

Report No.: FR071418AB

FCC RADIO TEST REPORT

FCC ID

: **UIDW11**

Equipment

: Wi-Fi Extender

Brand Name

: ARRIS

Model Name

: W11

Applicant

: ARRIS

3871 Lakefield Drive Suite 300, Suwanee, Georgia,

30024 United States

Manufacturer

: ARRIS

3871 Lakefield Drive Suite 300, Suwanee, Georgia,

30024 United States

Standard

: 47 CFR FCC Part 15.407

The product was received on Jun. 11, 2020, and testing was started from Jun. 11, 2020 and completed on Jul. 29, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Cliff Chang

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

TEL: 886-3-656-9065

FAX: 886-3-656-9085

Report Template No.: CB-A12_1 Ver1.2

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Issued Date : Sep. 10, 2020

Report Version : 01

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Appendix B. Test Results of Emission Bandwidth

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Photographs of EUT v01

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History of this test report

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Report No.	Version	Description	Issued Date
FR071418AB	01	Initial issue of report	Sep. 10, 2020

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Summary of Test Result

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Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.407(a)	Emission Bandwidth	PASS	-
3.3	15.407(a)	Maximum Conducted Output Power	PASS	-
3.4	15.407(a)	Peak Power Spectral Density	PASS	-
3.5	15.407(b)	Unwanted Emissions	PASS	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen
Report Producer: Viola Huang

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1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5150-5250	a, n (HT20), ac (VHT20),	5180-5240	36-48 [4]
5725-5850	ax (HEW20)	5745-5825	149-165 [5]
5150-5250	n (HT40), ac (VHT40),	5190-5230	38-46 [2]
5725-5850	ax (HEW40)	5755-5795	151-159 [2]
5150-5250	ac (VHT80), ax (HEW80)	5210	42 [1]
5725-5850	ao (************************************	5775	155 [1]

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For Radio 1

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	2
5.15-5.25GHz	802.11n HT20	20	2
5.15-5.25GHz	802.11ac VHT20	20	2
5.15-5.25GHz	802.11ax HEW20	20	2
5.15-5.25GHz	802.11n HT40	40	2
5.15-5.25GHz	802.11ac VHT40	40	2
5.15-5.25GHz	802.11ax HEW40	40	2
5.15-5.25GHz	802.11ac VHT80	80	2
5.15-5.25GHz	802.11ax HEW80	80	2

For Radio 2

Band	Mode	BWch (MHz)	Nant
5.725-5.85GHz	802.11a	20	4
5.725-5.85GHz	802.11n HT20	20	4
5.725-5.85GHz	802.11ac VHT20	20	4
5.725-5.85GHz	802.11ax HEW20	20	4
5.725-5.85GHz	802.11n HT40	40	4
5.725-5.85GHz	802.11ac VHT40	40	4
5.725-5.85GHz	802.11ax HEW40	40	4
5.725-5.85GHz	802.11ac VHT80	80	4
5.725-5.85GHz	802.11ax HEW80	80	4

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Note:

- 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- VHT20, VHT40, VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM, modulation.

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- HEW20, HEW40, HEW80 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- BWch is the nominal channel bandwidth.

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1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	WANSHIH	UC6WFI0168A	PCB Antenna	I-PEX	
2	2	WANSHIH	UC6WFI0169A	PCB Antenna	I-PEX	
3	1	WANSHIH	UC6WFI0163A	PCB Antenna	I-PEX	
4	2	WANSHIH	UC6WFI0164A	PCB Antenna	I-PEX	Note 1
5	3	WANSHIH	UC6WFI0165A	PCB Antenna	I-PEX	Note i
6	4	WANSHIH	UC6WFI0166A	PCB Antenna	I-PEX	
7	1	WANSHIH	UC6WFI0167A	PCB Antenna	I-PEX	
8	2	WANSHIH	UC6WFI0169A	PCB Antenna	I-PEX	

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Note 1:

Ant.	Uncorrelated Antenna (dBi)				
	2.4GHz	5GHz Band 1	5GHz Band 4		
1	4.06	-	-		
2	4.04	-	-		
3	-	-	3.76		
4	-	-	4.45		
5	-	-	5.26		
6	-	-	5.20		
7	-	4.94	-		
8	-	4.65	-		
Correlated Antenna (dBi)	4.58	6	7.88		

Note 2: The above information was declared by manufacturer.

For 2.4GHz function:

For IEEE 802.11b/g/n/VHT/ax mode (2TX/2RX)

Ant.1 and Ant. 2 can be used as transmitting/receiving antenna.

Ant.1 and Ant. 2 could transmit/receive simultaneously.

For 5GHz Band 1 function:

For IEEE 802.11a/n/ac/ax mode (2TX/2RX)

Ant. 7 and Ant. 8 can be used as transmitting/receiving antenna.

Ant. 7 and Ant. 8 could transmit/receive simultaneously.

For 5GHz Band 4 function:

For IEEE 802.11a/n/ac/ax mode (4TX/4RX)

Ant. 3, Ant. 4, Ant. 5 and Ant. 6 can be used as transmitting/receiving antenna.

Ant. 3, Ant. 4, Ant. 5 and Ant. 6 could transmit/receive simultaneously.

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Mode Test Duty Cycle 1.1.3

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11a	0.947	0.24	2.065m	1k
802.11ax HEW20	0.979	0.09	1.489m	1k
802.11ax HEW40	0.964	0.16	781.25u	3k
802.11ax HEW80	0.929	0.32	415u	3k

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- DC is Duty Cycle. DCF is Duty Cycle Factor.

EUT Operational Condition 1.1.4

EUT Power Type	Fro	From host system				
Beamforming Function		☐ With beamforming ☐ Without beamforming				
Function		Outdoor P2M		Indoor P2M		
diction		Fixed P2P		Client		
Test Software Version	Mtool_3.2.0.0					

Note: The above information was declared by manufacturer.

Table for Radio function

Radio	2.4GHz	5GHz Band 1	5GHz Band 4
1	V	V	-
2	-	-	V

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1.2 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

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- 47 CFR FCC Part 15
- ANSI C63.10-2013
- FCC KDB 789033 D02 v02r01

The following reference test guidance is not within the scope of accreditation of TAF.

- FCC KDB 662911 D01 v02r01
- FCC KDB 412172 D01 v01r01
- FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location				
HWA YA ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)				
	TEL	:	886-3-327-3456 FAX : 886-3-327-0973	
JHUBEI	ADD	:	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.	
	TEL	:	886-3-656-9065 FAX : 886-3-656-9085	

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH03-CB	Benson Su	28.8-31.2°C / 35-37%	Jun. 22, 2020 ~ Jul. 20, 2020
Radiated Below 1GHz	03CH03-CB	Mason Chen	26-26.3°C / 57-61%	Jul. 24, 2020
Radiated Above 1GHz	03CH03-CB	Mason Chen	25.5-26.4°C / 55-58%	Jun. 11, 2020
AC Conduction	CO01-CB	GN Hou	22-24°C / 62-65%	Jul. 29, 2020

Test site Designation No. TW0006 with FCC

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	2.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	5.1 dB	Confidence levels of 95%
Conducted Emission	2.8 dB	Confidence levels of 95%
Output Power Measurement	1.4 dB	Confidence levels of 95%
Power Density Measurement	2.8 dB	Confidence levels of 95%
Bandwidth Measurement	0.39%	Confidence levels of 95%

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Test site registered number IC 4086D with Industry Canada.

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
802.11a_Nss1,(6Mbps)_2TX	-
5180MHz	81
5200MHz	100
5240MHz	100
802.11a_Nss1,(6Mbps)_4TX	-
5745MHz	92
5785MHz	92
5825MHz	92
802.11ax HEW20_Nss1,(MCS0)_2TX	-
5180MHz	82
5200MHz	100
5240MHz	100
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5745MHz	92
5785MHz	92
5825MHz	92
802.11ax HEW40_Nss1,(MCS0)_2TX	-
5190MHz	69
5230MHz	92
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5755MHz	92
5795MHz	92
802.11ax HEW80_Nss1,(MCS0)_2TX	-
5210MHz	70
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5775MHz	92

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Note:

• VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than 802.11ac VHT20 and VHT40.

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2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests		
Tests Item AC power-line conducted emissions		
Condition AC power-line conducted measurement for line and neutral		
Operating Mode CTX		
1	EUT_2.4GHz	
2 EUT_5GHz Band 1		
3 EUT_5GHz Band 4		
For operating mode 1 is the worst case and it was record in this test report.		

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The Worst Case Mode for Following Conformance Tests		
Tests Item Emission Bandwidth Maximum Conducted Output Power Peak Power Spectral Density		
Test Condition	Conducted measurement at transmit chains	

Th	e Worst Case Mode for Following Conformance Tests
Tests Item	Unwanted Emissions
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
	CTX
Operating Mode < 1GHz	The EUT was performed at X axis, Y axis and Z axis position for Emissions in Restricted Frequency Bands below 1GHz test for 2.4GHz, and the worst case was found at X axis. So the measurement will follow this same test configuration. The EUT was performed at X axis, Y axis and Z axis position for Unwanted Emissions below 1GHz test for 5GHz, and the worst case was found at Y axis. So the measurement will follow this same test configuration.
1	EUT in X axis_2.4GHz
2	EUT in Y axis_5GHz Band 1
3	EUT in Y axis_5GHz Band 4
For operating mode 1 is th	e worst case and it was record in this test report.
	СТХ
Operating Mode > 1GHz	The EUT was performed at X axis, Y axis and Z axis position, and the worst case was found at Y axis. So the measurement will follow this same test configuration.
1	EUT in Y axis

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The Worst Case Mode for Following Conformance Tests			
Tests Item Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation			
Operating Mode			
1 WLAN 2.4GHz + WLAN 5GHz Band 1 + WLAN 5GHz Band 4			
Refer to Sporton Test Report No.: FA071418 for Co-location RF Exposure Evaluation.			

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2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.4 Accessories

N/A

2.5 Support Equipment

For AC Conduction:

Support Equipment					
No.	No. Equipment Brand Name Model Name FCC ID				
Α	A LAN NB DELL E6430 N/A				

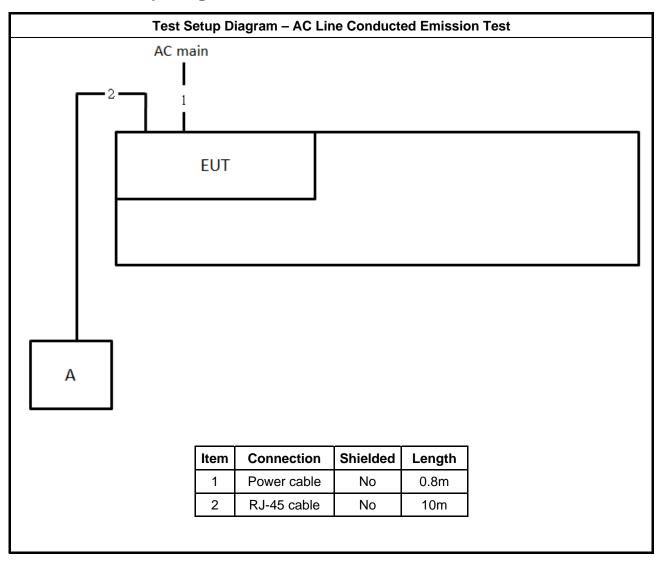
For Radiated and RF Conducted:

	Support Equipment					
No.	lo. Equipment Brand Name Model Name FCC ID					
Α	LAN NB	DELL	E4300	N/A		

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2.6 Test Setup Diagram

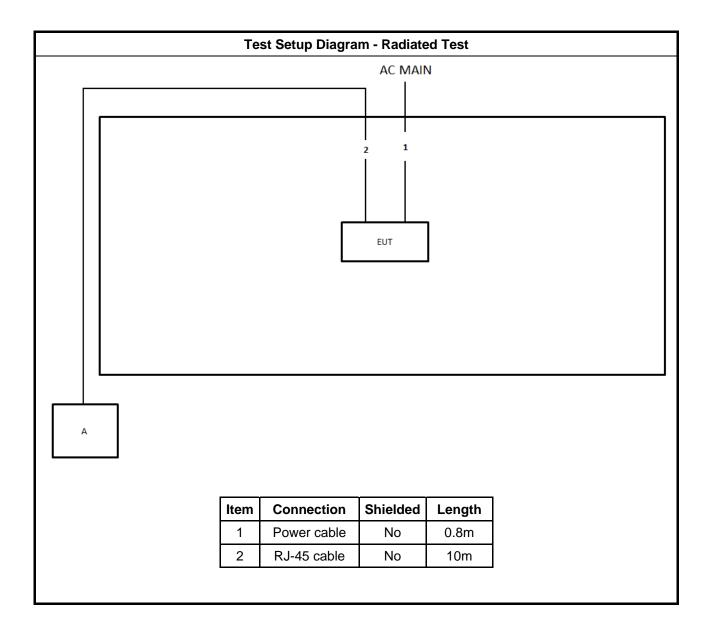


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3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit				
Frequency Emission (MHz)	Quasi-Peak	Average		
0.15-0.5	66 - 56 *	56 - 46 *		
0.5-5	56	46		
5-30	60	50		
Note 1: * Decreases with the logarithm of the frequency.				

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3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

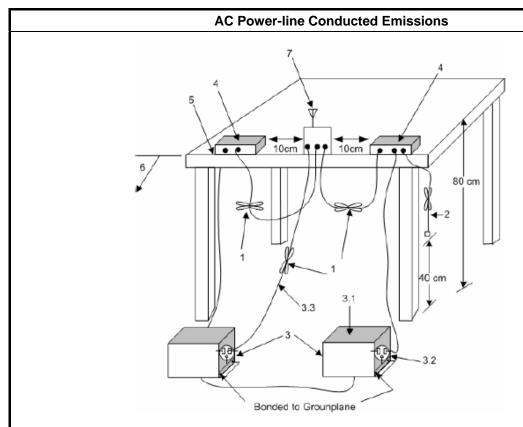
3.1.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

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3.1.4 Test Setup



1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.

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- 2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- 3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
- 3.1—All other equipment powered from additional LISN(s).
- 3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
- 3.3—LISN at least 80 cm from nearest part of EUT chassis.
- 4—Non-EUT components of EUT system being tested.
- 5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
- 6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
- 7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

3.1.5 Measurement Results Calculation

The measured Level is calculated using:

- a. Corrected Reading: LISN Factor (LISN) + Attenuator (AT/AUX) + Cable Loss (CL) + Read Level (Raw) = Level
- b. Margin = -Limit + Level

3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

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3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

	Emission Bandwidth Limit							
UN	UNII Devices							
\boxtimes	For the 5.15-5.25 GHz band, N/A							
	For the 5.25-5.35 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + $10 \log B$, where B is the 26 dB emission bandwidth in MHz.							
	For the 5.47-5.725 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.							
\boxtimes	For the 5.725-5.85 GHz band, 6 dB emission bandwidth ≥ 500kHz.							
LE-	LAN Devices							
	For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.							
	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz							
	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz							
	For the 5.725-5.85 GHz band, 6 dB emission bandwidth ≥ 500kHz.							

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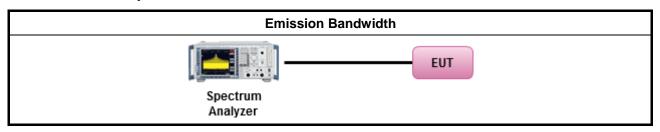
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

	Test Method								
•	For the emission bandwidth shall be measured using one of the options below:								
Refer as FCC KDB 789033, clause C for EBW and clause D for OBW measurement.									
Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.									
		Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.							

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

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3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

	Maximum Conducted Output Power Limit
UNI	I Devices
\boxtimes	For the 5.15-5.25 GHz band:
	 Outdoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If G_{TX} > 6 dBi, then P_{Out} = 30 - (G_{TX} - 6). e.i.r.p. at any elevation angle above 30 degrees ≤ 125mW [21dBm]
	Indoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$
	Point-to-point AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W If $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$.
	Mobile or Portable Client: the maximum conducted output power (P _{Out}) shall not exceed the lesser of 250 mW. If G _{TX} > 6 dBi, then P _{Out} = 24 - (G _{TX} - 6).
	For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If G_{TX} > 6 dBi, then P_{Out} = 24 – (G_{TX} – 6).
	For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If G_{TX} > 6 dBi, then P_{Out} = 24 – (G_{TX} – 6).
\boxtimes	For the 5.725-5.85 GHz band:
	Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$.
	 Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
LE-	LAN Devices
	For the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
	For the 5.725-5.85 GHz band:
	 Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If G_{TX} > 6 dBi, then P_{Out} = 30 - (G_{TX} - 6).
	 Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
	= maximum conducted output power in dBm, = the maximum transmitting antenna directional gain in dBi.

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3.3.2 Measuring Instruments

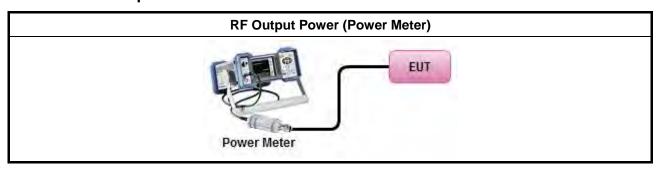
Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

	Test Method							
•	Maximum Conducted Output Power							
	Average over on/off periods with duty factor							
	Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).							
	Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)							
	Wideband RF power meter and average over on/off periods with duty factor							
	Refer as FCC KDB 789033, clause E Method PM-G (using an RF average power meter).							
•	For conducted measurement.							
	■ If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.							
	 If multiple transmit chains, EIRP calculation could be following as methods: P_{total} = P₁ + P₂ + + P_n (calculated in linear unit [mW] and transfer to log unit [dBm]) EIRP_{total} = P_{total} + DG 							

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3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

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3.4 Peak Power Spectral Density

3.4.1 Peak Power Spectral Density Limit

	Peak Power Spectral Density Limit							
UNI	I Devices							
\boxtimes	For the 5.15-5.25 GHz band:							
	 Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If G_{TX} > 6 dBi, then P_{Out} = 17 - (G_{TX} - 6). 							
	Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$.							
	Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 23$ dBi, then $P_{Out} = 17 - (G_{TX} - 23)$.							
	■ Mobile or Portable Client: the peak power spectral density (PPSD) \leq 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= 11 $-$ ($G_{TX} - 6$)							
	For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) \leq 11 dBm/MHz. If $G_{TX} >$ 6 dBi, then PPSD= 11 – ($G_{TX} -$ 6).							
	For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) \leq 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= 11 – ($G_{TX} - 6$).							
\boxtimes	For the 5.725-5.85 GHz band:							
	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then PPSD= $30 - (G_{TX} - 6)$.							
	Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.							
LE-	LAN Devices							
	For the 5.15-5.25 GHz band, the e.i.r.p. peak power spectral density (PPSD) ≤ 10 dBm/MHz.							
	For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz.							
	 e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where θ is the angle above the local horizontal plane (of the Earth) as shown below: -13 dBW/MHz for 0° ≤ θ < 8°; -13 − 0.716 (θ-8) dBW/MHz for 8° ≤ θ < 40° -35.9 − 1.22 (θ-40) dBW/MHz for 40° ≤ θ ≤ 45°; -42 dBW/MHz for θ > 45° 							
	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) \leq 11 dBm/MHz.							
	For the 5.725-5.85 GHz band:							
	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) \leq 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then PPSD= $30 - (G_{TX} - 6)$.							
	 Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. 							
pow	SD = peak power spectral density that he same method as used to determine the conducted output ver shall be used to determine the power spectral density. And power spectral density in dBm/MHz = the maximum transmitting antenna directional gain in dBi.							

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3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

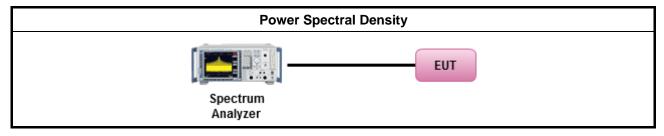
3.4.3 Test Procedures

		Test Method								
•	outp func	eak power spectral density procedures that the same method as used to determine the conducted atput power shall be used to determine the peak power spectral density and use the peak search notion on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density hall be measured using below options:								
		Refer as FCC KDB 789033, F)5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth								
	[duty	/ cycle ≥ 98% or external video / power trigger]								
	\boxtimes	Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging).								
		Refer as FCC KDB 789033, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)								
	duty	cycle < 98% and average over on/off periods with duty factor								
	\boxtimes	Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).								
		Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)								
•	For	conducted measurement.								
	•	If the EUT supports multiple transmit chains using options given below:								
		Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.								
		Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,								
		Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.								
	•	If multiple transmit chains, EIRP PPSD calculation could be following as methods: $ PPSD_{total} = PPSD_1 + PPSD_2 + + PPSD_n \\ (calculated in linear unit [mW] and transfer to log unit [dBm]) \\ EIRP_{total} = PPSD_{total} + DG $								

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3.4.4 Test Setup



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3.4.5 Test Result of Peak Power Spectral Density

Refer as Appendix D

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3.5 Unwanted Emissions

3.5.1 Transmitter Unwanted Emissions Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz limit								
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)					
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300					
0.490~1.705	24000/F(kHz)	33.8 - 23	30					
1.705~30.0	30	29	30					
30~88	100	40	3					
88~216	150	43.5	3					
216~960	200	46	3					
Above 960	500	54	3					

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- Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
- Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

Un-restricted band emissions above 1GHz Limit							
Operating Band	Limit						
⊠ 5.15 - 5.25 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]						
☐ 5.25 - 5.35 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]						
☐ 5.47 - 5.725 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]						
⊠ 5.725 - 5.85 GHz	all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.						

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of

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linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

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3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

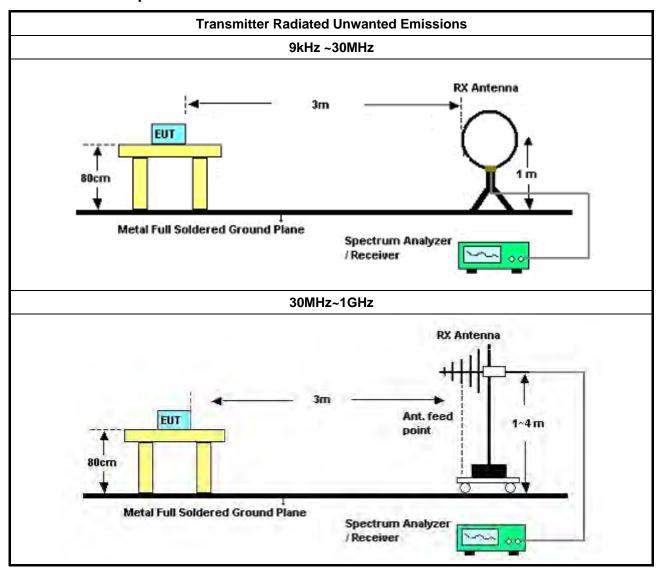
Test Method

- Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
- The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
- For the transmitter unwanted emissions shall be measured using following options below:
 - Refer as FCC KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.
 - Refer as FCC KDB 789033, clause G)1) for unwanted emissions into restricted bands.
 - Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging).
 - Refer as FCC KDB 789033, G)6) Method VB (Reduced VBW).
 - Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time.
 - Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
 - Refer as FCC KDB 789033, clause G)5) measurement procedure peak limit.
 - Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
- For radiated measurement.
 - Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
 - Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
 - Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
- The any unwanted emissions level shall not exceed the fundamental emission level.
- All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

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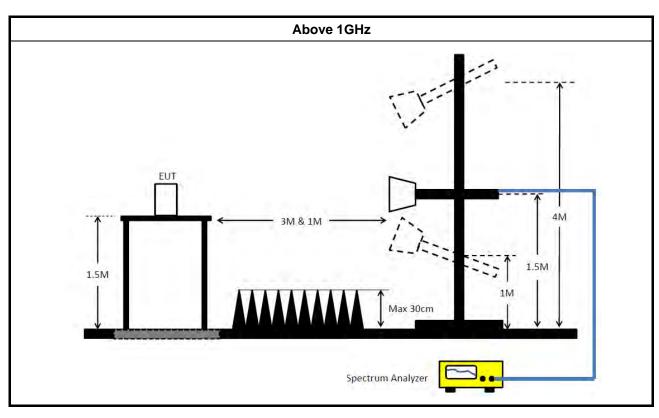
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3.5.4 Test Setup



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3.5.5 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna factor (AF) + Cable loss (CL) + Read level (Raw) - Preamp factor (PA)(if applicable) = Level

3.5.6 Transmitter Unwanted Emissions (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10th harmonic or 40 GHz, whichever is appropriate.

3.5.7 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E

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4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Feb. 26, 2020	Feb. 25, 2021	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50- 16-2	04083	150kHz ~ 100MHz	Dec. 25, 2019	Dec. 24, 2020	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Feb. 25, 2020	Feb. 24, 2021	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Jan. 31, 2020	Jan. 30, 2021	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 20, 2020	May 19, 2021	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Apr. 13, 2020	Apr. 12, 2021	Radiation (03CH03-CB)
Bilog Antenna with 6 dB attenuator	Schaffner	CBL6112B & N-6-06	2928 & AT-N0607	20MHz ~ 2GHz	Feb. 28, 2020	Feb. 27, 2021	Radiation (03CH03-CB)
Horn Antenna	ETS · Lindgren	3115	6821	750MHz~18GHz	Jan. 20, 2020	Jan. 19, 2021	Radiation (03CH03-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jun. 27, 2019	Jun. 26, 2020	Radiation (03CH03-CB)
Pre-Amplifier	Agilent	8447D	2944A10259	9kHz ~ 1.3GHz	Jan. 15, 2020	Jan. 14, 2021	Radiation (03CH03-CB)
Pre-Amplifier	Agilent	8449B	3008A02097	1GHz ~ 26.5GHz	Dec. 19, 2019	Dec.18, 2020	Radiation (03CH03-CB)
Pre-Amplifier	MITEQ	TTA1840-35-H G	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH03-CB)
Spectrum Analyzer	R&S	FSP40	100019	9kHz ~ 40GHz	Jun. 09, 2020	Jun. 08, 2021	Radiation (03CH03-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 13, 2020	May 12, 2021	Radiation (03CH03-CB)
RF Cable-low	Woken	RG402	Low Cable-02+27 (spare)	25MHz ~ 1GHz	Jul. 03, 2020	Jul. 02, 2021	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-20+27	1GHz ~ 18GHz	Feb. 01, 2020	Jan. 31, 2021	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-27	1GHz ~ 18GHz	Feb. 01, 2020	Jan. 31, 2021	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH03-CB)
Spectrum analyzer	R&S	FSV40	101028	9kHz~40GHz	Nov. 01, 2019	Oct. 31, 2020	Conducted (TH03-CB)

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Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Power Sensor	Anritsu	MA2411B	1726195	300MHz~40GHz	Aug. 13, 2019	Aug. 12, 2020	Conducted (TH03-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Aug. 13, 2019	Aug. 12, 2020	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-11	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-12	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-13	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-15	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH03-CB)

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Note: Calibration Interval of instruments listed above is one year.

N.C.R. means Non-Calibration required.

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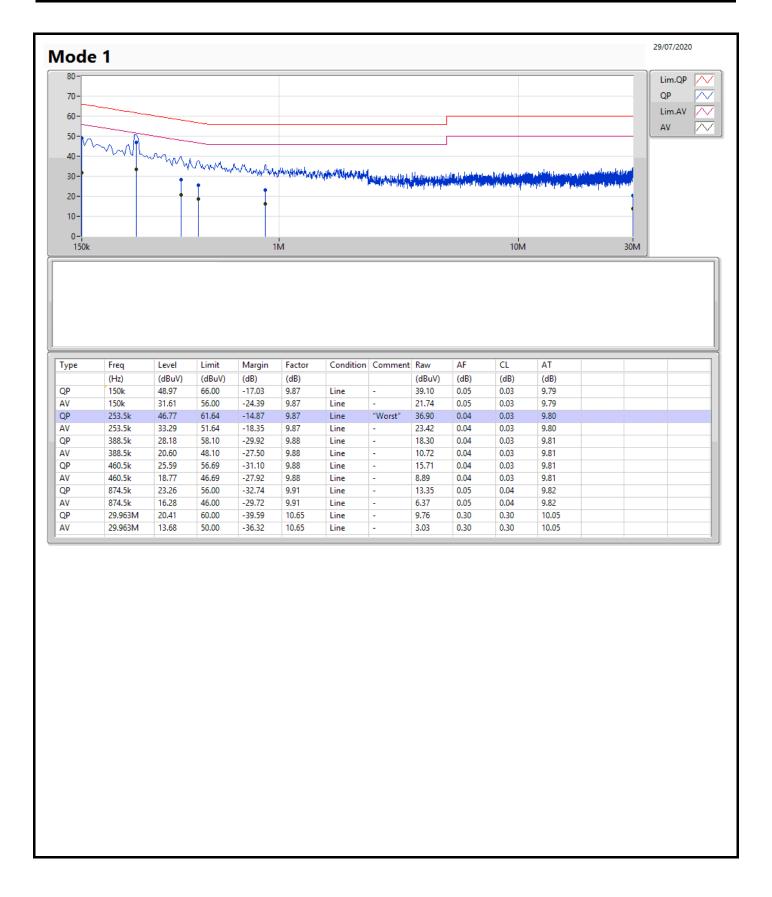
Conducted Emissions at Power line

Appendix A

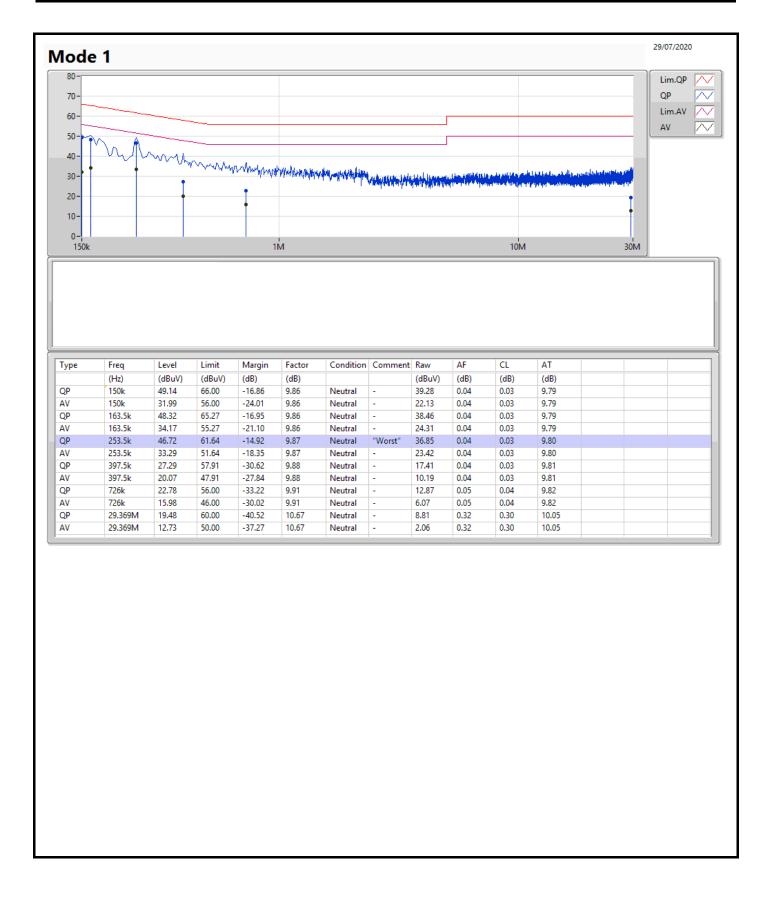
Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	253.5k	46.77	61.64	-14.87	Line











Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	33.51M	17.151M	17M2D1D	21.18M	16.672M
802.11ax HEW20_Nss1,(MCS0)_2TX	36.66M	19.25M	19M2D1D	21.27M	19.04M
802.11ax HEW40_Nss1,(MCS0)_2TX	40.2M	37.661M	37M7D1D	39.9M	37.481M
802.11ax HEW80_Nss1,(MCS0)_2TX	81.48M	77.001M	77M0D1D	81M	76.882M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	16.5M	17.391M	17M4D1D	7.29M	16.462M
802.11ax HEW20_Nss1,(MCS0)_4TX	18.93M	19.22M	19M2D1D	16.47M	18.711M
802.11ax HEW40_Nss1,(MCS0)_4TX	37.56M	37.901M	37M9D1D	35.58M	37.361M
802.11ax HEW80_Nss1,(MCS0)_4TX	76.44M	77.241M	77M2D1D	75.48M	76.642M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

Max-OBW = Maximum99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

Min-OBW = Minimum 99% occupied bandwidth;

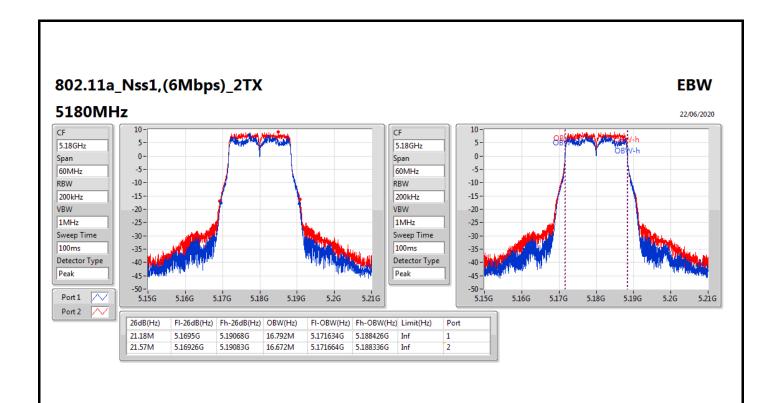


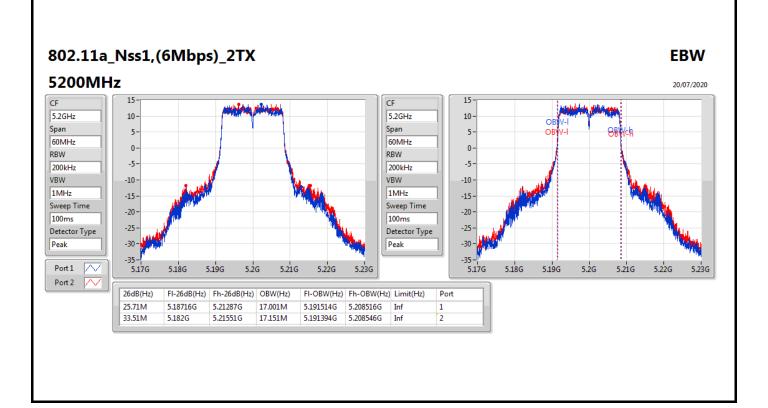
Appendix B **EBW**

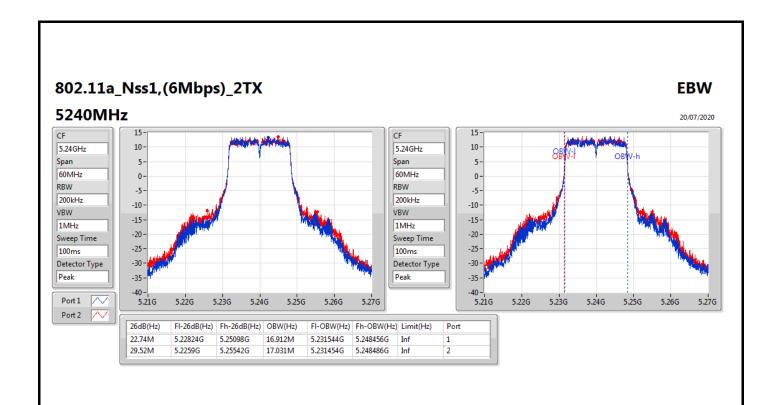
Result

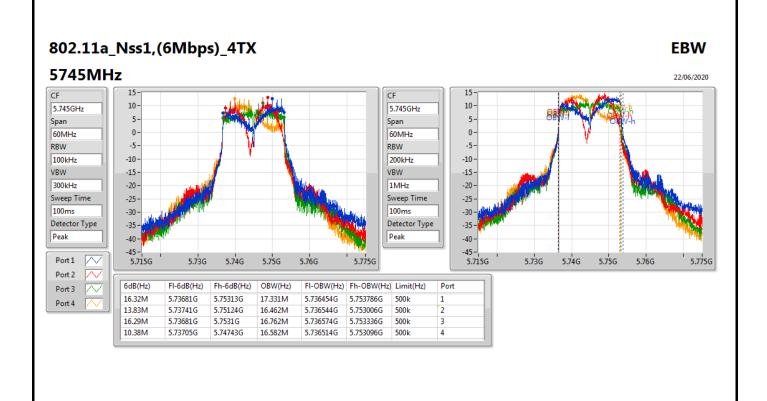
Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW	Port 3-N dB	Port 3-OBW	Port 4-N dB	Port 4-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	21.18M	16.792M	21.57M	16.672M				
5200MHz	Pass	Inf	25.71M	17.001M	33.51M	17.151M				
5240MHz	Pass	Inf	22.74M	16.912M	29.52M	17.031M				
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5745MHz	Pass	500k	16.32M	17.331M	13.83M	16.462M	16.29M	16.762M	10.38M	16.582M
5785MHz	Pass	500k	16.5M	17.391M	15.12M	16.732M	16.32M	16.732M	7.29M	16.882M
5825MHz	Pass	500k	16.38M	17.271M	15.06M	17.031M	16.32M	16.822M	15.69M	17.211M
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	21.27M	19.04M	21.42M	19.04M				
5200MHz	Pass	Inf	28.14M	19.16M	36.66M	19.25M				
5240MHz	Pass	Inf	27.51M	19.13M	29.07M	19.19M				
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5745MHz	Pass	500k	17.49M	18.741M	17.43M	18.771M	18.9M	19.16M	17.91M	18.951M
5785MHz	Pass	500k	18M	18.891M	17.34M	18.711M	18.93M	19.19M	18.18M	18.921M
5825MHz	Pass	500k	18.18M	19.04M	16.47M	18.711M	18.93M	19.22M	18.24M	19.04M
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	40.14M	37.601M	39.9M	37.481M				
5230MHz	Pass	Inf	40.2M	37.661M	40.08M	37.661M				
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5755MHz	Pass	500k	36.3M	37.361M	36.72M	37.781M	37.38M	37.661M	35.58M	37.541M
5795MHz	Pass	500k	36.54M	37.601M	36.36M	37.901M	37.56M	37.661M	35.7M	37.781M
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	81.48M	77.001M	81M	76.882M				
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5775MHz	Pass	500k	75.48M	76.642M	76.08M	77.241M	76.44M	77.241M	75.6M	77.121M

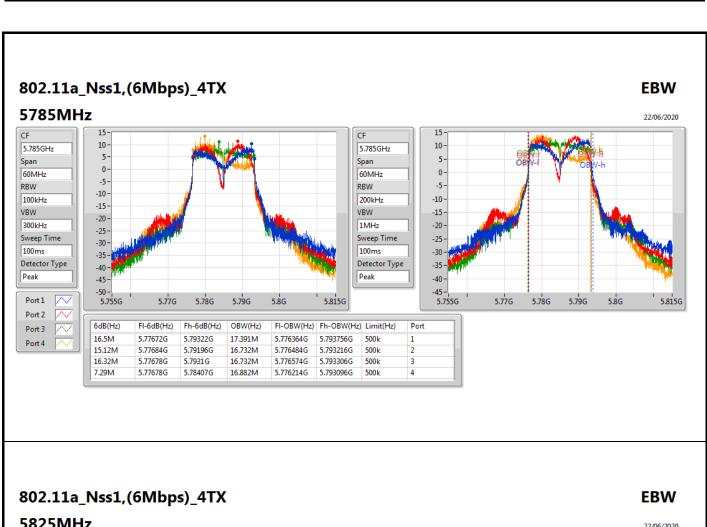
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth;

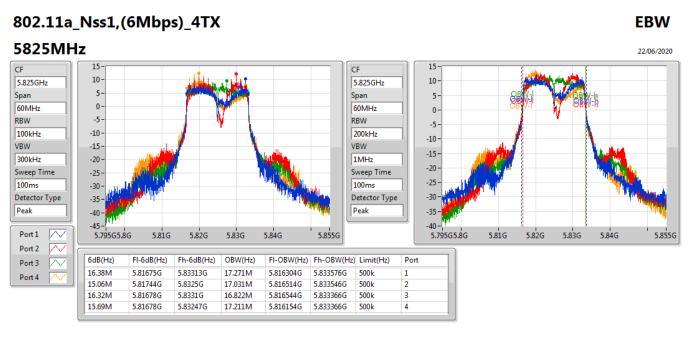


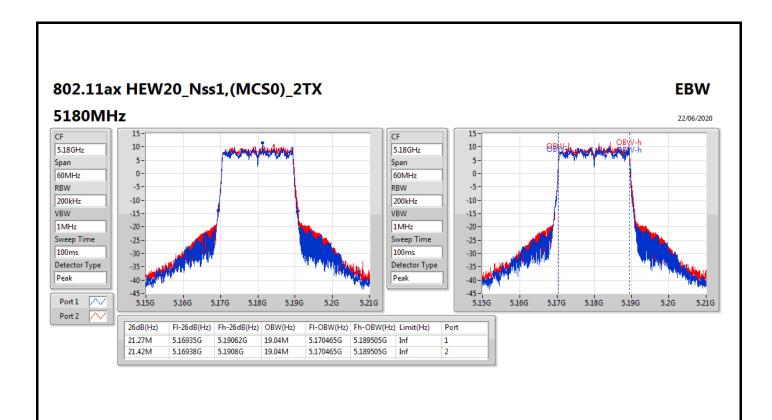


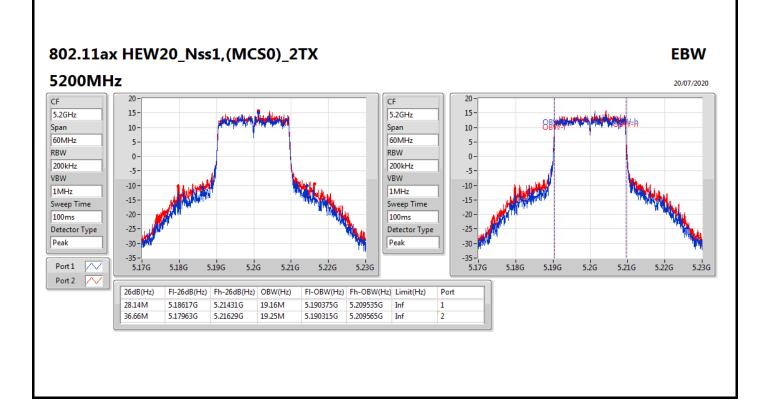


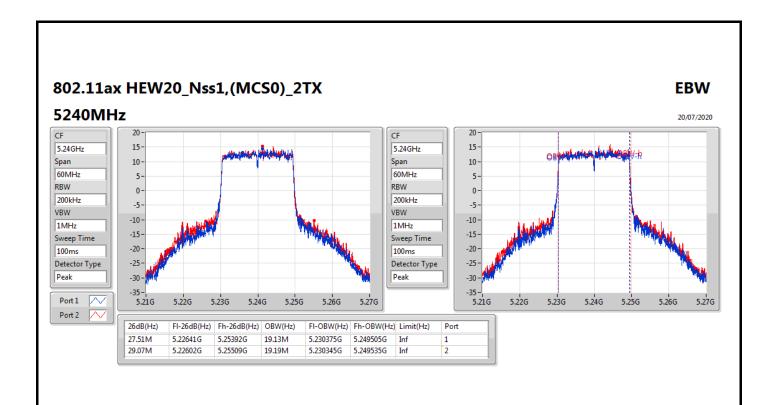


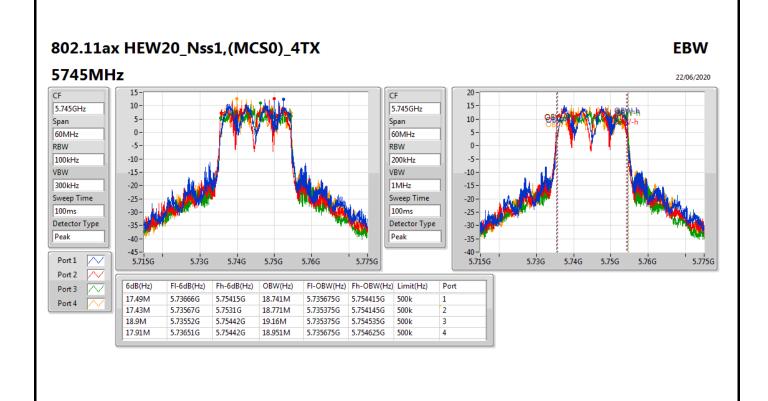


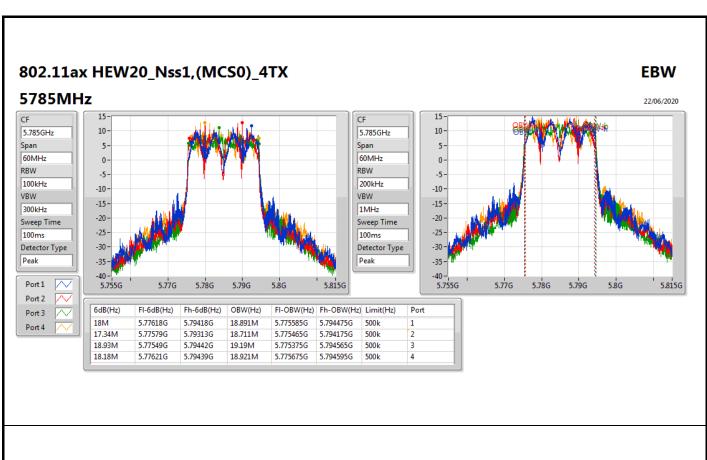


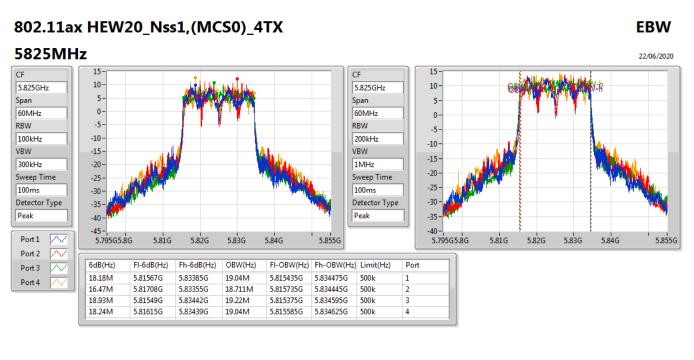




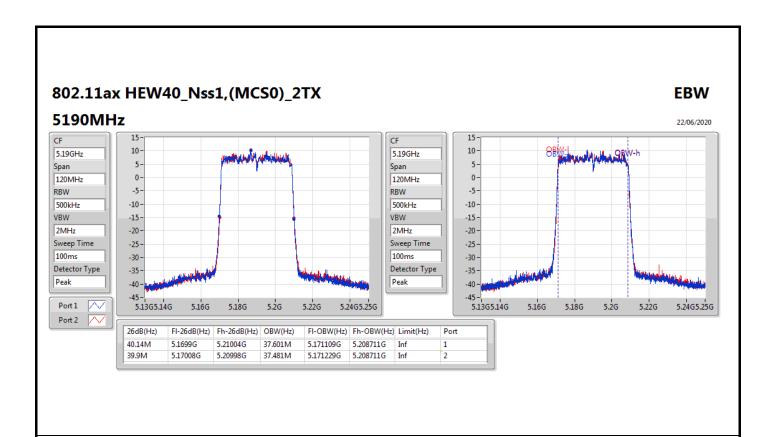


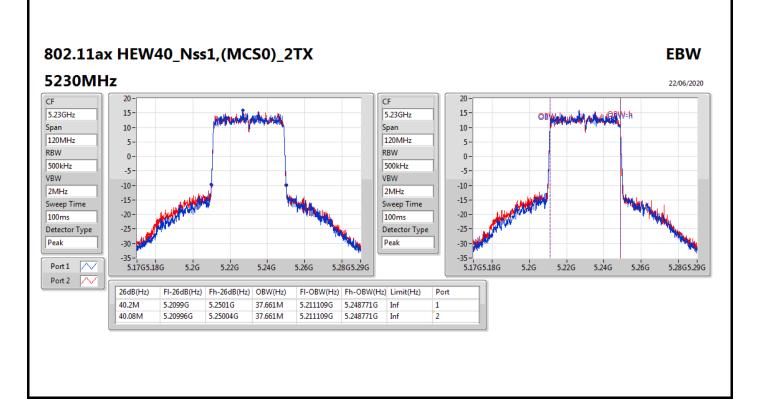


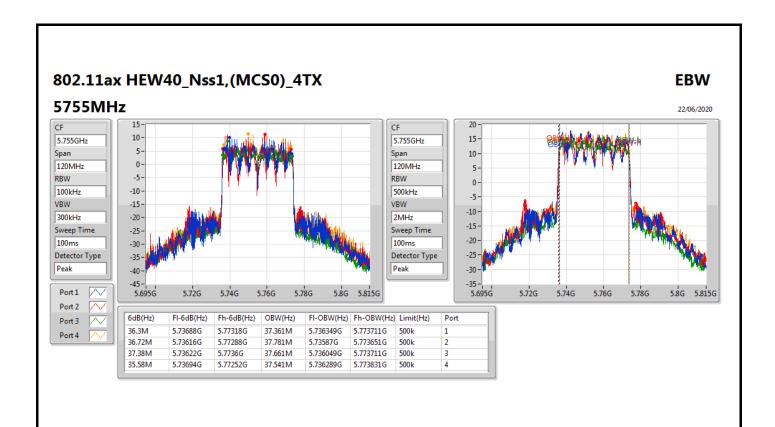


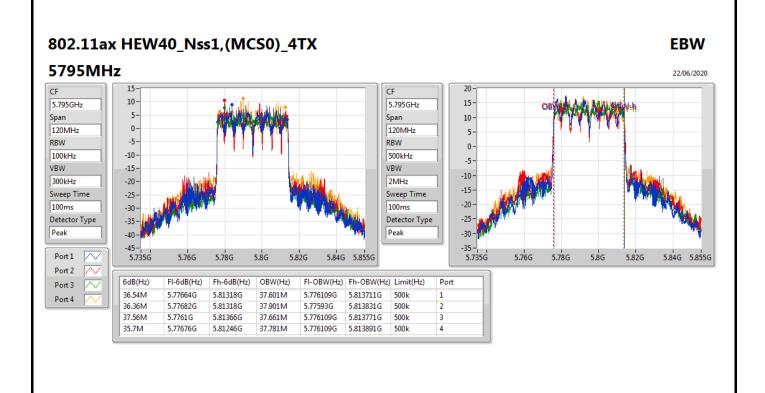


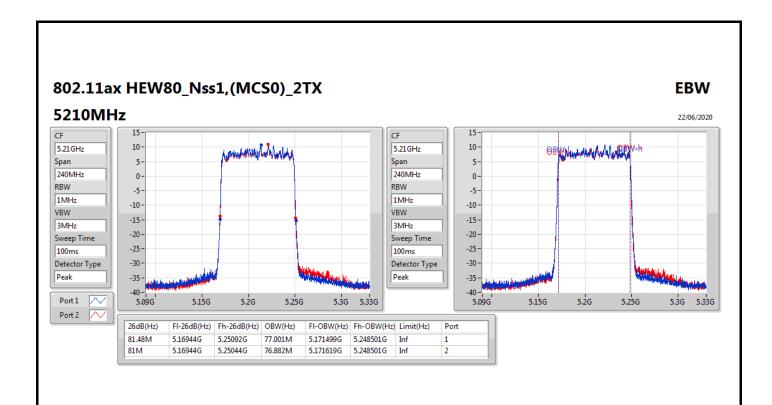
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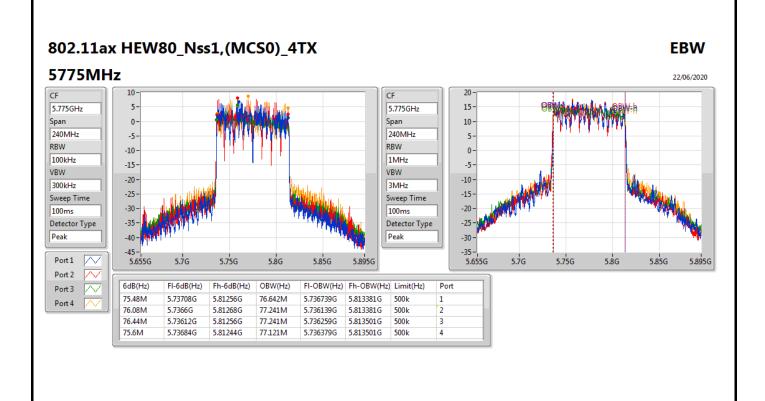














Average Power Appendix C

Summary

Mode	Total Power	Total Power		
	(dBm)	(W)		
5.15-5.25GHz	-	-		
802.11a_Nss1,(6Mbps)_2TX	27.45	0.55590		
802.11ax HEW20_Nss1,(MCS0)_2TX	27.67	0.58479		
802.11ax HEW40_Nss1,(MCS0)_2TX	25.89	0.38815		
802.11ax HEW80_Nss1,(MCS0)_2TX	20.89	0.12274		
5.725-5.85GHz	-	-		
802.11a_Nss1,(6Mbps)_4TX	28.91	0.77804		
802.11ax HEW20_Nss1,(MCS0)_4TX	29.05	0.80353		
802.11ax HEW40_Nss1,(MCS0)_4TX	29.50	0.89125		
802.11ax HEW80_Nss1,(MCS0)_4TX	28.96	0.78705		



Average Power Appendix C

Result

Mode	Result	DG	Port 1	Port 2	Port 3	Port 4	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	4.94	19.61	20.46			23.07	30.00
5200MHz	Pass	4.94	24.15	24.72			27.45	30.00
5240MHz	Pass	4.94	24.10	24.40			27.26	30.00
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
5745MHz	Pass	5.26	22.57	23.11	22.65	23.18	28.91	30.00
5785MHz	Pass	5.26	21.71	22.75	22.49	22.59	28.42	30.00
5825MHz	Pass	5.26	21.62	22.11	22.33	21.95	28.03	30.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	4.94	20.24	20.99			23.64	30.00
5200MHz	Pass	4.94	24.38	24.92			27.67	30.00
5240MHz	Pass	4.94	24.16	24.79			27.50	30.00
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5745MHz	Pass	5.26	23.40	22.92	22.80	22.96	29.05	30.00
5785MHz	Pass	5.26	22.45	22.58	22.61	22.79	28.63	30.00
5825MHz	Pass	5.26	22.15	21.98	22.38	22.58	28.30	30.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	4.94	17.43	17.61			20.53	30.00
5230MHz	Pass	4.94	23.01	22.75			25.89	30.00
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5755MHz	Pass	5.26	23.33	23.36	23.33	23.86	29.50	30.00
5795MHz	Pass	5.26	22.72	22.70	22.94	23.26	28.93	30.00
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	4.94	18.00	17.75			20.89	30.00
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5775MHz	Pass	5.26	22.69	22.74	23.01	23.29	28.96	30.00

DG = Directional Gain; **Port X** = Port X output power



Summary

Mode	PD					
	(dBm/RBW)					
5.15-5.25GHz						
802.11a_Nss1,(6Mbps)_2TX	14.30					
802.11ax HEW20_Nss1,(MCS0)_2TX	13.98					
802.11ax HEW40_Nss1,(MCS0)_2TX	9.32					
802.11ax HEW80_Nss1,(MCS0)_2TX	1.42					
5.725-5.85GHz						
802.11a_Nss1,(6Mbps)_4TX	15.02					
802.11ax HEW20_Nss1,(MCS0)_4TX	15.06					
802.11ax HEW40_Nss1,(MCS0)_4TX	12.82					
802.11ax HEW80_Nss1,(MCS0)_4TX	9.68					

RBW = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

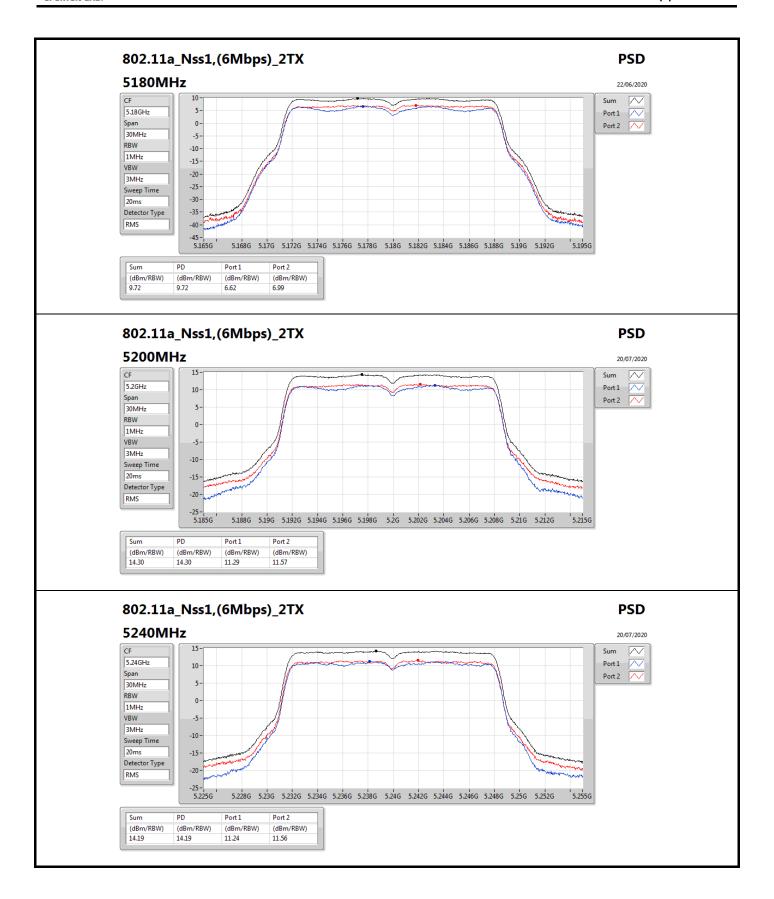


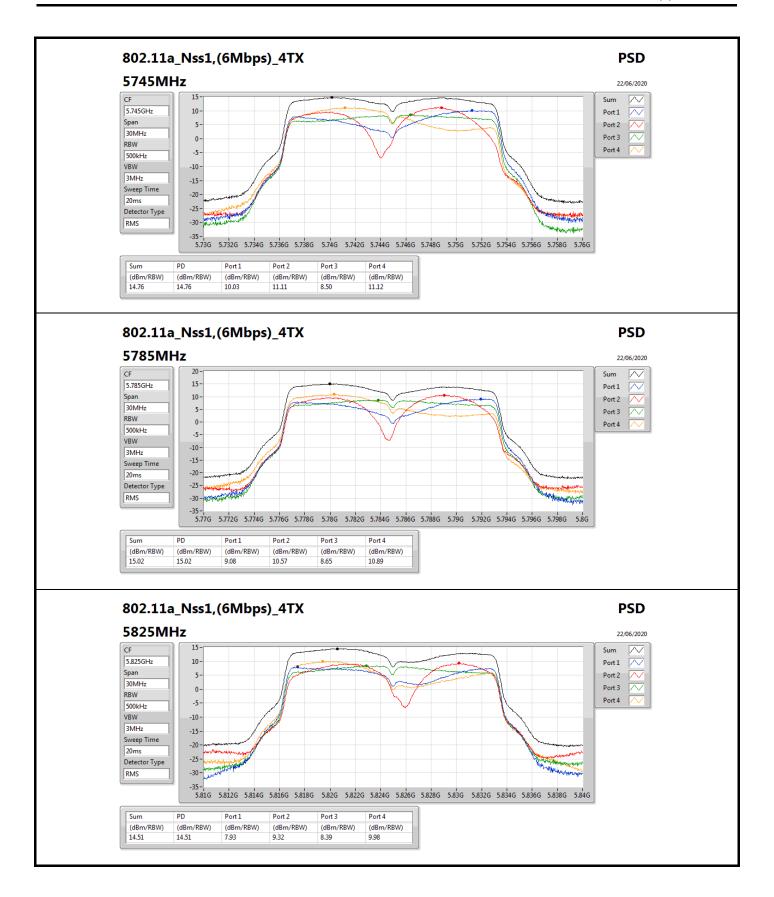
Result

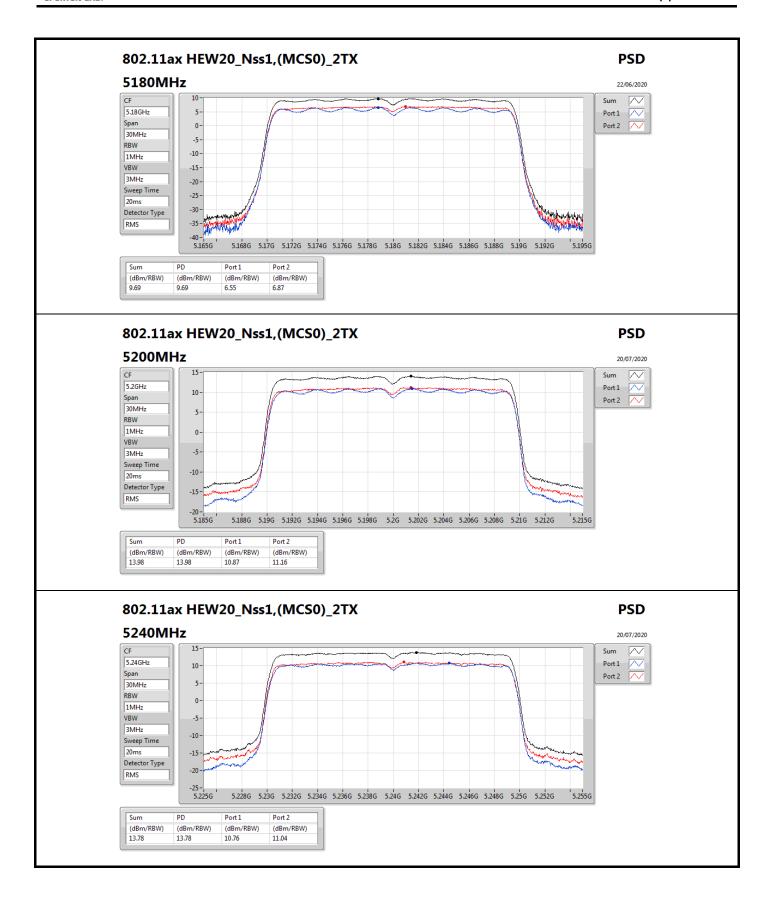
Mode	Result	DG	Port 1	Port 2	Port 2 Port 3 Port 4		PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	6.00	6.62	6.99			9.72	17.00
5200MHz	Pass	6.00	11.29	11.57			14.30	17.00
5240MHz	Pass	6.00	11.24	11.56			14.19	17.00
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
5745MHz	Pass	7.88	10.03	11.11	8.50	11.12	14.76	28.12
5785MHz	Pass	7.88	9.08	10.57	8.65	10.89	15.02	28.12
5825MHz	Pass	7.88	7.93	9.32	8.39	9.98	14.51	28.12
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	6.00	6.55	6.87			9.69	17.00
5200MHz	Pass	6.00	10.87	11.16			13.98	17.00
5240MHz	Pass	6.00	10.76	11.04			13.78	17.00
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5745MHz	Pass	7.88	10.45	9.90	8.30	9.62	15.06	28.12
5785MHz	Pass	7.88	9.87	9.84	8.15	9.83	14.73	28.12
5825MHz	Pass	7.88	8.73	9.16	7.65	9.14	13.49	28.12
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	6.00	0.96	0.76			3.75	17.00
5230MHz	Pass	6.00	6.43	6.37			9.32	17.00
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5755MHz	Pass	7.88	7.70	7.74	6.11	7.67	12.82	28.12
5795MHz	Pass	7.88	6.90	7.22	5.72	7.26	12.01	28.12
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	6.00	-1.32	-1.71			1.42	17.00
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5775MHz	Pass	7.88	4.85	4.39	3.31	4.58	9.68	28.12

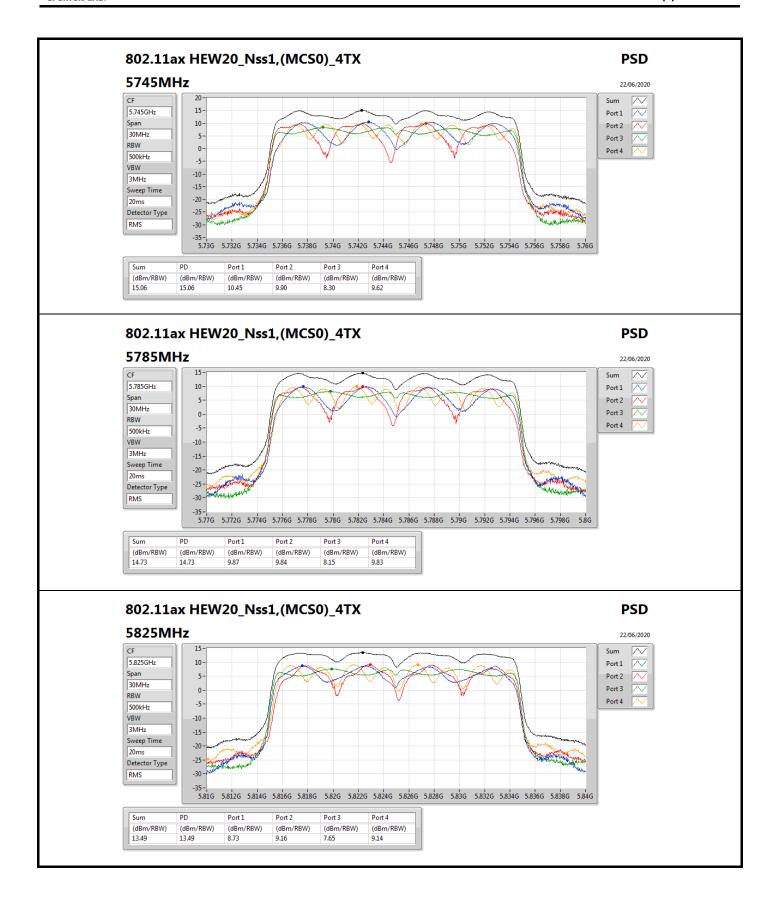
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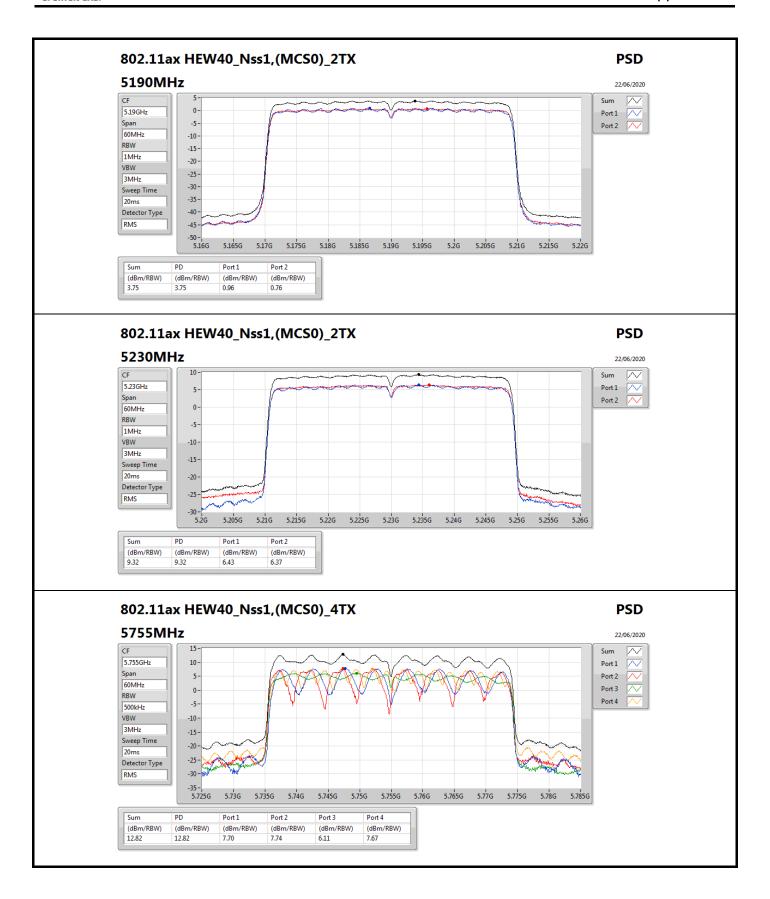
DG = Directional Gain; **RBW** = 500 kHz for 5.725-5.85GHz band / 1MHz for other band; **PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

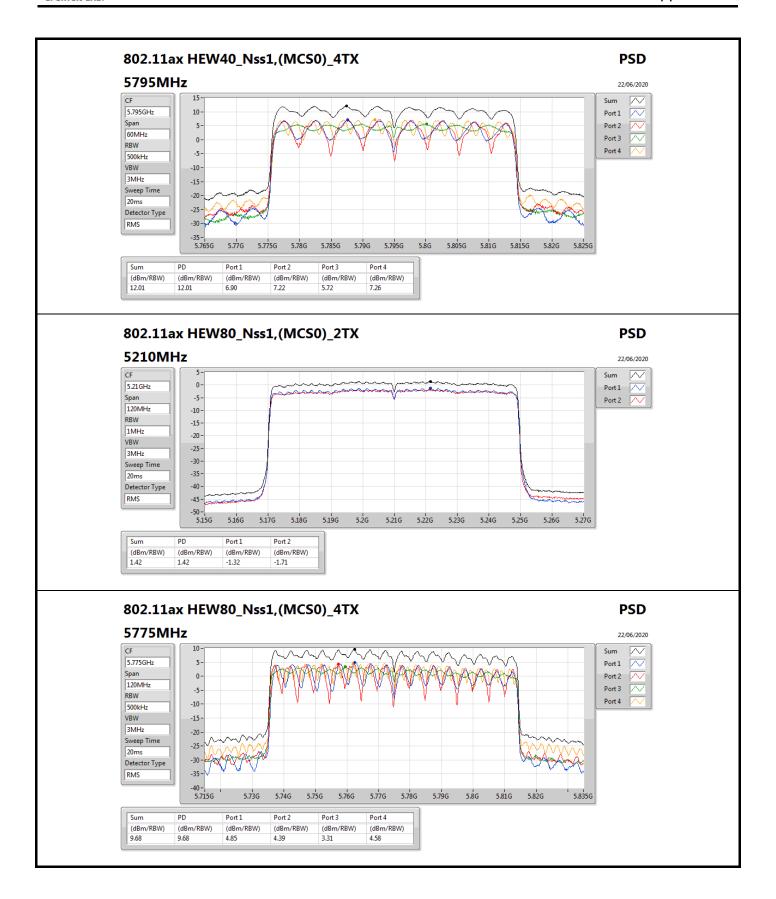














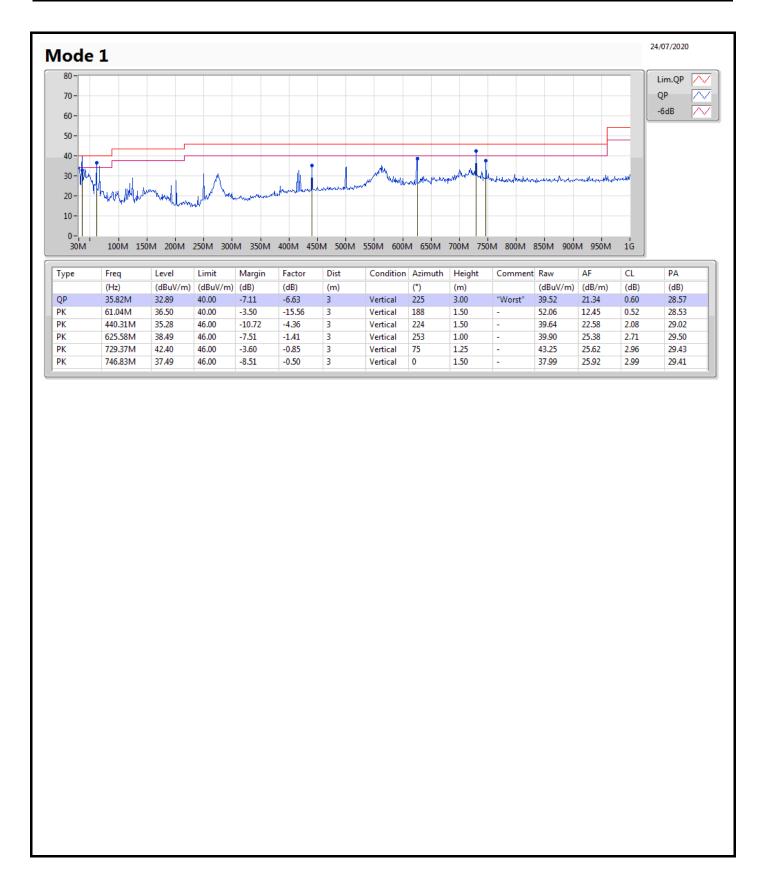
Radiated Emissions below 1GHz

Appendix E.1

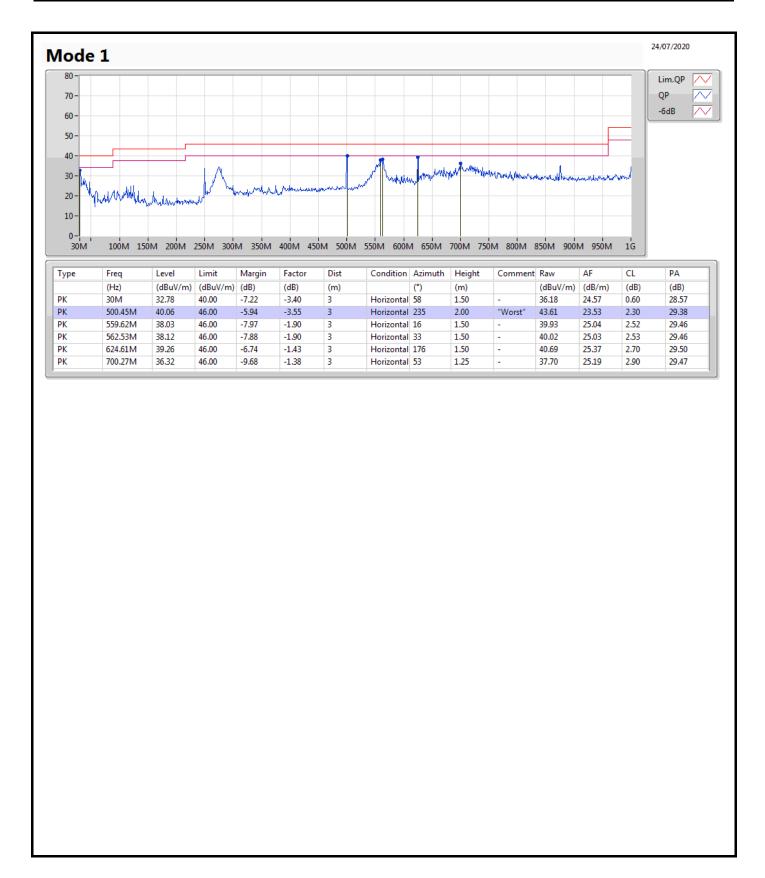
Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	PK	61.04M	36.50	40.00	-3.50	Vertical











RSE TX above 1GHz

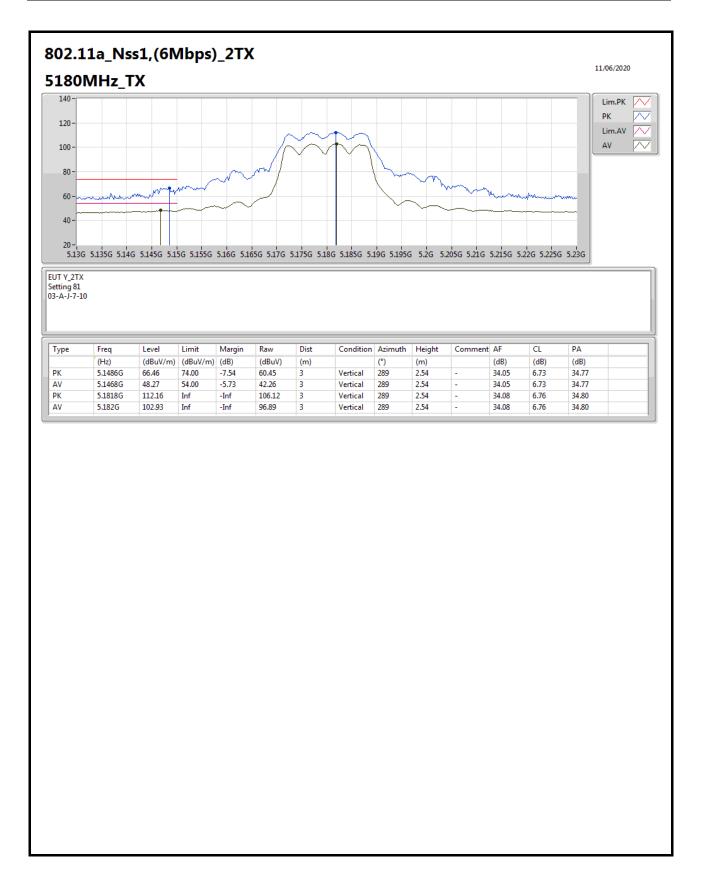
Appendix E.2

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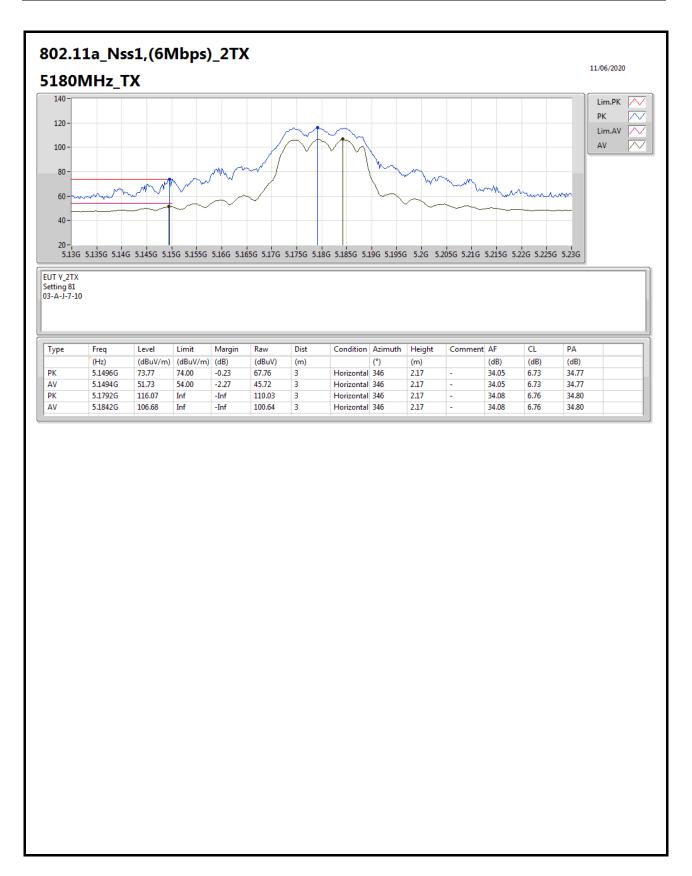
Summary

Mode	Result	Туре	Freq	Level	Limit	Margin	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(m)		(°)	(m)	
5.15-5.25GHz	-	-	-	-	-	-	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	Pass	PK	5.1496G	73.77	74.00	-0.23	3	Horizontal	346	2.17	-
802.11ax HEW20_Nss1,(MCS0)_2TX	Pass	AV	5.1492G	53.77	54.00	-0.23	3	Horizontal	171	1.75	-
802.11ax HEW40_Nss1,(MCS0)_2TX	Pass	AV	5.1468G	53.81	54.00	-0.19	3	Horizontal	347	1.36	-
802.11ax HEW80_Nss1,(MCS0)_2TX	Pass	AV	5.149G	53.81	54.00	-0.19	3	Horizontal	349	1.56	-
5.725-5.85GHz	-		*	-	-	*		*	-		-
802.11a_Nss1,(6Mbps)_4TX	Pass	PK	17.47682G	63.77	68.20	-4.43	3	Horizontal	0	1.80	-
802.11ax HEW20_Nss1,(MCS0)_4TX	Pass	PK	17.47398G	64.95	68.20	-3.25	3	Horizontal	138	1.34	-
802.11ax HEW40_Nss1,(MCS0)_4TX	Pass	PK	5.65G	63.70	68.20	-4.50	3	Vertical	52	2.12	-
802.11ax HEW80_Nss1,(MCS0)_4TX	Pass	PK	5.652G	69.61	69.68	-0.07	3	Horizontal	122	1.99	-



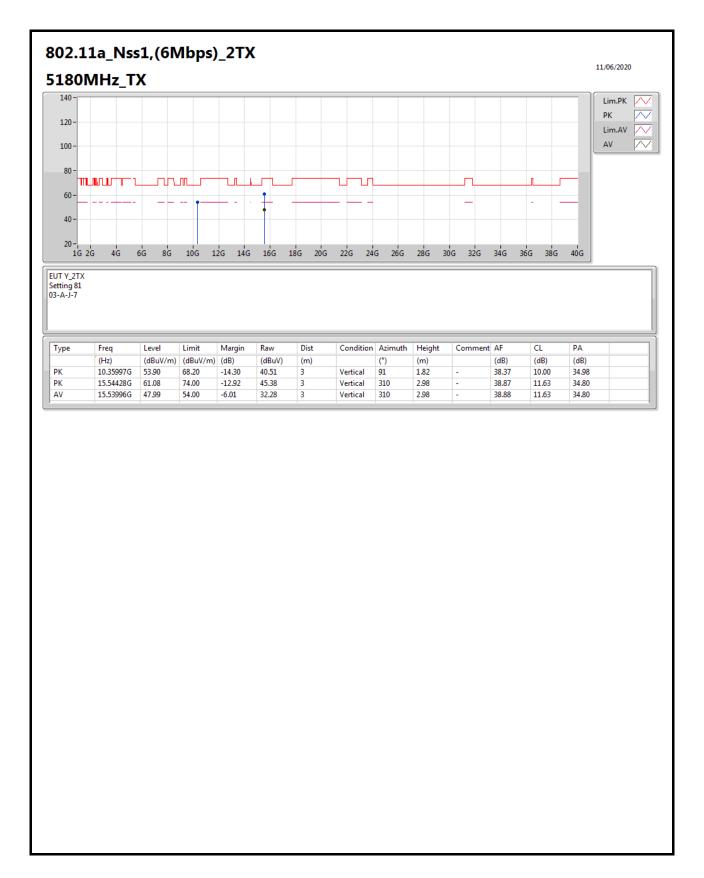






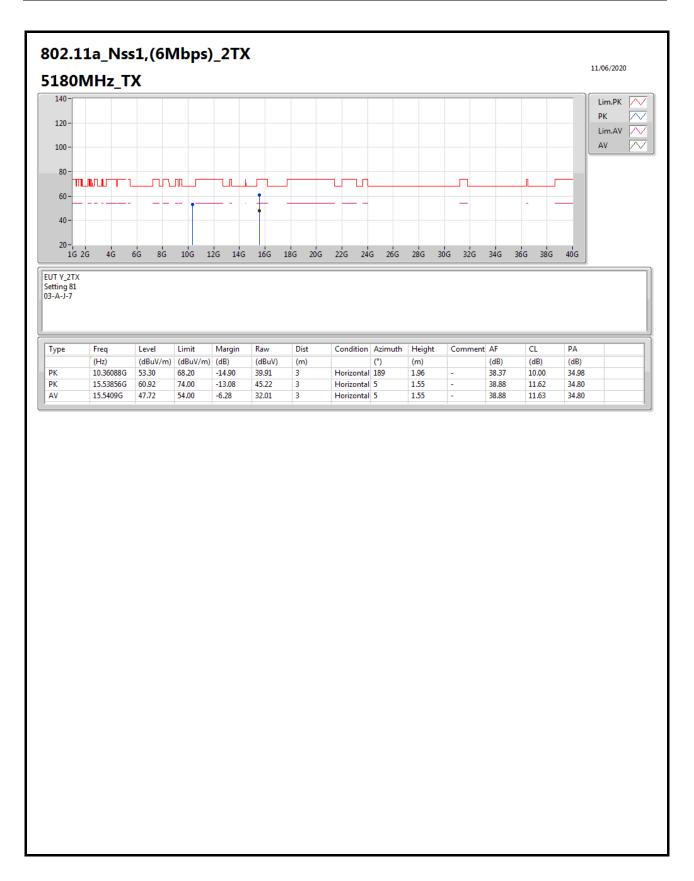
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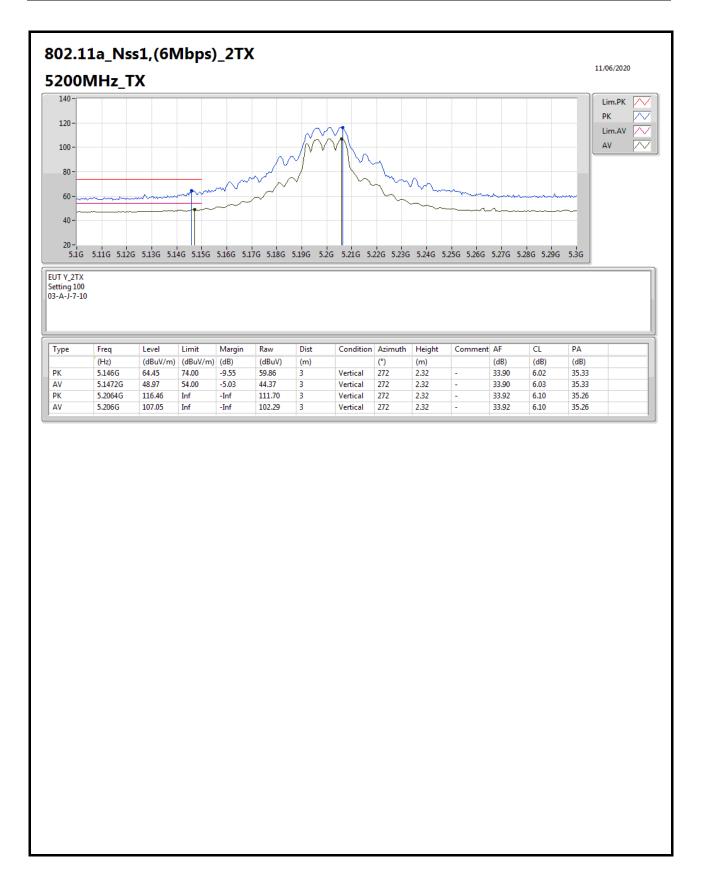
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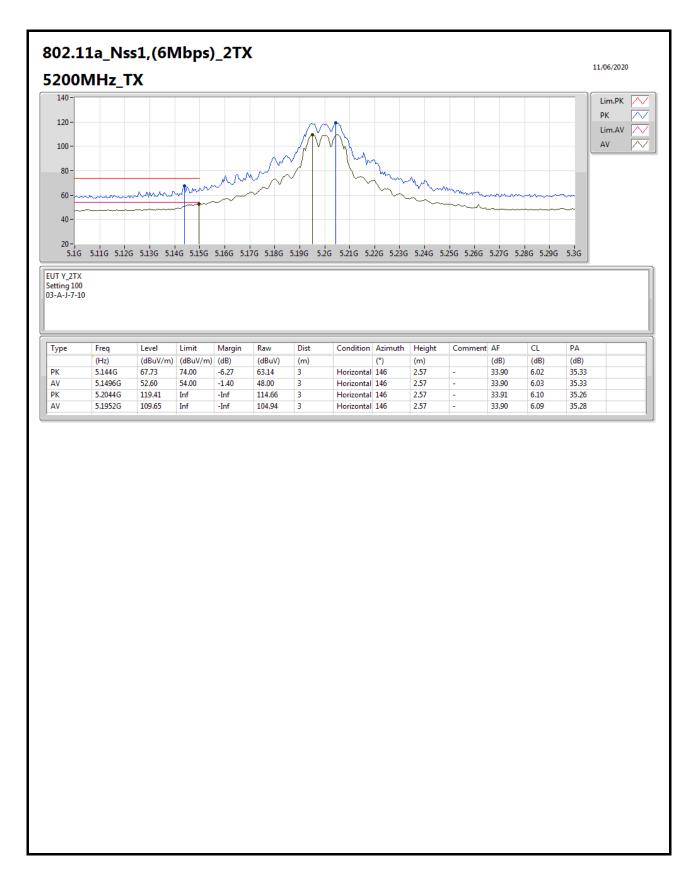
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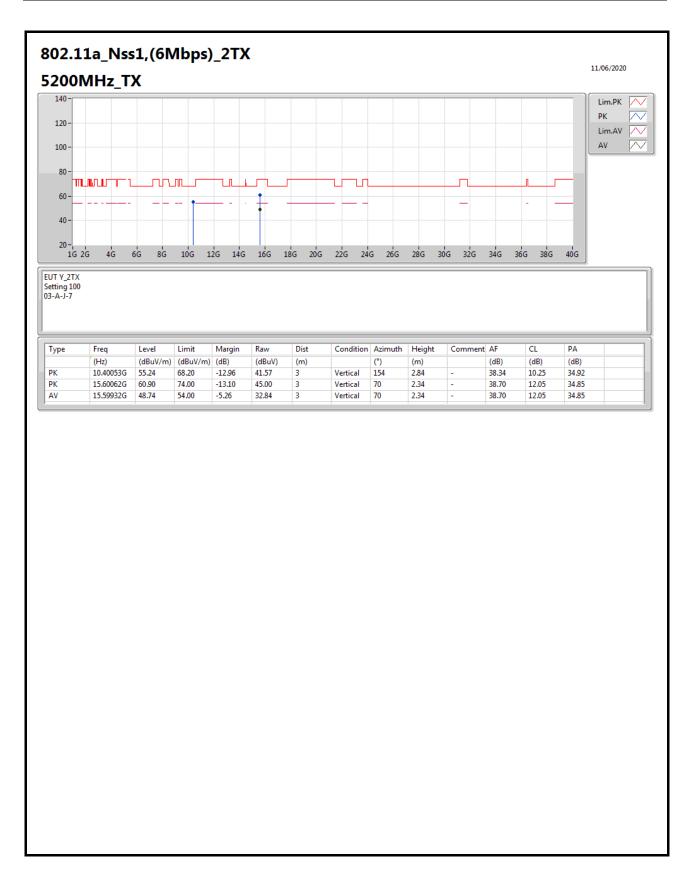
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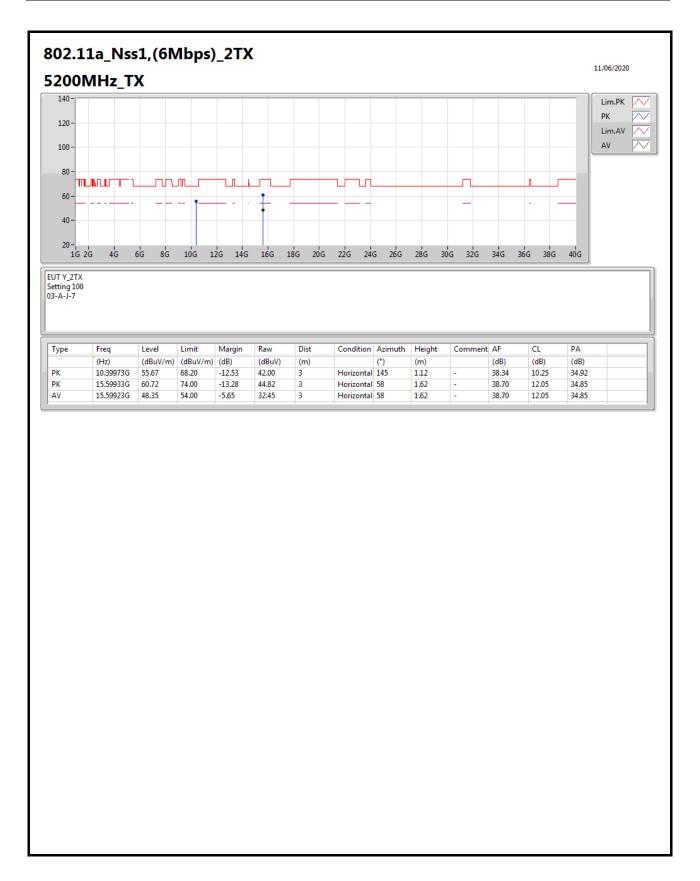


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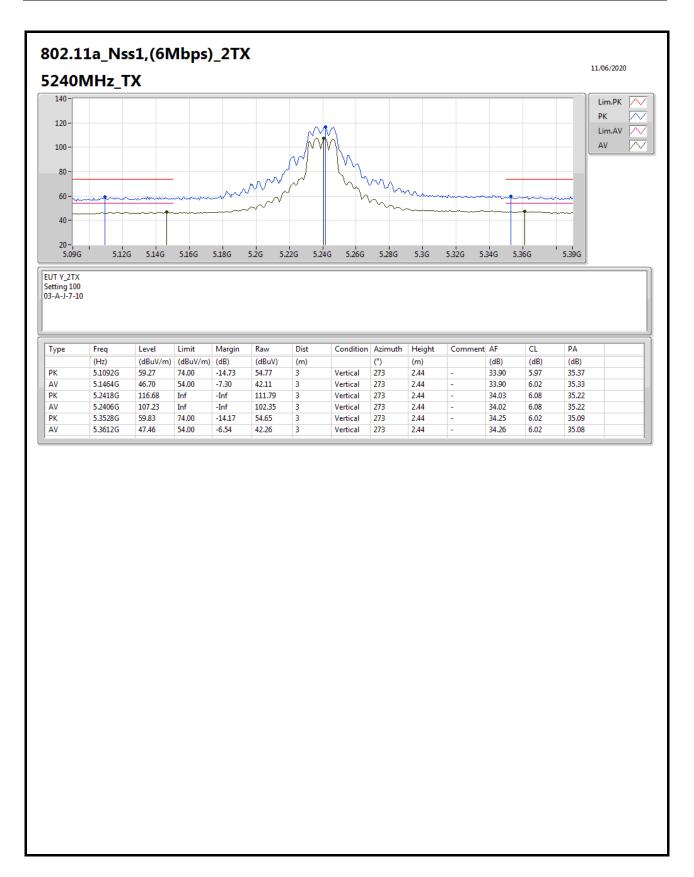




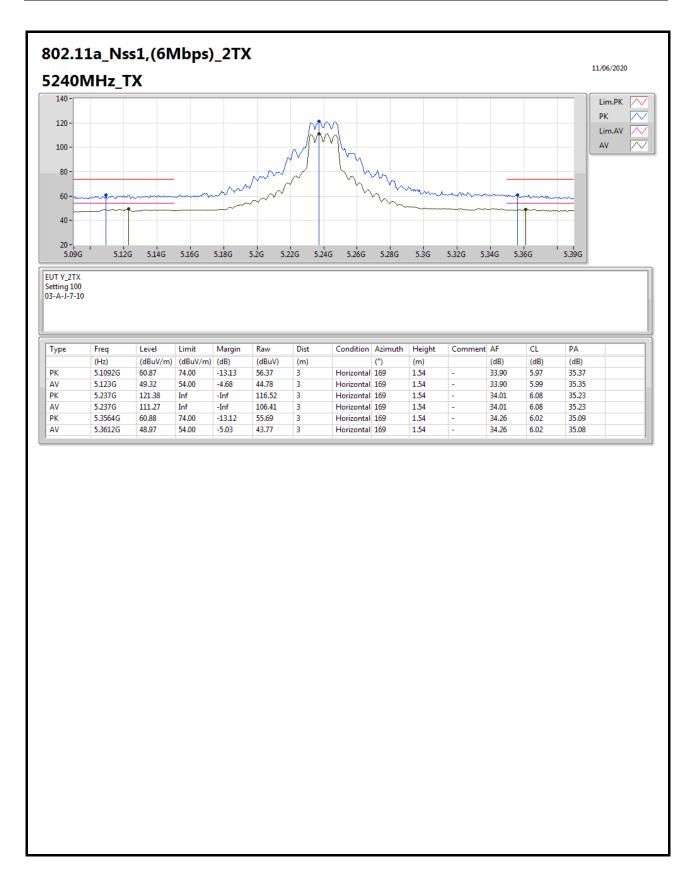






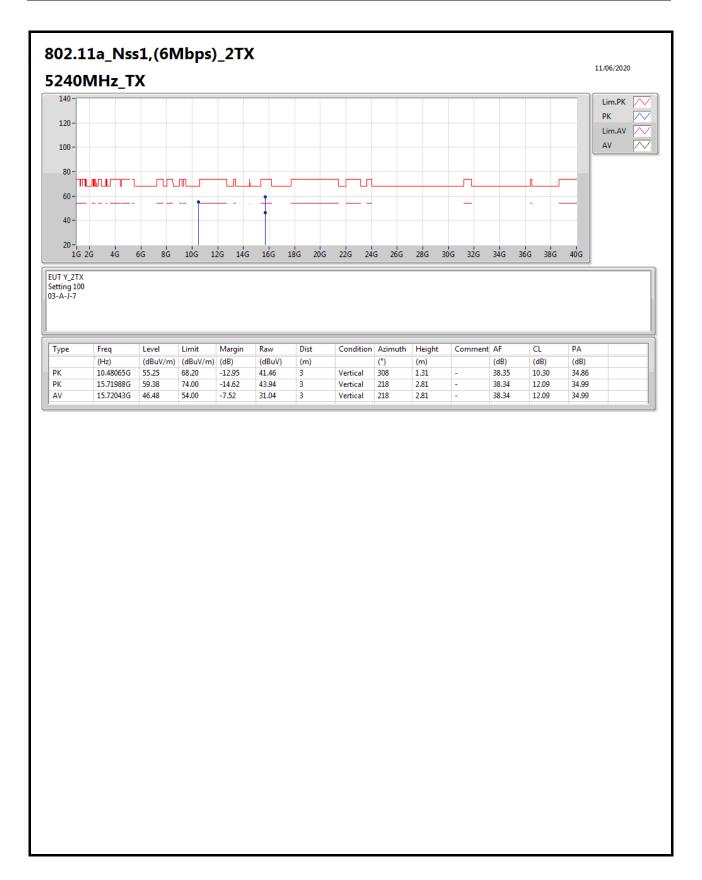




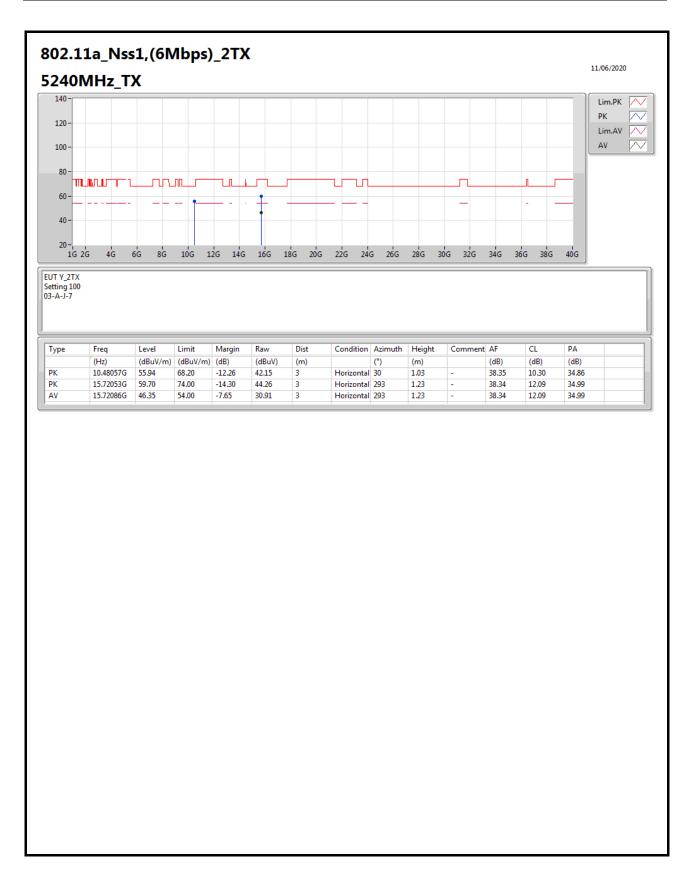


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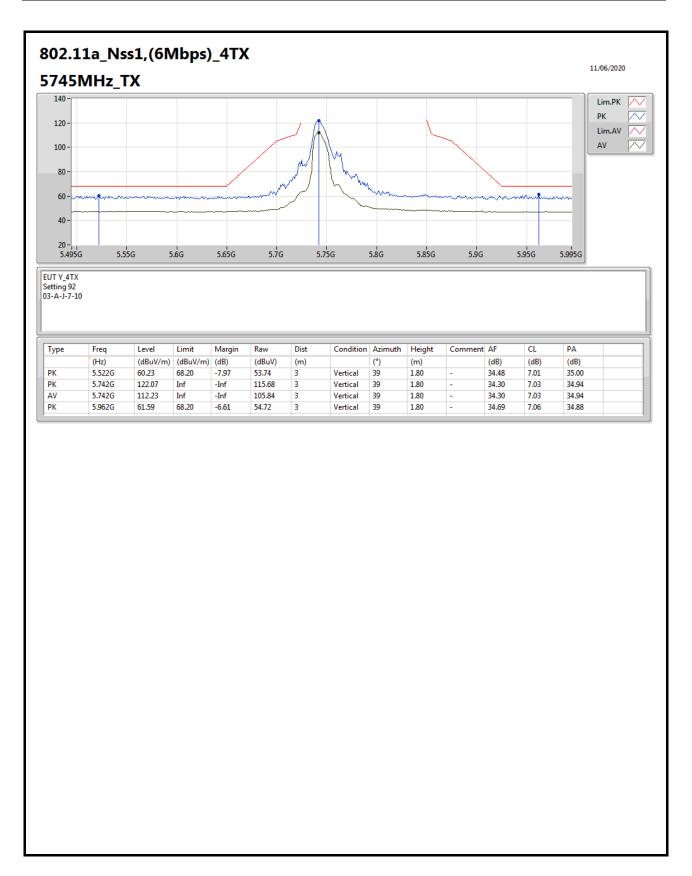




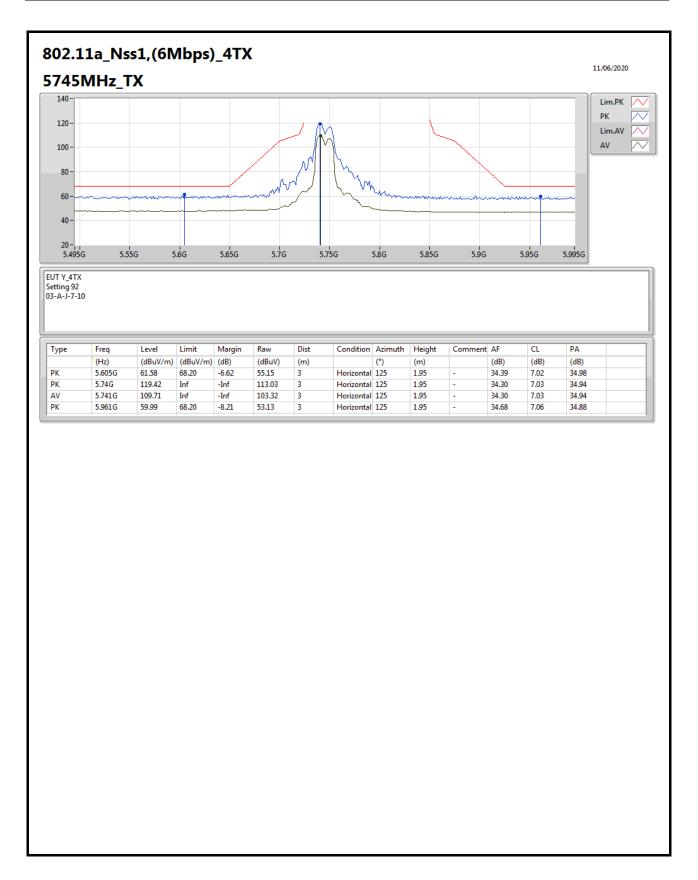






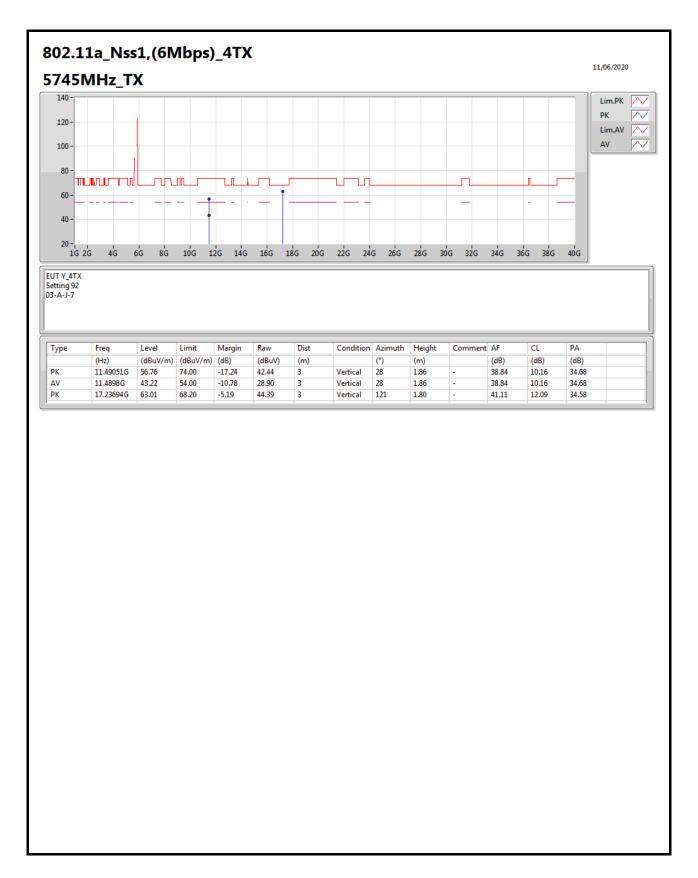






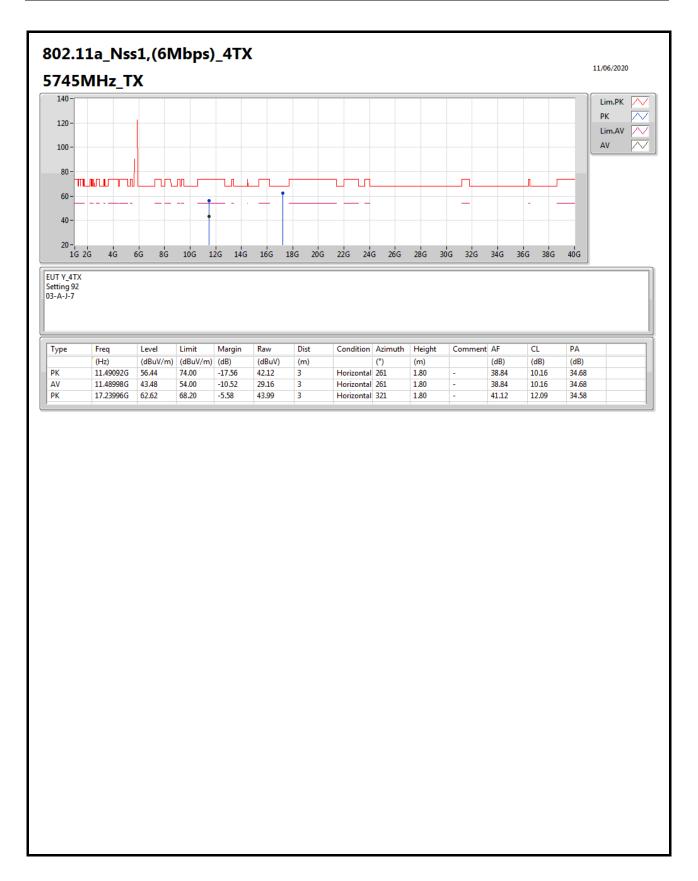
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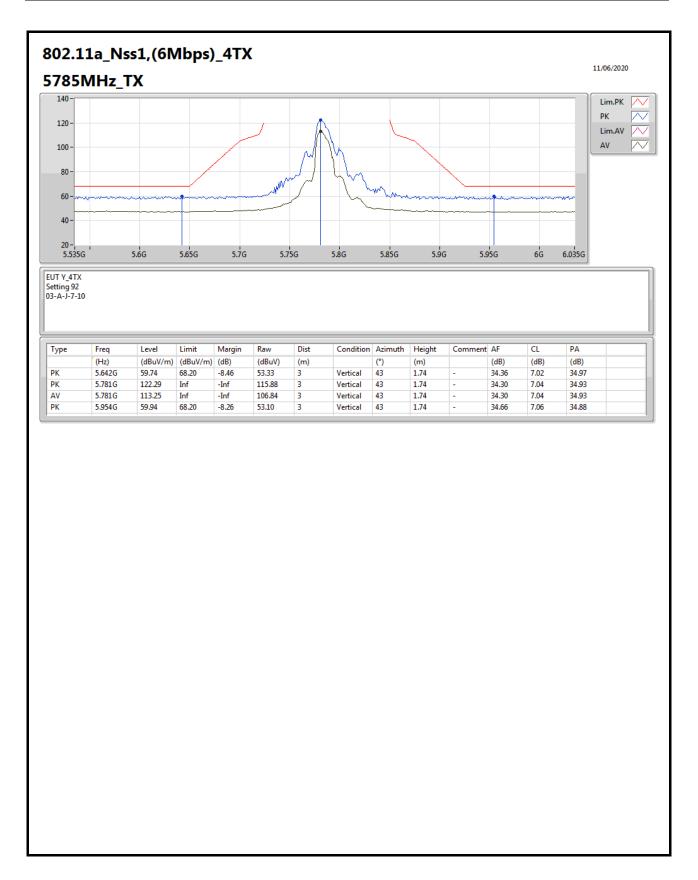


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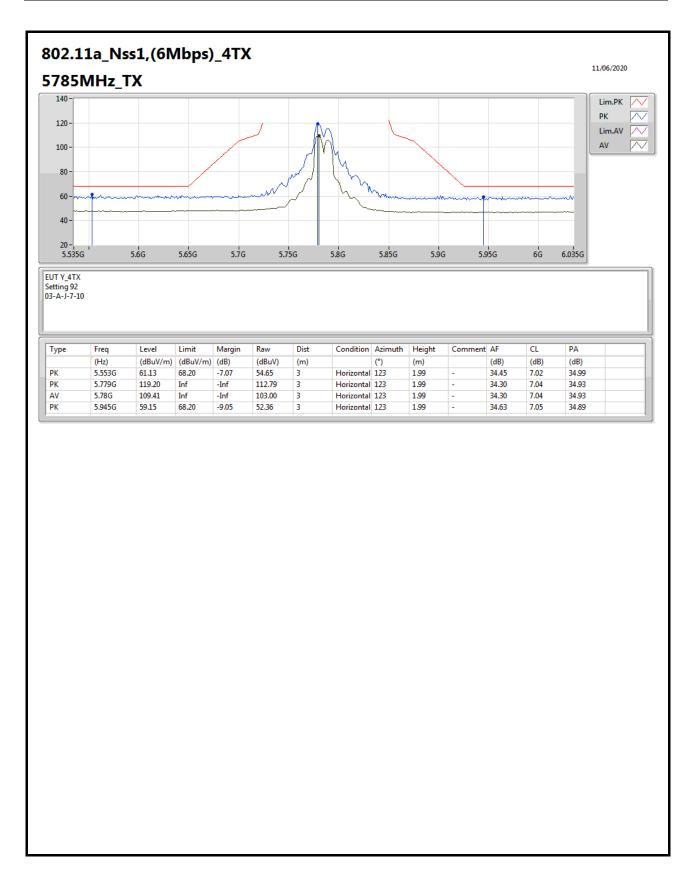




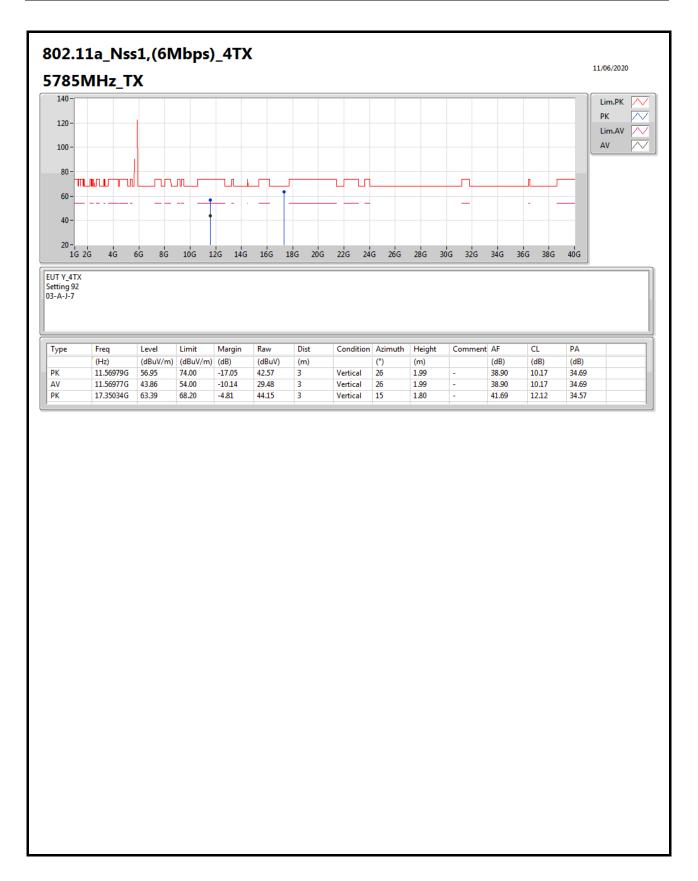




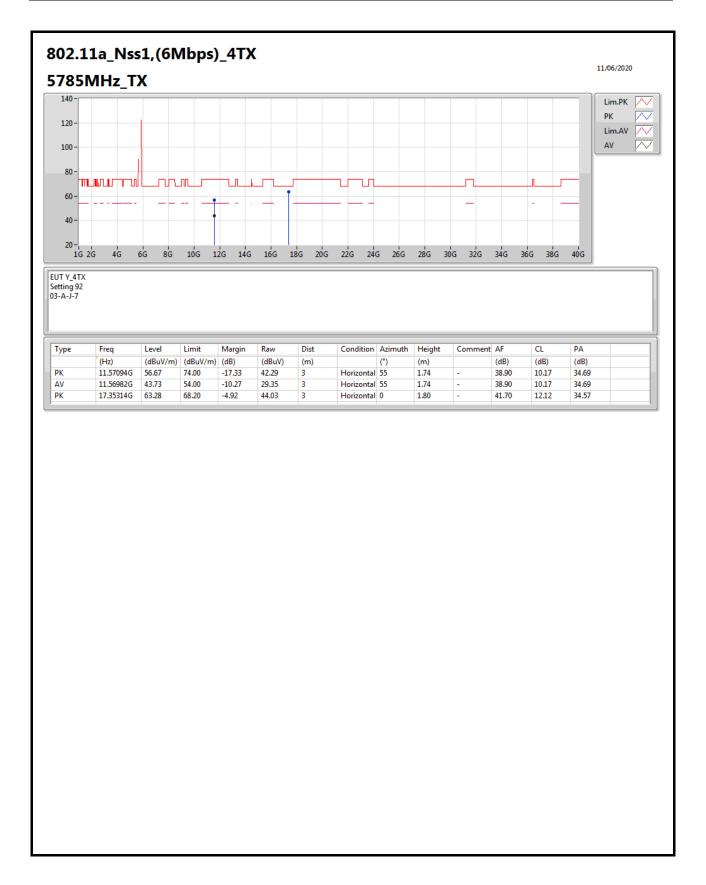




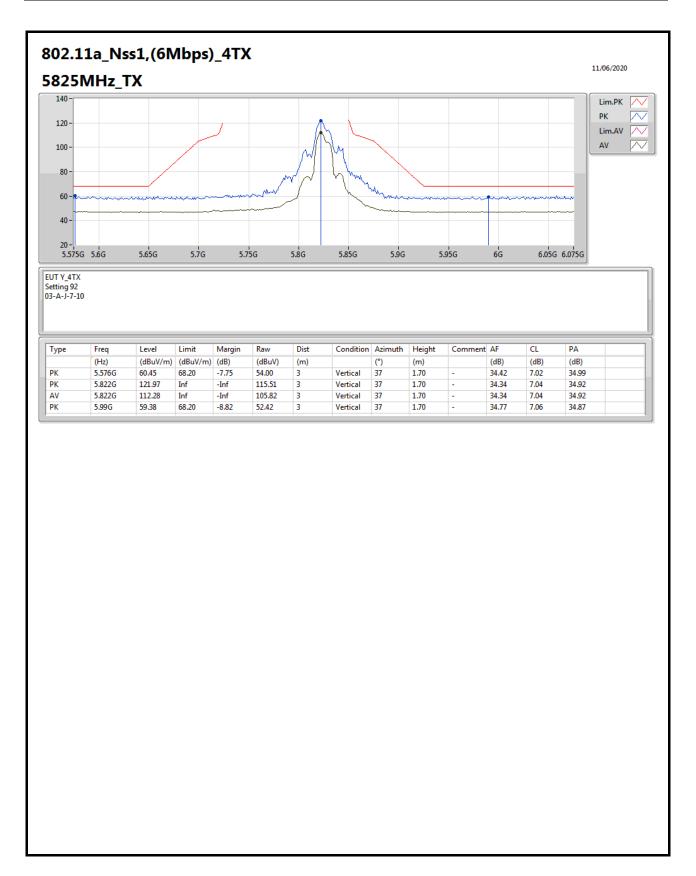




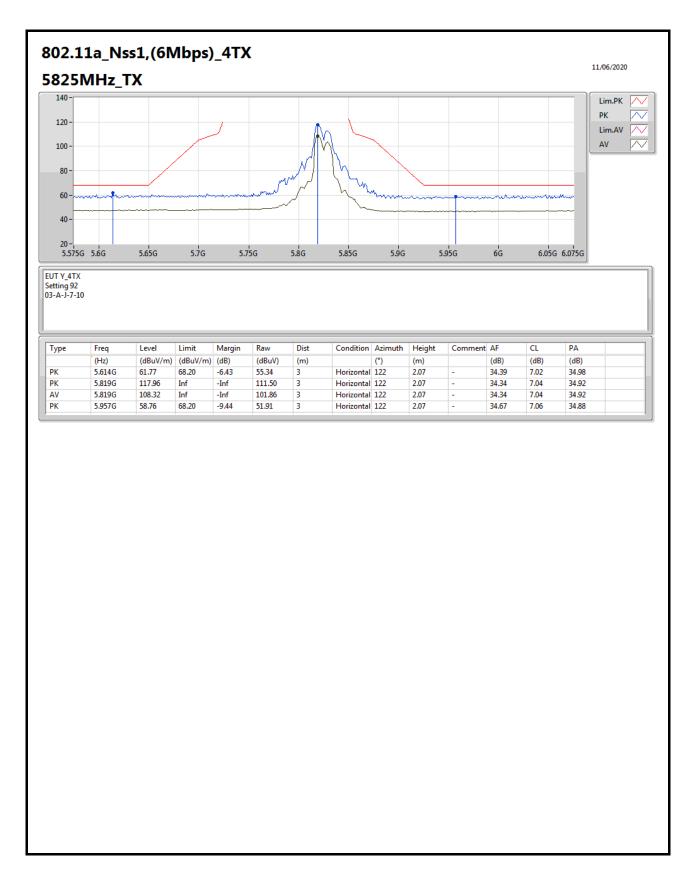






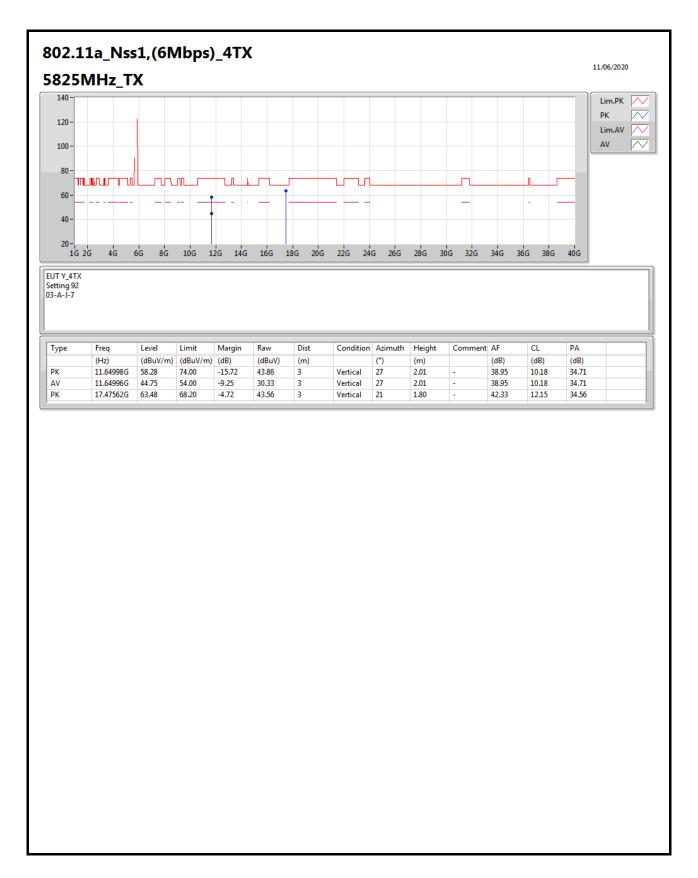




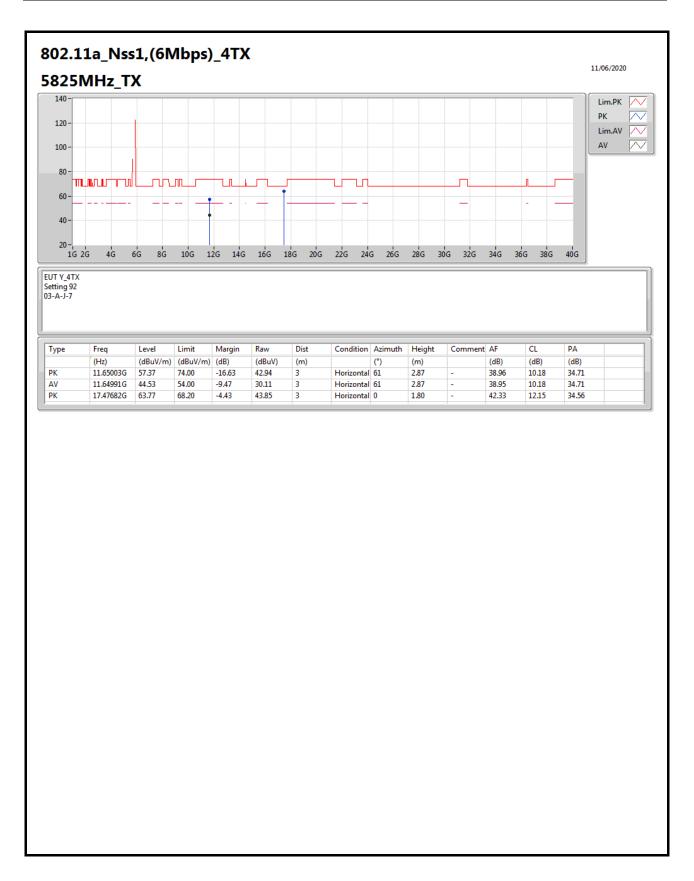


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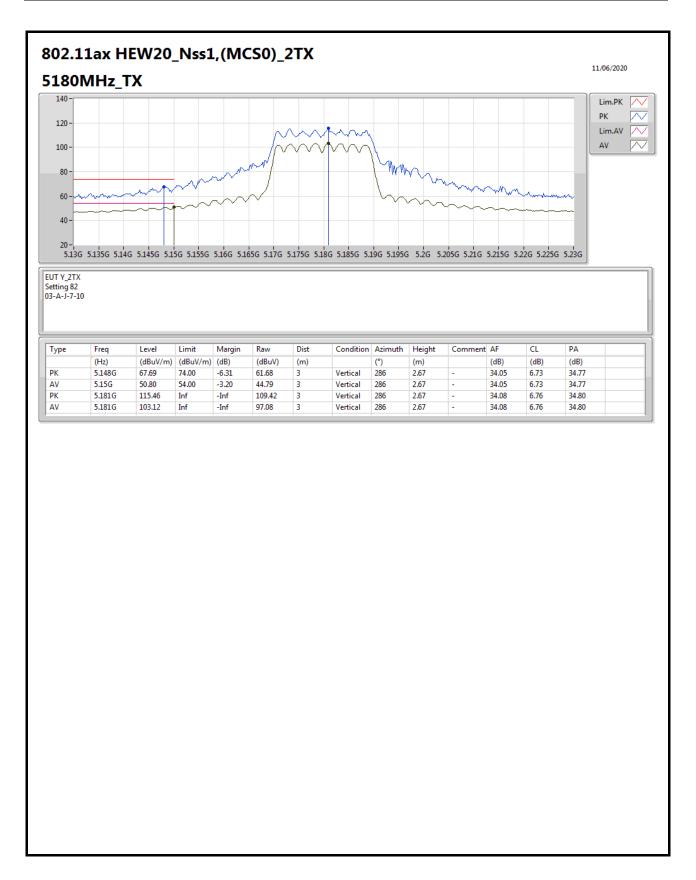




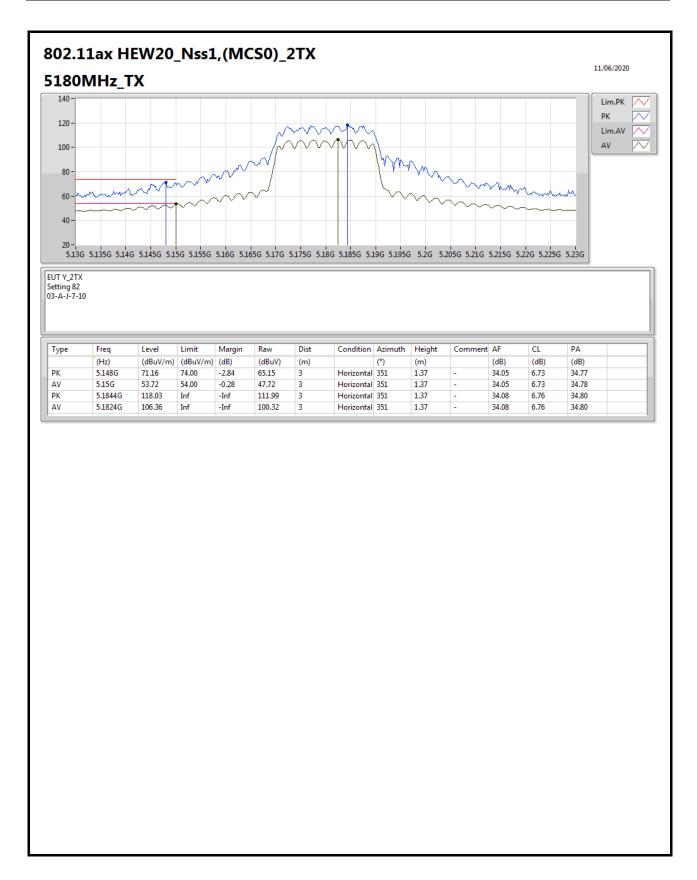




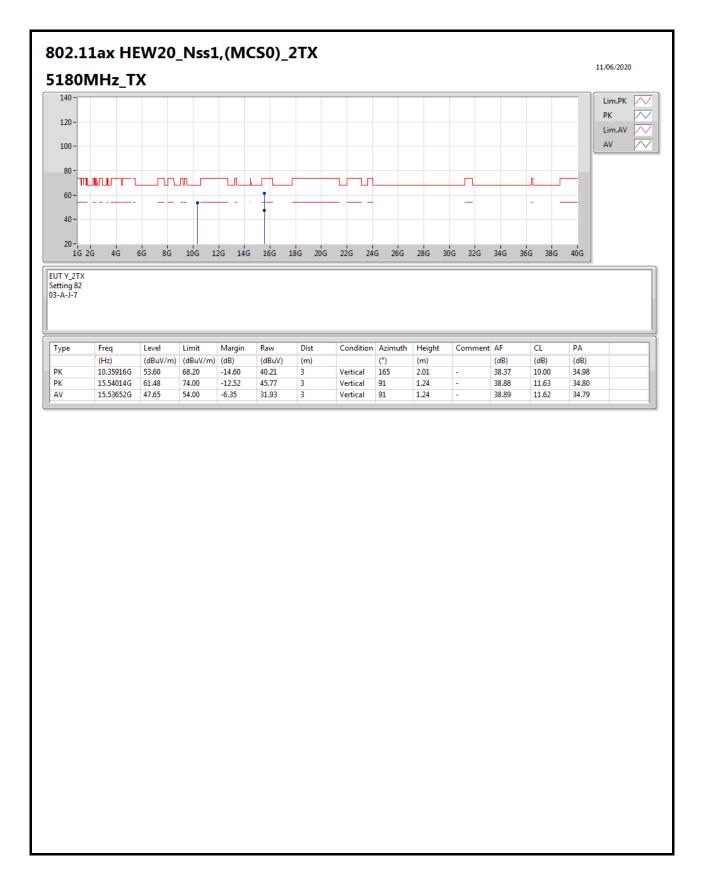






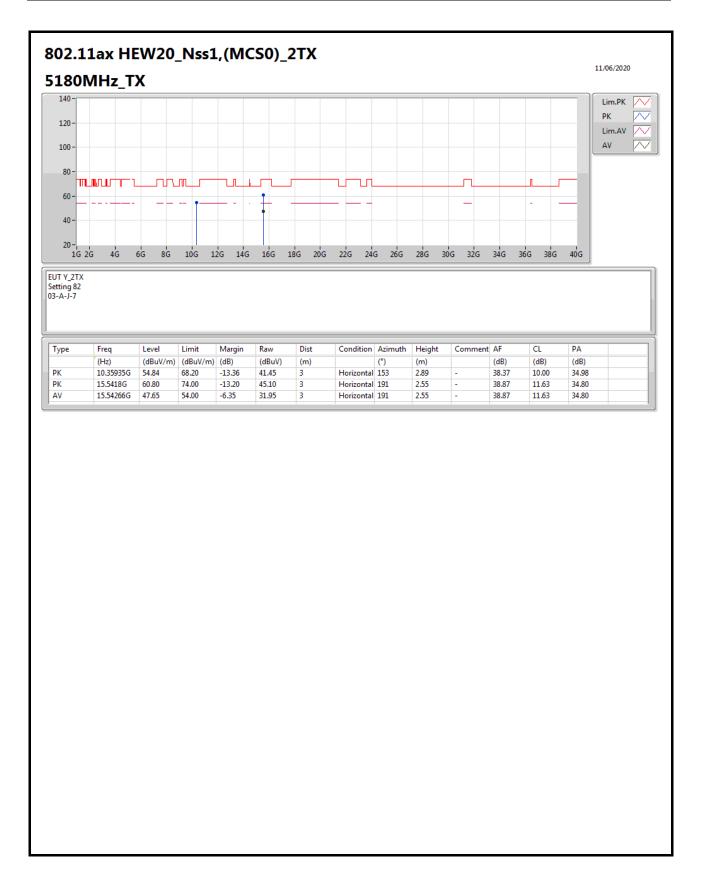






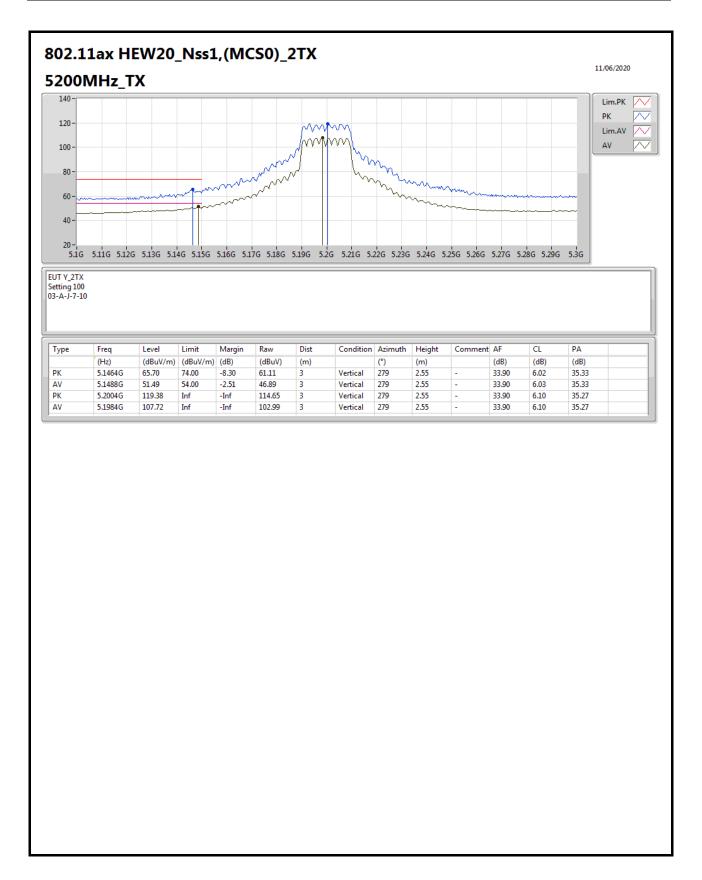
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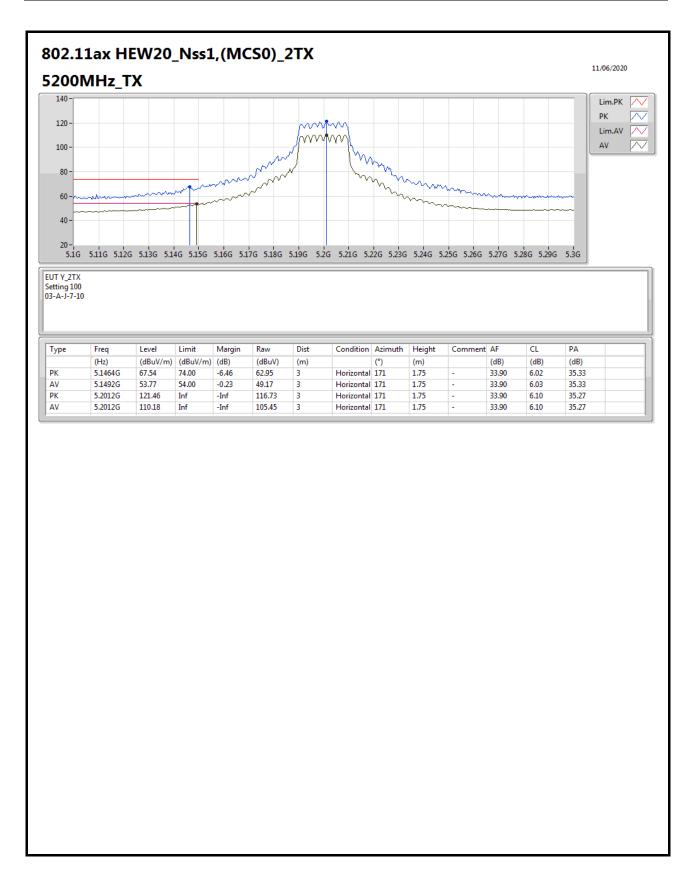


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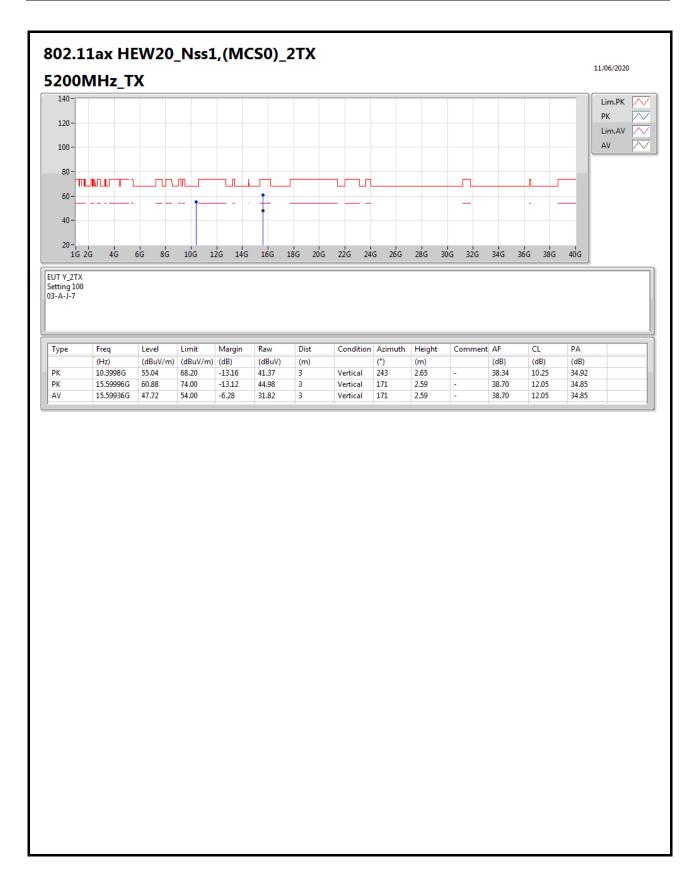




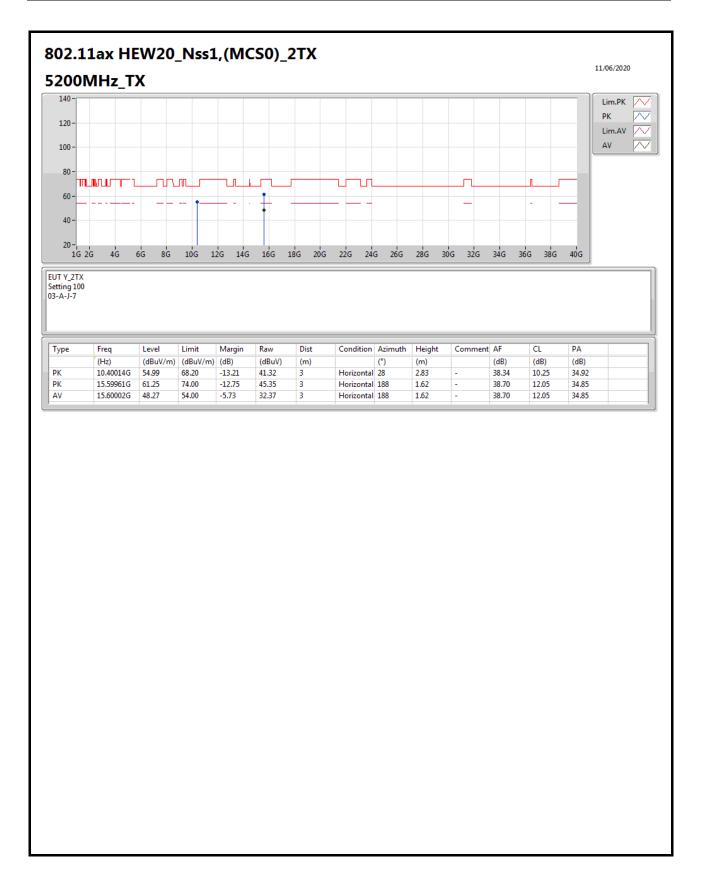




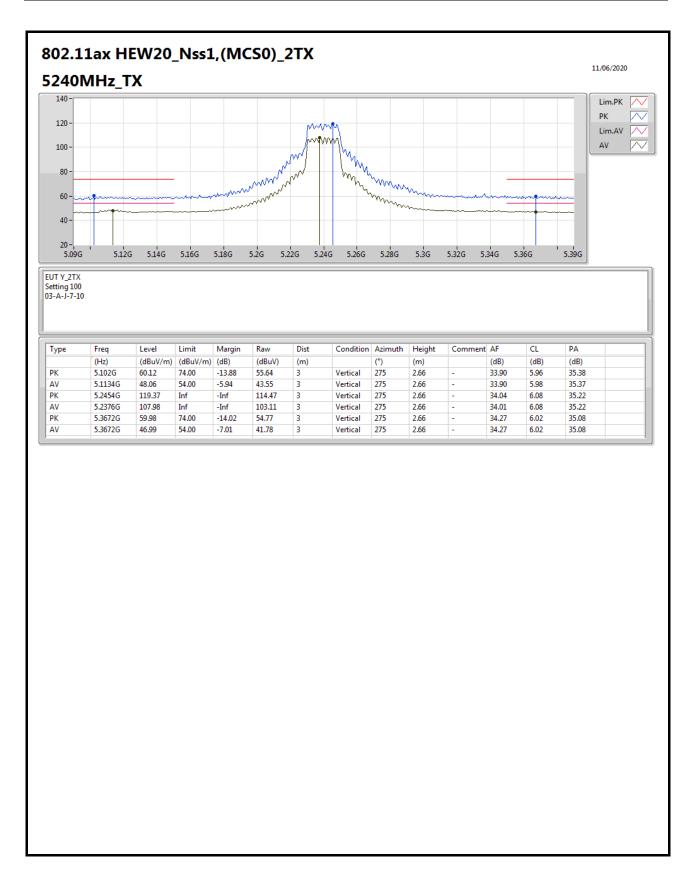




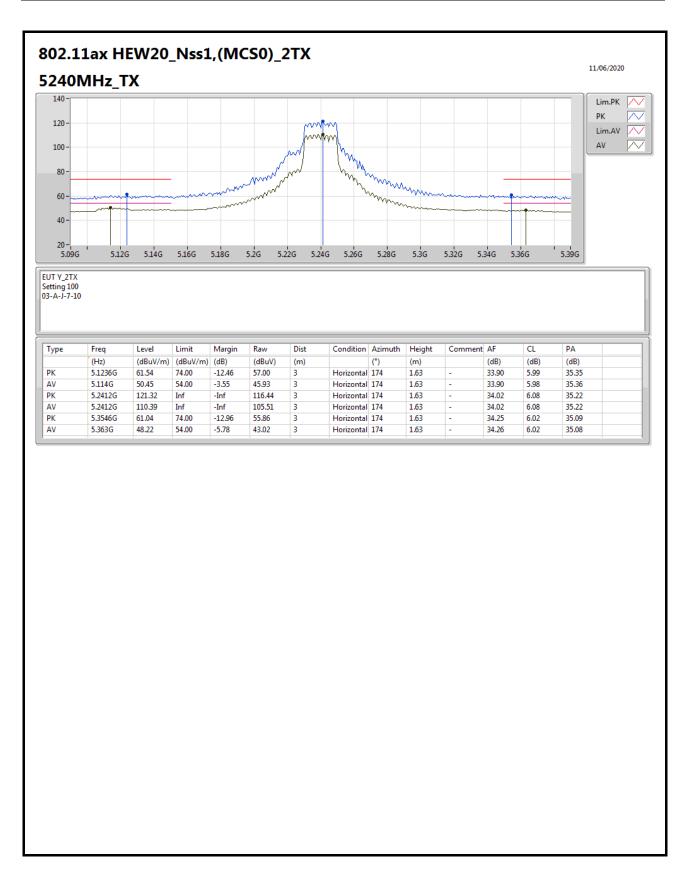




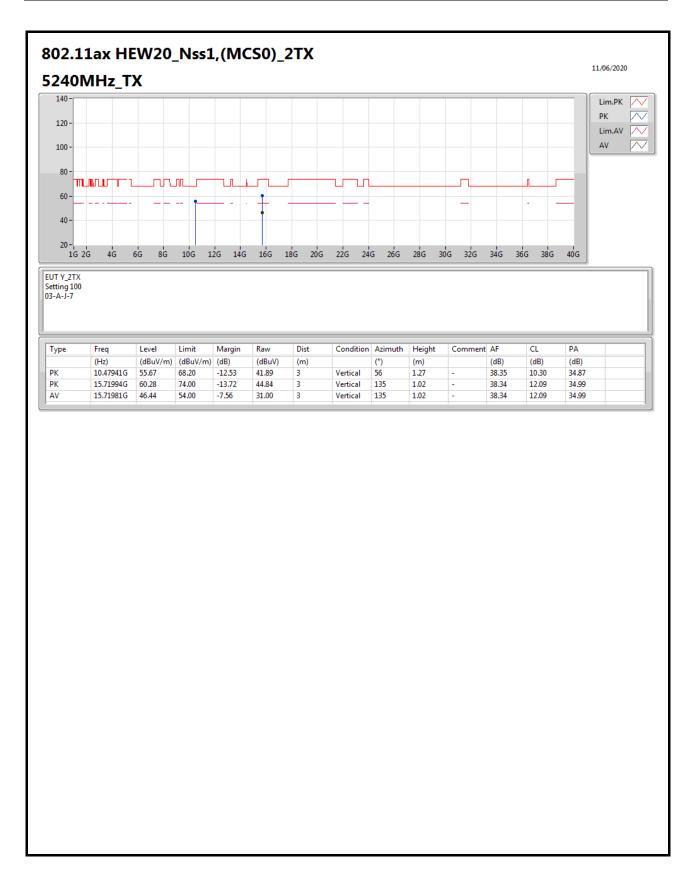






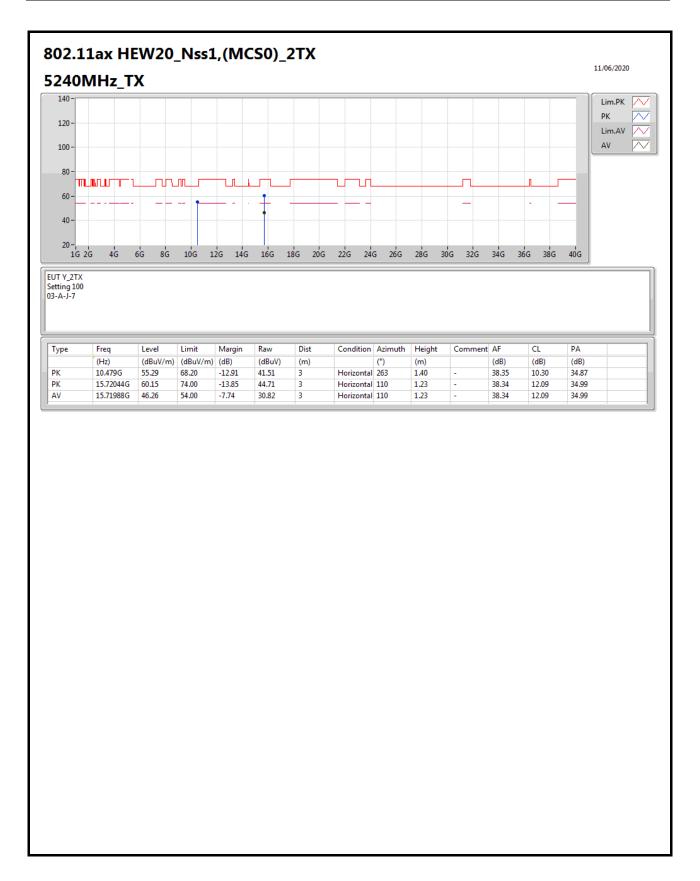




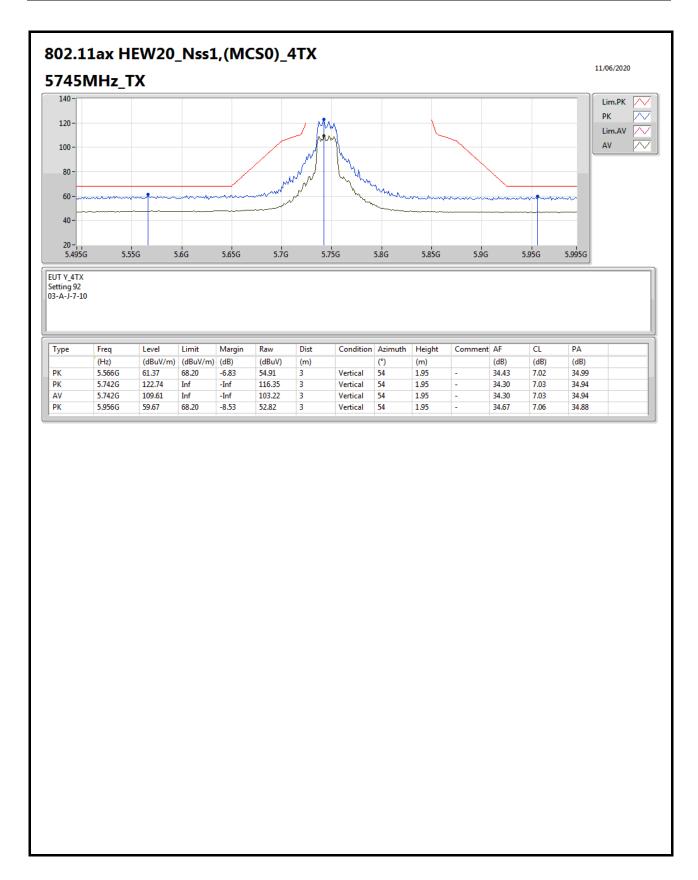


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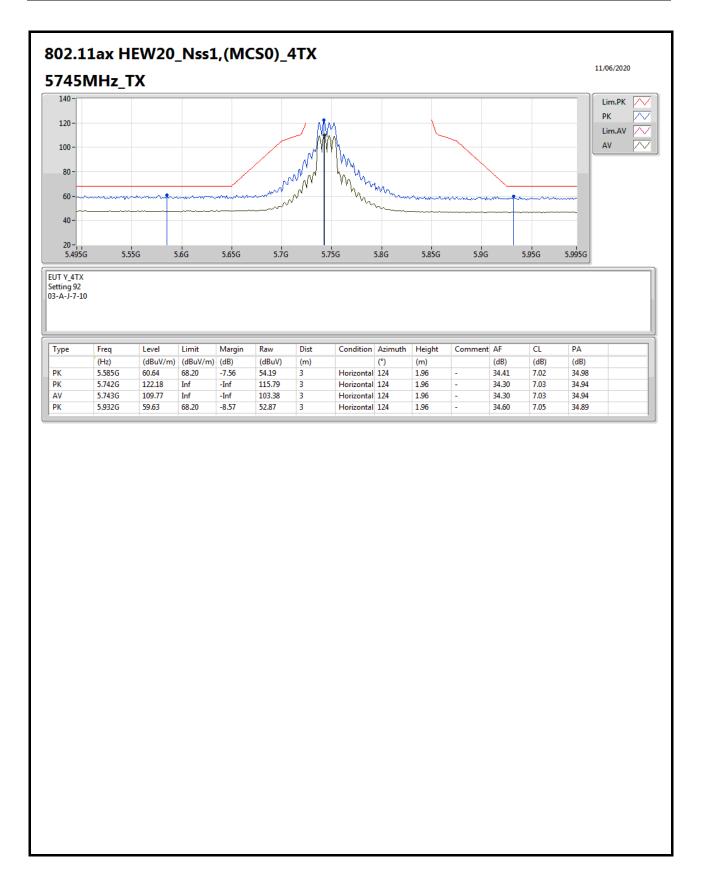






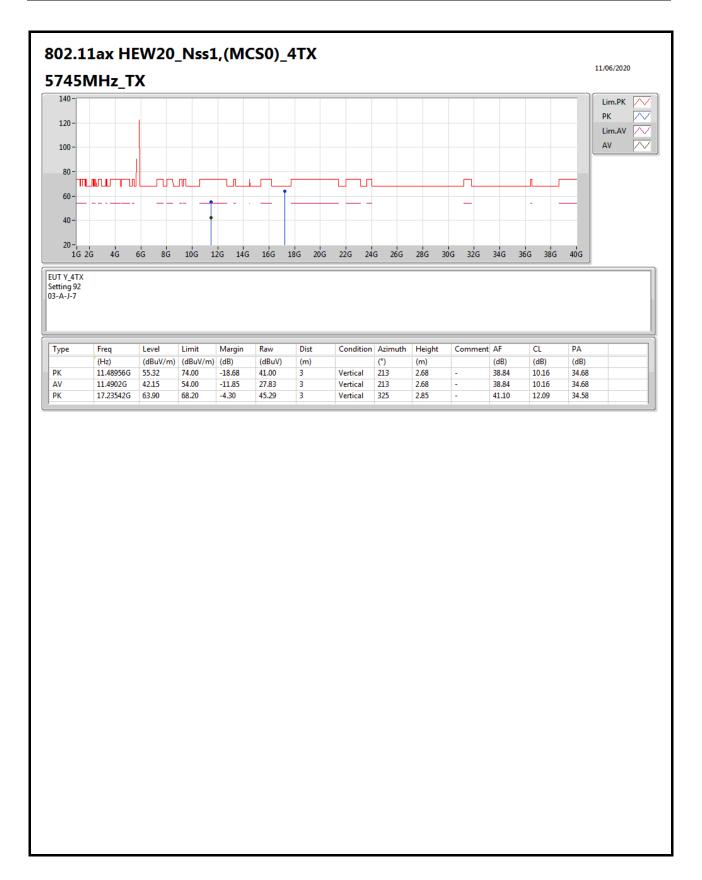






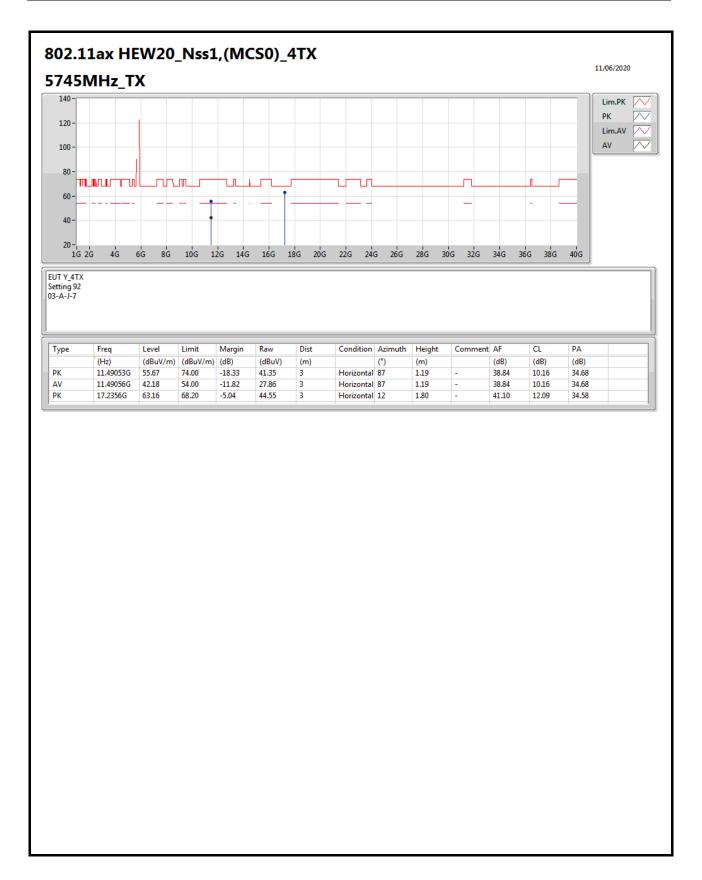
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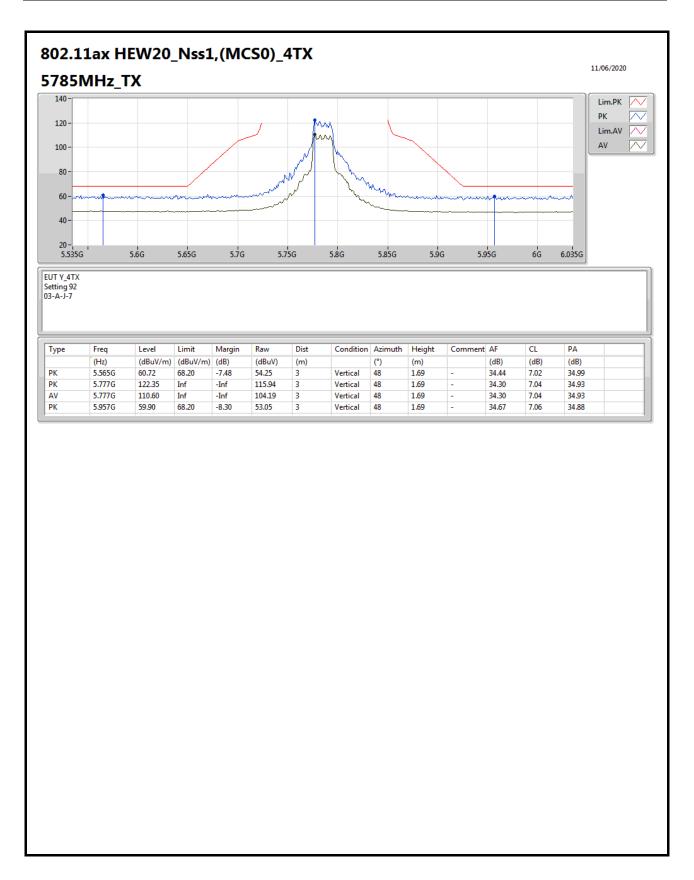


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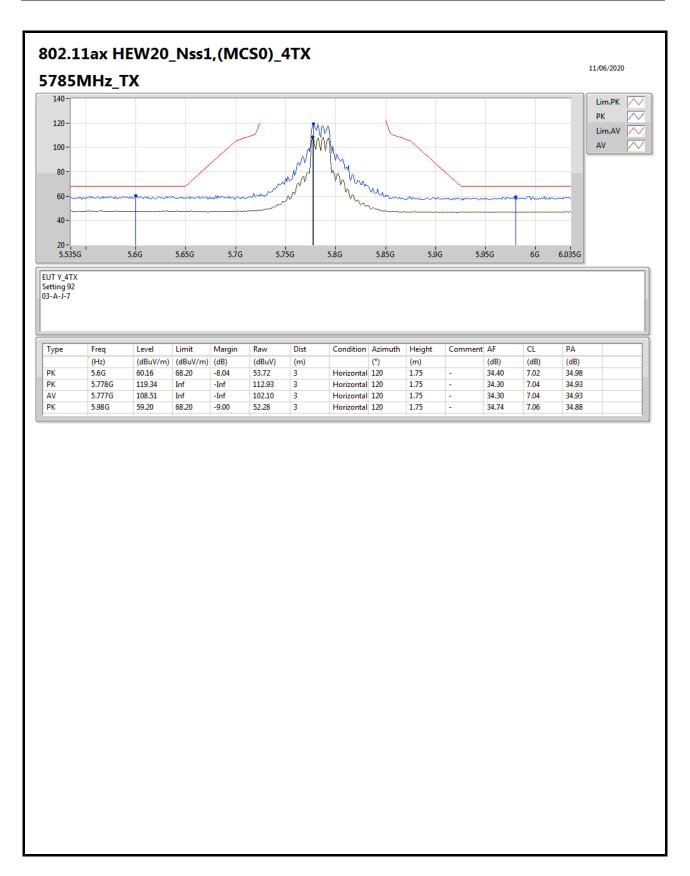






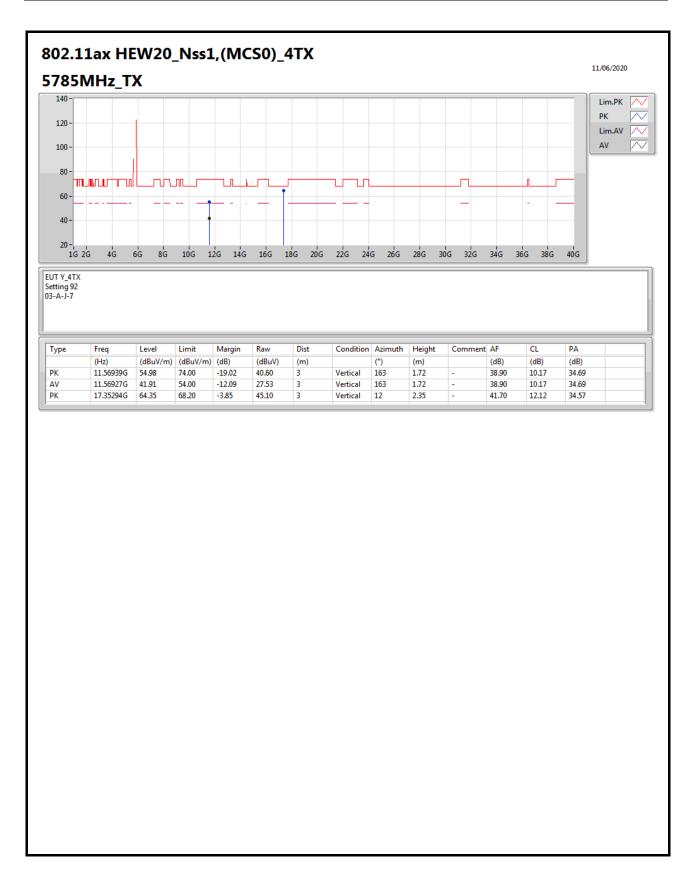




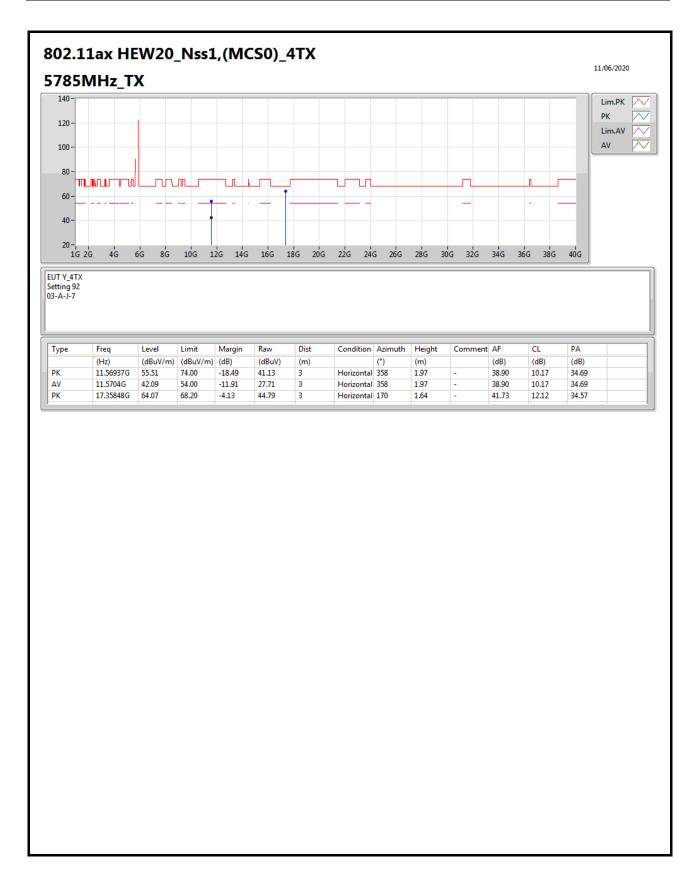


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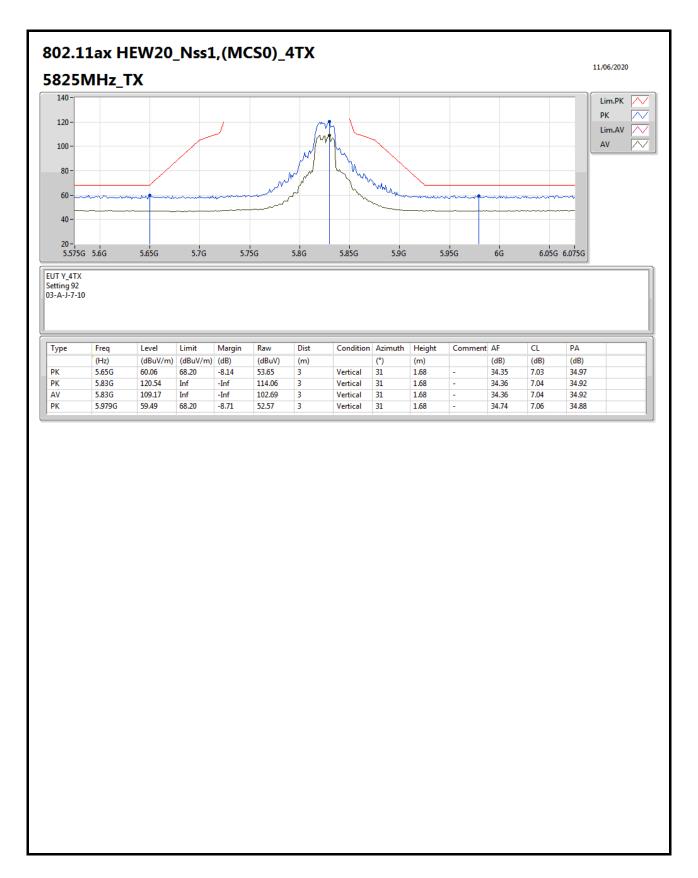






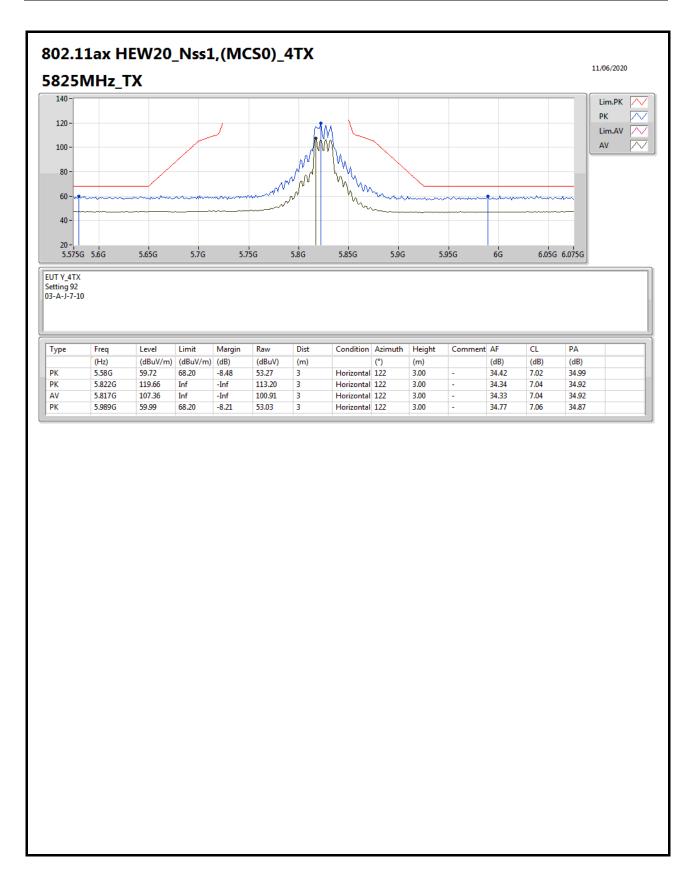
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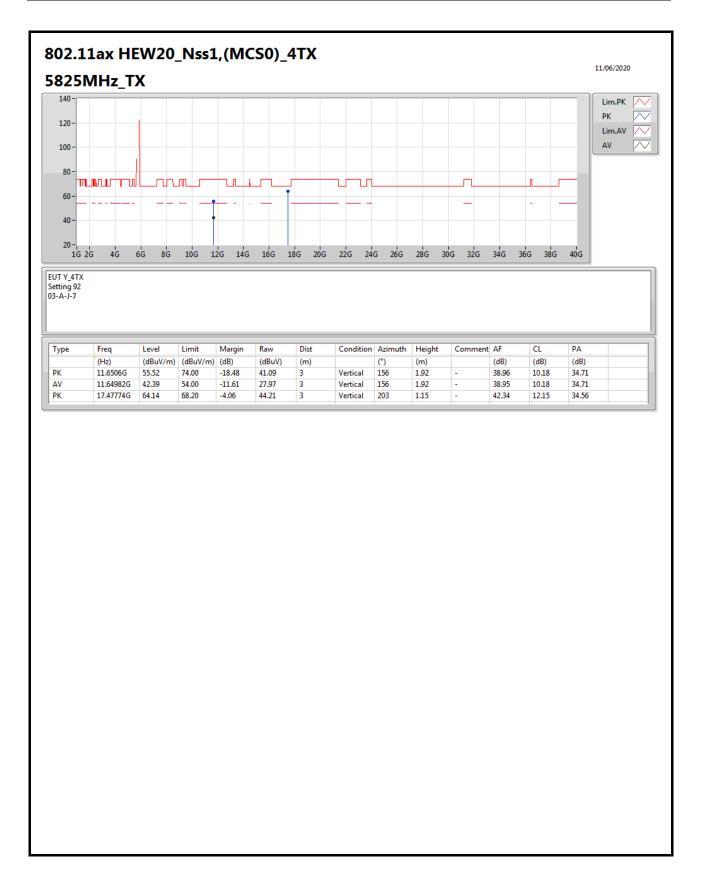
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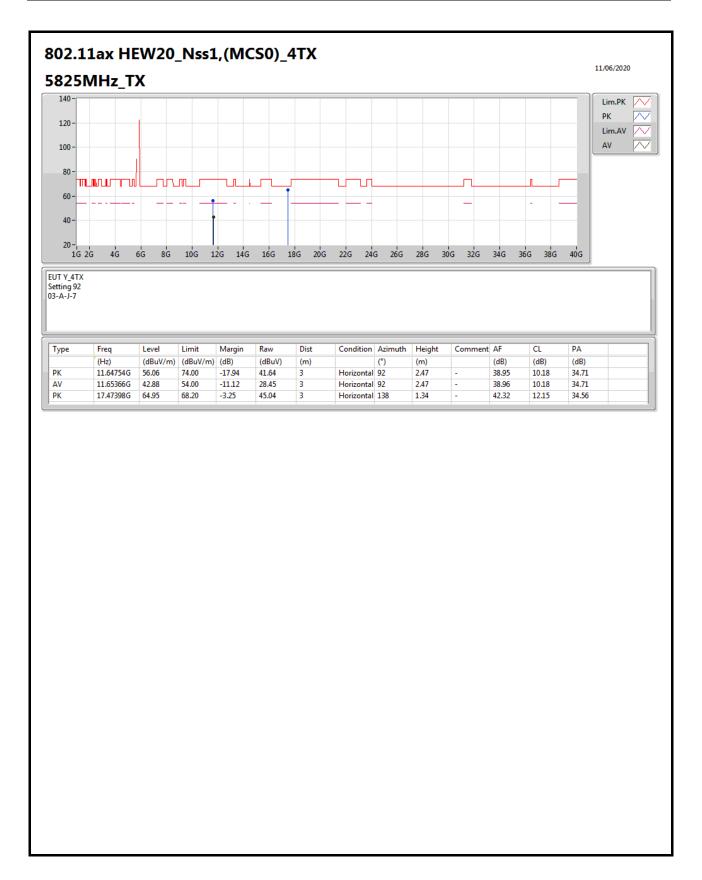
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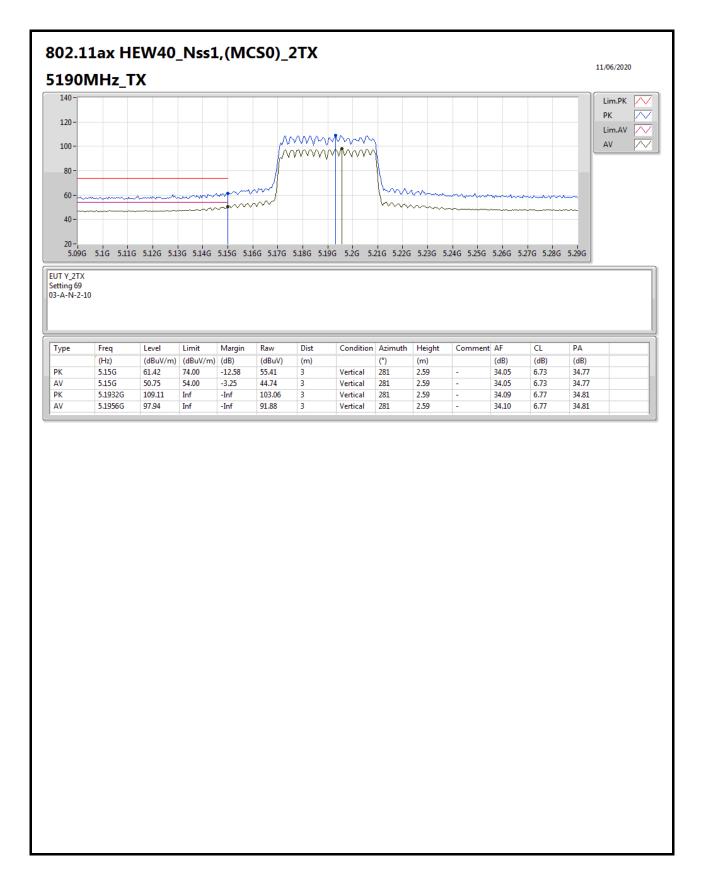
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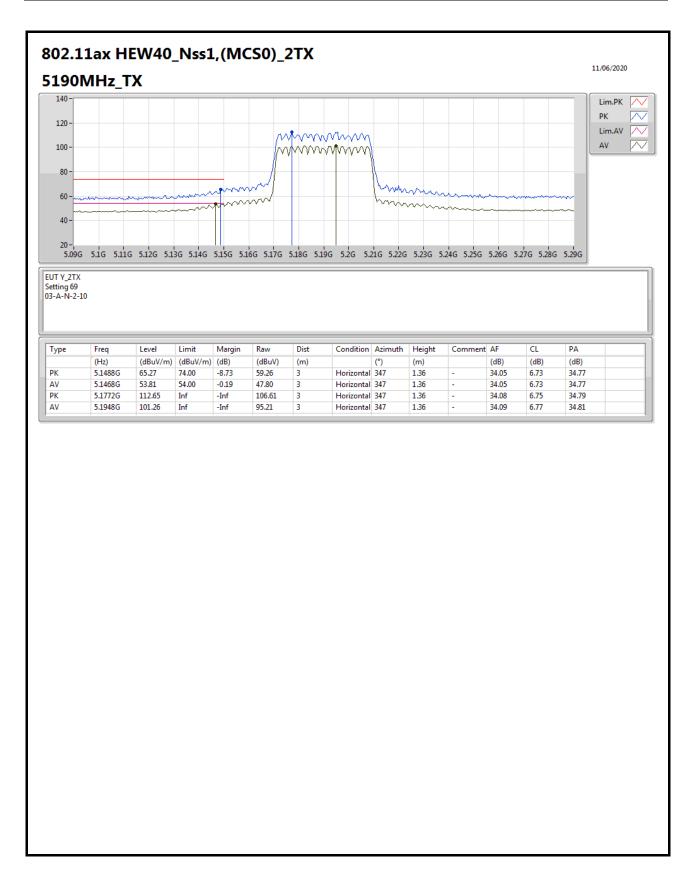
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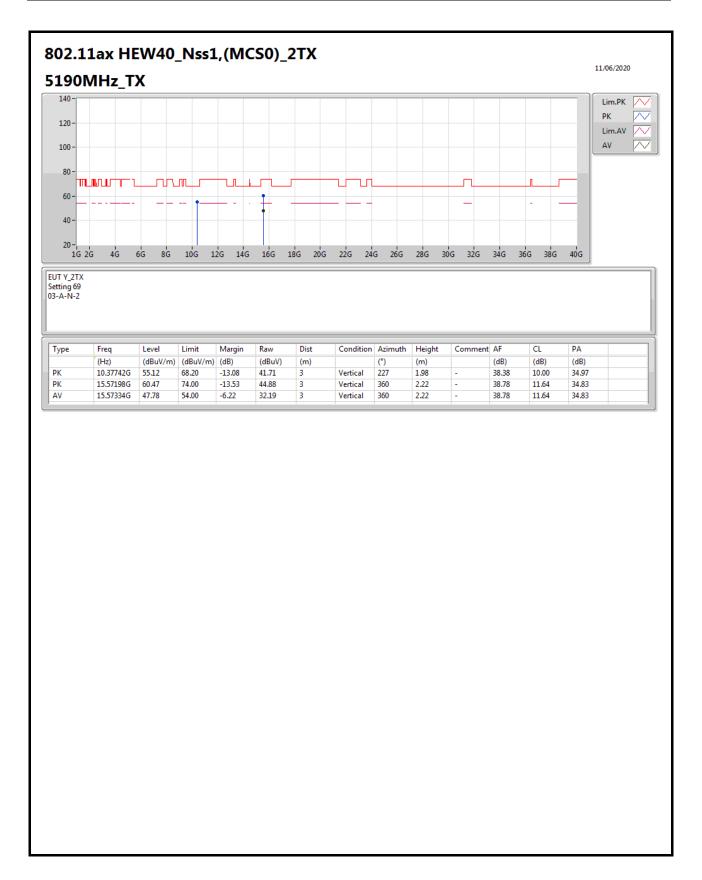
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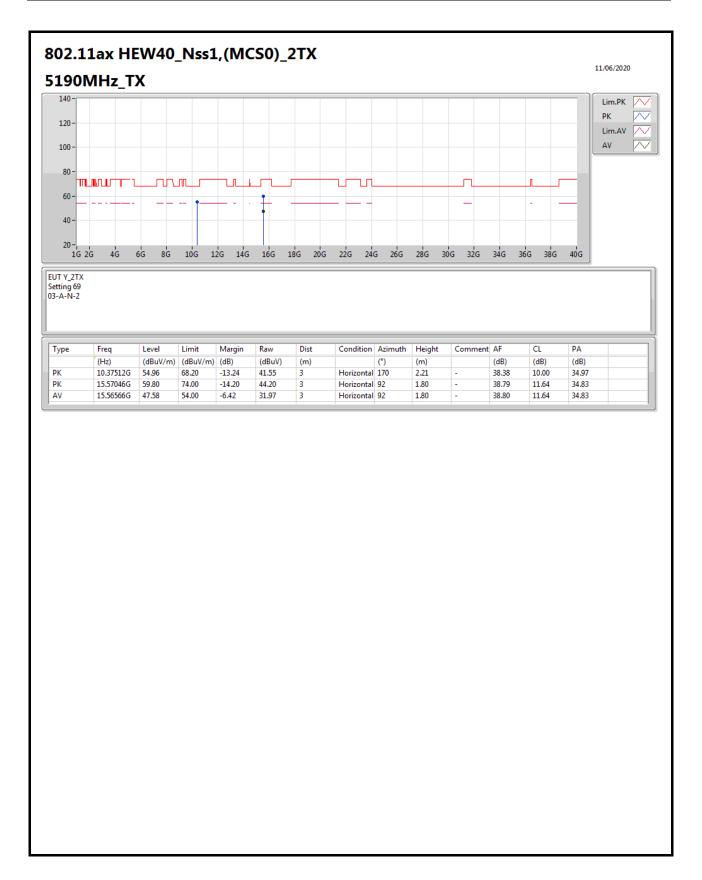
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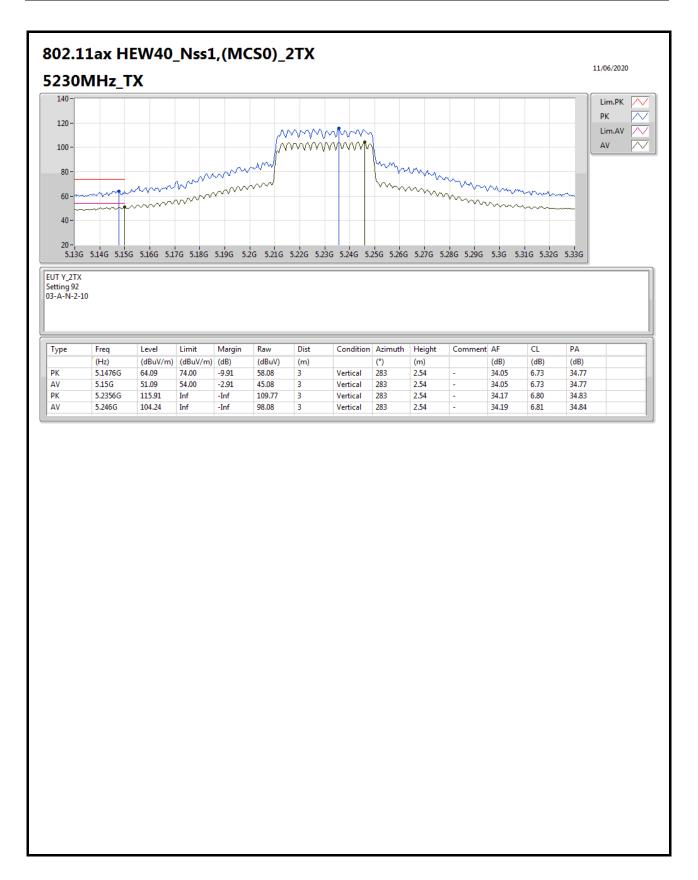
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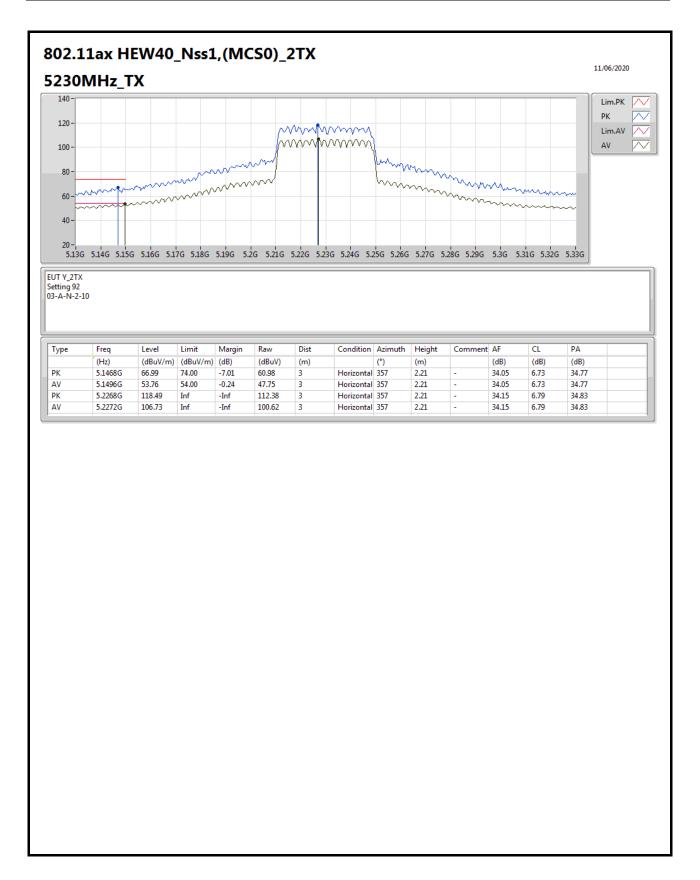
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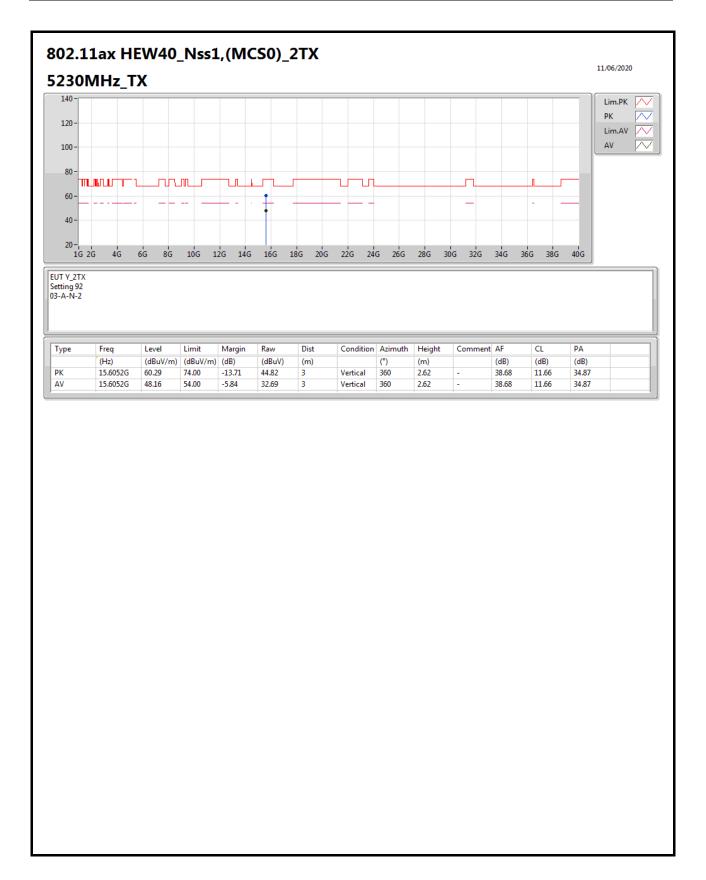
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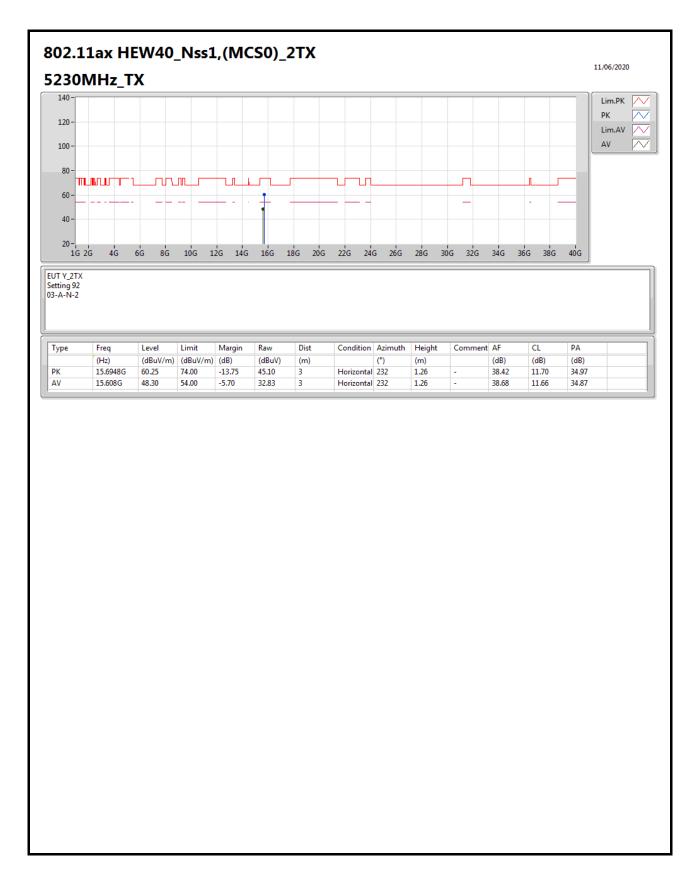
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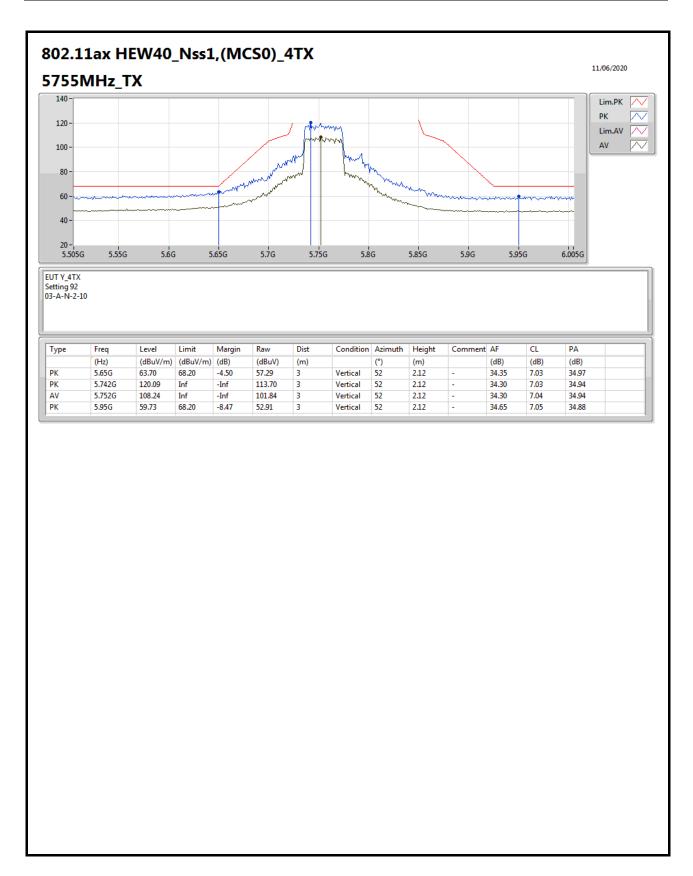


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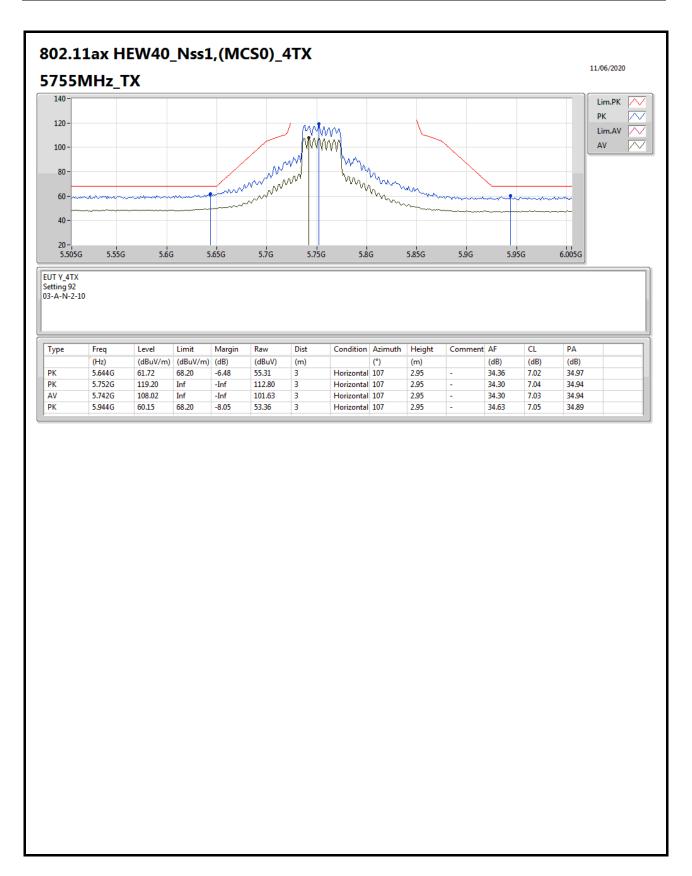






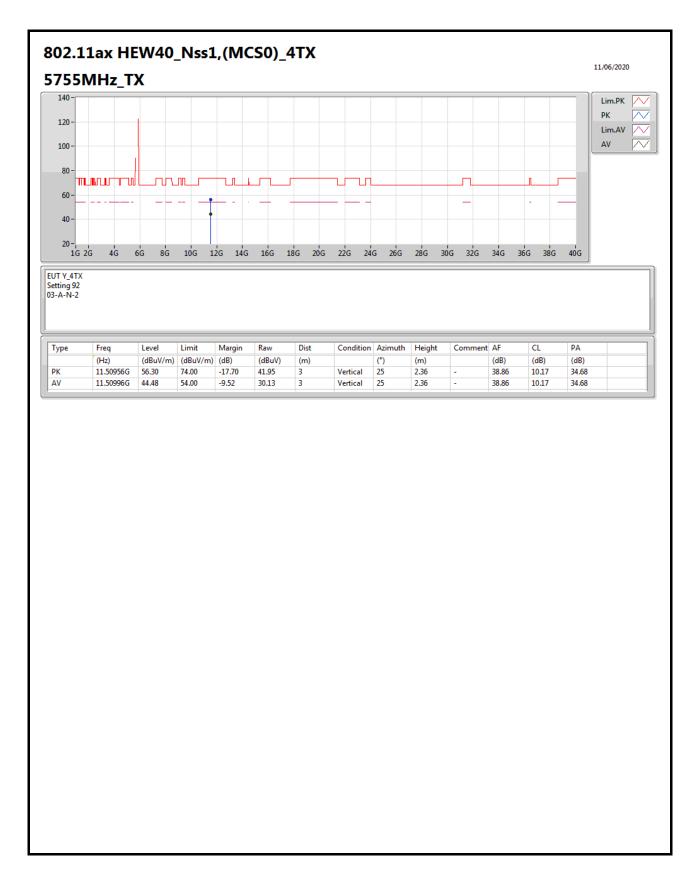
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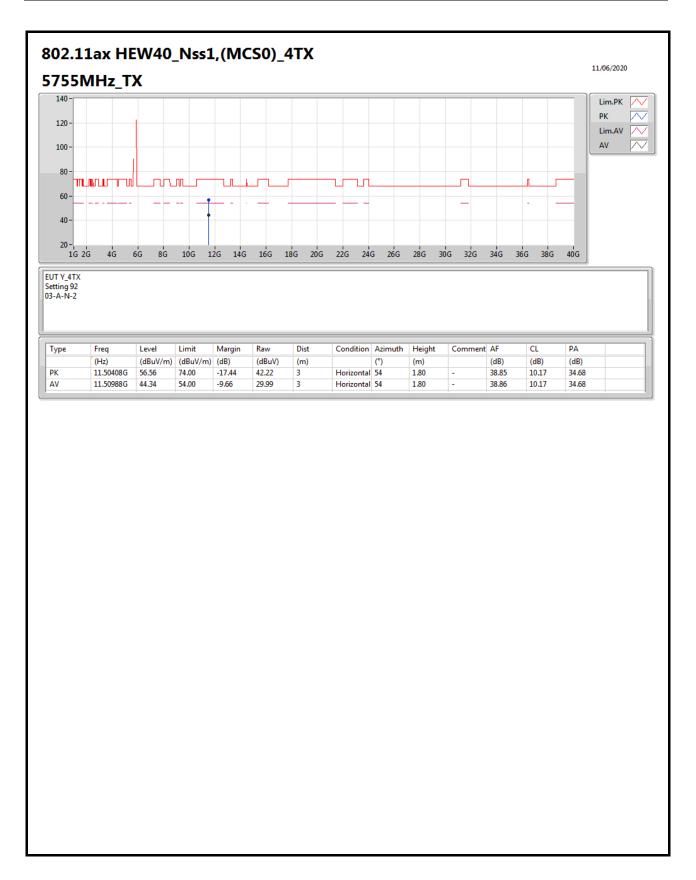


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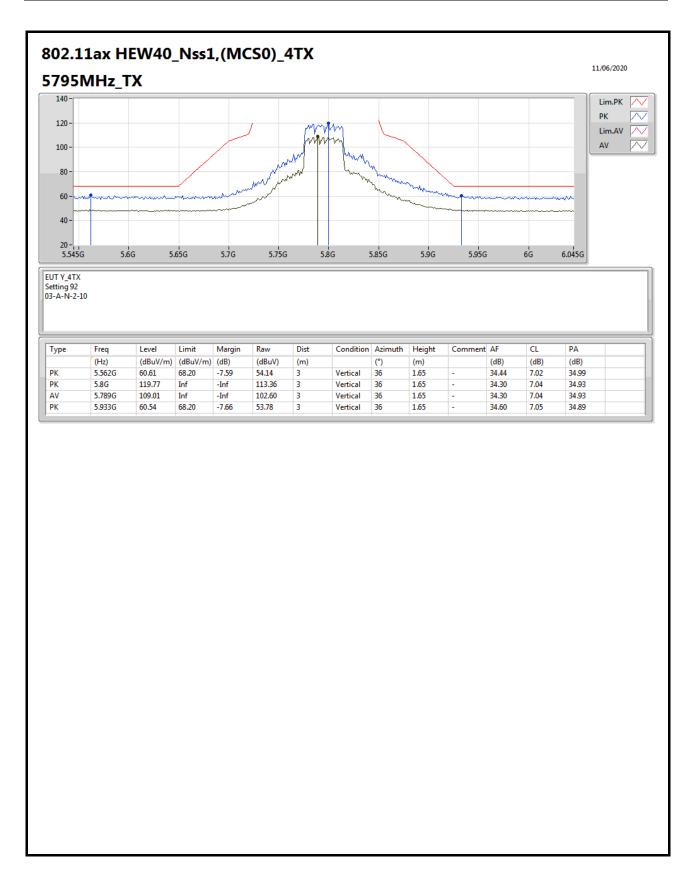




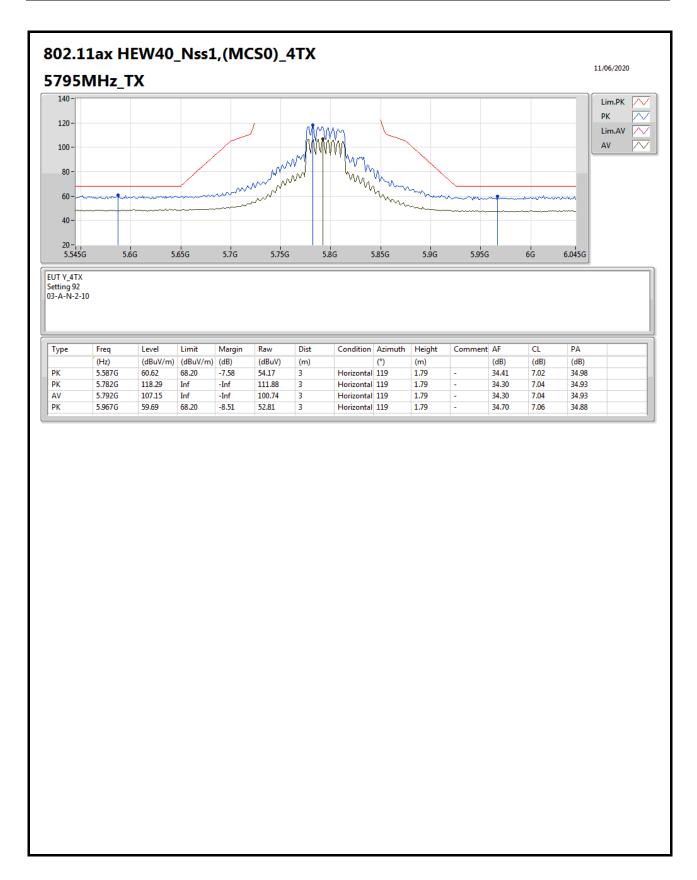




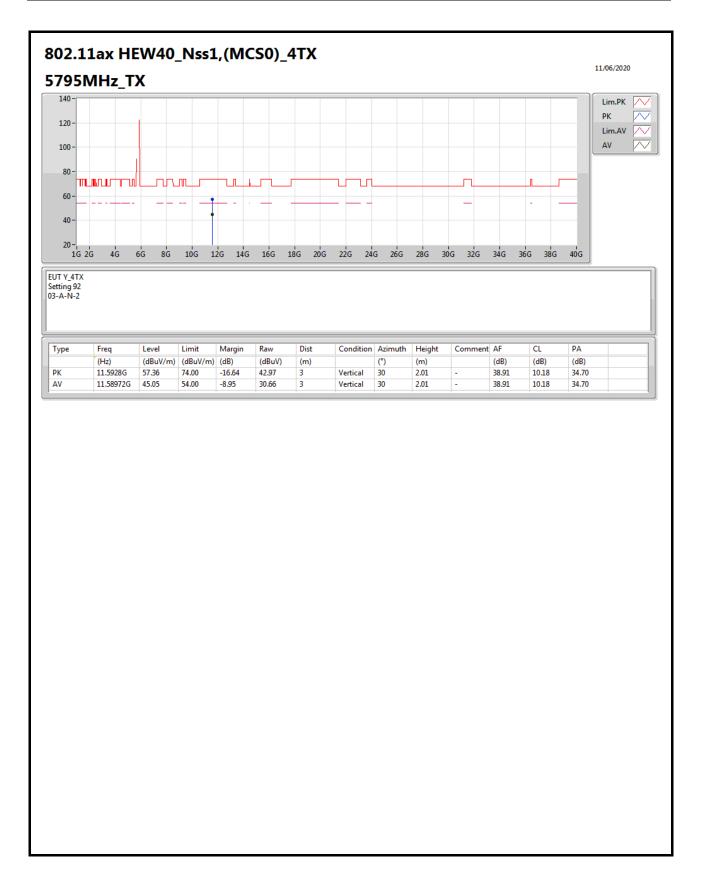






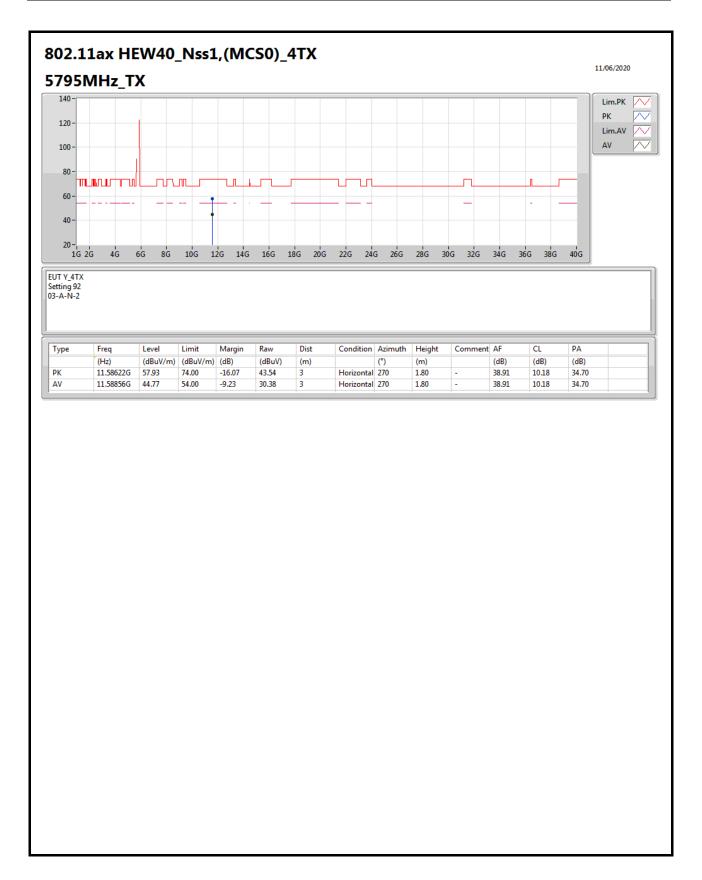




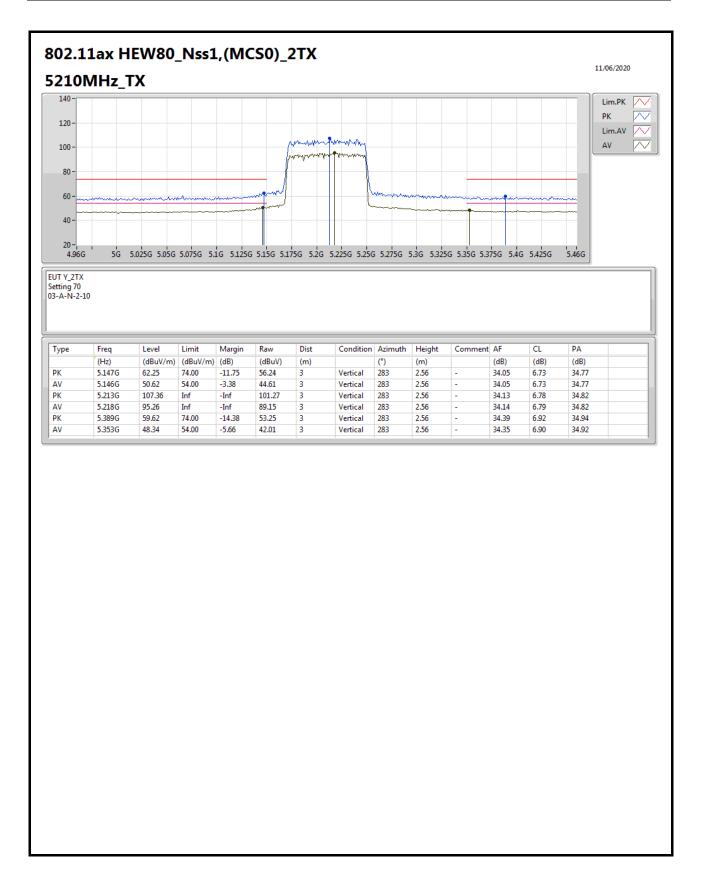


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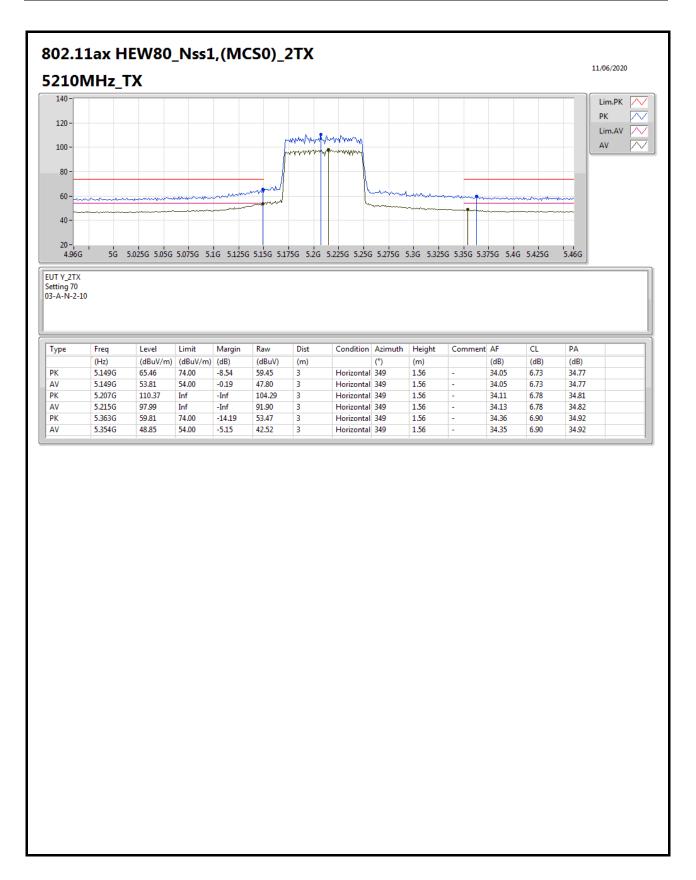






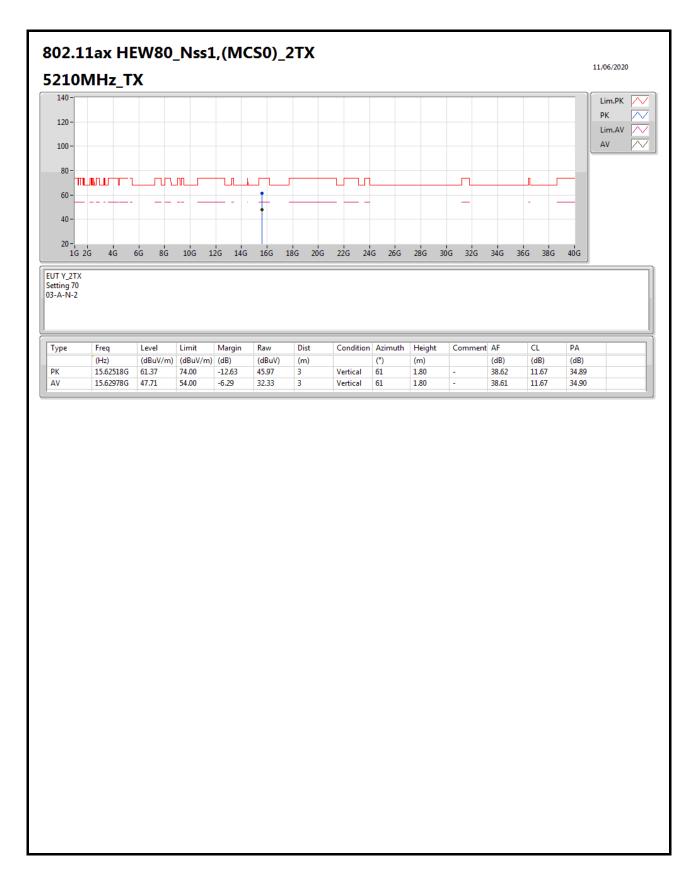






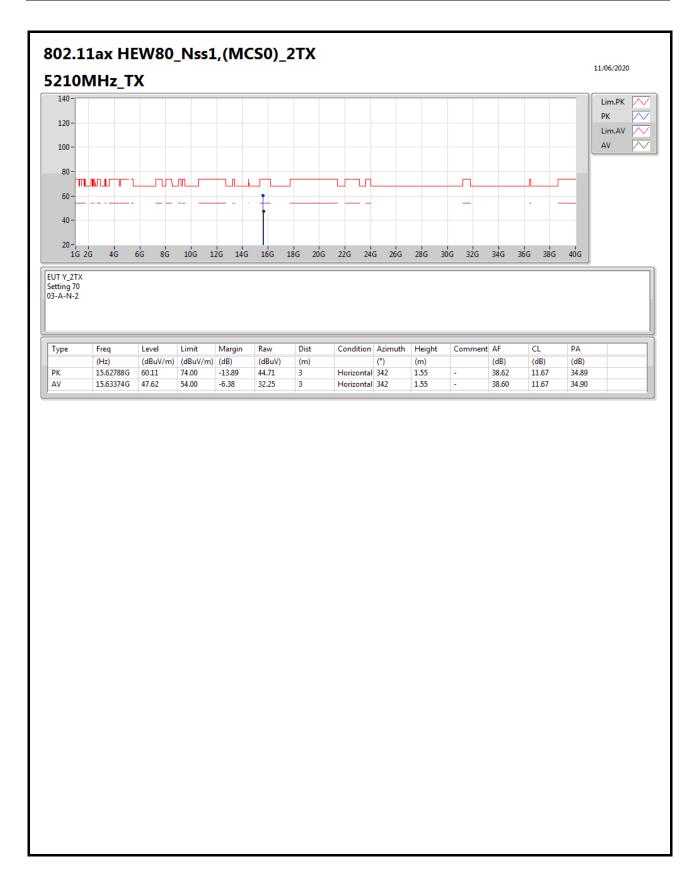
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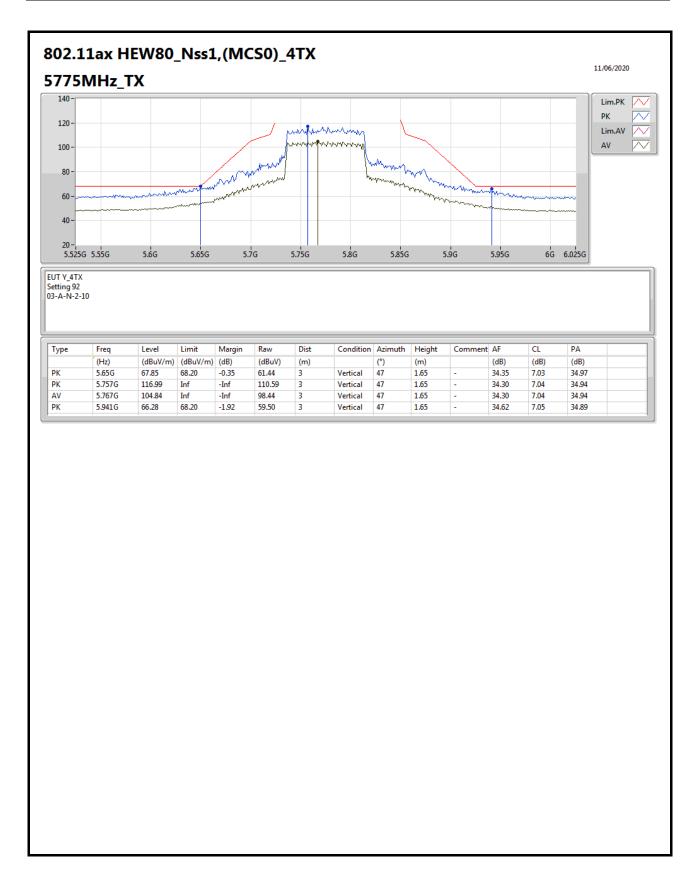


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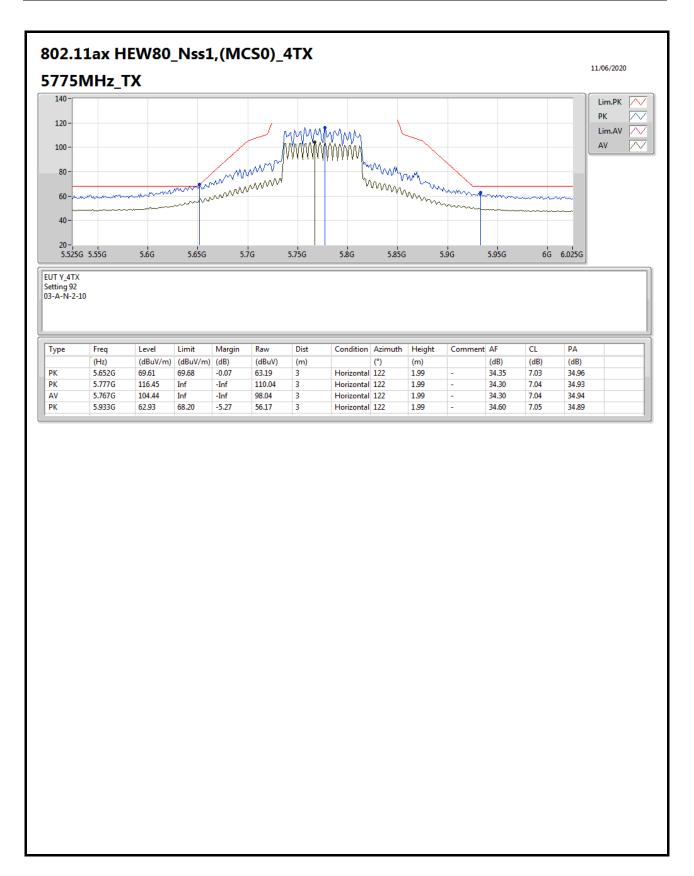






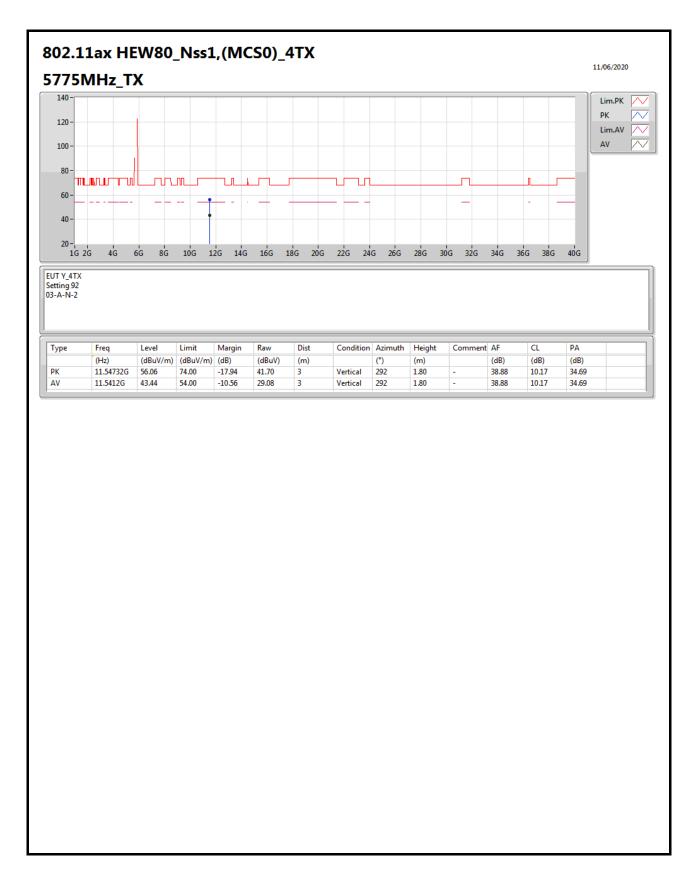






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