





FCC RADIO TEST REPORT

FCC ID

: MSQ-RTAX8A00

Equipment

: Wireless AX1800 Dual Band WiFi 6 Router

Brand Name

: ASUS

Model Name : RT-AX55

Applicant

: ASUSTeK COMPUTER INC.

1F., No. 15, Lide Rd., Beitou, Taipei 112, Taiwan

Manufacturer

: ASUSTEK COMPUTER INC.

1F., No. 15, Lide Rd., Beitou, Taipei 112, Taiwan

Standard

: 47 CFR FCC Part 15.407

The product was received on Jun. 04, 2020, and testing was started from Jun. 04, 2020 and completed on Jul. 20, 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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: Sam Chen

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

: Aug. 04, 2020

Report Version : 02

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Report No.: FR041012AB

Report Version : 02

History of this test report

Report No.: FR041012AB

Report No.	Version	Description	Issued Date
FR041012AB	01	Initial issue of report	Aug. 03, 2020
FR041012AB	02	Changing the model name of Ant. 3 to "RF21C05742A" from "RF21C05437A"	Aug. 04, 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: Sandy Chuang

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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	oo (\/UT90\ ov (UE\\/90\	5210	42 [1]
5725-5850	ac (VHT80), ax (HEW80)	5775	155 [1]

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Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	1TX
5.15-5.25GHz	802.11n HT20	20	2TX
5.15-5.25GHz	802.11n HT20-BF	20	2TX
5.15-5.25GHz	802.11ac VHT20	20	2TX
5.15-5.25GHz	802.11ac VHT20-BF	20	2TX
5.15-5.25GHz	802.11ax HEW20	20	2TX
5.15-5.25GHz	802.11ax HEW20-BF	20	2TX
5.15-5.25GHz	802.11n HT40	40	2TX
5.15-5.25GHz	802.11n HT40-BF	40	2TX
5.15-5.25GHz	802.11ac VHT40	40	2TX
5.15-5.25GHz	802.11ac VHT40-BF	40	2TX
5.15-5.25GHz	802.11ax HEW40	40	2TX
5.15-5.25GHz	802.11ax HEW40-BF	40	2TX
5.15-5.25GHz	802.11ac VHT80	80	2TX
5.15-5.25GHz	802.11ac VHT80-BF	80	2TX
5.15-5.25GHz	802.11ax HEW80	80	2TX
5.15-5.25GHz	802.11ax HEW80-BF	80	2TX
5.725-5.85GHz	802.11a	20	1TX
5.725-5.85GHz	802.11n HT20	20	2TX
5.725-5.85GHz	802.11n HT20-BF	20	2TX
5.725-5.85GHz	802.11ac VHT20	20	2TX
5.725-5.85GHz	802.11ac VHT20-BF	20	2TX
5.725-5.85GHz	802.11ax HEW20	20	2TX
5.725-5.85GHz	802.11ax HEW20-BF	20	2TX

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Band	Mode	BWch (MHz)	Nant
5.725-5.85GHz	802.11n HT40	40	2TX
5.725-5.85GHz	802.11n HT40-BF	40	2TX
5.725-5.85GHz	802.11ac VHT40	40	2TX
5.725-5.85GHz	802.11ac VHT40-BF	40	2TX
5.725-5.85GHz	802.11ax HEW40	40	2TX
5.725-5.85GHz	802.11ax HEW40-BF	40	2TX
5.725-5.85GHz	802.11ac VHT80	80	2TX
5.725-5.85GHz	802.11ac VHT80-BF	80	2TX
5.725-5.85GHz	802.11ax HEW80	80	2TX
5.725-5.85GHz	802.11ax HEW80-BF	80	2TX

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

1.1.2 Antenna Information

Ant.	Po	ort	Brond	D/N	Antenna		Connector	Gain (dBi)	
	2.4GHz	5GHz	Brand	P/N Type		Connector	2.4GHz	5GHz	
1	2	-	RF link	RF21C05434A	Dipole Ant.	N/A	2	-	
2	1		RF link	RF21C05435A	Dipole Ant.	N/A	2	-	
3	-	2	RF link	RF21C05742A	Dipole Ant.	I-PEX	-	2	
4	-	1	RF link	RF21C05436A	Dipole Ant.	I-PEX	-	2	

Note: The above information was declared by manufacturer.

For 2.4GHz function:

For IEEE 802.11b/g (1TX/1RX):

Only Port 1 can be used as transmitting/receiving antenna.

For IEEE 802.11n/ax (2TX/2RX):

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

Pot 1 and Port 2 could transmit/receive simultaneously.

For 5GHz function:

For IEEE 802.11a (1TX/1RX):

Only Port 2 can be used as transmitting/receiving antenna.

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

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

Pot 1 and Port 2 could transmit/receive simultaneously.

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1.1.3 Mode Test Duty Cycle

<Non-beamforming mode>

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11a	0.958	0.19	2.066m	1k

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 de>

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11ax HEW20-BF	0.98	0.09	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ax HEW40-BF	0.962	0.17	781.25u	3k
802.11ax HEW80-BF	0.929	0.32	413.75u	3k

N	Oto:	٠
N	uic.	

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

1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter				
Beamforming Function	\boxtimes	With beamforming		Without beamforming	
Beamforning Function	The product has beamforming function for n/ax in 2.4GHz and n/ac/ax in 5GHz.				
Function		Outdoor P2M	\boxtimes	Indoor P2M	
runction		Fixed P2P		Client	
Test Software Version	accessMTool (v3.1.0.6)				

Note: The above information was declared by manufacturer.

1.1.5 **EUT Type**

The EUT has two types which are identical to each other in all aspects except for the following table:

EUT	DC jack port	Use adapter
EUT 1	Small	Adapter 1 and Adapter 2
EUT 2	Big	Adapter 3

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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		
\boxtimes	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	TH02-CB	Lance Wu	24.6-25.7°C / 59-62%	Jul. 07, 2020~ Jul. 15, 2020
Radiated <below 1ghz=""></below>	03CH05-CB	Stim Sung	26.9-29 °C / 56-59%	Jun. 04, 2020~ Jul. 20, 2020
Radiated <above 1ghz:="" mode="" non-beamforming=""></above>	03CH06-CB	Stim Sung	25.4-25.9 °C / 53-57%	Jun. 04, 2020~ Jul. 20, 2020
Radiated <above 1ghz:="" beamforming="" mode=""></above>	03CH04-CB 03CH06-CB	Stim Sung	25.6-26.3 °C / 59-60% 25.4-26.6 °C / 57-60%	Jun. 04, 2020~ Jul. 20, 2020
AC Conduction	CO01-CB	Max Lin	22~23°C / 61~62%	Jul. 20, 2020

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

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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

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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)	4.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.6 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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2 Test Configuration of EUT

2.1 Test Channel Mode

<Non-beamforming mode>

Mode	Power Setting
802.11a_Nss1,(6Mbps)_1TX	-
5180MHz	84
5200MHz	97
5240MHz	99
5745MHz	119
5785MHz	120
5825MHz	120

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beamforming mode>

Mode	Power Setting
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-
5180MHz	79
5200MHz	92
5240MHz	98
5745MHz	105
5785MHz	105
5825MHz	105
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-
5190MHz	74
5230MHz	91
5755MHz	103
5795MHz	105
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	-
5210MHz	74
5775MHz	90

Note:

There are two modes of EUT, one is beamforming mode, and the other is non-beamforming mode for n/ax in 2.4GHz and n/ac/ax in 5GHz. After evaluating, beamforming mode had been evaluated to be the worst case, so it was selected to record in this test report.

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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	СТХ		
1	2.4GHz_AP Router Mode_EUT 1 with Adapter 1		
2	2.4GHz_AP Router Mode_EUT 1 with Adapter 2		
3	2.4GHz_AP Router Mode_EUT 2 with Adapter 3		
Mode 3 has been evaluated to be the worst case among Mode 1~3, thus measurement for Mode 4 will follow this same test mode.			
4 5GHz_AP Router Mode_EUT 2 with Adapter 3			
For operating mode 3 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 Unwanted Emissions		
Test Condition	Conducted measurement at transmit chains		
1	EUT 2		

The 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.			
Operating Mode < 1GHz	CTX			
1	2.4GHz_AP Router Mode_EUT 1 with Adapter 1			
2	2.4GHz_AP Router Mode_EUT 1 with Adapter 2			
3	2.4GHz_AP Router Mode_EUT 2 with Adapter 3			
Mode 3 has been evaluated to be the worst case among Mode 1~3, thus measurement for Mode 4 will fo this same test mode.				
4	5GHz_AP Router Mode_EUT 2 with Adapter 3			
Operating Mode > 1GHz	CTX			
1	EUT 2			

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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 (EUT 2)			
Refer to Sporton Test Report No.: FA041012 for Co-location RF Exposure Evaluation.			

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Note: The EUT can only be used in Z-axis position.

2.3 EUT Operation during Test

<Non-beamforming mode>

The EUT was programmed to be in continuously transmitting mode.

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For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

During the test, the following programs under WIN 7 were executed.

The program was executed as follows:

- 1. During the test, the EUT operation to normal function.
- 2. Executed command fixed test channel under Telnet.
- 3. Executed "Lantest.exe" to link with the remote workstation to transmit and receive packet by RX Device and transmit duty cycle no less than 98%.

2.4 Accessories

Accessories						
Equipment Name	Brand Name	Model Name	Rating			
Adapter 1	DELTA	ADP-24EW B	Input: 100-240V~, 0.9A 50-60Hz Output: 12V, 2A			
Adapter 2	PI	AD2055320	Input: 100-240V~, 50/60Hz 0.6A Output: 12V, 2.0A			
Equipment Name	Brand Holder	Model Name	Rating			
Adapter 3	SHENZHEN GONGJIN ELECTRONICS CO.,LTD.	S12A12-120A100-CJ	Input: 100-240V~, 50/60Hz 0.5A Output: 12V, 1A			
Other						
RJ 45 cable*1: Non-Shielded, 1.5m						

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2.5 Support Equipment

For AC Conduction:

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

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For Radiated (below 1GHz):

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

For Radiated (above 1GHz):

<Non-beamforming mode>

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

beamforming mode>

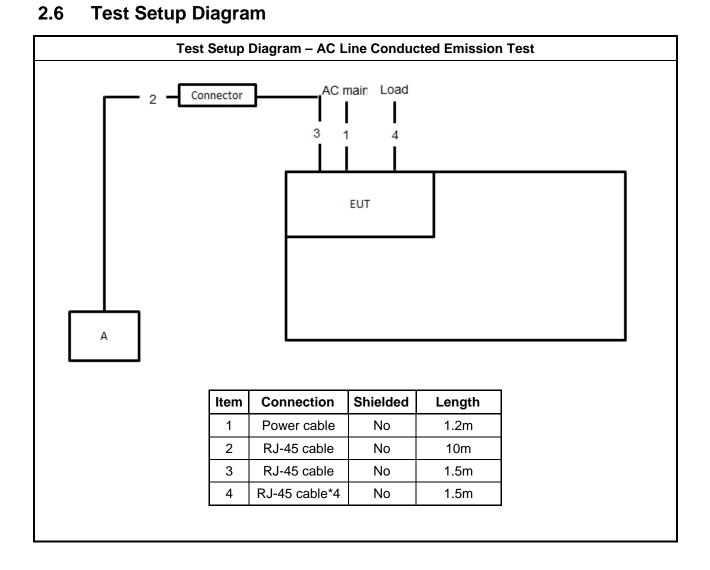
	Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID	
Α	LAN NB	DELL	E4300	N/A	
В	WLAN module	Intel	AX200NGW	PD9AX200NG	

For RF Conducted:

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

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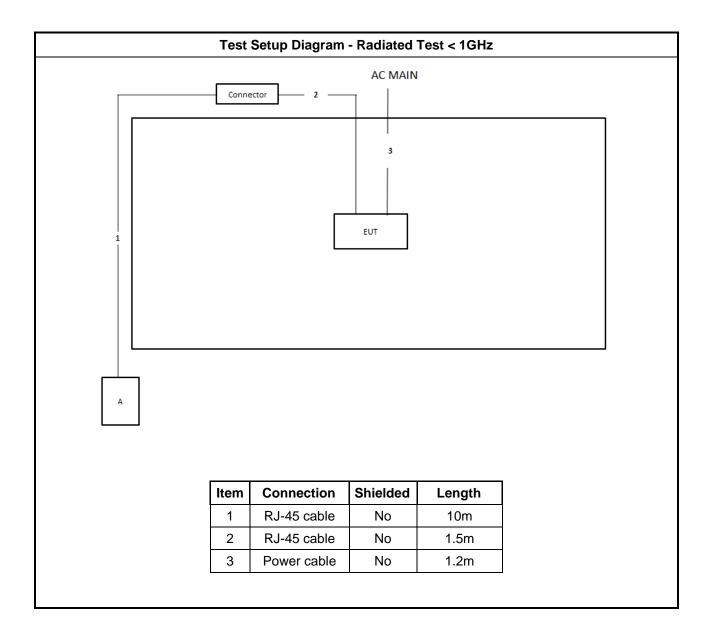
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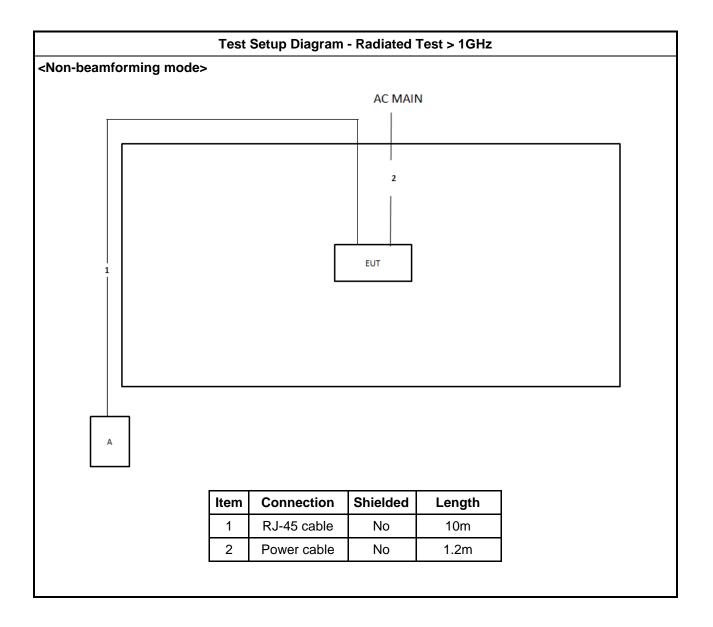
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1

2

RJ-45 cable

Power cable

No

No

10m

1.2m

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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
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

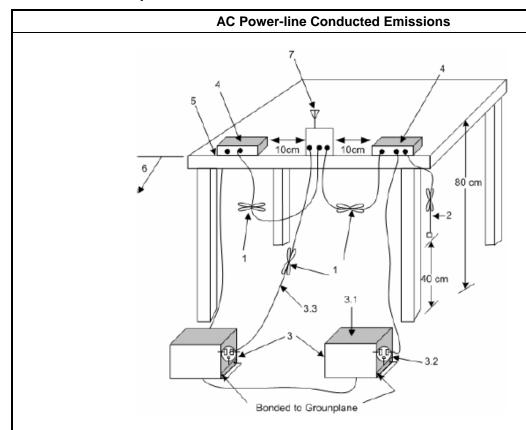
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

	Test Method
\boxtimes	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 (dBuV) = LISN Factor + Cable Loss + Read Level = Level
- b. Margin = Limit + (Read Level + LISN Factor + Cable Loss)

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	Il 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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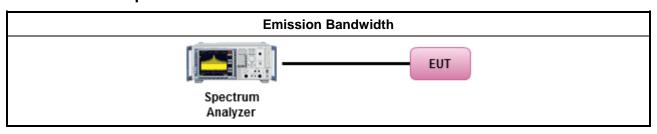
3.2.2 Measuring Instruments

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:			
	\boxtimes	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 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	II 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 \leq 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.
	t = maximum conducted output power in dBm, = the maximum transmitting antenna directional gain in dBi.

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3.3.2 Measuring Instruments

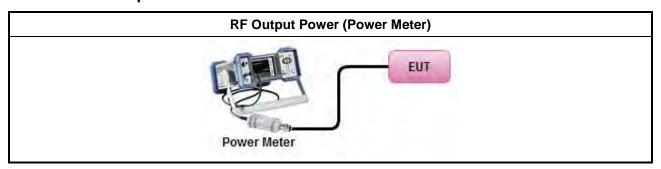
Refer a test equipment and calibration data table in this test report.

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} = P ₁ + P ₂ + + 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) ≤ 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) \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.			
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.

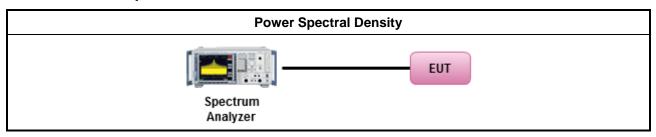
3.4.3 Test Procedures

		Test Method
•	outp funct	k power spectral density procedures that the same method as used to determine the conducted ut power shall be used to determine the peak power spectral density and use the peak search tion on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density I 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	y cycle ≥ 98% or external video / power trigger]
		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

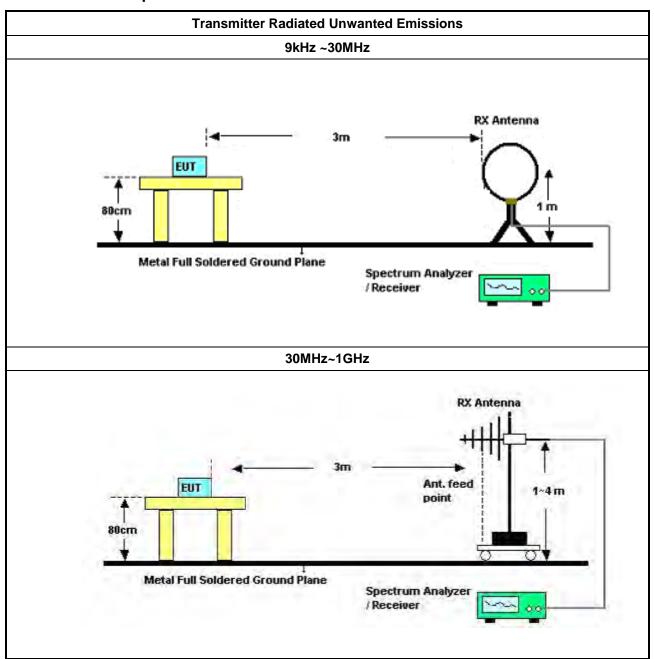
Test Method

- 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.

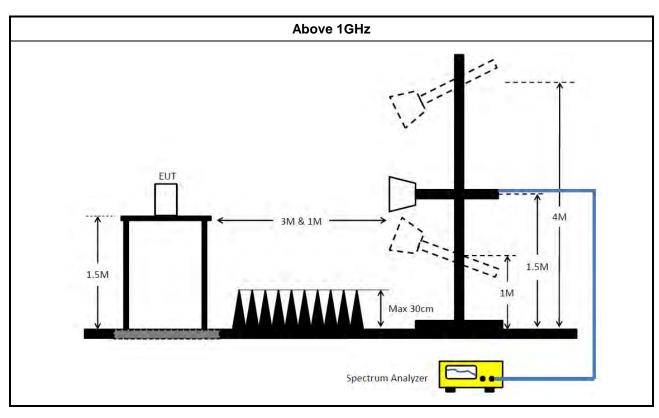
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3.5.4 Test Setup



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3.5.5 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor (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 10 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-50-1 6-2	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&Schwa rz	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)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Apr. 13, 2020	Apr. 12, 2021	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 27, 2020	Mar. 26, 2021	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	Apr. 28, 2020	Apr. 27, 2021	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Aug. 15, 2019	Aug. 14, 2020	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 13, 2020	May 12, 2021	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	LOW Cable-04+23	30MHz~1GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH05-CB)
Horn Antenna	ETS • Lindgren	3115	00143147	750MHz~18GHz	Oct. 22, 2019	Oct. 21, 2020	Radiation (03CH04-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jun. 27, 2019	Jun. 26, 2020	Radiation (03CH04-CB)
Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 11, 2020	Jun. 10, 2021	Radiation (03CH04-CB)
Pre-Amplifier	Agilent	83017A	MY53270063	0.5GHz ~ 26.5GHz	Mar. 11, 2020	Mar. 10, 2021	Radiation (03CH04-CB)
Pre-Amplifier	Agilent	83017A	MY53270063	0.5GHz ~ 26.5GHz	Jul. 14, 2020	Jul. 13, 2021	Radiation (03CH04-CB)
Pre-Amplifier	MITEQ	TTA1840-35-H G	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH04-CB)
Pre-Amplifier	MITEQ	TTA1840-35-H G	1864479	18GHz ~ 40GHz	Jul. 08, 2020	Jul. 07, 2021	Radiation (03CH04-CB)
Amplifier	-	-	TF-130N-R1	18GHz ~ 40GHz	Jun. 19, 2020	Jun. 18, 2021	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21	1GHz - 18GHz	Feb. 01, 2020	Jan. 31, 2021	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21	1GHz - 18GHz	Jul. 07, 2020	Jul. 06, 2021	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21+22	1GHz - 18GHz	Feb. 01, 2020	Jan. 31, 2021	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH04-CB)

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Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz Jul. 24, 2019		Jul. 23, 2020	Radiation (03CH04-CB)
Horn Antenna	SCHWARZBE CK	BBHA9120D	9120D-1292	1GHz~18GHz	Jul. 17, 2019	Jul. 16, 2020	Radiation (03CH06-CB)
Horn Antenna	COM-POWER	AH-118	071028	1GHz ~ 18GHz	Jun. 09, 2020	Jun. 08, 2021	Radiation (03CH06-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jun. 27, 2019	Jun. 26, 2020	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 11, 2020	Jun. 10, 2021	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	83017A	MY53270064	0.5GHz ~ 26.5GHz	May 07, 2020	May 06, 2021	Radiation (03CH06-CB)
Pre-Amplifier	MITEQ	TTA1840-35-H G	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH06-CB)
Amplifier	-	-	TF-130N-R1	18GHz ~ 40GHz	Jun. 19, 2020	Jun. 18, 2021	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSP40	100080	9kHz~40GHz	9kHz~40GHz Oct. 21, 2019		Radiation (03CH06-CB)
RF Cable-high	HUBER+SUH NER	RG402	High Cable-05	1GHz~18GHz Oct. 07, 2019		Oct. 06, 2020	Radiation (03CH06-CB)
RF Cable-high	HUBER+SUH NER	RG402	High Cable-05+24	1GHz~18GHz Oct. 07, 2019		Oct. 06, 2020	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 16, 2020	Jul. 15, 2021	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 16, 2020	Jul. 15, 2021	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSV40	101027	9kHz~40GHz Jul. 02, 2019		Jul. 01, 2020	Conducted (TH02-CB)
Signal Analyzer	R&S	FSV40	101904	9kHz ~ 40GHz	May 12, 2020	May 11, 2021	Conducted (TH02-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Sep. 11, 2019	Sep. 10, 2020	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Sep. 11, 2019	Sep. 10, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-02	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-3	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)

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

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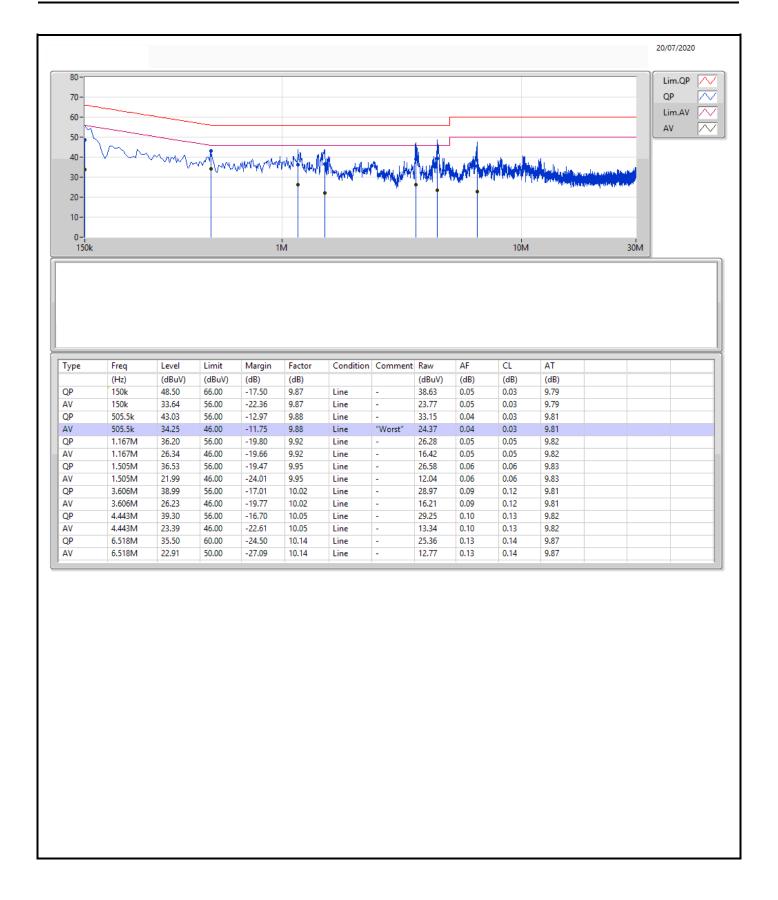
AC Power-line Conducted Emissions

Appendix A

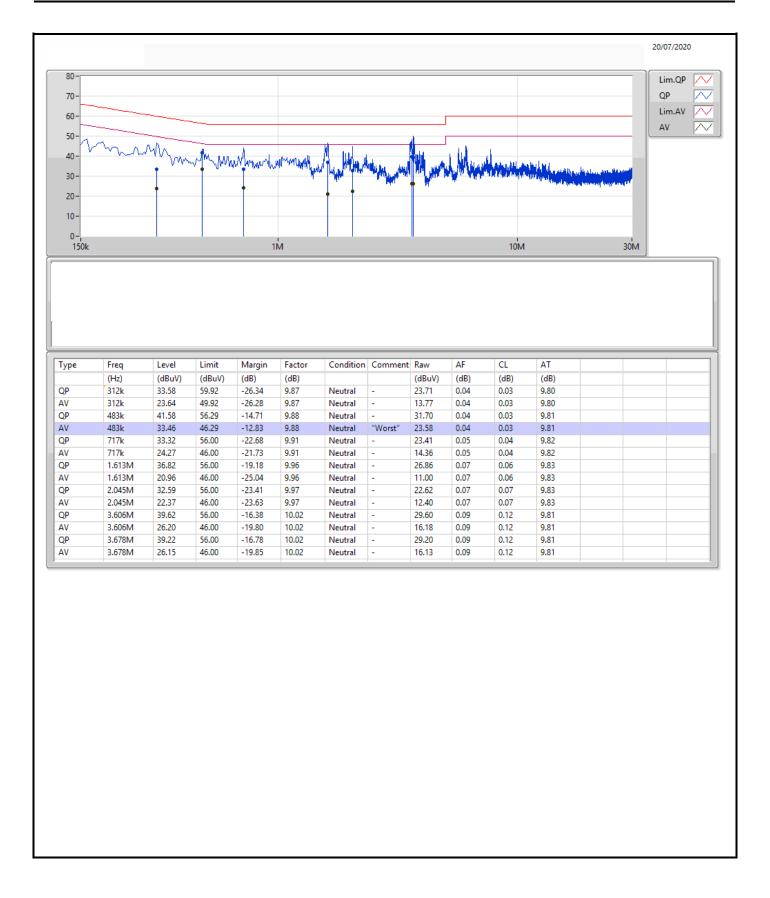
Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 3	Pass	AV	505.5k	34.25	46.00	-11.75	Line











Appendix B.1 **EBW**

<Non-beamforming mode> **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)_1TX	39.03M	19.79M	19M8D1D	21.42M	16.822M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	16.53M	45.127M	45M1D1D	16.29M	34.453M

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;

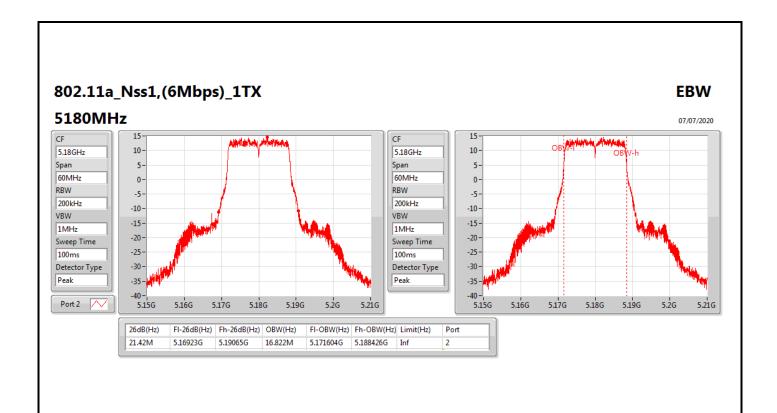


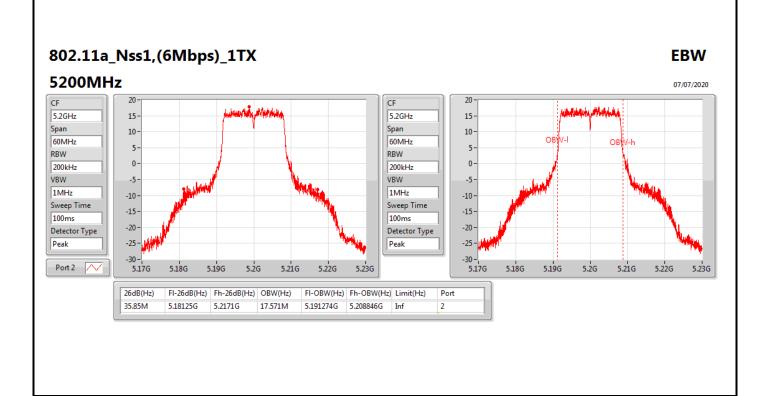
EBW Appendix B.1

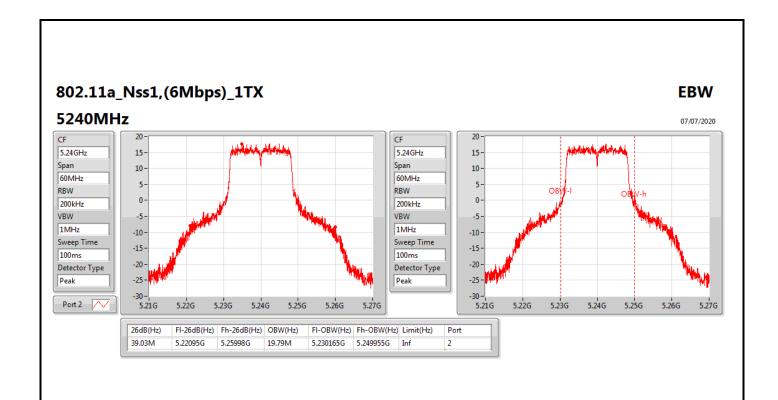
Result

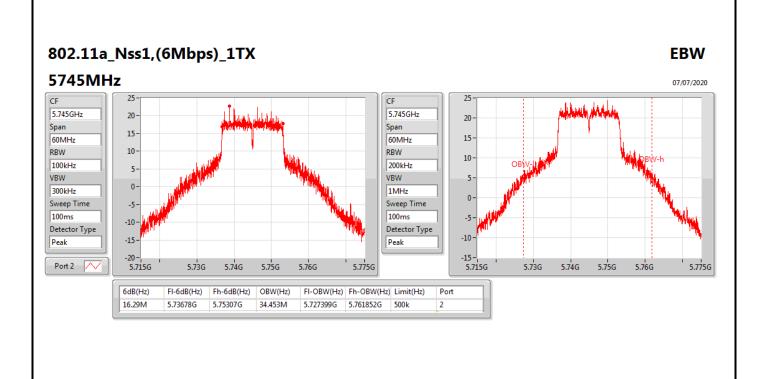
Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-	-	-
5180MHz	Pass	Inf			21.42M	16.822M
5200MHz	Pass	Inf			35.85M	17.571M
5240MHz	Pass	Inf			39.03M	19.79M
5745MHz	Pass	500k			16.29M	34.453M
5785MHz	Pass	500k			16.47M	45.127M
5825MHz	Pass	500k			16.53M	41.799M

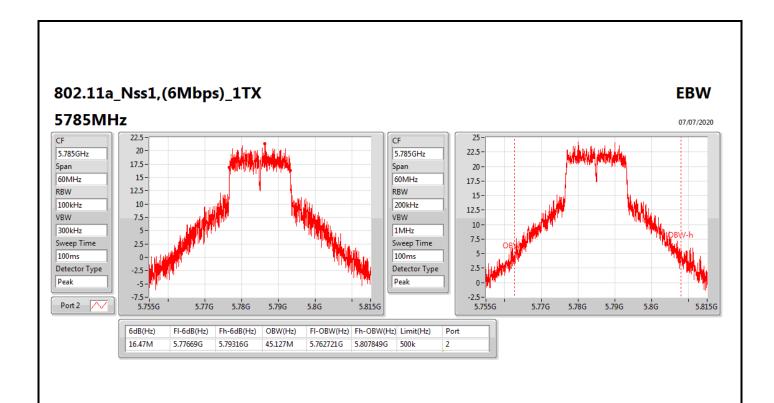
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth;

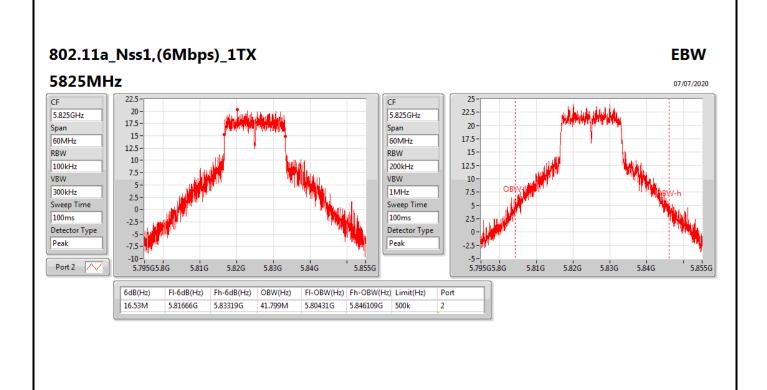














Appendix B.2 **EBW**

 de> **Summary**

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	40.17M	19.85M	19M8D1D	21.45M	19.04M
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	76.32M	38.321M	38M3D1D	40.02M	37.541M
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	81.48M	76.882M	76M9D1D	81.12M	76.882M
5.725-5.85GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	18.93M	25.907M	25M9D1D	18.72M	19.73M
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	37.68M	55.952M	56M0D1D	36.96M	38.501M
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	77.16M	77.361M	77M4D1D	76.56M	77.121M

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;

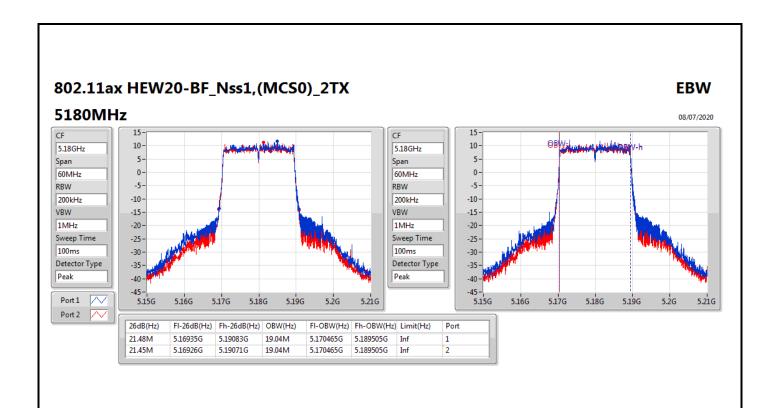
Min-OBW = Minimum 99% occupied bandwidth;

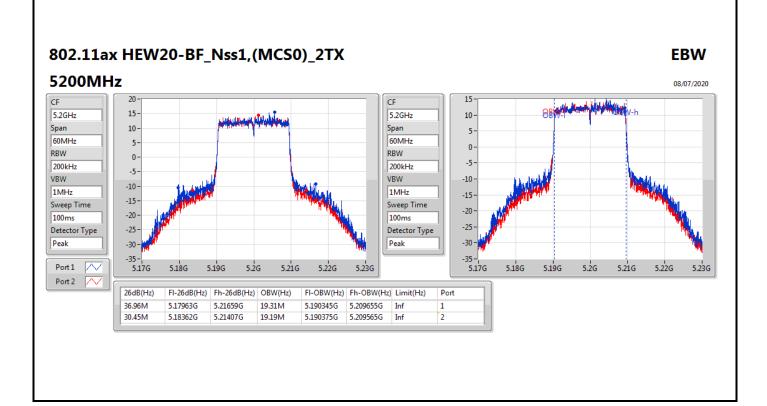


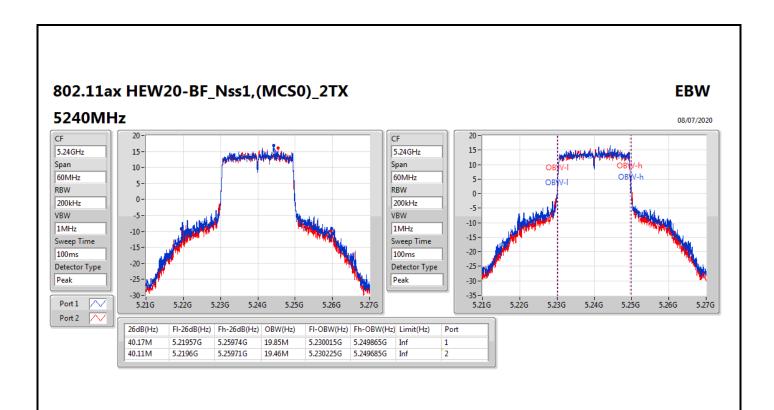
Result

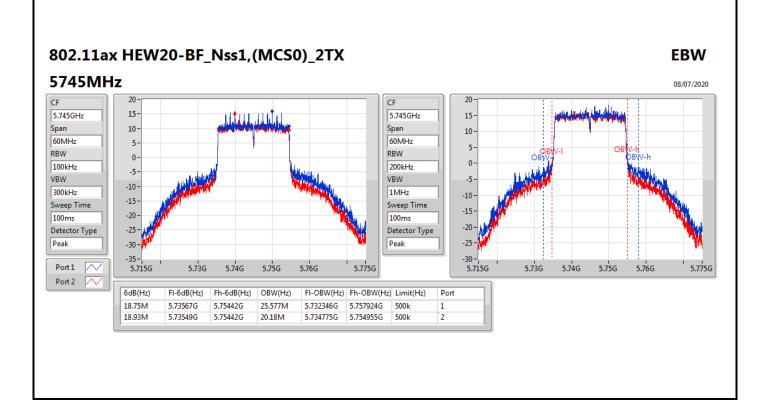
Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	21.48M	19.04M	21.45M	19.04M
5200MHz	Pass	Inf	36.96M	19.31M	30.45M	19.19M
5240MHz	Pass	Inf	40.17M	19.85M	40.11M	19.46M
5745MHz	Pass	500k	18.75M	25.577M	18.93M	20.18M
5785MHz	Pass	500k	18.72M	25.907M	18.93M	19.73M
5825MHz	Pass	500k	18.87M	24.798M	18.9M	19.94M
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	40.02M	37.541M	40.26M	37.541M
5230MHz	Pass	Inf	76.32M	38.321M	68.1M	37.901M
5755MHz	Pass	500k	37.68M	55.952M	37.08M	43.778M
5795MHz	Pass	500k	36.96M	46.957M	37.02M	38.501M
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	81.12M	76.882M	81.48M	76.882M
5775MHz	Pass	500k	77.16M	77.361M	76.56M	77.121M

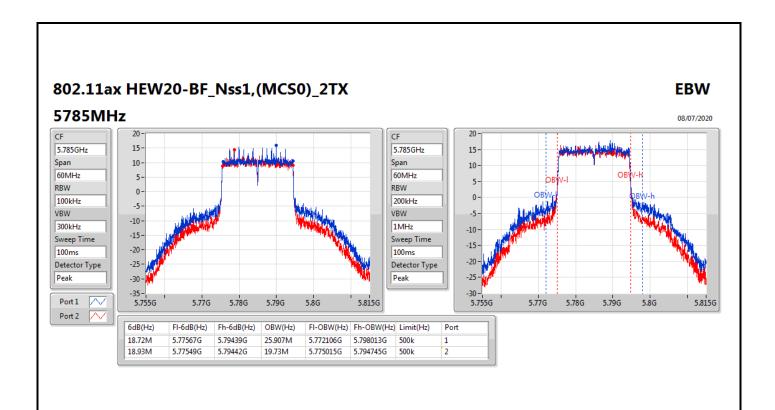
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth;

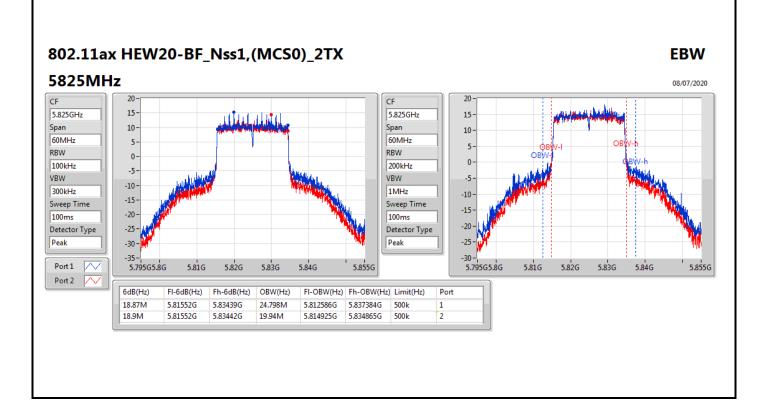


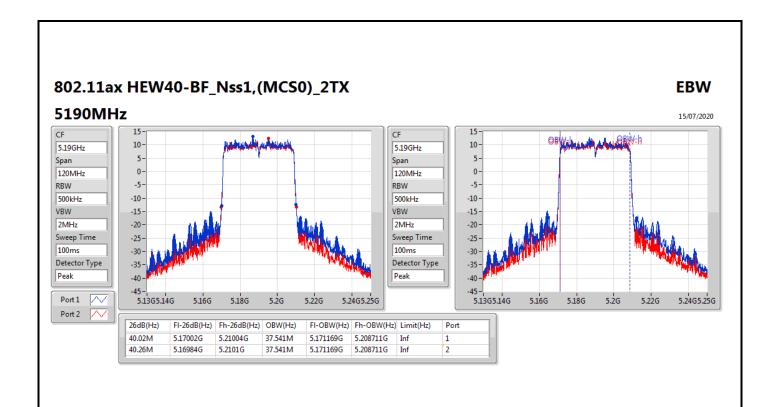


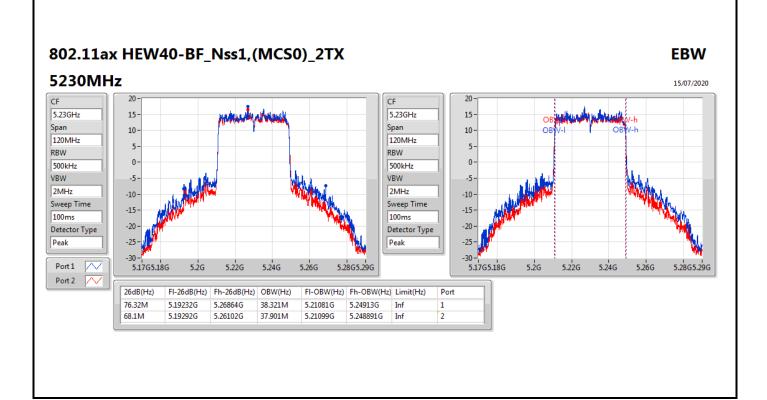


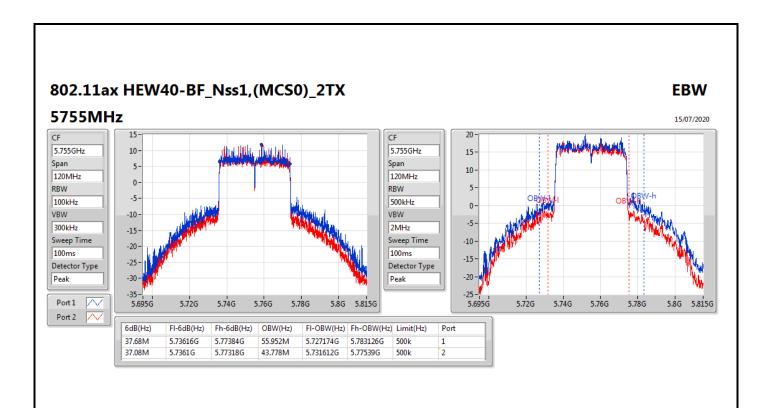


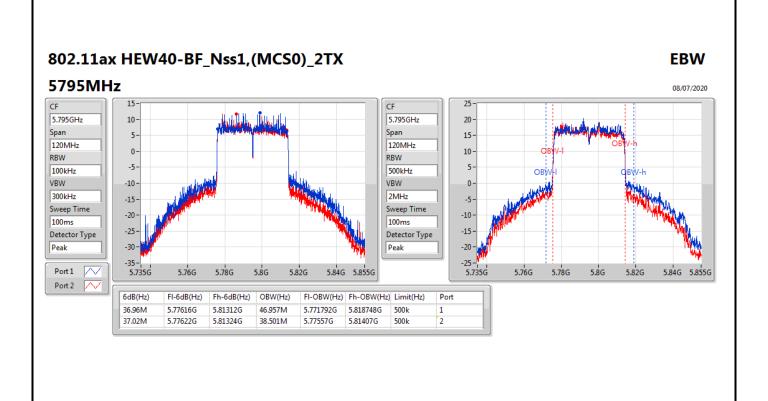


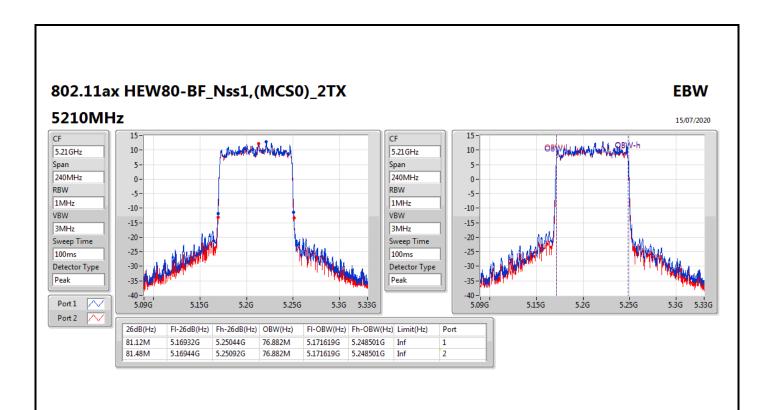


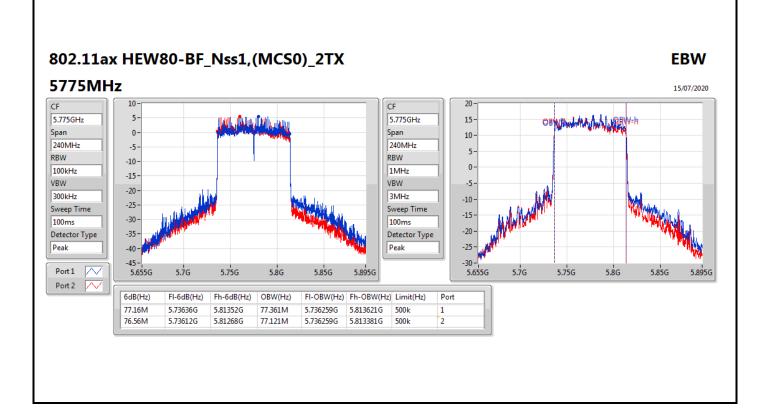














Average Power Appendix C.1

<Non-beamforming mode> Summary

Mode	Total Power	Total Power
	(dBm)	(W)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_1TX	25.70	0.37154
5.725-5.85GHz	-	-
802.11a_Nss1,(6Mbps)_1TX	29.97	0.99312

Average Power Appendix C.1

Result

Mode	Result	DG	Port 1	Port 2	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
802.11a_Nss1,(6Mbps)_1TX	=	-	=	=	-	-
5180MHz	Pass	2.00		22.62	22.62	30.00
5200MHz	Pass	2.00		25.42	25.42	30.00
5240MHz	Pass	2.00		25.70	25.70	30.00
5745MHz	Pass	2.00		29.64	29.64	30.00
5785MHz	Pass	2.00		29.89	29.89	30.00
5825MHz	Pass	2.00		29.97	29.97	30.00

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



Average Power Appendix C.2

 de>
 Summary

Mode	Total Power (dBm)	Total Power (W)
5.15-5.25GHz	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	28.52	0.71121
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	27.12	0.51523
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	22.47	0.17660
5.725-5.85GHz	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	29.86	0.96828
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	29.71	0.93541
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	26.26	0.42267



Result

Mode	Result	DG	Port 1	Port 2	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	5.01	21.44	21.02	24.25	30.00
5200MHz	Pass	5.01	24.56	24.23	27.41	30.00
5240MHz	Pass	5.01	25.69	25.32	28.52	30.00
5745MHz	Pass	5.01	27.11	26.58	29.86	30.00
5785MHz	Pass	5.01	26.78	26.24	29.53	30.00
5825MHz	Pass	5.01	27.00	26.43	29.73	30.00
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	5.01	19.89	19.54	22.73	30.00
5230MHz	Pass	5.01	24.38	23.82	27.12	30.00
5755MHz	Pass	5.01	26.54	26.07	29.32	30.00
5795MHz	Pass	5.01	26.88	26.51	29.71	30.00
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	5.01	19.52	19.40	22.47	30.00
5775MHz	Pass	5.01	23.34	23.15	26.26	30.00

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



<Non-beamforming mode> Summary

Mode	PD				
	(dBm/RBW)				
5.15-5.25GHz	-				
802.11a_Nss1,(6Mbps)_1TX	15.50				
5.725-5.85GHz	-				
802.11a_Nss1,(6Mbps)_1TX	18.98				

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

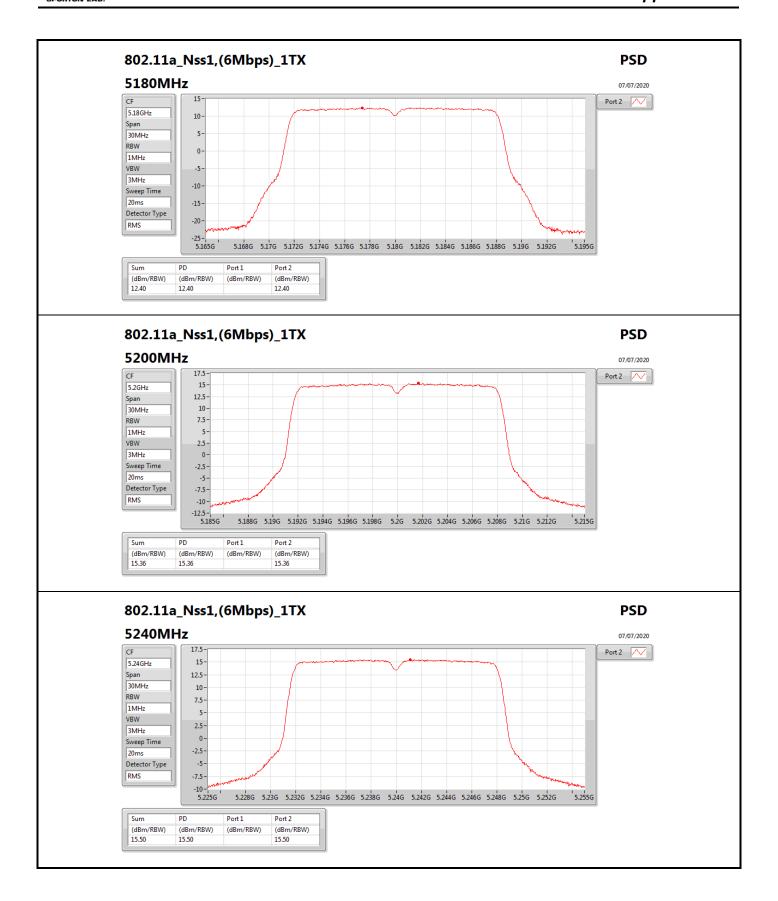


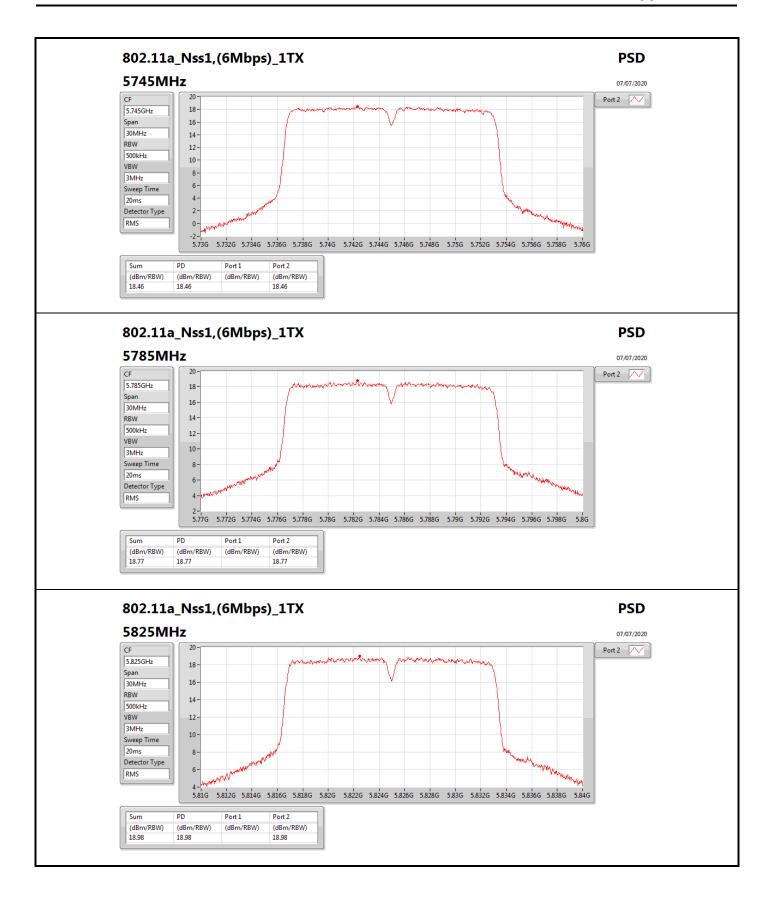
Result

Mode	Result	DG	Port 1	Port 2	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11a_Nss1,(6Mbps)_1TX	-	=	=	=	=	-
5180MHz	Pass	2.00		12.40	12.40	17.00
5200MHz	Pass	2.00		15.36	15.36	17.00
5240MHz	Pass	2.00		15.50	15.50	17.00
5745MHz	Pass	2.00		18.46	18.46	30.00
5785MHz	Pass	2.00		18.77	18.77	30.00
5825MHz	Pass	2.00		18.98	18.98	30.00

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;







<beamforming mode> Summary

Mode	PD
	(dBm/RBW)
5.15-5.25GHz	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	14.64
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	10.54
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	3.21
5.725-5.85GHz	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	14.63
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	11.60
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	5.70

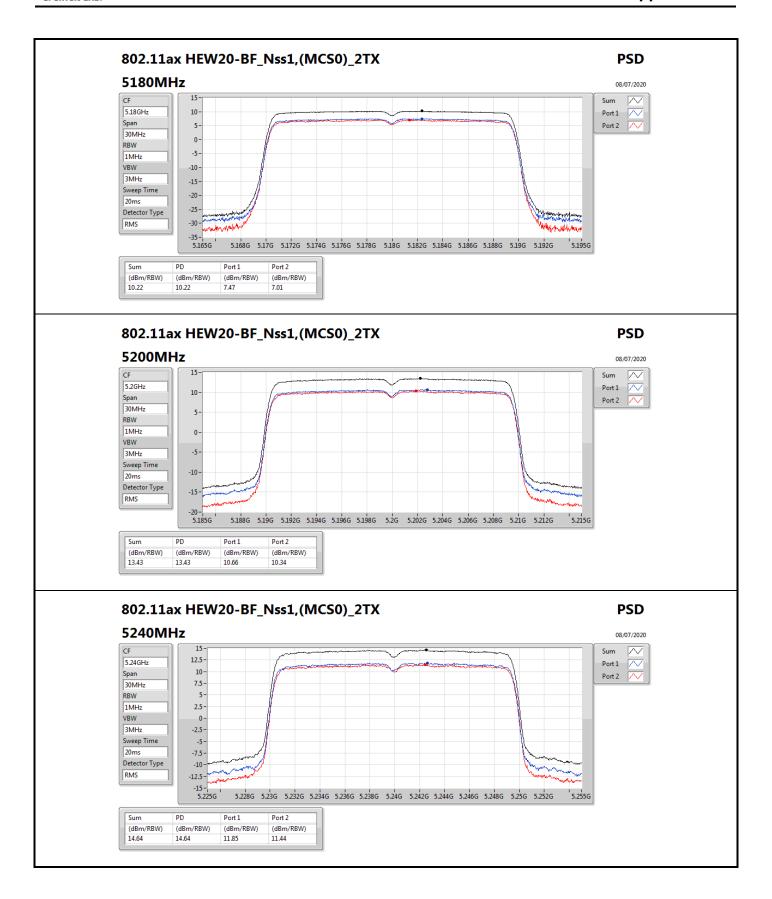
RBW = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

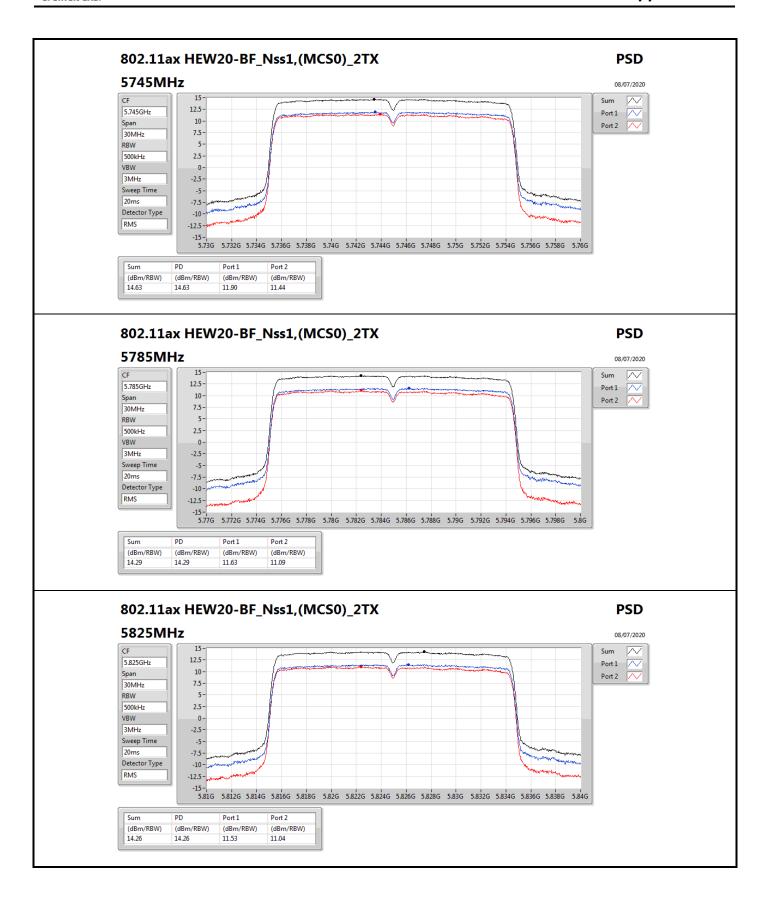
Appendix D.2 **PSD**

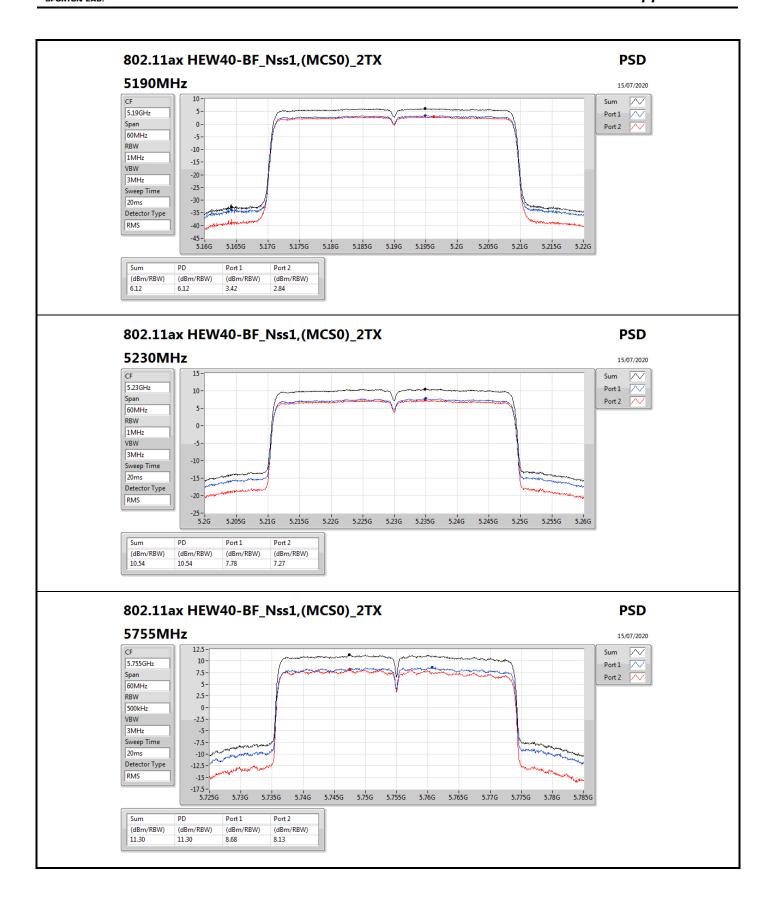
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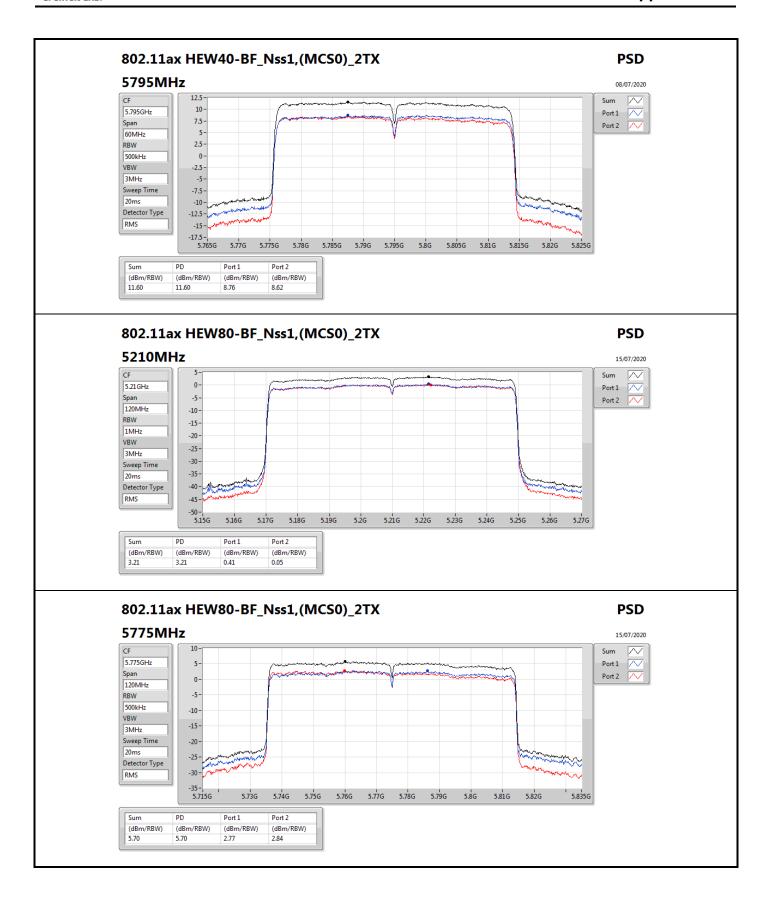
Mode	Result	DG	Port 1	Port 2	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	5.01	7.47	7.01	10.22	17.00
5200MHz	Pass	5.01	10.66	10.34	13.43	17.00
5240MHz	Pass	5.01	11.85	11.44	14.64	17.00
5745MHz	Pass	5.01	11.90	11.44	14.63	30.00
5785MHz	Pass	5.01	11.63	11.09	14.29	30.00
5825MHz	Pass	5.01	11.53	11.04	14.26	30.00
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	5.01	3.42	2.84	6.12	17.00
5230MHz	Pass	5.01	7.78	7.27	10.54	17.00
5755MHz	Pass	5.01	8.68	8.13	11.30	30.00
5795MHz	Pass	5.01	8.76	8.62	11.60	30.00
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	5.01	0.41	0.05	3.21	17.00
5775MHz	Pass	5.01	2.77	2.84	5.70	30.00

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;











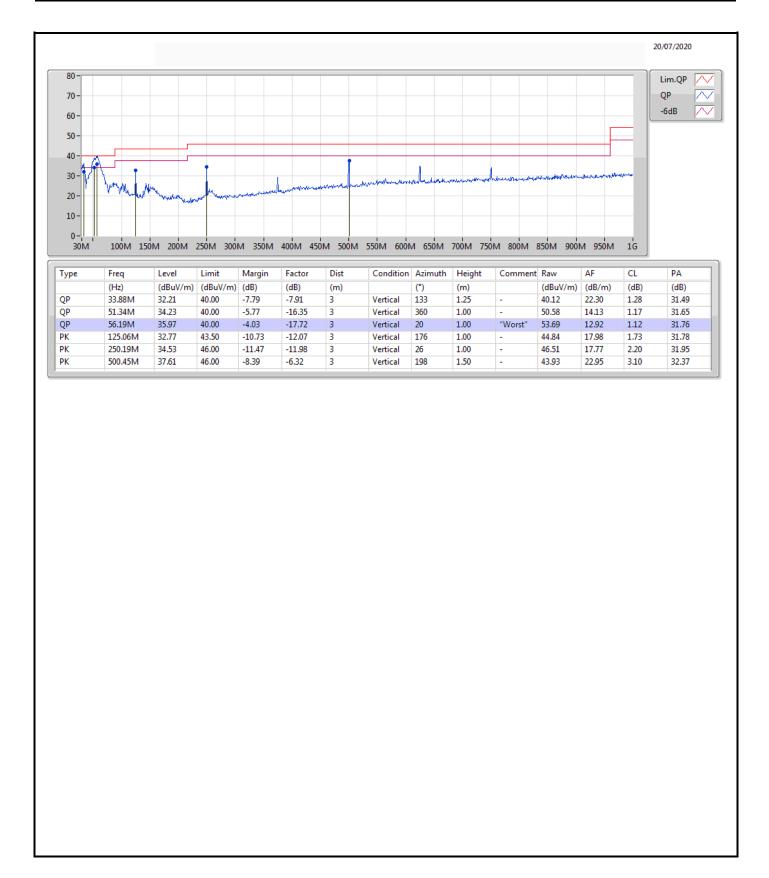
Radiated Emissions below 1GHz

Appendix E.1

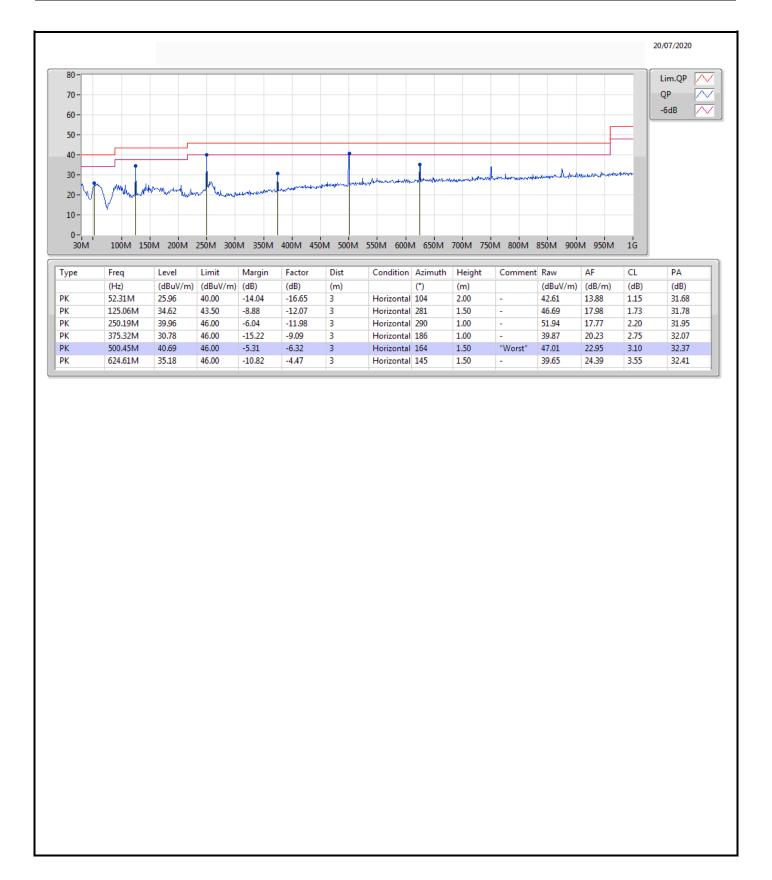
Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 4	Pass	QP	56.19M	35.97	40.00	-4.03	Vertical











RSE TX above 1GHz

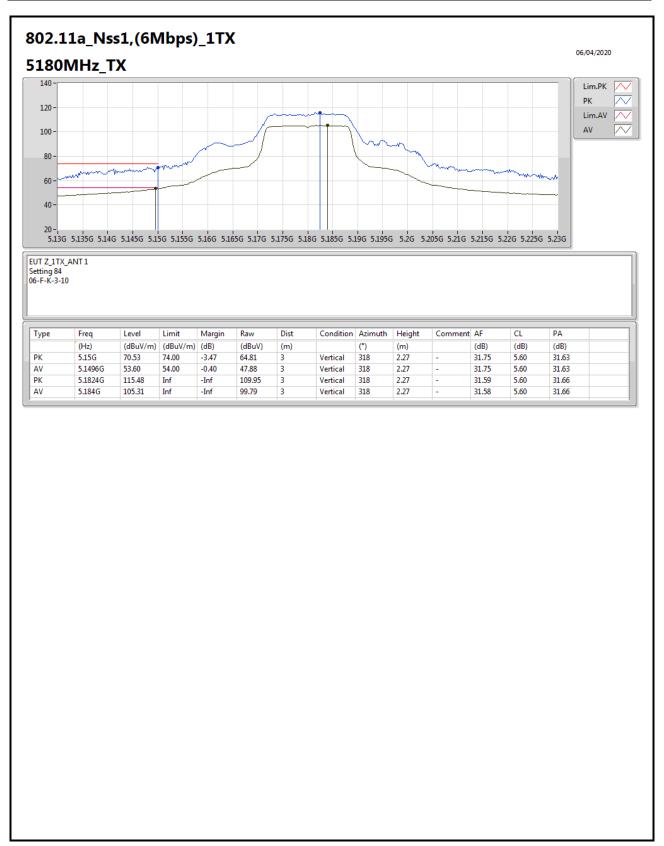
Appendix E.2

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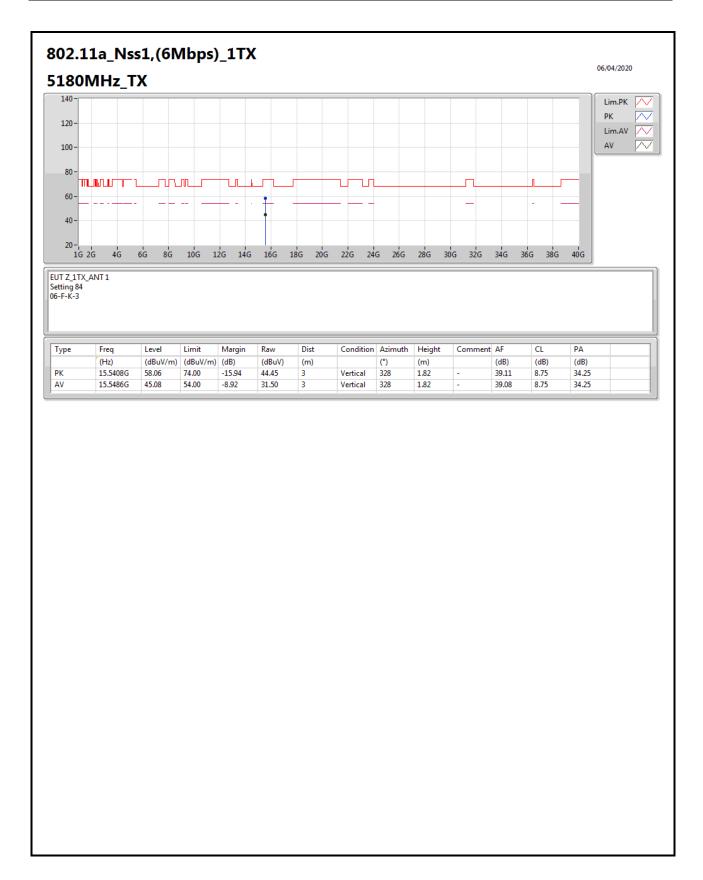
<Non-beamforming mode> Summary

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)_1TX	Pass	AV	5.15G	53.94	54.00	-0.06	3	Vertical	320	2.13	-

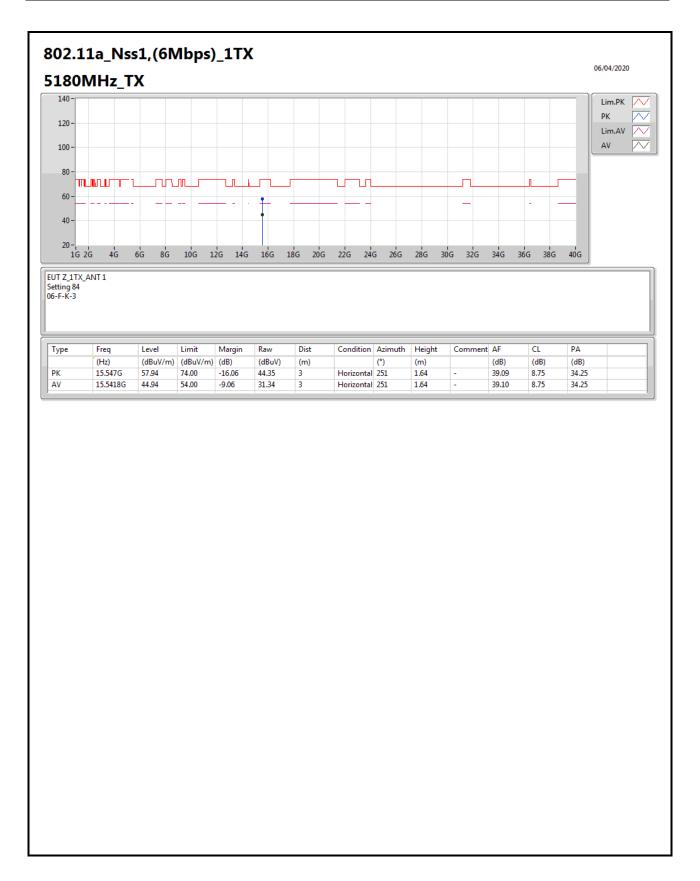






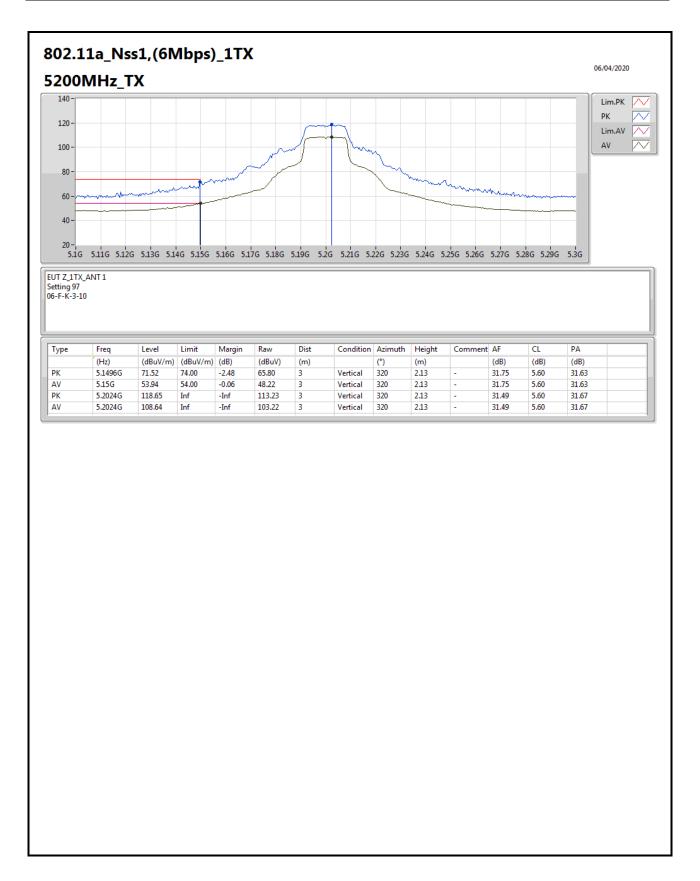




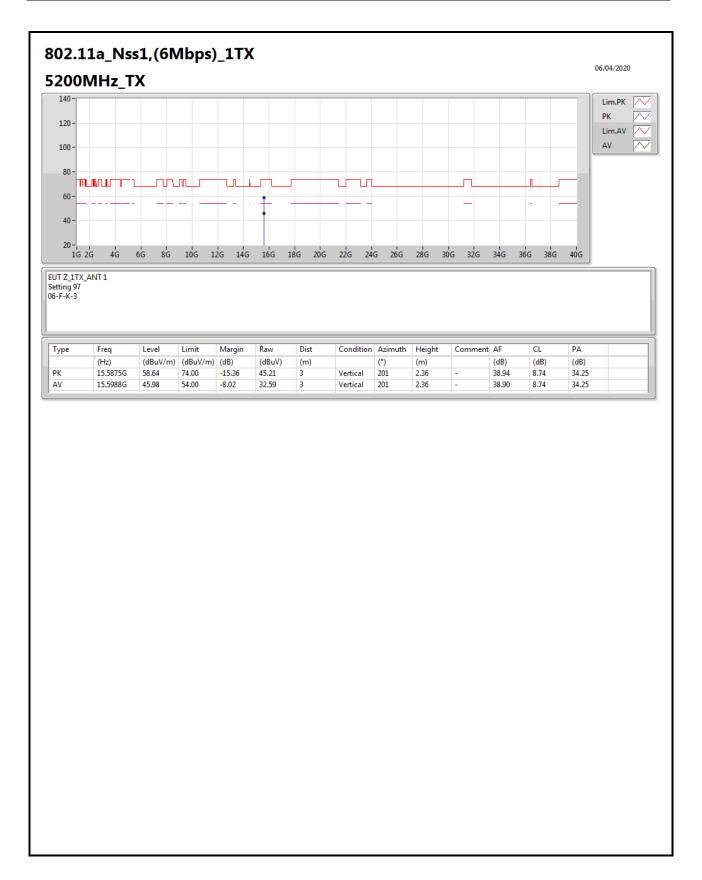


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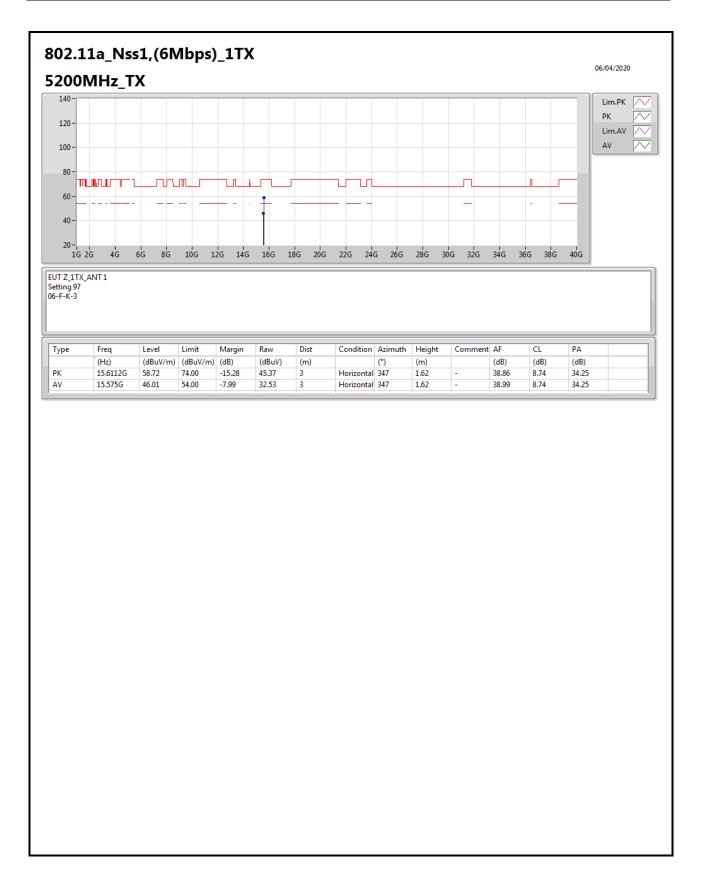




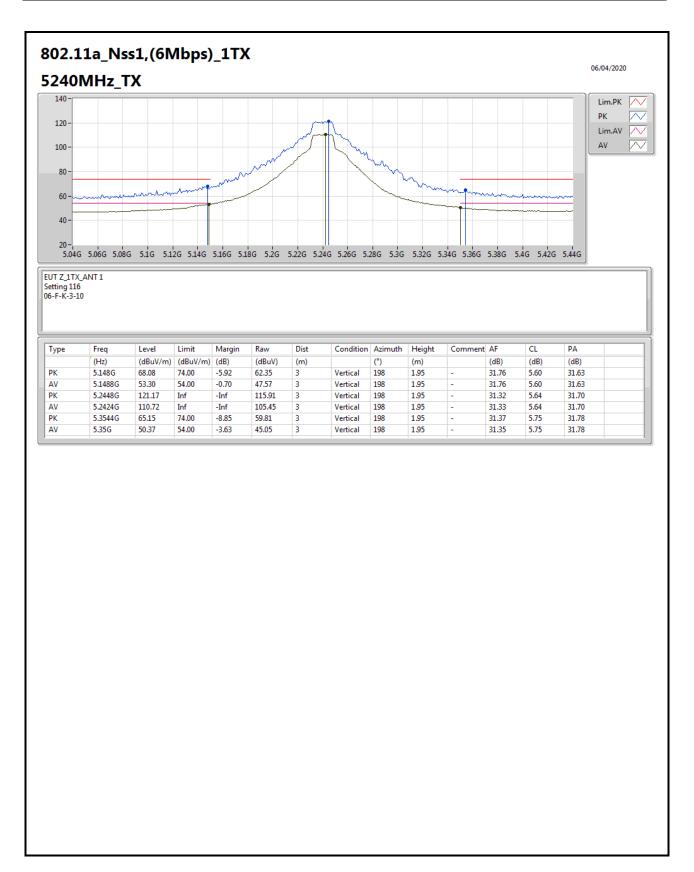




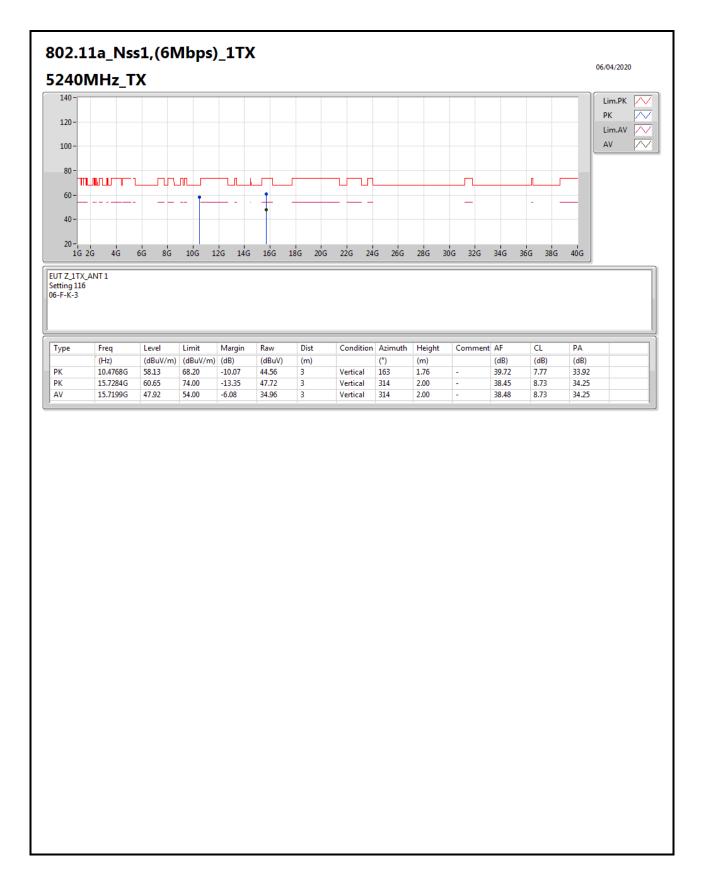




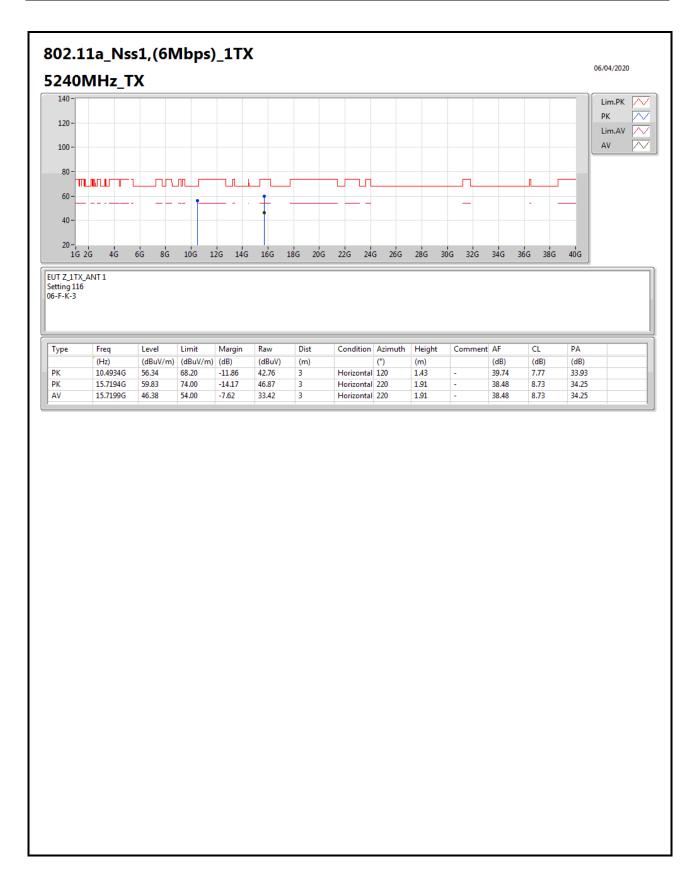




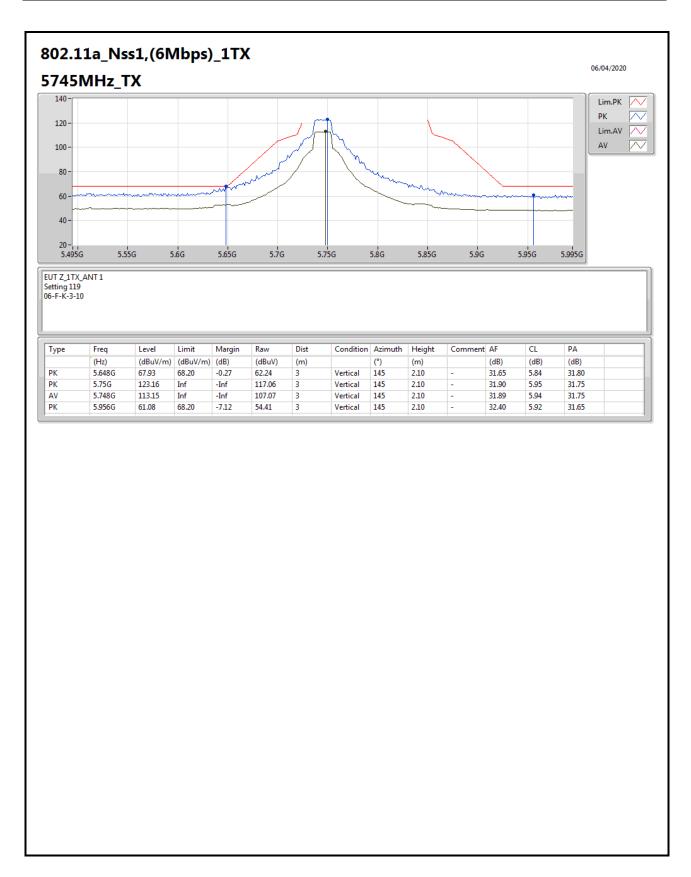




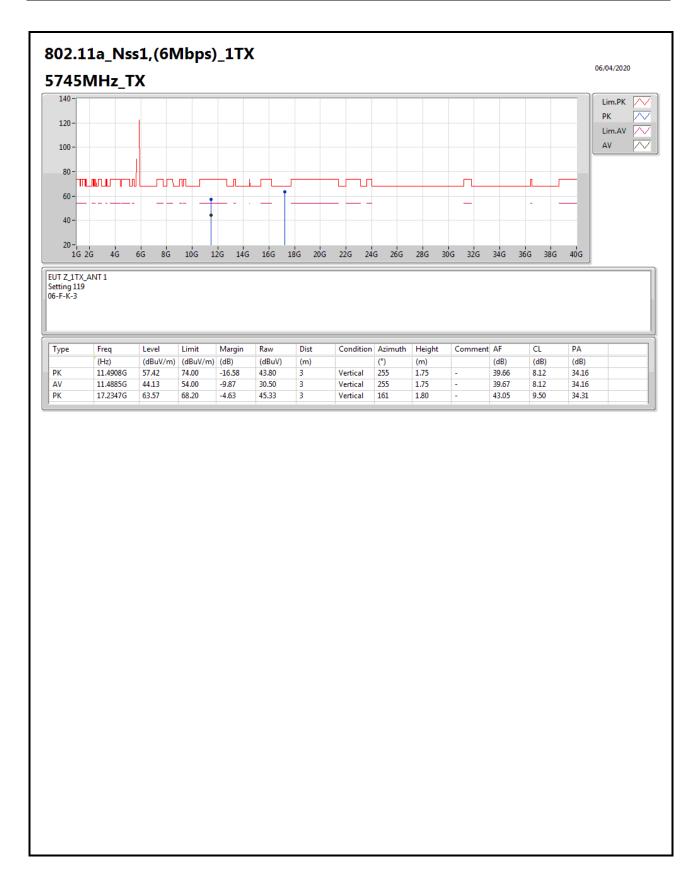






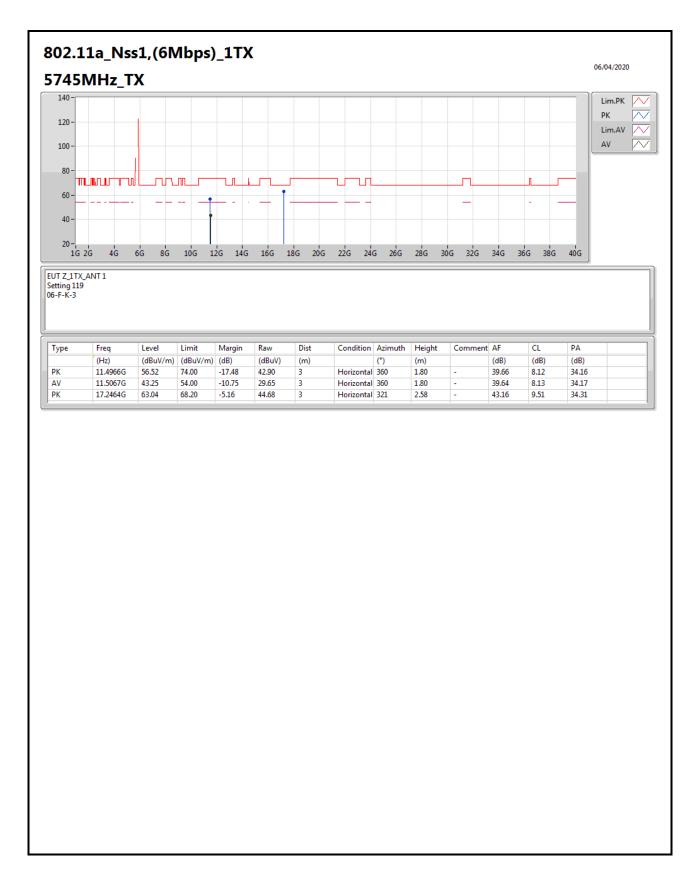




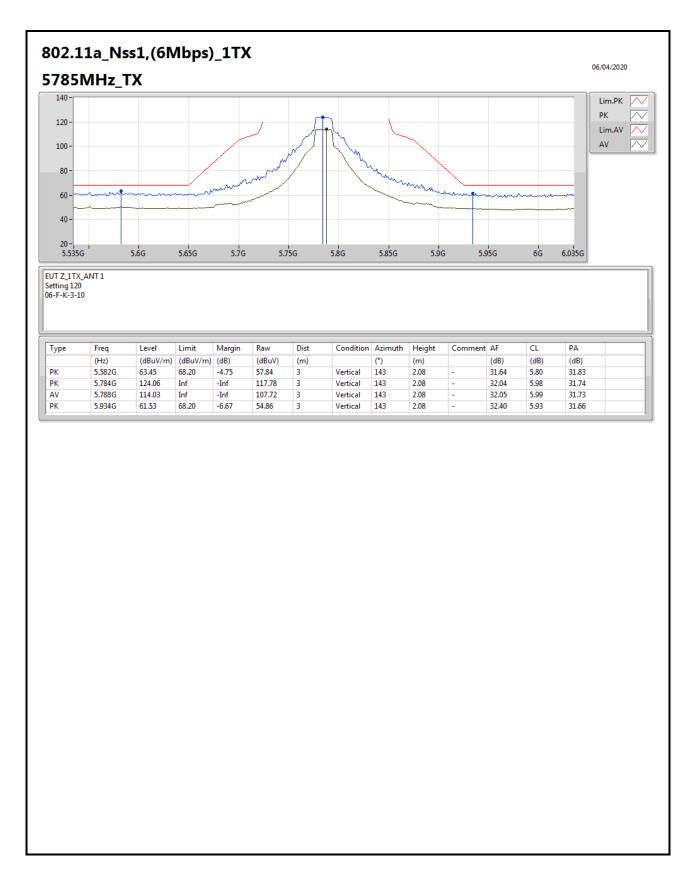


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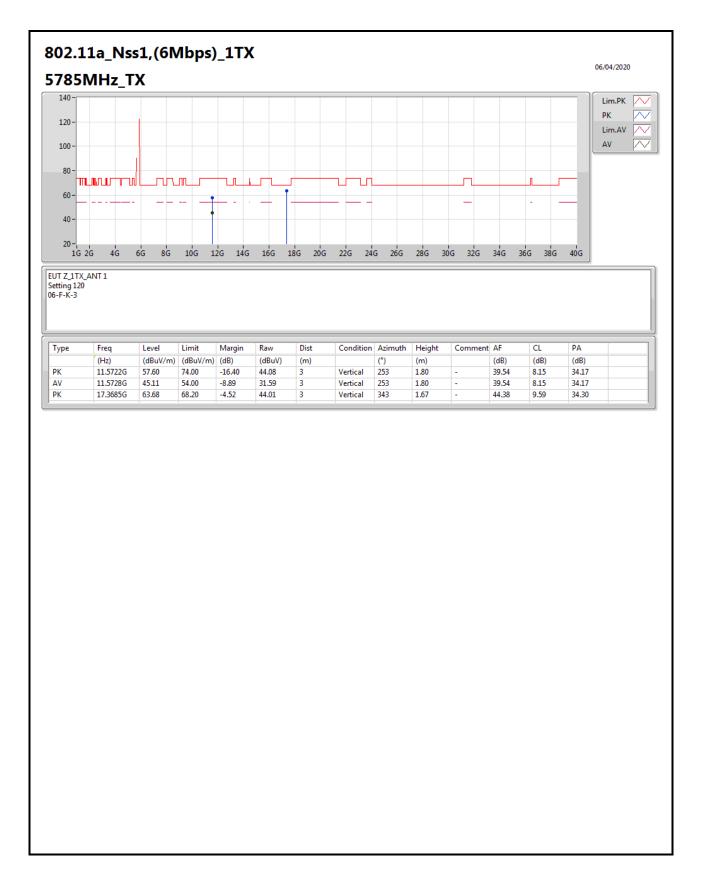






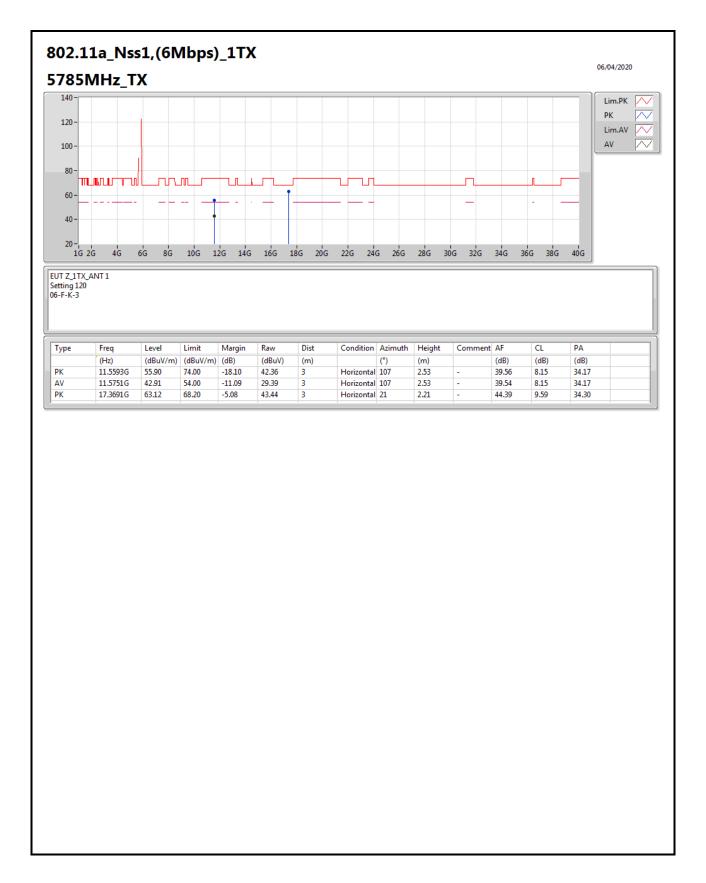
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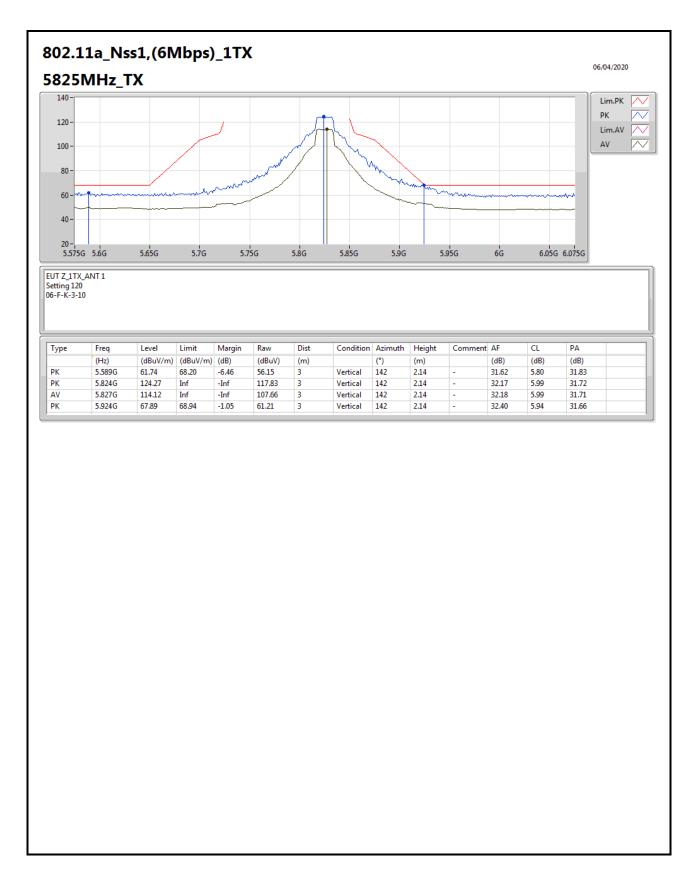
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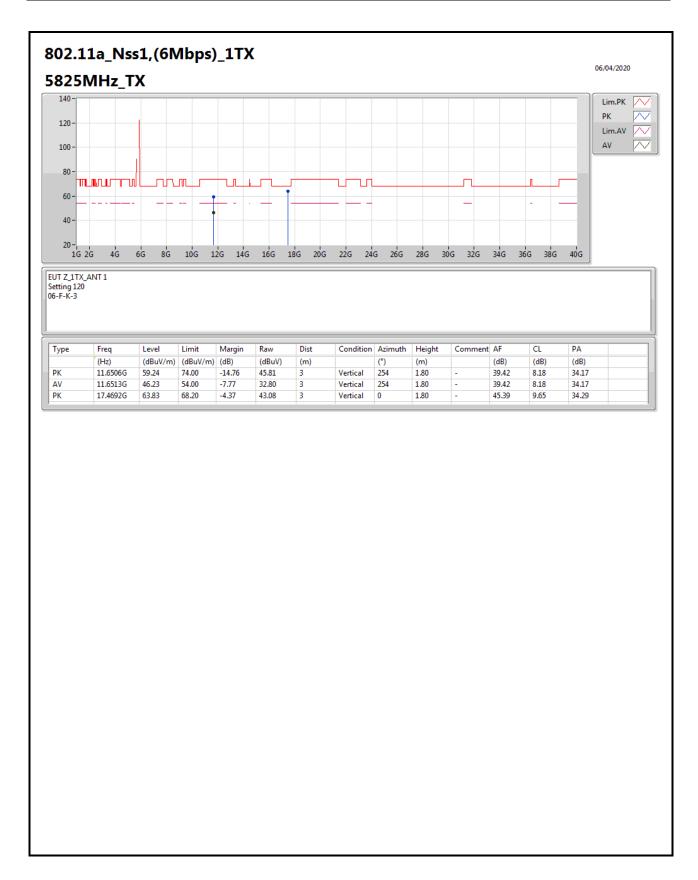
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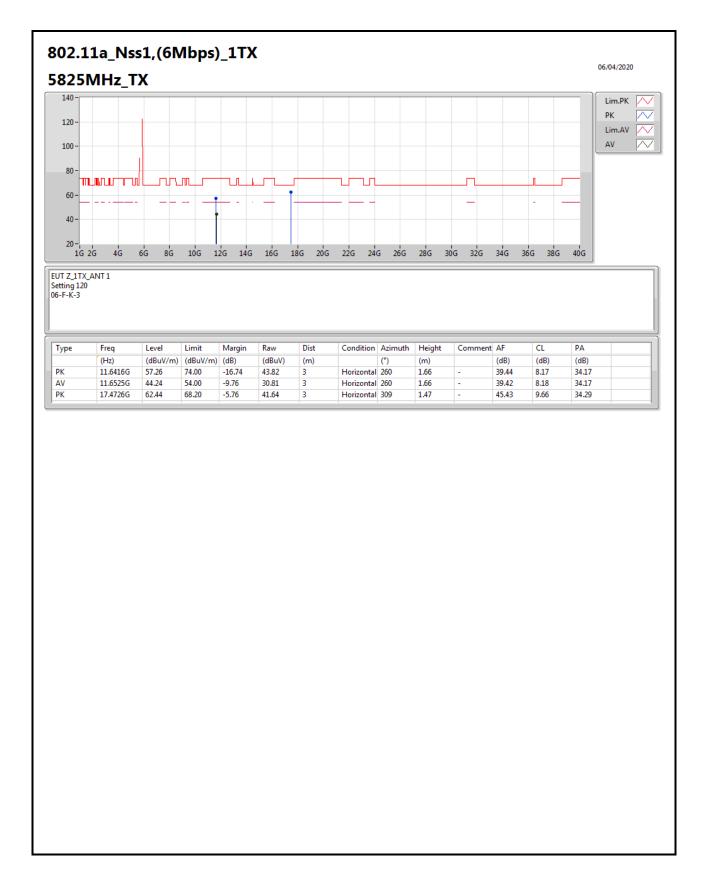


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RSE TX above 1GHz

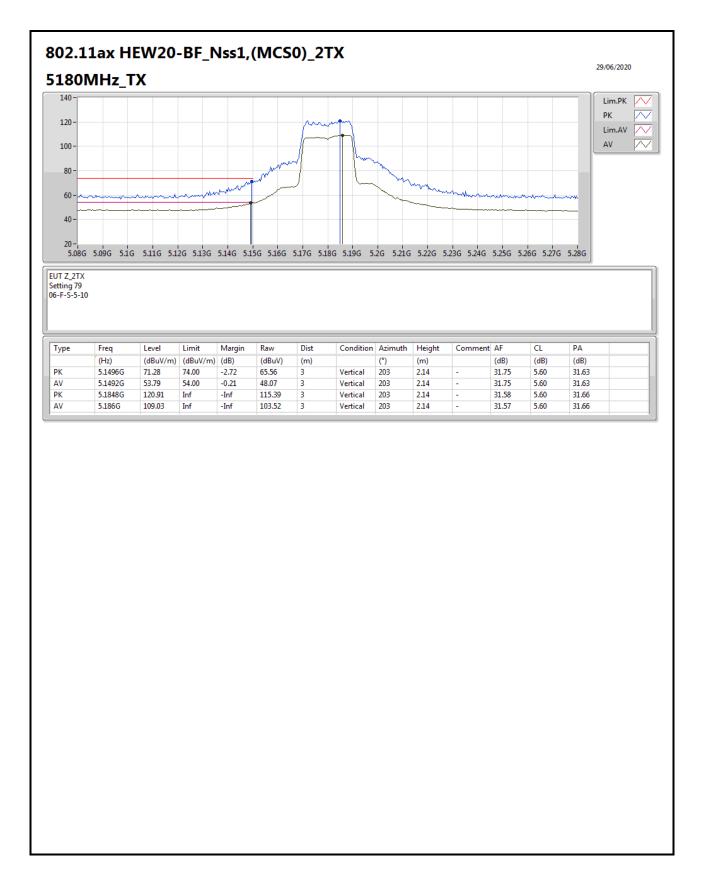
Appendix E.3

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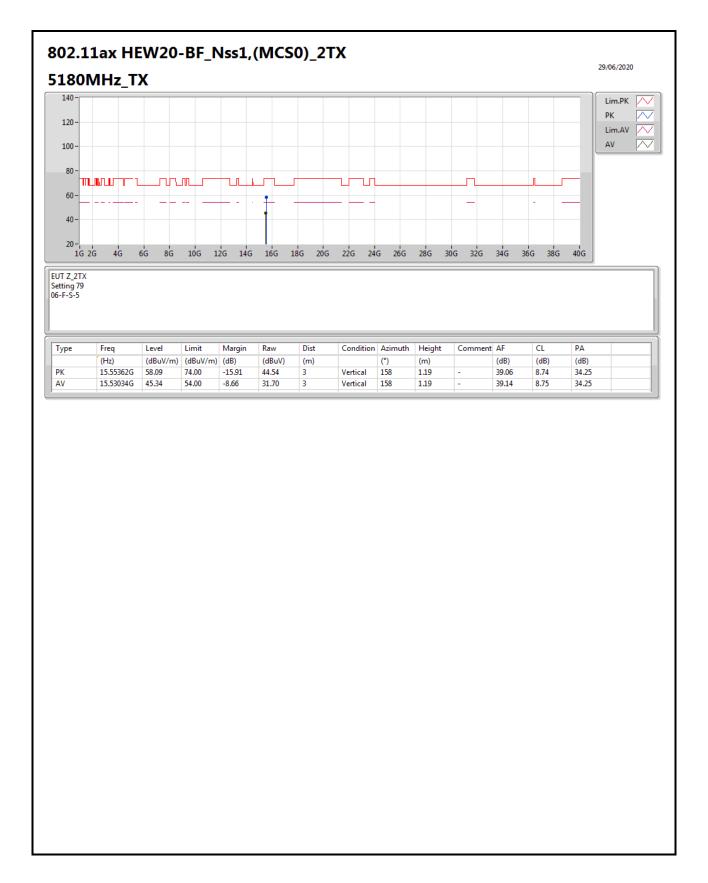
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 Summary

Mode	Result	Туре	Freq	Level	Limit	Margin	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(m)		(°)	(m)	
5.15-5.25GHz	-	-	-	-	-	-	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	Pass	AV	5.15G	53.97	54.00	-0.03	3	Vertical	332	2.23	-

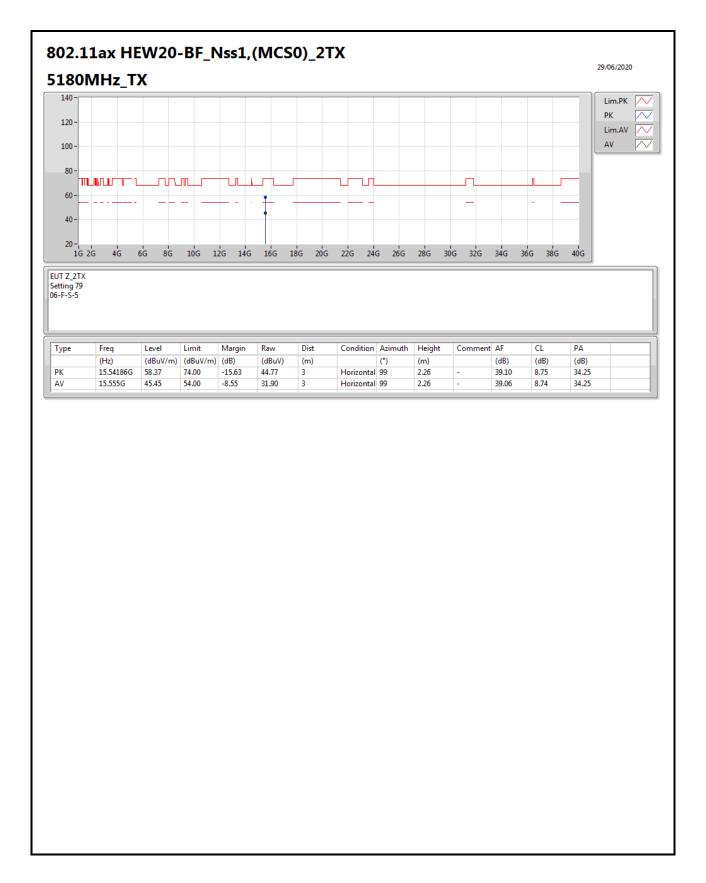






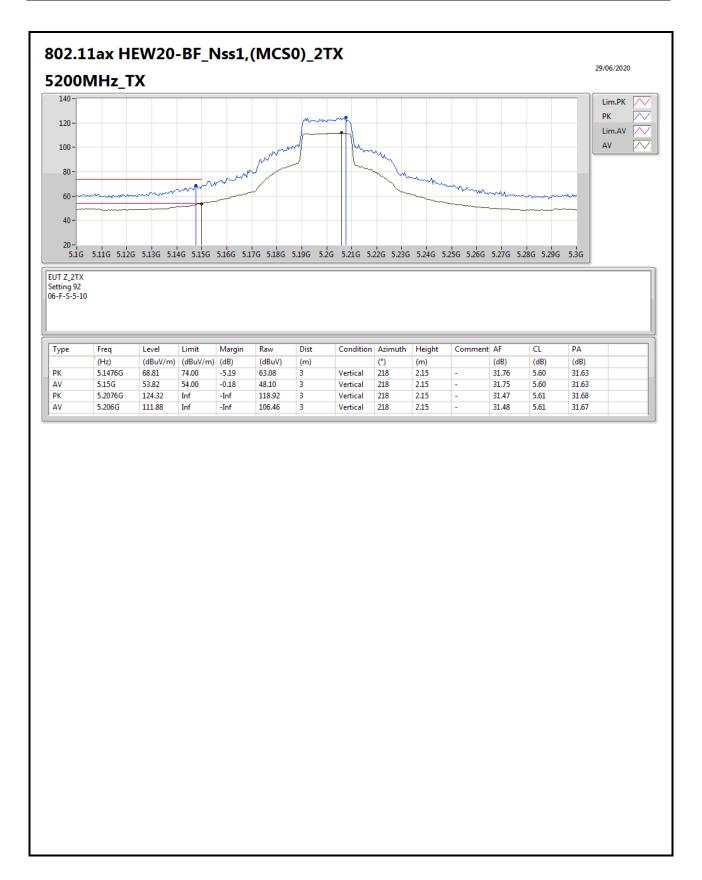






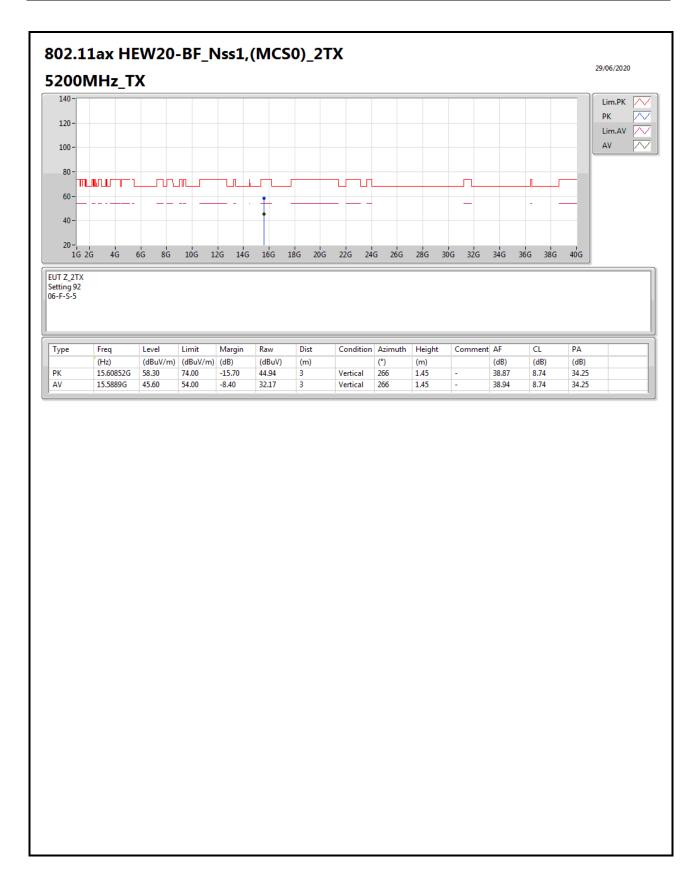
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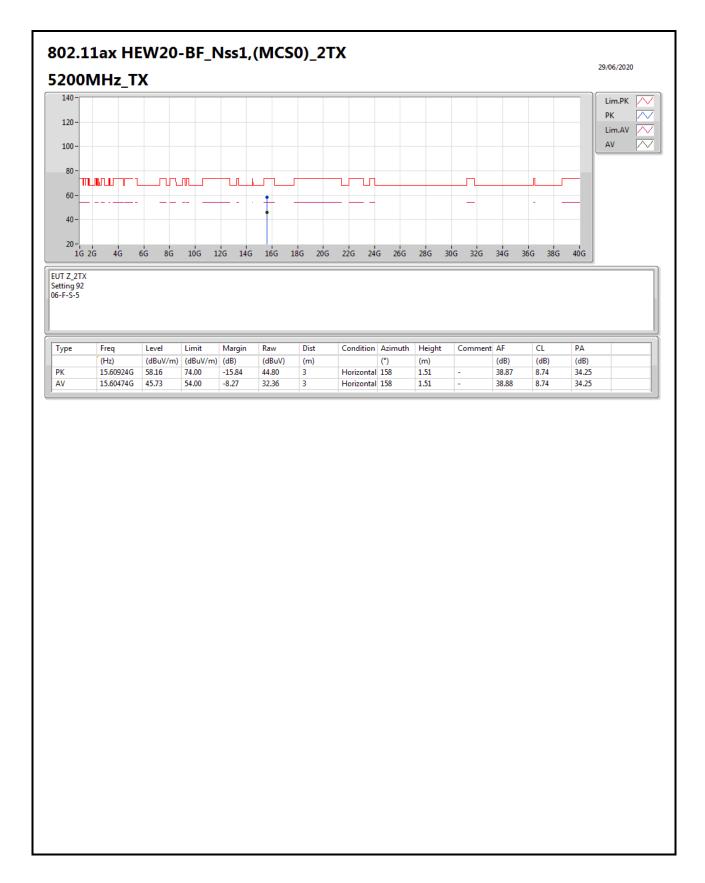


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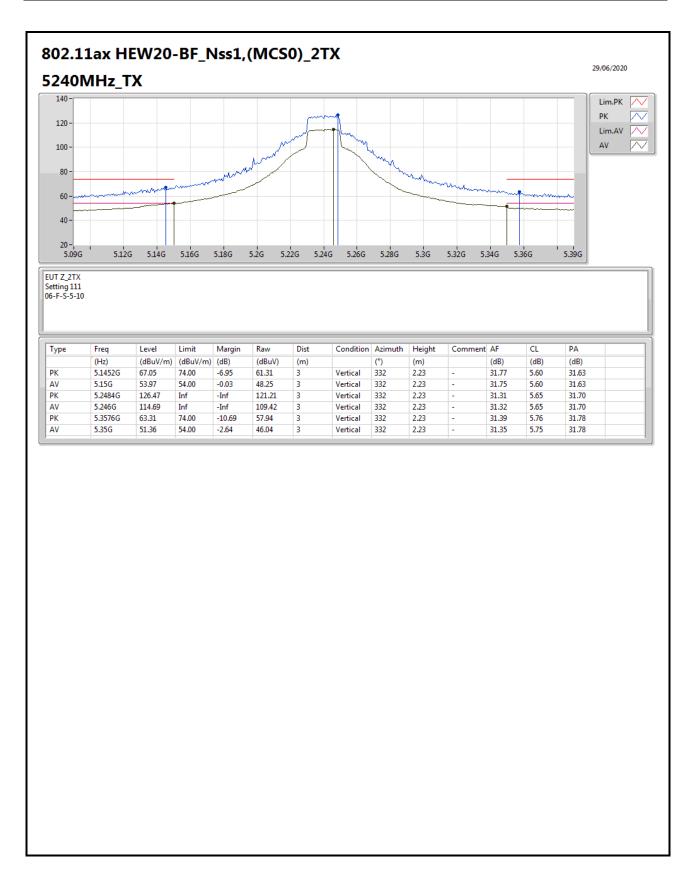






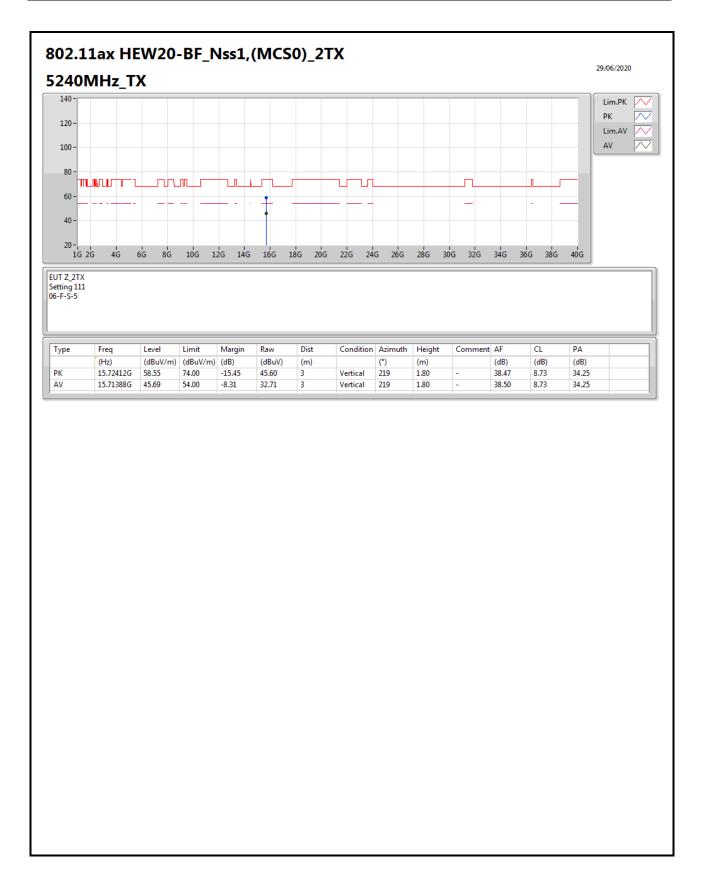
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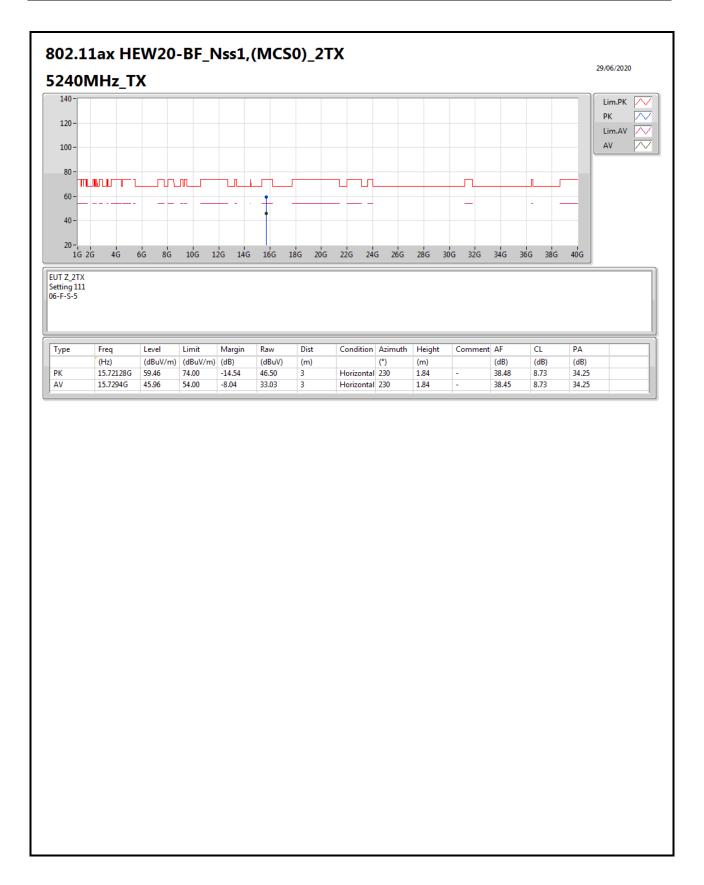
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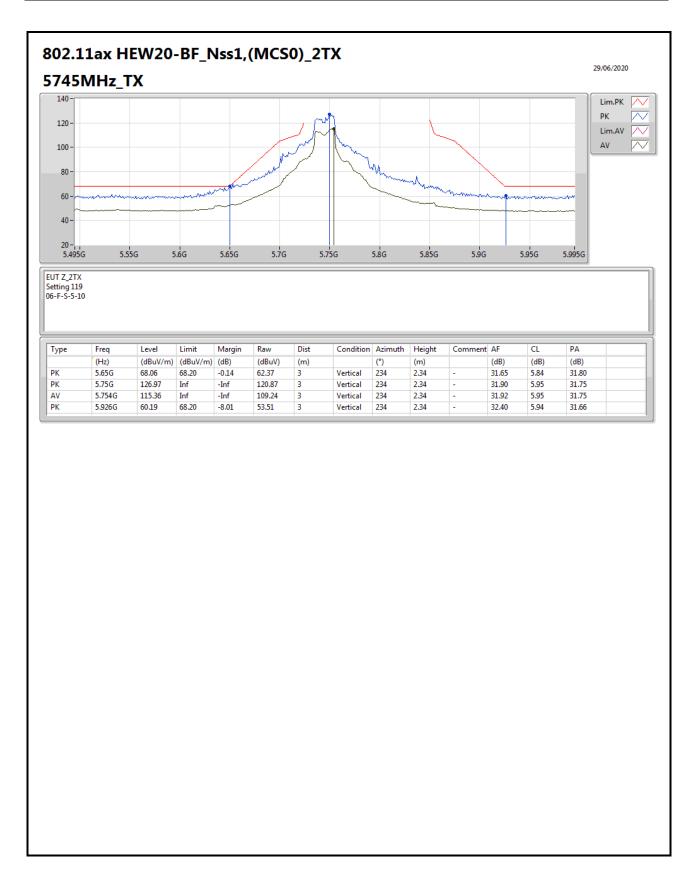


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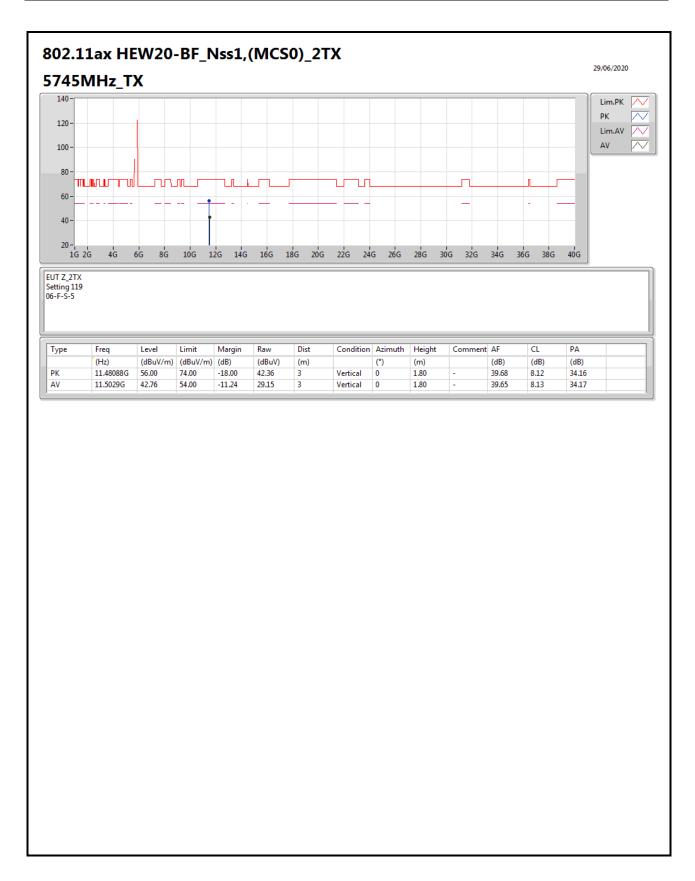




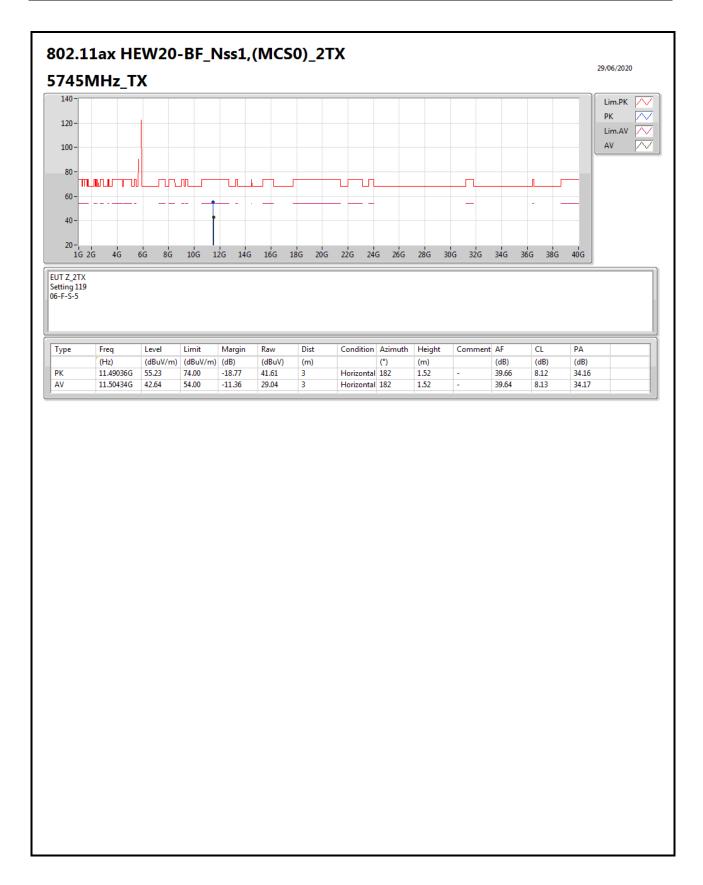


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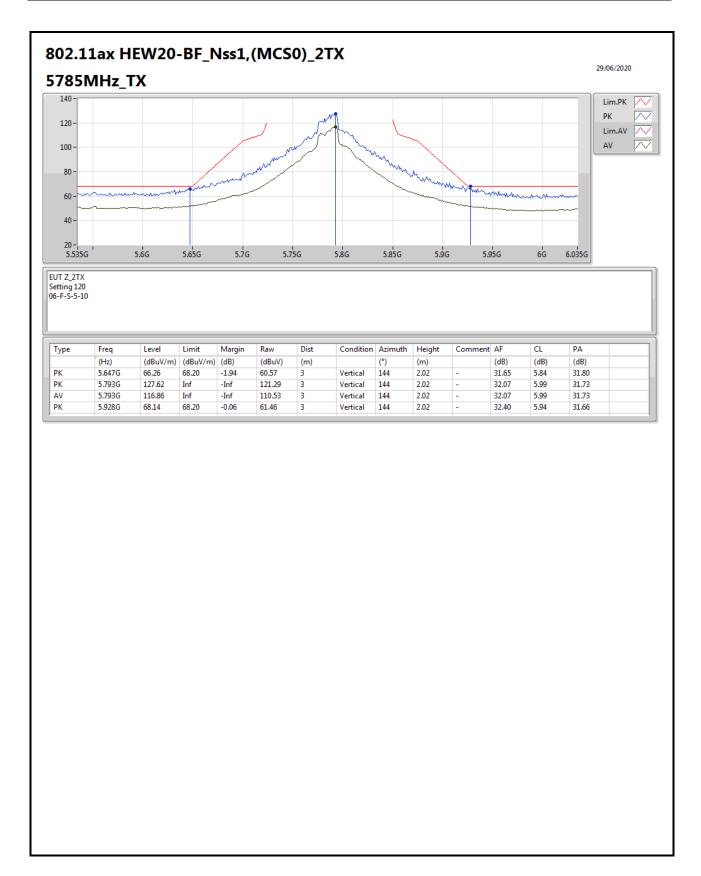






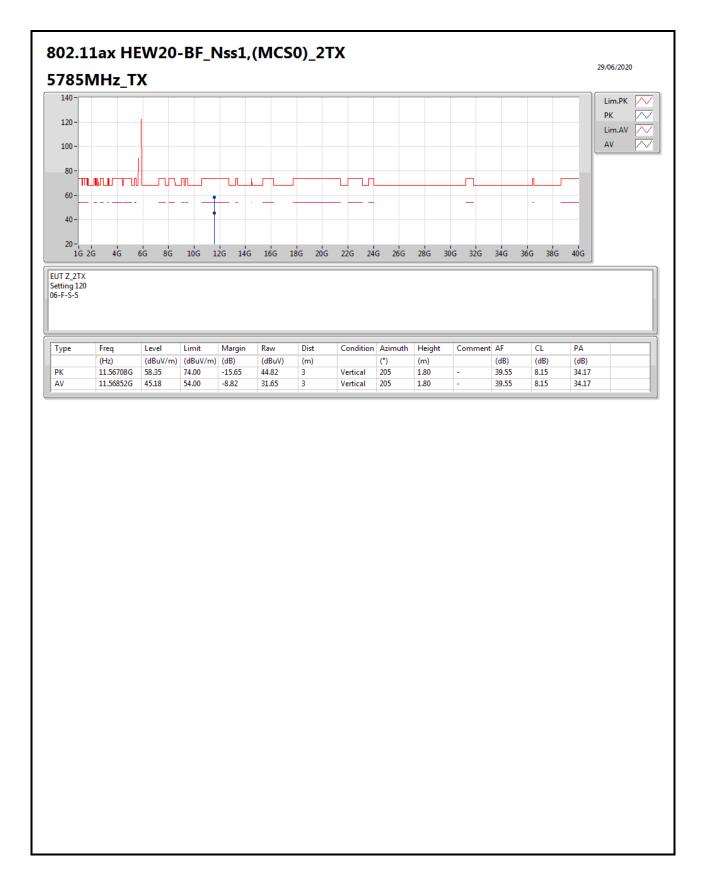
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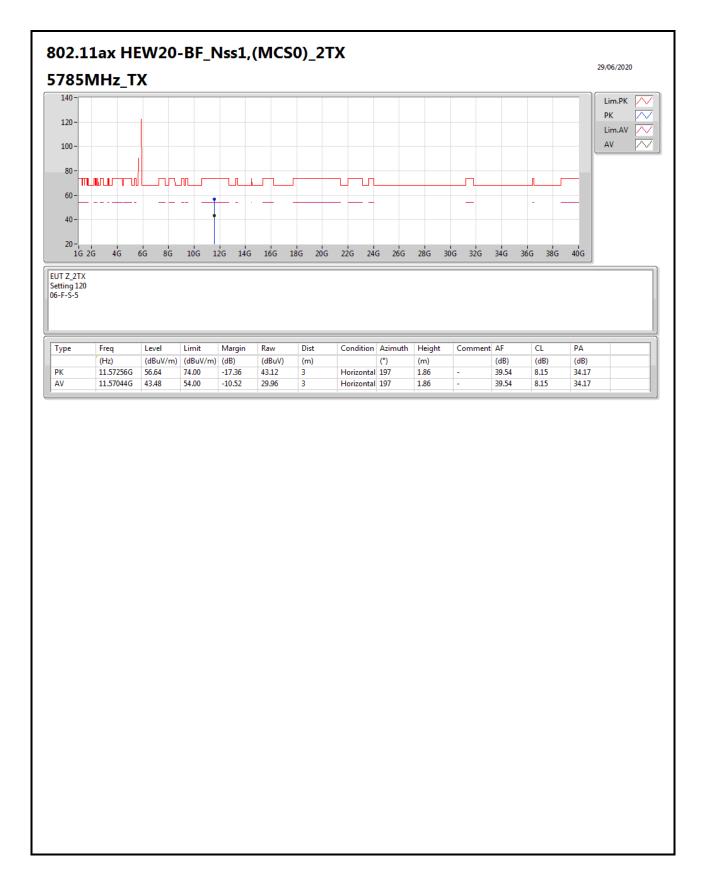


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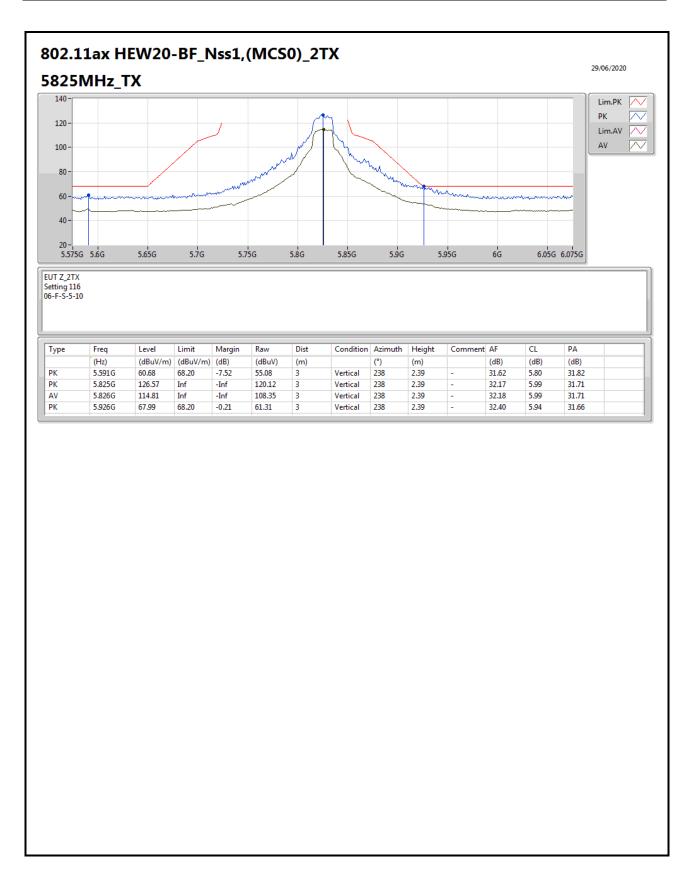




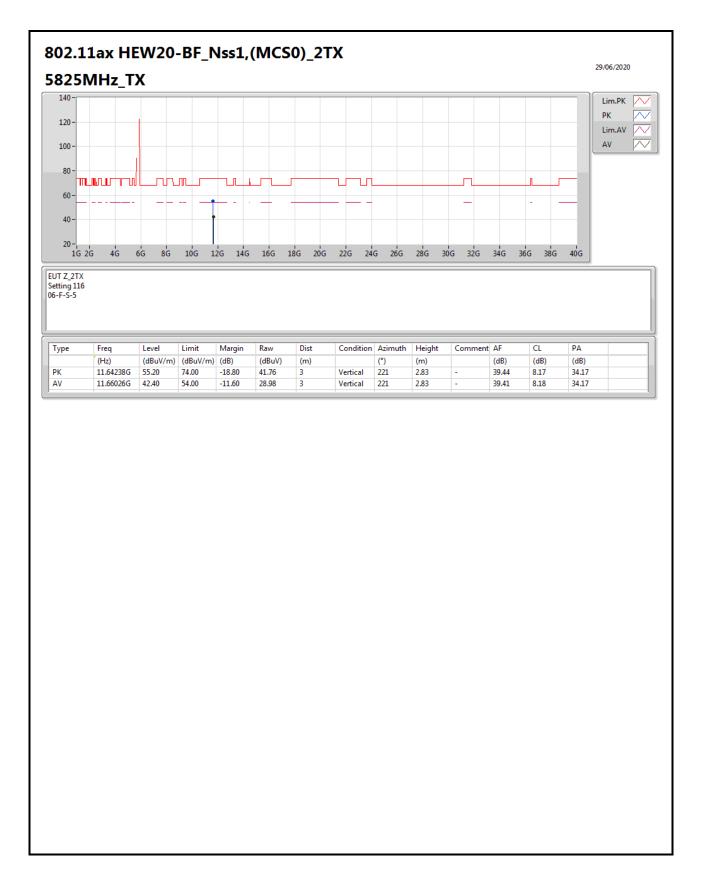


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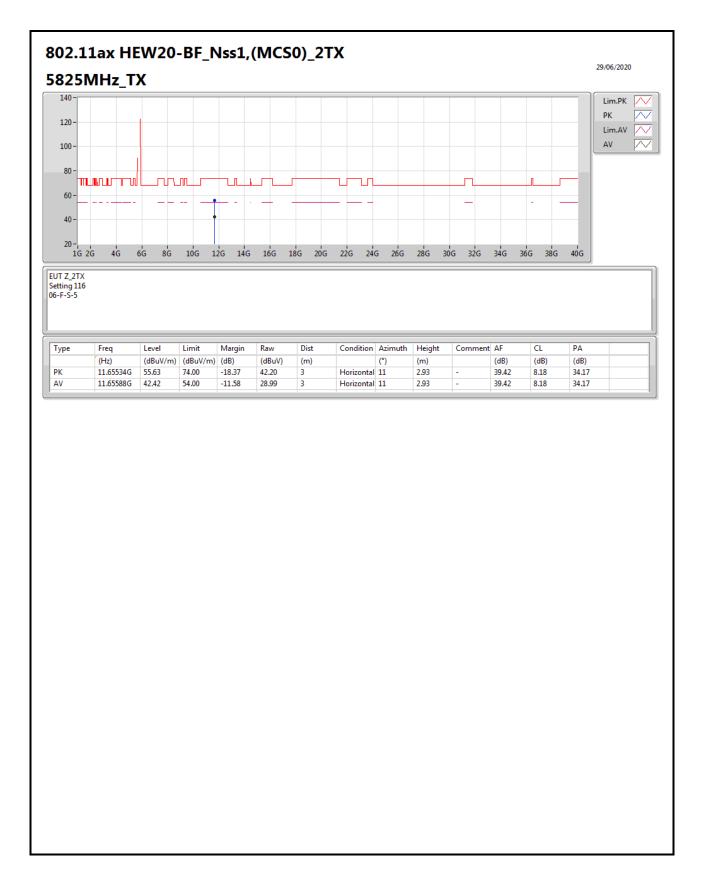




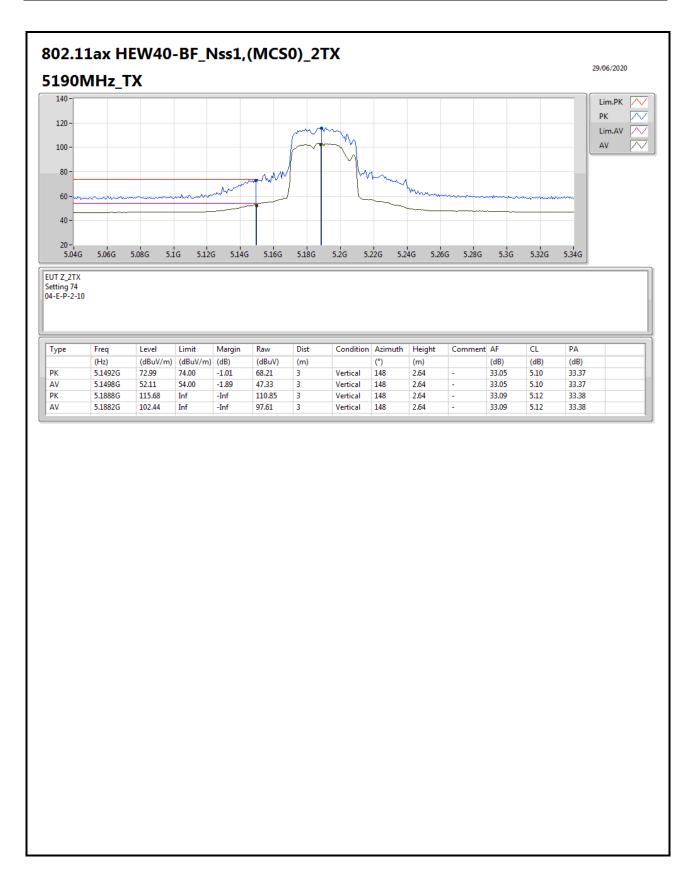


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