



FCC Test Report

Equipment : WiFi 5G Module
Brand Name : UBIQUITI
Model No. : 4x4-5GL
FCC ID : SWX-M445GL
Standard : 47 CFR FCC Part 15.407
Operating Band : 5150 MHz – 5250 MHz
5250 MHz – 5350 MHz
Applicant : Ubiquiti Networks, Inc.
685 Third Avenue, 27th Floor New York,
New York 10017 USA
Manufacturer : Ubiquiti Networks, Inc.
685 Third Avenue, 27th Floor New York,
New York 10017 USA
Function : Outdoor; Indoor; Fixed P2P
 Client
TPC Function : TPC

This report was evaluated for permissive change. The product sample received on Dec. 05, 2017 and completely tested on Jan. 25, 2018. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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


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PHOTOGRAPHS OF EUT V01



Summary of Test Result

Conformance Test Specifications			
Report Clause	Ref. Std. Clause	Description	Result
1.1.2	15.203	Antenna Requirement	Complied
3.1	15.207	AC Power-line Conducted Emissions	Complied
3.2	15.407(a)	Emission Bandwidth	Complied
3.3	15.407(a)	Maximum Conducted Output Power	Complied
3.4	15.407(a)	Peak Power Spectral Density	Complied
3.5	15.407(b)	Unwanted Emissions	Complied
3.6	15.407(g)	Frequency Stability	Complied



1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5150-5250	a, n (HT20), ac (VHT20)	5180-5240	36-48 [4]
5250-5350		5260-5320	52-64 [4]
5150-5250	n (HT40), ac (VHT40)	5190-5230	38-46 [2]
5250-5350		5270-5310	54-62 [2]
5150-5250	ac (VHT80)	5210	42 [1]
5250-5350		5290	58 [1]

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	4TX
5.25-5.35GHz	802.11a	20	4TX
5.15-5.25GHz	802.11ac VHT20	20	4TX
5.25-5.35GHz	802.11ac VHT20	20	4TX
5.15-5.25GHz	802.11ac VHT40	40	4TX
5.25-5.35GHz	802.11ac VHT40	40	4TX
5.15-5.25GHz	802.11ac VHT80	80	4TX
5.25-5.35GHz	802.11ac VHT80	80	4TX

Note:

- ♦ 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ VHT20, VHT40, VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- ♦ BWch is the nominal channel bandwidth.



1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	-	-	Internal Antenna	I-PEX	10
						15
2	2	-	-	Internal Antenna	I-PEX	10
						15
3	3	-	-	Internal Antenna	I-PEX	10
						15
4	4	-	-	Internal Antenna	I-PEX	10
						15

Note: 1: 802.11an/ac used four antennas are for signal transmitting and receiving.(4T4R Spatial Multiplexing MIMO configuration)

1.1.3 EUT Information

Operational Condition	
EUT Power Type	From Host System
RF Chip	QCA9984
Type of EUT	
<input type="checkbox"/>	Stand-alone
<input type="checkbox"/>	Combined (EUT where the radio part is fully integrated within another device)
	Combined Equipment - Brand Name / Model No.: ...
<input checked="" type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems)
	Host System - Brand Name / Model No.: UBIQUITI / UWB-XG, UWB-XG-BK
<input type="checkbox"/>	Other:



1.1.4 Mode Test Duty Cycle

Non-Beamforming

<Antenna Gain 10 dBi>

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11a	0.972	0.123	2.069m	1k
802.11ac VHT20	0.989	0.048	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ac VHT40	0.977	0.101	2.441m	1k
802.11ac VHT80	0.953	0.209	1.153m	1k

<Antenna Gain 15 dBi>

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11a	0.967	0.146	2.066m	1k
802.11ac VHT20	0.982	0.079	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ac VHT40	0.969	0.137	2.437m	1k
802.11ac VHT80	0.932	0.306	1.143m	1k

Beamforming

<Antenna Gain 10 dBi>

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11ac VHT20-BF	0.937	0.283	1.974m	1k
802.11ac VHT40-BF	0.922	0.353	1.694m	1k
802.11ac VHT80-BF	0.92	0.362	1.949m	1k

<Antenna Gain 15 dBi>

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11ac VHT20-BF	0.937	0.283	1.974m	1k
802.11ac VHT40-BF	0.922	0.353	1.694m	1k
802.11ac VHT80-BF	0.92	0.362	1.949m	1k



1.1.5 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FR661623-20

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. Enable indoor and outdoor operation. 2. Enable AP mode. 3. Enable 5GHz transmit beamforming operation in Band1+2 by software. 4. Disable VHT80+80 indoor and outdoor operations.	All



1.2 Testing Applied 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
- ◆ KDB 789033 D02 v02r01
- ◆ KDB 662911 D01 v02r01

1.3 Testing Location Information

Testing Location		
<input checked="" 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
Test site Designation No. TW1190 with FCC.		
<input type="checkbox"/>	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.) TEL : 886-3-656-9065 FAX : 886-3-656-9085
Test site Designation No. TW0006 with FCC.		

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Barry	22.8°C / 65%	18/Jan/2018
Radiated	03CH09-HY	Eric	25.8°C / 55%	10/Jan/2018
AC Conduction	CO04-HY	Thor	24.5°C / 53%	25/Jan/2018

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)	3.6 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Condition

Condition Item	Abbreviation/Remark	Remark
RF Conducted	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	120V
Freq. Stability	Abbreviation	Remark
-10°C	-	-
0°C	-	-
10°C	-	-
20°C	-	-
30°C	-	-
40°C	-	-
50°C	-	-
60°C	-	-
70°C	-	-
102V	-	-
120V	-	-
138V	-	-

2.2 Test Channel Mode

Non-Beamforming

Test Software Version	QDART 00037.27
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Beamforming

Test Software Version	Dos,Lantest
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2.3 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	PoE Mode (5G TXBF)

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

The Worst Case Mode for Following Conformance Tests			
Tests Item	Unwanted Emissions		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode	CTX		
1	PoE Mode (5G TXBF)		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT		V	



2.4 Support Equipment

Support Equipment – RF Conducted (Non-Beamforming)				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	DoC
2	Adapter for NB	DELL	HA65NM130	DoC
3	PoE	UBIQUITI	GP-C500-120G	N/A
4	Adapter for PoE	D-LinK	DSA-0421S-50	N/A
5	AC Source	GW	APS-9102	N/A
6	Test Fixture	N/A	N/A	N/A

Note: Support equipment No.6 was provided by customer.

Support Equipment – RF Conducted (Beamforming)				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook*2	DELL	E5410	DoC
2	Adapter for NB*2	DELL	HA65NM130	DoC
3	PoE*2	UBIQUITI	GP-C500-120G	N/A
4	Adapter for PoE*2	D-LinK	DSA-0421S-50	N/A
5	AC Source	GW	APS-9102	N/A
6	Test Fixture	N/A	N/A	N/A

Note: Support equipment No.6 was provided by customer.

Support Equipment – Radiated Emission (Beamforming)				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Fixture	N/A	N/A	N/A
2	Client (Remote Workstation)	UBNT	4x4-5GH_C2PC	N/A
3	Notebook for EUT (Remote Workstation)	DELL	E4300	N/A
4	Notebook for Client (Remote Workstation)	DELL	E4300	N/A
5	PoE for Fixture (Remote Workstation)	UBIQUITI	GP-C500-120G	N/A
6	PoE for Client (Remote Workstation)	UBIQUITI	GP-C500-120G	N/A

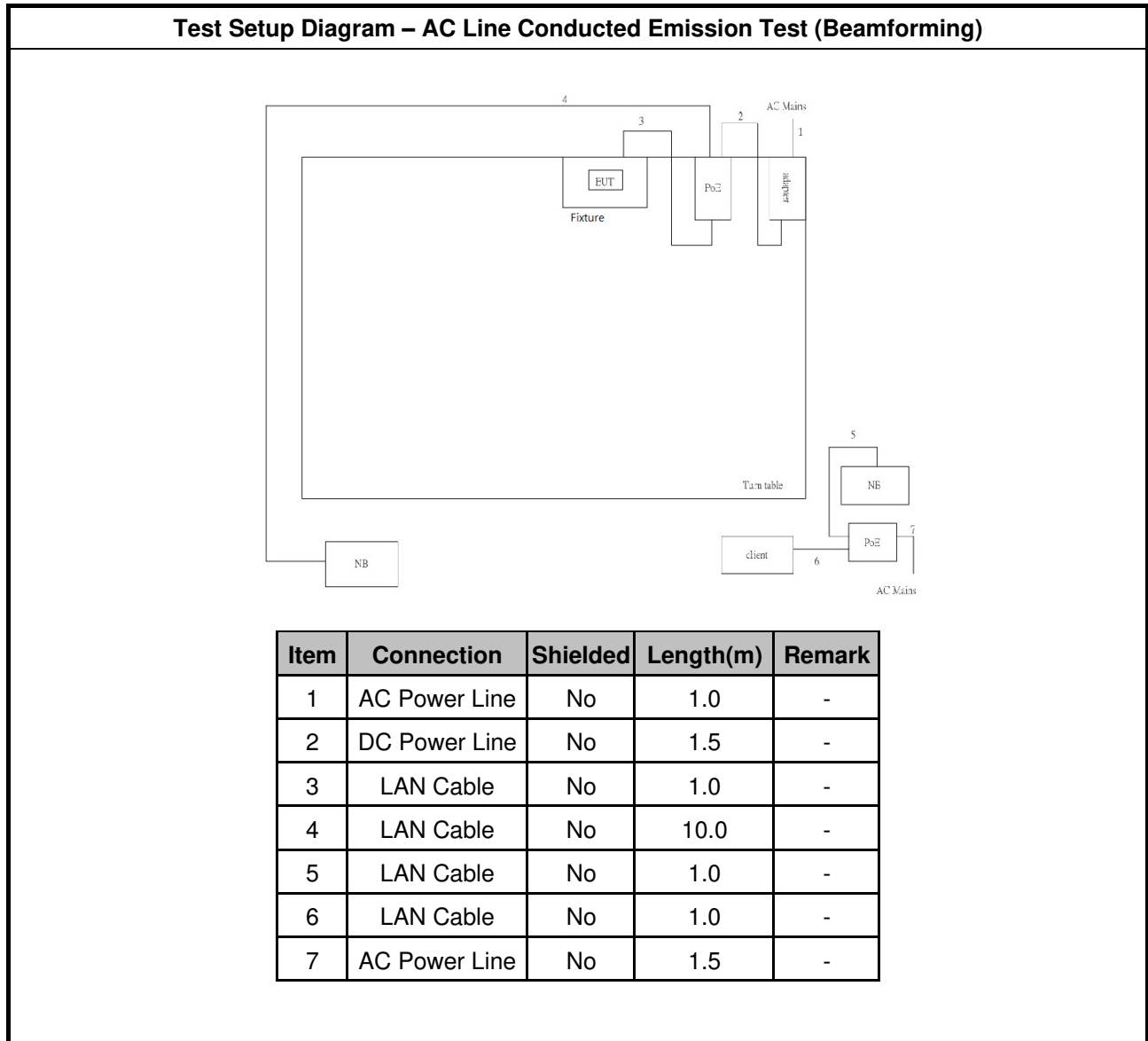
Note: Support equipment No.1&4 was provided by customer.



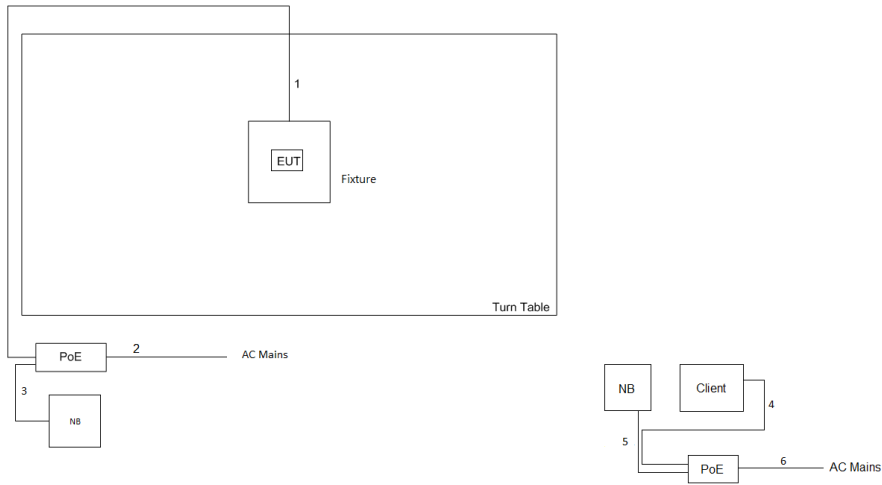
Support Equipment – AC Conduction (Beamforming)				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Fixture	N/A	N/A	N/A
2	PoE	UBIQUITI	GP-C500-120G	N/A
3	Adapter for PoE	D-Link	DSA-0421S-50	N/A
4	Client (Remote Workstation)	UBNT	4x4-5GH_C2PC	N/A
5	Notebook for Client (Remote Workstation)	DELL	E4300	N/A
6	PoE for Client (Remote Workstation)	UBIQUITI	GP-C500-120G	N/A
7	Notebook for EUT (Remote Workstation)	DELL	E4300	N/A

Note: Support equipment No.1&4 was provided by customer.

2.5 Test Setup Diagram



Test Setup Diagram - Radiated Test (Beamforming)



Item	Connection	Shielded	Length(m)	Remark
1	RJ-45 Cable	No	10.0	-
2	AC power line	No	1.0	-
3	RJ-45Cable	No	1.0	-
4	RJ-45 Cable	No	1.0	-
5	RJ-45Cable	No	1.0	-
6	AC power line	No	1.8	-

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.

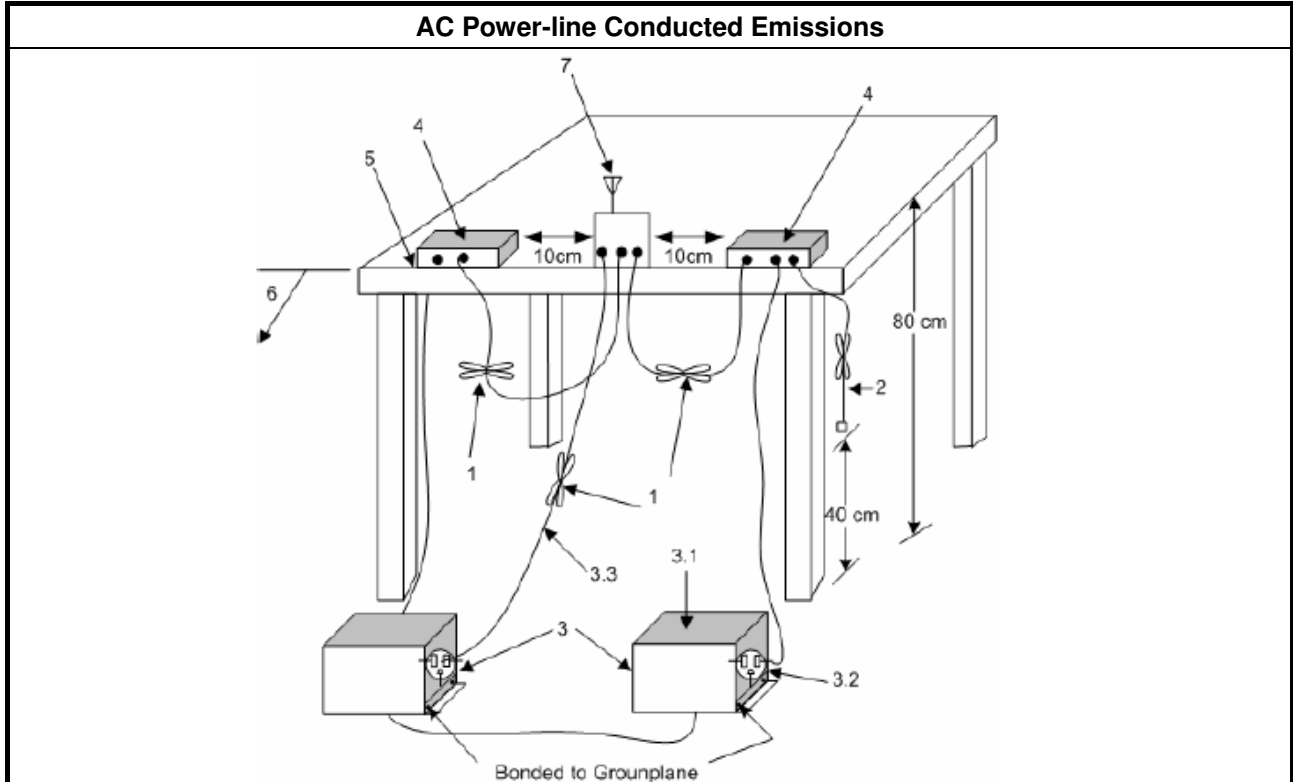
3.1.2 Measuring Instruments

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



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

Emission Bandwidth Limit	
UNII Devices	
<input checked="" type="checkbox"/>	For the 5.15-5.25 GHz band, N/A
<input checked="" type="checkbox"/>	For the 5.25-5.35 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.
<input type="checkbox"/>	For the 5.47-5.725 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.
<input type="checkbox"/>	For the 5.725-5.85 GHz band, 6 dB emission bandwidth ≥ 500kHz.

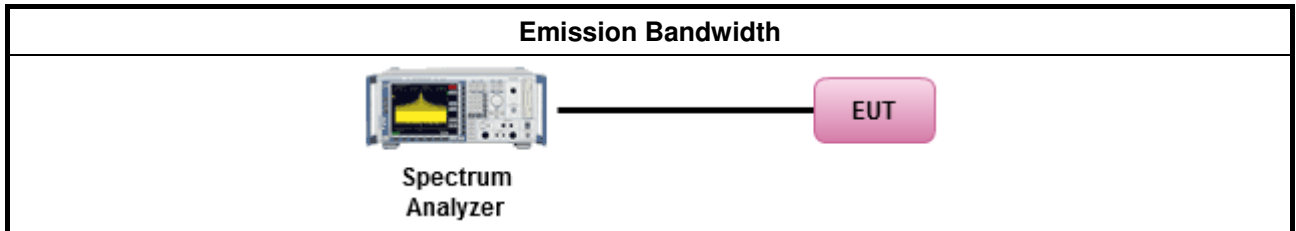
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> ▪ For the emission bandwidth shall be measured using one of the options below: 	
<input checked="" type="checkbox"/>	Refer as KDB 789033, clause C for EBW and clause D for OBW measurement.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.
<input type="checkbox"/>	Refer as IC RSS-Gen, clause 6.6 for 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	
UNII Devices	
<input checked="" type="checkbox"/> For the 5.15-5.25 GHz band:	
	<ul style="list-style-type: none"> ▪ Outdoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. e.i.r.p. at any elevation angle above 30 degrees ≤ 125mW [21dBm] ▪ Indoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ ▪ Point-to-point AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$. ▪ Mobile or Portable Client: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
<input checked="" type="checkbox"/> For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.	
<input type="checkbox"/> For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.	
<input type="checkbox"/> For the 5.725-5.85 GHz band:	
	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. ▪ Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
P_{Out} = maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

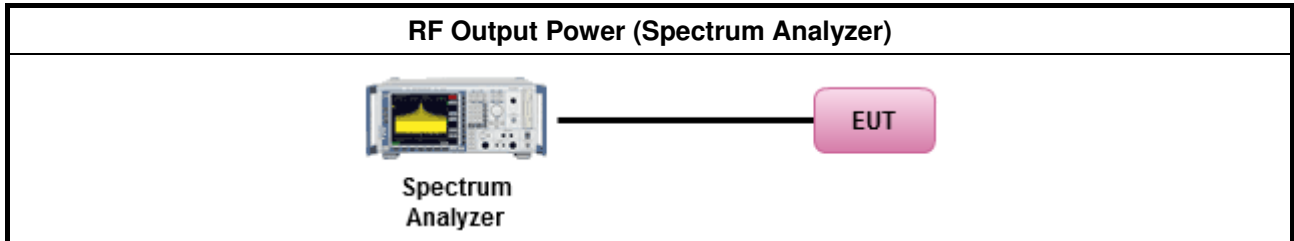
3.3.2 Measuring Instruments

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 Conducted Output Power 	
Duty cycle $\geq 98\%$	
<input type="checkbox"/>	Refer as KDB 789033, clause E Method SA-2 (spectral trace averaging).
Duty cycle $< 98\%$	
<input type="checkbox"/>	Refer as KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
Wideband RF power meter and average over on/off periods with duty factor	
<input checked="" type="checkbox"/>	Refer as KDB 789033, clause E Method PM (using an RF average power meter).
<ul style="list-style-type: none"> For conducted measurement. 	
<ul style="list-style-type: none"> If the EUT supports multiple transmit chains using options given below: Refer as 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. 	
<ul style="list-style-type: none"> 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 Peak Power Spectral Density

3.4.1 Peak Power Spectral Density Limit

Peak Power Spectral Density Limit	
UNII Devices	
<input checked="" type="checkbox"/> For the 5.15-5.25 GHz band:	
	▪ Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$.
	▪ Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$.
	▪ Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 23$ dBi, then $P_{Out} = 17 - (G_{TX} - 23)$.
	▪ Mobile or Portable Client: the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$.
<input checked="" type="checkbox"/> For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$.	
<input type="checkbox"/> For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$.	
<input type="checkbox"/> For the 5.725-5.85 GHz band:	
	▪ Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then $PPSD = 30 - (G_{TX} - 6)$.
	▪ Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
PPSD = peak power spectral density that he same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz G_{TX} = the maximum transmitting antenna directional gain in dBi.	

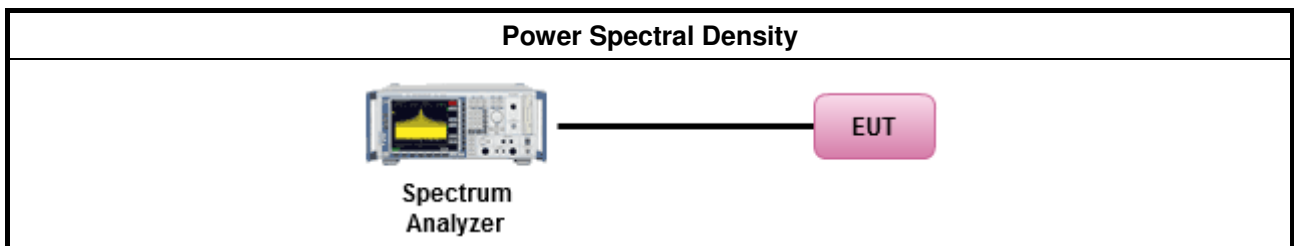
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> ▪ Peak power spectral density procedures that the same method as used to determine the conducted output power shall be used to determine the peak power spectral density and use the peak search function on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density shall be measured using below options: 	
<input type="checkbox"/>	Refer as KDB 789033, F5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth
Duty cycle ≥ 98%	
<input checked="" type="checkbox"/>	Refer as KDB 789033, clause E Method SA-2 (spectral trace averaging).
Duty cycle < 98%	
<input checked="" type="checkbox"/>	Refer as KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
<ul style="list-style-type: none"> ▪ For conducted measurement. 	
<ul style="list-style-type: none"> ▪ If the EUT supports multiple transmit chains using options given below: <ul style="list-style-type: none"> ▪ Measure and sum the spectra across the outputs. Refer as 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. ▪ If multiple transmit chains, EIRP PPSD calculation could be following as methods: $PPSD_{total} = PPSD_1 + PPSD_2 + \dots + PPSD_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = PPSD_{total} + DG$ 	

3.4.4 Test Setup



3.4.5 Test Result of Peak Power Spectral Density

Refer as Appendix D



3.5 Unwanted Emissions

3.5.1 Transmitter Radiated Unwanted Emissions Limit

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

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

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



Un-restricted band emissions above 1GHz Limit	
Operating Band	Limit
5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.725 - 5.85 GHz	5.650-5700 GHz: e.i.r.p. -27 ~ 10 dBm [68.2 ~ 105.2 dBuV/m@3m] 5.700-5720 GHz: e.i.r.p. 10 ~ 15.6 dBm [105.2 ~ 110.8 dBuV/m@3m] 5.720-5725 GHz: e.i.r.p. 15.6 ~ 27 dBm [110.8 ~ 122.2 dBuV/m@3m] 5.850-5.855 GHz: e.i.r.p. 27 ~ 15.6 dBm [122.2 ~ 110.8 dBuV/m@3m] 5.855-5.875 GHz: e.i.r.p. 15.6 ~ 10 dBm [110.8 ~ 105.2 dBuV/m@3m] 5.875-5.925 GHz: e.i.r.p. 10 ~ -27 dBm [105.2 ~ 68.2dBuV/m@3m] Other un-restricted band: e.i.r.p. -27 dBm [68.2 dBuV/m@3m]

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

3.5.2 Measuring Instruments

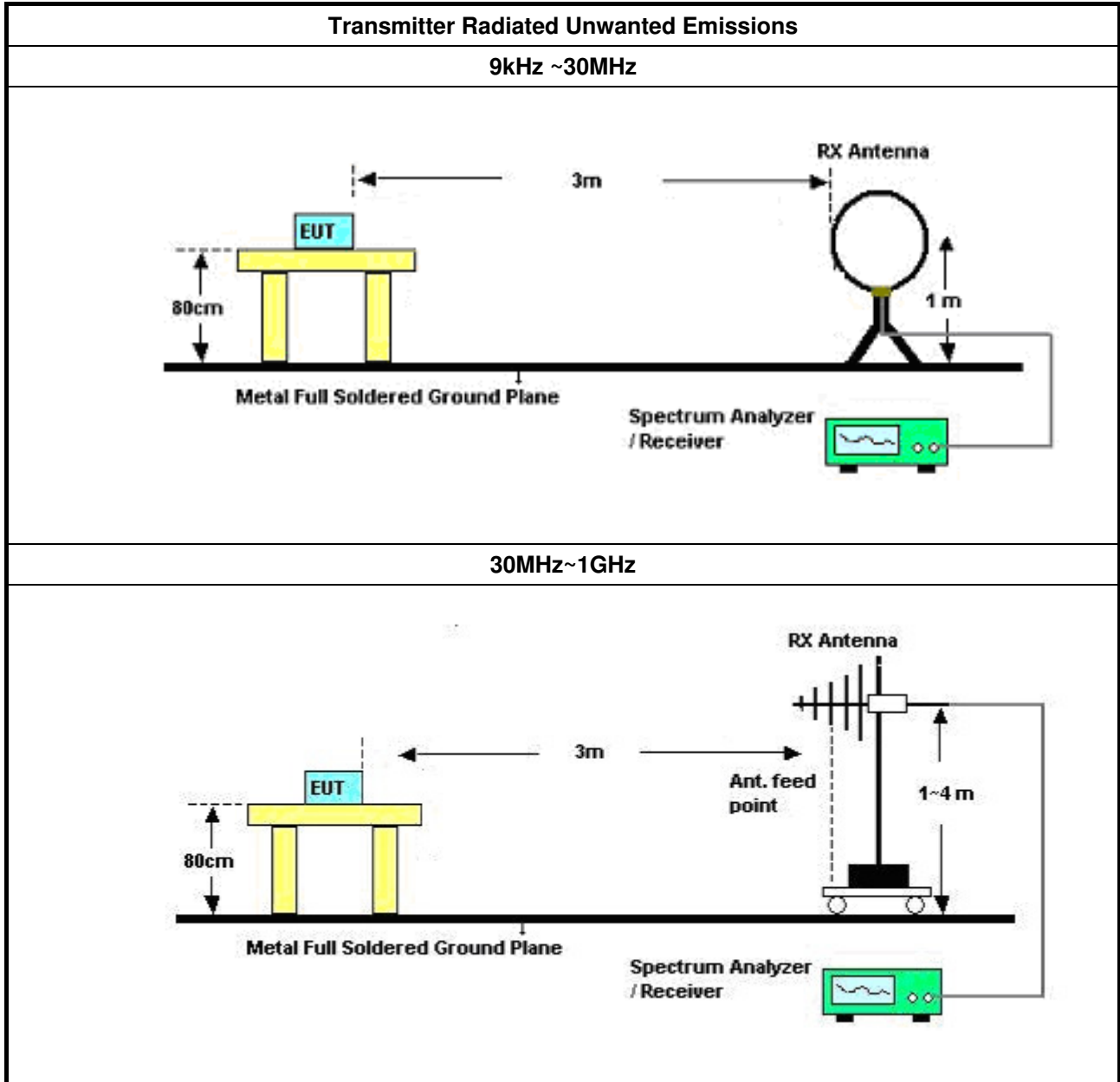
Refer a test equipment and calibration data table in this test report.

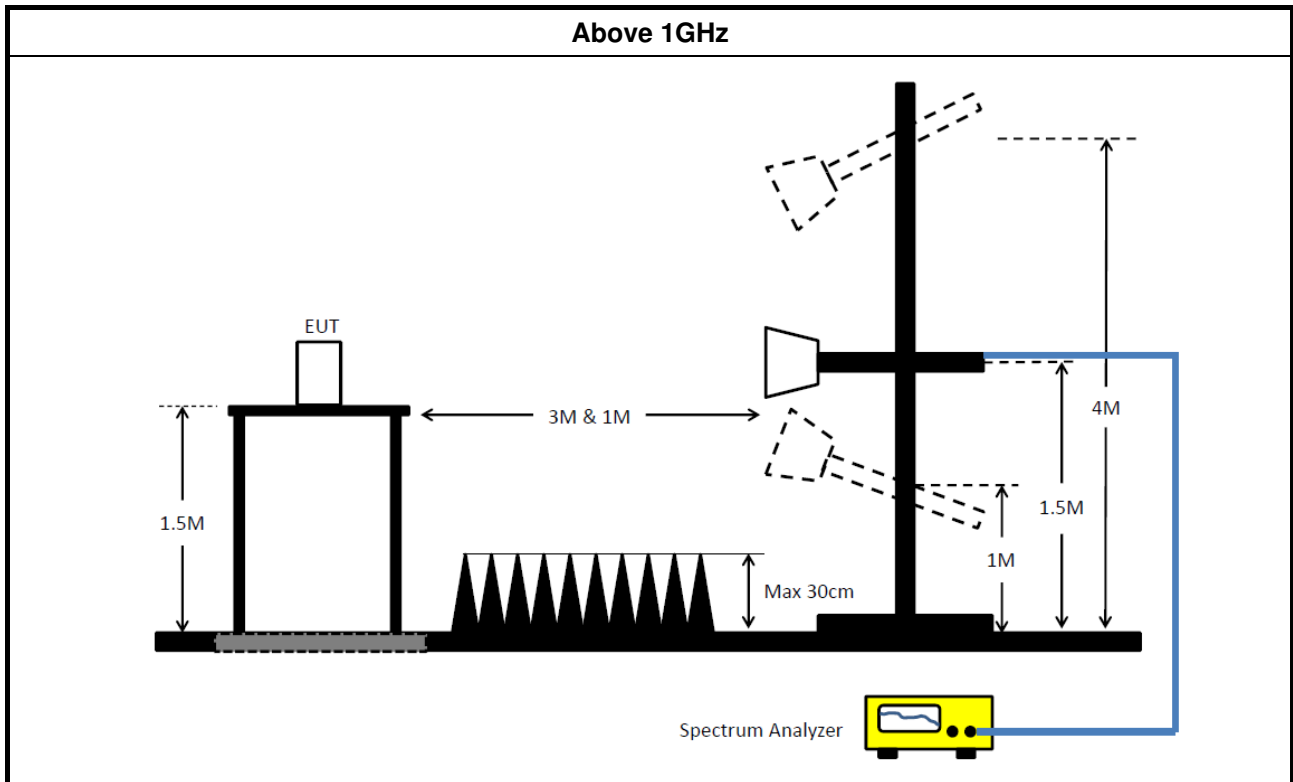


3.5.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> ▪ Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements). 	
<ul style="list-style-type: none"> ▪ The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor]. 	
<ul style="list-style-type: none"> ▪ For the transmitter unwanted emissions shall be measured using following options below: 	
	<ul style="list-style-type: none"> ▪ Refer as KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.
	<ul style="list-style-type: none"> ▪ Refer as KDB 789033, clause G)1) for unwanted emissions into restricted bands.
	<input checked="" type="checkbox"/> Refer as KDB 789033, G)6) Method VB (ANSI C63.10, clause 4.1.4.2.3), Reduced VBW.
	<input checked="" type="checkbox"/> Refer as KDB 789033, clause G)5) (ANSI C63.10, clause 4.1.4.2.2), measurement procedure peak limit.
<ul style="list-style-type: none"> ▪ For radiated measurement. 	
	<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
	<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
	<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
<ul style="list-style-type: none"> ▪ The any unwanted emissions level shall not exceed the fundamental emission level. 	
<ul style="list-style-type: none"> ▪ All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported. 	

3.5.4 Test Setup





3.5.5 Transmitter Unwanted Emissions (Below 30MHz)

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

3.5.6 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E

3.6 Frequency Stability

3.6.1 Frequency Stability Limit

Frequency Stability Limit	
UNII Devices	
<ul style="list-style-type: none"> In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual. 	
IEEE Std. 802.11	
<ul style="list-style-type: none"> The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band. 	

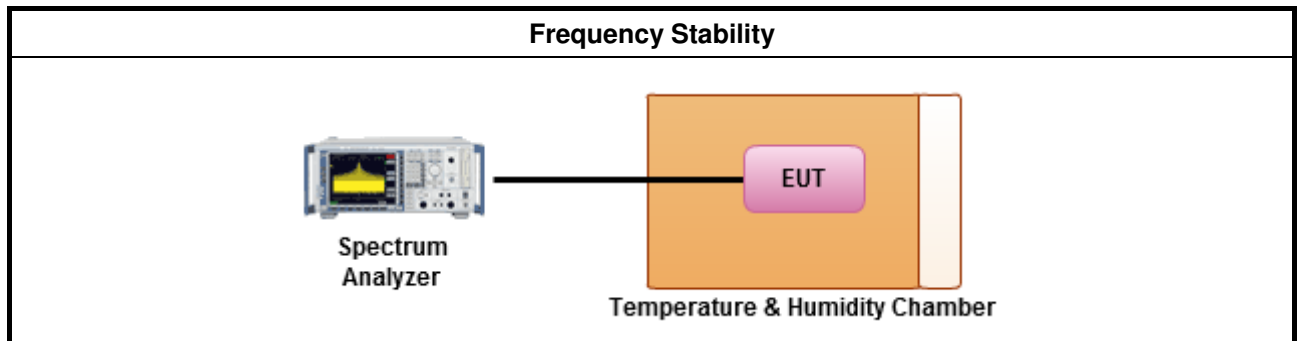
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> Refer as ANSI C63.10, clause 6.8 for frequency stability tests 	
<ul style="list-style-type: none"> Frequency stability with respect to ambient temperature 	
<ul style="list-style-type: none"> Frequency stability when varying supply voltage 	

3.6.4 Test Setup



3.6.5 Test Result of Frequency Stability

Refer as Appendix F



4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR3	102052	9KHz ~ 3.6GHz	29/Apr/2017	28/Apr/2018
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9kHz ~ 30MHz	06/Oct/2017	05/Oct/2018
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9 kHz ~ 30 MHz	12/Oct/2017	11/Oct/2018
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	17/Nov/2017	16/Nov/2018

NCR : Non-Calibration Require

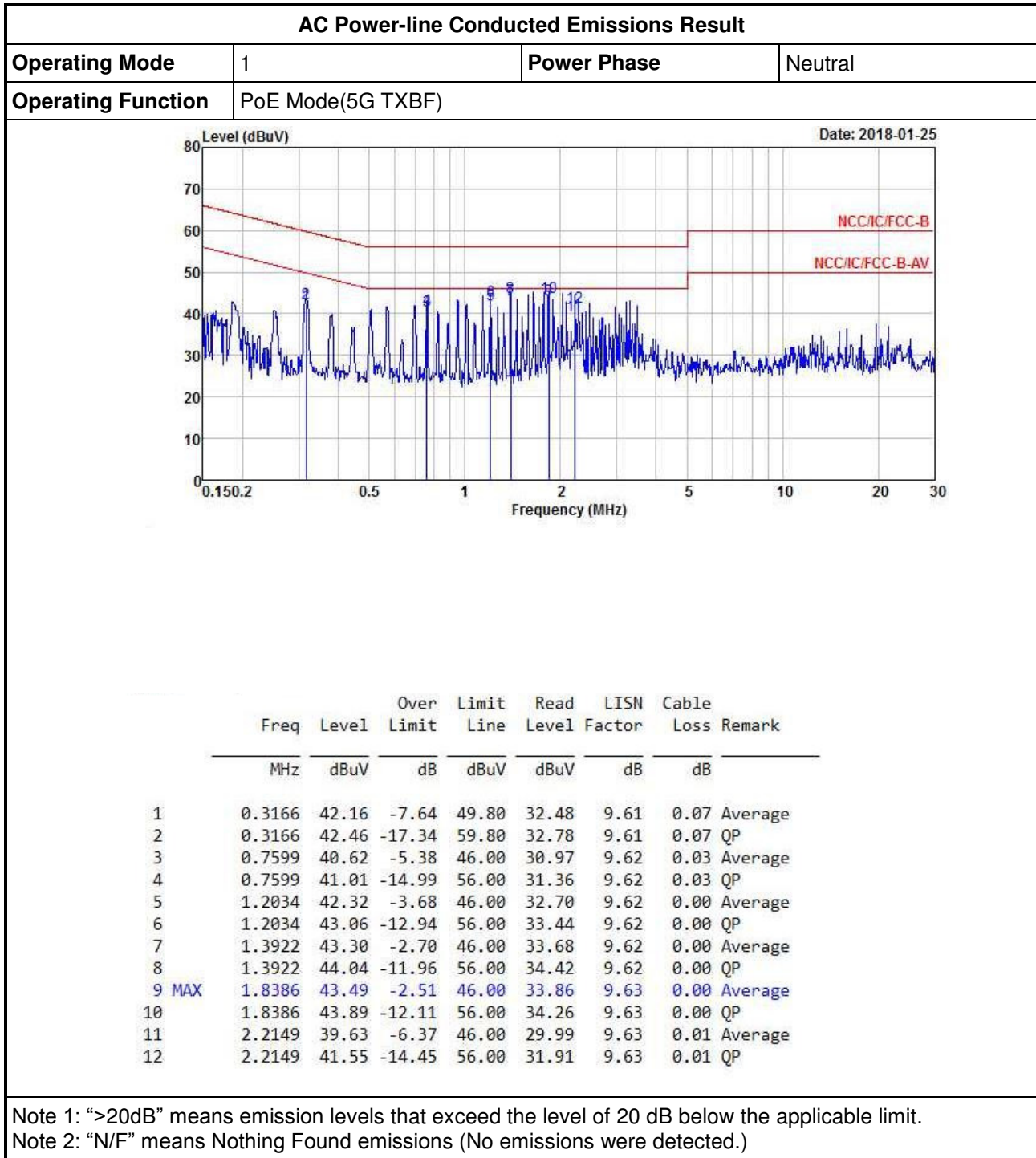
Instrument for Radiated Test

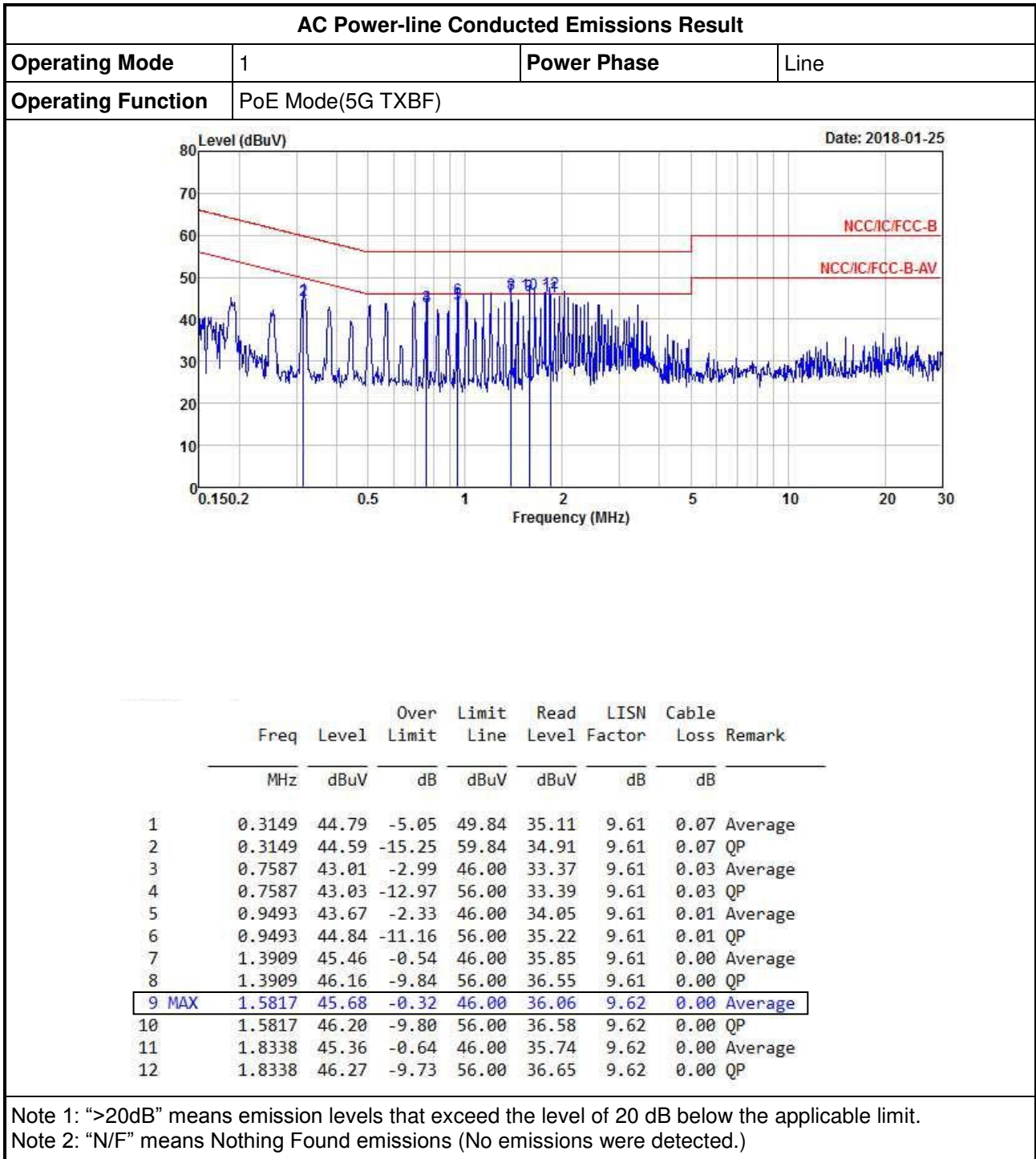
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz ~ 1GHz	25/Apr/2017	24/Apr/2018
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz	21/Jun/2017	20/Jun/2018
Amplifier	Agilent	8449B	3008A02096	1GHz ~ 26.5GHz	25/Apr/2017	24/Apr/2018
Amplifier	EMC	EMC9135	980232	9KHz~1GHz	25/Apr/2017	24/Apr/2018
Spectrum Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz ~ 44GHz	20/Jul/2017	19/Jul/2018
Bilog Antenna	TESEQ	CBL 6111D	35418	30MHz~1GHz	09/Sep/2017	08/Sep/2018
Horn Antenna	SCHWARZBECK	BBHA 9120D	BBHA9120D 1534	1GHz~18GHz	28/Apr/2017	27/Apr/2018
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170614	18GHz ~ 40GHz	06/Feb/2017	05/Feb/2018
Amplifier	MITEQ	JS44-18004000 -33-8P	1840917	18GHz ~ 40GHz	06/Feb/2017	05/Feb/2018
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	02/Feb/2017	01/Feb/2018
RF Cable-high	Jye Bao	RG142	03CH09-HY	1GHz ~ 40GHz	02/Feb/2017	01/Feb/2018
Receiver	R&S	ESR3	102052	9KHz ~ 3.6GHz	29/Apr/2017	28/Apr/2018
Loop Antenna	TESEQ	HLA 6120	31244	9KHz-30MHz	02/Mar/2017	01/Mar/2018



Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	10Hz~40GHz	30/Dec/2016	29/Dec/2017
Power Sensor	Anritsu	MA2411B	1027452	300MHz ~ 40GHz	24/Feb/2017	23/Feb/2018
Power Meter	Anritsu	ML2495A	1124009	300MHz ~ 40GHz	24/Feb/2017	23/Feb/2018
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	27/Jul/2017	26/Jul/2018
Temp. and Humidity Chamber	Giant Force	GTH-225-40-CP-AR	MAA1611-005	-40 ~ 100°C	21/Nov/2016	20/Nov/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY677/3	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY678/3	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.5m	HUBER+SUHNER	SUCOFLEX_104	MY10717/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-1.5m	HUBER+SUHNER	SUCOFLEX_104	MY12586/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018







EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	19.85M	16.442M	16M4D1D	19.2M	16.392M
802.11ac VHT20_Nss1,(MCS0)_4TX	20.725M	17.641M	17M6D1D	19.95M	17.591M
802.11ac VHT40_Nss1,(MCS0)_4TX	40.15M	36.032M	36M0D1D	39.15M	35.882M
802.11ac VHT80_Nss1,(MCS0)_4TX	83.5M	75.762M	75M8D1D	82.3M	75.562M
5.25-5.35GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	19.675M	16.442M	16M4D1D	19.275M	16.392M
802.11ac VHT20_Nss1,(MCS0)_4TX	20.625M	17.666M	17M7D1D	19.975M	17.566M
802.11ac VHT40_Nss1,(MCS0)_4TX	39.9M	36.032M	36M0D1D	39.2M	35.932M
802.11ac VHT80_Nss1,(MCS0)_4TX	83.2M	75.762M	75M8D1D	82.7M	75.562M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;



EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master

Appendix B.1

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)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	19.575M	16.392M	19.35M	16.392M	19.225M	16.392M	19.5M	16.417M
5200MHz_TnomVnom	Pass	Inf	19.425M	16.417M	19.575M	16.417M	19.2M	16.417M	19.225M	16.417M
5240MHz_TnomVnom	Pass	Inf	19.65M	16.392M	19.425M	16.442M	19.45M	16.392M	19.85M	16.392M
5260MHz_TnomVnom	Pass	Inf	19.275M	16.392M	19.35M	16.442M	19.525M	16.442M	19.675M	16.417M
5300MHz_TnomVnom	Pass	Inf	19.4M	16.417M	19.475M	16.417M	19.4M	16.442M	19.425M	16.417M
5320MHz_TnomVnom	Pass	Inf	19.475M	16.392M	19.65M	16.417M	19.375M	16.392M	19.475M	16.392M
802.11ac_VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	20.5M	17.641M	20.475M	17.616M	20.5M	17.591M	20.4M	17.591M
5200MHz_TnomVnom	Pass	Inf	20.575M	17.591M	20.55M	17.641M	20.5M	17.616M	20.4M	17.616M
5240MHz_TnomVnom	Pass	Inf	19.95M	17.616M	20.4M	17.641M	20.725M	17.616M	20.525M	17.616M
5260MHz_TnomVnom	Pass	Inf	20.575M	17.616M	20.425M	17.616M	20.55M	17.616M	20.35M	17.616M
5300MHz_TnomVnom	Pass	Inf	19.975M	17.591M	20.4M	17.616M	20.5M	17.591M	20.25M	17.616M
5320MHz_TnomVnom	Pass	Inf	20.425M	17.591M	20.525M	17.666M	20.625M	17.591M	20.325M	17.566M
802.11ac_VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	Inf	39.9M	35.882M	39.85M	35.882M	39.2M	35.882M	39.15M	35.932M
5230MHz_TnomVnom	Pass	Inf	40.15M	35.982M	39.85M	35.932M	39.9M	35.982M	39.25M	36.032M
5270MHz_TnomVnom	Pass	Inf	39.8M	35.982M	39.55M	35.932M	39.65M	36.032M	39.35M	36.032M
5310MHz_TnomVnom	Pass	Inf	39.9M	35.932M	39.65M	35.932M	39.3M	35.932M	39.2M	35.932M
802.11ac_VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	Inf	83.3M	75.662M	83.5M	75.662M	82.9M	75.762M	82.3M	75.562M
5290MHz_TnomVnom	Pass	Inf	82.7M	75.662M	83.1M	75.562M	83.2M	75.662M	82.8M	75.762M

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



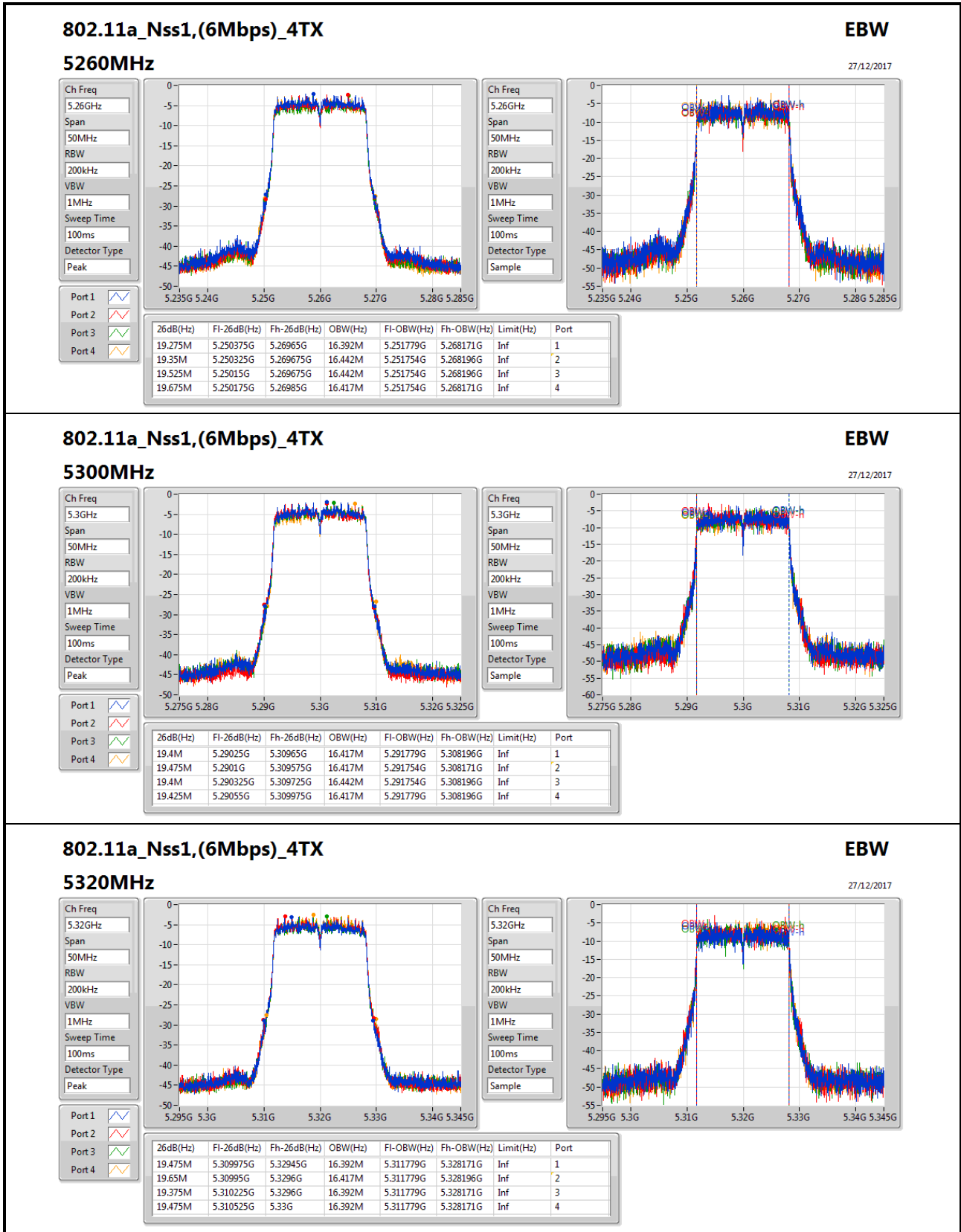
**EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master**





**EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master**

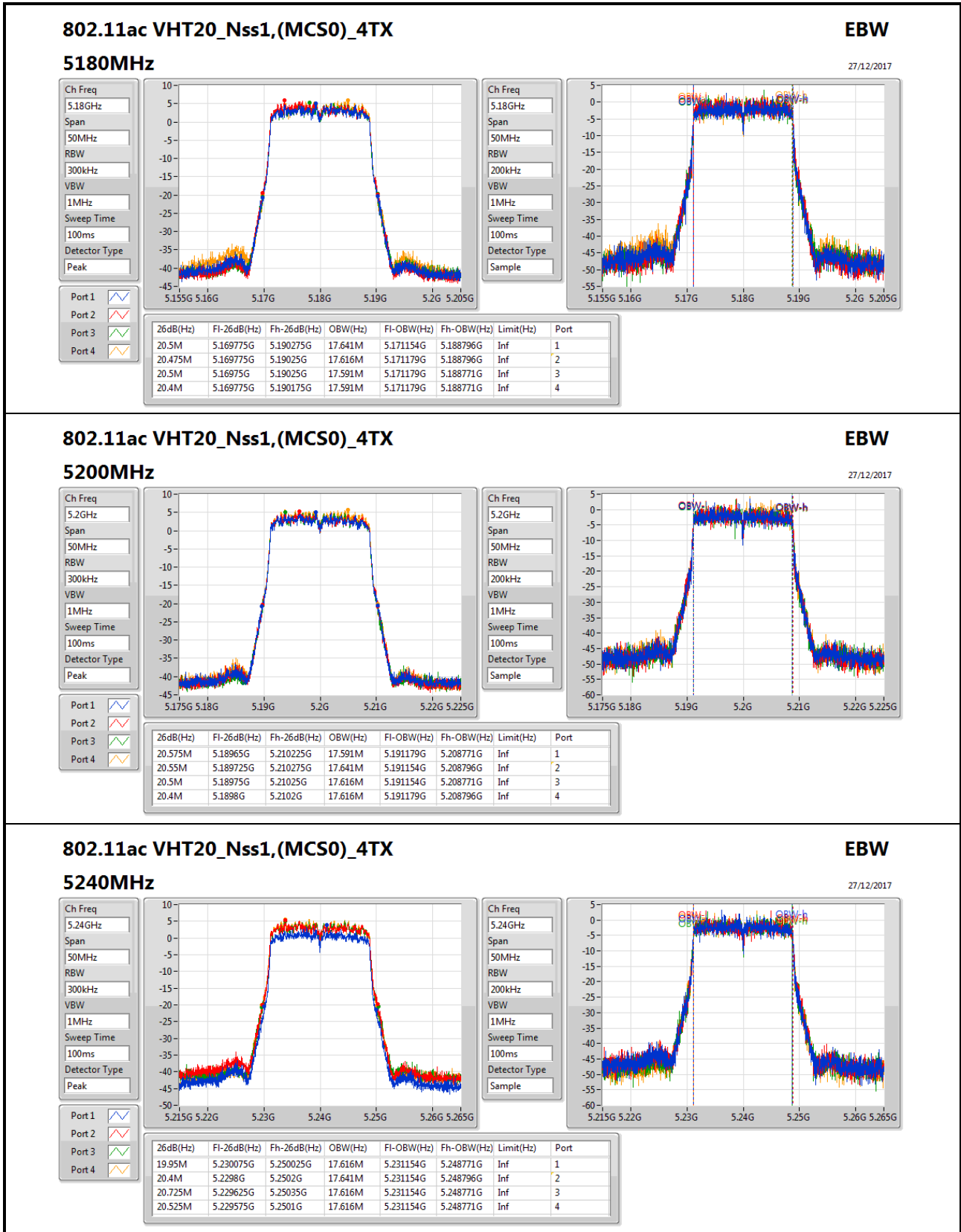
Appendix B.1





**EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master**

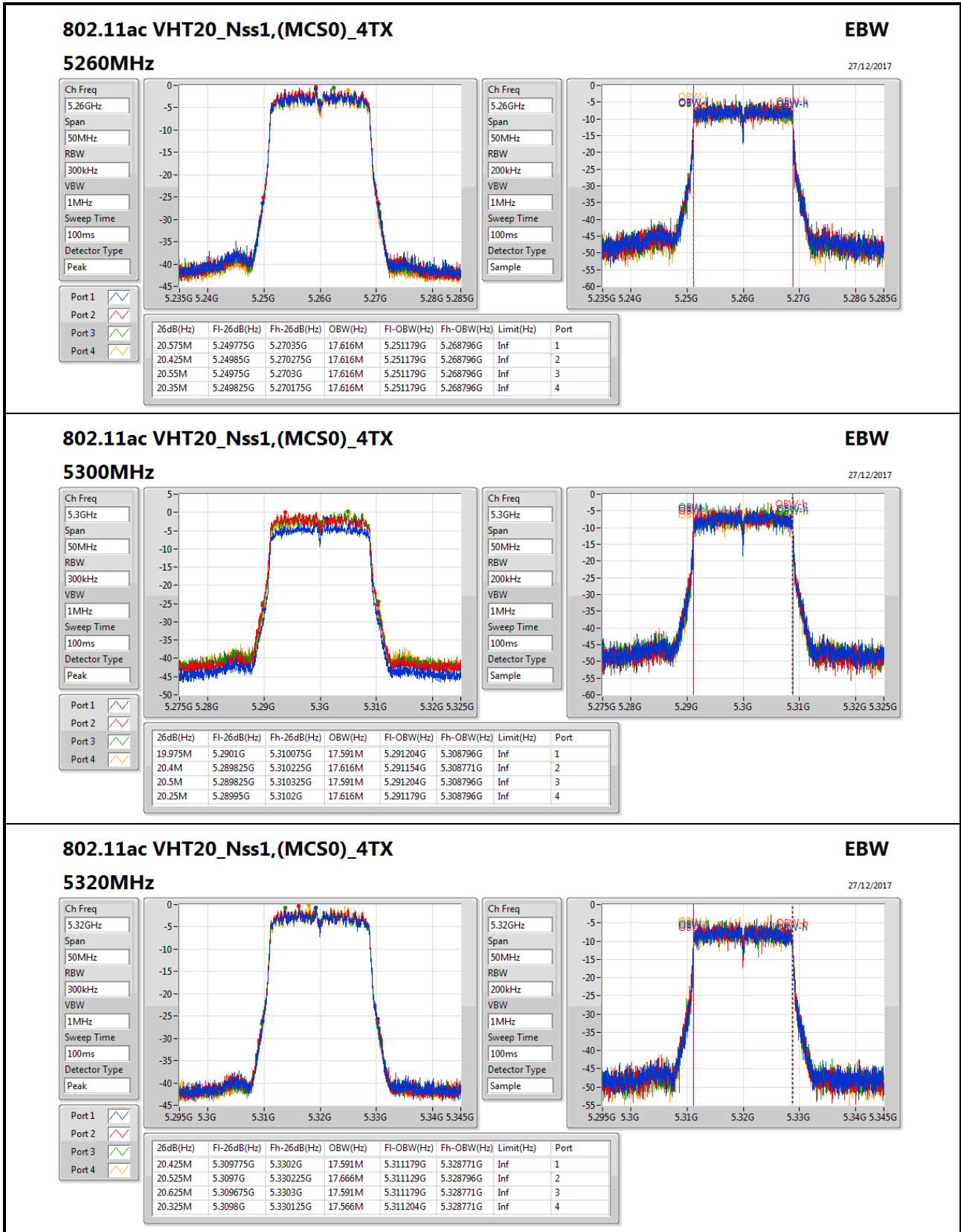
Appendix B.1





EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master

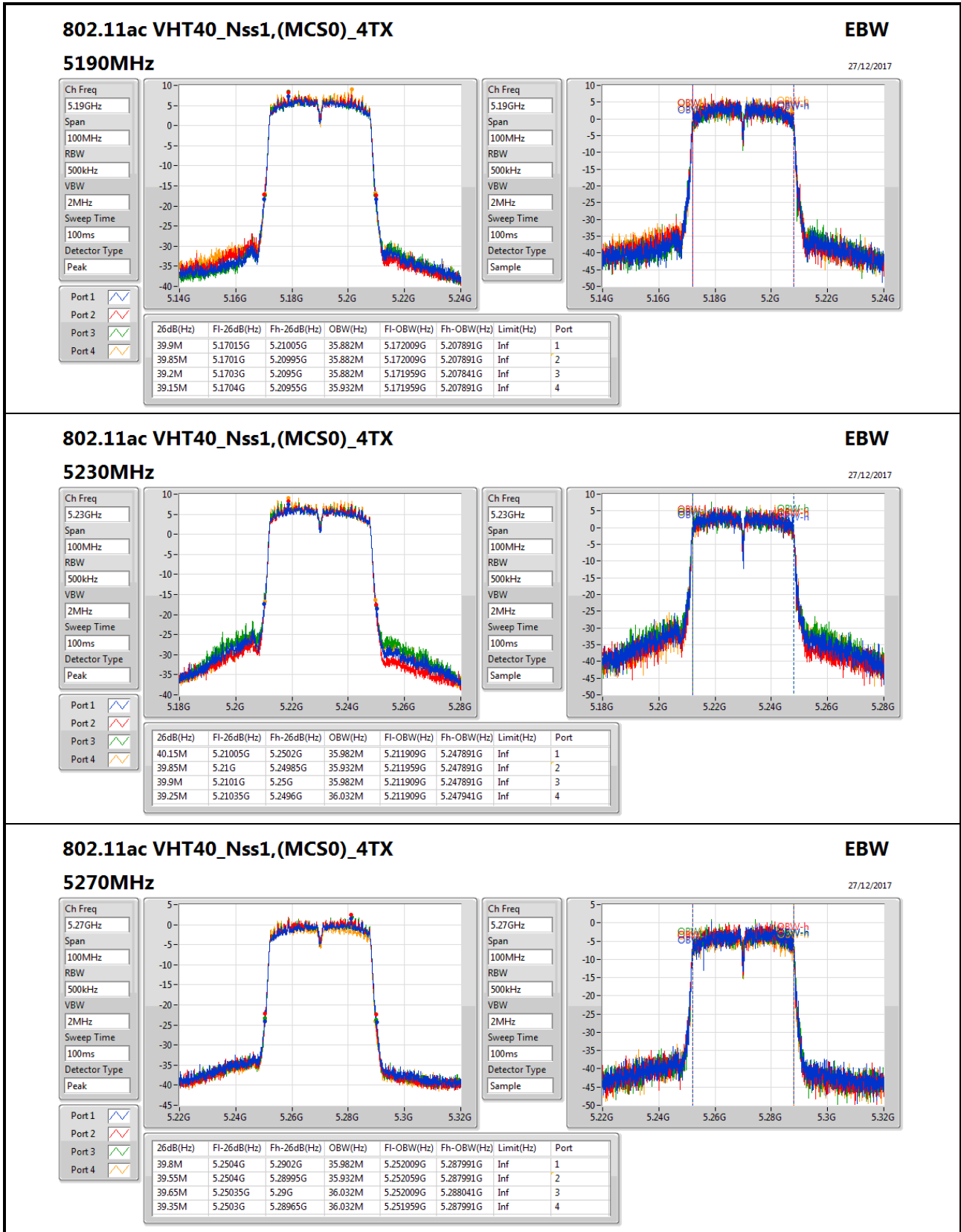
Appendix B.1





**EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master**

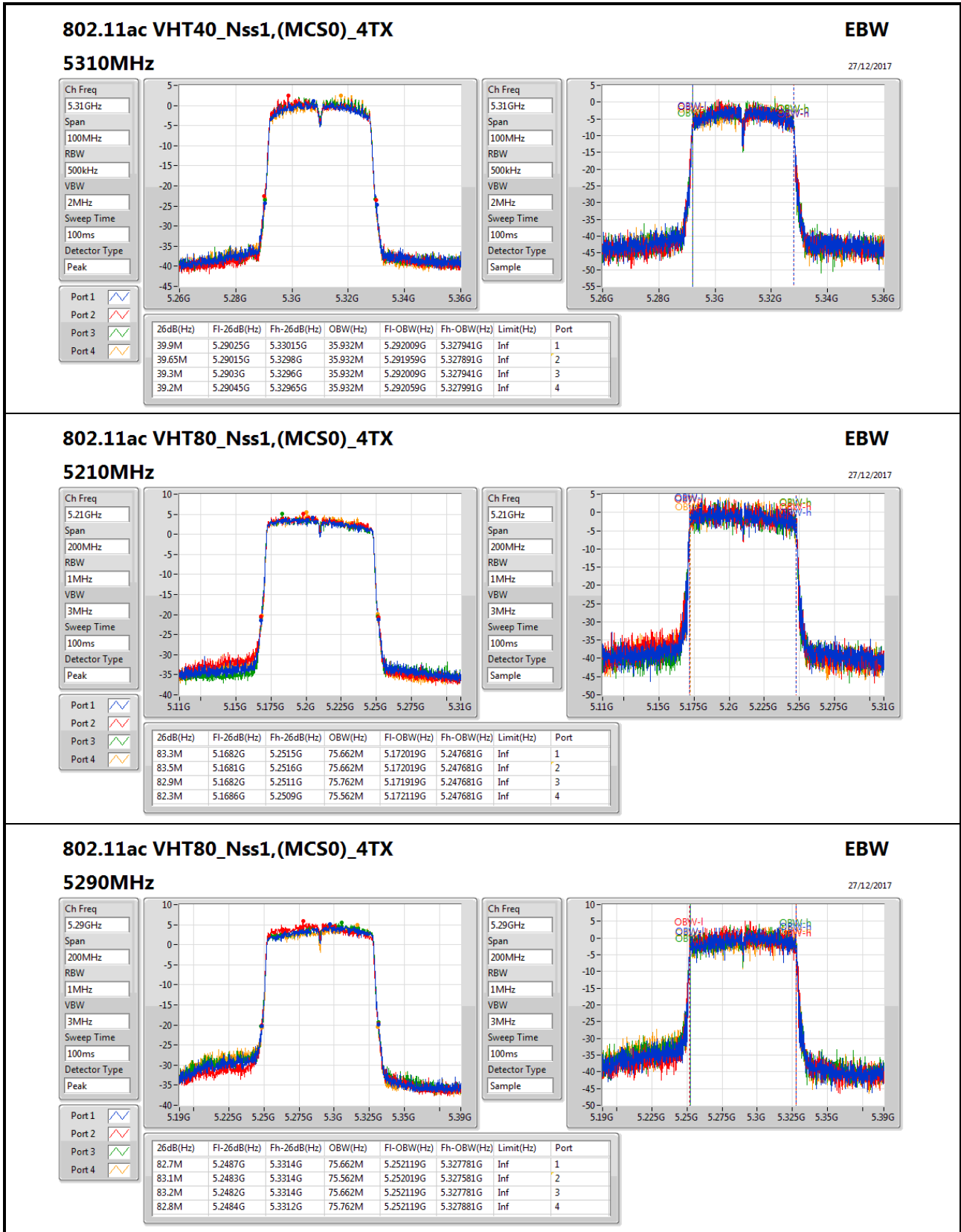
Appendix B.1





EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master

Appendix B.1



802.11ac VHT80_Nss1,(MCS0)_4TX

5290MHz

EBW
27/12/2017

Ch Freq: 5.29GHz
 Span: 200MHz
 RBW: 1MHz
 VBW: 3MHz
 Sweep Time: 100ms
 Detector Type: Peak

Ch Freq: 5.29GHz
 Span: 200MHz
 RBW: 1MHz
 VBW: 3MHz
 Sweep Time: 100ms
 Detector Type: Sample



EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	19.9M	16.442M	16M4D1D	19.15M	16.392M
802.11ac VHT20_Nss1,(MCS0)_4TX	20.8M	17.666M	17M7D1D	20M	17.566M
802.11ac VHT40_Nss1,(MCS0)_4TX	40.2M	36.032M	36M0D1D	39.05M	35.882M
802.11ac VHT80_Nss1,(MCS0)_4TX	85.7M	75.962M	76M0D1D	82.9M	75.662M
5.25-5.35GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	19.675M	16.442M	16M4D1D	19.275M	16.392M
802.11ac VHT20_Nss1,(MCS0)_4TX	20.625M	17.666M	17M7D1D	19.975M	17.566M
802.11ac VHT40_Nss1,(MCS0)_4TX	39.9M	36.032M	36M0D1D	39.2M	35.932M
802.11ac VHT80_Nss1,(MCS0)_4TX	83.2M	75.762M	75M8D1D	82.7M	75.562M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;



EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master

Result

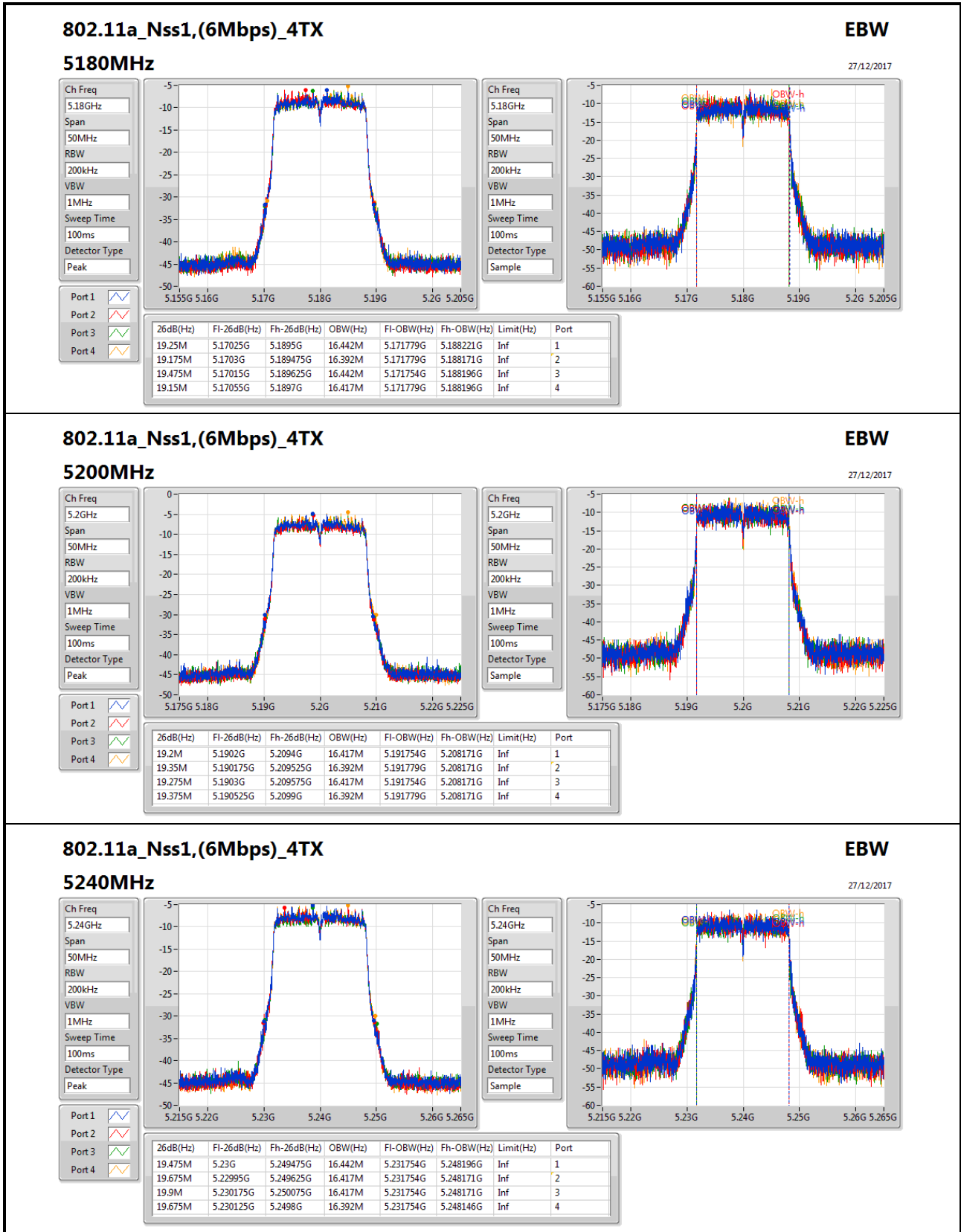
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	19.25M	16.442M	19.175M	16.392M	19.475M	16.442M	19.15M	16.417M
5200MHz_TnomVnom	Pass	Inf	19.2M	16.417M	19.35M	16.392M	19.275M	16.417M	19.375M	16.392M
5240MHz_TnomVnom	Pass	Inf	19.475M	16.442M	19.675M	16.417M	19.9M	16.417M	19.675M	16.392M
5260MHz_TnomVnom	Pass	Inf	19.275M	16.392M	19.35M	16.442M	19.525M	16.442M	19.675M	16.417M
5300MHz_TnomVnom	Pass	Inf	19.4M	16.417M	19.475M	16.417M	19.4M	16.442M	19.425M	16.417M
5320MHz_TnomVnom	Pass	Inf	19.475M	16.392M	19.65M	16.417M	19.375M	16.392M	19.475M	16.392M
802.11ac_VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	20M	17.591M	20.4M	17.591M	20.5M	17.566M	20.375M	17.616M
5200MHz_TnomVnom	Pass	Inf	20.475M	17.616M	20.375M	17.566M	20.525M	17.616M	20.275M	17.616M
5240MHz_TnomVnom	Pass	Inf	20.675M	17.616M	20.8M	17.616M	20.45M	17.666M	20.575M	17.616M
5260MHz_TnomVnom	Pass	Inf	20.575M	17.616M	20.425M	17.616M	20.55M	17.616M	20.35M	17.616M
5300MHz_TnomVnom	Pass	Inf	19.975M	17.591M	20.4M	17.616M	20.5M	17.591M	20.25M	17.616M
5320MHz_TnomVnom	Pass	Inf	20.425M	17.591M	20.525M	17.666M	20.625M	17.591M	20.325M	17.566M
802.11ac_VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	Inf	40.1M	35.932M	40.05M	35.982M	39.8M	35.932M	39.05M	35.882M
5230MHz_TnomVnom	Pass	Inf	40.2M	35.982M	40.05M	35.982M	39.75M	36.032M	39.35M	35.982M
5270MHz_TnomVnom	Pass	Inf	39.8M	35.982M	39.55M	35.932M	39.65M	36.032M	39.35M	36.032M
5310MHz_TnomVnom	Pass	Inf	39.9M	35.932M	39.65M	35.932M	39.3M	35.932M	39.2M	35.932M
802.11ac_VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	Inf	85.7M	75.962M	84M	75.762M	83.9M	75.662M	82.9M	75.662M
5290MHz_TnomVnom	Pass	Inf	82.7M	75.662M	83.1M	75.562M	83.2M	75.662M	82.8M	75.762M

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



**EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master**

Appendix B.2


802.11a_Nss1,(6Mbps)_4TX
EBW

27/12/2017

5240MHz

Ch Freq: 5.24GHz
Span: 50MHz
RBW: 200kHz
VBW: 1MHz
Sweep Time: 100ms
Detector Type: Peak

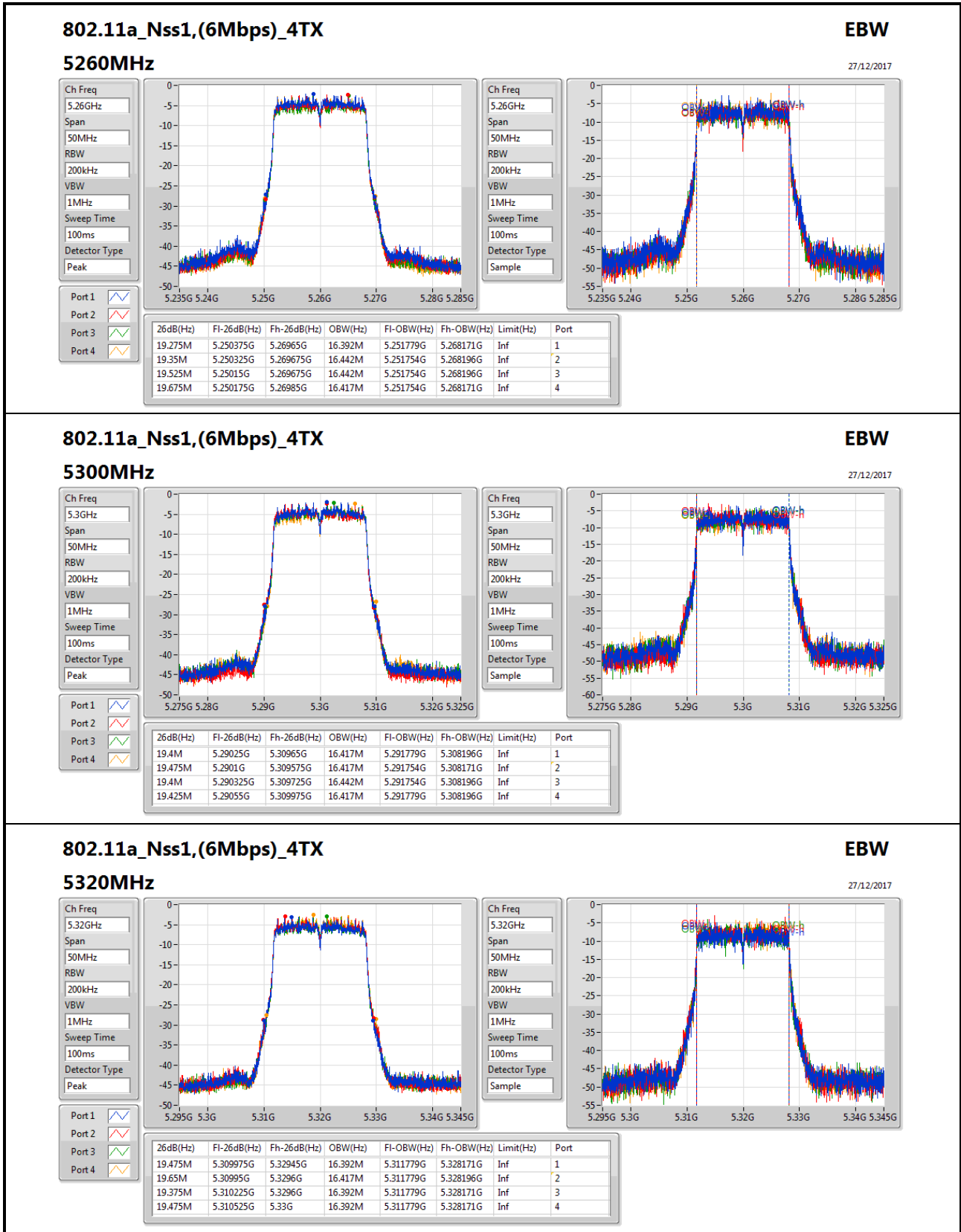
Ch Freq: 5.24GHz
Span: 50MHz
RBW: 200kHz
VBW: 1MHz
Sweep Time: 100ms
Detector Type: Sample

26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
19.475M	5.23G	5.249475G	16.442M	5.231754G	5.248196G	Inf	1
19.675M	5.22995G	5.249625G	16.417M	5.231754G	5.248171G	Inf	2
19.9M	5.230175G	5.250075G	16.417M	5.231754G	5.248171G	Inf	3
19.675M	5.230125G	5.2498G	16.392M	5.231754G	5.248146G	Inf	4



EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master

Appendix B.2


802.11a_Nss1,(6Mbps)_4TX
EBW

27/12/2017

5320MHz

Ch Freq: 5.32GHz
 Span: 50MHz
 RBW: 200kHz
 VBW: 1MHz
 Sweep Time: 100ms
 Detector Type: Peak

Port 1: [Blue]
 Port 2: [Red]
 Port 3: [Green]
 Port 4: [Yellow]

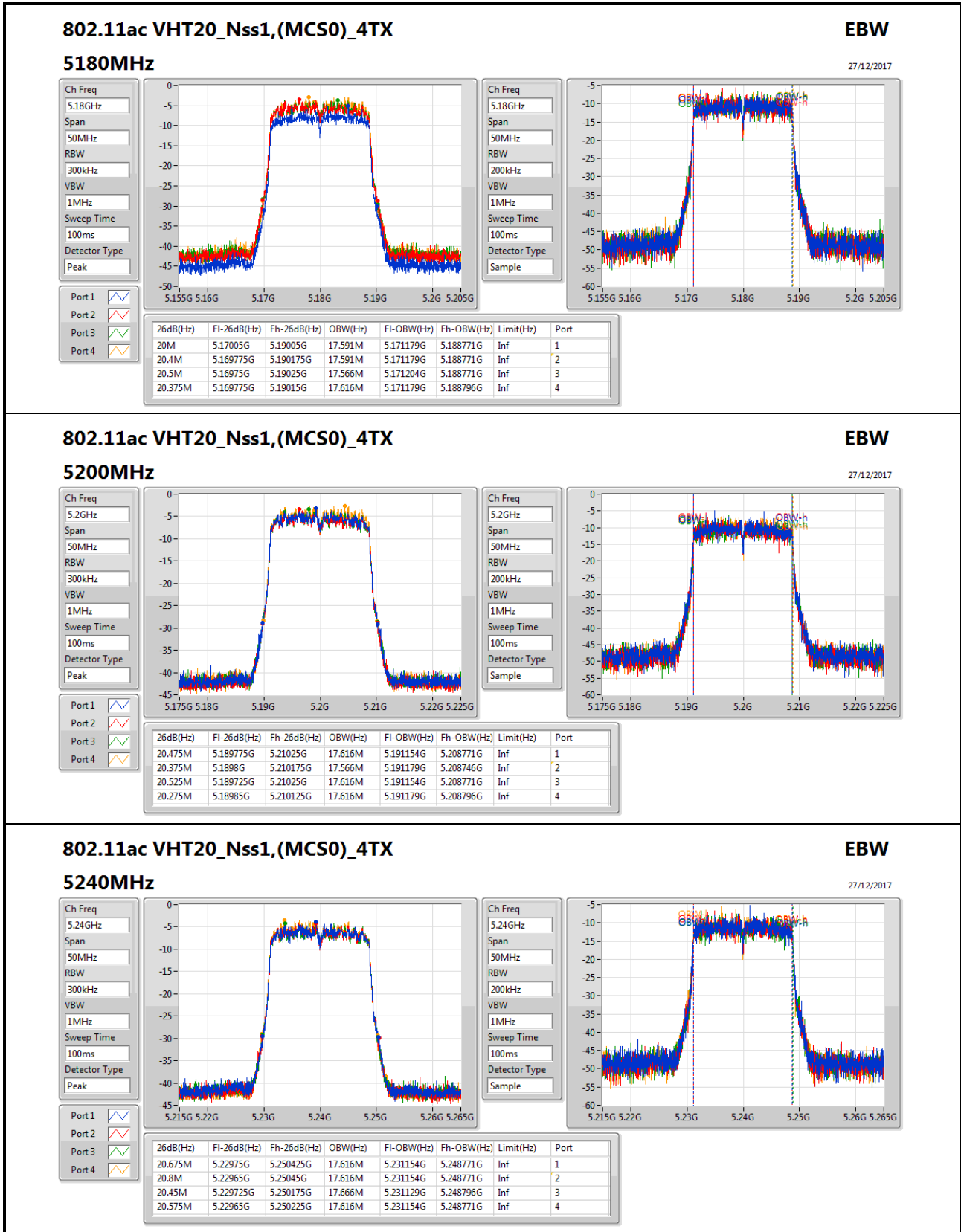
26dB(Hz)	FI-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	FI-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
19.475M	5.309975G	5.32945G	16.392M	5.311779G	5.328171G	Inf	1
19.65M	5.30995G	5.3296G	16.417M	5.311779G	5.328196G	Inf	2
19.375M	5.310225G	5.3296G	16.392M	5.311779G	5.328171G	Inf	3
19.475M	5.310525G	5.33G	16.392M	5.311779G	5.328171G	Inf	4

Ch Freq: 5.32GHz
 Span: 50MHz
 RBW: 200kHz
 VBW: 1MHz
 Sweep Time: 100ms
 Detector Type: Sample



**EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master**

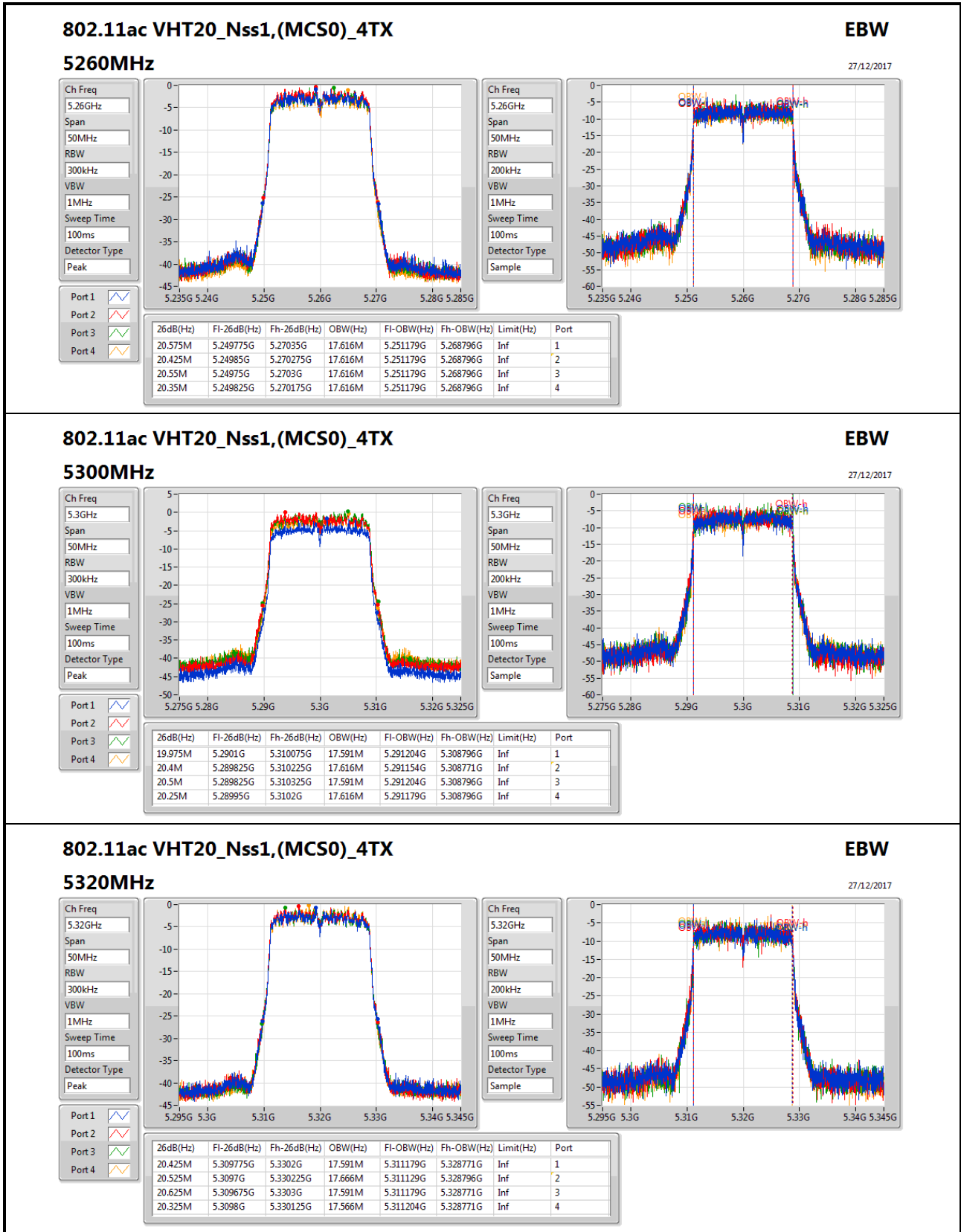
Appendix B.2





**EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master**

Appendix B.2


802.11ac VHT20_Nss1,(MCS0)_4TX
EBW
5320MHz
27/12/2017

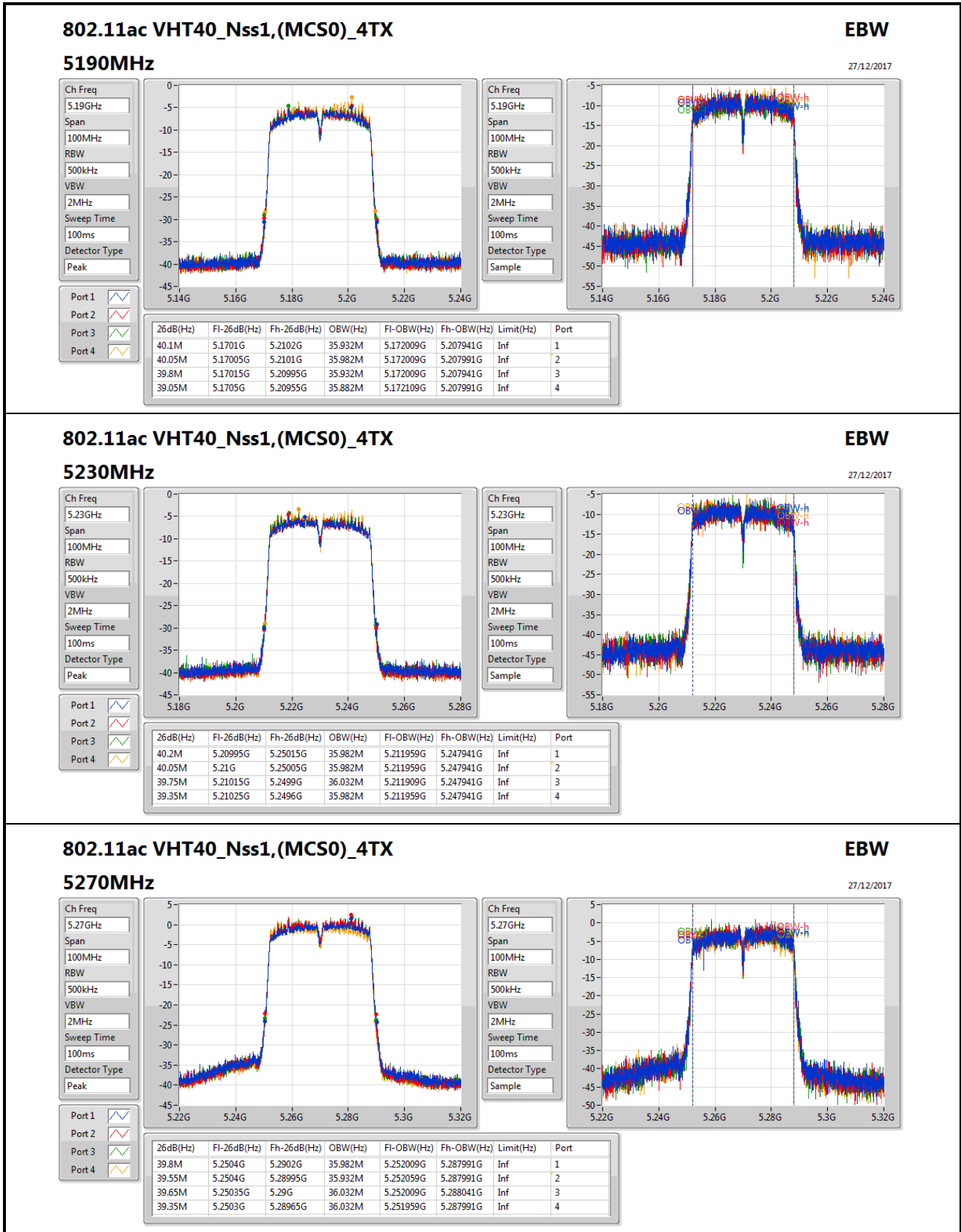
Ch Freq: 5.32GHz
Span: 50MHz
RBW: 300kHz
VBW: 1MHz
Sweep Time: 100ms
Detector Type: Peak

Ch Freq: 5.32GHz
Span: 50MHz
RBW: 200kHz
VBW: 1MHz
Sweep Time: 100ms
Detector Type: Sample



EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master

Appendix B.2


802.11ac VHT40_Nss1,(MCS0)_4TX
EBW

27/12/2017

5270MHz

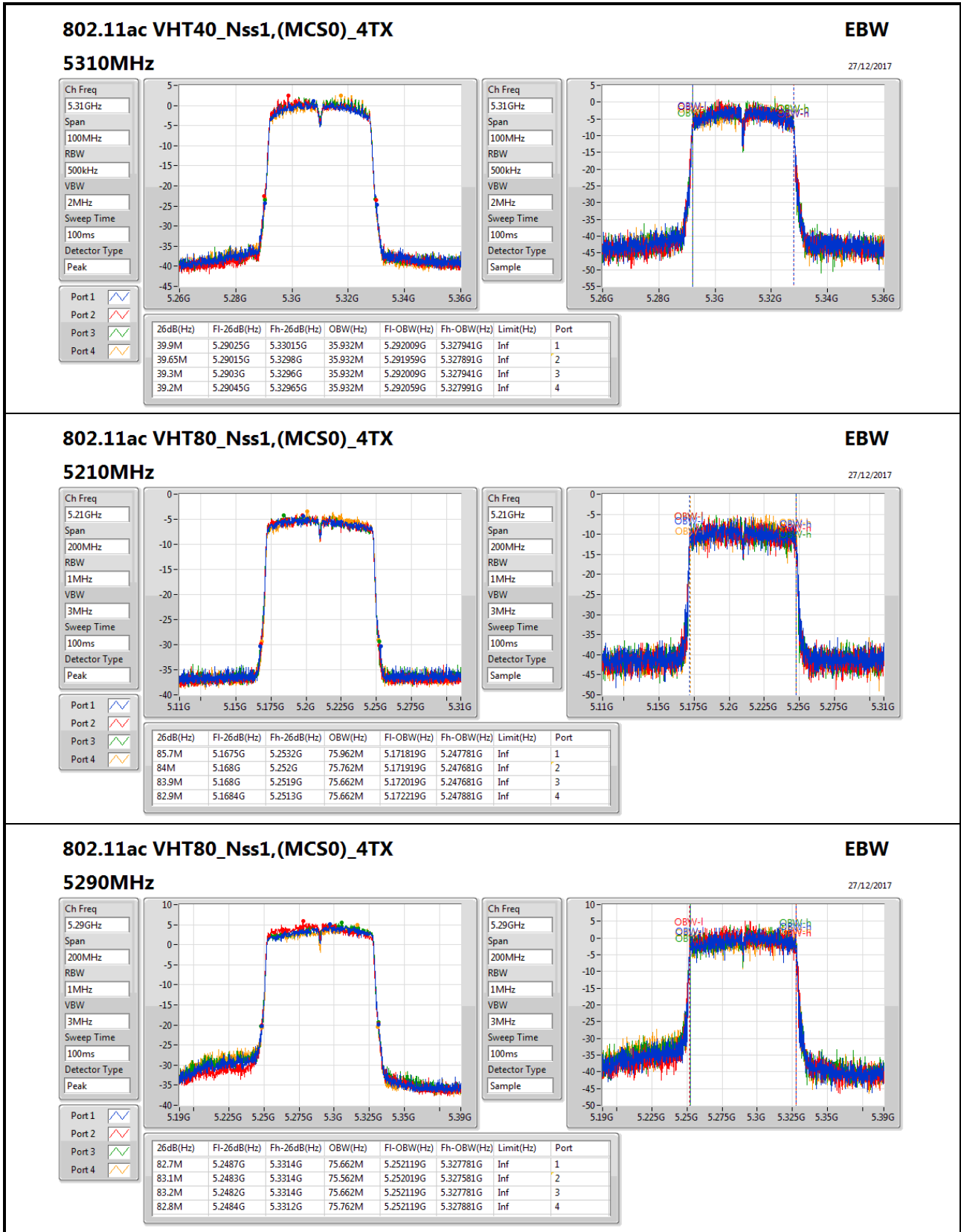
Ch Freq: 5.27GHz
 Span: 100MHz
 RBW: 500kHz
 VBW: 2MHz
 Sweep Time: 100ms
 Detector Type: Peak

Ch Freq: 5.27GHz
 Span: 100MHz
 RBW: 500kHz
 VBW: 2MHz
 Sweep Time: 100ms
 Detector Type: Sample



**EBW Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master**

Appendix B.2





EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	19.675M	16.442M	16M4D1D	19.075M	16.392M
802.11ac VHT20_Nss1,(MCS0)_4TX	20.625M	17.641M	17M6D1D	20.275M	17.591M
802.11ac VHT40_Nss1,(MCS0)_4TX	39.9M	35.982M	36M0D1D	39.2M	35.882M
802.11ac VHT80_Nss1,(MCS0)_4TX	83M	75.662M	75M7D1D	82.1M	75.362M
5.25-5.35GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	19.875M	16.442M	16M4D1D	19.125M	16.392M
802.11ac VHT20_Nss1,(MCS0)_4TX	21M	17.641M	17M6D1D	20.45M	17.591M
802.11ac VHT40_Nss1,(MCS0)_4TX	40.05M	36.032M	36M0D1D	39.25M	35.932M
802.11ac VHT80_Nss1,(MCS0)_4TX	84M	75.962M	76M0D1D	82.5M	75.362M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;



EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master

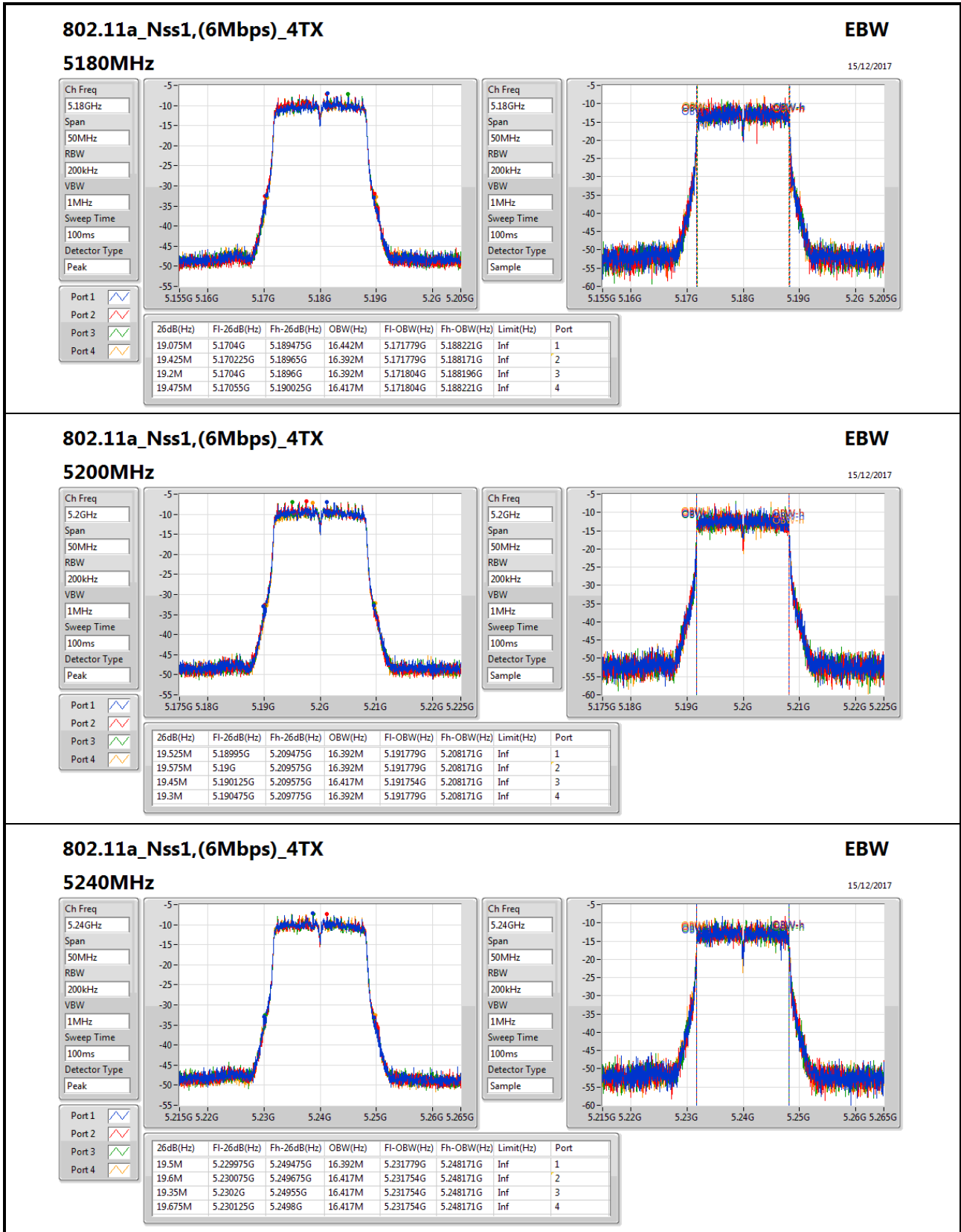
Result

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)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	19.075M	16.442M	19.425M	16.392M	19.2M	16.392M	19.475M	16.417M
5200MHz	Pass	Inf	19.525M	16.392M	19.575M	16.392M	19.45M	16.417M	19.3M	16.392M
5240MHz	Pass	Inf	19.5M	16.392M	19.6M	16.417M	19.35M	16.417M	19.675M	16.417M
5260MHz	Pass	Inf	19.5M	16.442M	19.7M	16.442M	19.375M	16.442M	19.875M	16.442M
5300MHz	Pass	Inf	19.625M	16.442M	19.35M	16.392M	19.125M	16.417M	19.6M	16.442M
5320MHz	Pass	Inf	19.525M	16.442M	19.675M	16.417M	19.4M	16.417M	19.825M	16.417M
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	20.525M	17.616M	20.55M	17.591M	20.525M	17.616M	20.275M	17.616M
5200MHz	Pass	Inf	20.475M	17.616M	20.5M	17.616M	20.625M	17.591M	20.4M	17.591M
5240MHz	Pass	Inf	20.525M	17.641M	20.4M	17.616M	20.525M	17.641M	20.275M	17.616M
5260MHz	Pass	Inf	20.75M	17.641M	20.875M	17.641M	20.6M	17.641M	20.5M	17.616M
5300MHz	Pass	Inf	20.6M	17.591M	21M	17.641M	20.575M	17.616M	20.5M	17.616M
5320MHz	Pass	Inf	20.9M	17.641M	20.85M	17.641M	20.8M	17.616M	20.45M	17.616M
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	39.6M	35.882M	39.4M	35.882M	39.3M	35.932M	39.2M	35.932M
5230MHz	Pass	Inf	39.9M	35.932M	39.85M	35.982M	39.6M	35.932M	39.35M	35.982M
5270MHz	Pass	Inf	39.8M	35.982M	40M	35.982M	39.4M	35.982M	39.25M	36.032M
5310MHz	Pass	Inf	40.05M	35.932M	39.95M	35.982M	39.65M	35.982M	39.4M	35.982M
802.11ac VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	83M	75.562M	83M	75.662M	83M	75.662M	82.1M	75.362M
5290MHz	Pass	Inf	83.7M	75.962M	84M	75.662M	83.1M	75.362M	82.5M	75.662M

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



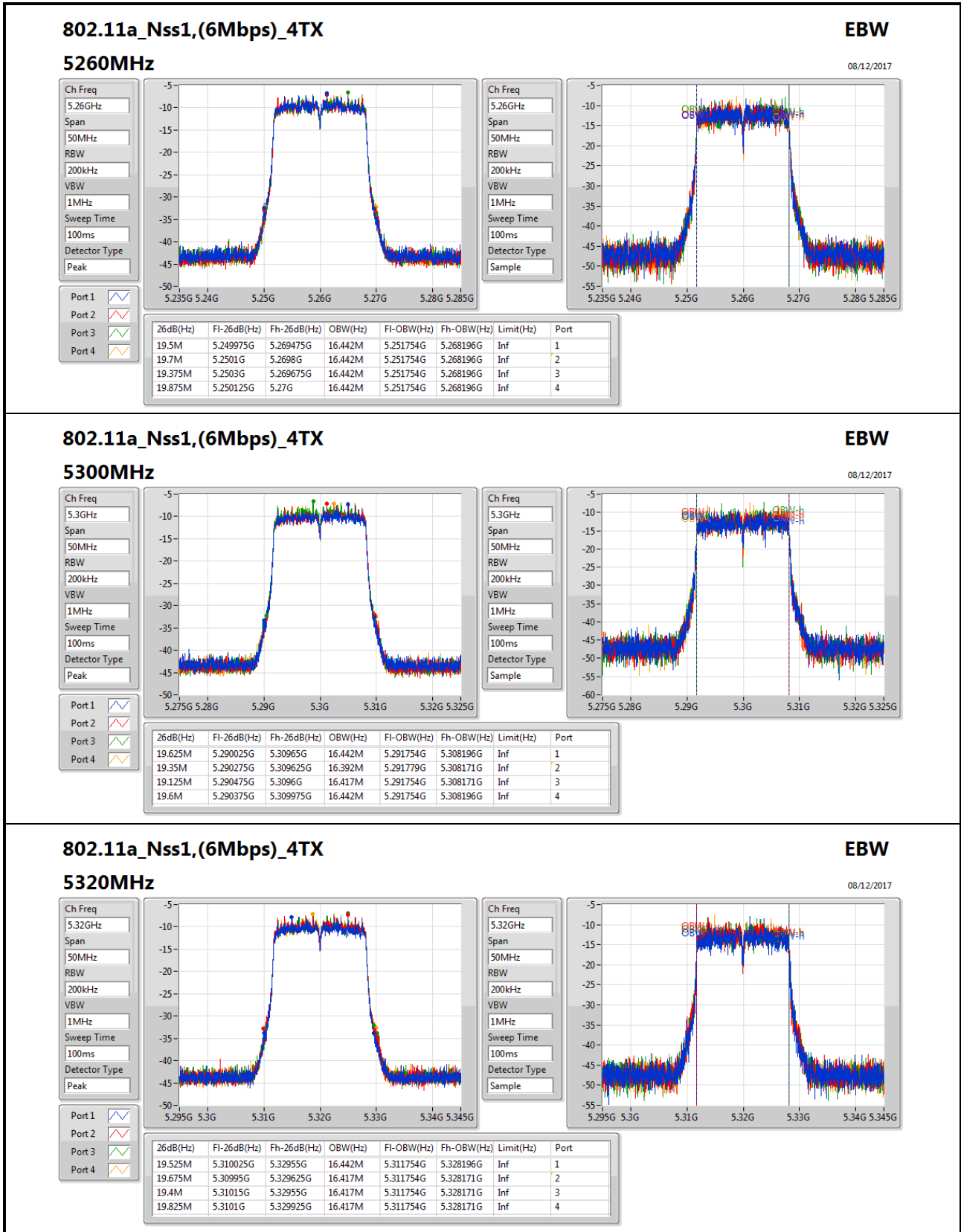
EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master





EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master

Appendix B.3


802.11a_Nss1,(6Mbps)_4TX
EBW

08/12/2017

5320MHz

Ch Freq: 5.32GHz
 Span: 50MHz
 RBW: 200kHz
 VBW: 1MHz
 Sweep Time: 100ms
 Detector Type: Peak

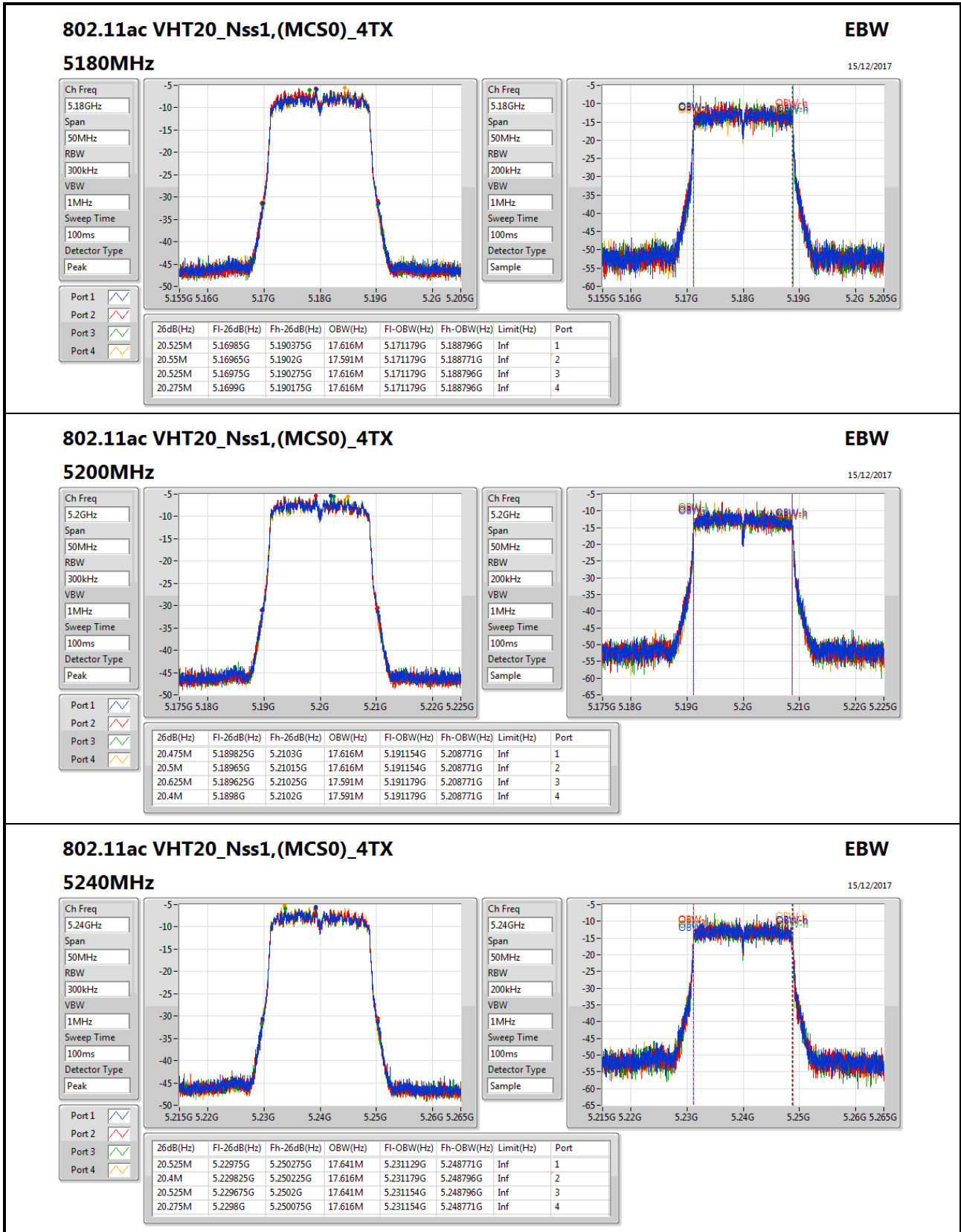
Port 1: [Blue]
 Port 2: [Red]
 Port 3: [Green]
 Port 4: [Yellow]

26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
19.525M	5.310025G	5.32955G	16.442M	5.311754G	5.328196G	Inf	1
19.675M	5.30995G	5.329625G	16.417M	5.311754G	5.328171G	Inf	2
19.4M	5.31015G	5.32955G	16.417M	5.311754G	5.328171G	Inf	3
19.825M	5.3101G	5.329925G	16.417M	5.311754G	5.328171G	Inf	4

Ch Freq: 5.32GHz
 Span: 50MHz
 RBW: 200kHz
 VBW: 1MHz
 Sweep Time: 100ms
 Detector Type: Sample



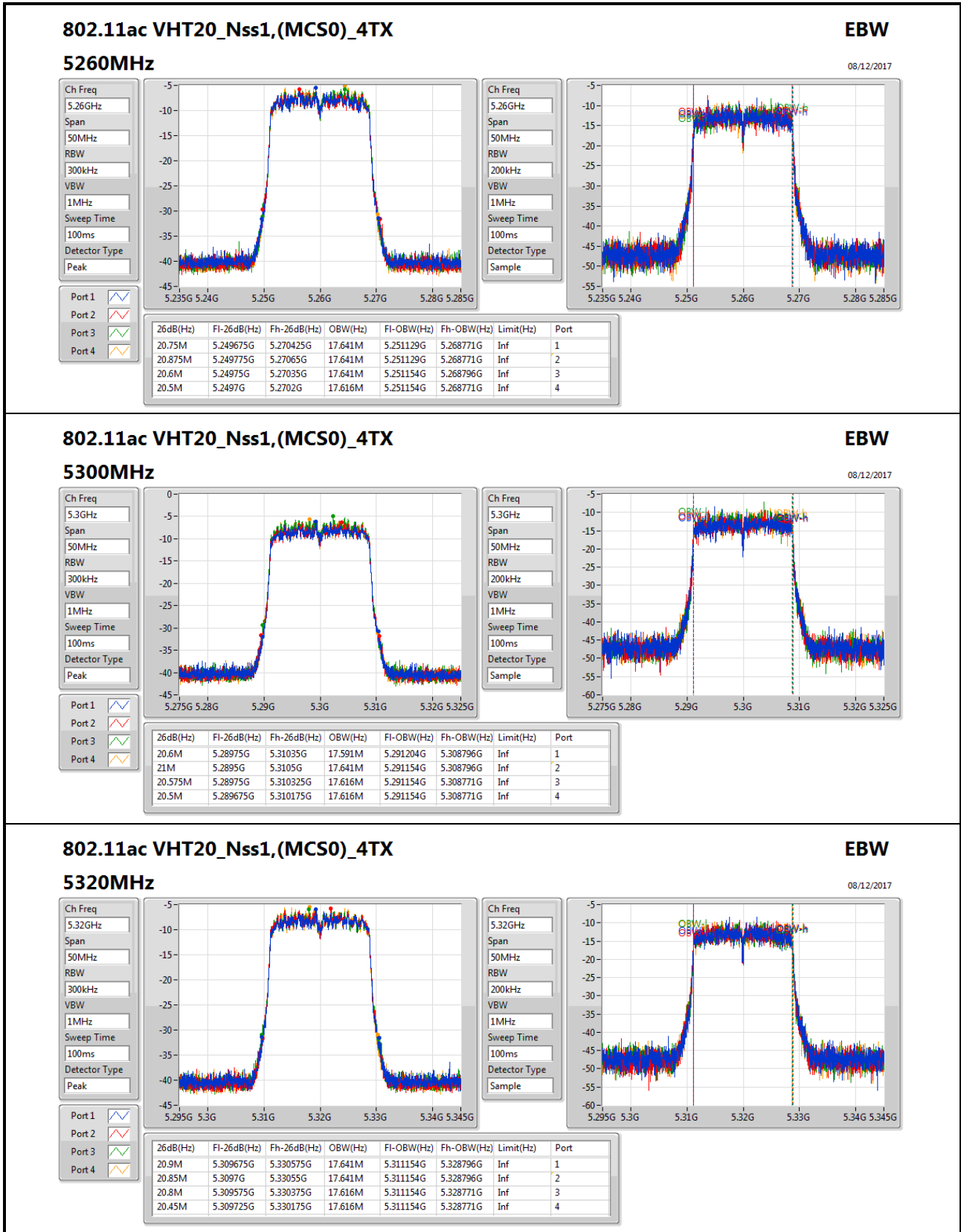
**EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master**





**EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master**

Appendix B.3


802.11ac VHT20_Nss1,(MCS0)_4TX
EBW
5320MHz
08/12/2017

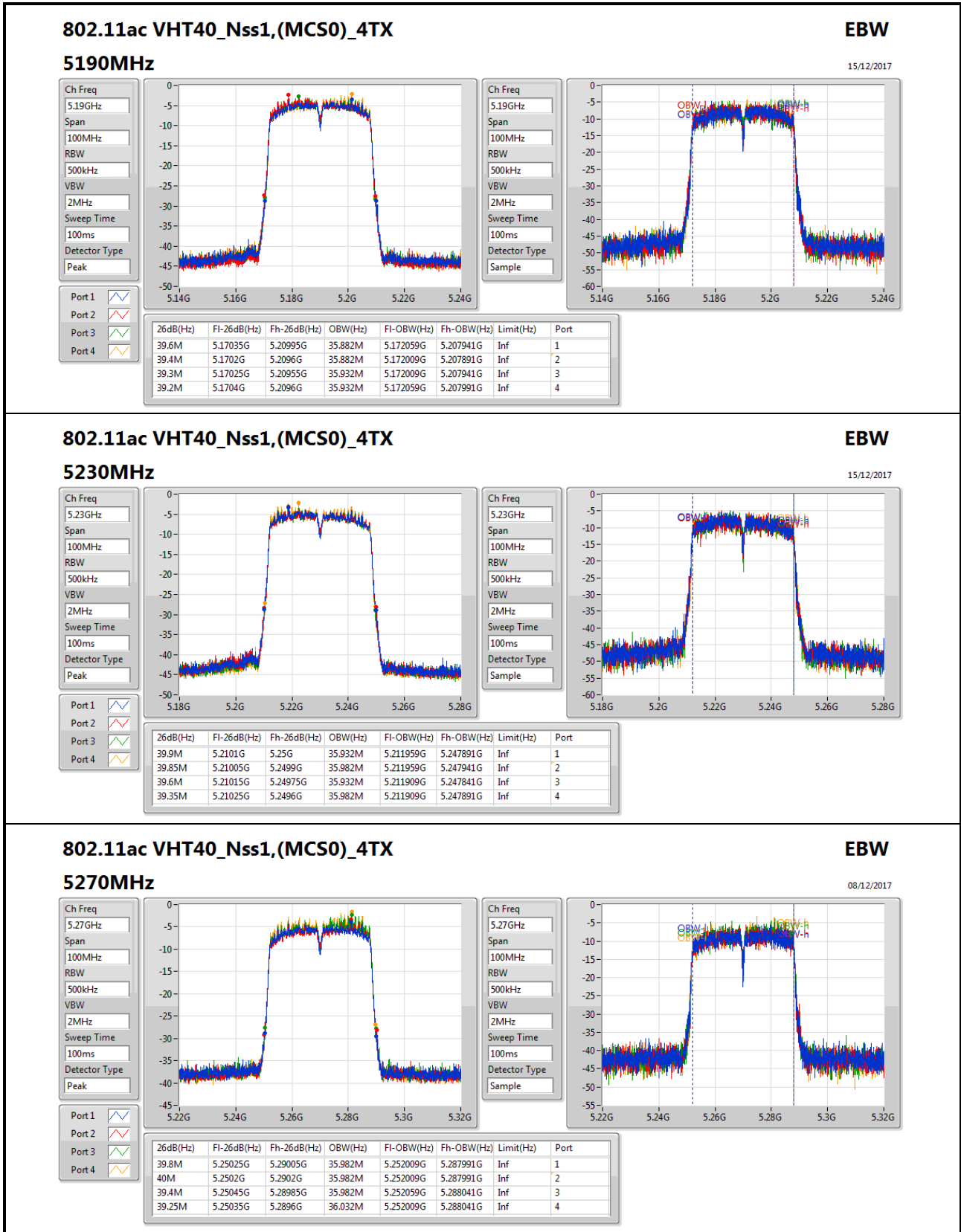
Ch Freq: 5.32GHz
Span: 50MHz
RBW: 300kHz
VBW: 1MHz
Sweep Time: 100ms
Detector Type: Peak

Ch Freq: 5.32GHz
Span: 50MHz
RBW: 200kHz
VBW: 1MHz
Sweep Time: 100ms
Detector Type: Sample



**EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master**

Appendix B.3





**EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master**

Appendix B.3





EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	19.95M	16.442M	16M4D1D	19.325M	16.392M
802.11ac VHT20_Nss1,(MCS0)_4TX	20.775M	17.641M	17M6D1D	20.4M	17.591M
802.11ac VHT40_Nss1,(MCS0)_4TX	40.05M	36.032M	36M0D1D	39.1M	35.882M
802.11ac VHT80_Nss1,(MCS0)_4TX	84.5M	75.862M	75M9D1D	82.7M	75.762M
5.25-5.35GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	19.875M	16.442M	16M4D1D	19.125M	16.392M
802.11ac VHT20_Nss1,(MCS0)_4TX	21M	17.641M	17M6D1D	20.45M	17.591M
802.11ac VHT40_Nss1,(MCS0)_4TX	40.05M	36.032M	36M0D1D	39.25M	35.932M
802.11ac VHT80_Nss1,(MCS0)_4TX	84M	75.962M	76M0D1D	82.5M	75.362M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;



EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master

Result

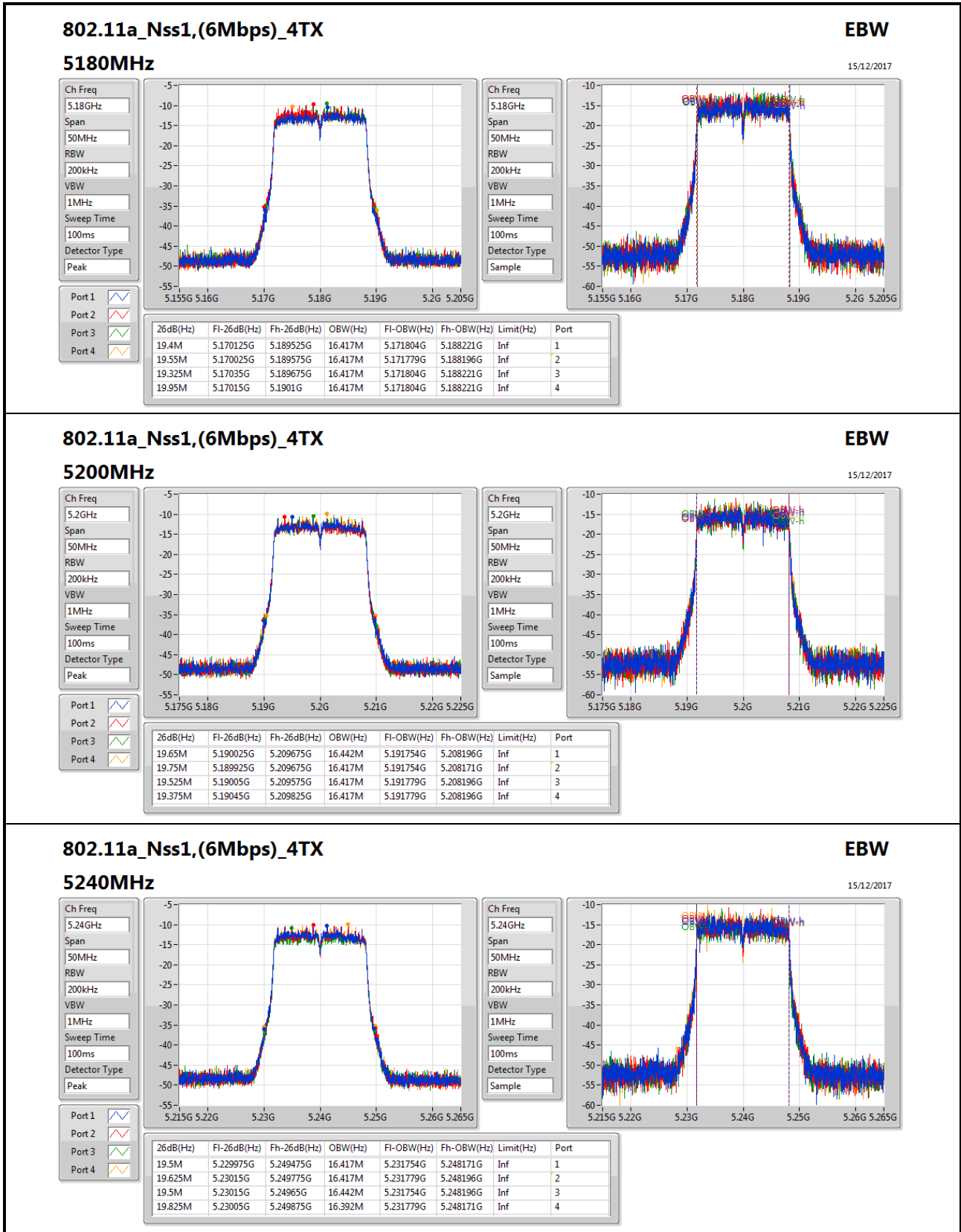
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	19.4M	16.417M	19.55M	16.417M	19.325M	16.417M	19.95M	16.417M
5200MHz	Pass	Inf	19.65M	16.442M	19.75M	16.417M	19.525M	16.417M	19.375M	16.417M
5240MHz	Pass	Inf	19.5M	16.417M	19.625M	16.417M	19.5M	16.442M	19.825M	16.392M
5260MHz	Pass	Inf	19.5M	16.442M	19.7M	16.442M	19.375M	16.442M	19.875M	16.442M
5300MHz	Pass	Inf	19.625M	16.442M	19.35M	16.392M	19.125M	16.417M	19.6M	16.442M
5320MHz	Pass	Inf	19.525M	16.442M	19.675M	16.417M	19.4M	16.417M	19.825M	16.417M
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	20.775M	17.641M	20.475M	17.616M	20.625M	17.616M	20.4M	17.616M
5200MHz	Pass	Inf	20.575M	17.616M	20.625M	17.616M	20.65M	17.616M	20.425M	17.591M
5240MHz	Pass	Inf	20.75M	17.641M	20.7M	17.616M	20.625M	17.641M	20.4M	17.591M
5260MHz	Pass	Inf	20.75M	17.641M	20.875M	17.641M	20.6M	17.641M	20.5M	17.616M
5300MHz	Pass	Inf	20.6M	17.591M	21M	17.641M	20.575M	17.616M	20.5M	17.616M
5320MHz	Pass	Inf	20.9M	17.641M	20.85M	17.641M	20.8M	17.616M	20.45M	17.616M
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	40.05M	35.982M	39.8M	35.882M	39.35M	35.982M	39.1M	35.982M
5230MHz	Pass	Inf	40M	36.032M	40.05M	35.982M	39.7M	35.982M	39.25M	35.982M
5270MHz	Pass	Inf	39.8M	35.982M	40M	35.982M	39.4M	35.982M	39.25M	36.032M
5310MHz	Pass	Inf	40.05M	35.932M	39.95M	35.982M	39.65M	35.982M	39.4M	35.982M
802.11ac VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	83.8M	75.762M	84.5M	75.862M	83.8M	75.862M	82.7M	75.762M
5290MHz	Pass	Inf	83.7M	75.962M	84M	75.662M	83.1M	75.362M	82.5M	75.662M

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



**EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master**

Appendix B.4


802.11a_Nss1,(6Mbps)_4TX
EBW

15/12/2017

5240MHz

Ch Freq: 5.24GHz

Span: 50MHz

RBW: 200kHz

VBW: 1MHz

Sweep Time: 100ms

Detector Type: Peak

26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
19.5M	5.229975G	5.249475G	16.417M	5.231754G	5.248171G	Inf	1
19.625M	5.23015G	5.249775G	16.417M	5.231779G	5.248196G	Inf	2
19.5M	5.23015G	5.24965G	16.442M	5.231754G	5.248196G	Inf	3
19.825M	5.23005G	5.249875G	16.392M	5.231779G	5.248171G	Inf	4

Ch Freq: 5.24GHz

Span: 50MHz

RBW: 200kHz

VBW: 1MHz

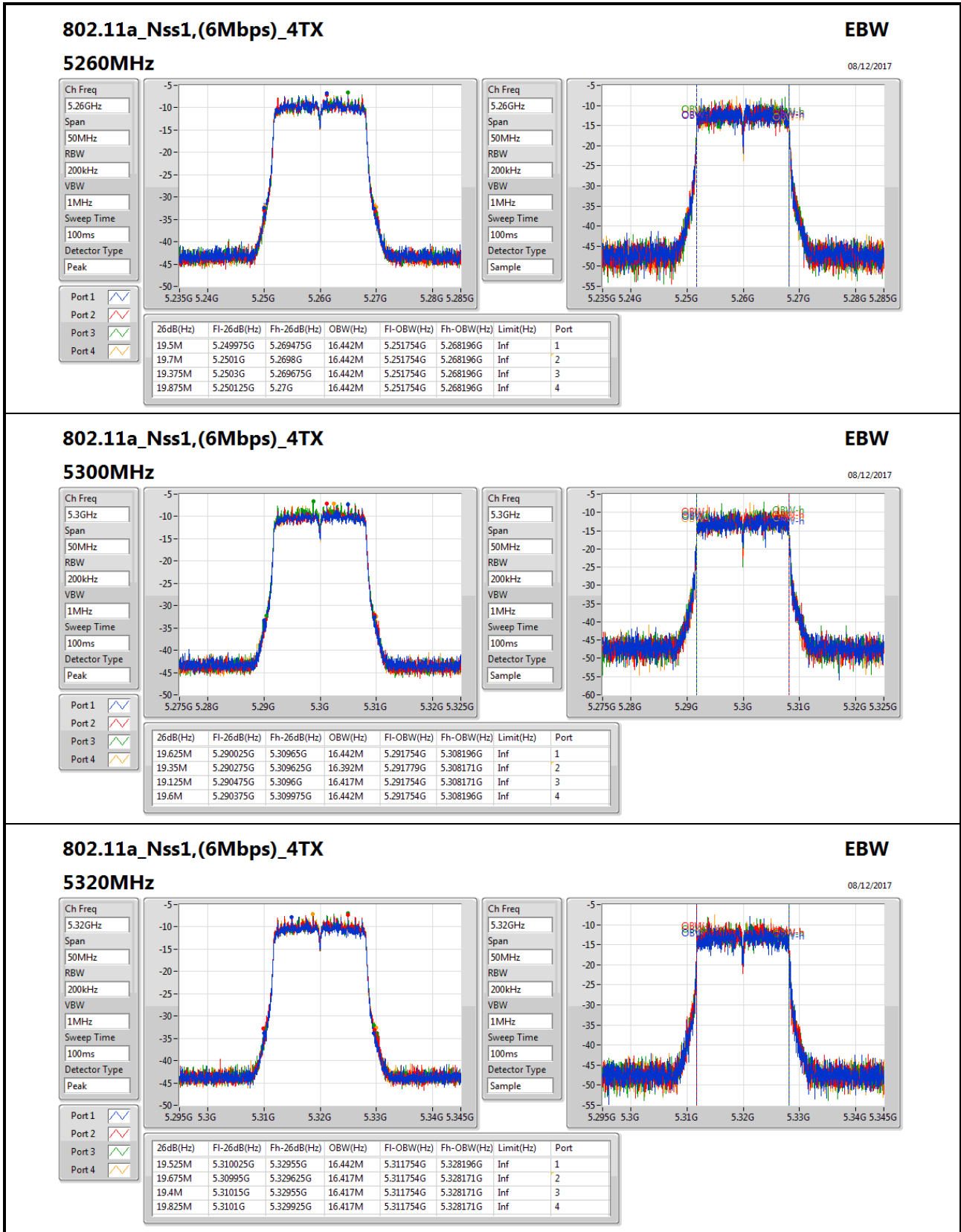
Sweep Time: 100ms

Detector Type: Sample



**EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master**

Appendix B.4


802.11a_Nss1,(6Mbps)_4TX
EBW

08/12/2017

5320MHz

Ch Freq: 5.32GHz
 Span: 50MHz
 RBW: 200kHz
 VBW: 1MHz
 Sweep Time: 100ms
 Detector Type: Peak

Port 1: [Waveform]
 Port 2: [Waveform]
 Port 3: [Waveform]
 Port 4: [Waveform]

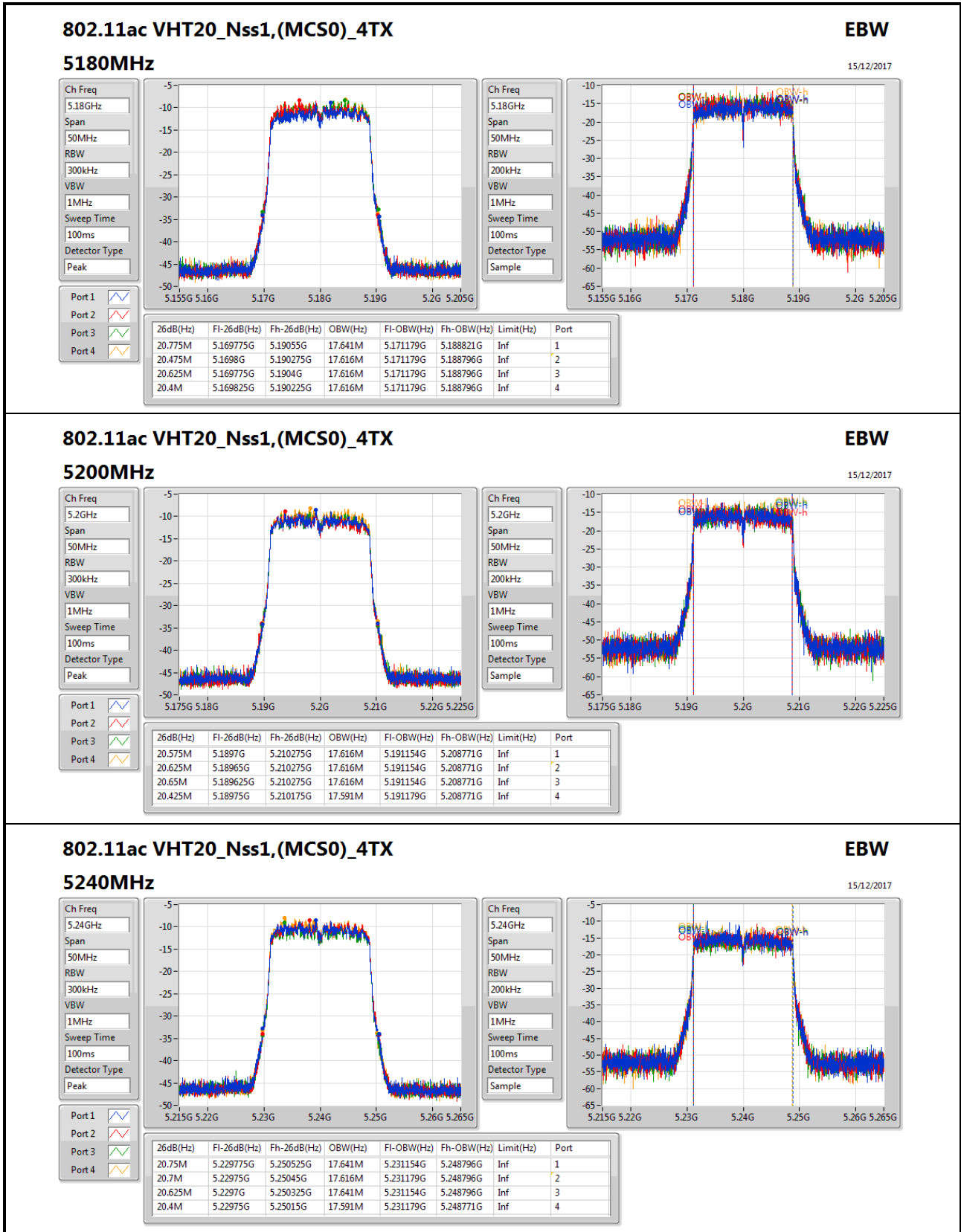
26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
19.525M	5.310025G	5.32955G	16.442M	5.311754G	5.328196G	Inf	1
19.675M	5.30995G	5.329625G	16.417M	5.311754G	5.328171G	Inf	2
19.4M	5.31015G	5.32955G	16.417M	5.311754G	5.328171G	Inf	3
19.825M	5.3101G	5.329925G	16.417M	5.311754G	5.328171G	Inf	4

Ch Freq: 5.32GHz
 Span: 50MHz
 RBW: 200kHz
 VBW: 1MHz
 Sweep Time: 100ms
 Detector Type: Sample



**EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master**

Appendix B.4


802.11ac VHT20_Nss1,(MCS0)_4TX
EBW

15/12/2017

5240MHz

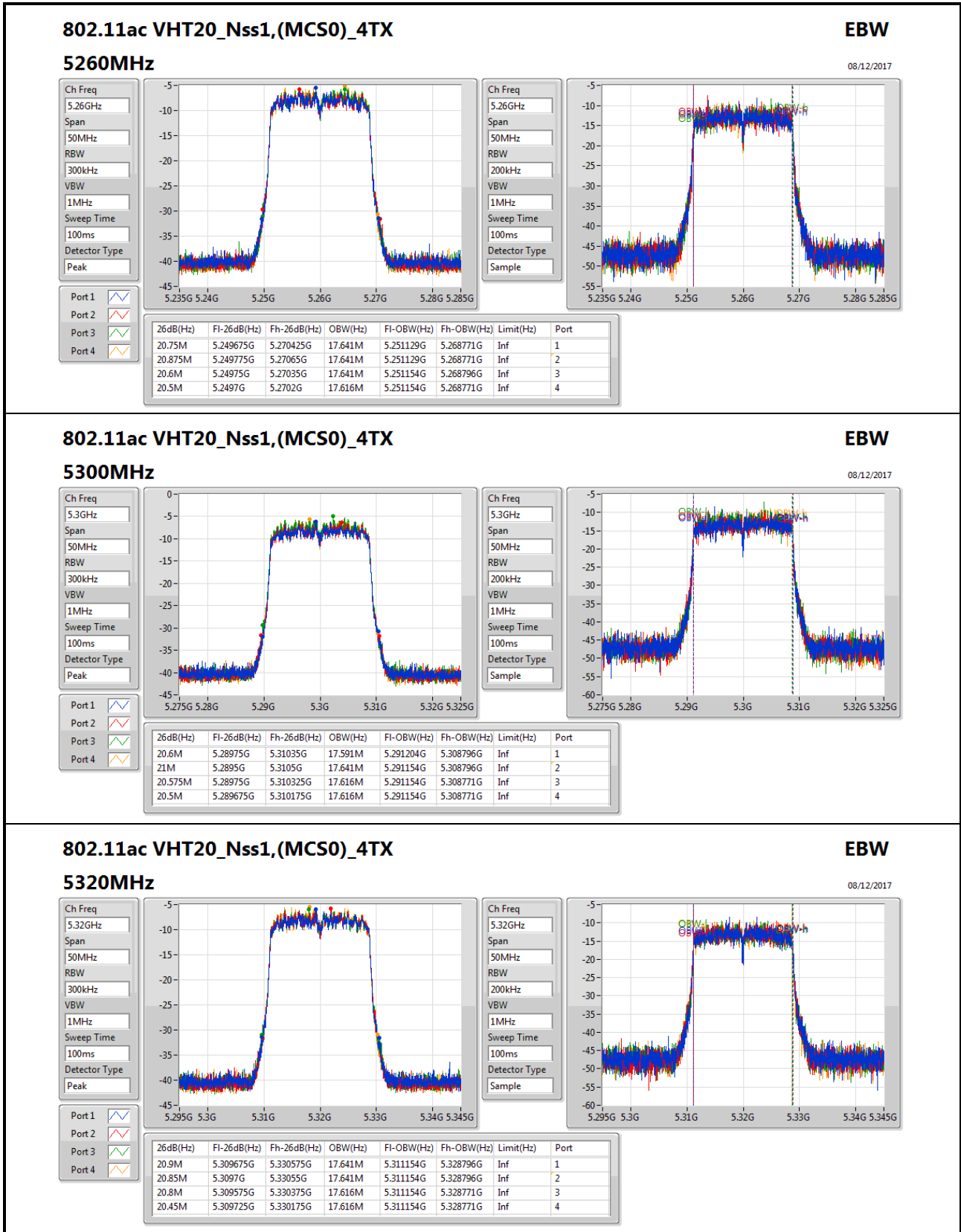
Ch Freq: 5.24GHz
Span: 50MHz
RBW: 300kHz
VBW: 1MHz
Sweep Time: 100ms
Detector Type: Peak

Ch Freq: 5.24GHz
Span: 50MHz
RBW: 200kHz
VBW: 1MHz
Sweep Time: 100ms
Detector Type: Sample



**EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master**

Appendix B.4


802.11ac VHT20_Nss1,(MCS0)_4TX
EBW

08/12/2017

5320MHz

Ch Freq: 5.32GHz
 Span: 50MHz
 RBW: 300kHz
 VBW: 1MHz
 Sweep Time: 100ms
 Detector Type: Peak

Port 1: [Waveform]
 Port 2: [Waveform]
 Port 3: [Waveform]
 Port 4: [Waveform]

Ch Freq: 5.32GHz
 Span: 50MHz
 RBW: 200kHz
 VBW: 3
 Sweep Time: 100ms
 Detector Type: Sample



**EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master**

Appendix B.4


802.11ac VHT40_Nss1,(MCS0)_4TX
EBW
5270MHz
08/12/2017

Ch Freq: 5.27GHz
Span: 100MHz
RBW: 500kHz
VBW: 2MHz
Sweep Time: 100ms
Detector Type: Peak

Ch Freq: 5.27GHz
Span: 100MHz
RBW: 500kHz
VBW: 2MHz
Sweep Time: 100ms
Detector Type: Sample



EBW Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master

Appendix B.4





EBW Result (Antenna Gain 10 dBi)
Beamforming_Client

Appendix B.5

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	20.95M	17.666M	17M7D1D	20M	17.566M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	39.45M	36.082M	36M1D1D	38.65M	35.832M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	82.2M	76.262M	76M3D1D	80.5M	75.562M
5.25-5.35GHz	-	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	20.9M	17.641M	17M6D1D	20M	17.591M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	39.45M	36.082M	36M1D1D	38.65M	35.832M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	81.1M	75.862M	75M9D1D	79.8M	75.462M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;



EBW Result (Antenna Gain 10 dBi)
Beamforming_Client

Appendix B.5

Result

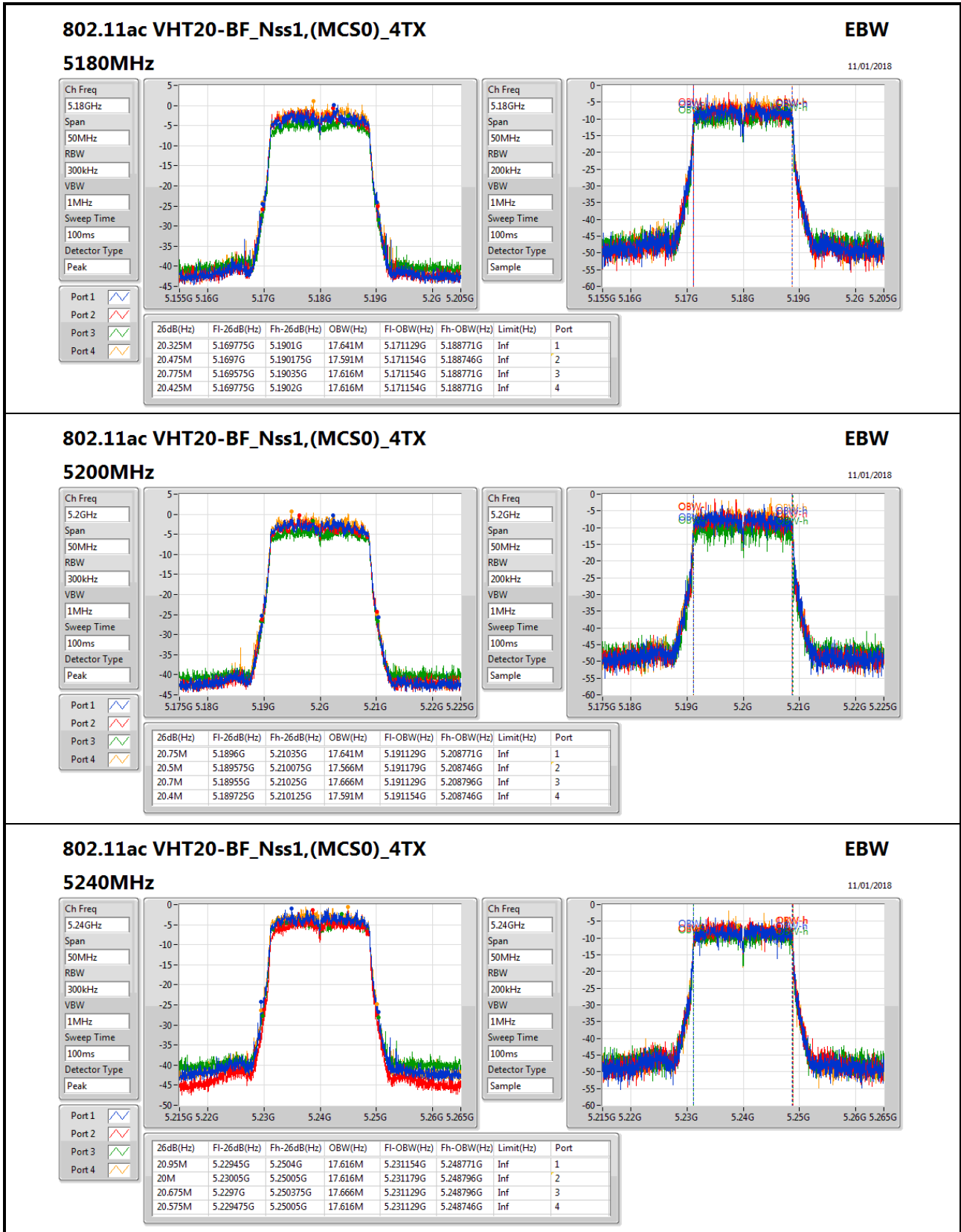
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	20.325M	17.641M	20.475M	17.591M	20.775M	17.616M	20.425M	17.616M
5200MHz_TnomVnom	Pass	Inf	20.75M	17.641M	20.5M	17.566M	20.7M	17.666M	20.4M	17.591M
5240MHz_TnomVnom	Pass	Inf	20.95M	17.616M	20M	17.616M	20.675M	17.666M	20.575M	17.616M
5260MHz_TnomVnom	Pass	Inf	20M	17.616M	20.525M	17.616M	20.75M	17.641M	20.775M	17.616M
5300MHz_TnomVnom	Pass	Inf	20.625M	17.616M	20.475M	17.591M	20.85M	17.591M	20M	17.591M
5320MHz_TnomVnom	Pass	Inf	20.725M	17.641M	20.725M	17.616M	20.9M	17.641M	20.6M	17.616M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	Inf	39.45M	35.982M	38.85M	36.082M	38.65M	36.082M	39.4M	35.832M
5230MHz_TnomVnom	Pass	Inf	38.8M	35.982M	39.05M	36.082M	39.05M	35.982M	38.9M	35.982M
5270MHz_TnomVnom	Pass	Inf	39.3M	36.082M	39M	36.032M	39.45M	35.982M	39.35M	35.982M
5310MHz_TnomVnom	Pass	Inf	38.9M	35.982M	38.65M	36.032M	39.1M	35.882M	39.4M	35.832M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	Inf	80.5M	75.662M	80.6M	76.262M	80.7M	75.862M	82.2M	75.562M
5290MHz_TnomVnom	Pass	Inf	81.1M	75.662M	80.3M	75.862M	80.7M	75.762M	79.8M	75.462M

Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

Port X-OBW = Port X 99% occupied bandwidth;



EBW Result (Antenna Gain 10 dBi)
Beamforming_Client

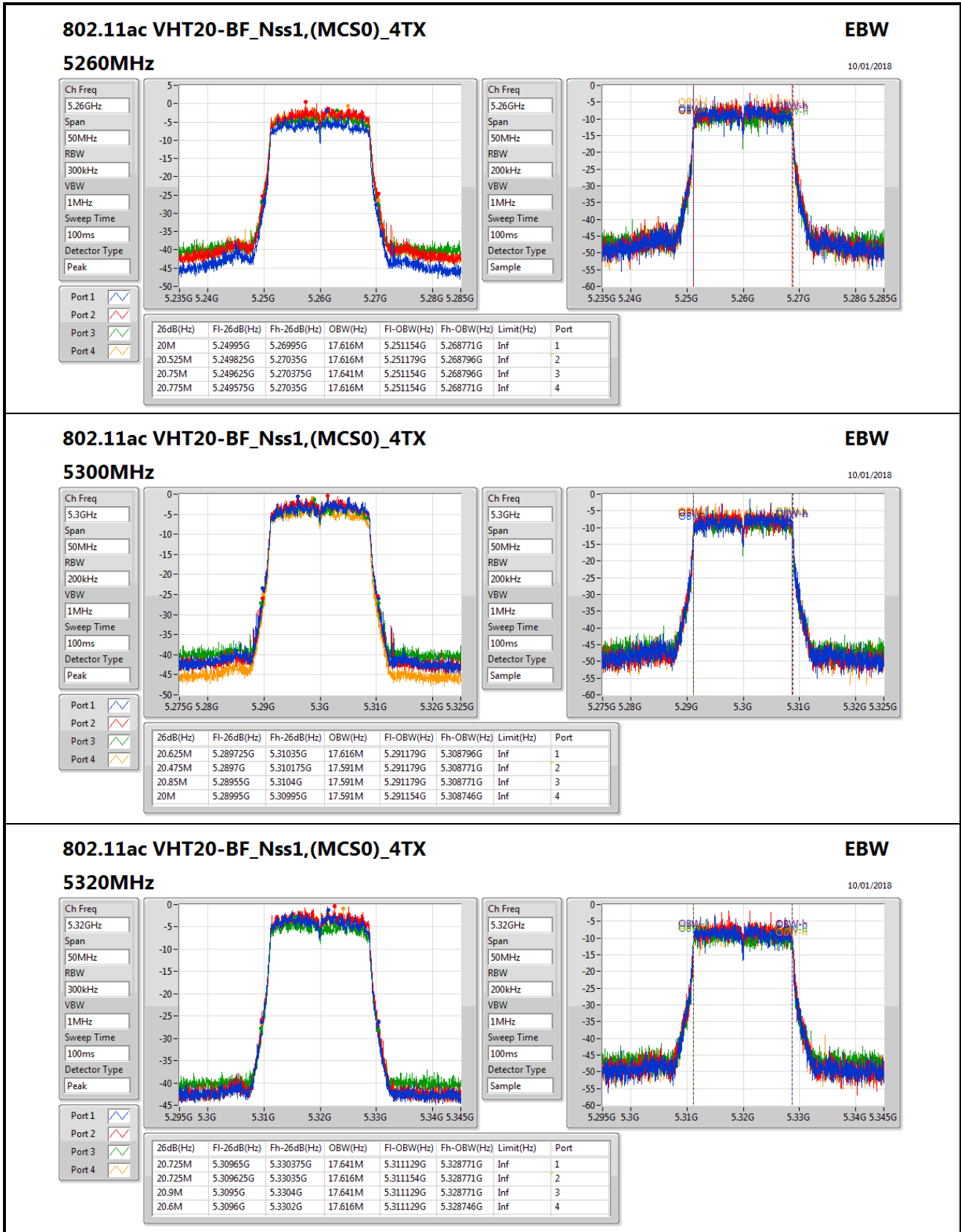

802.11ac VHT20-BF_Nss1,(MCS0)_4TX
EBW
5240MHz
11/01/2018

Ch Freq: 5.24GHz
Span: 50MHz
RBW: 300kHz
VBW: 1MHz
Sweep Time: 100ms
Detector Type: Peak

Ch Freq: 5.24GHz
Span: 50MHz
RBW: 200kHz
VBW: 1MHz
Sweep Time: 100ms
Detector Type: Sample



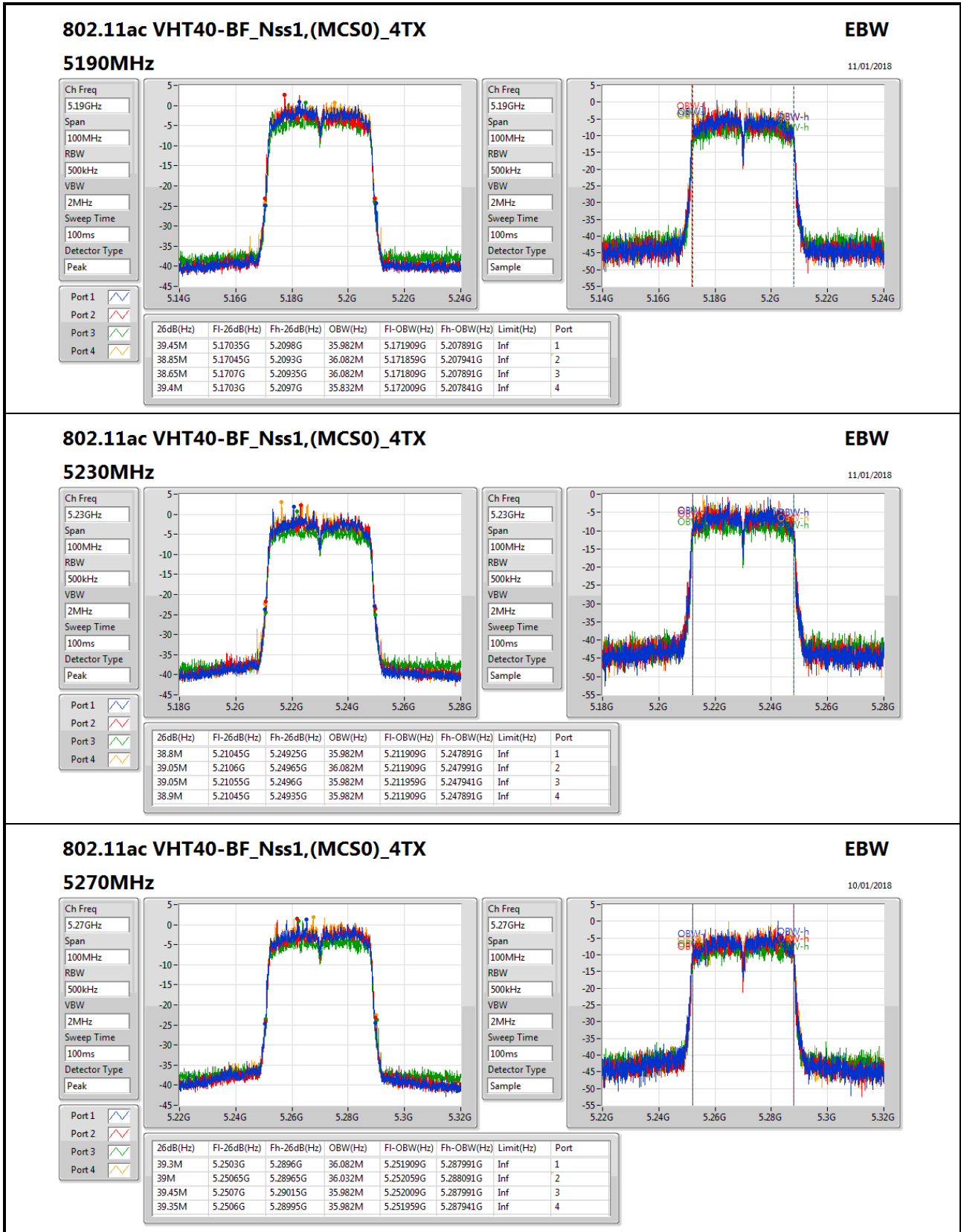
EBW Result (Antenna Gain 10 dBi)
Beamforming_Client





EBW Result (Antenna Gain 10 dBi)
Beamforming_Client

Appendix B.5


802.11ac VHT40-BF_Nss1,(MCS0)_4TX
EBW

10/01/2018

5270MHz

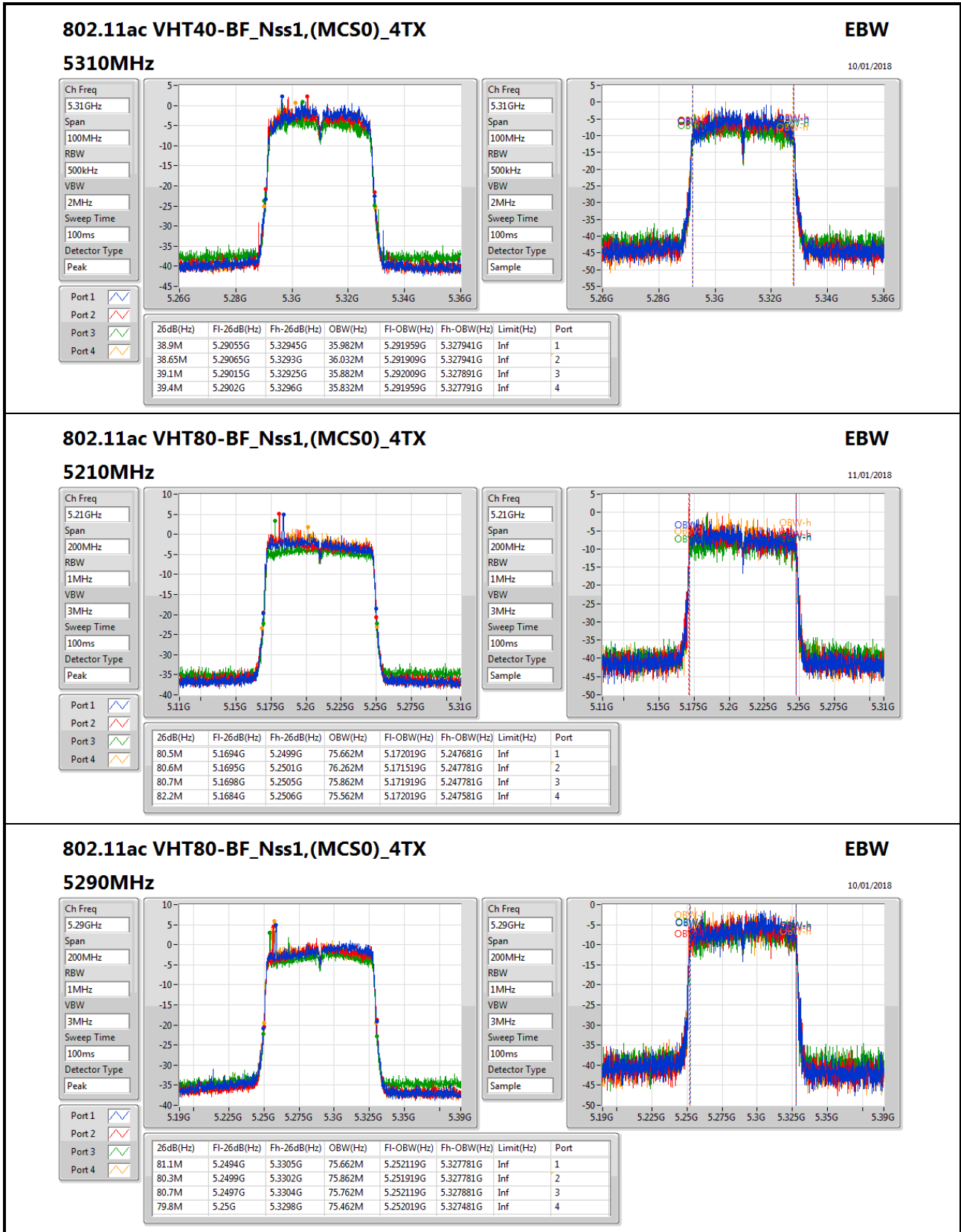
Ch Freq: 5.27GHz
Span: 100MHz
RBW: 500kHz
VBW: 2MHz
Sweep Time: 100ms
Detector Type: Peak

Ch Freq: 5.27GHz
Span: 100MHz
RBW: 500kHz
VBW: 2MHz
Sweep Time: 100ms
Detector Type: Sample



EBW Result (Antenna Gain 10 dBi)
Beamforming_Client

Appendix B.5





EBW Result (Antenna Gain 10 dBi)
Beamforming_Indoor Master

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	20.775M	17.666M	17M7D1D	19.875M	17.566M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	39.4M	36.082M	36M1D1D	38.35M	35.882M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	82.3M	76.162M	76M2D1D	80M	75.562M
5.25-5.35GHz	-	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	20.9M	17.641M	17M6D1D	20M	17.591M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	39.45M	36.082M	36M1D1D	38.65M	35.832M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	81.1M	75.862M	75M9D1D	79.8M	75.462M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;



EBW Result (Antenna Gain 10 dBi)
Beamforming_Indoor Master

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)
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	20.675M	17.641M	19.875M	17.566M	20.775M	17.641M	20.55M	17.591M
5200MHz_TnomVnom	Pass	Inf	20.675M	17.616M	20.65M	17.566M	20.5M	17.666M	20.625M	17.616M
5240MHz_TnomVnom	Pass	Inf	20.65M	17.616M	20.45M	17.591M	20.625M	17.616M	20.65M	17.641M
5260MHz_TnomVnom	Pass	Inf	20M	17.616M	20.525M	17.616M	20.75M	17.641M	20.775M	17.616M
5300MHz_TnomVnom	Pass	Inf	20.625M	17.616M	20.475M	17.591M	20.85M	17.591M	20M	17.591M
5320MHz_TnomVnom	Pass	Inf	20.725M	17.641M	20.725M	17.616M	20.9M	17.641M	20.6M	17.616M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	Inf	39.15M	35.882M	38.85M	36.032M	39.05M	35.932M	39M	35.932M
5230MHz_TnomVnom	Pass	Inf	39.4M	36.032M	39.1M	36.082M	38.65M	35.882M	38.35M	35.932M
5270MHz_TnomVnom	Pass	Inf	39.3M	36.082M	39M	36.032M	39.45M	35.982M	39.35M	35.982M
5310MHz_TnomVnom	Pass	Inf	38.9M	35.982M	38.65M	36.032M	39.1M	35.882M	39.4M	35.832M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	Inf	82M	75.562M	80.6M	76.162M	82.3M	75.662M	80M	75.662M
5290MHz_TnomVnom	Pass	Inf	81.1M	75.662M	80.3M	75.862M	80.7M	75.762M	79.8M	75.462M

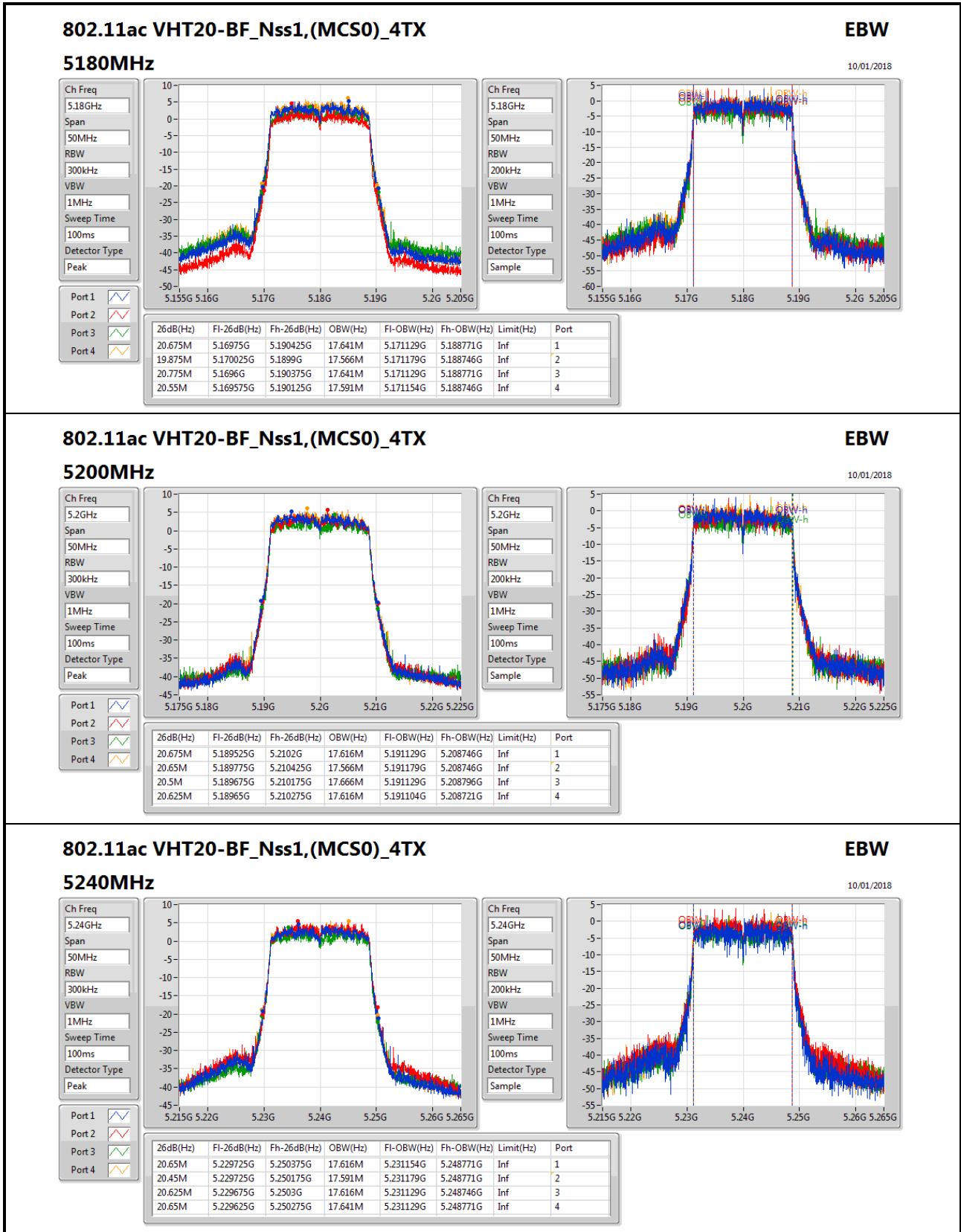
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

Port X-OBW = Port X 99% occupied bandwidth;



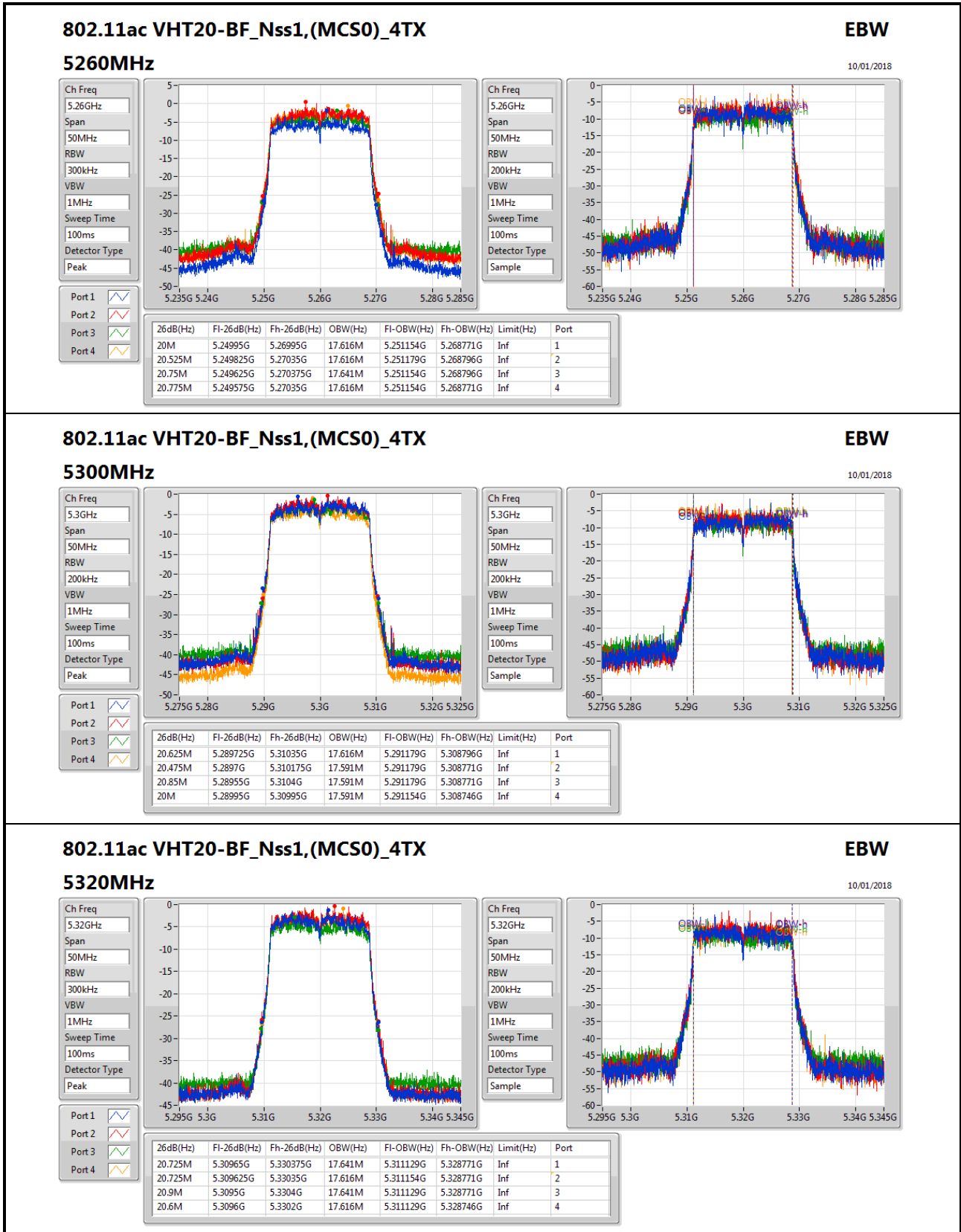
EBW Result (Antenna Gain 10 dBi)
Beamforming_Indoor Master

Appendix B.6





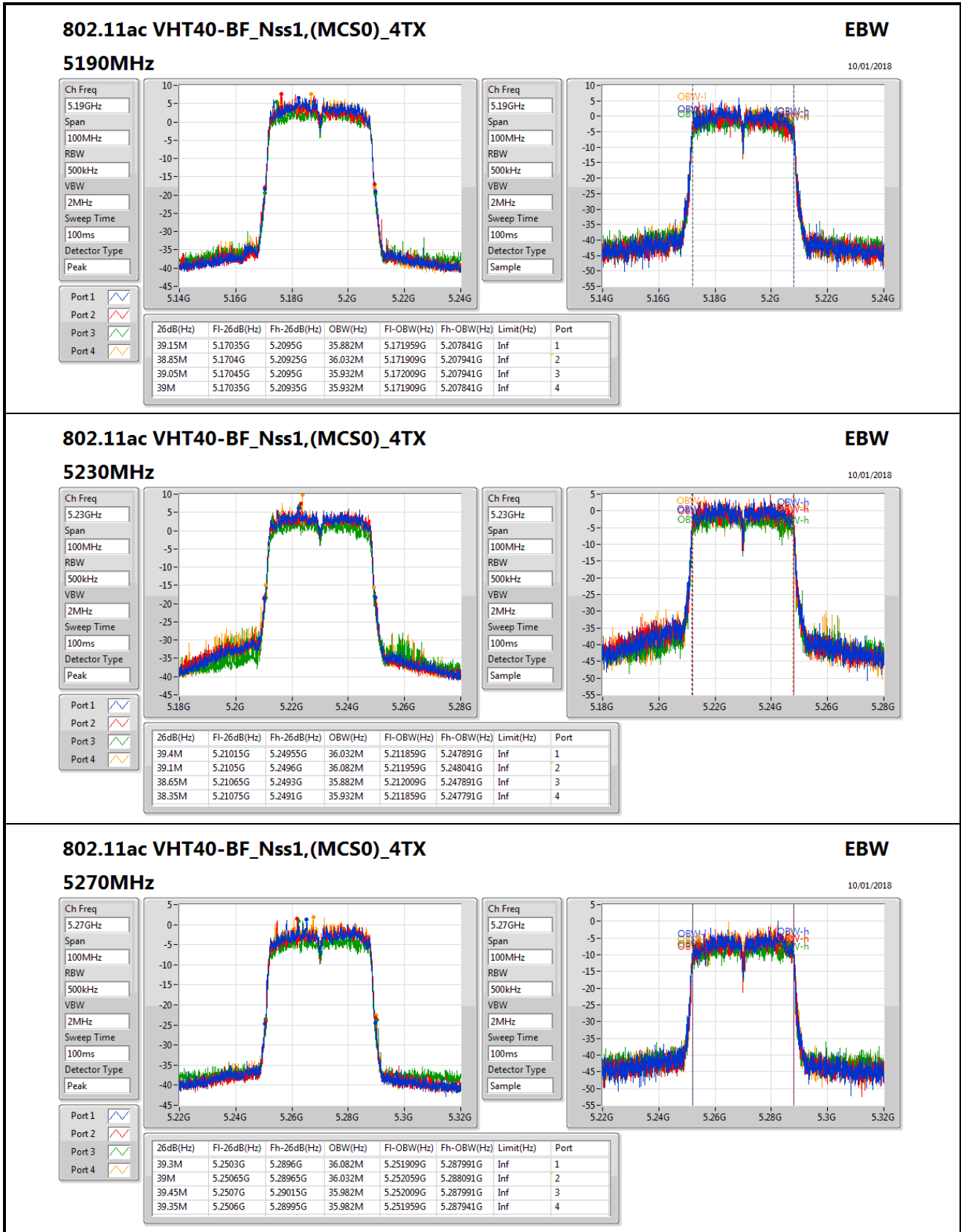
EBW Result (Antenna Gain 10 dBi)
Beamforming_Indoor Master





EBW Result (Antenna Gain 10 dBi)
Beamforming_Indoor Master

Appendix B.6


802.11ac VHT40-BF_Nss1,(MCS0)_4TX
EBW
5270MHz
10/01/2018

Ch Freq: 5.27GHz
 Span: 100MHz
 RBW: 500kHz
 VBW: 2MHz
 Sweep Time: 100ms
 Detector Type: Peak

Ch Freq: 5.27GHz
 Span: 100MHz
 RBW: 500kHz
 VBW: 2MHz
 Sweep Time: 100ms
 Detector Type: Sample



EBW Result (Antenna Gain 10 dBi)
Beamforming_Indoor Master

Appendix B.6





EBW Result (Antenna Gain 10 dBi)
Beamforming_Outdoor Master

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	21.9M	17.716M	17M7D1D	19.925M	17.566M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	40.3M	36.432M	36M4D1D	38.9M	36.032M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	81.4M	77.161M	77M2D1D	80.4M	75.962M
5.25-5.35GHz	-	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	20.9M	17.641M	17M6D1D	20M	17.591M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	39.45M	36.082M	36M1D1D	38.65M	35.832M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	81.1M	75.862M	75M9D1D	79.8M	75.462M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;



EBW Result (Antenna Gain 10 dBi)
Beamforming_Outdoor Master

Appendix B.7

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)
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	20.9M	17.666M	20.95M	17.566M	21.45M	17.691M	20.775M	17.641M
5200MHz_TnomVnom	Pass	Inf	20.5M	17.666M	20.875M	17.616M	21.475M	17.716M	19.925M	17.641M
5240MHz_TnomVnom	Pass	Inf	20.6M	17.641M	20.925M	17.616M	21.9M	17.716M	20.825M	17.666M
5260MHz_TnomVnom	Pass	Inf	20M	17.616M	20.525M	17.616M	20.75M	17.641M	20.775M	17.616M
5300MHz_TnomVnom	Pass	Inf	20.625M	17.616M	20.475M	17.591M	20.85M	17.591M	20M	17.591M
5320MHz_TnomVnom	Pass	Inf	20.725M	17.641M	20.725M	17.616M	20.9M	17.641M	20.6M	17.616M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	Inf	38.9M	36.032M	39.3M	36.132M	40.3M	36.232M	39.35M	36.032M
5230MHz_TnomVnom	Pass	Inf	39.75M	36.082M	39.3M	36.132M	40.25M	36.432M	39M	36.232M
5270MHz_TnomVnom	Pass	Inf	39.3M	36.082M	39M	36.032M	39.45M	35.982M	39.35M	35.982M
5310MHz_TnomVnom	Pass	Inf	38.9M	35.982M	38.65M	36.032M	39.1M	35.882M	39.4M	35.832M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	Inf	81.1M	76.262M	81.1M	76.362M	81.4M	77.161M	80.4M	75.962M
5290MHz_TnomVnom	Pass	Inf	81.1M	75.662M	80.3M	75.862M	80.7M	75.762M	79.8M	75.462M

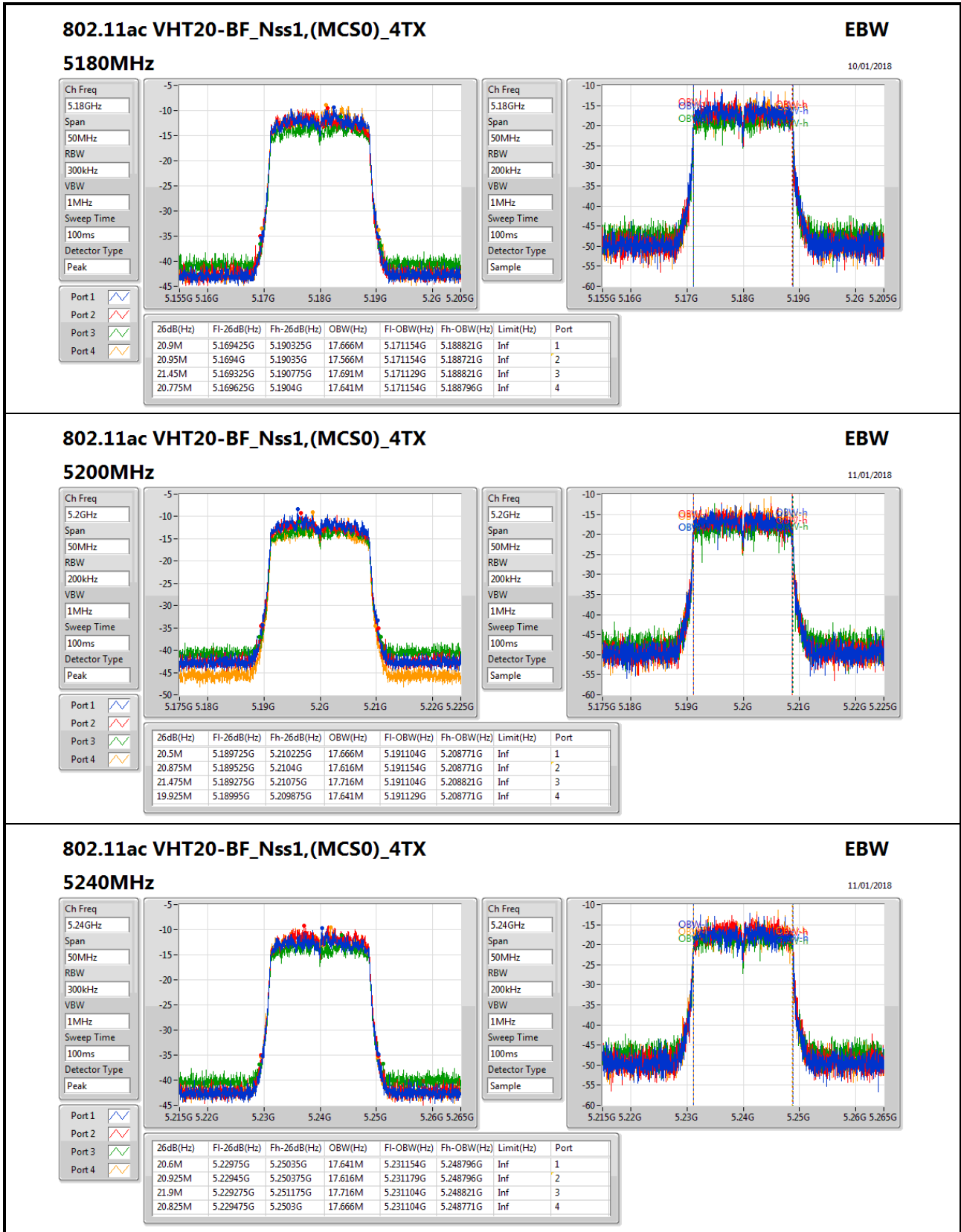
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

Port X-OBW = Port X 99% occupied bandwidth;



EBW Result (Antenna Gain 10 dBi)
Beamforming_Outdoor Master

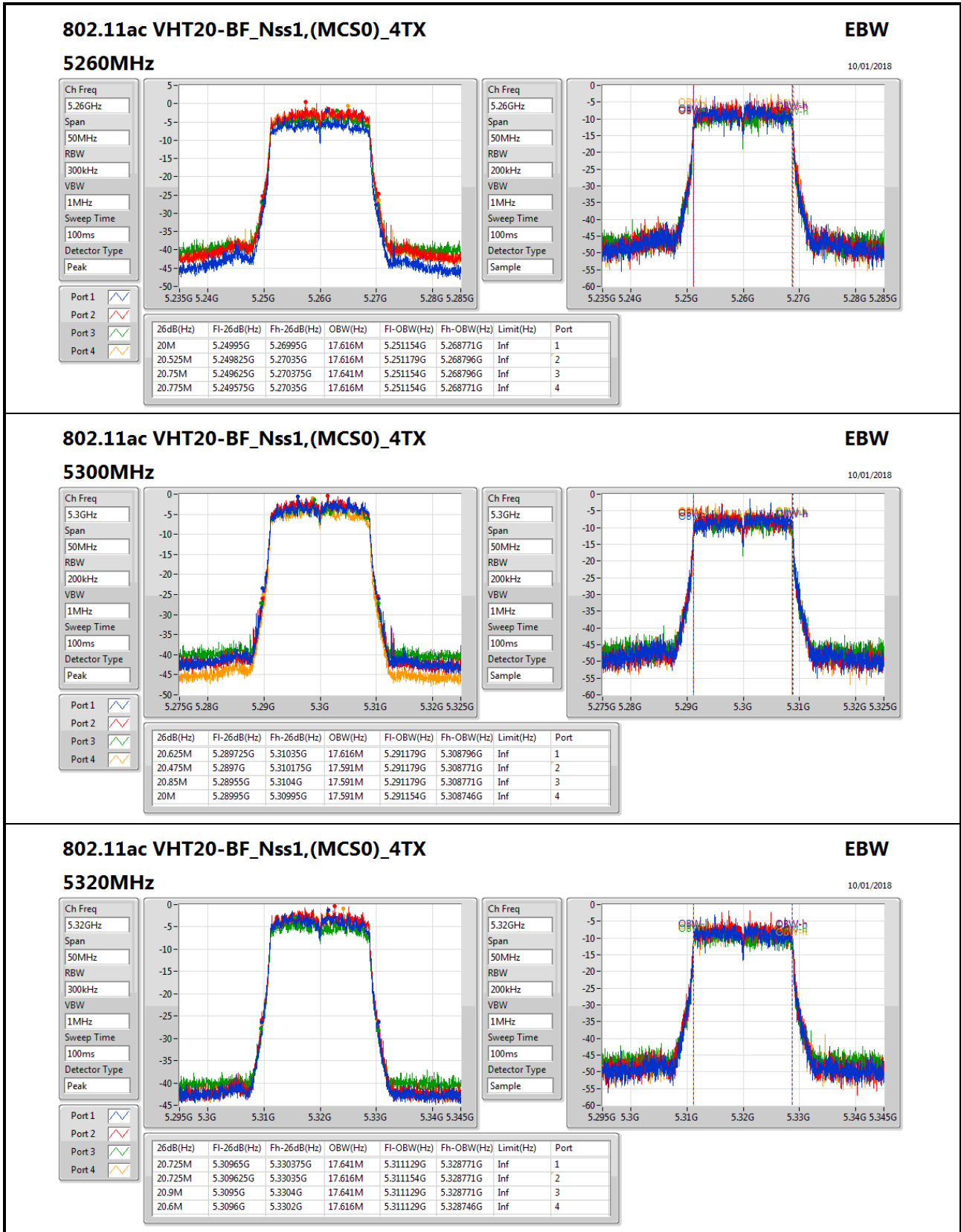
Appendix B.7





EBW Result (Antenna Gain 10 dBi)
Beamforming_Outdoor Master

Appendix B.7


802.11ac VHT20-BF_Nss1,(MCS0)_4TX
EBW
5320MHz
10/01/2018

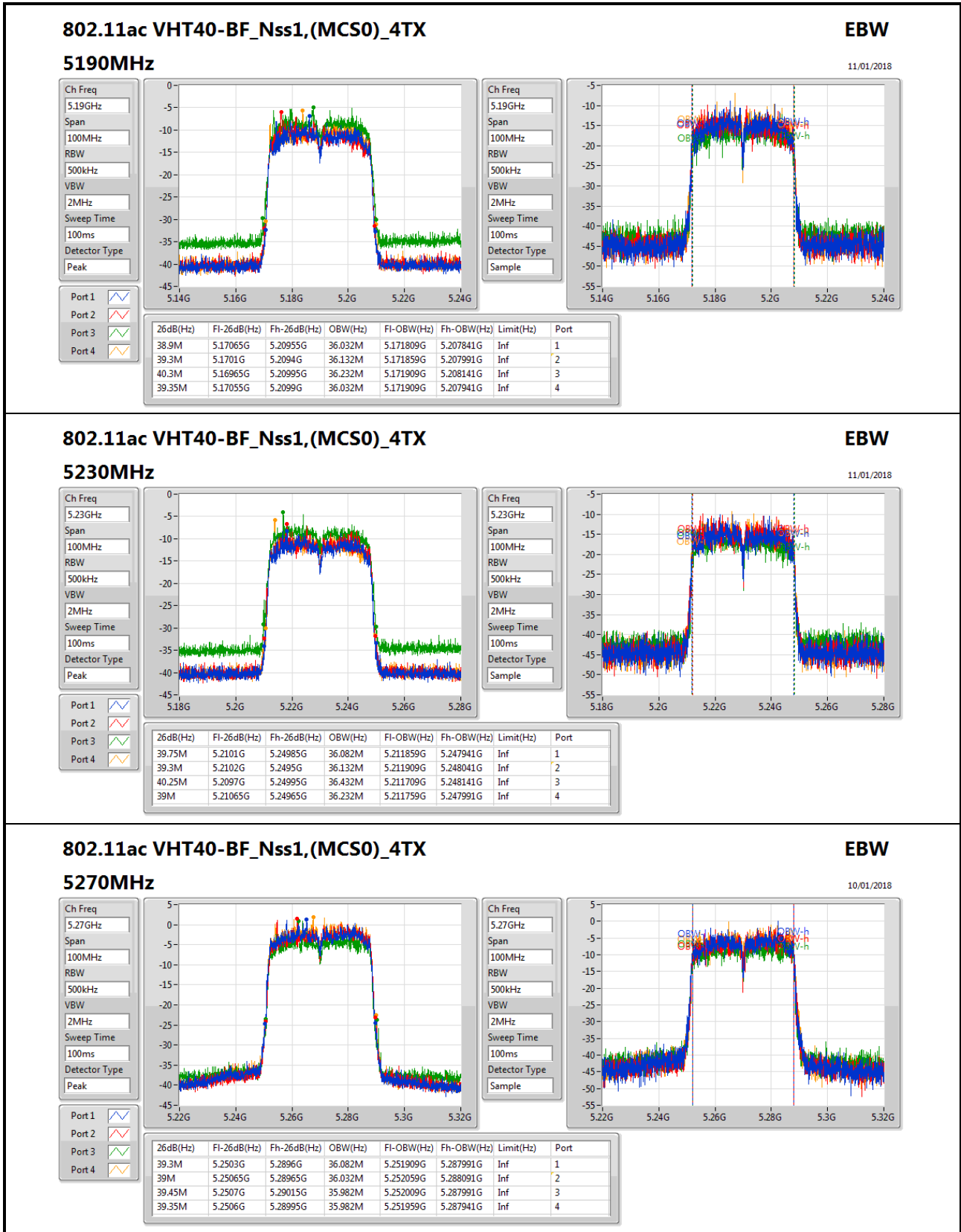
Ch Freq: 5.32GHz
 Span: 50MHz
 RBW: 300kHz
 VBW: 1MHz
 Sweep Time: 100ms
 Detector Type: Peak

Ch Freq: 5.32GHz
 Span: 50MHz
 RBW: 200kHz
 VBW: 1MHz
 Sweep Time: 100ms
 Detector Type: Sample



EBW Result (Antenna Gain 10 dBi)
Beamforming_Outdoor Master

Appendix B.7


802.11ac VHT40-BF_Nss1,(MCS0)_4TX
EBW

10/01/2018

5270MHz

Ch Freq: 5.27GHz
 Span: 100MHz
 RBW: 500kHz
 VBW: 2MHz
 Sweep Time: 100ms
 Detector Type: Peak

Ch Freq: 5.27GHz
 Span: 100MHz
 RBW: 500kHz
 VBW: 2MHz
 Sweep Time: 100ms
 Detector Type: Sample



EBW Result (Antenna Gain 10 dBi)
Beamforming_Outdoor Master

Appendix B.7





EBW Result (Antenna Gain 15 dBi)
Beamforming_Client

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	20.925M	17.666M	17M7D1D	19.975M	17.566M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	39.5M	36.132M	36M1D1D	38.7M	35.732M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	81.9M	76.262M	76M3D1D	80M	75.262M
5.25-5.35GHz	-	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	20.875M	17.666M	17M7D1D	20.4M	17.566M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	39.7M	36.032M	36M0D1D	38.7M	35.732M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	81.5M	75.662M	75M7D1D	80.6M	75.562M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;



EBW Result (Antenna Gain 15 dBi)
Beamforming_Client

Result

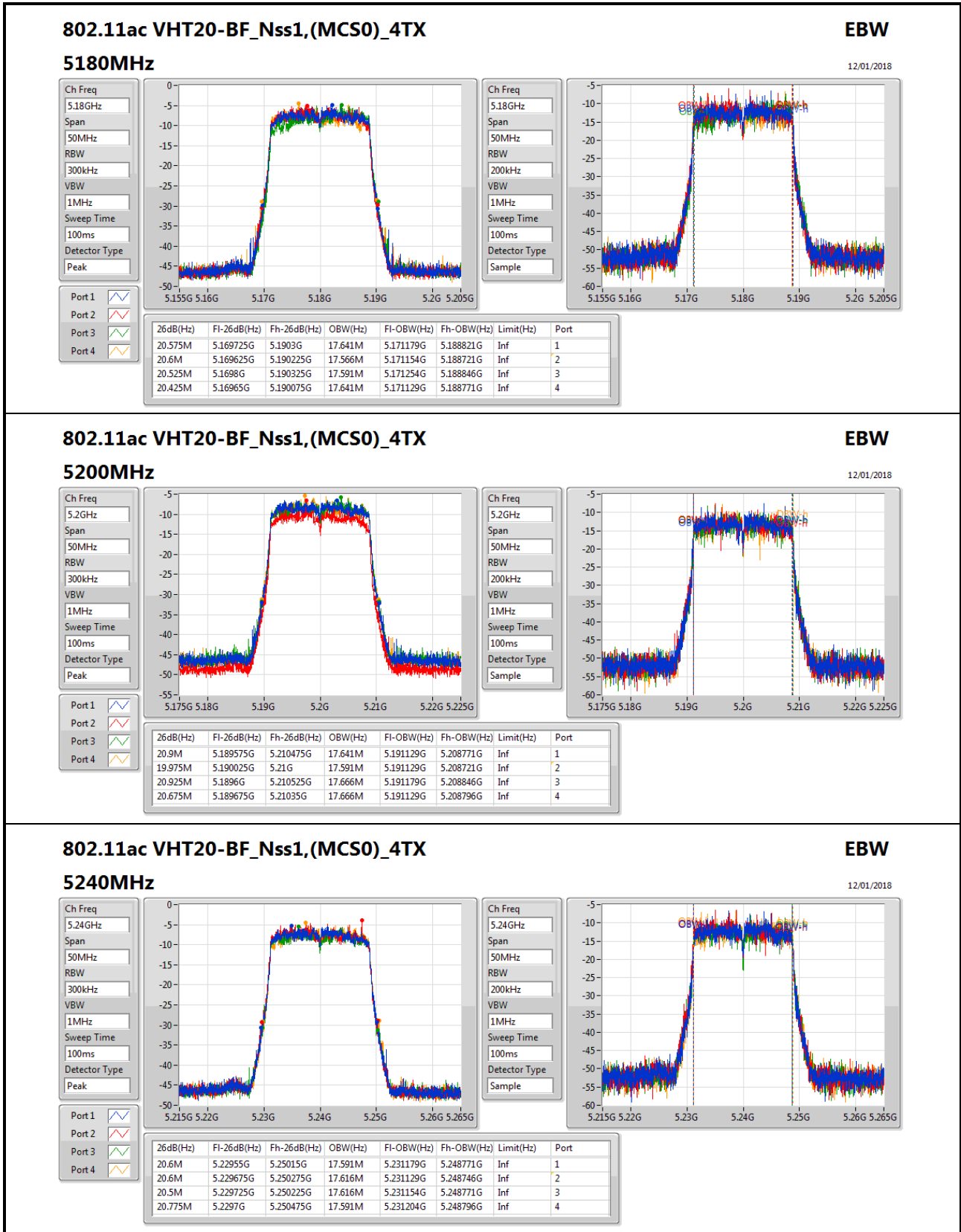
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	20.575M	17.641M	20.6M	17.566M	20.525M	17.591M	20.425M	17.641M
5200MHz_TnomVnom	Pass	Inf	20.9M	17.641M	19.975M	17.591M	20.925M	17.666M	20.675M	17.666M
5240MHz_TnomVnom	Pass	Inf	20.6M	17.591M	20.6M	17.616M	20.5M	17.616M	20.775M	17.591M
5260MHz_TnomVnom	Pass	Inf	20.475M	17.616M	20.775M	17.566M	20.575M	17.641M	20.8M	17.666M
5300MHz_TnomVnom	Pass	Inf	20.85M	17.591M	20.825M	17.616M	20.4M	17.591M	20.775M	17.616M
5320MHz_TnomVnom	Pass	Inf	20.625M	17.616M	20.4M	17.566M	20.875M	17.616M	20.625M	17.616M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	Inf	39.2M	35.982M	39.15M	36.032M	39.15M	35.732M	39.25M	36.132M
5230MHz_TnomVnom	Pass	Inf	38.7M	35.882M	39M	35.932M	38.95M	35.932M	39.5M	35.832M
5270MHz_TnomVnom	Pass	Inf	39.45M	36.032M	38.9M	35.932M	39.7M	36.032M	39.5M	35.932M
5310MHz_TnomVnom	Pass	Inf	39.55M	35.982M	38.7M	35.932M	39.1M	35.732M	39.15M	36.032M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	Inf	80M	75.762M	80.5M	75.462M	80.3M	75.262M	81.9M	76.262M
5290MHz_TnomVnom	Pass	Inf	81.5M	75.662M	80.6M	75.662M	80.7M	75.662M	80.8M	75.562M

Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

Port X-OBW = Port X 99% occupied bandwidth;

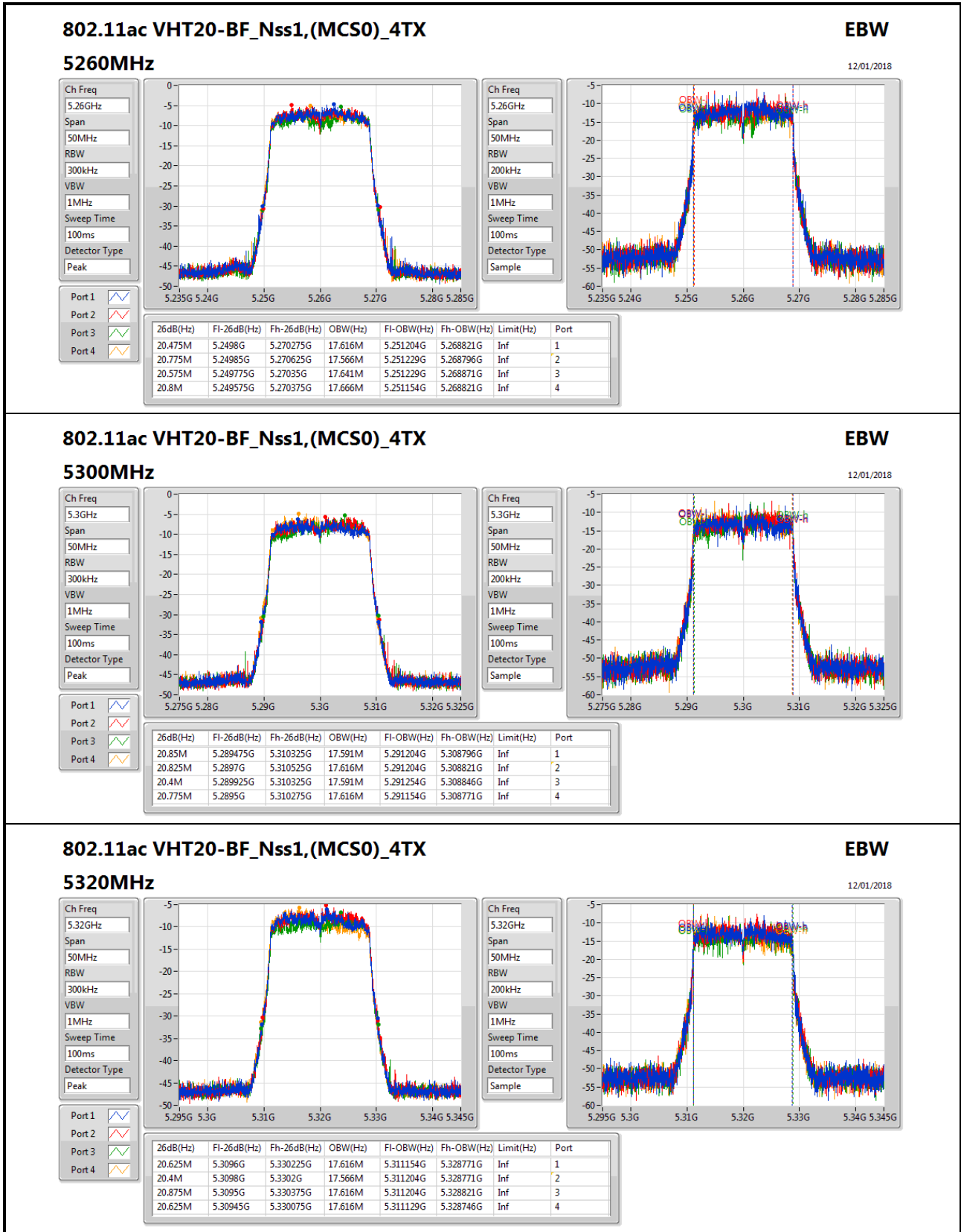


EBW Result (Antenna Gain 15 dBi)
Beamforming_Client





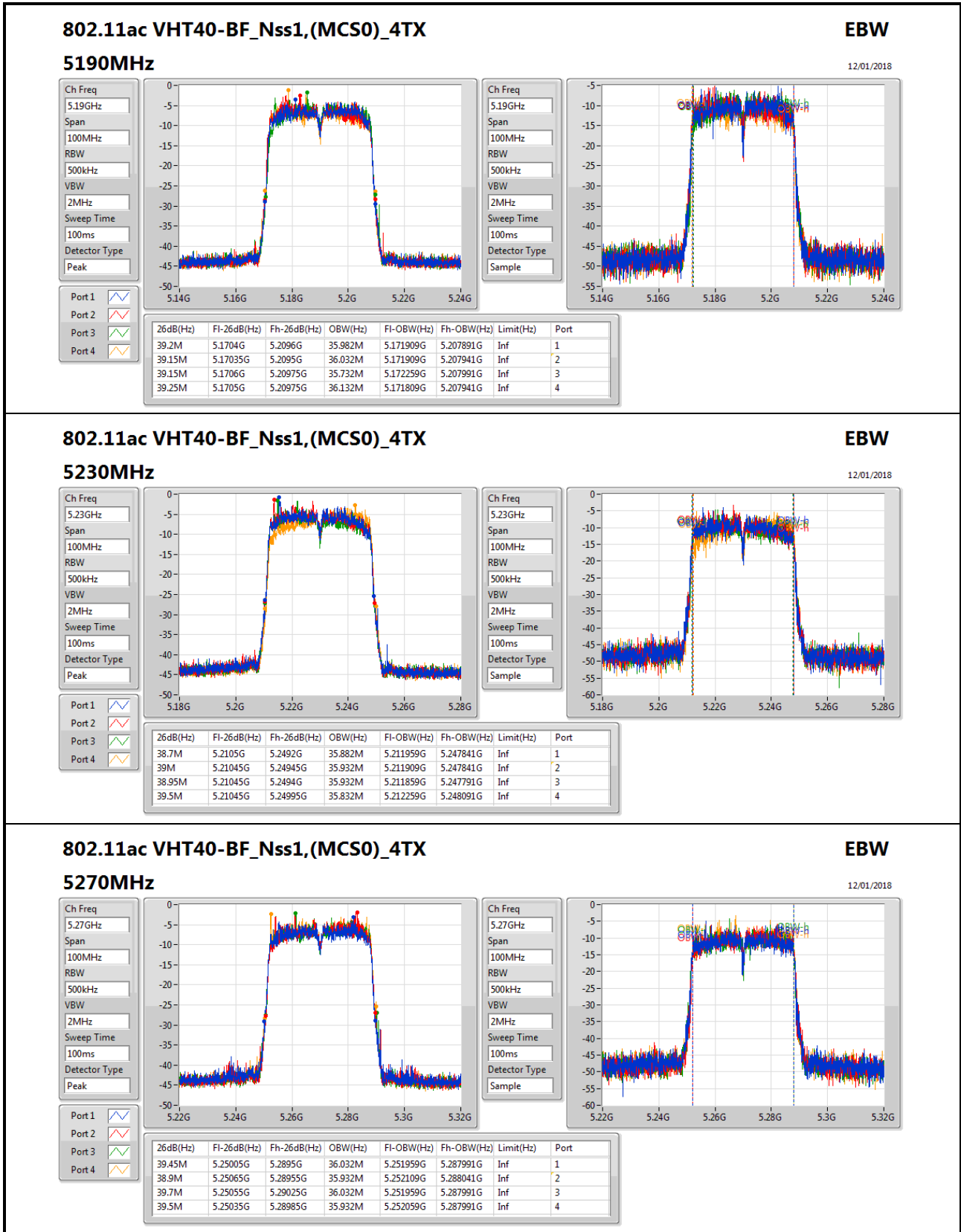
EBW Result (Antenna Gain 15 dBi)
Beamforming_Client





EBW Result (Antenna Gain 15 dBi)
Beamforming_Client

Appendix B.8


802.11ac VHT40-BF_Nss1,(MCS0)_4TX
EBW
5270MHz
12/01/2018

Ch Freq: 5.27GHz
Span: 100MHz
RBW: 500kHz
VBW: 2MHz
Sweep Time: 100ms
Detector Type: Peak

Ch Freq: 5.27GHz
Span: 100MHz
RBW: 500kHz
VBW: 2MHz
Sweep Time: 100ms
Detector Type: Sample



EBW Result (Antenna Gain 15 dBi)
Beamforming_Client

Appendix B.8





EBW Result (Antenna Gain 15 dBi)
Beamforming_Indoor Master

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	20.85M	17.641M	17M6D1D	19.95M	17.566M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	39.25M	36.032M	36M0D1D	38.65M	35.832M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	82.6M	75.862M	75M9D1D	80.4M	75.062M
5.25-5.35GHz	-	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	20.875M	17.666M	17M7D1D	20.4M	17.566M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	39.7M	36.032M	36M0D1D	38.7M	35.732M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	81.5M	75.662M	75M7D1D	80.6M	75.562M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;



**EBW Result (Antenna Gain 15 dBi)
Beamforming_Indoor Master**

Appendix B.9

Result

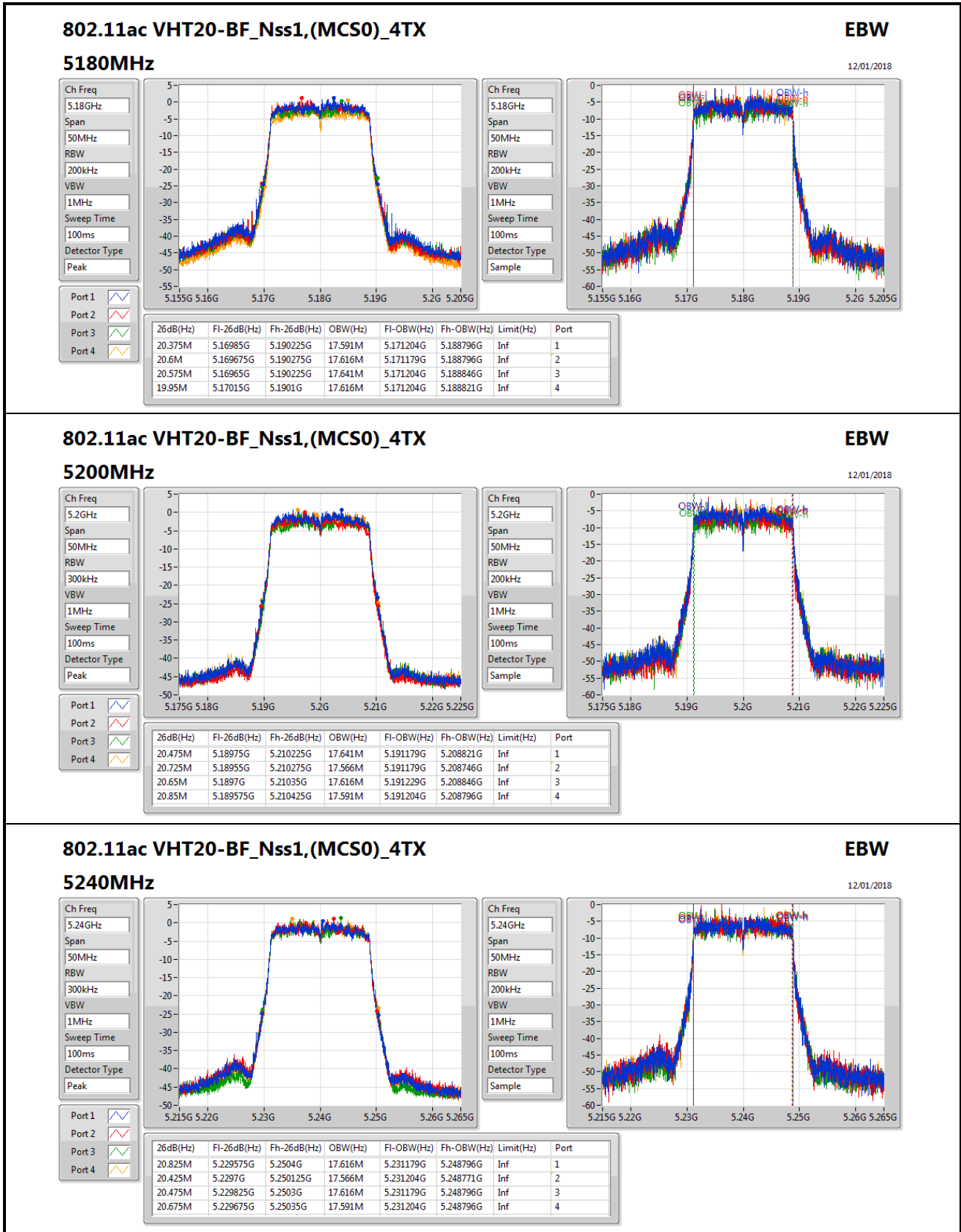
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	20.375M	17.591M	20.6M	17.616M	20.575M	17.641M	19.95M	17.616M
5200MHz_TnomVnom	Pass	Inf	20.475M	17.641M	20.725M	17.566M	20.65M	17.616M	20.85M	17.591M
5240MHz_TnomVnom	Pass	Inf	20.825M	17.616M	20.425M	17.566M	20.475M	17.616M	20.675M	17.591M
5260MHz_TnomVnom	Pass	Inf	20.475M	17.616M	20.775M	17.566M	20.575M	17.641M	20.8M	17.666M
5300MHz_TnomVnom	Pass	Inf	20.85M	17.591M	20.825M	17.616M	20.4M	17.591M	20.775M	17.616M
5320MHz_TnomVnom	Pass	Inf	20.625M	17.616M	20.4M	17.566M	20.875M	17.616M	20.625M	17.616M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	Inf	38.85M	35.882M	38.65M	35.832M	38.65M	35.882M	38.85M	36.032M
5230MHz_TnomVnom	Pass	Inf	38.9M	35.932M	39.25M	35.982M	38.8M	35.882M	39M	36.032M
5270MHz_TnomVnom	Pass	Inf	39.45M	36.032M	38.9M	35.932M	39.7M	36.032M	39.5M	35.932M
5310MHz_TnomVnom	Pass	Inf	39.55M	35.982M	38.7M	35.932M	39.1M	35.732M	39.15M	36.032M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	Inf	80.9M	75.762M	80.8M	75.762M	82.6M	75.062M	80.4M	75.862M
5290MHz_TnomVnom	Pass	Inf	81.5M	75.662M	80.6M	75.662M	80.7M	75.662M	80.8M	75.562M

Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

Port X-OBW = Port X 99% occupied bandwidth;



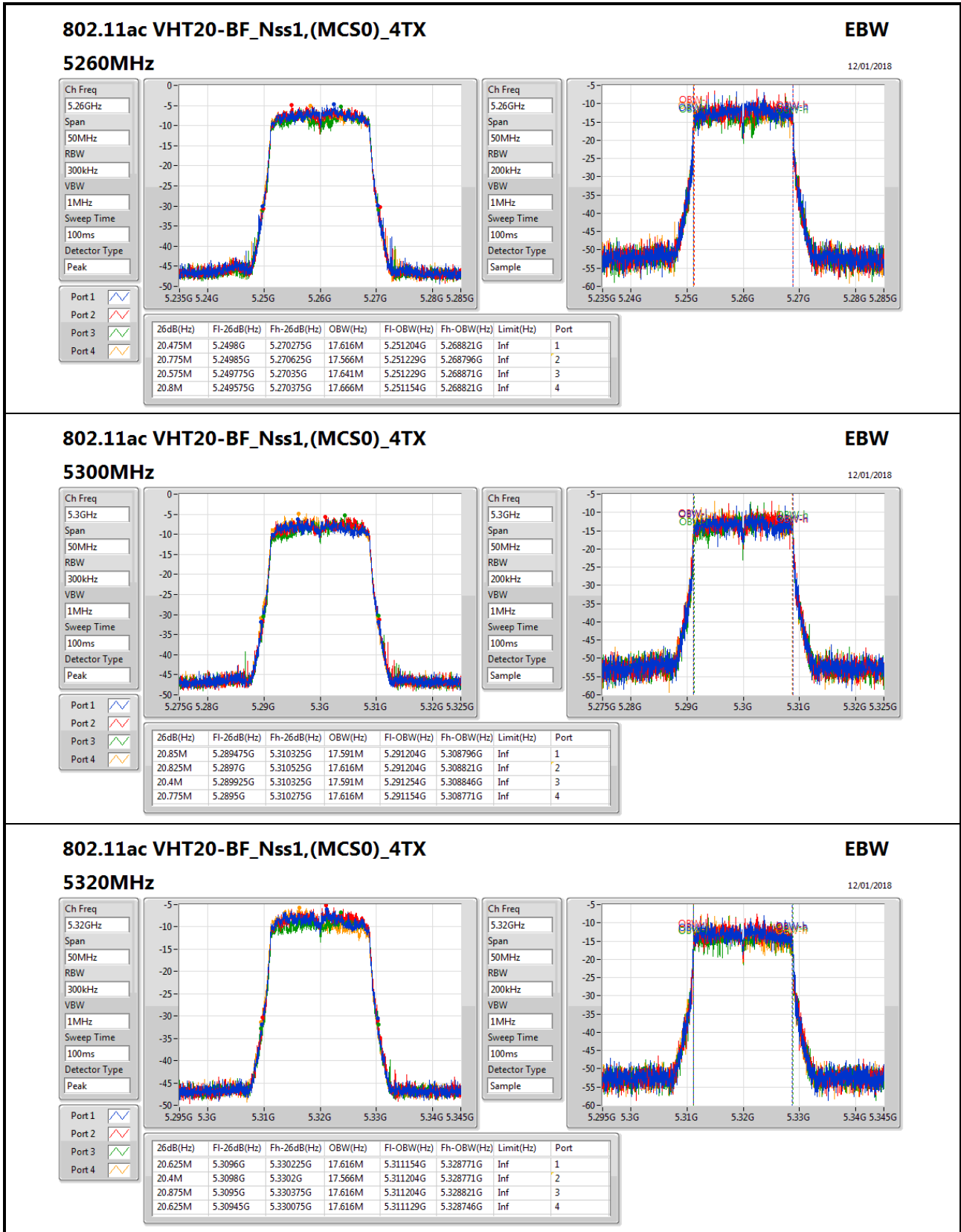
EBW Result (Antenna Gain 15 dBi)
Beamforming_Indoor Master





EBW Result (Antenna Gain 15 dBi)
Beamforming_Indoor Master

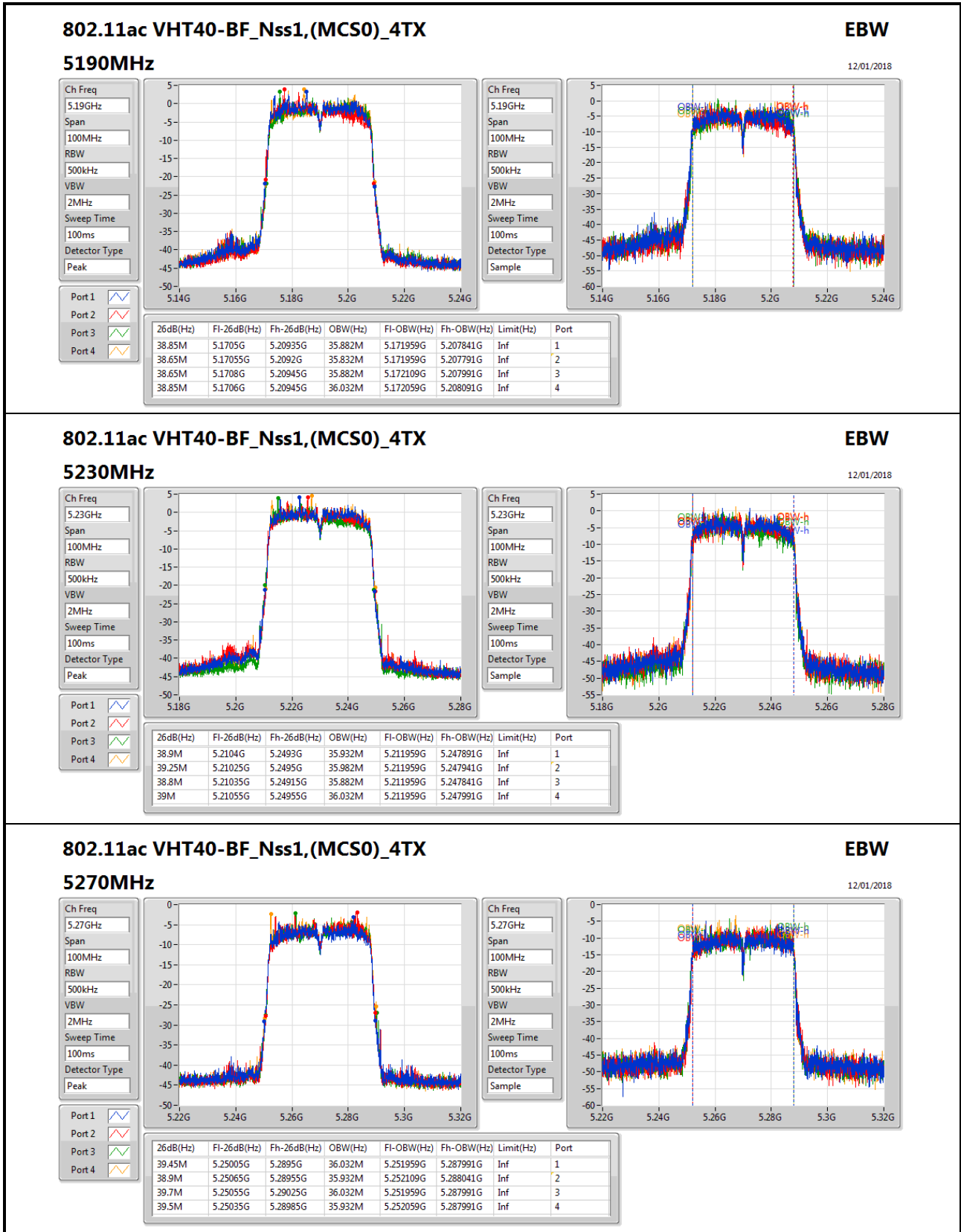
Appendix B.9





EBW Result (Antenna Gain 15 dBi)
Beamforming_Indoor Master

Appendix B.9


802.11ac VHT40-BF_Nss1,(MCS0)_4TX
EBW

12/01/2018

5270MHz

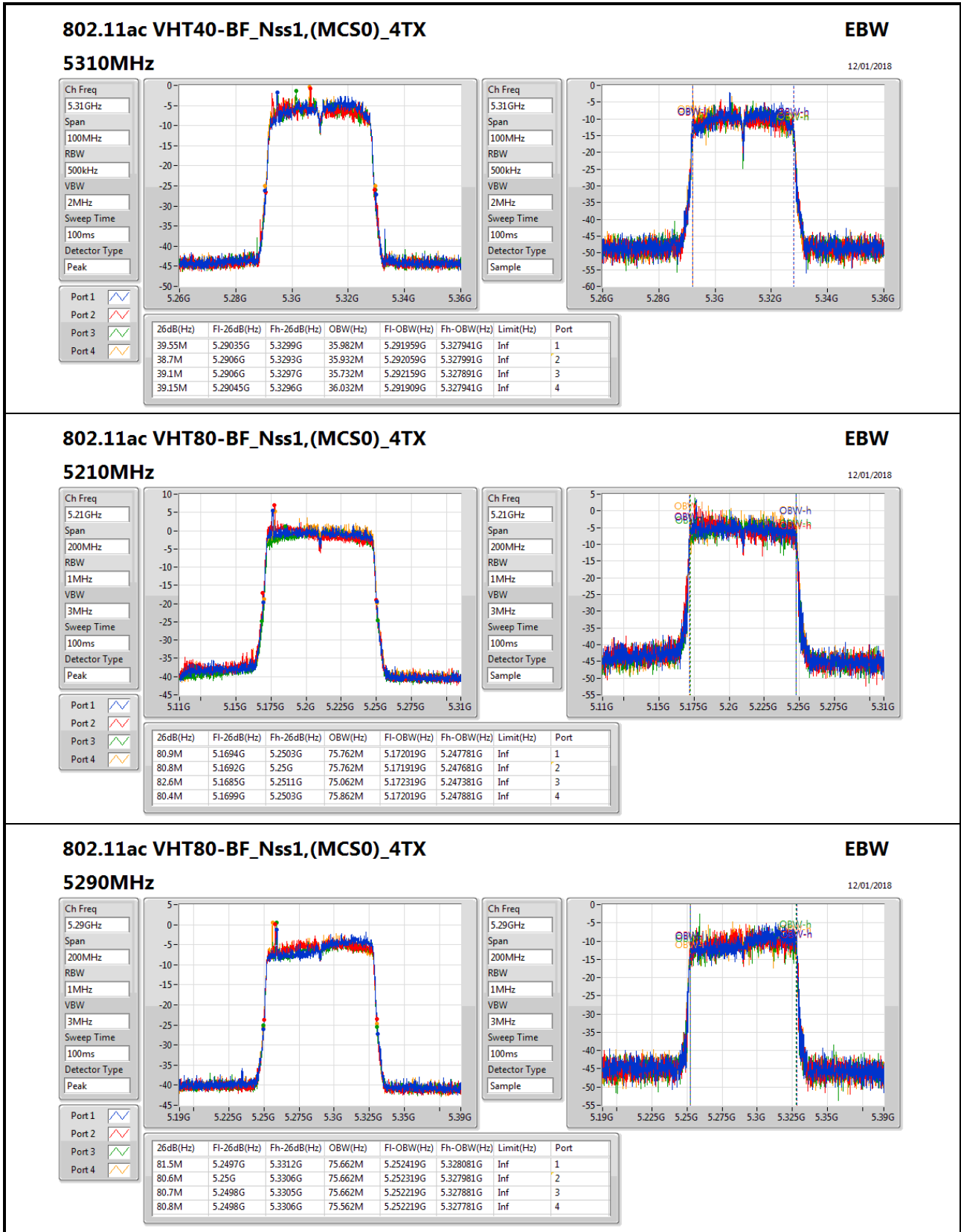
Ch Freq: 5.27GHz
 Span: 100MHz
 RBW: 500kHz
 VBW: 2MHz
 Sweep Time: 100ms
 Detector Type: Peak

Ch Freq: 5.27GHz
 Span: 100MHz
 RBW: 500kHz
 VBW: 2MHz
 Sweep Time: 100ms
 Detector Type: Sample



EBW Result (Antenna Gain 15 dBi)
Beamforming_Indoor Master

Appendix B.9





EBW Result (Antenna Gain 15 dBi)
Beamforming_Outdoor Master

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	21.05M	17.666M	17M7D1D	20.55M	17.591M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	39.7M	36.182M	36M2D1D	38.85M	36.082M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	83.2M	76.362M	76M4D1D	81.1M	75.962M
5.25-5.35GHz	-	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	20.875M	17.666M	17M7D1D	20.4M	17.566M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	39.7M	36.032M	36M0D1D	38.7M	35.732M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	81.5M	75.662M	75M7D1D	80.6M	75.562M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;



EBW Result (Antenna Gain 15 dBi)
Beamforming_Outdoor Master

Appendix B.10

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)
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	20.875M	17.666M	21.05M	17.616M	20.825M	17.666M	20.775M	17.641M
5200MHz_TnomVnom	Pass	Inf	20.75M	17.666M	20.825M	17.616M	20.55M	17.641M	20.975M	17.641M
5240MHz_TnomVnom	Pass	Inf	20.85M	17.666M	20.875M	17.641M	20.95M	17.591M	20.825M	17.641M
5260MHz_TnomVnom	Pass	Inf	20.475M	17.616M	20.775M	17.566M	20.575M	17.641M	20.8M	17.666M
5300MHz_TnomVnom	Pass	Inf	20.85M	17.591M	20.825M	17.616M	20.4M	17.591M	20.775M	17.616M
5320MHz_TnomVnom	Pass	Inf	20.625M	17.616M	20.4M	17.566M	20.875M	17.616M	20.625M	17.616M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	Inf	39.25M	36.182M	39.5M	36.082M	39.7M	36.132M	39.2M	36.082M
5230MHz_TnomVnom	Pass	Inf	39.2M	36.082M	39.55M	36.182M	39.35M	36.082M	38.85M	36.132M
5270MHz_TnomVnom	Pass	Inf	39.45M	36.032M	38.9M	35.932M	39.7M	36.032M	39.5M	35.932M
5310MHz_TnomVnom	Pass	Inf	39.55M	35.982M	38.7M	35.932M	39.1M	35.732M	39.15M	36.032M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	Inf	81.5M	76.162M	81.1M	76.362M	83.2M	75.962M	81.6M	76.162M
5290MHz_TnomVnom	Pass	Inf	81.5M	75.662M	80.6M	75.662M	80.7M	75.662M	80.8M	75.562M

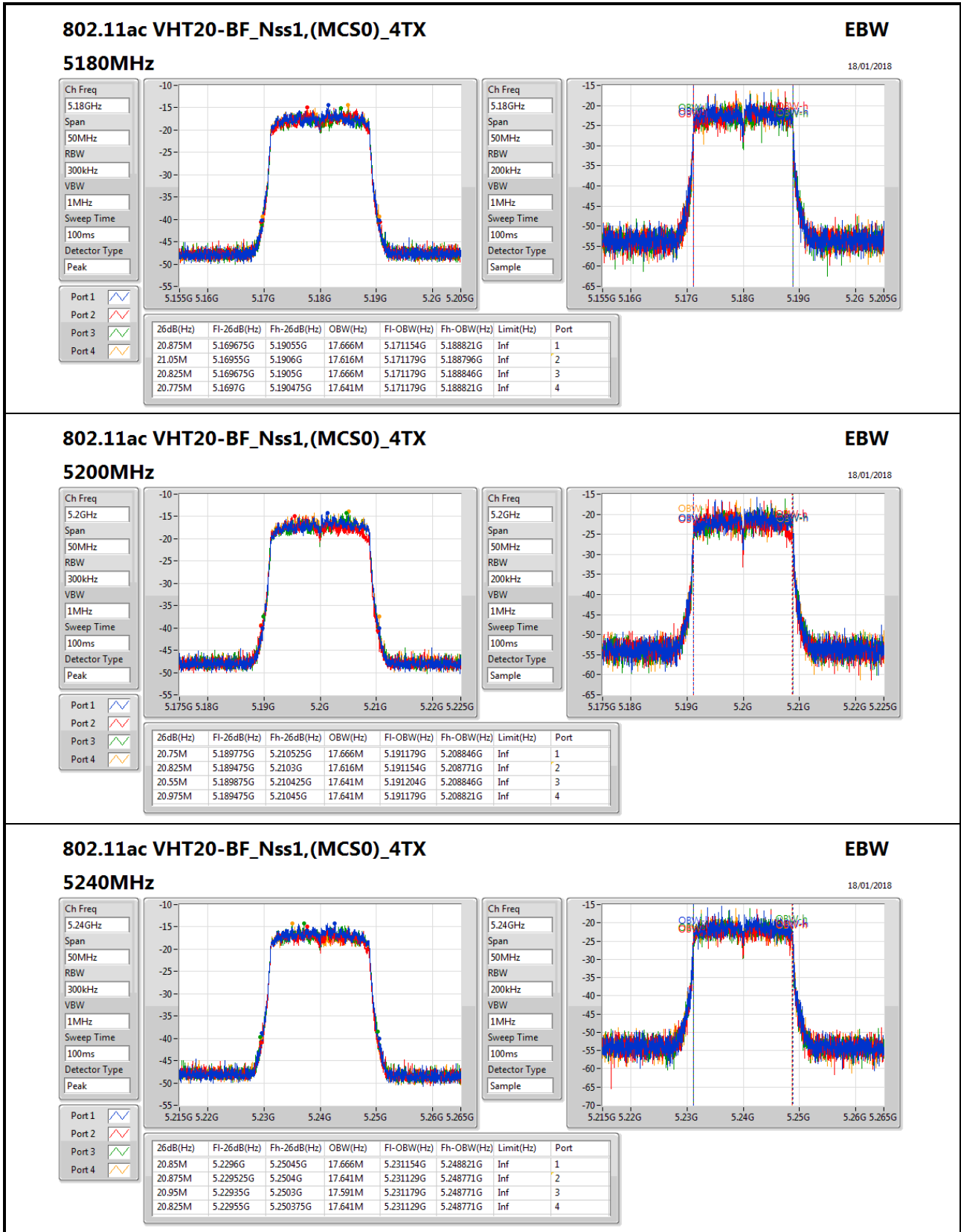
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

Port X-OBW = Port X 99% occupied bandwidth;



EBW Result (Antenna Gain 15 dBi)
Beamforming_Outdoor Master

Appendix B.10


802.11ac VHT20-BF_Nss1,(MCS0)_4TX
EBW
5240MHz
18/01/2018

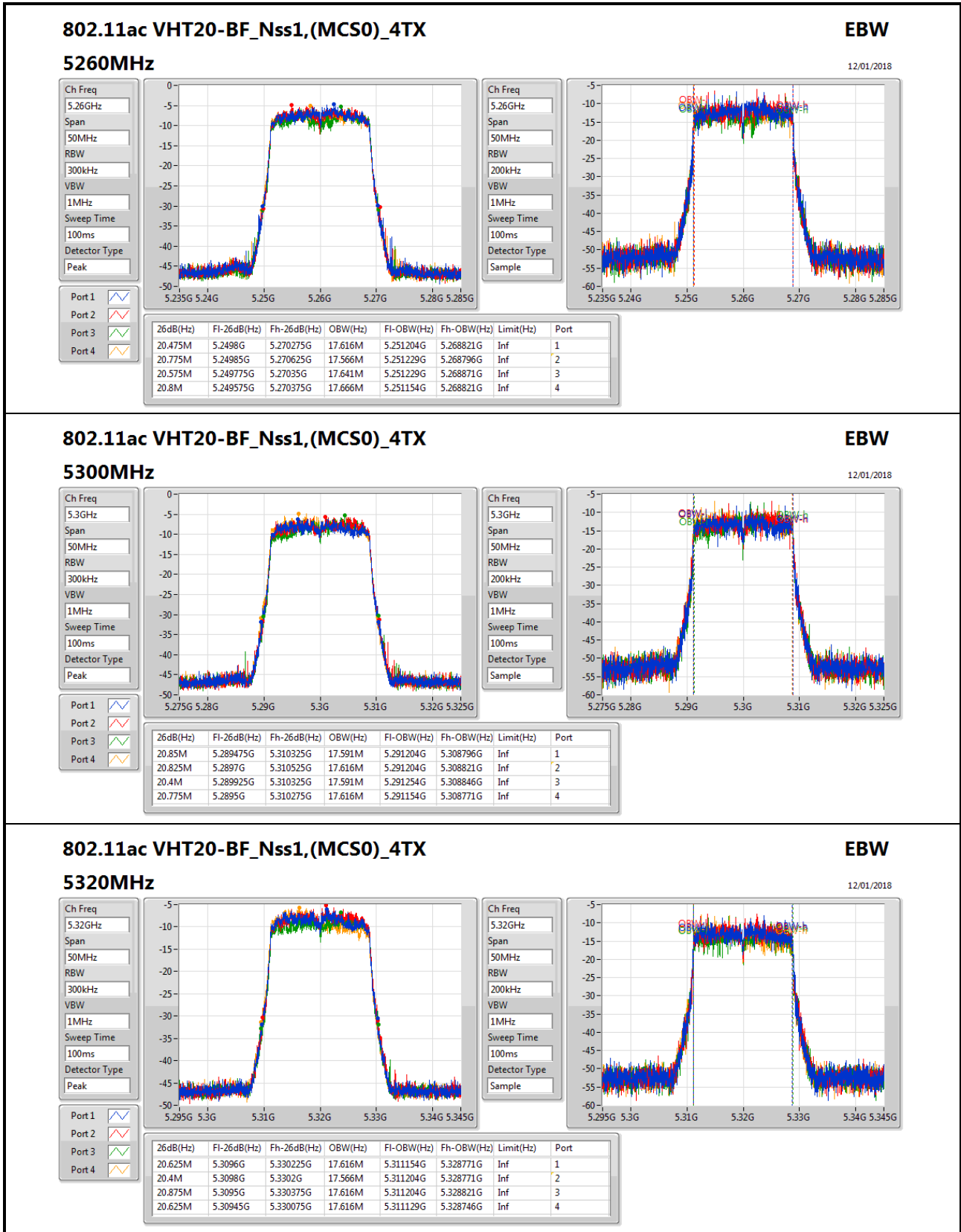
Ch Freq: 5.24GHz
 Span: 50MHz
 RBW: 300kHz
 VBW: 1MHz
 Sweep Time: 100ms
 Detector Type: Peak

Ch Freq: 5.24GHz
 Span: 50MHz
 RBW: 200kHz
 VBW: 3
 Sweep Time: 100ms
 Detector Type: Sample



EBW Result (Antenna Gain 15 dBi)
Beamforming_Outdoor Master

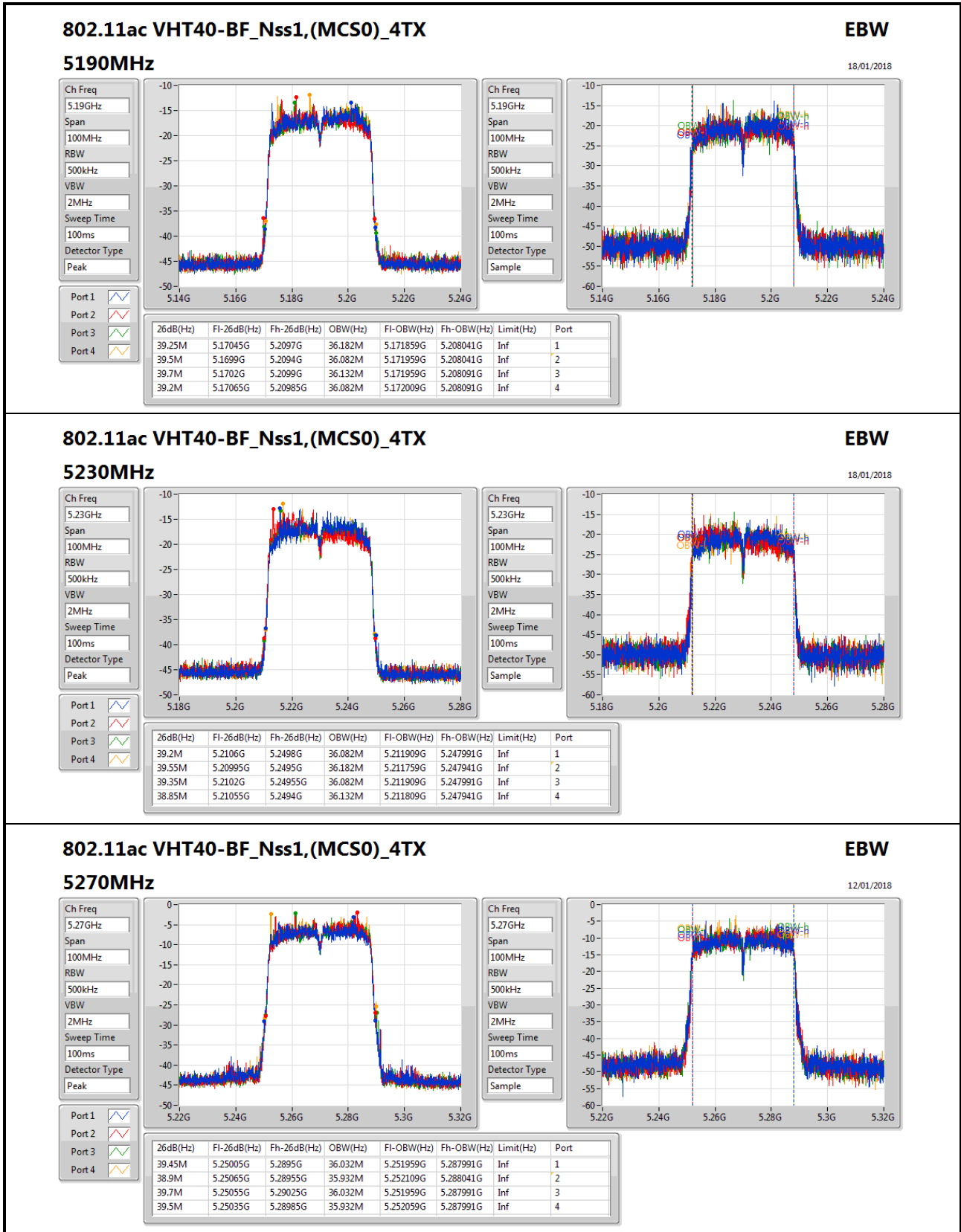
Appendix B.10





EBW Result (Antenna Gain 15 dBi)
Beamforming_Outdoor Master

Appendix B.10


802.11ac VHT40-BF_Nss1,(MCS0)_4TX
EBW
5270MHz
12/01/2018

Ch Freq: 5.27GHz
Span: 100MHz
RBW: 500kHz
VBW: 2MHz
Sweep Time: 100ms
Detector Type: Peak

Ch Freq: 5.27GHz
Span: 100MHz
RBW: 500kHz
VBW: 2MHz
Sweep Time: 100ms
Detector Type: Sample



EBW Result (Antenna Gain 15 dBi)
Beamforming_Outdoor Master

Appendix B.10





Power Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master

Appendix C.1

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	19.96	0.09908	29.96	0.99083
802.11ac VHT20_Nss1,(MCS0)_4TX	20.12	0.10280	30.12	1.02802
802.11ac VHT40_Nss1,(MCS0)_4TX	22.82	0.19143	32.82	1.91426
802.11ac VHT80_Nss1,(MCS0)_4TX	19.45	0.08810	29.45	0.88105
5.25-5.35GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	13.79	0.02393	23.79	0.23933
802.11ac VHT20_Nss1,(MCS0)_4TX	14.15	0.02600	24.15	0.26002
802.11ac VHT40_Nss1,(MCS0)_4TX	16.80	0.04786	26.80	0.47863
802.11ac VHT80_Nss1,(MCS0)_4TX	19.80	0.09550	29.80	0.95499



**Power Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master**

Appendix C.1

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	10.00	13.52	13.80	13.55	13.90	19.72	26.00	29.72	36.00
5200MHz	Pass	10.00	13.79	13.88	13.74	14.34	19.96	26.00	29.96	36.00
5240MHz	Pass	10.00	13.87	13.80	13.71	13.84	19.83	26.00	29.83	36.00
5260MHz	Pass	10.00	8.01	7.80	7.49	7.73	13.78	19.15	23.78	29.15
5300MHz	Pass	10.00	7.90	7.76	7.86	7.53	13.79	19.15	23.79	29.15
5320MHz	Pass	10.00	7.34	7.73	7.42	8.07	13.67	19.15	23.67	29.15
802.11ac_VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	10.00	13.75	14.30	13.93	14.39	20.12	26.00	30.12	36.00
5200MHz	Pass	10.00	13.59	13.74	13.68	14.23	19.84	26.00	29.84	36.00
5240MHz	Pass	10.00	13.60	13.65	13.60	13.90	19.71	26.00	29.71	36.00
5260MHz	Pass	10.00	7.70	8.11	7.86	7.53	13.83	19.46	23.83	29.46
5300MHz	Pass	10.00	8.41	8.11	8.17	7.82	14.15	19.45	24.15	29.45
5320MHz	Pass	10.00	7.73	8.01	7.73	7.83	13.85	19.45	23.85	29.45
802.11ac_VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	10.00	16.62	16.83	16.48	16.79	22.70	26.00	32.70	36.00
5230MHz	Pass	10.00	16.69	16.81	16.76	16.93	22.82	26.00	32.82	36.00
5270MHz	Pass	10.00	10.50	10.89	10.76	9.85	16.54	20.00	26.54	30.00
5310MHz	Pass	10.00	10.65	10.95	11.04	10.44	16.80	20.00	26.80	30.00
802.11ac_VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	10.00	13.29	13.50	13.24	13.66	19.45	26.00	29.45	36.00
5290MHz	Pass	10.00	13.69	14.05	13.97	13.36	19.80	20.00	29.80	30.00

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



Power Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	10.86	0.01219	20.86	0.12190
802.11ac VHT20_Nss1,(MCS0)_4TX	10.98	0.01253	20.98	0.12531
802.11ac VHT40_Nss1,(MCS0)_4TX	10.98	0.01253	20.98	0.12531
802.11ac VHT80_Nss1,(MCS0)_4TX	10.90	0.01230	20.90	0.12303
5.25-5.35GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	13.79	0.02393	23.79	0.23933
802.11ac VHT20_Nss1,(MCS0)_4TX	14.15	0.02600	24.15	0.26002
802.11ac VHT40_Nss1,(MCS0)_4TX	16.80	0.04786	26.80	0.47863
802.11ac VHT80_Nss1,(MCS0)_4TX	19.80	0.09550	29.80	0.95499



Power Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	10.00	4.44	4.49	4.61	4.57	10.55	26.00	20.55	36.00
5200MHz	Pass	10.00	4.76	4.48	4.75	5.32	10.86	26.00	20.86	36.00
5240MHz	Pass	10.00	4.66	4.52	4.47	4.69	10.61	26.00	20.61	36.00
5260MHz	Pass	10.00	8.01	7.80	7.49	7.73	13.78	19.85	23.78	29.85
5300MHz	Pass	10.00	7.90	7.76	7.86	7.53	13.79	19.88	23.79	29.88
5320MHz	Pass	10.00	7.34	7.73	7.42	8.07	13.67	19.87	23.67	29.87
802.11ac_VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	10.00	4.84	4.76	5.02	5.21	10.98	26.00	20.98	36.00
5200MHz	Pass	10.00	4.64	4.43	4.43	5.26	10.72	26.00	20.72	36.00
5240MHz	Pass	10.00	4.95	4.91	4.69	5.26	10.98	26.00	20.98	36.00
5260MHz	Pass	10.00	7.70	8.11	7.86	7.53	13.83	20.00	23.83	30.00
5300MHz	Pass	10.00	8.41	8.11	8.17	7.82	14.15	20.00	24.15	30.00
5320MHz	Pass	10.00	7.73	8.01	7.73	7.83	13.85	20.00	23.85	30.00
802.11ac_VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	10.00	4.88	4.89	4.93	5.14	10.98	26.00	20.98	36.00
5230MHz	Pass	10.00	4.55	4.39	4.48	4.75	10.57	26.00	20.57	36.00
5270MHz	Pass	10.00	10.50	10.89	10.76	9.85	16.54	20.00	26.54	30.00
5310MHz	Pass	10.00	10.65	10.95	11.04	10.44	16.80	20.00	26.80	30.00
802.11ac_VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	10.00	4.84	4.83	4.84	5.01	10.90	26.00	20.90	36.00
5290MHz	Pass	10.00	13.69	14.05	13.97	13.36	19.80	20.00	29.80	30.00

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



Power Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master

Appendix C.3

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	14.76	0.02992	29.76	0.94624
802.11ac VHT20_Nss1,(MCS0)_4TX	14.88	0.03076	29.88	0.97275
802.11ac VHT40_Nss1,(MCS0)_4TX	17.53	0.05662	32.53	1.79061
802.11ac VHT80_Nss1,(MCS0)_4TX	15.13	0.03258	30.13	1.03039
5.25-5.35GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	8.79	0.00757	23.79	0.23933
802.11ac VHT20_Nss1,(MCS0)_4TX	8.56	0.00718	23.56	0.22699
802.11ac VHT40_Nss1,(MCS0)_4TX	11.57	0.01435	26.57	0.45394
802.11ac VHT80_Nss1,(MCS0)_4TX	14.89	0.03083	29.89	0.97499



**Power Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master**

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	15.00	8.55	8.39	8.01	9.03	14.53	21.00	29.53	36.00
5200MHz	Pass	15.00	8.62	8.55	8.37	9.36	14.76	21.00	29.76	36.00
5240MHz	Pass	15.00	8.41	8.61	8.01	9.07	14.56	21.00	29.56	36.00
5260MHz	Pass	15.00	2.72	2.64	2.91	2.80	8.79	14.84	23.79	29.84
5300MHz	Pass	15.00	2.36	2.21	3.12	2.62	8.61	14.82	23.61	29.82
5320MHz	Pass	15.00	2.31	2.47	2.66	2.43	8.49	14.88	23.49	29.88
802.11ac_VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	15.00	8.92	8.61	8.50	9.34	14.88	21.00	29.88	36.00
5200MHz	Pass	15.00	8.77	8.48	8.19	9.23	14.71	21.00	29.71	36.00
5240MHz	Pass	15.00	8.45	8.53	7.97	9.04	14.53	21.00	29.53	36.00
5260MHz	Pass	15.00	2.23	2.44	2.78	2.70	8.56	15.00	23.56	30.00
5300MHz	Pass	15.00	1.98	2.14	2.75	2.29	8.32	15.00	23.32	30.00
5320MHz	Pass	15.00	2.28	2.31	2.59	2.22	8.37	15.00	23.37	30.00
802.11ac_VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	15.00	11.05	11.43	11.25	12.21	17.53	21.00	32.53	36.00
5230MHz	Pass	15.00	11.36	11.53	11.07	11.54	17.40	21.00	32.40	36.00
5270MHz	Pass	15.00	5.02	4.98	5.65	5.61	11.35	15.00	26.35	30.00
5310MHz	Pass	15.00	5.61	5.19	5.88	5.47	11.57	15.00	26.57	30.00
802.11ac_VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	15.00	9.44	8.88	8.32	9.66	15.13	21.00	30.13	36.00
5290MHz	Pass	15.00	8.85	8.49	8.82	9.29	14.89	15.00	29.89	30.00

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



Power Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master

Appendix C.4

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	5.76	0.00377	20.76	0.11912
802.11ac VHT20_Nss1,(MCS0)_4TX	5.98	0.00396	20.98	0.12531
802.11ac VHT40_Nss1,(MCS0)_4TX	5.89	0.00388	20.89	0.12274
802.11ac VHT80_Nss1,(MCS0)_4TX	4.41	0.00276	19.41	0.08730
5.25-5.35GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	8.79	0.00757	23.79	0.23933
802.11ac VHT20_Nss1,(MCS0)_4TX	8.56	0.00718	23.56	0.22699
802.11ac VHT40_Nss1,(MCS0)_4TX	11.57	0.01435	26.57	0.45394
802.11ac VHT80_Nss1,(MCS0)_4TX	14.89	0.03083	29.89	0.97499



Power Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	15.00	-0.68	0.12	0.04	-0.58	5.76	21.00	20.76	36.00
5200MHz	Pass	15.00	-0.47	-0.71	-0.55	0.03	5.60	21.00	20.60	36.00
5240MHz	Pass	15.00	-0.24	-0.19	-0.89	0.08	5.72	21.00	20.72	36.00
5260MHz	Pass	15.00	2.72	2.64	2.91	2.80	8.79	14.87	23.79	29.87
5300MHz	Pass	15.00	2.36	2.21	3.12	2.62	8.61	14.82	23.61	29.82
5320MHz	Pass	15.00	2.31	2.47	2.66	2.43	8.49	14.88	23.49	29.88
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	15.00	-0.61	0.02	0.07	-0.40	5.80	21.00	20.80	36.00
5200MHz	Pass	15.00	-0.23	-0.55	-0.35	0.34	5.84	21.00	20.84	36.00
5240MHz	Pass	15.00	0.04	0.12	-0.62	0.23	5.98	21.00	20.98	36.00
5260MHz	Pass	15.00	2.23	2.44	2.78	2.70	8.56	15.00	23.56	30.00
5300MHz	Pass	15.00	1.98	2.14	2.75	2.29	8.32	15.00	23.32	30.00
5320MHz	Pass	15.00	2.28	2.31	2.59	2.22	8.37	15.00	23.37	30.00
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	15.00	-0.28	-0.10	-0.25	-0.06	5.85	21.00	20.85	36.00
5230MHz	Pass	15.00	0.00	-0.11	-0.76	0.27	5.89	21.00	20.89	36.00
5270MHz	Pass	15.00	5.02	4.98	5.65	5.61	11.35	15.00	26.35	30.00
5310MHz	Pass	15.00	5.61	5.19	5.88	5.47	11.57	15.00	26.57	30.00
802.11ac VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	15.00	-1.60	-2.11	-1.94	-0.88	4.41	21.00	19.41	36.00
5290MHz	Pass	15.00	8.85	8.49	8.82	9.29	14.89	15.00	29.89	30.00

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



Power Result (Antenna Gain 10 dBi)
Beamforming_Client

Appendix C.5

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	13.57	0.02275	29.59	0.90991
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	13.67	0.02328	29.69	0.93111
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	13.12	0.02051	29.14	0.82035
5.25-5.35GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	13.67	0.02328	29.69	0.93111
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	13.65	0.02317	29.67	0.92683
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	13.66	0.02323	29.68	0.92897



Power Result (Antenna Gain 10 dBi)
Beamforming_Client

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	16.02	7.69	7.67	5.99	8.50	13.57	13.98	29.59	30.00
5200MHz_TnomVnom	Pass	16.02	7.66	7.56	6.07	8.36	13.51	13.98	29.53	30.00
5240MHz_TnomVnom	Pass	16.02	6.99	7.81	5.89	7.39	13.10	13.98	29.12	30.00
5260MHz_TnomVnom	Pass	16.02	6.73	7.71	6.32	7.59	13.15	13.98	29.17	30.00
5300MHz_TnomVnom	Pass	16.02	7.23	8.05	6.99	8.22	13.67	13.98	29.69	30.00
5320MHz_TnomVnom	Pass	16.02	7.07	8.05	5.53	7.31	13.10	13.98	29.12	30.00
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	16.02	8.15	7.37	6.08	8.61	13.67	13.98	29.69	30.00
5230MHz_TnomVnom	Pass	16.02	7.59	7.80	5.89	7.86	13.38	13.98	29.40	30.00
5270MHz_TnomVnom	Pass	16.02	7.98	7.95	6.05	8.20	13.65	13.98	29.67	30.00
5310MHz_TnomVnom	Pass	16.02	8.28	7.91	5.92	7.43	13.49	13.98	29.51	30.00
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	16.02	7.30	7.47	5.62	7.71	13.12	13.98	29.14	30.00
5290MHz_TnomVnom	Pass	16.02	8.18	8.15	6.61	7.45	13.66	13.98	29.68	30.00

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



Power Result (Antenna Gain 10 dBi)
Beamforming_Indoor Master

Appendix C.6

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	19.35	0.08610	35.37	3.44350
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	19.52	0.08954	35.54	3.58096
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	19.06	0.08054	35.08	3.22107
5.25-5.35GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	13.67	0.02328	29.69	0.93111
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	13.65	0.02317	29.67	0.92683
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	13.66	0.02323	29.68	0.92897



Power Result (Antenna Gain 10 dBi)
Beamforming_Indoor Master

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	16.02	13.13	13.49	11.89	13.95	19.20	19.98	35.22	36.00
5200MHz_TnomVnom	Pass	16.02	13.60	13.40	11.69	14.25	19.35	19.98	35.37	36.00
5240MHz_TnomVnom	Pass	16.02	13.06	14.01	11.94	13.10	19.11	19.98	35.13	36.00
5260MHz_TnomVnom	Pass	16.02	6.73	7.71	6.32	7.59	13.15	13.98	29.17	30.00
5300MHz_TnomVnom	Pass	16.02	7.23	8.05	6.99	8.22	13.67	13.98	29.69	30.00
5320MHz_TnomVnom	Pass	16.02	7.07	8.05	5.53	7.31	13.10	13.98	29.12	30.00
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	16.02	14.23	13.47	12.22	13.81	19.52	19.98	35.54	36.00
5230MHz_TnomVnom	Pass	16.02	13.63	13.76	11.48	12.95	19.06	19.98	35.08	36.00
5270MHz_TnomVnom	Pass	16.02	7.98	7.95	6.05	8.20	13.65	13.98	29.67	30.00
5310MHz_TnomVnom	Pass	16.02	8.28	7.91	5.92	7.43	13.49	13.98	29.51	30.00
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	16.02	13.16	13.00	12.11	13.75	19.06	19.98	35.08	36.00
5290MHz_TnomVnom	Pass	16.02	8.18	8.15	6.61	7.45	13.66	13.98	29.68	30.00

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



Power Result (Antenna Gain 10 dBi)
Beamforming_Outdoor Master

Appendix C.7

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	4.47	0.00280	20.49	0.11194
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	4.57	0.00286	20.59	0.11455
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	4.97	0.00314	20.99	0.12560
5.25-5.35GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	13.67	0.02328	29.69	0.93111
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	13.65	0.02317	29.67	0.92683
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	13.66	0.02323	29.68	0.92897



Power Result (Antenna Gain 10 dBi)
Beamforming_Outdoor Master

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	16.02	-1.29	-1.33	-2.74	-1.03	4.47	19.98	20.49	36.00
5200MHz_TnomVnom	Pass	16.02	-1.72	-1.38	-2.85	-1.06	4.32	19.98	20.34	36.00
5240MHz_TnomVnom	Pass	16.02	-2.01	-1.13	-3.27	-1.41	4.14	19.98	20.16	36.00
5260MHz_TnomVnom	Pass	16.02	6.73	7.71	6.32	7.59	13.15	13.98	29.17	30.00
5300MHz_TnomVnom	Pass	16.02	7.23	8.05	6.99	8.22	13.67	13.98	29.69	30.00
5320MHz_TnomVnom	Pass	16.02	7.07	8.05	5.53	7.31	13.10	13.98	29.12	30.00
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	16.02	-1.57	-0.98	-2.45	-1.03	4.55	19.98	20.57	36.00
5230MHz_TnomVnom	Pass	16.02	-1.53	-0.82	-2.71	-1.00	4.57	19.98	20.59	36.00
5270MHz_TnomVnom	Pass	16.02	7.98	7.95	6.05	8.20	13.65	13.98	29.67	30.00
5310MHz_TnomVnom	Pass	16.02	8.28	7.91	5.92	7.43	13.49	13.98	29.51	30.00
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	16.02	-0.90	-0.57	-2.33	-0.62	4.97	19.98	20.99	36.00
5290MHz_TnomVnom	Pass	16.02	8.18	8.15	6.61	7.45	13.66	13.98	29.68	30.00

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



Power Result (Antenna Gain 15 dBi)
Beamforming_Client

Appendix C.8

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	7.87	0.00612	28.89	0.77446
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	8.89	0.00774	29.91	0.97949
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	8.75	0.00750	29.77	0.94842
5.25-5.35GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	7.43	0.00553	28.45	0.69984
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	8.87	0.00771	29.89	0.97499
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	8.54	0.00714	29.56	0.90365



**Power Result (Antenna Gain 15 dBi)
Beamforming_Client**

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	21.02	2.17	2.27	1.65	1.24	7.87	8.98	28.89	30.00
5200MHz_TnomVnom	Pass	21.02	0.00	0.79	0.34	0.10	6.34	8.98	27.36	30.00
5240MHz_TnomVnom	Pass	21.02	1.41	1.69	0.72	1.52	7.37	8.98	28.39	30.00
5260MHz_TnomVnom	Pass	21.02	1.75	1.92	0.65	1.19	7.43	8.98	28.45	30.00
5300MHz_TnomVnom	Pass	21.02	0.39	0.77	0.26	0.98	6.63	8.98	27.65	30.00
5320MHz_TnomVnom	Pass	21.02	0.57	0.74	-0.59	0.04	6.24	8.98	27.26	30.00
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	21.02	2.52	2.62	2.84	1.96	8.52	8.98	29.54	30.00
5230MHz_TnomVnom	Pass	21.02	2.96	3.21	2.54	2.74	8.89	8.98	29.91	30.00
5270MHz_TnomVnom	Pass	21.02	1.82	2.13	2.23	2.95	8.32	8.98	29.34	30.00
5310MHz_TnomVnom	Pass	21.02	2.87	2.48	2.71	3.31	8.87	8.98	29.89	30.00
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	21.02	3.02	3.08	2.37	2.38	8.75	8.98	29.77	30.00
5290MHz_TnomVnom	Pass	21.02	2.62	2.74	2.22	2.49	8.54	8.98	29.56	30.00

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



Power Result (Antenna Gain 15 dBi)
Beamforming_Indoor Master

Appendix C.9

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	14.37	0.02735	35.39	3.45939
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	14.57	0.02864	35.59	3.62243
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	14.45	0.02786	35.47	3.52371
5.25-5.35GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	7.43	0.00553	28.45	0.69984
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	8.87	0.00771	29.89	0.97499
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	8.54	0.00714	29.56	0.90365



Power Result (Antenna Gain 15 dBi)
Beamforming_Indoor Master

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	21.02	8.82	8.28	7.41	8.73	14.37	14.98	35.39	36.00
5200MHz_TnomVnom	Pass	21.02	8.16	7.34	6.82	7.99	13.63	14.98	34.65	36.00
5240MHz_TnomVnom	Pass	21.02	7.98	8.16	7.40	8.14	13.95	14.98	34.97	36.00
5260MHz_TnomVnom	Pass	21.02	1.75	1.92	0.65	1.19	7.43	8.98	28.45	30.00
5300MHz_TnomVnom	Pass	21.02	0.39	0.77	0.26	0.98	6.63	8.98	27.65	30.00
5320MHz_TnomVnom	Pass	21.02	0.57	0.74	-0.59	0.04	6.24	8.98	27.26	30.00
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	21.02	8.36	7.81	8.00	8.02	14.07	14.98	35.09	36.00
5230MHz_TnomVnom	Pass	21.02	8.75	8.54	7.86	8.97	14.57	14.98	35.59	36.00
5270MHz_TnomVnom	Pass	21.02	1.82	2.13	2.23	2.95	8.32	8.98	29.34	30.00
5310MHz_TnomVnom	Pass	21.02	2.87	2.48	2.71	3.31	8.87	8.98	29.89	30.00
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	21.02	7.88	8.66	7.35	9.51	14.45	14.98	35.47	36.00
5290MHz_TnomVnom	Pass	21.02	2.62	2.74	2.22	2.49	8.54	8.98	29.56	30.00

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



Power Result (Antenna Gain 15 dBi)
Beamforming_Outdoor Master

Appendix C.10

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-0.05	0.00099	20.97	0.12503
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-0.25	0.00094	20.77	0.11940
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-0.45	0.00090	20.57	0.11402
5.25-5.35GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	7.43	0.00553	28.45	0.69984
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	8.87	0.00771	29.89	0.97499
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	8.54	0.00714	29.56	0.90365



**Power Result (Antenna Gain 15 dBi)
Beamforming_Outdoor Master**

Appendix C.10

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	21.02	-6.18	-6.22	-6.42	-6.08	-0.20	14.98	20.82	36.00
5200MHz_TnomVnom	Pass	21.02	-6.23	-6.46	-6.07	-5.57	-0.05	14.98	20.97	36.00
5240MHz_TnomVnom	Pass	21.02	-5.79	-6.35	-6.04	-6.25	-0.08	14.98	20.94	36.00
5260MHz_TnomVnom	Pass	21.02	1.75	1.92	0.65	1.19	7.43	8.98	28.45	30.00
5300MHz_TnomVnom	Pass	21.02	0.39	0.77	0.26	0.98	6.63	8.98	27.65	30.00
5320MHz_TnomVnom	Pass	21.02	0.57	0.74	-0.59	0.04	6.24	8.98	27.26	30.00
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	21.02	-6.22	-6.39	-6.37	-6.10	-0.25	14.98	20.77	36.00
5230MHz_TnomVnom	Pass	21.02	-6.74	-6.79	-6.71	-6.80	-0.74	14.98	20.28	36.00
5270MHz_TnomVnom	Pass	21.02	1.82	2.13	2.23	2.95	8.32	8.98	29.34	30.00
5310MHz_TnomVnom	Pass	21.02	2.87	2.48	2.71	3.31	8.87	8.98	29.89	30.00
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	21.02	-6.20	-7.31	-6.42	-6.04	-0.45	14.98	20.57	36.00
5290MHz_TnomVnom	Pass	21.02	2.62	2.74	2.22	2.49	8.54	8.98	29.56	30.00

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



**PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master**

Appendix D.1

Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	6.85	22.87
802.11ac VHT20_Nss1,(MCS0)_4TX	6.89	22.91
802.11ac VHT40_Nss1,(MCS0)_4TX	6.86	22.88
802.11ac VHT80_Nss1,(MCS0)_4TX	0.15	16.17
5.25-5.35GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	0.83	16.85
802.11ac VHT20_Nss1,(MCS0)_4TX	0.95	16.97
802.11ac VHT40_Nss1,(MCS0)_4TX	0.78	16.80
802.11ac VHT80_Nss1,(MCS0)_4TX	0.76	16.78

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



**PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master**

Appendix D.1

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)	EIRP PD (dBm/RBW)	EIRP PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	16.02	0.41	0.78	0.49	0.90	6.54	6.98	22.56	23.00
5200MHz_TnomVnom	Pass	16.02	0.72	0.85	0.81	1.35	6.85	6.98	22.87	23.00
5240MHz_TnomVnom	Pass	16.02	0.74	0.69	0.65	0.80	6.69	6.98	22.71	23.00
5260MHz_TnomVnom	Pass	16.02	-4.93	-5.41	-5.54	-5.30	0.70	0.98	16.72	17.00
5300MHz_TnomVnom	Pass	16.02	-4.91	-5.29	-5.03	-5.20	0.83	0.98	16.85	17.00
5320MHz_TnomVnom	Pass	16.02	-5.69	-5.45	-5.59	-4.72	0.62	0.98	16.64	17.00
802.11ac_VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	16.02	0.95	1.85	1.09	1.45	6.89	6.98	22.91	23.00
5200MHz_TnomVnom	Pass	16.02	0.90	1.18	1.00	1.52	6.70	6.98	22.72	23.00
5240MHz_TnomVnom	Pass	16.02	1.12	0.95	0.67	1.02	6.61	6.98	22.63	23.00
5260MHz_TnomVnom	Pass	16.02	-5.14	-4.77	-4.95	-5.29	0.68	0.98	16.70	17.00
5300MHz_TnomVnom	Pass	16.02	-4.27	-4.71	-4.30	-4.81	0.95	0.98	16.97	17.00
5320MHz_TnomVnom	Pass	16.02	-5.02	-4.83	-4.82	-4.74	0.78	0.98	16.80	17.00
802.11ac_VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	16.02	0.63	1.08	0.48	0.86	6.71	6.98	22.73	23.00
5230MHz_TnomVnom	Pass	16.02	0.77	0.98	0.76	1.00	6.86	6.98	22.88	23.00
5270MHz_TnomVnom	Pass	16.02	-5.54	-4.82	-5.30	-6.33	0.52	0.98	16.54	17.00
5310MHz_TnomVnom	Pass	16.02	-5.20	-4.72	-4.92	-5.35	0.78	0.98	16.80	17.00
802.11ac_VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	16.02	-5.90	-5.61	-5.82	-5.37	0.15	6.98	16.17	23.00
5290MHz_TnomVnom	Pass	16.02	-5.19	-4.74	-4.88	-5.58	0.76	0.98	16.78	17.00

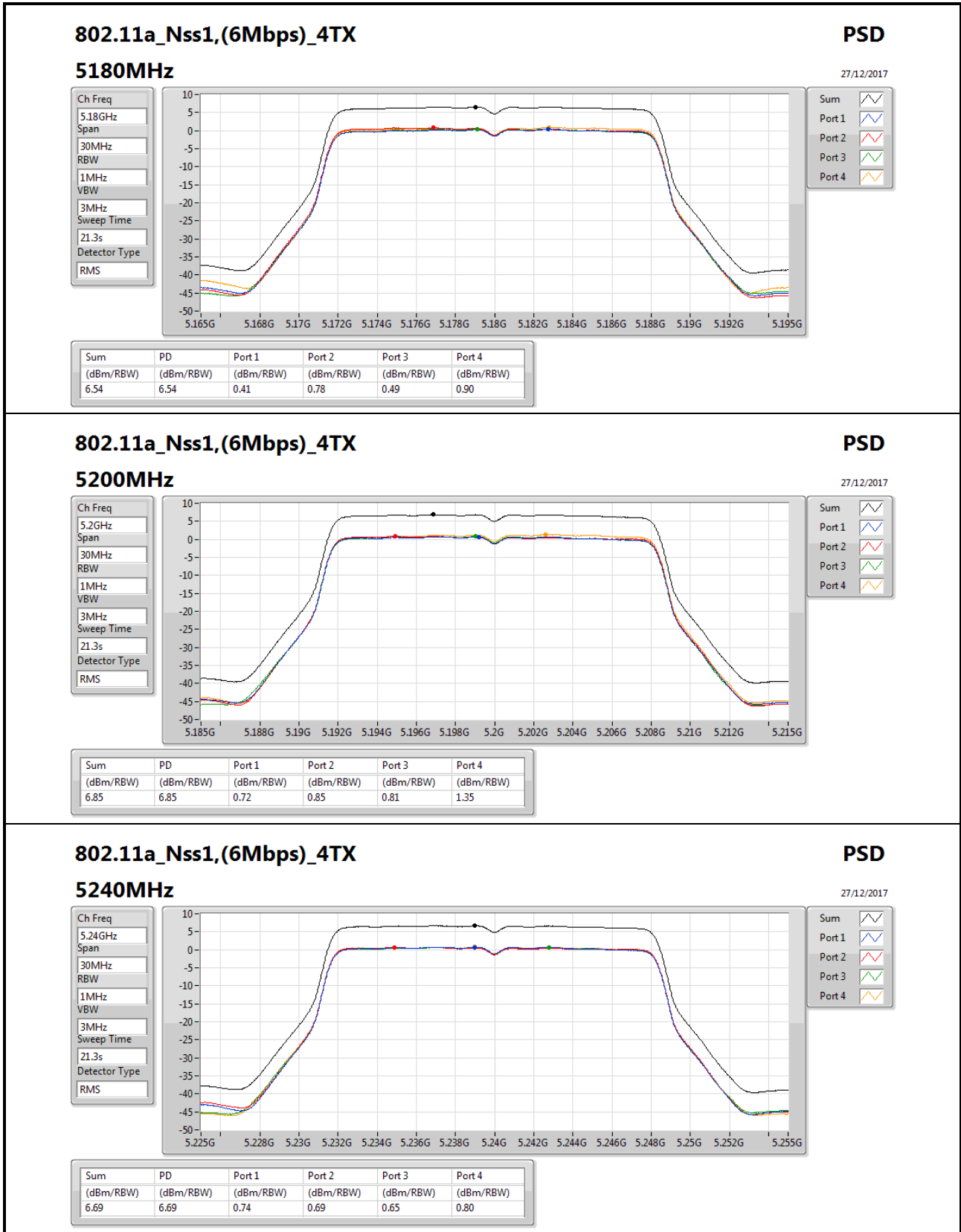
DG = Directional Gain; **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

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



PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master

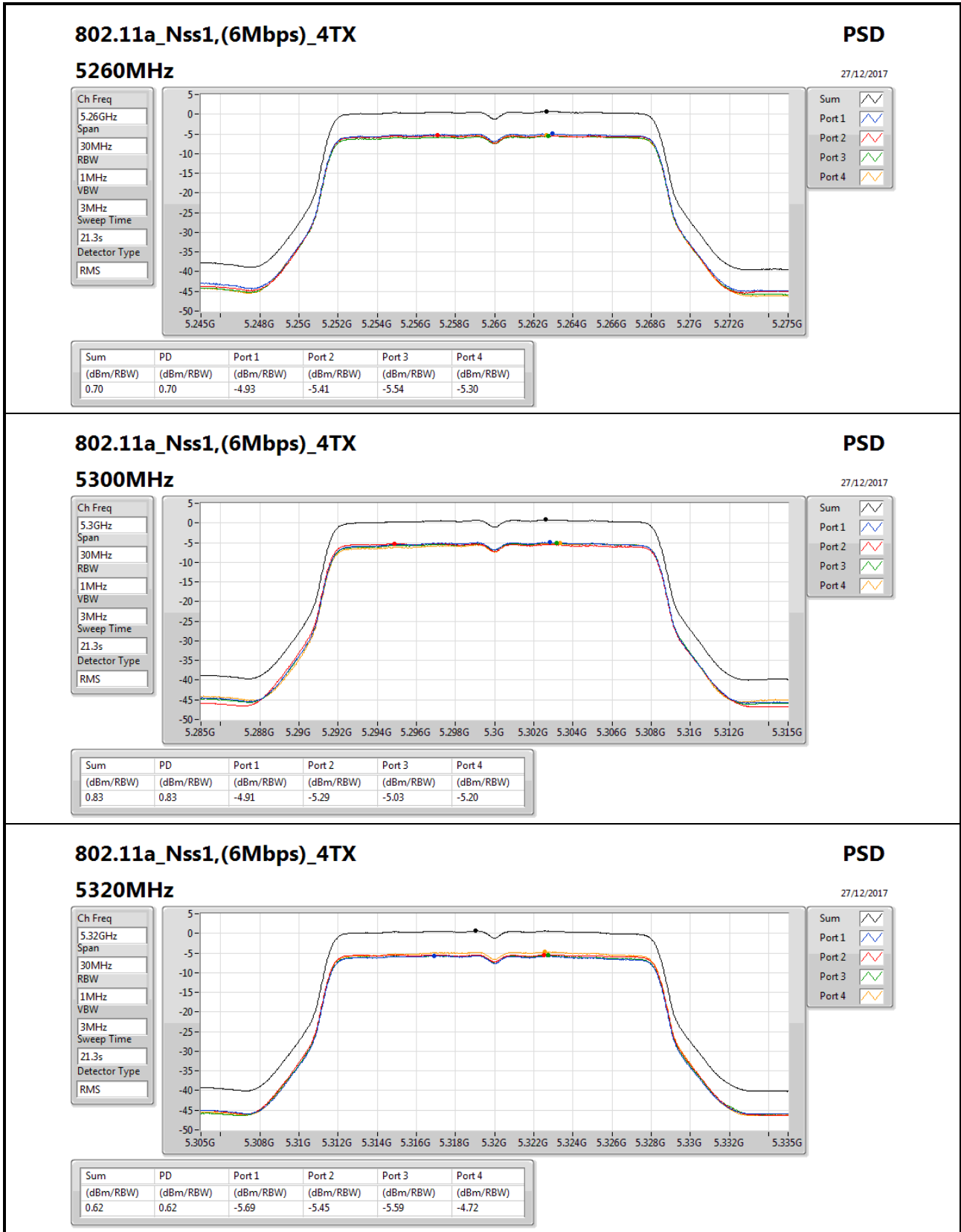
Appendix D.1





PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master

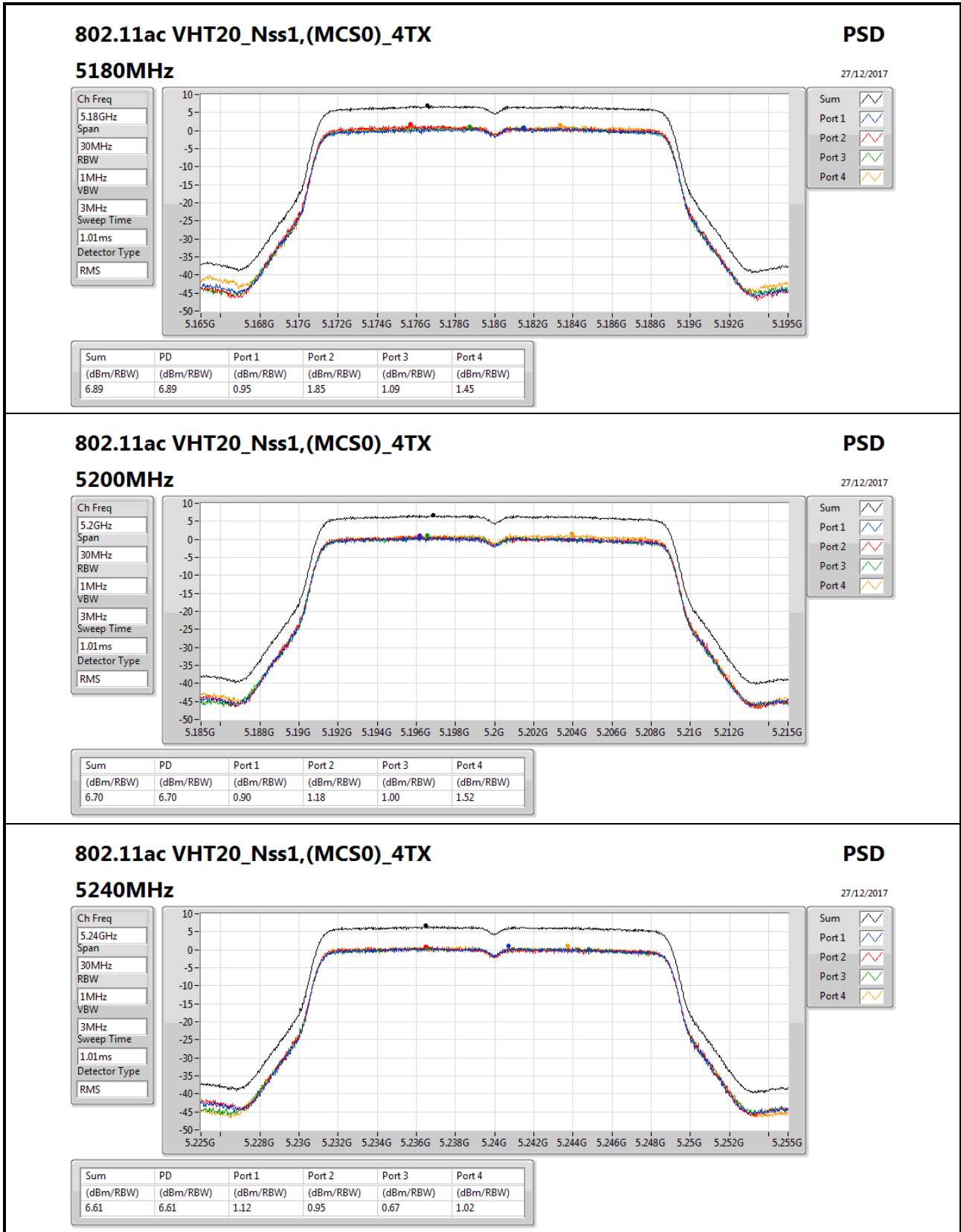
Appendix D.1





PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master

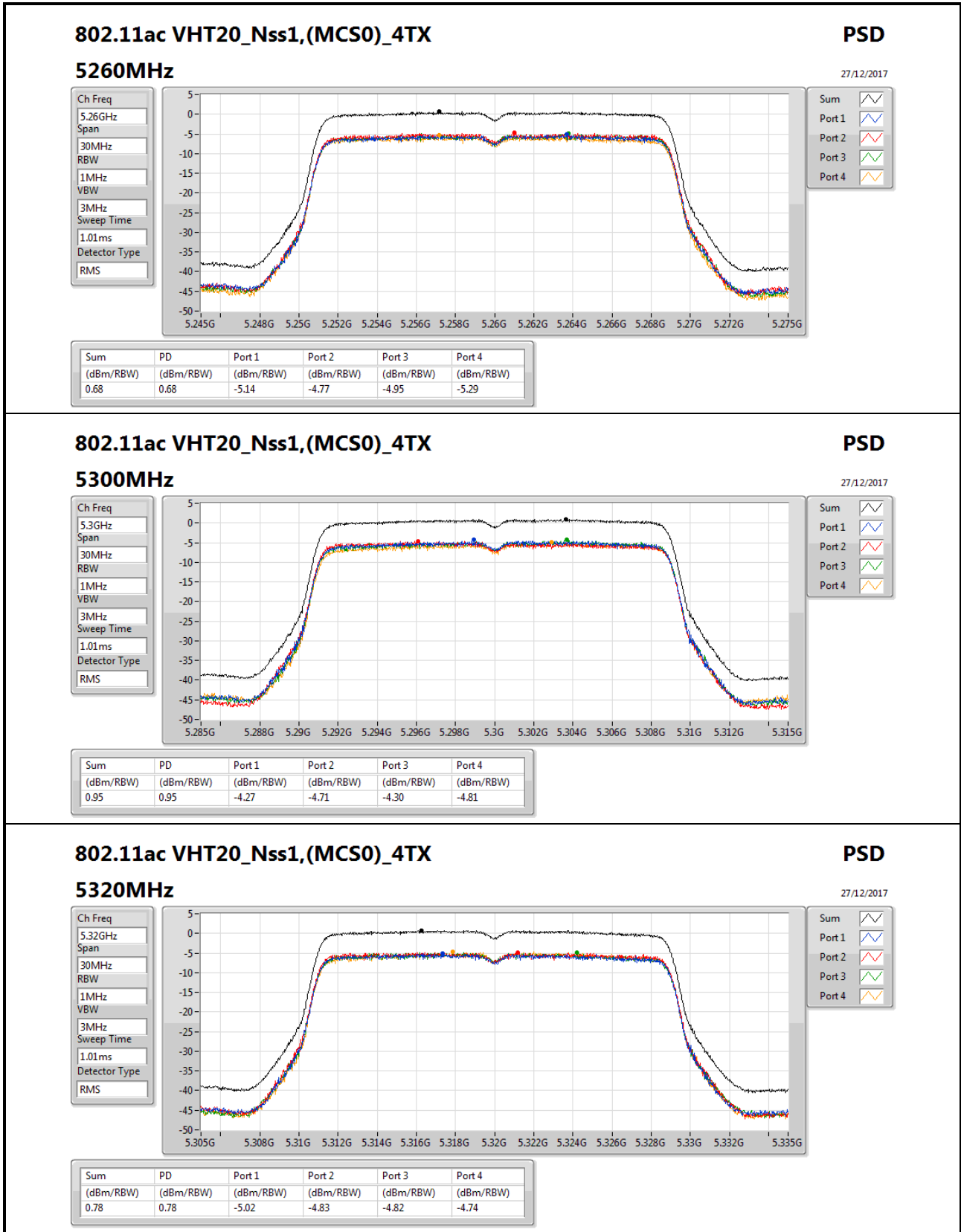
Appendix D.1





PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master

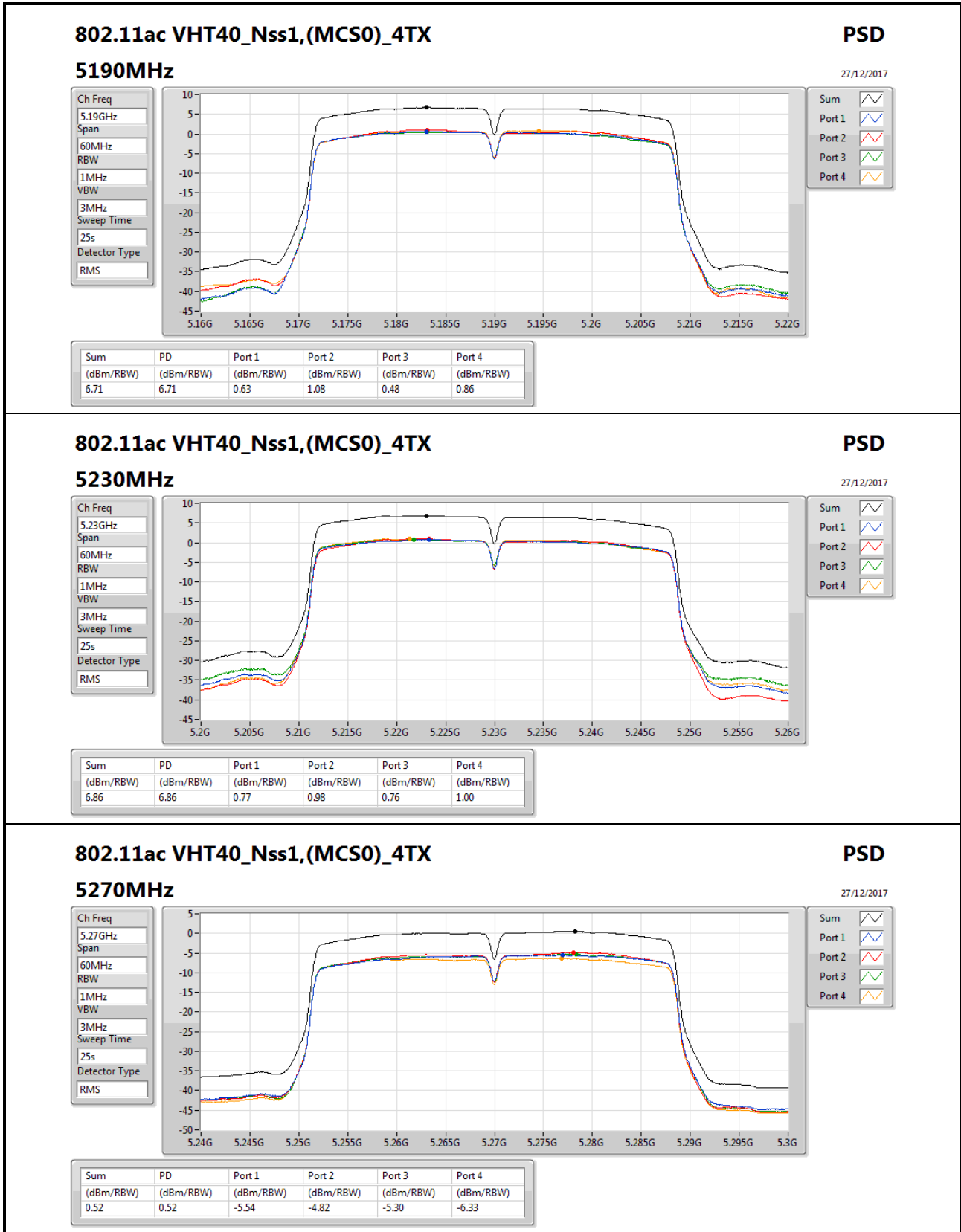
Appendix D.1





PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master

Appendix D.1



802.11ac VHT40_Nss1,(MCS0)_4TX

5270MHz

PSD

27/12/2017

Ch Freq: 5.27GHz

Span: 60MHz

RBW: 1MHz

VBW: 3MHz

Sweep Time: 25s

Detector Type: RMS

Sum:

Port 1:

Port 2:

Port 3:

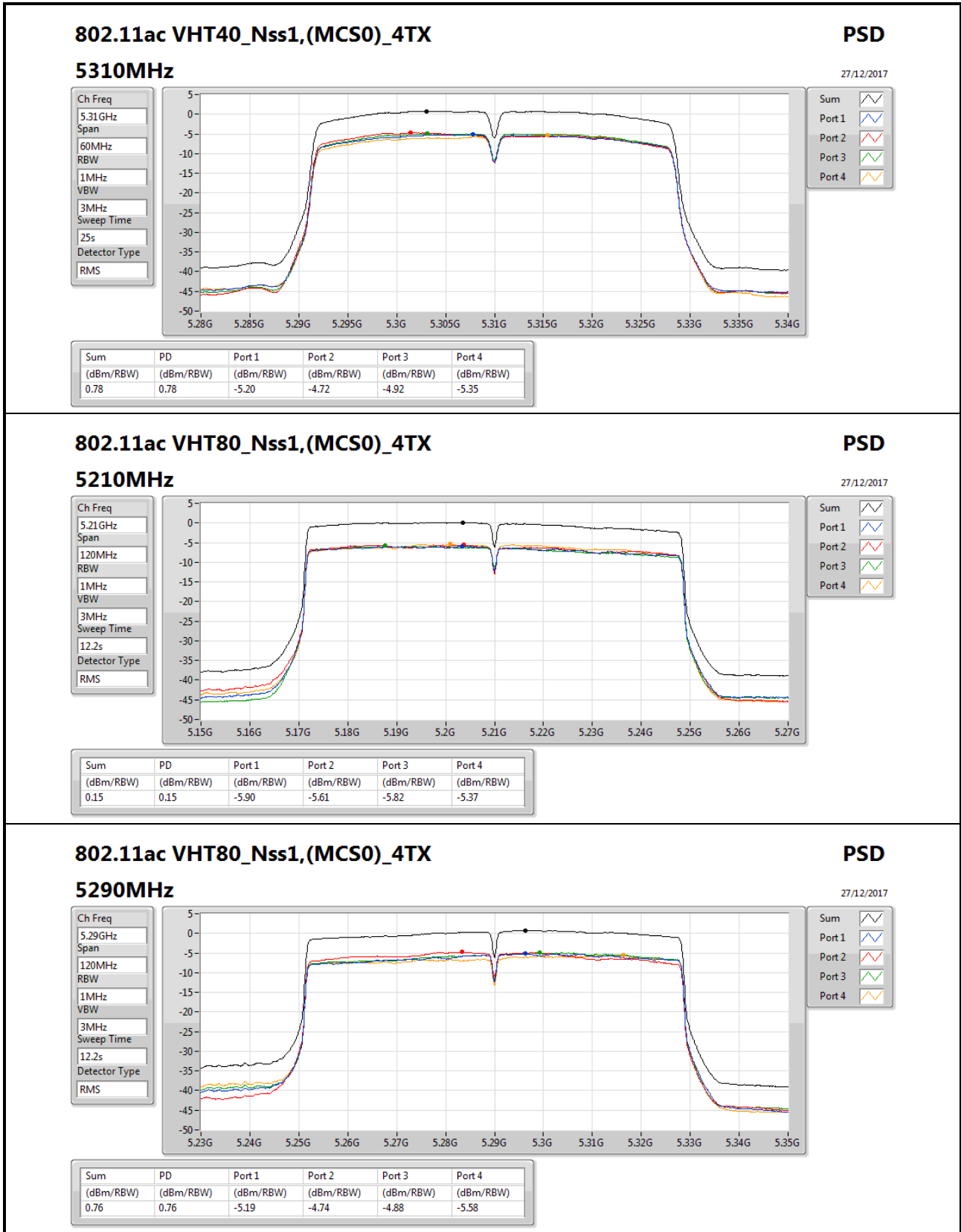
Port 4:

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.52	0.52	-5.54	-4.82	-5.30	-6.33



PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Indoor Master

Appendix D.1





PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master

Appendix D.2

Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	-2.16	13.86
802.11ac VHT20_Nss1,(MCS0)_4TX	-2.08	13.94
802.11ac VHT40_Nss1,(MCS0)_4TX	-5.50	10.52
802.11ac VHT80_Nss1,(MCS0)_4TX	-8.52	7.50
5.25-5.35GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	0.83	16.85
802.11ac VHT20_Nss1,(MCS0)_4TX	0.95	16.97
802.11ac VHT40_Nss1,(MCS0)_4TX	0.78	16.80
802.11ac VHT80_Nss1,(MCS0)_4TX	0.76	16.78

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



**PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master**

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)	EIRP PD (dBm/RBW)	EIRP PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	16.02	-8.35	-8.36	-8.38	-8.05	-2.40	6.98	13.62	23.00
5200MHz_TnomVnom	Pass	16.02	-8.06	-8.33	-8.27	-7.62	-2.16	6.98	13.86	23.00
5240MHz_TnomVnom	Pass	16.02	-8.35	-8.43	-8.58	-8.15	-2.42	6.98	13.60	23.00
5260MHz_TnomVnom	Pass	16.02	-4.93	-5.41	-5.54	-5.30	0.70	0.98	16.72	17.00
5300MHz_TnomVnom	Pass	16.02	-4.91	-5.29	-5.03	-5.20	0.83	0.98	16.85	17.00
5320MHz_TnomVnom	Pass	16.02	-5.69	-5.45	-5.59	-4.72	0.62	0.98	16.64	17.00
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	16.02	-7.79	-7.53	-7.68	-7.37	-2.08	6.98	13.94	23.00
5200MHz_TnomVnom	Pass	16.02	-7.92	-8.01	-7.93	-7.44	-2.49	6.98	13.53	23.00
5240MHz_TnomVnom	Pass	16.02	-7.88	-7.57	-7.96	-7.36	-2.11	6.98	13.91	23.00
5260MHz_TnomVnom	Pass	16.02	-5.14	-4.77	-4.95	-5.29	0.68	0.98	16.70	17.00
5300MHz_TnomVnom	Pass	16.02	-4.27	-4.71	-4.30	-4.81	0.95	0.98	16.97	17.00
5320MHz_TnomVnom	Pass	16.02	-5.02	-4.83	-4.82	-4.74	0.78	0.98	16.80	17.00
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	16.02	-11.62	-11.50	-11.66	-11.17	-5.62	6.98	10.40	23.00
5230MHz_TnomVnom	Pass	16.02	-11.42	-11.52	-11.61	-11.24	-5.50	6.98	10.52	23.00
5270MHz_TnomVnom	Pass	16.02	-5.54	-4.82	-5.30	-6.33	0.52	0.98	16.54	17.00
5310MHz_TnomVnom	Pass	16.02	-5.20	-4.72	-4.92	-5.35	0.78	0.98	16.80	17.00
802.11ac VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	16.02	-14.43	-14.46	-14.54	-14.07	-8.52	6.98	7.50	23.00
5290MHz_TnomVnom	Pass	16.02	-5.19	-4.74	-4.88	-5.58	0.76	0.98	16.78	17.00

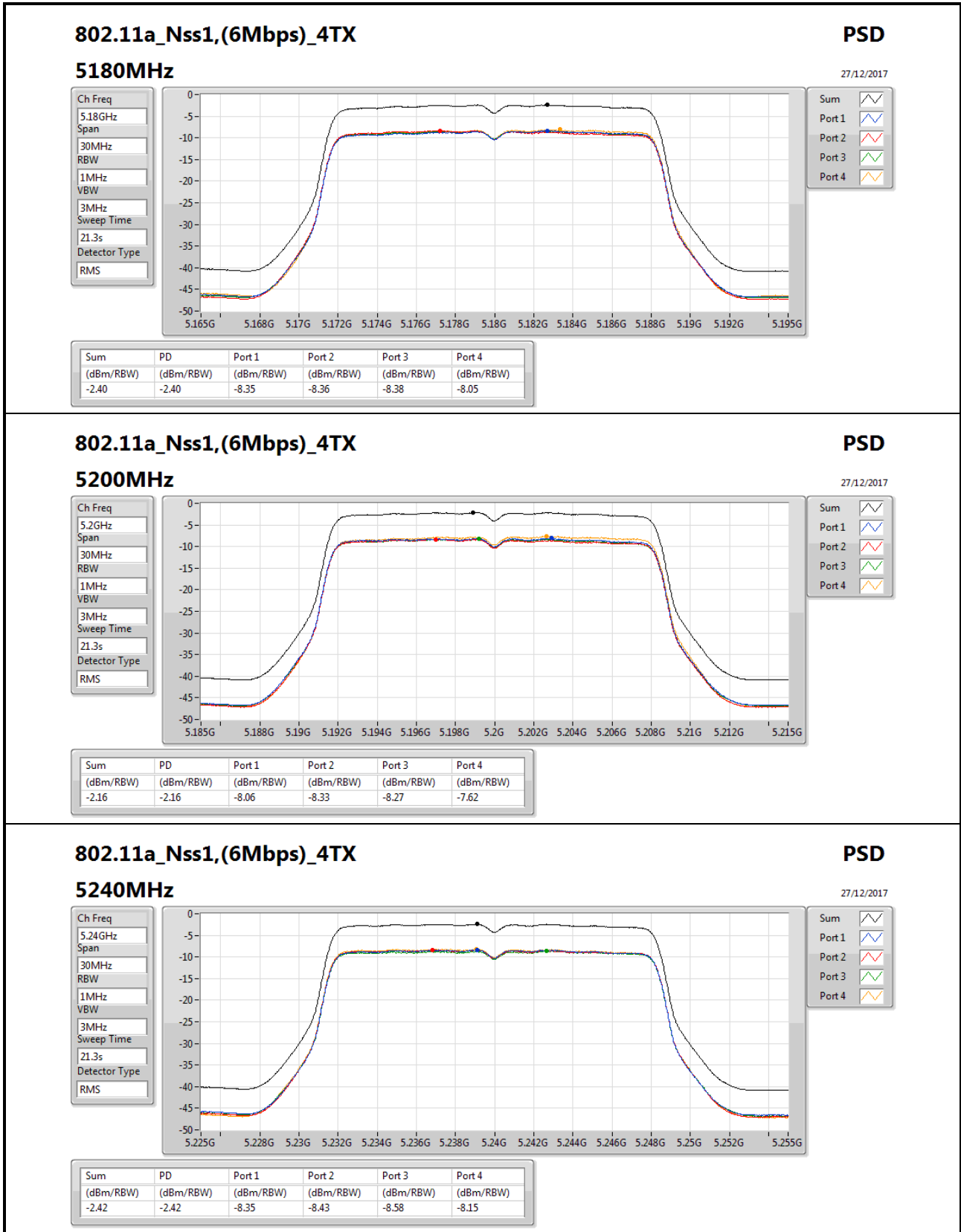
DG = Directional Gain; **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

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



PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master

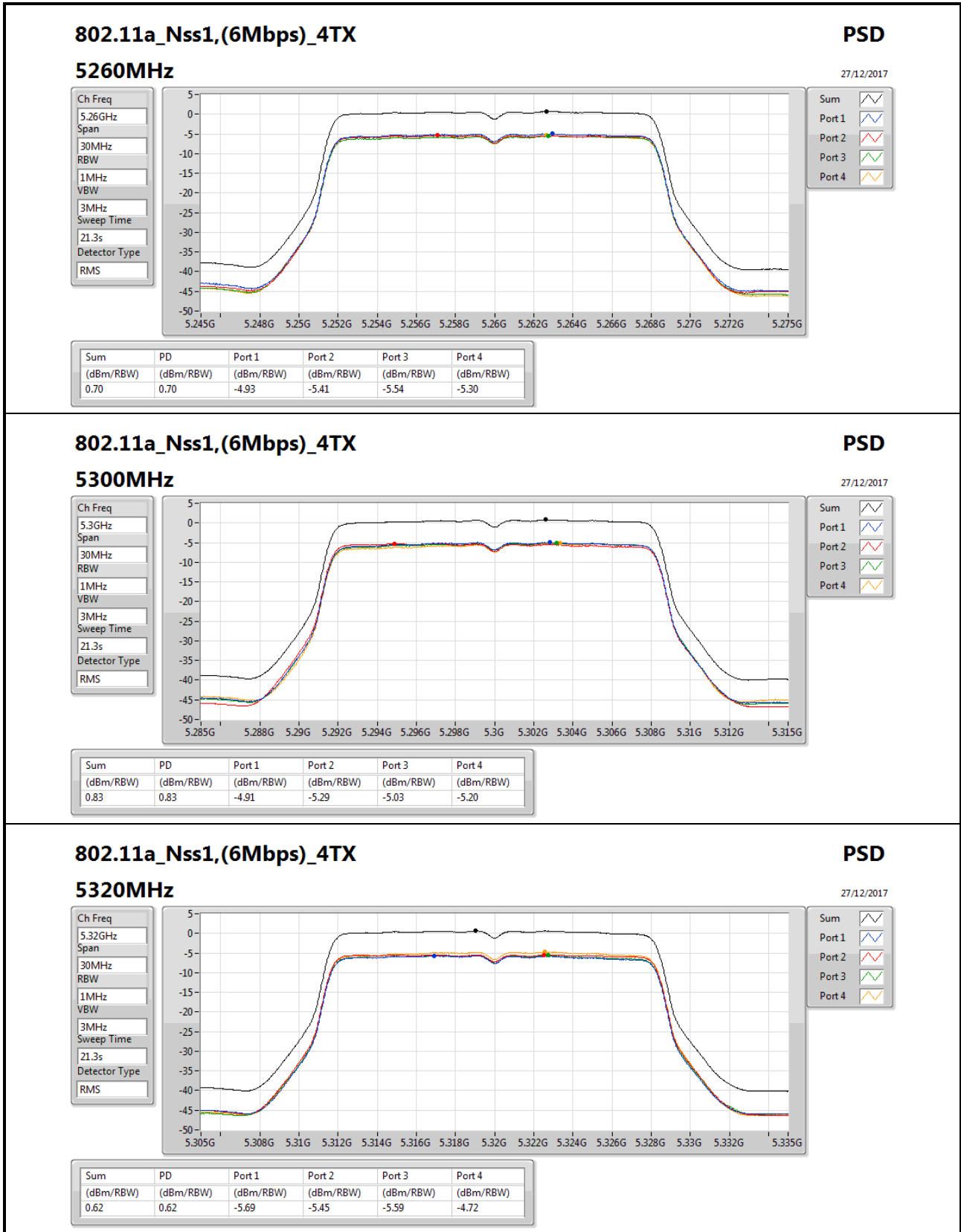
Appendix D.2





PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master

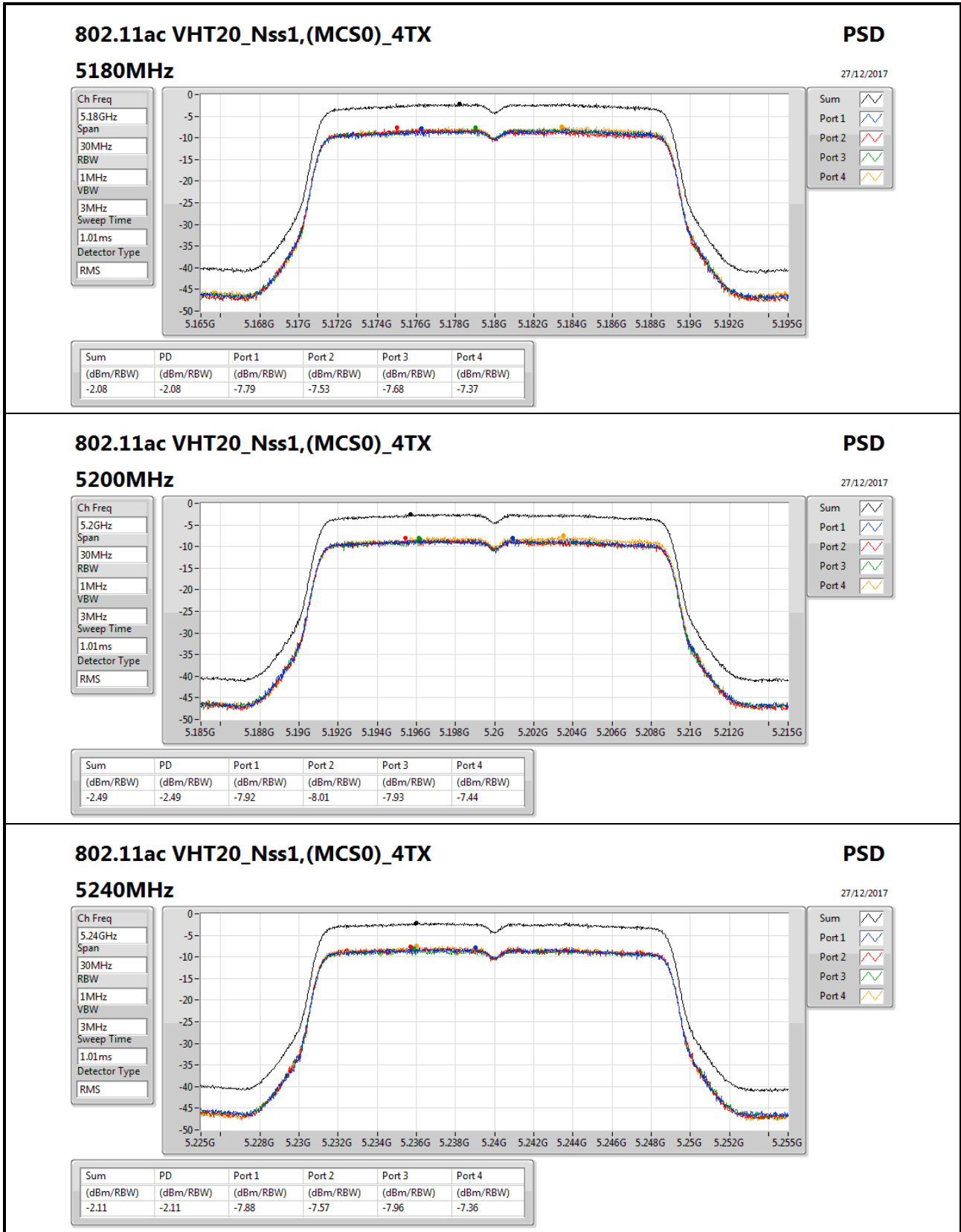
Appendix D.2





PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master

Appendix D.2



802.11ac VHT20_Nss1,(MCS0)_4TX

5240MHz

PSD

27/12/2017

Ch Freq: 5.24GHz

Span: 30MHz

RBW: 1MHz

VBW: 3MHz

Sweep Time: 1.01ms

Detector Type: RMS

Sum: [Line]

Port 1: [Line]

Port 2: [Line]

Port 3: [Line]

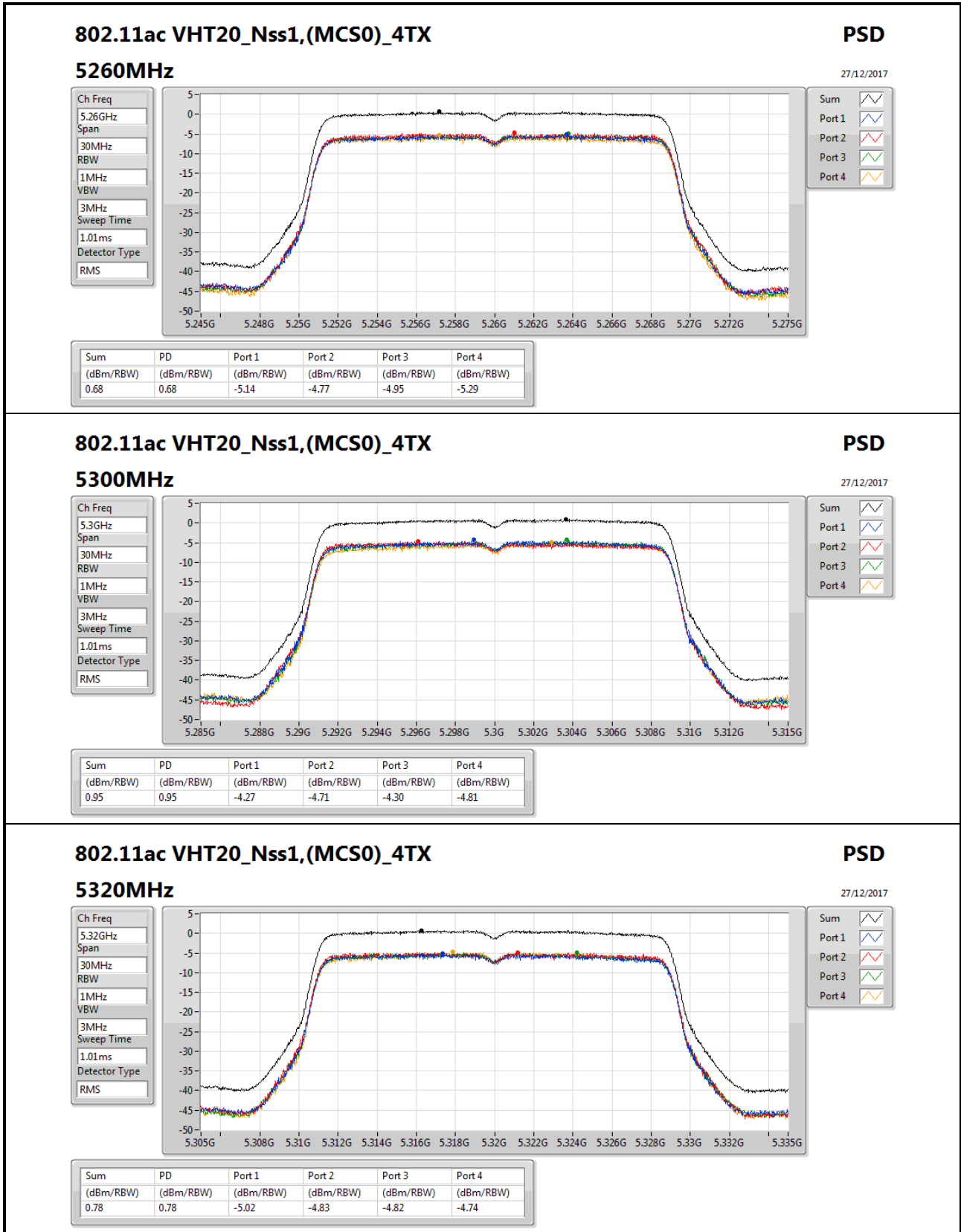
Port 4: [Line]

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.11	-2.11	-7.88	-7.57	-7.96	-7.36



PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master

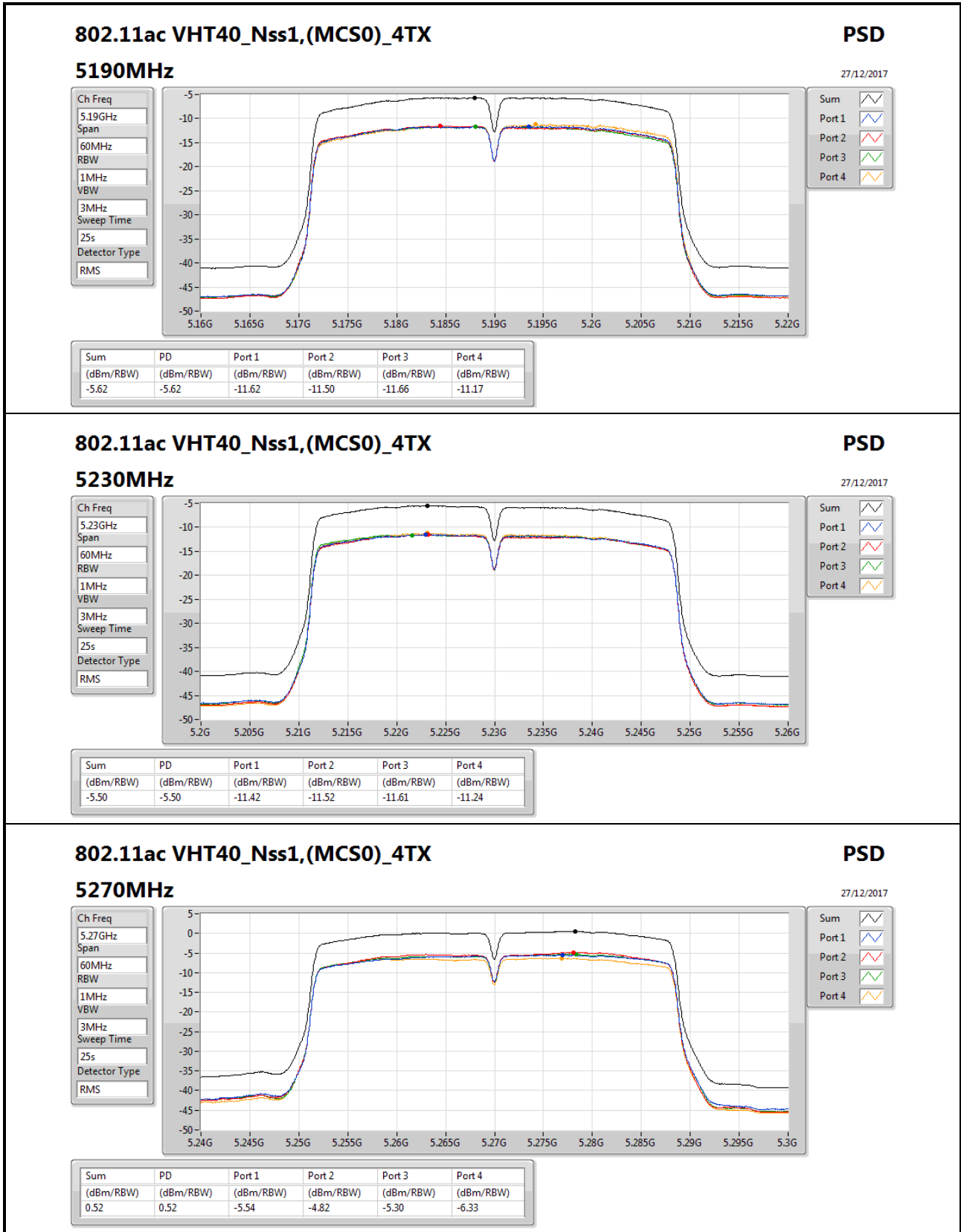
Appendix D.2





PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master

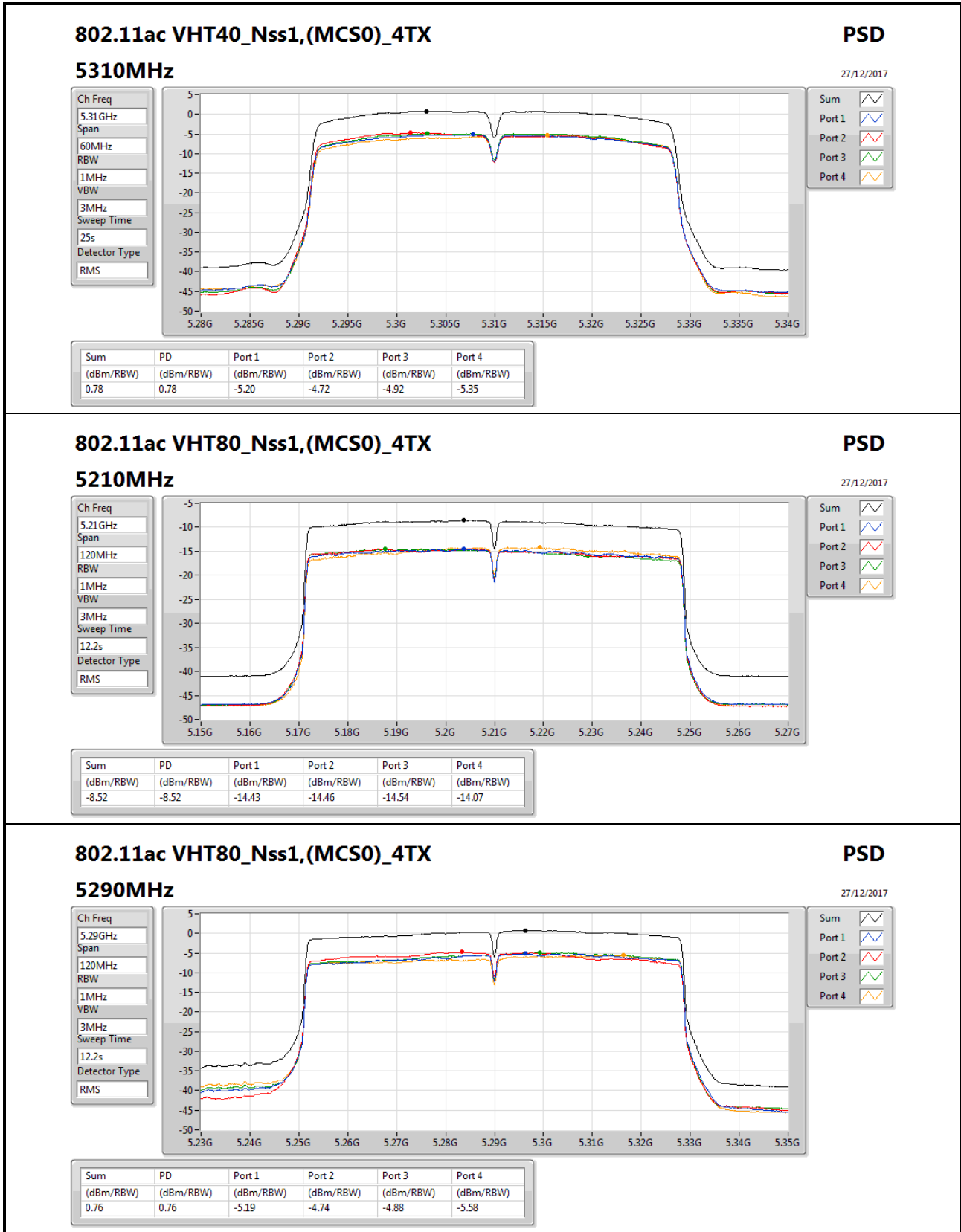
Appendix D.2





PSD Result (Antenna Gain 10 dBi)
Non-Beamforming_Outdoor Master

Appendix D.2





**PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master**

Appendix D.3

Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	1.90	22.92
802.11ac VHT20_Nss1,(MCS0)_4TX	1.95	22.97
802.11ac VHT40_Nss1,(MCS0)_4TX	1.62	22.64
802.11ac VHT80_Nss1,(MCS0)_4TX	-3.95	17.07
5.25-5.35GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	-4.10	16.92
802.11ac VHT20_Nss1,(MCS0)_4TX	-4.17	16.85
802.11ac VHT40_Nss1,(MCS0)_4TX	-4.24	16.78
802.11ac VHT80_Nss1,(MCS0)_4TX	-4.08	16.94

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



**PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master**

Appendix D.3

Result

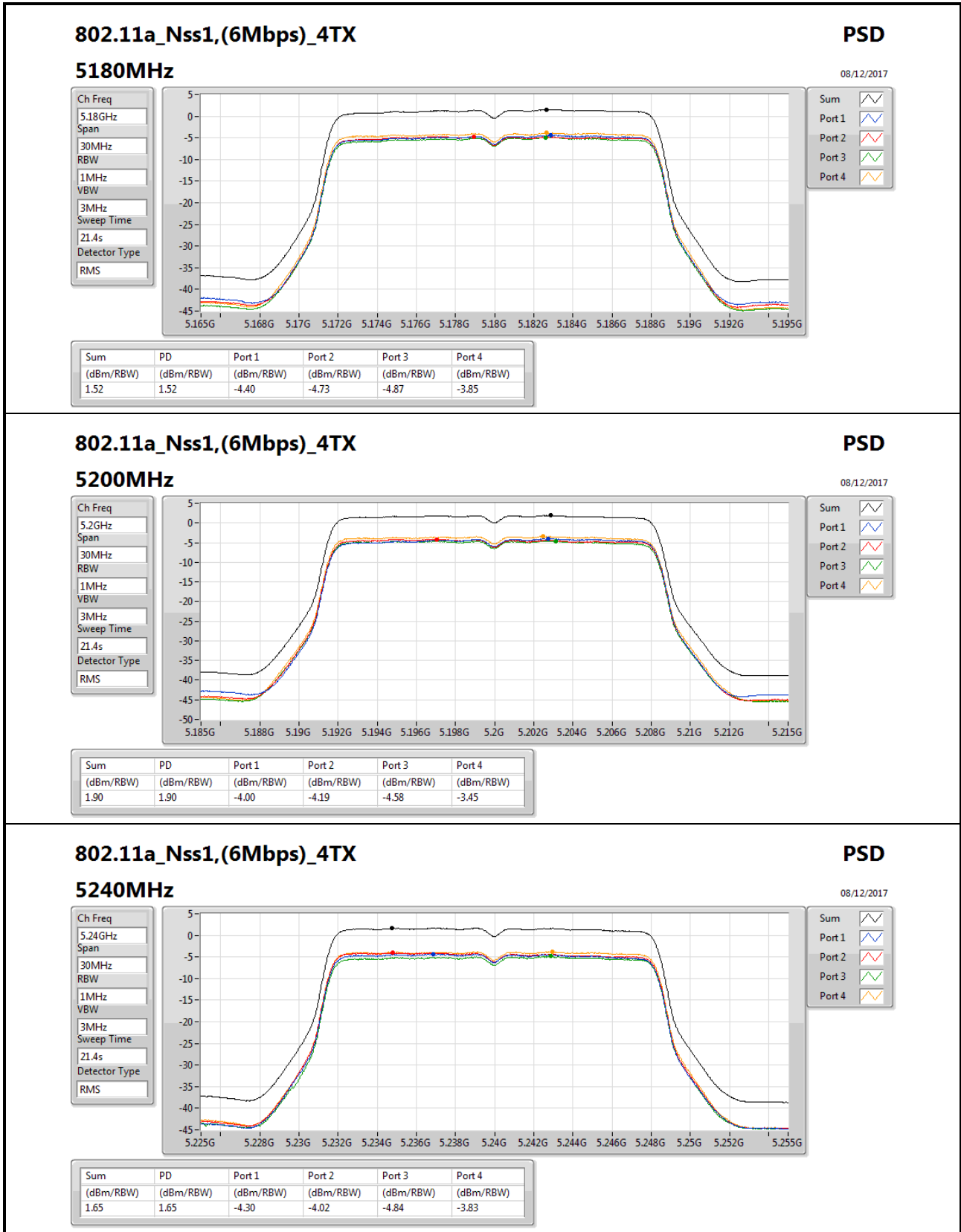
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)	EIRP PD (dBm/RBW)	EIRP PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	21.02	-4.40	-4.73	-4.87	-3.85	1.52	1.98	22.54	23.00
5200MHz	Pass	21.02	-4.00	-4.19	-4.58	-3.45	1.90	1.98	22.92	23.00
5240MHz	Pass	21.02	-4.30	-4.02	-4.84	-3.83	1.65	1.98	22.67	23.00
5260MHz	Pass	21.02	-10.18	-10.16	-9.70	-9.85	-4.10	-4.02	16.92	17.00
5300MHz	Pass	21.02	-10.89	-10.20	-9.57	-9.84	-4.18	-4.02	16.84	17.00
5320MHz	Pass	21.02	-10.75	-10.09	-10.16	-10.19	-4.35	-4.02	16.67	17.00
802.11ac_VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	21.02	-3.73	-3.93	-4.09	-3.24	1.95	1.98	22.97	23.00
5200MHz	Pass	21.02	-3.64	-3.85	-4.32	-3.38	1.79	1.98	22.81	23.00
5240MHz	Pass	21.02	-3.95	-3.92	-4.58	-3.47	1.69	1.98	22.71	23.00
5260MHz	Pass	21.02	-10.13	-10.03	-9.72	-9.52	-4.22	-4.02	16.80	17.00
5300MHz	Pass	21.02	-10.33	-9.97	-9.62	-9.44	-4.17	-4.02	16.85	17.00
5320MHz	Pass	21.02	-10.22	-10.14	-9.96	-10.13	-4.52	-4.02	16.50	17.00
802.11ac_VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	21.02	-4.67	-4.51	-4.71	-3.82	1.49	1.98	22.51	17.00
5230MHz	Pass	21.02	-4.52	-4.00	-4.64	-4.35	1.62	1.98	22.64	17.00
5270MHz	Pass	21.02	-10.69	-10.73	-9.78	-9.89	-4.30	-4.02	16.72	17.00
5310MHz	Pass	21.02	-10.16	-10.32	-9.88	-10.14	-4.24	-4.02	16.78	17.00
802.11ac_VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	21.02	-9.45	-9.75	-10.59	-9.27	-3.95	1.98	17.07	17.00
5290MHz	Pass	21.02	-10.06	-10.25	-9.91	-9.42	-4.08	-4.02	16.94	17.00

DG = Directional Gain; **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

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



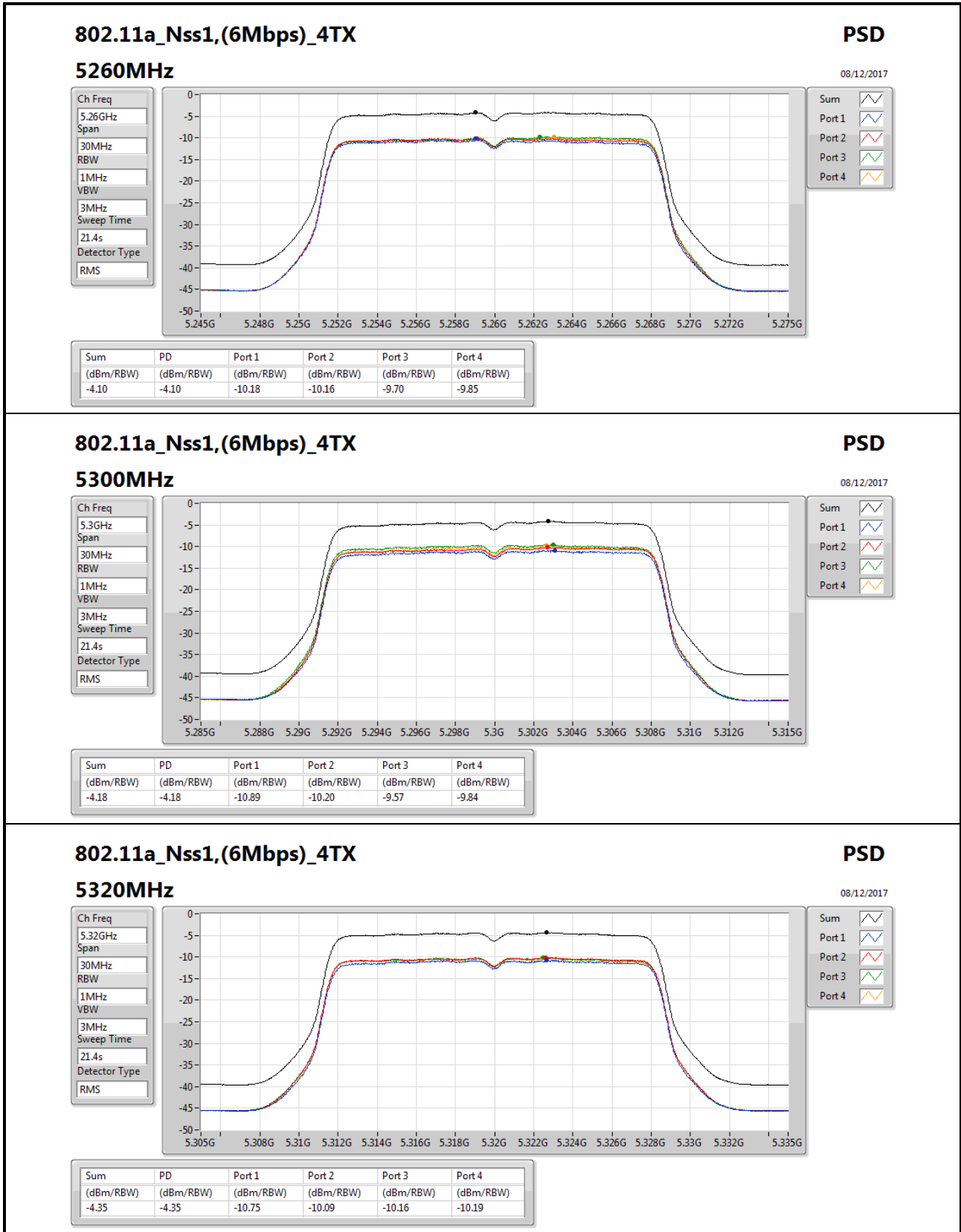
PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master





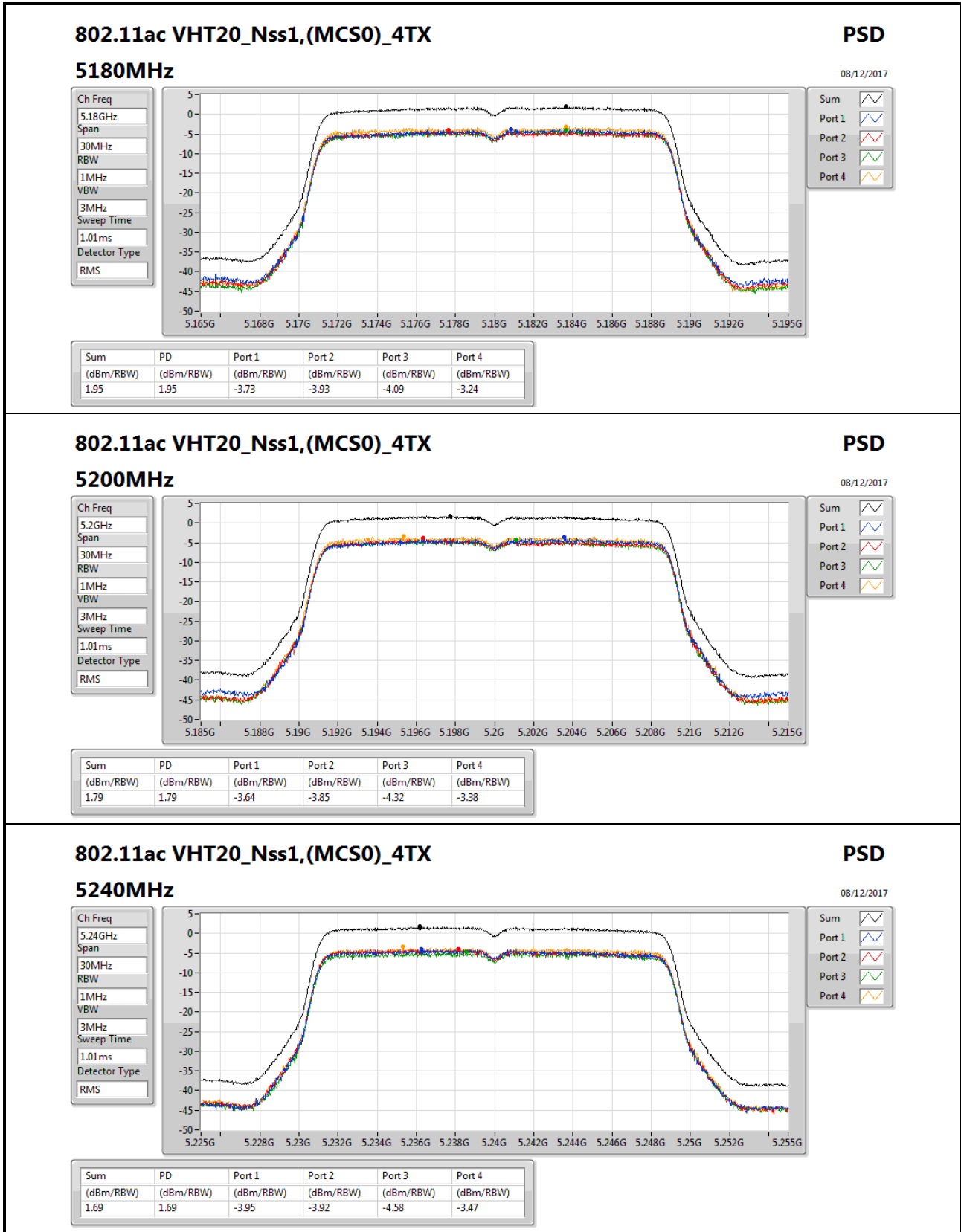
PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master

Appendix D.3



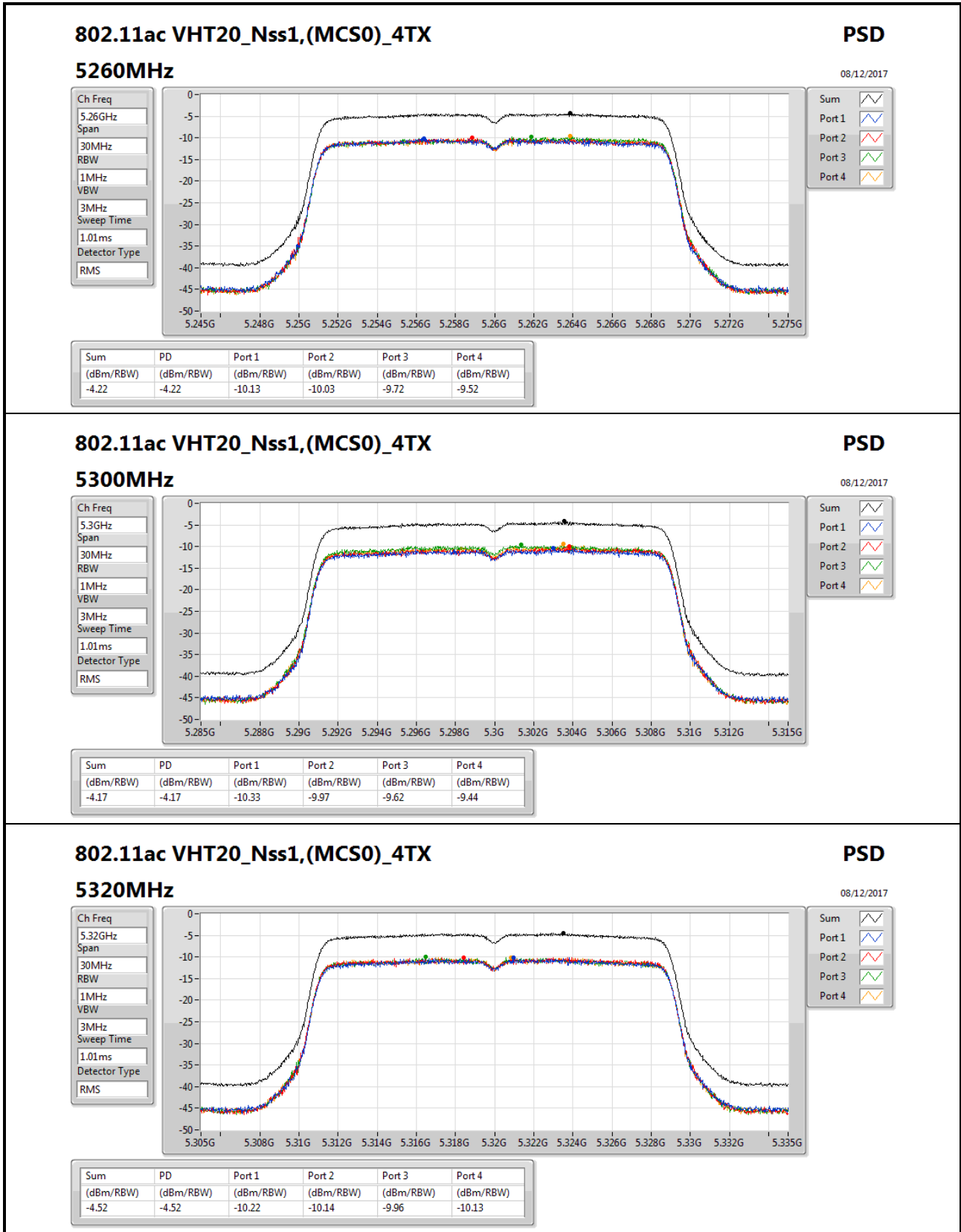


PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master



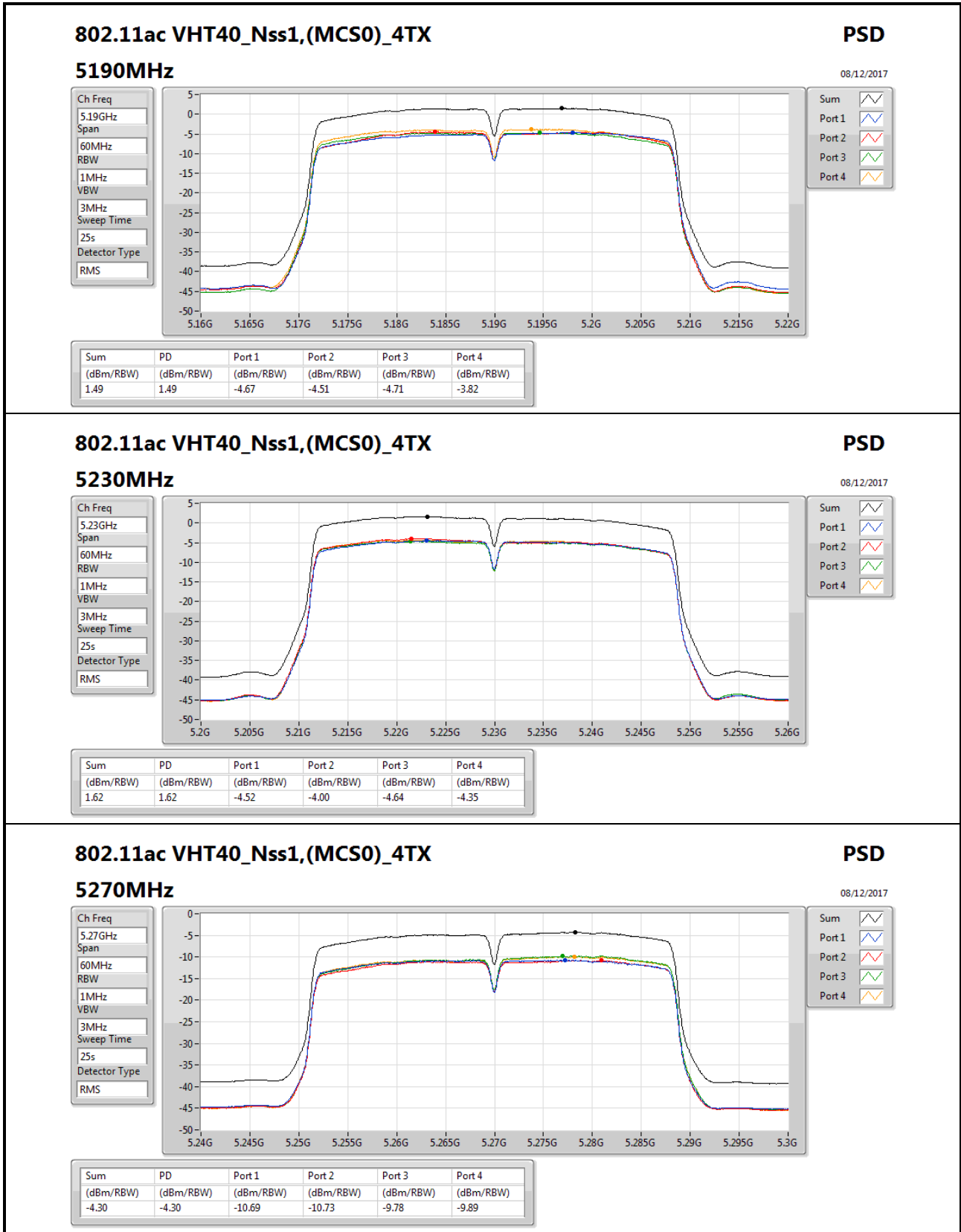


PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master





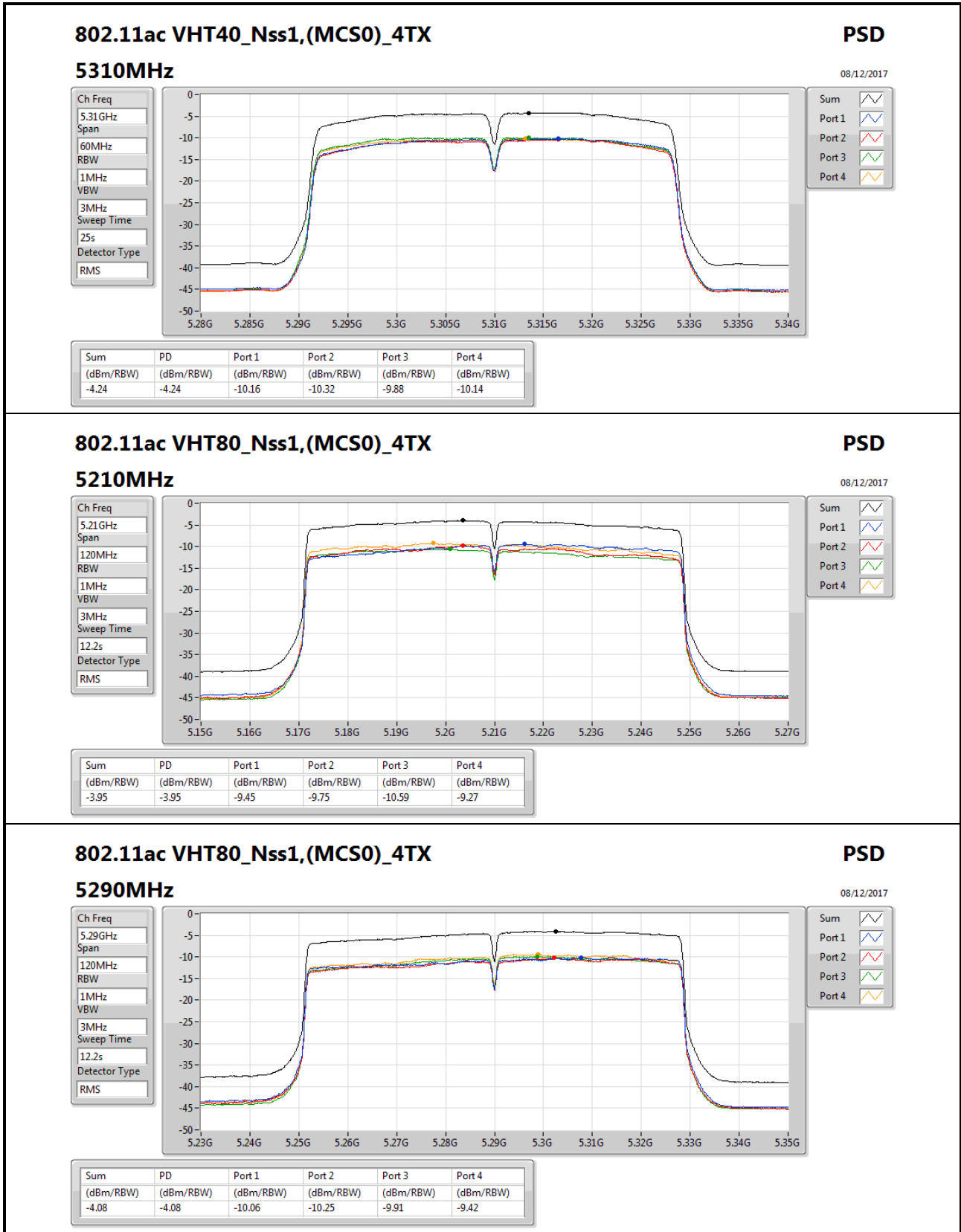
PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master





PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Indoor Master

Appendix D.3



802.11ac VHT80_Nss1,(MCS0)_4TX

5290MHz

PSD

08/12/2017

Ch Freq: 5.29GHz

Span: 120MHz

RBW: 1MHz

VBW: 3MHz

Sweep Time: 12.2s

Detector Type: RMS

Sum: [Line]

Port 1: [Line]

Port 2: [Line]

Port 3: [Line]

Port 4: [Line]

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.08	-4.08	-10.06	-10.25	-9.91	-9.42



PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master

Appendix D.4

Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	-6.98	14.04
802.11ac VHT20_Nss1,(MCS0)_4TX	-7.11	13.91
802.11ac VHT40_Nss1,(MCS0)_4TX	-10.10	10.92
802.11ac VHT80_Nss1,(MCS0)_4TX	-14.57	6.45
5.25-5.35GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	-4.10	16.92
802.11ac VHT20_Nss1,(MCS0)_4TX	-4.17	16.85
802.11ac VHT40_Nss1,(MCS0)_4TX	-4.24	16.78
802.11ac VHT80_Nss1,(MCS0)_4TX	-4.08	16.94

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



PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master

Result

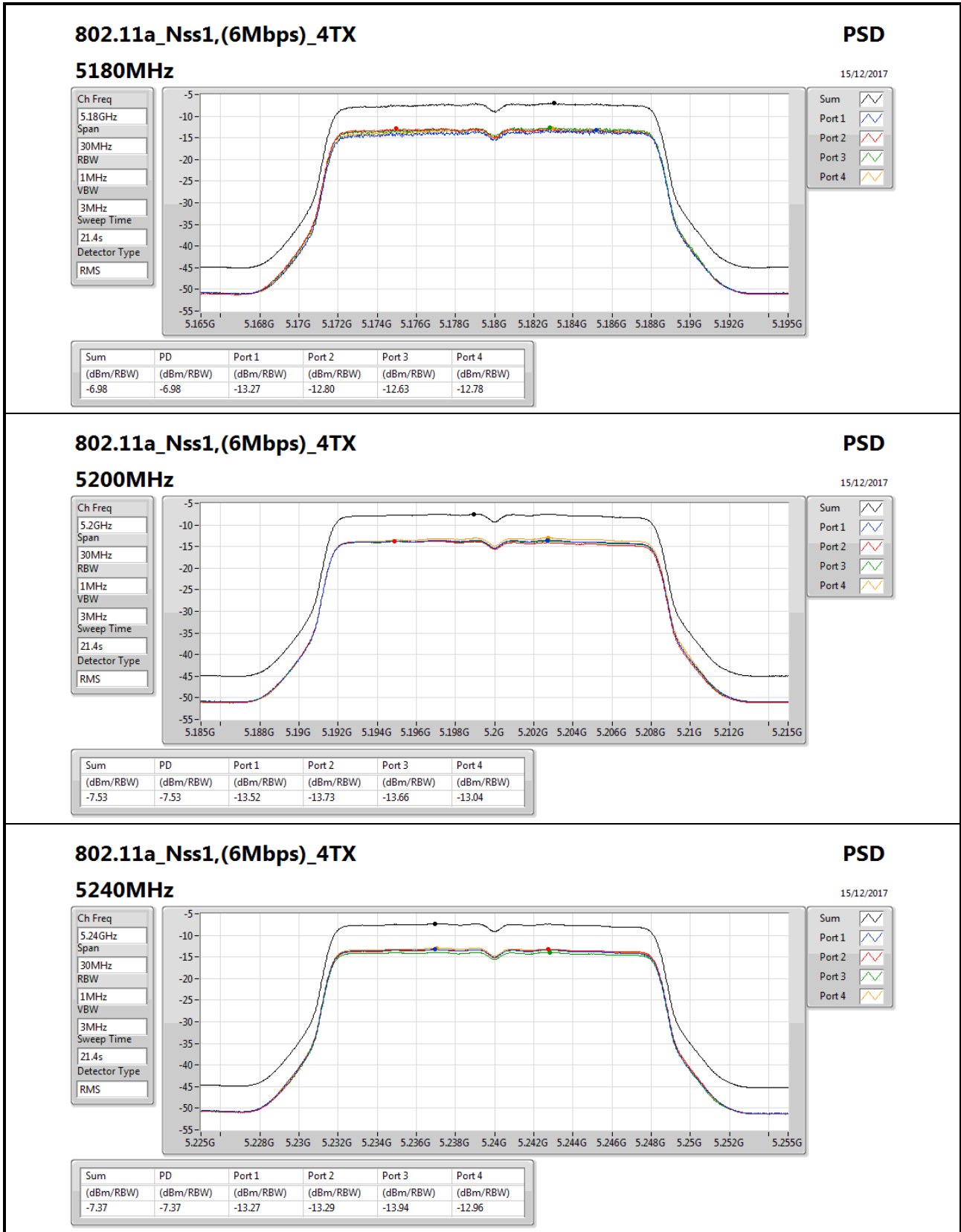
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)	EIRP PD (dBm/RBW)	EIRP PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	21.02	-13.27	-12.80	-12.63	-12.78	-6.98	1.98	14.04	23.00
5200MHz	Pass	21.02	-13.52	-13.73	-13.66	-13.04	-7.53	1.98	13.49	23.00
5240MHz	Pass	21.02	-13.27	-13.29	-13.94	-12.96	-7.37	1.98	13.65	23.00
5260MHz	Pass	21.02	-10.18	-10.16	-9.70	-9.85	-4.10	-4.02	16.92	17.00
5300MHz	Pass	21.02	-10.89	-10.20	-9.57	-9.84	-4.18	-4.02	16.84	17.00
5320MHz	Pass	21.02	-10.75	-10.09	-10.16	-10.19	-4.35	-4.02	16.67	17.00
802.11ac_VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	21.02	-13.38	-12.80	-12.40	-12.62	-7.16	1.98	13.86	23.00
5200MHz	Pass	21.02	-13.04	-12.91	-12.98	-12.58	-7.29	1.98	13.73	23.00
5240MHz	Pass	21.02	-12.64	-12.41	-13.29	-12.48	-7.11	1.98	13.91	23.00
5260MHz	Pass	21.02	-10.13	-10.03	-9.72	-9.52	-4.22	-4.02	16.80	17.00
5300MHz	Pass	21.02	-10.33	-9.97	-9.62	-9.44	-4.17	-4.02	16.85	17.00
5320MHz	Pass	21.02	-10.22	-10.14	-9.96	-10.13	-4.52	-4.02	16.50	17.00
802.11ac_VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	21.02	-16.45	-15.92	-16.50	-16.11	-10.37	1.98	10.65	23.00
5230MHz	Pass	21.02	-15.92	-16.22	-16.59	-15.74	-10.10	1.98	10.92	23.00
5270MHz	Pass	21.02	-10.69	-10.73	-9.78	-9.89	-4.30	-4.02	16.72	17.00
5310MHz	Pass	21.02	-10.16	-10.32	-9.88	-10.14	-4.24	-4.02	16.78	17.00
802.11ac_VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	21.02	-20.33	-20.71	-20.77	-19.86	-14.57	1.98	6.45	23.00
5290MHz	Pass	21.02	-10.06	-10.25	-9.91	-9.42	-4.08	-4.02	16.94	17.00

DG = Directional Gain; **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

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

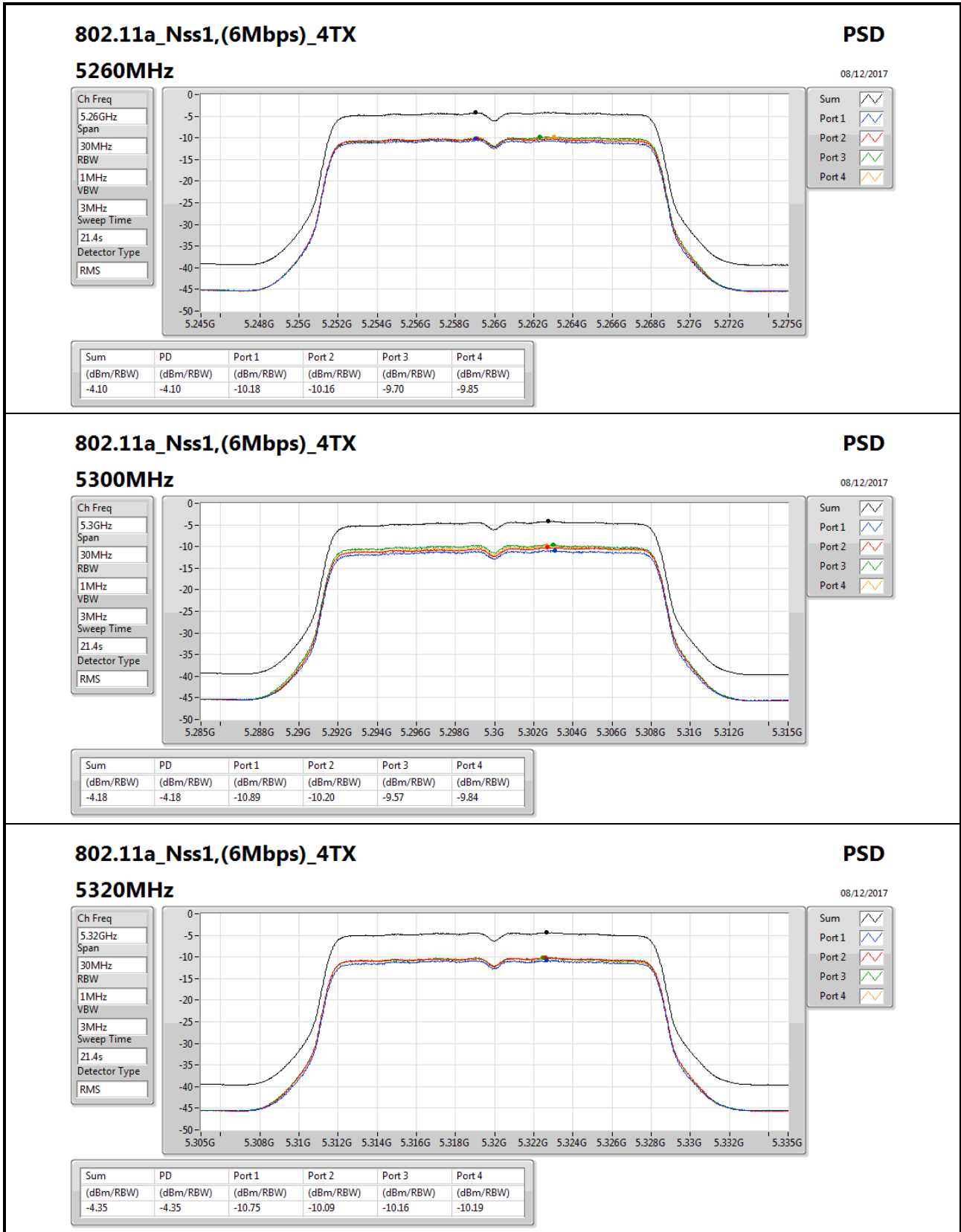


PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master



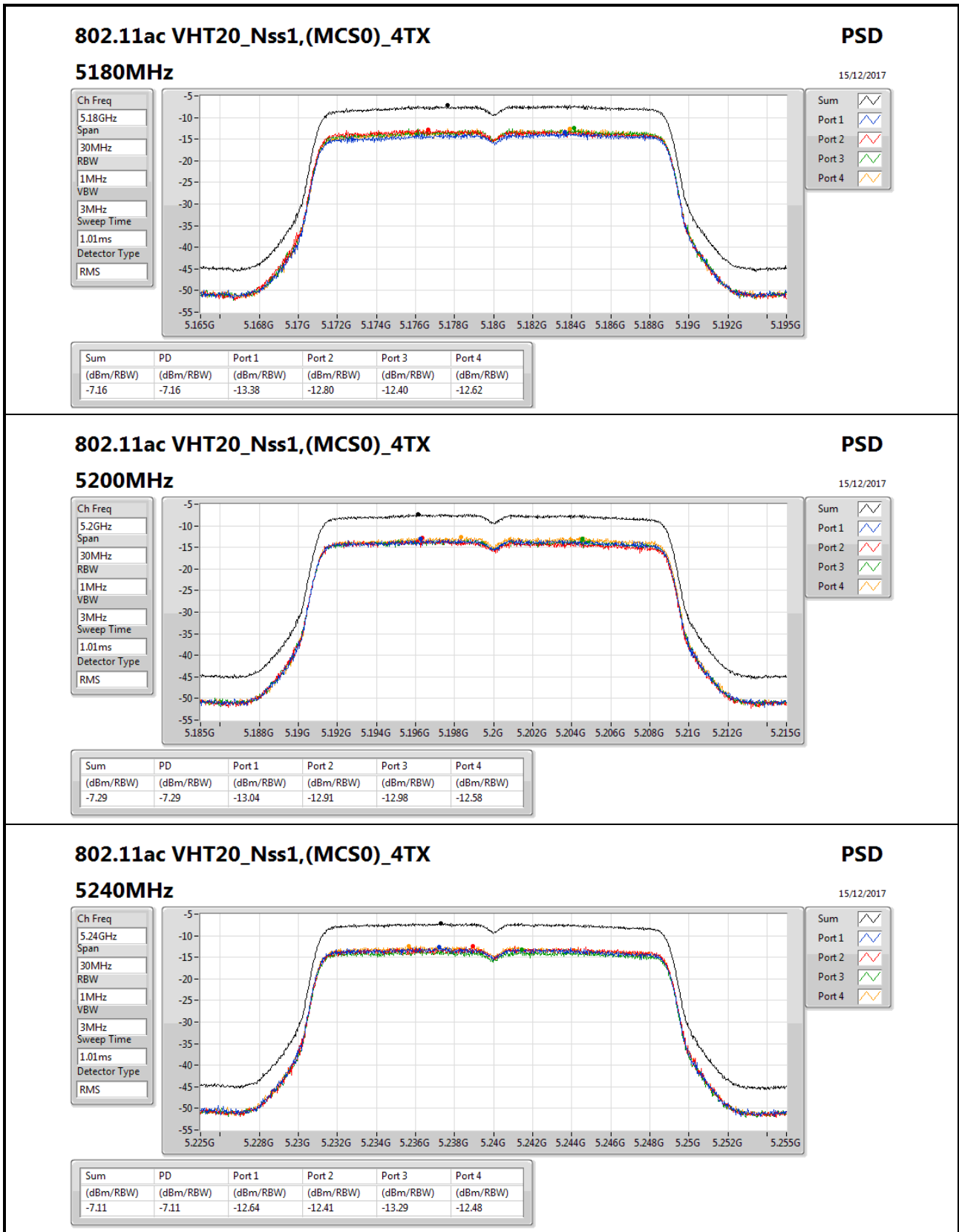


PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master





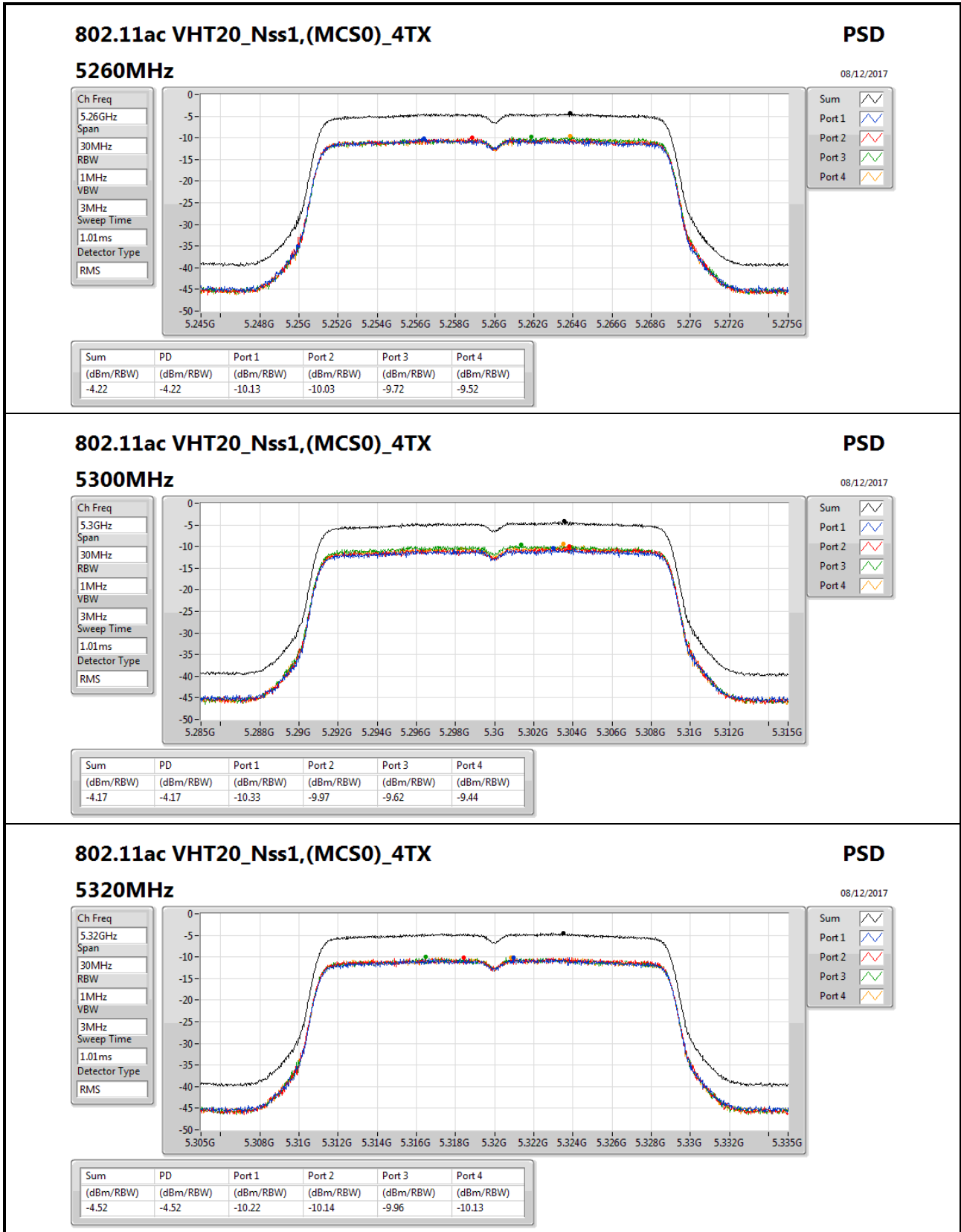
PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master





PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master

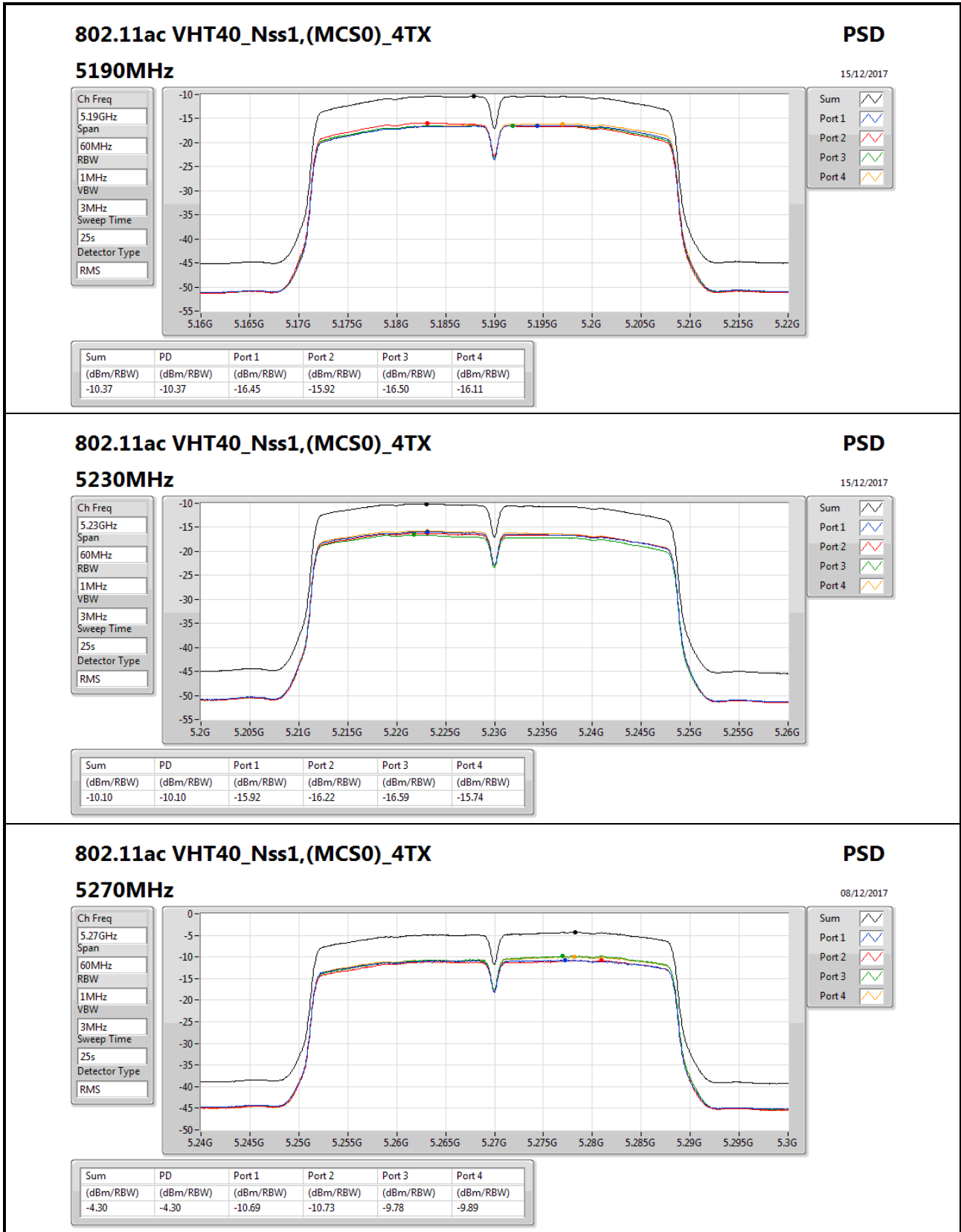
Appendix D.4





PSD Result (Antenna Gain 15 dBi)
Non-Beamforming_Outdoor Master

Appendix D.4



802.11ac VHT40_Nss1,(MCS0)_4TX

5270MHz

PSD

08/12/2017

Ch Freq: 5.27GHz

Span: 60MHz

RBW: 1MHz

VBW: 3MHz

Sweep Time: 25s

Detector Type: RMS

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)
-4.30	-4.30	-10.69	-10.73	-9.78	-9.89