

Report No.: FR901614-01AB



FCC RADIO TEST REPORT

FCC ID : 2AHKM-CGNV5TFC

Equipment : 24X8 P6 DBCC WiFi eMTA

Brand Name : hitron
Model Name : CGNV5

Applicant : Hitron Technologies Inc.

No. 1-8, Li-Hsin 1st Rd. Hsinchu Science Park,

Hsinchu 30078, Taiwan

Manufacturer: Hitron Technologies Inc.

No. 1-8, Li-Hsin 1st Rd. Hsinchu Science Park,

Hsinchu 30078, Taiwan

Standard: 47 CFR FCC Part 15.407

The product was received on Oct. 29, 2020, and testing was started from Nov. 30, 2020 and completed on Jan. 11, 2021. 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

Page Number : 1 of 30

Issued Date : Jan. 18, 2021

Report Version : 01

Table of Contents

Histo	ry of this test report	3
	mary of Test Result	
<i>.</i>		
l	General Description	5
1.1	Information	5
1.2	Applicable Standards	8
1.3	Testing Location Information	8
1.4	Measurement Uncertainty	9
2	Test Configuration of EUT	10
2.1	Test Channel Mode	10
2.2	The Worst Case Measurement Configuration	11
2.3	EUT Operation during Test	11
2.4	Accessories	12
2.5	Support Equipment	12
2.6	Test Setup Diagram	13
3	Transmitter Test Result	16
3.1	AC Power-line Conducted Emissions	16
3.2	Emission Bandwidth	18
3.3	Maximum Conducted Output Power	19
3.4	Peak Power Spectral Density	21
3.5	Unwanted Emissions	24
4	Test Equipment and Calibration Data	29

Appendix A. Test Results of AC Power-line Conducted Emissions

Appendix B. Test Results of Emission Bandwidth

Appendix C. Test Results of Maximum Conducted Output Power

Appendix D. Test Results of Peak Power Spectral Density

Appendix E. Test Results of Unwanted Emissions

Appendix F. Test Photos

Photographs of EUT v01

TEL: 886-3-656-9065 FAX: 886-3-656-9085

Report Template No.: CB-A12_1 Ver1.2

Page Number : 2 of 30

Issued Date : Jan. 18, 2021

Report No. : FR9O1614-01AB

Report Version : 01

History of this test report

Report No. : FR9O1614-01AB

Report No.	Version	Description	Issued Date
FR9O1614-01AB	01	Initial issue of report	Jan. 18, 2021

TEL: 886-3-656-9065 Page Number : 3 of 30
FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

Summary of Test Result

Report No.: FR9O1614-01AB

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: Wendy Pan

TEL: 886-3-656-9065 Page Number : 4 of 30
FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

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		5745-5825	149-165 [5]
5150-5250	n (HT40), ac (VHT40)	5190-5230	38-46 [2]
5725-5850		5755-5795	151-159 [2]
5150-5250	ac (VHT80)	5210	42 [1]
5725-5850		5775	155 [1]

Report No.: FR9O1614-01AB

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	4TX
5.15-5.25GHz	802.11n HT20	20	4TX
5.15-5.25GHz	802.11ac VHT20	20	4TX
5.15-5.25GHz	802.11n HT40	40	4TX
5.15-5.25GHz	802.11ac VHT40	40	4TX
5.15-5.25GHz	802.11ac VHT80	80	4TX
5.725-5.85GHz	802.11a	20	4TX
5.725-5.85GHz	802.11n HT20	20	4TX
5.725-5.85GHz	802.11ac VHT20	20	4TX
5.725-5.85GHz	802.11n HT40	40	4TX
5.725-5.85GHz	802.11ac VHT40	40	4TX
5.725-5.85GHz	802.11ac VHT80	80	4TX

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.

BWch is the nominal channel bandwidth.

TEL: 886-3-656-9065 Page Number : 5 of 30
FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

1.1.2 Antenna Information

Ant.	Port		Brand	Model Name	Туре	Connector	Gain (dBi)
AIII.	2.4GHz	5GHz	Dianu	Brand Woder Name		Connector	Gaiii (ubi)
1	3	-	LYNWAVE	ALX20P-051AA7-00	Dipole	I-PEX	2.9
2	2	-	LYNWAVE	ALX20P-051AA8-00	Dipole	I-PEX	2.6
3	1	-	LYNWAVE	ALX20P-051AA9-00	Dipole	I-PEX	3.3
4	-	4	LYNWAVE	ALX20P-091AAG-00	Dipole	I-PEX	3.4
5	-	3	LYNWAVE	ALX20P-091AAH-00	Dipole	I-PEX	3.5
6	-	2	LYNWAVE	ALX20P-091AAJ-00	Dipole	I-PEX	3.9
7	-	1	LYNWAVE	ALX20P-091AAK-00	Dipole	I-PEX	3.6

Report No.: FR9O1614-01AB

Note 1: The above information was declared by manufacturer.

Note 2: The EUT has seven antennas.

<For 2.4GHz Band>

For IEEE 802.11b mode (1TX/1RX)

Only Port 1 can be used as transmitting/receiving.

For IEEE 802.11g/n mode (3TX/3RX)

Port 1, Port 2 and Port 3 could transmit/receive simultaneously.

<For 5GHz Band>

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

Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.

TEL: 886-3-656-9065 Page Number : 6 of 30
FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11a	0.983	0.07	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ac VHT20	0.983	0.07	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ac VHT40	0.967	0.15	657.5u	3k
802.11ac VHT80	0.931	0.31	325u	10k

Report No.: FR901614-01AB

Note	:
•	DC is Duty Cycle.
•	DCF is Duty Cycle Factor.

1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter			
Beamforming Function	☐ With beamforming	\boxtimes	Without beamforming	
Function	☐ Outdoor P2M	\boxtimes	Indoor P2M	
T dilotion	Fixed P2P		Client	
Test Software Version	Lantiq DUT Version 540.81			

Note: The above information was declared by manufacturer.

TEL: 886-3-656-9065 Page Number : 7 of 30
FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

1.2 Applicable Standards

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

Report No.: FR9O1614-01AB

- 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, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302, Taiwan (R.O.C.)			
		TEL	:	86-3-656-9065 FAX : 886-3-656-9085			

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
RF Conducted	TH02-CB	Brian Sun	21.5~23 / 57~58	Dec. 04, 2020
Radiated<1GHz	03CH06-CB	Bruce Yang	14.9~15.4 / 54~56	Nov. 30, 2020 ~ Jan. 08, 2021
Radiated>1GHz	03CH01-CB	Bruce Yang	24.1~24.9 / 56~58	Nov. 30, 2020 ~ Jan. 08, 2021
AC Conduction	CO01-CB	Zack Kuo	20~21 / 48~49	Jan. 11, 2021

Test site Designation No. TW0006 with FCC

Test site registered number IC 4086D with Industry Canada.

TEL: 886-3-656-9065 Page Number : 8 of 30
FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

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

Report No.: FR9O1614-01AB

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 (9kHz ~ 30MHz)	3.8 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	5.0 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.9 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	0.4%	Confidence levels of 95%

TEL: 886-3-656-9065 Page Number : 9 of 30
FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5180MHz	22.5
5200MHz	23
5240MHz	23
5745MHz	23
5785MHz	23
5825MHz	23
802.11ac VHT20_Nss1,(MCS0)_4TX	-
5180MHz	19.5
5200MHz	23
5240MHz	23
5745MHz	23
5785MHz	23
5825MHz	23
802.11ac VHT40_Nss1,(MCS0)_4TX	-
5190MHz	15.5
5230MHz	23
5755MHz	23
5795MHz	23
802.11ac VHT80_Nss1,(MCS0)_4TX	-
5210MHz	15
5775MHz	23

Report No. : FR9O1614-01AB

TEL: 886-3-656-9065 Page Number : 10 of 30 FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

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	CTX - WLAN 2.4GHz	
2	CTX - WLAN 5GHz	
For operating mode 1 is the worst case and it was record in this test report.		

Report No.: FR901614-01AB

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

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 CTX - WLAN 2.4GHz		
2 CTX - WLAN 5GHz		
For operating mode 1 is the worst case and it was record in this test report.		
Operating Mode > 1GHz CTX		

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		
Refer to Sporton Test Report No.: FA9O1614-01 for Co-location RF Exposure Evaluation.		

Note: The EUT can only be used at Y axis position.

2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

TEL: 886-3-656-9065 Page Number : 11 of 30 FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

2.4 Accessories

		Accessories	
Equipment Name	Brand Name	Model Name	Rating
Adapter	APD	WA-30P12FU	INPUT: 100-240V ~ 50-60Hz, 0.9A Max. OUTPUT: 12V, 2.5A
		Other	
RJ-45 cable*1: Non-shie	elded 1.5m		

Report No. : FR9O1614-01AB

2.5 Support Equipment

For AC Conduction:

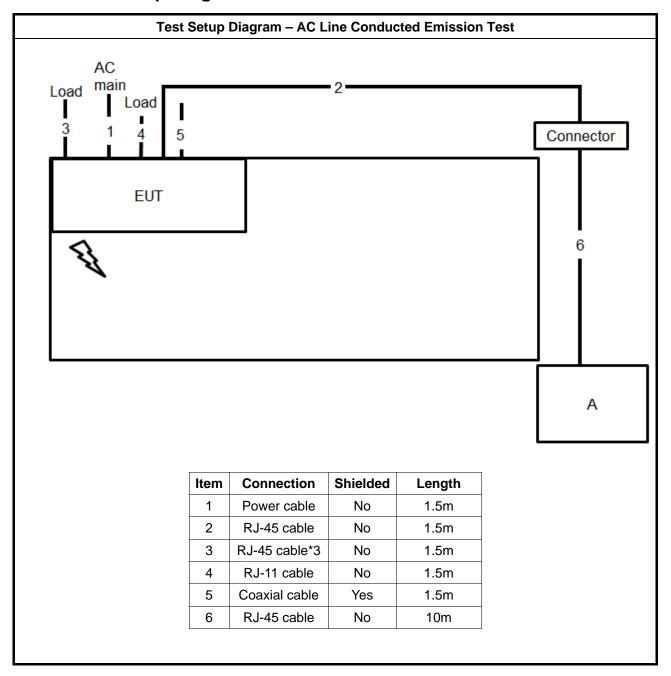
Support Equipment				
No.	No. Equipment Brand Name Model Name FCC ID		FCC ID	
Α	LAN NB	DELL	E6430	N/A

For Radiated and RF Conducted:

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

TEL: 886-3-656-9065 Page Number : 12 of 30 FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

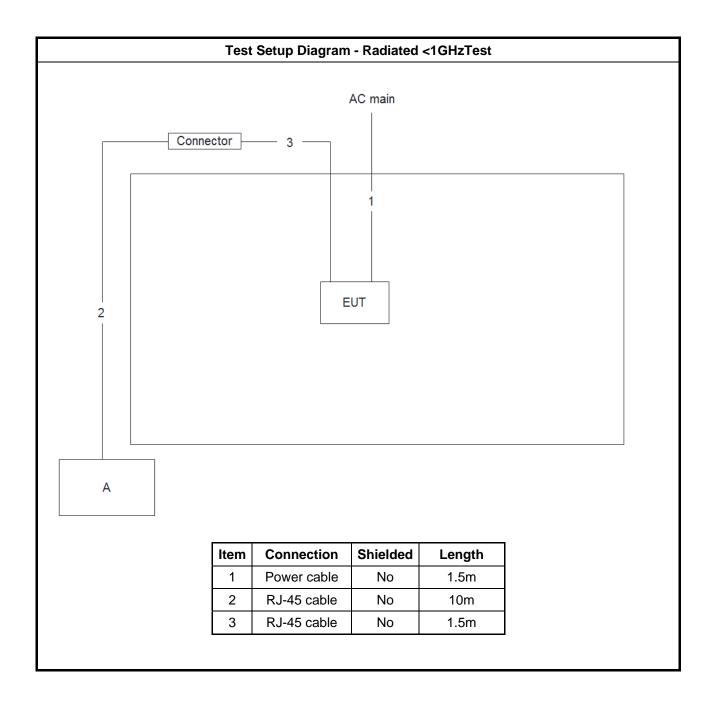
2.6 Test Setup Diagram



Report No.: FR9O1614-01AB

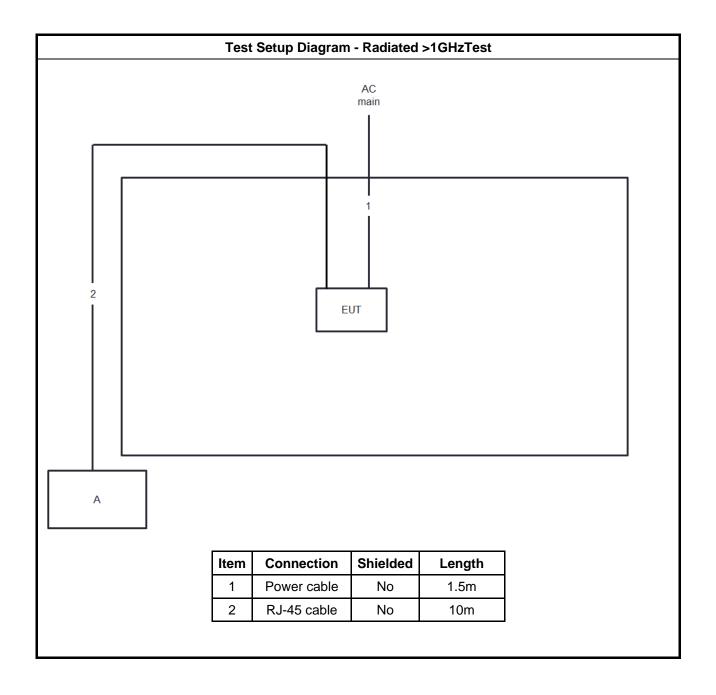
TEL: 886-3-656-9065 Page Number : 13 of 30 FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

Report No. : FR9O1614-01AB



TEL: 886-3-656-9065 Page Number : 14 of 30 FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

Report No. : FR9O1614-01AB



TEL: 886-3-656-9065 Page Number : 15 of 30
FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Pow	er-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	of the frequency.	

Report No.: FR901614-01AB

3.1.2 Measuring Instruments

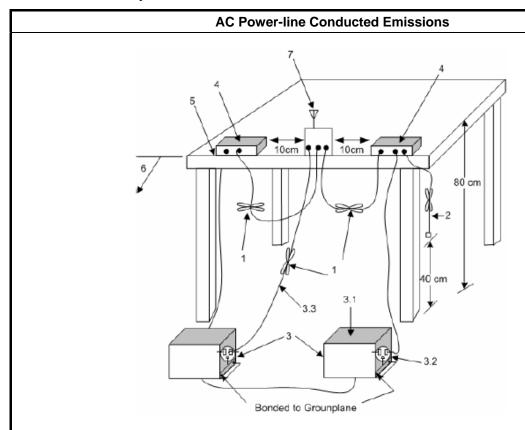
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

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

TEL: 886-3-656-9065 Page Number : 16 of 30 FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

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.

Report No.: FR9O1614-01AB

- 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

TEL: 886-3-656-9065 Page Number : 17 of 30 FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

	Emission Bandwidth Limit
UN	II 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.

Report No.: FR901614-01AB

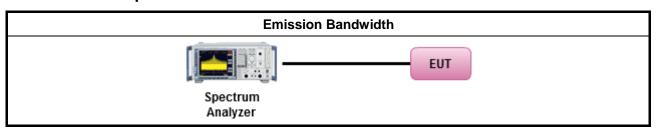
3.2.2 Measuring Instruments

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

TEL: 886-3-656-9065 Page Number : 18 of 30 FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

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.

Report No. : FR9O1614-01AB

TEL: 886-3-656-9065 Page Number : 19 of 30 FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

3.3.2 Measuring Instruments

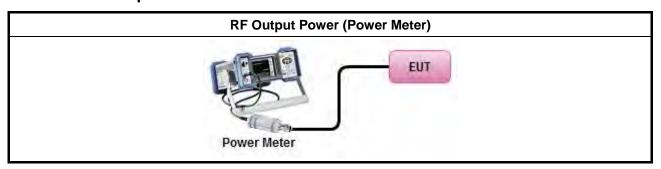
Refer a test equipment and calibration data table in this test report.

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 								

Report No.: FR901614-01AB

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

TEL: 886-3-656-9065 Page Number : 20 of 30 FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

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).
	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) ≤ 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.

Report No.: FR901614-01AB

3.4.2 Measuring Instruments

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

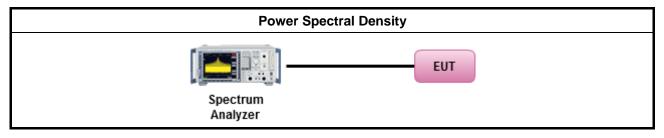
TEL: 886-3-656-9065 Page Number : 21 of 30 FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

3.4.3 Test Procedures

		Test Method										
•	Peak power spectral density procedures that the same method as used to determine the conducted output power shall be used to determine the peak power spectral density and use the peak search function on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density shall 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											
	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 $										

Report No. : FR9O1614-01AB

3.4.4 Test Setup



Report No. : FR9O1614-01AB

3.4.5 Test Result of Peak Power Spectral Density

Refer as Appendix D

TEL: 886-3-656-9065 Page Number : 23 of 30 FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

3.5 Unwanted Emissions

3.5.1 Transmitter Unwanted Emissions Limit

Unwanted emiss	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								

Report No.: FR9O1614-01AB

- 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.

TEL: 886-3-656-9065 Page Number : 24 of 30
FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

	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.

Report No.: FR9O1614-01AB

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

3.5.2 Measuring Instruments

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

TEL: 886-3-656-9065 Page Number : 25 of 30 FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

3.5.3 Test Procedures

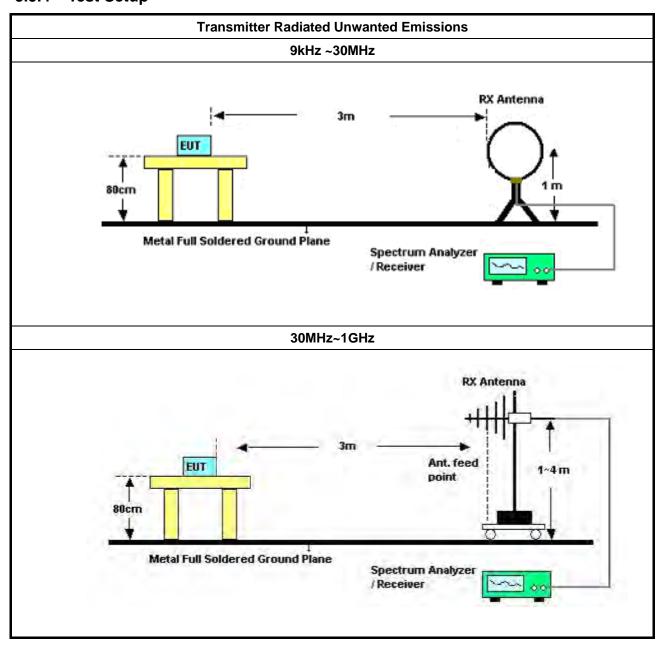
Test Method

Report No.: FR9O1614-01AB

- 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.

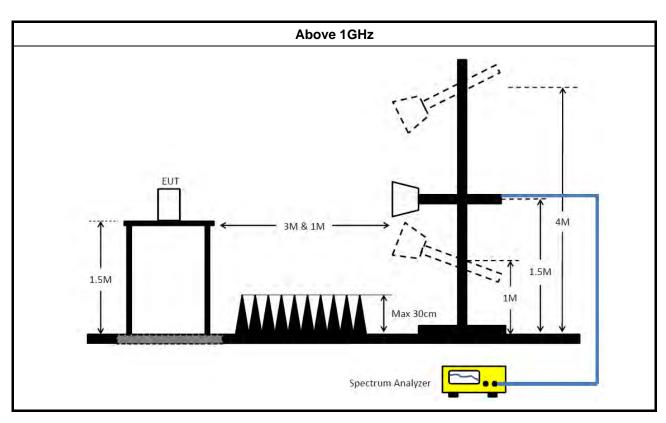
TEL: 886-3-656-9065 Page Number : 26 of 30
FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

3.5.4 Test Setup



Report No.: FR901614-01AB

TEL: 886-3-656-9065 Page Number : 27 of 30
FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021



Report No.: FR9O1614-01AB

: 01

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

TEL: 886-3-656-9065 Page Number : 28 of 30
FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021

4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Feb. 26, 2020	Feb. 25, 2021	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Nov. 20, 2020	Nov. 19, 2021	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Feb. 25, 2020	Feb. 24, 2021	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwar z	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 (03CH06-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH06-CB	30 MHz ~ 1 GHz	Aug. 10, 2020	Aug, 09. 2021	Radiation (03CH06-CB)
Bilog Antenna with 6 dB attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37878 & AT-N0606	20MHz ~ 2GHz Aug. 02, 2020		Aug. 01, 2021	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	310N	187290	0.1MHz ~ 1GHz	Nov. 05, 2020	Nov. 04, 2021	Radiation (03CH06-CB)
Signal Analyzer	R&S	FSV40	101904	9kHz ~ 40GHz	May 12, 2020	May 11, 2021	Radiation (03CH06-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 13, 2020	May 12, 2021	Radiation (03CH06-CB)
RF Cable-low	Woken	RG402	Low Cable-05+24	30MHz~1GHz	Oct. 05, 2020	Oct. 04, 2021	Radiation (03CH06-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH06-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH01-CB	1GHz ~18GHz 3m May 29, 2020		May 28, 2021	Radiation (03CH01-CB)
Horn Antenna	ETS-LINDGRE N	3115	00075790	750MHz ~ 18GHz	Nov. 06, 2020	Nov. 05, 2021	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 21, 2020	Jul. 20, 2021	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 08, 2020	Jan. 07, 2021	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 07, 2021	Jan. 06, 2022	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	ГТА1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 08, 2020	Jul. 07, 2021	Radiation (03CH01-CB)

TEL: 886-3-656-9065 FAX: 886-3-656-9085

Report Template No.: CB-A12_1 Ver1.2

Page Number : 29 of 30 Issued Date : Jan. 18, 2021

Report No. : FR9O1614-01AB

Report Version : 01

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Spectrum Analyzer	'		100056	9kHz ~ 40GHz		Apr. 15, 2021	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16	1 GHz ~ 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16+17	1 GHz ~ 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	18GHz ~ 40 GHz Jul. 16, 2020		Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 16, 2020	Jul. 15, 2021	Radiation (03CH01-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	101027	9kHz~40GHz	Jul. 27, 2020	Jul. 26, 2021	Conducted (TH02-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Sep. 17, 2020	Sep. 16, 2021	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Sep. 17, 2020	Sep. 16, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-02	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-03	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH02-CB)

Report No. : FR9O1614-01AB

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

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

TEL: 886-3-656-9065 Page Number : 30 of 30 FAX: 886-3-656-9085 Issued Date : Jan. 18, 2021



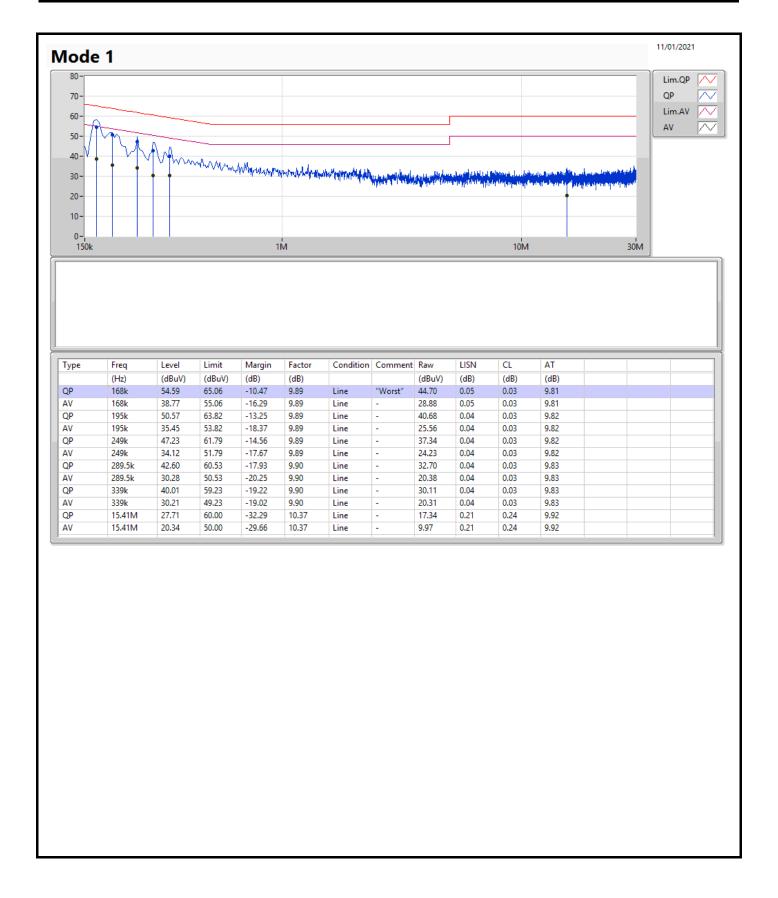
Conducted Emissions at Powerline

Appendix A

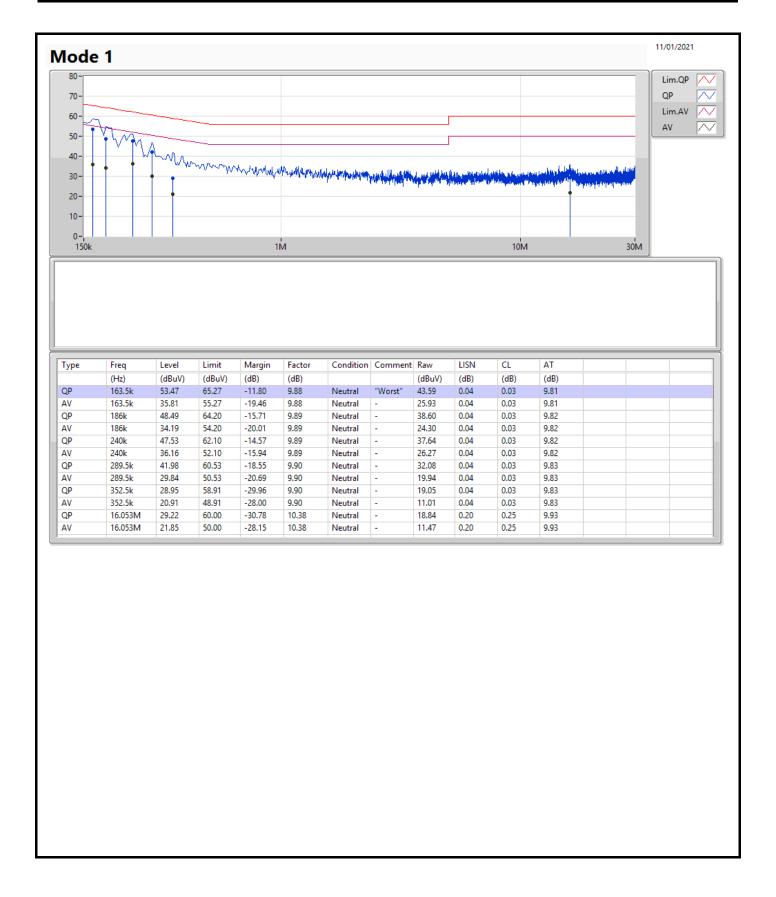
Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	168k	54.59	65.06	-10.47	Line











EBW Appendix B

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)_4TX	36.3M	20.45M	20M4D1D	26.34M	16.822M
802.11ac VHT20_Nss1,(MCS0)_4TX	37.11M	20.51M	20M5D1D	22.83M	17.811M
802.11ac VHT40_Nss1,(MCS0)_4TX	80.7M	41.079M	41M1D1D	45.24M	36.402M
802.11ac VHT80_Nss1,(MCS0)_4TX	89.28M	75.442M	75M4D1D	85.44M	75.082M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	16.35M	17.031M	17M0D1D	16.26M	16.672M
802.11ac VHT20_Nss1,(MCS0)_4TX	17.55M	18.141M	18M1D1D	17.01M	17.781M
802.11ac VHT40_Nss1,(MCS0)_4TX	35.34M	37.301M	37M3D1D	35.1M	36.522M
802.11ac VHT80_Nss1,(MCS0)_4TX	75.12M	76.522M	76M5D1D	75.12M	75.442M

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;



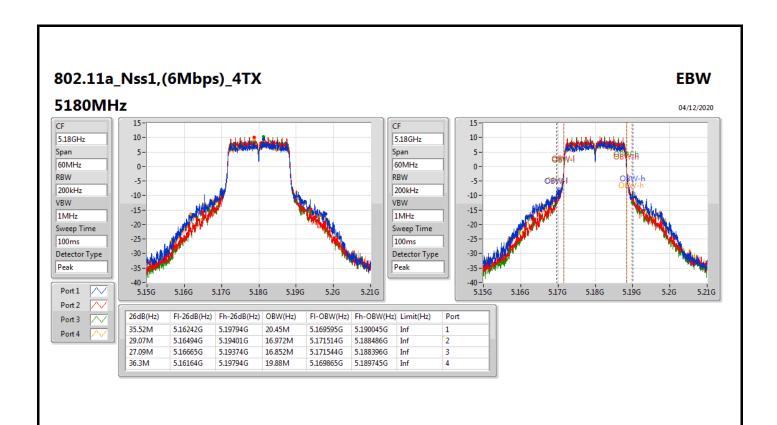
EBW Appendix B

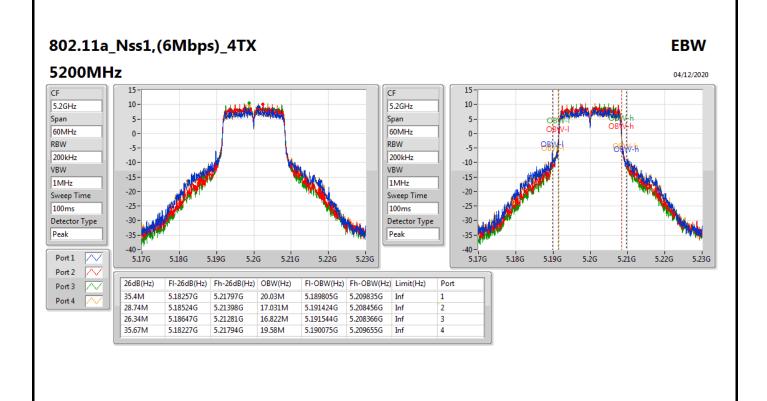
Result

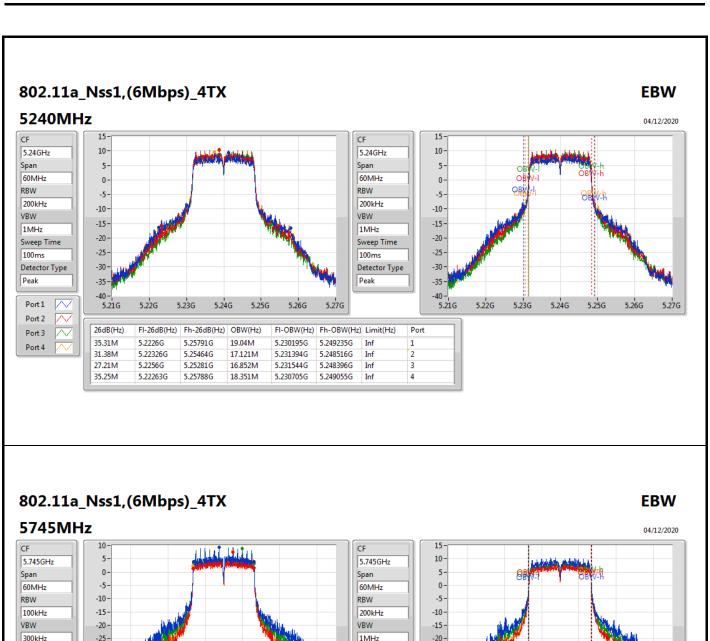
Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW	Port 3-N dB	Port 3-OBW	Port 4-N dB	Port 4-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	35.52M	20.45M	29.07M	16.972M	27.09M	16.852M	36.3M	19.88M
5200MHz	Pass	Inf	35.4M	20.03M	28.74M	17.031M	26.34M	16.822M	35.67M	19.58M
5240MHz	Pass	Inf	35.31M	19.04M	31.38M	17.121M	27.21M	16.852M	35.25M	18.351M
5745MHz	Pass	500k	16.26M	17.031M	16.35M	16.672M	16.32M	16.792M	16.32M	16.672M
5785MHz	Pass	500k	16.29M	16.972M	16.29M	16.702M	16.32M	16.792M	16.35M	16.672M
5825MHz	Pass	500k	16.29M	17.001M	16.35M	16.732M	16.29M	16.822M	16.32M	16.702M
802.11ac VHT20_Nss1,(MCS0)_4TX	-	1	-	-	ī	·	i	-	-	-
5180MHz	Pass	Inf	35.46M	18.891M	24.06M	17.871M	22.83M	17.811M	30.24M	18.051M
5200MHz	Pass	Inf	37.11M	20.51M	29.28M	18.081M	27.9M	17.961M	36.45M	20.27M
5240MHz	Pass	Inf	34.56M	19.79M	31.02M	18.171M	28.23M	17.961M	36.93M	19.37M
5745MHz	Pass	500k	17.28M	18.081M	17.31M	17.871M	17.55M	17.931M	17.52M	17.811M
5785MHz	Pass	500k	17.01M	18.141M	17.52M	17.841M	17.31M	17.931M	17.52M	17.781M
5825MHz	Pass	500k	17.25M	18.111M	17.52M	17.871M	17.52M	17.901M	17.31M	17.781M
802.11ac VHT40_Nss1,(MCS0)_4TX	-	1	-	-	ī	·	i	-	-	-
5190MHz	Pass	Inf	48.18M	36.822M	45.96M	36.462M	45.24M	36.522M	45.48M	36.402M
5230MHz	Pass	Inf	80.7M	41.079M	68.7M	37.181M	60.78M	36.822M	76.44M	38.501M
5755MHz	Pass	500k	35.1M	37.241M	35.28M	36.582M	35.1M	36.882M	35.34M	36.522M
5795MHz	Pass	500k	35.1M	37.301M	35.34M	36.642M	35.16M	36.882M	35.1M	36.522M
802.11ac VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	89.28M	75.442M	86.04M	75.082M	86.52M	75.082M	85.44M	75.202M
5775MHz	Pass	500k	75.12M	76.522M	75.12M	75.562M	75.12M	75.922M	75.12M	75.442M

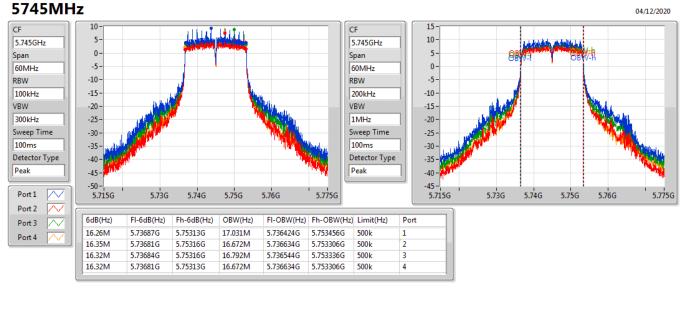
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth;

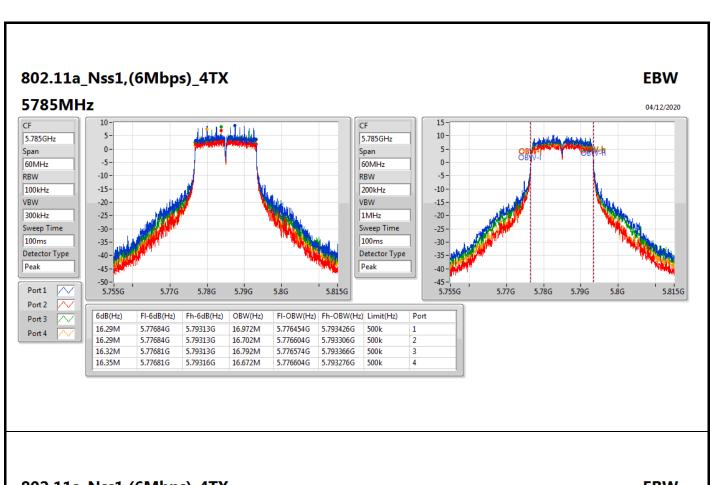
EBW Appendix B

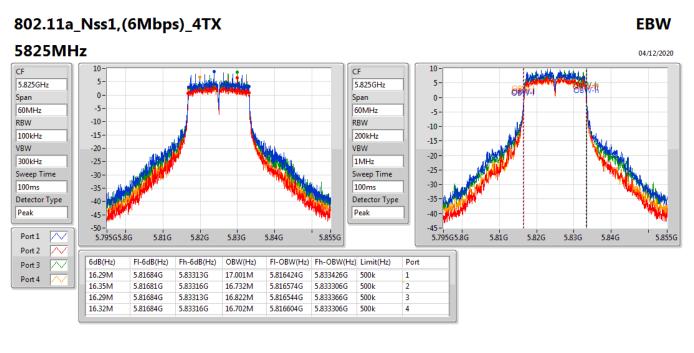


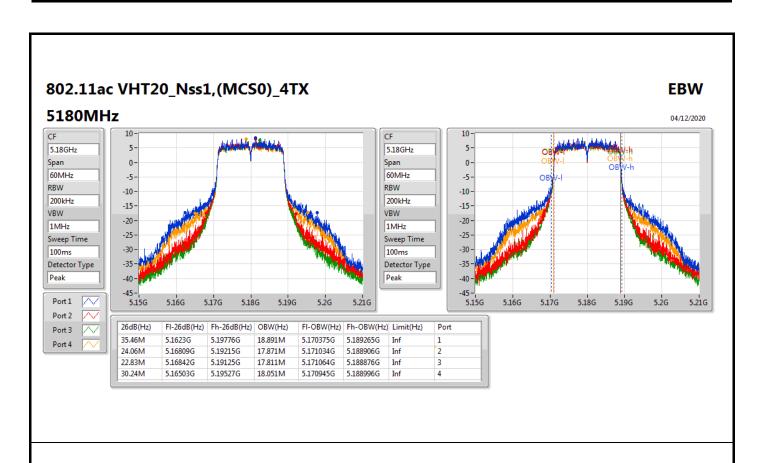


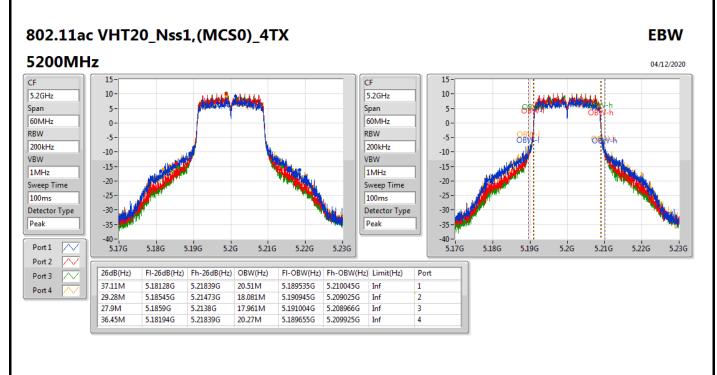


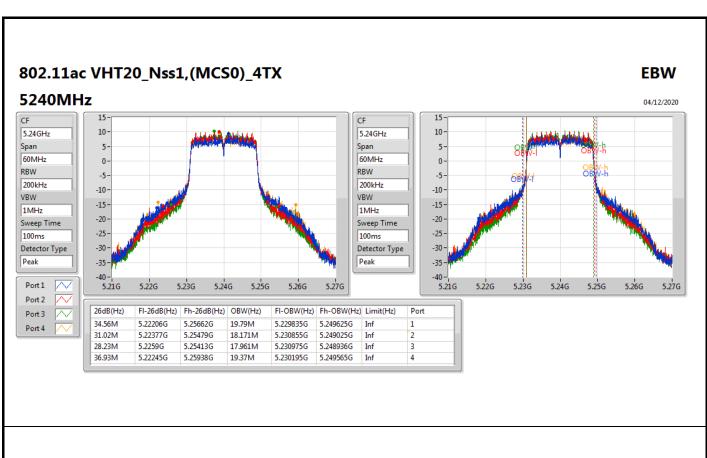


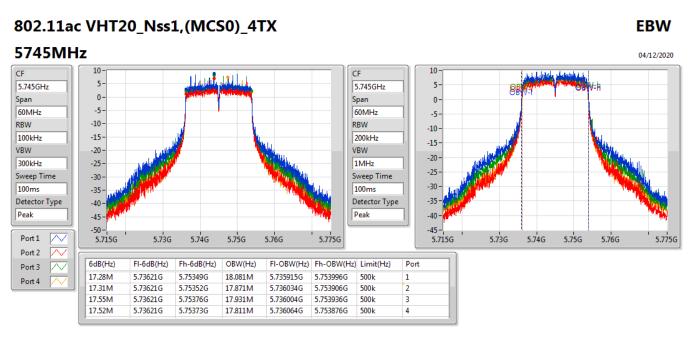


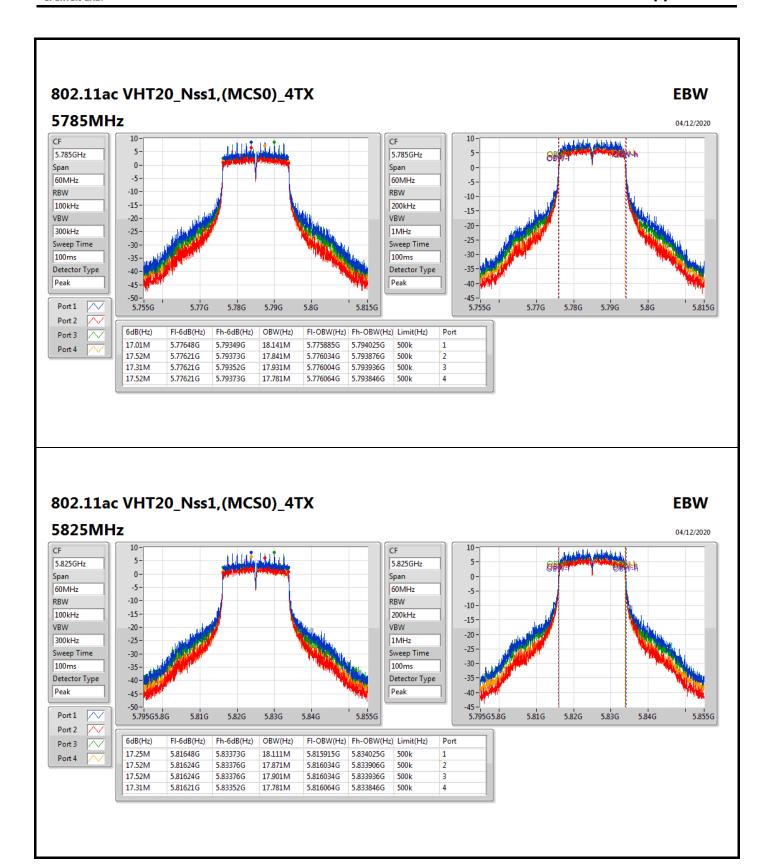


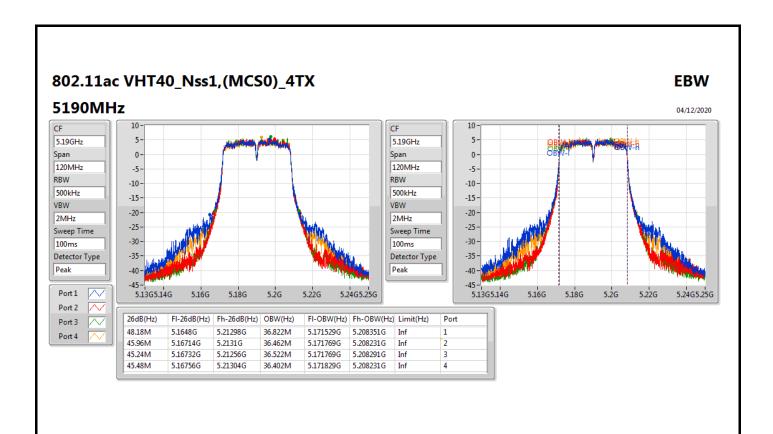


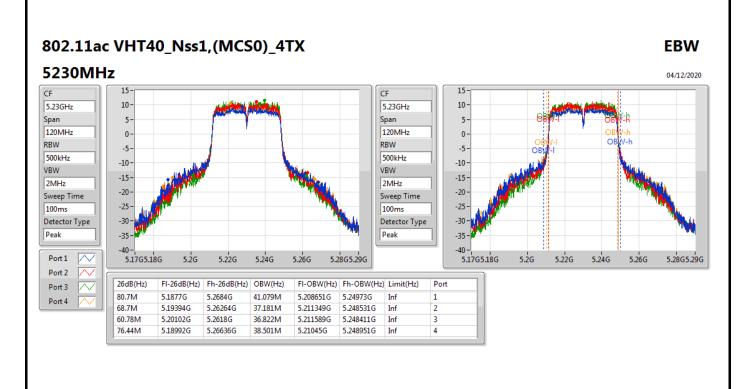


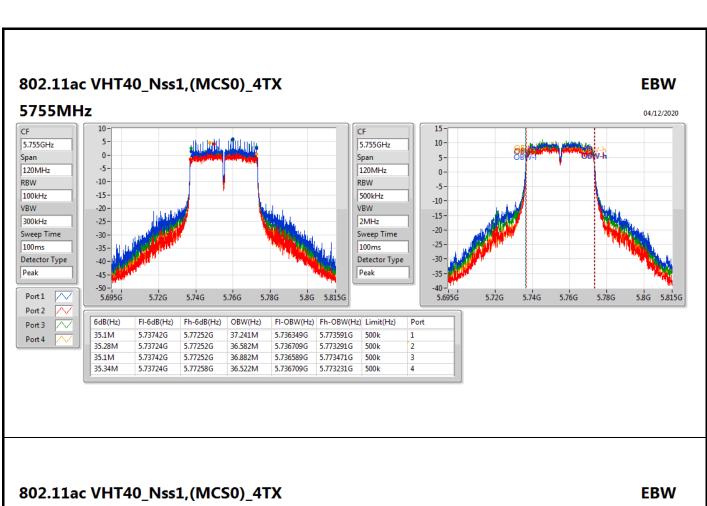


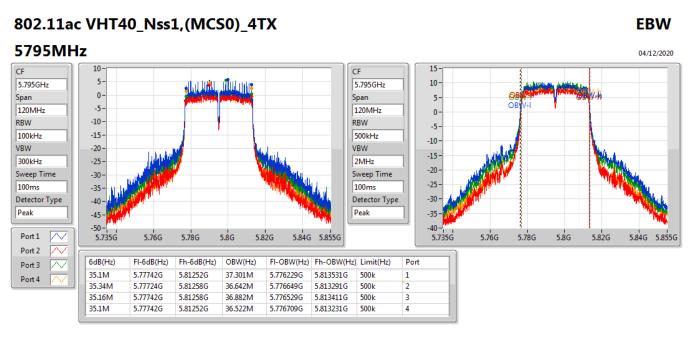


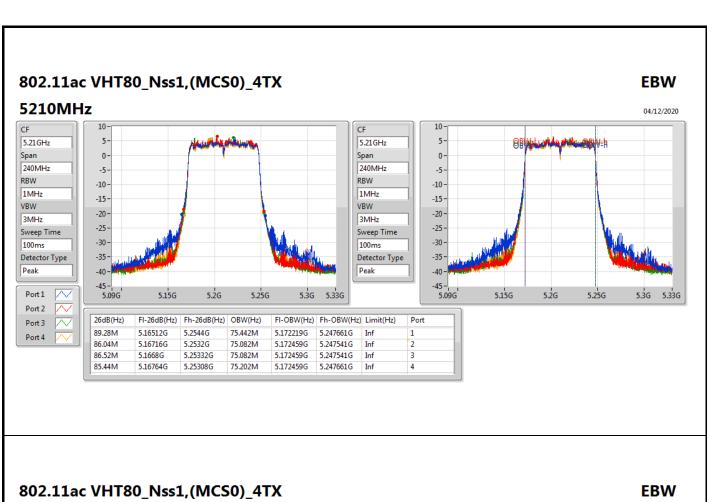


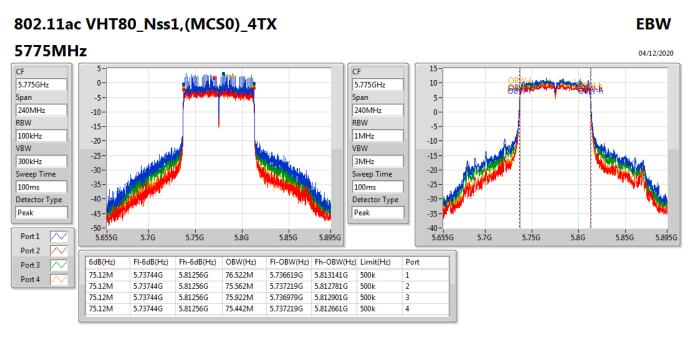














Average Power Appendix C

Summary

Mode	Total Power	Total Power		
	(dBm)	(W)		
5.15-5.25GHz	-	-		
802.11a_Nss1,(6Mbps)_4TX	25.75	0.37584		
802.11ac VHT20_Nss1,(MCS0)_4TX	25.68	0.36983		
802.11ac VHT40_Nss1,(MCS0)_4TX	25.50	0.35481		
802.11ac VHT80_Nss1,(MCS0)_4TX	19.75	0.09441		
5.725-5.85GHz	-	-		
802.11a_Nss1,(6Mbps)_4TX	25.35	0.34277		
802.11ac VHT20_Nss1,(MCS0)_4TX	24.90	0.30903		
802.11ac VHT40_Nss1,(MCS0)_4TX	24.85	0.30549		
802.11ac VHT80_Nss1,(MCS0)_4TX	25.10	0.32359		



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)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	3.90	18.96	20.25	20.43	19.09	25.75	30.00
5200MHz	Pass	3.90	18.86	20.22	20.43	19.07	25.72	30.00
5240MHz	Pass	3.90	18.90	20.11	20.46	19.23	25.74	30.00
5745MHz	Pass	3.90	20.14	18.46	19.54	19.00	25.35	30.00
5785MHz	Pass	3.90	19.91	18.18	19.53	18.65	25.14	30.00
5825MHz	Pass	3.90	19.50	17.66	19.16	17.88	24.64	30.00
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	3.90	18.44	18.44	18.25	17.91	24.29	30.00
5200MHz	Pass	3.90	18.80	20.17	20.35	19.08	25.67	30.00
5240MHz	Pass	3.90	18.77	20.01	20.43	19.24	25.68	30.00
5745MHz	Pass	3.90	19.62	18.02	19.11	18.62	24.90	30.00
5785MHz	Pass	3.90	19.50	17.76	19.28	18.39	24.81	30.00
5825MHz	Pass	3.90	19.14	17.38	18.93	17.76	24.39	30.00
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	3.90	14.85	14.68	14.68	14.32	20.66	30.00
5230MHz	Pass	3.90	18.61	19.90	20.23	18.96	25.50	30.00
5755MHz	Pass	3.90	19.64	17.88	19.16	18.45	24.85	30.00
5795MHz	Pass	3.90	19.47	17.71	19.20	18.14	24.71	30.00
802.11ac VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	3.90	13.66	14.05	14.00	13.16	19.75	30.00
5775MHz	Pass	3.90	19.84	18.19	19.43	18.68	25.10	30.00

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



Summary

Mode	PD					
	(dBm/RBW)					
5.15-5.25GHz	·					
802.11a_Nss1,(6Mbps)_4TX	12.94					
802.11ac VHT20_Nss1,(MCS0)_4TX	12.70					
802.11ac VHT40_Nss1,(MCS0)_4TX	9.64					
802.11ac VHT80_Nss1,(MCS0)_4TX	0.92					
5.725-5.85GHz						
802.11a_Nss1,(6Mbps)_4TX	11.28					
802.11ac VHT20_Nss1,(MCS0)_4TX	11.59					
802.11ac VHT40_Nss1,(MCS0)_4TX	7.55					
802.11ac VHT80_Nss1,(MCS0)_4TX	4.77					

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



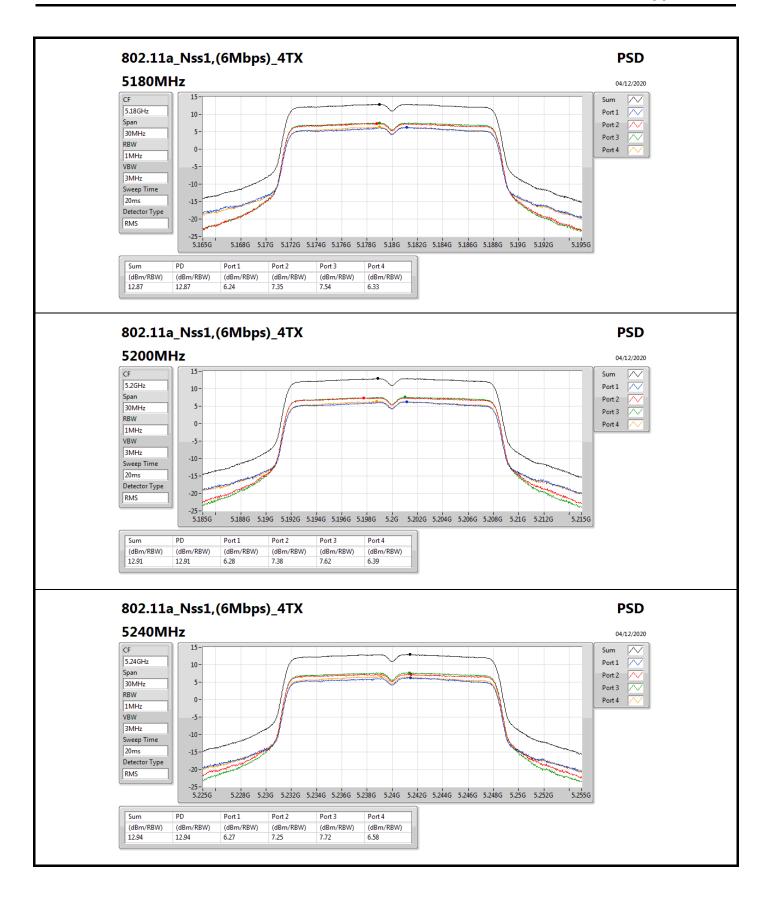
Appendix D **PSD**

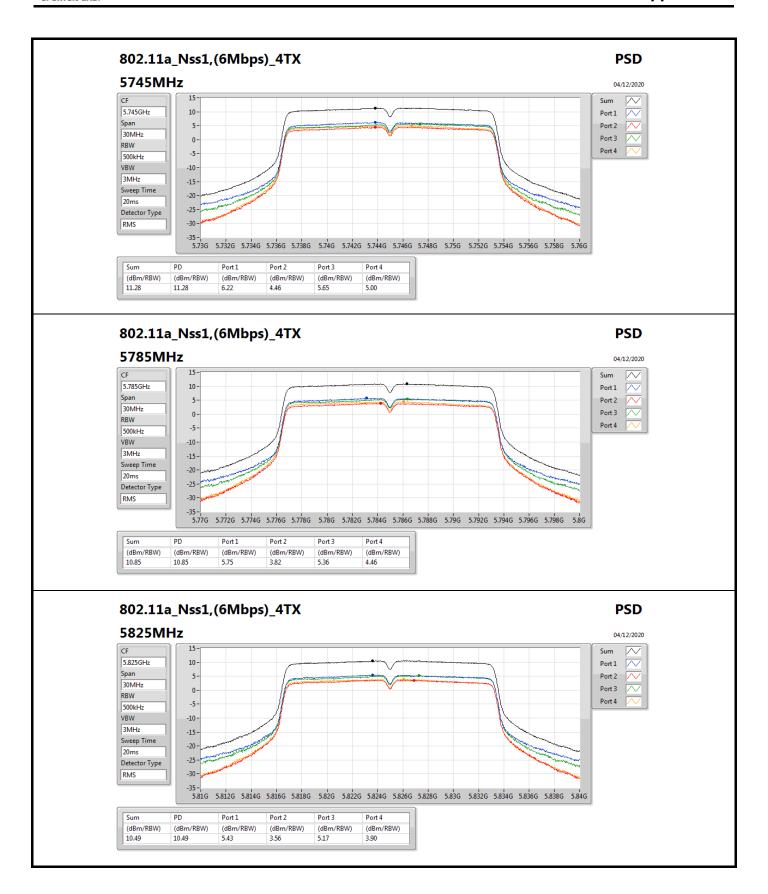
Result

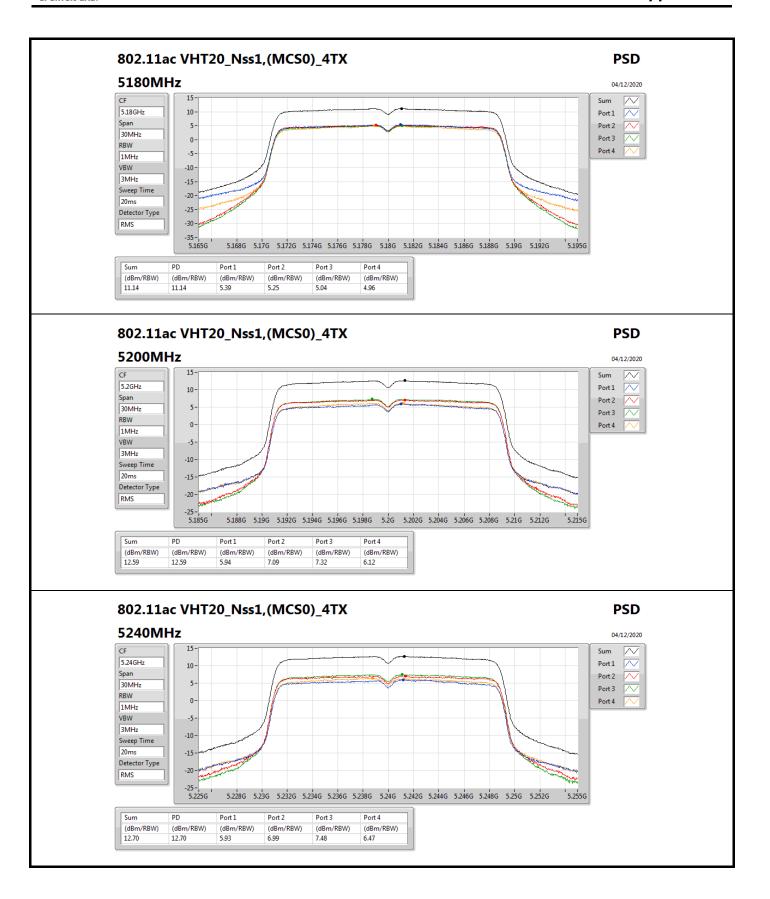
Mode	Result	DG	Port 1	Port 2	Port 3	Port 4	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	9.62	6.24	7.35	7.54	6.33	12.87	13.38
5200MHz	Pass	9.62	6.28	7.38	7.62	6.39	12.91	13.38
5240MHz	Pass	9.62	6.27	7.25	7.72	6.58	12.94	13.38
5745MHz	Pass	9.62	6.22	4.46	5.65	5.00	11.28	26.38
5785MHz	Pass	9.62	5.75	3.82	5.36	4.46	10.85	26.38
5825MHz	Pass	9.62	5.43	3.56	5.17	3.90	10.49	26.38
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	9.62	5.39	5.25	5.04	4.96	11.14	13.38
5200MHz	Pass	9.62	5.94	7.09	7.32	6.12	12.59	13.38
5240MHz	Pass	9.62	5.93	6.99	7.48	6.47	12.70	13.38
5745MHz	Pass	9.62	6.25	4.70	5.94	5.42	11.59	26.38
5785MHz	Pass	9.62	5.07	3.28	4.91	3.99	10.28	26.38
5825MHz	Pass	9.62	4.79	3.01	4.67	3.49	9.99	26.38
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	9.62	-1.14	-1.15	-1.23	-1.66	4.61	13.38
5230MHz	Pass	9.62	2.82	4.19	4.50	3.07	9.64	13.38
5755MHz	Pass	9.62	2.39	0.60	2.11	1.27	7.55	26.38
5795MHz	Pass	9.62	2.06	0.16	1.98	0.88	7.22	26.38
802.11ac VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	9.62	-5.15	-4.63	-4.63	-5.62	0.92	13.38
5775MHz	Pass	9.62	-0.34	-2.22	-0.58	-1.55	4.77	26.38

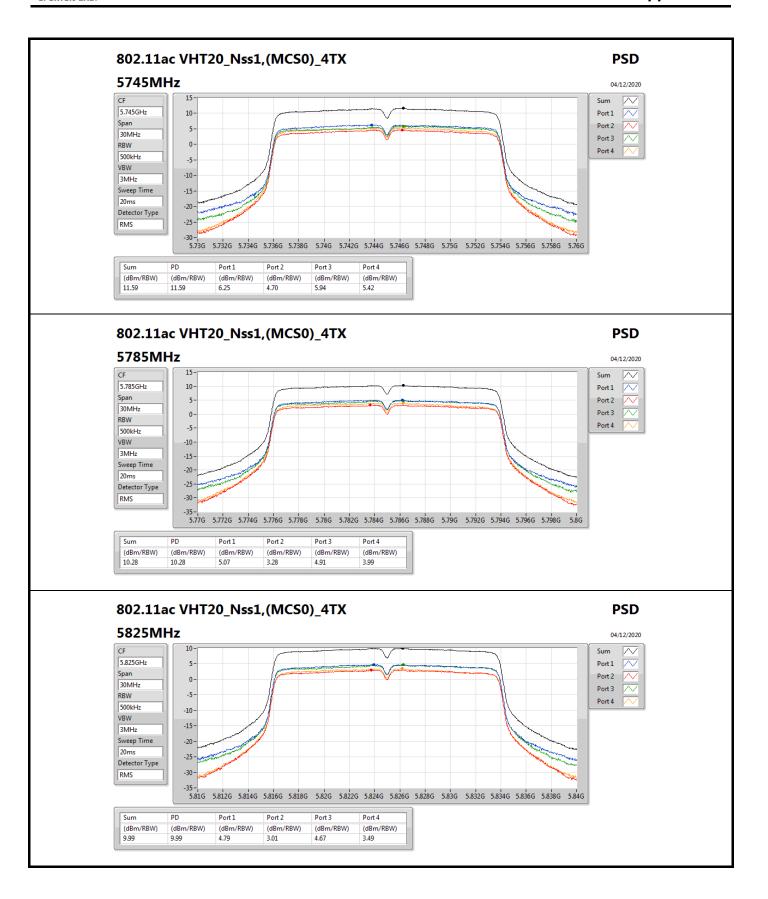
Page No. : 2 of 8

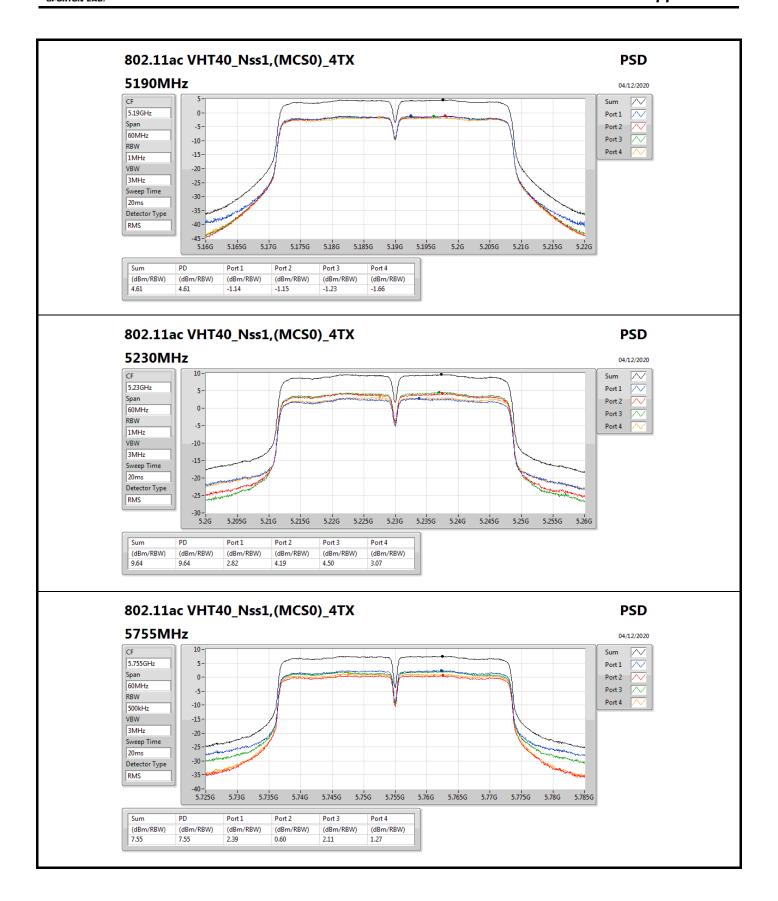
DG = Directional Gain; **RBW** = 500 kHz for 5.725-5.85GHz band / 1MHz for other band; **PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

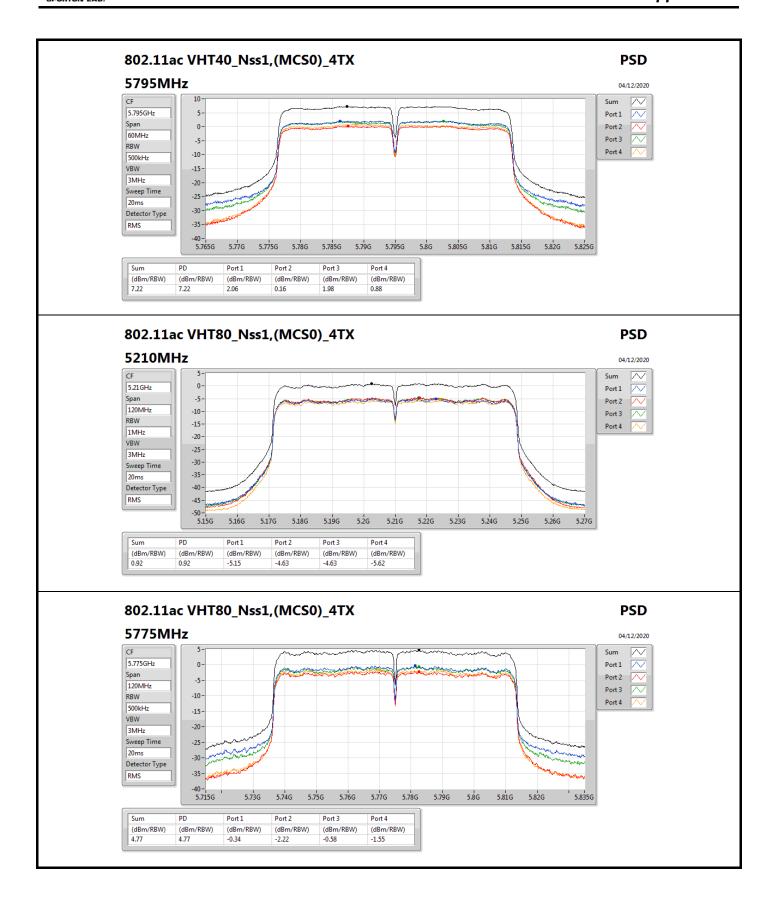














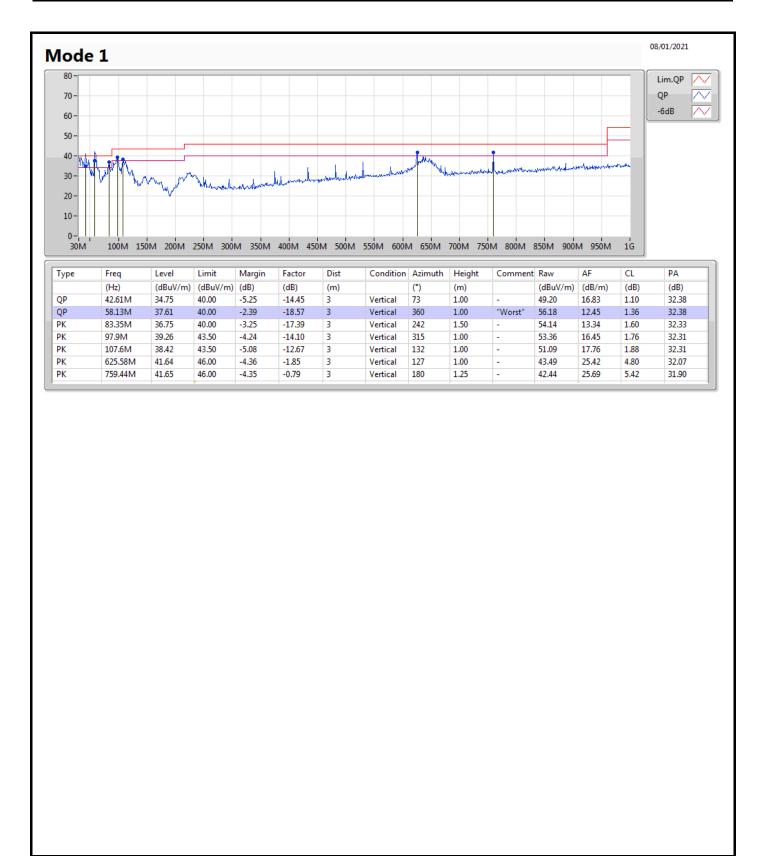
Radiated Emissions below 1GHz

Appendix E.1

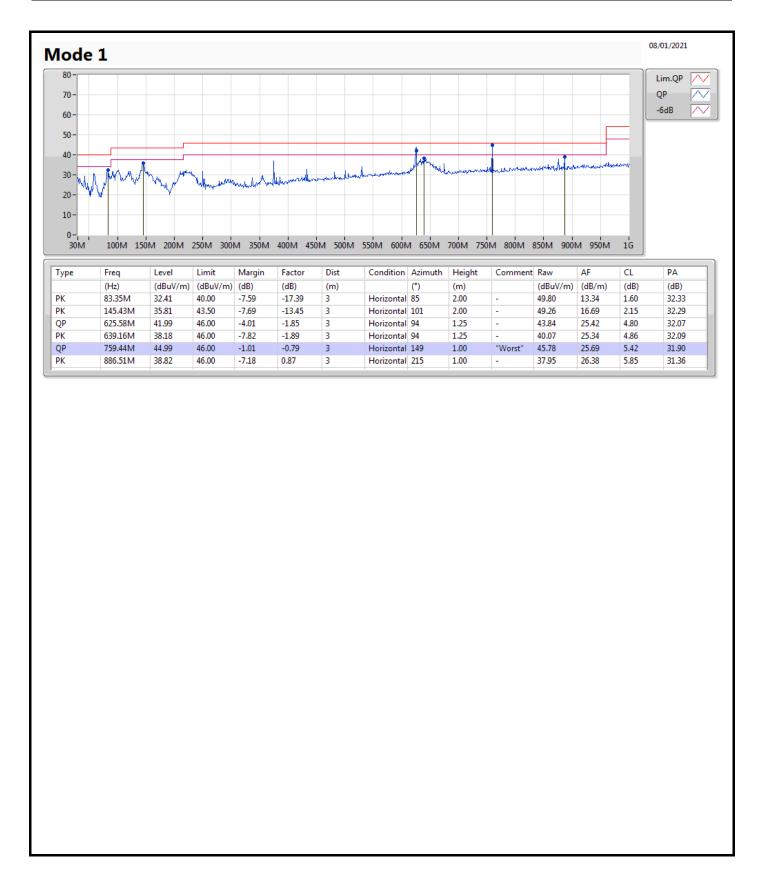
Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	QP	759.44M	44.99	46.00	-1.01	Horizontal











RSE TX above 1GHz

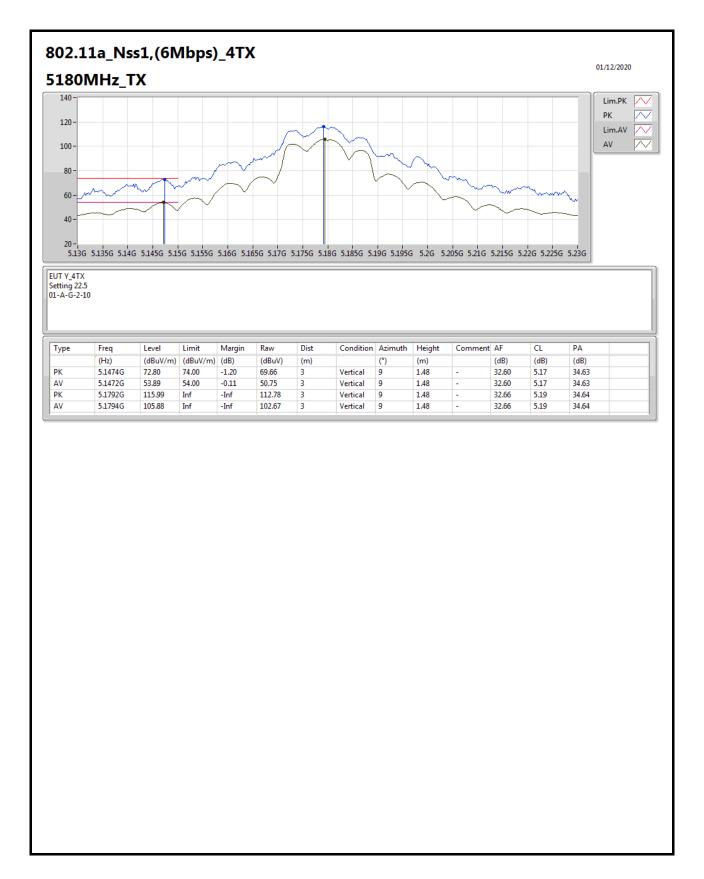
Appendix E.2

Page No. : 1 of 73

Summary

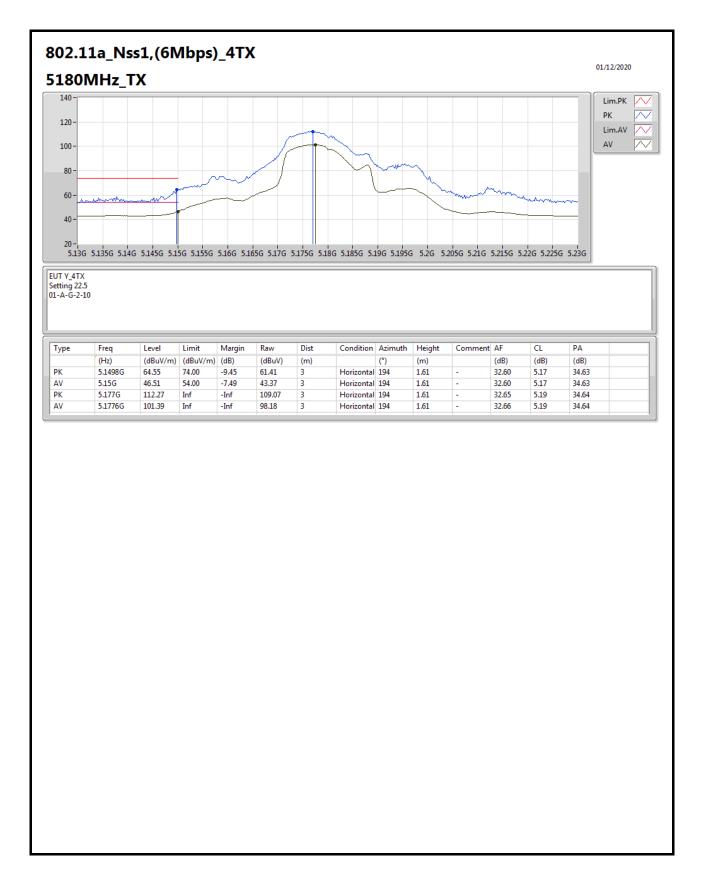
Mode	Result	Туре	Freq	Level	Limit	Margin	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(m)		(°)	(m)	
5.15-5.25GHz	-	-	-	-	-	-	-	-	-	-	-
802.11ac VHT20_Nss1,(MCS0)_4TX	Pass	AV	5.1472G	53.99	54.00	-0.01	3	Vertical	10	1.50	-



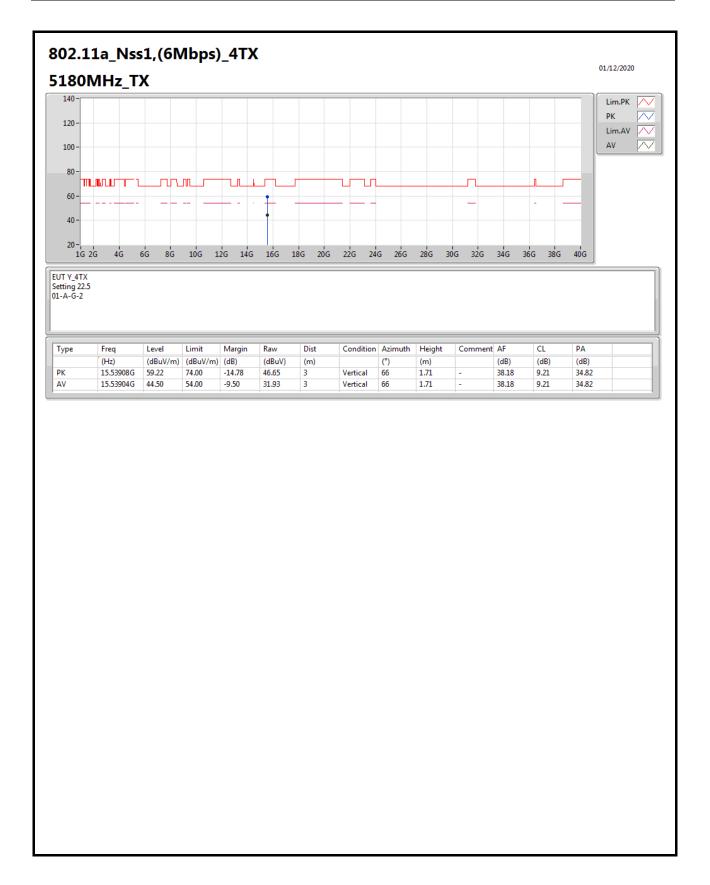


Page No. : 3 of 73



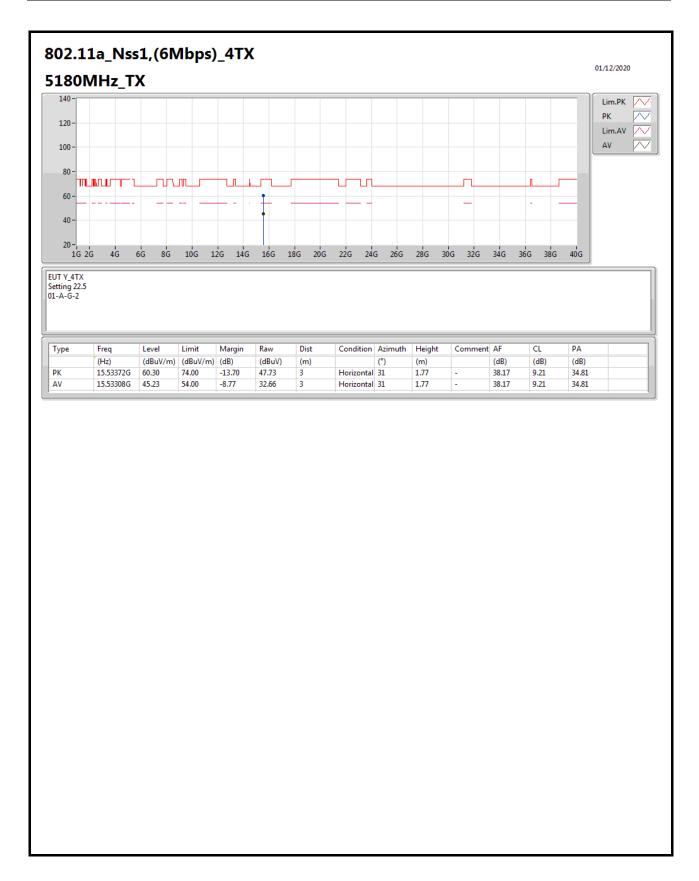




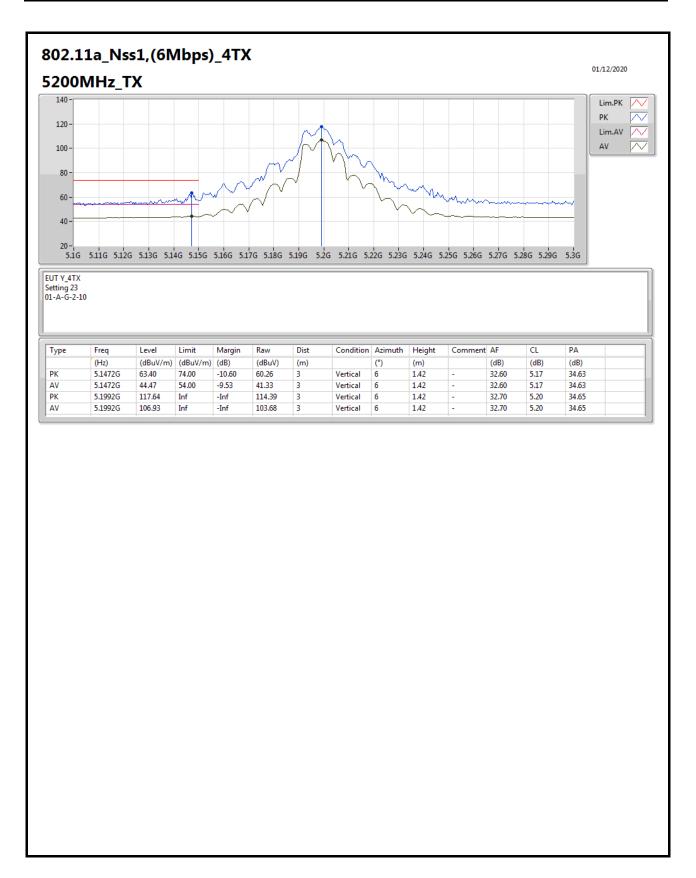


Page No. : 5 of 73

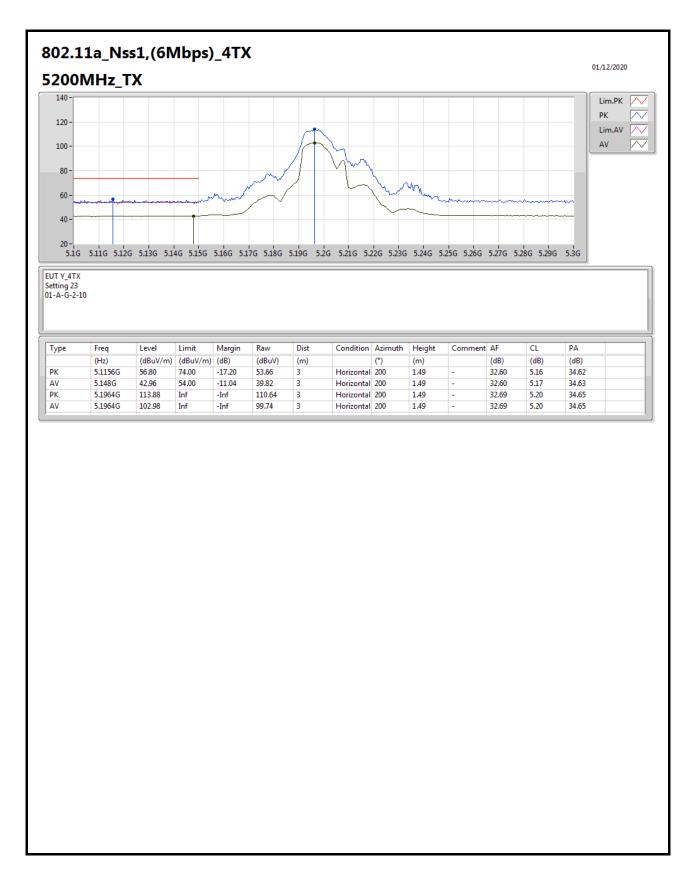






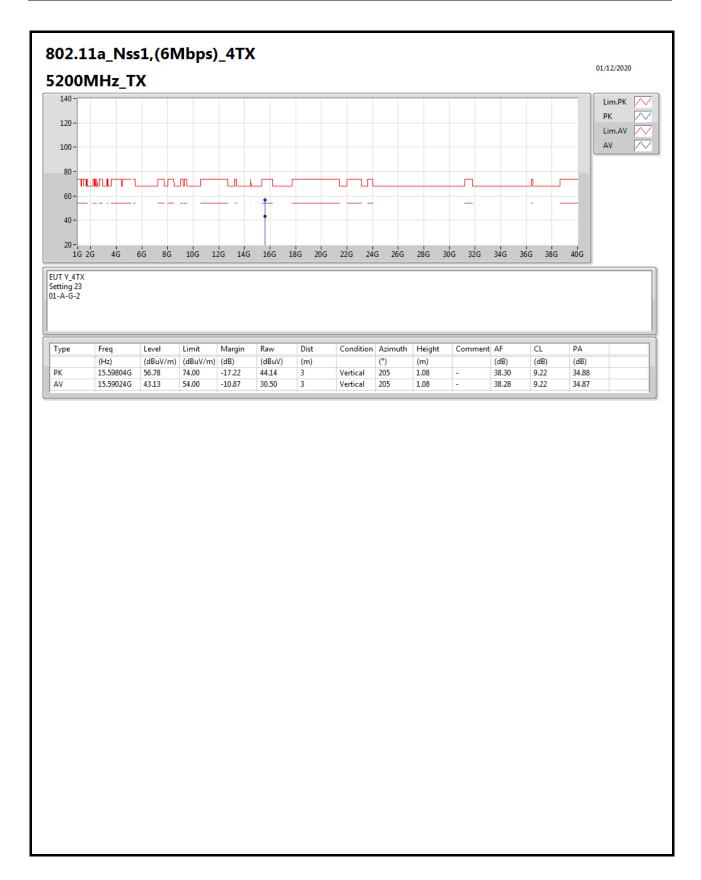






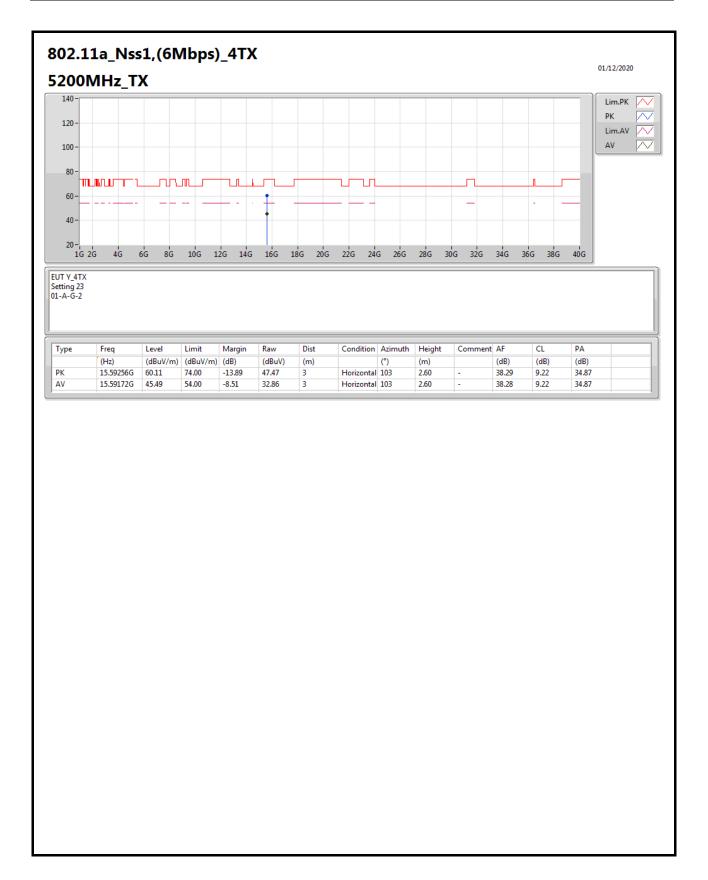
Page No. : 8 of 73



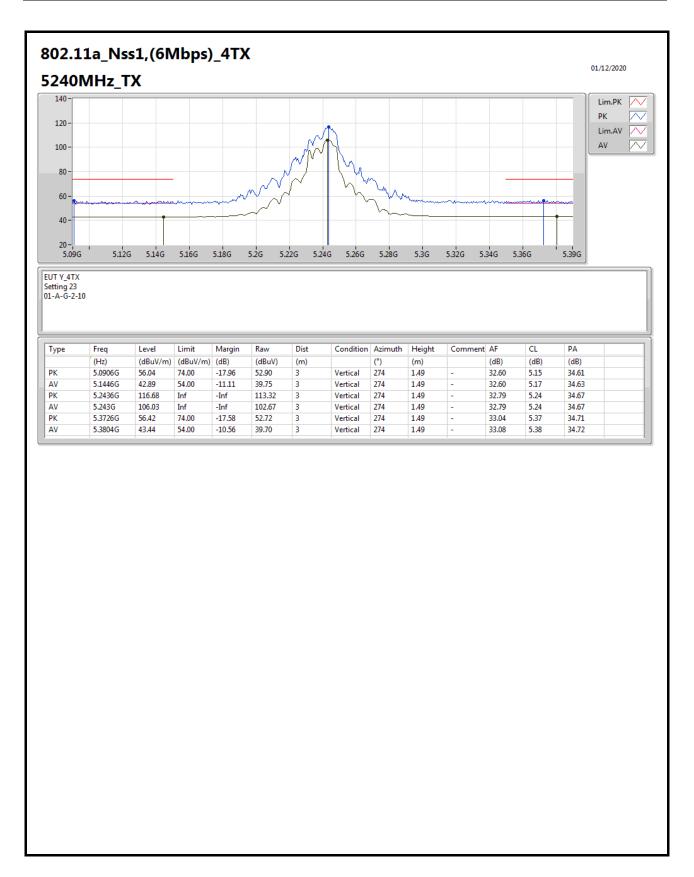


Page No. : 9 of 73

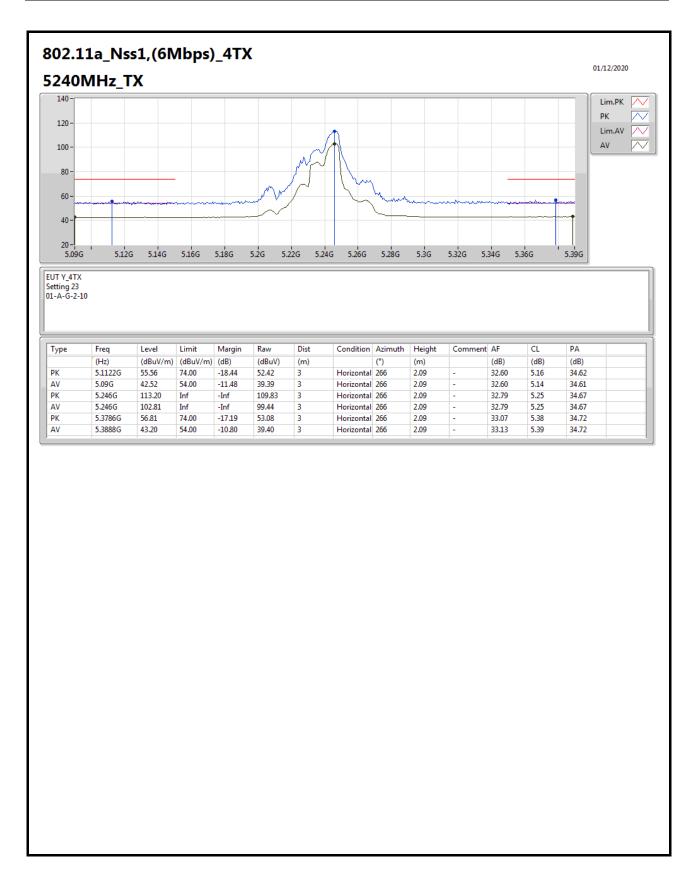




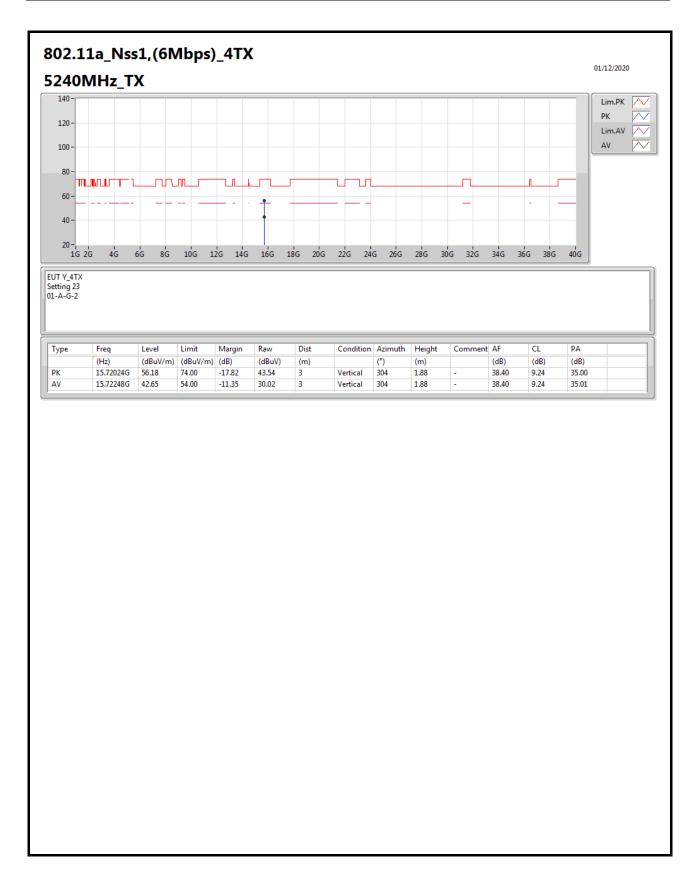






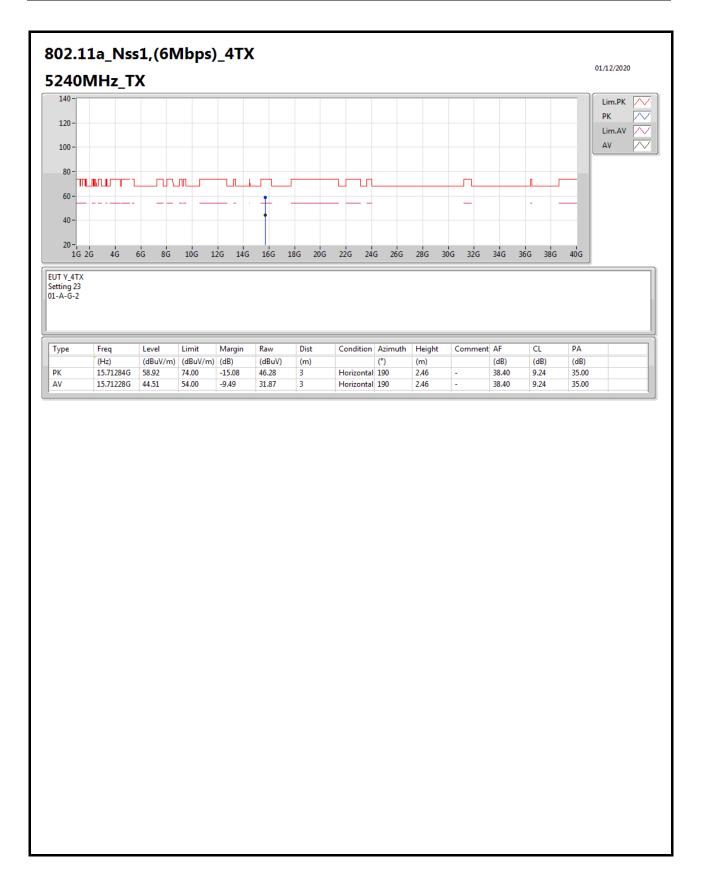




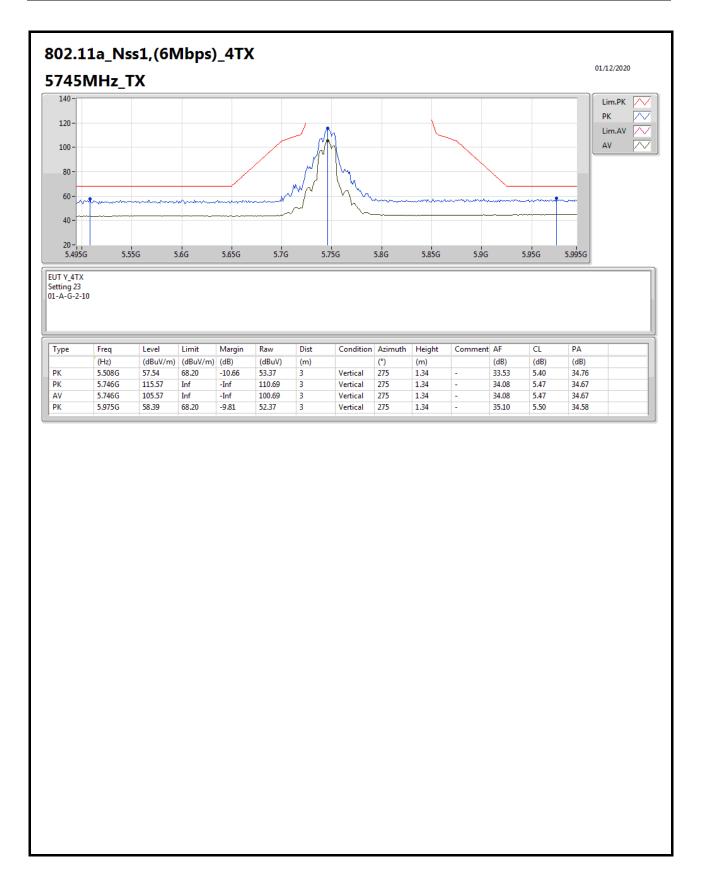


Page No. : 13 of 73

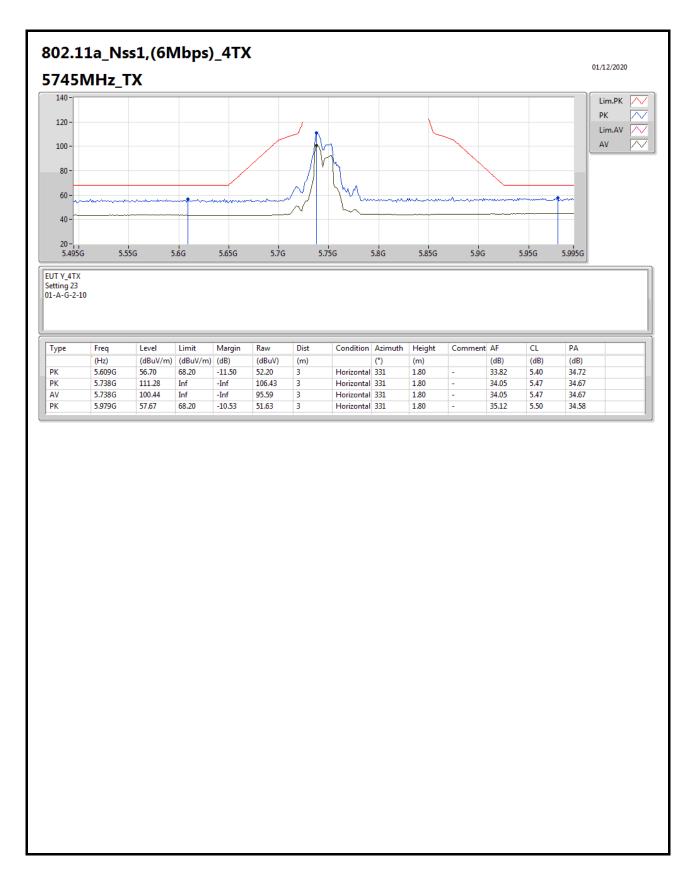




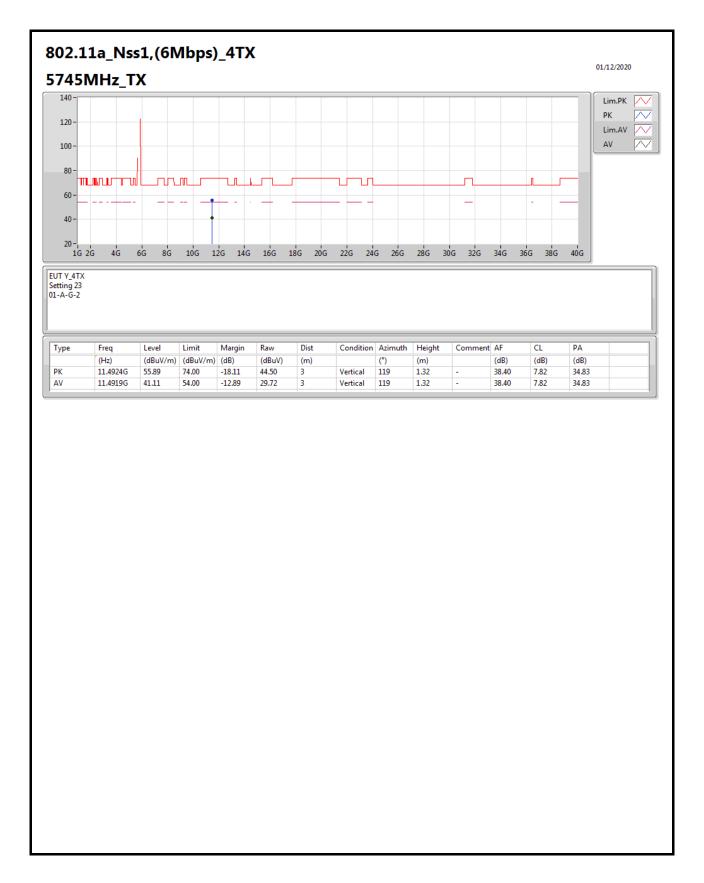






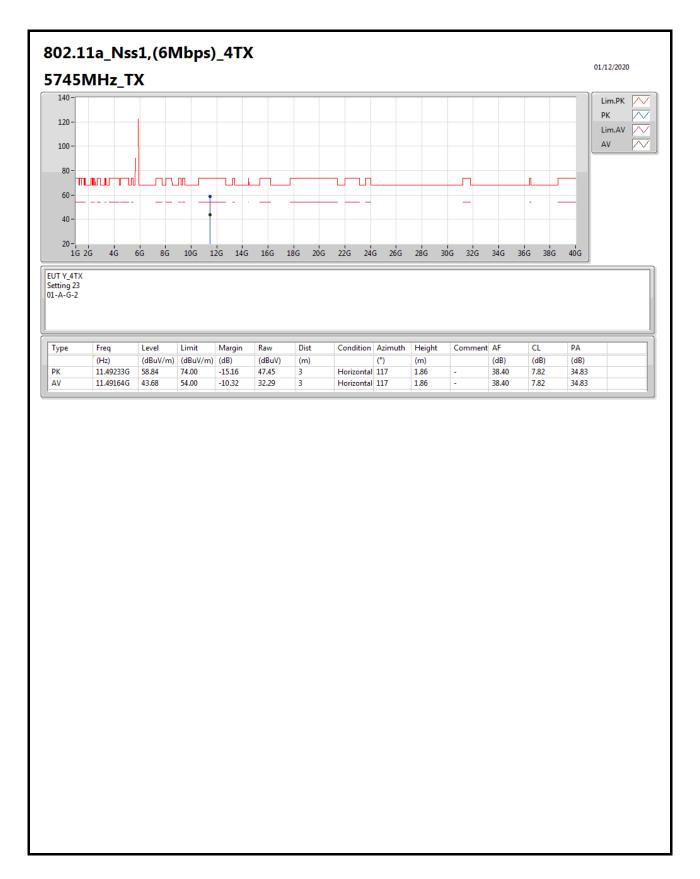




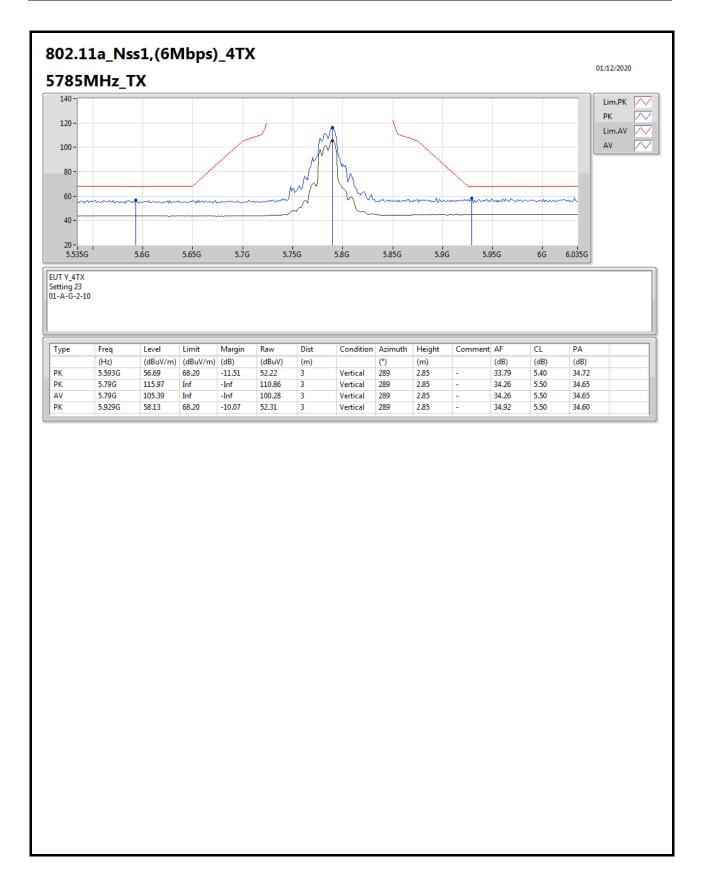


Page No. : 17 of 73

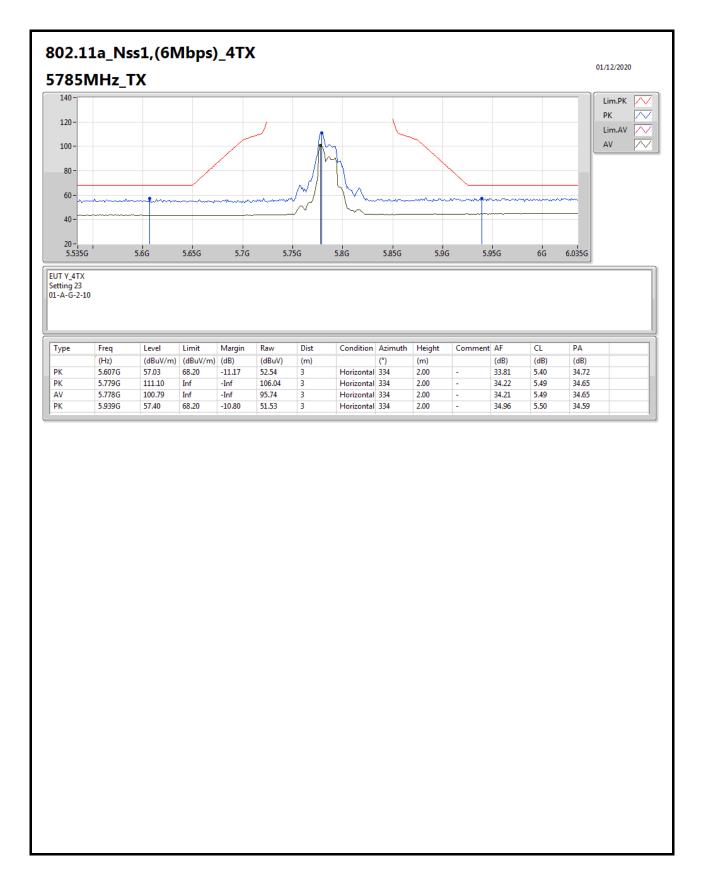




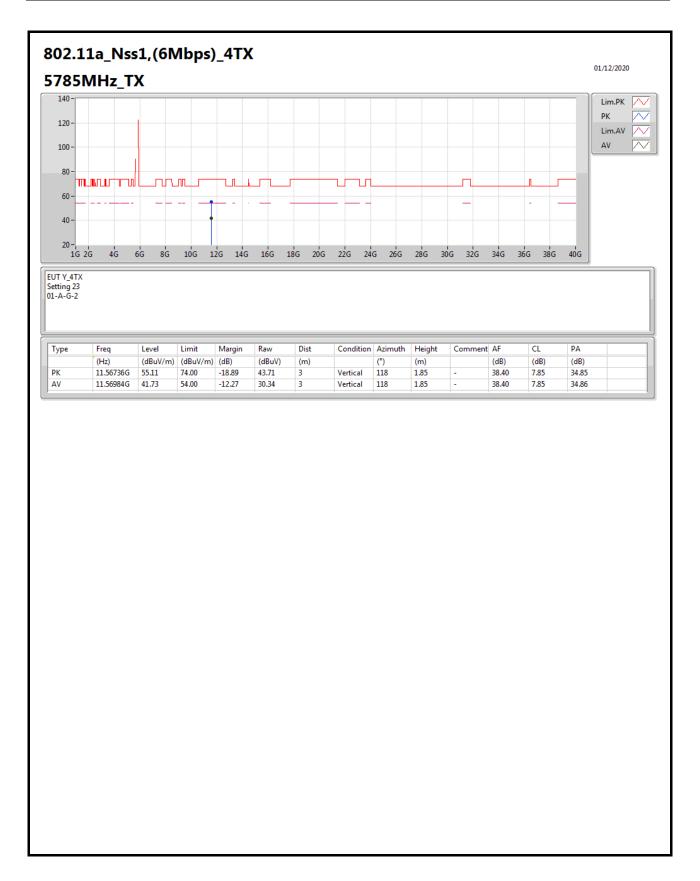




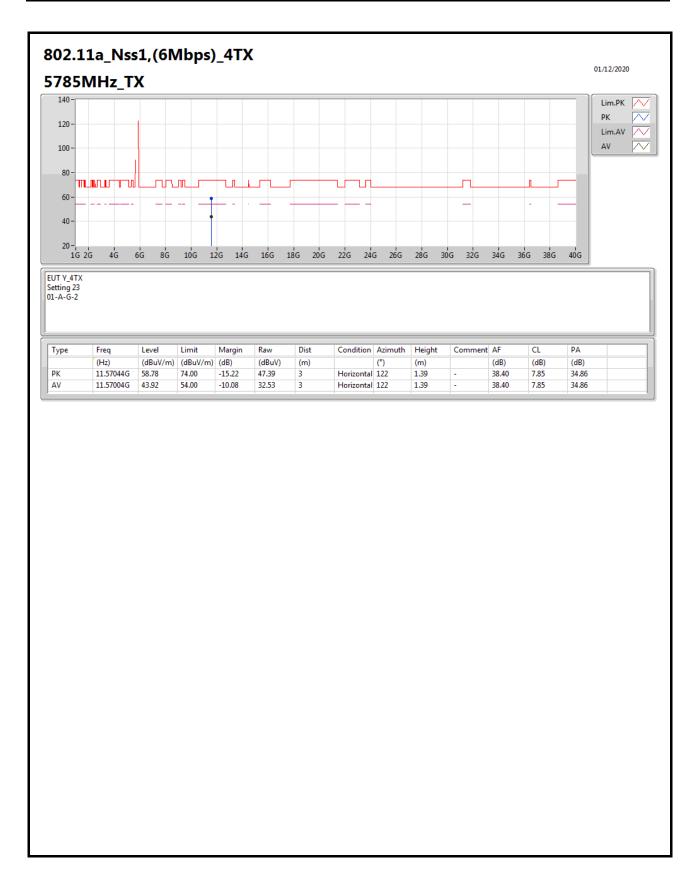




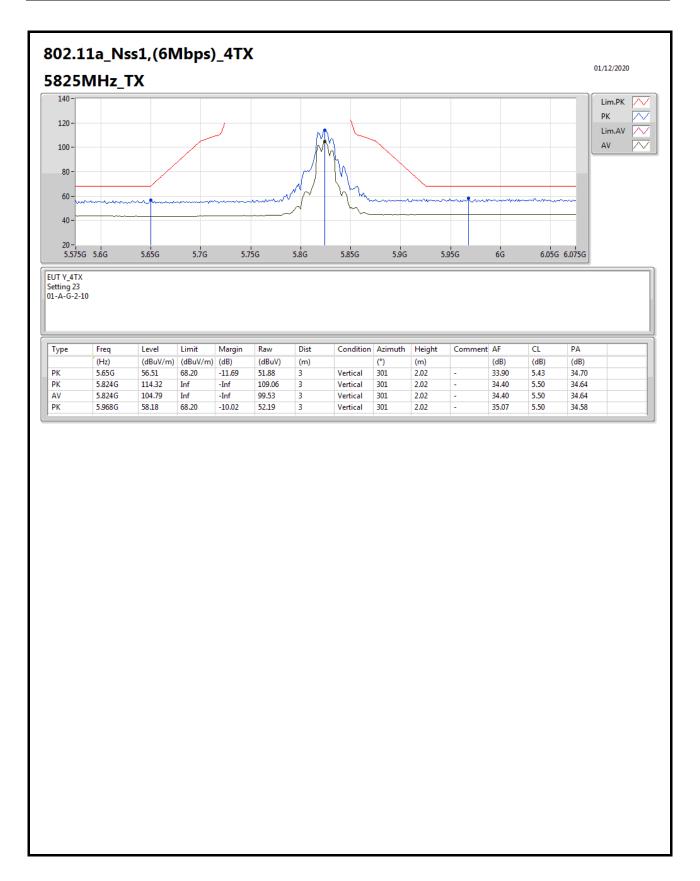




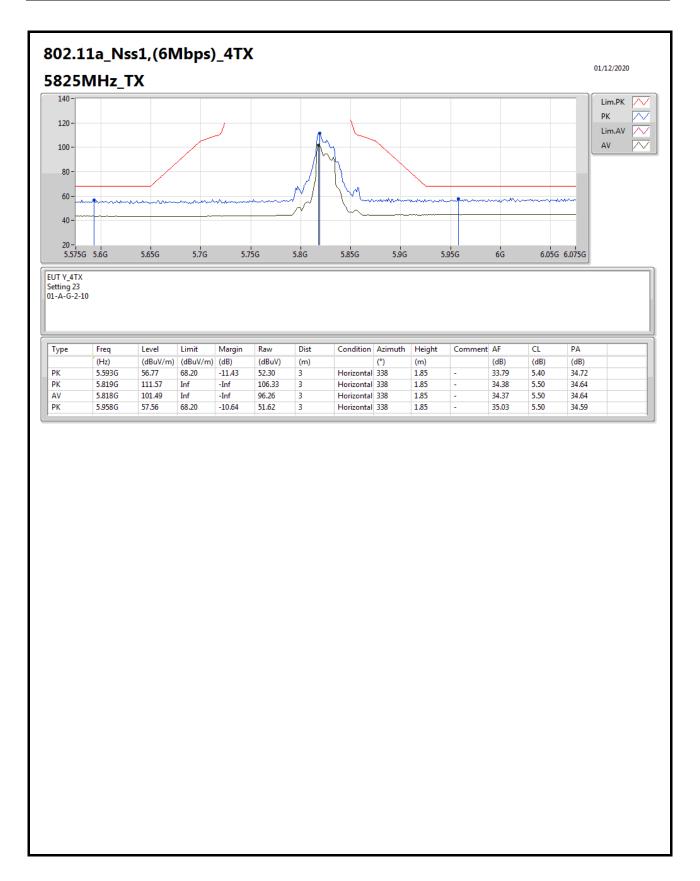




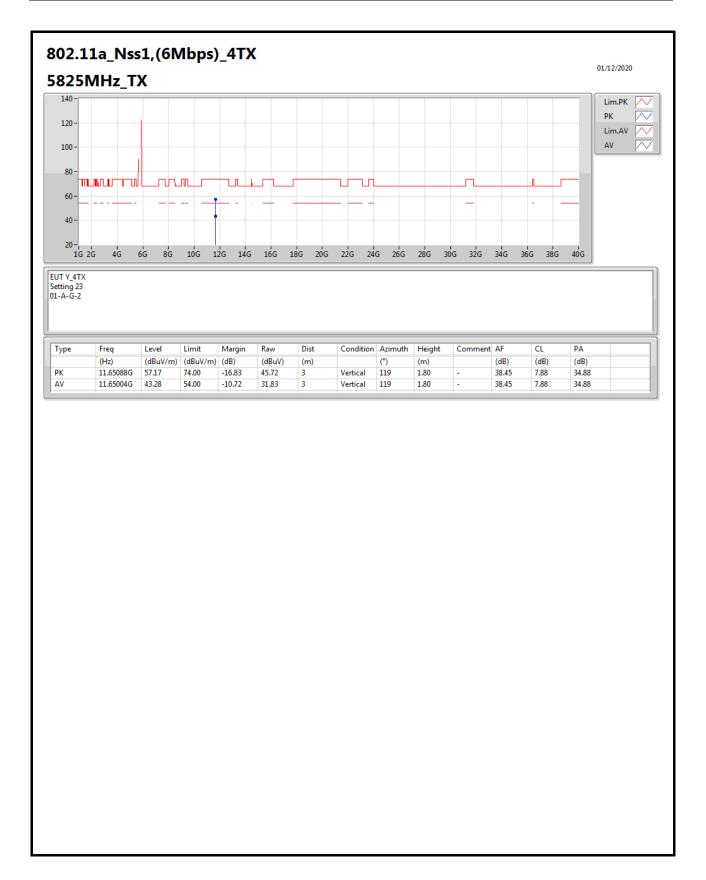




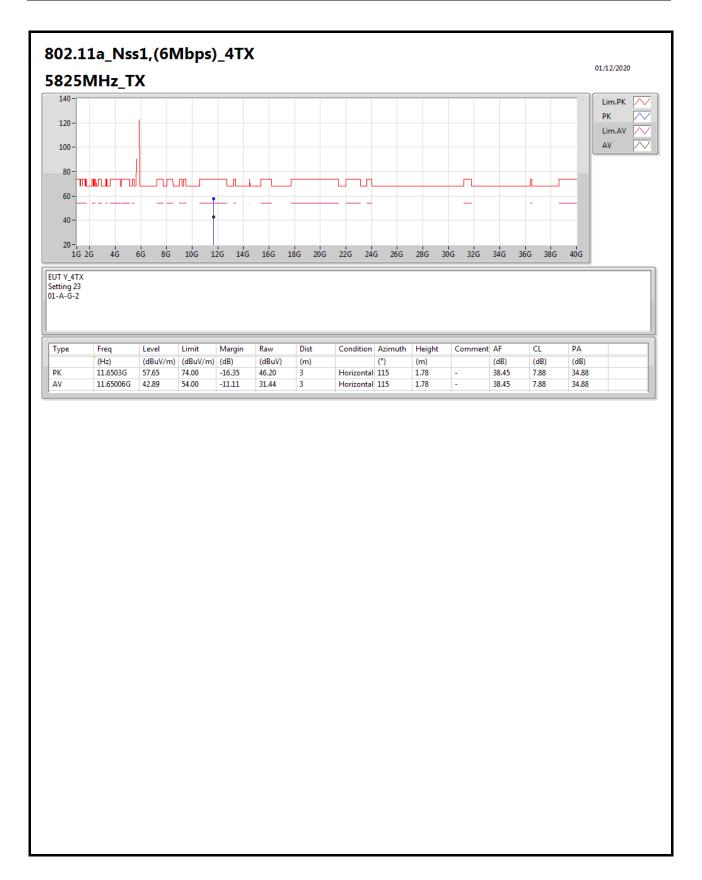




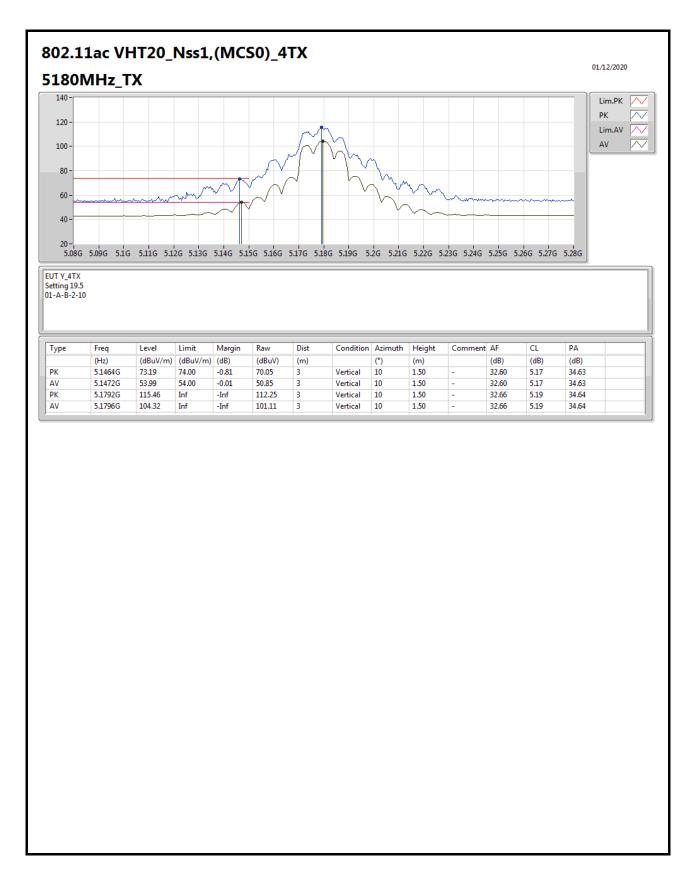






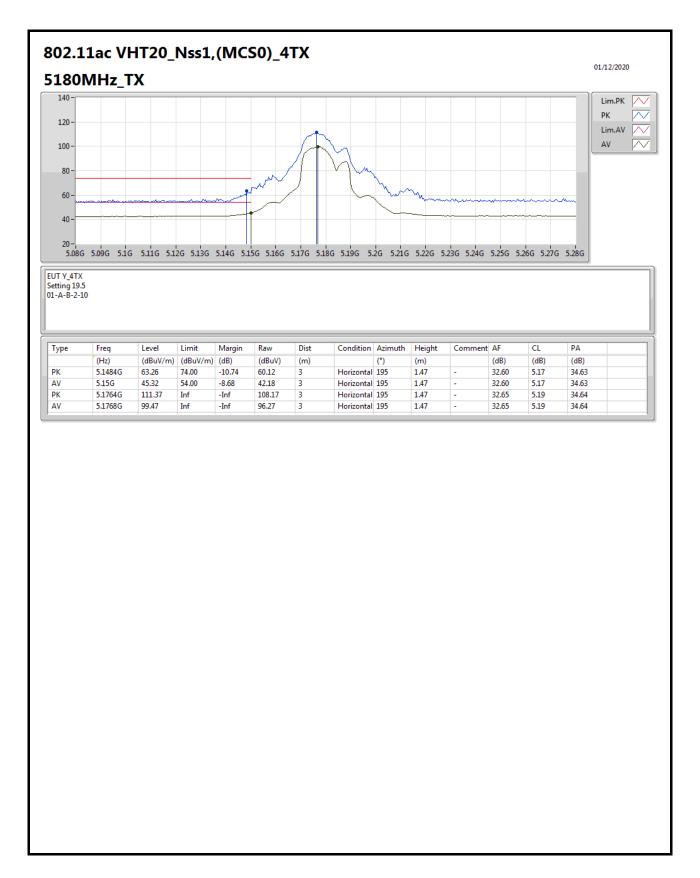




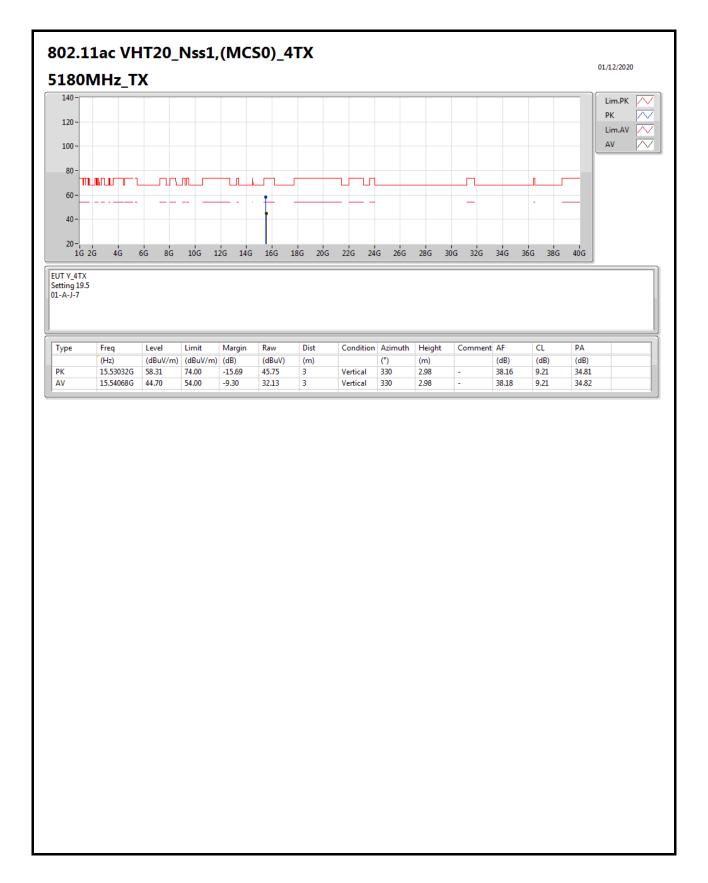


Page No. : 27 of 73



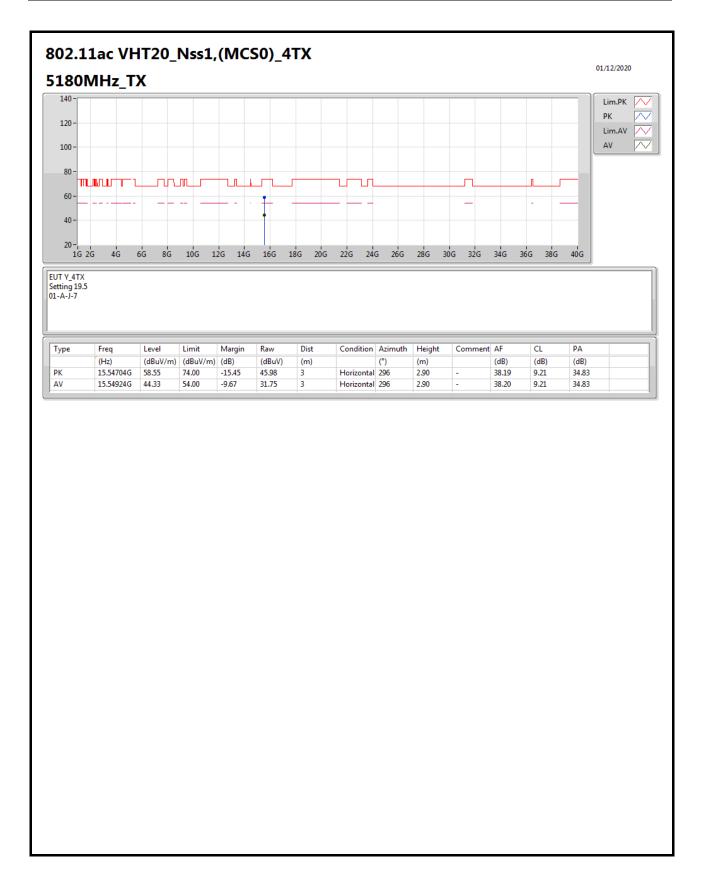




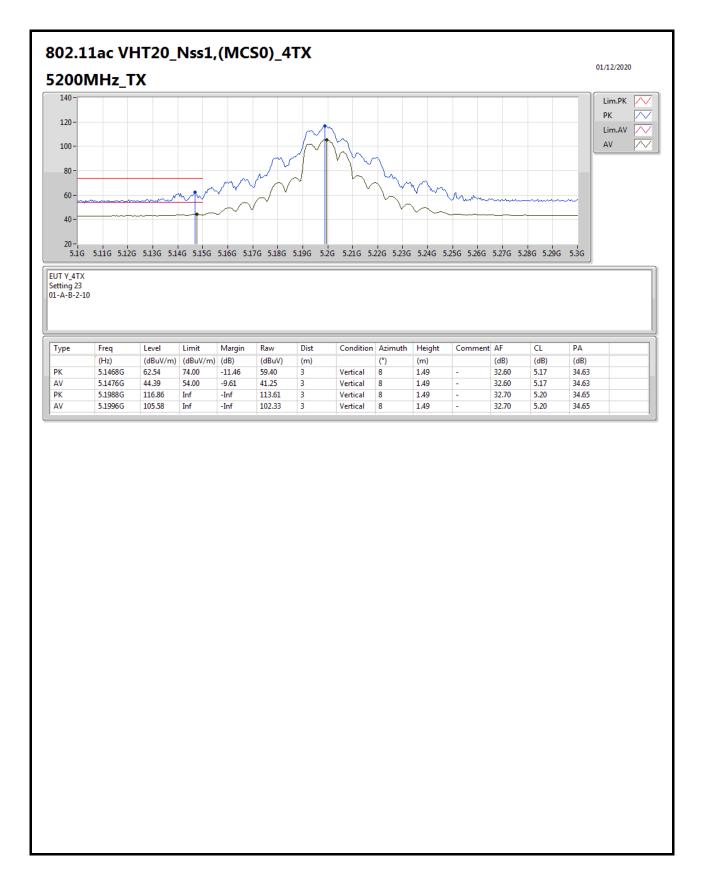


Page No. : 29 of 73

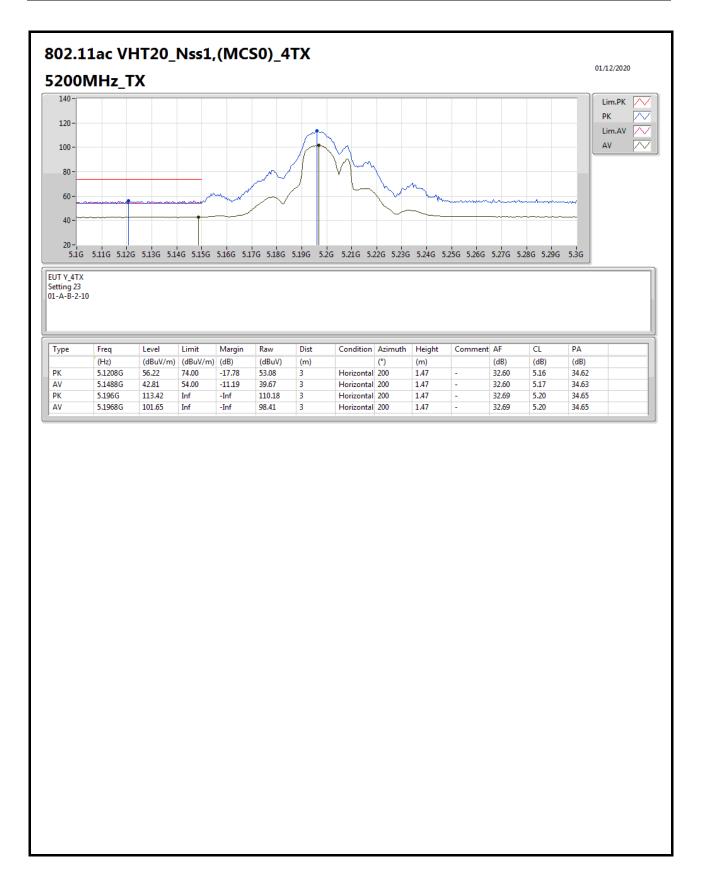




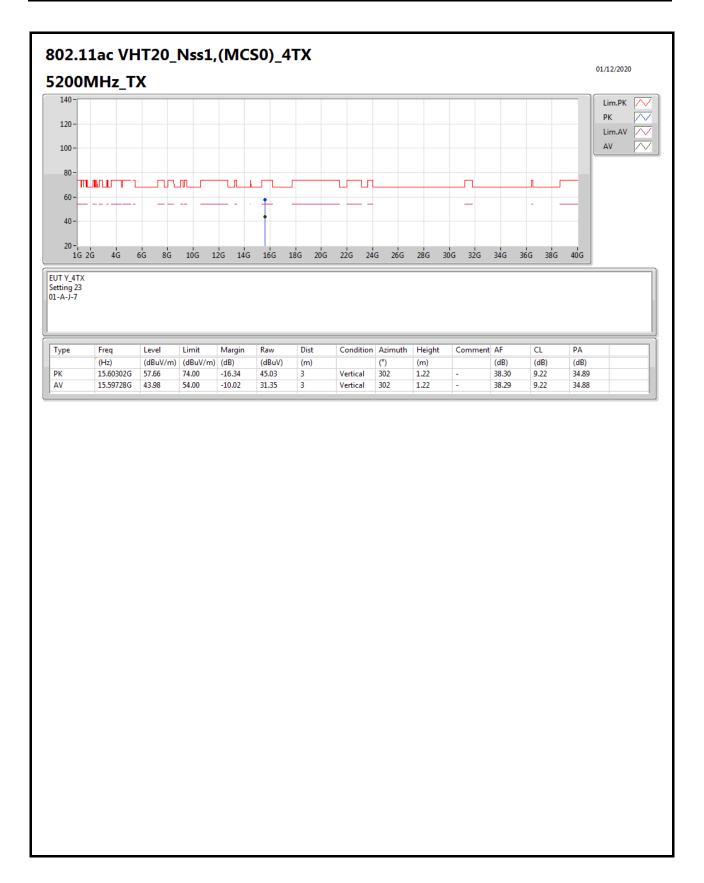




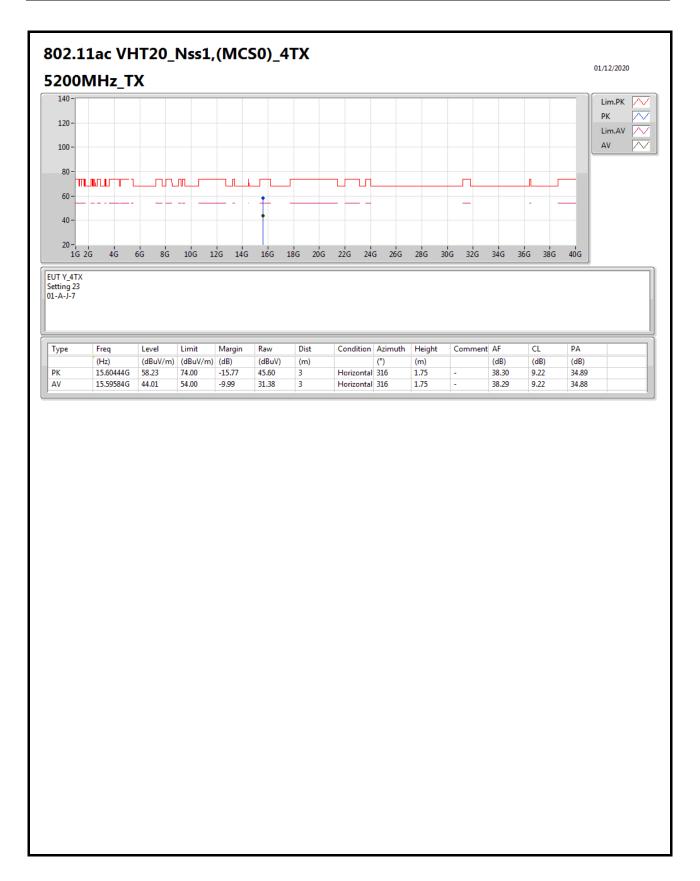




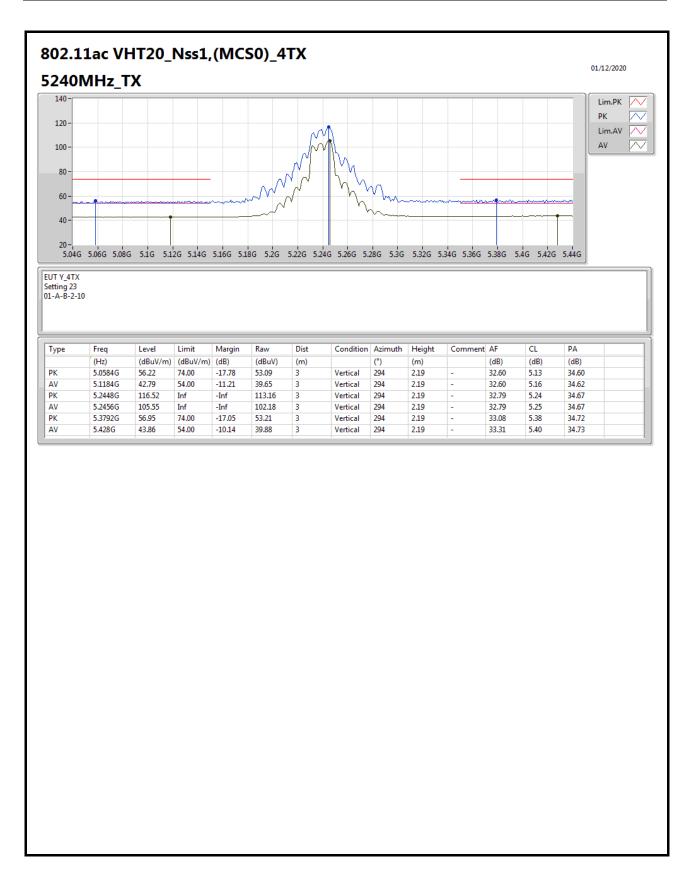




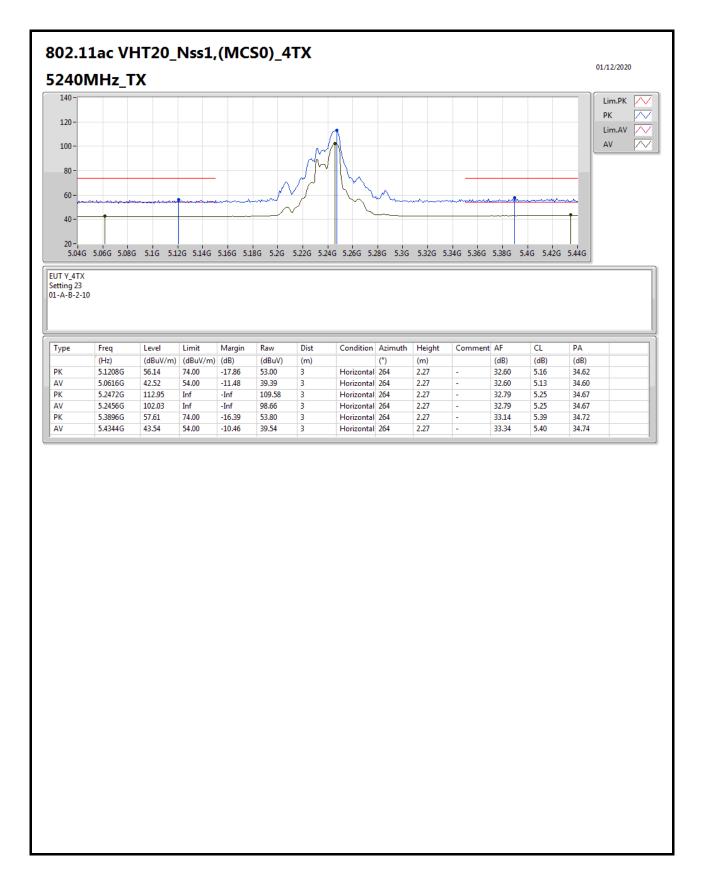




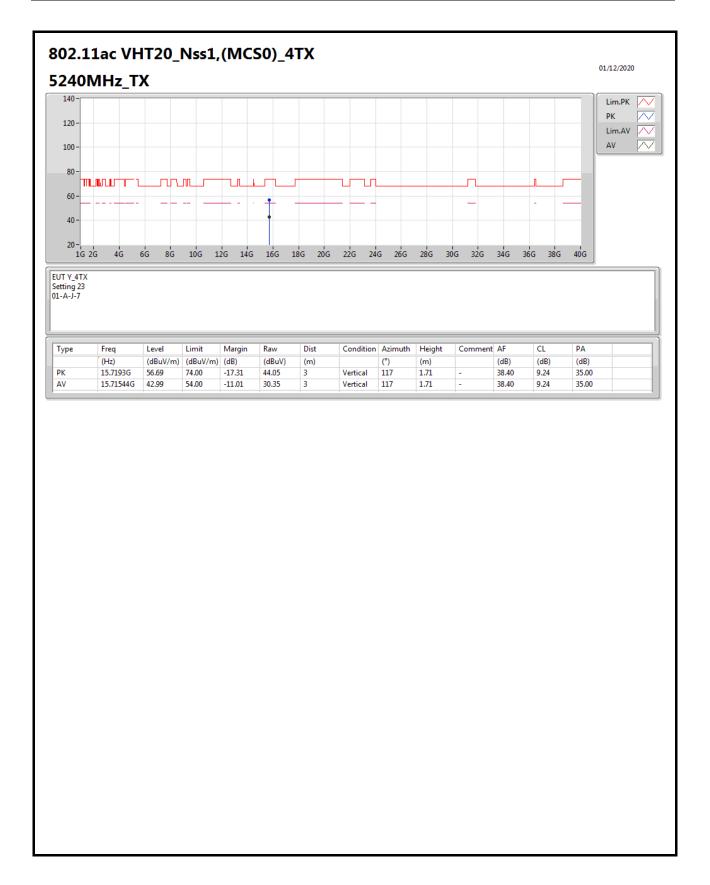




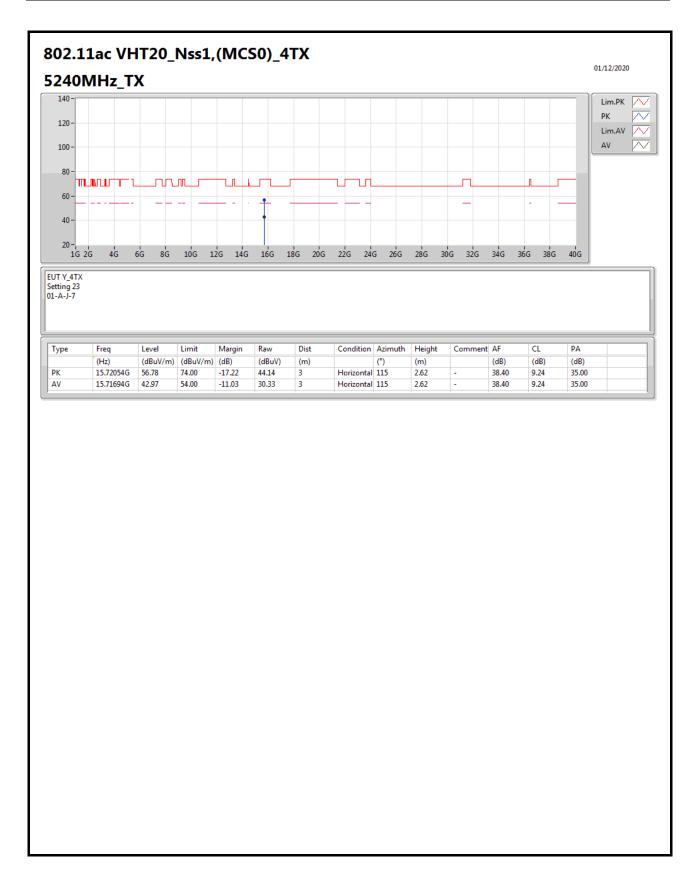




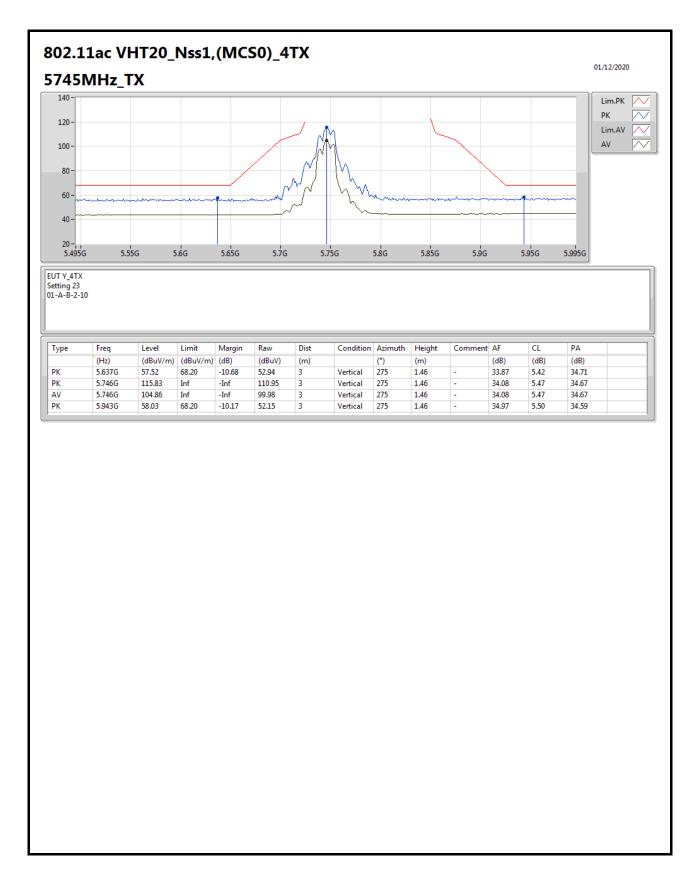




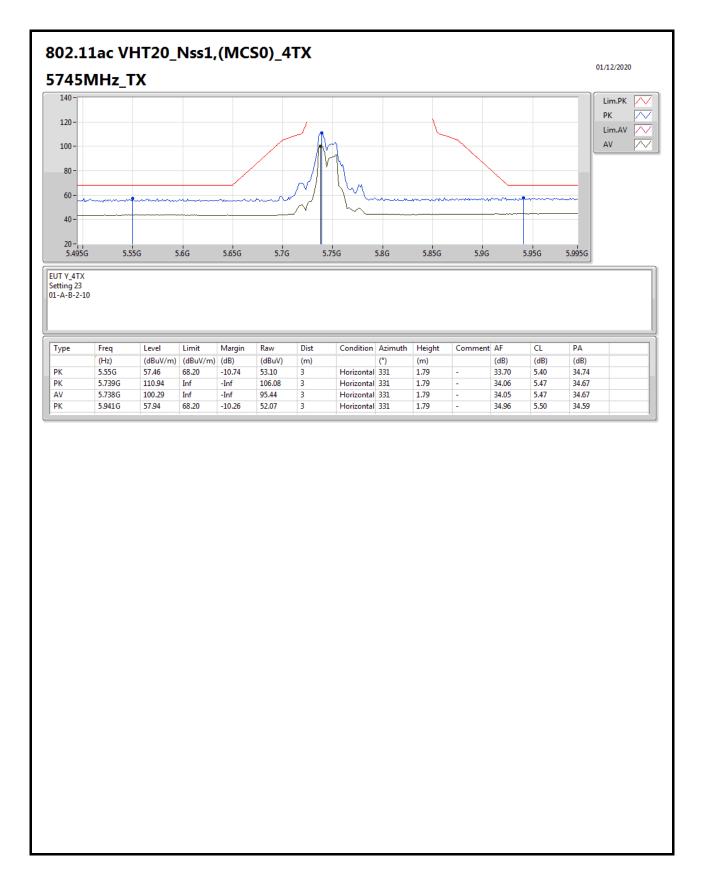




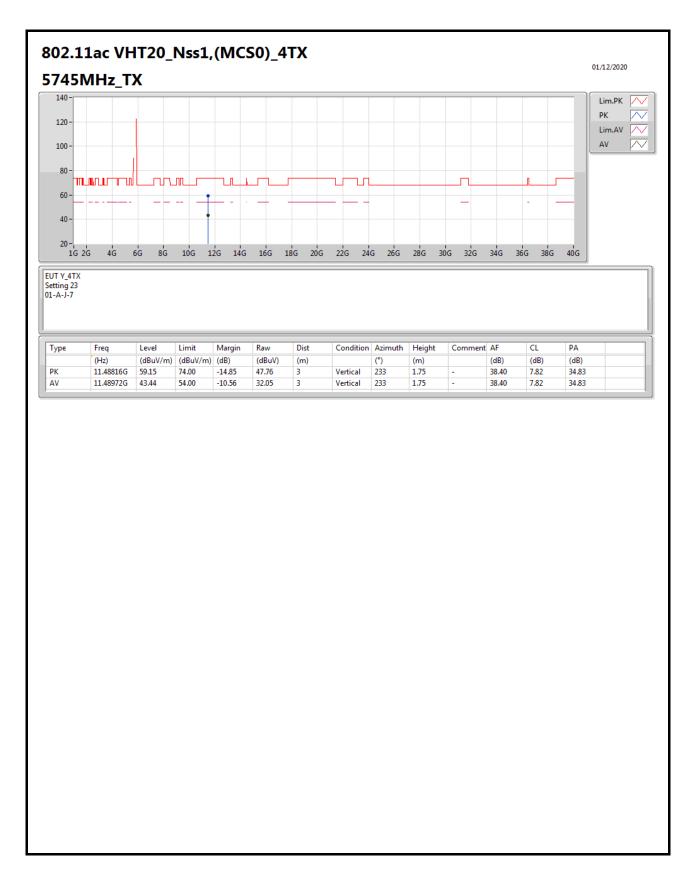




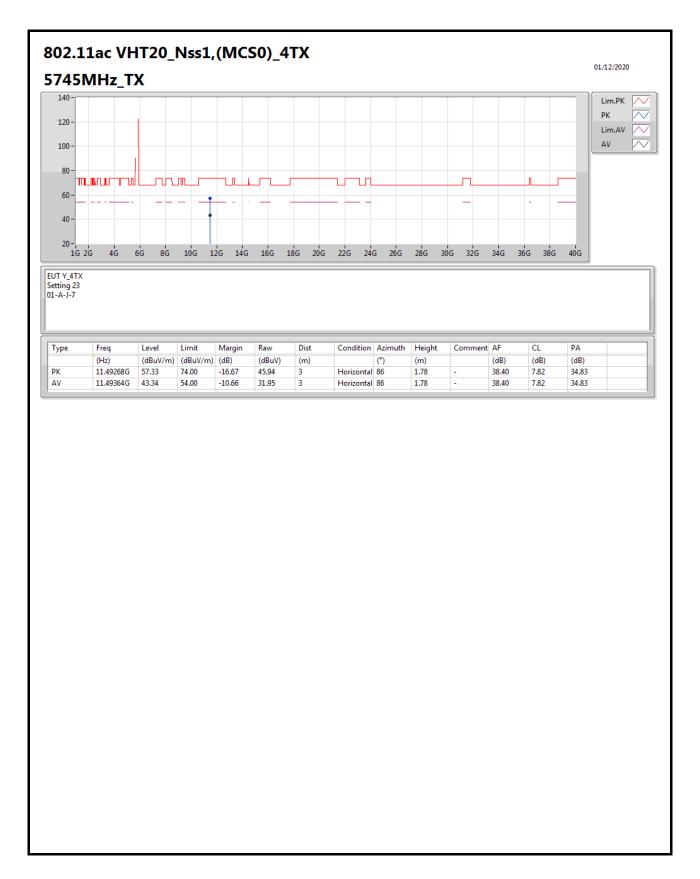




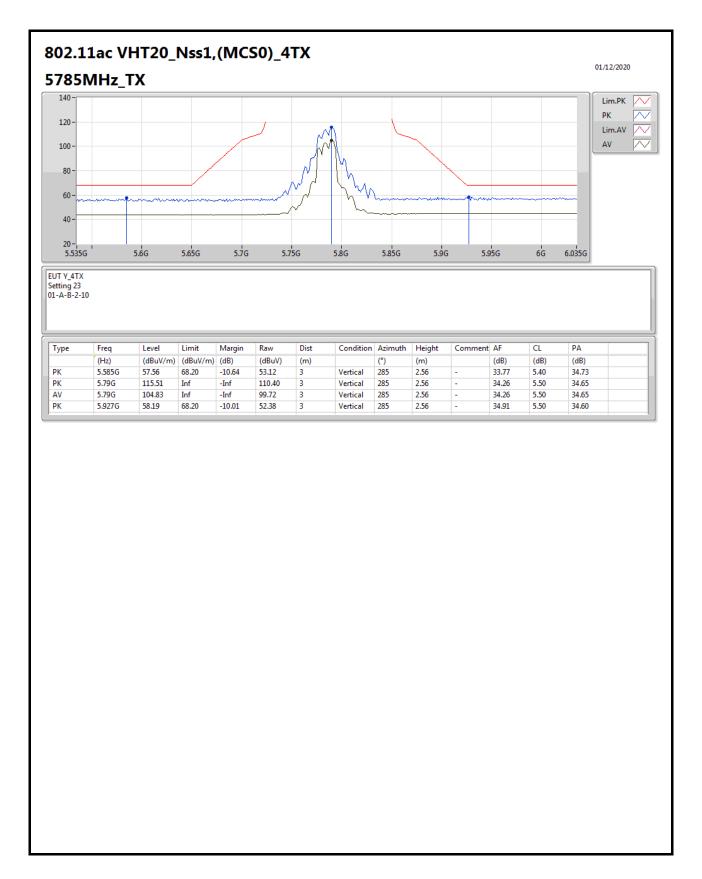




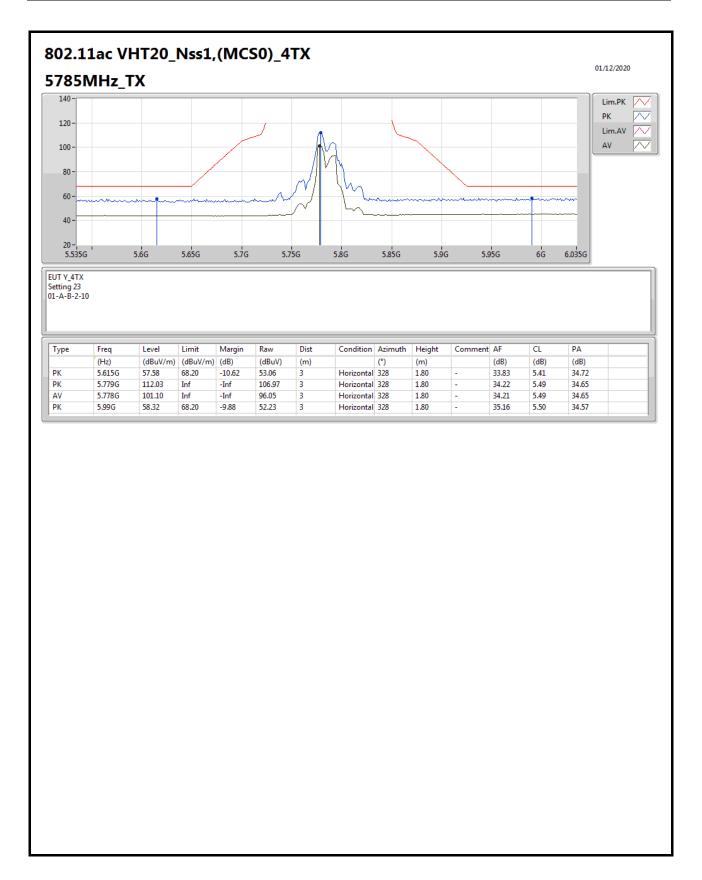




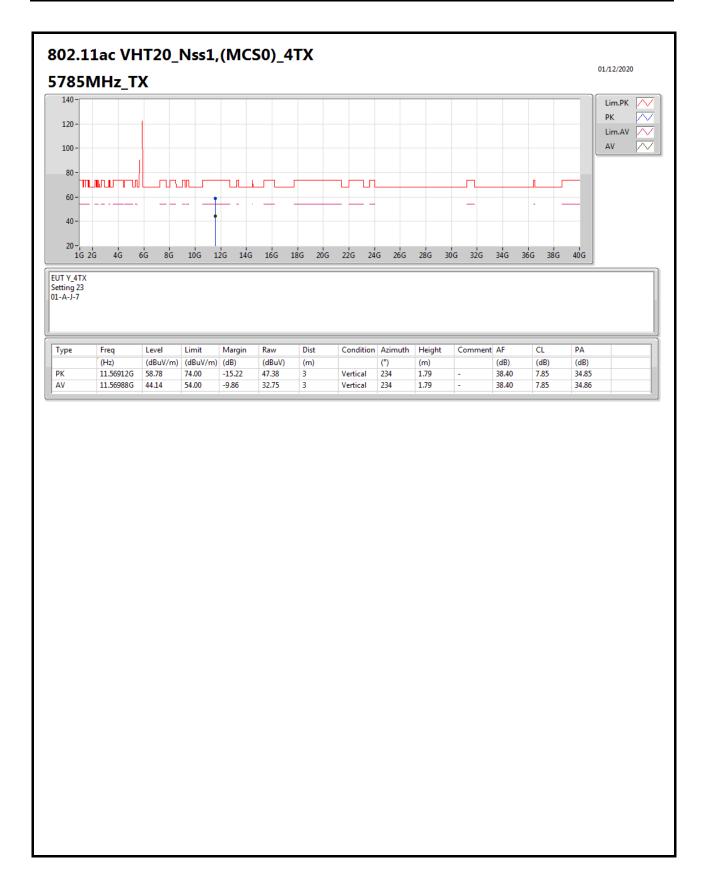






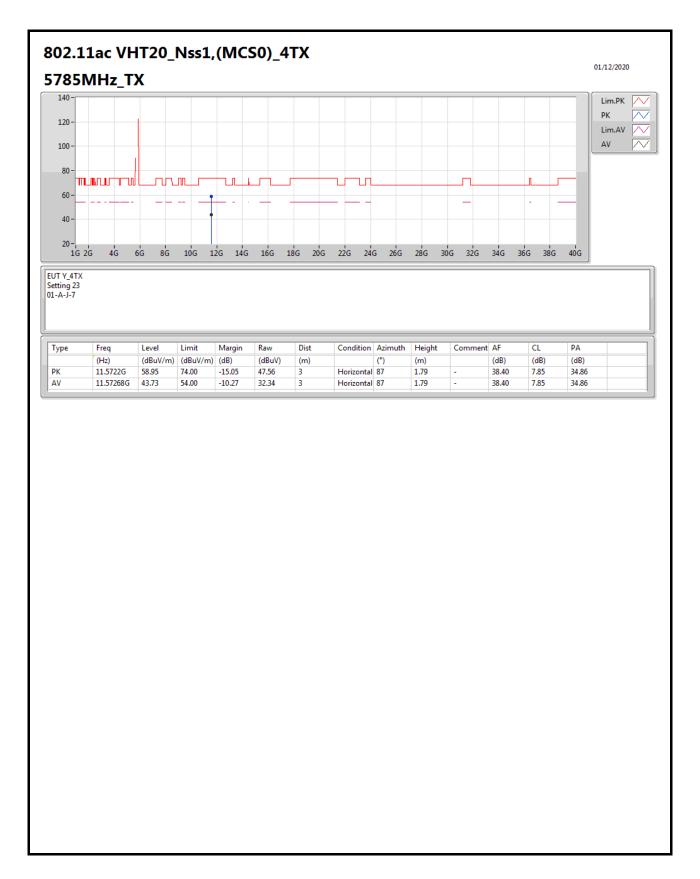




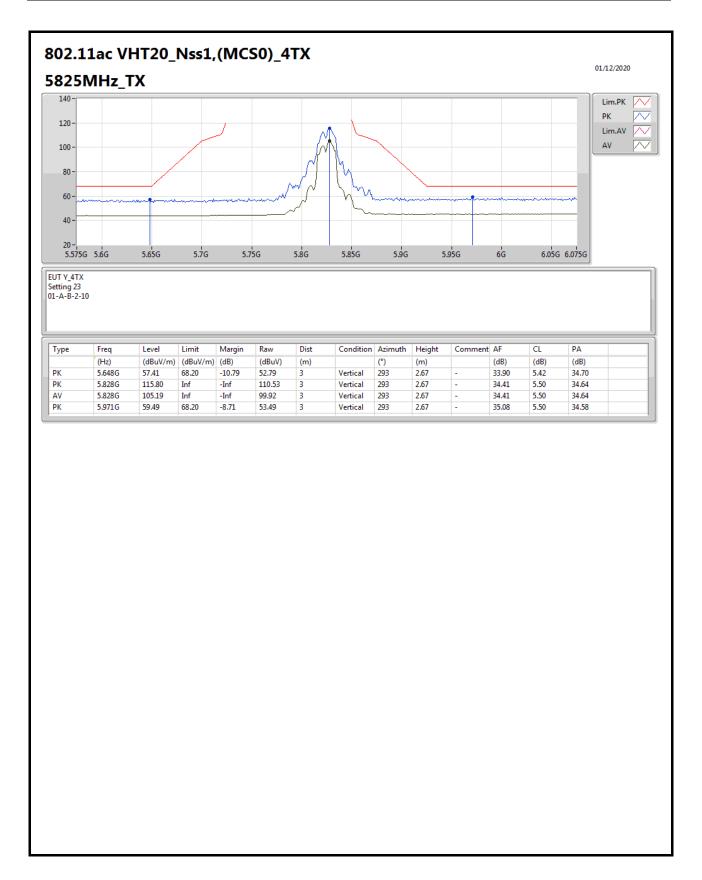


Page No. : 45 of 73

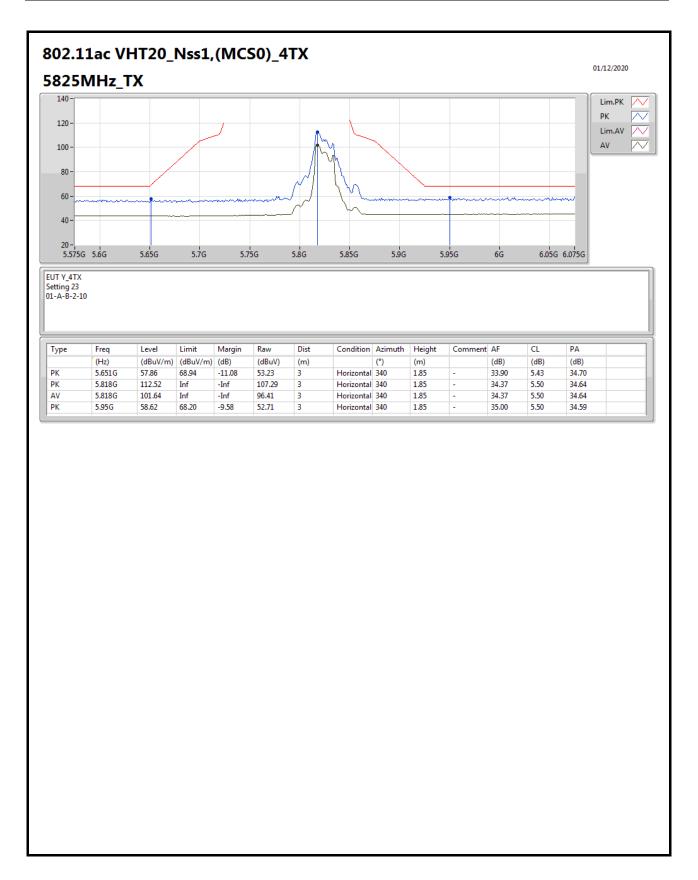






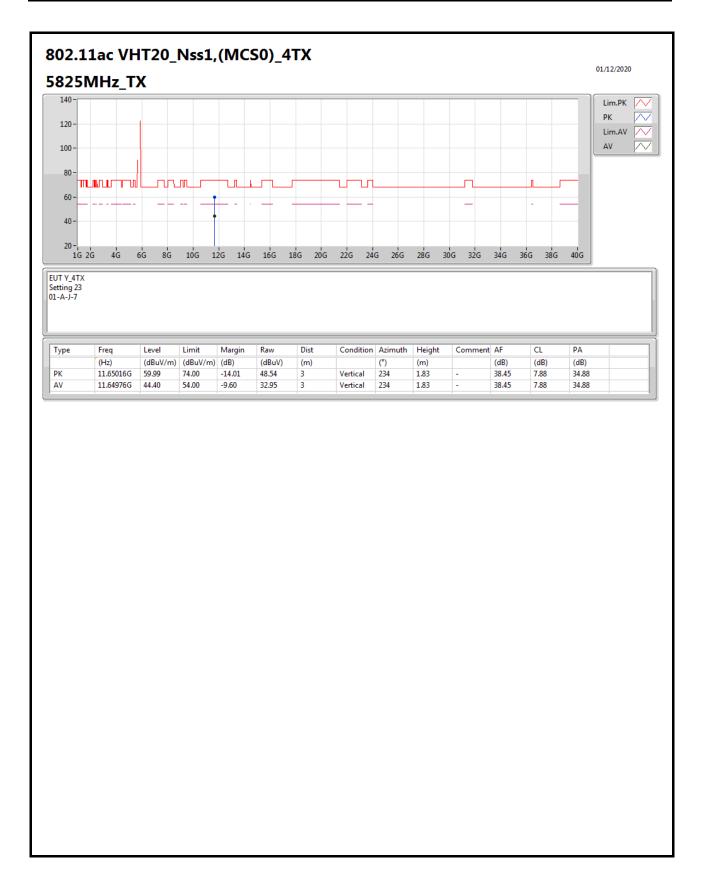




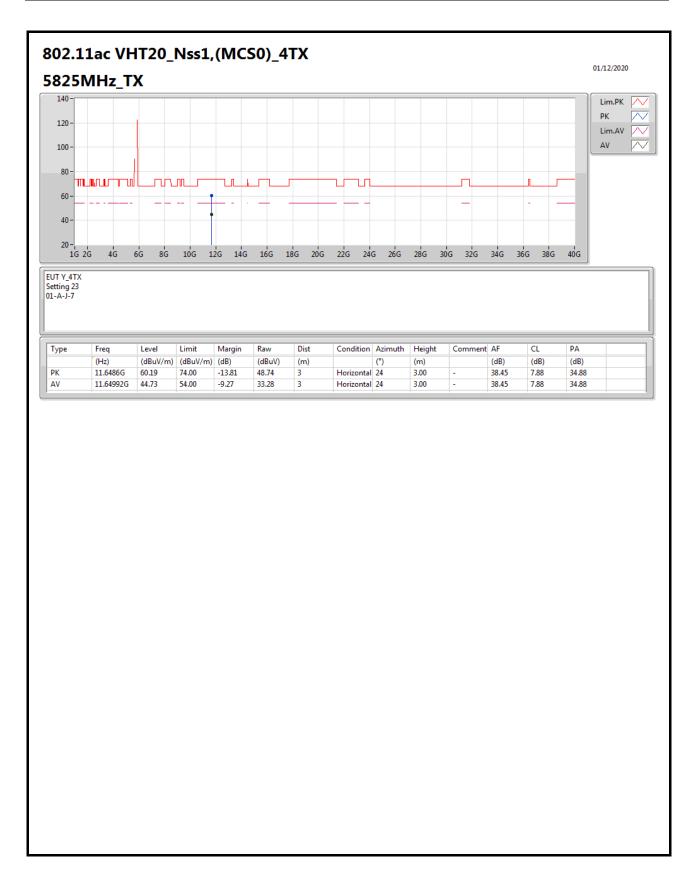


Page No. : 48 of 73

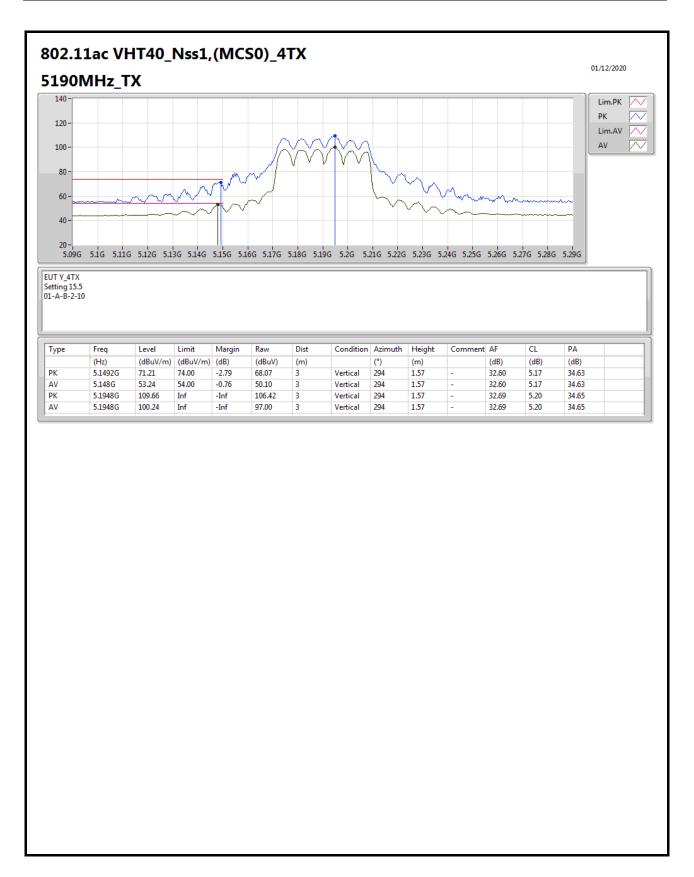




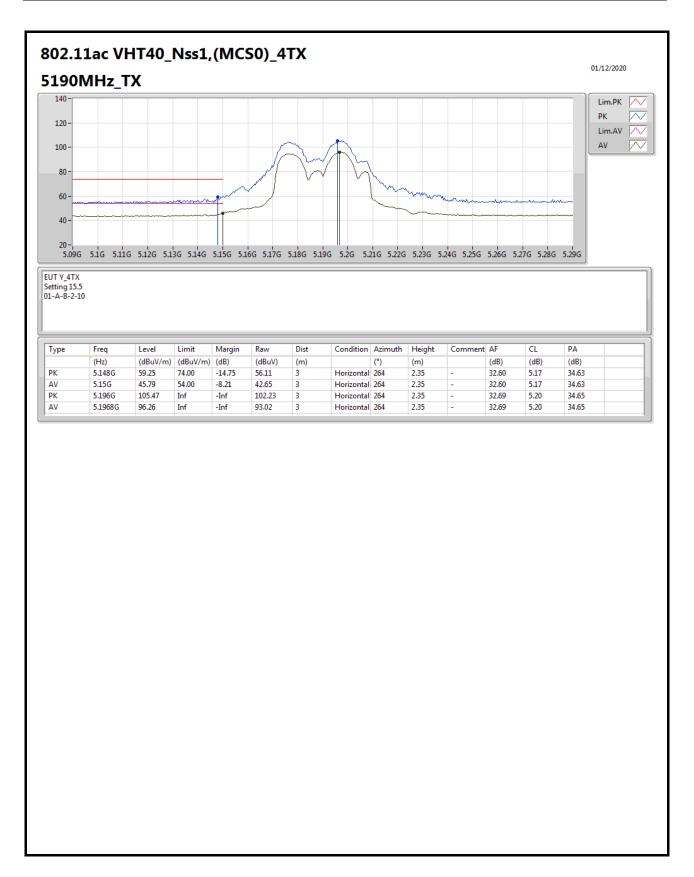




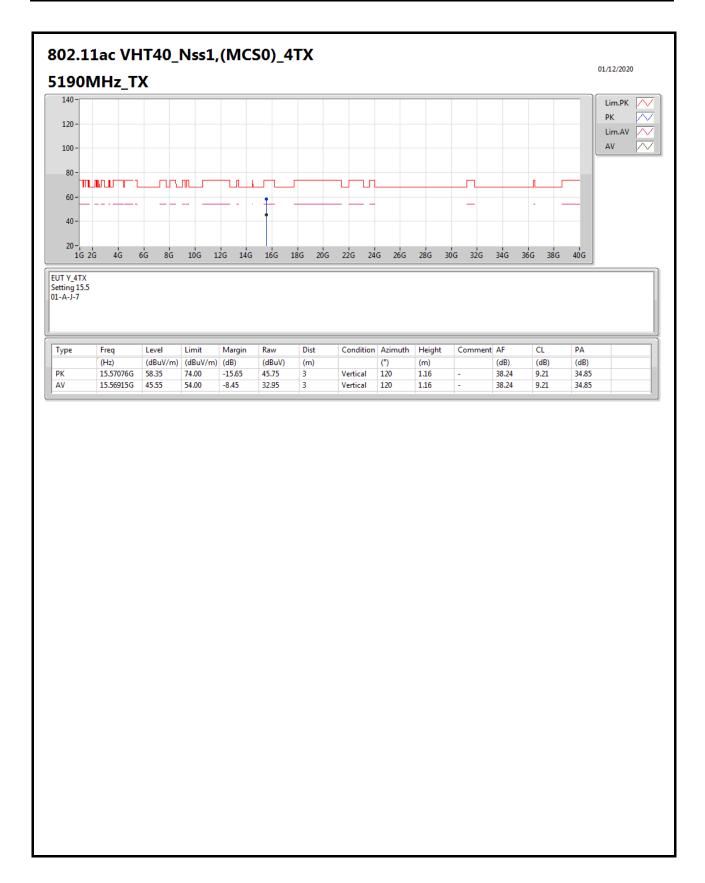






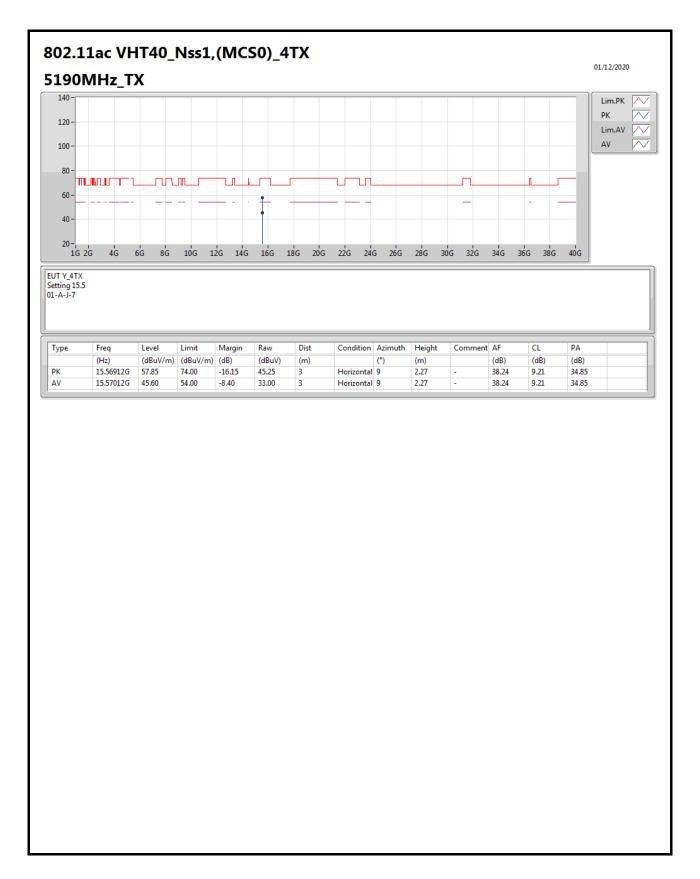




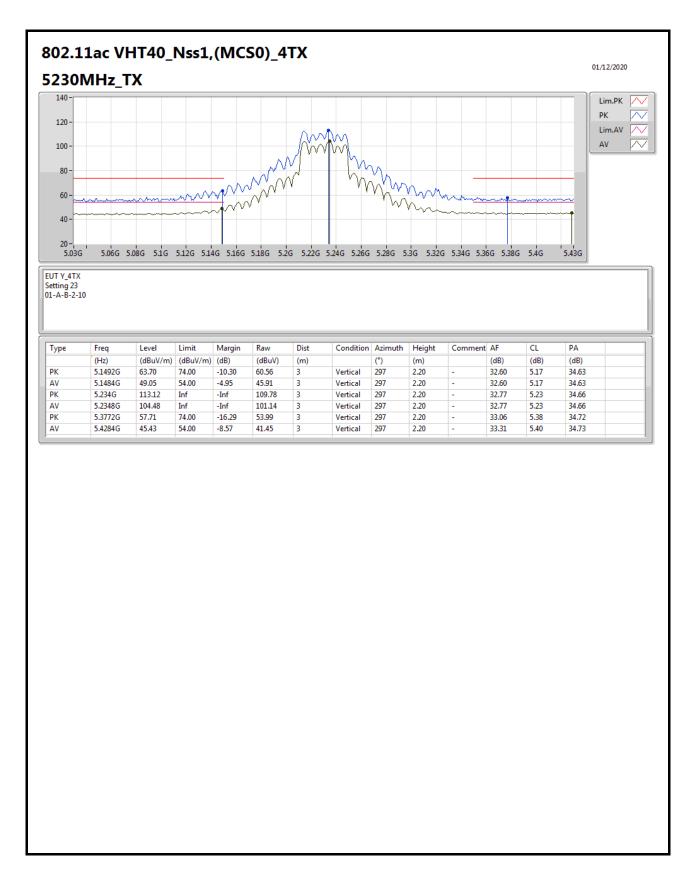


Page No. : 53 of 73



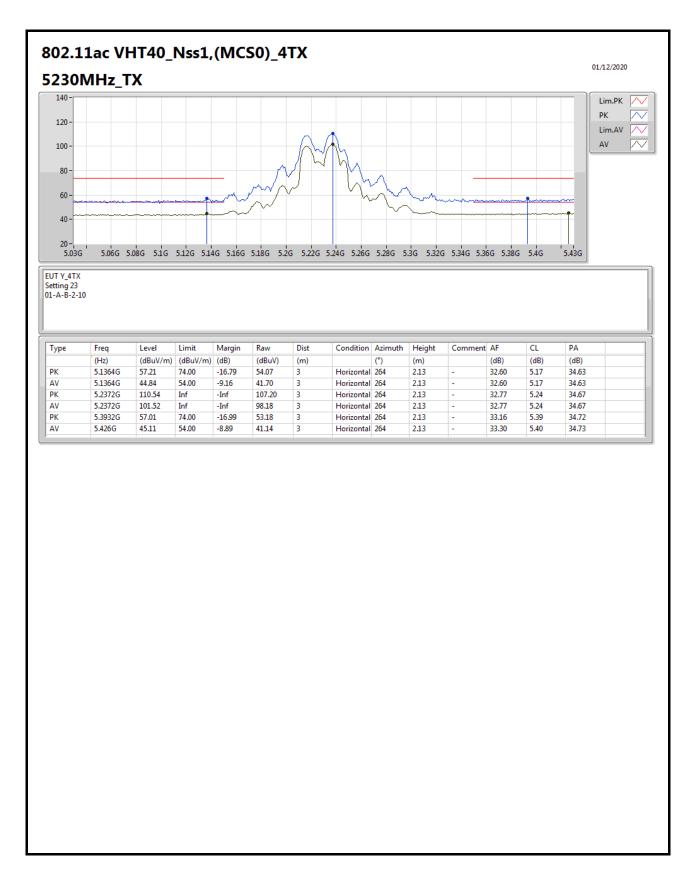




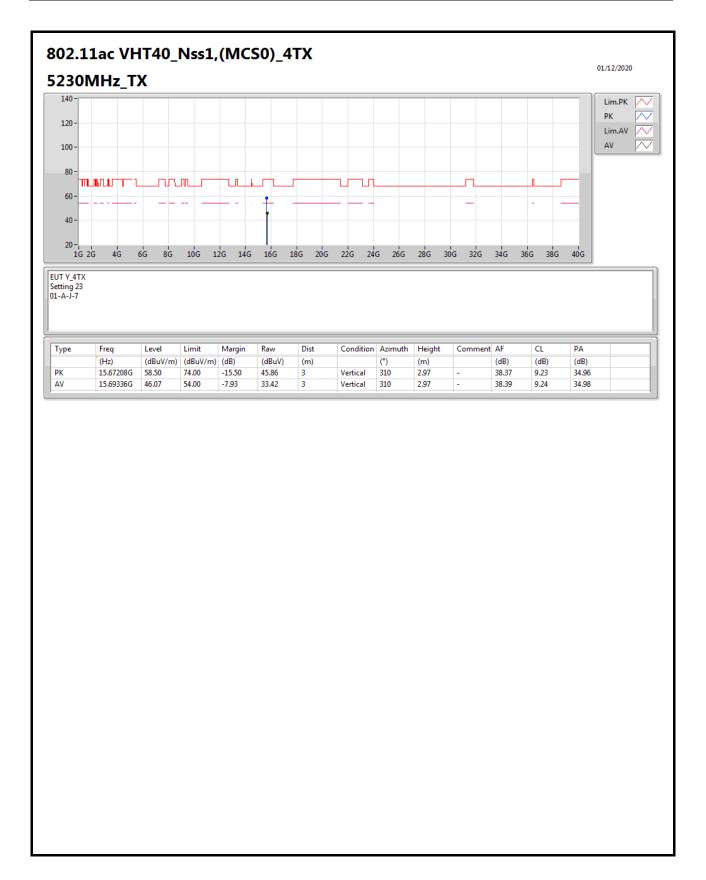


Page No. : 55 of 73



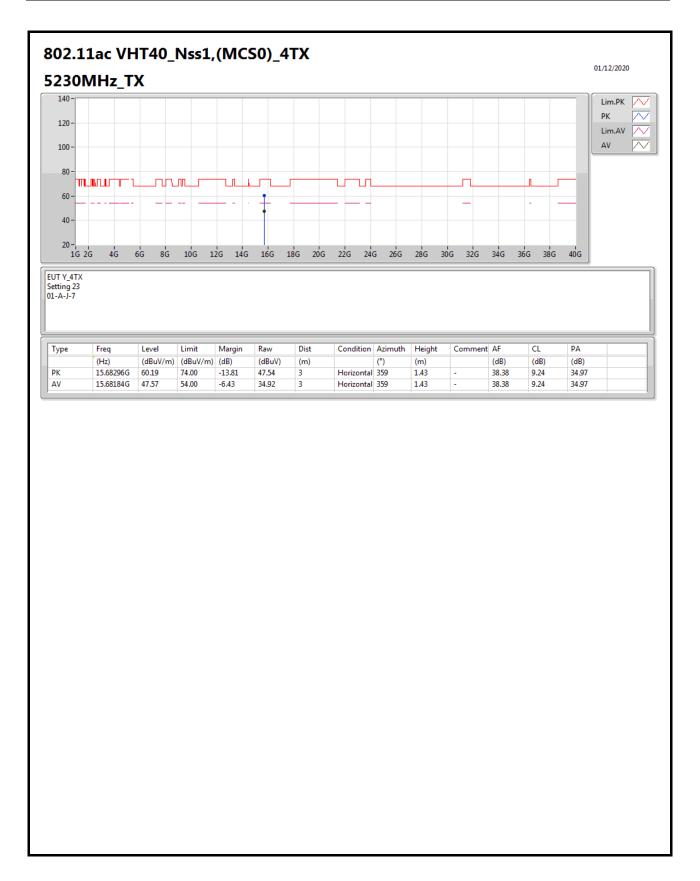




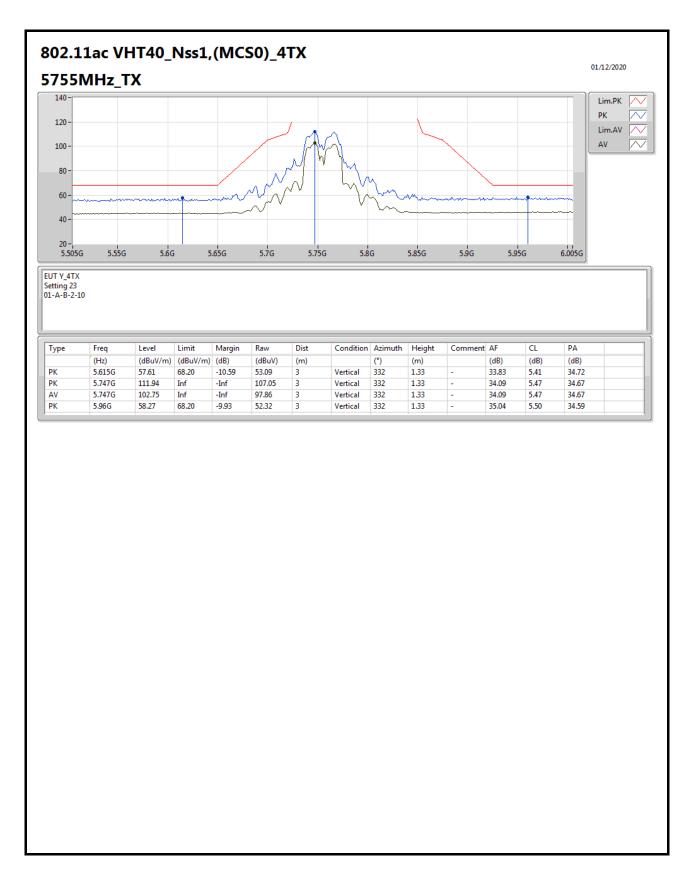


Page No. : 57 of 73

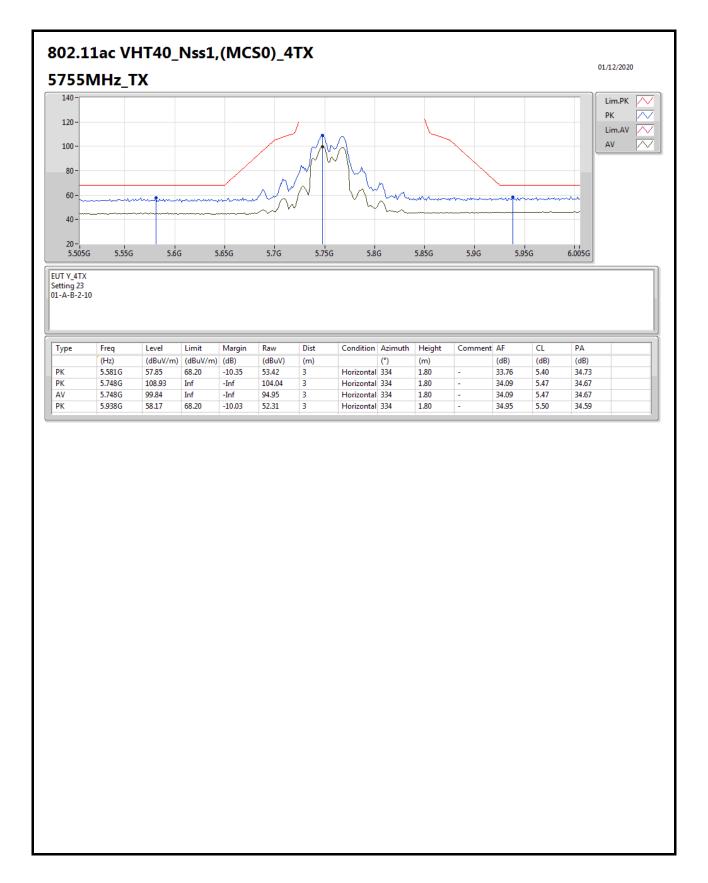




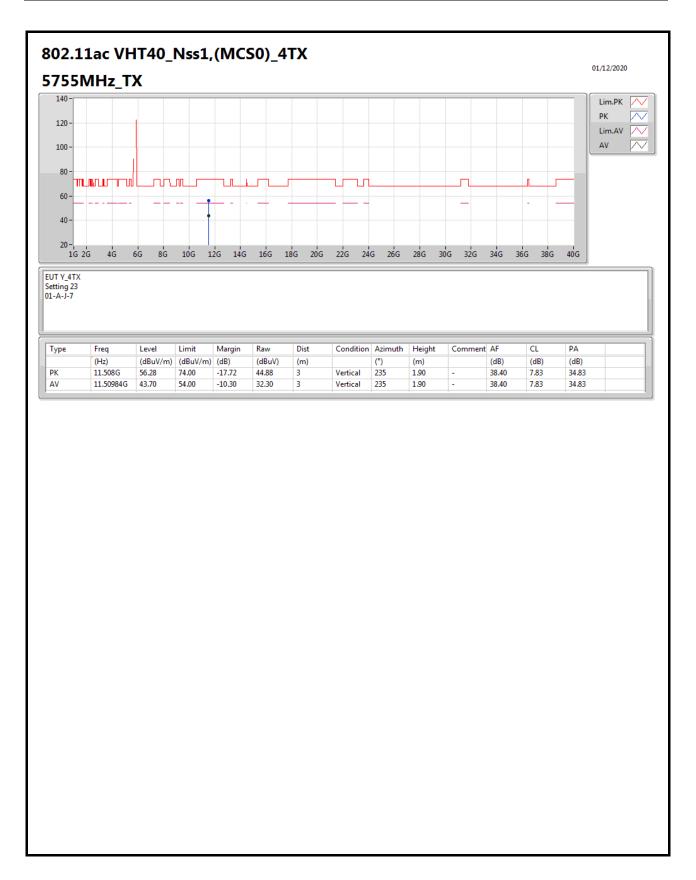




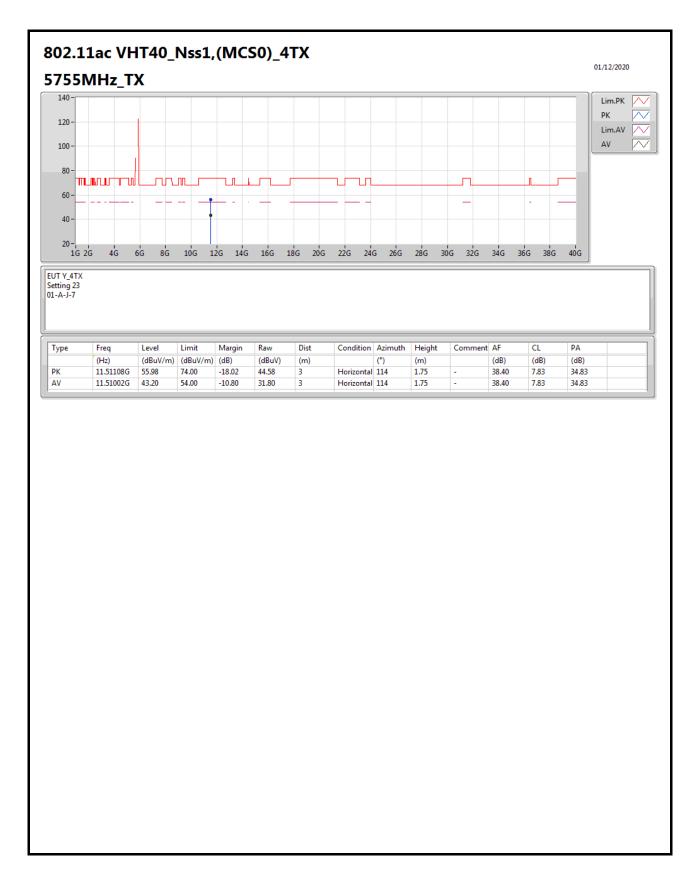




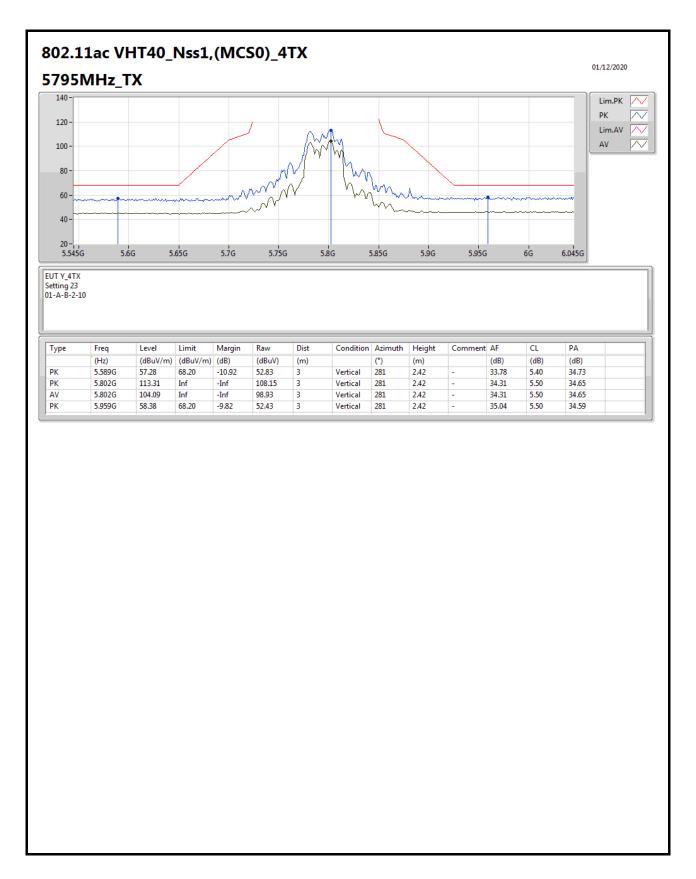






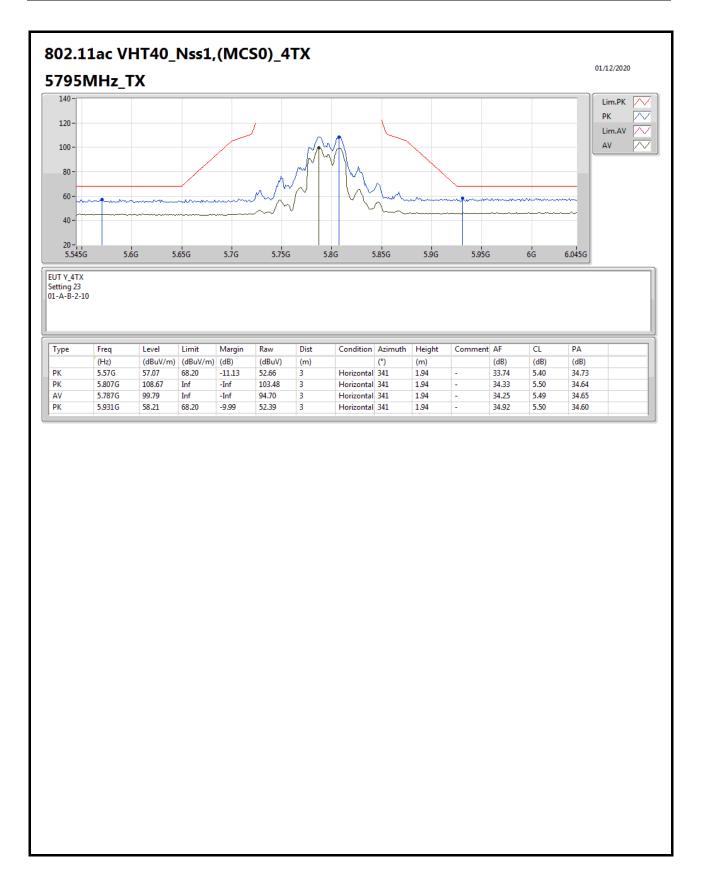




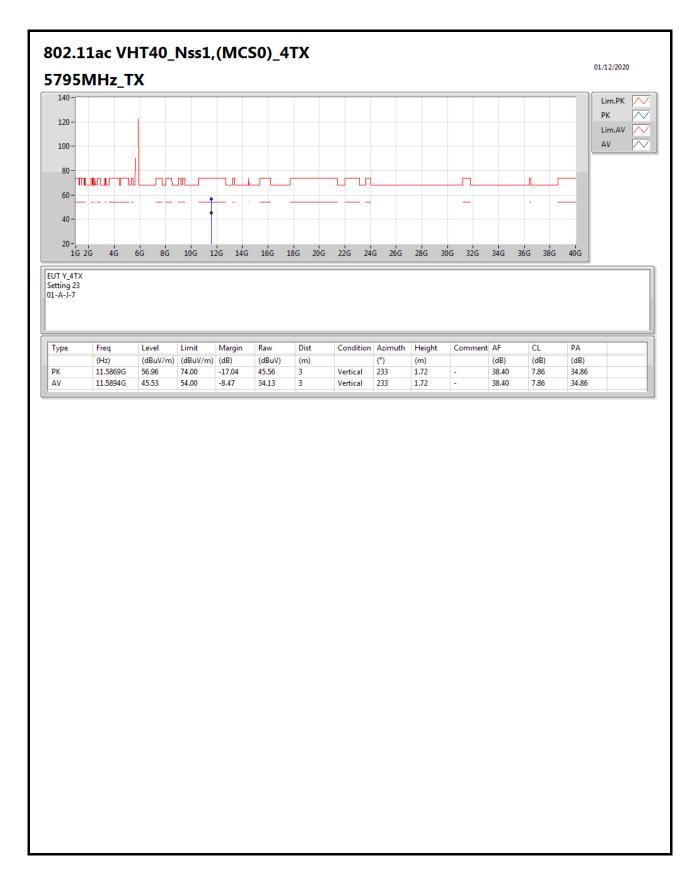


Page No. : 63 of 73

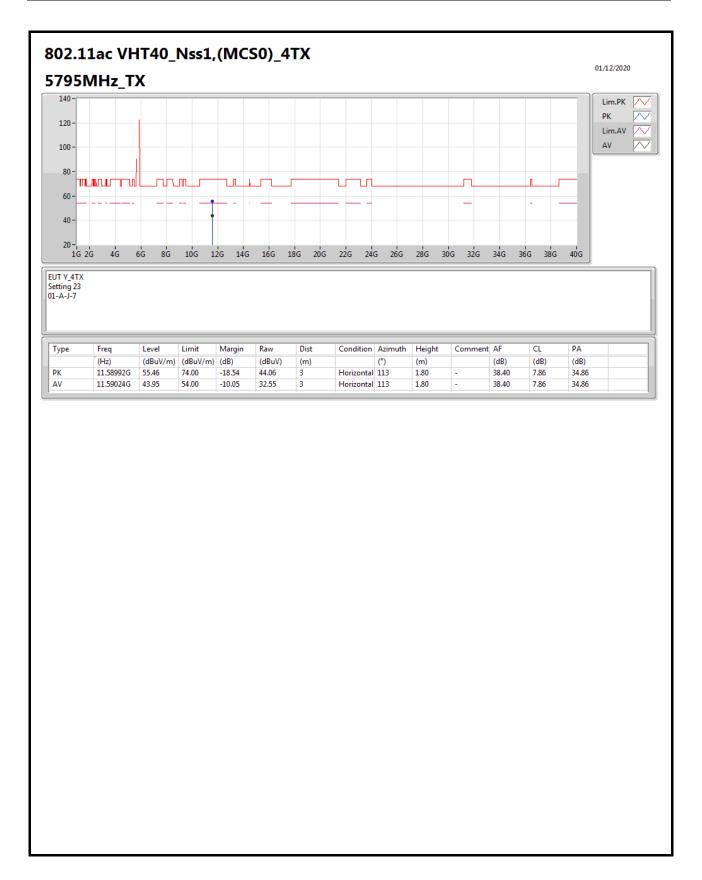




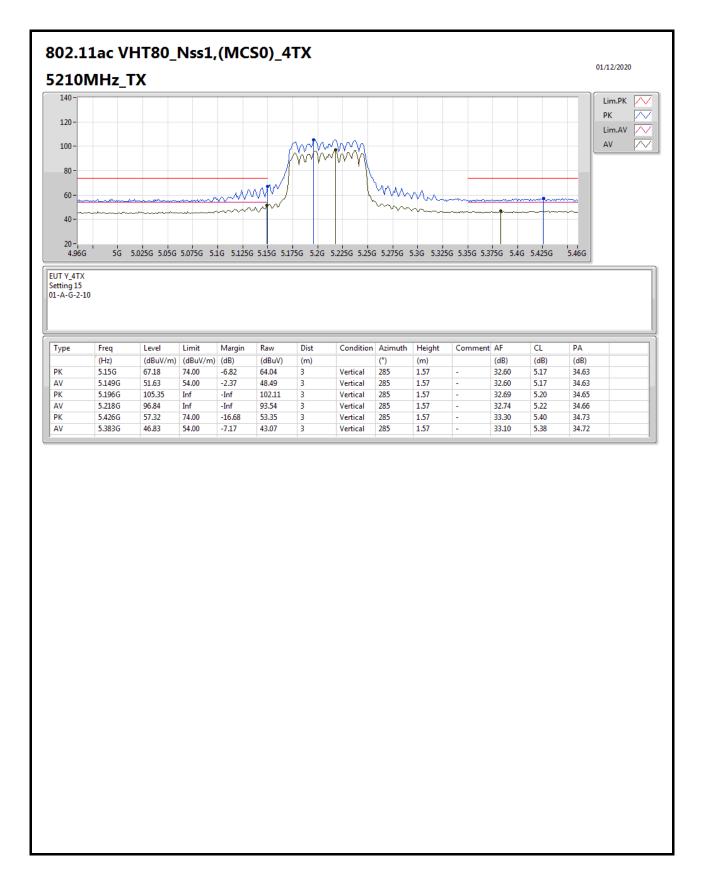




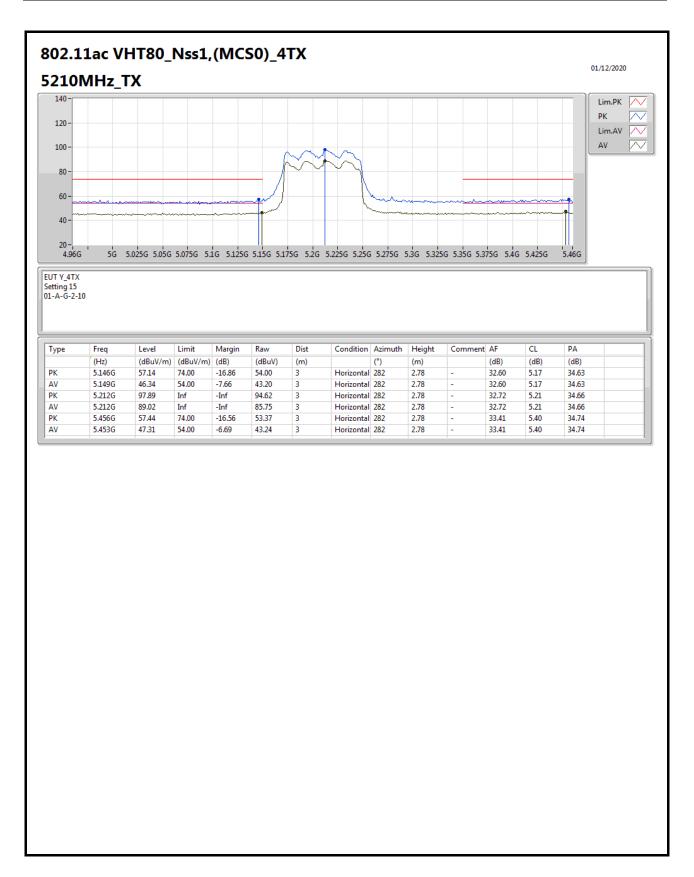




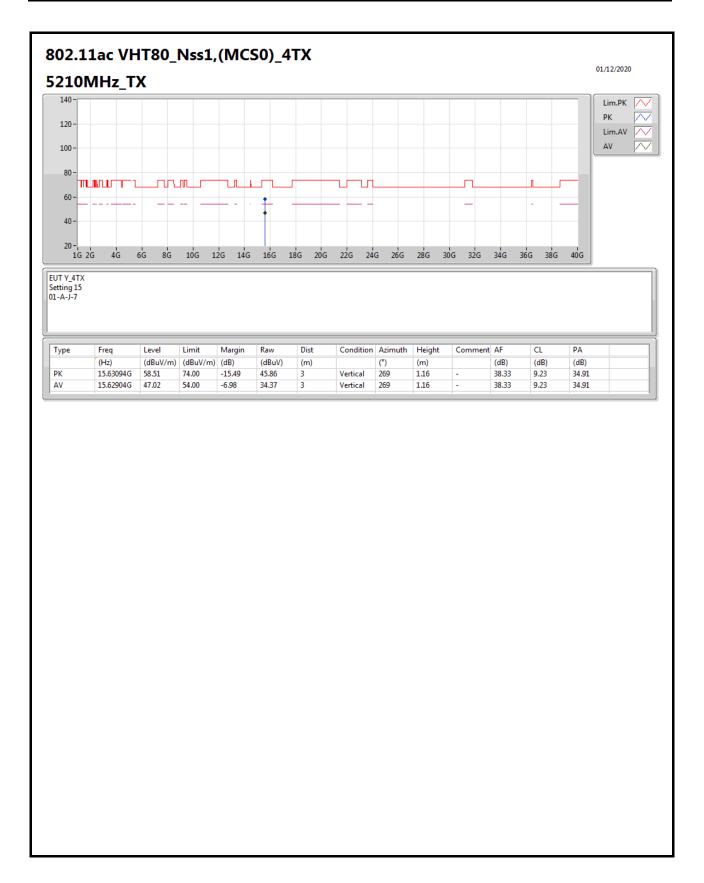




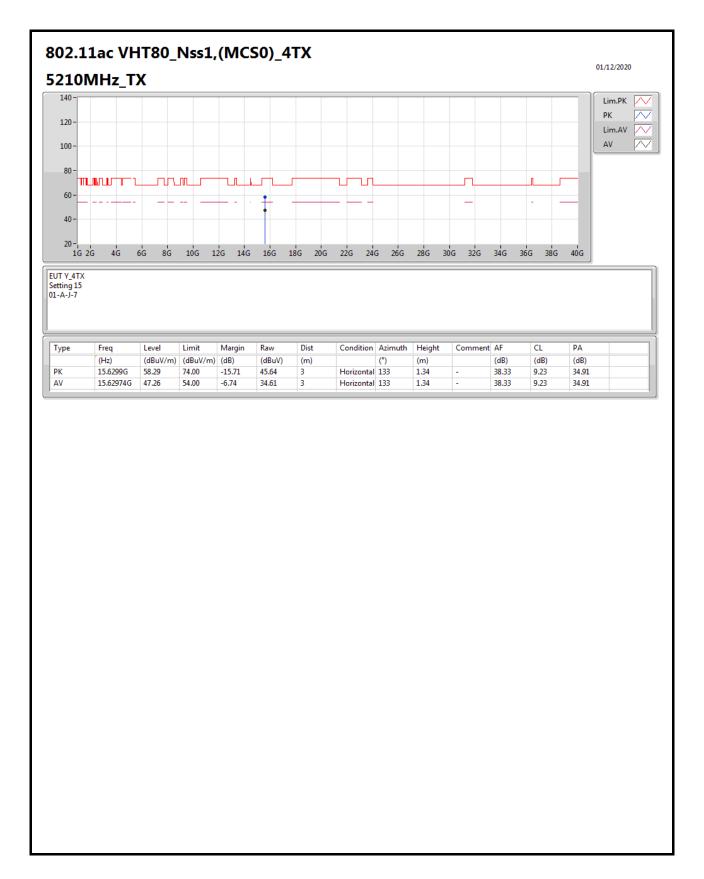




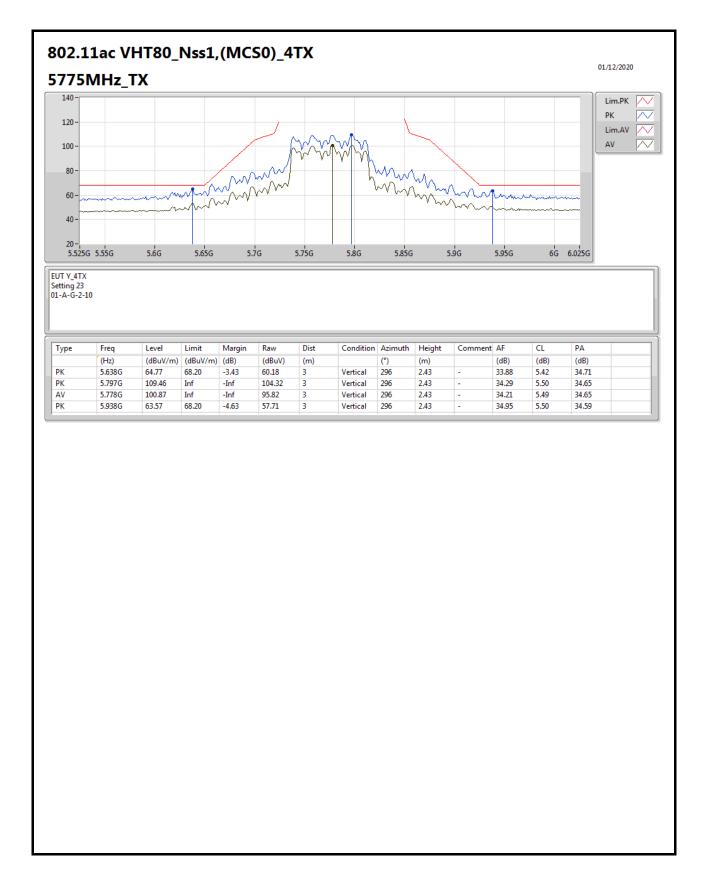












Page No. : 71 of 73



