

TEST REPORT

CERTIFICATE OF CONFORMITY

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

Report No.: RFBAPP-WTW-P23030958-3

FCC ID: PD5-NWA1100

Product: Indoor Wireless AP

Brand: Nile Global

Model No.: NWA1100

Received Date: 2023/3/31

Test Date: 2023/5/3 ~ 2023/12/7

Issued Date: 2024/1/5

Applicant: Delta Electronics, Inc.

Address: 31-1 Shien Pan Rd., Kuei San Industrial Zone, Taoyuan City 333, Taiwan

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kewi Shan Dist., Taoyuan City 33383, Taiwan

FCC Registration / 788550 / TW0003

Designation Number:

Approved by: _____

Jeremy Lin

, Date: _____

2024/1/5

Jeremy Lin / Project Engineer

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Prepared by : Gina Liu / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBAPP-WTW-P23030958-3	Original release.	2024/1/5

1 Certificate

Product: Indoor Wireless AP

Brand: Nile Global

Test Model: NWA1100

Sample Status: Engineering sample

Applicant: Delta Electronics, Inc.

Test Date: 2023/5/3 ~ 2023/12/7

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

Measurement ANSI C63.10-2013

procedure:

KDB 987594 D02 U-NII 6 GHz EMC Measurement v02r01

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)(5)	Maximum RF Output Power	Pass	Meet the requirement of limit.
15.407(a)(5)	Maximum Power Spectral Density	Pass	Meet the requirement of limit.
15.407(a)(10)	Emission Bandwidth	Pass	Meet the requirement of limit.
15.407(a)(10)	Occupied Bandwidth	Pass	Meet the requirement of limit.
15.407(b)(9)	AC Power Conducted Emissions	Pass	Minimum passing margin is -3.13 dB at 0.36932 MHz
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -5.6 dB at 167.74 MHz
15.407(b)(6) 15.407(b)(10)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.4 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(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is Ipex(MHF) 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
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.99 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.59 dB
	30 MHz ~ 1 GHz	3.6 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	2.29 dB
	18 GHz ~ 40 GHz	2.29 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	Indoor Wireless AP
Brand	Nile Global
Test Model	NWA1100
Status of EUT	Engineering sample
Power Supply Rating	100-240V, 50/60Hz 54 Vdc (From POE)
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM for OFDMA in 11ax mode
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: up to 54 Mbps 802.11ax: up to 4803.9 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, 802.11ax (HE20):59 802.11ax (HE40):29 802.11ax (HE80):14 802.11ax (HE160):7
Output Power	For Radio 5: CDD Mode 5.955 GHz ~ 6.415 GHz : EIRP: 205.116 mW (23.12 dBm) 6.435 GHz ~ 6.525 GHz : EIRP: 170.216 mW (22.31 dBm) 6.535 GHz ~ 6.865 GHz : EIRP: 147.911 mW (21.70 dBm) 6.875 GHz ~ 7.115 GHz : EIRP: 138.038 mW (21.40 dBm) Beamforming Mode 5.955 GHz ~ 6.415 GHz : EIRP: 492.04 mW (26.92 dBm) 6.435 GHz ~ 6.525 GHz : EIRP: 426.58 mW (26.30 dBm) 6.535 GHz ~ 6.865 GHz : EIRP: 387.258 mW (25.88 dBm) 6.875 GHz ~ 7.115 GHz : EIRP: 387.258 mW (25.88 dBm) For Radio 3: 5.955 GHz ~ 6.415 GHz : EIRP: 325.087 mW (25.12 dBm) 6.435 GHz ~ 6.525 GHz : EIRP: 274.789 mW (24.39 dBm) 6.535 GHz ~ 6.865 GHz : EIRP: 343.558 mW (25.36 dBm) 6.875 GHz ~ 7.115 GHz : EIRP: 340.408 mW (25.32 dBm)
Equipment Class	6ID: 15E 6 GHz Low-power indoor access point

Note:

1. The EUT uses following accessories.

POE (Support unit)		
Brand	Model	Specification
NETGEAR	GS305Pv2	DC Output : 54V,1.25A

2. There are four modules for the EUT.

Function	Radio
WLAN 2.4G (TX/RX)	1
WLAN 5G (TX/RX)	2
WLAN 2.4G & 5G & 6G (TX/RX)	3
BT LE	4
WLAN 6G (TX/RX)	5

3. Simultaneously transmission condition.

Condition	Technology		
1	WLAN 2.4G (Radio 1)	WLAN 5G (Radio 2)	WLAN 6G (Radio 5)
2	WLAN 2.4G (Radio 3)	WLAN 5G (Radio 3)	WLAN 6G (Radio 3)

Note:

- The emission of the simultaneous operation has been evaluated and no non-compliance was found.
- Radio 3 and Radio 5 cannot transmit simultaneously.

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

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna Connector		Ipex(MHF)				
Antenna No.		Antenna Type	Gain (dBi)			
			5.920~6.425GHz	6.425~6.525GHz	6.525~6.875GHz	6.875~7.125GHz
Radio 5	6G1 (Chain 0)	dipole	6.4	6.6	6.6	5.5
	6G2 (Chain 1)		7.5	7.0	7.0	6.9
	6G3 (Chain 2)		5.8	4.9	4.9	5.2
	6G4 (Chain 3)		5.8	4.7	4.7	5.0
Radio 3	TB1 (Chain 0)	PIFA	5.8	6.8	6.8	6.2
	TB2 (Chain 1)		6.3	5.5	5.5	5.3

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

2. The EUT incorporates a MIMO function:

6 GHZ BAND				
Module	Modulation Mode	Beamforming Mode	TX & RX Configuration	
Radio 5	802.11a	Not Support	4TX	4RX
	802.11ax (HE20)	Support	4TX	4RX
	802.11ax (HE40)	Support	4TX	4RX
	802.11ax (HE80)	Support	4TX	4RX
	802.11ax (HE160)	Support	4TX	4RX
Radio 3	802.11a	Not Support	2TX	2RX
	802.11ax (HE20)	Not Support	2TX	2RX
	802.11ax (HE40)	Not Support	2TX	2RX
	802.11ax (HE80)	Not Support	2TX	2RX
	802.11ax (HE160)	Not Support	2TX	2RX

Note:

- The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
- For 802.11ax, the EUT are not support Partial RU and channel puncturing/bandwidth reduction mechanisms.

3.3 Channel List

U-NII-5: 15E 6 GHz Low-power indoor access point

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: 15E 6 GHz Low-power indoor access point

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: 15E 6 GHz Low-power indoor access point

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: 15E 6 GHz Low-power indoor access point

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:	The EUT had been pre-tested on the positioned of each 3 axis (X-axis/ Y-axis/ Z-axis). Pre-scan these ways and find the worst case as a representative test condition.
Worst Case:	Z-AXIS for Mode A, X-AXIS for Mode B

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

Test Item	EUT Configure Mode	Mode	Signal Mode	Tested Channel	Modulation	Data Rate
Output Power/ Power Density	A	11a 6G	CDD	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	6Mb/s
		11ax20 6G	CDD & Beamforming	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	MCS0
		11ax40 6G	CDD & Beamforming	3, 43, 91, 99, 107, 115, 115, 123, 155, 179, 187, 211, 227	BPSK	MCS0
		11ax80 6G	CDD & Beamforming	7, 39, 87, 103, 119, 135, 151, 167, 183, 199, 215	BPSK	MCS0
		11ax160 6G	CDD & Beamforming	15, 47, 79, 111, 143, 175, 207	BPSK	MCS0
	B	11a 6G	CDD	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	6Mb/s
		11ax20 6G	CDD	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	MCS0
		11ax40 6G	CDD	3, 43, 91, 99, 107, 115, 115, 123, 155, 179, 187, 211, 227	BPSK	MCS0
		11ax80 6G	CDD	7, 39, 87, 103, 119, 135, 151, 167, 183, 199, 215	BPSK	MCS0
		11ax160 6G	CDD	15, 47, 79, 111, 143, 175, 207	BPSK	MCS0
Emission Bandwidth	A, B	11a 6G	CDD	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	6Mb/s
		11ax20 6G	CDD	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	MCS0
		11ax40 6G	CDD	3, 43, 91, 99, 107, 115, 115, 123, 155, 179, 187, 211, 227	BPSK	MCS0
		11ax80 6G	CDD	7, 39, 87, 103, 119, 135, 151, 167, 183, 199, 215	BPSK	MCS0
		11ax160 6G	CDD	15, 47, 79, 111, 143, 175, 207	BPSK	MCS0
In-Band Emission Mask	A, B	11a 6G	CDD	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	6Mb/s
		11ax20 6G	CDD	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	MCS0
		11ax40 6G	CDD	3, 43, 91, 99, 107, 115, 115, 123, 155, 179, 187, 211, 227	BPSK	MCS0
		11ax80 6G	CDD	7, 39, 87, 103, 119, 135, 151, 167, 183, 199, 215	BPSK	MCS0
		11ax160 6G	CDD	15, 47, 79, 111, 143, 175, 207	BPSK	MCS0
Occupied Bandwidth	A, B	11a 6G	CDD	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	6Mb/s
		11ax20 6G	CDD	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	MCS0
		11ax40 6G	CDD	3, 43, 91, 99, 107, 115, 115, 123, 155, 179, 187, 211, 227	BPSK	MCS0
		11ax80 6G	CDD	7, 39, 87, 103, 119, 135, 151, 167, 183, 199, 215	BPSK	MCS0
		11ax160 6G	CDD	15, 47, 79, 111, 143, 175, 207	BPSK	MCS0



Test Item	EUT Configure Mode	Mode	Signal Mode	Tested Channel	Modulation	Data Rate
Frequency Stability	A, B	11a 6G	-	1	un-modulation	-
Contention-based Protocol	A, B	11ax20 6G	CDD	45, 105, 149, 209	BPSK	MCS0
		11ax160 6G	CDD	47, 111, 143, 207	BPSK	MCS0
AC Power Conducted Emissions	A	11ax160 6G	CDD	47	BPSK	MCS0
	B	11ax160 6G	CDD	175	BPSK	MCS0
Unwanted Emissions below 1 GHz	A	11ax160 6G	CDD	47	BPSK	MCS0
	B	11ax160 6G	CDD	175	BPSK	MCS0
Unwanted Emissions above 1 GHz	A	11a 6G	CDD	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	6Mb/s
		11ax20 6G	CDD & Beamforming	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	MCS0
		11ax40 6G	CDD & Beamforming	3, 43, 91, 99, 107, 115, 115, 123, 155, 179, 187, 211, 227	BPSK	MCS0
		11ax80 6G	CDD & Beamforming	7, 39, 87, 103, 119, 135, 151, 167, 183, 199, 215	BPSK	MCS0
		11ax160 6G	CDD & Beamforming	15, 47, 79, 111, 143, 175, 207	BPSK	MCS0
	B	11a 6G	CDD	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	6Mb/s
		11ax20 6G	CDD	1, 45, 93, 97, 105, 113, 117, 149, 181, 185, 209, 233	BPSK	MCS0
		11ax40 6G	CDD	3, 43, 91, 99, 107, 115, 115, 123, 155, 179, 187, 211, 227	BPSK	MCS0
		11ax80 6G	CDD	7, 39, 87, 103, 119, 135, 151, 167, 183, 199, 215	BPSK	MCS0
		11ax160 6G	CDD	15, 47, 79, 111, 143, 175, 207	BPSK	MCS0
EUT Configure Mode:	A	6G Radio 5				
	B	Scan Radio 3				

3.5 Duty Cycle of Test Signal

Mode A:

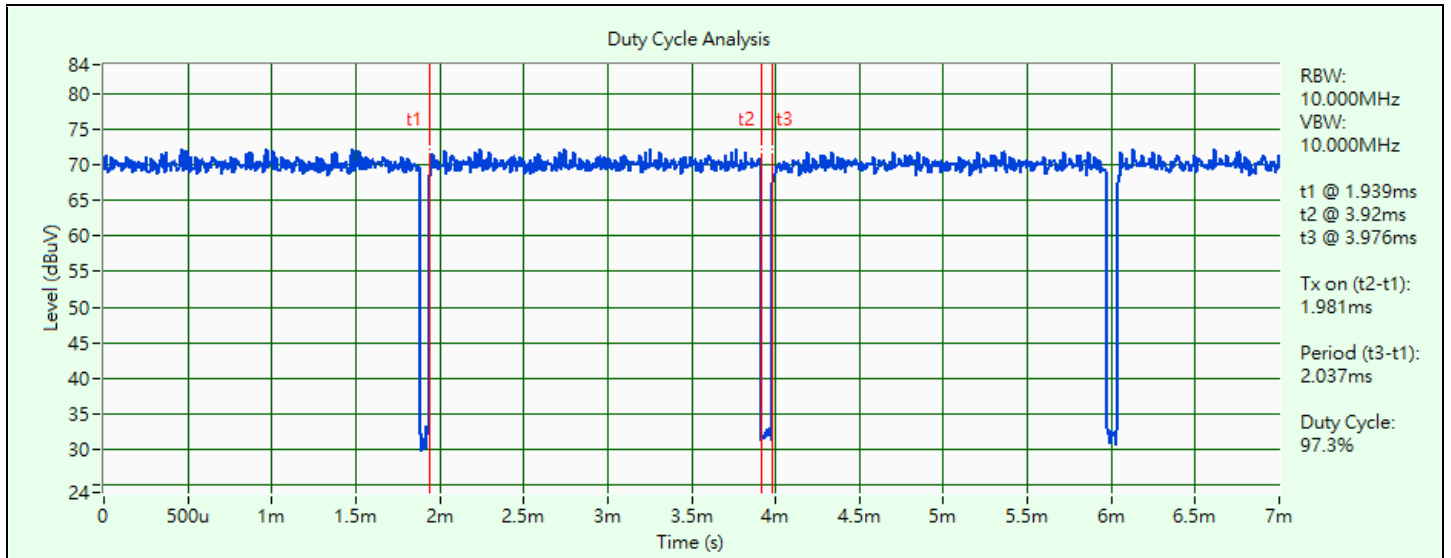
802.11a: Duty cycle = 1.981 ms / 2.037 ms x 100% = 97.3%, duty factor = 10 * log (1/Duty cycle) = 0.12 dB

802.11ax (HE20): Duty cycle = 5.16 ms / 5.22 ms x 100% = 98.9%

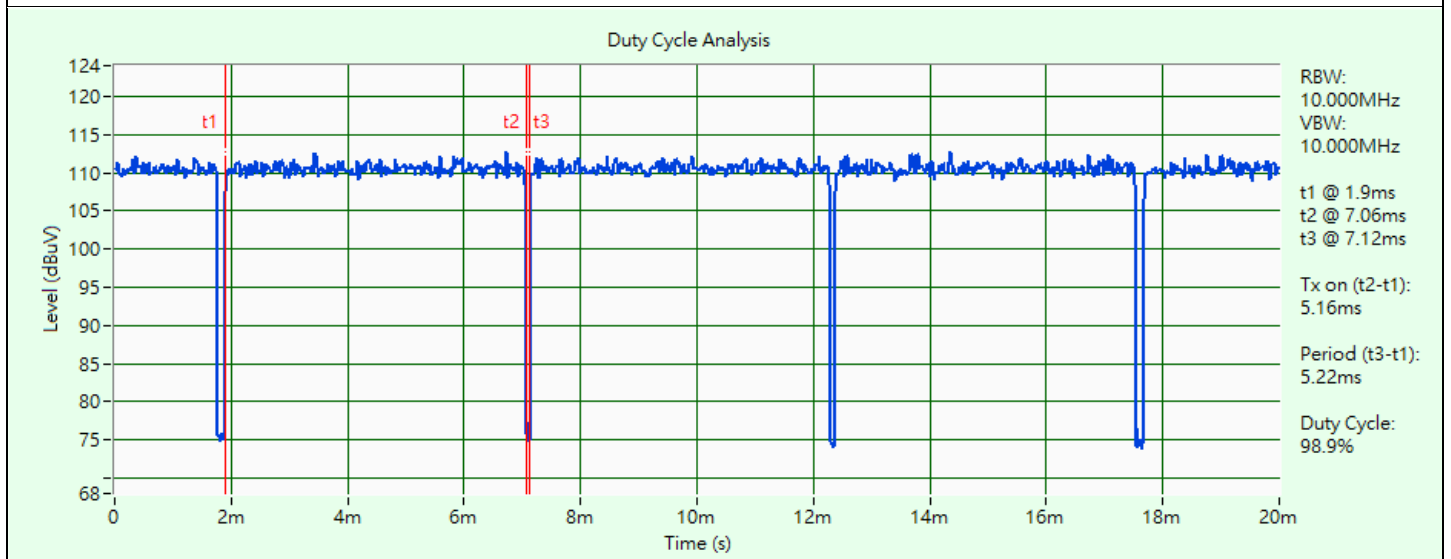
802.11ax (HE40): Duty cycle = 5.3 ms / 5.38 ms x 100% = 98.5%

802.11ax (HE80): Duty cycle = 5.4 ms / 5.48 ms x 100% = 98.5%

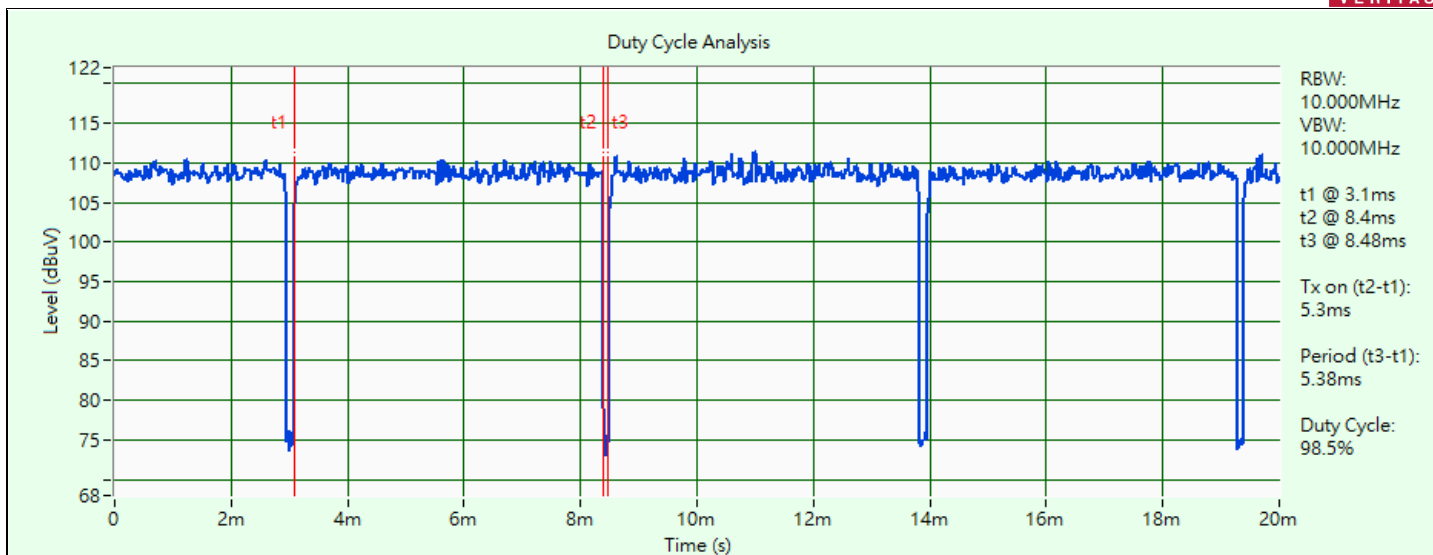
802.11ax (HE160): Duty cycle = 2.142 ms / 2.198 ms x 100% = 97.5%, duty factor = 10 * log (1/Duty cycle) = 0.11 dB



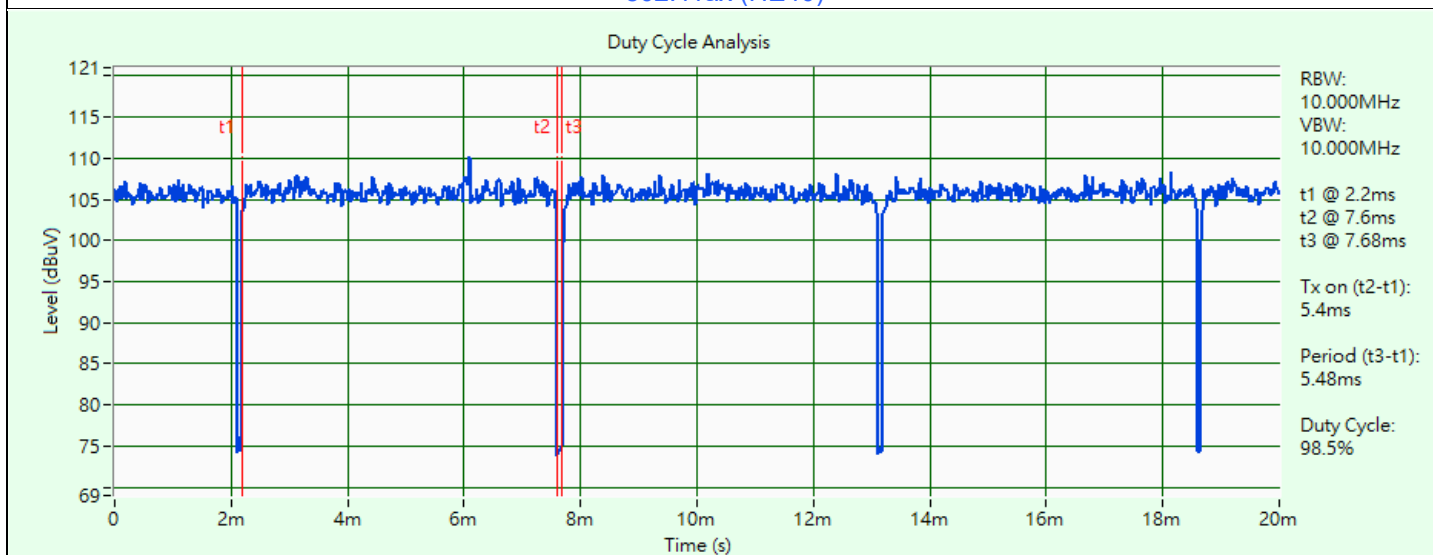
802.11a



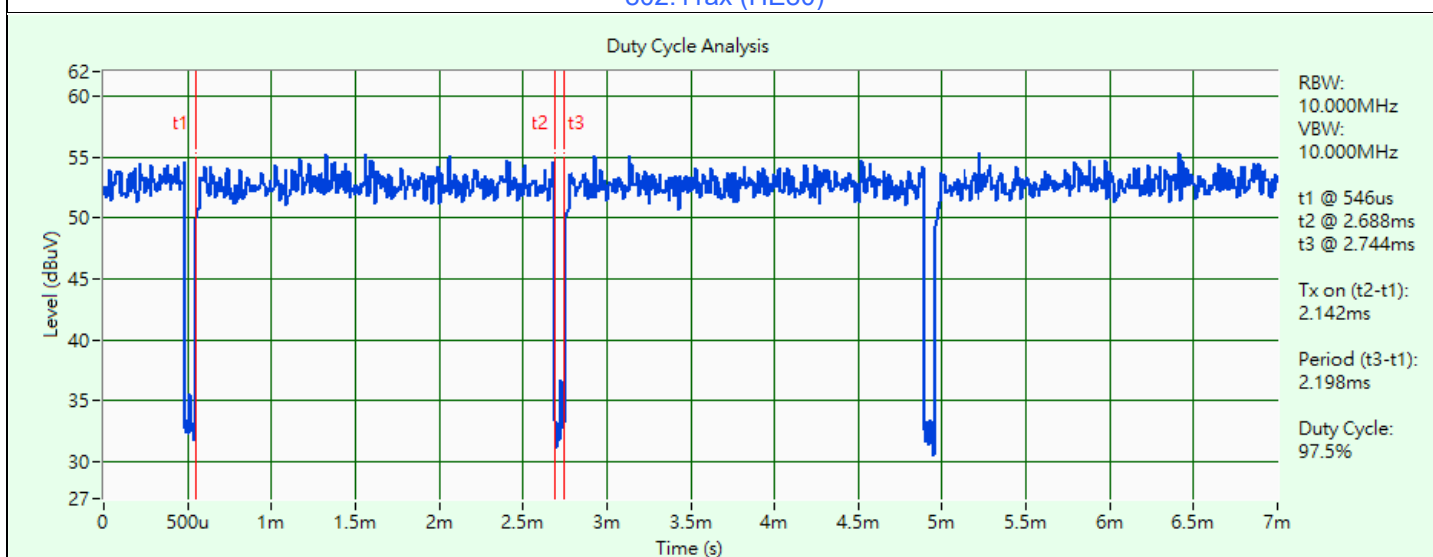
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



802.11ax (HE160)

Mode B

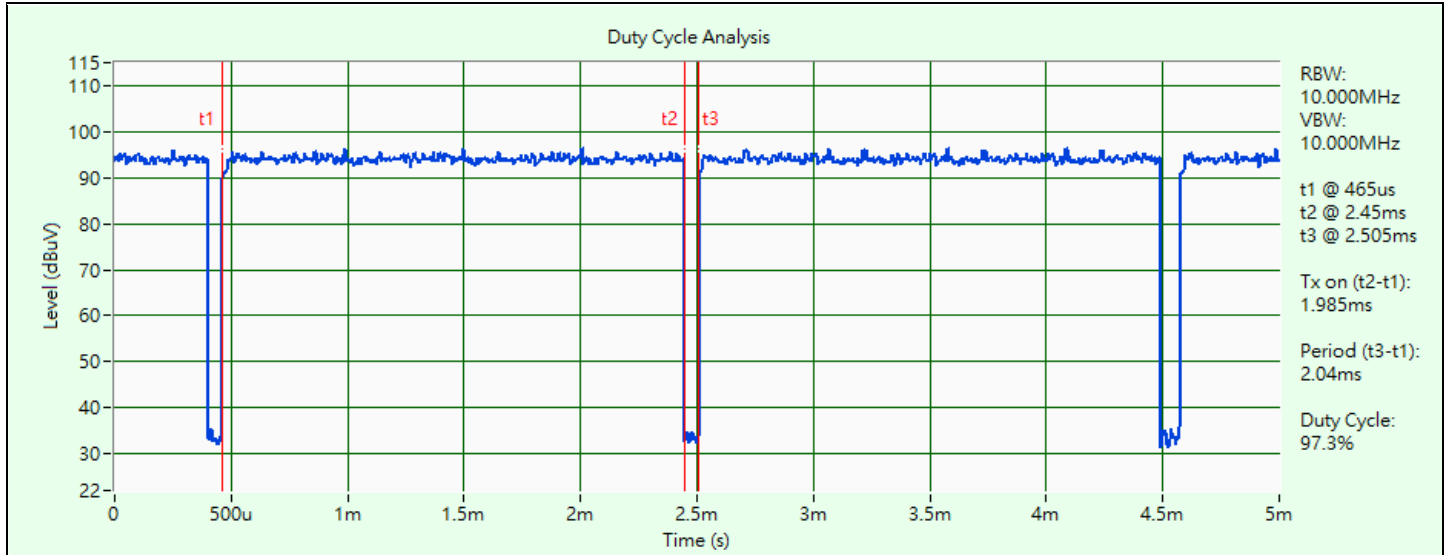
802.11a: Duty cycle = 1.985 ms / 2.04 ms x 100% = 97.3%, duty factor = 10 * log (1/Duty cycle) = 0.12 dB

802.11ax (HE20): Duty cycle = 5.46 ms / 5.82 ms x 100% = 93.8%, duty factor = 10 * log (1/Duty cycle) = 0.28 dB

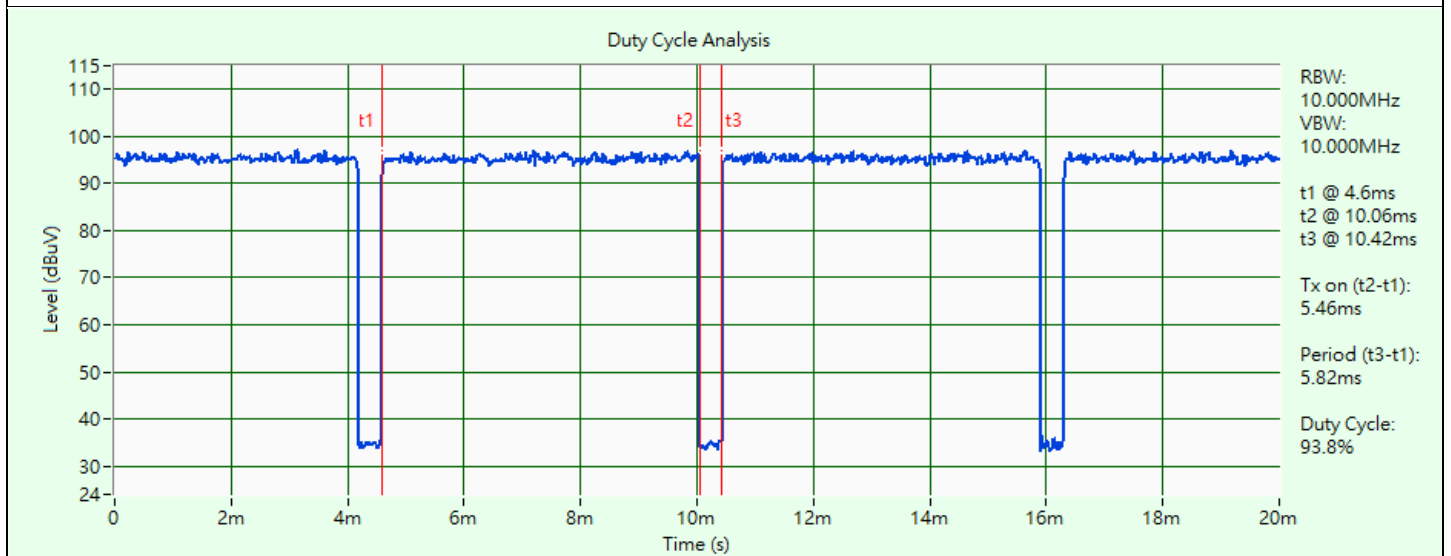
802.11ax (HE40): Duty cycle = 5.46 ms / 5.9 ms x 100% = 92.5%, duty factor = 10 * log (1/Duty cycle) = 0.34 dB

802.11ax (HE80): Duty cycle = 5.48 ms / 5.82 ms x 100% = 94.2%, duty factor = 10 * log (1/Duty cycle) = 0.26 dB

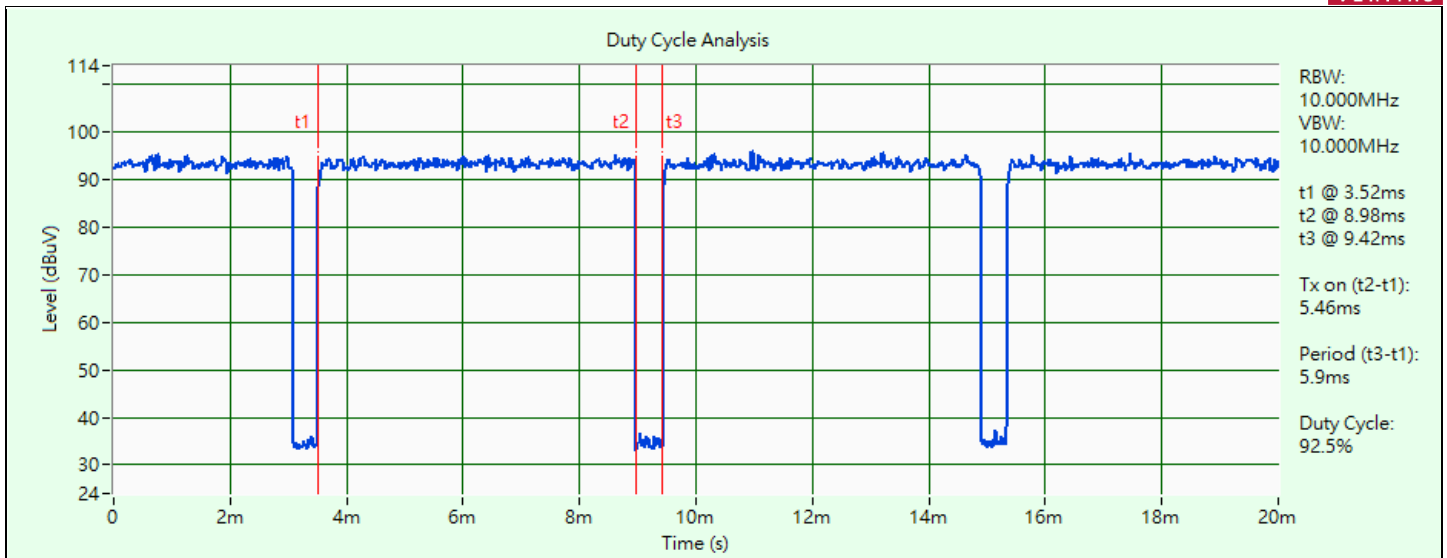
802.11ax (HE160): Duty cycle = 2.142 ms / 2.198 ms x 100% = 97.5%, duty factor = 10 * log (1/Duty cycle) = 0.11 dB



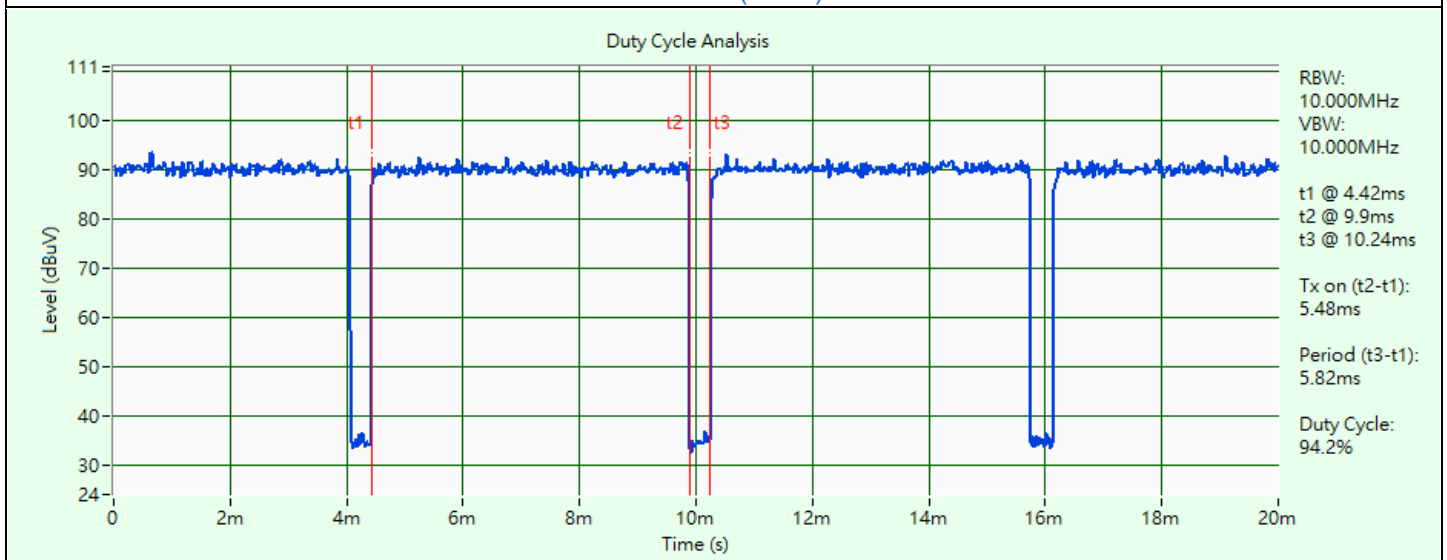
802.11a



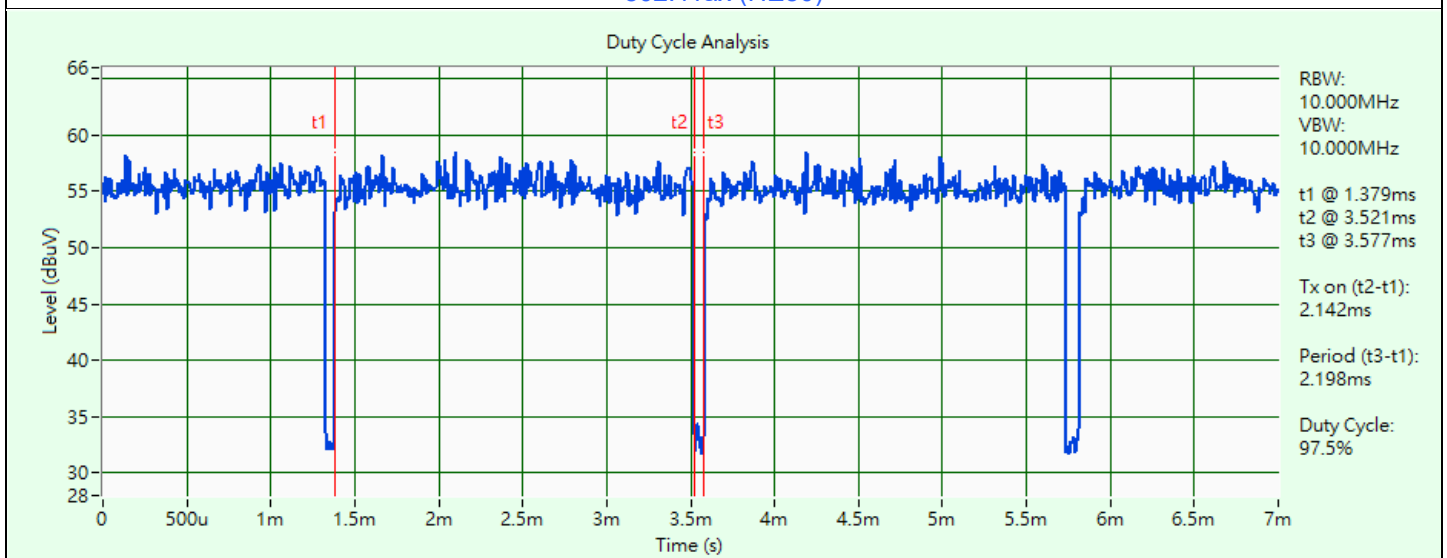
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



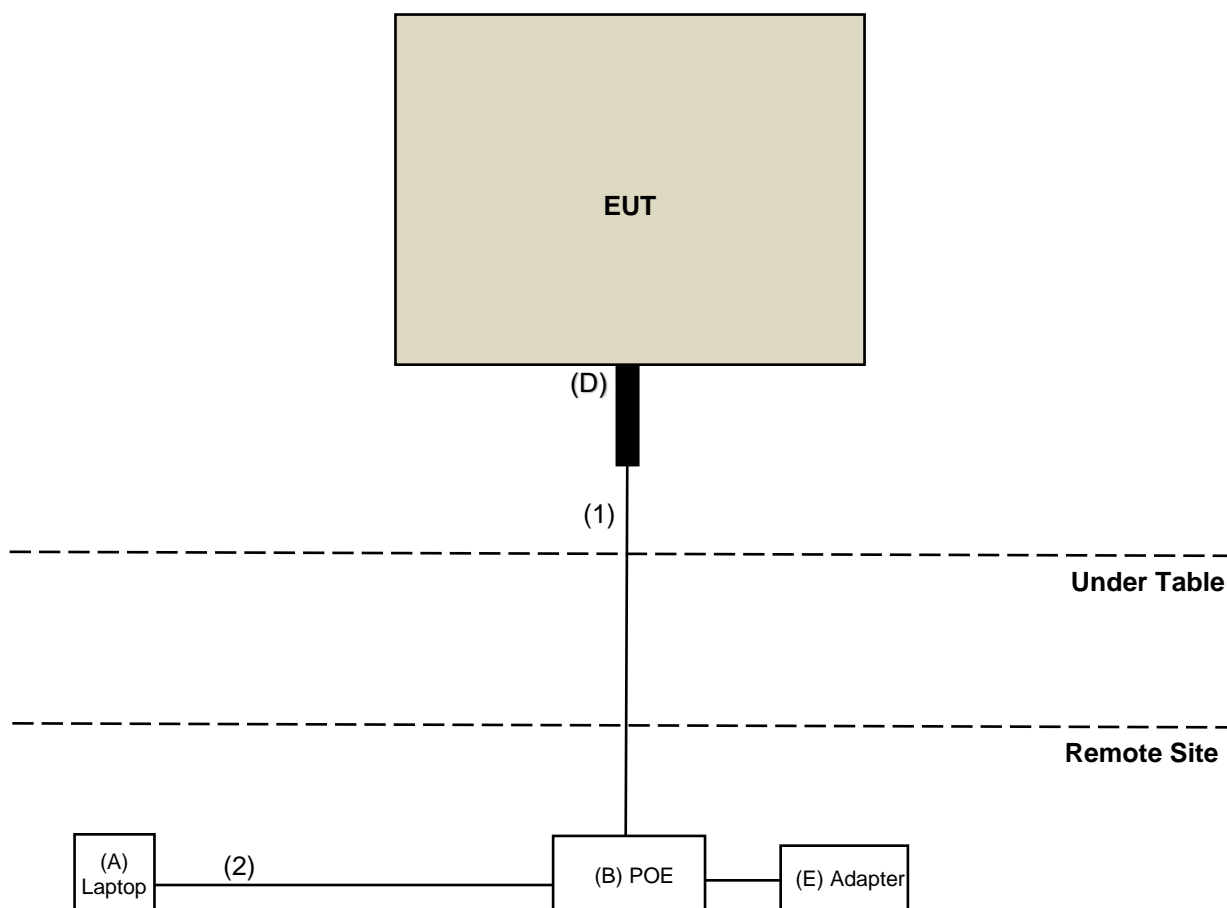
802.11ax (HE160)

3.6 Test Program Used and Operation Descriptions

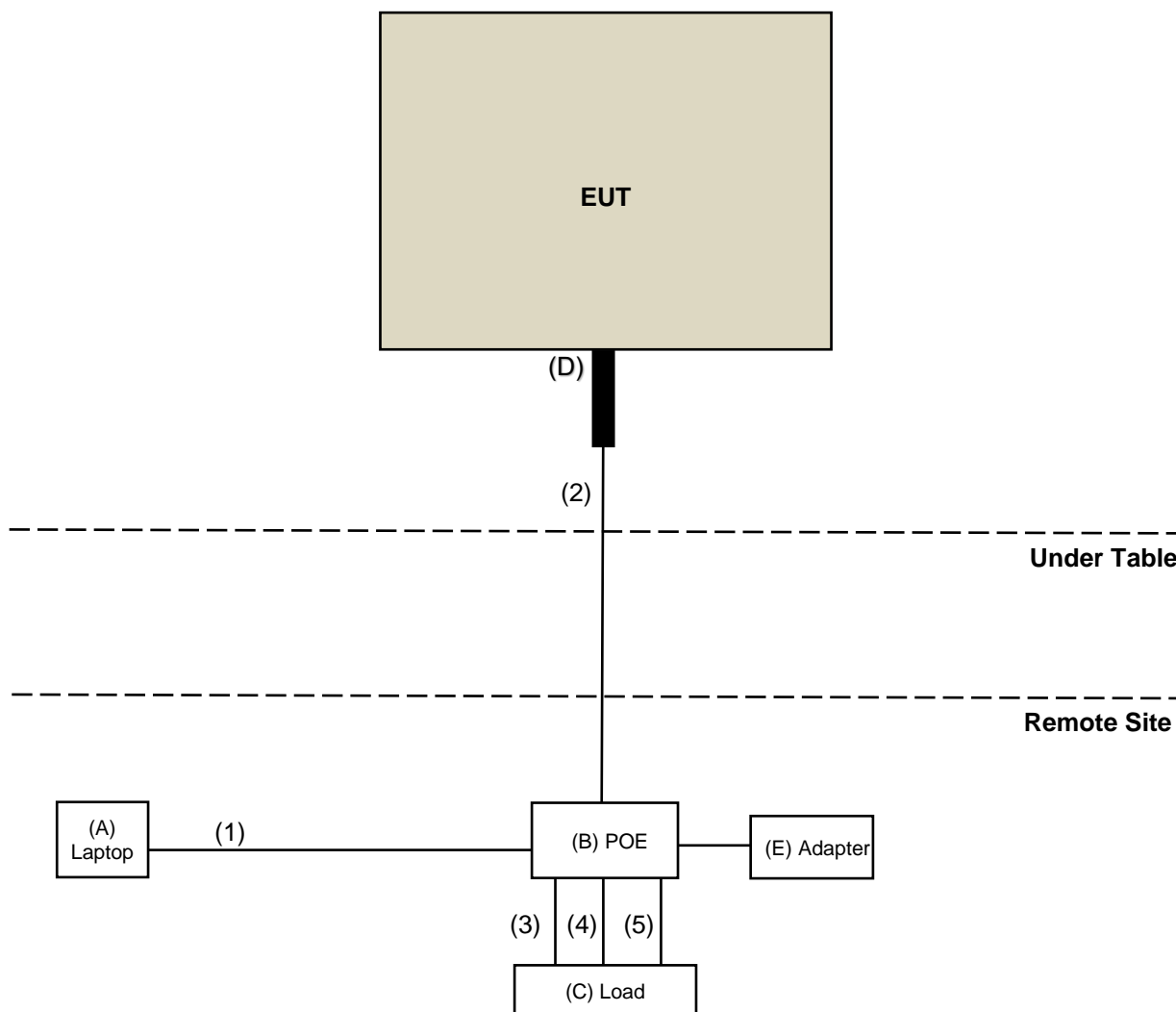
Controlling software QSPR Version 5.0-00197 has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices

For All test (Conducted Emissions test excluded)



For AC Power Conducted Emissions only



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Laptop	Lenovo	L470	PF0XEHC5	N/A	Provided by Lab
B	POE	NETGEAR	N/A	N/A	N/A	Supplied by applicant
C	Load	N/A	N/A	N/A	N/A	Provided by Lab
D	LAN port extension	N/A	N/A	N/A	N/A	Supplied by applicant
E	Adapter	N/A	N/A	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	RJ-45 Cable	1	6.0	N	0	Provided by Lab
2	RJ-45 Cable	1	1.5	N	0	Provided by Lab
3	RJ-45 Cable	1	1.5	N	0	Provided by Lab
4	RJ-45 Cable	1	1.5	N	0	Provided by Lab
5	RJ-45 Cable	1	1.5	N	0	Provided by Lab

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
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
MXE EMI Receiver Keysight	N9038A	MY55420137	2023/5/3	2024/5/2
Signal & Spectrum Analyzer R&S	FSW43	101867	2022/12/30	2023/12/29
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-1169	2023/11/12	2024/11/11
Preamplifier Agilent	8449B	3008A02367	2023/2/15	2024/2/14
RF Coaxial Cable HUBER+SUHNER&EMCI	SUCOFLEX 104& EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	2023/1/7	2024/1/6
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	2023/1/7	2024/1/6
Notch Filter Micro-Tronics	BRM50716	060	2023/1/11	2024/1/10
Notch Filter Micro-Tronics	BRM17690	004	2023/1/11	2024/1/10
Boresight antenna tower fixture BV	BAF-02	5	NA	NA

Notes:

1. The test was performed in HY - 966 chamber 4.
2. Tested Date: 2023/12/7

4.2 Maximum Power Spectral Density

Refer to section 4.1 to get information of the instruments.

4.3 Emission Bandwidth

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Signal & Spectrum Analyzer R&S	FSV3044	101504	2023/6/5	2024/6/4
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: 2023/12/7

4.4 In-Band Emission Mask

Refer to section 4.3 to get information of the instruments.

4.5 Occupied Bandwidth

Refer to section 4.3 to get information of the instruments.

4.6 Frequency Stability

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
3-channel DC power supply JIN YIH Technology	ODP3033	ODP30332128138	N/A	N/A
Digital Multimeter Fluke	87-III	70360742	2023/7/6	2024/7/5
Signal & Spectrum Analyzer R&S	FSV3044	101504	2023/6/5	2024/6/4
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A
Temperature & Humidity Chamber Terchy	HRM-120RF	931022	2022/12/27	2023/12/26

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/12/7

4.7 Contention-based Protocol

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
EXA Signal Analyzer Agilent	N9010A	MY52220207	2023/1/3	2024/1/2
MXG Vector signal generator Keysight	N5182B	MY53052282	2023/1/6	2024/1/5
Power Splitter/Combiner Mini-Circuits	ZN2PD-9G	ZN2PD-9G	2023/6/2	2024/6/1
PXA Signal Analyzer Keysight	N9030B	MY57140488	2023/3/6	2024/3/5

Notes:

1. The test was performed in Adaptivity room.
2. Tested Date: 2023/7/21 ~ 2023/7/24

4.8 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
EMI Test Receiver R&S	ESCI	100613	2022/12/5	2023/12/4
LISN R&S	ENV216	101826	2023/3/23	2024/3/22
	ESH3-Z5	100311	2022/9/12	2023/9/11
RF Coaxial Cable Woken	5D-FB	Cable-cond1-01	2023/1/7	2024/1/6
Software BVADT	BVADT_Cond_ V7.3.7.4	N/A	N/A	N/A
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2022/8/31	2023/8/30

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2023/5/9

4.9 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Bi_Log Antenna Schwarbeck	VULB 9168	9168-160	2022/10/20	2023/10/19
Loop Antenna Electro-Metrics	EM-6879	269	2022/9/19	2023/9/18
Loop Antenna TESEQ	HLA 6121	45745	2022/7/27	2023/7/26
MXE EMI Receiver Keysight	N9038A	MY55420137	2023/5/3	2024/5/2
Preamplifier Agilent	8447D	2944A10638	2023/5/7	2024/5/6
Preamplifier EMCI	EMC001340	980201	2022/9/23	2023/9/22
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	2023/1/7	2024/1/6
RF Coaxial Cable Woken	8D-FB	Cable-CH9-01	2023/5/7	2024/5/6
Signal & Spectrum Analyzer R&S	FSW43	101867	2022/12/30	2023/12/29
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 4.
2. Tested Date: 2023/5/10

4.10 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	5	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-1169	2022/11/13 2023/11/12	2023/11/12 2024/11/11
	BBHA 9170	9170-480	2022/11/13 2023/11/12	2023/11/12 2024/11/11
		BBHA9170243	2022/11/13 2023/11/12	2023/11/12 2024/11/11
MXE EMI Receiver Keysight	N9038A	MY55420137	2023/5/3	2024/5/2
Notch Filter Micro-Tronics	BRM17690	004	2023/1/11	2024/1/10
	BRM50716	060	2023/1/11	2024/1/10
Preamplifier Agilent	8449B	3008A02367	2023/2/15	2024/2/14
Preamplifier EMCI	EMC 184045	980116	2022/10/1 2023/9/27	2023/9/30 2024/9/26
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2022/7/9 2023/7/8	2023/7/8 2024/7/7
	EMC102-KM-KM-3000	150929	2022/7/9 2023/7/8	2023/7/8 2024/7/7
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	2023/1/7	2024/1/6
RF Coaxial Cable HUBER+SUHNER&EMCI	SUCOFLEX 104& EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	2023/1/7	2024/1/6
Signal & Spectrum Analyzer R&S	FSW43	101867	2022/12/30	2023/12/29
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 4.
2. Tested Date: 2023/5/3 ~ 2023/12/5

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	6ID: 15E 6 GHz Low-power indoor access point	EIRP 30 dBm

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	6ID: 15E 6 GHz Low-power indoor access point	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 maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 MHz.

5.6 Frequency Stability

The frequency of the carrier signal shall be maintained within band of operation.

5.7 Contention-based Protocol

1. 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.

5.8 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.

5.9 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).

5.10 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)

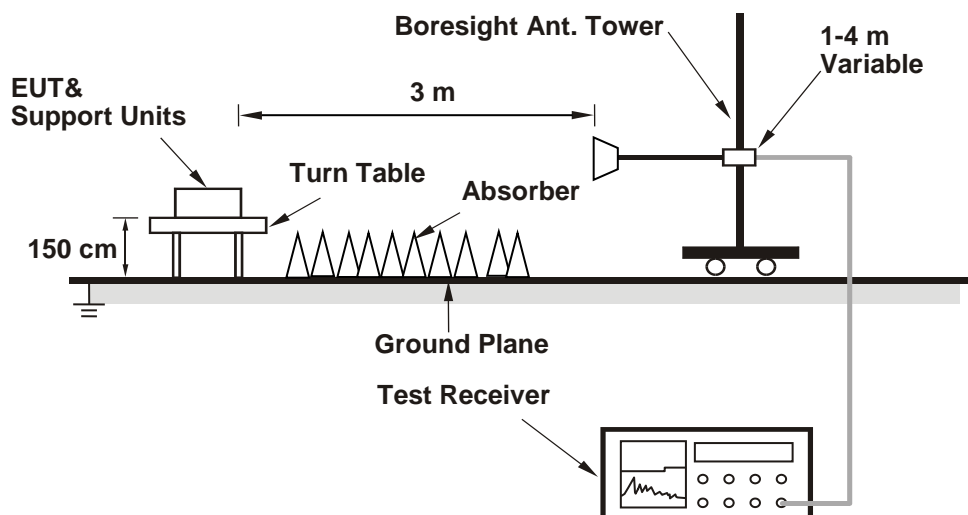
Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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

6 Test Arrangements

6.1 Maximum RF Output Power

6.1.1 Test Setup



6.1.2 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.
- Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP level.
- Follow ANSI C63.10 section 12.7.3, $EIRP \text{ Value (dBm)} = \text{Field Strength Value (dBuV / m)} + \text{Correction Factor @ 3 m}$.
- $\text{Correction Factor (dB) @ 3 m} = 20\log(D) - 104.77 = -95.23 \text{ dB}$; where D is the measurement distance @3 m.

Spectrum analyzer setting as below:

Method SA-1

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. Set RBW = 1 MHz, Set VBW \geq 3 MHz, Detector = RMS
- c. 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.)
- d. Sweep time = auto, trigger set to “free run”.
- e. Trace average at least 100 traces in power averaging mode.
- f. Record the max value

Note: When measuring power, use compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument’s band power measurement function, with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW or 99% OBW of the spectrum.

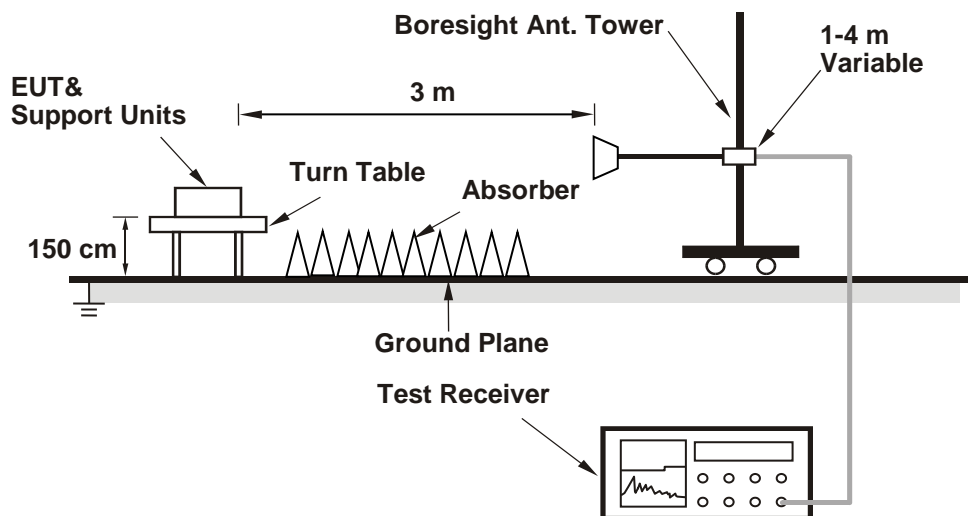
Method SA-2

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. Set RBW = 1 MHz, Set VBW \geq 3 MHz, Detector = RMS
- c. Sweep time = auto, trigger set to “free run”.
- d. 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.)
- e. Add $10 \log (1/\text{duty cycle})$ to spectrum instrument offset.
- f. Trace average at least 100 traces in power averaging mode.
- g. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
- h. Record the max value.

Note: When measuring power, use compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument’s band power measurement function, with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW or 99% OBW of the spectrum.

6.2 Maximum Power Spectral Density

6.2.1 Test Setup



6.2.2 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.
- Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP level.
- Follow ANSI C63.10 section 12.7.3, $EIRP \text{ Value (dBm)} = \text{Field Strength Value (dBuV/m)} + \text{Correction Factor @ 3 m}$.
- $\text{Correction Factor (dB) @ 3 m} = 20\log(D) - 104.77$; where D is the measurement distance @ 3 m = -95.23 dB

Spectrum analyzer setting as below:

Method SA-1

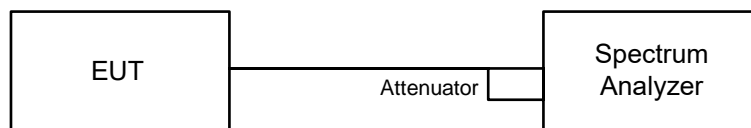
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz, Set VBW \geq 3 MHz, Detector = RMS
- Sweep points $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)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

Method SA-2

- Set span to encompass the entire emission bandwidth (EBW) 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".
- Add $10 \log (1/\text{duty cycle})$ to spectrum instrument offset.
- 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.

6.3 Emission Bandwidth

6.3.1 Test Setup

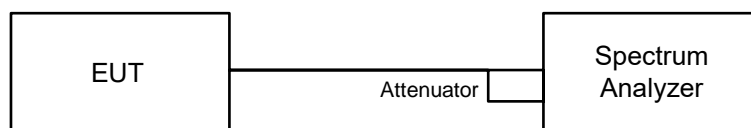


6.3.2 Test Procedure

- Set RBW = approximately 1% 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 analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

6.4 In-Band Emission Mask

6.4.1 Test Setup

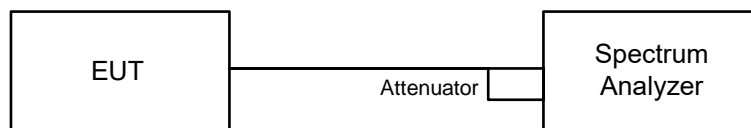


6.4.2 Test Procedure

- Connect output of the antenna port to a spectrum analyzer and adjust appropriate attenuation.
- Measure the 26 dB EBW using the test procedure 12.4.1 of ANSI C63.10-2013. (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 X RBW].
 - Number of points in sweep \geq [2 X span / 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

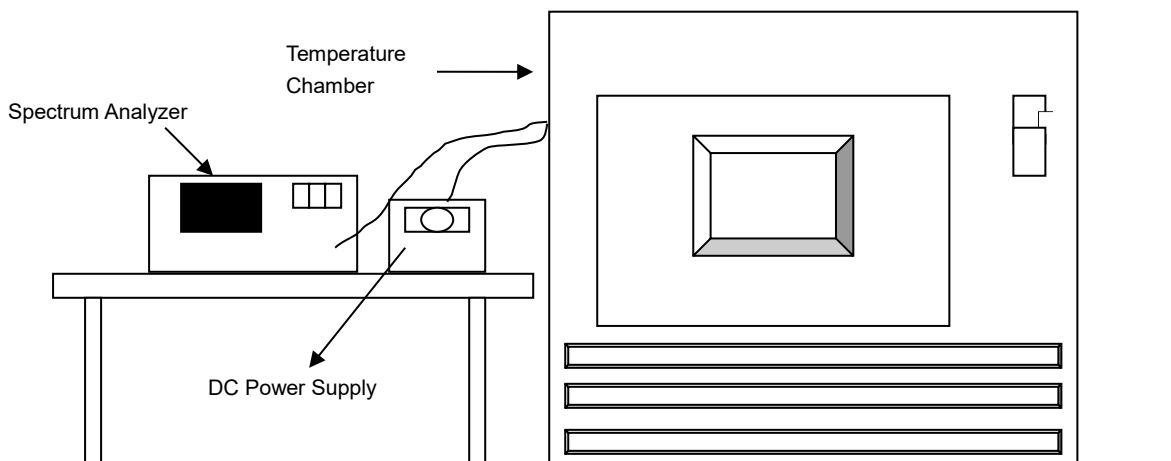


6.5.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to Sampling. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean power of a given emission.

6.6 Frequency Stability

6.6.1 Test Setup

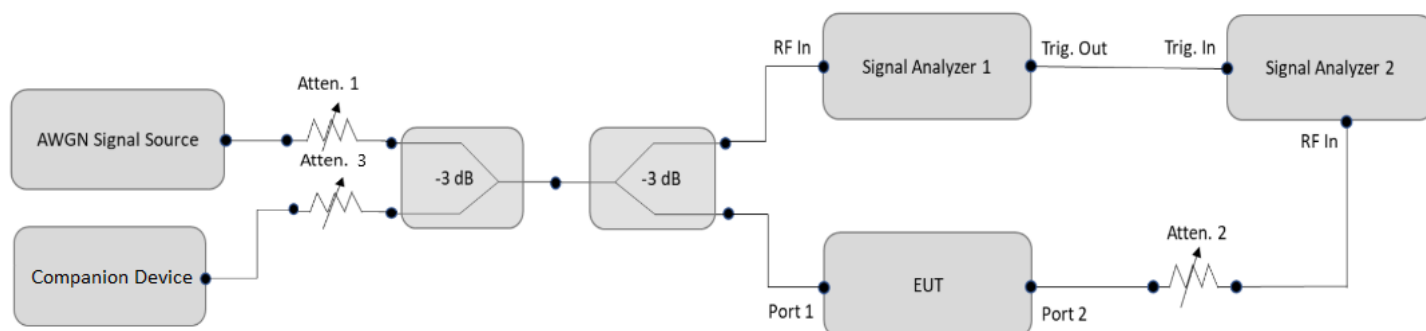


6.6.2 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.
- Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.
- The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

6.7 Contention-based Protocol

6.7.1 Test Setup



6.7.2 Test Procedure

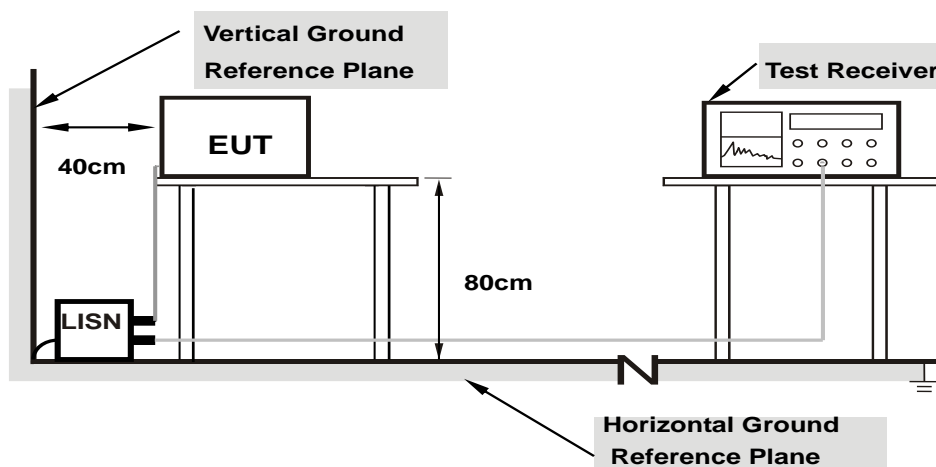
- Set the signal analyzer center frequency to the nominal EUT channel center frequency. The span range of the signal analyzer shall be between two times and five times the OBW of the EUT. Connect the output port of the EUT to the signal analyzer 2. Ensure that the attenuator 2 provides enough attenuation 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
$BW_{Inc} < BW_{EUT} \leq 2x BW_{Inc}$	Once	Contained within BW_{EUT}
$2x BW_{Inc} < BW_{EUT} \leq 4x BW_{Inc}$	Twice. (Incumbent transmission is contained within BW_{EUT})	Closely to the lower edge and upper edge of the EUT Channel
$BW_{EUT} > 4x BW_{Inc}$	Three times	Closely to the lower edge, in the middle and upper edge of the EUT Channel

- 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.

6.8 AC Power Conducted Emissions

6.8.1 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).

6.8.2 Test Procedure

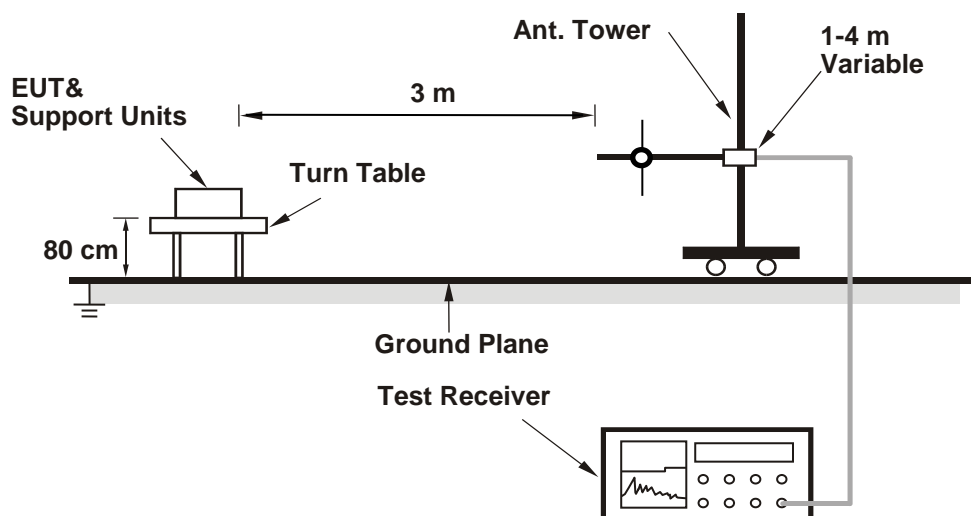
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The 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.

6.9 Unwanted Emissions below 1 GHz

6.9.1 Test Setup

For Radiated emission above 30 MHz



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

6.9.2 Test Procedure

For Radiated emission above 30 MHz

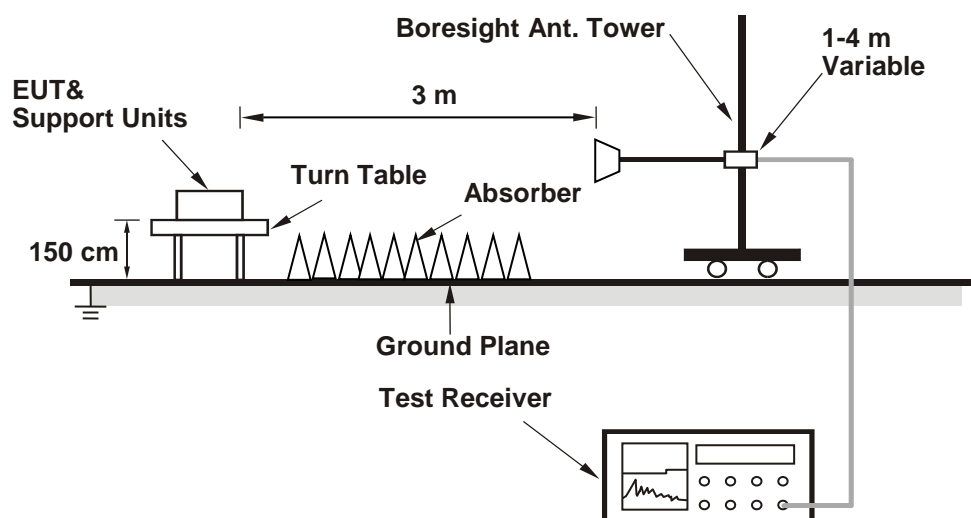
- The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top 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 quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Notes:

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

6.10 Unwanted Emissions above 1 GHz

6.10.1 Test Setup



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

6.10.2 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.

7 Test Results of Test Item

7.1 Maximum RF Output Power

Input Power:	54 Vdc	Environmental Conditions:	25°C, 67% RH	Tested By:	Noah Chang
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Mode A:

802.11a

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
1	5955	110.98	-95.23	37.584	15.75	30	Pass
45	6175	110.91	-95.23	36.983	15.68	30	Pass
93	6415	110.85	-95.23	36.475	15.62	30	Pass
97	6435	109.91	-95.23	29.376	14.68	30	Pass
105	6475	109.97	-95.23	29.785	14.74	30	Pass
113	6515	109.03	-95.23	23.988	13.80	30	Pass
117	6535	109.07	-95.23	24.21	13.84	30	Pass
149	6695	109.09	-95.23	24.322	13.86	30	Pass
181	6855	109.06	-95.23	24.155	13.83	30	Pass
185	6875	109.22	-95.23	25.061	13.99	30	Pass
209	6995	109.07	-95.23	24.21	13.84	30	Pass
233	7115	109.12	-95.23	24.491	13.89	30	Pass

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
1	5955	111.62	-95.23	43.551	16.39	30	Pass
45	6175	111.55	-95.23	42.855	16.32	30	Pass
93	6415	111.43	-95.23	41.687	16.20	30	Pass
97	6435	110.54	-95.23	33.963	15.31	30	Pass
105	6475	110.55	-95.23	34.041	15.32	30	Pass
113	6515	109.29	-95.23	25.468	14.06	30	Pass
117	6535	109.31	-95.23	25.586	14.08	30	Pass
149	6695	109.29	-95.23	25.468	14.06	30	Pass
181	6855	109.31	-95.23	25.586	14.08	30	Pass
185	6875	109.27	-95.23	25.351	14.04	30	Pass
209	6995	109.33	-95.23	25.704	14.10	30	Pass
233	7115	102.30	-95.23	5.093	7.07	30	Pass

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
3	5965	111.07	-95.23	38.371	15.84	30	Pass
43	6165	110.99	-95.23	37.67	15.76	30	Pass
91	6405	111.12	-95.23	38.815	15.89	30	Pass
99	6445	111.08	-95.23	38.459	15.85	30	Pass
107	6485	111.21	-95.23	39.628	15.98	30	Pass
115	6525	111.32	-95.23	40.644	16.09	30	Pass
123	6565	111.22	-95.23	39.719	15.99	30	Pass
155	6725	111.18	-95.23	39.355	15.95	30	Pass
179	6845	111.64	-95.23	43.752	16.41	30	Pass
187	6885	111.79	-95.23	45.29	16.56	30	Pass
211	7005	112.15	-95.23	49.204	16.92	30	Pass
227	7085	112.11	-95.23	48.753	16.88	30	Pass

802.11ax (HE80)

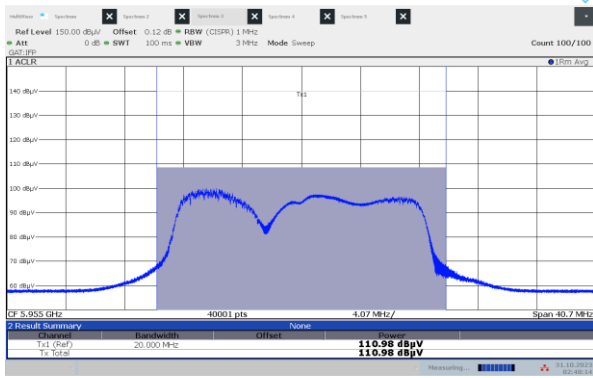
Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
7	5985	114.22	-95.23	79.25	18.99	30	Pass
39	6145	114.25	-95.23	79.799	19.02	30	Pass
87	6385	114.29	-95.23	80.538	19.06	30	Pass
103	6465	114.31	-95.23	80.91	19.08	30	Pass
119	6545	113.71	-95.23	70.469	18.48	30	Pass
135	6625	113.58	-95.23	68.391	18.35	30	Pass
151	6705	113.63	-95.23	69.183	18.40	30	Pass
167	6785	114.77	-95.23	89.95	19.54	30	Pass
183	6865	115.52	-95.23	106.905	20.29	30	Pass
199	6945	115.47	-95.23	105.682	20.24	30	Pass
215	7025	114.82	-95.23	90.991	19.59	30	Pass



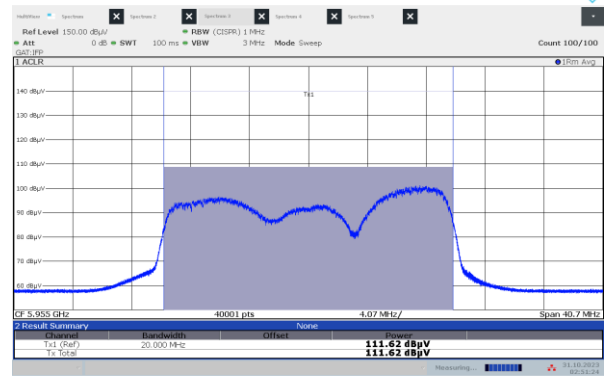
802.11ax (HE160)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
15	6025	118.33	-95.23	204.174	23.10	30	Pass
47	6185	118.35	-95.23	205.116	23.12	30	Pass
79	6345	118.03	-95.23	190.546	22.80	30	Pass
111	6505	117.54	-95.23	170.216	22.31	30	Pass
143	6665	116.11	-95.23	122.462	20.88	30	Pass
175	6825	116.93	-95.23	147.911	21.70	30	Pass
207	6985	116.63	-95.23	138.038	21.40	30	Pass

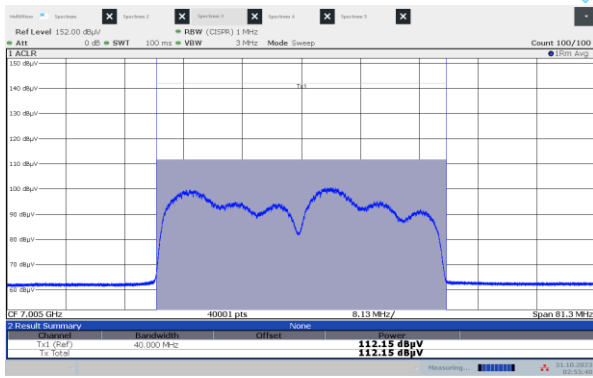
Spectrum Plot of Maximum Value



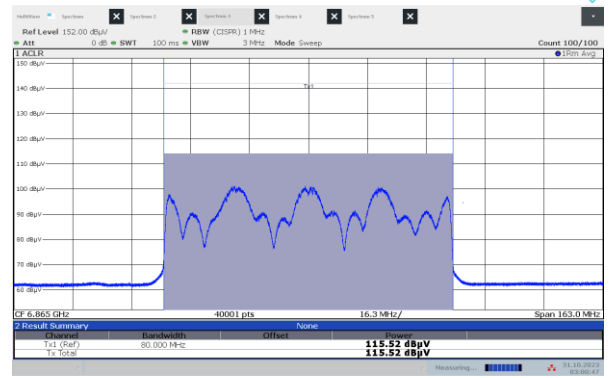
802.11a / CH 1



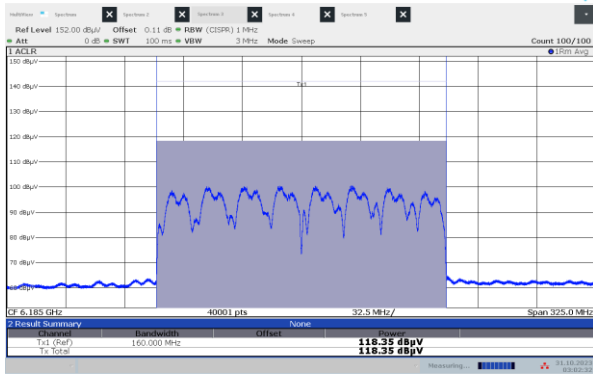
802.11ax (HE20) / CH 1



802.11ax (HE40) / CH 211



802.11ax (HE80) / CH 183



802.11ax (HE160) / CH 47

802.11ax (HE20) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
1	5955	115.84	-95.23	115.08	20.61	30	Pass
45	6175	115.31	-95.23	101.859	20.08	30	Pass
93	6415	115.18	-95.23	98.855	19.95	30	Pass
97	6435	114.42	-95.23	82.985	19.19	30	Pass
105	6475	114.50	-95.23	84.528	19.27	30	Pass
113	6515	113.23	-95.23	63.096	18.00	30	Pass
117	6535	113.37	-95.23	65.163	18.14	30	Pass
149	6695	113.37	-95.23	65.163	18.14	30	Pass
181	6855	113.27	-95.23	63.68	18.04	30	Pass
185	6875	113.50	-95.23	67.143	18.27	30	Pass
209	6995	113.52	-95.23	67.453	18.29	30	Pass
233	7115	106.46	-95.23	13.274	11.23	30	Pass

802.11ax (HE40) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
3	5965	114.93	-95.23	93.325	19.70	30	Pass
43	6165	114.97	-95.23	94.189	19.74	30	Pass
91	6405	115.14	-95.23	97.949	19.91	30	Pass
99	6445	115.25	-95.23	100.462	20.02	30	Pass
107	6485	115.33	-95.23	102.329	20.10	30	Pass
115	6525	115.24	-95.23	100.231	20.01	30	Pass
123	6565	115.32	-95.23	102.094	20.09	30	Pass
155	6725	115.01	-95.23	95.06	19.78	30	Pass
179	6845	115.57	-95.23	108.143	20.34	30	Pass
187	6885	115.79	-95.23	113.763	20.56	30	Pass
211	7005	115.99	-95.23	119.124	20.76	30	Pass
227	7085	116.36	-95.23	129.718	21.13	30	Pass

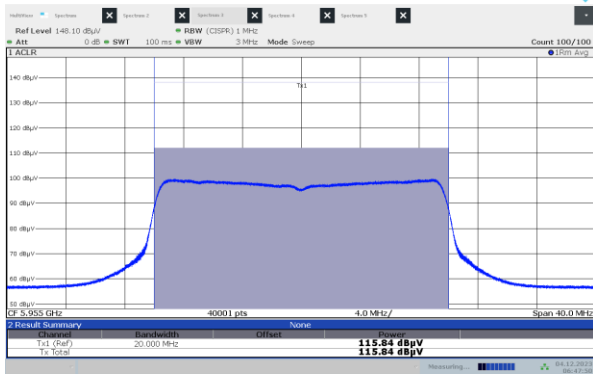
802.11ax (HE80) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
7	5985	118.00	-95.23	189.234	22.77	30	Pass
39	6145	118.10	-95.23	193.642	22.87	30	Pass
87	6385	118.17	-95.23	196.789	22.94	30	Pass
103	6465	118.39	-95.23	207.014	23.16	30	Pass
119	6545	117.59	-95.23	172.187	22.36	30	Pass
135	6625	117.67	-95.23	175.388	22.44	30	Pass
151	6705	117.87	-95.23	183.654	22.64	30	Pass
167	6785	118.61	-95.23	217.771	23.38	30	Pass
183	6865	119.49	-95.23	266.686	24.26	30	Pass
199	6945	119.68	-95.23	278.612	24.45	30	Pass
215	7025	118.89	-95.23	232.274	23.66	30	Pass

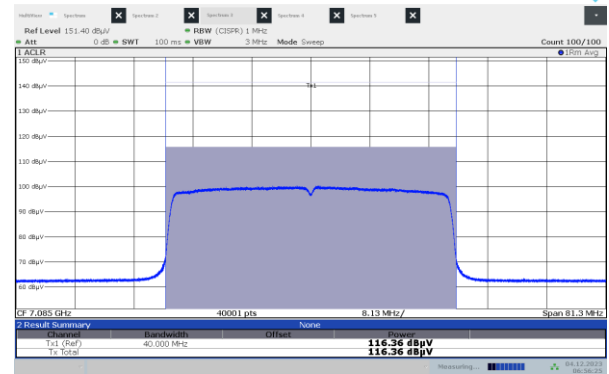
802.11ax (HE160) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
15	6025	122.13	-95.23	489.779	26.90	30	Pass
47	6185	122.15	-95.23	492.04	26.92	30	Pass
79	6345	121.87	-95.23	461.318	26.64	30	Pass
111	6505	121.53	-95.23	426.58	26.30	30	Pass
143	6665	120.30	-95.23	321.366	25.07	30	Pass
175	6825	121.11	-95.23	387.258	25.88	30	Pass
207	6985	120.80	-95.23	360.579	25.57	30	Pass

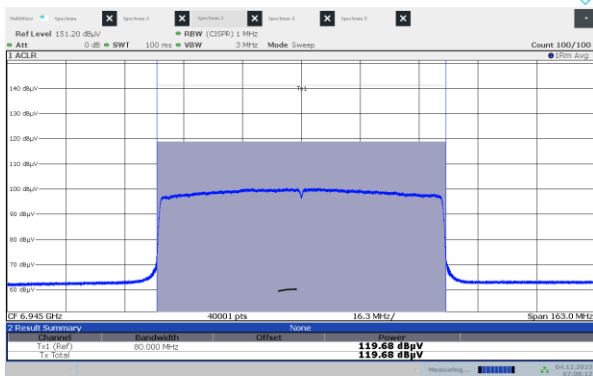
Spectrum Plot of Maximum Value



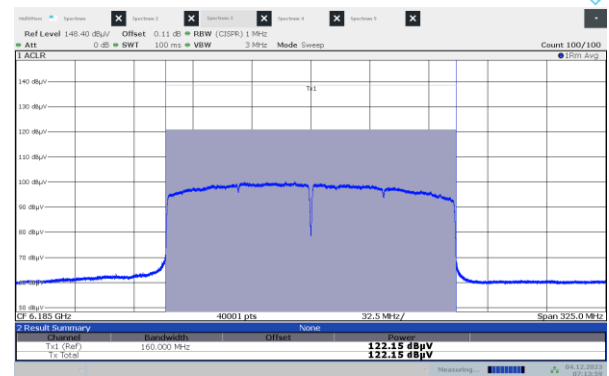
802.11ax (HE20) / CH 1



802.11ax (HE40) / CH 227



802.11ax (HE80) / CH199



802.11ax (HE160) / CH 47



Input Power:	54 Vdc	Environmental Conditions:	25°C, 67% RH	Tested By:	Noah Chang
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Mode B

802.11a

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
1	5955	110.54	-95.23	33.963	15.31	30	Pass
45	6175	110.33	-95.23	32.359	15.10	30	Pass
93	6415	110.29	-95.23	32.063	15.06	30	Pass
97	6435	110.55	-95.23	34.041	15.32	30	Pass
105	6475	110.31	-95.23	32.211	15.08	30	Pass
113	6515	111.63	-95.23	43.652	16.40	30	Pass
117	6535	111.65	-95.23	43.853	16.42	30	Pass
149	6695	111.59	-95.23	43.251	16.36	30	Pass
181	6855	111.15	-95.23	39.084	15.92	30	Pass
185	6875	111.81	-95.23	45.499	16.58	30	Pass
209	6995	111.79	-95.23	45.29	16.56	30	Pass
233	7115	111.72	-95.23	44.566	16.49	30	Pass

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
1	5955	111.62	-95.23	43.551	16.39	30	Pass
45	6175	111.21	-95.23	39.628	15.98	30	Pass
93	6415	111.12	-95.23	38.815	15.89	30	Pass
97	6435	111.15	-95.23	39.084	15.92	30	Pass
105	6475	112.05	-95.23	48.084	16.82	30	Pass
113	6515	112.85	-95.23	57.81	17.62	30	Pass
117	6535	112.86	-95.23	57.943	17.63	30	Pass
149	6695	112.23	-95.23	50.119	17.00	30	Pass
181	6855	111.87	-95.23	46.132	16.64	30	Pass
185	6875	111.75	-95.23	44.875	16.52	30	Pass
209	6995	111.71	-95.23	44.463	16.48	30	Pass
233	7115	93.04	-95.23	0.6039	-2.19	30	Pass

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
3	5965	114.56	-95.23	85.704	19.33	30	Pass
43	6165	114.57	-95.23	85.901	19.34	30	Pass
91	6405	114.49	-95.23	84.333	19.26	30	Pass
99	6445	114.55	-95.23	85.507	19.32	30	Pass
107	6485	114.60	-95.23	86.497	19.37	30	Pass
115	6525	114.55	-95.23	85.507	19.32	30	Pass
123	6565	114.61	-95.23	86.696	19.38	30	Pass
155	6725	114.63	-95.23	87.096	19.40	30	Pass
179	6845	114.59	-95.23	86.298	19.36	30	Pass
187	6885	114.22	-95.23	79.25	18.99	30	Pass
211	7005	112.66	-95.23	55.335	17.43	30	Pass
227	7085	112.59	-95.23	54.45	17.36	30	Pass

802.11ax (HE80)

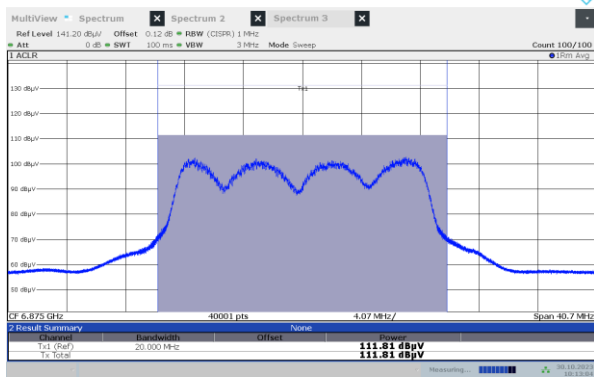
Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
7	5985	118.11	-95.23	194.089	22.88	30	Pass
39	6145	118.08	-95.23	192.752	22.85	30	Pass
87	6385	118.21	-95.23	198.609	22.98	30	Pass
103	6465	118.23	-95.23	199.526	23.00	30	Pass
119	6545	118.15	-95.23	195.884	22.92	30	Pass
135	6625	117.33	-95.23	162.181	22.10	30	Pass
151	6705	117.25	-95.23	159.221	22.02	30	Pass
167	6785	117.29	-95.23	160.694	22.06	30	Pass
183	6865	117.54	-95.23	170.216	22.31	30	Pass
199	6945	117.42	-95.23	165.577	22.19	30	Pass
215	7025	117.49	-95.23	168.267	22.26	30	Pass



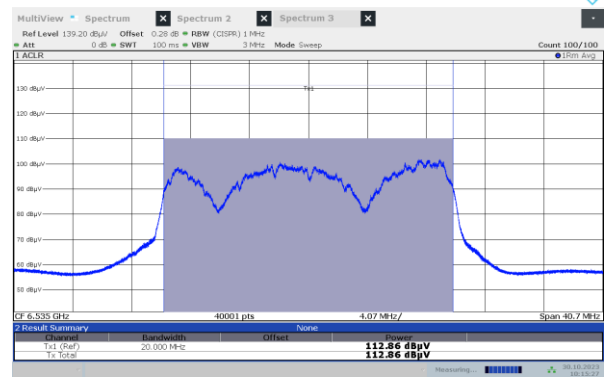
802.11ax (HE160)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
15	6025	120.28	-95.23	319.89	25.05	30	Pass
47	6185	120.33	-95.23	323.594	25.10	30	Pass
79	6345	120.35	-95.23	325.087	25.12	30	Pass
111	6505	119.62	-95.23	274.789	24.39	30	Pass
143	6665	119.41	-95.23	261.818	24.18	30	Pass
175	6825	120.59	-95.23	343.558	25.36	30	Pass
207	6985	120.55	-95.23	340.408	25.32	30	Pass

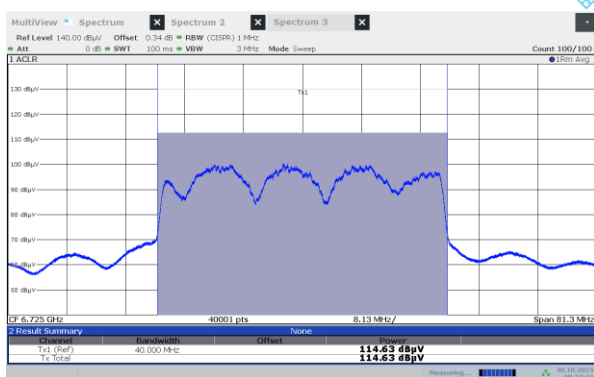
Spectrum Plot of Maximum Value



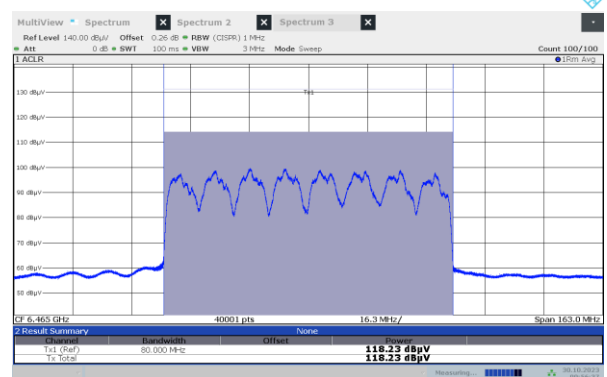
802.11a / CH 185



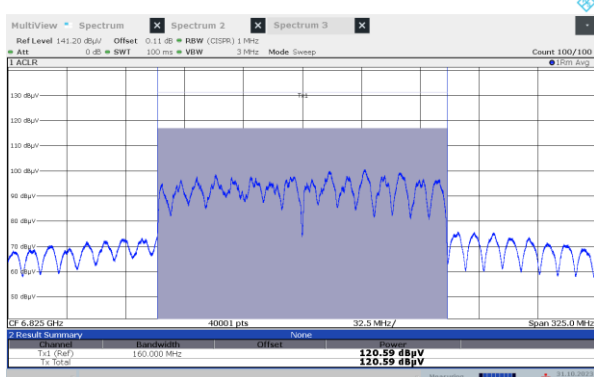
802.11ax (HE20) / CH 117



802.11ax (HE40) / CH 155



802.11ax (HE80) / CH 103



802.11ax (HE160) / CH 175

7.2 Maximum Power Spectral Density

Input Power:	54 Vdc	Environmental Conditions:	25°C, 67% RH	Tested By:	Noah Chang
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Mode A

802.11a

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	Duty Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
1	5955	100.09	-95.23	0.12	4.86	5	Pass
45	6175	100.01	-95.23	0.12	4.78	5	Pass
93	6415	99.97	-95.23	0.12	4.74	5	Pass
97	6435	99.99	-95.23	0.12	4.76	5	Pass
105	6475	100.02	-95.23	0.12	4.79	5	Pass
113	6515	99.95	-95.23	0.12	4.72	5	Pass
117	6535	99.96	-95.23	0.12	4.73	5	Pass
149	6695	99.99	-95.23	0.12	4.76	5	Pass
181	6855	100.03	-95.23	0.12	4.80	5	Pass
185	6875	99.96	-95.23	0.12	4.73	5	Pass
209	6995	99.97	-95.23	0.12	4.74	5	Pass
233	7115	99.97	-95.23	0.12	4.74	5	Pass

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
1	5955	100.07	-95.23	4.84	5	Pass
45	6175	100.01	-95.23	4.78	5	Pass
93	6415	100.02	-95.23	4.79	5	Pass
97	6435	99.98	-95.23	4.75	5	Pass
105	6475	100.03	-95.23	4.80	5	Pass
113	6515	100.05	-95.23	4.82	5	Pass
117	6535	100.01	-95.23	4.78	5	Pass
149	6695	100.06	-95.23	4.83	5	Pass
181	6855	100.05	-95.23	4.82	5	Pass
185	6875	100.01	-95.23	4.78	5	Pass
209	6995	100.03	-95.23	4.80	5	Pass
233	7115	93.64	-95.23	-1.59	5	Pass

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
3	5965	99.91	-95.23	4.68	5	Pass
43	6165	99.93	-95.23	4.70	5	Pass
91	6405	100.03	-95.23	4.80	5	Pass
99	6445	100.01	-95.23	4.78	5	Pass
107	6485	100.15	-95.23	4.92	5	Pass
115	6525	100.17	-95.23	4.94	5	Pass
123	6565	100.09	-95.23	4.86	5	Pass
155	6725	100.07	-95.23	4.84	5	Pass
179	6845	100.01	-95.23	4.78	5	Pass
187	6885	100.11	-95.23	4.88	5	Pass
211	7005	100.19	-95.23	4.96	5	Pass
227	7085	100.06	-95.23	4.83	5	Pass

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
7	5985	99.97	-95.23	4.74	5	Pass
39	6145	100.05	-95.23	4.82	5	Pass
87	6385	100.07	-95.23	4.84	5	Pass
103	6465	100.01	-95.23	4.78	5	Pass
119	6545	99.97	-95.23	4.74	5	Pass
135	6625	100.10	-95.23	4.87	5	Pass
151	6705	100.03	-95.23	4.80	5	Pass
167	6785	100.11	-95.23	4.88	5	Pass
183	6865	100.18	-95.23	4.95	5	Pass
199	6945	100.12	-95.23	4.89	5	Pass
215	7025	100.09	-95.23	4.86	5	Pass

802.11ax (HE160)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	Duty Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
15	6025	100.03	-95.23	0.11	4.80	5	Pass
47	6185	100.15	-95.23	0.11	4.92	5	Pass
79	6345	100.09	-95.23	0.11	4.86	5	Pass
111	6505	100.01	-95.23	0.11	4.78	5	Pass
143	6665	100.02	-95.23	0.11	4.79	5	Pass
175	6825	99.94	-95.23	0.11	4.71	5	Pass
207	6985	100.06	-95.23	0.11	4.83	5	Pass

802.11ax (HE20) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
1	5955	99.96	-95.23	4.73	5	Pass
45	6175	99.95	-95.23	4.72	5	Pass
93	6415	99.95	-95.23	4.72	5	Pass
97	6435	99.92	-95.23	4.69	5	Pass
105	6475	99.35	-95.23	4.12	5	Pass
113	6515	99.91	-95.23	4.68	5	Pass
117	6535	99.93	-95.23	4.70	5	Pass
149	6695	99.94	-95.23	4.71	5	Pass
181	6855	99.95	-95.23	4.72	5	Pass
185	6875	99.85	-95.23	4.62	5	Pass
209	6995	99.95	-95.23	4.72	5	Pass
233	7115	93.59	-95.23	-1.64	5	Pass

802.11ax (HE40) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
3	5965	99.93	-95.23	4.70	5	Pass
43	6165	99.87	-95.23	4.64	5	Pass
91	6405	100.02	-95.23	4.79	5	Pass
99	6445	99.97	-95.23	4.74	5	Pass
107	6485	100.08	-95.23	4.85	5	Pass
115	6525	100.11	-95.23	4.88	5	Pass
123	6565	100.06	-95.23	4.83	5	Pass
155	6725	100.00	-95.23	4.77	5	Pass
179	6845	99.91	-95.23	4.68	5	Pass
187	6885	99.97	-95.23	4.74	5	Pass
211	7005	100.06	-95.23	4.83	5	Pass
227	7085	100.13	-95.23	4.90	5	Pass

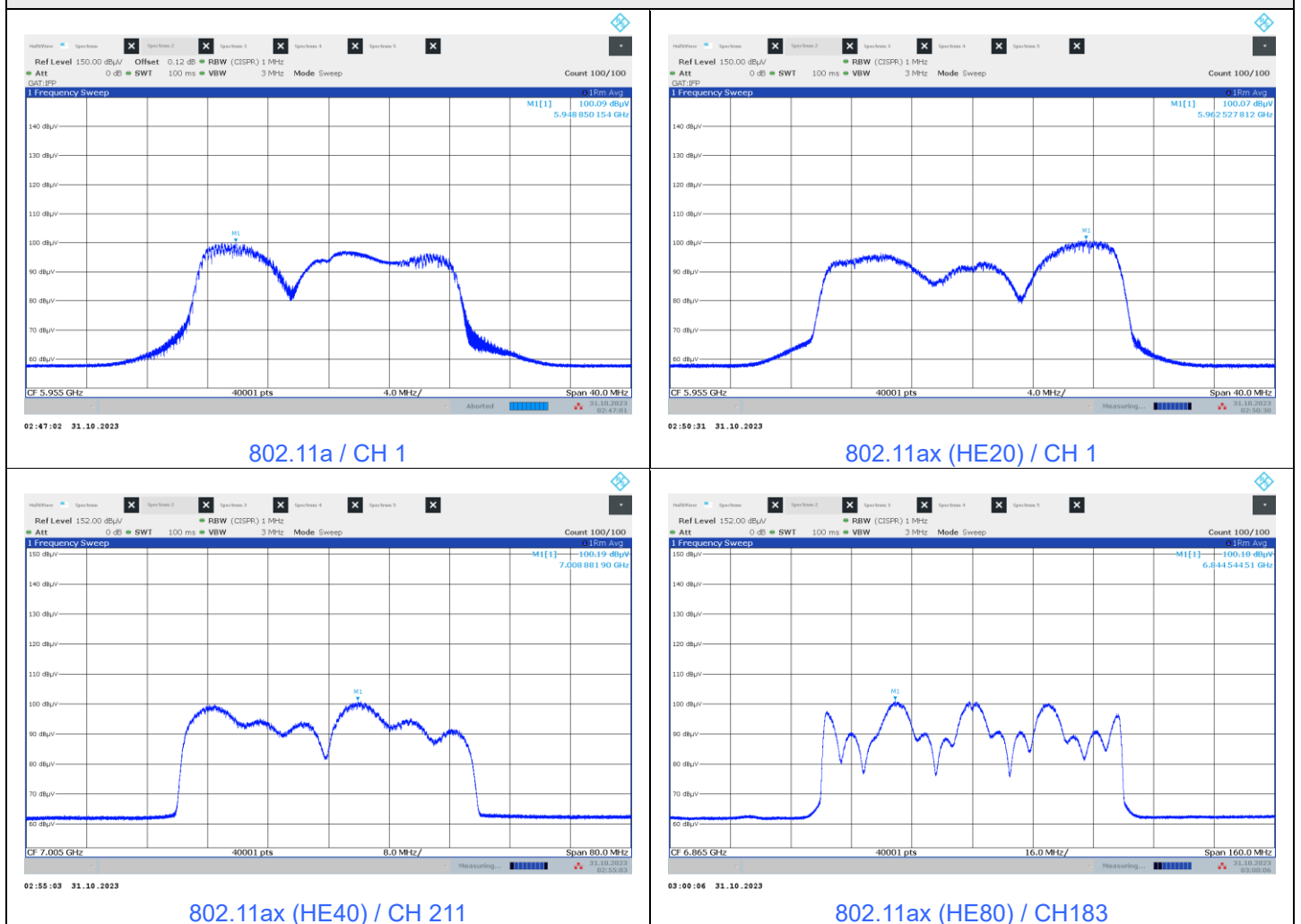
802.11ax (HE80) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
7	5985	99.95	-95.23	4.72	5	Pass
39	6145	99.89	-95.23	4.66	5	Pass
87	6385	99.98	-95.23	4.75	5	Pass
103	6465	99.88	-95.23	4.65	5	Pass
119	6545	99.85	-95.23	4.62	5	Pass
135	6625	99.97	-95.23	4.74	5	Pass
151	6705	99.86	-95.23	4.63	5	Pass
167	6785	99.99	-95.23	4.76	5	Pass
183	6865	100.01	-95.23	4.78	5	Pass
199	6945	100.07	-95.23	4.84	5	Pass
215	7025	100.05	-95.23	4.82	5	Pass

802.11ax (HE160) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	Duty Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
15	6025	99.88	-95.23	0.11	4.65	5	Pass
47	6185	100.11	-95.23	0.11	4.88	5	Pass
79	6345	99.94	-95.23	0.11	4.71	5	Pass
111	6505	99.99	-95.23	0.11	4.76	5	Pass
143	6665	99.93	-95.23	0.11	4.70	5	Pass
175	6825	99.81	-95.23	0.11	4.58	5	Pass
207	6985	99.91	-95.23	0.11	4.68	5	Pass

Spectrum Plot of Maximum Value





Spectrum Plot of Maximum Value





Input Power:	54 Vdc	Environmental Conditions:	25°C, 67% RH	Tested By:	Noah Chang
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Mode B

802.11a

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	Duty Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
1	5955	100.06	-95.23	0.12	4.83	5	Pass
45	6175	100.04	-95.23	0.12	4.81	5	Pass
93	6415	100.02	-95.23	0.12	4.79	5	Pass
97	6435	100.09	-95.23	0.12	4.86	5	Pass
105	6475	99.97	-95.23	0.12	4.74	5	Pass
113	6515	99.91	-95.23	0.12	4.68	5	Pass
117	6535	100.01	-95.23	0.12	4.78	5	Pass
149	6695	99.97	-95.23	0.12	4.74	5	Pass
181	6855	100.10	-95.23	0.12	4.87	5	Pass
185	6875	100.11	-95.23	0.12	4.88	5	Pass
209	6995	100.04	-95.23	0.12	4.81	5	Pass
233	7115	100.06	-95.23	0.12	4.83	5	Pass

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	Duty Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
1	5955	100.05	-95.23	0.28	4.82	5	Pass
45	6175	100.02	-95.23	0.28	4.79	5	Pass
93	6415	99.97	-95.23	0.28	4.74	5	Pass
97	6435	100.01	-95.23	0.28	4.78	5	Pass
105	6475	100.08	-95.23	0.28	4.85	5	Pass
113	6515	99.93	-95.23	0.28	4.70	5	Pass
117	6535	100.21	-95.23	0.28	4.98	5	Pass
149	6695	100.08	-95.23	0.28	4.85	5	Pass
181	6855	100.19	-95.23	0.28	4.96	5	Pass
185	6875	100.11	-95.23	0.28	4.88	5	Pass
209	6995	100.05	-95.23	0.28	4.82	5	Pass
233	7115	81.91	-95.23	0.28	-13.32	5	Pass

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	Duty Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
3	5965	99.89	-95.23	0.34	4.66	5	Pass
43	6165	99.91	-95.23	0.34	4.68	5	Pass
91	6405	99.92	-95.23	0.34	4.69	5	Pass
99	6445	99.98	-95.23	0.34	4.75	5	Pass
107	6485	99.87	-95.23	0.34	4.64	5	Pass
115	6525	99.85	-95.23	0.34	4.62	5	Pass
123	6565	100.00	-95.23	0.34	4.77	5	Pass
155	6725	100.02	-95.23	0.34	4.79	5	Pass
179	6845	99.99	-95.23	0.34	4.76	5	Pass
187	6885	99.86	-95.23	0.34	4.63	5	Pass
211	7005	99.89	-95.23	0.34	4.66	5	Pass
227	7085	99.85	-95.23	0.34	4.62	5	Pass

802.11ax (HE80)

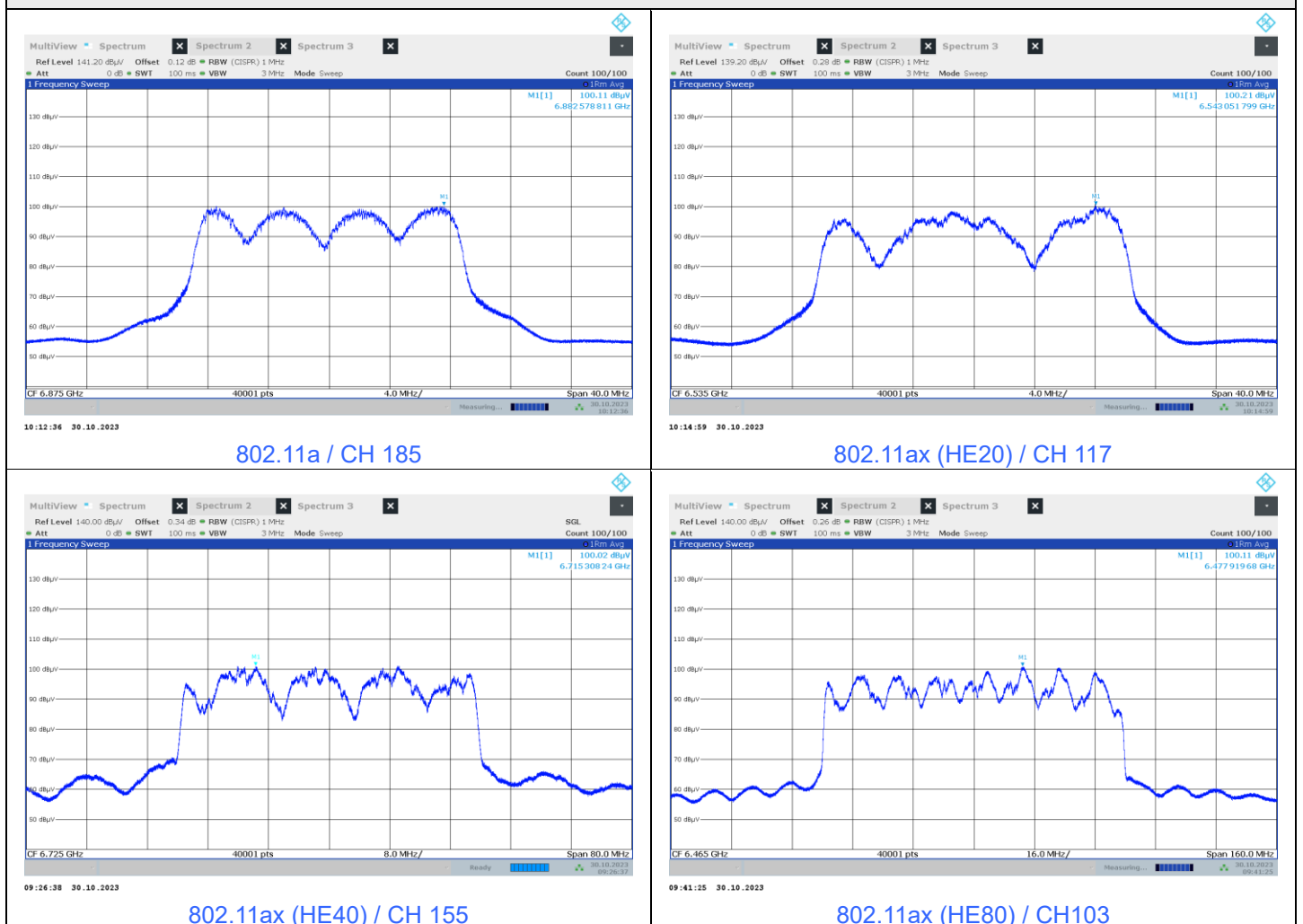
Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	Duty Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
7	5985	100.02	-95.23	0.26	4.79	5	Pass
39	6145	99.98	-95.23	0.26	4.75	5	Pass
87	6385	100.02	-95.23	0.26	4.79	5	Pass
103	6465	100.11	-95.23	0.26	4.88	5	Pass
119	6545	100.05	-95.23	0.26	4.82	5	Pass
135	6625	100.02	-95.23	0.26	4.79	5	Pass
151	6705	100.07	-95.23	0.26	4.84	5	Pass
167	6785	100.01	-95.23	0.26	4.78	5	Pass
183	6865	100.09	-95.23	0.26	4.86	5	Pass
199	6945	99.98	-95.23	0.26	4.75	5	Pass
215	7025	100.06	-95.23	0.26	4.83	5	Pass



802.11ax (HE160)

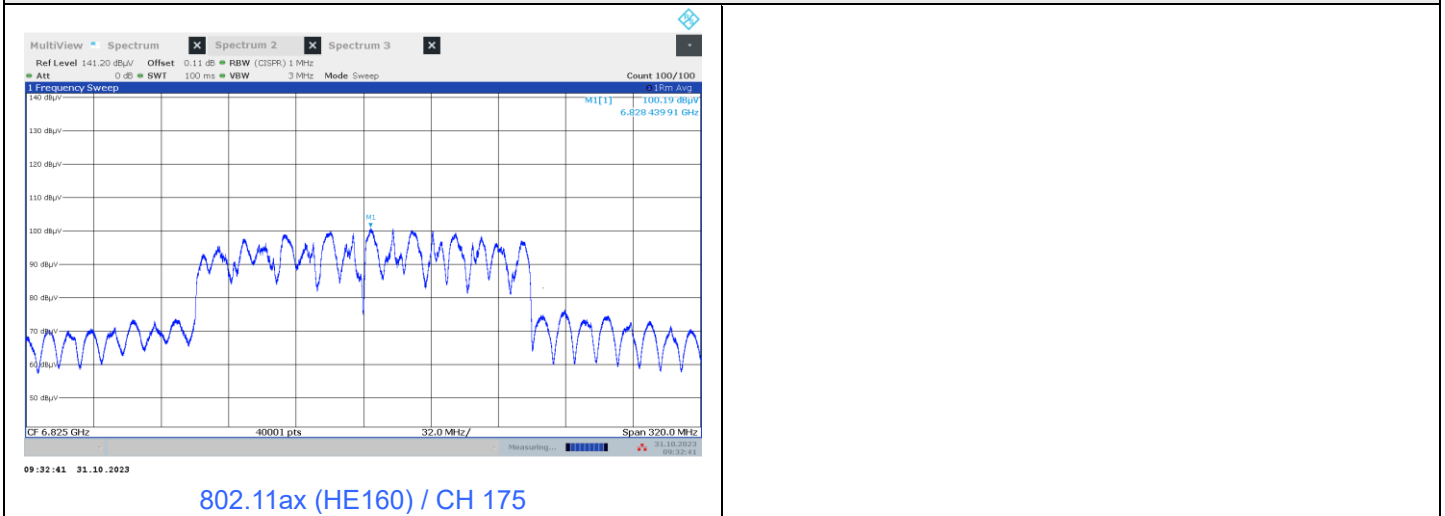
Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	Duty Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
15	6025	100.11	-95.23	0.11	4.88	5	Pass
47	6185	100.17	-95.23	0.11	4.94	5	Pass
79	6345	100.17	-95.23	0.11	4.94	5	Pass
111	6505	100.05	-95.23	0.11	4.82	5	Pass
143	6665	100.11	-95.23	0.11	4.88	5	Pass
175	6825	100.19	-95.23	0.11	4.96	5	Pass
207	6985	100.02	-95.23	0.11	4.79	5	Pass

Spectrum Plot of Maximum Value





Spectrum Plot of Maximum Value



7.3 Emission Bandwidth

Input Power:	54 Vdc	Environmental Conditions:	25°C, 67% RH	Tested By:	Noah Chang
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Mode A

802.11a

Channel	Frequency (MHz)	26dB Bandwidth (MHz)				Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
1	5955	20.38	20.87	20.29	20.42	320	Pass
45	6175	20.49	20.19	20.32	20.52	320	Pass
93	6415	20.30	20.23	20.19	20.54	320	Pass
97	6435	20.36	20.19	20.06	20.42	320	Pass
105	6475	20.28	20.25	20.15	20.52	320	Pass
113	6515	20.34	20.24	20.21	20.47	320	Pass
117	6535	20.25	20.19	20.19	20.54	320	Pass
149	6695	20.26	20.33	20.26	20.53	320	Pass
181	6855	20.44	20.18	20.57	20.51	320	Pass
185	6875	20.32	20.25	20.22	20.42	320	Pass
209	6995	20.23	20.37	20.29	20.34	320	Pass
233	7115	20.36	20.17	20.15	20.43	320	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)				Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
1	5955	22.09	22.05	22.02	22.17	320	Pass
45	6175	21.84	22.44	22.07	22.24	320	Pass
93	6415	21.93	22.02	21.99	21.97	320	Pass
97	6435	22.20	21.95	21.88	22.01	320	Pass
105	6475	21.89	22.08	22.06	22.30	320	Pass
113	6515	21.97	22.36	22.29	22.39	320	Pass
117	6535	22.05	22.14	22.47	22.06	320	Pass
149	6695	22.01	22.13	22.32	22.28	320	Pass
181	6855	22.01	21.99	22.13	22.36	320	Pass
185	6875	22.01	22.21	22.37	22.04	320	Pass
209	6995	22.16	22.18	21.81	22.16	320	Pass
233	7115	22.11	21.97	21.98	22.27	320	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)				Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
3	5965	40.62	41.00	40.82	40.94	320	Pass
43	6165	41.02	40.94	40.87	41.09	320	Pass
91	6405	40.73	41.10	41.06	41.16	320	Pass
99	6445	41.11	41.19	40.96	41.06	320	Pass
107	6485	41.03	40.91	41.08	41.04	320	Pass
115	6525	40.86	41.15	40.88	40.85	320	Pass
123	6565	40.96	40.87	40.91	40.92	320	Pass
155	6725	41.18	40.94	41.01	41.16	320	Pass
179	6845	41.03	41.10	40.83	41.04	320	Pass
187	6885	40.91	40.88	41.06	41.06	320	Pass
211	7005	41.17	40.86	40.95	41.04	320	Pass
227	7085	41.06	40.83	41.06	40.96	320	Pass

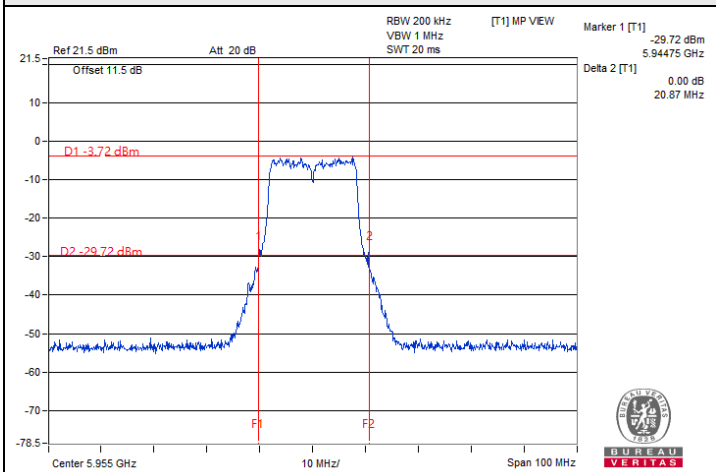
802.11ax (HE80)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)				Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
7	5985	83.07	83.27	83.56	83.53	320	Pass
39	6145	83.89	83.40	83.51	83.32	320	Pass
87	6385	83.06	83.76	83.34	83.42	320	Pass
103	6465	83.50	83.60	83.95	83.44	320	Pass
119	6545	82.94	83.46	83.48	83.53	320	Pass
135	6625	83.41	83.52	83.63	83.57	320	Pass
151	6705	83.35	83.41	83.34	83.20	320	Pass
167	6785	83.69	83.58	83.39	83.26	320	Pass
183	6865	83.76	82.89	83.42	83.22	320	Pass
199	6945	83.08	83.28	83.03	83.18	320	Pass
215	7025	83.31	83.26	83.54	83.23	320	Pass

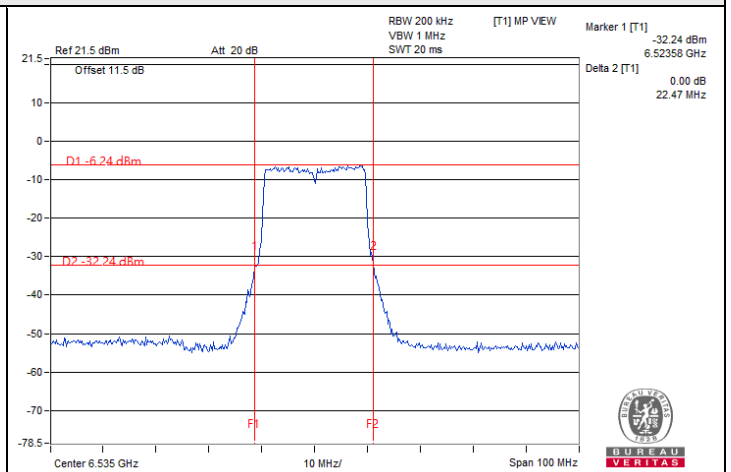
802.11ax (HE160)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)				Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
15	6025	165.59	166.19	165.91	166.04	320	Pass
47	6185	165.91	166.29	166.88	166.48	320	Pass
79	6345	165.86	166.83	166.29	166.50	320	Pass
111	6505	166.17	166.88	167.17	165.93	320	Pass
143	6665	166.42	166.25	166.96	166.53	320	Pass
175	6825	165.17	166.14	165.53	166.84	320	Pass
207	6985	166.31	166.61	165.80	166.47	320	Pass

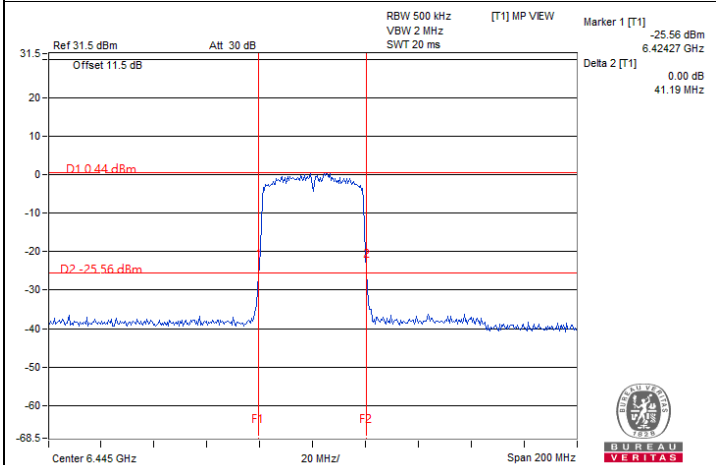
Spectrum Plot of Maximum Value



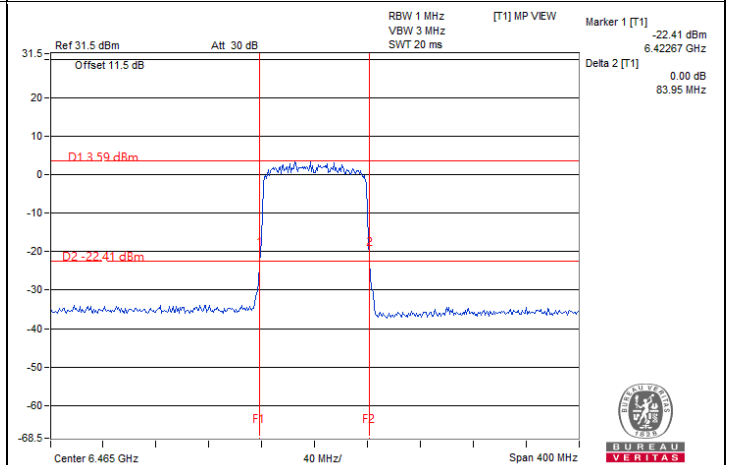
802.11a / Chain 1 : CH 1



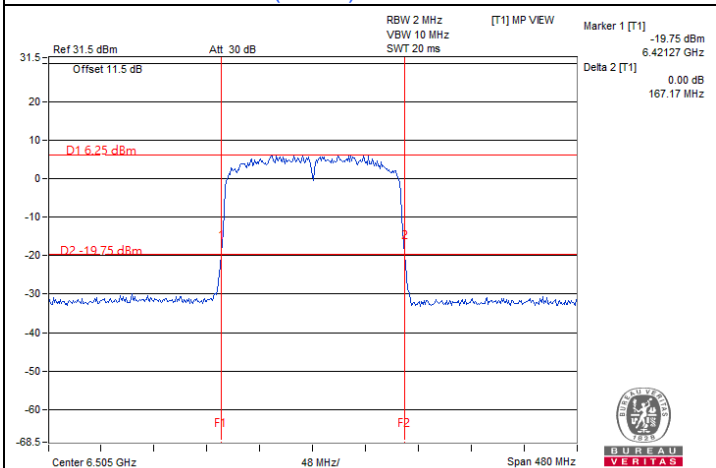
802.11ax (HE20) / Chain 2 : CH 117



802.11ax (HE40) / Chain 1 : CH 99



802.11ax (HE80) / Chain 2 : CH 103



802.11ax (HE160) / Chain 2 : CH 111



Input Power:	54 Vdc	Environmental Conditions:	25°C, 67% RH	Tested By:	Noah Chang
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Mode B

802.11a

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	5955	20.27	20.44	320	Pass
45	6175	20.68	20.51	320	Pass
93	6415	20.33	20.49	320	Pass
97	6435	20.34	20.50	320	Pass
105	6475	20.42	20.49	320	Pass
113	6515	20.50	20.35	320	Pass
117	6535	20.64	20.49	320	Pass
149	6695	20.64	20.54	320	Pass
181	6855	20.37	20.69	320	Pass
185	6875	20.71	20.59	320	Pass
209	6995	20.39	20.49	320	Pass
233	7115	20.58	20.49	320	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	5955	22.25	21.91	320	Pass
45	6175	22.28	21.65	320	Pass
93	6415	22.12	21.95	320	Pass
97	6435	22.08	22.28	320	Pass
105	6475	22.34	21.88	320	Pass
113	6515	22.18	21.96	320	Pass
117	6535	22.31	22.65	320	Pass
149	6695	22.11	22.25	320	Pass
181	6855	22.03	22.07	320	Pass
185	6875	22.23	22.17	320	Pass
209	6995	22.25	22.13	320	Pass
233	7115	21.82	22.01	320	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
3	5965	40.75	41.04	320	Pass
43	6165	40.76	41.01	320	Pass
91	6405	41.07	40.87	320	Pass
99	6445	40.90	41.08	320	Pass
107	6485	40.94	41.07	320	Pass
115	6525	40.74	41.21	320	Pass
123	6565	40.84	41.07	320	Pass
155	6725	40.80	41.07	320	Pass
179	6845	40.98	40.99	320	Pass
187	6885	41.01	40.84	320	Pass
211	7005	40.91	40.94	320	Pass
227	7085	41.02	40.86	320	Pass

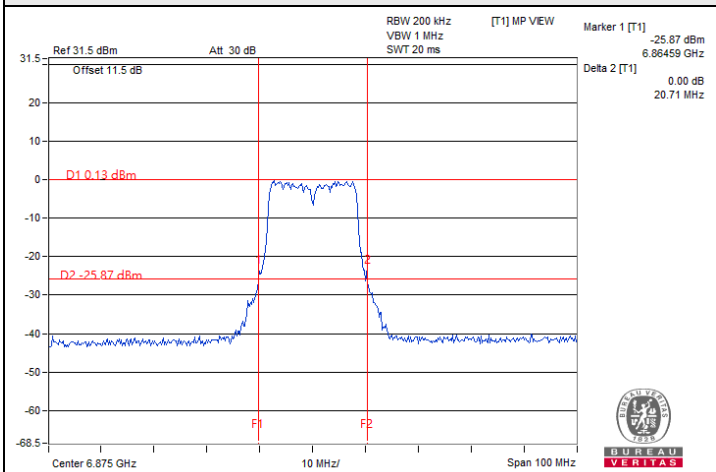
802.11ax (HE80)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
7	5985	83.25	83.86	320	Pass
39	6145	83.66	83.30	320	Pass
87	6385	84.01	83.48	320	Pass
103	6465	83.35	83.97	320	Pass
119	6545	83.68	83.60	320	Pass
135	6625	82.88	83.17	320	Pass
151	6705	83.59	83.36	320	Pass
167	6785	83.62	83.26	320	Pass
183	6865	83.90	83.53	320	Pass
199	6945	83.60	83.49	320	Pass
215	7025	83.86	83.59	320	Pass

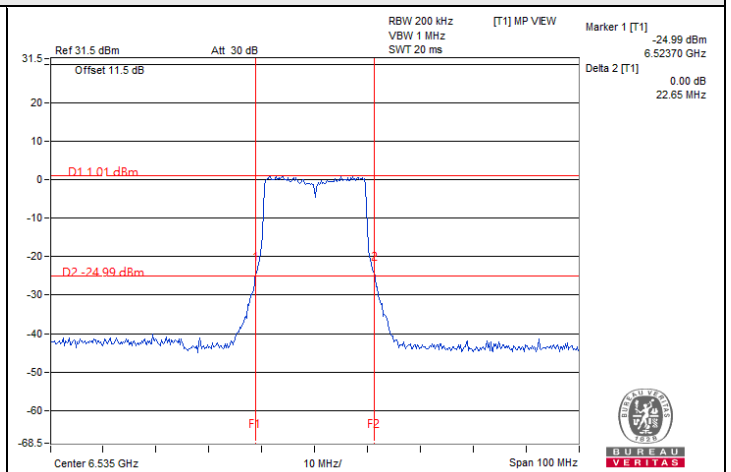
802.11ax (HE160)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
15	6025	166.78	166.23	320	Pass
47	6185	167.13	168.45	320	Pass
79	6345	167.28	167.24	320	Pass
111	6505	166.75	166.97	320	Pass
143	6665	167.24	167.47	320	Pass
175	6825	178.59	209.34	320	Pass
207	6985	177.32	175.40	320	Pass

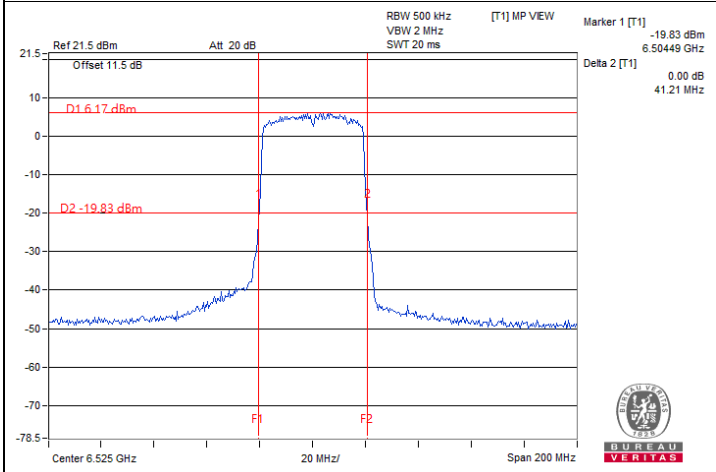
Spectrum Plot of Maximum Value



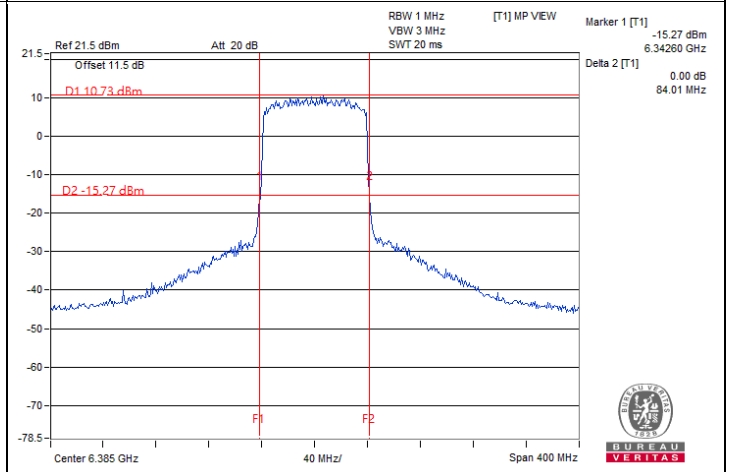
802.11a / Chain 0 : CH 185



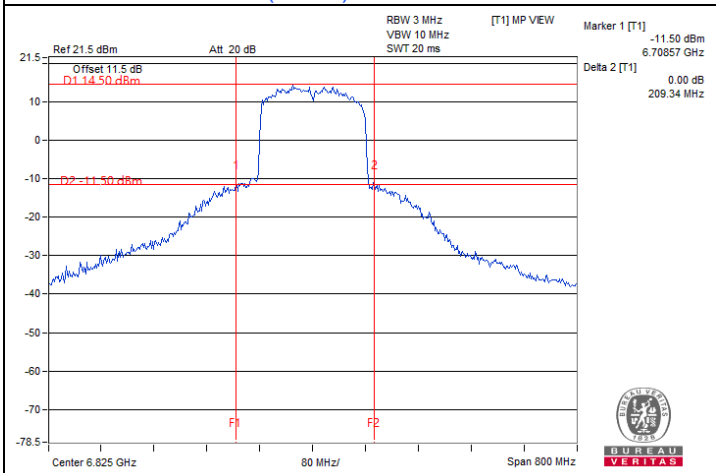
802.11ax (HE20) / Chain 1 : CH 117



802.11ax (HE40) / Chain 1 : CH 115



802.11ax (HE80) / Chain 0 : CH 87



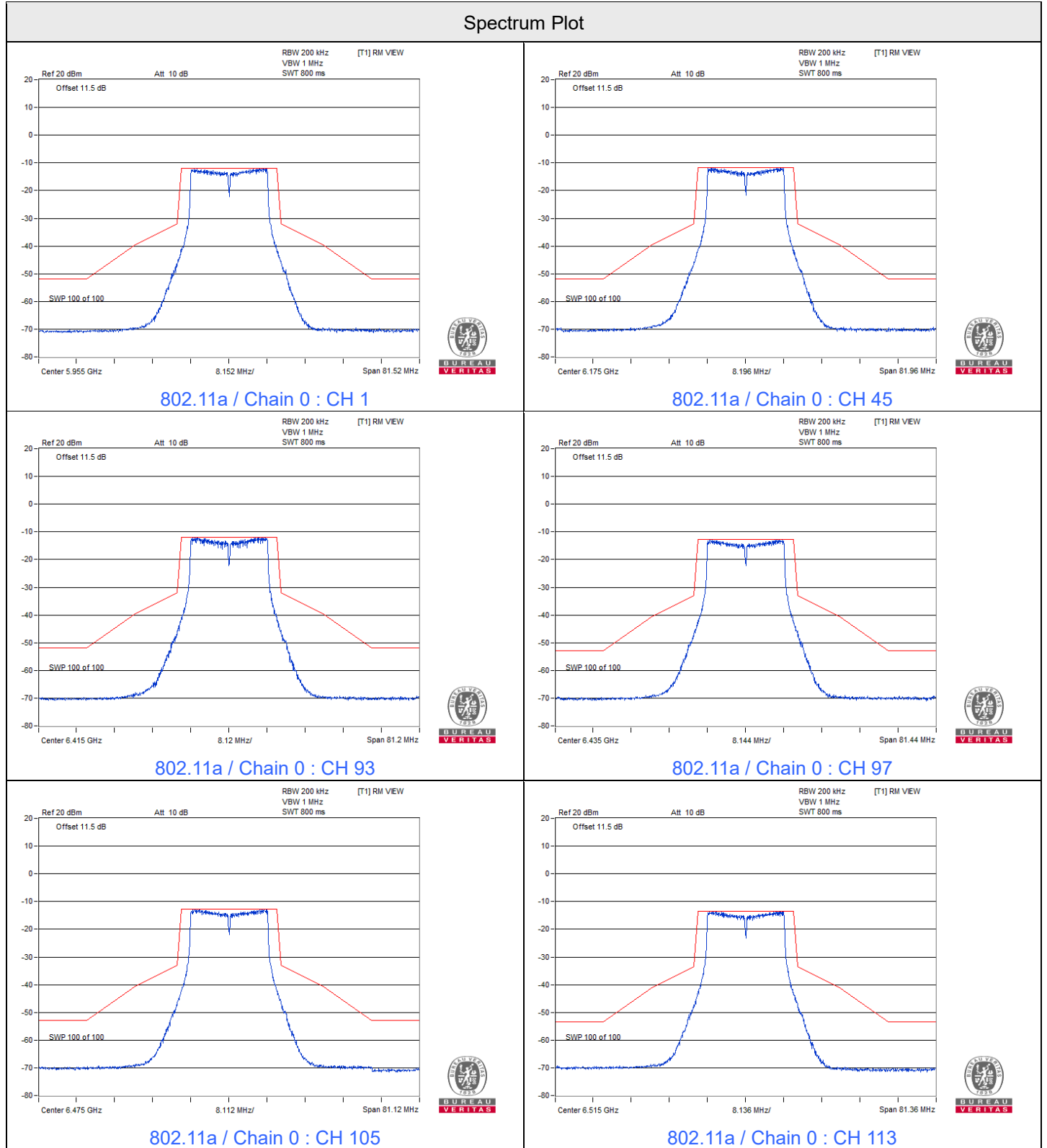
802.11ax (HE160) / Chain 1 : CH 175

7.4 In-Band Emission Mask

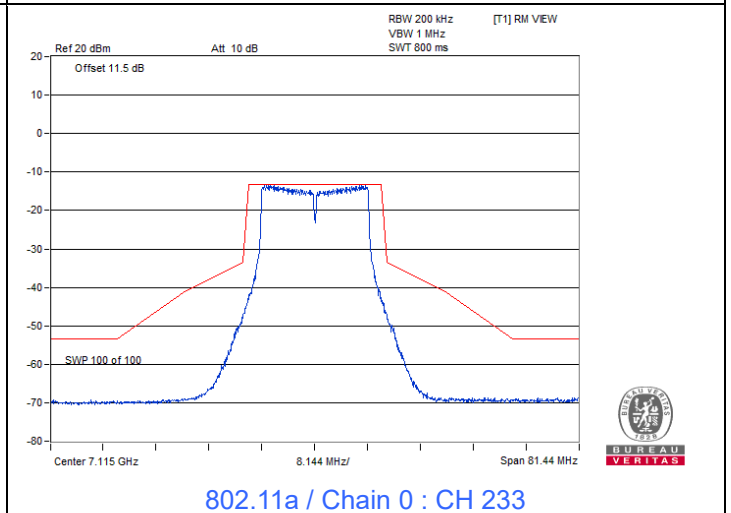
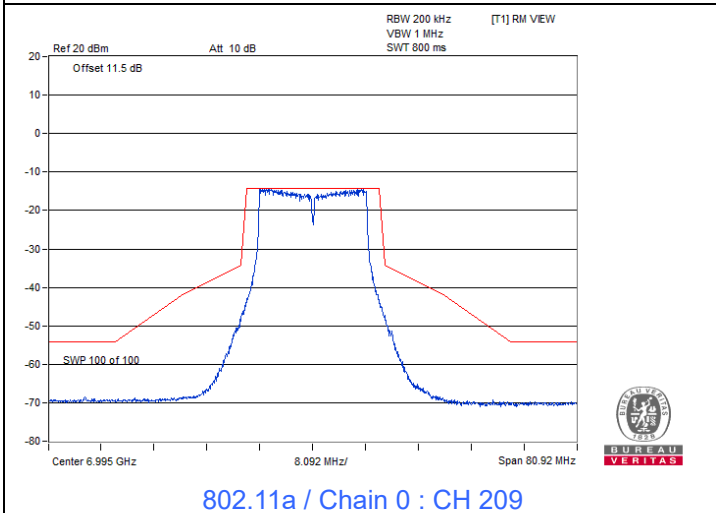
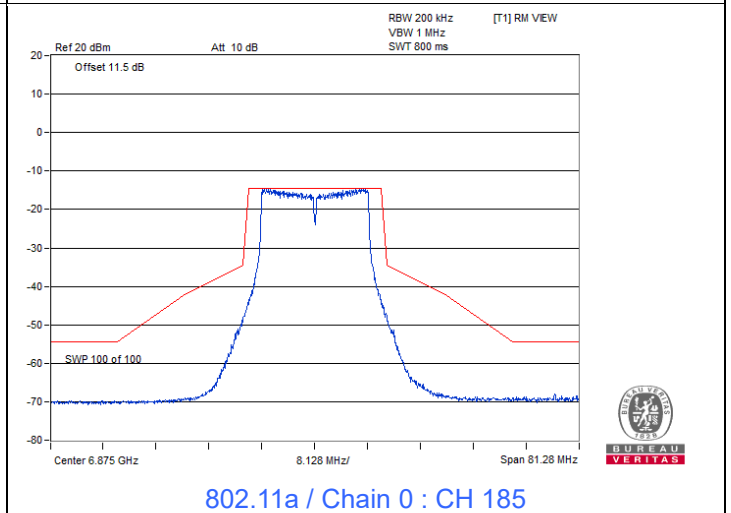
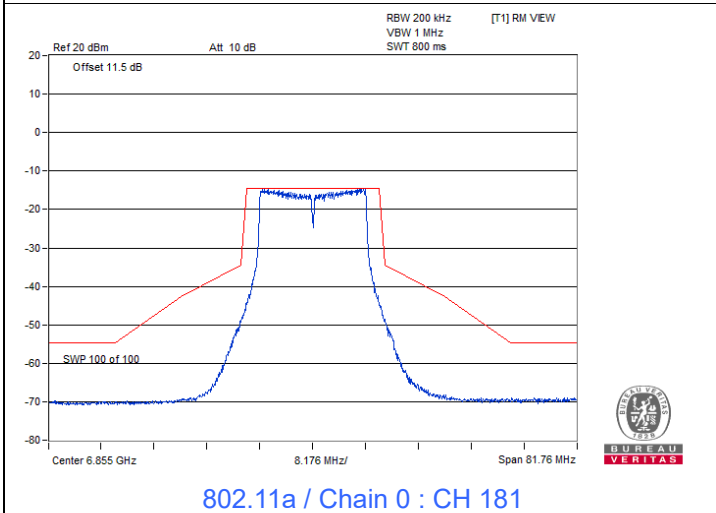
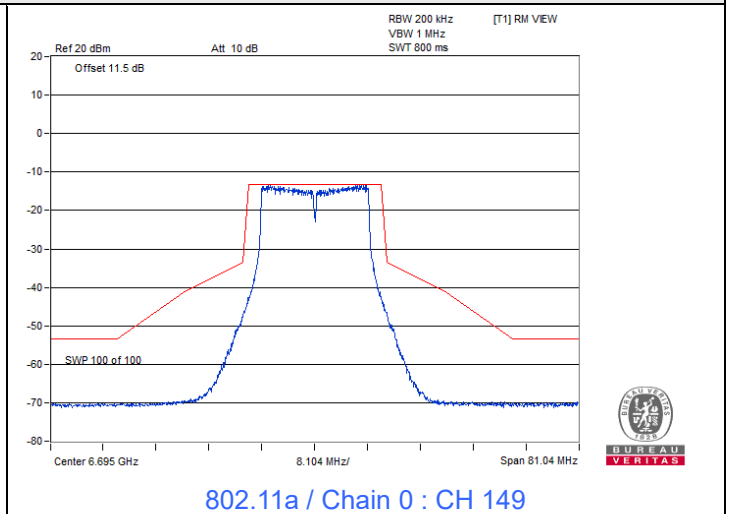
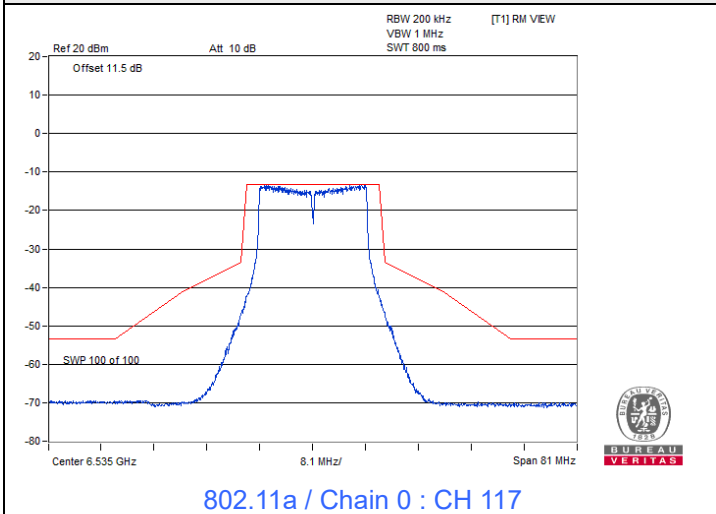
Input Power:	54 Vdc	Environmental Conditions:	25°C, 67% RH	Tested By:	Noah Chang
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Mode A

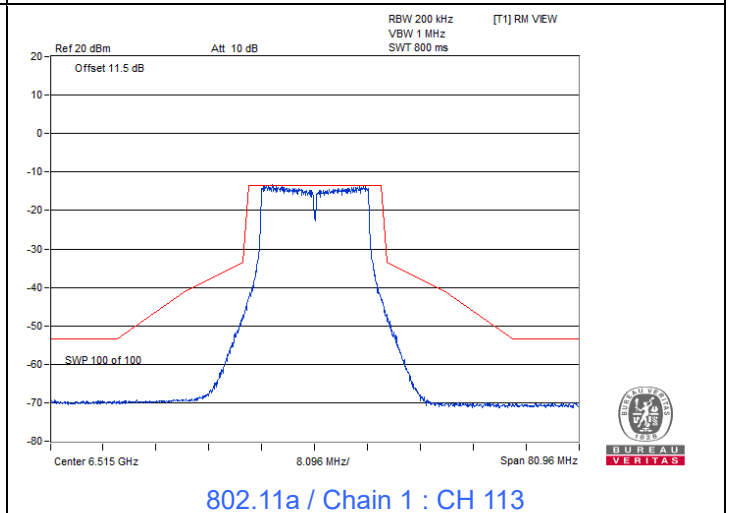
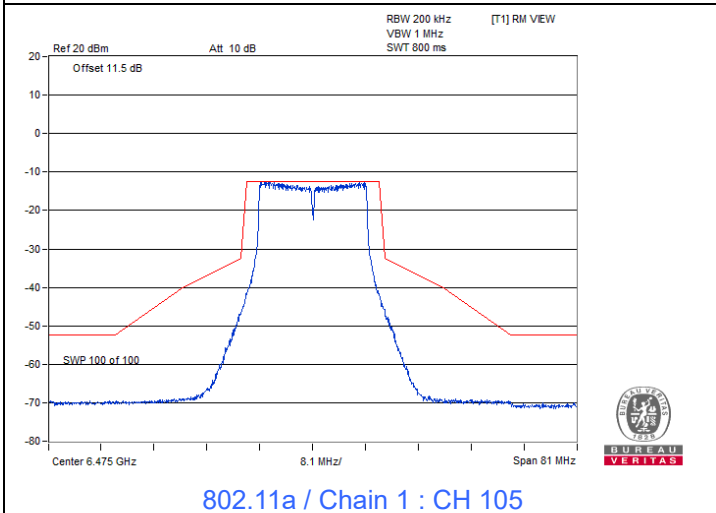
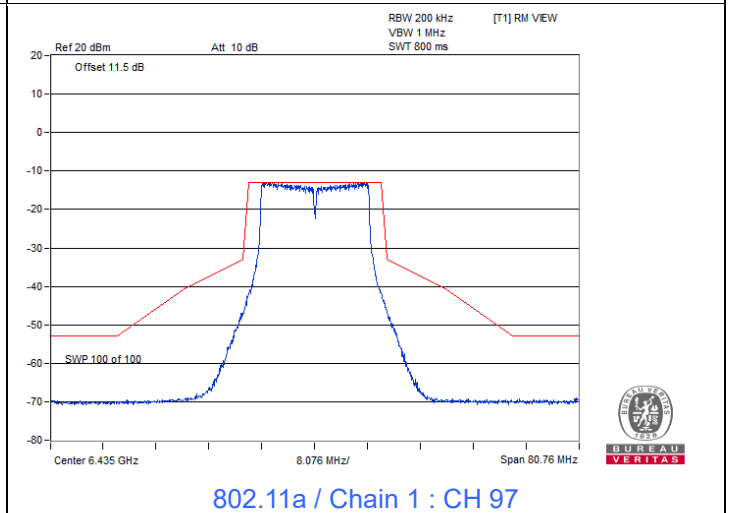
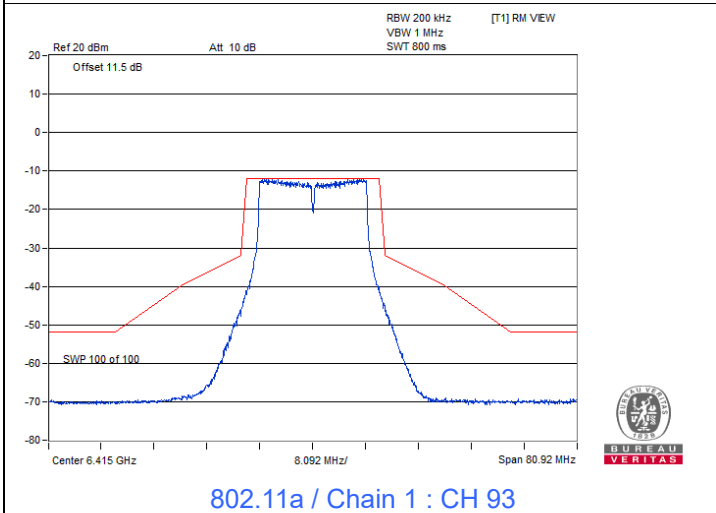
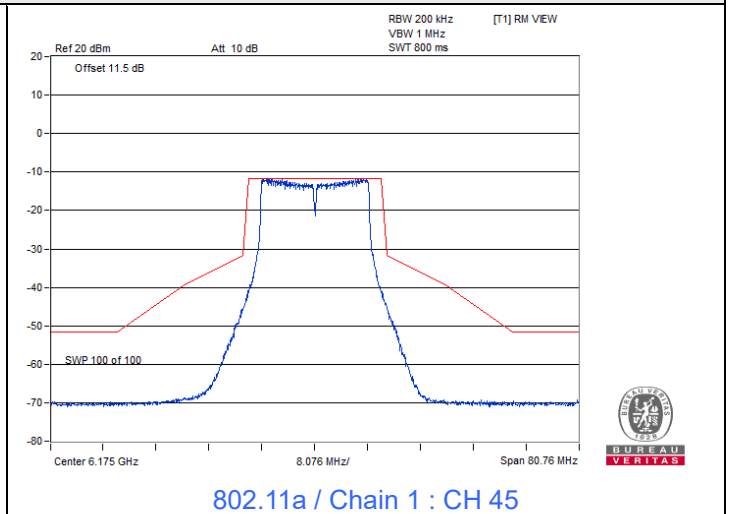
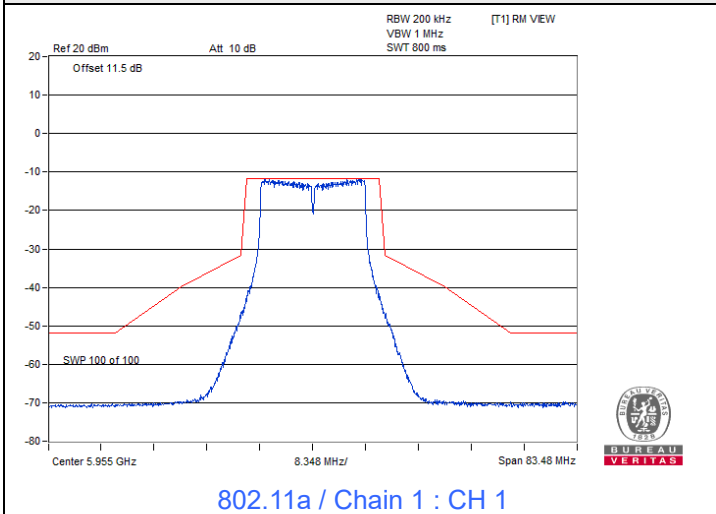
802.11a



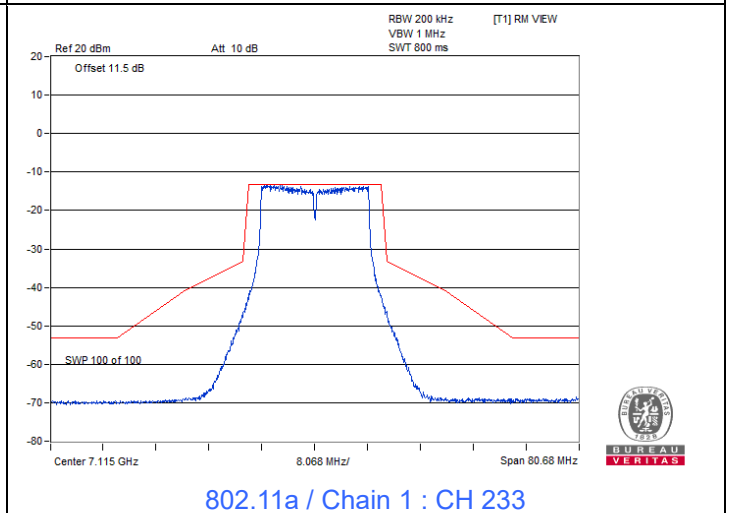
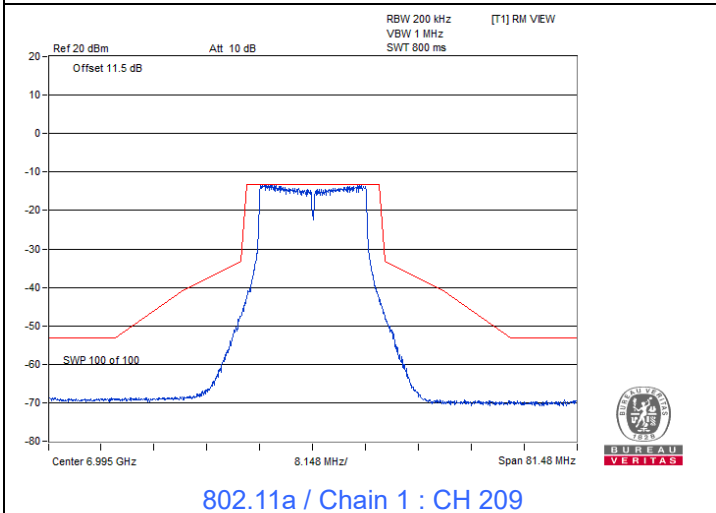
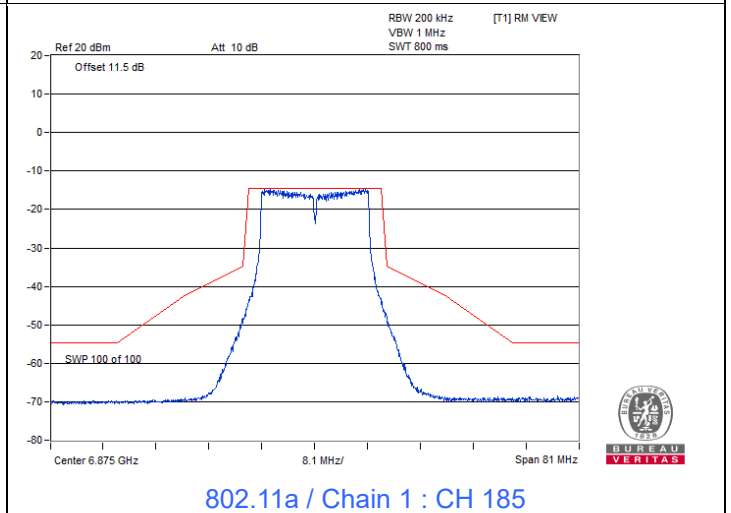
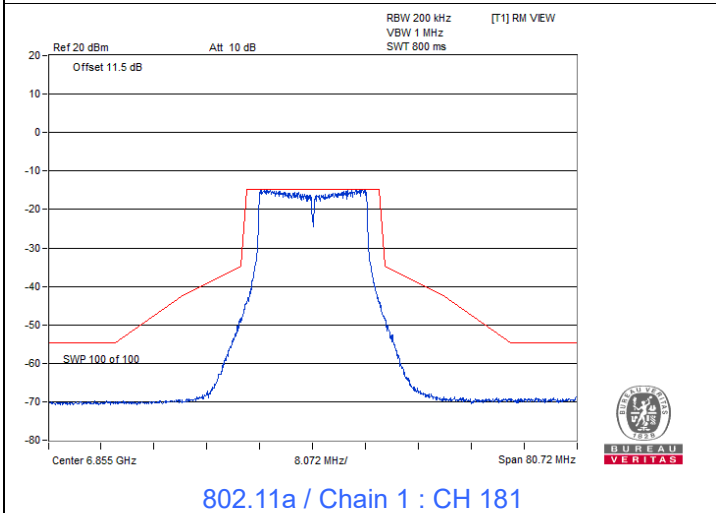
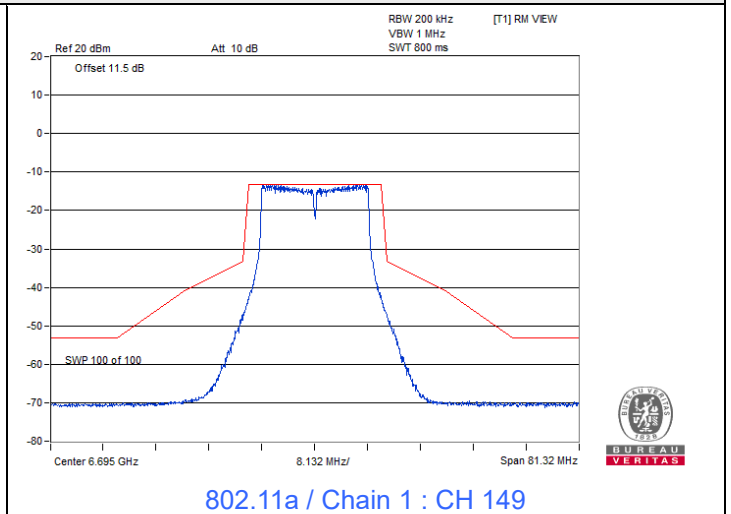
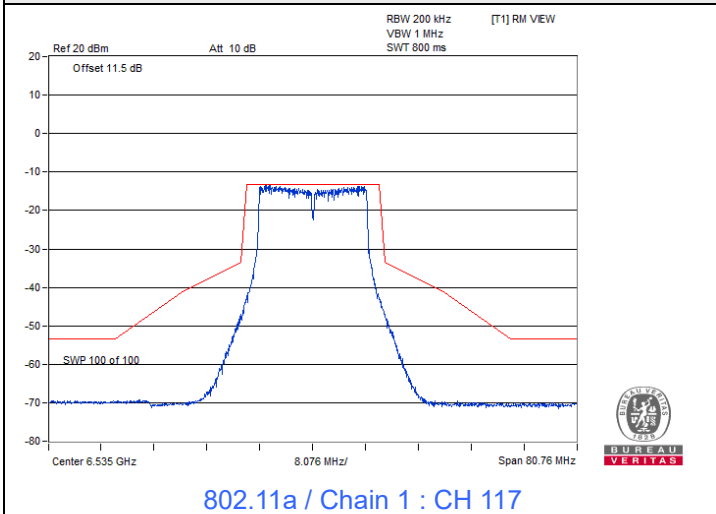
Spectrum Plot



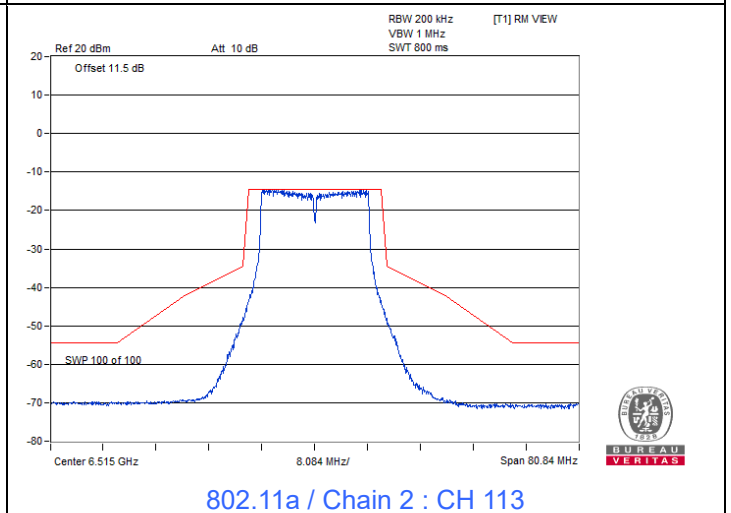
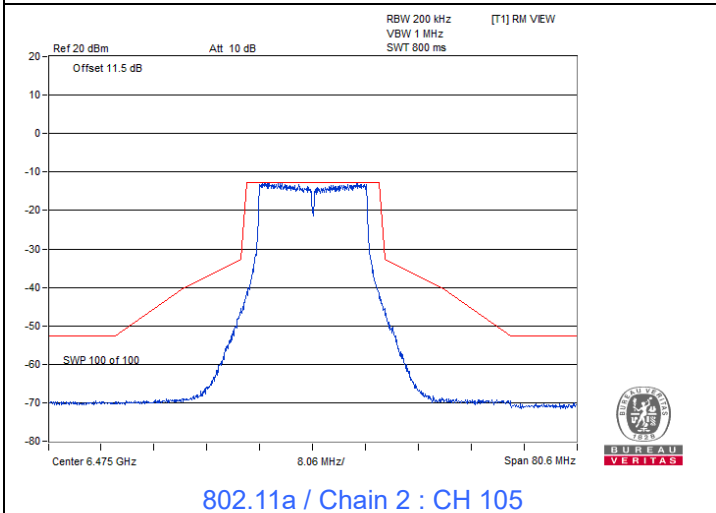
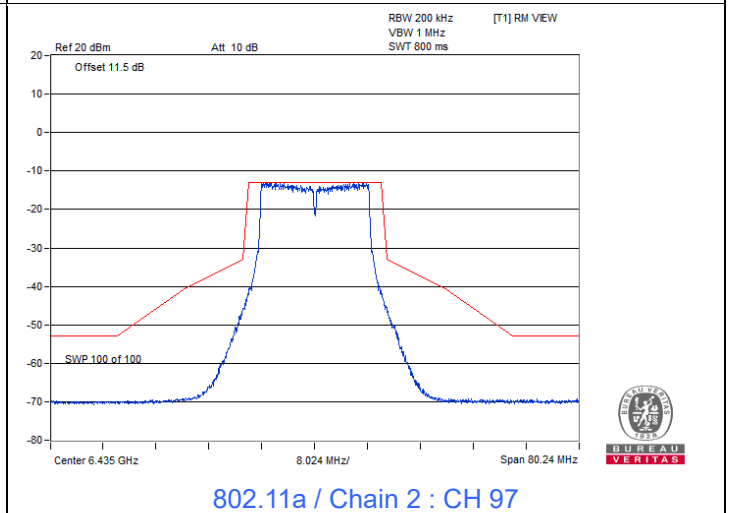
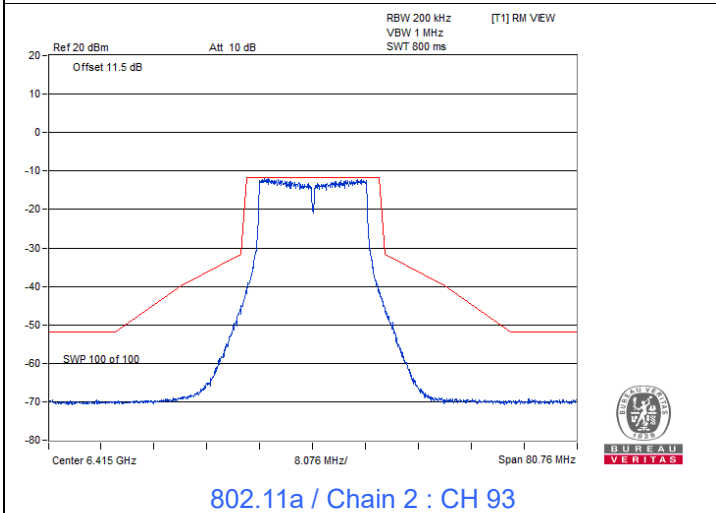
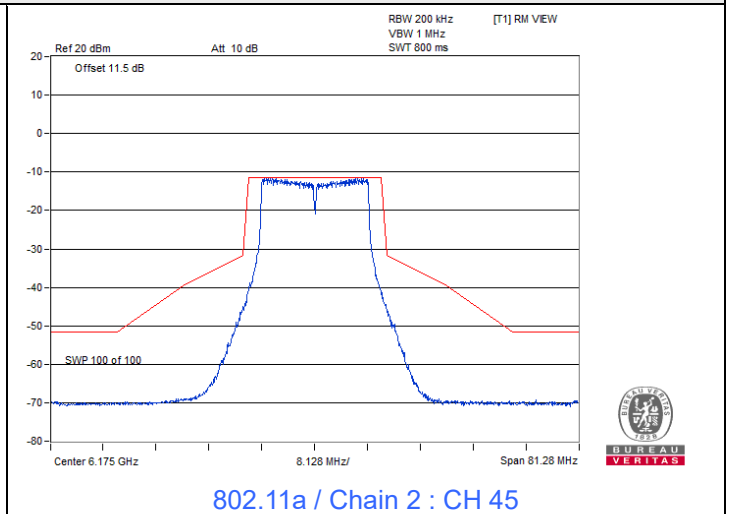
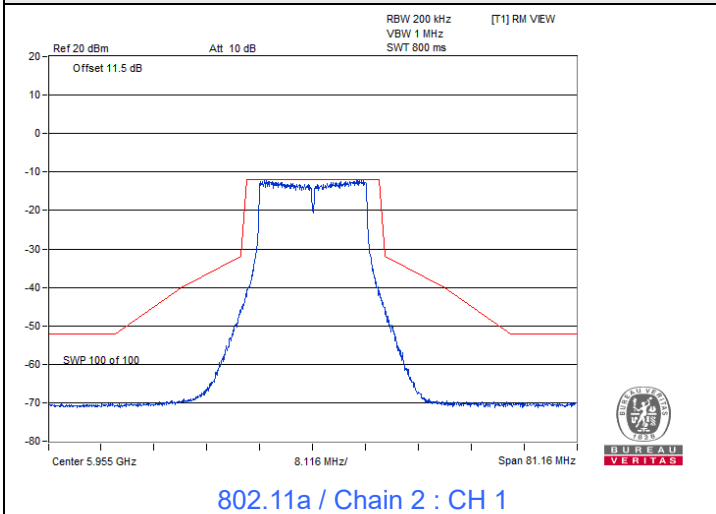
Spectrum Plot



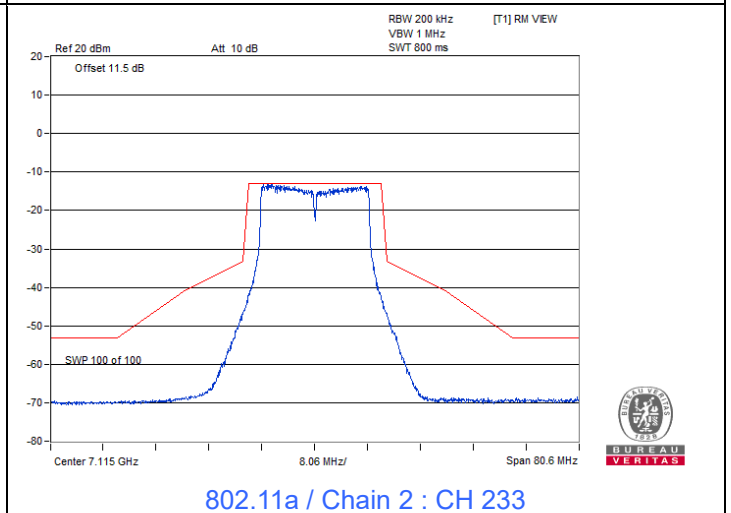
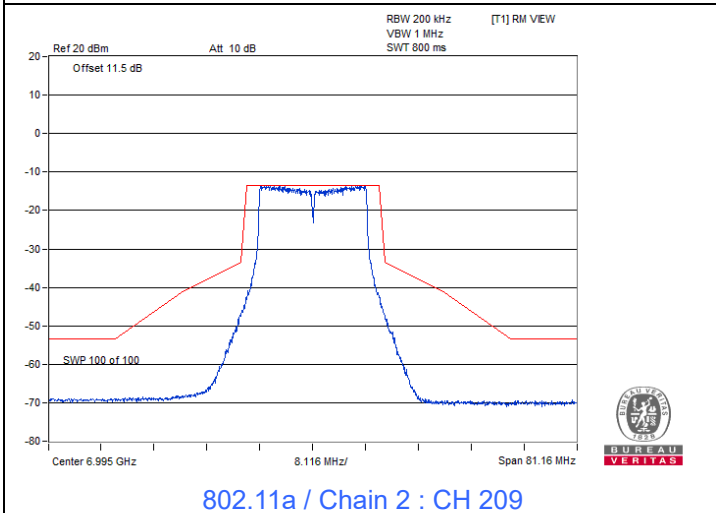
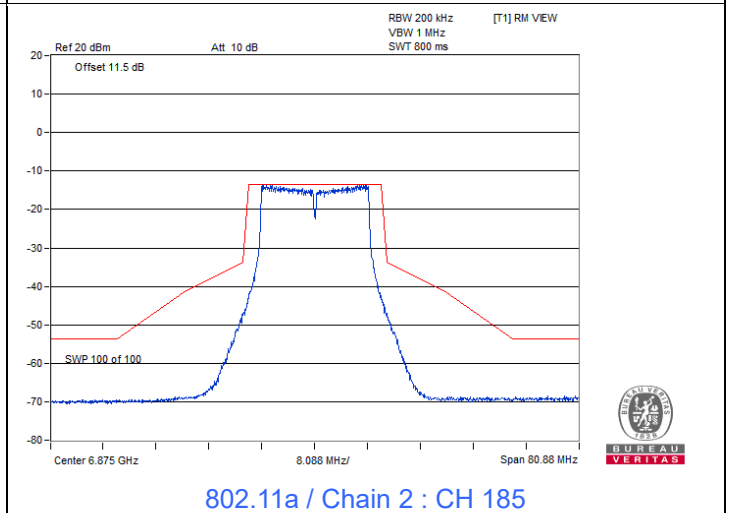
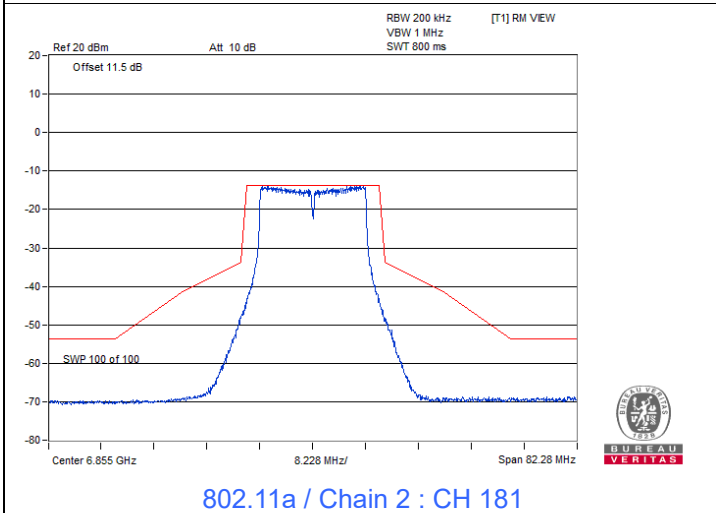
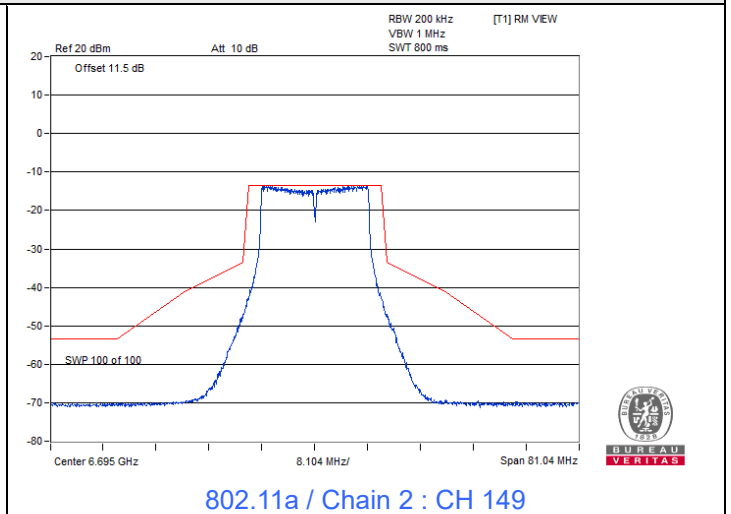
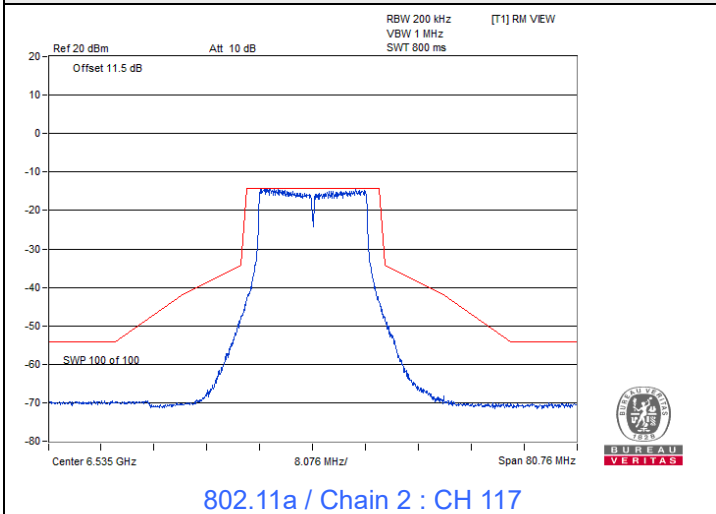
Spectrum Plot



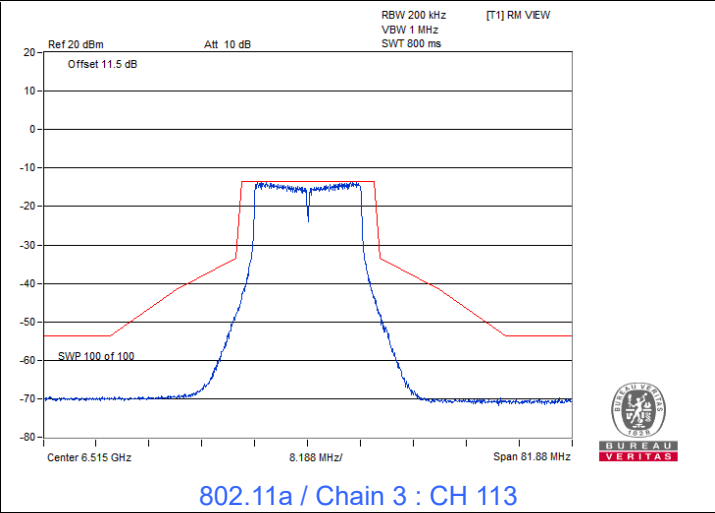
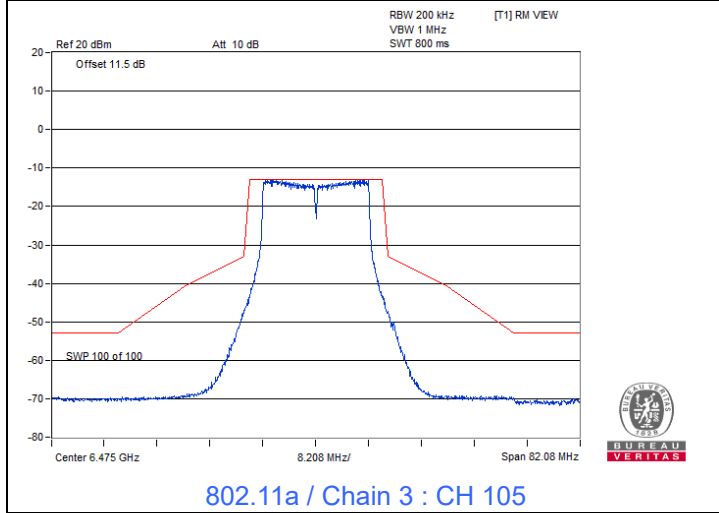
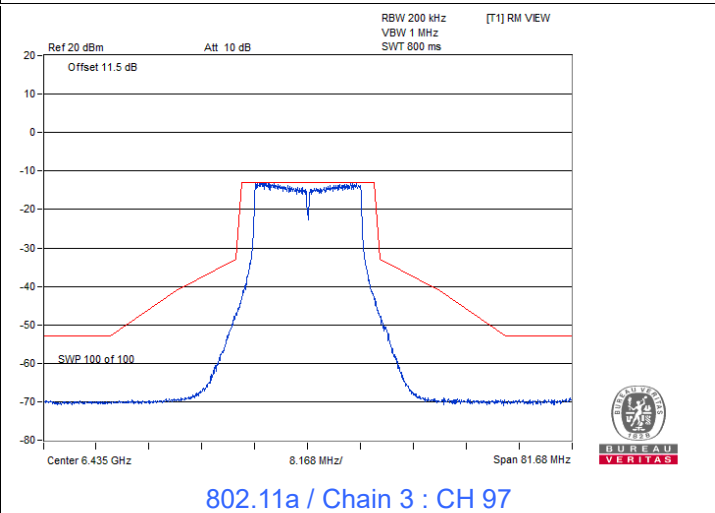
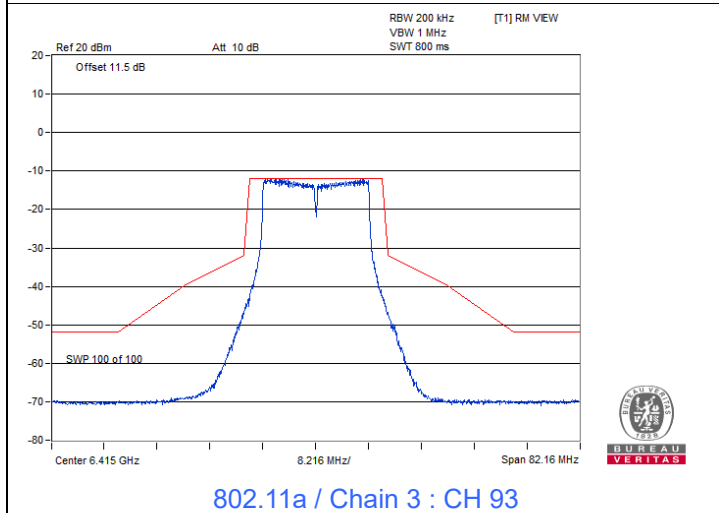
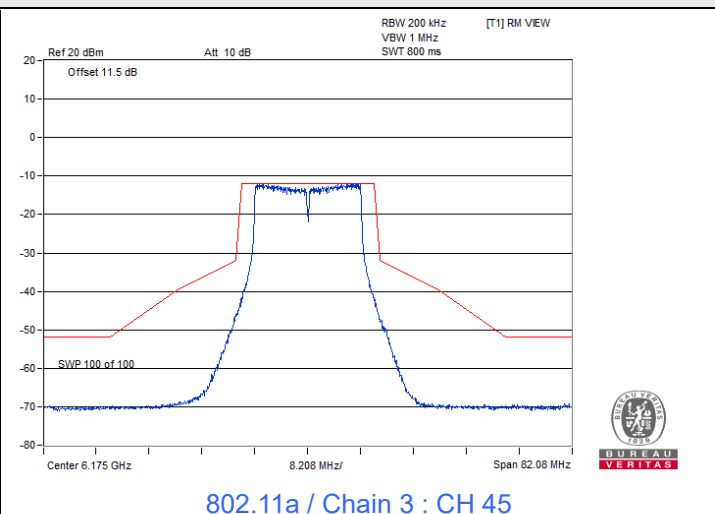
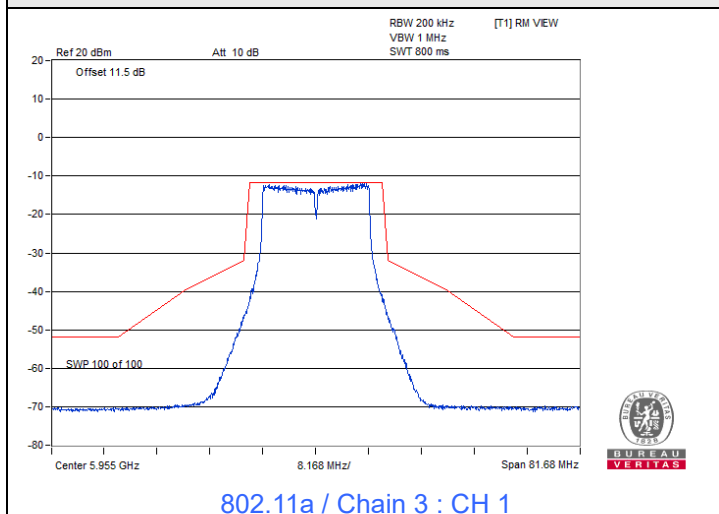
Spectrum Plot



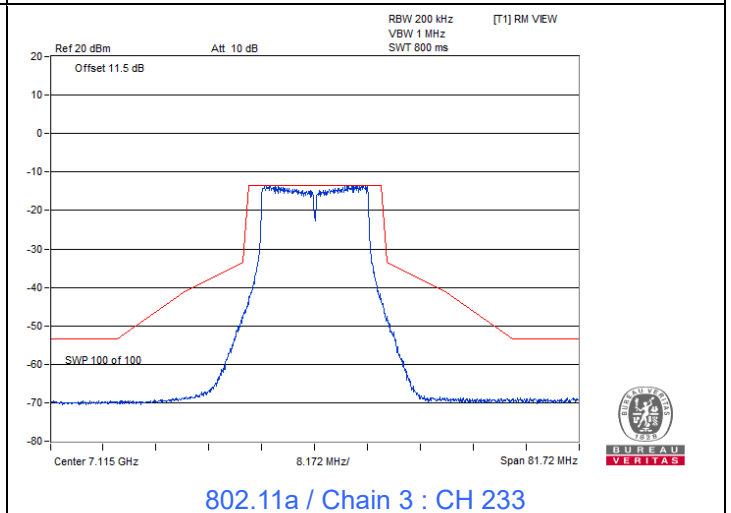
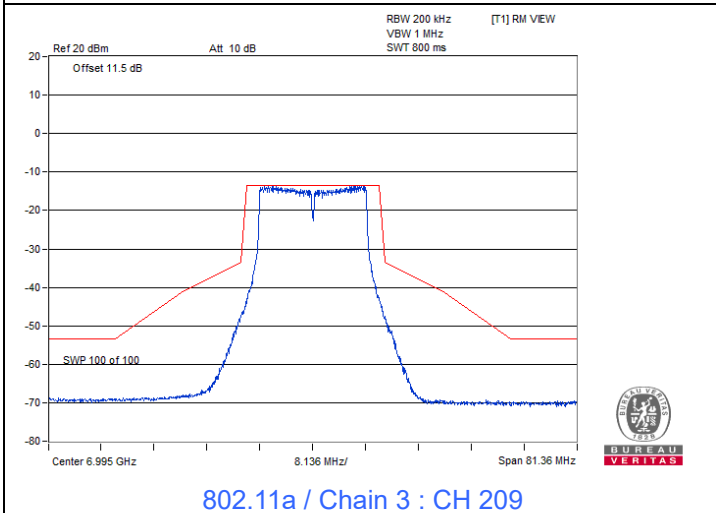
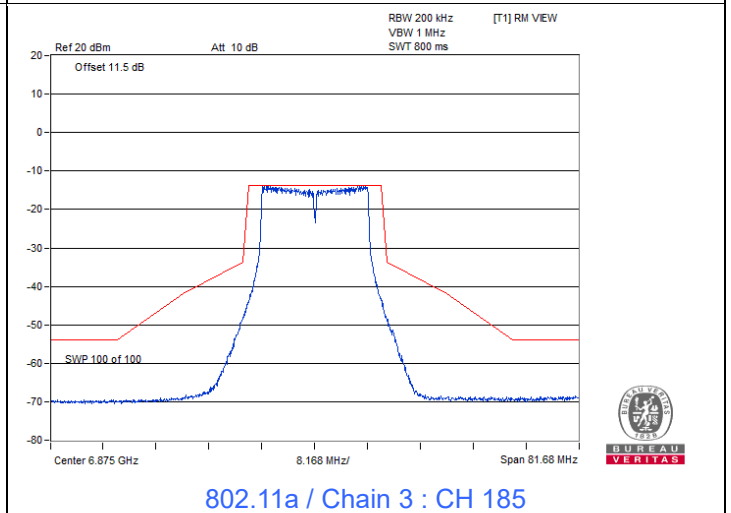
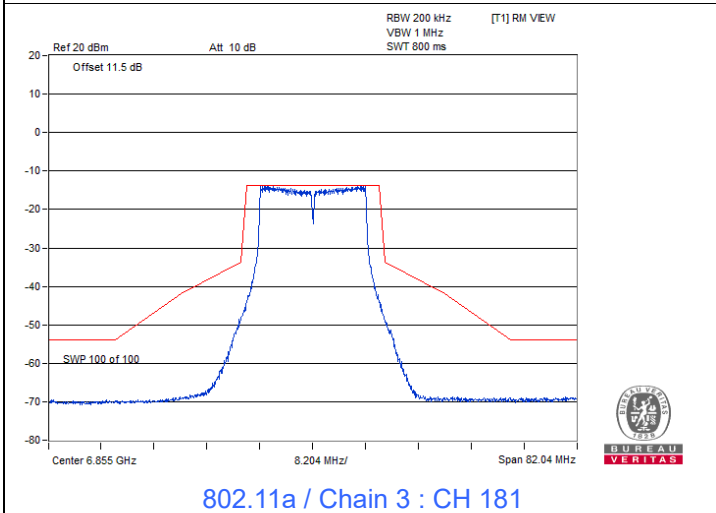
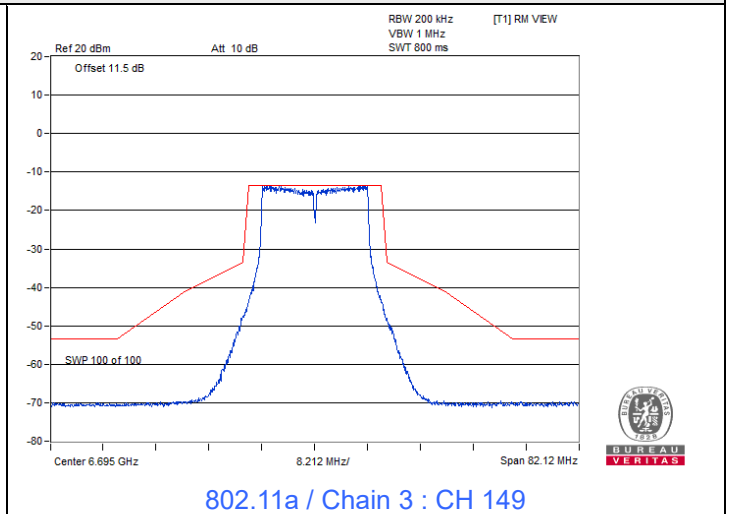
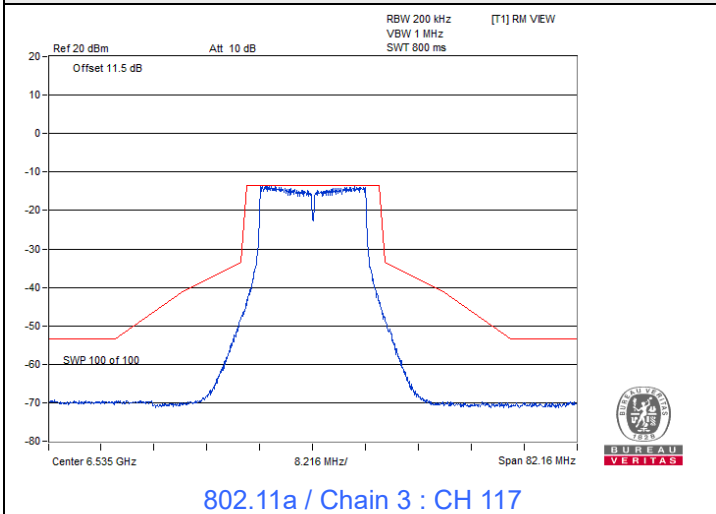
Spectrum Plot



Spectrum Plot



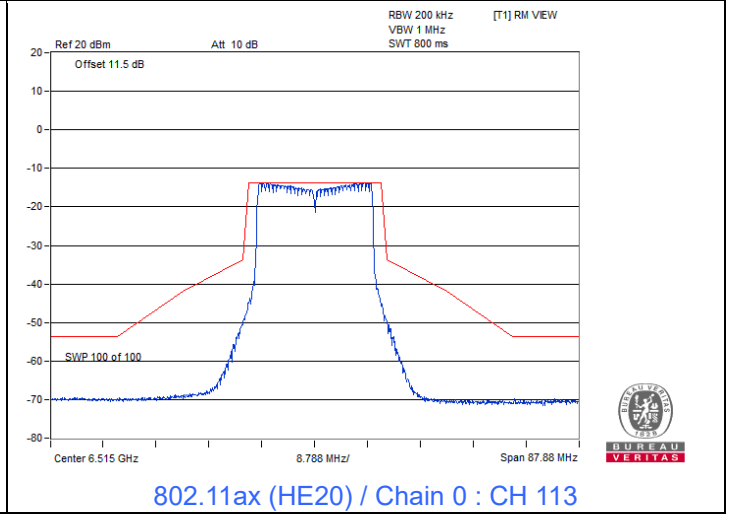
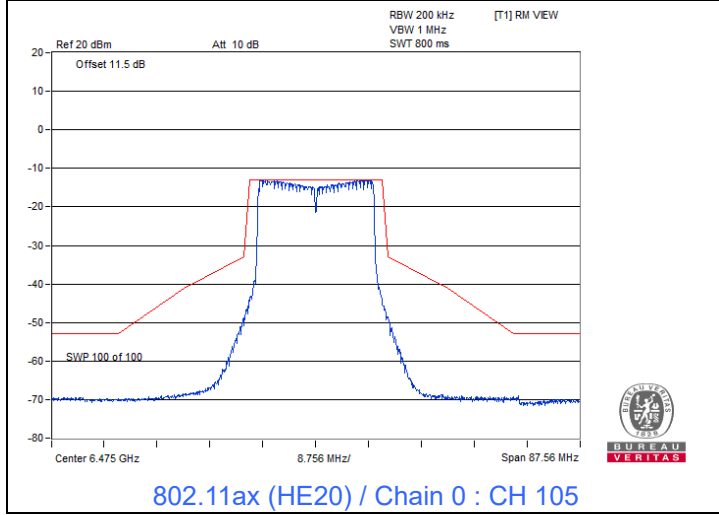
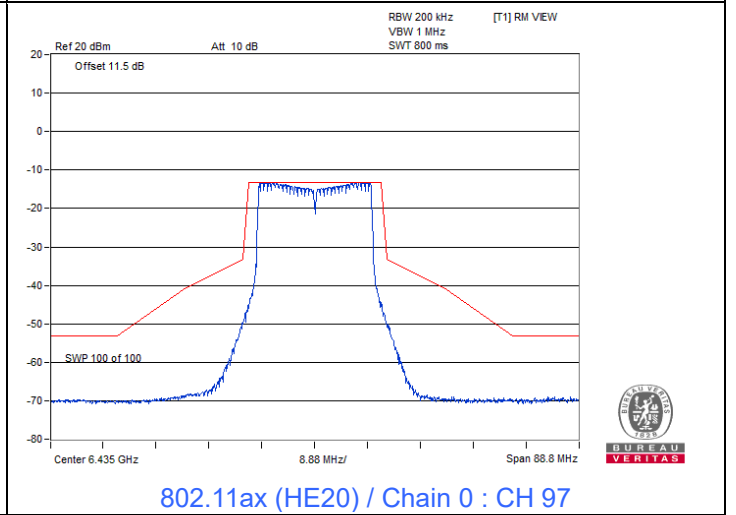
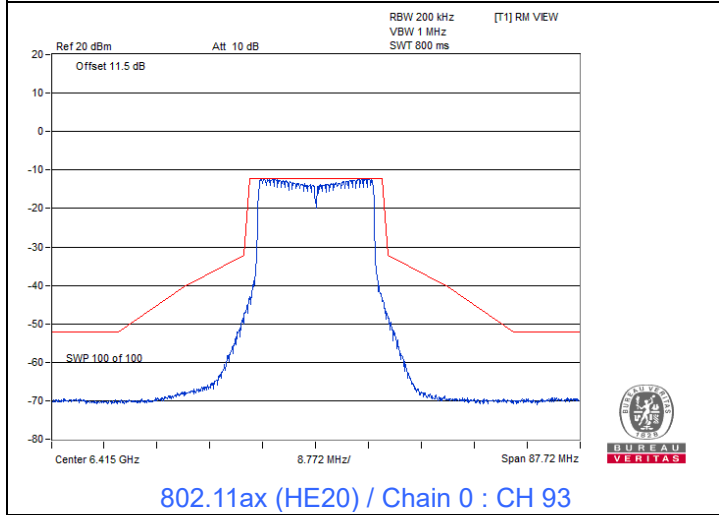
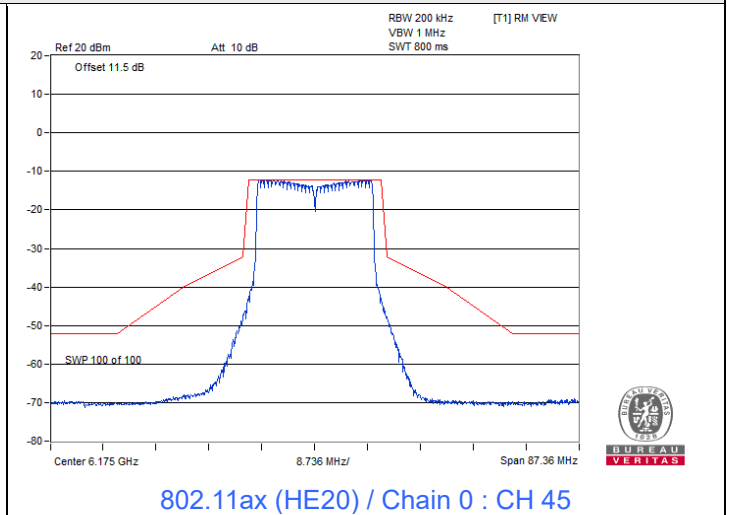
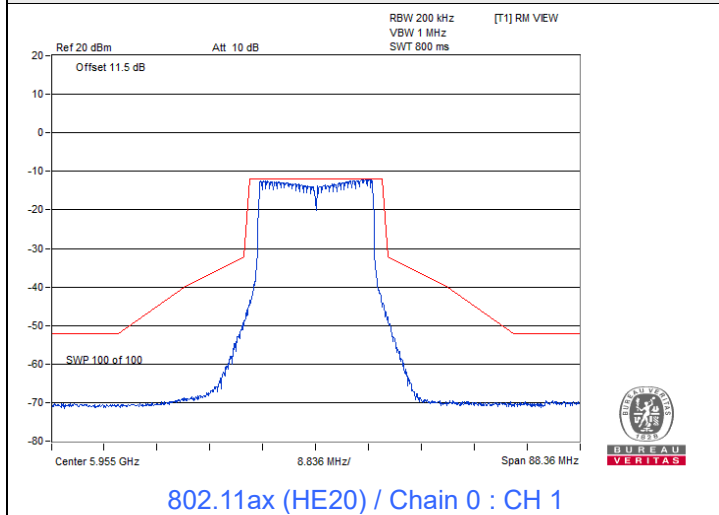
Spectrum Plot



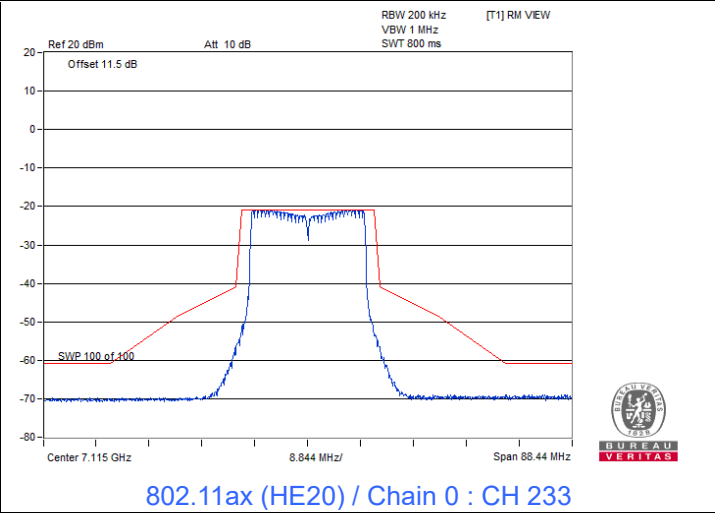
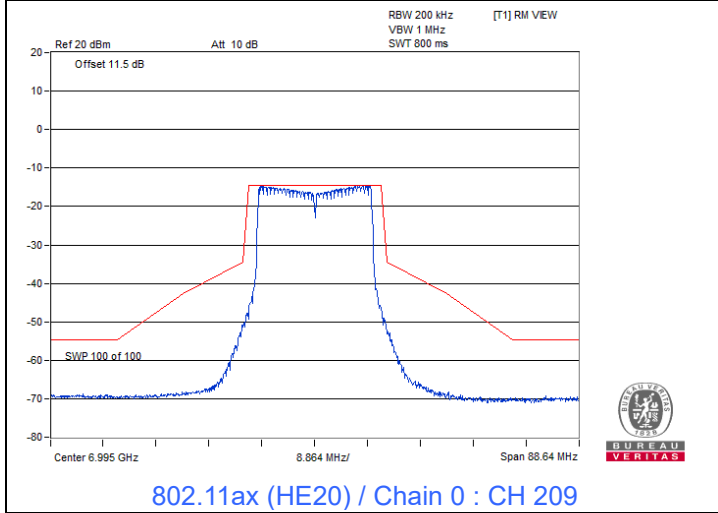
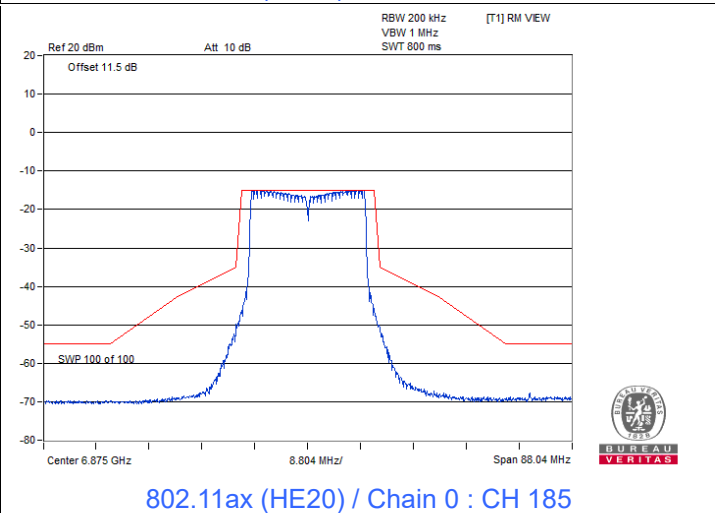
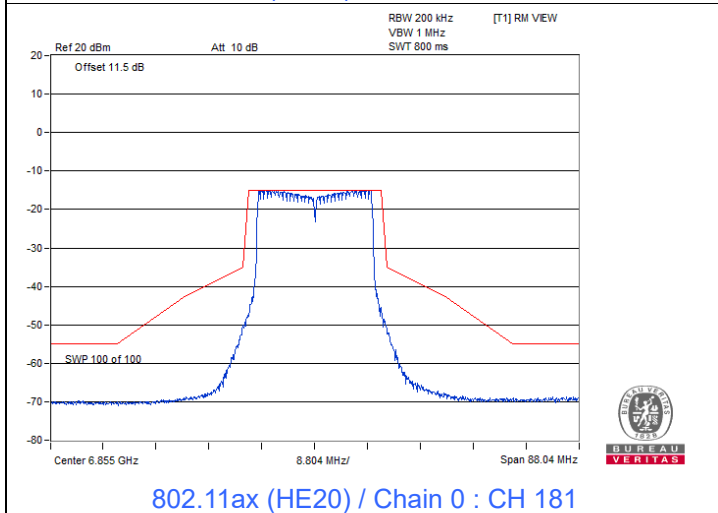
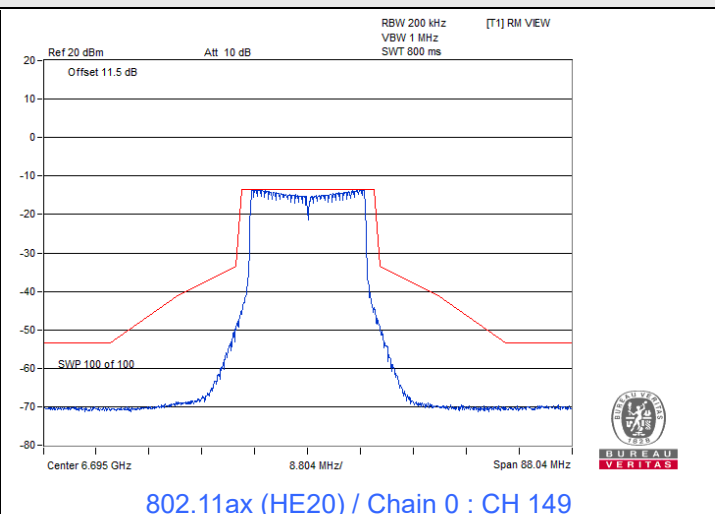
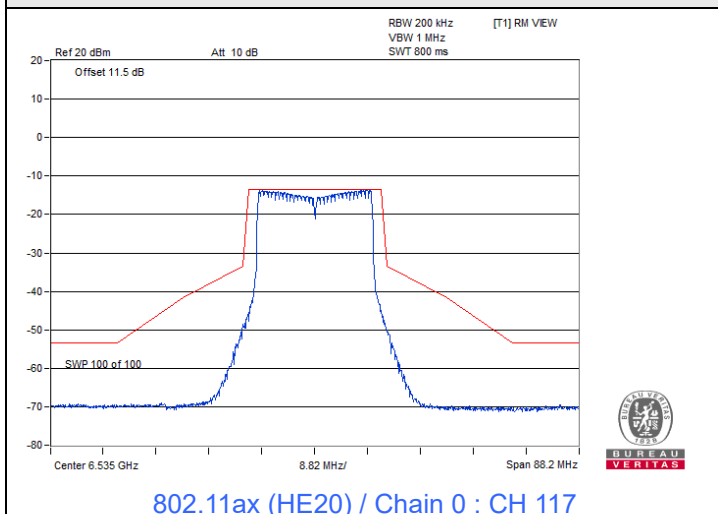


802.11ax (HE20)

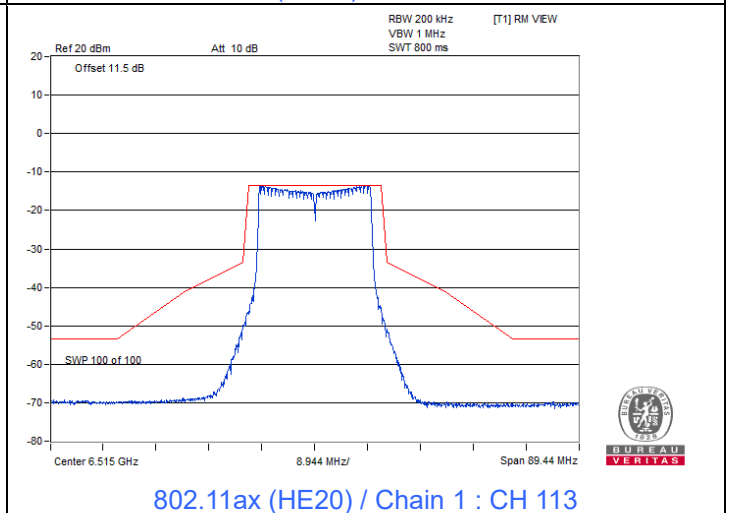
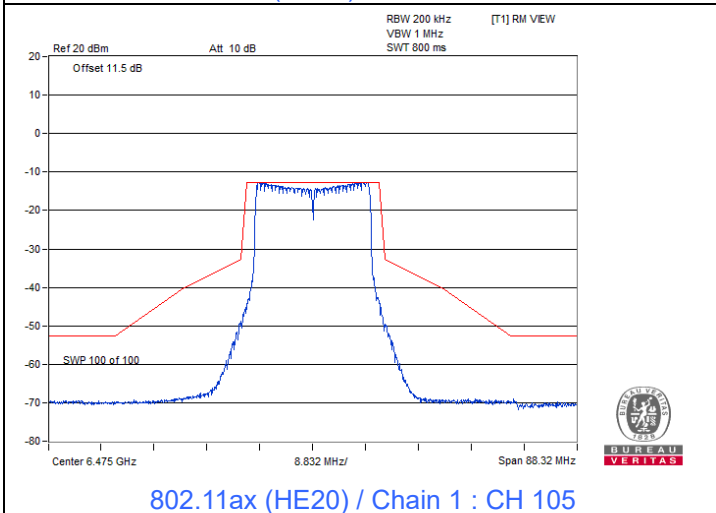
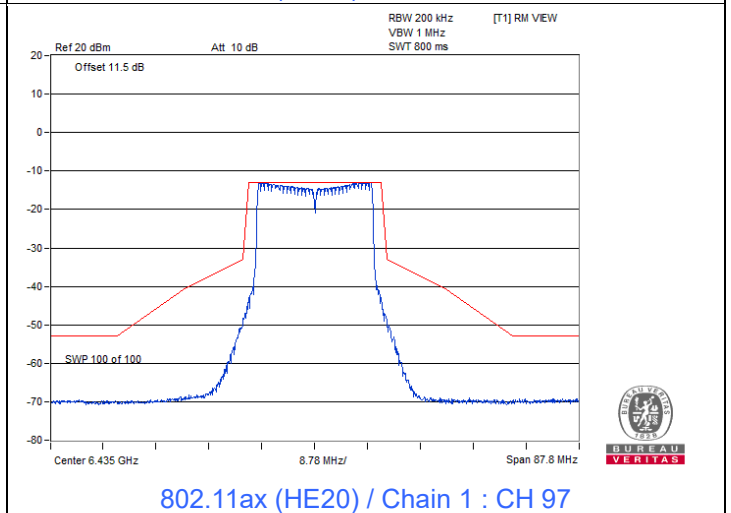
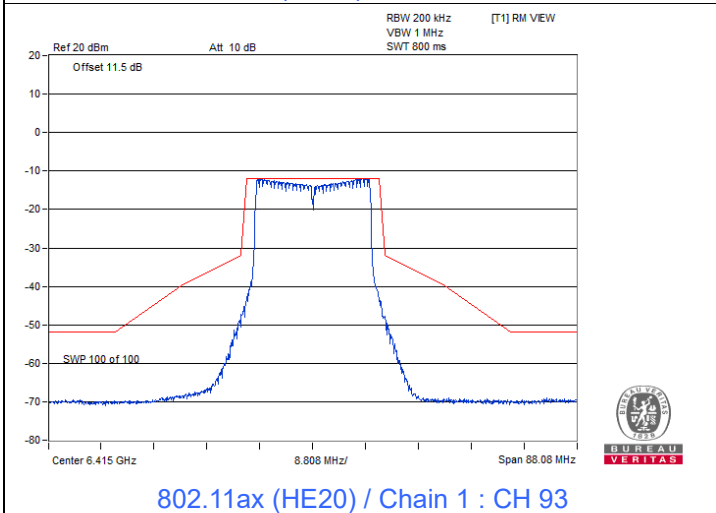
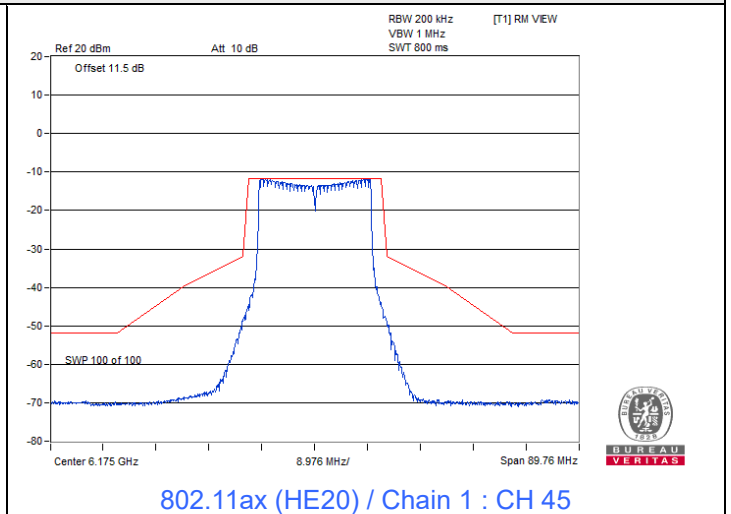
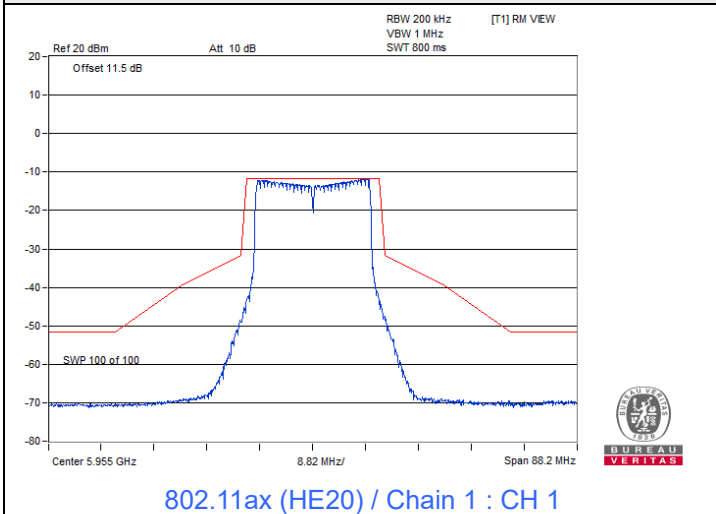
Spectrum Plot



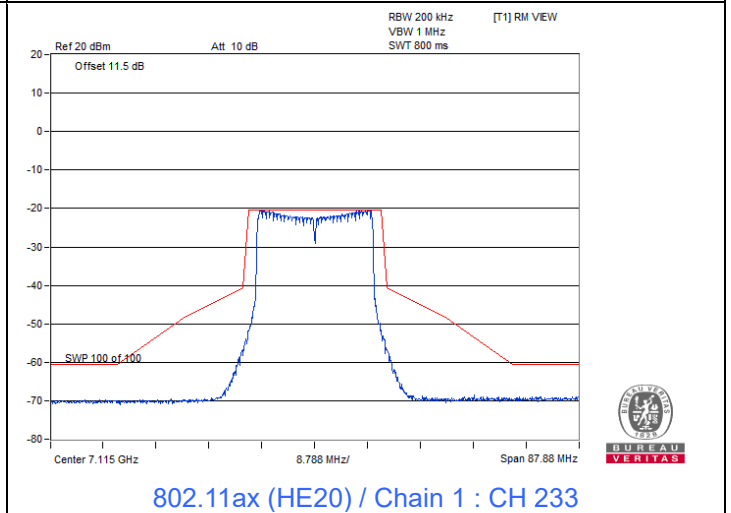
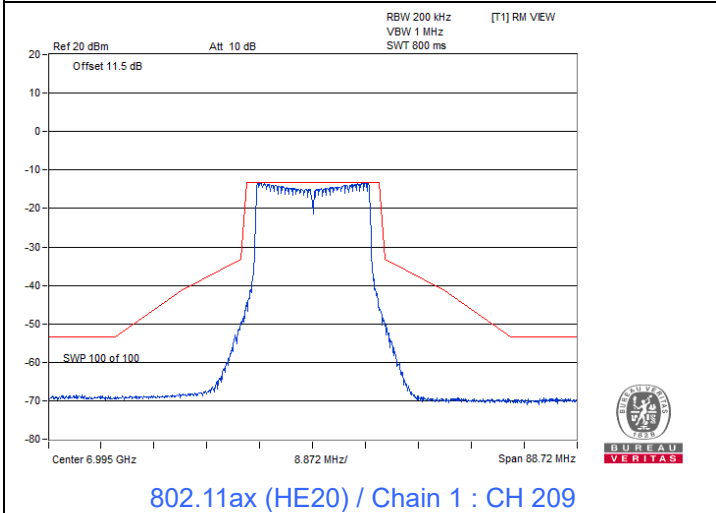
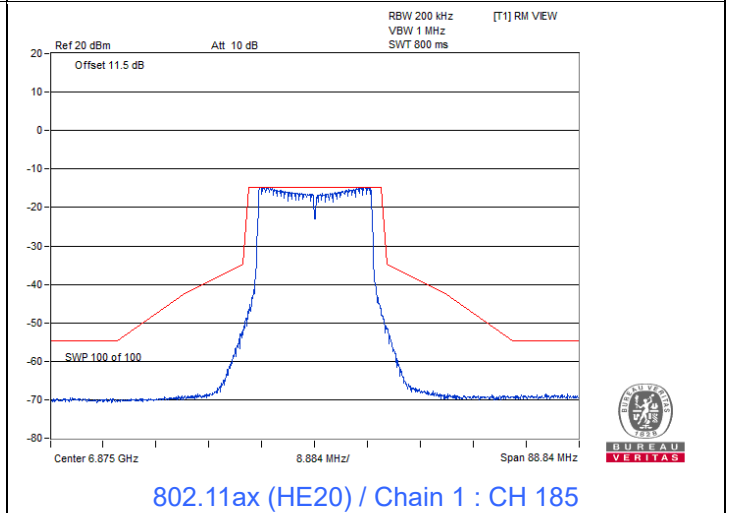
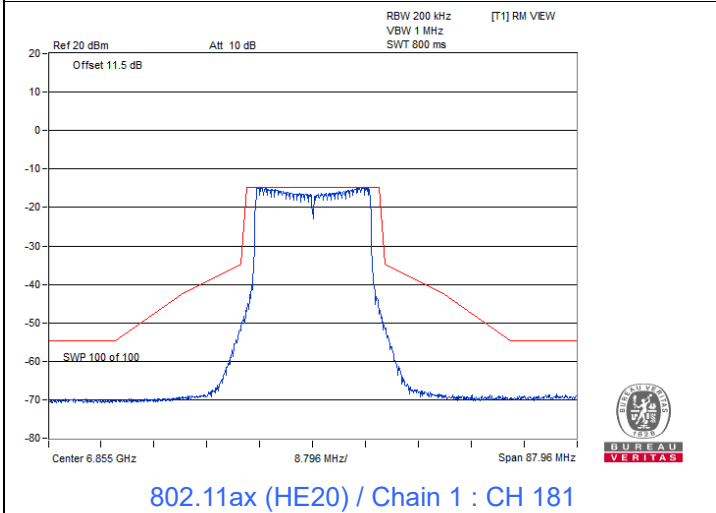
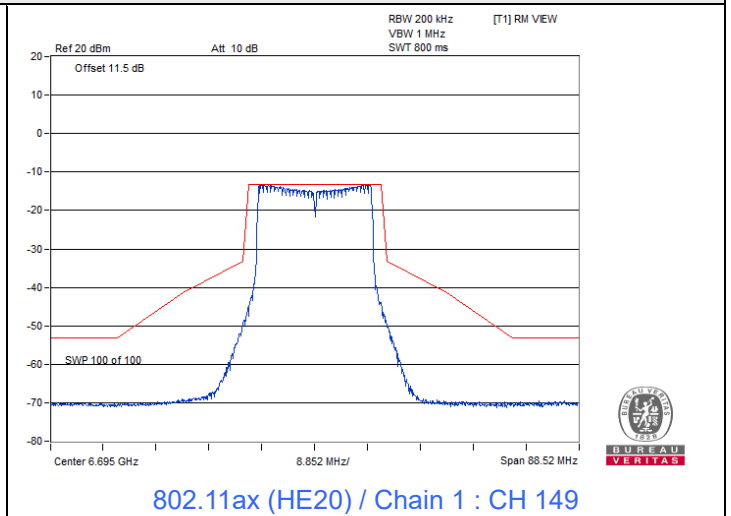
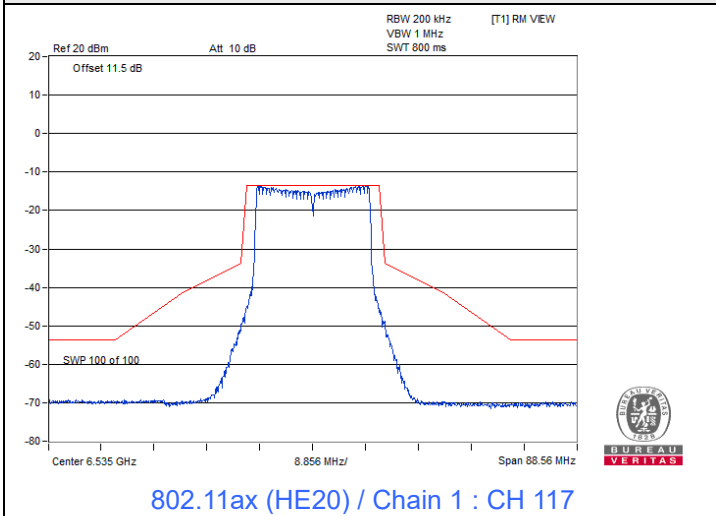
Spectrum Plot



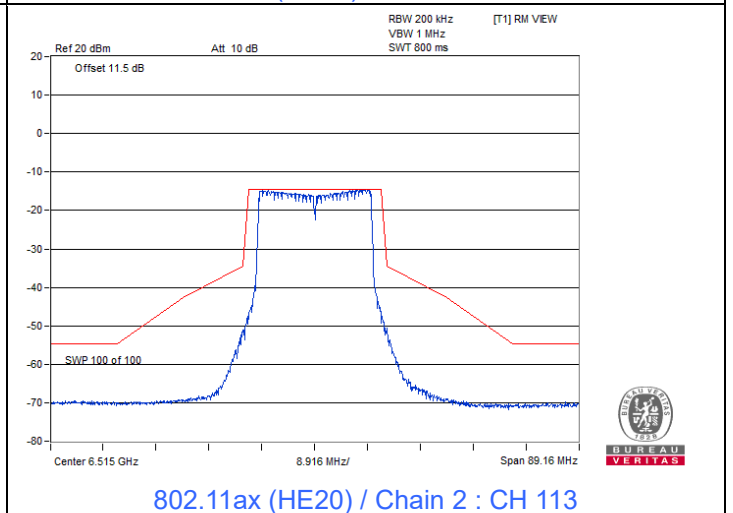
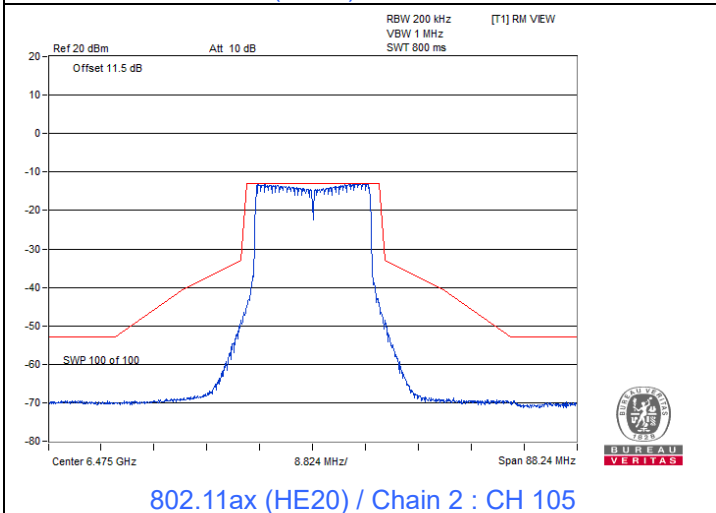
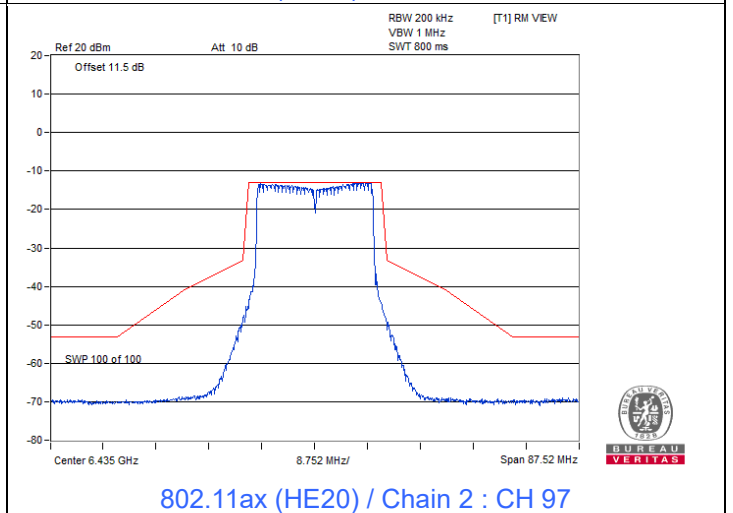
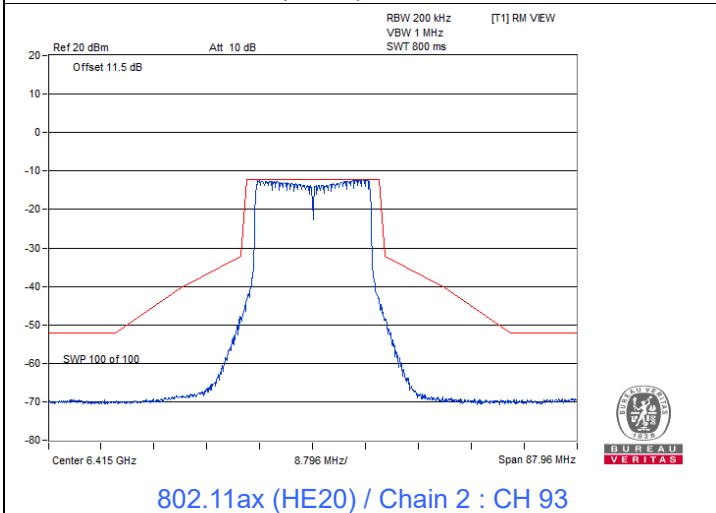
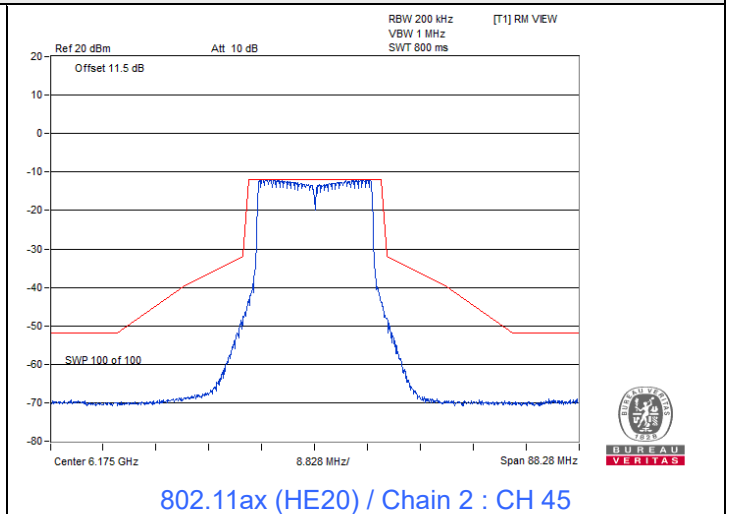
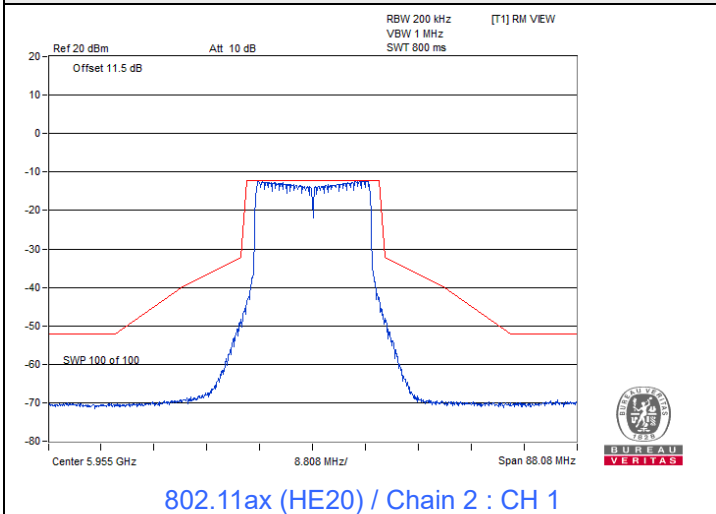
Spectrum Plot



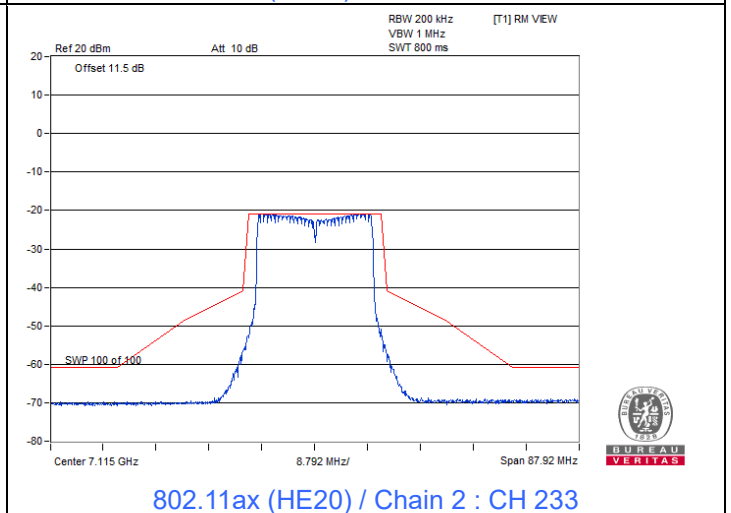
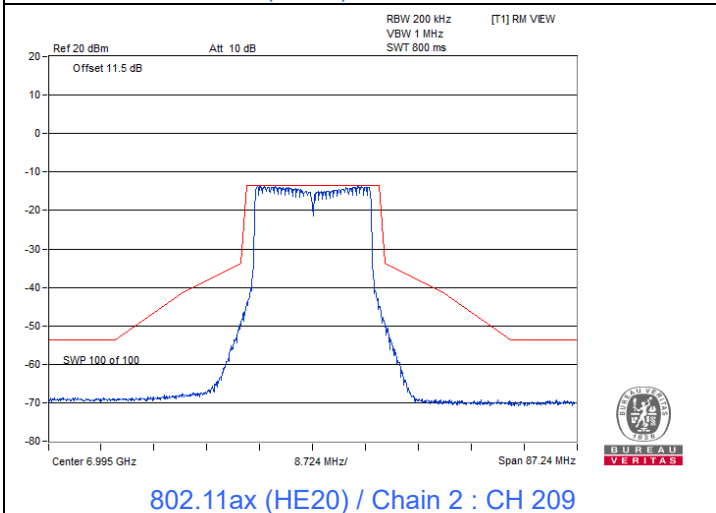
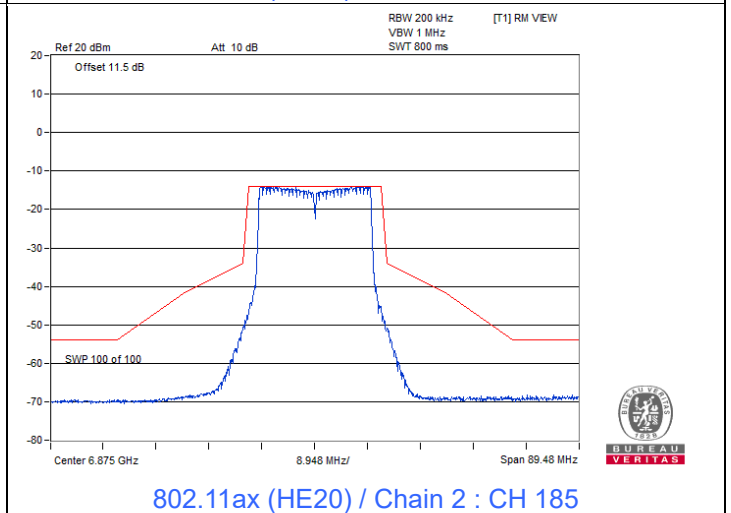
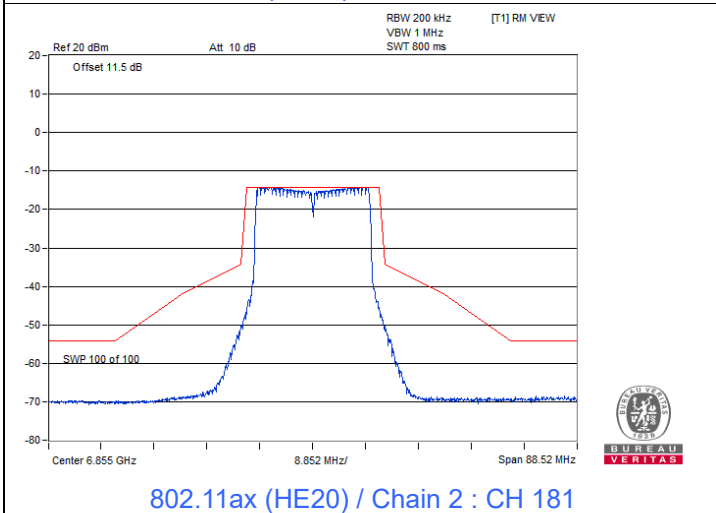
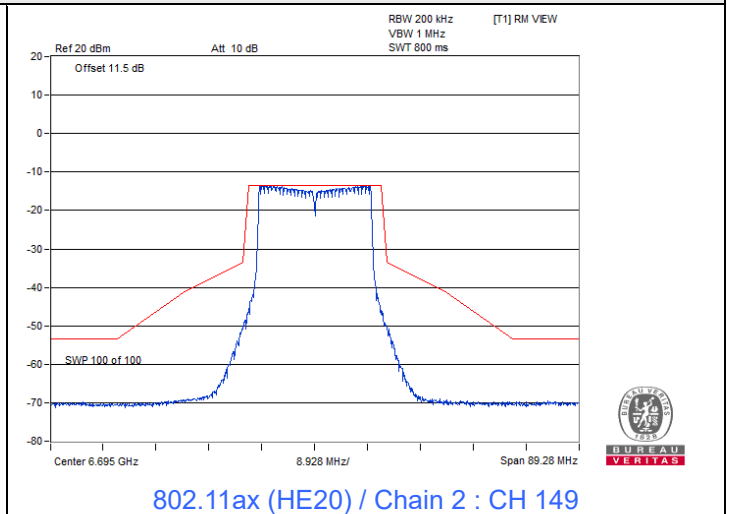
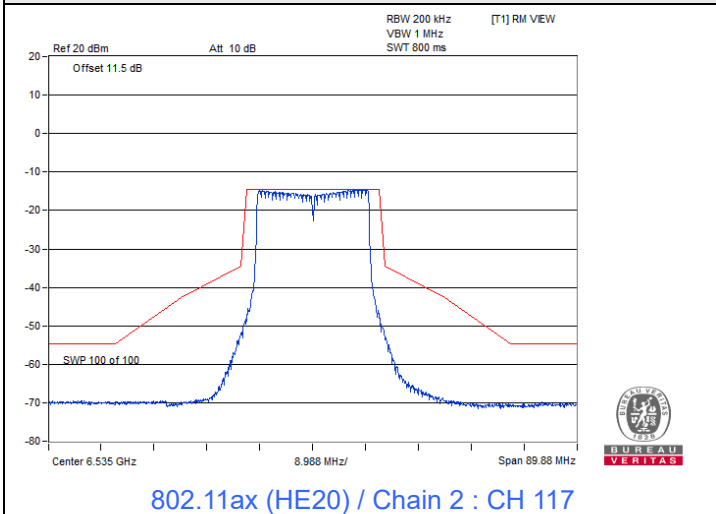
Spectrum Plot



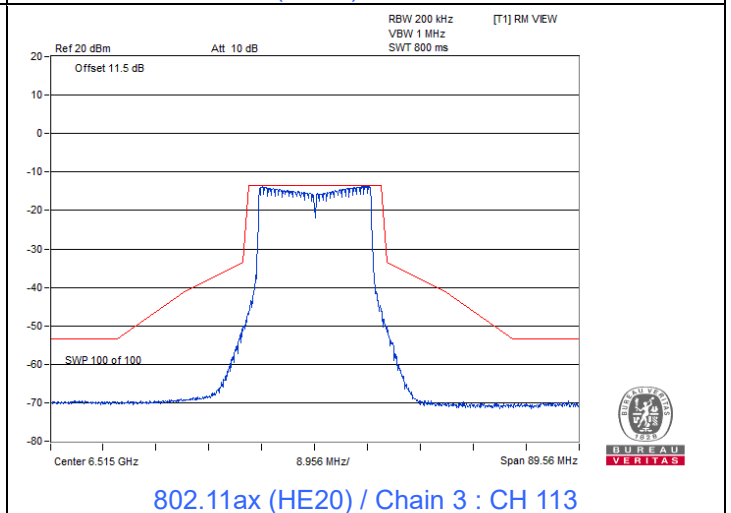
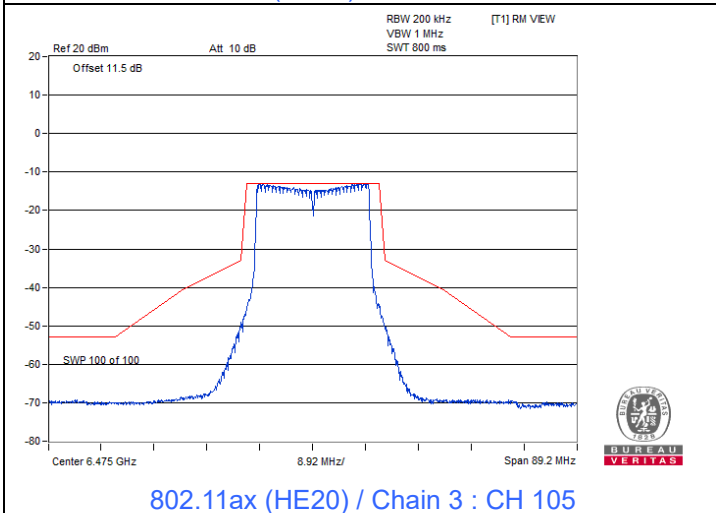
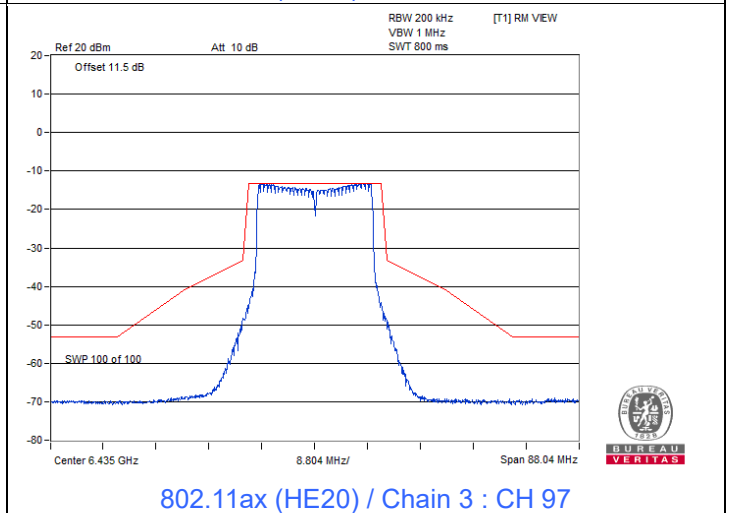
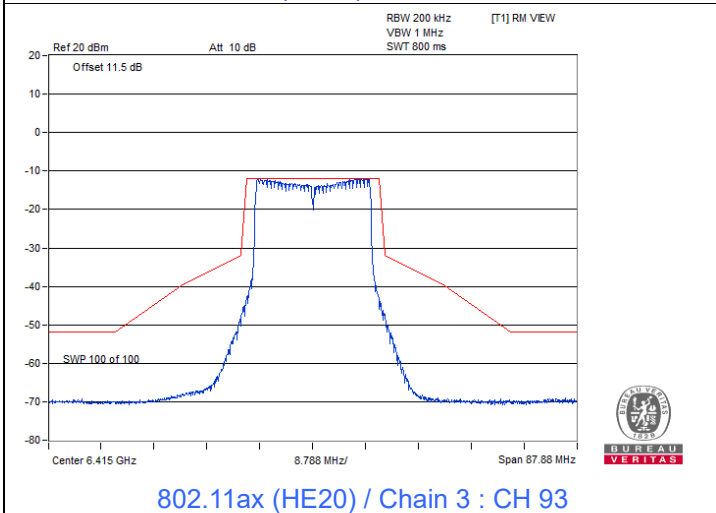
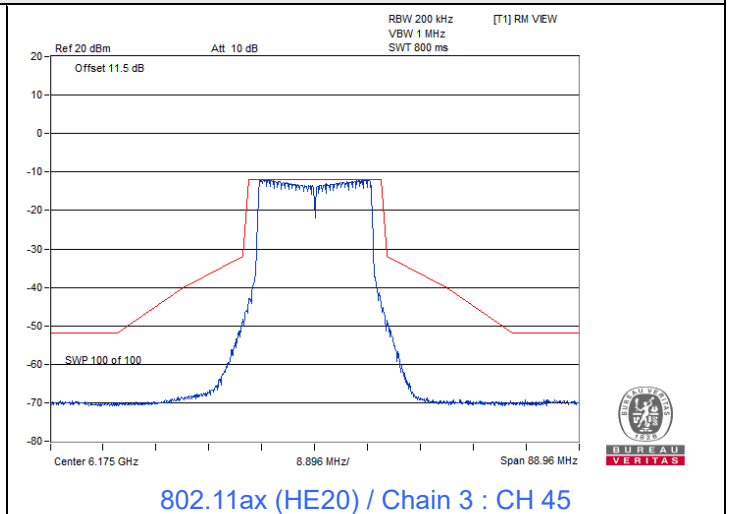
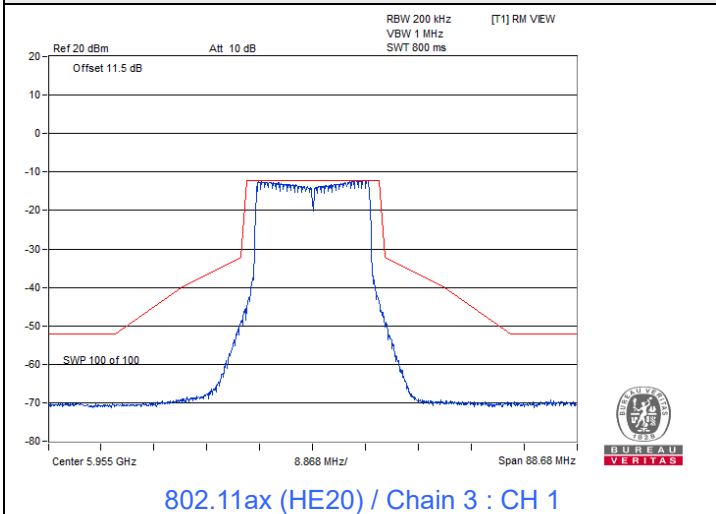
Spectrum Plot



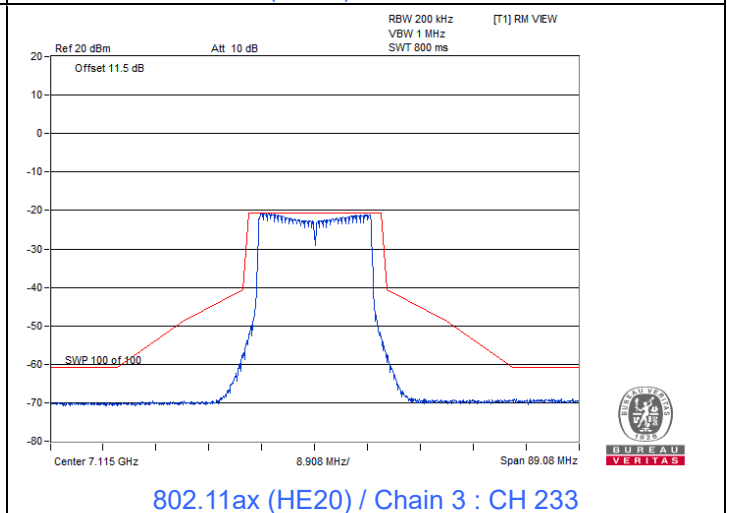
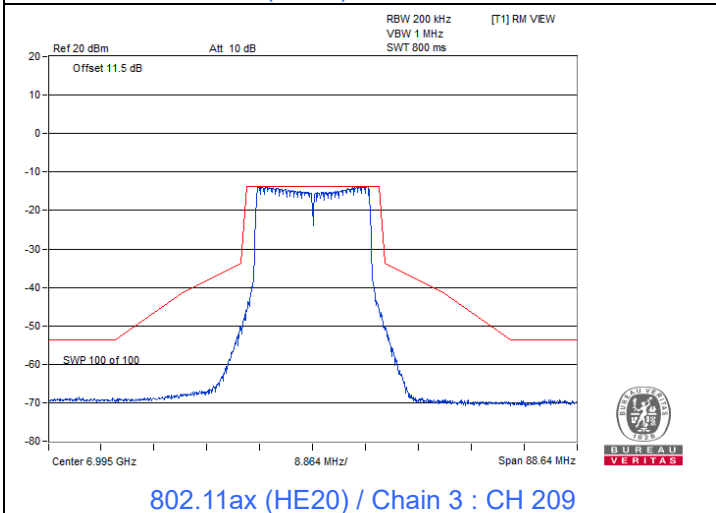
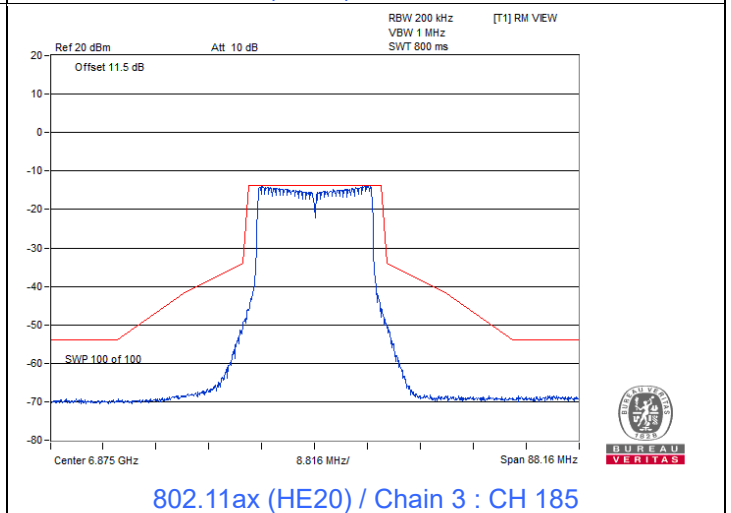
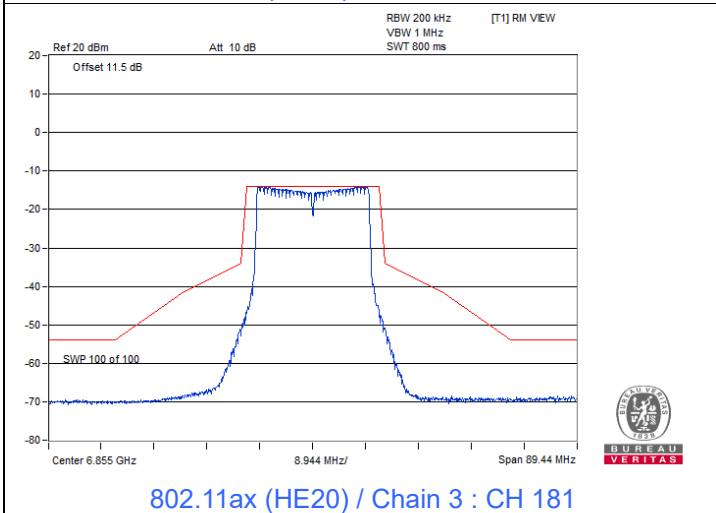
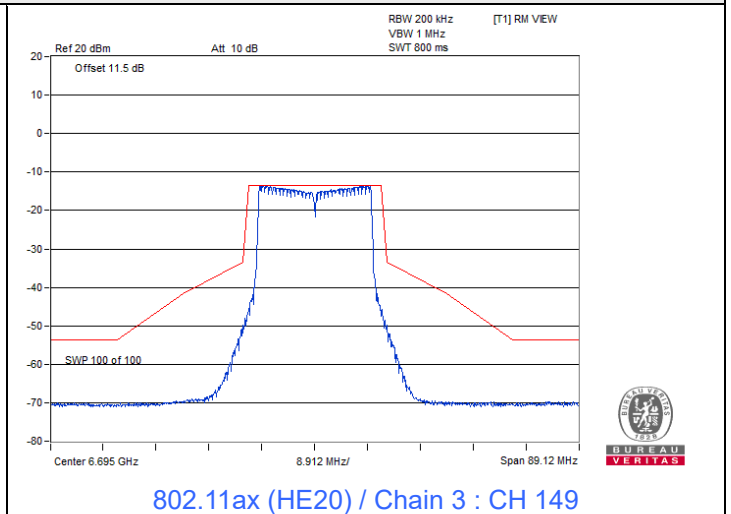
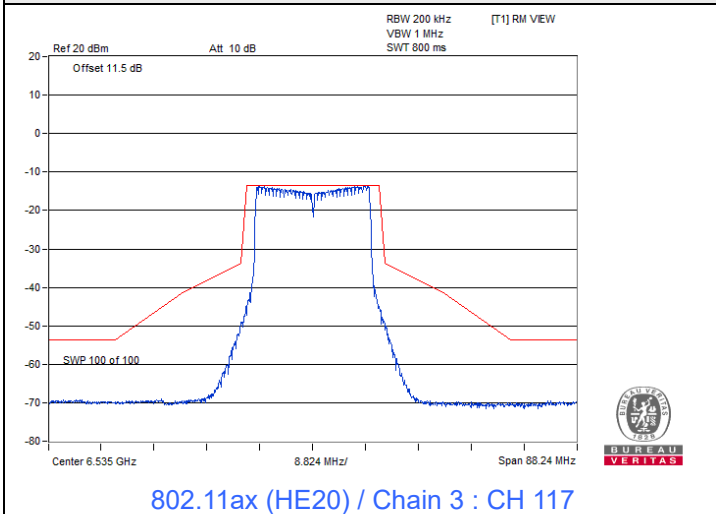
Spectrum Plot



Spectrum Plot



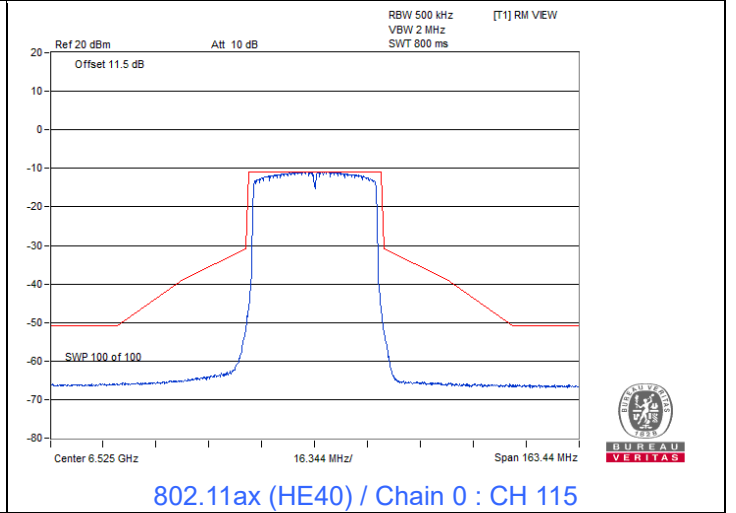
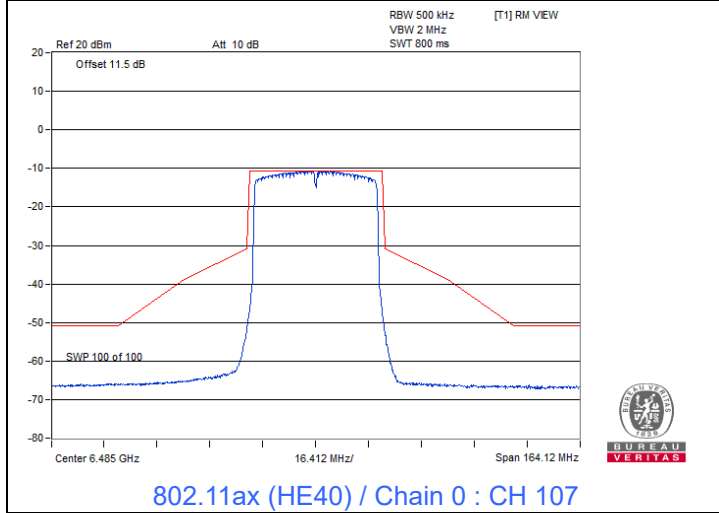
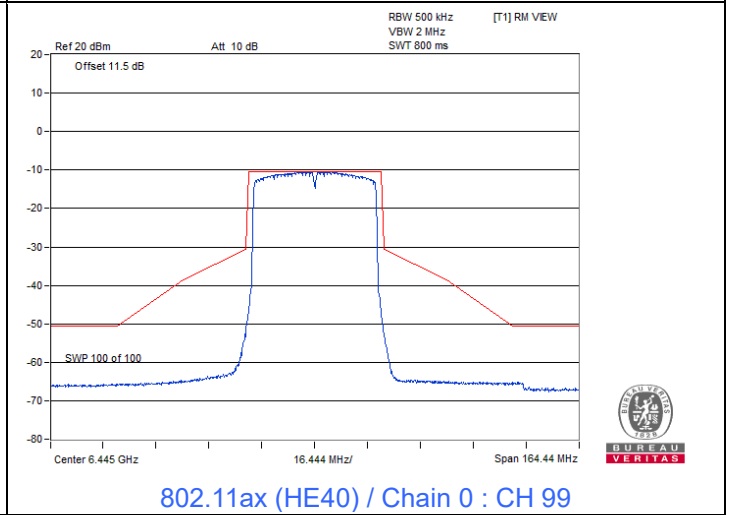
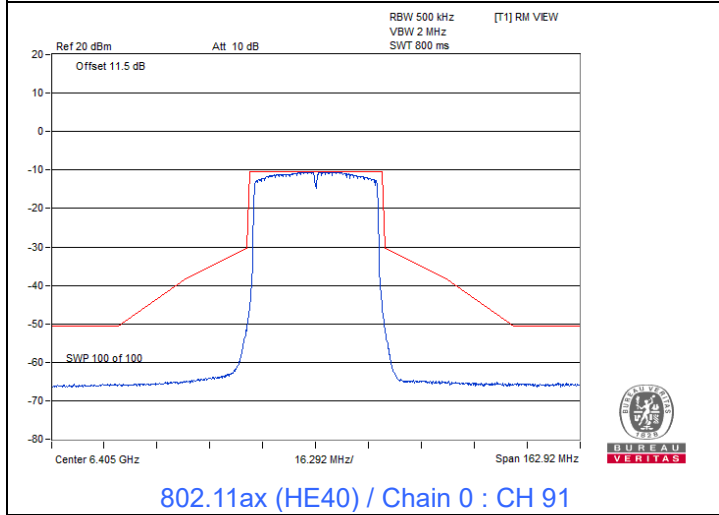
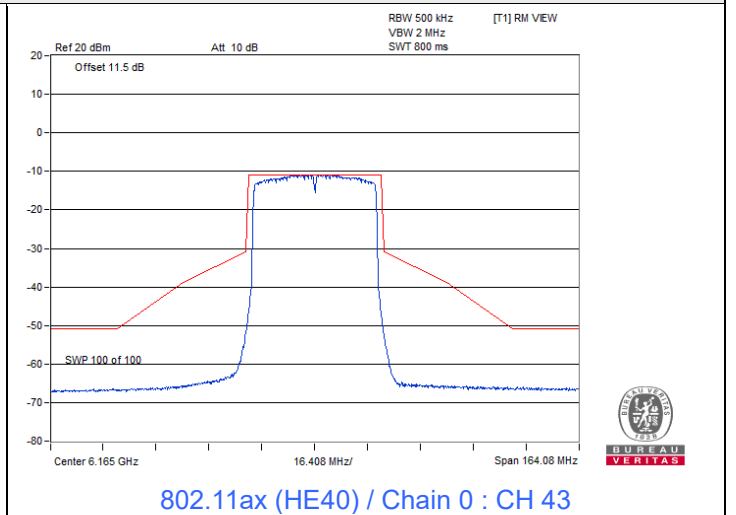
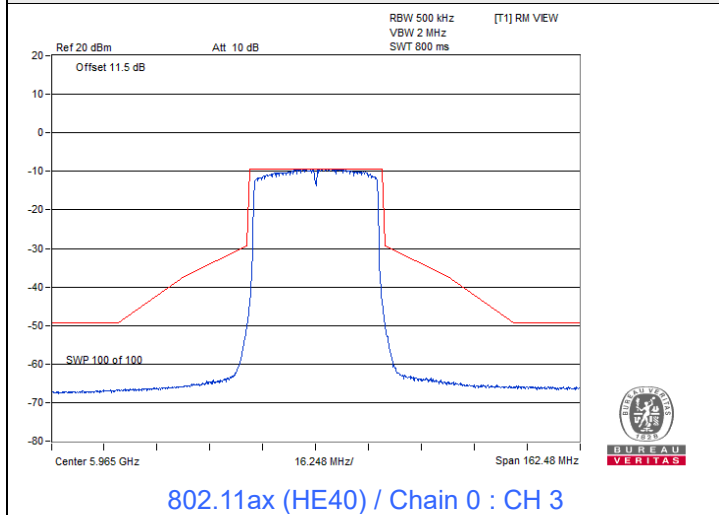
Spectrum Plot



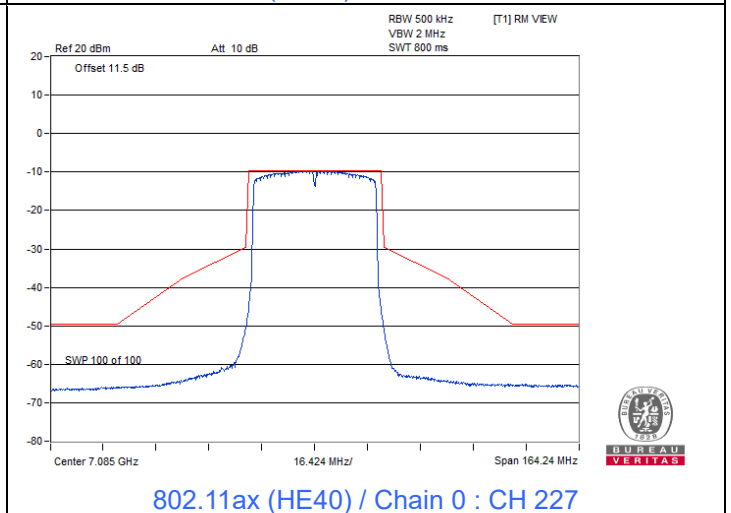
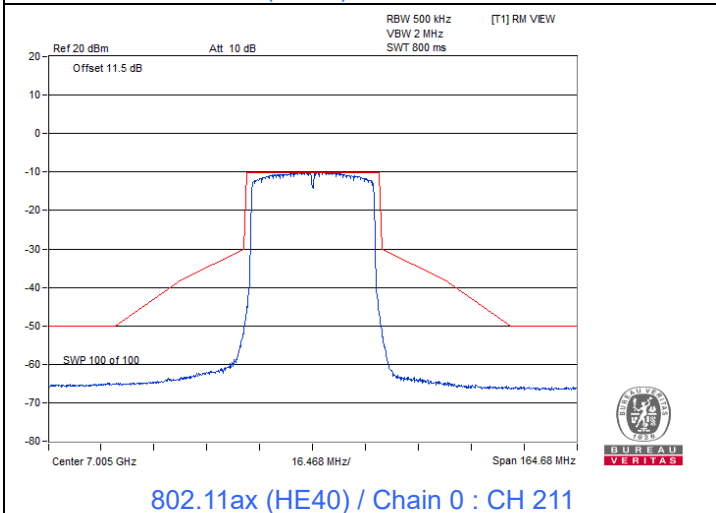
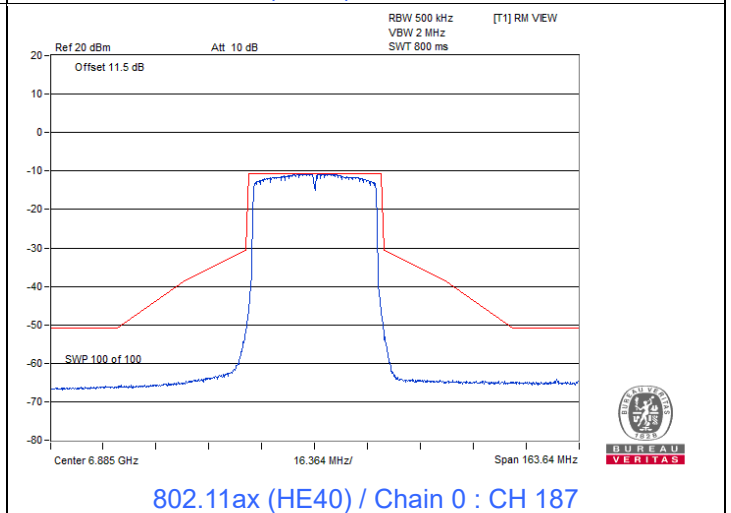
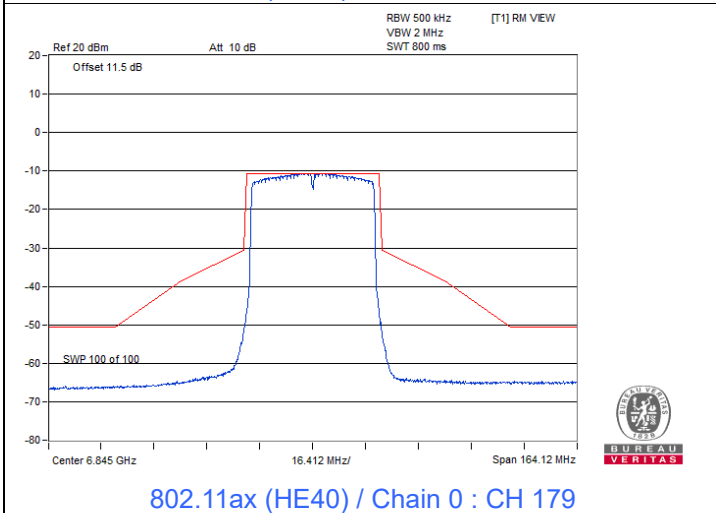
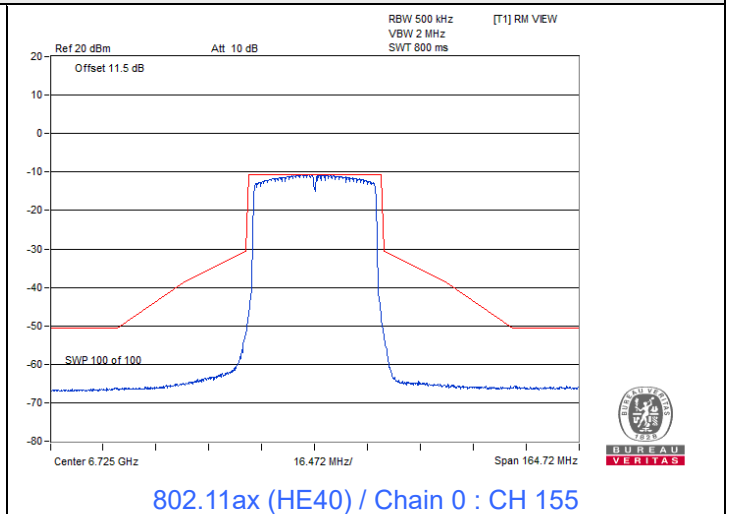
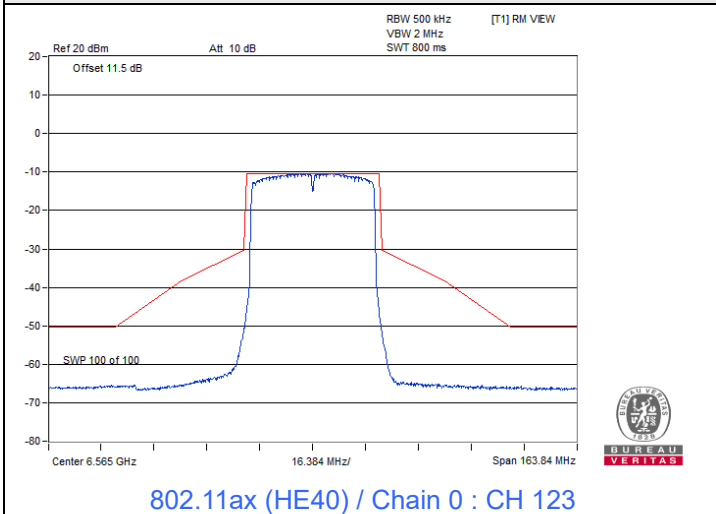


802.11ax (HE40)

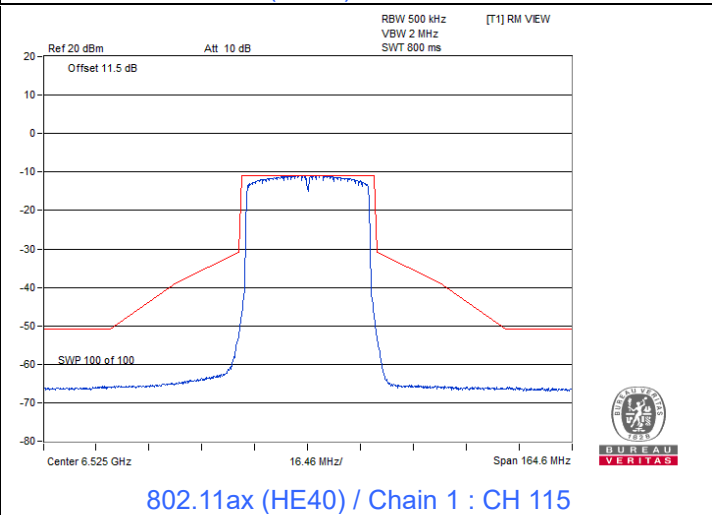
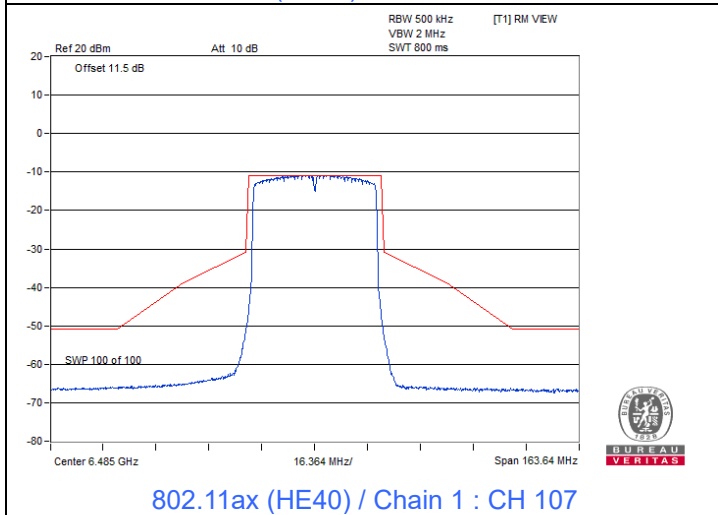
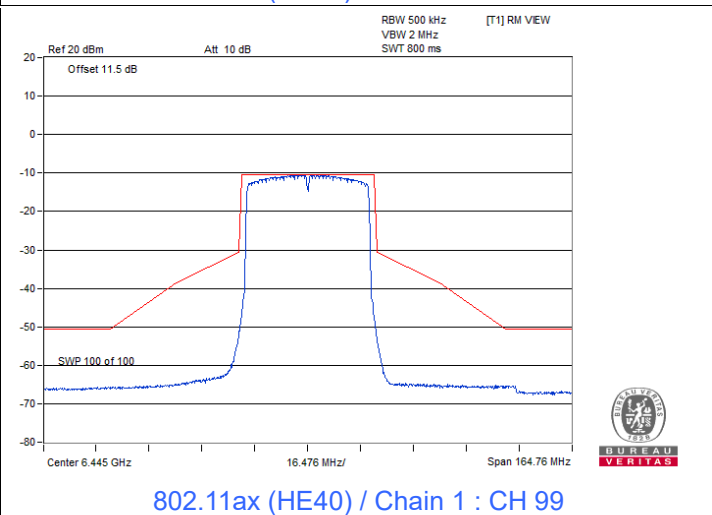
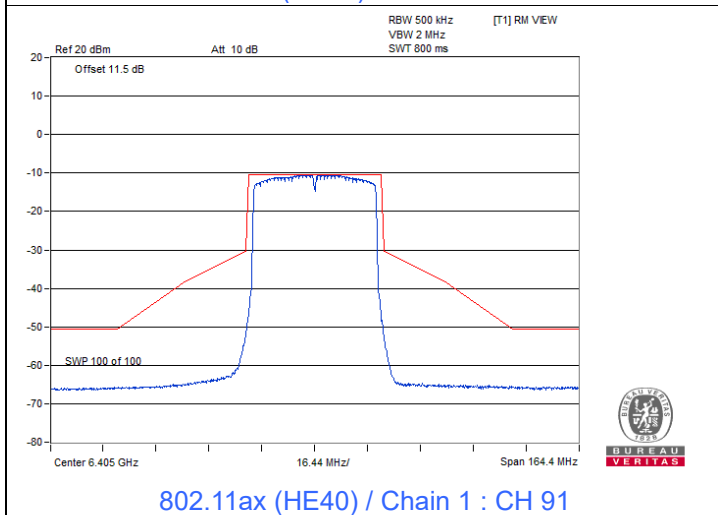
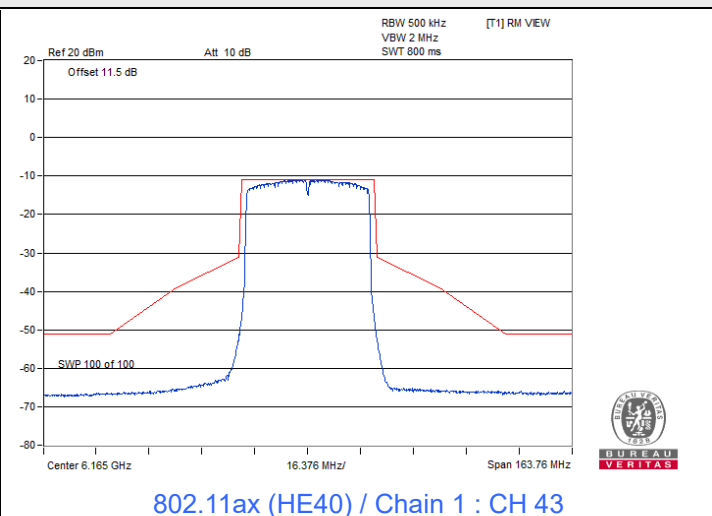
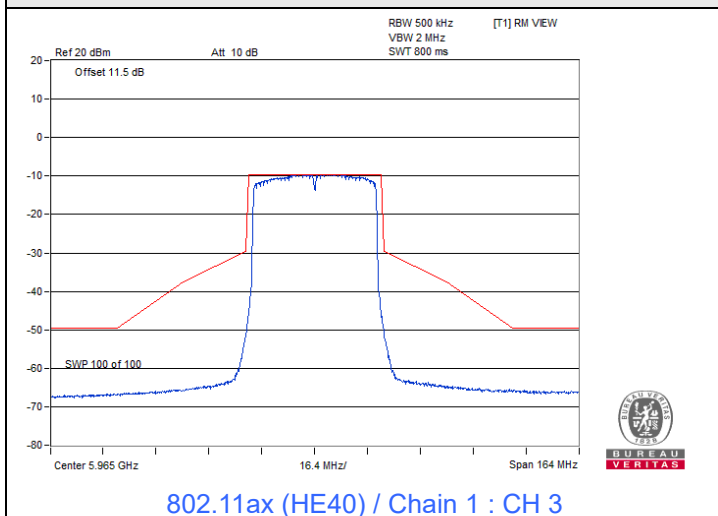
Spectrum Plot



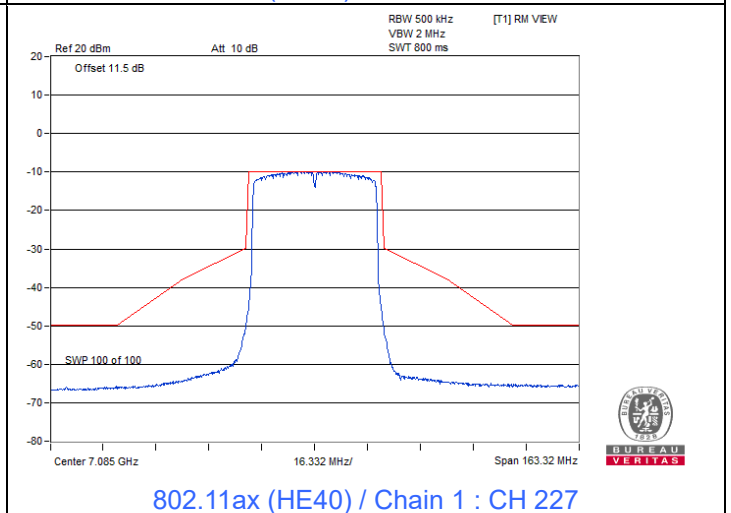
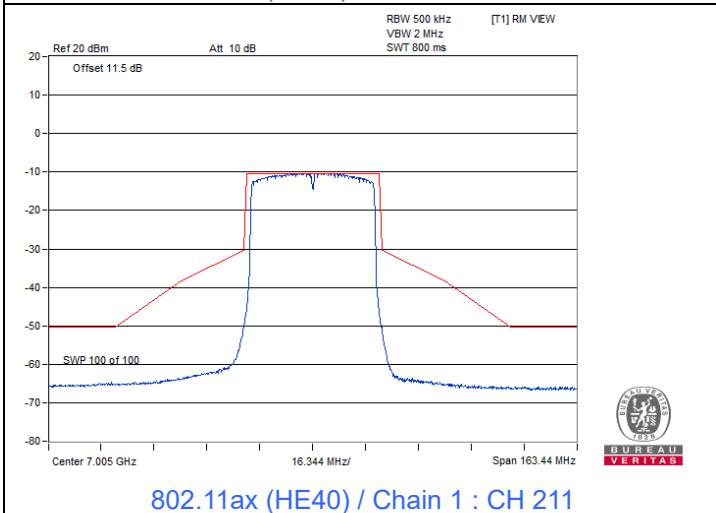
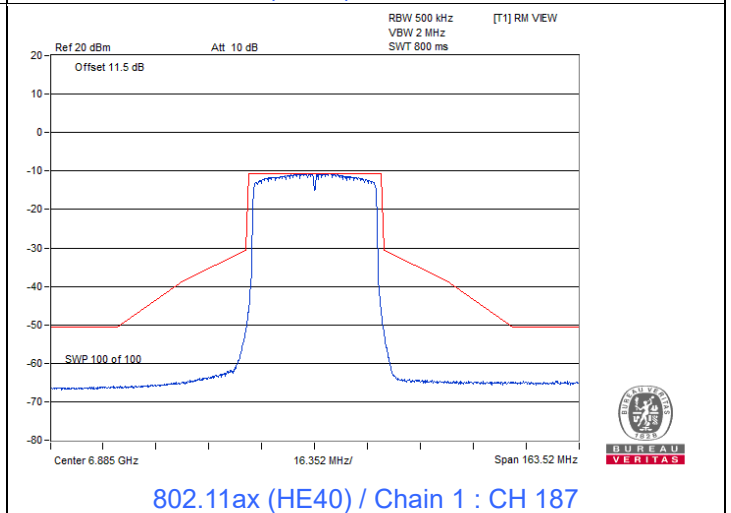
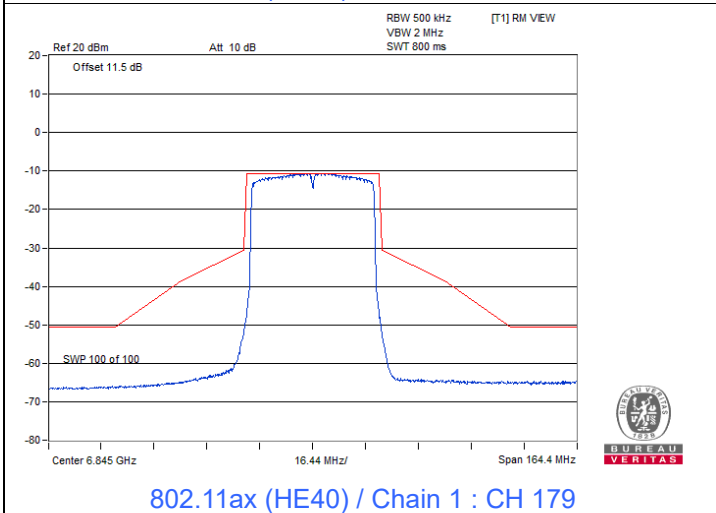
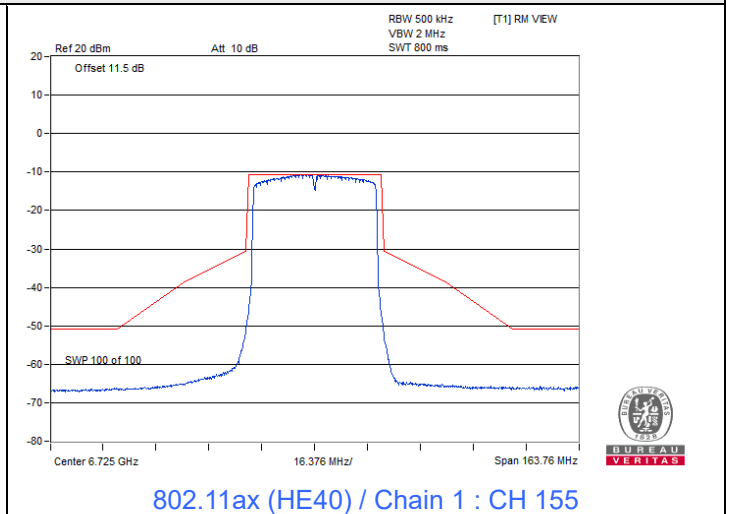
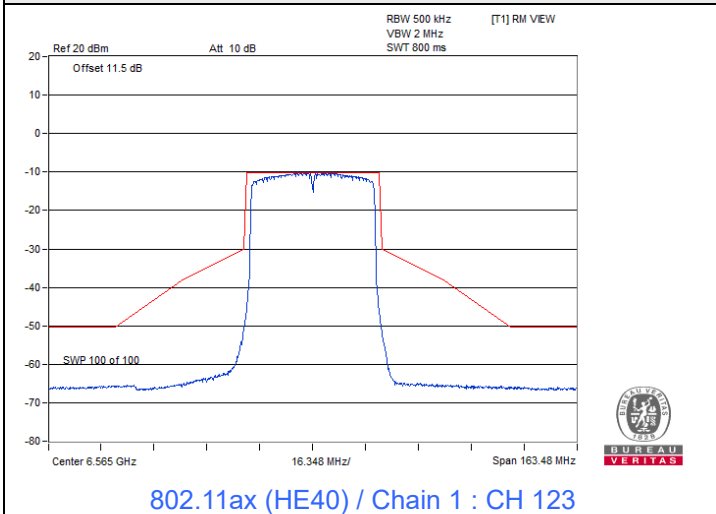
Spectrum Plot



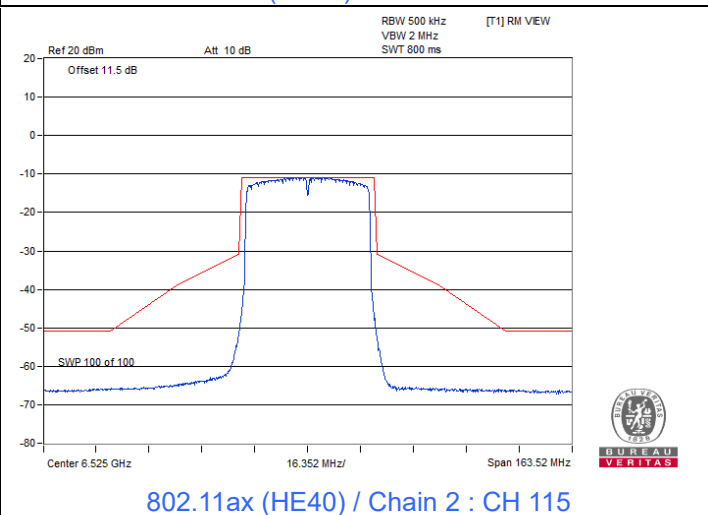
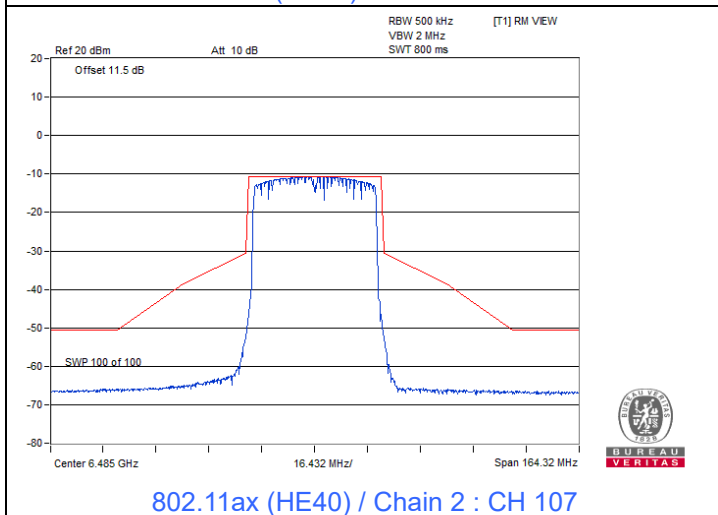
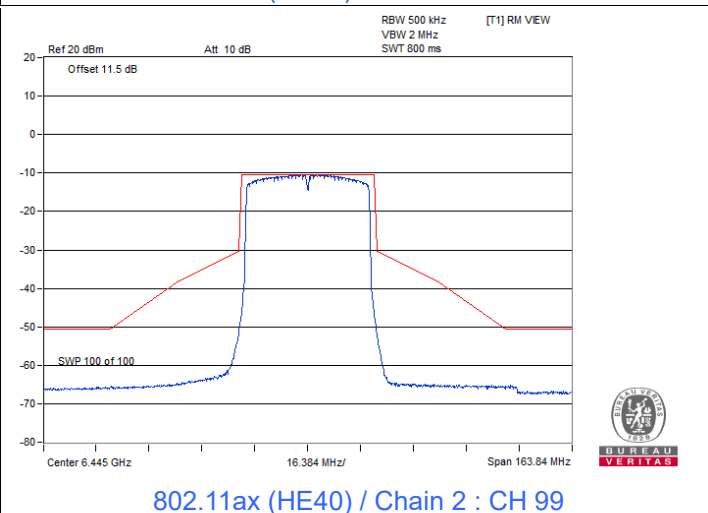
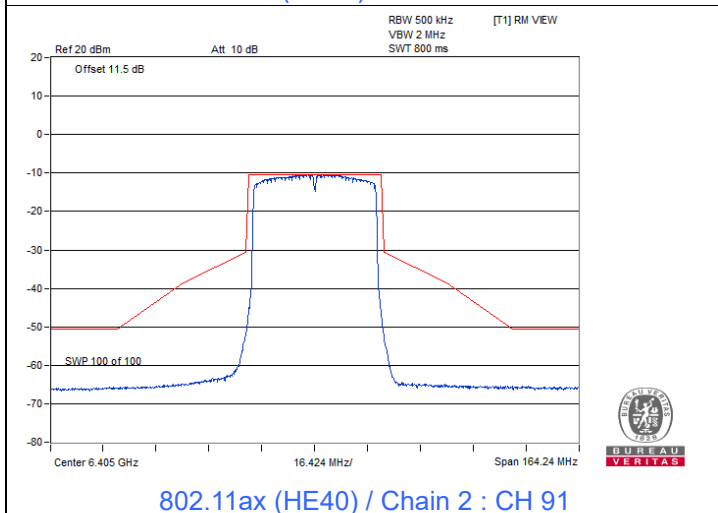
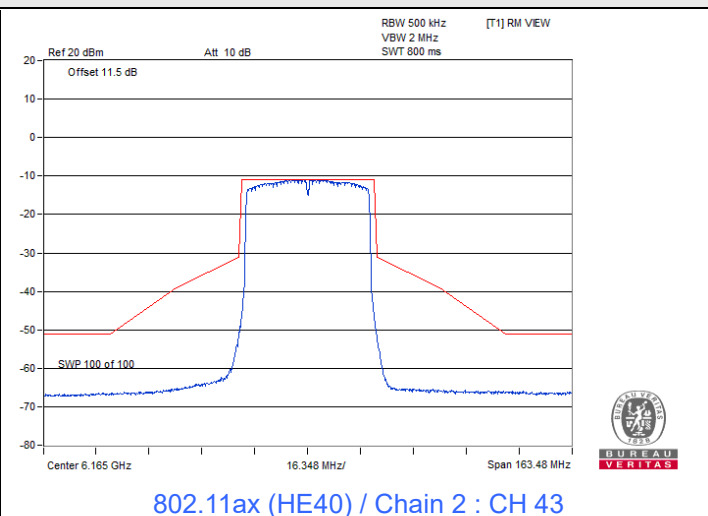
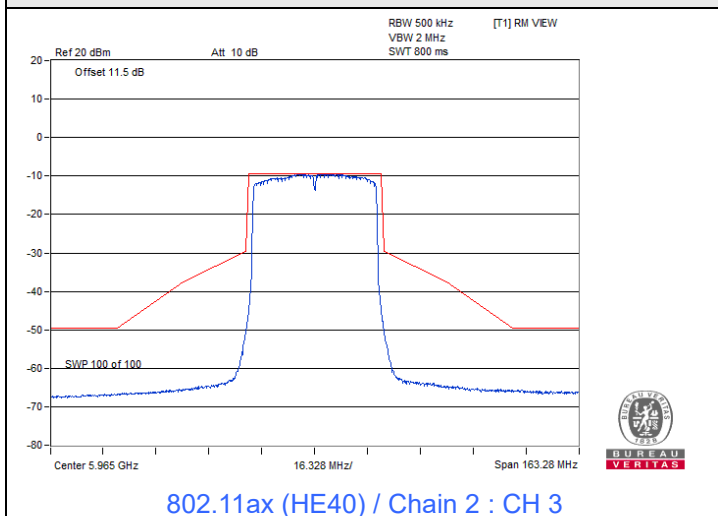
Spectrum Plot



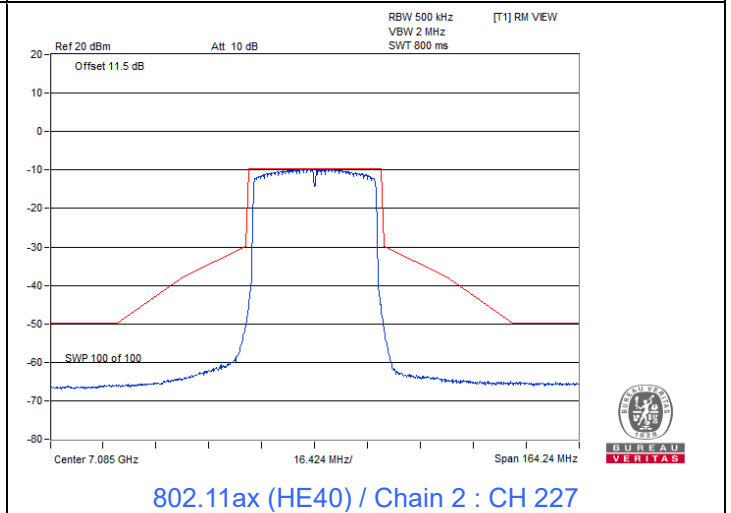
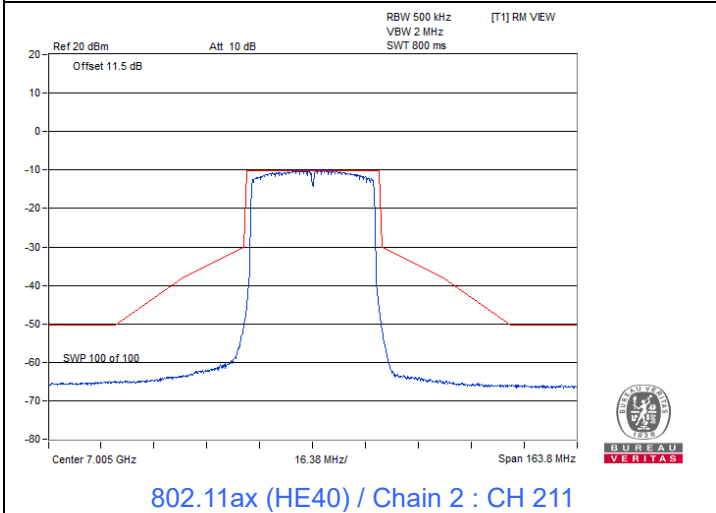
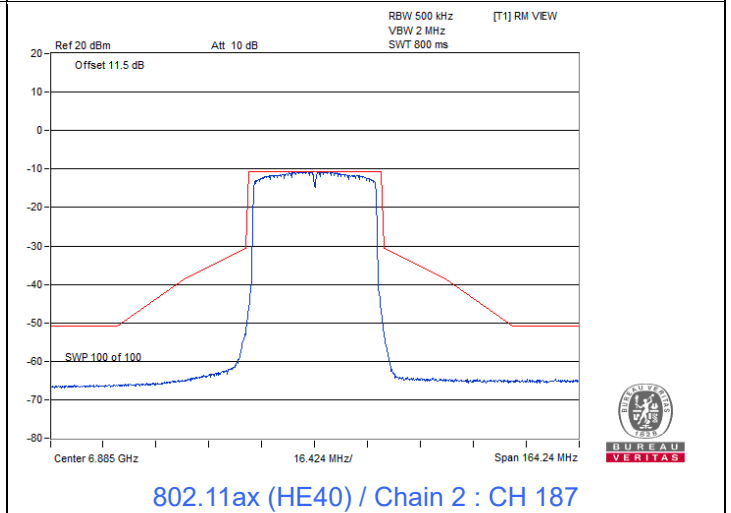
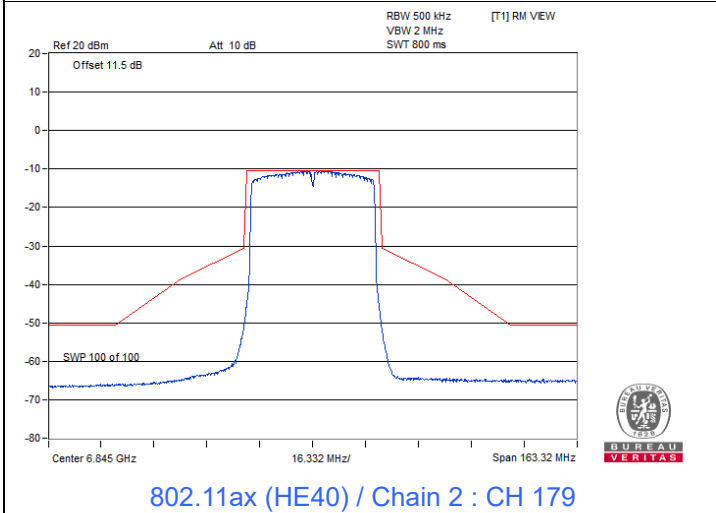
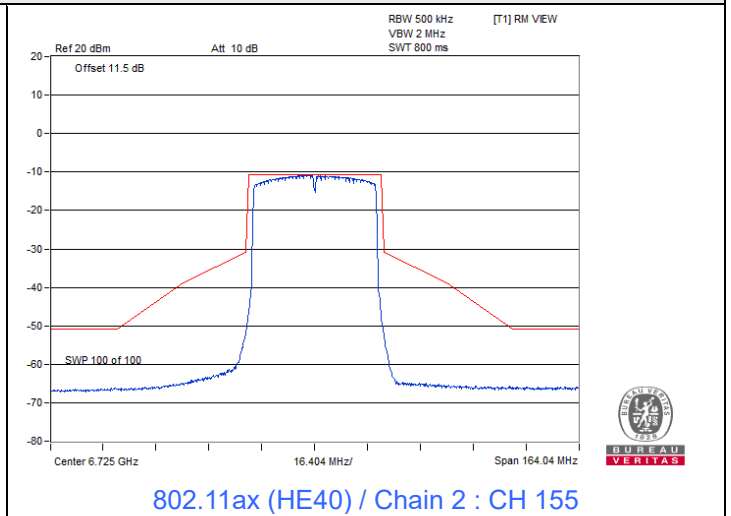
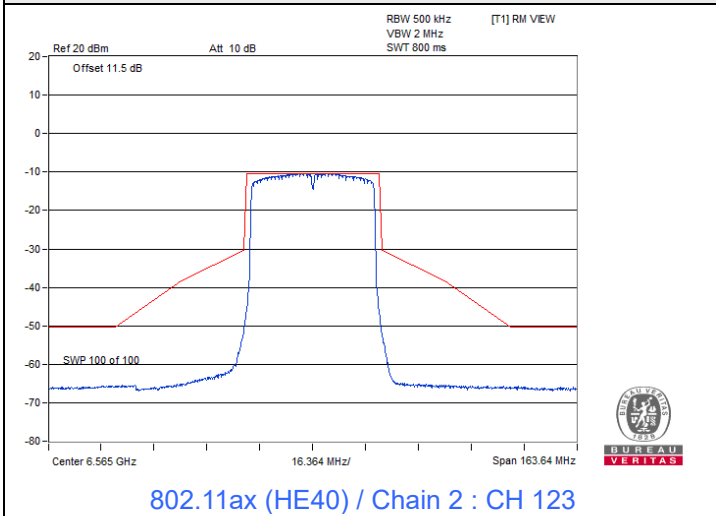
Spectrum Plot



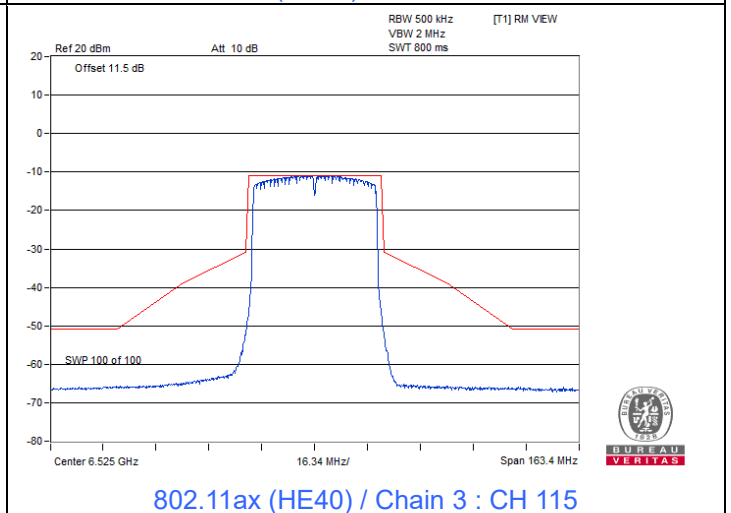
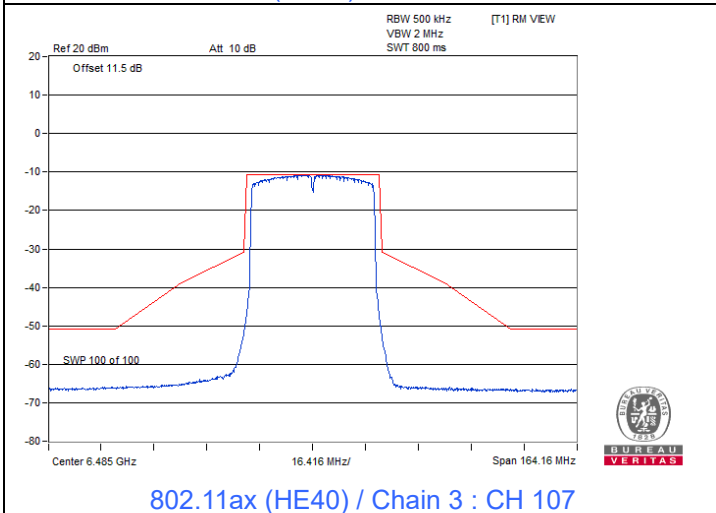
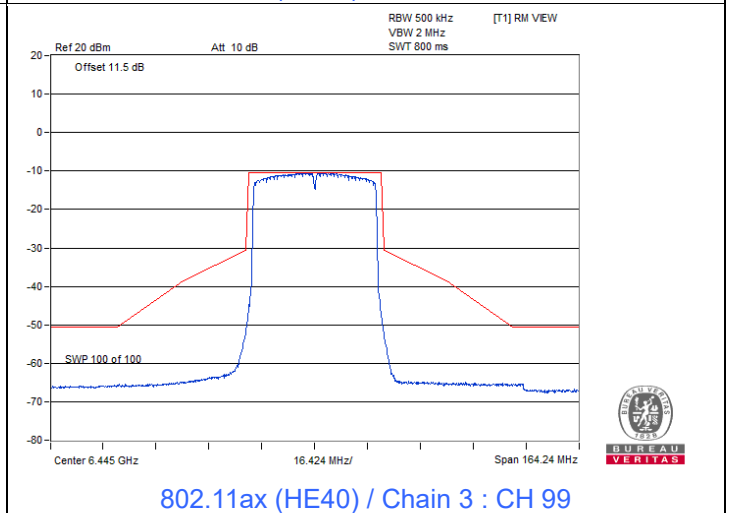
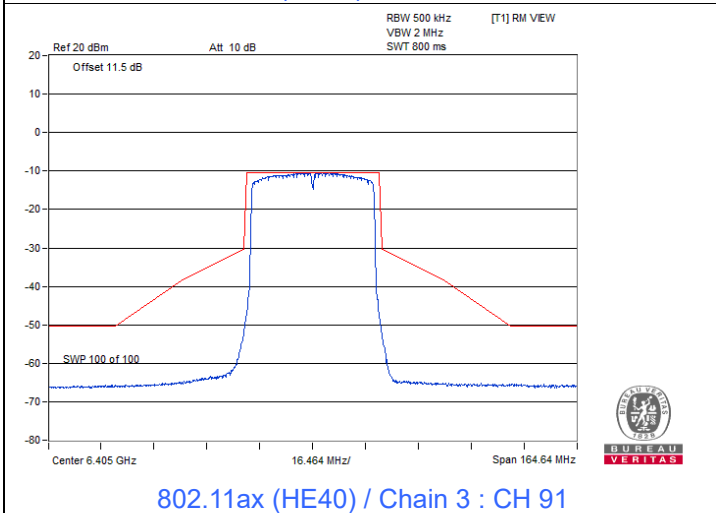
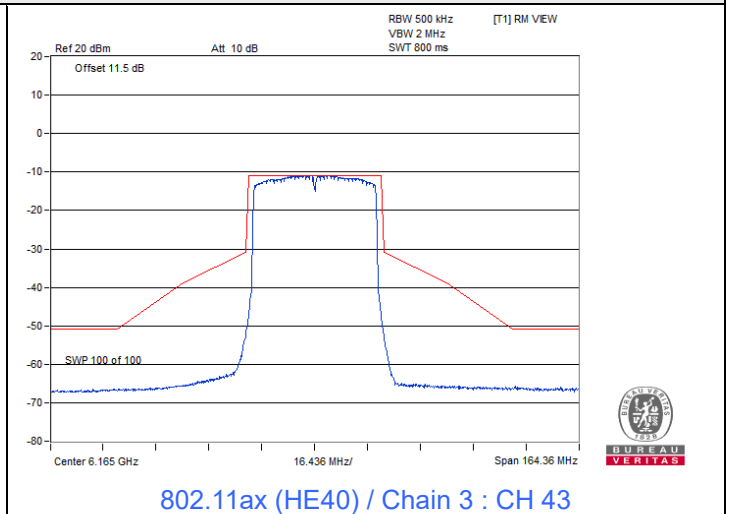
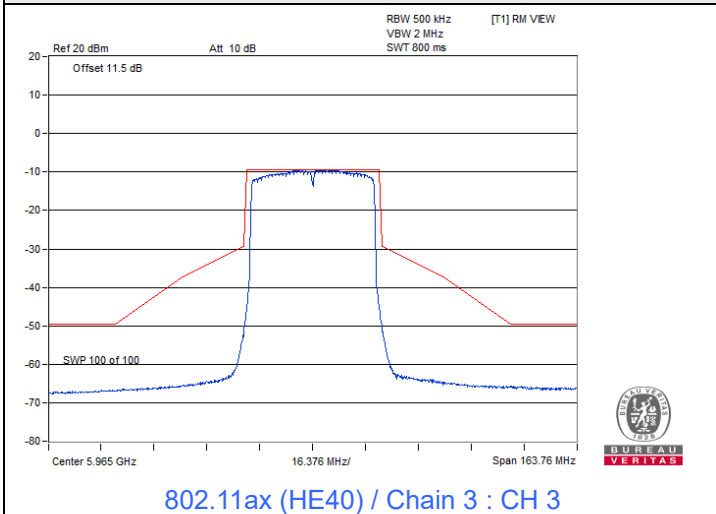
Spectrum Plot



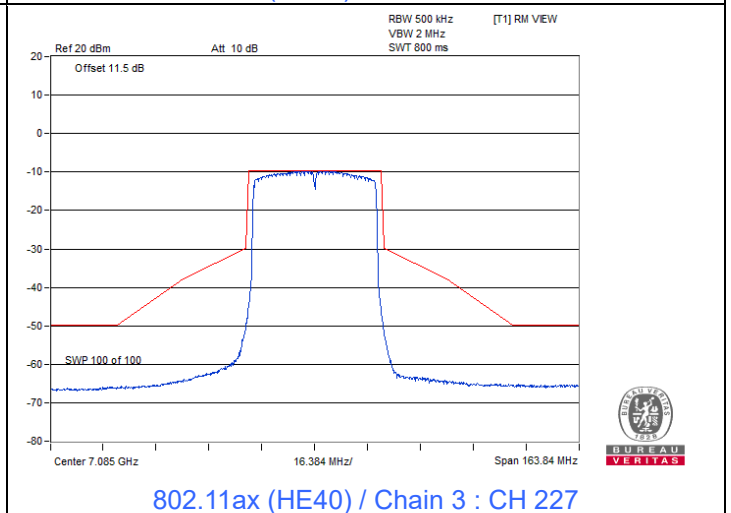
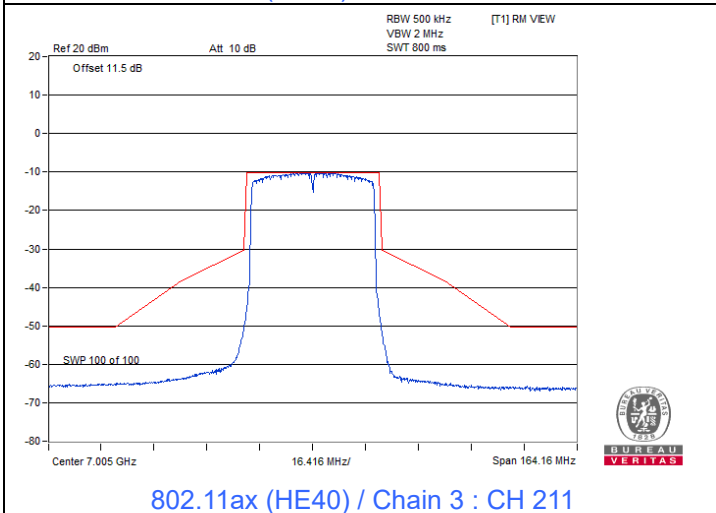
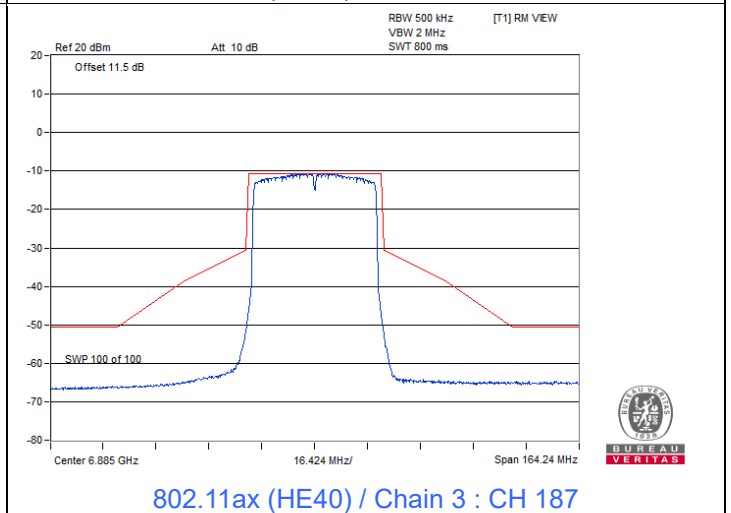
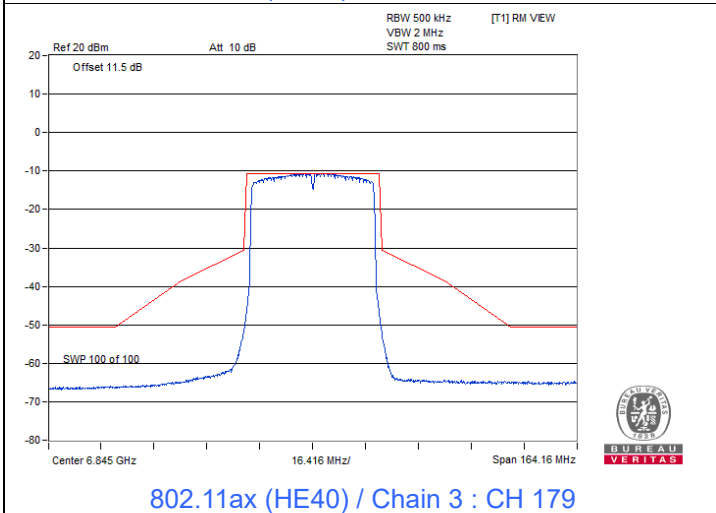
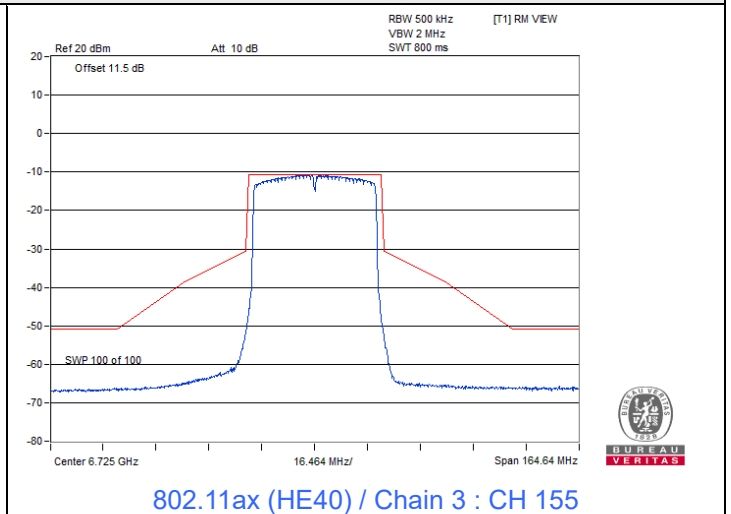
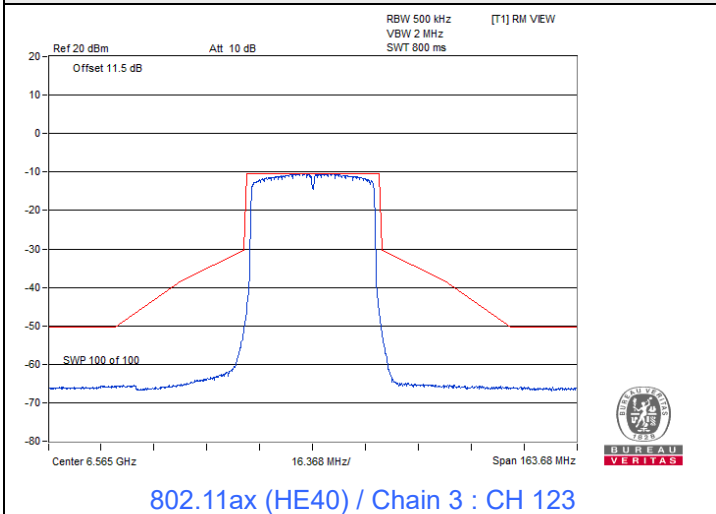
Spectrum Plot



Spectrum Plot



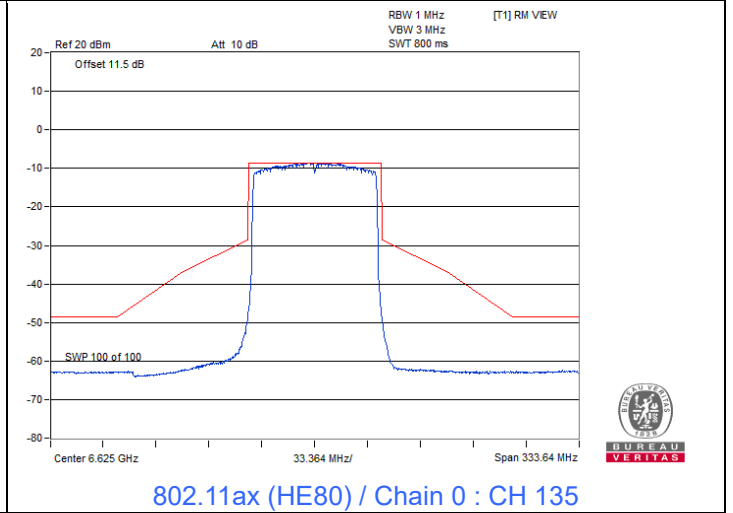
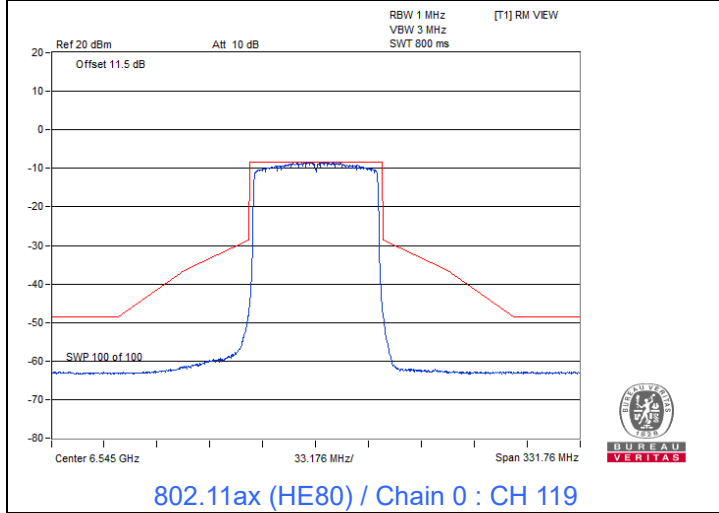
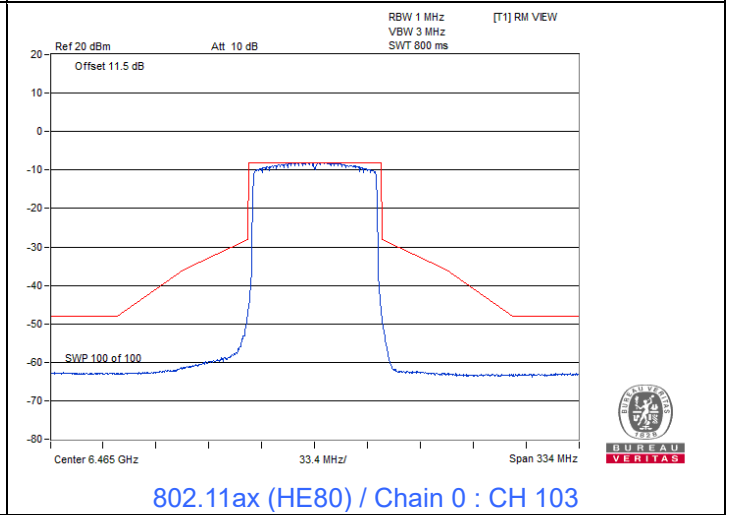
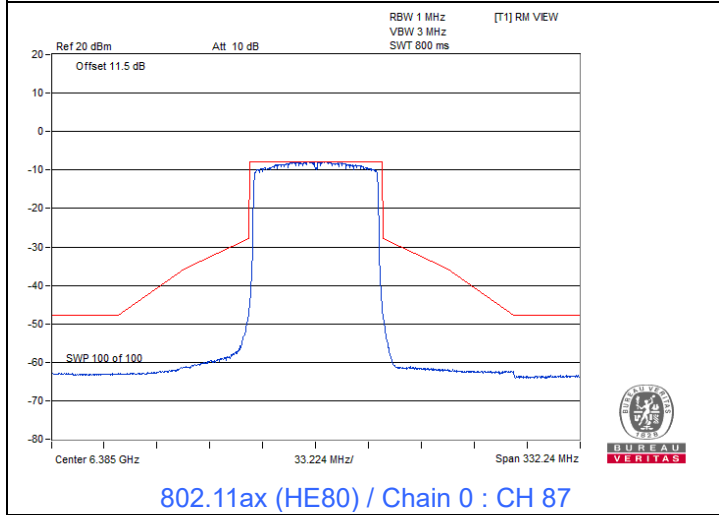
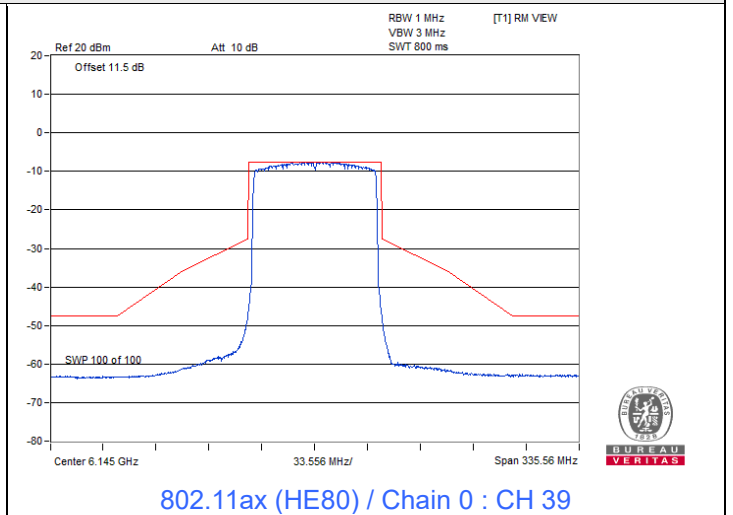
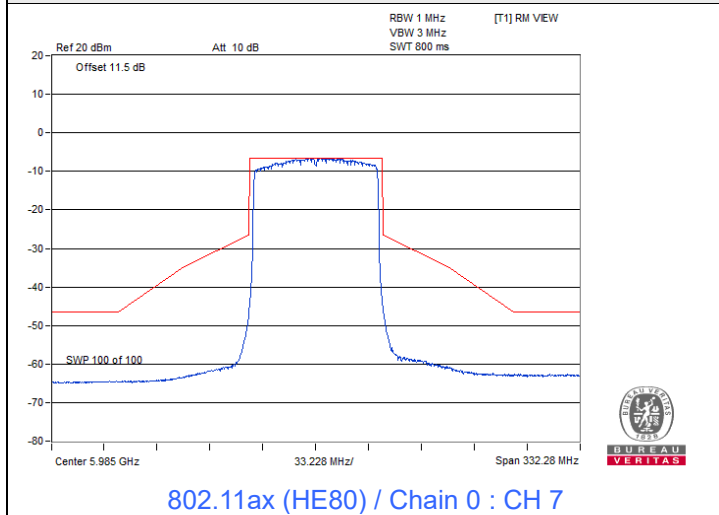
Spectrum Plot



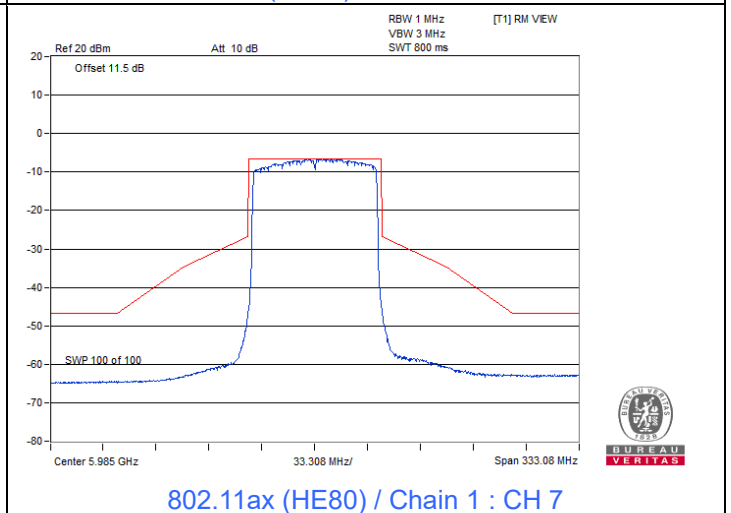
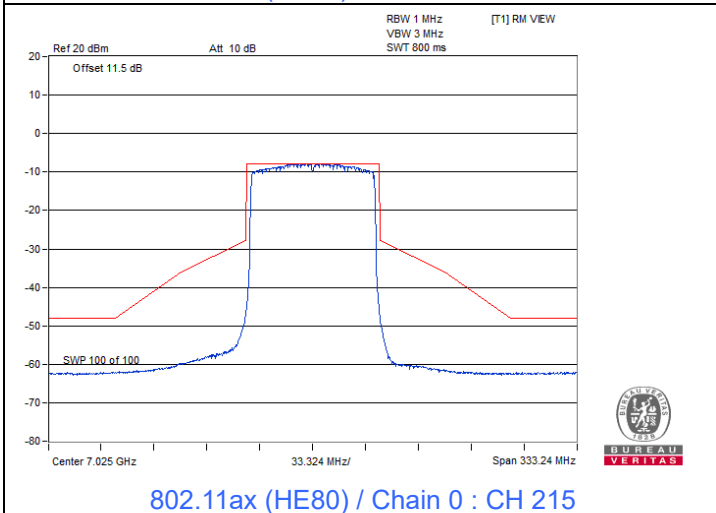
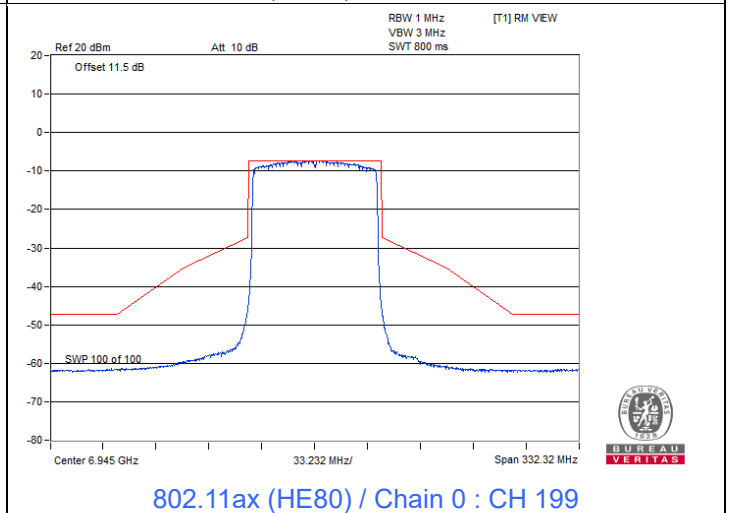
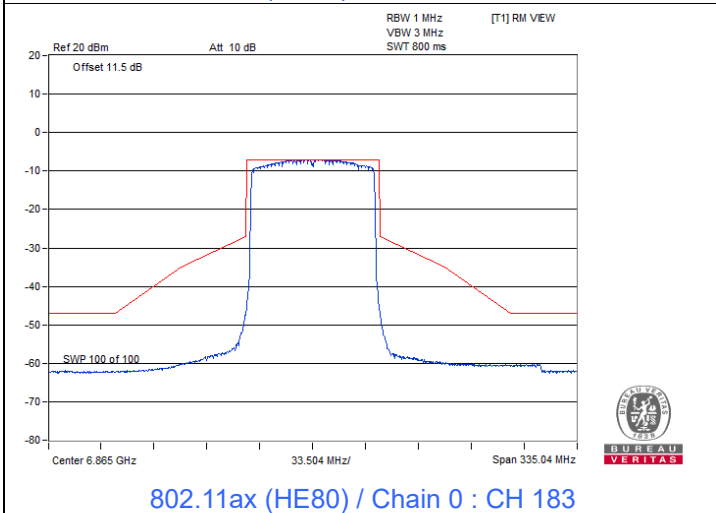
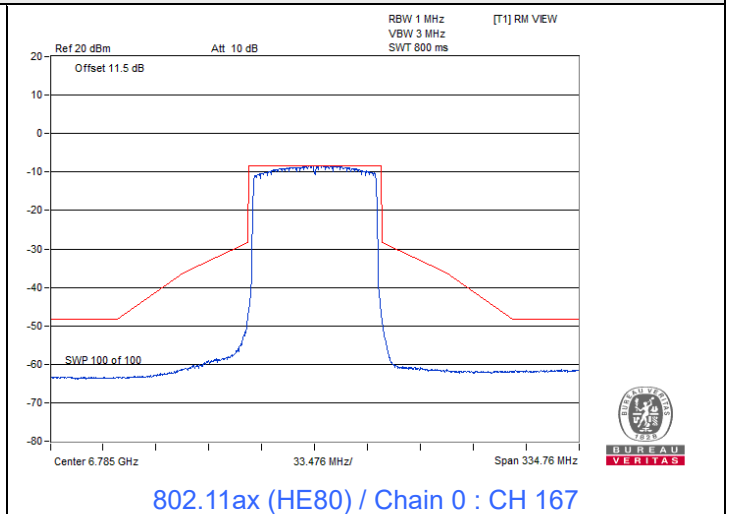
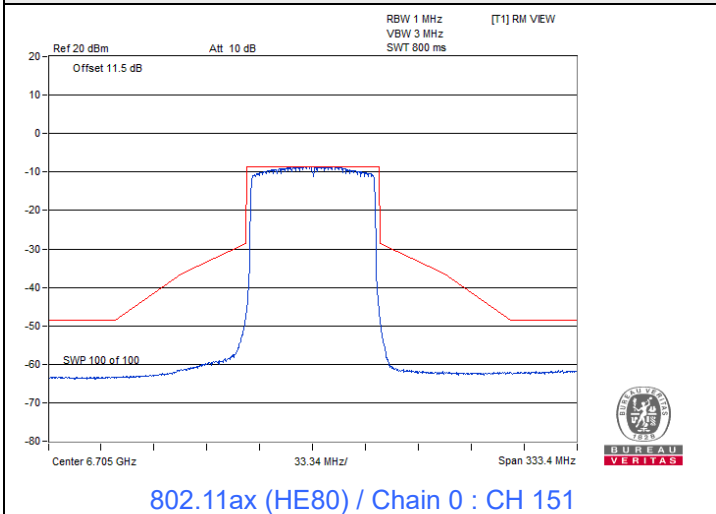


802.11ax (HE80)

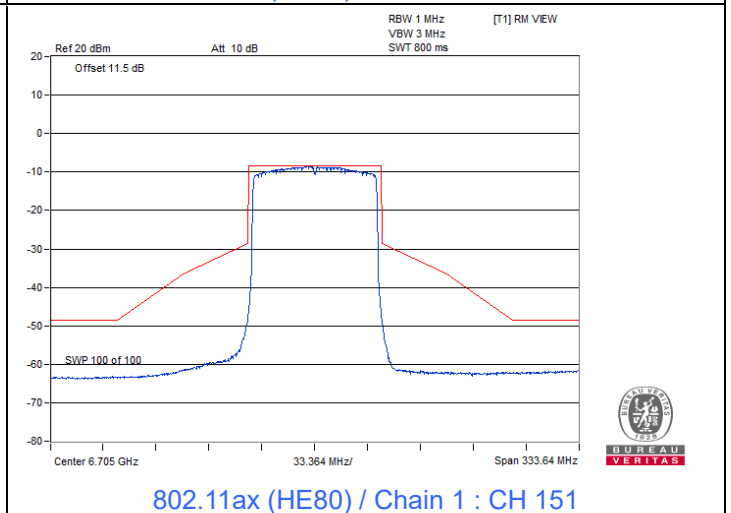
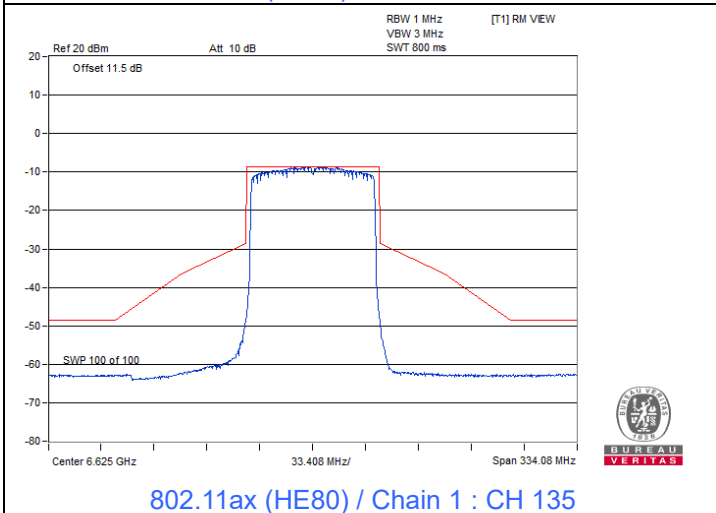
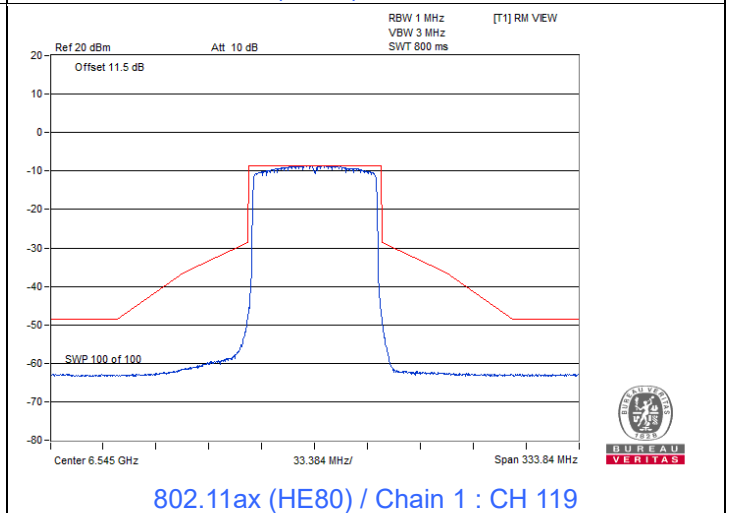
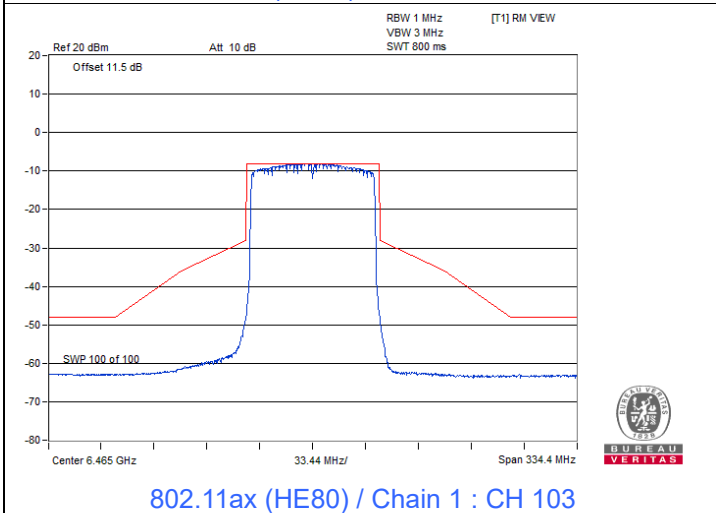
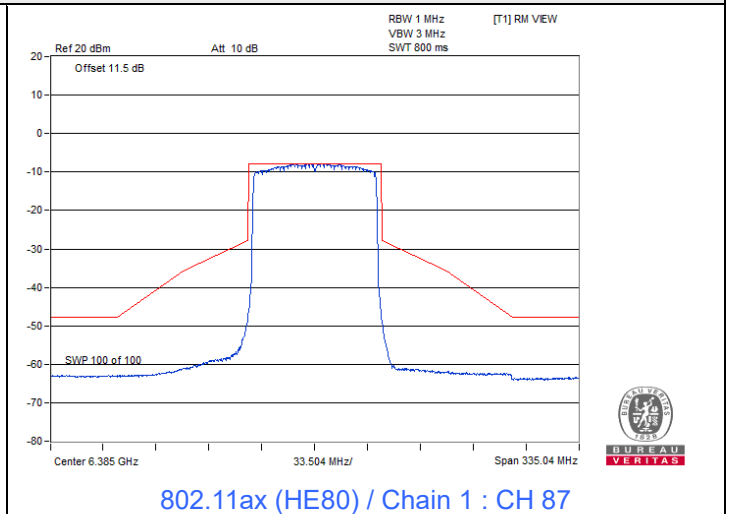
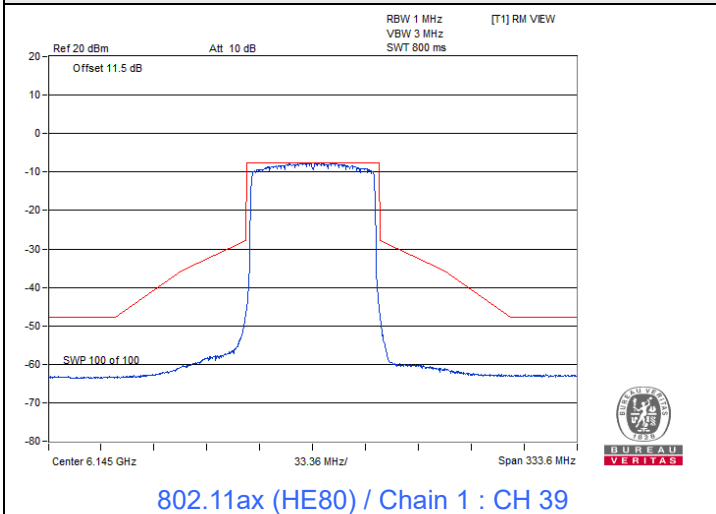
Spectrum Plot



Spectrum Plot

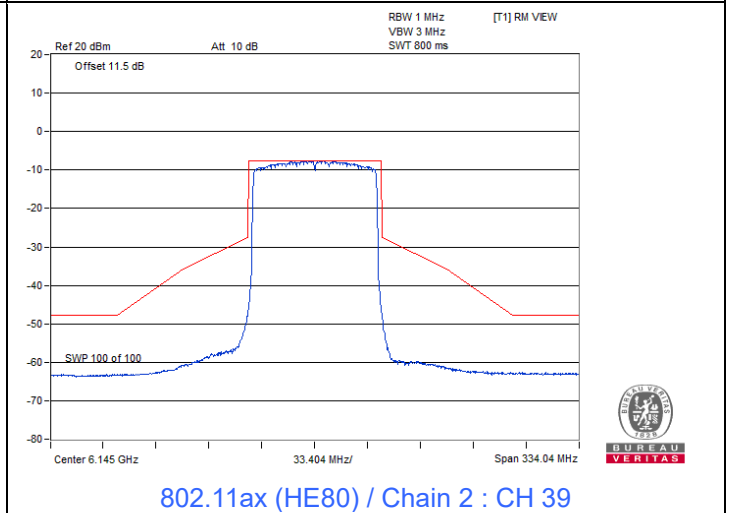
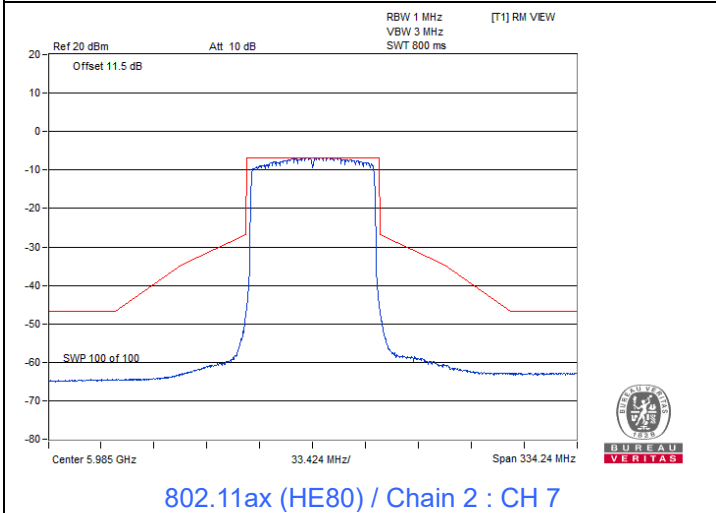
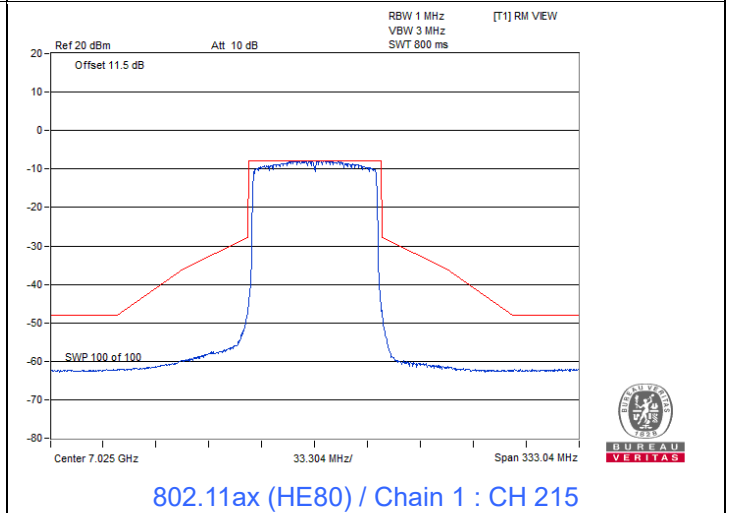
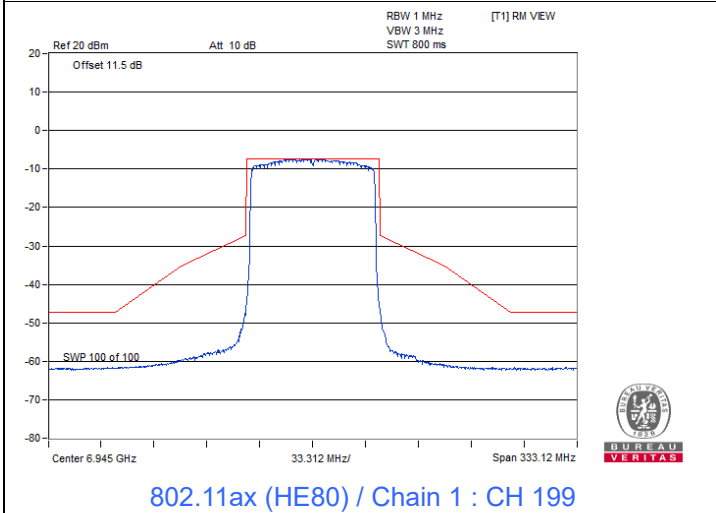
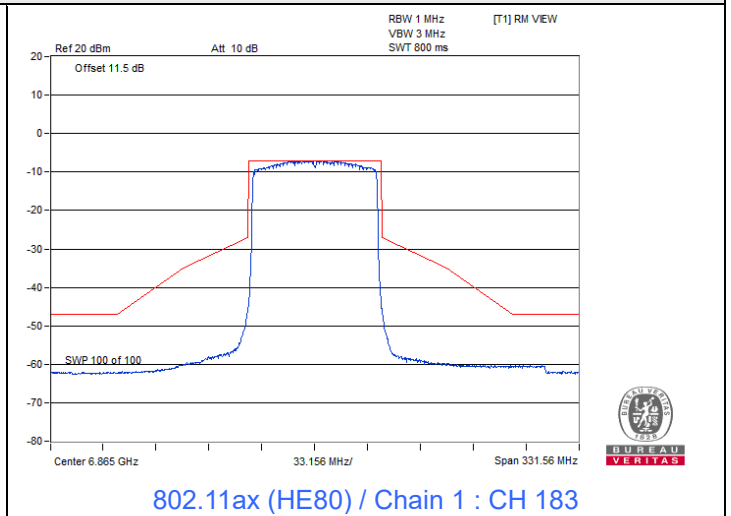
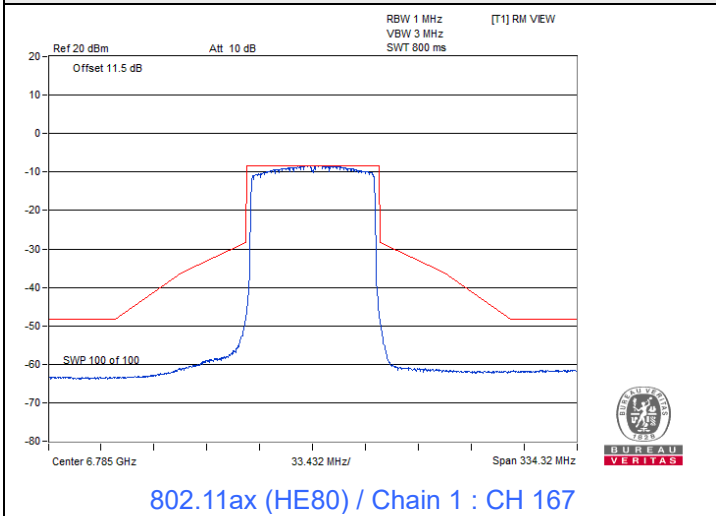


Spectrum Plot

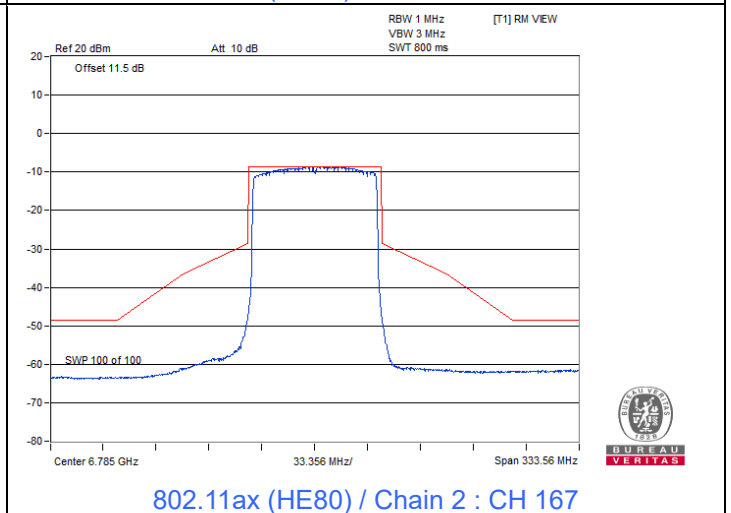
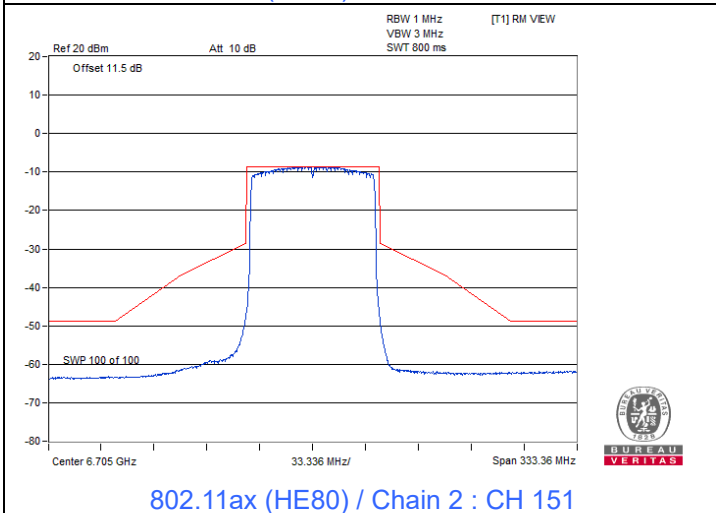
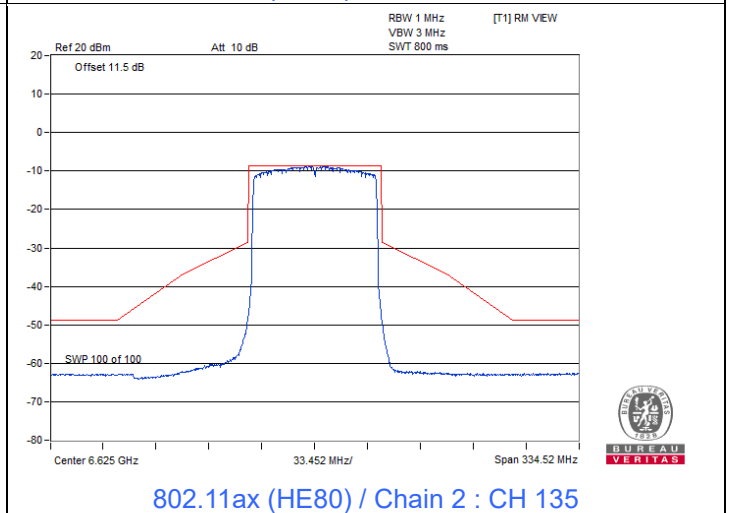
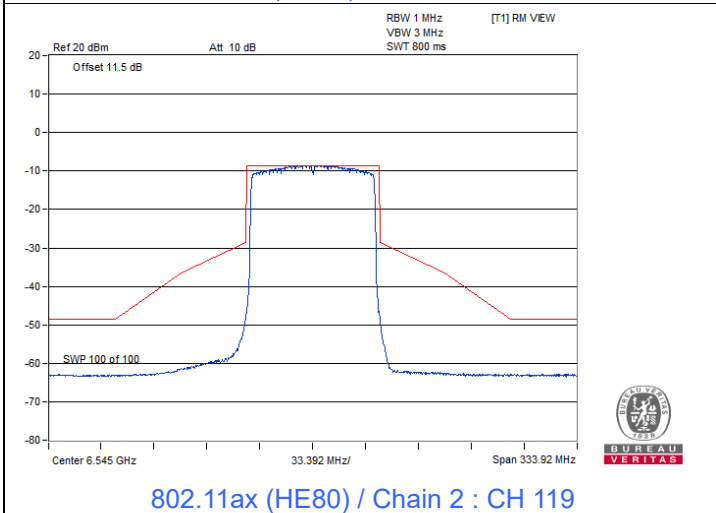
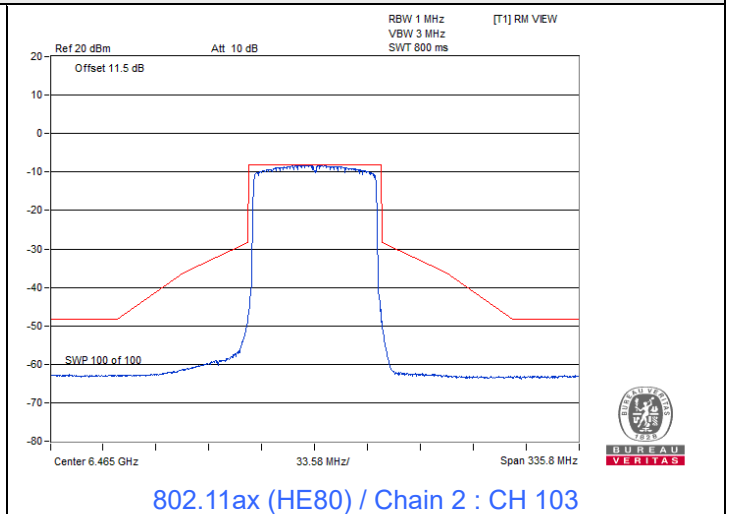
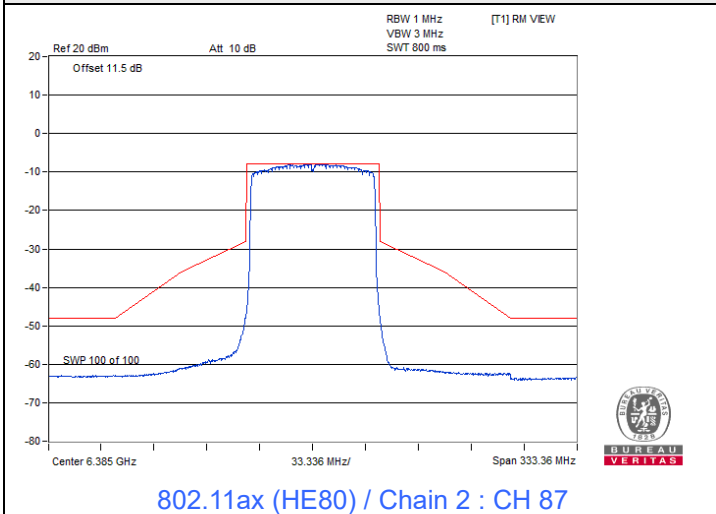




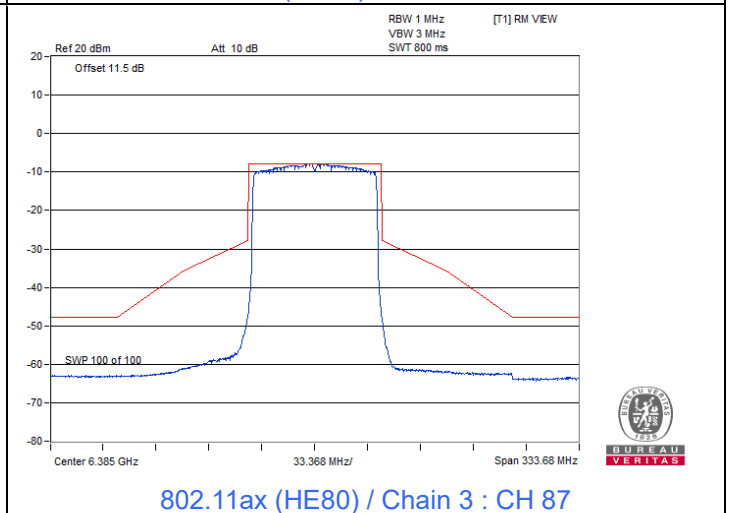
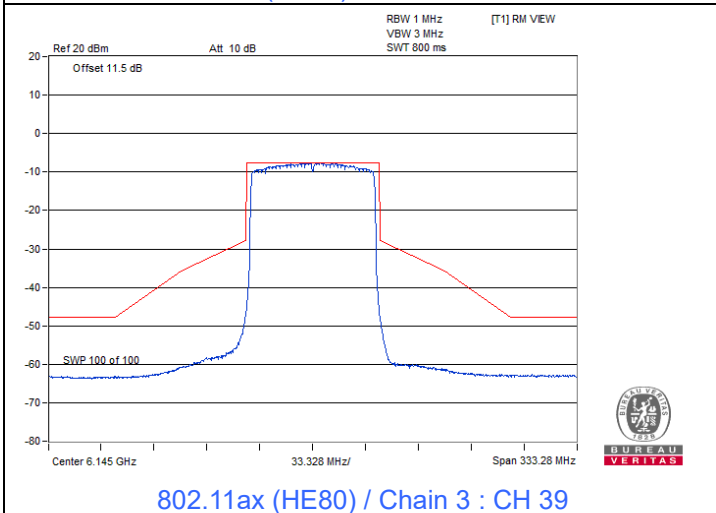
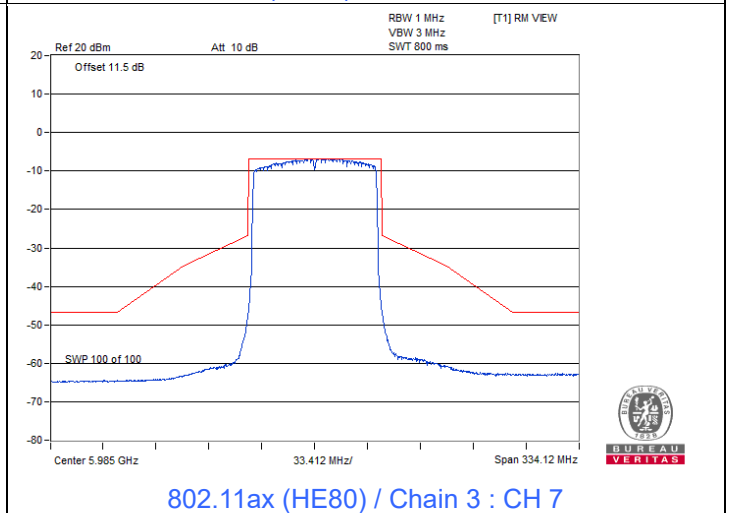
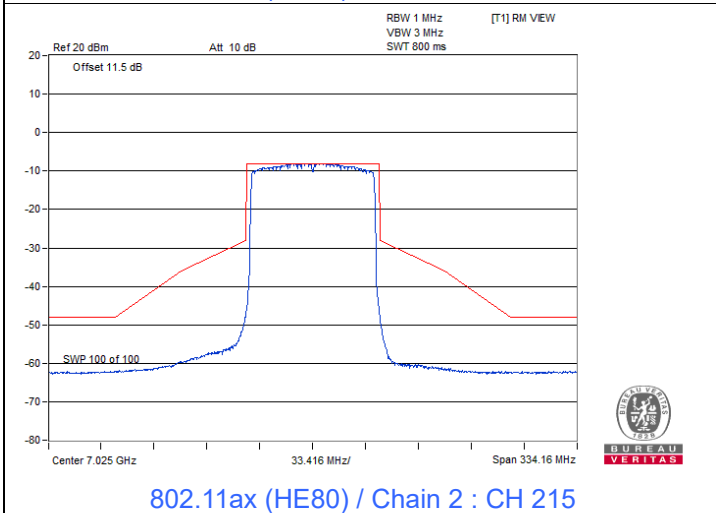
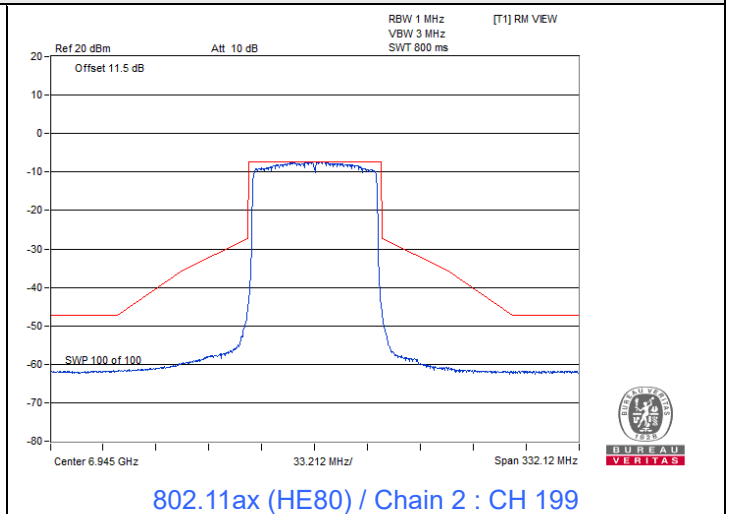
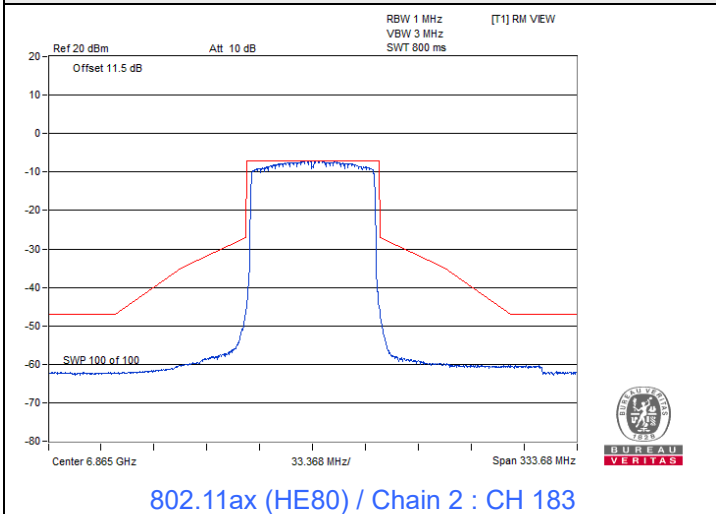
Spectrum Plot



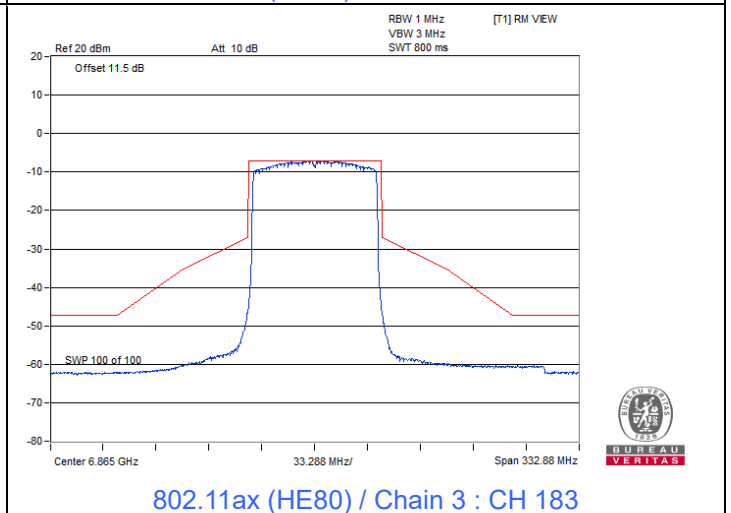
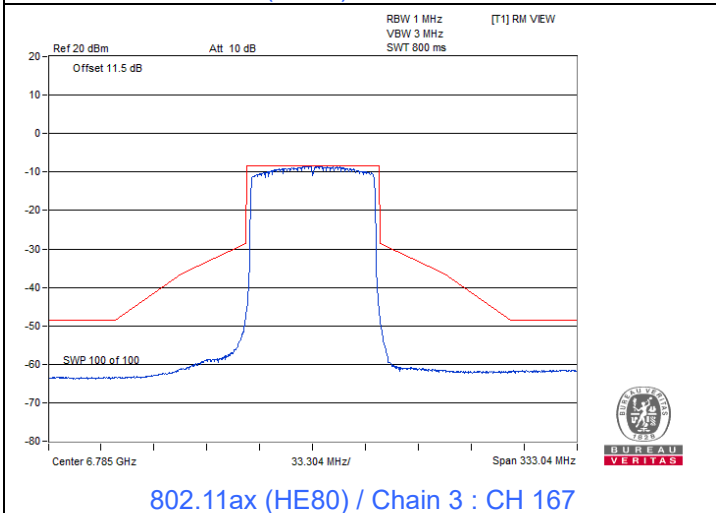
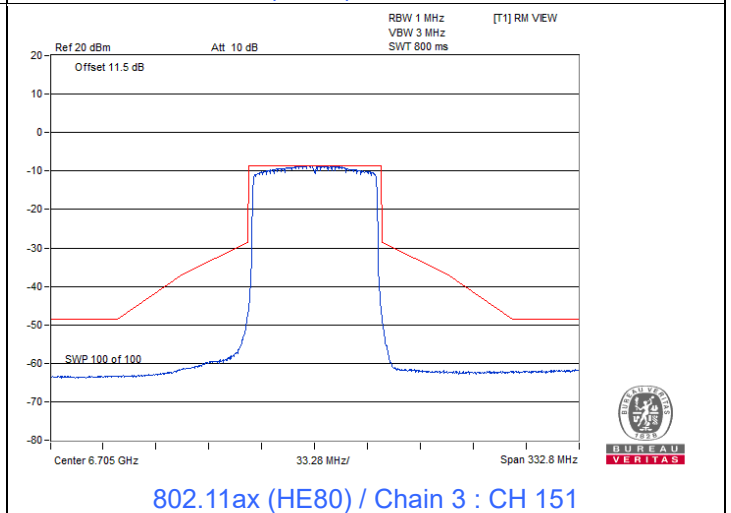
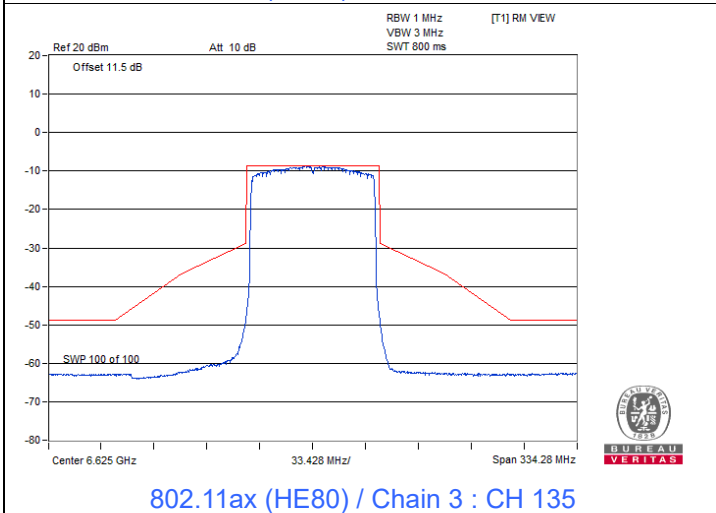
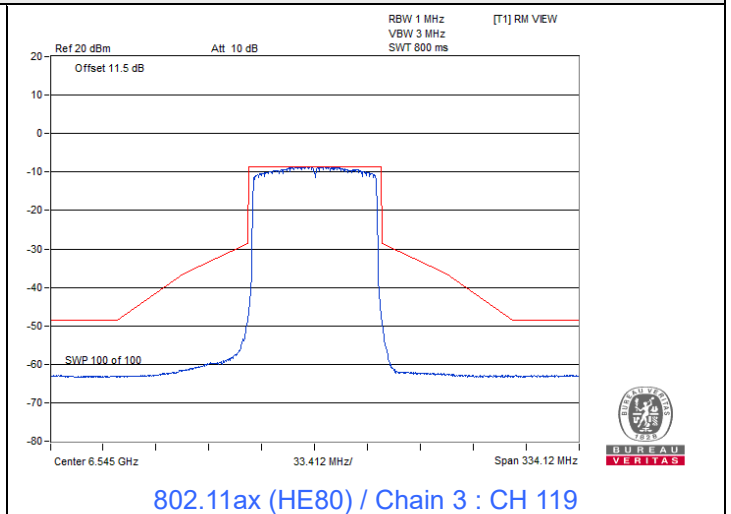
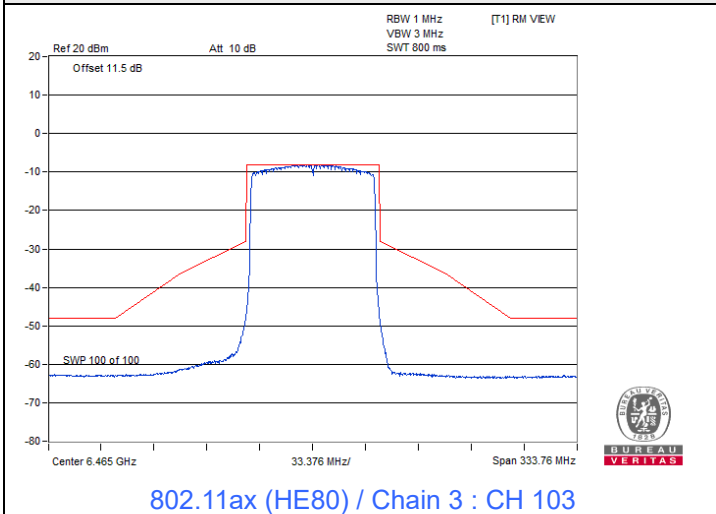
Spectrum Plot



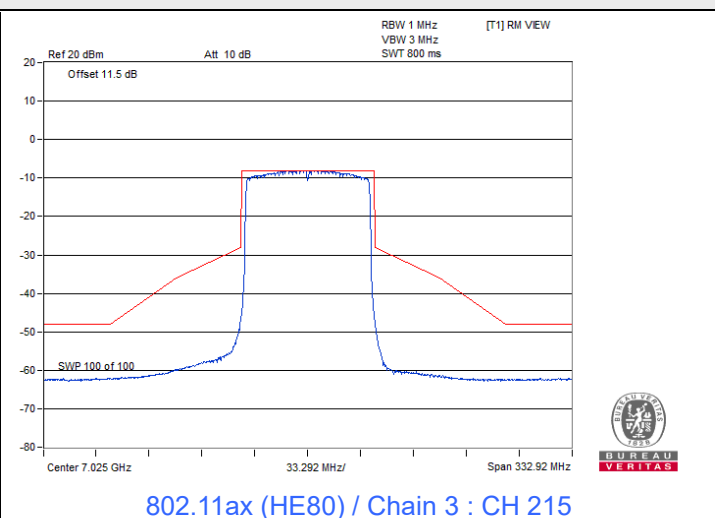
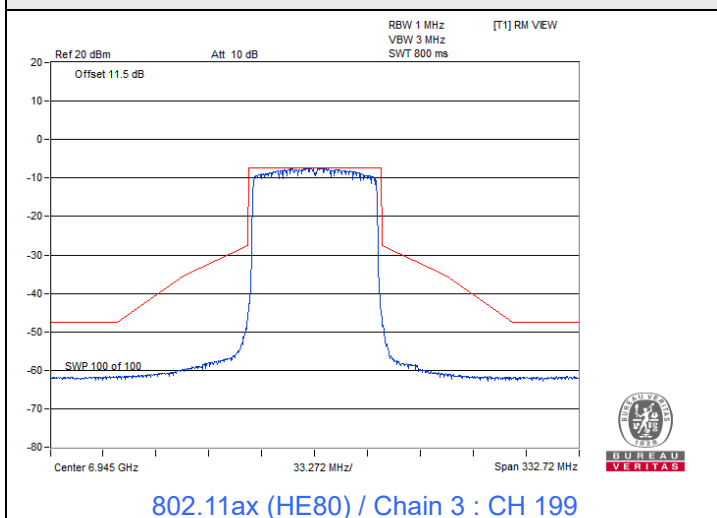
Spectrum Plot



Spectrum Plot

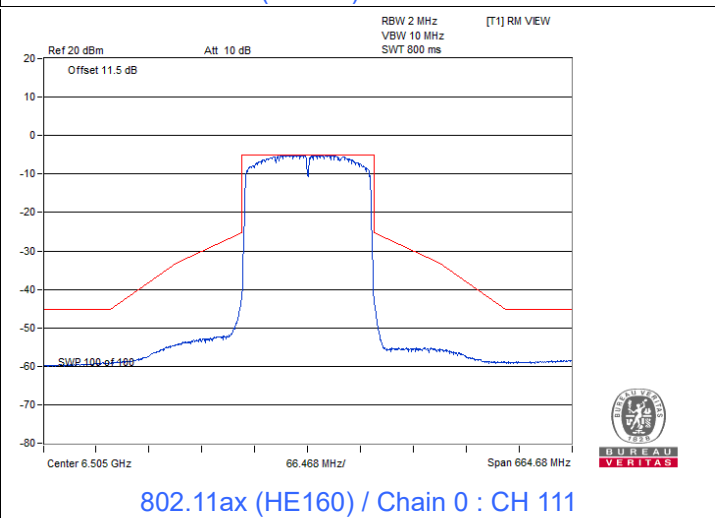
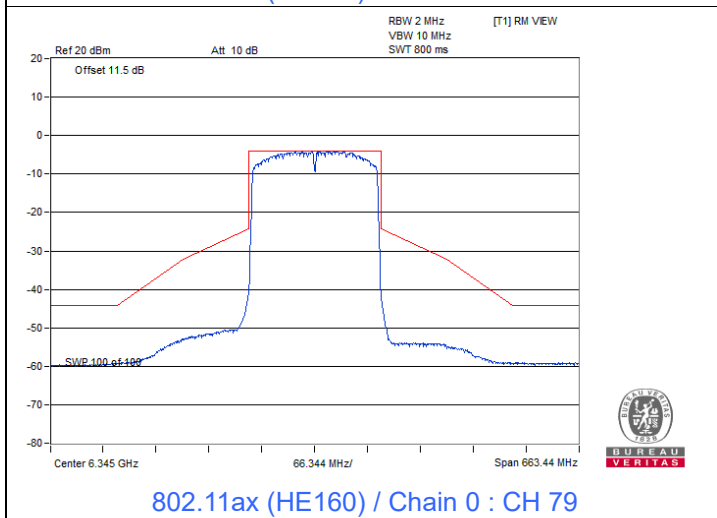
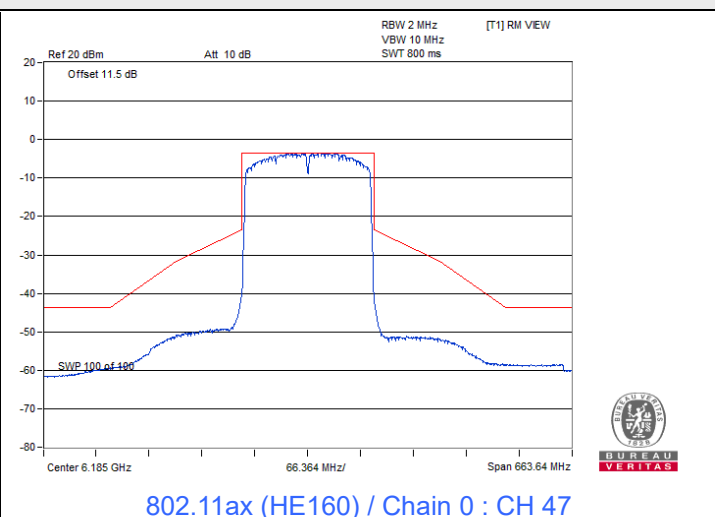
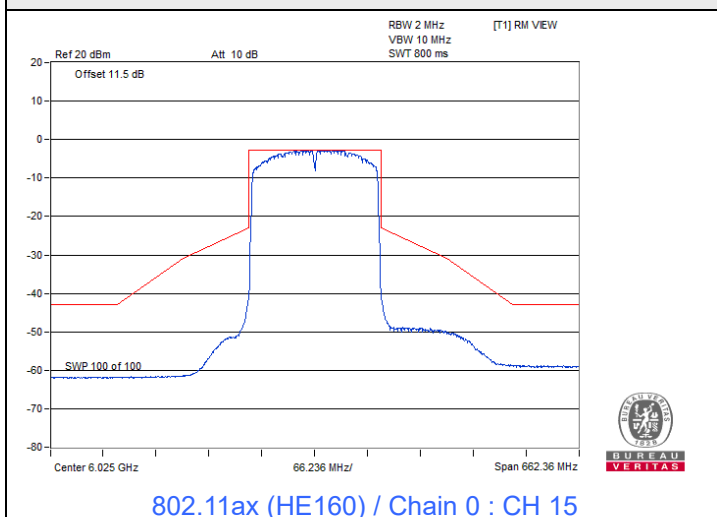


Spectrum Plot

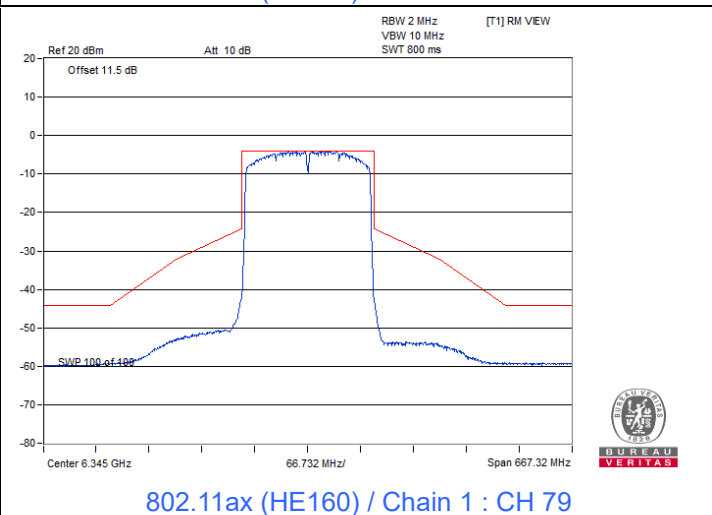
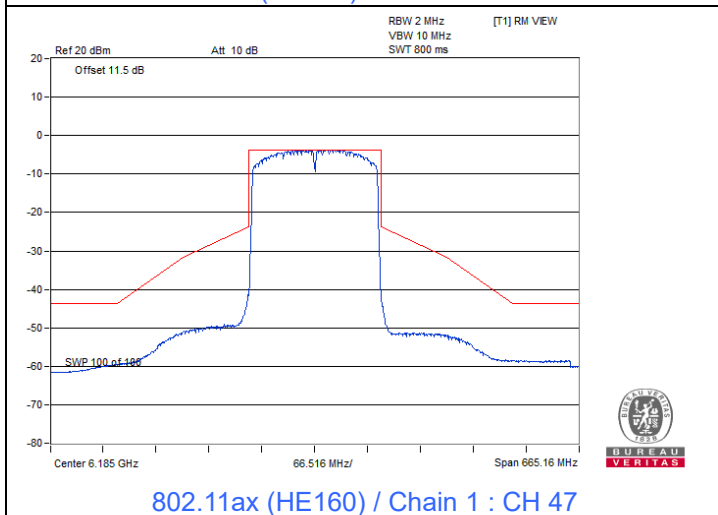
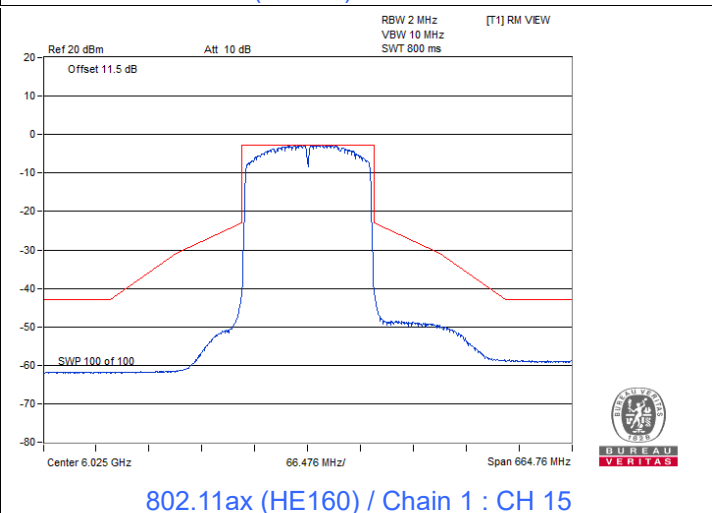
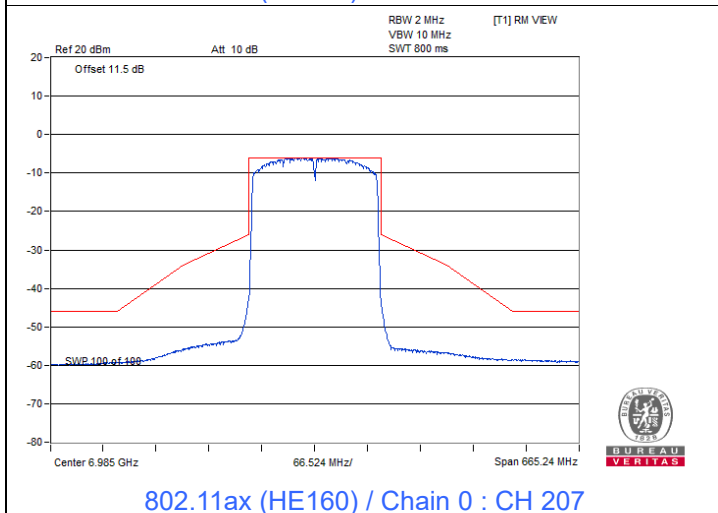
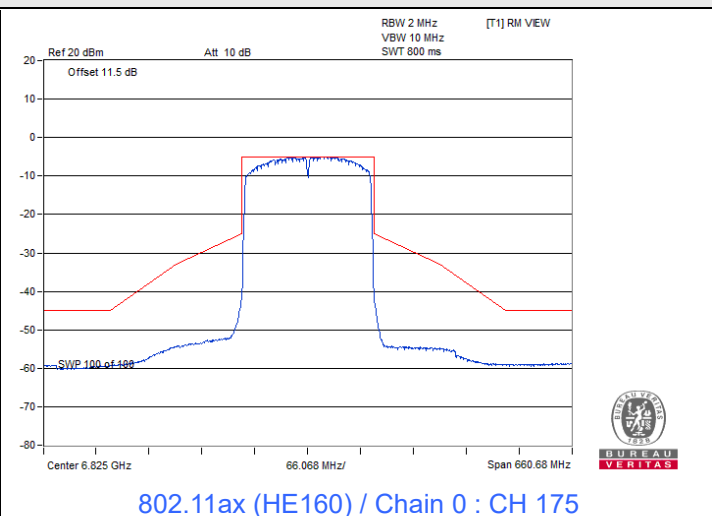
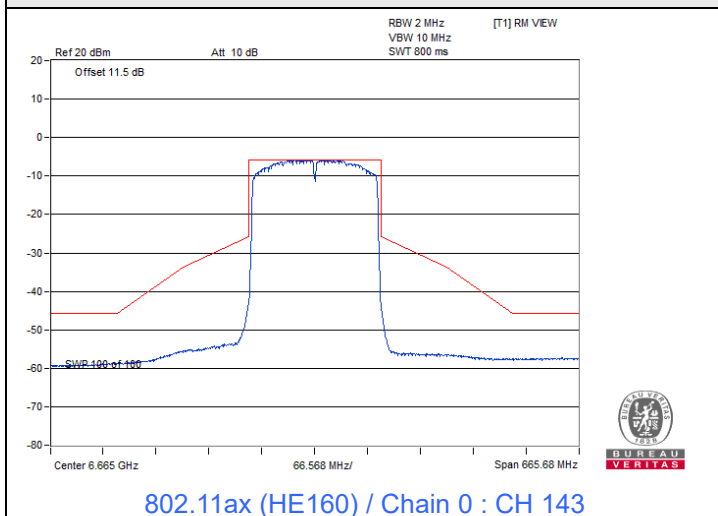


802.11ax (HE160)

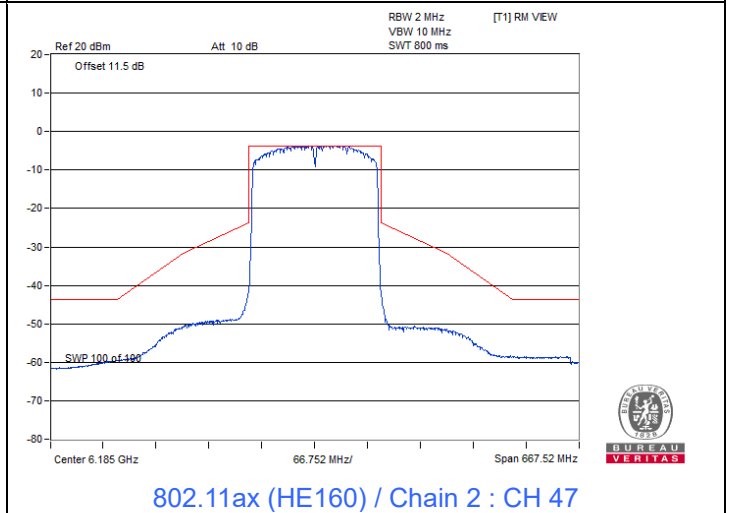
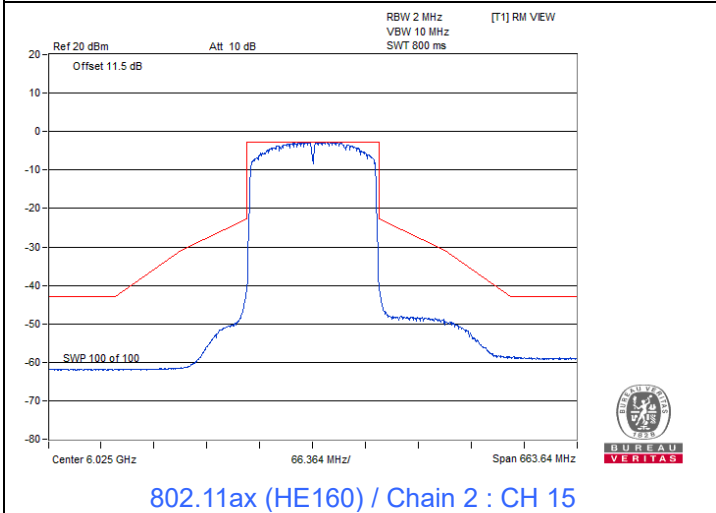
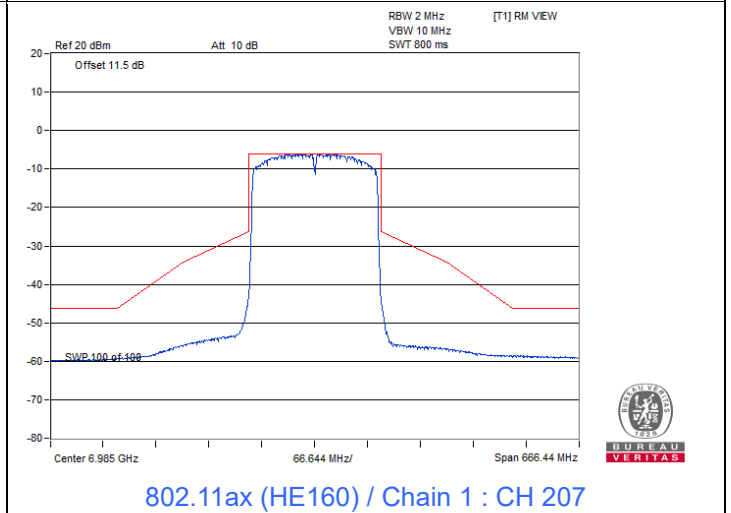
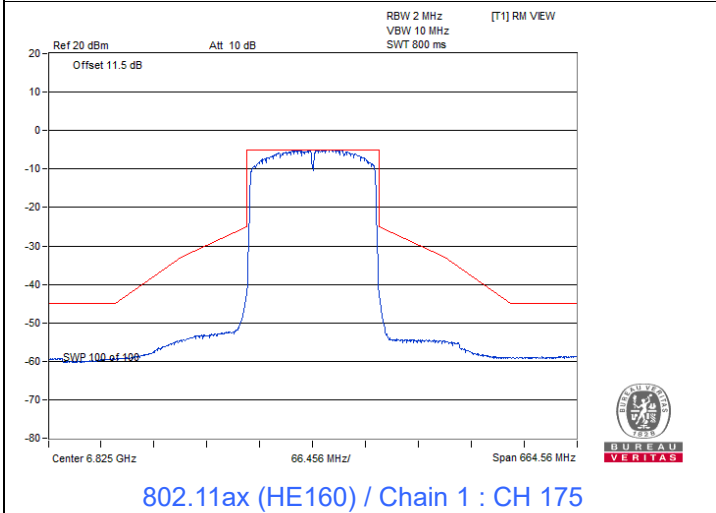
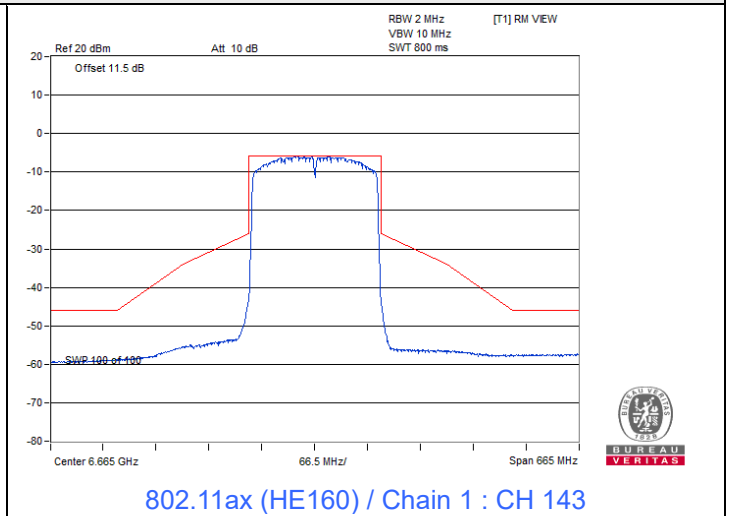
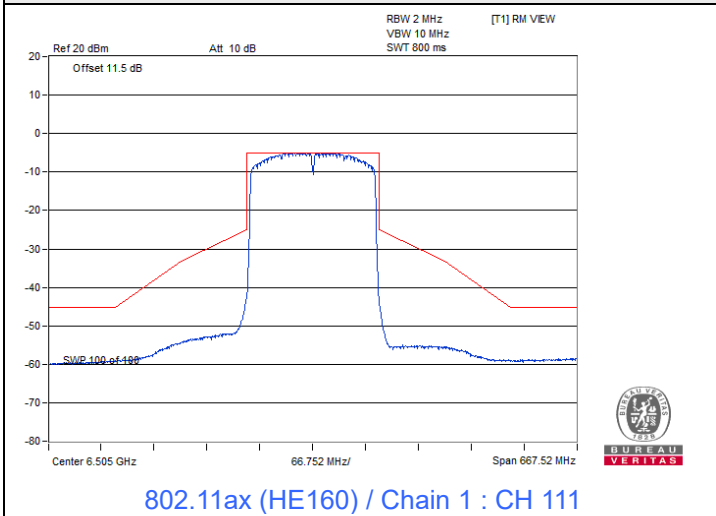
Spectrum Plot



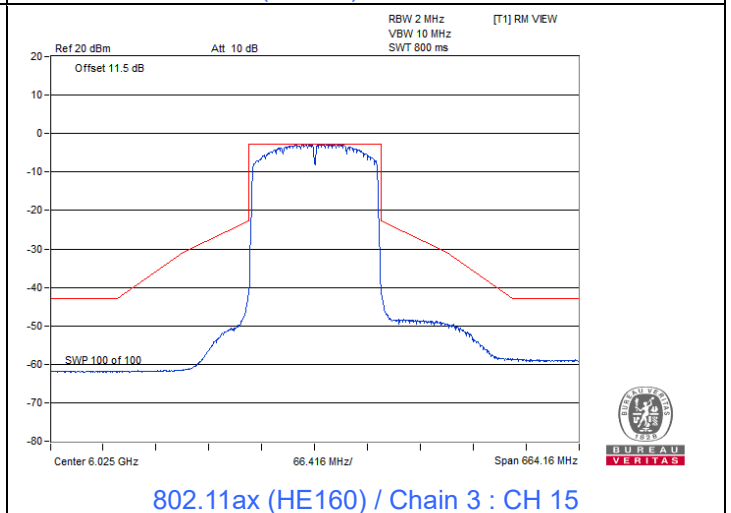
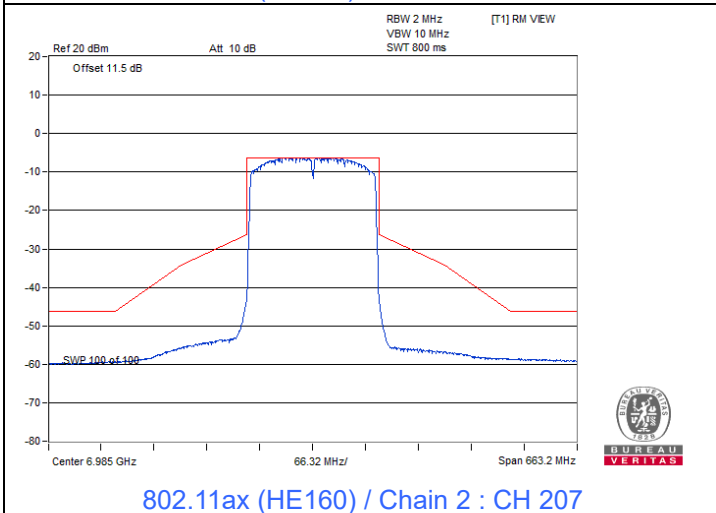
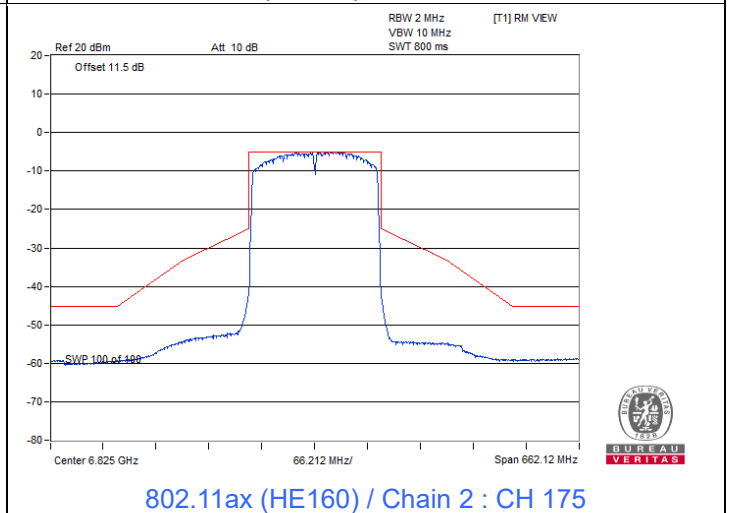
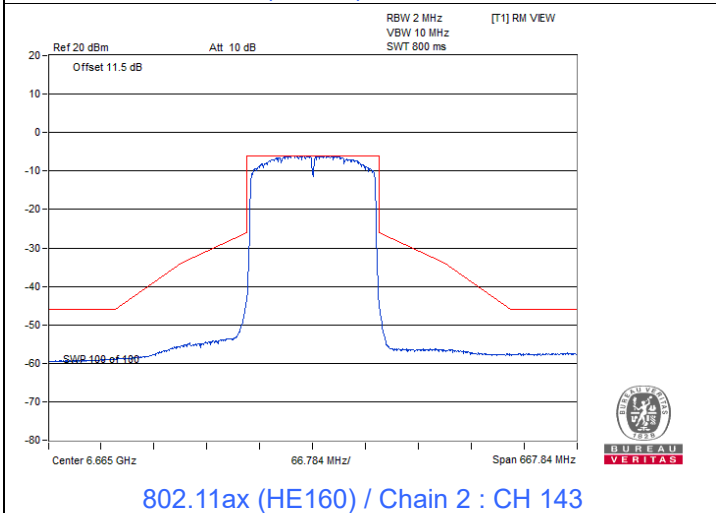
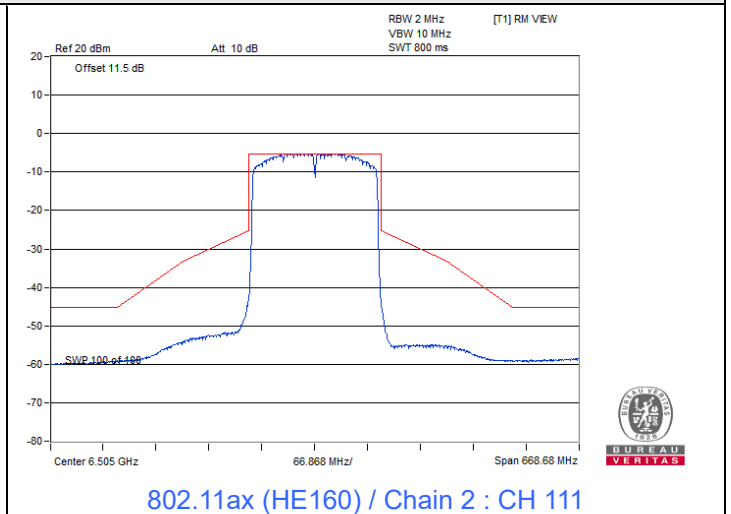
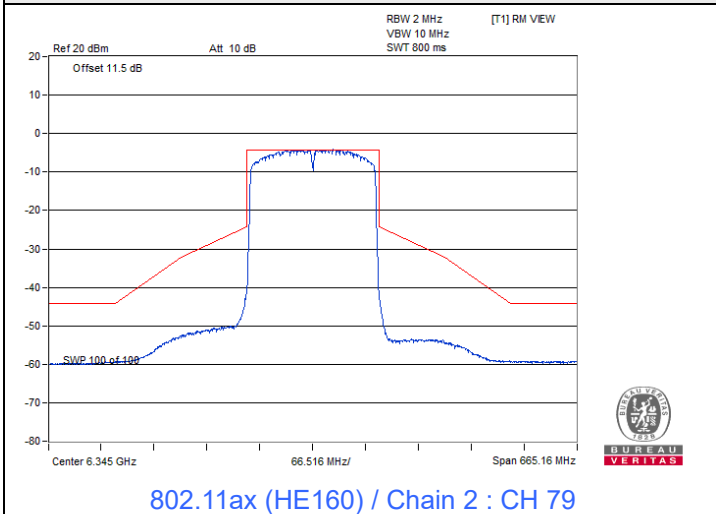
Spectrum Plot



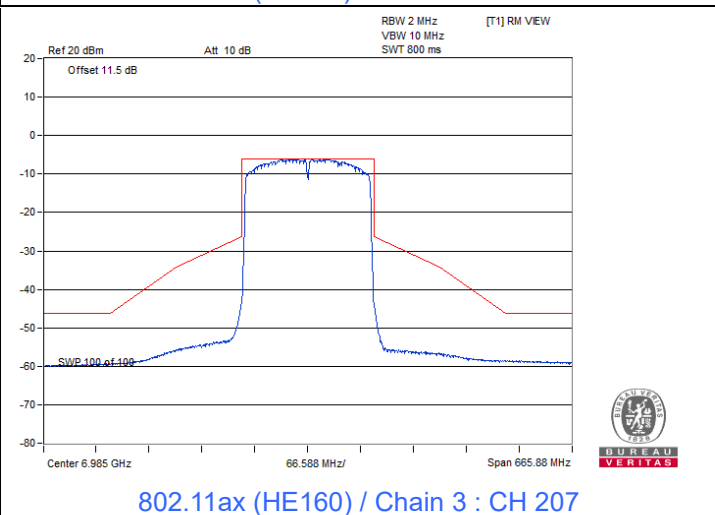
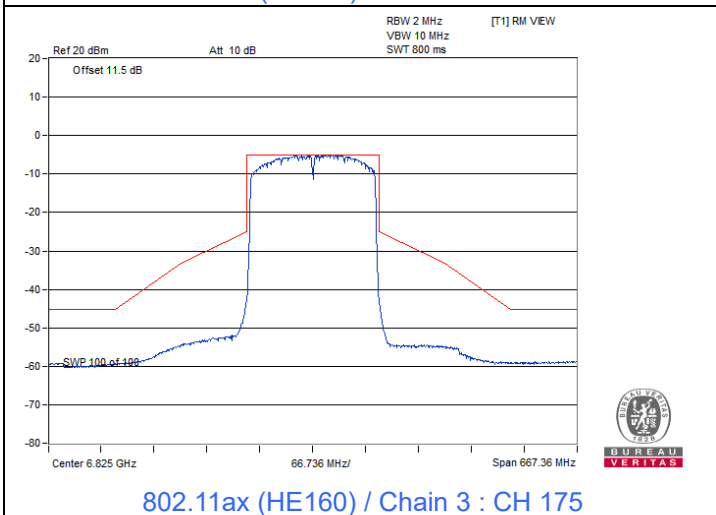
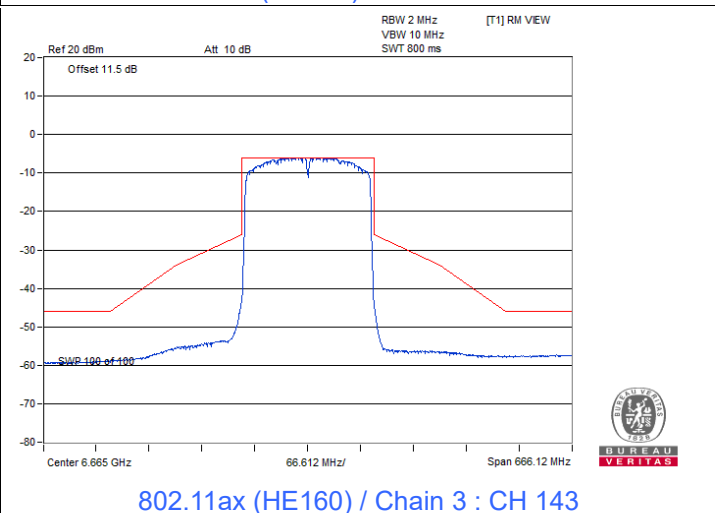
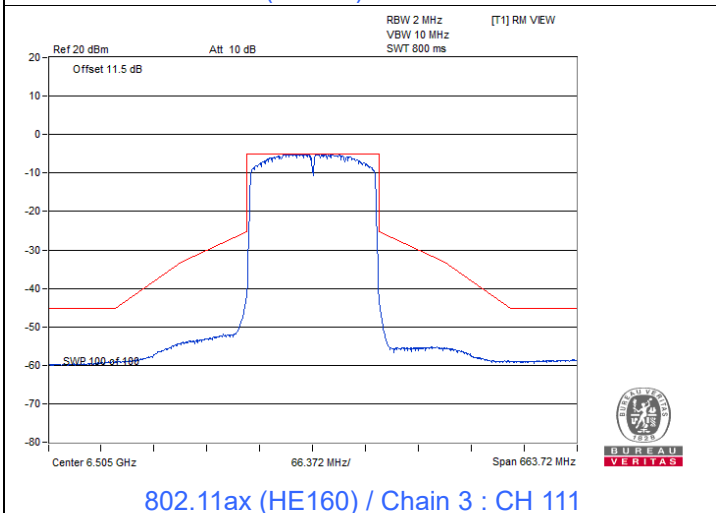
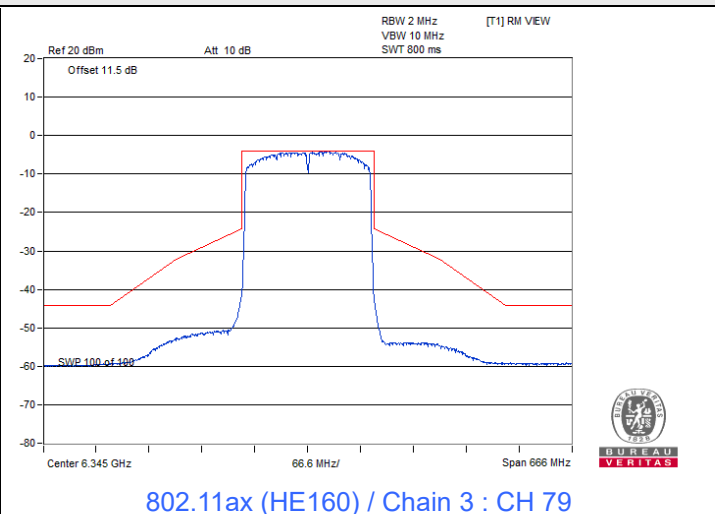
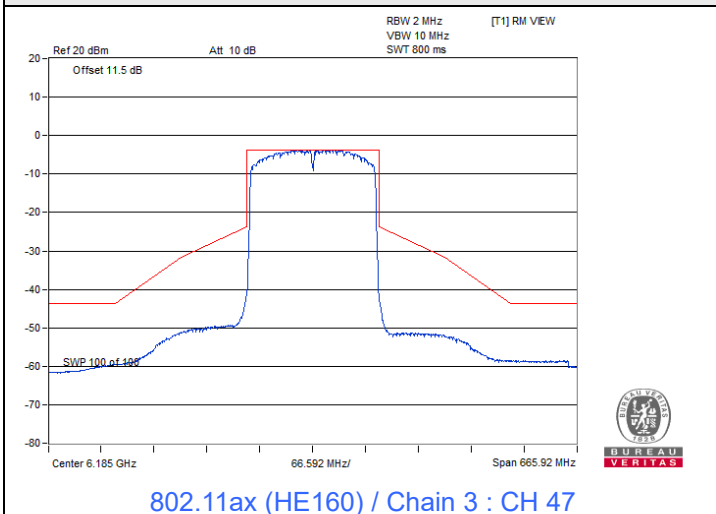
Spectrum Plot



Spectrum Plot



Spectrum Plot





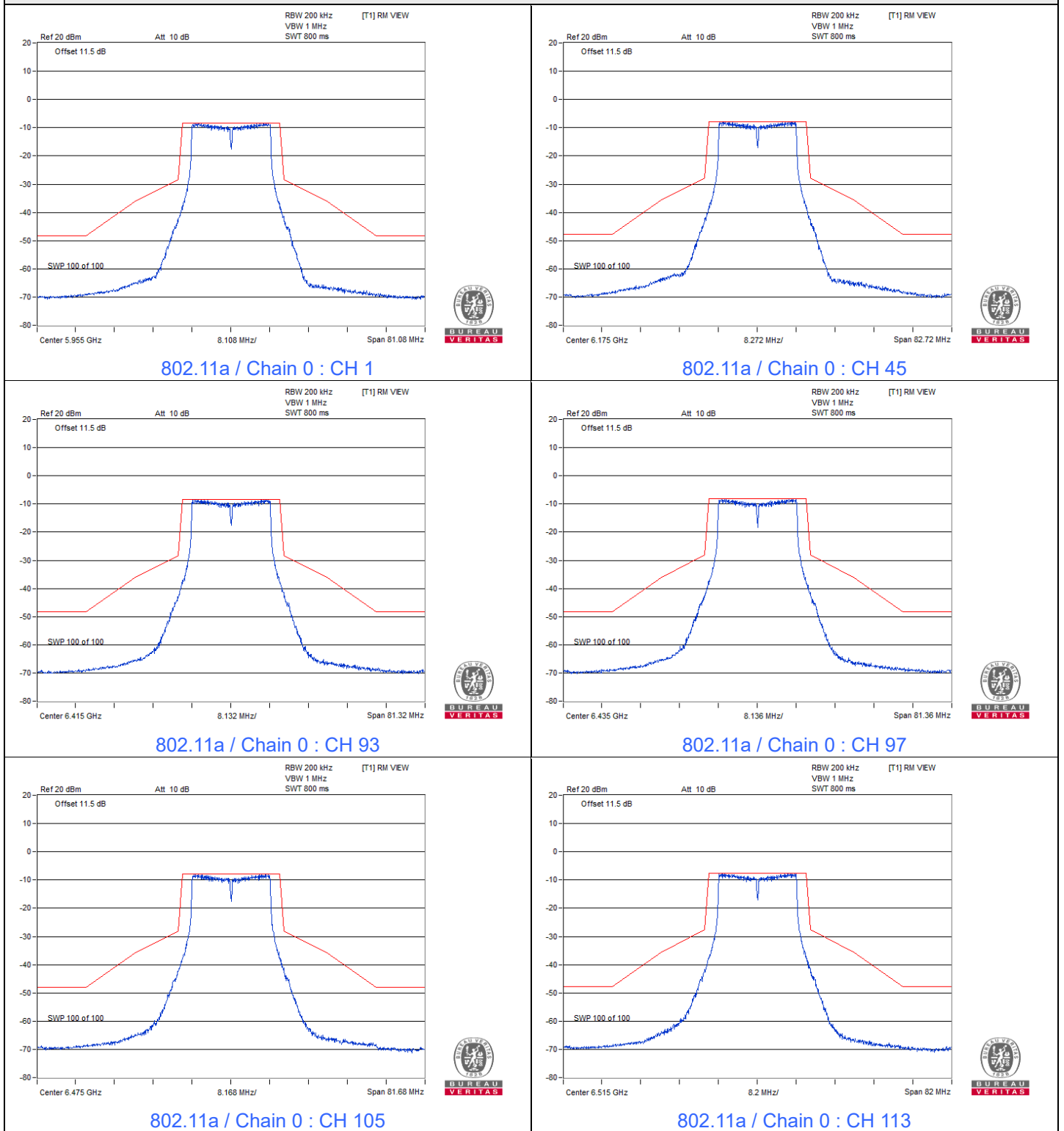
BUREAU VERITAS

Input Power:	54 Vdc	Environmental Conditions:	25°C, 67% RH	Tested By:	Noah Chang
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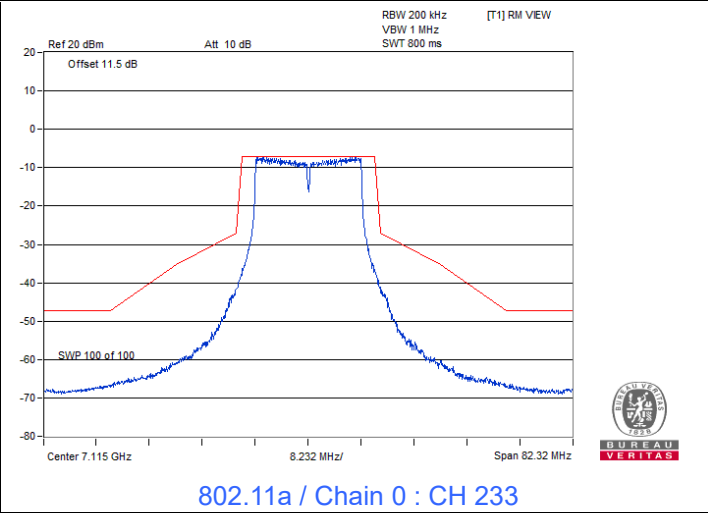
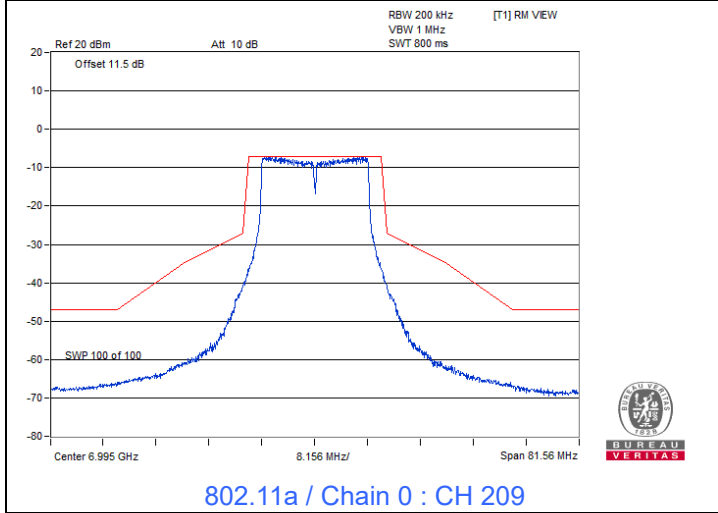
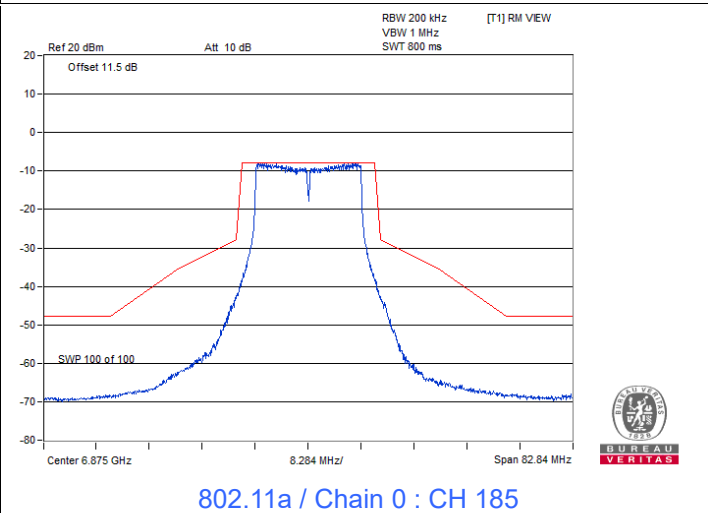
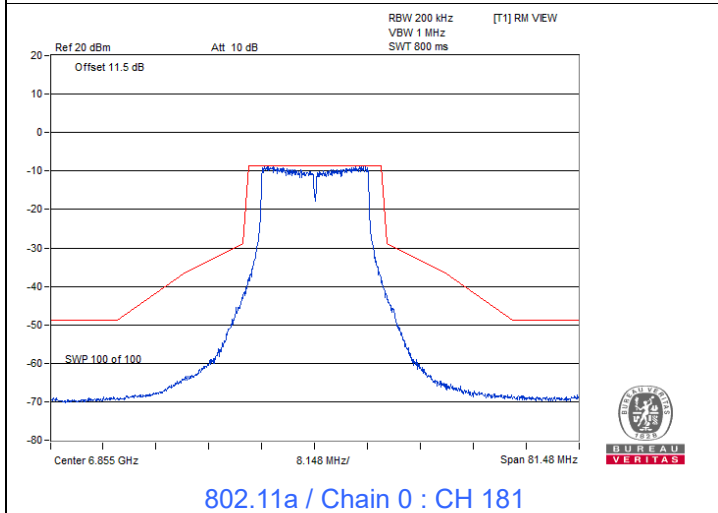
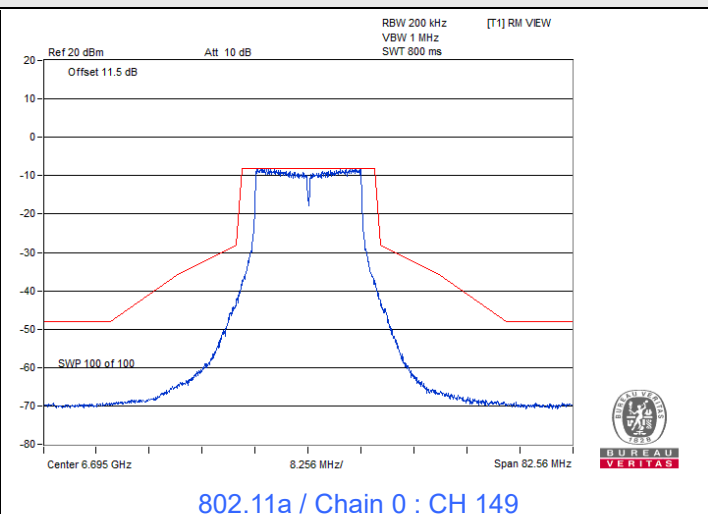
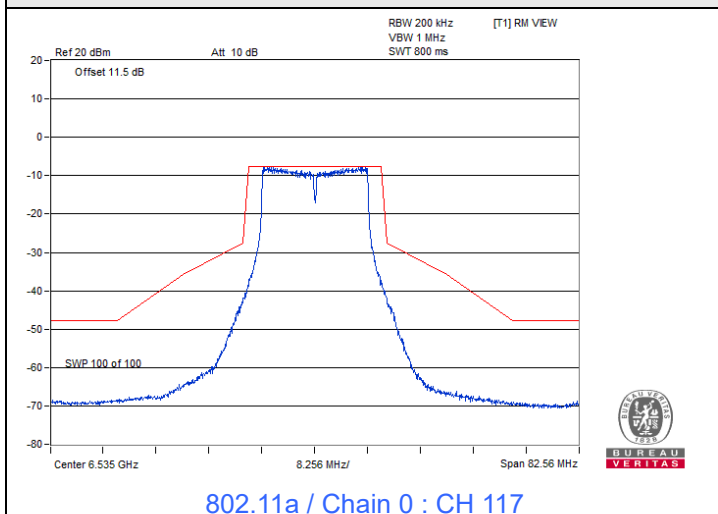
Mode B

802.11a

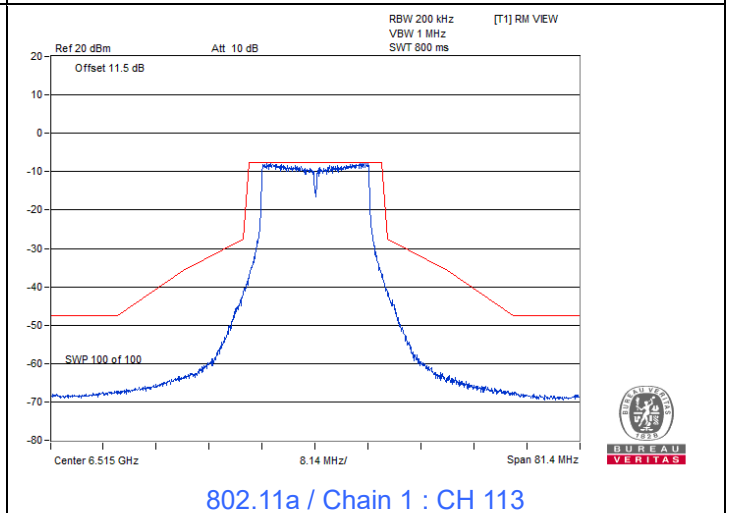
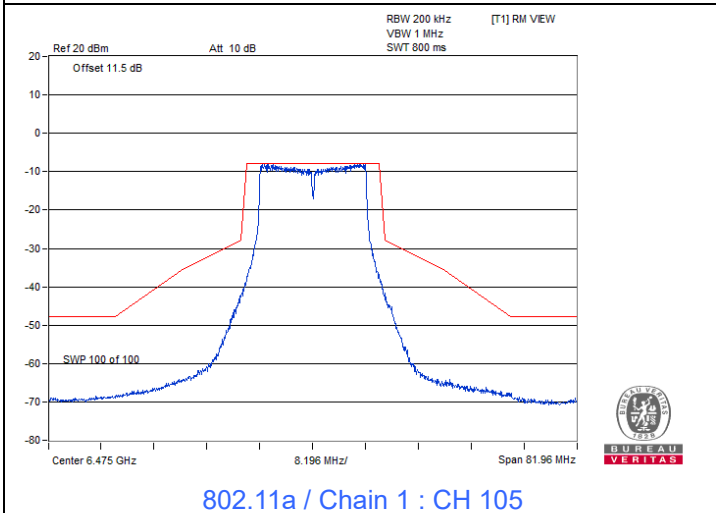
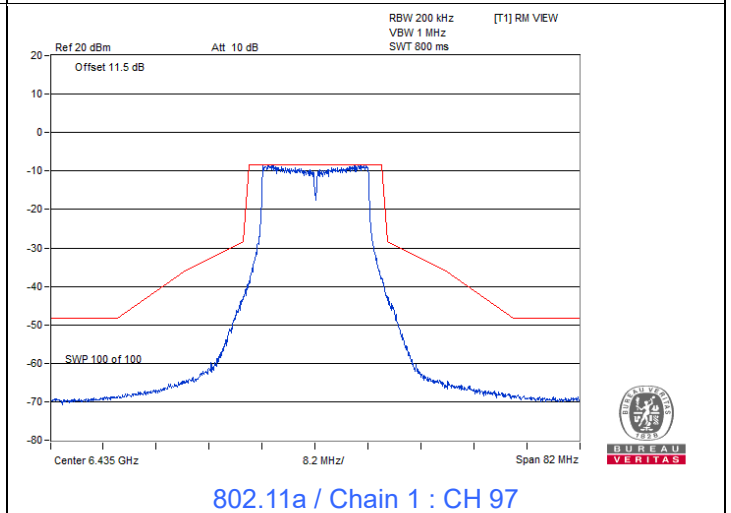
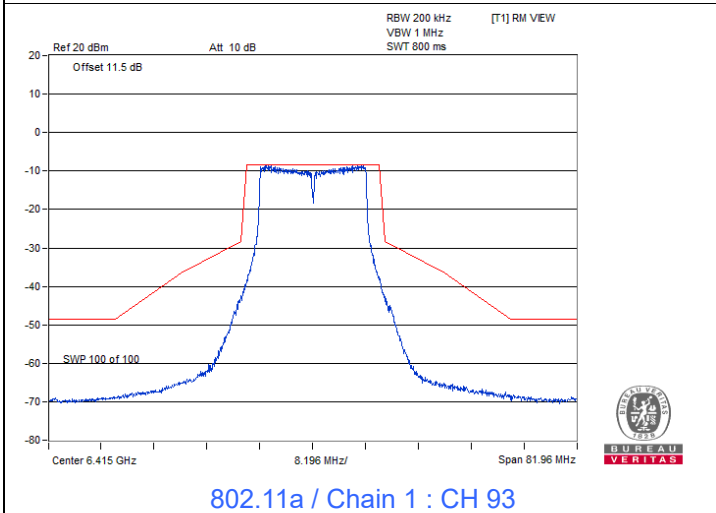
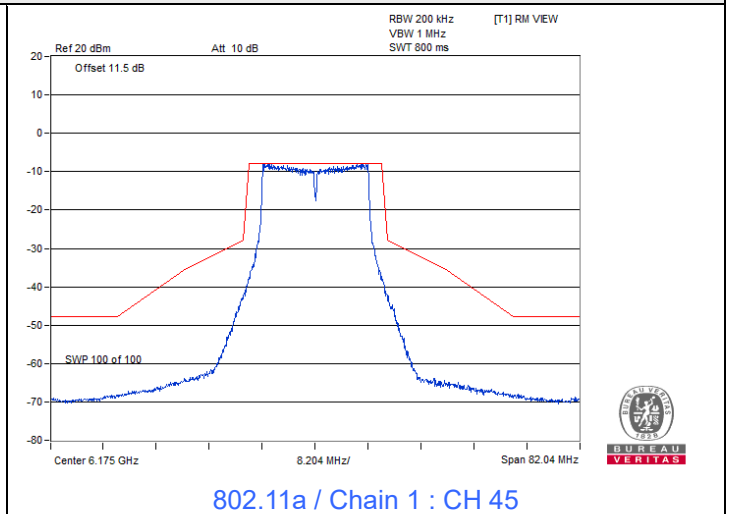
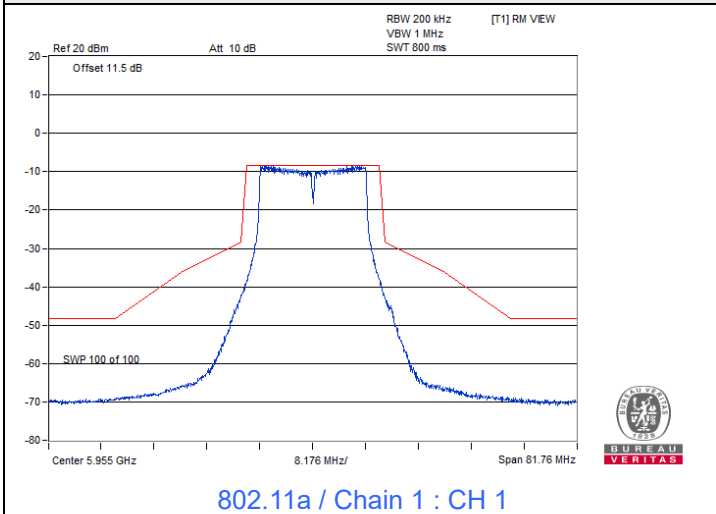
Spectrum Plot



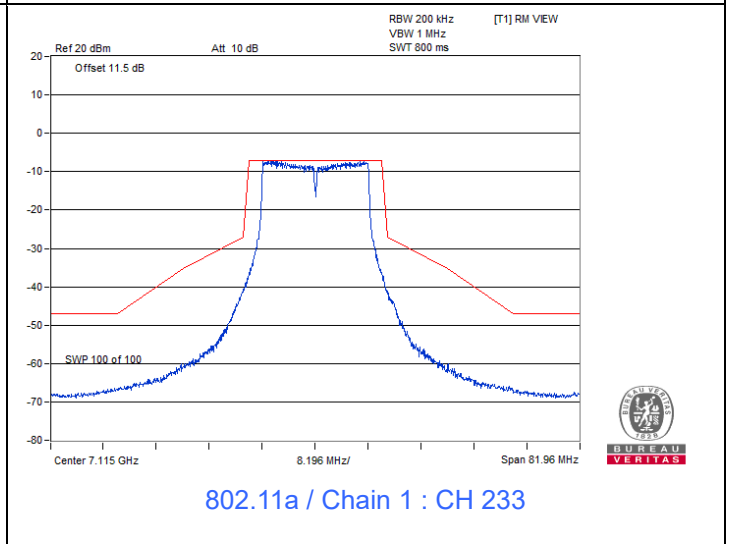
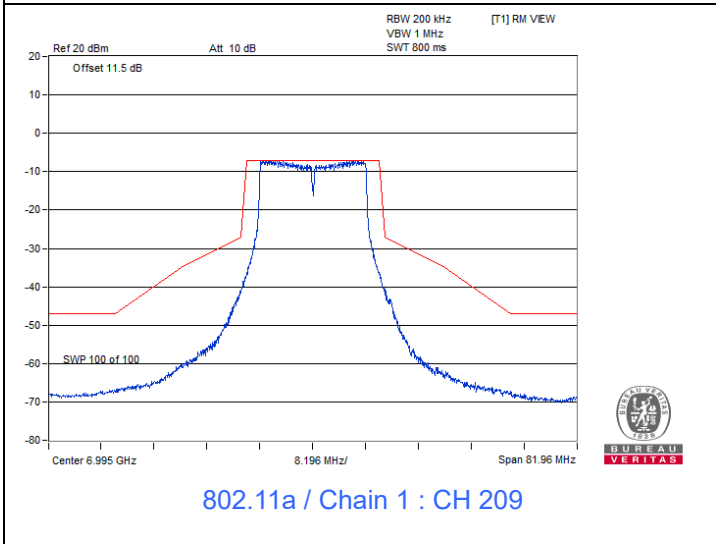
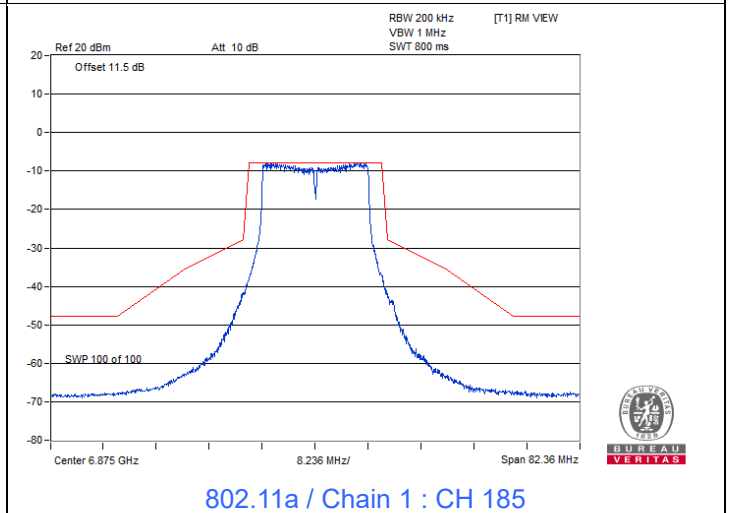
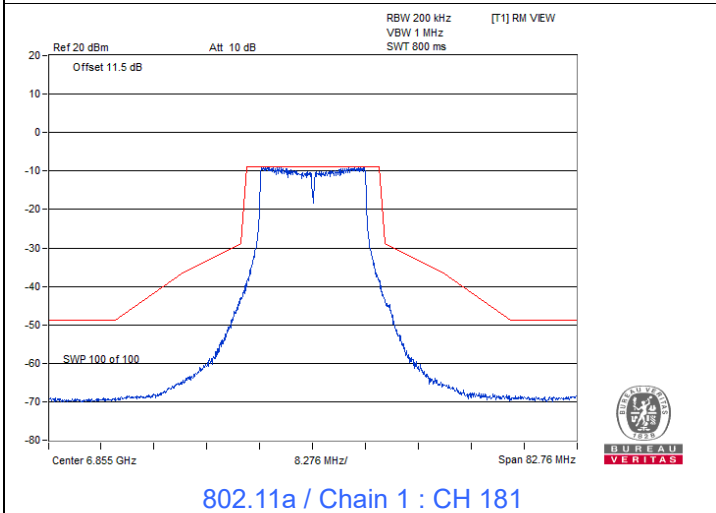
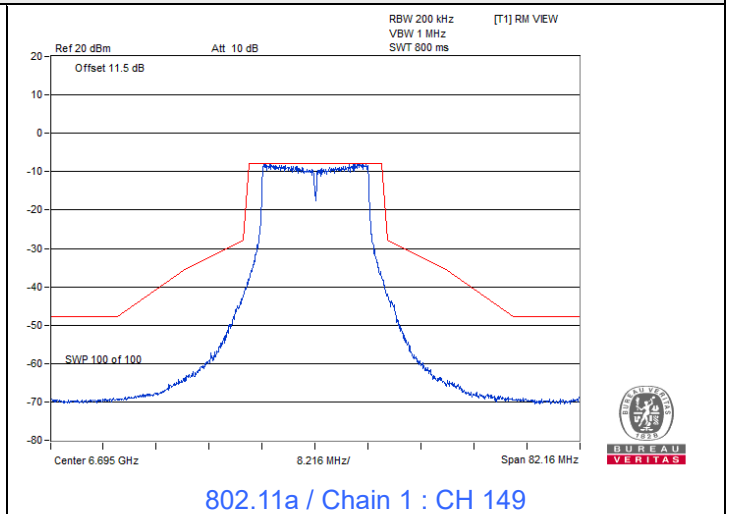
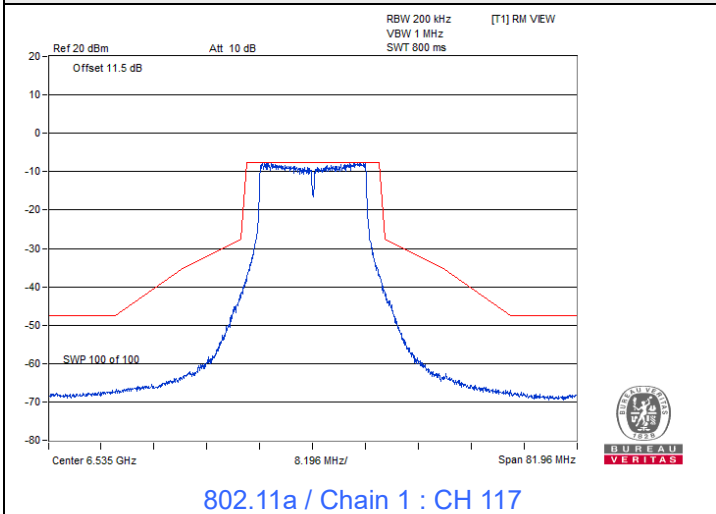
Spectrum Plot



Spectrum Plot



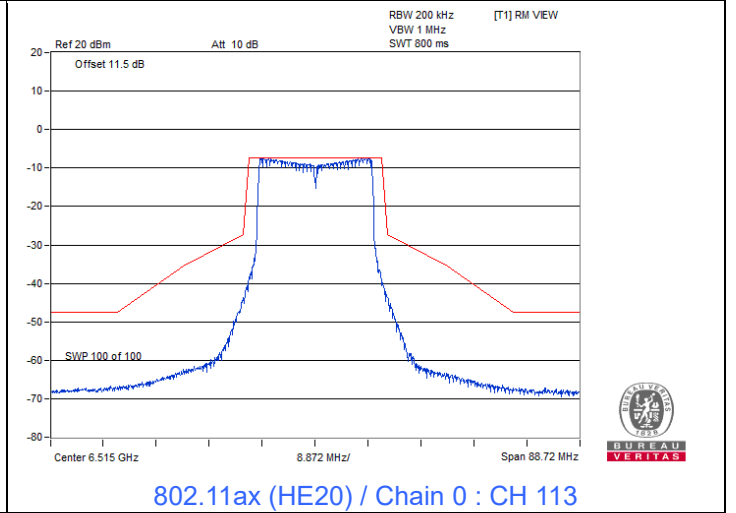
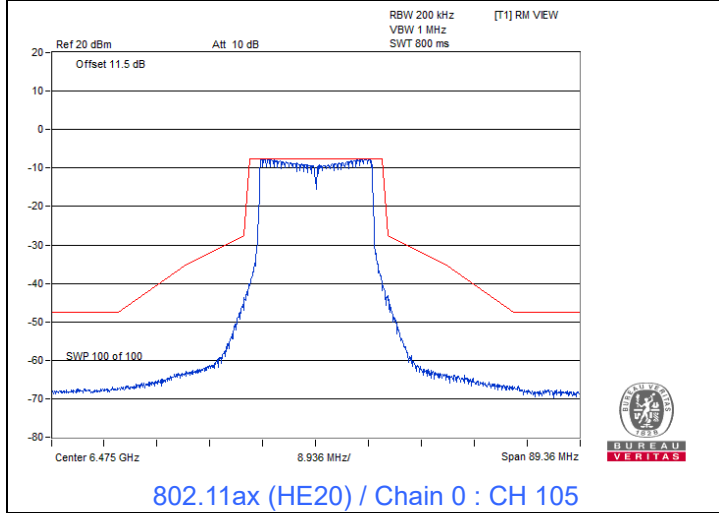
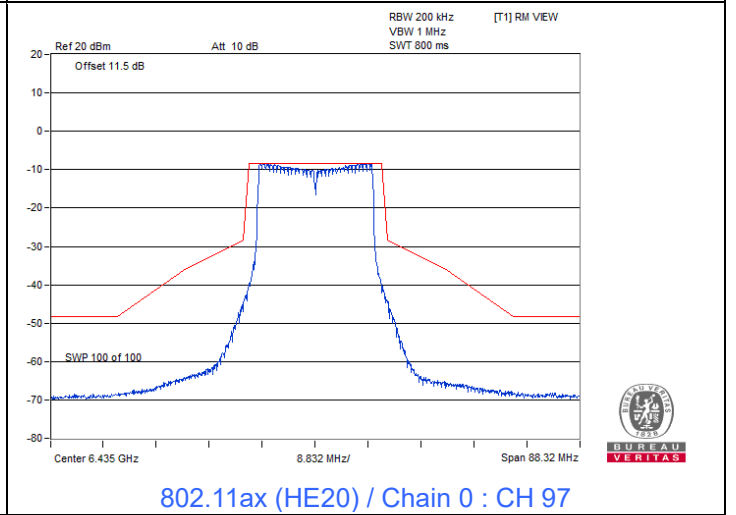
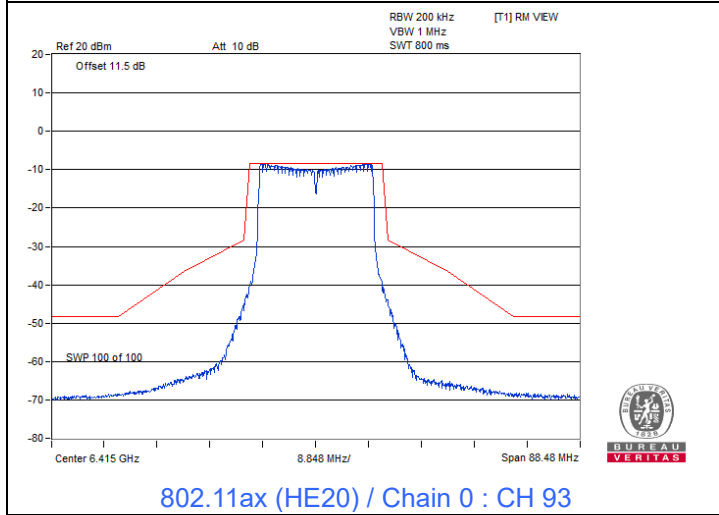
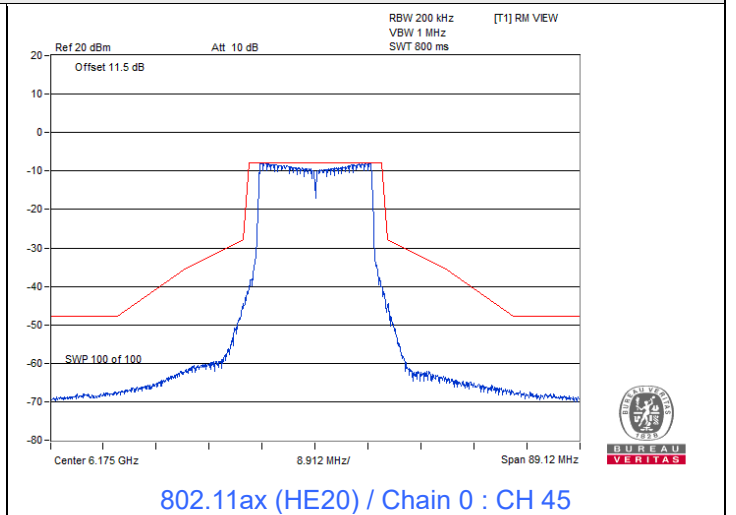
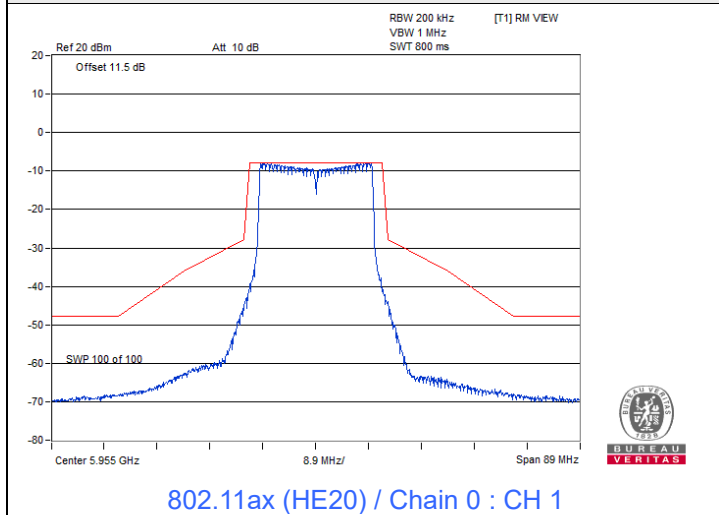
Spectrum Plot



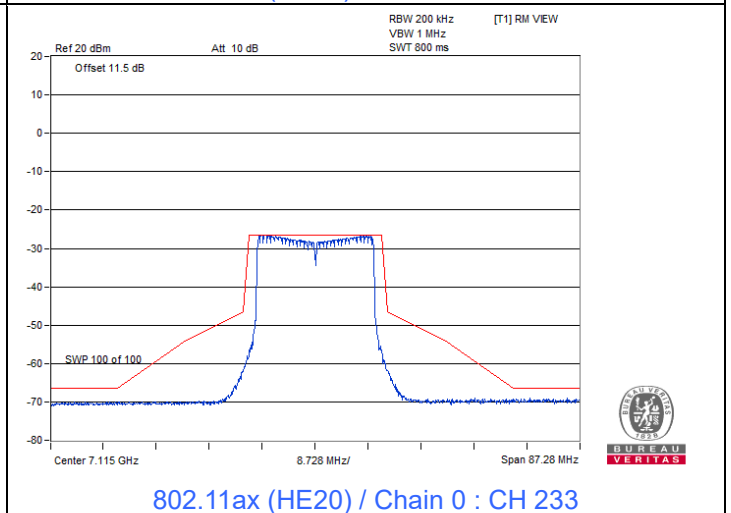
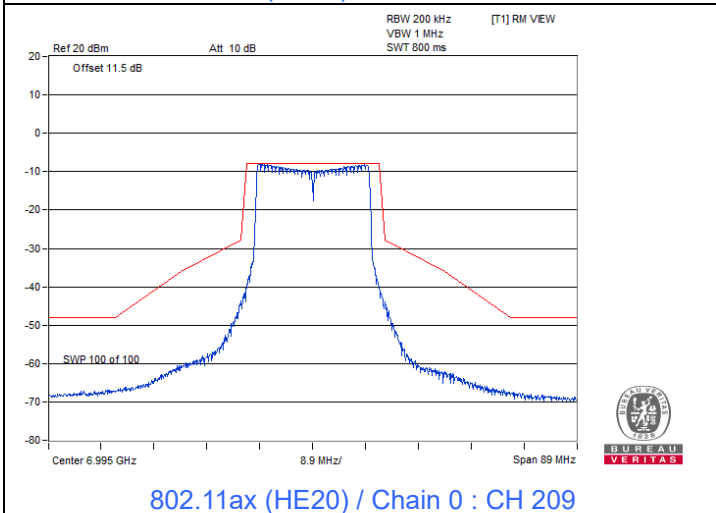
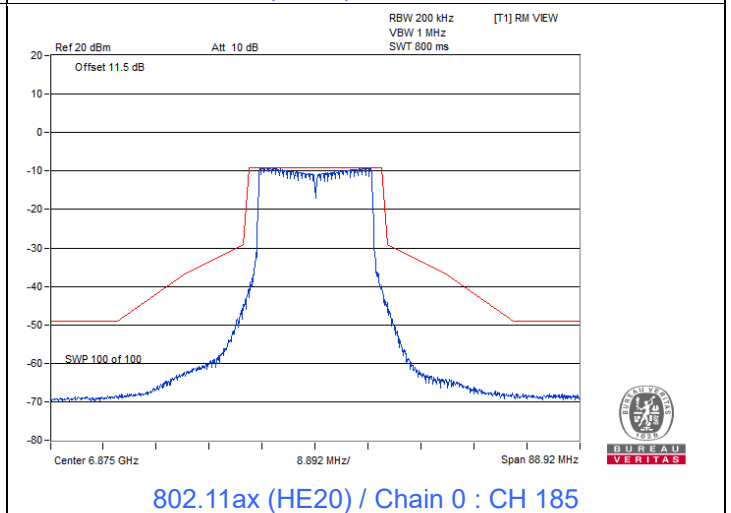
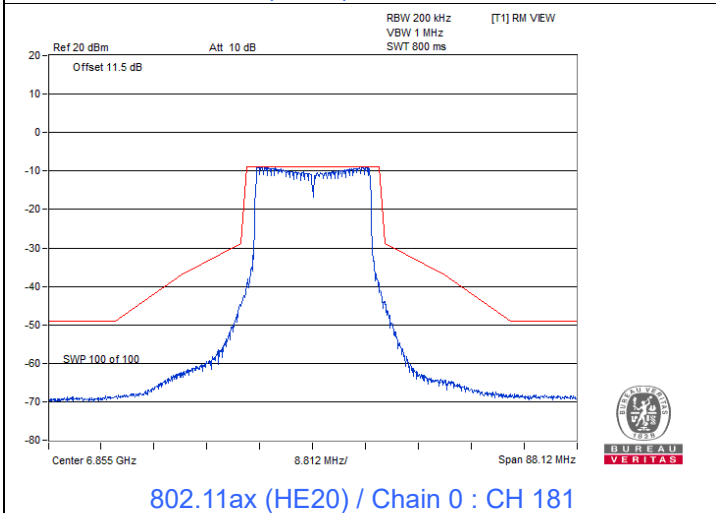
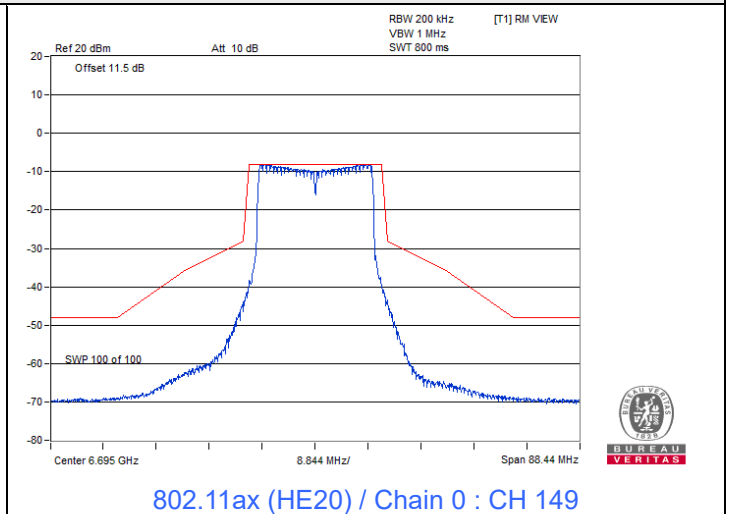
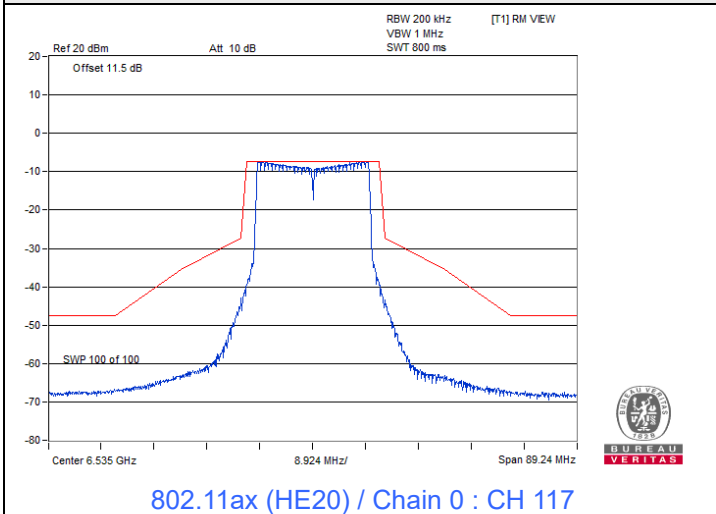


802.11ax (HE20)

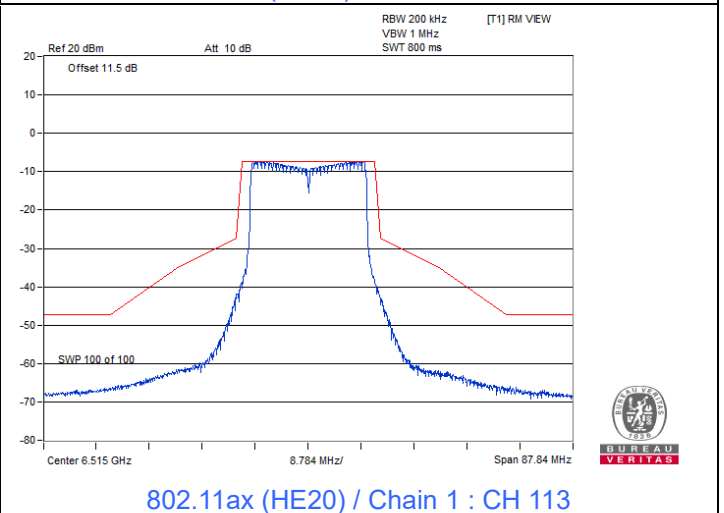
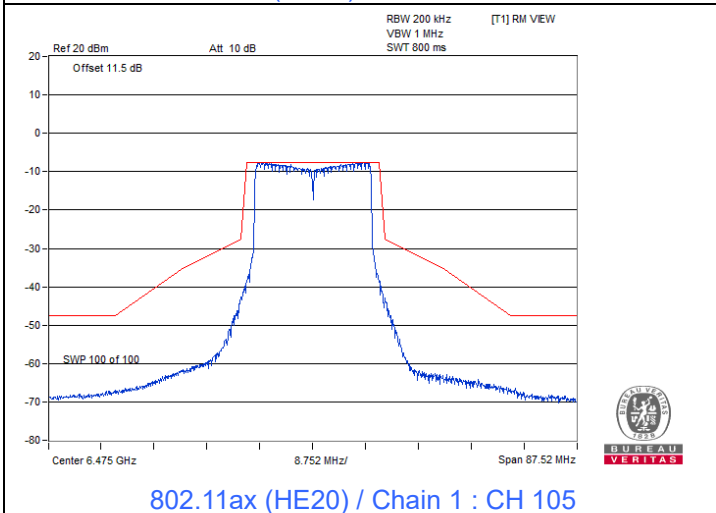
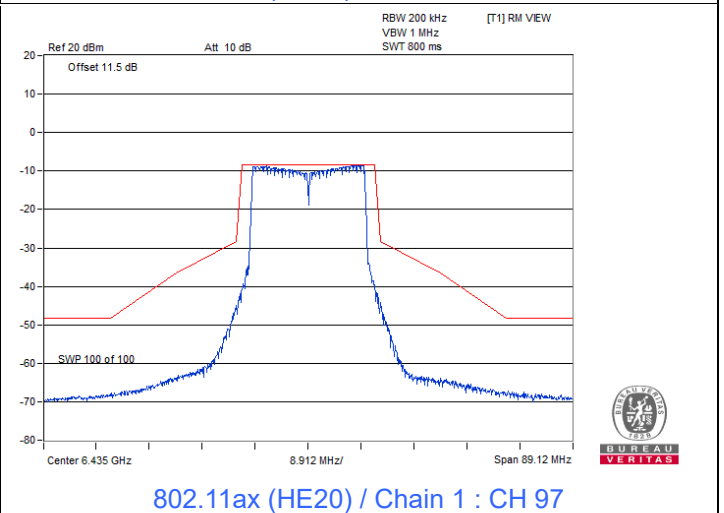
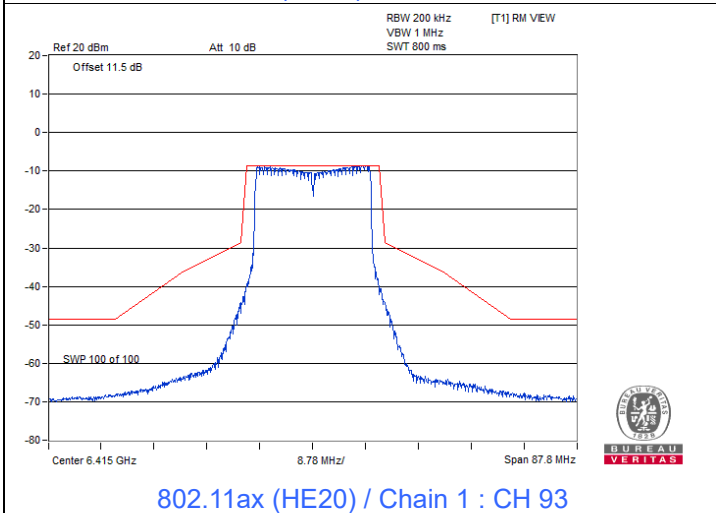
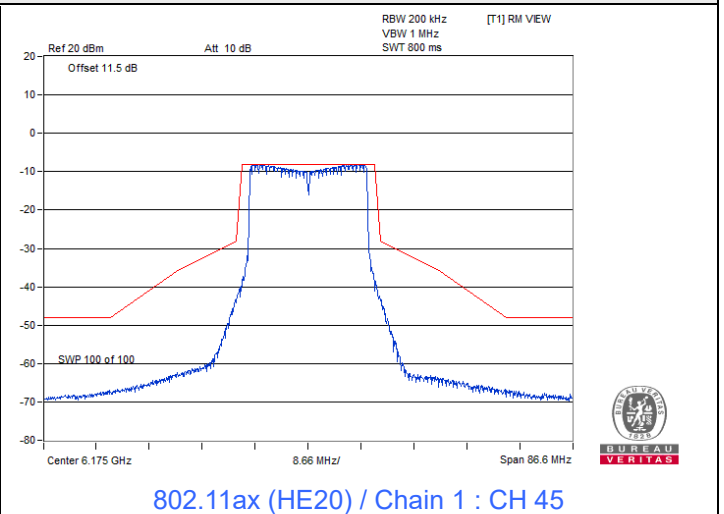
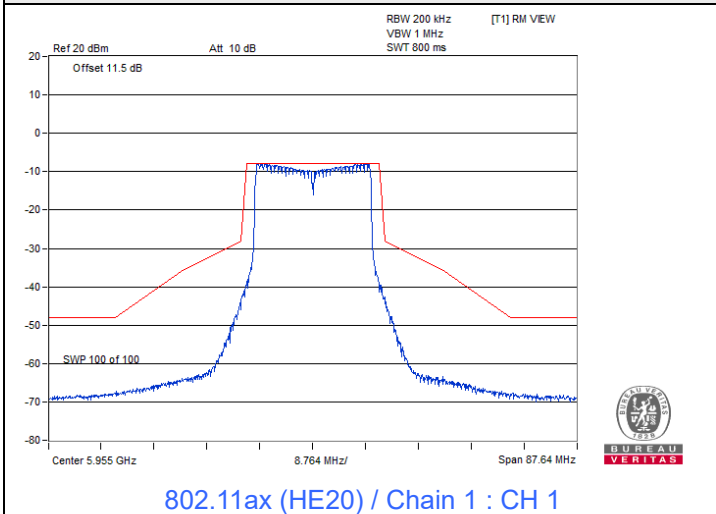
Spectrum Plot



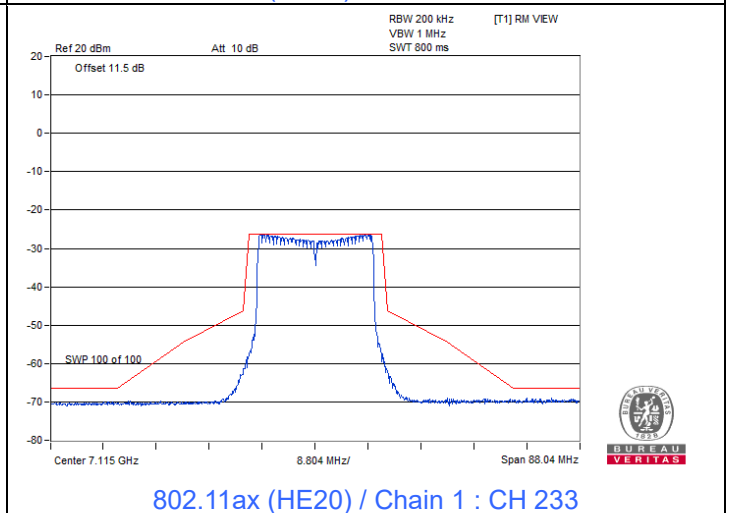
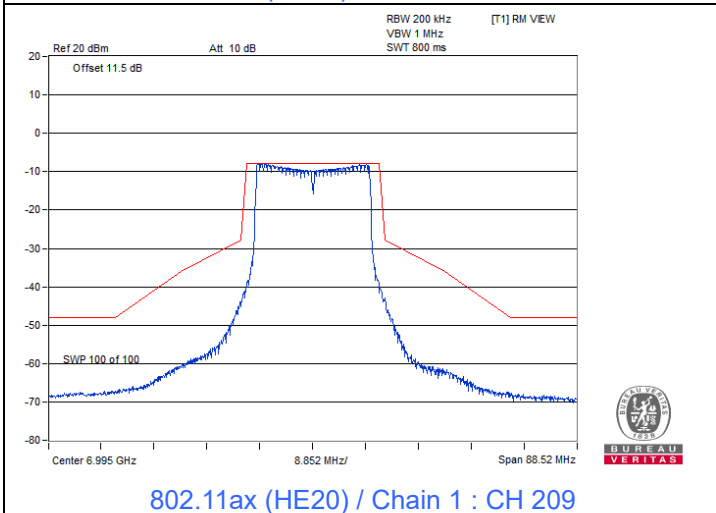
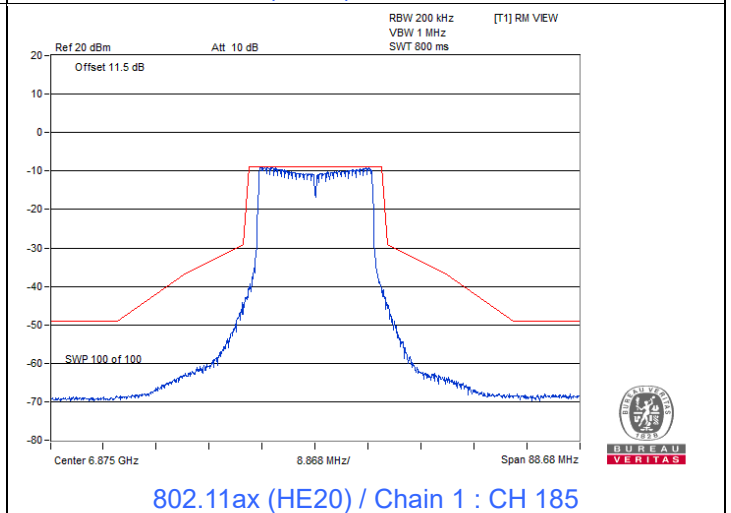
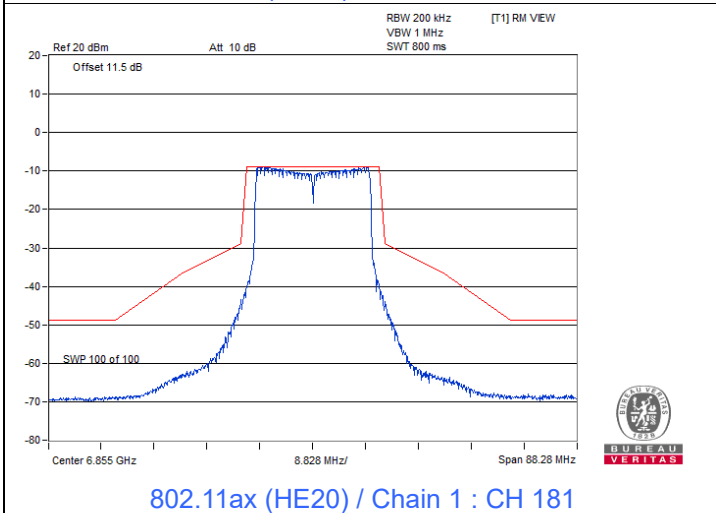
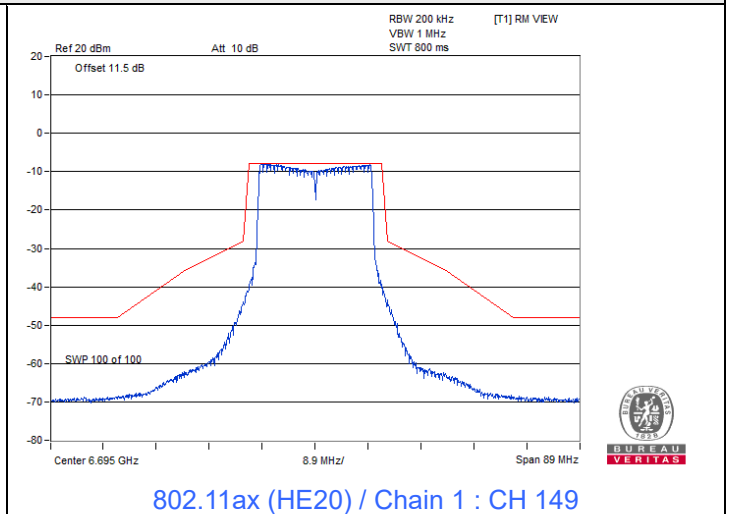
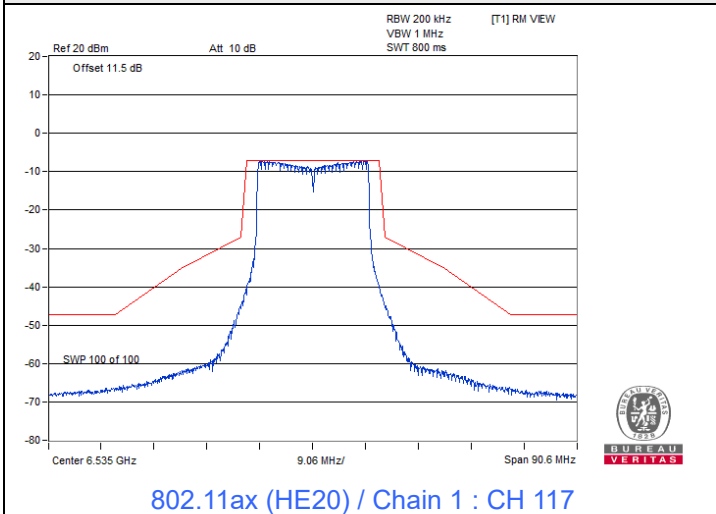
Spectrum Plot



Spectrum Plot



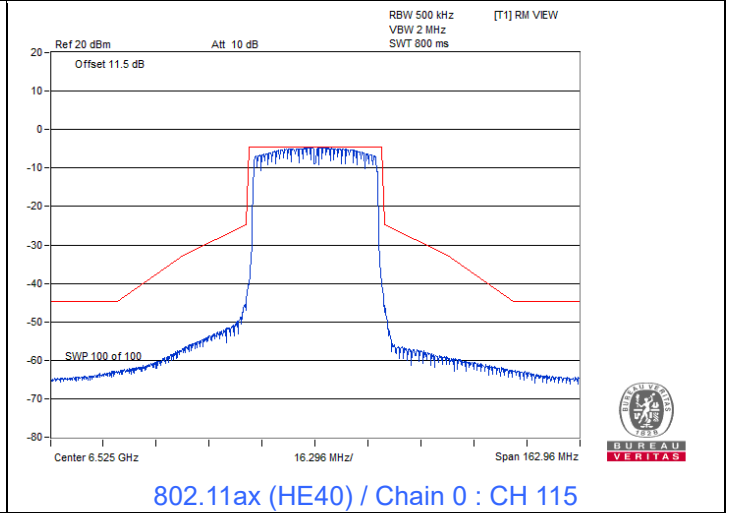
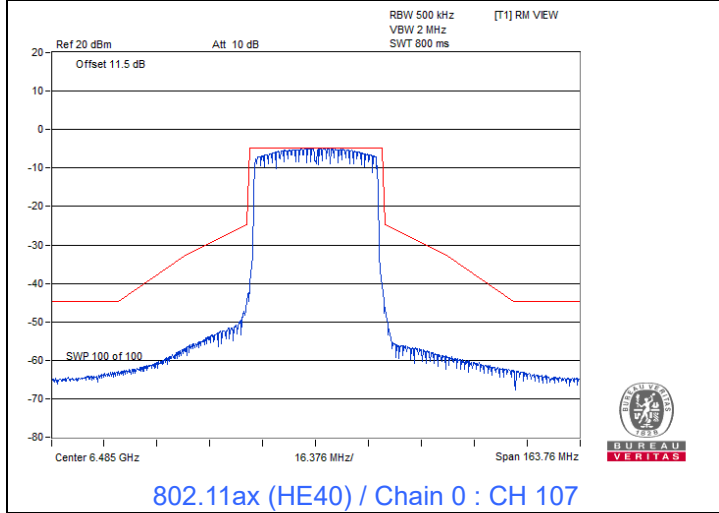
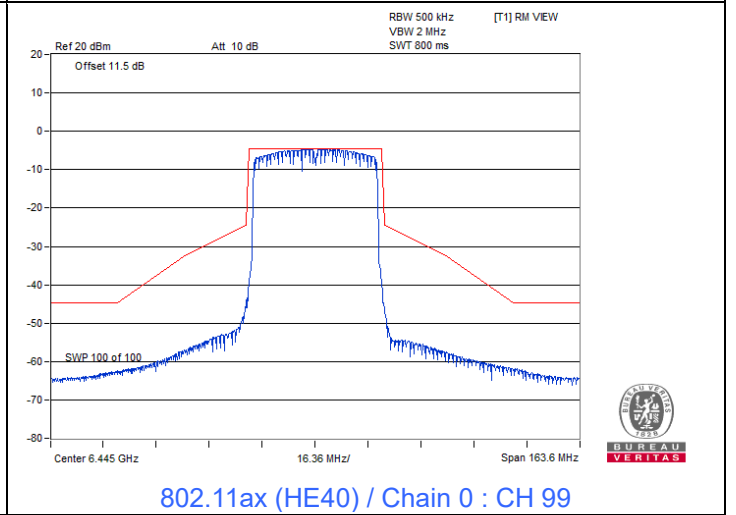
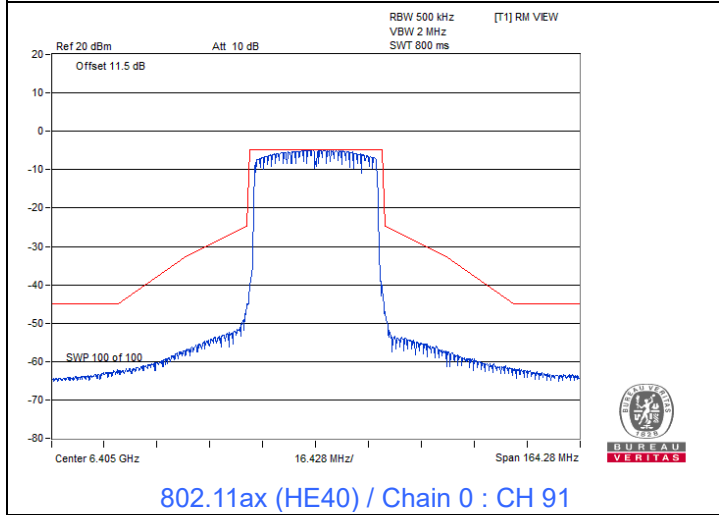
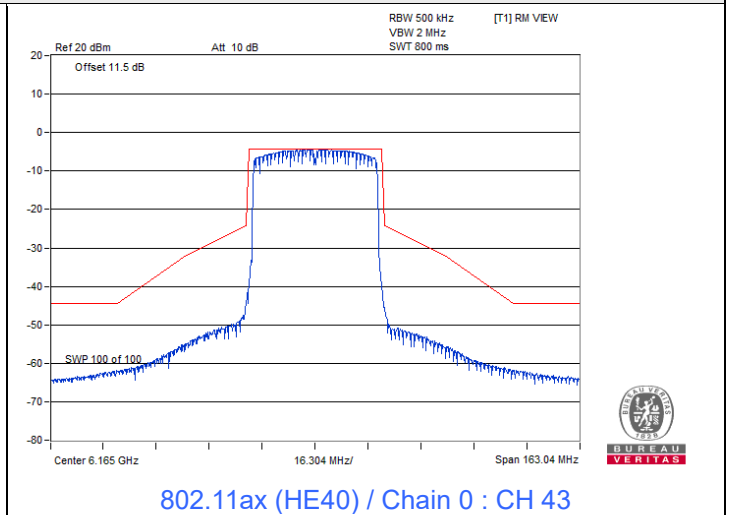
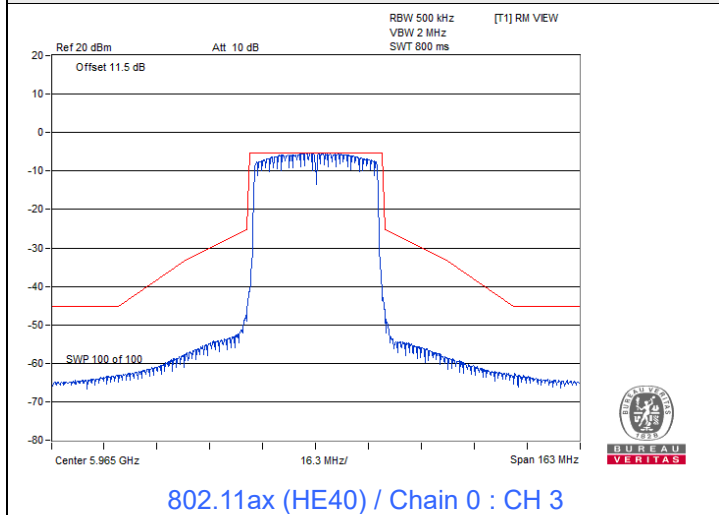
Spectrum Plot



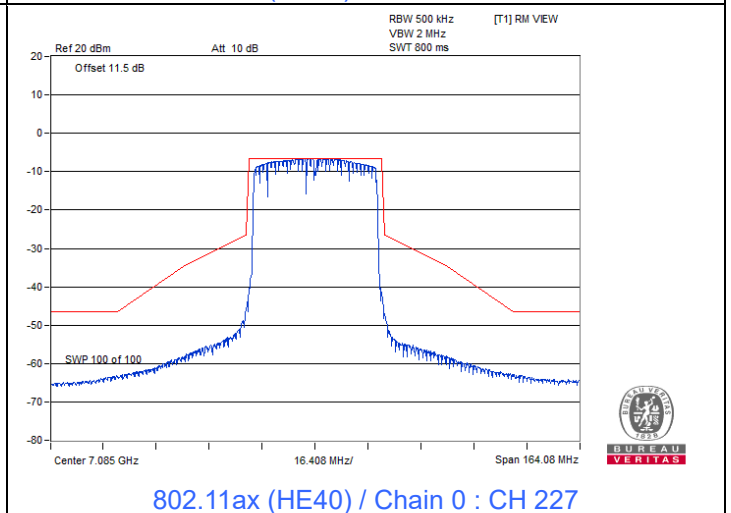
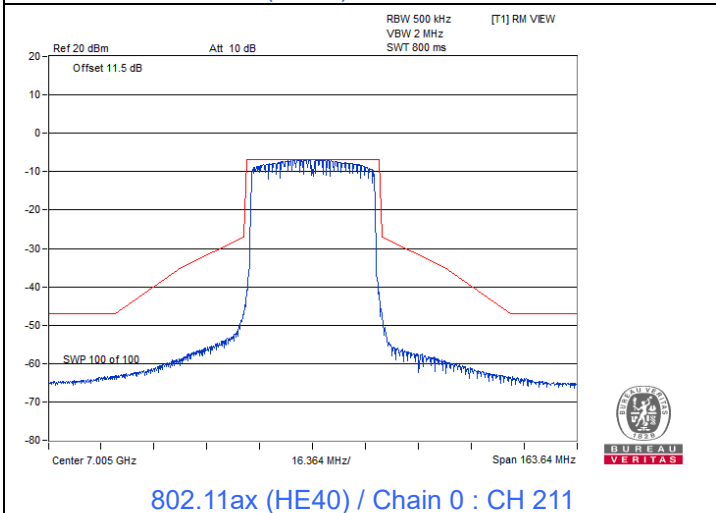
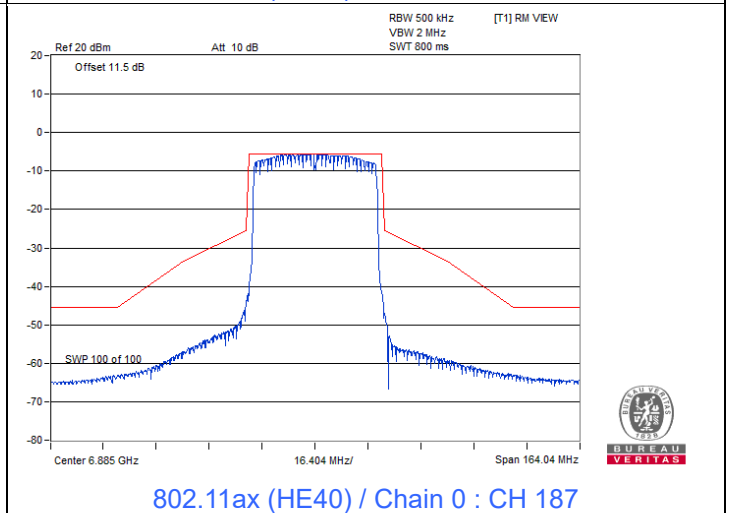
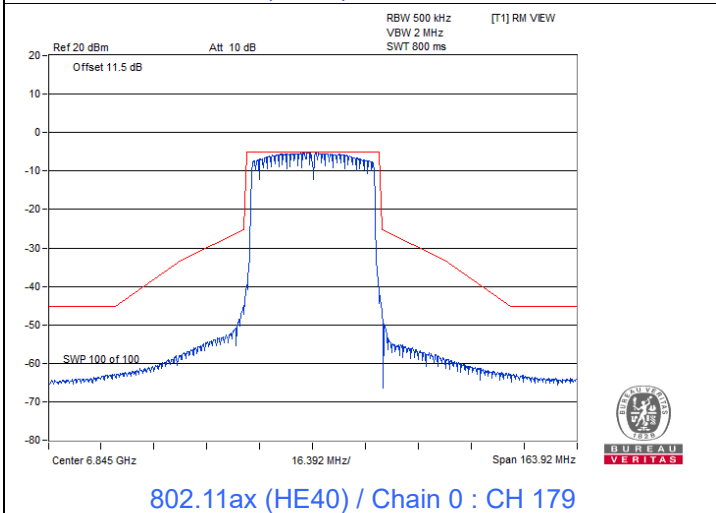
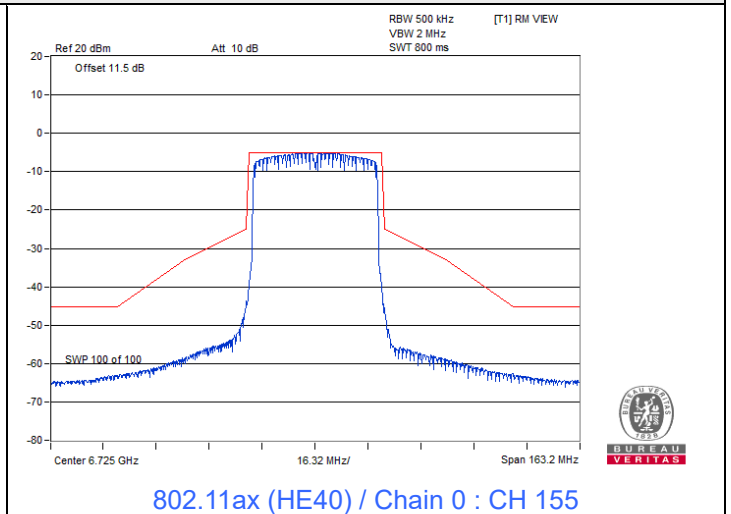
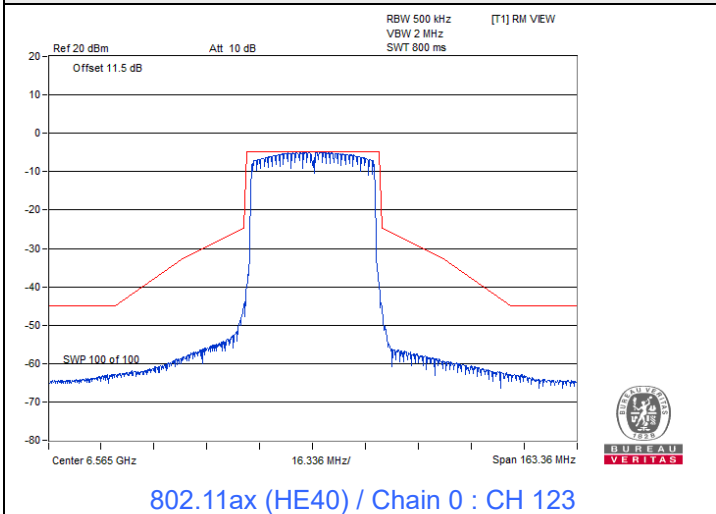


802.11ax (HE40)

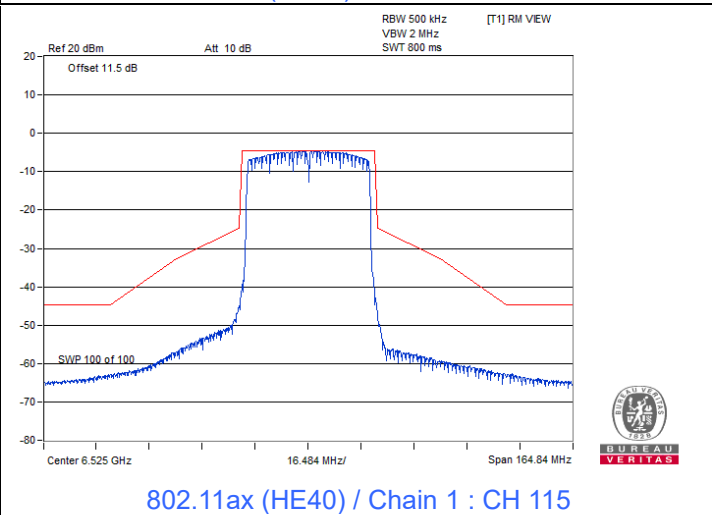
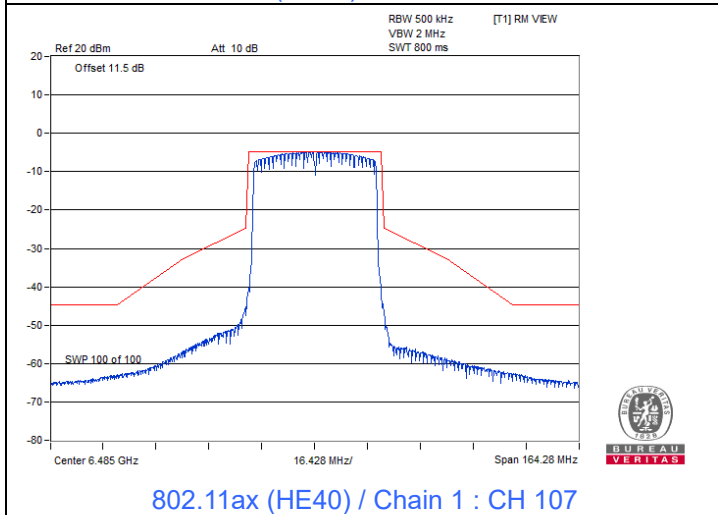
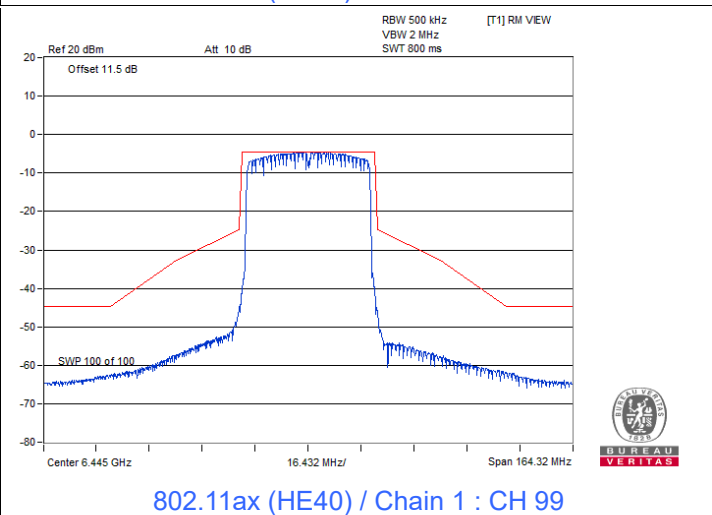
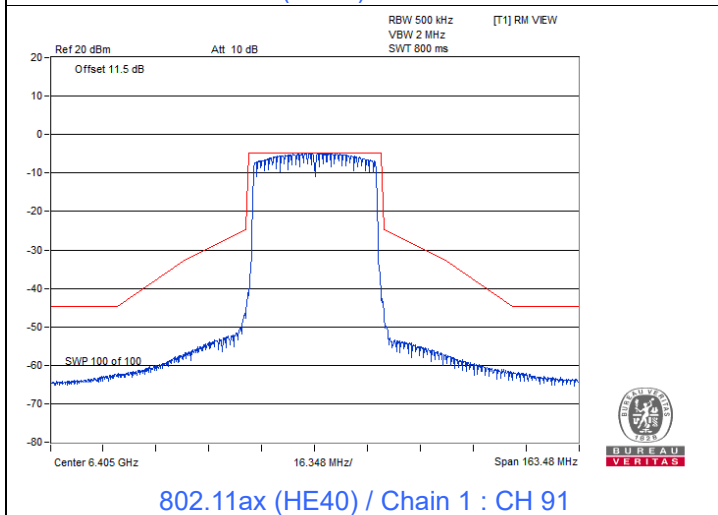
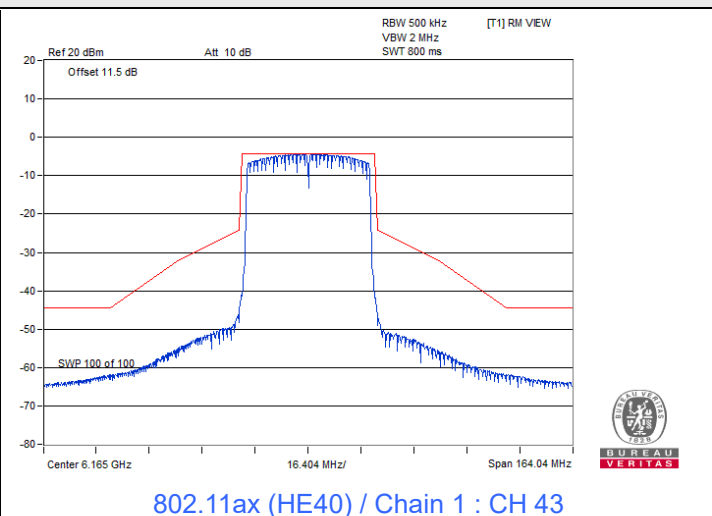
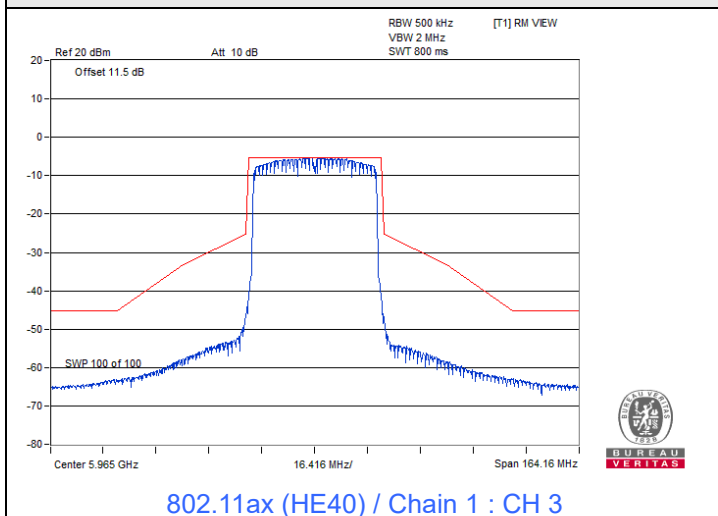
Spectrum Plot



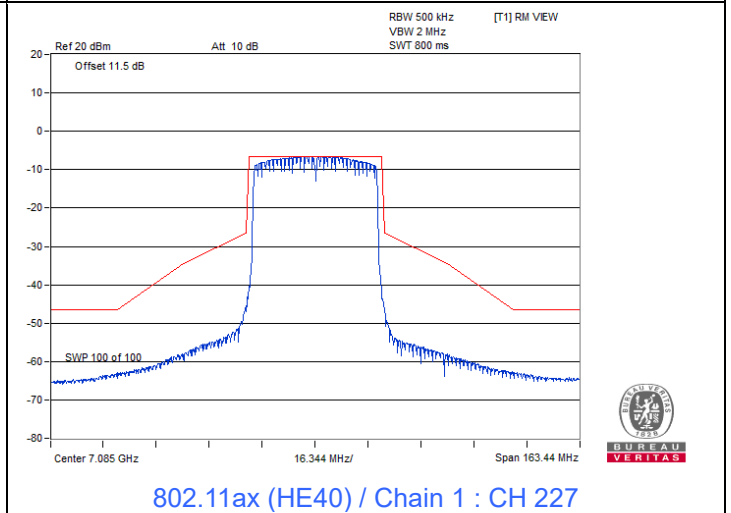
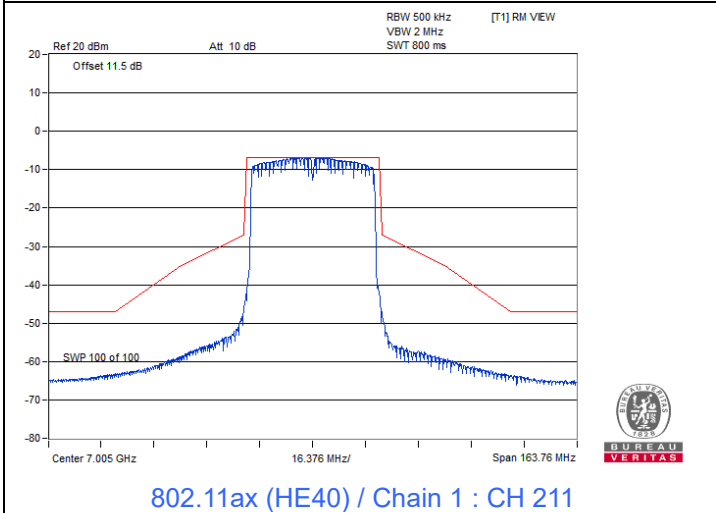
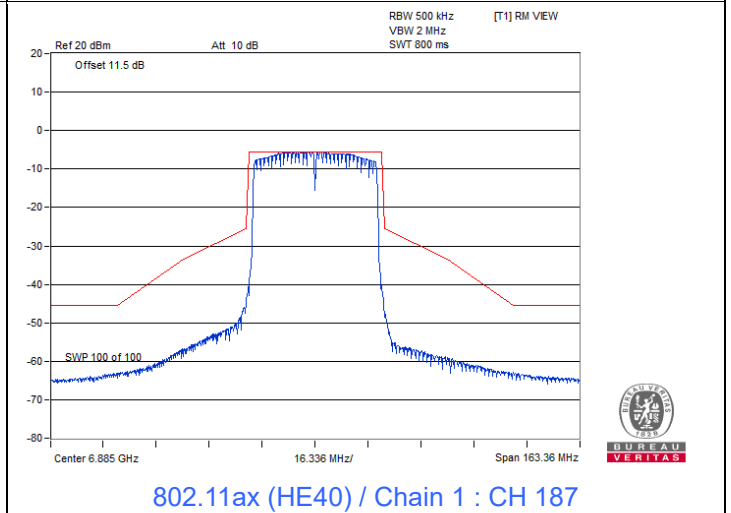
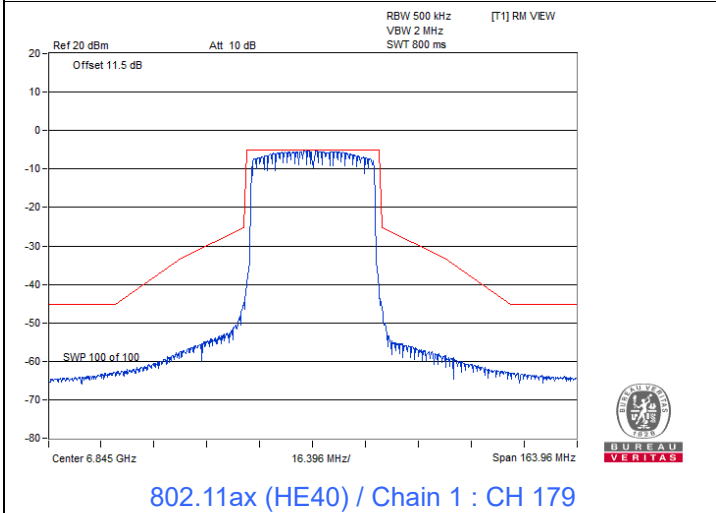
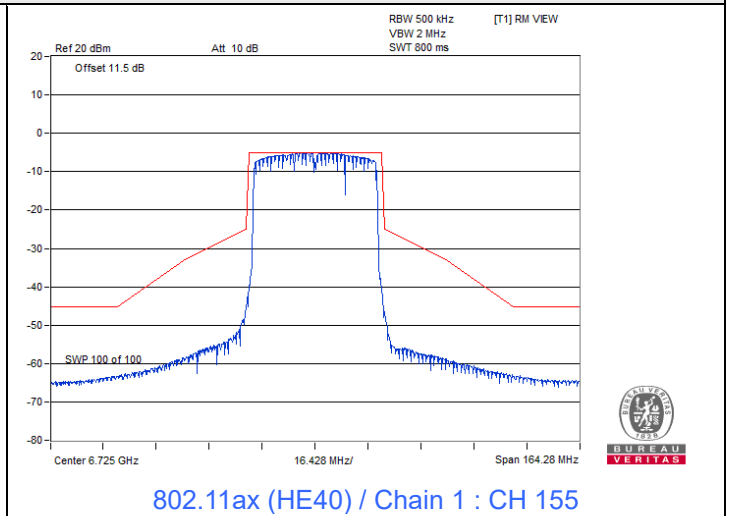
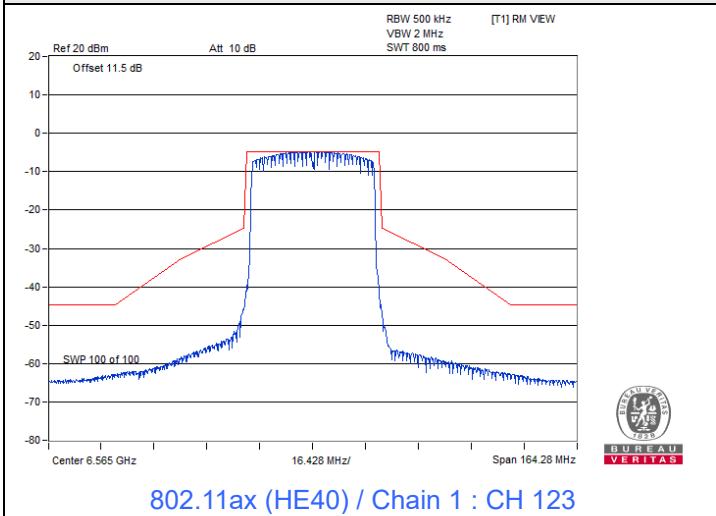
Spectrum Plot



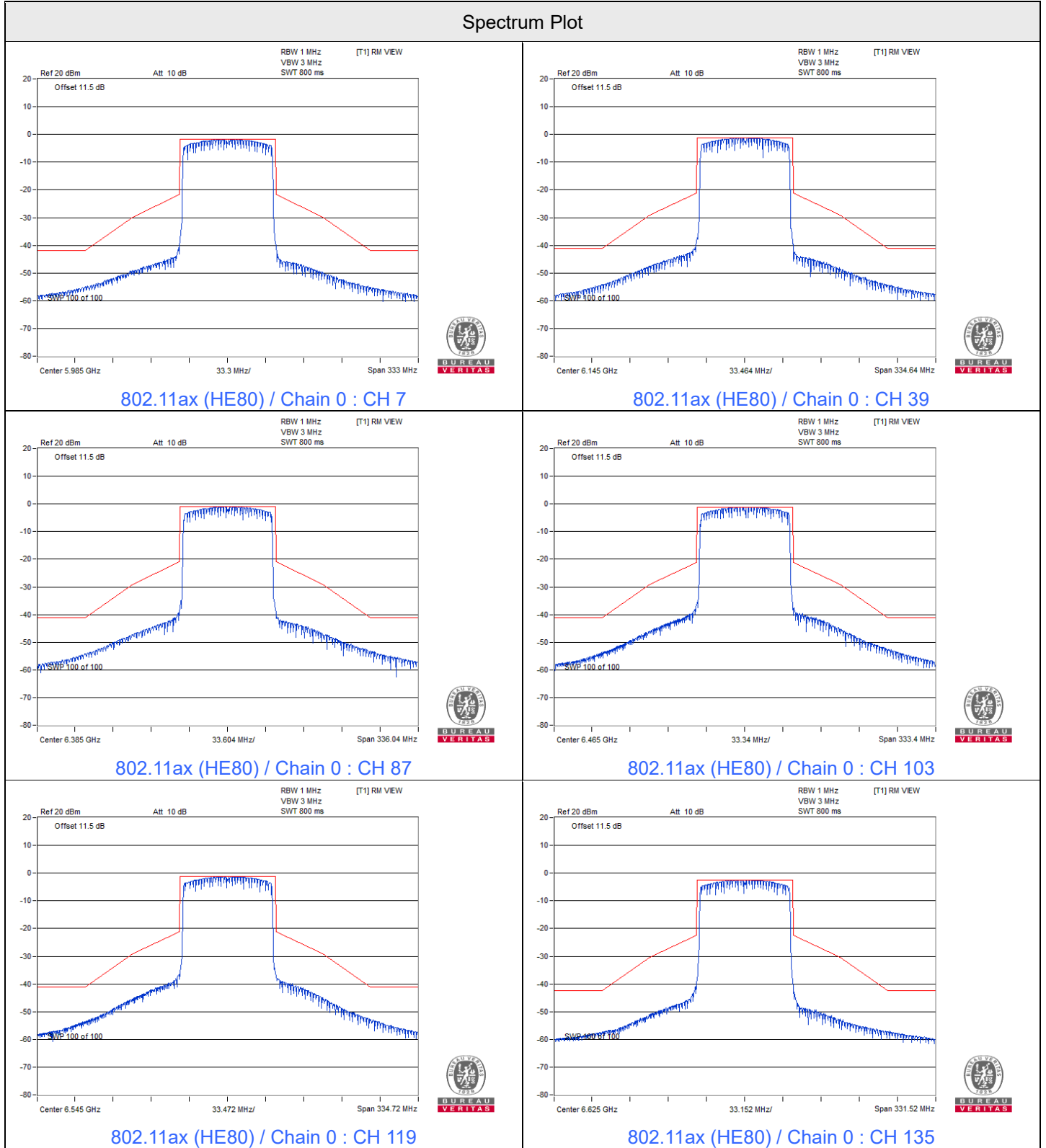
Spectrum Plot



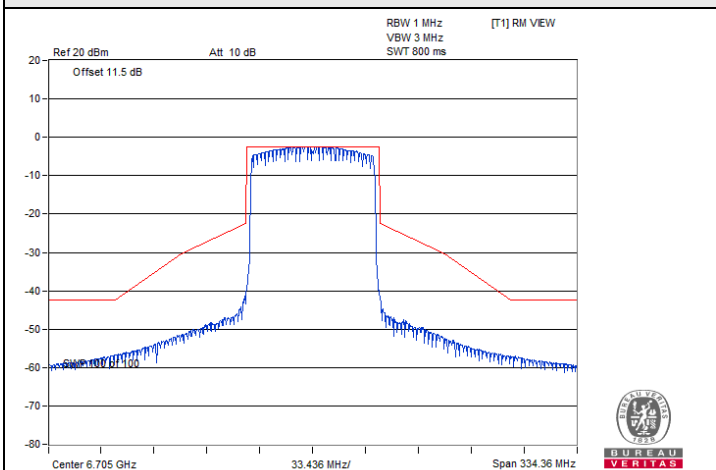
Spectrum Plot



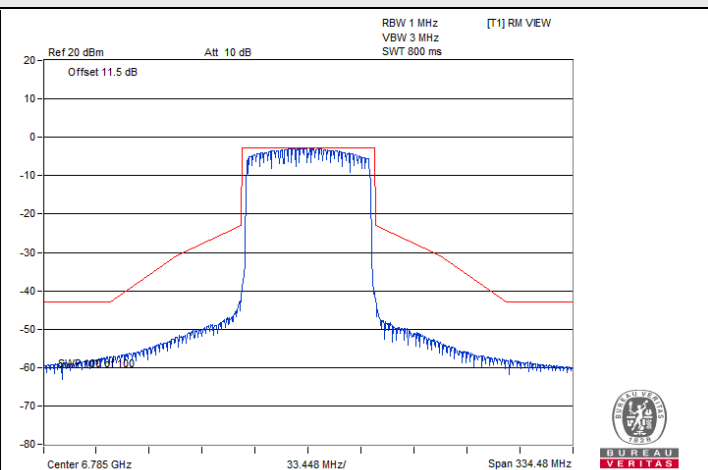
802.11ax (HE80)



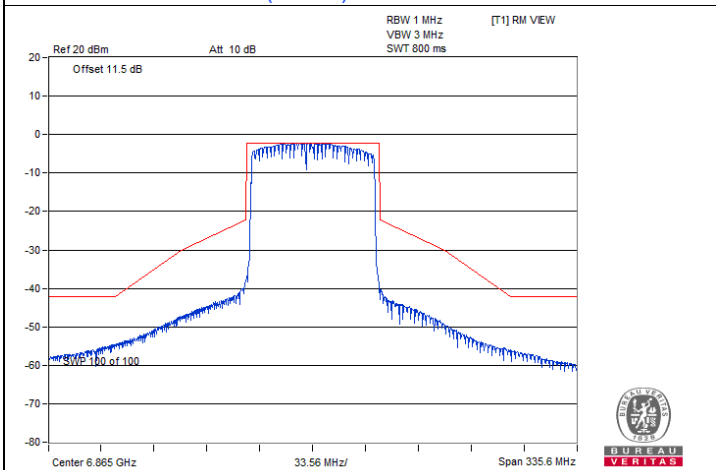
Spectrum Plot



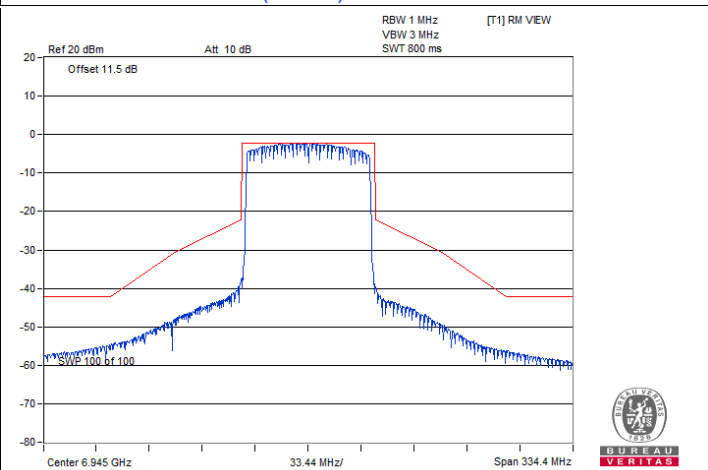
802.11ax (HE80) / Chain 0 : CH 151



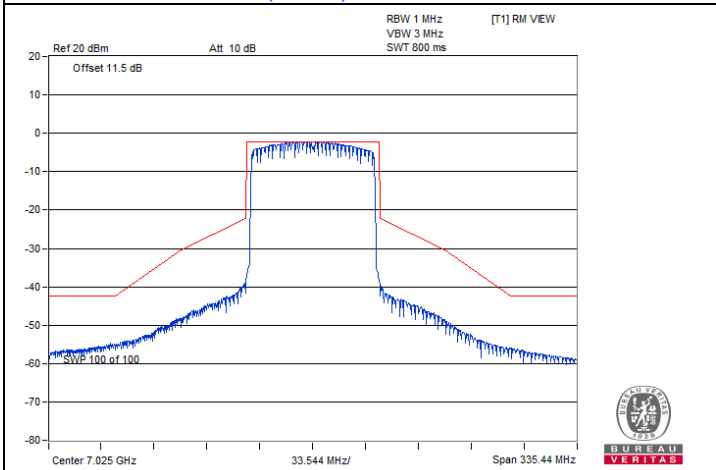
802.11ax (HE80) / Chain 0 : CH 167



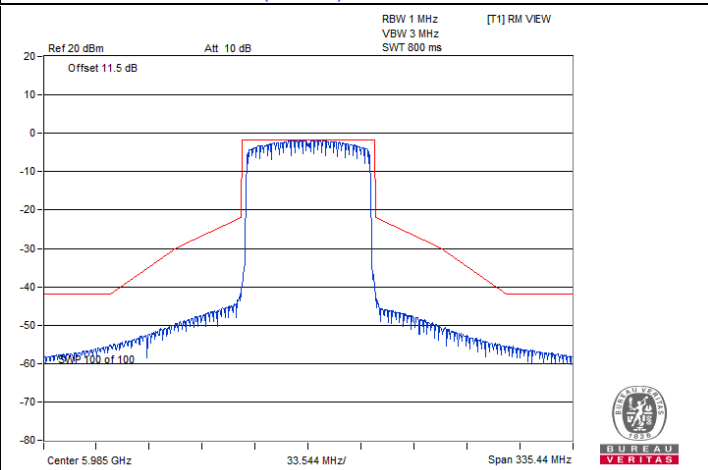
802.11ax (HE80) / Chain 0 : CH 183



802.11ax (HE80) / Chain 0 : CH 199

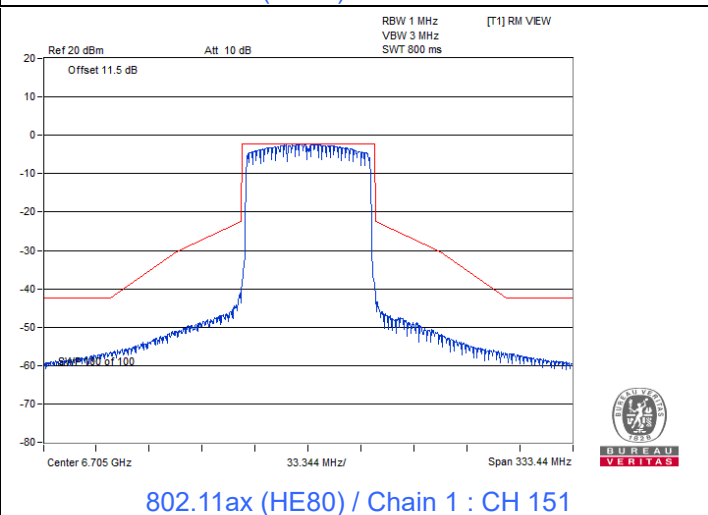
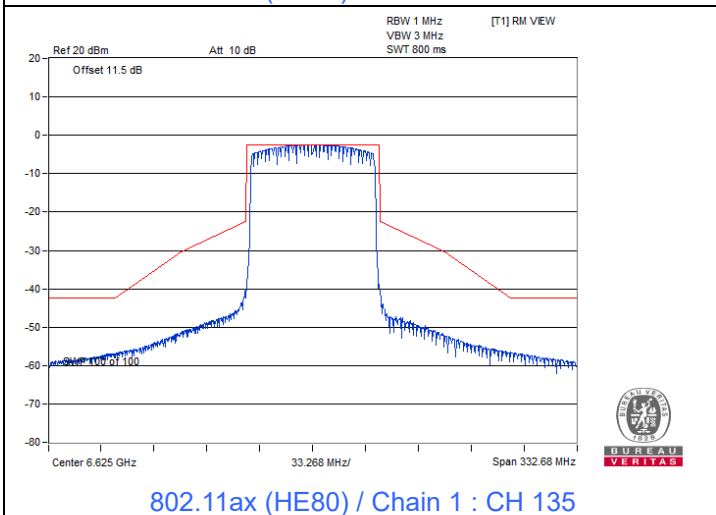
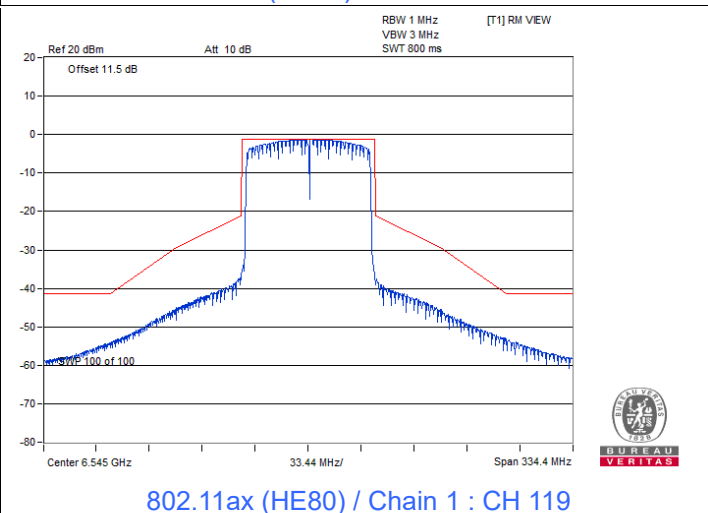
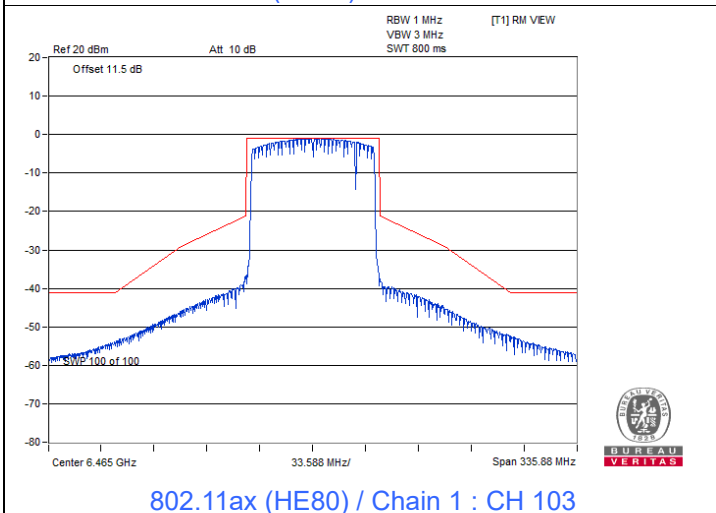
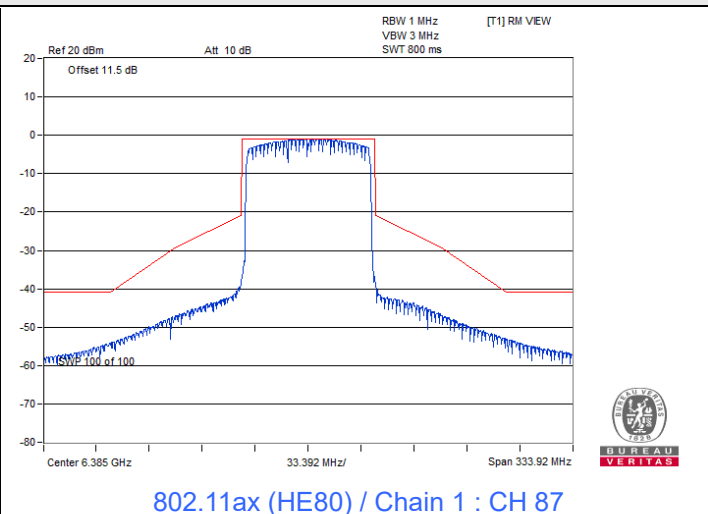
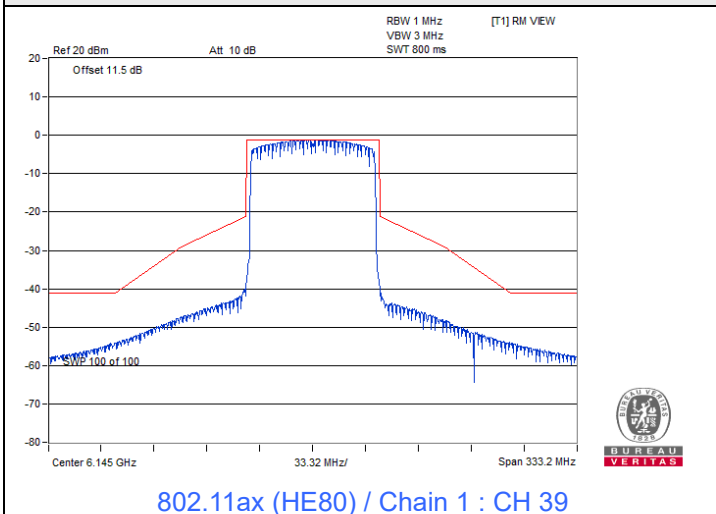


802.11ax (HE80) / Chain 0 : CH 215

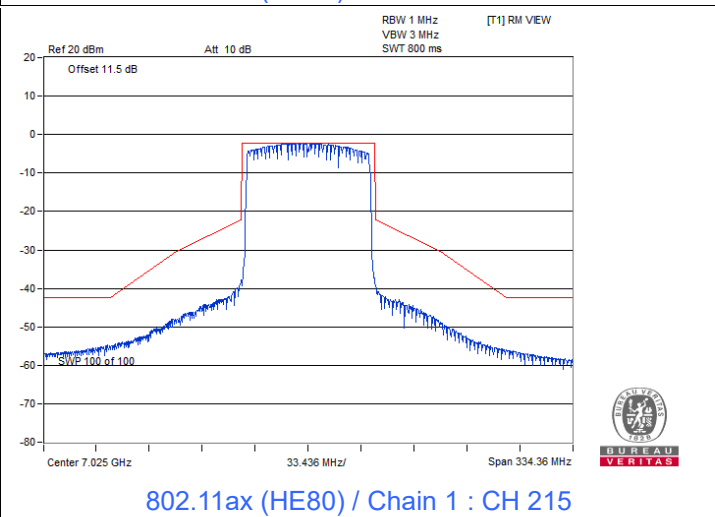
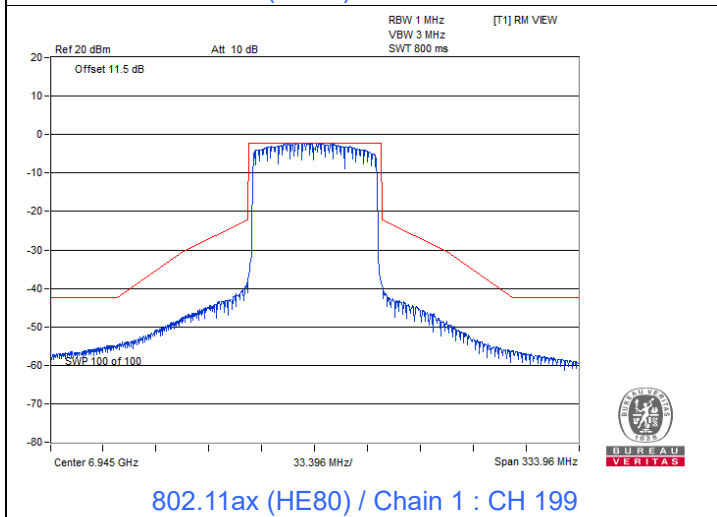
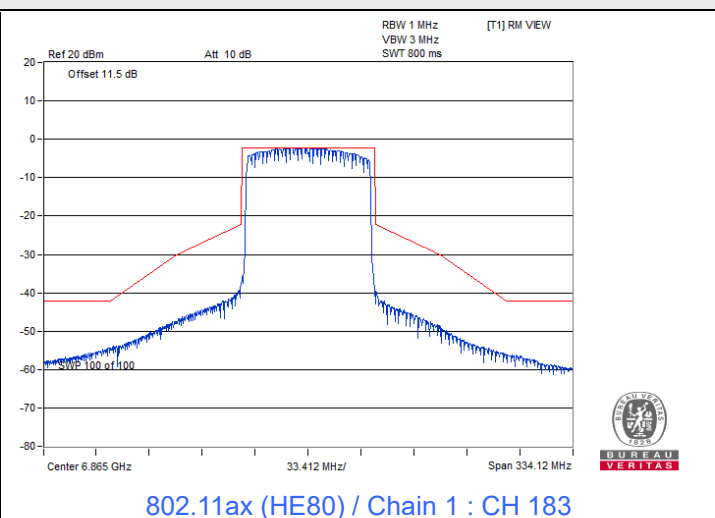
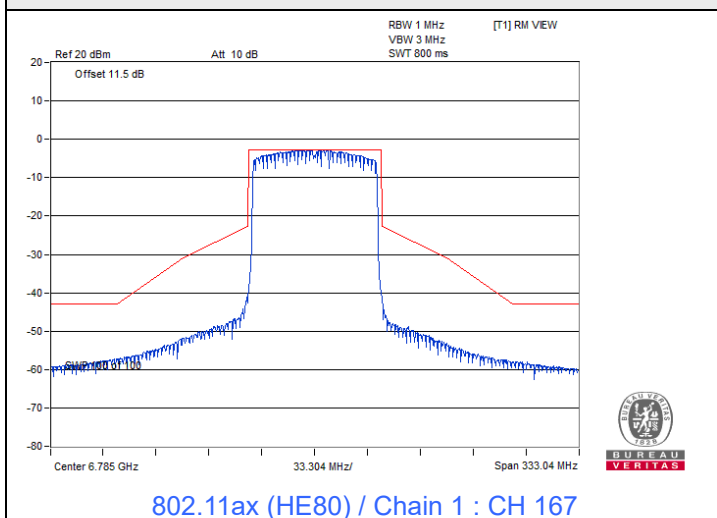


802.11ax (HE80) / Chain 1 : CH 7

Spectrum Plot

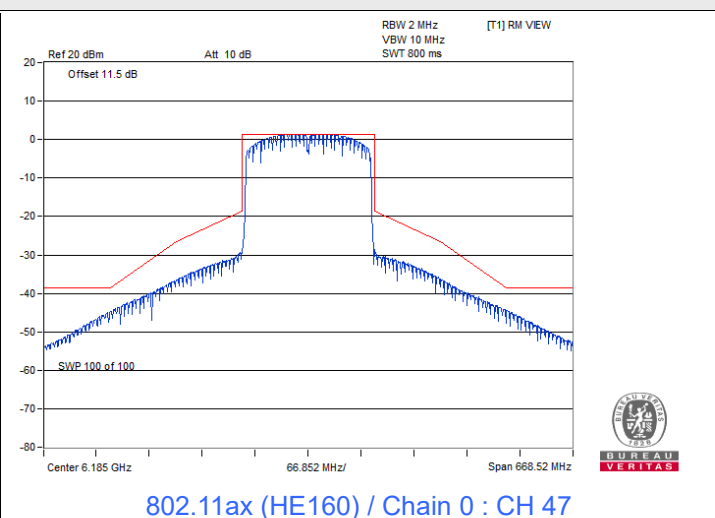
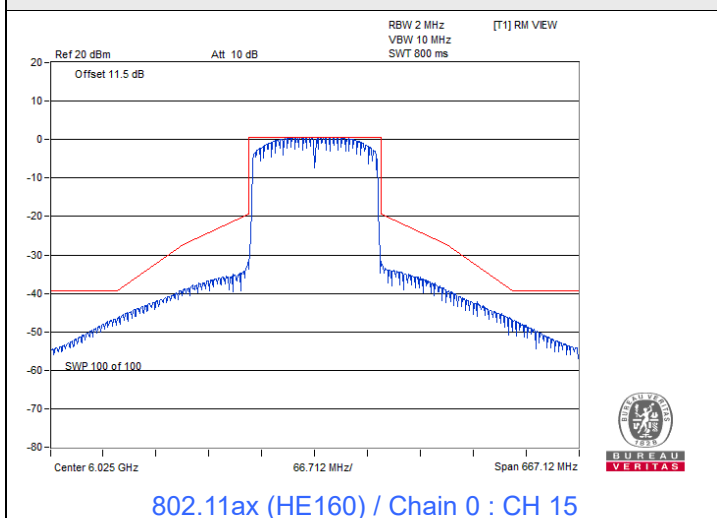


Spectrum Plot

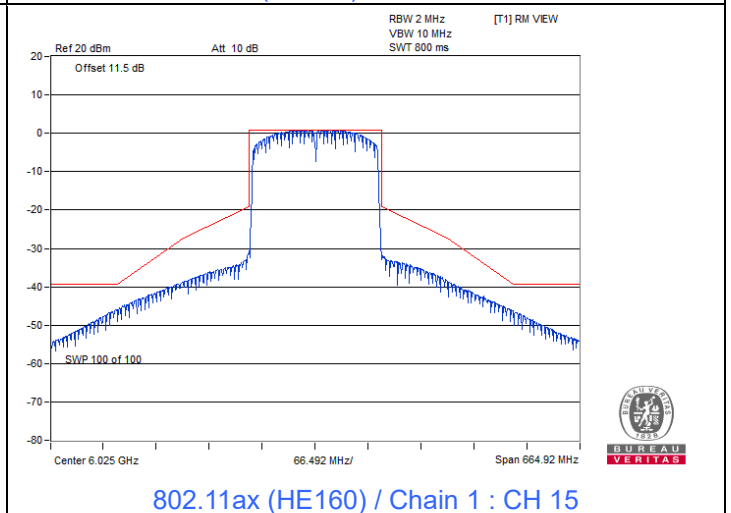
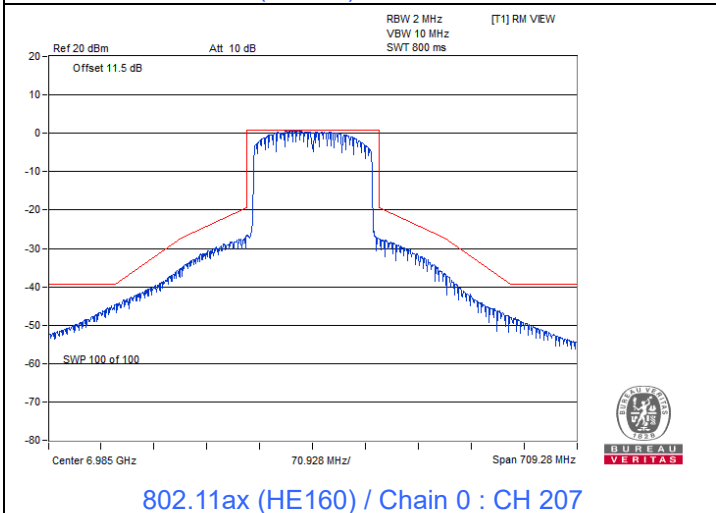
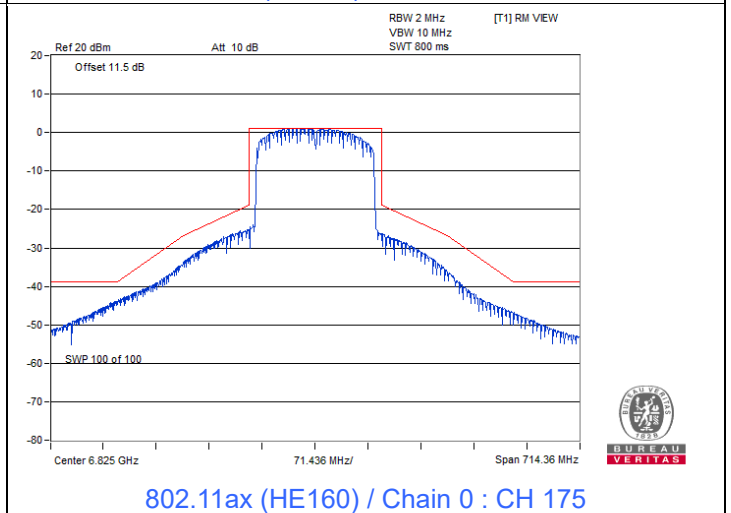
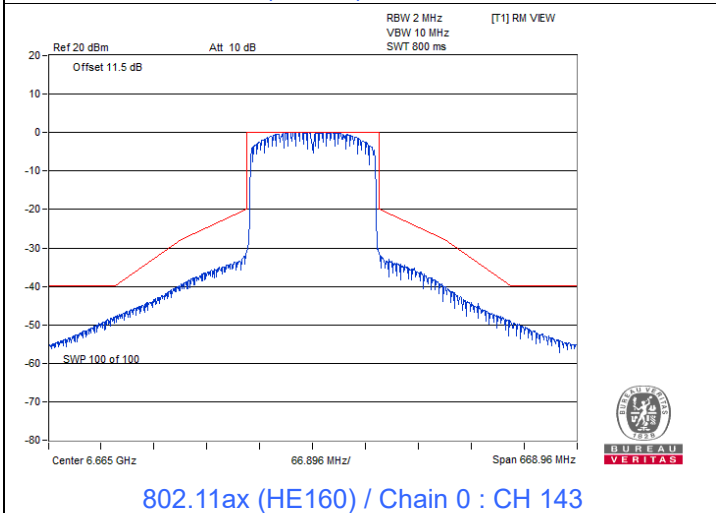
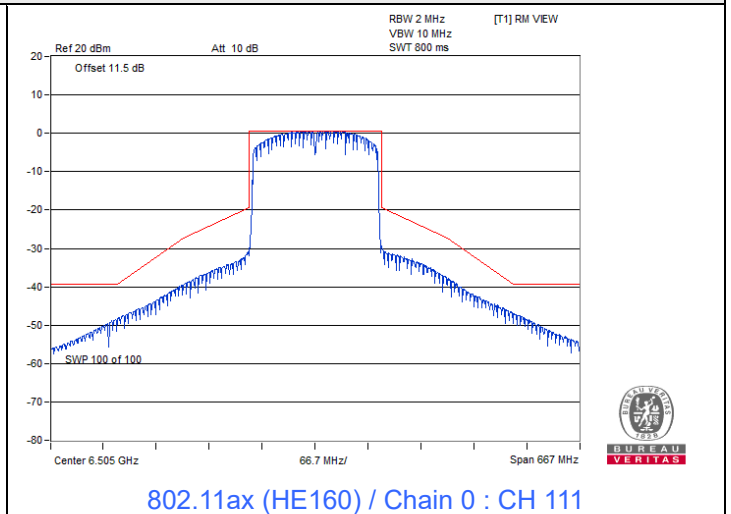
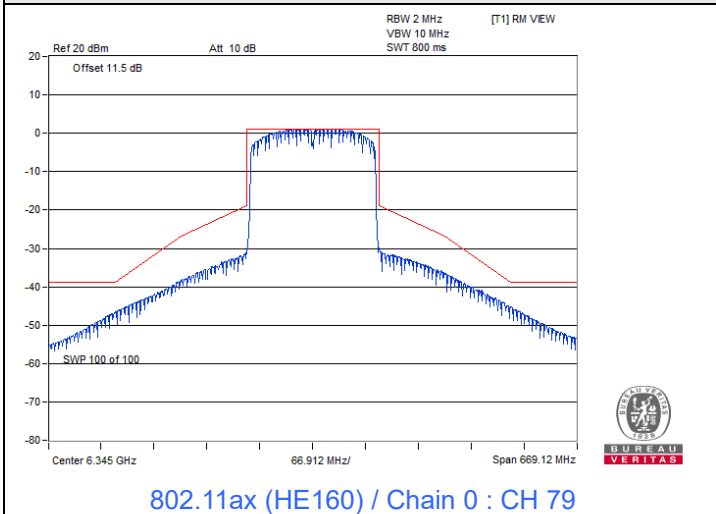


802.11ax (HE160)

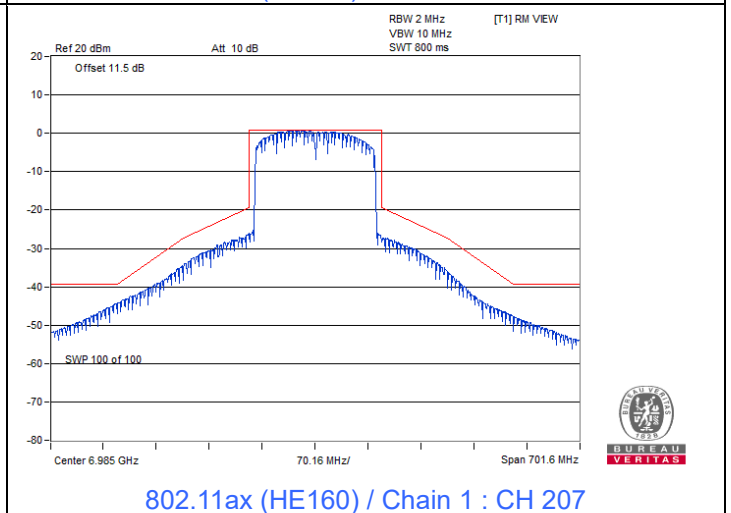
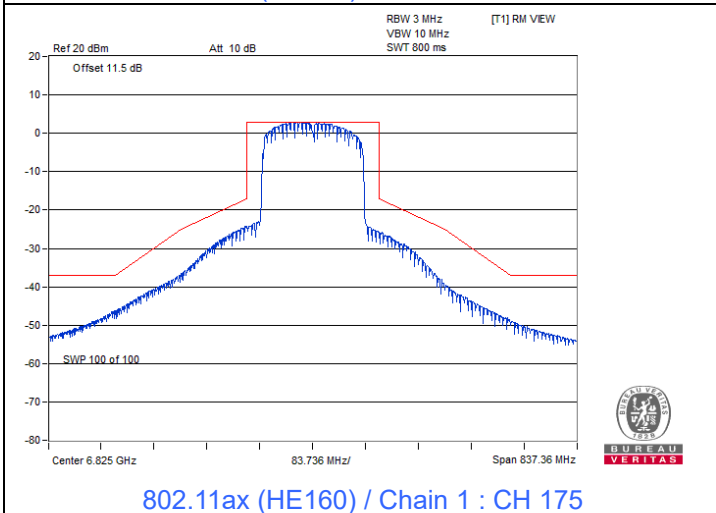
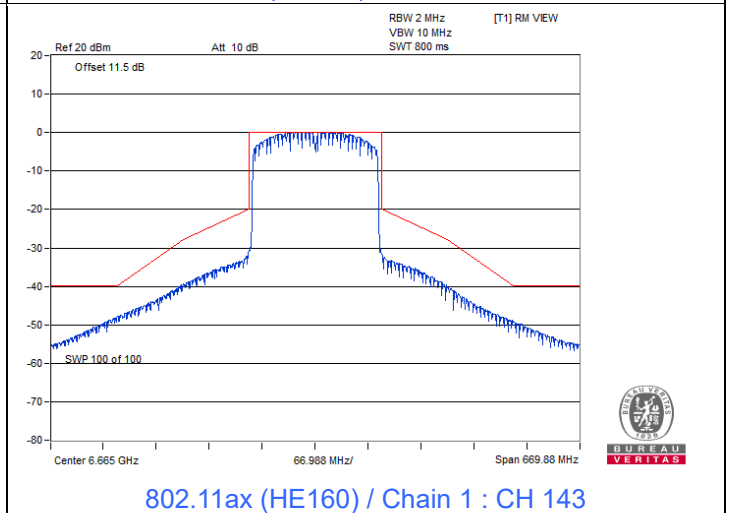
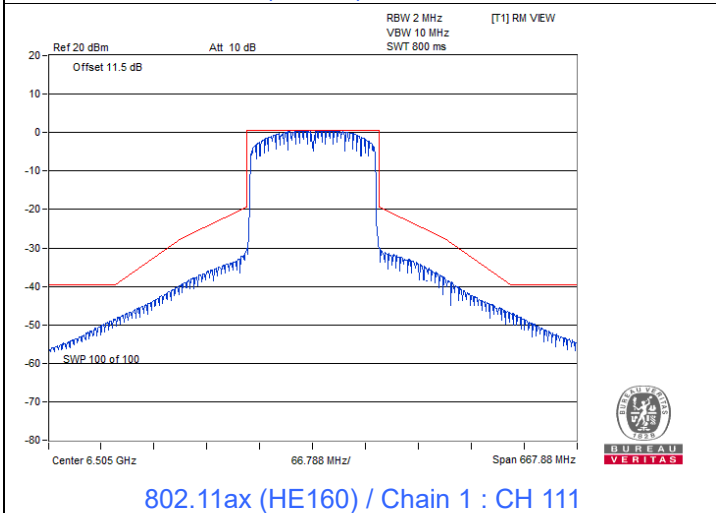
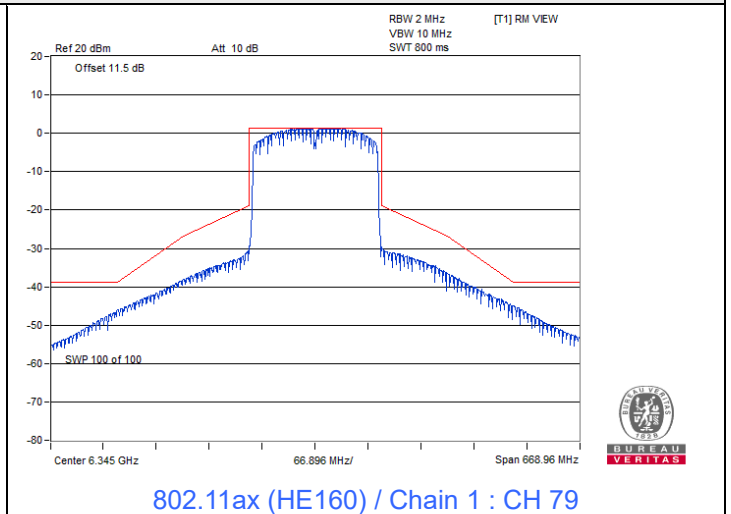
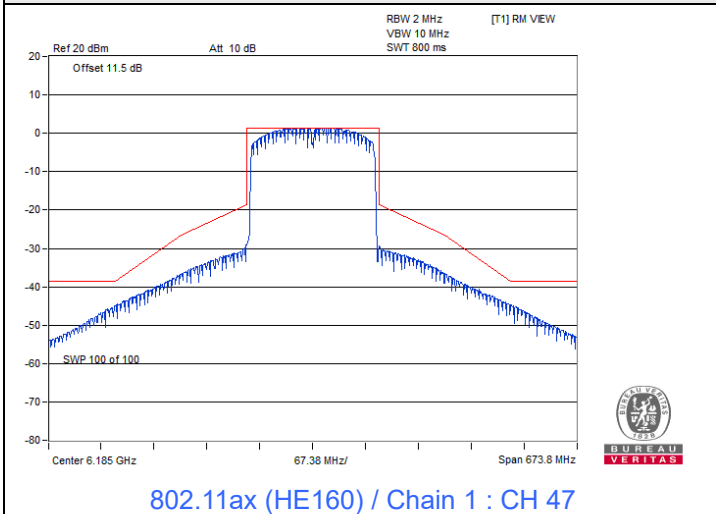
Spectrum Plot



Spectrum Plot



Spectrum Plot



7.5 Occupied Bandwidth

Input Power:	54 Vdc	Environmental Conditions:	25°C, 67% RH	Tested By:	Noah Chang
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Mode A:

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)				Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
1	5955	16.62	16.68	16.68	16.74	320	Pass
45	6175	16.68	16.80	16.80	16.80	320	Pass
93	6415	16.68	16.80	16.80	16.68	320	Pass
97	6435	16.68	16.80	16.80	16.80	320	Pass
105	6475	16.68	16.80	16.80	16.80	320	Pass
113	6515	16.68	16.80	16.80	16.80	320	Pass
117	6535	16.68	16.80	16.80	16.80	320	Pass
149	6695	16.68	16.80	16.68	16.80	320	Pass
181	6855	16.68	16.80	16.80	16.80	320	Pass
185	6875	16.68	16.80	16.80	16.80	320	Pass
209	6995	16.68	16.80	16.80	16.80	320	Pass
233	7115	16.68	16.80	16.80	16.80	320	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)				Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
1	5955	19.20	19.08	19.08	19.08	320	Pass
45	6175	19.08	19.08	19.08	19.08	320	Pass
93	6415	19.08	19.08	19.08	19.08	320	Pass
97	6435	19.08	19.20	19.08	19.08	320	Pass
105	6475	19.08	19.20	19.20	19.08	320	Pass
113	6515	19.08	19.20	19.20	19.20	320	Pass
117	6535	19.08	19.20	19.08	19.08	320	Pass
149	6695	19.08	19.08	19.20	19.08	320	Pass
181	6855	19.08	19.08	19.08	19.08	320	Pass
185	6875	19.08	19.08	19.08	19.08	320	Pass
209	6995	19.08	19.20	19.08	19.08	320	Pass
233	7115	19.08	19.20	19.20	19.20	320	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)				Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
3	5965	37.80	37.92	37.92	37.68	320	Pass
43	6165	37.68	38.16	37.68	38.16	320	Pass
91	6405	37.68	37.68	37.92	37.92	320	Pass
99	6445	37.92	37.92	37.92	37.68	320	Pass
107	6485	37.92	37.92	38.16	37.92	320	Pass
115	6525	37.68	37.68	37.68	37.92	320	Pass
123	6565	37.92	37.68	37.68	37.92	320	Pass
155	6725	37.92	37.92	37.68	37.92	320	Pass
179	6845	37.92	37.68	37.68	37.68	320	Pass
187	6885	37.68	38.16	37.92	37.92	320	Pass
211	7005	37.92	37.92	37.68	37.92	320	Pass
227	7085	37.92	37.92	37.68	37.92	320	Pass

802.11ax (HE80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)				Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
7	5985	77.28	77.28	77.76	77.28	320	Pass
39	6145	77.28	77.28	77.28	77.28	320	Pass
87	6385	77.28	77.28	77.28	77.28	320	Pass
103	6465	77.28	77.28	77.28	77.28	320	Pass
119	6545	77.28	77.28	77.28	77.28	320	Pass
135	6625	77.28	77.28	77.28	77.28	320	Pass
151	6705	77.28	77.28	77.28	77.28	320	Pass
167	6785	77.28	77.28	77.28	77.28	320	Pass
183	6865	77.28	77.28	77.28	77.28	320	Pass
199	6945	77.28	77.28	77.28	77.76	320	Pass
215	7025	77.28	77.28	77.28	77.28	320	Pass

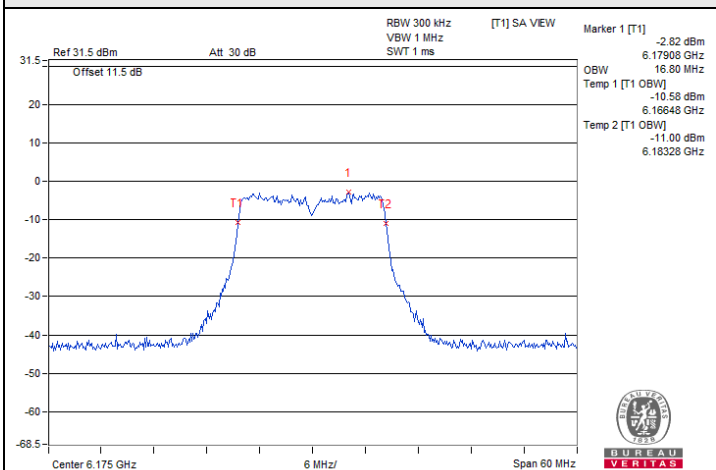


802.11ax (HE160)

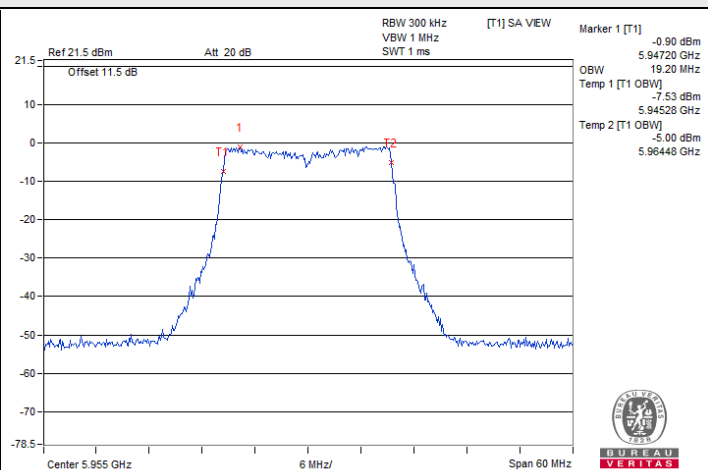
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)				Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
15	6025	155.52	154.56	154.56	154.56	320	Pass
47	6185	154.56	155.52	155.52	155.52	320	Pass
79	6345	155.52	155.52	154.56	154.56	320	Pass
111	6505	154.56	154.56	155.52	154.56	320	Pass
143	6665	154.56	155.52	154.56	154.56	320	Pass
175	6825	154.56	155.52	155.52	154.56	320	Pass
207	6985	154.56	155.52	155.52	154.56	320	Pass



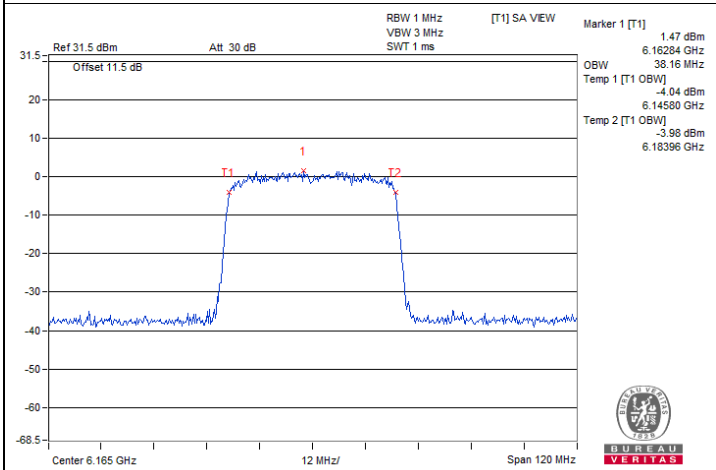
Spectrum Plot of Maximum Value



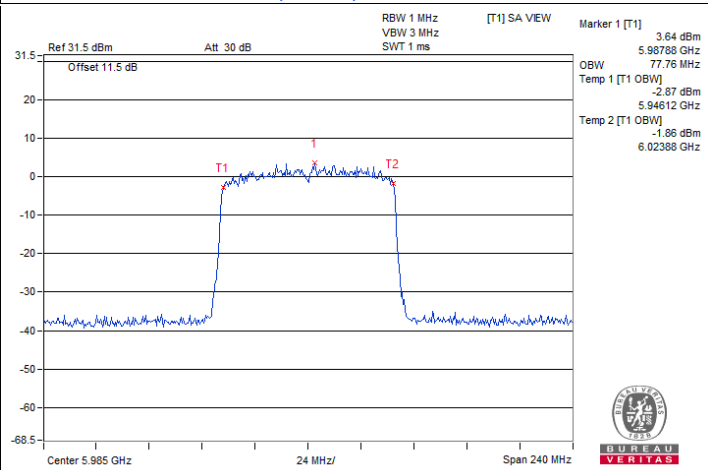
802.11a / Chain 1 : CH 45



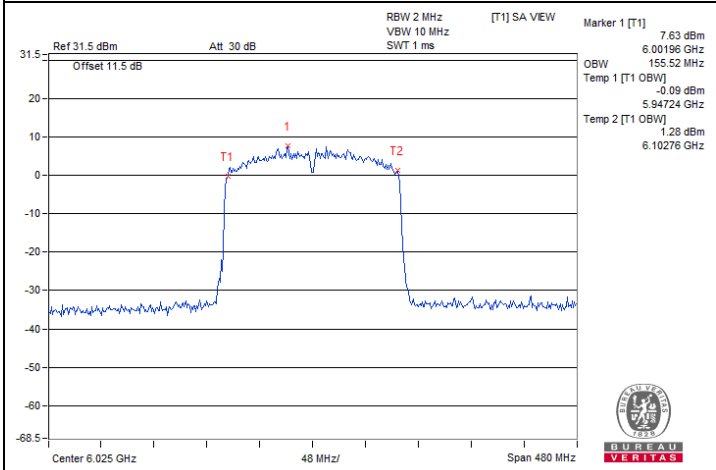
802.11ax (HE20) / Chain 0 : CH 1



802.11ax (HE40) / Chain 1 : CH 43



802.11ax (HE80) / Chain 2 : CH 7



802.11ax (HE160) / Chain 0 : CH 15



Input Power:	54 Vdc	Environmental Conditions:	25°C, 67% RH	Tested By:	Noah Chang
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Mode B:

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	5955	16.68	16.68	320	Pass
45	6175	16.68	16.68	320	Pass
93	6415	16.68	16.68	320	Pass
97	6435	16.68	16.68	320	Pass
105	6475	16.68	16.68	320	Pass
113	6515	16.68	16.68	320	Pass
117	6535	16.68	16.68	320	Pass
149	6695	16.68	16.68	320	Pass
181	6855	16.68	16.68	320	Pass
185	6875	16.68	16.68	320	Pass
209	6995	16.68	16.68	320	Pass
233	7115	16.68	16.68	320	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	5955	19.08	19.08	320	Pass
45	6175	19.08	19.08	320	Pass
93	6415	19.08	19.20	320	Pass
97	6435	19.08	19.08	320	Pass
105	6475	19.08	19.08	320	Pass
113	6515	19.08	19.08	320	Pass
117	6535	19.08	19.08	320	Pass
149	6695	19.20	19.14	320	Pass
181	6855	19.08	19.08	320	Pass
185	6875	19.08	19.08	320	Pass
209	6995	19.08	19.08	320	Pass
233	7115	19.20	19.08	320	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
3	5965	37.92	37.92	320	Pass
43	6165	37.92	37.68	320	Pass
91	6405	38.16	37.92	320	Pass
99	6445	38.16	37.92	320	Pass
107	6485	37.92	37.92	320	Pass
115	6525	37.92	37.68	320	Pass
123	6565	37.92	37.92	320	Pass
155	6725	37.68	37.68	320	Pass
179	6845	37.68	37.68	320	Pass
187	6885	37.68	38.16	320	Pass
211	7005	37.92	37.92	320	Pass
227	7085	38.16	37.92	320	Pass

802.11ax (HE80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
7	5985	77.28	77.28	320	Pass
39	6145	77.28	77.28	320	Pass
87	6385	77.28	77.28	320	Pass
103	6465	77.28	77.28	320	Pass
119	6545	77.28	77.28	320	Pass
135	6625	77.28	77.28	320	Pass
151	6705	77.28	77.28	320	Pass
167	6785	77.28	77.28	320	Pass
183	6865	77.28	77.28	320	Pass
199	6945	77.28	77.28	320	Pass
215	7025	77.28	77.28	320	Pass

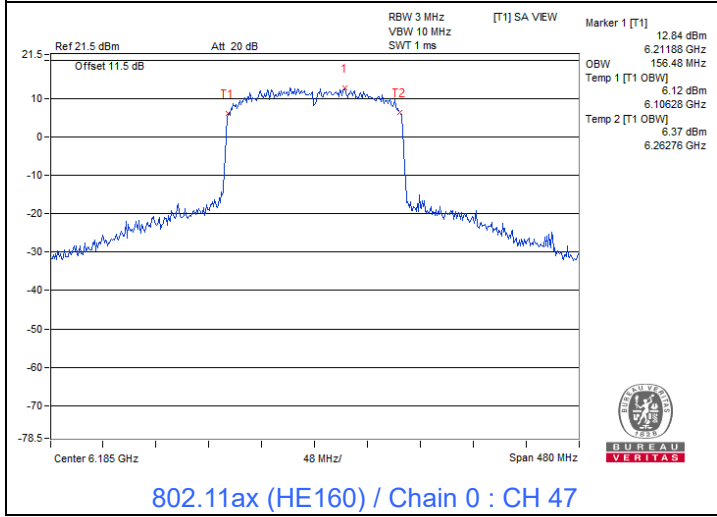
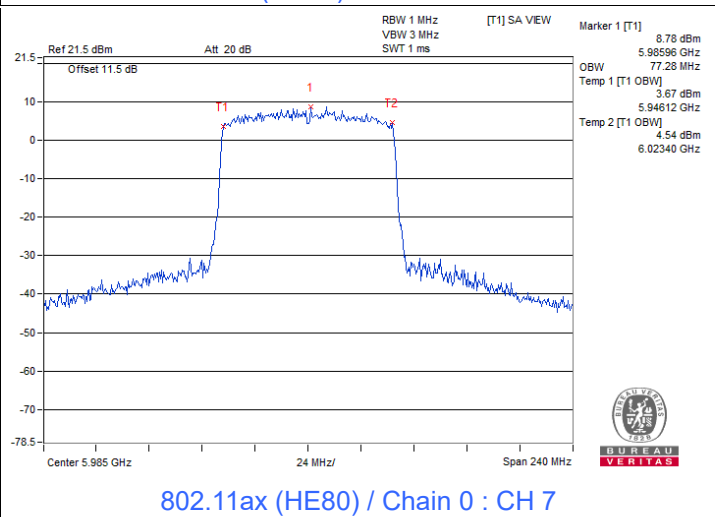
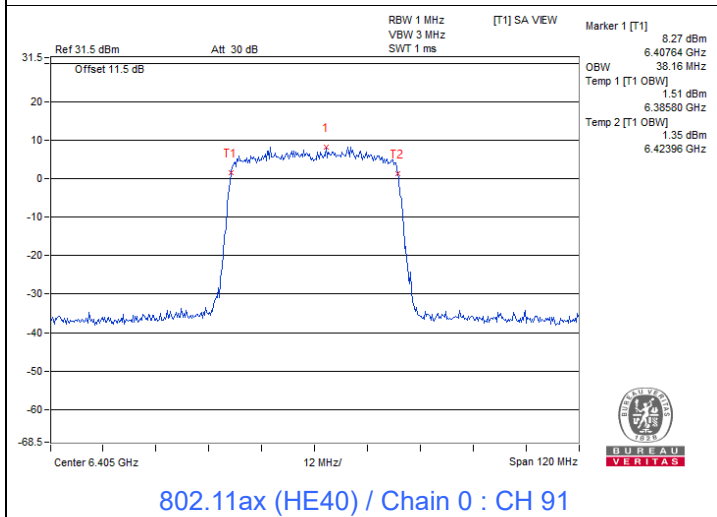
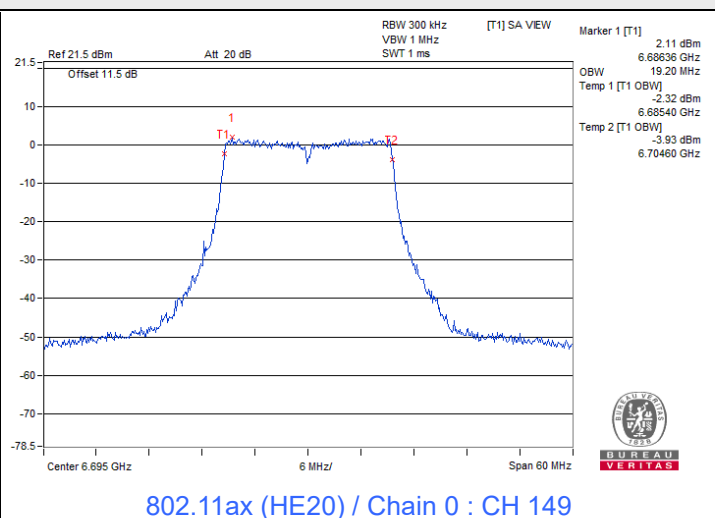
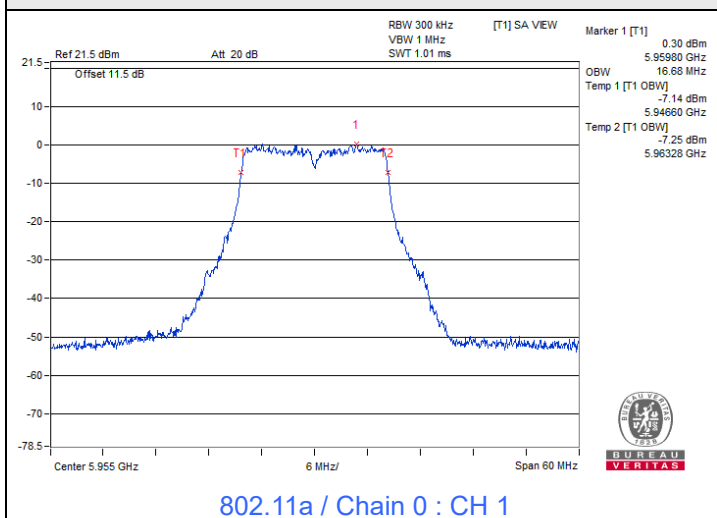


802.11ax (HE160)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Maximum Limit (MHz)	Test Result
		Chain 0	Chain 1		
15	6025	155.52	155.52	320	Pass
47	6185	156.48	155.52	320	Pass
79	6345	155.52	155.52	320	Pass
111	6505	154.56	154.56	320	Pass
143	6665	155.52	155.52	320	Pass
175	6825	155.52	155.52	320	Pass
207	6985	156.48	156.48	320	Pass



Spectrum Plot of Maximum Value



7.6 Frequency Stability

Input Power:	54 Vdc	Environmental Conditions:	25°C, 67% RH	Tested By:	Noah Chang
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Mode A:

802.11a

Frequency Stability Versus Temperature									
Operating Frequency: 5955 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result
55	54	5955.001	Pass	5954.9997	Pass	5955.0021	Pass	5955.001	Pass
50	54	5954.9853	Pass	5954.9865	Pass	5954.9845	Pass	5954.9845	Pass
40	54	5954.9804	Pass	5954.9776	Pass	5954.9801	Pass	5954.9756	Pass
30	54	5954.9934	Pass	5954.9894	Pass	5954.9878	Pass	5954.9883	Pass
20	54	5955.0069	Pass	5955.0066	Pass	5955.0059	Pass	5955.008	Pass
10	54	5955.0043	Pass	5955.0008	Pass	5955.0036	Pass	5955.0043	Pass
0	54	5955.0212	Pass	5955.0216	Pass	5955.0233	Pass	5955.0257	Pass
-10	54	5955.0217	Pass	5955.0229	Pass	5955.0223	Pass	5955.0256	Pass
-20	54	5955.0112	Pass	5955.0075	Pass	5955.0097	Pass	5955.0091	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5955 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result
20	62.1	5955.0028	Pass	5955.0039	Pass	5955.0039	Pass	5955.0037	Pass
	54	5955.0069	Pass	5955.0066	Pass	5955.0059	Pass	5955.008	Pass
	45.9	5954.9992	Pass	5955.0043	Pass	5954.9992	Pass	5955.0027	Pass



Input Power:	54 Vdc	Environmental Conditions:	25°C, 67% RH	Tested By:	Noah Chang
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Mode B:

802.11a

Frequency Stability Versus Temperature									
Operating Frequency: 5955 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result
55	54	5954.9914	Pass	5954.9901	Pass	5954.9924	Pass	5954.9913	Pass
50	54	5954.9757	Pass	5954.9769	Pass	5954.9749	Pass	5954.9749	Pass
40	54	5955.0303	Pass	5955.0275	Pass	5955.0301	Pass	5955.0315	Pass
30	54	5954.9838	Pass	5954.9799	Pass	5954.9842	Pass	5954.9847	Pass
20	54	5954.9972	Pass	5954.9969	Pass	5954.9962	Pass	5954.9983	Pass
10	54	5954.9947	Pass	5954.9912	Pass	5954.994	Pass	5954.9947	Pass
0	54	5955.0176	Pass	5955.012	Pass	5955.0137	Pass	5955.0162	Pass
-10	54	5955.018	Pass	5955.0132	Pass	5955.0126	Pass	5955.016	Pass
-20	54	5955.0223	Pass	5955.0246	Pass	5955.0208	Pass	5955.0261	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5955 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result
20	62.1	5955.0009	Pass	5955.0019	Pass	5955.002	Pass	5955.0018	Pass
	54	5954.9972	Pass	5954.9969	Pass	5954.9962	Pass	5954.9983	Pass
	45.9	5955.0034	Pass	5955.0025	Pass	5955.0034	Pass	5955.0009	Pass

7.7 Contention-based Protocol

Environmental Conditions:	25°C, 60% RH	Tested By:	Stan Shih
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Companion Device Information			
Product	Brand	Model No.	Software/Firmware Version
Indoor Wireless AP	Nile Global	NWA1100	23.1.2-157

Mode A:

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	45	6175	6175	-64.2	5.8	0	-70	-62	OFF
					-69.2	5.8	0	-75	-62	Minimal
					-76.2	5.8	0	-82	-62	ON
				6110	-63.2	5.8	0	-69	-62	OFF
					-69.2	5.8	0	-75	-62	Minimal
					-76.2	5.8	0	-82	-62	ON
	160	47	6185	6185	-63.2	5.8	0	-69	-62	OFF
					-69.2	5.8	0	-75	-62	Minimal
					-76.2	5.8	0	-82	-62	ON
				6260	-63.2	5.8	0	-69	-62	OFF
					-69.2	5.8	0	-75	-62	Minimal
					-76.2	5.8	0	-82	-62	ON

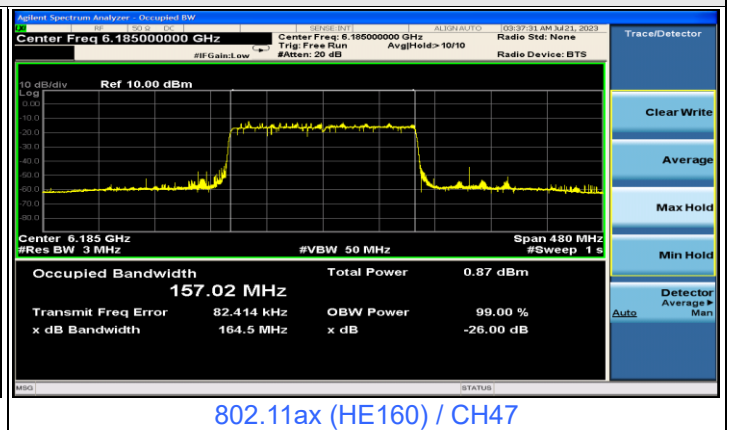
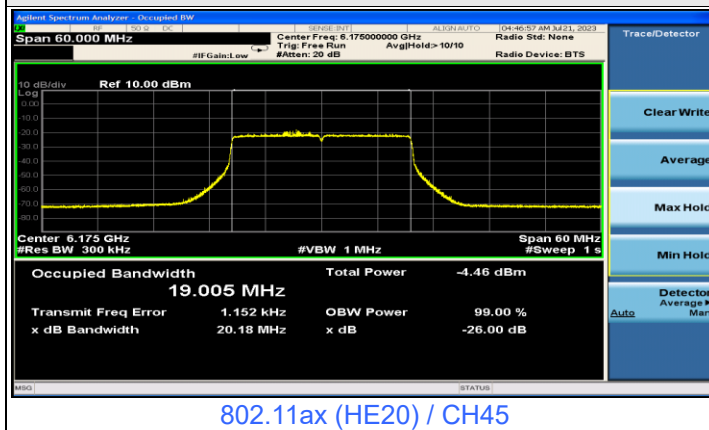
Notes:

1. After investigation (consider antenna gain and path loss) , the one representative port (Chain 2) 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.

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	6175	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
	160	6110	v	v	v	v	v	v	v	v	v	v	100%	90%	Pass
		6185	v	v	v	v	v	v	v	v	v	v	100%	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

