2.4~2.4835 5.15~5.85	PIFA	i-pex (MHF)	200
	Chain1	PSA	RFMTA340718EMLB302	3.18 4.92	2.4~2.4835 5.15~5.85	PIFA	i-pex (MHF)	200
2	Chain0	PSA	RFMTA311020EMMB301	1.71 4.82 4.76 4.29 4.61 4.09	2.4~2.4835 5.15~5.85 5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125	PIFA	i-pex (MHF)	200
	Chain1	PSA	RFMTA311020EMMB301	1.71 4.82 4.76 4.29 4.61 4.09	2.4~2.4835 5.15~5.85 5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125	PIFA	i-pex (MHF)	200
3	Chain0	MSI	WA-P-LE-02-045 (Main)	2.24 2.68 3.01 -1.23 -1.96 -3.68	2.4~2.4835 5.15~5.85 5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125	PIFA	IPEX-4L	190
	Chain1	MSI	WA-P-LE-02-046 (Aux)	-2.96 1.16 0.99 -2.31 -2.54 -7.44	2.4~2.4835 5.15~5.85 5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125	PIFA	IPEX-4L	325
4	Chain0	PSA	RFMTA421230IMMB701	-13.92 -13.91 -13.91 -14.46	5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125	PIFA	IPEX	300
	Chain1	PSA	RFMTA421230IMMB701	-13.92 -13.91 -13.91 -14.46	5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125	PIFA	IPEX	300

Ant. Set	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	Cable Length (mm)
5	Chain0	HongBo	260-25105	3.1	2.4~2.4835	Monopole	ipex(MHF)	486
				3.33	5.15~5.895			
				4.23	5.925~6.425			
				4.22	6.425~6.525			
				4.01	6.525~6.875			
				3.07	6.875~7.125			
	Chain1	HongBo	260-25105	3.1	2.4~2.4835	Monopole	ipex(MHF)	486
				3.33	5.15~5.895			
				4.23	5.925~6.425			
				4.22	6.425~6.525			
				4.01	6.525~6.875			
				3.07	6.875~7.125			
6	Chain0	HongBo	260-25106	4.91	5.15~5.895	Monopole	ipex(MHF)	350
				4.73	5.925~6.425			
				4.29	6.425~6.525			
				4.58	6.525~6.875			
				4.09	6.875~7.125			
	Chain1	HongBo	260-25106	4.91	5.15~5.895	Monopole	ipex(MHF)	350
				4.73	5.925~6.425			
				4.29	6.425~6.525			
				4.58	6.525~6.875			
				4.09	6.875~7.125			

* Antenna 4 was chosen for contention-based protocol test.

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

2. The EUT incorporates a MIMO function:

6GHz Band				
Modulation Mode	Tx configuration		CDD mode	Beamforming mode
802.11a	SISO	1TX	Not Support	Not Support
802.11ax (HE160)		1TX	Not Support	Not Support
802.11a	MIMO	2TX	Support	Not Support
802.11ax (HE20)		2TX	Support	Not Support
802.11ax (HE40)		2TX	Support	Not Support
802.11ax (HE80)		2TX	Support	Not Support
802.11ax (HE160)		2TX	Support	Not Support
802.11ax (RU26/52/106/242/484/996/1992)		2TX	Support	Not Support

*In WLAN 6 GHz 802.11ax mode, DUT supports RU26, RU52, RU106, RU242, RU484, RU996, RU1992 and Full RU modes. After pre-testing, the Full RU mode is the worst mode. Except for the output power, power spectral density, Emission Bandwidth, In-Band Emission Mask, Occupied Bandwidth and Unwanted Emissions above 1 GHz test items, all DUTs are measured separately in the supported RU mode, and the rest of the test items are finally measured in the Full RU mode.

*The EUT device modulation technique OFDMA does not support channel puncturing/bandwidth reduction mechanisms.

3.3 Channel List

U-NII-5:

24 channels are provided for 802.11a, 802.11ax (HE20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	5955 MHz	5	5975 MHz	9	5995 MHz	13	6015 MHz
17	6035 MHz	21	6055 MHz	25	6075 MHz	29	6095 MHz
33	6115 MHz	37	6135 MHz	41	6155 MHz	45	6175 MHz
49	6195 MHz	53	6215 MHz	57	6235 MHz	61	6255 MHz
65	6275 MHz	69	6295 MHz	73	6315 MHz	77	6335 MHz
81	6355 MHz	85	6375 MHz	89	6395 MHz	93	6415 MHz

12 channels are provided for 802.11ax (HE40):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
3	5965 MHz	11	6005 MHz	19	6045 MHz	27	6085 MHz
35	6125 MHz	43	6165 MHz	51	6205 MHz	59	6245 MHz
67	6285 MHz	75	6325 MHz	83	6365 MHz	91	6405 MHz

6 channels are provided for 802.11ax (HE80):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
7	5985 MHz	23	6065 MHz	39	6145 MHz	55	6225 MHz
71	6305 MHz	87	6385 MHz				

3 channels are provided for 802.11ax (HE160):

Channel	Frequency	Channel	Frequency	Channel	Frequency
15	6025 MHz	47	6185 MHz	79	6345 MHz

U-NII-6:

5 channels are provided for 802.11a, 802.11ax (HE20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
97	6435 MHz	101	6455 MHz	105	6475 MHz	109	6495 MHz
113	6515 MHz						

3 channels are provided for 802.11ax (HE40):

Channel	Frequency	Channel	Frequency	Channel	Frequency
99	6445 MHz	107	6485 MHz	*115	6525 MHz

1 channel is provided for 802.11ax (HE80):

Channel	Frequency
103	6465 MHz

1 channel is provided for 802.11ax (HE160):

Channel	Frequency
*111	6505 MHz

U-NII-7:

17 channels are provided for 802.11a, 802.11ax (HE20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
117	6535 MHz	121	6555 MHz	125	6575 MHz	129	6595 MHz
133	6615 MHz	137	6635 MHz	141	6655 MHz	145	6675 MHz
149	6695 MHz	153	6715 MHz	157	6735 MHz	161	6755 MHz
165	6775 MHz	169	6795 MHz	173	6815 MHz	177	6835 MHz
181	6855 MHz						

8 channels are provided for 802.11ax (HE40):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
123	6565 MHz	131	6605 MHz	139	6645 MHz	147	6685 MHz
155	6725 MHz	163	6765 MHz	171	6805 MHz	179	6845 MHz

5 channels are provided for 802.11ax (HE80):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
*119	6545 MHz	135	6625 MHz	151	6705 MHz	167	6785 MHz
*183	6865 MHz						

2 channels are provided for 802.11ax (HE160):

Channel	Frequency	Channel	Frequency
143	6665 MHz	*175	6825 MHz

U-NII-8:

13 channels are provided for 802.11a, 802.11ax (HE20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
*185	6875 MHz	189	6895 MHz	193	6915 MHz	197	6935 MHz
201	6955 MHz	205	6975 MHz	209	6995 MHz	213	7015 MHz
217	7035 MHz	221	7055 MHz	225	7075 MHz	229	7095 MHz
233	7115 MHz						

6 channels are provided for 802.11ax (HE40):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
*187	6885 MHz	195	6925 MHz	203	6965 MHz	211	7005 MHz
219	7045 MHz	227	7085 MHz				

2 channels are provided for 802.11ax (HE80):

Channel	Frequency	Channel	Frequency
199	6945 MHz	215	7025 MHz

1 channel is provided for 802.11ax (HE160):

Channel	Frequency
207	6985 MHz

Note: * mean these are straddle channels.

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. EUT can be used in the following ways: X-axis / Y-axis / Z-axis. Pre-scan these ways and find the worst case as a representative test condition. 2. The worst-case Partial RU modes across all supported bandwidth modes has been determined via pre-scan. 3. For 1TX diversity configuration, transmit chain0 and chain 1 have been evaluated, the chain 0 was the worst case and chosen for representative test. 4. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
Worst Case:	1. X-axis / Y-axis / Z-axis Worst Condition: Y-axis (Mode A), X-axis (Mode B) 2. The worst case occurs in 20 MHz bandwidth (RU 26/52/106). 3. For 1Tx diversity configuration the worst chain is: Chain 0

Following channel(s) was (were) selected for the final test as listed below:

Test Item	EUT Configure Mode	Mode	Category	Signal Mode	Tested Channel	Modulation	Data Rate	RU/MRU Index
Maximum RF Output Power	A	11a	VLP	1T / 2T	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	6Mb/s	-
		802.11ax (HE20) Full RU		2T1S	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	MCS0	-
		802.11ax (HE40) Full RU		2T1S	3, 43, 91, 99, 107, 115, 123, 155, 179, 187, 211, 227	BPSK	MCS0	-
		802.11ax (HE80) Full RU		2T1S	7, 39, 87, 103, 119, 151, 183, 199, 215	BPSK	MCS0	-
		802.11ax (HE160) Full RU		1T / 2T1S	15, 47, 79, 111, 143, 175, 207	BPSK	MCS0	-
		802.11ax (HE20) 26-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	0, 8, 0, 8, 0, 8, 0, 8
		802.11ax (HE20) 52-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	37, 40, 37, 40, 37, 40, 37, 40
		802.11ax (HE20) 106-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	53, 54, 53, 54, 53, 54, 53, 54
Maximum Power Spectral Density	A	11a	VLP	1T / 2T	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	6Mb/s	-
		802.11ax (HE20) Full RU		2T1S	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	MCS0	-
		802.11ax (HE40) Full RU		2T1S	3, 43, 91, 99, 107, 115, 123, 155, 179, 187, 211, 227	BPSK	MCS0	-
		802.11ax (HE80) Full RU		2T1S	7, 39, 87, 103, 119, 151, 183, 199, 215	BPSK	MCS0	-
		802.11ax (HE160) Full RU		1T / 2T1S	15, 47, 79, 111, 143, 175, 207	BPSK	MCS0	-
		802.11ax (HE20) 26-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	0, 8, 0, 8, 0, 8, 0, 8
		802.11ax (HE20) 52-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	37, 40, 37, 40, 37, 40, 37, 40
		802.11ax (HE20) 106-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	53, 54, 53, 54, 53, 54, 53, 54

Test Item	EUT Configure Mode	Mode	Category	Signal Mode	Tested Channel	Modulation	Data Rate	RU/MRU Index
Emission Bandwidth	A	11a	VLP	1T / 2T	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	6Mb/s	-
		802.11ax (HE20) Full RU		2T1S	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	MCS0	-
		802.11ax (HE40) Full RU		2T1S	3, 43, 91, 99, 107, 115, 123, 155, 179, 187, 211, 227	BPSK	MCS0	-
		802.11ax (HE80) Full RU		2T1S	7, 39, 87, 103, 119, 151, 183, 199, 215	BPSK	MCS0	-
		802.11ax (HE160) Full RU		1T / 2T1S	15, 47, 79, 111, 143, 175, 207	BPSK	MCS0	-
		802.11ax (HE20) 26-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	0, 8, 0, 8, 0, 8, 0, 8
		802.11ax (HE20) 52-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	37, 40, 37, 40, 37, 40, 37, 40
		802.11ax (HE20) 106-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	53, 54, 53, 54, 53, 54, 53, 54
In-Band Emission Mask	A	11a	VLP	1T / 2T	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	6Mb/s	-
		802.11ax (HE20) Full RU		2T1S	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	MCS0	-
		802.11ax (HE40) Full RU		2T1S	3, 43, 91, 99, 107, 115, 123, 155, 179, 187, 211, 227	BPSK	MCS0	-
		802.11ax (HE80) Full RU		2T1S	7, 39, 87, 103, 119, 151, 183, 199, 215	BPSK	MCS0	-
		802.11ax (HE160) Full RU		1T / 2T1S	15, 47, 79, 111, 143, 175, 207	BPSK	MCS0	-
		802.11ax (HE20) 26-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	0, 8, 0, 8, 0, 8, 0, 8
		802.11ax (HE20) 52-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	37, 40, 37, 40, 37, 40, 37, 40
		802.11ax (HE20) 106-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	53, 54, 53, 54, 53, 54, 53, 54

Test Item	EUT Configure Mode	Mode	Category	Signal Mode	Tested Channel	Modulation	Data Rate	RU/MRU Index
Occupied Bandwidth	A	11a	VLP	1T / 2T	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	6Mb/s	-
		802.11ax (HE20) Full RU		2T1S	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	MCS0	-
		802.11ax (HE40) Full RU		2T1S	3, 43, 91, 99, 107, 115, 123, 155, 179, 187, 211, 227	BPSK	MCS0	-
		802.11ax (HE80) Full RU		2T1S	7, 39, 87, 103, 119, 151, 183, 199, 215	BPSK	MCS0	-
		802.11ax (HE160) Full RU		1T / 2T1S	15, 47, 79, 111, 143, 175, 207	BPSK	MCS0	-
		802.11ax (HE20) 26-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	0, 8, 0, 8, 0, 8, 0, 8
		802.11ax (HE20) 52-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	37, 40, 37, 40, 37, 40, 37, 40
		802.11ax (HE20) 106-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	53, 54, 53, 54, 53, 54, 53, 54
Contention-based Protocol	A	802.11ax (HE20) Full RU	VLP	2T	37, 101, 133, 197	BPSK	MCS0	-
		802.11ax (HE160) Full RU			47, 111, 143, 207	BPSK	MCS0	-
AC Power Conducted Emissions	A, B	802.11ax (HE160) Full RU	VLP	1T	15	BPSK	MCS0	
Unwanted Emissions below 1 GHz	A, B	802.11ax (HE160) Full RU	VLP	1T	15	BPSK	MCS0	
Unwanted Emissions above 1 GHz	A, B	11a	VLP	1T / 2T	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	6Mb/s	-
		802.11ax (HE20) Full RU		2T1S	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	MCS0	-
		802.11ax (HE40) Full RU		2T1S	3, 43, 91, 99, 107, 115, 123, 155, 179, 187, 211, 227	BPSK	MCS0	-
		802.11ax (HE80) Full RU		2T1S	7, 39, 87, 103, 119, 151, 183, 199, 215	BPSK	MCS0	-
		802.11ax (HE160) Full RU		1T / 2T1S	15, 47, 79, 111, 143, 175, 207	BPSK	MCS0	-
		802.11ax (HE20) 26-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	0, 8, 0, 8, 0, 8, 0, 8
		802.11ax (HE20) 52-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	37, 40, 37, 40, 37, 40, 37, 40
		802.11ax (HE20) 106-tone RU		2T1S	1, 93, 97, 113, 117, 181, 209, 233	BPSK	MCS0	53, 54, 53, 54, 53, 54, 53, 54
Transmit power control (TPC) mechanism	A	802.11ax (HE160) Full RU	VLP	2T1S	47	BPSK	MCS0	-
EUT Configure Mode:	A	EUT with PIFA antenna (Antenna 2)						
	B	EUT with Monopole antenna (Antenna 6)						
Note: Channel puncturing mechanism is not supported.								

3.5 Duty Cycle of Test Signal

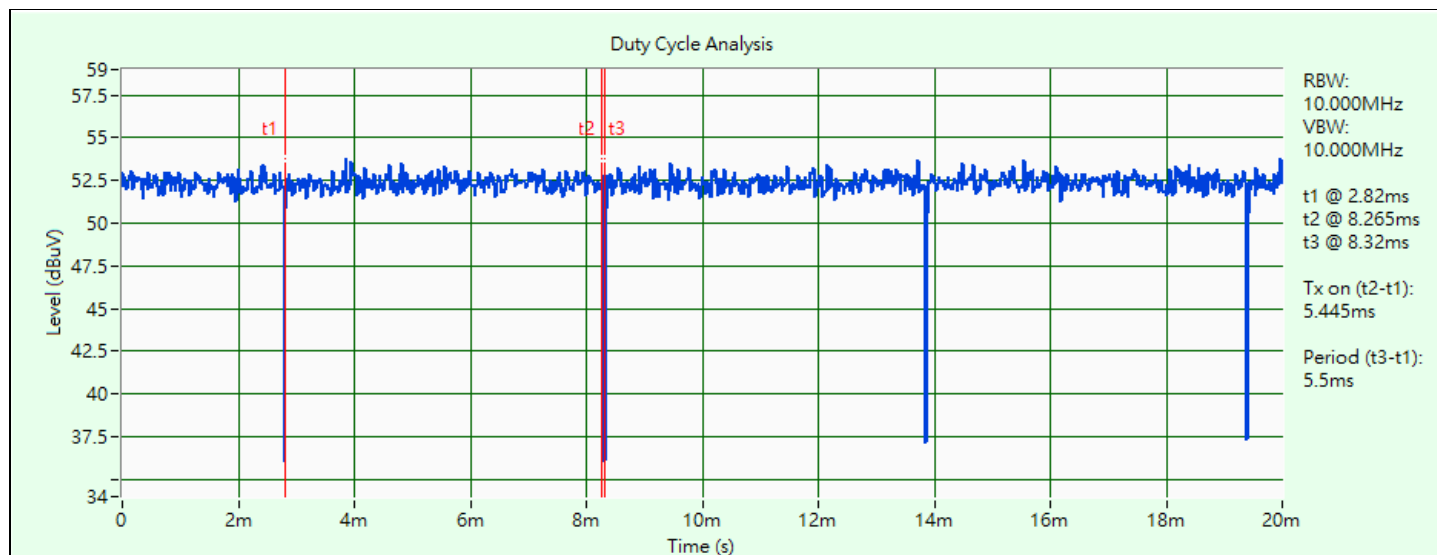
802.11a: Duty cycle = 5.445 ms / 5.5 ms x 100% = 99.0%

802.11ax (HE20) Full RU: Duty cycle = 3.863 ms / 3.9 ms x 100% = 99.1%

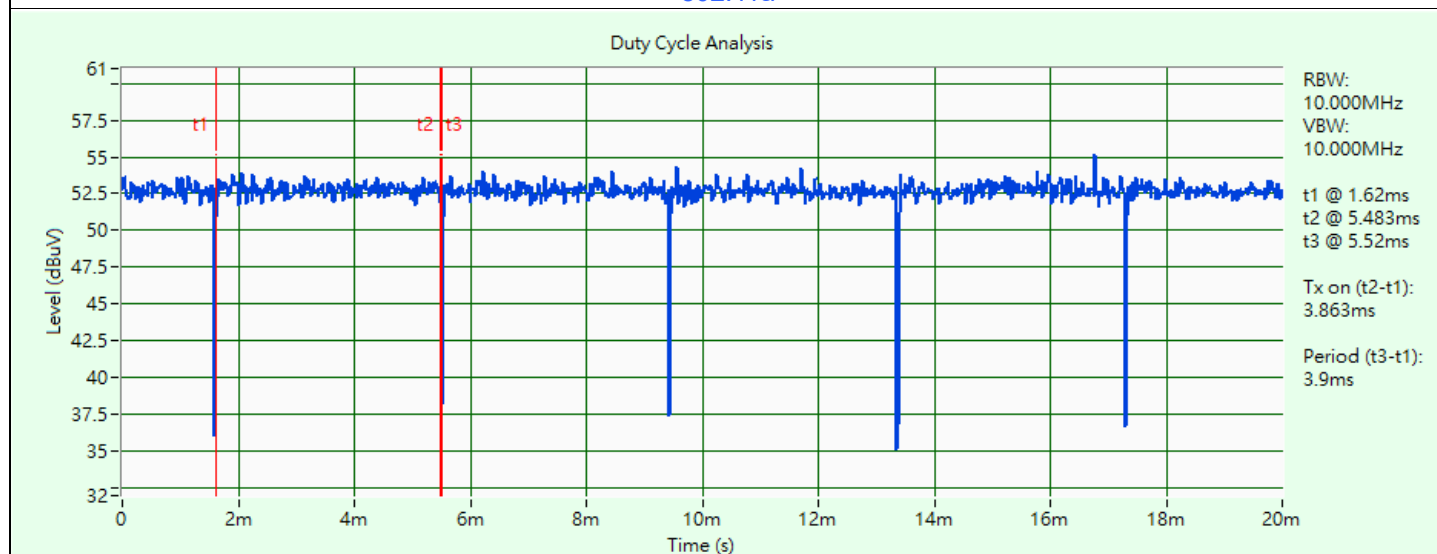
802.11ax (HE40) Full RU: Duty cycle = 1.98 ms / 2.01 ms x 100% = 98.5%

802.11ax (HE80) Full RU: Duty cycle = 1.86 ms / 1.88 ms x 100% = 98.9%

802.11ax (HE160) Full RU: Duty cycle = 0.96 ms / 0.99 ms x 100% = 97.0%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.13$ dB

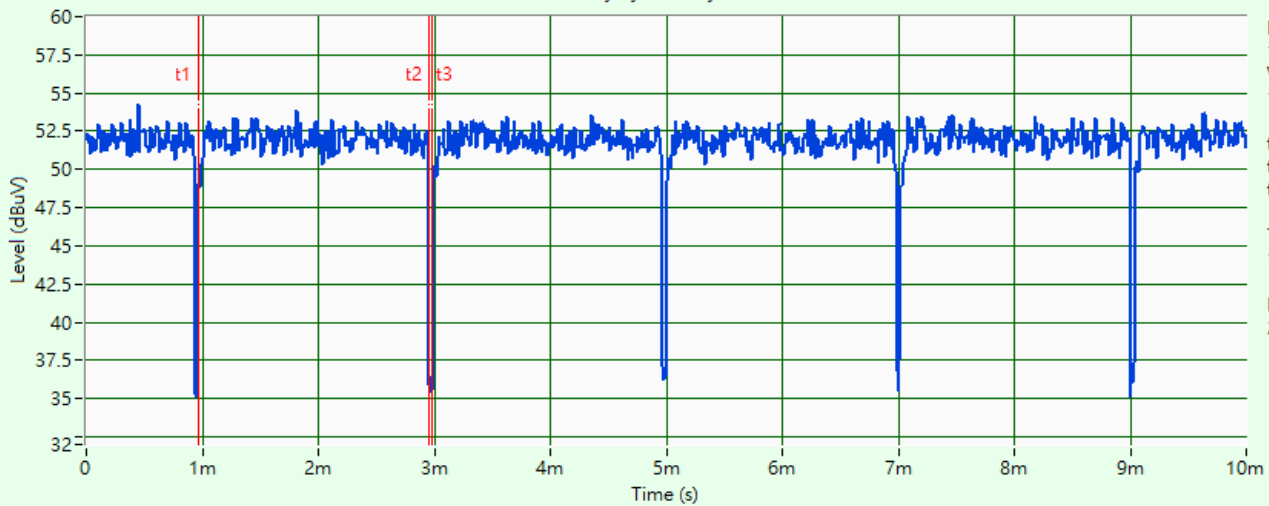


802.11a



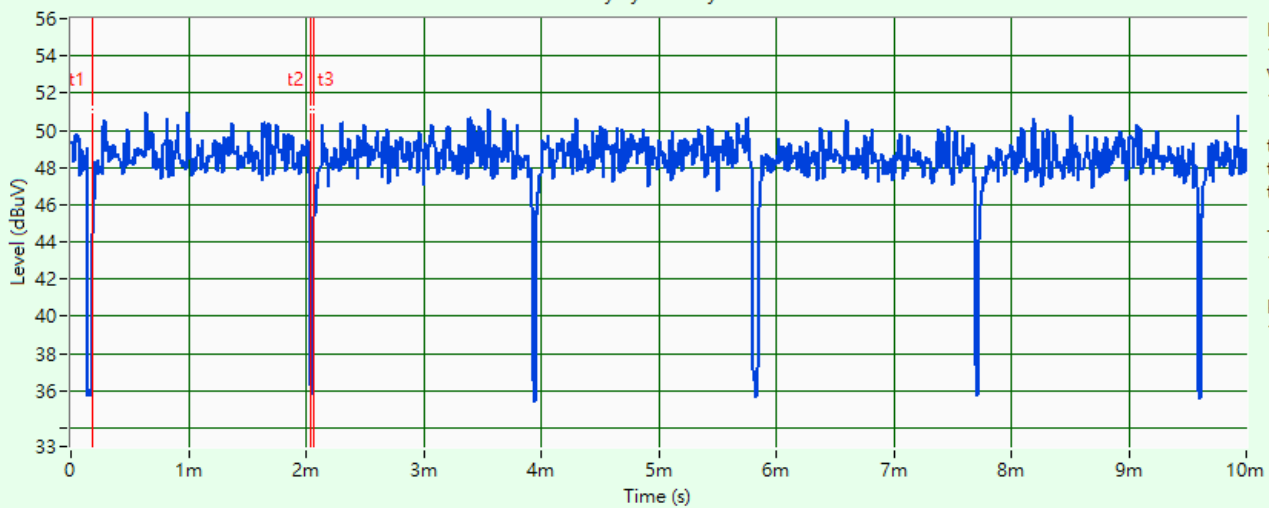
802.11ax (HE20) Full RU

Duty Cycle Analysis



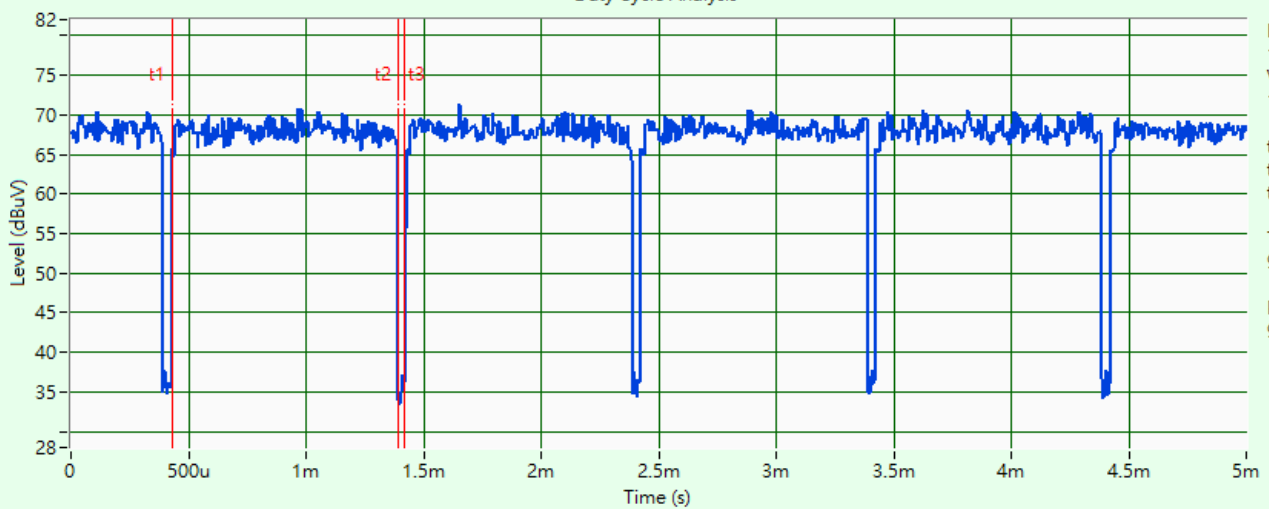
802.11ax (HE40) Full RU

Duty Cycle Analysis



802.11ax (HE80) Full RU

Duty Cycle Analysis



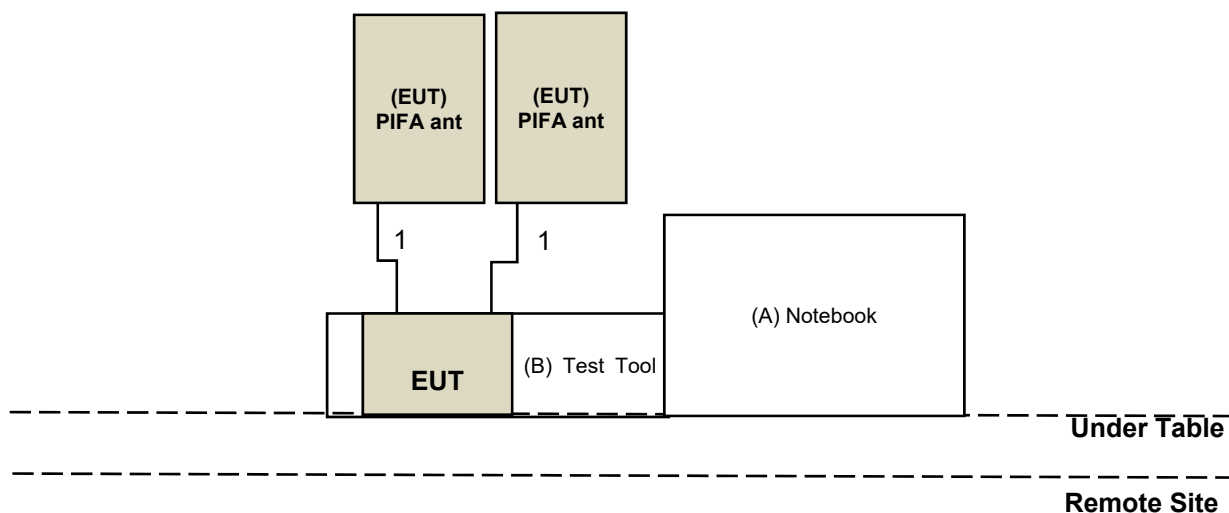
802.11ax (HE160) Full RU

3.6 Test Program Used and Operation Descriptions

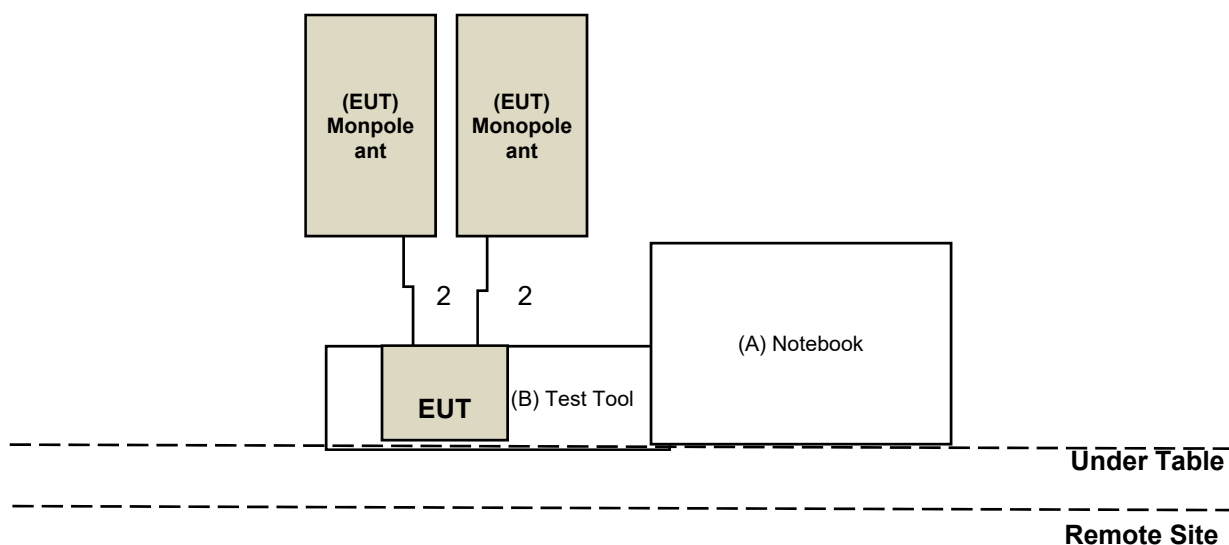
Controlling software QA UI(MT7922) Version : 0.0.2.62 has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices

Mode A



Mode B



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Notebook	DELL	E5420	33MJMQ1	N/A	Provided by Lab
B	Test Tool	N/A	N/A	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	Ant cable	1	0.2	No	0	Supplied by applicant
2	Ant cable	1	0.35	No	0	Supplied by applicant

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 Maximum RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2025/5/23	2026/5/22
Peak Power Analyzer Keysight	8990B	MY51000485	2025/1/20	2026/1/19
USB Power Sensor Anritsu	MA24408A	12994	2024/12/4	2025/12/3
Wideband Power Sensor Keysight	N1923A	MY58020002	2025/1/21	2026/1/20
		MY58140009	2025/1/21	2026/1/20

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/9/3 ~ 2025/11/17

4.2 Maximum Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2025/5/23	2026/5/22
Signal & Spectrum Analyzer R&S	FSV3044	101504	2025/6/18	2026/6/17
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/9/3

4.3 Emission Bandwidth

Refer to section 4.2 to get the tested date and information of the instruments.

4.4 In-Band Emission Mask

Refer to section 4.2 to get the tested date and information of the instruments.

4.5 Occupied Bandwidth

Refer to section 4.2 to get the tested date and information of the instruments.

4.6 Contention-based Protocol

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Frequency Extender Keysight	N5182BX07	MY59360203	2025/4/14	2026/4/13
MXG Vector Signal Generator Keysight	N5182B	MY59100182	2025/4/14	2026/4/13
Power Splitter/Combiner Mini-Circuits	ZFRSC-123-S+	F698501347_01	2025/10/22	2026/10/21
PXA Signal Analyzer Keysight	N9030B	MY57140488	2025/3/11	2026/3/10
Signal & Spectrum Analyzer R&S	FSV3044	101506	2025/6/12	2026/6/11

Notes:

1. The test was performed in Adaptivity room.
2. Tested Date: 2025/11/12

4.7 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohm terminal resistance	E1-011279	04	2024/11/28	2025/11/27
	E1-011280	05	2024/11/28	2025/11/27
	E1-011311	09	2024/11/28	2025/11/27
DC LISN Schwarzbeck	NNBM 8126G	8126G-069	2024/11/5	2025/11/4
Diode Pulse Limiter Schwarzbeck	VTSD 9561 F-N	01617	2025/8/23	2026/8/22
EMI Test Receiver R&S	ESR3	102783	2024/12/17	2025/12/16
LISN R&S	ESH2-Z5	100100	2025/3/5	2026/3/4
	ESH3-Z5	100312	2024/9/9 2025/8/29	2025/9/8 2026/8/28
RF Coaxial Cable Woken	5D-FB	Cable-cond2-01	2025/8/23	2026/8/22
Software BVADT	BVADT_Cond_ V7.4.1.0	N/A	N/A	N/A
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2024/8/28 2025/8/27	2025/8/27 2026/8/26

Notes:

1. The test was performed in HY - Conduction 2.
2. Tested Date: 2025/8/26 ~ 2025/9/3

4.8 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Max-Full	MFA-440H	AT93021705	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-472	2024/10/14	2025/10/13
Loop Antenna TESEQ	HLA 6121	45745	2025/9/1	2026/8/31
MXE EMI Receiver Agilent	N9038A	MY51210203	2025/8/27	2026/8/26
Preamplifier EMCI	EMC 330H	980112	2024/9/24	2025/9/23
	EMC001340	980201	2024/9/24	2025/9/23
RF Coaxial Cable Woken	8D-FB	Cable-Ch10-01	2024/9/24	2025/9/23
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MFT-201SS	N/A	N/A	N/A
Turn Table Controller Max-Full	MG-7802	N/A	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 5.
2. Tested Date: 2025/9/3

4.9 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Max-Full	MFA-440H	AT93021705	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	7	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-969	2024/11/10	2025/11/9
	BBHA 9170	148	2024/11/10	2025/11/9
MXE EMI Receiver Agilent	N9038A	MY51210203	2025/8/27	2026/8/26
Preamplifier EMCI	EMC 184045	980116	2024/9/24	2025/9/23
	EMC118A45SE	980809	2025/4/24	2026/4/23
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2025/6/30	2026/6/29
	EMC102-KM-KM-3000	150929	2025/6/30	2026/6/29
	EMC104-SM-SM- 8000+3000	171005	2024/9/24	2025/9/23
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	EMC104-SM-SM- 1000(140807)	2024/9/24	2025/9/23
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MFT-201SS	N/A	N/A	N/A
Turn Table Controller Max-Full	MG-7802	N/A	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 5.
2. Tested Date: 2025/8/27 ~ 2025/9/4

4.10 TPC mechanism

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Signal & Spectrum Analyzer R&S	FSW8	101497	2025/5/26	2026/5/25
Fixed Attenuator Woken	00800A1K01A-20	00800A1K01A-20-01	2025/5/23	2026/5/22
Programmable Step Attenuator SHX	GKTS1-9-110-8Y-HLU	GKTS1-9-110-8Y-HLU-02	2025/5/23	2026/5/22
Power Splitter/Combiner Mini-Circuits	ZFRSC-123-S+	F698501347_01	2025/10/22	2026/10/21

Notes:

1. The test was performed in Adaptivity room.
2. Tested Date: 2025/11/17

5 Limits of Test Items

5.1 Maximum RF Output Power

Operation Band	Equipment Class	Limit
		Maximum Average Power
U-NII-5 U-NII-6 U-NII-7 U-NII-8	6VL: 15E 6 GHz VLP device	EIRP 14 dBm

Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

5.2 Maximum Power Spectral Density

Operation Band	Equipment Class	Limit
		Maximum Power Density
U-NII-5 U-NII-6 U-NII-7 U-NII-8	6VL: 15E 6 GHz VLP device	EIRP -5 dBm/MHz

5.3 Emission Bandwidth

The maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 MHz.

5.4 In-Band Emission Mask

Test Item	Frequencies (MHz)	(X) dBc*1
Emission Mask	At 1 MHz outside of channel edge	20
	At one channel bandwidth from the channel center*2	28
	At one- and one-half times the channel bandwidth away from channel center*3	40
	More than one- and one-half times the channel bandwidth	40

*1 : The power spectral density must be suppressed by "x" dB

*2 : 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,

*3 : 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.

5.5 Occupied Bandwidth

The results are for reference only.

5.6 Contention-based Protocol

Unlicensed indoor low-power devices must detect co-channel radio frequency power that is at least -62 dBm (The threshold is referenced to a 0 dBi antenna gain.) or lower. Additionally, indoor low-power devices must detect co-channel energy with 90% or greater certainty.

5.7 AC Power Conducted Emissions

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Notes:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

5.8 Unwanted Emissions below 1 GHz

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

5.9 Unwanted Emissions above 1 GHz

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
Above 960	500	3

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

Frequencies (MHz)	EIRP Limit	Equivalent Field Strength at 3 m
5925 MHz > F > 7125 MHz	Peak: -7 (dBm/MHz)	88.2 (dBuV/m)
	Average: -27 (dBm/MHz)	68.2 (dBuV/m)

Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000 \sqrt{30P}}{3} \quad \mu\text{V/m, where } P \text{ is the eirp (Watts).}$$

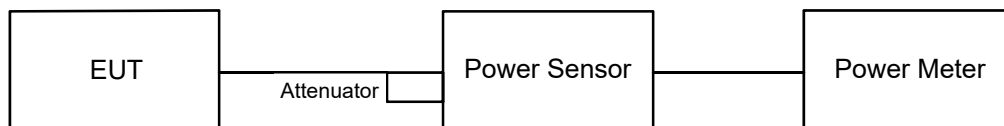
5.10 TPC mechanism

Very low power devices operating in the 5.925-7.125 GHz bands shall employ a transmit power control (TPC) mechanism. A very low power device is required to have the capability to operate at least 6 dB below the maximum EIRP power spectral density (PSD) value of -5 dBm/MHz.

6 Test Arrangements

6.1 Maximum RF Output Power

6.1.1 Test Setup

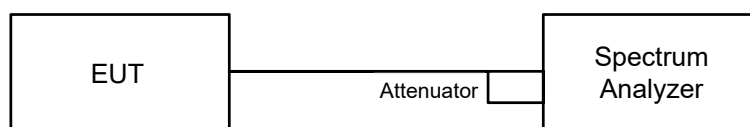


6.1.2 Test Procedure

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to average. Duty factor is not added to measured value.

6.2 Maximum Power Spectral Density

6.2.1 Test Setup



6.2.2 Test Procedure

For specified measurement bandwidth 1 MHz:

Method SA-1

- Set span to encompass the entire 99% OBW of the signal.
- Set RBW = 1 MHz, Set VBW $\geq$ 3 MHz, Detector = RMS.
- Sweep points $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value

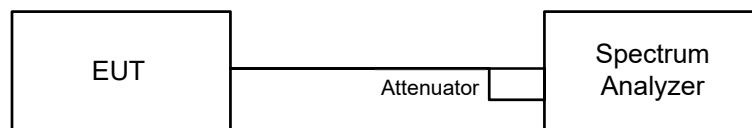
For specified measurement bandwidth 1 MHz:

Method SA-2

- Measure the duty cycle of the transmitter output signal.
- Set span to encompass the entire 99% OBW of the signal.
- Set RBW = 1 MHz, Set VBW $\geq$ 3 MHz, Detector = RMS.
- Number of points in sweep $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Use the peak search function on the instrument to find the peak of the spectrum and record its value.
- Record the max value and add $10 \log (1/\text{duty cycle})$.

6.3 Emission Bandwidth

6.3.1 Test Setup

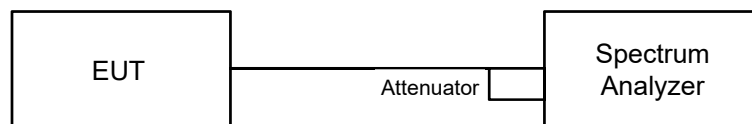


6.3.2 Test Procedure

- Set RBW = shall be in the range of 1% to 5% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = peak.
- Trace mode = max-hold.
- Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is in the range of 1% to 5%.

6.4 In-Band Emission Mask

6.4.1 Test Setup

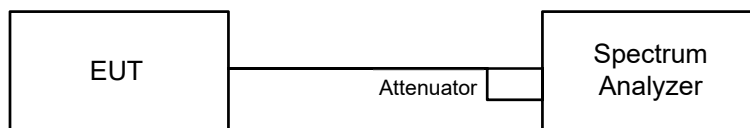


6.4.2 Test Procedure

- Connect output of the antenna port to a spectrum analyzer and adjust appropriate attenuation.
- Measure the 26 dB EBW using the test procedure 12.5.2 of ANSI C63.10-2020. (This will be used to determine the channel edge.)
- Measure the power spectral density (for emissions mask reference) using the following procedure:
 - Set the span to encompass the entire 26 dB EBW of the signal.
 - Set RBW = same RBW used for 26 dB EBW measurement.
 - Set VBW $\geq 3 \times$ RBW
 - Number of points in sweep $\geq [2 \times \text{span} / \text{RBW}]$.
 - Sweep time = auto.
 - Detector = RMS (i.e., power averaging)
 - Trace average at least 100 traces in power averaging (rms) mode.
 - Use the peak search function on the instrument to find the peak of the spectrum.
- Using the measuring equipment limit line function, develop the emissions mask based on the following requirements. The emissions power spectral density must be reduced below the peak power spectral density (in dB) as follows:
 - Suppressed by 20 dB at 1 MHz outside of the channel edge. (The channel edge is defined as the 26-dB point on either side of the carrier center frequency.)
 - Suppressed by 28 dB at one channel bandwidth from the channel center.
 - Suppressed by 40 dB at one- and one-half times the channel bandwidth from the channel center.
- Adjust the span to encompass the entire mask as necessary and clear trace.
- Trace average at least 100 traces in power averaging (rms) mode.
- Adjust the reference level as necessary so that the crest of the channel touches the top of the emission mask.

6.5 Occupied Bandwidth

6.5.1 Test Setup



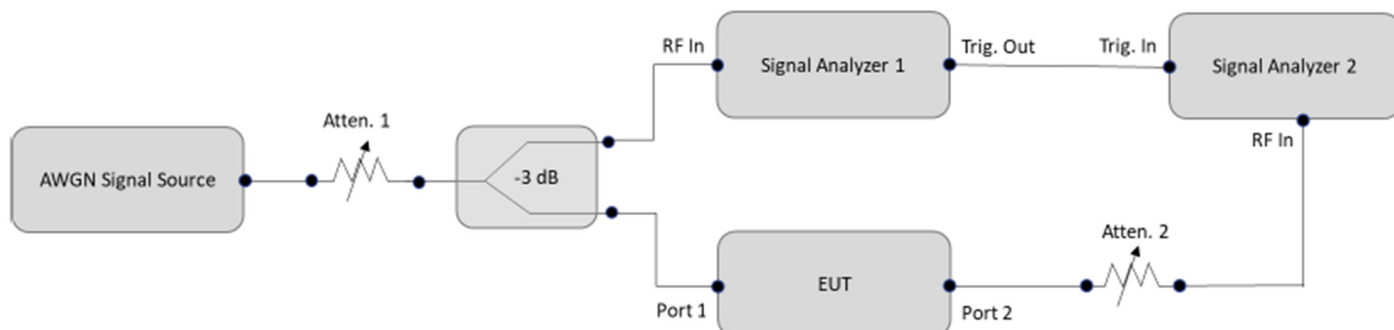
6.5.2 Test Procedure

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:

- The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
- The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be at least three times the RBW, unless otherwise specified by the applicable requirement.
- Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level.
- Step a) through step c) might require iteration to adjust within the specified range.
- Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max-hold mode (until the trace stabilizes) shall be used.
- Use the 99% power bandwidth function of the instrument and report the measured bandwidth.

6.6 Contention-based Protocol

6.6.1 Test Setup



6.6.2 Test Procedure

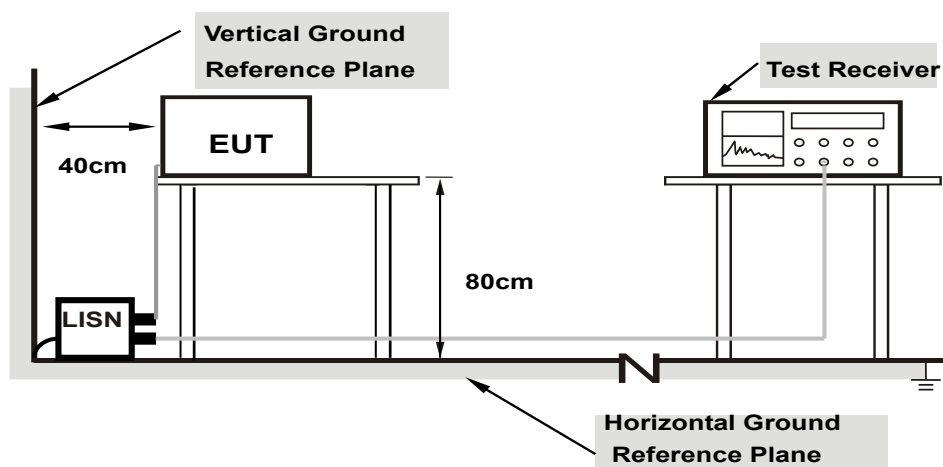
- Set the signal analyzer center frequency to the nominal EUT channel center frequency. The span range of the signal analyzer shall be between two times and five times the OBW of the EUT. Connect the output port of the EUT to the signal analyzer 2. Ensure that the attenuator 2 provides enough attenuation to not overload the signal analyzer 2 receiver.
- Monitoring the signal analyzer 2, verify the EUT is operating and transmitting with the parameters (set as following section 4.7.5 EUT operating condition).
- Determine number of times detection threshold test as following table,

If	Number of Tests	Placement of Incumbent Transmission
$BW_{EUT} \leq BW_{Inc}$	Once	Same as EUT transmission
$BW_{Inc} < BW_{EUT} \leq 2 \times BW_{Inc}$	Once	Contained within BW_{EUT}
$2 \times BW_{Inc} < BW_{EUT} \leq 4 \times BW_{Inc}$	Twice. (Incumbent transmission is contained within BW_{EUT})	Closely to the lower edge and upper edge of the EUT Channel
$BW_{EUT} > 4 \times BW_{Inc}$	Three times	Closely to the lower edge, in the middle and upper edge of the EUT Channel

- The power measurement of AWGN signal refers to method SA-1 in section 12.4.2.2 of ANSI C63.10-2020.
- Using an AWGN signal source, generate (but do not transmit, i.e., RF OFF) a 10 MHz-wide AWGN signal. Use step c table to determine the center frequency of the 10 MHz AWGN signal relative to the EUT's channel bandwidth and center frequency.
- Set the AWGN signal power to an extremely low level (more than 20 dB below the -62 dBm threshold). Connect the AWGN signal source, via a 3-dB splitter, to the signal analyzer 1 and the EUT.
- Transmit the AWGN signal (RF ON) and verify its characteristics on the signal analyzer 1.
- Monitor the signal analyzer 2 to verify if the AWGN signal has been detected and the EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.
- (Including all losses in the RF paths) Determine and record the AWGN signal power level (at the EUT's antenna port) at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect an AWGN signal with 90% (or better) level of certainty.
- Refer to step c table to determine number of times the detection threshold testing needs to be repeated. If testing is required more than once, then go back to step d, choose a different center frequency for the AWGN signal and repeat the process.

6.7 AC Power Conducted Emissions

6.7.1 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.7.2 Test Procedure

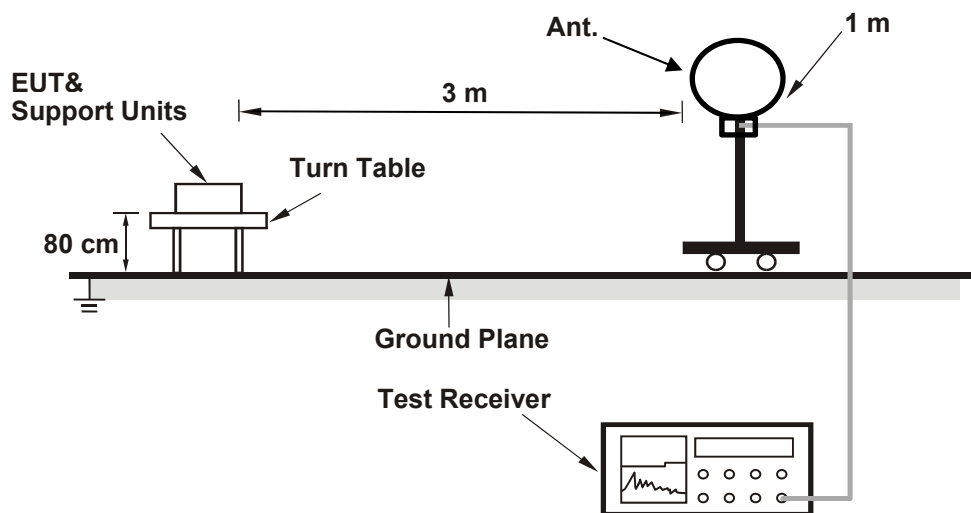
- Exploratory ac power-line conducted emission measurements: The EUT shall be operated on the mid channel and in the mode with highest output power unless the fundamental operates in the AC power-line emission test range then the EUT shall be operated in the range of typical modes of operation.
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz-30 MHz.

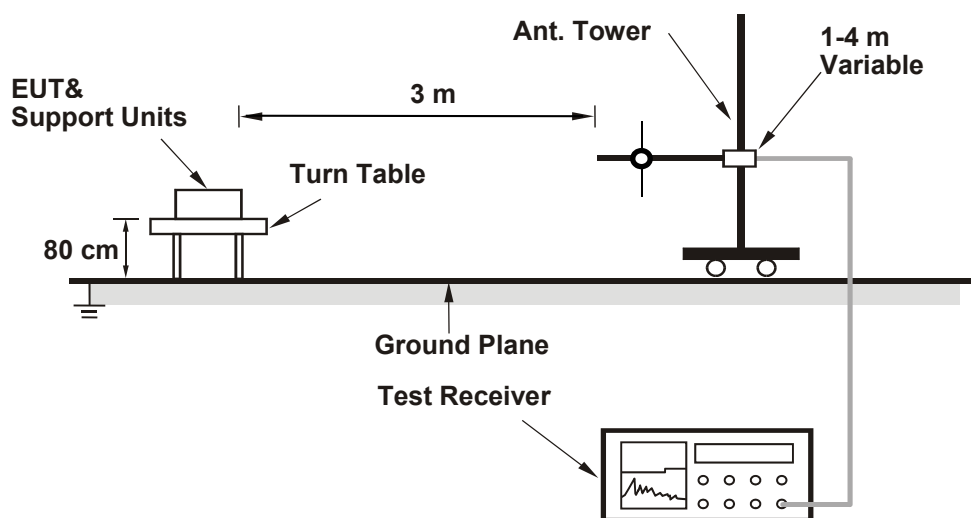
6.8 Unwanted Emissions below 1 GHz

6.8.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.8.2 Test Procedure

For Radiated emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode, except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency below 150 kHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency (150 kHz to 30 MHz).
3. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated emission above 30 MHz

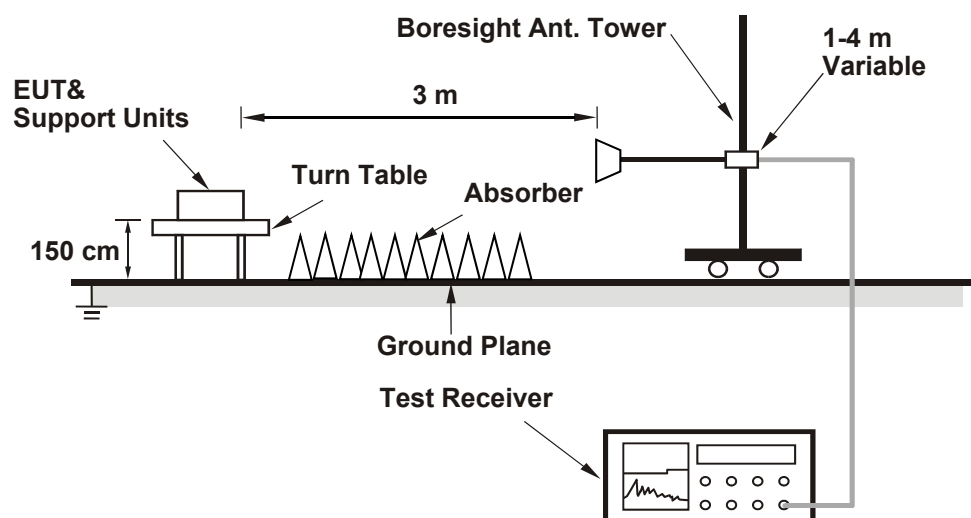
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-peak(QP) detect function, Average(AV) detect function, Peak(PK) detect function and specified bandwidth with maximum hold mode when the test frequencies less than or equal to 1 GHz.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

6.9 Unwanted Emissions above 1 GHz

6.9.1 Test Setup



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.9.2 Test Procedure

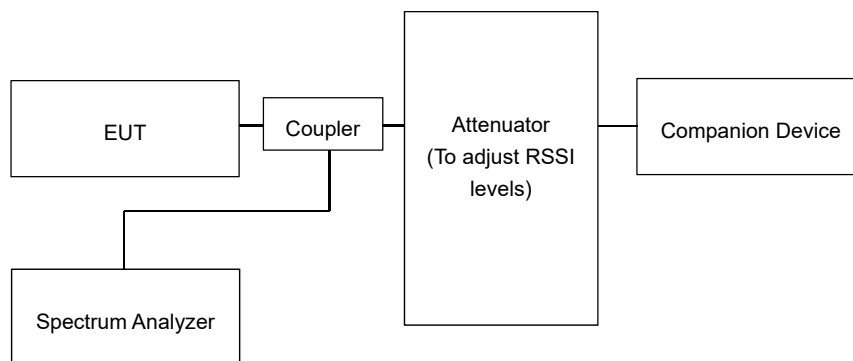
- The EUT was placed on the top of a rotating table 1.5 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Notes:

- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection (AV) at frequency above 1 GHz.
- For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

6.10 TPC mechanism

6.10.1 Test Setup



Client to Client Set Up

6.10.2 Test Procedure

- Establish a connection between the EUT and the companion device and enable peer-to-peer communication.
- Spectrum set span to encompass the entire emission bandwidth (EBW) of the signal. RBW = 1 MHz, Set VBW $\geq$ 3 MHz, Detector = RMS, Sweep time = auto. Trace average at least 100 traces in power averaging mode. Record the max value.
- Set the variable attenuator to 0 dB (simulate a noise-free spectral environment and high RSSI).
- Capture the PSD values (A) from the Spectrum analyzer.
- Increase the attenuation of the variable attenuator step to step (simulate a noisy spectral environment and low RSSI).
- Capture the PSD values (B) from the Spectrum analyzer.
- Compare the highest PSD from value (A) to the highest PSD on value (B) and determine the delta. For MIMO operations use the sum of the highest PSD from each individual antenna.

7 Test Results of Test Item

7.1 Maximum RF Output Power

Environmental Conditions:	25°C, 60% RH	Tested By:	Chris Lin
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1TX

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
1	5955	1.758	2.45	4.76	5.26	7.21	14	Pass
45	6175	1.766	2.47	4.76	5.284	7.23	14	Pass
93	6415	1.73	2.38	4.76	5.177	7.14	14	Pass
97	6435	1.982	2.97	4.29	5.322	7.26	14	Pass
105	6475	1.972	2.95	4.29	5.295	7.24	14	Pass
113	6515	1.986	2.98	4.29	5.333	7.27	14	Pass
117	6535	1.901	2.79	4.61	5.495	7.4	14	Pass
149	6695	1.832	2.63	4.61	5.296	7.24	14	Pass
181	6855	1.799	2.55	4.61	5.2	7.16	14	Pass
185	6875	1.803	2.56	4.61	5.212	7.17	14	Pass
209	6995	1.932	2.86	4.09	4.955	6.95	14	Pass
233	7115	1.95	2.90	4.09	5.001	6.99	14	Pass

Notes:

1. For U-NII-5, The antenna gain is 4.76 dBi.
2. For U-NII-6, The antenna gain is 4.29 dBi.
3. For U-NII-7, The antenna gain is 4.61 dBi.
4. For U-NII-8, The antenna gain is 4.09 dBi.

802.11ax (HE160) Full RU

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
15	6025	8.128	9.10	4.76	24.321	13.86	14	Pass
47	6185	7.907	8.98	4.76	23.66	13.74	14	Pass
79	6345	8.128	9.10	4.76	24.321	13.86	14	Pass
111	6505	8.75	9.42	4.29	23.497	13.71	14	Pass
143	6665	8.222	9.15	4.61	23.767	13.76	14	Pass
175	6825	8.241	9.16	4.61	23.822	13.77	14	Pass
207	6985	8.81	9.45	4.09	22.593	13.54	14	Pass

Notes:

1. For U-NII-5, The antenna gain is 4.76 dBi.
2. For U-NII-6, The antenna gain is 4.29 dBi.
3. For U-NII-7, The antenna gain is 4.61 dBi.
4. For U-NII-8, The antenna gain is 4.09 dBi.

2TX

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
1	5955	-3.38	-3.52	0.9038	-0.44	4.76	2.704	4.32	14	Pass
45	6175	-3.56	-3.45	0.8924	-0.49	4.76	2.67	4.27	14	Pass
93	6415	-3.43	-3.49	0.9017	-0.45	4.76	2.698	4.31	14	Pass
97	6435	-3.31	-2.78	0.9939	-0.03	4.29	2.669	4.26	14	Pass
105	6475	-2.85	-3.21	0.9963	-0.02	4.29	2.675	4.27	14	Pass
113	6515	-3.16	-3.33	0.9476	-0.23	4.29	2.545	4.06	14	Pass
117	6535	-3.09	-3.95	0.8936	-0.49	4.61	2.583	4.12	14	Pass
149	6695	-3.14	-4.01	0.8825	-0.54	4.61	2.551	4.07	14	Pass
181	6855	-3.13	-4.05	0.88	-0.56	4.61	2.544	4.05	14	Pass
185	6875	-3.66	-3.37	0.8908	-0.50	4.61	2.575	4.11	14	Pass
209	6995	-3.28	-2.85	0.9887	-0.05	4.09	2.536	4.04	14	Pass
233	7115	-3.32	-2.95	0.9726	-0.12	4.09	2.494	3.97	14	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-5, The maximum gain is 4.76 dBi.
3. For U-NII-6, The maximum gain is 4.29 dBi.
4. For U-NII-7, The maximum gain is 4.61 dBi.
5. For U-NII-8, The maximum gain is 4.09 dBi.

802.11ax (HE20) Full RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
1	5955	-3.52	-3.47	0.8944	-0.48	4.76	2.676	4.28	14	Pass
45	6175	-3.51	-3.46	0.8965	-0.47	4.76	2.683	4.29	14	Pass
93	6415	-3.13	-3.46	0.9372	-0.28	4.76	2.804	4.48	14	Pass
97	6435	-2.71	-2.78	1.063	0.27	4.29	2.855	4.56	14	Pass
105	6475	-2.89	-3.26	0.9861	-0.06	4.29	2.648	4.23	14	Pass
113	6515	-2.95	-3.34	0.9704	-0.13	4.29	2.606	4.16	14	Pass
117	6535	-3.22	-3.48	0.9252	-0.34	4.61	2.674	4.27	14	Pass
149	6695	-3.39	-3.34	0.9216	-0.35	4.61	2.664	4.26	14	Pass
181	6855	-3.39	-3.38	0.9173	-0.37	4.61	2.652	4.24	14	Pass
185	6875	-3.62	-2.96	0.9403	-0.27	4.61	2.718	4.34	14	Pass
209	6995	-2.93	-2.64	1.0538	0.23	4.09	2.702	4.32	14	Pass
233	7115	-2.94	-2.77	1.0366	0.16	4.09	2.658	4.25	14	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-5, The maximum gain is 4.76 dBi.
3. For U-NII-6, The maximum gain is 4.29 dBi.
4. For U-NII-7, The maximum gain is 4.61 dBi.
5. For U-NII-8, The maximum gain is 4.09 dBi.

802.11ax (HE40) Full RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
3	5965	-0.39	-0.47	1.8115	2.58	4.76	5.42	7.34	14	Pass
43	6165	-0.62	-0.38	1.7832	2.51	4.76	5.336	7.27	14	Pass
91	6405	-0.62	-0.18	1.8264	2.62	4.76	5.465	7.38	14	Pass
99	6445	-0.01	0.05	2.0093	3.03	4.29	5.396	7.32	14	Pass
107	6485	0.11	-0.18	1.9851	2.98	4.29	5.331	7.27	14	Pass
115	6525	-0.56	-0.58	1.754	2.44	4.61	5.07	7.05	14	Pass
123	6565	-0.55	-0.62	1.748	2.43	4.61	5.053	7.04	14	Pass
155	6725	-0.23	-0.72	1.7956	2.54	4.61	5.191	7.15	14	Pass
179	6845	-0.45	-0.24	1.8478	2.67	4.61	5.341	7.28	14	Pass
187	6885	-0.09	0.32	2.056	3.13	4.09	5.273	7.22	14	Pass
211	7005	-0.31	0.35	2.015	3.04	4.09	5.167	7.13	14	Pass
227	7085	0.29	0.02	2.074	3.17	4.09	5.319	7.26	14	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-5, The maximum gain is 4.76 dBi.
3. For U-NII-6, The maximum gain is 4.29 dBi.
4. For U-NII-7, The maximum gain is 4.61 dBi.
5. For U-NII-8, The maximum gain is 4.09 dBi.

802.11ax (HE80) Full RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
7	5985	2.12	2.86	3.561	5.52	4.76	10.655	10.28	14	Pass
39	6145	2.44	2.48	3.524	5.47	4.76	10.545	10.23	14	Pass
87	6385	2.27	2.56	3.49	5.43	4.76	10.443	10.19	14	Pass
103	6465	3.15	2.75	3.949	5.96	4.29	10.604	10.25	14	Pass
119	6545	2.44	2.53	3.544	5.49	4.61	10.245	10.1	14	Pass
151	6705	2.53	2.58	3.602	5.57	4.61	10.412	10.18	14	Pass
183	6865	2.71	2.44	3.62	5.59	4.61	10.464	10.2	14	Pass
199	6945	3.03	3.06	4.032	6.06	4.09	10.34	10.15	14	Pass
215	7025	2.82	3.23	4.018	6.04	4.09	10.304	10.13	14	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-5, The maximum gain is 4.76 dBi.
3. For U-NII-6, The maximum gain is 4.29 dBi.
4. For U-NII-7, The maximum gain is 4.61 dBi.
5. For U-NII-8, The maximum gain is 4.09 dBi.

802.11ax (HE160) Full RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
15	6025	5.62	5.43	7.139	8.54	4.76	21.362	13.3	14	Pass
47	6185	5.62	5.54	7.229	8.59	4.76	21.631	13.35	14	Pass
79	6345	5.58	5.28	6.987	8.44	4.76	20.907	13.2	14	Pass
111	6505	6.04	5.84	7.855	8.95	4.29	21.093	13.24	14	Pass
143	6665	5.72	5.17	7.021	8.46	4.61	20.295	13.07	14	Pass
175	6825	5.53	5.57	7.179	8.56	4.61	20.752	13.17	14	Pass
207	6985	5.86	6.09	7.919	8.99	4.09	20.308	13.08	14	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-5, The maximum gain is 4.76 dBi.
3. For U-NII-6, The maximum gain is 4.29 dBi.
4. For U-NII-7, The maximum gain is 4.61 dBi.
5. For U-NII-8, The maximum gain is 4.09 dBi.

802.11ax (HE20) 26-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
1	5955	-11.52	-11.60	0.13965	-8.55	4.76	0.4179	-3.79	14	Pass
93	6415	-10.89	-12.43	0.13862	-8.58	4.76	0.4148	-3.82	14	Pass
97	6435	-10.38	-11.99	0.15486	-8.10	4.29	0.4159	-3.81	14	Pass
113	6515	-10.45	-12.48	0.14665	-8.34	4.29	0.3938	-4.05	14	Pass
117	6535	-10.85	-12.37	0.14017	-8.53	4.61	0.4052	-3.92	14	Pass
181	6855	-11.39	-11.39	0.14522	-8.38	4.61	0.4198	-3.77	14	Pass
209	6995	-11.21	-11.01	0.15493	-8.10	4.09	0.3973	-4.01	14	Pass
233	7115	-11.18	-10.89	0.15768	-8.02	4.09	0.4044	-3.93	14	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-5, The maximum gain is 4.76 dBi.
3. For U-NII-6, The maximum gain is 4.29 dBi.
4. For U-NII-7, The maximum gain is 4.61 dBi.
5. For U-NII-8, The maximum gain is 4.09 dBi.

802.11ax (HE20) 52-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
1	5955	-8.75	-8.40	0.2779	-5.56	4.76	0.8316	-0.8	14	Pass
93	6415	-8.53	-8.90	0.2691	-5.70	4.76	0.8052	-0.94	14	Pass
97	6435	-7.94	-8.55	0.3003	-5.22	4.29	0.8064	-0.93	14	Pass
113	6515	-7.81	-8.39	0.3105	-5.08	4.29	0.8338	-0.79	14	Pass
117	6535	-8.40	-8.80	0.2764	-5.58	4.61	0.799	-0.97	14	Pass
181	6855	-8.79	-8.11	0.2867	-5.43	4.61	0.8288	-0.82	14	Pass
209	6995	-8.80	-7.76	0.2993	-5.24	4.09	0.7676	-1.15	14	Pass
233	7115	-8.46	-7.52	0.3196	-4.95	4.09	0.8196	-0.86	14	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-5, The maximum gain is 4.76 dBi.
3. For U-NII-6, The maximum gain is 4.29 dBi.
4. For U-NII-7, The maximum gain is 4.61 dBi.
5. For U-NII-8, The maximum gain is 4.09 dBi.

802.11ax (HE20) 106-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
1	5955	-5.70	-5.49	0.5516	-2.58	4.76	1.651	2.18	14	Pass
93	6415	-5.50	-5.40	0.5702	-2.44	4.76	1.706	2.32	14	Pass
97	6435	-5.00	-5.20	0.6182	-2.09	4.29	1.66	2.2	14	Pass
113	6515	-4.89	-5.31	0.6188	-2.08	4.29	1.662	2.21	14	Pass
117	6535	-5.34	-5.90	0.5495	-2.60	4.61	1.588	2.01	14	Pass
181	6855	-5.70	-5.54	0.5484	-2.61	4.61	1.585	2	14	Pass
209	6995	-5.01	-5.13	0.6224	-2.06	4.09	1.596	2.03	14	Pass
233	7115	-5.02	-5.16	0.6196	-2.08	4.09	1.589	2.01	14	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-5, The maximum gain is 4.76 dBi.
3. For U-NII-6, The maximum gain is 4.29 dBi.
4. For U-NII-7, The maximum gain is 4.61 dBi.
5. For U-NII-8, The maximum gain is 4.09 dBi.

7.2 Maximum Power Spectral Density

Environmental Conditions:	25°C, 60% RH	Tested By:	Chris Lin
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1TX

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)	Antenna Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
1	5955	-9.85	4.76	-5.09	-5	Pass
45	6175	-9.78	4.76	-5.02	-5	Pass
93	6415	-9.85	4.76	-5.09	-5	Pass
97	6435	-9.87	4.29	-5.58	-5	Pass
105	6475	-9.45	4.29	-5.16	-5	Pass
113	6515	-9.71	4.29	-5.42	-5	Pass
117	6535	-9.94	4.61	-5.33	-5	Pass
149	6695	-9.85	4.61	-5.24	-5	Pass
181	6855	-9.84	4.61	-5.23	-5	Pass
185	6875	-9.77	4.61	-5.16	-5	Pass
209	6995	-9.88	4.09	-5.79	-5	Pass
233	7115	-9.49	4.09	-5.4	-5	Pass

Notes:

1. For U-NII-5, The antenna gain is 4.76 dBi.
2. For U-NII-6, The antenna gain is 4.29 dBi.
3. For U-NII-7, The antenna gain is 4.61 dBi.
4. For U-NII-8, The antenna gain is 4.09 dBi.

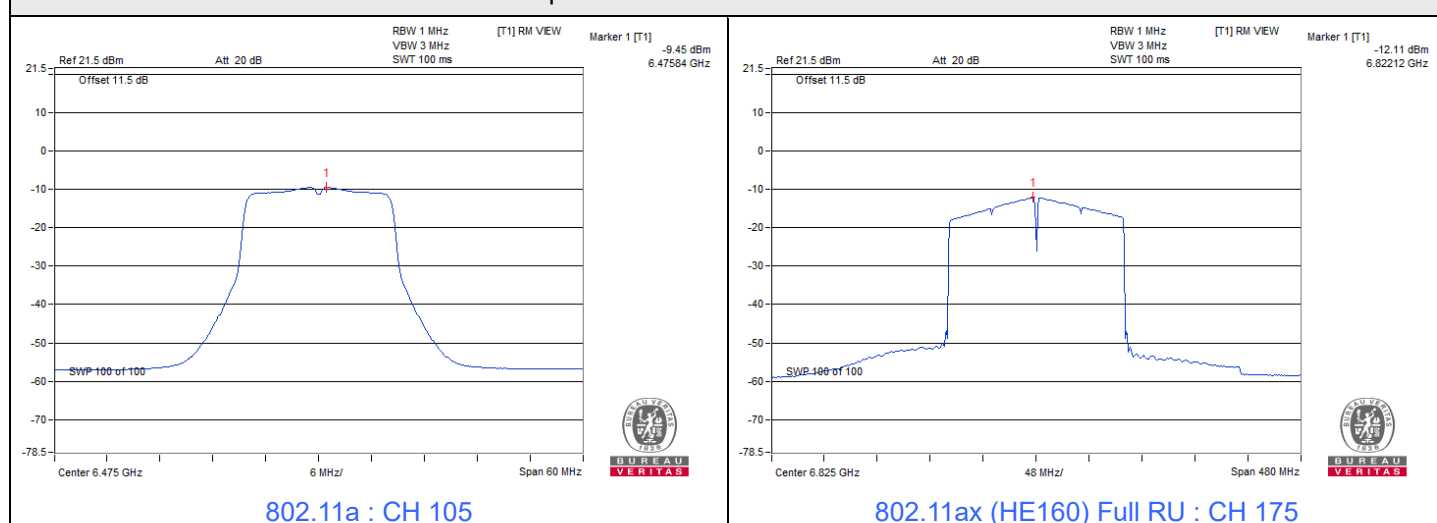
802.11ax (HE160) Full RU

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD (dBm/MHz)	Antenna Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
15	6025	-12.29	0.13	-12.16	4.76	-7.4	-5	Pass
47	6185	-12.26	0.13	-12.13	4.76	-7.37	-5	Pass
79	6345	-12.26	0.13	-12.13	4.76	-7.37	-5	Pass
111	6505	-12.41	0.13	-12.28	4.29	-7.99	-5	Pass
143	6665	-12.2	0.13	-12.07	4.61	-7.46	-5	Pass
175	6825	-12.11	0.13	-11.98	4.61	-7.37	-5	Pass
207	6985	-12.5	0.13	-12.37	4.09	-8.28	-5	Pass

Notes:

1. For U-NII-5, The antenna gain is 4.76 dBi.
2. For U-NII-6, The antenna gain is 4.29 dBi.
3. For U-NII-7, The antenna gain is 4.61 dBi.
4. For U-NII-8, The antenna gain is 4.09 dBi.

Spectrum Plot of Maximum Value



2TX

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1					
1	5955	-15.97	-15.95	-12.95	7.77	-5.18	-5	Pass
45	6175	-16.15	-16.04	-13.08	7.77	-5.31	-5	Pass
93	6415	-15.85	-16.32	-13.07	7.77	-5.3	-5	Pass
97	6435	-16.00	-16.02	-13.00	7.30	-5.7	-5	Pass
105	6475	-16.12	-16.08	-13.09	7.30	-5.79	-5	Pass
113	6515	-15.85	-16.02	-12.92	7.30	-5.62	-5	Pass
117	6535	-15.84	-16.18	-13.00	7.62	-5.38	-5	Pass
149	6695	-16.06	-16.06	-13.05	7.62	-5.43	-5	Pass
181	6855	-15.84	-16.26	-13.03	7.62	-5.41	-5	Pass
185	6875	-16.10	-16.00	-13.04	7.62	-5.42	-5	Pass
209	6995	-15.99	-16.08	-13.02	7.10	-5.92	-5	Pass
233	7115	-16.02	-16.15	-13.07	7.10	-5.97	-5	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-5, The directional gain is 7.77 dBi.
4. For U-NII-6, The directional gain is 7.3 dBi.
5. For U-NII-7, The directional gain is 7.62 dBi.
6. For U-NII-8, The directional gain is 7.1 dBi.

802.11ax (HE20) Full RU

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1					
1	5955	-15.92	-16.43	-13.16	7.77	-5.39	-5	Pass
45	6175	-15.83	-16.27	-13.03	7.77	-5.26	-5	Pass
93	6415	-15.91	-16.26	-13.07	7.77	-5.3	-5	Pass
97	6435	-15.86	-16.25	-13.04	7.30	-5.74	-5	Pass
105	6475	-16.02	-16.14	-13.07	7.30	-5.77	-5	Pass
113	6515	-15.89	-16.50	-13.17	7.30	-5.87	-5	Pass
117	6535	-16.00	-16.44	-13.20	7.62	-5.58	-5	Pass
149	6695	-15.98	-16.42	-13.18	7.62	-5.56	-5	Pass
181	6855	-16.09	-16.22	-13.14	7.62	-5.52	-5	Pass
185	6875	-15.94	-16.16	-13.04	7.62	-5.42	-5	Pass
209	6995	-16.02	-16.15	-13.07	7.10	-5.97	-5	Pass
233	7115	-15.99	-16.14	-13.05	7.10	-5.95	-5	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-5, The directional gain is 7.77 dBi.
4. For U-NII-6, The directional gain is 7.3 dBi.
5. For U-NII-7, The directional gain is 7.62 dBi.
6. For U-NII-8, The directional gain is 7.1 dBi.

802.11ax (HE40) Full RU

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1					
3	5965	-16.11	-16.34	-13.21	7.77	-5.44	-5	Pass
43	6165	-16.56	-16.38	-13.46	7.77	-5.69	-5	Pass
91	6405	-16.02	-16.77	-13.37	7.77	-5.6	-5	Pass
99	6445	-16.07	-16.32	-13.18	7.30	-5.88	-5	Pass
107	6485	-15.97	-16.12	-13.03	7.30	-5.73	-5	Pass
115	6525	-15.98	-16.14	-13.05	7.62	-5.43	-5	Pass
123	6565	-16.03	-16.16	-13.08	7.62	-5.46	-5	Pass
155	6725	-16.01	-16.17	-13.08	7.62	-5.46	-5	Pass
179	6845	-16.37	-16.14	-13.24	7.62	-5.62	-5	Pass
187	6885	-15.50	-16.26	-12.85	7.10	-5.75	-5	Pass
211	7005	-16.03	-16.18	-13.09	7.10	-5.99	-5	Pass
227	7085	-15.93	-16.06	-12.98	7.10	-5.88	-5	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-5, The directional gain is 7.77 dBi.
4. For U-NII-6, The directional gain is 7.3 dBi.
5. For U-NII-7, The directional gain is 7.62 dBi.
6. For U-NII-8, The directional gain is 7.1 dBi.

802.11ax (HE80) Full RU

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1					
7	5985	-16.99	-16.49	-13.72	7.77	-5.95	-5	Pass
39	6145	-16.82	-16.66	-13.73	7.77	-5.96	-5	Pass
87	6385	-16.70	-16.83	-13.75	7.77	-5.98	-5	Pass
103	6465	-16.10	-16.29	-13.18	7.30	-5.88	-5	Pass
119	6545	-16.46	-16.15	-13.29	7.62	-5.67	-5	Pass
151	6705	-16.45	-16.33	-13.38	7.62	-5.76	-5	Pass
183	6865	-16.14	-17.06	-13.57	7.62	-5.95	-5	Pass
199	6945	-15.75	-16.07	-12.90	7.10	-5.8	-5	Pass
215	7025	-16.01	-16.12	-13.05	7.10	-5.95	-5	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-5, The directional gain is 7.77 dBi.
4. For U-NII-6, The directional gain is 7.3 dBi.
5. For U-NII-7, The directional gain is 7.62 dBi.
6. For U-NII-8, The directional gain is 7.1 dBi.

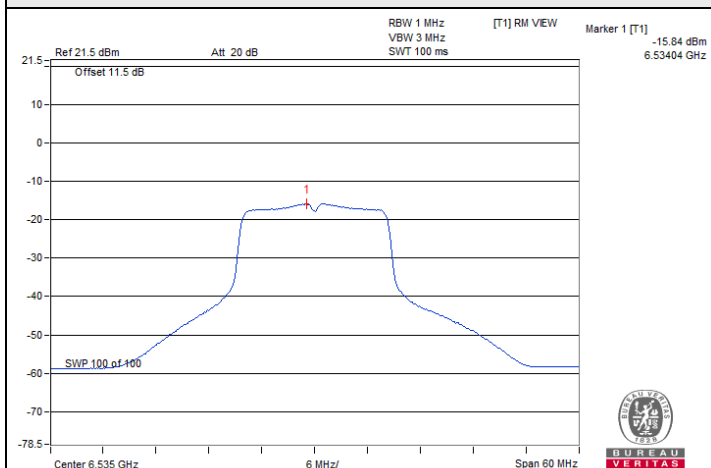
802.11ax (HE160) Full RU

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1						
15	6025	-16.03	-16.44	0.13	-13.09	7.77	-5.32	-5	Pass
47	6185	-16.45	-16.04	0.13	-13.10	7.77	-5.33	-5	Pass
79	6345	-16.00	-16.12	0.13	-12.92	7.77	-5.15	-5	Pass
111	6505	-16.15	-16.63	0.13	-13.24	7.30	-5.94	-5	Pass
143	6665	-15.85	-16.80	0.13	-13.16	7.62	-5.54	-5	Pass
175	6825	-15.52	-16.17	0.13	-12.69	7.62	-5.07	-5	Pass
207	6985	-15.96	-16.02	0.13	-12.85	7.10	-5.75	-5	Pass

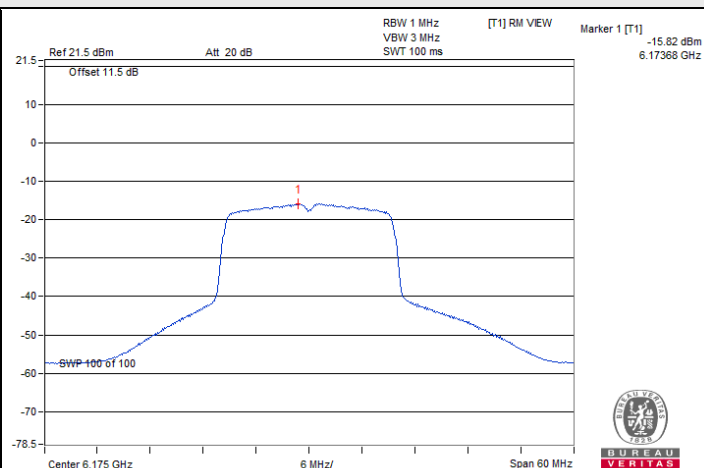
Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-5, The directional gain is 7.77 dBi.
4. For U-NII-6, The directional gain is 7.3 dBi.
5. For U-NII-7, The directional gain is 7.62 dBi.
6. For U-NII-8, The directional gain is 7.1 dBi.

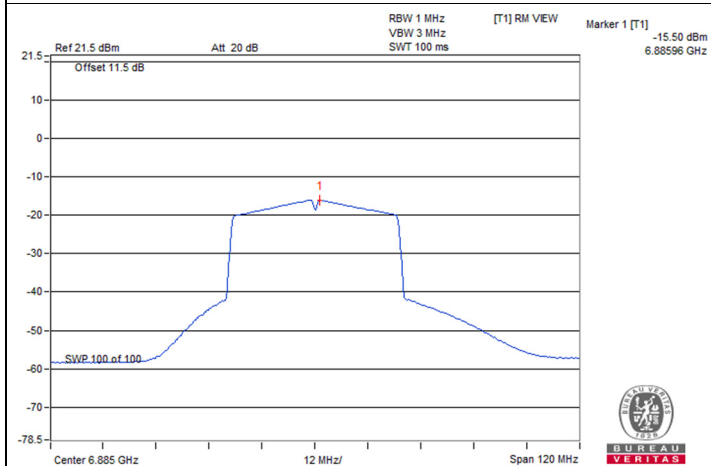
Spectrum Plot of Maximum Value



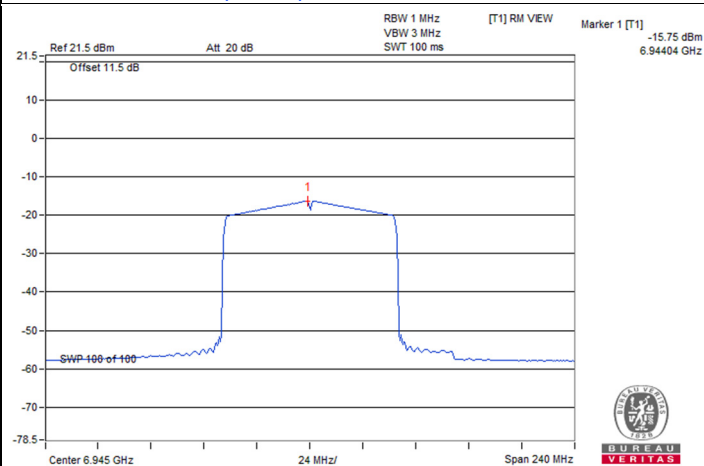
802.11a / Chain 0 : CH 117



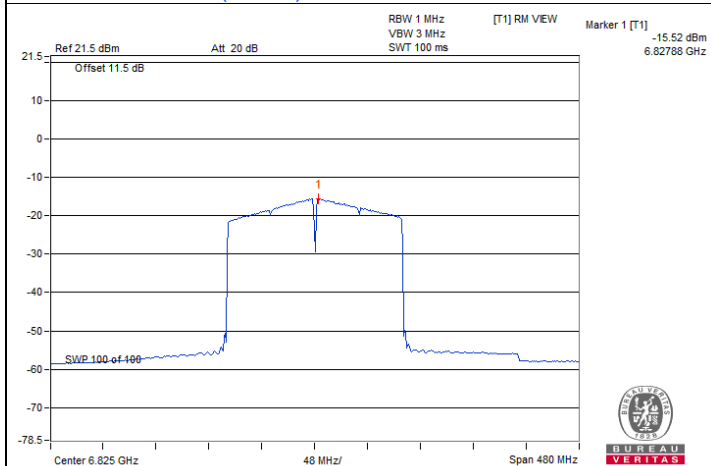
802.11ax (HE20) Full RU / Chain 0 : CH 45



802.11ax (HE40) Full RU / Chain 0 : CH 187



802.11ax (HE80) Full RU / Chain 0 : CH 199



802.11ax (HE160) Full RU / Chain 0 : CH 175

802.11ax (HE20) 26-tone RU

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1					
1	5955	-15.96	-16.01	-12.97	7.77	-5.2	-5	Pass
93	6415	-15.76	-16.18	-12.95	7.77	-5.18	-5	Pass
97	6435	-15.94	-15.61	-12.76	7.30	-5.46	-5	Pass
113	6515	-15.72	-15.87	-12.78	7.30	-5.48	-5	Pass
117	6535	-15.84	-15.87	-12.84	7.62	-5.22	-5	Pass
181	6855	-15.69	-16.26	-12.96	7.62	-5.34	-5	Pass
209	6995	-15.33	-16.22	-12.74	7.10	-5.64	-5	Pass
233	7115	-15.92	-15.88	-12.89	7.10	-5.79	-5	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-5, The directional gain is 7.77 dBi.
4. For U-NII-6, The directional gain is 7.3 dBi.
5. For U-NII-7, The directional gain is 7.62 dBi.
6. For U-NII-8, The directional gain is 7.1 dBi.

802.11ax (HE20) 52-tone RU

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1					
1	5955	-15.88	-15.90	-12.88	7.77	-5.11	-5	Pass
93	6415	-15.97	-15.97	-12.96	7.77	-5.19	-5	Pass
97	6435	-15.38	-15.76	-12.56	7.30	-5.26	-5	Pass
113	6515	-15.79	-15.93	-12.85	7.30	-5.55	-5	Pass
117	6535	-16.03	-15.82	-12.91	7.62	-5.29	-5	Pass
181	6855	-15.73	-15.83	-12.77	7.62	-5.15	-5	Pass
209	6995	-15.08	-15.43	-12.24	7.10	-5.14	-5	Pass
233	7115	-15.34	-15.95	-12.62	7.10	-5.52	-5	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-5, The directional gain is 7.77 dBi.
4. For U-NII-6, The directional gain is 7.3 dBi.
5. For U-NII-7, The directional gain is 7.62 dBi.
6. For U-NII-8, The directional gain is 7.1 dBi.

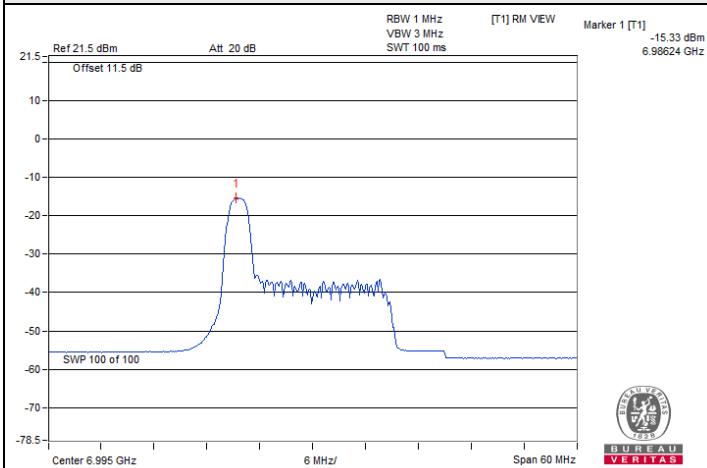
802.11ax (HE20) 106-tone RU

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1					
1	5955	-15.84	-15.87	-12.84	7.77	-5.07	-5	Pass
93	6415	-15.78	-15.88	-12.82	7.77	-5.05	-5	Pass
97	6435	-15.37	-15.36	-12.35	7.30	-5.05	-5	Pass
113	6515	-15.26	-15.89	-12.55	7.30	-5.25	-5	Pass
117	6535	-15.72	-16.34	-13.01	7.62	-5.39	-5	Pass
181	6855	-15.75	-15.67	-12.70	7.62	-5.08	-5	Pass
209	6995	-15.42	-15.65	-12.52	7.10	-5.42	-5	Pass
233	7115	-15.23	-15.80	-12.50	7.10	-5.4	-5	Pass

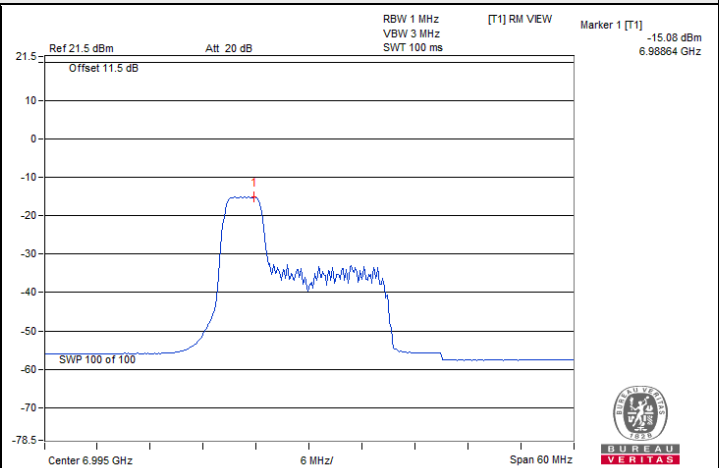
Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-5, The directional gain is 7.77 dBi.
4. For U-NII-6, The directional gain is 7.3 dBi.
5. For U-NII-7, The directional gain is 7.62 dBi.
6. For U-NII-8, The directional gain is 7.1 dBi.

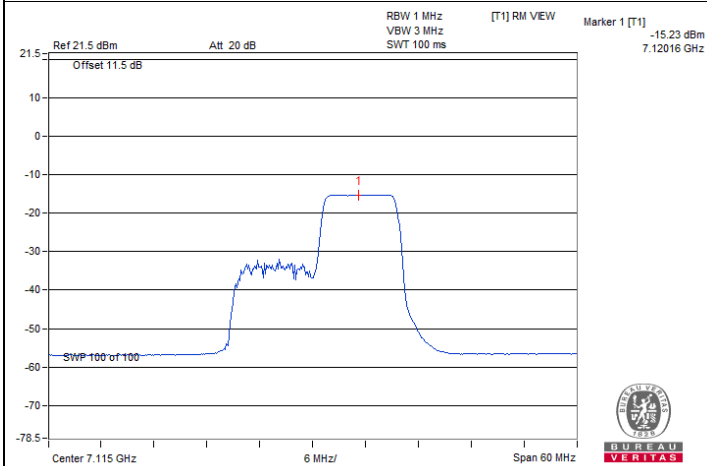
Spectrum Plot of Maximum Value



802.11ax (HE20) 26-tone RU / Chain 0 : CH 209



802.11ax (HE20) 52-tone RU / Chain 0 : CH 209



802.11ax (HE20) 106-tone RU / Chain 0 : CH 233

7.3 Emission Bandwidth

Environmental Conditions:	25°C, 60% RH	Tested By:	Chris Lin
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1TX

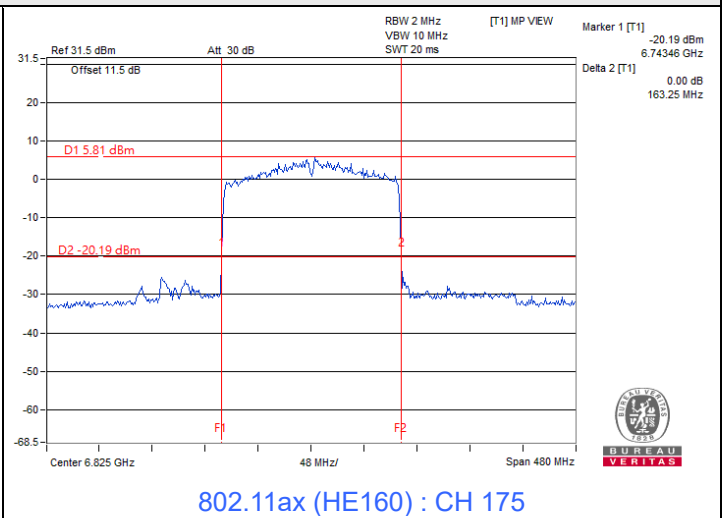
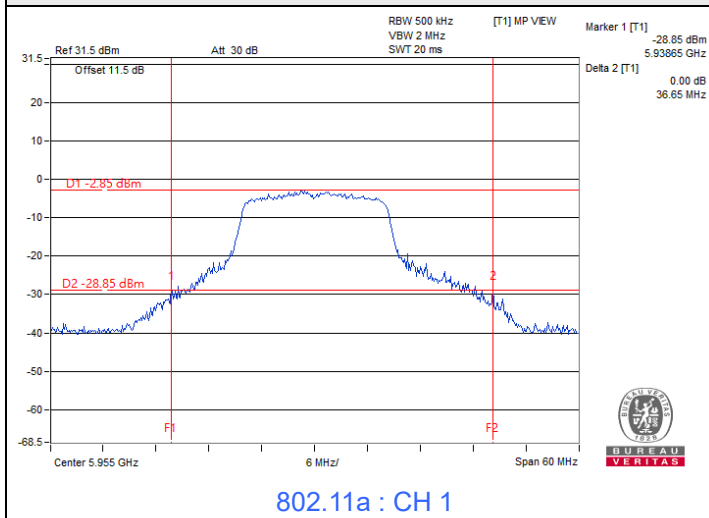
802.11a

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	Maximum Limit (MHz)	Test Result
1	5955	36.65	320	Pass
45	6175	21.67	320	Pass
93	6415	22.01	320	Pass
97	6435	21.6	320	Pass
105	6475	21.84	320	Pass
113	6515	21.95	320	Pass
117	6535	21.75	320	Pass
149	6695	21.48	320	Pass
181	6855	21.79	320	Pass
185	6875	21.82	320	Pass
209	6995	21.74	320	Pass
233	7115	21.91	320	Pass

802.11ax (HE160) Full RU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	Maximum Limit (MHz)	Test Result
15	6025	163.18	320	Pass
47	6185	163.07	320	Pass
79	6345	163.18	320	Pass
111	6505	163.21	320	Pass
143	6665	162.48	320	Pass
175	6825	163.25	320	Pass
207	6985	163.16	320	Pass

Spectrum Plot of Maximum Value



2TX

802.11a

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	5955	34.83	33.49	320	Pass
45	6175	33.72	29.71	320	Pass
93	6415	35.60	33.66	320	Pass
97	6435	35.30	36.02	320	Pass
105	6475	34.39	34.36	320	Pass
113	6515	34.57	34.48	320	Pass
117	6535	32.50	29.86	320	Pass
149	6695	29.64	32.03	320	Pass
181	6855	32.90	35.92	320	Pass
185	6875	29.48	34.52	320	Pass
209	6995	34.17	21.01	320	Pass
233	7115	34.97	33.29	320	Pass

802.11ax (HE20) Full RU

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	5955	31.48	33.33	320	Pass
45	6175	35.21	33.75	320	Pass
93	6415	29.66	36.02	320	Pass
97	6435	31.03	32.92	320	Pass
105	6475	33.30	33.92	320	Pass
113	6515	34.07	33.34	320	Pass
117	6535	31.37	31.67	320	Pass
149	6695	33.25	36.87	320	Pass
181	6855	31.63	34.74	320	Pass
185	6875	34.59	35.22	320	Pass
209	6995	29.59	31.96	320	Pass
233	7115	33.19	33.44	320	Pass

802.11ax (HE40) Full RU

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
3	5965	53.96	60.32	320	Pass
43	6165	53.92	53.51	320	Pass
91	6405	51.46	54.31	320	Pass
99	6445	56.30	53.21	320	Pass
107	6485	54.14	52.31	320	Pass
115	6525	58.66	52.88	320	Pass
123	6565	55.45	55.21	320	Pass
155	6725	53.67	57.47	320	Pass
179	6845	55.10	56.67	320	Pass
187	6885	49.22	50.09	320	Pass
211	7005	57.13	55.54	320	Pass
227	7085	56.13	56.79	320	Pass

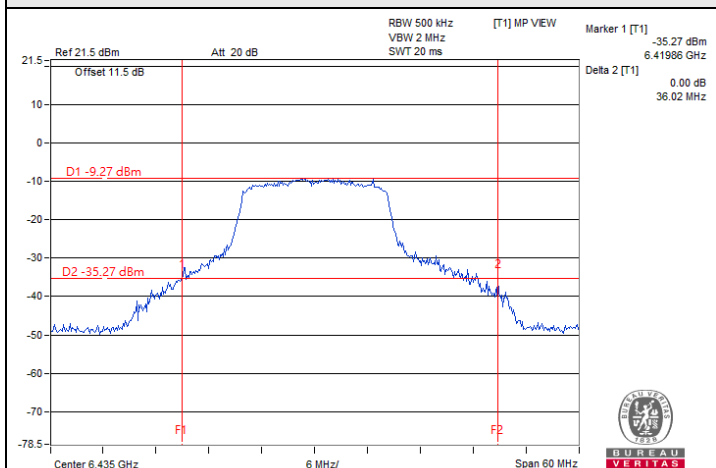
802.11ax (HE80) Full RU

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
7	5985	90.76	97.30	320	Pass
39	6145	97.19	95.57	320	Pass
87	6385	80.94	80.94	320	Pass
103	6465	80.92	81.05	320	Pass
119	6545	96.55	106.03	320	Pass
151	6705	97.70	96.40	320	Pass
183	6865	105.07	95.57	320	Pass
199	6945	81.03	81.01	320	Pass
215	7025	120.66	121.30	320	Pass

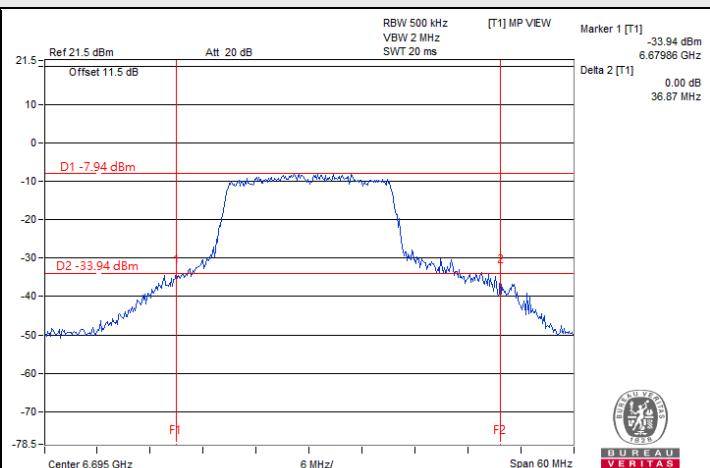
802.11ax (HE160) Full RU

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
15	6025	163.00	162.97	320	Pass
47	6185	163.01	163.07	320	Pass
79	6345	163.10	162.94	320	Pass
111	6505	162.95	163.30	320	Pass
143	6665	162.56	162.52	320	Pass
175	6825	162.98	163.21	320	Pass
207	6985	163.18	163.28	320	Pass

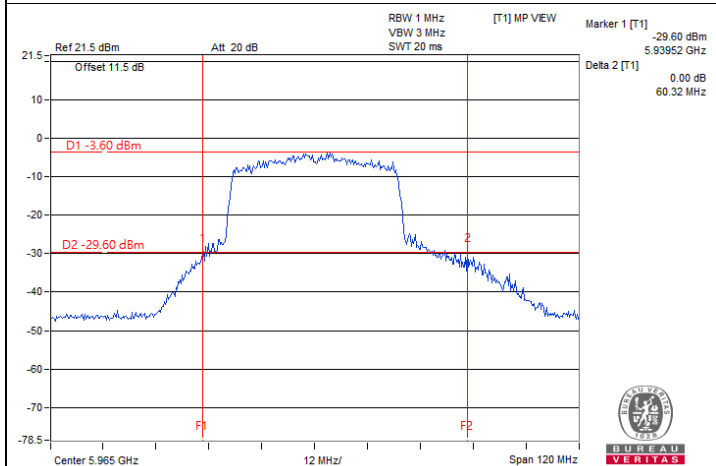
Spectrum Plot of Maximum Value



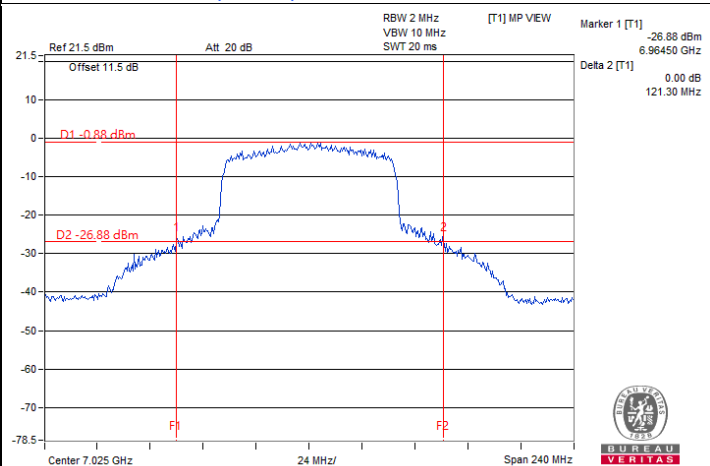
802.11a / Chain 1 : CH 97



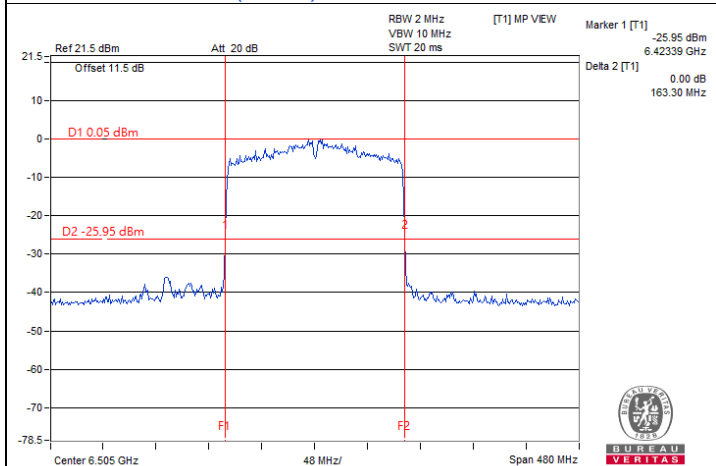
802.11ax (HE20) Full RU / Chain 1 : CH 149



802.11ax (HE40) Full RU / Chain 1 : CH 3



802.11ax (HE80) Full RU / Chain 1 : CH 215



802.11ax (HE160) Full RU / Chain 1 : CH 111

802.11ax (HE20) 26-tone RU

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	5955	20.54	20.96	320	Pass
93	6415	20.56	20.88	320	Pass
97	6435	21.20	21.09	320	Pass
113	6515	20.92	20.99	320	Pass
117	6535	20.96	21.00	320	Pass
181	6855	20.90	20.95	320	Pass
209	6995	20.29	20.57	320	Pass
233	7115	21.12	20.86	320	Pass

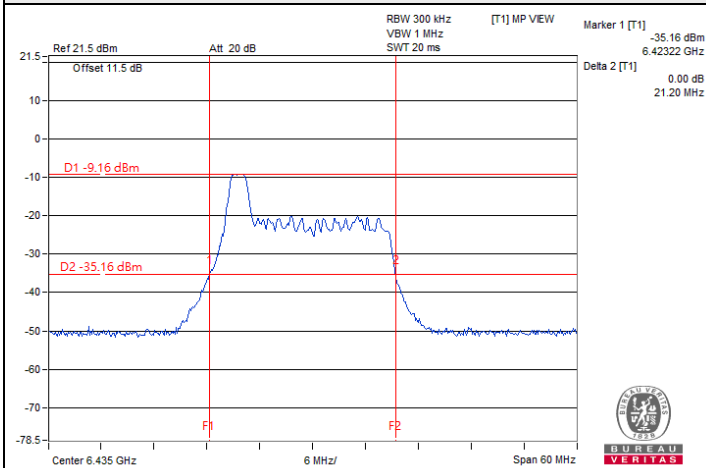
802.11ax (HE20) 52-tone RU

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	5955	21.37	20.56	320	Pass
93	6415	21.13	20.89	320	Pass
97	6435	21.19	20.61	320	Pass
113	6515	20.95	20.67	320	Pass
117	6535	21.28	20.70	320	Pass
181	6855	21.17	20.77	320	Pass
209	6995	20.46	20.71	320	Pass
233	7115	21.12	20.88	320	Pass

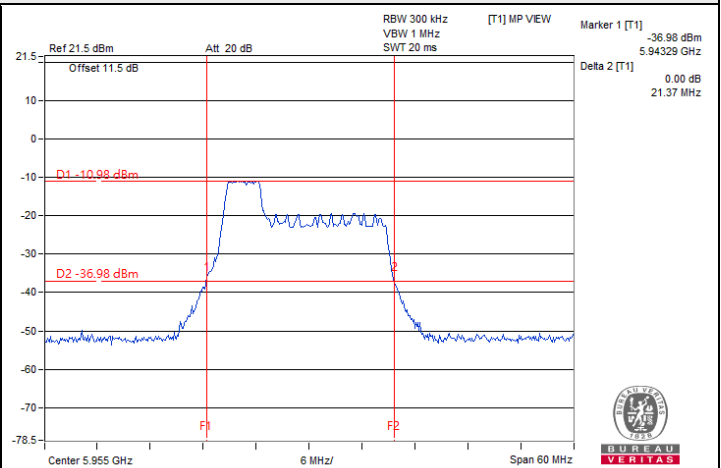
802.11ax (HE20) 106-tone RU

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	5955	20.68	20.83	320	Pass
93	6415	20.84	20.85	320	Pass
97	6435	20.68	20.69	320	Pass
113	6515	20.69	20.94	320	Pass
117	6535	20.87	20.89	320	Pass
181	6855	20.94	20.88	320	Pass
209	6995	20.95	20.64	320	Pass
233	7115	21.01	20.95	320	Pass

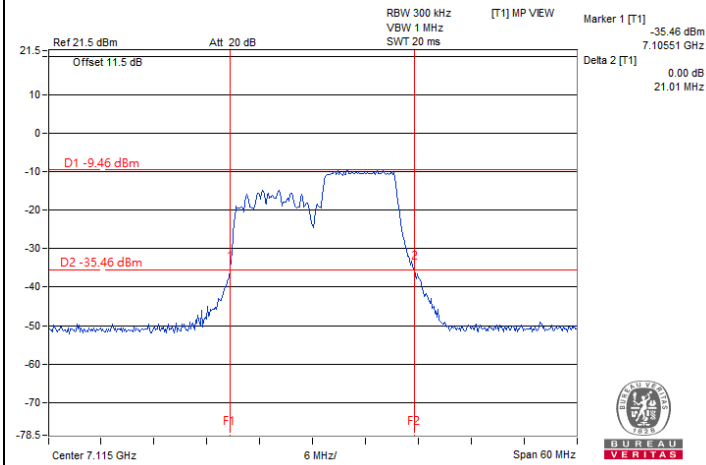
Spectrum Plot of Maximum Value



802.11ax (HE20) 26-tone RU / Chain 0 : CH 97



802.11ax (HE20) 52-tone RU / Chain 0 : CH 1



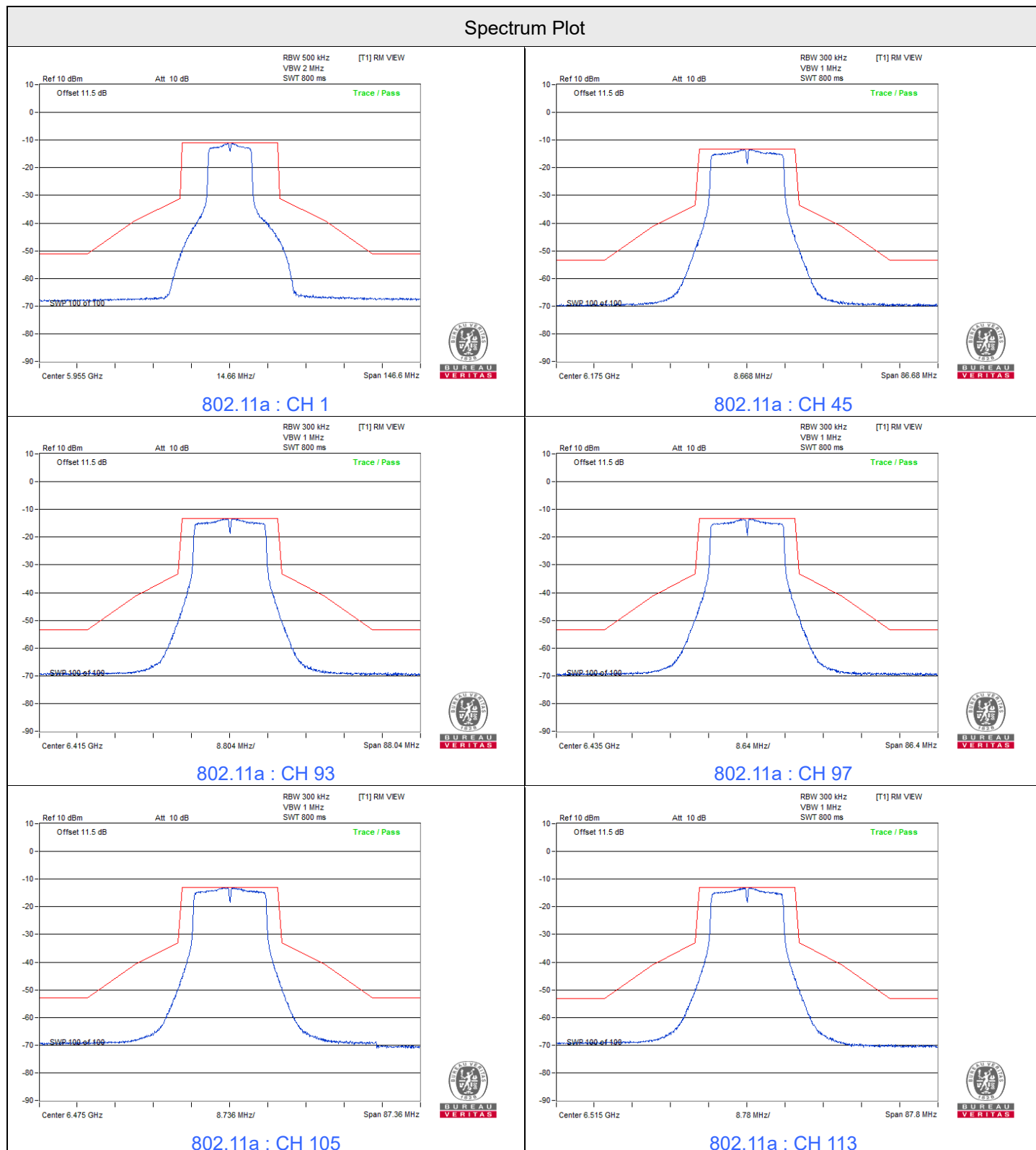
802.11ax (HE20) 106-tone RU / Chain 0 : CH 233

7.4 In-Band Emission Mask

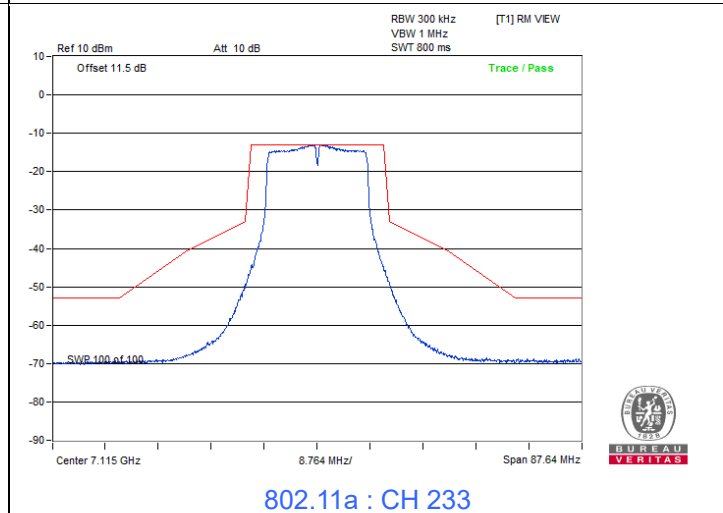
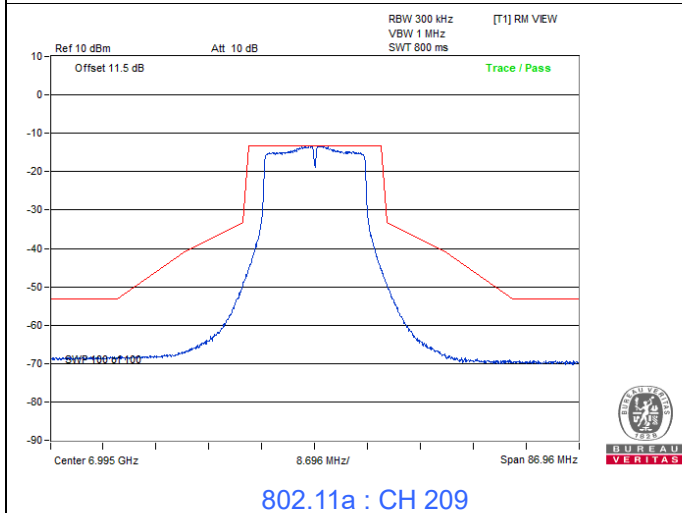
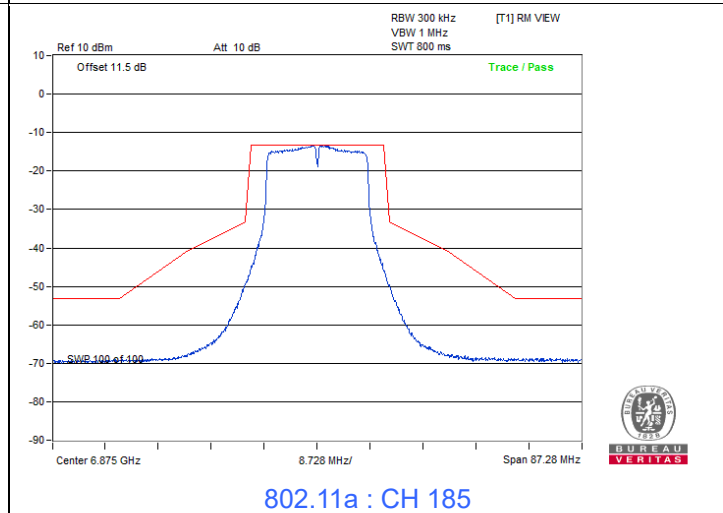
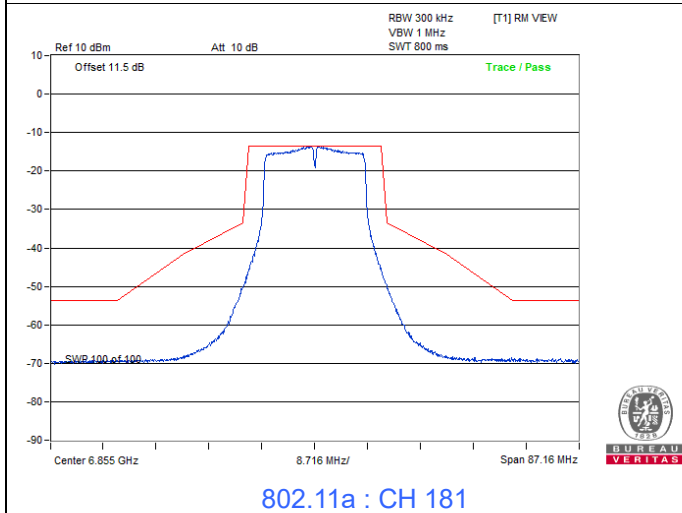
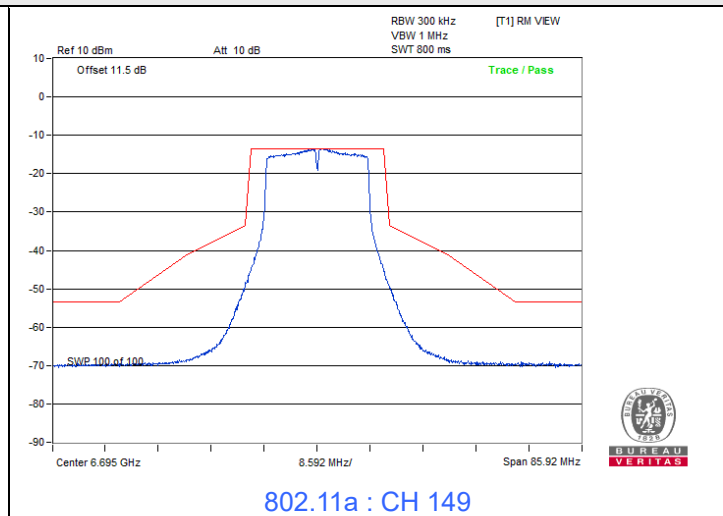
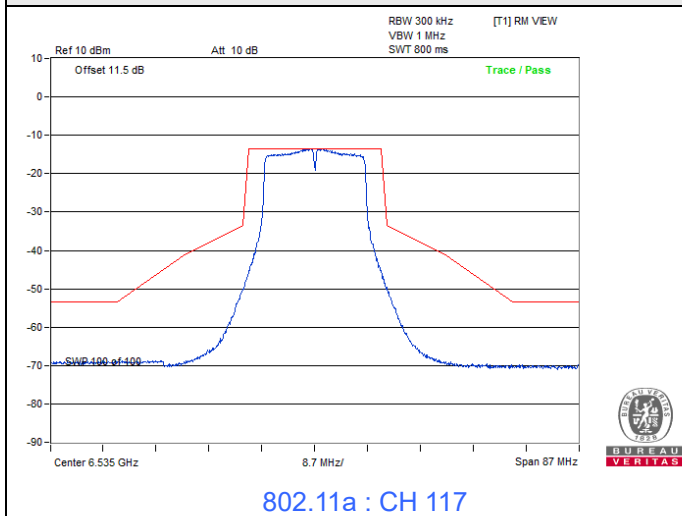
Environmental Conditions:	25°C, 60% RH	Tested By:	Chris Lin
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1TX

802.11a

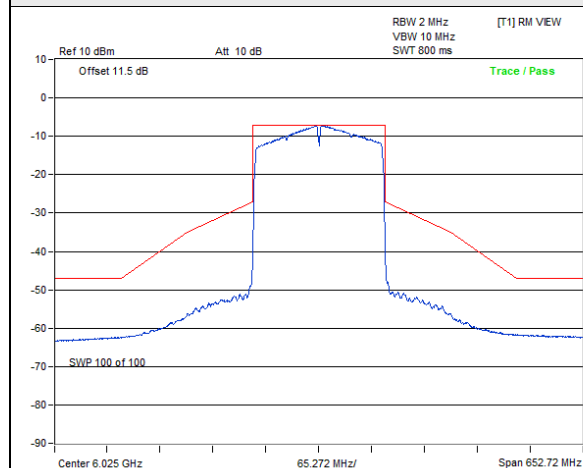


Spectrum Plot

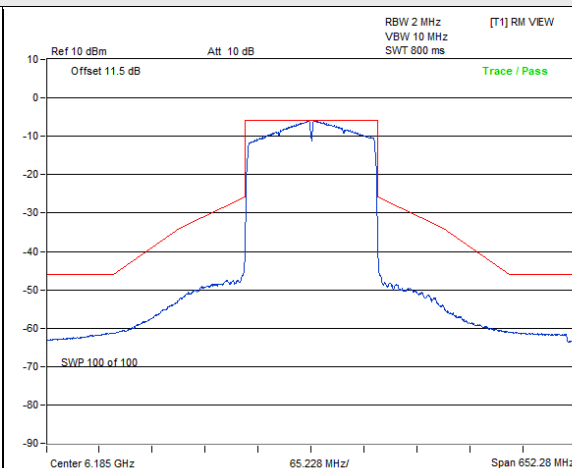


802.11ax (HE160) Full RU

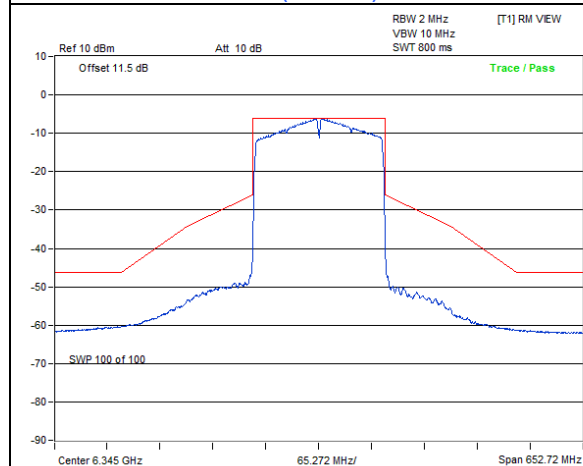
Spectrum Plot



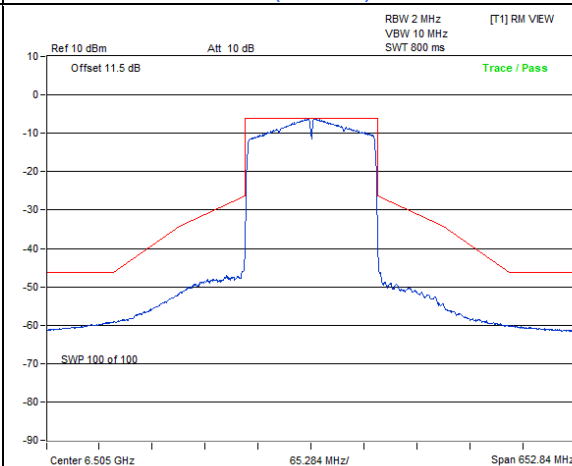
802.11ax (HE160) Full RU : CH 15



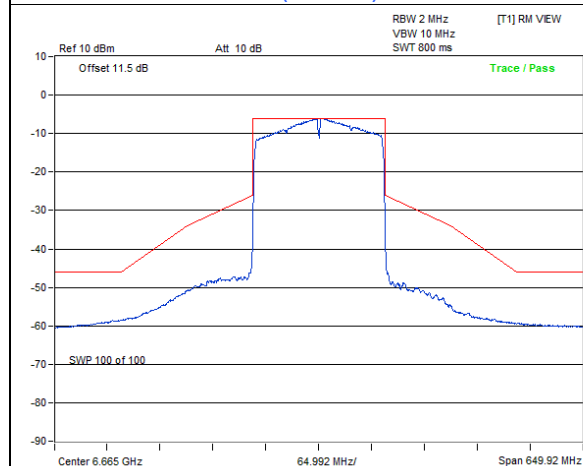
802.11ax (HE160) Full RU : CH 47



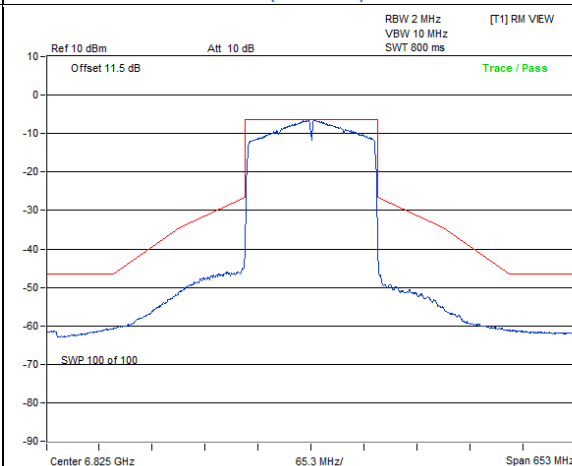
802.11ax (HE160) Full RU : CH 79



802.11ax (HE160) Full RU : CH 111

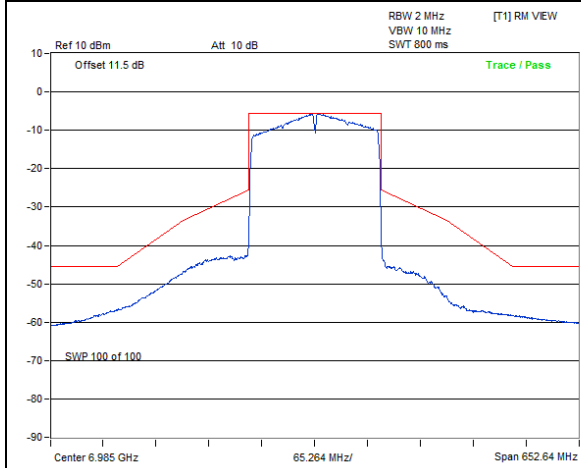


802.11ax (HE160) Full RU : CH 143



802.11ax (HE160) Full RU : CH 175

Spectrum Plot

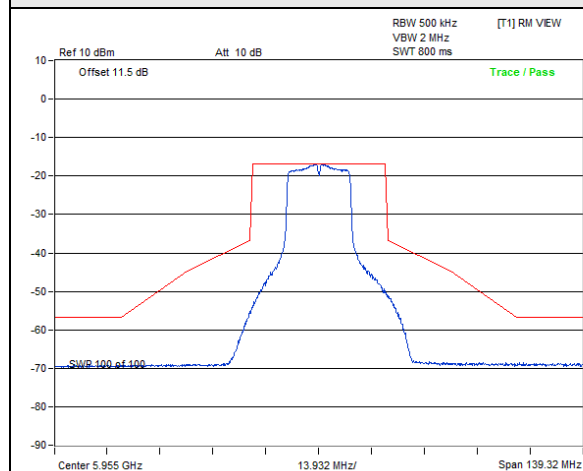


802.11ax (HE160) Full RU : CH 207

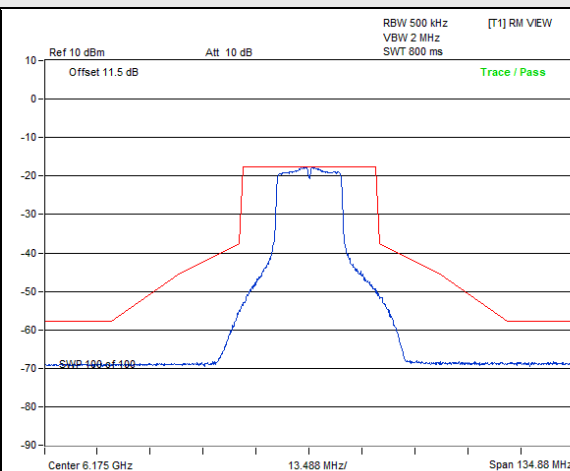
2TX

802.11a

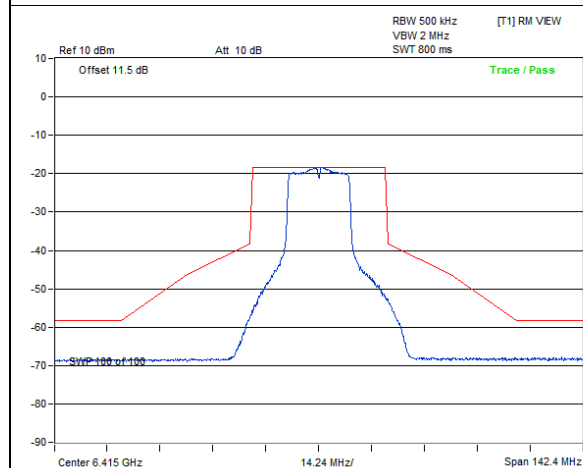
Spectrum Plot



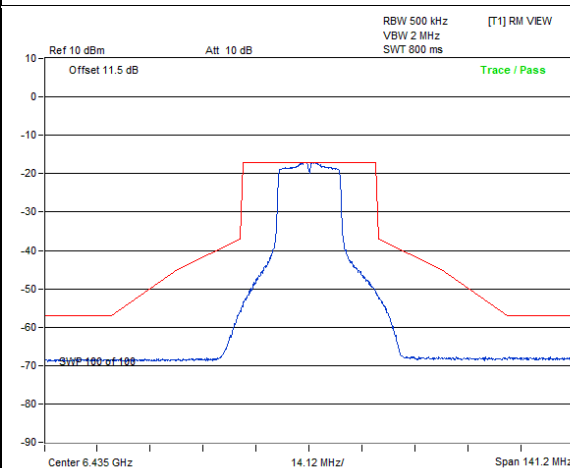
802.11a / Chain 0 : CH 1



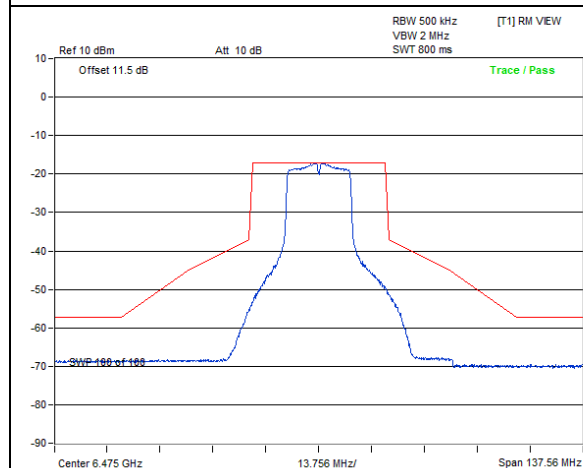
802.11a / Chain 0 : CH 45



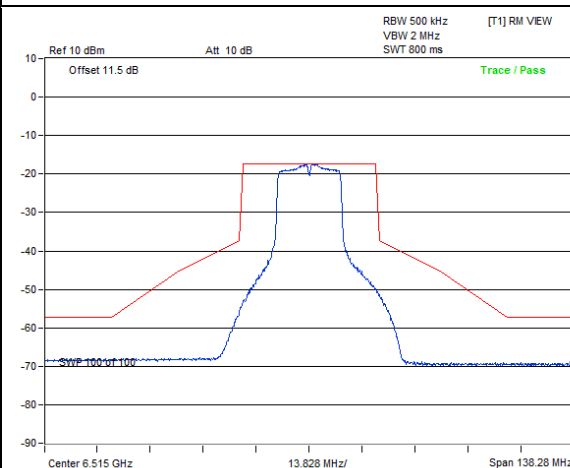
802.11a / Chain 0 : CH 93



802.11a / Chain 0 : CH 97



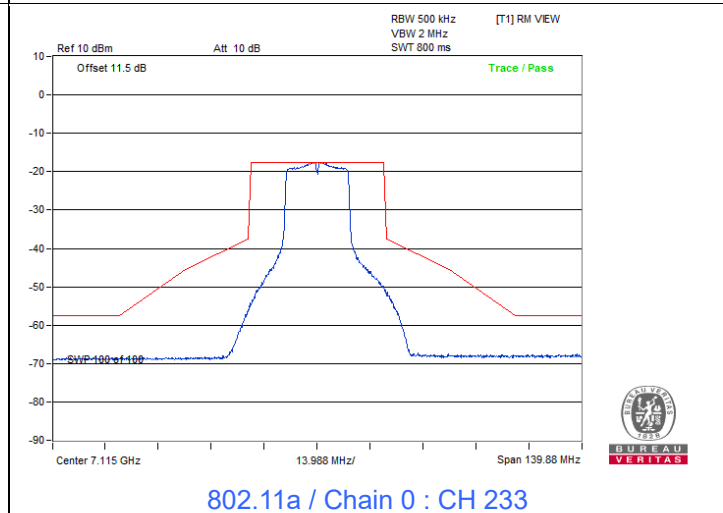
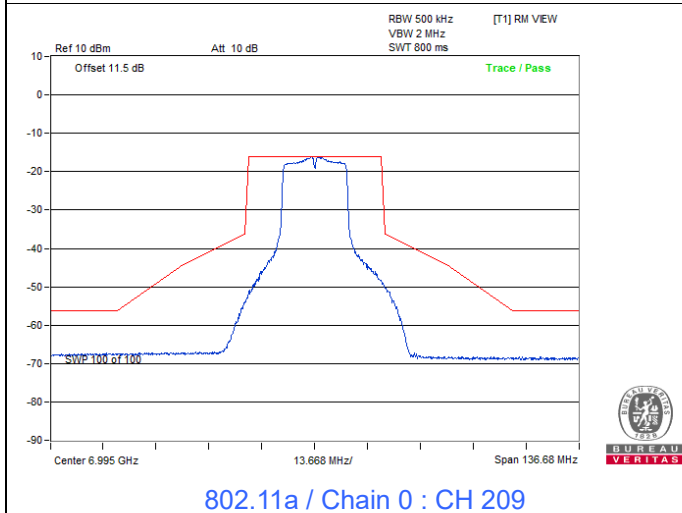
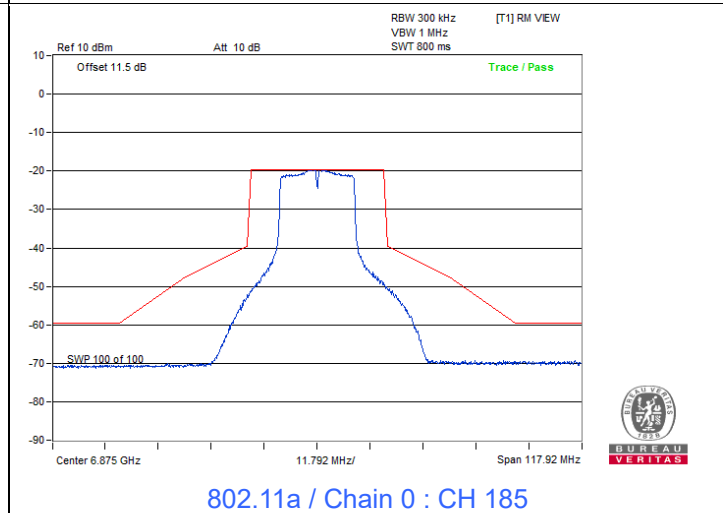
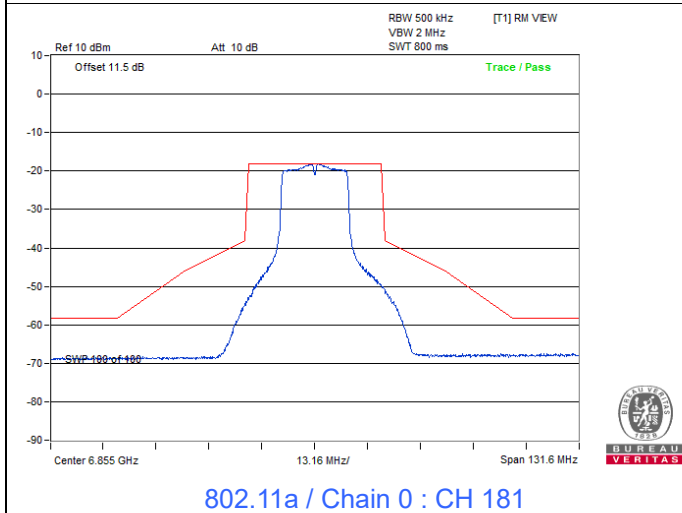
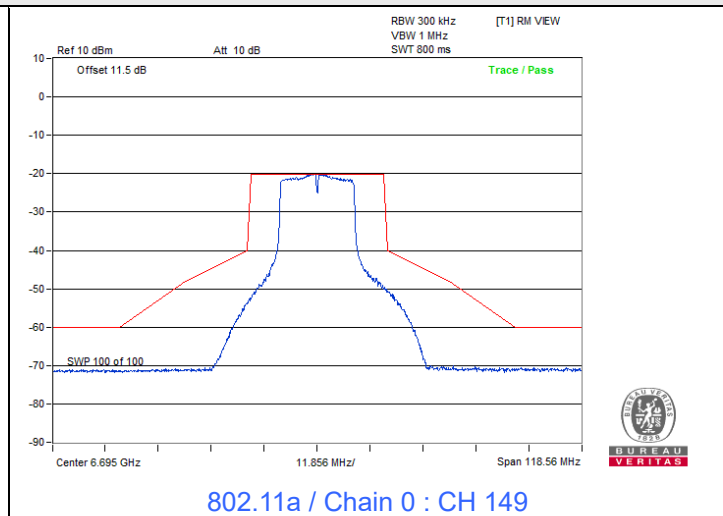
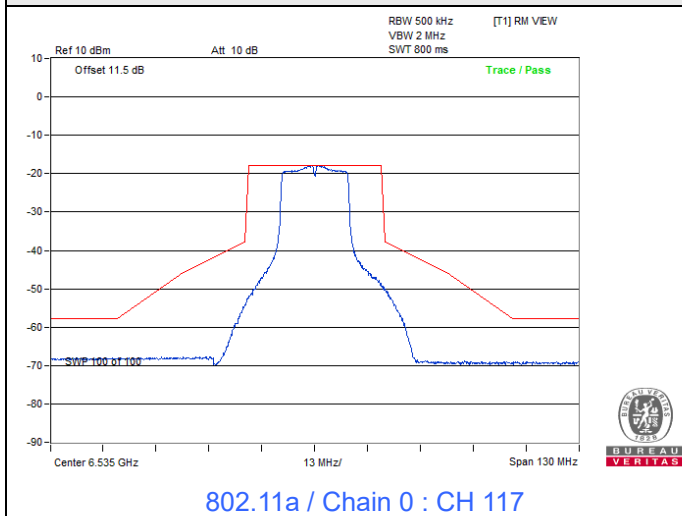
802.11a / Chain 0 : CH 105



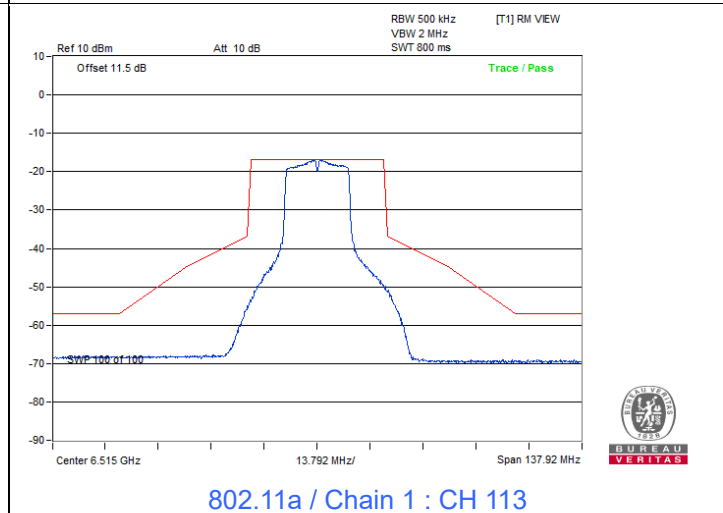
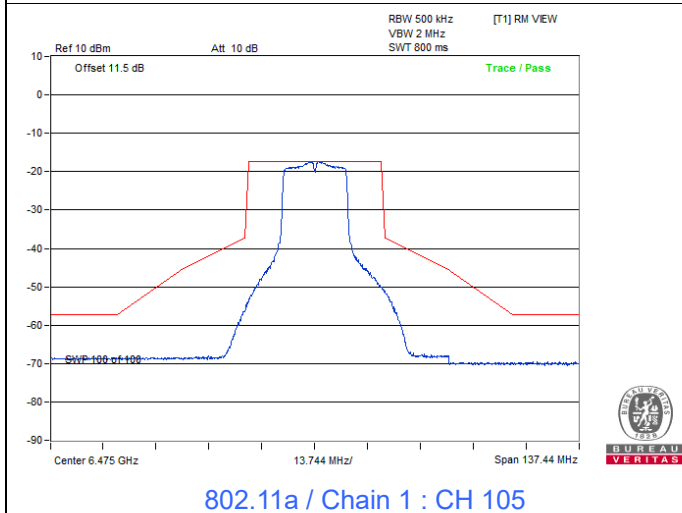
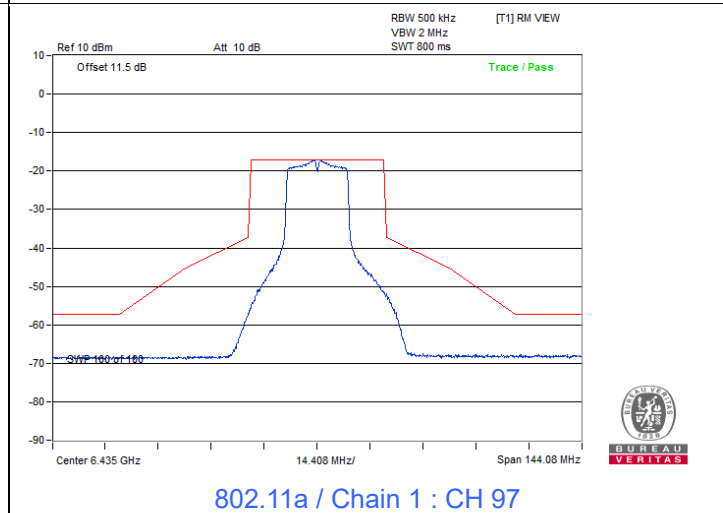
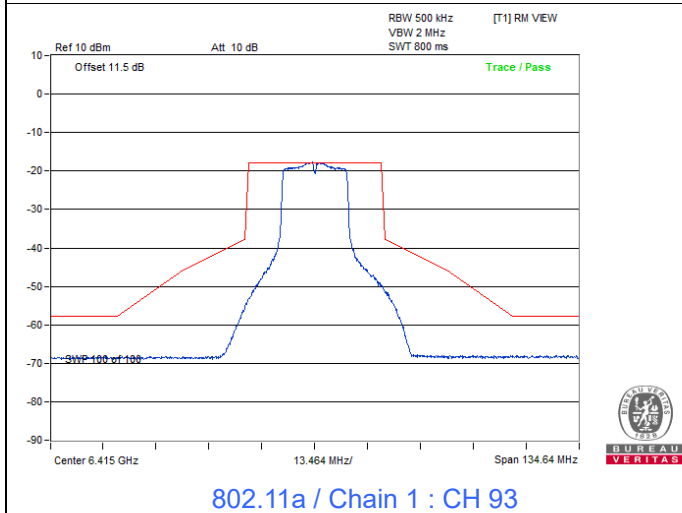
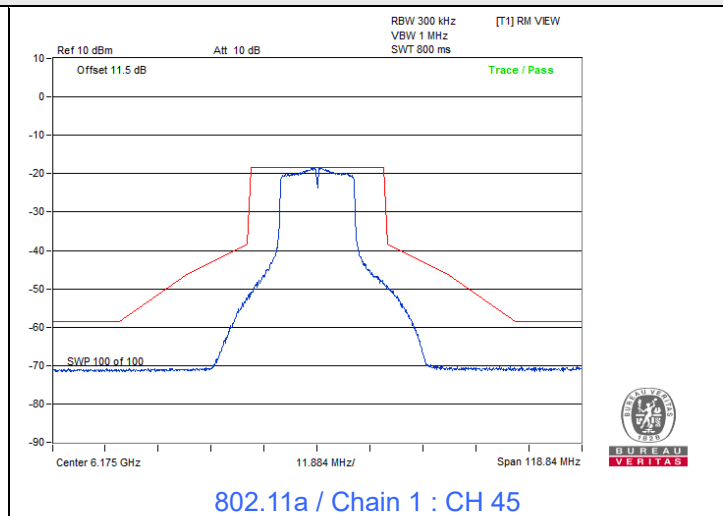
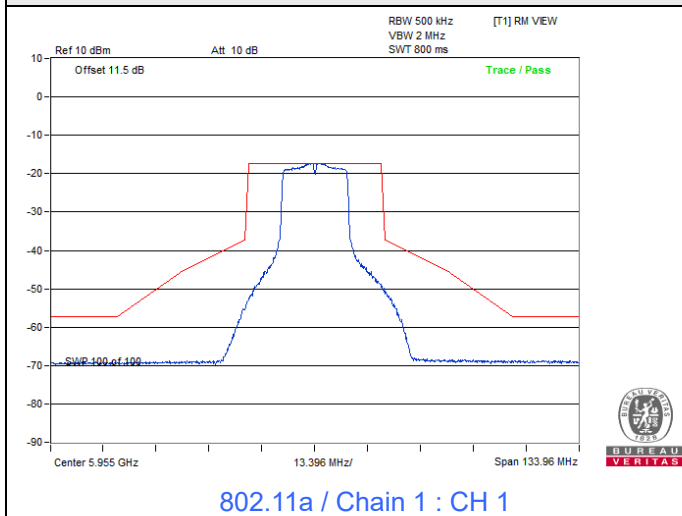
802.11a / Chain 0 : CH 113



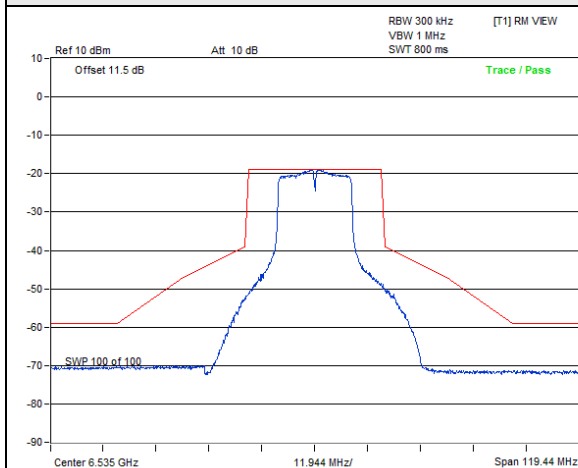
Spectrum Plot



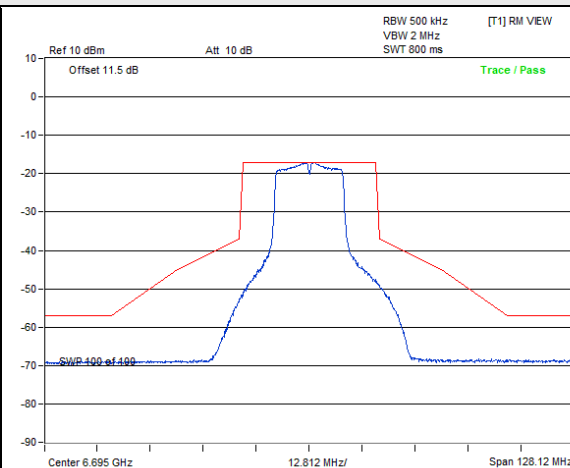
Spectrum Plot



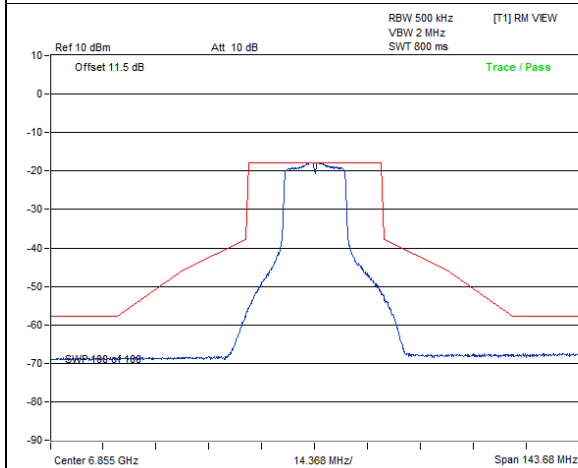
Spectrum Plot



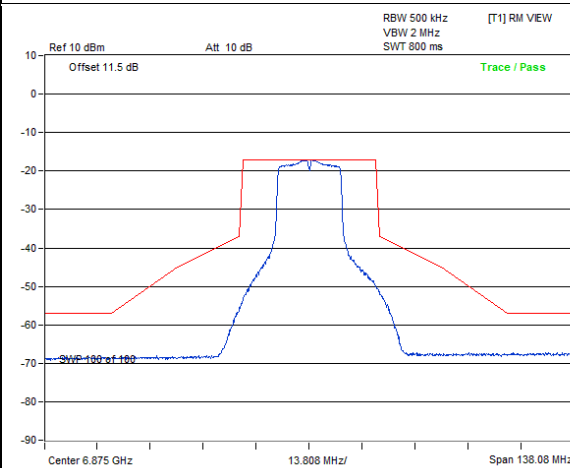
802.11a / Chain 1 : CH 117



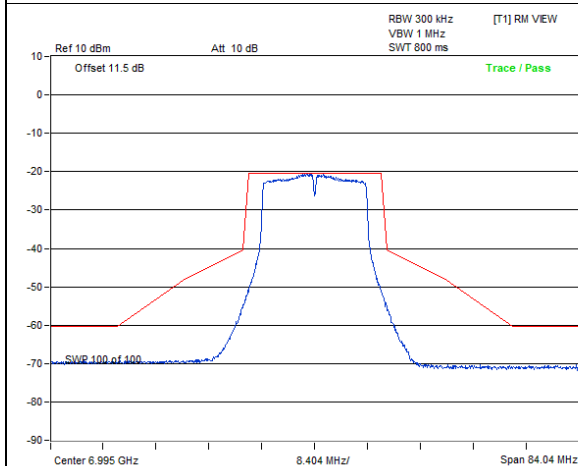
802.11a / Chain 1 : CH 149



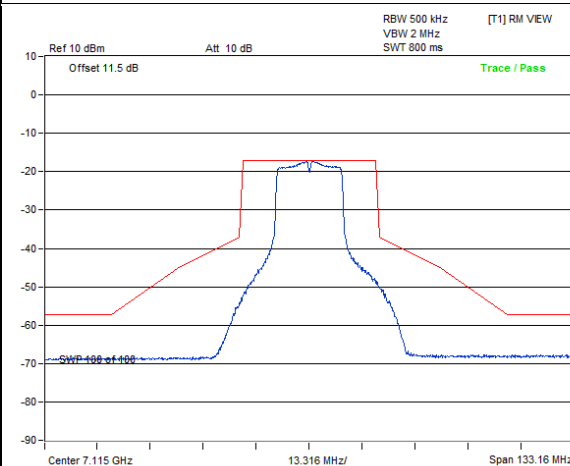
802.11a / Chain 1 : CH 181



802.11a / Chain 1 : CH 185



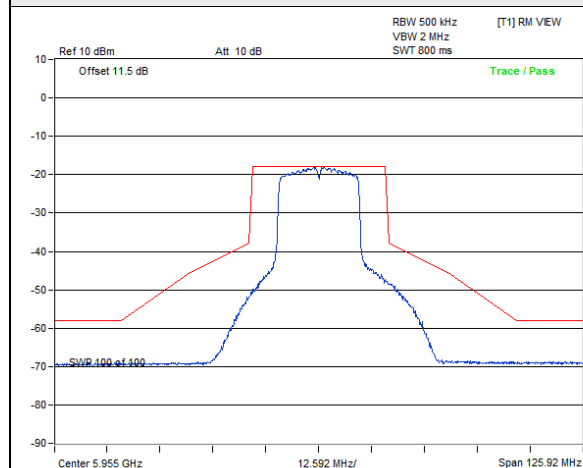
802.11a / Chain 1 : CH 209



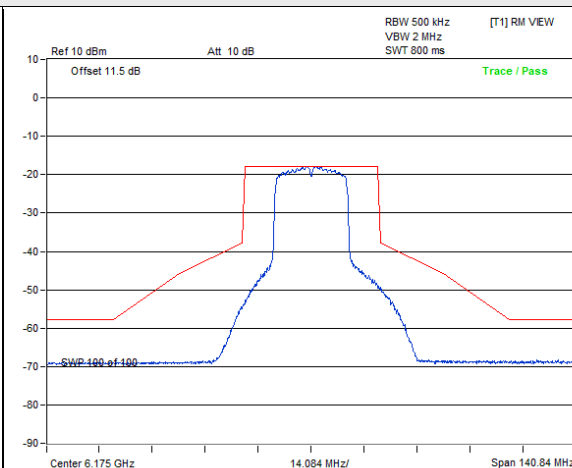
802.11a / Chain 1 : CH 233

802.11ax (HE20) Full RU

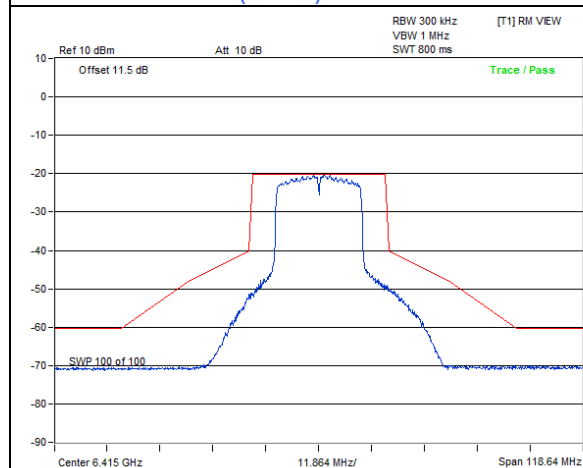
Spectrum Plot



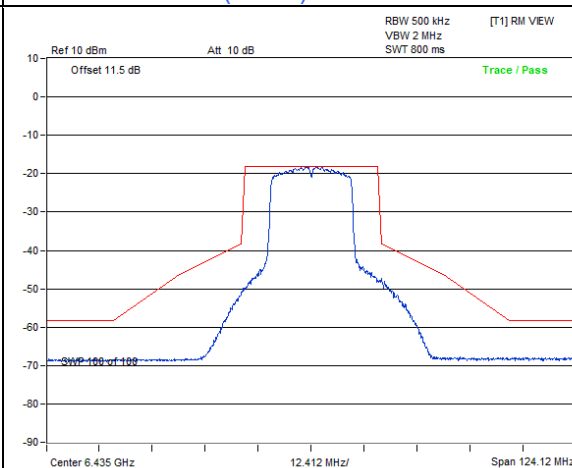
802.11ax (HE20) Full RU / Chain 0 : CH 1



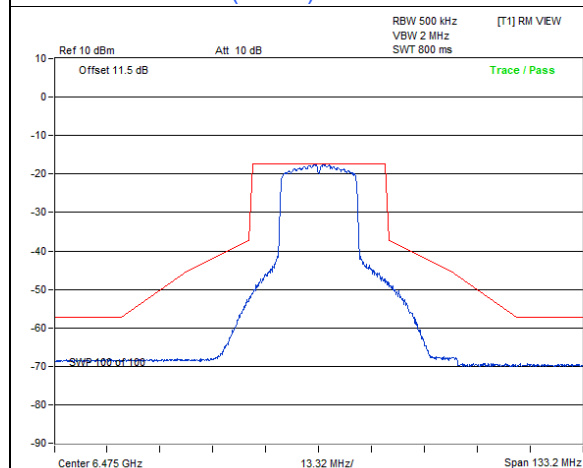
802.11ax (HE20) Full RU / Chain 0 : CH 45



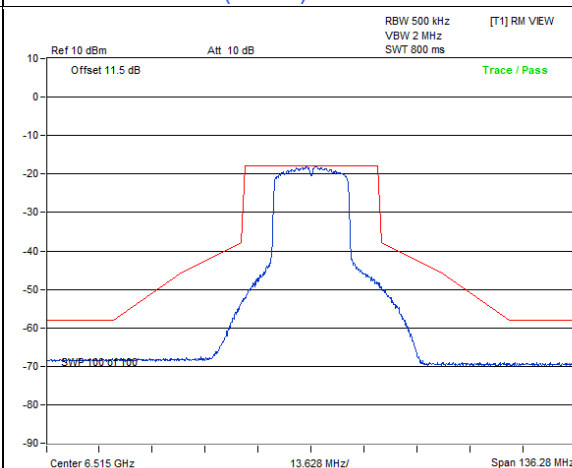
802.11ax (HE20) Full RU / Chain 0 : CH 93



802.11ax (HE20) Full RU / Chain 0 : CH 97

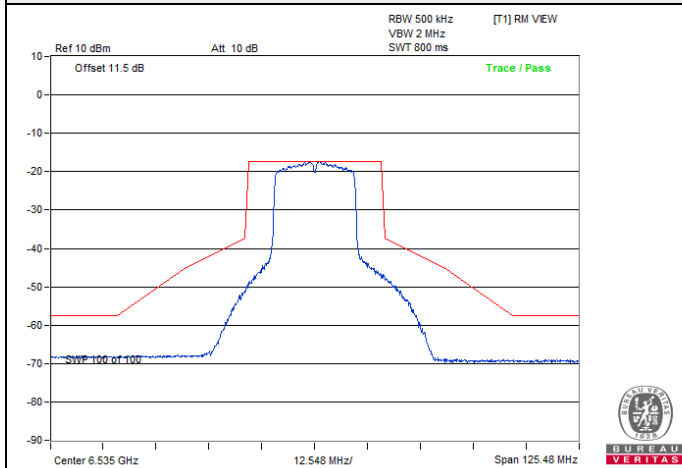


802.11ax (HE20) Full RU / Chain 0 : CH 105

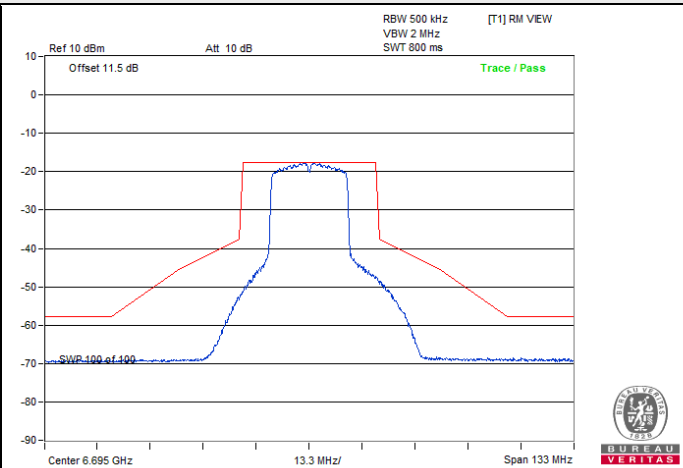


802.11ax (HE20) Full RU / Chain 0 : CH 113

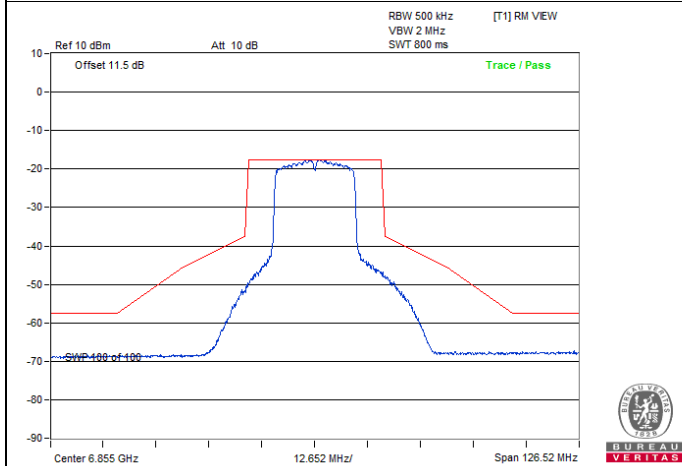
Spectrum Plot



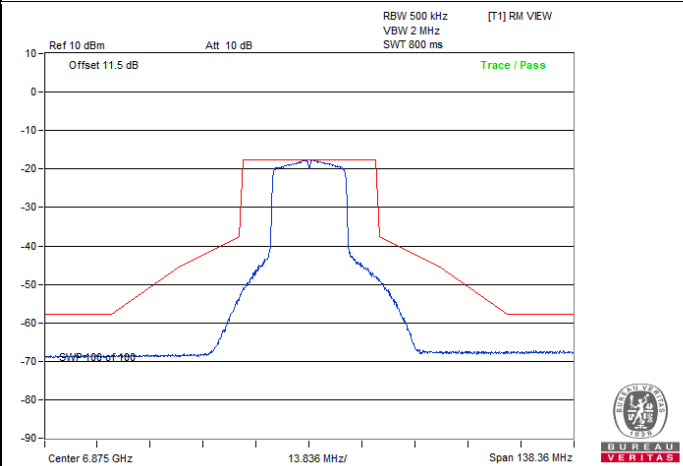
802.11ax (HE20) Full RU / Chain 0 : CH 117



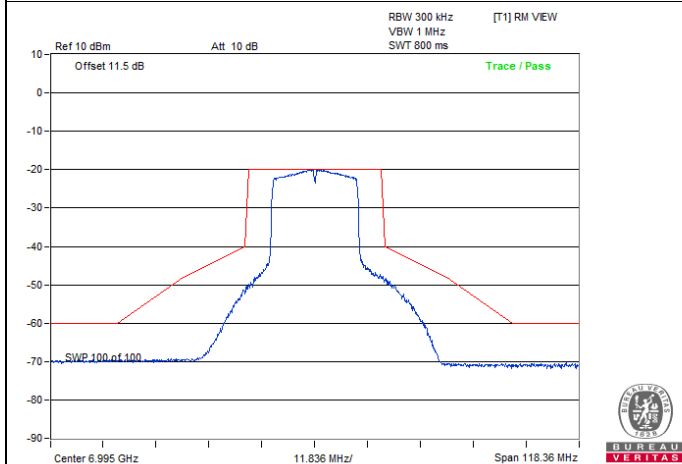
802.11ax (HE20) Full RU / Chain 0 : CH 149



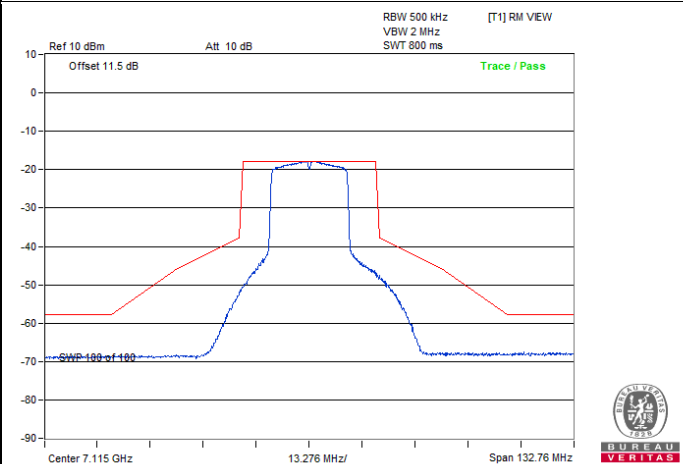
802.11ax (HE20) Full RU / Chain 0 : CH 181



802.11ax (HE20) Full RU / Chain 0 : CH 185

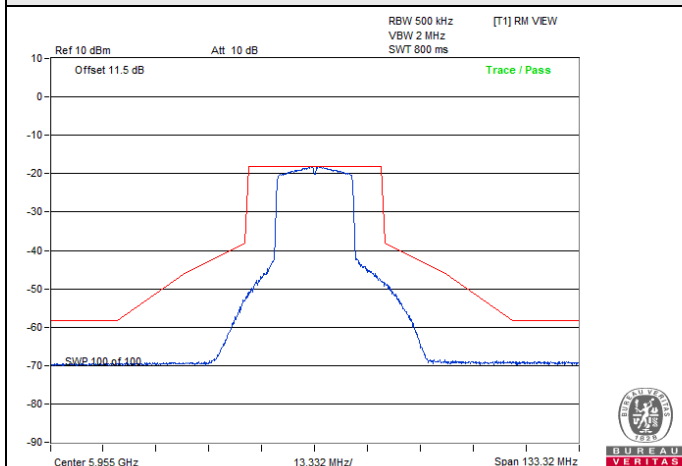


802.11ax (HE20) Full RU / Chain 0 : CH 209

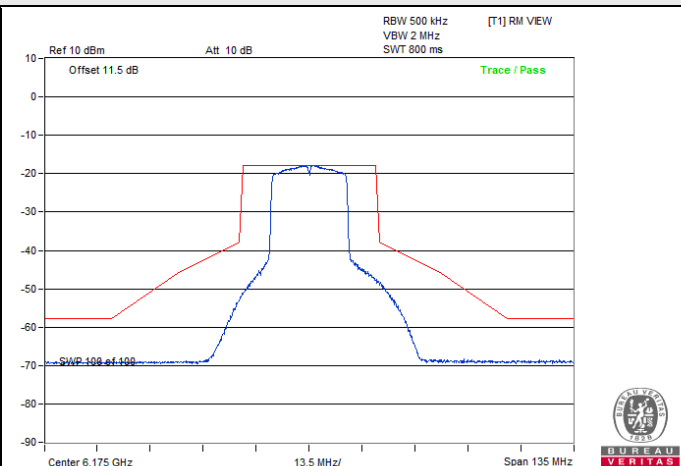


802.11ax (HE20) Full RU / Chain 0 : CH 233

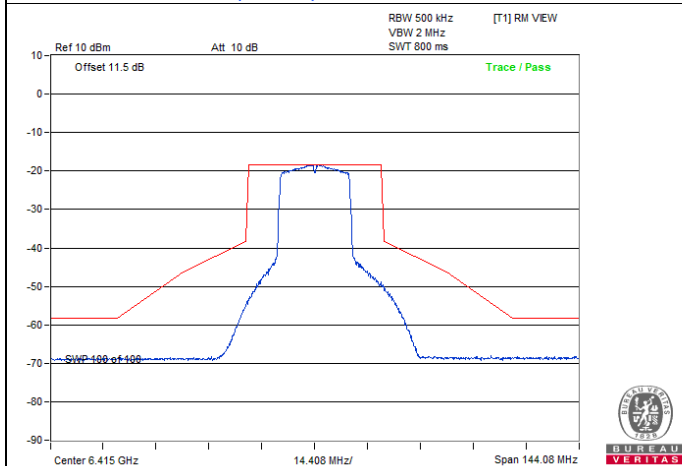
Spectrum Plot



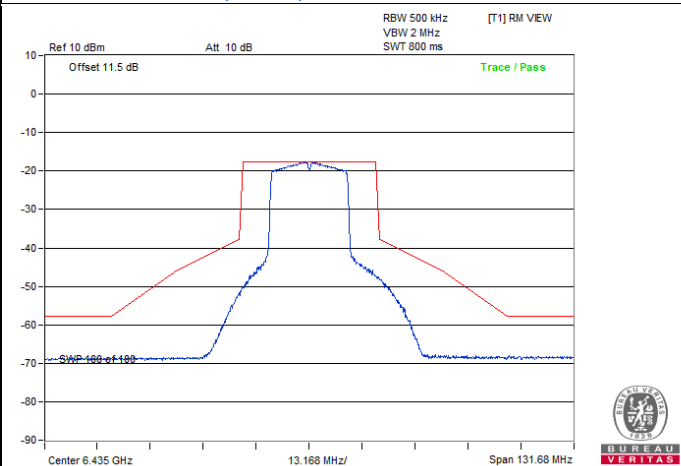
802.11ax (HE20) Full RU / Chain 1 : CH 1



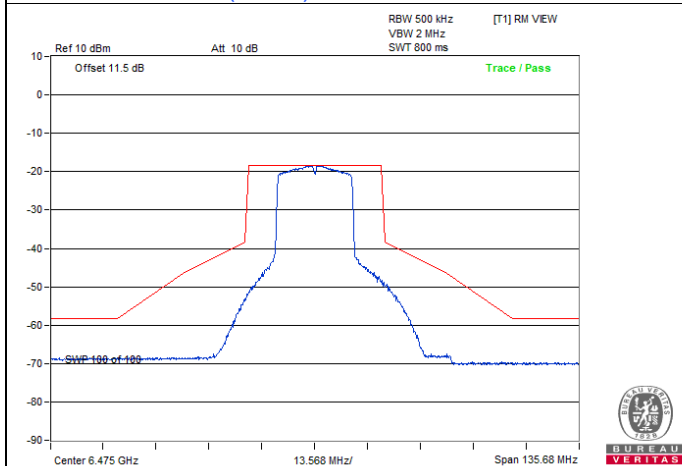
802.11ax (HE20) Full RU / Chain 1 : CH 45



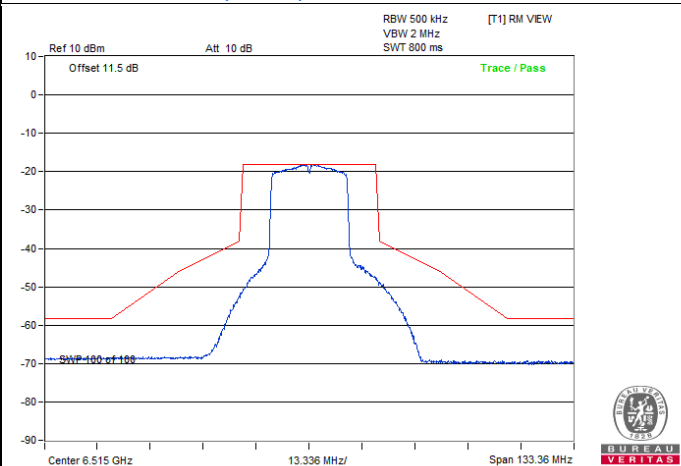
802.11ax (HE20) Full RU / Chain 1 : CH 93



802.11ax (HE20) Full RU / Chain 1 : CH 97

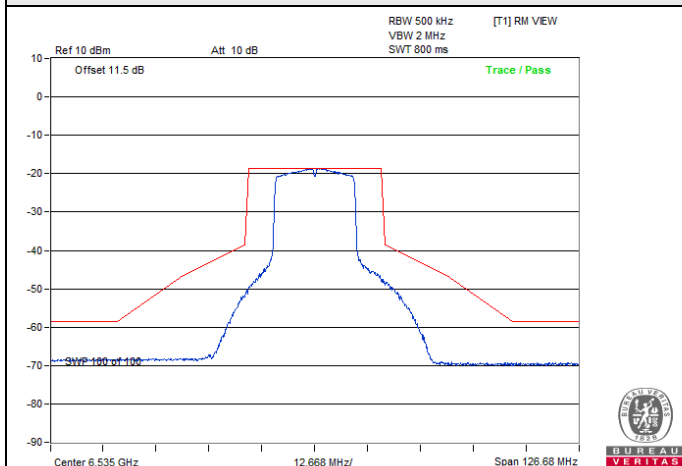


802.11ax (HE20) Full RU / Chain 1 : CH 105

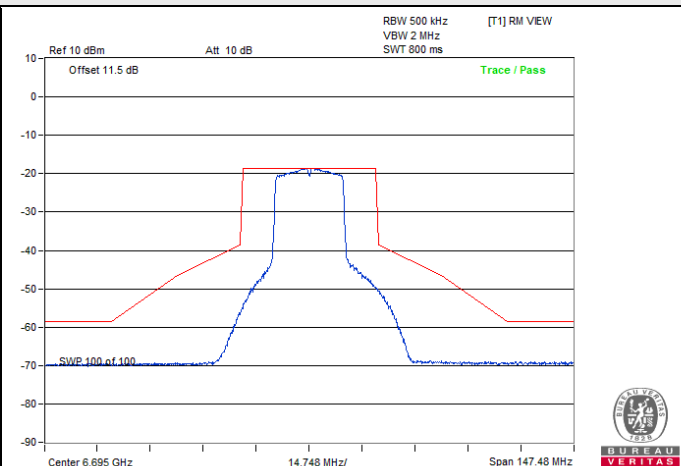


802.11ax (HE20) Full RU / Chain 1 : CH 113

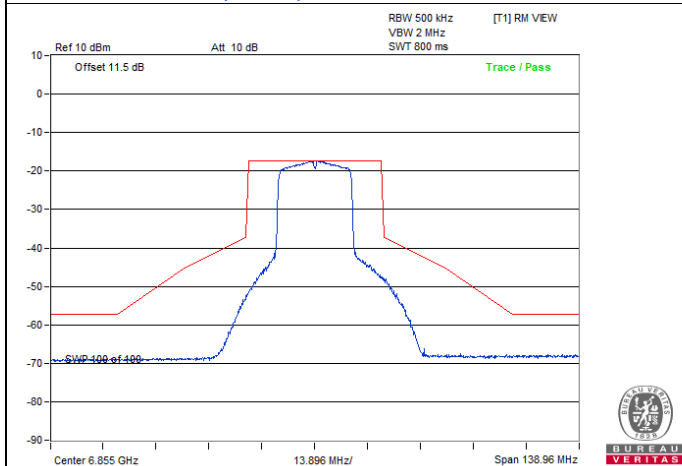
Spectrum Plot



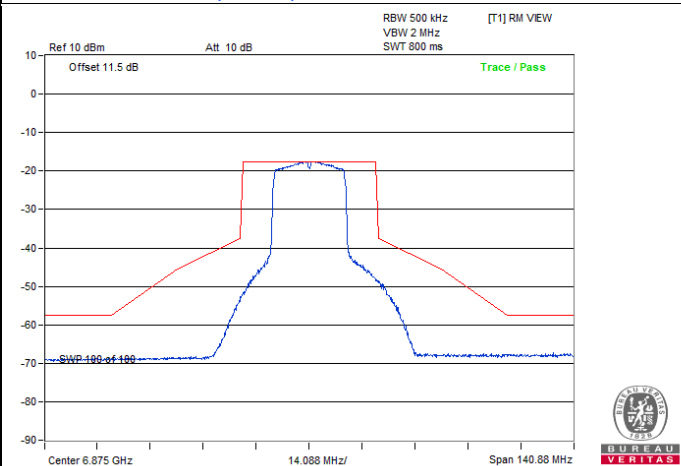
802.11ax (HE20) Full RU / Chain 1 : CH 117



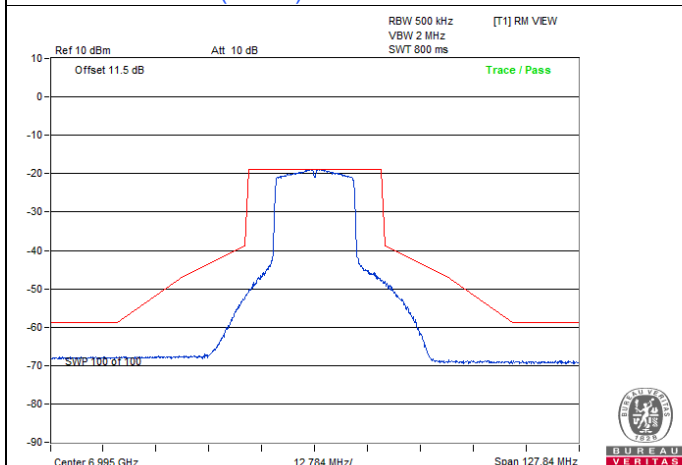
802.11ax (HE20) Full RU / Chain 1 : CH 149



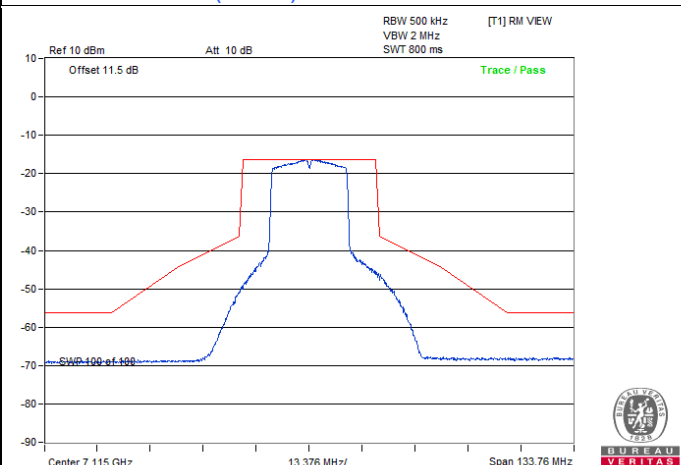
802.11ax (HE20) Full RU / Chain 1 : CH 181



802.11ax (HE20) Full RU / Chain 1 : CH 185



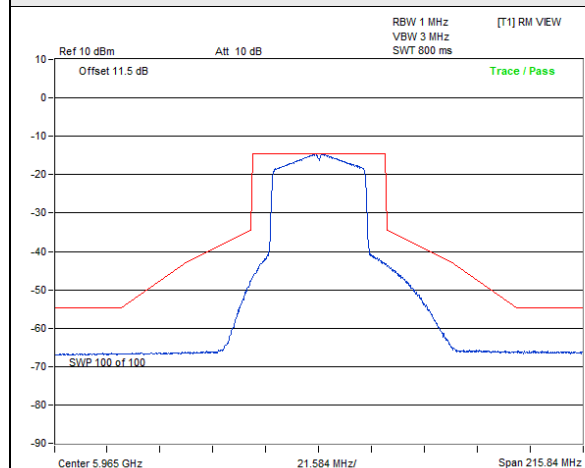
802.11ax (HE20) Full RU / Chain 1 : CH 209



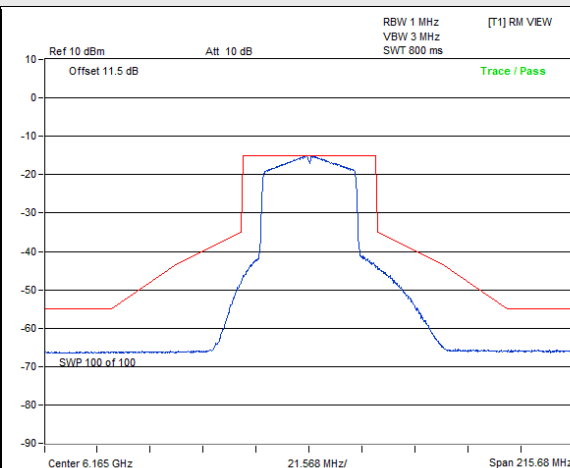
802.11ax (HE20) Full RU / Chain 1 : CH 233

802.11ax (HE40) Full RU

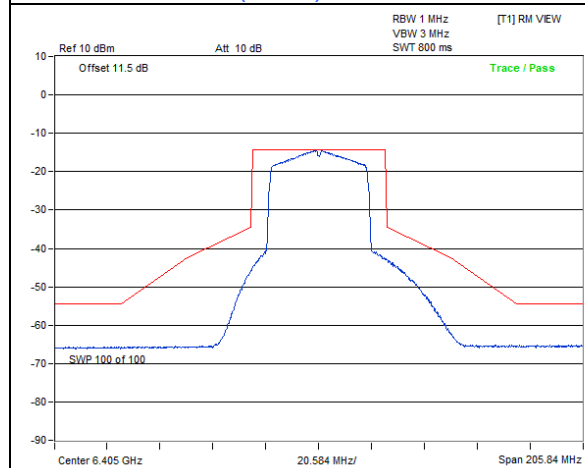
Spectrum Plot



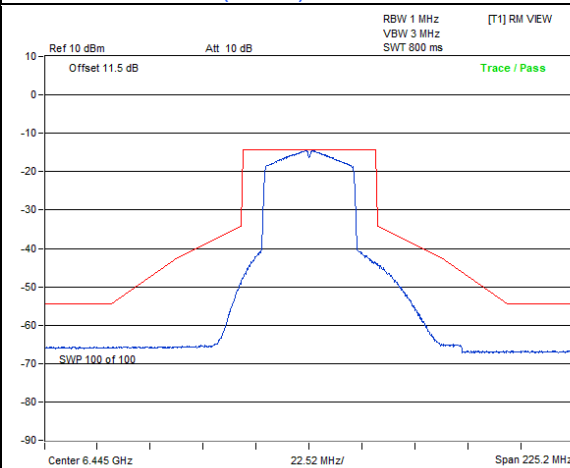
802.11ax (HE40) Full RU / Chain 0 : CH 3



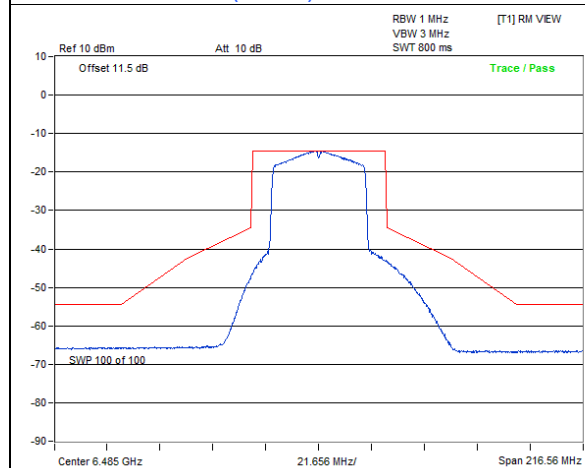
802.11ax (HE40) Full RU / Chain 0 : CH 43



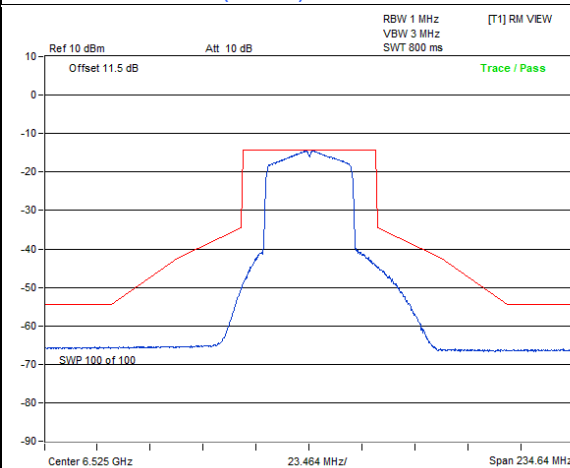
802.11ax (HE40) Full RU / Chain 0 : CH 91



802.11ax (HE40) Full RU / Chain 0 : CH 99

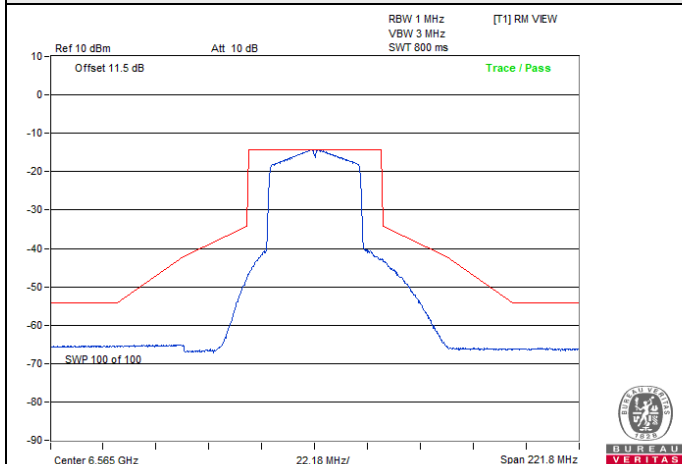


802.11ax (HE40) Full RU / Chain 0 : CH 107

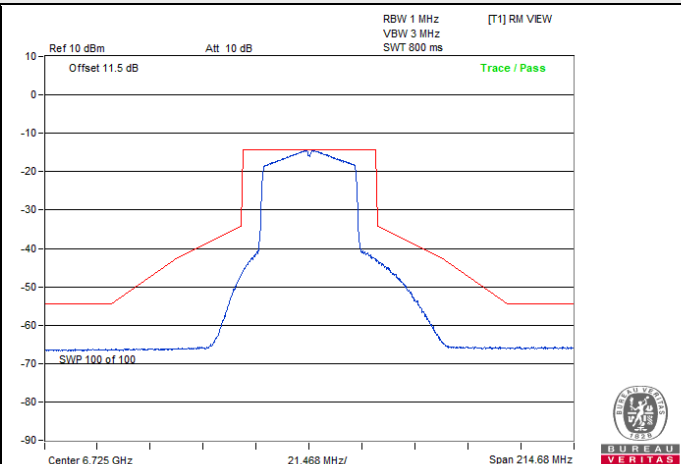


802.11ax (HE40) Full RU / Chain 0 : CH 115

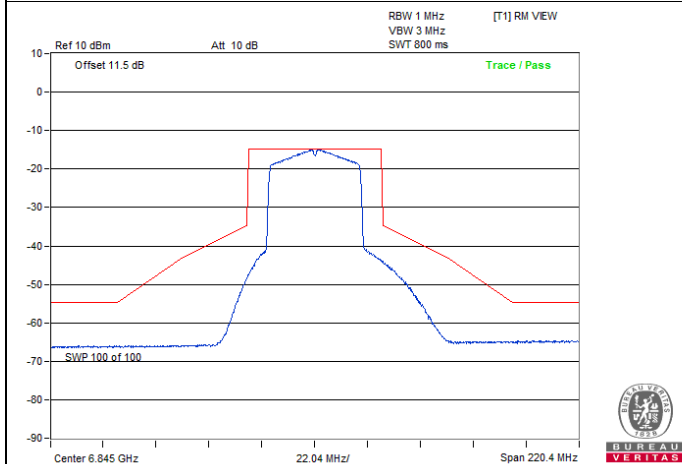
Spectrum Plot



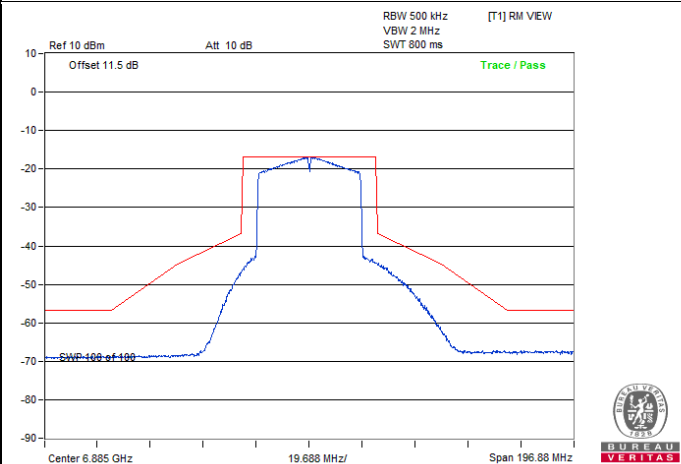
802.11ax (HE40) Full RU / Chain 0 : CH 123



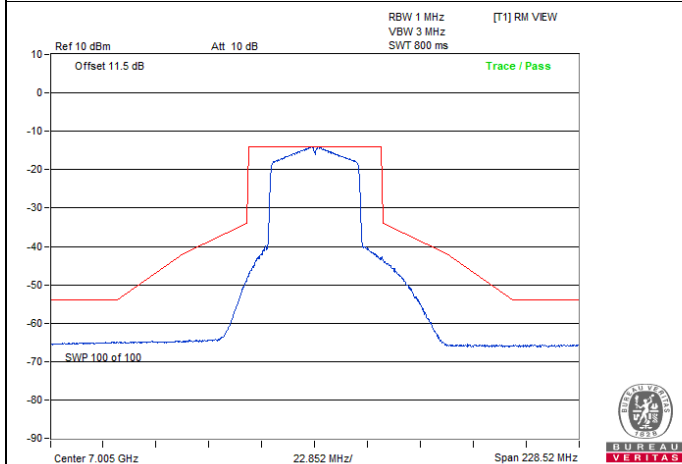
802.11ax (HE40) Full RU / Chain 0 : CH 155



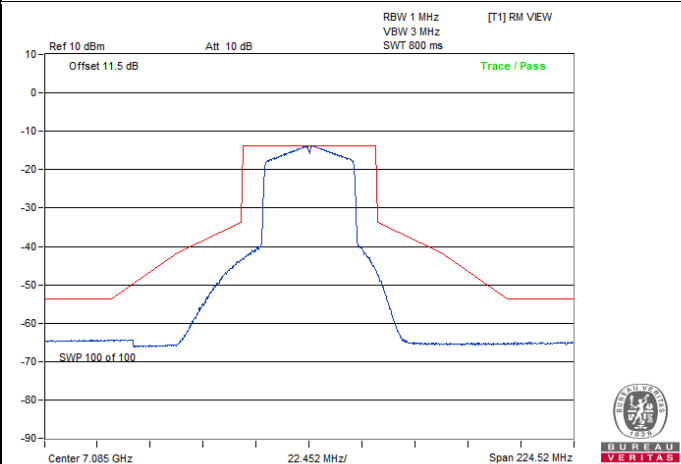
802.11ax (HE40) Full RU / Chain 0 : CH 179



802.11ax (HE40) Full RU / Chain 0 : CH 187

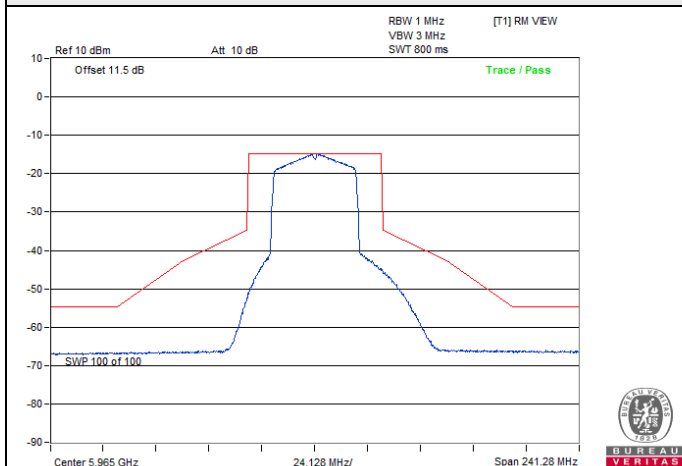


802.11ax (HE40) Full RU / Chain 0 : CH 211

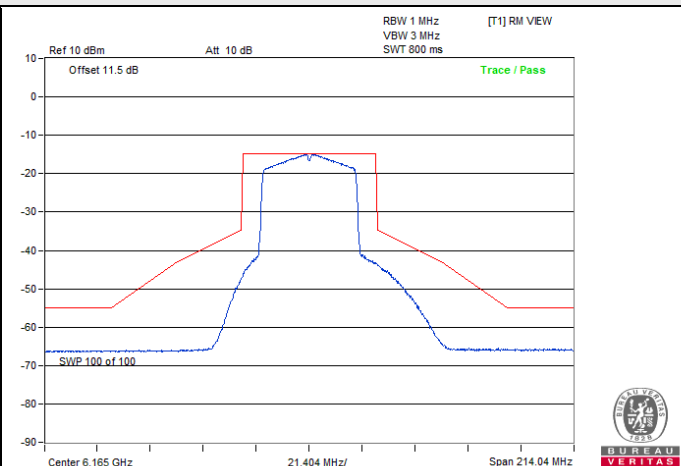


802.11ax (HE40) Full RU / Chain 0 : CH 227

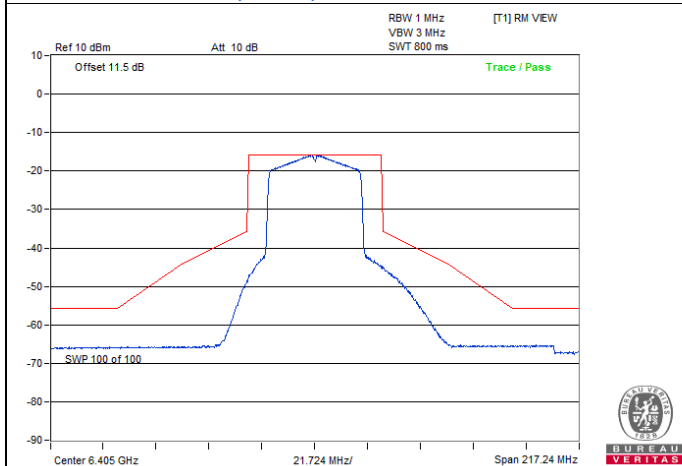
Spectrum Plot



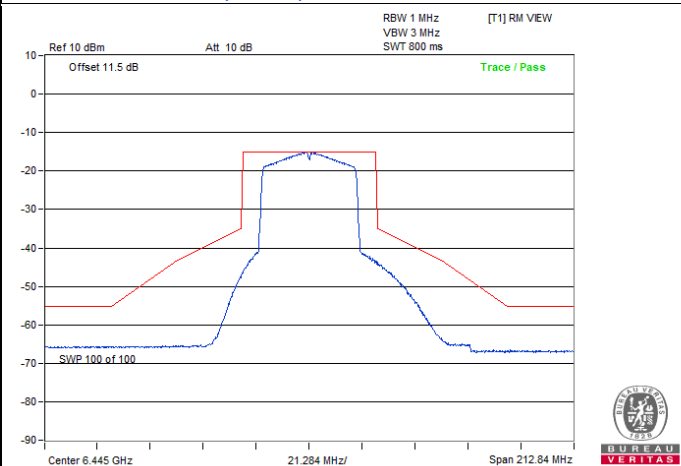
802.11ax (HE40) Full RU / Chain 1 : CH 3



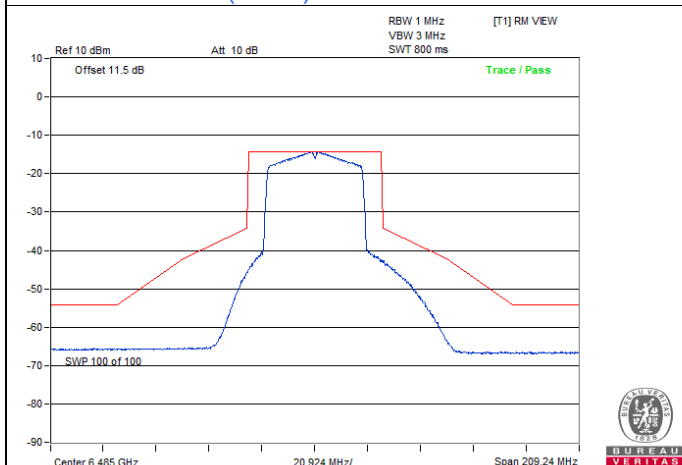
802.11ax (HE40) Full RU / Chain 1 : CH 43



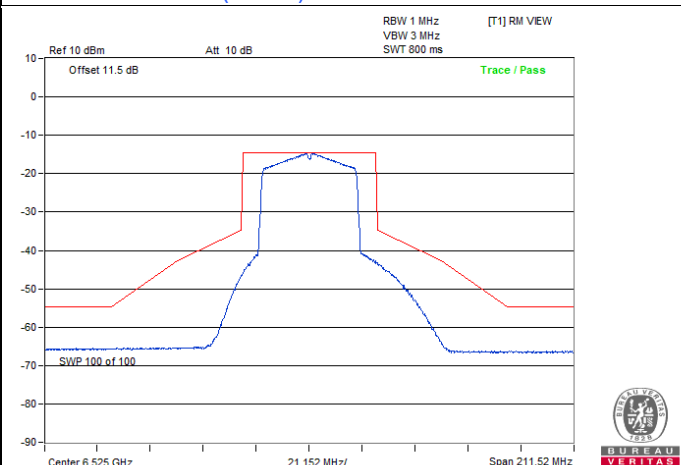
802.11ax (HE40) Full RU / Chain 1 : CH 91



802.11ax (HE40) Full RU / Chain 1 : CH 99

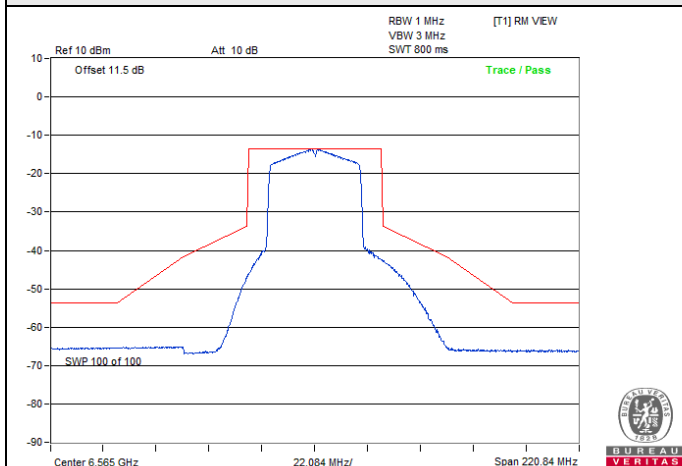


802.11ax (HE40) Full RU / Chain 1 : CH 107

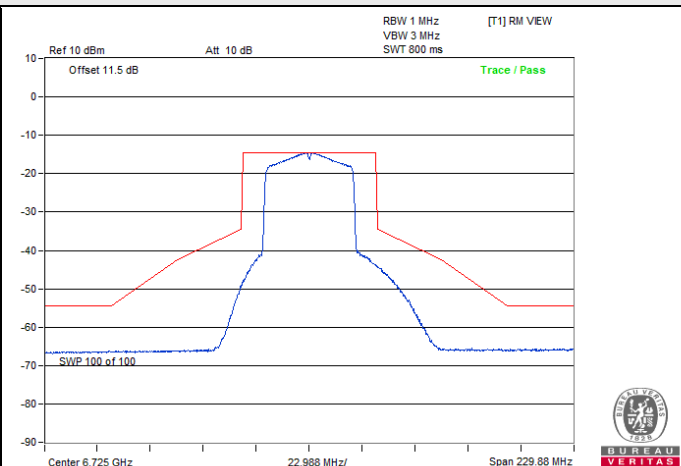


802.11ax (HE40) Full RU / Chain 1 : CH 115

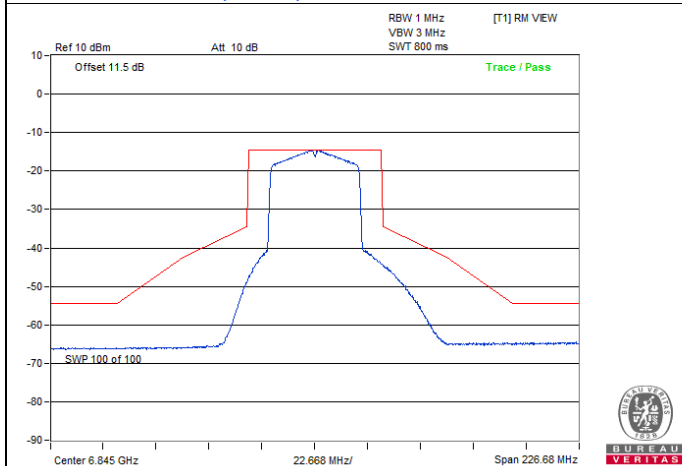
Spectrum Plot



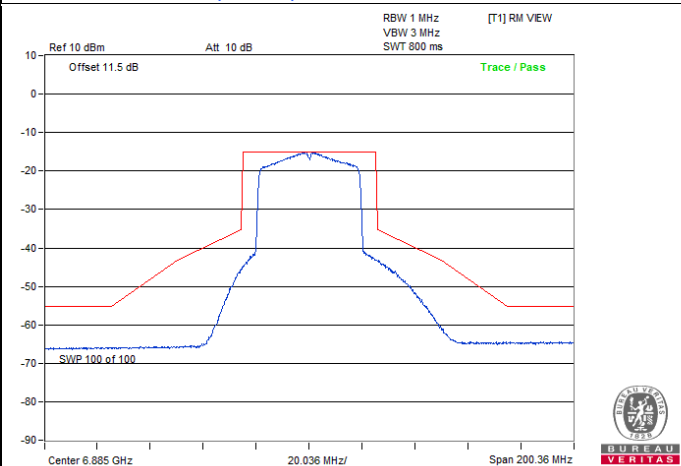
802.11ax (HE40) Full RU / Chain 1 : CH 123



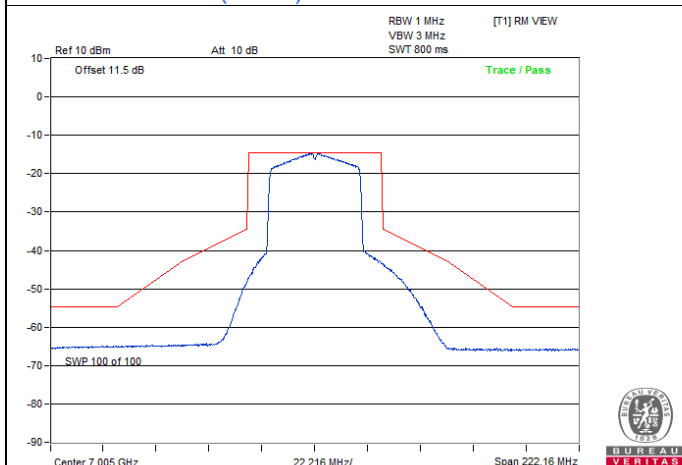
802.11ax (HE40) Full RU / Chain 1 : CH 155



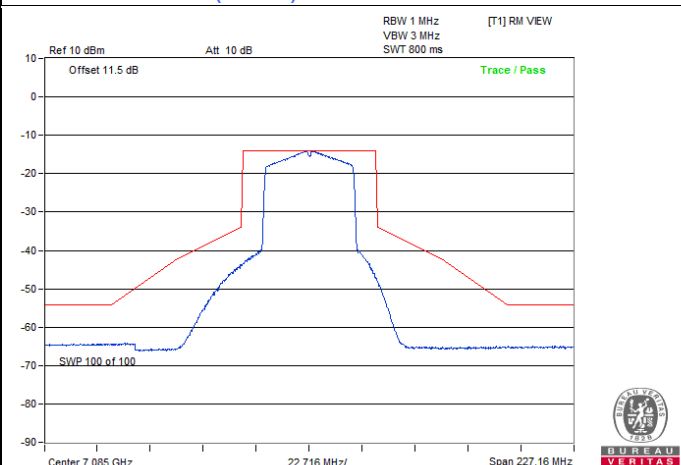
802.11ax (HE40) Full RU / Chain 1 : CH 179



802.11ax (HE40) Full RU / Chain 1 : CH 187



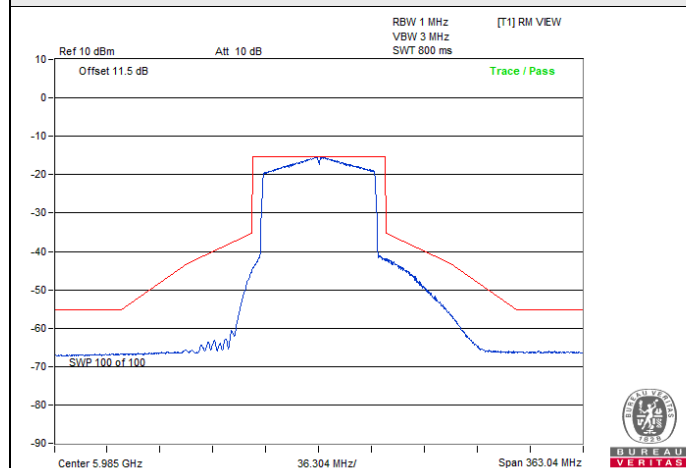
802.11ax (HE40) Full RU / Chain 1 : CH 211



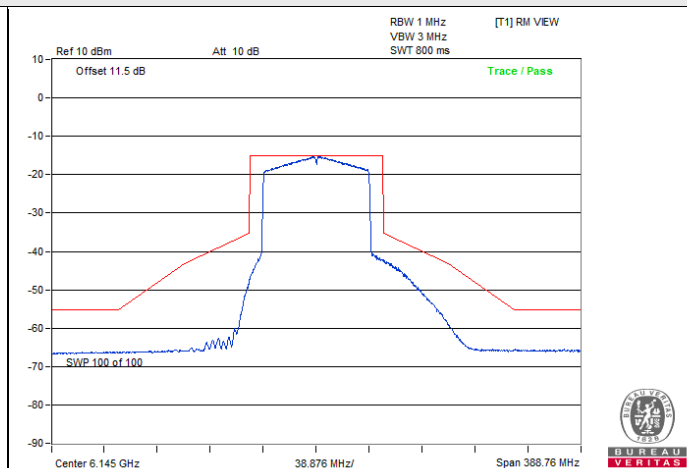
802.11ax (HE40) Full RU / Chain 1 : CH 227

802.11ax (HE80) Full RU

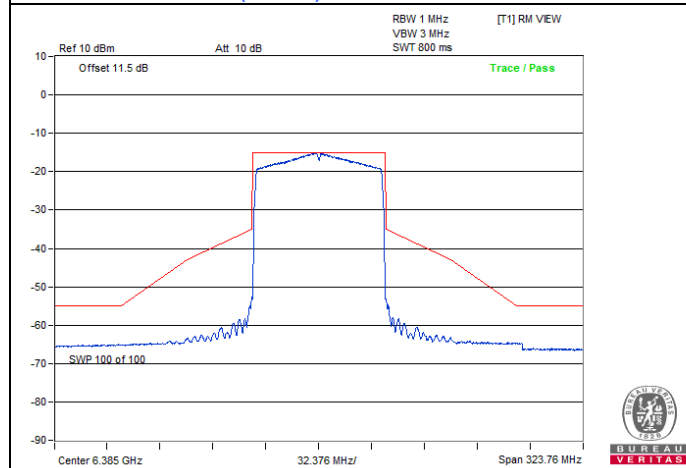
Spectrum Plot



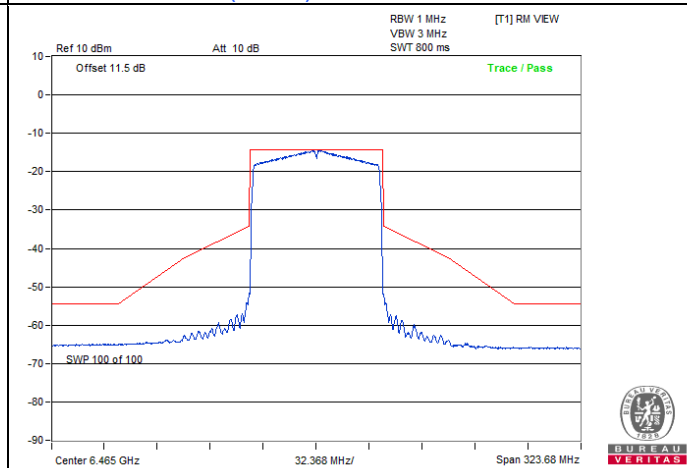
802.11ax (HE80) Full RU / Chain 0 : CH 7



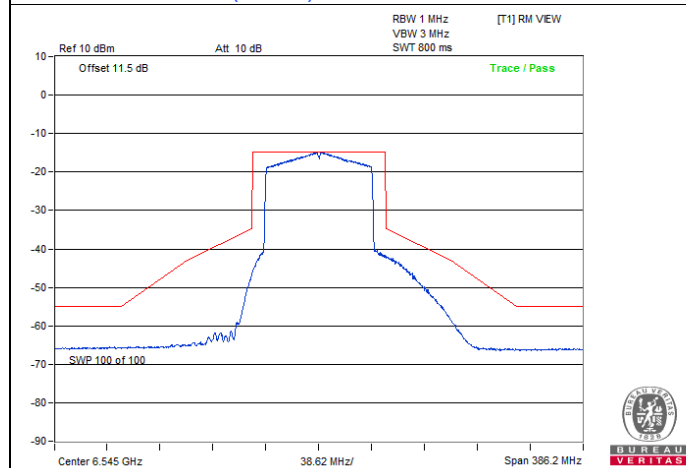
802.11ax (HE80) Full RU / Chain 0 : CH 39



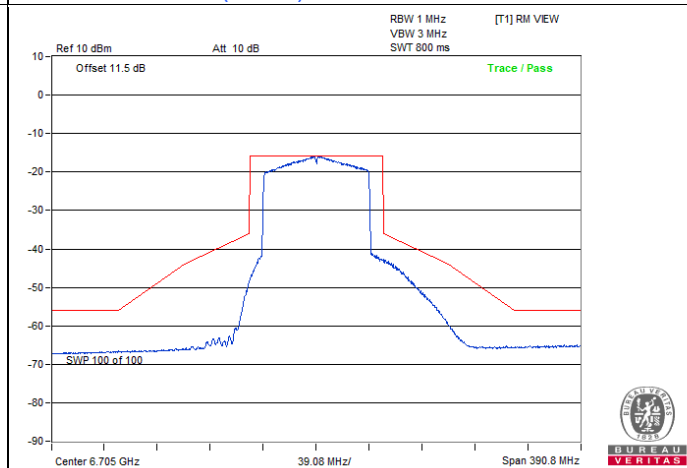
802.11ax (HE80) Full RU / Chain 0 : CH 87



802.11ax (HE80) Full RU / Chain 0 : CH 103

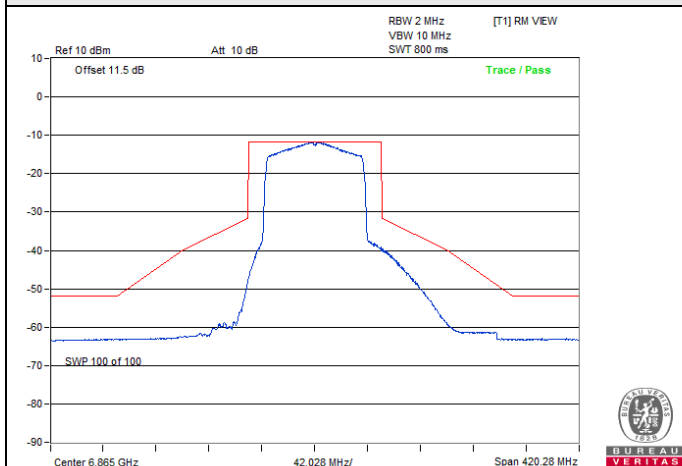


802.11ax (HE80) Full RU / Chain 0 : CH 119

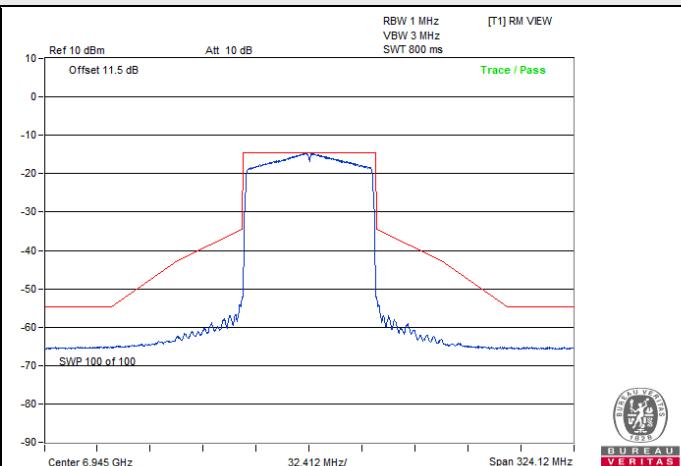


802.11ax (HE80) Full RU / Chain 0 : CH 151

Spectrum Plot



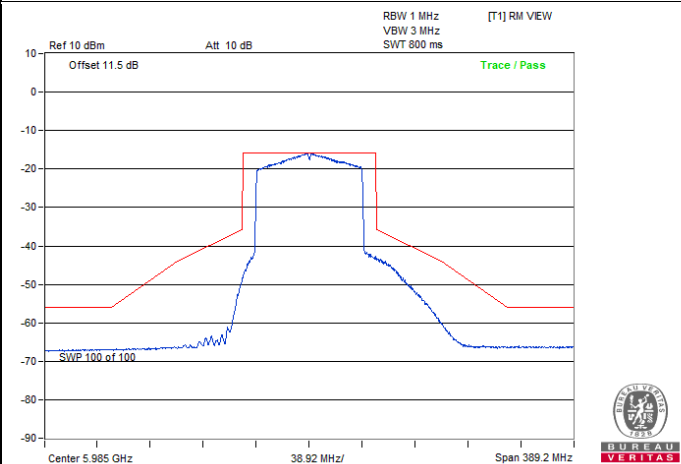
802.11ax (HE80) Full RU / Chain 0 : CH 183



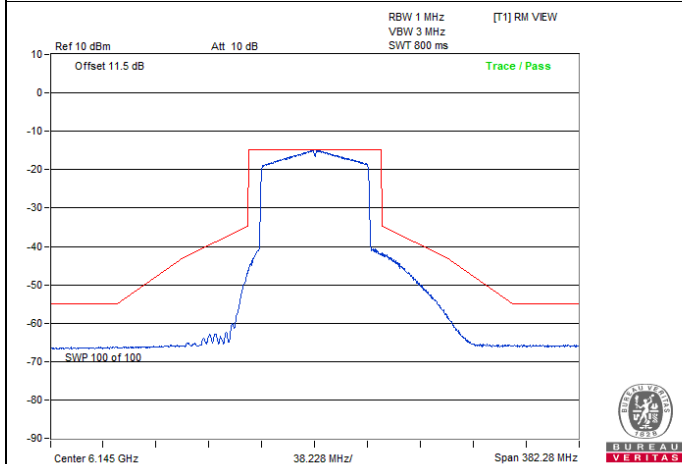
802.11ax (HE80) Full RU / Chain 0 : CH 199



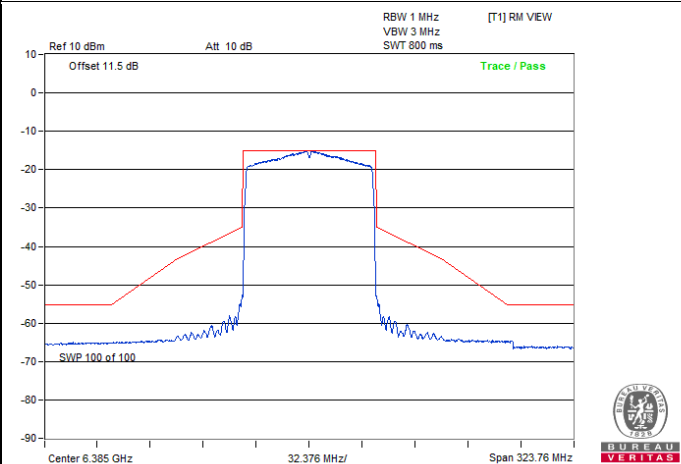
802.11ax (HE80) Full RU / Chain 0 : CH 215



802.11ax (HE80) Full RU / Chain 1 : CH 7

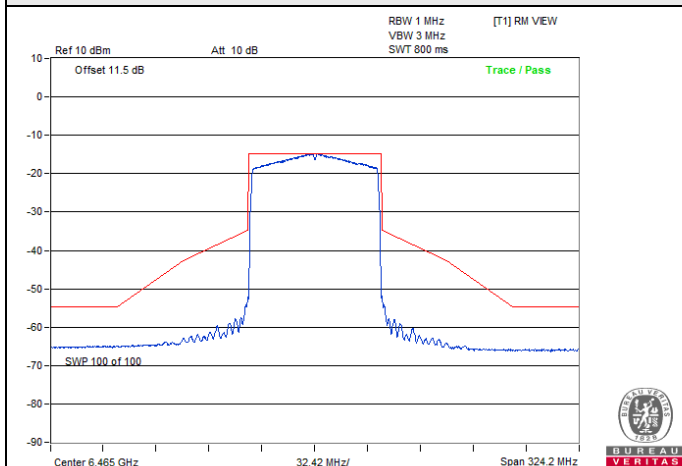


802.11ax (HE80) Full RU / Chain 1 : CH 39

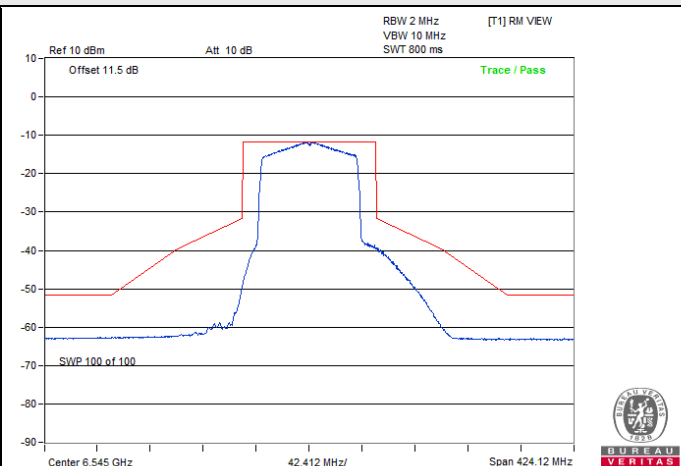


802.11ax (HE80) Full RU / Chain 1 : CH 87

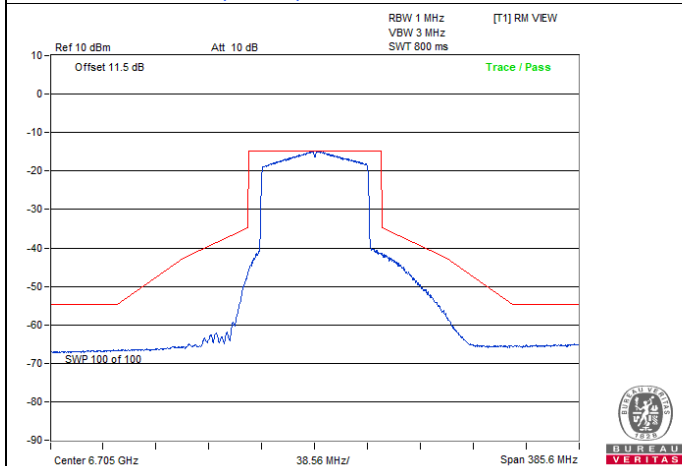
Spectrum Plot



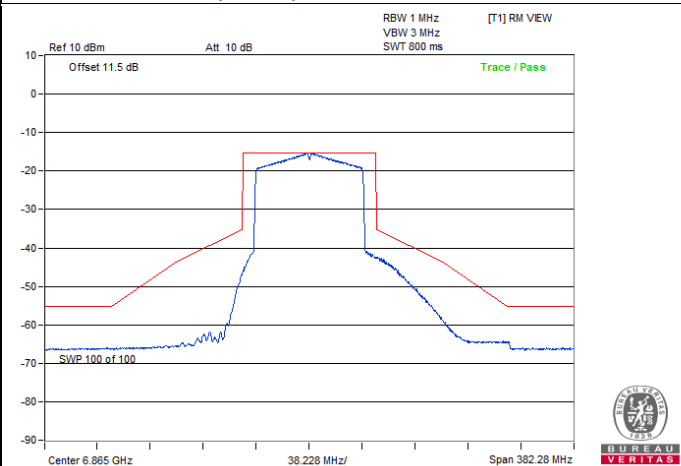
802.11ax (HE80) Full RU / Chain 1 : CH 103



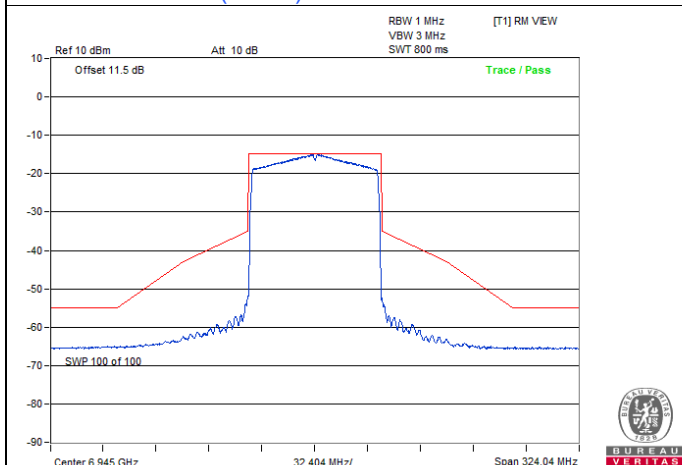
802.11ax (HE80) Full RU / Chain 1 : CH 119



802.11ax (HE80) Full RU / Chain 1 : CH 151



802.11ax (HE80) Full RU / Chain 1 : CH 183



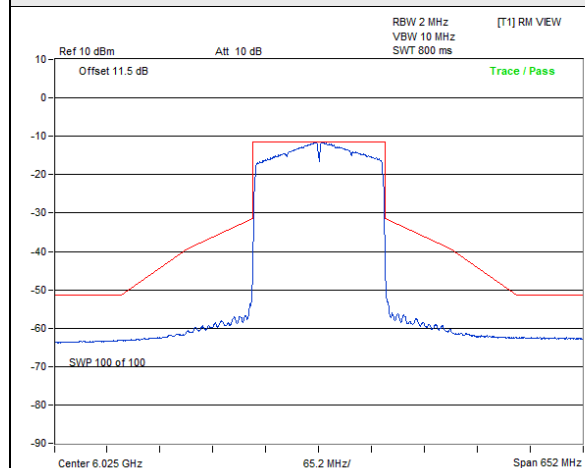
802.11ax (HE80) Full RU / Chain 1 : CH 199



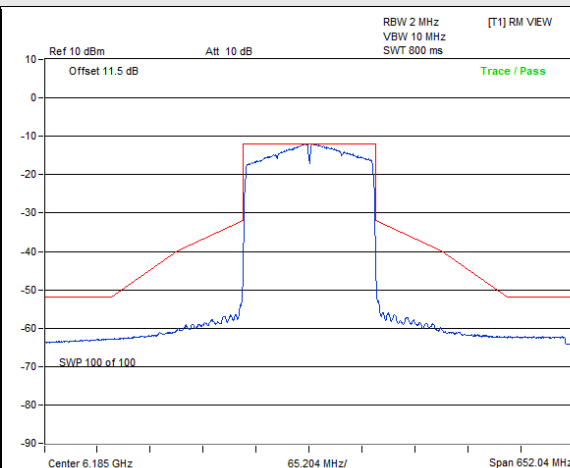
802.11ax (HE80) Full RU / Chain 1 : CH 215

802.11ax (HE160) Full RU

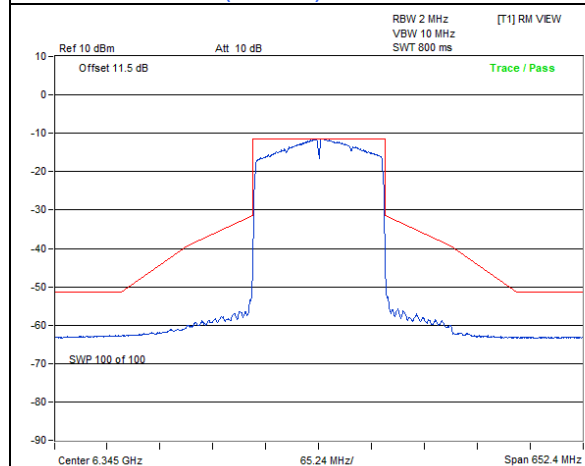
Spectrum Plot



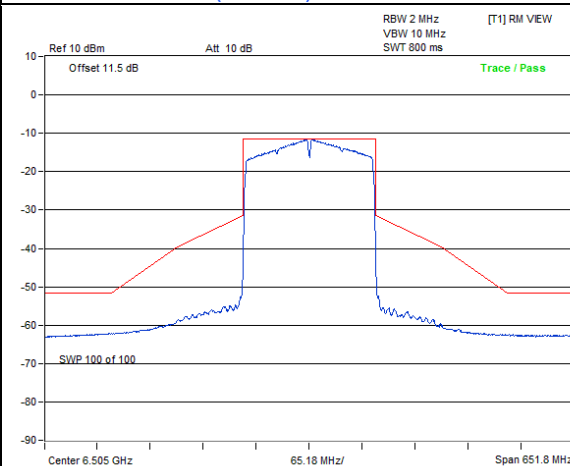
802.11ax (HE160) Full RU / Chain 0 : CH 15



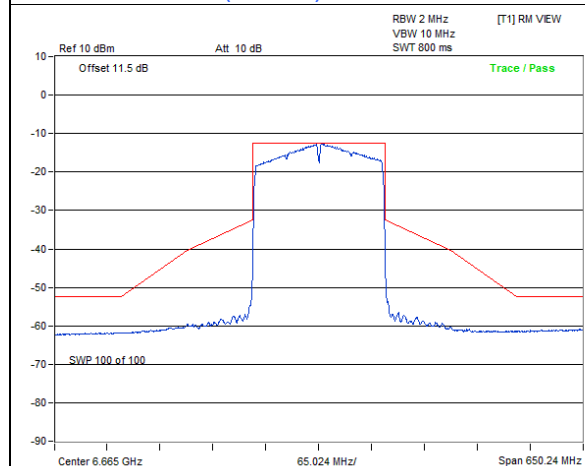
802.11ax (HE160) Full RU / Chain 0 : CH 47



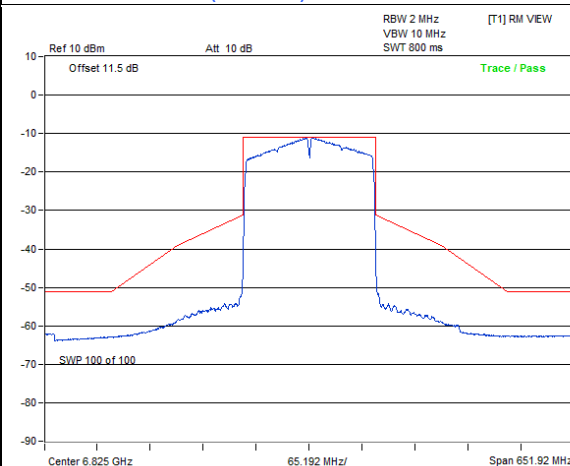
802.11ax (HE160) Full RU / Chain 0 : CH 79



802.11ax (HE160) Full RU / Chain 0 : CH 111

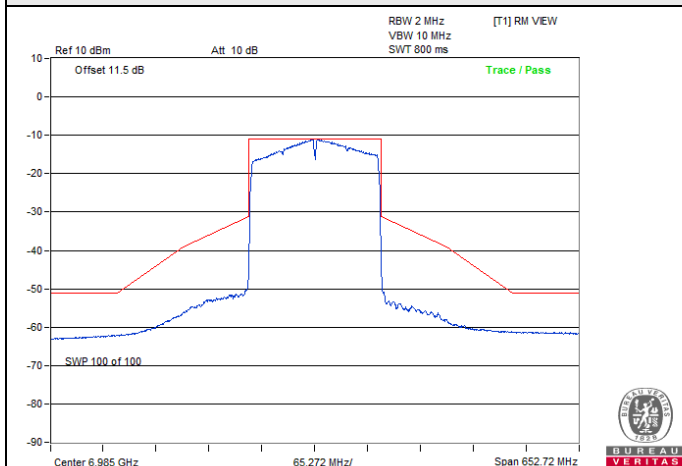


802.11ax (HE160) Full RU / Chain 0 : CH 143

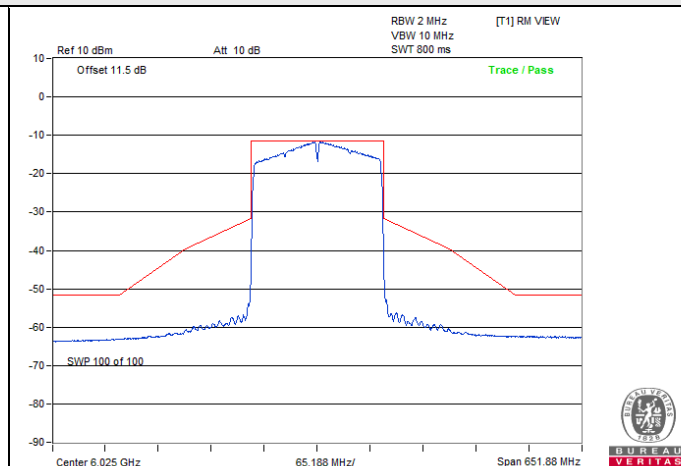


802.11ax (HE160) Full RU / Chain 0 : CH 175

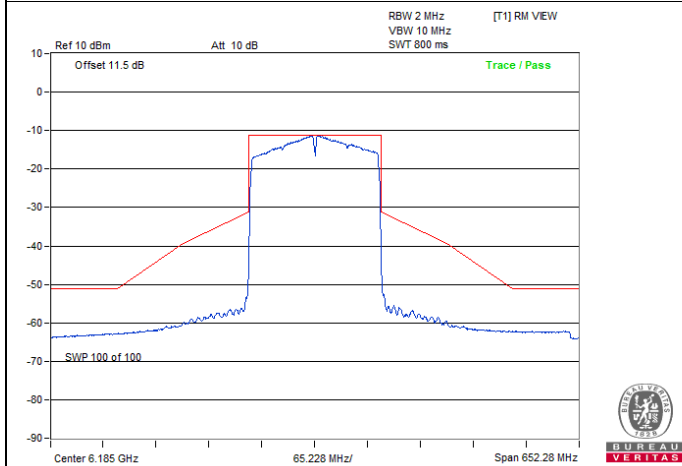
Spectrum Plot



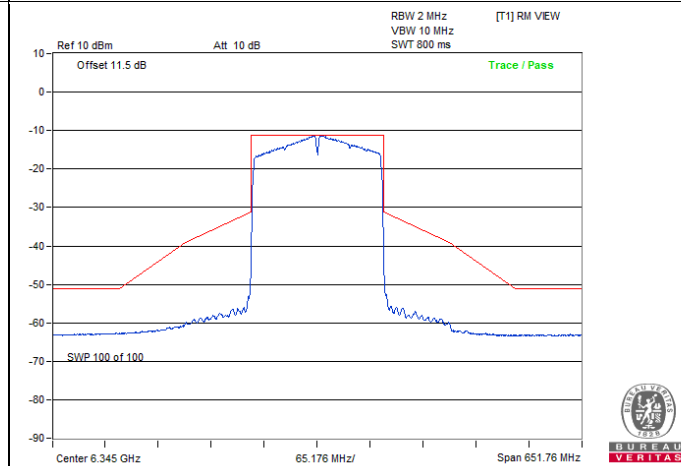
802.11ax (HE160) Full RU / Chain 0 : CH 207



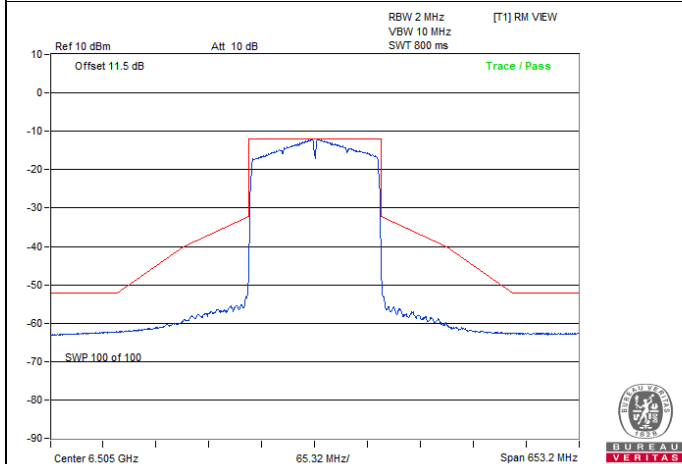
802.11ax (HE160) Full RU / Chain 1 : CH 15



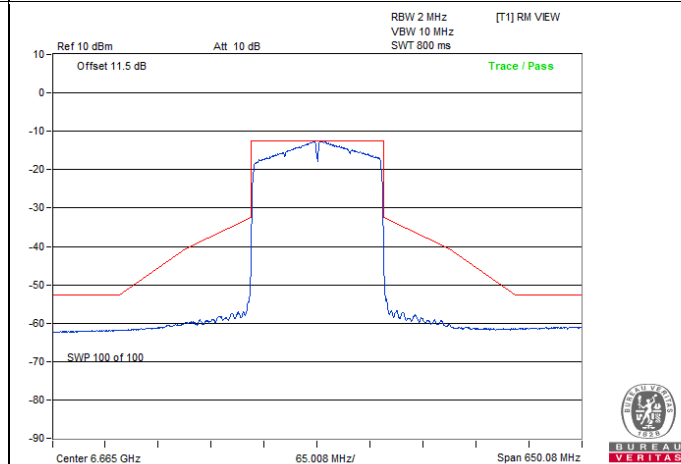
802.11ax (HE160) Full RU / Chain 1 : CH 47



802.11ax (HE160) Full RU / Chain 1 : CH 79

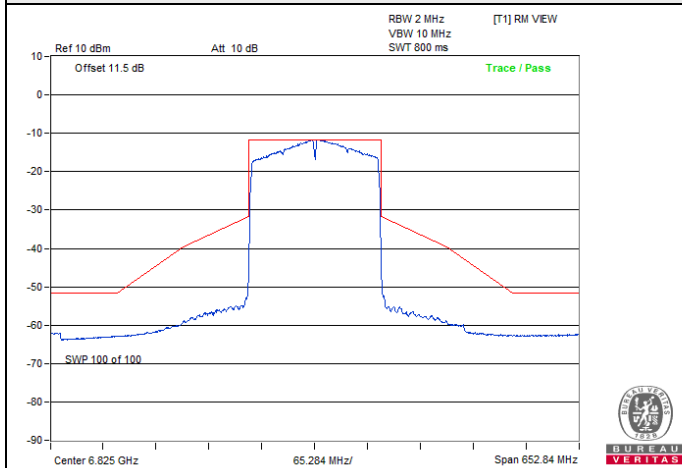


802.11ax (HE160) Full RU / Chain 1 : CH 111

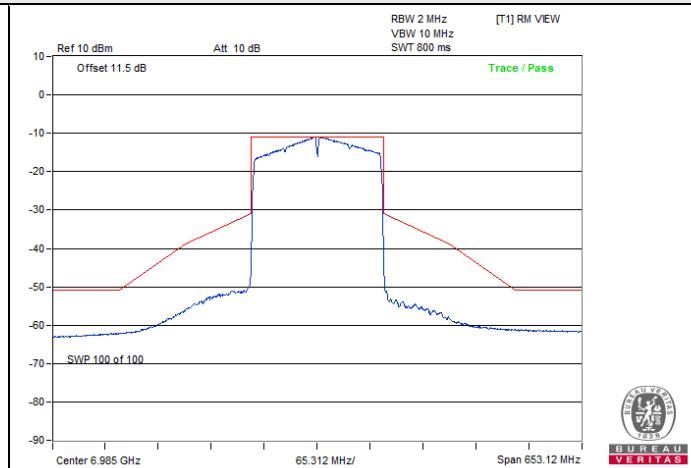


802.11ax (HE160) Full RU / Chain 1 : CH 143

Spectrum Plot



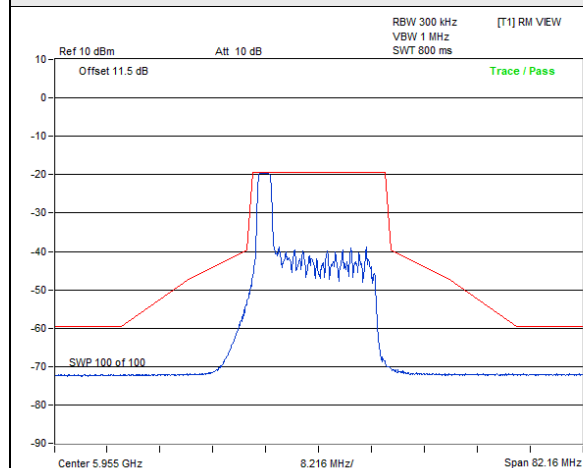
802.11ax (HE160) Full RU / Chain 1 : CH 175



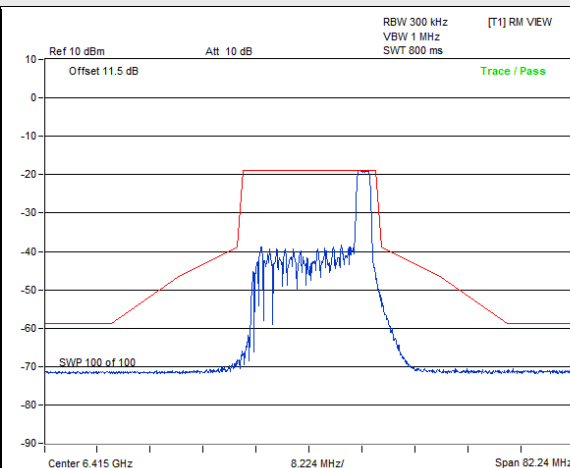
802.11ax (HE160) Full RU / Chain 1 : CH 207

802.11ax (HE20) 26-tone RU

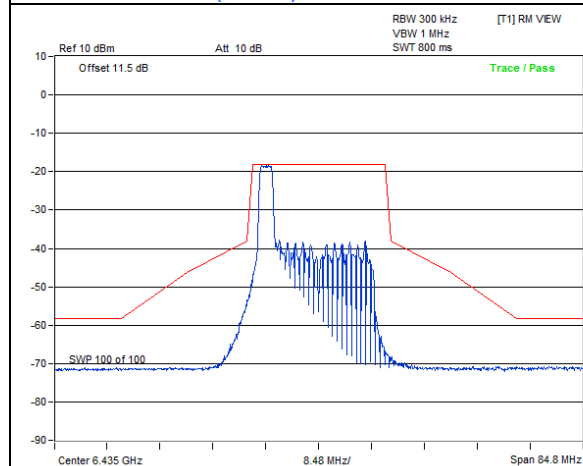
Spectrum Plot



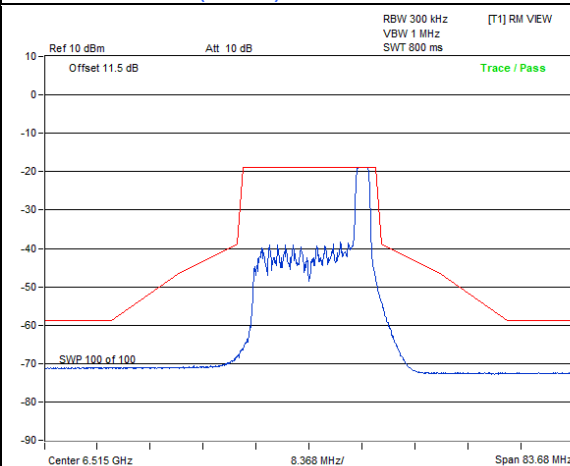
802.11ax (HE20) 26-tone RU / Chain 0 : CH 1



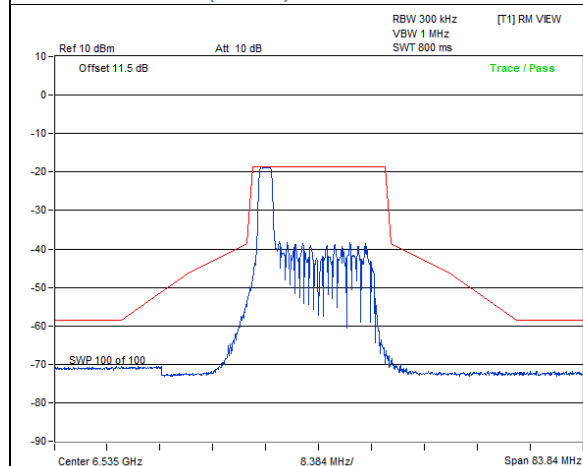
802.11ax (HE20) 26-tone RU / Chain 0 : CH 93



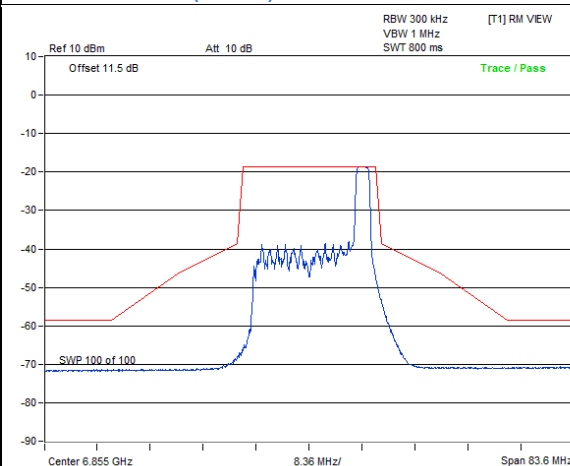
802.11ax (HE20) 26-tone RU / Chain 0 : CH 97



802.11ax (HE20) 26-tone RU / Chain 0 : CH 113

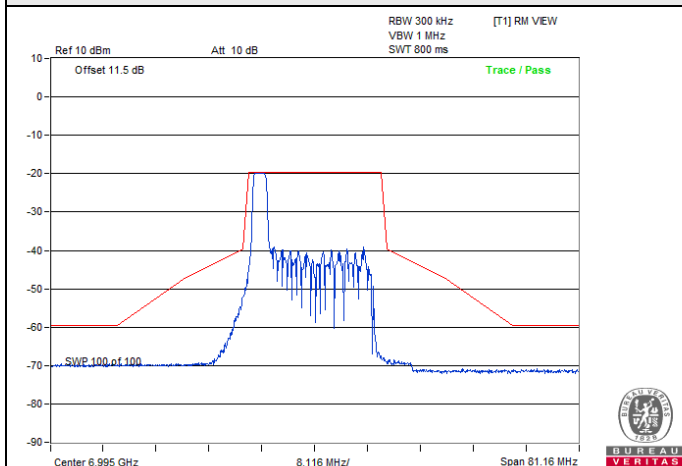


802.11ax (HE20) 26-tone RU / Chain 0 : CH 117

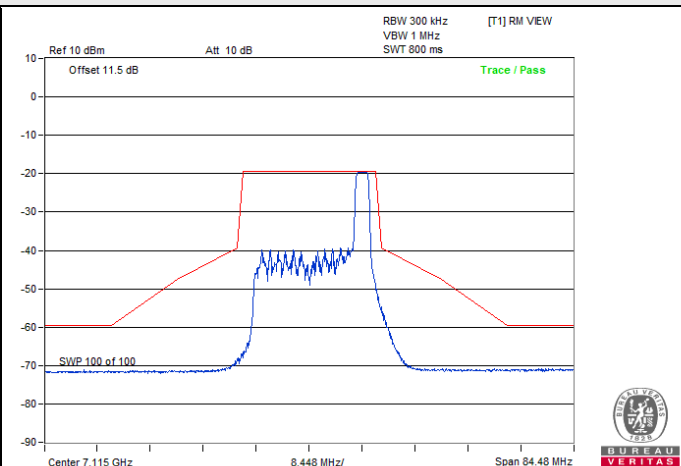


802.11ax (HE20) 26-tone RU / Chain 0 : CH 181

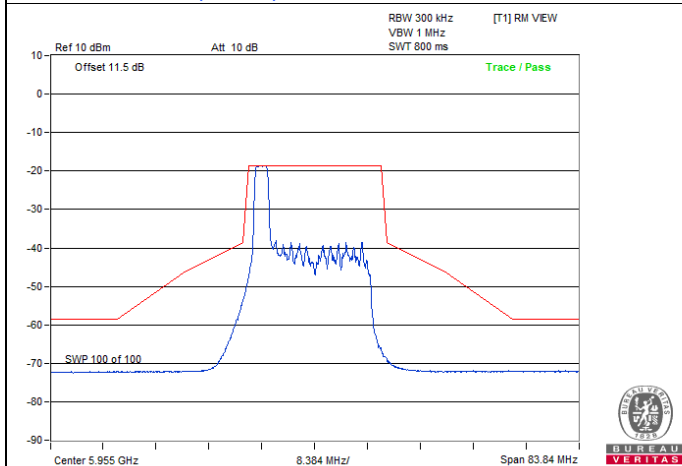
Spectrum Plot



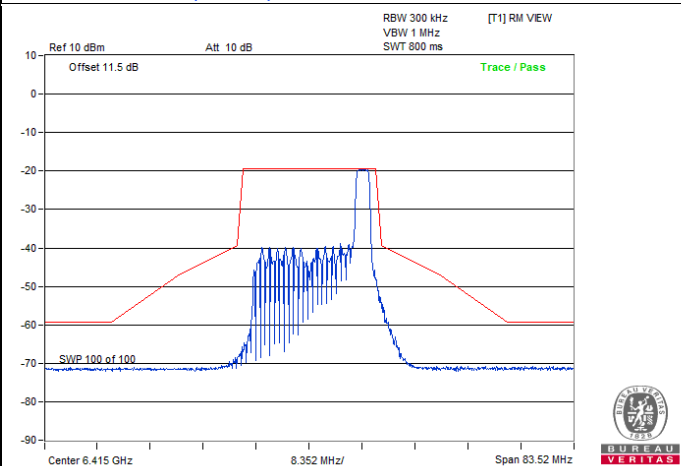
802.11ax (HE20) 26-tone RU / Chain 0 : CH 209



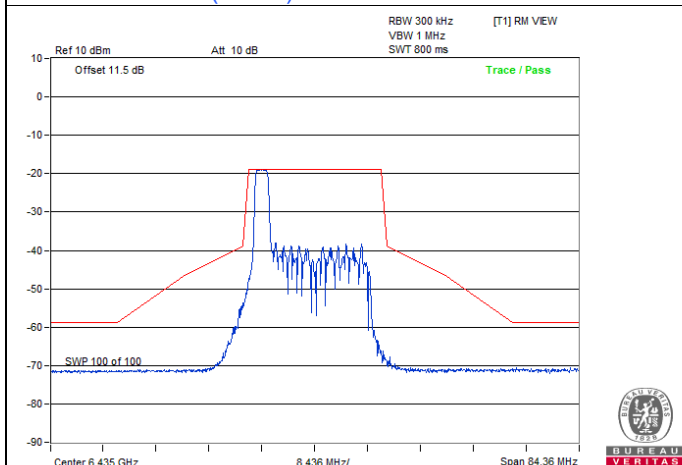
802.11ax (HE20) 26-tone RU / Chain 0 : CH 233



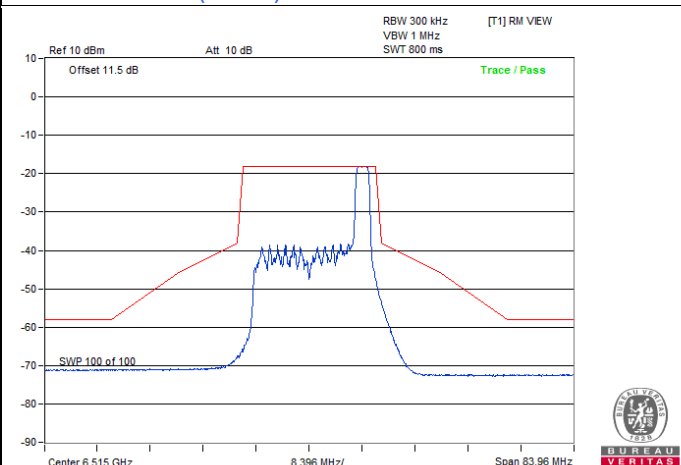
802.11ax (HE20) 26-tone RU / Chain 1 : CH 1



802.11ax (HE20) 26-tone RU / Chain 1 : CH 93

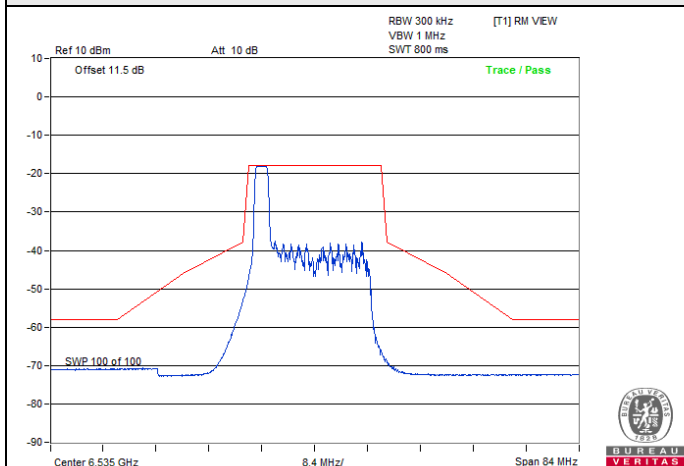


802.11ax (HE20) 26-tone RU / Chain 1 : CH 97

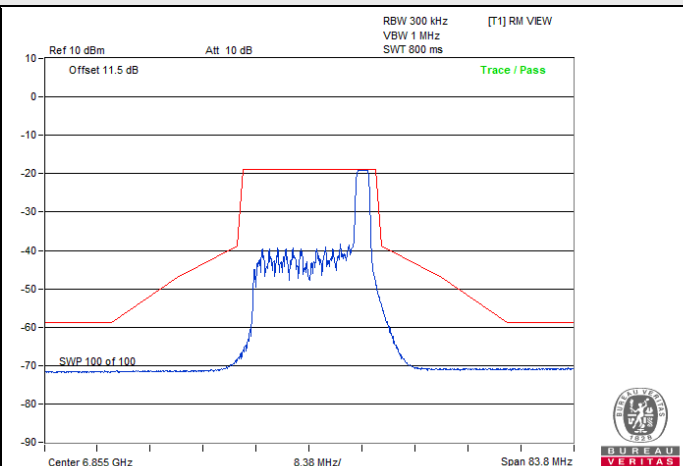


802.11ax (HE20) 26-tone RU / Chain 1 : CH 113

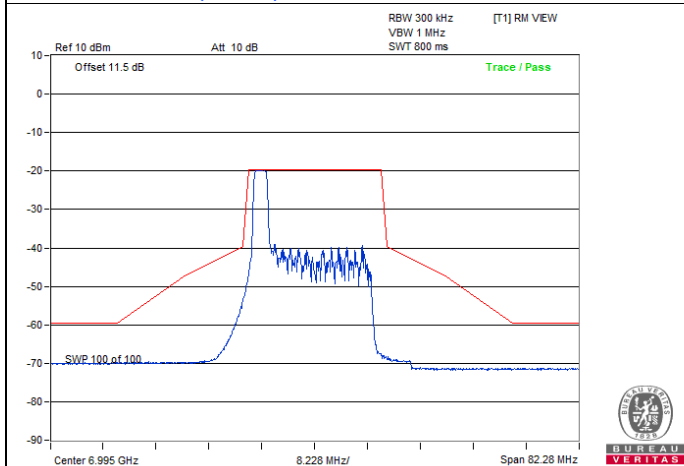
Spectrum Plot



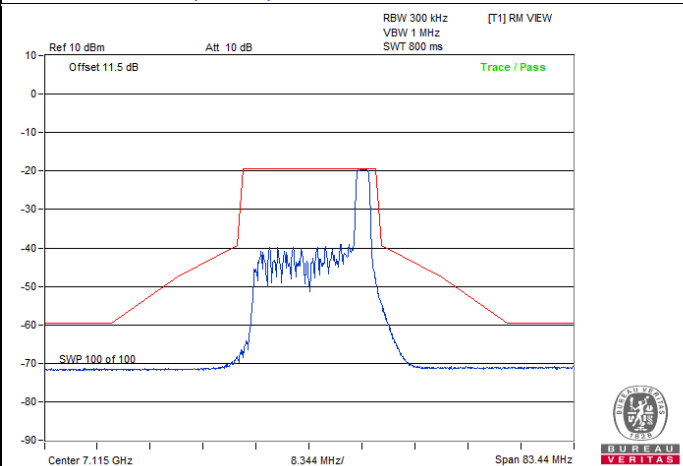
802.11ax (HE20) 26-tone RU / Chain 1 : CH 117



802.11ax (HE20) 26-tone RU / Chain 1 : CH 181



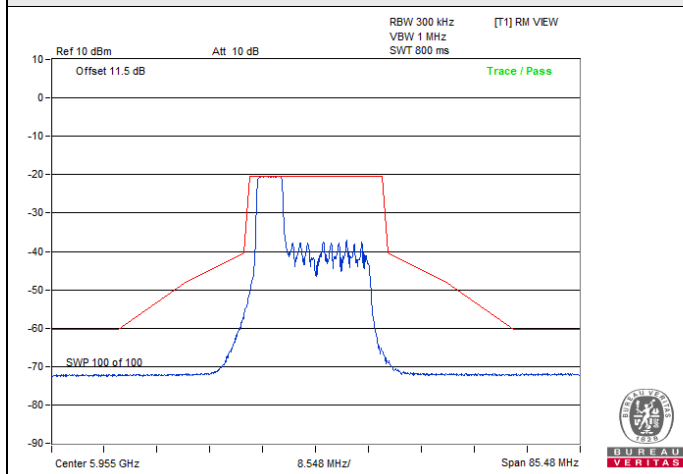
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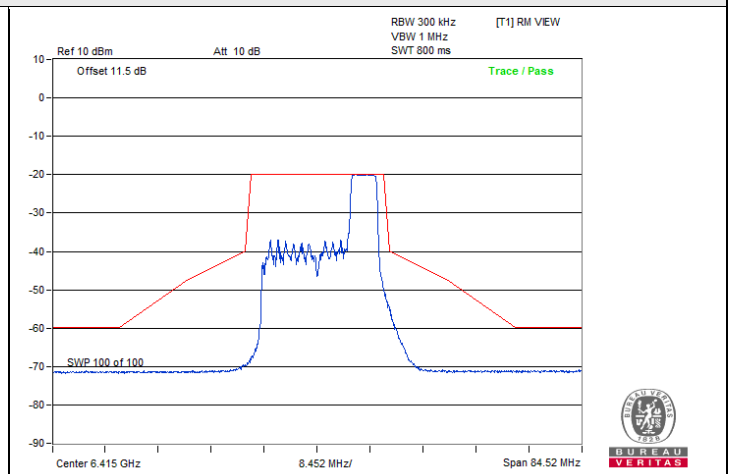
802.11ax (HE20) 26-tone RU / Chain 1 : CH 233

802.11ax (HE20) 52-tone RU

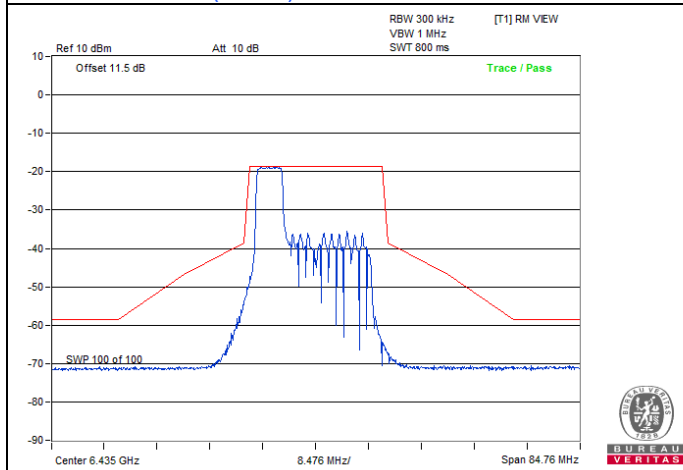
Spectrum Plot



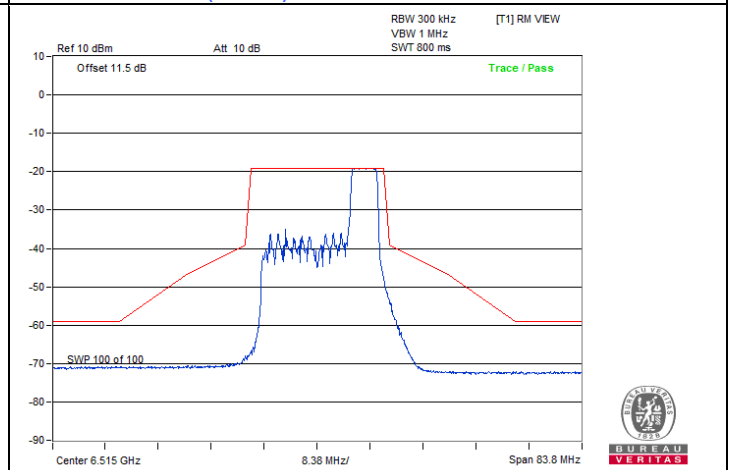
802.11ax (HE20) 52-tone RU / Chain 0 : CH 1



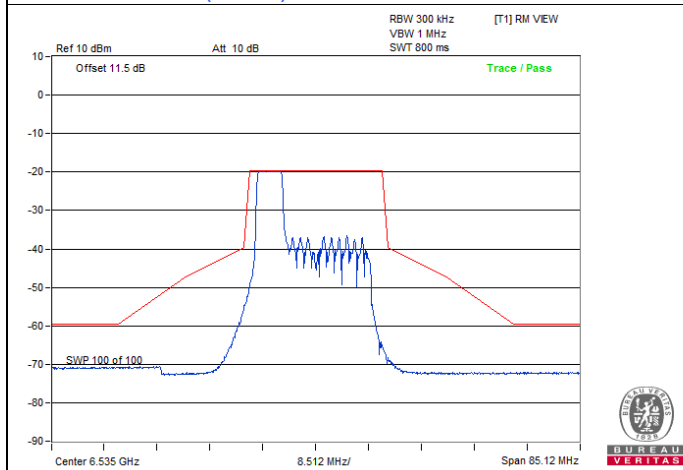
802.11ax (HE20) 52-tone RU / Chain 0 : CH 93



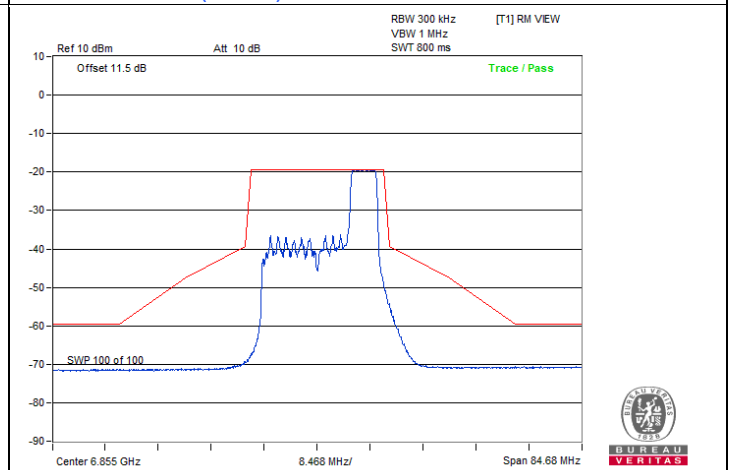
802.11ax (HE20) 52-tone RU / Chain 0 : CH 97



802.11ax (HE20) 52-tone RU / Chain 0 : CH 113

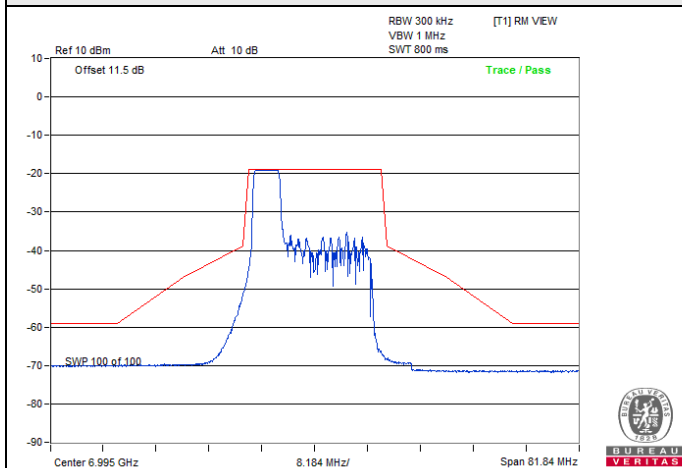


802.11ax (HE20) 52-tone RU / Chain 0 : CH 117

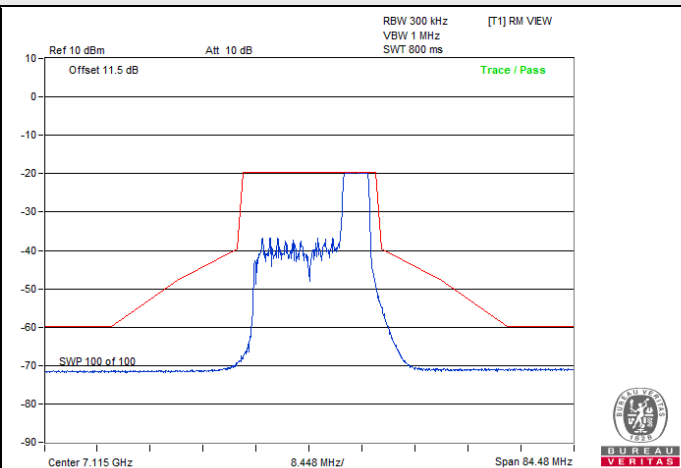


802.11ax (HE20) 52-tone RU / Chain 0 : CH 181

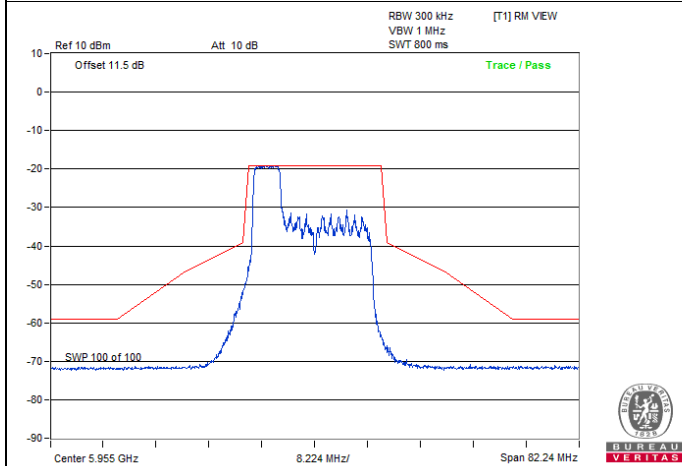
Spectrum Plot



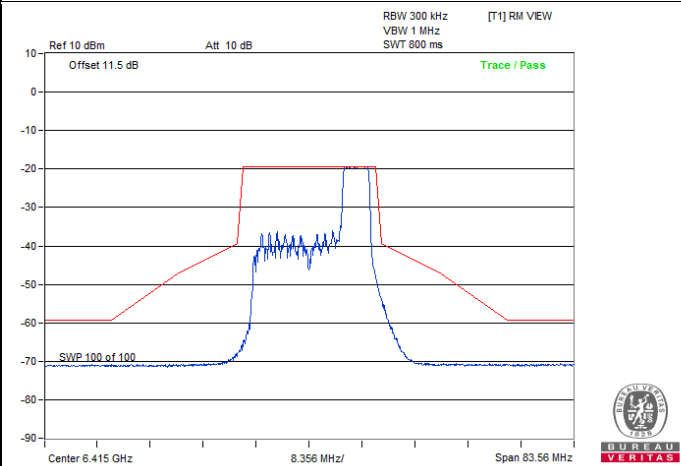
802.11ax (HE20) 52-tone RU / Chain 0 : CH 209



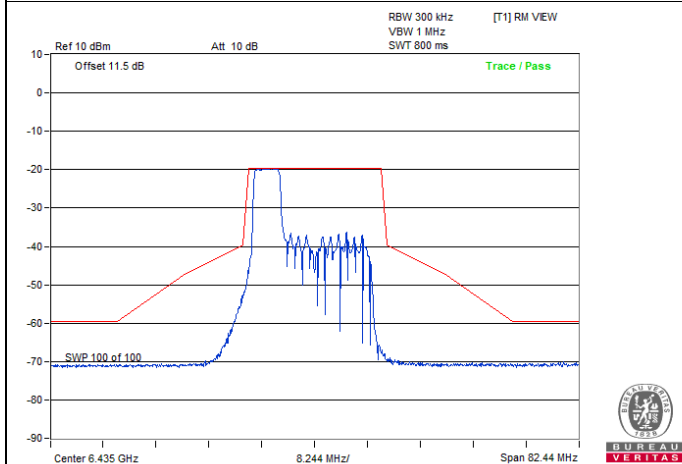
802.11ax (HE20) 52-tone RU / Chain 0 : CH 233



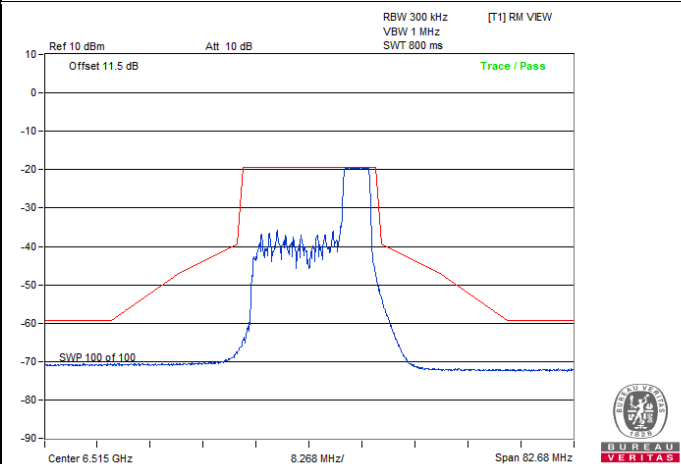
802.11ax (HE20) 52-tone RU / Chain 1 : CH 1



802.11ax (HE20) 52-tone RU / Chain 1 : CH 93

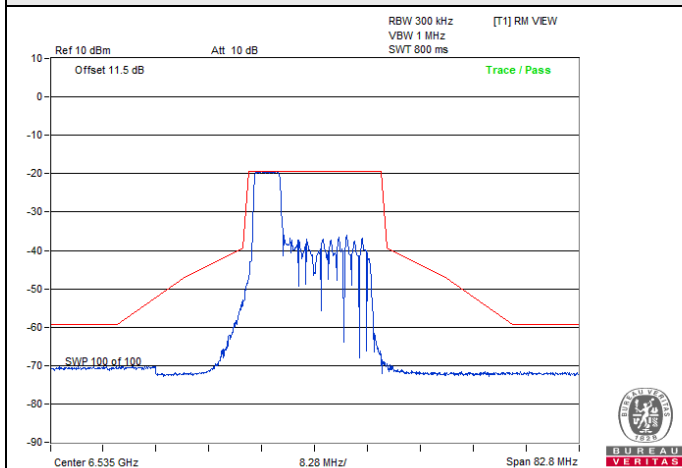


802.11ax (HE20) 52-tone RU / Chain 1 : CH 97

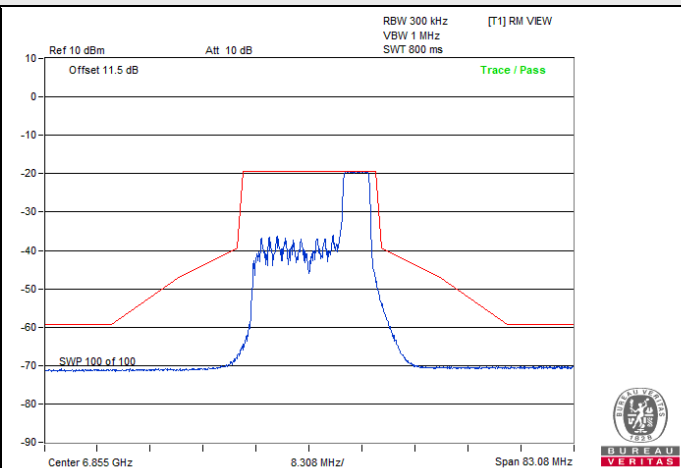


802.11ax (HE20) 52-tone RU / Chain 1 : CH 113

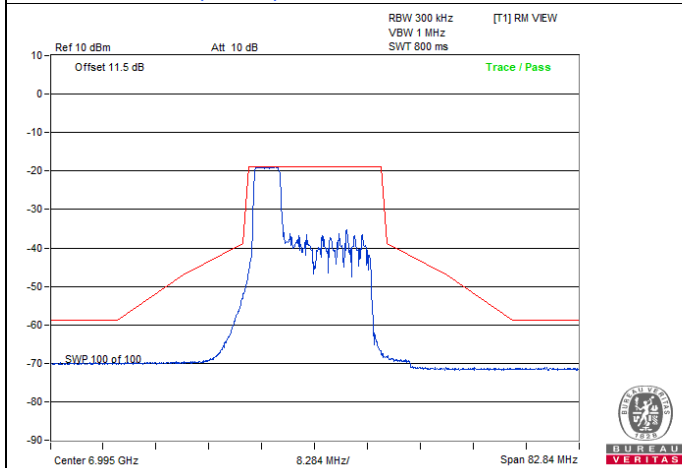
Spectrum Plot



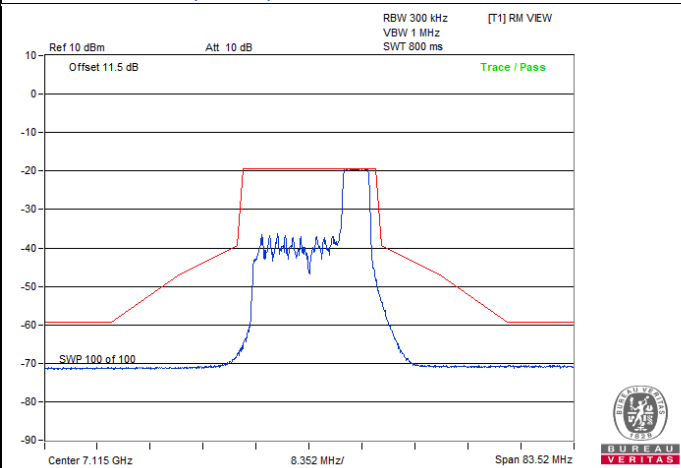
802.11ax (HE20) 52-tone RU / Chain 1 : CH 117



802.11ax (HE20) 52-tone RU / Chain 1 : CH 181



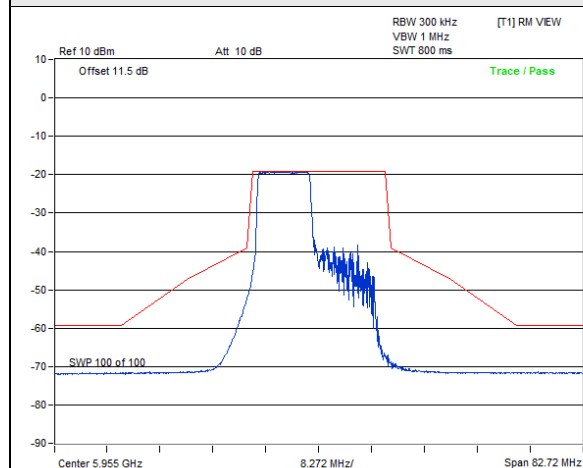
802.11ax (HE20) 52-tone RU / Chain 1 : CH 209



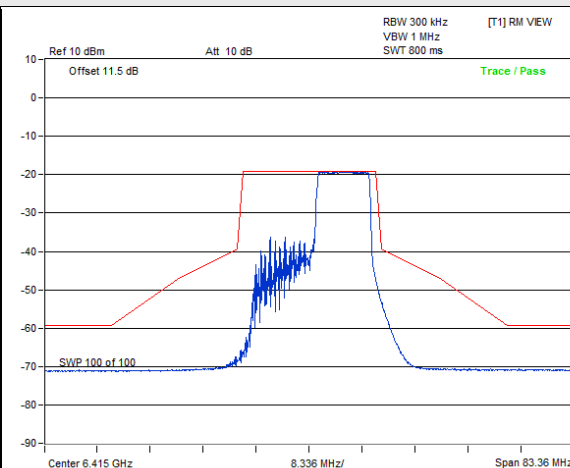
802.11ax (HE20) 52-tone RU / Chain 1 : CH 233

802.11ax (HE20) 106-tone RU

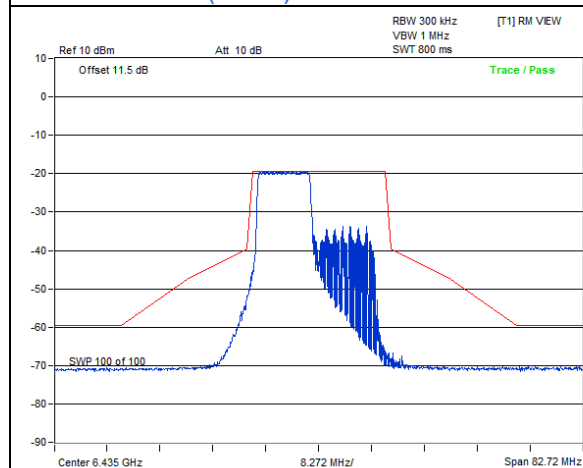
Spectrum Plot



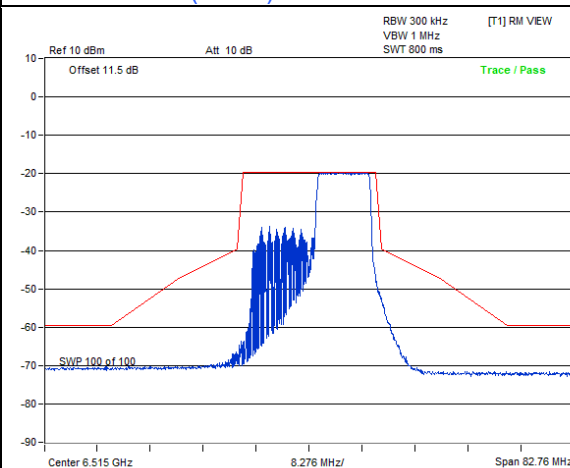
802.11ax (HE20) 106-tone RU / Chain 0 : CH 1



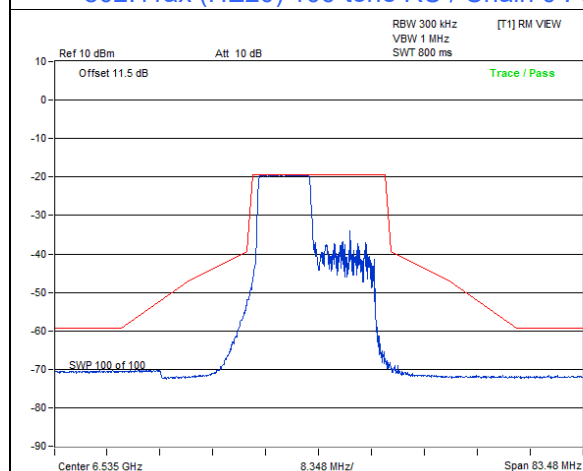
802.11ax (HE20) 106-tone RU / Chain 0 : CH 93



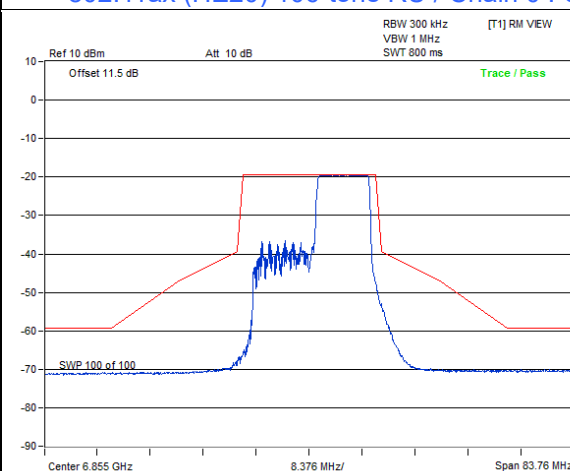
802.11ax (HE20) 106-tone RU / Chain 0 : CH 97



802.11ax (HE20) 106-tone RU / Chain 0 : CH 113

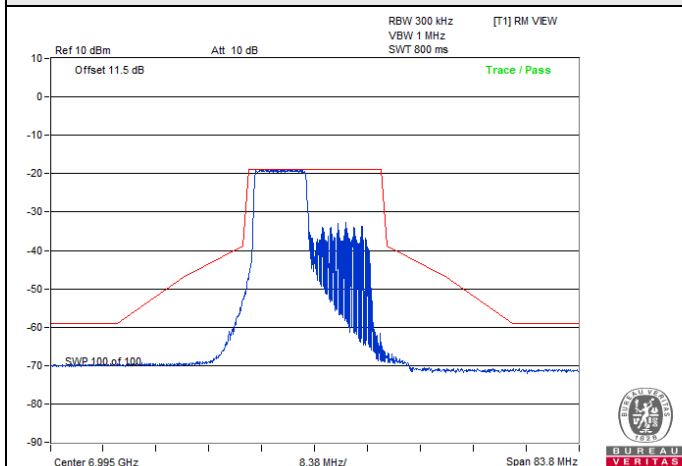


802.11ax (HE20) 106-tone RU / Chain 0 : CH 117

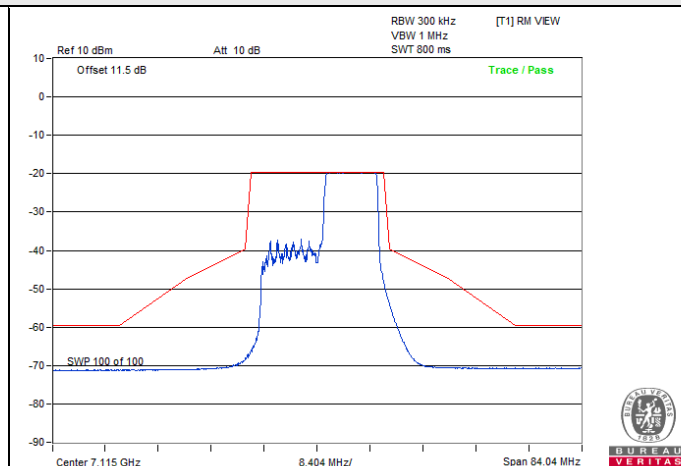


802.11ax (HE20) 106-tone RU / Chain 0 : CH 181

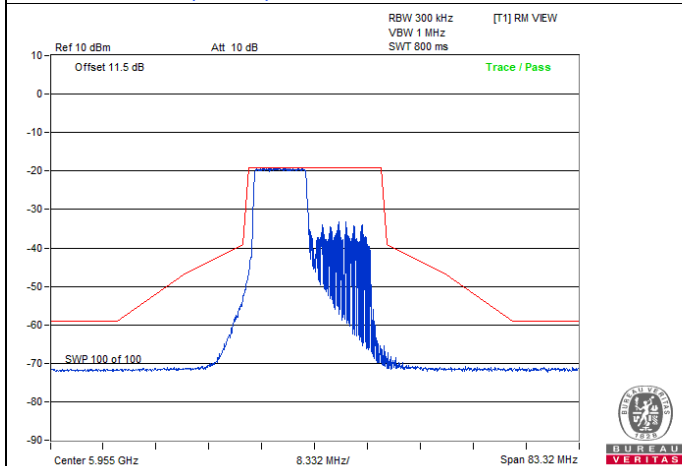
Spectrum Plot



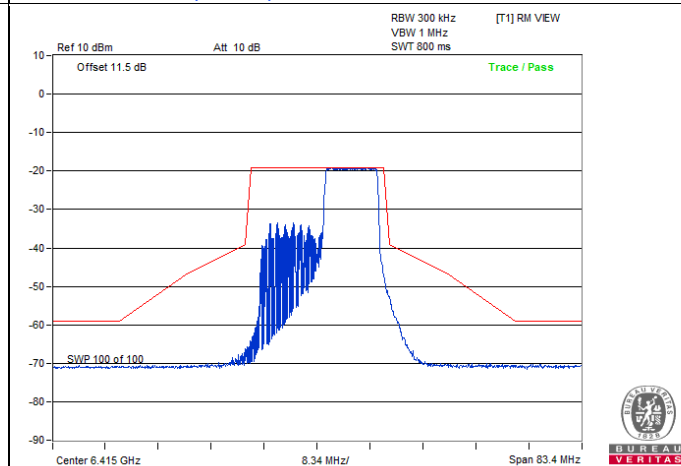
802.11ax (HE20) 106-tone RU / Chain 0 : CH 209



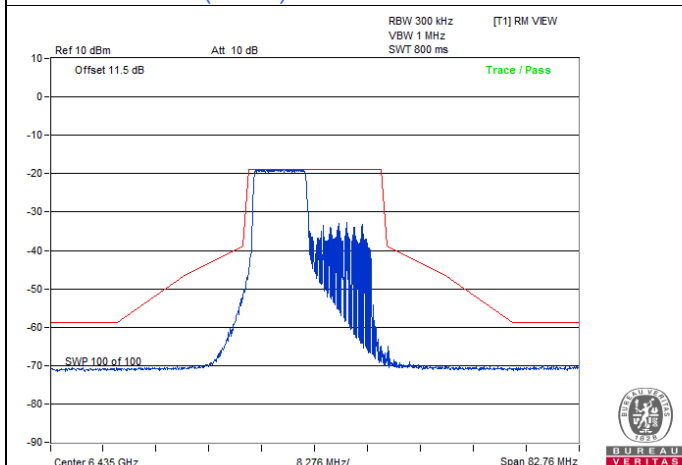
802.11ax (HE20) 106-tone RU / Chain 0 : CH 233



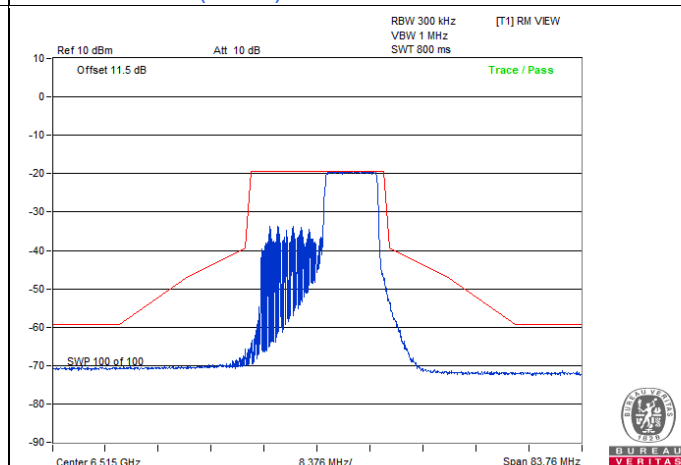
802.11ax (HE20) 106-tone RU / Chain 1 : CH 1



802.11ax (HE20) 106-tone RU / Chain 1 : CH 93

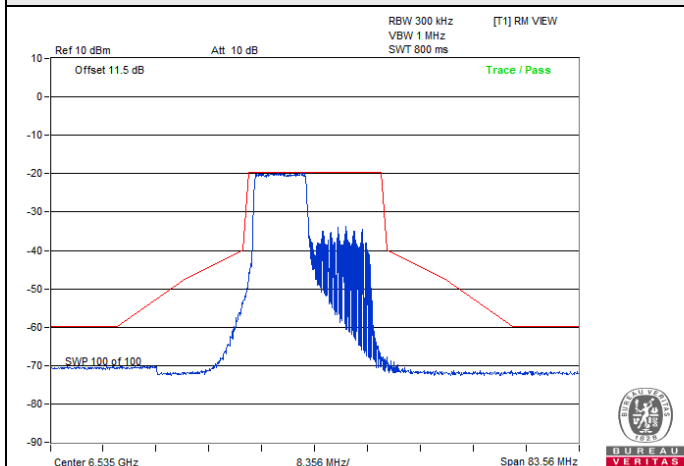


802.11ax (HE20) 106-tone RU / Chain 1 : CH 97

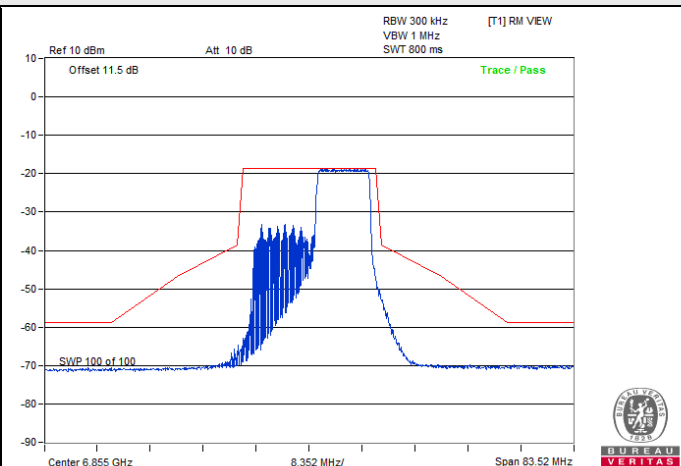


802.11ax (HE20) 106-tone RU / Chain 1 : CH 113

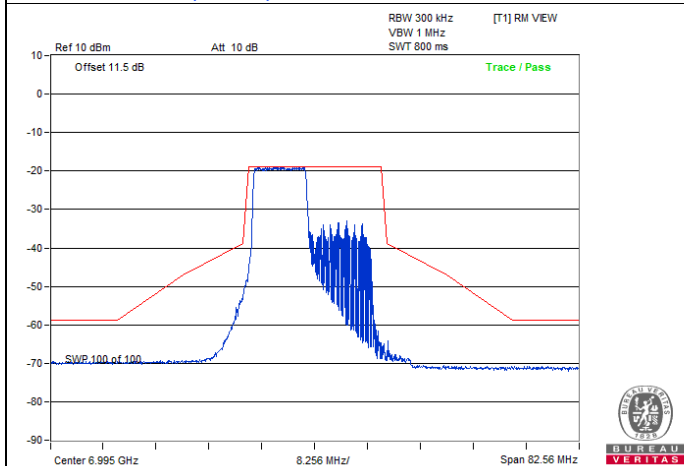
Spectrum Plot



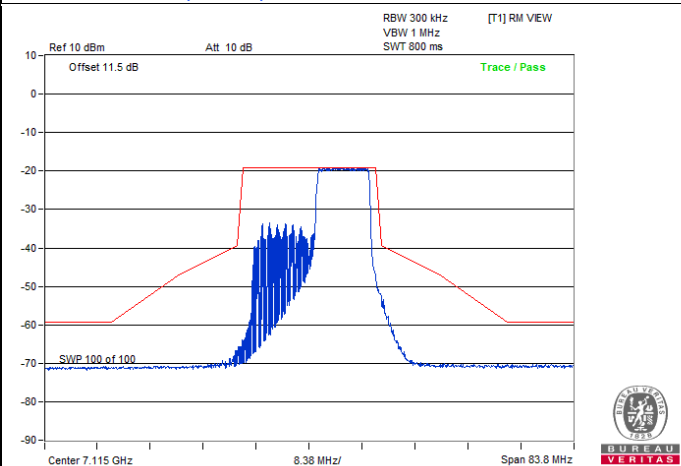
802.11ax (HE20) 106-tone RU / Chain 1 : CH 117



802.11ax (HE20) 106-tone RU / Chain 1 : CH 181



802.11ax (HE20) 106-tone RU / Chain 1 : CH 209



802.11ax (HE20) 106-tone RU / Chain 1 : CH 233

7.5 Occupied Bandwidth

Environmental Conditions:	25°C, 60% RH	Tested By:	Chris Lin
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1TX

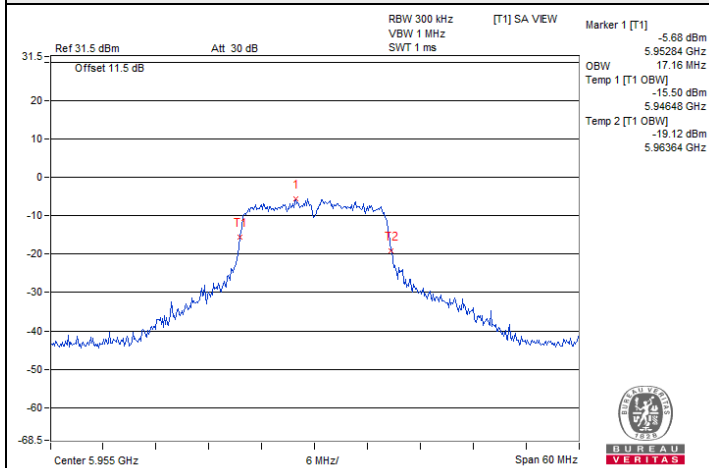
802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
1	5955	17.16
45	6175	16.8
93	6415	16.8
97	6435	16.8
105	6475	16.68
113	6515	16.92
117	6535	16.8
149	6695	16.8
181	6855	16.8
185	6875	16.8
209	6995	16.92
233	7115	16.8

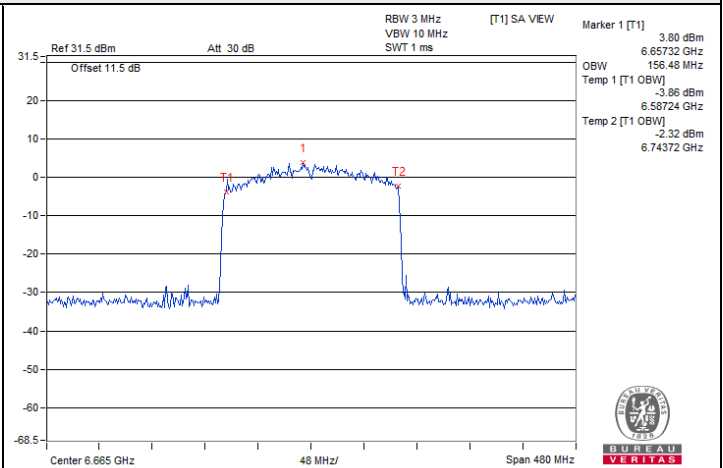
802.11ax (HE160) Full RU

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
15	6025	155.52
47	6185	155.52
79	6345	155.52
111	6505	155.52
143	6665	156.48
175	6825	155.52
207	6985	156.48

Spectrum Plot of Maximum Value



802.11a : CH 1



802.11ax (HE160) Full RU: CH 143

2TX

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
1	5955	17.22	17.22
45	6175	17.16	17.16
93	6415	17.28	17.16
97	6435	17.16	17.22
105	6475	17.28	17.16
113	6515	17.28	17.22
117	6535	17.28	17.16
149	6695	17.28	17.22
181	6855	17.16	17.16
185	6875	17.16	17.28
209	6995	17.04	17.16
233	7115	17.28	17.28

802.11ax (HE20) Full RU

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
1	5955	19.20	19.20
45	6175	19.32	19.32
93	6415	19.32	19.20
97	6435	19.20	19.32
105	6475	19.20	19.32
113	6515	19.20	19.20
117	6535	19.20	19.20
149	6695	19.32	19.20
181	6855	19.20	19.32
185	6875	19.20	19.44
209	6995	19.20	19.32
233	7115	19.32	19.32

802.11ax (HE40) Full RU

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
3	5965	37.92	38.16
43	6165	38.16	38.16
91	6405	38.40	37.92
99	6445	38.16	37.92
107	6485	37.92	38.16
115	6525	37.92	37.92
123	6565	37.92	37.92
155	6725	37.92	37.92
179	6845	38.16	38.16
187	6885	38.16	37.92
211	7005	37.92	37.92
227	7085	37.92	38.16

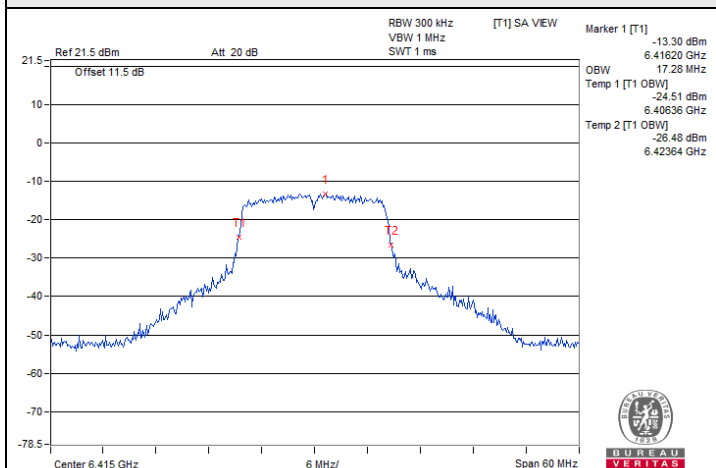
802.11ax (HE80) Full RU

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
7	5985	77.28	77.28
39	6145	77.28	77.76
87	6385	76.80	77.28
103	6465	77.28	76.80
119	6545	77.28	77.76
151	6705	76.80	77.76
183	6865	77.76	77.28
199	6945	77.28	77.28
215	7025	77.28	77.28

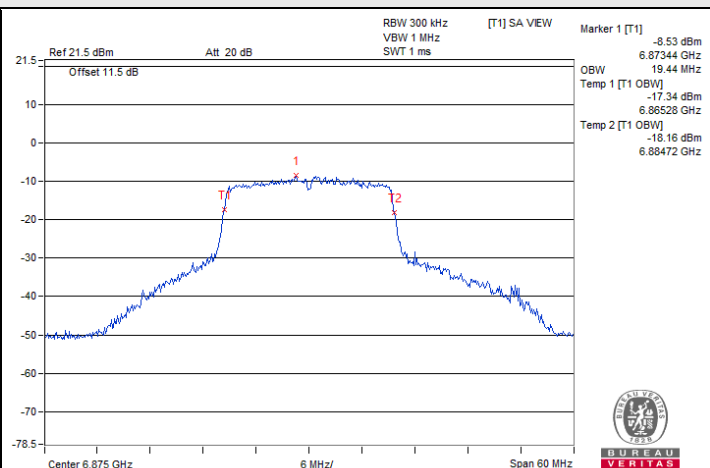
802.11ax (HE160) Full RU

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
15	6025	155.52	155.52
47	6185	155.52	155.52
79	6345	155.52	155.52
111	6505	154.56	155.52
143	6665	155.52	155.52
175	6825	155.52	155.52
207	6985	155.52	155.52

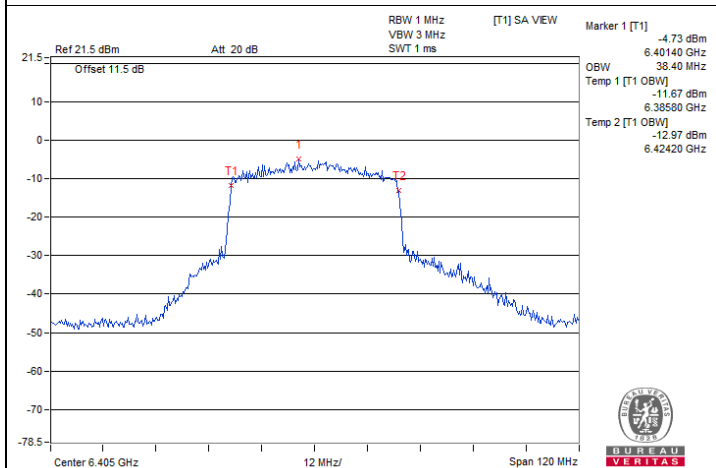
Spectrum Plot of Maximum Value



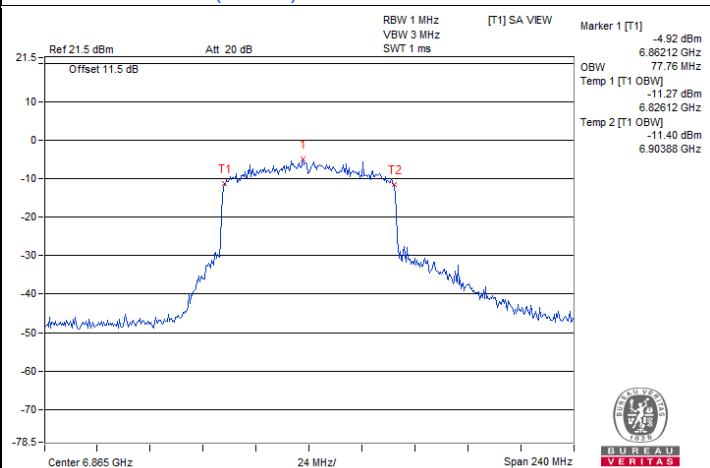
802.11a / Chain 0 : CH 93



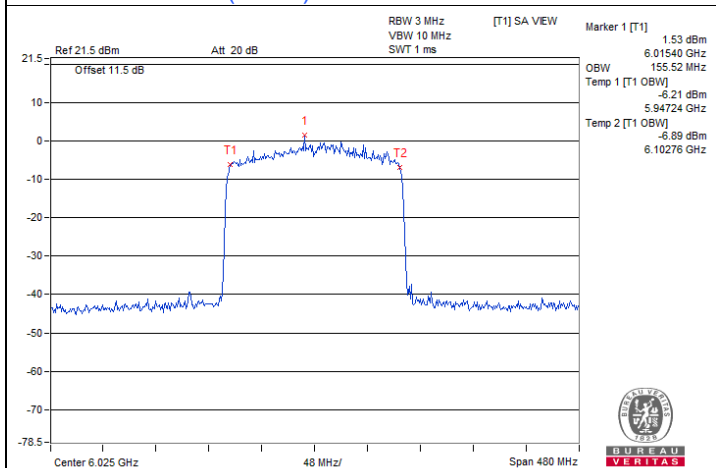
802.11ax (HE20) Full RU / Chain 1 : CH 185



802.11ax (HE40) Full RU / Chain 0 : CH 91



802.11ax (HE80) Full RU / Chain 0 : CH 183



802.11ax (HE160) Full RU / Chain 0 : CH 15

802.11ax (HE20) 26-tone RU

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
1	5955	18.60	18.84
93	6415	18.60	18.72
97	6435	18.84	18.60
113	6515	18.84	18.84
117	6535	18.84	18.72
181	6855	18.72	18.84
209	6995	18.72	18.60
233	7115	18.96	18.72

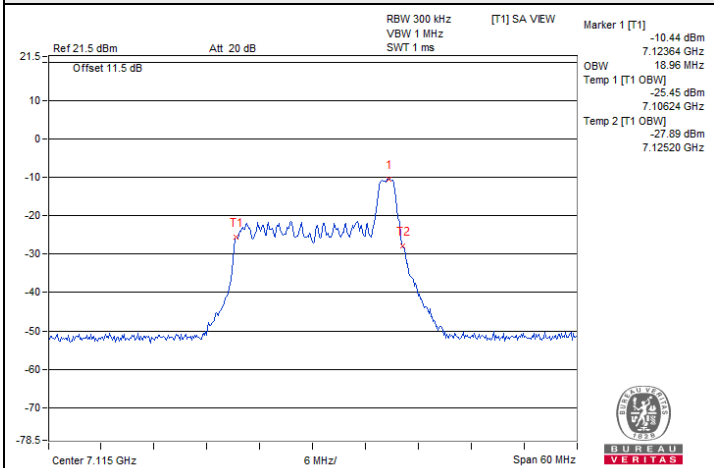
802.11ax (HE20) 52-tone RU

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
1	5955	18.36	18.36
93	6415	18.36	18.24
97	6435	18.36	18.36
113	6515	18.48	18.48
117	6535	18.36	18.24
181	6855	18.36	18.36
209	6995	18.24	18.36
233	7115	18.60	18.24

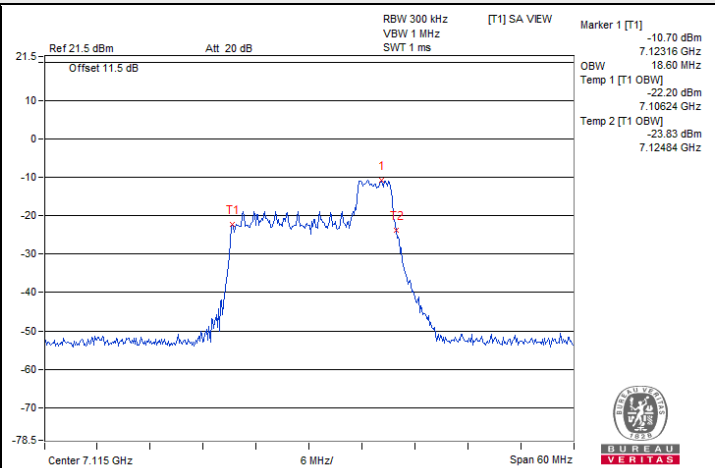
802.11ax (HE20) 106-tone RU

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
1	5955	18.24	18.36
93	6415	18.36	18.24
97	6435	18.24	18.12
113	6515	18.24	18.36
117	6535	18.24	18.24
181	6855	18.24	18.24
209	6995	18.24	18.36
233	7115	18.24	18.36

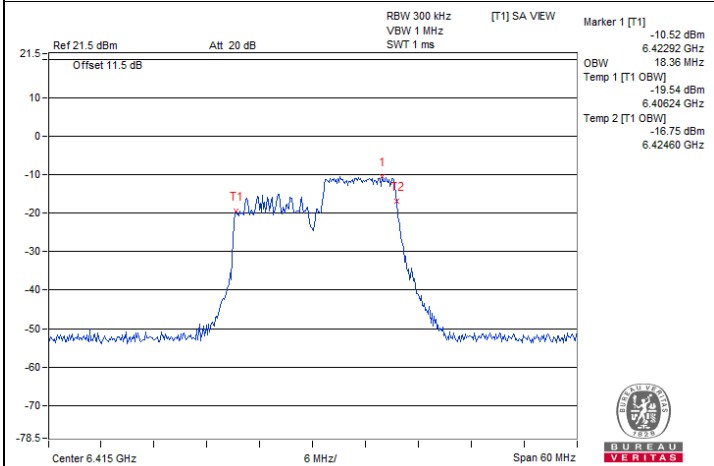
Spectrum Plot of Maximum Value



802.11ax (HE20) 26-tone RU / Chain 0 : CH 233



802.11ax (HE20) 52-tone RU / Chain 0 : CH 233



802.11ax (HE20) 106-tone RU / Chain 0 : CH 93

7.6 Contention-based Protocol

Input Power:	3.3 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Gary Cheng
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For U-NII-5

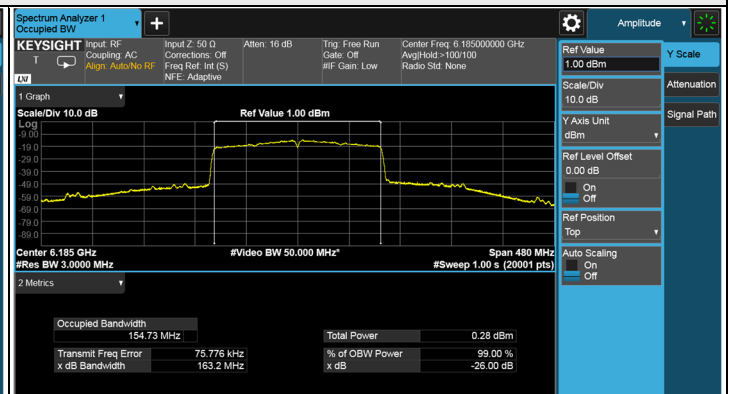
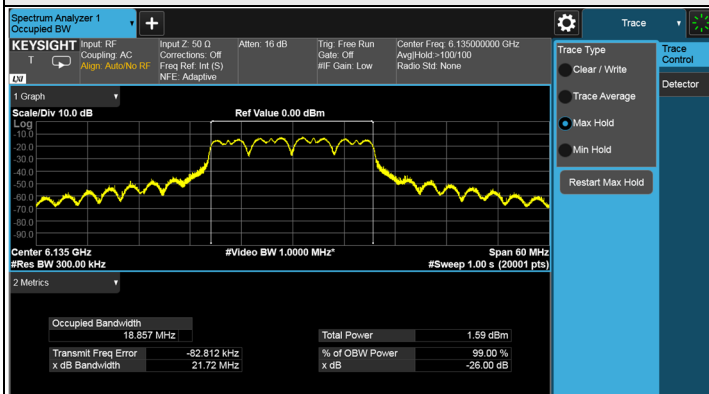
Contention Based Protocol Measurement										
Operation Mode	Channel Bandwidth (MHz)	Channel Number	Channel Freq. (MHz)	Injected Signal (AWGN)		Antenna Gain (dBi)	Path Loss (dB) (Note 3)	Adjusted Power (dBm)	Detection Limit	EUT TX Status
				Freq. (MHz)	Power (dBm)					
802.11ax	20	37	6135	6135	-89.16	-14.46	0	-74.7	-62	OFF
					-89.66	-14.46	0	-75.2	-62	Minimal
					-96.46	-14.46	0	-82	-62	ON
	160	47	6185	6110	-87.31	-14.46	0	-72.85	-62	OFF
					-87.81	-14.46	0	-73.35	-62	Minimal
					-96.46	-14.46	0	-82	-62	ON
				6185	-84.19	-14.46	0	-69.73	-62	OFF
					-84.69	-14.46	0	-70.23	-62	Minimal
					-96.46	-14.46	0	-82	-62	ON
				6260	-88.53	-14.46	0	-74.07	-62	OFF
					-89.03	-14.46	0	-74.57	-62	Minimal
					-96.46	-14.46	0	-82	-62	ON

Notes:

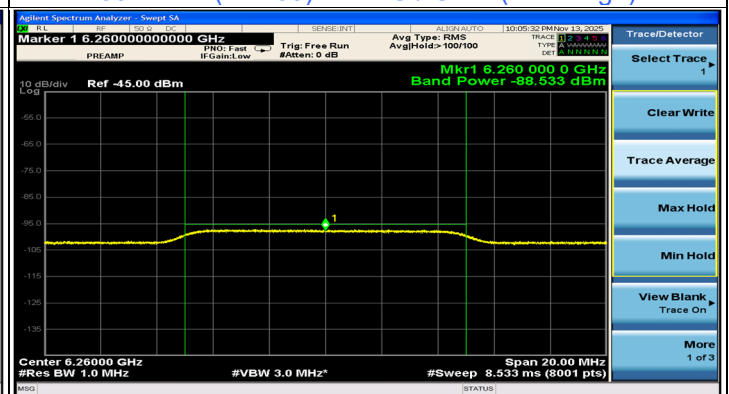
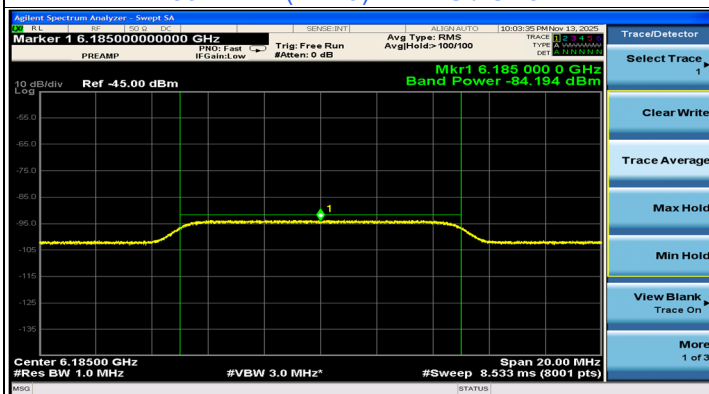
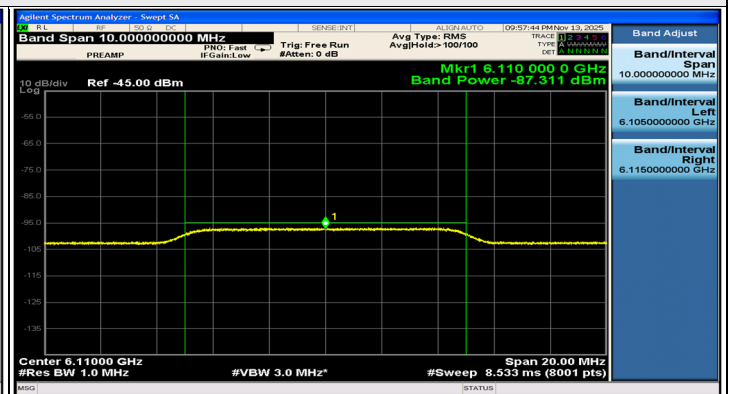
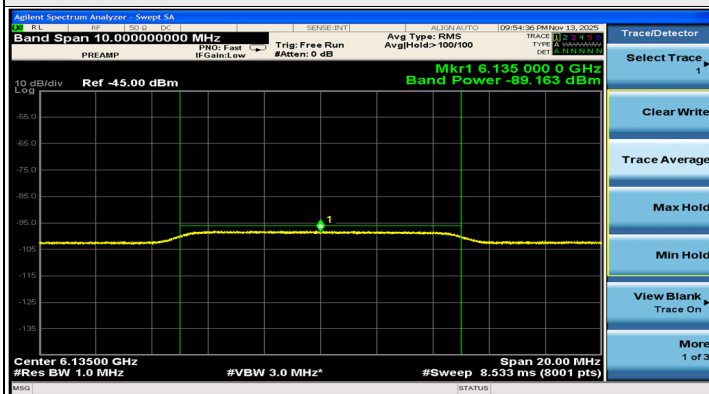
1. After investigation (consider antenna gain and path loss) , the one representative port (Chain 0) was measured and presented in the report.
2. Adjusted Power (dBm) = Injected Signal (AWGN) Power (dBm) - Antenna Gain (dBi) + Path Loss (dB)
3. Antenna gain values include all the applicable path losses.
4. This device does not use the channel puncturing and bandwidth reduction mechanisms for incumbent avoidance, but instead switches to other channels to perform its function.

Contention Based Protocol Detection Probability															
Operation Mode	Channel Bandwidth (MHz)	AWGN Signal Freq. (MHz)	#01	#02	#03	#04	#05	#06	#07	#08	#09	#10	Detection Probability	Detection Limit	Test Result
802.11ax	20	6135	v	v	v	v	x	v	v	v	v	v	90%	90%	Pass
	160	6110	v	v	v	v	v	v	x	v	v	v	90%	90%	Pass
		6185	v	v	x	v	v	v	v	v	v	v	90%	90%	Pass
		6260	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass

Plots of EUT Tx waveform

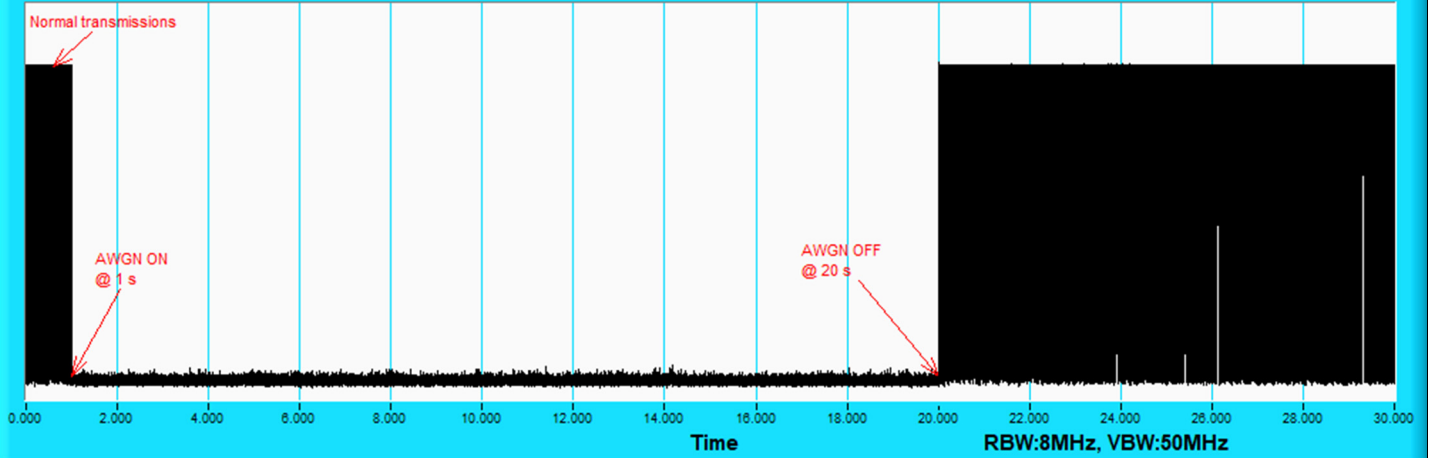


Plots of Injected signal (AWGN) level



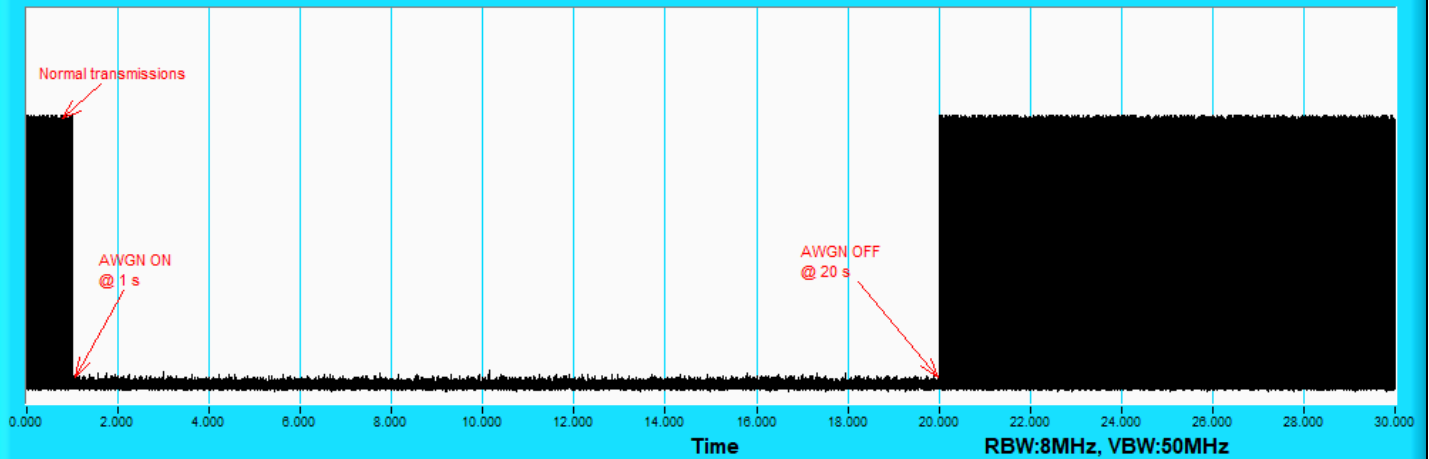
Plots of EUT ceased transmission in the time domain

6G_UNII5_BW20_CH37_6135_TRS



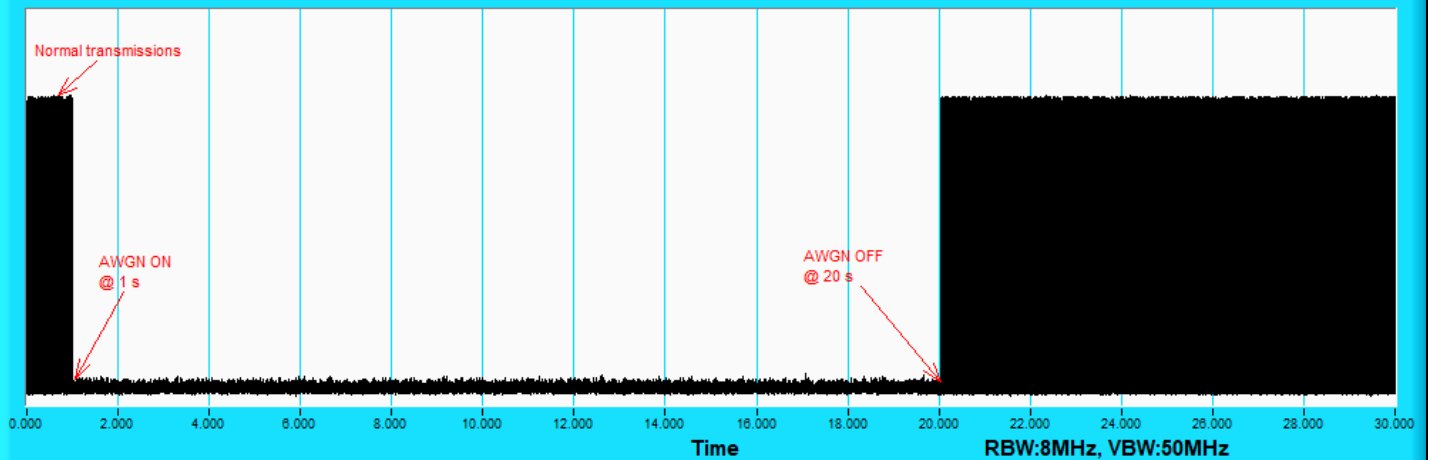
802.11ax (HE20) Full RU / CH37

6G_UNII5_BW160_CH47_6110_TRS



802.11ax (HE160) Full RU / CH47(Low Edge)

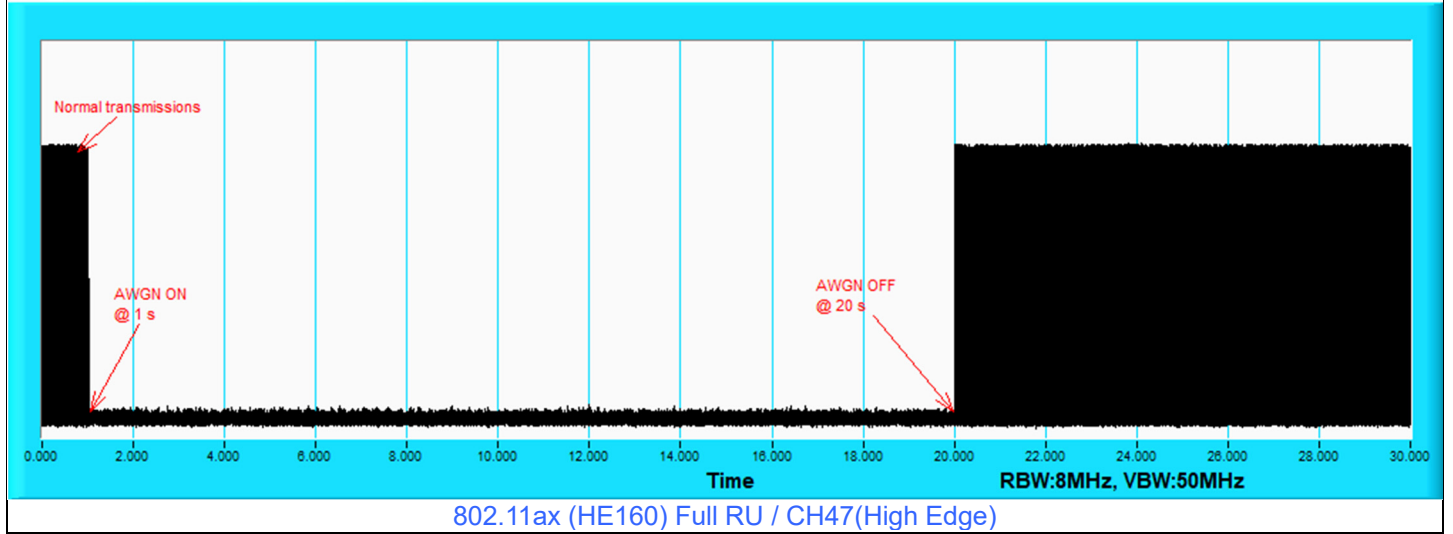
6G_UNII5_BW160_CH47_6185_TRS



802.11ax (HE160) Full RU / CH47(Middle)

Plots of EUT ceased transmission in the time domain

6G_UNII5_BW160_CH47_6260_TRS



For U-NII-6

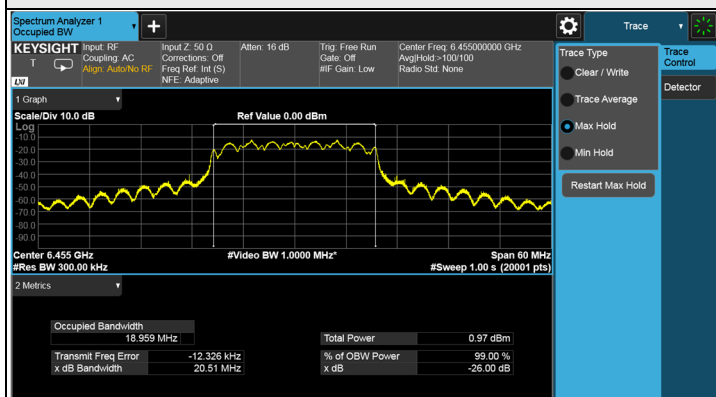
Contention Based Protocol Measurement										
Operation Mode	Channel Bandwidth (MHz)	Channel Number	Channel Freq. (MHz)	Injected Signal (AWGN)		Antenna Gain (dBi)	Path Loss (dB) (Note 3)	Adjusted Power (dBm)	Detection Limit	EUT TX Status
				Freq. (MHz)	Power (dBm)					
802.11ax	20	101	6455	6455	-89.32	-14.46	0	-74.86	-62	OFF
					-89.82	-14.46	0	-75.36	-62	Minimal
					-96.46	-14.46	0	-82	-62	ON
	160	111	6505	6430	-86.55	-14.46	0	-72.09	-62	OFF
					-87.05	-14.46	0	-72.59	-62	Minimal
					-96.46	-14.46	0	-82	-62	ON
				6505	-83.24	-14.46	0	-68.78	-62	OFF
					-83.74	-14.46	0	-69.28	-62	Minimal
					-96.46	-14.46	0	-82	-62	ON
				6580	-88.58	-14.46	0	-74.12	-62	OFF
					-89.08	-14.46	0	-74.62	-62	Minimal
					-96.46	-14.46	0	-82	-62	ON

Notes:

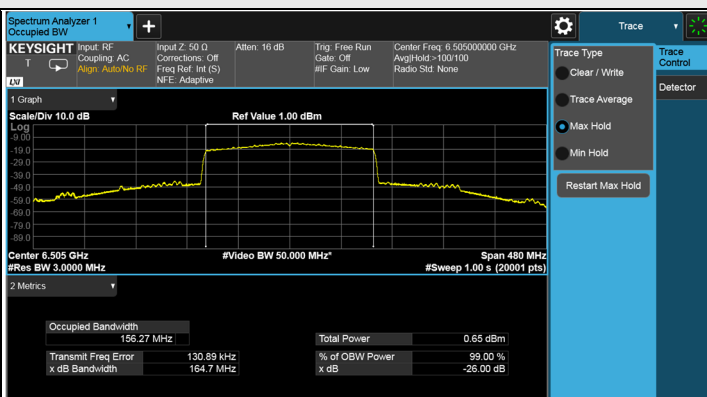
1. After investigation (consider antenna gain and path loss) , the one representative port (Chain 0) was measured and presented in the report.
2. Adjusted Power (dBm) = Injected Signal (AWGN) Power (dBm) - Antenna Gain (dBi) + Path Loss (dB)
3. Antenna gain values include all the applicable path losses.
4. This device does not use the channel puncturing and bandwidth reduction mechanisms for incumbent avoidance, but instead switches to other channels to perform its function.

Contention Based Protocol Detection Probability															
Operation Mode	Channel Bandwidth (MHz)	AWGN Signal Freq. (MHz)	#01	#02	#03	#04	#05	#06	#07	#08	#09	#10	Detection Probability	Detection Limit	Test Result
802.11ax	20	6455	v	x	v	v	v	v	v	v	v	v	90%	90%	Pass
	160	6430	v	v	v	v	v	v	v	x	v	v	90%	90%	Pass
		6505	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
		6580	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass

Plots of EUT Tx waveform

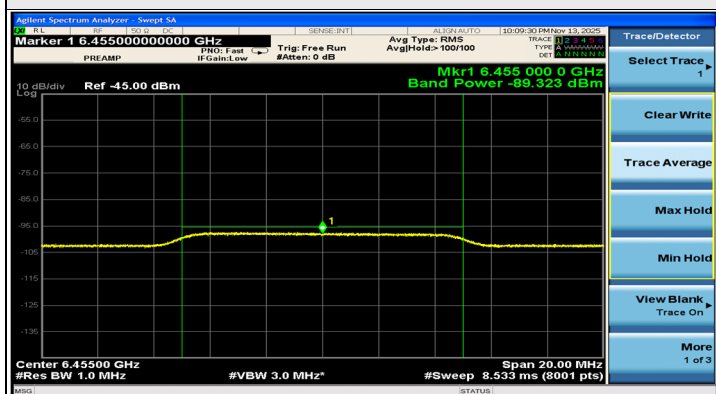


802.11ax (HE20) Full RU / CH101

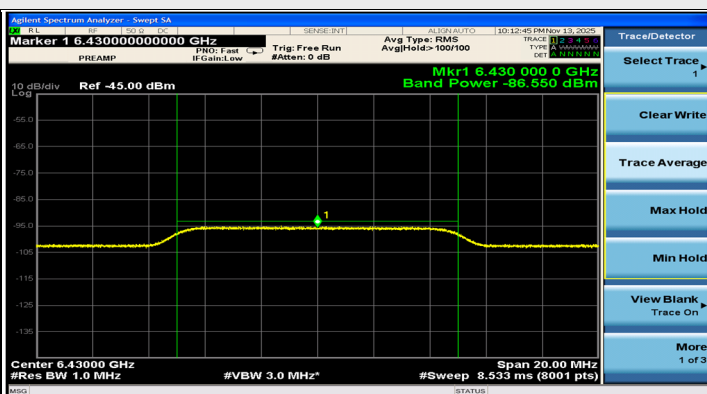


802.11ax (HE160) Full RU / CH111

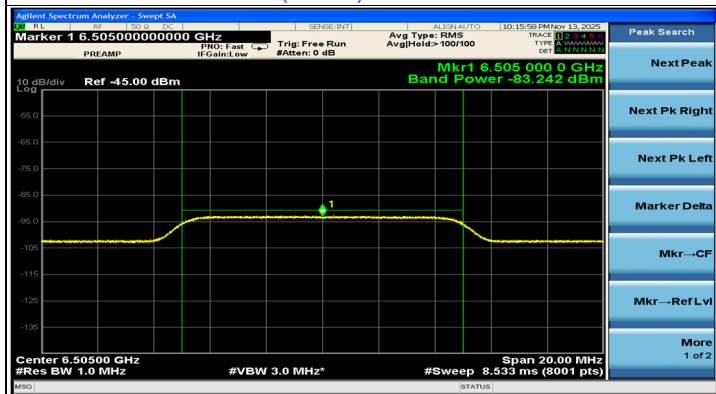
Plots of Injected signal (AWGN) level



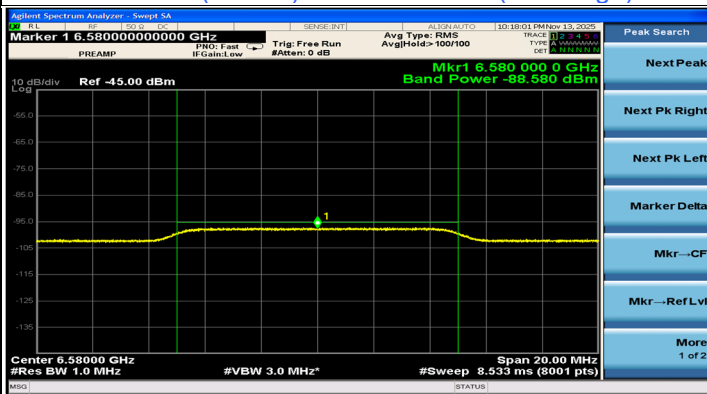
802.11ax (HE20) Full RU / CH101



802.11ax (HE160) Full RU / CH111(Low Edge)



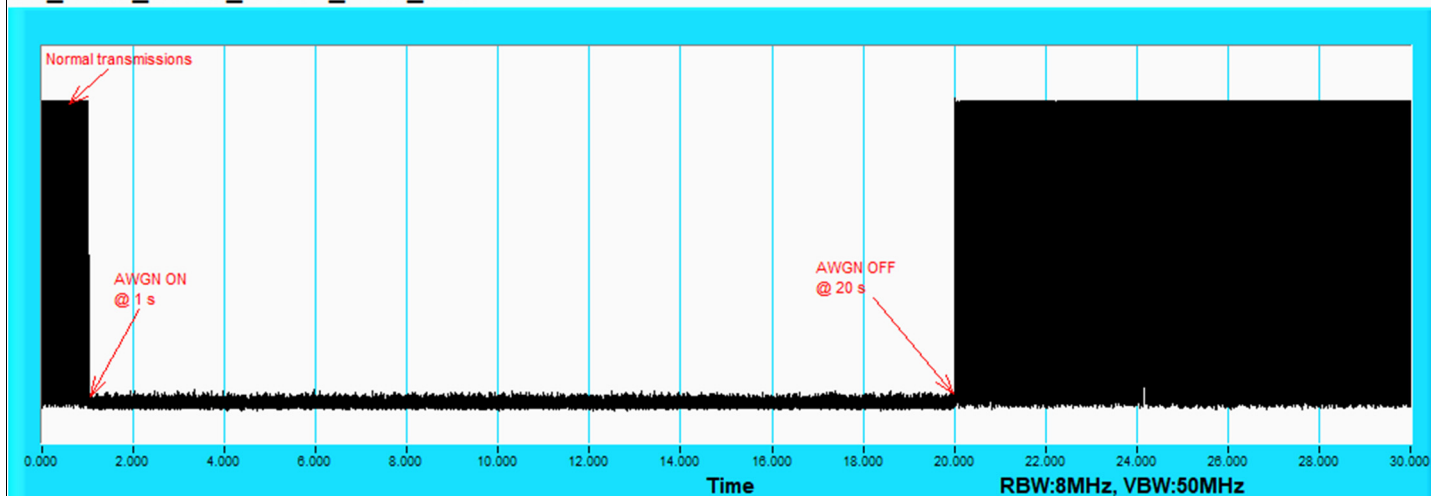
802.11ax (HE160) Full RU / CH111(Middle)



802.11ax (HE160) Full RU / CH111(High Edge)

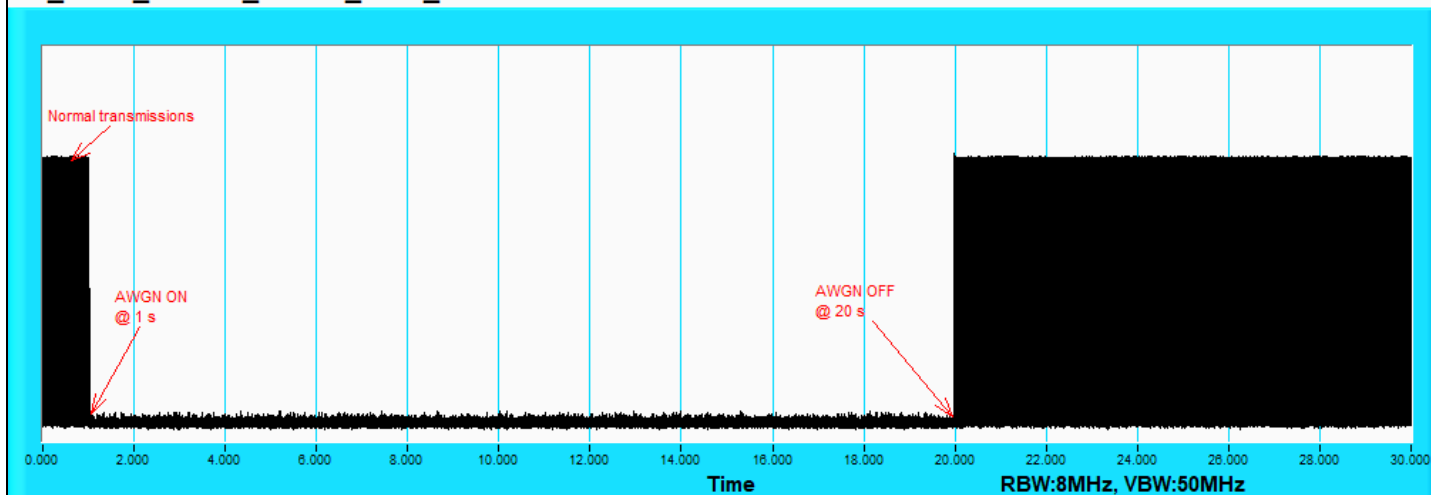
Plots of EUT ceased transmission in the time domain

6G_UNII6_BW20_CH101_6455_TRS



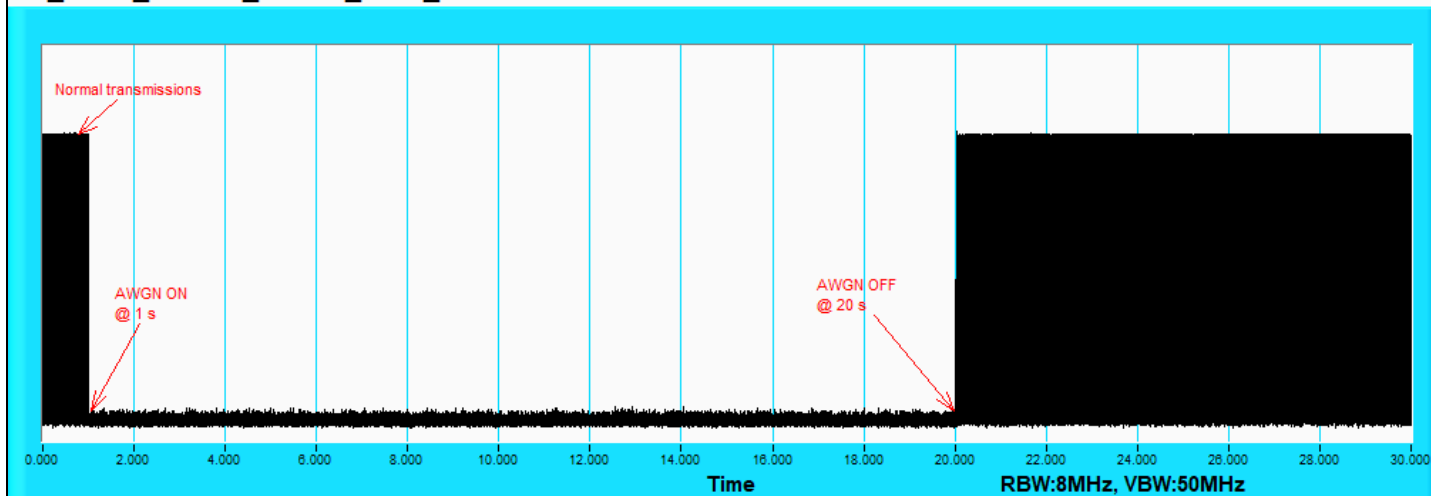
802.11ax (HE20) Full RU / CH101

6G_UNII6_BW160_CH111_6430_TRS



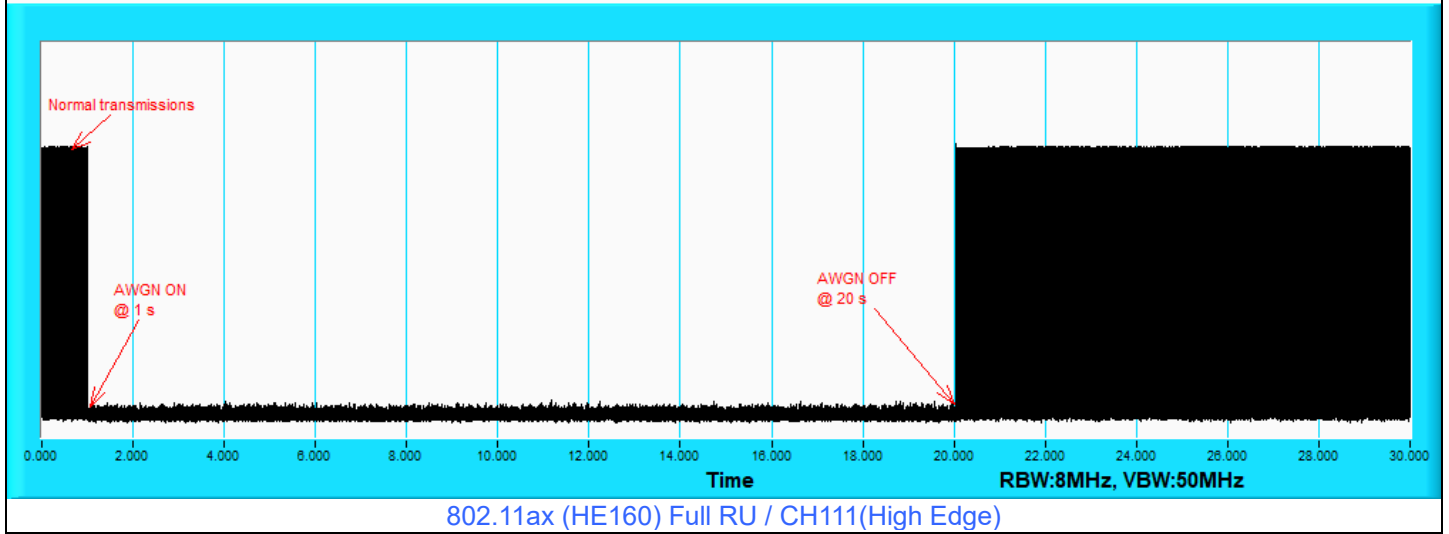
802.11ax (HE160) Full RU / CH111(Low Edge)

6G_UNII6_BW160_CH111_6505_TRS



802.11ax (HE160) Full RU / CH111(Middle)

Plots of EUT ceased transmission in the time domain

6G_UNII6_BW160_CH111_6580_TRS

For U-NII-7

Contention Based Protocol Measurement										
Operation Mode	Channel Bandwidth (MHz)	Channel Number	Channel Freq. (MHz)	Injected Signal (AWGN)		Antenna Gain (dBi)	Path Loss (dB) (Note 3)	Adjusted Power (dBm)	Detection Limit	EUT TX Status
				Freq. (MHz)	Power (dBm)					
802.11ax	20	133	6615	6615	-89.47	-14.46	0	-75.01	-62	OFF
					-89.97	-14.46	0	-75.51	-62	Minimal
					-96.46	-14.46	0	-82	-62	ON
	160	143	6665	6590	-87.7	-14.46	0	-73.24	-62	OFF
					-88.2	-14.46	0	-73.74	-62	Minimal
					-96.46	-14.46	0	-82	-62	ON
				6665	-85.36	-14.46	0	-70.9	-62	OFF
					-85.86	-14.46	0	-71.4	-62	Minimal
					-96.46	-14.46	0	-82	-62	ON
				6740	-88.54	-14.46	0	-74.08	-62	OFF
					-89.04	-14.46	0	-74.58	-62	Minimal
					-96.46	-14.46	0	-82	-62	ON

Notes:

1. After investigation (consider antenna gain and path loss) , the one representative port (Chain 0) was measured and presented in the report.
2. Adjusted Power (dBm) = Injected Signal (AWGN) Power (dBm) - Antenna Gain (dBi) + Path Loss (dB)
3. Antenna gain values include all the applicable path losses.
4. This device does not use the channel puncturing and bandwidth reduction mechanisms for incumbent avoidance, but instead switches to other channels to perform its function.

Contention Based Protocol Detection Probability															
Operation Mode	Channel Bandwidth (MHz)	AWGN Signal Freq. (MHz)	#01	#02	#03	#04	#05	#06	#07	#08	#09	#10	Detection Probability	Detection Limit	Test Result
802.11ax	20	6615	v	x	v	v	v	v	v	v	v	v	90%	90%	Pass
	160	6590	v	v	v	v	x	v	v	v	v	v	90%	90%	Pass
		6665	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
		6740	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass