



# FCC Test Report

**FCC ID** : 2AGOZ-F8MZ  
**Equipment** : VR Headset  
**Brand Name** : **Oculus**  
**Model Name** : MH-B  
**Applicant** : Facebook Technologies, LLC  
1 Hacker Way, Menlo Park, CA 94025, USA  
**Manufacturer** : Facebook Technologies, LLC  
1 Hacker Way, Menlo Park, CA 94025, USA  
**Standard** : 47 CFR FCC Part 15.407

The product was received on Jul. 25, 2018, and testing was started from Oct. 11, 2018 and completed on Nov. 07, 2018. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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

Approved by: Allen Lin

**SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory**

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



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**PHOTOGRAPHS OF EUT V01**



### History of this test report

Report No.	Version	Description	Issued Date
FR8O0804AN	01	Initial issue of report	Nov. 19, 2018
FR8O0804AN	02	1. Revise Typo 2. 802.11ac mode 5190MHz Maximum Conducted Output Power was evaluated	Nov. 27, 2018



### Summary of Test Result

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

<b>Declaration of Conformity:</b>
The judgment of conformity in the report is based on the measurement results excluding the measurement uncertainty.
<b>Comments and explanations:</b>
None

Reviewed by: Sam Chen

Report Producer: Ann Hou



# 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]
5470-5725		5500-5700	100-140 [11]
Straddle 5720		5720	144 [1]
5725-5850		5745-5825	149-165 [5]
5150-5250	n (HT40), ac (VHT40)	5190-5230	38-46 [2]
5250-5350		5270-5310	54-62 [2]
5470-5725		5510-5670	102-134 [5]
Straddle 5710		5710	142 [1]
5725-5850		5755-5795	151-159 [2]
5150-5250	ac (VHT80)	5210	42 [1]
5250-5350		5290	58 [1]
5470-5725		5530-5610	106-122 [2]
Straddle 5690		5690	138 [1]
5725-5850		5775	155 [1]

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	2TX
5.25-5.35GHz		20	2TX
5.47-5.725GHz		20	2TX
5.725-5.85GHz		20	2TX
5.15-5.25GHz	802.11ac VHT20 (covered HT 20)	20	2TX
5.25-5.35GHz		20	2TX
5.47-5.725GHz		20	2TX
5.725-5.85GHz		20	2TX
5.15-5.25GHz	802.11ac VHT40 (covered HT 40)	40	2TX
5.25-5.35GHz		40	2TX
5.47-5.725GHz		40	2TX
5.725-5.85GHz		40	2TX

5.15-5.25GHz	802.11ac VHT80	80	2TX
5.25-5.35GHz		80	2TX
5.47-5.725GHz		80	2TX
5.725-5.85GHz		80	2TX

**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.
- ◆ Nss 1 = Stream 1 ; Nss 2 = Stream 2.

**1.1.2 Antenna Information**

Ant.	Port	Brand	Model Name	Antenna Type	Connector
1	1	-	-	PIFA	I-PEX
2	2	-	-	PIFA	I-PEX
3	-	-	-	Monopole	I-PEX

Ant.	Gain (dBi) - Maximum Peak Gain								
	2.4G			5G				BT	GFSK
	2412MHz	2437MHz	2462MHz	U-NII-1	U-NII-2A	U-NII-2C	U-NII-3		
1	2.92	3.24	3.30	4.28	4.28	3.34	2.21	3.3	-
2	2.56	2.52	2.56	4.04	4.04	4.56	4.93	-	-
3	-	-	-	-	-	-	-	-	3.8

2TX Stream	DG Gain (dBi) - Correlated Gain							
	2.4G			5G				
	2412MHz	2437MHz	2462MHz	U-NII-1	U-NII-2A	U-NII-2C	U-NII-3	
1	5.56	5.77	5.95	6.93	6.93	6.53	6.07	
2	2.56	2.77	2.95	3.92	3.92	3.52	3.16	

Note 1: The EUT has three antennas.

Note 2: Ant. 1 = port 1 = Chain 0 = Right ; Ant. 2 = port 2 = Chain 1 = Left.

**For 2.4GHz function:**

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

Only supports 2X2 MIMO configuration.

**For 5GHz function:**

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

Only supports 2X2 MIMO configuration.



**For BT function:**

For IEEE 802.15.1 Bluetooth mode (1TX/1RX)

Only Ant. 1 could transmit/receive simultaneously.

**For GFSK function:**

For GFSK mode (1TX/1RX)

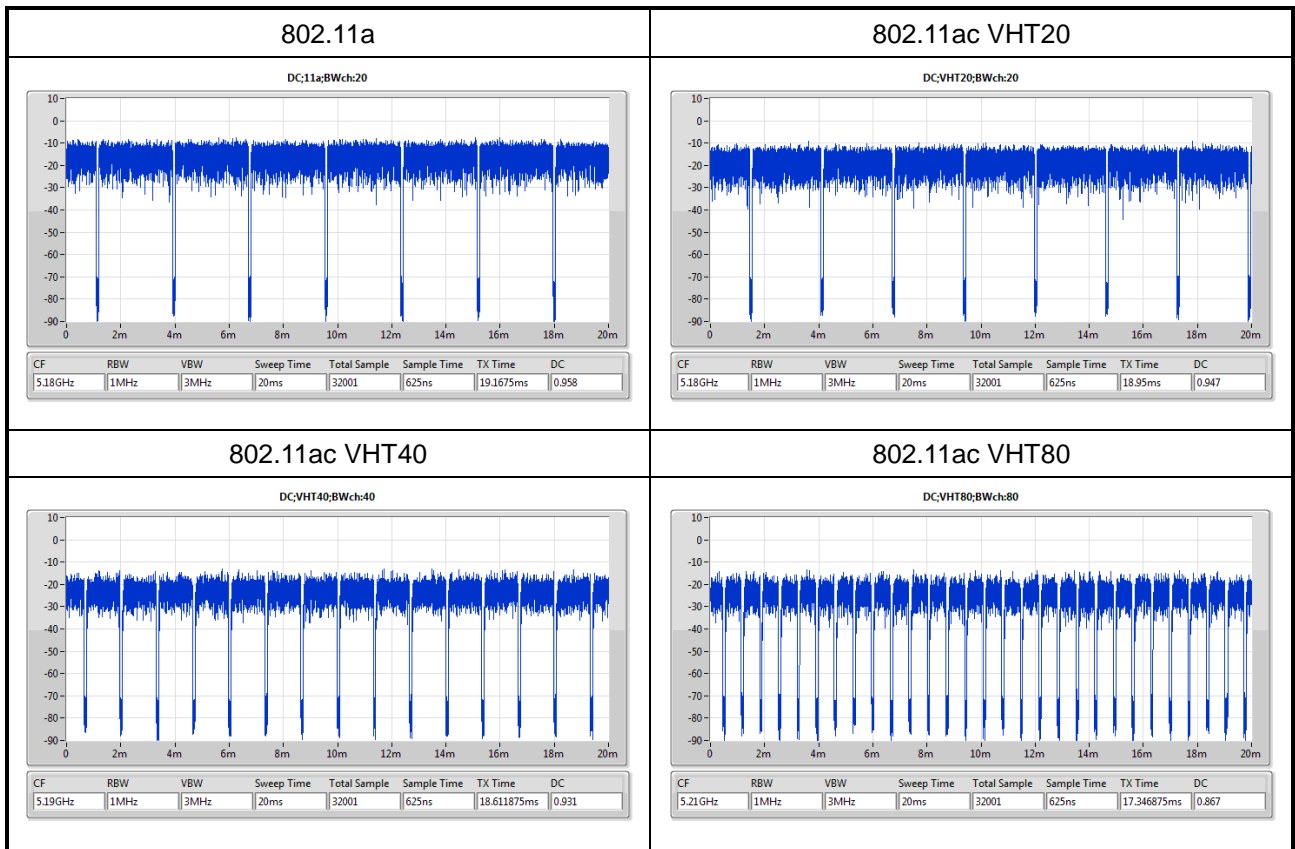
Only Ant. 3 could transmit/receive simultaneously.

**1.1.3 EUT Information**

Operational Condition				
<b>EUT Power Type</b>	From host system			
<b>EUT Function</b>	<input type="checkbox"/>	Outdoor	<input type="checkbox"/>	Indoor
	<input type="checkbox"/>	Fixed P2P	<input checked="" type="checkbox"/>	Client
<b>Beamforming Function</b>	<input type="checkbox"/>	With beamforming	<input checked="" type="checkbox"/>	Without beamforming
<b>Weather Band</b>	<input checked="" type="checkbox"/>	With 5600~5650MHz	<input type="checkbox"/>	Without 5600~5650MHz
Type of EUT				
<input checked="" 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 type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems)			
	Host System - Brand Name / Model No.: ...			
<input type="checkbox"/>	Other:			

### 1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11a	0.958	0.186	2.714m	1k
802.11ac VHT20	0.947	0.237	2.53m	1k
802.11ac VHT40	0.931	0.311	1.243m	1k
802.11ac VHT80	0.867	0.62	597.5u	3k





## 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
AC Conduction	CO04-HY	Andy	24.8°C / 59%	17/Oct/2018
RF Conducted	TH01-HY	Andy	24.5°C / 63.5%	12/Oct/2018
Radiated	03CH09-HY	Kevin	21°C / 59%	11/Oct/2018
Radiated (co-location)	03CH09-HY	Kevin	22.3°C / 58%	09/Nov/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%
Temperature	0.7 °C	Confidence levels of 95%
Humidity	4 %	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	3.82V




### 2.2 Test Channel Mode

Test Software Version	QRCT 3.0.297.0
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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	USB mode

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

The Worst Case Mode for Following Conformance Tests			
<b>Tests Item</b>	Unwanted Emissions		
<b>Test Condition</b>	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.		
<b>Operating Mode &lt; 1GHz</b>	CTX		
1	USB mode		
<b>Operating Mode &gt; 1GHz</b>	CTX		
<b>Orthogonal Planes of EUT</b>	<b>X Plane</b>	<b>Y Plane</b>	<b>Z Plane</b>
			
<b>Worst Planes of EUT</b>			V

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	Simultaneous Transmission Analysis
<b>Test Condition</b>	Radiated measurement
<b>Operating Mode</b>	Normal
1	Bluetooth+WLAN 5GHz
Refer to Sporton Test Report No.: Appendix F for Radiated Emission Co-location.	

## 2.4 Accessories

Accessories				
AC Adapter (US Plug)	<b>Brand Name</b>	oculus	<b>Model Name</b>	AQ15A-050A
	<b>Manufacturer</b>	PHIHONG		
	<b>Power Rating</b>	I/P: 100 - 240Vac, 0.5A, O/P: 5Vdc, 3A		
Type-C USB Cable	<b>In/Out door</b>	In door		
	<b>Cable</b>	2.95 meter, Shielded cable, w/o ferrite core		

Reminder: Regarding to more detail and other information, please refer to user manual.

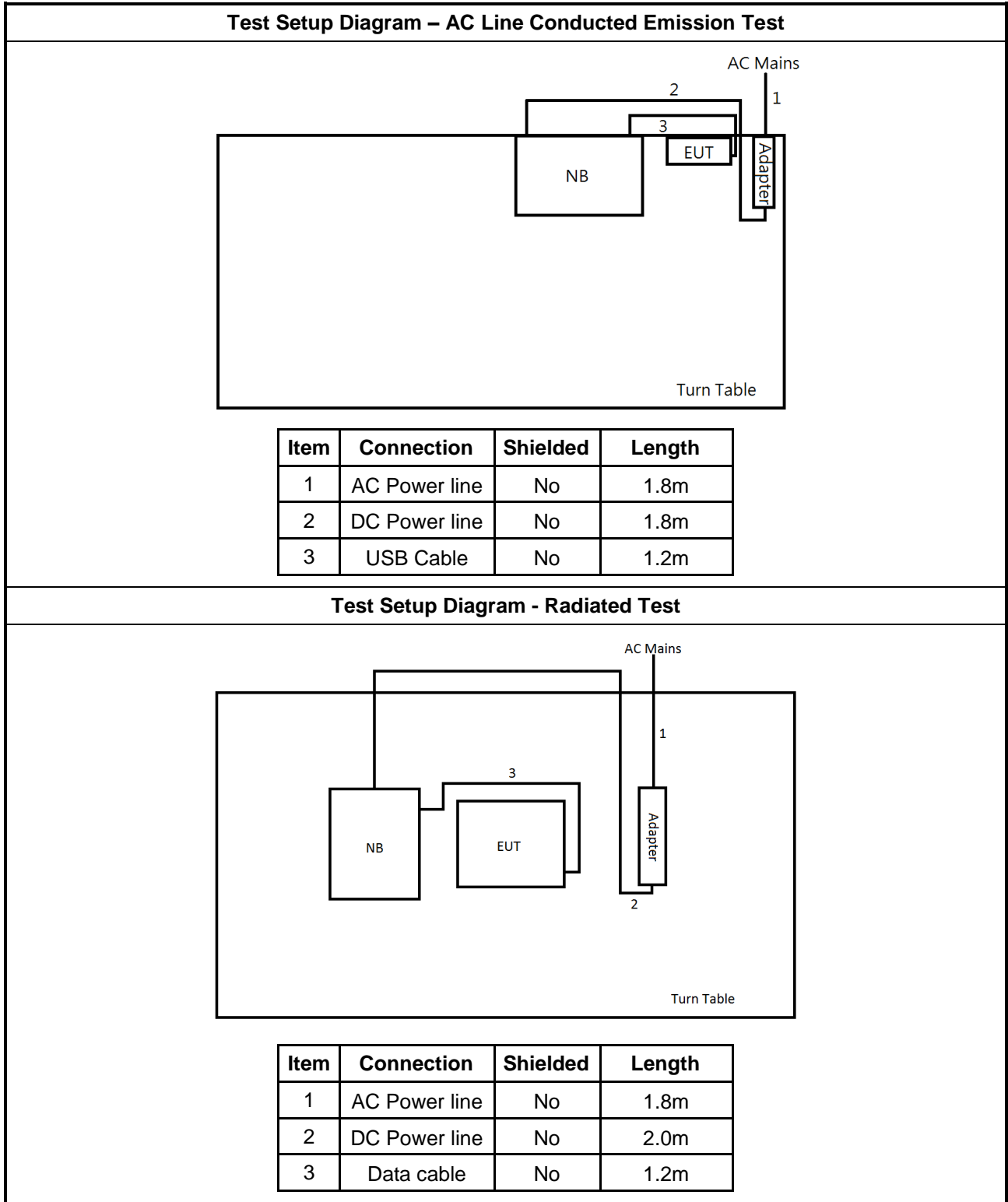
## 2.5 Support Equipment

<b>Support Equipment – AC Conduction</b>				
<b>No.</b>	<b>Equipment</b>	<b>Brand Name</b>	<b>Model Name</b>	<b>FCC ID</b>
1	Notebook	HP	ProBook5220m	-
2	Mouse(USB)	DELL	MS111-L	-
3	IPod	APPLE	YM719D8YVQ5	-
4	AC adapter	HP	608425-003	-
5	USB Cable	-	-	-

<b>Support Equipment – RF Conducted</b>				
<b>No.</b>	<b>Equipment</b>	<b>Brand Name</b>	<b>Model Name</b>	<b>FCC ID</b>
1	Notebook	DELL	E5410	DoC
2	Adapter for notebook	DELL	HA65NM130	DoC
3	DC Power Supply	GW	GPS-3030DD	-

<b>Support Equipment – Radiated Emission</b>				
<b>No.</b>	<b>Equipment</b>	<b>Brand Name</b>	<b>Model Name</b>	<b>FCC ID</b>
1	Notebook	HP	ProBook5220m	-
2	Adapter for notebook	HP	Series PPP012H-S	-

## 2.6 Test Setup Diagram



### 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.

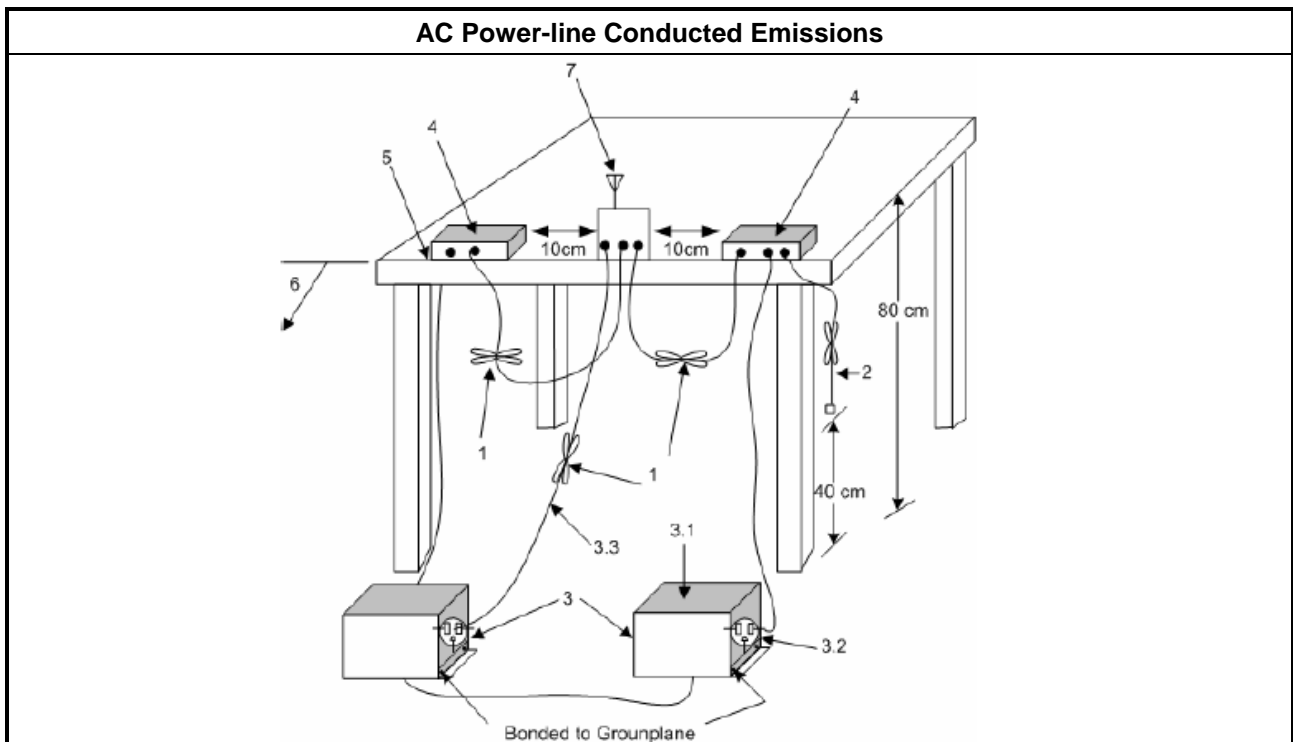
##### 3.1.2 Measuring Instruments

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	
<b>UNII Devices</b>	
<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 checked="" 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 checked="" type="checkbox"/>	For the 5.725-5.85 GHz band, 6 dB emission bandwidth $\geq$ 500kHz.

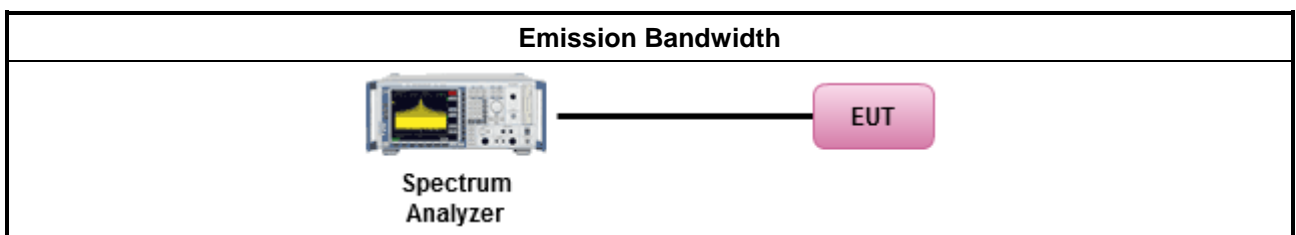
#### 3.2.2 Measuring Instruments

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"> <li>▪ For the emission bandwidth shall be measured using one of the options below:</li> </ul>	
<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 6.7 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	
<b>UNII Devices</b>	
<input checked="" type="checkbox"/> For the 5.15-5.25 GHz band:	
	<ul style="list-style-type: none"> <li>▪ Outdoor AP: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math>. e.i.r.p. at any elevation angle above 30 degrees <math>\leq 125mW</math> [21dBm]</li> <li>▪ Indoor AP: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math></li> <li>▪ Point-to-point AP: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 23</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 23)</math>.</li> <li>▪ Mobile or Portable Client: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 250 mW. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 24 - (G_{TX} - 6)</math>.</li> </ul>
<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 checked="" 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 checked="" type="checkbox"/> For the 5.725-5.85 GHz band:	
	<ul style="list-style-type: none"> <li>▪ Point-to-multipoint systems (P2M): the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math>.</li> <li>▪ Point-to-point systems (P2P): the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W.</li> </ul>
$P_{Out}$ = maximum conducted output power in dBm, $G_{TX}$ = the maximum transmitting antenna directional gain in dBi.	



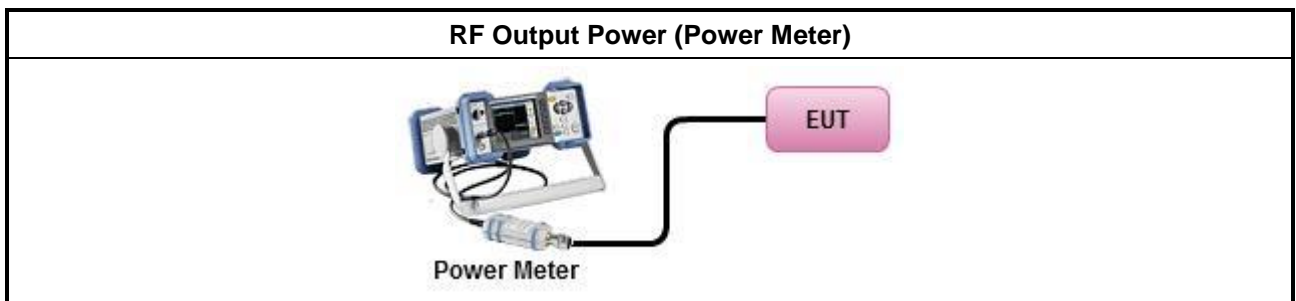
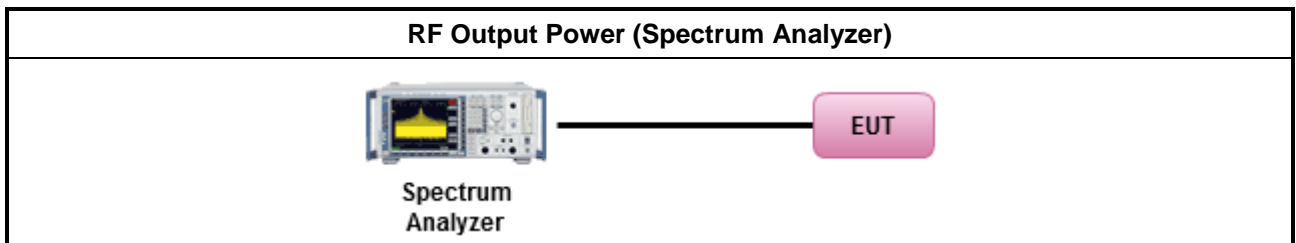
### 3.3.2 Measuring Instruments

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"> <li>Maximum Conducted Output Power</li> </ul>	
	Duty cycle ≥ 98%
<input 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)
	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"> <li>For conducted measurement.</li> </ul>	
	<ul style="list-style-type: none"> <li>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.</li> </ul>
	<ul style="list-style-type: none"> <li>If multiple transmit chains, EIRP calculation could be following as methods:  <math>P_{total} = P_1 + P_2 + \dots + P_n</math>                      (calculated in linear unit [mW] and transfer to log unit [dBm])  <math>EIRP_{total} = P_{total} + DG</math> </li> </ul>

### 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	
<b>UNII Devices</b>	
<input checked="" type="checkbox"/> For the 5.15-5.25 GHz band:	
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>▪ Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 17 - (G_{TX} - 6)</math>.</li> <li>▪ Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 17 - (G_{TX} - 6)</math>.</li> <li>▪ Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If <math>G_{TX} &gt; 23</math> dBi, then <math>P_{Out} = 17 - (G_{TX} - 23)</math>.</li> <li>▪ Mobile or Portable Client: the peak power spectral density (PPSD) <math>\leq 11</math> dBm/MHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>PPSD = 11 - (G_{TX} - 6)</math>.</li> </ul>
<input checked="" type="checkbox"/> For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) $\leq 11$ dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$ .	
<input checked="" type="checkbox"/> For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) $\leq 11$ dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$ .	
<input checked="" type="checkbox"/> For the 5.725-5.85 GHz band:	
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>▪ Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>PPSD = 30 - (G_{TX} - 6)</math>.</li> <li>▪ Point-to-point systems (P2P): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz.</li> </ul>
<p><b>PPSD</b> = 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</p> <p><b>G<sub>TX</sub></b> = the maximum transmitting antenna directional gain in dBi.</p>	

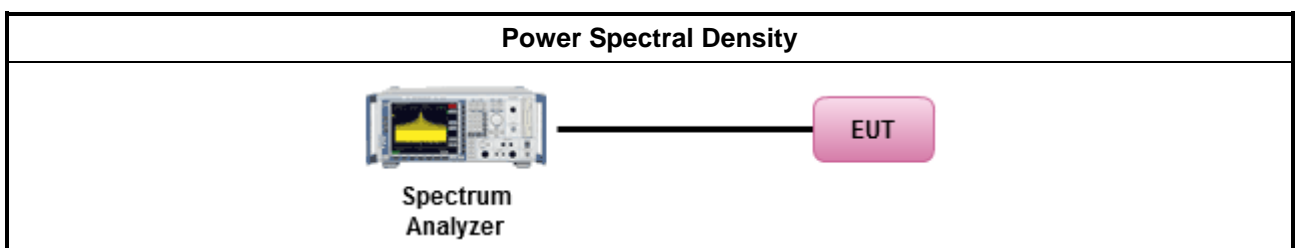
#### 3.4.2 Measuring Instruments

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"> <li>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:</li> </ul>	
<input type="checkbox"/>	Refer as KDB 789033, F)5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth
Duty cycle ≥ 98%	
<input 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"> <li>For conducted measurement.</li> </ul>	
<ul style="list-style-type: none"> <li>If the EUT supports multiple transmit chains using options given below:</li> </ul>	
	<ul style="list-style-type: none"> <li>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.</li> </ul>
	<ul style="list-style-type: none"> <li>If multiple transmit chains, EIRP PPSD calculation could be following as methods:  <math>PPSD_{total} = PPSD_1 + PPSD_2 + \dots + PPSD_n</math>                      (calculated in linear unit [mW] and transfer to log unit [dBm])  <math>EIRP_{total} = PPSD_{total} + DG</math> </li> </ul>

### 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).

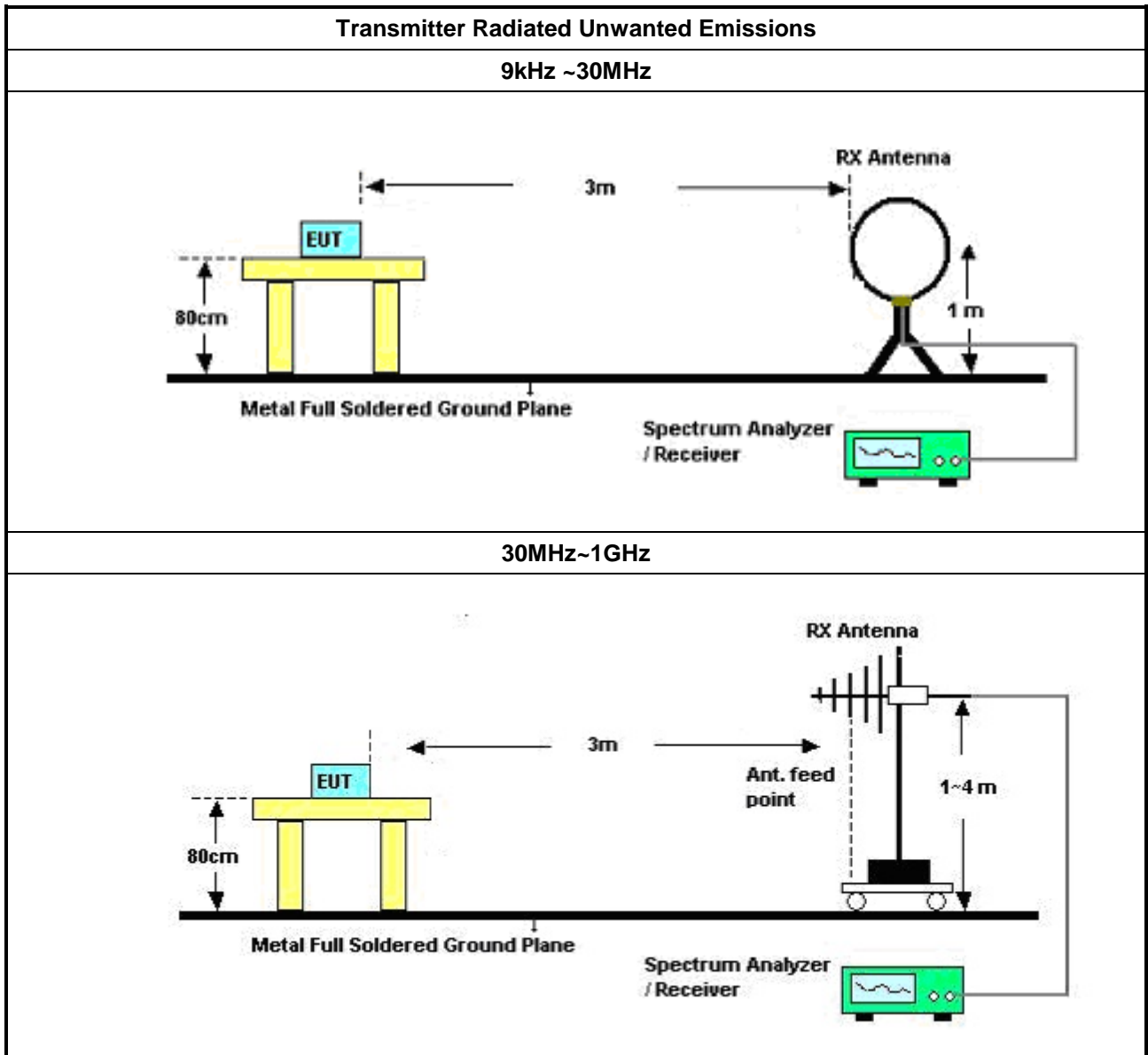
### 3.5.2 Measuring Instruments

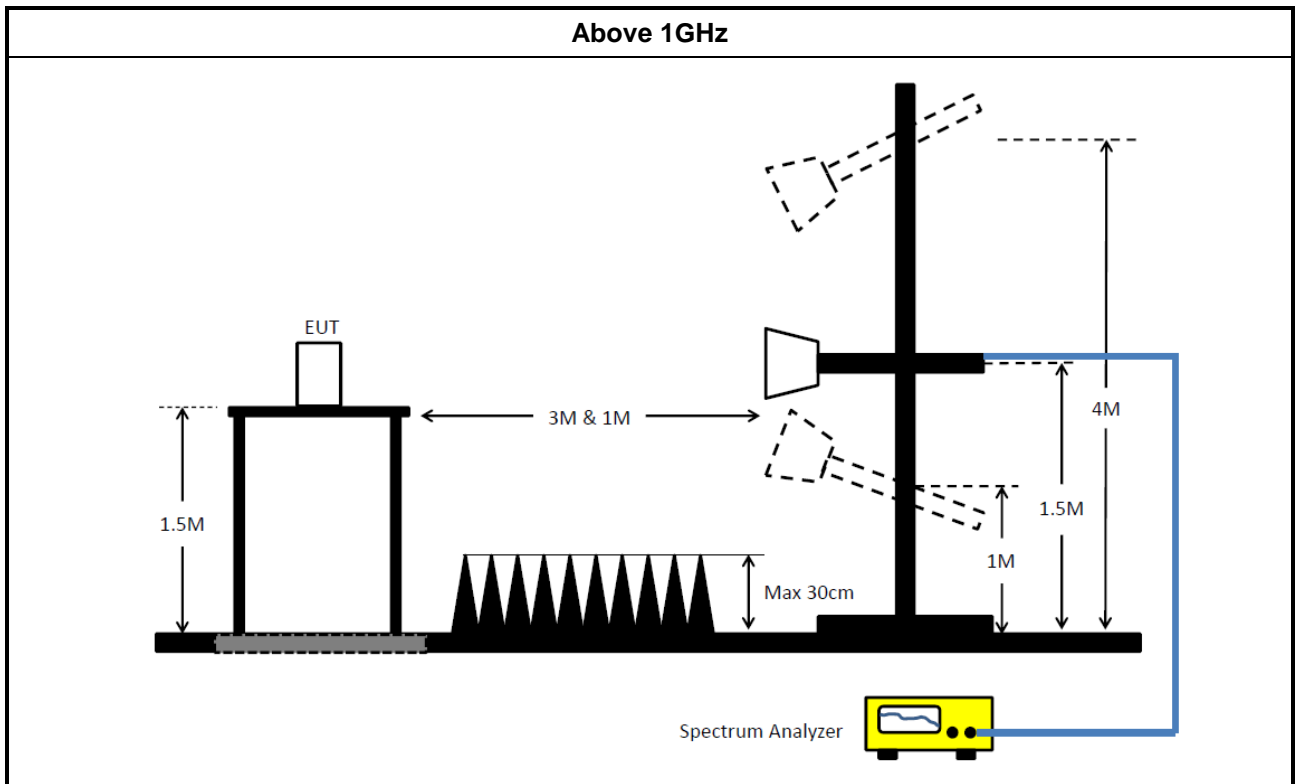
Refer a test equipment and calibration data table in this test report.

### 3.5.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> <li>▪ 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).</li> </ul>	
<ul style="list-style-type: none"> <li>▪ The average emission levels shall be measured in [duty cycle <math>\geq</math> 98 or duty factor].</li> </ul>	
<ul style="list-style-type: none"> <li>▪ For the transmitter unwanted emissions shall be measured using following options below:</li> </ul>	
	<ul style="list-style-type: none"> <li>▪ Refer as KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Refer as KDB 789033, clause G)1) for unwanted emissions into restricted bands.</li> </ul>
	<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"> <li>▪ For radiated measurement.</li> </ul>	
	<ul style="list-style-type: none"> <li>▪ Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.</li> </ul>
<ul style="list-style-type: none"> <li>▪ The any unwanted emissions level shall not exceed the fundamental emission level.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.</li> </ul>	

### 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 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	ESR	102051	9KHz ~ 3.6GHz	03/May/2018	02/May/2019
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	17/Nov/2017	16/Nov/2018
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	17/Sep/2018	16/Sep/2019
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/2018	11/Oct/2019

**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	23/Apr/2018	22/Apr/2019
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz	14/Jun/2018	13/Jun/2019
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz ~ 26.5GHz	10/May/2018	09/May/2019
Amplifier	EMC	EMC9135	980232	9KHz ~ 1GHz	27/Apr/2018	26/Apr/2019
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz ~ 44GHz	31/Jul/2018	30/Jul/2019
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D & MTJ6102-05	35418 / 3	30MHz ~ 1GHz	02/Oct/2018	03/Oct/2019
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz ~ 18GHz	30/Apr/2018	29/Apr/2019
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170614	18GHz ~ 40GHz	09/Feb/2018	08/Feb/2019
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz ~ 40GHz	24/Aug/2018	23/Aug/2019
Loop Antenna	TESEQ	HLA 6120	31244	9k ~ 30MHz	29/Mar/2018	28/Mar/2019
RF Cable-R03m	Jye Bao	RG142	CB031	9kHz ~ 1GHz	1/Feb/2018	31/Jan/2019
RF Cable-high	HUBER+SUHNER	SUCOFLEX104	SN 556626/4 + 556627	1GHz ~ 40GHz	14/Mar/2018	13/Mar/2019
EMC Receiver	R&S	ESR	102051	9KHz ~ 3.6GHz	03/May/2018	02/May/2019





Instrument for Conducted Test

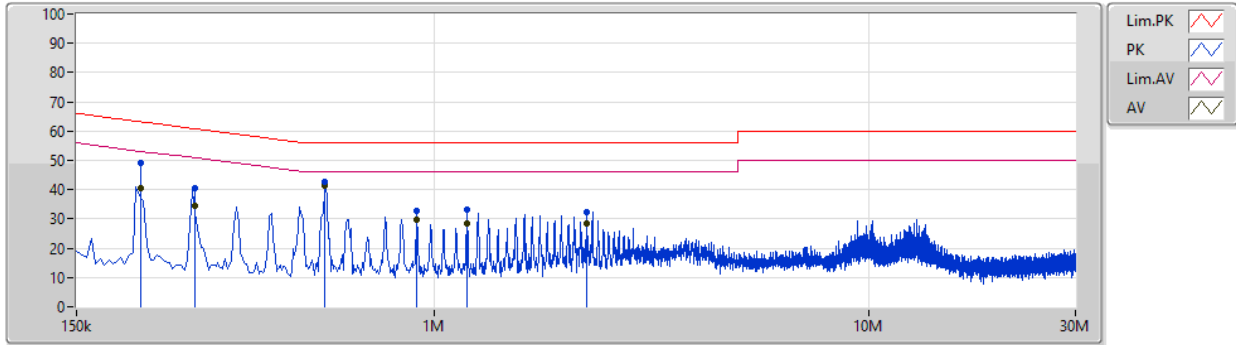
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV40	101500	10Hz~40GHz	18/Jul/2018	17/Jul/2019
Power Sensor	Anritsu	MA2411B	1339407	300MHz~40GHz	06/Nov/2017	05/Nov/2018
Power Meter	Anritsu	ML2495A	1517010	300MHz~40GHz	06/Nov/2017	05/Nov/2018
RF Cable-1m	HUBER+SUHNER	MY37332/4	RF Cable - 44	30MHz~1GHz	26/Jan/2018	25/Jan/2019
RF Cable-1m	HUBER+SUHNER	MY37332/4	RF Cable - 44	1GHz~18GHz	26/Jan/2018	25/Jan/2019
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10710/4	30MHz~26.5GHz	26/Jan/2018	25/Jan/2019
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10709/4	30MHz~26.5GHz	26/Jan/2018	25/Jan/2019
Signal Generator	R&S	SMB100A	175727	100kHz~40GHz	26/Oct/2017	25/Oct/2018



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	USB mode		

17/10/2018



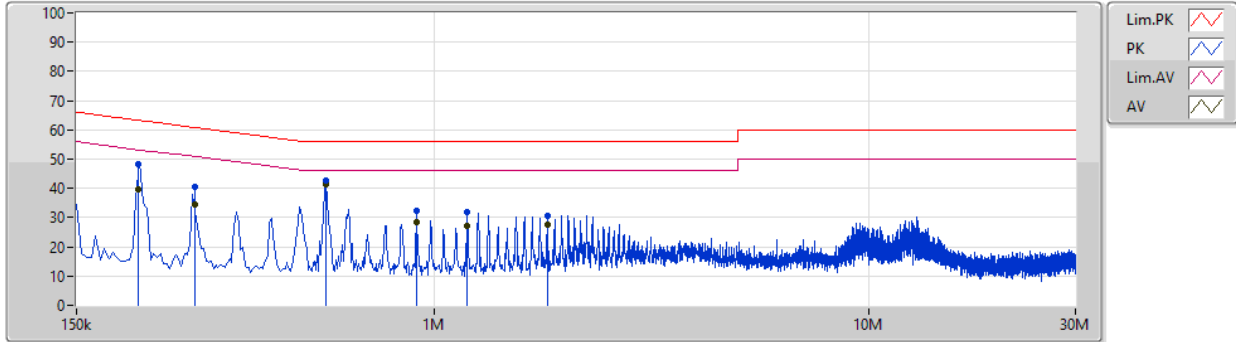
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	210.414k	49.03	63.19	-14.16	19.50	Neutral	-	29.53	9.62	0.01	9.87
AV	210.414k	40.53	53.19	-12.66	19.50	Neutral	-	21.03	9.62	0.01	9.87
QP	281.69k	40.73	60.76	-20.03	19.54	Neutral	-	21.19	9.62	0.05	9.87
AV	281.69k	34.50	50.76	-16.26	19.54	Neutral	-	14.96	9.62	0.05	9.87
QP	561.059k	42.67	56.00	-13.33	19.55	Neutral	-	23.12	9.61	0.06	9.88
AV	561.059k	41.32	46.00	-4.68	19.55	Neutral	"Worst"	21.77	9.61	0.06	9.88
QP	911.467k	32.94	56.00	-23.06	19.51	Neutral	-	13.43	9.62	0.01	9.88
AV	911.467k	29.58	46.00	-16.42	19.51	Neutral	-	10.07	9.62	0.01	9.88
QP	1.193M	33.02	56.00	-22.98	19.51	Neutral	-	13.51	9.62	0.01	9.88
AV	1.193M	28.64	46.00	-17.36	19.51	Neutral	-	9.13	9.62	0.01	9.88
QP	2.245M	32.29	56.00	-23.71	19.52	Neutral	-	12.77	9.63	0.01	9.88
AV	2.245M	28.27	46.00	-17.73	19.52	Neutral	-	8.75	9.63	0.01	9.88



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	USB mode		

17/10/2018



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	208.553k	48.36	63.27	-14.91	19.50	Line	-	28.86	9.62	0.01	9.87
AV	208.553k	39.45	53.27	-13.82	19.50	Line	-	19.95	9.62	0.01	9.87
QP	280.822k	40.56	60.80	-20.24	19.54	Line	-	21.02	9.62	0.05	9.87
AV	280.822k	34.34	50.80	-16.46	19.54	Line	-	14.80	9.62	0.05	9.87
QP	561.276k	42.71	56.00	-13.29	19.55	Line	-	23.16	9.61	0.06	9.88
AV	561.276k	41.54	46.00	-4.46	19.55	Line	"Worst"	21.99	9.61	0.06	9.88
QP	913.039k	32.25	56.00	-23.75	19.50	Line	-	12.75	9.61	0.01	9.88
AV	913.039k	28.56	46.00	-17.44	19.50	Line	-	9.06	9.61	0.01	9.88
QP	1.192M	31.91	56.00	-24.09	19.50	Line	-	12.41	9.61	0.01	9.88
AV	1.192M	27.36	46.00	-18.64	19.50	Line	-	7.86	9.61	0.01	9.88
QP	1.824M	30.65	56.00	-25.35	19.51	Line	-	11.14	9.62	0.01	9.88
AV	1.824M	27.77	46.00	-18.23	19.51	Line	-	8.26	9.62	0.01	9.88

**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)_2TX	23.325M	16.542M	16M5D1D	22.325M	16.467M
802.11ac VHT20_Nss1,(MCS0)_2TX	24.675M	17.741M	17M7D1D	23.975M	17.666M
802.11ac VHT20_Nss2,(MCS10)_2TX	24.15M	17.691M	17M7D1D	23.425M	17.666M
802.11ac VHT40_Nss1,(MCS0)_2TX	41.65M	36.232M	36M2D1D	41.35M	36.132M
802.11ac VHT40_Nss2,(MCS10)_2TX	41.65M	36.232M	36M2D1D	40.9M	36.132M
802.11ac VHT80_Nss1,(MCS0)_2TX	83.9M	75.762M	75M8D1D	83.7M	75.562M
802.11ac VHT80_Nss2,(MCS10)_2TX	83.8M	75.662M	75M7D1D	83.2M	75.562M
5.25-5.35GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	23.65M	16.517M	16M5D1D	22.675M	16.467M
802.11ac VHT20_Nss1,(MCS0)_2TX	24.7M	17.741M	17M7D1D	23.45M	17.666M
802.11ac VHT20_Nss2,(MCS10)_2TX	24.175M	17.691M	17M7D1D	23.25M	17.666M
802.11ac VHT40_Nss1,(MCS0)_2TX	41.7M	36.232M	36M2D1D	41.25M	36.082M
802.11ac VHT40_Nss2,(MCS10)_2TX	41.7M	36.232M	36M2D1D	40.85M	36.132M
802.11ac VHT80_Nss1,(MCS0)_2TX	83.5M	75.762M	75M8D1D	82.9M	75.662M
802.11ac VHT80_Nss2,(MCS10)_2TX	83.9M	75.562M	75M6D1D	83.7M	75.562M
5.47-5.725GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	24.3M	16.542M	16M5D1D	16.83M	13.283M
802.11ac VHT20_Nss1,(MCS0)_2TX	25.65M	17.766M	17M8D1D	16.68M	13.913M
802.11ac VHT20_Nss2,(MCS10)_2TX	25.475M	17.741M	17M7D1D	16.65M	13.898M
802.11ac VHT40_Nss1,(MCS0)_2TX	42M	36.282M	36M3D1D	35.7M	33.023M
802.11ac VHT40_Nss2,(MCS10)_2TX	41.4M	36.232M	36M2D1D	35.315M	32.989M
802.11ac VHT80_Nss1,(MCS0)_2TX	84.3M	75.762M	75M8D1D	76.5M	72.489M
802.11ac VHT80_Nss2,(MCS10)_2TX	84.2M	75.762M	75M8D1D	76.275M	72.414M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	16.275M	16.567M	16M6D1D	3.06M	4.618M
802.11ac VHT20_Nss1,(MCS0)_2TX	17.6M	17.741M	17M7D1D	3.68M	4.638M
802.11ac VHT20_Nss2,(MCS10)_2TX	17.475M	17.741M	17M7D1D	3.6M	4.738M
802.11ac VHT40_Nss1,(MCS0)_2TX	36.3M	36.282M	36M3D1D	3.08M	4.018M
802.11ac VHT40_Nss2,(MCS10)_2TX	35.7M	36.282M	36M3D1D	3.1M	4.118M
802.11ac VHT80_Nss1,(MCS0)_2TX	75M	75.762M	75M8D1D	3.08M	6.497M
802.11ac VHT80_Nss2,(MCS10)_2TX	75.1M	75.762M	75M8D1D	3.1M	6.557M

**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;



**Result**

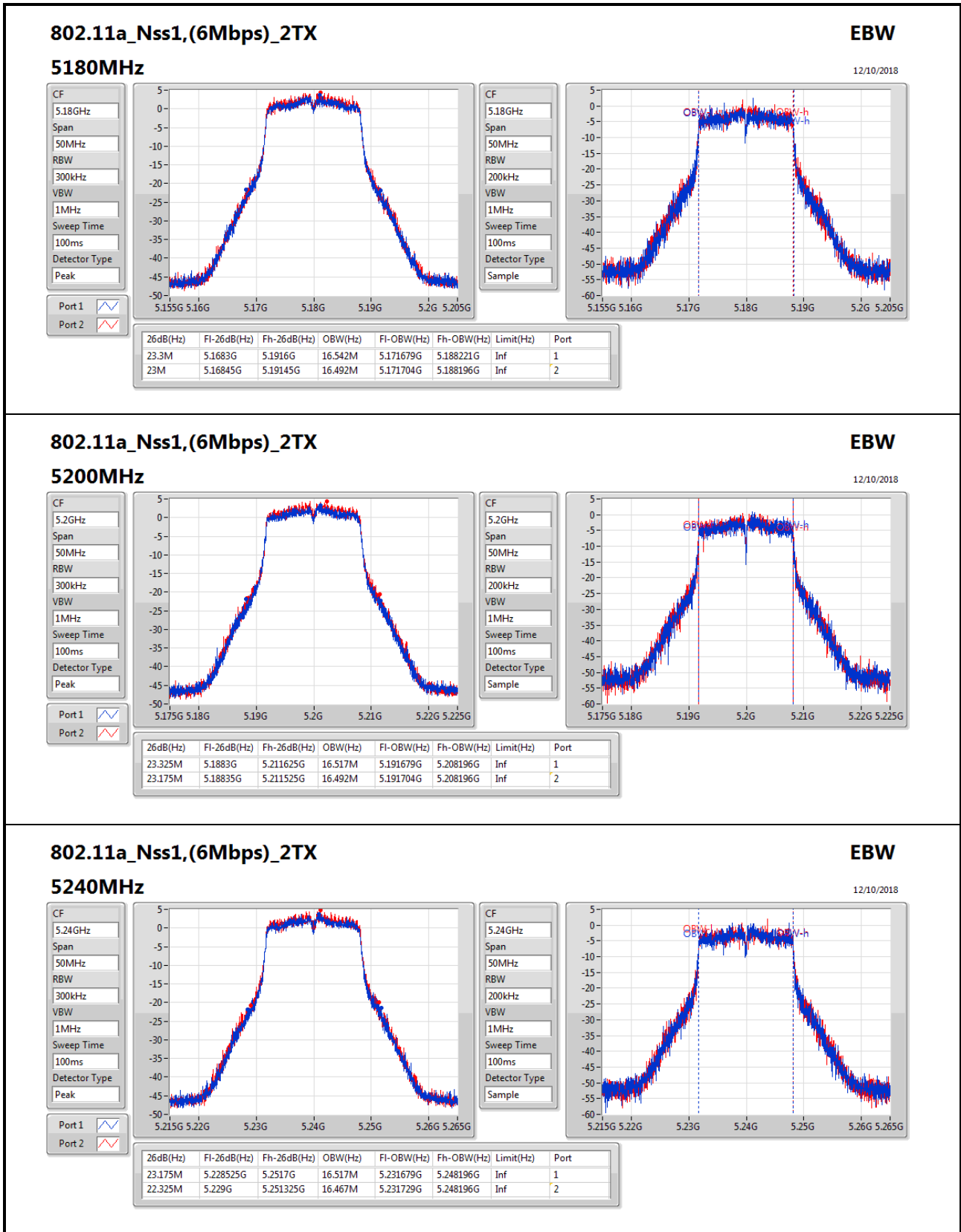
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	23.3M	16.542M	23M	16.492M
5200MHz_TnomVnom	Pass	Inf	23.325M	16.517M	23.175M	16.492M
5240MHz_TnomVnom	Pass	Inf	23.175M	16.517M	22.325M	16.467M
5260MHz_TnomVnom	Pass	Inf	22.85M	16.467M	22.85M	16.492M
5300MHz_TnomVnom	Pass	Inf	22.95M	16.517M	22.675M	16.517M
5320MHz_TnomVnom	Pass	Inf	23.65M	16.492M	22.8M	16.467M
5500MHz_TnomVnom	Pass	Inf	23.35M	16.517M	23.325M	16.492M
5580MHz_TnomVnom	Pass	Inf	23.875M	16.517M	23.625M	16.542M
5700MHz_TnomVnom	Pass	Inf	24.3M	16.492M	23.675M	16.542M
5720MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	Inf	16.83M	13.283M	16.905M	13.328M
5720MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	500k	3.1M	4.618M	3.06M	4.738M
5745MHz_TnomVnom	Pass	500k	15.275M	16.517M	15.25M	16.492M
5785MHz_TnomVnom	Pass	500k	14.625M	16.467M	16.275M	16.517M
5825MHz_TnomVnom	Pass	500k	15.1M	16.567M	15.3M	16.517M
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	24.675M	17.666M	24.6M	17.716M
5200MHz_TnomVnom	Pass	Inf	24.2M	17.741M	23.975M	17.666M
5240MHz_TnomVnom	Pass	Inf	24.35M	17.716M	24.125M	17.666M
5260MHz_TnomVnom	Pass	Inf	23.8M	17.666M	24.7M	17.691M
5300MHz_TnomVnom	Pass	Inf	23.45M	17.741M	24.275M	17.666M
5320MHz_TnomVnom	Pass	Inf	24.125M	17.666M	24.275M	17.691M
5500MHz_TnomVnom	Pass	Inf	24.5M	17.666M	25.65M	17.741M
5580MHz_TnomVnom	Pass	Inf	24.825M	17.741M	24.875M	17.766M
5700MHz_TnomVnom	Pass	Inf	25M	17.716M	25.3M	17.691M
5720MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	Inf	16.68M	13.913M	16.965M	13.943M
5720MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	500k	3.72M	4.638M	3.68M	4.878M
5745MHz_TnomVnom	Pass	500k	15.05M	17.716M	16.025M	17.716M
5785MHz_TnomVnom	Pass	500k	17.6M	17.716M	17.55M	17.691M
5825MHz_TnomVnom	Pass	500k	16.925M	17.741M	16.3M	17.666M
802.11ac VHT20_Nss2,(MCS10)_2TX	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	24.15M	17.691M	23.425M	17.666M
5200MHz_TnomVnom	Pass	Inf	23.625M	17.691M	23.85M	17.666M
5240MHz_TnomVnom	Pass	Inf	23.95M	17.691M	23.7M	17.666M
5260MHz_TnomVnom	Pass	Inf	23.35M	17.691M	24.075M	17.691M
5300MHz_TnomVnom	Pass	Inf	24.175M	17.691M	23.25M	17.691M
5320MHz_TnomVnom	Pass	Inf	23.5M	17.666M	23.95M	17.691M
5500MHz_TnomVnom	Pass	Inf	25.05M	17.741M	25.075M	17.716M
5580MHz_TnomVnom	Pass	Inf	24.975M	17.716M	25.475M	17.716M
5700MHz_TnomVnom	Pass	Inf	24.625M	17.716M	25.35M	17.741M
5720MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	Inf	16.65M	13.928M	17.22M	13.898M
5720MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	500k	3.6M	4.738M	3.72M	4.998M
5745MHz_TnomVnom	Pass	500k	16.55M	17.716M	17.475M	17.716M
5785MHz_TnomVnom	Pass	500k	15.25M	17.741M	16.25M	17.691M

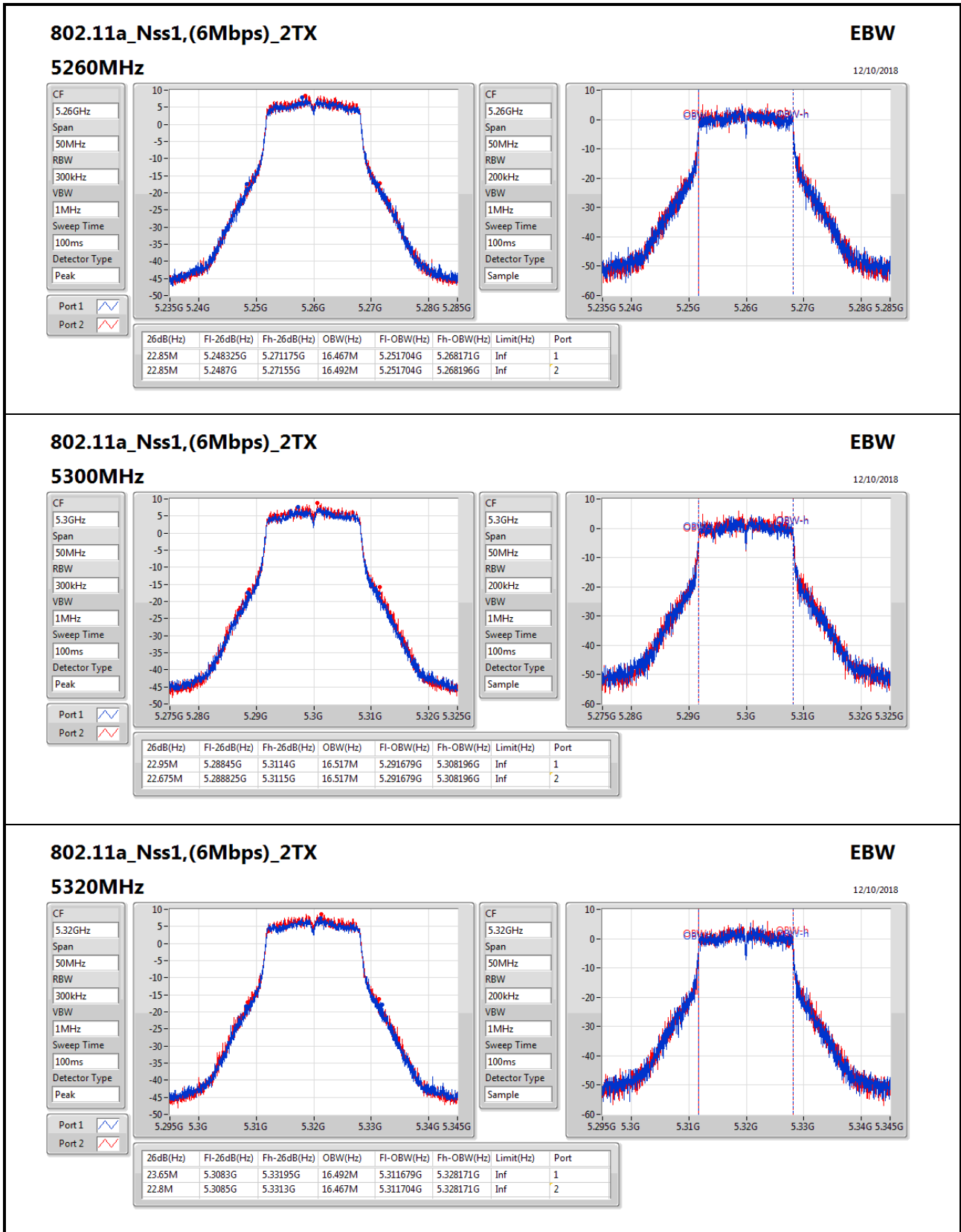


Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
5825MHz_TnomVnom	Pass	500k	15.275M	17.741M	15.1M	17.691M
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	Inf	41.65M	36.182M	41.35M	36.232M
5230MHz_TnomVnom	Pass	Inf	41.5M	36.132M	41.55M	36.232M
5270MHz_TnomVnom	Pass	Inf	41.7M	36.182M	41.25M	36.132M
5310MHz_TnomVnom	Pass	Inf	41.4M	36.232M	41.45M	36.082M
5510MHz_TnomVnom	Pass	Inf	41.65M	36.132M	41.35M	36.182M
5550MHz_TnomVnom	Pass	Inf	42M	36.282M	41.5M	36.132M
5670MHz_TnomVnom	Pass	Inf	41.3M	36.182M	41.55M	36.182M
5710MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	Inf	35.945M	33.023M	35.7M	33.058M
5710MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	500k	3.1M	4.018M	3.08M	4.378M
5755MHz_TnomVnom	Pass	500k	35M	36.282M	36.3M	36.232M
5795MHz_TnomVnom	Pass	500k	36.25M	36.182M	35.7M	36.132M
802.11ac VHT40_Nss2,(MCS10)_2TX	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	Inf	41.5M	36.232M	41.05M	36.182M
5230MHz_TnomVnom	Pass	Inf	41.65M	36.132M	40.9M	36.182M
5270MHz_TnomVnom	Pass	Inf	41.7M	36.132M	40.85M	36.232M
5310MHz_TnomVnom	Pass	Inf	41.25M	36.232M	41.4M	36.182M
5510MHz_TnomVnom	Pass	Inf	41.35M	36.232M	40.75M	36.182M
5550MHz_TnomVnom	Pass	Inf	41.4M	36.132M	41.15M	36.232M
5670MHz_TnomVnom	Pass	Inf	41.4M	36.232M	41.05M	36.182M
5710MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	Inf	35.63M	32.989M	35.315M	32.989M
5710MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	500k	3.1M	4.118M	3.1M	4.478M
5755MHz_TnomVnom	Pass	500k	35.25M	36.132M	34.6M	36.182M
5795MHz_TnomVnom	Pass	500k	35.1M	36.232M	35.7M	36.282M
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	Inf	83.7M	75.562M	83.9M	75.762M
5290MHz_TnomVnom	Pass	Inf	83.5M	75.762M	82.9M	75.662M
5530MHz_TnomVnom	Pass	Inf	84.3M	75.762M	83M	75.662M
5610MHz_TnomVnom	Pass	Inf	84.3M	75.662M	84.1M	75.862M
5690MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	Inf	76.5M	72.489M	76.5M	72.564M
5690MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	500k	3.1M	6.497M	3.08M	26.707M
5775MHz_TnomVnom	Pass	500k	75M	75.762M	73.7M	75.362M
802.11ac VHT80_Nss2,(MCS10)_2TX	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	Inf	83.8M	75.562M	83.2M	75.662M
5290MHz_TnomVnom	Pass	Inf	83.9M	75.562M	83.7M	75.562M
5530MHz_TnomVnom	Pass	Inf	84.2M	75.762M	83.4M	75.762M
5610MHz_TnomVnom	Pass	Inf	83.9M	75.762M	84.3M	75.662M
5690MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	Inf	77.175M	72.639M	76.275M	72.414M
5690MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	500k	3.1M	6.557M	3.1M	16.712M
5775MHz_TnomVnom	Pass	500k	75.1M	75.562M	75M	75.762M

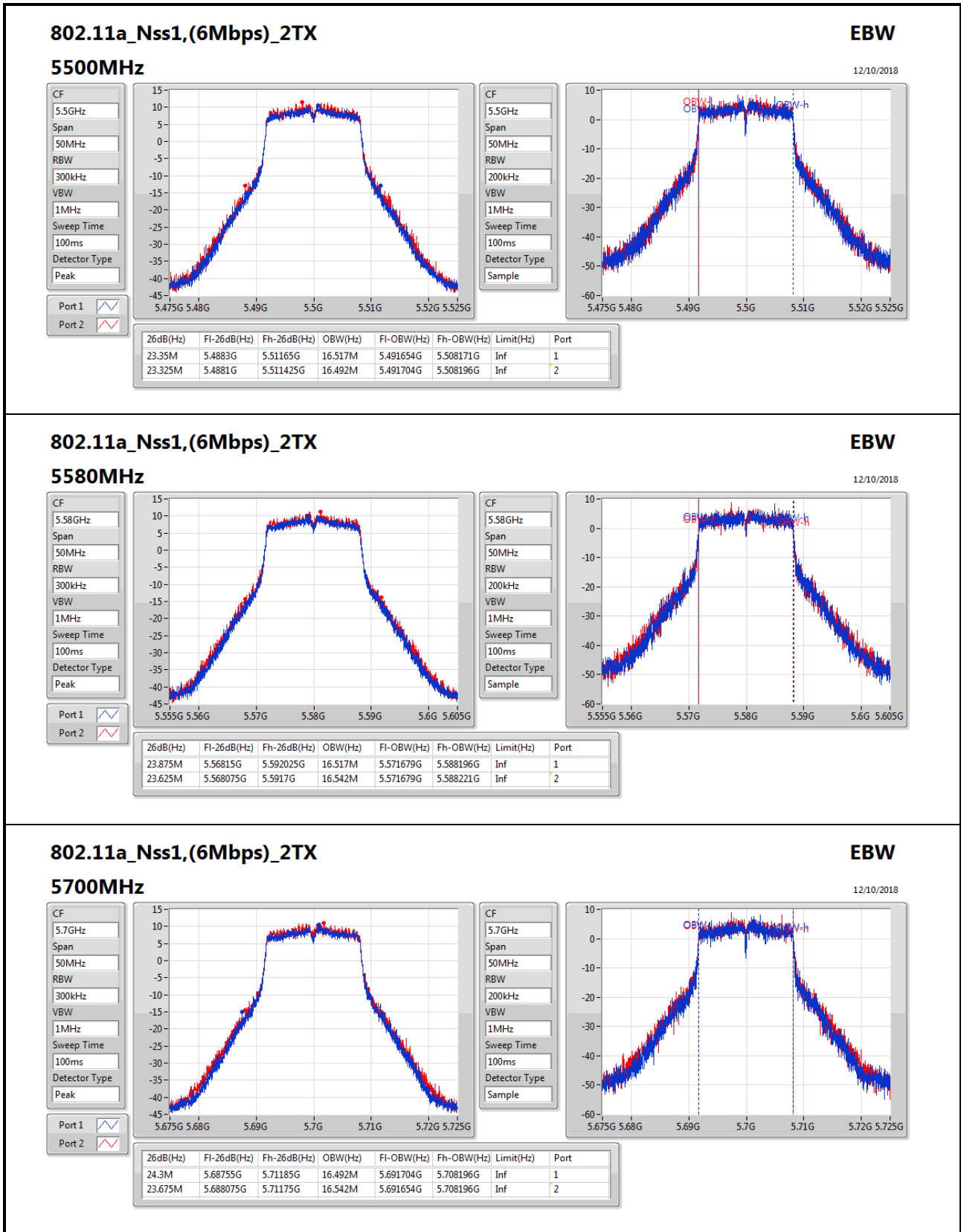
**Port X-N dB** = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

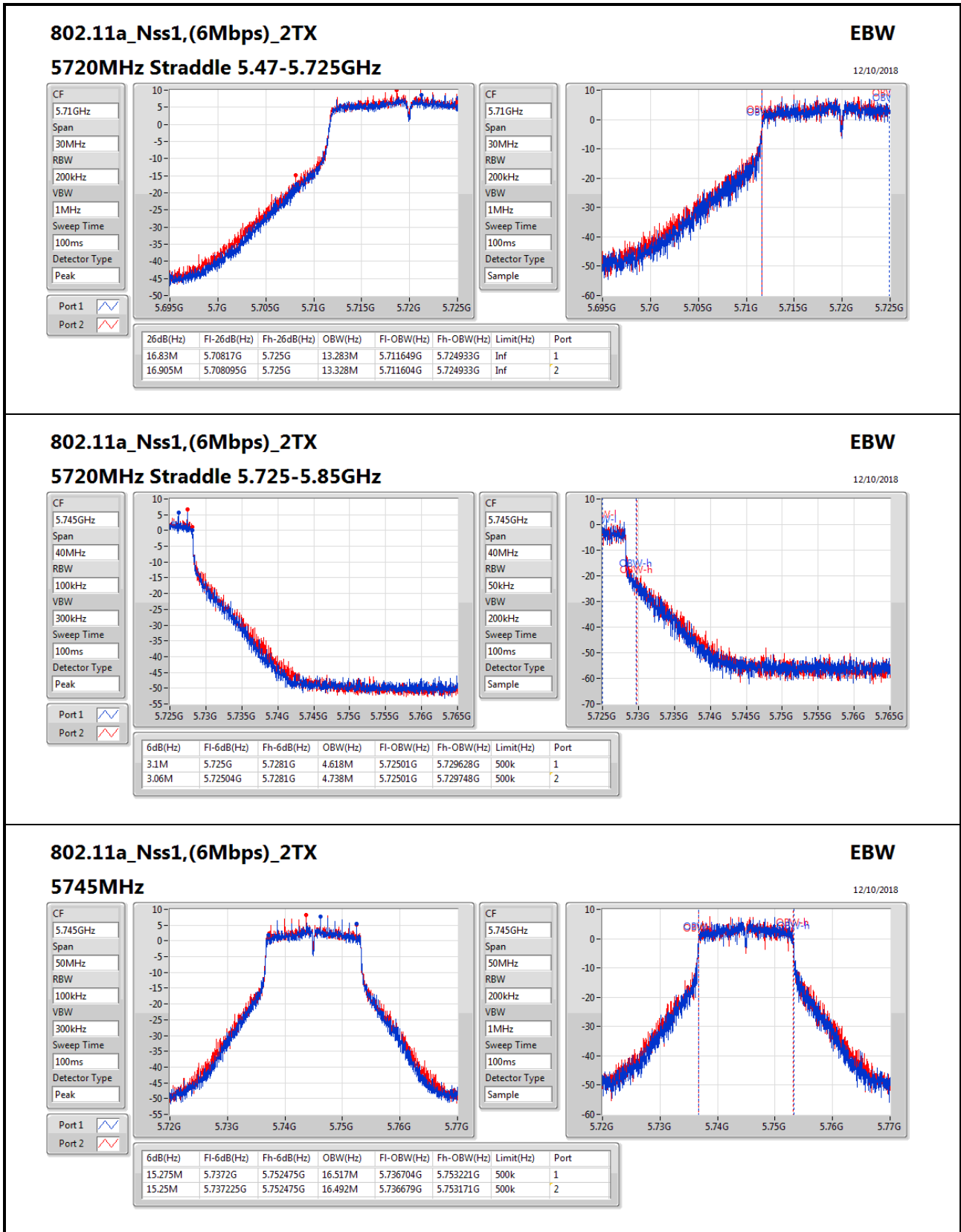
**Port X-OBW** = Port X 99% occupied bandwidth;

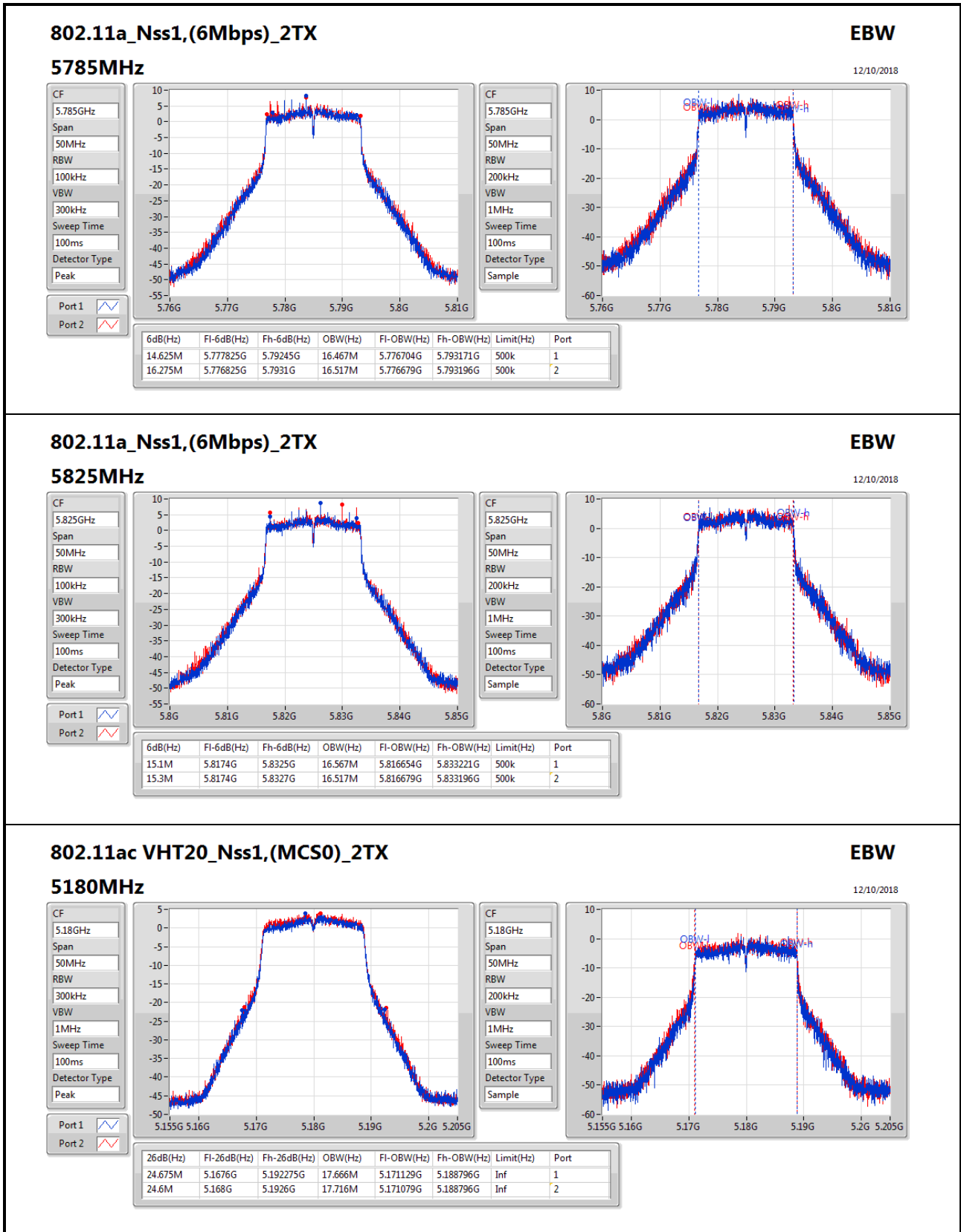


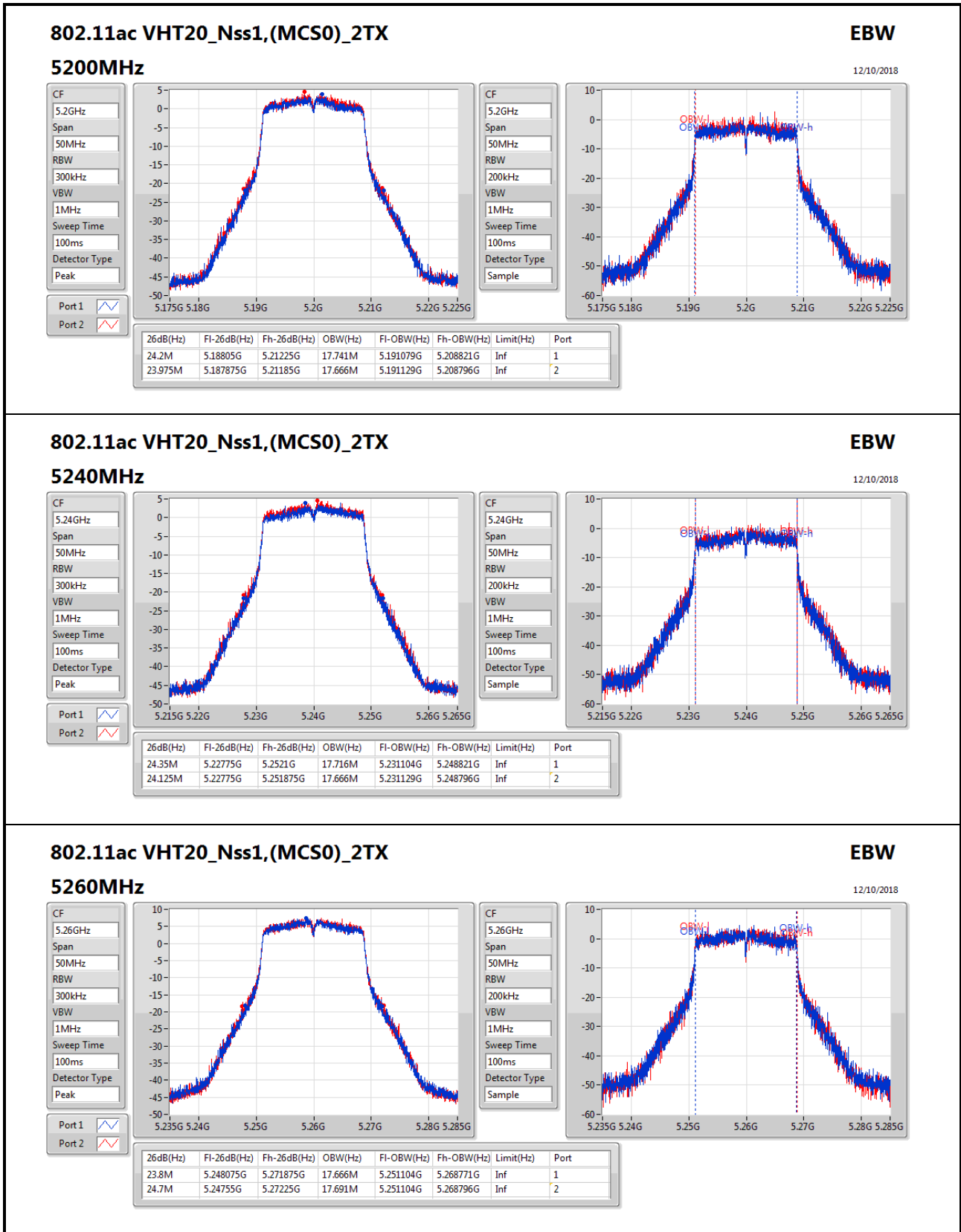


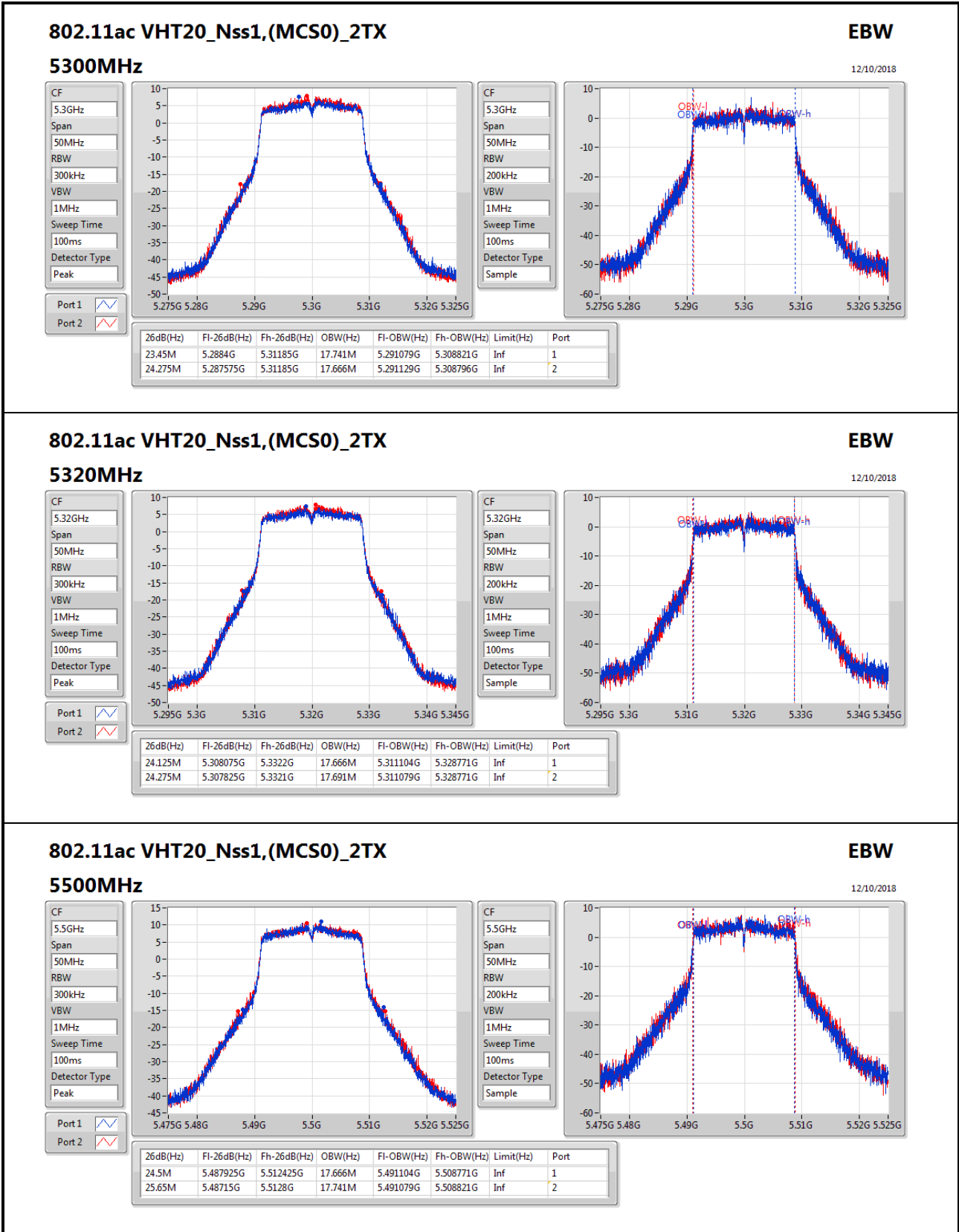


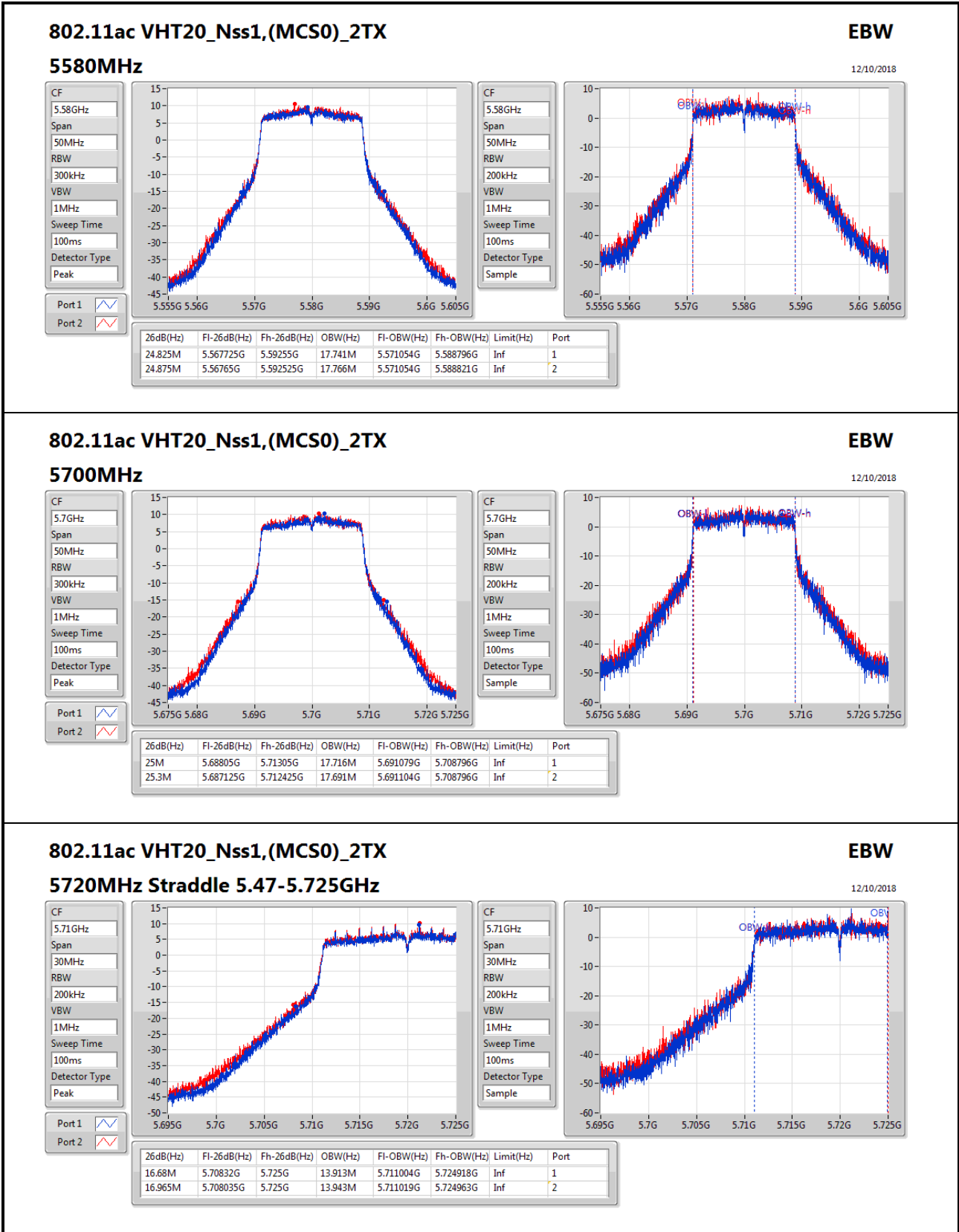


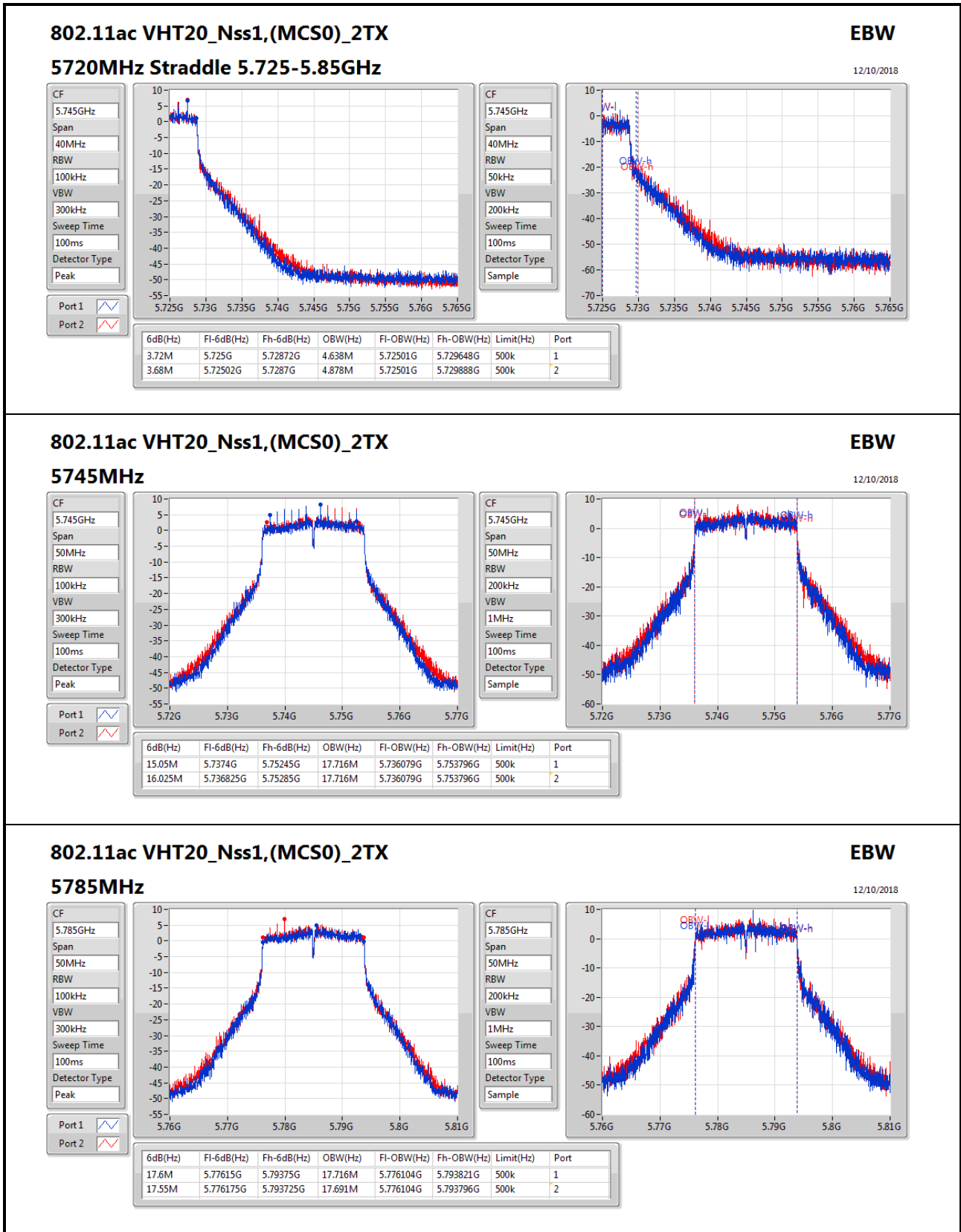


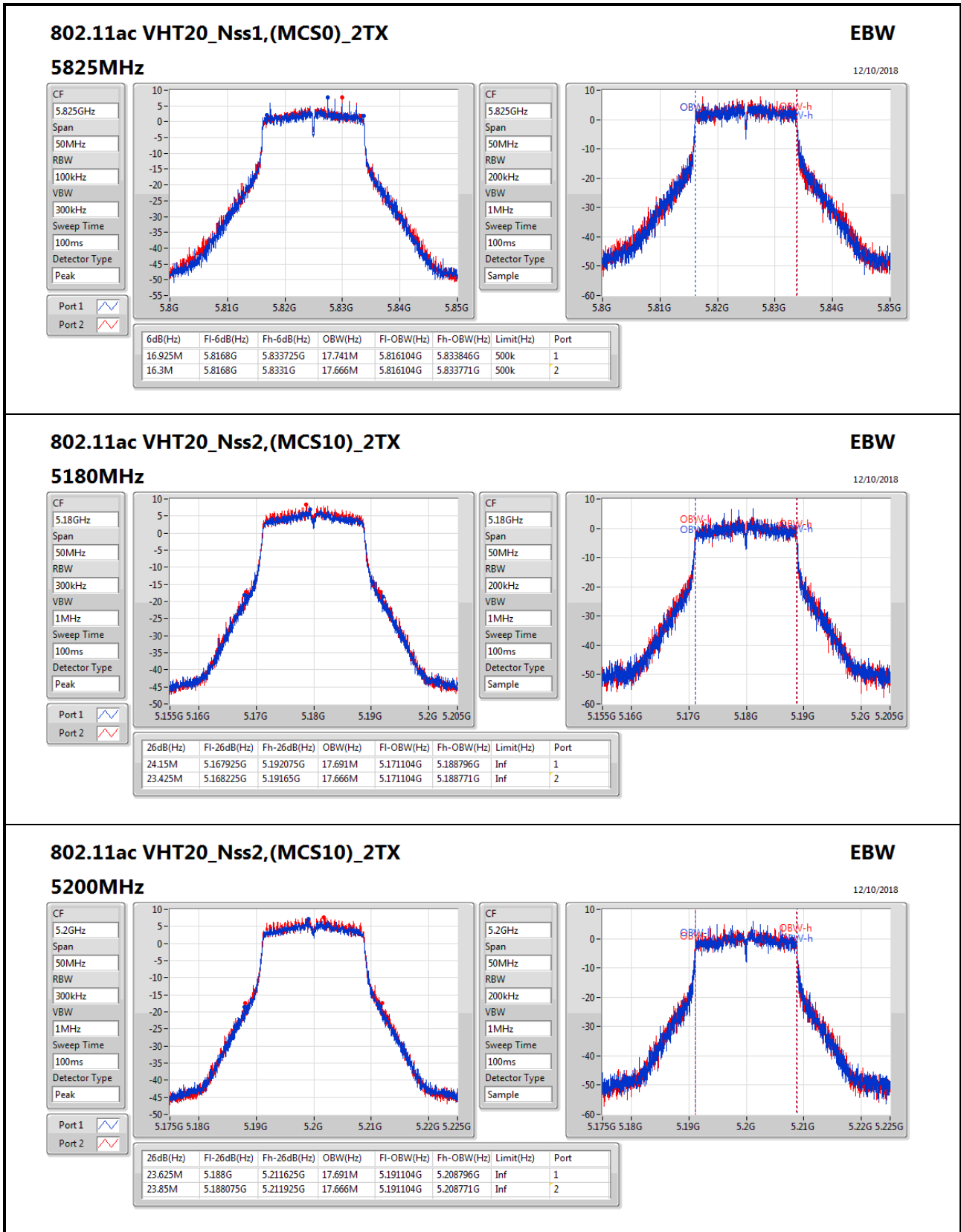




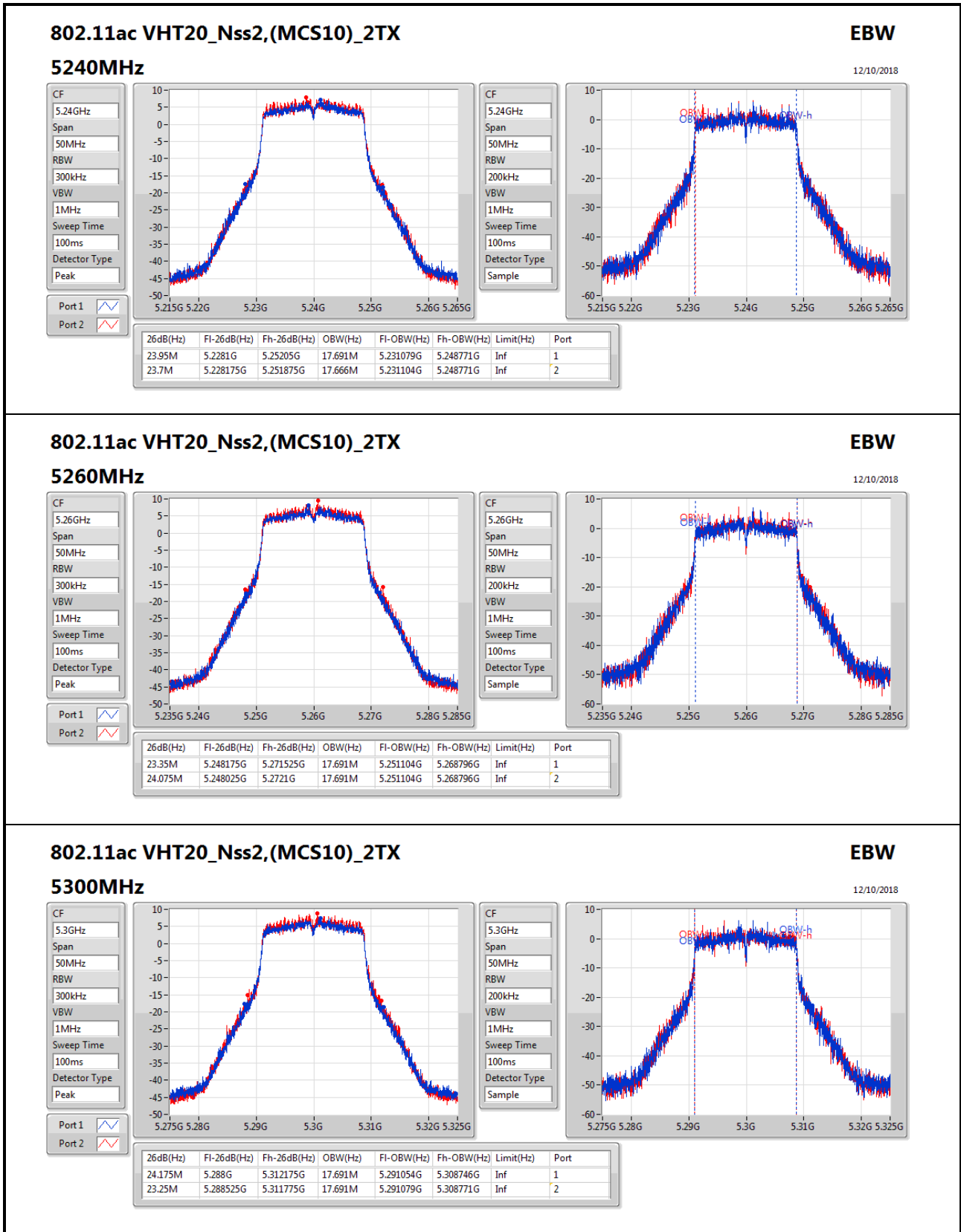


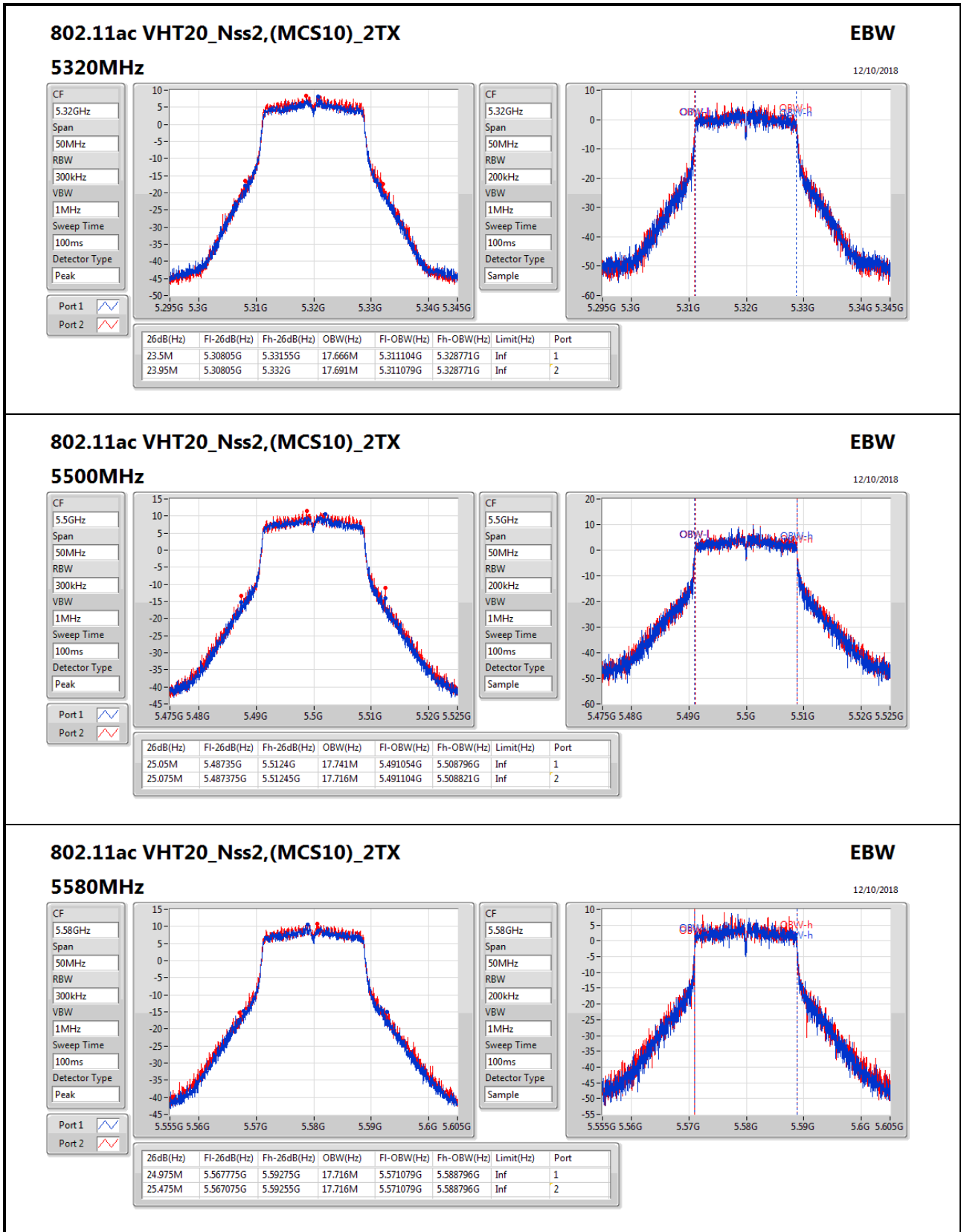


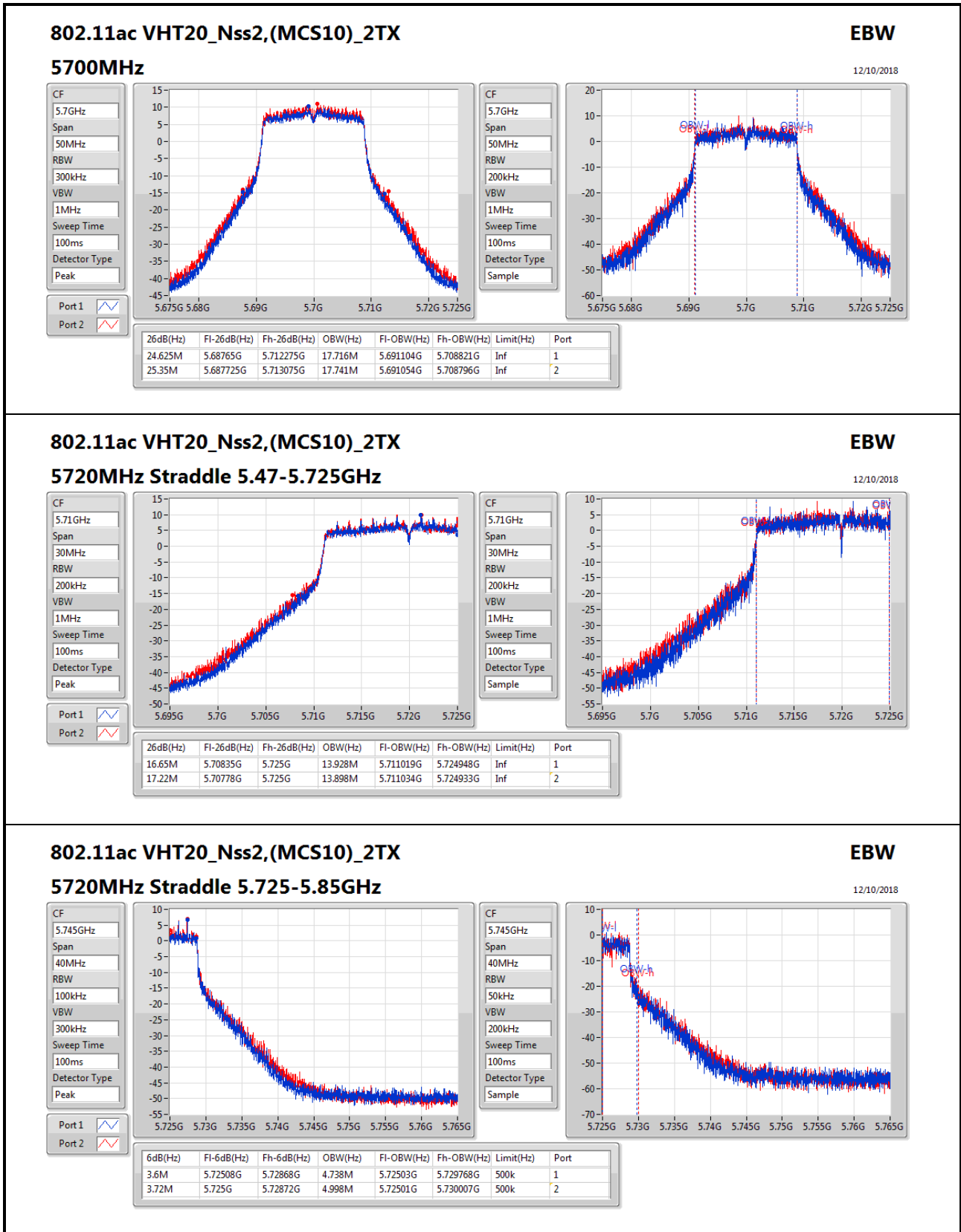


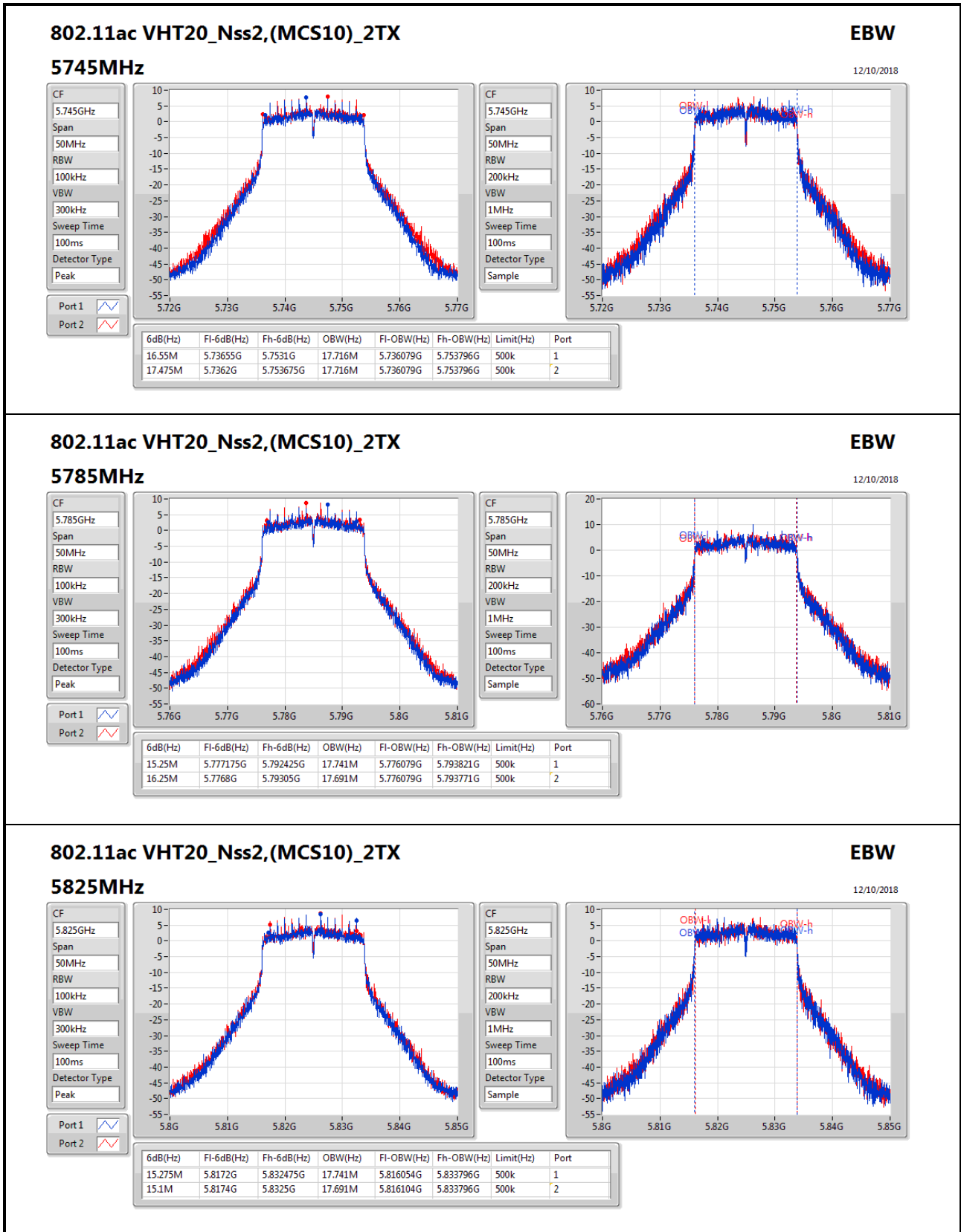


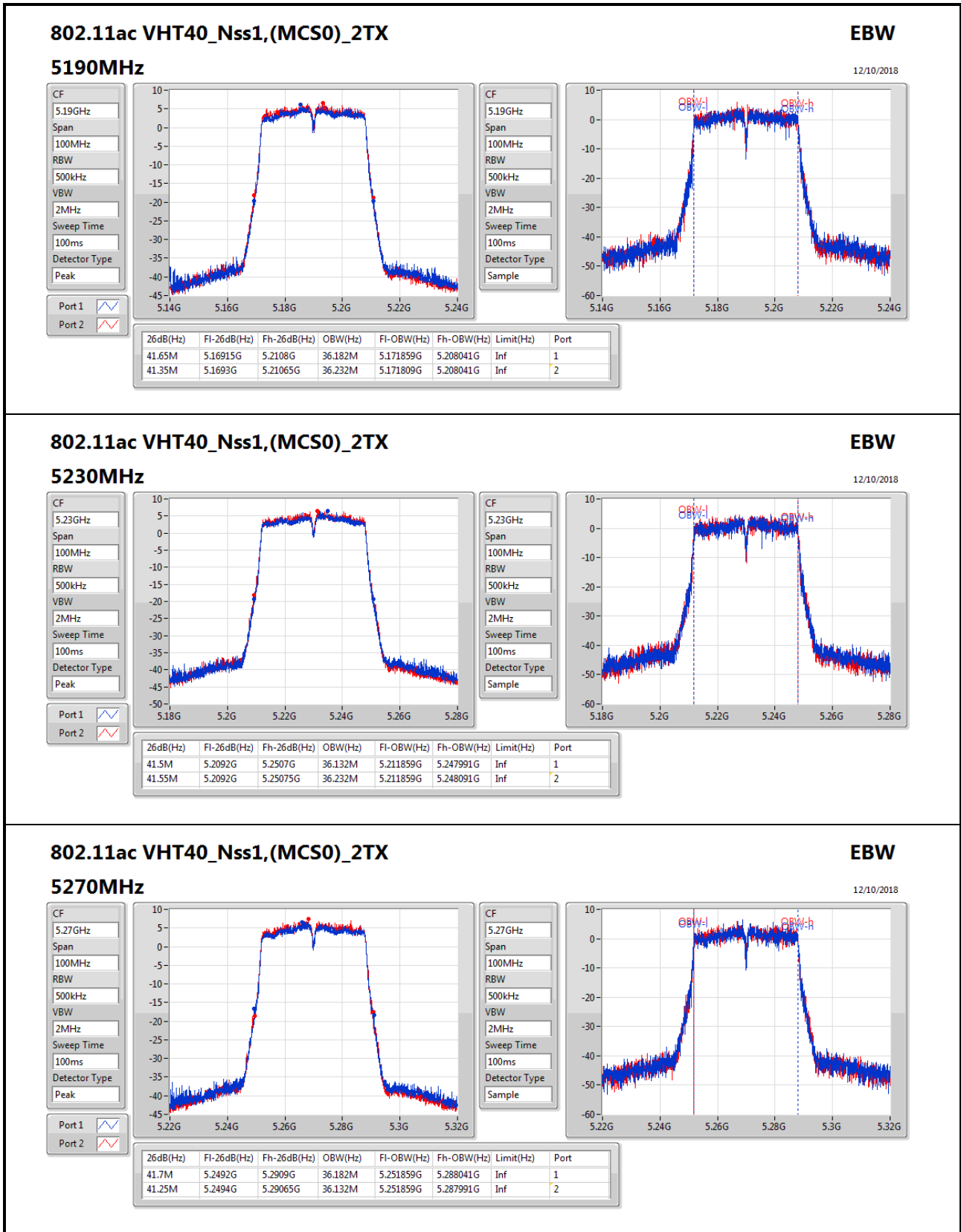


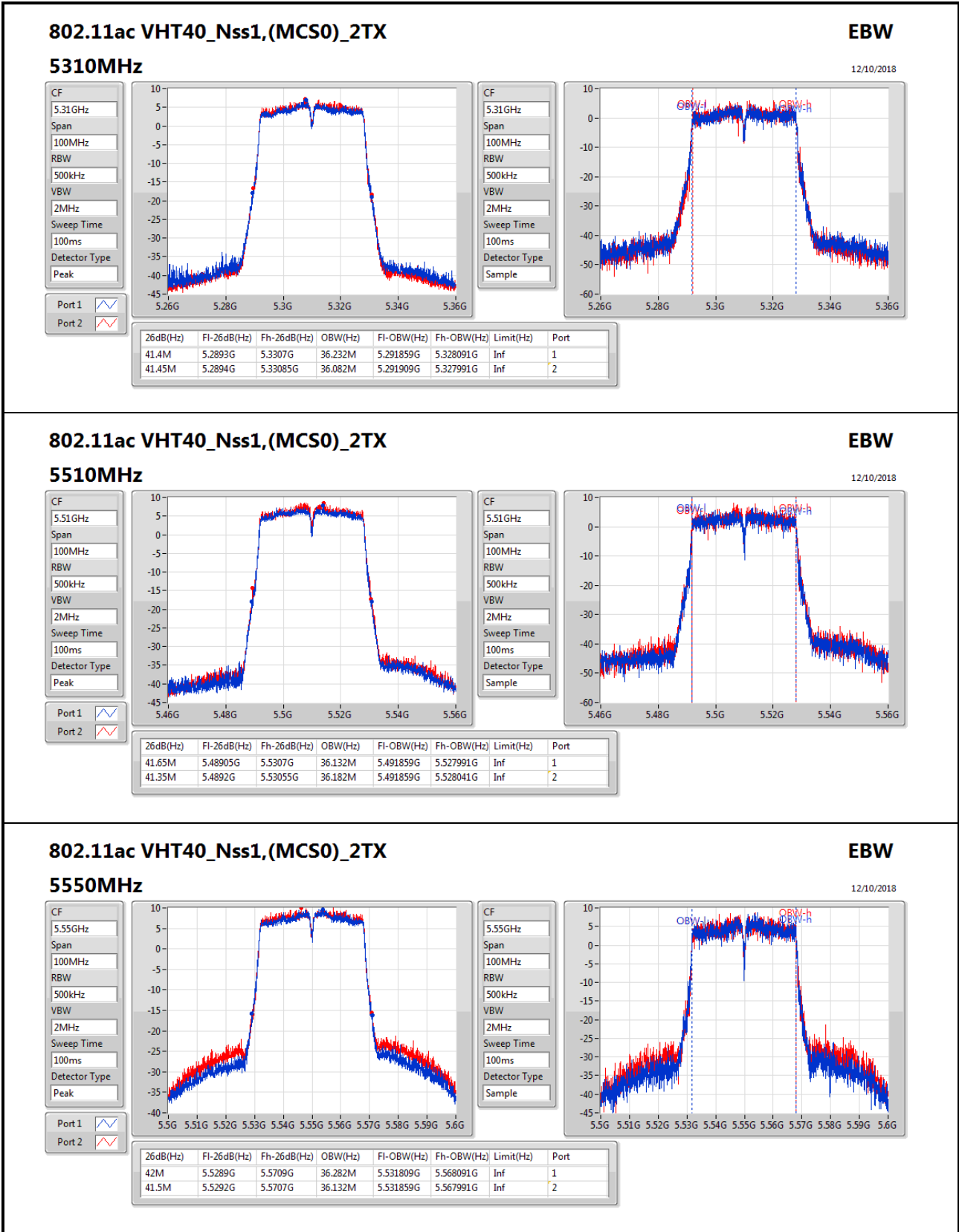


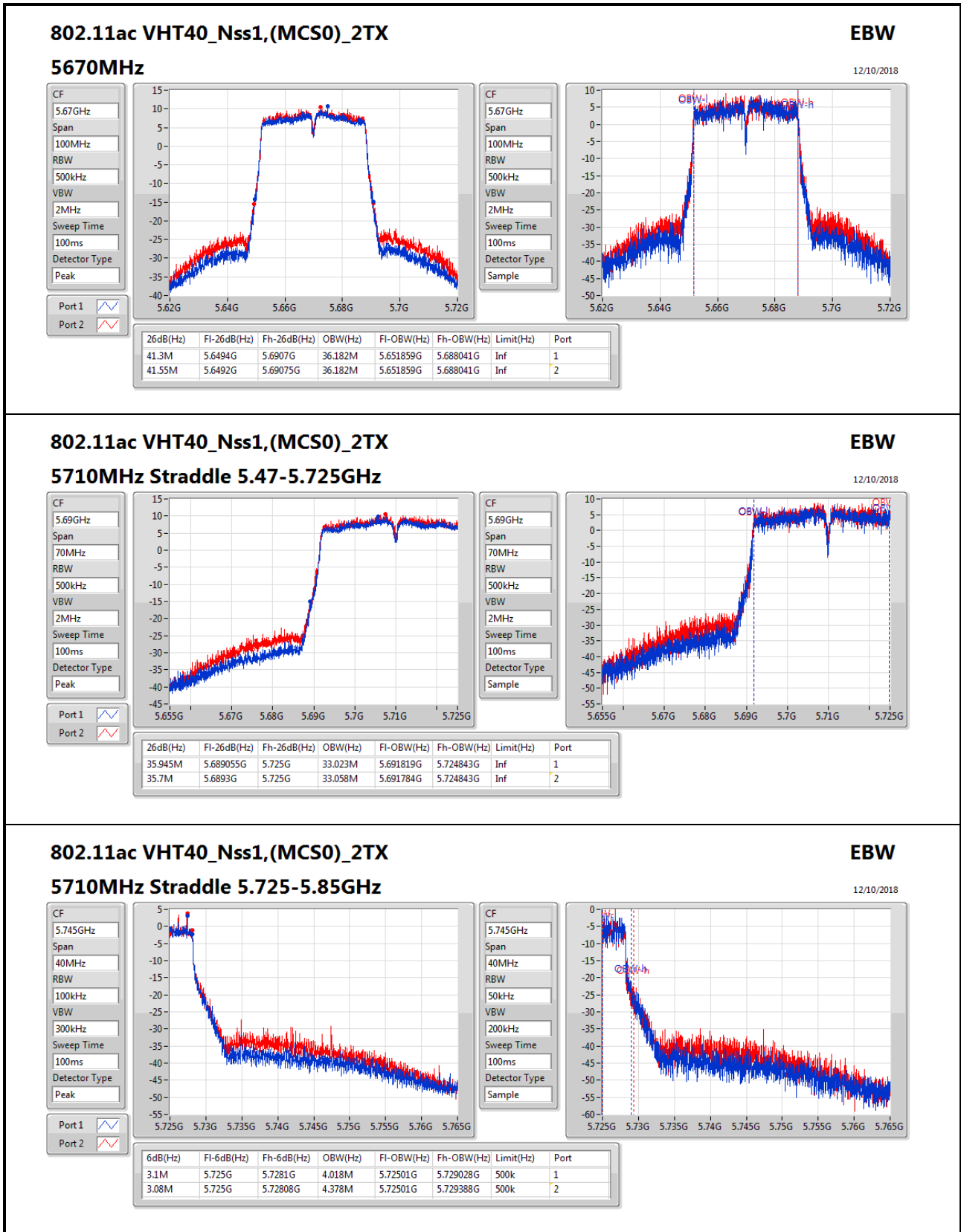


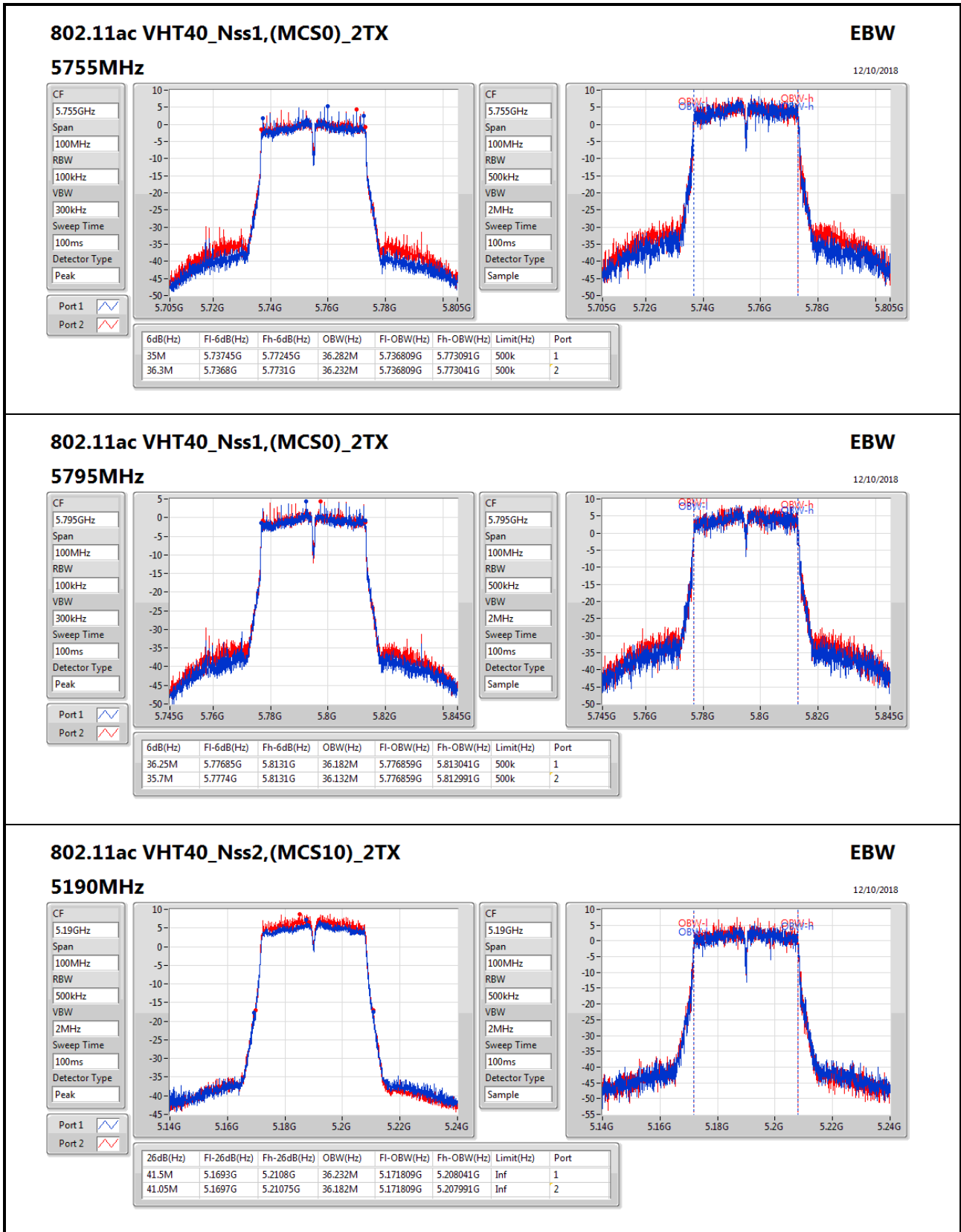




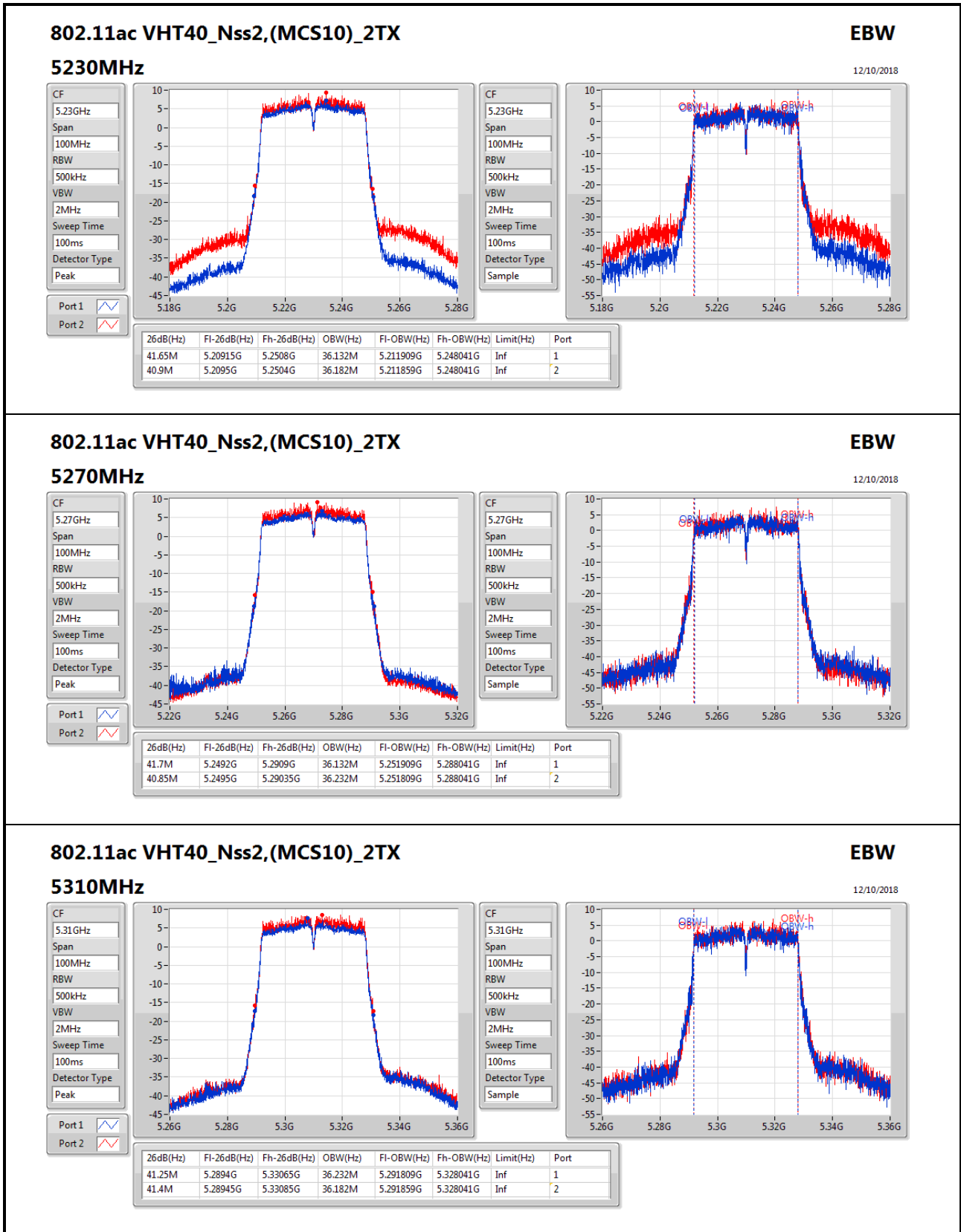


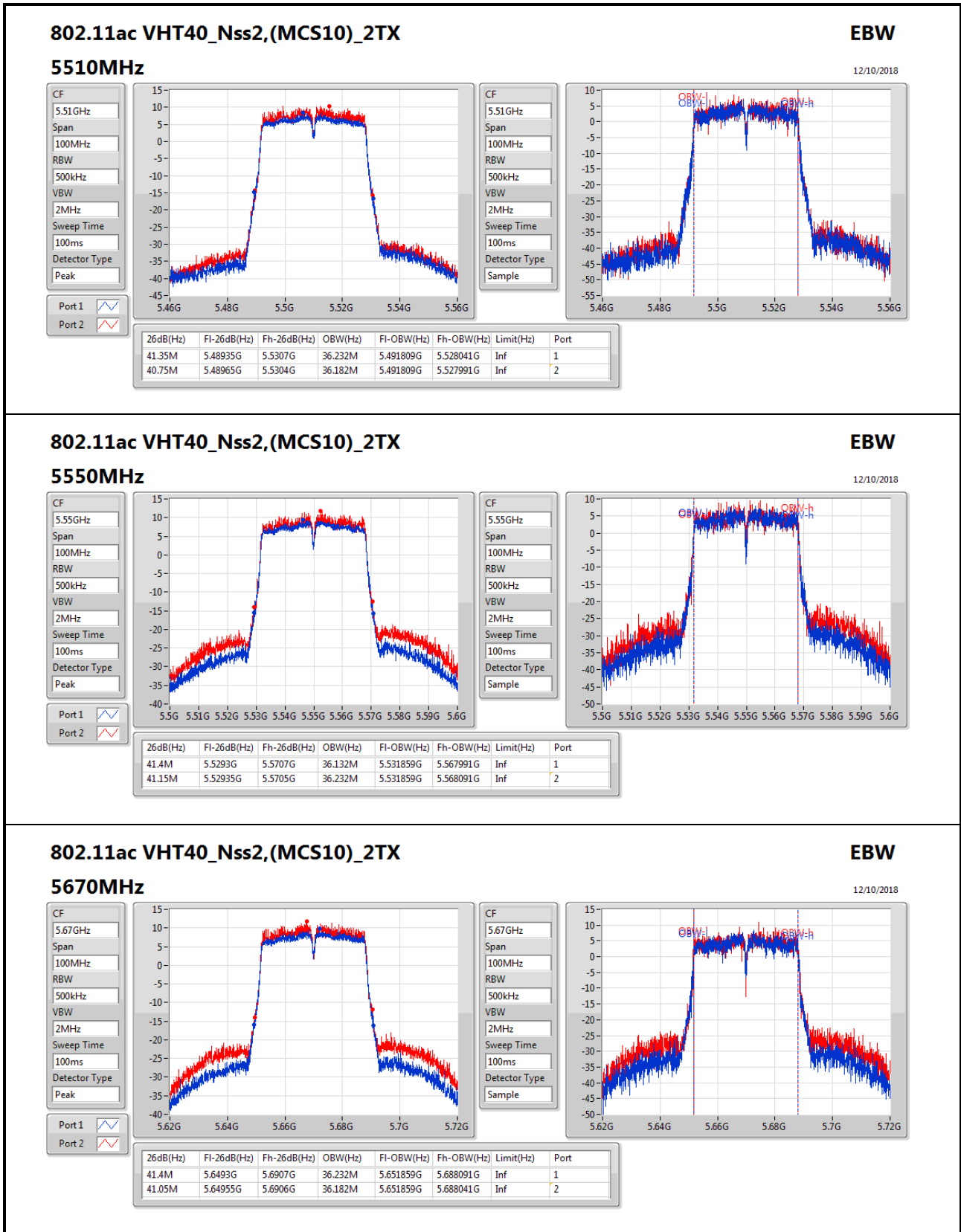


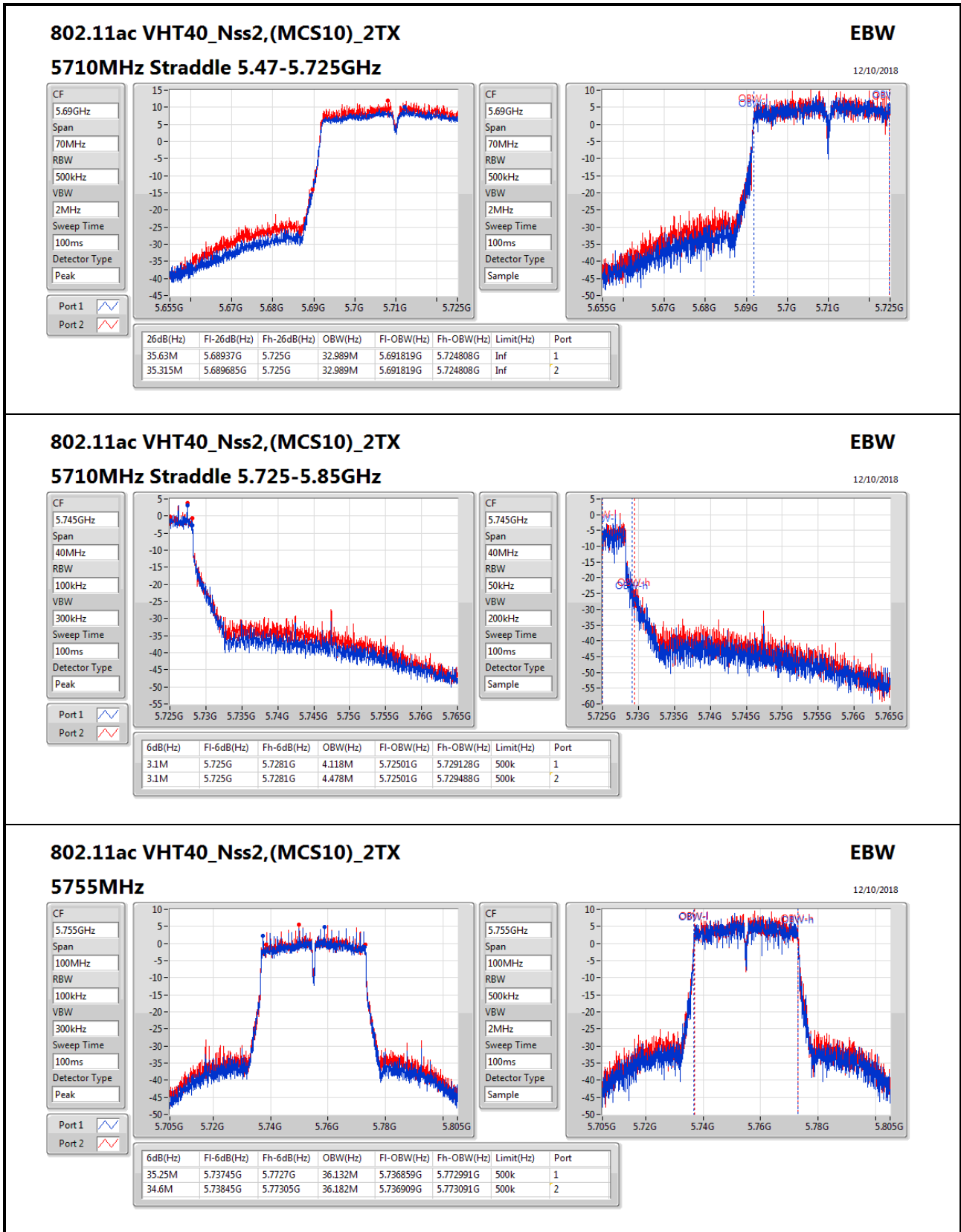


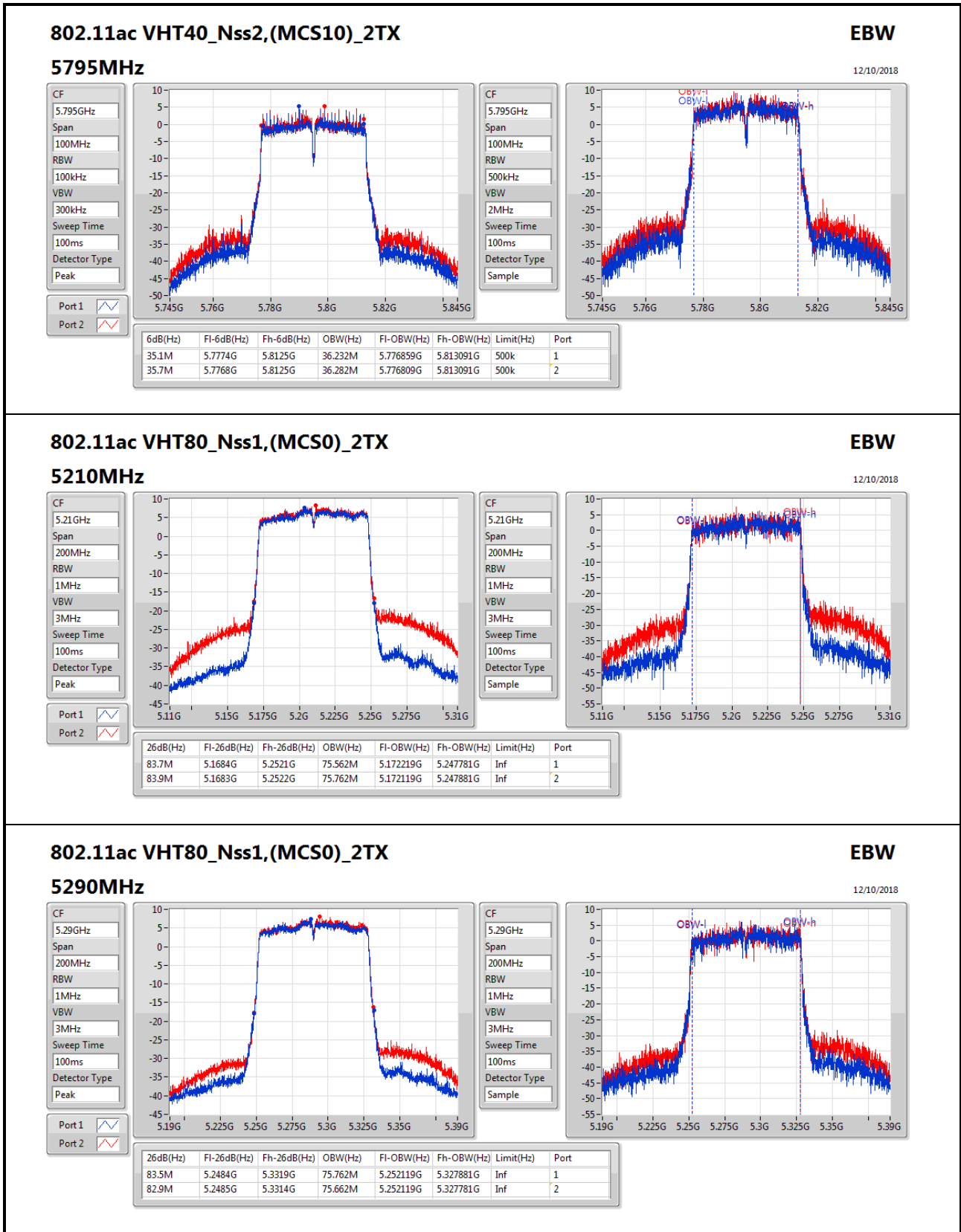


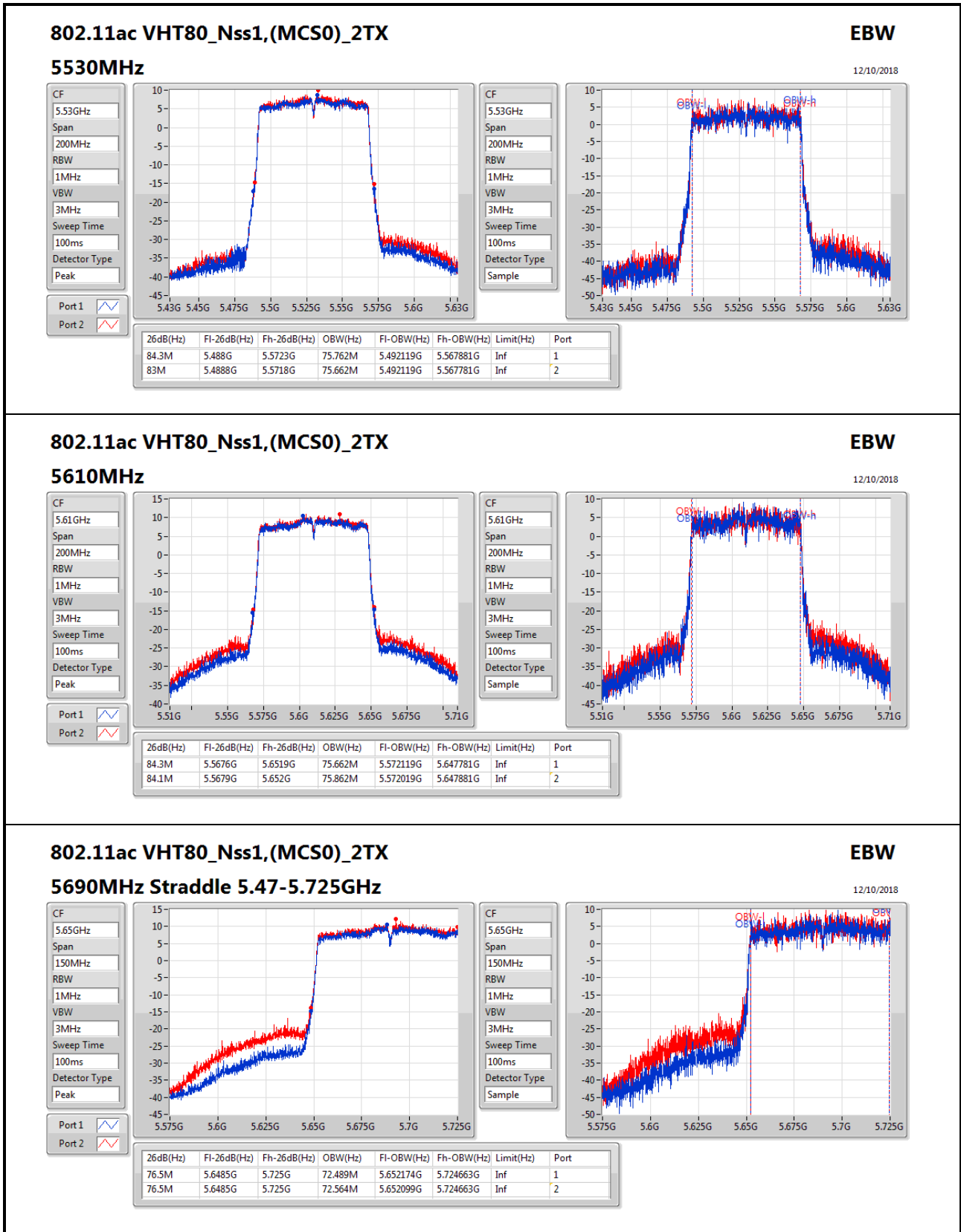


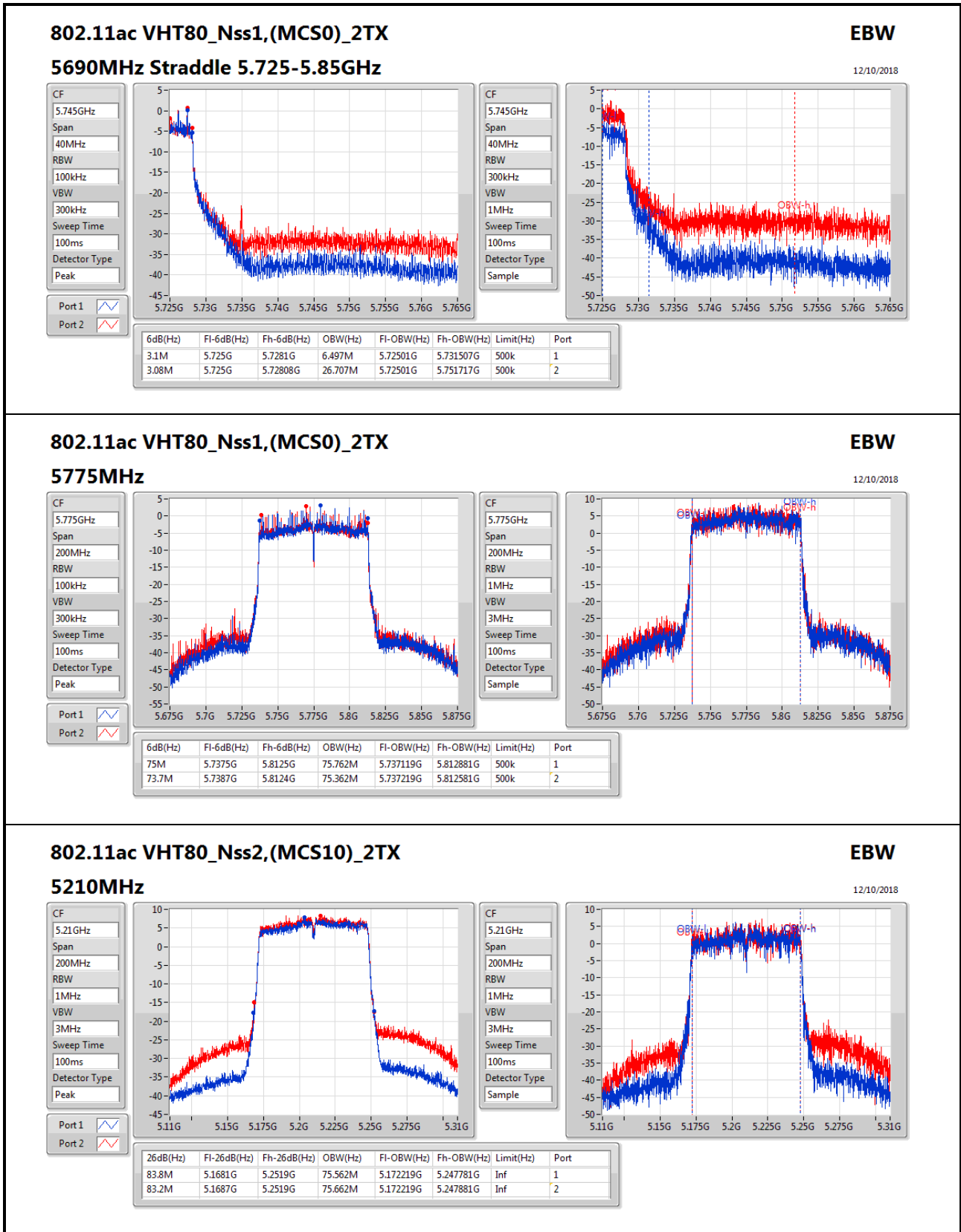


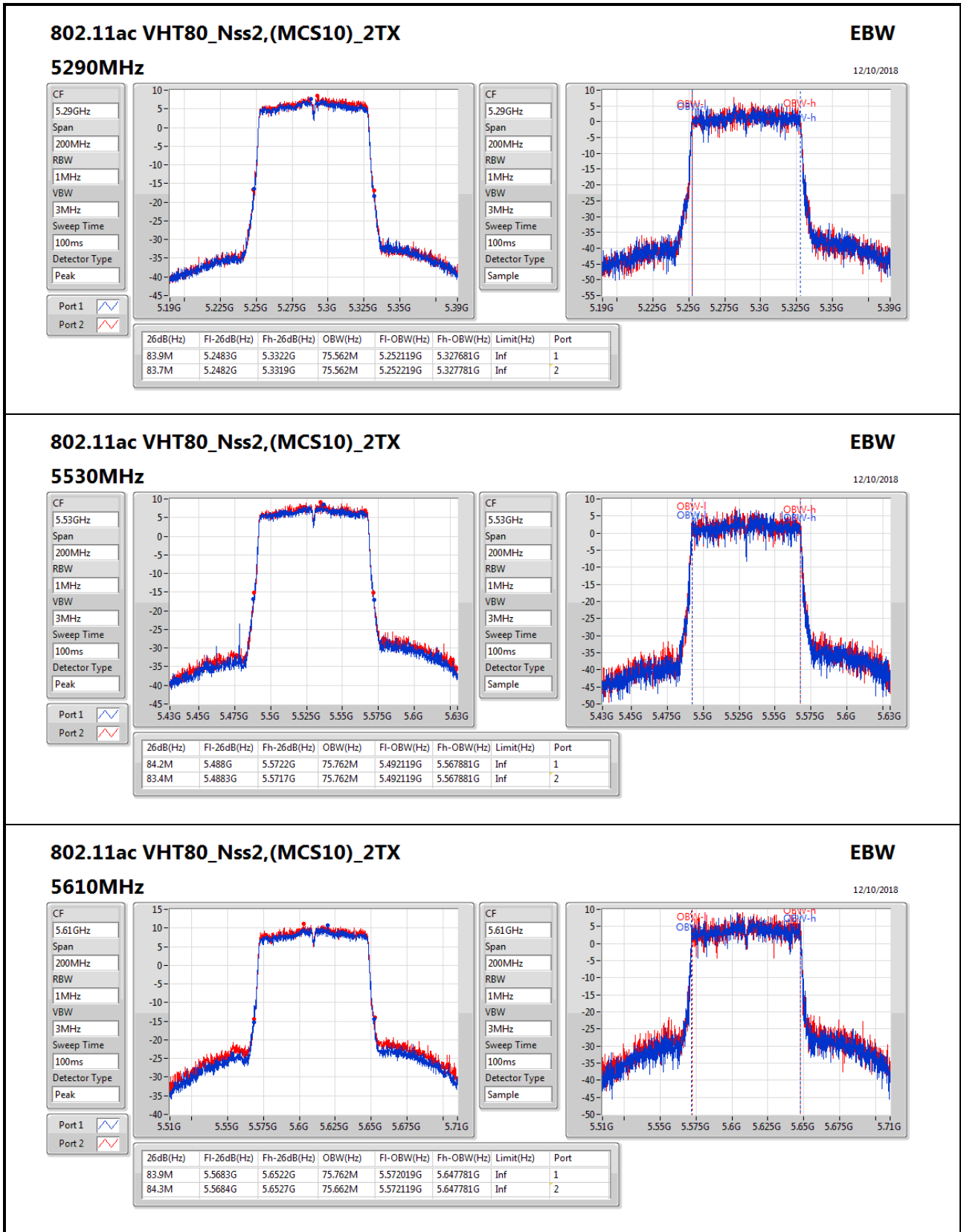


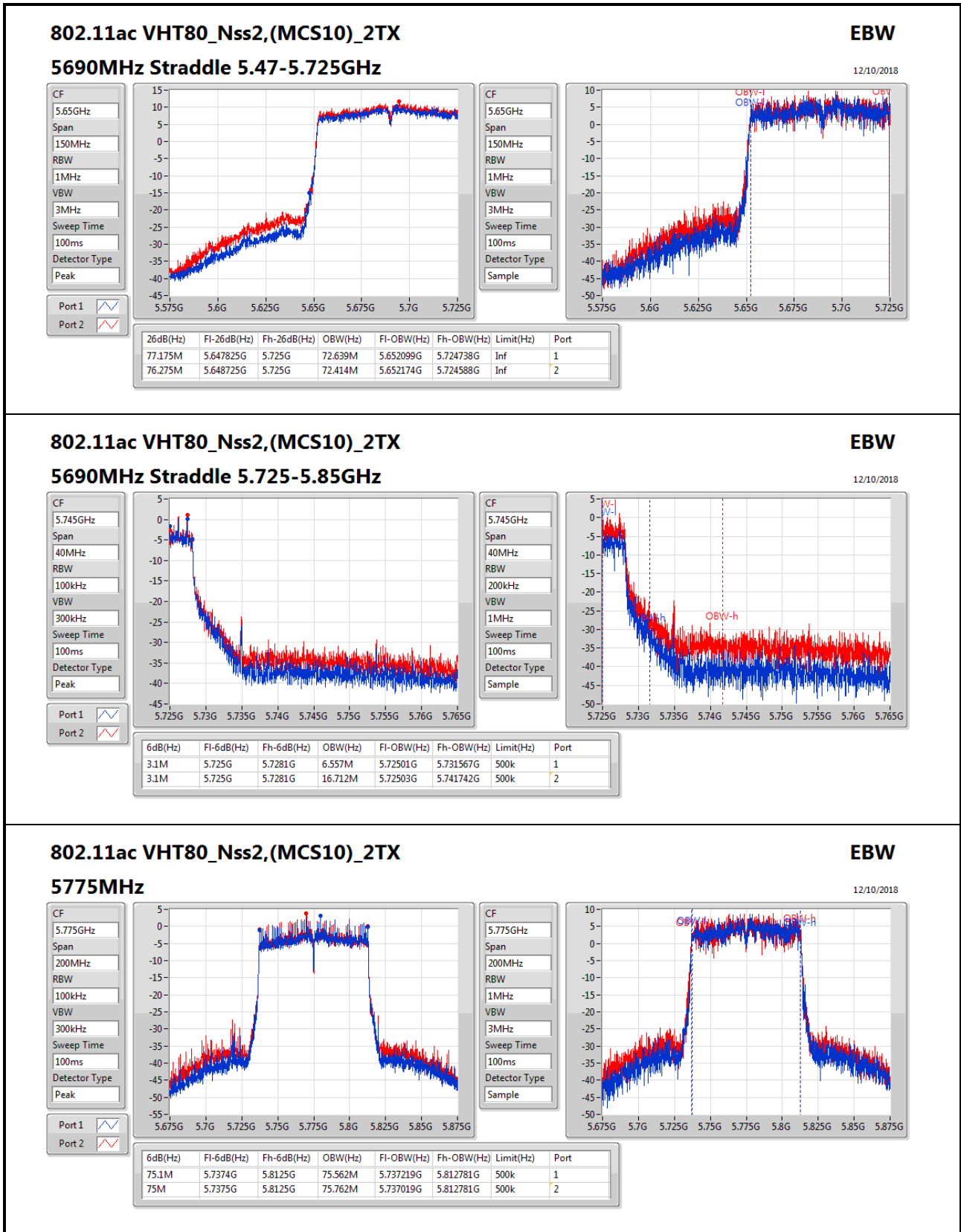
















Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	14.74	0.02979	19.02	0.07980
802.11ac VHT20_Nss1,(MCS0)_2TX	15.11	0.03243	19.39	0.08690
802.11ac VHT20_Nss2,(MCS10)_2TX	18.07	0.06412	21.99	0.15812
802.11ac VHT40_Nss1,(MCS0)_2TX	17.90	0.06166	22.18	0.16520
802.11ac VHT40_Nss2,(MCS10)_2TX	18.83	0.07638	22.75	0.18836
802.11ac VHT80_Nss1,(MCS0)_2TX	18.62	0.07278	22.90	0.19498
802.11ac VHT80_Nss2,(MCS10)_2TX	18.50	0.07079	22.42	0.17458
5.25-5.35GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	18.68	0.07379	22.96	0.19770
802.11ac VHT20_Nss1,(MCS0)_2TX	18.59	0.07228	22.87	0.19364
802.11ac VHT20_Nss2,(MCS10)_2TX	18.62	0.07278	22.54	0.17947
802.11ac VHT40_Nss1,(MCS0)_2TX	18.38	0.06887	22.66	0.18450
802.11ac VHT40_Nss2,(MCS10)_2TX	18.79	0.07568	22.71	0.18664
802.11ac VHT80_Nss1,(MCS0)_2TX	18.13	0.06501	22.41	0.17418
802.11ac VHT80_Nss2,(MCS10)_2TX	18.48	0.07047	22.40	0.17378
5.47-5.725GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	21.55	0.14289	26.11	0.40832
802.11ac VHT20_Nss1,(MCS0)_2TX	21.38	0.13740	25.94	0.39264
802.11ac VHT20_Nss2,(MCS10)_2TX	21.44	0.13932	24.96	0.31333
802.11ac VHT40_Nss1,(MCS0)_2TX	21.54	0.14256	26.10	0.40738
802.11ac VHT40_Nss2,(MCS10)_2TX	21.42	0.13868	24.94	0.31189
802.11ac VHT80_Nss1,(MCS0)_2TX	21.59	0.14421	26.15	0.41210
802.11ac VHT80_Nss2,(MCS10)_2TX	21.24	0.13305	24.76	0.29923
5.725-5.85GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	21.21	0.13213	26.14	0.41115
802.11ac VHT20_Nss1,(MCS0)_2TX	21.07	0.12794	26.00	0.39811
802.11ac VHT20_Nss2,(MCS10)_2TX	21.09	0.12853	24.25	0.26607
802.11ac VHT40_Nss1,(MCS0)_2TX	21.34	0.13614	26.27	0.42364
802.11ac VHT40_Nss2,(MCS10)_2TX	21.25	0.13335	24.41	0.27606
802.11ac VHT80_Nss1,(MCS0)_2TX	20.95	0.12445	25.88	0.38726
802.11ac VHT80_Nss2,(MCS10)_2TX	20.87	0.12218	24.03	0.25293



Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	4.28	11.54	11.92	14.74	24.00	19.02	30.00
5200MHz_TnomVnom	Pass	4.28	11.34	11.83	14.60	24.00	18.88	30.00
5240MHz_TnomVnom	Pass	4.28	11.50	11.45	14.49	24.00	18.77	30.00
5260MHz_TnomVnom	Pass	4.28	15.55	15.79	18.68	24.00	22.96	26.99
5300MHz_TnomVnom	Pass	4.28	15.39	15.73	18.57	24.00	22.85	26.99
5320MHz_TnomVnom	Pass	4.28	15.54	15.80	18.68	24.00	22.96	26.99
5500MHz_TnomVnom	Pass	4.56	18.34	18.74	21.55	24.00	26.11	26.99
5580MHz_TnomVnom	Pass	4.56	18.13	18.43	21.29	24.00	25.85	26.99
5700MHz_TnomVnom	Pass	4.56	18.05	18.44	21.26	24.00	25.82	26.99
5720MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	4.56	17.44	17.84	20.65	23.26	25.21	26.99
5720MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	4.93	10.29	10.85	13.59	30.00	18.52	36.00
5745MHz_TnomVnom	Pass	4.93	17.70	17.96	20.84	30.00	25.77	36.00
5785MHz_TnomVnom	Pass	4.93	18.07	18.33	21.21	30.00	26.14	36.00
5825MHz_TnomVnom	Pass	4.93	17.98	18.13	21.07	30.00	26.00	36.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	4.28	11.78	12.38	15.10	24.00	19.38	30.00
5200MHz_TnomVnom	Pass	4.28	11.66	12.20	14.95	24.00	19.23	30.00
5240MHz_TnomVnom	Pass	4.28	11.78	12.40	15.11	24.00	19.39	30.00
5260MHz_TnomVnom	Pass	4.28	15.42	15.74	18.59	24.00	22.87	26.99
5300MHz_TnomVnom	Pass	4.28	15.23	15.61	18.43	24.00	22.71	26.99
5320MHz_TnomVnom	Pass	4.28	15.20	15.89	18.57	24.00	22.85	26.99
5500MHz_TnomVnom	Pass	4.56	18.30	18.44	21.38	24.00	25.94	26.99
5580MHz_TnomVnom	Pass	4.56	18.01	18.31	21.17	24.00	25.73	26.99
5700MHz_TnomVnom	Pass	4.56	17.88	18.24	21.07	24.00	25.63	26.99
5720MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	4.56	17.11	17.58	20.36	23.22	24.92	26.99
5720MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	4.93	11.27	11.30	14.30	30.00	19.23	36.00
5745MHz_TnomVnom	Pass	4.93	17.60	17.92	20.77	30.00	25.70	36.00
5785MHz_TnomVnom	Pass	4.93	17.87	18.25	21.07	30.00	26.00	36.00
5825MHz_TnomVnom	Pass	4.93	17.88	18.08	20.99	30.00	25.92	36.00
802.11ac VHT20_Nss2,(MCS10)_2TX	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	3.92	14.82	15.29	18.07	24.00	21.99	30.00
5200MHz_TnomVnom	Pass	3.92	14.68	15.17	17.94	24.00	21.86	30.00
5240MHz_TnomVnom	Pass	3.92	14.83	15.27	18.07	24.00	21.99	30.00
5260MHz_TnomVnom	Pass	3.92	15.33	15.74	18.55	24.00	22.47	26.99
5300MHz_TnomVnom	Pass	3.92	15.25	15.74	18.51	24.00	22.43	26.99
5320MHz_TnomVnom	Pass	3.92	15.32	15.88	18.62	24.00	22.54	26.99
5500MHz_TnomVnom	Pass	3.52	18.18	18.66	21.44	24.00	24.96	26.99
5580MHz_TnomVnom	Pass	3.52	18.05	18.38	21.23	24.00	24.75	26.99
5700MHz_TnomVnom	Pass	3.52	17.88	18.39	21.15	24.00	24.67	26.99
5720MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	3.52	17.07	17.54	20.32	23.21	23.84	26.99
5720MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	3.16	10.80	11.19	14.01	30.00	17.17	36.00
5745MHz_TnomVnom	Pass	3.16	17.53	17.94	20.75	30.00	23.91	36.00
5785MHz_TnomVnom	Pass	3.16	17.94	18.22	21.09	30.00	24.25	36.00



Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
5825MHz_TnomVnom	Pass	4.93	17.86	18.14	21.01	30.00	25.94	36.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	4.28	14.66	14.99	17.84	24.00	22.12	30.00
5230MHz_TnomVnom	Pass	4.28	14.74	14.99	17.90	24.00	22.18	30.00
5270MHz_TnomVnom	Pass	4.28	15.21	15.47	18.35	24.00	22.63	26.99
5310MHz_TnomVnom	Pass	4.28	15.21	15.53	18.38	24.00	22.66	26.99
5510MHz_TnomVnom	Pass	4.56	16.48	16.99	19.78	24.00	24.34	26.99
5550MHz_TnomVnom	Pass	4.56	18.38	18.68	21.54	24.00	26.10	26.99
5670MHz_TnomVnom	Pass	4.56	18.25	18.62	21.45	24.00	26.01	26.99
5710MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	4.56	18.12	18.75	21.46	24.00	26.02	26.99
5710MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	4.93	7.79	7.91	10.86	30.00	15.79	36.00
5755MHz_TnomVnom	Pass	4.93	18.10	18.23	21.18	30.00	26.11	36.00
5795MHz_TnomVnom	Pass	4.93	18.20	18.46	21.34	30.00	26.27	36.00
802.11ac VHT40_Nss2,(MCS10)_2TX	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	3.92	15.63	16.00	18.83	24.00	22.75	30.00
5230MHz_TnomVnom	Pass	3.92	15.62	15.97	18.81	24.00	22.73	30.00
5270MHz_TnomVnom	Pass	3.92	15.60	15.93	18.78	24.00	22.70	26.99
5310MHz_TnomVnom	Pass	3.92	15.54	16.00	18.79	24.00	22.71	26.99
5510MHz_TnomVnom	Pass	3.52	16.93	17.40	20.18	24.00	23.70	26.99
5550MHz_TnomVnom	Pass	3.52	18.27	18.55	21.42	24.00	24.94	26.99
5670MHz_TnomVnom	Pass	3.52	18.15	18.57	21.38	24.00	24.90	26.99
5710MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	3.52	17.94	18.48	21.23	24.00	24.75	26.99
5710MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	3.16	7.31	7.70	10.52	30.00	13.68	36.00
5755MHz_TnomVnom	Pass	3.16	17.90	18.25	21.09	30.00	24.25	36.00
5795MHz_TnomVnom	Pass	3.16	18.10	18.38	21.25	30.00	24.41	36.00
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	4.28	15.41	15.80	18.62	24.00	22.90	30.00
5290MHz_TnomVnom	Pass	4.28	14.99	15.24	18.13	24.00	22.41	26.99
5530MHz_TnomVnom	Pass	4.56	16.22	16.44	19.34	24.00	23.90	26.99
5610MHz_TnomVnom	Pass	4.56	17.97	18.33	21.16	24.00	25.72	26.99
5690MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	4.56	18.36	18.79	21.59	24.00	26.15	26.99
5690MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	4.93	4.78	4.59	7.70	30.00	12.63	36.00
5775MHz_TnomVnom	Pass	4.93	17.72	18.15	20.95	30.00	25.88	36.00
802.11ac VHT80_Nss2,(MCS10)_2TX	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	3.92	15.23	15.73	18.50	24.00	22.42	30.00
5290MHz_TnomVnom	Pass	3.92	15.31	15.62	18.48	24.00	22.40	26.99
5530MHz_TnomVnom	Pass	3.52	16.01	16.33	19.18	24.00	22.70	26.99
5610MHz_TnomVnom	Pass	3.52	17.83	18.20	21.03	24.00	24.55	26.99
5690MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	3.52	17.93	18.51	21.24	24.00	24.76	26.99
5690MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	3.16	4.26	4.75	7.52	30.00	10.68	36.00
5775MHz_TnomVnom	Pass	3.16	17.73	17.98	20.87	30.00	24.03	36.00

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