



FCC RADIO TEST REPORT

FCC ID : 2ADZRBGW320
Equipment : BGW320-505 Wireless Integrated ONT Residential Gateway
Brand Name : Nokia
Model Name : BGW320-505
Applicant : Nokia Shanghai Bell Co. Ltd.
No. 388, Ningqiao Rd. Pilot Free Trade Zone
Shanghai , China 201206
Manufacturer : Nokia Shanghai Bell Co. Ltd.
No. 388, Ningqiao Rd. Pilot Free Trade Zone
Shanghai , China 201206
Standard : 47 CFR FCC Part 15.247

The product was received on Mar. 18, 2019, and testing was started from Jul. 20, 2019 and completed on Sep. 23, 2019. 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: Cliff Chang

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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

Appendix B. Test Results of DTS Bandwidth

Appendix C. Test Results of Maximum Conducted Output Power

Appendix D. Test Results of Power Spectral Density

Appendix E. Test Results of Emissions in Non-restricted Frequency Bands

Appendix F. Test Results of Emissions in Restricted Frequency Bands

Appendix G. Test Results of Radiated Emission Co-location

Appendix H. Test Photos



Photographs of EUT v01



History of this test report



Summary of Test Result

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	15.247(a)	DTS Bandwidth	PASS	-
3.3	15.247(b)	Maximum Conducted Output Power	PASS	-
3.4	15.247(e)	Power Spectral Density	PASS	-
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.6	15.247(d)	Emissions in Restricted Frequency Bands	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



1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
2400-2483.5	b, g, n (HT20), VHT20, ax (HEW20)	2412-2462	1-11 [11]
2400-2483.5	n (HT40), VHT40, ax (HEW40)	2422-2452	3-9 [7]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11b	20	1TX, 4TX
2.4-2.4835GHz	802.11g	20	4TX
2.4-2.4835GHz	802.11n HT20	20	1TX, 2TX, 3TX, 4TX
2.4-2.4835GHz	802.11n HT20-BF	20	2TX, 3TX, 4TX
2.4-2.4835GHz	VHT20	20	1TX, 2TX, 3TX, 4TX
2.4-2.4835GHz	VHT20-BF	20	2TX, 3TX, 4TX
2.4-2.4835GHz	802.11ax HEW20	20	1TX, 2TX, 3TX, 4TX
2.4-2.4835GHz	802.11ax HEW20-BF	20	2TX, 3TX, 4TX
2.4-2.4835GHz	802.11n HT40	40	1TX, 2TX, 3TX, 4TX
2.4-2.4835GHz	802.11n HT40-BF	40	2TX, 3TX, 4TX
2.4-2.4835GHz	VHT40	40	1TX, 2TX, 3TX, 4TX
2.4-2.4835GHz	VHT40-BF	40	2TX, 3TX, 4TX
2.4-2.4835GHz	802.11ax HEW40	40	2TX, 3TX, 4TX
2.4-2.4835GHz	802.11ax HEW40-BF	40	2TX, 3TX, 4TX

Note:

- 11b mode uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.
- 11g, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- VHT20, VHT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- HEW20, HEW40 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- BWch is the nominal channel bandwidth.
- Nss-Min is the minimum number of spatial streams.
- Nant is the number of outputs. e.g., 2(2,3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.



1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Airgain	N2430ARJYW Rev A-PK1-L-G1X165BUR2	PCB	I-PEX	Note 1
2	Airgain	N2430ARHYN Rev A-PK1-L-Y1X140BUR2		I-PEX	
3	Airgain	N2435ARHYN Rev A-PK1-L-B1X155BU		I-PEX	
4	Airgain	N2420ARHYW Rev A-PK1-L-A1X195BU		I-PEX	
5	Airgain	N5X20QSYN Rev A-PK1-L-B50UR2		I-PEX	
6	Airgain	N5X20QSYE Rev A-PK1-L-A55UR2		I-PEX	
7	Airgain	N5X20QSYN Rev A-PK1-L-Y1X190BU		I-PEX	
8	Airgain	N5X20QSYE Rev A-PK1-L-G1X160BU		I-PEX	
9	Airgain	N5X20HGHC Rev A-PK1-L-R1X1058U		I-PEX	

Note 1:

Ant.	2.4GHz Port				5GHz Port				Gain (dBi) 1TX mode for output power, PSD CDD mode for output power		
	1TX	2TX	3TX	4TX	1TX	2TX	3TX	4TX	2.4GHz	5GHz Band 1	5GHz Band 4
	1	4	4	4	1	1	1	1			
2	3	3	3	3	2	2	2	2	4.9	5.8	-
3	2	2	2	2	3	3	3	3			
4	1	1	1	1	4	4	4	4			
5	-	-	-	-	1	1	1	1			
6	-	-	-	-	2	2	2	2			4.7
7	-	-	-	-	3	3	3	3			
8	-	-	-	-	4	4	4	4			
9	-	-	-	-	RX only	-	-	-		3.9	4.2

Ant.	Gain (dBi) CDD mode for PSD Beamforming mode, SDM Mode for output power & PSD							
	2.4GHz				5GHz Band 1		5GHz Band 4	
	3T1S/3T2S	3T3S	4T1S/4T2S	4T3S	4T1S/4T2S	4T3S	4T1S/4T2S	4T3S
1	4.2	2.3	4.8	3.1	4.7	3.8	-	-
2								
3	-	-	-	-	-	-	5	3.8
4								
5	-	-	-	-	-	-	-	-
6								
7	-	-	-	-	-	-	-	-
8								
9	-	-	-	-	-	3.9	-	4.2



Note 2: The above information was declared by manufacturer.

Note 3: The EUT has nine antennas.

Note 4:

For 2.4GHz function:

For IEEE 802.11b (1TX, 4TX/4RX):

For 1TX

Only Port 1 can be used as transmitting antenna.

For 4TX, 4RX

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

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

For IEEE 802.11g (4TX/4RX):

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

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

For IEEE 802.11n/VHT/ax (1TX, 2TX, 3TX, 4TX/4RX):

For 1TX

The EUT supports all antennas with TX diversity functions.

At once time there is only one antenna port can transmitting RF signal

For 2TX

The EUT supports all antennas with TX diversity functions.

At once time there are only two antenna port can transmitting RF signal

For 3TX

The EUT supports all antennas with TX diversity functions.

At once time there are only three antenna port can transmitting RF signal

The Port 2, Port 3 and Port 4 generated the worst case, so it was selected to test and record in the report.

For 4TX, 4RX

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

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

For 5GHz function:

For IEEE 802.11a (4TX/4RX):

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

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

For IEEE 802.11n/ac/ax (1TX, 2TX, 3TX, 4TX/4RX):

For 1TX

The EUT supports all antennas with TX diversity functions.

At once time there is only one antenna port can transmitting RF signal

For 2TX

The EUT supports all antennas with TX diversity functions.

At once time there are only two antenna port can transmitting RF signal

For 3TX

The EUT supports all antennas with TX diversity functions.

At once time there are only three antenna port can transmitting RF signal

For 4TX, 4RX

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

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

For IEEE 802.11n/ac/ax (1RX):

Ant.9 can be use as receiving antenna only.



1.1.3 Mode Test Duty Cycle

<non-beamforming mode> 1T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11b	0.994	0.03	n/a (DC≥=0.98)	n/a (DC≥=0.98)

<non-beamforming mode> 3T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
VHT20	0.986	0.06	n/a (DC≥=0.98)	n/a (DC≥=0.98)
VHT40	0.972	0.12	953.75u	3k
802.11ax HEW20	0.982	0.08	n/a (DC≥=0.98)	n/a (DC≥=0.98)
802.11ax HEW40	0.964	0.16	781.25u	3k

<beamforming mode> 3T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
VHT20-BF	0.98	0.09	n/a (DC≥=0.98)	n/a (DC≥=0.98)
VHT40-BF	0.97	0.14	952.5u	3k
802.11ax HEW20-BF	0.971	0.13	1.488m	1k
802.11ax HEW40-BF	0.944	0.25	780.469u	3k

<non-beamforming mode> 3T2S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
VHT20	0.982	0.08	n/a (DC≥=0.98)	n/a (DC≥=0.98)
802.11ax HEW20	0.976	0.11	781.25u	3k

<beamforming mode> 3T2S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
VHT20-BF	0.96	0.18	992.5u	3k
802.11ax HEW20-BF	0.971	0.13	780u	3k

<non-beamforming mode> 3T3S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
VHT20	0.974	0.11	685u	3k
802.11ax HEW20	0.965	0.15	557.5u	3k



<non-beamforming mode> 4T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11b	0.994	0.03	n/a (DC≥=0.98)	n/a (DC≥=0.98)
802.11g	0.953	0.21	2.068m	1k
VHT20	0.986	0.06	n/a (DC≥=0.98)	n/a (DC≥=0.98)
VHT40	0.969	0.14	953.75u	3k
802.11ax HEW20	0.982	0.08	n/a (DC≥=0.98)	n/a (DC≥=0.98)
802.11ax HEW40	0.964	0.16	781.25u	3k

<beamforming mode> 4T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
VHT20-BF	0.993	0.03	n/a (DC≥=0.98)	n/a (DC≥=0.98)
VHT40-BF	0.953	0.21	953.125u	3k
802.11ax HEW20-BF	0.944	0.25	1.488m	1k
802.11ax HEW40-BF	0.961	0.17	780.625u	3k

<non-beamforming mode> 4T2S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
VHT20	0.984	0.07	n/a (DC≥=0.98)	n/a (DC≥=0.98)
VHT40	0.966	0.15	500.625u	3k
802.11ax HEW20	0.976	0.11	781.25u	3k
802.11ax HEW40	0.951	0.22	422.5u	3k

<beamforming mode> 4T2S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
VHT20-BF	0.952	0.21	993.125u	3k
VHT40-BF	0.951	0.22	500.625u	3k
802.11ax HEW20-BF	0.956	0.2	780u	3k
802.11ax HEW40-BF	0.965	0.15	422.5u	3k

<non-beamforming mode> 4T3S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
VHT20	0.974	0.11	686.25u	3k
VHT40	0.952	0.21	357.5u	3k
802.11ax HEW20	0.964	0.16	558.75u	3k
802.11ax HEW40	0.936	0.29	318.75u	10k

<beamforming mode> 4T3S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
VHT20-BF	0.961	0.17	685u	3k
VHT40-BF	0.954	0.2	356.875u	3k
802.11ax HEW20-BF	0.974	0.11	557.5u	3k
802.11ax HEW40-BF	0.975	0.11	318.75u	10k



1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter		
Beamforming Function	<input checked="" type="checkbox"/> With beamforming	<input type="checkbox"/> Without beamforming	
The product has beamforming function for n/VHT/ax in 2.4GHz and n/ac/ax in 5GHz.			
Function	<input checked="" type="checkbox"/> Point-to-multipoint	<input type="checkbox"/> Point-to-point	
Test Software Version	accessMTool v3.1.0.2、Telnet v6.1.7601		

Note: The above information was declared by manufacturer.



1.2 Applicable Standards

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

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2013
- ◆ FCC KDB 558074 D01 v05r02
- ◆ FCC KDB 662911 D01 v02r01
- ◆ FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location				
<input type="checkbox"/>	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		
<input checked="" type="checkbox"/>	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	TH01-CB	Owen Hsu	27.5-28.2°C / 62-66 %	Aug. 05, 2019~ Sep. 23, 2019
Radiated <Below 1GHz>	03CH04-CB	Welson Chen	24.4-26°C / 64-66%	Jul. 20, 2019~ Sep. 23, 2019
Radiated <Above 1GHz>	03CH04-CB	Welson Chen	26.2-27.9°C / 63-65%	Jul. 20, 2019~ Sep. 23, 2019
AC Conduction	CO02-CB	Deven Huang	24~25°C / 58~60%	Aug. 29, 2019

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086B with Industry Canada.

1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	2.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	5.1 dB	Confidence levels of 95%
Conducted Emission	2.4 dB	Confidence levels of 95%
Output Power Measurement	1.5 dB	Confidence levels of 95%
Power Density Measurement	2.4 dB	Confidence levels of 95%
Bandwidth Measurement	2%	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

<non-beamforming mode> 1T1S

Mode	PowerSetting
802.11b_Nss1,(1Mbps)_1TX	-
2412MHz	106
2417MHz	110
2437MHz	110
2457MHz	110
2462MHz	108



<non-beamforming mode> 3T1S

Mode	PowerSetting
VHT20_Nss1,(MCS0)_3TX	-
2412MHz	79
2417MHz	89
2437MHz	101
2457MHz	91
2462MHz	84
VHT40_Nss1,(MCS0)_3TX	-
2422MHz	67
2427MHz	69
2437MHz	78
2447MHz	78
2452MHz	79
802.11ax HEW20_Nss1,(MCS0)_3TX	-
2412MHz	71
2417MHz	85
2437MHz	100
2457MHz	84
2462MHz	73
802.11ax HEW40_Nss1,(MCS0)_3TX	-
2422MHz	63
2427MHz	67
2437MHz	76
2447MHz	80
2452MHz	78



<beamforming mode> 3T1S

Mode	PowerSetting
VHT20-BF_Nss1,(MCS0)_3TX	-
2412MHz	76
2417MHz	88
2437MHz	101
2457MHz	90
2462MHz	81
VHT40-BF_Nss1,(MCS0)_3TX	-
2422MHz	69
2427MHz	73
2437MHz	77
2447MHz	76
2452MHz	76
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	-
2412MHz	76
2417MHz	85
2437MHz	100
2457MHz	83
2462MHz	77
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	-
2422MHz	67
2427MHz	72
2437MHz	77
2447MHz	76
2452MHz	75



<non-beamforming mode> 3T2S

Mode	PowerSetting
VHT20_Nss2,(MCS0)_3TX	-
2412MHz	79
2462MHz	85
802.11ax HEW20_Nss2,(MCS0)_3TX	-
2412MHz	74
2462MHz	80

<beamforming mode> 3T2S

Mode	PowerSetting
VHT20-BF_Nss2,(MCS0)_3TX	-
2412MHz	77
2462MHz	83
802.11ax HEW20-BF_Nss2,(MCS0)_3TX	-
2412MHz	76
2462MHz	80

<non-beamforming mode> 3T3S

Mode	PowerSetting
VHT20_Nss3,(MCS0)_3TX	-
2412MHz	79
2462MHz	85
802.11ax HEW20_Nss3,(MCS0)_3TX	-
2412MHz	74
2462MHz	80



<non-beamforming mode> 4T1S

Mode	PowerSetting
802.11b_Nss1,(1Mbps)_4TX	-
2412MHz	93
2417MHz	93
2437MHz	94
2457MHz	93
2462MHz	93
802.11g_Nss1,(6Mbps)_4TX	-
2412MHz	79
2417MHz	88
2437MHz	96
2457MHz	88
2462MHz	79
VHT20_Nss1,(MCS0)_4TX	-
2412MHz	77
2417MHz	88
2437MHz	96
2457MHz	90
2462MHz	83
VHT40_Nss1,(MCS0)_4TX	-
2422MHz	66
2427MHz	67
2437MHz	78
2447MHz	78
2452MHz	79
802.11ax HEW20_Nss1,(MCS0)_4TX	-
2412MHz	72
2417MHz	85
2437MHz	95
2457MHz	84
2462MHz	73
802.11ax HEW40_Nss1,(MCS0)_4TX	-
2422MHz	63
2427MHz	67
2437MHz	75
2447MHz	75
2452MHz	76



<beamforming mode> 4T1S

Mode	PowerSetting
VHT20-BF_Nss1,(MCS0)_4TX	-
2412MHz	76
2417MHz	87
2437MHz	96
2457MHz	90
2462MHz	81
VHT40-BF_Nss1,(MCS0)_4TX	-
2422MHz	67
2427MHz	68
2437MHz	77
2447MHz	76
2452MHz	76
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-
2412MHz	74
2417MHz	82
2437MHz	95
2457MHz	80
2462MHz	77
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-
2422MHz	68
2427MHz	71
2437MHz	79
2447MHz	77
2452MHz	76



<non-beamforming mode> 4T2S

Mode	PowerSetting
VHT20_Nss2,(MCS0)_4TX	-
2412MHz	78
2462MHz	85
VHT40_Nss2,(MCS0)_4TX	-
2422MHz	67
2437MHz	80
2452MHz	80
802.11ax HEW20_Nss2,(MCS0)_4TX	-
2412MHz	74
2462MHz	80
802.11ax HEW40_Nss2,(MCS0)_4TX	-
2422MHz	63
2437MHz	77
2452MHz	76

<beamforming mode> 4T2S

Mode	PowerSetting
VHT20-BF_Nss2,(MCS0)_4TX	-
2412MHz	77
2462MHz	82
VHT40-BF_Nss2,(MCS0)_4TX	-
2422MHz	72
2437MHz	83
2452MHz	80
802.11ax HEW20-BF_Nss2,(MCS0)_4TX	-
2412MHz	74
2462MHz	78
802.11ax HEW40-BF_Nss2,(MCS0)_4TX	-
2422MHz	70
2437MHz	82
2452MHz	79



<non-beamforming mode> 4T3S

Mode	PowerSetting
VHT20_Nss3,(MCS0)_4TX	-
2412MHz	78
2462MHz	85
VHT40_Nss3,(MCS0)_4TX	-
2422MHz	69
2437MHz	81
2452MHz	80
802.11ax HEW20_Nss3,(MCS0)_4TX	-
2412MHz	74
2462MHz	80
802.11ax HEW40_Nss3,(MCS0)_4TX	-
2422MHz	62
2437MHz	77
2452MHz	77

<beamforming mode> 4T3S

Mode	PowerSetting
VHT20-BF_Nss3,(MCS0)_4TX	-
2412MHz	78
2462MHz	82
VHT40-BF_Nss3,(MCS0)_4TX	-
2422MHz	72
2437MHz	84
2452MHz	80
802.11ax HEW20-BF_Nss3,(MCS0)_4TX	-
2412MHz	74
2462MHz	79
802.11ax HEW40-BF_Nss3,(MCS0)_4TX	-
2422MHz	70
2437MHz	82
2452MHz	78

Note:

- VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than VHT20 and VHT40.
- There are two modes of EUT, one is beamforming mode, and the other is Non-beamforming mode for n/VHT/ax in 2.4GHz and n/ac/ax in 5GHz, Beamforming mode and Non-beamforming mode has been test and record in this test report.



2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	CTX
1	EUT - 2.4GHz
2	EUT - 5GHz

For operating mode 1 is the worst case and it was record in this test report.

The Worst Case Mode for Following Conformance Tests	
Tests Item	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in Non-restricted Frequency Bands
Test Condition	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
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	EUT - 2.4GHz
2	EUT - 5GHz

For operating mode 2 is the worst case and it was record in this test report.

Operating Mode > 1GHz	CTX
1	EUT - 2.4GHz

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Radiated Emission Co-location
Test Condition	Radiated measurement
Operating Mode	Normal Link
1	WLAN 2.4GHz + 5GHz Band 1

Refer to Appendix G for Radiated Emission Co-location.



The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	WLAN 2.4GHz + 5GHz Band 1 + 5GHz Band 4

Refer to Sporton Test Report No.: FA912114 for Co-location RF Exposure Evaluation.

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

2.3 EUT Operation during Test

For CTX Mode:

Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

beamforming 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 WLAN AP and transmit duty cycle no less than 98%.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

Accessories				
No.	Equipment Name	Brand Name	Model Name	Rating
1	Adapter	DIRECTV	EPS48R0-16	Input: 120V~1.1A, 60Hz Output: 12V, 4A, 48W



2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Flash disk3.0	Transcend	JetFlash-700	N/A
B	Notebook	DELL	E6430	N/A

For Radiated (below 1GHz):

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

For Radiated (above 1GHz):

<non-beamforming mode>

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

<beamforming mode>

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A
B	WLAN AP	ASUS	RT-AX88U	MSQ-RTAXHP00
C	Notebook	DELL	E4300	N/A

For RF Conducted:

<non-beamforming mode>

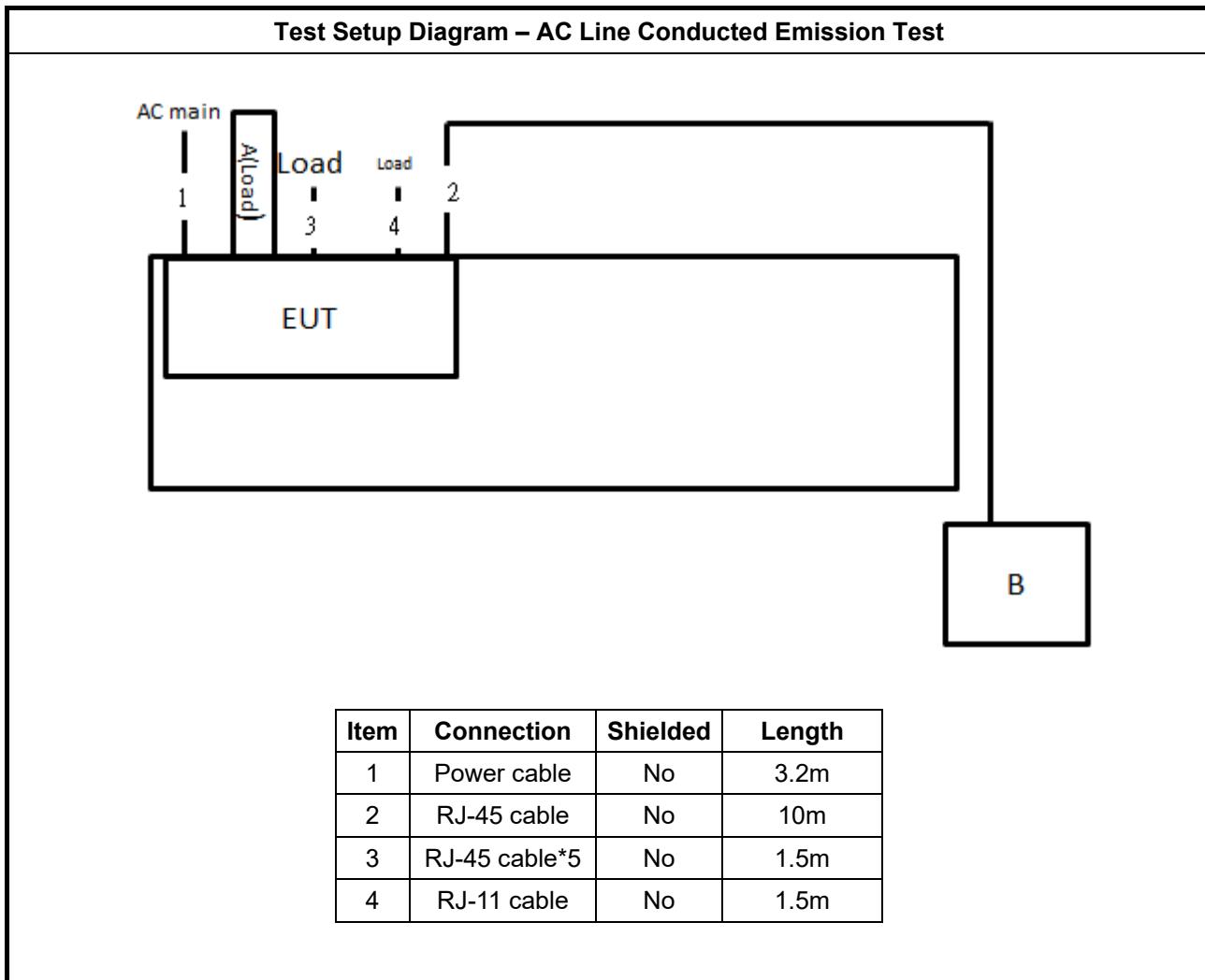
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A

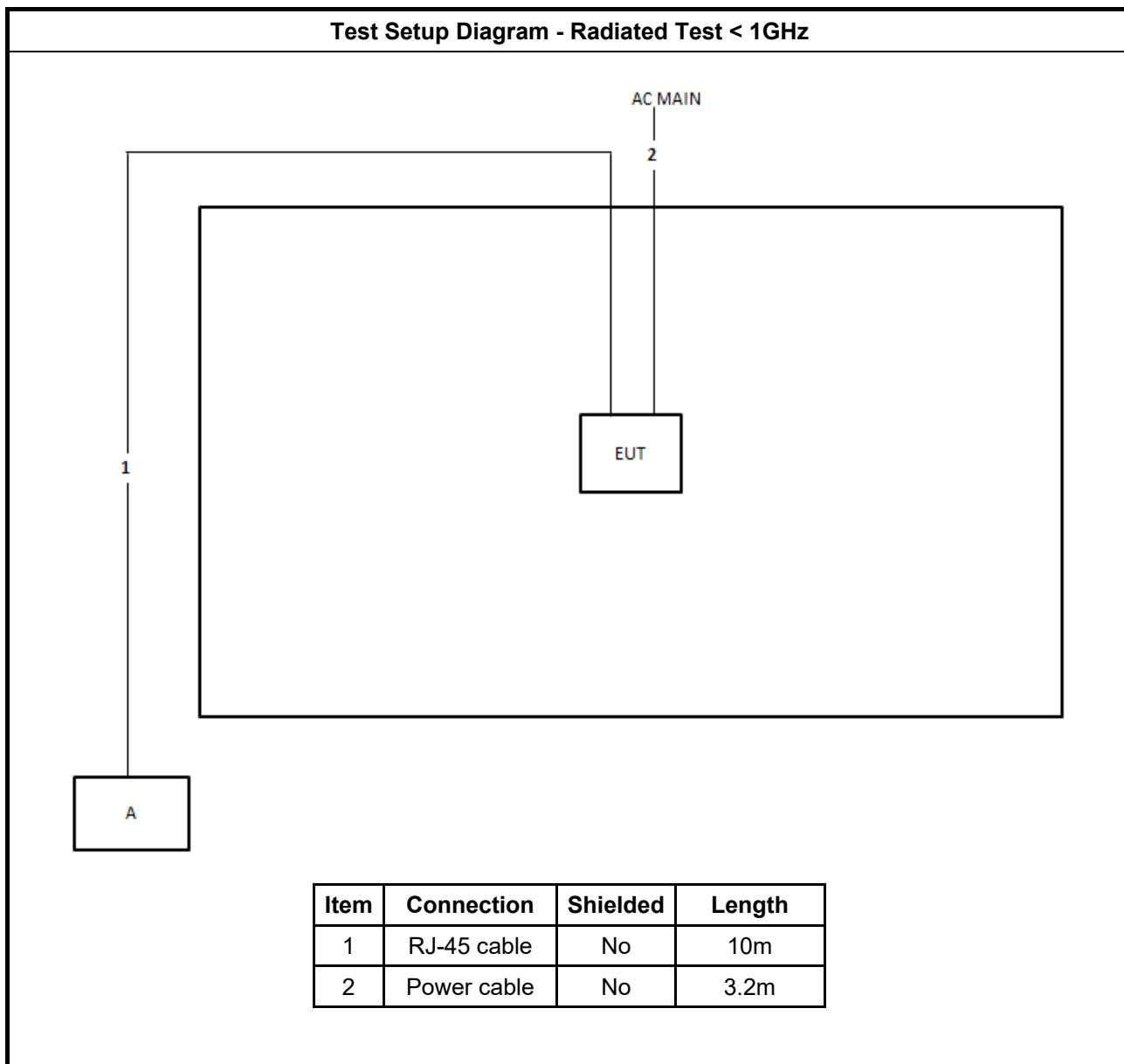
<beamforming mode>

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A
B	WLAN AP	ASUS	RT-AX88U	MSQ-RTAXHP00
C	Notebook	DELL	E4300	N/A



2.6 Test Setup Diagram

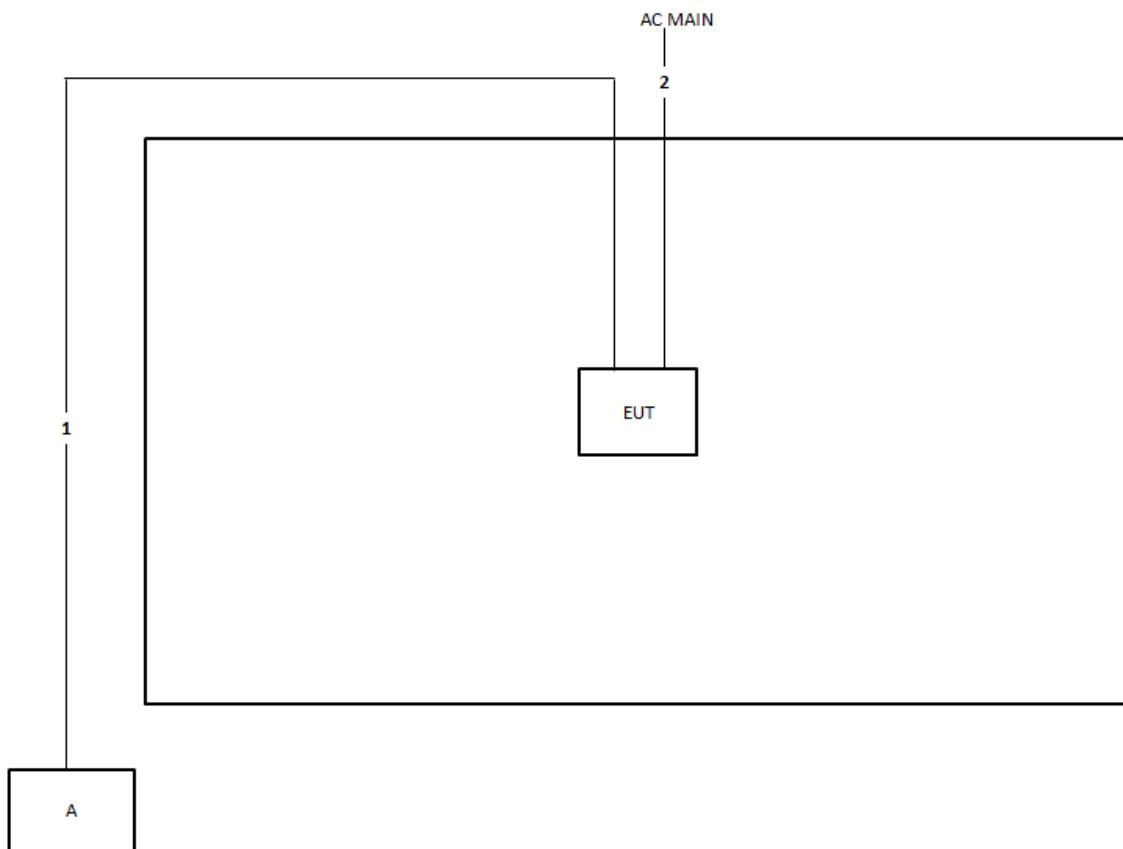






Test Setup Diagram - Radiated Test > 1GHz

<For Non-Beamforming Mode>

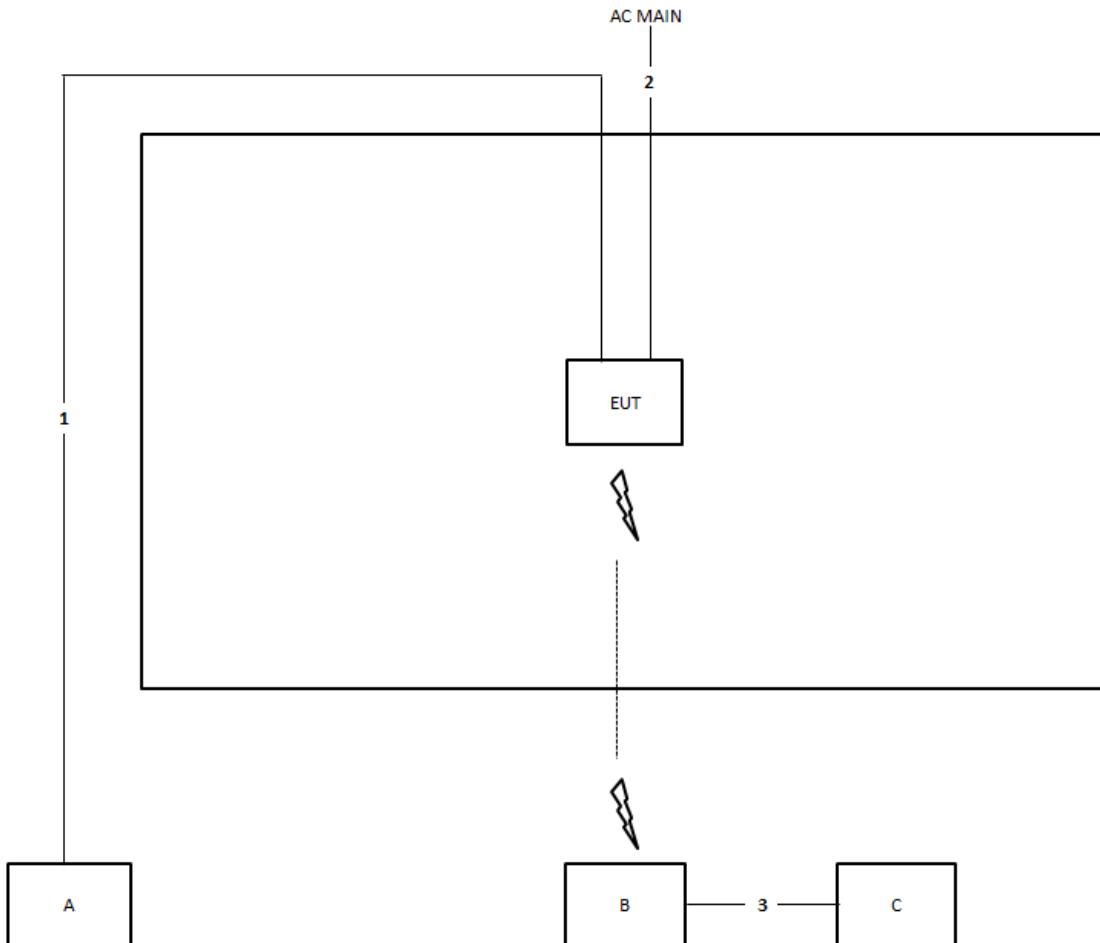


Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	3.2m



Test Setup Diagram - Radiated Test > 1GHz

<For Beamforming Mode>



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	3.2m
3	RJ-45 cable	No	1.5m



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

3.1.2 Measuring Instruments

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

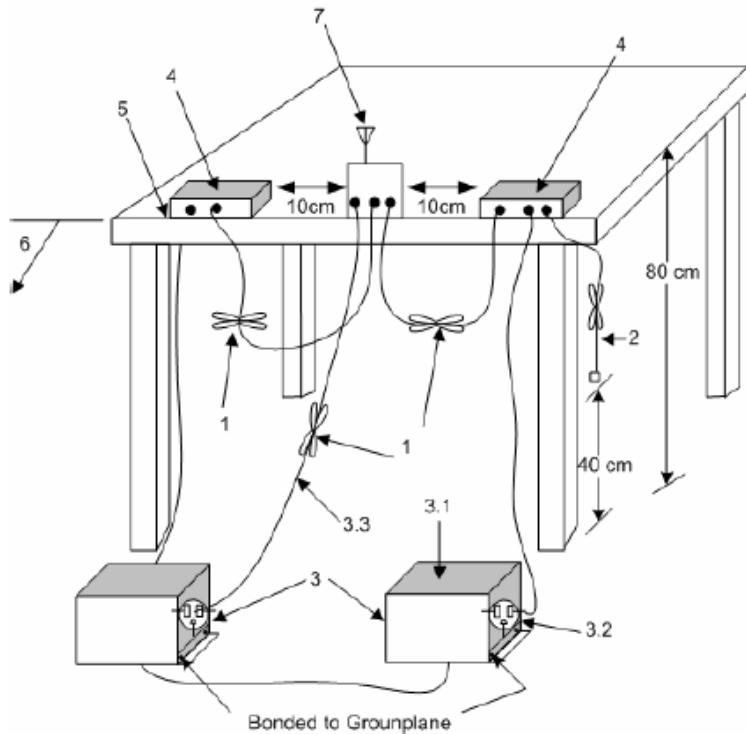
3.1.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.



3.1.4 Test Setup

AC Power-line Conducted Emissions



- 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.
- 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 50Ω 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 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A



3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
▪ 6 dB bandwidth \geq 500 kHz.

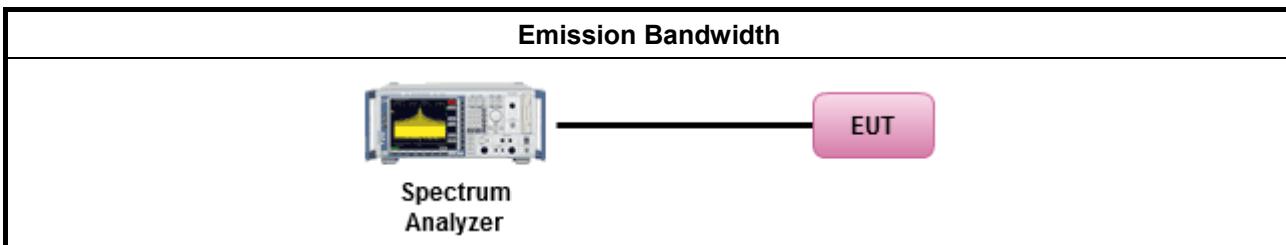
3.2.2 Measuring Instruments

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:
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.1 Option 1 for 6 dB bandwidth measurement.
<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 Option 2 for 6 dB bandwidth measurement.
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B



3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
	<ul style="list-style-type: none">▪ If $G_{TX} \leq 6 \text{ dBi}$, then $P_{Out} \leq 30 \text{ dBm}$ (1 W)
	<ul style="list-style-type: none">▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 30 - (G_{TX} - 6) \text{ dBm}$
	<ul style="list-style-type: none">▪ Point-to-point systems (P2P): If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 30 - (G_{TX} - 6)/3 \text{ dBm}$
	<ul style="list-style-type: none">▪ Smart antenna system (SAS):<ul style="list-style-type: none">- Single beam: If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 30 - (G_{TX} - 6)/3 \text{ dBm}$- Overlap beam: If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 30 - (G_{TX} - 6)/3 \text{ dBm}$- Aggregate power on all beams: If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8\text{dB dBm}$

P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm,

G_{TX} = the maximum transmitting antenna directional gain in dBi.

3.3.2 Measuring Instruments

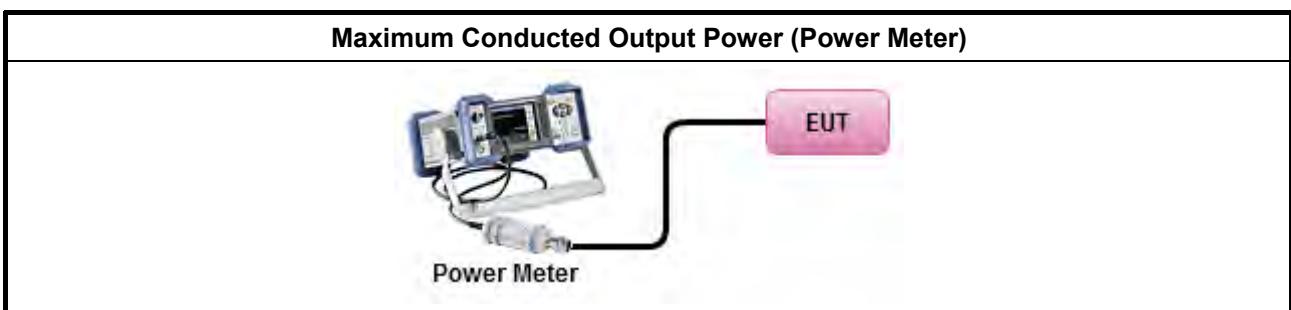
Refer a test equipment and calibration data table in this test report.



3.3.3 Test Procedures

Test Method
<ul style="list-style-type: none">▪ Maximum Peak Conducted Output Power
<ul style="list-style-type: none"><input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.1.1 & C63.10 clause 11.9.1.1 (RBW \geq EBW method).<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.1.3 & C63.10 clause 11.9.1.3 (peak power meter).
<ul style="list-style-type: none">▪ Maximum Conducted Output Power
[duty cycle \geq 98% or external video / power trigger]
<ul style="list-style-type: none"><input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.2 Method AVGSA-1.<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.3 Method AVGSA-1A. (alternative)
duty cycle $<$ 98% and average over on/off periods with duty factor
<ul style="list-style-type: none"><input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.4 Method AVGSA-2.<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.5 Method AVGSA-2A (alternative)<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.6 Method AVGSA-3<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.7 Method AVGSA-3A (alternative)
Measurement using a power meter (PM)
<ul style="list-style-type: none"><input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.1 Method AVGPM (using an RF average power meter).<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.2 Method AVGPM-G (using an gate RF average power meter).
<ul style="list-style-type: none">▪ For conducted measurement.
<ul style="list-style-type: none"><ul style="list-style-type: none">▪ 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: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup





3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C



3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
▪ Power Spectral Density (PSD) \leq 8 dBm/3kHz

3.4.2 Measuring Instruments

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

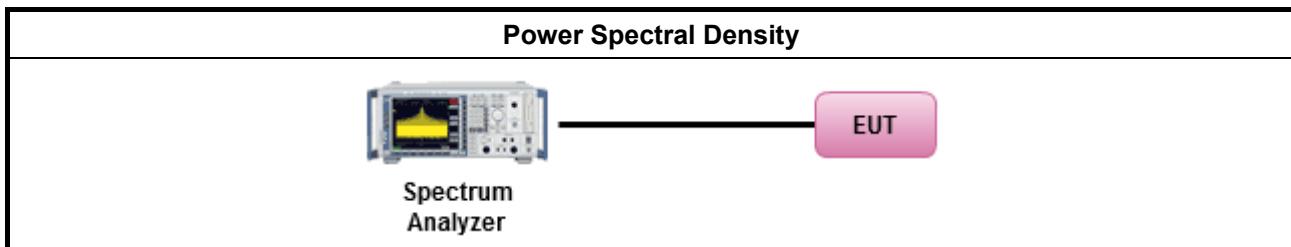
3.4.3 Test Procedures

Test Method
▪ Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.2 Method PKPSD. [duty cycle \geq 98% or external video / power trigger]
<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.3 Method AVGPSD-1.
<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.5 Method AVGPSD-2.
<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.7 Method AVGPSD-3.
duty cycle $<$ 98% and average over on/off periods with duty factor
<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.4 Method AVGPSD-1A. (alternative).
<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.6 Method AVGPSD-2A. (alternative)
<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.8 Method AVGPSD-3A. (alternative)
▪ For conducted measurement.
<input type="checkbox"/> If The EUT supports multiple transmit chains using options given below:
<input checked="" type="checkbox"/> 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.
<input type="checkbox"/> 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.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D



3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dBc)
Peak output power procedure	20
Average output power procedure	30

Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.

Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.

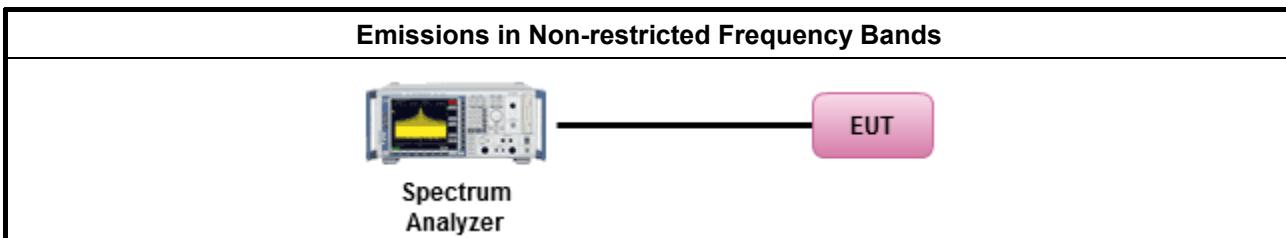
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
▪ Refer as FCC KDB 558074, clause 8.5 for unwanted emissions into non-restricted bands.

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E



3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions 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

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.

3.6.2 Measuring Instruments

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

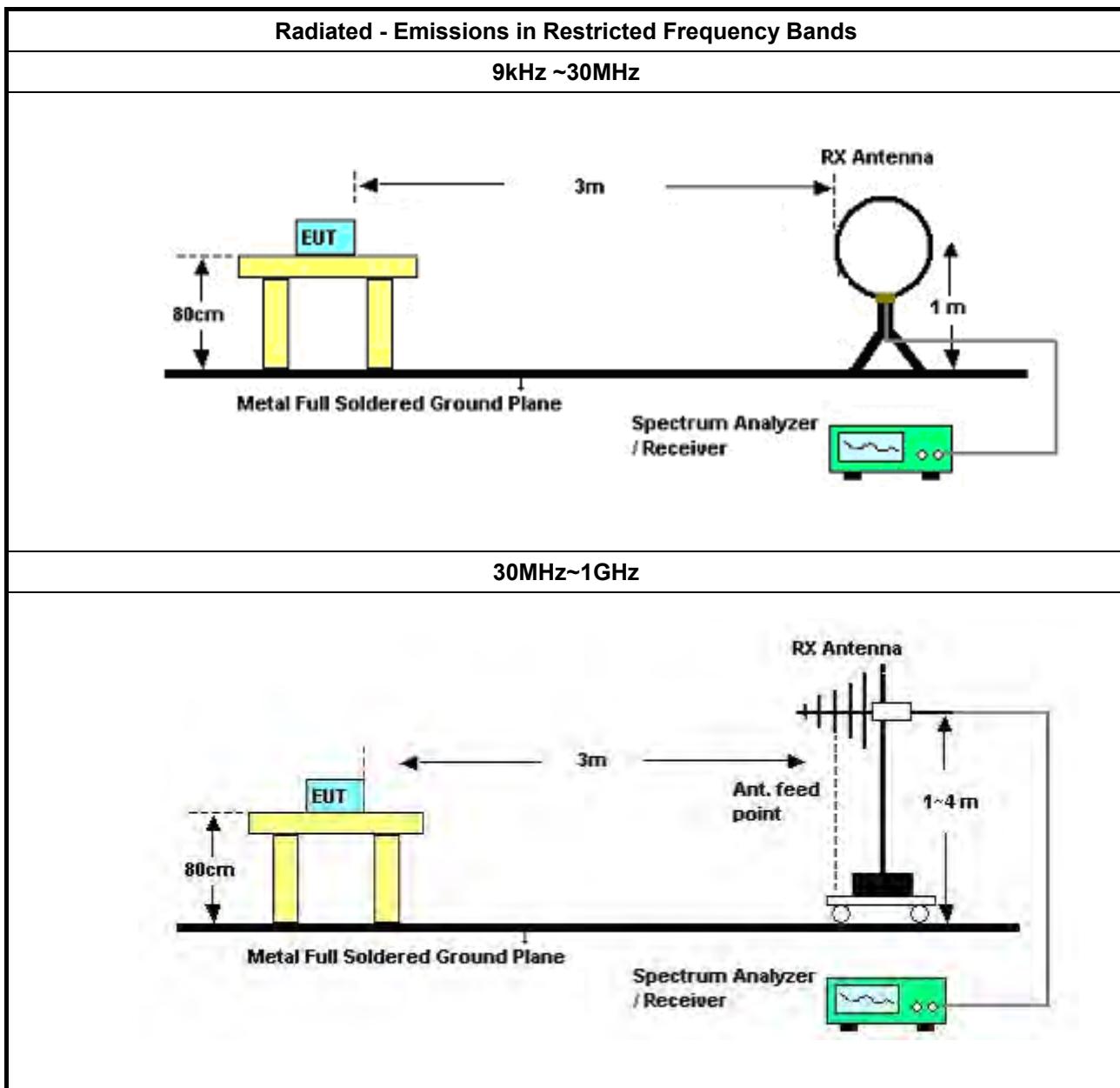


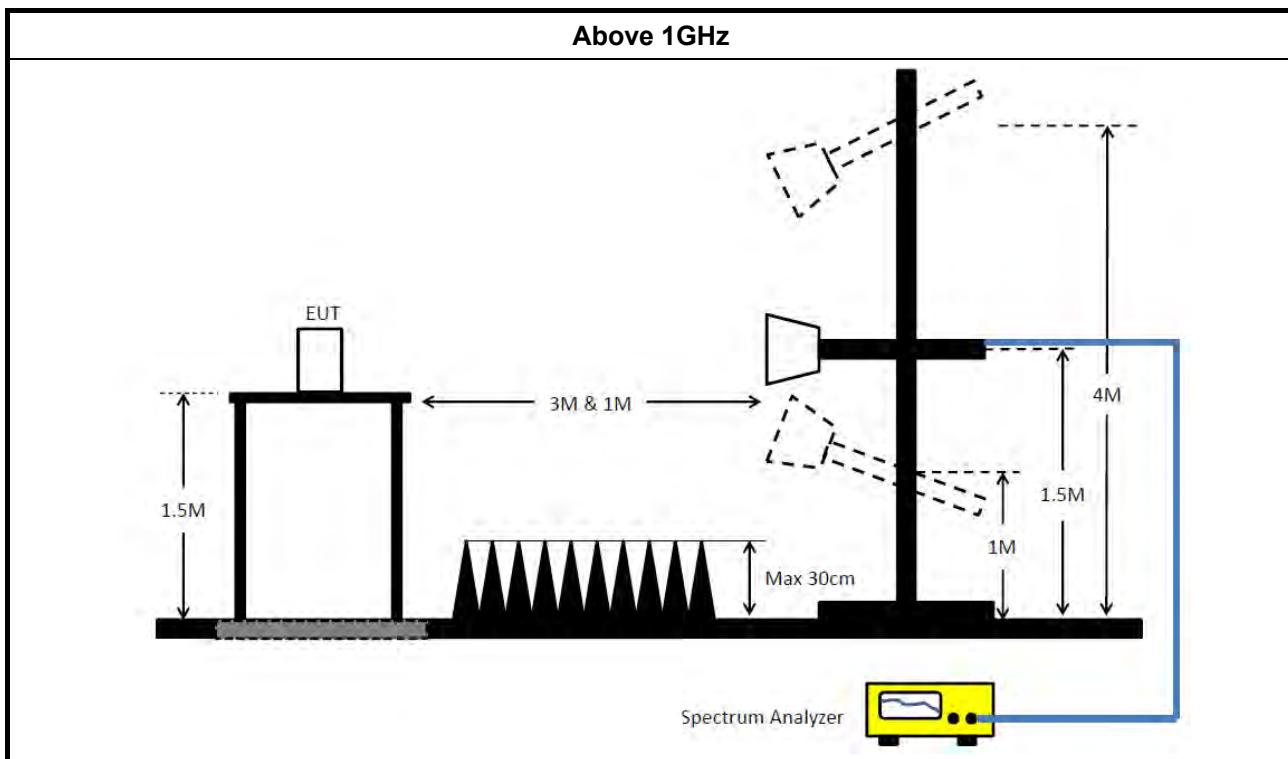
3.6.3 Test Procedures

Test Method	
▪ The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].	
▪ Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
▪ For the transmitter unwanted emissions shall be measured using following options below:	
	▪ Refer as FCC KDB 558074, clause 8.6 for unwanted emissions into restricted bands.
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.1(trace averaging for duty cycle \geq 98%).
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.2(trace averaging + duty factor).
	<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.3(Reduced VBW \geq 1/T).
	<input type="checkbox"/> Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW \geq 1/T, where T is pulse time.
	<input type="checkbox"/> Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
	<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.4 measurement procedure peak limit.
▪ For the transmitter band-edge emissions shall be measured using following options below:	
	▪ Refer as FCC KDB 558074 clause 8.7 & C63.10 clause 11.13.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.
	▪ Refer as FCC KDB 558074, clause 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.
	▪ Refer as FCC KDB 558074, clause 8.7 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).
	▪ For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB
	▪ For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.



3.6.4 Test Setup





3.6.5 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.6.6 Emissions in Restricted Frequency Bands (Below 30MHz)

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.

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Nov. 21, 2018	Nov. 20, 2019	Conduction (CO02-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Nov. 05, 2018	Nov. 04, 2019	Conduction (CO02-CB)
EMI Receiver	Agilent	N9038A	MY52260140	9kHz ~ 8.4GHz	Jan. 16, 2019	Jan. 15, 2020	Conduction (CO02-CB)
Coupling Decoupling Network	Teseq	ISN ST08	32630	150kHz ~ 30MHz	May 29, 2019	May 28, 2020	Conduction (CO02-CB)
COND Cable	Woken	Cable	2	0.15MHz ~ 30MHz	Nov. 06, 2018	Nov. 05, 2019	Conduction (CO02-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO02-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 29, 2019	Mar. 28, 2020	Radiation (03CH04-CB)
BILOG ANTENNA with 6 dB attenuator	Schaffner & Woken	CBL6112B & N-6-06	22021&AT-N06 07	30MHz ~ 1GHz	Oct. 12, 2018	Oct. 11, 2019	Radiation (03CH04-CB)
Pre-Amplifier	Agilent	310N	187291	0.1MHz ~ 1GHz	Mar. 19, 2019	Mar. 18, 2020	Radiation (03CH04-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 15, 2019	May 14, 2020	Radiation (03CH04-CB)
Horn Antenna	ETS • Lindgren	3115	00143147	750MHz~18GHz	Oct. 26, 2018	Oct. 25, 2019	Radiation (03CH04-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 12, 2019	Jun. 11, 2020	Radiation (03CH04-CB)
Pre-Amplifier	Agilent	83017A	MY53270063	0.5GHz ~ 26.5GHz	Mar. 19, 2019	Mar. 18, 2020	Radiation (03CH04-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH04-CB)
Spectrum Analyzer	R&S	FSP40	100142	9kHz~40GHz	Dec. 26, 2018	Dec. 25, 2019	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21	1GHz - 18GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21+22	1GHz - 18GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH04-CB)

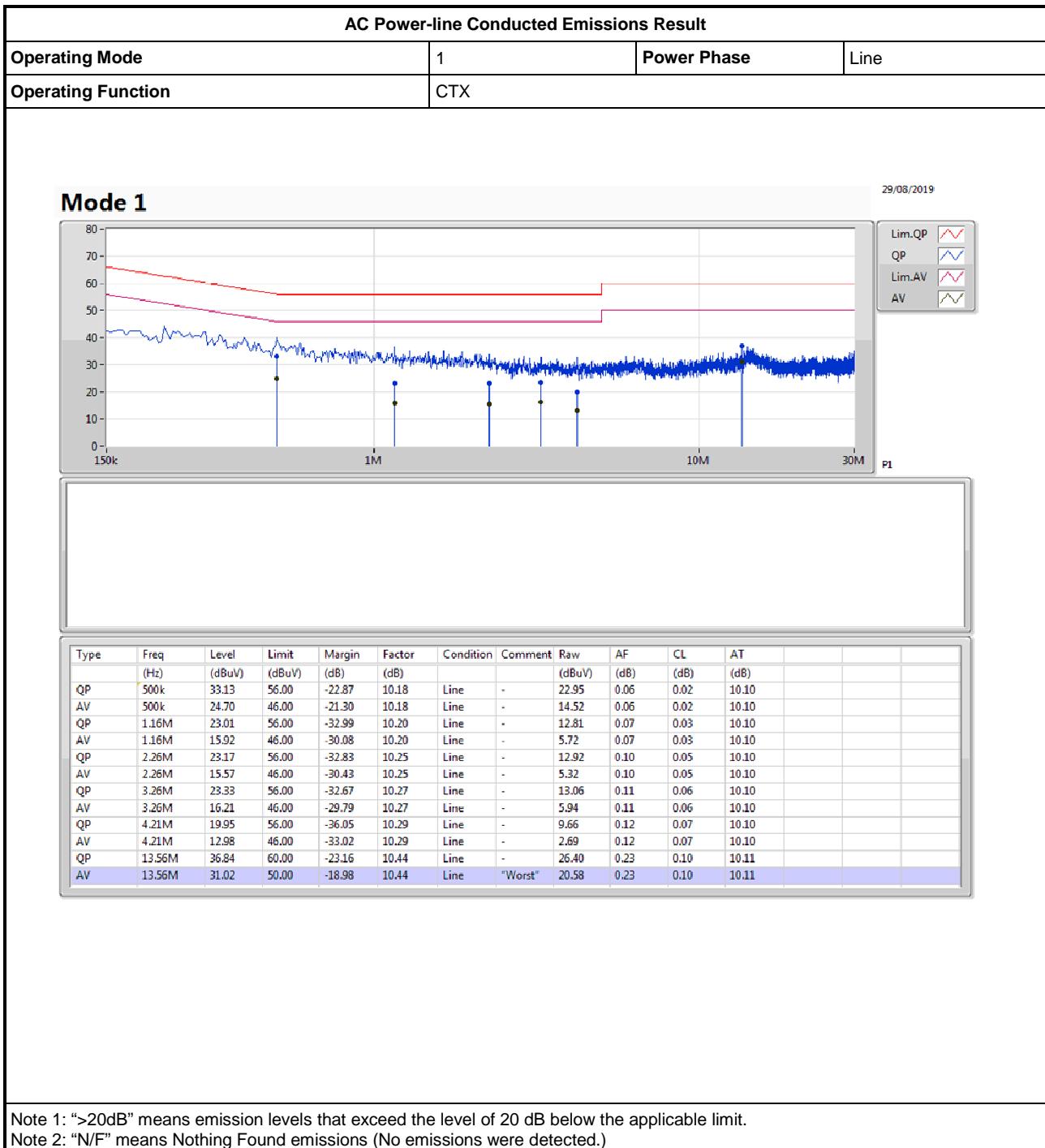
**FCC RADIO TEST REPORT**

Report No. : FR912114AA

RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH04-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Feb. 25, 2019	Feb. 24, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-28	1 GHz – 26.5 GHz	Nov. 19, 2018	Nov. 18, 2019	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz	Jan. 15, 2019	Jan. 14, 2020	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	GB41291199	50MHz~18GHz	Jan. 15, 2019	Jan. 14, 2020	Conducted (TH01-CB)

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

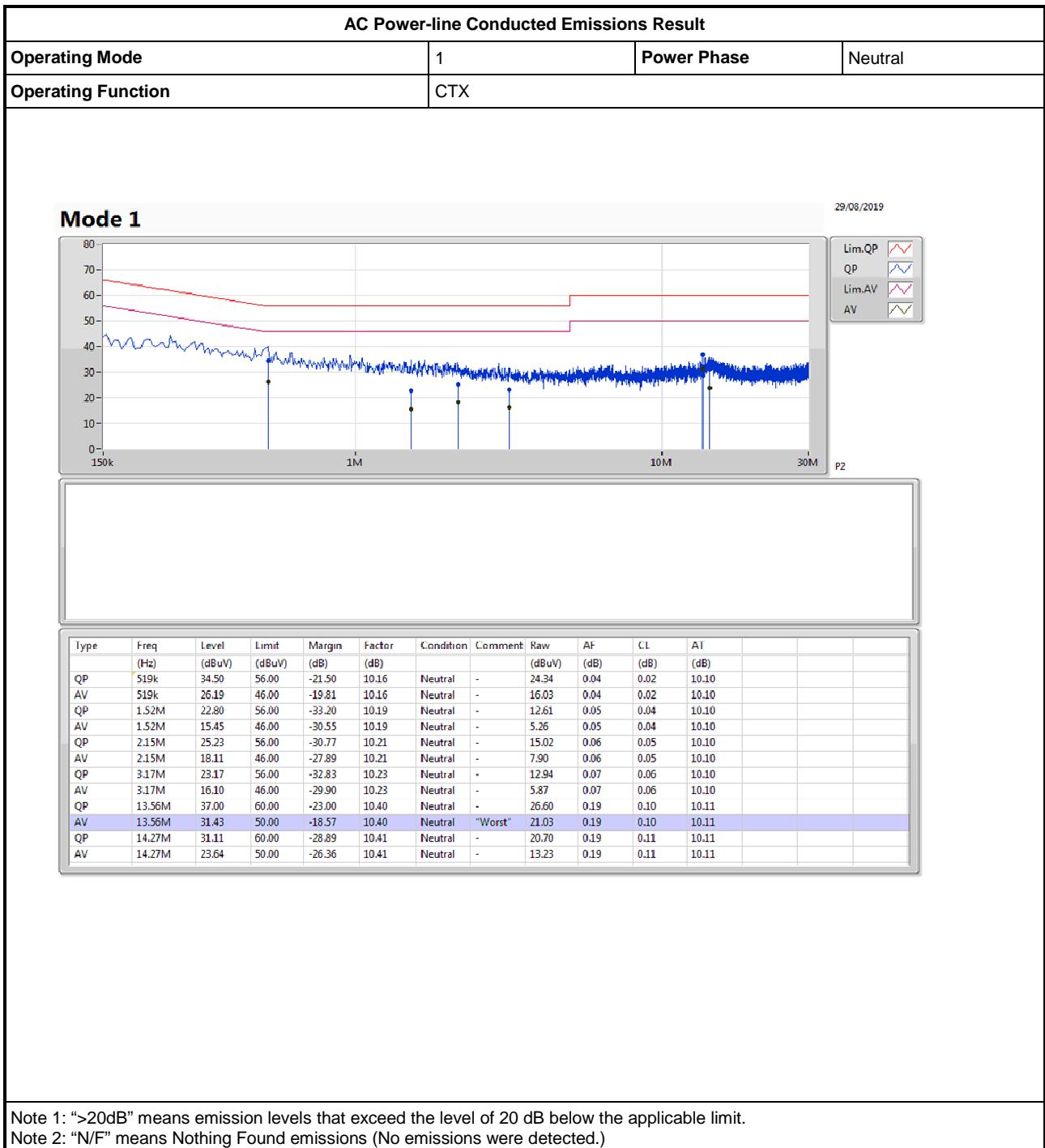
NCR means Non-Calibration required.





AC Power-line Conducted Emissions Result

Appendix A





<Non-beamforming mode> 1T1S

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_1TX	7M	10.395M	10M4G1D	6.525M	10.295M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

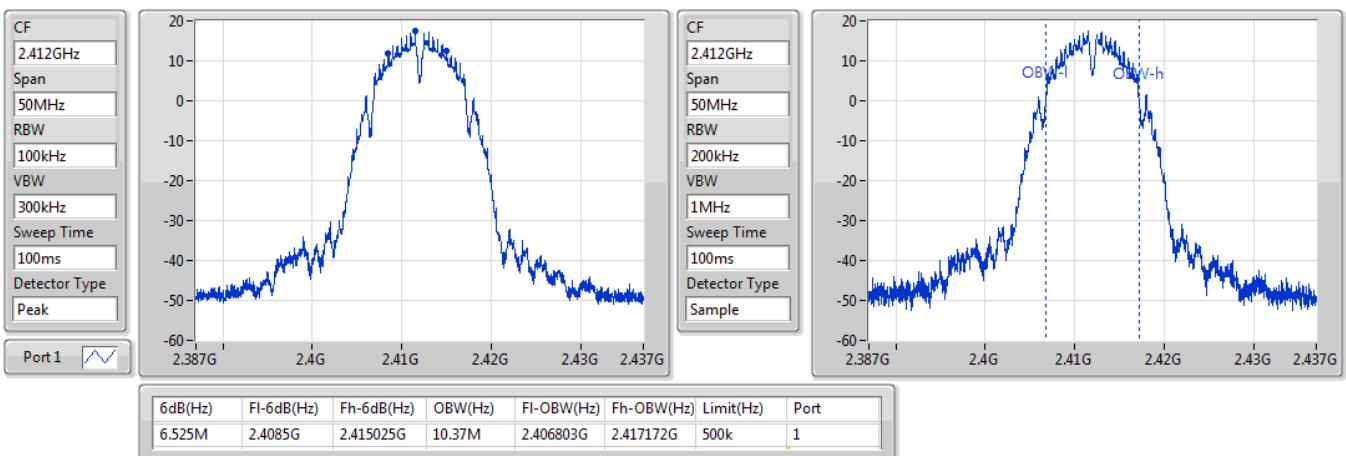
**Result**

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-
2412MHz	Pass	500k	6.525M	10.37M
2417MHz				
2437MHz	Pass	500k	7M	10.395M
2457MHz				
2462MHz	Pass	500k	7M	10.295M

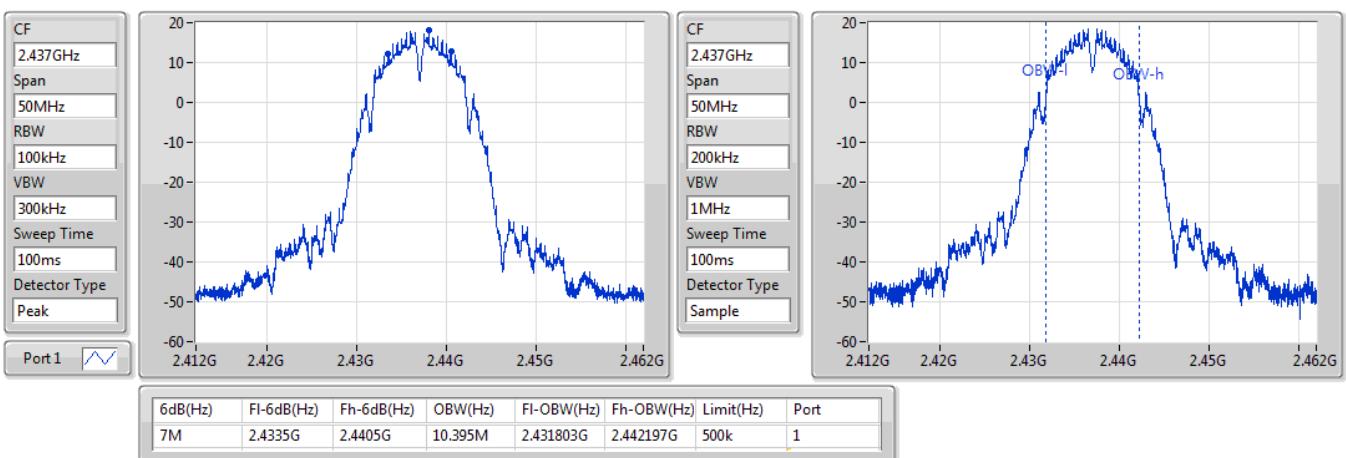
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

802.11b_Nss1,(1Mbps)_1TX
EBW
2412MHz

23/09/2019

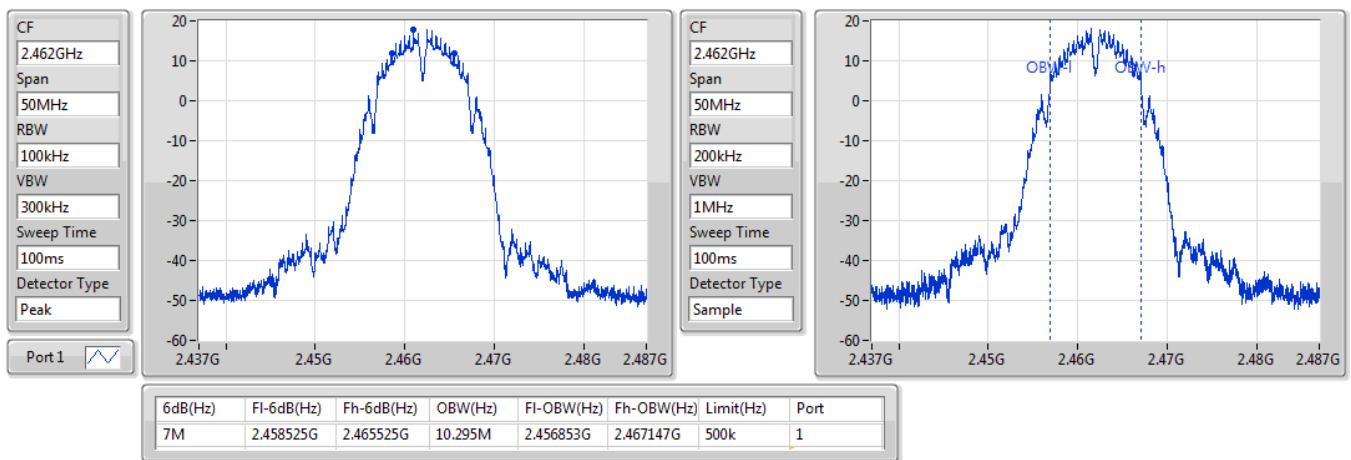

802.11b_Nss1,(1Mbps)_1TX
EBW
2437MHz

23/09/2019



802.11b_Nss1,(1Mbps)_1TX
EBW
2462MHz

23/09/2019





<Non-beamforming mode> 3T1S

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
VHT20_Nss1,(MCS0)_3TX	17.6M	17.891M	17M9D1D	17.55M	17.741M
VHT40_Nss1,(MCS0)_3TX	36.35M	36.332M	36M3D1D	36.3M	36.182M
802.11ax HEW20_Nss1,(MCS0)_3TX	19M	19.015M	19M0D1D	18.875M	18.966M
802.11ax HEW40_Nss1,(MCS0)_3TX	37.45M	37.681M	37M7D1D	37.1M	37.481M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;



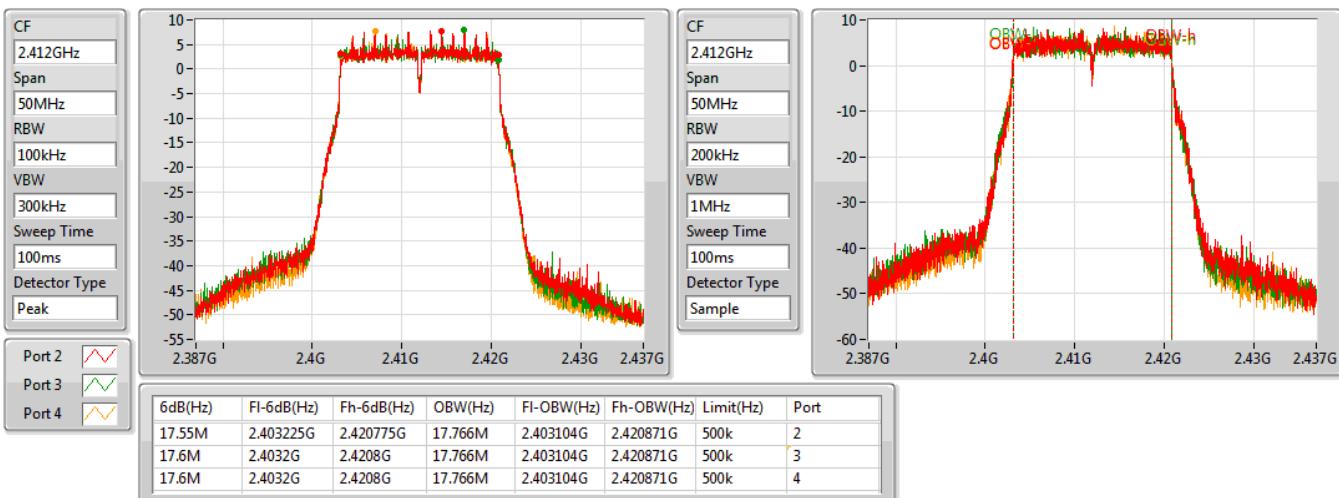
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
VHT20_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k			17.55M	17.766M	17.6M	17.766M	17.6M	17.766M
2417MHz										
2437MHz	Pass	500k			17.575M	17.891M	17.6M	17.841M	17.575M	17.866M
2457MHz										
2462MHz	Pass	500k			17.6M	17.766M	17.6M	17.741M	17.575M	17.816M
VHT40_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k			36.3M	36.182M	36.35M	36.282M	36.3M	36.282M
2427MHz										
2437MHz	Pass	500k			36.3M	36.232M	36.3M	36.282M	36.3M	36.282M
2447MHz										
2452MHz	Pass	500k			36.3M	36.332M	36.35M	36.182M	36.3M	36.282M
802.11ax HEW20_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k			19M	18.966M	18.975M	18.966M	18.9M	18.991M
2417MHz										
2437MHz	Pass	500k			18.925M	19.015M	18.9M	19.015M	18.875M	19.015M
2457MHz										
2462MHz	Pass	500k			18.975M	18.991M	18.925M	18.991M	19M	18.966M
802.11ax HEW40_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k			37.1M	37.531M	37.45M	37.531M	37.35M	37.531M
2427MHz										
2437MHz	Pass	500k			37.4M	37.481M	37.3M	37.531M	37.3M	37.581M
2447MHz										
2452MHz	Pass	500k			37.1M	37.681M	37.25M	37.531M	37.35M	37.631M

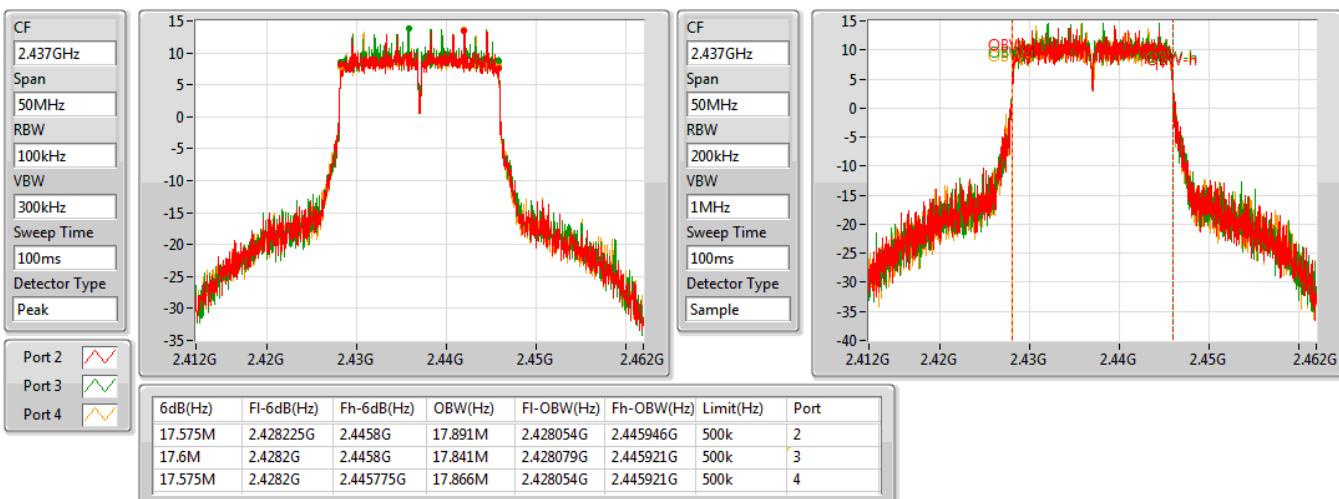
Port X-N dB = Port X 6dB down bandwidth; Port X-OBW = Port X 99% occupied bandwidth;

VHT20_Nss1,(MCS0)_3TX
EBW
2412MHz

28/07/2019

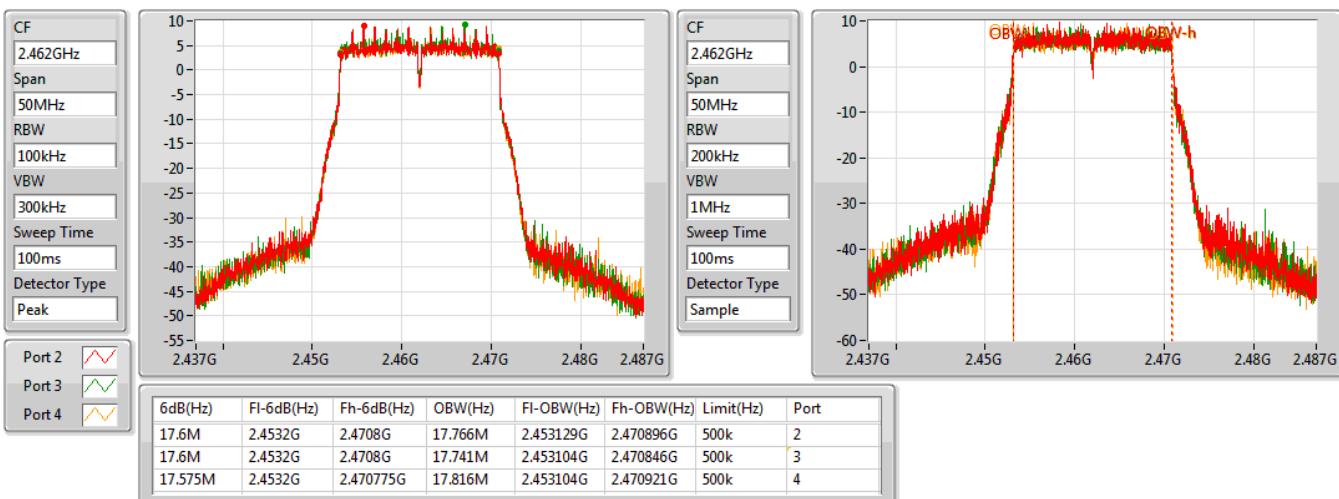

VHT20_Nss1,(MCS0)_3TX
EBW
2437MHz

28/07/2019

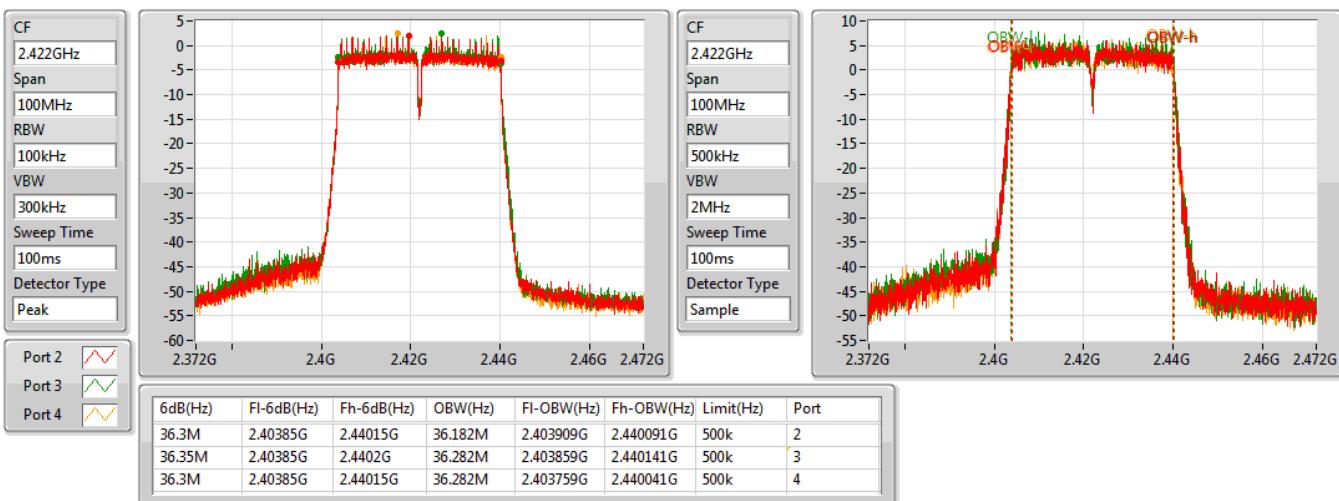


VHT20_Nss1,(MCS0)_3TX
EBW
2462MHz

28/07/2019

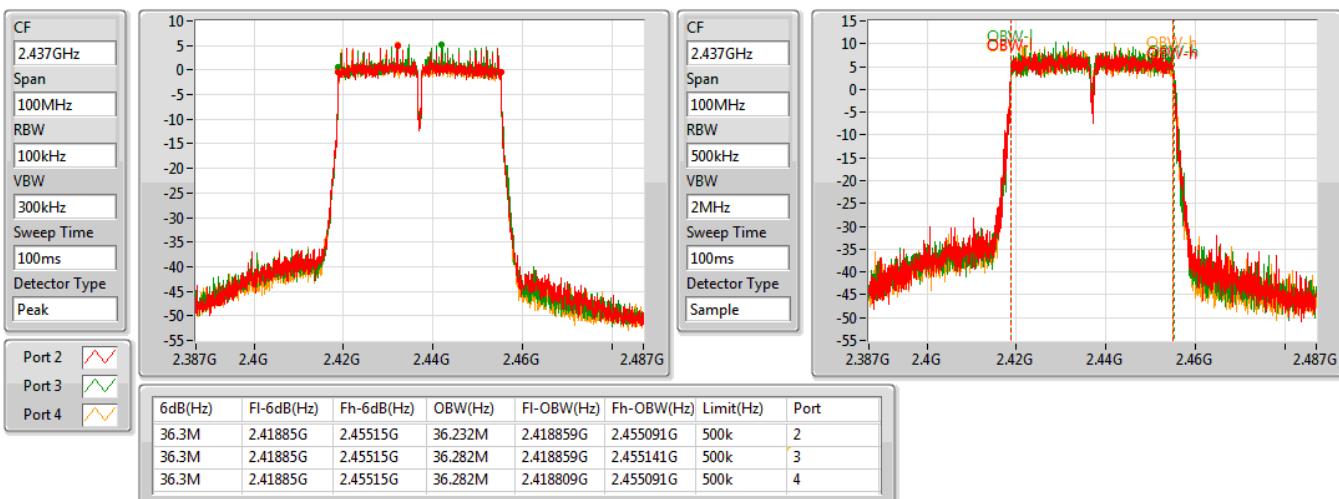

VHT40_Nss1,(MCS0)_3TX
EBW
2422MHz

28/07/2019

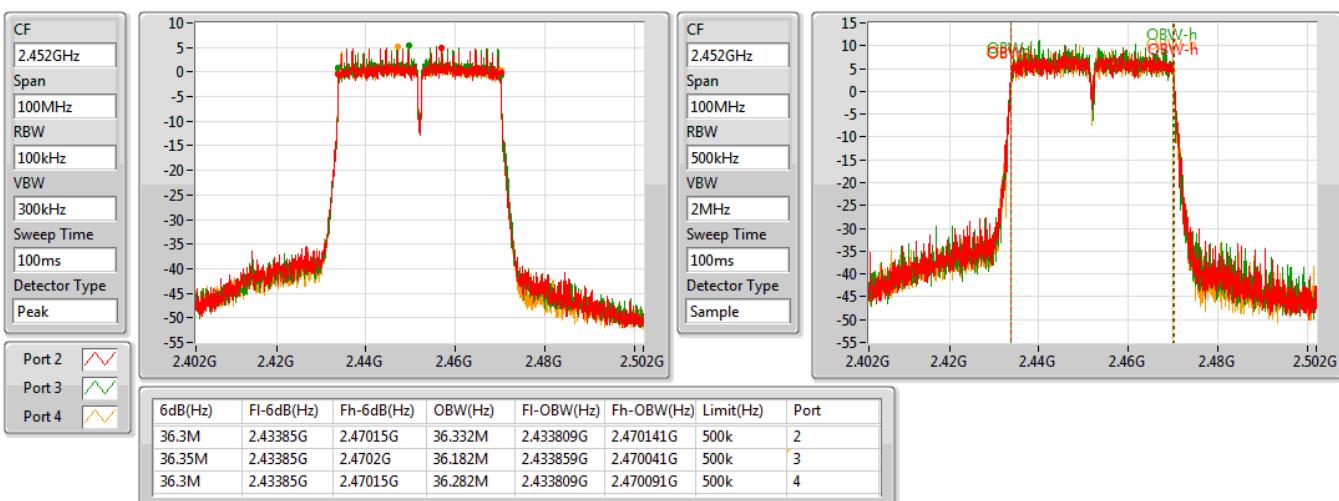


VHT40_Nss1,(MCS0)_3TX
EBW
2437MHz

28/07/2019

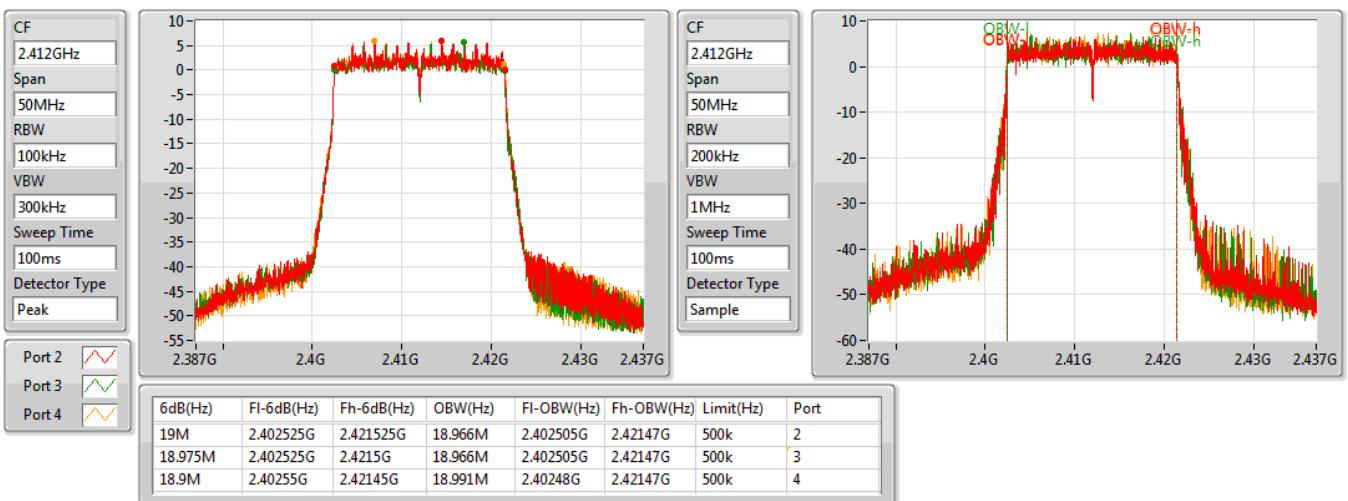

VHT40_Nss1,(MCS0)_3TX
EBW
2452MHz

28/07/2019

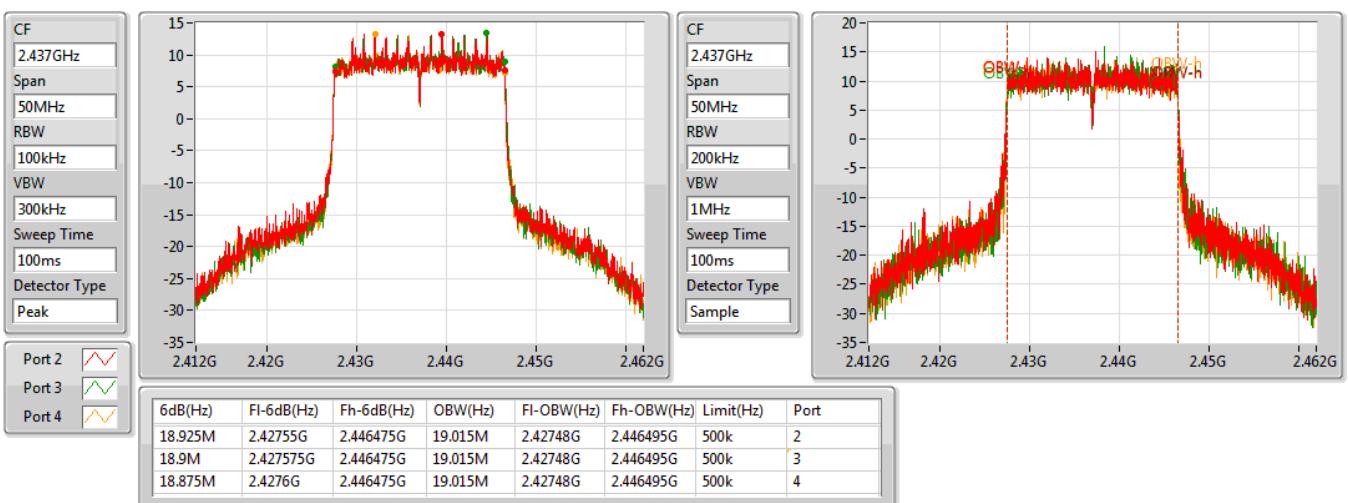


802.11ax HEW20_Nss1,(MCS0)_3TX
EBW
2412MHz

28/07/2019

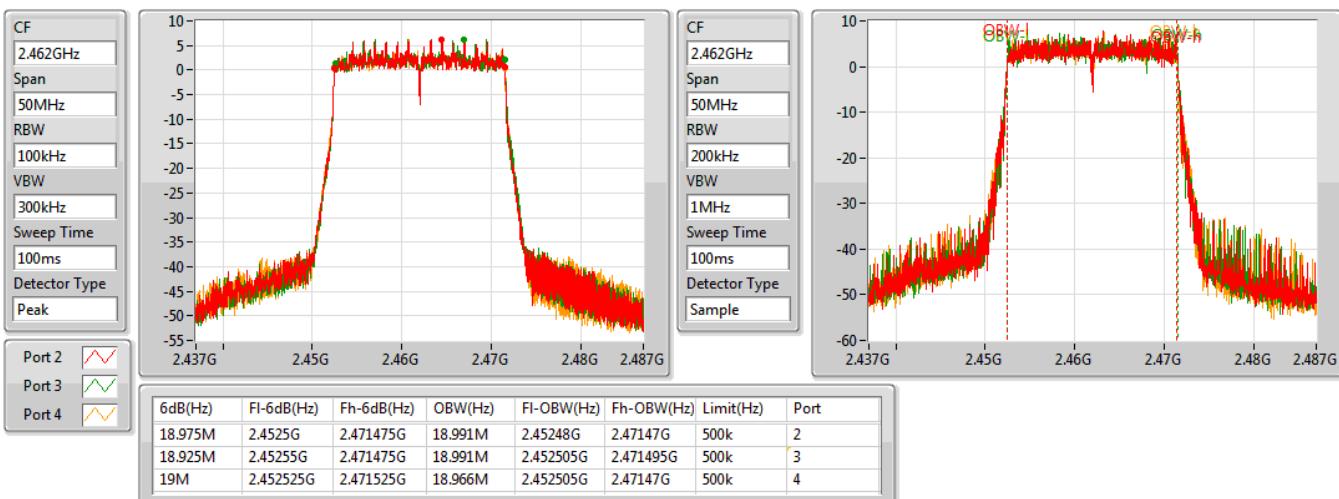

802.11ax HEW20_Nss1,(MCS0)_3TX
EBW
2437MHz

28/07/2019

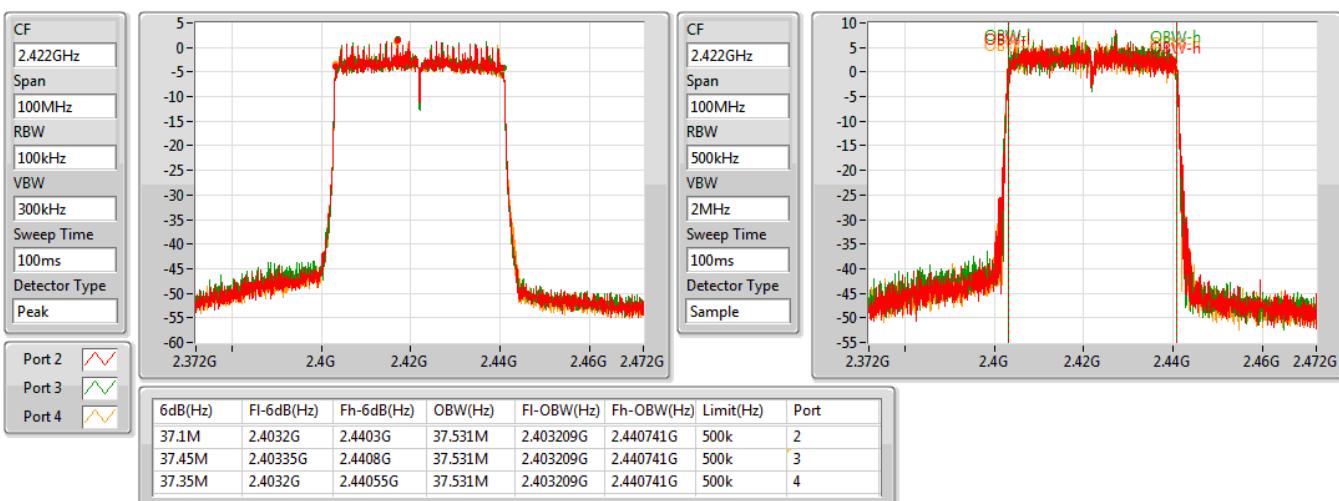


802.11ax HEW20_Nss1,(MCS0)_3TX
EBW
2462MHz

28/07/2019

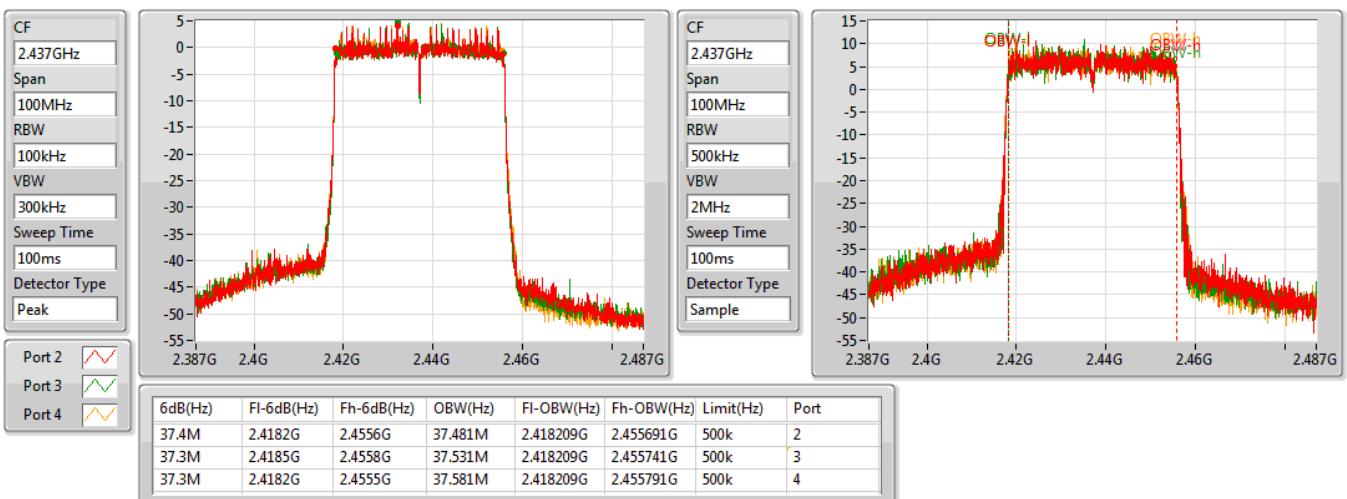

802.11ax HEW40_Nss1,(MCS0)_3TX
EBW
2422MHz

28/07/2019

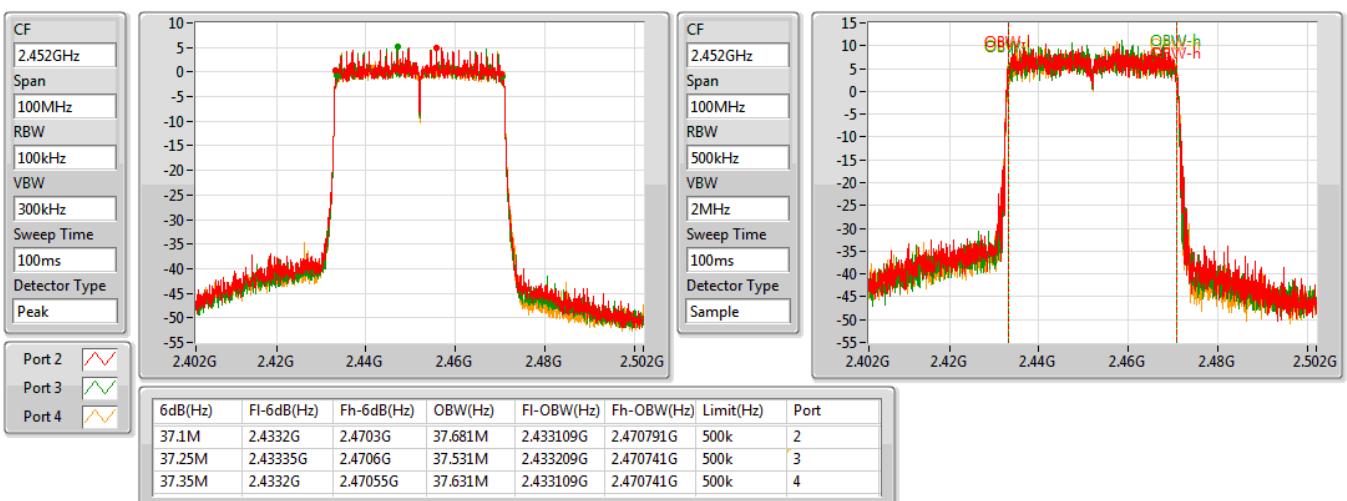


802.11ax HEW40_Nss1,(MCS0)_3TX
EBW
2437MHz

28/07/2019


802.11ax HEW40_Nss1,(MCS0)_3TX
EBW
2452MHz

28/07/2019





<beamforming mode> 3T1S

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
VHT20-BF_Nss1,(MCS0)_3TX	17.6M	17.866M	17M9D1D	17.55M	17.716M
VHT40-BF_Nss1,(MCS0)_3TX	36.35M	36.332M	36M3D1D	36.25M	36.182M
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	19M	19.015M	19M0D1D	18.825M	18.941M
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	37.5M	37.581M	37M6D1D	36.2M	37.481M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

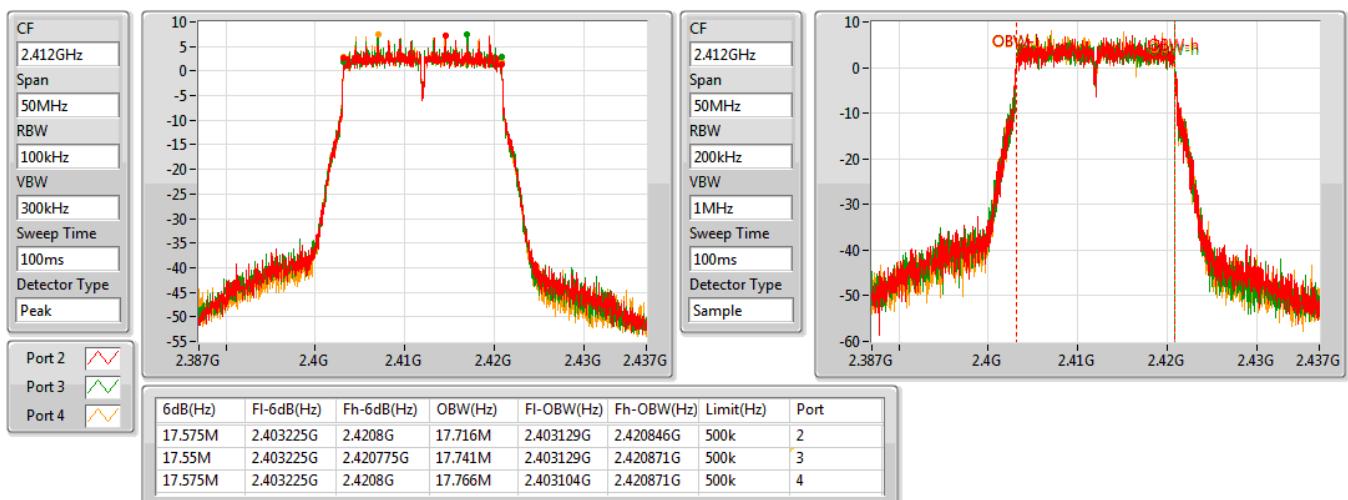
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
VHT20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k		17.575M	17.716M	17.55M	17.741M	17.575M	17.766M	
2417MHz										
2437MHz	Pass	500k		17.575M	17.816M	17.575M	17.866M	17.6M	17.791M	
2457MHz										
2462MHz	Pass	500k		17.55M	17.741M	17.6M	17.741M	17.55M	17.791M	
VHT40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k		36.3M	36.232M	36.35M	36.332M	36.3M	36.282M	
2427MHz										
2437MHz	Pass	500k		36.25M	36.232M	36.3M	36.232M	36.3M	36.282M	
2447MHz										
2452MHz	Pass	500k		36.3M	36.182M	36.3M	36.232M	36.3M	36.232M	
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k		19M	18.966M	19M	18.966M	18.95M	18.966M	
2417MHz										
2437MHz	Pass	500k		18.825M	19.015M	18.95M	18.991M	18.9M	18.966M	
2457MHz										
2462MHz	Pass	500k		19M	18.941M	18.975M	18.941M	18.9M	18.941M	
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k		37.5M	37.531M	37.25M	37.531M	37.25M	37.581M	
2427MHz										
2437MHz	Pass	500k		37M	37.531M	36.7M	37.581M	37.45M	37.481M	
2447MHz										
2452MHz	Pass	500k		37.5M	37.581M	36.2M	37.581M	36.8M	37.531M	

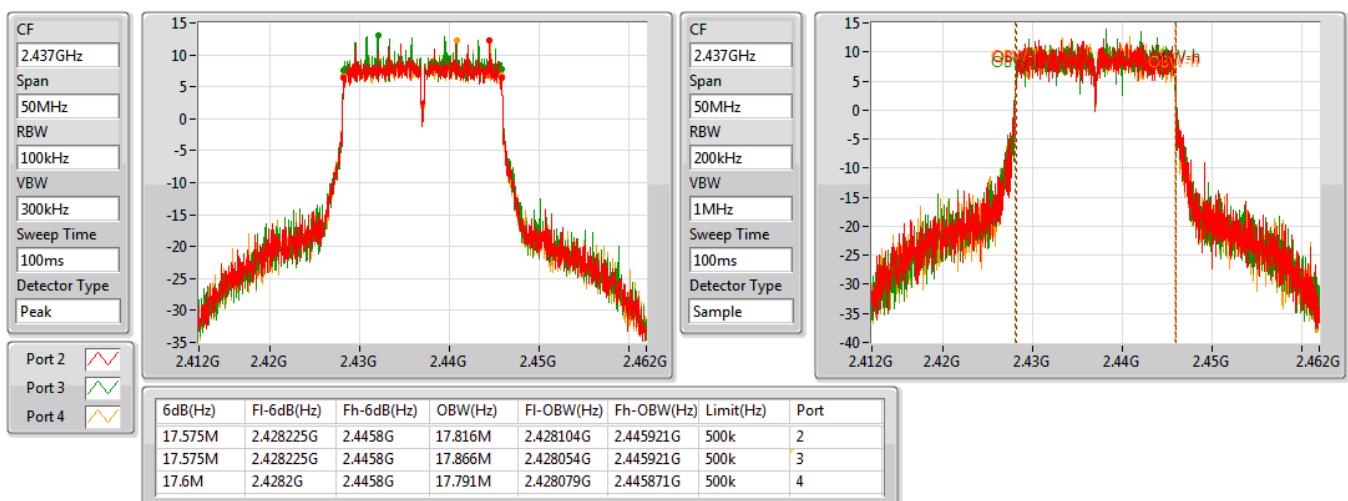
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

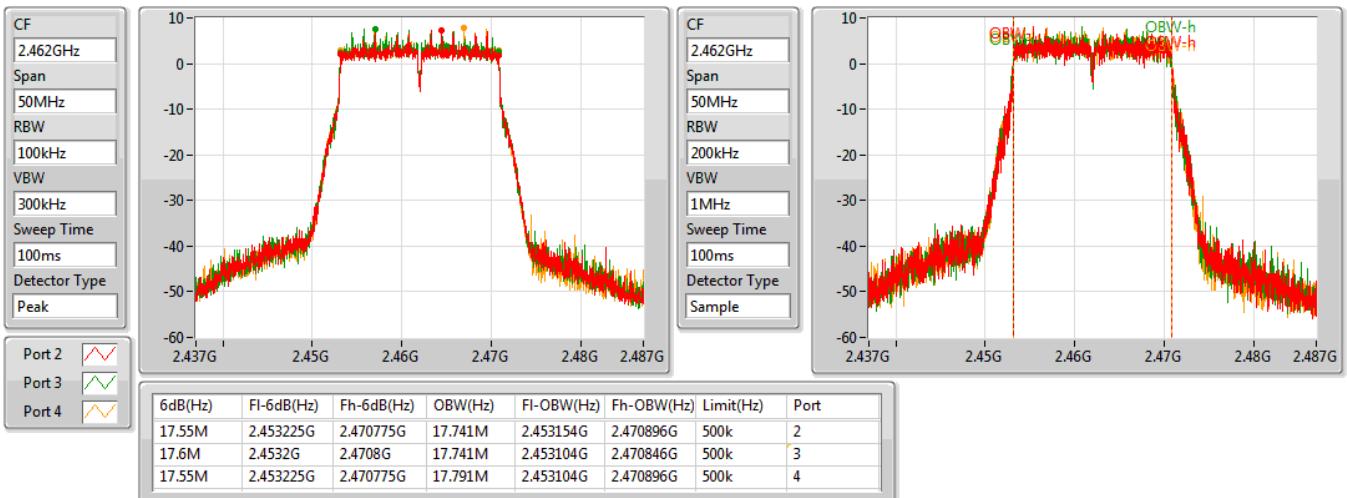
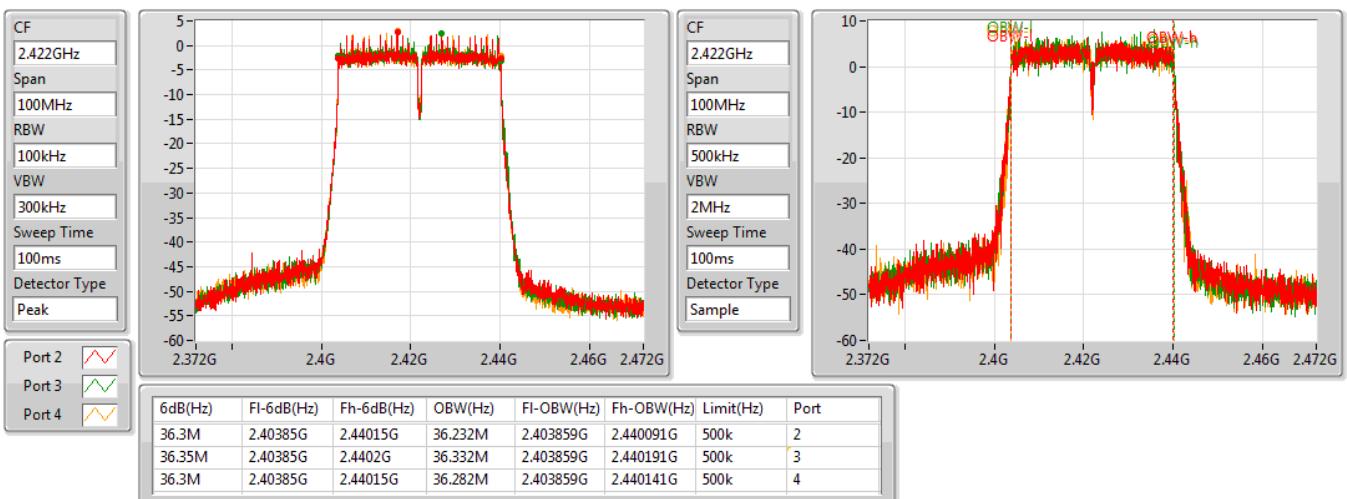
VHT20-BF_Nss1,(MCS0)_3TX
EBW
2412MHz

27/07/2019


VHT20-BF_Nss1,(MCS0)_3TX
EBW
2437MHz

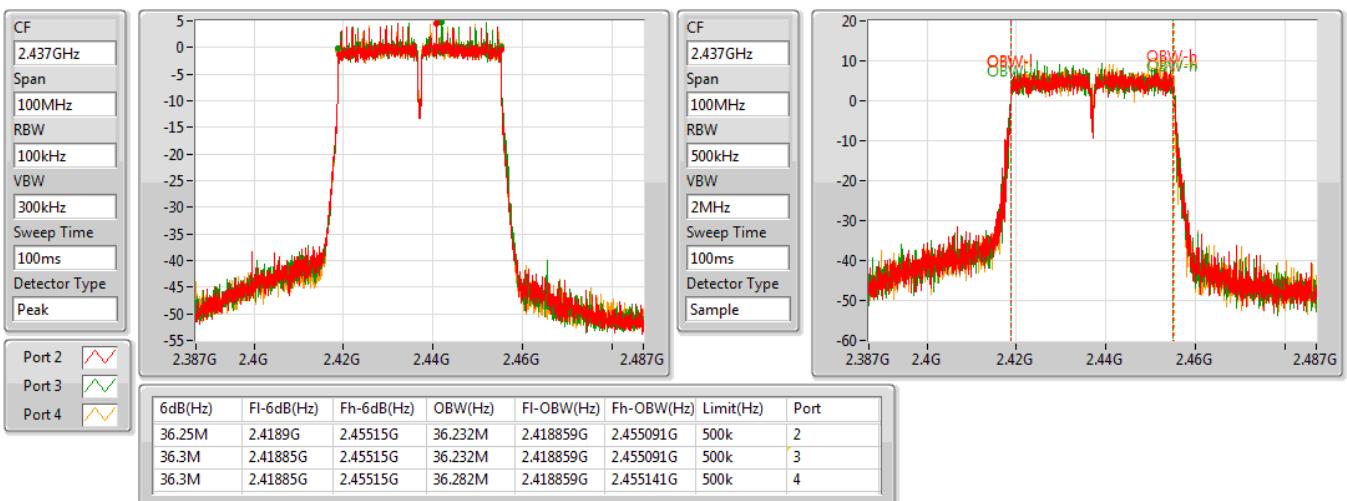
27/07/2019



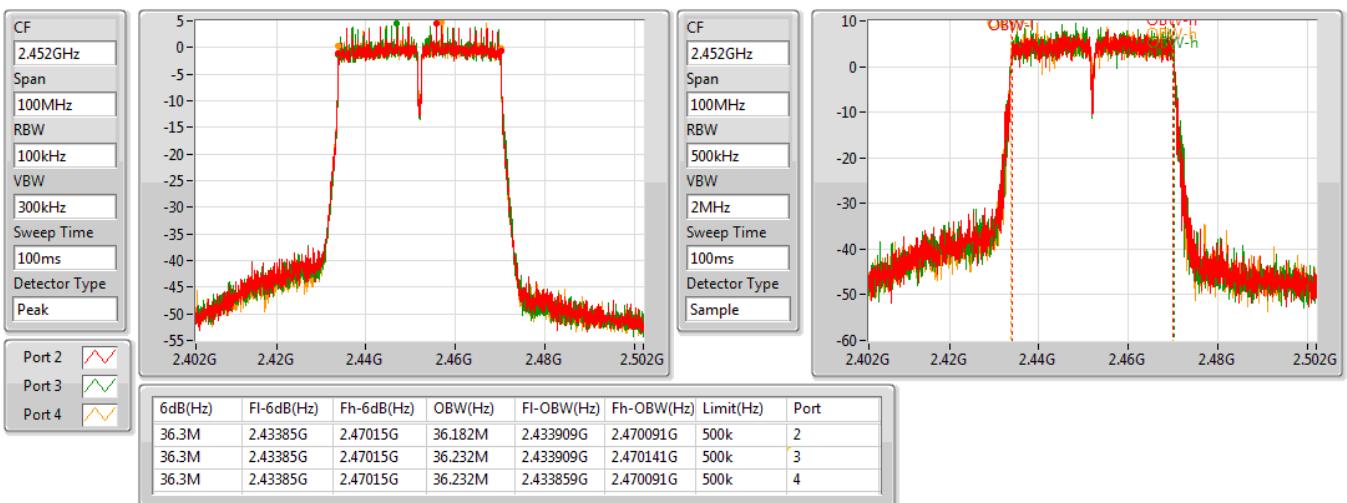
VHT20-BF_Nss1,(MCS0)_3TX
EBW
2462MHz

VHT40-BF_Nss1,(MCS0)_3TX
EBW
2422MHz


VHT40-BF_Nss1,(MCS0)_3TX
EBW
2437MHz

01/08/2019

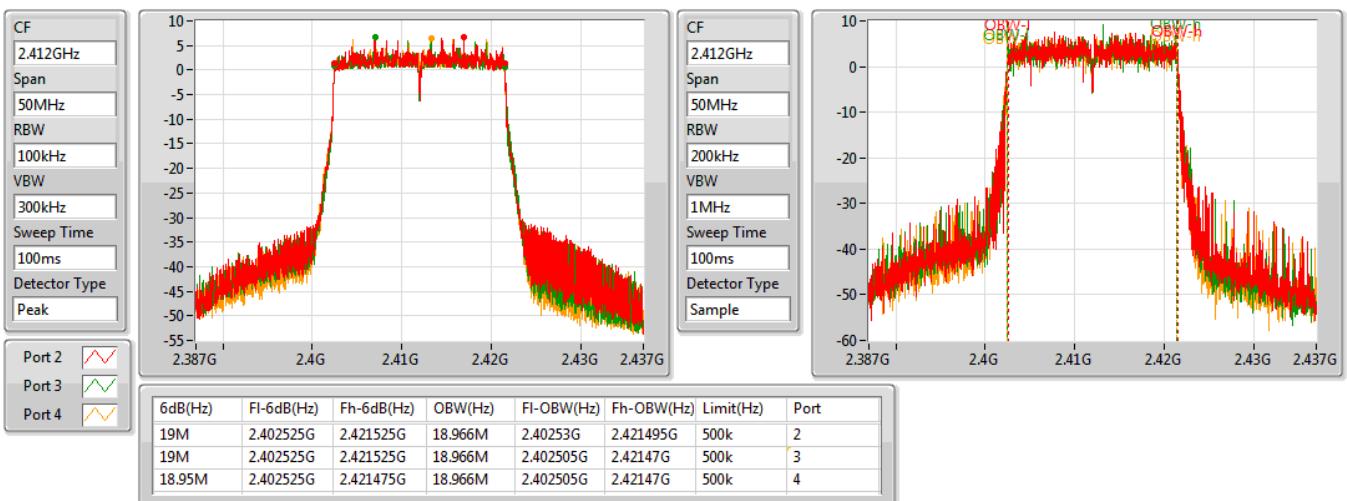

VHT40-BF_Nss1,(MCS0)_3TX
EBW
2452MHz

01/08/2019

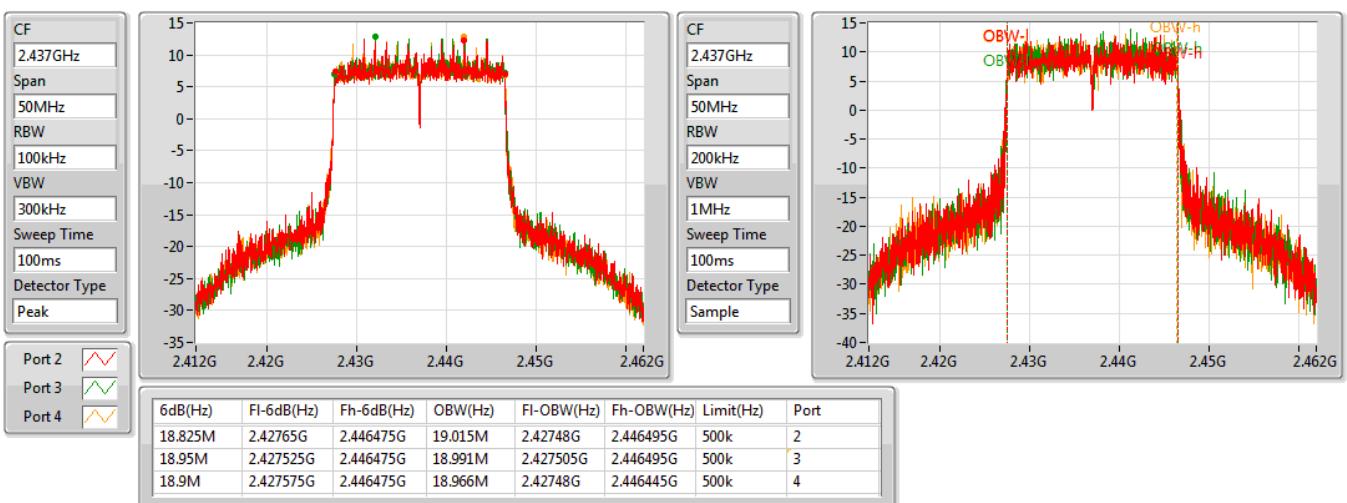


802.11ax HEW20-BF_Nss1,(MCS0)_3TX
EBW
2412MHz

27/07/2019

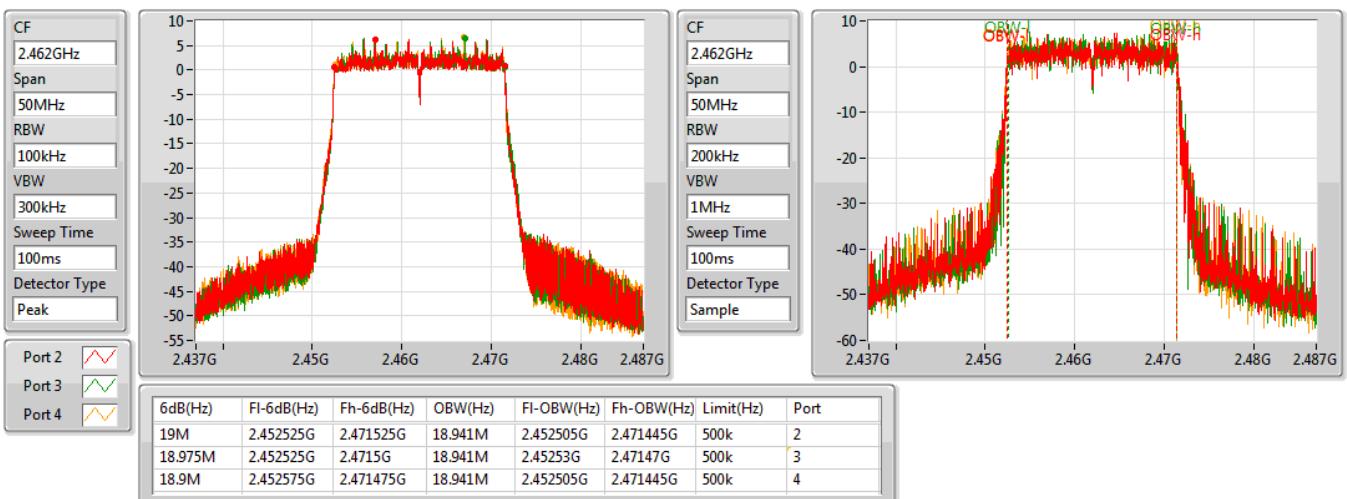

802.11ax HEW20-BF_Nss1,(MCS0)_3TX
EBW
2437MHz

27/07/2019

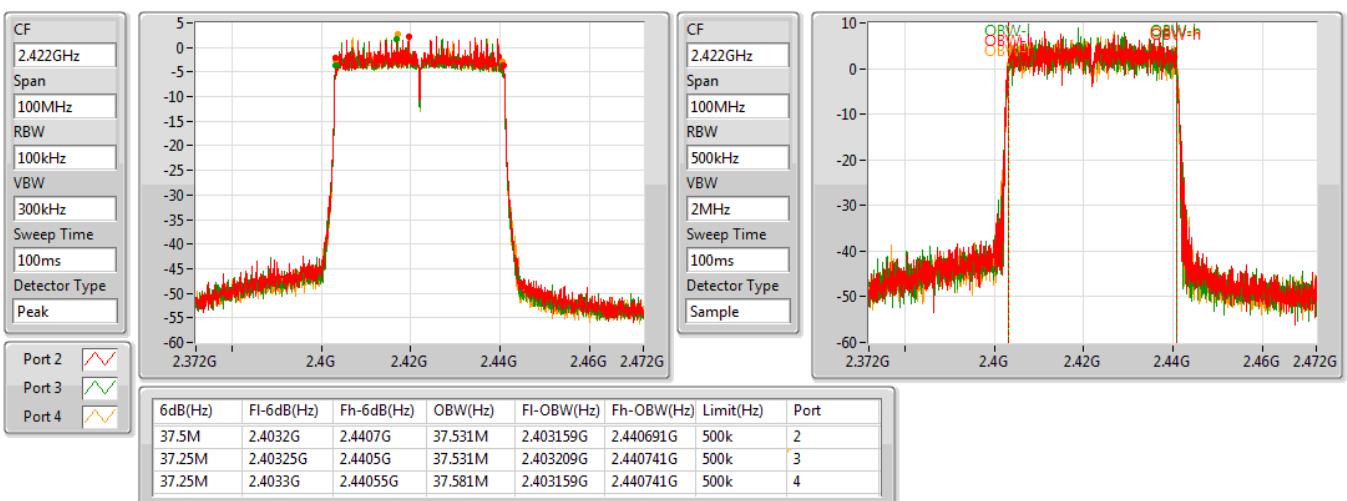


802.11ax HEW20-BF_Nss1,(MCS0)_3TX
EBW
2462MHz

27/07/2019

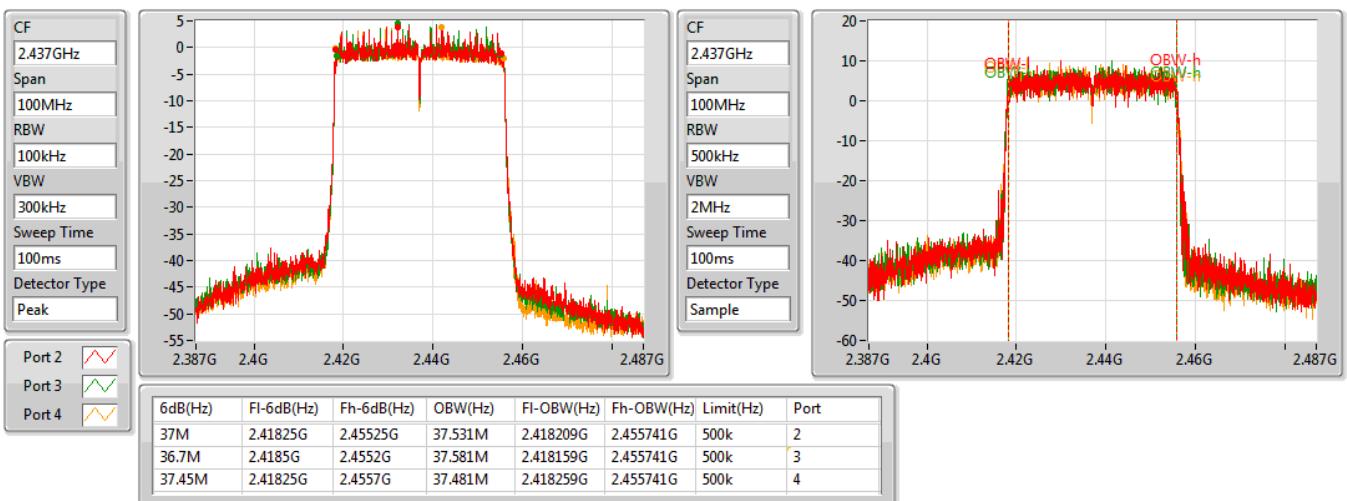

802.11ax HEW40-BF_Nss1,(MCS0)_3TX
EBW
2422MHz

01/08/2019

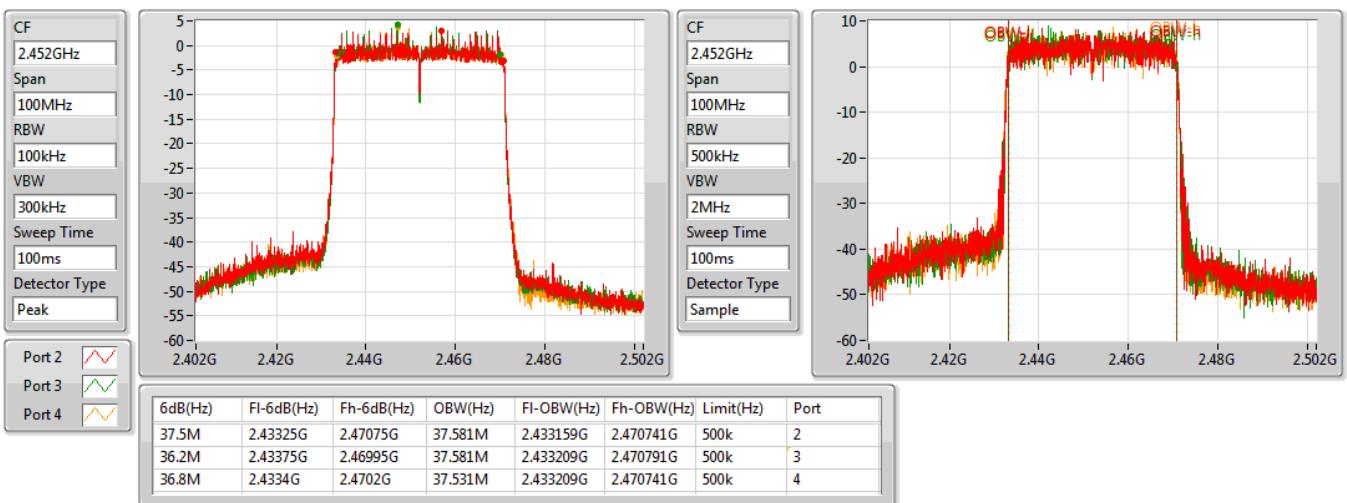


802.11ax HEW40-BF_Nss1,(MCS0)_3TX
EBW
2437MHz

27/07/2019


802.11ax HEW40-BF_Nss1,(MCS0)_3TX
EBW
2452MHz

27/07/2019





<Non-beamforming mode> 3T2S

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
VHT20_Nss2,(MCS0)_3TX	17.7M	17.791M	17M8D1D	17.6M	17.716M
802.11ax HEW20_Nss2,(MCS0)_3TX	19.025M	19.015M	19M0D1D	18.7M	18.941M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;



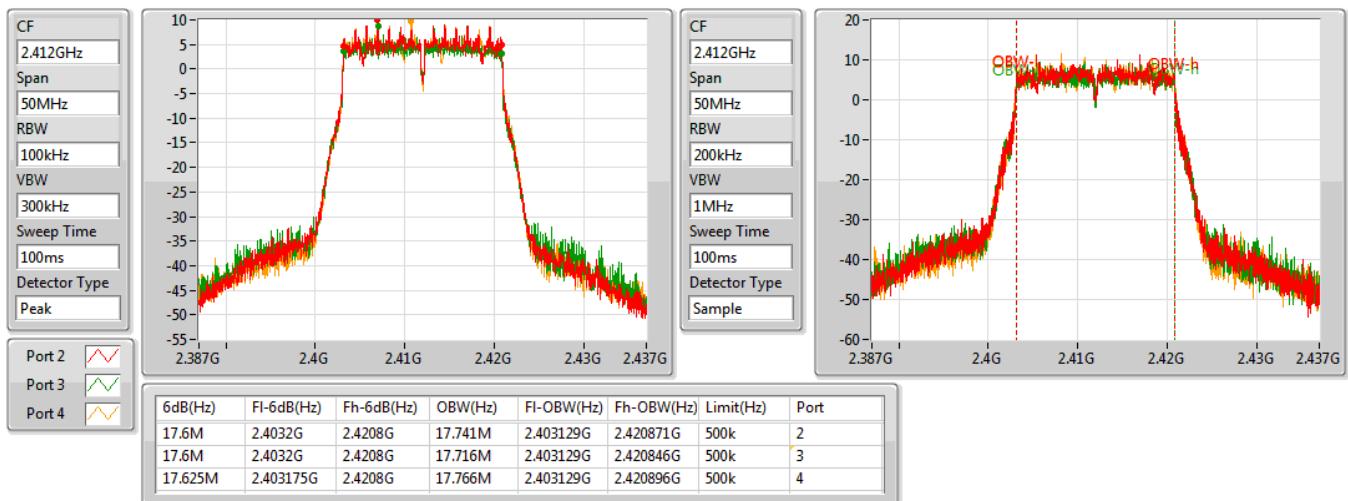
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
VHT20_Nss2,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k			17.6M	17.741M	17.6M	17.716M	17.625M	17.766M
2417MHz										
2437MHz										
2457MHz										
2462MHz	Pass	500k			17.6M	17.766M	17.6M	17.766M	17.7M	17.791M
802.11ax HEW20_Nss2,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k			18.825M	18.941M	18.975M	19.015M	19.025M	18.966M
2417MHz										
2437MHz										
2457MHz										
2462MHz	Pass	500k			18.7M	18.966M	18.975M	19.015M	18.95M	18.941M

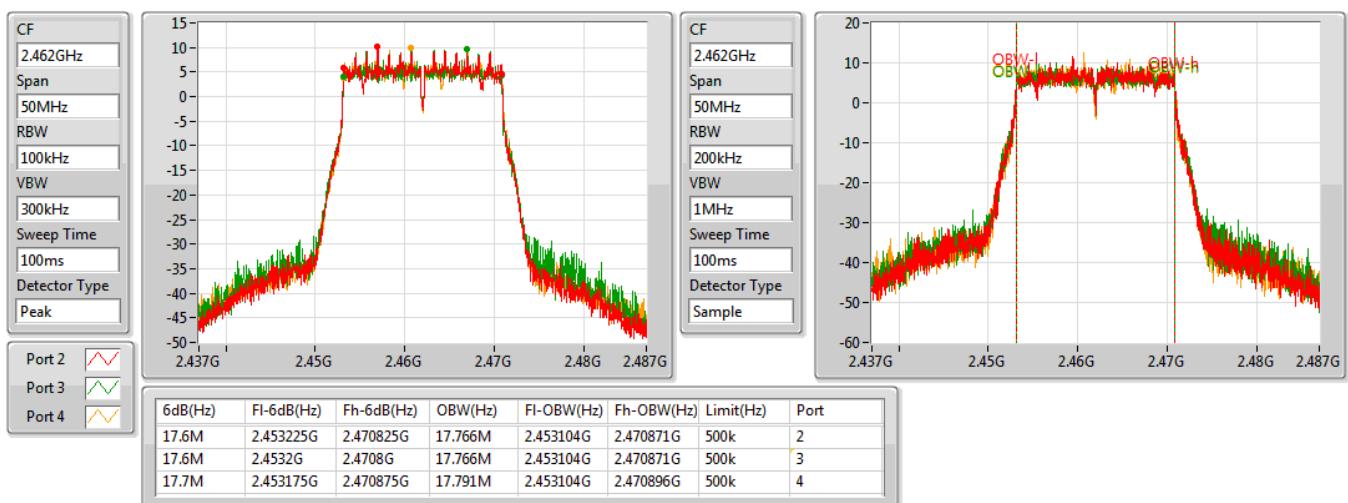
Port X-N dB = Port X 6dB down bandwidth; Port X-OBW = Port X 99% occupied bandwidth;

VHT20_Nss2,(MCS0)_3TX
EBW
2412MHz

28/07/2019

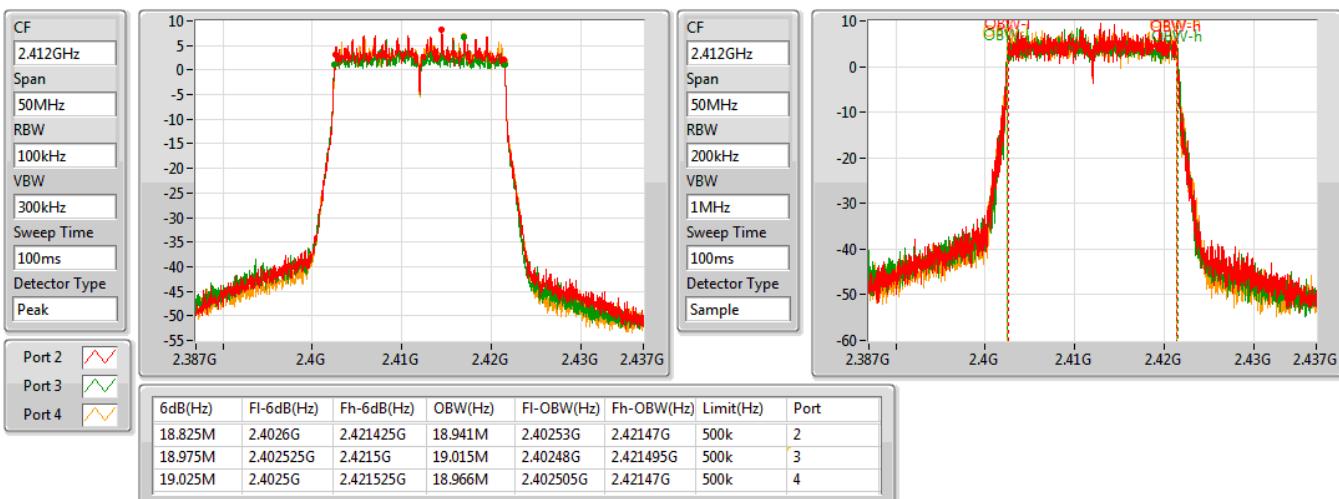

VHT20_Nss2,(MCS0)_3TX
EBW
2462MHz

28/07/2019

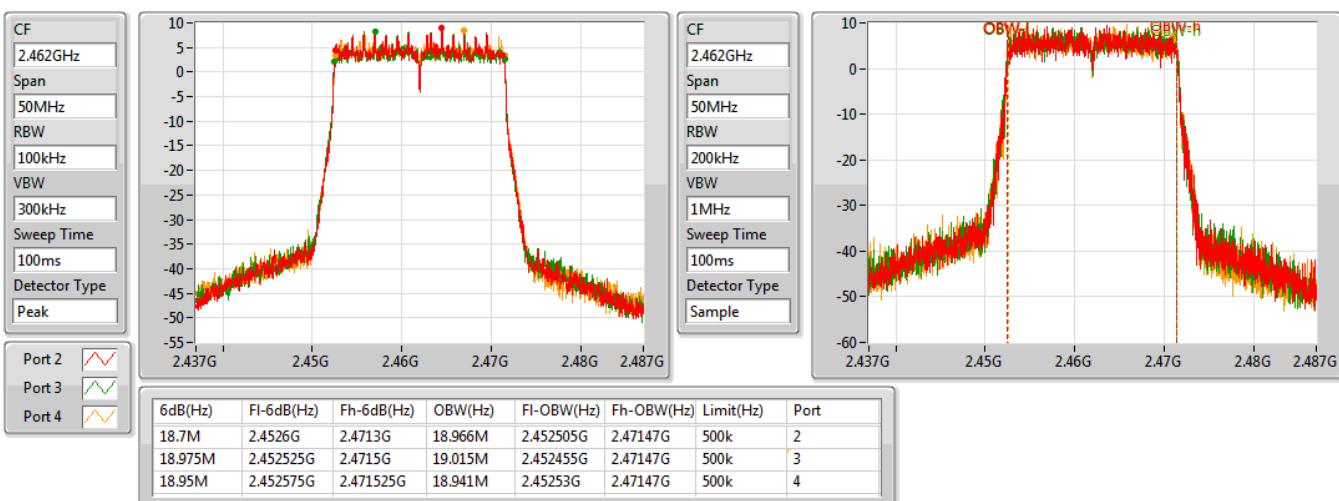


802.11ax HEW20_Nss2,(MCS0)_3TX
EBW
2412MHz

28/07/2019


802.11ax HEW20_Nss2,(MCS0)_3TX
EBW
2462MHz

28/07/2019





<beamforming mode> 3T2S

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
VHT20-BF_Nss2,(MCS0)_3TX	17.7M	17.791M	17M8D1D	17.575M	17.691M
802.11ax HEW20-BF_Nss2,(MCS0)_3TX	19M	18.991M	19M0D1D	18.725M	18.916M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

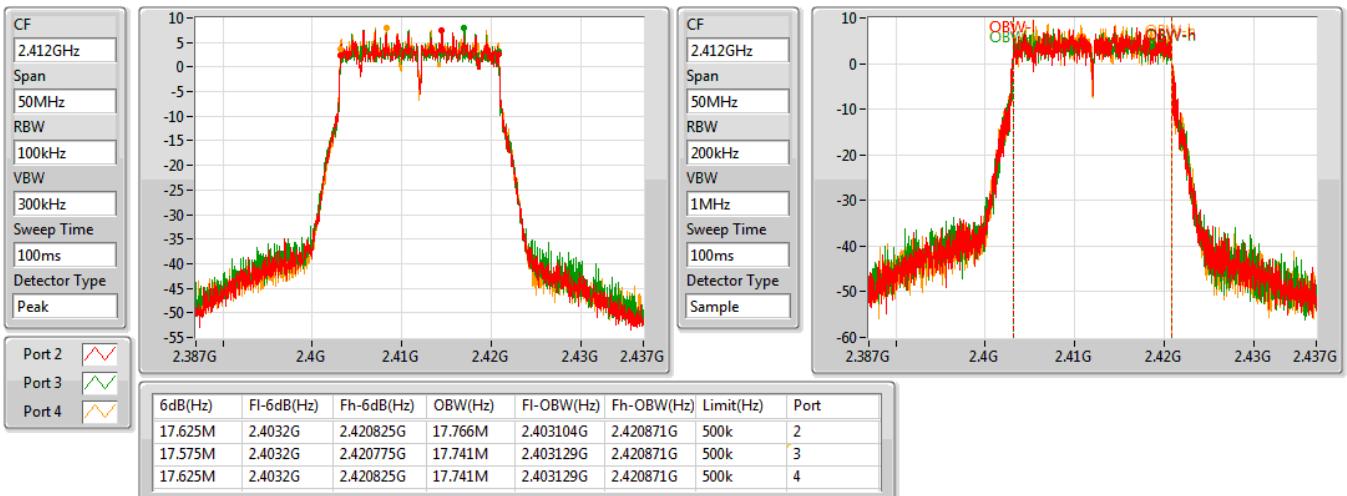
**Result**

Mode	Result	Limit (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
VHT20-BF_Nss2,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	17.625M	17.766M	17.575M	17.741M	17.625M	17.741M
2462MHz	Pass	500k	17.575M	17.716M	17.6M	17.691M	17.7M	17.791M
802.11ax HEW20-BF_Nss2,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	18.725M	18.941M	18.9M	18.966M	18.9M	18.966M
2462MHz	Pass	500k	18.825M	18.966M	18.9M	18.991M	19M	18.916M

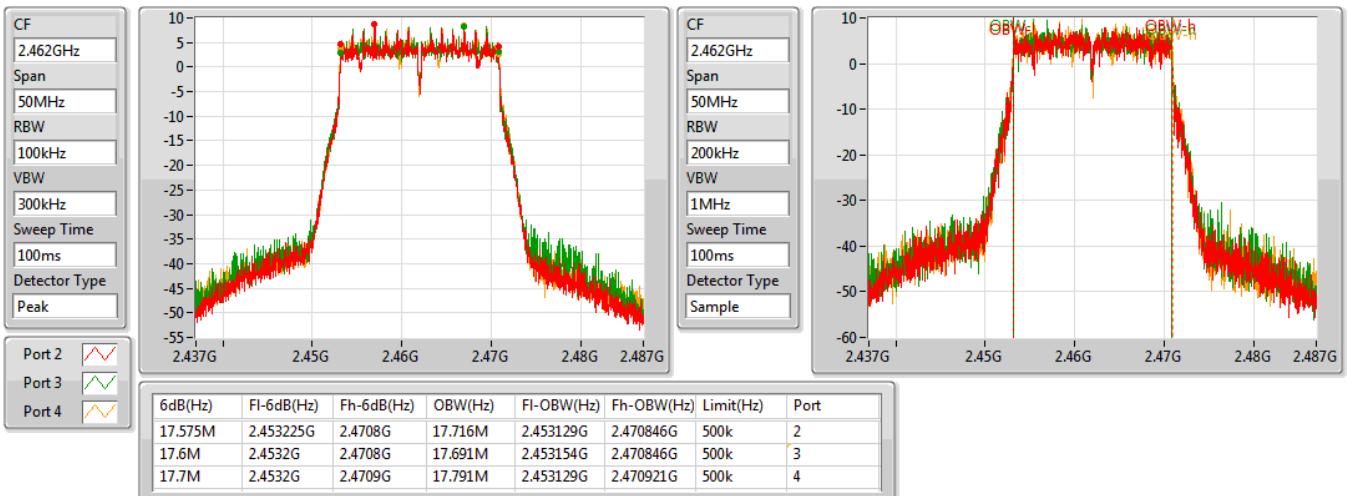
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

VHT20-BF_Nss2,(MCS0)_3TX
EBW
2412MHz

27/07/2019

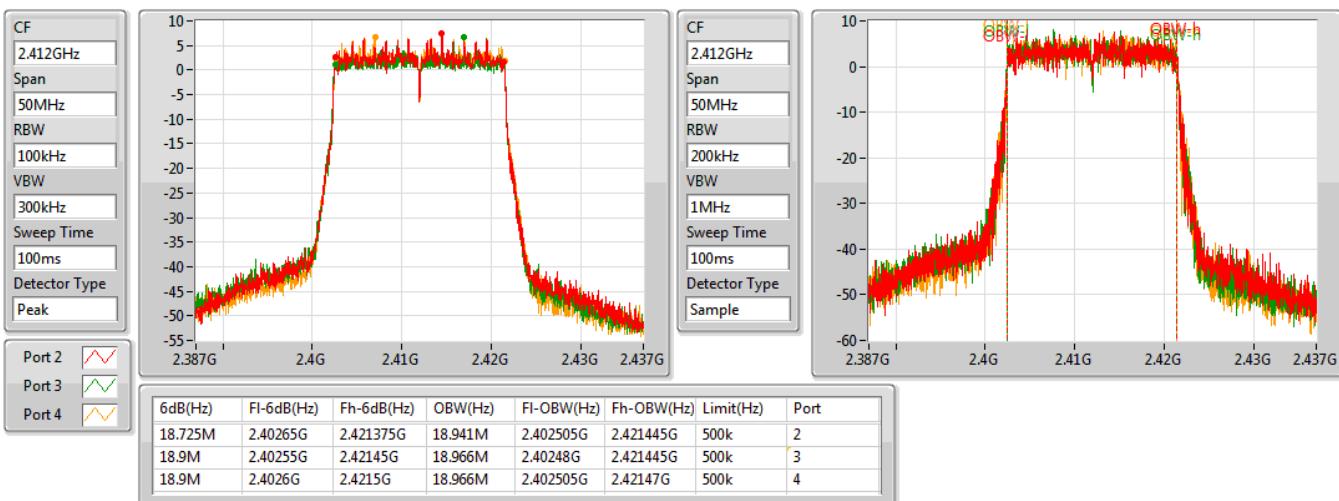

VHT20-BF_Nss2,(MCS0)_3TX
EBW
2462MHz

27/07/2019

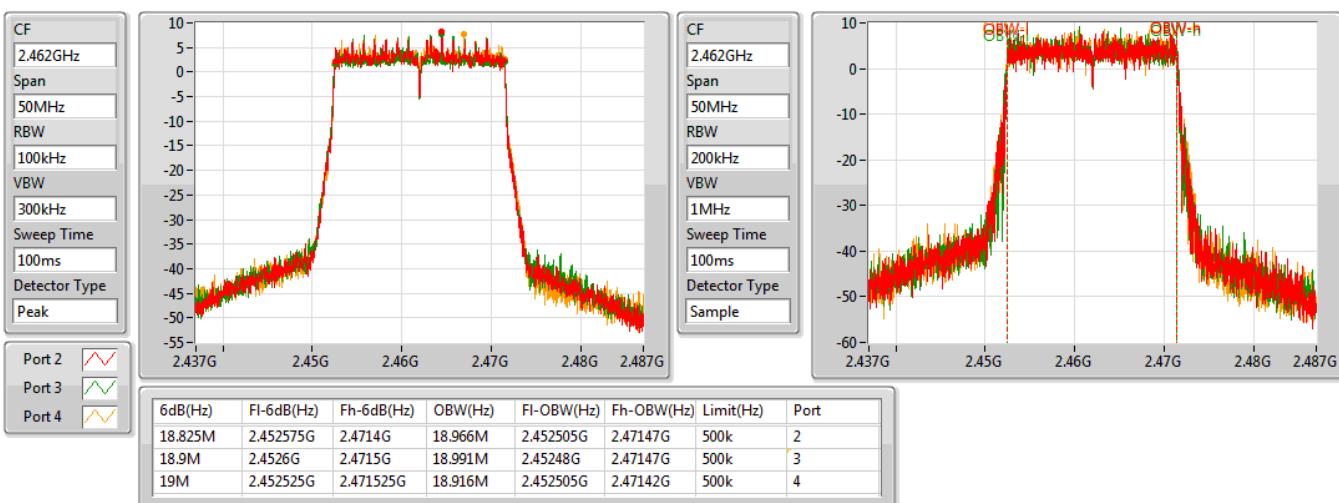


802.11ax HEW20-BF_Nss2,(MCS0)_3TX
EBW
2412MHz

27/07/2019


802.11ax HEW20-BF_Nss2,(MCS0)_3TX
EBW
2462MHz

27/07/2019





<Non-beamforming mode> 3T3S

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
VHT20_Nss3,(MCS0)_3TX	17.6M	17.841M	17M8D1D	17.55M	17.741M
802.11ax HEW20_Nss3,(MCS0)_3TX	18.95M	19.015M	19M0D1D	18.575M	18.941M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

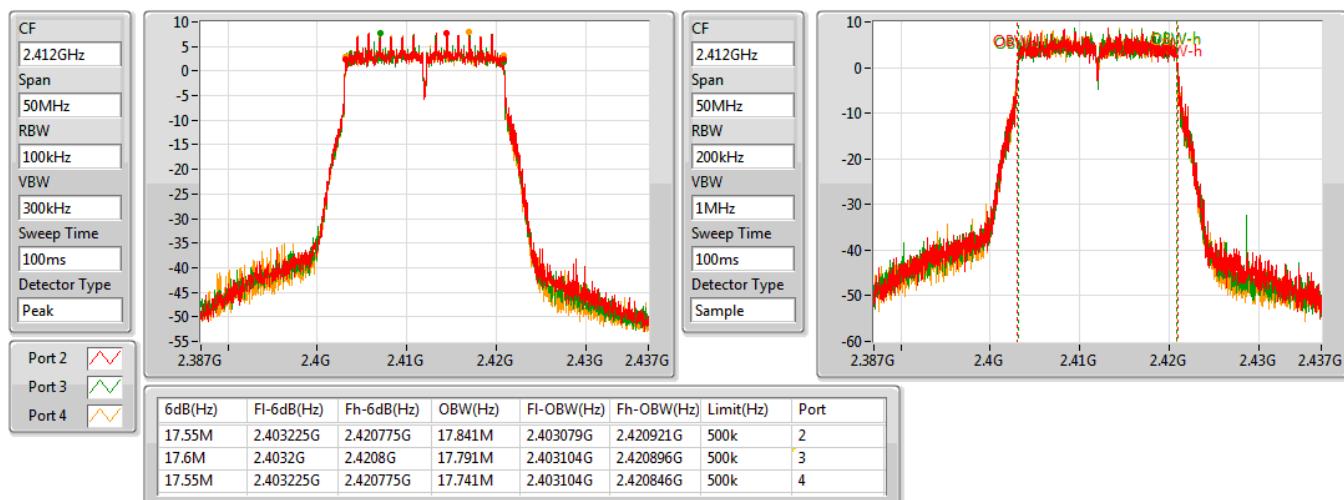
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
VHT20_Nss3,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k			17.55M	17.841M	17.6M	17.791M	17.55M	17.741M
2462MHz	Pass	500k			17.55M	17.766M	17.6M	17.741M	17.55M	17.766M
802.11ax HEW20_Nss3,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k			18.95M	18.941M	18.775M	18.941M	18.925M	18.991M
2462MHz	Pass	500k			18.925M	18.991M	18.575M	18.966M	18.9M	19.015M

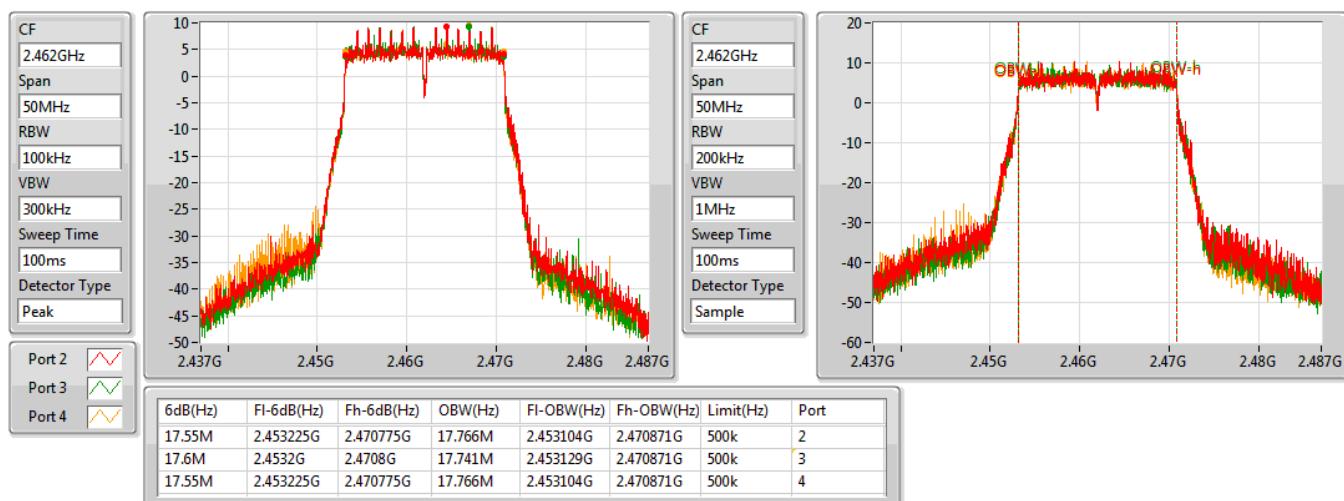
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

VHT20_Nss3,(MCS0)_3TX
EBW
2412MHz

28/07/2019


VHT20_Nss3,(MCS0)_3TX
EBW
2462MHz

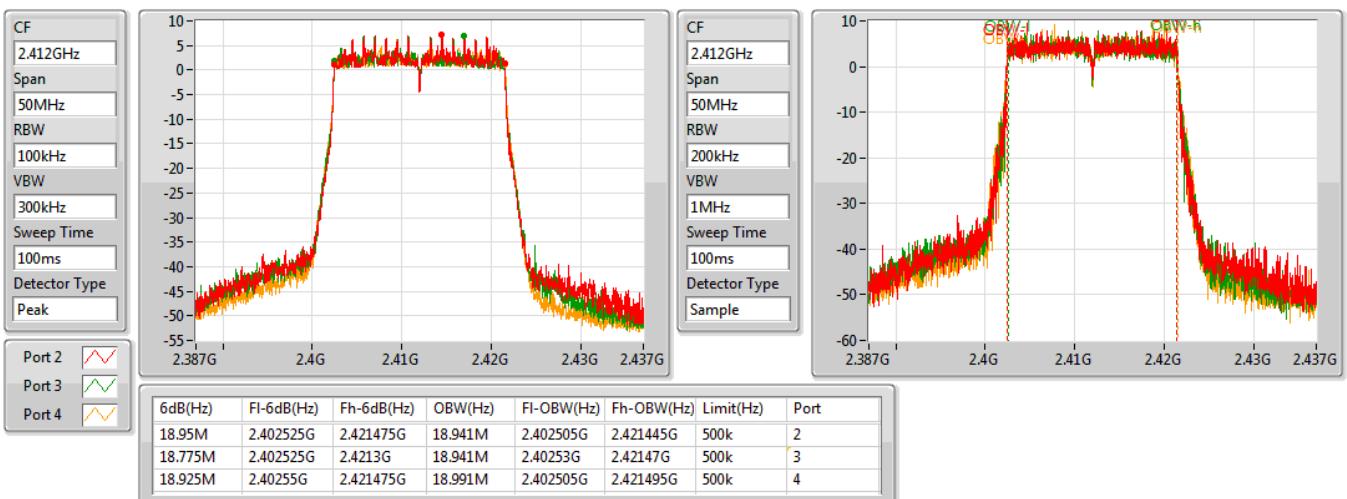
28/07/2019



802.11ax HEW20_Nss3,(MCS0)_3TX

EBW
2412MHz

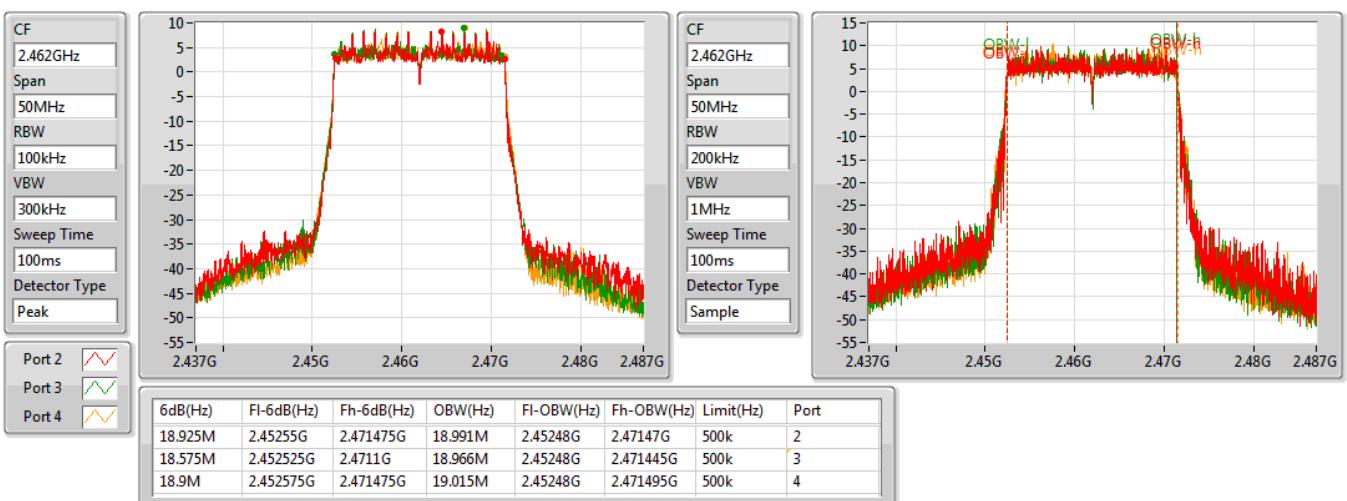
28/07/2019



802.11ax HEW20_Nss3,(MCS0)_3TX

EBW
2462MHz

28/07/2019





<Non-beamforming mode> 4T1S

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_4TX	7.525M	10.32M	10M3G1D	6.55M	10.22M
802.11g_Nss1,(6Mbps)_4TX	16.35M	16.642M	16M6D1D	16.325M	16.542M
VHT20_Nss1,(MCS0)_4TX	17.6M	17.841M	17M8D1D	17.575M	17.716M
VHT40_Nss1,(MCS0)_4TX	36.3M	36.282M	36M3D1D	36.25M	36.132M
802.11ax HEW20_Nss1,(MCS0)_4TX	19.025M	19.04M	19M0D1D	18.9M	18.966M
802.11ax HEW40_Nss1,(MCS0)_4TX	37.55M	37.581M	37M6D1D	36.7M	37.481M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;



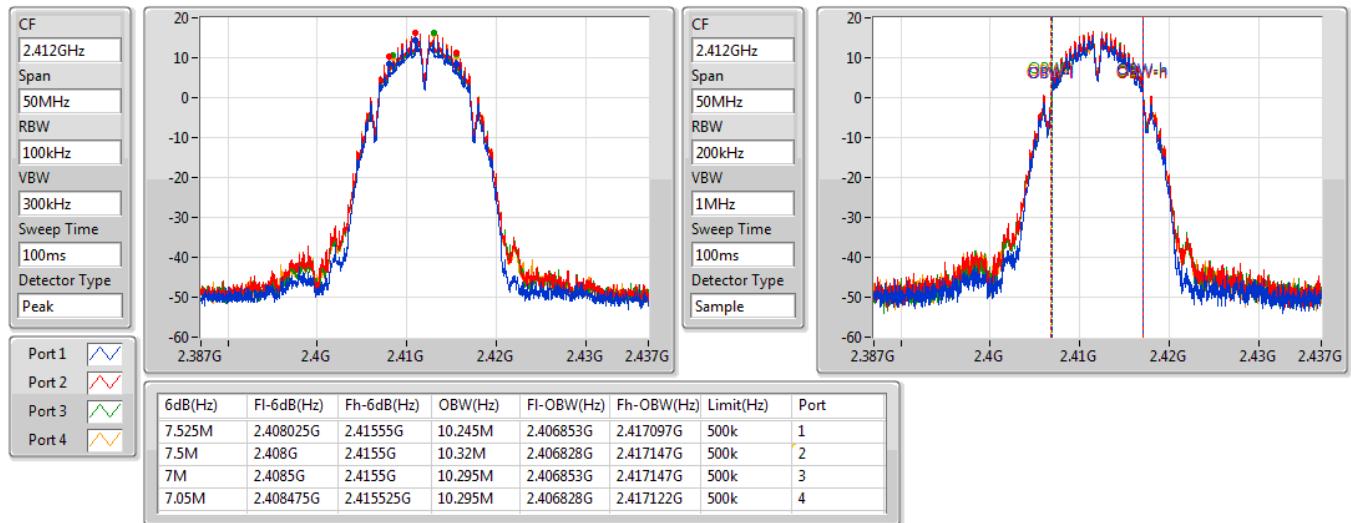
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11b_Nss1,(1Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	7.525M	10.245M	7.5M	10.32M	7M	10.295M	7.05M	10.295M
2437MHz	Pass	500k	6.975M	10.22M	7.05M	10.245M	7M	10.22M	7.025M	10.27M
2462MHz	Pass	500k	7.025M	10.22M	7.025M	10.245M	6.55M	10.245M	7.025M	10.245M
802.11g_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	16.325M	16.592M	16.325M	16.567M	16.35M	16.592M	16.35M	16.567M
2437MHz	Pass	500k	16.325M	16.617M	16.325M	16.642M	16.325M	16.617M	16.35M	16.617M
2462MHz	Pass	500k	16.35M	16.567M	16.325M	16.542M	16.35M	16.567M	16.35M	16.617M
VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	17.575M	17.741M	17.6M	17.791M	17.6M	17.716M	17.6M	17.791M
2437MHz	Pass	500k	17.575M	17.841M	17.6M	17.791M	17.6M	17.816M	17.6M	17.816M
2462MHz	Pass	500k	17.575M	17.791M	17.6M	17.766M	17.6M	17.766M	17.575M	17.816M
VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	36.3M	36.282M	36.3M	36.282M	36.3M	36.232M	36.3M	36.182M
2437MHz	Pass	500k	36.3M	36.232M	36.3M	36.132M	36.3M	36.182M	36.3M	36.232M
2452MHz	Pass	500k	36.3M	36.282M	36.3M	36.282M	36.25M	36.232M	36.3M	36.282M
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	18.975M	18.966M	18.925M	18.966M	18.975M	18.966M	18.95M	18.966M
2437MHz	Pass	500k	18.975M	19.015M	18.925M	19.015M	18.925M	19.015M	18.975M	19.04M
2462MHz	Pass	500k	18.975M	18.991M	18.925M	18.966M	18.9M	18.991M	19.025M	18.991M
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	37.4M	37.481M	37M	37.531M	37.55M	37.581M	37.1M	37.531M
2437MHz	Pass	500k	37.55M	37.481M	36.95M	37.581M	37.45M	37.481M	37.3M	37.531M
2452MHz	Pass	500k	37.4M	37.531M	36.7M	37.481M	37.5M	37.531M	37.4M	37.531M

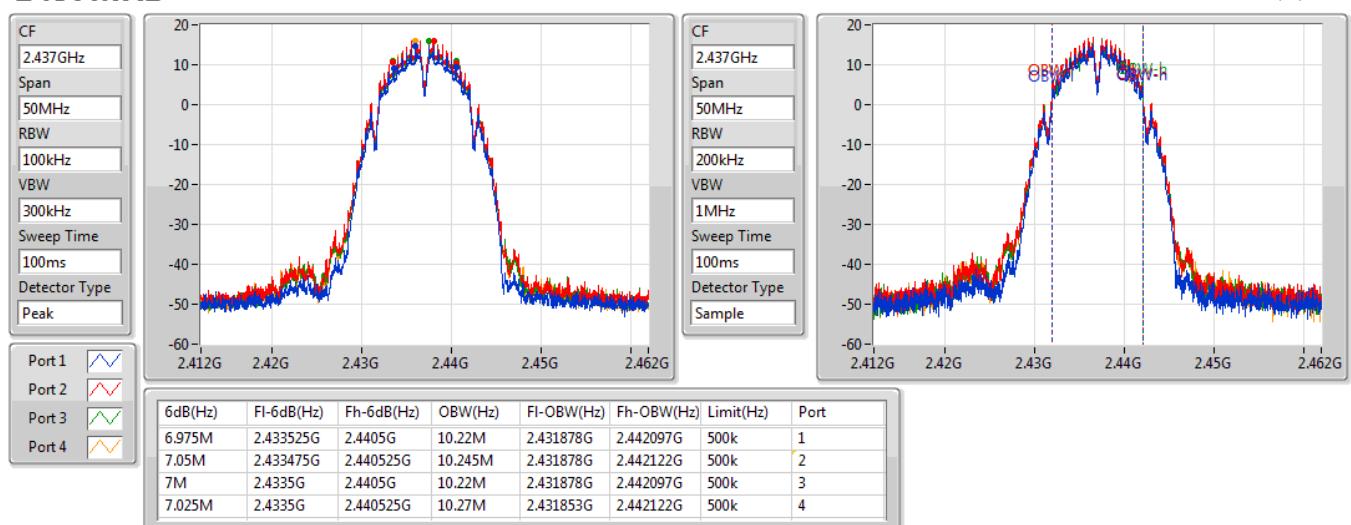
Port X-N dB = Port X 6dB down bandwidth; Port X-OBW = Port X 99% occupied bandwidth;

802.11b_Nss1,(1Mbps)_4TX
EBW
2412MHz

20/09/2019

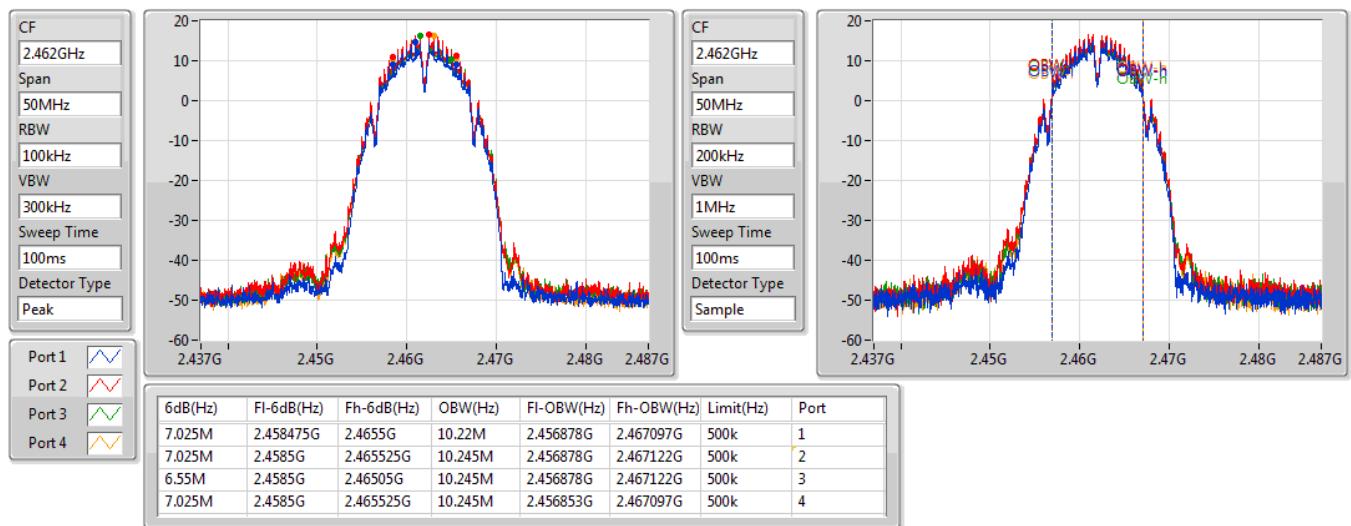

802.11b_Nss1,(1Mbps)_4TX
EBW
2437MHz

20/09/2019

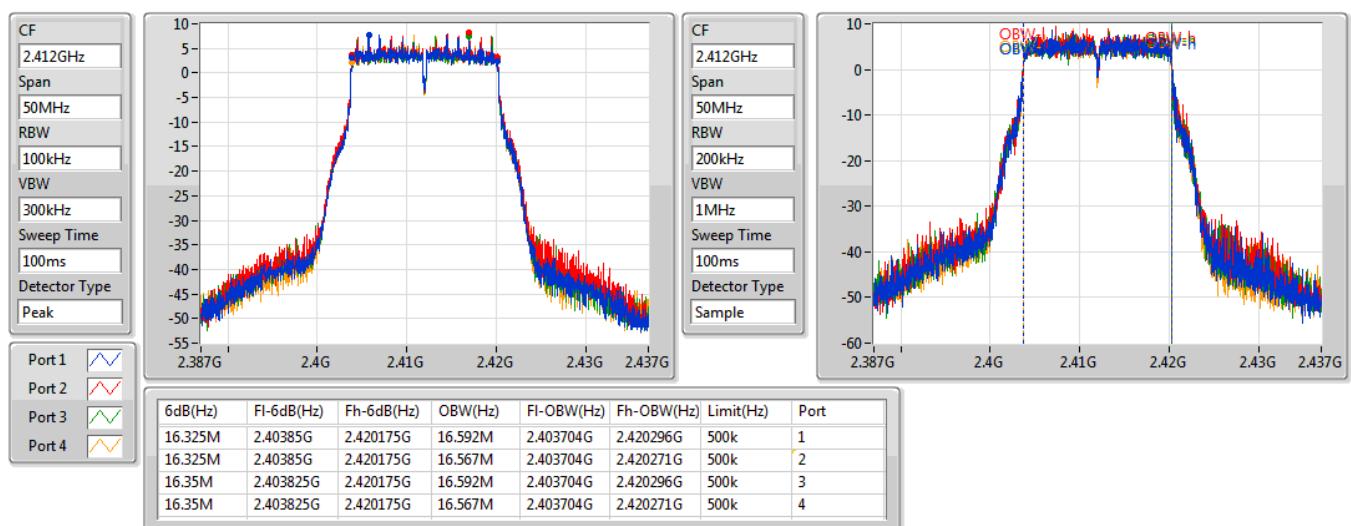


802.11b_Nss1,(1Mbps)_4TX
EBW
2462MHz

20/09/2019

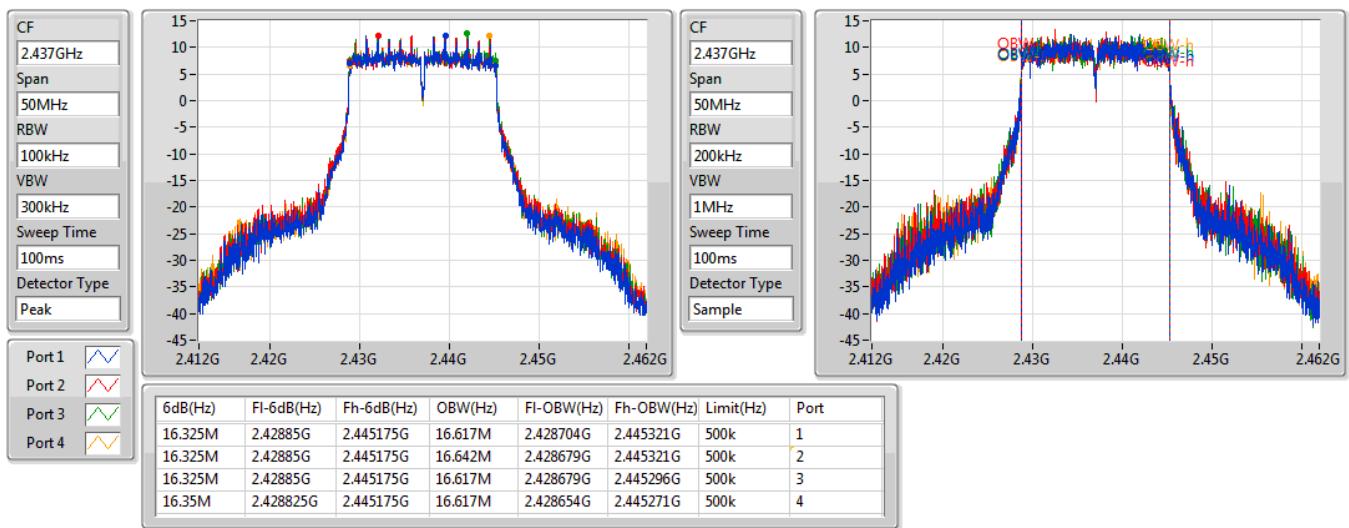

802.11g_Nss1,(6Mbps)_4TX
EBW
2412MHz

28/07/2019

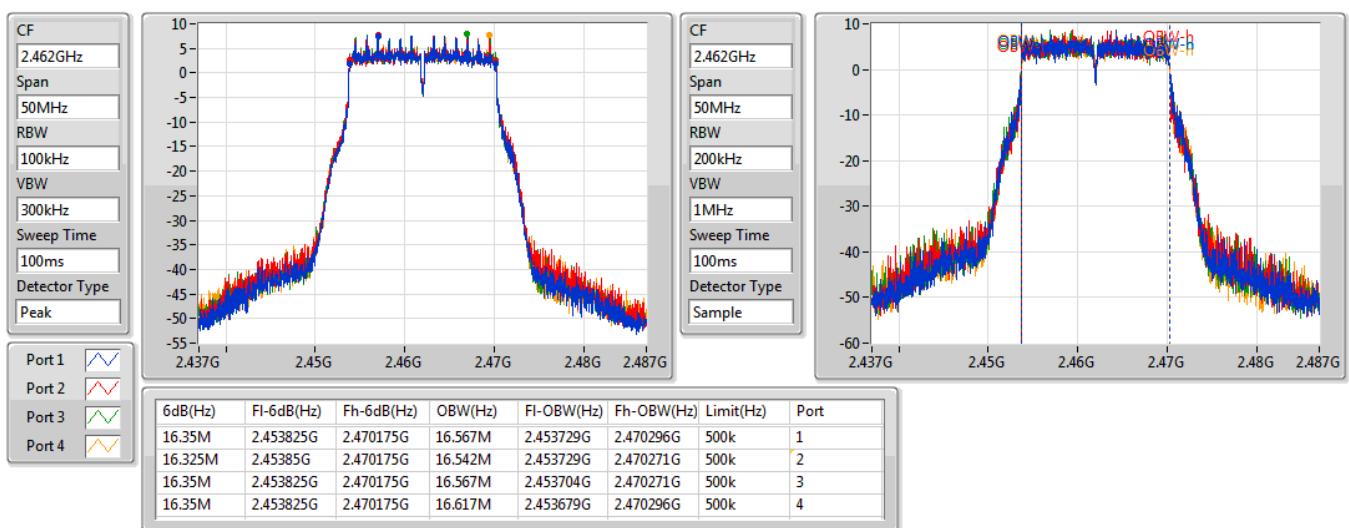


802.11g_Nss1,(6Mbps)_4TX
EBW
2437MHz

28/07/2019

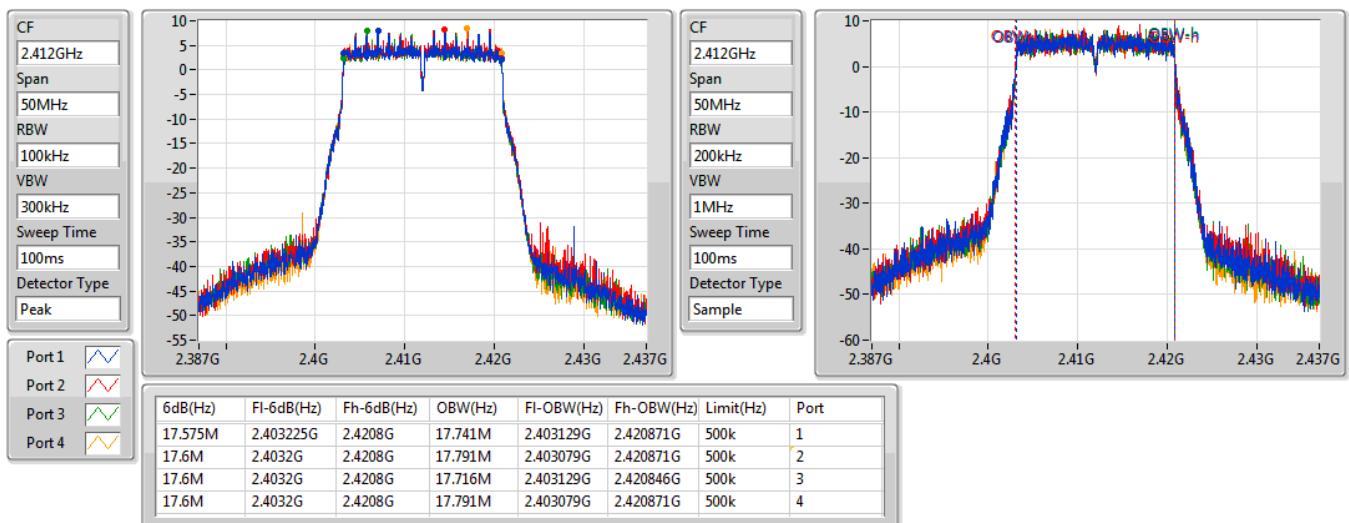

802.11g_Nss1,(6Mbps)_4TX
EBW
2462MHz

28/07/2019

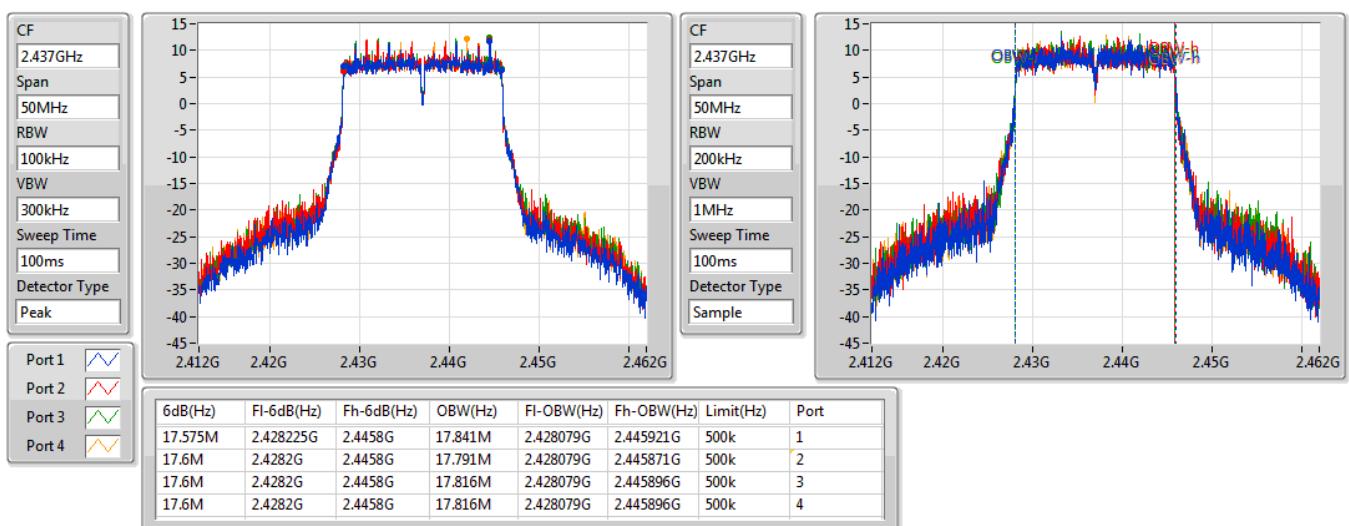


VHT20_Nss1,(MCS0)_4TX
EBW
2412MHz

28/07/2019

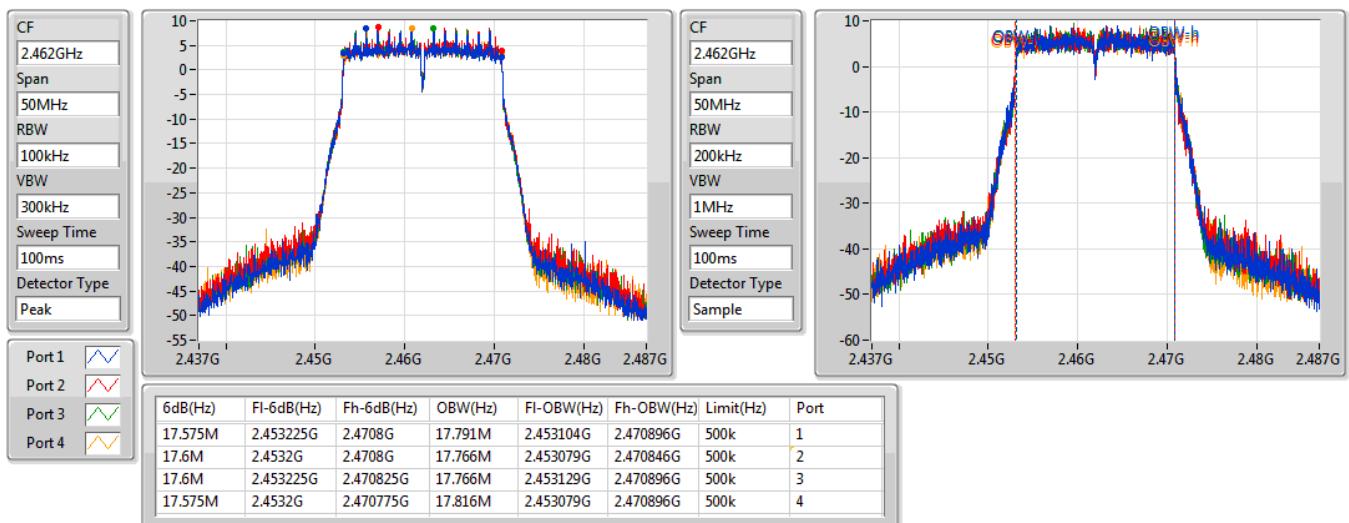

VHT20_Nss1,(MCS0)_4TX
EBW
2437MHz

28/07/2019

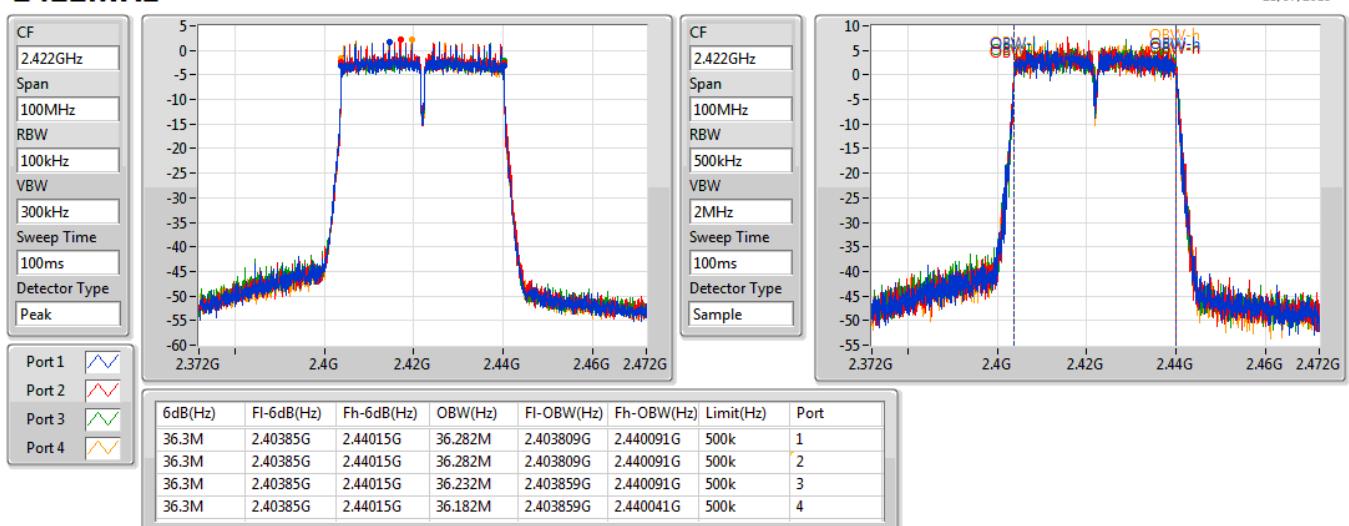


VHT20_Nss1,(MCS0)_4TX
EBW
2462MHz

28/07/2019

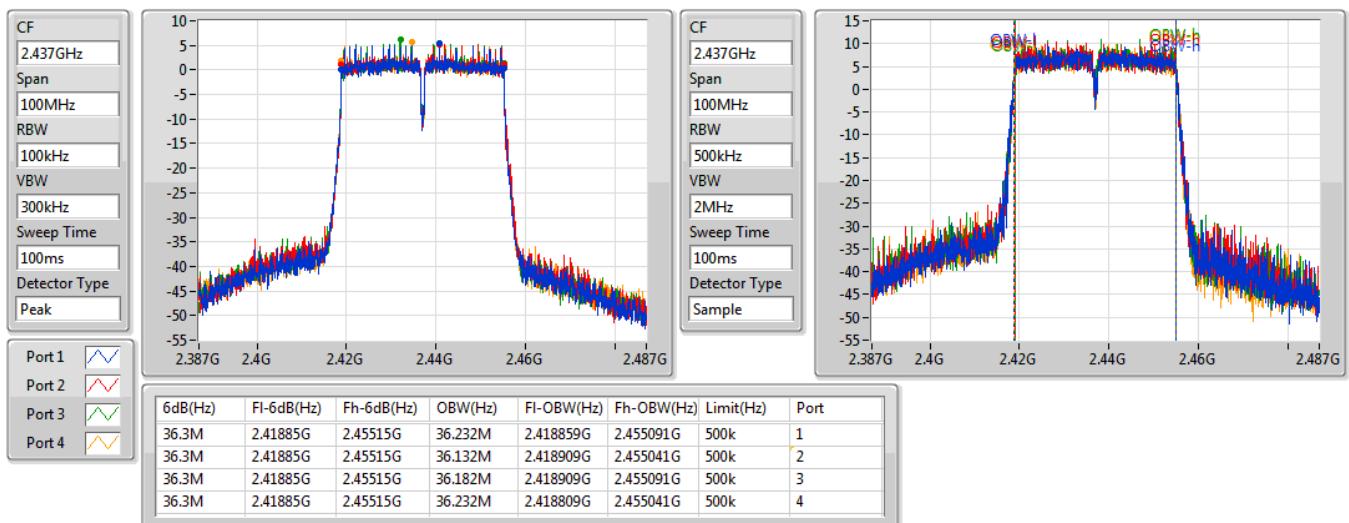

VHT40_Nss1,(MCS0)_4TX
EBW
2422MHz

28/07/2019

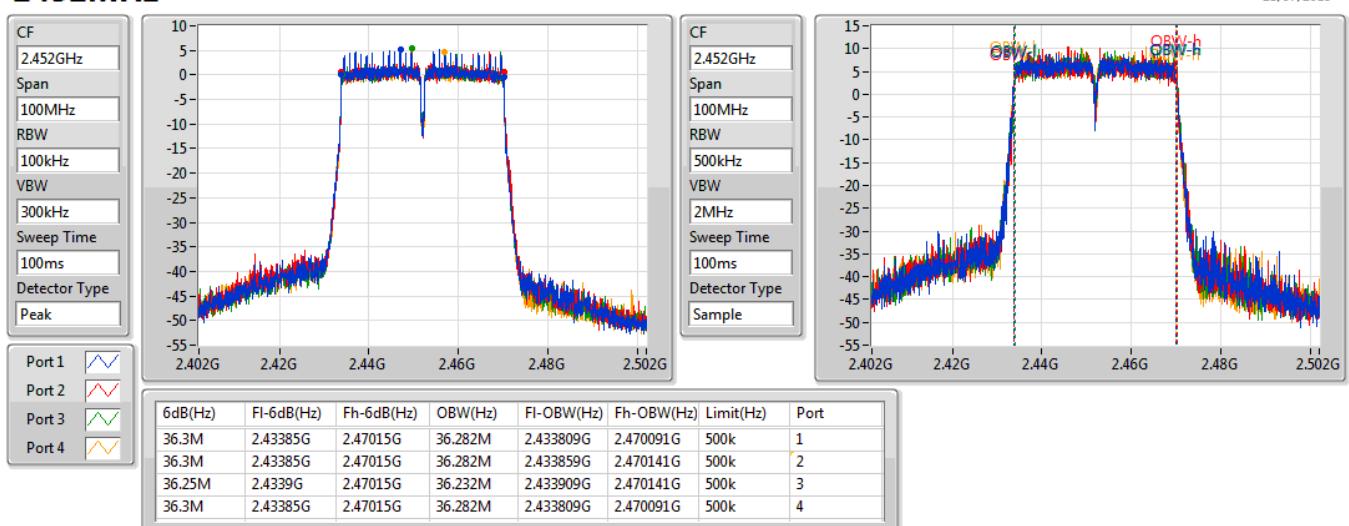


VHT40_Nss1,(MCS0)_4TX
EBW
2437MHz

28/07/2019

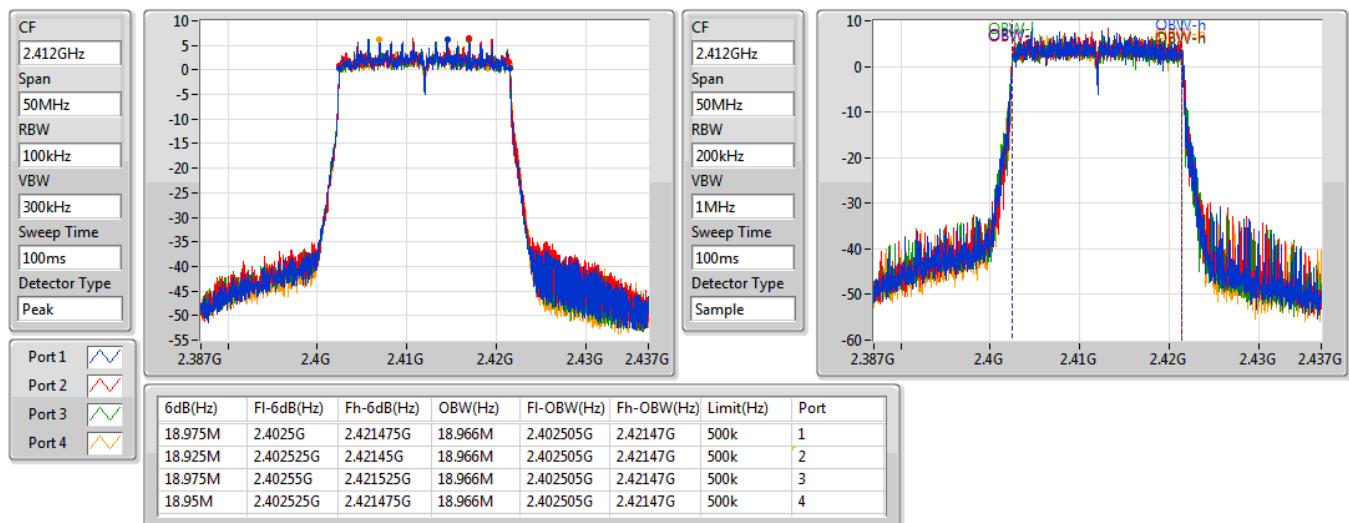

VHT40_Nss1,(MCS0)_4TX
EBW
2452MHz

28/07/2019

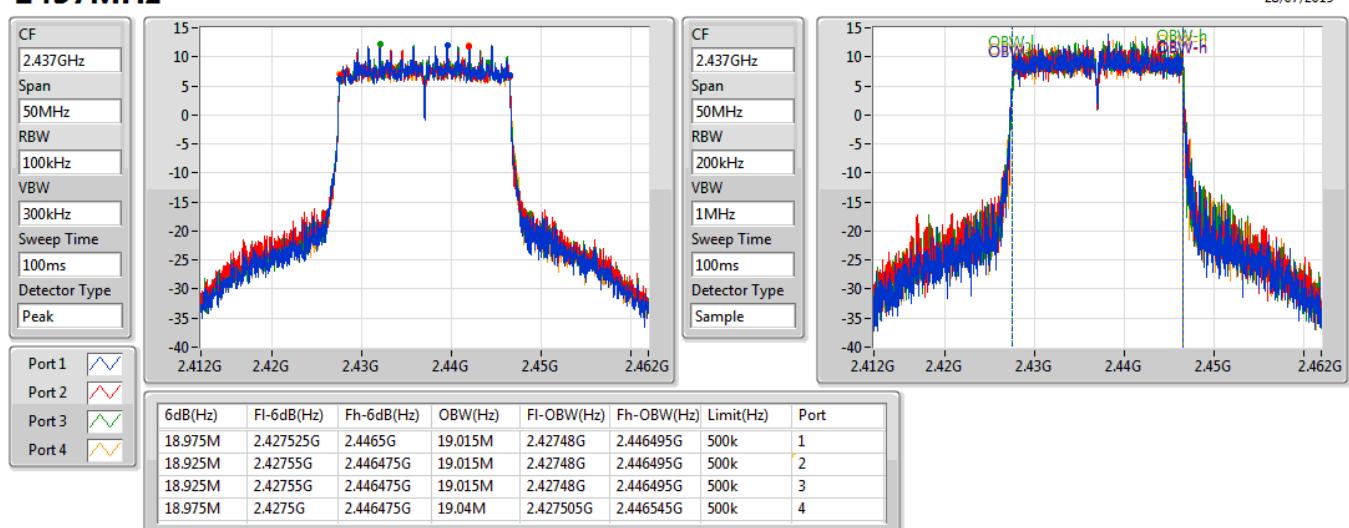


802.11ax HEW20_Nss1,(MCS0)_4TX
EBW
2412MHz

28/07/2019

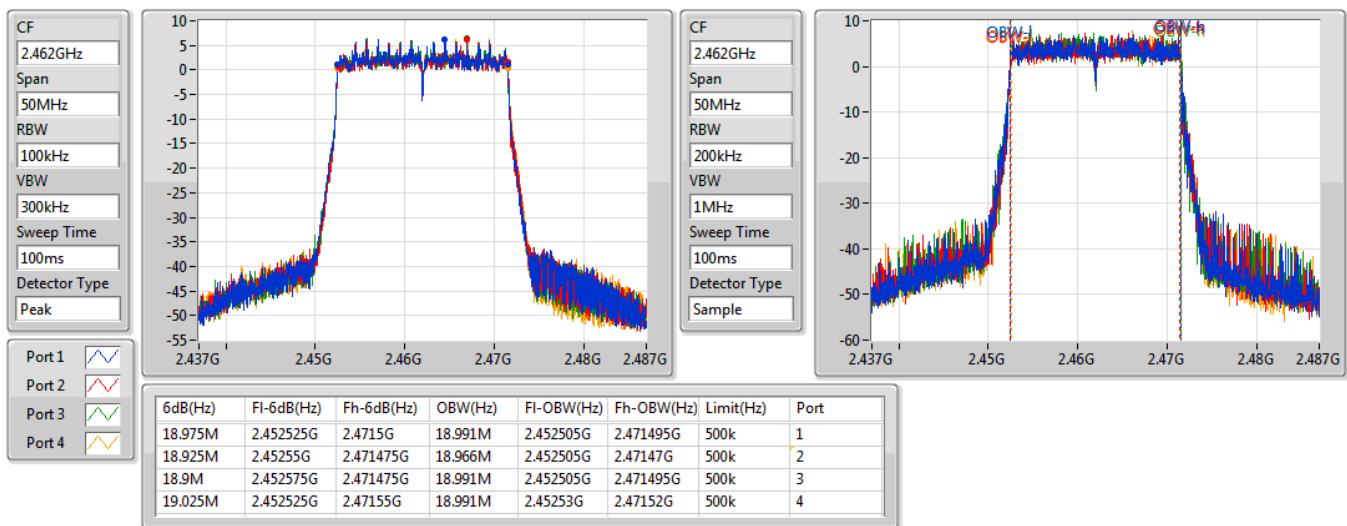

802.11ax HEW20_Nss1,(MCS0)_4TX
EBW
2437MHz

28/07/2019

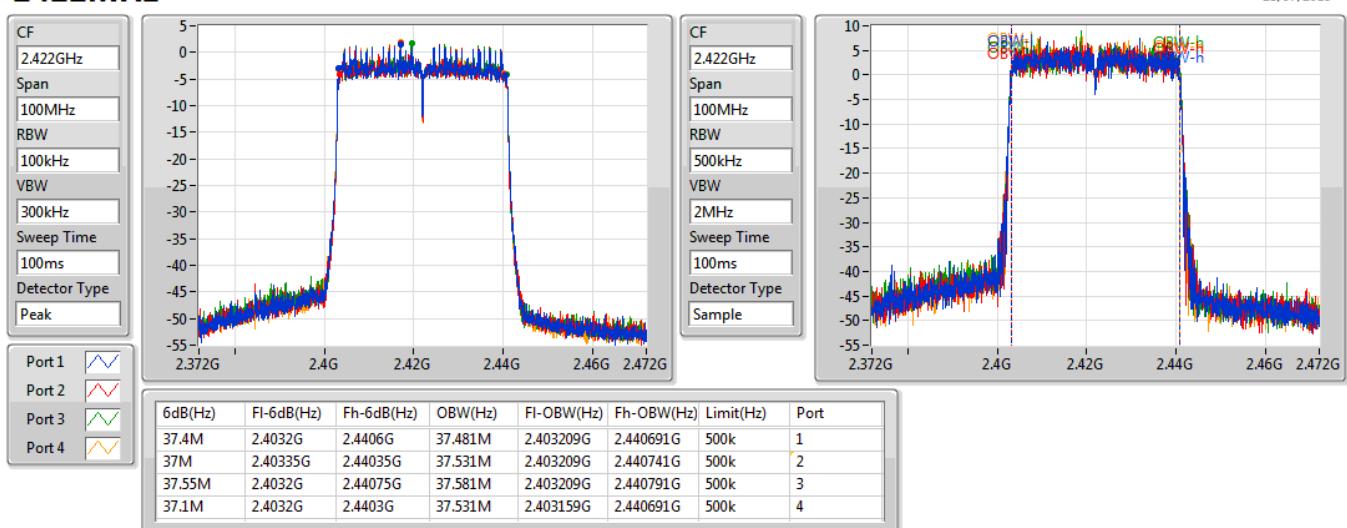


802.11ax HEW20_Nss1,(MCS0)_4TX
EBW
2462MHz

28/07/2019

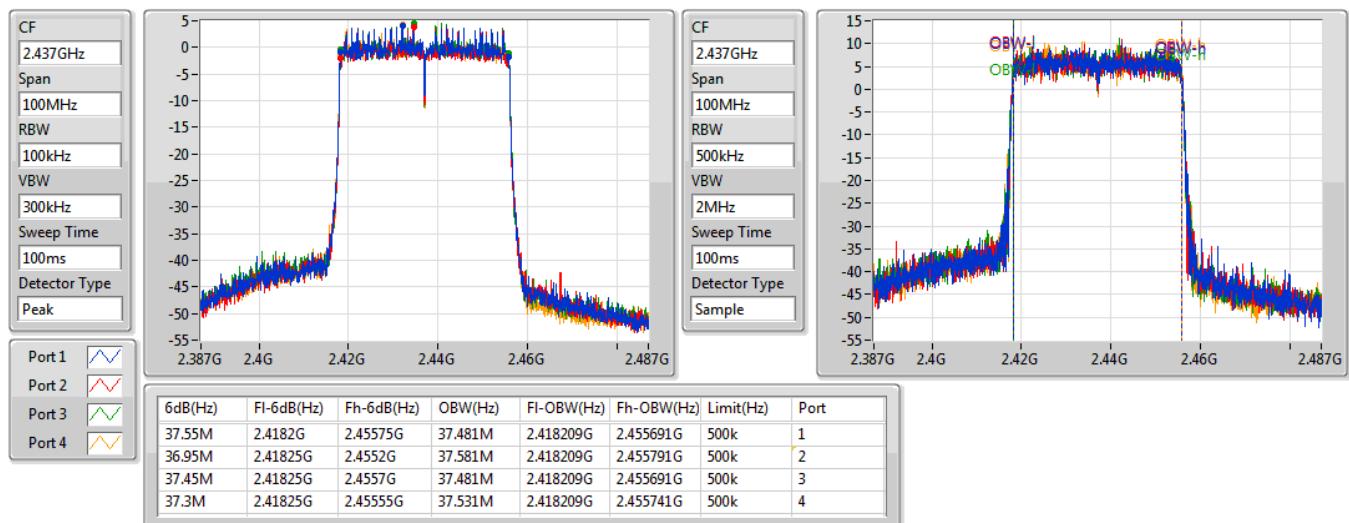

802.11ax HEW40_Nss1,(MCS0)_4TX
EBW
2422MHz

28/07/2019

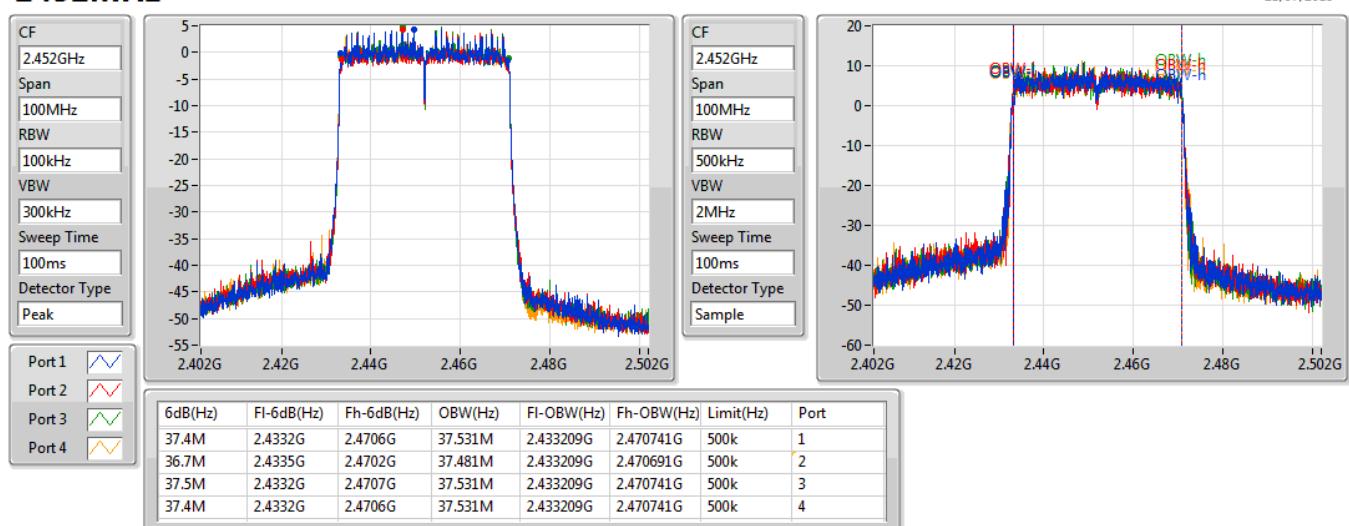


802.11ax HEW40_Nss1,(MCS0)_4TX
EBW
2437MHz

28/07/2019


802.11ax HEW40_Nss1,(MCS0)_4TX
EBW
2452MHz

28/07/2019





<beamforming mode> 4T1S

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
VHT20-BF_Nss1,(MCS0)_4TX	17.625M	17.791M	17M8D1D	17.55M	17.691M
VHT40-BF_Nss1,(MCS0)_4TX	36.35M	36.282M	36M3D1D	36.05M	36.132M
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	18.975M	19.015M	19M0D1D	18.8M	18.941M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	37.5M	37.631M	37M6D1D	36.7M	37.431M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

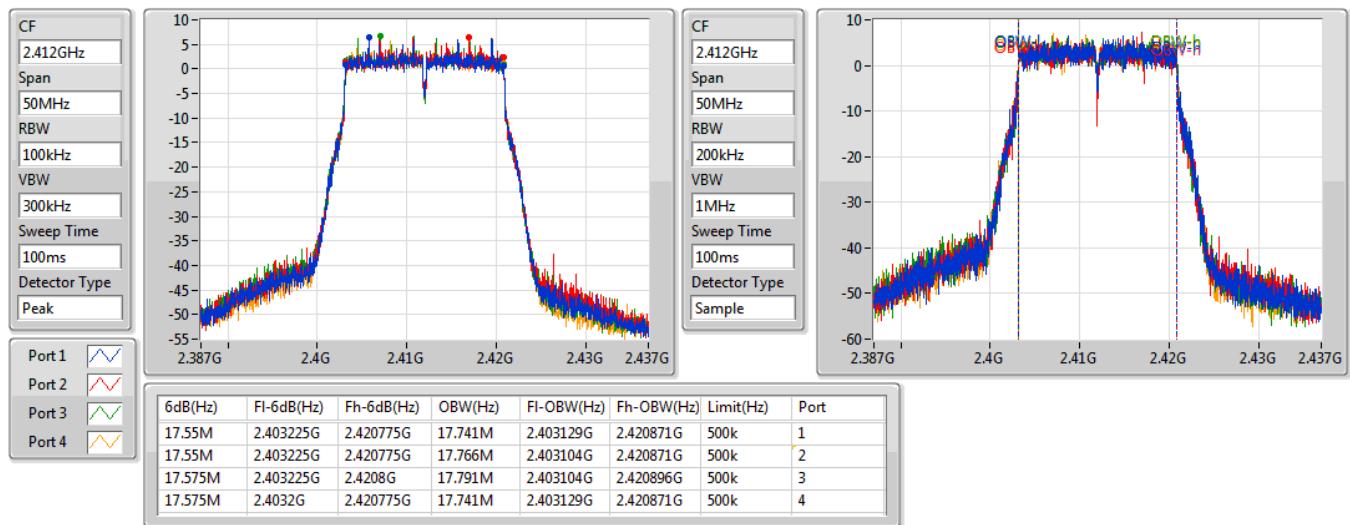
**Result**

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	17.55M	17.741M	17.55M	17.766M	17.575M	17.791M	17.575M	17.741M
2437MHz	Pass	500k	17.575M	17.766M	17.55M	17.791M	17.625M	17.766M	17.575M	17.766M
2462MHz	Pass	500k	17.55M	17.791M	17.575M	17.691M	17.55M	17.766M	17.575M	17.741M
VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	36.3M	36.232M	36.3M	36.282M	36.3M	36.182M	36.3M	36.232M
2437MHz	Pass	500k	36.3M	36.232M	36.35M	36.132M	36.05M	36.282M	36.3M	36.232M
2452MHz	Pass	500k	36.35M	36.232M	36.3M	36.182M	36.3M	36.282M	36.3M	36.282M
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	18.925M	18.966M	18.8M	18.966M	18.925M	18.941M	18.975M	18.966M
2437MHz	Pass	500k	18.975M	18.966M	18.95M	19.015M	18.9M	18.991M	18.9M	18.966M
2462MHz	Pass	500k	18.875M	18.966M	18.95M	18.941M	18.925M	18.941M	18.95M	18.966M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	37.4M	37.581M	36.7M	37.531M	37.5M	37.531M	36.8M	37.481M
2437MHz	Pass	500k	37.05M	37.531M	36.85M	37.631M	37.35M	37.531M	37.35M	37.581M
2452MHz	Pass	500k	37.4M	37.581M	37.25M	37.481M	37.45M	37.431M	37.4M	37.531M

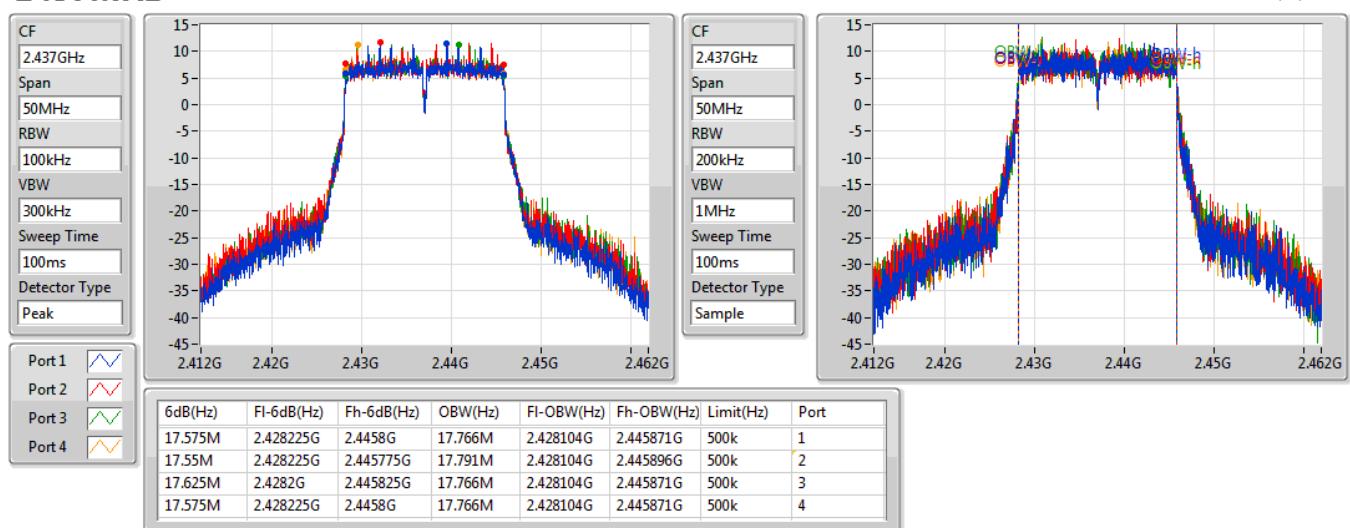
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

VHT20-BF_Nss1,(MCS0)_4TX
EBW
2412MHz

27/07/2019

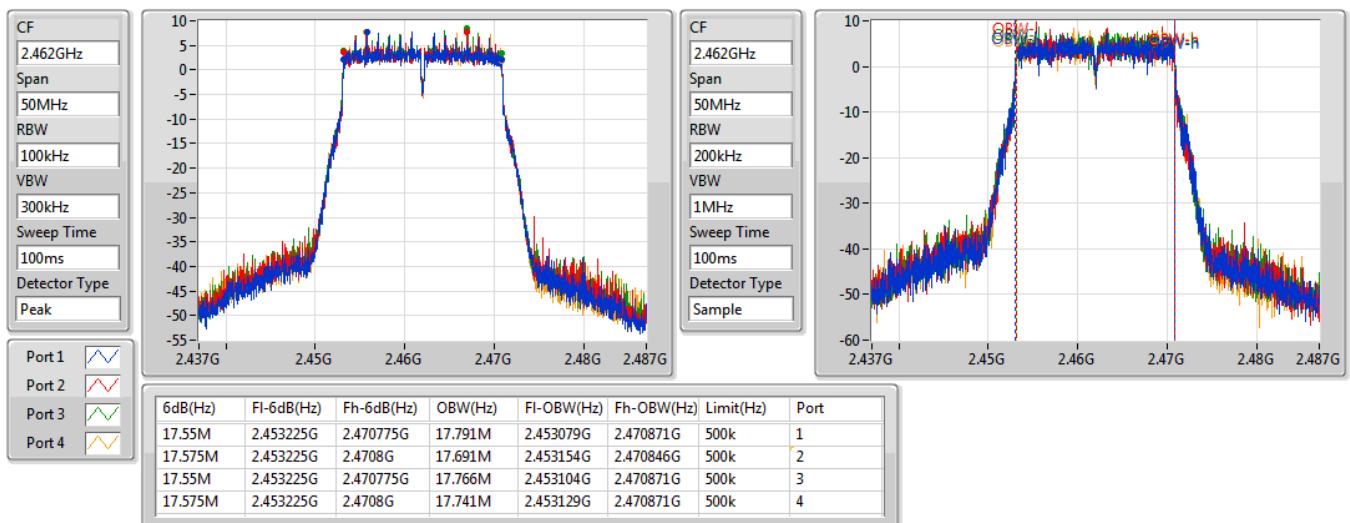

VHT20-BF_Nss1,(MCS0)_4TX
EBW
2437MHz

27/07/2019

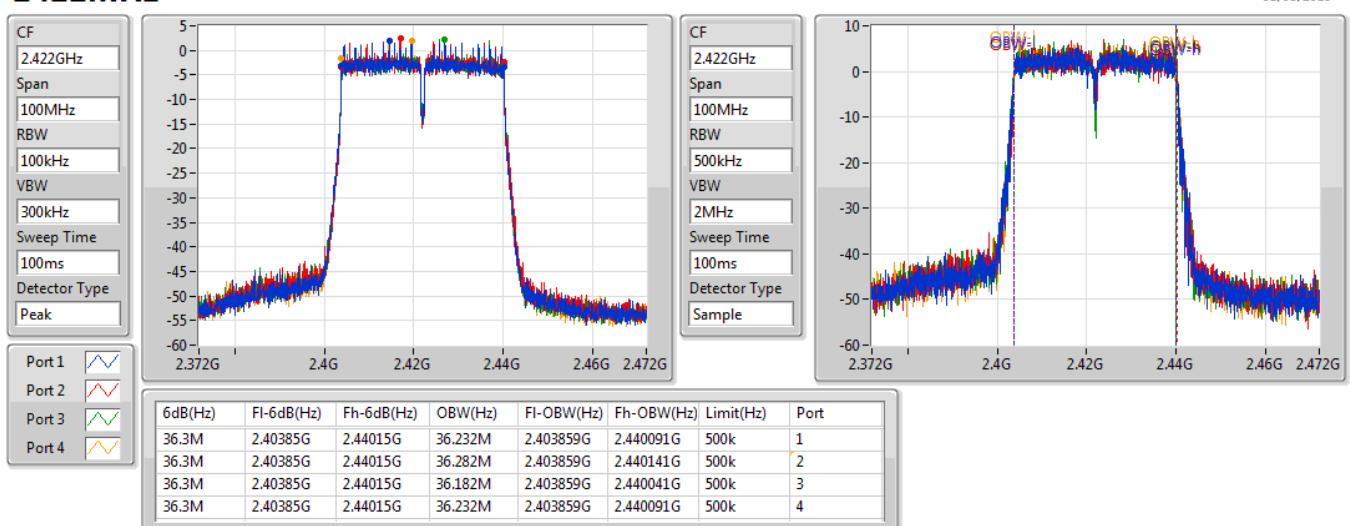


VHT20-BF_Nss1,(MCS0)_4TX
EBW
2462MHz

27/07/2019

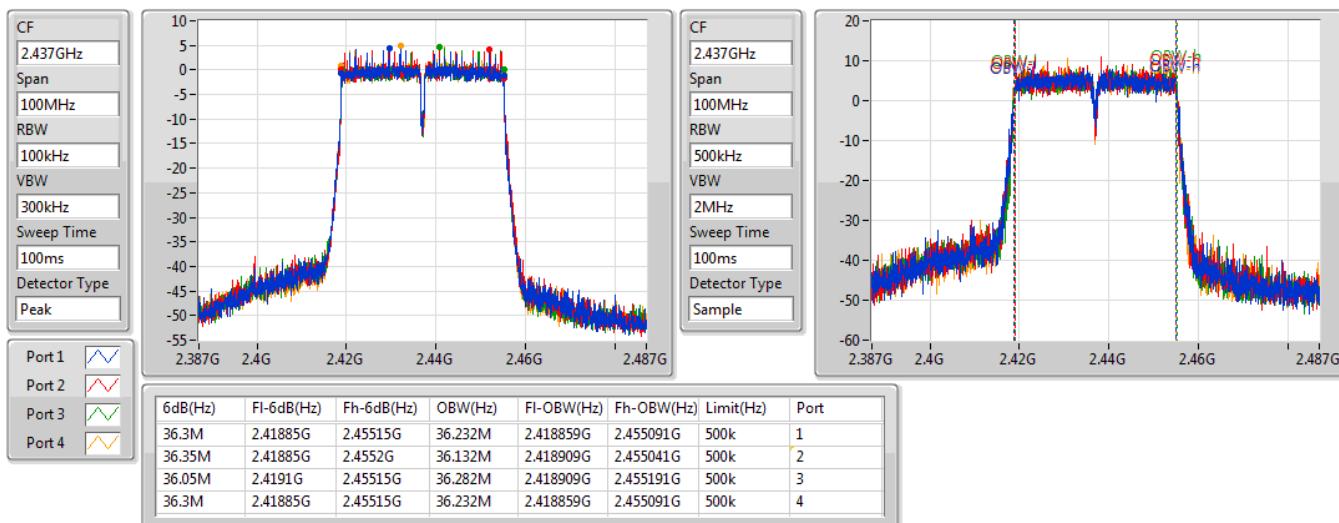

VHT40-BF_Nss1,(MCS0)_4TX
EBW
2422MHz

01/08/2019

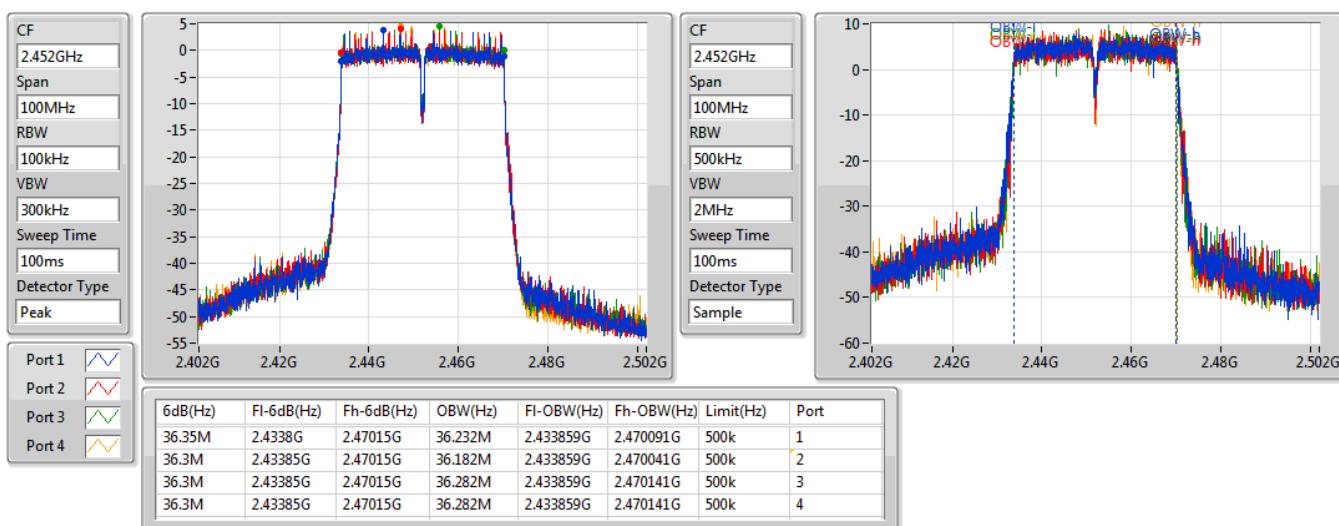


VHT40-BF_Nss1,(MCS0)_4TX
EBW
2437MHz

01/08/2019

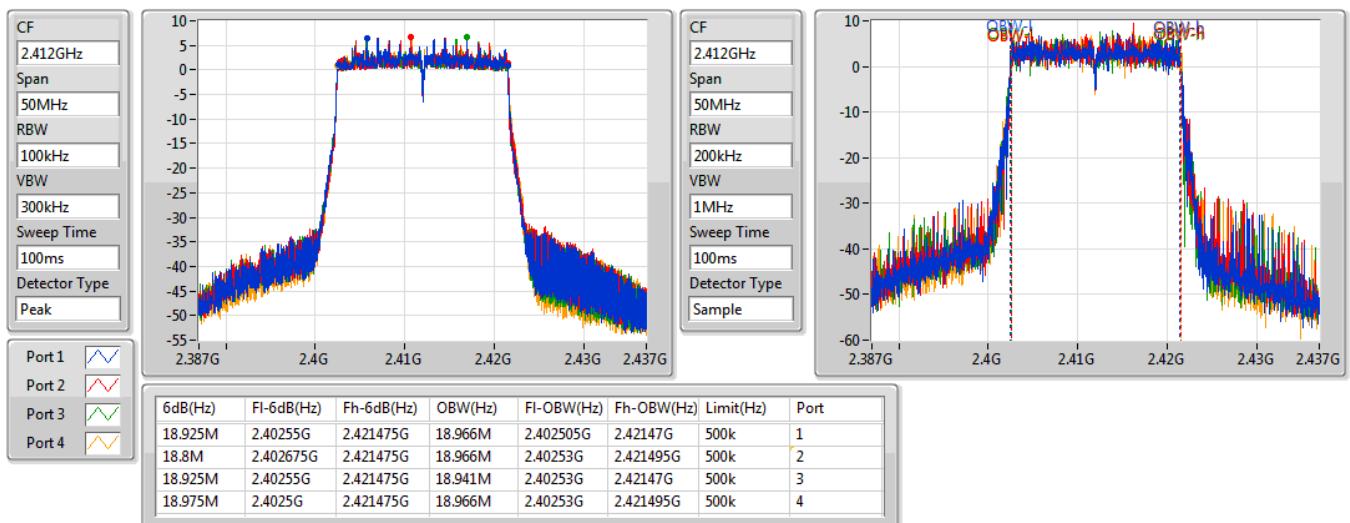

VHT40-BF_Nss1,(MCS0)_4TX
EBW
2452MHz

27/07/2019



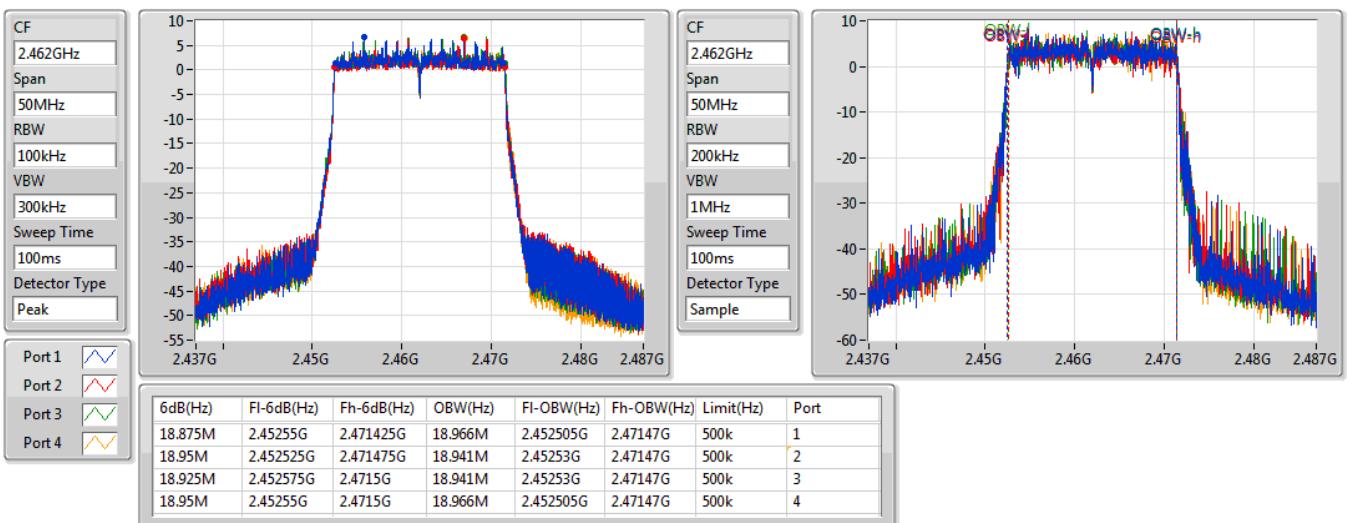
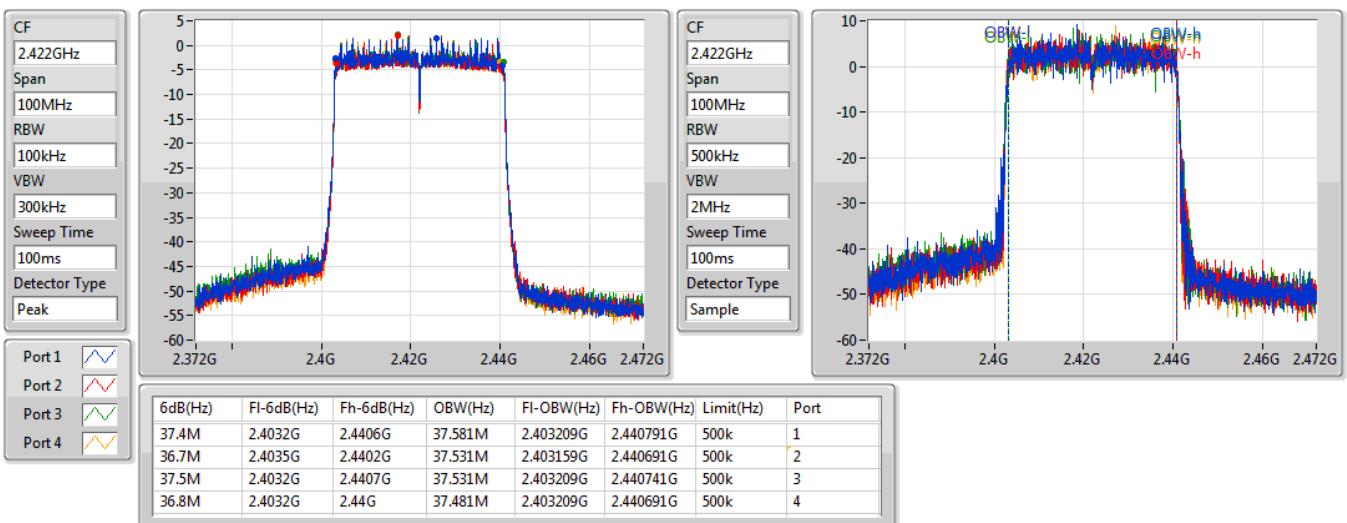
802.11ax HEW20-BF_Nss1,(MCS0)_4TX
EBW
2412MHz

27/07/2019


802.11ax HEW20-BF_Nss1,(MCS0)_4TX
EBW
2437MHz

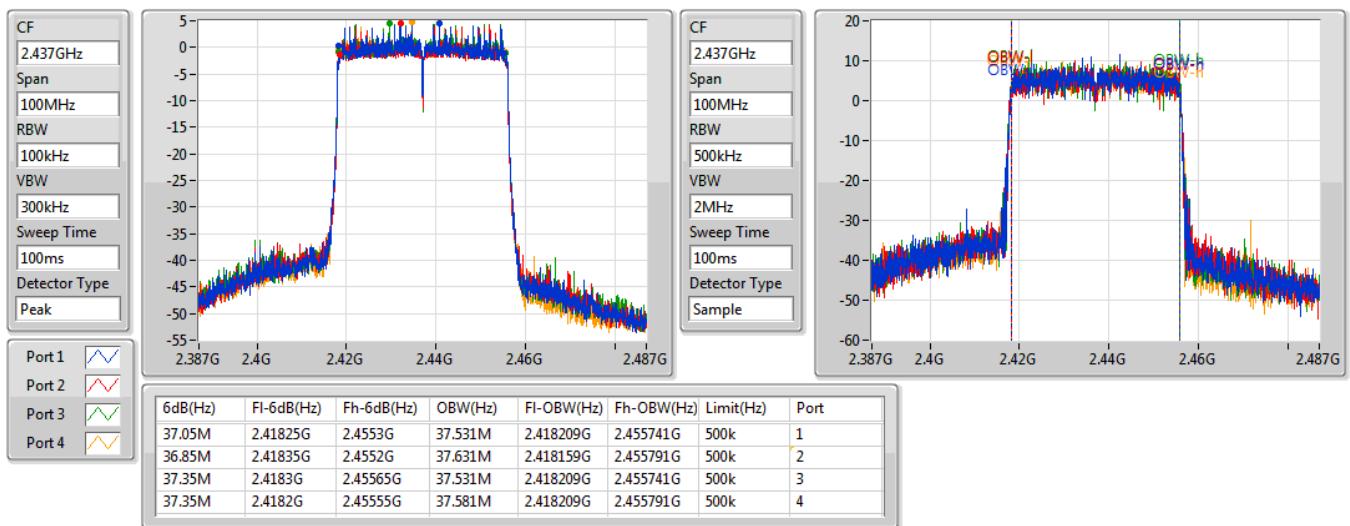
27/07/2019



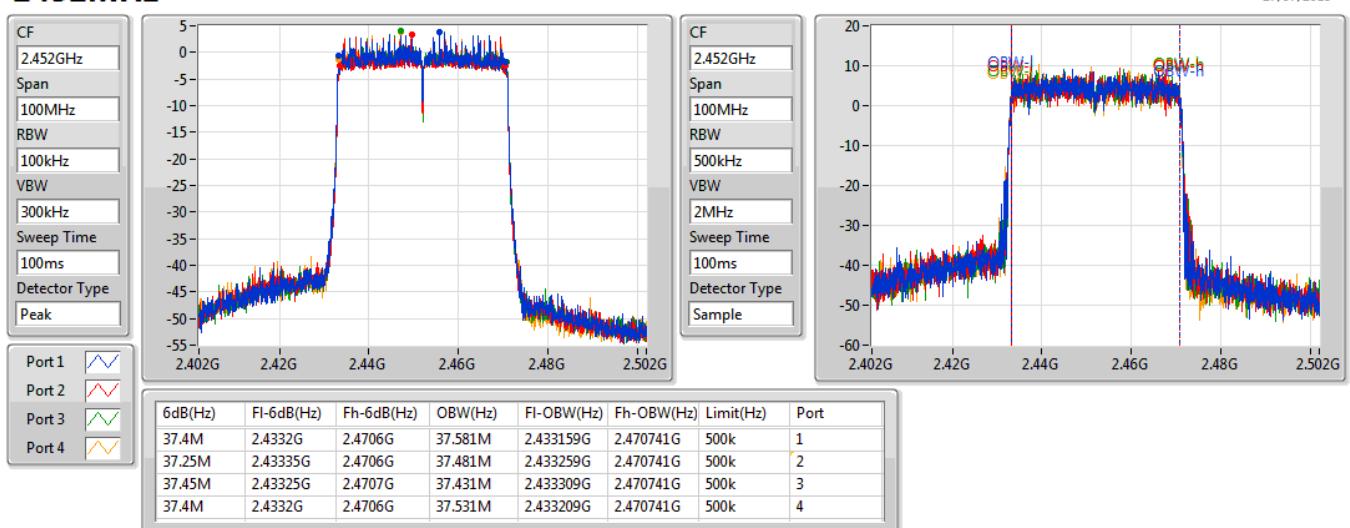
802.11ax HEW20-BF_Nss1,(MCS0)_4TX
EBW
2462MHz

802.11ax HEW40-BF_Nss1,(MCS0)_4TX
EBW
2422MHz


802.11ax HEW40-BF_Nss1,(MCS0)_4TX
EBW
2437MHz

27/07/2019


802.11ax HEW40-BF_Nss1,(MCS0)_4TX
EBW
2452MHz

27/07/2019





<Non-beamforming mode> 4T2S

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
VHT20_Nss2,(MCS0)_4TX	17.6M	17.816M	17M8D1D	17.55M	17.716M
VHT40_Nss2,(MCS0)_4TX	36.35M	36.282M	36M3D1D	36.05M	36.182M
802.11ax HEW20_Nss2,(MCS0)_4TX	18.95M	19.015M	19M0D1D	18.875M	18.941M
802.11ax HEW40_Nss2,(MCS0)_4TX	37.6M	37.631M	37M6D1D	36.95M	37.431M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

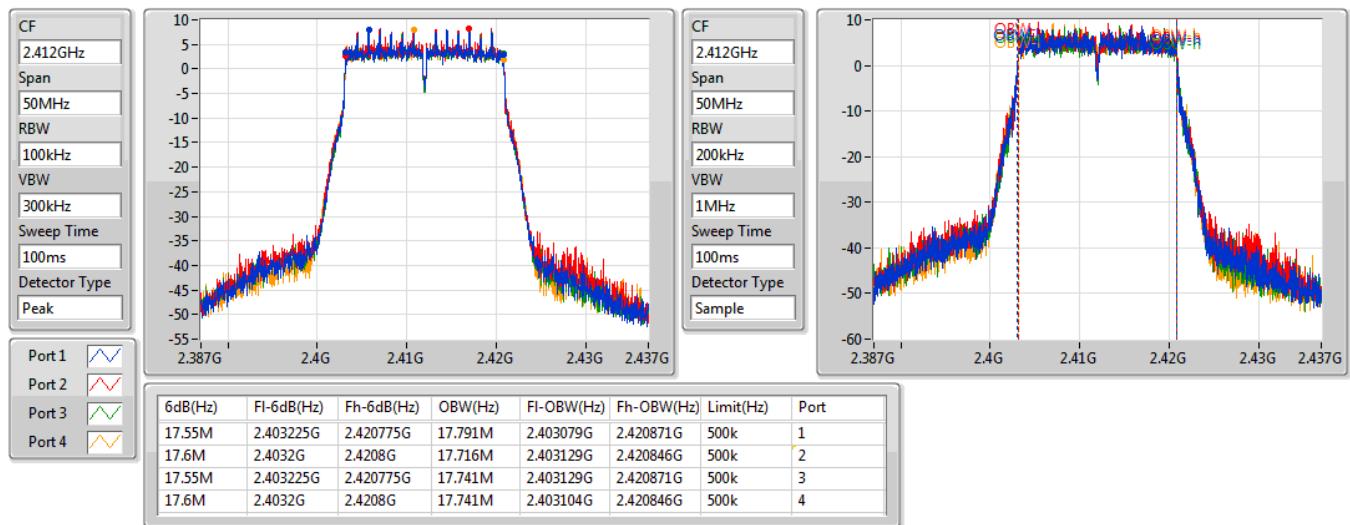
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
VHT20_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	17.55M	17.791M	17.6M	17.716M	17.55M	17.741M	17.6M	17.741M
2462MHz	Pass	500k	17.575M	17.816M	17.6M	17.741M	17.55M	17.741M	17.6M	17.766M
VHT40_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	36.3M	36.182M	36.3M	36.232M	36.3M	36.282M	36.3M	36.232M
2437MHz	Pass	500k	36.3M	36.182M	36.3M	36.232M	36.25M	36.232M	36.3M	36.282M
2452MHz	Pass	500k	36.05M	36.282M	36.3M	36.232M	36.3M	36.232M	36.35M	36.282M
802.11ax HEW20_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	18.95M	18.966M	18.925M	19.015M	18.95M	18.991M	18.925M	18.991M
2462MHz	Pass	500k	18.95M	18.941M	18.875M	18.991M	18.875M	19.015M	18.95M	18.991M
802.11ax HEW40_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	37.5M	37.581M	37M	37.431M	37.6M	37.531M	36.95M	37.531M
2437MHz	Pass	500k	37.5M	37.581M	37.1M	37.531M	37.6M	37.581M	37M	37.481M
2452MHz	Pass	500k	37.5M	37.631M	37.05M	37.481M	37.6M	37.581M	37.45M	37.481M

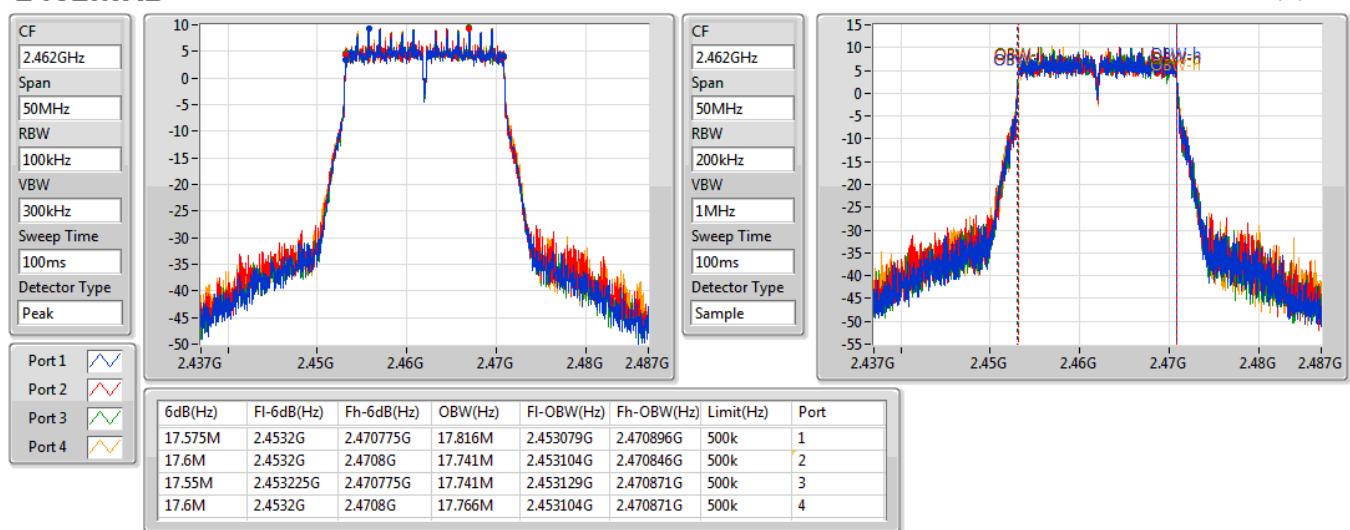
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

**VHT20_Nss2,(MCS0)_4TX****EBW****2412MHz**

28/07/2019

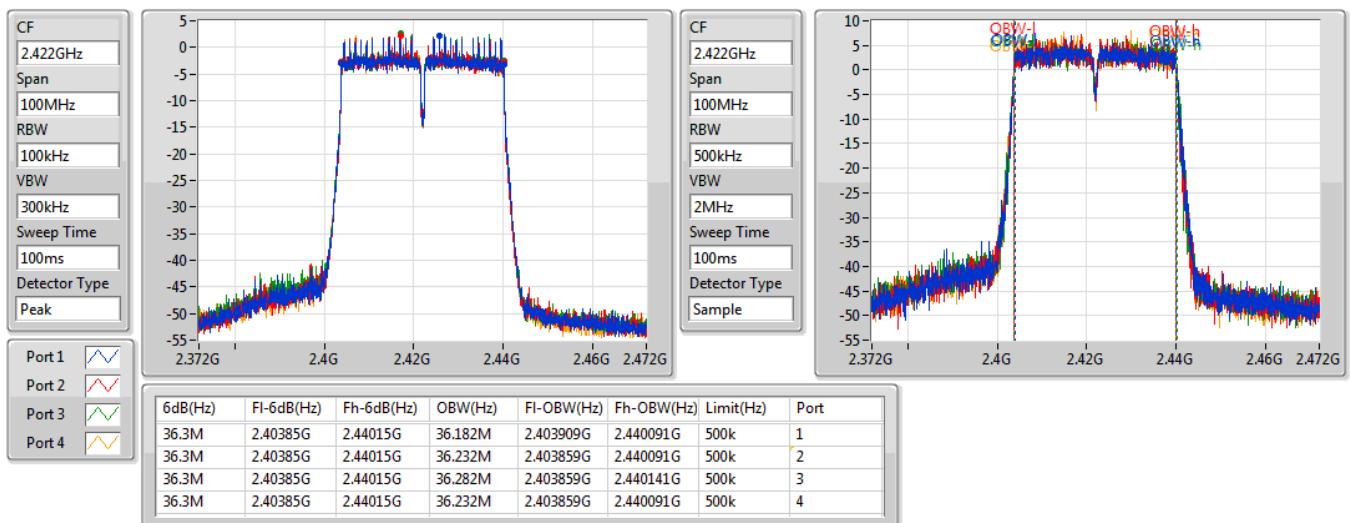
**VHT20_Nss2,(MCS0)_4TX****EBW****2462MHz**

28/07/2019

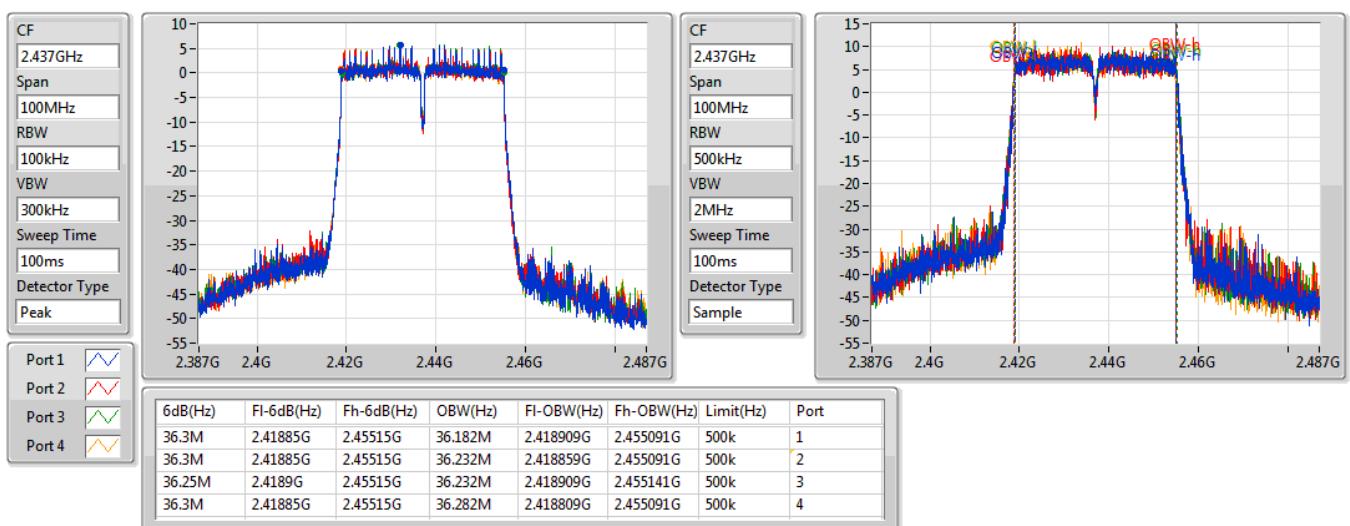


VHT40_Nss2,(MCS0)_4TX
EBW
2422MHz

28/07/2019

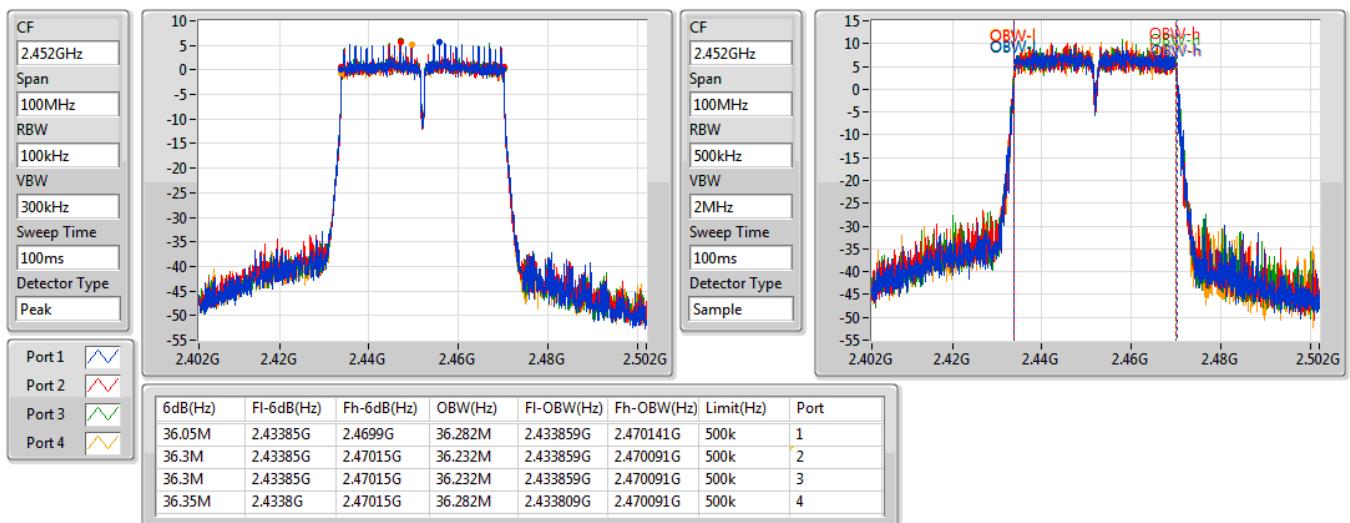

VHT40_Nss2,(MCS0)_4TX
EBW
2437MHz

28/07/2019

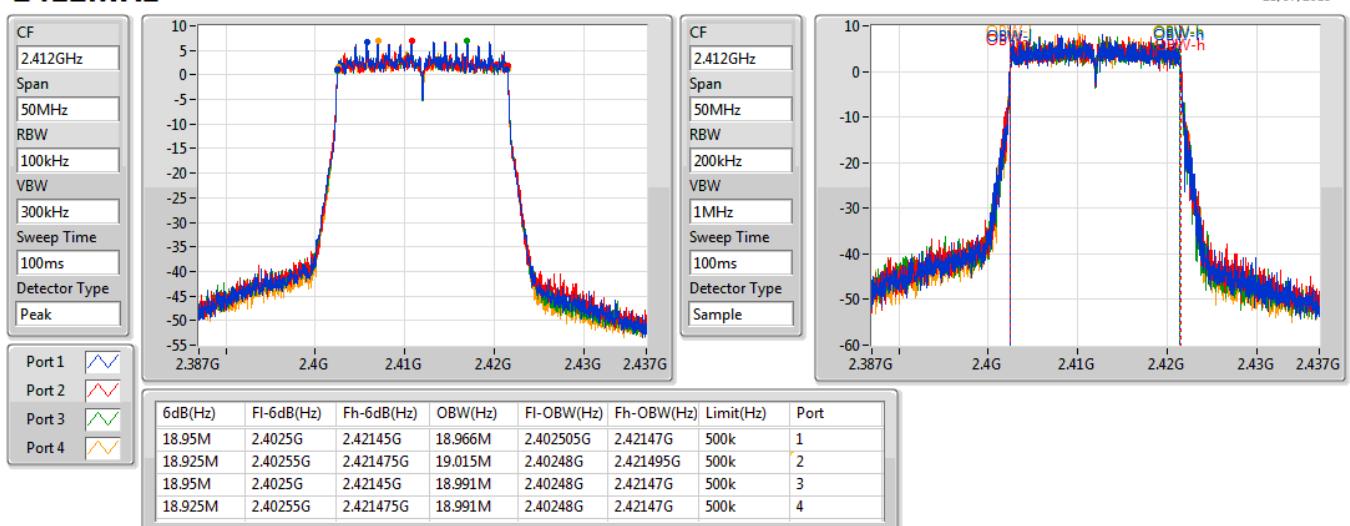


VHT40_Nss2,(MCS0)_4TX
EBW
2452MHz

28/07/2019

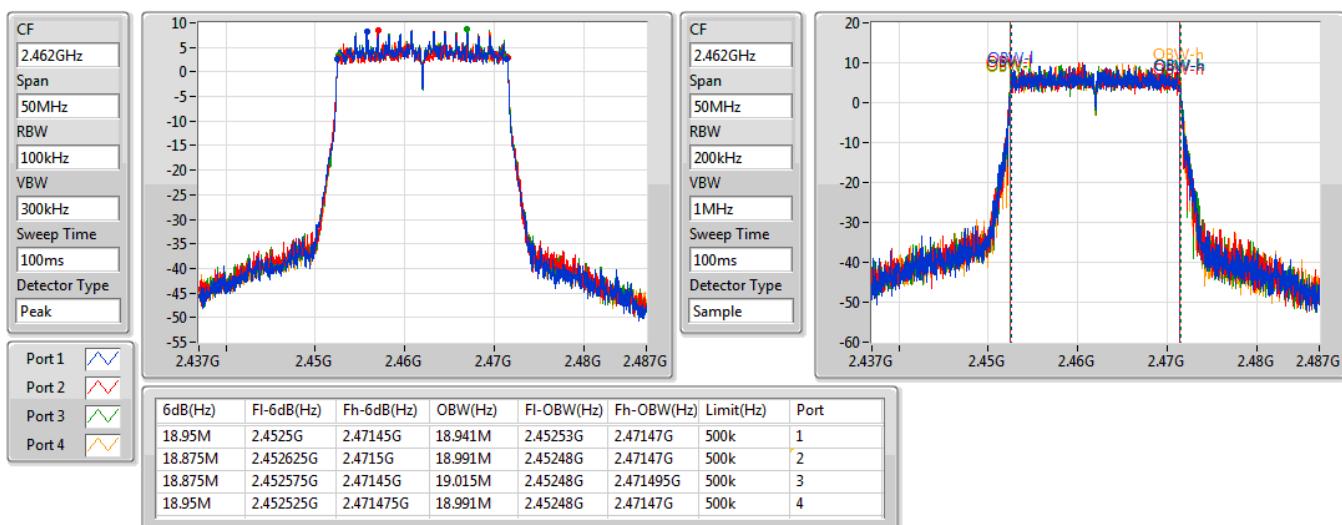

802.11ax HEW20_Nss2,(MCS0)_4TX
EBW
2412MHz

28/07/2019

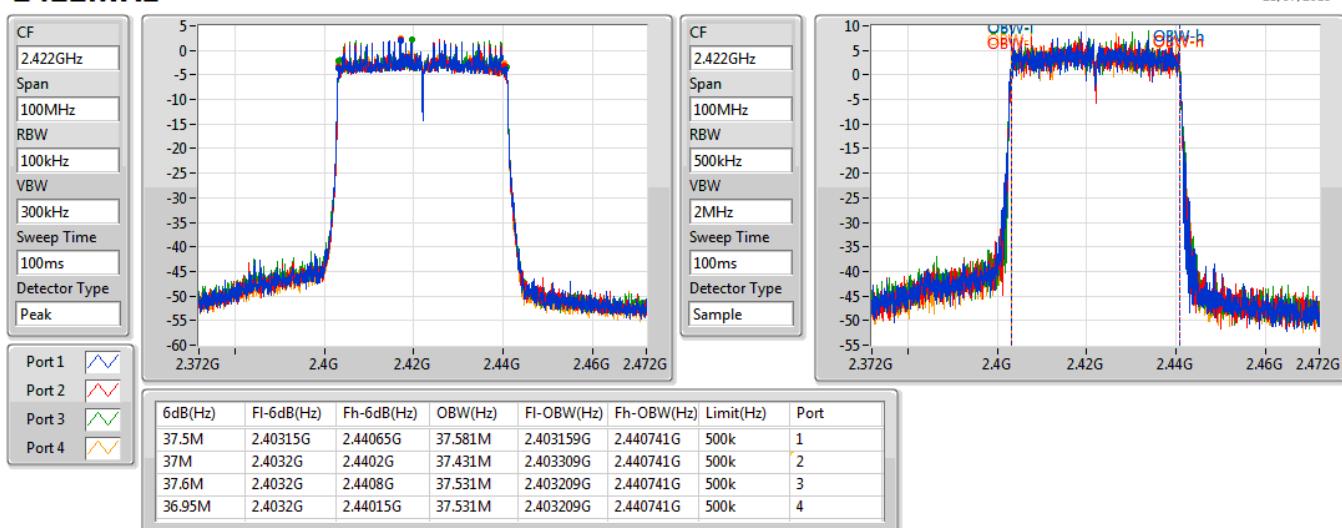


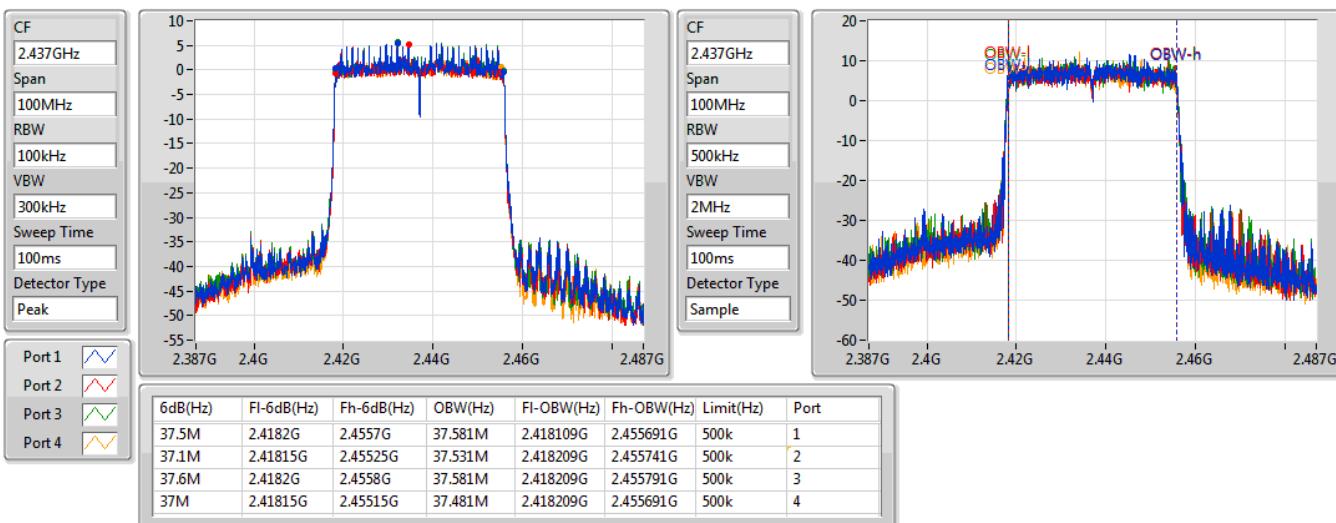
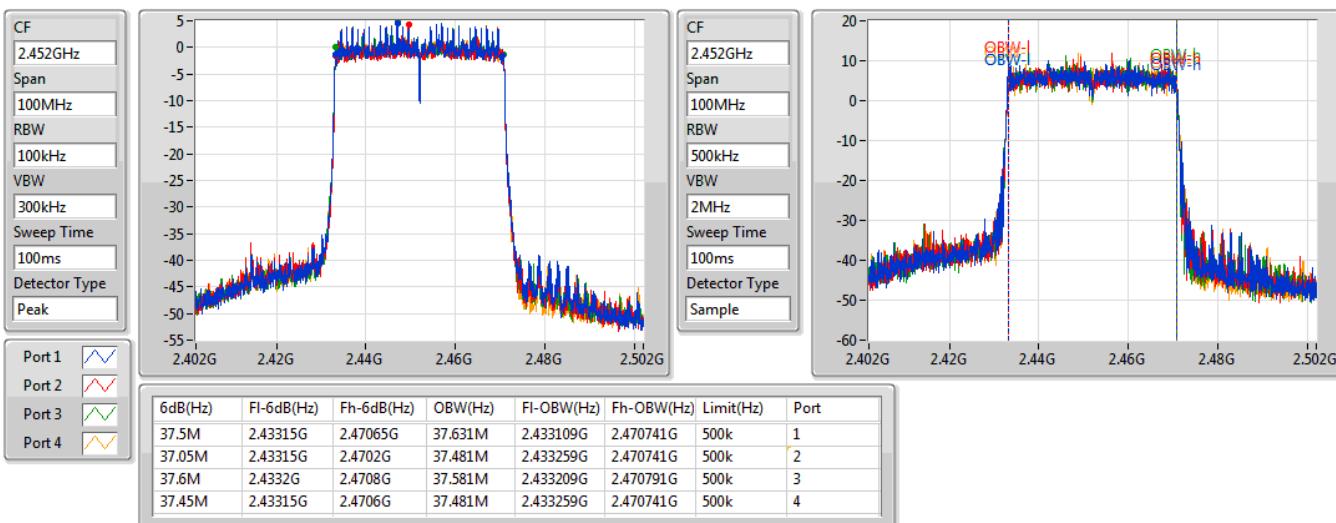
802.11ax HEW20_Nss2,(MCS0)_4TX
EBW
2462MHz

28/07/2019


802.11ax HEW40_Nss2,(MCS0)_4TX
EBW
2422MHz

28/07/2019



802.11ax HEW40_Nss2,(MCS0)_4TX
EBW
2437MHz

802.11ax HEW40_Nss2,(MCS0)_4TX
EBW
2452MHz




<beamforming mode> 4T2S

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
VHT20-BF_Nss2,(MCS0)_4TX	17.6M	17.766M	17M8D1D	17.55M	17.716M
VHT40-BF_Nss2,(MCS0)_4TX	36.3M	36.332M	36M3D1D	35.95M	36.132M
802.11ax HEW20-BF_Nss2,(MCS0)_4TX	18.95M	18.991M	19M0D1D	18.9M	18.916M
802.11ax HEW40-BF_Nss2,(MCS0)_4TX	37.6M	37.631M	37M6D1D	37M	37.431M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;



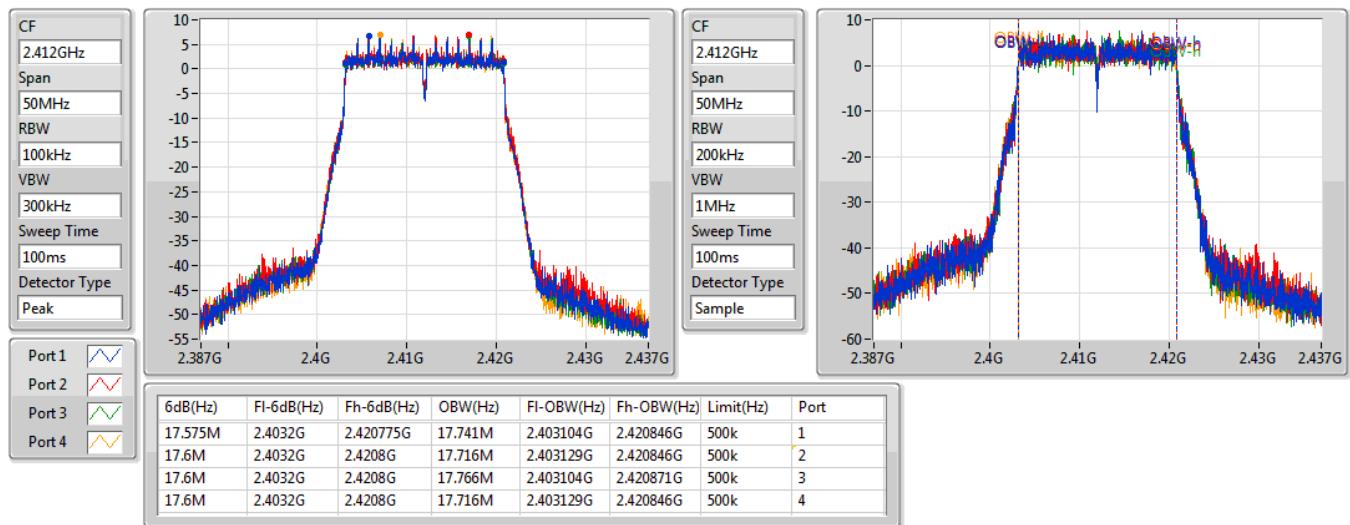
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
VHT20-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	17.575M	17.741M	17.6M	17.716M	17.6M	17.766M	17.6M	17.716M
2462MHz	Pass	500k	17.55M	17.766M	17.6M	17.766M	17.55M	17.741M	17.575M	17.716M
VHT40-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	36.25M	36.232M	36.3M	36.182M	36.3M	36.282M	35.95M	36.232M
2437MHz	Pass	500k	36.3M	36.232M	36.3M	36.282M	36.3M	36.232M	36.3M	36.232M
2452MHz	Pass	500k	36.3M	36.282M	36.3M	36.132M	36.3M	36.332M	36.25M	36.282M
802.11ax HEW20-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	18.9M	18.941M	18.9M	18.966M	18.95M	18.941M	18.9M	18.991M
2462MHz	Pass	500k	18.9M	18.941M	18.925M	18.991M	18.925M	18.916M	18.925M	18.991M
802.11ax HEW40-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	37.55M	37.581M	37.05M	37.531M	37.3M	37.631M	37.45M	37.431M
2437MHz	Pass	500k	37.6M	37.481M	37.55M	37.581M	37.3M	37.581M	37.5M	37.581M
2452MHz	Pass	500k	37.55M	37.531M	37M	37.581M	37.35M	37.531M	37.6M	37.481M

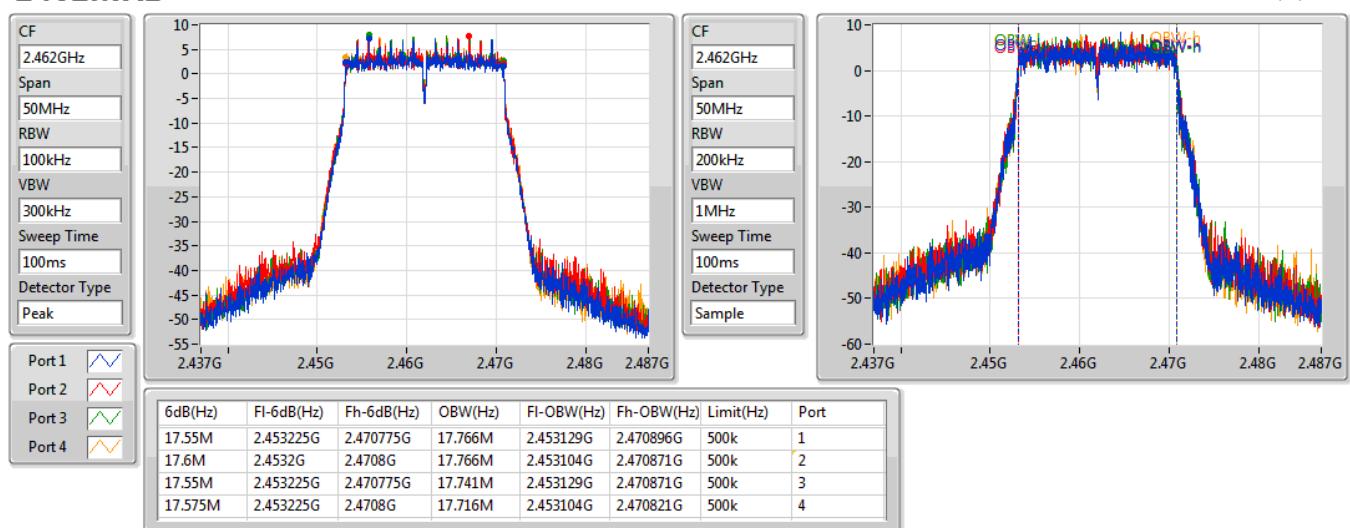
Port X-N dB = Port X 6dB down bandwidth; Port X-OBW = Port X 99% occupied bandwidth;

VHT20-BF_Nss2,(MCS0)_4TX
EBW
2412MHz

27/07/2019

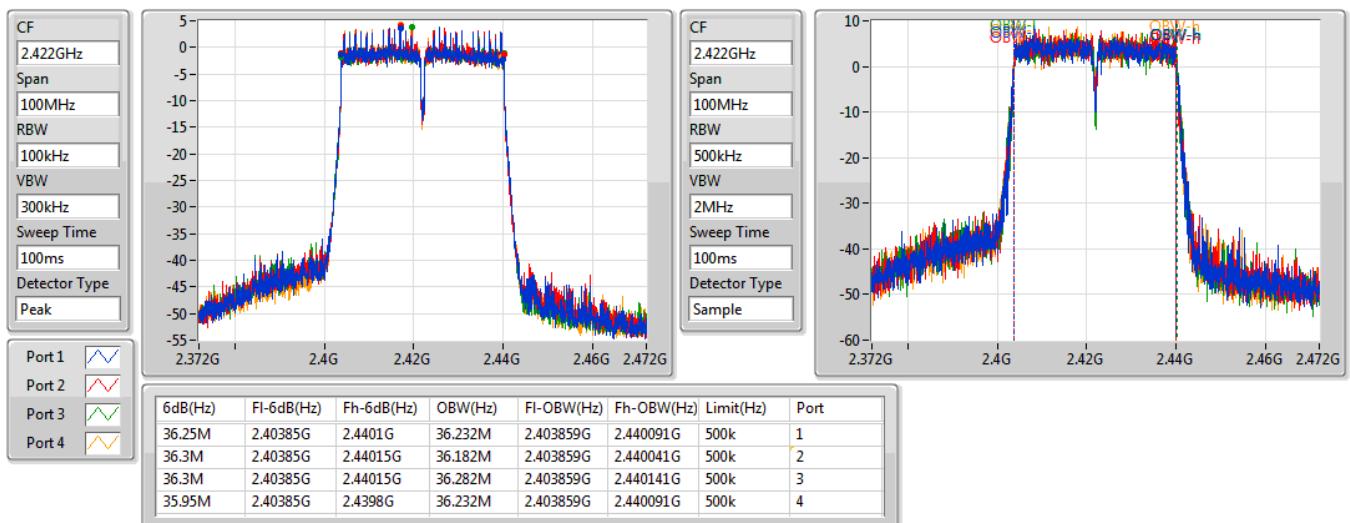

VHT20-BF_Nss2,(MCS0)_4TX
EBW
2462MHz

27/07/2019

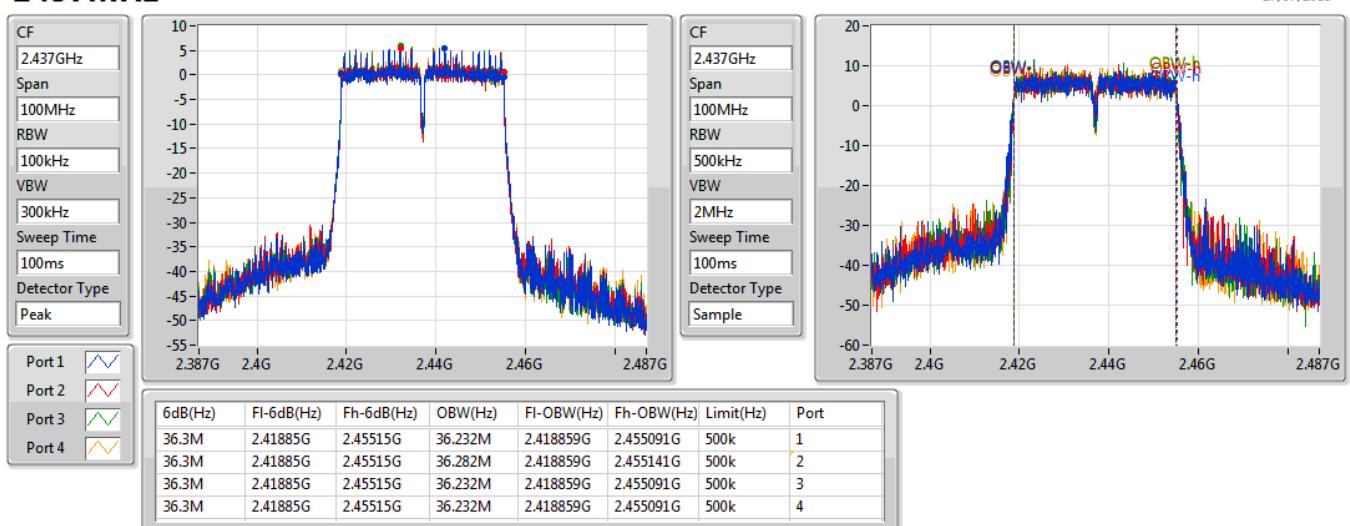


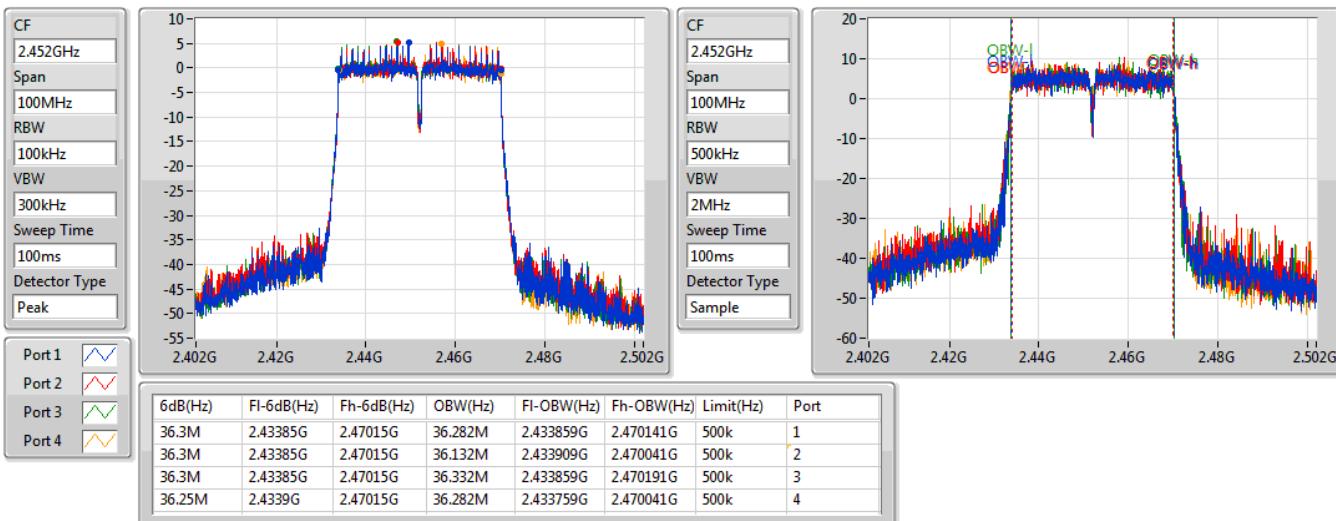
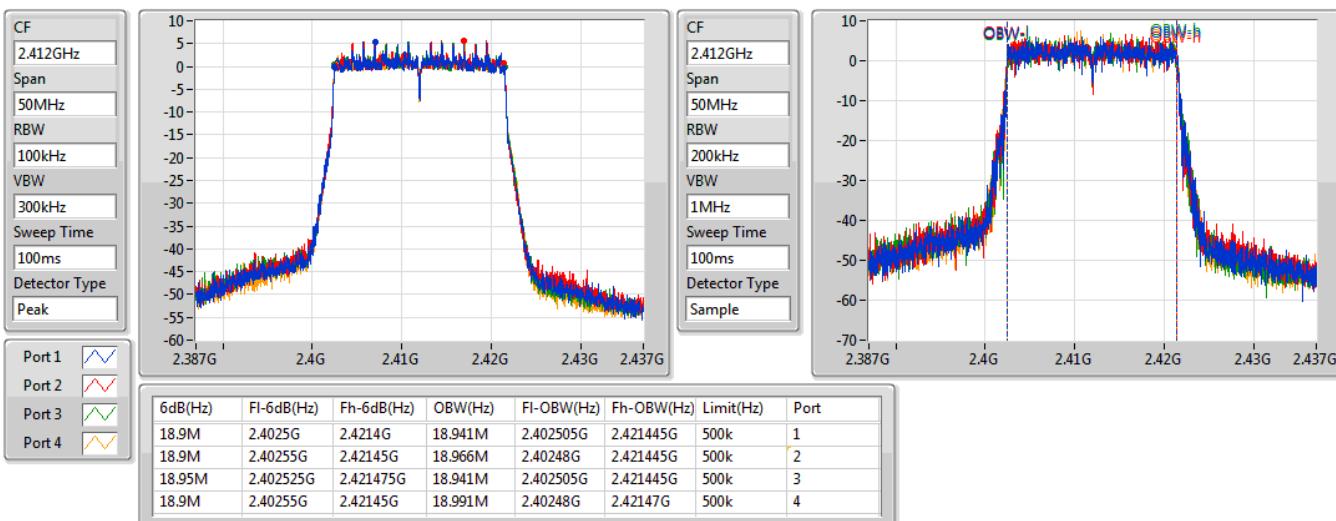
VHT40-BF_Nss2,(MCS0)_4TX
EBW
2422MHz

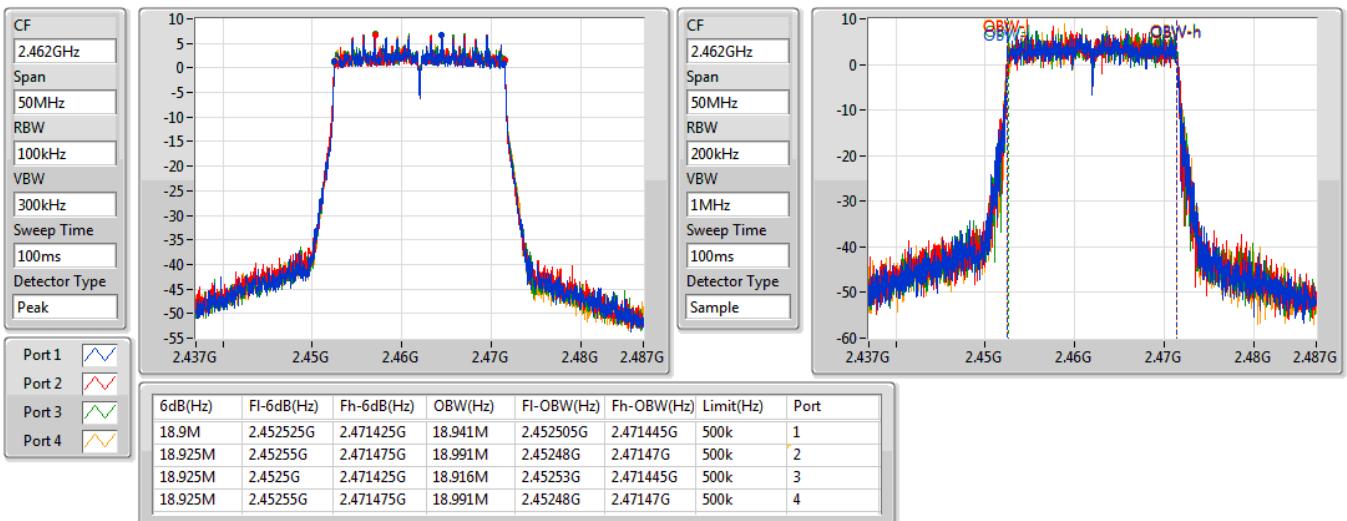
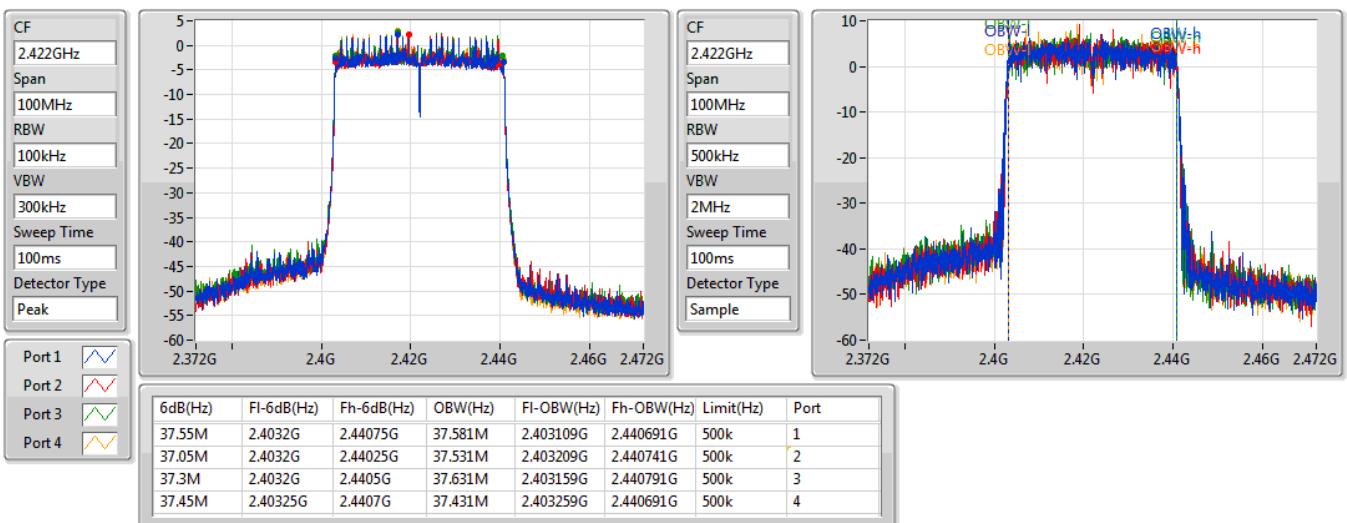
27/07/2019


VHT40-BF_Nss2,(MCS0)_4TX
EBW
2437MHz

27/07/2019

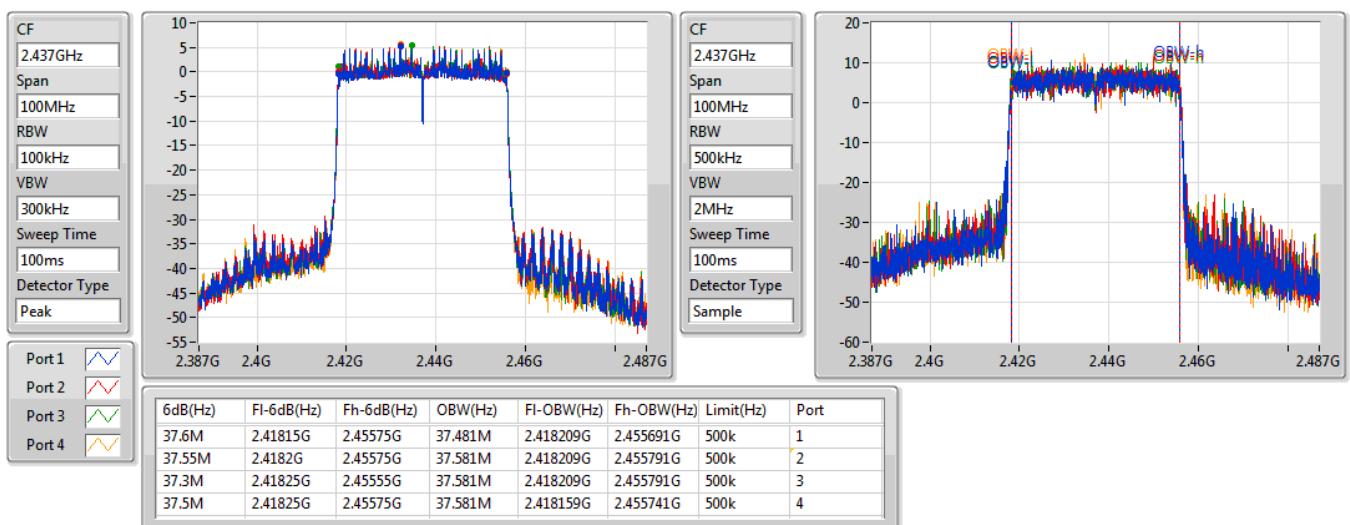


VHT40-BF_Nss2,(MCS0)_4TX
EBW
2452MHz

802.11ax HEW20-BF_Nss2,(MCS0)_4TX
EBW
2412MHz


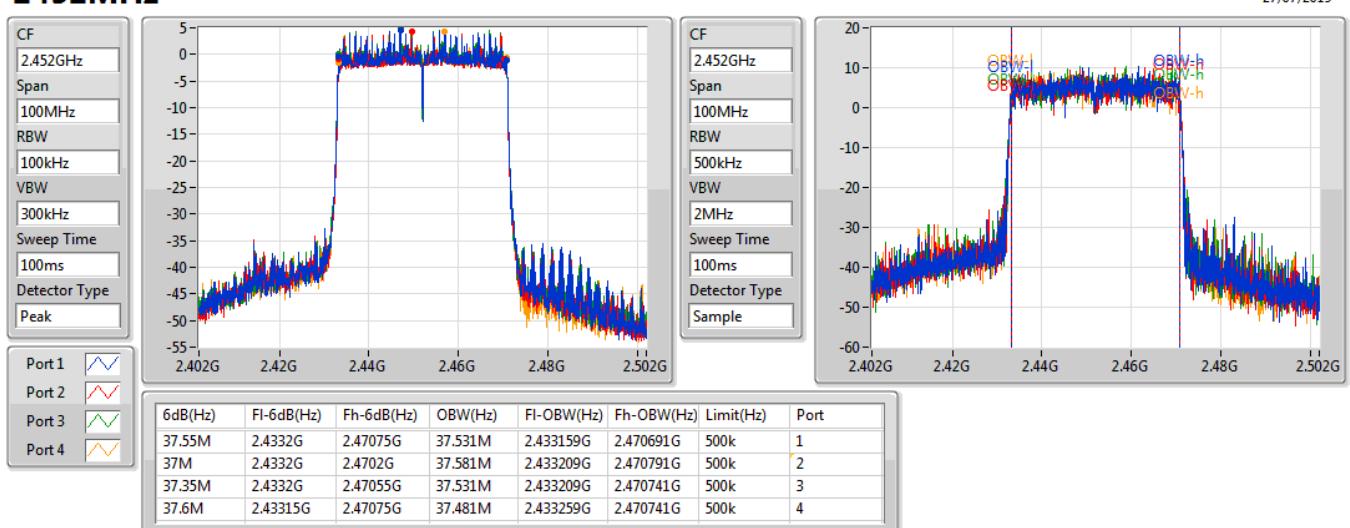
802.11ax HEW20-BF_Nss2,(MCS0)_4TX
EBW
2462MHz

802.11ax HEW40-BF_Nss2,(MCS0)_4TX
EBW
2422MHz


802.11ax HEW40-BF_Nss2,(MCS0)_4TX
EBW
2437MHz

27/07/2019


802.11ax HEW40-BF_Nss2,(MCS0)_4TX
EBW
2452MHz

27/07/2019





<Non-beamforming mode> 4T3S

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
VHT20_Nss3,(MCS0)_4TX	17.625M	17.816M	17M8D1D	16.675M	17.716M
VHT40_Nss3,(MCS0)_4TX	36.35M	36.332M	36M3D1D	36.1M	36.232M
802.11ax HEW20_Nss3,(MCS0)_4TX	19.05M	19.04M	19M0D1D	18.9M	18.966M
802.11ax HEW40_Nss3,(MCS0)_4TX	37.65M	37.631M	37M6D1D	37.35M	37.481M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

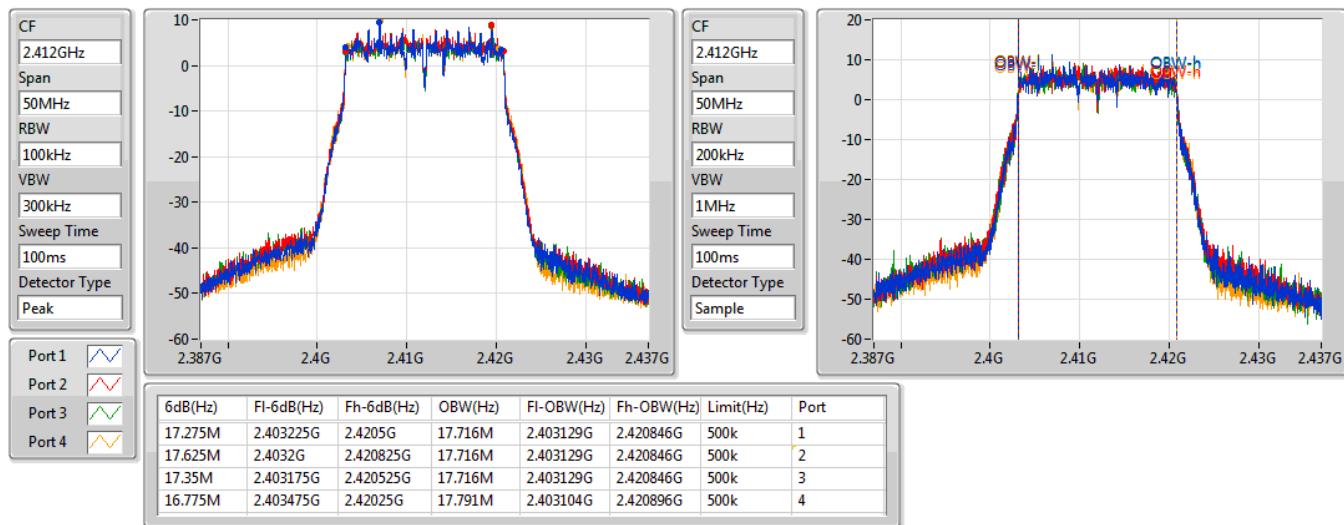
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
VHT20_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	17.275M	17.716M	17.625M	17.716M	17.35M	17.716M	16.775M	17.791M
2462MHz	Pass	500k	17.45M	17.741M	17.575M	17.741M	17.325M	17.716M	16.675M	17.816M
VHT40_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	36.35M	36.332M	36.35M	36.232M	36.35M	36.282M	36.3M	36.332M
2437MHz	Pass	500k	36.3M	36.332M	36.3M	36.232M	36.35M	36.232M	36.3M	36.232M
2452MHz	Pass	500k	36.1M	36.282M	36.35M	36.332M	36.3M	36.232M	36.3M	36.332M
802.11ax HEW20_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	19.05M	18.966M	18.925M	18.991M	19.05M	18.966M	18.9M	18.991M
2462MHz	Pass	500k	19.05M	18.991M	18.925M	18.991M	19.025M	18.991M	18.95M	19.04M
802.11ax HEW40_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	37.65M	37.531M	37.35M	37.481M	37.45M	37.581M	37.55M	37.531M
2437MHz	Pass	500k	37.55M	37.481M	37.35M	37.581M	37.5M	37.481M	37.65M	37.631M
2452MHz	Pass	500k	37.55M	37.481M	37.4M	37.531M	37.45M	37.481M	37.65M	37.531M

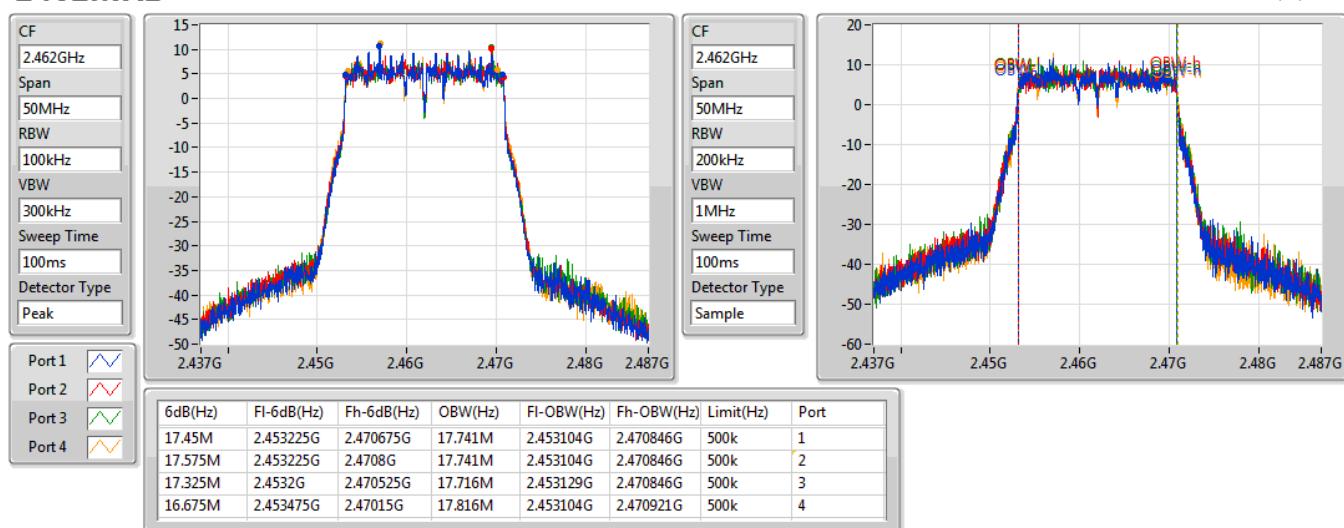
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

VHT20_Nss3,(MCS0)_4TX
EBW
2412MHz

28/07/2019

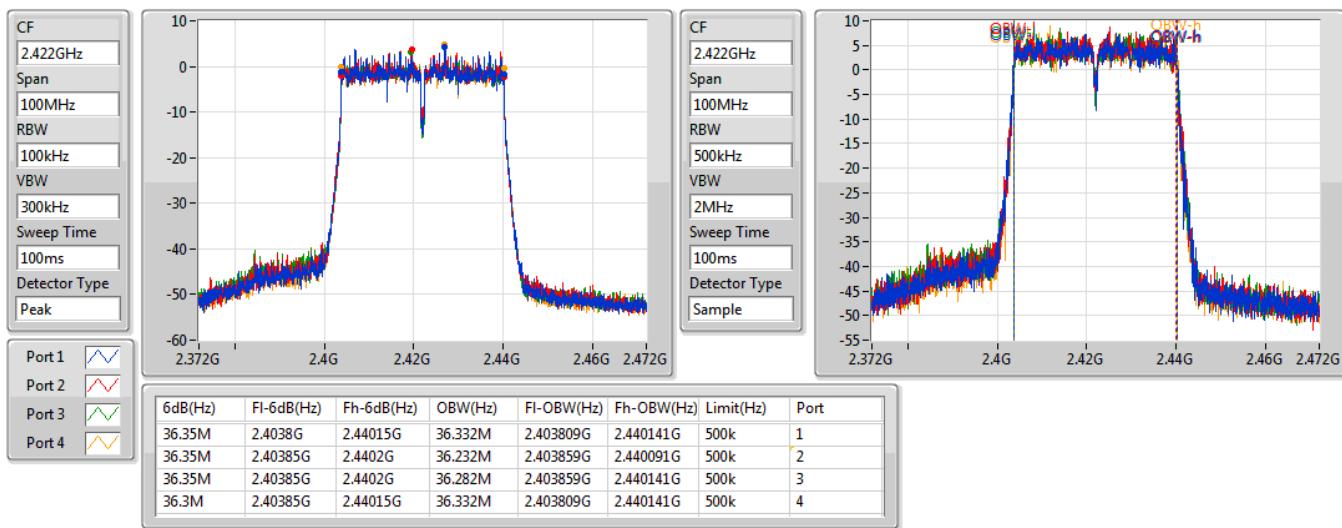

VHT20_Nss3,(MCS0)_4TX
EBW
2462MHz

28/07/2019

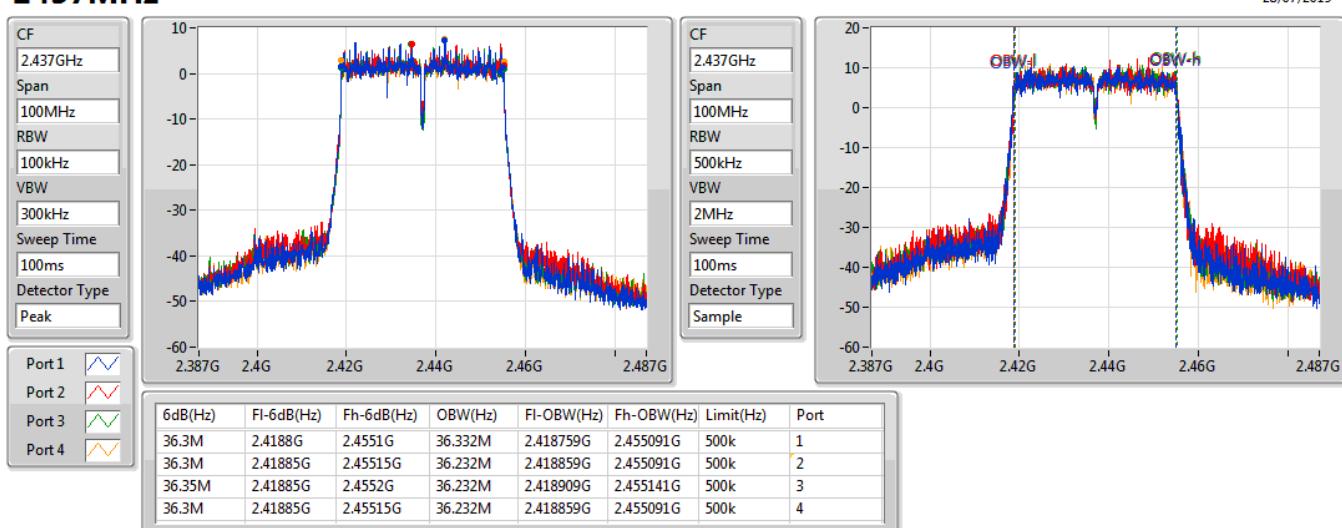


VHT40_Nss3,(MCS0)_4TX
2422MHz
EBW

28/07/2019

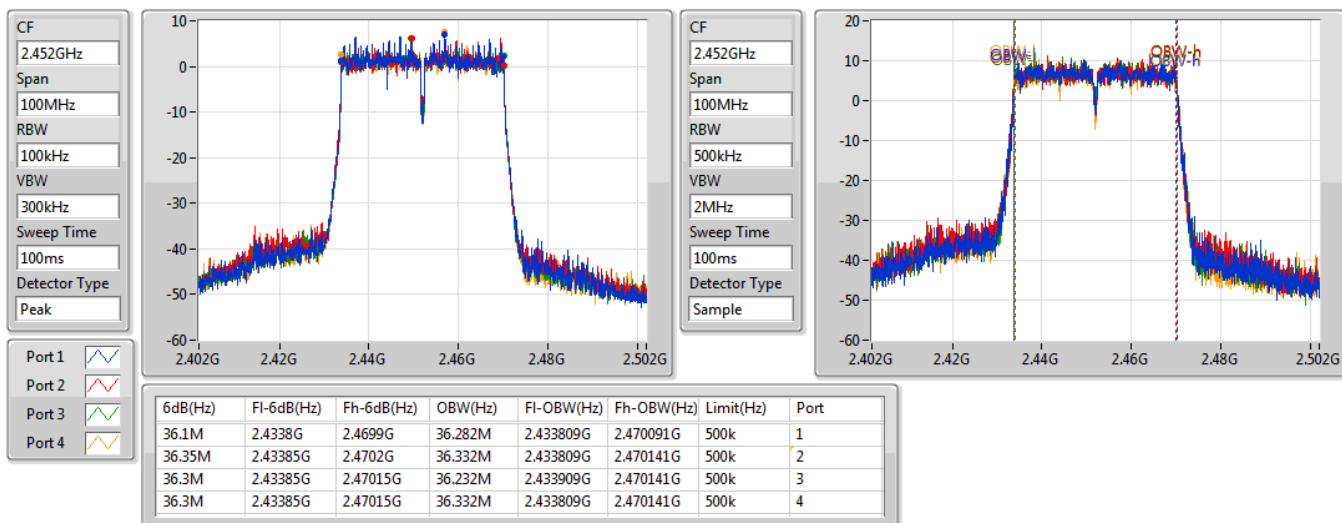

VHT40_Nss3,(MCS0)_4TX
2437MHz
EBW

28/07/2019

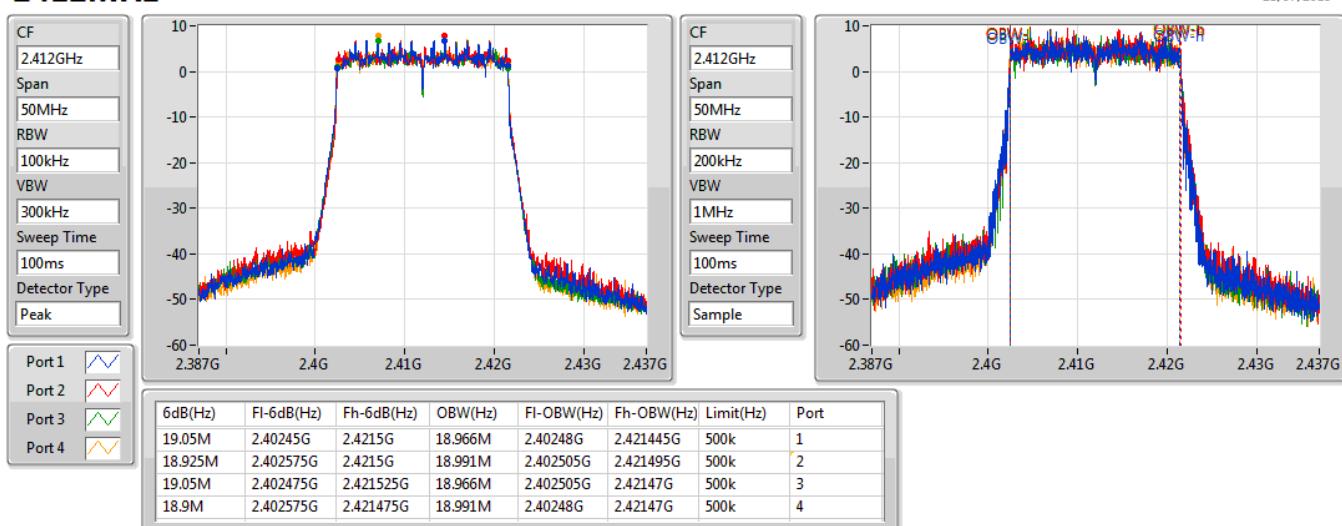


VHT40_Nss3,(MCS0)_4TX
EBW
2452MHz

28/07/2019

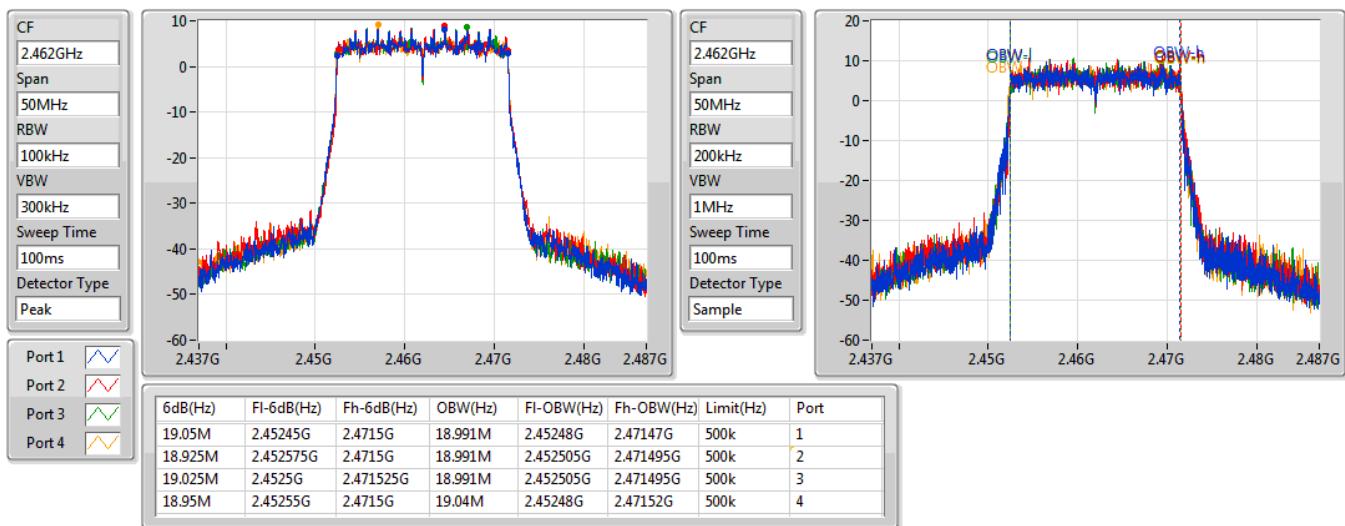

802.11ax HEW20_Nss3,(MCS0)_4TX
EBW
2412MHz

28/07/2019

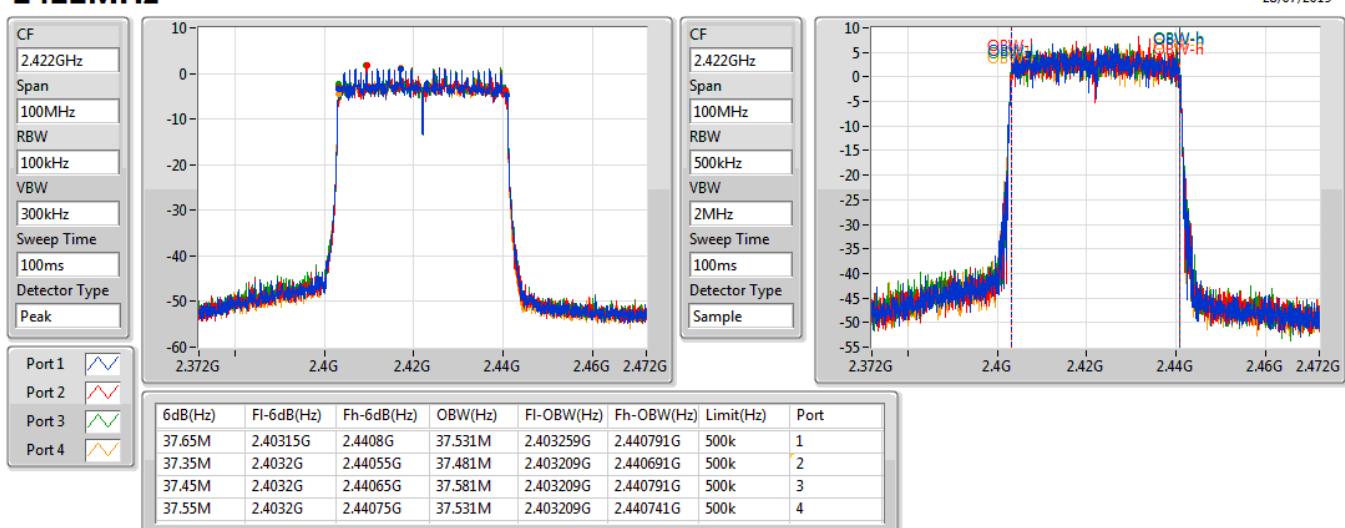


802.11ax HEW20_Nss3,(MCS0)_4TX
EBW
2462MHz

28/07/2019

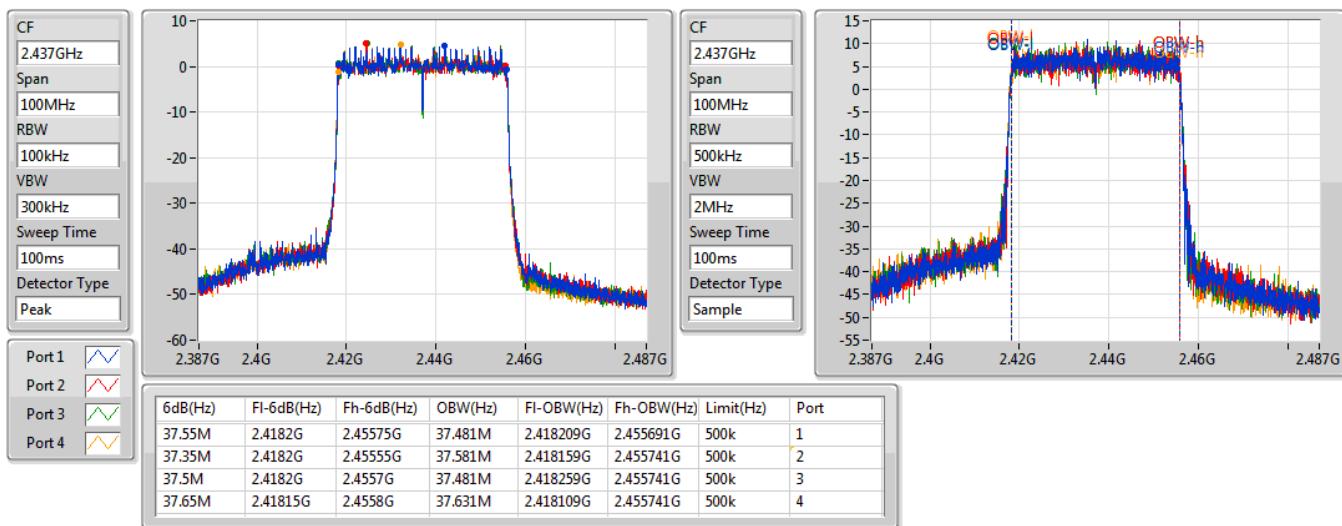

802.11ax HEW40_Nss3,(MCS0)_4TX
EBW
2422MHz

28/07/2019

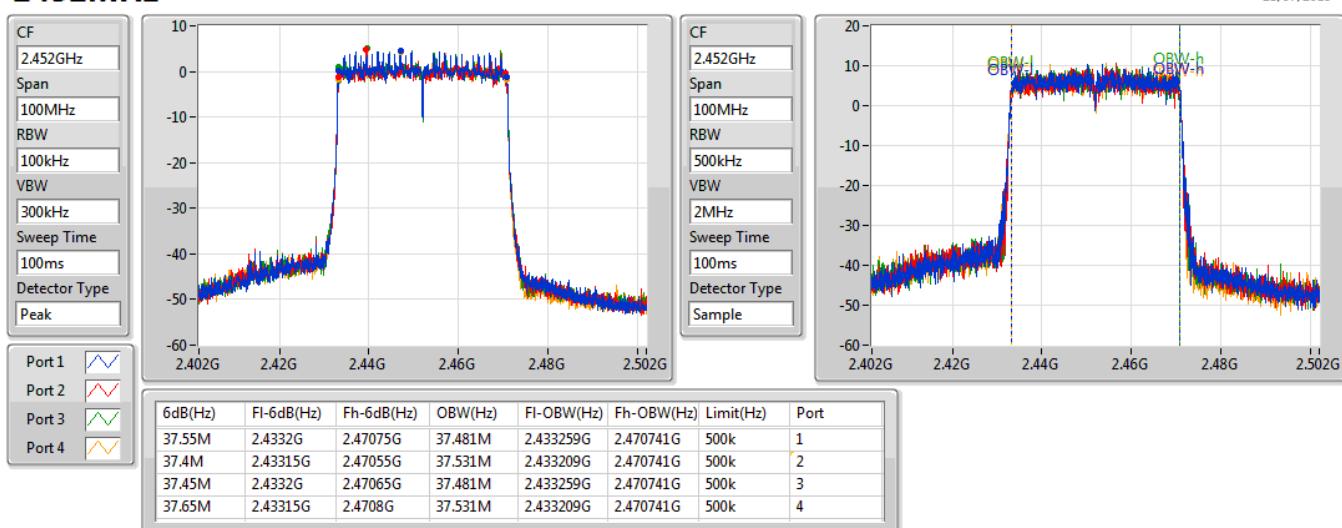


802.11ax HEW40_Nss3,(MCS0)_4TX
EBW
2437MHz

28/07/2019


802.11ax HEW40_Nss3,(MCS0)_4TX
EBW
2452MHz

28/07/2019





<beamforming mode> 4T3S

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
VHT20-BF_Nss3,(MCS0)_4TX	17.625M	17.741M	17M7D1D	17M	17.691M
VHT40-BF_Nss3,(MCS0)_4TX	36.4M	36.332M	36M3D1D	36.25M	36.232M
802.11ax HEW20-BF_Nss3,(MCS0)_4TX	19.05M	18.991M	19M0D1D	18.975M	18.891M
802.11ax HEW40-BF_Nss3,(MCS0)_4TX	37.6M	37.631M	37M6D1D	37.25M	37.431M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;



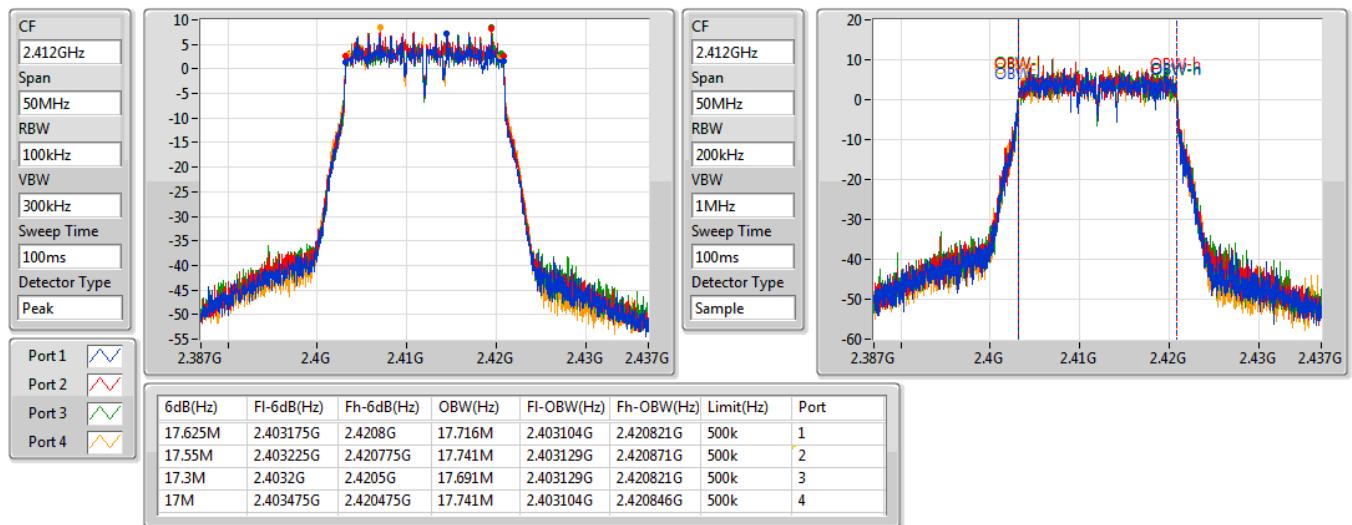
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
VHT20-BF_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	17.625M	17.716M	17.55M	17.741M	17.3M	17.691M	17M	17.741M
2462MHz	Pass	500k	17.475M	17.716M	17.6M	17.716M	17.625M	17.716M	17.575M	17.741M
VHT40-BF_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	36.25M	36.232M	36.3M	36.232M	36.3M	36.232M	36.3M	36.282M
2437MHz	Pass	500k	36.25M	36.282M	36.35M	36.282M	36.3M	36.282M	36.4M	36.282M
2452MHz	Pass	500k	36.25M	36.282M	36.3M	36.282M	36.3M	36.282M	36.35M	36.332M
802.11ax HEW20-BF_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	19.05M	18.891M	18.975M	18.941M	19.05M	18.991M	19.05M	18.991M
2462MHz	Pass	500k	19.05M	18.991M	18.975M	18.966M	19.05M	18.966M	19.025M	18.966M
802.11ax HEW40-BF_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	37.55M	37.431M	37.35M	37.481M	37.55M	37.481M	37.3M	37.631M
2437MHz	Pass	500k	37.6M	37.631M	37.3M	37.581M	37.6M	37.581M	37.3M	37.481M
2452MHz	Pass	500k	37.6M	37.631M	37.35M	37.481M	37.6M	37.481M	37.25M	37.531M

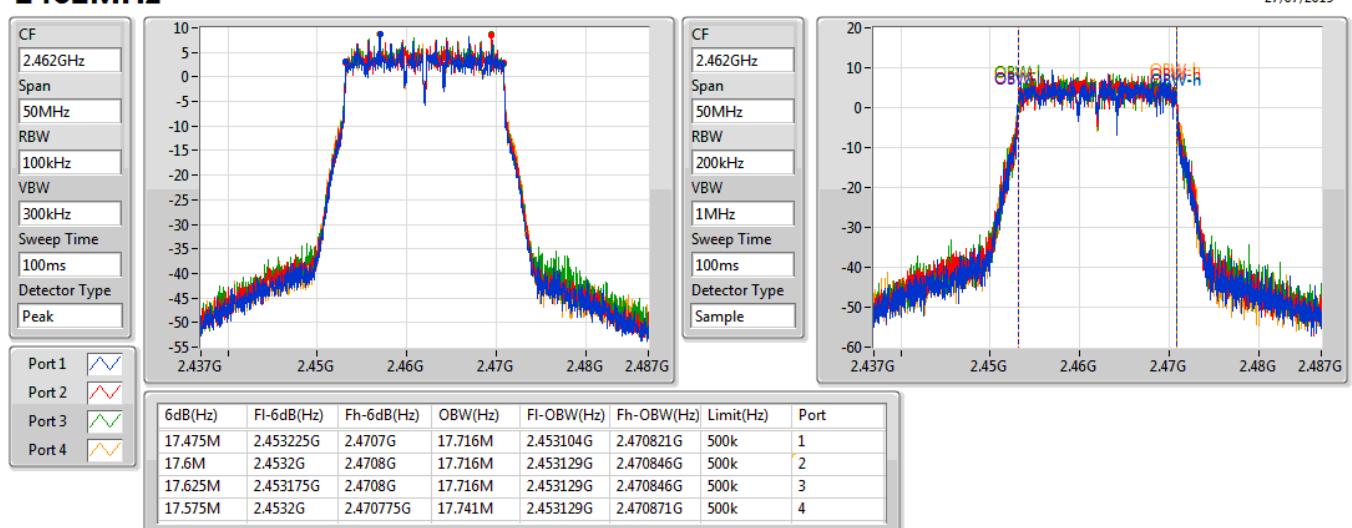
Port X-N dB = Port X 6dB down bandwidth; Port X-OBW = Port X 99% occupied bandwidth;

VHT20-BF_Nss3,(MCS0)_4TX
EBW
2412MHz

27/07/2019

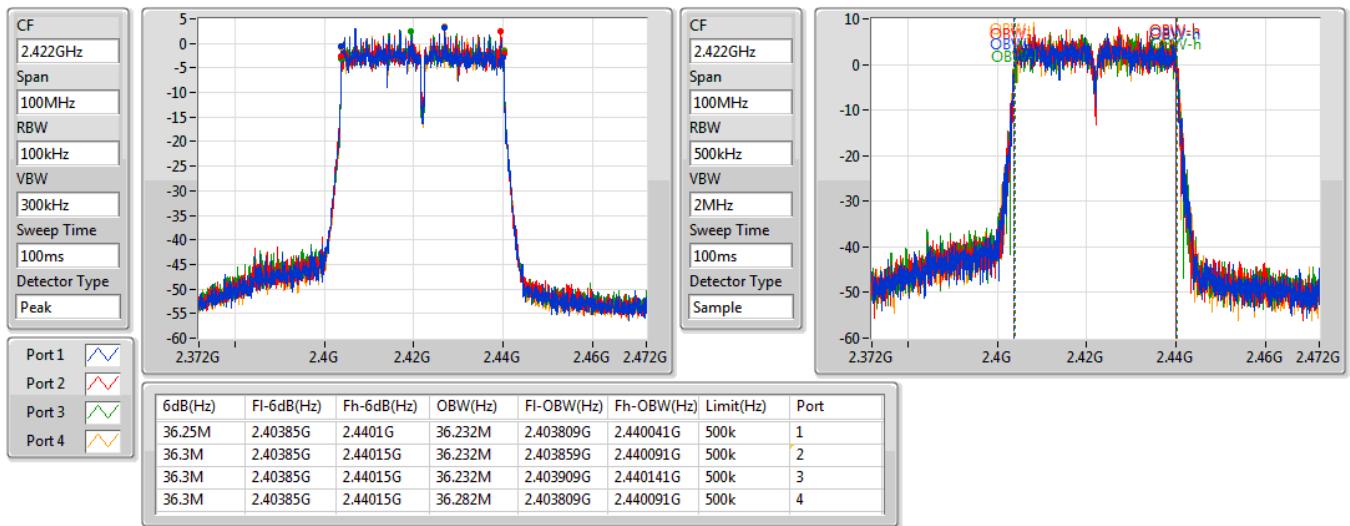

VHT20-BF_Nss3,(MCS0)_4TX
EBW
2462MHz

27/07/2019

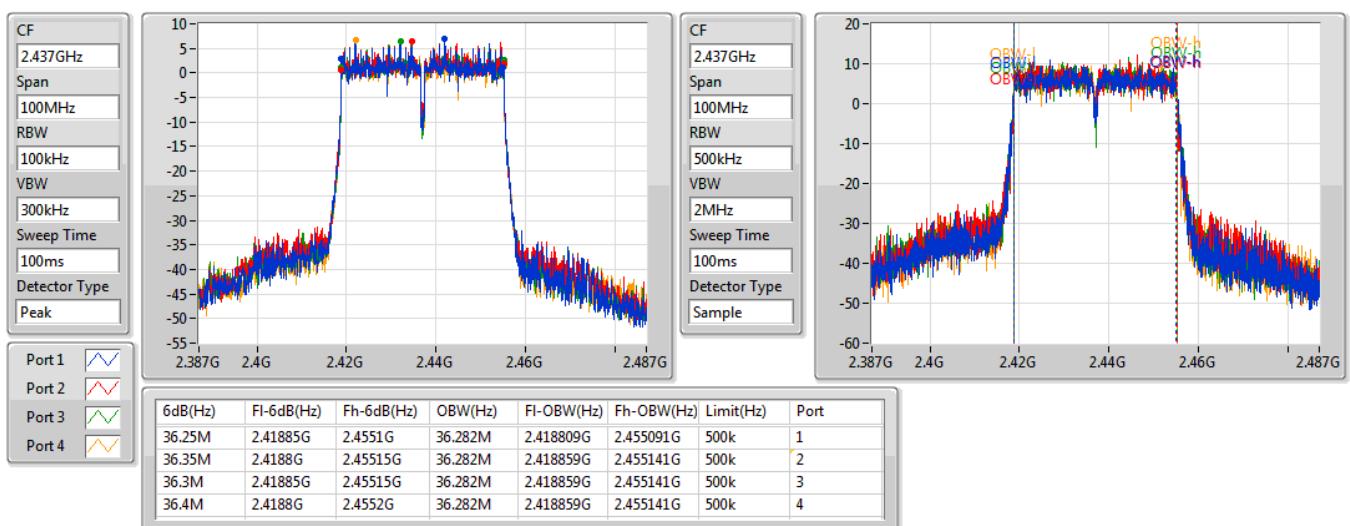


VHT40-BF_Nss3,(MCS0)_4TX
EBW
2422MHz

27/07/2019

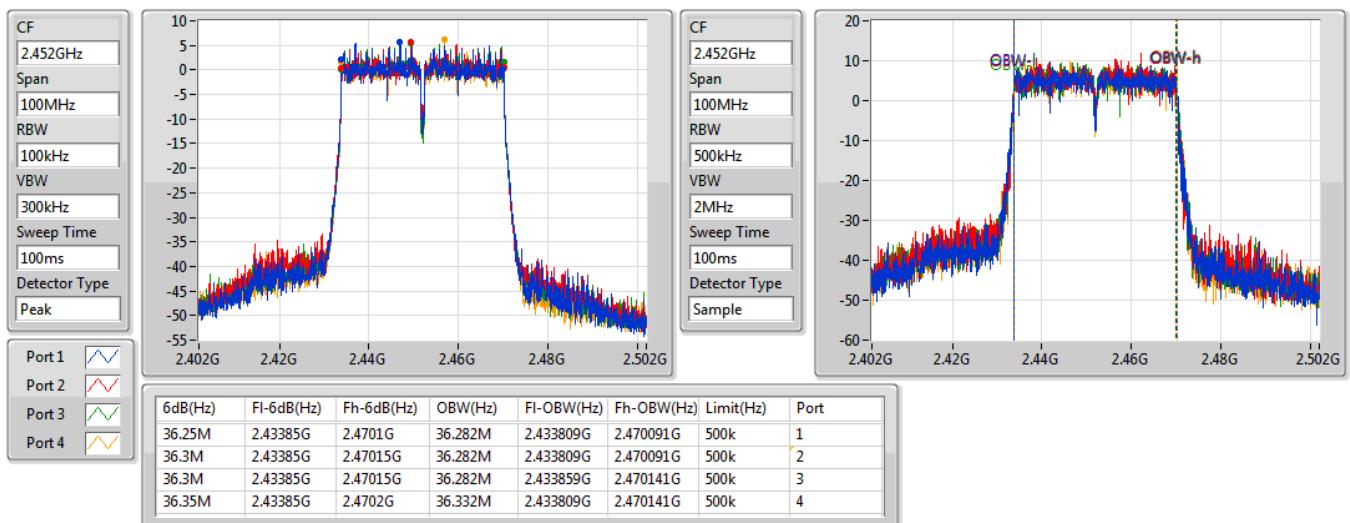

VHT40-BF_Nss3,(MCS0)_4TX
EBW
2437MHz

27/07/2019

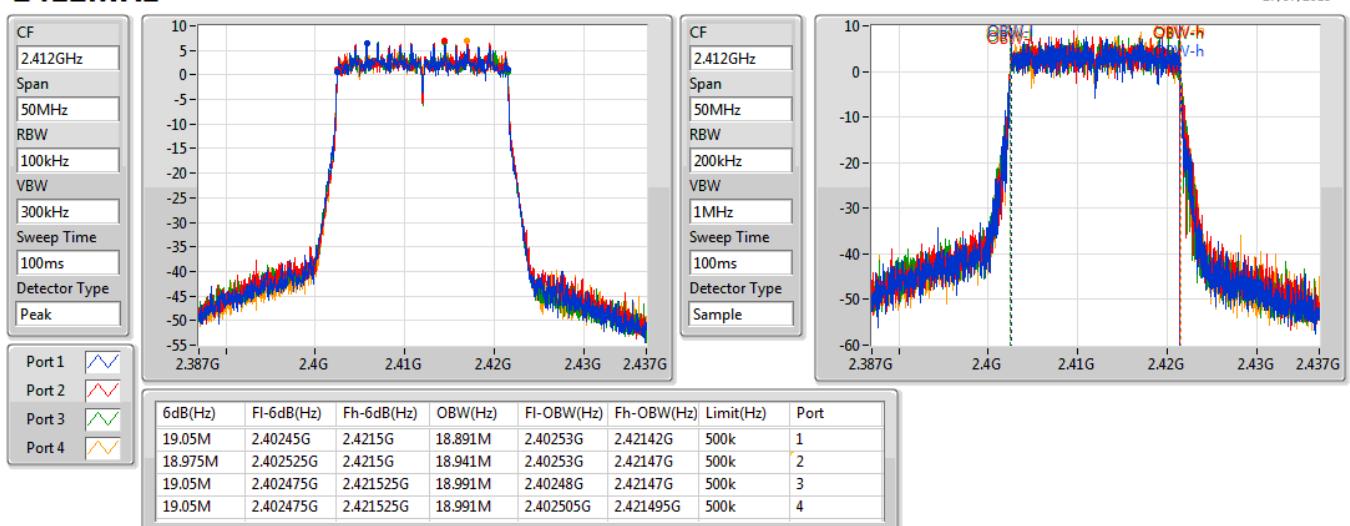


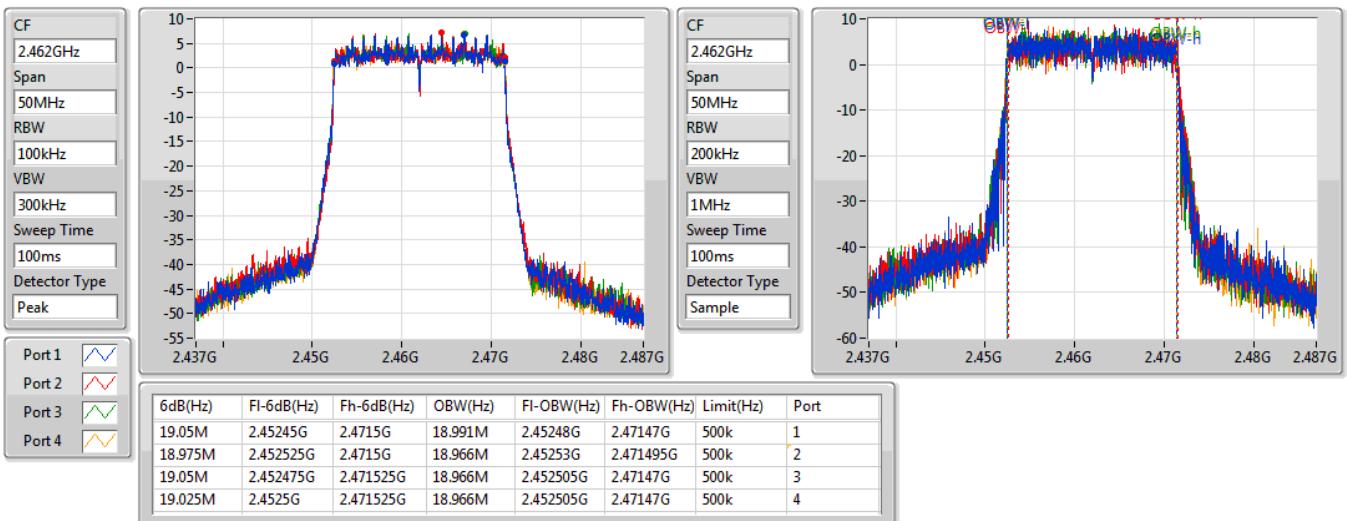
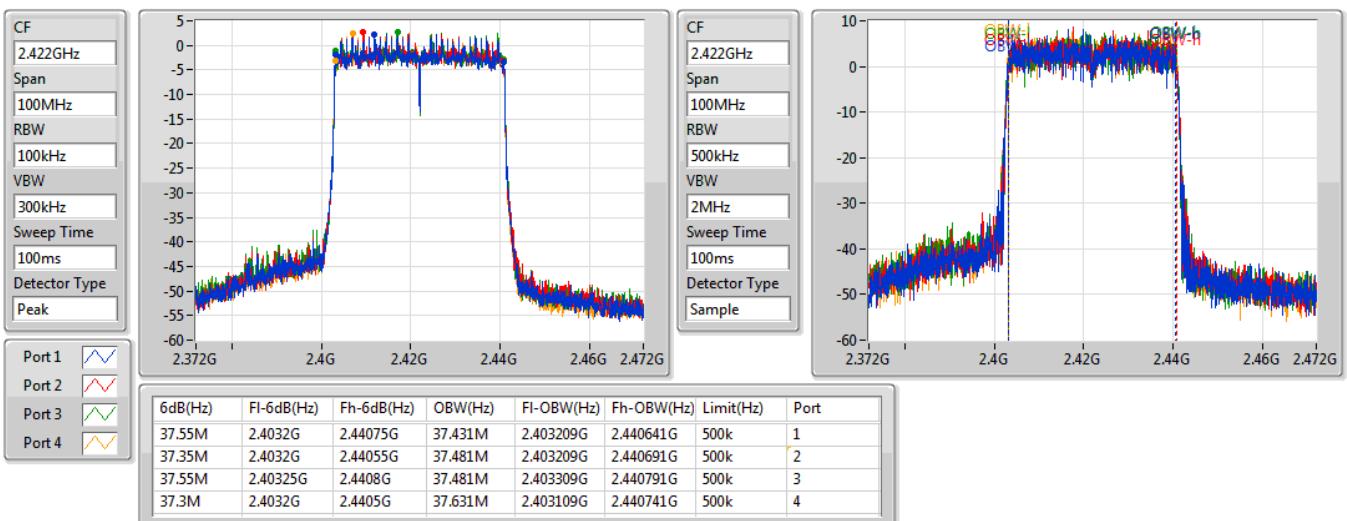
VHT40-BF_Nss3,(MCS0)_4TX
EBW
2452MHz

27/07/2019


802.11ax HEW20-BF_Nss3,(MCS0)_4TX
EBW
2412MHz

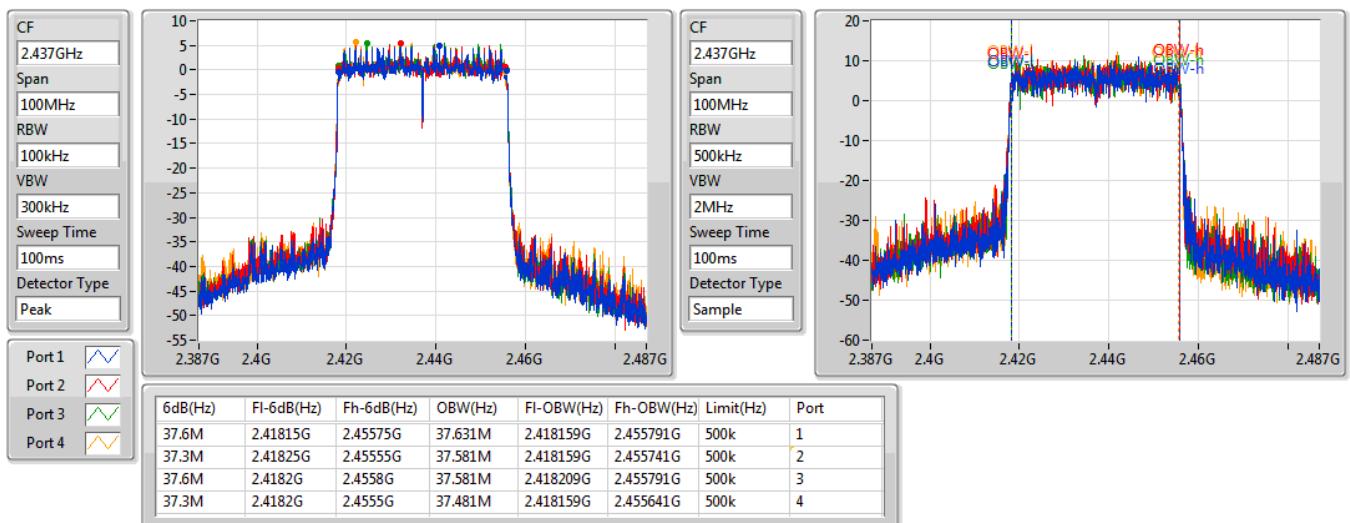
27/07/2019



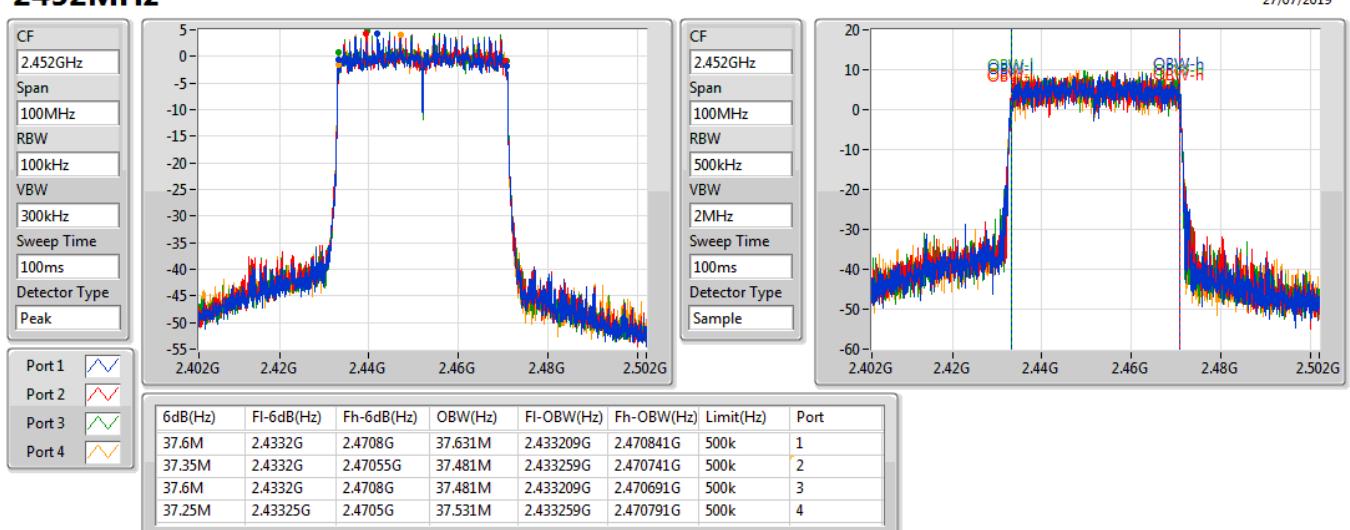
802.11ax HEW20-BF_Nss3,(MCS0)_4TX
EBW
2462MHz

802.11ax HEW40-BF_Nss3,(MCS0)_4TX
EBW
2422MHz


802.11ax HEW40-BF_Nss3,(MCS0)_4TX
EBW
2437MHz

27/07/2019


802.11ax HEW40-BF_Nss3,(MCS0)_4TX
EBW
2452MHz

27/07/2019



**<Non-beamforming mode> 1T1S****Summary**

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_1TX	26.69	0.46666



Average Power

Appendix C.1

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-
2412MHz	Pass	4.90	25.75	25.75	30.00
2417MHz	Pass	4.90	26.67	26.67	30.00
2437MHz	Pass	4.90	26.69	26.69	30.00
2457MHz	Pass	4.90	26.64	26.64	30.00
2462MHz	Pass	4.90	26.23	26.23	30.00

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

**<Non-beamforming mode> 3T1S****Summary**

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
VHT20_Nss1,(MCS0)_3TX	29.77	0.94842
VHT40_Nss1,(MCS0)_3TX	24.30	0.26915
802.11ax HEW20_Nss1,(MCS0)_3TX	29.79	0.95280
802.11ax HEW40_Nss1,(MCS0)_3TX	24.64	0.29107



Average Power

Appendix C.2

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
VHT20_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.90		19.67	19.58	19.72	24.43	30.00
2417MHz	Pass	4.90		22.26	22.15	22.27	27.00	30.00
2437MHz	Pass	4.90		24.86	25.22	24.9	29.77	30.00
2457MHz	Pass	4.90		22.33	22.66	22.46	27.26	30.00
2462MHz	Pass	4.90		20.69	20.81	20.75	25.52	30.00
VHT40_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.90		16.55	16.79	16.56	21.41	30.00
2427MHz	Pass	4.90		17.01	17.27	17.07	21.89	30.00
2437MHz	Pass	4.90		19.29	19.46	19.24	24.10	30.00
2447MHz	Pass	4.90		19.22	19.47	19.15	24.05	30.00
2452MHz	Pass	4.90		19.40	19.78	19.41	24.30	30.00
802.11ax HEW20_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.90		17.88	17.75	18.01	22.65	30.00
2417MHz	Pass	4.90		21.33	21.32	21.45	26.14	30.00
2437MHz	Pass	4.90		24.96	25.26	24.84	29.79	30.00
2457MHz	Pass	4.90		20.81	21.08	20.97	25.73	30.00
2462MHz	Pass	4.90		18.07	18.36	18.33	23.03	30.00
802.11ax HEW40_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.90		15.82	16.09	15.85	20.69	30.00
2427MHz	Pass	4.90		16.82	16.95	16.74	21.61	30.00
2437MHz	Pass	4.90		18.87	19.03	19.04	23.75	30.00
2447MHz	Pass	4.90		19.76	20.14	19.68	24.64	30.00
2452MHz	Pass	4.90		19.35	19.54	19.35	24.19	30.00

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



Average Power

Appendix C.3

<beamforming mode> 3T1S

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
VHT20-BF_Nss1,(MCS0)_3TX	29.77	0.94842
VHT40-BF_Nss1,(MCS0)_3TX	23.89	0.24491
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	29.79	0.95280
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	24.09	0.25645

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
VHT20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.20		18.90	18.77	19.09	23.69	30.00
2417MHz	Pass	4.20		21.88	22.07	22.18	26.82	30.00
2437MHz	Pass	4.20		24.86	25.22	24.90	29.77	30.00
2457MHz	Pass	4.20		22.27	22.36	22.57	27.17	30.00
2462MHz	Pass	4.20		19.69	20.18	20.12	24.77	30.00
VHT40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.20		16.87	17.24	17.22	21.88	30.00
2427MHz	Pass	4.20		18.09	18.06	18.20	22.89	30.00
2437MHz	Pass	4.20		19.04	19.07	19.24	23.89	30.00
2447MHz	Pass	4.20		18.71	18.69	19.10	23.61	30.00
2452MHz	Pass	4.20		18.76	18.79	18.84	23.57	30.00
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.20		19.13	19.05	19.16	23.88	30.00
2417MHz	Pass	4.20		21.33	21.32	21.45	26.14	30.00
2437MHz	Pass	4.20		24.96	25.26	24.84	29.79	30.00
2457MHz	Pass	4.20		20.73	20.73	20.96	25.58	30.00
2462MHz	Pass	4.20		18.94	19.24	19.21	23.90	30.00
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.20		16.91	16.94	16.87	21.68	30.00
2427MHz	Pass	4.20		18.06	18.00	18.45	22.95	30.00
2437MHz	Pass	4.20		19.18	19.49	19.27	24.09	30.00
2447MHz	Pass	4.20		18.89	18.81	19.25	23.76	30.00
2452MHz	Pass	4.20		18.54	18.82	18.64	23.44	30.00

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



<Non-beamforming mode> 3T2S

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
VHT20_Nss2,(MCS0)_3TX	25.74	0.37497
802.11ax HEW20_Nss2,(MCS0)_3TX	24.75	0.29854

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
VHT20_Nss2,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.90		19.74	19.65	19.67	24.46	30.00
2462MHz	Pass	4.90		20.80	21.15	20.95	25.74	30.00
802.11ax HEW20_Nss2,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.90		18.84	18.71	18.74	23.53	30.00
2462MHz	Pass	4.90		19.64	20.21	20.06	24.75	30.00

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



<beamforming mode> 3T2S

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
VHT20-BF_Nss2,(MCS0)_3TX	25.14	0.32659
802.11ax HEW20-BF_Nss2,(MCS0)_3TX	24.75	0.29854

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
VHT20-BF_Nss2,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.20		19.00	19.21	19.34	23.96	30.00
2462MHz	Pass	4.20		20.01	20.69	20.39	25.14	30.00
802.11ax HEW20-BF_Nss2,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.20		18.93	19.14	19.28	23.89	30.00
2462MHz	Pass	4.20		19.64	20.21	20.06	24.75	30.00

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



Average Power

Appendix C.6

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
VHT20_Nss3,(MCS0)_3TX	25.65	0.36728
802.11ax HEW20_Nss3,(MCS0)_3TX	24.55	0.28510

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
VHT20_Nss3,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.30		19.56	19.43	19.58	24.30	30.00
2462MHz	Pass	2.30		20.86	20.88	20.89	25.65	30.00
802.11ax HEW20_Nss3,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.30		18.72	18.65	18.57	23.42	30.00
2462MHz	Pass	2.30		19.57	19.91	19.85	24.55	30.00

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

**<Non-beamforming mode> 4T1S****Summary**

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_4TX	29.90	0.97724
802.11g_Nss1,(6Mbps)_4TX	29.86	0.96828
VHT20_Nss1,(MCS0)_4TX	29.98	0.99541
VHT40_Nss1,(MCS0)_4TX	25.54	0.35810
802.11ax HEW20_Nss1,(MCS0)_4TX	29.88	0.97275
802.11ax HEW40_Nss1,(MCS0)_4TX	24.99	0.31550



Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11b_Nss1,(1Mbps)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.90	22.92	24.18	23.90	24.04	29.81	30.00
2417MHz	Pass	4.90	22.88	24.26	23.88	24.08	29.83	30.00
2437MHz	Pass	4.90	23.11	24.32	23.94	24.06	29.90	30.00
2457MHz	Pass	4.90	22.97	24.25	23.98	24.04	29.86	30.00
2462MHz	Pass	4.90	22.86	24.21	24.03	23.95	29.81	30.00
802.11g_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.90	19.50	19.88	19.45	19.64	25.64	30.00
2417MHz	Pass	4.90	21.75	22.12	22.01	21.91	27.97	30.00
2437MHz	Pass	4.90	23.83	23.73	24.09	23.70	29.86	30.00
2457MHz	Pass	4.90	21.52	21.77	21.89	21.91	27.80	30.00
2462MHz	Pass	4.90	19.28	19.53	19.39	19.48	25.44	30.00
VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.90	19.15	19.34	19.17	19.27	25.25	30.00
2417MHz	Pass	4.90	21.77	22.08	21.91	21.93	27.94	30.00
2437MHz	Pass	4.90	23.85	23.77	24.17	24.05	29.98	30.00
2457MHz	Pass	4.90	22.11	22.17	22.49	22.21	28.27	30.00
2462MHz	Pass	4.90	20.27	20.48	20.60	20.35	26.45	30.00
VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.90	16.25	16.29	16.54	16.49	22.41	30.00
2427MHz	Pass	4.90	16.57	16.63	16.71	16.58	22.64	30.00
2437MHz	Pass	4.90	19.24	19.13	19.39	19.32	25.29	30.00
2447MHz	Pass	4.90	19.23	19.13	19.39	19.28	25.28	30.00
2452MHz	Pass	4.90	19.60	19.41	19.69	19.36	25.54	30.00
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.90	18.07	18.30	18.18	18.22	24.21	30.00
2417MHz	Pass	4.90	21.38	21.64	21.41	21.46	27.49	30.00
2437MHz	Pass	4.90	23.56	23.79	24.19	23.87	29.88	30.00
2457MHz	Pass	4.90	20.93	21.08	21.08	20.93	27.03	30.00
2462MHz	Pass	4.90	17.99	18.16	18.44	18.22	24.23	30.00
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.90	15.91	15.83	15.84	16.04	21.93	30.00
2427MHz	Pass	4.90	16.68	16.74	16.85	16.68	22.76	30.00
2437MHz	Pass	4.90	18.75	18.66	18.92	18.82	24.81	30.00
2447MHz	Pass	4.90	18.71	18.61	19.04	18.82	24.82	30.00
2452MHz	Pass	4.90	19.01	18.87	19.06	18.93	24.99	30.00

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



Average Power

Appendix C.8

<beamforming mode> 4T1S

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
VHT20-BF_Nss1,(MCS0)_4TX	29.98	0.99541
VHT40-BF_Nss1,(MCS0)_4TX	25.13	0.32584
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	29.88	0.97275
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	25.84	0.38371

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.80	18.83	18.87	19.03	19.05	24.97	30.00
2417MHz	Pass	4.80	21.53	21.69	21.94	21.82	27.77	30.00
2437MHz	Pass	4.80	23.85	23.77	24.17	24.05	29.98	30.00
2457MHz	Pass	4.80	22.11	22.17	22.49	22.21	28.27	30.00
2462MHz	Pass	4.80	19.88	19.75	20.32	20.05	26.03	30.00
VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.80	16.50	16.79	16.80	16.70	22.72	30.00
2427MHz	Pass	4.80	16.90	16.60	16.97	16.99	22.89	30.00
2437MHz	Pass	4.80	19.06	19.01	19.10	19.27	25.13	30.00
2447MHz	Pass	4.80	18.90	18.46	18.99	18.79	24.81	30.00
2452MHz	Pass	4.80	18.89	18.55	19.03	18.88	24.86	30.00
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.80	18.65	18.70	18.69	18.79	24.73	30.00
2417MHz	Pass	4.80	20.62	20.76	20.91	20.72	26.77	30.00
2437MHz	Pass	4.80	23.56	23.79	24.19	23.87	29.88	30.00
2457MHz	Pass	4.80	20.10	19.92	20.27	20.18	26.14	30.00
2462MHz	Pass	4.80	19.18	19.02	19.36	19.29	25.23	30.00
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.80	17.11	16.92	17.33	17.08	23.13	30.00
2427MHz	Pass	4.80	17.77	17.75	17.94	17.96	23.88	30.00
2437MHz	Pass	4.80	19.77	19.65	20.08	19.75	25.84	30.00
2447MHz	Pass	4.80	19.18	19.15	19.25	19.19	25.21	30.00
2452MHz	Pass	4.80	19.01	18.87	19.06	18.93	24.99	30.00

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



<Non-beamforming mode> 4T2S

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
VHT20_Nss2,(MCS0)_4TX	26.99	0.50003
VHT40_Nss2,(MCS0)_4TX	25.71	0.37239
802.11ax HEW20_Nss2,(MCS0)_4TX	25.99	0.39719
802.11ax HEW40_Nss2,(MCS0)_4TX	25.18	0.32961

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
VHT20_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.90	19.29	19.57	19.30	19.35	25.40	30.00
2462MHz	Pass	4.90	20.88	20.95	21.08	20.98	26.99	30.00
VHT40_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.90	16.44	16.42	16.67	16.62	22.56	30.00
2437MHz	Pass	4.90	19.68	19.59	19.84	19.65	25.71	30.00
2452MHz	Pass	4.90	19.72	19.54	19.84	19.52	25.68	30.00
802.11ax HEW20_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.90	18.61	18.74	18.62	18.67	24.68	30.00
2462MHz	Pass	4.90	19.87	19.83	20.11	20.06	25.99	30.00
802.11ax HEW40_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.90	15.66	15.73	15.86	15.78	21.78	30.00
2437MHz	Pass	4.90	19.24	19.00	19.38	19.00	25.18	30.00
2452MHz	Pass	4.90	18.85	18.62	18.88	18.84	24.82	30.00

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



<beamforming mode> 4T2S

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
VHT20-BF_Nss2,(MCS0)_4TX	26.20	0.41687
VHT40-BF_Nss2,(MCS0)_4TX	26.47	0.44361
802.11ax HEW20-BF_Nss2,(MCS0)_4TX	25.43	0.34914
802.11ax HEW40-BF_Nss2,(MCS0)_4TX	26.39	0.43551

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
VHT20-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.80	18.98	19.24	19.05	19.17	25.13	30.00
2462MHz	Pass	4.80	19.87	20.21	20.38	20.25	26.20	30.00
VHT40-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.80	17.54	17.75	17.71	17.82	23.73	30.00
2437MHz	Pass	4.80	20.25	20.38	20.63	20.51	26.47	30.00
2452MHz	Pass	4.80	19.72	19.54	19.84	19.52	25.68	30.00
802.11ax HEW20-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.80	18.61	18.74	18.62	18.67	24.68	30.00
2462MHz	Pass	4.80	19.24	19.36	19.51	19.53	25.43	30.00
802.11ax HEW40-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.80	17.30	17.36	17.58	17.72	23.51	30.00
2437MHz	Pass	4.80	20.19	20.32	20.49	20.46	26.39	30.00
2452MHz	Pass	4.80	19.56	19.41	19.84	19.51	25.60	30.00

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



<Non-beamforming mode> 4T3S

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
VHT20_Nss3,(MCS0)_4TX	26.91	0.49091
VHT40_Nss3,(MCS0)_4TX	25.92	0.39084
802.11ax HEW20_Nss3,(MCS0)_4TX	25.91	0.38994
802.11ax HEW40_Nss3,(MCS0)_4TX	25.06	0.32063

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
VHT20_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.90	19.18	19.73	19.38	19.09	25.37	30.00
2462MHz	Pass	4.90	20.70	21.03	21.08	20.72	26.91	30.00
VHT40_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.90	16.65	17.06	17.22	16.94	22.99	30.00
2437MHz	Pass	4.90	19.67	20.02	20.16	19.73	25.92	30.00
2452MHz	Pass	4.90	19.53	19.62	19.83	19.29	25.59	30.00
802.11ax HEW20_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.90	18.48	18.83	18.57	18.55	24.63	30.00
2462MHz	Pass	4.90	19.68	19.86	20.08	19.91	25.91	30.00
802.11ax HEW40_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.90	15.50	15.48	15.57	15.38	21.50	30.00
2437MHz	Pass	4.90	19.10	18.85	19.06	19.13	25.06	30.00
2452MHz	Pass	4.90	19.11	18.85	19.21	18.93	25.05	30.00

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



<beamforming mode> 4T3S

Summary Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
VHT20-BF_Nss3,(MCS0)_4TX	26.07	0.40458
VHT40-BF_Nss3,(MCS0)_4TX	26.69	0.46666
802.11ax HEW20-BF_Nss3,(MCS0)_4TX	25.60	0.36308
802.11ax HEW40-BF_Nss3,(MCS0)_4TX	26.30	0.42658

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
VHT20-BF_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.10	19.18	19.73	19.38	19.09	25.37	30.00
2462MHz	Pass	3.10	19.49	20.15	20.58	19.89	26.07	30.00
VHT40-BF_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	3.10	17.40	17.81	17.97	17.69	23.74	30.00
2437MHz	Pass	3.10	20.35	20.78	20.96	20.55	26.69	30.00
2452MHz	Pass	3.10	19.53	19.62	19.83	19.29	25.59	30.00
802.11ax HEW20-BF_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.10	18.48	18.83	18.57	18.55	24.63	30.00
2462MHz	Pass	3.10	19.40	19.53	19.82	19.55	25.60	30.00
802.11ax HEW40-BF_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	3.10	17.19	17.39	17.53	17.51	23.43	30.00
2437MHz	Pass	3.10	20.05	20.29	20.37	20.40	26.30	30.00
2452MHz	Pass	3.10	19.13	19.18	19.45	19.38	25.31	30.00

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



<Non-beamforming mode> 1T1S

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_1TX	4.43

RBW=3 kHz.

**Result**

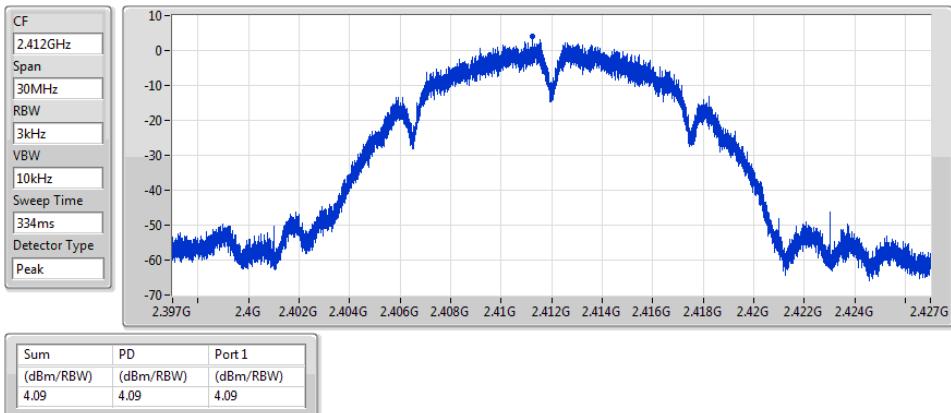
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-
2412MHz	Pass	4.90	4.09	4.09	8.00
2417MHz					
2437MHz	Pass	4.90	4.43	4.43	8.00
2457MHz					
2462MHz	Pass	4.90	4.21	4.21	8.00

DG = Directional Gain; **RBW**=3 kHz;

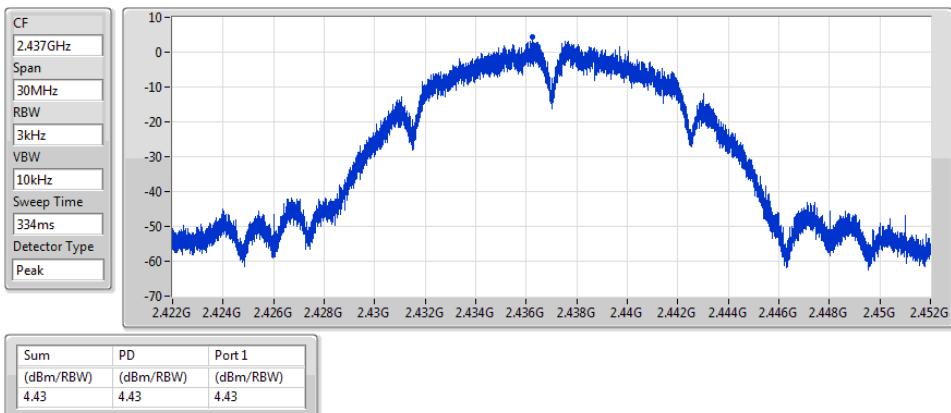
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

802.11b_Nss1,(1Mbps)_1TX
PSD
2412MHz

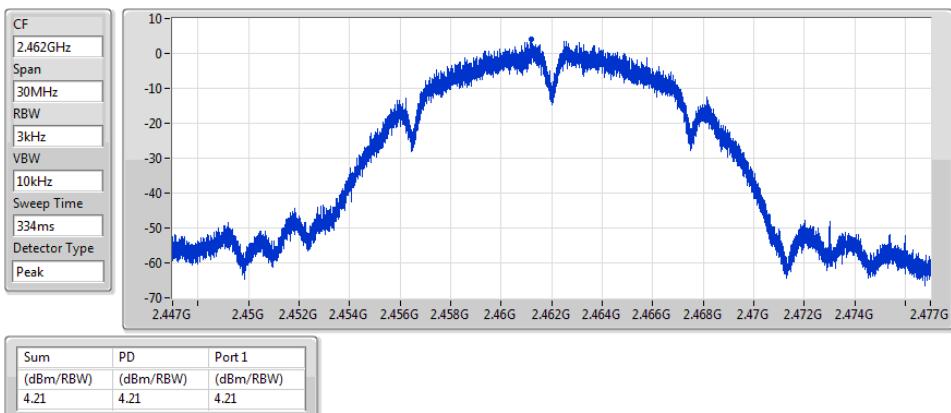
23/09/2019


802.11b_Nss1,(1Mbps)_1TX
PSD
2437MHz

23/09/2019


802.11b_Nss1,(1Mbps)_1TX
PSD
2462MHz

23/09/2019





<Non-beamforming mode> 3T1S

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
VHT20_Nss1,(MCS0)_3TX	3.07
VHT40_Nss1,(MCS0)_3TX	-4.70
802.11ax HEW20_Nss1,(MCS0)_3TX	2.90
802.11ax HEW40_Nss1,(MCS0)_3TX	-5.33

RBW=3 kHz.



Result

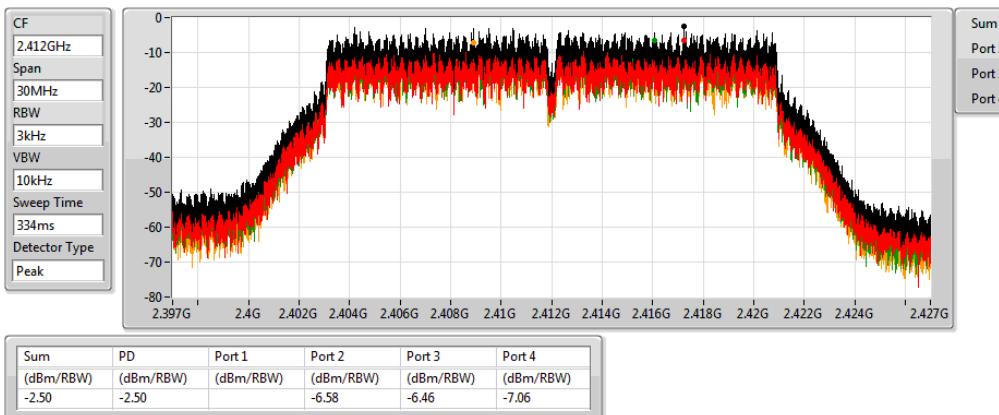
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
VHT20_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.20		-6.58	-6.46	-7.06	-2.50	8.00
2417MHz								
2437MHz	Pass	4.20		-0.57	-1.17	-1.10	3.07	8.00
2457MHz								
2462MHz	Pass	4.20		-5.61	-5.40	-5.17	-1.83	8.00
VHT40_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.20		-12.22	-10.73	-11.72	-7.98	8.00
2427MHz								
2437MHz	Pass	4.20		-8.97	-8.20	-9.29	-5.23	8.00
2447MHz								
2452MHz	Pass	4.20		-9.52	-8.38	-9.13	-4.70	8.00
802.11ax HEW20_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.20		-8.92	-6.92	-7.11	-2.79	8.00
2417MHz								
2437MHz	Pass	4.20		-0.27	-0.57	-1.91	2.90	8.00
2457MHz								
2462MHz	Pass	4.20		-8.65	-8.51	-6.36	-3.90	8.00
802.11ax HEW40_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.20		-13.67	-12.73	-12.72	-9.54	8.00
2427MHz								
2437MHz	Pass	4.20		-10.54	-10.15	-9.56	-5.34	8.00
2447MHz								
2452MHz	Pass	4.20		-9.39	-10.00	-9.48	-5.33	8.00

DG = Directional Gain; RBW=3 kHz;

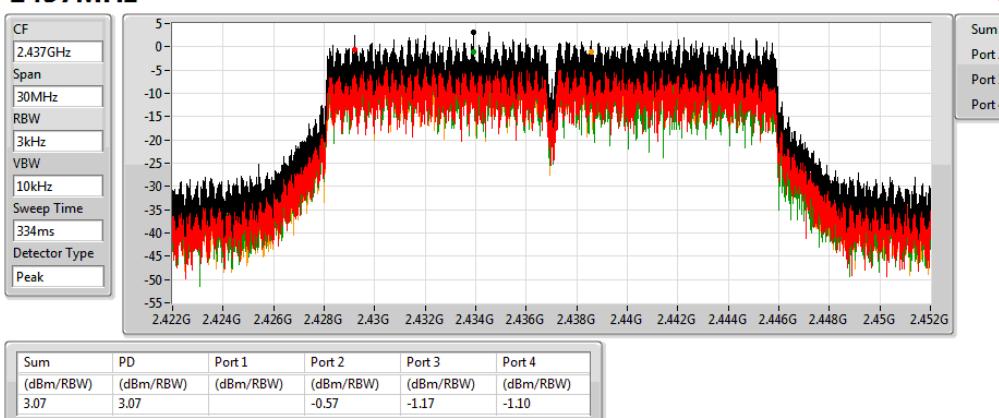
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

VHT20_Nss1,(MCS0)_3TX
PSD
2412MHz

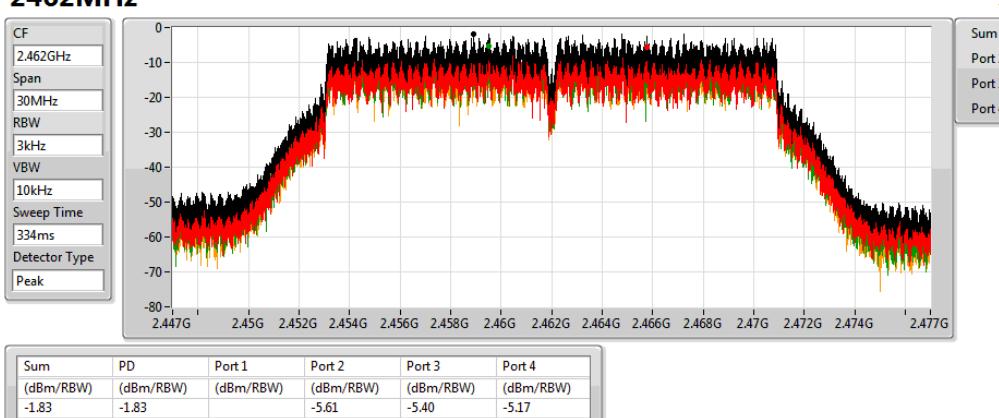
28/07/2019


VHT20_Nss1,(MCS0)_3TX
PSD
2437MHz

28/07/2019


VHT20_Nss1,(MCS0)_3TX
PSD
2462MHz

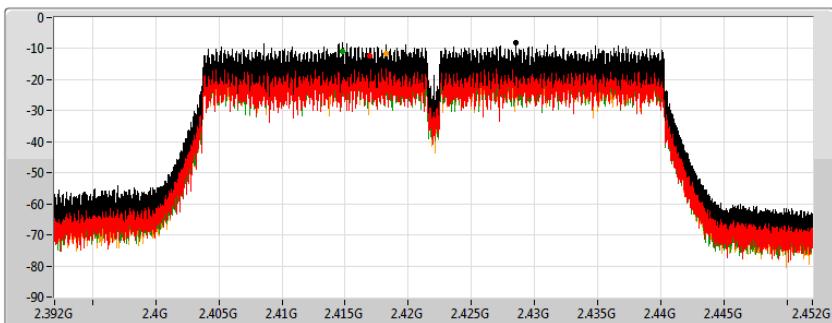
28/07/2019



VHT40_Nss1,(MCS0)_3TX
PSD
2422MHz

28/07/2019

CF	2.422GHz
Span	60MHz
RBW	3kHz
VBW	10kHz
Sweep Time	667ms
Detector Type	Peak

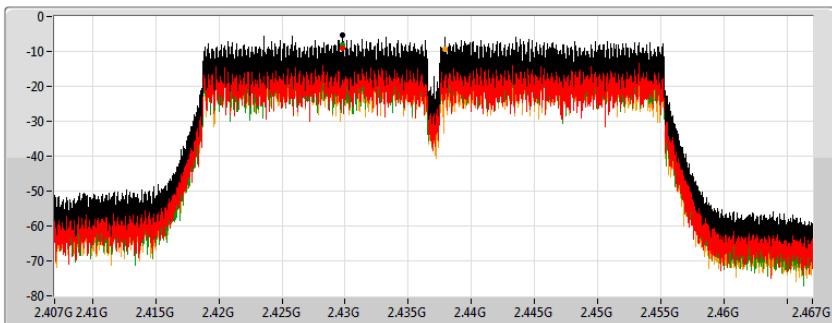


Sum	/\
Port 2	/\
Port 3	/\
Port 4	/\

VHT40_Nss1,(MCS0)_3TX
PSD
2437MHz

28/07/2019

CF	2.437GHz
Span	60MHz
RBW	3kHz
VBW	10kHz
Sweep Time	667ms
Detector Type	Peak

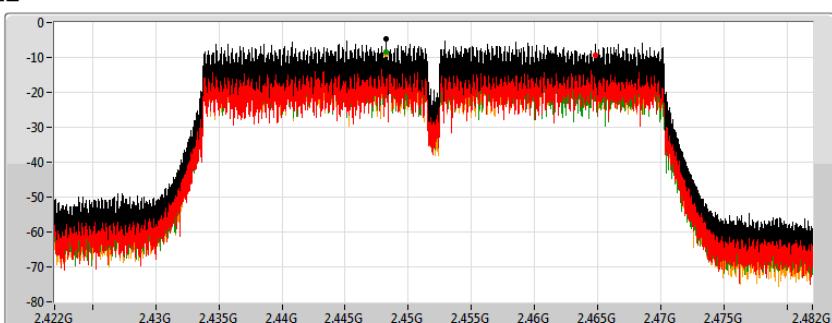


Sum	/\
Port 2	/\
Port 3	/\
Port 4	/\

VHT40_Nss1,(MCS0)_3TX
PSD
2452MHz

28/07/2019

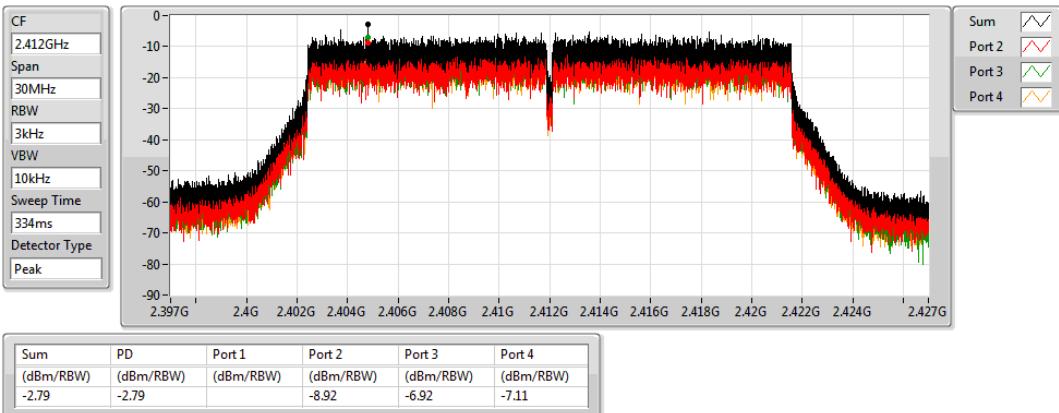
CF	2.452GHz
Span	60MHz
RBW	3kHz
VBW	10kHz
Sweep Time	667ms
Detector Type	Peak



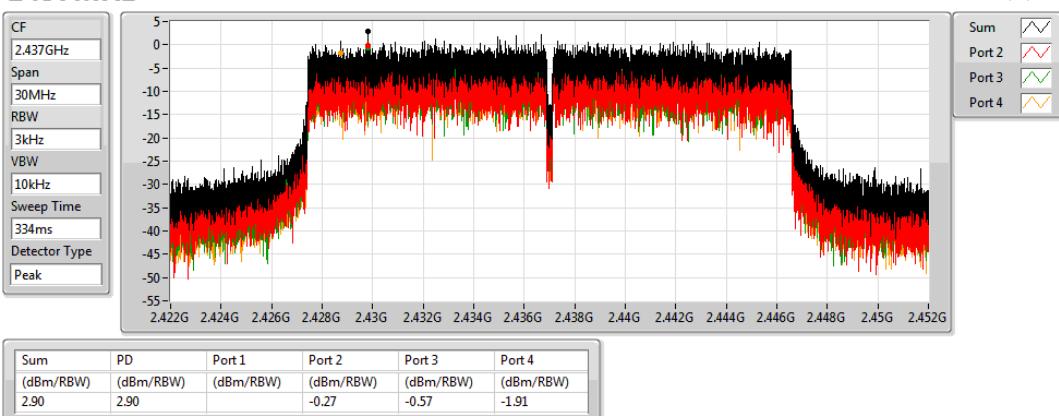
Sum	/\
Port 2	/\
Port 3	/\
Port 4	/\

802.11ax HEW20_Nss1,(MCS0)_3TX
PSD
2412MHz

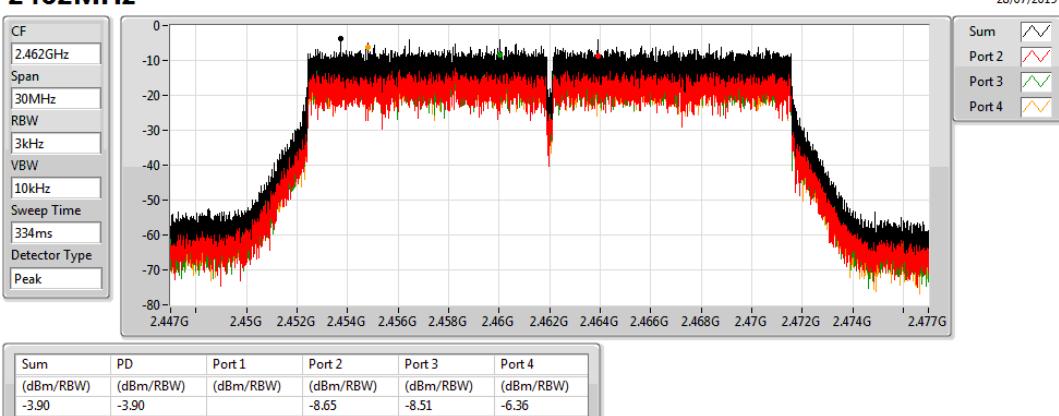
28/07/2019


802.11ax HEW20_Nss1,(MCS0)_3TX
PSD
2437MHz

28/07/2019

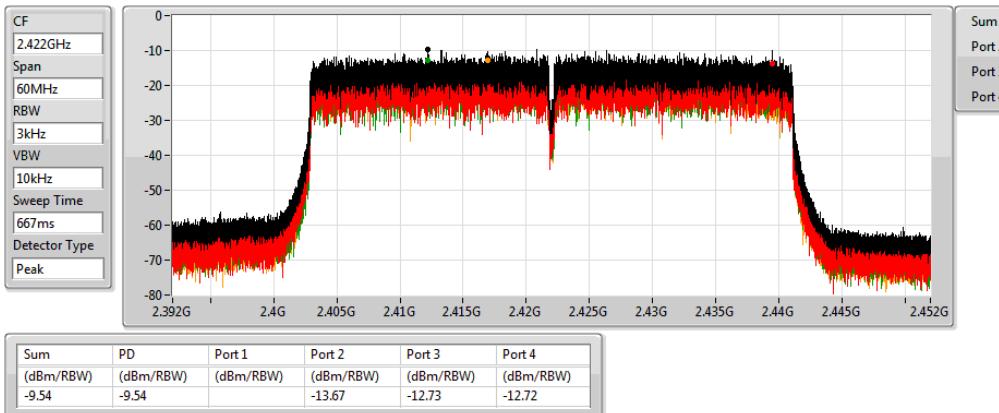

802.11ax HEW20_Nss1,(MCS0)_3TX
PSD
2462MHz

28/07/2019

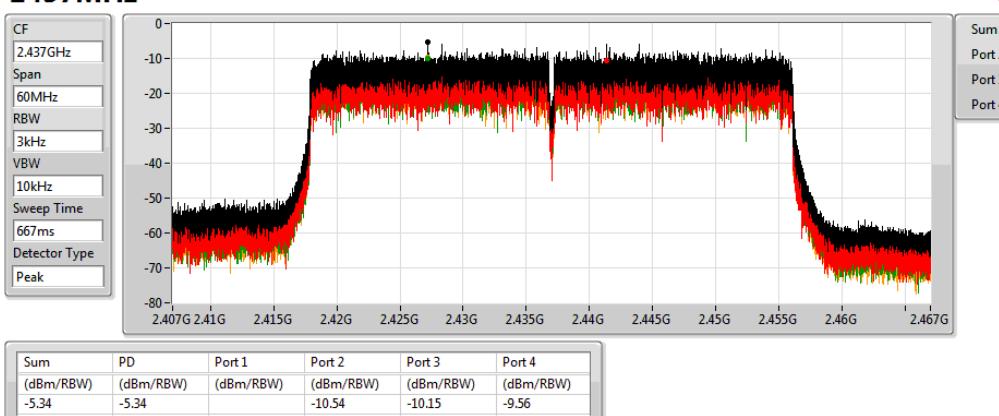


802.11ax HEW40_Nss1,(MCS0)_3TX
PSD
2422MHz

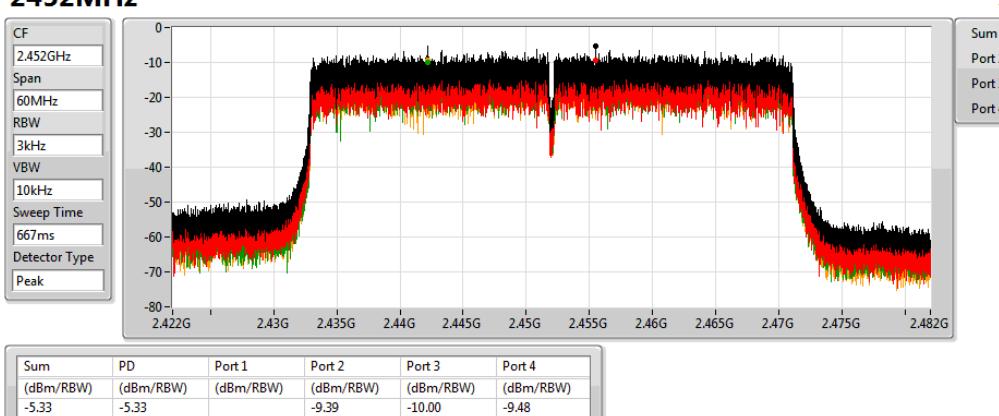
28/07/2019


802.11ax HEW40_Nss1,(MCS0)_3TX
PSD
2437MHz

28/07/2019


802.11ax HEW40_Nss1,(MCS0)_3TX
PSD
2452MHz

28/07/2019





<beamforming mode> 3T1S

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
VHT20-BF_Nss1,(MCS0)_3TX	2.53
VHT40-BF_Nss1,(MCS0)_3TX	-4.54
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	4.13
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	-4.91

RBW=3 kHz.

Result

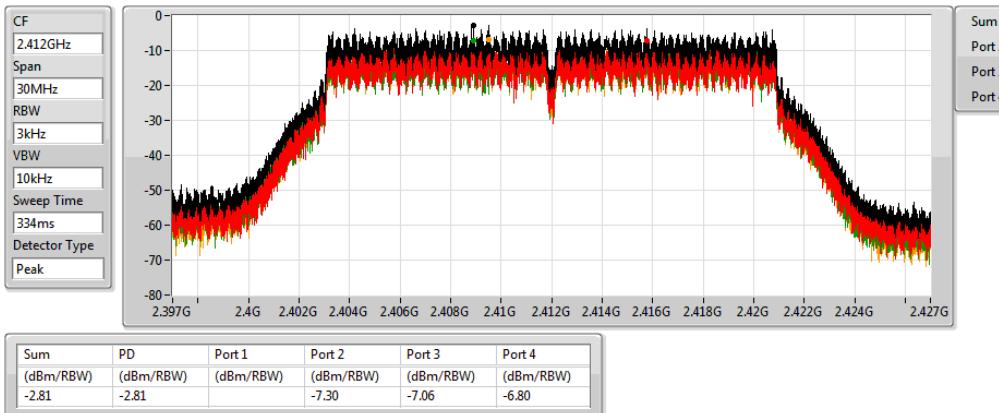
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
VHT20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.20		-7.30	-7.06	-6.80	-2.81	8.00
2417MHz								
2437MHz	Pass	4.20		-2.25	-1.27	-1.76	2.53	8.00
2457MHz								
2462MHz	Pass	4.20		-7.28	-6.94	-6.78	-2.44	8.00
VHT40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.20		-10.22	-10.57	-11.06	-5.83	8.00
2427MHz								
2437MHz	Pass	4.20		-10.06	-9.54	-9.03	-5.17	8.00
2447MHz								
2452MHz	Pass	4.20		-9.63	-8.33	-8.36	-4.54	8.00
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.20		-6.33	-5.86	-6.84	-1.55	8.00
2417MHz								
2437MHz	Pass	4.20		-1.23	-0.05	-0.73	4.13	8.00
2457MHz								
2462MHz	Pass	4.20		-6.78	-5.77	-6.38	-1.52	8.00
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.20		-11.70	-12.20	-11.78	-7.51	8.00
2427MHz								
2437MHz	Pass	4.20		-9.63	-9.98	-9.44	-4.91	8.00
2447MHz								
2452MHz	Pass	4.20		-10.68	-10.62	-10.01	-6.13	8.00

DG = Directional Gain; RBW=3 kHz;

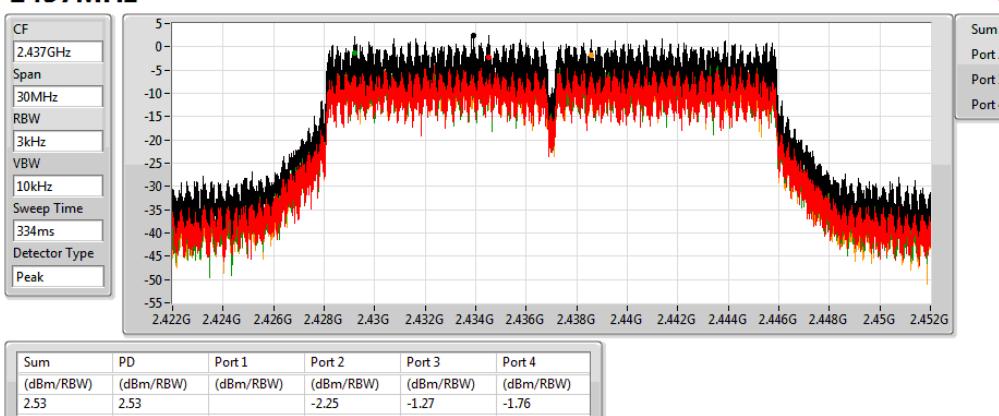
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X power density;

VHT20-BF_Nss1,(MCS0)_3TX
PSD
2412MHz

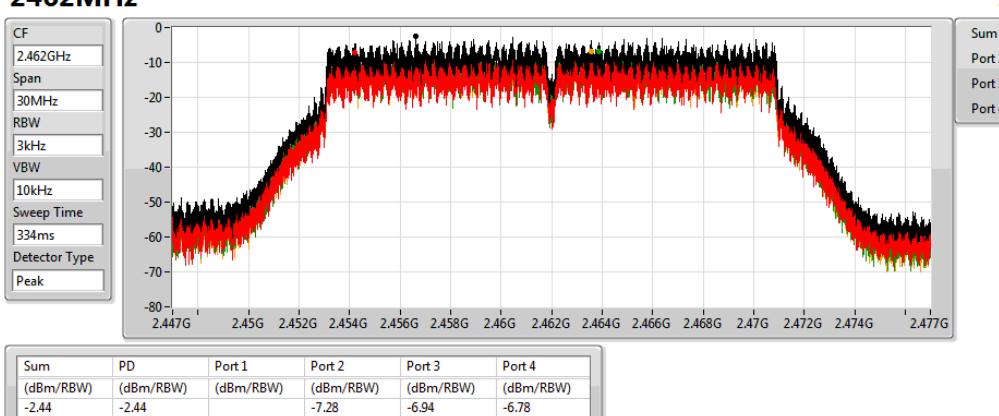
27/07/2019

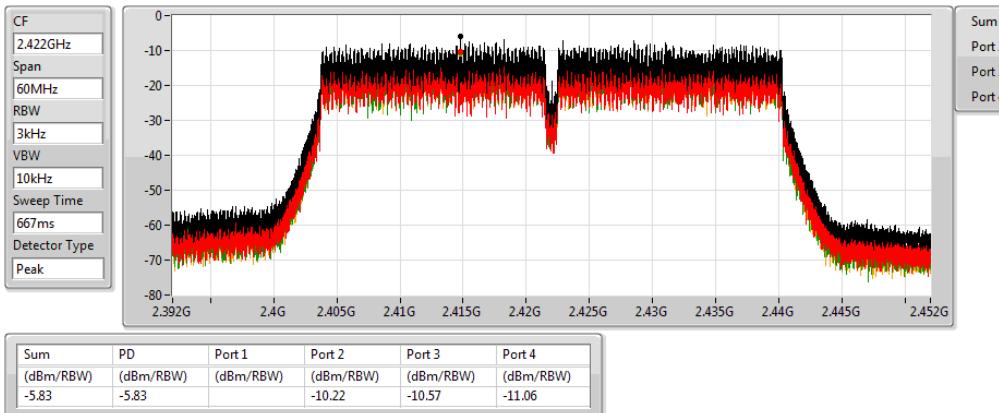
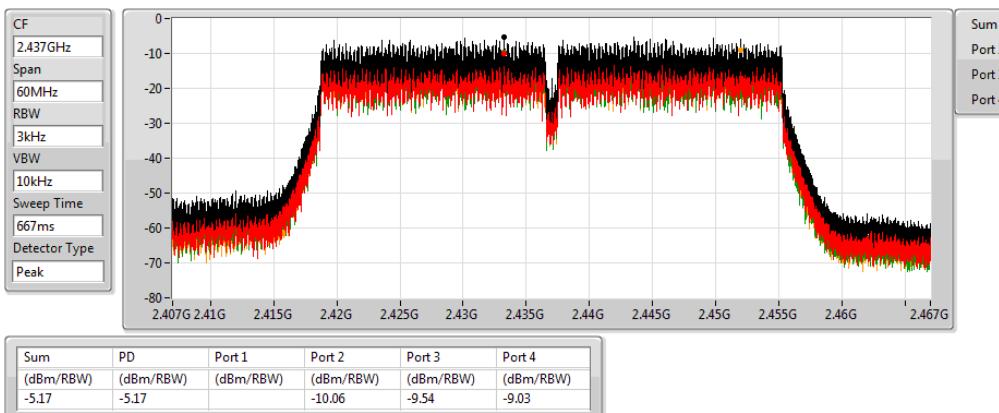
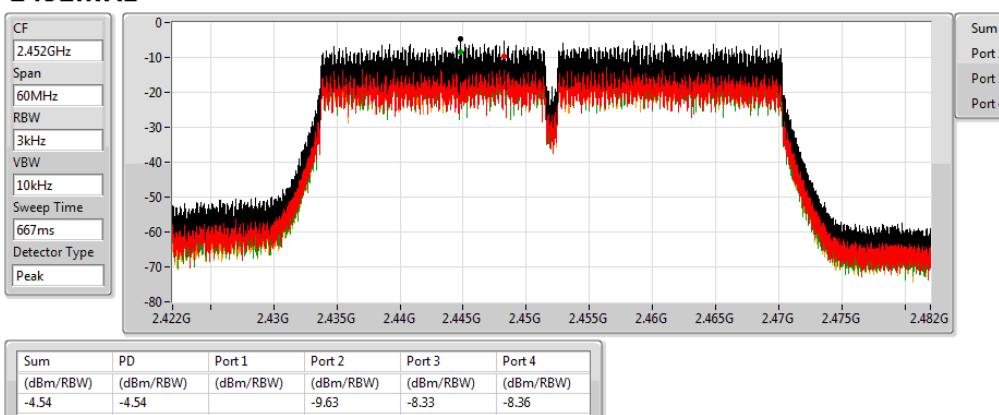

VHT20-BF_Nss1,(MCS0)_3TX
PSD
2437MHz

27/07/2019


VHT20-BF_Nss1,(MCS0)_3TX
PSD
2462MHz

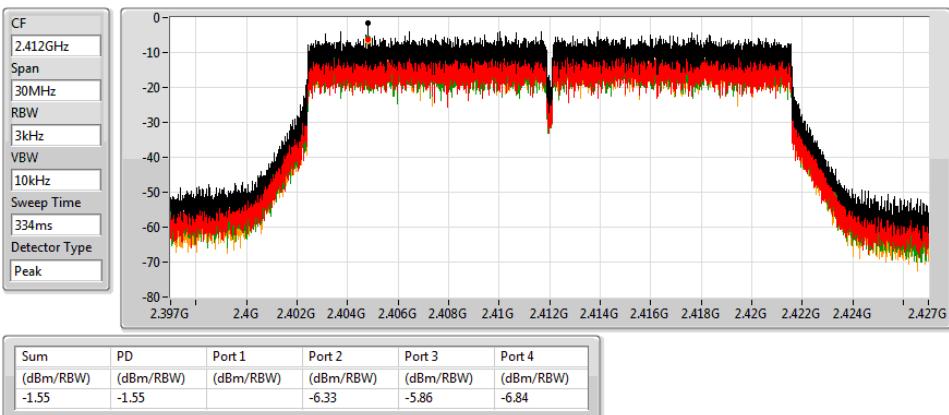
27/07/2019



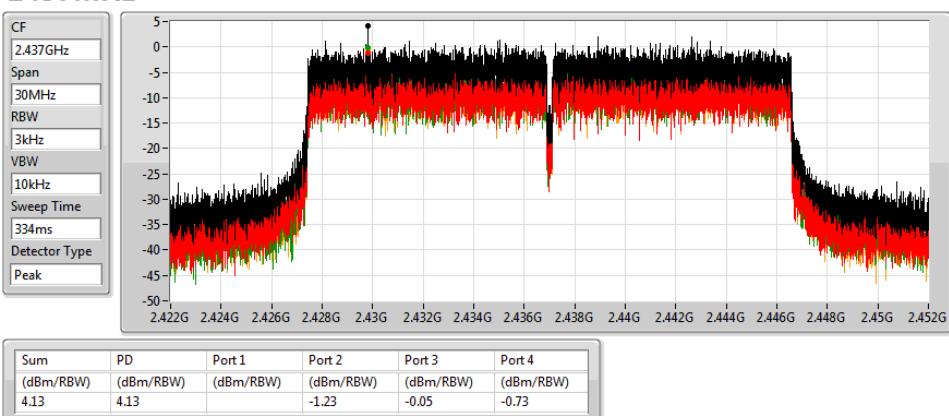
VHT40-BF_Nss1,(MCS0)_3TX
PSD
2422MHz

VHT40-BF_Nss1,(MCS0)_3TX
PSD
2437MHz

VHT40-BF_Nss1,(MCS0)_3TX
PSD
2452MHz


802.11ax HEW20-BF_Nss1,(MCS0)_3TX
PSD
2412MHz

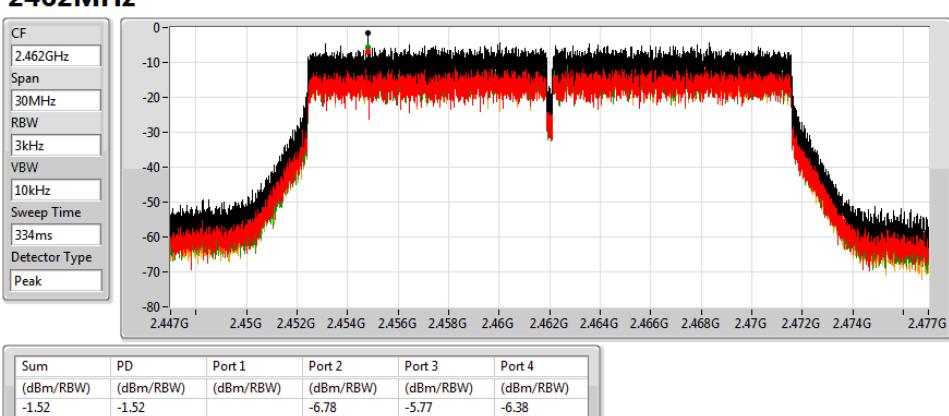
27/07/2019


PSD
802.11ax HEW20-BF_Nss1,(MCS0)_3TX
2437MHz

27/07/2019

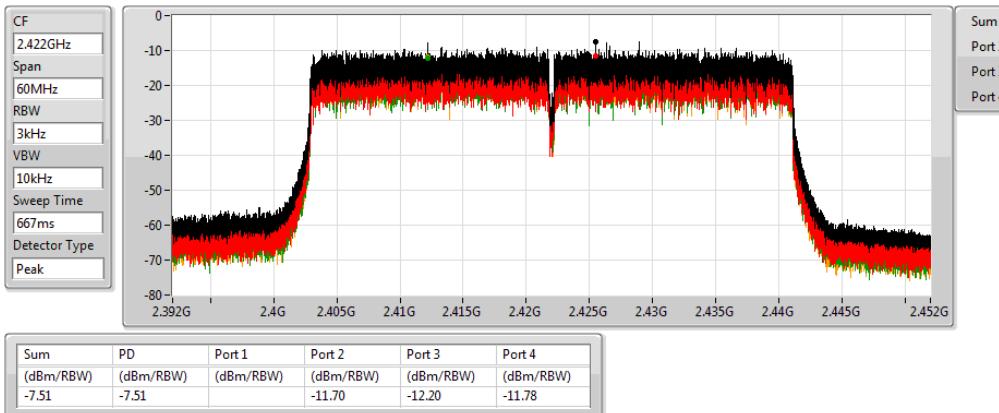

PSD
802.11ax HEW20-BF_Nss1,(MCS0)_3TX
2462MHz

27/07/2019

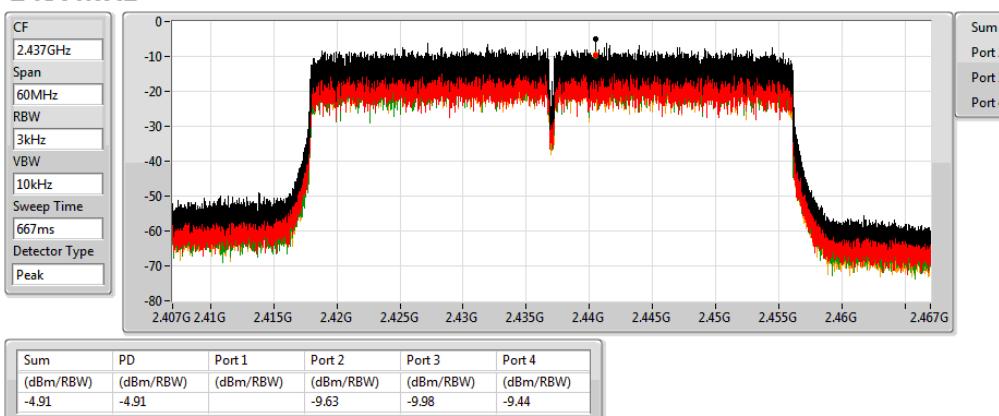


802.11ax HEW40-BF_Nss1,(MCS0)_3TX
PSD
2422MHz

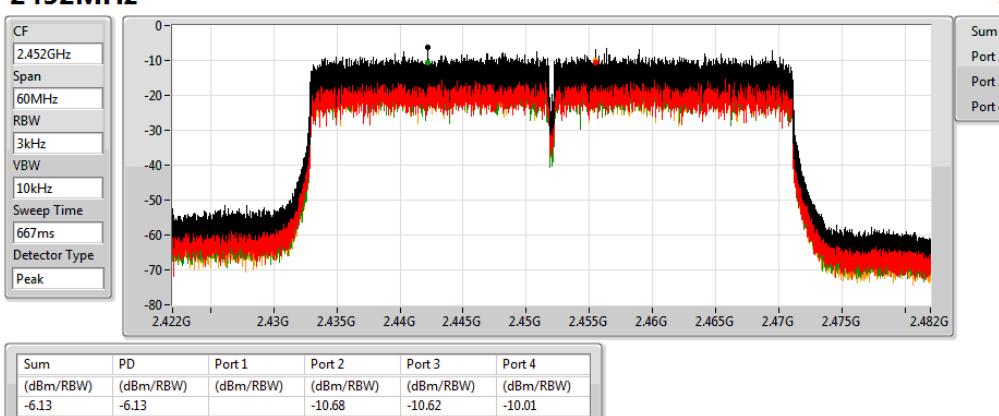
01/08/2019


802.11ax HEW40-BF_Nss1,(MCS0)_3TX
PSD
2437MHz

27/07/2019


802.11ax HEW40-BF_Nss1,(MCS0)_3TX
PSD
2452MHz

27/07/2019



**<Non-beamforming mode> 3T2S****Summary**

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
VHT20_Nss2,(MCS0)_3TX	-1.18
802.11ax HEW20_Nss2,(MCS0)_3TX	-3.55

RBW=3 kHz.

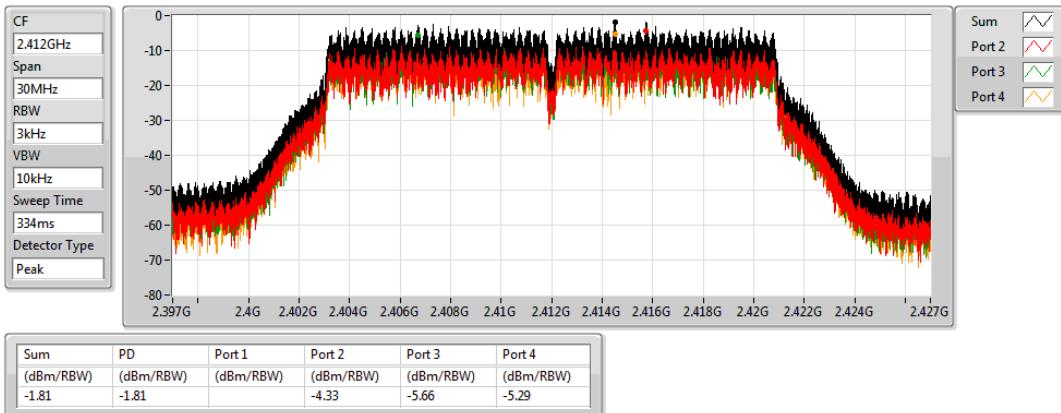
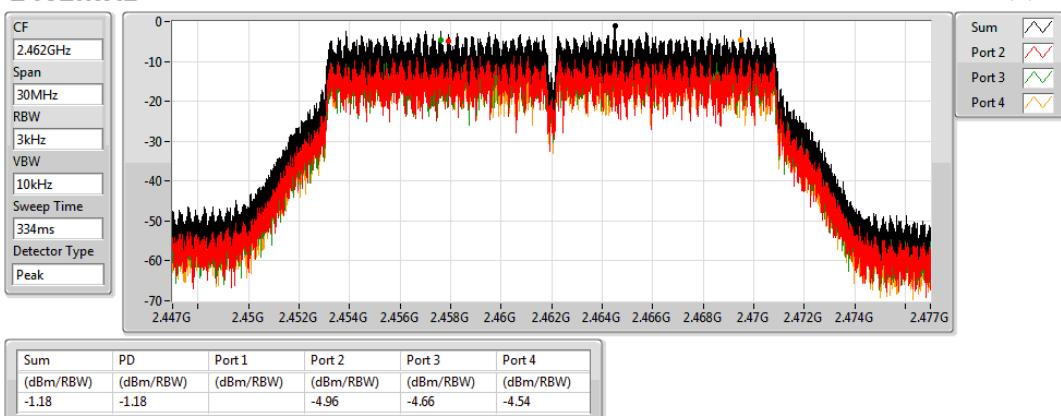


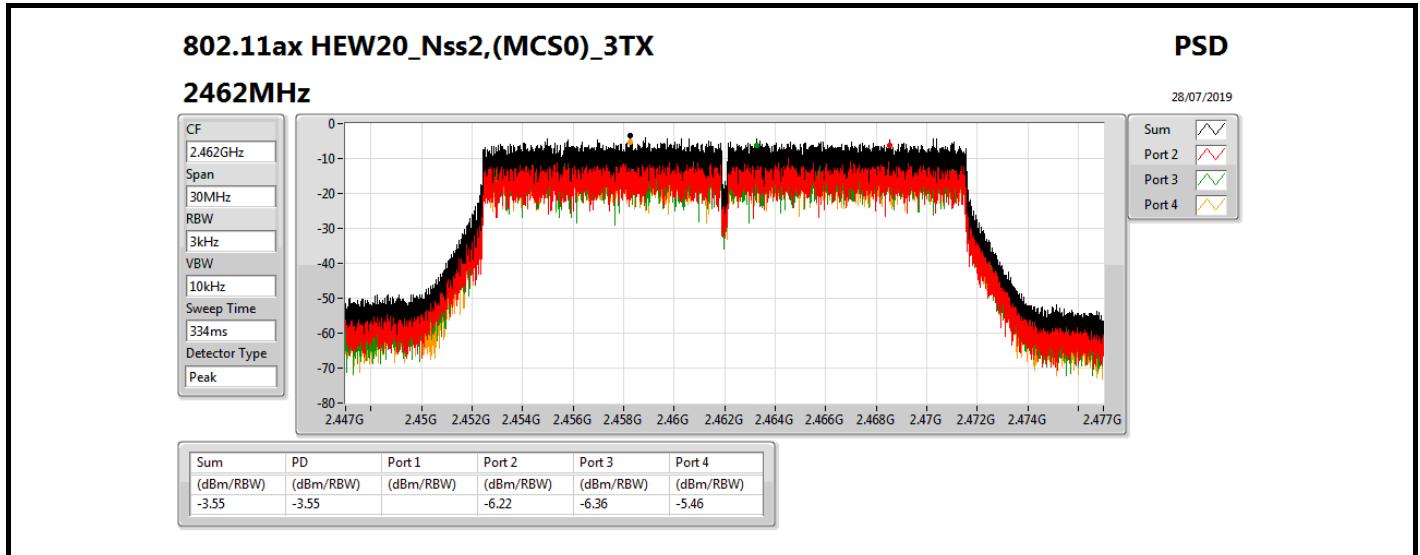
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
VHT20_Nss2,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.20		-4.33	-5.66	-5.29	-1.81	8.00
2462MHz	Pass	4.20		-4.96	-4.66	-4.54	-1.18	8.00
802.11ax HEW20_Nss2,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.20		-7.21	-8.04	-7.06	-4.40	8.00
2462MHz	Pass	4.20		-6.22	-6.36	-5.46	-3.55	8.00

DG = Directional Gain; RBW=3 kHz;

PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

VHT20_Nss2,(MCS0)_3TX
2412MHz

VHT20_Nss2,(MCS0)_3TX
2462MHz

802.11ax HEW20_Nss2,(MCS0)_3TX
2412MHz

**<beamforming mode> 3T2S****Summary**

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
VHT20-BF_Nss2,(MCS0)_3TX	-1.15
802.11ax HEW20-BF_Nss2,(MCS0)_3TX	-3.53

RBW=3 kHz.



Result

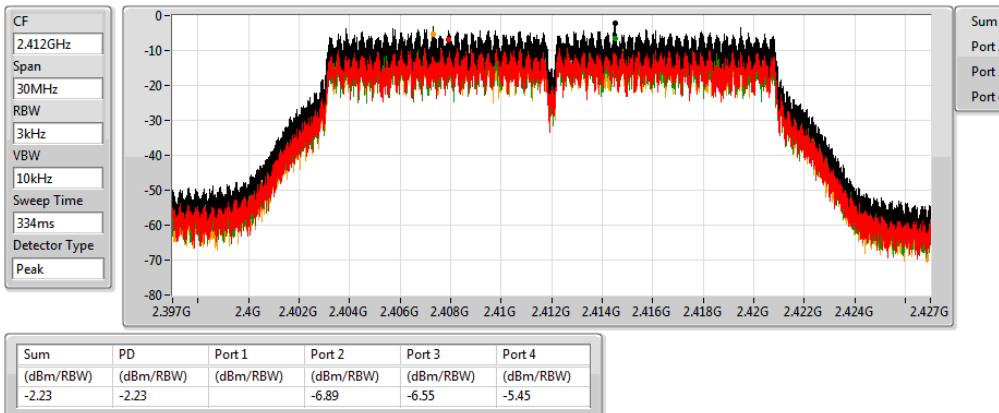
Mode	Result	DG (dBi)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
VHT20-BF_Nss2,(MCS0)_3TX	-	-	-	-	-	-	-
2412MHz	Pass	4.20	-6.89	-6.55	-5.45	-2.23	8.00
2462MHz	Pass	4.20	-6.11	-4.79	-4.92	-1.15	8.00
802.11ax HEW20-BF_Nss2,(MCS0)_3TX	-	-	-	-	-	-	-
2412MHz	Pass	4.20	-8.99	-8.73	-7.01	-4.63	8.00
2462MHz	Pass	4.20	-8.08	-7.33	-6.23	-3.53	8.00

DG = Directional Gain; RBW=3 kHz;

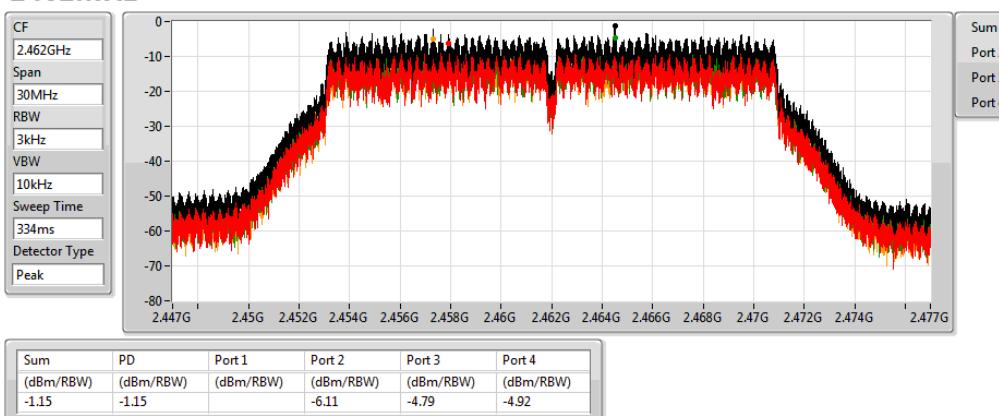
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

VHT20-BF_Nss2,(MCS0)_3TX
PSD
2412MHz

27/07/2019

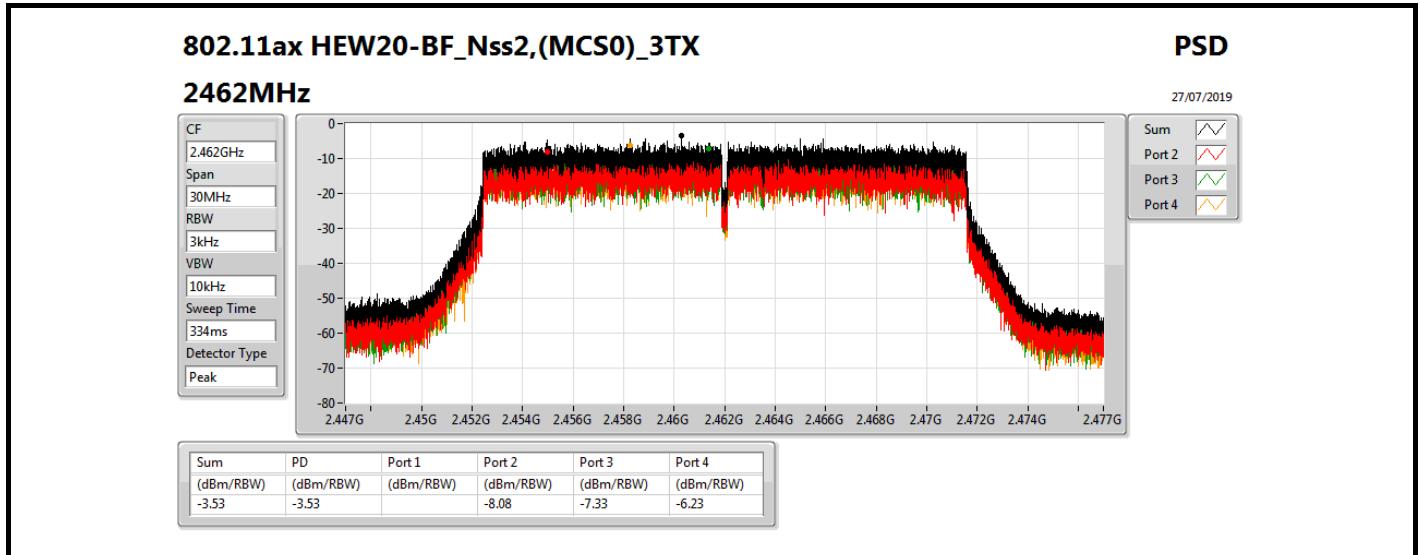

VHT20-BF_Nss2,(MCS0)_3TX
PSD
2462MHz

27/07/2019


802.11ax HEW20-BF_Nss2,(MCS0)_3TX
PSD
2412MHz

27/07/2019







<Non-beamforming mode> 3T3S

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
VHT20_Nss3,(MCS0)_3TX	-1.89
802.11ax HEW20_Nss3,(MCS0)_3TX	-3.38

RBW=3 kHz.

Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
VHT20_Nss3,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.30		-6.59	-6.40	-6.73	-3.87	8.00
2462MHz	Pass	2.30		-5.82	-5.73	-4.50	-1.89	8.00
802.11ax HEW20_Nss3,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.30		-6.98	-8.49	-8.08	-5.59	8.00
2462MHz	Pass	2.30		-6.35	-7.37	-6.70	-3.38	8.00

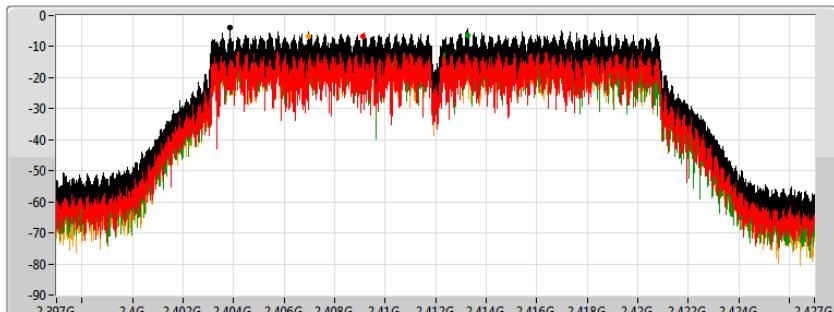
DG = Directional Gain; RBW=3 kHz;

PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X power density;

VHT20_Nss3,(MCS0)_3TX
PSD
2412MHz

28/07/2019

CF	2.412GHz
Span	30MHz
RBW	3kHz
VBW	10kHz
Sweep Time	334ms
Detector Type	Peak

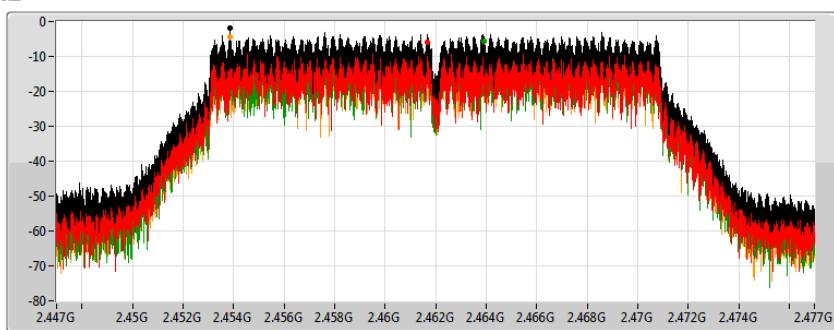


Sum	/\
Port 2	/\
Port 3	/\
Port 4	/\

VHT20_Nss3,(MCS0)_3TX
PSD
2462MHz

28/07/2019

CF	2.462GHz
Span	30MHz
RBW	3kHz
VBW	10kHz
Sweep Time	334ms
Detector Type	Peak

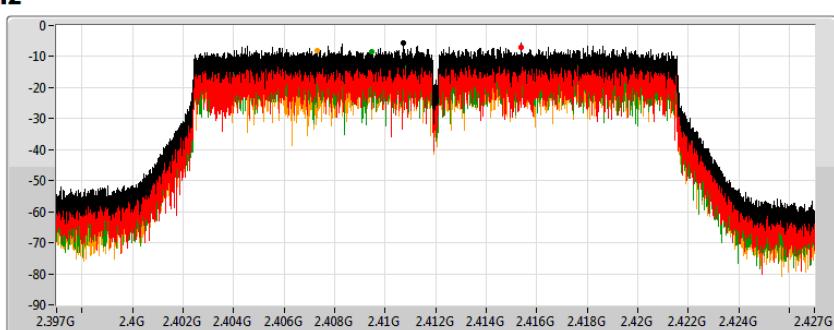


Sum	/\
Port 2	/\
Port 3	/\
Port 4	/\

802.11ax HEW20_Nss3,(MCS0)_3TX
PSD
2412MHz

28/07/2019

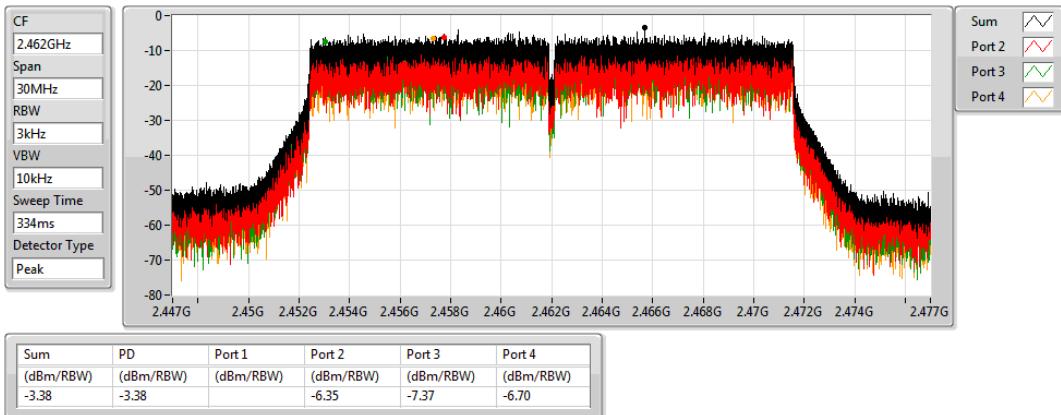
CF	2.412GHz
Span	30MHz
RBW	3kHz
VBW	10kHz
Sweep Time	334ms
Detector Type	Peak



Sum	/\
Port 2	/\
Port 3	/\
Port 4	/\

802.11ax HEW20_Nss3,(MCS0)_3TX**PSD****2462MHz**

28/07/2019





<Non-beamforming mode> 4T1S

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_4TX	5.01
802.11g_Nss1,(6Mbps)_4TX	2.74
VHT20_Nss1,(MCS0)_4TX	2.18
VHT40_Nss1,(MCS0)_4TX	-2.96
802.11ax HEW20_Nss1,(MCS0)_4TX	4.71
802.11ax HEW40_Nss1,(MCS0)_4TX	-4.26

RBW=3 kHz.



Result

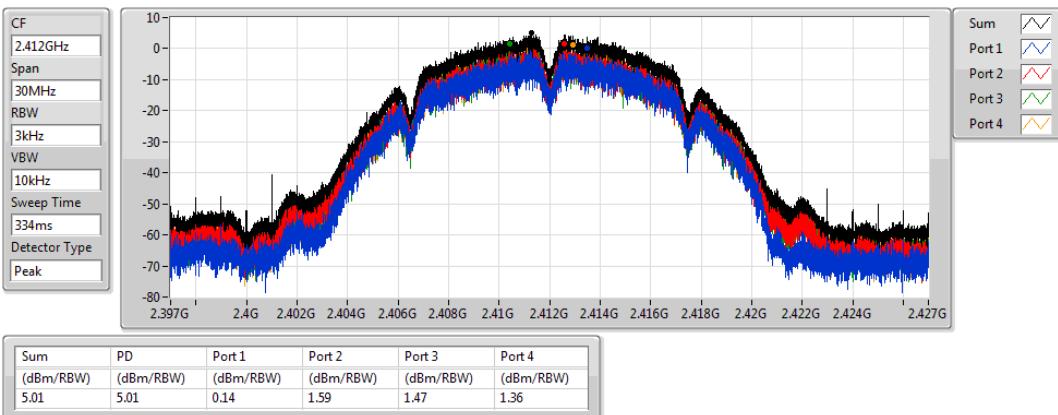
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.80	0.14	1.59	1.47	1.36	5.01	8.00
2437MHz	Pass	4.80	-0.25	1.36	1.64	1.22	4.94	8.00
2462MHz	Pass	4.80	0.30	0.88	1.50	1.01	4.93	8.00
802.11g_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.80	-6.64	-6.09	-5.35	-6.28	-0.74	8.00
2437MHz	Pass	4.80	-2.16	-2.25	-2.16	-2.16	2.74	8.00
2462MHz	Pass	4.80	-6.61	-6.54	-6.92	-6.80	-1.50	8.00
VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.80	-6.48	-5.80	-6.02	-5.97	-1.37	8.00
2437MHz	Pass	4.80	-2.56	-2.48	-2.16	-2.23	2.18	8.00
2462MHz	Pass	4.80	-5.82	-5.29	-6.09	-5.70	-0.14	8.00
VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.80	-11.00	-12.54	-11.97	-10.71	-5.57	8.00
2437MHz	Pass	4.80	-7.19	-8.25	-8.46	-7.52	-2.96	8.00
2452MHz	Pass	4.80	-8.85	-8.71	-8.84	-9.18	-3.47	8.00
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.80	-7.27	-6.33	-8.31	-6.41	-1.19	8.00
2437MHz	Pass	4.80	-1.13	-2.04	-1.34	-0.84	4.71	8.00
2462MHz	Pass	4.80	-8.41	-7.28	-7.60	-7.11	-2.57	8.00
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.80	-13.13	-12.60	-12.50	-12.53	-6.82	8.00
2437MHz	Pass	4.80	-10.63	-9.76	-10.64	-9.90	-4.79	8.00
2452MHz	Pass	4.80	-10.57	-9.69	-9.28	-10.16	-4.26	8.00

DG = Directional Gain; RBW=3 kHz;

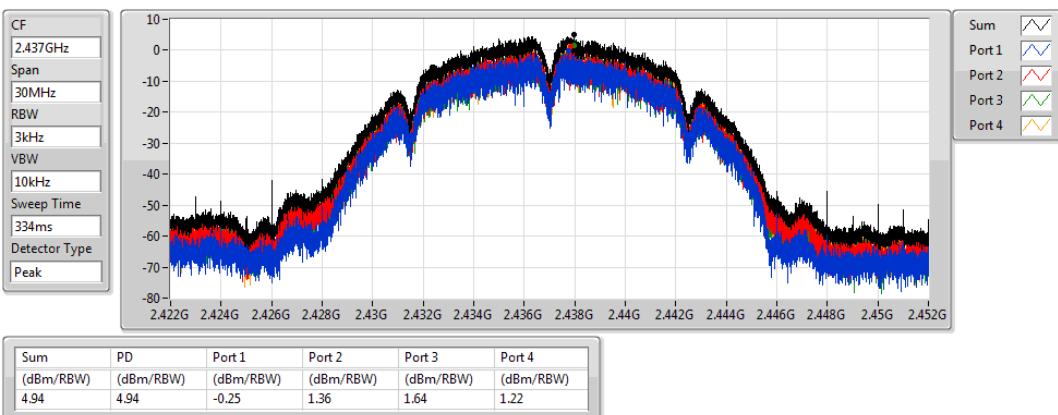
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

802.11b_Nss1,(1Mbps)_4TX
PSD
2412MHz

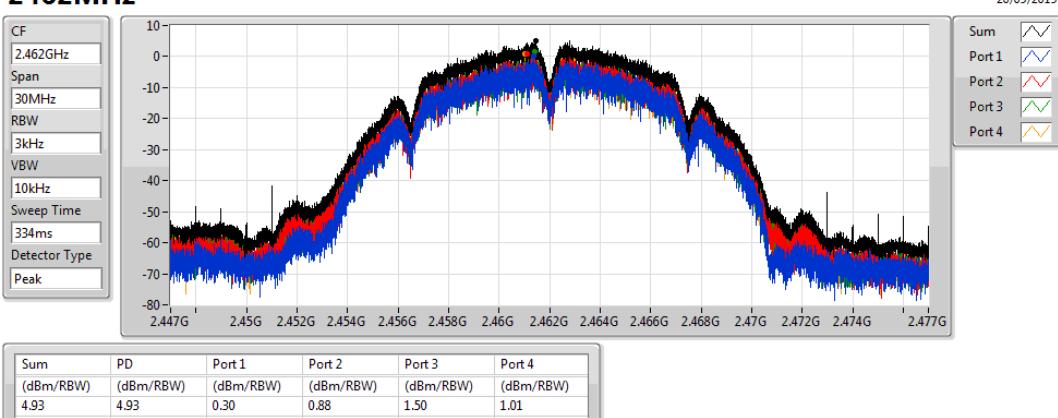
20/09/2019


802.11b_Nss1,(1Mbps)_4TX
PSD
2437MHz

20/09/2019

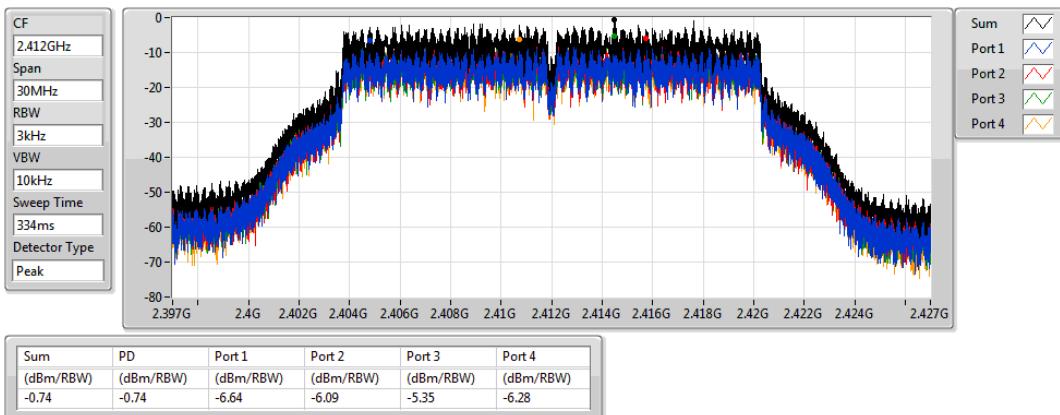

802.11b_Nss1,(1Mbps)_4TX
PSD
2462MHz

20/09/2019

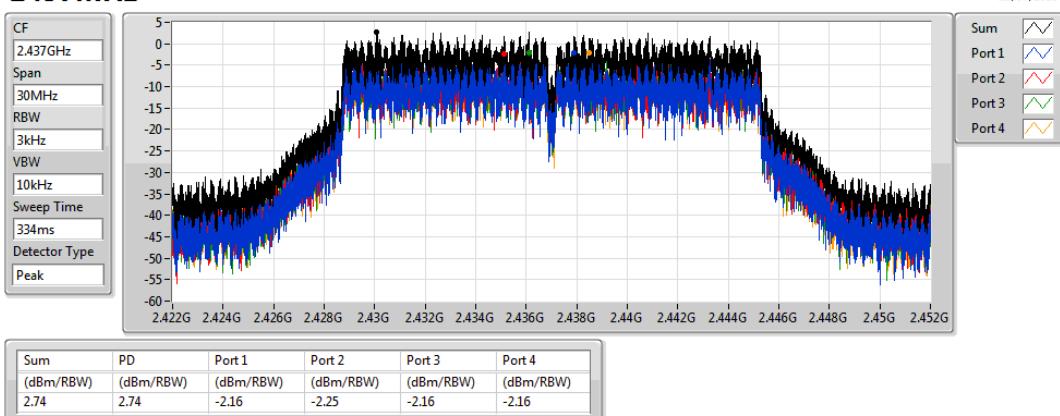


802.11g_Nss1,(6Mbps)_4TX
PSD
2412MHz

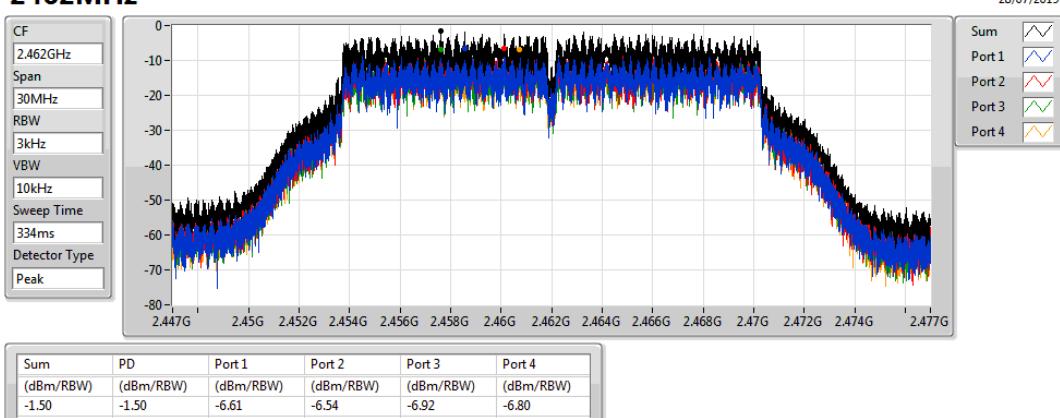
28/07/2019


802.11g_Nss1,(6Mbps)_4TX
PSD
2437MHz

28/07/2019

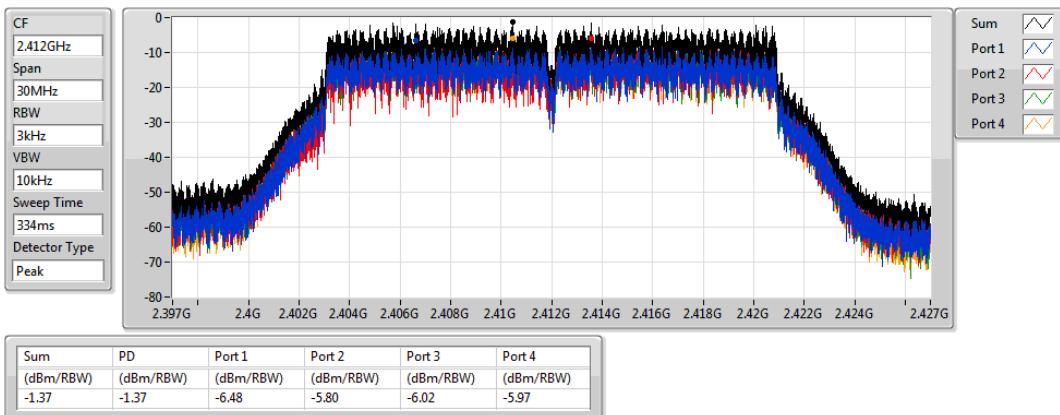

802.11g_Nss1,(6Mbps)_4TX
PSD
2462MHz

28/07/2019

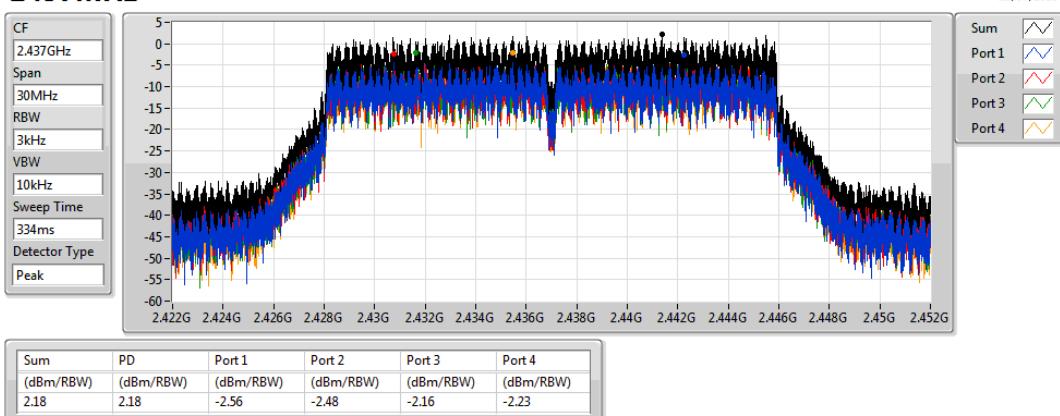


VHT20_Nss1,(MCS0)_4TX
PSD
2412MHz

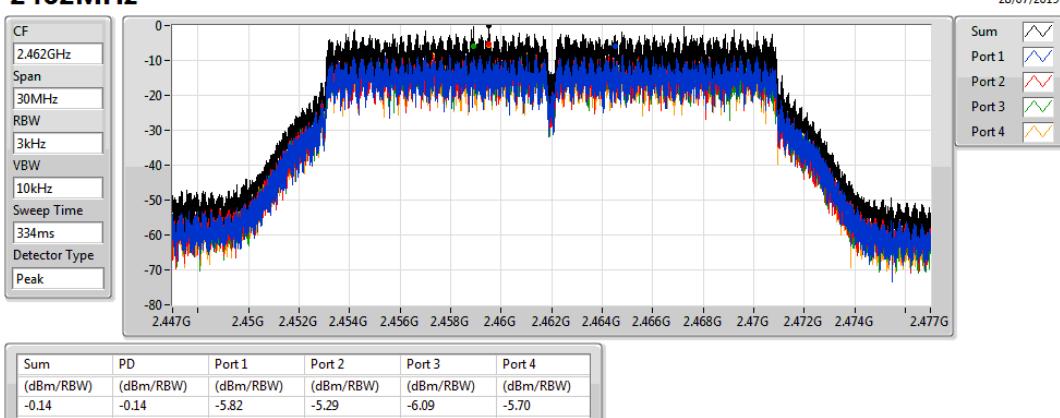
28/07/2019


VHT20_Nss1,(MCS0)_4TX
PSD
2437MHz

28/07/2019

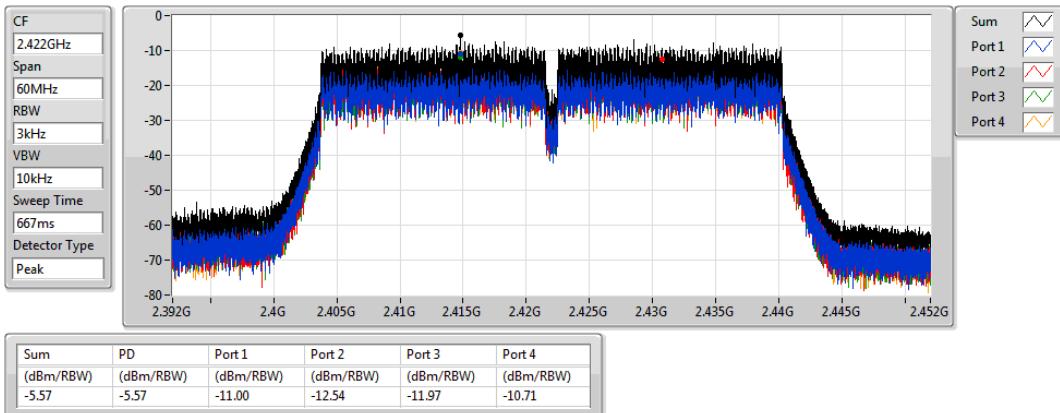

VHT20_Nss1,(MCS0)_4TX
PSD
2462MHz

28/07/2019

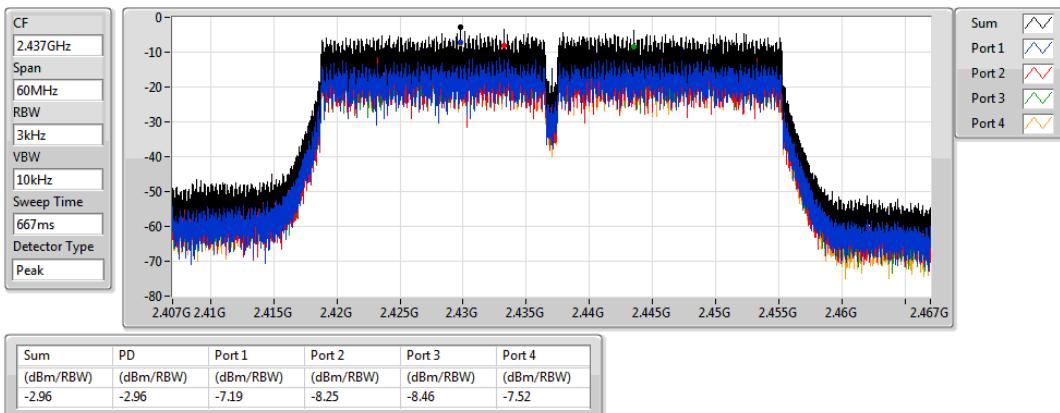


VHT40_Nss1,(MCS0)_4TX
2422MHz
PSD

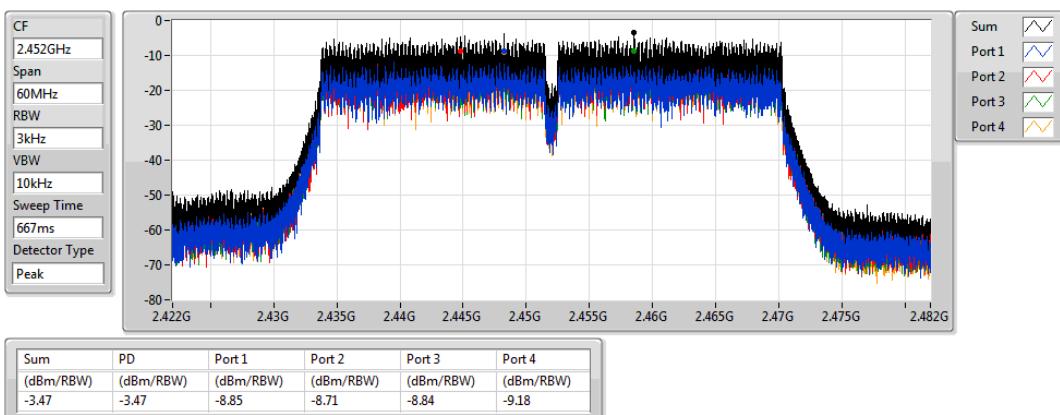
28/07/2019


VHT40_Nss1,(MCS0)_4TX
2437MHz
PSD

28/07/2019

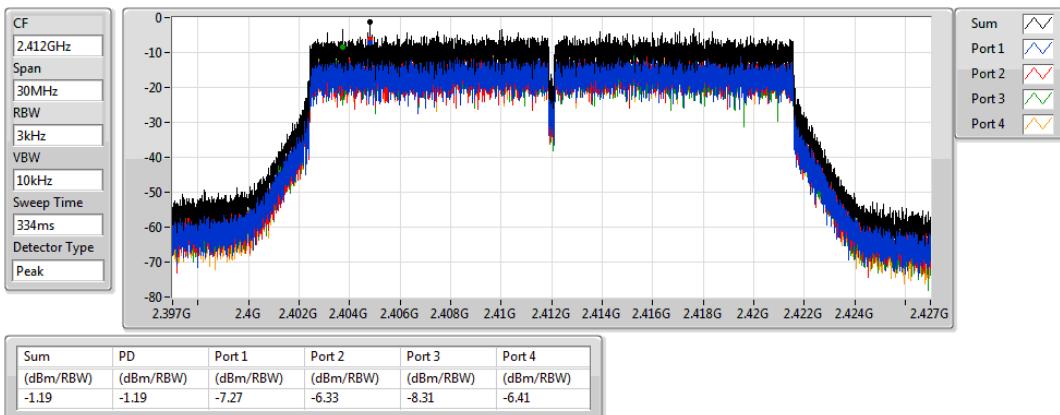

VHT40_Nss1,(MCS0)_4TX
2452MHz
PSD

28/07/2019

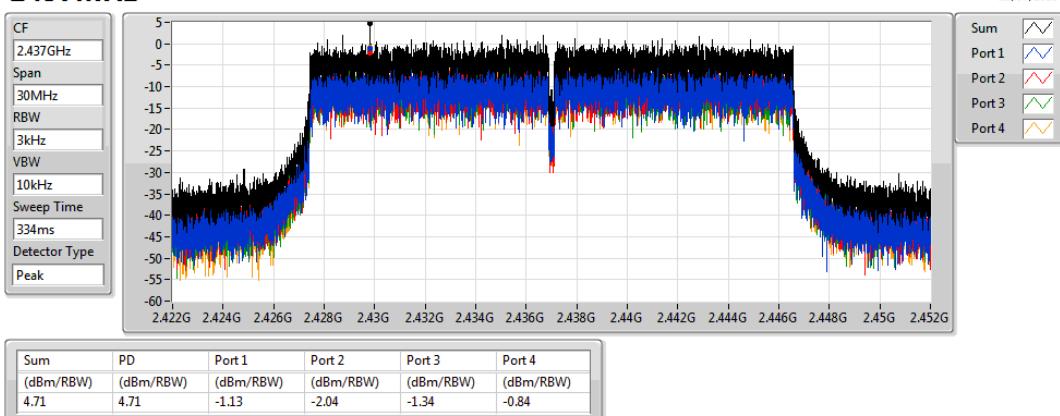


802.11ax HEW20_Nss1,(MCS0)_4TX
PSD
2412MHz

28/07/2019


802.11ax HEW20_Nss1,(MCS0)_4TX
PSD
2437MHz

28/07/2019

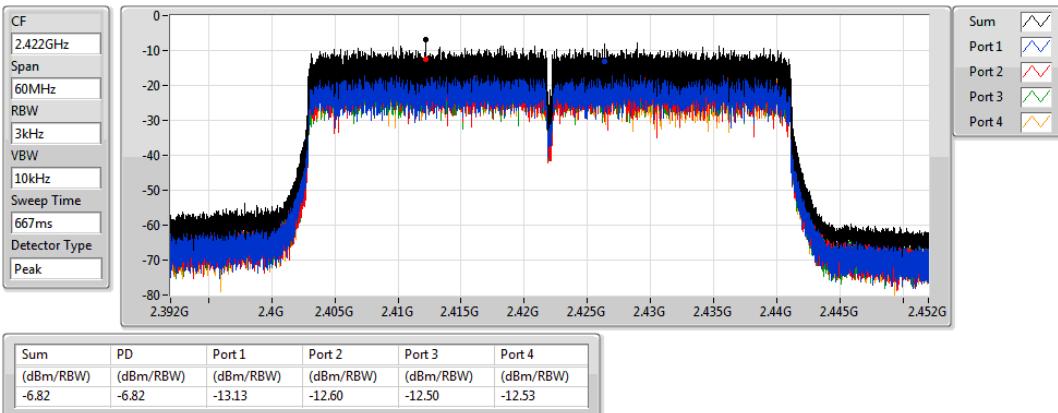

802.11ax HEW20_Nss1,(MCS0)_4TX
PSD
2462MHz

28/07/2019

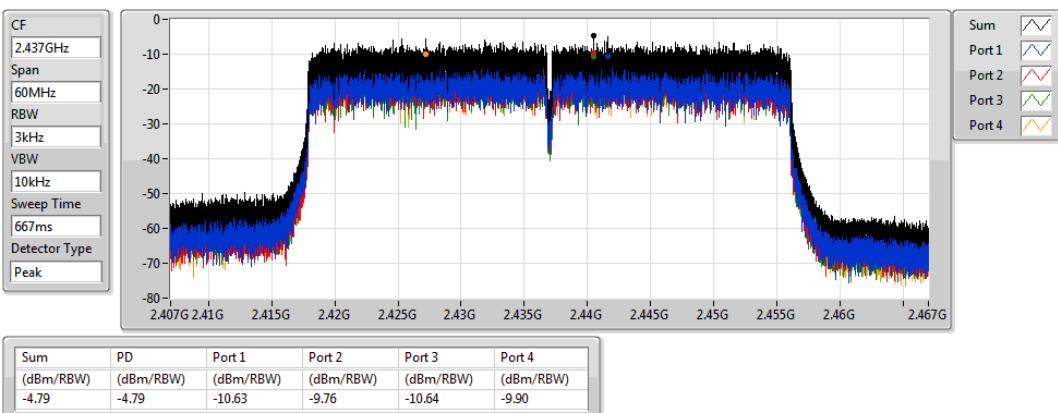


802.11ax HEW40_Nss1,(MCS0)_4TX
PSD
2422MHz

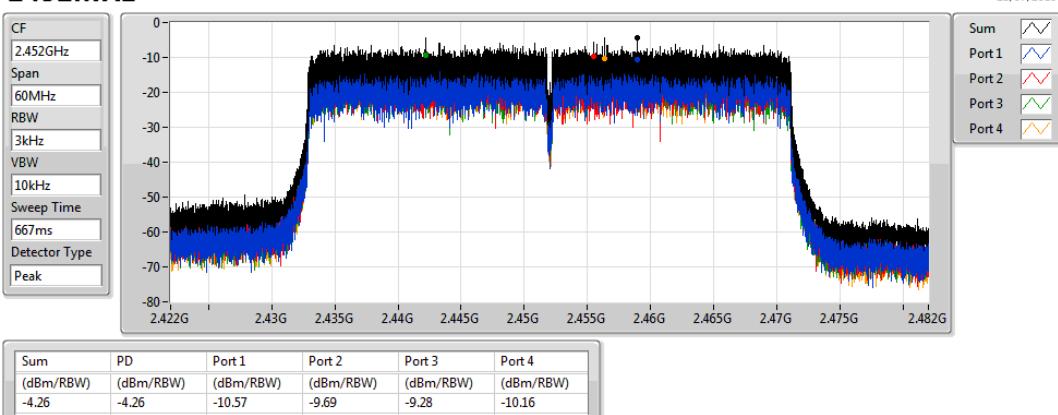
28/07/2019


802.11ax HEW40_Nss1,(MCS0)_4TX
PSD
2437MHz

28/07/2019


802.11ax HEW40_Nss1,(MCS0)_4TX
PSD
2452MHz

28/07/2019





<beamforming mode> 4T1S

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
VHT20-BF_Nss1,(MCS0)_4TX	2.63
VHT40-BF_Nss1,(MCS0)_4TX	-2.64
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	3.70
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-3.81

RBW=3 kHz.

Result

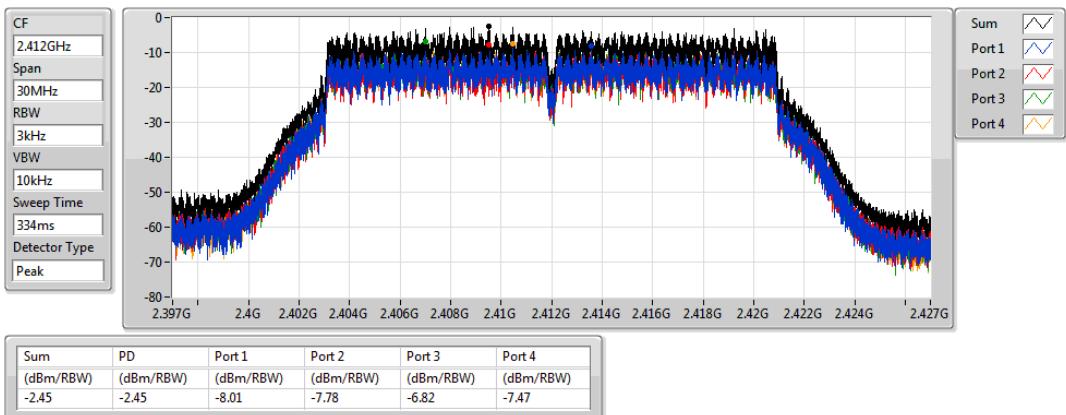
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.80	-8.01	-7.78	-6.82	-7.47	-2.45	8.00
2437MHz	Pass	4.80	-2.95	-2.60	-2.27	-2.35	2.63	8.00
2462MHz	Pass	4.80	-6.84	-6.28	-6.06	-6.73	-1.53	8.00
VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.80	-12.00	-10.58	-10.38	-10.61	-4.83	8.00
2437MHz	Pass	4.80	-9.12	-8.54	-8.05	-7.92	-2.64	8.00
2452MHz	Pass	4.80	-8.89	-9.18	-9.05	-8.40	-2.86	8.00
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.80	-6.37	-8.13	-7.95	-6.40	-1.19	8.00
2437MHz	Pass	4.80	-3.52	-1.36	-3.52	-1.31	3.70	8.00
2462MHz	Pass	4.80	-6.59	-6.18	-6.76	-6.03	-0.36	8.00
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.80	-12.72	-12.58	-12.27	-12.13	-6.56	8.00
2437MHz	Pass	4.80	-9.38	-9.62	-9.47	-9.40	-3.81	8.00
2452MHz	Pass	4.80	-10.50	-10.15	-10.95	-10.50	-5.34	8.00

DG = Directional Gain; RBW=3 kHz;

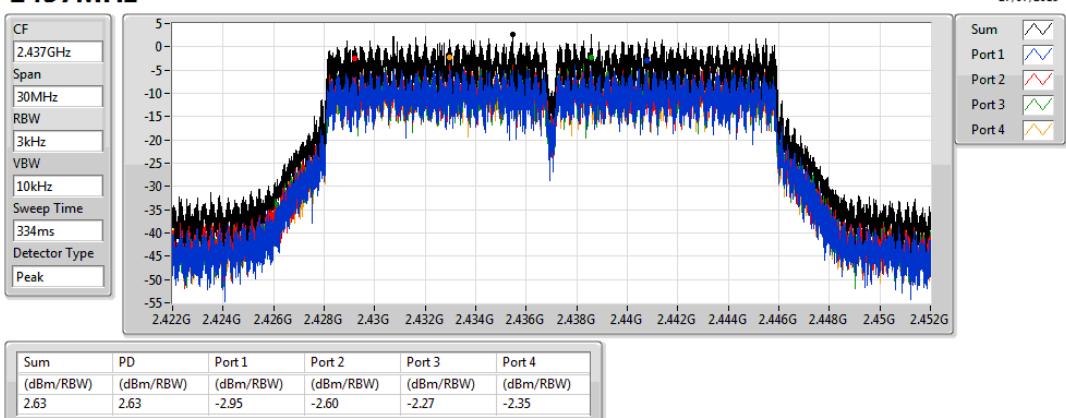
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X power density;

VHT20-BF_Nss1,(MCS0)_4TX
PSD
2412MHz

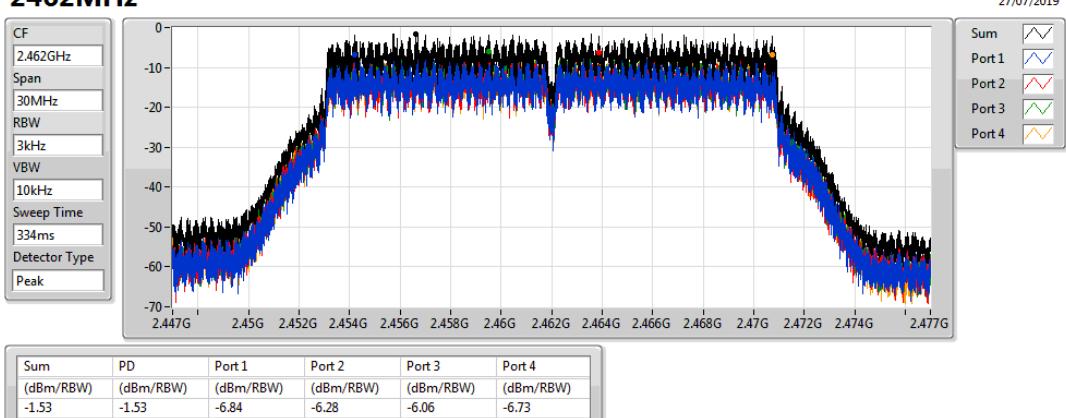
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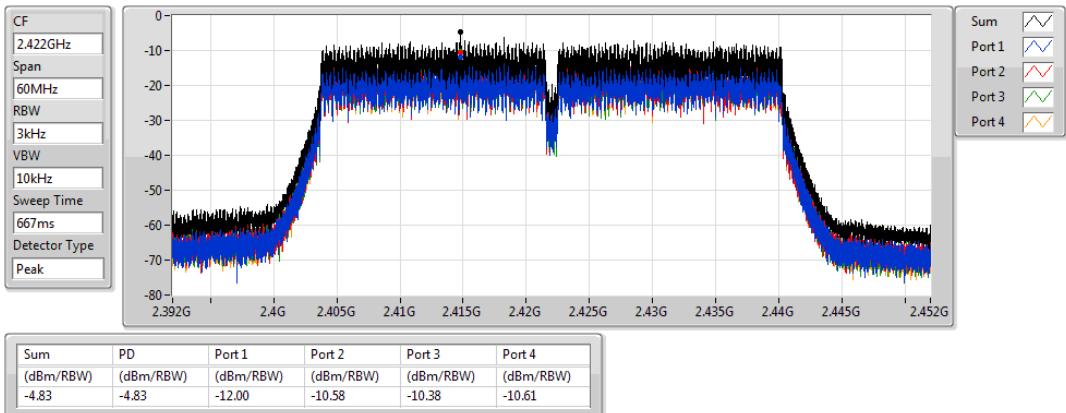
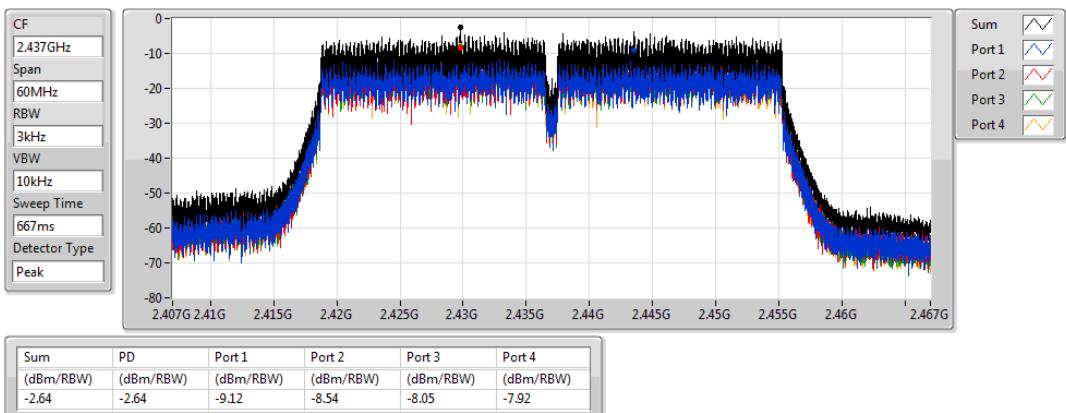
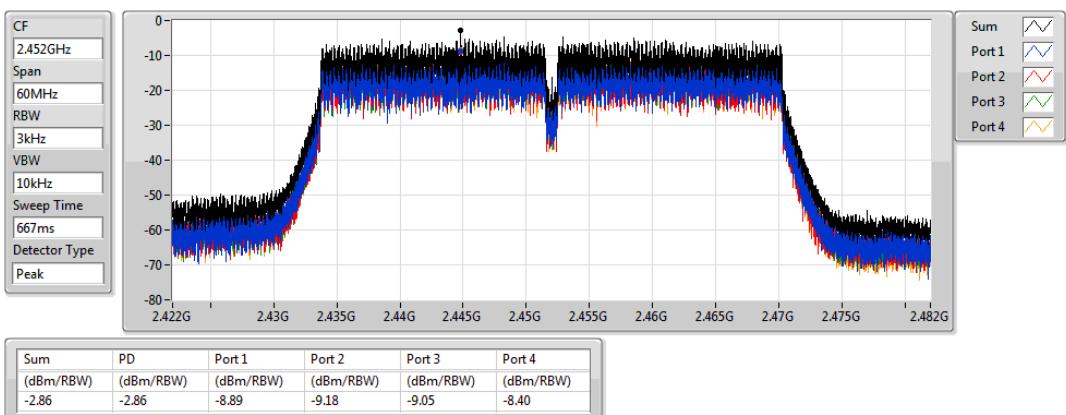

VHT20-BF_Nss1,(MCS0)_4TX
PSD
2437MHz

27/07/2019


VHT20-BF_Nss1,(MCS0)_4TX
PSD
2462MHz

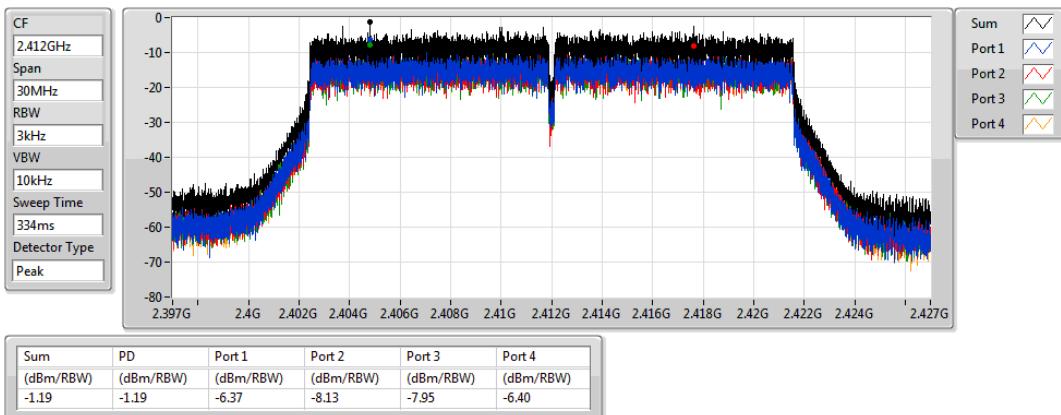
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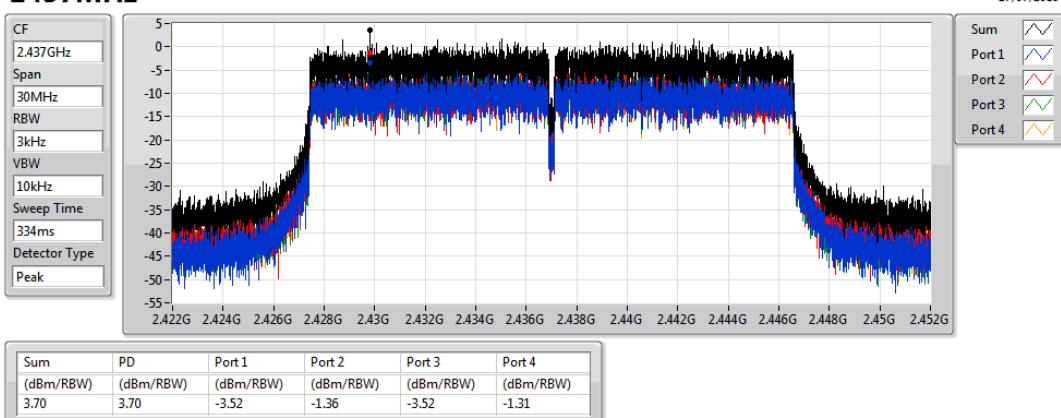
VHT40-BF_Nss1,(MCS0)_4TX
2422MHz

VHT40-BF_Nss1,(MCS0)_4TX
2437MHz

VHT40-BF_Nss1,(MCS0)_4TX
2452MHz


802.11ax HEW20-BF_Nss1,(MCS0)_4TX
PSD
2412MHz

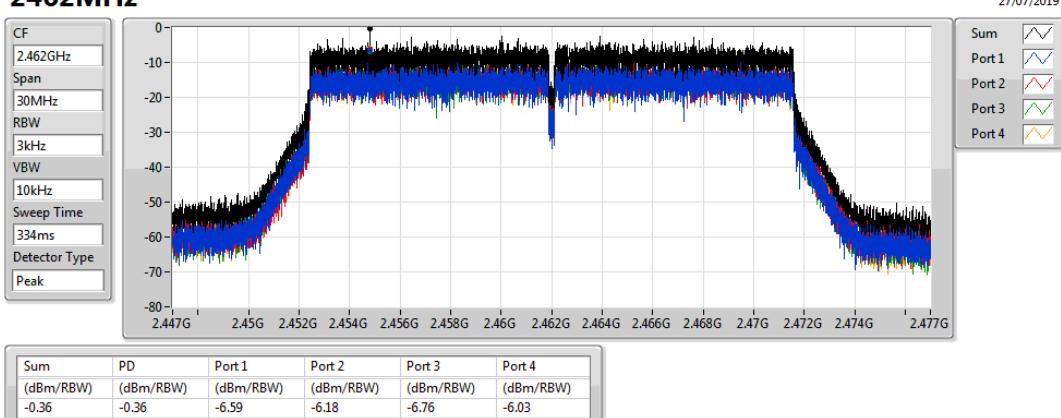
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802.11ax HEW20-BF_Nss1,(MCS0)_4TX
PSD
2437MHz

27/07/2019

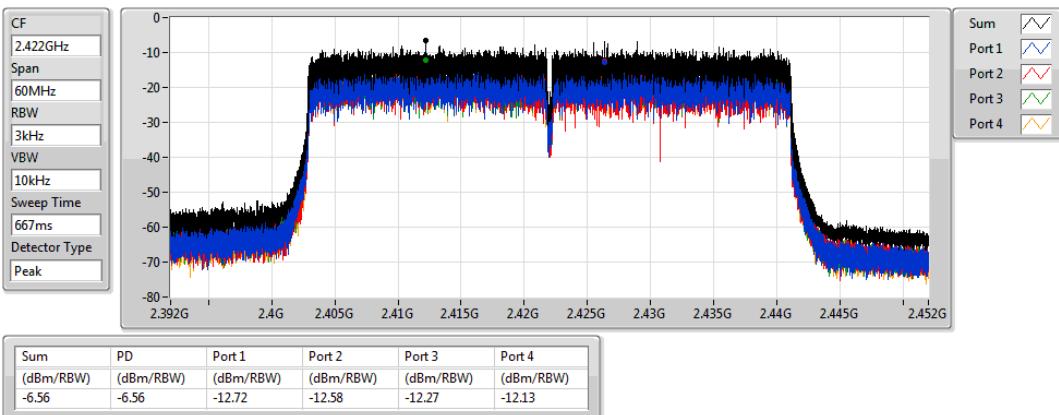

802.11ax HEW20-BF_Nss1,(MCS0)_4TX
PSD
2462MHz

27/07/2019

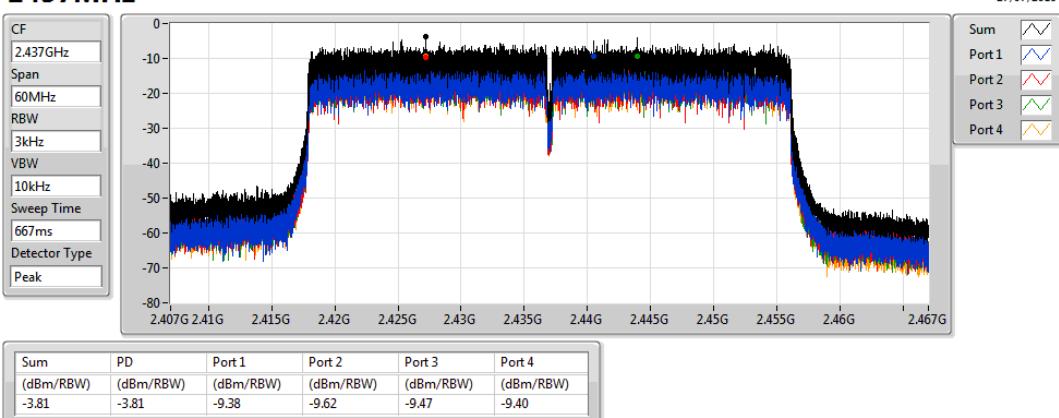


802.11ax HEW40-BF_Nss1,(MCS0)_4TX
PSD
2422MHz

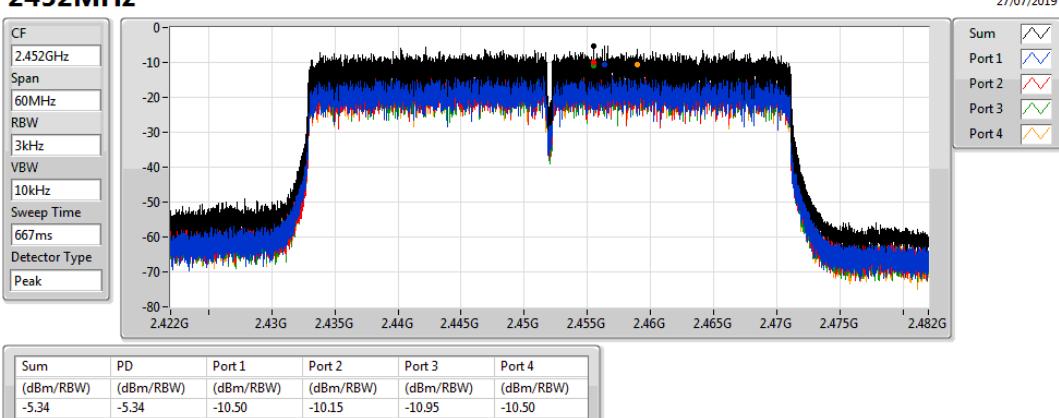
27/07/2019


802.11ax HEW40-BF_Nss1,(MCS0)_4TX
PSD
2437MHz

27/07/2019


802.11ax HEW40-BF_Nss1,(MCS0)_4TX
PSD
2452MHz

27/07/2019



**<Non-beamforming mode> 4T2S****Summary**

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
VHT20_Nss2,(MCS0)_4TX	0.11
VHT40_Nss2,(MCS0)_4TX	-4.51
802.11ax HEW20_Nss2,(MCS0)_4TX	-1.95
802.11ax HEW40_Nss2,(MCS0)_4TX	-5.27

RBW=3 kHz.



Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
VHT20_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.80	-6.39	-5.98	-6.31	-6.25	-1.90	8.00
2462MHz	Pass	4.80	-5.19	-4.31	-5.18	-4.63	0.11	8.00
VHT40_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.80	-12.17	-11.74	-11.42	-10.66	-8.04	8.00
2437MHz	Pass	4.80	-8.96	-8.61	-8.73	-8.25	-4.51	8.00
2452MHz	Pass	4.80	-8.77	-8.84	-8.79	-8.68	-4.75	8.00
802.11ax HEW20_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.80	-7.37	-8.38	-7.45	-8.28	-3.18	8.00
2462MHz	Pass	4.80	-5.80	-6.78	-5.89	-6.72	-1.95	8.00
802.11ax HEW40_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.80	-13.39	-12.36	-13.43	-12.96	-8.83	8.00
2437MHz	Pass	4.80	-9.81	-9.47	-10.22	-9.34	-5.27	8.00
2452MHz	Pass	4.80	-10.97	-10.28	-10.51	-10.32	-6.16	8.00

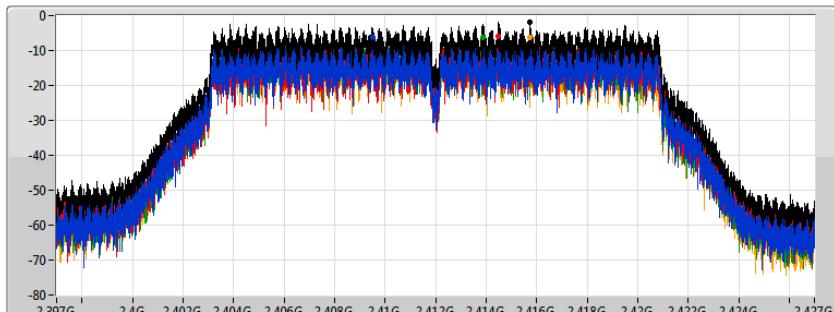
DG = Directional Gain; RBW=3 kHz;

PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

VHT20_Nss2,(MCS0)_4TX
PSD
2412MHz

28/07/2019

CF	2.412GHz
Span	30MHz
RBW	3kHz
VBW	10kHz
Sweep Time	334ms
Detector Type	Peak



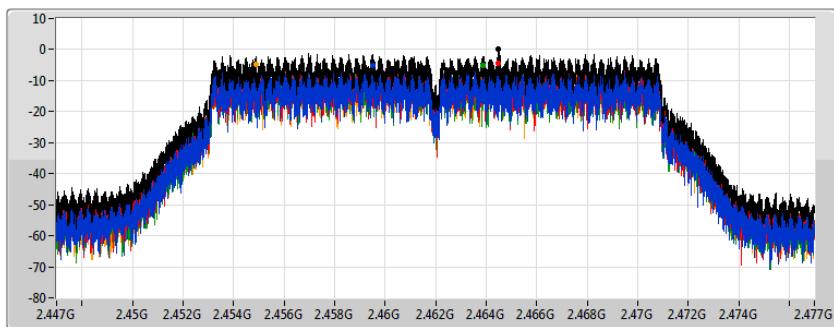
Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-1.90	-1.90	-6.39	-5.98	-6.31	-6.25

VHT20_Nss2,(MCS0)_4TX
PSD
2462MHz

28/07/2019

CF	2.462GHz
Span	30MHz
RBW	3kHz
VBW	10kHz
Sweep Time	334ms
Detector Type	Peak



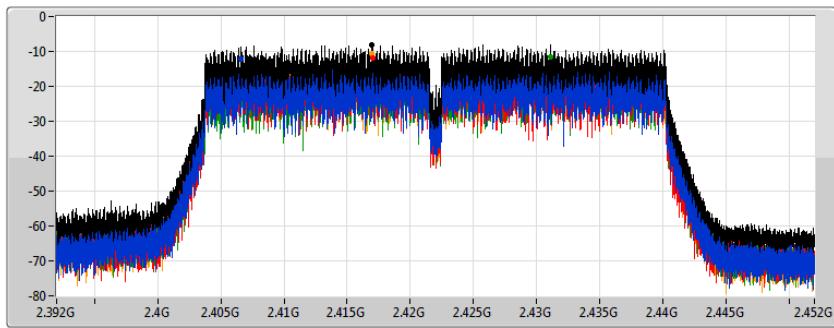
Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.11	0.11	-5.19	-4.31	-5.18	-4.63

VHT40_Nss2,(MCS0)_4TX
PSD
2422MHz

28/07/2019

CF	2.422GHz
Span	60MHz
RBW	3kHz
VBW	10kHz
Sweep Time	667ms
Detector Type	Peak



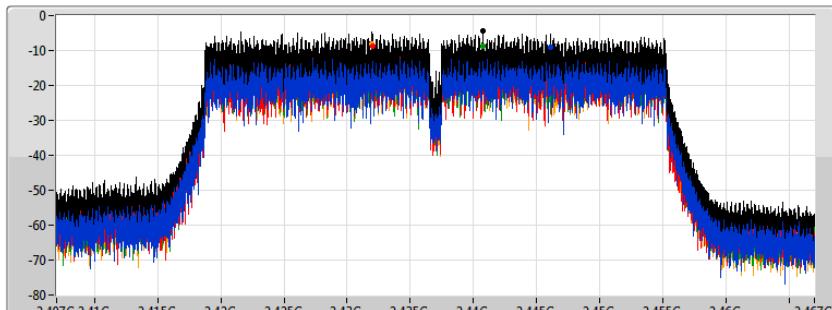
Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.04	-8.04	-12.17	-11.74	-11.42	-10.66

VHT40_Nss2,(MCS0)_4TX
PSD
2437MHz

28/07/2019

CF	2.437GHz
Span	60MHz
RBW	3kHz
VBW	10kHz
Sweep Time	667ms
Detector Type	Peak



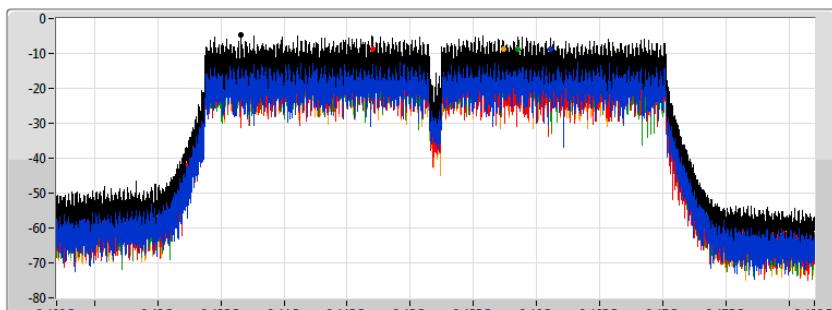
Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.51	-4.51	-8.96	-8.61	-8.73	-8.25

VHT40_Nss2,(MCS0)_4TX
PSD
2452MHz

28/07/2019

CF	2.452GHz
Span	60MHz
RBW	3kHz
VBW	10kHz
Sweep Time	667ms
Detector Type	Peak



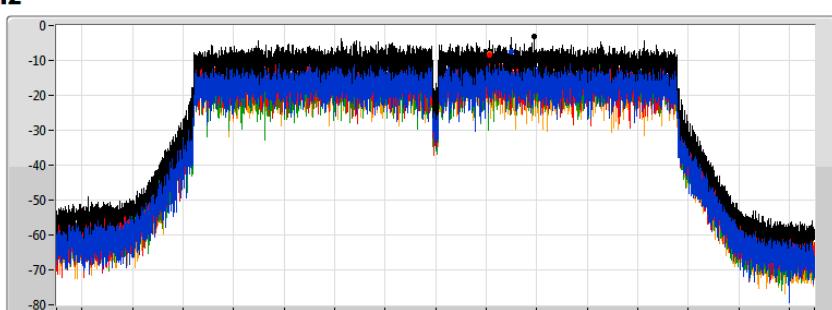
Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.75	-4.75	-8.77	-8.84	-8.79	-8.68

802.11ax HEW20_Nss2,(MCS0)_4TX
PSD
2412MHz

28/07/2019

CF	2.412GHz
Span	30MHz
RBW	3kHz
VBW	10kHz
Sweep Time	334ms
Detector Type	Peak

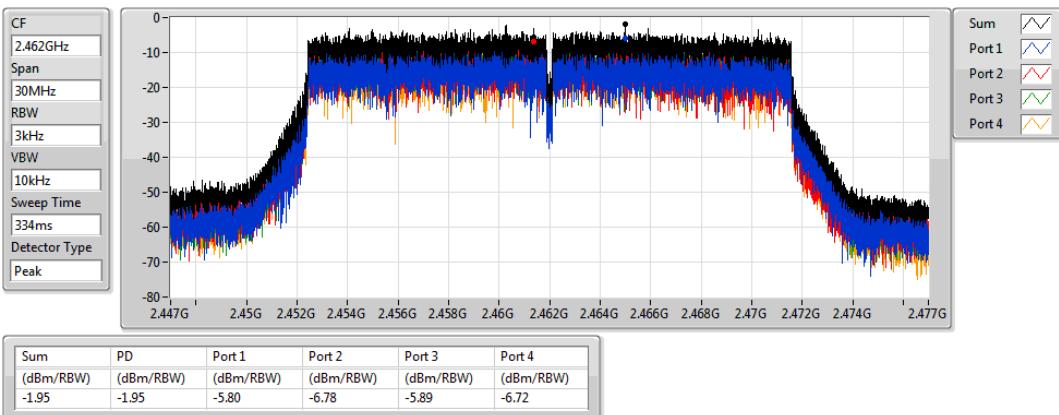


Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

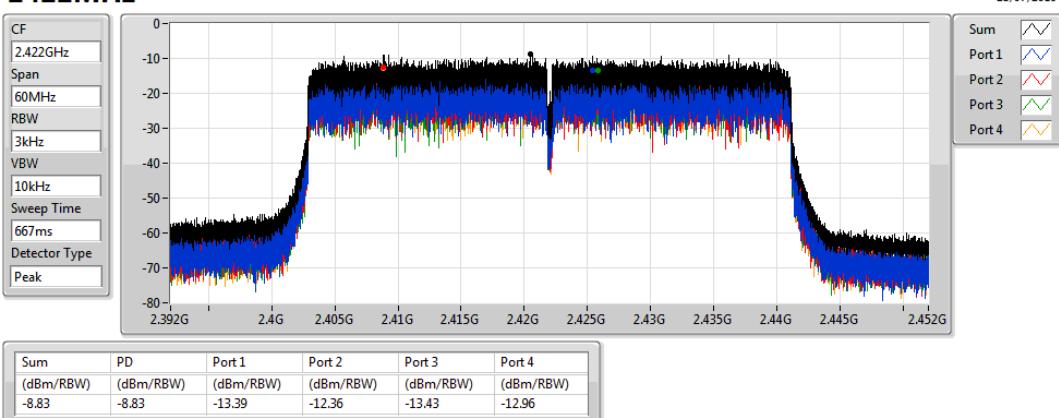
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.18	-3.18	-7.37	-8.38	-7.45	-8.28

802.11ax HEW20_Nss2,(MCS0)_4TX
PSD
2462MHz

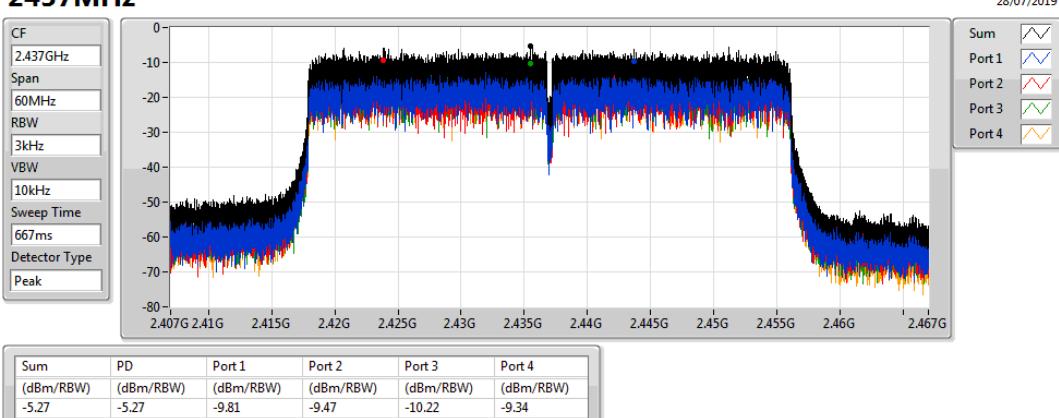
28/07/2019

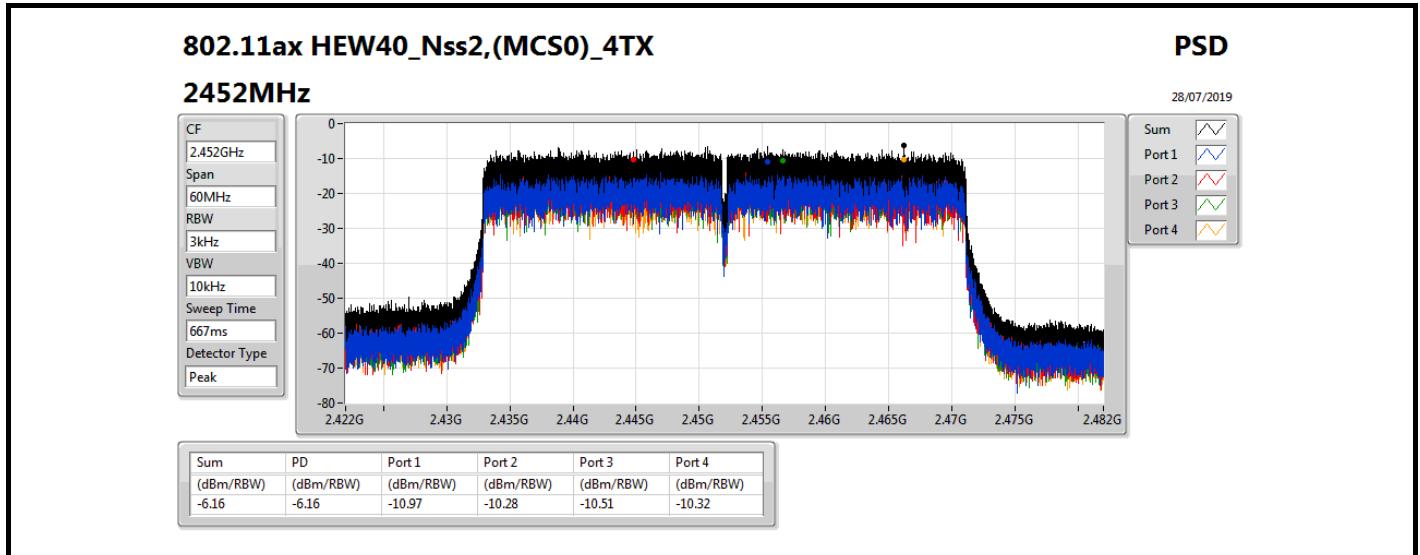

802.11ax HEW40_Nss2,(MCS0)_4TX
PSD
2422MHz

28/07/2019


802.11ax HEW40_Nss2,(MCS0)_4TX
PSD
2437MHz

28/07/2019







<beamforming mode> 4T2S

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
VHT20-BF_Nss2,(MCS0)_4TX	-1.82
VHT40-BF_Nss2,(MCS0)_4TX	-4.34
802.11ax HEW20-BF_Nss2,(MCS0)_4TX	-2.97
802.11ax HEW40-BF_Nss2,(MCS0)_4TX	-5.43

RBW=3 kHz.



Result

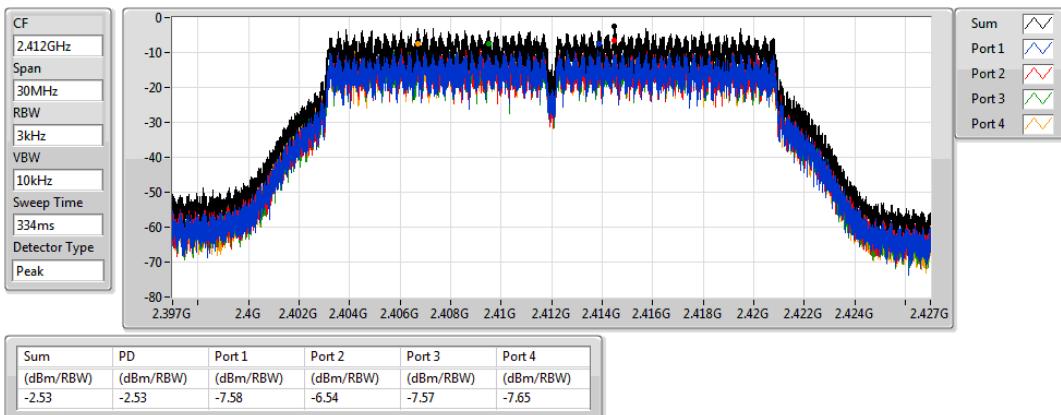
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
VHT20-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.80	-7.58	-6.54	-7.57	-7.65	-2.53	8.00
2462MHz	Pass	4.80	-7.59	-6.51	-6.64	-6.26	-1.82	8.00
VHT40-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.80	-10.62	-10.14	-10.33	-9.31	-6.13	8.00
2437MHz	Pass	4.80	-8.67	-8.32	-8.73	-7.30	-4.34	8.00
2452MHz	Pass	4.80	-9.55	-9.22	-8.92	-8.77	-5.03	8.00
802.11ax HEW20-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	4.80	-8.72	-9.31	-8.60	-9.65	-4.47	8.00
2462MHz	Pass	4.80	-7.49	-8.14	-7.70	-7.81	-2.97	8.00
802.11ax HEW40-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	4.80	-13.18	-12.48	-13.16	-11.52	-8.32	8.00
2437MHz	Pass	4.80	-9.55	-9.23	-9.89	-9.17	-5.43	8.00
2452MHz	Pass	4.80	-10.70	-10.52	-10.48	-9.82	-6.18	8.00

DG = Directional Gain; RBW=3 kHz;

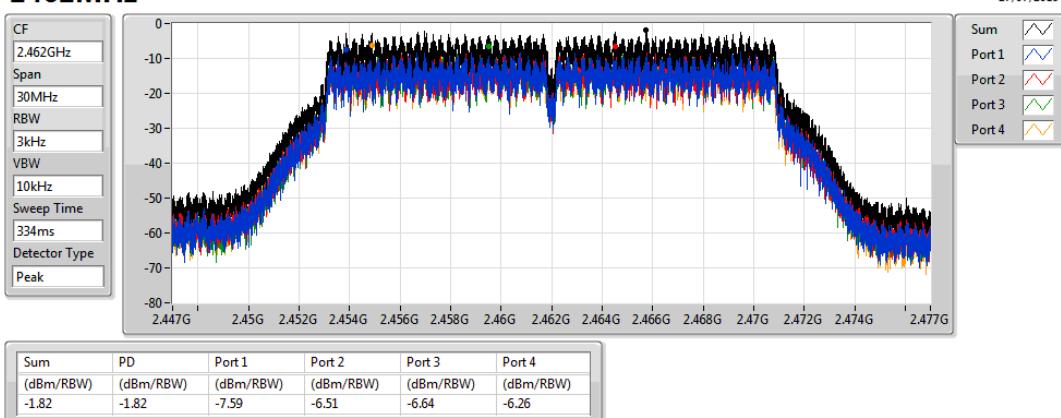
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

VHT20-BF_Nss2,(MCS0)_4TX
PSD
2412MHz

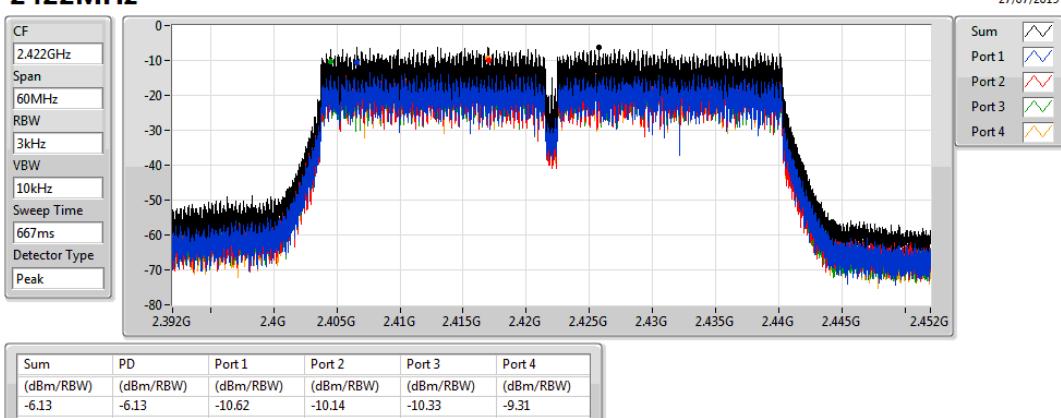
27/07/2019


VHT20-BF_Nss2,(MCS0)_4TX
PSD
2462MHz

27/07/2019

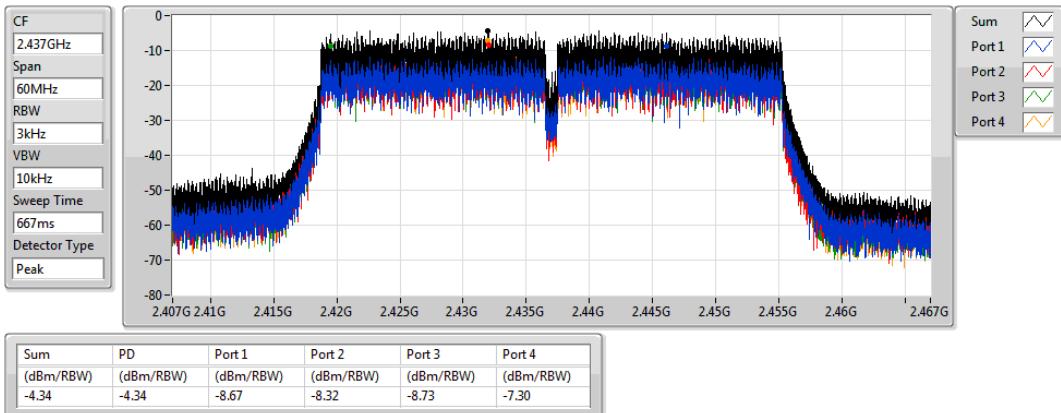

VHT40-BF_Nss2,(MCS0)_4TX
PSD
2422MHz

27/07/2019

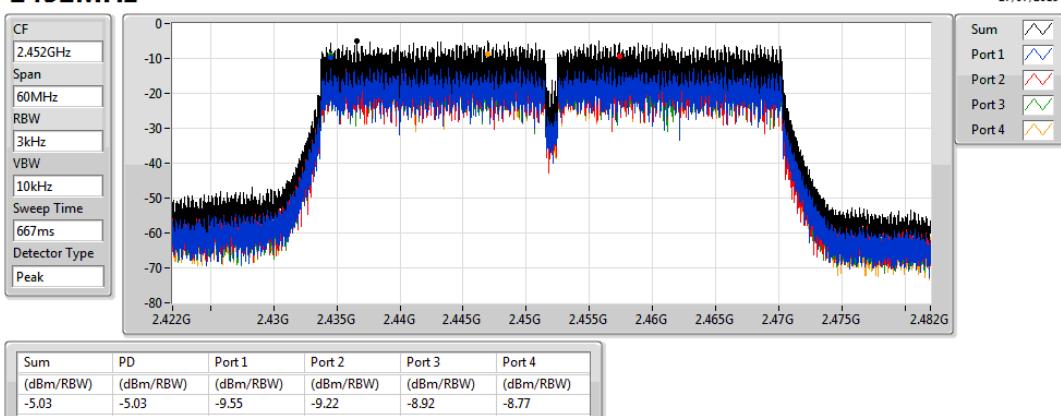


VHT40-BF_Nss2,(MCS0)_4TX
PSD
2437MHz

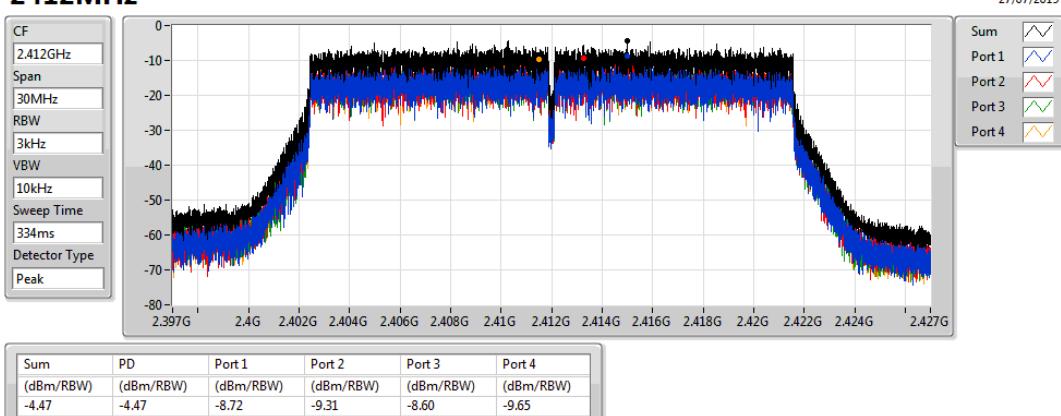
27/07/2019


VHT40-BF_Nss2,(MCS0)_4TX
PSD
2452MHz

27/07/2019


802.11ax HEW20-BF_Nss2,(MCS0)_4TX
PSD
2412MHz

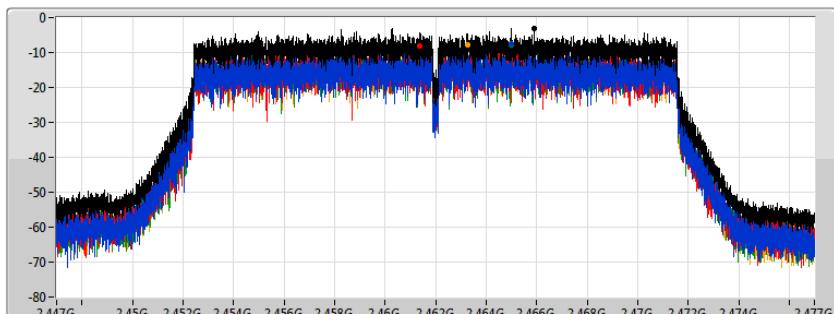
27/07/2019



802.11ax HEW20-BF_Nss2,(MCS0)_4TX
PSD
2462MHz

27/07/2019

CF	2.462GHz
Span	30MHz
RBW	3kHz
VBW	10kHz
Sweep Time	334ms
Detector Type	Peak



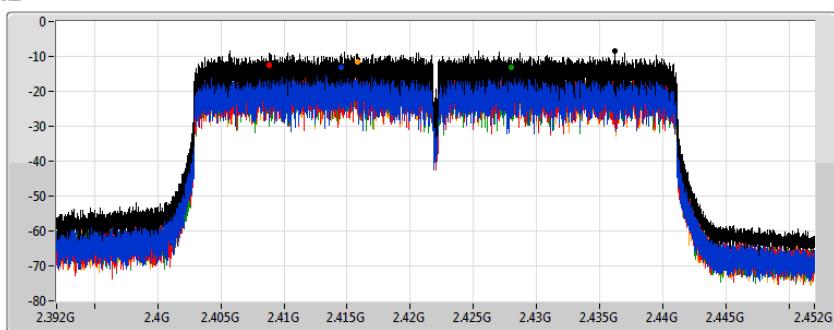
Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.97	-2.97	-7.49	-8.14	-7.70	-7.81

802.11ax HEW40-BF_Nss2,(MCS0)_4TX
PSD
2422MHz

27/07/2019

CF	2.422GHz
Span	60MHz
RBW	3kHz
VBW	10kHz
Sweep Time	667ms
Detector Type	Peak



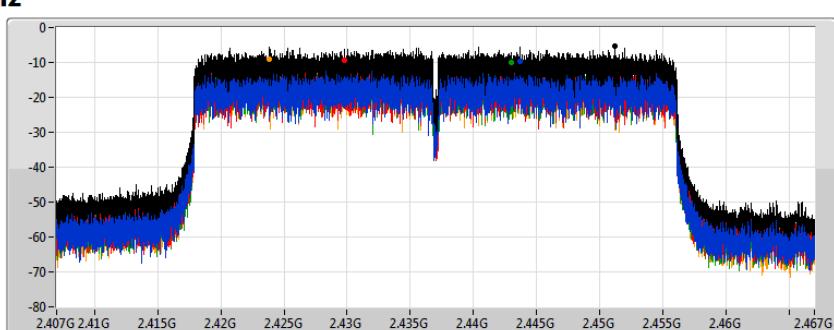
Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.32	-8.32	-13.18	-12.48	-13.16	-11.52

802.11ax HEW40-BF_Nss2,(MCS0)_4TX
PSD
2437MHz

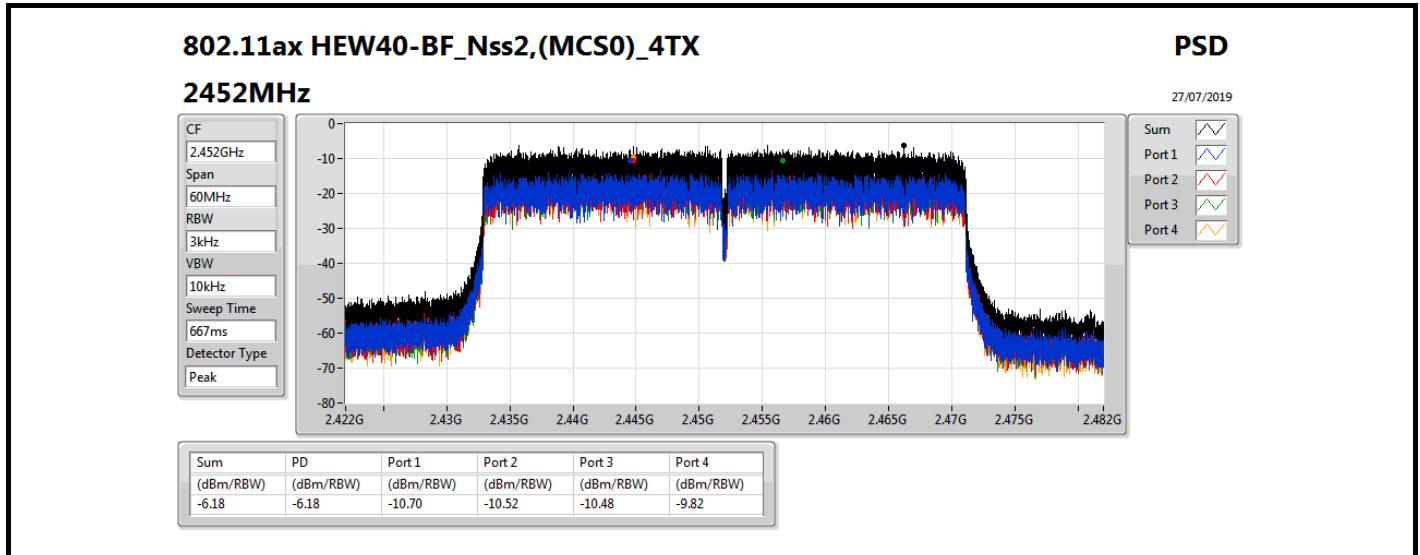
27/07/2019

CF	2.437GHz
Span	60MHz
RBW	3kHz
VBW	10kHz
Sweep Time	667ms
Detector Type	Peak



Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.43	-5.43	-9.55	-9.23	-9.89	-9.17



**<Non-beamforming mode> 4T3S****Summary**

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
VHT20_Nss3,(MCS0)_4TX	-1.91
VHT40_Nss3,(MCS0)_4TX	-5.02
802.11ax HEW20_Nss3,(MCS0)_4TX	-2.64
802.11ax HEW40_Nss3,(MCS0)_4TX	-6.62

RBW=3 kHz.



Result

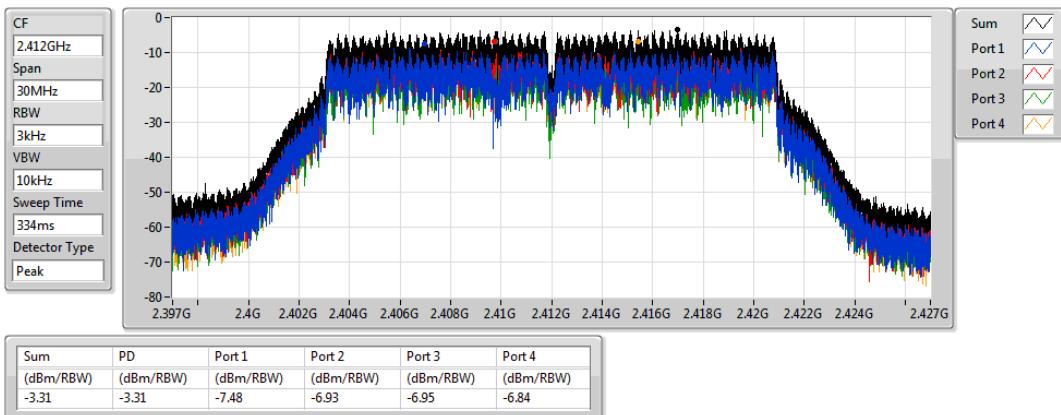
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
VHT20_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.10	-7.48	-6.93	-6.95	-6.84	-3.31	8.00
2462MHz	Pass	3.10	-5.69	-5.51	-5.02	-5.01	-1.91	8.00
VHT40_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	3.10	-10.71	-11.52	-10.95	-11.87	-7.64	8.00
2437MHz	Pass	3.10	-8.00	-8.96	-8.45	-8.66	-5.02	8.00
2452MHz	Pass	3.10	-8.37	-9.41	-8.45	-9.16	-5.30	8.00
802.11ax HEW20_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.10	-8.32	-8.36	-7.80	-7.94	-4.36	8.00
2462MHz	Pass	3.10	-7.20	-6.90	-6.18	-6.30	-2.64	8.00
802.11ax HEW40_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	3.10	-14.42	-14.03	-12.94	-14.34	-10.19	8.00
2437MHz	Pass	3.10	-10.46	-10.60	-9.64	-10.87	-6.62	8.00
2452MHz	Pass	3.10	-10.90	-10.63	-9.34	-11.33	-6.78	8.00

DG = Directional Gain; RBW=3 kHz;

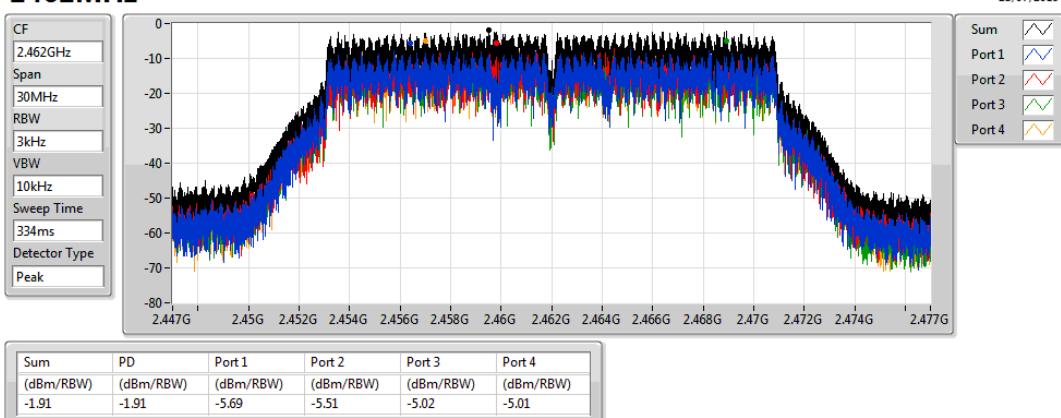
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

VHT20_Nss3,(MCS0)_4TX
PSD
2412MHz

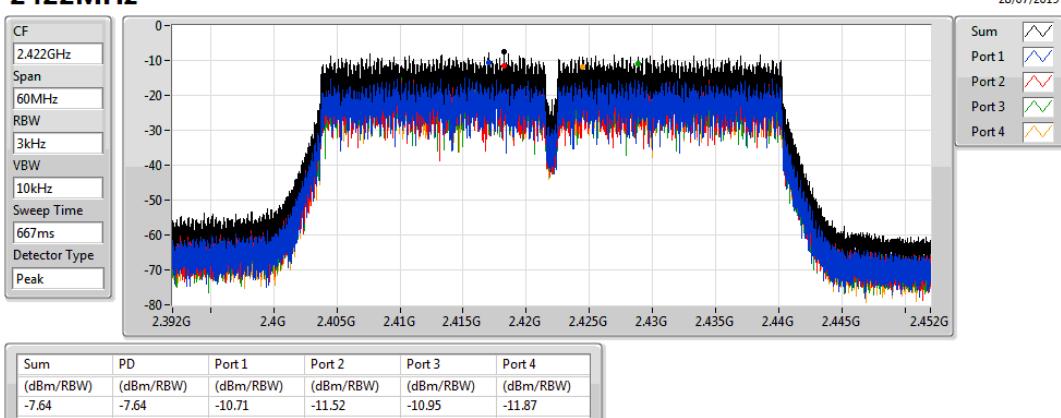
28/07/2019


VHT20_Nss3,(MCS0)_4TX
PSD
2462MHz

28/07/2019


VHT40_Nss3,(MCS0)_4TX
PSD
2422MHz

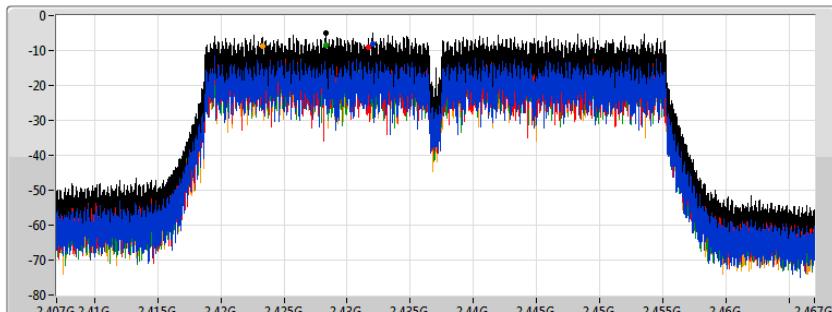
28/07/2019



VHT40_Nss3,(MCS0)_4TX
PSD
2437MHz

28/07/2019

CF	2.437GHz
Span	60MHz
RBW	3kHz
VBW	10kHz
Sweep Time	667ms
Detector Type	Peak



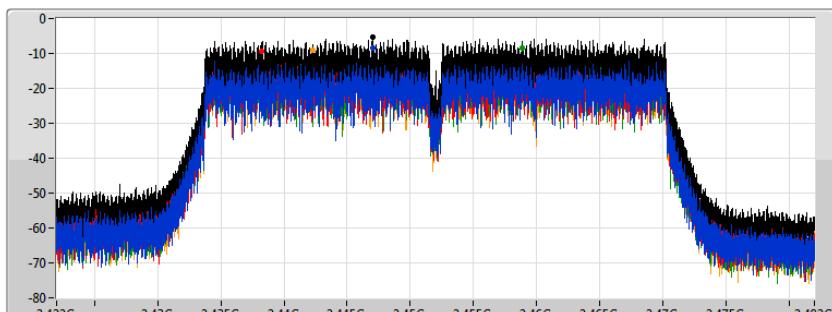
Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.02	-5.02	-8.00	-8.96	-8.45	-8.66

VHT40_Nss3,(MCS0)_4TX
PSD
2452MHz

28/07/2019

CF	2.452GHz
Span	60MHz
RBW	3kHz
VBW	10kHz
Sweep Time	667ms
Detector Type	Peak



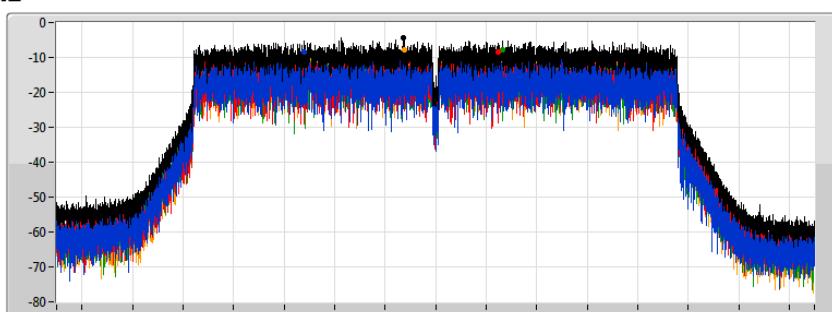
Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.30	-5.30	-8.37	-9.41	-8.45	-9.16

802.11ax HEW20_Nss3,(MCS0)_4TX
PSD
2412MHz

28/07/2019

CF	2.412GHz
Span	30MHz
RBW	3kHz
VBW	10kHz
Sweep Time	334ms
Detector Type	Peak

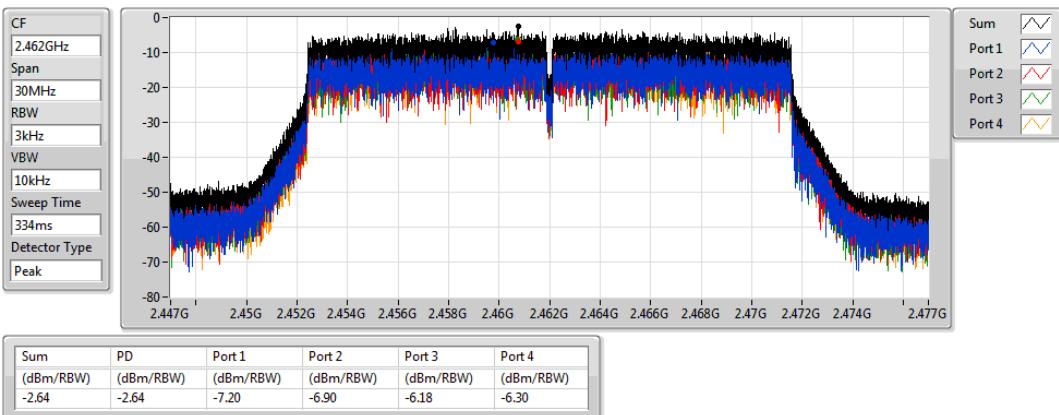


Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.36	-4.36	-8.32	-8.36	-7.80	-7.94

802.11ax HEW20_Nss3,(MCS0)_4TX
PSD
2462MHz

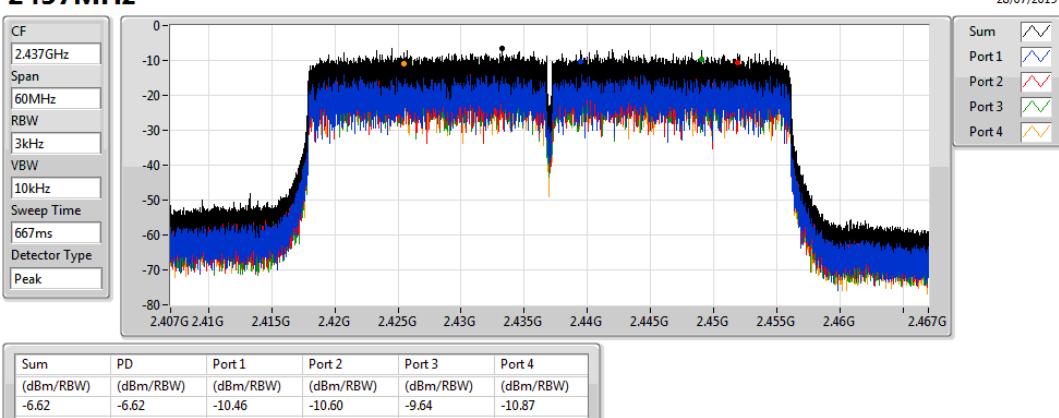
28/07/2019

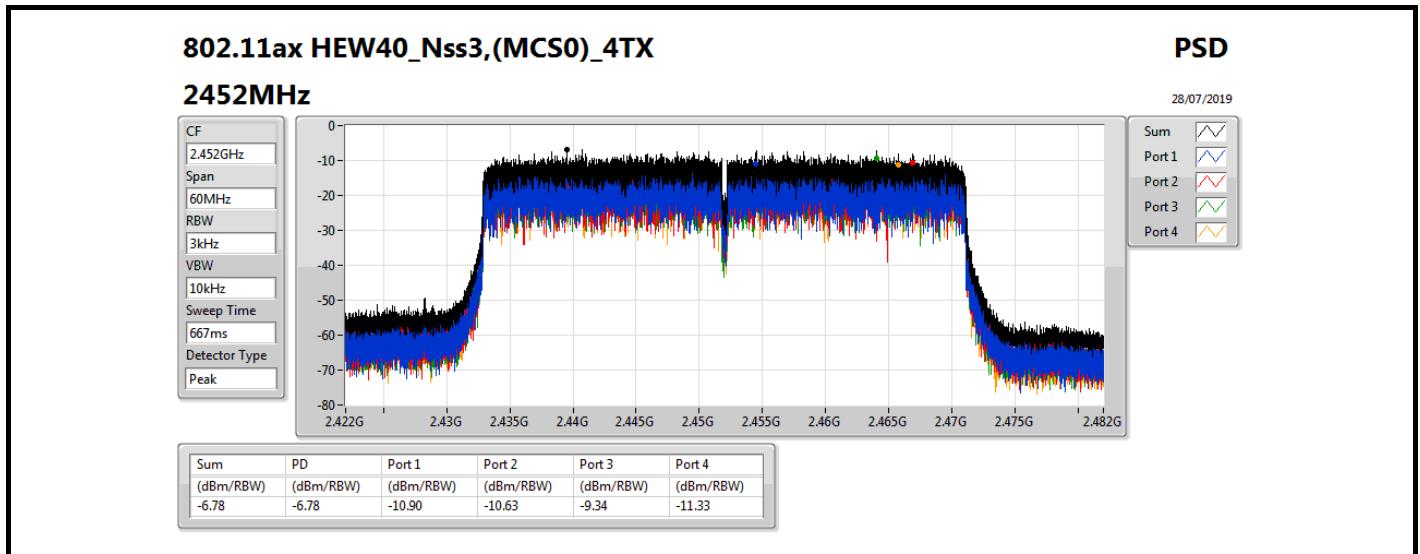

802.11ax HEW40_Nss3,(MCS0)_4TX
PSD
2422MHz

28/07/2019


802.11ax HEW40_Nss3,(MCS0)_4TX
PSD
2437MHz

28/07/2019







<beamforming mode> 4T3S

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
VHT20-BF_Nss3,(MCS0)_4TX	-3.47
VHT40-BF_Nss3,(MCS0)_4TX	-4.04
802.11ax HEW20-BF_Nss3,(MCS0)_4TX	-4.40
802.11ax HEW40-BF_Nss3,(MCS0)_4TX	-5.47

RBW=3 kHz.

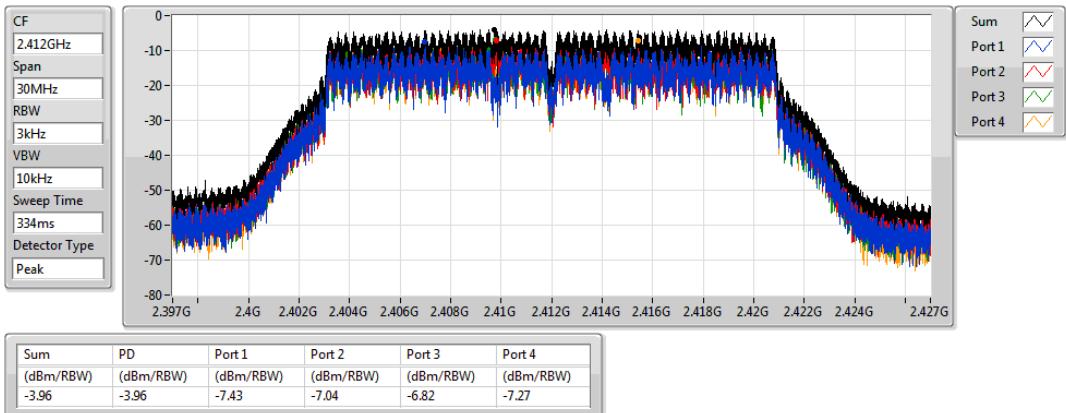
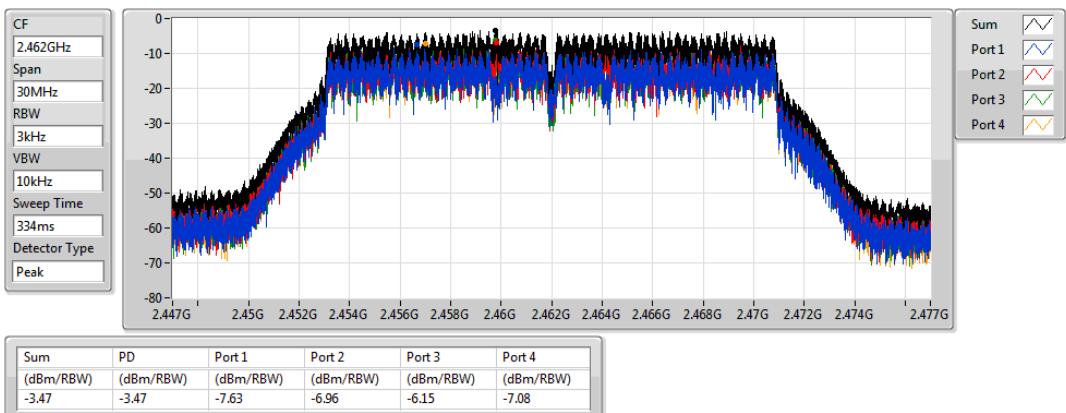


Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
VHT20-BF_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.10	-7.43	-7.04	-6.82	-7.27	-3.96	8.00
2462MHz	Pass	3.10	-7.63	-6.96	-6.15	-7.08	-3.47	8.00
VHT40-BF_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	3.10	-10.30	-12.64	-11.59	-12.09	-7.72	8.00
2437MHz	Pass	3.10	-6.93	-8.30	-7.72	-8.71	-4.04	8.00
2452MHz	Pass	3.10	-7.51	-9.87	-8.90	-9.78	-4.86	8.00
802.11ax HEW20-BF_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.10	-8.42	-7.57	-7.43	-8.62	-4.71	8.00
2462MHz	Pass	3.10	-8.11	-7.09	-7.17	-8.33	-4.40	8.00
802.11ax HEW40-BF_Nss3,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	3.10	-13.11	-12.23	-11.40	-12.67	-8.10	8.00
2437MHz	Pass	3.10	-10.06	-9.14	-8.20	-9.51	-5.47	8.00
2452MHz	Pass	3.10	-10.93	-10.17	-8.84	-10.42	-6.49	8.00

DG = Directional Gain; RBW=3 kHz;

PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

VHT20-BF_Nss3,(MCS0)_4TX
2412MHz

VHT20-BF_Nss3,(MCS0)_4TX
2462MHz

VHT40-BF_Nss3,(MCS0)_4TX
2422MHz
