



FCC RADIO TEST REPORT

FCC ID : W59XAP1610
Equipment : Apex Wave 2 AC3100 Dual-Band Wireless AP
Brand Name : Luxul
Model Name : XAP-1610, XWS-2610
Applicant : Luxul Wireless
12884 S Frontrunner Blvd Suite 201 Draper Utah
United States 84020
Standard : 47 CFR FCC Part 15.247

The product was received on Apr. 09, 2018, and testing was started from Apr. 09, 2018 and completed on May 12, 2018. 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

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



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 Information.....	5
1.2 Testing Applied Standards	7
1.3 Testing Location Information.....	7
1.4 Measurement Uncertainty	7
2 Test Configuration of EUT.....	8
2.1 Test Channel Mode	8
2.2 The Worst Case Measurement Configuration.....	10
2.3 EUT Operation during Test	12
2.4 Accessories	12
2.5 Support Equipment.....	13
2.6 Test Setup Diagram	14
3 Transmitter Test Result	18
3.1 AC Power-line Conducted Emissions	18
3.2 DTS Bandwidth	20
3.3 Maximum Conducted Output Power	21
3.4 Power Spectral Density	23
3.5 Emissions in Non-restricted Frequency Bands	25
3.6 Emissions in Restricted Frequency Bands.....	26
4 Test Equipment and Calibration Data	30
Appendix A. Test Results of AC Power-line Conducted Emissions	
Appendix B. Test Results of DTS Bandwidth	
Appendix C. Test Results of Maximum Conducted Output Power	
Appendix D. Test Results of Power Spectral Density	
Appendix E. Test Results of Emissions in Non-restricted Frequency Bands	
Appendix F. Test Results of Emissions in Restricted Frequency Bands	
Appendix G. Test Results of Radiated Emission Co-location	
Appendix H. Test Photos	
Photographs of EUT v01	



History of this test report



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.247(a)	DTS Bandwidth	PASS	-
3.3	15.247(b)	Maximum Conducted Output Power	PASS	-
3.4	15.247(e)	Power Spectral Density	PASS	-
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-

Reviewed by: Cliff Chang
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
2400-2483.5	b, g, n (HT20), ac (VHT20)	2412-2462	1-11 [11]
2400-2483.5	n (HT40), ac (VHT40)	2422-2452	3-9 [7]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11b	20	4TX
2.4-2.4835GHz	802.11g	20	4TX
2.4-2.4835GHz	802.11n HT20	20	4TX
2.4-2.4835GHz	802.11n HT20-BF	20	4TX
2.4-2.4835GHz	802.11ac VHT20	20	4TX
2.4-2.4835GHz	802.11ac VHT20-BF	20	4TX
2.4-2.4835GHz	802.11n HT40	40	4TX
2.4-2.4835GHz	802.11n HT40-BF	40	4TX
2.4-2.4835GHz	802.11ac VHT40	40	4TX
2.4-2.4835GHz	802.11ac VHT40-BF	40	4TX

Note:

- 11b mode uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.
- 11g, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- VHT20, VHT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- 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	P/N	Antenna Type	Connector	Gain (dBi)	
						2.4GHz	5GHz
1	1	Hong Lin	290-20336	PIFA Antenna	I-PEX	2.76	3.23
2	2	Hong Lin	290-20337	PIFA Antenna	I-PEX	2.75	3.28
3	3	Hong Lin	290-20338	PIFA Antenna	I-PEX	2.33	3.58
4	4	Hong Lin	290-20339	PIFA Antenna	I-PEX	3.50	4.00

Note: The EUT has four antennas.

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



1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11b	0.949	0.227	12.425m	100
802.11g	0.954	0.205	2.069m	1k
802.11ac VHT20	0.986	0.061	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ac VHT20-BF	0.888	0.516	1.948m	1k
802.11ac VHT40	0.948	0.232	955u	3k
802.11ac VHT40-BF	0.896	0.477	2.79m	1k

1.1.4 EUT Operational Condition

EUT Power Type	From PoE		
Beamforming Function	<input checked="" type="checkbox"/> With beamforming	<input type="checkbox"/> Without beamforming	The product has beamforming function for 802.11n/ac.
Function	<input checked="" type="checkbox"/> Point-to-multipoint	<input type="checkbox"/> Point-to-point	
Test Software Version	accessMTool_3_0_0_6		

1.1.5 Table for Multiple Listing

The EUT has two model names which are identical to each other in all aspects except for the following table:

Model Name	Description
XAP-1610	
XWS-2610	There is nothing different of two models, just for different marketing use.

From the above models, model: XAP-1610 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 558074 D01 v04
- ◆ FCC KDB 662911 D01 v02r01
- ◆ FCC KDB 412172 D01 v01r01

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	Paul Chen	23°C / 65%	Apr. 11, 2018~May 04, 2018
Radiated	03CH01-CB	Eddie Weng, Jeff Wu, Cola Chang, Stim Sung	23°C / 65%	Apr. 09, 2018~May 09, 2018
AC Conduction	CO01-CB	Ryo Fan, GN Hou	25°C / 58%	Apr. 27, 2018, May 12, 2018

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	9.74×10^{-8}	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	PowerSetting
802.11b_Nss1,(1Mbps)_4TX	-
2412MHz	85
2417MHz	85
2422MHz	85
2427MHz	85
2437MHz	85
2442MHz	85
2447MHz	85
2452MHz	85
2457MHz	84
2462MHz	83
802.11g_Nss1,(6Mbps)_4TX	-
2412MHz	73
2417MHz	83
2422MHz	85
2427MHz	87
2432MHz	92
2437MHz	93
2442MHz	89
2447MHz	88
2452MHz	86
2457MHz	79
2462MHz	68
802.11ac VHT20_Nss1,(MCS0)_4TX	-
2412MHz	67
2417MHz	76
2422MHz	78
2427MHz	87
2432MHz	90
2437MHz	90
2442MHz	89
2447MHz	83
2452MHz	80
2457MHz	75
2462MHz	68

**FCC RADIO TEST REPORT**

Report No. : FR841602AA

Mode	PowerSetting
802.11ac VHT40_Nss1,(MCS0)_4TX	-
2422MHz	59
2427MHz	62
2432MHz	67
2437MHz	70
2442MHz	62
2447MHz	58
2452MHz	54
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-
2412MHz	72
2417MHz	79
2422MHz	81
2427MHz	81
2432MHz	81
2437MHz	81
2442MHz	81
2447MHz	81
2452MHz	80
2457MHz	78
2462MHz	70
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-
2422MHz	67
2427MHz	67
2432MHz	68
2437MHz	69
2442MHz	65
2447MHz	60
2452MHz	59

Note:

- VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than 802.11ac VHT20 and VHT40.
- 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 + PoE 1
2	EUT + PoE 2

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

The Worst Case Mode for Following Conformance Tests

Tests Item	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in Non-restricted Frequency Bands
Test Condition	Conducted measurement at transmit chains.

The Worst Case Mode for Following Conformance Tests

Tests Item	Emissions in Restricted Frequency Bands
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	Normal Link
1	EUT Z axis + PoE 1 (local EUT / remote PoE)
2	EUT Y axis + PoE 1 (local EUT / remote PoE)

Mode 1 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 will follow this same test mode.

3	EUT Z axis + PoE 2 (local EUT / remote PoE)
4	EUT + PoE 1 (local PoE / remote EUT)
5	EUT + PoE 2 (local PoE / remote EUT)

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

Operating Mode > 1GHz	CTX
1	EUT Z axis
2	EUT Y axis

Mode 2 has been evaluated to be the worst case after evaluating. Consequently, measurement will follow this same test mode.



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
The EUT was performed at Y axis and Z axis position for Radiated emission above 1GHz test, and the worst case was found at Z axis for 5GHz WLAN. So the measurement will follow this same test configuration.	
1	EUT Z axis - 2.4GHz WLAN + 5GHz WLAN
Refer to Appendix G for Radiated Emission Co-location.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	2.4GHz WLAN + 5GHz WLAN
Refer to Sporton Test Report No.: FA841602 for Co-location RF Exposure Evaluation.	



2.3 EUT Operation during Test

For CTX Mode:

For non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For 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 Telnet.
3. Executed "Lantest.exe" to link with the remote workstation to transmit and receive packet by RX Device and transmit duty cycle no less than 98%.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

Accessories				
No.	Equipment Name	Brand Name	Model Name	Rating
1	PoE 1	PHIHONG	POE29U-560	INPUT: 100-240Vac~0.8A, 50-60Hz OUTPUT: 56Vdc, 0.536A
2	PoE 2	GOSPELL	G0545-560-054-POE1000	INPUT: 100-240Vac~0.75A MAX, 50/60Hz OUTPUT: 56Vdc, 0.54A
No.	Equipment Name / Description			
3	Wall-mounted rack*1			
4	Power cable*2: Non-shielded, 1.8m (one is for PoE 1 use and the other is for PoE 2 use)			
5	RJ-45 cable*1: Non-shielded, 1m			



2.5 Support Equipment

For Test Site No: CO01-CB

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB*4	DELL	E6430	N/A

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

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB*2	DELL	E4300	N/A
2	NB*2	Apple	Mac Book	N/A

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	N/A

For beamforming mode:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB*2	DELL	E4300	N/A
2	WLAN module (RX Device)	Boardcom	BCM943162ZP	QDS-BRCM1075

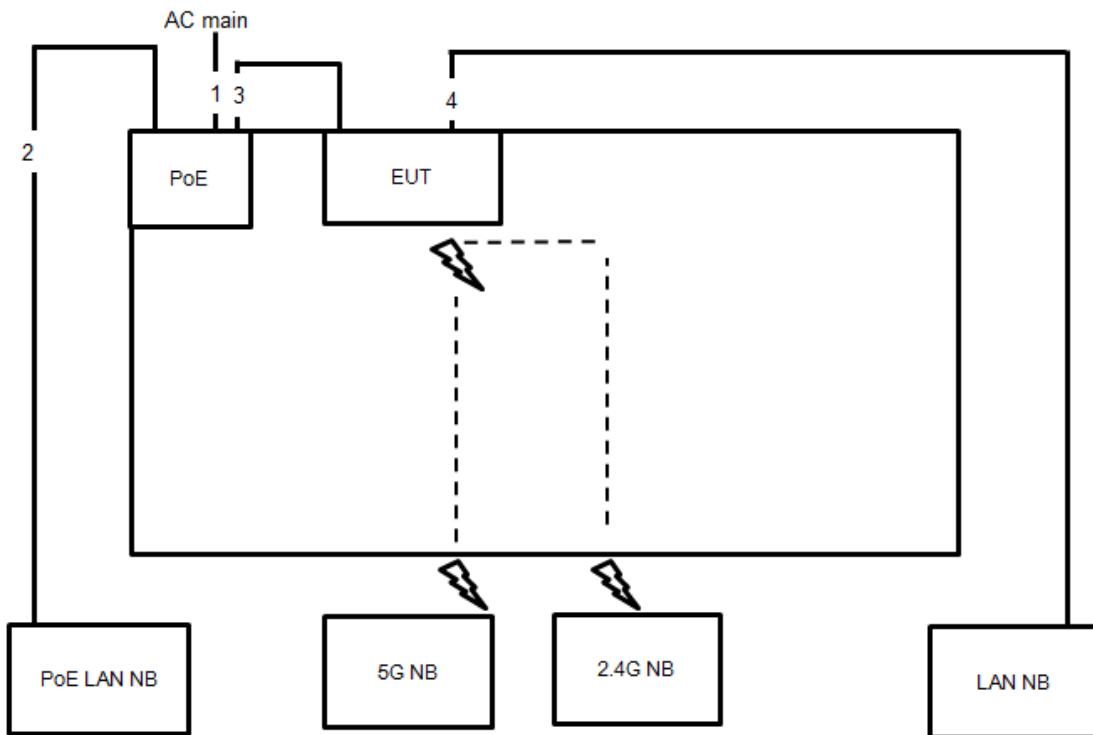
For Test Site No: TH01-CB

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

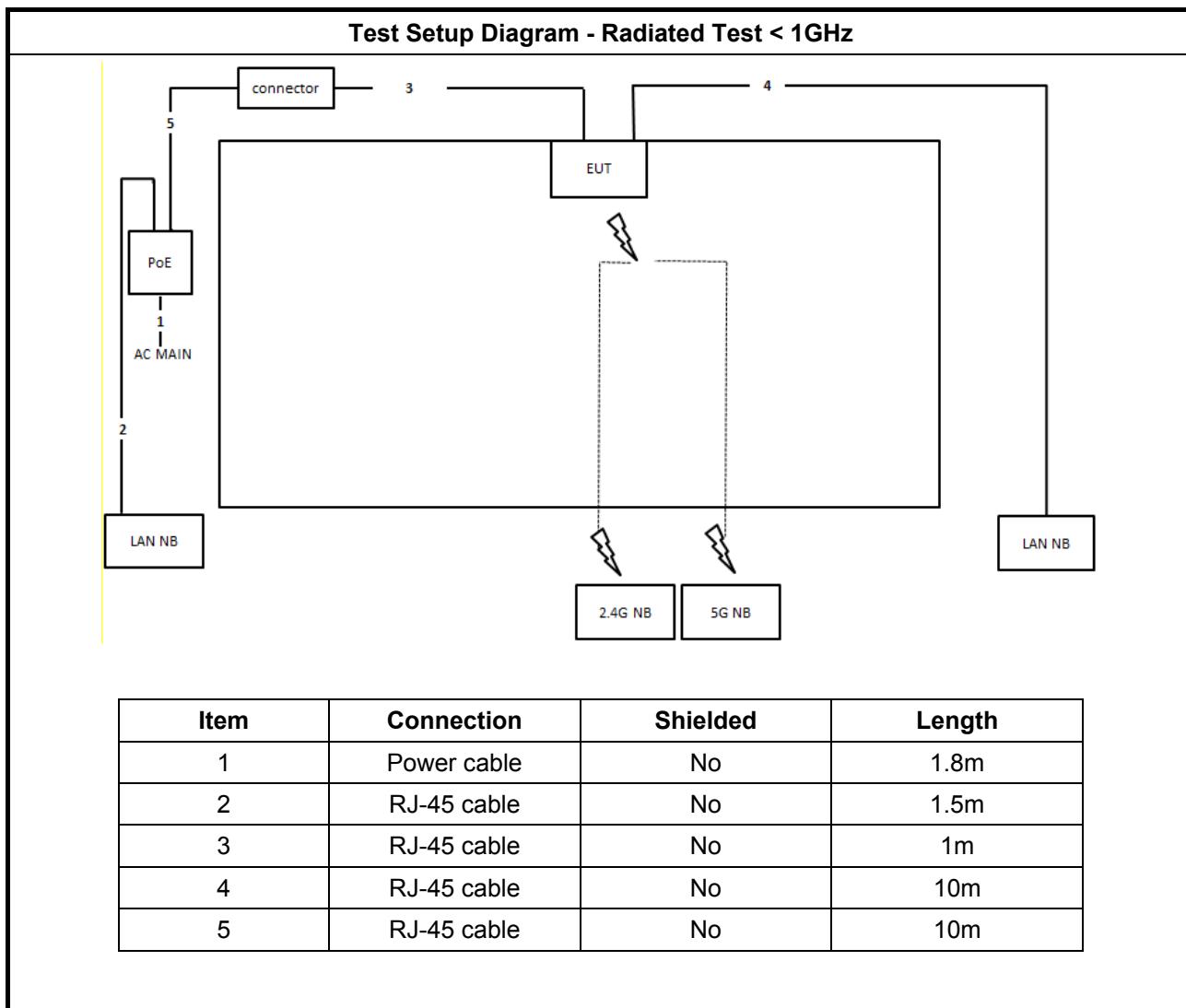


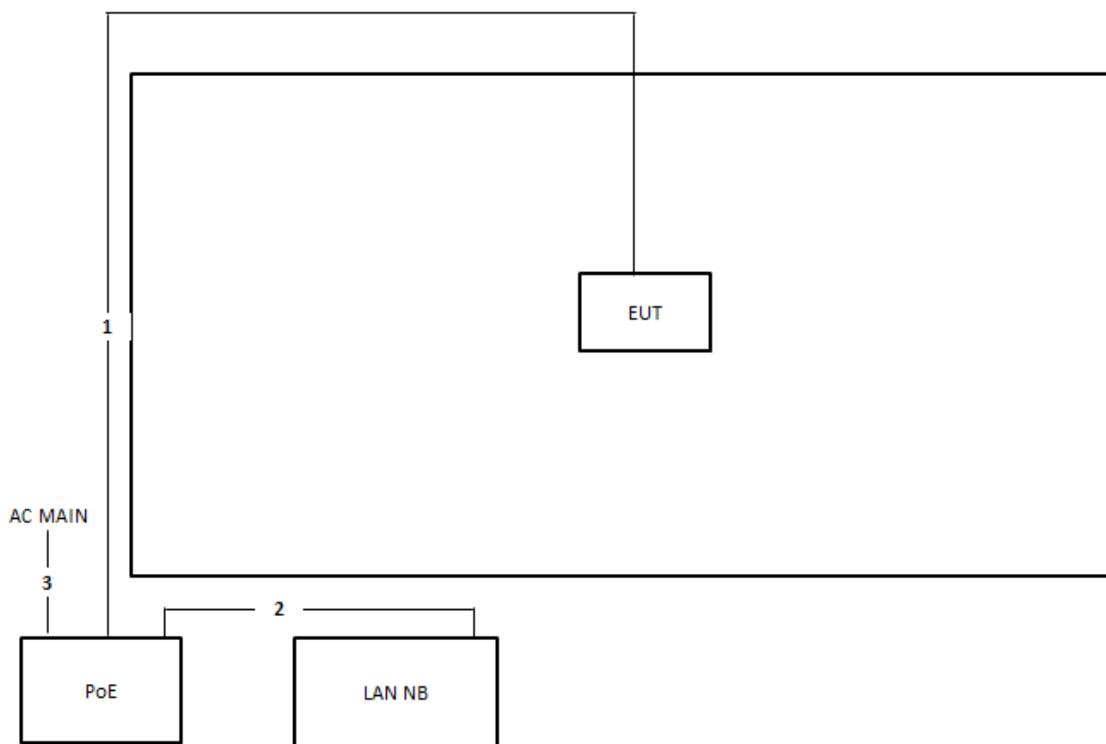
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test

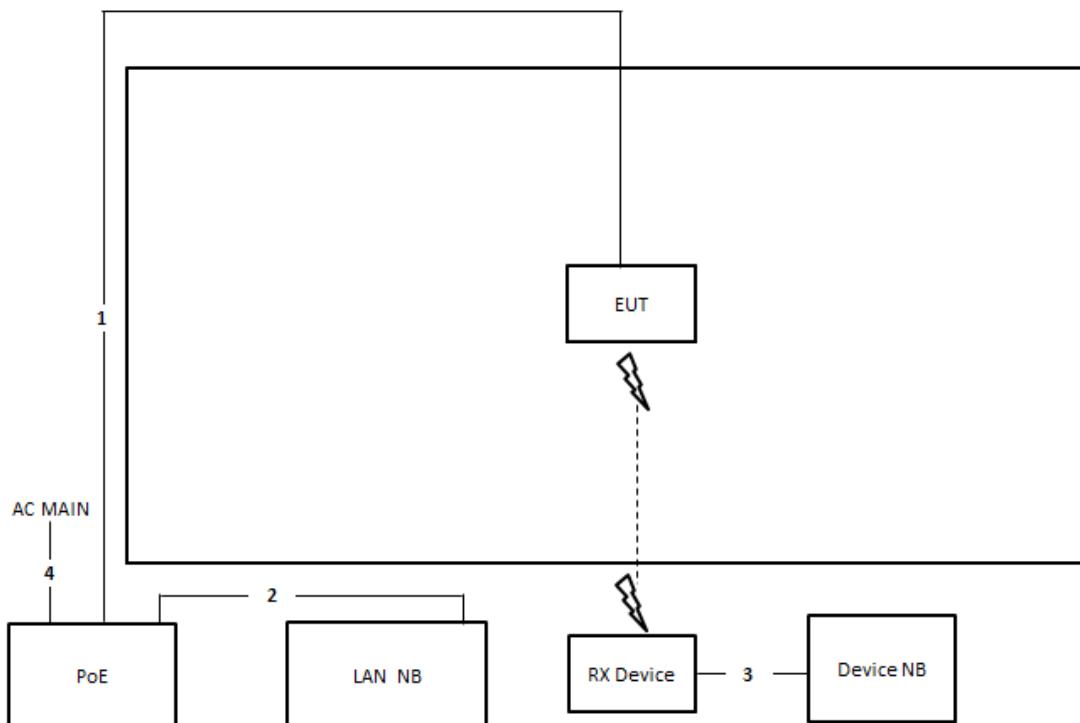


Item	Connection	Shielded	Length
1	Power cable	No	1.8m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	1m
4	RJ-45 cable	No	10m



**Test Setup Diagram - Radiated Test > 1GHz**For non-beamforming mode:

Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	1.5m
3	Power cable	No	1.8m

**Test Setup Diagram - Radiated Test > 1GHz**For beamforming mode:

Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	1.5m
3	RJ-45 cable	No	1.5m
4	Power cable	No	1.8m



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

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

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

3.1.2 Measuring Instruments

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

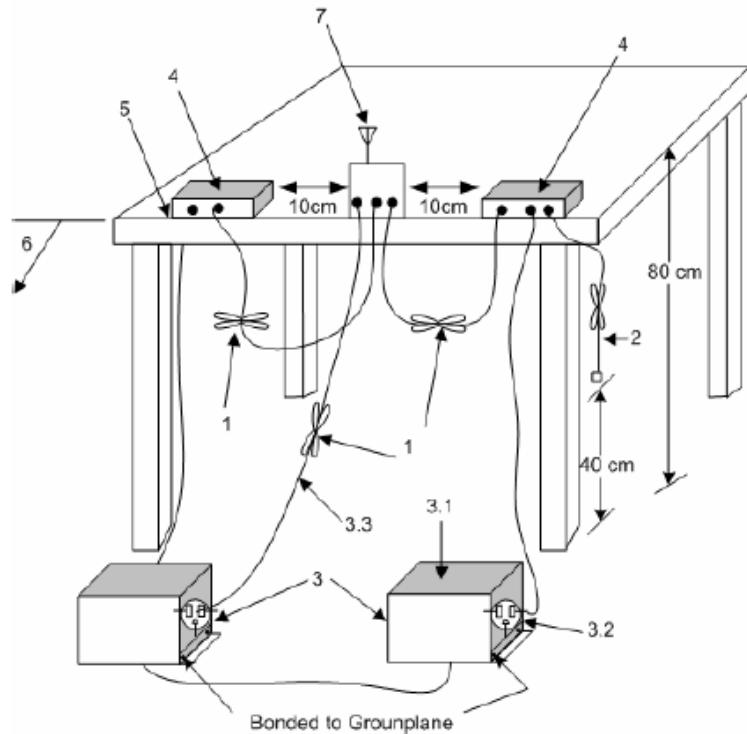
3.1.3 Test Procedures

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



3.1.4 Test Setup

AC Power-line Conducted Emissions



- 1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.
- 2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- 3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50Ω loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
- 3.1—All other equipment powered from additional LISN(s).
- 3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
- 3.3—LISN at least 80 cm from nearest part of EUT chassis.
- 4—Non-EUT components of EUT system being tested.
- 5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
- 6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
- 7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A



3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

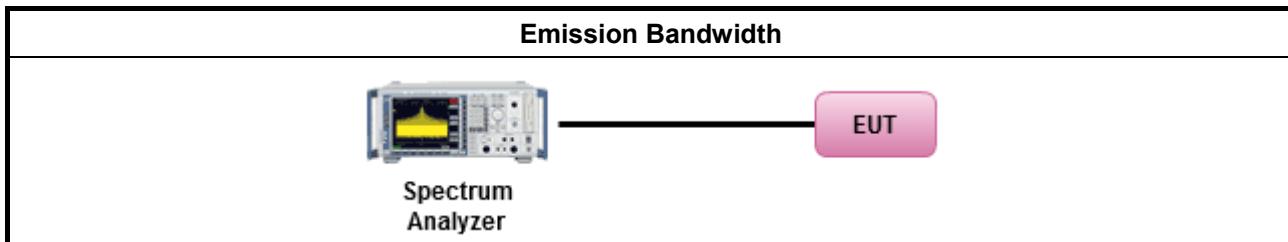
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method
▪ For the emission bandwidth shall be measured using one of the options below:
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.1 Option 1 for 6 dB bandwidth measurement.
<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.2 Option 2 for 6 dB bandwidth measurement.
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B



3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

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

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

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

3.3.2 Measuring Instruments

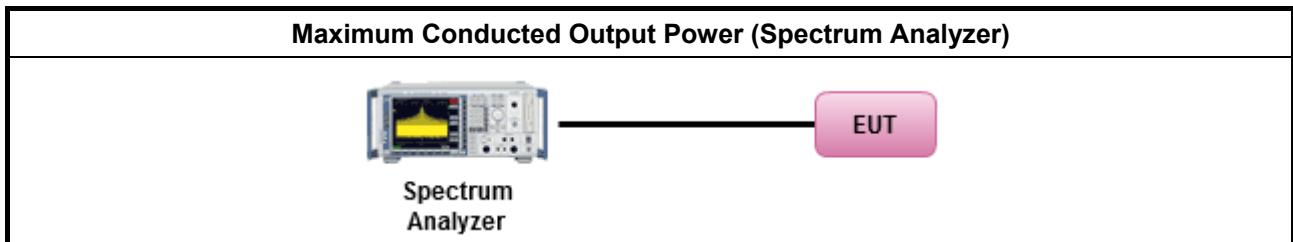
Refer a test equipment and calibration data table in this test report.



3.3.3 Test Procedures

Test Method
<ul style="list-style-type: none">▪ Maximum Peak Conducted Output Power
<ul style="list-style-type: none"><input type="checkbox"/> Refer as FCC KDB 558074, clause 9.1.1 Option 1 (RBW \geq EBW method).<input type="checkbox"/> Refer as FCC KDB 558074, clause 9.1.3 (peak power meter for VBW \geq DTS BW)
<ul style="list-style-type: none">▪ Maximum Conducted Output Power
[duty cycle \geq 98% or external video / power trigger] <ul style="list-style-type: none"><input type="checkbox"/> Refer as FCC KDB 558074, clause 9.2.2.2 Method AVGSA-1 (spectral trace averaging).<input type="checkbox"/> Refer as FCC KDB 558074, clause 9.2.2.3 Method AVGSA-1 Alt. (slow sweep speed) duty cycle < 98% and average over on/off periods with duty factor <ul style="list-style-type: none"><input type="checkbox"/> Refer as FCC KDB 558074, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).<input type="checkbox"/> Refer as FCC KDB 558074, clause 9.2.2.5 Method AVGSA-2 Alt. (slow sweep speed) Measurement using a power meter (PM) <ul style="list-style-type: none"><input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 9.2.3 Method AVGPM (using an RF average power meter).<input type="checkbox"/> Refer as FCC KDB 558074, clause 9.2.3.2 Method AVGPM-G (using an gate RF average power meter).
<ul style="list-style-type: none">▪ For conducted measurement.
<ul style="list-style-type: none"><ul style="list-style-type: none">▪ If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.▪ If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C



3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

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

3.4.2 Measuring Instruments

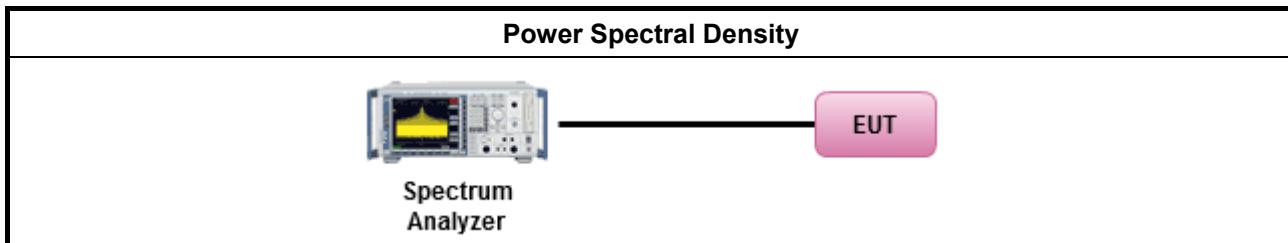
Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method
▪ Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 10.2 Method PKPSD (RBW=3-100kHz; Detector=peak). [duty cycle \geq 98% or external video / power trigger]
<input type="checkbox"/> Refer as FCC KDB 558074, clause 10.3 Method AVGPSD-1 (spectral trace averaging).
<input type="checkbox"/> Refer as FCC KDB 558074, clause 10.4 Method AVGPSD-2 (slow sweep speed)
duty cycle $<$ 98% and average over on/off periods with duty factor
<input type="checkbox"/> Refer as FCC KDB 558074, clause 10.5 Method AVGPSD-1 Alt (spectral trace averaging).
<input type="checkbox"/> Refer as FCC KDB 558074, clause 10.6 Method AVGPSD-2 Alt. (slow sweep speed)
▪ For conducted measurement.
▪ 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.



3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D



3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

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

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

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

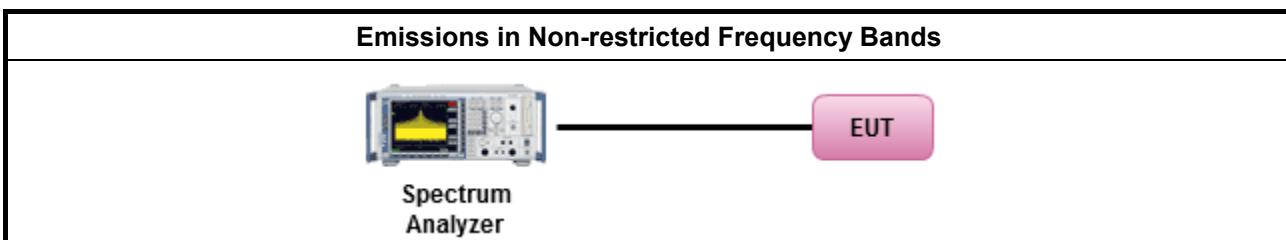
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
▪ Refer as FCC KDB 558074, clause 11 for unwanted emissions into non-restricted bands.

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E



3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

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

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

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

3.6.2 Measuring Instruments

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

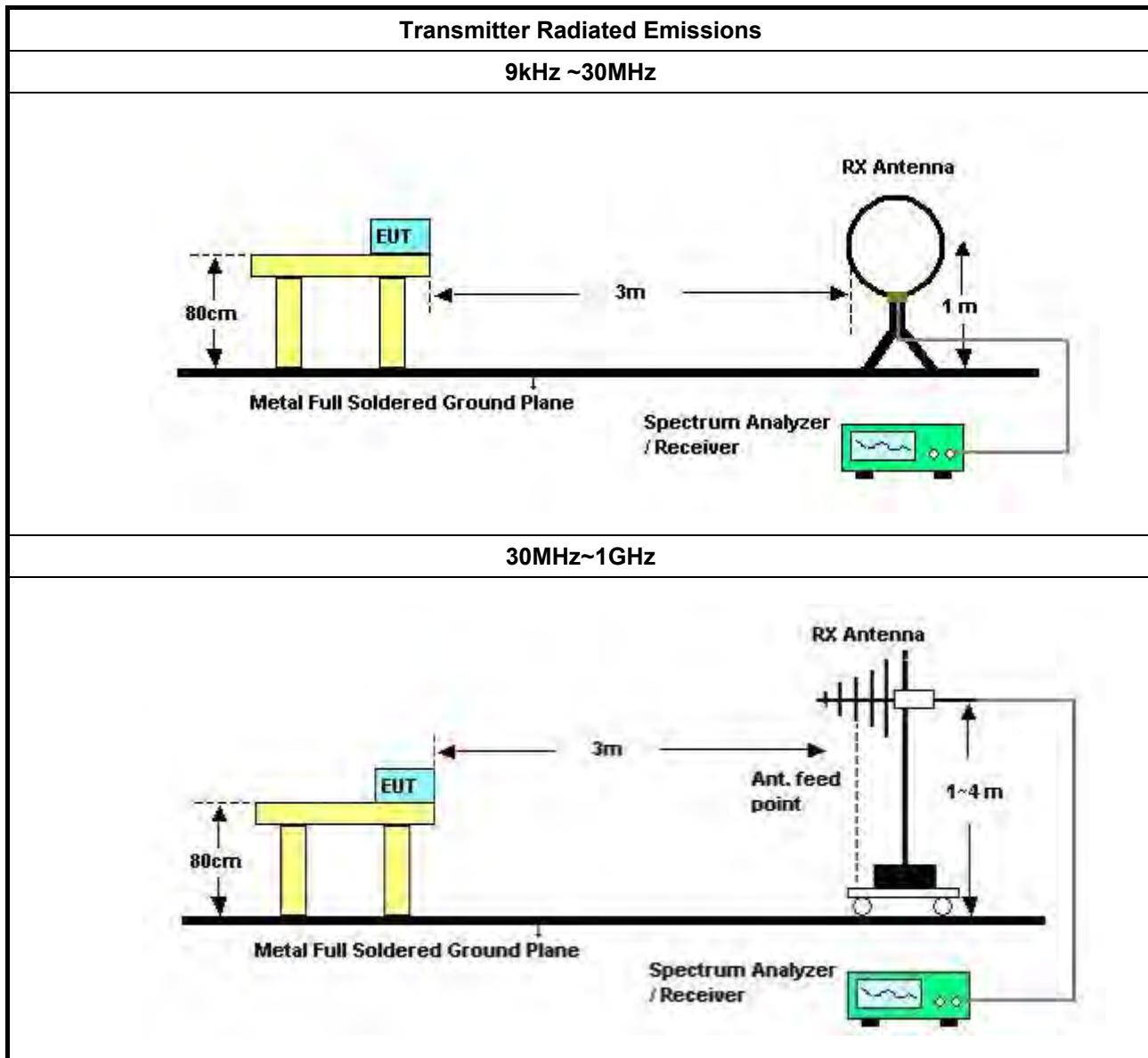


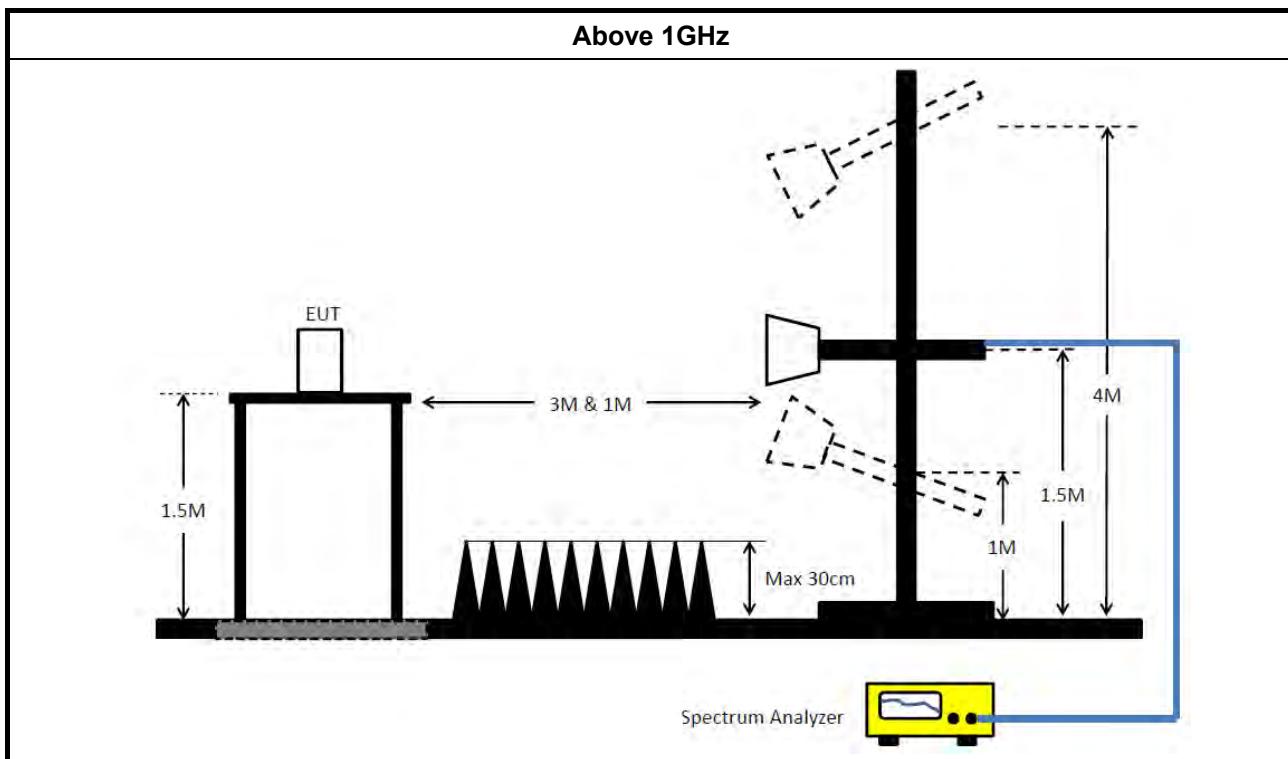
3.6.3 Test Procedures

Test Method	
▪ The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].	
▪ Refer as ANSI C63.10, clause 6.9.2.2 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
▪ For the transmitter unwanted emissions shall be measured using following options below:	
	▪ Refer as FCC KDB 558074, clause 12 for unwanted emissions into restricted bands. <input type="checkbox"/> Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle $\geq 98\%$) <input type="checkbox"/> Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor). <input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced VBW $\geq 1/T$). <input type="checkbox"/> Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq 1/T$, 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 558074, clause 12.2.4 measurement procedure peak limit.
▪ For the transmitter band-edge emissions shall be measured using following options below:	
	▪ Refer as FCC KDB 558074 clause 13.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below. ▪ Refer as FCC KDB 558074, clause 13.2 (ANSI C63.10, clause 6.9.3) for marker-delta method for band-edge measurements. ▪ Refer as FCC KDB 558074, clause 13.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).
▪ For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 12.2.2.	
	▪ For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add $10 \log(N)$ dB ▪ For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.



3.6.4 Test Setup





3.6.5 Transmitter Radiated 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.

The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10 harmonic or 40 GHz, whichever is appropriate.

3.6.6 Test Result of Transmitter Radiated Unwanted Emissions

Refer as Appendix F



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 31, 2018	Jan. 30, 2019	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 20, 2017	Dec. 19, 2018	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 29, 2017	Dec. 28, 2018	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 23, 2017	May 22, 2018	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 30, 2017	Aug. 29, 2018	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 20, 2017	Nov. 19, 2018	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 05, 2017	Jul. 04, 2018	Radiation (03CH01-CB)
Pre-Amplifier	EMCI	EMC330N	980332	20MHz ~ 3GHz	May 02, 2017	May 01, 2018	Radiation (03CH01-CB)
Pre-Amplifier	EMCI	EMC330N	980332	20MHz ~ 3GHz	May 02, 2018	May 01, 2019	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 09, 2018	Jan. 08, 2019	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 10, 2017	Jul. 09, 2018	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 23, 2017	Nov. 22, 2018	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESR26	101289	9kHz ~ 26GHz	Nov. 02, 2017	Nov. 01, 2018	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-16+17	N/A	30 MHz ~ 1 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2018	Mar. 15, 2019	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 21, 2017	Dec. 20, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)

**FCC RADIO TEST REPORT**

Report No. : FR841602AA

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-07	1 GHz –26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz –26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz –26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 20, 2017	Nov. 19, 2018	Conducted (TH01-CB)

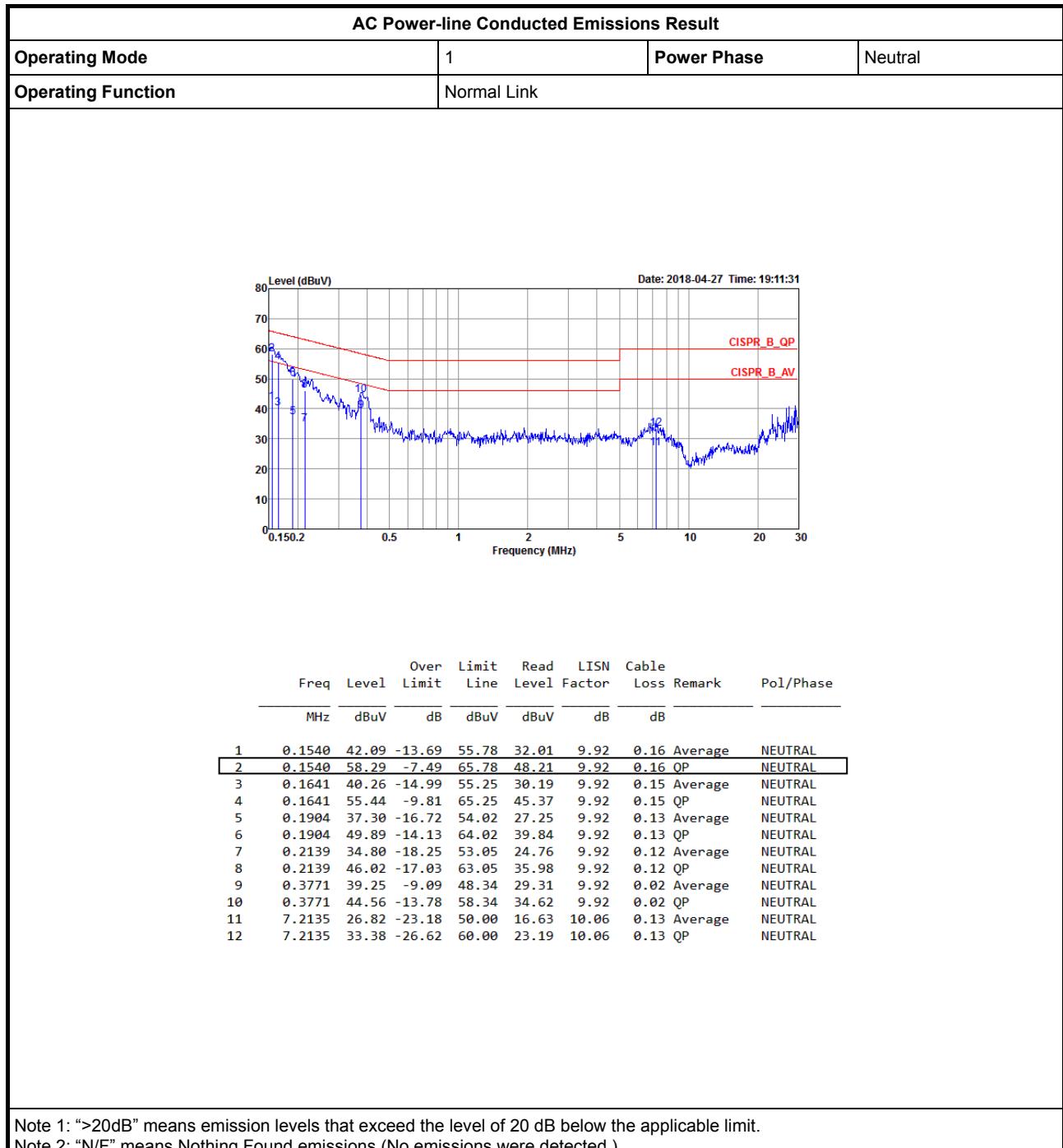
Note: Calibration Interval of instruments listed above is one year.

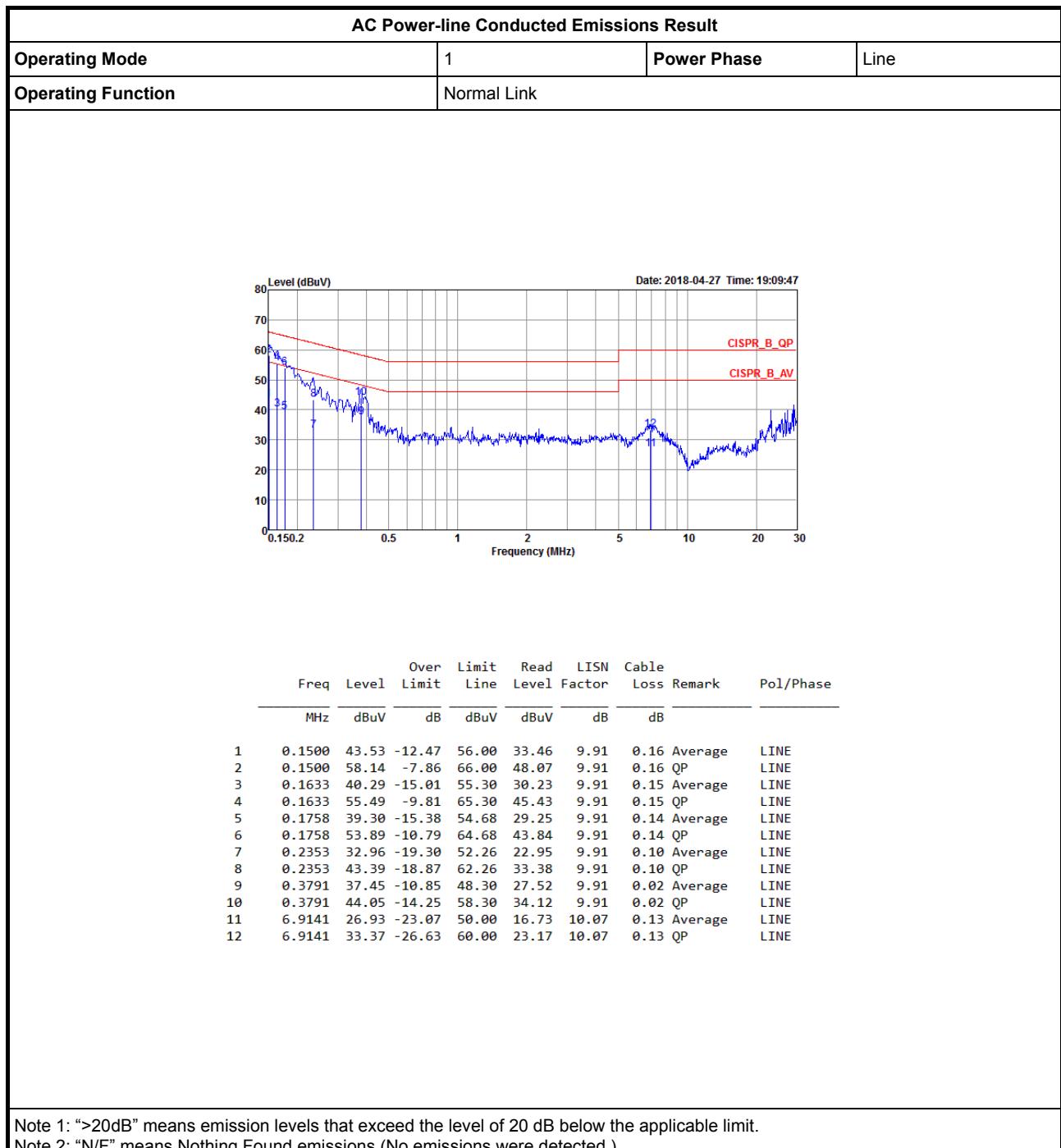
N.C.R. means Non-Calibration required.



AC Power-line Conducted Emissions Result

Appendix A





**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_4TX	8.525M	12.369M	12M4G1D	7.05M	11.219M
802.11g_Nss1,(6Mbps)_4TX	15.975M	25.387M	25M4D1D	13.4M	16.267M
802.11ac VHT20_Nss1,(MCS0)_4TX	17.525M	22.039M	22M0D1D	13.825M	17.466M
802.11ac VHT40_Nss1,(MCS0)_4TX	36.35M	36.382M	36M4D1D	36.05M	36.182M
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	15.075M	17.666M	17M7D1D	13.75M	17.466M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	36.35M	36.382M	36M4D1D	35.65M	36.182M

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

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11b_Nss1,(1Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	8M	11.994M	7.5M	11.469M	8.05M	12.044M	8.525M	12.119M
2437MHz	Pass	500k	8M	12.019M	7.55M	11.944M	8.525M	12.244M	8.025M	12.369M
2462MHz	Pass	500k	8.05M	11.569M	7.55M	11.219M	7.05M	11.969M	8.025M	11.844M
802.11g_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	15.075M	16.317M	14.975M	16.267M	13.8M	16.292M	13.4M	16.342M
2437MHz	Pass	500k	15.975M	24.538M	15.1M	23.038M	13.425M	25.387M	15.05M	24.438M
2462MHz	Pass	500k	15.025M	16.342M	13.775M	16.267M	13.775M	16.342M	13.875M	16.342M
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	15.075M	17.516M	15.25M	17.516M	15.075M	17.491M	15.075M	17.516M
2437MHz	Pass	500k	15.075M	20.49M	15M	19.14M	15.275M	22.039M	17.525M	21.964M
2462MHz	Pass	500k	15.1M	17.466M	14.4M	17.491M	13.825M	17.541M	15.7M	17.491M
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	36.05M	36.232M	36.05M	36.282M	36.25M	36.182M	36.35M	36.182M
2437MHz	Pass	500k	36.35M	36.382M	36.35M	36.332M	36.3M	36.332M	36.35M	36.332M
2452MHz	Pass	500k	36.3M	36.332M	36.3M	36.332M	36.3M	36.232M	36.3M	36.282M
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	15.075M	17.516M	15M	17.491M	13.85M	17.541M	15.05M	17.516M
2437MHz	Pass	500k	13.975M	17.666M	15.075M	17.616M	15.075M	17.641M	14.4M	17.616M
2462MHz	Pass	500k	13.9M	17.466M	15.05M	17.516M	13.75M	17.516M	15.05M	17.491M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	35.7M	36.332M	35.65M	36.332M	36.35M	36.182M	36.35M	36.282M
2437MHz	Pass	500k	36.35M	36.382M	36.3M	36.282M	36.3M	36.282M	36.3M	36.282M
2452MHz	Pass	500k	36.3M	36.332M	36.3M	36.382M	36.3M	36.182M	36.3M	36.232M

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

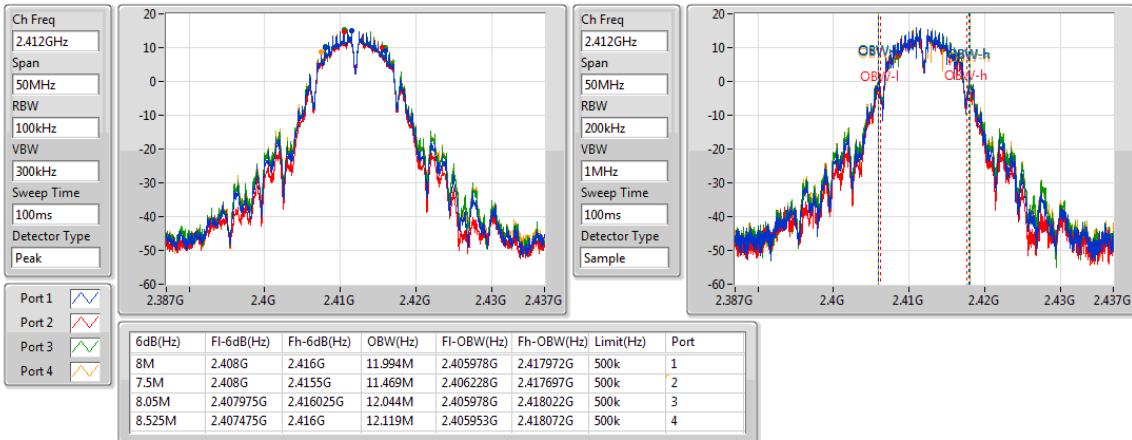


802.11b_Nss1,(1Mbps)_4TX

EBW

2412MHz

27/04/2018

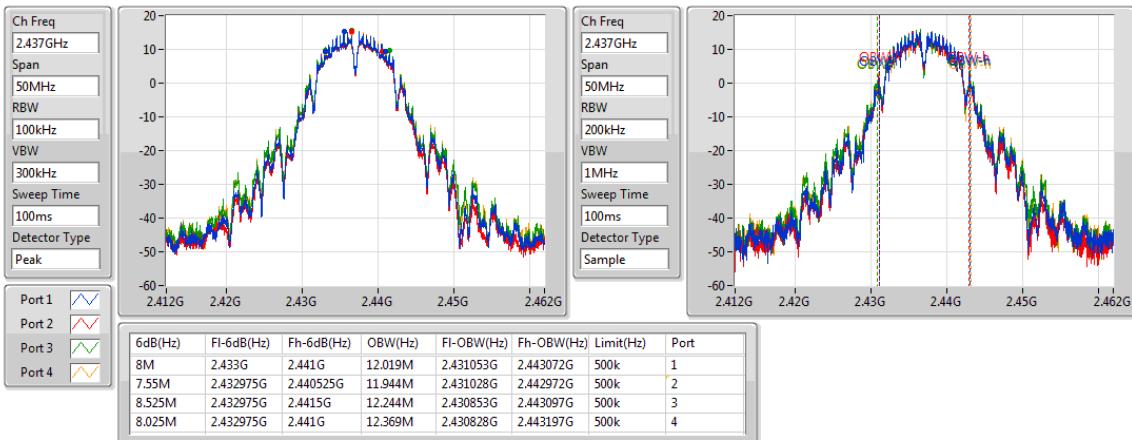


802.11b_Nss1,(1Mbps)_4TX

EBW

2437MHz

27/04/2018

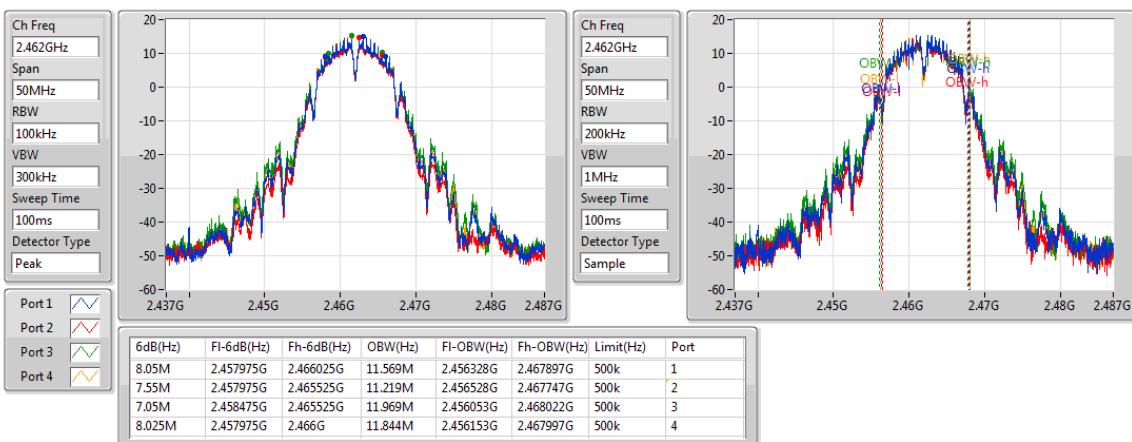


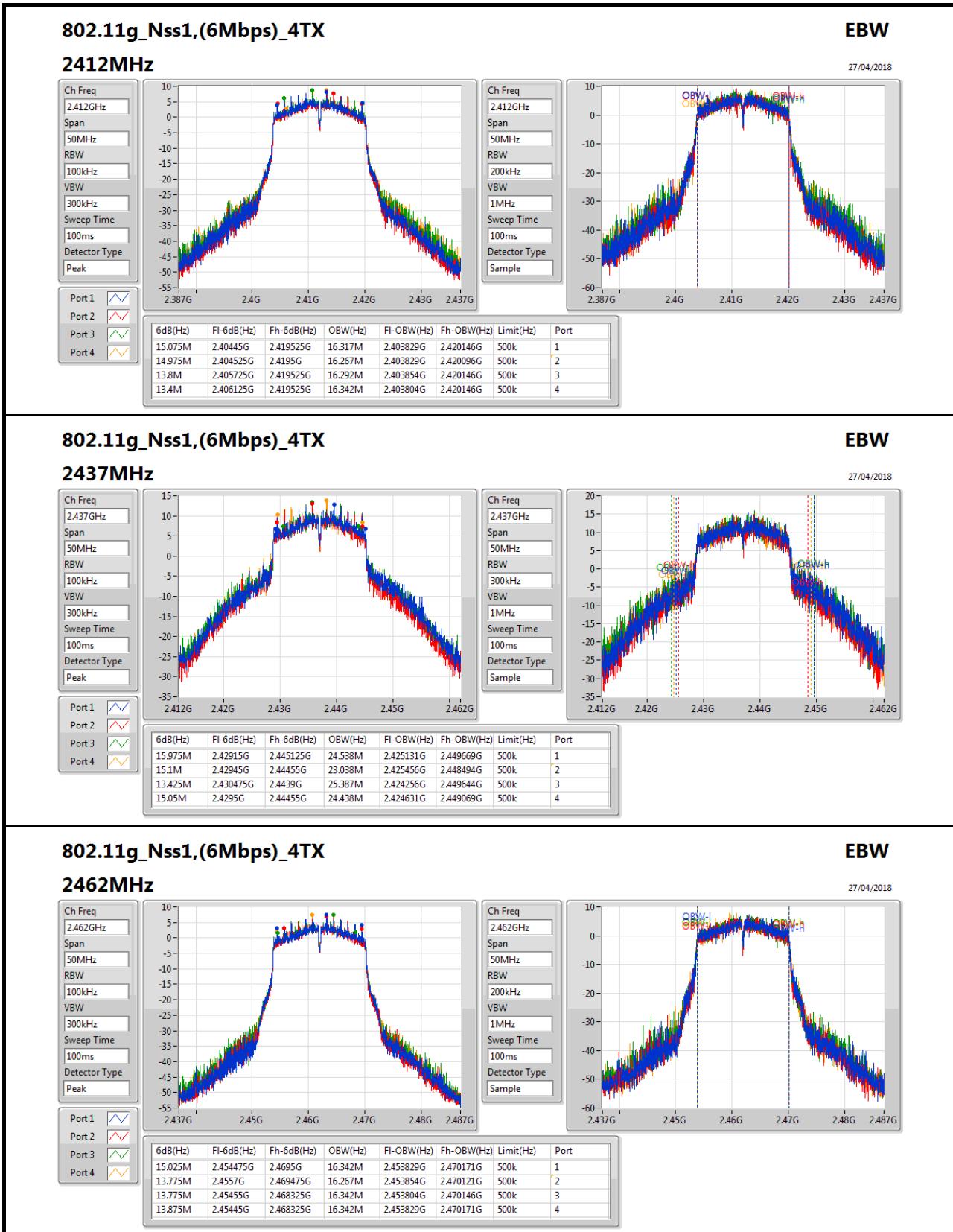
802.11b_Nss1,(1Mbps)_4TX

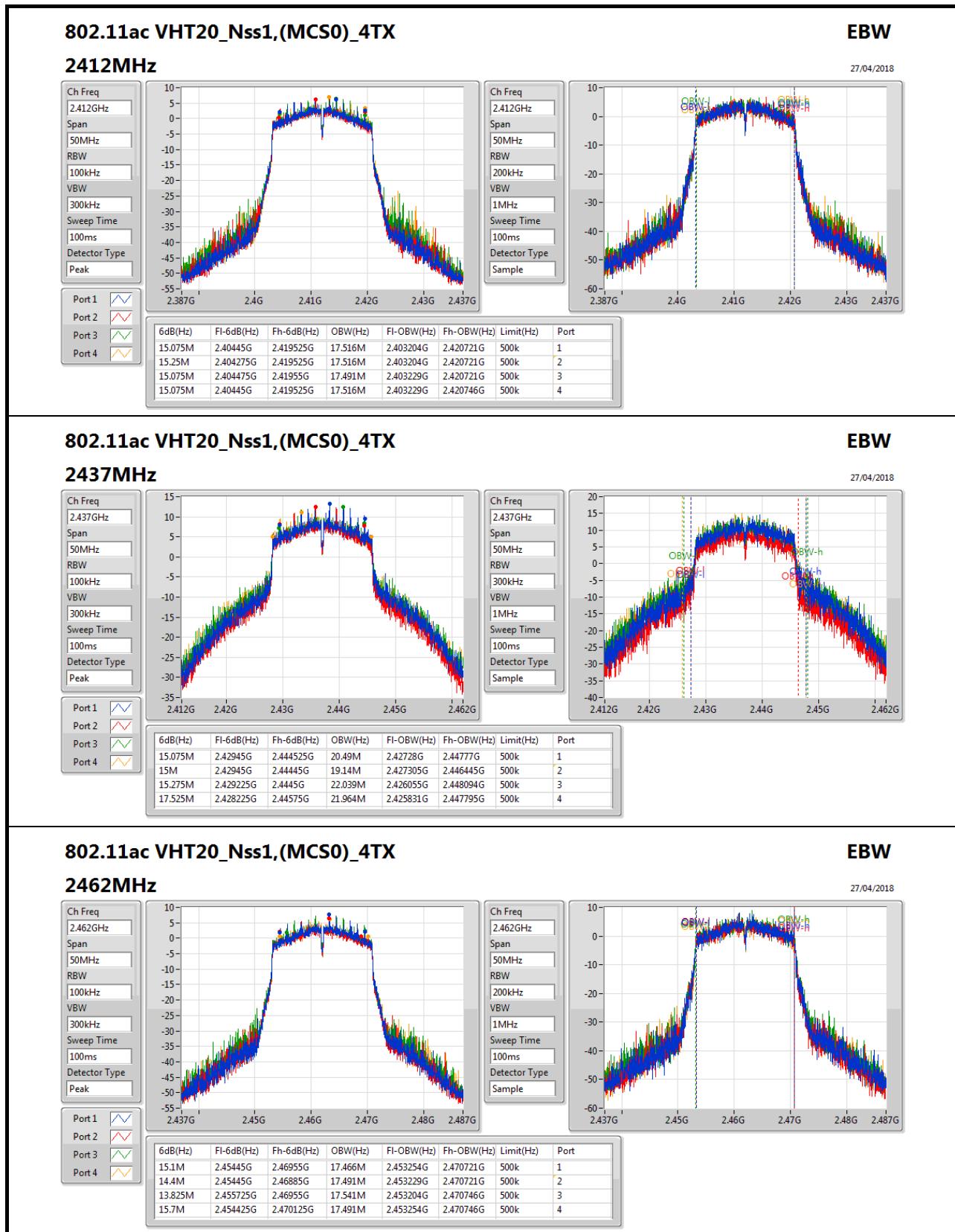
EBW

2462MHz

27/04/2018

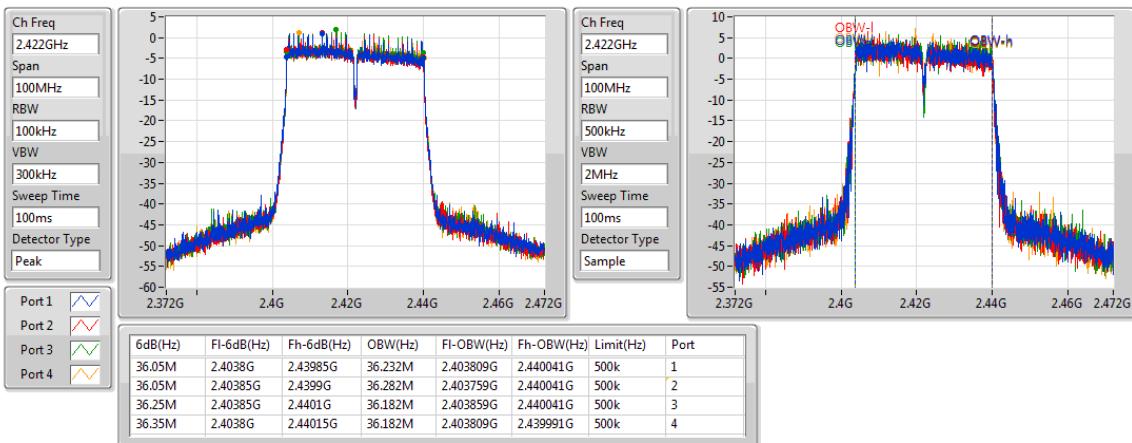




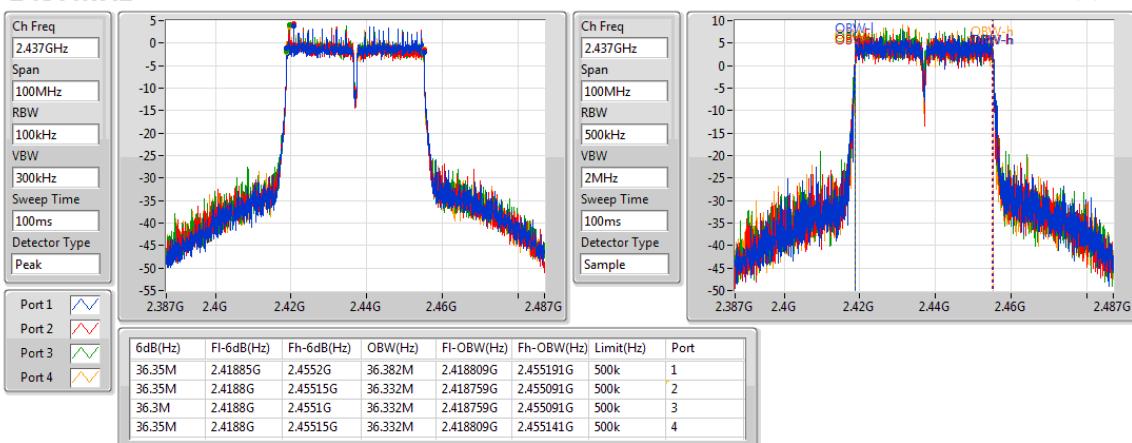


802.11ac VHT40_Nss1,(MCS0)_4TX
EBW
2422MHz

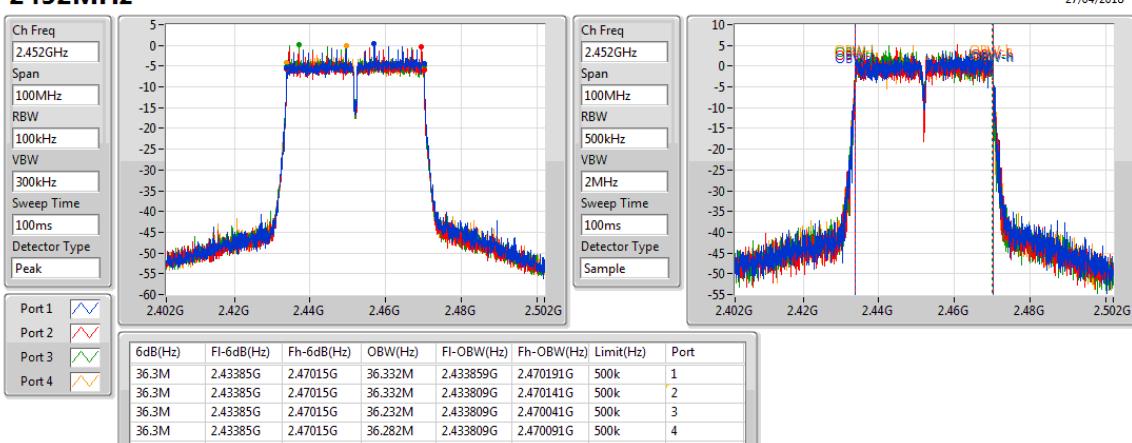
27/04/2018

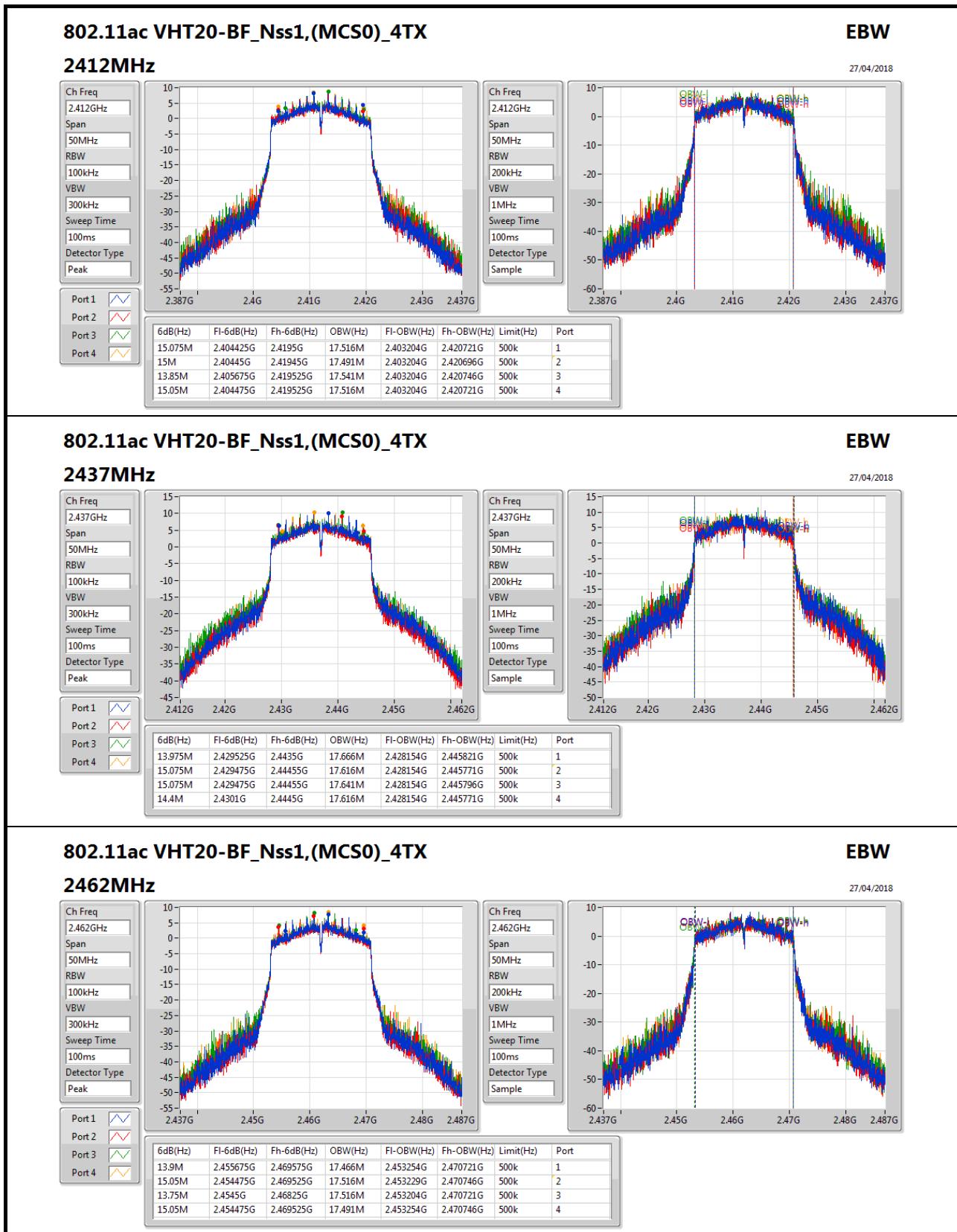

802.11ac VHT40_Nss1,(MCS0)_4TX
EBW
2437MHz

27/04/2018


802.11ac VHT40_Nss1,(MCS0)_4TX
EBW
2452MHz

27/04/2018





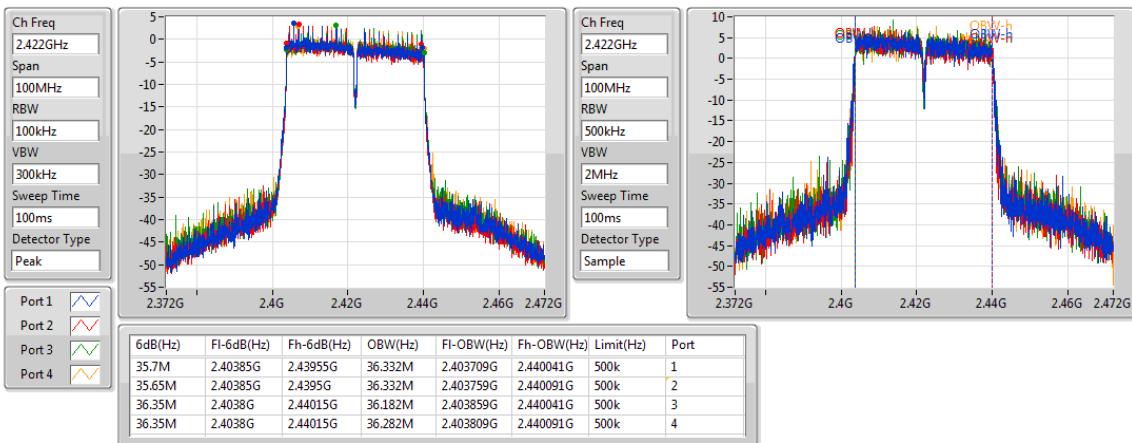


802.11ac VHT40-BF_Nss1,(MCS0)_4TX

EBW

2422MHz

27/04/2018

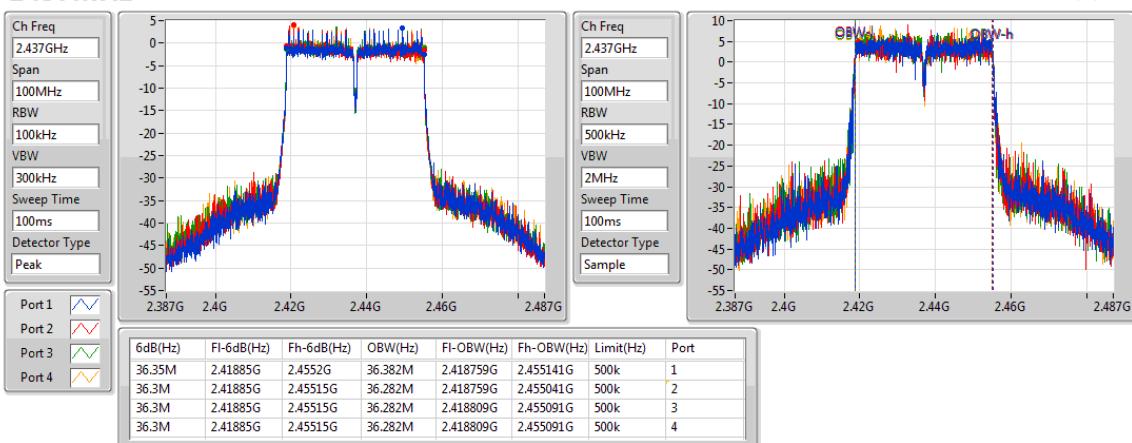


802.11ac VHT40-BF_Nss1,(MCS0)_4TX

EBW

2437MHz

27/04/2018

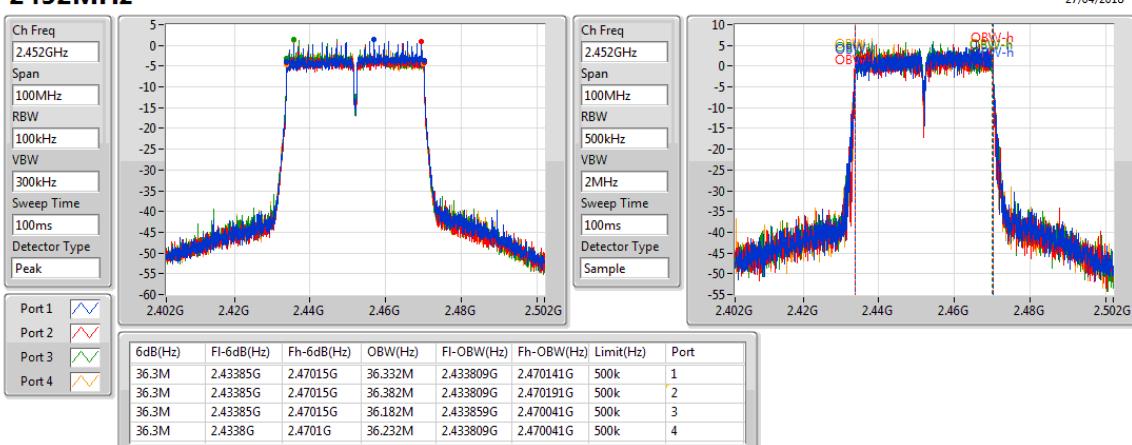


802.11ac VHT40-BF_Nss1,(MCS0)_4TX

EBW

2452MHz

27/04/2018



**Summary**

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_4TX	29.99	0.99770
802.11g_Nss1,(6Mbps)_4TX	29.95	0.98855
802.11ac VHT20_Nss1,(MCS0)_4TX	29.32	0.85507
802.11ac VHT40_Nss1,(MCS0)_4TX	24.40	0.27542
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	27.10	0.51286
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	24.21	0.26363

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11b_Nss1,(1Mbps)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.50	24.01	23.55	24.20	24.08	29.99	30.00
2417MHz	Pass	3.50	23.96	23.58	24.25	24.04	29.98	30.00
2422MHz	Pass	3.50	24.00	23.54	24.27	23.99	29.98	30.00
2427MHz	Pass	3.50	23.92	23.74	24.24	23.98	29.99	30.00
2437MHz	Pass	3.50	23.98	23.75	24.14	23.98	29.99	30.00
2442MHz	Pass	3.50	23.98	23.73	23.94	23.98	29.93	30.00
2447MHz	Pass	3.50	24.03	23.63	24.18	23.97	29.98	30.00
2452MHz	Pass	3.50	23.90	23.70	24.20	24.01	29.98	30.00
2457MHz	Pass	3.50	23.58	23.41	23.98	23.44	29.63	30.00
2462MHz	Pass	3.50	23.62	23.27	23.86	23.41	29.57	30.00
802.11g_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.50	19.27	18.92	19.71	19.24	25.31	30.00
2417MHz	Pass	3.50	21.92	21.60	22.36	22.07	28.02	30.00
2422MHz	Pass	3.50	22.09	22.20	22.71	22.63	28.44	30.00
2427MHz	Pass	3.50	22.74	22.42	23.15	22.90	28.83	30.00
2432MHz	Pass	3.50	23.83	23.47	24.14	23.80	29.84	30.00
2437MHz	Pass	3.50	23.99	23.48	24.26	23.95	29.95	30.00
2442MHz	Pass	3.50	23.67	23.01	23.93	23.77	29.63	30.00
2447MHz	Pass	3.50	23.45	22.80	23.84	23.50	29.43	30.00
2452MHz	Pass	3.50	23.04	22.53	23.43	23.10	29.06	30.00
2457MHz	Pass	3.50	21.11	20.73	21.57	21.23	27.19	30.00
2462MHz	Pass	3.50	17.96	17.92	18.45	18.02	24.11	30.00
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.50	17.59	17.56	18.06	17.80	23.78	30.00
2417MHz	Pass	3.50	20.20	19.65	20.30	20.07	26.08	30.00
2422MHz	Pass	3.50	20.69	20.25	20.82	20.61	26.62	30.00
2427MHz	Pass	3.50	22.76	22.40	22.85	22.49	28.65	30.00
2432MHz	Pass	3.50	23.27	23.01	23.47	23.29	29.28	30.00
2437MHz	Pass	3.50	23.36	22.76	23.44	23.29	29.24	30.00
2442MHz	Pass	3.50	23.44	22.83	23.53	23.35	29.32	30.00
2447MHz	Pass	3.50	22.06	21.34	22.14	21.85	27.88	30.00
2452MHz	Pass	3.50	21.06	20.65	21.34	21.09	27.06	30.00
2457MHz	Pass	3.50	19.88	19.46	19.84	19.60	25.72	30.00



AV Power Result

Appendix C

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
2462MHz	Pass	3.50	17.82	17.51	18.29	17.80	23.88	30.00
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	3.50	15.65	15.66	15.60	15.70	21.67	30.00
2427MHz	Pass	3.50	16.52	15.96	16.57	16.52	22.42	30.00
2432MHz	Pass	3.50	17.74	17.50	17.93	17.88	23.79	30.00
2437MHz	Pass	3.50	18.44	18.05	18.67	18.33	24.40	30.00
2442MHz	Pass	3.50	16.41	16.10	16.66	16.53	22.45	30.00
2447MHz	Pass	3.50	15.52	15.27	15.73	15.35	21.49	30.00
2452MHz	Pass	3.50	14.57	14.22	14.45	14.51	20.46	30.00
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	8.87	18.89	18.27	19.69	18.92	24.99	27.13
2417MHz	Pass	8.87	21.02	20.31	20.57	21.01	26.76	27.13
2422MHz	Pass	8.87	21.32	20.76	21.03	21.10	27.08	27.13
2427MHz	Pass	8.87	21.28	20.75	21.15	21.07	27.09	27.13
2432MHz	Pass	8.87	21.36	20.90	21.00	20.88	27.06	27.13
2437MHz	Pass	8.87	21.21	20.83	21.18	21.06	27.09	27.13
2442MHz	Pass	8.87	21.51	20.62	21.06	20.94	27.06	27.13
2447MHz	Pass	8.87	21.53	20.68	21.07	21.01	27.10	27.13
2452MHz	Pass	8.87	21.19	20.74	21.20	21.09	27.08	27.13
2457MHz	Pass	8.87	20.70	20.04	20.38	20.30	26.38	27.13
2462MHz	Pass	8.87	18.52	18.08	18.82	18.68	24.55	27.13
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	8.87	17.54	17.29	17.81	17.63	23.59	27.13
2427MHz	Pass	8.87	17.93	17.57	17.61	17.63	23.71	27.13
2432MHz	Pass	8.87	18.05	17.60	18.02	17.91	23.92	27.13
2437MHz	Pass	8.87	18.31	18.00	18.30	18.13	24.21	27.13
2442MHz	Pass	8.87	17.23	16.95	16.96	17.00	23.06	27.13
2447MHz	Pass	8.87	16.06	15.66	15.71	15.84	21.84	27.13
2452MHz	Pass	8.87	15.90	15.58	15.85	15.66	21.77	27.13

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

Note : Conducted average output power is for reference only

**Summary**

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_4TX	-3.17
802.11g_Nss1,(6Mbps)_4TX	4.47
802.11ac VHT20_Nss1,(MCS0)_4TX	2.06
802.11ac VHT40_Nss1,(MCS0)_4TX	-5.88
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	1.28
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-6.54

RBW=3kHz.

Result

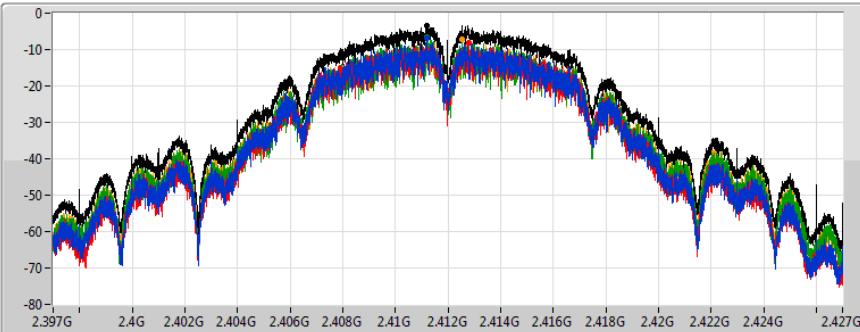
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	8.87	-6.73	-8.06	-6.60	-7.13	-3.31	5.13
2437MHz	Pass	8.87	-7.06	-6.99	-7.81	-7.75	-3.49	5.13
2462MHz	Pass	8.87	-7.90	-7.66	-7.81	-7.56	-3.17	5.13
802.11g_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	8.87	-5.34	-6.44	-5.06	-5.85	-0.75	5.13
2437MHz	Pass	8.87	-1.73	-0.75	-1.13	-0.38	4.47	5.13
2462MHz	Pass	8.87	-6.69	-6.80	-6.12	-6.68	-1.41	5.13
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	8.87	-7.65	-8.03	-7.04	-7.51	-2.77	5.13
2437MHz	Pass	8.87	-2.53	-2.17	-1.53	-1.60	2.06	5.13
2462MHz	Pass	8.87	-6.10	-7.54	-6.67	-7.67	-2.87	5.13
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	8.87	-12.59	-11.97	-12.98	-12.75	-8.75	5.13
2437MHz	Pass	8.87	-10.57	-10.70	-10.54	-9.10	-5.88	5.13
2452MHz	Pass	8.87	-13.86	-14.26	-14.00	-13.49	-10.26	5.13
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	8.87	-6.28	-5.98	-6.00	-6.23	-2.17	5.13
2437MHz	Pass	8.87	-3.56	-3.49	-3.45	-3.51	1.28	5.13
2462MHz	Pass	8.87	-5.94	-7.32	-6.12	-6.94	-2.09	5.13
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	8.87	-10.71	-9.48	-9.12	-10.54	-6.87	5.13
2437MHz	Pass	8.87	-9.88	-10.64	-10.89	-9.33	-6.54	5.13
2452MHz	Pass	8.87	-12.10	-12.86	-12.52	-12.54	-8.94	5.13

DG = Directional Gain; RBW=3kHz;

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

802.11b_Nss1,(1Mbps)_4TX
2412MHz

Ch Freq
2.412GHz
Span
30MHz
RBW
3kHz
VBW
10kHz
Sweep Time
334ms
Detector Type
RMS


PSD

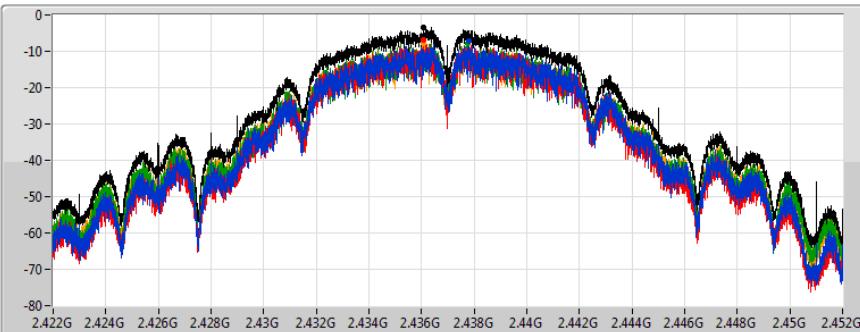
27/04/2018

Sum
Port 1
Port 2
Port 3
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.31	-3.31	-6.73	-8.06	-6.60	-7.13

802.11b_Nss1,(1Mbps)_4TX
2437MHz

Ch Freq
2.437GHz
Span
30MHz
RBW
3kHz
VBW
10kHz
Sweep Time
334ms
Detector Type
RMS


PSD

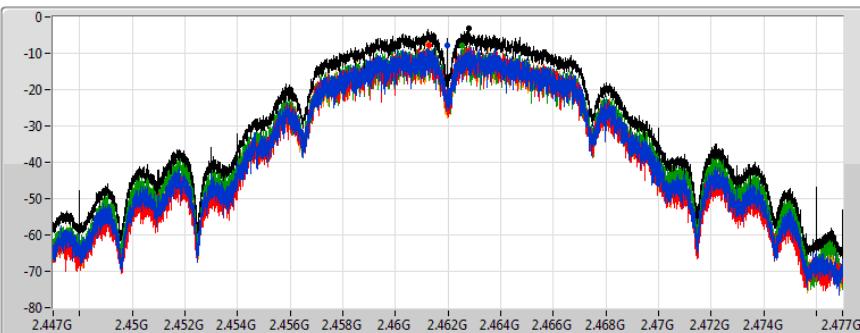
27/04/2018

Sum
Port 1
Port 2
Port 3
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.49	-3.49	-7.06	-6.99	-7.81	-7.75

802.11b_Nss1,(1Mbps)_4TX
2462MHz

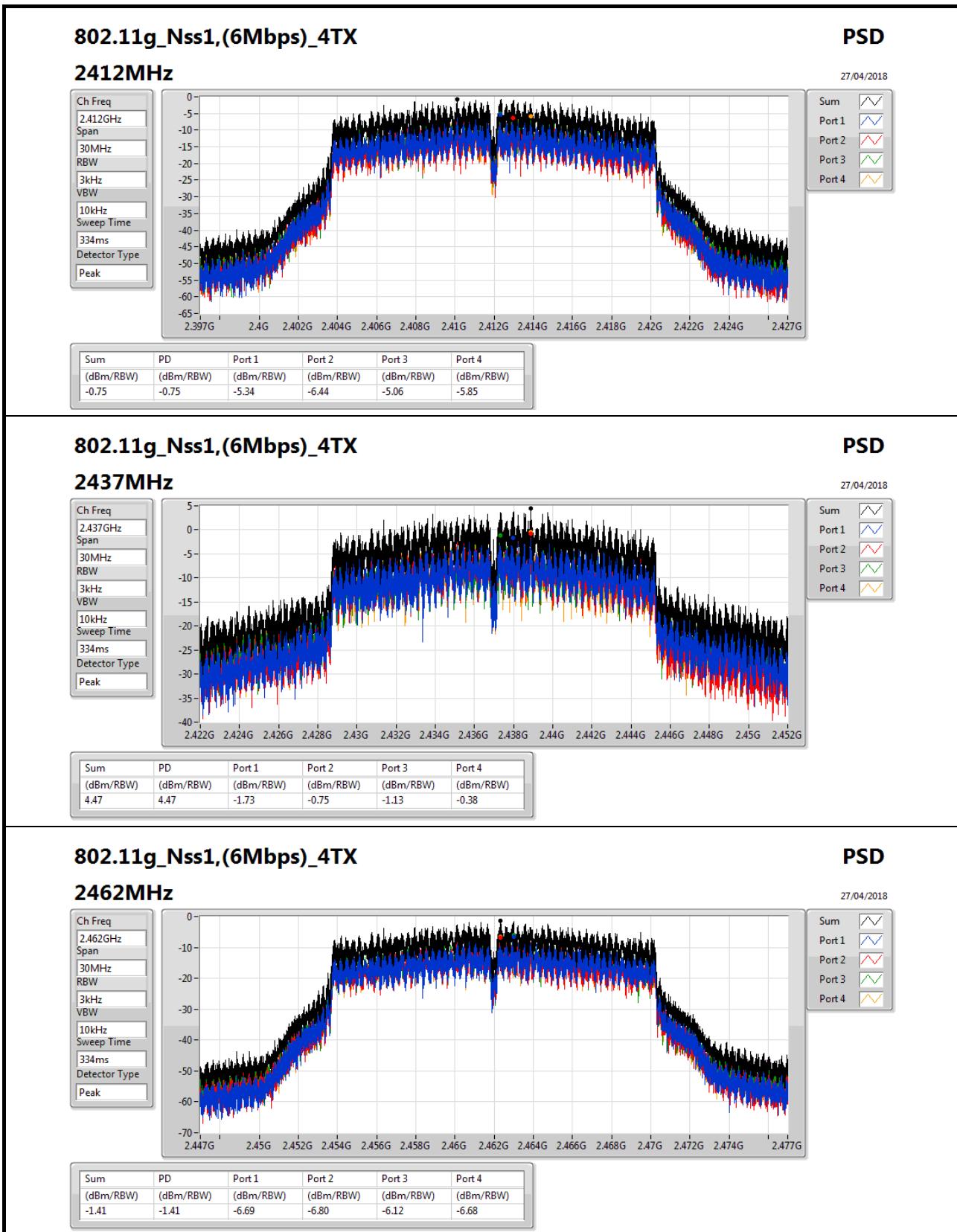
Ch Freq
2.462GHz
Span
30MHz
RBW
3kHz
VBW
10kHz
Sweep Time
334ms
Detector Type
RMS


PSD

27/04/2018

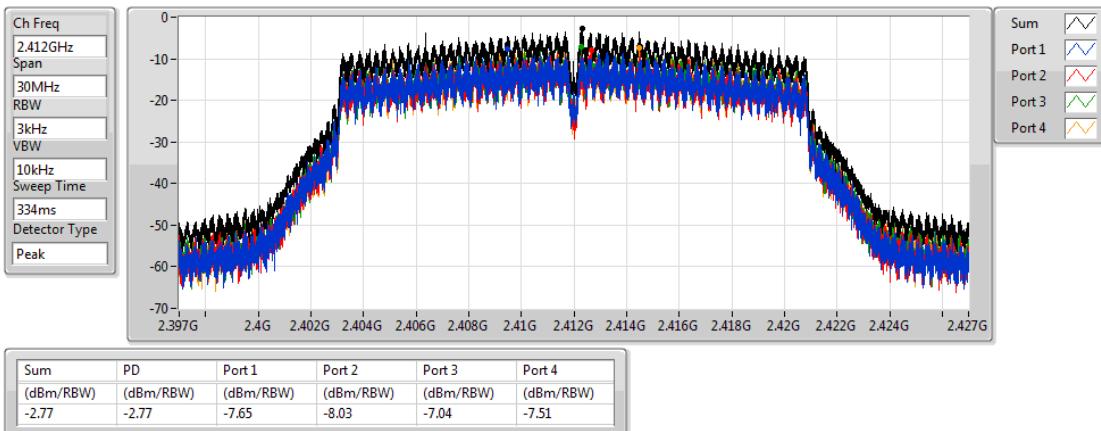
Sum
Port 1
Port 2
Port 3
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.17	-3.17	-7.90	-7.66	-7.81	-7.56

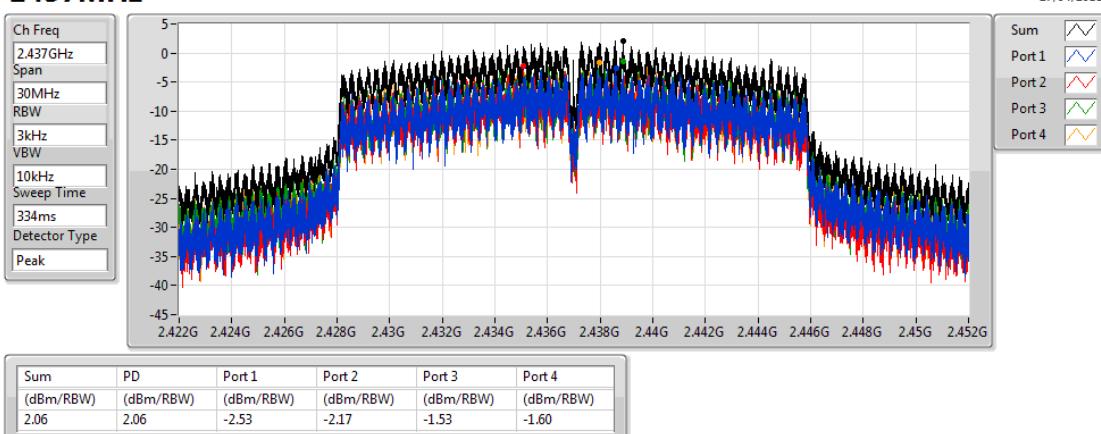


802.11ac VHT20_Nss1,(MCS0)_4TX
2412MHz
PSD

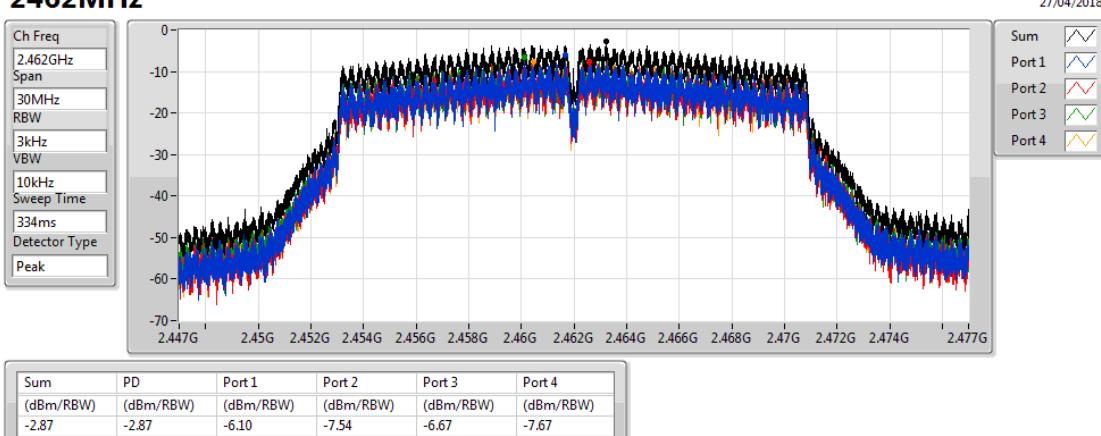
27/04/2018


802.11ac VHT20_Nss1,(MCS0)_4TX
2437MHz
PSD

27/04/2018

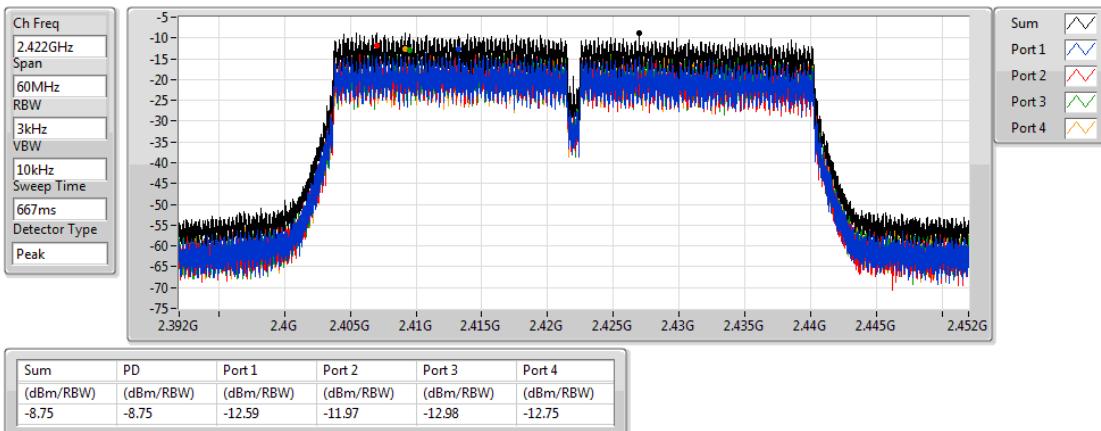

802.11ac VHT20_Nss1,(MCS0)_4TX
2462MHz
PSD

27/04/2018

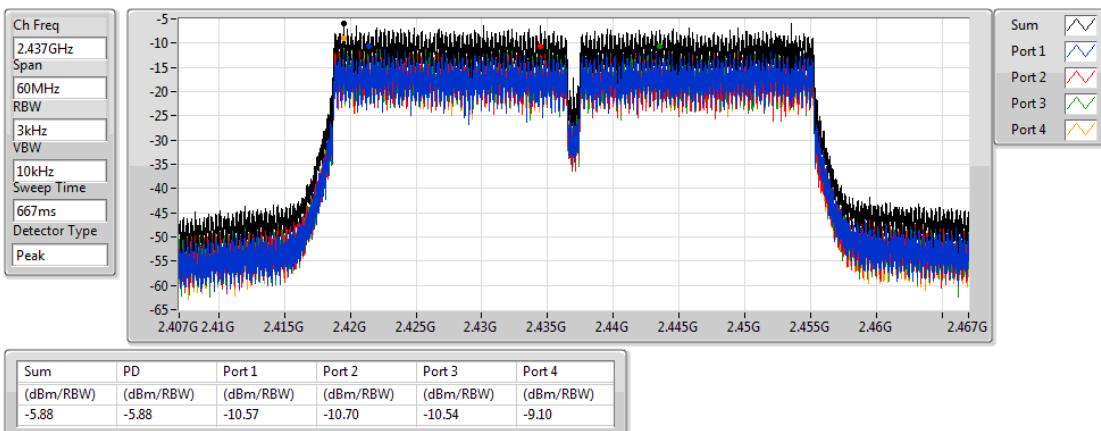


802.11ac VHT40_Nss1,(MCS0)_4TX
2422MHz
PSD

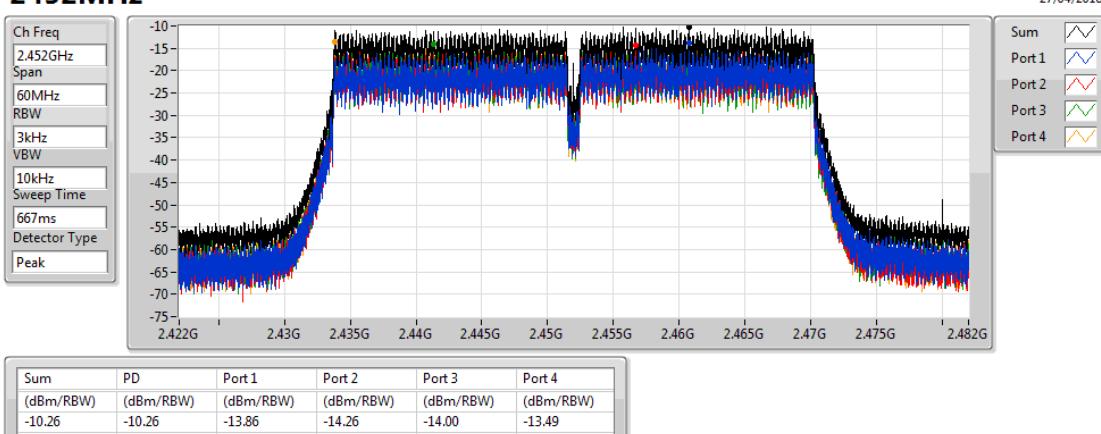
27/04/2018


802.11ac VHT40_Nss1,(MCS0)_4TX
2437MHz
PSD

27/04/2018


802.11ac VHT40_Nss1,(MCS0)_4TX
2452MHz
PSD

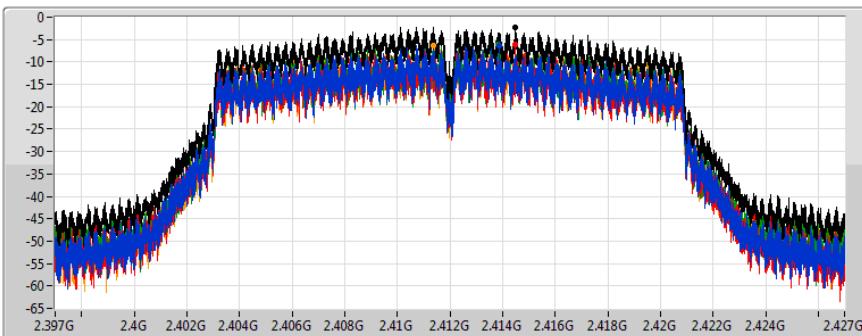
27/04/2018



802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2412MHz
PSD

27/04/2018

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



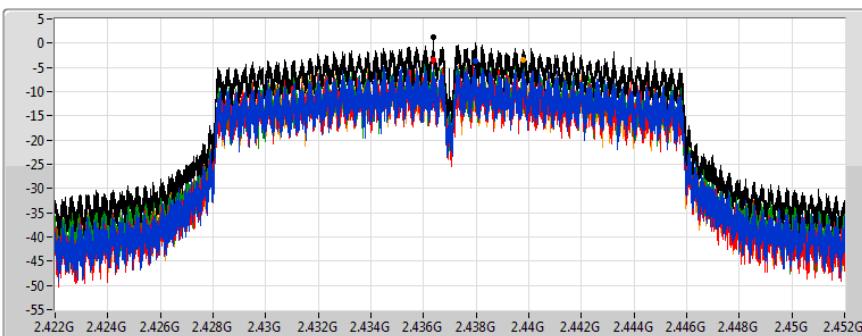
Sum
Port 1
Port 2
Port 3
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.17	-2.17	-6.28	-5.98	-6.00	-6.23

802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2437MHz
PSD

27/04/2018

Ch Freq
2.437GHz
Span
30MHz
RBW
3kHz
VBW
10kHz
Sweep Time
334ms
Detector Type
Peak



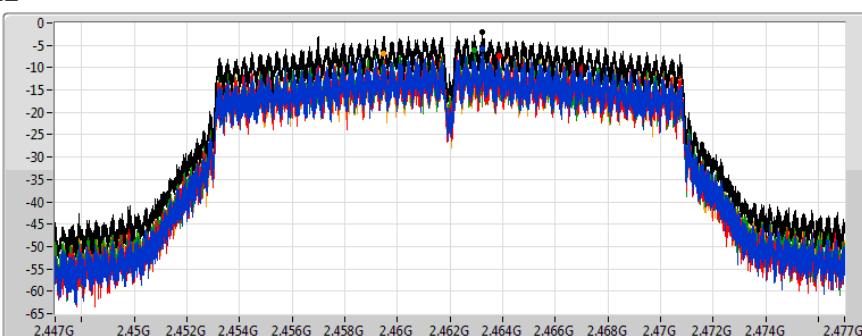
Sum
Port 1
Port 2
Port 3
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.28	1.28	-3.56	-3.49	-3.45	-3.51

802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2462MHz
PSD

27/04/2018

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

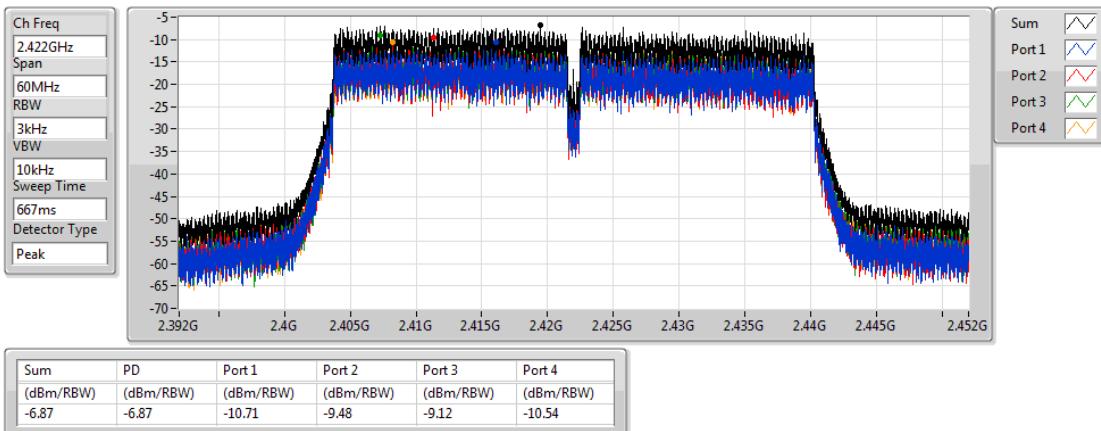


Sum
Port 1
Port 2
Port 3
Port 4

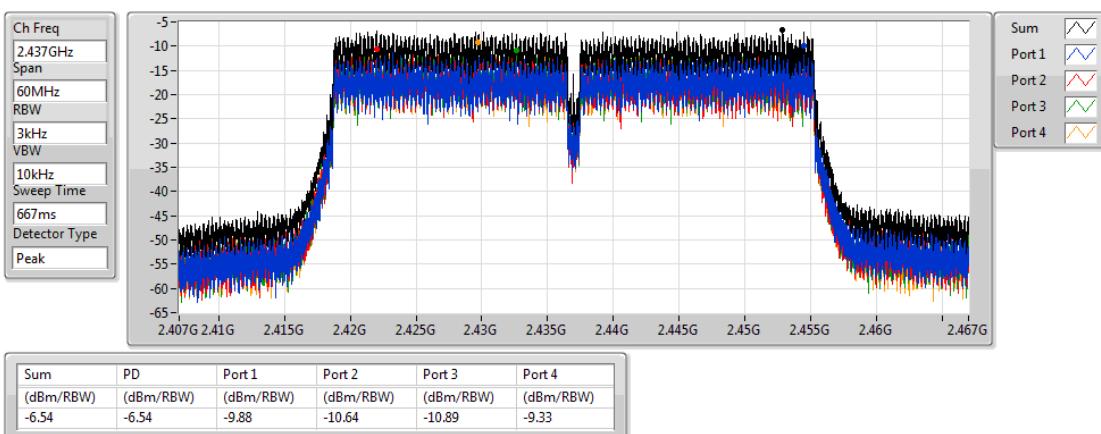
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.09	-2.09	-5.94	-7.32	-6.12	-6.94

802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2422MHz
PSD

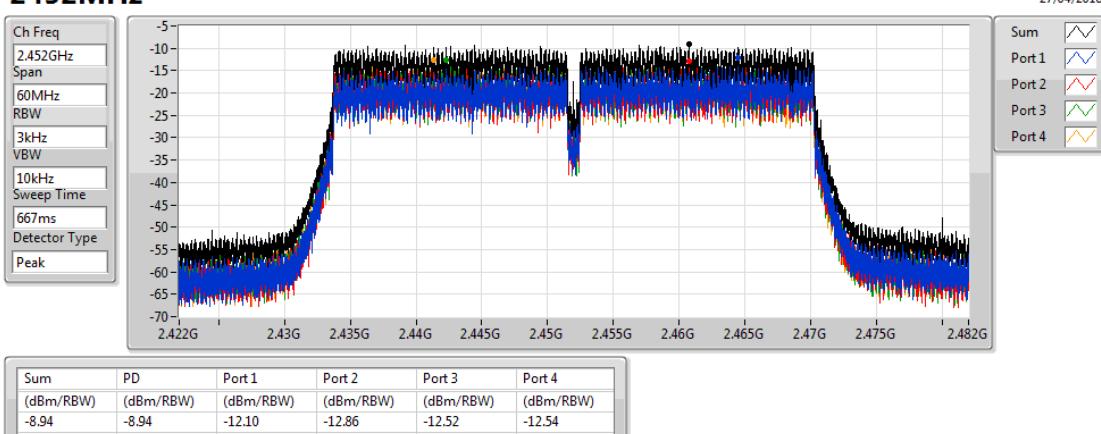
27/04/2018


802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2437MHz
PSD

27/04/2018


802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2452MHz
PSD

27/04/2018



**Summary**

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Port						
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
802.11b_Nss1,(1Mbps)_4TX	Pass	2.435905G	15.35	-14.65	2.307575G	-57.52	2.39904G	-24.58	2.48734G	-52.07	7.235136G	-48.60	3
802.11g_Nss1,(6Mbps)_4TX	Pass	2.435738G	13.74	-16.26	1.95691G	-58.48	2.39984G	-25.77	2.48734G	-44.56	6.973847G	-52.63	4
802.11ac VHT20_Nss1,(MCS0)_4TX	Pass	2.435738G	12.67	-17.33	911.905M	-59.05	2.3976G	-27.76	2.48734G	-51.20	6.810892G	-52.35	2
802.11ac VHT40_Nss1,(MCS0)_4TX	Pass	2.420708G	4.27	-25.73	936.84M	-57.94	2.39824G	-34.15	2.48622G	-42.77	6.809608G	-52.87	2
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	Pass	2.440748G	9.40	-20.60	1.98021G	-59.24	2.39736G	-22.84	2.48734G	-49.00	6.937323G	-51.76	3
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	Pass	2.420708G	3.65	-26.35	1.94444G	-59.12	2.39952G	-29.95	2.48622G	-51.75	6.846067G	-51.72	3

Result

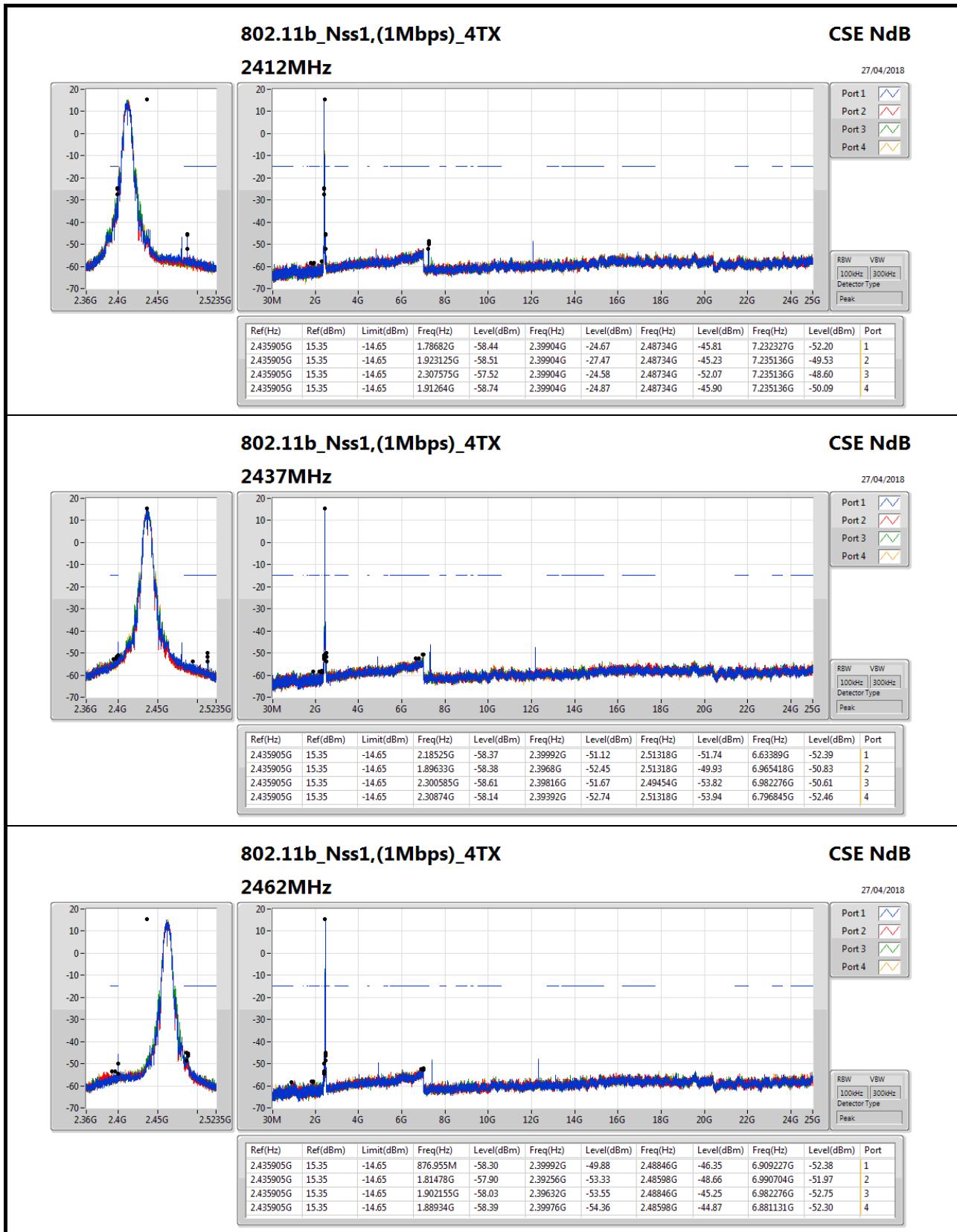
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Port						
802.11b_Nss1,(1Mbps)_4TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.435905G	15.35	-14.65	1.78682G	-58.44	2.39904G	-24.67	2.48734G	-45.81	7.232327G	-52.20	1
2412MHz	Pass	2.435905G	15.35	-14.65	1.923125G	-58.51	2.39904G	-27.47	2.48734G	-45.23	7.235136G	-49.53	2
2412MHz	Pass	2.435905G	15.35	-14.65	2.307575G	-57.52	2.39904G	-24.58	2.48734G	-52.07	7.235136G	-48.60	3
2412MHz	Pass	2.435905G	15.35	-14.65	1.91264G	-58.74	2.39904G	-24.87	2.48734G	-45.90	7.235136G	-50.09	4
2437MHz	Pass	2.435905G	15.35	-14.65	2.18525G	-58.37	2.39992G	-51.12	2.51318G	-51.74	6.63389G	-52.39	1
2437MHz	Pass	2.435905G	15.35	-14.65	1.89633G	-58.38	2.3968G	-52.45	2.51318G	-49.93	6.965418G	-50.83	2
2437MHz	Pass	2.435905G	15.35	-14.65	2.300585G	-58.61	2.39816G	-51.67	2.49454G	-53.82	6.982276G	-50.61	3
2437MHz	Pass	2.435905G	15.35	-14.65	2.30874G	-58.14	2.39392G	-52.74	2.51318G	-53.94	6.796845G	-52.46	4
2462MHz	Pass	2.435905G	15.35	-14.65	876.955M	-58.30	2.39992G	-49.88	2.48846G	-46.35	6.909227G	-52.38	1
2462MHz	Pass	2.435905G	15.35	-14.65	1.81478G	-57.90	2.39256G	-53.33	2.48598G	-48.66	6.990704G	-51.97	2
2462MHz	Pass	2.435905G	15.35	-14.65	1.902155G	-58.03	2.39632G	-53.55	2.48846G	-45.25	6.982276G	-52.75	3
2462MHz	Pass	2.435905G	15.35	-14.65	1.88934G	-58.39	2.39976G	-54.36	2.48598G	-44.87	6.881131G	-52.30	4
802.11g_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.435738G	13.74	-16.26	2.09438G	-59.30	2.39808G	-27.06	2.48734G	-47.82	6.855845G	-52.53	1
2412MHz	Pass	2.435738G	13.74	-16.26	894.43M	-58.98	2.39928G	-26.74	2.48734G	-49.76	6.667605G	-52.22	2
2412MHz	Pass	2.435738G	13.74	-16.26	675.41M	-58.80	2.3996G	-25.90	2.48734G	-49.08	6.777178G	-51.66	3
2412MHz	Pass	2.435738G	13.74	-16.26	1.95691G	-58.48	2.39984G	-25.77	2.48734G	-44.56	6.973847G	-52.63	4
2437MHz	Pass	2.435738G	13.74	-16.26	1.755365G	-58.38	2.39768G	-32.01	2.48358G	-40.81	6.903608G	-51.87	1
2437MHz	Pass	2.435738G	13.74	-16.26	2.109525G	-57.56	2.39704G	-34.49	2.48502G	-43.75	6.976657G	-52.32	2
2437MHz	Pass	2.435738G	13.74	-16.26	1.785655G	-58.48	2.3992G	-31.55	2.48358G	-38.28	6.937323G	-52.66	3
2437MHz	Pass	2.435738G	13.74	-16.26	1.801965G	-58.57	2.39704G	-32.44	2.4879G	-41.47	6.844607G	-52.29	4
2462MHz	Pass	2.435738G	13.74	-16.26	1.909145G	-58.77	2.39992G	-51.55	2.48358G	-47.66	6.948561G	-52.24	1
2462MHz	Pass	2.435738G	13.74	-16.26	957.34M	-57.57	2.39424G	-55.91	2.48366G	-48.01	6.996324G	-51.44	2
2462MHz	Pass	2.435738G	13.74	-16.26	1.93361G	-58.73	2.39664G	-55.42	2.48502G	-45.76	6.945751G	-52.49	3
2462MHz	Pass	2.435738G	13.74	-16.26	1.655175G	-58.00	2.398G	-56.35	2.48382G	-45.37	6.965418G	-52.05	4
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.435738G	12.67	-17.33	2.14797G	-58.68	2.39936G	-33.54	2.48734G	-47.88	6.82775G	-52.17	1
2412MHz	Pass	2.435738G	12.67	-17.33	911.905M	-59.05	2.3976G	-27.76	2.48734G	-51.20	6.810892G	-52.35	2
2412MHz	Pass	2.435738G	12.67	-17.33	2.04778G	-58.54	2.39952G	-29.75	2.48486G	-56.76	6.923275G	-52.16	3
2412MHz	Pass	2.435738G	12.67	-17.33	2.023315G	-59.14	2.3996G	-31.58	2.48734G	-50.25	6.091644G	-52.02	4
2437MHz	Pass	2.435738G	12.67	-17.33	1.874195G	-58.62	2.39896G	-37.06	2.48566G	-41.67	6.861465G	-51.77	1
2437MHz	Pass	2.435738G	12.67	-17.33	938.7M	-58.82	2.39864G	-37.90	2.48358G	-43.74	6.777178G	-52.35	2
2437MHz	Pass	2.435738G	12.67	-17.33	1.822935G	-58.39	2.39992G	-34.34	2.48438G	-43.45	6.982276G	-52.27	3
2437MHz	Pass	2.435738G	12.67	-17.33	2.011665G	-58.49	2.39696G	-35.89	2.48374G	-42.06	6.95699G	-52.05	4
2462MHz	Pass	2.435738G	12.67	-17.33	788.415M	-59.17	2.39992G	-52.10	2.48486G	-43.27	6.007358G	-52.86	1
2462MHz	Pass	2.435738G	12.67	-17.33	2.12933G	-58.71	2.39968G	-55.24	2.4839G	-44.53	6.909227G	-51.47	2

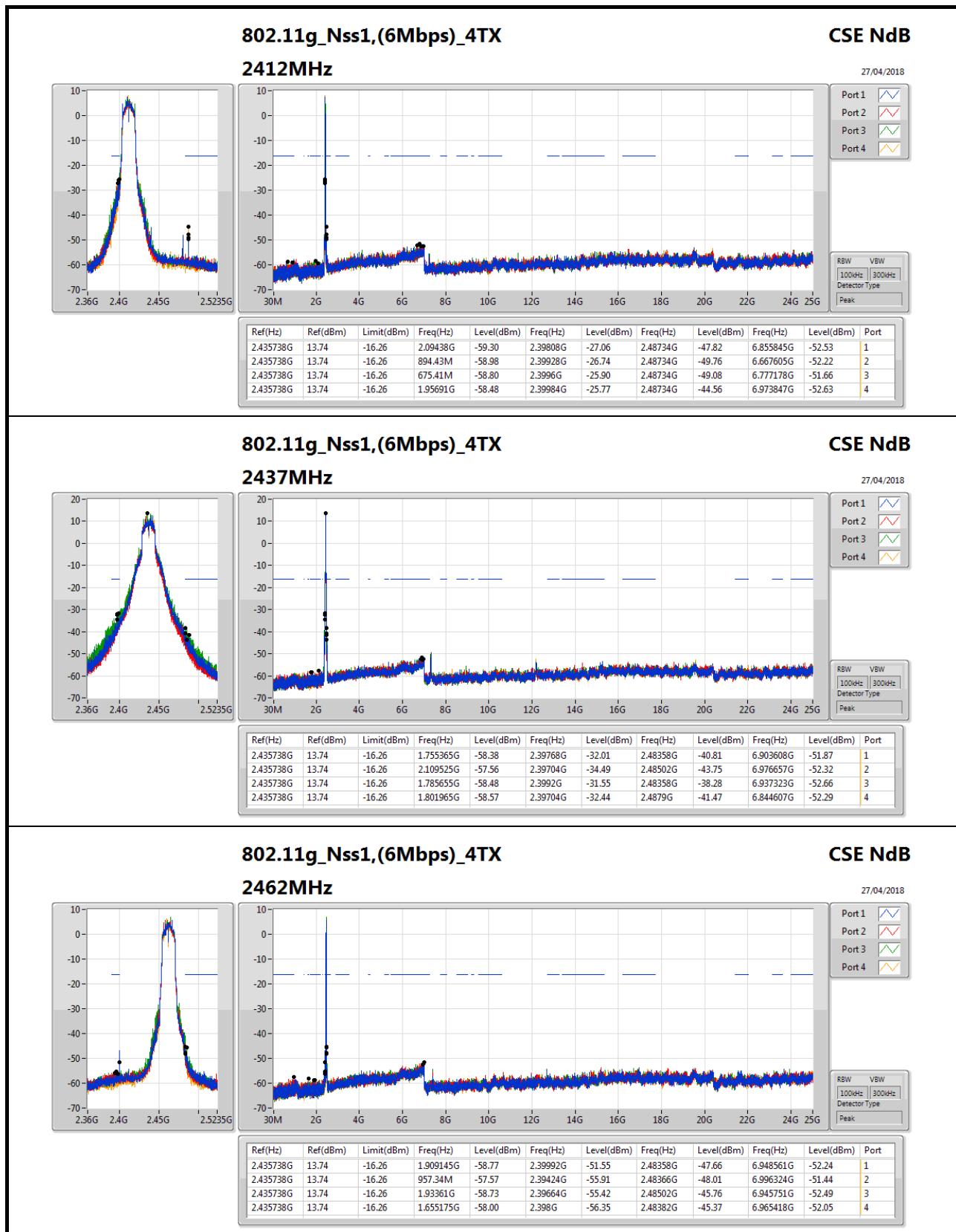


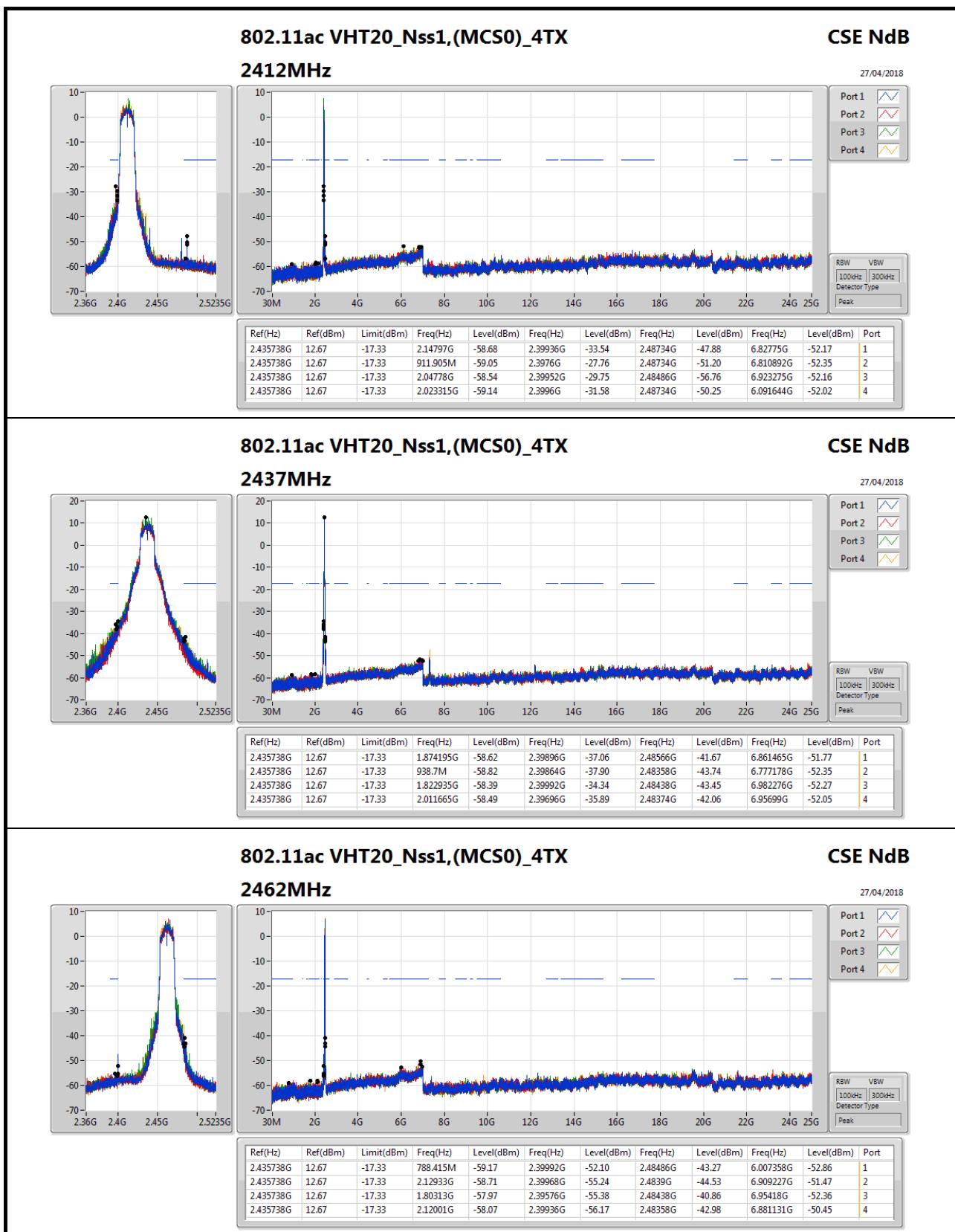
CSE Non-restricted Band Result

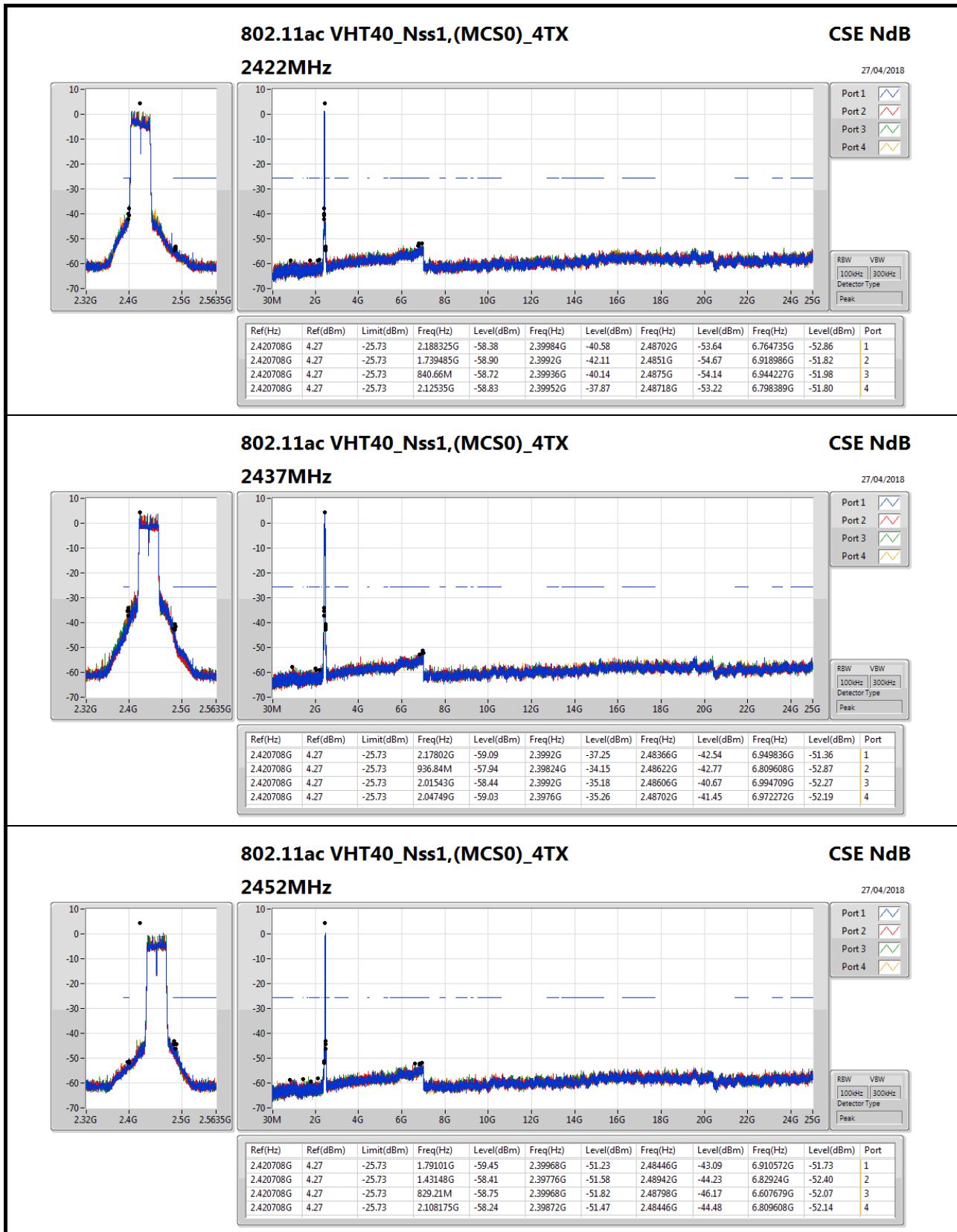
Appendix E

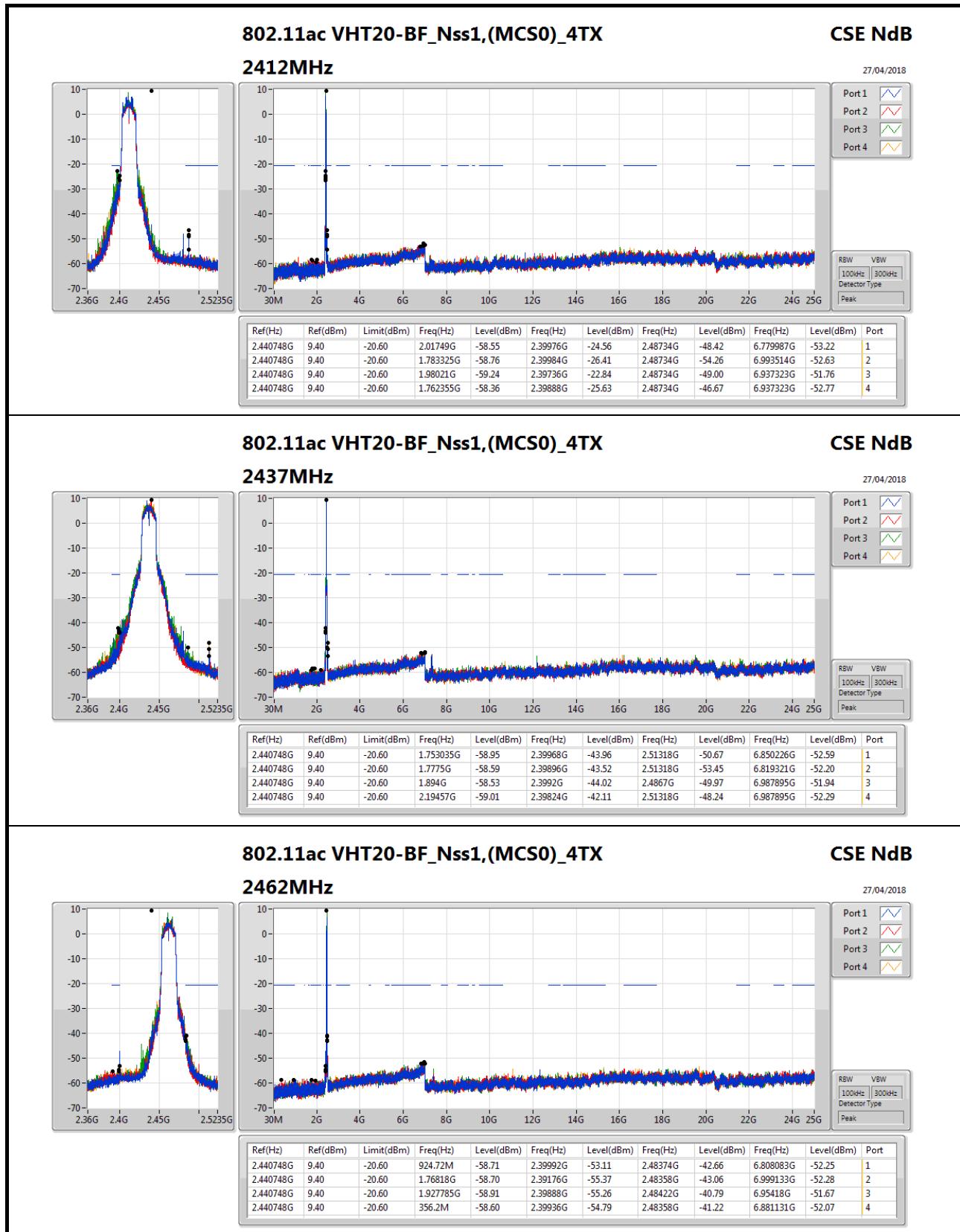
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Port						
2462MHz	Pass	2.435738G	12.67	-17.33	1.80313G	-57.97	2.39576G	-55.38	2.48438G	-40.86	6.95418G	-52.36	3
2462MHz	Pass	2.435738G	12.67	-17.33	2.12001G	-58.07	2.39936G	-56.17	2.48358G	-42.98	6.881131G	-50.45	4
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.420708G	4.27	-25.73	2.188325G	-58.38	2.39984G	-40.58	2.48702G	-53.64	6.764735G	-52.86	1
2422MHz	Pass	2.420708G	4.27	-25.73	1.739485G	-58.90	2.3992G	-42.11	2.4851G	-54.67	6.918986G	-51.82	2
2422MHz	Pass	2.420708G	4.27	-25.73	840.66M	-58.72	2.39936G	-40.14	2.4875G	-54.14	6.944227G	-51.98	3
2422MHz	Pass	2.420708G	4.27	-25.73	2.12535G	-58.83	2.39952G	-37.87	2.48718G	-53.22	6.798389G	-51.80	4
2437MHz	Pass	2.420708G	4.27	-25.73	2.17802G	-59.09	2.3992G	-37.25	2.48366G	-42.54	6.949836G	-51.36	1
2437MHz	Pass	2.420708G	4.27	-25.73	936.84M	-57.94	2.39824G	-34.15	2.48622G	-42.77	6.809608G	-52.87	2
2437MHz	Pass	2.420708G	4.27	-25.73	2.01543G	-58.44	2.3992G	-35.18	2.48606G	-40.67	6.994709G	-52.27	3
2437MHz	Pass	2.420708G	4.27	-25.73	2.04749G	-59.03	2.3976G	-35.26	2.48702G	-41.45	6.972272G	-52.19	4
2452MHz	Pass	2.420708G	4.27	-25.73	1.79101G	-59.45	2.39968G	-51.23	2.48446G	-43.09	6.910572G	-51.73	1
2452MHz	Pass	2.420708G	4.27	-25.73	1.43148G	-58.41	2.39776G	-51.58	2.48942G	-44.23	6.82924G	-52.40	2
2452MHz	Pass	2.420708G	4.27	-25.73	829.21M	-58.75	2.39968G	-51.82	2.48798G	-46.17	6.607679G	-52.07	3
2452MHz	Pass	2.420708G	4.27	-25.73	2.108175G	-58.24	2.39872G	-51.47	2.48446G	-44.48	6.809608G	-52.14	4
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.440748G	9.40	-20.60	2.01749G	-58.55	2.39976G	-24.56	2.48734G	-48.42	6.779987G	-53.22	1
2412MHz	Pass	2.440748G	9.40	-20.60	1.783325G	-58.76	2.39984G	-26.41	2.48734G	-54.26	6.993514G	-52.63	2
2412MHz	Pass	2.440748G	9.40	-20.60	1.98021G	-59.24	2.39736G	-22.84	2.48734G	-49.00	6.937323G	-51.76	3
2412MHz	Pass	2.440748G	9.40	-20.60	1.762355G	-58.36	2.39888G	-25.63	2.48734G	-46.67	6.937323G	-52.77	4
2437MHz	Pass	2.440748G	9.40	-20.60	1.753035G	-58.95	2.39968G	-43.96	2.51318G	-50.67	6.850226G	-52.59	1
2437MHz	Pass	2.440748G	9.40	-20.60	1.7775G	-58.59	2.39896G	-43.52	2.51318G	-53.45	6.819321G	-52.20	2
2437MHz	Pass	2.440748G	9.40	-20.60	1.894G	-58.53	2.3992G	-44.02	2.4867G	-49.97	6.987895G	-51.94	3
2437MHz	Pass	2.440748G	9.40	-20.60	2.19457G	-59.01	2.39824G	-42.11	2.51318G	-48.24	6.987895G	-52.29	4
2462MHz	Pass	2.440748G	9.40	-20.60	924.72M	-58.71	2.39992G	-53.11	2.48374G	-42.66	6.808083G	-52.25	1
2462MHz	Pass	2.440748G	9.40	-20.60	1.76818G	-58.70	2.39176G	-55.37	2.48358G	-43.06	6.999133G	-52.28	2
2462MHz	Pass	2.440748G	9.40	-20.60	1.927785G	-58.91	2.39888G	-55.26	2.48422G	-40.79	6.95418G	-51.67	3
2462MHz	Pass	2.440748G	9.40	-20.60	356.2M	-58.60	2.39936G	-54.79	2.48358G	-41.22	6.881131G	-52.07	4
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.420708G	3.65	-26.35	2.05207G	-59.21	2.3984G	-33.58	2.48462G	-52.18	6.868503G	-52.38	1
2422MHz	Pass	2.420708G	3.65	-26.35	2.092145G	-58.00	2.3968G	-34.25	2.48574G	-51.65	6.983491G	-52.25	2
2422MHz	Pass	2.420708G	3.65	-26.35	1.94444G	-59.12	2.39952G	-29.95	2.48622G	-51.75	6.846067G	-51.72	3
2422MHz	Pass	2.420708G	3.65	-26.35	1.856275G	-58.90	2.39648G	-33.77	2.48398G	-51.89	6.038353G	-52.99	4
2437MHz	Pass	2.420708G	3.65	-26.35	1.945585G	-58.79	2.3992G	-36.67	2.48382G	-43.96	6.969468G	-52.29	1
2437MHz	Pass	2.420708G	3.65	-26.35	1.831085G	-59.00	2.39952G	-33.51	2.48382G	-42.89	6.691816G	-52.05	2
2437MHz	Pass	2.420708G	3.65	-26.35	942.565M	-58.70	2.39952G	-32.97	2.48446G	-41.11	6.994709G	-51.76	3
2437MHz	Pass	2.420708G	3.65	-26.35	2.30626G	-58.71	2.39952G	-36.38	2.48558G	-41.23	6.848872G	-52.19	4
2452MHz	Pass	2.420708G	3.65	-26.35	875.01M	-59.20	2.39824G	-50.47	2.48446G	-41.75	6.955445G	-52.91	1
2452MHz	Pass	2.420708G	3.65	-26.35	2.137945G	-58.11	2.39968G	-49.45	2.48542G	-44.20	7.000318G	-52.37	2
2452MHz	Pass	2.420708G	3.65	-26.35	2.016575G	-58.97	2.39968G	-48.58	2.48446G	-40.38	5.973848G	-51.78	3
2452MHz	Pass	2.420708G	3.65	-26.35	1.6559G	-57.99	2.39824G	-50.23	2.4843G	-41.25	6.977881G	-53.00	4

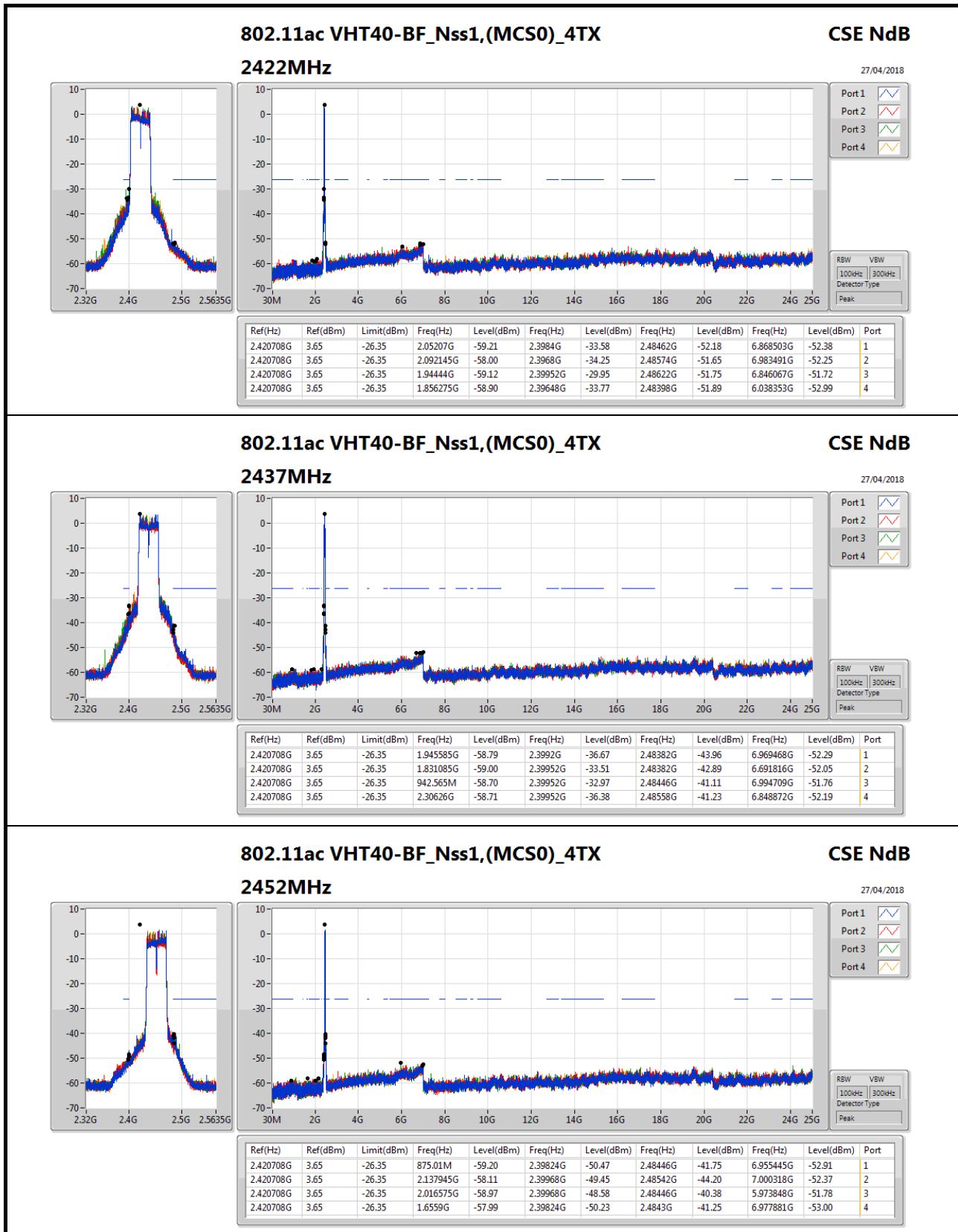








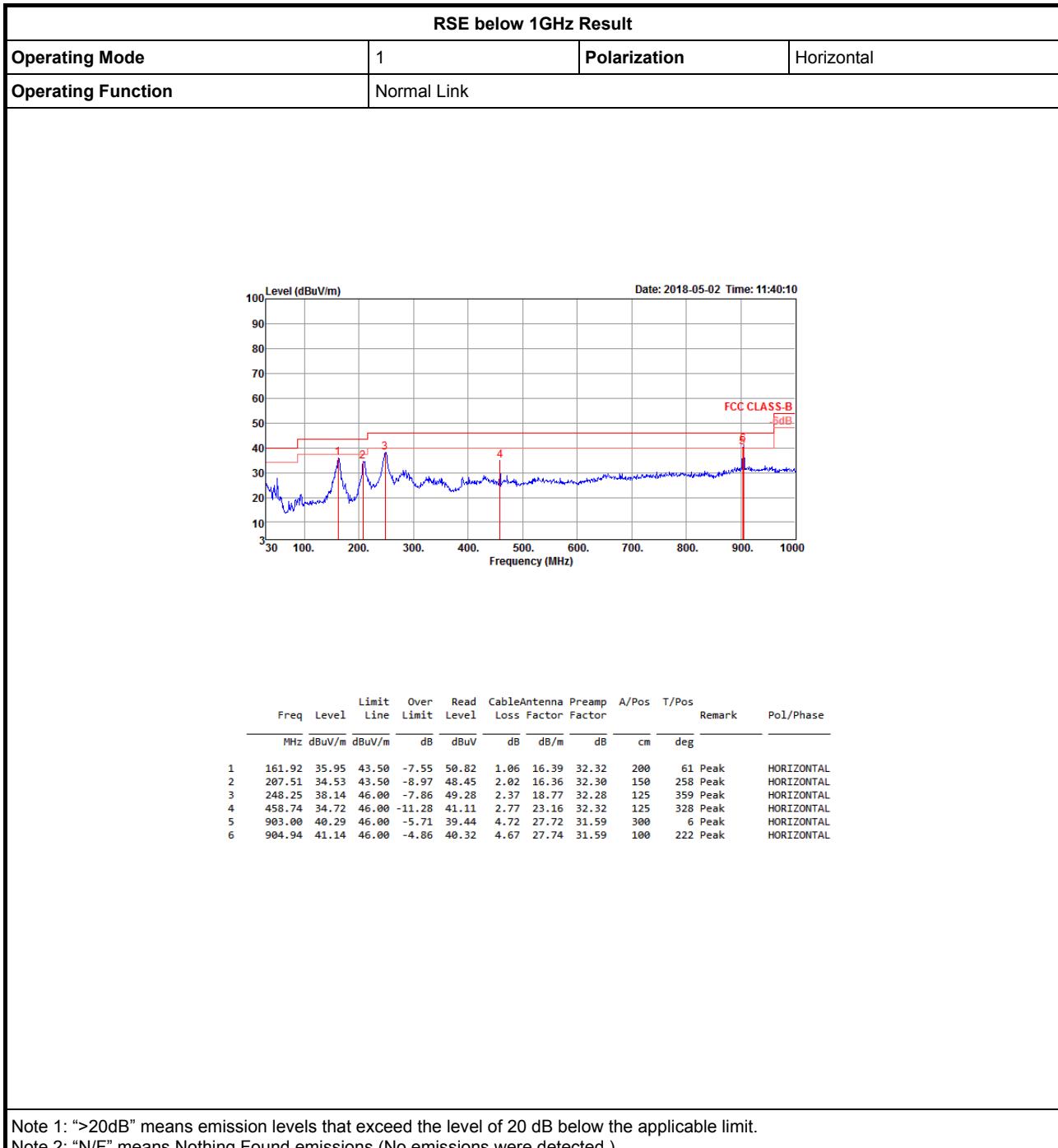






RSE below 1GHz Result

Appendix F.1



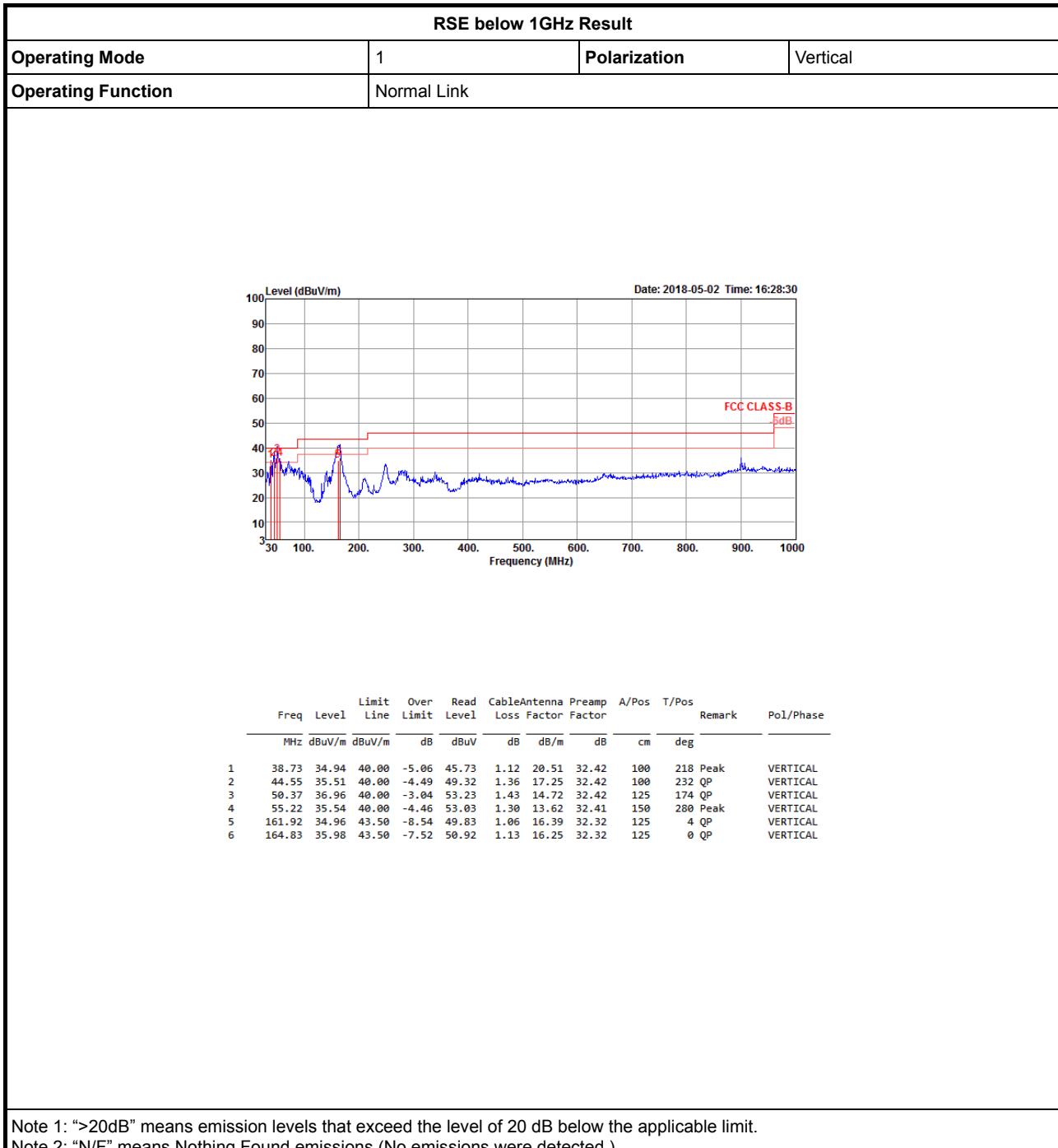
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)



RSE below 1GHz Result

Appendix F.1

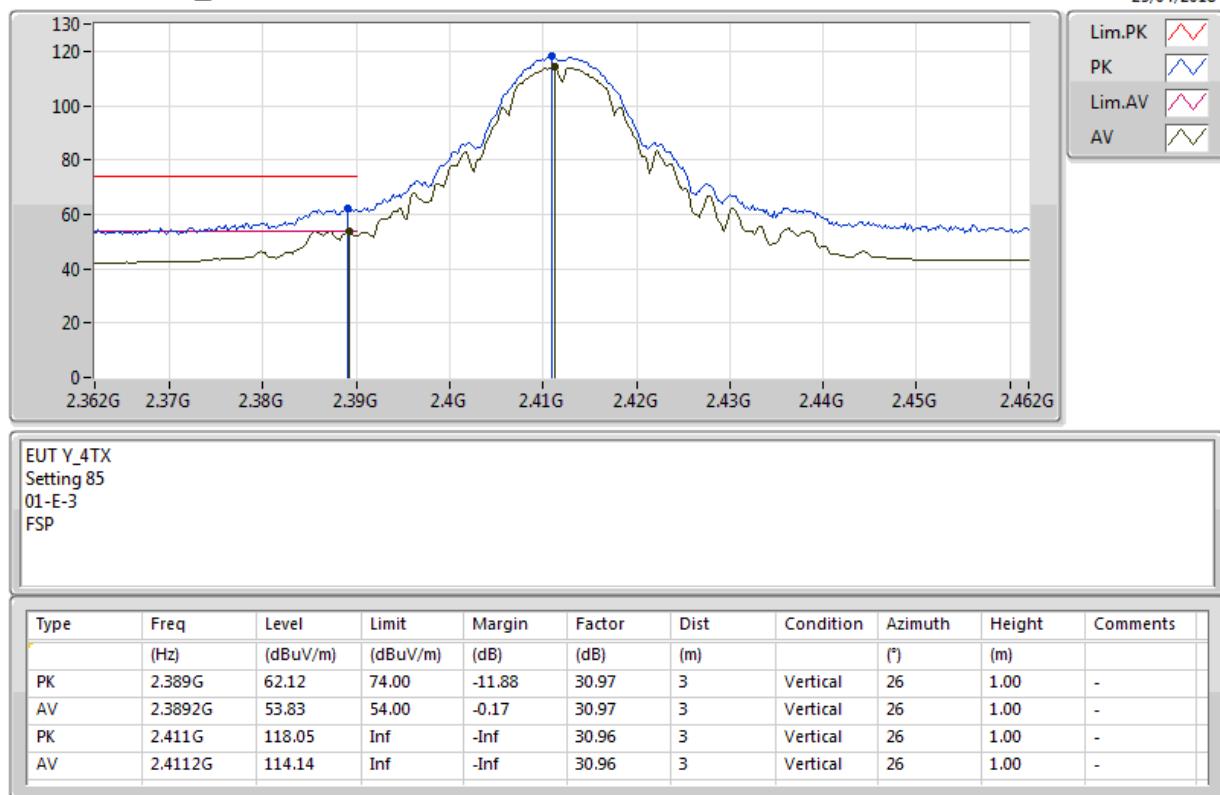


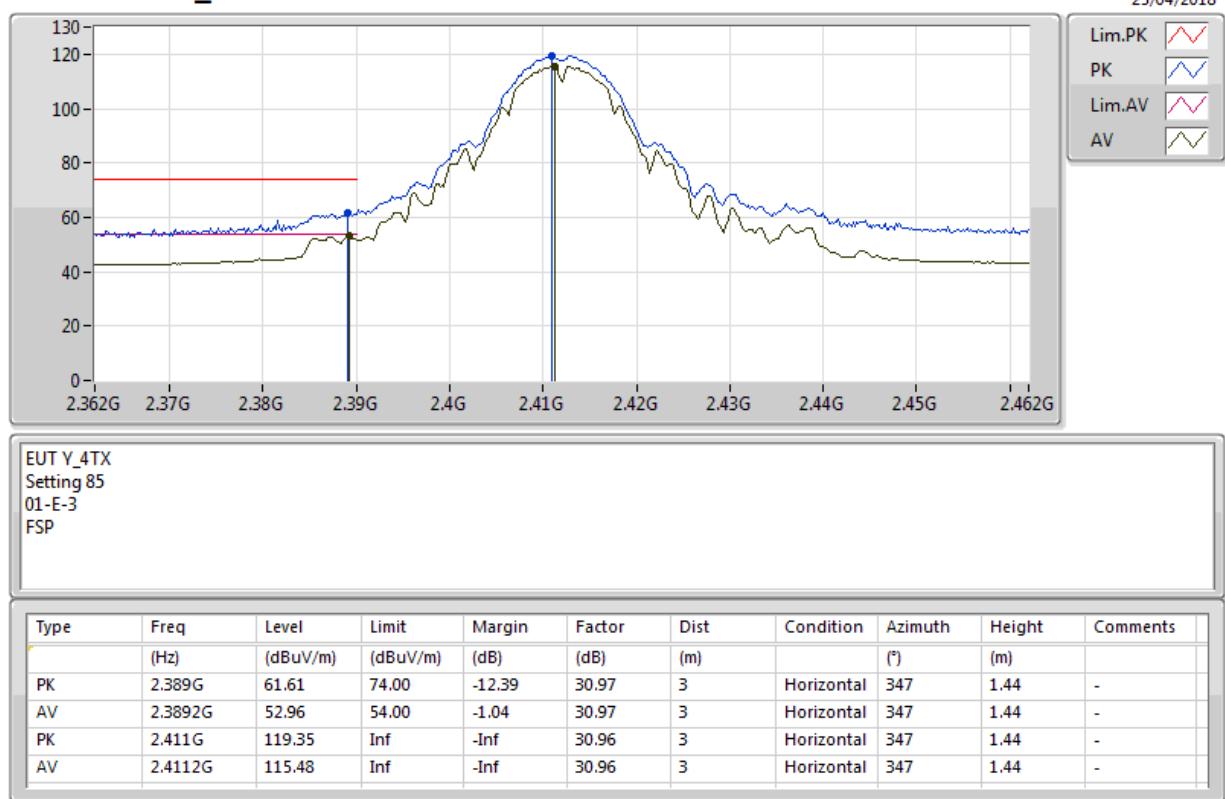
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

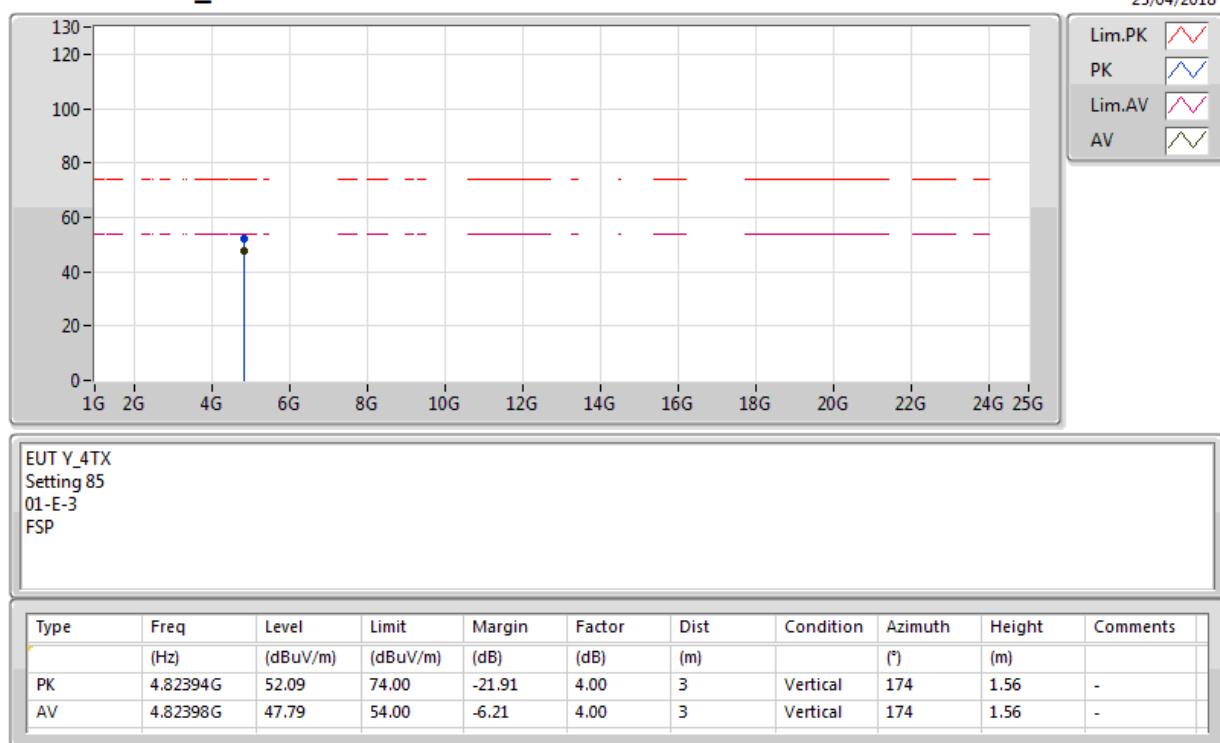
Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

**Summary**

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
802.11ac VHT20_Nss1,(MCS0)_4TX	Pass	PK	2.4852G	73.99	74.00	-0.01	30.39	3	Horizontal	124	1.45	-

802.11b_Nss1,(1Mbps)_4TX
2412MHz_TX


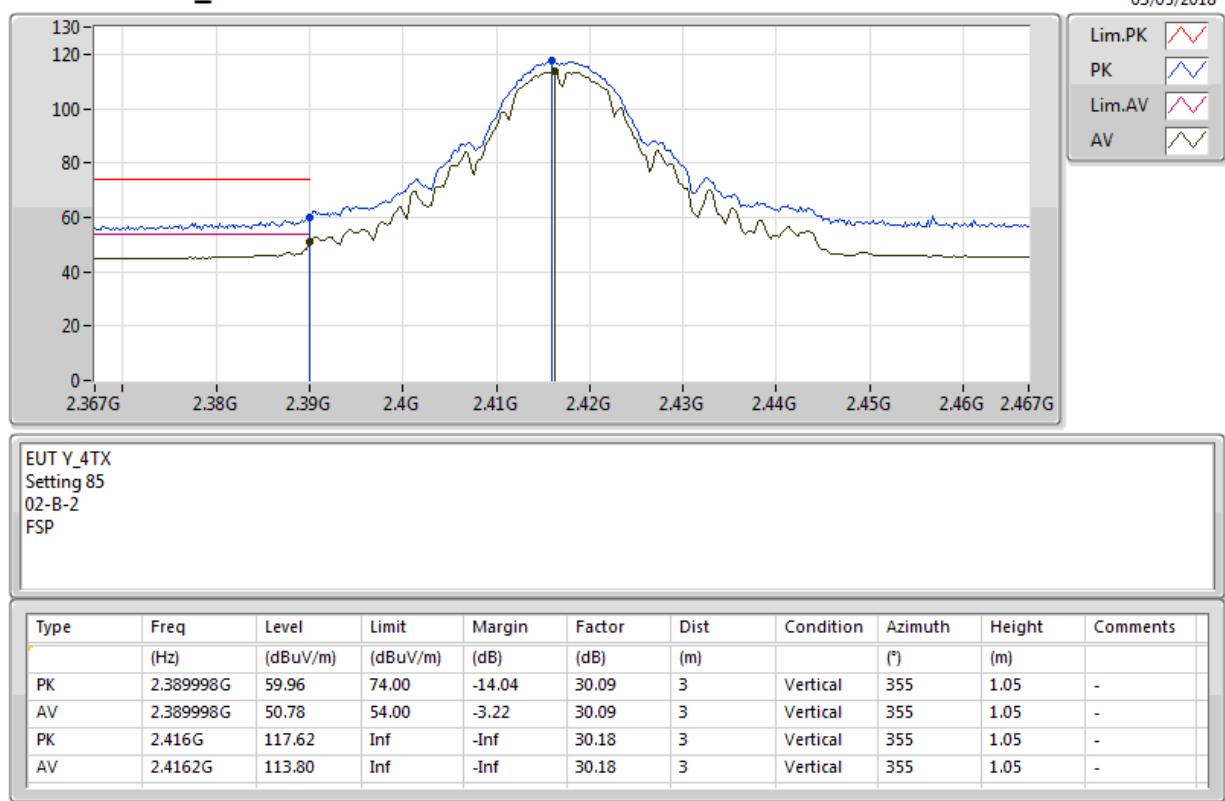
802.11b_Nss1,(1Mbps)_4TX
2412MHz_TX


802.11b_Nss1,(1Mbps)_4TX
2412MHz_TX


802.11b_Nss1,(1Mbps)_4TX
2412MHz_TX

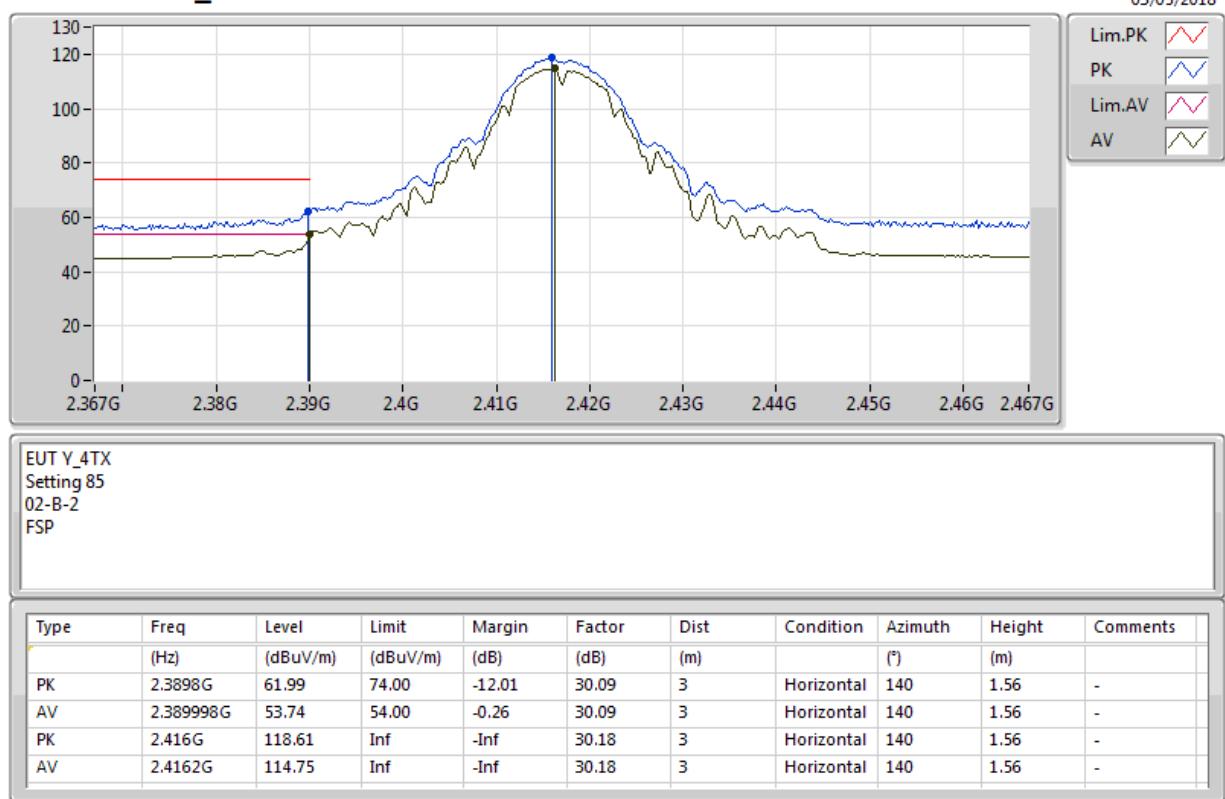

802.11b_Nss1,(1Mbps)_4TX

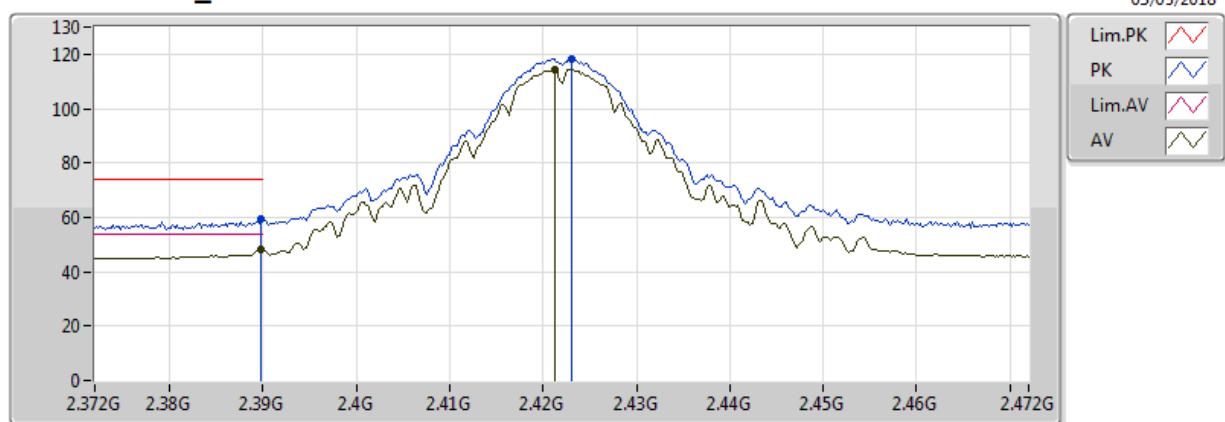
2417MHz_TX



802.11b_Nss1,(1Mbps)_4TX

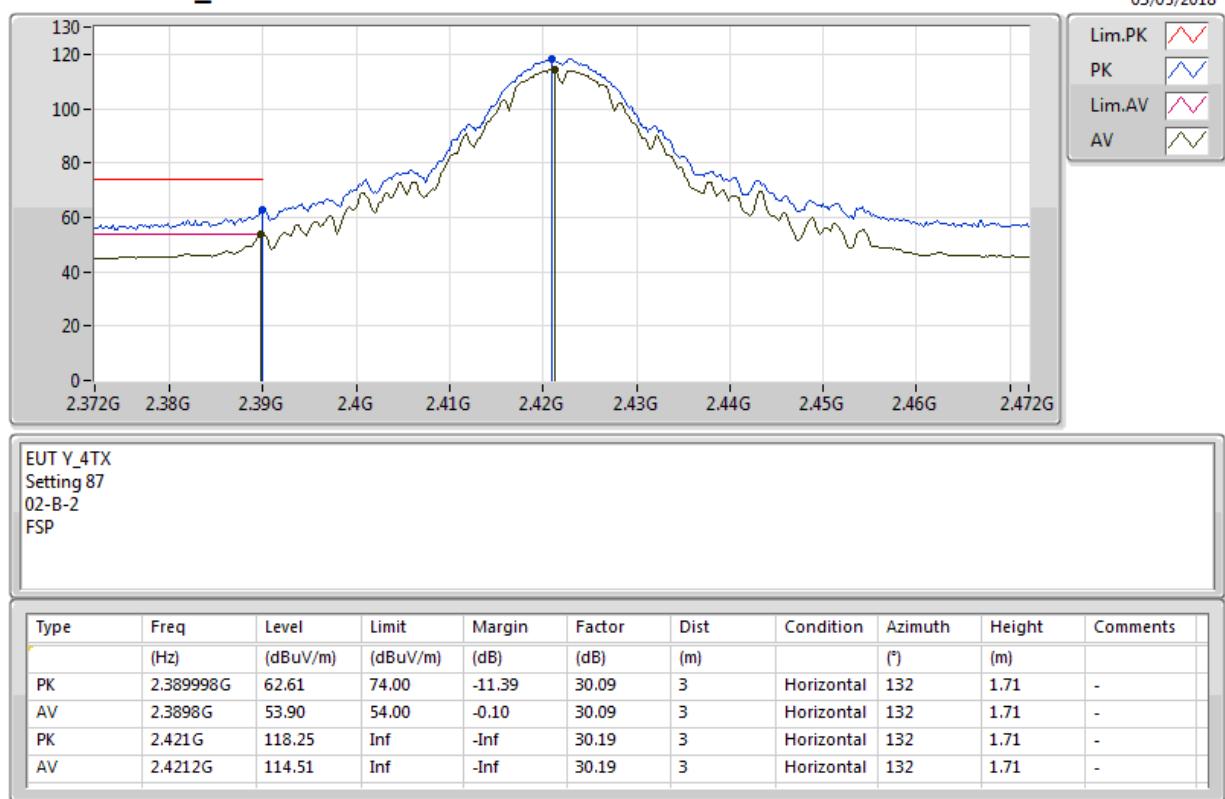
2417MHz_TX

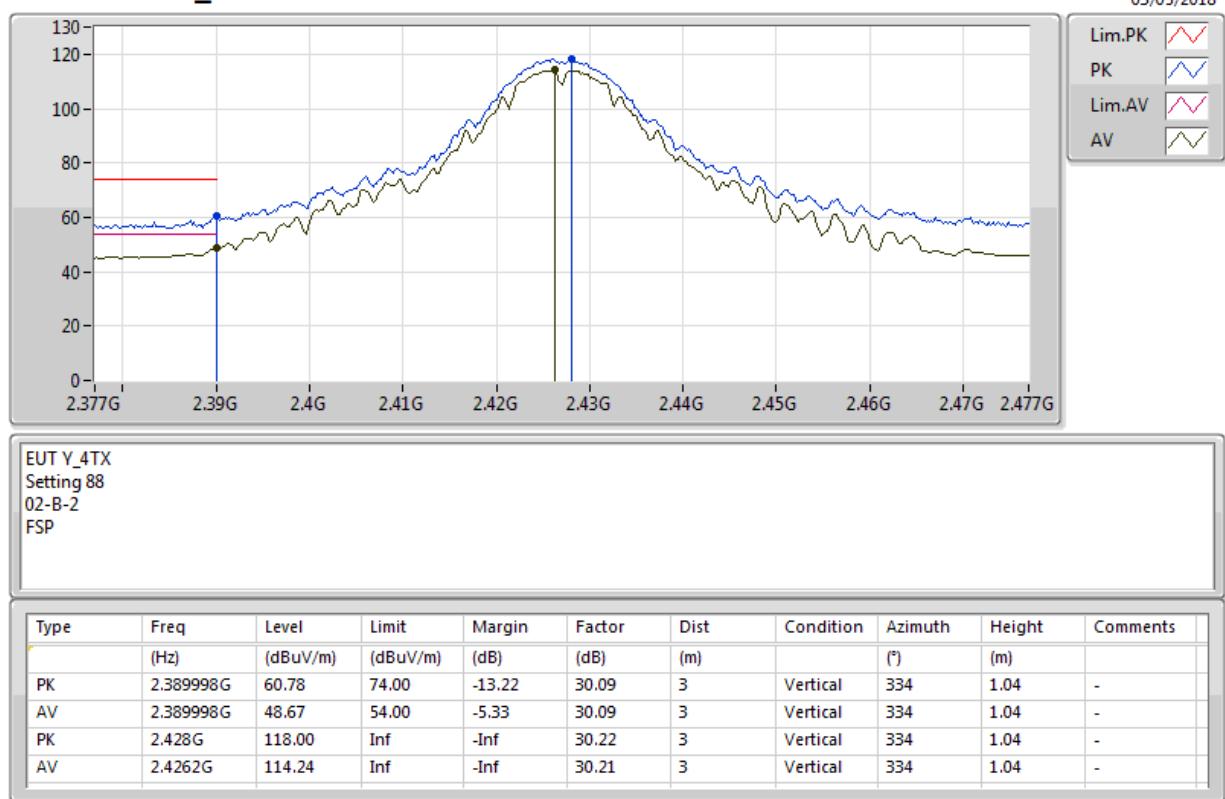


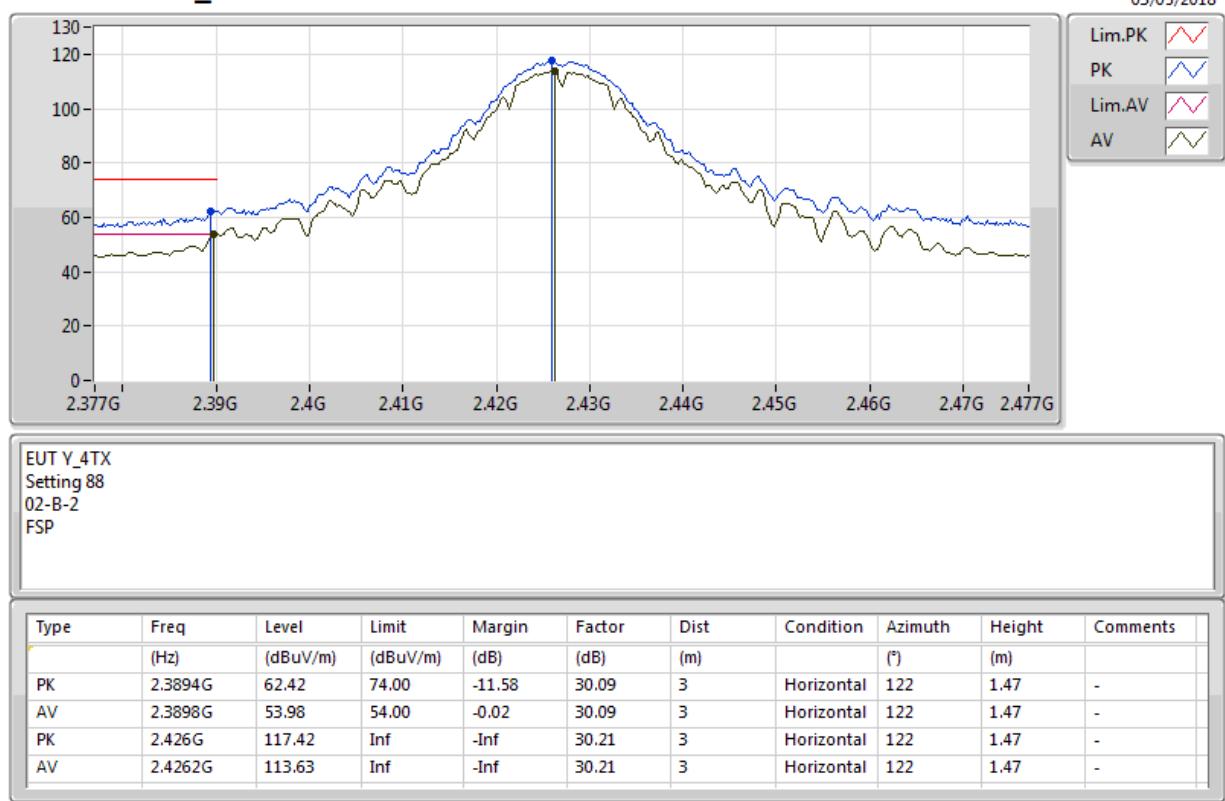
802.11b_Nss1,(1Mbps)_4TX
2422MHz_TX


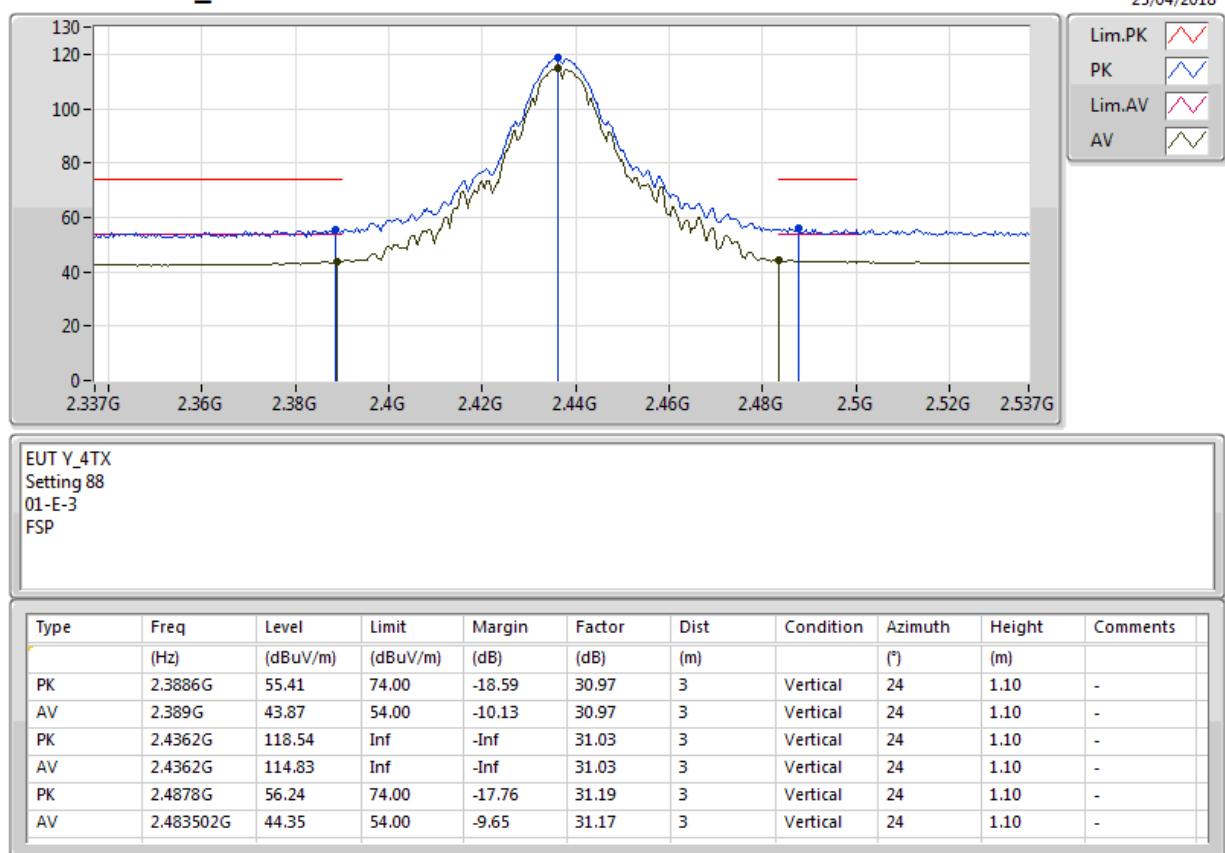
EUT Y_4TX
Setting 87
02-B-2
FSP

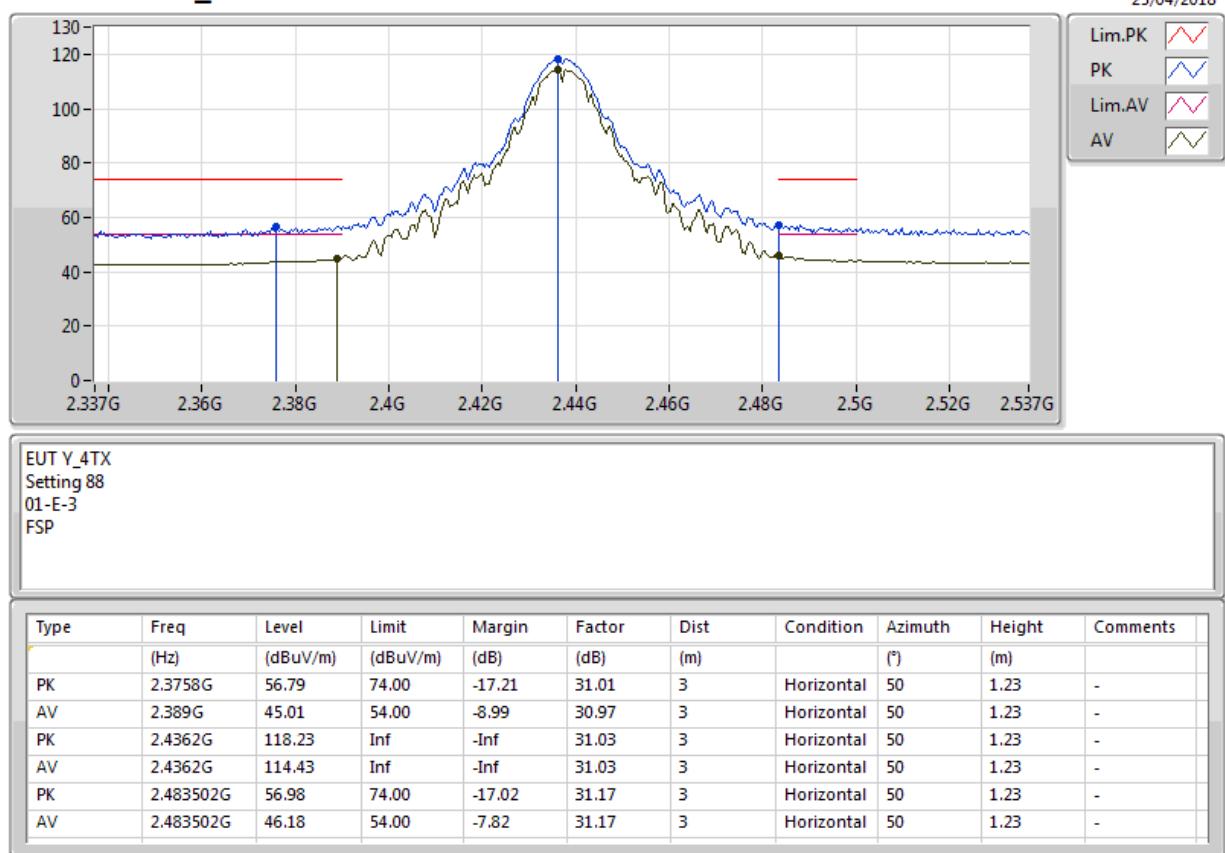
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3898G	59.17	74.00	-14.83	30.09	3	Vertical	339	1.03	-
AV	2.3898G	48.09	54.00	-5.91	30.09	3	Vertical	339	1.03	-
PK	2.423G	118.22	Inf	-Inf	30.20	3	Vertical	339	1.03	-
AV	2.4212G	114.42	Inf	-Inf	30.19	3	Vertical	339	1.03	-

802.11b_Nss1,(1Mbps)_4TX
2422MHz_TX


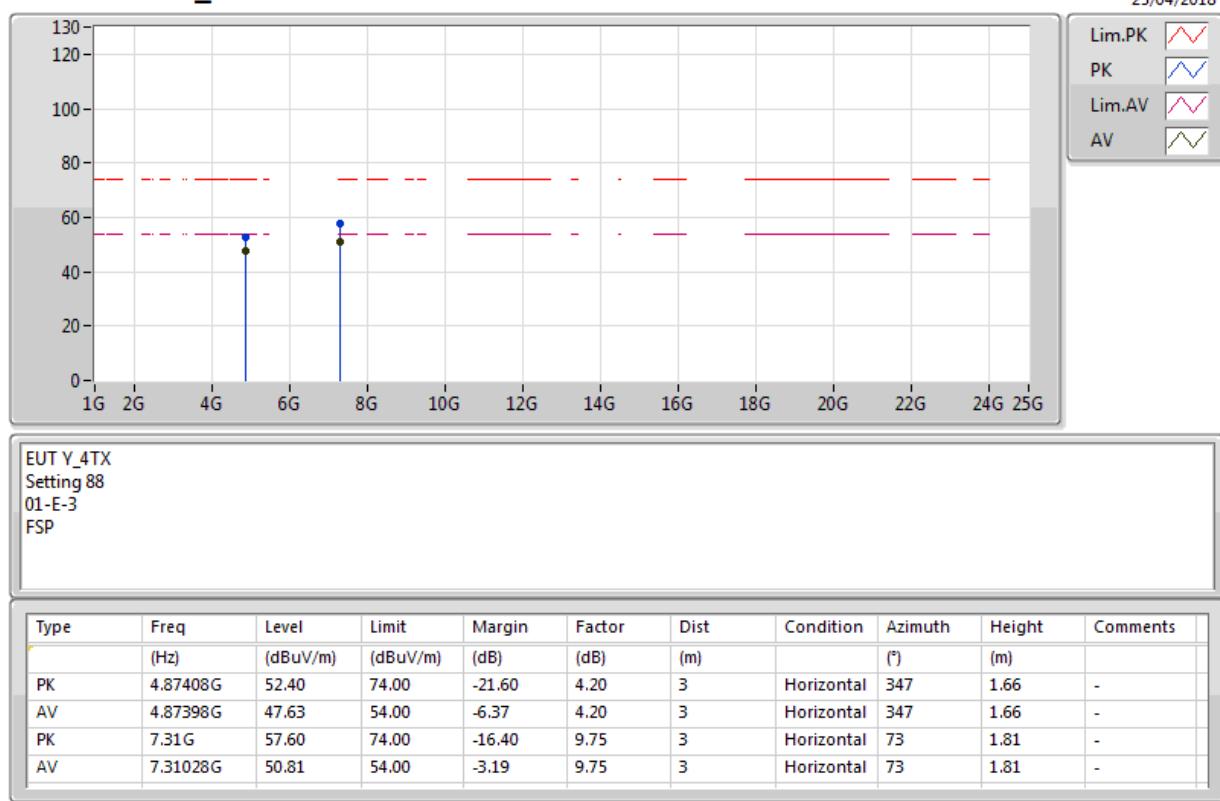
802.11b_Nss1,(1Mbps)_4TX
2427MHz_TX


802.11b_Nss1,(1Mbps)_4TX
2427MHz_TX


802.11b_Nss1,(1Mbps)_4TX
2437MHz_TX


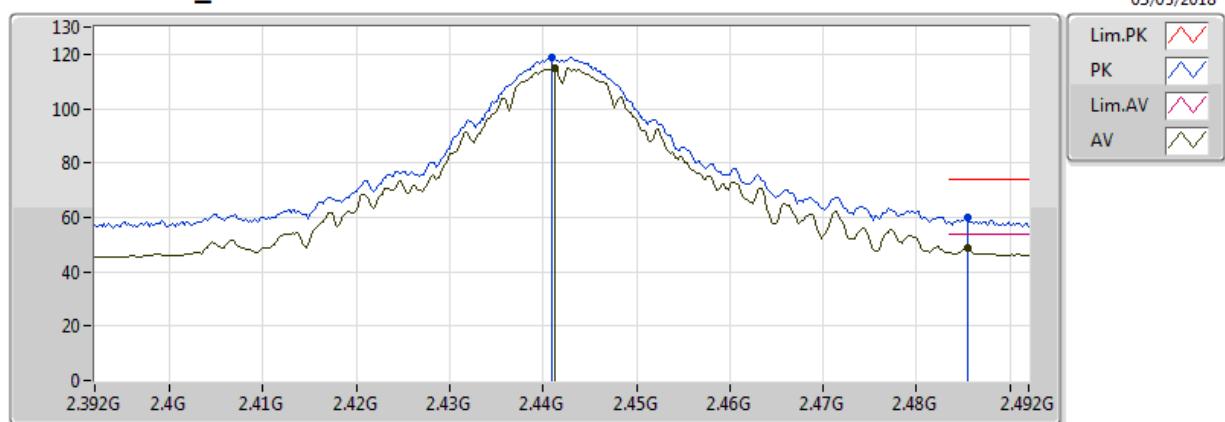
802.11b_Nss1,(1Mbps)_4TX
2437MHz_TX


802.11b_Nss1,(1Mbps)_4TX
2437MHz_TX


802.11b_Nss1,(1Mbps)_4TX
2437MHz_TX


802.11b_Nss1,(1Mbps)_4TX

2442MHz_TX

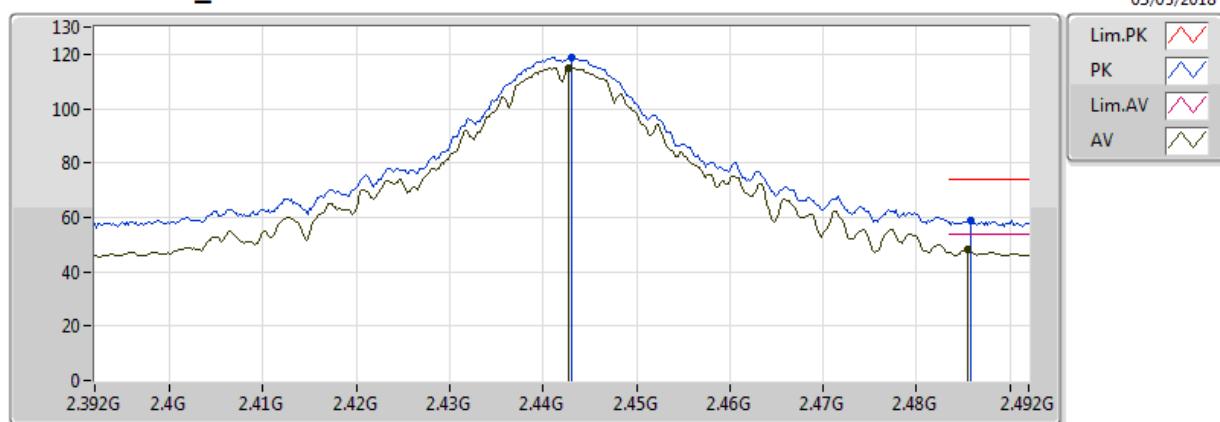


EUT Y_4TX
Setting 88
02-B-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.441G	118.73	Inf	-Inf	30.26	3	Vertical	296	1.02	-
AV	2.4412G	114.87	Inf	-Inf	30.26	3	Vertical	296	1.02	-
PK	2.4854G	59.97	74.00	-14.03	30.39	3	Vertical	296	1.02	-
AV	2.4854G	48.48	54.00	-5.52	30.39	3	Vertical	296	1.02	-

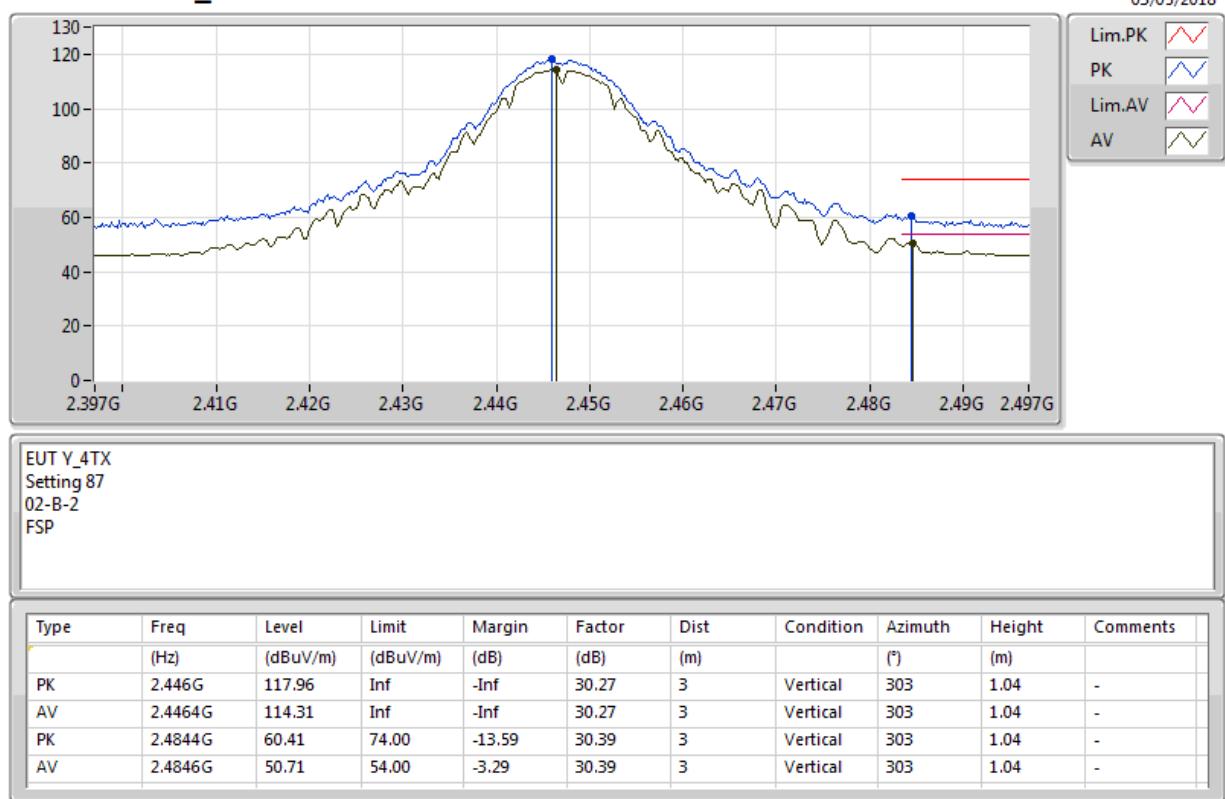
802.11b_Nss1,(1Mbps)_4TX

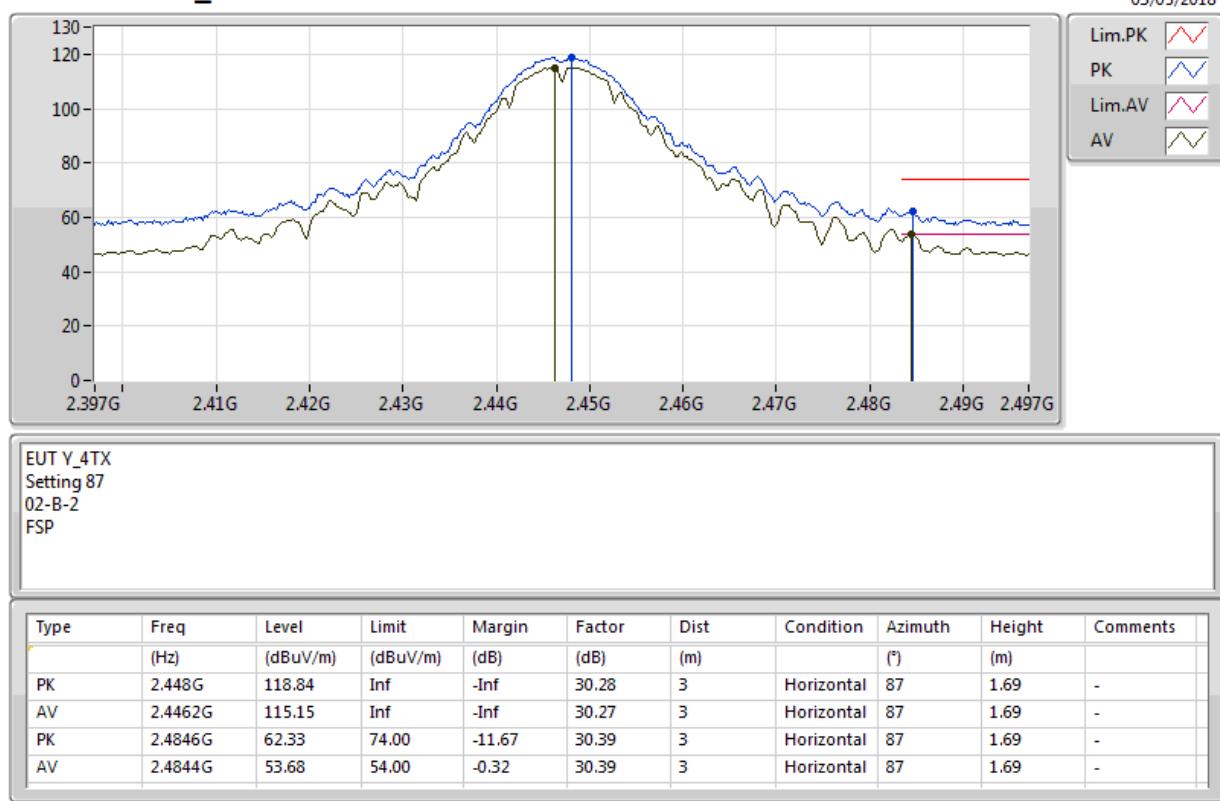
2442MHz_TX



EUT Y_4TX
Setting 88
02-B-2
FSP

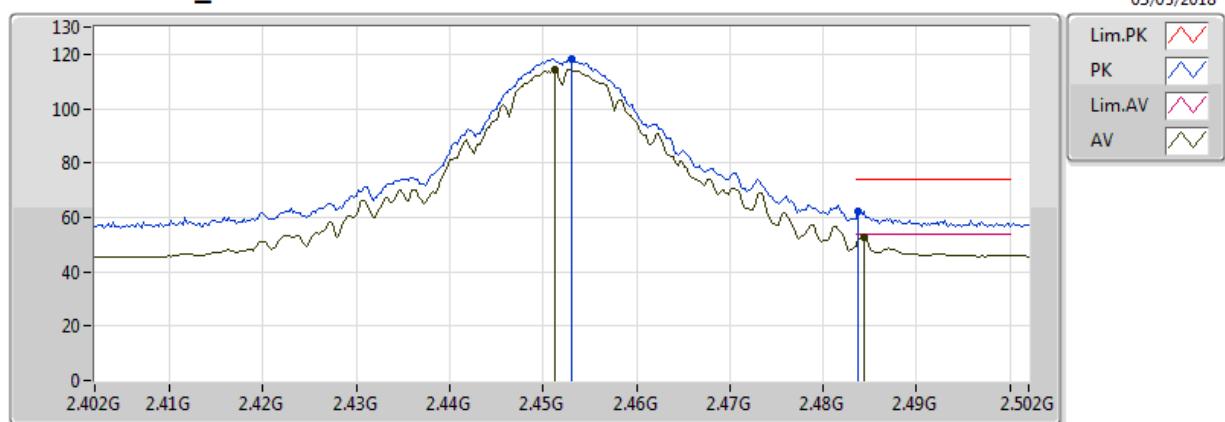
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.443G	119.00	Inf	-Inf	30.26	3	Horizontal	84	1.70	-
AV	2.4428G	115.03	Inf	-Inf	30.26	3	Horizontal	84	1.70	-
PK	2.4858G	58.64	74.00	-15.36	30.40	3	Horizontal	84	1.70	-
AV	2.4854G	48.33	54.00	-5.67	30.39	3	Horizontal	84	1.70	-

802.11b_Nss1,(1Mbps)_4TX
2447MHz_TX


802.11b_Nss1,(1Mbps)_4TX
2447MHz_TX


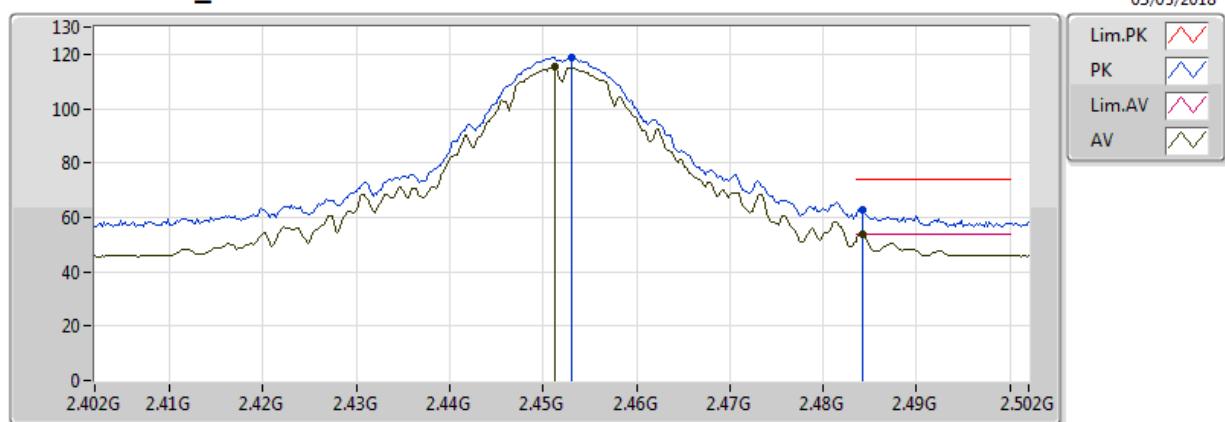
802.11b_Nss1,(1Mbps)_4TX

2452MHz_TX



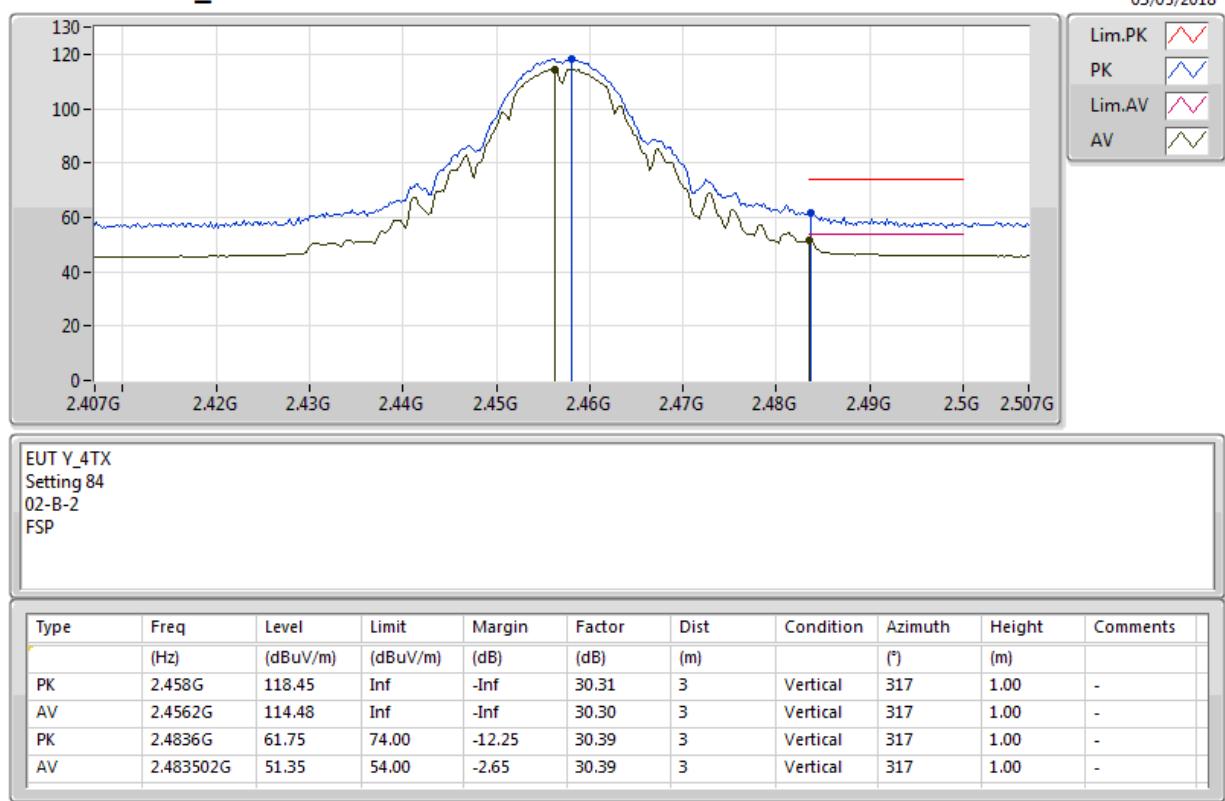
EUT Y_4TX
Setting 86
02-B-2
FSP

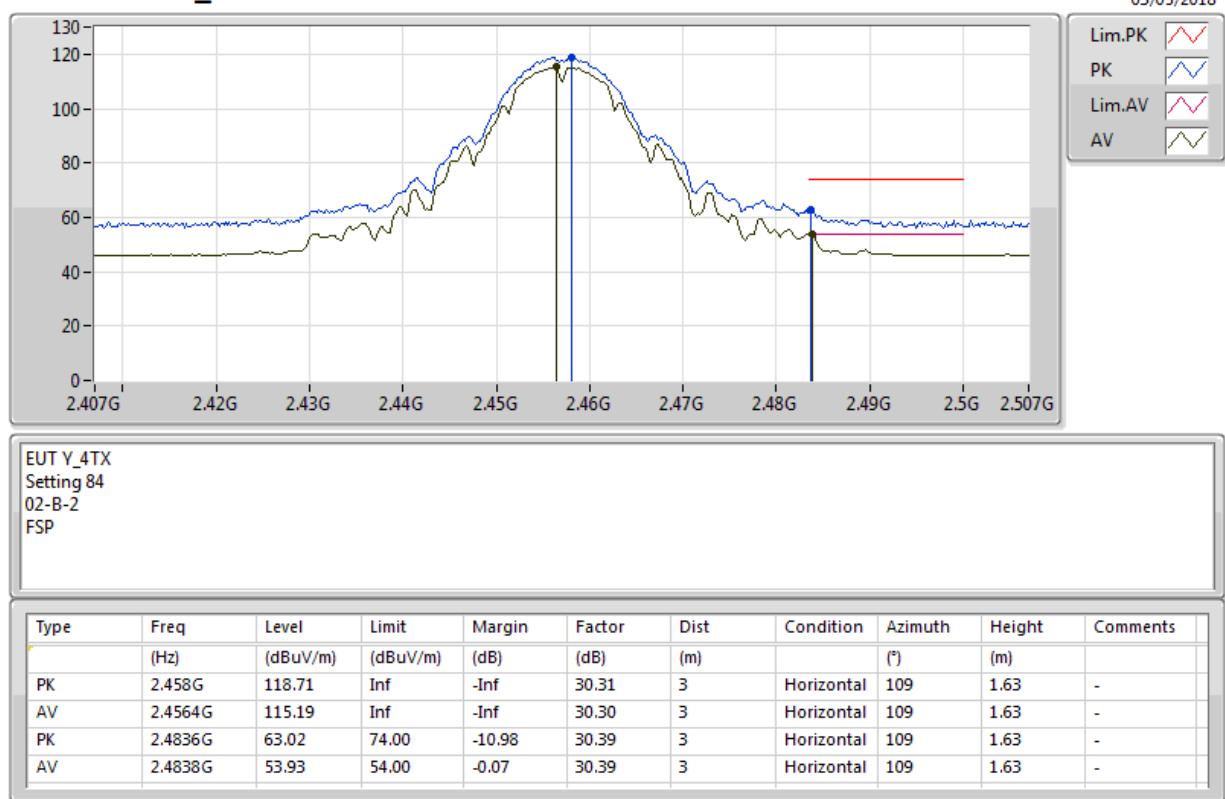
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.453G	118.19	Inf	-Inf	30.29	3	Vertical	303	1.31	-
AV	2.4512G	114.41	Inf	-Inf	30.29	3	Vertical	303	1.31	-
PK	2.4838G	62.33	74.00	-11.67	30.39	3	Vertical	303	1.31	-
AV	2.4844G	52.75	54.00	-1.25	30.39	3	Vertical	303	1.31	-

802.11b_Nss1,(1Mbps)_4TX
2452MHz_TX


EUT Y_4TX
Setting 86
02-B-2
FSP

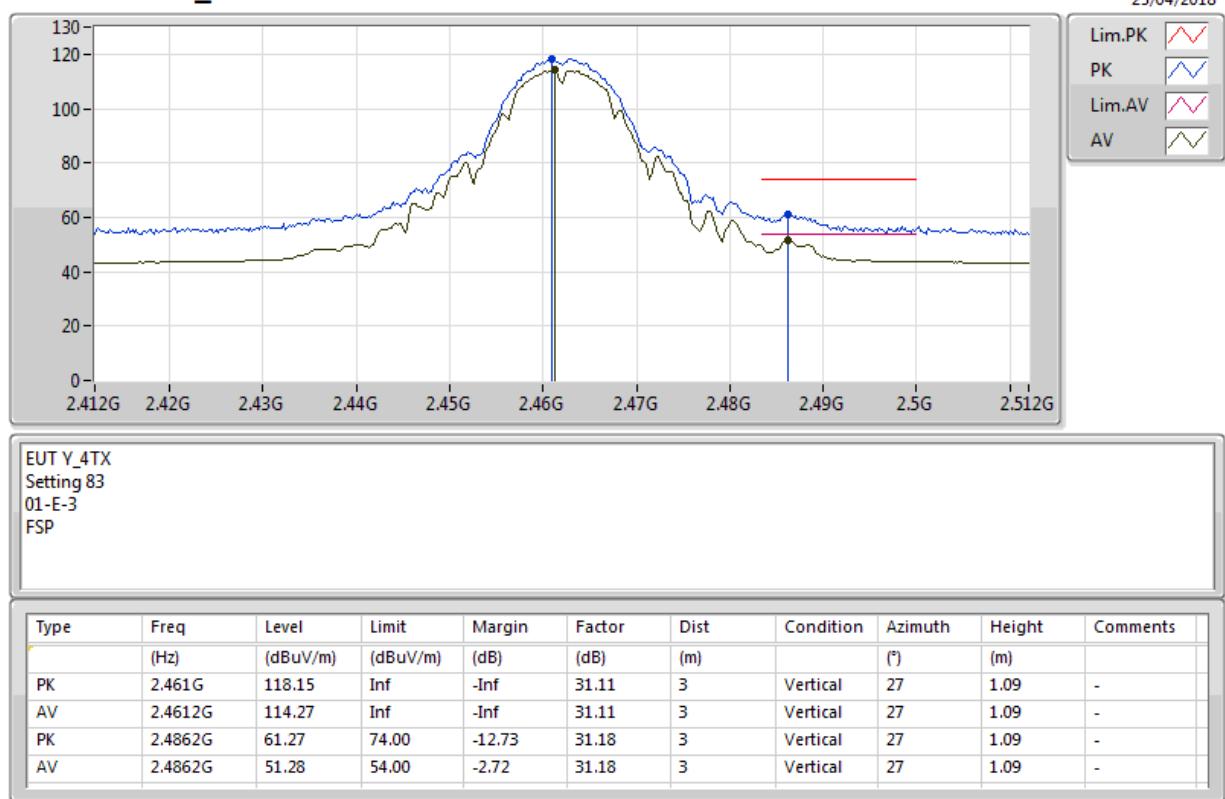
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.453G	118.95	Inf	-Inf	30.29	3	Horizontal	97	1.65	-
AV	2.4512G	115.20	Inf	-Inf	30.29	3	Horizontal	97	1.65	-
PK	2.4842G	62.63	74.00	-11.37	30.39	3	Horizontal	97	1.65	-
AV	2.4842G	53.87	54.00	-0.13	30.39	3	Horizontal	97	1.65	-

802.11b_Nss1,(1Mbps)_4TX
2457MHz_TX


802.11b_Nss1,(1Mbps)_4TX
2457MHz_TX


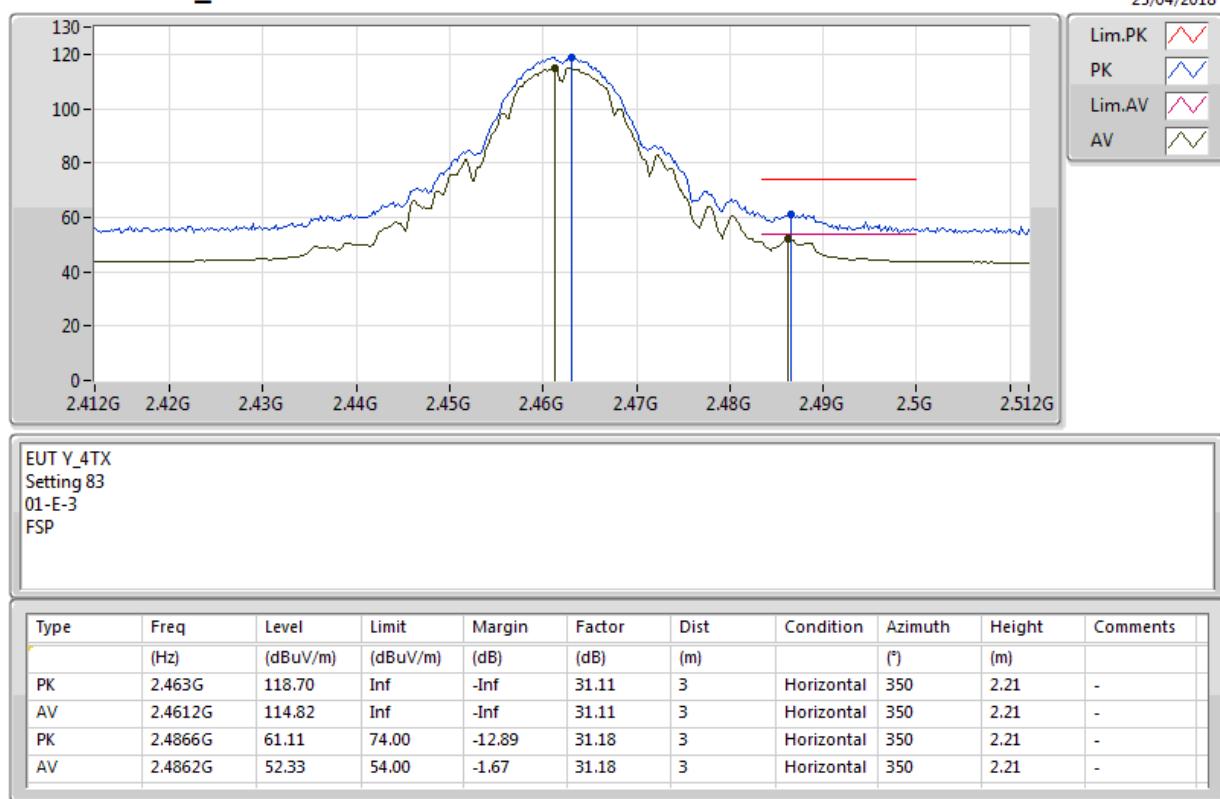
802.11b_Nss1,(1Mbps)_4TX

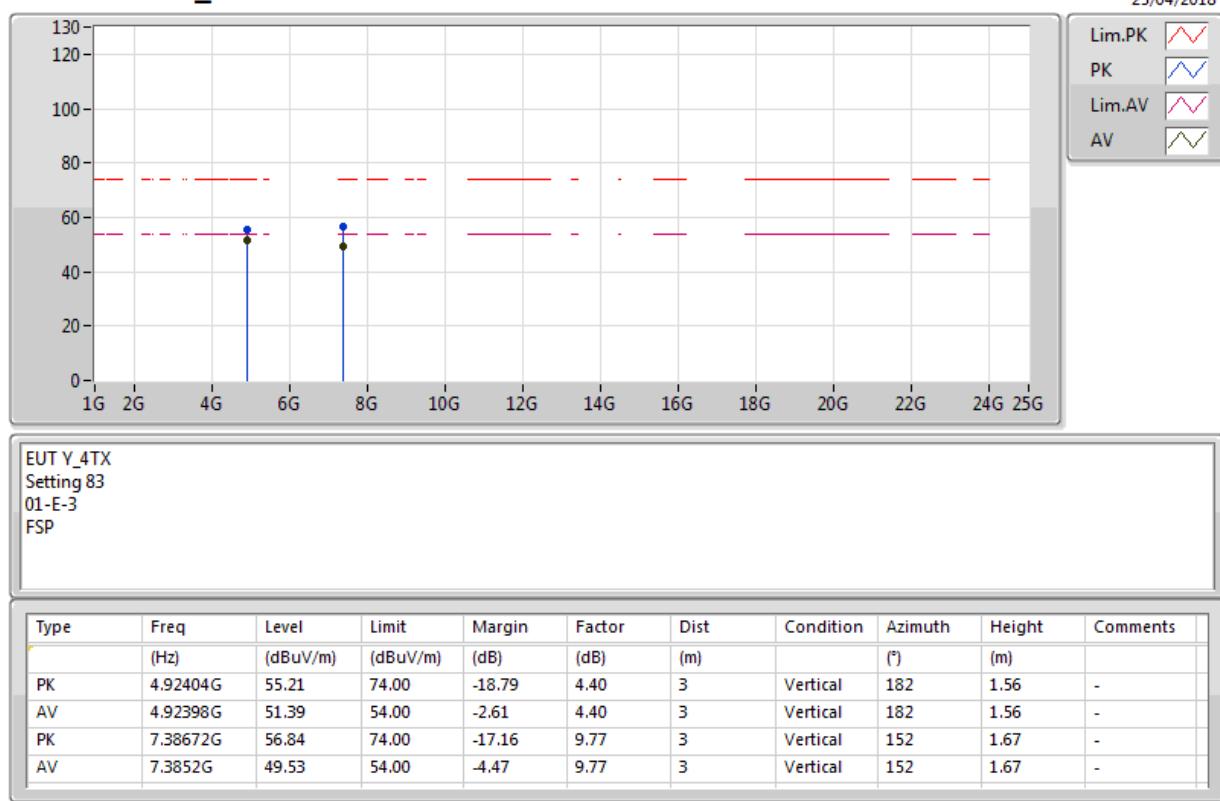
2462MHz_TX



802.11b_Nss1,(1Mbps)_4TX

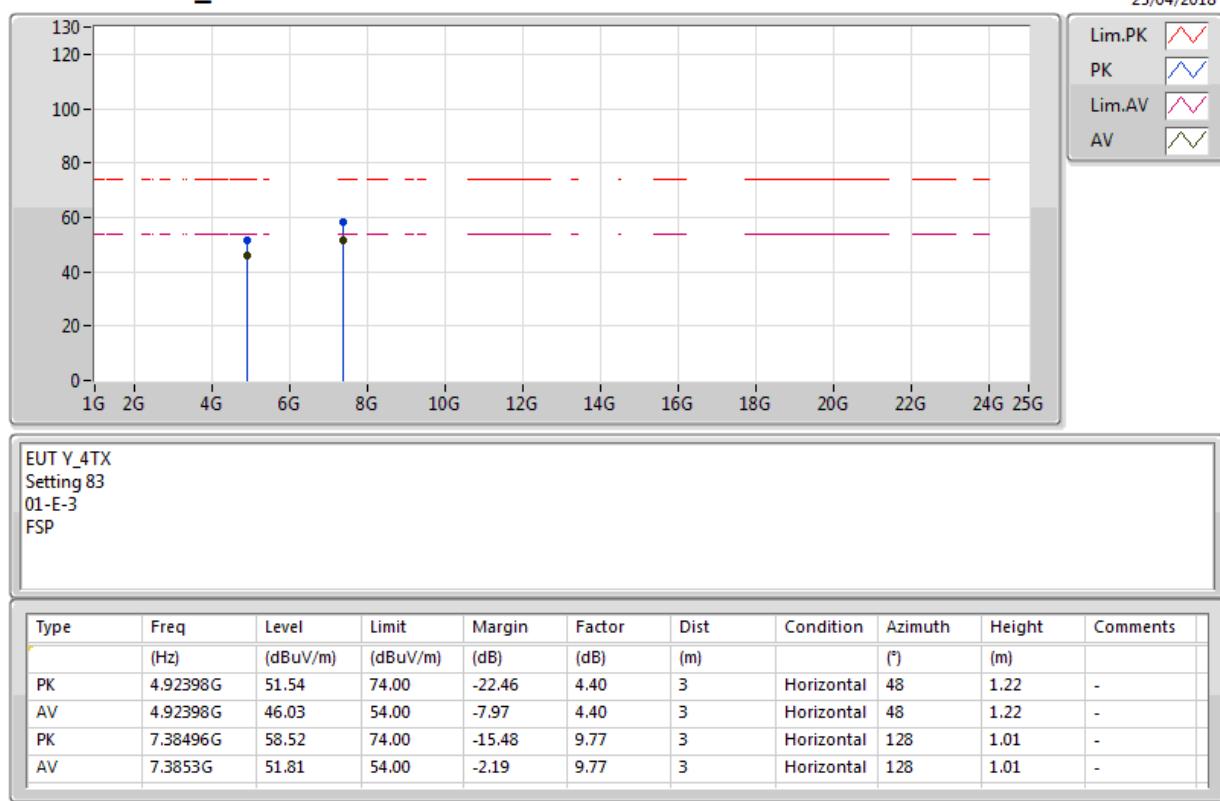
2462MHz_TX

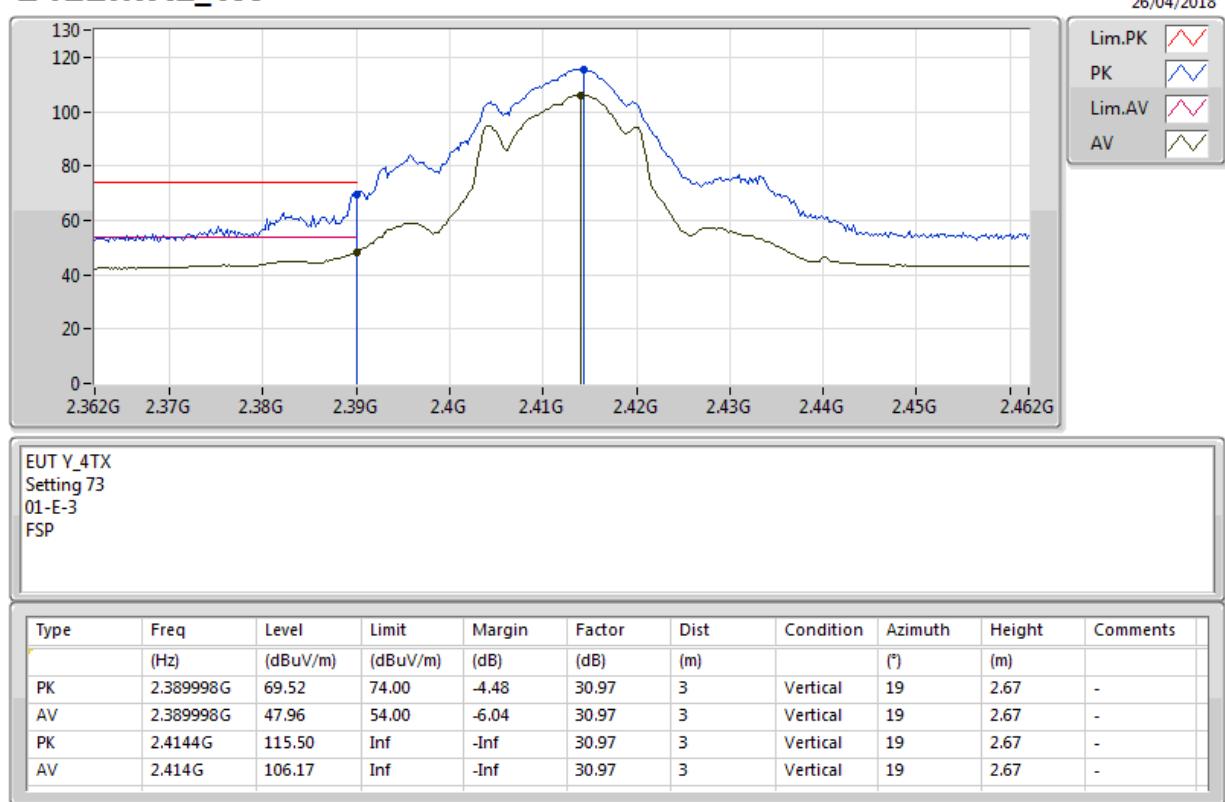


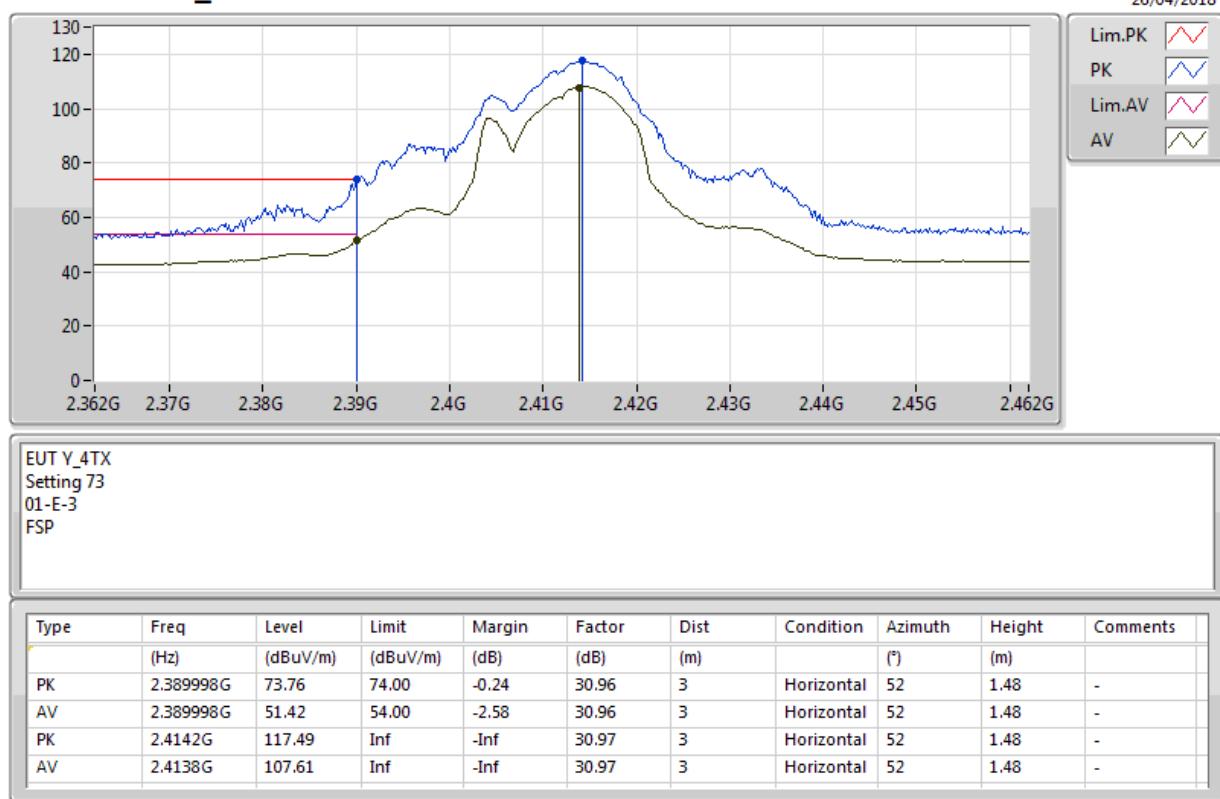
802.11b_Nss1,(1Mbps)_4TX
2462MHz_TX


802.11b_Nss1,(1Mbps)_4TX

2462MHz_TX

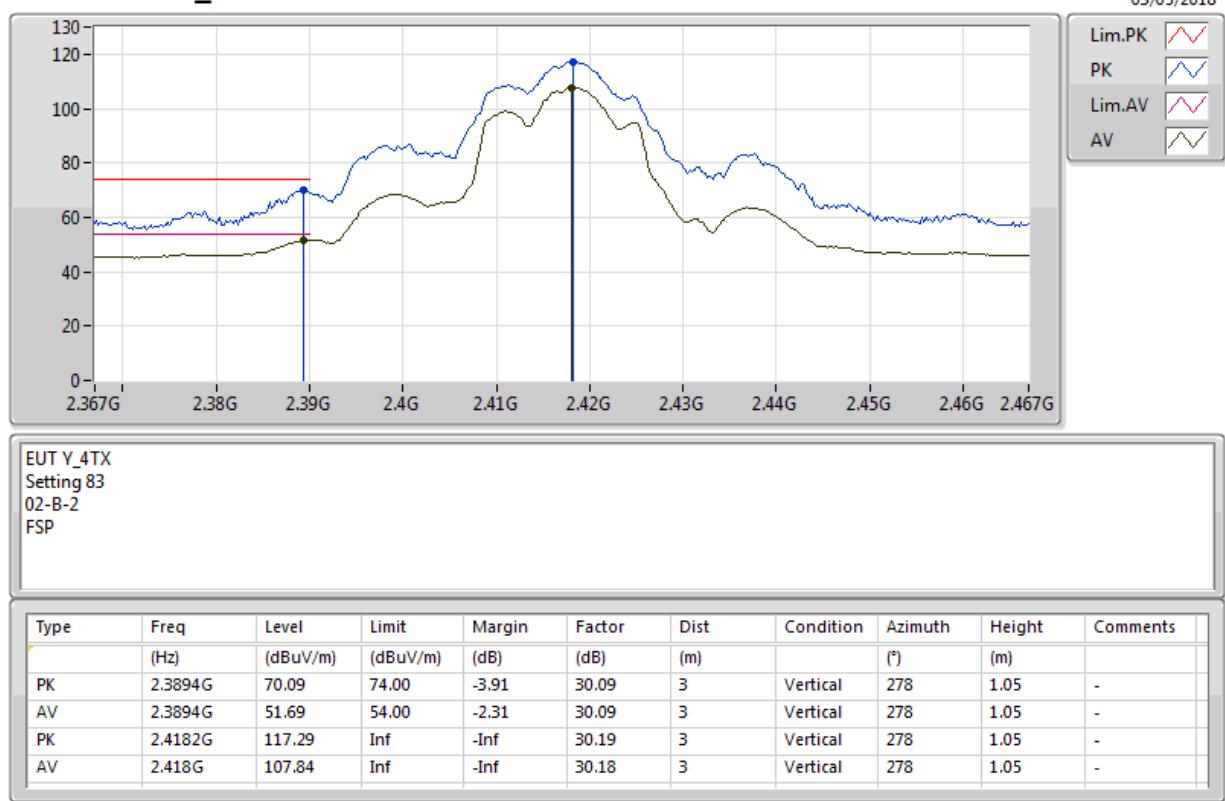


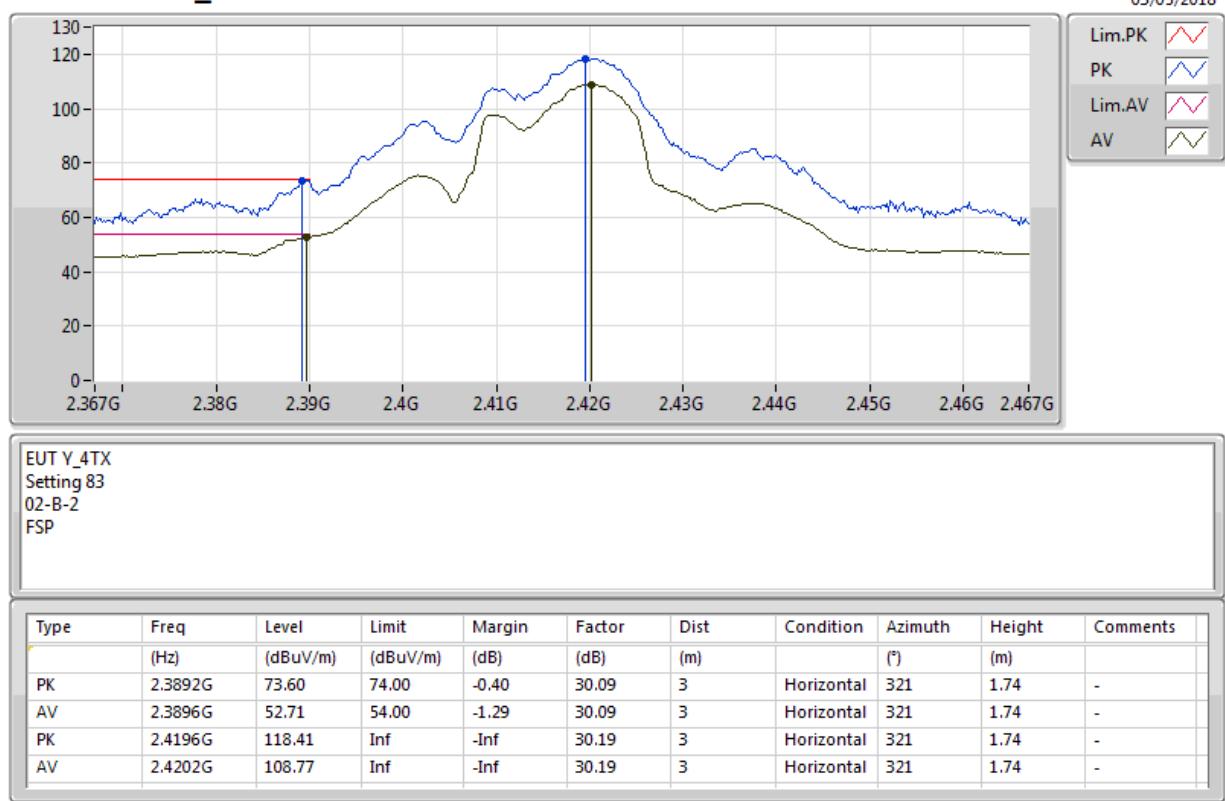
802.11g_Nss1,(6Mbps)_4TX
2412MHz_TX


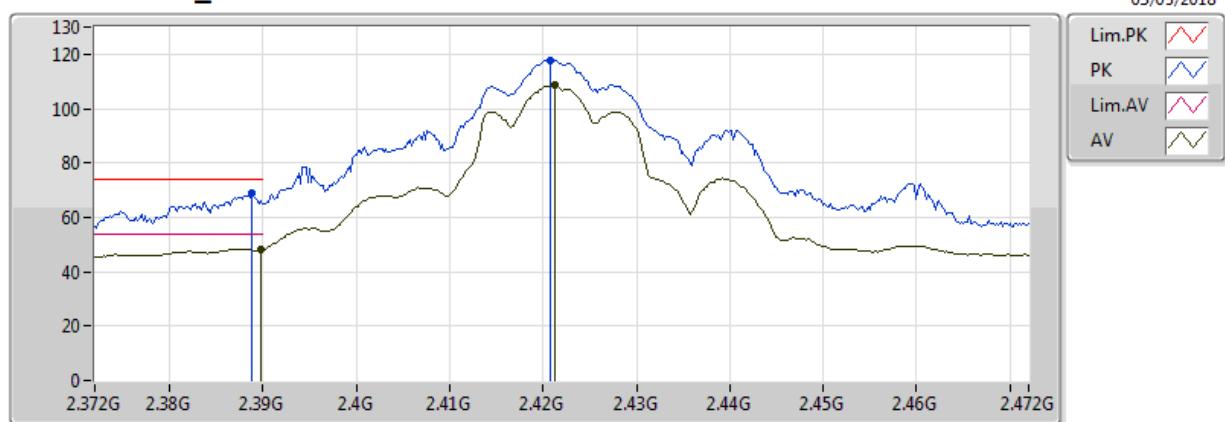
802.11g_Nss1,(6Mbps)_4TX
2412MHz_TX


802.11g_Nss1,(6Mbps)_4TX
2412MHz_TX


802.11g_Nss1,(6Mbps)_4TX
2412MHz_TX

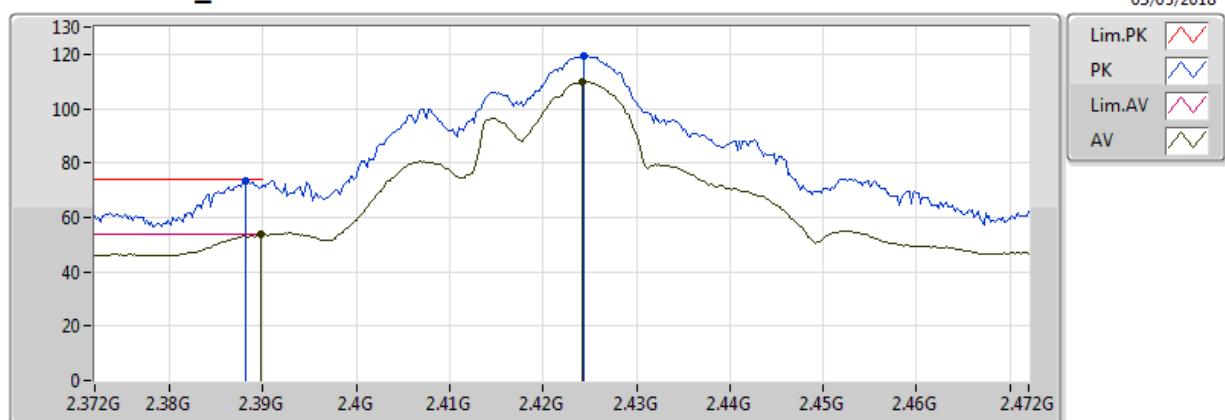

802.11g_Nss1,(6Mbps)_4TX
2417MHz_TX


802.11g_Nss1,(6Mbps)_4TX
2417MHz_TX


802.11g_Nss1,(6Mbps)_4TX
2422MHz_TX


EUT Y_4TX
Setting 85
02-B-2
FSP

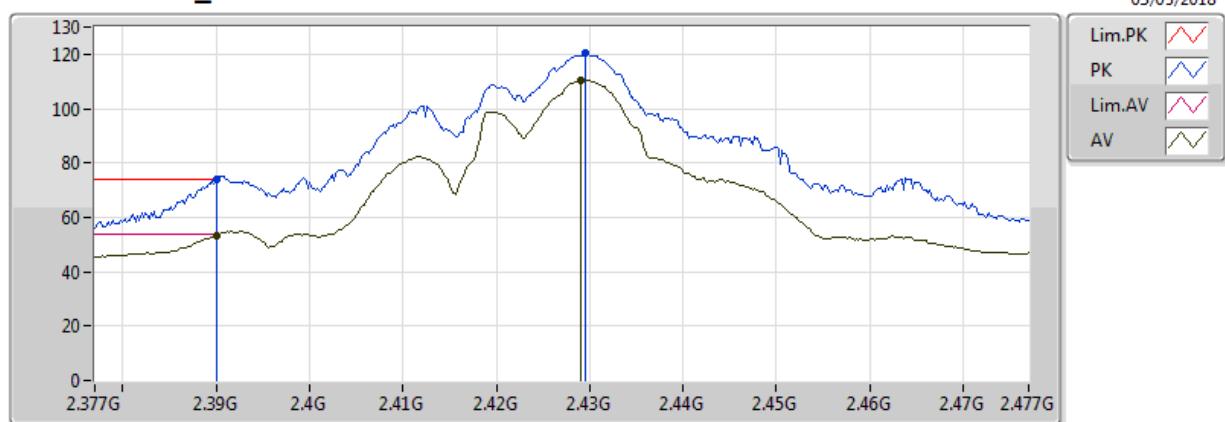
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3888G	69.02	74.00	-4.98	30.09	3	Vertical	287	1.04	-
AV	2.3898G	48.37	54.00	-5.63	30.09	3	Vertical	287	1.04	-
PK	2.4208G	117.90	Inf	-Inf	30.19	3	Vertical	287	1.04	-
AV	2.4212G	108.86	Inf	-Inf	30.19	3	Vertical	287	1.04	-

802.11g_Nss1,(6Mbps)_4TX
2422MHz_TX


EUT Y_4TX
Setting 85
02-B-2
FSP

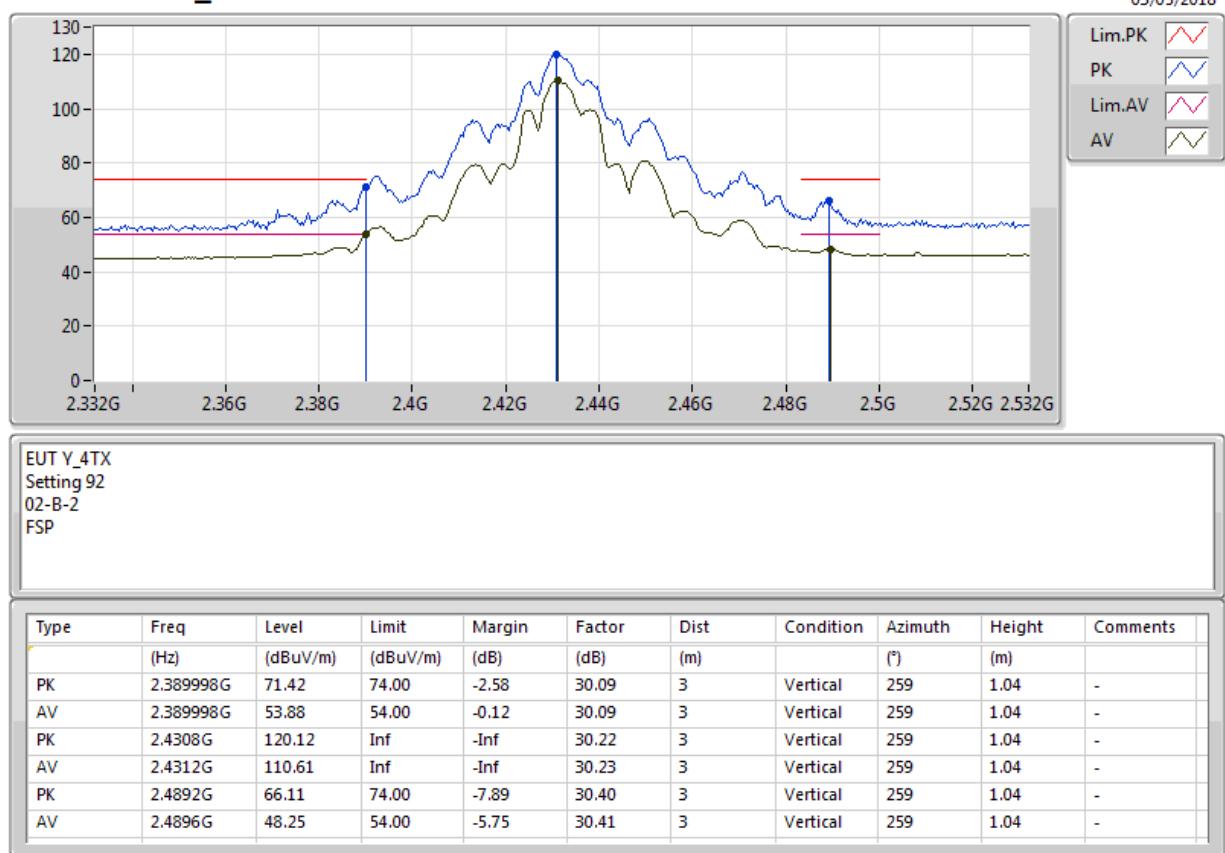
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3882G	73.51	74.00	-0.49	30.09	3	Horizontal	311	1.75	-
AV	2.3898G	53.57	54.00	-0.43	30.09	3	Horizontal	311	1.75	-
PK	2.4244G	119.31	Inf	-Inf	30.20	3	Horizontal	311	1.75	-
AV	2.4242G	109.93	Inf	-Inf	30.20	3	Horizontal	311	1.75	-

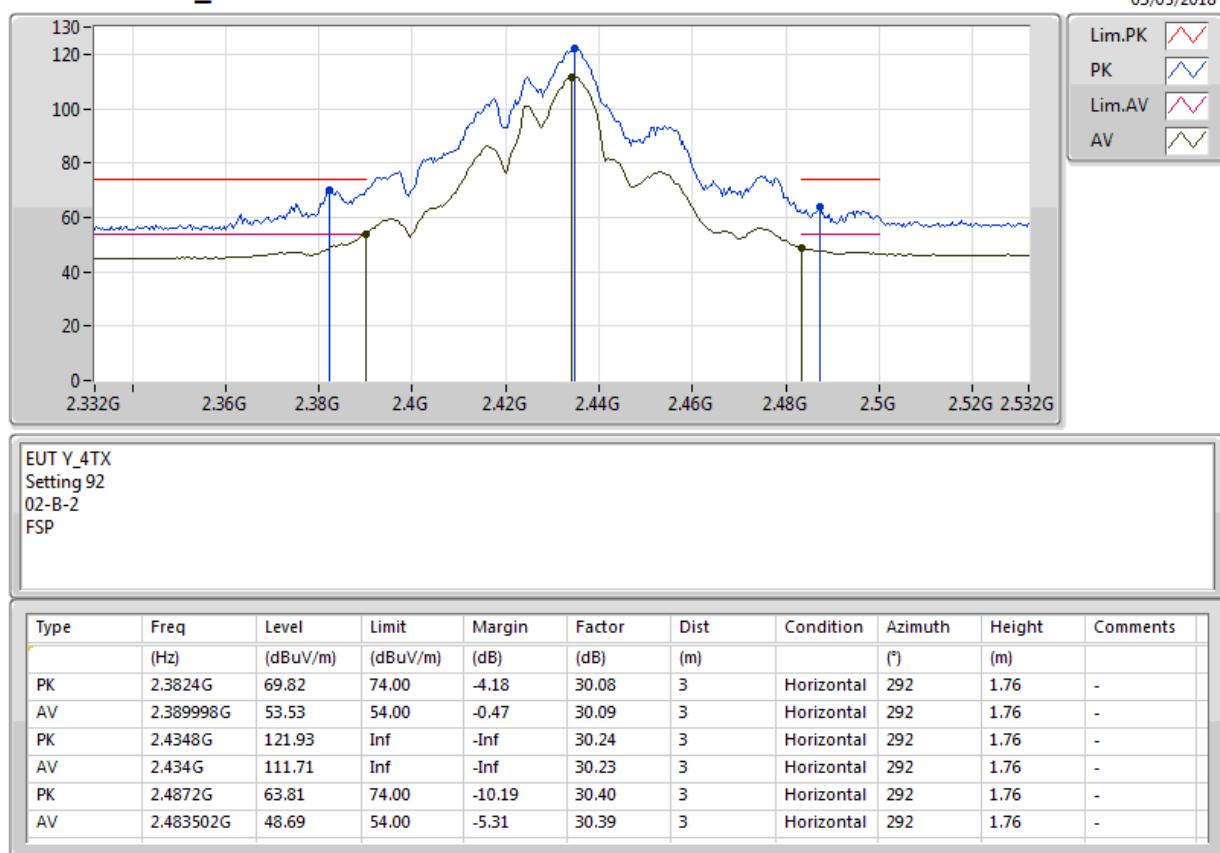
802.11g_Nss1,(6Mbps)_4TX
2427MHz_TX

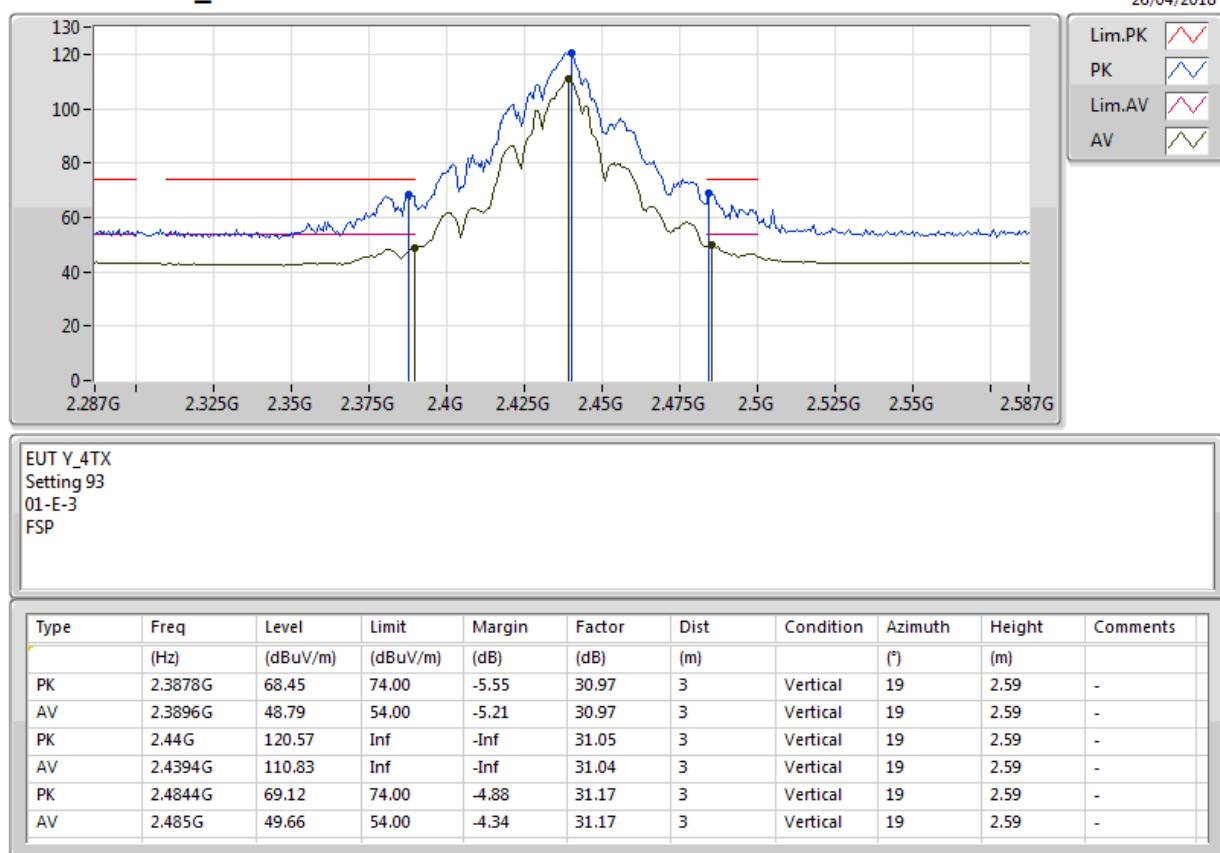

802.11g_Nss1,(6Mbps)_4TX
2427MHz_TX


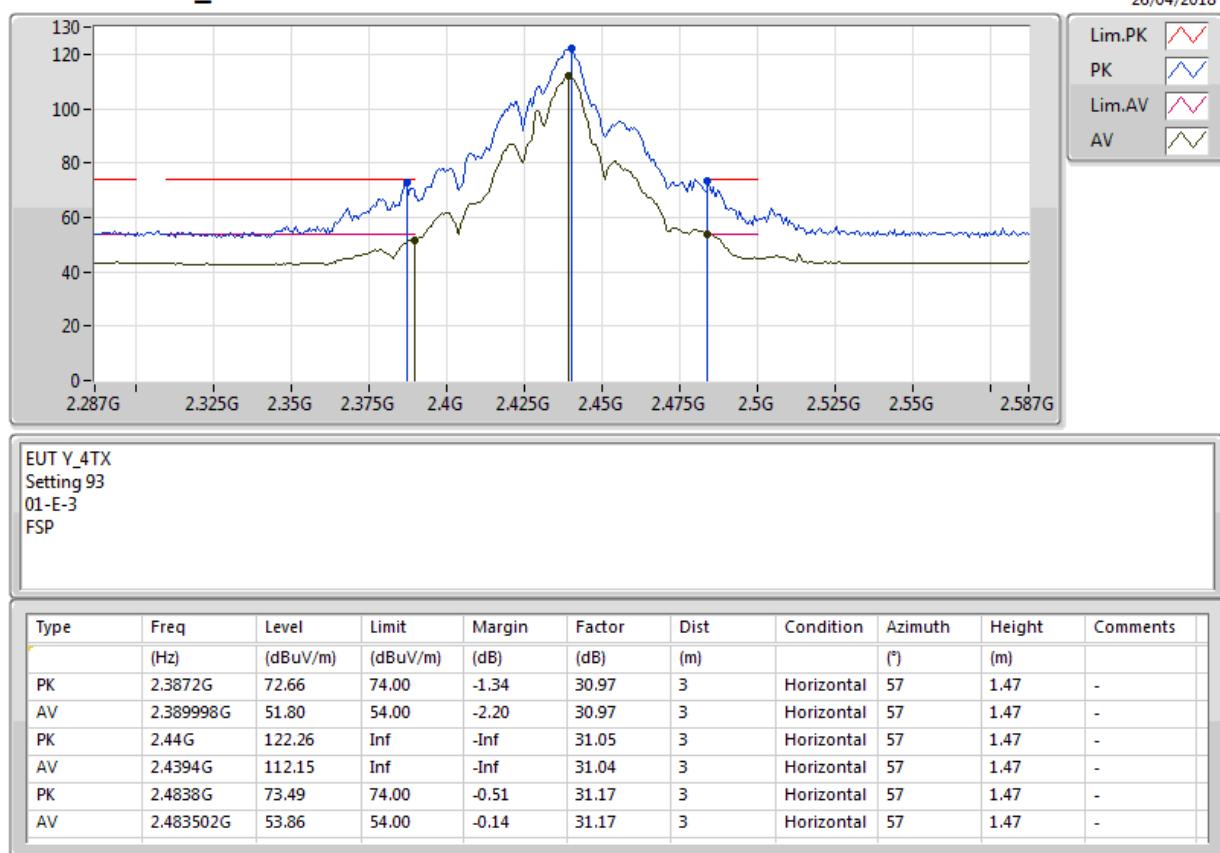
EUT Y_4TX
Setting 87
02-B-2
FSP

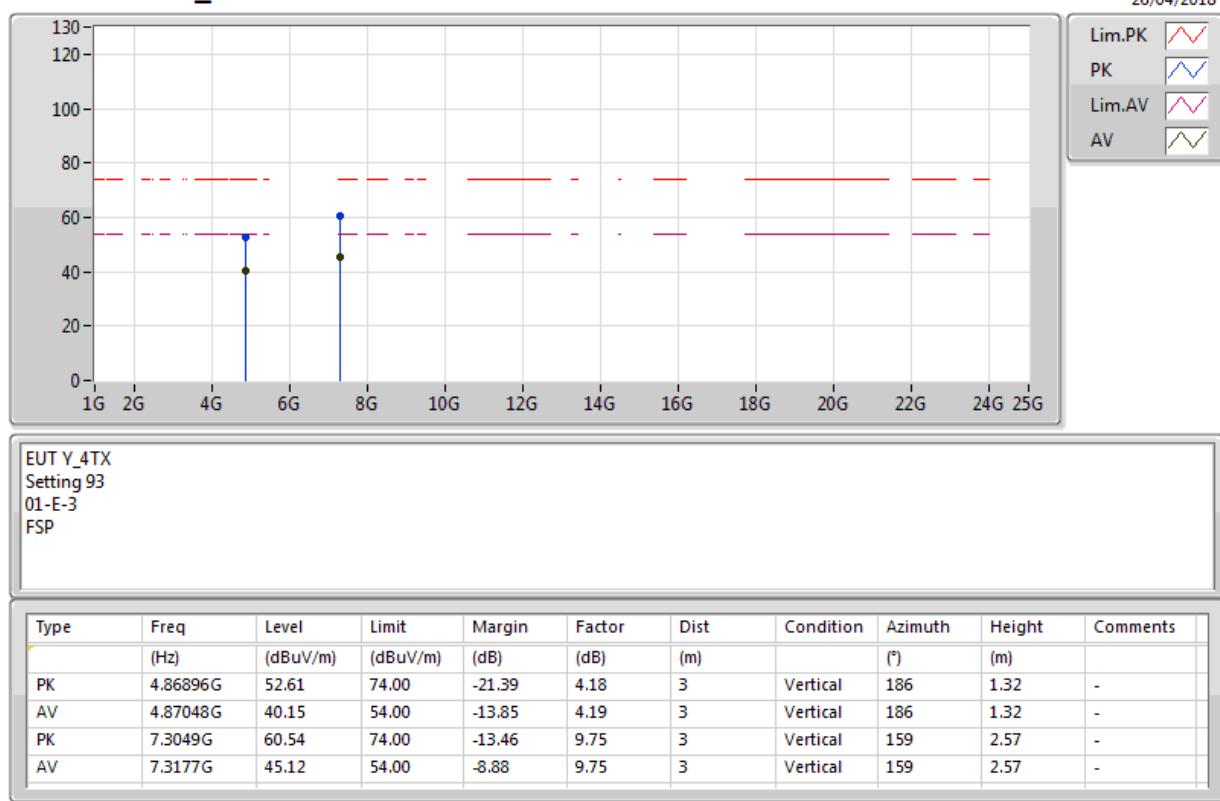
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.389998G	73.74	74.00	-0.26	30.09	3	Horizontal	298	1.58	-
AV	2.389998G	53.34	54.00	-0.66	30.09	3	Horizontal	298	1.58	-
PK	2.4296G	120.22	Inf	-Inf	30.22	3	Horizontal	298	1.58	-
AV	2.429G	110.39	Inf	-Inf	30.22	3	Horizontal	298	1.58	-

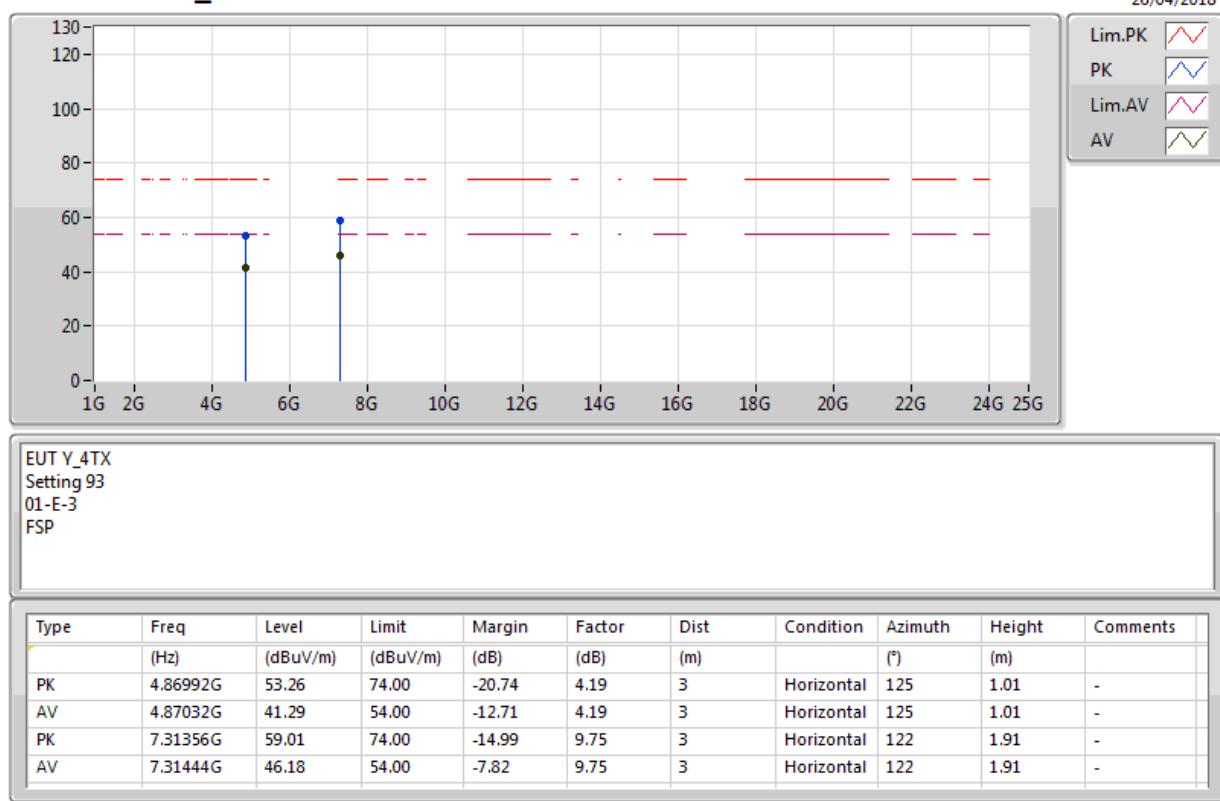
802.11g_Nss1,(6Mbps)_4TX
2432MHz_TX


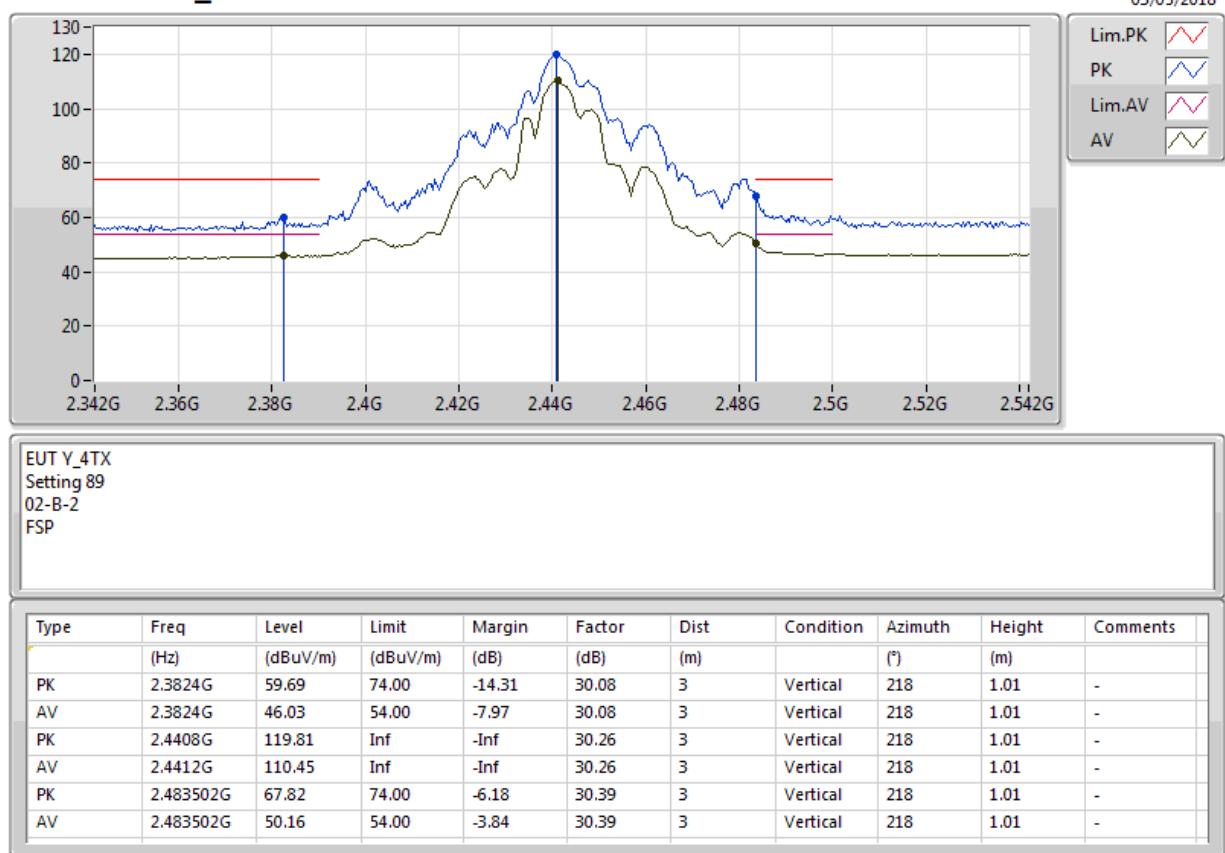
802.11g_Nss1,(6Mbps)_4TX
2432MHz_TX


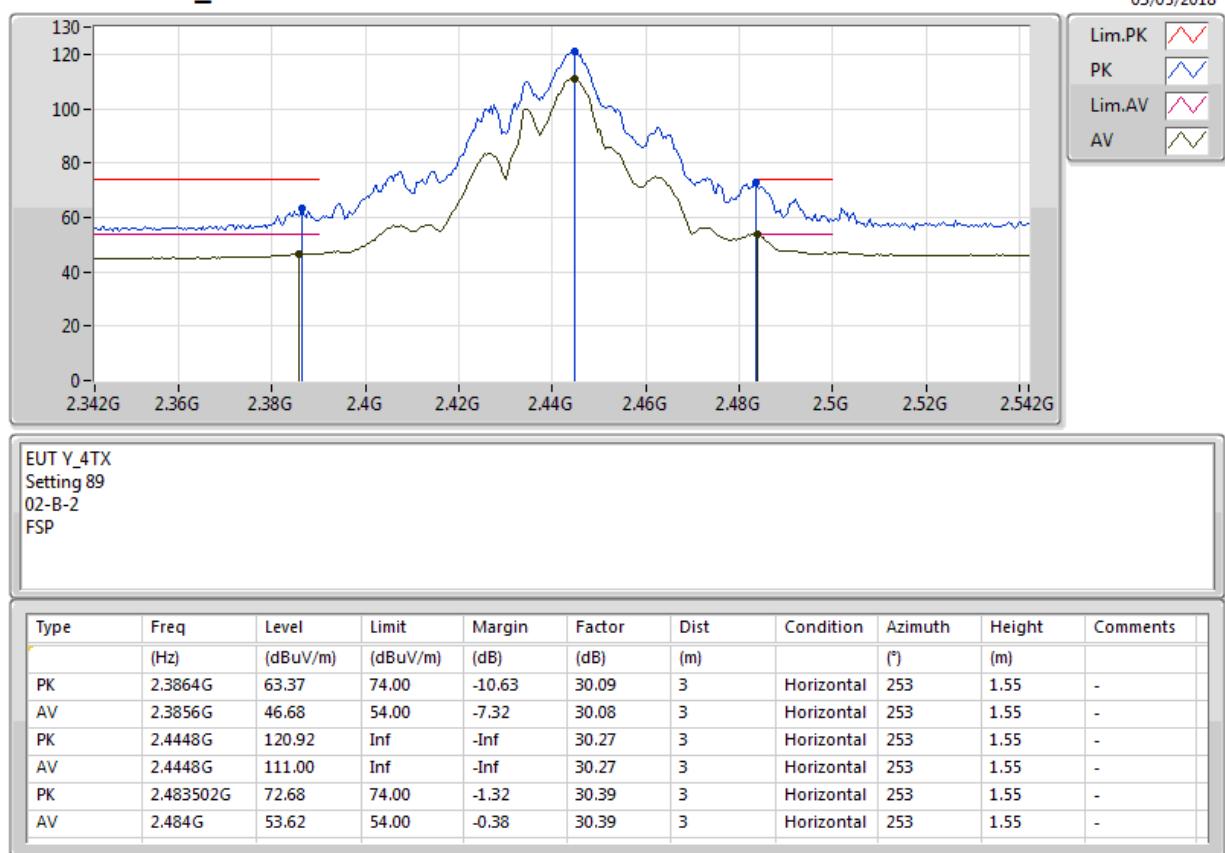
802.11g_Nss1,(6Mbps)_4TX
2437MHz_TX


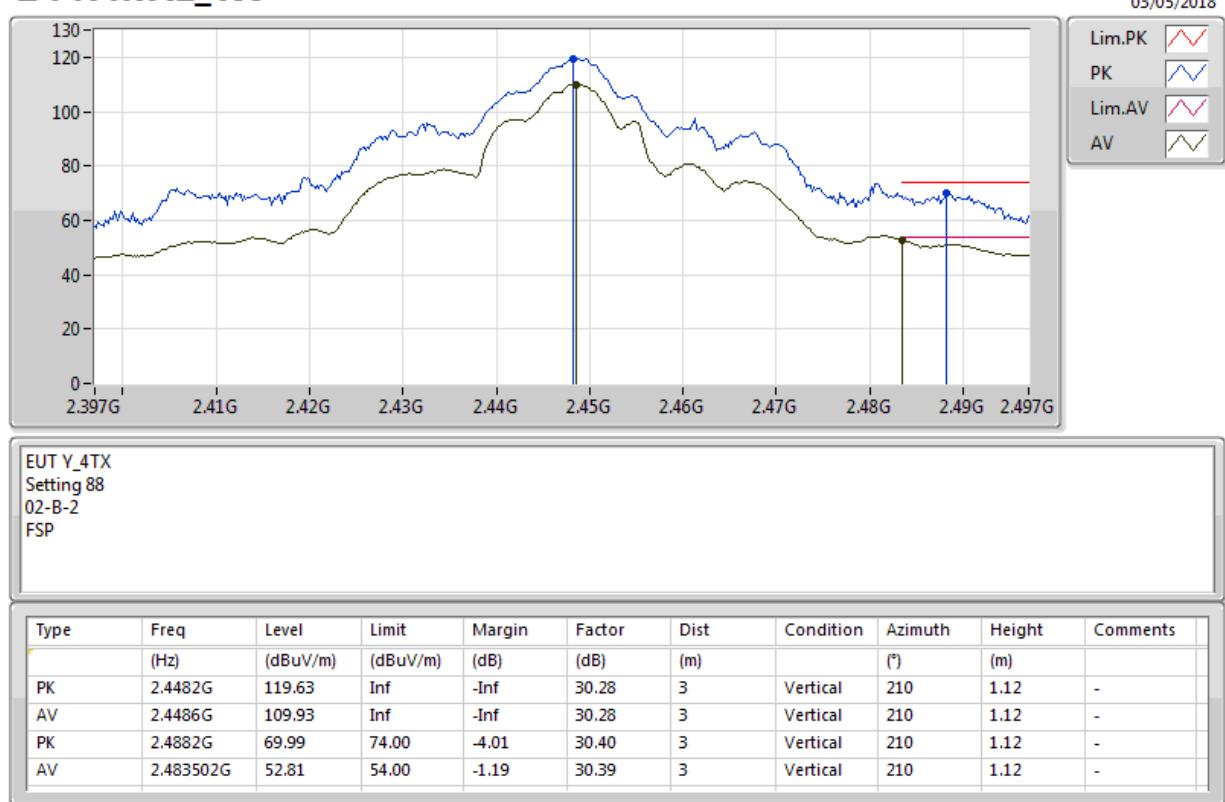
802.11g_Nss1,(6Mbps)_4TX
2437MHz_TX


802.11g_Nss1,(6Mbps)_4TX
2437MHz_TX


802.11g_Nss1,(6Mbps)_4TX
2437MHz_TX


802.11g_Nss1,(6Mbps)_4TX
2442MHz_TX


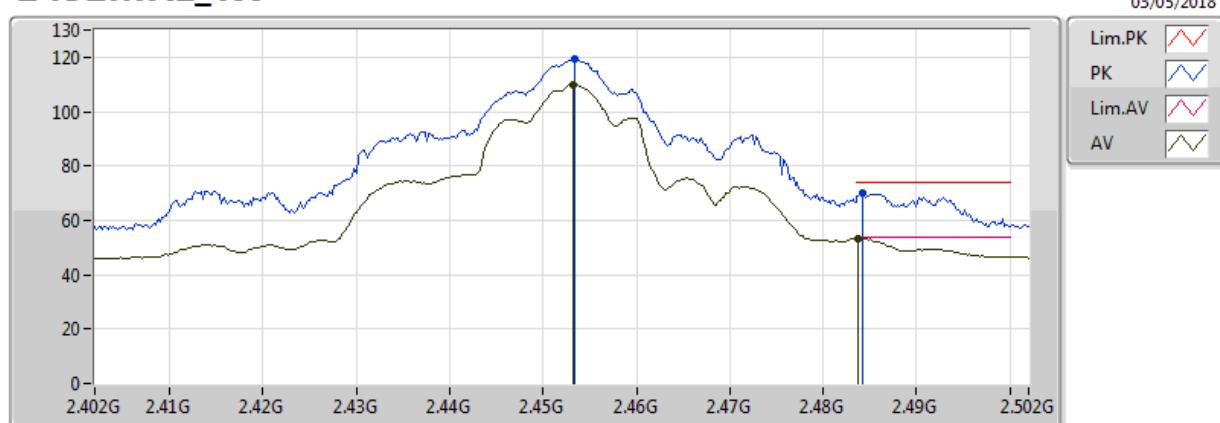
802.11g_Nss1,(6Mbps)_4TX
2442MHz_TX


802.11g_Nss1,(6Mbps)_4TX
2447MHz_TX


802.11g_Nss1,(6Mbps)_4TX

2447MHz_TX



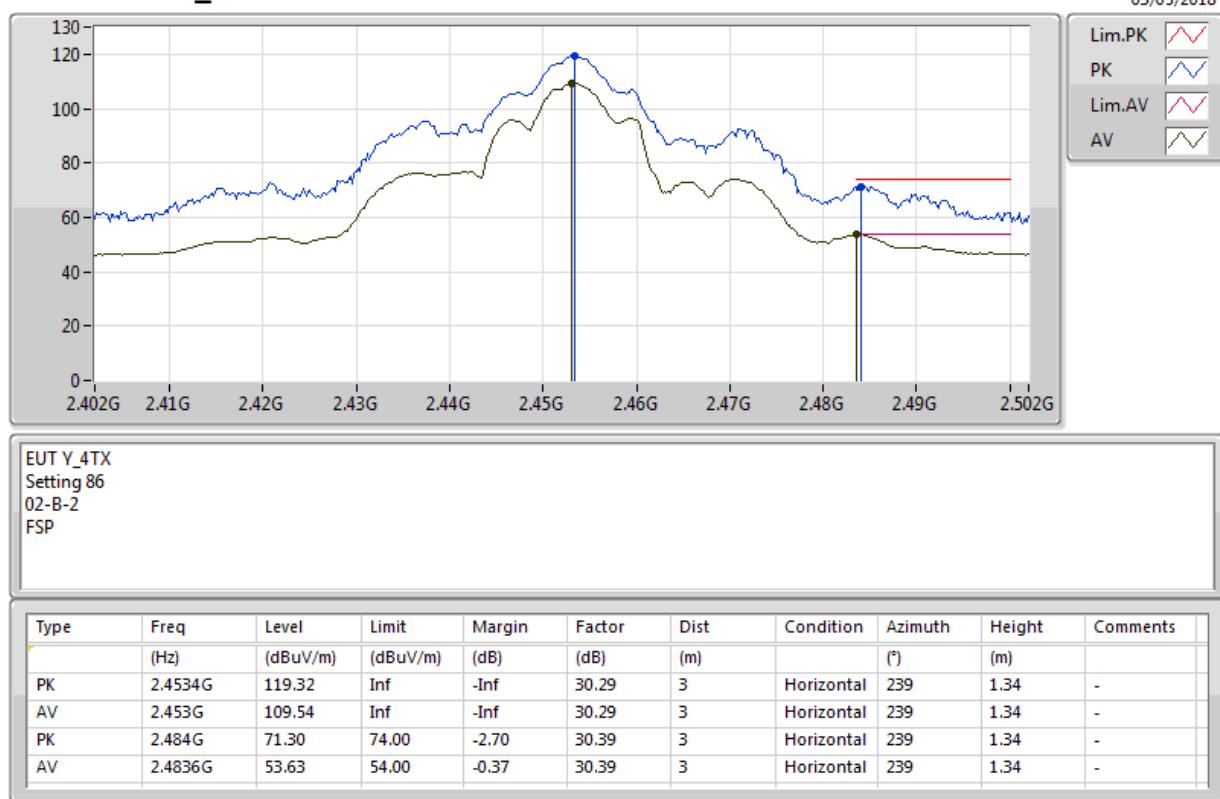
802.11g_Nss1,(6Mbps)_4TX
2452MHz_TX


EUT Y_4TX
Setting 86
02-B-2
FSP

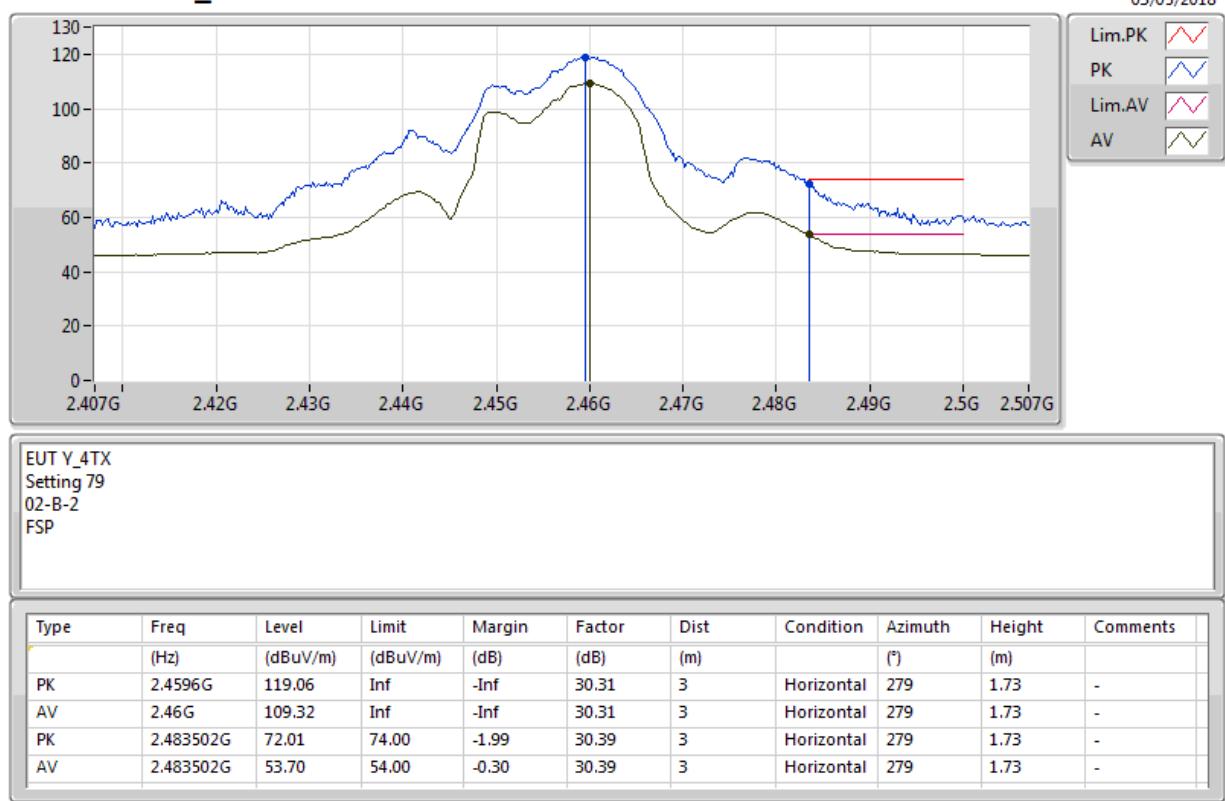
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.4534G	119.29	Inf	-Inf	30.29	3	Vertical	235	1.08	-
AV	2.4532G	109.79	Inf	-Inf	30.29	3	Vertical	235	1.08	-
PK	2.4842G	70.29	74.00	-3.71	30.39	3	Vertical	235	1.08	-
AV	2.4838G	53.32	54.00	-0.68	30.39	3	Vertical	235	1.08	-

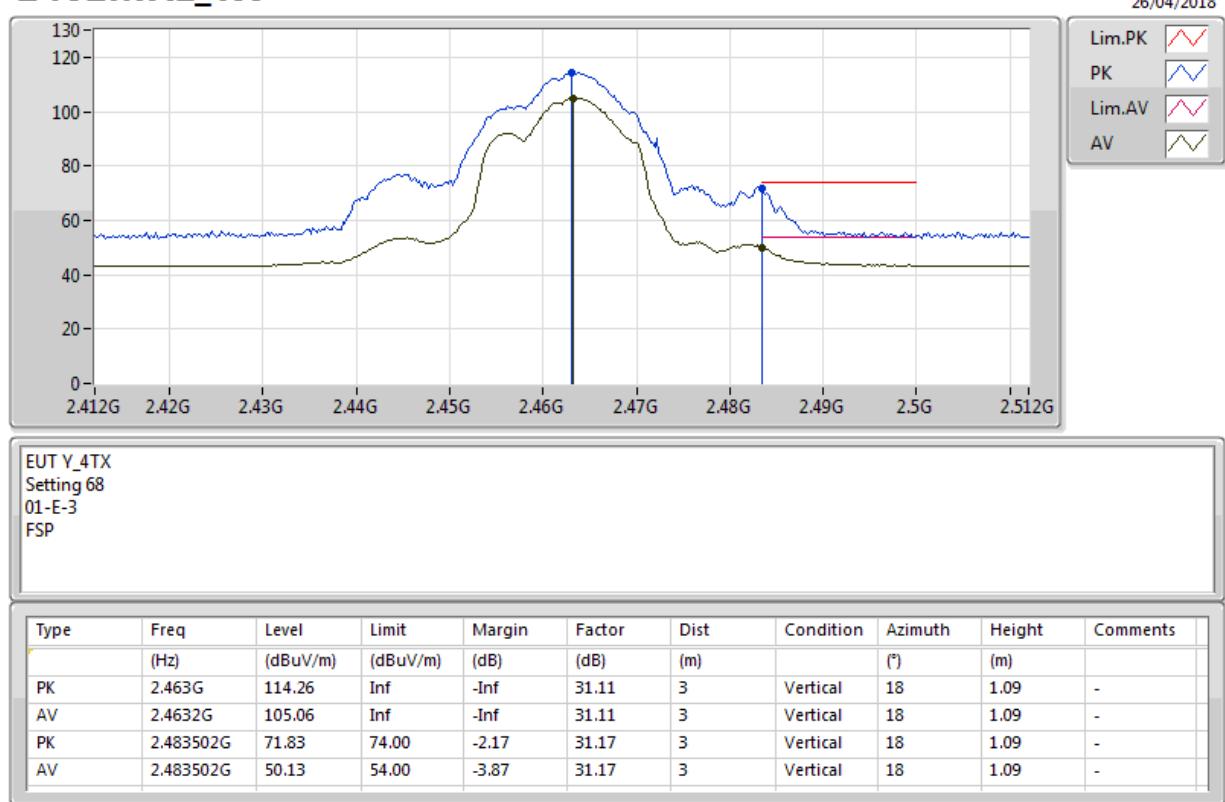
802.11g_Nss1,(6Mbps)_4TX

2452MHz_TX



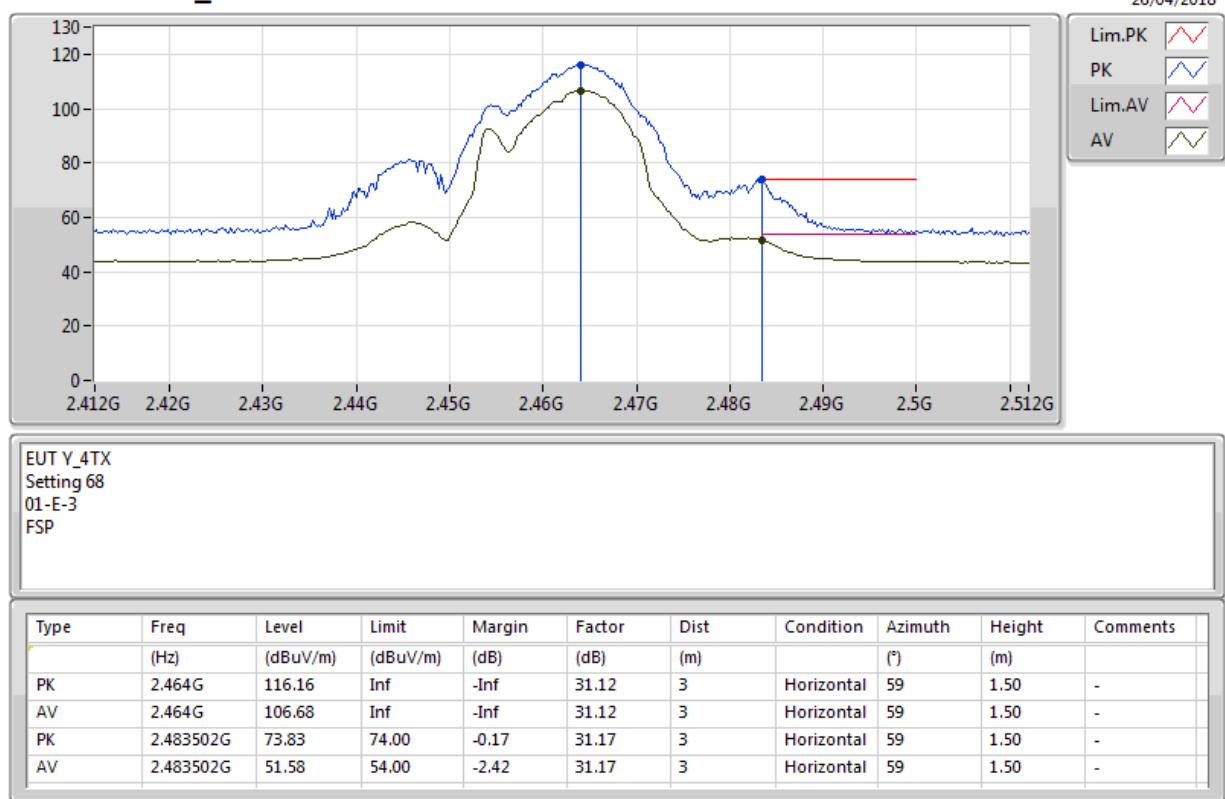
802.11g_Nss1,(6Mbps)_4TX
2457MHz_TX


802.11g_Nss1,(6Mbps)_4TX
2457MHz_TX


802.11g_Nss1,(6Mbps)_4TX
2462MHz_TX


802.11g_Nss1,(6Mbps)_4TX

2462MHz_TX



802.11g_Nss1,(6Mbps)_4TX

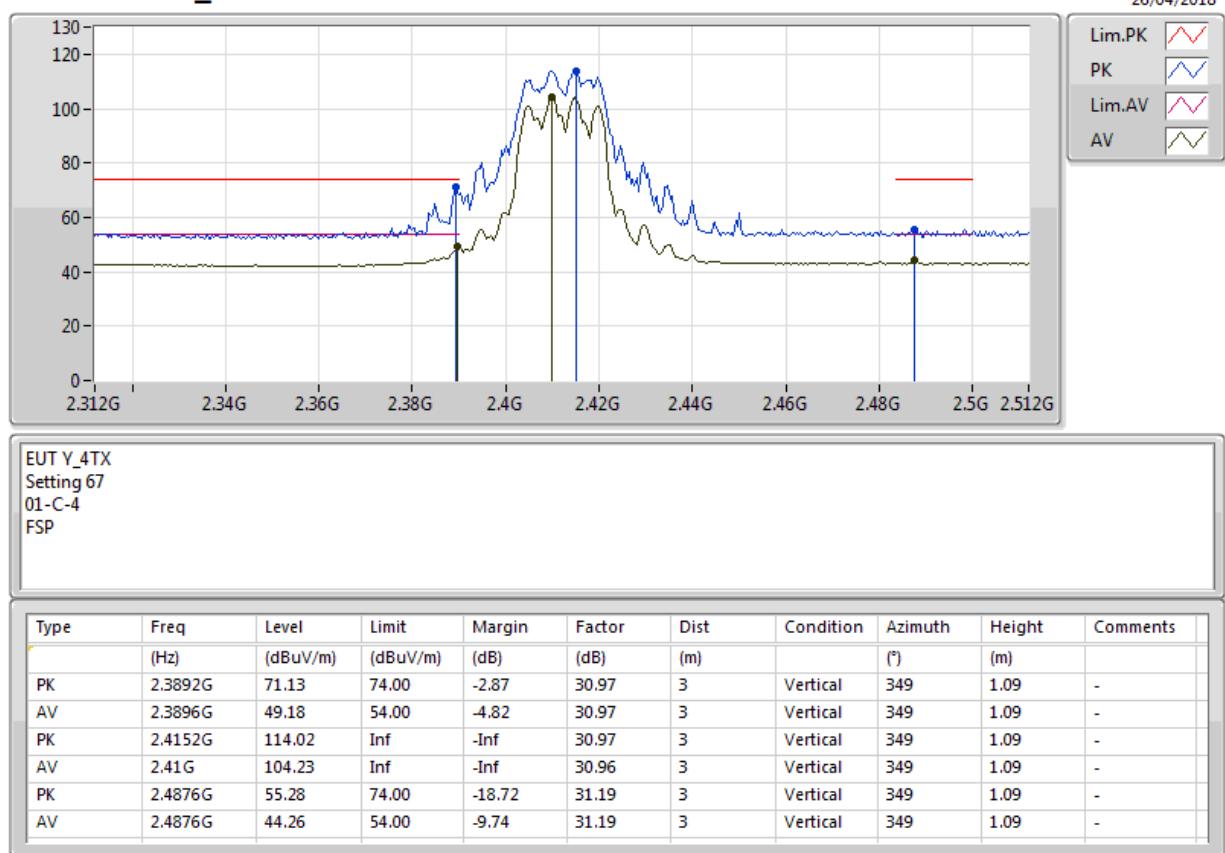
2462MHz_TX



802.11g_Nss1,(6Mbps)_4TX
2462MHz_TX

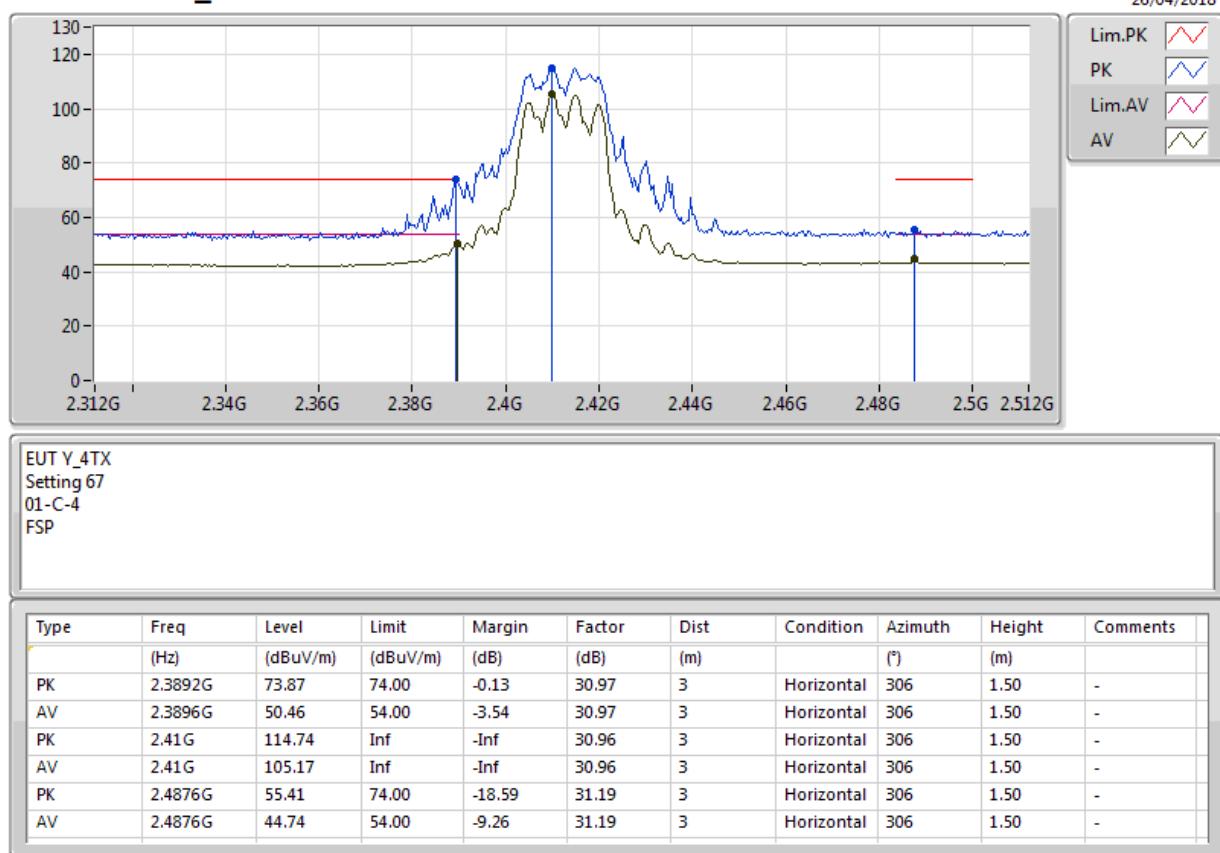

802.11ac VHT20_Nss1,(MCS0)_4TX

2412MHz_TX



802.11ac VHT20_Nss1,(MCS0)_4TX

2412MHz_TX



802.11ac VHT20_Nss1,(MCS0)_4TX

2412MHz_TX



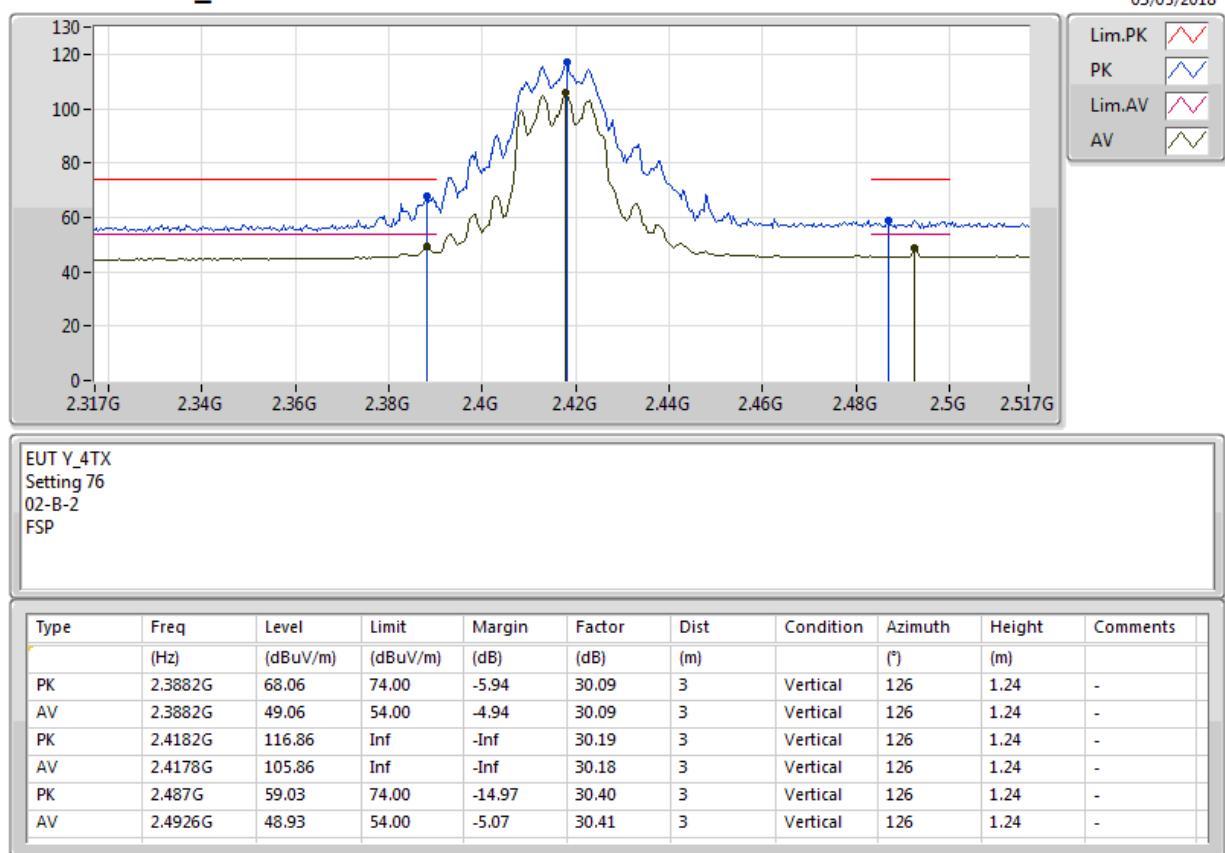
802.11ac VHT20_Nss1,(MCS0)_4TX

2412MHz_TX



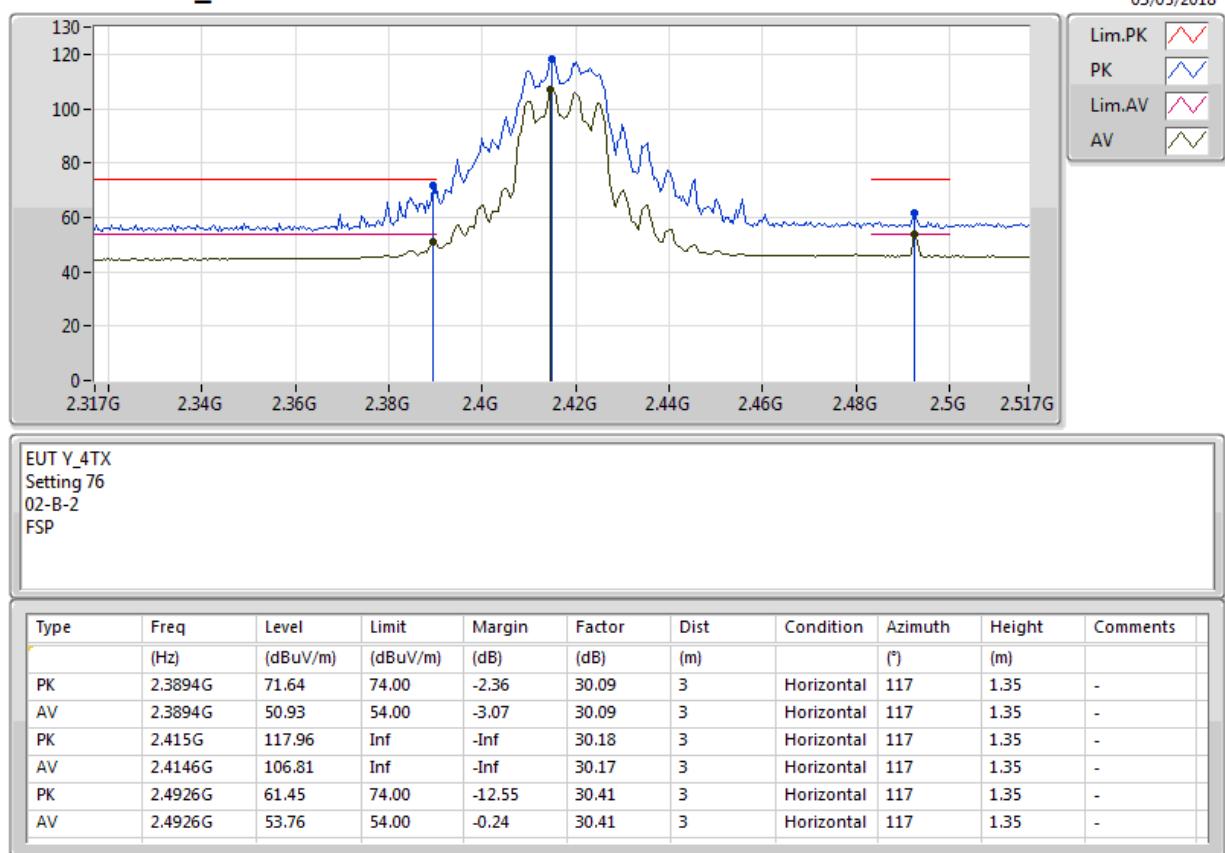
802.11ac VHT20_Nss1,(MCS0)_4TX

2417MHz_TX



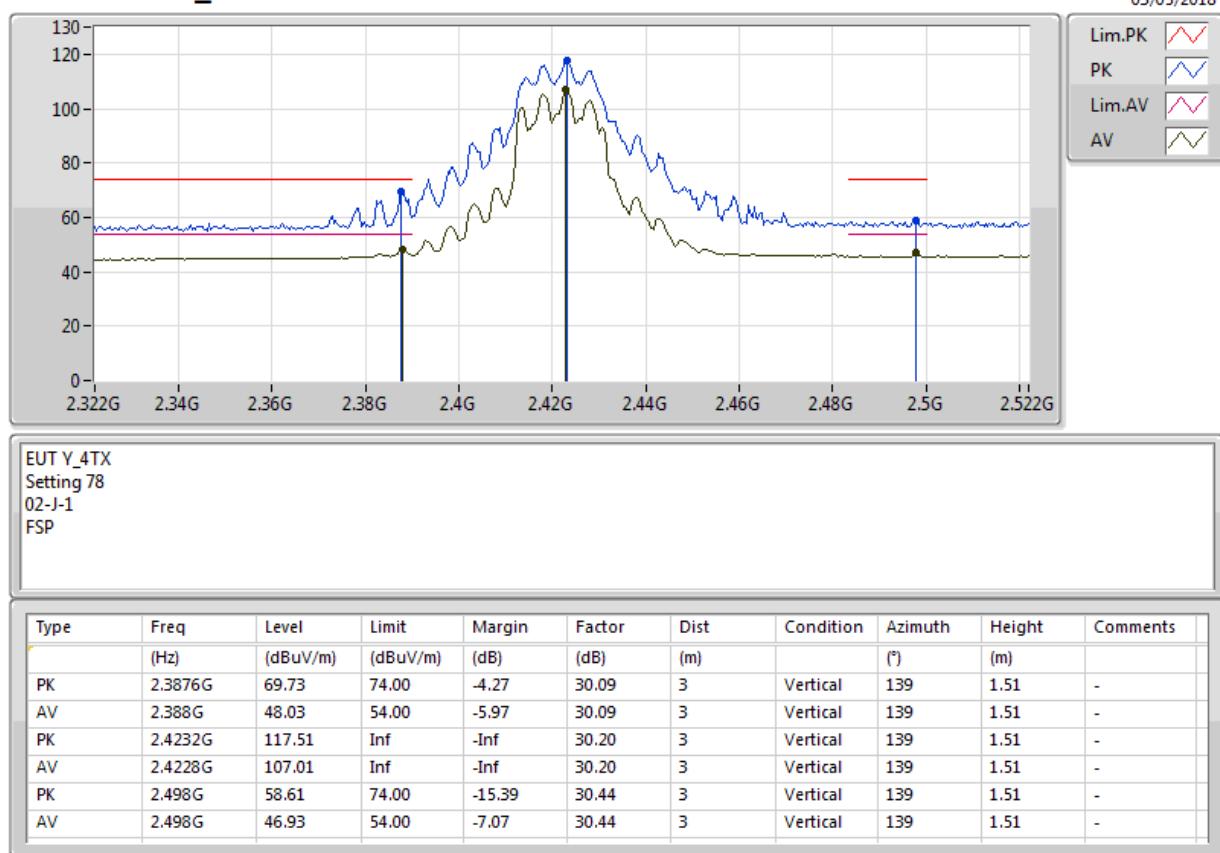
802.11ac VHT20_Nss1,(MCS0)_4TX

2417MHz_TX



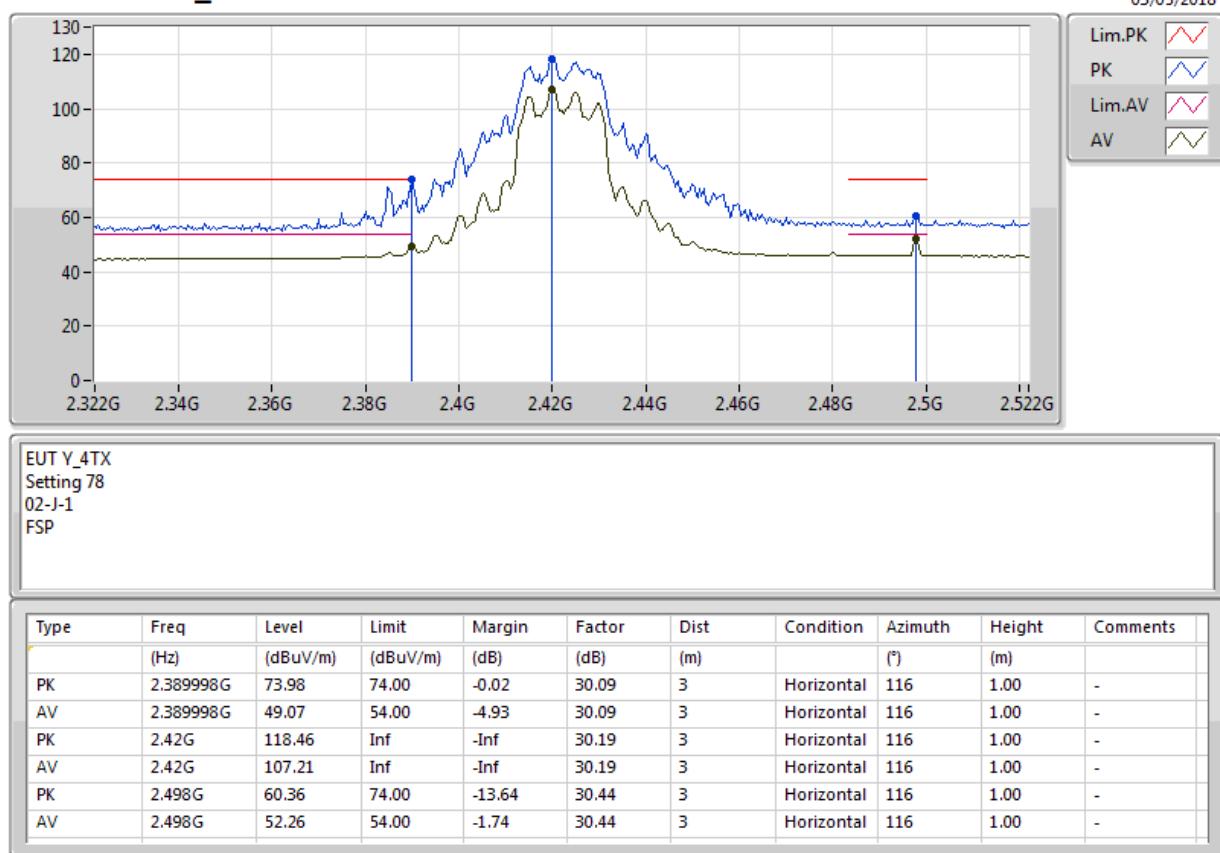
802.11ac VHT20_Nss1,(MCS0)_4TX

2422MHz_TX



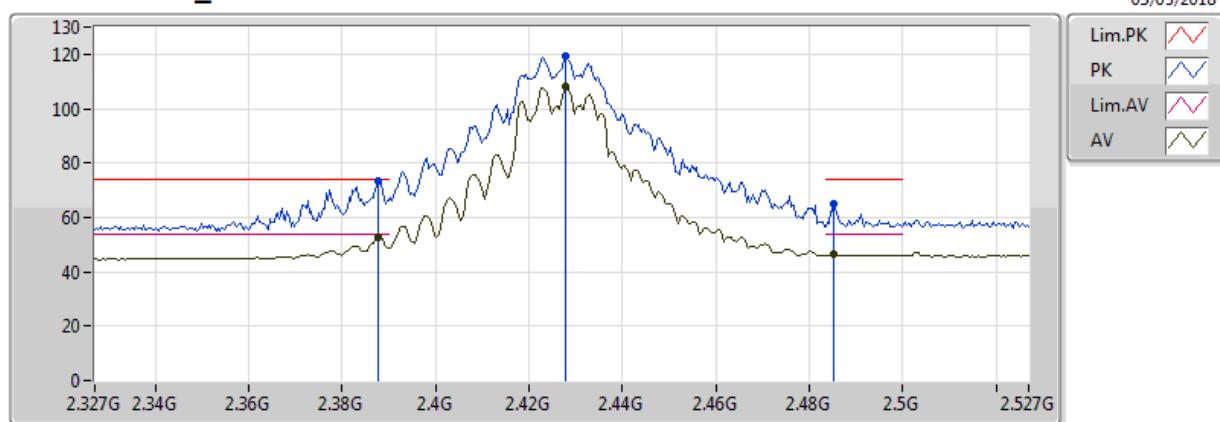
802.11ac VHT20_Nss1,(MCS0)_4TX

2422MHz_TX



802.11ac VHT20_Nss1,(MCS0)_4TX

2427MHz_TX

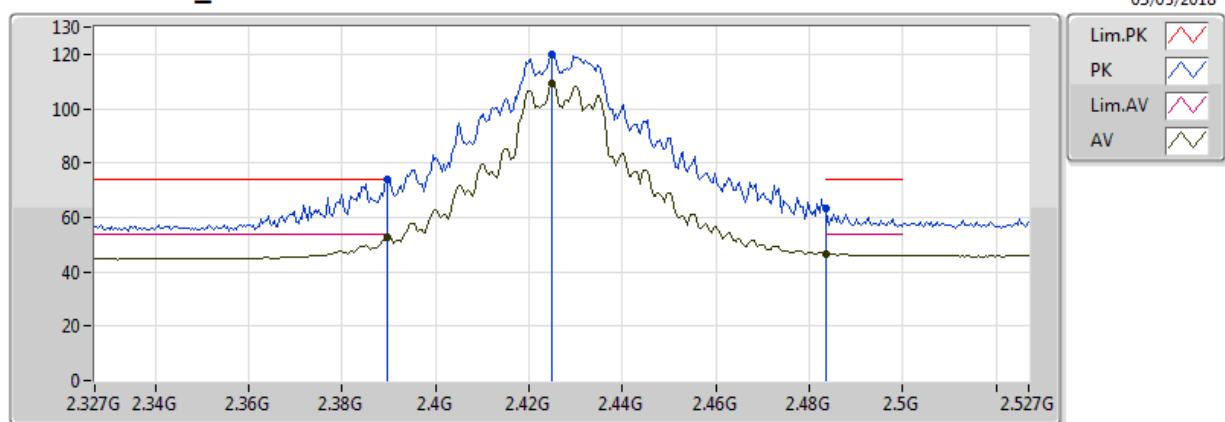


EUT Y_4TX
Setting 87
02-J-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3878G	73.38	74.00	-0.62	30.09	3	Vertical	139	1.50	-
AV	2.3878G	52.62	54.00	-1.38	30.09	3	Vertical	139	1.50	-
PK	2.4278G	119.45	Inf	-Inf	30.21	3	Vertical	139	1.50	-
AV	2.4278G	108.32	Inf	-Inf	30.21	3	Vertical	139	1.50	-
PK	2.4854G	64.81	74.00	-9.19	30.39	3	Vertical	139	1.50	-
AV	2.4854G	46.38	54.00	-7.62	30.39	3	Vertical	139	1.50	-

802.11ac VHT20_Nss1,(MCS0)_4TX

2427MHz_TX

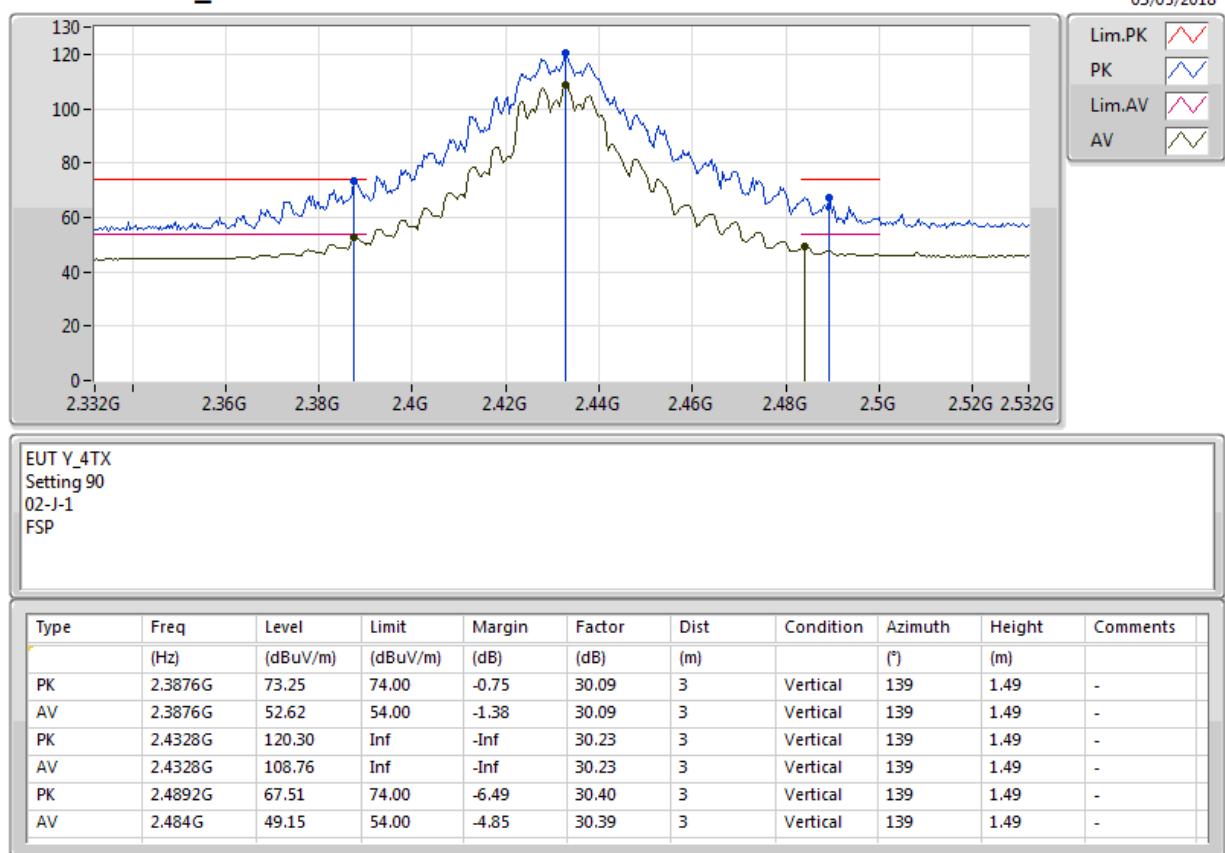


EUT Y_4TX
Setting 87
02-J-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3898G	73.89	74.00	-0.11	30.09	3	Horizontal	128	1.00	-
AV	2.3898G	52.54	54.00	-1.46	30.09	3	Horizontal	128	1.00	-
PK	2.425G	119.75	Inf	-Inf	30.21	3	Horizontal	128	1.00	-
AV	2.425G	109.18	Inf	-Inf	30.21	3	Horizontal	128	1.00	-
PK	2.483502G	63.12	74.00	-10.88	30.39	3	Horizontal	128	1.00	-
AV	2.483502G	46.69	54.00	-7.31	30.39	3	Horizontal	128	1.00	-

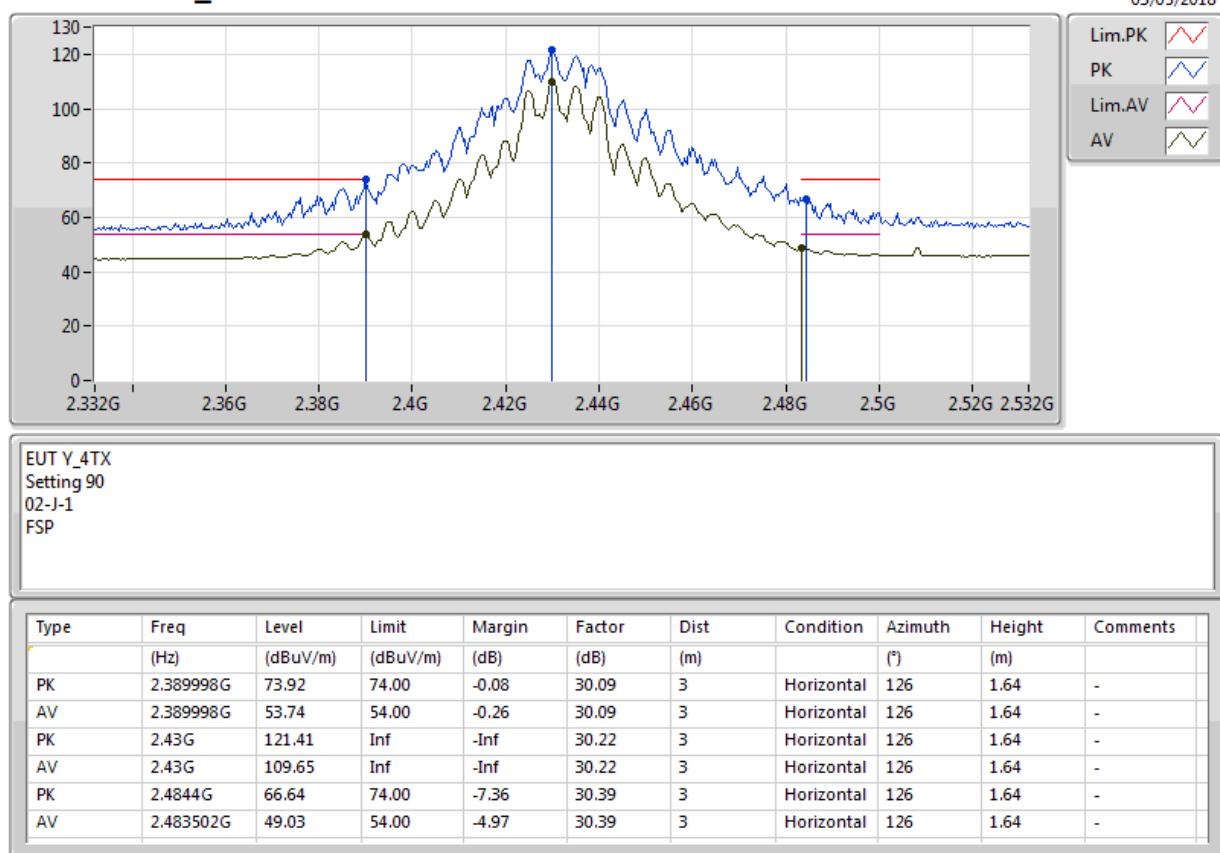
802.11ac VHT20_Nss1,(MCS0)_4TX

2432MHz_TX



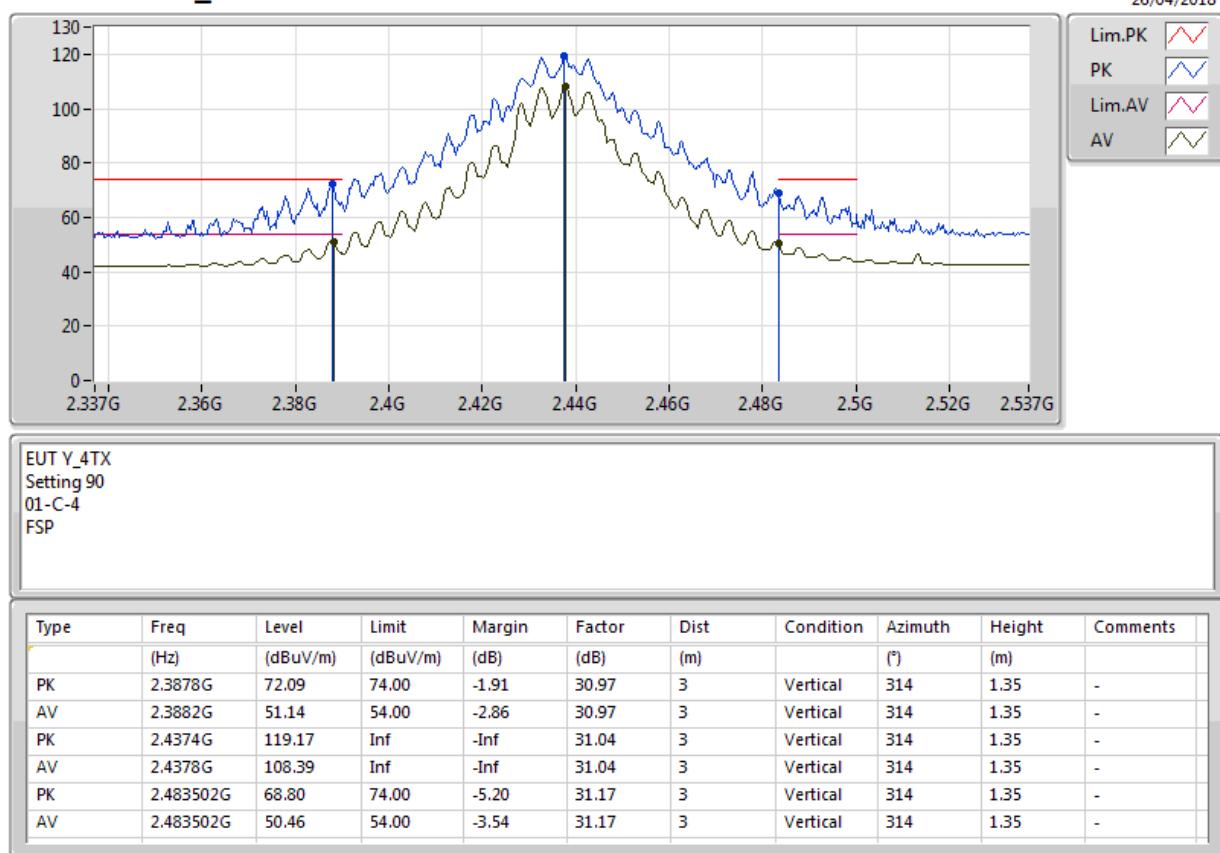
802.11ac VHT20_Nss1,(MCS0)_4TX

2432MHz_TX



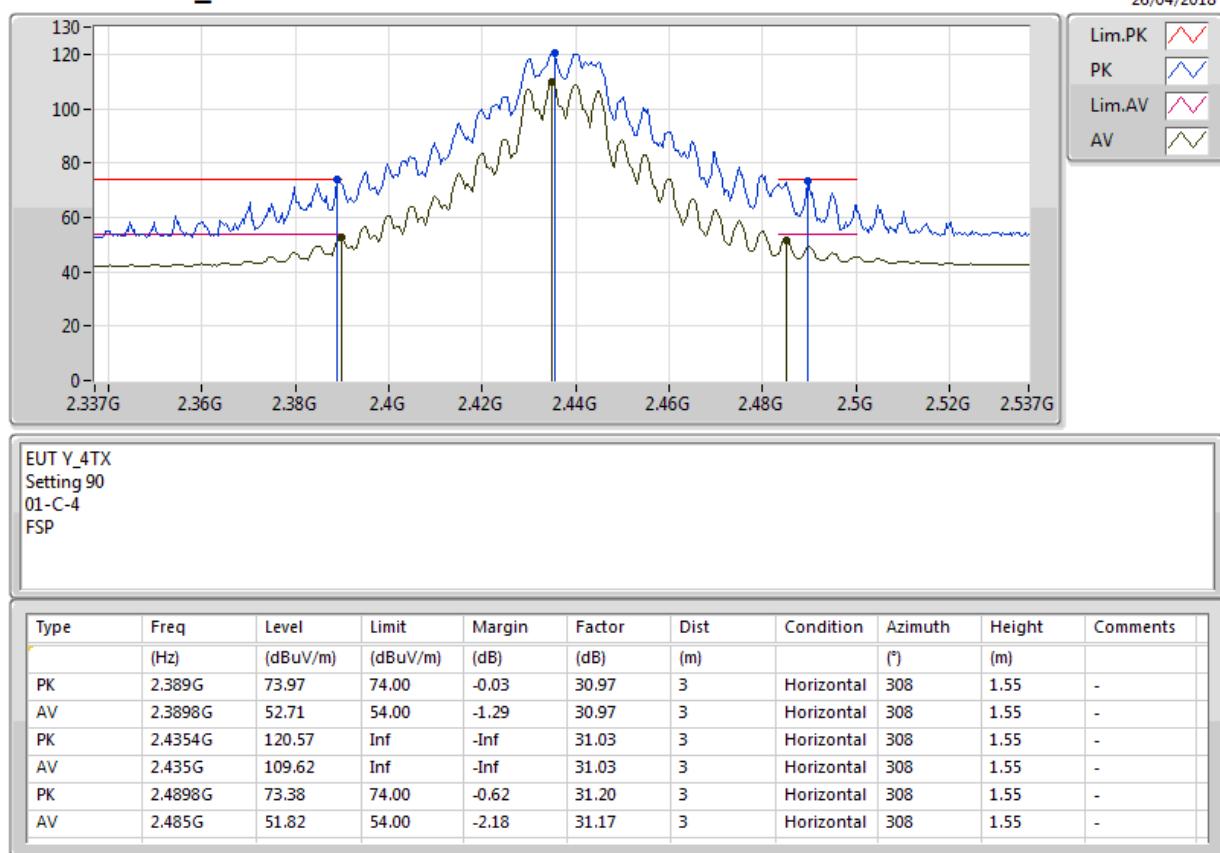
802.11ac VHT20_Nss1,(MCS0)_4TX

2437MHz_TX



802.11ac VHT20_Nss1,(MCS0)_4TX

2437MHz_TX



802.11ac VHT20_Nss1,(MCS0)_4TX

2437MHz_TX



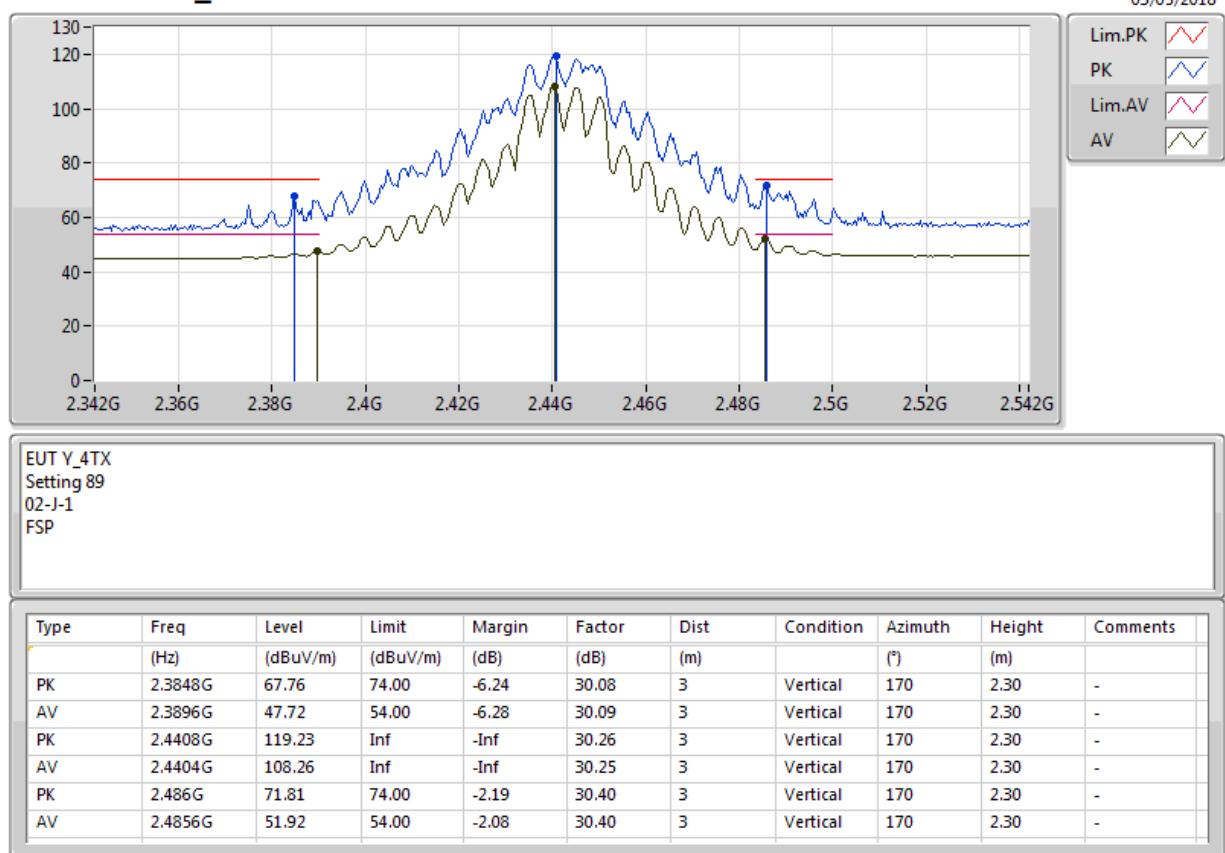
802.11ac VHT20_Nss1,(MCS0)_4TX

2437MHz_TX



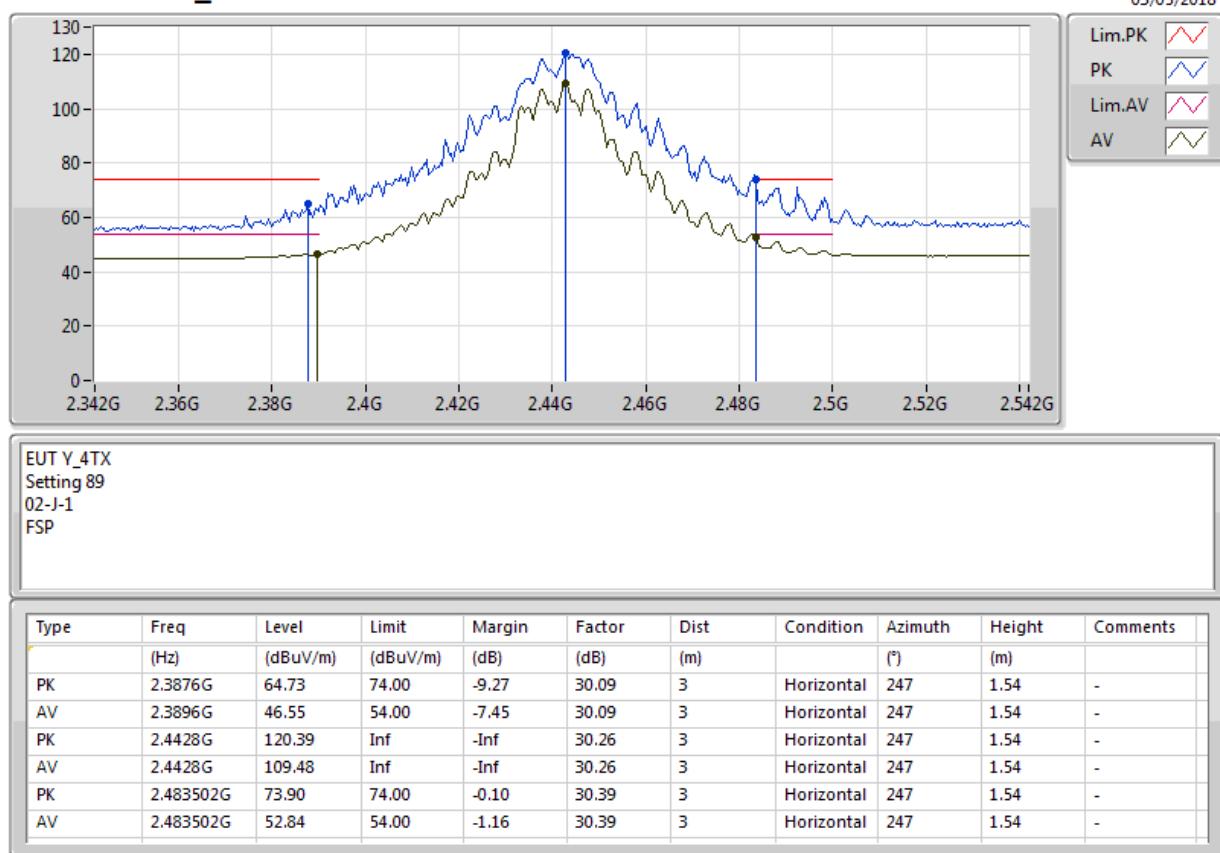
802.11ac VHT20_Nss1,(MCS0)_4TX

2442MHz_TX



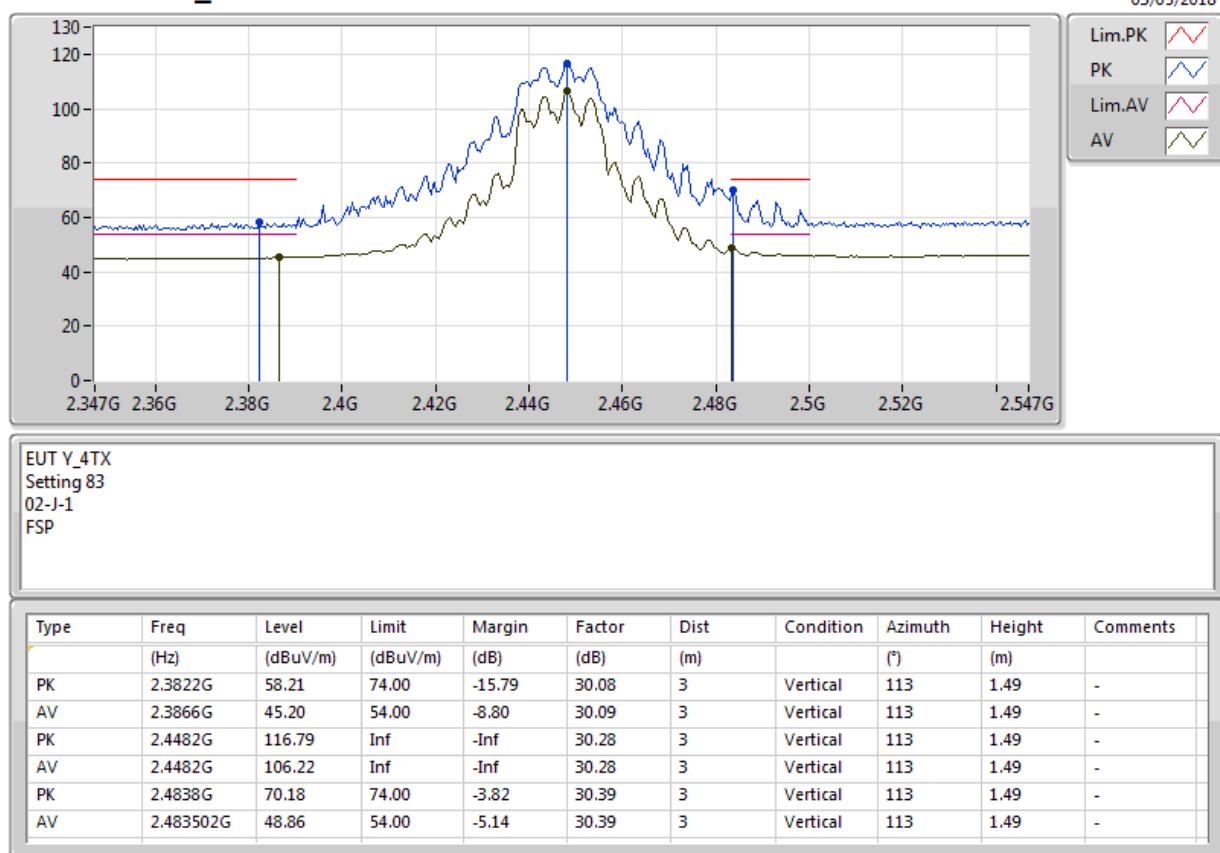
802.11ac VHT20_Nss1,(MCS0)_4TX

2442MHz_TX



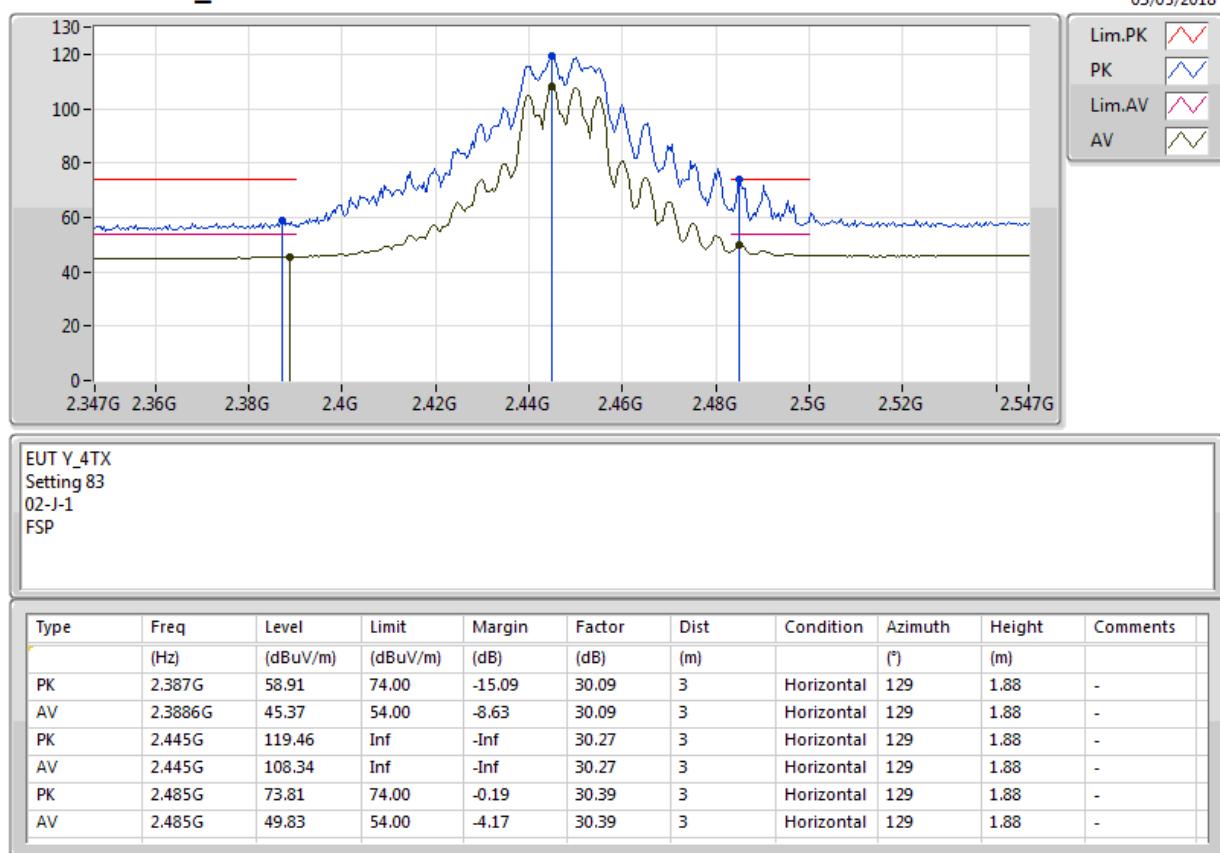
802.11ac VHT20_Nss1,(MCS0)_4TX

2447MHz_TX



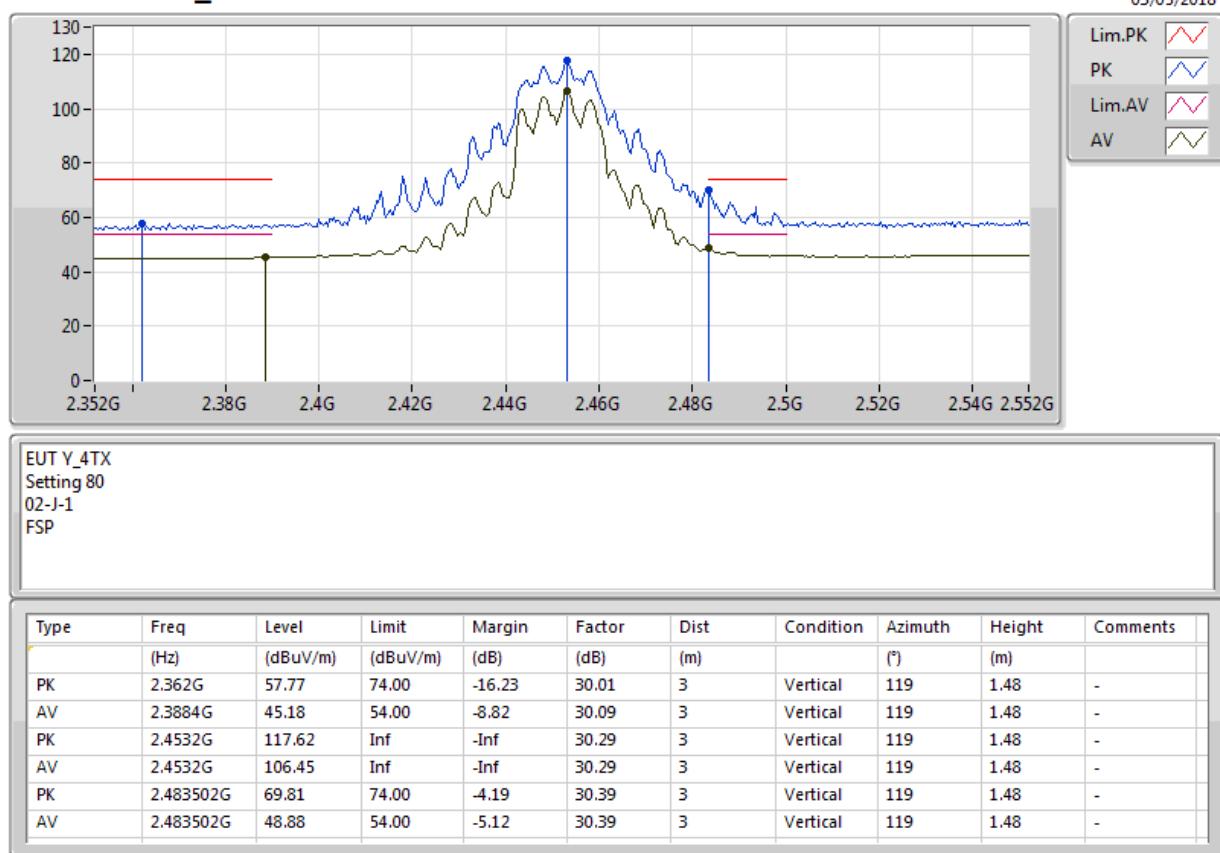
802.11ac VHT20_Nss1,(MCS0)_4TX

2447MHz_TX



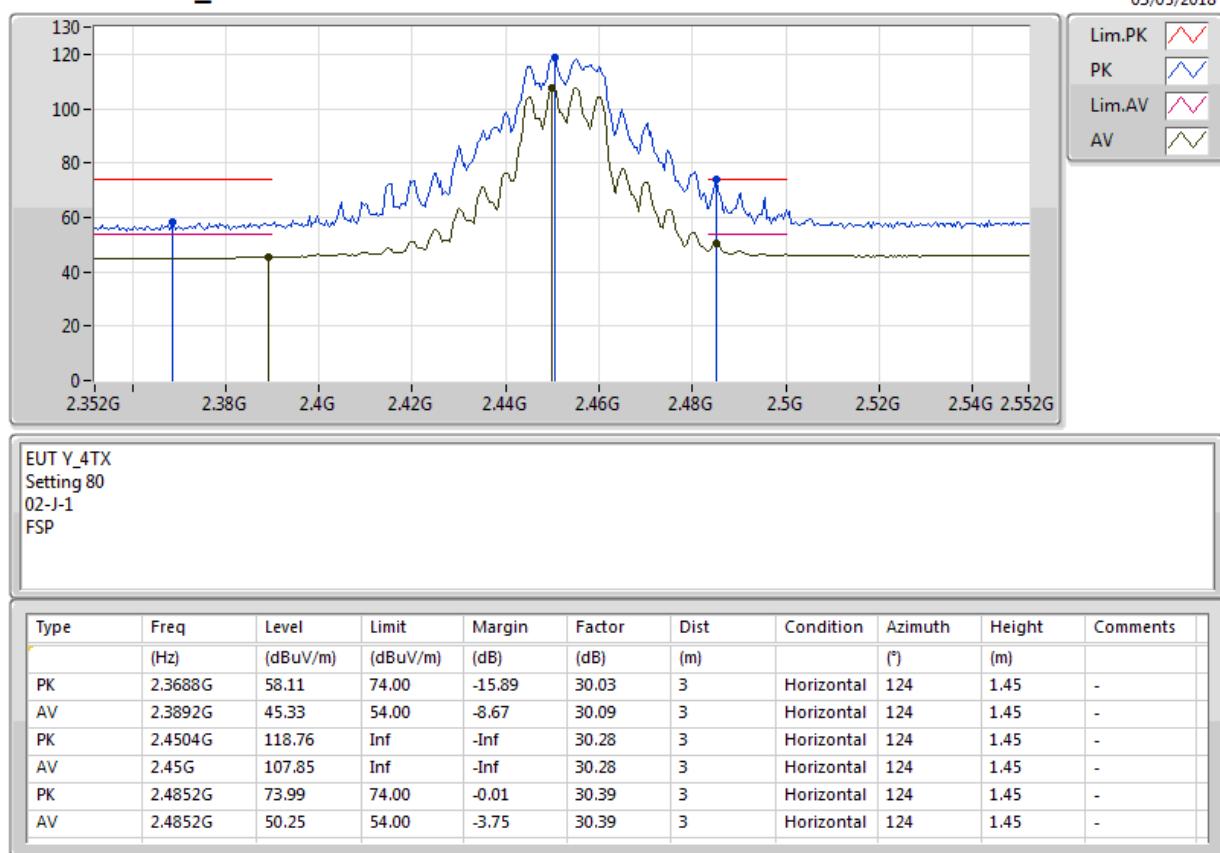
802.11ac VHT20_Nss1,(MCS0)_4TX

2452MHz_TX



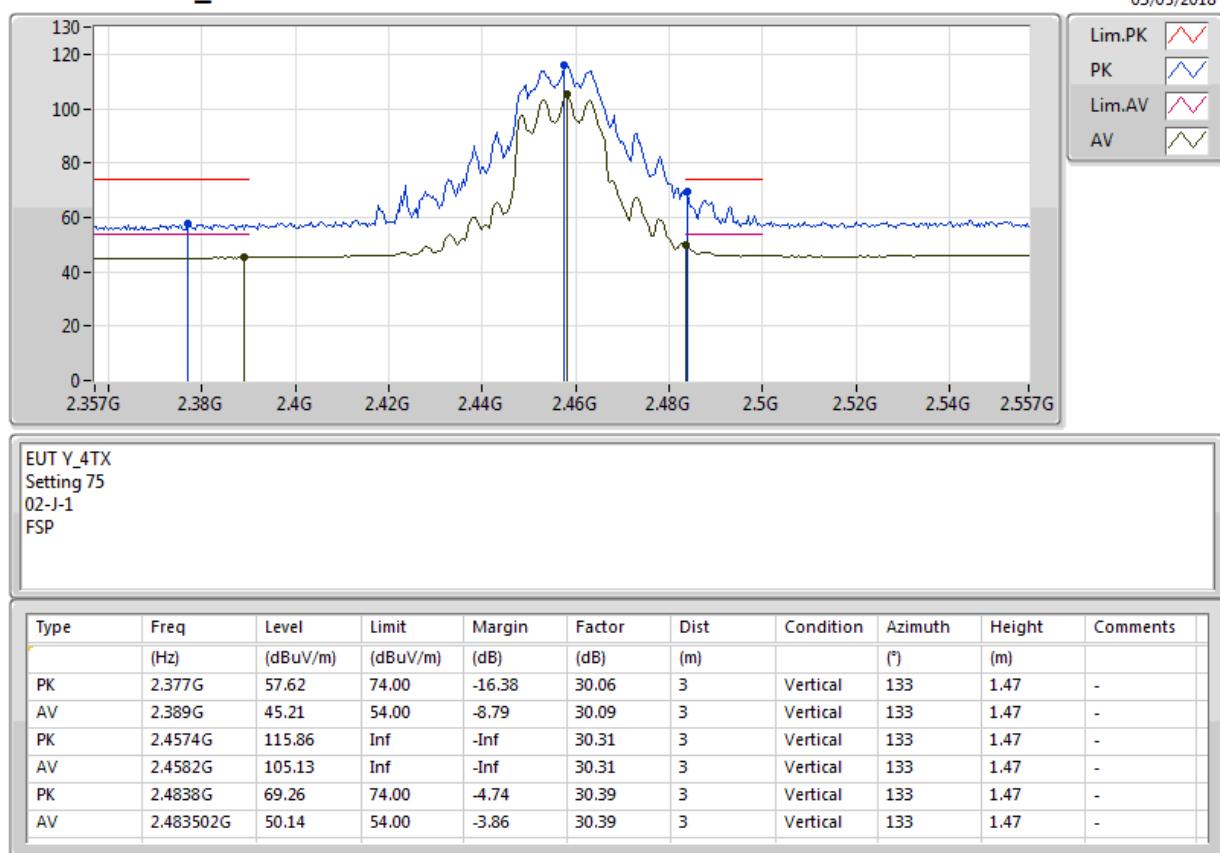
802.11ac VHT20_Nss1,(MCS0)_4TX

2452MHz_TX



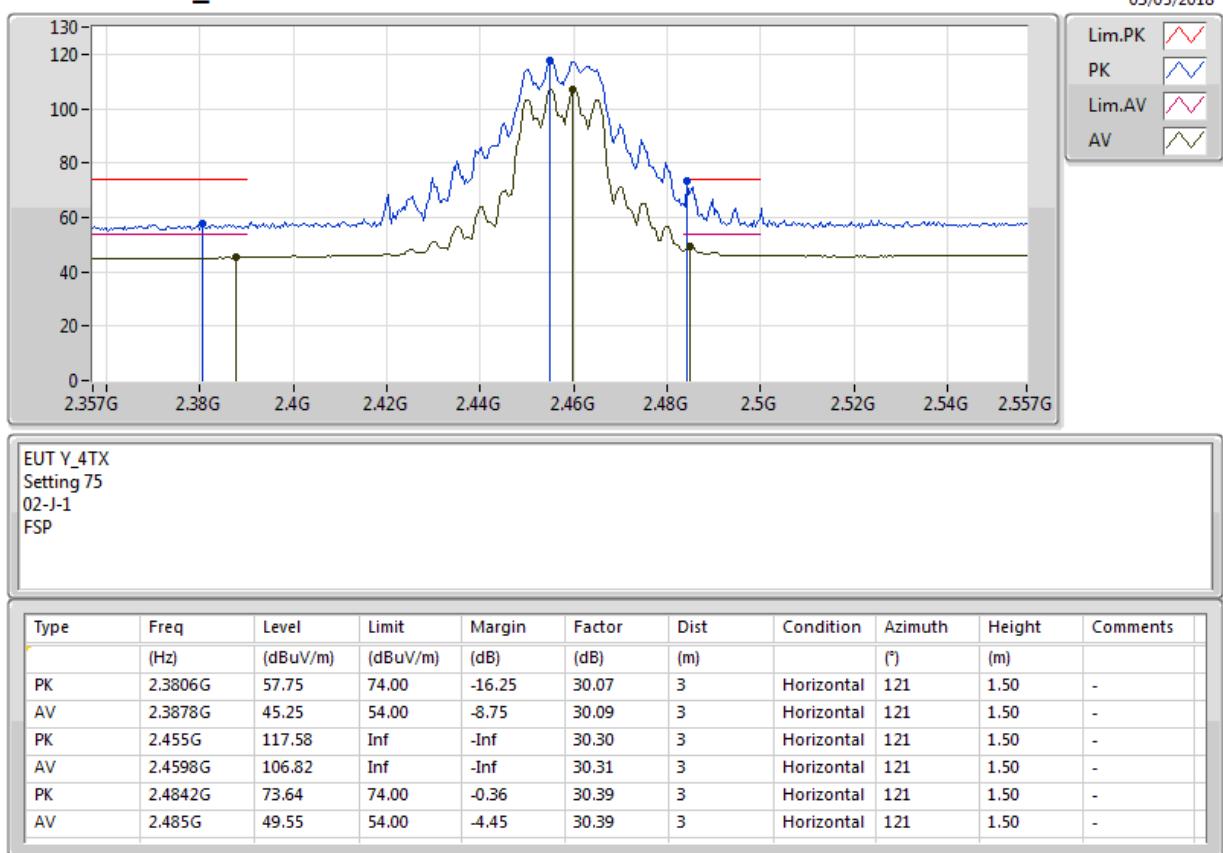
802.11ac VHT20_Nss1,(MCS0)_4TX

2457MHz_TX



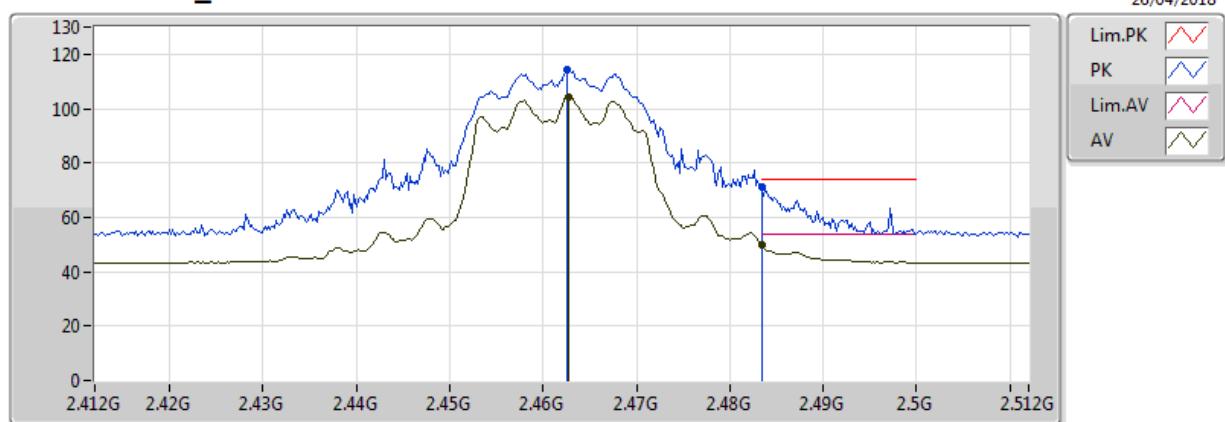
802.11ac VHT20_Nss1,(MCS0)_4TX

2457MHz_TX



802.11ac VHT20_Nss1,(MCS0)_4TX

2462MHz_TX

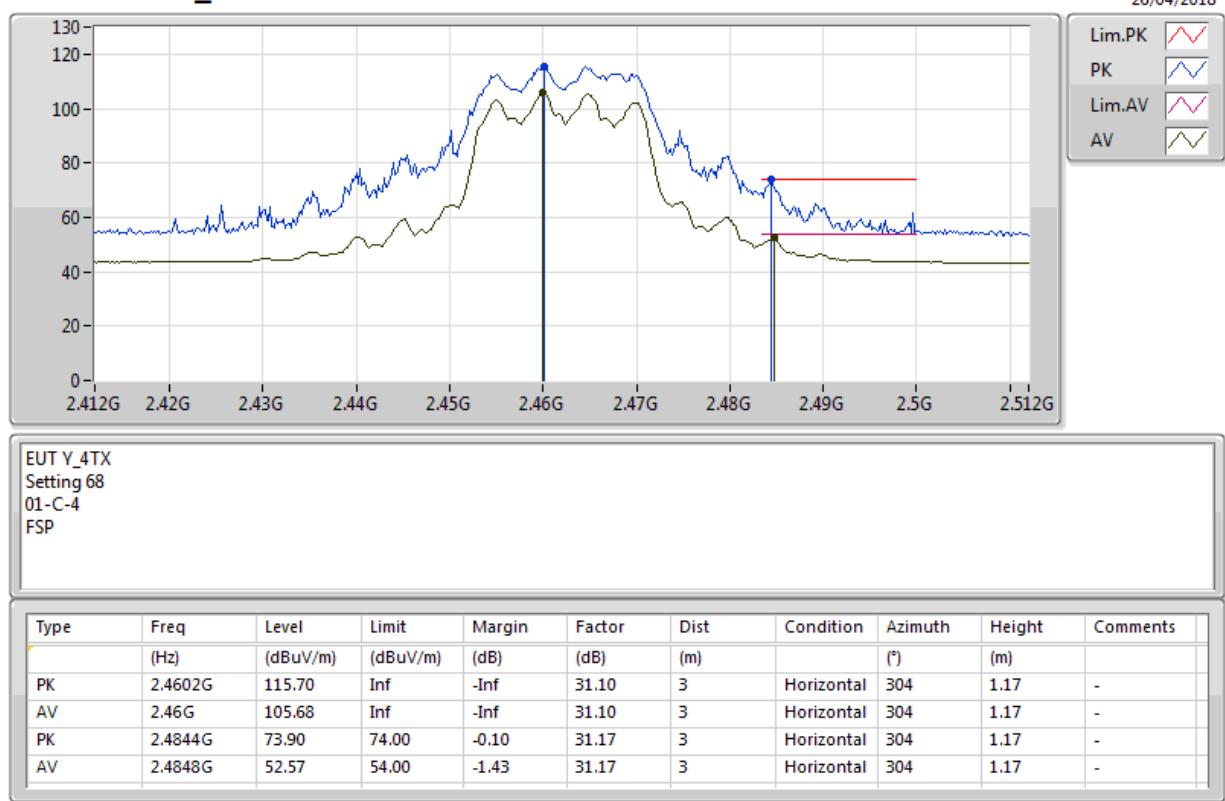


EUT Y_4TX
Setting 68
01-C-4
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.4626G	114.12	Inf	-Inf	31.11	3	Vertical	321	1.49	-
AV	2.4628G	104.35	Inf	-Inf	31.11	3	Vertical	321	1.49	-
PK	2.483502G	71.41	74.00	-2.59	31.17	3	Vertical	321	1.49	-
AV	2.483502G	49.79	54.00	-4.21	31.17	3	Vertical	321	1.49	-

802.11ac VHT20_Nss1,(MCS0)_4TX

2462MHz_TX



802.11ac VHT20_Nss1,(MCS0)_4TX

2462MHz_TX



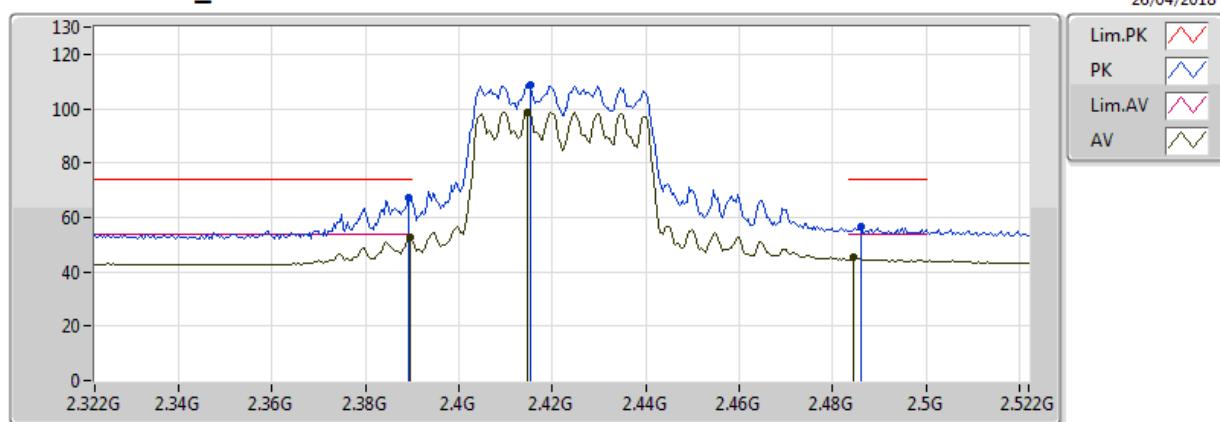
802.11ac VHT20_Nss1,(MCS0)_4TX

2462MHz_TX



802.11ac VHT40_Nss1,(MCS0)_4TX

2422MHz_TX

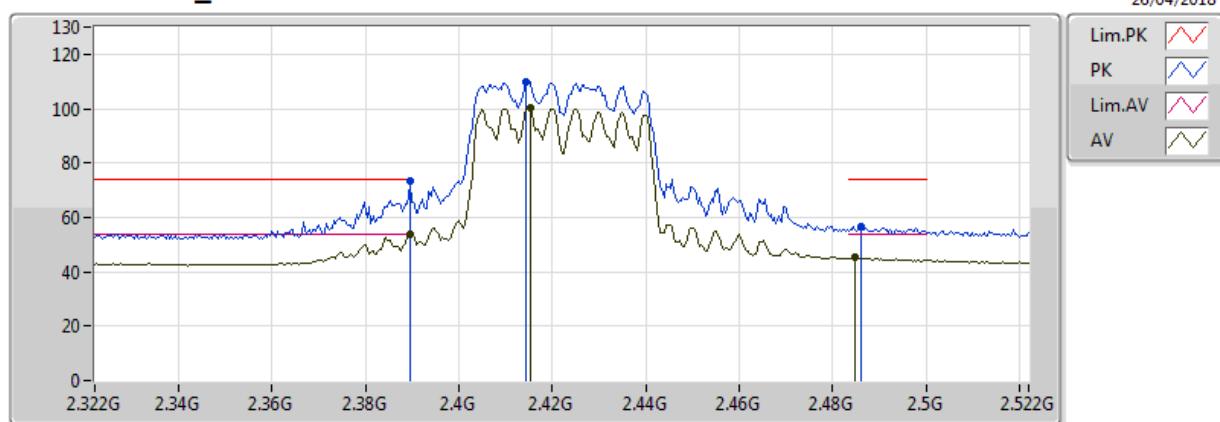


EUT Y_4TX
Setting 59
01-C-4
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3892G	67.05	74.00	-6.95	30.97	3	Vertical	354	1.05	-
AV	2.3896G	52.66	54.00	-1.34	30.97	3	Vertical	354	1.05	-
PK	2.4152G	108.55	Inf	-Inf	30.97	3	Vertical	354	1.05	-
AV	2.4148G	98.77	Inf	-Inf	30.97	3	Vertical	354	1.05	-
PK	2.486G	56.64	74.00	-17.36	31.18	3	Vertical	354	1.05	-
AV	2.4844G	45.11	54.00	-8.89	31.17	3	Vertical	354	1.05	-

802.11ac VHT40_Nss1,(MCS0)_4TX

2422MHz_TX



EUT Y_4TX
Setting 59
01-C-4
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3896G	73.58	74.00	-0.42	30.97	3	Horizontal	308	1.34	-
AV	2.3896G	53.87	54.00	-0.13	30.97	3	Horizontal	308	1.34	-
PK	2.4144G	109.80	Inf	-Inf	30.97	3	Horizontal	308	1.34	-
AV	2.4152G	100.15	Inf	-Inf	30.97	3	Horizontal	308	1.34	-
PK	2.486G	56.67	74.00	-17.33	31.18	3	Horizontal	308	1.34	-
AV	2.4848G	45.27	54.00	-8.73	31.17	3	Horizontal	308	1.34	-

802.11ac VHT40_Nss1,(MCS0)_4TX

2422MHz_TX



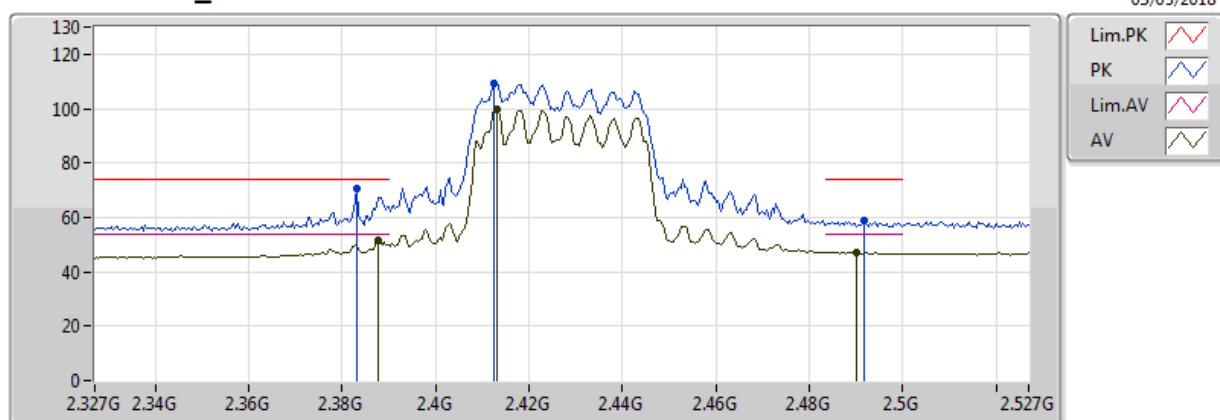
802.11ac VHT40_Nss1,(MCS0)_4TX

2422MHz_TX



802.11ac VHT40_Nss1,(MCS0)_4TX

2427MHz_TX

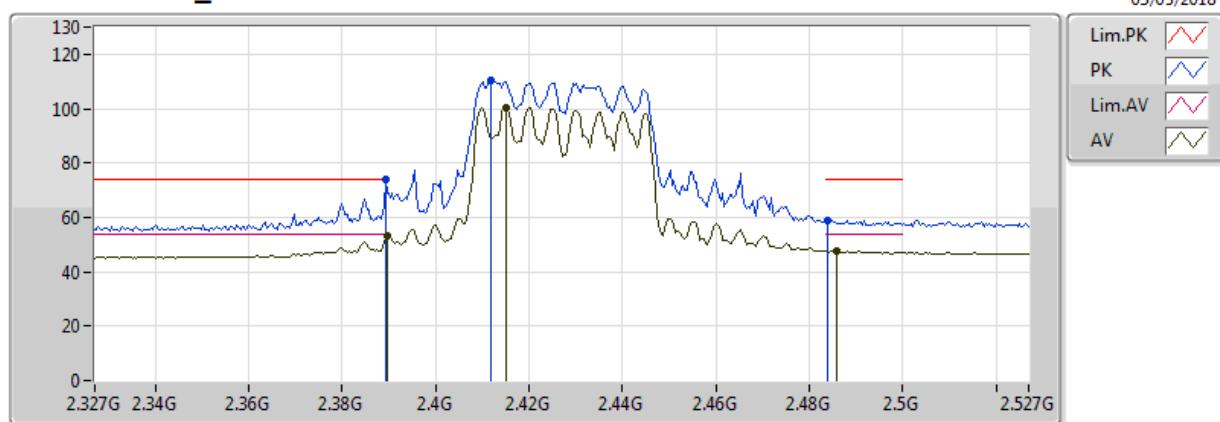


EUT Y_4TX
Setting 62
02-J-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.383G	70.69	74.00	-3.31	30.08	3	Vertical	119	1.26	-
AV	2.3878G	51.76	54.00	-2.24	30.09	3	Vertical	119	1.26	-
PK	2.4126G	109.03	Inf	-Inf	30.17	3	Vertical	119	1.26	-
AV	2.413G	99.84	Inf	-Inf	30.17	3	Vertical	119	1.26	-
PK	2.4918G	58.65	74.00	-15.35	30.41	3	Vertical	119	1.26	-
AV	2.4902G	47.23	54.00	-6.77	30.41	3	Vertical	119	1.26	-

802.11ac VHT40_Nss1,(MCS0)_4TX

2427MHz_TX

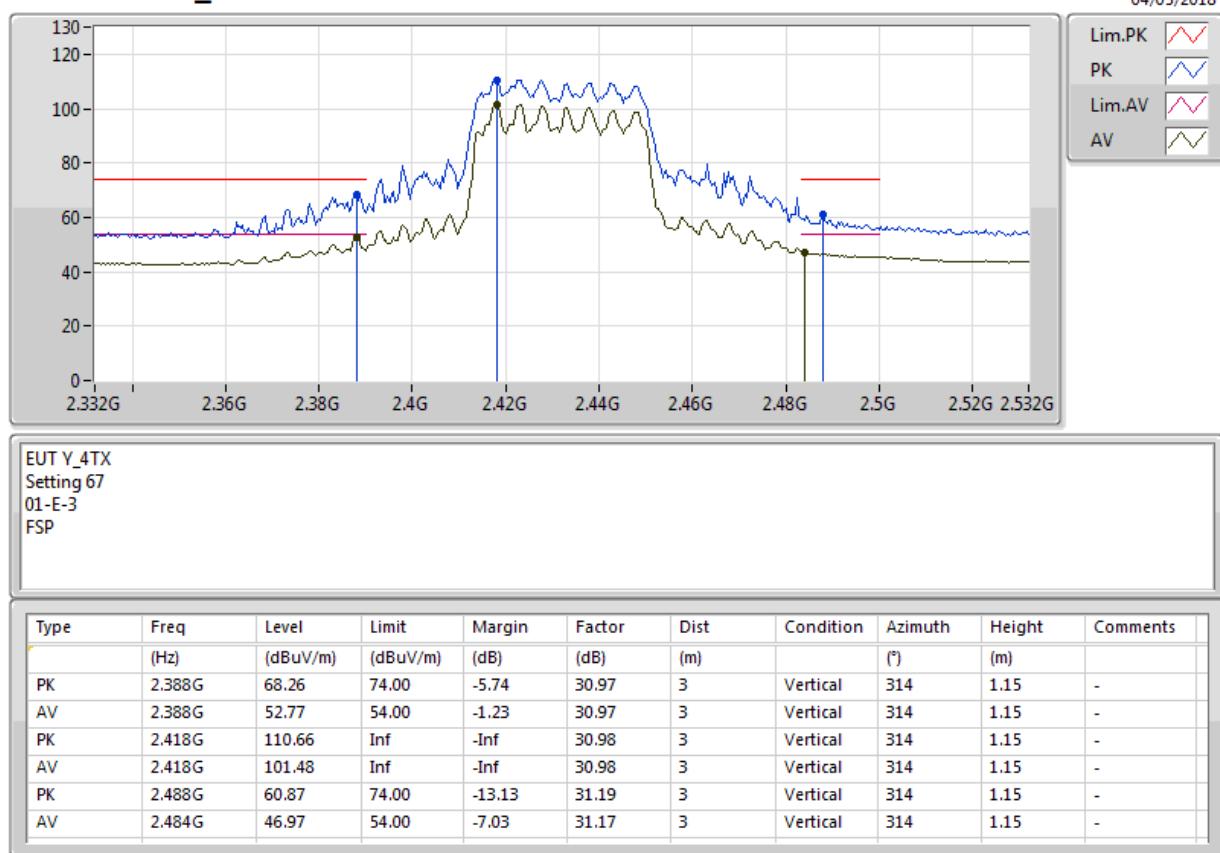


EUT Y_4TX
Setting 62
02-J-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3894G	73.88	74.00	-0.12	30.09	3	Horizontal	123	1.50	-
AV	2.3898G	52.97	54.00	-1.03	30.09	3	Horizontal	123	1.50	-
PK	2.4118G	110.35	Inf	-Inf	30.17	3	Horizontal	123	1.50	-
AV	2.415G	100.44	Inf	-Inf	30.18	3	Horizontal	123	1.50	-
PK	2.4838G	58.76	74.00	-15.24	30.39	3	Horizontal	123	1.50	-
AV	2.4858G	47.70	54.00	-6.30	30.40	3	Horizontal	123	1.50	-

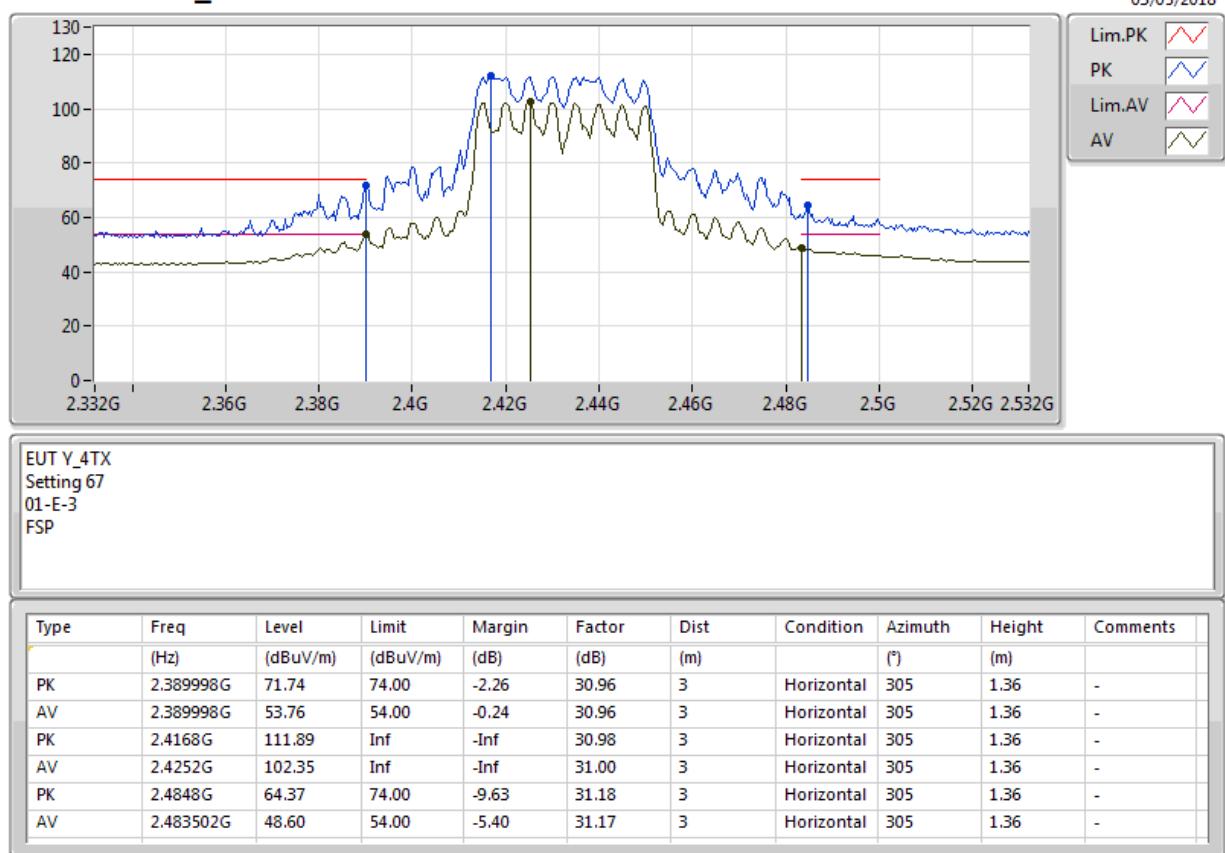
802.11ac VHT40_Nss1,(MCS0)_4TX

2432MHz_TX



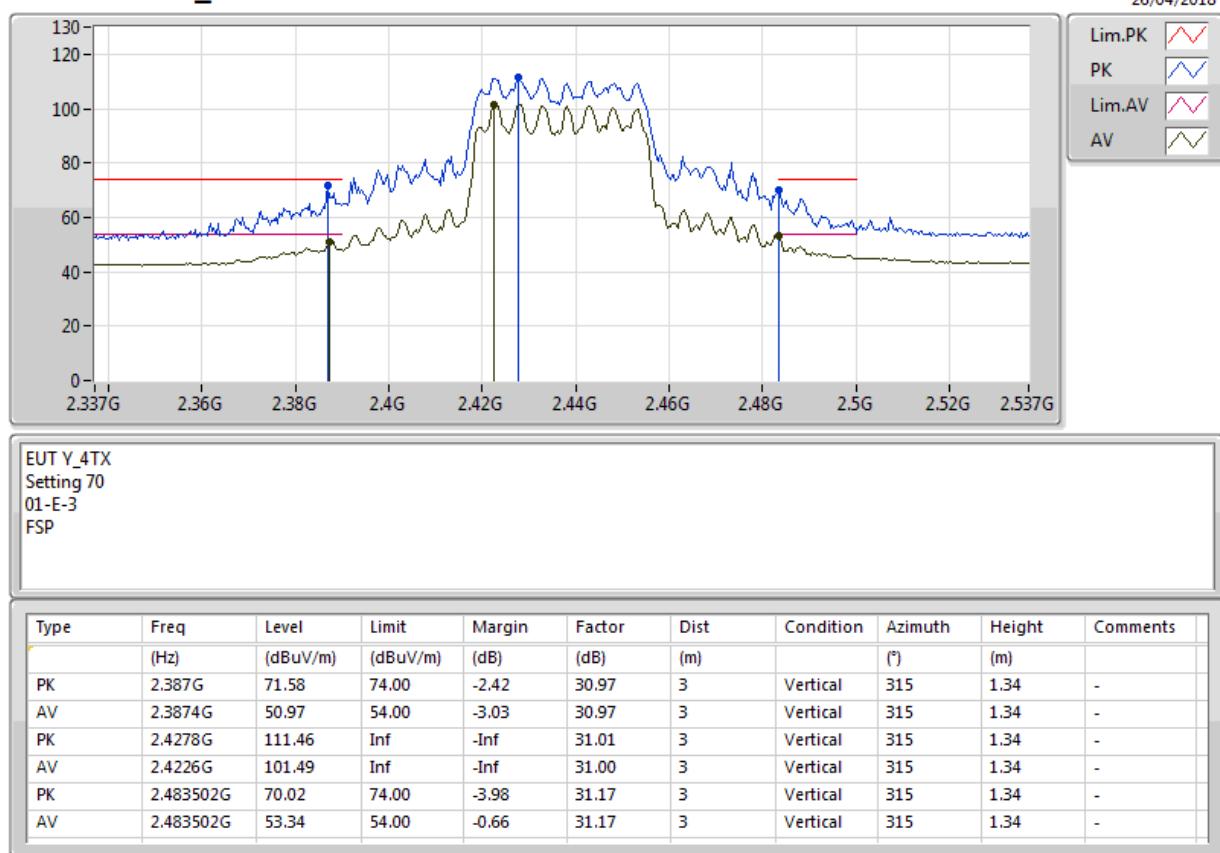
802.11ac VHT40_Nss1,(MCS0)_4TX

2432MHz_TX



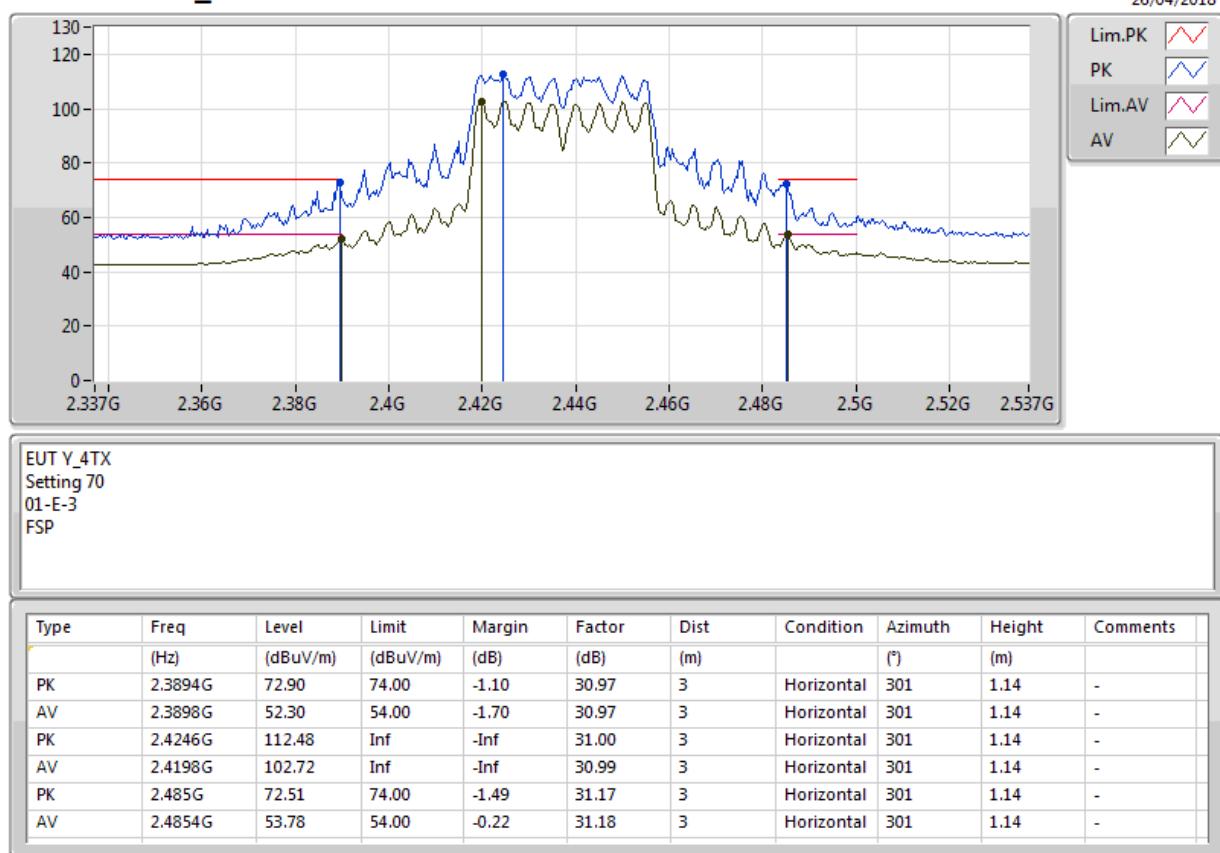
802.11ac VHT40_Nss1,(MCS0)_4TX

2437MHz_TX



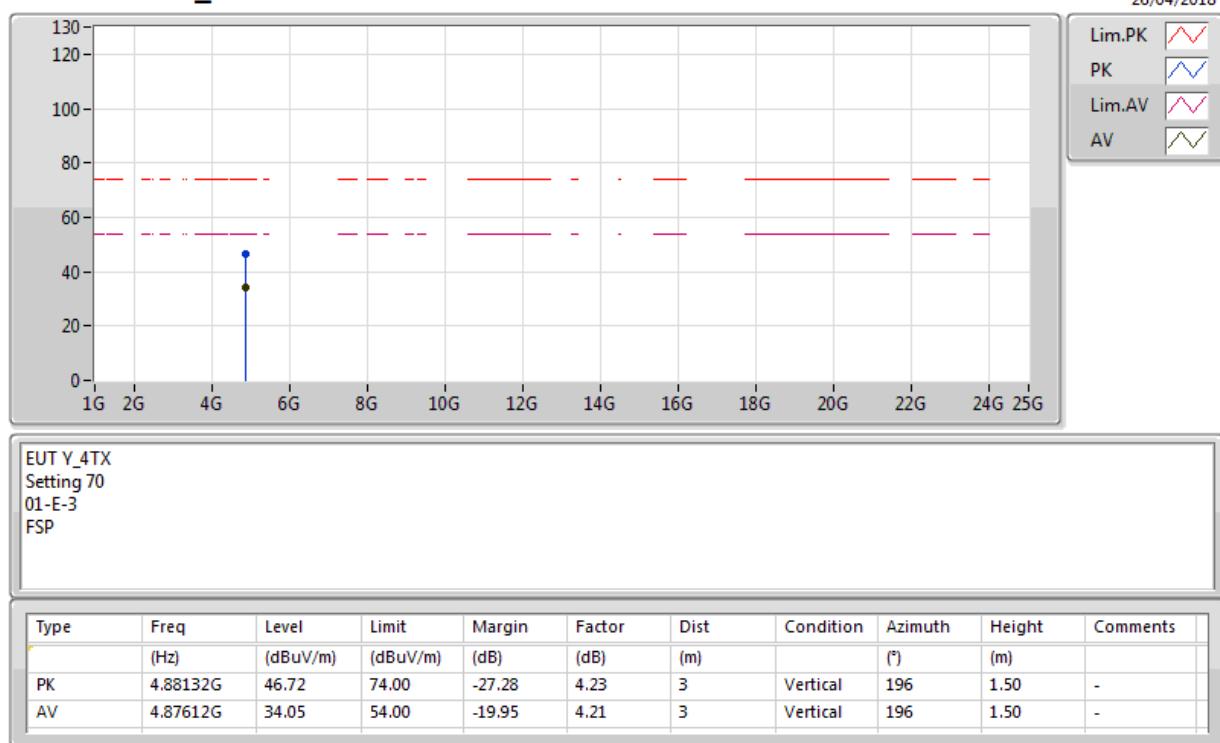
802.11ac VHT40_Nss1,(MCS0)_4TX

2437MHz_TX



802.11ac VHT40_Nss1,(MCS0)_4TX

2437MHz_TX



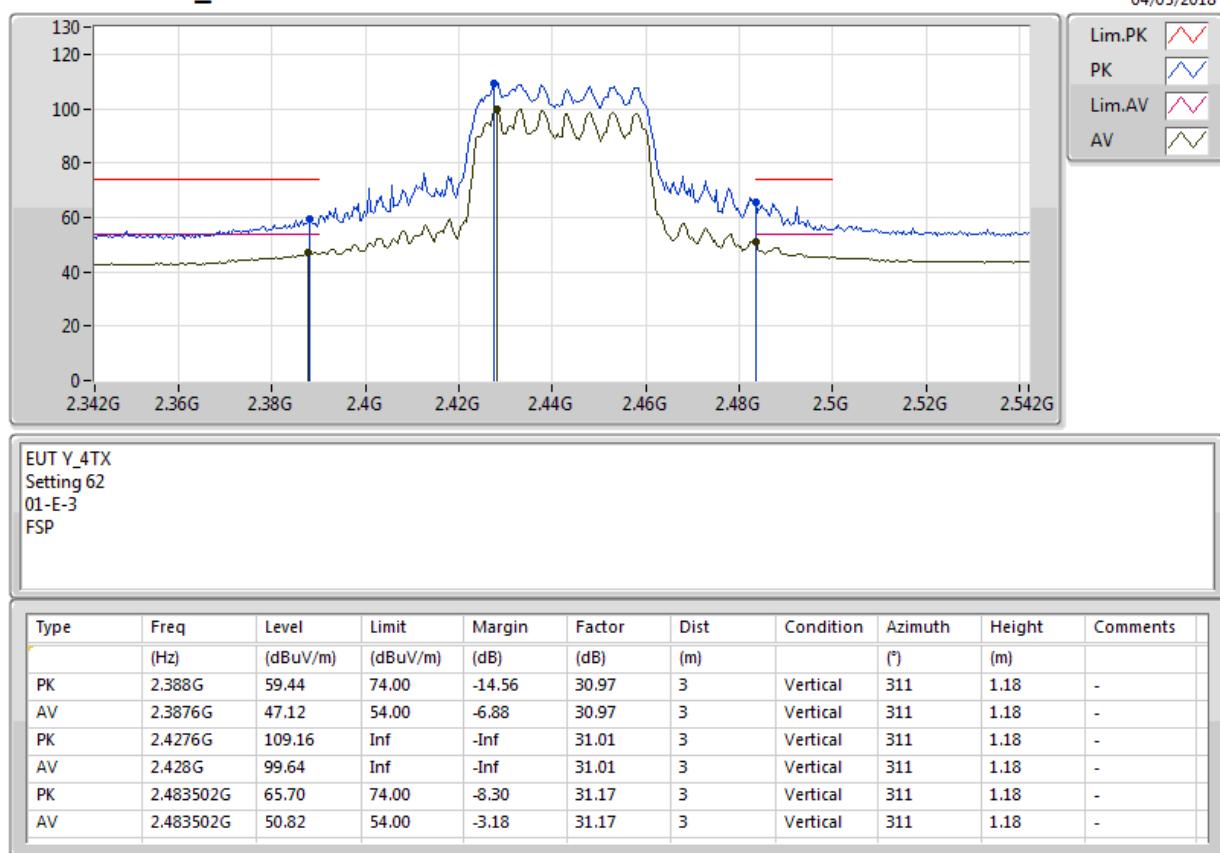
802.11ac VHT40_Nss1,(MCS0)_4TX

2437MHz_TX



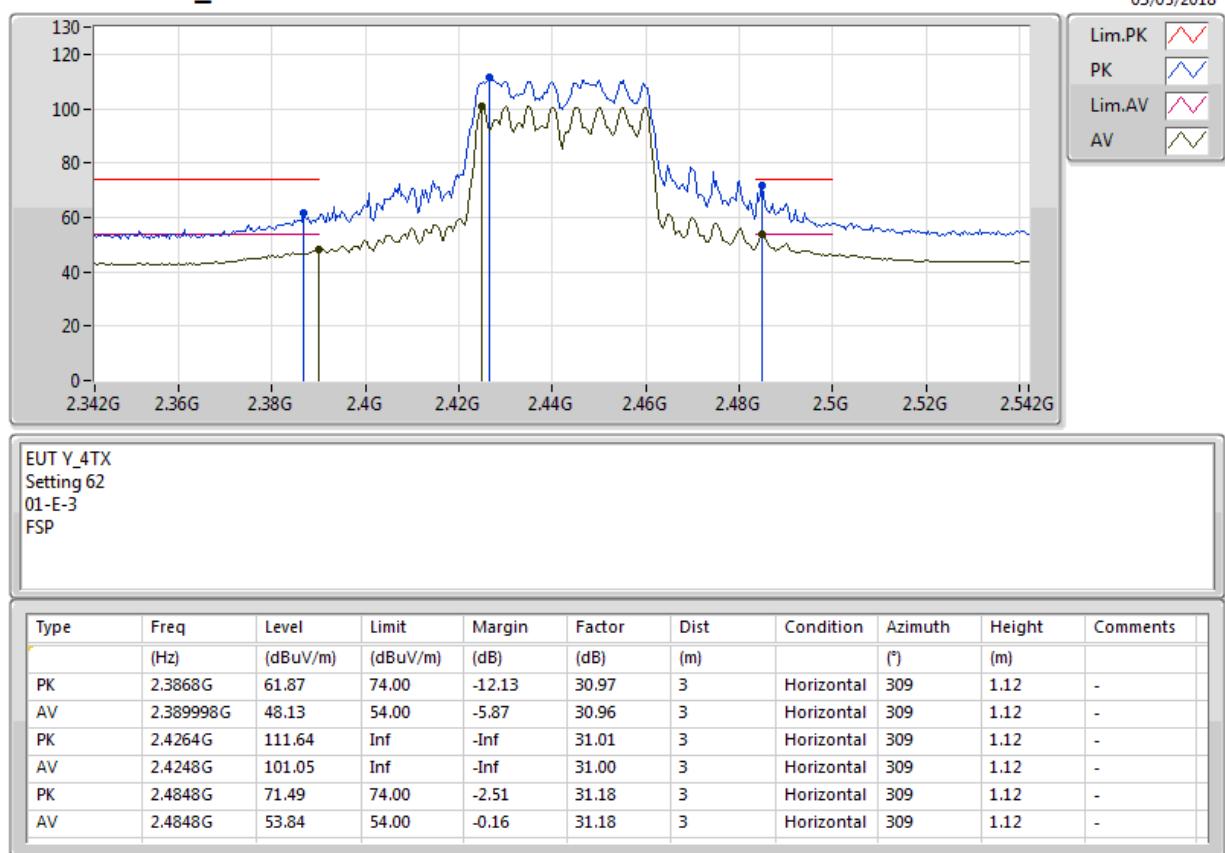
802.11ac VHT40_Nss1,(MCS0)_4TX

2442MHz_TX



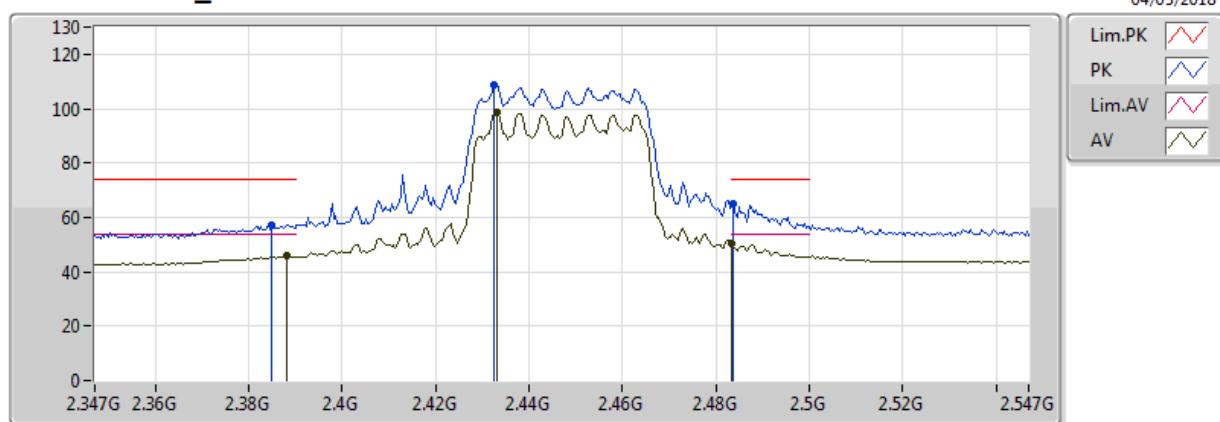
802.11ac VHT40_Nss1,(MCS0)_4TX

2442MHz_TX



802.11ac VHT40_Nss1,(MCS0)_4TX

2447MHz_TX

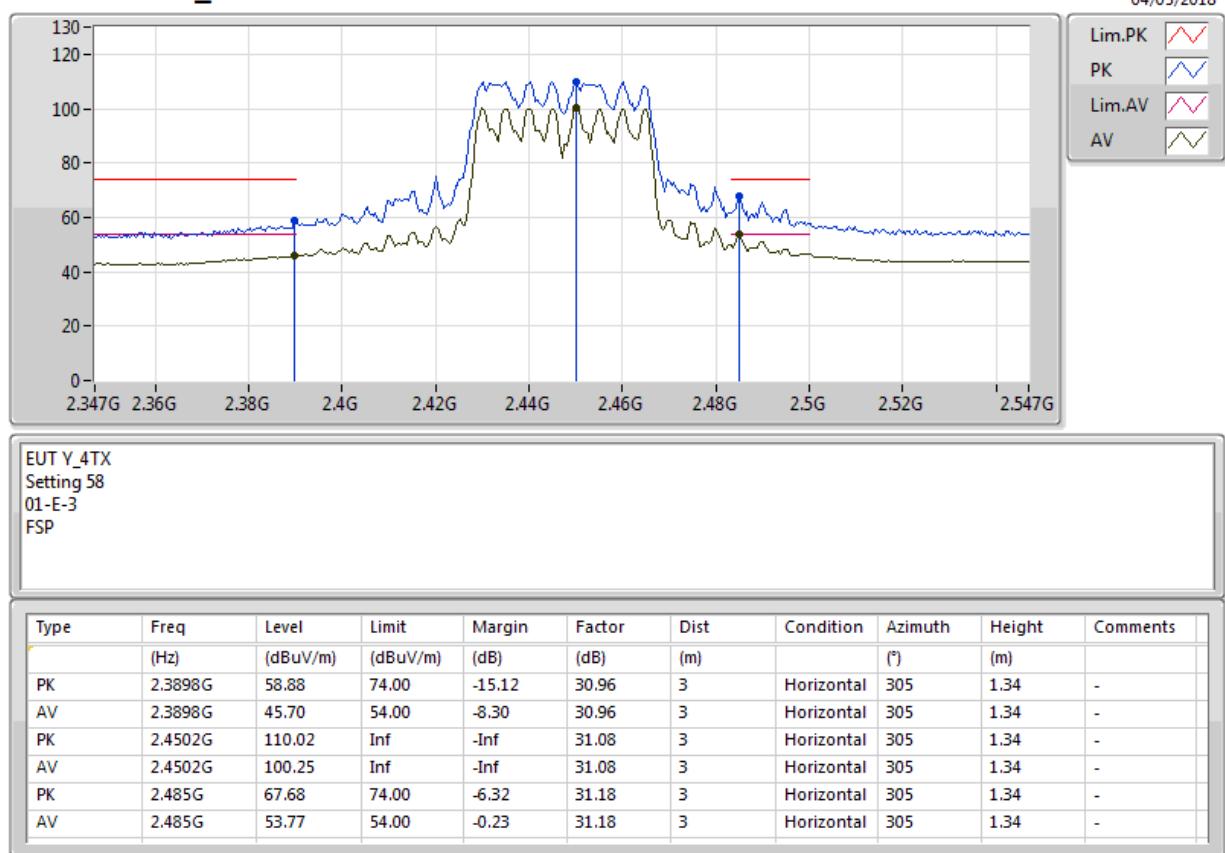


EUT Y_4TX
Setting 58
01-E-3
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition (°)	Azimuth (m)	Height (m)	Comments
PK	2.385G	57.36	74.00	-16.64	30.97	3	Vertical	316	1.17	-
AV	2.3882G	45.90	54.00	-8.10	30.97	3	Vertical	316	1.17	-
PK	2.4326G	108.60	Inf	-Inf	31.02	3	Vertical	316	1.17	-
AV	2.433G	98.76	Inf	-Inf	31.03	3	Vertical	316	1.17	-
PK	2.4838G	65.06	74.00	-8.94	31.17	3	Vertical	316	1.17	-
AV	2.483502G	50.57	54.00	-3.43	31.17	3	Vertical	316	1.17	-

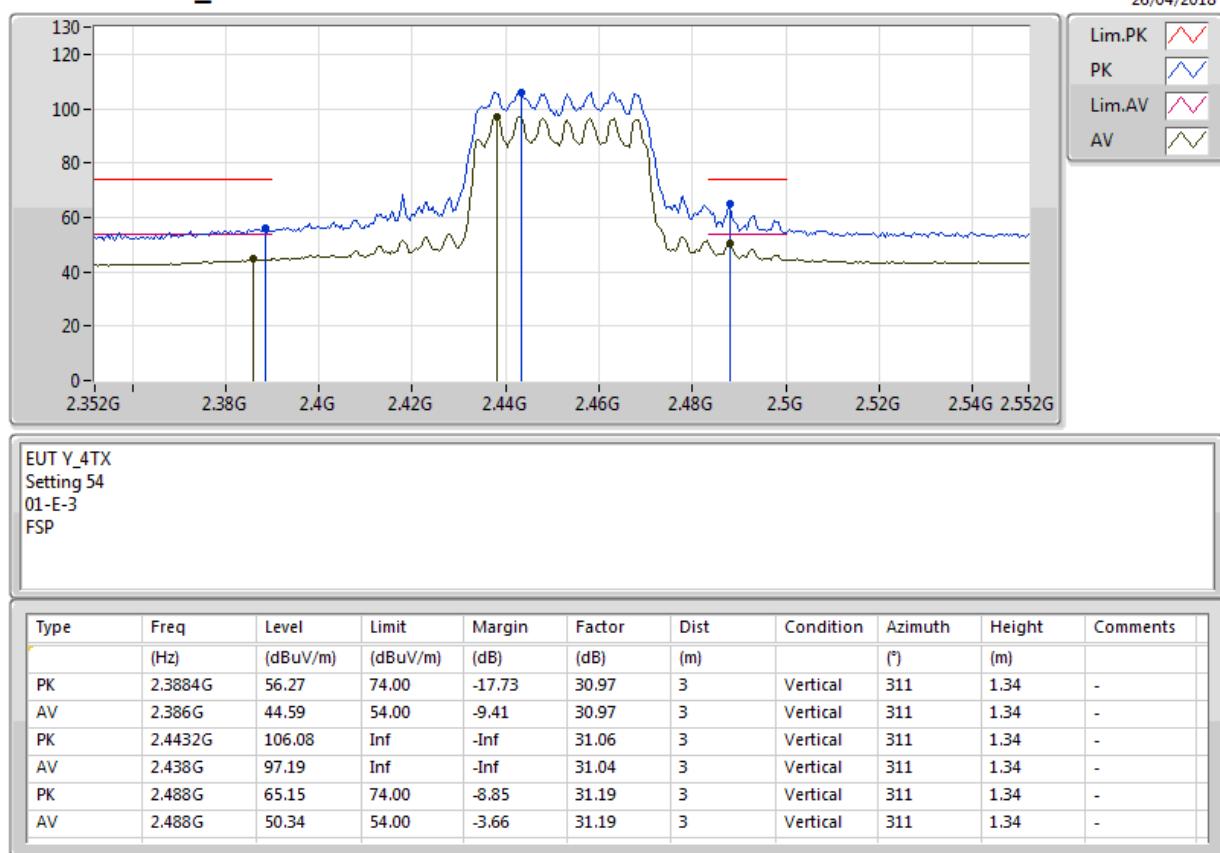
802.11ac VHT40_Nss1,(MCS0)_4TX

2447MHz_TX



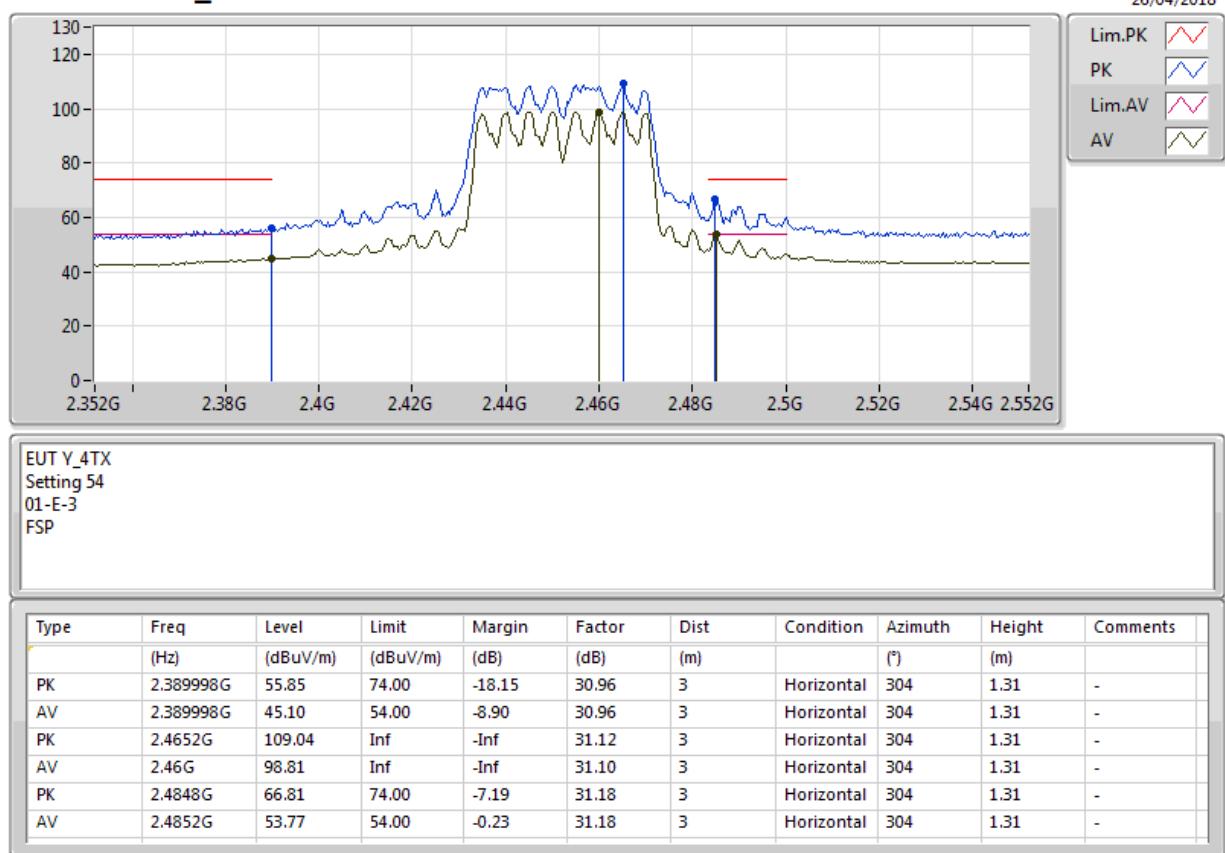
802.11ac VHT40_Nss1,(MCS0)_4TX

2452MHz_TX



802.11ac VHT40_Nss1,(MCS0)_4TX

2452MHz_TX



802.11ac VHT40_Nss1,(MCS0)_4TX

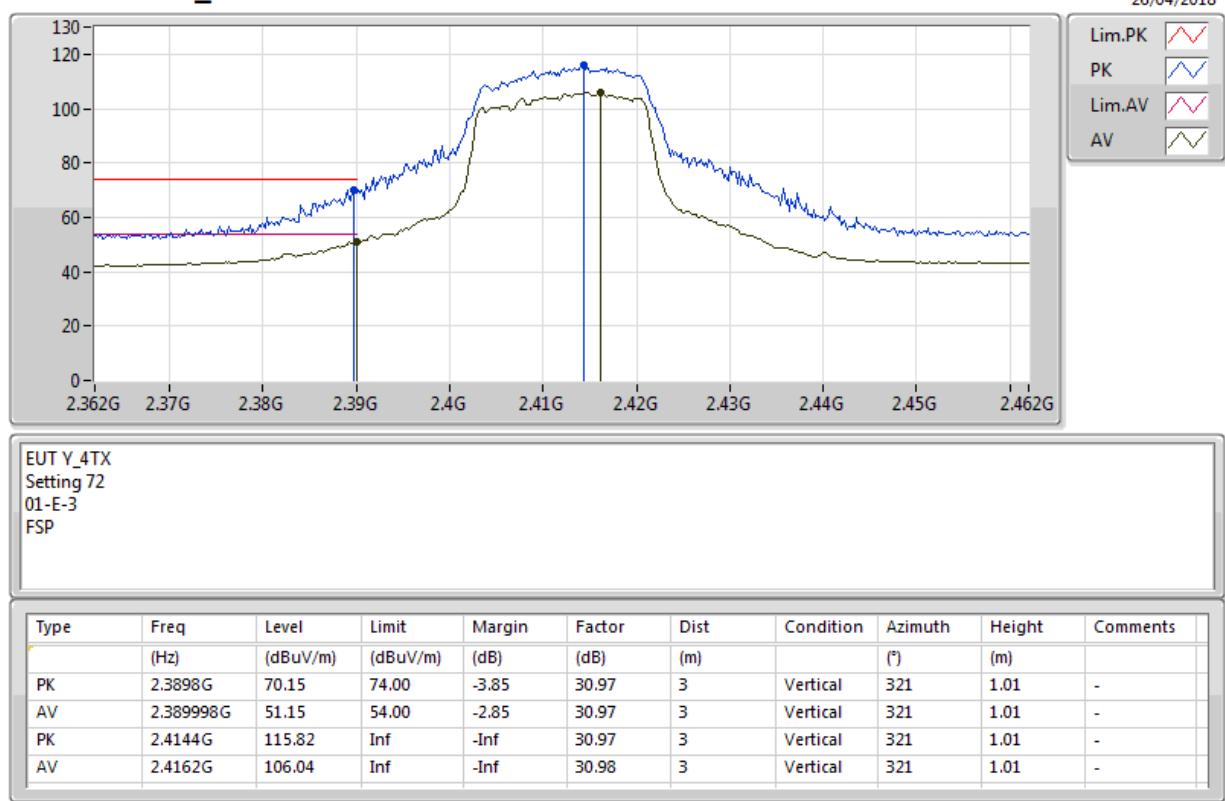
2452MHz_TX



802.11ac VHT40_Nss1,(MCS0)_4TX

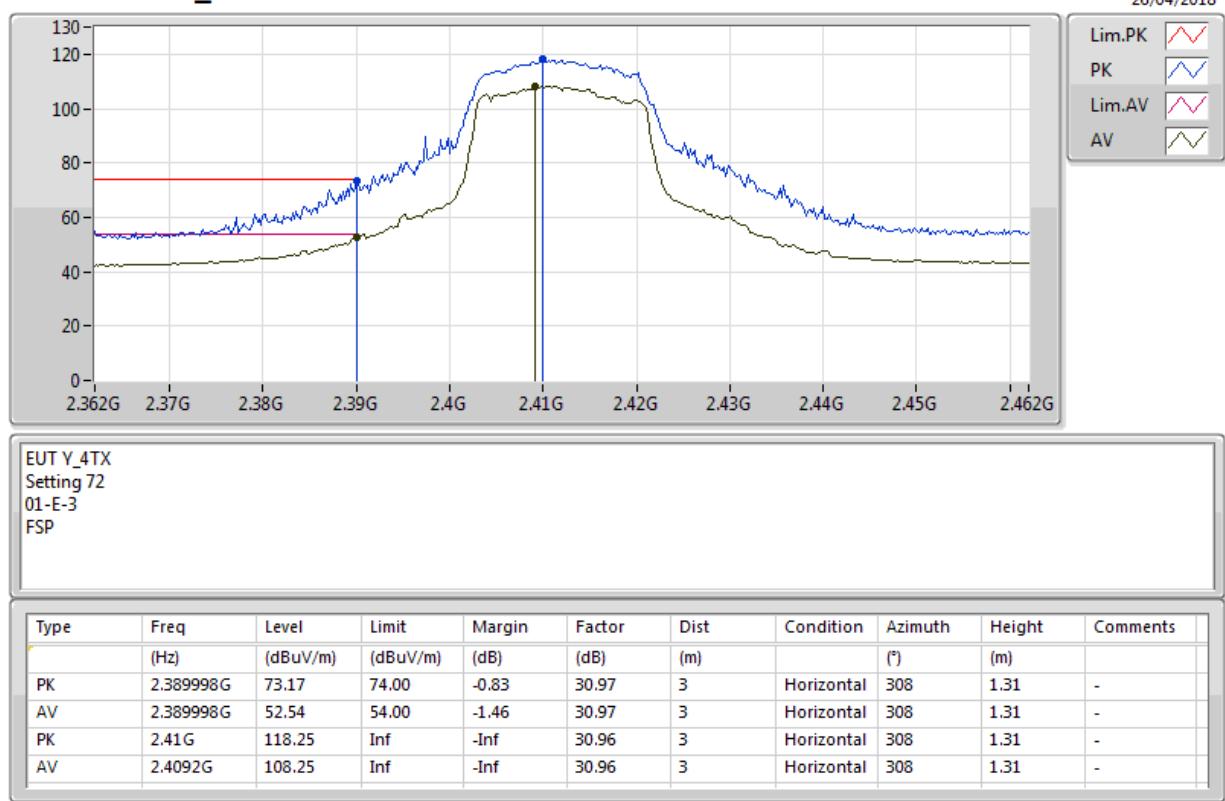
2452MHz_TX



802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2412MHz_TX


802.11ac VHT20-BF_Nss1,(MCS0)_4TX

2412MHz_TX



802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2412MHz_TX

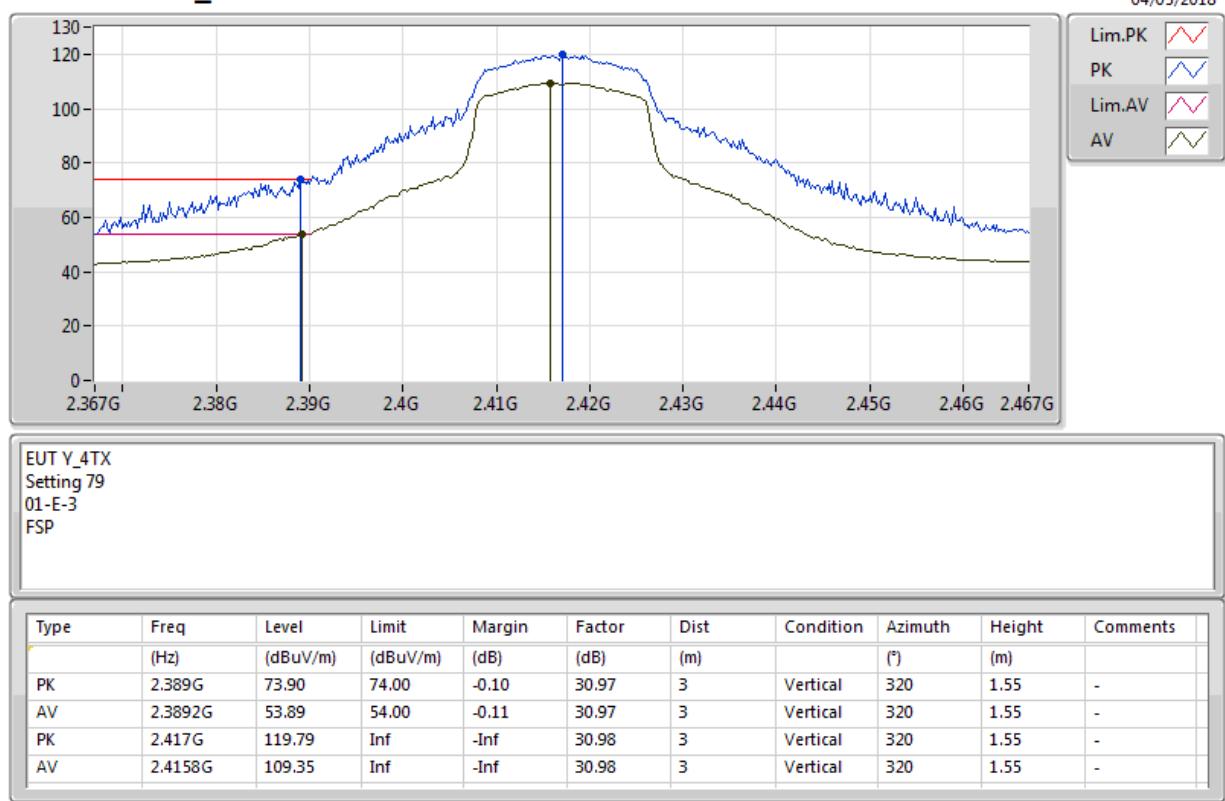

802.11ac VHT20-BF_Nss1,(MCS0)_4TX

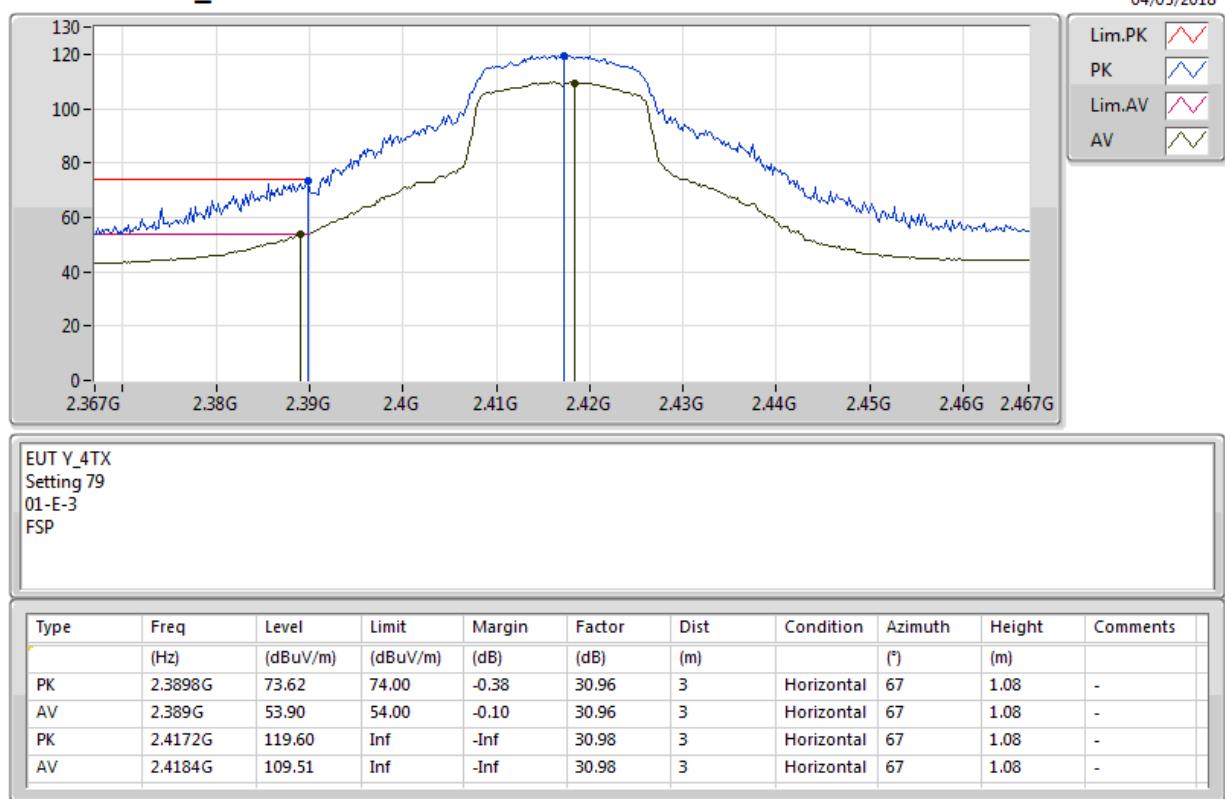
2412MHz_TX

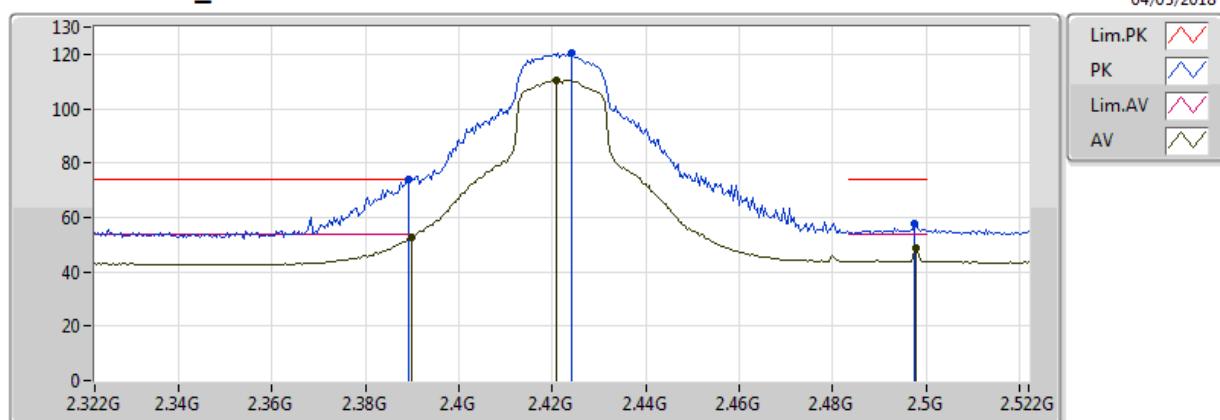


802.11ac VHT20-BF_Nss1,(MCS0)_4TX

2417MHz_TX

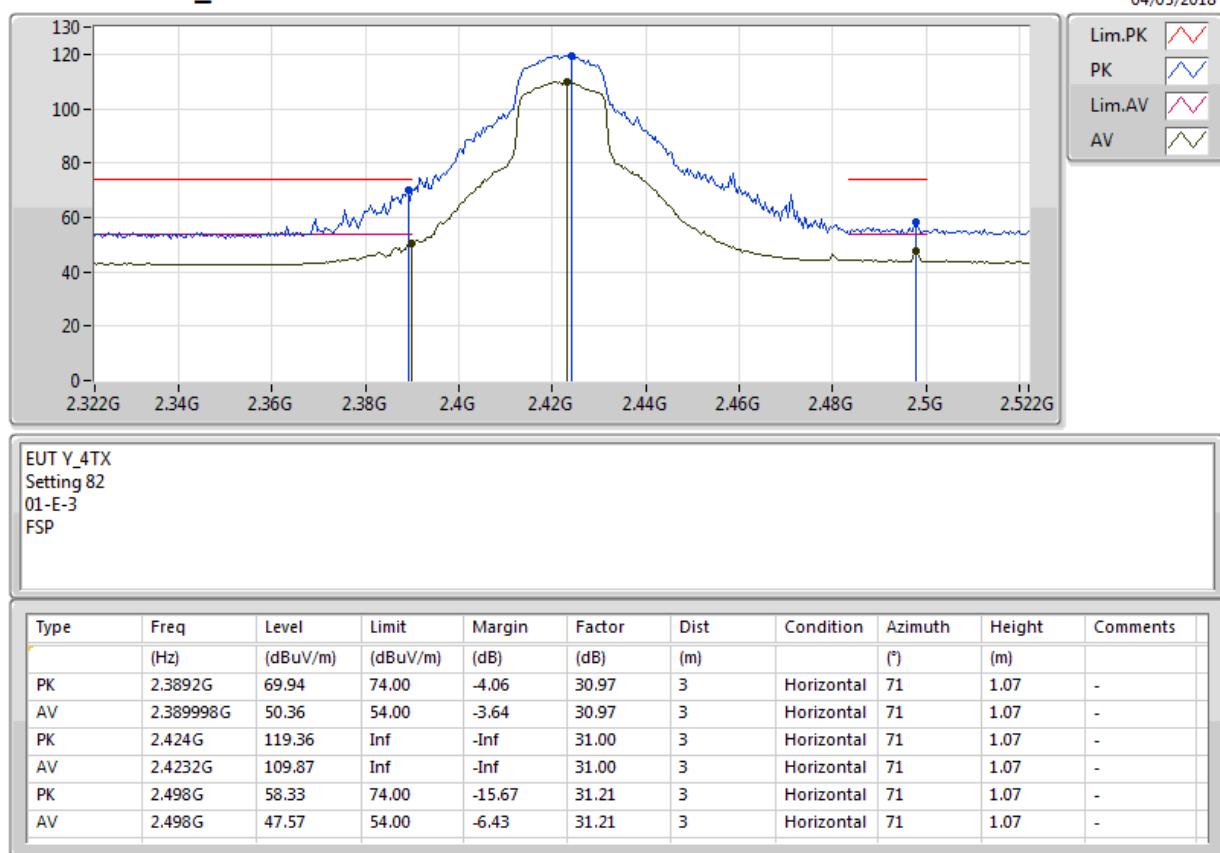


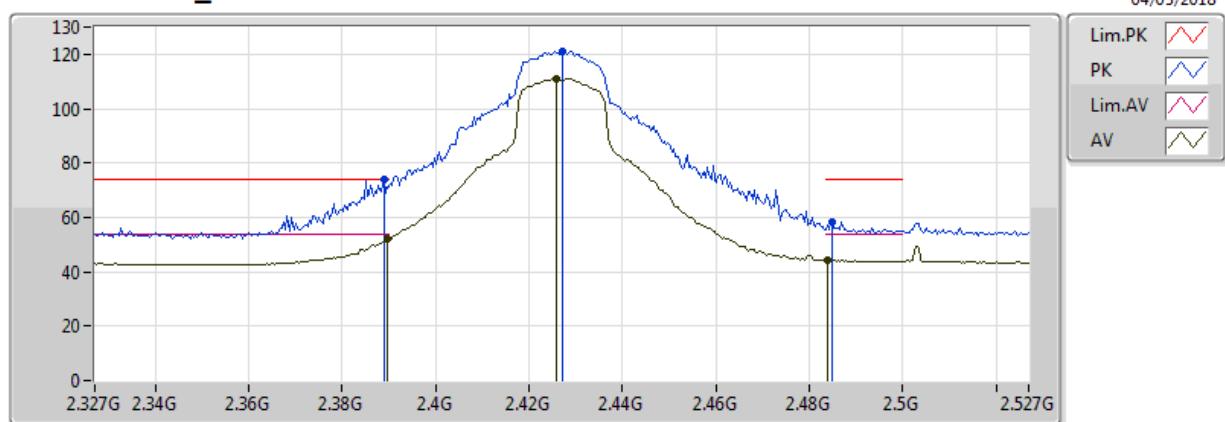
802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2417MHz_TX


802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2422MHz_TX


EUT Y_4TX
Setting 82
01-E-3
FSP

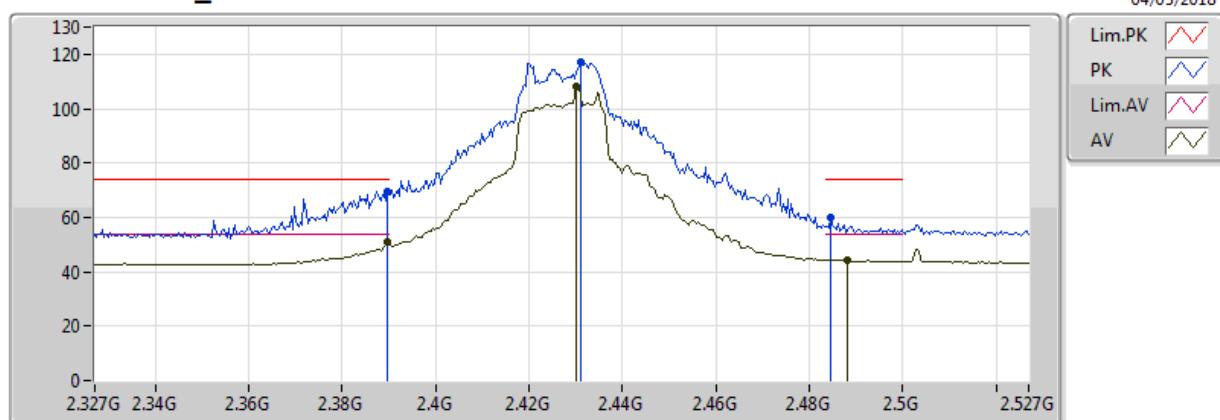
Type	Freq (Hz)	Level (dBm)	Limit (dBm)	Margin (dB)	Factor	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3892G	73.94	74.00	-0.06	30.97	3	Vertical	316	1.15	-
AV	2.38998G	52.47	54.00	-1.53	30.97	3	Vertical	316	1.15	-
PK	2.424G	120.28	Inf	-Inf	31.00	3	Vertical	316	1.15	-
AV	2.4208G	110.43	Inf	-Inf	30.99	3	Vertical	316	1.15	-
PK	2.4976G	57.82	74.00	-16.18	31.21	3	Vertical	316	1.15	-
AV	2.498G	48.88	54.00	-5.12	31.21	3	Vertical	316	1.15	-

802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2422MHz_TX


802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2427MHz_TX


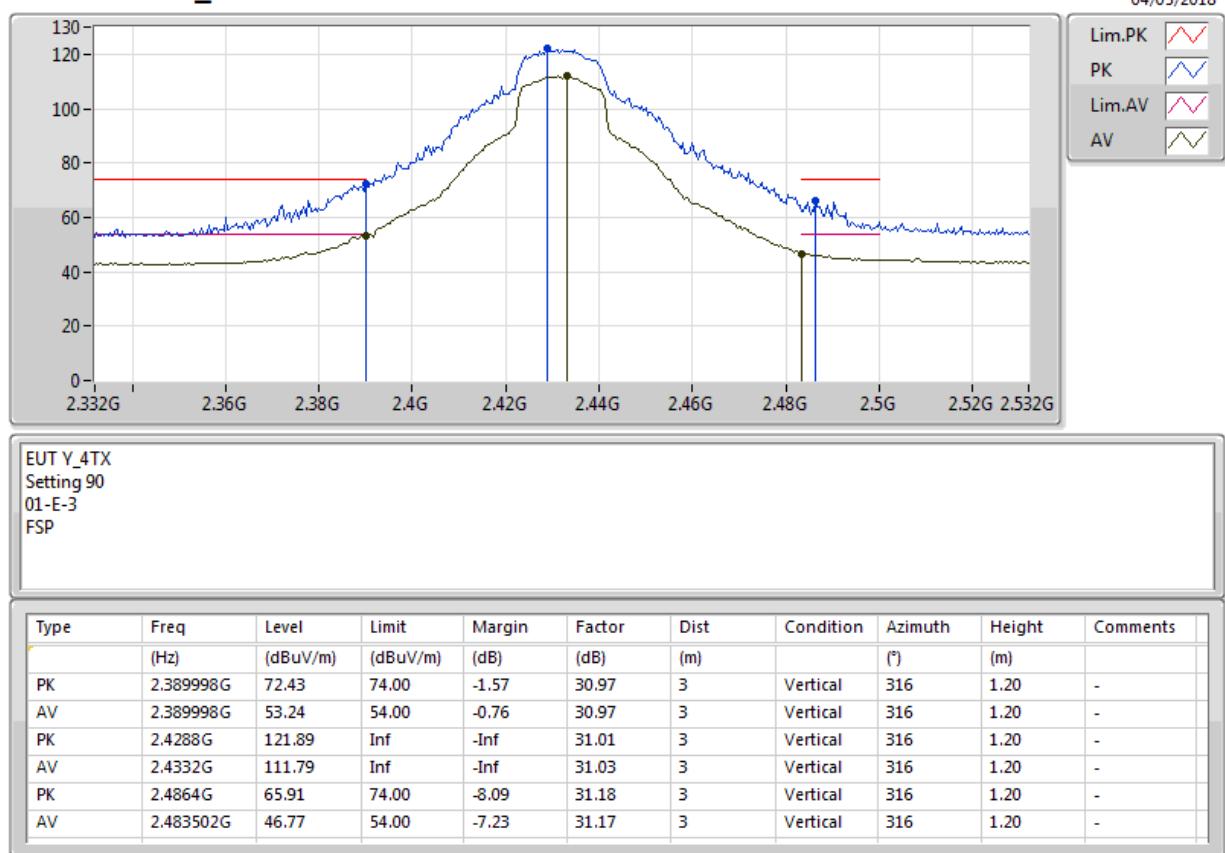
EUT Y_4TX
Setting 85
01-E-3
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.389G	73.92	74.00	-0.08	30.96	3	Vertical	317	1.18	-
AV	2.389G	51.95	54.00	-2.05	30.96	3	Vertical	317	1.18	-
PK	2.427G	121.13	Inf	-Inf	31.01	3	Vertical	317	1.18	-
AV	2.425G	110.92	Inf	-Inf	31.00	3	Vertical	317	1.18	-
PK	2.485G	58.30	74.00	-15.70	31.18	3	Vertical	317	1.18	-
AV	2.483G	44.26	54.00	-9.74	31.17	3	Vertical	317	1.18	-

802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2427MHz_TX


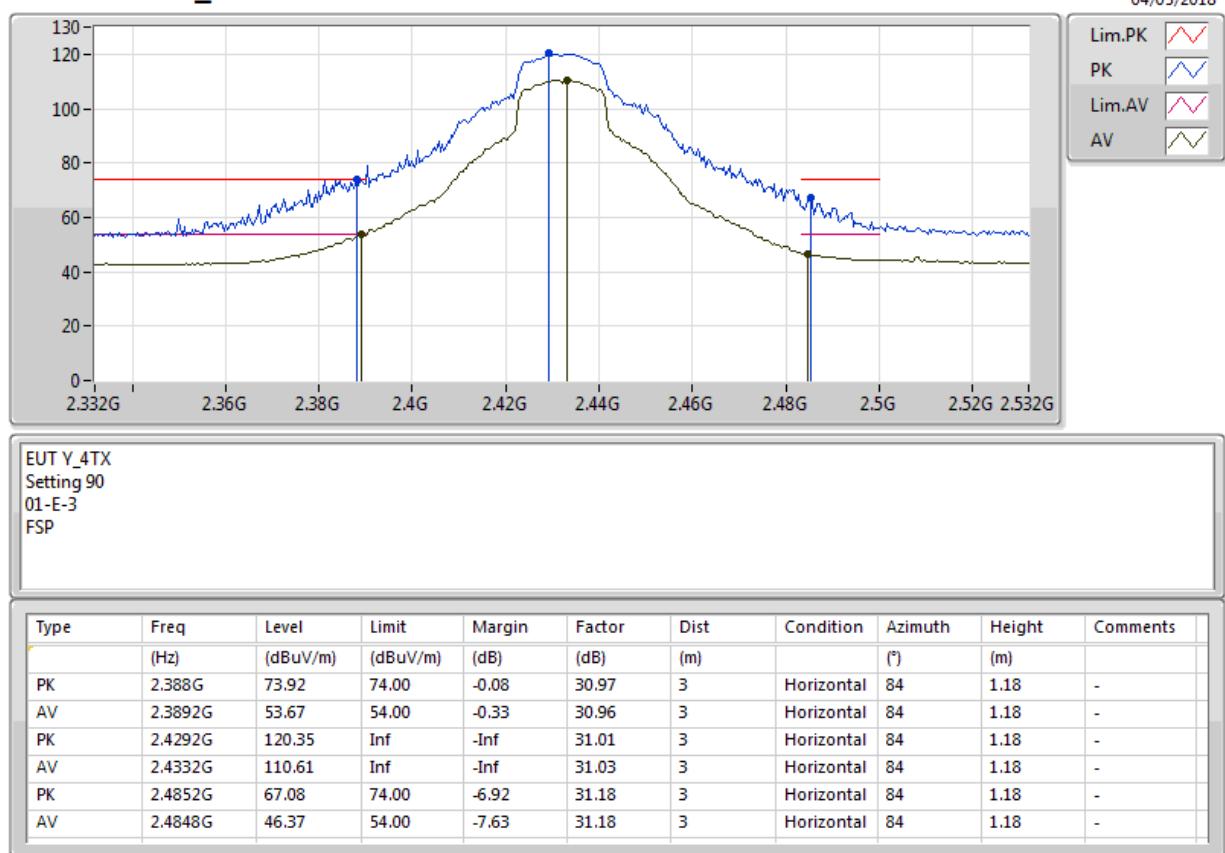
EUT Y_4TX
Setting 85
01-E-3
FSP

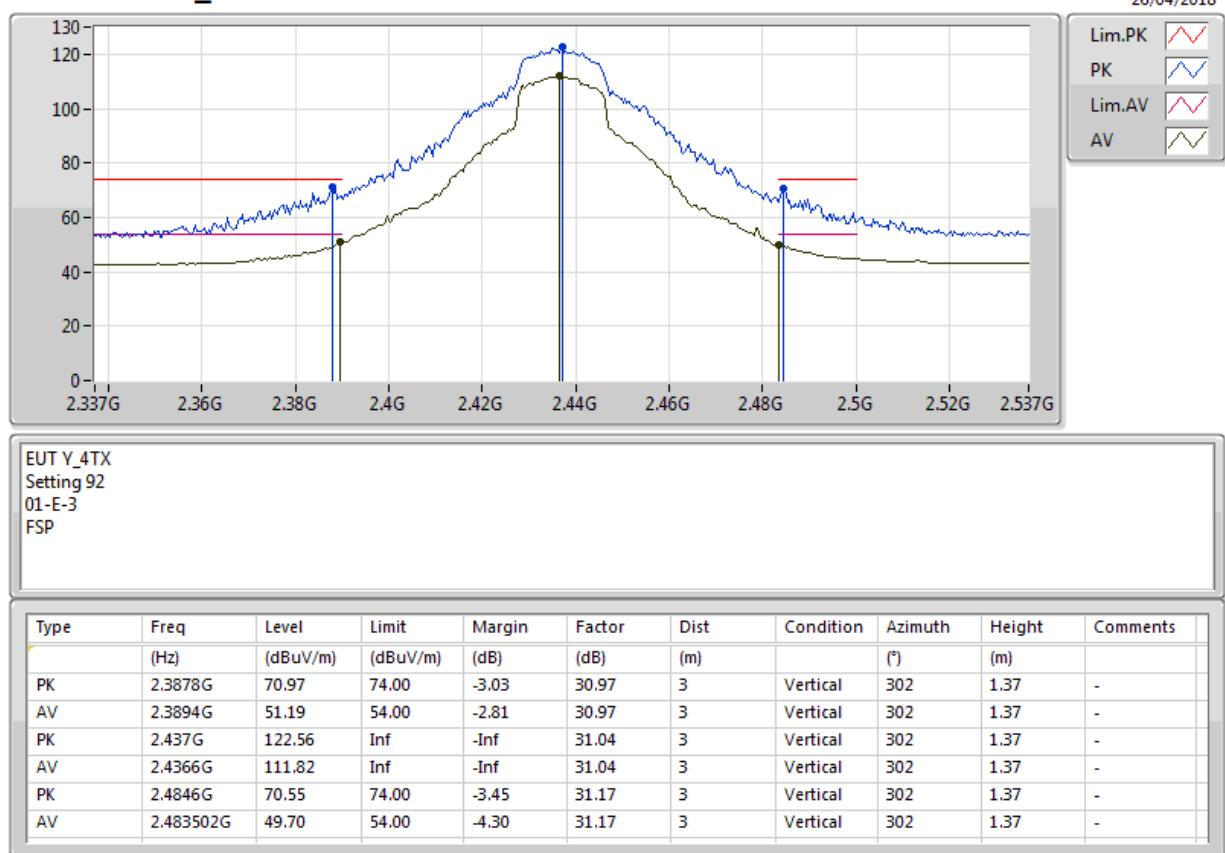
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3898G	69.76	74.00	-4.24	30.97	3	Horizontal	310	1.54	-
AV	2.3898G	50.93	54.00	-3.07	30.97	3	Horizontal	310	1.54	-
PK	2.431G	117.28	Inf	-Inf	31.02	3	Horizontal	310	1.54	-
AV	2.4302G	108.06	Inf	-Inf	31.02	3	Horizontal	310	1.54	-
PK	2.4846G	60.03	74.00	-13.97	31.17	3	Horizontal	310	1.54	-
AV	2.4882G	44.33	54.00	-9.67	31.19	3	Horizontal	310	1.54	-

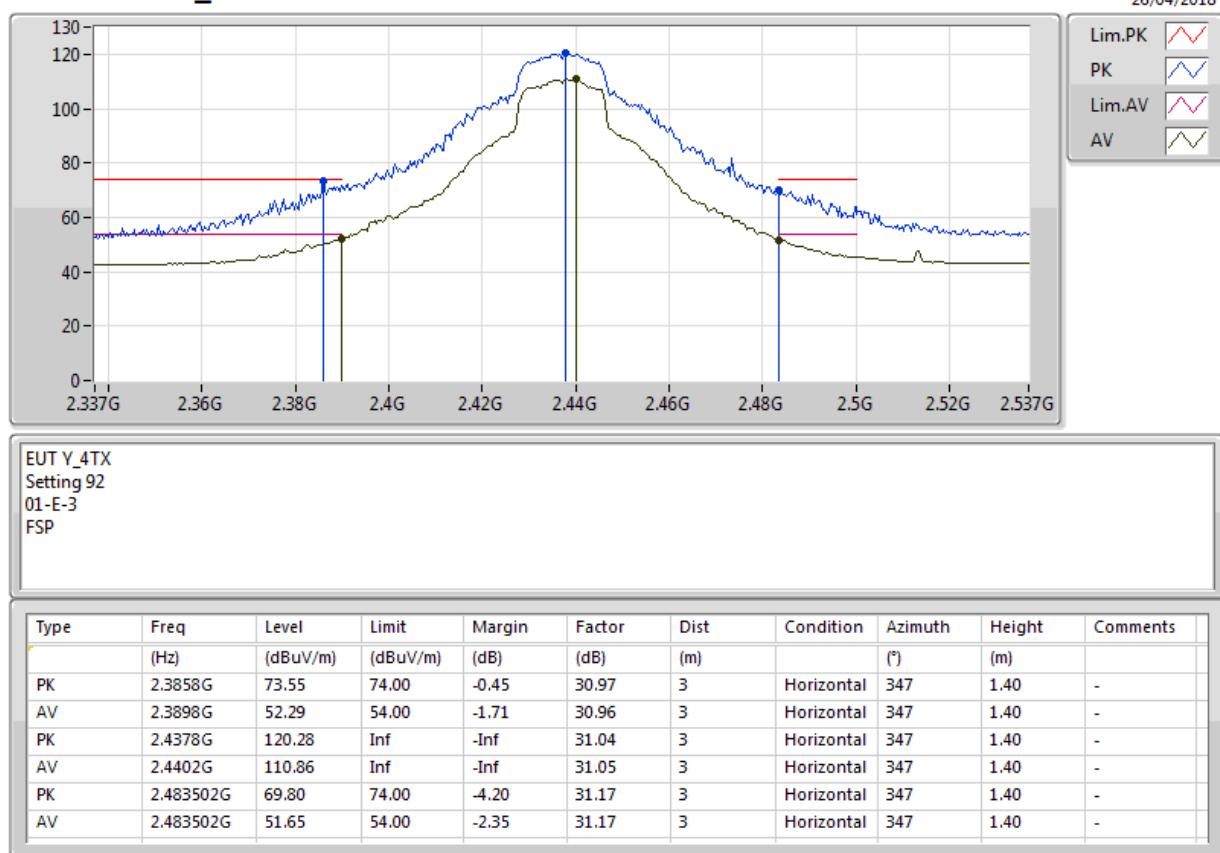
802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2432MHz_TX


802.11ac VHT20-BF_Nss1,(MCS0)_4TX

2432MHz_TX

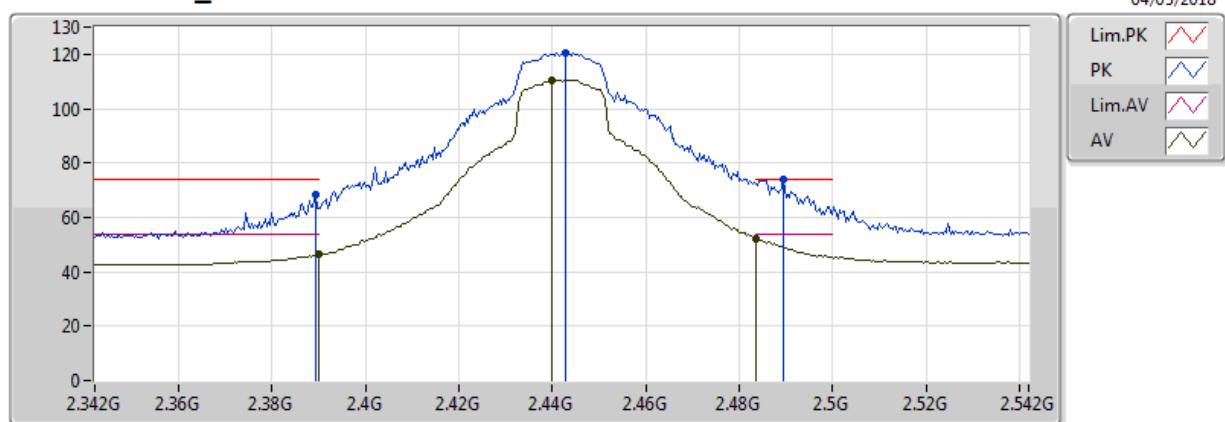


802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2437MHz_TX


802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2437MHz_TX


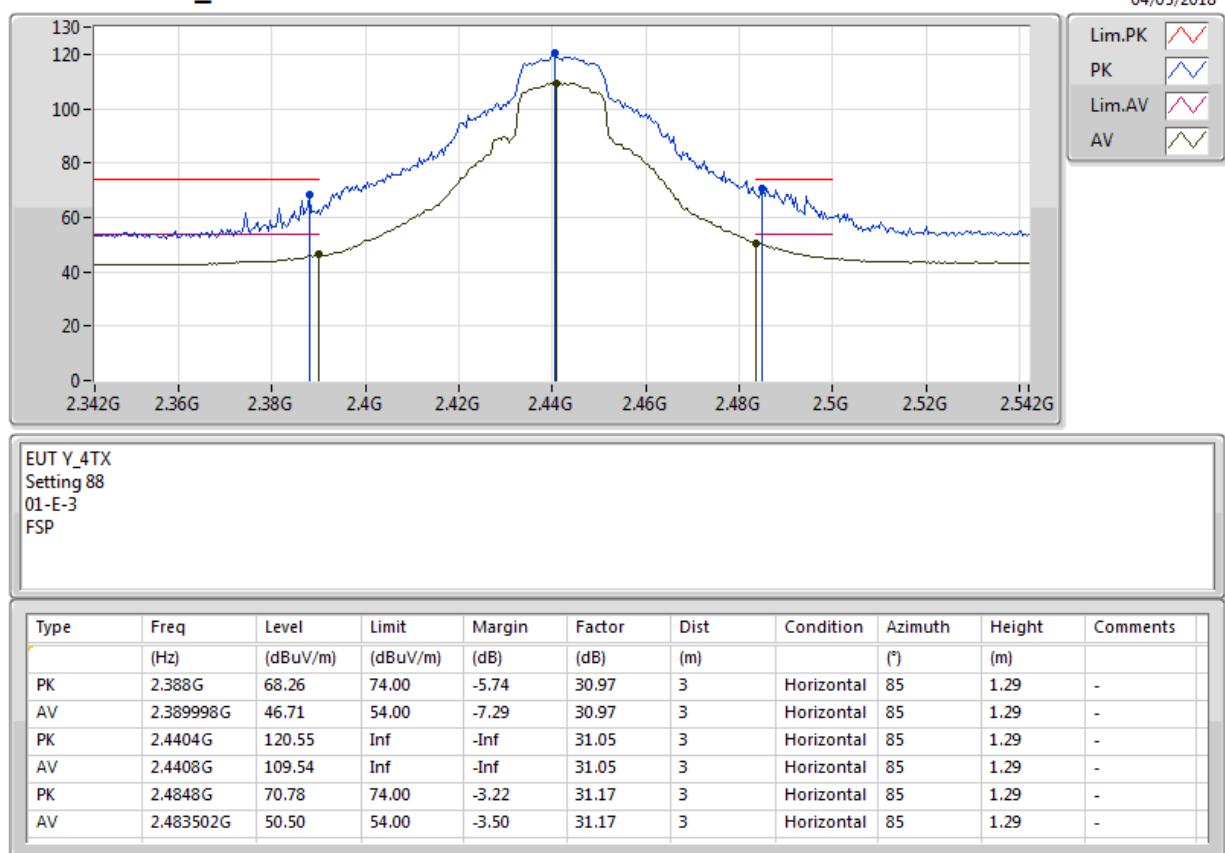
802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2437MHz_TX

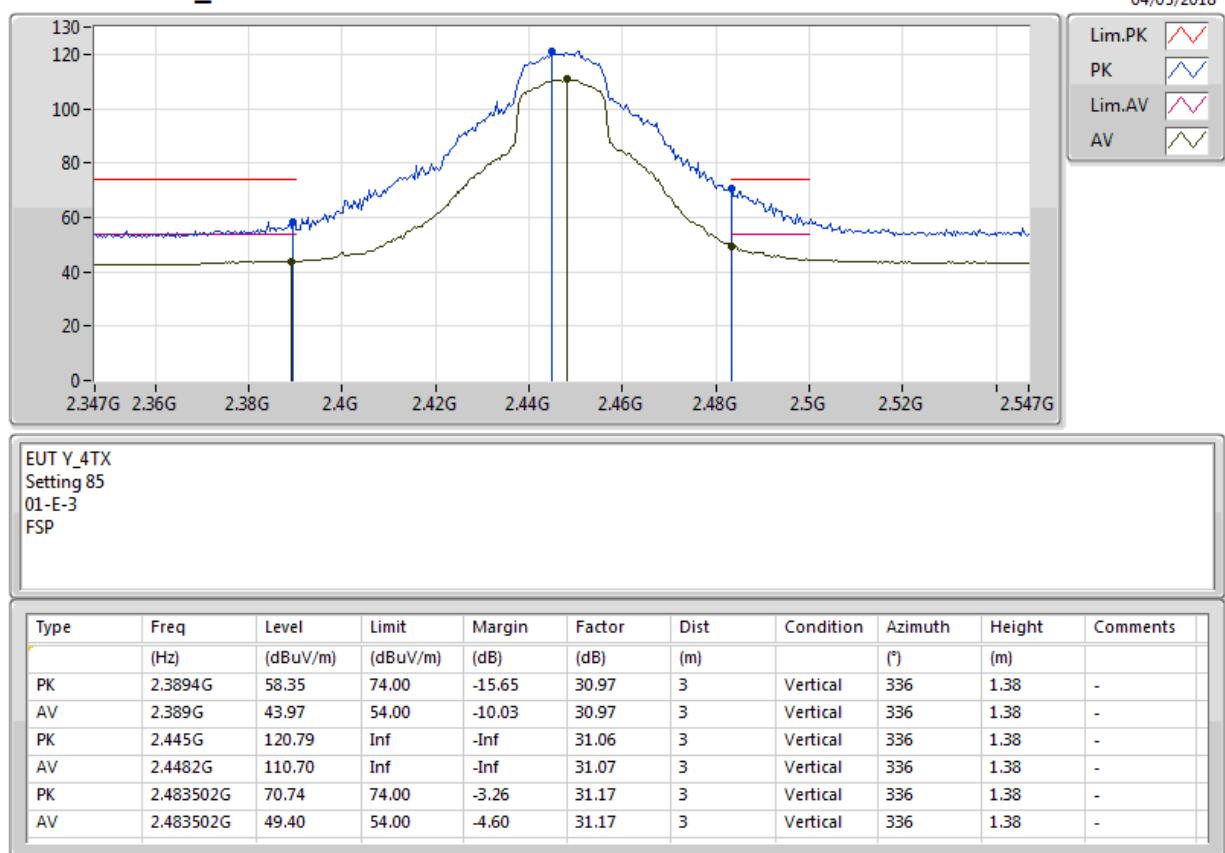

802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2437MHz_TX

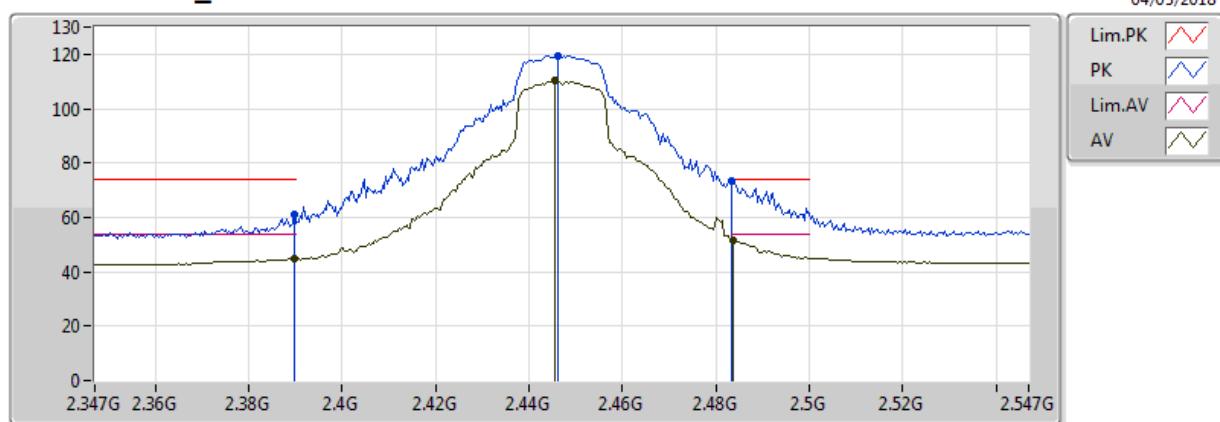

802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2442MHz_TX


EUT Y_4TX
Setting 88
01-E-3
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3892G	68.63	74.00	-5.37	30.97	3	Vertical	332	1.14	-
AV	2.389998G	46.27	54.00	-7.73	30.97	3	Vertical	332	1.14	-
PK	2.4428G	120.42	Inf	-Inf	31.05	3	Vertical	332	1.14	-
AV	2.44G	110.65	Inf	-Inf	31.05	3	Vertical	332	1.14	-
PK	2.4896G	73.70	74.00	-0.30	31.19	3	Vertical	332	1.14	-
AV	2.483502G	52.20	54.00	-1.80	31.17	3	Vertical	332	1.14	-

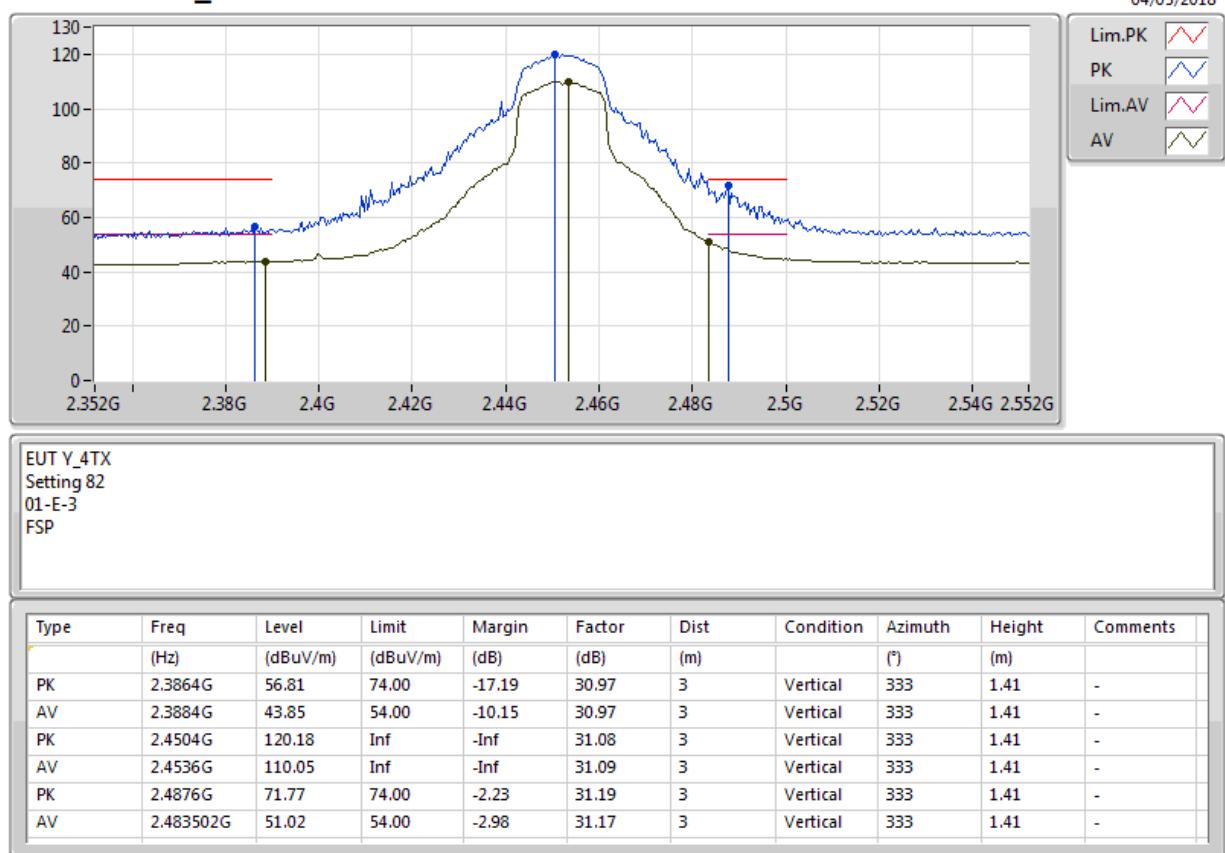
802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2442MHz_TX


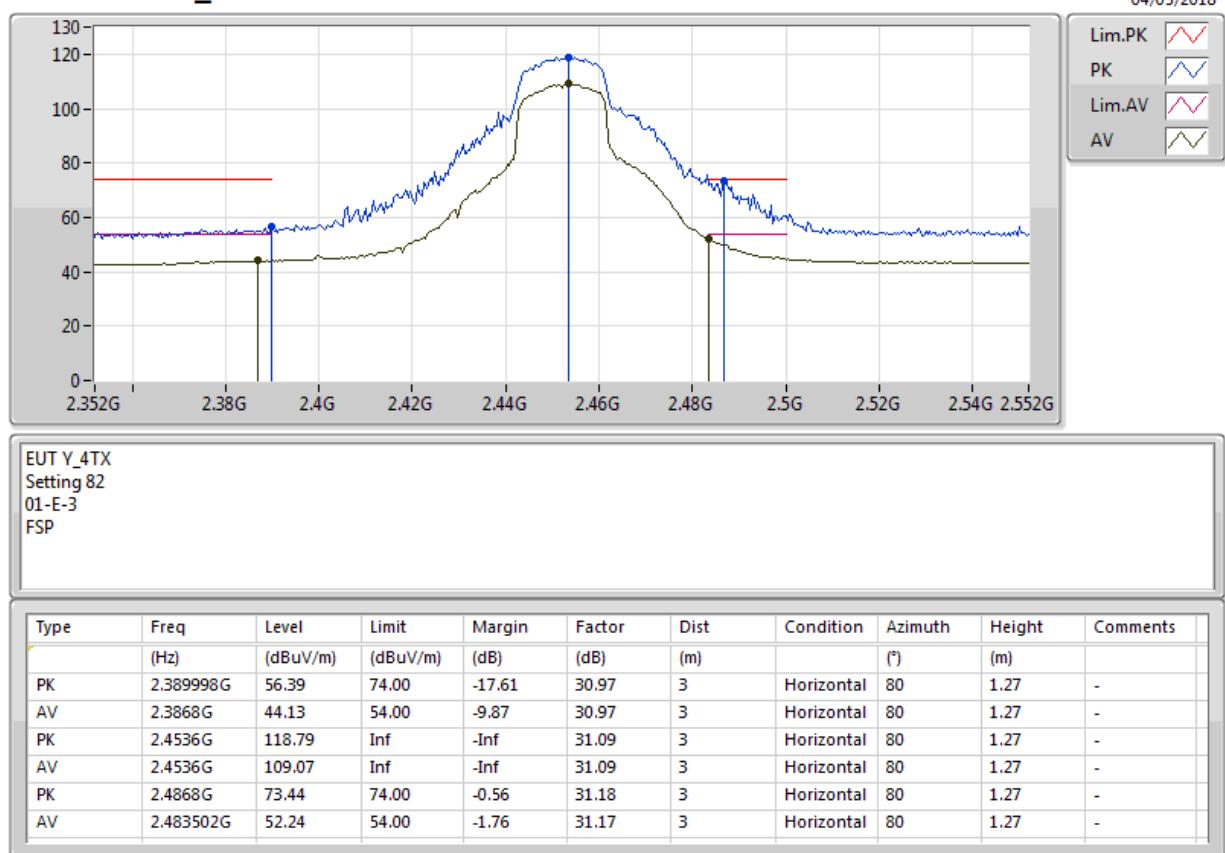
802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2447MHz_TX


802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2447MHz_TX


EUT Y_4TX
Setting 85
01-E-3
FSP

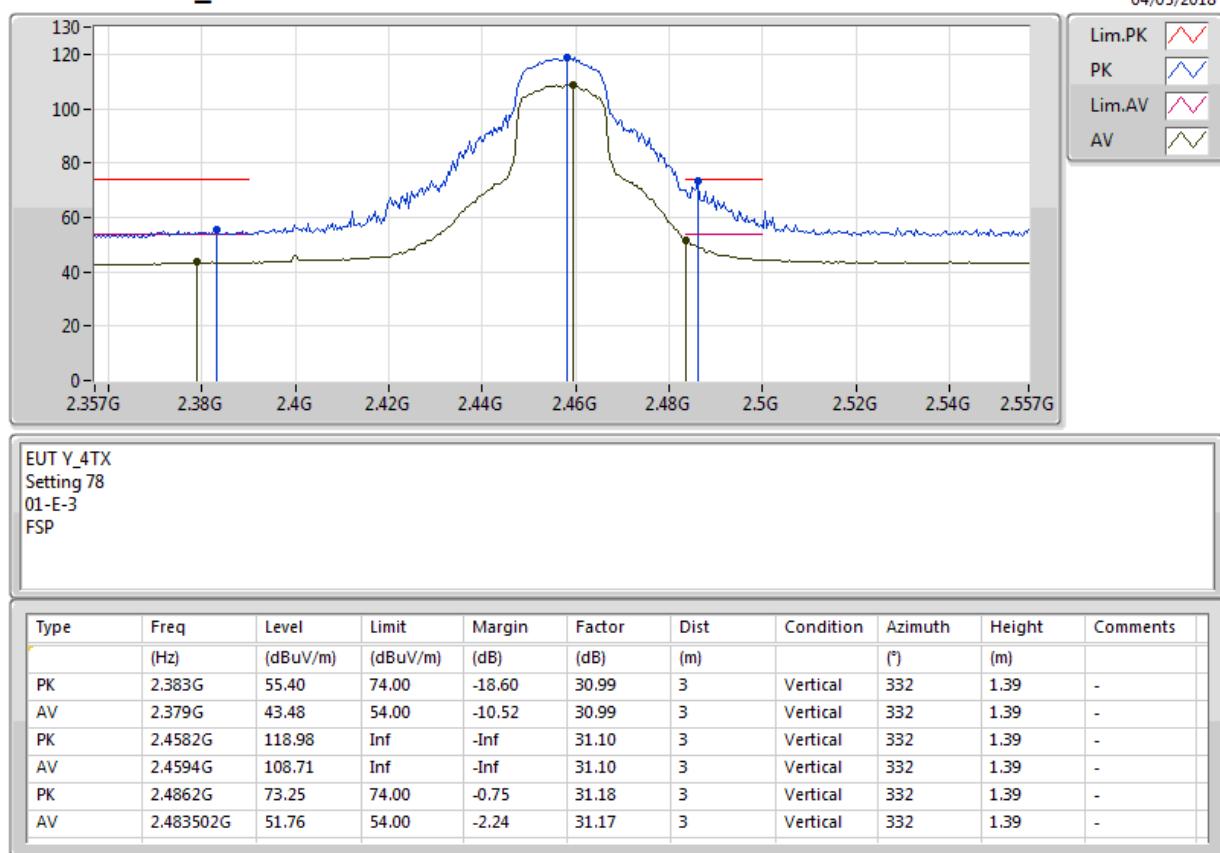
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3898G	60.81	74.00	-13.19	30.97	3	Horizontal	71	1.02	-
AV	2.3898G	44.70	54.00	-9.30	30.97	3	Horizontal	71	1.02	-
PK	2.4462G	119.59	Inf	-Inf	31.06	3	Horizontal	71	1.02	-
AV	2.4454G	110.28	Inf	-Inf	31.06	3	Horizontal	71	1.02	-
PK	2.483502G	73.13	74.00	-0.87	31.17	3	Horizontal	71	1.02	-
AV	2.4838G	51.68	54.00	-2.32	31.17	3	Horizontal	71	1.02	-

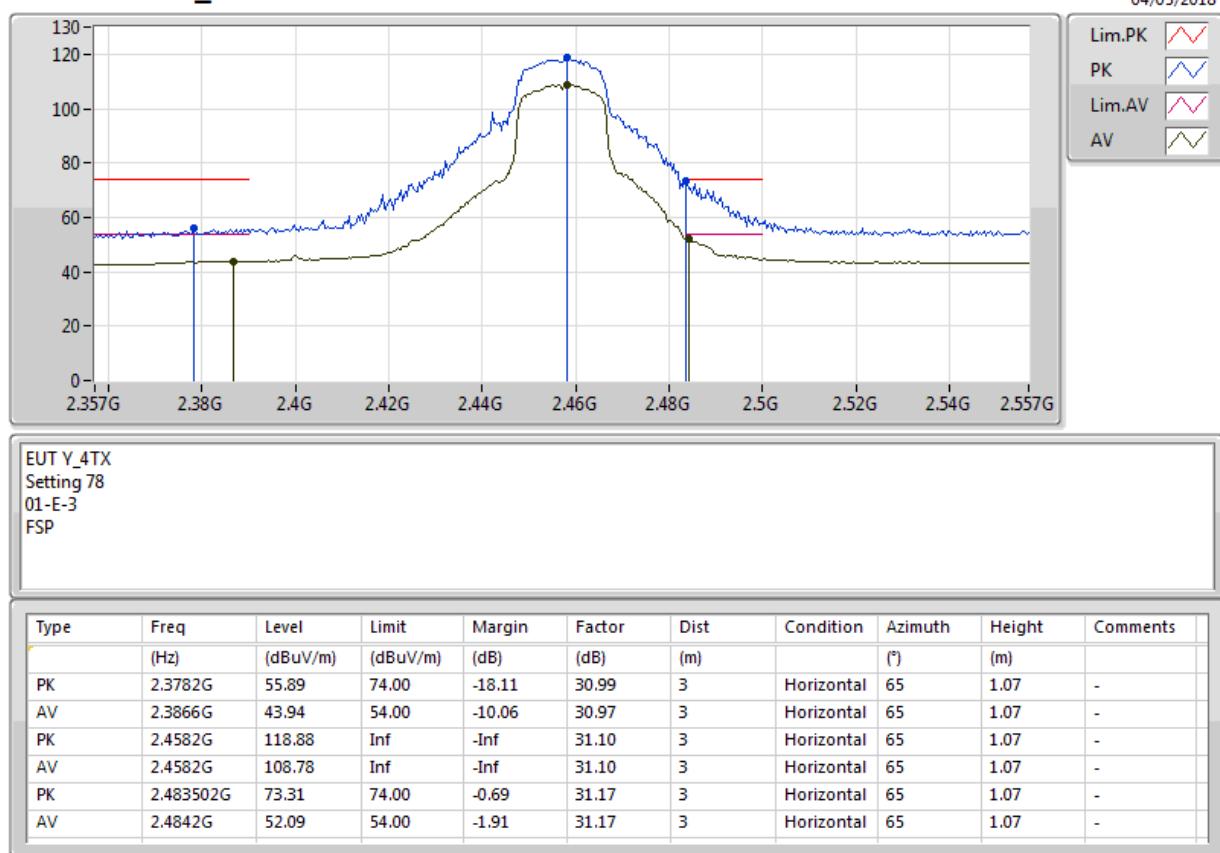
802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2452MHz_TX


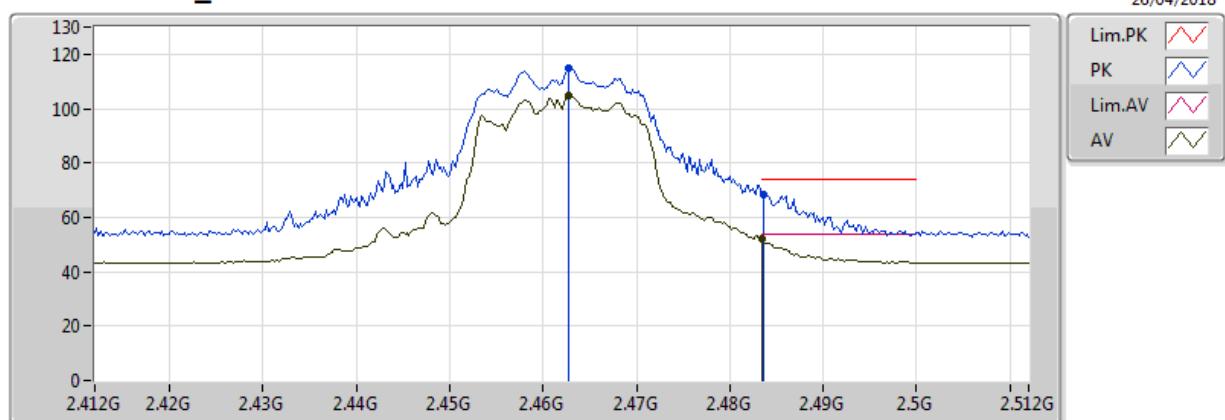
802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2452MHz_TX


802.11ac VHT20-BF_Nss1,(MCS0)_4TX

2457MHz_TX



802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2457MHz_TX


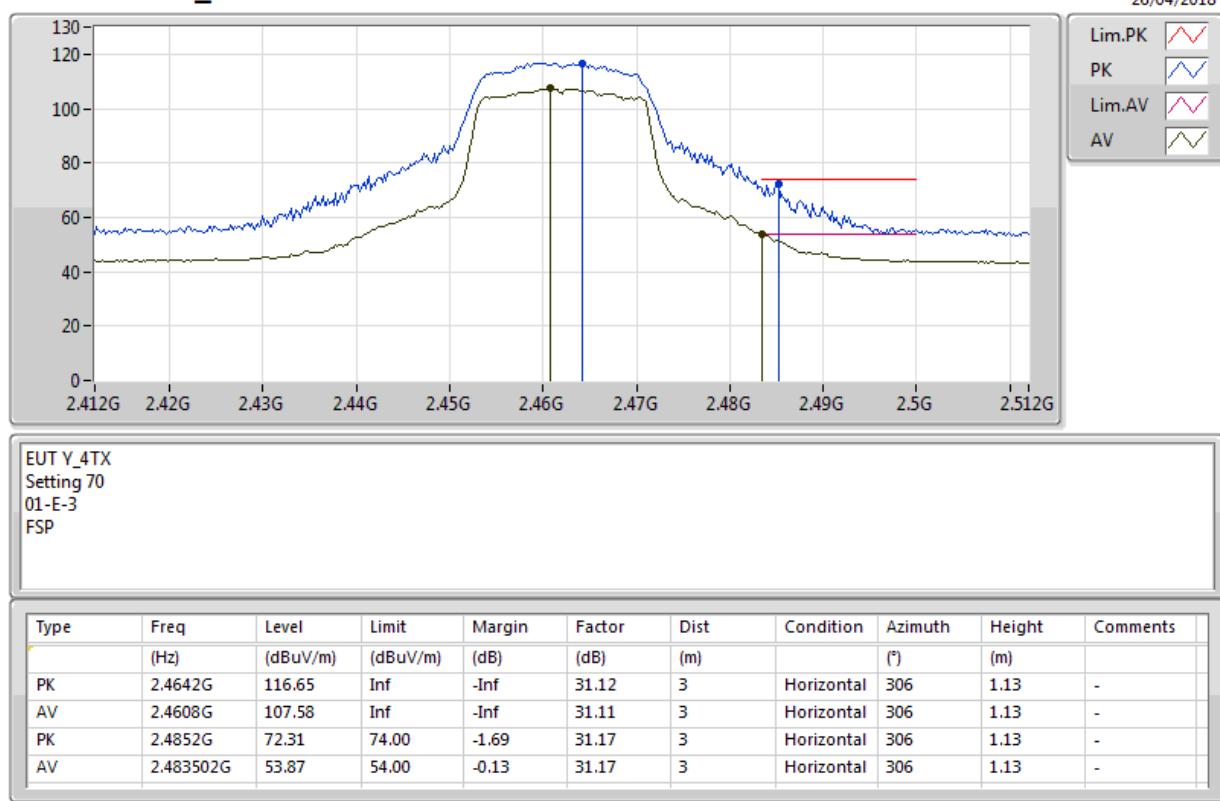
802.11ac VHT20-BF_Nss1,(MCS0)_4TX
2462MHz_TX


EUT Y_4TX
Setting 70
01-E-3
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.4628G	114.66	Inf	-Inf	31.11	3	Vertical	316	1.50	-
AV	2.4628G	104.89	Inf	-Inf	31.11	3	Vertical	316	1.50	-
PK	2.4836G	68.41	74.00	-5.59	31.17	3	Vertical	316	1.50	-
AV	2.483502G	51.98	54.00	-2.02	31.17	3	Vertical	316	1.50	-

802.11ac VHT20-BF_Nss1,(MCS0)_4TX

2462MHz_TX



802.11ac VHT20-BF_Nss1,(MCS0)_4TX

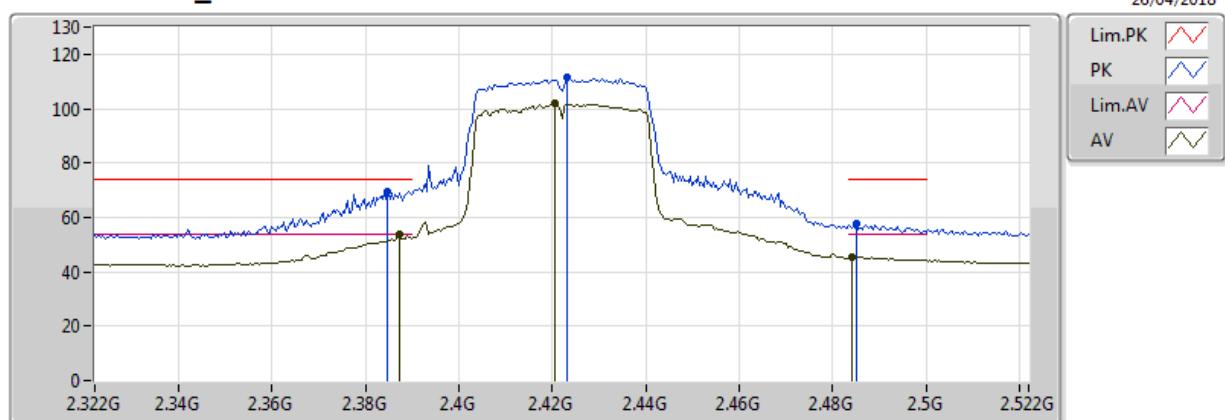
2462MHz_TX



802.11ac VHT20-BF_Nss1,(MCS0)_4TX

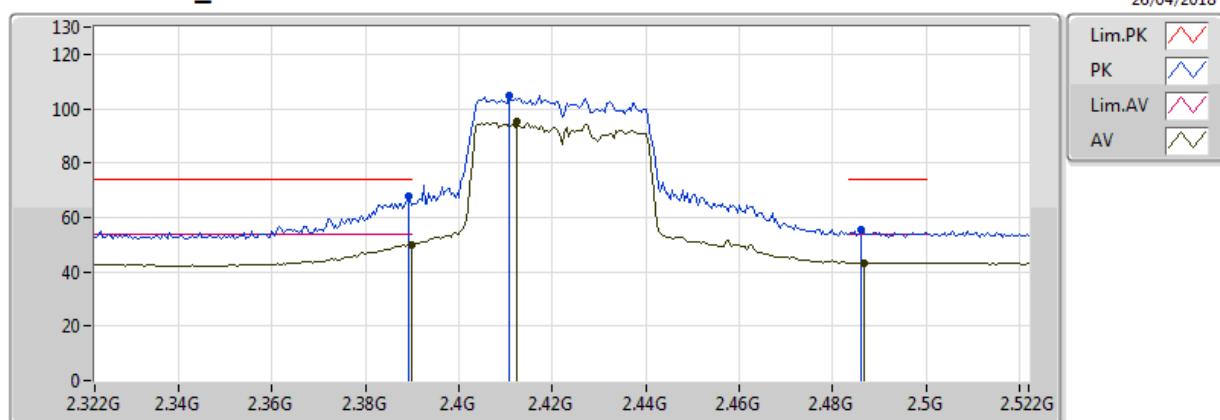
2462MHz_TX



802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2422MHz_TX


EUT Y_4TX
Setting 67
01-E-3
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3848G	69.67	74.00	-4.33	30.98	3	Vertical	325	1.01	-
AV	2.3872G	53.54	54.00	-0.46	30.97	3	Vertical	325	1.01	-
PK	2.4232G	111.71	Inf	-Inf	31.00	3	Vertical	325	1.01	-
AV	2.4204G	102.03	Inf	-Inf	30.99	3	Vertical	325	1.01	-
PK	2.4852G	57.46	74.00	-16.54	31.18	3	Vertical	325	1.01	-
AV	2.484G	45.22	54.00	-8.78	31.17	3	Vertical	325	1.01	-

802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2422MHz_TX


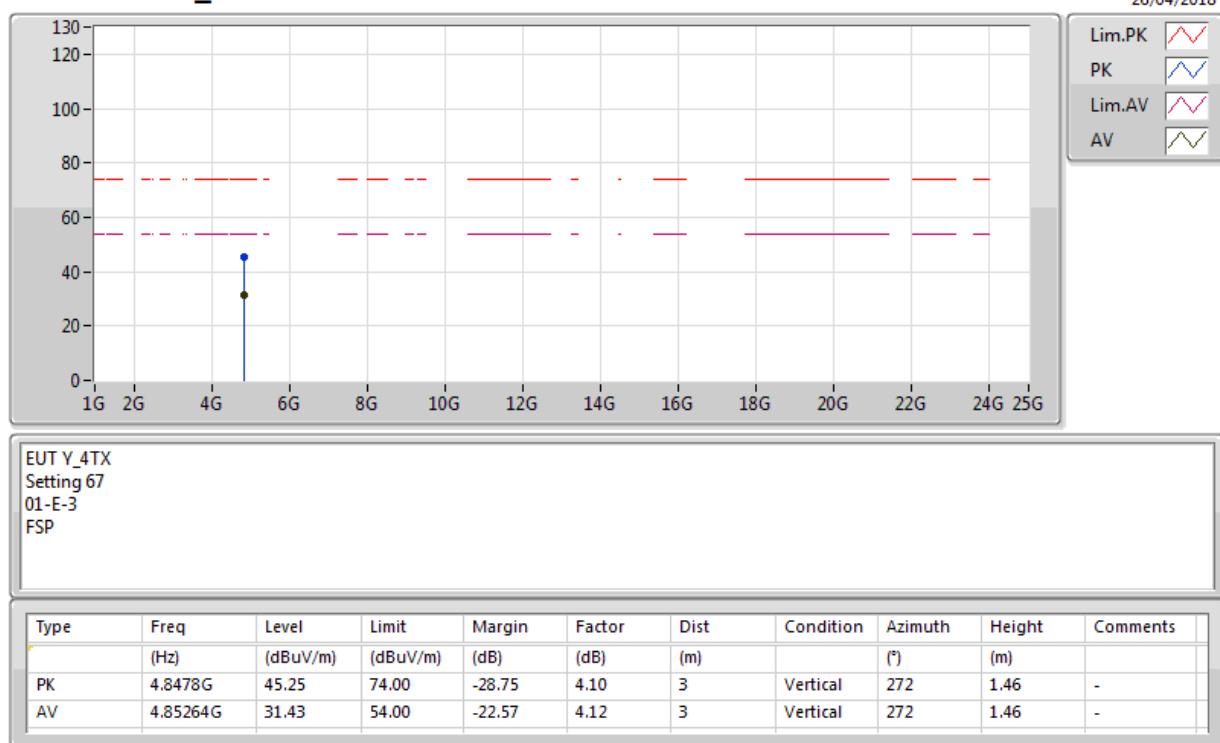
EUT Y_4TX

Setting 67

01-E-3

FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3892G	67.76	74.00	-6.24	30.97	3	Horizontal	302	1.35	-
AV	2.38998G	50.00	54.00	-4.00	30.97	3	Horizontal	302	1.35	-
PK	2.4108G	104.58	Inf	-Inf	30.96	3	Horizontal	302	1.35	-
AV	2.4124G	95.47	Inf	-Inf	30.97	3	Horizontal	302	1.35	-
PK	2.486G	55.52	74.00	-18.48	31.18	3	Horizontal	302	1.35	-
AV	2.4868G	43.36	54.00	-10.64	31.18	3	Horizontal	302	1.35	-

802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2422MHz_TX


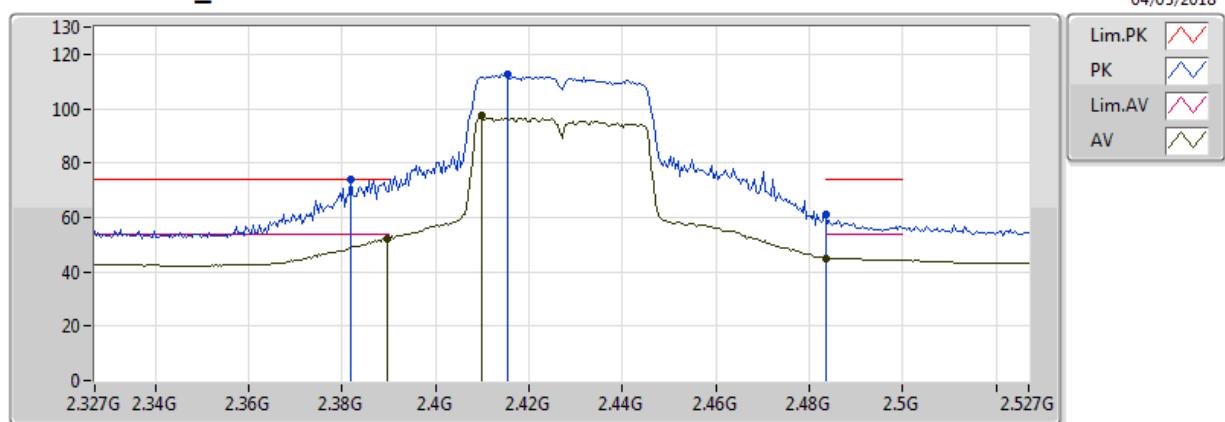
802.11ac VHT40-BF_Nss1,(MCS0)_4TX

2422MHz_TX



802.11ac VHT40-BF_Nss1,(MCS0)_4TX

2427MHz_TX



EUT Y_4TX

Setting 67

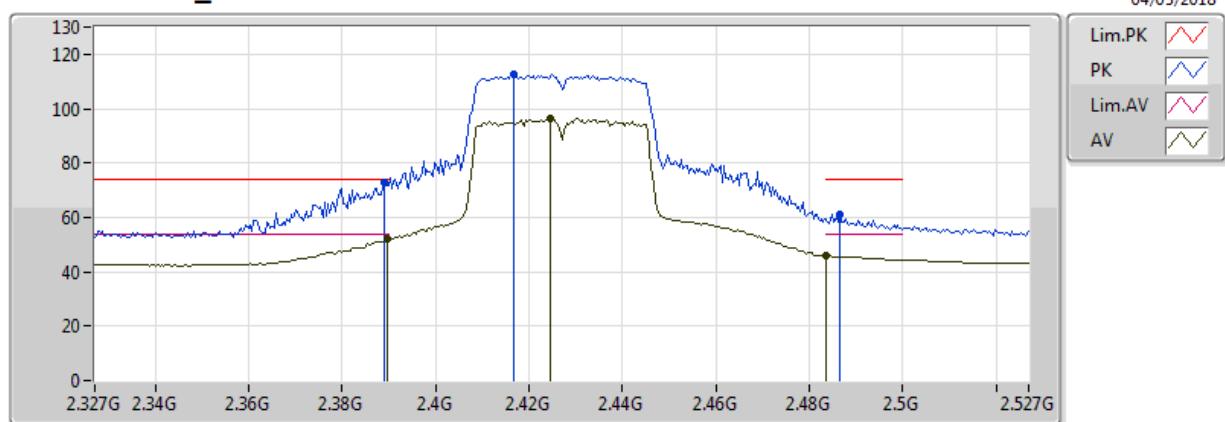
01-E-3

FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3818G	73.87	74.00	-0.13	30.99	3	Vertical	333	1.25	-
AV	2.3898G	52.38	54.00	-1.62	30.97	3	Vertical	333	1.25	-
PK	2.4154G	112.47	Inf	-Inf	30.97	3	Vertical	333	1.25	-
AV	2.4098G	97.24	Inf	-Inf	30.96	3	Vertical	333	1.25	-
PK	2.483502G	60.88	74.00	-13.12	31.17	3	Vertical	333	1.25	-
AV	2.483502G	45.09	54.00	-8.91	31.17	3	Vertical	333	1.25	-

802.11ac VHT40-BF_Nss1,(MCS0)_4TX

2427MHz_TX



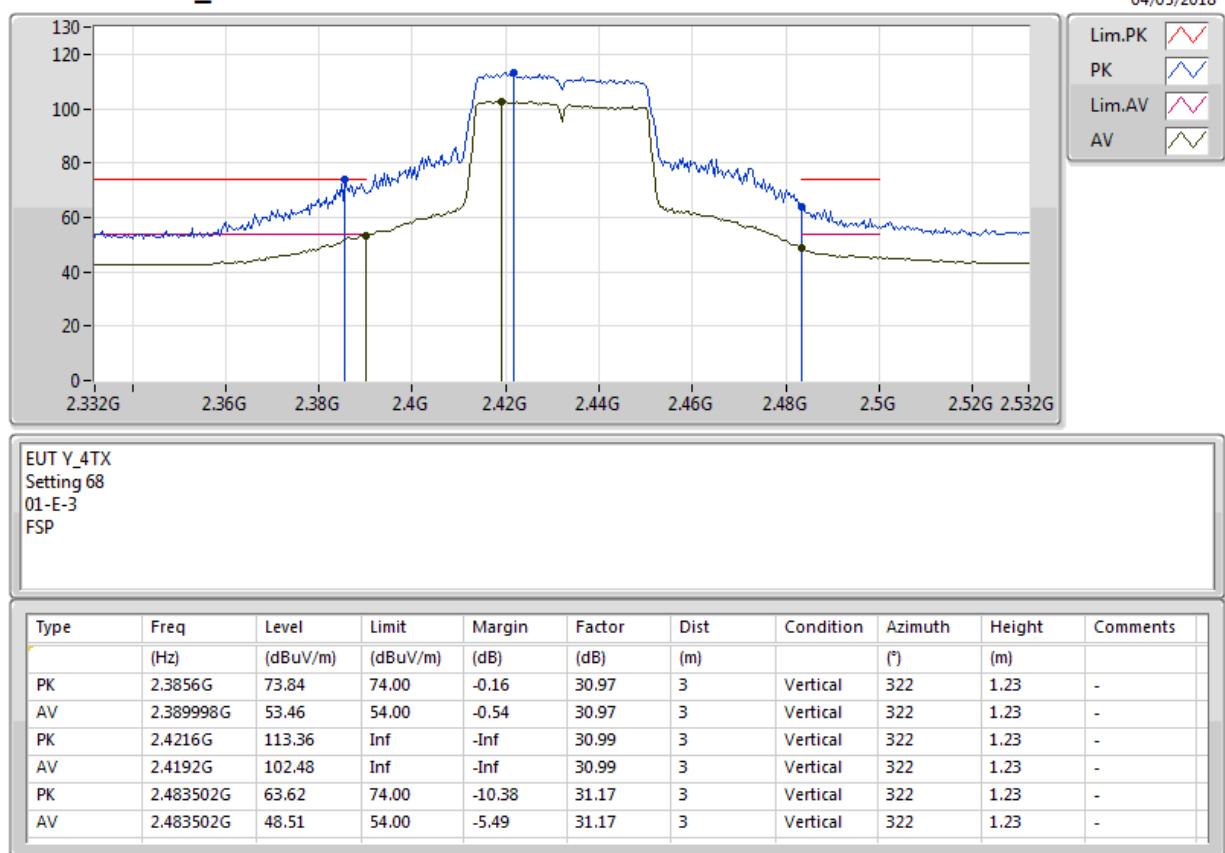
EUT Y_4TX

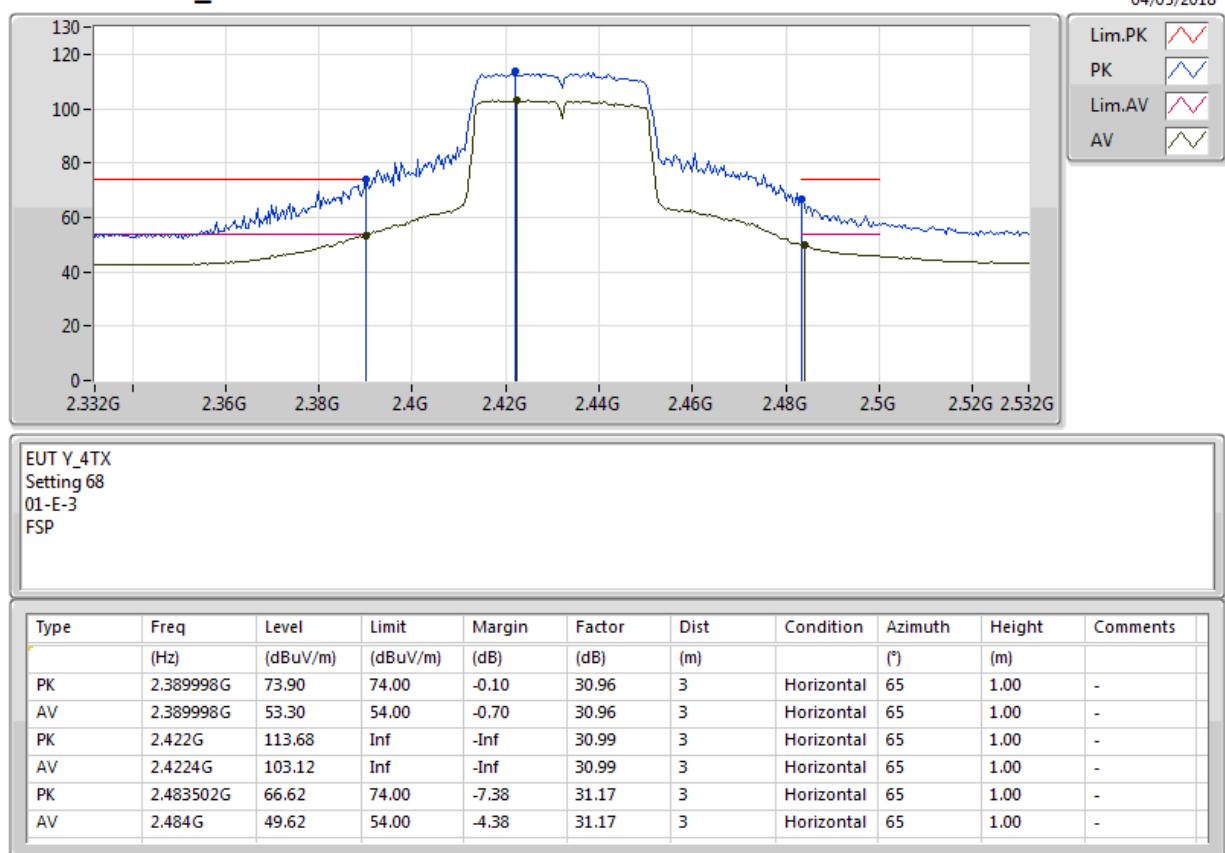
Setting 67

01-E-3

FSP

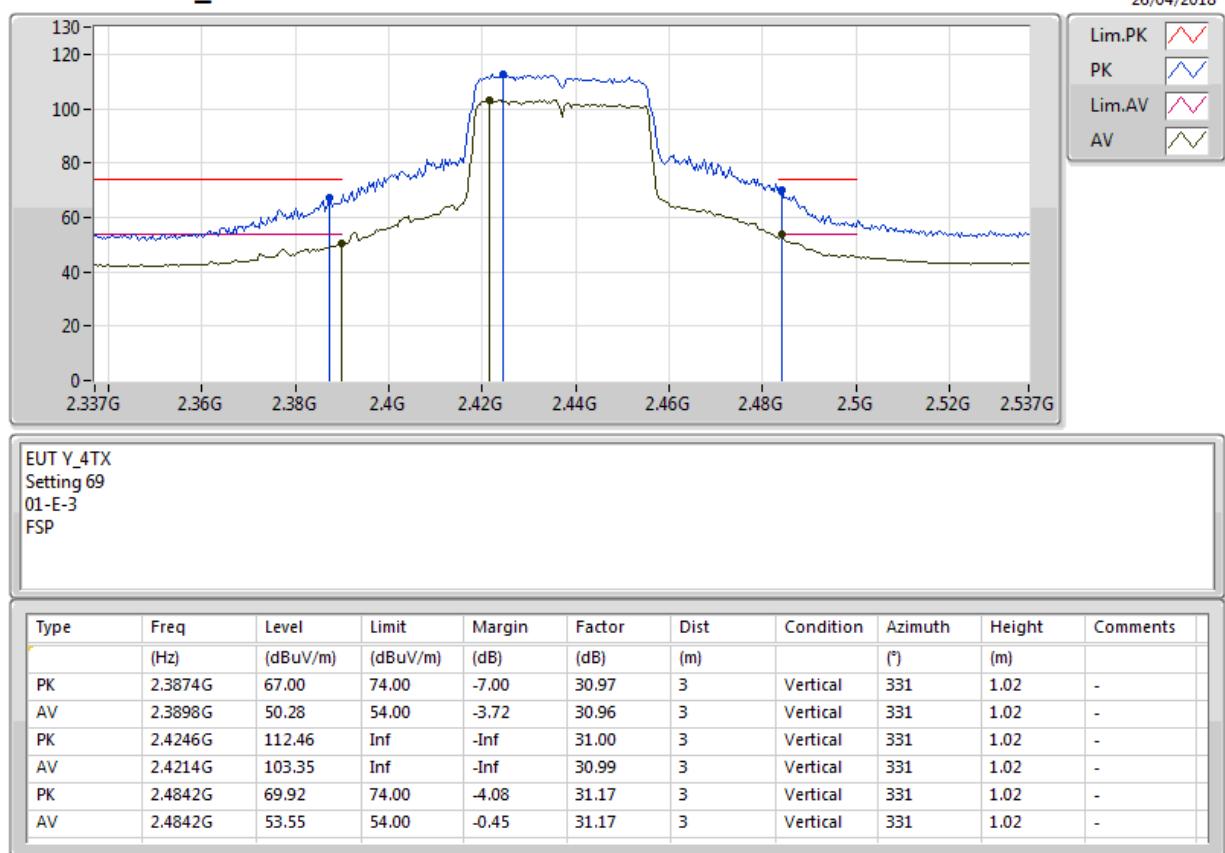
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.389G	73.02	74.00	-0.98	30.97	3	Horizontal	71	1.00	-
AV	2.3898G	51.92	54.00	-2.08	30.97	3	Horizontal	71	1.00	-
PK	2.4166G	112.57	Inf	-Inf	30.98	3	Horizontal	71	1.00	-
AV	2.4246G	96.58	Inf	-Inf	31.00	3	Horizontal	71	1.00	-
PK	2.4866G	61.16	74.00	-12.84	31.18	3	Horizontal	71	1.00	-
AV	2.483502G	45.78	54.00	-8.22	31.17	3	Horizontal	71	1.00	-

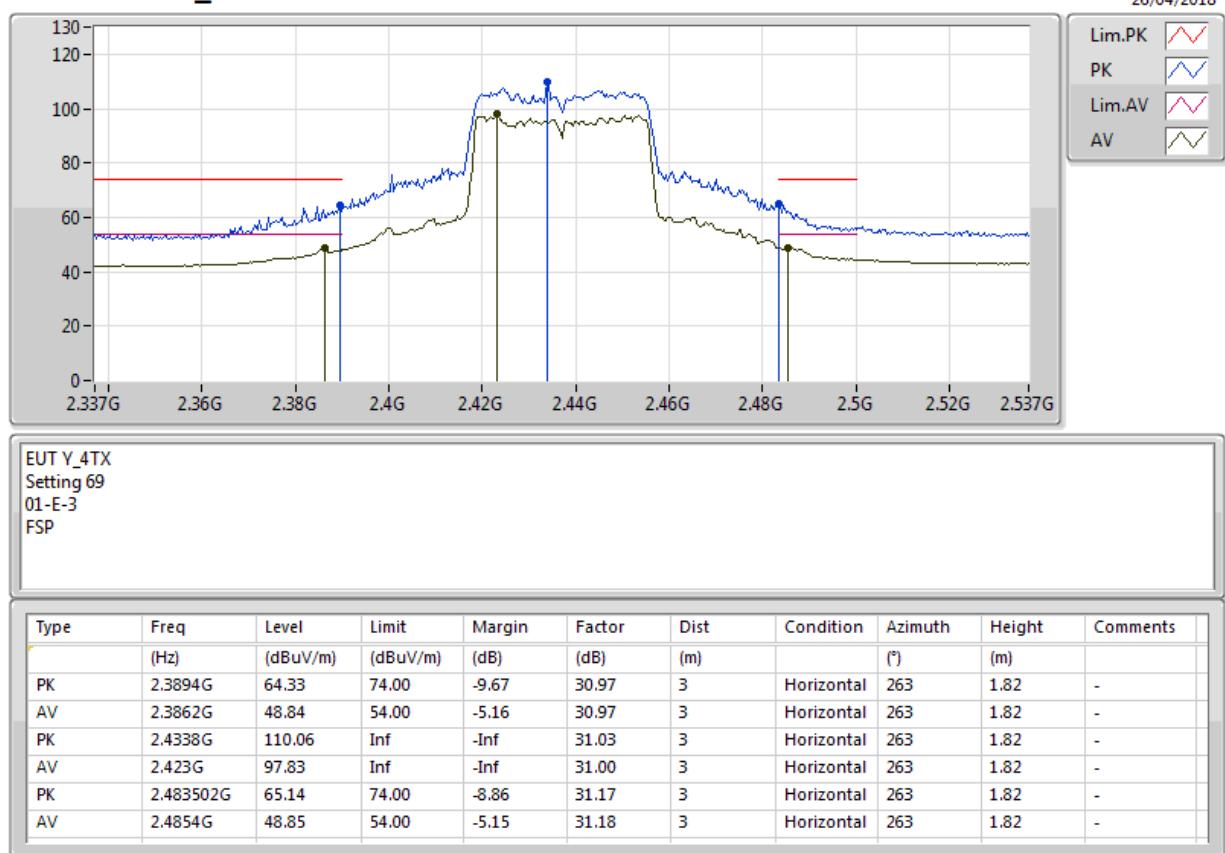
802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2432MHz_TX


802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2432MHz_TX


802.11ac VHT40-BF_Nss1,(MCS0)_4TX

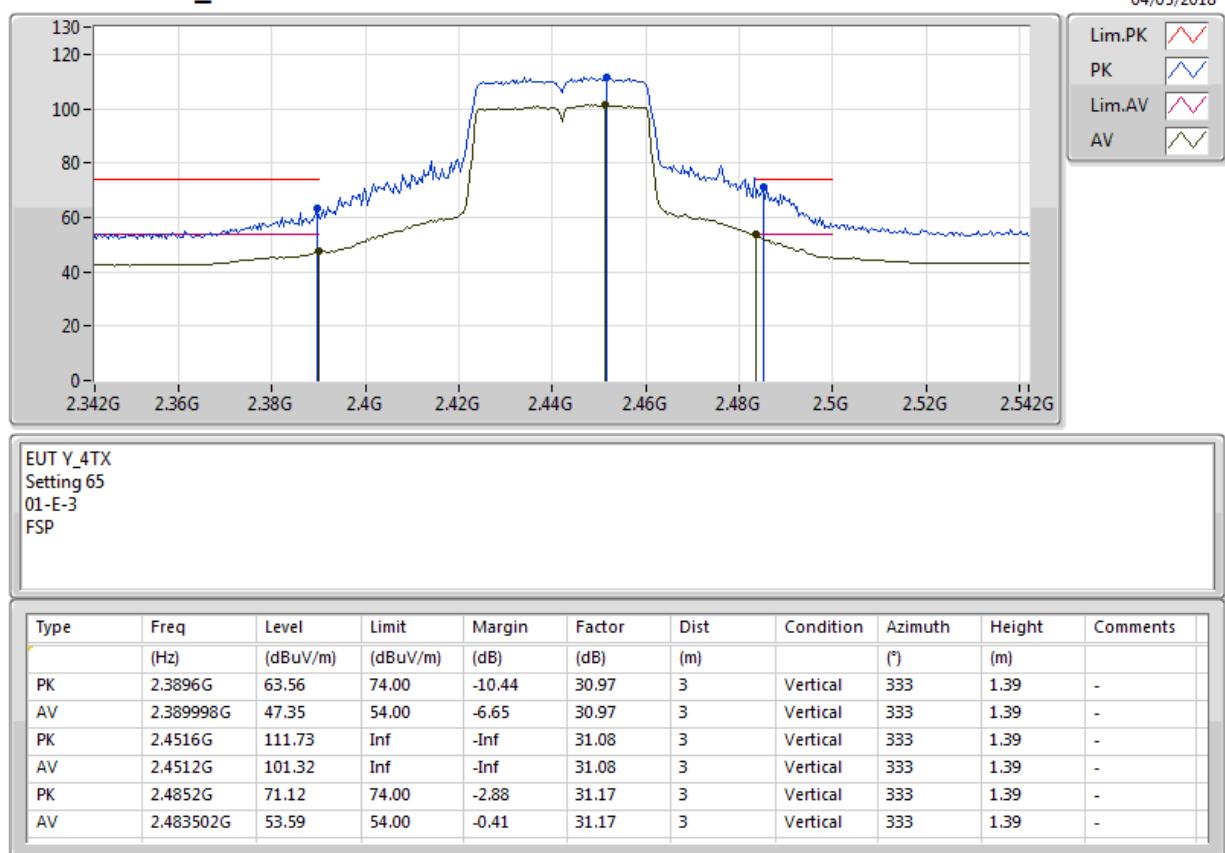
2437MHz_TX

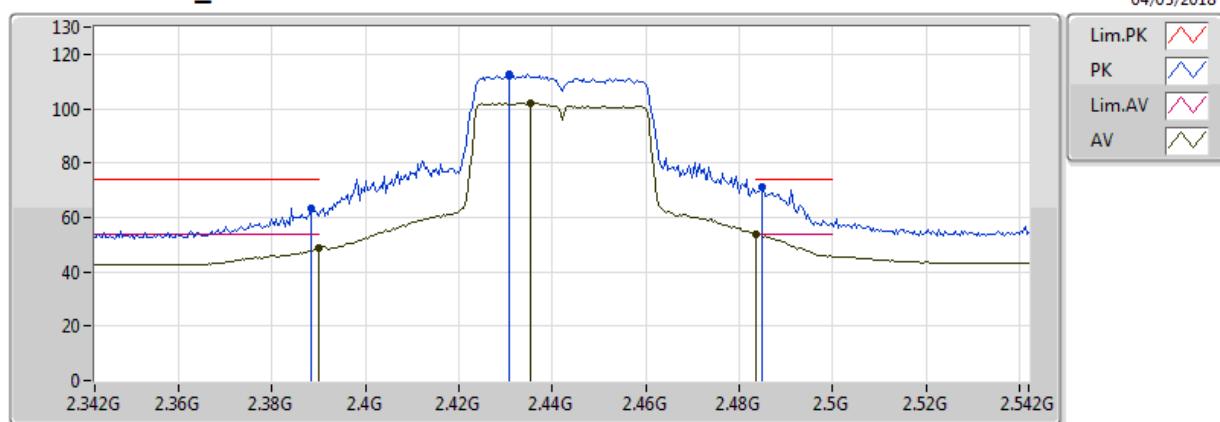


802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2437MHz_TX


802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2437MHz_TX

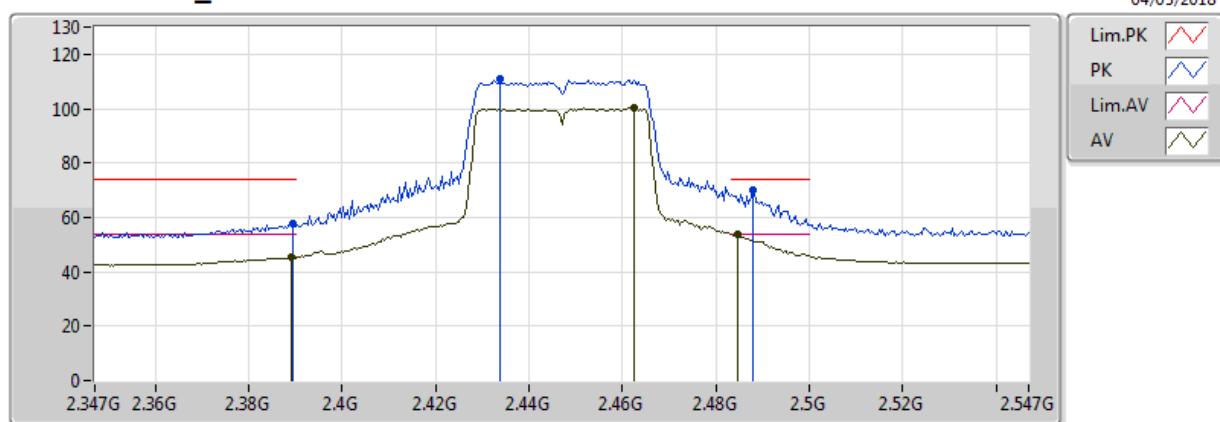

802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2437MHz_TX


802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2442MHz_TX


802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2442MHz_TX


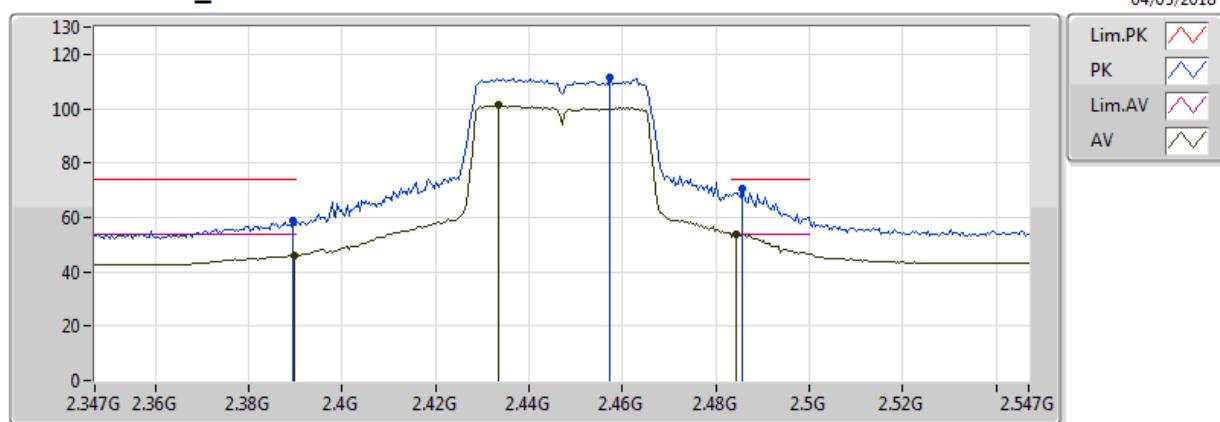
EUT Y_4TX
Setting 65
01-E-3
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3884G	63.54	74.00	-10.46	30.97	3	Horizontal	67	1.04	-
AV	2.389998G	48.88	54.00	-5.12	30.97	3	Horizontal	67	1.04	-
PK	2.4308G	112.45	Inf	-Inf	31.02	3	Horizontal	67	1.04	-
AV	2.4352G	102.16	Inf	-Inf	31.03	3	Horizontal	67	1.04	-
PK	2.4848G	70.93	74.00	-3.07	31.17	3	Horizontal	67	1.04	-
AV	2.483502G	53.97	54.00	-0.03	31.17	3	Horizontal	67	1.04	-

802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2447MHz_TX


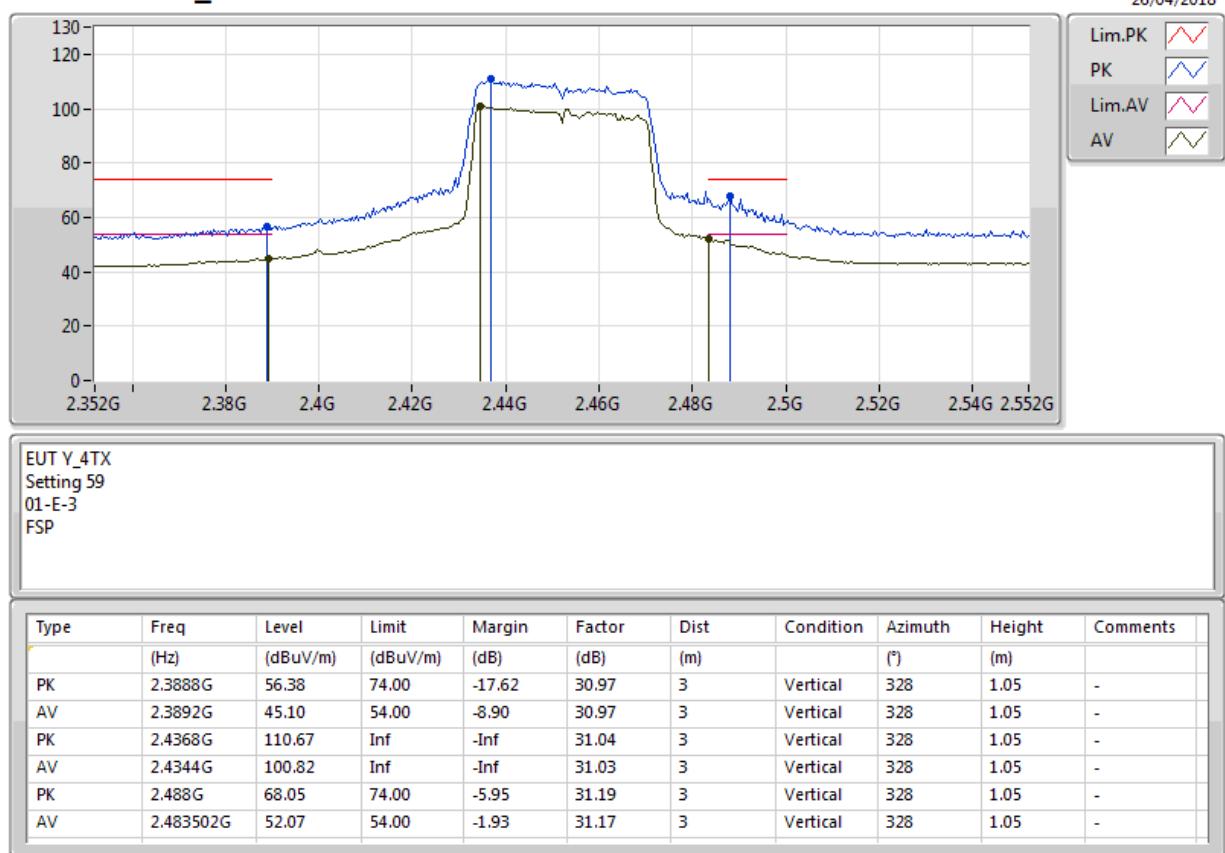
EUT Y_4TX
Setting 60
01-E-3
FSP

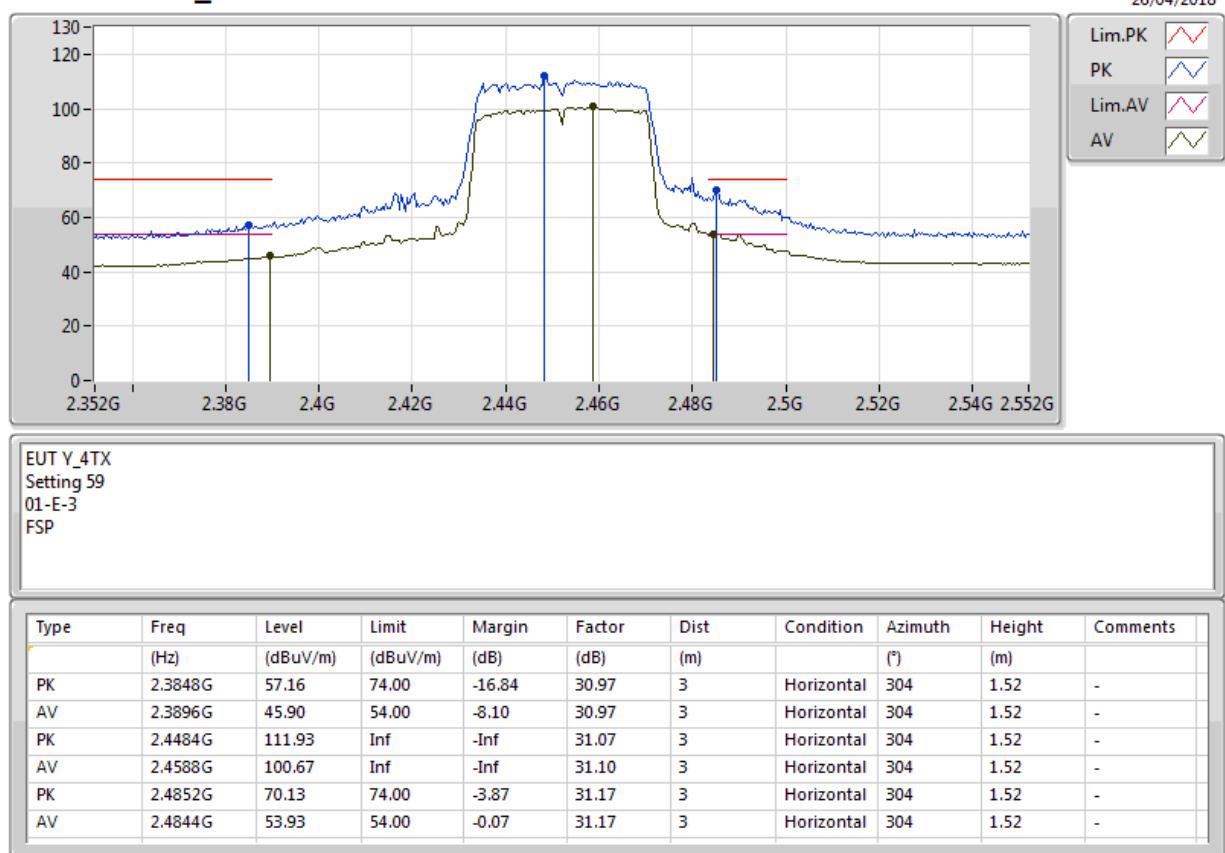
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3894G	57.69	74.00	-16.31	30.97	3	Vertical	333	1.15	-
AV	2.389G	45.32	54.00	-8.68	30.97	3	Vertical	333	1.15	-
PK	2.4338G	110.79	Inf	-Inf	31.03	3	Vertical	333	1.15	-
AV	2.4626G	100.17	Inf	-Inf	31.11	3	Vertical	333	1.15	-
PK	2.4878G	69.94	74.00	-4.06	31.19	3	Vertical	333	1.15	-
AV	2.4846G	53.73	54.00	-0.27	31.17	3	Vertical	333	1.15	-

802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2447MHz_TX


EUT Y_4TX
Setting 60
01-E-3
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	2.3894G	58.59	74.00	-15.41	30.97	3	Horizontal	65	1.02	-
AV	2.3898G	45.94	54.00	-8.06	30.97	3	Horizontal	65	1.02	-
PK	2.4574G	111.51	Inf	-Inf	31.10	3	Horizontal	65	1.02	-
AV	2.4334G	101.28	Inf	-Inf	31.03	3	Horizontal	65	1.02	-
PK	2.4858G	70.64	74.00	-3.36	31.18	3	Horizontal	65	1.02	-
AV	2.4842G	53.77	54.00	-0.23	31.17	3	Horizontal	65	1.02	-

802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2452MHz_TX


802.11ac VHT40-BF_Nss1,(MCS0)_4TX
2452MHz_TX


802.11ac VHT40-BF_Nss1,(MCS0)_4TX

2452MHz_TX



802.11ac VHT40-BF_Nss1,(MCS0)_4TX

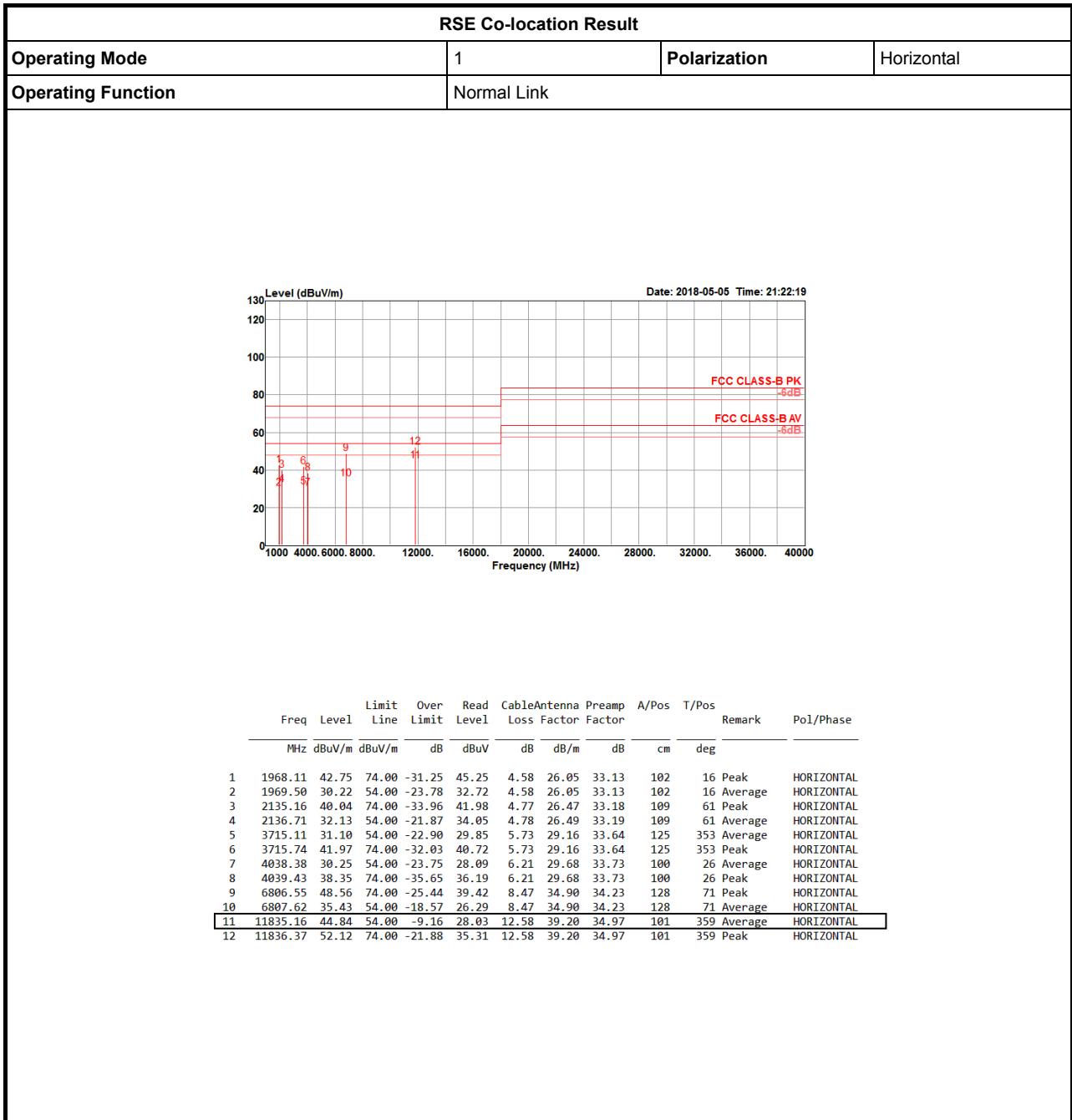
2452MHz_TX





RSE Co-location Result

Appendix G





RSE Co-location Result

Appendix G

RSE Co-location Result																																																																																																																																																																											
Operating Mode			1	Polarization			Vertical																																																																																																																																																																				
Operating Function			Normal Link																																																																																																																																																																								
<p>Date: 2018-05-05 Time: 21:10:03</p> <p>FCC CLASS-B PK -6dB</p> <p>FCC CLASS-B AV -6dB</p>																																																																																																																																																																											
<table><thead><tr><th rowspan="2">Freq MHz</th><th rowspan="2">Level dBuV/m</th><th rowspan="2">Limit Line</th><th rowspan="2">Over Limit</th><th rowspan="2">Read Level</th><th colspan="3">Cable Antenna Preamp</th><th rowspan="2">A/Pos</th><th rowspan="2">T/Pos</th><th rowspan="2">Remark</th><th rowspan="2">Pol/Phase</th></tr><tr><th>Loss</th><th>Factor</th><th>Factor</th></tr></thead><tbody><tr><td>1</td><td>1966.54</td><td>37.53</td><td>74.00</td><td>-36.47</td><td>40.03</td><td>4.58</td><td>26.05</td><td>33.13</td><td>101</td><td>352 Peak</td><td>VERTICAL</td></tr><tr><td>2</td><td>1970.22</td><td>29.21</td><td>54.00</td><td>-24.79</td><td>31.70</td><td>4.58</td><td>26.06</td><td>33.13</td><td>101</td><td>352 Average</td><td>VERTICAL</td></tr><tr><td>3</td><td>2137.49</td><td>40.30</td><td>74.00</td><td>-33.70</td><td>42.22</td><td>4.78</td><td>26.49</td><td>33.19</td><td>118</td><td>209 Peak</td><td>VERTICAL</td></tr><tr><td>4</td><td>2138.85</td><td>29.08</td><td>54.00</td><td>-24.92</td><td>31.00</td><td>4.78</td><td>26.49</td><td>33.19</td><td>118</td><td>209 Average</td><td>VERTICAL</td></tr><tr><td>5</td><td>3710.95</td><td>41.61</td><td>74.00</td><td>-32.39</td><td>40.36</td><td>5.73</td><td>29.16</td><td>33.64</td><td>110</td><td>189 Peak</td><td>VERTICAL</td></tr><tr><td>6</td><td>3714.45</td><td>33.51</td><td>54.00</td><td>-20.49</td><td>32.26</td><td>5.73</td><td>29.16</td><td>33.64</td><td>110</td><td>189 Average</td><td>VERTICAL</td></tr><tr><td>7</td><td>4840.83</td><td>41.89</td><td>74.00</td><td>-32.11</td><td>39.73</td><td>6.21</td><td>29.68</td><td>33.73</td><td>132</td><td>244 Peak</td><td>VERTICAL</td></tr><tr><td>8</td><td>4841.98</td><td>32.08</td><td>54.00</td><td>-21.92</td><td>29.92</td><td>6.21</td><td>29.68</td><td>33.73</td><td>132</td><td>244 Average</td><td>VERTICAL</td></tr><tr><td>9</td><td>6807.30</td><td>36.44</td><td>54.00</td><td>-17.56</td><td>27.30</td><td>8.47</td><td>34.90</td><td>34.23</td><td>100</td><td>3 Average</td><td>VERTICAL</td></tr><tr><td>10</td><td>6809.63</td><td>45.48</td><td>74.00</td><td>-28.52</td><td>36.34</td><td>8.47</td><td>34.90</td><td>34.23</td><td>100</td><td>3 Peak</td><td>VERTICAL</td></tr><tr><td>11</td><td>11835.41</td><td>55.93</td><td>74.00</td><td>-18.67</td><td>39.12</td><td>12.58</td><td>39.20</td><td>34.97</td><td>121</td><td>182 Peak</td><td>VERTICAL</td></tr><tr><td>12</td><td>11836.98</td><td>42.82</td><td>54.00</td><td>-11.18</td><td>26.01</td><td>12.58</td><td>39.20</td><td>34.97</td><td>121</td><td>182 Average</td><td>VERTICAL</td></tr></tbody></table>													Freq MHz	Level dBuV/m	Limit Line	Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Remark	Pol/Phase	Loss	Factor	Factor	1	1966.54	37.53	74.00	-36.47	40.03	4.58	26.05	33.13	101	352 Peak	VERTICAL	2	1970.22	29.21	54.00	-24.79	31.70	4.58	26.06	33.13	101	352 Average	VERTICAL	3	2137.49	40.30	74.00	-33.70	42.22	4.78	26.49	33.19	118	209 Peak	VERTICAL	4	2138.85	29.08	54.00	-24.92	31.00	4.78	26.49	33.19	118	209 Average	VERTICAL	5	3710.95	41.61	74.00	-32.39	40.36	5.73	29.16	33.64	110	189 Peak	VERTICAL	6	3714.45	33.51	54.00	-20.49	32.26	5.73	29.16	33.64	110	189 Average	VERTICAL	7	4840.83	41.89	74.00	-32.11	39.73	6.21	29.68	33.73	132	244 Peak	VERTICAL	8	4841.98	32.08	54.00	-21.92	29.92	6.21	29.68	33.73	132	244 Average	VERTICAL	9	6807.30	36.44	54.00	-17.56	27.30	8.47	34.90	34.23	100	3 Average	VERTICAL	10	6809.63	45.48	74.00	-28.52	36.34	8.47	34.90	34.23	100	3 Peak	VERTICAL	11	11835.41	55.93	74.00	-18.67	39.12	12.58	39.20	34.97	121	182 Peak	VERTICAL	12	11836.98	42.82	54.00	-11.18	26.01	12.58	39.20	34.97	121	182 Average	VERTICAL
Freq MHz	Level dBuV/m	Limit Line	Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Remark	Pol/Phase																																																																																																																																																																
					Loss	Factor	Factor																																																																																																																																																																				
1	1966.54	37.53	74.00	-36.47	40.03	4.58	26.05	33.13	101	352 Peak	VERTICAL																																																																																																																																																																
2	1970.22	29.21	54.00	-24.79	31.70	4.58	26.06	33.13	101	352 Average	VERTICAL																																																																																																																																																																
3	2137.49	40.30	74.00	-33.70	42.22	4.78	26.49	33.19	118	209 Peak	VERTICAL																																																																																																																																																																
4	2138.85	29.08	54.00	-24.92	31.00	4.78	26.49	33.19	118	209 Average	VERTICAL																																																																																																																																																																
5	3710.95	41.61	74.00	-32.39	40.36	5.73	29.16	33.64	110	189 Peak	VERTICAL																																																																																																																																																																
6	3714.45	33.51	54.00	-20.49	32.26	5.73	29.16	33.64	110	189 Average	VERTICAL																																																																																																																																																																
7	4840.83	41.89	74.00	-32.11	39.73	6.21	29.68	33.73	132	244 Peak	VERTICAL																																																																																																																																																																
8	4841.98	32.08	54.00	-21.92	29.92	6.21	29.68	33.73	132	244 Average	VERTICAL																																																																																																																																																																
9	6807.30	36.44	54.00	-17.56	27.30	8.47	34.90	34.23	100	3 Average	VERTICAL																																																																																																																																																																
10	6809.63	45.48	74.00	-28.52	36.34	8.47	34.90	34.23	100	3 Peak	VERTICAL																																																																																																																																																																
11	11835.41	55.93	74.00	-18.67	39.12	12.58	39.20	34.97	121	182 Peak	VERTICAL																																																																																																																																																																
12	11836.98	42.82	54.00	-11.18	26.01	12.58	39.20	34.97	121	182 Average	VERTICAL																																																																																																																																																																