




FCC RADIO TEST REPORT

FCC ID : UDX-60066020
Equipment : 802.11a/b/g/n/ac Wireless Access Point
Brand Name : CISCO
Model Name : GR10-HW, GR10-HW-US, GR10-HW-INTL
Applicant : Cisco Systems, Inc.
170 West Tasman Drive, San Jose, CA 95134 USA
Manufacturer : Cisco Systems, Inc.
170 West Tasman Drive, San Jose, CA 95134 USA
Standard : 47 CFR FCC Part 15.407

The product was received on May 23, 2017, and testing was started from Jun. 20, 2017 and completed on Jul. 04, 2017. We, SPORTON INTERTIONAL 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 INTERTIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.


Approved by: Sam Chen

SPORTON INTERTIONAL INC. EMC & Wireless Communications Laboratory
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Table of Contents

History of this test report.....3

Summary of Test Result.....4

1 General Description5

1.1 Information.....5

1.2 Testing Applied Standards12

1.3 Testing Location Information12

1.4 Measurement Uncertainty12

2 Test Configuration of EUT13

2.1 Test Channel Mode13

2.2 The Worst Case Measurement Configuration15

2.3 EUT Operation during Test17

2.4 Accessories18

2.5 Support Equipment.....18

2.6 Test Setup Diagram20

3 Transmitter Test Result24

3.1 AC Power-line Conducted Emissions24

3.2 Emission Bandwidth27

3.3 Maximum Conducted Output Power42

3.4 Peak Power Spectral Density.....48

3.5 Unwanted Emissions65

3.6 Frequency Stability.....194

4 Test Equipment and Calibration Data198

Appendix A. Test Results of Radiated Emission Co-location

Appendix B. Test Photos

Photographs of EUT v01



History of this test report

Report No.	Version	Description	Issued Date
FR760620-05AB	01	Initial issue of report	Mar. 30, 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	-
3.6	15.407(g)	Frequency Stability	PASS	-

Reviewed by: Sam Chen

Report Producer: Cindy Peng



1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5150-5250	a, n (HT20), ac (VHT20)	5180-5240	36-48 [4]
5725-5850		5745-5825	149-165 [5]
5150-5250	n (HT40), ac (VHT40)	5190-5230	38-46 [2]
5725-5850		5755-5795	151-159 [2]
5150-5250	ac (VHT80)	5210	42 [1]
5725-5850		5775	155 [1]

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	11a	20	2TX
5.15-5.25GHz	HT20	20	2TX
5.15-5.25GHz	HT20-BF	20	2TX
5.15-5.25GHz	VHT20	20	2TX
5.15-5.25GHz	VHT20-BF	20	2TX
5.15-5.25GHz	HT40	40	2TX
5.15-5.25GHz	HT40-BF	40	2TX
5.15-5.25GHz	VHT40	40	2TX
5.15-5.25GHz	VHT40-BF	40	2TX
5.15-5.25GHz	VHT80	80	2TX
5.15-5.25GHz	VHT80-BF	80	2TX
5.725-5.85GHz	11a	20	2TX
5.725-5.85GHz	HT20	20	2TX
5.725-5.85GHz	HT20-BF	20	2TX
5.725-5.85GHz	VHT20	20	2TX
5.725-5.85GHz	VHT20-BF	20	2TX
5.725-5.85GHz	HT40	40	2TX
5.725-5.85GHz	HT40-BF	40	2TX
5.725-5.85GHz	VHT40	40	2TX
5.725-5.85GHz	HT40-BF	40	2TX
5.725-5.85GHz	VHT80	80	2TX
5.725-5.85GHz	VHT80-BF	80	2TX



Note:

- ◆ 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ◆ VHT20, VHT40 and VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- ◆ BWch is the nominal channel bandwidth.
- ◆ Nss-Min is the minimum number of spatial streams.
- ◆ Nant is the number of outputs. e.g., 2(2,3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
						2.4GHz	5GHz
1	1	WNC	95XKAA15.GDX	PIFA Antenna	I-PEX	5.63	5.31
2	2	WNC	95XKAA15.GDX	PIFA Antenna	I-PEX	3.29	5.08
Composite Gain Un-Correlated (dBi)						3.43	4.26
Composite Gain Correlated (dBi)						5.70	7.27

Note: The EUT has two antennas.

For 2.4GHz function:

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

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

Port 1 and Port 2 could transmit/receive simultaneously.

For 5GHz function:

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

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

Port 1 and Port 2 could transmit/receive simultaneously.

**1.1.3 Mode Test Duty Cycle**

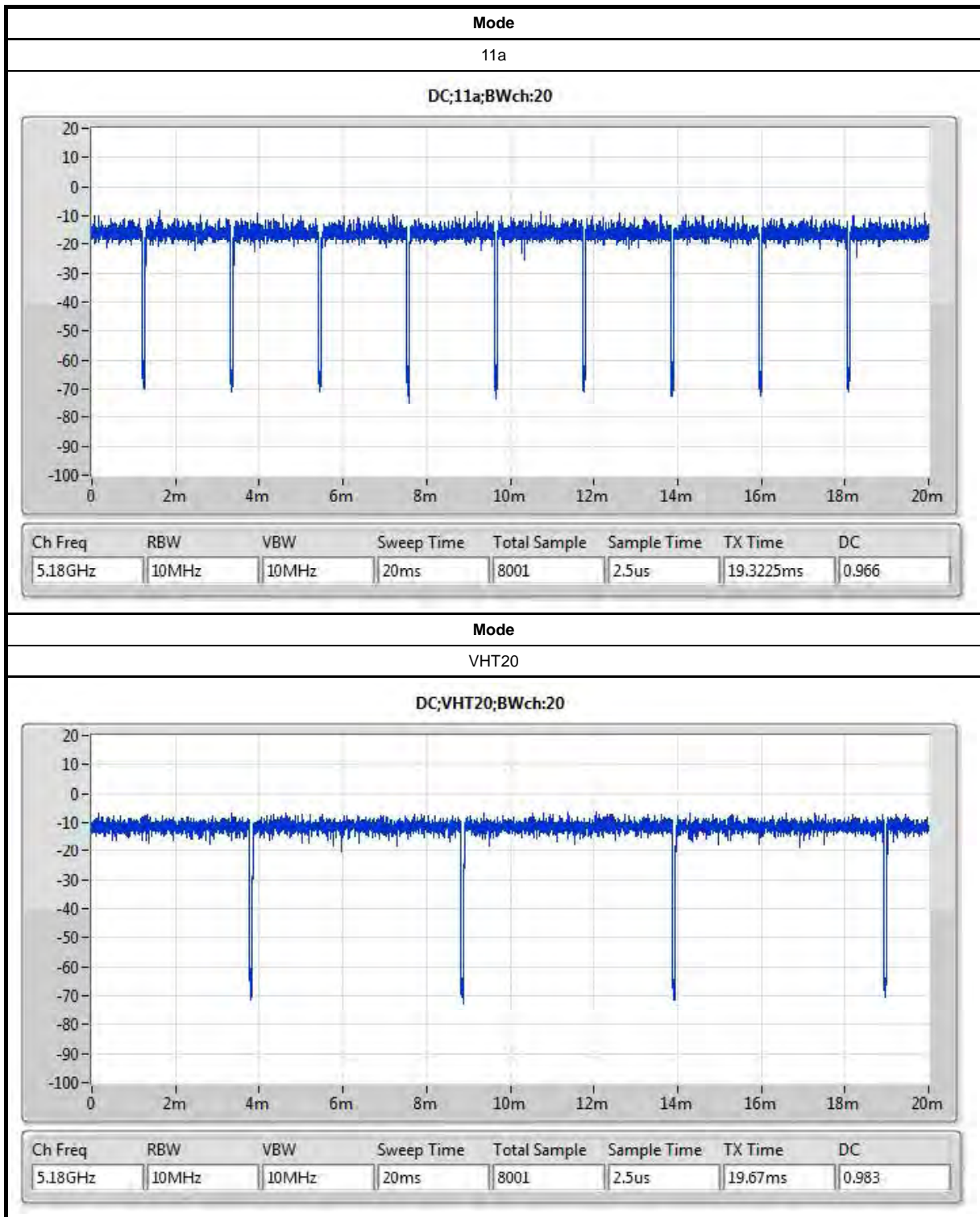
Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
11a	0.966	0.15	2.033m	1k
VHT20	0.983	0.074	n/a (DC \geq 0.98)	n/a (DC \geq 0.98)
VHT40	0.967	0.146	2.418m	1k
VHT80	0.914	0.391	1.108m	1k
VHT20-BF	0.604	2.19	687.5u	3k
VHT40-BF	0.465	3.325	862.5u	3k
VHT80-BF	0.271	5.67	200u	10k

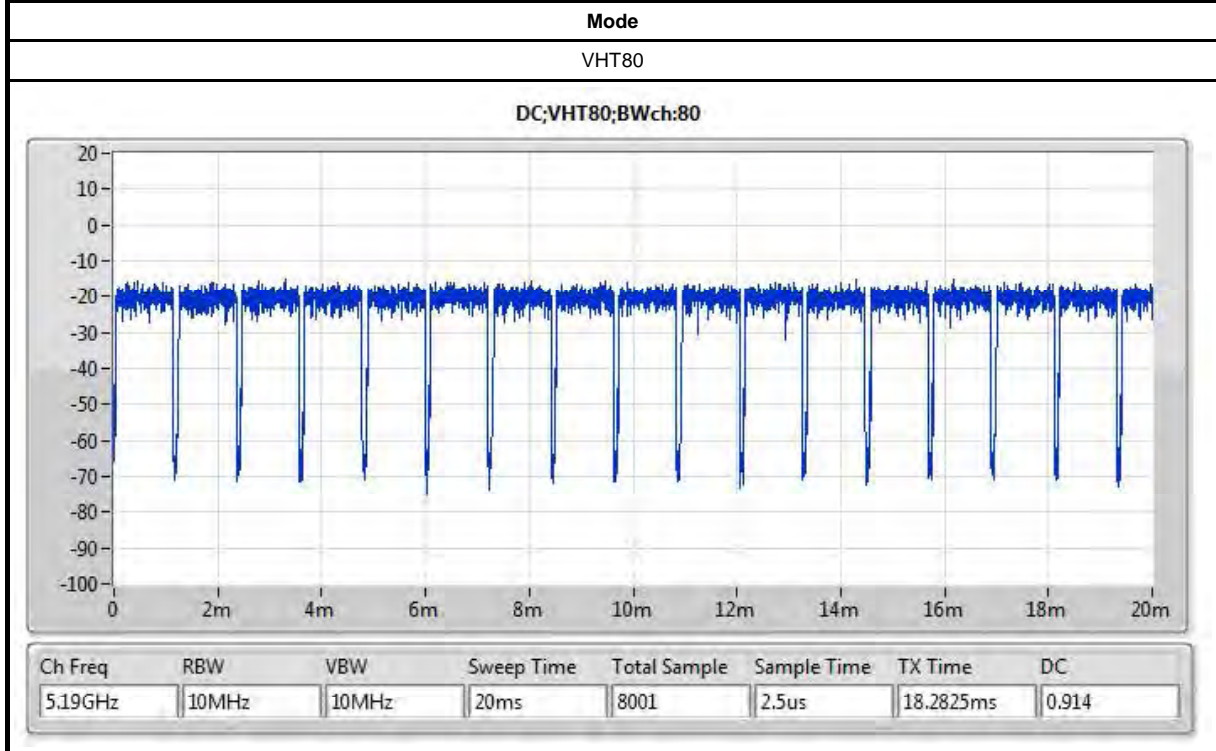
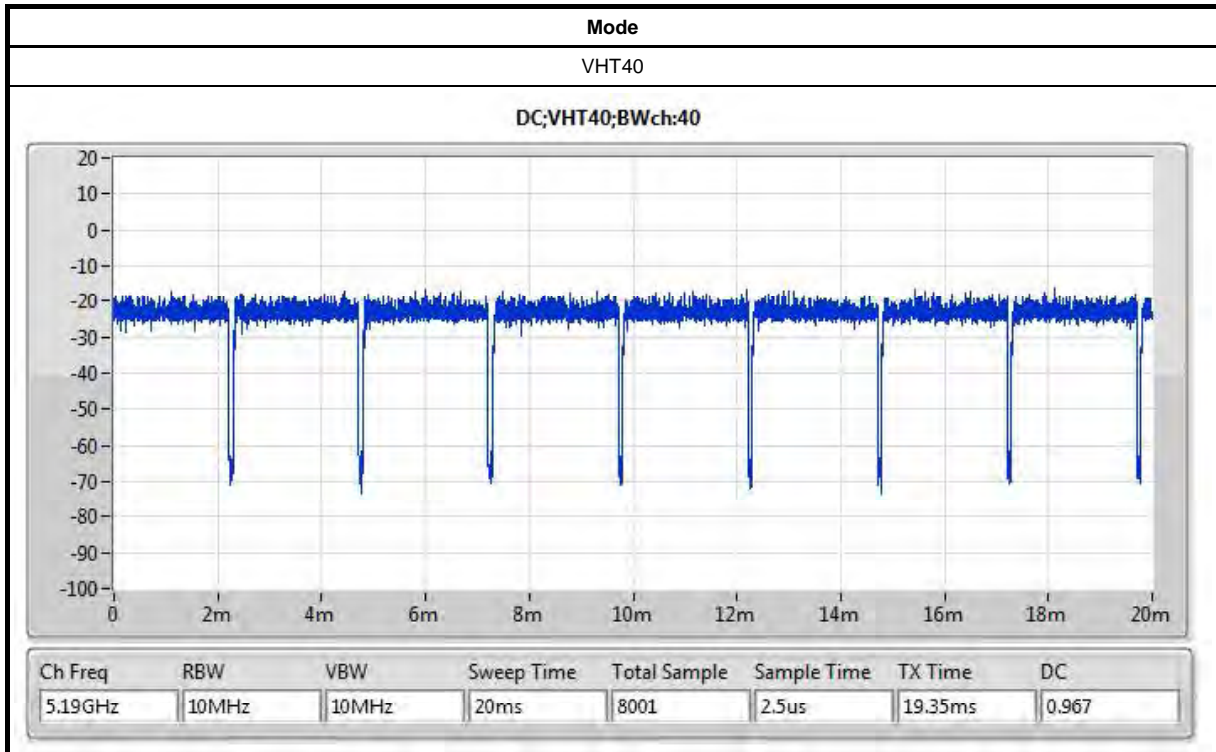
Note:

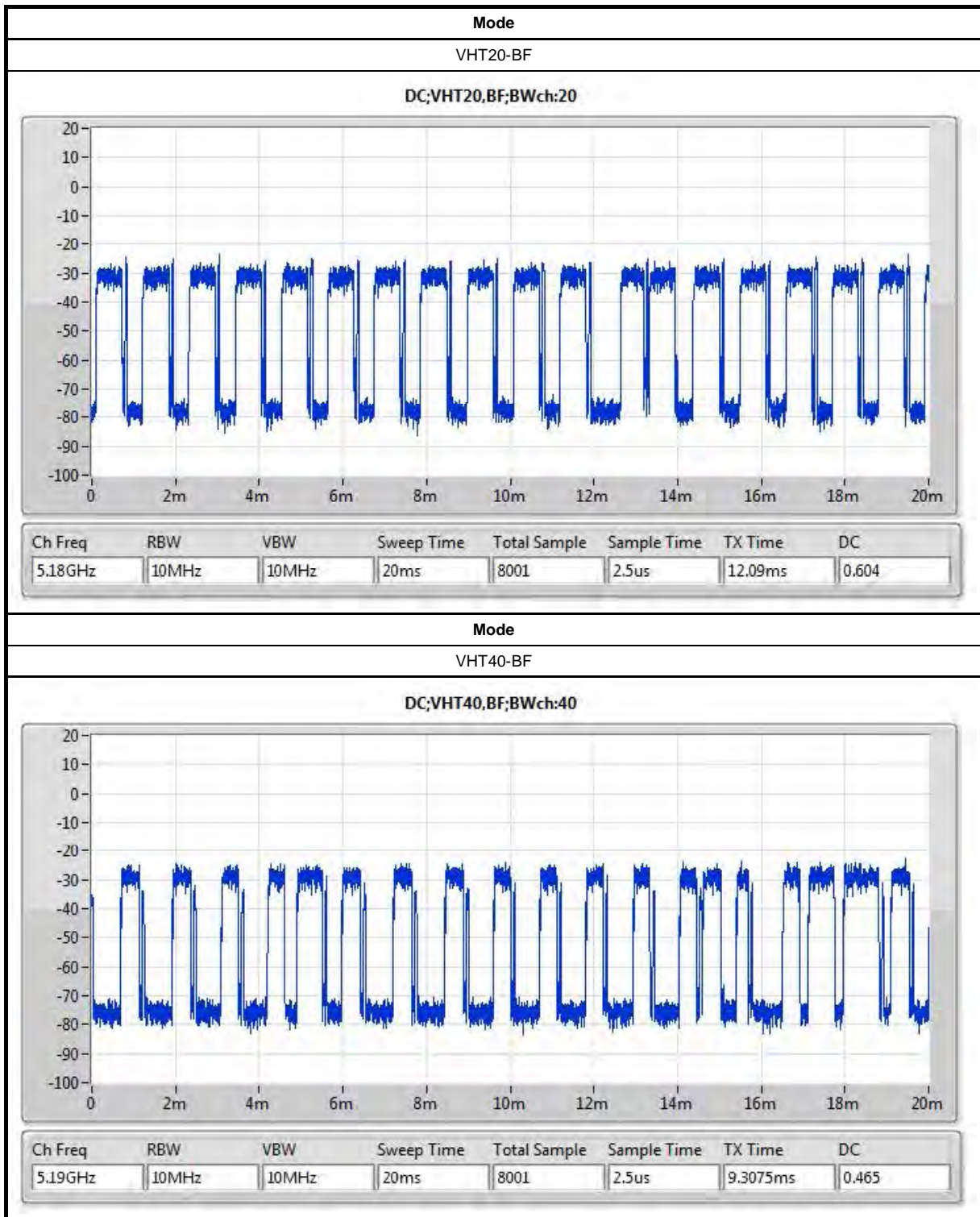
The test procedure refers to ANSI C63.10:2013 clause 11.6 b). The ON and OFF times of the transmitted signal is measured by spectrum analyzer and the setting as follows:

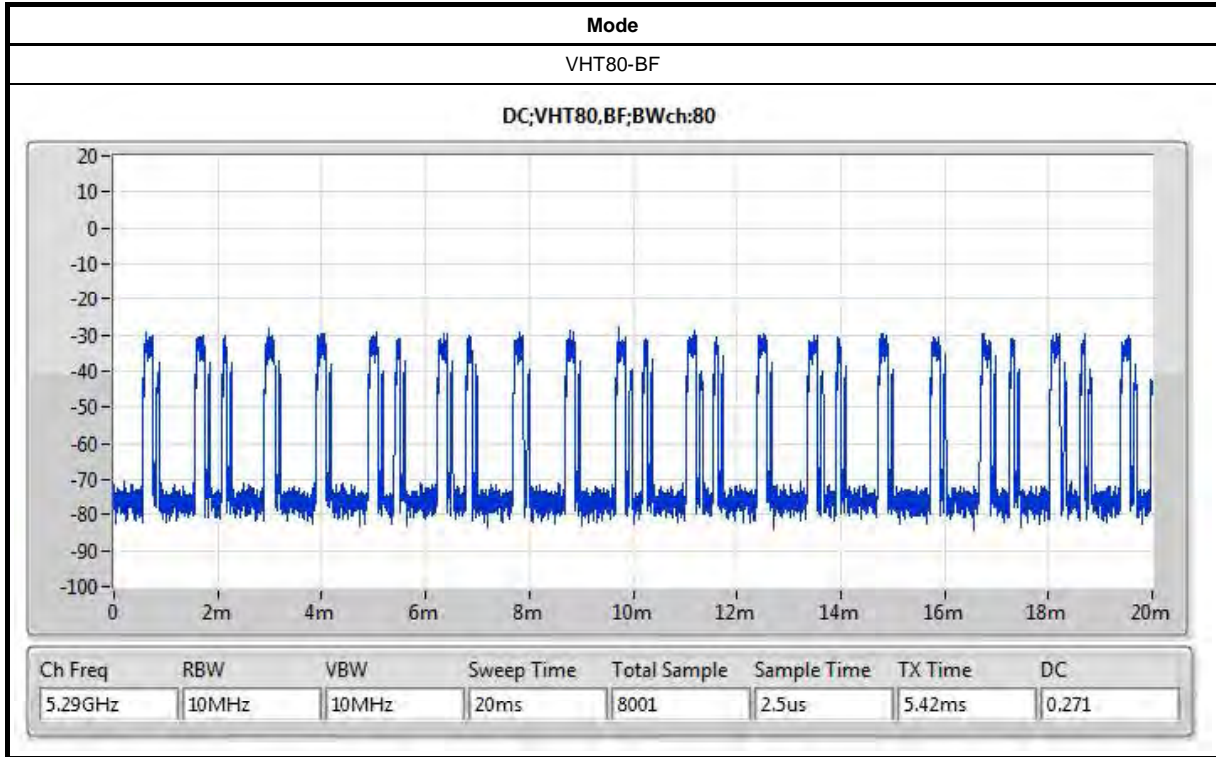
- 1) Set the center frequency of the instrument to the center frequency of the transmission.
- 2) Set RBW \geq OBW if possible; otherwise, set RBW to the largest available value.
- 3) Set VBW \geq RBW. Set detector = peak or average.

The measured result and plots are recorded in 1.1.3.









1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter or PoE		
Beamforming Function	<input checked="" type="checkbox"/>	With beamforming for 802.11n/ac in 2.4GHz/5GHz.	<input type="checkbox"/> Without beamforming

1.1.5 Table for Multiple Listing

The model names in the following table are all refer to the identical product.

Model Name	Description
GR10-HW	All the models are identical, the difference model for difference brand served as marketing strategy.
GR10-HW-US	
GR10-HW-INTL	

From the above models, model: GR10-HW was selected as representative model for the test and its data was recorded in this report.



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
- ◆ FCC KDB 789033 D02 v02r01
- ◆ FCC KDB 662911 D01 v02r01

1.3 Testing Location Information

Testing Location		
<input type="checkbox"/>	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055
<input checked="" type="checkbox"/>	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-CB	Gino Huang, Gary Chu	23°C / 55%	Jun. 27, 2017 ~ Jun. 30, 2017
Radiated	03CH01-CB	Justin Lin	22°C / 54%	Jun. 20, 2017 ~ Jul. 04, 2017
AC Conduction	CO01-CB	Ryo Fan	23°C / 55%	Jun. 23, 2017

Test site Designation No. TW0006 with FCC
Test site registered number IC 4086D with Industry Canada.

1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	9.74 x10 ⁻⁸	Confidence levels of 95%
Frequency Stability	6.06 x10 ⁻⁸	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
11a_Nss1_2TX	-
5180MHz	18
5200MHz	21.5
5240MHz	21.5
5745MHz	21.5
5785MHz	21.5
5825MHz	21.5
VHT20_Nss1_2TX	-
5180MHz	18
5200MHz	21.5
5240MHz	21.5
5745MHz	21.5
5785MHz	21.5
5825MHz	21.5
VHT40_Nss1_2TX	-
5190MHz	16.5
5230MHz	21
5755MHz	21
5795MHz	21
VHT80_Nss1_2TX	-
5210MHz	16
5775MHz	20



Mode	Power Setting
VHT20-BF_Nss1_2TX	-
5180MHz	18
5200MHz	24
5240MHz	24
5745MHz	20
5785MHz	20
5825MHz	20
VHT40-BF_Nss1_2TX	-
5190MHz	17
5230MHz	19
5755MHz	20
5795MHz	20
VHT80-BF_Nss1_2TX	-
5210MHz	17
5775MHz	20

Note: 1.VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than 802.11ac VHT20 and VHT40.

2. There are two modes of EUT, one is beamforming mode, and the other is non-beamforming mode for 802.11n/ac. All test results were recorded in the report.



2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	Normal Link
1	EUT 1 - Normal Link with Adapter
2	EUT 1 - Normal Link with PoE
For operating mode 1 is the worst case and it was record in this test report.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	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 < 1GHz	Normal Link
1	EUT 1 in Z axis - Normal Link with Adapter
2	EUT 1 in Y axis - Normal Link with Adapter
Mode 2 has been evaluated to be the worst case between Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	EUT 1 in Y axis - Normal Link with PoE
For operating mode 3 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX
The EUT was performed at Y axis and Z axis position for Radiated emission test, and the worst case was found at Y axis. So the measurement will follow this same test configuration.	
1	EUT 1 in Y axis



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

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	WLAN 2.4GHz +WLAN 5GHz
Refer to Sporton Test Report No.: FA760620-05AA for Co-location RF Exposure Evaluation.	

Note: The PoE is for measurement only, would not be marketed.

PoE information as below:

Power	Brand	Model
PoE	Meraki	POE20U-560(G)



2.3 EUT Operation during Test

For CTX Mode:

non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

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

The program was executed as follows:

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

For Normal Link:

During the test, the EUT operation to normal function.



2.4 Accessories

Accessories					
No.	Equipment Name	Brand Name	PSU Vendor P/N	Meraki Model	Rating
1	Adapter	CISCO	KSAS0361200250HU	MA-PWR-30W-US	Input: 100-240V ~ 50/60Hz, 1.0A Output: 12V, 2.5A
Other					
Wall-mounted rack*1					

2.5 Support Equipment

For Test Site No: CO01-CB

For Adapter Mode:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB*3	DELL	E6430	DoC

For PoE Mode:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB*3	DELL	E6430	DoC
2	PoE	Meraki	POE20U-560 (G)	DoC

For Test Site No: 03CH01-CB (below 1GHz)

For Adapter Mode:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC
2	NB	Apple	Mac Book	DoC
3	NB	Apple	Mac Book	DoC

For PoE Mode:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC
2	NB	Apple	Mac Book	DoC
3	NB	Apple	Mac Book	DoC
4	PoE	Meraki	POE20U-560 (G)	DoC



For Test Site No: 03CH01-CB (above 1GHz)
<For Non-Beamforming Mode>

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC

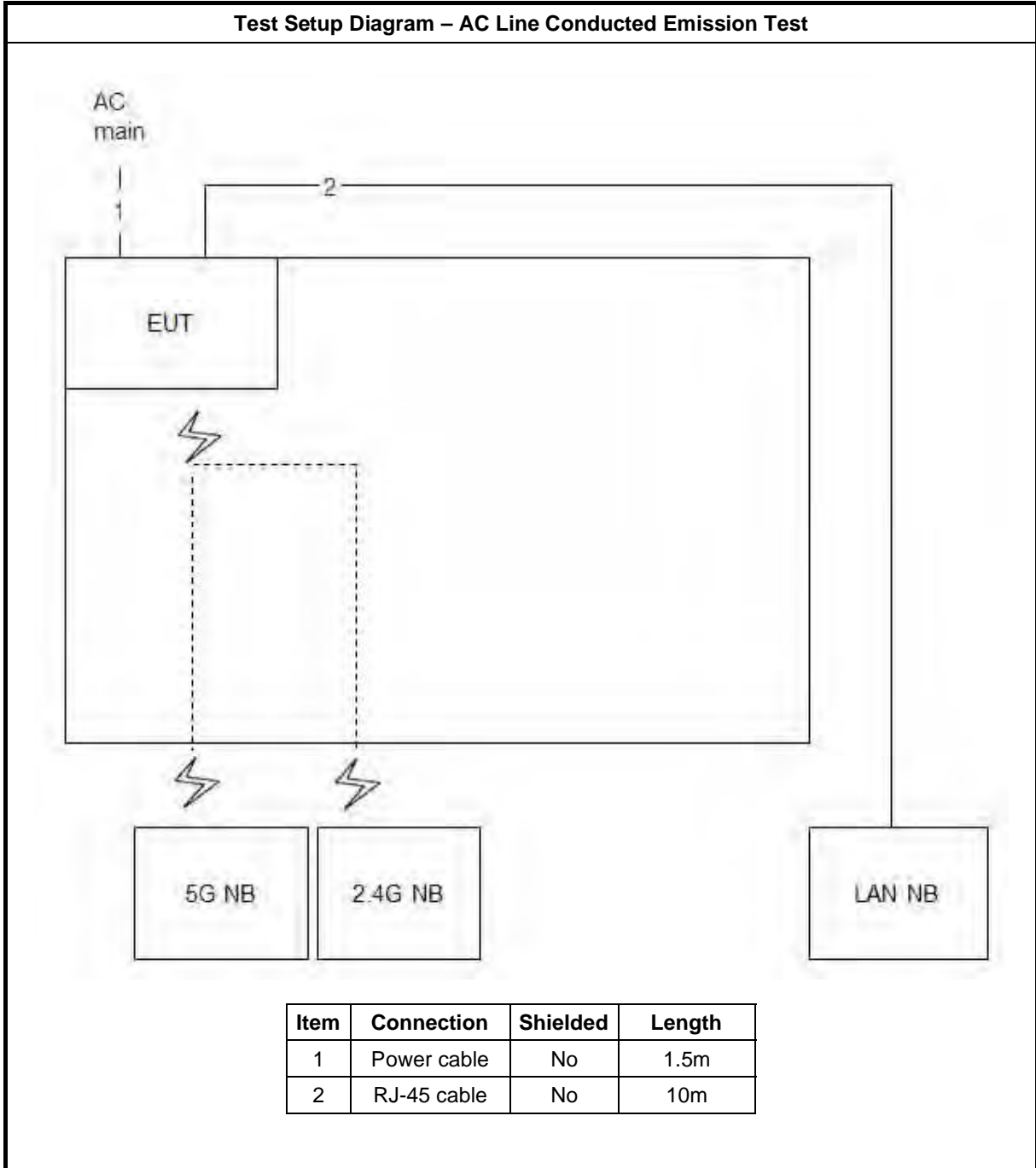
<For Beamforming Mode>

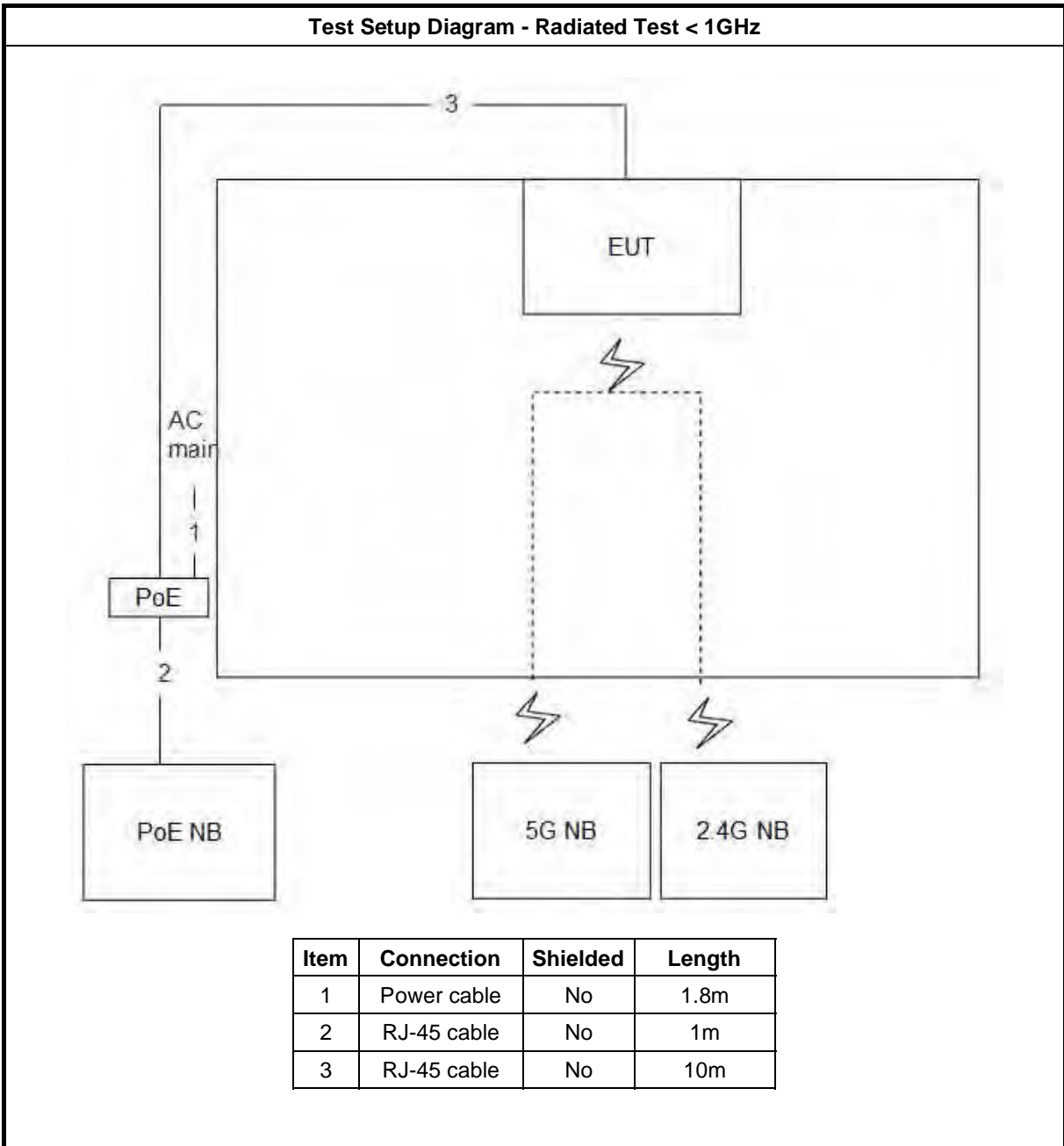
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC
2	NB	DELL	E4300	DoC
3	RX Device	CISCO	Maggot	DoC

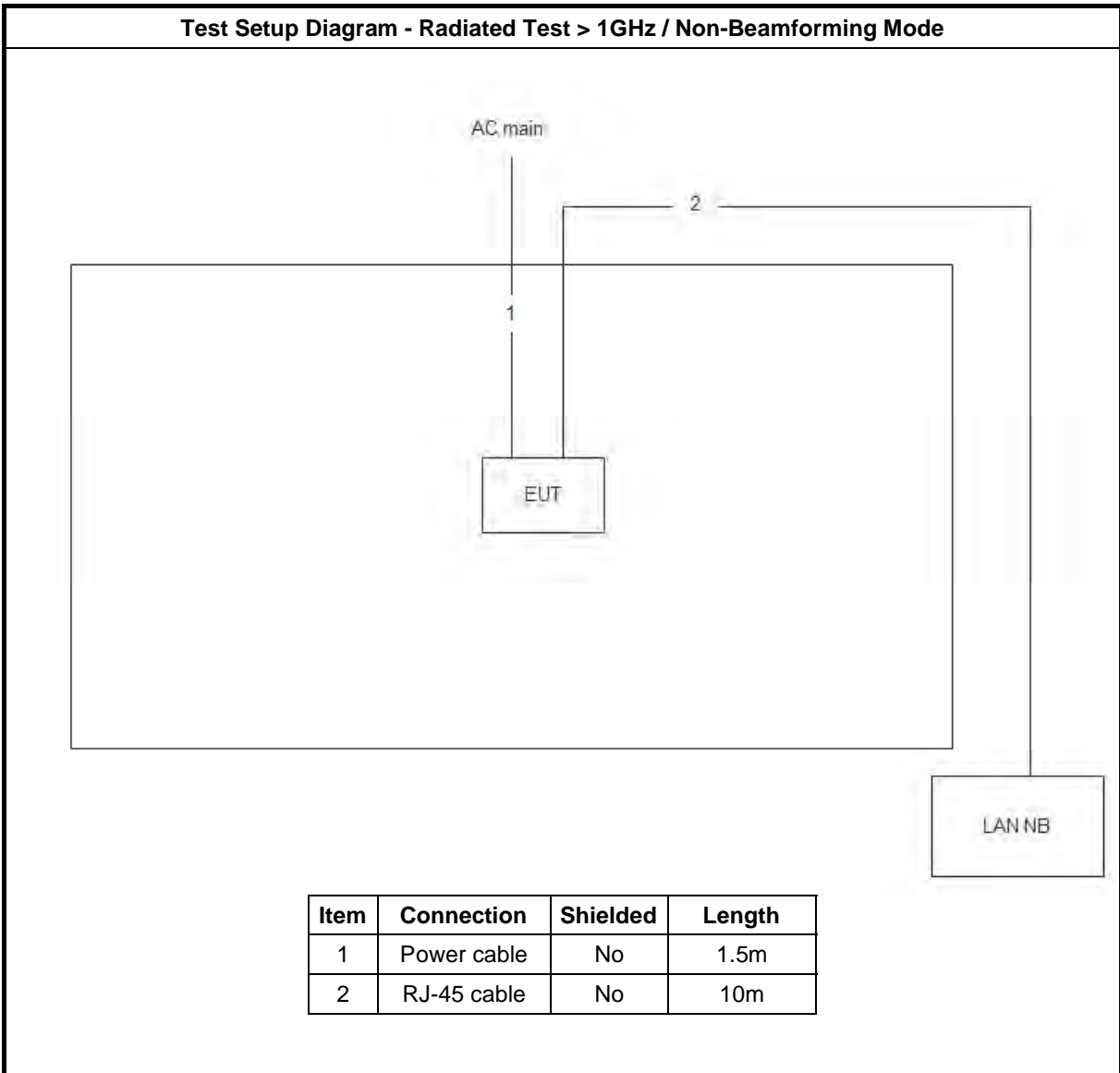
For Test Site No: TH01-CB

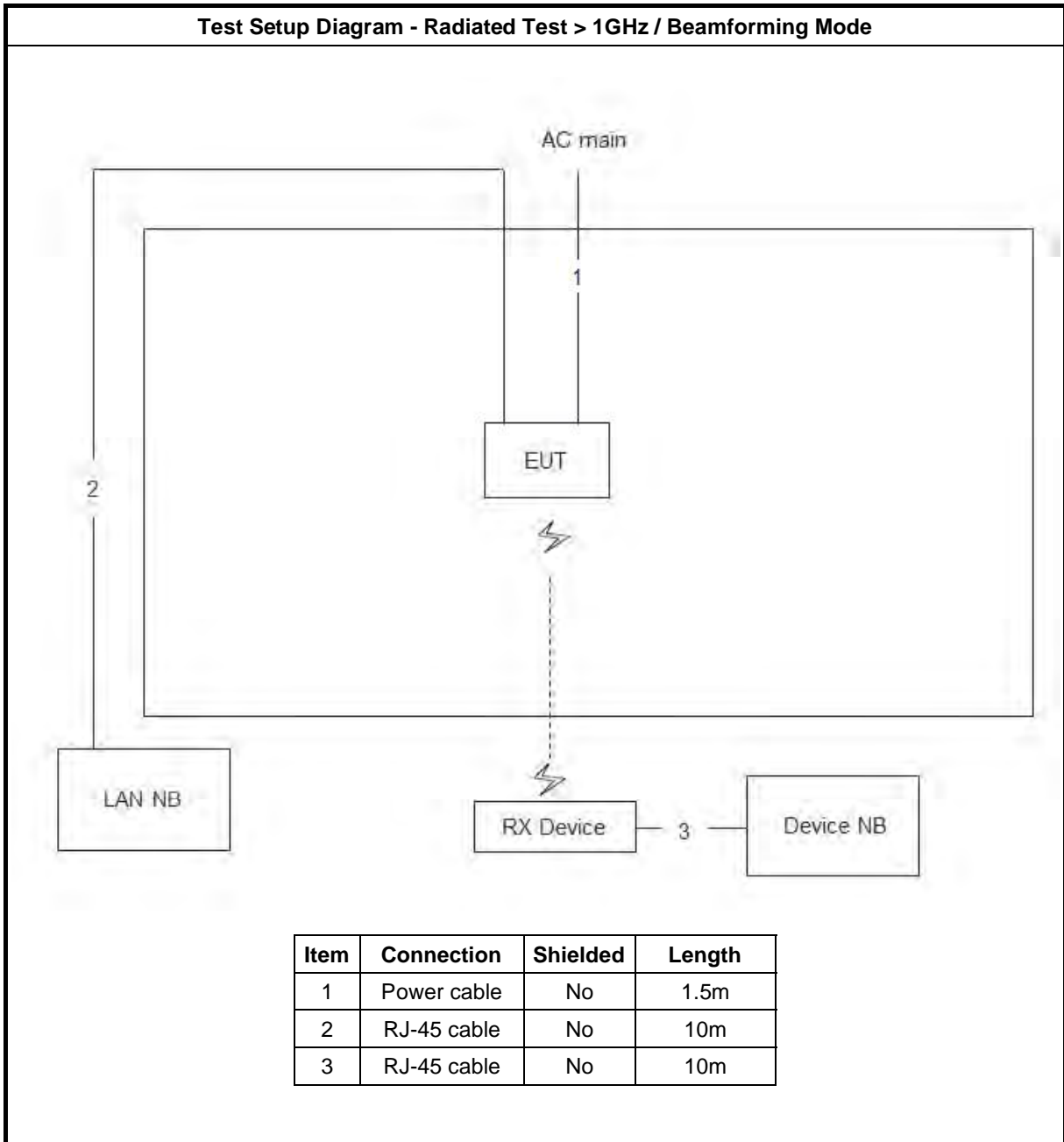
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC

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.

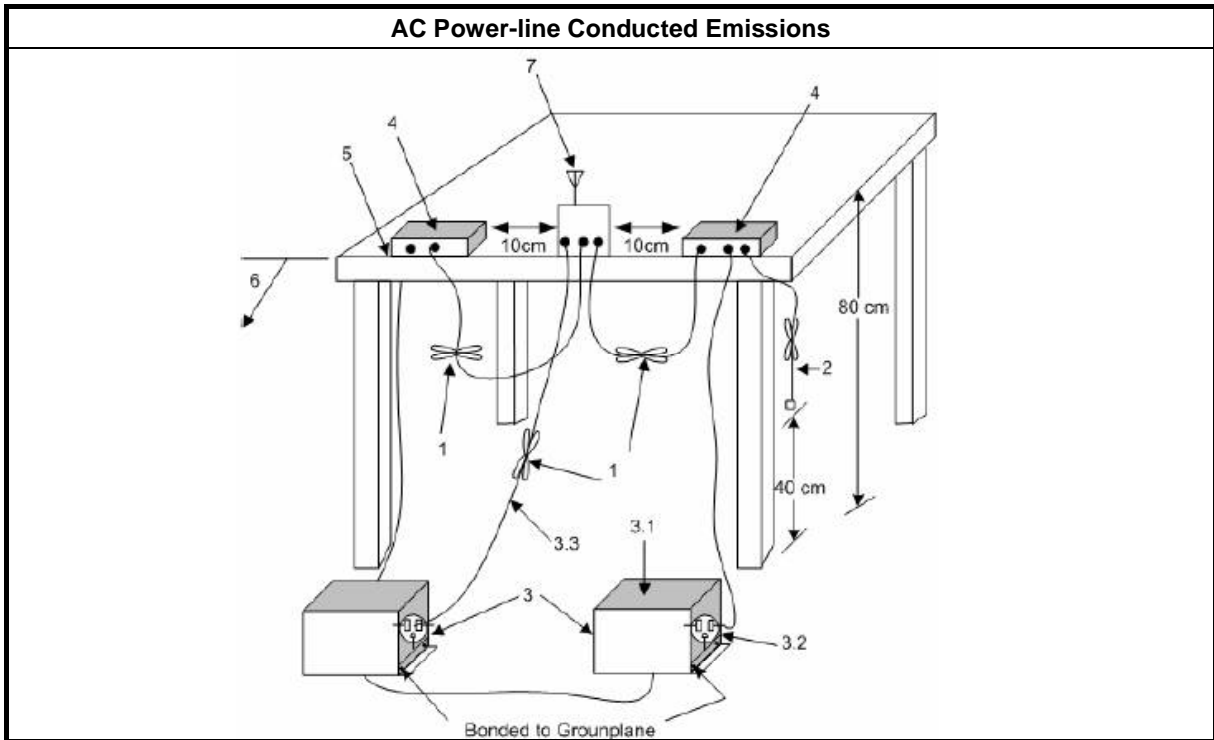
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

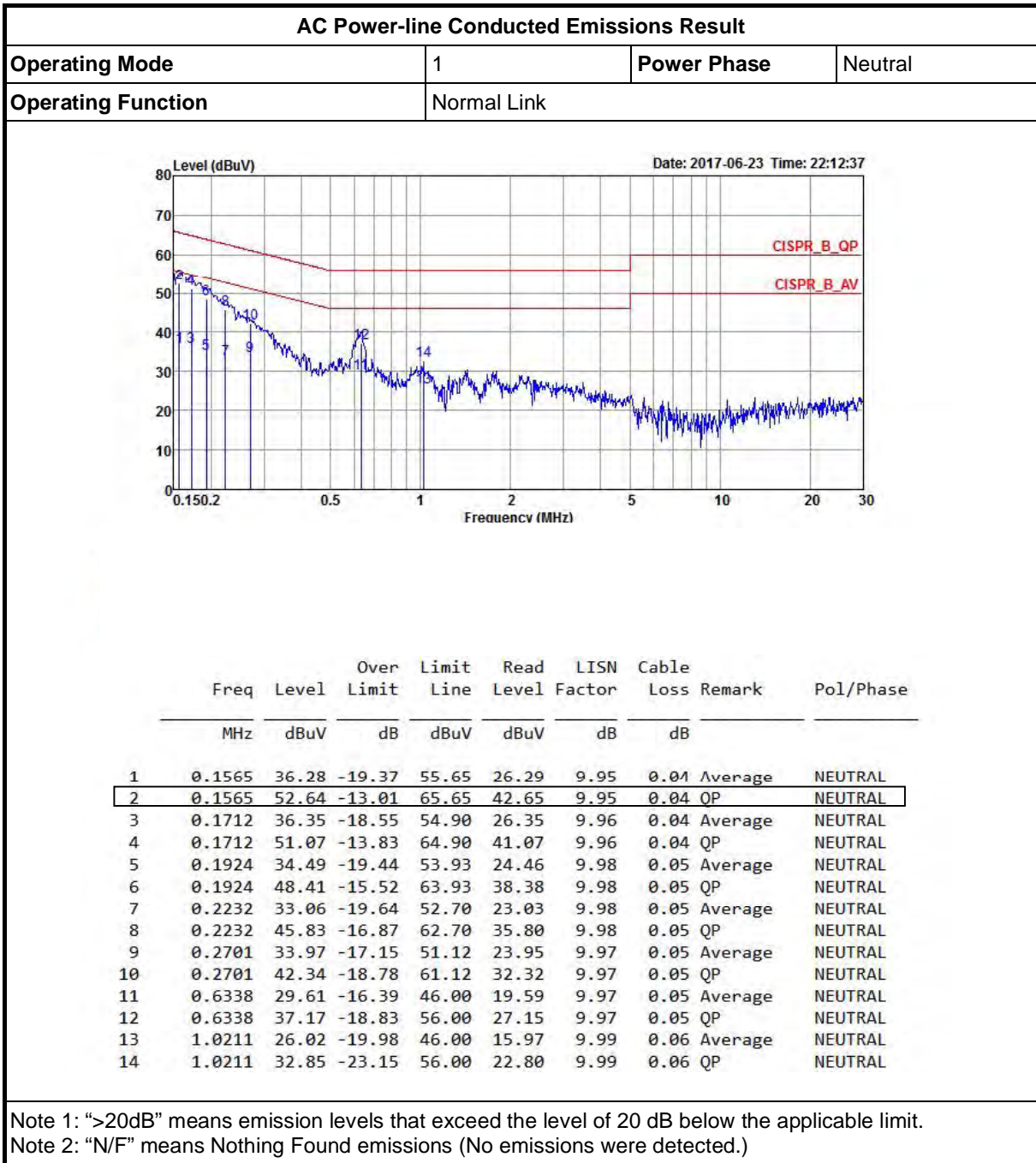
Test Method
<input checked="" type="checkbox"/> Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

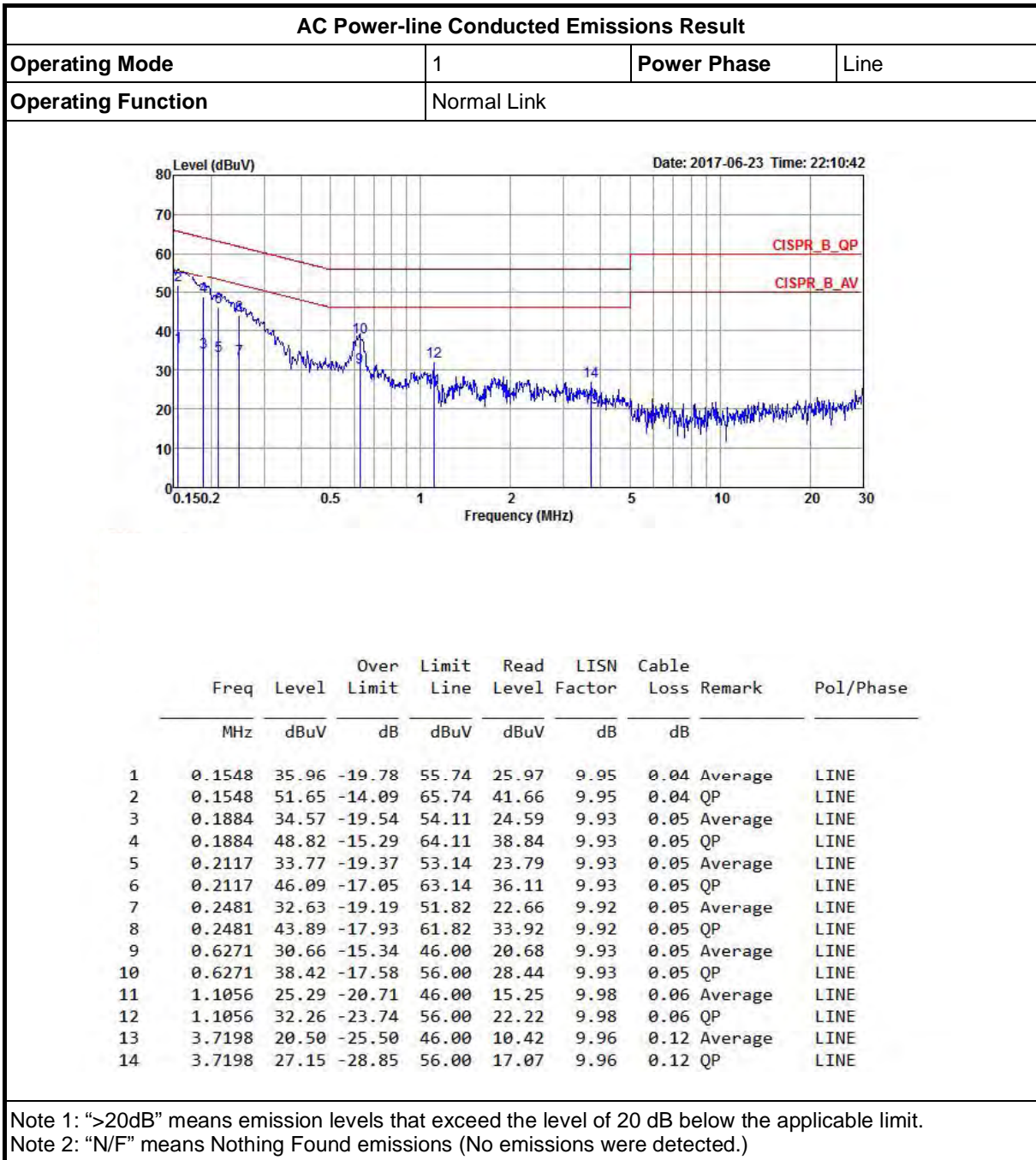
3.1.4 Test Setup





3.1.5 Test Result of AC Power-line Conducted Emissions





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 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 checked="" type="checkbox"/>	For the 5.725-5.85 GHz band, 6 dB emission bandwidth \geq 500kHz.
LE-LAN Devices	
<input type="checkbox"/>	For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
<input type="checkbox"/>	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
<input type="checkbox"/>	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
<input type="checkbox"/>	For the 5.725-5.85 GHz band, 6 dB emission bandwidth \geq 500kHz.

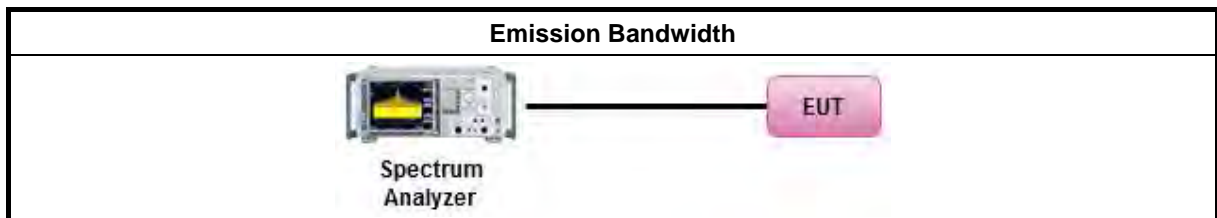
3.2.2 Measuring Instruments

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"> ▪ For the emission bandwidth shall be measured using one of the options below: 	
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, clause C for EBW and clause D for OBW measurement.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
<input checked="" type="checkbox"/>	Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.

3.2.4 Test Setup



**3.2.5 Test Result of Emission Bandwidth**

<For Non-Beamforming Mode>

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
11a_Nss1_2TX	-	-	-	-	-
5.15-5.25GHz	45.2M	25.762M	25M8D1D	19.725M	16.417M
5.725-5.85GHz	16.3M	24.588M	24M6D1D	16.275M	18.666M
VHT20_Nss1_2TX	-	-	-	-	-
5.15-5.25GHz	47.05M	27.136M	27M1D1D	21.025M	17.641M
5.725-5.85GHz	17.575M	26.337M	26M3D1D	17.275M	19.765M
VHT40_Nss1_2TX	-	-	-	-	-
5.15-5.25GHz	98.75M	54.823M	54M8D1D	39.65M	35.932M
5.725-5.85GHz	36.25M	56.522M	56M5D1D	33.7M	41.829M
VHT80_Nss1_2TX	-	-	-	-	-
5.15-5.25GHz	83.7M	75.762M	75M8D1D	82.8M	75.662M
5.725-5.85GHz	75.2M	77.561M	77M6D1D	74.1M	76.262M

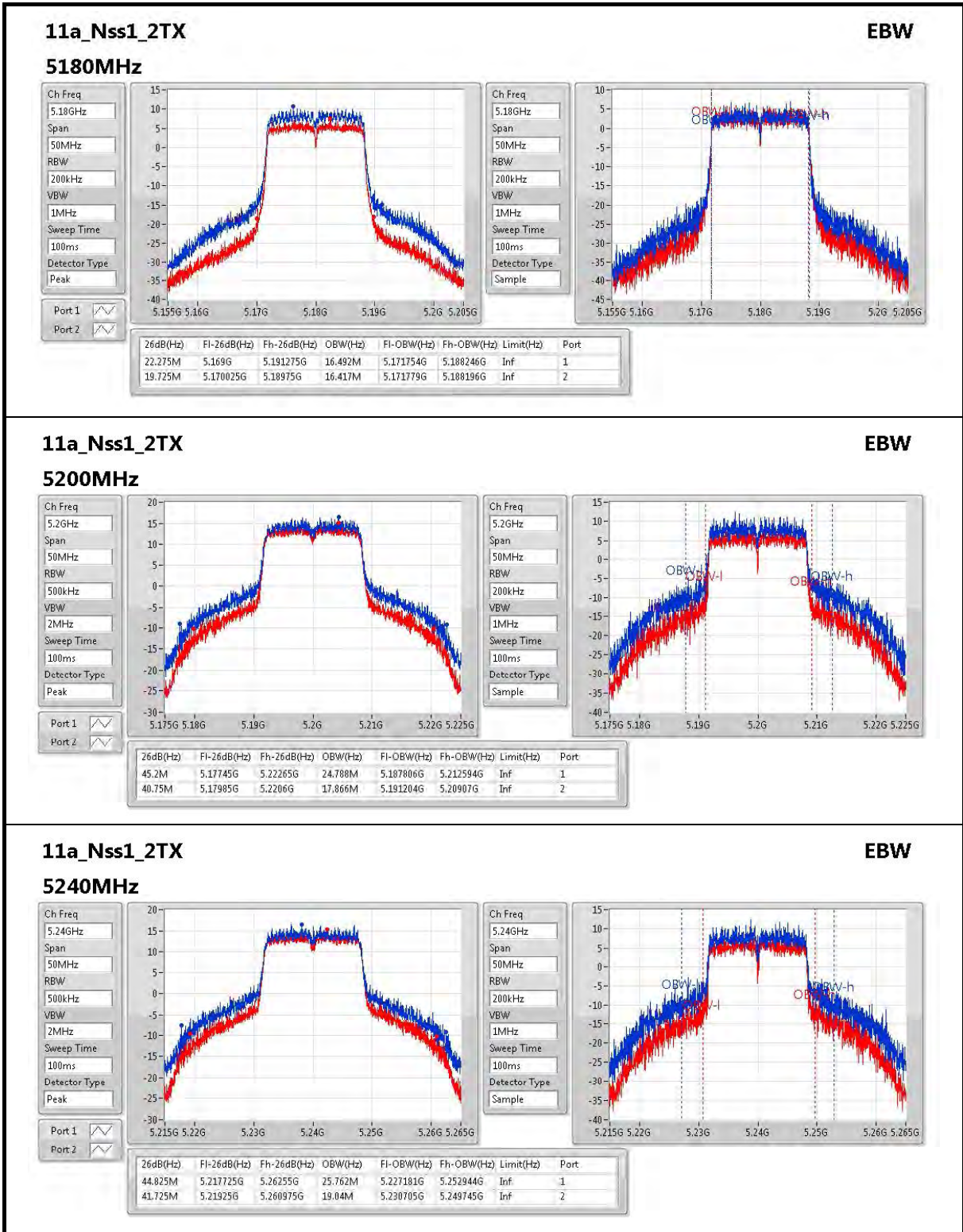
Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;**Max-OBW** = Maximum 99% occupied bandwidth;**Min-N dB** = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;**Min-OBW** = Minimum 99% occupied bandwidth;

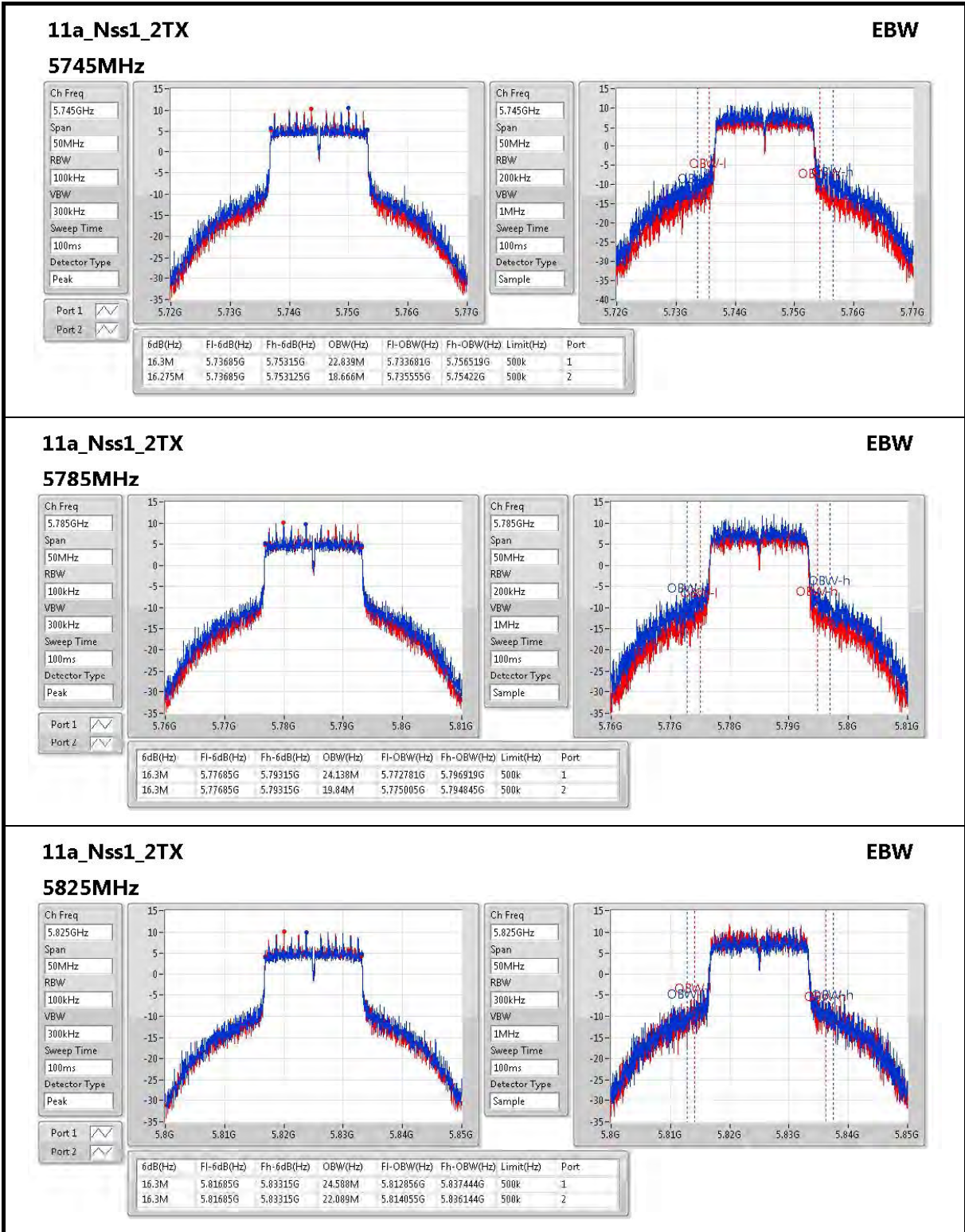


Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
11a_Nss1_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	22.275M	16.492M	19.725M	16.417M
5200MHz	Pass	Inf	45.2M	24.788M	40.75M	17.866M
5240MHz	Pass	Inf	44.825M	25.762M	41.725M	19.04M
5745MHz	Pass	500k	16.3M	22.839M	16.275M	18.666M
5785MHz	Pass	500k	16.3M	24.138M	16.3M	19.84M
5825MHz	Pass	500k	16.3M	24.588M	16.3M	22.089M
VHT20_Nss1_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	25M	17.641M	21.025M	17.641M
5200MHz	Pass	Inf	46.575M	25.487M	40.925M	18.516M
5240MHz	Pass	Inf	47.05M	27.136M	42.775M	19.615M
5745MHz	Pass	500k	17.275M	25.362M	17.275M	19.765M
5785MHz	Pass	500k	17.575M	26.337M	17.5M	20.915M
5825MHz	Pass	500k	17.55M	25.737M	17.575M	22.964M
VHT40_Nss1_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	40M	36.132M	39.65M	35.932M
5230MHz	Pass	Inf	98.75M	54.823M	90.9M	38.081M
5755MHz	Pass	500k	35.7M	53.673M	33.7M	41.829M
5795MHz	Pass	500k	36.25M	56.522M	34.75M	42.529M
VHT80_Nss1_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	82.8M	75.662M	83.7M	75.762M
5775MHz	Pass	500k	74.1M	77.561M	75.2M	76.262M

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;



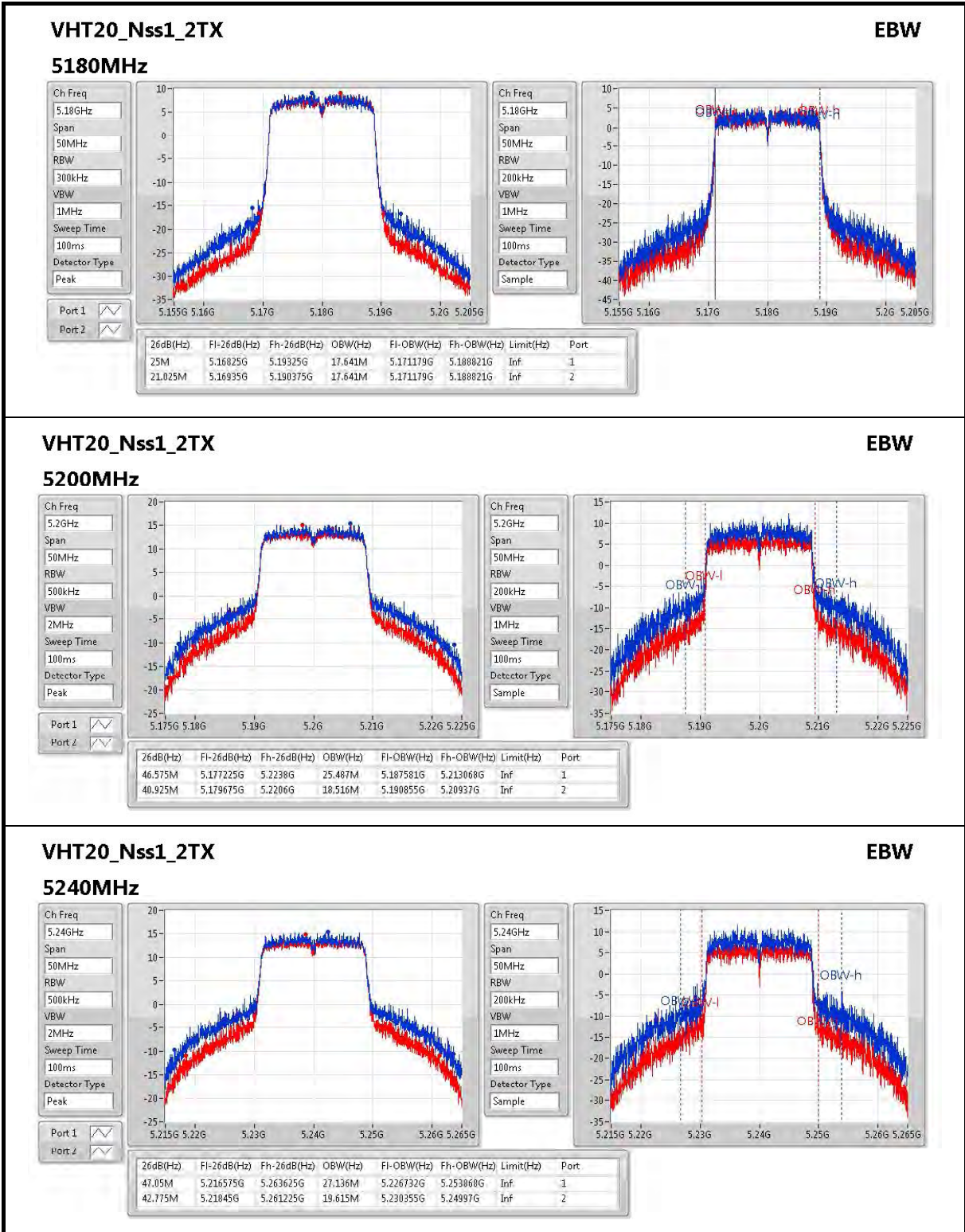

11a_Nss1_2TX
EBW

5825MHz

Ch Freq: 5.825GHz
Span: 50MHz
RBW: 100kHz
VBW: 300kHz
Sweep Time: 100ms
Detector Type: Peak

Port 1:
Port 2:

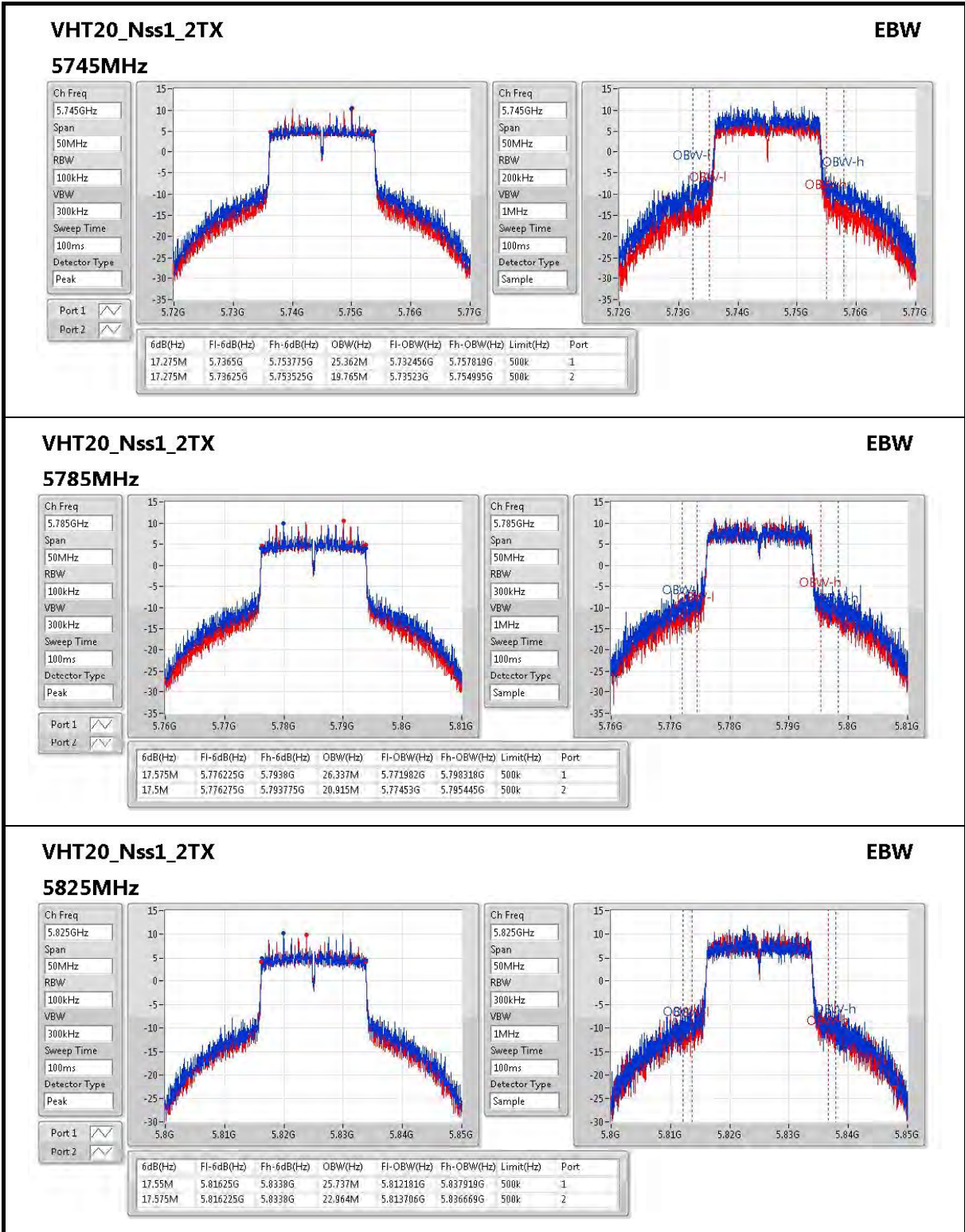
Ch Freq: 5.825GHz
Span: 50MHz
RBW: 300kHz
VBW: 1MHz
Sweep Time: 100ms
Detector Type: Sample


VHT20_Nss1_2TX
EBW
5240MHz

Ch Freq: 5.24GHz
Span: 50MHz
RBW: 500kHz
VBW: 2MHz
Sweep Time: 100ms
Detector Type: Peak

Port 1:
Port 2:

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

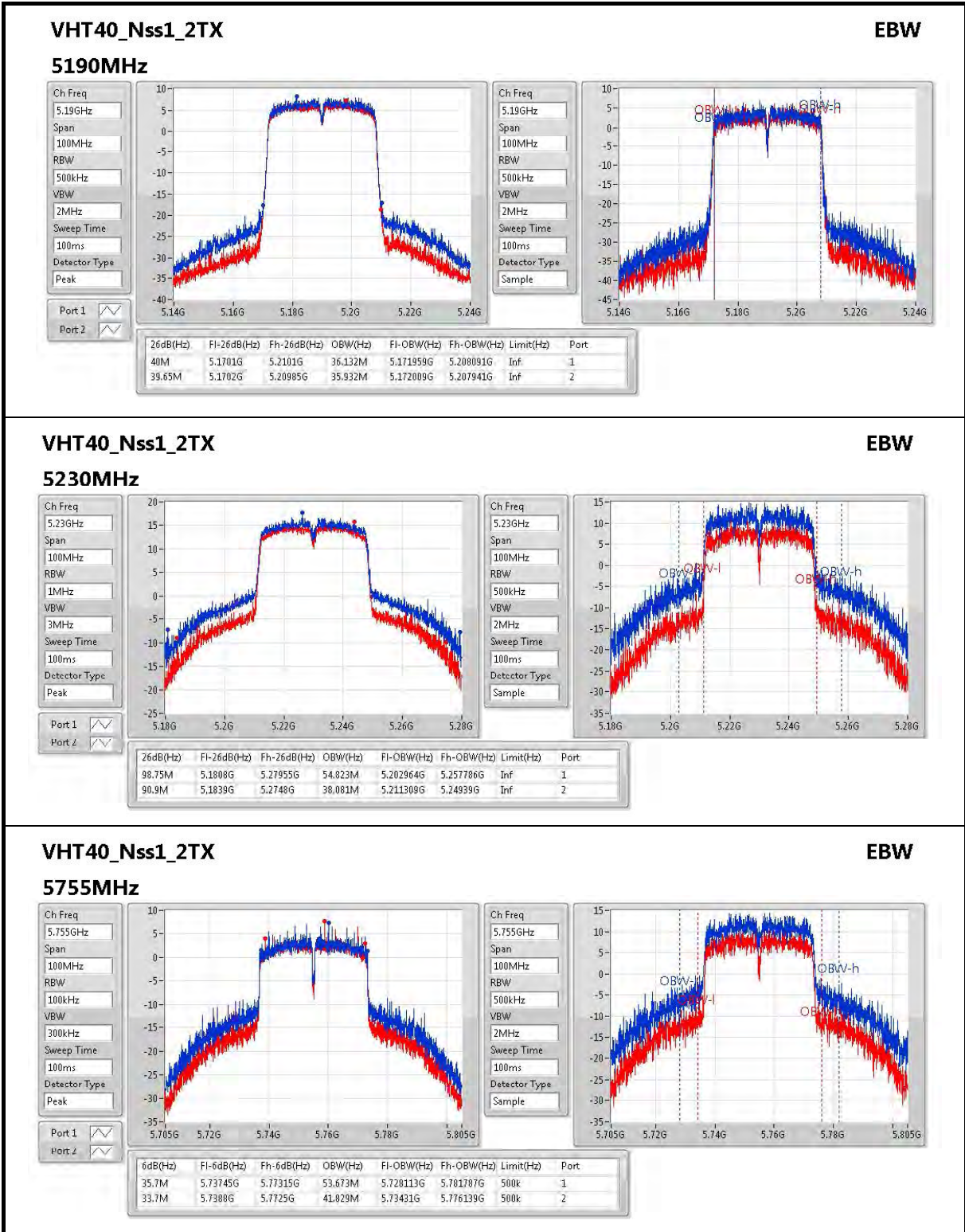

VHT20_Nss1_2TX
EBW

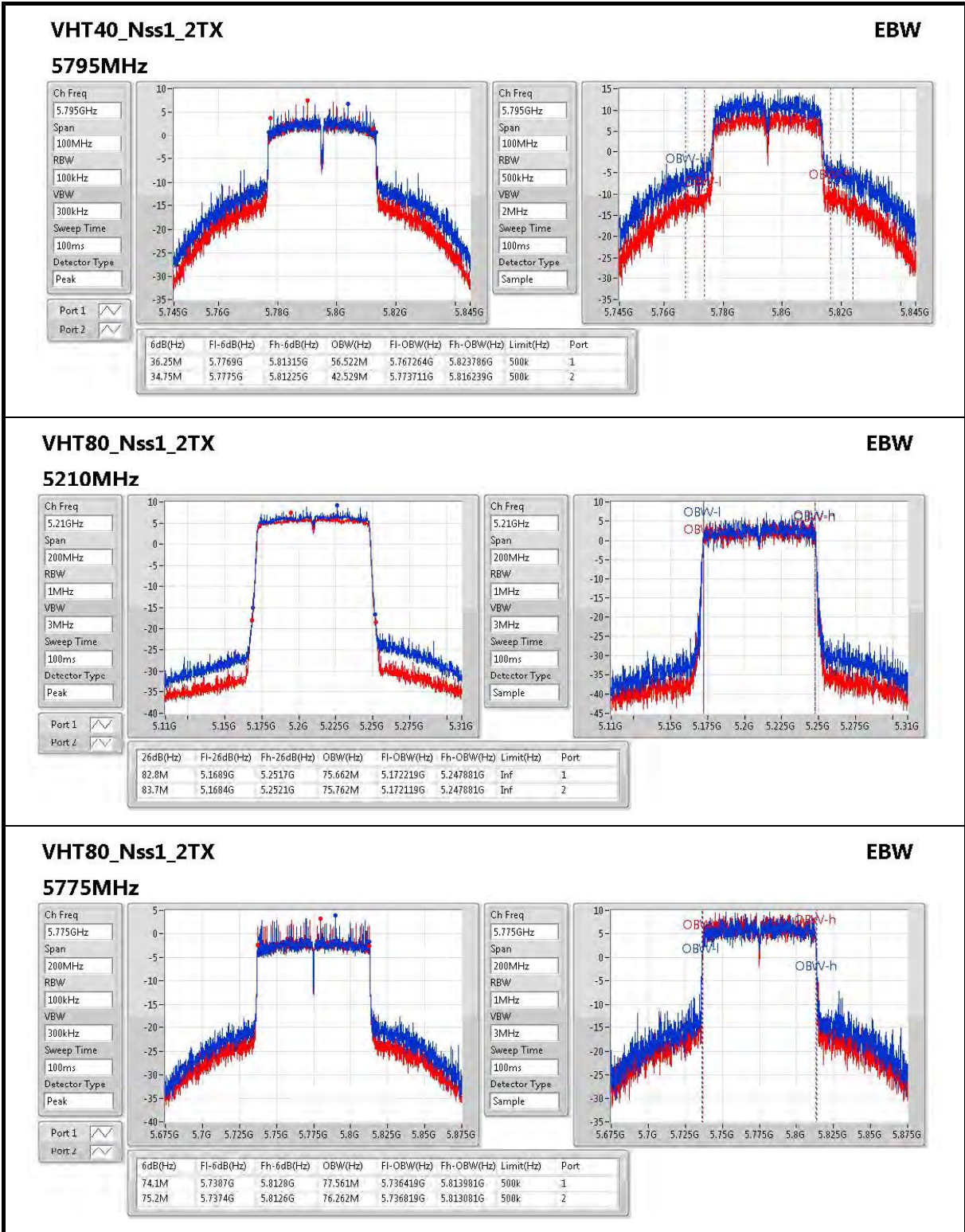
5825MHz

Ch Freq: 5.825GHz
Span: 50MHz
RBW: 100kHz
VBW: 300kHz
Sweep Time: 100ms
Detector Type: Peak

Port 1:
Port 2:

Ch Freq: 5.825GHz
Span: 50MHz
RBW: 300kHz
VBW: 1MHz
Sweep Time: 100ms
Detector Type: Sample





**<For Beamforming Mode>****Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
VHT20-BF_Nss1_2TX	-	-	-	-	-
5.15-5.25GHz	33.45M	17.841M	17M8D1D	23.125M	17.691M
5.725-5.85GHz	17.7M	17.791M	17M8D1D	17.575M	17.666M
VHT40-BF_Nss1_2TX	-	-	-	-	-
5.15-5.25GHz	68.4M	36.482M	36M5D1D	40.75M	36.182M
5.725-5.85GHz	36.3M	36.382M	36M4D1D	34.35M	36.282M
VHT80-BF_Nss1_2TX	-	-	-	-	-
5.15-5.25GHz	82.7M	75.562M	75M6D1D	82.5M	75.562M
5.725-5.85GHz	76.1M	76.262M	76M3D1D	73.5M	76.062M

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;

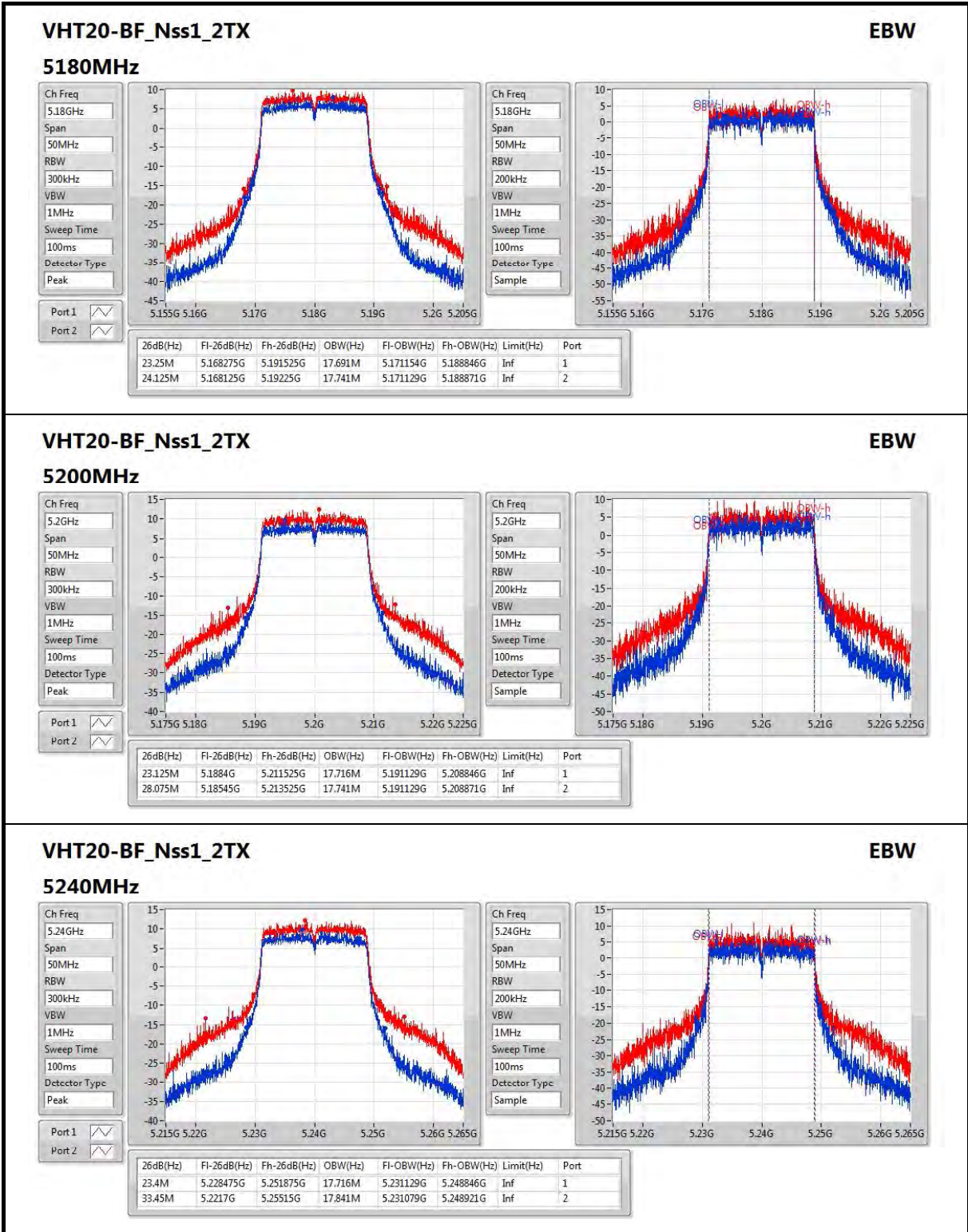
Min-OBW = Minimum 99% occupied bandwidth;

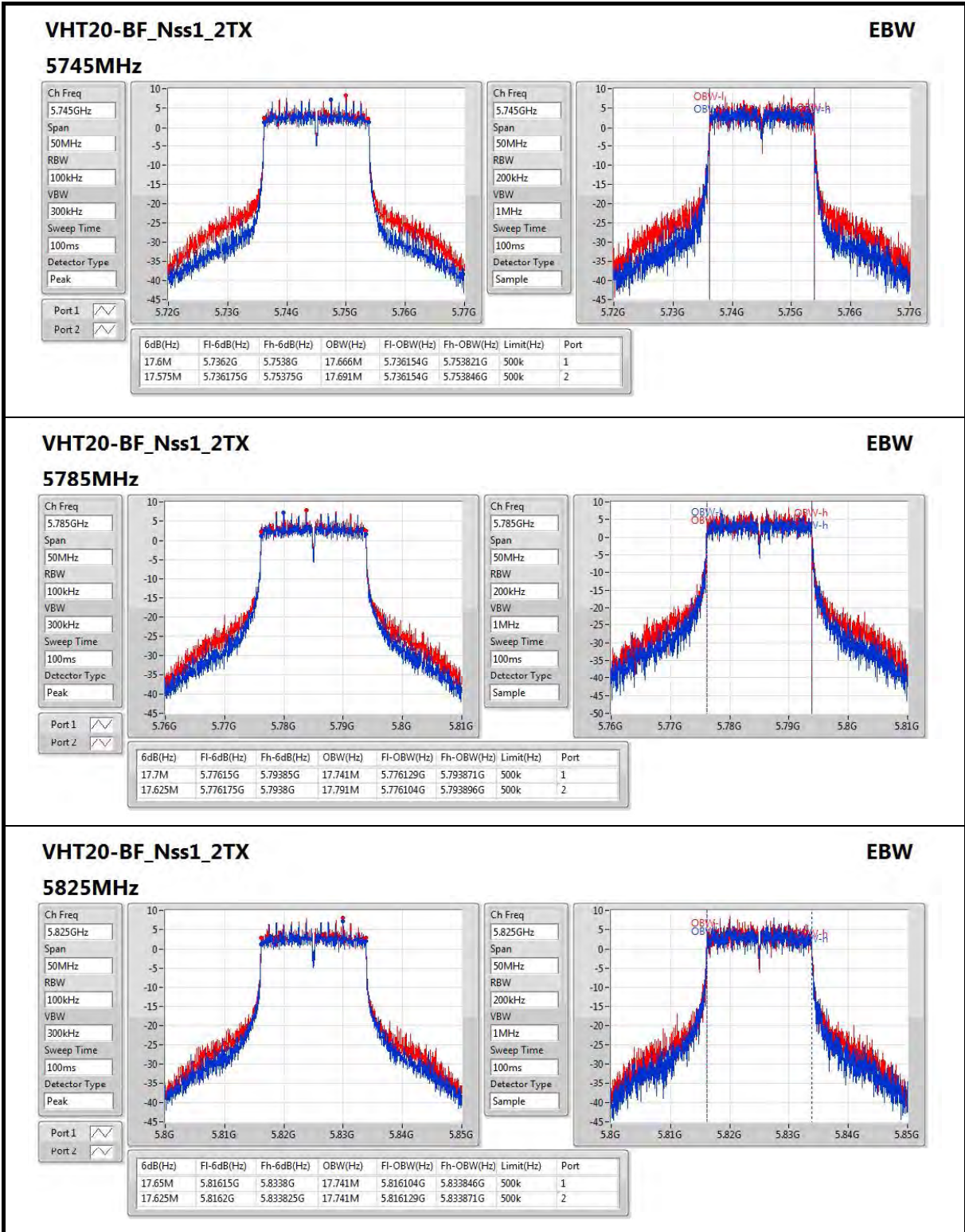
**Result**

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
VHT20-BF_Nss1_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	23.25M	17.691M	24.125M	17.741M
5200MHz	Pass	Inf	23.125M	17.716M	28.075M	17.741M
5240MHz	Pass	Inf	23.4M	17.716M	33.45M	17.841M
5745MHz	Pass	500k	17.6M	17.666M	17.575M	17.691M
5785MHz	Pass	500k	17.7M	17.741M	17.625M	17.791M
5825MHz	Pass	500k	17.65M	17.741M	17.625M	17.741M
VHT40-BF_Nss1_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	40.75M	36.182M	41.15M	36.182M
5230MHz	Pass	Inf	42.8M	36.182M	68.4M	36.482M
5755MHz	Pass	500k	34.35M	36.332M	36.25M	36.382M
5795MHz	Pass	500k	36M	36.282M	36.3M	36.382M
VHT80-BF_Nss1_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	82.5M	75.562M	82.7M	75.562M
5775MHz	Pass	500k	73.5M	76.062M	76.1M	76.262M

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;




VHT20-BF_Nss1_2TX
EBW

5825MHz

Ch Freq: 5.825GHz
Span: 50MHz
RBW: 100kHz
VBW: 300kHz
Sweep Time: 100ms
Detector Type: Peak

Port 1:

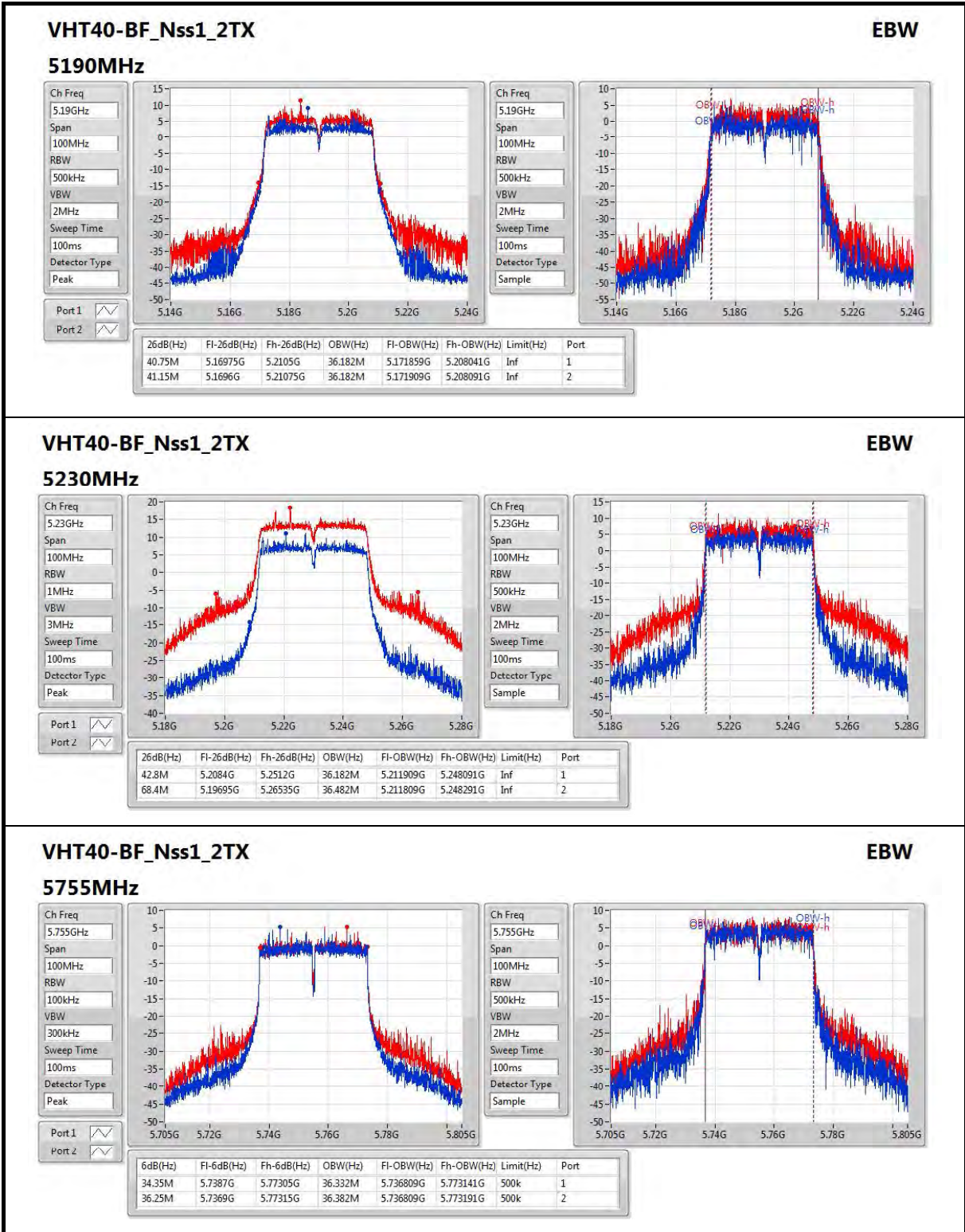
Port 2:

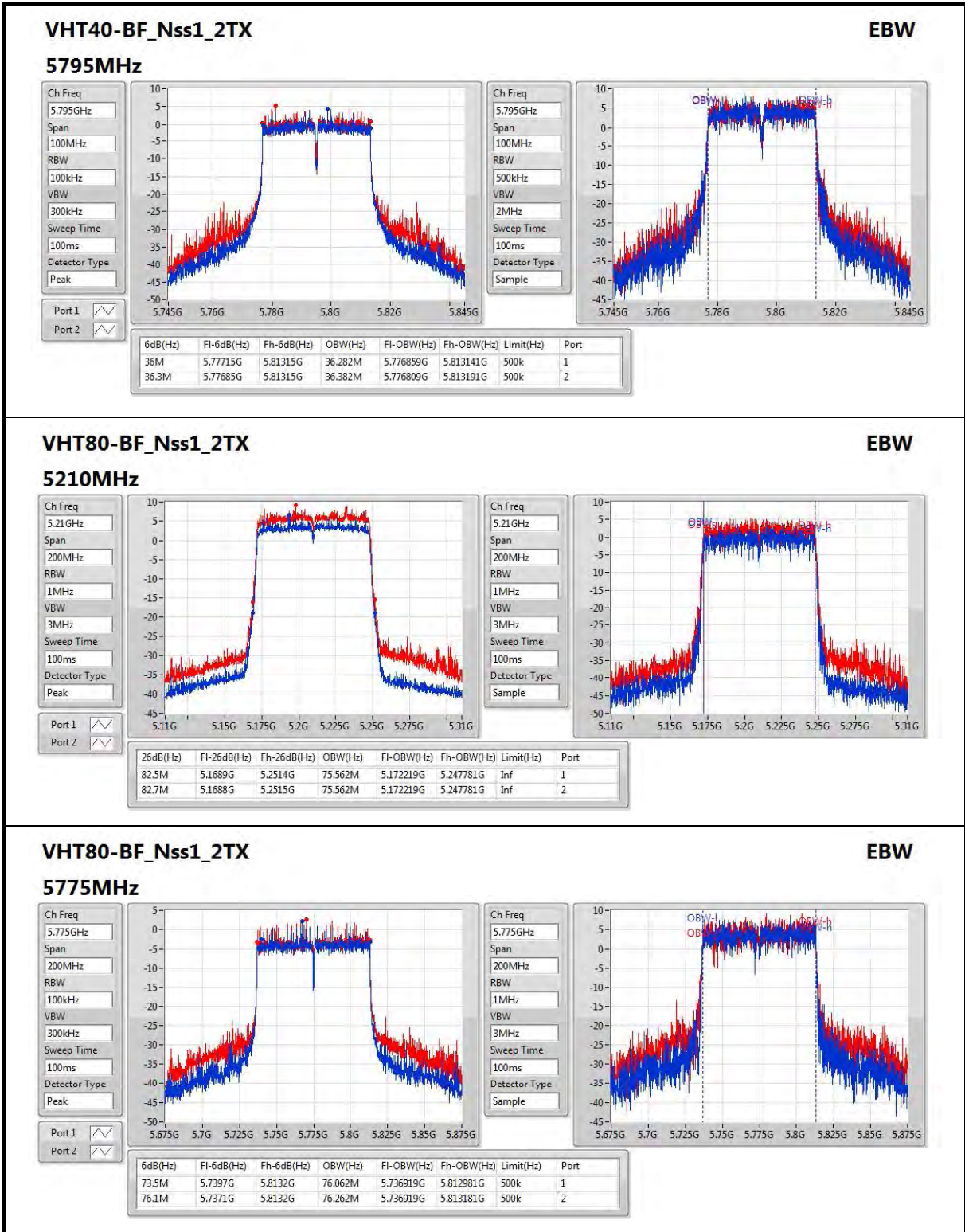
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.65M	5.81615G	5.8338G	17.741M	5.816104G	5.833846G	500k	1
17.625M	5.8162G	5.833825G	17.741M	5.816129G	5.833871G	500k	2

Ch Freq: 5.825GHz
Span: 50MHz
RBW: 200kHz
VBW: 1MHz
Sweep Time: 100ms
Detector Type: Sample

Port 1:

Port 2:







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 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 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 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"> ▪ Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. ▪ Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
LE-LAN Devices	
<input type="checkbox"/> For the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.	
<input type="checkbox"/> For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz	
<input type="checkbox"/> For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz	
<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.	

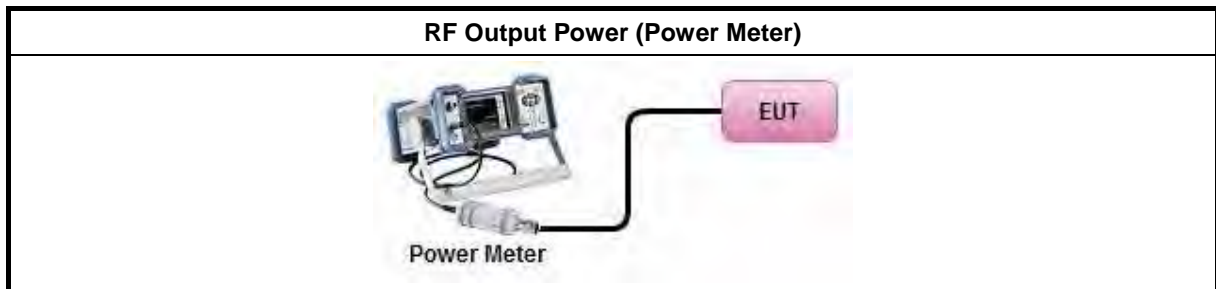
3.3.2 Measuring Instruments

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 	
Average over on/off periods with duty factor	
<input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).	
<input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)	
Wideband RF power meter and average over on/off periods with duty factor	
<input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method PM-G (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 FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them. 	
<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

<For Non-Beamforming Mode>

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
11a_Nss1_2TX	-	-	-	-
5.15-5.25GHz	24.47	0.27990	29.78	0.95060
5.725-5.85GHz	24.44	0.27797	29.75	0.94406
VHT20_Nss1_2TX	-	-	-	-
5.15-5.25GHz	24.37	0.27353	29.68	0.92897
5.725-5.85GHz	24.51	0.28249	29.82	0.95940
VHT40_Nss1_2TX	-	-	-	-
5.15-5.25GHz	24.69	0.29444	30.00	1.00000
5.725-5.85GHz	24.73	0.29717	30.04	1.00925
VHT80_Nss1_2TX	-	-	-	-
5.15-5.25GHz	19.53	0.08974	24.84	0.30479
5.725-5.85GHz	23.31	0.21429	28.62	0.72778



Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)
11a_Nss1_2TX	-	-	-	-	-	-
5180MHz	Pass	5.31	18.74	18.47	21.62	30.00
5200MHz	Pass	5.31	21.65	21.27	24.47	30.00
5240MHz	Pass	5.31	21.64	21.12	24.40	30.00
5745MHz	Pass	5.31	21.27	21.58	24.44	30.00
5785MHz	Pass	5.31	21.13	21.53	24.34	30.00
5825MHz	Pass	5.31	21.01	21.54	24.29	30.00
VHT20_Nss1_2TX	-	-	-	-	-	-
5180MHz	Pass	5.31	18.44	18.33	21.40	30.00
5200MHz	Pass	5.31	21.53	21.19	24.37	30.00
5240MHz	Pass	5.31	21.52	21.16	24.35	30.00
5745MHz	Pass	5.31	21.46	21.54	24.51	30.00
5785MHz	Pass	5.31	21.29	21.56	24.44	30.00
5825MHz	Pass	5.31	21.24	21.58	24.42	30.00
VHT40_Nss1_2TX	-	-	-	-	-	-
5190MHz	Pass	5.31	17.35	17.10	20.24	30.00
5230MHz	Pass	5.31	21.91	21.43	24.69	30.00
5755MHz	Pass	5.31	21.80	21.64	24.73	30.00
5795MHz	Pass	5.31	21.72	21.41	24.58	30.00
VHT80_Nss1_2TX	-	-	-	-	-	-
5210MHz	Pass	5.31	16.83	16.18	19.53	30.00
5775MHz	Pass	5.31	20.29	20.31	23.31	30.00

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



<For Beamforming Mode>
Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
VHT20-BF_Nss1_2TX	-	-	-	-
5.15-5.25GHz	21.68	0.14723	28.95	0.78524
5.725-5.85GHz	20.86	0.12190	28.13	0.65013
VHT40-BF_Nss1_2TX	-	-	-	-
5.15-5.25GHz	20.48	0.11169	27.75	0.59566
5.725-5.85GHz	20.34	0.10814	27.61	0.57677
VHT80-BF_Nss1_2TX	-	-	-	-
5.15-5.25GHz	17.86	0.06109	25.13	0.32584
5.725-5.85GHz	20.42	0.11015	27.69	0.58749



Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)
VHT20-BF_Nss1_2TX	-	-	-	-	-	-
5180MHz	Pass	7.27	16.48	16.28	19.39	28.73
5200MHz	Pass	7.27	18.73	18.49	21.62	28.73
5240MHz	Pass	7.27	18.75	18.58	21.68	28.73
5745MHz	Pass	7.27	17.74	17.96	20.86	28.73
5785MHz	Pass	7.27	17.54	17.71	20.64	28.73
5825MHz	Pass	7.27	17.42	17.63	20.54	28.73
VHT40-BF_Nss1_2TX	-	-	-	-	-	-
5190MHz	Pass	7.27	14.91	15.22	18.08	28.73
5230MHz	Pass	7.27	17.36	17.58	20.48	28.73
5755MHz	Pass	7.27	17.25	17.41	20.34	28.73
5795MHz	Pass	7.27	17.06	17.33	20.21	28.73
VHT80-BF_Nss1_2TX	-	-	-	-	-	-
5210MHz	Pass	7.27	14.72	14.97	17.86	28.73
5775MHz	Pass	7.27	17.39	17.42	20.42	28.73

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



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:
<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ 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 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 checked="" type="checkbox"/>	For the 5.725-5.85 GHz band:
<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then $PPSD = 30 - (G_{TX} - 6)$. ▪ Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
LE-LAN Devices	
<input type="checkbox"/>	For the 5.15-5.25 GHz band, the peak power spectral density (PPSD) ≤ 4 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) ≤ 10 dBm/MHz.
<input type="checkbox"/>	For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) ≤ 17 dBm/MHz.
<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where θ is the angle above the local horizontal plane (of the Earth) as shown below: -13 dBW/MHz for $0^\circ \leq \theta < 8^\circ$; -13 - 0.716 ($\theta-8$) dBW/MHz for $8^\circ \leq \theta < 40^\circ$ -35.9 - 1.22 ($\theta-40$) dBW/MHz for $40^\circ \leq \theta \leq 45^\circ$; -42 dBW/MHz for $\theta > 45^\circ$
<input type="checkbox"/>	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) ≤ 17 dBm/MHz.
<input type="checkbox"/>	For the 5.725-5.85 GHz band:
<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ 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

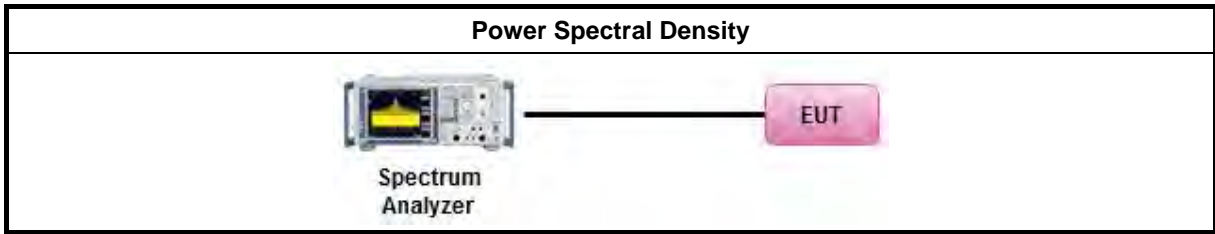


Refer a test equipment and calibration data table in this test report.

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 FCC 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% or external video / power trigger]
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033, clause E Method SA-1 Alt. (RMS detection with slow sweep speed) duty cycle < 98% and average over on/off periods with duty factor
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC 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: 	
<input checked="" type="checkbox"/>	Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.
<input type="checkbox"/>	Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,
<input type="checkbox"/>	Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.
<ul style="list-style-type: none"> ▪ 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

<For Non-Beamforming Mode>

Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
11a_Nss1_2TX	-	-
5.15-5.25GHz	12.28	19.55
5.725-5.85GHz	9.44	16.71
VHT20_Nss1_2TX	-	-
5.15-5.25GHz	11.97	19.24
5.725-5.85GHz	9.25	16.52
VHT40_Nss1_2TX	-	-
5.15-5.25GHz	9.72	16.99
5.725-5.85GHz	6.85	14.12
VHT80_Nss1_2TX	-	-
5.15-5.25GHz	1.42	8.69
5.725-5.85GHz	2.27	9.54

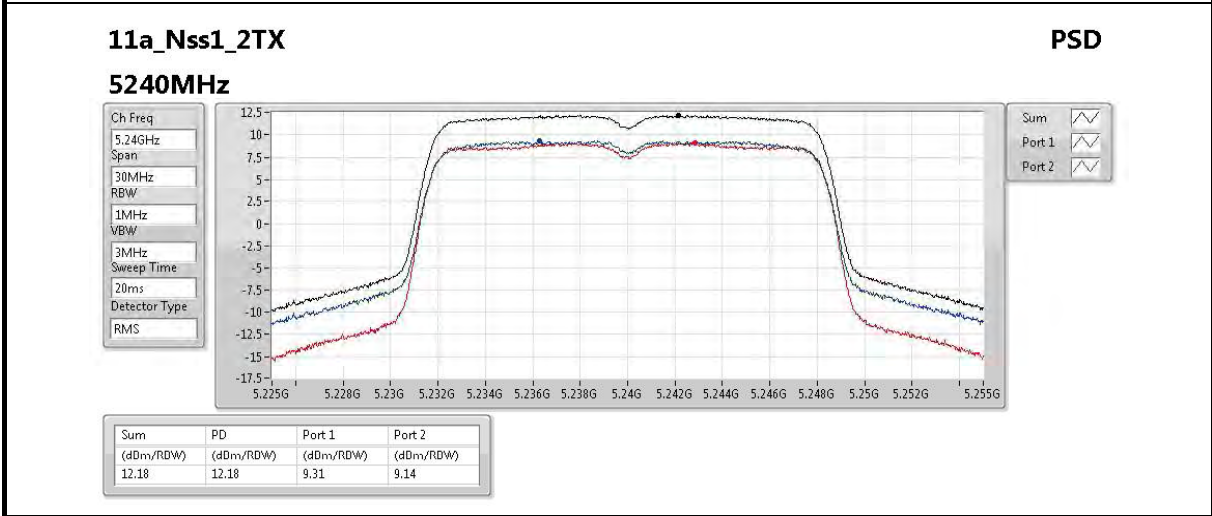
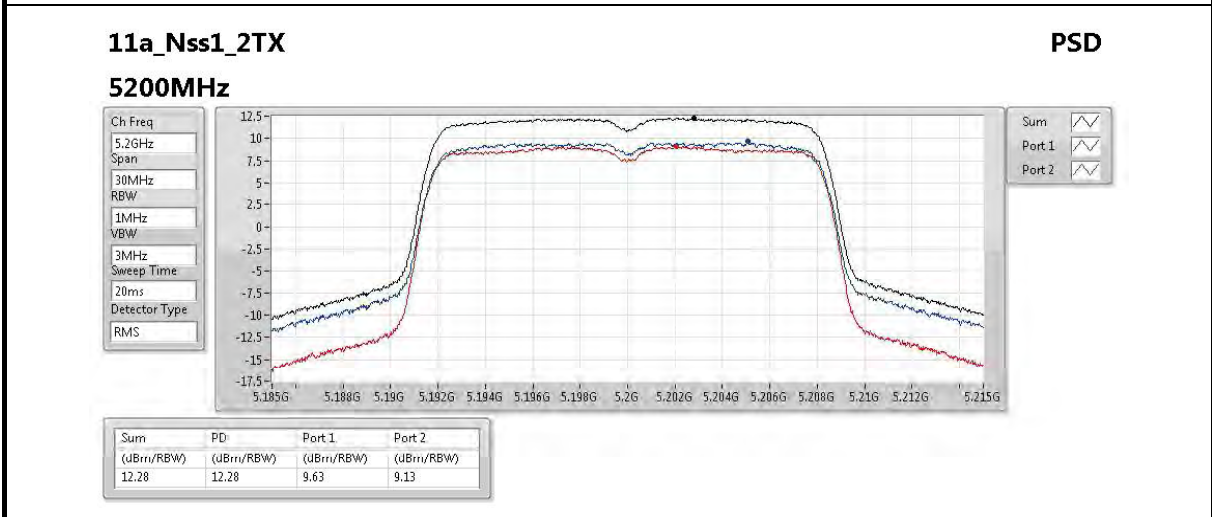
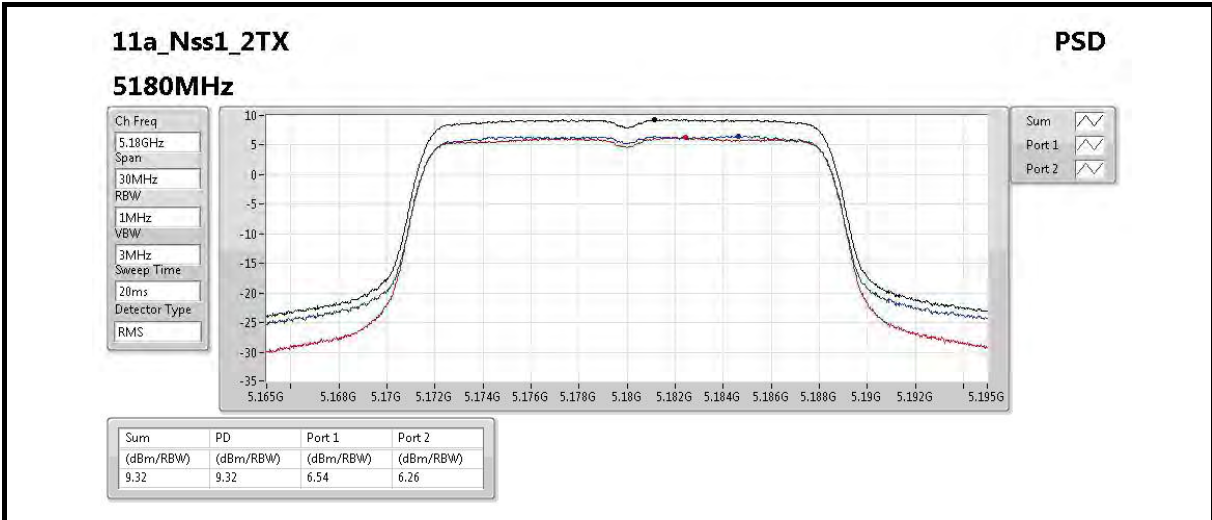
RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

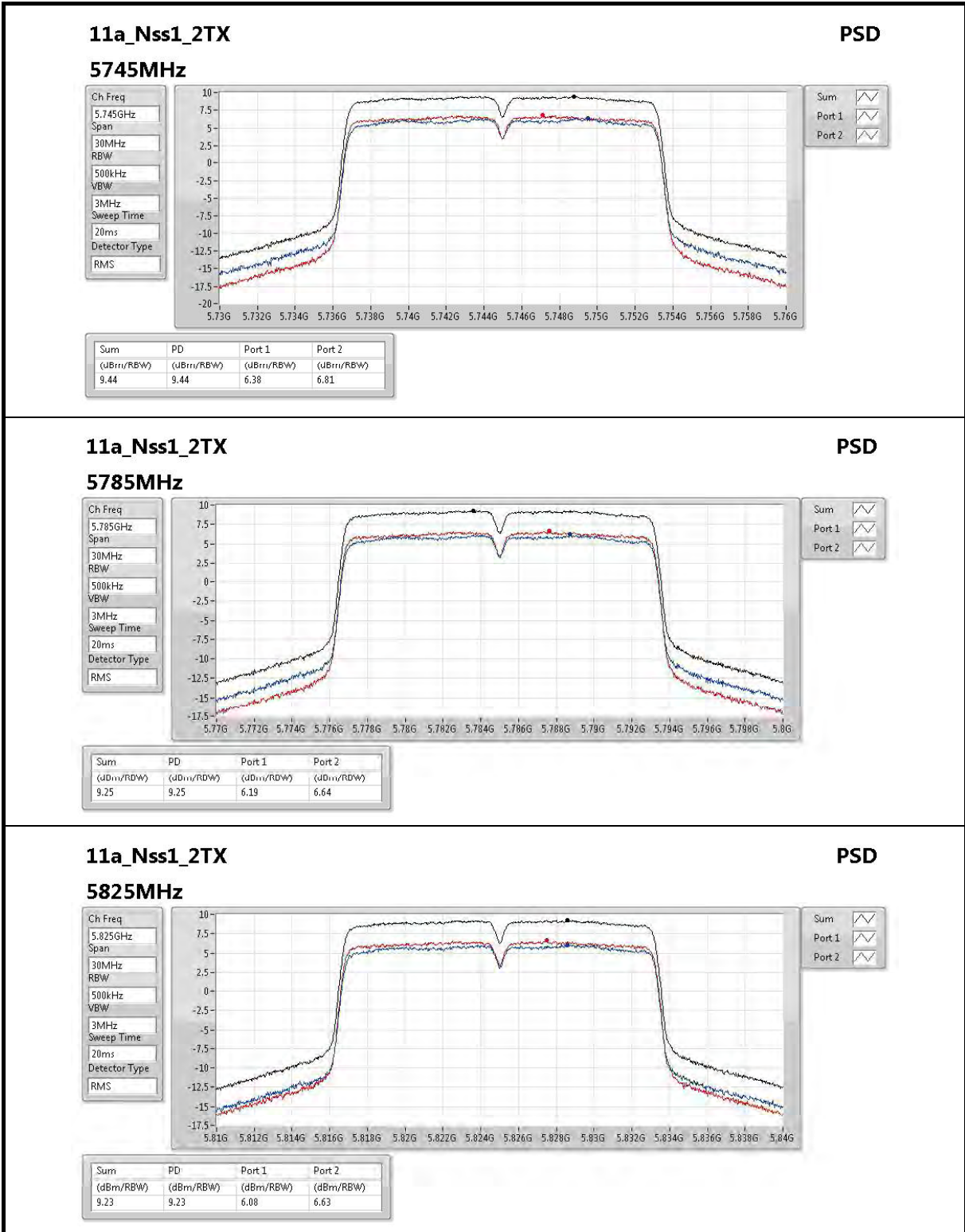


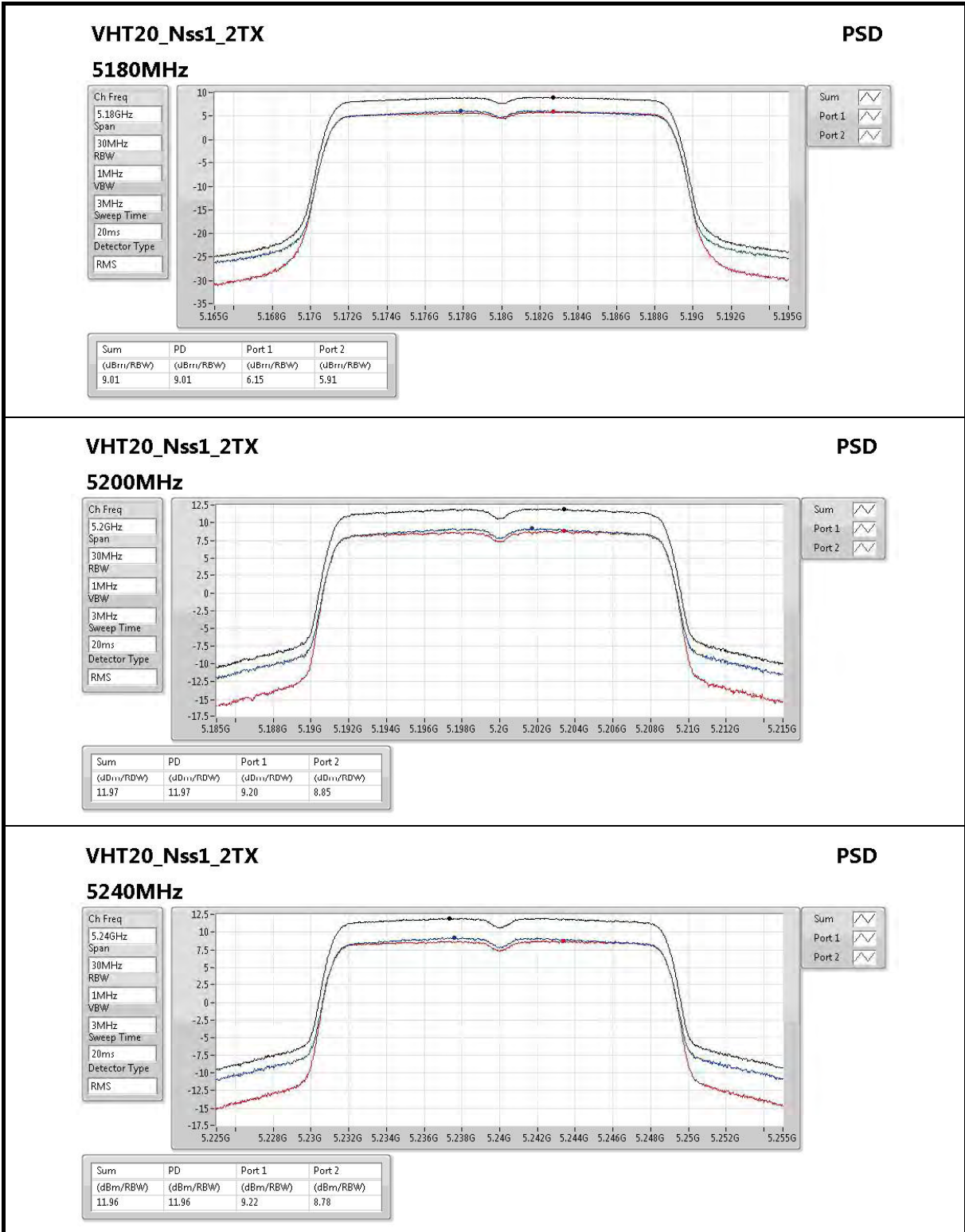
Result

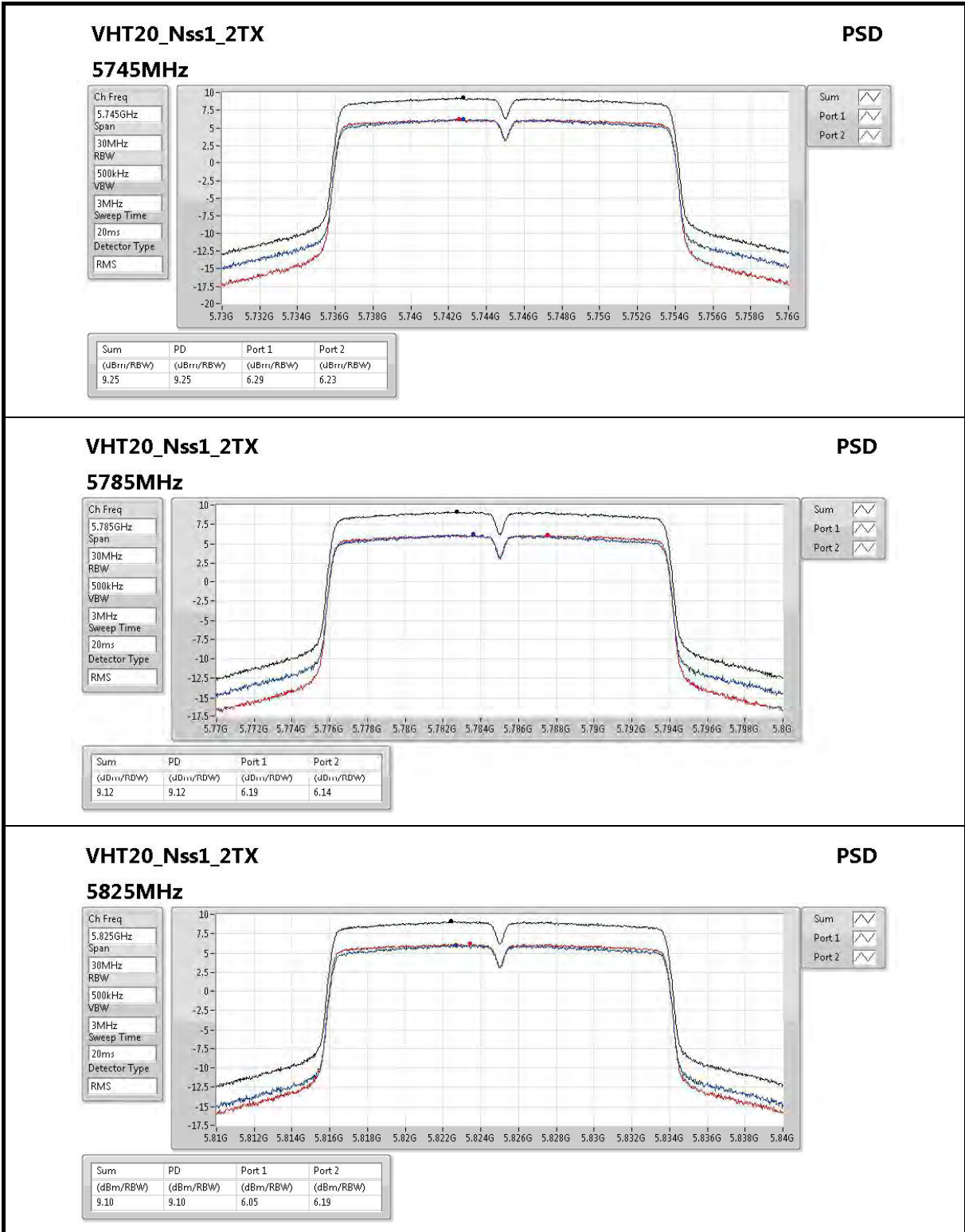
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
11a_Nss1_2TX	-	-	-	-	-	-
5180MHz	Pass	7.27	6.54	6.26	9.32	15.73
5200MHz	Pass	7.27	9.63	9.13	12.28	15.73
5240MHz	Pass	7.27	9.31	9.14	12.18	15.73
5745MHz	Pass	7.27	6.38	6.81	9.44	28.73
5785MHz	Pass	7.27	6.19	6.64	9.25	28.73
5825MHz	Pass	7.27	6.08	6.63	9.23	28.73
VHT20_Nss1_2TX	-	-	-	-	-	-
5180MHz	Pass	7.27	6.15	5.91	9.01	15.73
5200MHz	Pass	7.27	9.20	8.85	11.97	15.73
5240MHz	Pass	7.27	9.22	8.78	11.96	15.73
5745MHz	Pass	7.27	6.29	6.23	9.25	28.73
5785MHz	Pass	7.27	6.19	6.14	9.12	28.73
5825MHz	Pass	7.27	6.05	6.19	9.10	28.73
VHT40_Nss1_2TX	-	-	-	-	-	-
5190MHz	Pass	7.27	2.58	2.15	5.30	15.73
5230MHz	Pass	7.27	7.21	6.41	9.72	15.73
5755MHz	Pass	7.27	4.08	3.74	6.85	28.73
5795MHz	Pass	7.27	3.86	3.59	6.71	28.73
VHT80_Nss1_2TX	-	-	-	-	-	-
5210MHz	Pass	7.27	-1.20	-1.81	1.42	15.73
5775MHz	Pass	7.27	-0.60	-0.57	2.27	28.73

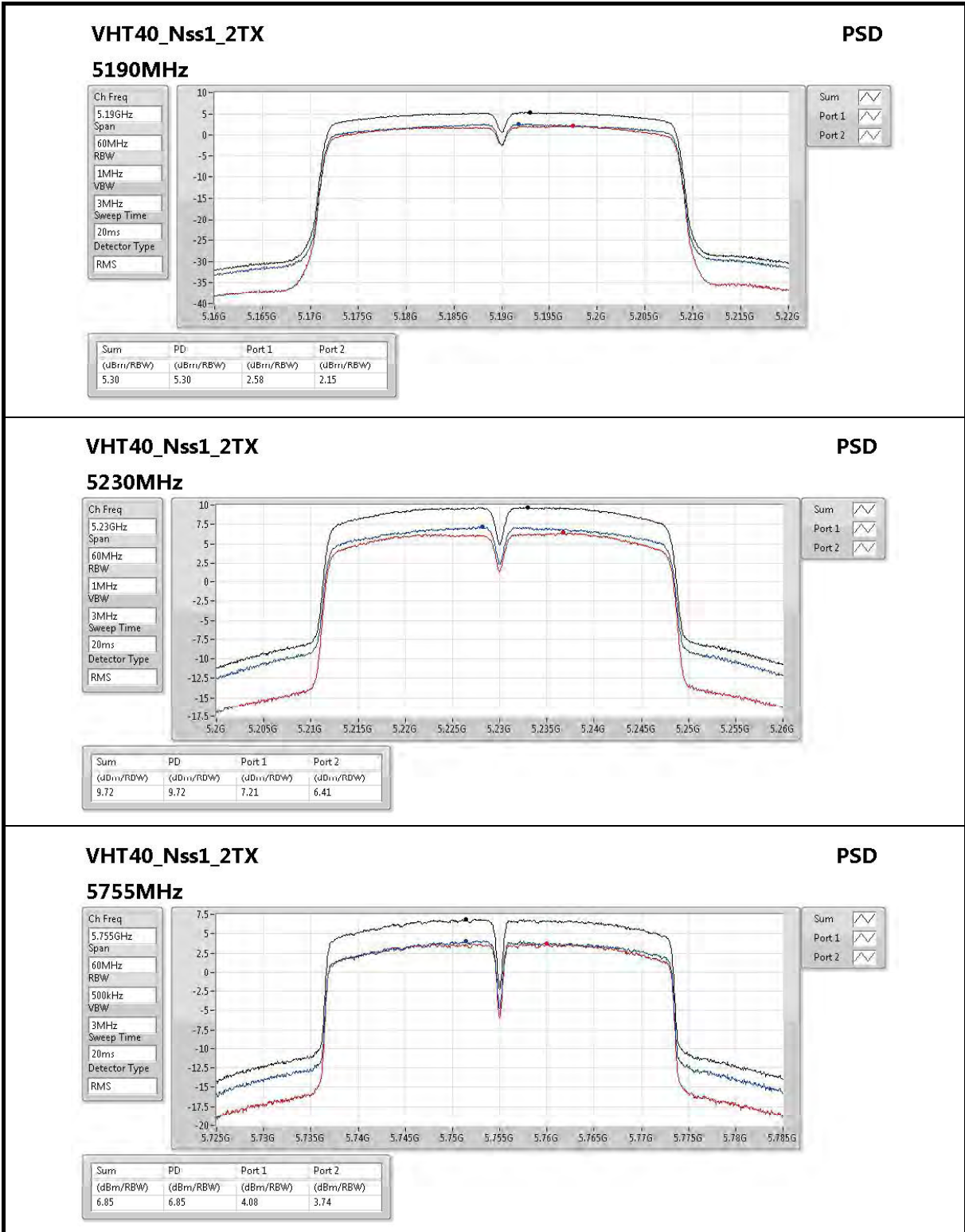
DG = Directional Gain; **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

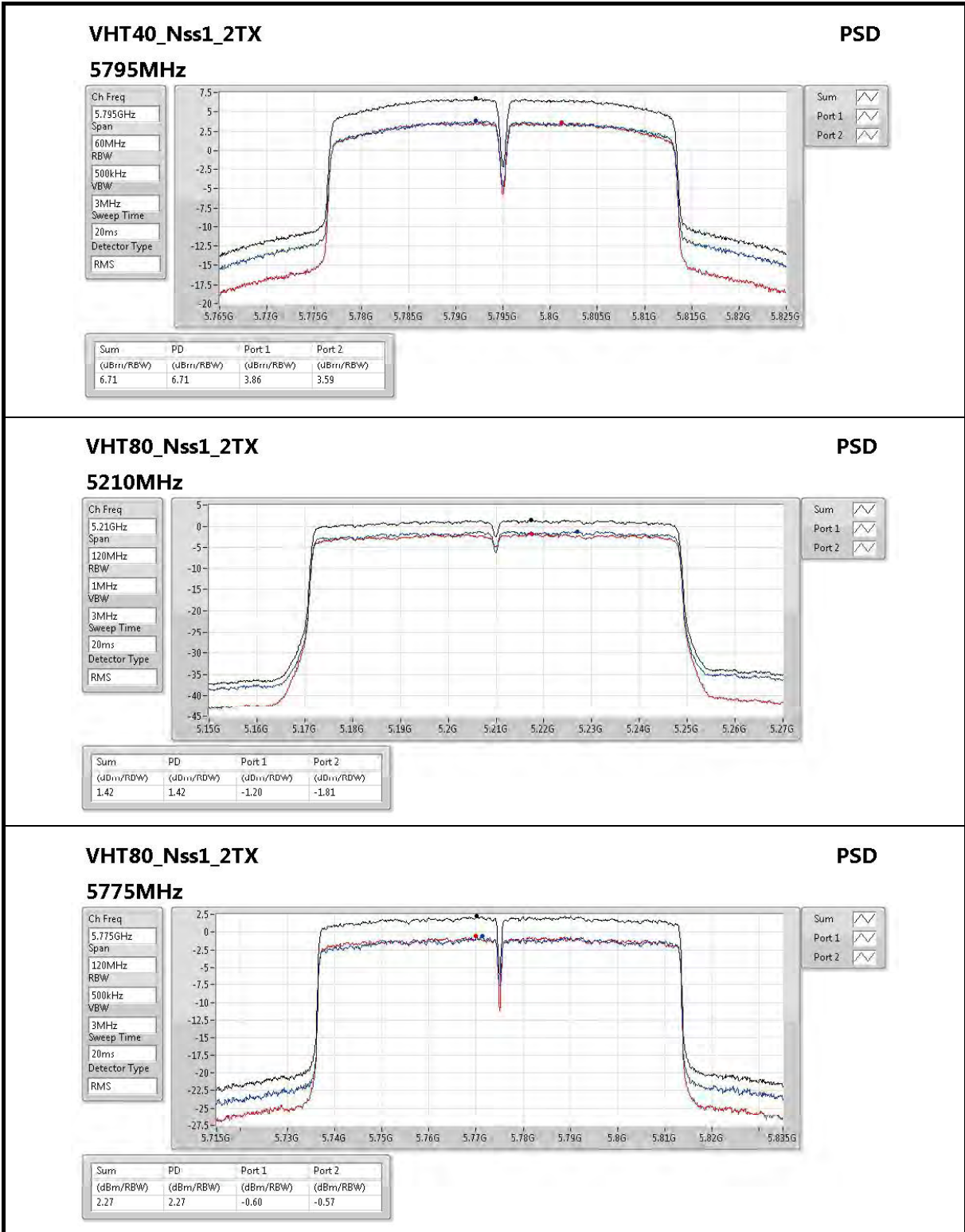












<For Beamforming Mode>



Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
VHT20-BF_Nss1_2TX	-	-
5.15-5.25GHz	8.69	15.96
5.725-5.85GHz	7.93	15.20
VHT40-BF_Nss1_2TX	-	-
5.15-5.25GHz	4.76	12.03
5.725-5.85GHz	4.43	11.70
VHT80-BF_Nss1_2TX	-	-
5.15-5.25GHz	-1.47	5.80
5.725-5.85GHz	1.80	9.07

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

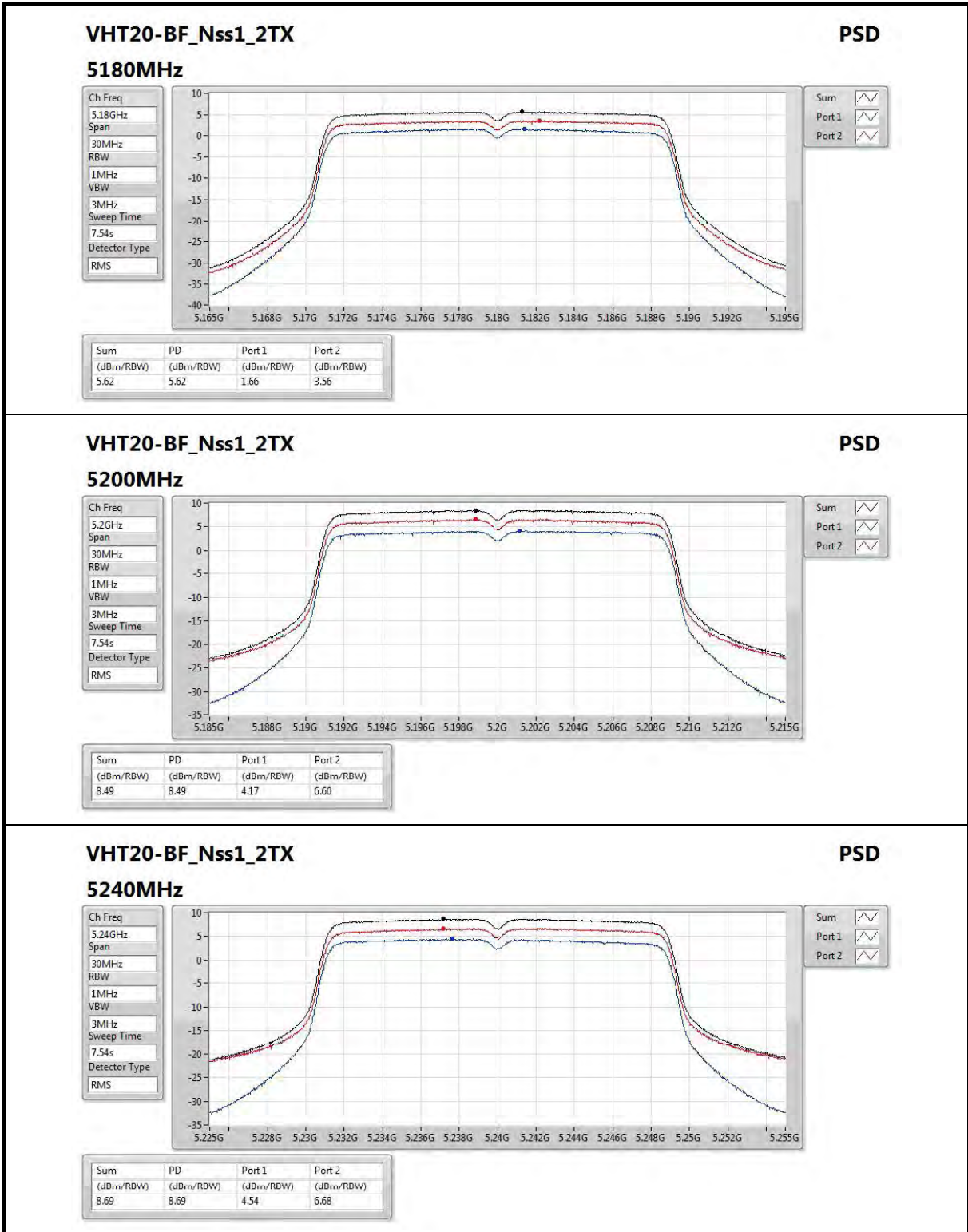


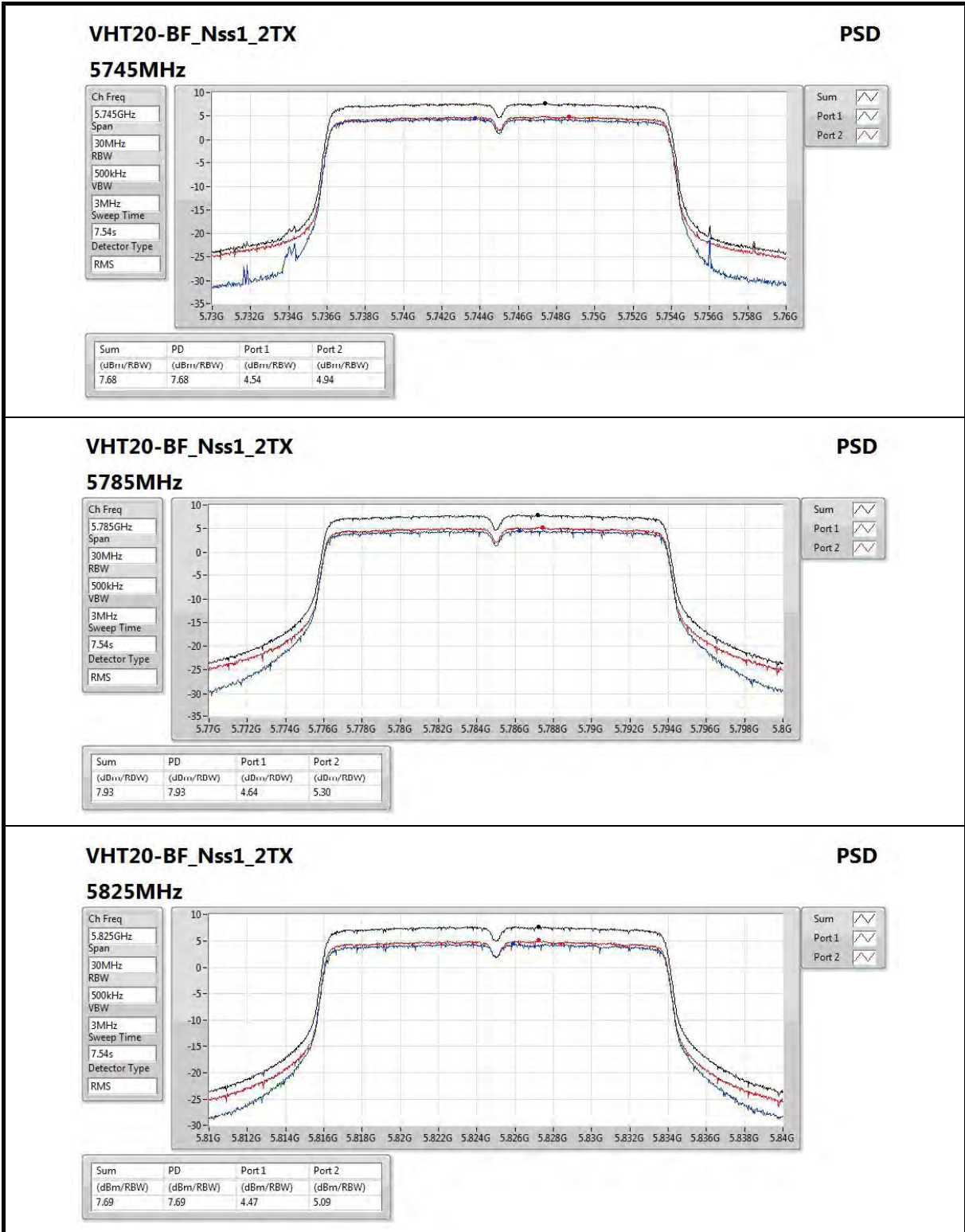
Result

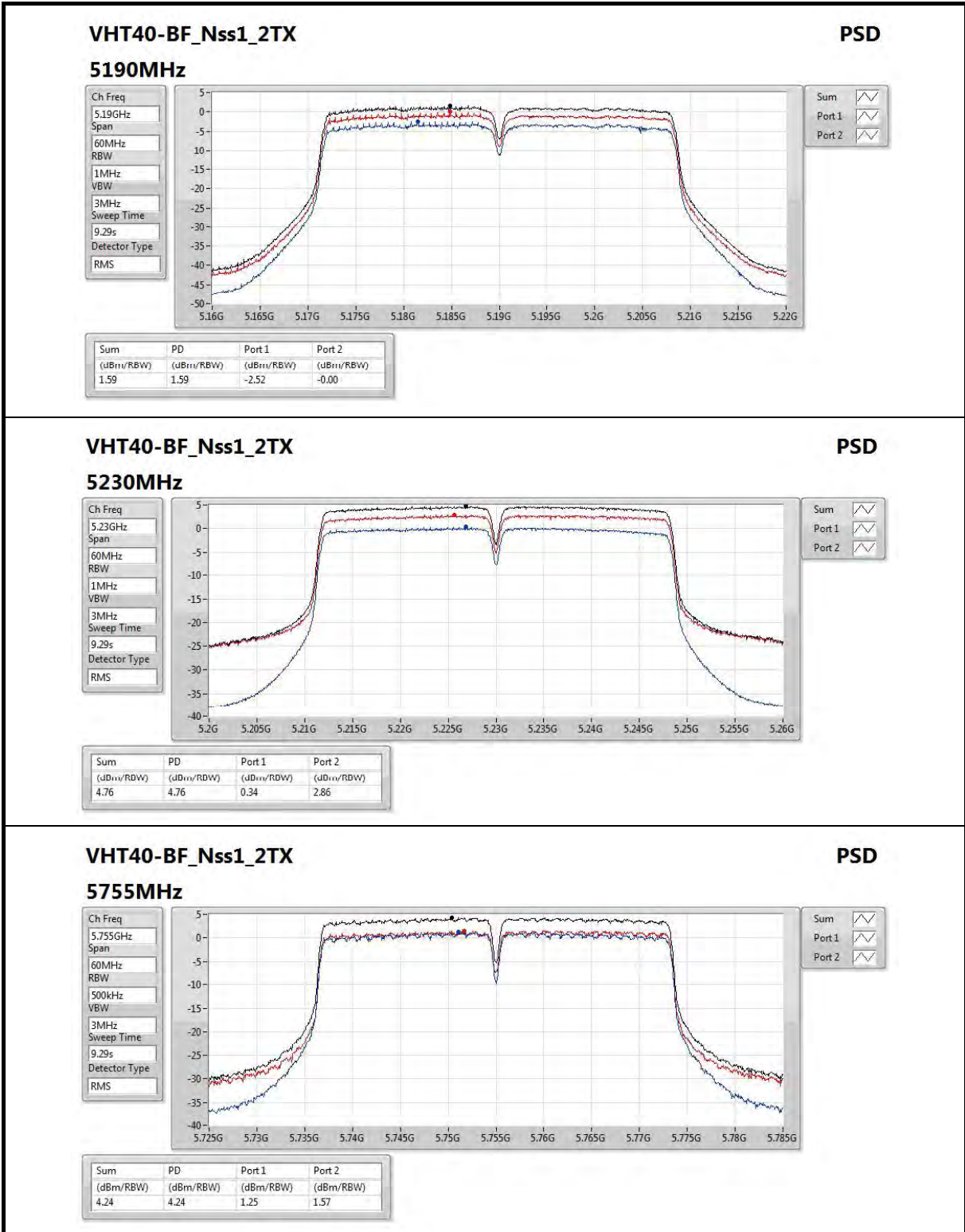
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
VHT20-BF_Nss1_2TX	-	-	-	-	-	-
5180MHz	Pass	7.27	1.66	3.56	5.62	15.73
5200MHz	Pass	7.27	4.17	6.60	8.49	15.73
5240MHz	Pass	7.27	4.54	6.68	8.69	15.73
5745MHz	Pass	7.27	4.54	4.94	7.68	28.73
5785MHz	Pass	7.27	4.64	5.30	7.93	28.73
5825MHz	Pass	7.27	4.47	5.09	7.69	28.73
VHT40-BF_Nss1_2TX	-	-	-	-	-	-
5190MHz	Pass	7.27	-2.52	-0.00	1.59	15.73
5230MHz	Pass	7.27	0.34	2.86	4.76	15.73
5755MHz	Pass	7.27	1.25	1.57	4.24	28.73
5795MHz	Pass	7.27	1.22	1.80	4.43	28.73
VHT80-BF_Nss1_2TX	-	-	-	-	-	-
5210MHz	Pass	7.27	-5.72	-3.30	-1.47	15.73
5775MHz	Pass	7.27	-1.52	-0.19	1.80	28.73

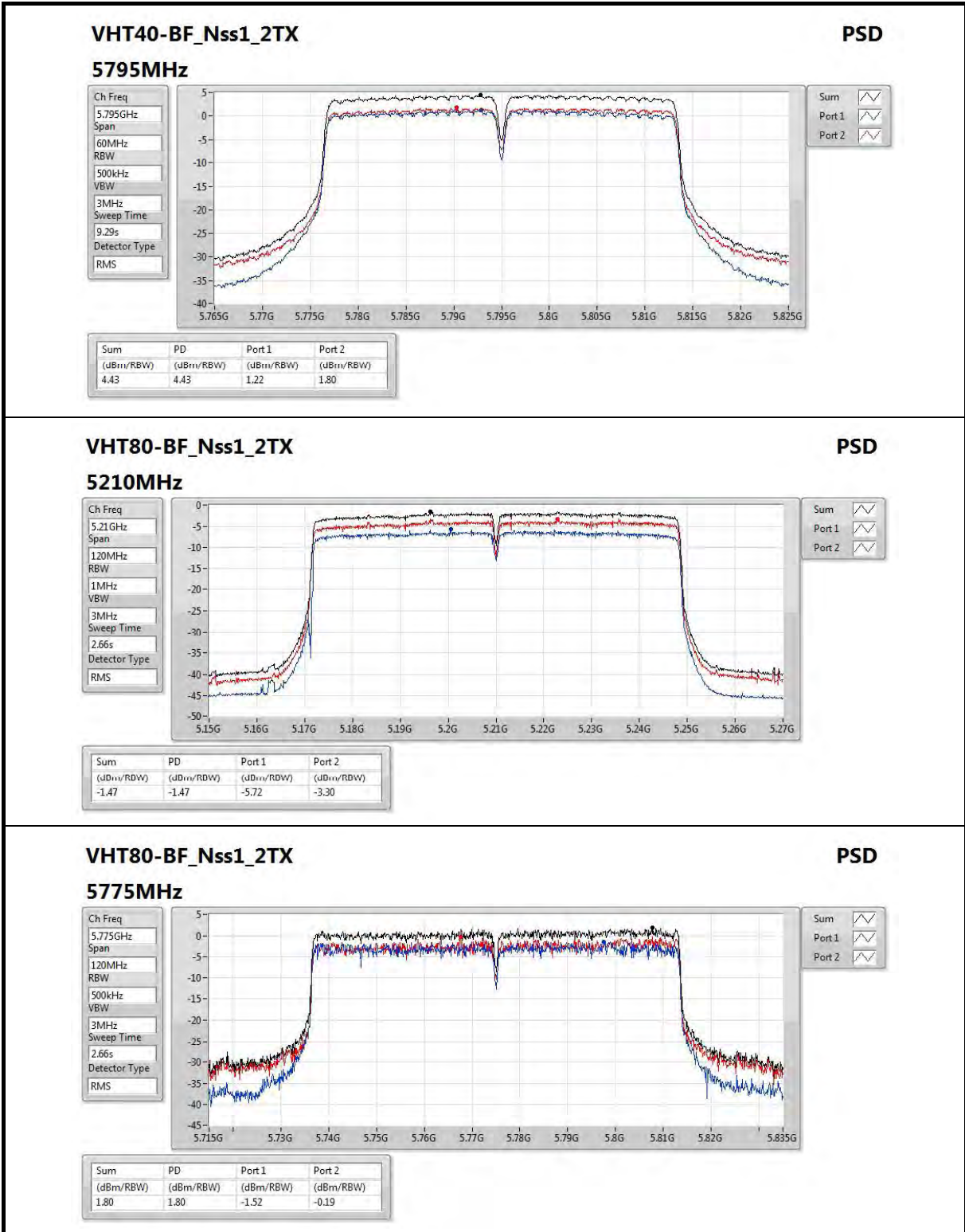
DG = Directional Gain; RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

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











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.



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	all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).	

3.5.2 Measuring Instruments

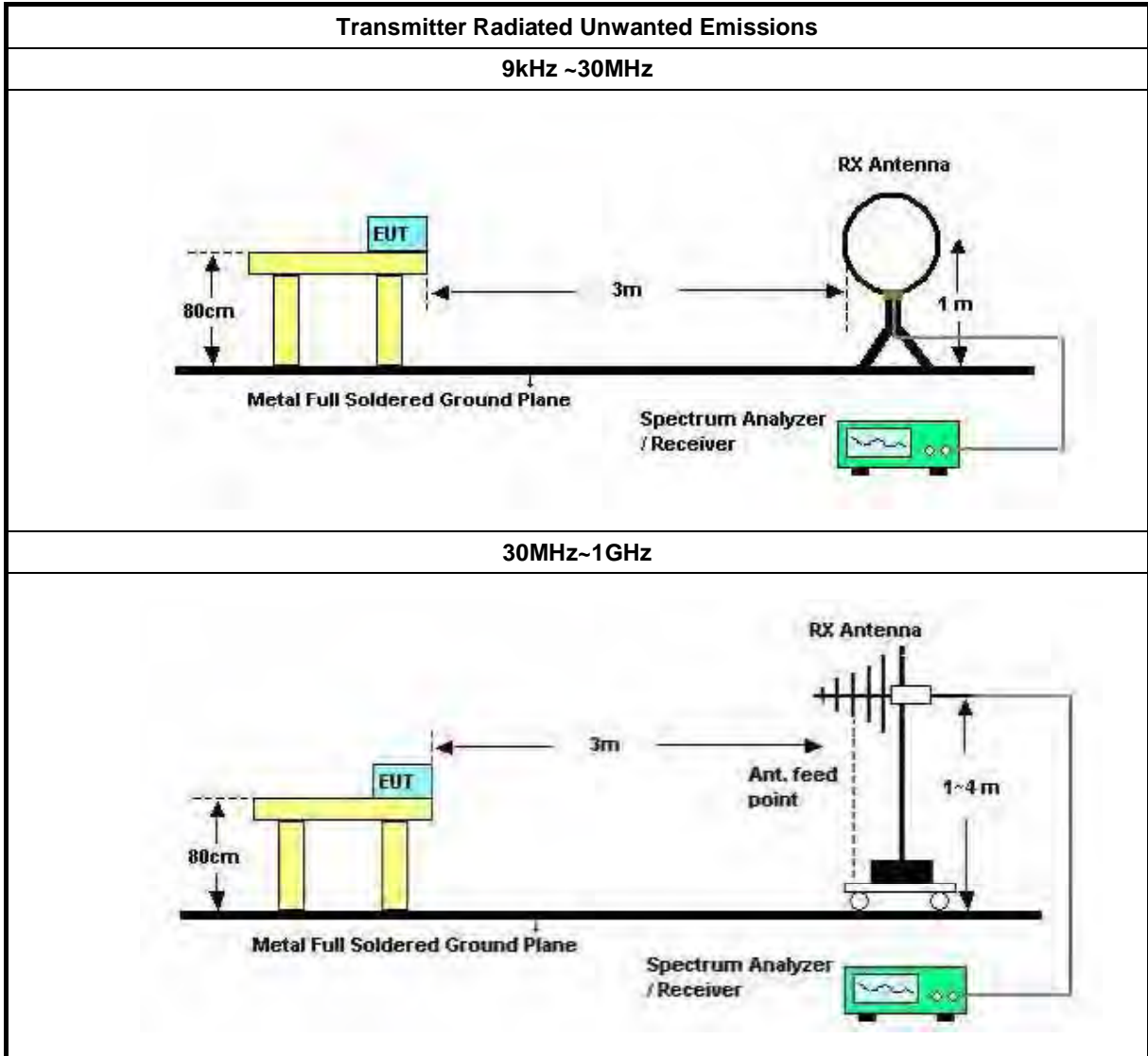
Refer a test equipment and calibration data table in this test report.

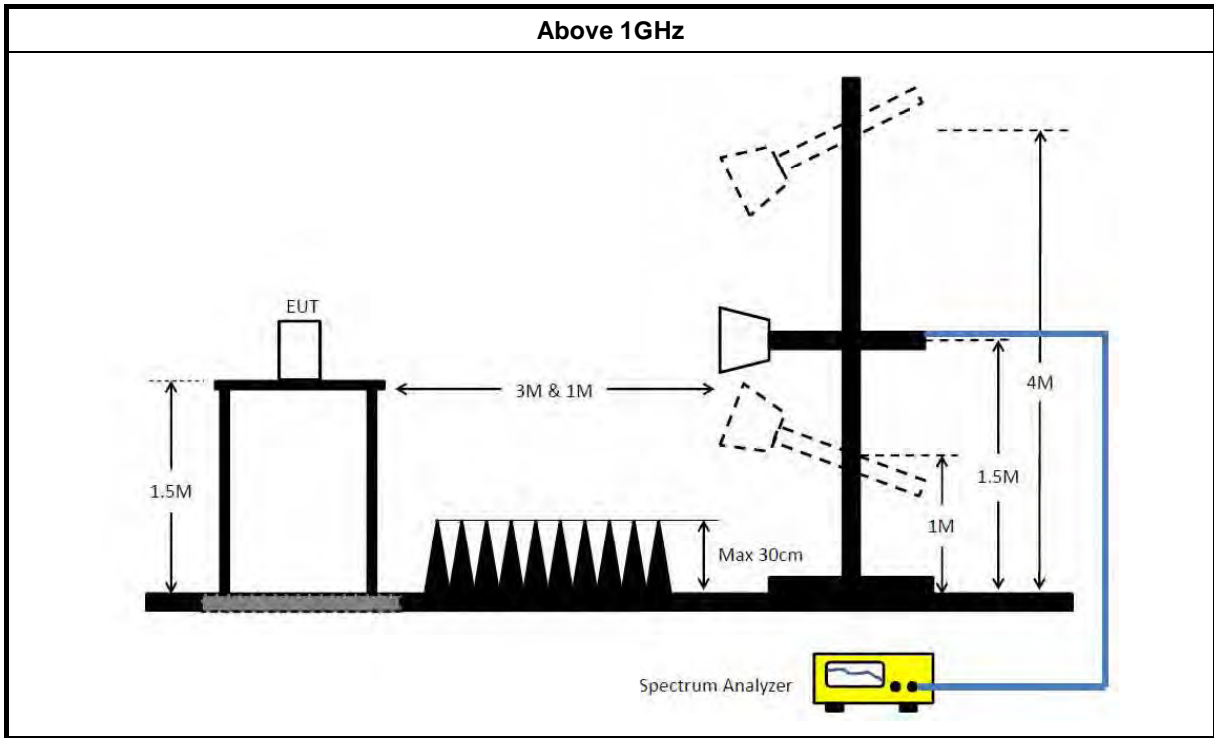


3.5.3 Test Procedures

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 FCC KDB 789033, clause H)2) for unwanted emissions into non-restricted bands. ▪ Refer as FCC KDB 789033, clause H)1) for unwanted emissions into restricted bands. <ul style="list-style-type: none"> <input type="checkbox"/> Refer as FCC KDB 789033, H)6) Method AD (Trace Averaging). <input checked="" type="checkbox"/> Refer as FCC KDB 789033, H)6) Method VB (Reduced VBW). <input type="checkbox"/> Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time. <input type="checkbox"/> Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions. <input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause H)5) measurement procedure peak limit. <input type="checkbox"/> Refer as ANSI C63.10, clause 4.2.3.2.2 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. ▪ Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m. ▪ Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz. 	
<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



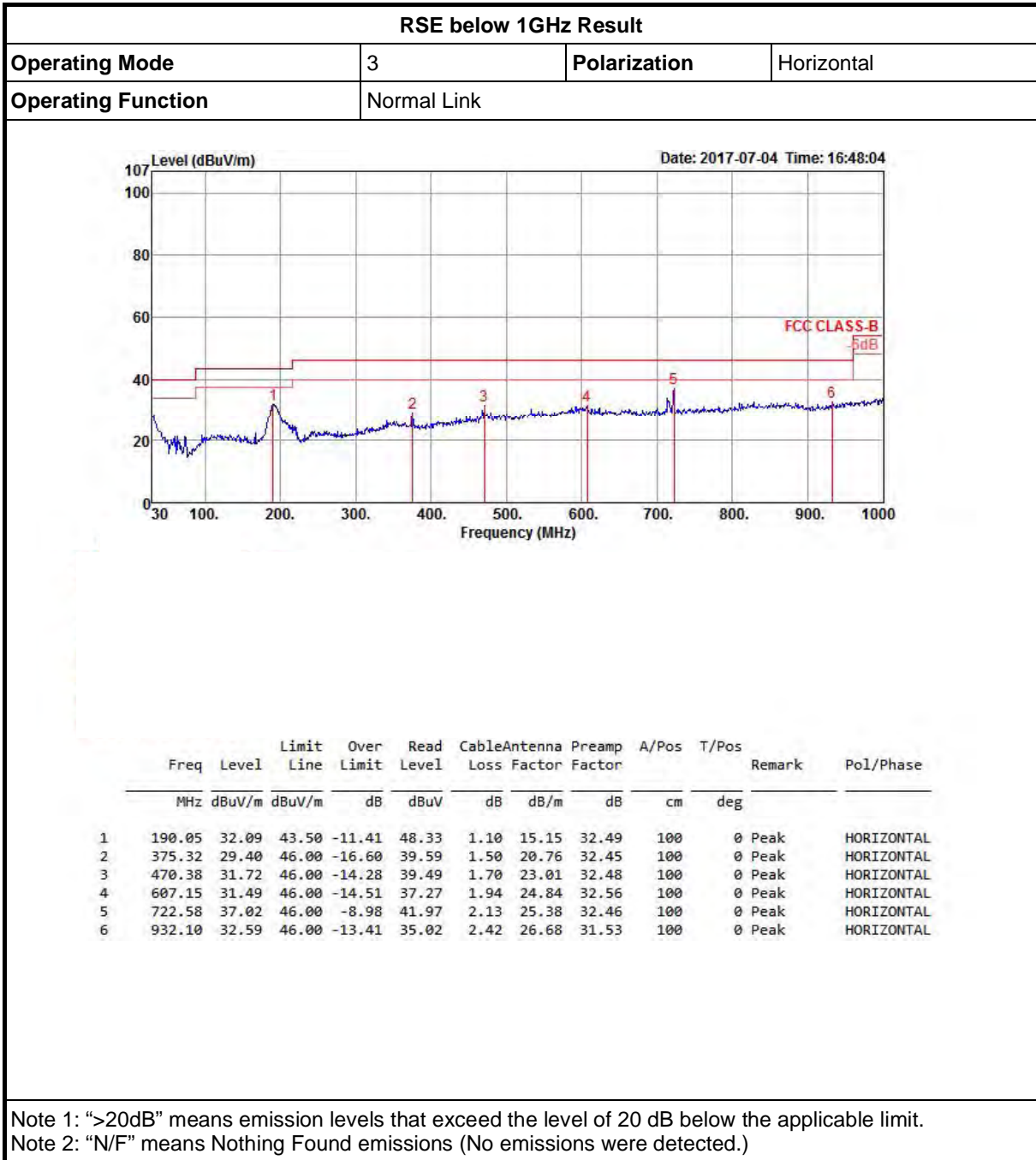


3.5.5 Transmitter Unwanted Emissions (Below 30MHz)

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



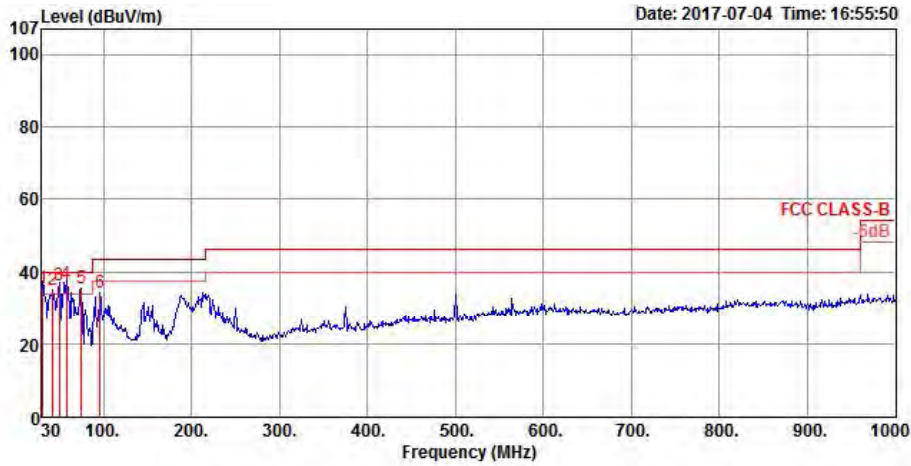
3.5.6 Test Result of Transmitter Unwanted Emissions





RSE below 1GHz Result

Operating Mode	3	Polarization	Vertical
Operating Function	Normal Link		



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	30.97	35.52	40.00	-4.48	43.70	0.53	23.82	32.53	102	188 QP	VERTICAL
2	42.61	35.19	40.00	-4.81	49.94	0.57	17.19	32.51	300	360 Peak	VERTICAL
3	49.40	36.40	40.00	-3.60	54.20	0.61	14.09	32.50	113	156 QP	VERTICAL
4	58.13	36.82	40.00	-3.18	56.20	0.61	12.52	32.51	127	214 QP	VERTICAL
5	74.62	35.59	40.00	-4.41	55.21	0.75	12.16	32.53	300	360 Peak	VERTICAL
6	95.96	34.48	43.50	-9.02	49.96	0.87	16.21	32.56	300	360 Peak	VERTICAL

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)



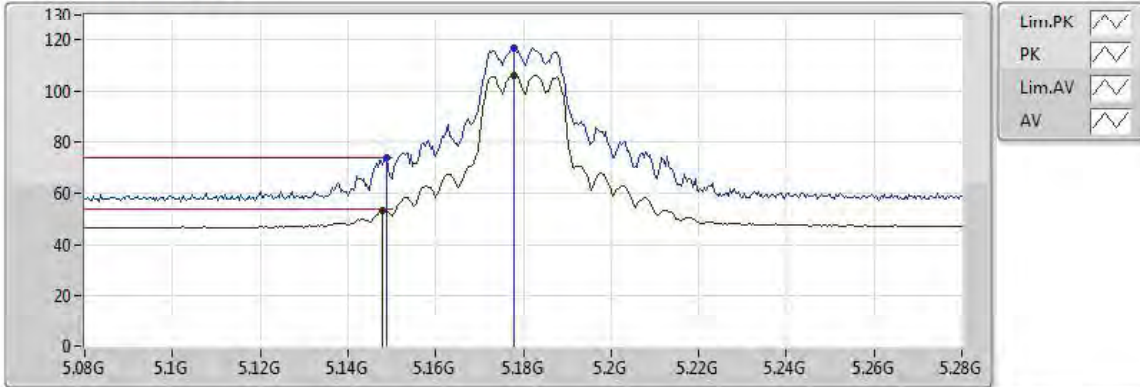
RSE Above 1GHz Result
<For Non-Beamforming Mode>
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Conditio n	Azimuth (°)	Height (m)	Commen ts
VHT20_Nss1_2TX	-	-	-	-	-	-	-	-	-	-	-	-
5.15-5.25GHz	Pass	AV	5.149995G	53.99	54.00	-0.01	5.31	3	Horizontal	331	1.98	-



11a_Nss1_2TX

5180MHz_TX



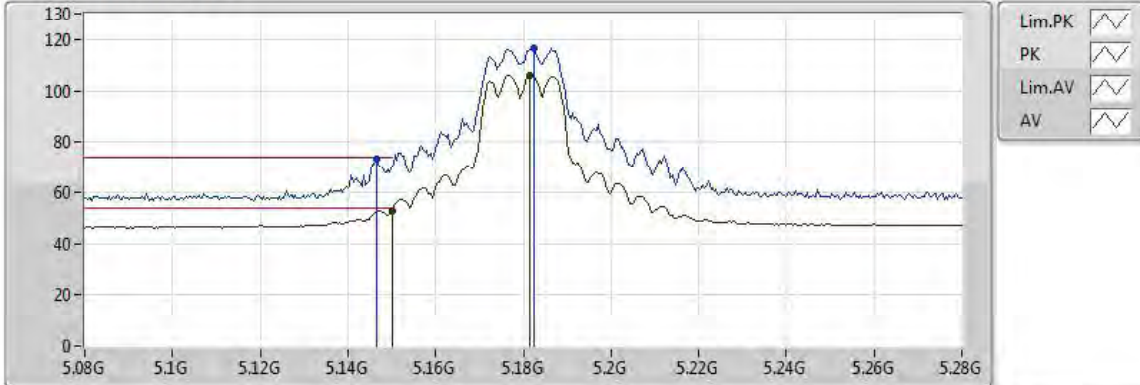
20170621
 EUT Y_2TX
 Setting 18
 01-M-0
 FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.148G	53.30	54.00	-0.70	4.27	3	Vertical	249	1.46
AV	5.178G	106.18	Inf	-Inf	4.33	3	Vertical	249	1.46
PK	5.1488G	73.94	74.00	-0.06	4.27	3	Vertical	249	1.46
PK	5.178G	116.36	Inf	-Inf	4.33	3	Vertical	249	1.46



11a_Nss1_2TX

5180MHz_TX



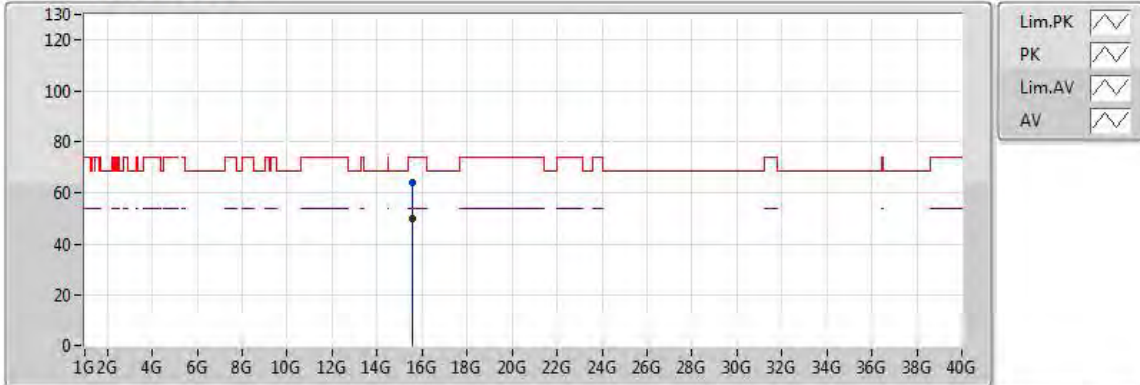
20170621
 EUT Y_2TX
 Setting 18
 01-M-0
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	5.149995G	52.76	54.00	-1.24	4.27	3	Horizontal	208	1.95
AV	5.1816G	105.83	Inf	-Inf	4.34	3	Horizontal	208	1.95
PK	5.1464G	73.14	74.00	-0.86	4.26	3	Horizontal	208	1.95
PK	5.1824G	116.64	Inf	-Inf	4.34	3	Horizontal	208	1.95



11a_Nss1_2TX

5180MHz_TX



Lim.PK
 PK
 Lim.AV
 AV

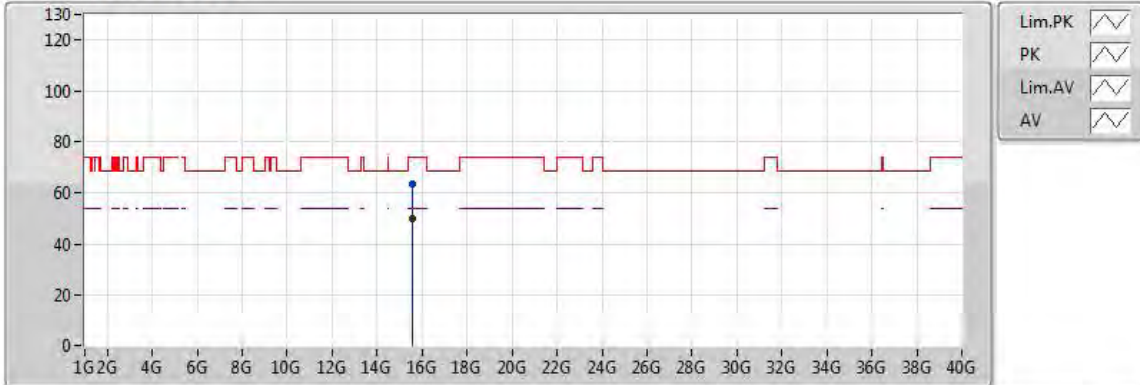
20170621
 EUT Y_2TX
 Setting 18
 01-M-0
 FSP(100056)

Type	Freq (Hz)	Level (dBuv/m)	Limit (dBuv/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	15.53882G	49.83	54.00	-4.17	17.80	3	Vertical	140	1.50
PK	15.53931G	64.10	74.00	-9.90	17.80	3	Vertical	140	1.50



11a_Nss1_2TX

5180MHz_TX



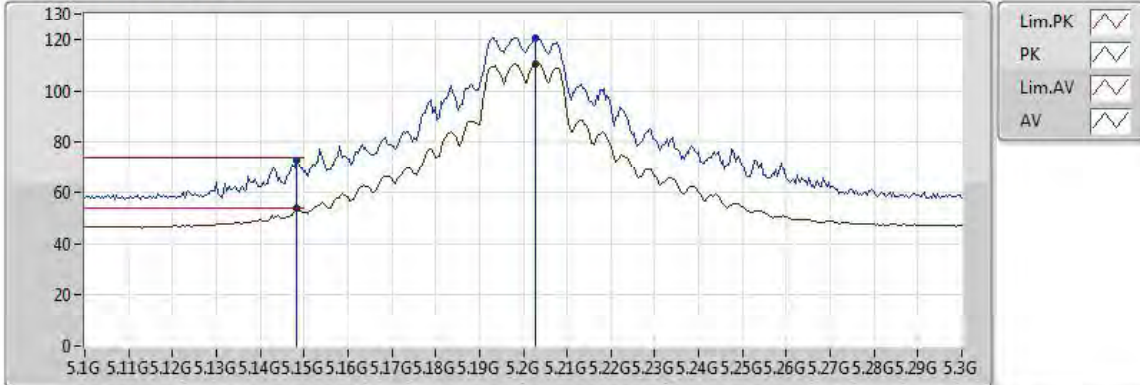
20170621
EUT Y_2TX
Setting 18
01-M-0
FSP(100056)

Type	Freq (Hz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	15.54038G	49.87	54.00	-4.13	17.80	3	Horizontal	228	1.50
PK	15.5385G	63.46	74.00	-10.54	17.80	3	Horizontal	228	1.50



11a_Nss1_2TX

5200MHz_TX



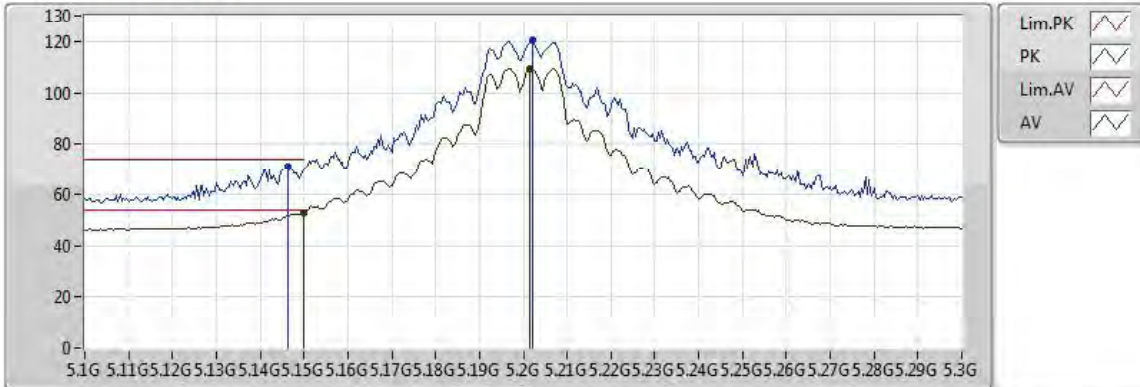
20170621
EUT Y_2TX
Setting 22
01-M-0
FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	5.1484G	53.88	54.00	-0.12	4.27	3	Vertical	241	1.23
AV	5.2028G	110.35	Inf	-Inf	4.39	3	Vertical	241	1.23
PK	5.1484G	72.58	74.00	-1.42	4.27	3	Vertical	241	1.23
PK	5.2028G	120.65	Inf	-Inf	4.39	3	Vertical	241	1.23



11a_Nss1_2TX

5200MHz_TX



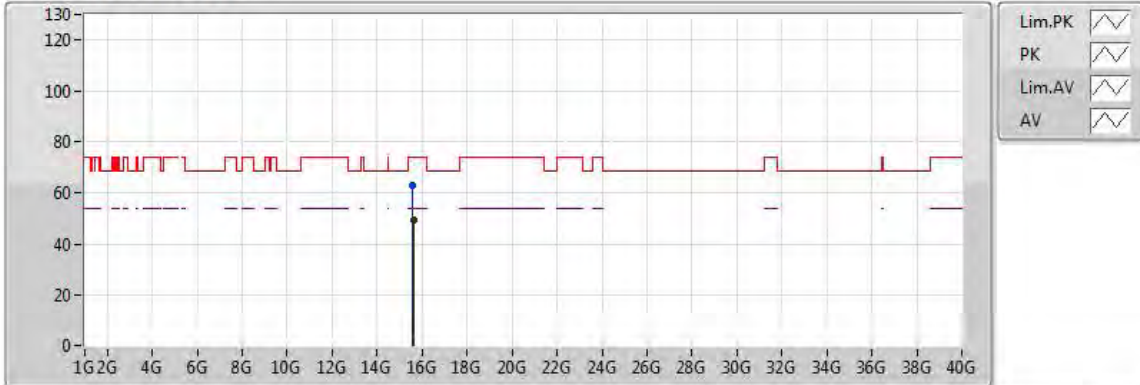
20170621
 EUT Y_2TX
 Setting 22
 01-M-0
 FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.149995G	52.52	54.00	-1.48	4.27	3	Horizontal	206	1.92
AV	5.2016G	109.41	Inf	-Inf	4.38	3	Horizontal	206	1.92
PK	5.1464G	71.02	74.00	-2.98	4.26	3	Horizontal	206	1.92
PK	5.202G	120.29	Inf	-Inf	4.38	3	Horizontal	206	1.92



11a_Nss1_2TX

5200MHz_TX



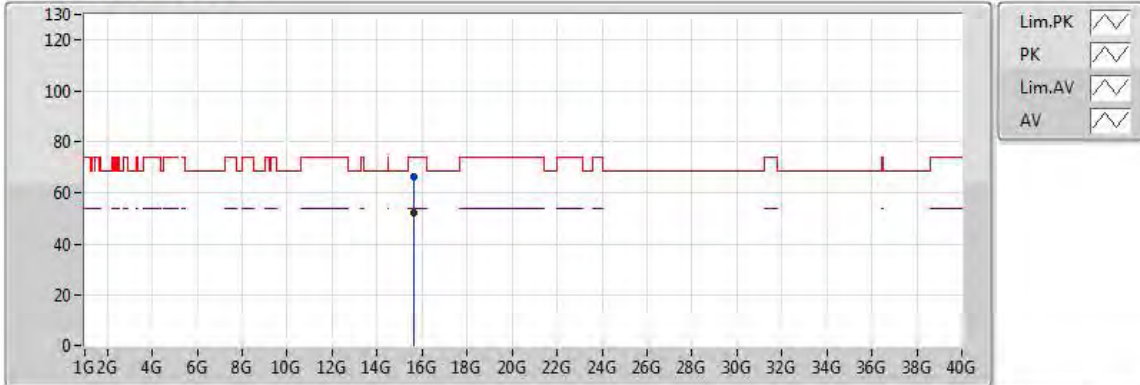
20170622
 EUT Y_2TX
 Setting 22
 04-R-2
 FSP(100056)

Type	Freq (Hz)	Level (dBuv/m)	Limit (dBuv/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	15.60141G	49.49	54.00	-4.51	17.85	3	Vertical	200	1.50
PK	15.59958G	62.96	74.00	-11.04	17.85	3	Vertical	200	1.50



11a_Nss1_2TX

5200MHz_TX



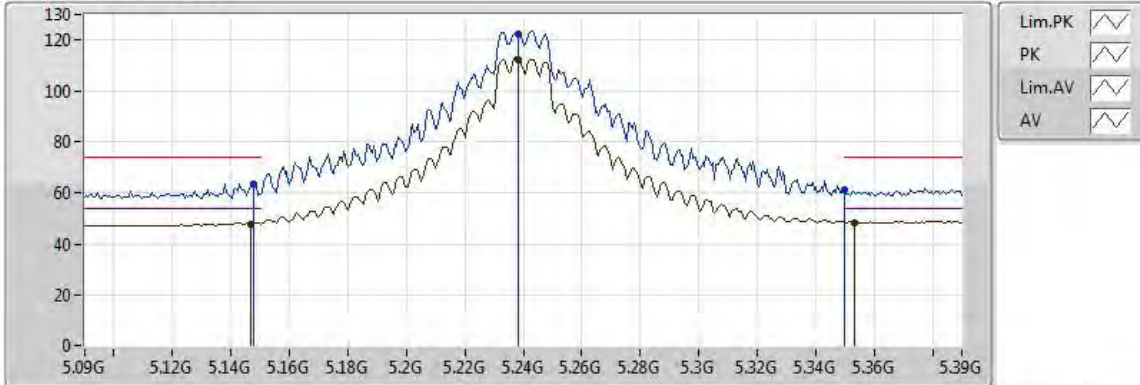
20170622
EUT Y_2TX
Setting 22
04-R-2
FSP(100056)

Type	Freq (Hz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	15.6032G	52.24	54.00	-1.76	17.85	3	Horizontal	25	2.14
PK	15.6024G	66.38	74.00	-7.62	17.85	3	Horizontal	25	2.14



11a_Nss1_2TX

5240MHz_TX



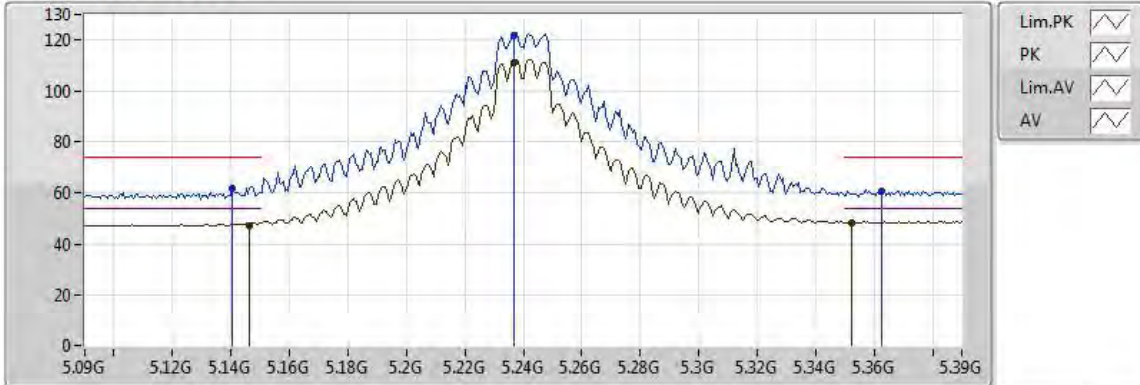
20170621
EUT_Y_2TX
Setting 24
01-M-0
FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	5.147G	47.57	54.00	-6.43	4.26	3	Vertical	233	1.39
AV	5.2382G	112.14	Inf	-Inf	4.46	3	Vertical	233	1.39
AV	5.3534G	47.98	54.00	-6.02	4.69	3	Vertical	233	1.39
PK	5.1476G	63.08	74.00	-10.92	4.26	3	Vertical	233	1.39
PK	5.2382G	122.27	Inf	-Inf	4.46	3	Vertical	233	1.39
PK	5.350005G	60.91	74.00	-13.09	4.68	3	Vertical	233	1.39



11a_Nss1_2TX

5240MHz_TX



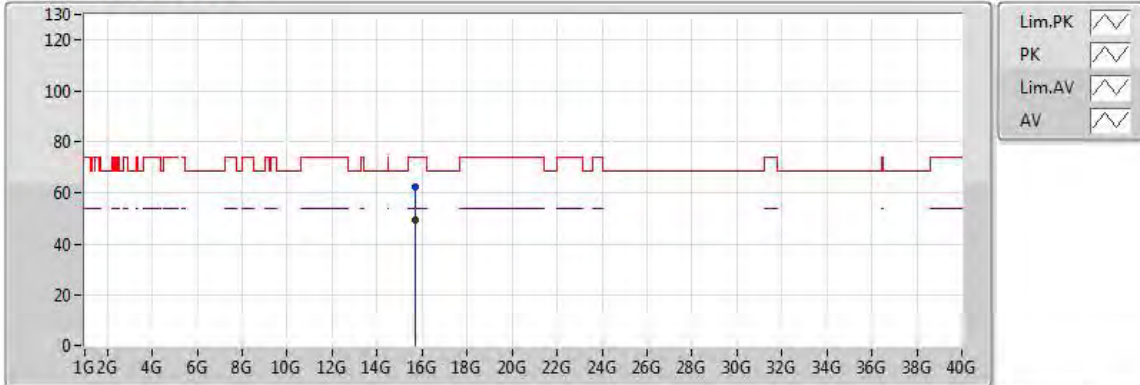
20170621
EUT Y_2TX
Setting 24
01-M-0
FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	5.1464G	47.24	54.00	-6.76	4.26	3	Horizontal	207	1.97
AV	5.237G	111.12	Inf	-Inf	4.46	3	Horizontal	207	1.97
AV	5.3522G	47.97	54.00	-6.03	4.68	3	Horizontal	207	1.97
PK	5.1404G	61.60	74.00	-12.40	4.25	3	Horizontal	207	1.97
PK	5.237G	121.78	Inf	-Inf	4.46	3	Horizontal	207	1.97
PK	5.3624G	60.41	74.00	-13.59	4.70	3	Horizontal	207	1.97



11a_Nss1_2TX

5240MHz_TX



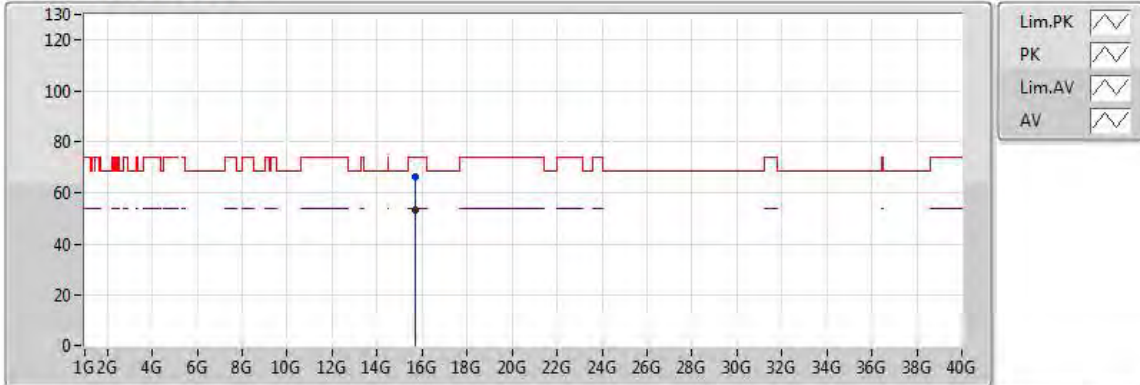
20170622
EUT Y_2TX
Setting 24
04-R-2
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height					
	(Hz)	(dBuvv/m)	(dBuvv/m)	(dB)	(dB)	(m)		(°)	(m)					
AV	15.71868G	49.13	54.00	-4.87	17.94	3	Vertical	173	1.50					
PK	15.71912G	62.28	74.00	-11.72	17.94	3	Vertical	173	1.50	-	44.33	39.43	13.04	34.53



11a_Nss1_2TX

5240MHz_TX



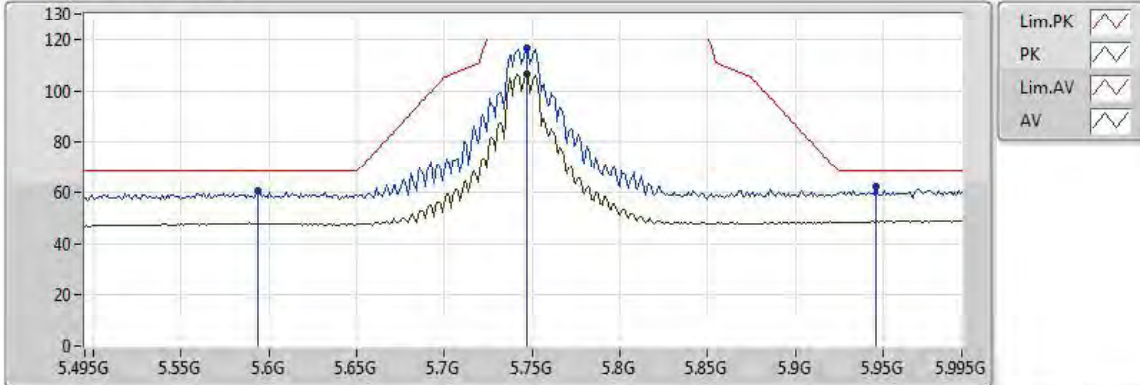
20170622
EUT Y_2TX
Setting 24
04-R-2
FSP(100056)

Type	Freq (Hz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	15.724G	53.20	54.00	-0.80	17.95	3	Horizontal	318	2.49
PK	15.7138G	65.93	74.00	-8.07	17.94	3	Horizontal	318	2.49



11a_Nss1_2TX

5745MHz_TX



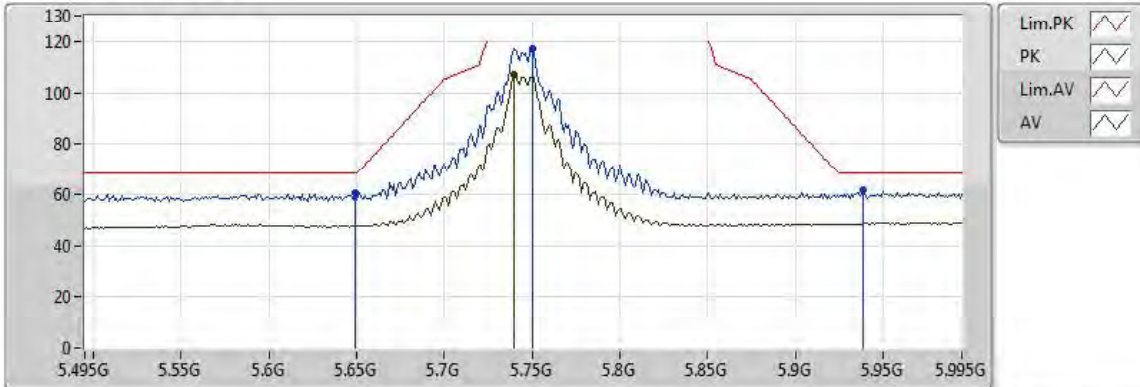
20170621
EUT Y_2TX
Setting 24
04-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.747G	106.30	Inf	-Inf	7.07	3	Vertical	51	2.00
PK	5.594G	60.33	68.20	-7.87	6.74	3	Vertical	51	2.00
PK	5.747G	116.35	Inf	-Inf	7.07	3	Vertical	51	2.00
PK	5.946G	62.36	68.20	-5.84	8.13	3	Vertical	51	2.00



11a_Nss1_2TX

5745MHz_TX



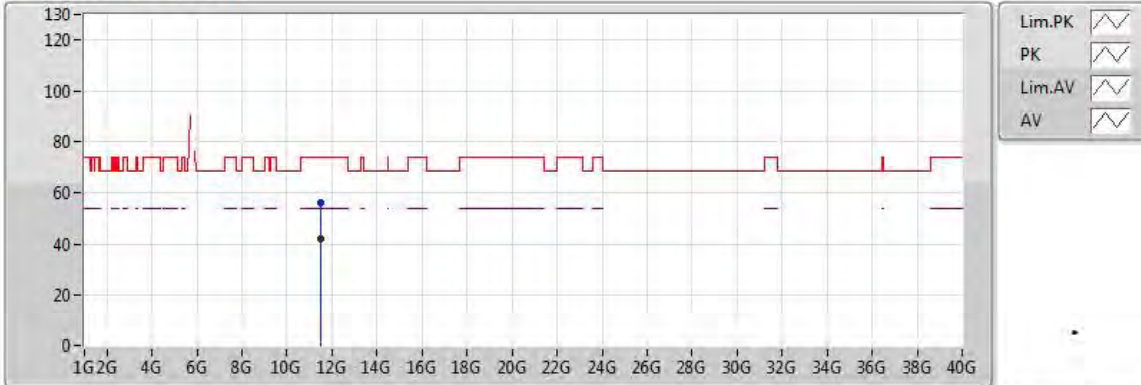
20170621
EUT Y_2TX
Setting 24
01-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.74G	106.92	Inf	-Inf	7.05	3	Horizontal	3	1.98
PK	5.649G	60.53	68.20	-7.67	6.87	3	Horizontal	3	1.98
PK	5.75G	117.36	Inf	-Inf	7.08	3	Horizontal	3	1.98
PK	5.939G	61.41	68.20	-6.79	8.08	3	Horizontal	3	1.98



11a_Nss1_2TX

5745MHz_TX



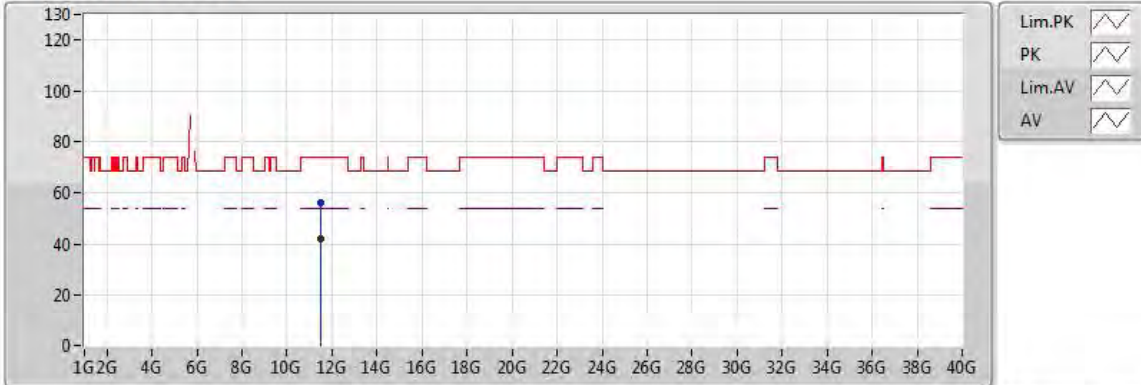
20170621
 EUT Y_2TX
 Setting 24
 01-M-0
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	11.4919G	42.10	54.00	-11.90	16.12	3	Vertical	83	1.50
PK	11.49047G	56.14	74.00	-17.86	16.12	3	Vertical	83	1.50



11a_Nss1_2TX

5745MHz_TX



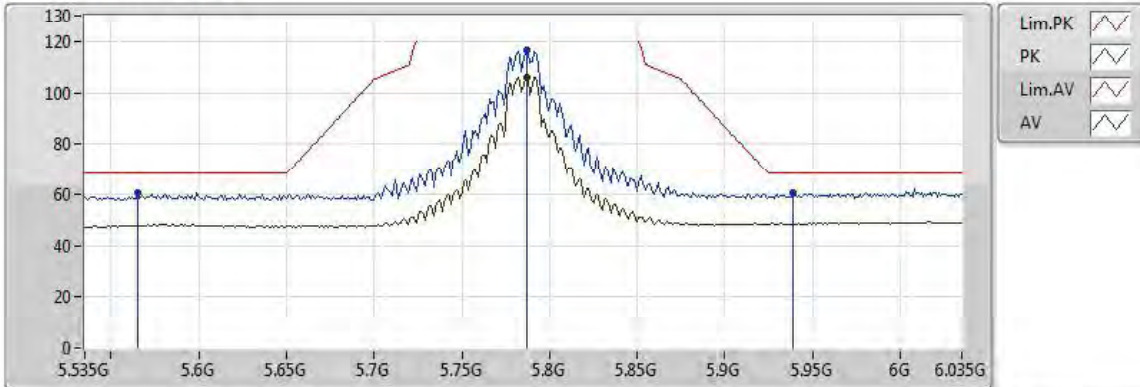
20170621
 EUT Y_2TX
 Setting 24
 01-M-0
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	11.48844G	42.24	54.00	-11.76	16.12	3	Horizontal	114	1.50
PK	11.48991G	55.95	74.00	-18.05	16.12	3	Horizontal	114	1.50



11a_Nss1_2TX

5785MHz_TX



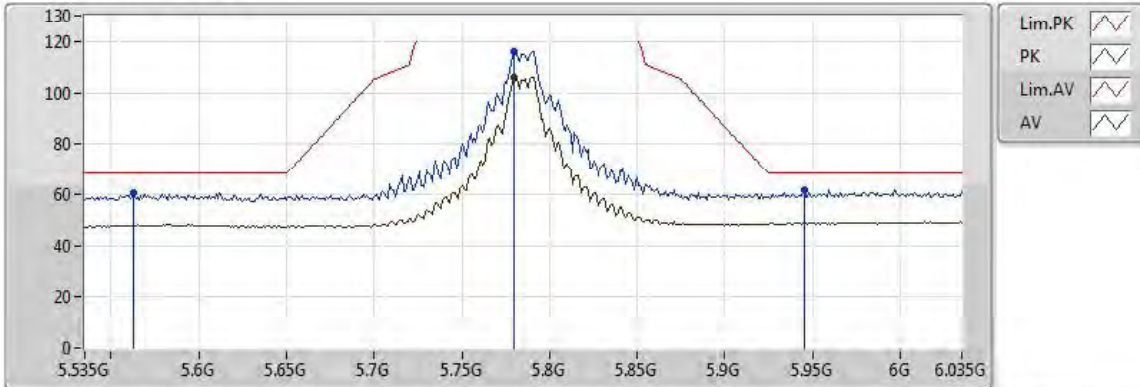
20170621
 EUT Y_2TX
 Setting 24
 04-M-0
 FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.787G	105.95	Inf	-Inf	7.15	3	Vertical	51	2.00
PK	5.565G	60.41	68.20	-7.79	6.56	3	Vertical	51	2.00
PK	5.787G	116.35	Inf	-Inf	7.15	3	Vertical	51	2.00
PK	5.939G	60.50	68.20	-7.70	8.08	3	Vertical	51	2.00



11a_Nss1_2TX

5785MHz_TX



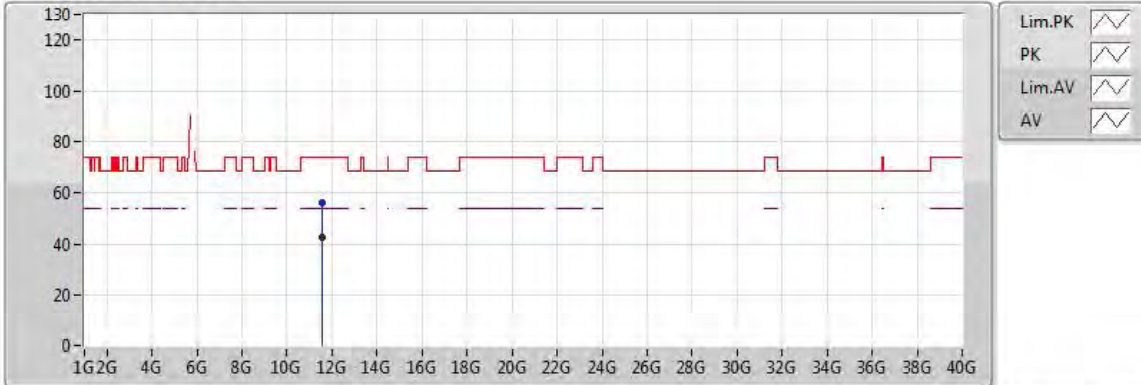
20170621
 EUT Y_2TX
 Setting 24
 01-M-0
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	5.78G	105.94	Inf	-Inf	7.14	3	Horizontal	4	1.99
PK	5.563G	60.35	68.20	-7.85	6.55	3	Horizontal	4	1.99
PK	5.78G	116.05	Inf	-Inf	7.14	3	Horizontal	4	1.99
PK	5.945G	61.63	68.20	-6.57	8.12	3	Horizontal	4	1.99



11a_Nss1_2TX

5785MHz_TX



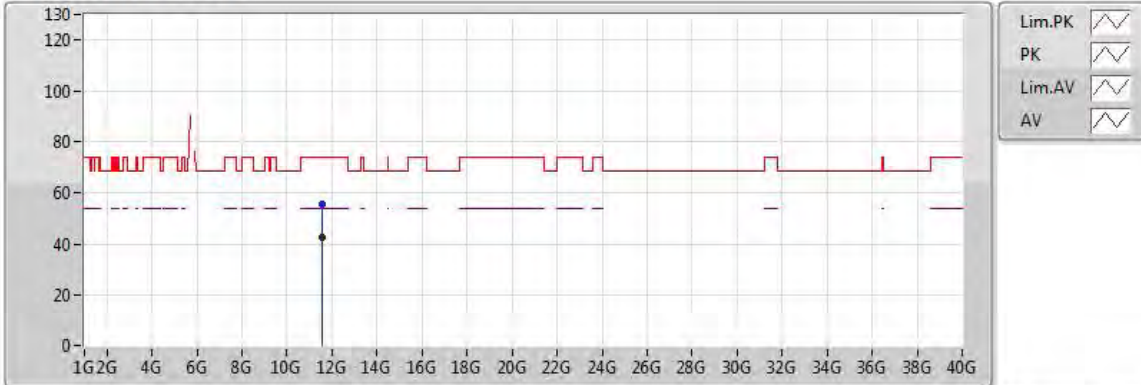
20170621
 EUT Y_2TX
 Setting 24
 01-M-0
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	11.56891G	42.33	54.00	-11.67	16.18	3	Vertical	44	1.50
PK	11.56898G	56.06	74.00	-17.94	16.18	3	Vertical	44	1.50



11a_Nss1_2TX

5785MHz_TX



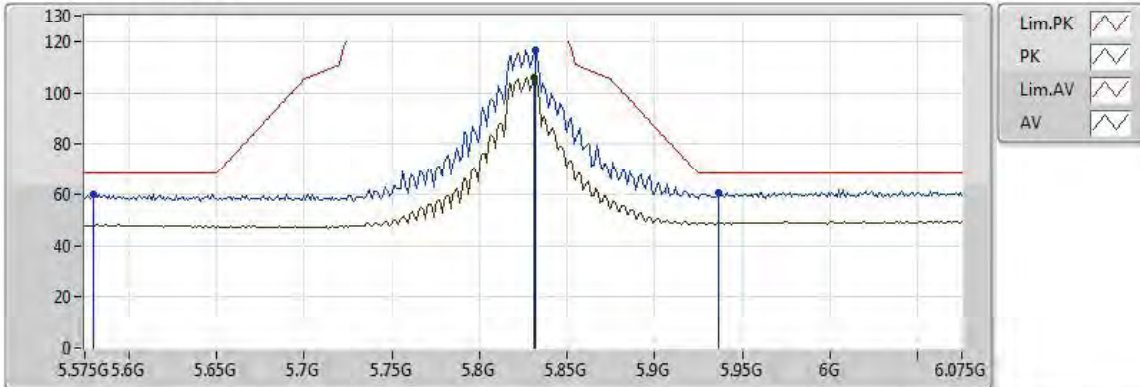
20170621
 EUT Y_2TX
 Setting 24
 01-M-0
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	11.56964G	42.39	54.00	-11.61	16.18	3	Horizontal	83	1.50
PK	11.57199G	55.62	74.00	-18.38	16.18	3	Horizontal	83	1.50



11a_Nss1_2TX

5825MHz_TX



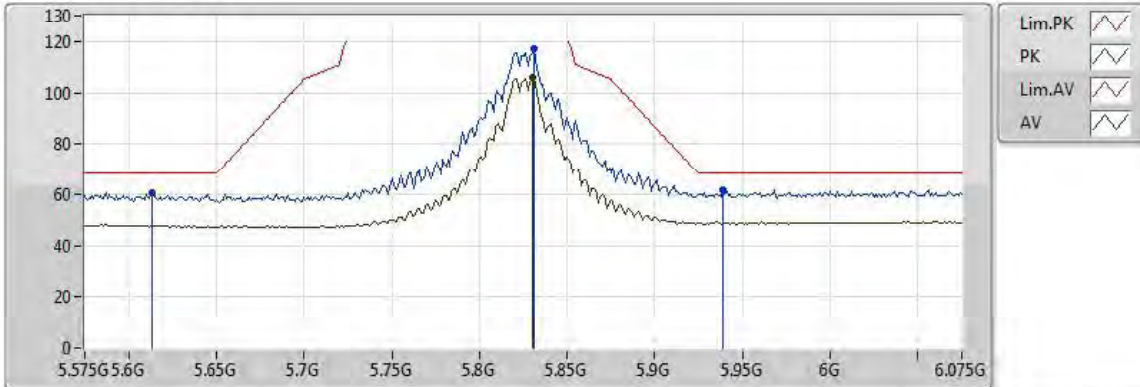
20170621
 EUT Y_2TX
 Setting 24
 04-M-0
 FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.831G	105.83	Inf	-Inf	7.38	3	Vertical	39	1.92
PK	5.58G	59.89	68.20	-8.31	6.66	3	Vertical	39	1.92
PK	5.832G	116.58	Inf	-Inf	7.39	3	Vertical	39	1.92
PK	5.936G	60.56	68.20	-7.64	8.06	3	Vertical	39	1.92



11a_Nss1_2TX

5825MHz_TX



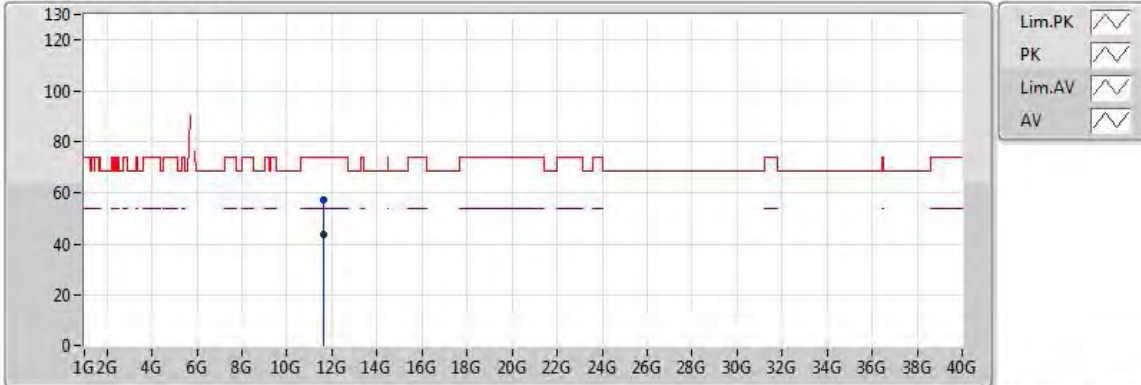
20170621
EUT Y_2TX
Setting 24
01-M-0
FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	5.83G	105.63	Inf	-Inf	7.37	3	Horizontal	4	1.99
PK	5.613G	60.46	68.20	-7.74	6.80	3	Horizontal	4	1.99
PK	5.831G	117.04	Inf	-Inf	7.38	3	Horizontal	4	1.99
PK	5.939G	61.56	68.20	-6.64	8.08	3	Horizontal	4	1.99



11a_Nss1_2TX

5825MHz_TX



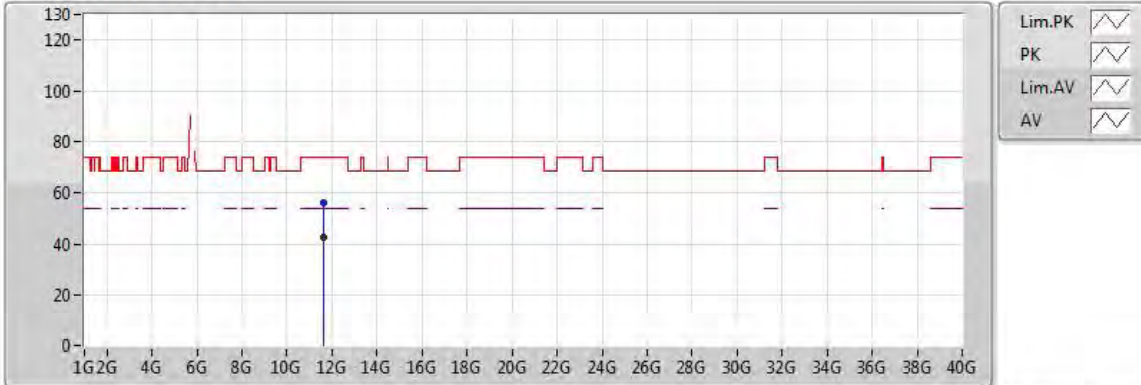
20170621
 EUT Y_2TX
 Setting 24
 01-M-0
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	11.65245G	43.56	54.00	-10.44	16.23	3	Vertical	5	1.50
PK	11.6477G	56.91	74.00	-17.09	16.23	3	Vertical	5	1.50



11a_Nss1_2TX

5825MHz_TX



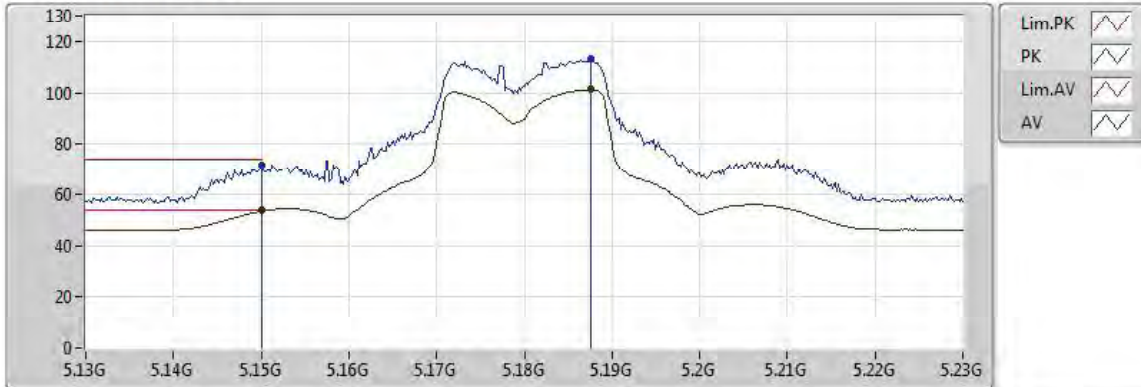
20170621
 EUT Y_2TX
 Setting 24
 01-M-0
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	11.65151G	42.46	54.00	-11.54	16.23	3	Horizontal	44	1.50
PK	11.64925G	55.97	74.00	-18.03	16.23	3	Horizontal	44	1.50



VHT20_Nss1_2TX

5180MHz_TX



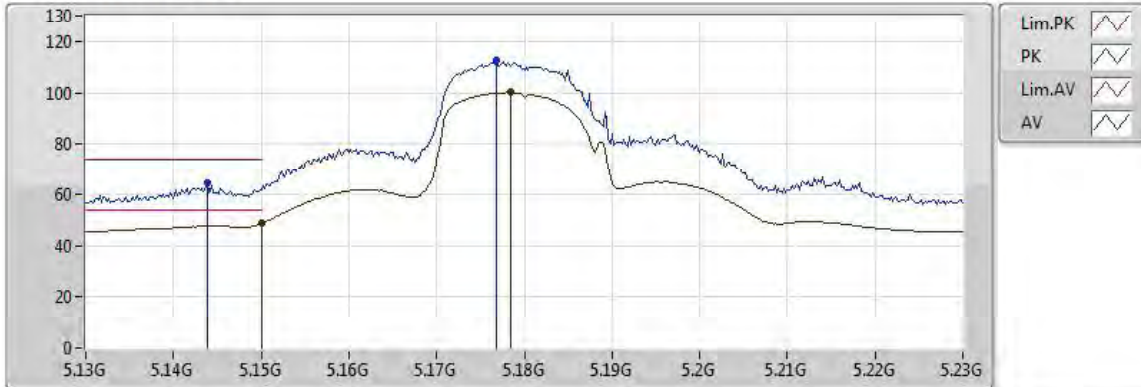
20170621
EUT Y_2TX
Setting 18
04-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.149995G	53.95	54.00	-0.05	5.31	3	Vertical	37	1.05
AV	5.1876G	101.16	Inf	-Inf	5.45	3	Vertical	37	1.05
PK	5.149995G	71.60	74.00	-2.40	5.31	3	Vertical	37	1.05
PK	5.1876G	112.96	Inf	-Inf	5.45	3	Vertical	37	1.05



VHT20_Nss1_2TX

5180MHz_TX



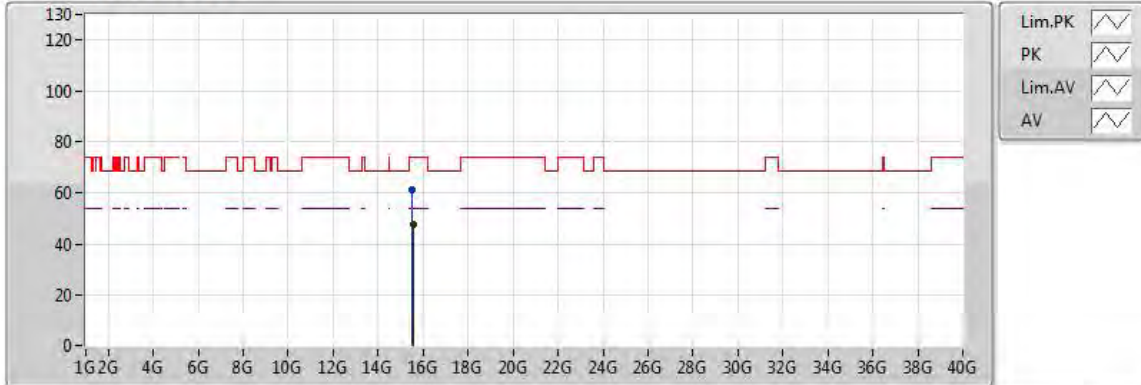
20170621
EUT Y_2TX
Setting 18
04-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.149995G	48.58	54.00	-5.42	5.31	3	Horizontal	353	1.99
AV	5.1784G	100.09	Inf	-Inf	5.41	3	Horizontal	353	1.99
PK	5.1438G	64.58	74.00	-9.42	5.29	3	Horizontal	353	1.99
PK	5.1768G	112.88	Inf	-Inf	5.41	3	Horizontal	353	1.99



VHT20_Nss1_2TX

5180MHz_TX



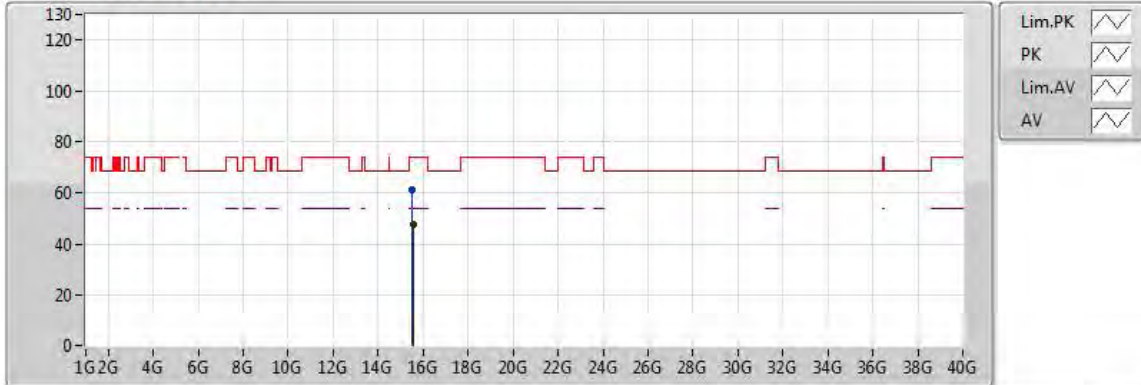
20170622
EUT Y_2TX
Setting 18
04-R-2
FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	15.5382G	47.49	54.00	-6.51	17.80	3	Vertical	30	2.00
PK	15.53196G	61.33	74.00	-12.67	17.79	3	Vertical	30	2.00



VHT20_Nss1_2TX

5180MHz_TX



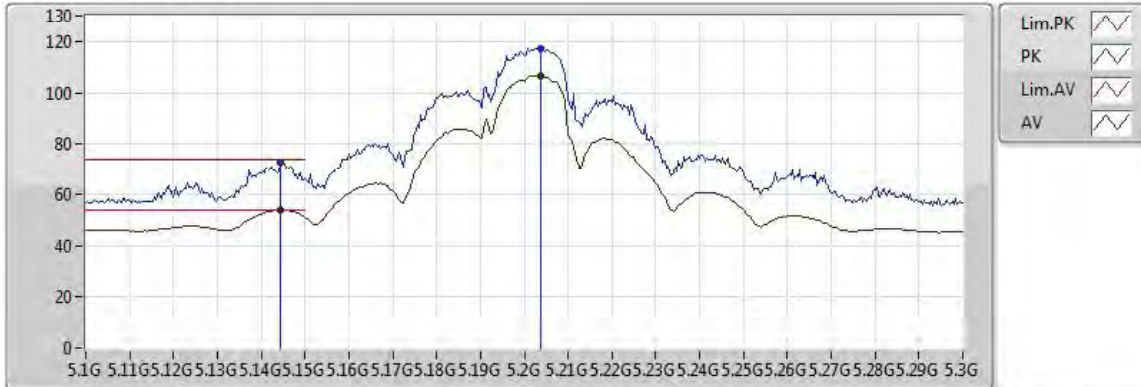
20170622
EUT Y_2TX
Setting 18
04-R-2
FSP(100056)

Type	Freq (Hz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	15.53766G	47.44	54.00	-6.56	17.80	3	Horizontal	21	1.50
PK	15.53358G	61.06	74.00	-12.94	17.79	3	Horizontal	21	1.50



VHT20_Nss1_2TX

5200MHz_TX



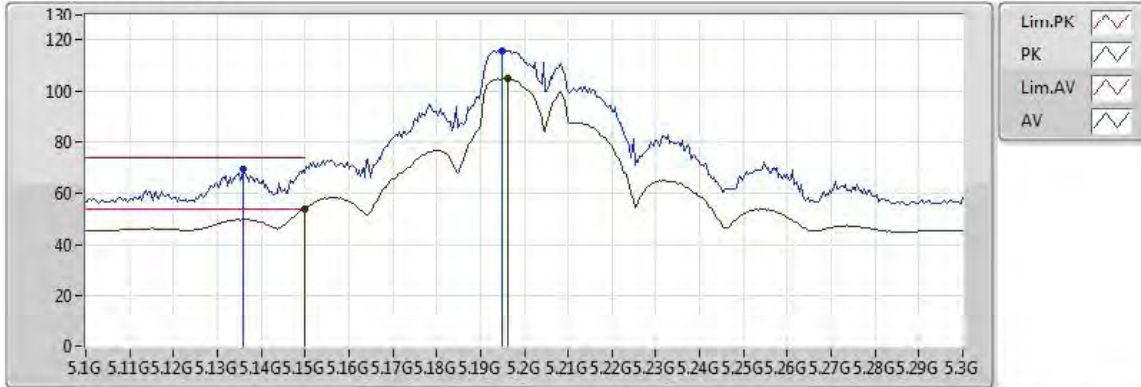
20170621
 EUT Y_2TX
 Setting 18
 04-M-0
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	5.1444G	53.98	54.00	-0.02	5.30	3	Vertical	31	1.99
AV	5.2036G	106.64	Inf	-Inf	5.49	3	Vertical	31	1.99
PK	5.1444G	72.68	74.00	-1.32	5.30	3	Vertical	31	1.99
PK	5.2036G	117.22	Inf	-Inf	5.49	3	Vertical	31	1.99



VHT20_Nss1_2TX

5200MHz_TX



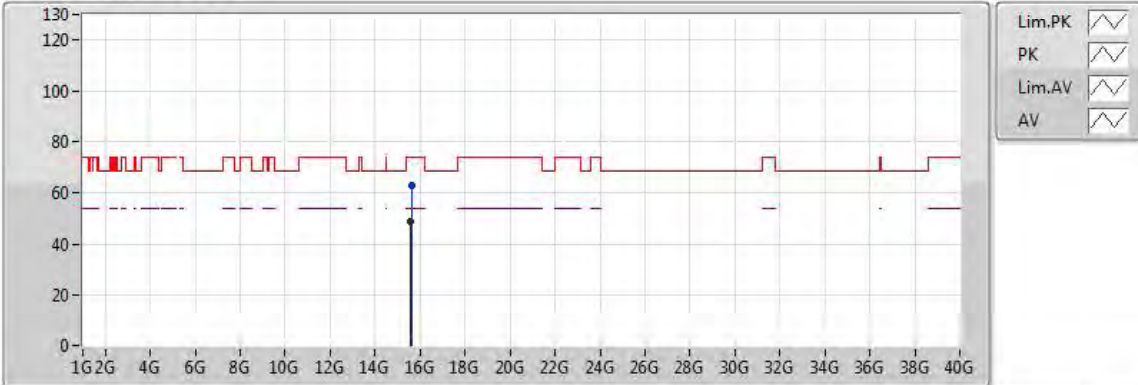
20170621
 EUT Y_2TX
 Setting 23.5
 04-M-0
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	5.149995G	53.99	54.00	-0.01	5.31	3	Horizontal	331	1.98
AV	5.1964G	104.63	Inf	-Inf	5.48	3	Horizontal	331	1.98
PK	5.136G	69.53	74.00	-4.47	5.27	3	Horizontal	331	1.98
PK	5.1948G	115.67	Inf	-Inf	5.47	3	Horizontal	331	1.98



VHT20_Nss1_2TX

5200MHz_TX



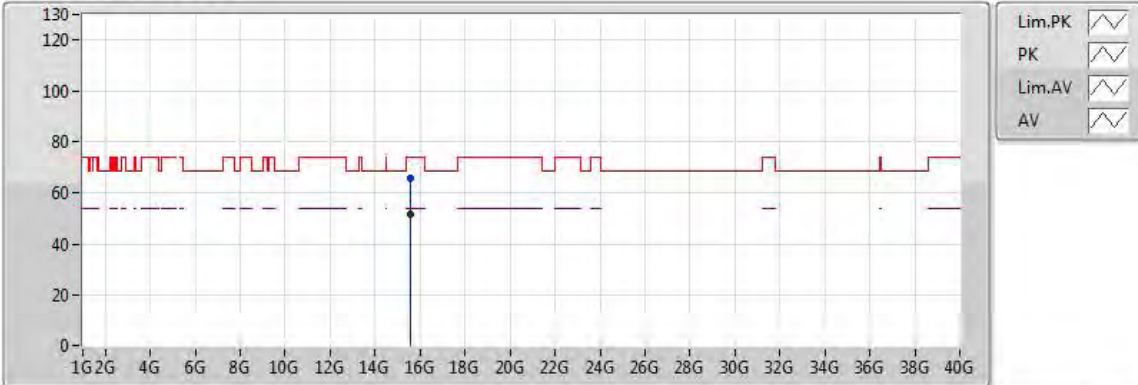
20170622
 EUT Y_2TX
 Setting 23.5
 04-R-2
 FSP(100056)

Type	Freq (Hz)	Level (dBuvv/m)	Limit (dBuvv/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	15.5987G	48.82	54.00	-5.18	17.84	3	Vertical	38	1.74
PK	15.6012G	62.53	74.00	-11.47	17.85	3	Vertical	38	1.74



VHT20_Nss1_2TX

5200MHz_TX



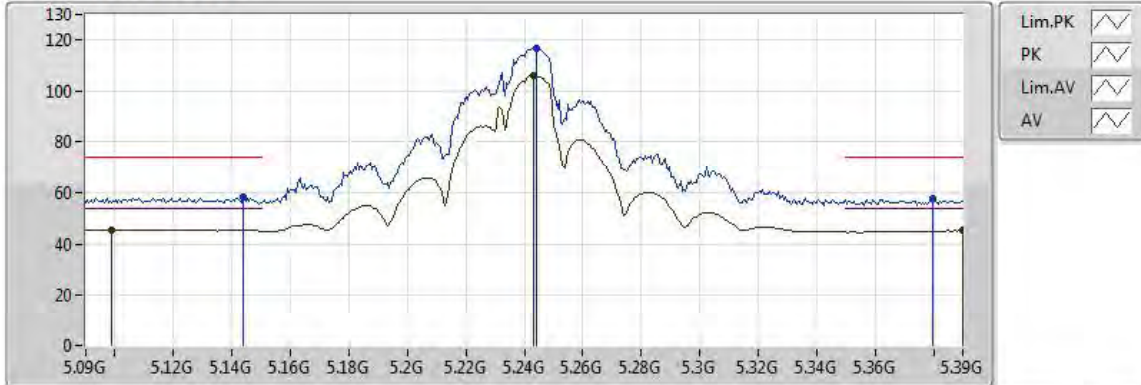
20170622
 EUT Y_2TX
 Setting 23.5
 04-R-2
 FSP(100056)

Type	Freq (Hz)	Level (dBuvv/m)	Limit (dBuvv/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	15.5924G	51.80	54.00	-2.20	17.84	3	Horizontal	55	1.73
PK	15.5949G	65.38	74.00	-8.62	17.84	3	Horizontal	55	1.73



VHT20_Nss1_2TX

5240MHz_TX



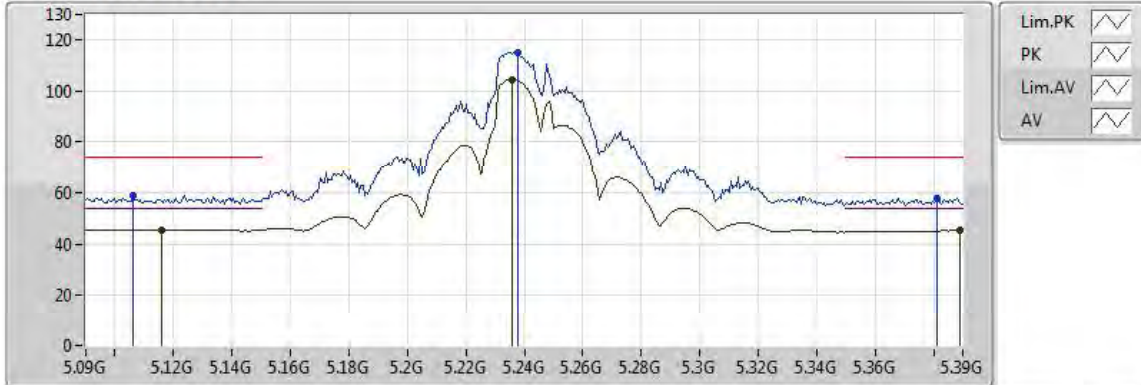
20170621
 EUT Y_2TX
 Setting 24
 04-M-0
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	5.099G	45.60	54.00	-8.40	5.14	3	Vertical	32	1.99
AV	5.243G	105.88	Inf	-Inf	5.54	3	Vertical	32	1.99
AV	5.39G	45.25	54.00	-8.75	5.69	3	Vertical	32	1.99
PK	5.144G	58.34	74.00	-15.66	5.29	3	Vertical	32	1.99
PK	5.2442G	116.71	Inf	-Inf	5.54	3	Vertical	32	1.99
PK	5.3798G	57.58	74.00	-16.42	5.68	3	Vertical	32	1.99



VHT20_Nss1_2TX

5240MHz_TX



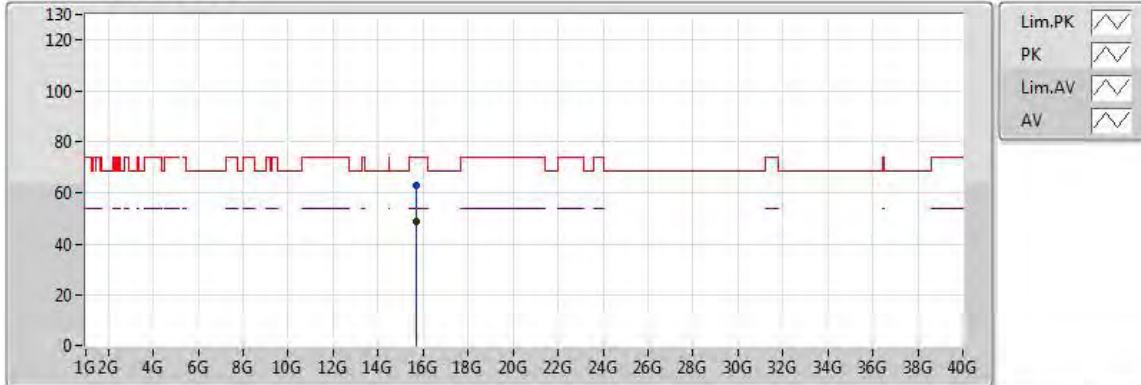
20170621
EUT_Y_2TX
Setting 24
04-M-0
FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	5.1158G	45.58	54.00	-8.42	5.20	3	Horizontal	331	1.98
AV	5.2358G	104.36	Inf	-Inf	5.53	3	Horizontal	331	1.98
AV	5.3888G	45.32	54.00	-8.68	5.69	3	Horizontal	331	1.98
PK	5.1062G	58.67	74.00	-15.33	5.16	3	Horizontal	331	1.98
PK	5.2376G	115.15	Inf	-Inf	5.53	3	Horizontal	331	1.98
PK	5.381G	57.90	74.00	-16.10	5.68	3	Horizontal	331	1.98



VHT20_Nss1_2TX

5240MHz_TX



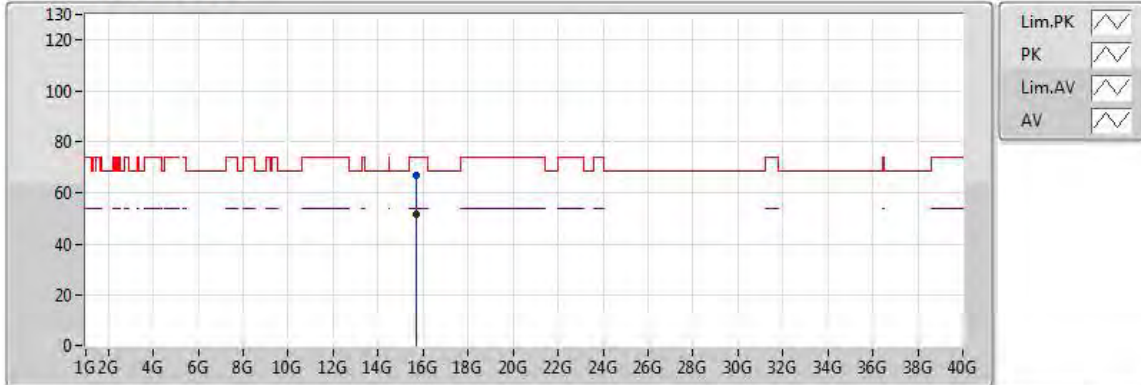
20170622
EUT Y_2TX
Setting 24
04-R-2
FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	15.7248G	49.01	54.00	-4.99	17.95	3	Vertical	325	1.99
PK	15.72324G	62.50	74.00	-11.50	17.95	3	Vertical	325	1.99



VHT20_Nss1_2TX

5240MHz_TX



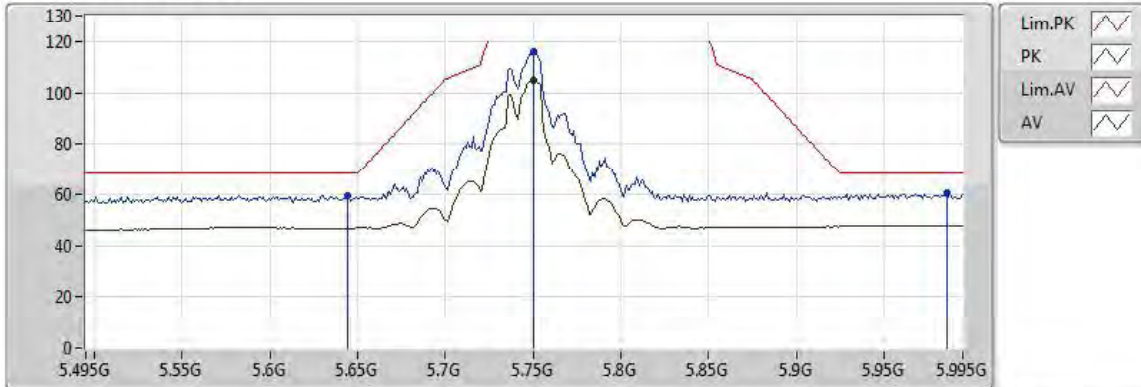
20170622
EUT Y_2TX
Setting 24
04-R-2
FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	15.71394G	51.66	54.00	-2.34	17.94	3	Horizontal	51	1.78
PK	15.71562G	66.68	74.00	-7.32	17.94	3	Horizontal	51	1.78



VHT20_Nss1_2TX

5745MHz_TX



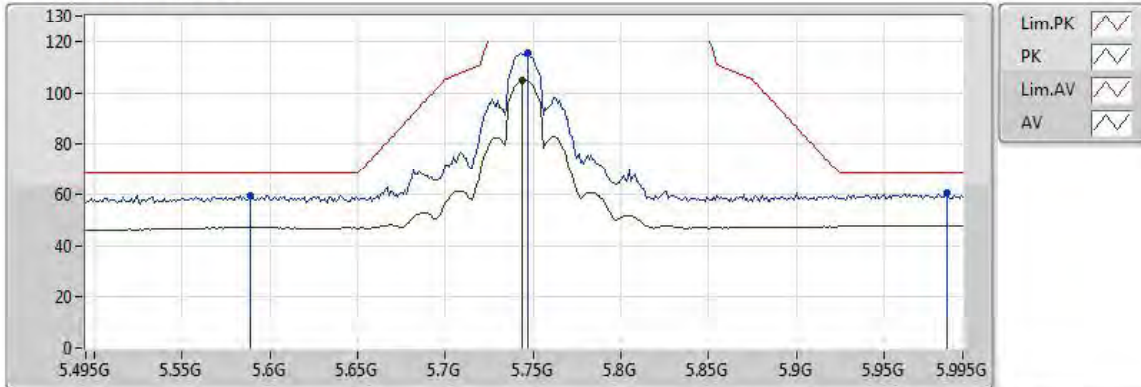
20170621
EUT Y_2TX
Setting 24
04-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.75G	104.54	Inf	-Inf	7.08	3	Vertical	44	1.99
PK	5.644G	59.59	68.20	-8.61	6.86	3	Vertical	44	1.99
PK	5.75G	116.04	Inf	-Inf	7.08	3	Vertical	44	1.99
PK	5.986G	60.25	68.20	-7.95	8.39	3	Vertical	44	1.99



VHT20_Nss1_2TX

5745MHz_TX



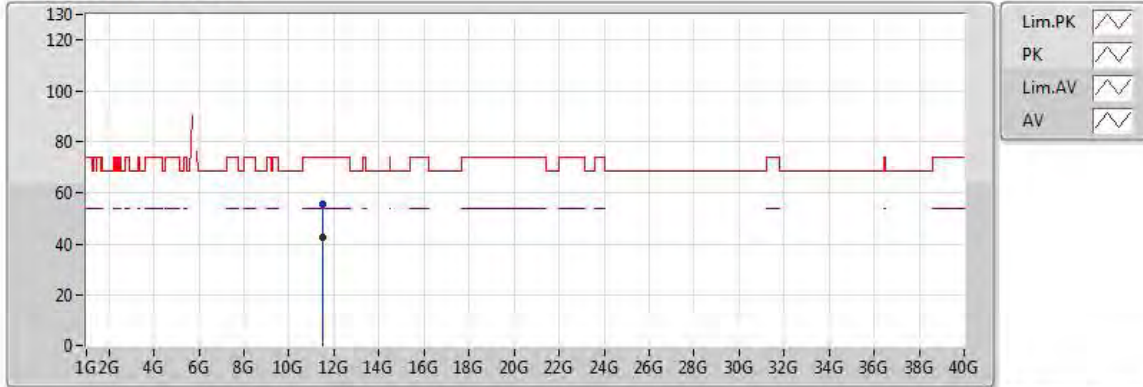
20170621
EUT Y_2TX
Setting 24
04-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.744G	104.89	Inf	-Inf	7.06	3	Horizontal	5	1.98
PK	5.589G	59.38	68.20	-8.82	6.71	3	Horizontal	5	1.98
PK	5.747G	115.35	Inf	-Inf	7.07	3	Horizontal	5	1.98
PK	5.986G	60.55	68.20	-7.65	8.39	3	Horizontal	5	1.98



VHT20_Nss1_2TX

5745MHz_TX



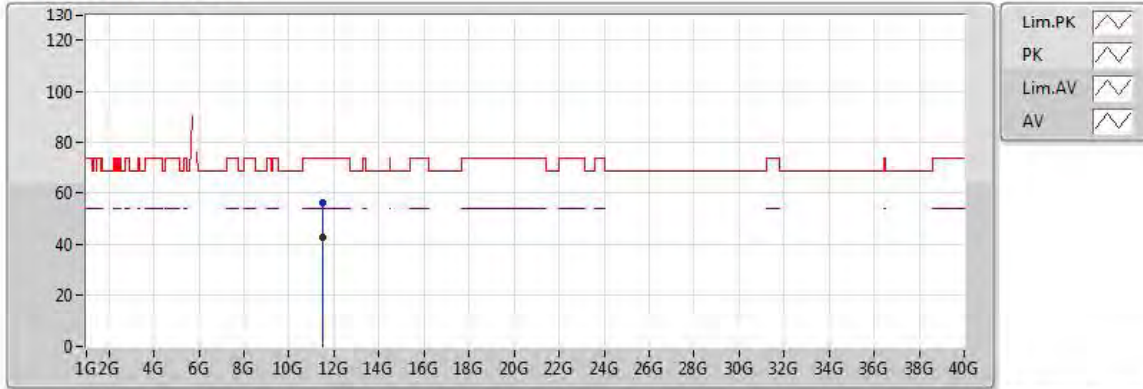
20170622
 EUT Y_2TX
 Setting 24
 04-R-2
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	11.4697G	42.41	54.00	-11.59	16.11	3	Vertical	99	2.23
PK	11.4676G	55.59	74.00	-18.41	16.11	3	Vertical	99	2.23



VHT20_Nss1_2TX

5745MHz_TX



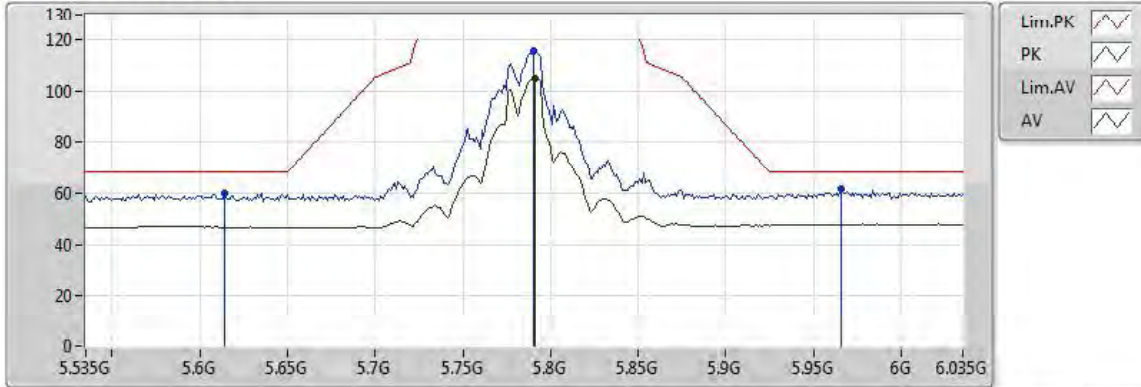
20170622
 EUT Y_2TX
 Setting 24
 04-R-2
 FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	11.4664G	42.40	54.00	-11.60	16.11	3	Horizontal	268	1.53
PK	11.4766G	55.97	74.00	-18.03	16.11	3	Horizontal	268	1.53



VHT20_Nss1_2TX

5785MHz_TX



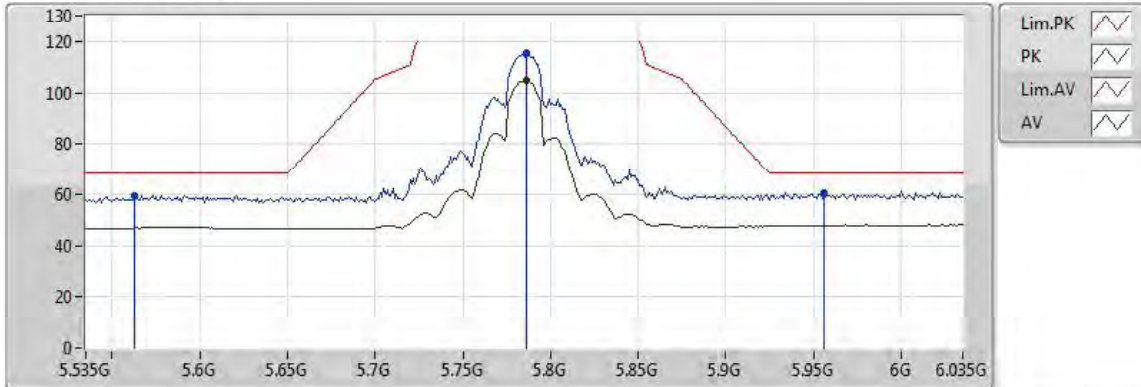
20170621
EUT Y_2TX
Setting 24
04-M-0
FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	5.791G	104.69	Inf	-Inf	7.16	3	Vertical	44	1.99
PK	5.614G	59.84	68.20	-8.36	6.81	3	Vertical	44	1.99
PK	5.79G	115.63	Inf	-Inf	7.16	3	Vertical	44	1.99
PK	5.966G	61.51	68.20	-6.69	8.26	3	Vertical	44	1.99



VHT20_Nss1_2TX

5785MHz_TX



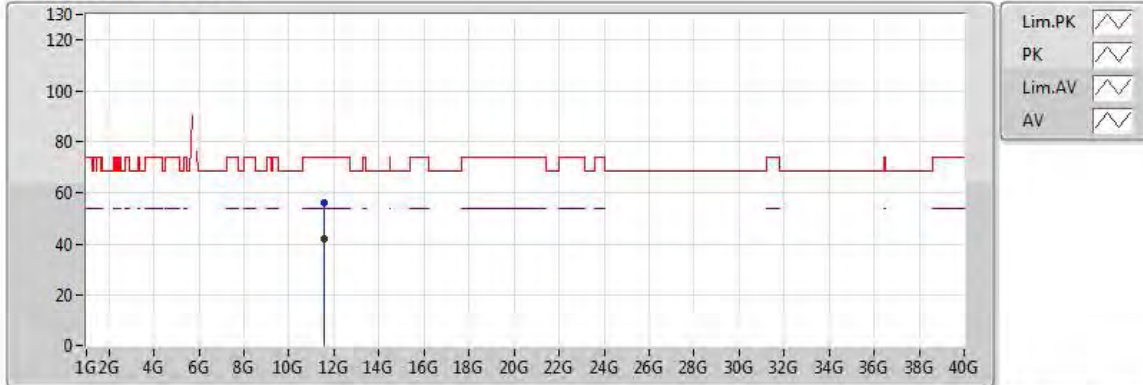
20170621
EUT Y_2TX
Setting 24
04-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.786G	104.57	Inf	-Inf	7.15	3	Horizontal	3	1.99
PK	5.563G	59.61	68.20	-8.59	6.55	3	Horizontal	3	1.99
PK	5.786G	115.19	Inf	-Inf	7.15	3	Horizontal	3	1.99
PK	5.956G	60.68	68.20	-7.52	8.19	3	Horizontal	3	1.99



VHT20_Nss1_2TX

5785MHz_TX



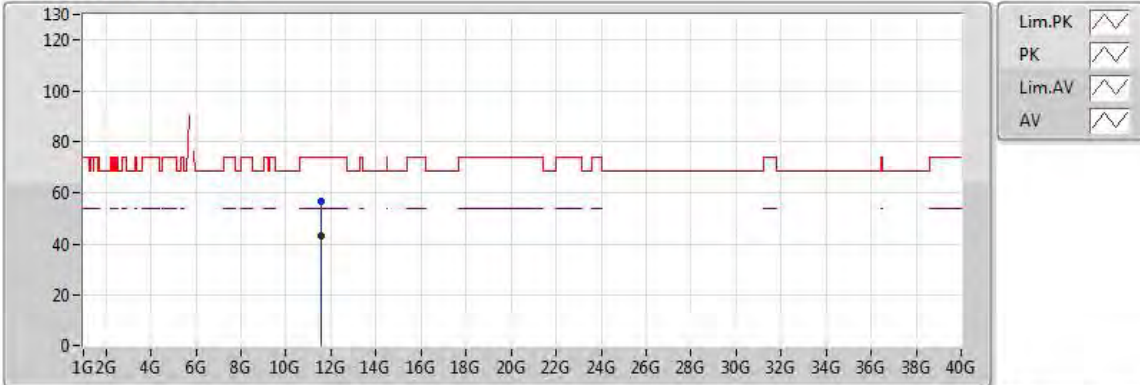
20170622
 EUT Y_2TX
 Setting 24
 04-R-2
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	11.5913G	42.07	54.00	-11.93	16.19	3	Vertical	217	1.50
PK	11.581G	55.91	74.00	-18.09	16.18	3	Vertical	217	1.50



VHT20_Nss1_2TX

5785MHz_TX



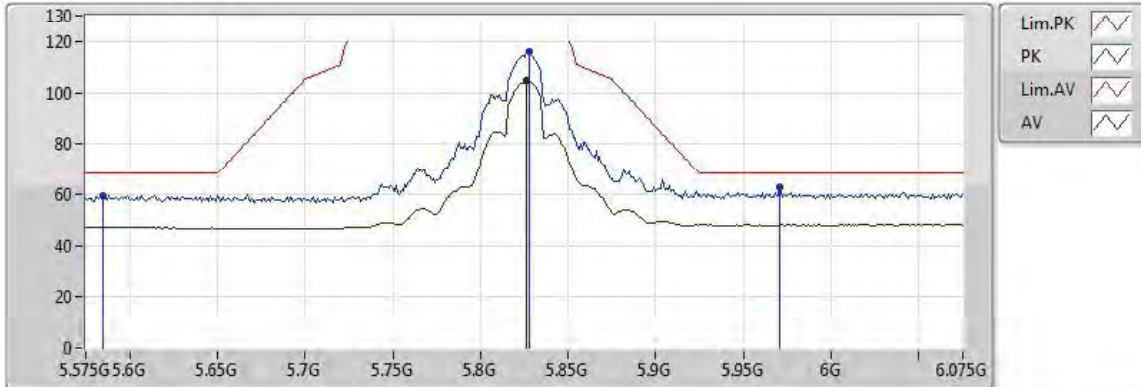
20170622
 EUT Y_2TX
 Setting 24
 04-R-2
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	11.568G	43.13	54.00	-10.87	16.17	3	Horizontal	328	2.17
PK	11.5694G	56.64	74.00	-17.36	16.18	3	Horizontal	328	2.17



VHT20_Nss1_2TX

5825MHz_TX



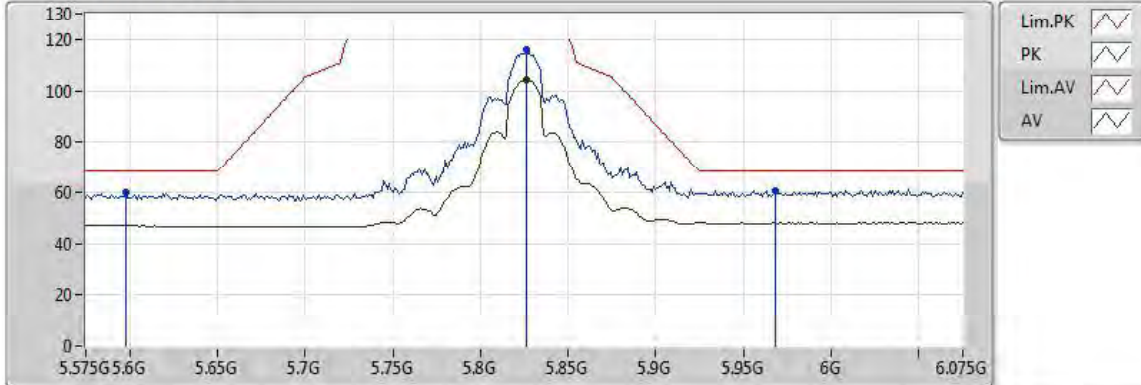
20170621
EUT_Y_2TX
Setting 24
04-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.826G	104.55	Inf	-Inf	7.35	3	Vertical	3	1.99
PK	5.585G	59.60	68.20	-8.60	6.69	3	Vertical	3	1.99
PK	5.828G	115.95	Inf	-Inf	7.36	3	Vertical	3	1.99
PK	5.971G	62.51	68.20	-5.69	8.29	3	Vertical	3	1.99



VHT20_Nss1_2TX

5825MHz_TX



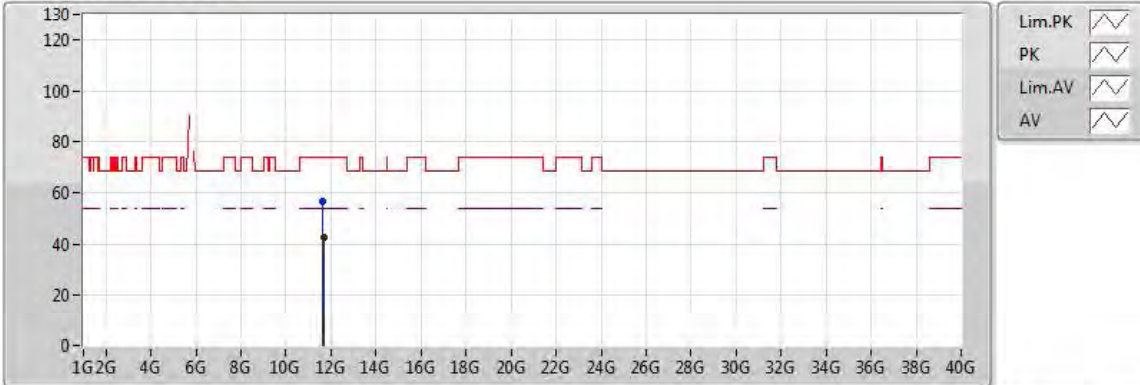
20170621
 EUT Y_2TX
 Setting 24
 04-M-0
 FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.826G	104.22	Inf	-Inf	7.35	3	Horizontal	0	1.97
PK	5.598G	60.06	68.20	-8.14	6.77	3	Horizontal	0	1.97
PK	5.826G	115.86	Inf	-Inf	7.35	3	Horizontal	0	1.97
PK	5.968G	60.63	68.20	-7.57	8.27	3	Horizontal	0	1.97



VHT20_Nss1_2TX

5825MHz_TX



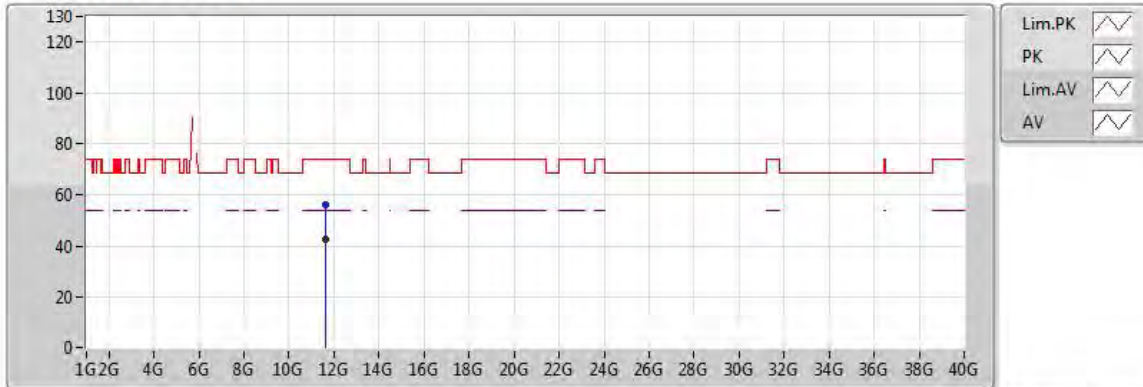
20170622
EUT Y_2TX
Setting 24
04-R-2
FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	11.6636G	42.39	54.00	-11.61	16.24	3	Vertical	330	1.61
PK	11.635G	56.43	74.00	-17.57	16.22	3	Vertical	330	1.61



VHT20_Nss1_2TX

5825MHz_TX



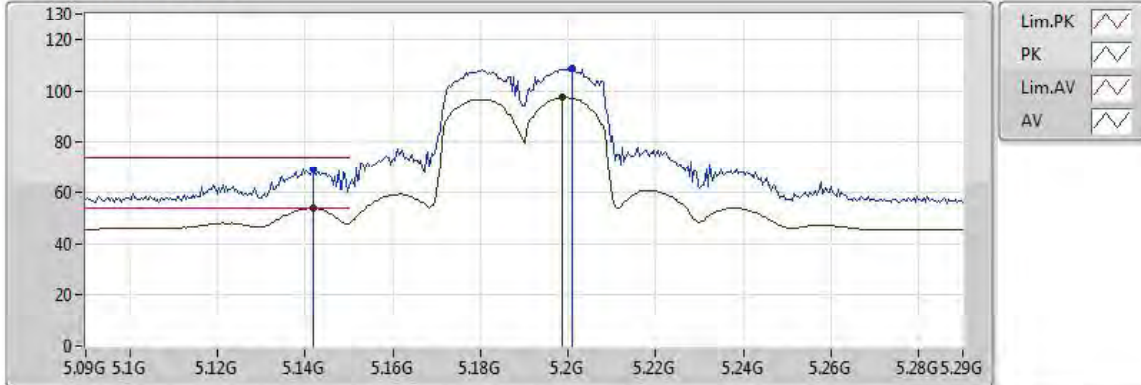
20170622
 EUT Y_2TX
 Setting 24
 04-R-2
 FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	11.6333G	42.44	54.00	-11.56	16.22	3	Horizontal	332	2.00
PK	11.625G	55.90	74.00	-18.10	16.21	3	Horizontal	332	2.00



VHT40_Nss1_2TX

5190MHz_TX



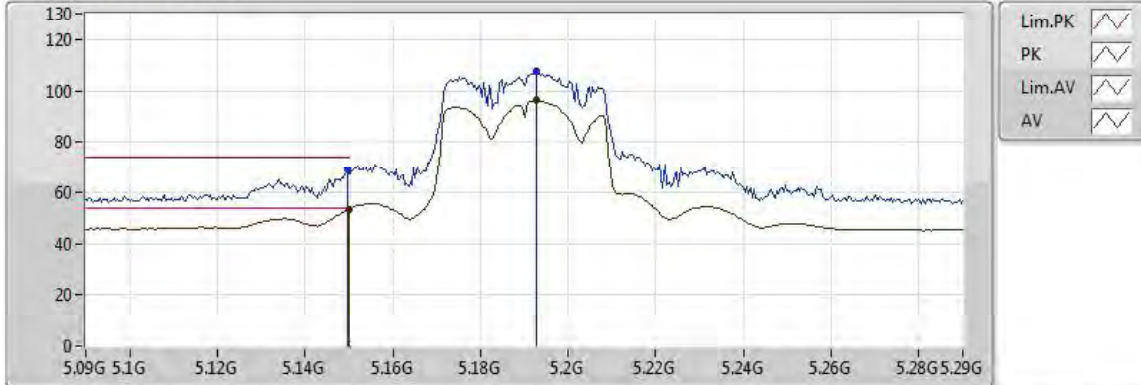
20170621
EUT Y_2TX
Setting 16.5
04-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.142G	53.83	54.00	-0.17	5.29	3	Vertical	59	1.50
AV	5.1988G	97.29	Inf	-Inf	5.49	3	Vertical	59	1.50
PK	5.142G	68.82	74.00	-5.18	5.29	3	Vertical	59	1.50
PK	5.2008G	108.63	Inf	-Inf	5.49	3	Vertical	59	1.50



VHT40_Nss1_2TX

5190MHz_TX



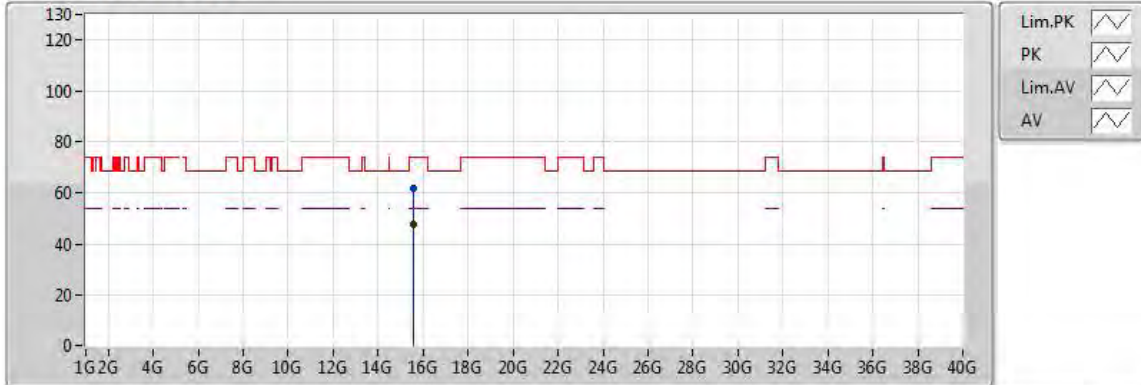
20170621
 EUT_Y_2TX
 Setting 16.5
 04-M-0
 FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.149995G	53.32	54.00	-0.68	5.31	3	Horizontal	15	1.97
AV	5.1928G	96.20	Inf	-Inf	5.46	3	Horizontal	15	1.97
PK	5.1496G	68.68	74.00	-5.32	5.31	3	Horizontal	15	1.97
PK	5.1928G	107.49	Inf	-Inf	5.46	3	Horizontal	15	1.97



VHT40_Nss1_2TX

5190MHz_TX



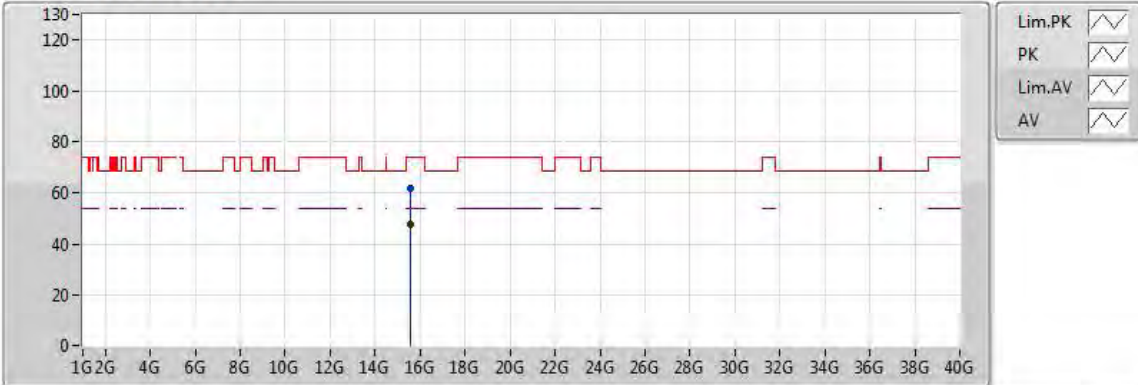
20170622
EUT Y_2TX
Setting 16.5
04-R-2
FSP(100056)

Type	Freq (Hz)	Level (dBμv/m)	Limit (dBμv/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	15.5761G	47.51	54.00	-6.49	17.83	3	Vertical	353	1.81
PK	15.5552G	61.45	74.00	-12.55	17.81	3	Vertical	353	1.81



VHT40_Nss1_2TX

5190MHz_TX



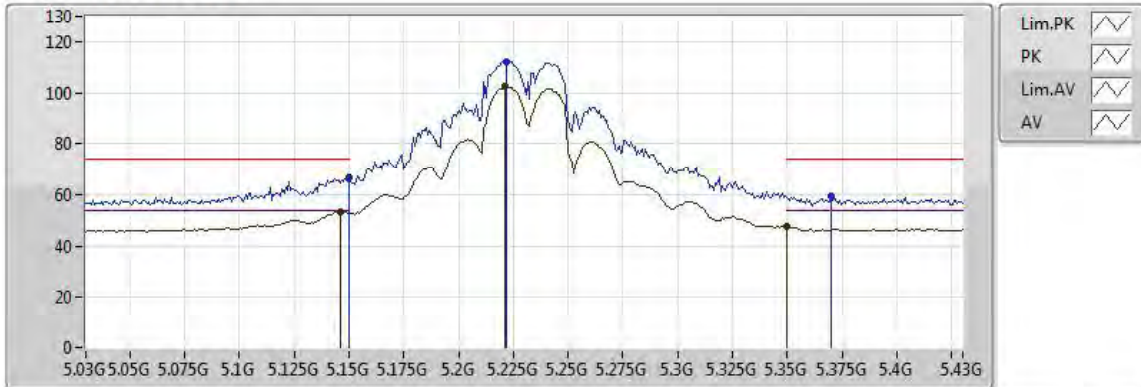
20170622
EUT_Y_2TX
Setting 16.5
04-R-2
FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	15.5711G	47.56	54.00	-6.44	17.82	3	Horizontal	311	1.39
PK	15.5621G	61.41	74.00	-12.59	17.82	3	Horizontal	311	1.39



VHT40_Nss1_2TX

5230MHz_TX



20170621
EUT Y_2TX
Setting 21
04-M-0
FSP(100056)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
AV	5.146G	53.41	54.00	-0.59	5.30	3	Vertical	46	1.03
AV	5.2212G	102.45	Inf	-Inf	5.51	3	Vertical	46	1.03
AV	5.350005G	47.47	54.00	-6.53	5.65	3	Vertical	46	1.03
PK	5.149995G	66.66	74.00	-7.34	5.31	3	Vertical	46	1.03
PK	5.222G	112.32	Inf	-Inf	5.51	3	Vertical	46	1.03
PK	5.37G	59.35	74.00	-14.65	5.67	3	Vertical	46	1.03