

Report No.: FR732918AC

FCC Test Report

Equipment : Secured Wireless Access Point

Brand Name : Fortinet Inc.

Model No. : FORTIAP-U24JEVxxxxxx, FAP-U24JEVxxxxxx

FCC ID : TVE-121C01

Standard : 47 CFR FCC Part 15.247

Operating Band : 2400 MHz - 2483.5 MHz

Function : | Point-to-multipoint; | Point-to-point

Applicant : Fortinet Inc.

899 Kifer Road, Sunnyvale, CA 94086, USA

Manufacturer : Universal Global Scientific Industrial Co., Ltd.

141, Lane 351, Sec. 1, Taiping Road, Tsaotuen,

Nantou 54261, Taiwan

The product sample received on Apr. 07, 2017 and completely tested on Oct. 11, 2017. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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

Phoenix Chen / Assistant Manager

Iac-MRA



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PHOTOGRAPHS OF EUT V01

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Summary of Test Result

	Conformance Test Specifications							
Report Clause	Ref. Std. Clause	Description	Limit	Result				
1.1.2	15.203	Antenna Requirement	FCC 15.203	Complied				
3.1	15.207	AC Power-line Conducted Emissions	FCC 15.207	Complied				
3.2	15.247(a)	DTS Bandwidth	≥500kHz	Complied				
3.3	15.247(b)	Maximum Conducted Output Power	Power [dBm]:30	Complied				
3.4	15.247(e)	Power Spectral Density	PSD [dBm/3kHz]:8	Complied				
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	Non-Restricted Bands: > 30 dBc	Complied				
3.6	15.247(d)	Emissions in Restricted Frequency Bands	Restricted Bands: FCC 15.209	Complied				

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Revision History

Report No.	Version	Description	Issued Date
FR732918AC	Rev. 01	Initial issue of report	Jan. 08, 2018

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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)	2412-2462	1-11 [11]
2400-2483.5	n (HT40)	2422-2452	3-9 [7]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11b	20	2TX
2.4-2.4835GHz	802.11g	20	2TX
2.4-2.4835GHz	802.11n HT20	20	2TX
2.4-2.4835GHz	802.11n HT40	40	2TX

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.
- BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Port	Brand Model Name		Antenna Type	Connector
1	1	Aristotle RFA-25-AP375-70B-72		PIFA Antenna	I-PEX
2	2	Aristotle	RFA-25-AP513B-70B-56	PIFA Antenna	I-PEX
3	1	Aristotle	RFA-BT-AP375-70-105	PIFA Antenna	I-PEX

A 4	Gain (dBi)							
Ant.	2.4G	5G	ВТ					
1	4	4	-					
2	1.41	3.77	-					
3	-	-	3.2					

Note 1: The EUT has three antennas.

For 2.4GHz function:

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

Ant. 1 (port 1) and Ant. 2 (port 2) could transmit/receive simultaneously.

For 5GHz function:

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

Ant. 1 (port 1) and Ant. 2 (port 2) could transmit/receive simultaneously.

For BT function:

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For BT-LE/BR/EDR (1TX/1RX)

Only Ant. 3 (port 1) can be used as transmitting/receiving antenna.

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1.1.3 EUT Information

					Identify	EU	т
RF	chip		BCI	M47452			
				Oper	ational	Coı	ndition
EU	Γ Power T	уре	Fro	m AC Adapter			
Bea	amforming	g Function		With beamform	ing [\boxtimes	Without beamforming
					Type of	EU	т
	Stand-alo	ne					
	Combine	d (EUT where	e the	radio part is full	y integra	ated	within another device)
	Combine	d Equipment	- Bra	and Name / Mod	el No.:		
	Plug-in radio (EUT intended for a variety of host systems)						
	Host System - Brand Name / Model No.:						
	Other:						

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11b	0.998	0.009	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11g	0.985	0.066	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11n HT20	0.985	0.066	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11n HT40	0.79	1.024	912.5u	3k

1.1.5 Table for Multiple Listing

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

Model Name	Description
FORTIAP-U24JEVxxxxxx	Where "x" can be used as "A-Z", or "-0-9", or "-", or blank for
FAP-U24JEVxxxxxx	software changes or marking purposes only.

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1.2 Testing Applied Standards

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

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- 47 CFR FCC Part 15
- ANSI C63.10-2013
- KDB 558074 D01 v04
- KDB 662911 D01 v02r01

1.3 Testing Location Information

	Testing Location						
\boxtimes	HWA YA	ADD) : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)				
	TEL: 886-3-327-3456 FAX: 886-3-327-0973						
				Test site Designation	on No. TW1190 with FCC.		
	JHUBEI	ADD	:	No.8, Ln. 724, Bo'ai St.	, Zhubei City, Hsinchu County, Taiwan (R.O.C.)		
	TEL: 886-3-656-9065 FAX: 886-3-656-9085						
	Test site Designation No. TW0006 with FCC.						

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Gary	21°C / 61%	19/Apr/2017
Radiated	03CH09-HY	Jeff	20.9°C / 58%	28/Apr/2017
AC Conduction	CO04-HY	Eric	20.9°C / 58%	11/Oct/2017

1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	2.1 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	2.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	2.9 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%

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2 Test Configuration of EUT

2.1 Test Condition

RF Conducted	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	120V

2.2 Test Channel Mode

Test Software Version	accessMTool_REL_3_0_0_2
-----------------------	-------------------------

Mode	Power Setting
802.11b_(1Mbps)_2TX	-
2412MHz	78
2437MHz	80
2462MHz	74
802.11g_(6Mbps)_2TX	-
2412MHz	64
2437MHz	76
2462MHz	67
802.11n HT20_Nss1,(MCS0)_2TX	-
2412MHz	69
2437MHz	78
2462MHz	68
802.11n HT40_Nss1,(MCS0)_2TX	-
2422MHz	66
2437MHz	71
2452MHz	63

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2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests		
Tests Item AC power-line conducted emissions		
Condition AC power-line conducted measurement for line and neutral		
Operating Mode	СТХ	
1	Adapter mode	

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 Band	ds	
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	СТХ		
1	Adapter mode		
Operating Mode > 1GHz	CTX		
	Y Plane	Z Plane	
Orthogonal Planes of EUT			
Worst Planes of EUT	V		

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

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The Worst Case Mode for Following Conformance Tests			
Tests Item Simultaneous Transmission Analysis			
Operating Mode Normal Link			
1	Bluetooth+WLAN 2.4GHz+WLAN 5GHz		
Refer to Sporton Test Report No.: FA732918 for Co-location RF Exposure Evaluation.			

2.4 Support Equipment

	Support Equipment - RF Conducted					
No.	o. Equipment Brand Name Model Name FCC ID					
1	Notebook	DELL	E5410	DoC		
2	Adapter for NB	DELL	HA65NM130	DoC		
3	AC Source	G.W	APS-9102	-		

	Support Equipment – Radiated Emission			
No.	Equipment	Brand Name	Model Name	FCC ID
1	AC adapter	UMEC	UP0451H-54PP	-

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

	Support Equipment – AC Conduction			
No.	No. Equipment Brand Name Model Name FCC ID			
1	AC adapter	UMEC	UP0451H-54PP	-

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

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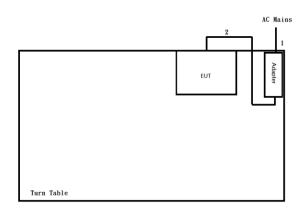
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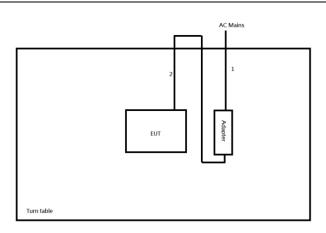
2.5 **Test Setup Diagram**

Test Setup Diagram - AC Line Conducted Emission Test



Item	Connection	Shielded	Length(m)	Remark	
1	AC power line	No	1.7	-	
2	DC power line	No	1.2	-	

Test Setup Diagram - Radiated Test



Item	Connection	onnection Shielded Length(m)		Remark
1	AC power line	No	1.7	-
2	DC power line	No	1.2	-

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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	

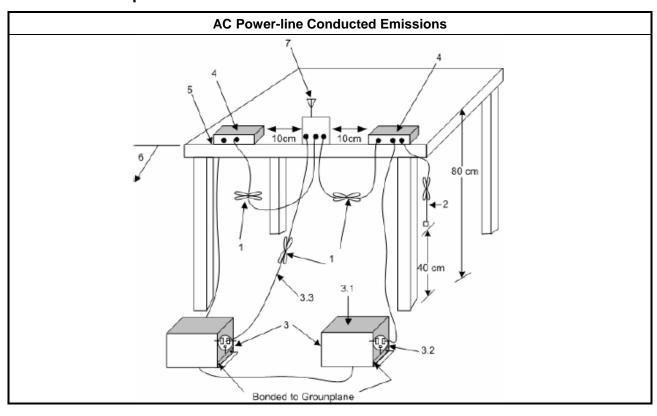
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

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3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit				
Systems using digital modulation techniques:				
■ 6 dB bandwidth ≥ 500 kHz.				

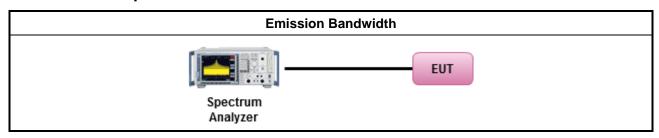
3.2.2 Measuring Instruments

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:				
	Refer as KDB 558074, clause 8.1 Option 1 for 6 dB bandwidth measurement.				
	Refer as KDB 558074, clause 8.2 Option 2 for 6 dB bandwidth measurement.				
Refer as RSS-Gen, clause 6.6 for for occupied bandwidth testing.					
	Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.				

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

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3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

ximum Conducted Output Power Limit				
•	 If G_{TX} ≤ 6 dBi, then P_{Out} ≤ 30 dBm (1 W) Point-to-multipoint systems (P2M): If G_{TX} > 6 dBi, then P_{Out} = 30 - (G_{TX} - 6) dBm 			
•				
•	Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm			
■ Smart antenna system (SAS):				
	- 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 $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm			
.r.p. l	Power Limit:			
240	2400-2483.5 MHz Band			
•	 Point-to-multipoint systems (P2M): P_{eirp} ≤ 36 dBm (4 W) 			
•	■ Point-to-point systems (P2P): $P_{eirp} \le MAX(36, [P_{Out} + G_{TX}]) dBm$			
•	Smart antenna system (SAS)			
	- Single beam: P _{eirp} ≤ MAX(36, P _{Out} + G _{TX}) dBm			
	- Overlap beam: P _{eirp} ≤ MAX(36, P _{Out} + G _{TX}) dBm			
\neg	- Aggregate power on all beams: P _{eirp} ≤ MAX(36, [P _{Out} + G _{TX} + 8]) dBm			

3.3.2 Measuring Instruments

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

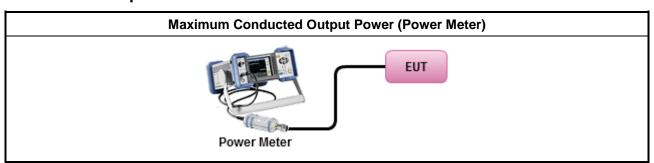
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3.3.3 Test Procedures

	Test Method		
•	Maximum Peak Conducted Output Power		
	☐ Refer as KDB 558074, clause 9.1.1 Option 1 (RBW ≥ EBW method).		
	Refer as KDB 558074, clause 9.1.2 Option 2 (integrated band power method)		
	☐ Refer as KDB 558074, clause 9.1.3 Option 3 (peak power meter for VBW ≥ DTS BW)		
•	Maximum Average Conducted Output Power		
	Duty cycle ≥ 98%		
	Refer as KDB 558074, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).		
	Duty cycle < 98%		
Refer as KDB 558074, clause 9.2.2.5 Method AVGSA-2 Alt. (slow sweep speed)			
	RF power meter and average over on/off periods with duty factor or gated trigger		
	Refer as KDB 558074, clause 9.2.3.1 Method AVGPM (using an RF average power meter).		
•	For conducted measurement.		
	If the EUT supports multiple transmit chains using options given below: Refer as KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.		
	■ If multiple transmit chains, EIRP calculation could be following as methods: P _{total} = P ₁ + P ₂ + + P _n (calculated in linear unit [mW] and transfer to log unit [dBm]) EIRP _{total} = P _{total} + DG		

Test Setup 3.3.4



Test Result of Maximum Conducted Output Power

Refer as Appendix C

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3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit

Power Spectral Density (PSD) ≤ 8 dBm/3kHz

3.4.2 Measuring Instruments

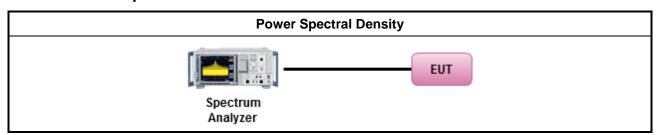
Refer a test equipment and calibration data table in this test report.

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).
 - Refer as KDB 558074, clause 10.2 Method PKPSD (RBW=3-100kHz; Detector=peak).
- For conducted measurement.
 - If The EUT supports multiple transmit chains using options given below:
 - Measure and sum the spectra across the outputs. Refer as KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

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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.

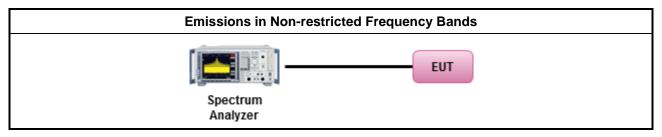
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

	Test Method
•	Refer as 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

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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 (
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300				
0.490~1.705 24000/F(kHz) 1.705~30.0 30 30~88 100		33.8 - 23	30				
		29	30				
		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.

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3.6.3 Test Procedures

Test Method

- The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
- Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
- For the transmitter unwanted emissions shall be measured using following options below:
 - Refer as KDB 558074, clause 12 for unwanted emissions into restricted bands.
 - Refer as KDB 558074, clause 12.2.5.3 (ANSI C63.10, clause 4.1.4.2.3), Reduced VBW≥1/T.
 - Refer as 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 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 KDB 558074, clause 13.2 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.
 - Refer as 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 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 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.

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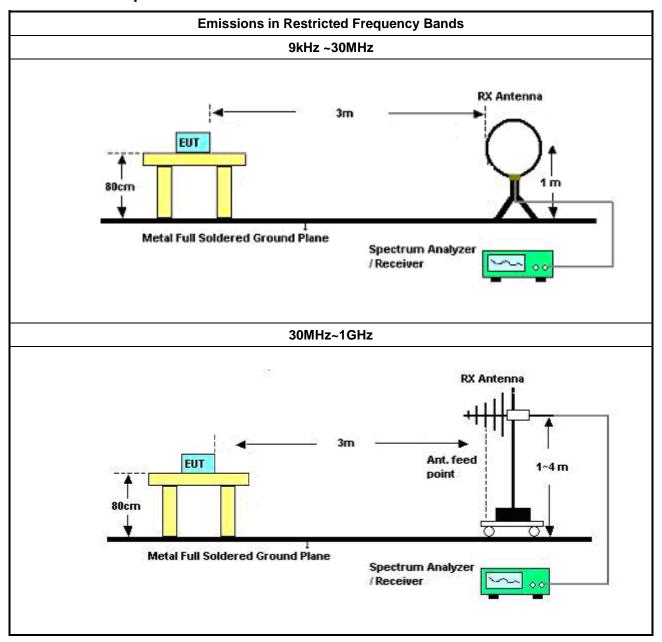
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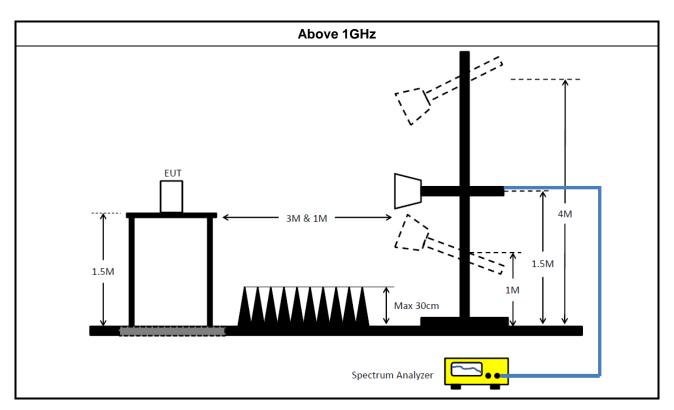


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Test Setup 3.6.4



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3.6.5 Test Result of Emissions in Restricted Frequency Bands (Below 30MHz)

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

3.6.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

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4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR3	102052	9KHz ~ 3.6GHz	29/Apr/2017	28/Apr/2018
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	15/Nov/2017	14/Nov/2018
RF Cable-CON	HUBER+SUHN ER	RG213/U	07611832020001	9kHz ~ 30MHz	24/Oct/2016	23/Oct/2017
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	R&S	ESH3-Z2	100921	10 kHz ~ 30 MHz	21/Oct/2016	20/Oct/2017

NCR : Non-Calibration Require

Instrument for Radiated Test

Instrument	Manufacturer	nufacturer Model No. Serial No. Spec.		Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz	21/Jun/2016	20/Jun/2017
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz 21/Jun/2		20/Jun/2017
Amplifier	Agilent	8449B	3008A02096	1GHz ~ 26.5GHz	11/Apr/2017	10/Apr/2018
Amplifier	EMC	EMC9135	980209	9kHz~1GHz	05/Sep/2016	04/Sep/2017
Receiver	R&S	ESU-26	100422/026	20Hz ~ 26.5GHz	21/Sep/2016	20/Sep/2017
Spectrum Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz ~ 44GHz	04/Jul/2016	03/Jul/2017
Bilog Antenna	TESEQ	CBL 6111D	35418	30MHz~1GHz	01/Oct/2016	30/Sep/2017
Horn Antenna	SCHWARZBECK	BBHA 9120D	BBHA9120D 1534	1GHz~18GHz	28/Apr/2017	27/Apr/2018
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170614	18GHz ~ 40GHz	06/Feb/2017	05/Feb/2018
Loop Antenna	R&S	HFH2-Z2	100330	9 kHz~30 MHz	10/Nov/2016	09/Nov/2017
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	23/Jul/2016	22/Jul/2017
RF Cable-high	Jye Bao	RG142	03CH09-HY	1GHz ~ 40GHz	23/Jul/2016	22/Jul/2017

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FCC Test Report

Instrument for Conducted Test

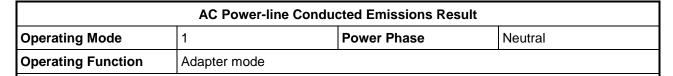
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101500	10Hz~40GHz	12/May/2016	11/May/2017
Power Sensor	Anritsu	MA2411B	1027452	300MHz ~ 40GHz	24/Feb/2017	23/Feb/2018
Power Meter	Anritsu	ML2495A	1124009	300MHz ~ 40GHz	24/Feb/2017	23/Feb/2018
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	21/Jul/2016	20/Jul/2017
RF Cable-0.2m	HUBER+ SUHNER	SUCOFLEX_104	MY677/3	30MHz ~ 26.5GHz	02/Oct/2016	01/Oct/2017
RF Cable-0.2m	HUBER+ SUHNER	SUCOFLEX_104	MY678/3	30MHz ~ 26.5GHz	02/Oct/2016	01/Oct/2017
RF Cable-0.5m	HUBER+ SUHNER	SUCOFLEX_104	MY10717/4	30MHz ~ 26.5GHz	02/Oct/2016	01/Oct/2017

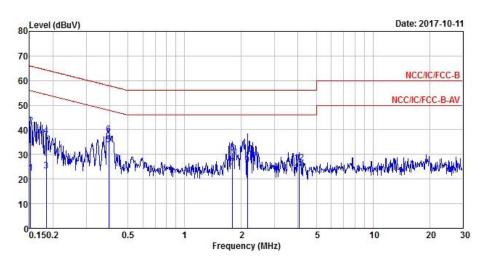
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			0ver	Limit	Read	LISN	Cable	
	Freq	Level	Limit	Line	Level	Factor	Loss	Remark
39	MHz	dBuV	dB	dBuV	dBuV	dB	dB	99 9
1	0.15240	22.50	-33.37	55.87	12.90	9.60	0.00	Average
2	0.15240	41.55	-24.32	65.87	31.95	9.60	0.00	QP
3	0.18443	23.21	-31.07	54.28	13.56	9.65	0.00	Average
4	0.18443	37.54	-26.74	64.28	27.89	9.65	0.00	QP
5 MAX	0.39553	33.82	-14.13	47.95	24.19	9.63	0.00	Average
6	0.39553	37.95	-20.00	57.95	28.32	9.63	0.00	QP
7	1.80001	24.93	-21.07	46.00	15.29	9.64	0.00	Average
8	1.80001	30.58	-25.42	56.00	20.94	9.64	0.00	QP
9	2.15531	25.68	-20.32	46.00	16.02	9.66	0.00	Average
10	2.15531	30.02	-25.98	56.00	20.36	9.66	0.00	QP
11	4.04885	22.73	-23.27	46.00	13.02	9.71	0.00	Average
12	4.04885	26.44	-29.56	56.00	16.73	9.71	0.00	QP

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.)

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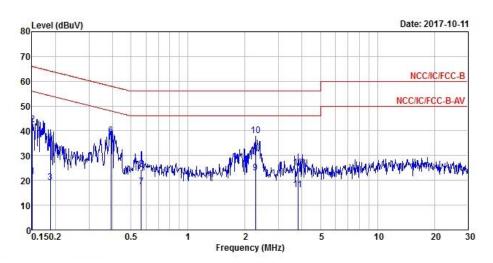
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AC Power-line Conducted Emissions Result							
Operating Mode	1	Power Phase	Line				
Operating Function	Adapter mode						



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
9,	MHz	dBuV	dB	dBuV	dBuV	dB	dB	÷
1	0.15080	21.54	-34.42	55.96	11.88	9.66	0.00	Average
2	0.15080	42.51	-23.45	65.96	32.85	9.66	0.00	QP
3	0.18739	19.31	-34.84	54.15	9.66	9.65	0.00	Average
4	0.18739	35.86	-28.29	64.15	26.21	9.65	0.00	QP
5 MAX	0.39136	37.22	-10.81	48.03	27.54	9.68	0.00	Average
6	0.39136	38.18	-19.85	58.03	28.50	9.68	0.00	QP
7	0.56709	17.43	-28.57	46.00	7.77	9.66	0.00	Average
8	0.56709	24.44	-31.56	56.00	14.78	9.66	0.00	QP
9	2.27258	23.09	-22.91	46.00	13.30	9.79	0.00	Average
10	2.27258	38.07	-17.93	56.00	28.28	9.79	0.00	QP
11	3.79944	16.32	-29.68	46.00	6.55	9.77	0.00	Average
12	3.79944	25.07	-30.93	56.00	15.30	9.77	0.00	QP

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.)

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Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
802.11b_(1Mbps)_2TX	-	-	-	-	-
2.4-2.4835GHz	8M	13.393M	13M4G1D	7.05M	12.044M
802.11g_(6Mbps)_2TX	-	-	-	-	-
2.4-2.4835GHz	15.45M	16.567M	16M6D1D	12.375M	16.367M
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-
2.4-2.4835GHz	15.4M	17.691M	17M7D1D	14.975M	17.566M
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-
2.4-2.4835GHz	35.15M	35.782M	35M8D1D	34.95M	35.582M

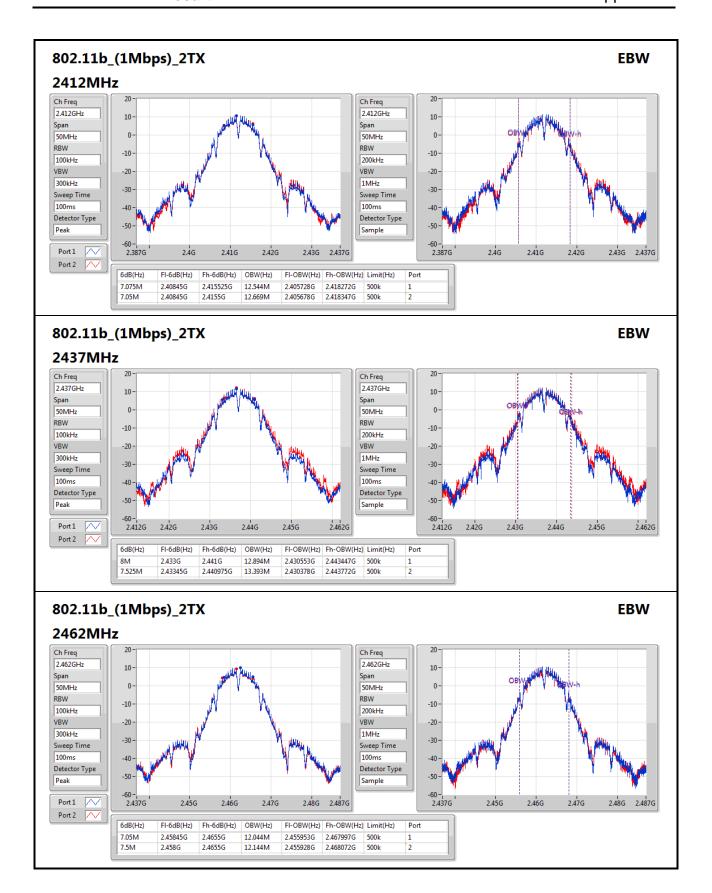
Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth; **Min-N dB** = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

Result

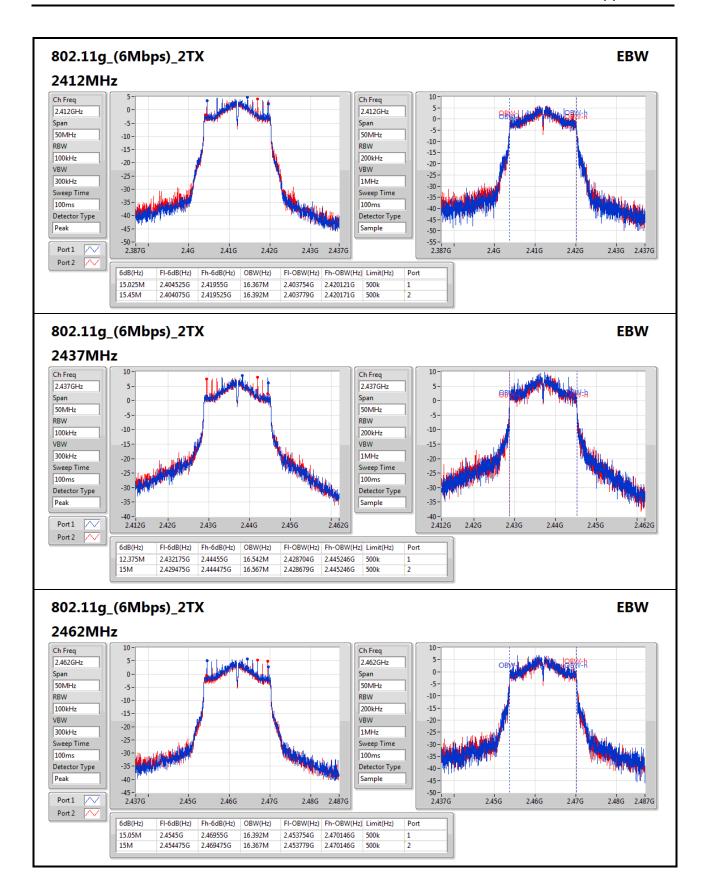
Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11b_(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	7.075M	12.544M	7.05M	12.669M
2437MHz	Pass	500k	8M	12.894M	7.525M	13.393M
2462MHz	Pass	500k	7.05M	12.044M	7.5M	12.144M
802.11g_(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	15.025M	16.367M	15.45M	16.392M
2437MHz	Pass	500k	12.375M	16.542M	15M	16.567M
2462MHz	Pass	500k	15.05M	16.392M	15M	16.367M
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	14.975M	17.566M	15.2M	17.591M
2437MHz	Pass	500k	15.175M	17.691M	15.125M	17.666M
2462MHz	Pass	500k	15.1M	17.566M	15.4M	17.591M
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	35.15M	35.582M	35.1M	35.632M
2437MHz	Pass	500k	35.1M	35.732M	35.05M	35.782M
2452MHz	Pass	500k	34.95M	35.582M	35.1M	35.732M

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

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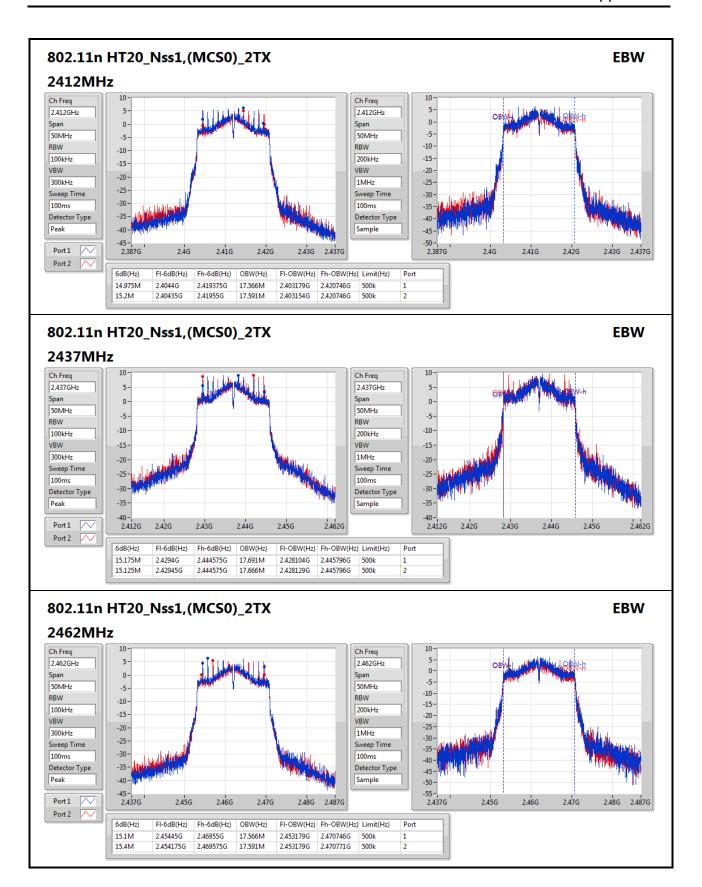
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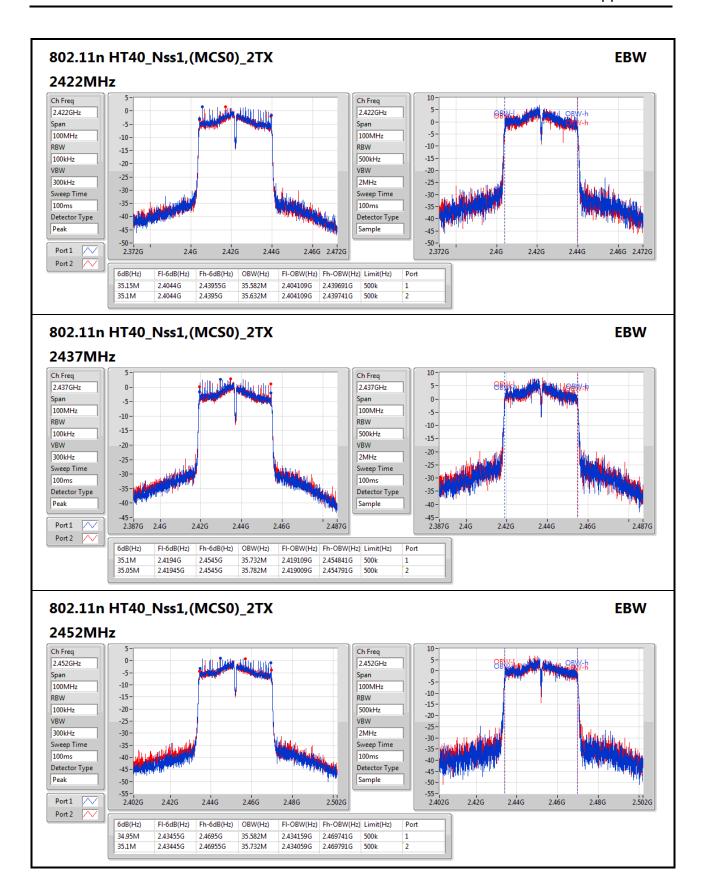
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AV Power Result Appendix C

Summary

Mode	Total Power	Total Power
	(dBm)	(W)
802.11b_(1Mbps)_2TX	-	-
2.4-2.4835GHz	22.76	0.18880
802.11g_(6Mbps)_2TX	-	-
2.4-2.4835GHz	22.16	0.16444
802.11n HT20_Nss1,(MCS0)_2TX	-	-
2.4-2.4835GHz	21.83	0.15241
802.11n HT40_Nss1,(MCS0)_2TX	-	-
2.4-2.4835GHz	19.54	0.08995

Result

Mode	Result	DG	Port 1	Port 2	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
802.11b_(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	4.00	18.73	18.60	21.68	30.00
2437MHz	Pass	4.00	19.65	19.84	22.76	30.00
2462MHz	Pass	4.00	18.13	18.05	21.10	30.00
802.11g_(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	4.00	15.65	15.34	18.50	30.00
2437MHz	Pass	4.00	19.35	18.93	22.16	30.00
2462MHz	Pass	4.00	16.96	16.69	19.84	30.00
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	4.00	15.91	15.39	18.67	30.00
2437MHz	Pass	4.00	18.89	18.75	21.83	30.00
2462MHz	Pass	4.00	16.24	15.73	19.00	30.00
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	4.00	15.38	15.05	18.23	30.00
2437MHz	Pass	4.00	16.64	16.41	19.54	30.00
2452MHz	Pass	4.00	14.96	14.72	17.86	30.00

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

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Appendix D **PSD Result**

Summary

Mode	PD
	(dBm/RBW)
802.11b_(1Mbps)_2TX	-
2.4-2.4835GHz	-1.45
802.11g_(6Mbps)_2TX	-
2.4-2.4835GHz	-2.91
802.11n HT20_Nss1,(MCS0)_2TX	-
2.4-2.4835GHz	-2.76
802.11n HT40_Nss1,(MCS0)_2TX	-
2.4-2.4835GHz	-8.98

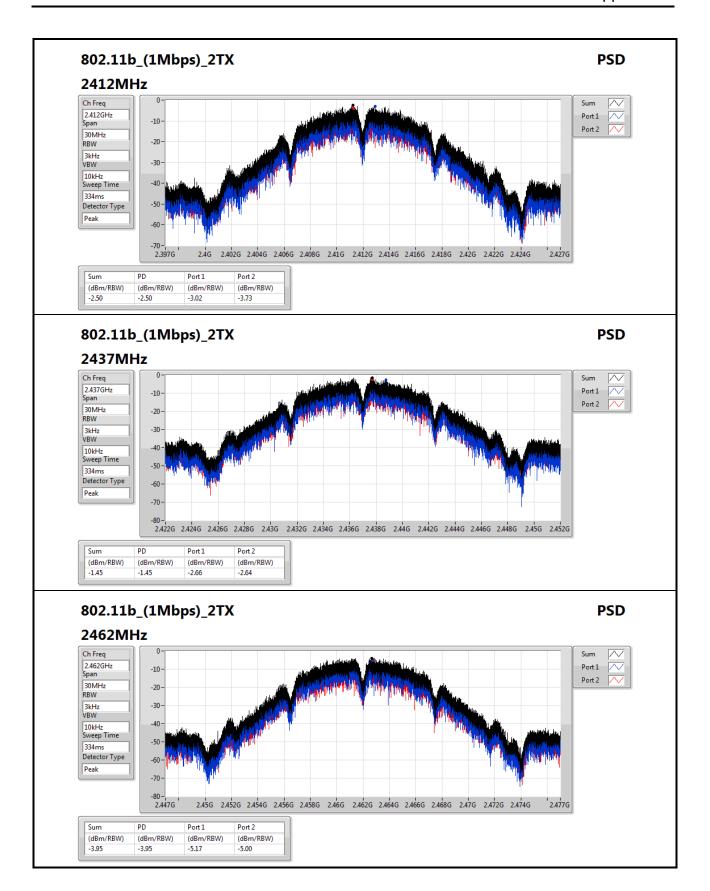
RBW=3kHz.

Result

Mode	Result	DG	Port 1	Port 2	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11b_(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.81	-3.02	-3.73	-2.50	8.00
2437MHz	Pass	5.81	-2.66	-2.64	-1.45	8.00
2462MHz	Pass	5.81	-5.17	-5.00	-3.95	8.00
802.11g_(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.81	-7.65	-9.07	-6.65	8.00
2437MHz	Pass	5.81	-4.48	-5.63	-2.91	8.00
2462MHz	Pass	5.81	-6.85	-6.86	-5.53	8.00
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.81	-7.74	-8.11	-5.74	8.00
2437MHz	Pass	5.81	-4.28	-3.39	-2.76	8.00
2462MHz	Pass	5.81	-7.28	-9.24	-6.63	8.00
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	5.81	-11.73	-11.37	-9.79	8.00
2437MHz	Pass	5.81	-10.54	-10.22	-8.98	8.00
2452MHz	Pass	5.81	-12.27	-11.13	-10.25	8.00

DG = Directional Gain; RBW=3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X power density;

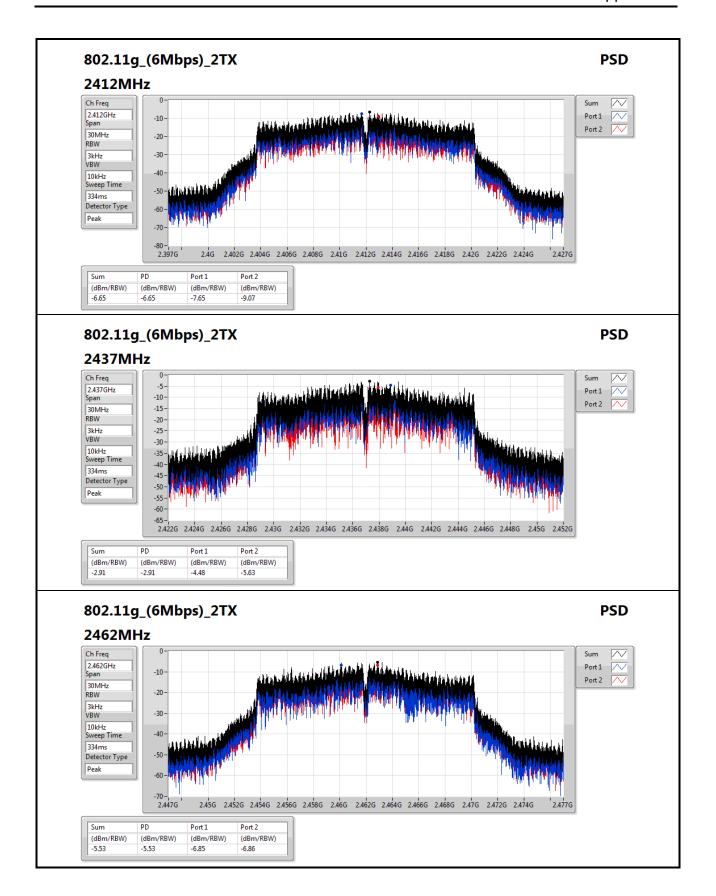
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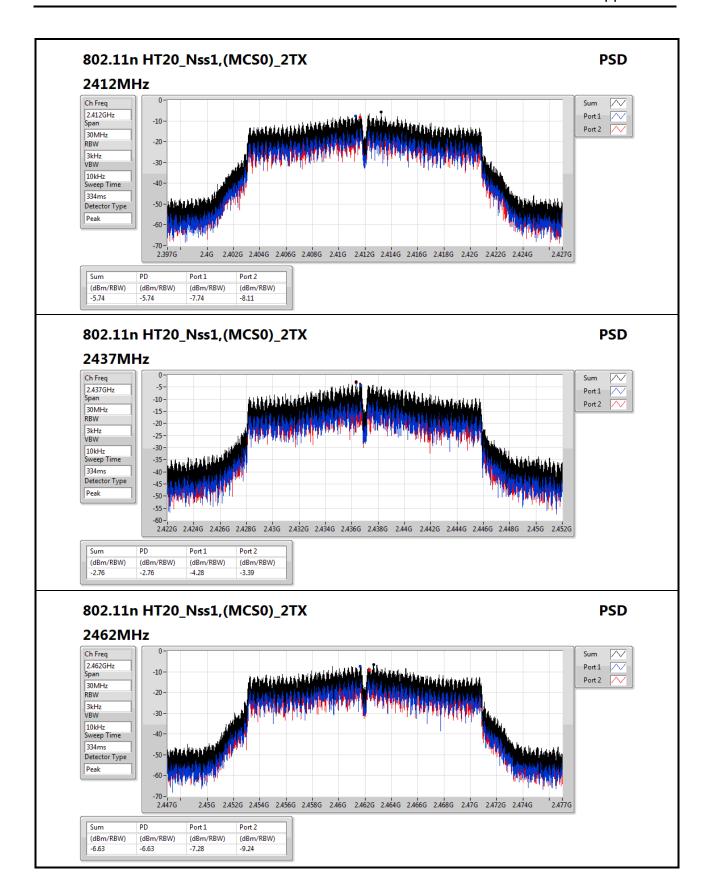
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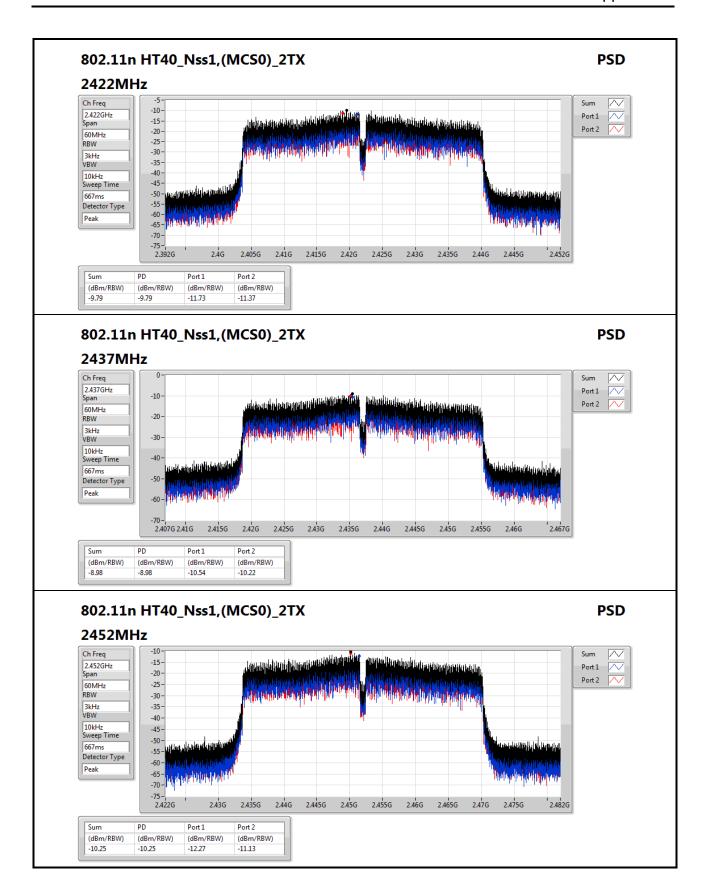
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CSE Non-restricted Band Result

Appendix E

Summary

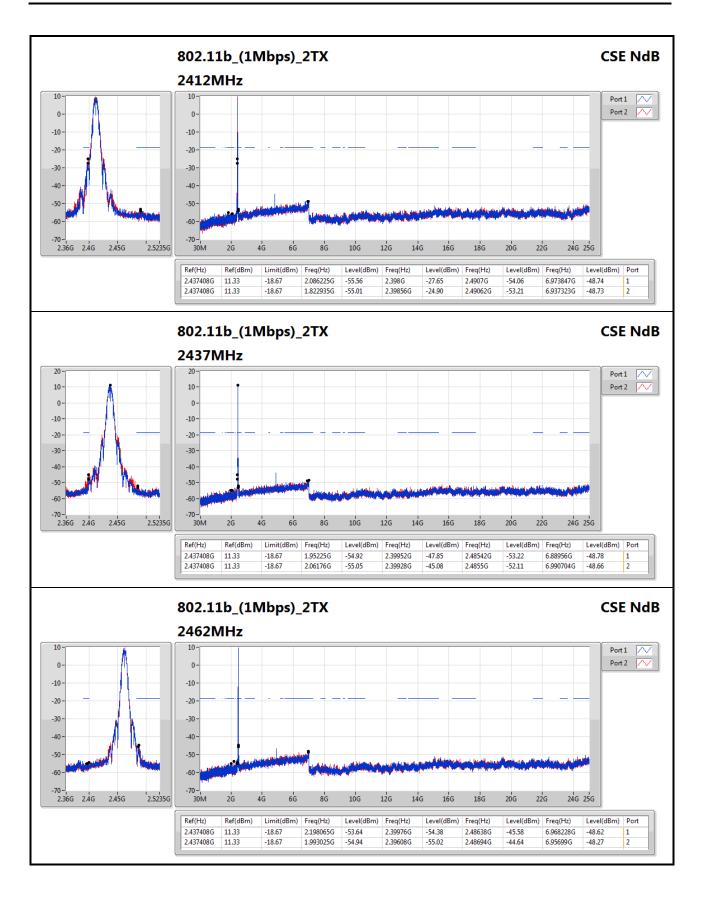
Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
802.11n HT40_Nss1,(MCS0)_2TX	-		-			-		-		-	-	-	-
2.4-2.4835GHz	Pass	2.431897G	2.90	-27.10	1.815055G	-55.23	2.39712G	-29.75	2.48526G	-45.87	6.980686G	-48.96	2

Result

Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
802.11b_(1Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.437408G	11.33	-18.67	2.086225G	-55.56	2.398G	-27.65	2.4907G	-54.06	6.973847G	-48.74	1
2412MHz	Pass	2.437408G	11.33	-18.67	1.822935G	-55.01	2.39856G	-24.90	2.49062G	-53.21	6.937323G	-48.73	2
2437MHz	Pass	2.437408G	11.33	-18.67	1.95225G	-54.92	2.39952G	-47.85	2.48542G	-53.22	6.88956G	-48.78	1
2437MHz	Pass	2.437408G	11.33	-18.67	2.06176G	-55.05	2.39928G	-45.08	2.4855G	-52.11	6.990704G	-48.66	2
2462MHz	Pass	2.437408G	11.33	-18.67	2.198065G	-53.64	2.39976G	-54.38	2.48638G	-45.58	6.968228G	-48.62	1
2462MHz	Pass	2.437408G	11.33	-18.67	1.993025G	-54.94	2.39608G	-55.02	2.48694G	-44.64	6.95699G	-48.27	2
802.11g_(6Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.438243G	8.58	-21.42	1.64003G	-54.31	2.3996G	-33.72	2.48678G	-52.85	6.903608G	-48.87	1
2412MHz	Pass	2.438243G	8.58	-21.42	1.8707G	-55.19	2.39984G	-31.20	2.48526G	-52.97	6.971037G	-47.38	2
2437MHz	Pass	2.438243G	8.58	-21.42	2.30874G	-54.87	2.39952G	-31.75	2.48374G	-40.28	6.993514G	-47.61	1
2437MHz	Pass	2.438243G	8.58	-21.42	2.144475G	-54.72	2.3992G	-30.41	2.48446G	-40.57	6.948561G	-48.61	2
2462MHz	Pass	2.438243G	8.58	-21.42	2.11069G	-54.51	2.39392G	-47.41	2.4851G	-33.71	6.999133G	-47.89	1
2462MHz	Pass	2.438243G	8.58	-21.42	1.848565G	-55.00	2.39872G	-44.09	2.4851G	-32.50	6.968228G	-48.34	2
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.430728G	8.94	-21.06	1.829925G	-55.08	2.39984G	-30.40	2.48398G	-52.80	6.971037G	-48.59	1
2412MHz	Pass	2.430728G	8.94	-21.06	1.7775G	-54.67	2.3992G	-30.19	2.49022G	-52.79	6.344505G	-48.53	2
2437MHz	Pass	2.430728G	8.94	-21.06	2.186415G	-54.36	2.39952G	-26.42	2.48598G	-39.75	6.948561G	-47.19	1
2437MHz	Pass	2.430728G	8.94	-21.06	2.186415G	-54.77	2.39984G	-30.79	2.48446G	-39.32	6.940132G	-47.88	2
2462MHz	Pass	2.430728G	8.94	-21.06	1.94526G	-55.15	2.39984G	-48.44	2.48422G	-35.66	6.934513G	-47.30	1
2462MHz	Pass	2.430728G	8.94	-21.06	1.769345G	-55.27	2.39984G	-46.95	2.48478G	-35.32	6.917656G	-48.90	2
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.431897G	2.90	-27.10	1.847115G	-53.81	2.39632G	-32.69	2.48798G	-45.71	6.9891G	-48.30	1
2422MHz	Pass	2.431897G	2.90	-27.10	1.815055G	-55.23	2.39712G	-29.75	2.48526G	-45.87	6.980686G	-48.96	2
2437MHz	Pass	2.431897G	2.90	-27.10	1.83452G	-54.26	2.39296G	-33.92	2.48494G	-38.90	6.947031G	-49.41	1
2437MHz	Pass	2.431897G	2.90	-27.10	2.302825G	-54.33	2.39952G	-32.13	2.48846G	-36.76	6.961054G	-48.19	2
2452MHz	Pass	2.431897G	2.90	-27.10	1.97192G	-54.79	2.39456G	-41.48	2.48382G	-37.28	6.916181G	-48.36	1
2452MHz	Pass	2.431897G	2.90	-27.10	1.78872G	-55.21	2.39984G	-41.07	2.48942G	-35.85	6.893745G	-49.14	2

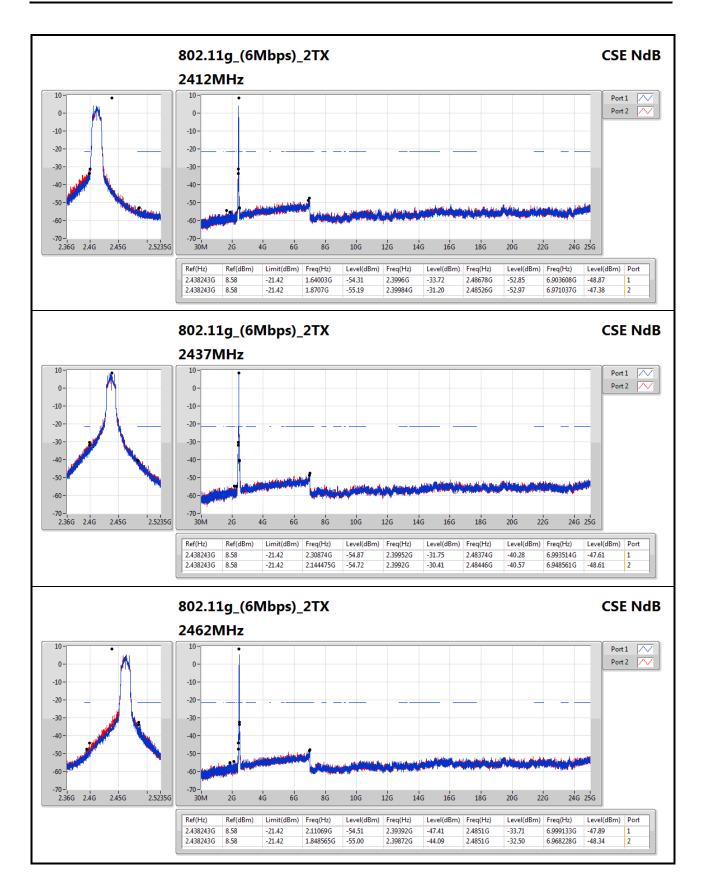
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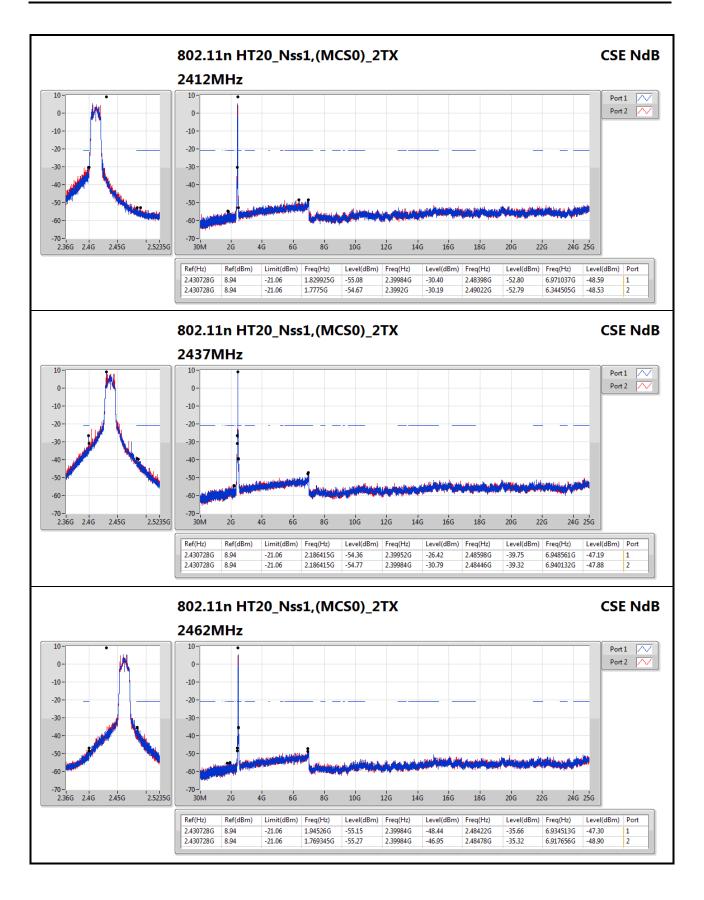
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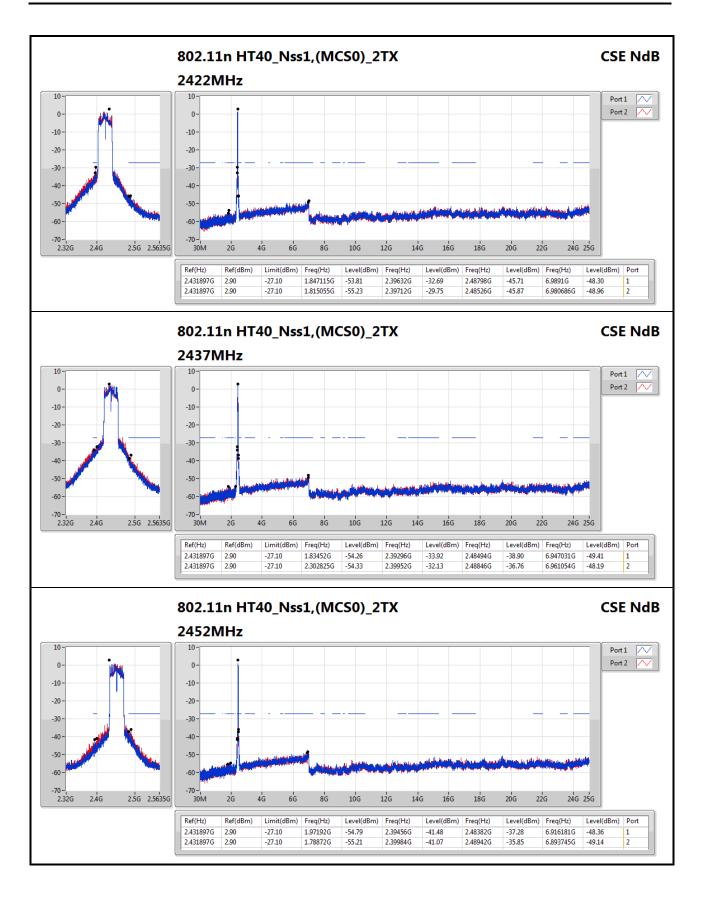
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RSE TX below 1GHz Result

Appendix F.1

732918

Summary

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Pol.	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)	(H/V)	(°)	(m)	
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	PK	37.76M	39.60	40.00	-0.40	-13.67	3	V	151	1.00	-

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RSE TX below 1GHz Result

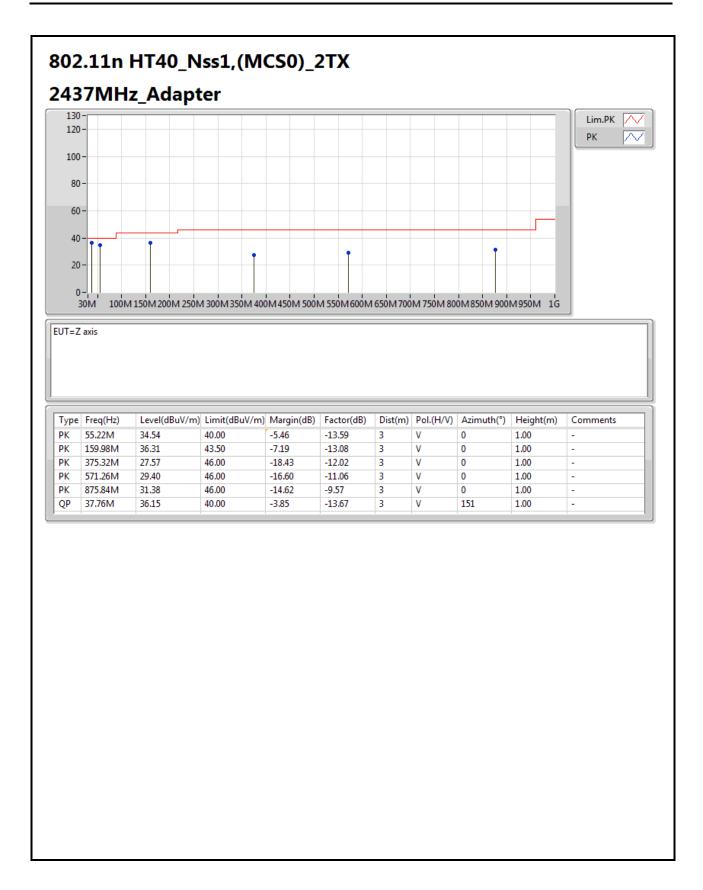
Appendix F.1

Result

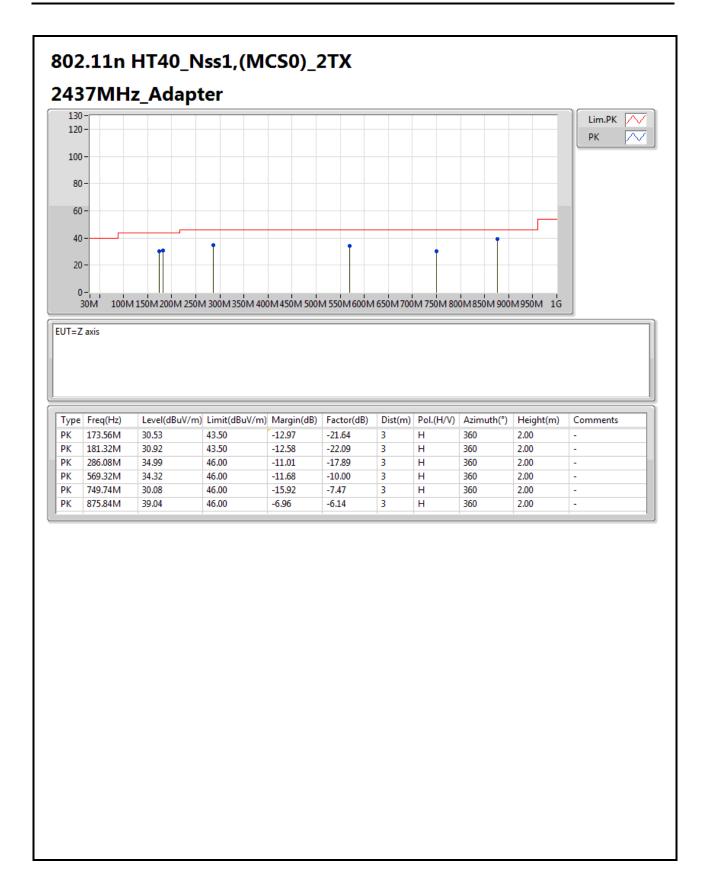
Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Pol.	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)	(H/V)	(°)	(m)	
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-
2437MHz	Pass	PK	173.56M	30.53	43.50	-12.97	-21.64	3	Н	360	2.00	-
2437MHz	Pass	PK	181.32M	30.92	43.50	-12.58	-22.09	3	Н	360	2.00	-
2437MHz	Pass	PK	286.08M	34.99	46.00	-11.01	-17.89	3	Н	360	2.00	-
2437MHz	Pass	PK	569.32M	34.32	46.00	-11.68	-10.00	3	Н	360	2.00	-
2437MHz	Pass	PK	749.74M	30.08	46.00	-15.92	-7.47	3	Н	360	2.00	-
2437MHz	Pass	PK	875.84M	39.04	46.00	-6.96	-6.14	3	Н	360	2.00	-
2437MHz	Pass	PK	55.22M	34.54	40.00	-5.46	-13.59	3	V	0	1.00	-
2437MHz	Pass	PK	159.98M	36.31	43.50	-7.19	-13.08	3	V	0	1.00	-
2437MHz	Pass	PK	375.32M	27.57	46.00	-18.43	-12.02	3	V	0	1.00	-
2437MHz	Pass	PK	571.26M	29.40	46.00	-16.60	-11.06	3	V	0	1.00	-
2437MHz	Pass	PK	875.84M	31.38	46.00	-14.62	-9.57	3	V	0	1.00	-
2437MHz	Pass	QP	37.76M	36.15	40.00	-3.85	-13.67	3	V	151	1.00	-

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Appendix F.2

732918

Summary

Mode	Result	Туре	Freq	Level	Limit (dBuV/m)	Margin	Factor	Dist	Pol.	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(aBuv/m)	(dB)	(dB)	(m)	(H/V)	(*)	(m)	
802.11g_(6Mbps)_2TX	-	-	T.	-	-	1	-	-	1	-	1	-
2.4-2.4835GHz	Pass	AV	2.3894G	53.84	54.00	-0.16	31.19	3	Н	115	1.14	-

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Appendix F.2

Result

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Pol.	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)	(H/V)	(°)	(m)	
802.11b_(1Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	AV	2.3858G	53.04	54.00	-0.96	31.18	3	Н	265	1.48	-
2412MHz	Pass	AV	2.411G	104.44	Inf	-Inf	31.27	3	Н	265	1.48	-
2412MHz	Pass	PK	2.3868G	60.66	74.00	-13.34	31.18	3	Н	265	1.48	-
2412MHz	Pass	PK	2.412G	107.45	Inf	-Inf	31.27	3	Н	265	1.48	-
2412MHz	Pass	AV	2.3874G	51.44	54.00	-2.56	31.18	3	٧	213	1.18	-
2412MHz	Pass	AV	2.411G	102.70	Inf	-Inf	31.27	3	٧	213	1.18	-
2412MHz	Pass	PK	2.388G	60.03	74.00	-13.97	31.19	3	٧	213	1.18	-
2412MHz	Pass	PK	2.4128G	105.54	Inf	-Inf	31.28	3	٧	213	1.18	-
2412MHz	Pass	AV	4.824G	43.27	54.00	-10.73	2.44	3	Н	104	1.02	-
2412MHz	Pass	PK	4.824G	48.11	74.00	-25.89	2.44	3	Н	104	1.02	-
2412MHz	Pass	AV	4.824G	36.24	54.00	-17.76	2.44	3	٧	274	2.24	-
2412MHz	Pass	PK	4.824G	44.41	74.00	-29.59	2.44	3	٧	274	2.24	-
2437MHz	Pass	AV	2.3898G	46.80	54.00	-7.20	31.19	3	Н	263	2.43	-
2437MHz	Pass	AV	2.4362G	106.53	Inf	-Inf	31.36	3	Н	263	2.43	-
2437MHz	Pass	AV	2.4842G	47.33	54.00	-6.67	31.53	3	Н	263	2.43	-
2437MHz	Pass	AV	4.874G	47.41	54.00	-6.59	2.52	3	Н	193	2.44	-
2437MHz	Pass	PK	2.349G	58.02	74.00	-15.98	31.04	3	Н	263	2.43	-
2437MHz	Pass	PK	2.437G	109.56	Inf	-Inf	31.36	3	Н	263	2.43	-
2437MHz	Pass	PK	2.4862G	58.68	74.00	-15.32	31.54	3	Н	263	2.43	-
2437MHz	Pass	PK	4.874G	51.58	74.00	-22.42	2.52	3	Н	193	2.44	-
2437MHz	Pass	AV	2.3898G	46.64	54.00	-7.36	31.19	3	٧	209	1.39	-
2437MHz	Pass	AV	2.4378G	104.82	Inf	-Inf	31.37	3	٧	209	1.39	-
2437MHz	Pass	AV	2.485G	47.34	54.00	-6.66	31.54	3	V	209	1.39	-
2437MHz	Pass	AV	4.874G	39.58	54.00	-14.42	2.52	3	V	260	2.33	-
2437MHz	Pass	PK	2.3878G	57.90	74.00	-16.10	31.18	3	V	209	1.39	-
2437MHz	Pass	PK	2.4378G	107.91	Inf	-Inf	31.37	3	V	209	1.39	-
2437MHz	Pass	PK	2.4922G	57.69	74.00	-16.31	31.56	3	V	209	1.39	-
2437MHz	Pass	PK	4.874G	47.61	74.00	-26.39	2.52	3	٧	260	2.33	-
2462MHz	Pass	AV	2.461G	105.86	Inf	-Inf	31.45	3	Н	120	2.87	-
2462MHz	Pass	AV	2.4862G	53.16	54.00	-0.84	31.54	3	Н	120	2.87	-
2462MHz	Pass	PK	2.463G	108.81	Inf	-Inf	31.46	3	Н	120	2.87	-
2462MHz	Pass	PK	2.488G	61.03	74.00	-12.97	31.55	3	Н	120	2.87	-
2462MHz	Pass	AV	2.461G	103.90	Inf	-Inf	31.45	3	V	214	2.19	-
2462MHz	Pass	AV	2.4866G	51.28	54.00	-2.72	31.54	3	V	214	2.19	-
2462MHz	Pass	PK	2.4628G	106.79	Inf	-Inf	31.46	3	V	214	2.19	-
2462MHz	Pass	PK	2.487G	60.40	74.00	-13.60	31.54	3	V	214	2.19	-
2462MHz	Pass	AV	4.924G	44.88	54.00	-9.12	2.60	3	н	179	2.05	-
2462MHz	Pass	PK	4.924G	49.62	74.00	-24.38	2.60	3	Н	179	2.05	-
2462MHz	Pass	AV	4.924G	39.85	54.00	-14.15	2.60	3	٧	90	3.04	-
2462MHz	Pass	PK	4.924G	47.63	74.00	-26.37	2.60	3	V	90	3.04	-
802.11g_(6Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	AV	2.39G	53.22	54.00	-0.78	31.19	3	Н	120	2.67	-
2412MHz	Pass	AV	2.4128G	100.35	Inf	-Inf	31.28	3	Н	120	2.67	-
2412MHz	Pass	PK	2.39G	71.95	74.00	-2.05	31.19	3	Н	120	2.67	-
2412MHz	Pass	PK	2.4128G	107.64	Inf	-Inf	31.28	3	Н	120	2.67	-
2412MHz	Pass	AV	2.39G	50.36	54.00	-3.64	31.19	3	٧	211	1.44	-
2412MHz	Pass	AV	2.4114G	96.38	Inf	-Inf	31.27	3	٧	211	1.44	-

SPORTON INTERNATIONAL INC.

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Appendix F.2

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Pol.	Azimuth	Height	Comments
		,.	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)	(H/V)	(°)	(m)	
2412MHz	Pass	PK	2.3898G	67.18	74.00	-6.82	31.19	3	V	211	1.44	-
2412MHz	Pass	PK	2.4142G	103.61	Inf	-Inf	31.28	3	V	211	1.44	-
2412MHz	Pass	AV	4.824G	33.74	54.00	-20.26	2.44	3	н	0	1.50	-
2412MHz	Pass	PK	4.824G	45.34	74.00	-28.66	2.44	3	Н	0	1.50	-
2412MHz	Pass	AV	4.824G	33.37	54.00	-20.63	2.44	3	V	360	1.50	-
2412MHz	Pass	PK	4.824G	44.87	74.00	-29.13	2.44	3	V	360	1.50	-
2437MHz	Pass	AV	2.3894G	53.84	54.00	-0.16	31.19	3	Н	115	1.14	-
2437MHz	Pass	AV	2.4362G	104.63	Inf	-Inf	31.36	3	Н	115	1.14	-
2437MHz	Pass	AV	2.4838G	53.59	54.00	-0.41	31.53	3	Н	115	1.14	-
2437MHz	Pass	PK	2.3822G	65.24	74.00	-8.76	31.16	3	Н	115	1.14	-
2437MHz	Pass	PK	2.4358G	112.00	Inf	-Inf	31.36	3	Н	115	1.14	-
2437MHz	Pass	PK	2.4862G	66.00	74.00	-8.00	31.54	3	н	115	1.14	-
2437MHz	Pass	AV	2.3898G	51.71	54.00	-2.29	31.19	3	V	237	1.41	-
2437MHz	Pass	AV	2.4378G	101.69	Inf	-Inf	31.37	3	V	237	1.41	-
2437MHz	Pass	AV	2.4842G	52.06	54.00	-1.94	31.53	3	V	237	1.41	-
2437MHz	Pass	PK	2.3894G	62.64	74.00	-11.36	31.19	3	V	237	1.41	-
2437MHz	Pass	PK	2.4378G	108.70	Inf	-Inf	31.37	3	V	237	1.41	-
2437MHz	Pass	PK	2.491G	64.30	74.00	-9.70	31.56	3	V	237	1.41	-
2437MHz	Pass	AV	4.874G	38.81	54.00	-15.19	2.52	3	Н	152	1.00	-
2437MHz	Pass	PK	4.874G	50.30	74.00	-23.70	2.52	3	Н	152	1.00	-
2437MHz	Pass	AV	4.874G	33.40	54.00	-20.60	2.52	3	V	359	1.05	_
2437MHz	Pass	PK	4.874G	45.88	74.00	-28.12	2.52	3	V	359	1.05	_
2462MHz	Pass	AV	2.4628G	102.08	Inf	-Inf	31.46	3	Н	118	1.37	_
2462MHz	Pass	AV	2.4836G	52.93	54.00	-1.07	31.53	3	н	118	1.37	_
2462MHz	Pass	PK	2.4628G	109.26	Inf	-Inf	31.46	3	Н	118	1.37	-
2462MHz	Pass	PK	2.4852G	73.50	74.00	-0.50	31.54	3	Н	118	1.37	-
2462MHz	Pass	AV	2.4626G	100.12	Inf	-Inf	31.46	3	V	212	2.14	-
2462MHz	Pass	AV	2.4836G	53.37	54.00	-0.63	31.53	3	V	212	2.14	-
2462MHz	Pass	PK	2.4604G	107.13	Inf	-Inf	31.45	3	V	212	2.14	-
2462MHz	Pass	PK	2.4836G	71.44	74.00	-2.56	31.53	3	V	212	2.14	_
2462MHz	Pass	AV	4.924G	37.29	54.00	-16.71	2.60	3	Н	157	1.01	-
2462MHz	Pass	PK	4.924G	48.97	74.00	-25.03	2.60	3	Н	157	1.01	_
2462MHz	Pass	AV	4.924G	33.54	54.00	-20.46	2.60	3	V	0	1.50	_
2462MHz	Pass	PK	4.924G	45.70	74.00	-28.30	2.60	3	V	0	1.50	-
802.11n HT20 Nss1,(MCS0) 2TX	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	AV	2.3894G	53.66	54.00	-0.34	31.19	3	Н	117	1.01	-
2412MHz	Pass	AV	2.4128G	99.62	Inf	-Inf	31.28	3	н	117	1.01	-
2412MHz	Pass	PK	2.389G	71.94	74.00	-2.06	31.19	3	н	117	1.01	-
2412MHz	Pass	PK	2.4122G	107.15	Inf	-Inf	31.27	3	н	117	1.01	_
2412MHz	Pass	AV	2.39G	50.86	54.00	-3.14	31.19	3	V	212	1.44	-
2412MHz	Pass	AV	2.4132G	96.16	Inf	-Inf	31.28	3	V	212	1.44	-
2412MHz	Pass	PK	2.3898G	69.25	74.00	-4.75	31.19	3	V	212	1.44	-
2412MHz	Pass	PK	2.413G	104.03	Inf	-Inf	31.28	3	V	212	1.44	-
2412MHz	Pass	AV	4.824G	34.05	54.00	-19.95	2.44	3	Н	94	1.01	-
2412MHz	Pass	PK	4.824G	45.79	74.00	-28.21	2.44	3	н	94	1.01	-
2412MHz	Pass	AV	4.824G	33.42	54.00	-20.58	2.44	3	٧	288	1.50	_
2412MHz	Pass	PK	4.824G	44.76	74.00	-29.24	2.44	3	V	288	1.50	_
2437MHz	Pass	AV	2.3898G	53.73	54.00	-0.27	31.19	3	Н	115	2.92	_
2437MHz	Pass	AV	2.4362G	104.29	Inf	-Inf	31.36	3	н	115	2.92	_
Z-TOT WILLIZ	1 433	/ \V	2.70020	10-1.20	""	411	01.00			110	2.02	

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Appendix F.2

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Pol.	Azimuth	Height	Comments
Mode	Result	Type	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)	(H/V)	(°)	(m)	Comments
2437MHz	Pass	AV	2.4838G	53.57	54.00	-0.43	31.53	3	(II/V)	115	2.92	
2437MHz	Pass	PK	2.3894G	65.92	74.00	-8.08	31.19	3	Н	115	2.92	-
2437MHz		PK										
	Pass	PK	2.435G	111.53	Inf	-Inf	31.36	3	Н	115	2.92	-
2437MHz	Pass		2.4846G	66.22	74.00	-7.78	31.53	3	H V	115	2.92	-
2437MHz	Pass	AV	2.3894G	51.41	54.00	-2.59	31.19			215	1.50	-
2437MHz	Pass	AV	2.4358G	100.06	Inf	-Inf	31.36	3	V	215	1.50	-
2437MHz	Pass	AV	2.4838G	51.93	54.00	-2.07	31.53	3	V	215	1.50	-
2437MHz	Pass	PK	2.3894G	63.80	74.00	-10.20	31.19	3	V	215	1.50	-
2437MHz	Pass	PK	2.435G	107.48	Inf	-Inf	31.36	3	V	215	1.50	-
2437MHz	Pass	PK	2.4842G	64.56	74.00	-9.44	31.53	3	V	215	1.50	-
2437MHz	Pass	AV	4.874G	37.95	54.00	-16.05	2.52	3	Н	154	1.01	-
2437MHz	Pass	PK	4.874G	50.40	74.00	-23.60	2.52	3	Н	154	1.01	-
2437MHz	Pass	AV	4.874G	33.70	54.00	-20.30	2.52	3	V	186	3.43	-
2437MHz	Pass	PK	4.874G	45.42	74.00	-28.58	2.52	3	V	186	3.43	-
2462MHz	Pass	AV	2.4628G	100.62	Inf	-Inf	31.46	3	Н	108	1.36	-
2462MHz	Pass	AV	2.4846G	53.24	54.00	-0.76	31.53	3	Н	108	1.36	-
2462MHz	Pass	PK	2.4628G	107.81	Inf	-Inf	31.46	3	Н	108	1.36	-
2462MHz	Pass	PK	2.4838G	73.83	74.00	-0.17	31.53	3	Н	108	1.36	-
2462MHz	Pass	AV	2.461G	98.07	Inf	-Inf	31.45	3	V	210	2.16	-
2462MHz	Pass	AV	2.4836G	50.70	54.00	-3.30	31.53	3	V	210	2.16	-
2462MHz	Pass	PK	2.4634G	105.83	Inf	-Inf	31.46	3	V	210	2.16	-
2462MHz	Pass	PK	2.4846G	69.80	74.00	-4.20	31.53	3	V	210	2.16	-
2462MHz	Pass	AV	4.924G	36.42	54.00	-17.58	2.60	3	н	152	1.00	-
2462MHz	Pass	PK	4.924G	48.45	74.00	-25.55	2.60	3	Н	152	1.00	-
2462MHz	Pass	AV	4.924G	33.68	54.00	-20.32	2.60	3	V	173	3.35	-
2462MHz	Pass	PK	4.924G	45.76	74.00	-28.24	2.60	3	V	173	3.35	-
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	AV	2.39G	53.51	54.00	-0.49	31.19	3	Н	112	1.01	-
2422MHz	Pass	AV	2.4204G	95.45	Inf	-Inf	31.30	3	Н	112	1.01	-
2422MHz	Pass	AV	2.4836G	47.76	54.00	-6.24	31.53	3	Н	112	1.01	-
2422MHz	Pass	PK	2.39G	70.14	74.00	-3.86	31.19	3	Н	112	1.01	-
2422MHz	Pass	PK	2.4204G	103.65	Inf	-Inf	31.30	3	Н	112	1.01	-
2422MHz	Pass	PK	2.484G	63.82	74.00	-10.18	31.53	3	Н	112	1.01	-
2422MHz	Pass	AV	2.39G	51.85	54.00	-2.15	31.19	3	٧	212	1.52	-
	Pass	AV	2.4208G	92.55	Inf	-Inf	31.30	3	٧	212	1.52	-
	Pass	AV	2.484G	47.68	54.00	-6.32	31.53	3	٧	212	1.52	-
2422MHz	Pass	PK	2.3896G	68.53	74.00	-5.47	31.19	3	V	212	1.52	-
2422MHz	Pass	PK	2.4208G	100.63	Inf	-Inf	31.30	3	V	212	1.52	-
2422MHz	Pass	PK	2.4896G	60.10	74.00	-13.90	31.55	3	V	212	1.52	-
2422MHz	Pass	AV	4.844G	33.62	54.00	-20.38	2.47	3	Н	0	1.50	-
2422MHz	Pass	PK	4.844G	45.86	74.00	-28.14	2.47	3	Н	0	1.50	-
2422MHz	Pass	AV	4.844G	33.33	54.00	-20.67	2.47	3	V	360	1.50	-
2422MHz	Pass	PK	4.844G	45.61	74.00	-28.39	2.47	3	V	360	1.50	-
2437MHz	Pass	AV	2.3898G	51.92	54.00	-2.08	31.19	3	Н	113	1.11	_
2437MHz	Pass	AV	2.4354G	97.81	Inf	-Inf	31.36	3	н	113	1.11	_
2437MHz	Pass	AV	2.4838G	53.64	54.00	-0.36	31.53	3	н	113	1.11	-
2437MHz	Pass	PK	2.4636G 2.3886G	66.14	74.00	-7.86	31.19	3	Н	113	1.11	
2437MHz	Pass	PK	2.435G	105.84	Inf	-7.00 -Inf	31.19	3	Н	113	1.11	-
2437MHz 2437MHz		PK	2.435G 2.4858G	71.79	74.00	-Int -2.21		3	Н			
243/ WΠ2	Pass	ΓN	Z.4000G	11.19	74.00	-2.21	31.54	ა	п	113	1.11	-

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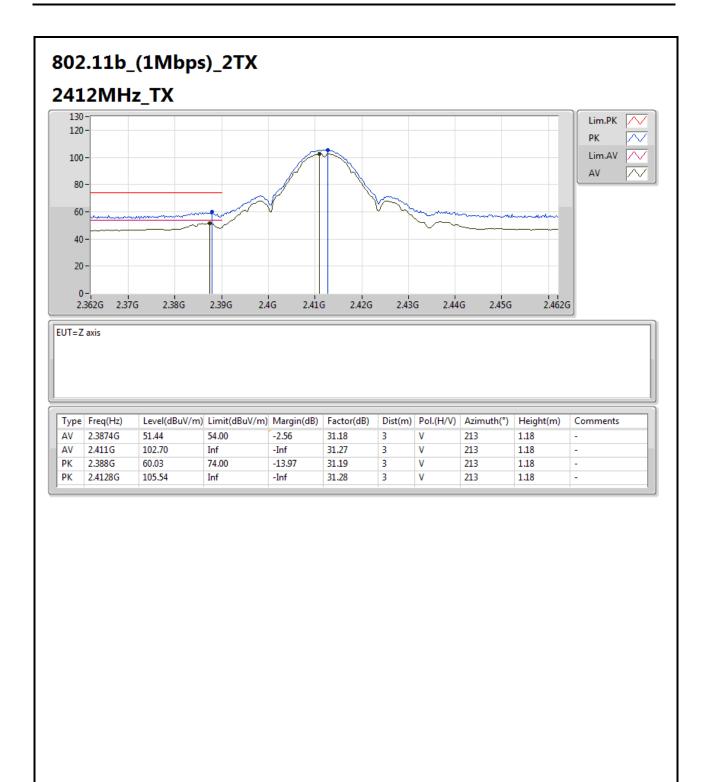


Appendix F.2

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Pol.	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)	(H/V)	(°)	(m)	
2437MHz	Pass	AV	2.3898G	49.90	54.00	-4.10	31.19	3	V	212	1.49	-
2437MHz	Pass	AV	2.4358G	94.86	Inf	-Inf	31.36	3	V	212	1.49	-
2437MHz	Pass	AV	2.4838G	51.46	54.00	-2.54	31.53	3	V	212	1.49	-
2437MHz	Pass	PK	2.3894G	65.83	74.00	-8.17	31.19	3	٧	212	1.49	-
2437MHz	Pass	PK	2.4354G	102.51	Inf	-Inf	31.36	3	٧	212	1.49	-
2437MHz	Pass	PK	2.4854G	67.23	74.00	-6.77	31.54	3	٧	212	1.49	-
2437MHz	Pass	AV	4.874G	33.76	54.00	-20.24	2.52	3	Н	360	1.50	-
2437MHz	Pass	PK	4.874G	45.30	74.00	-28.70	2.52	3	Н	360	1.50	-
2437MHz	Pass	AV	4.874G	33.11	54.00	-20.89	2.52	3	٧	0	1.50	-
2437MHz	Pass	PK	4.874G	44.95	74.00	-29.05	2.52	3	٧	0	1.50	-
2452MHz	Pass	AV	2.39G	46.83	54.00	-7.17	31.19	3	Н	108	1.02	-
2452MHz	Pass	AV	2.4504G	95.87	Inf	-Inf	31.41	3	Н	108	1.02	-
2452MHz	Pass	AV	2.4844G	53.50	54.00	-0.50	31.53	3	Н	108	1.02	-
2452MHz	Pass	PK	2.3896G	58.55	74.00	-15.45	31.19	3	Н	108	1.02	-
2452MHz	Pass	PK	2.4496G	103.53	Inf	-Inf	31.41	3	Н	108	1.02	-
2452MHz	Pass	PK	2.4848G	71.41	74.00	-2.59	31.54	3	Н	108	1.02	-
2452MHz	Pass	AV	2.3896G	46.67	54.00	-7.33	31.19	3	V	208	1.22	-
2452MHz	Pass	AV	2.4508G	93.52	Inf	-Inf	31.41	3	V	208	1.22	-
2452MHz	Pass	AV	2.4836G	52.23	54.00	-1.77	31.53	3	V	208	1.22	-
2452MHz	Pass	PK	2.3768G	58.25	74.00	-15.75	31.14	3	٧	208	1.22	-
2452MHz	Pass	PK	2.4504G	101.68	Inf	-Inf	31.41	3	٧	208	1.22	-
2452MHz	Pass	PK	2.4848G	68.70	74.00	-5.30	31.54	3	V	208	1.22	-
2452MHz	Pass	AV	4.904G	33.29	54.00	-20.71	2.57	3	Н	0	1.50	-
2452MHz	Pass	PK	4.904G	44.57	74.00	-29.43	2.57	3	Н	0	1.50	-
2452MHz	Pass	AV	4.904G	33.08	54.00	-20.92	2.57	3	V	360	1.50	-
2452MHz	Pass	PK	4.904G	44.56	74.00	-29.44	2.57	3	V	360	1.50	-

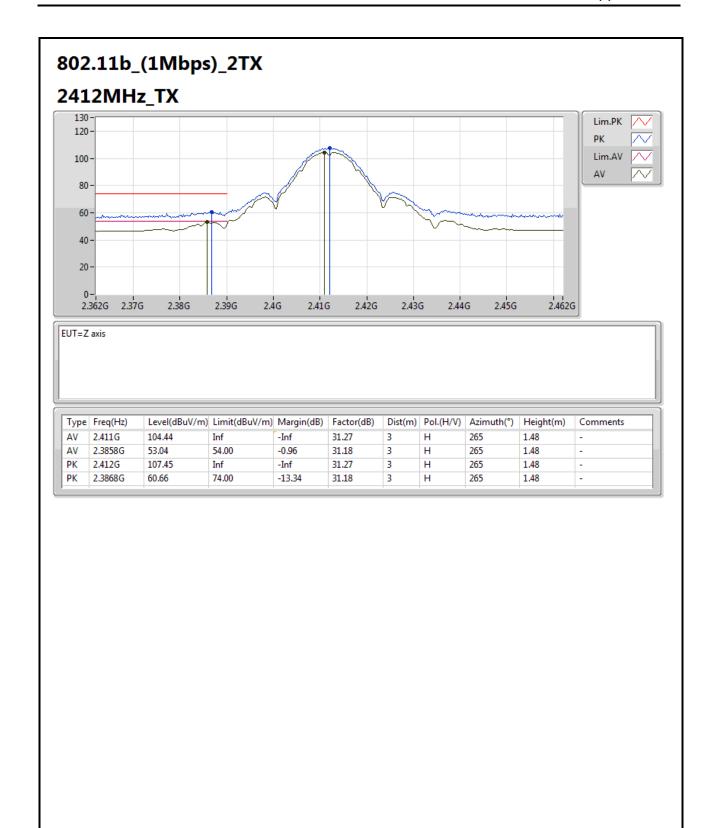
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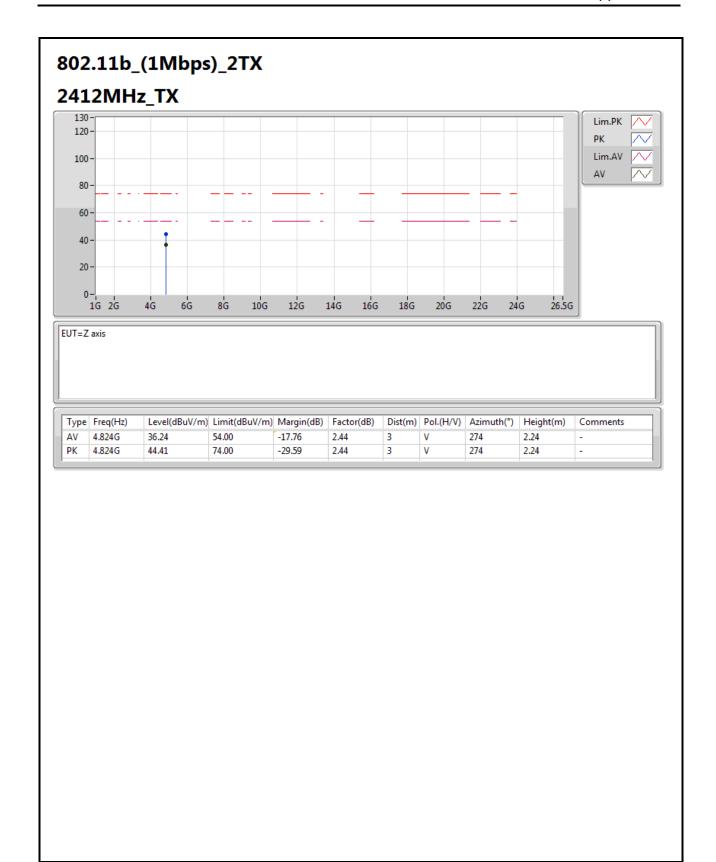
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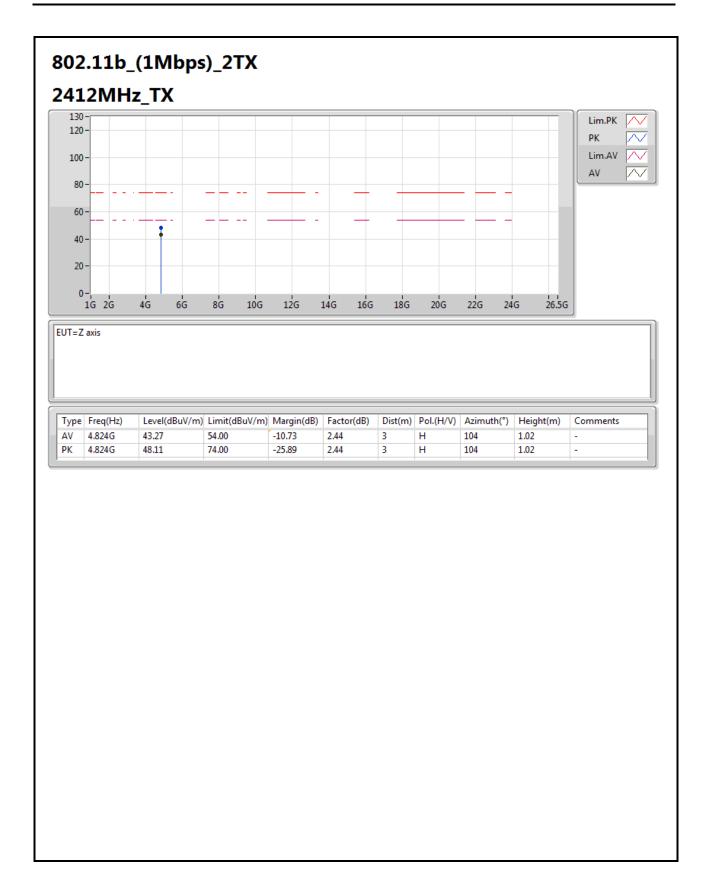
TEL: 886-3-327-3456 FAX: 886-3-327-0973 Page No. : F7 of F53





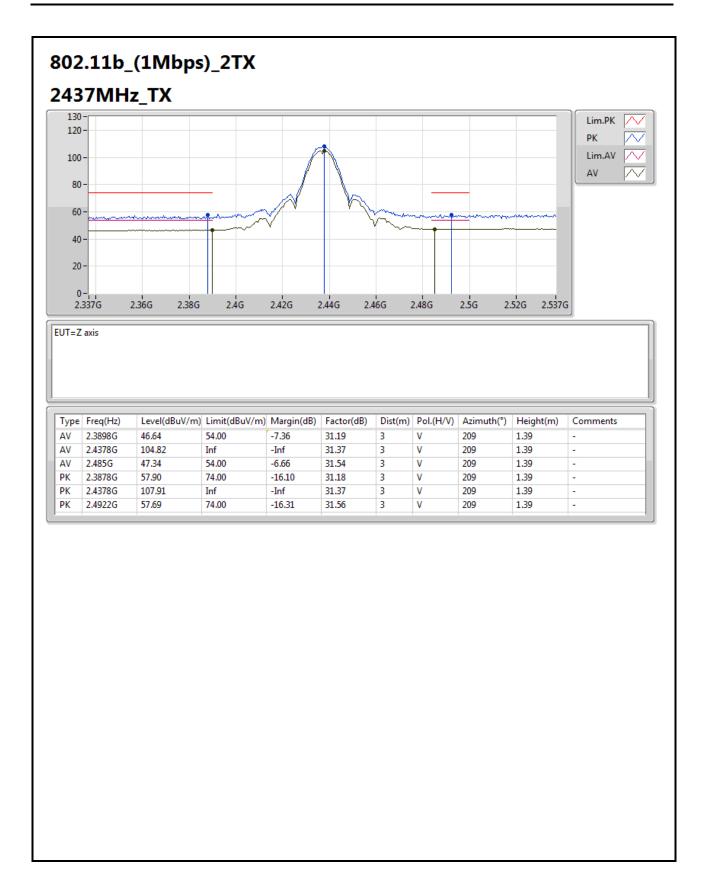
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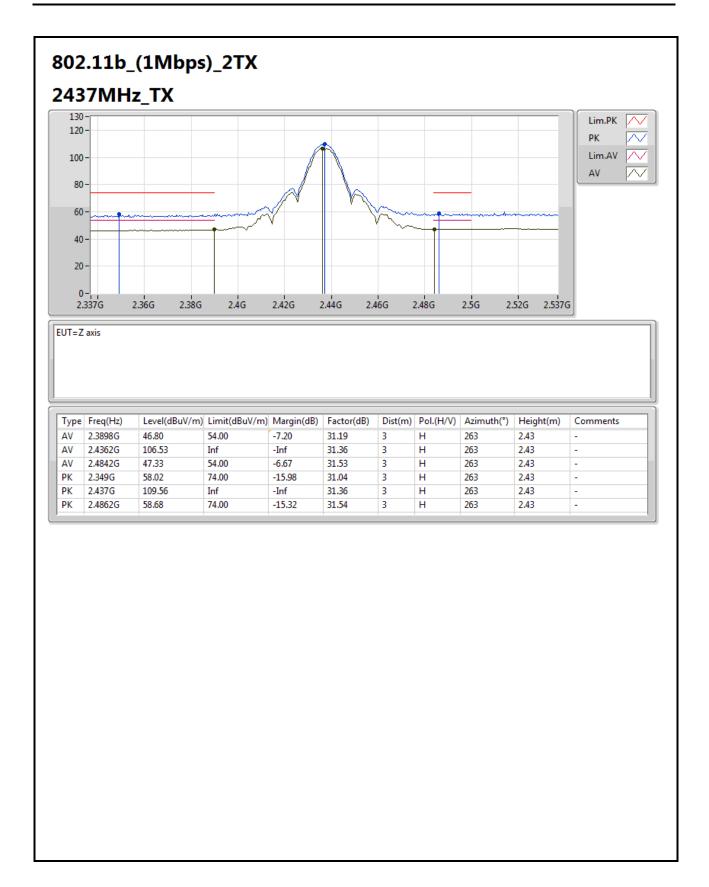
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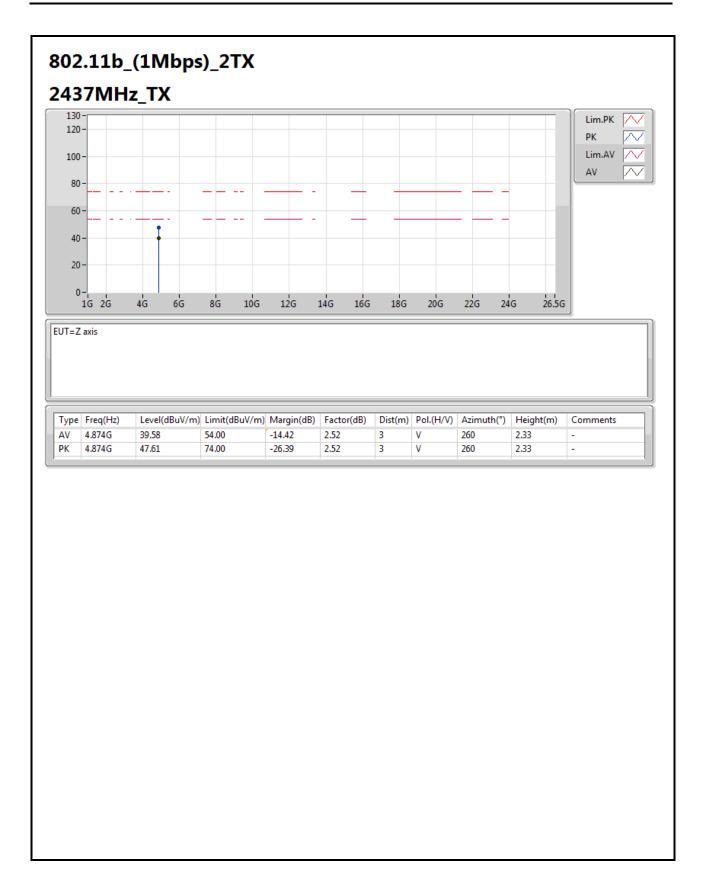
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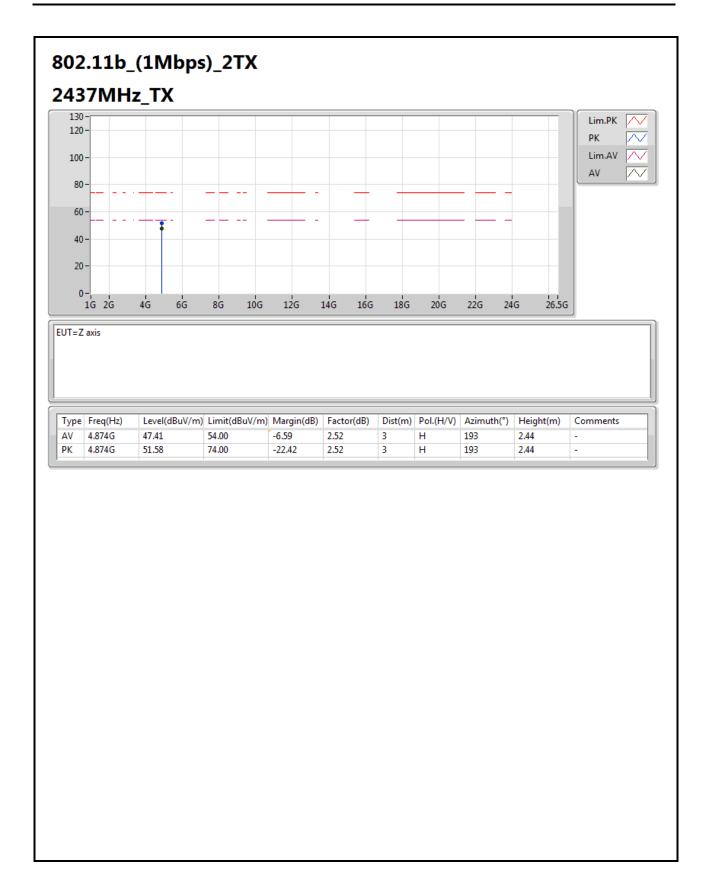
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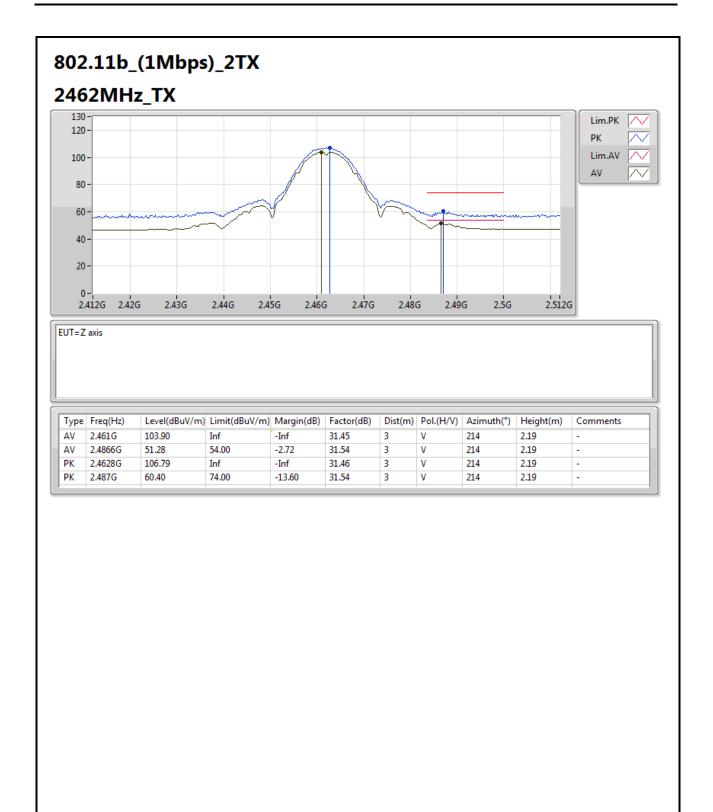
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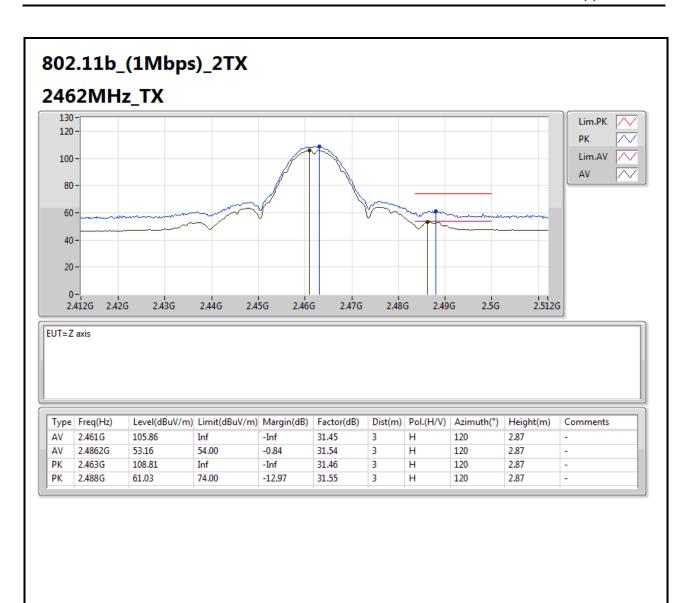
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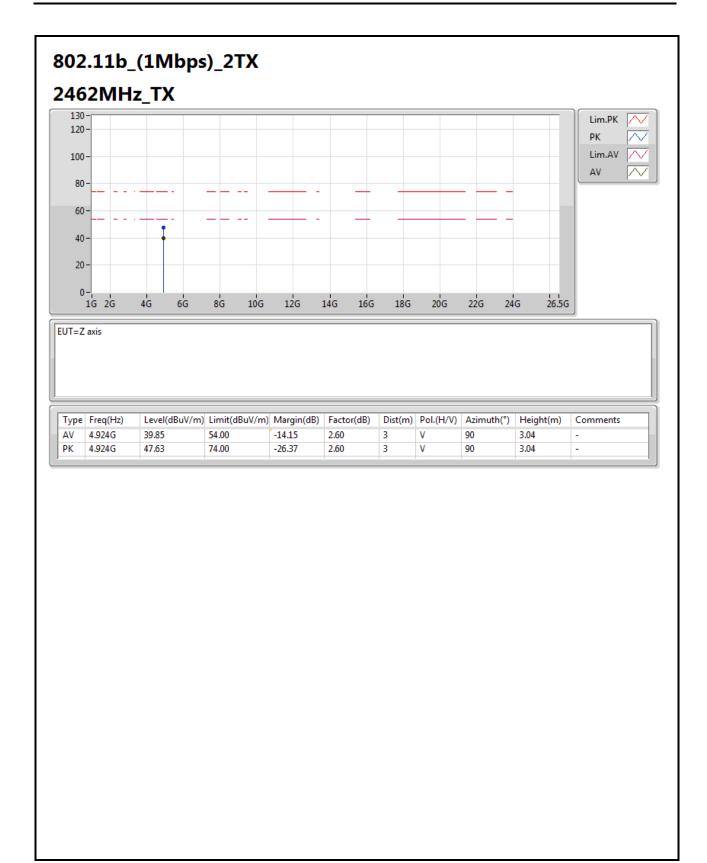


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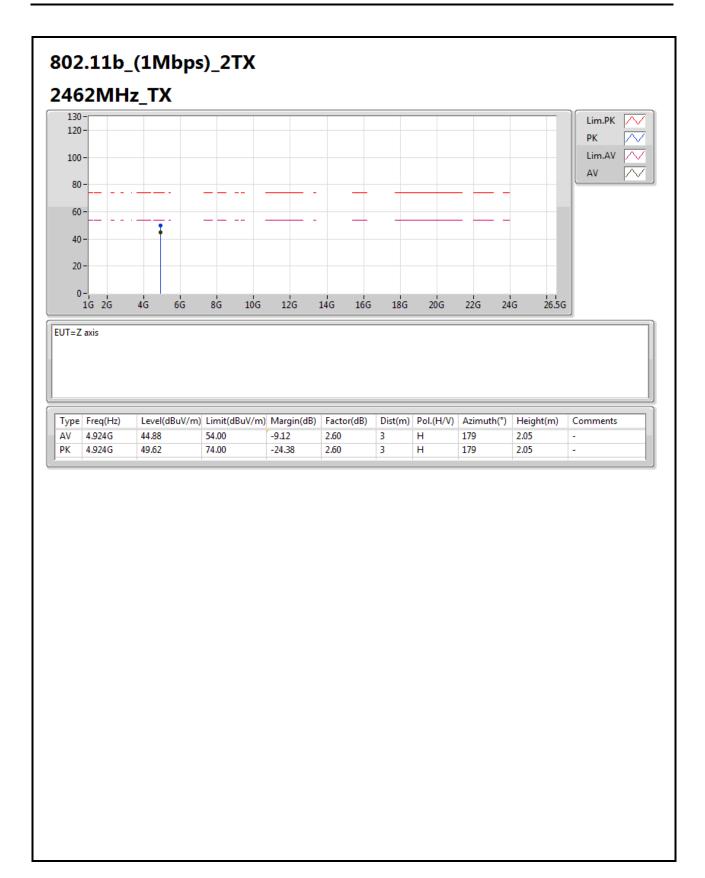






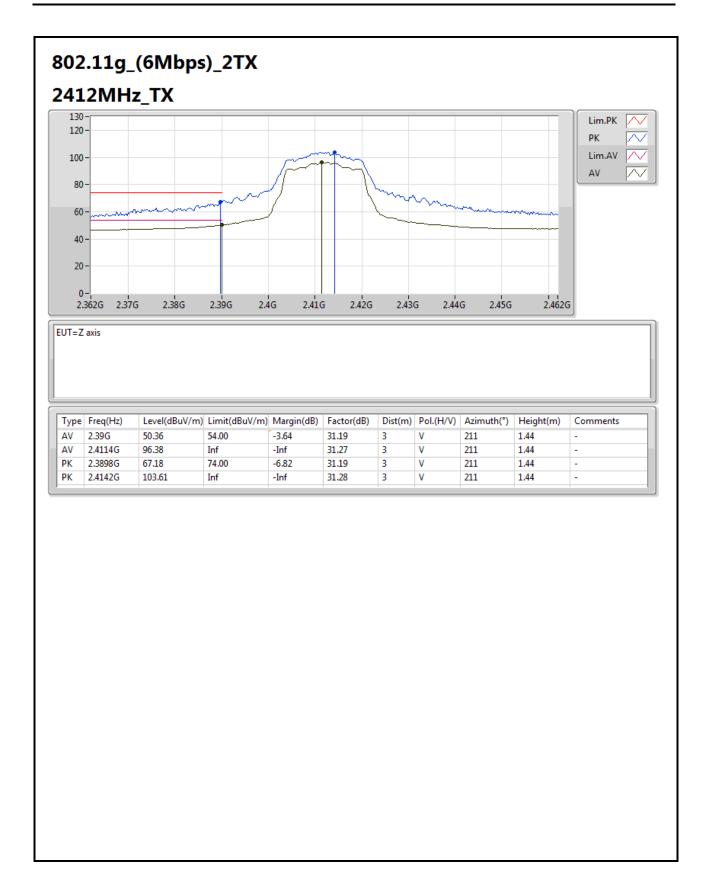
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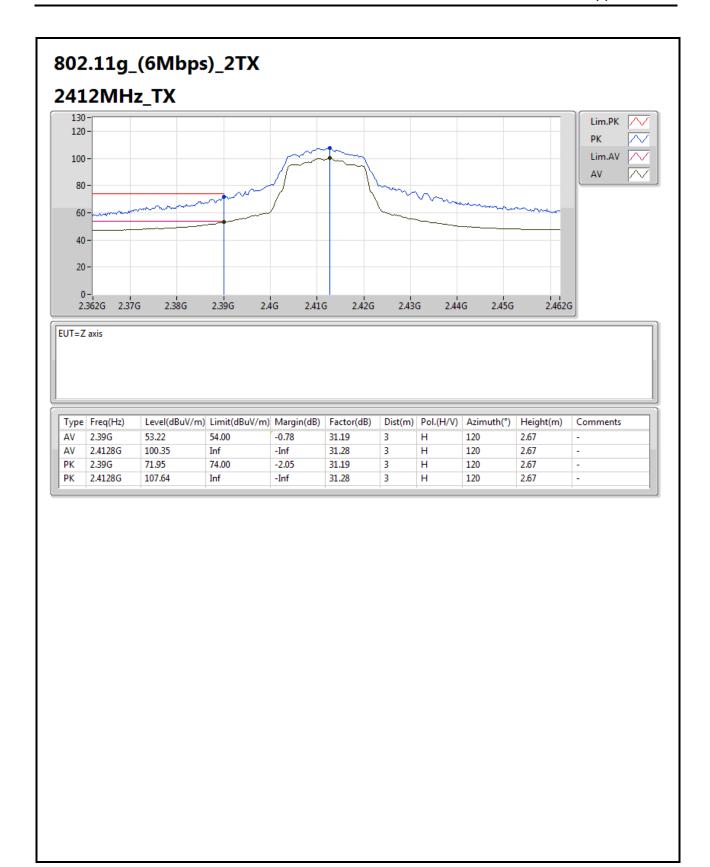
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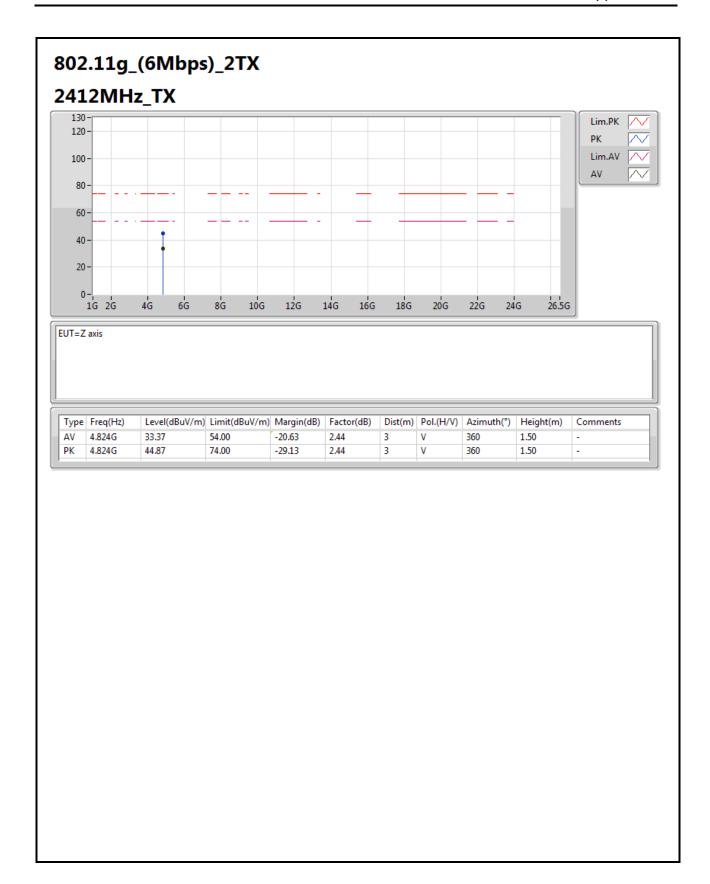
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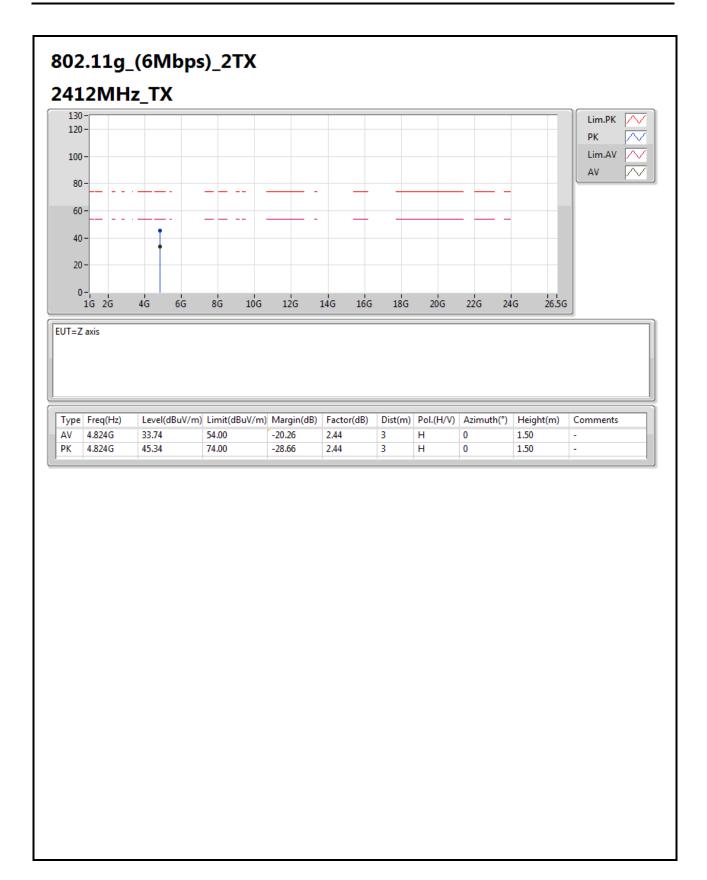
TEL: 886-3-327-3456 FAX: 886-3-327-0973 Page No. : F19 of F53





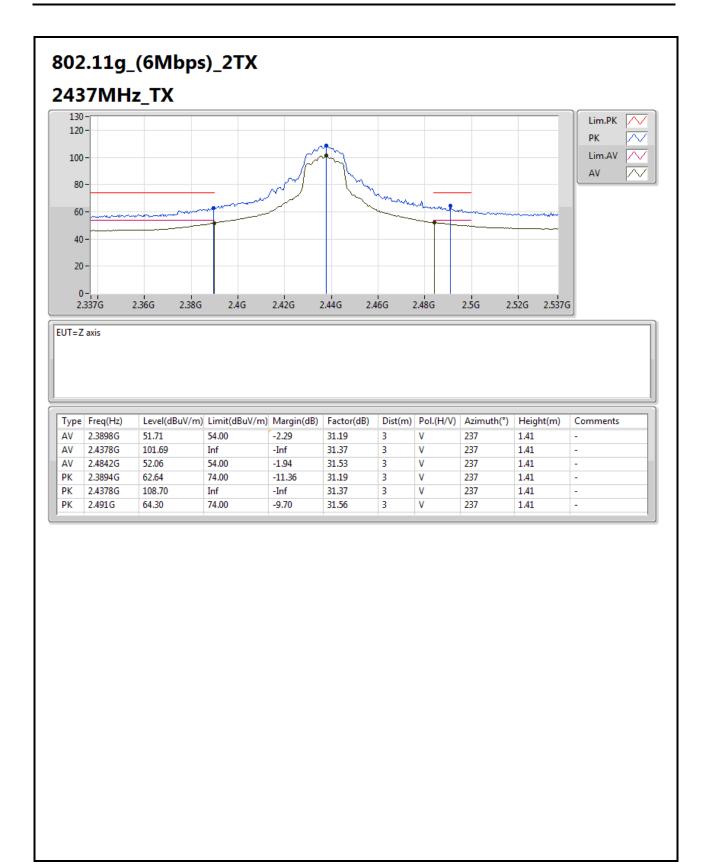
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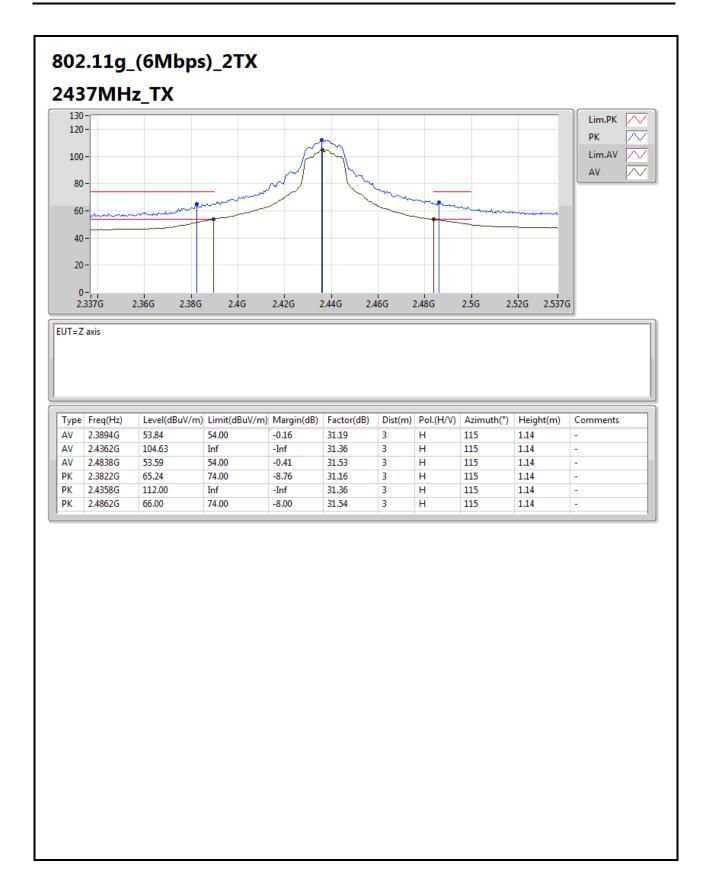
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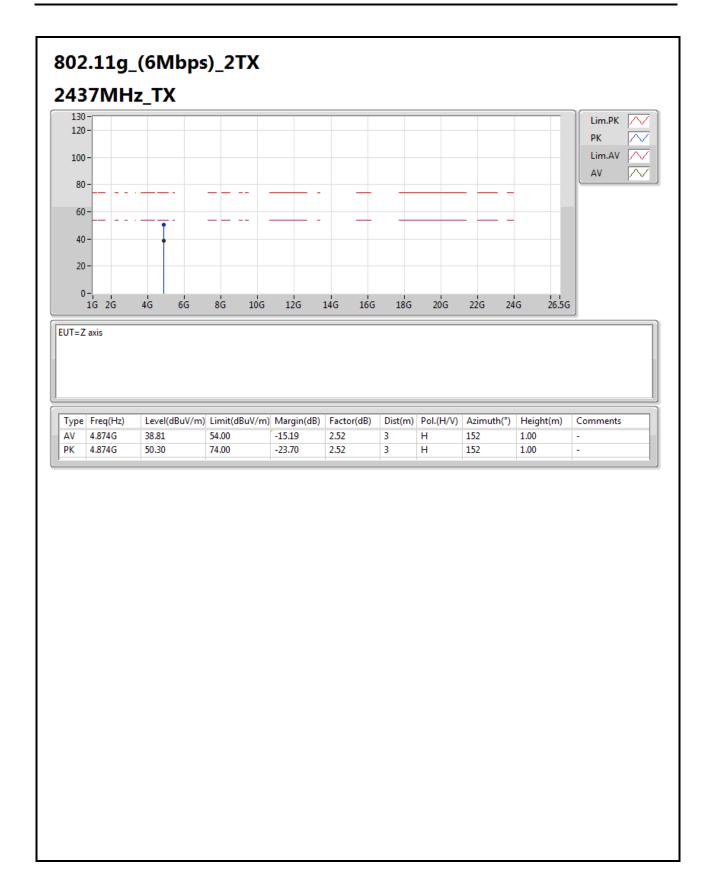
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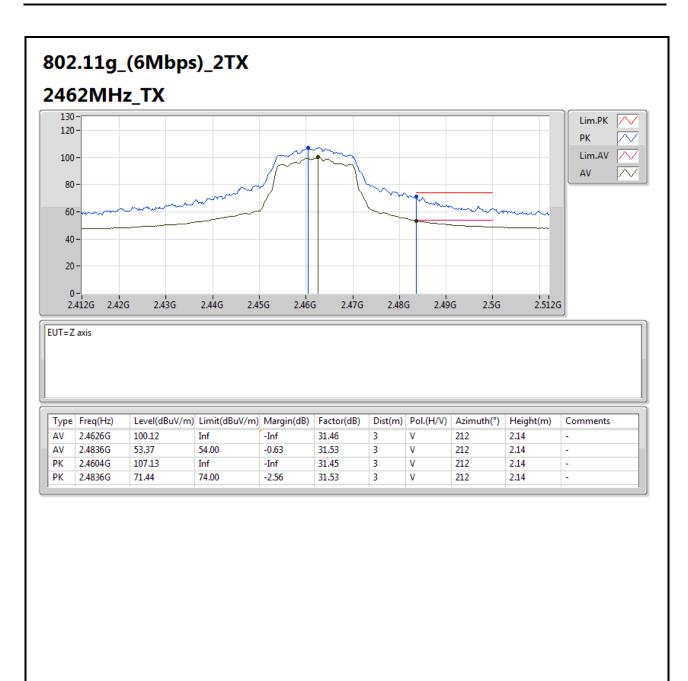
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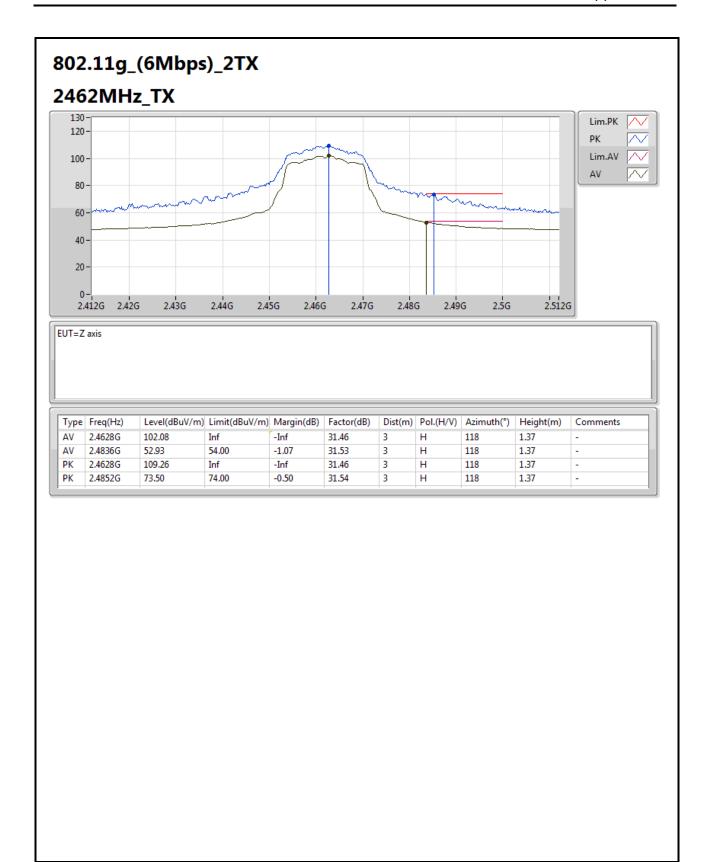
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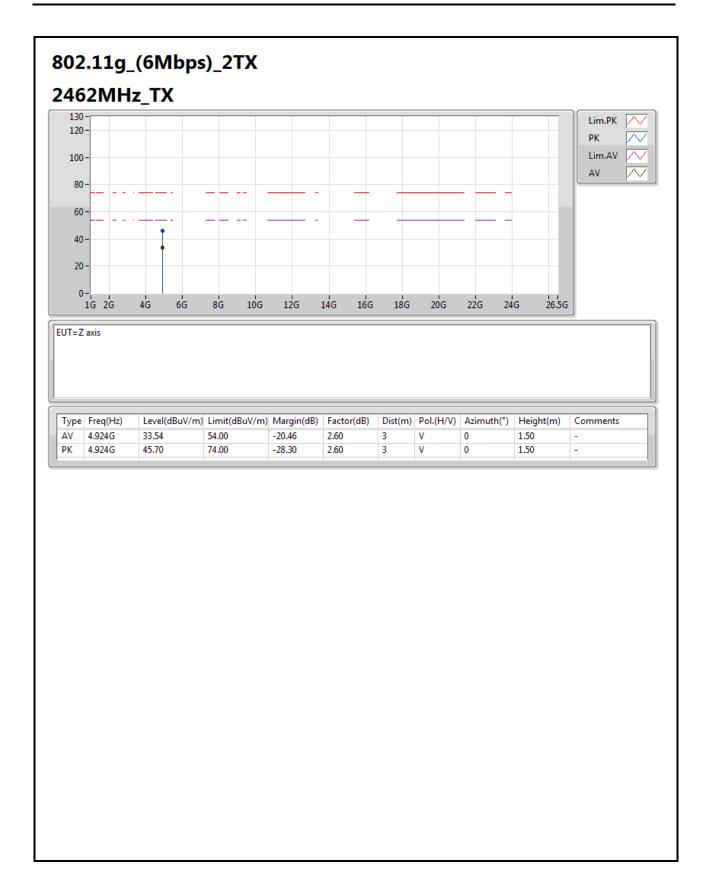
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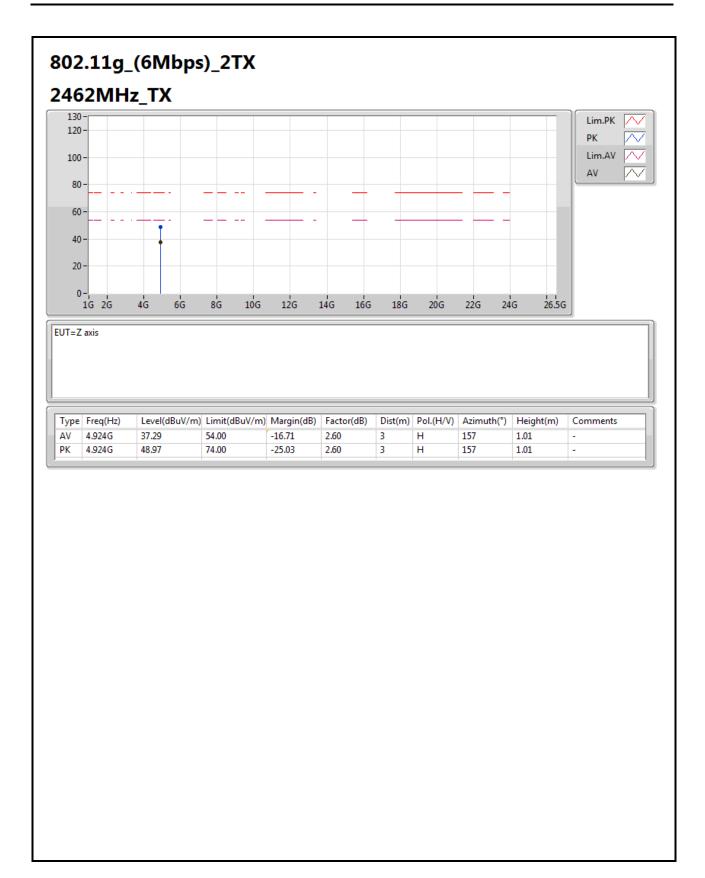
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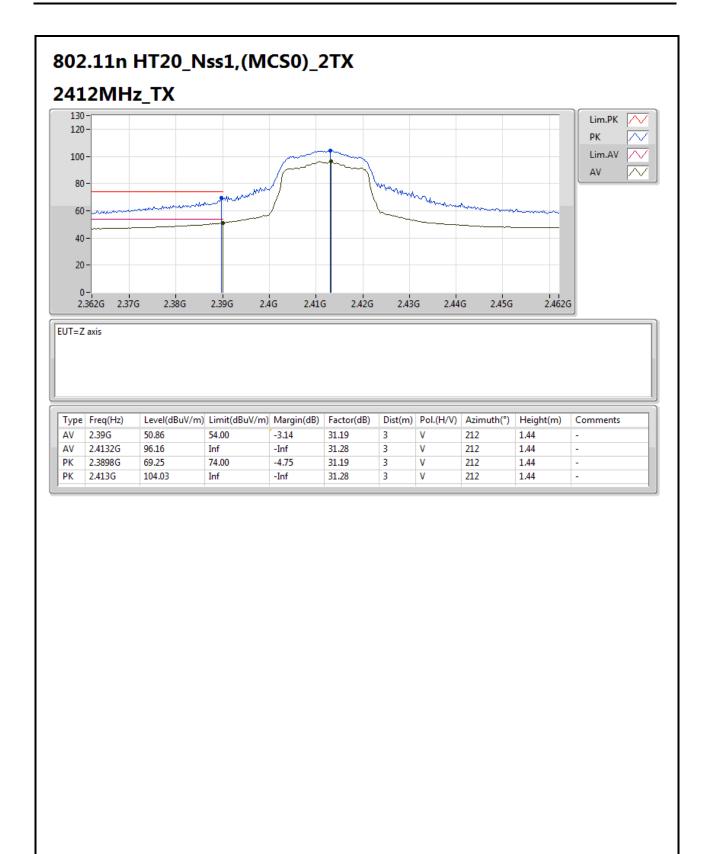
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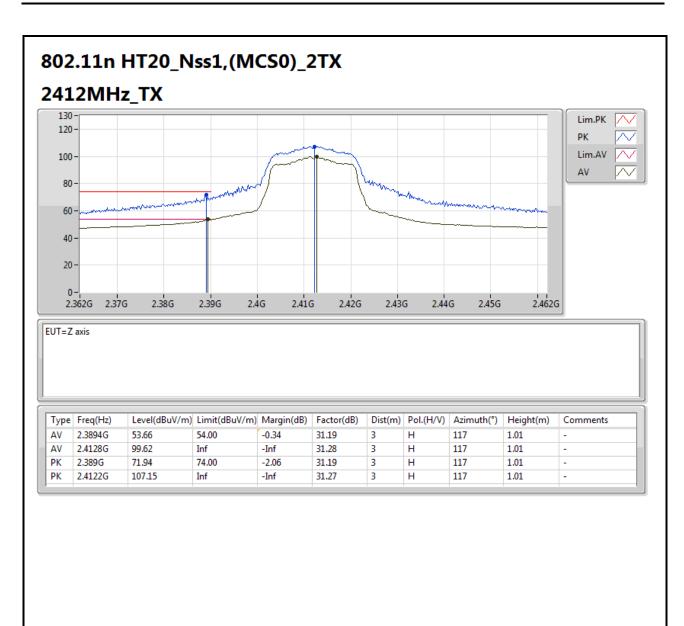
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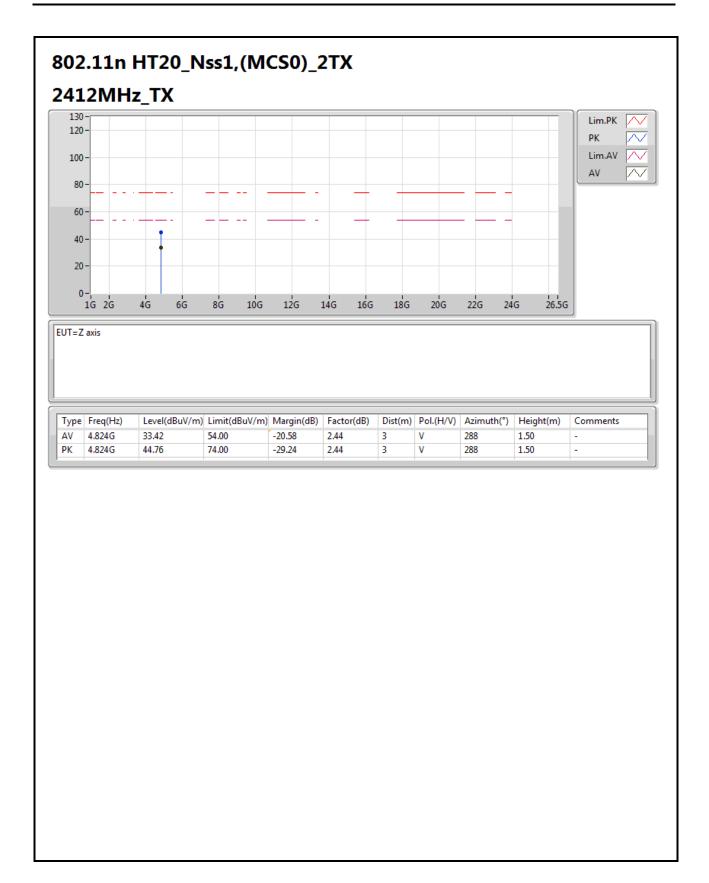
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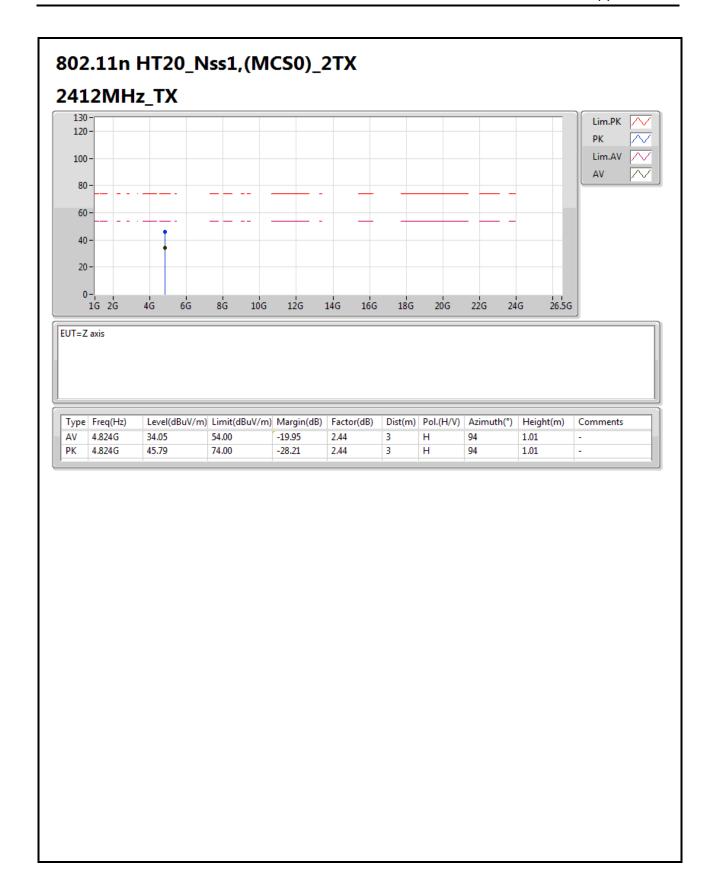
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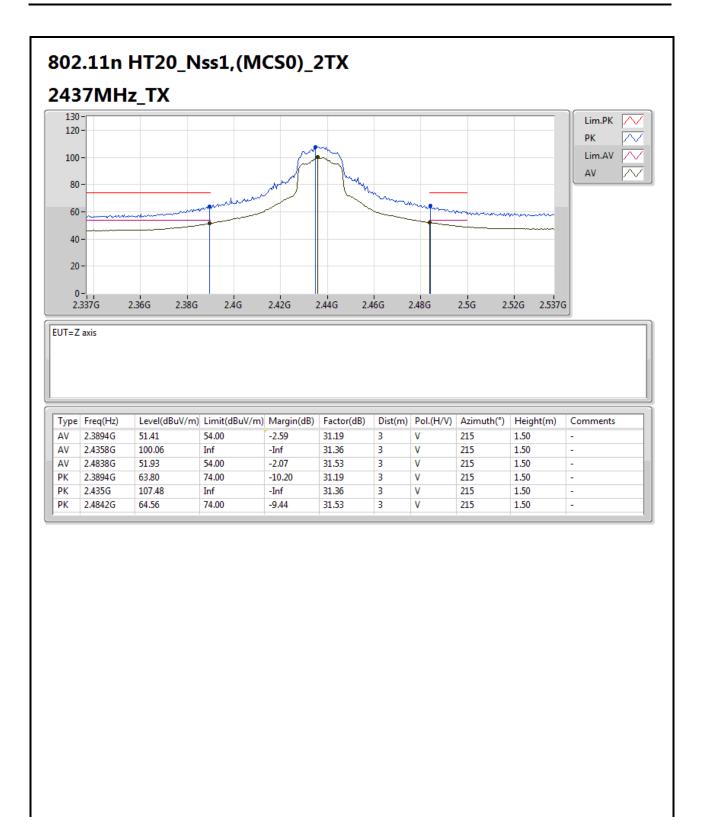
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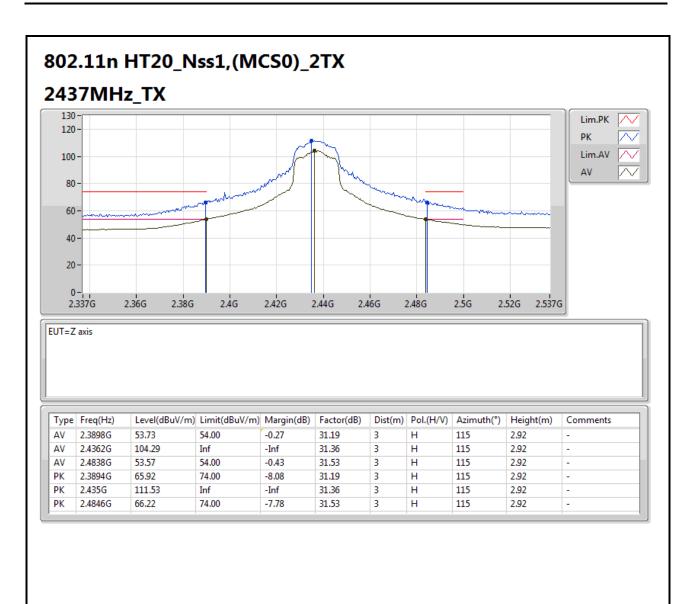


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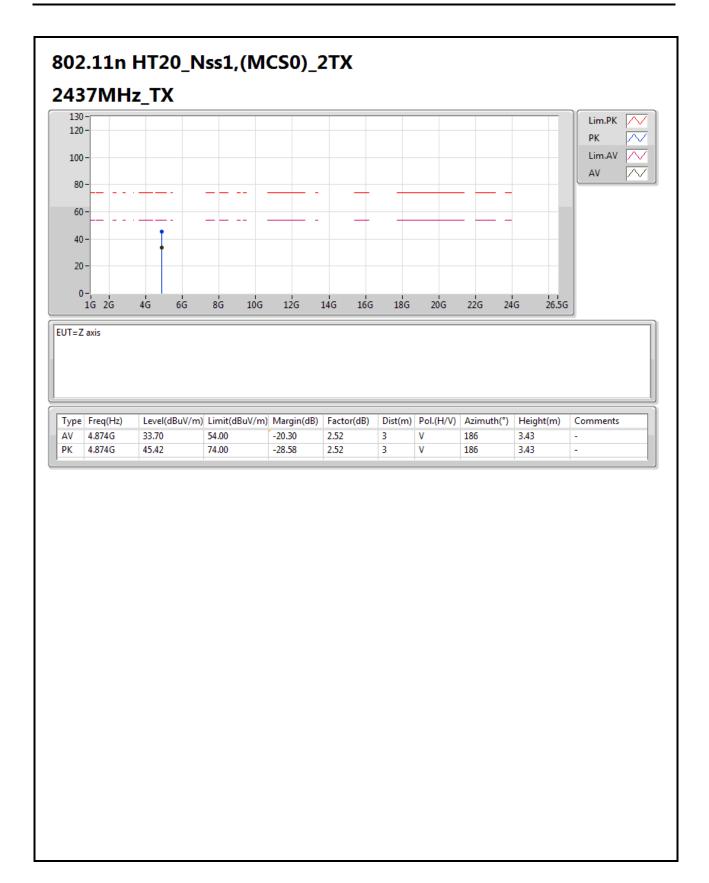






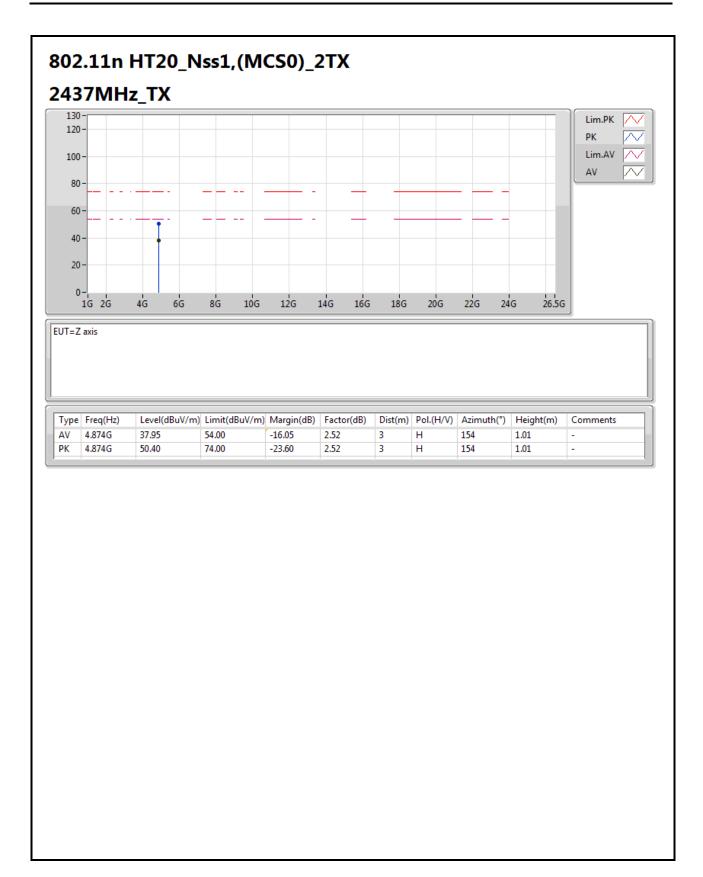
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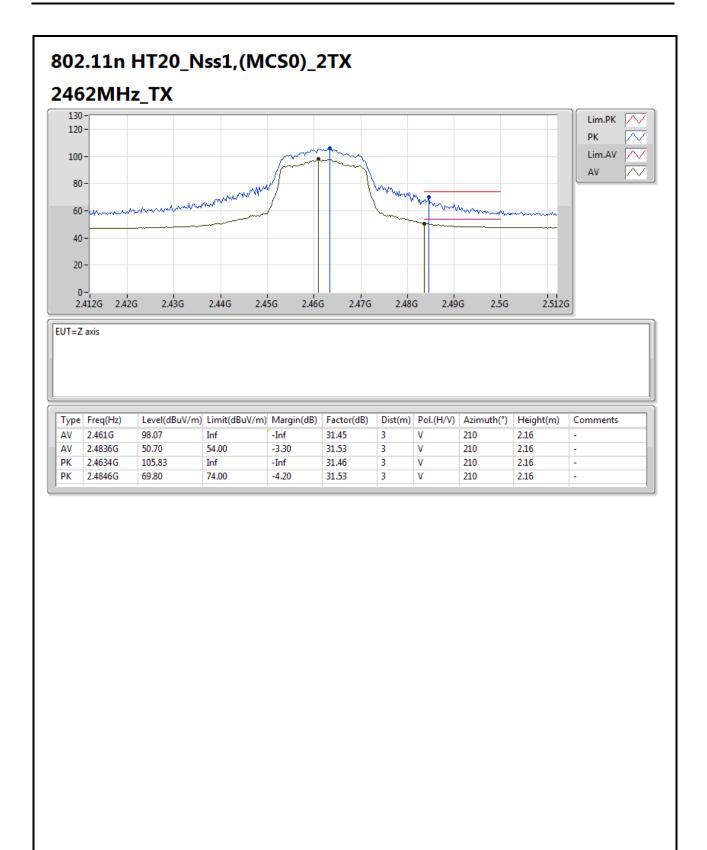
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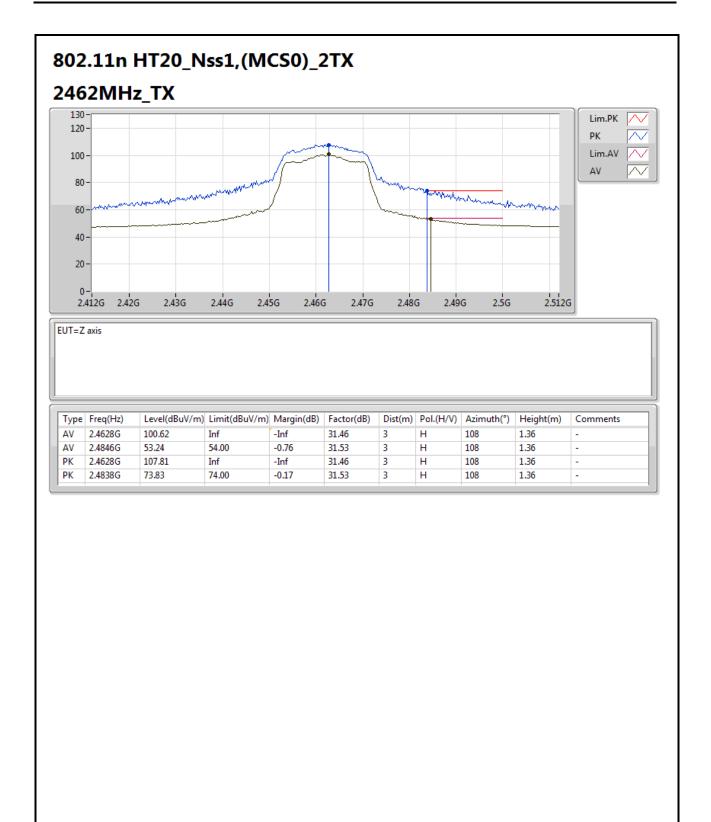
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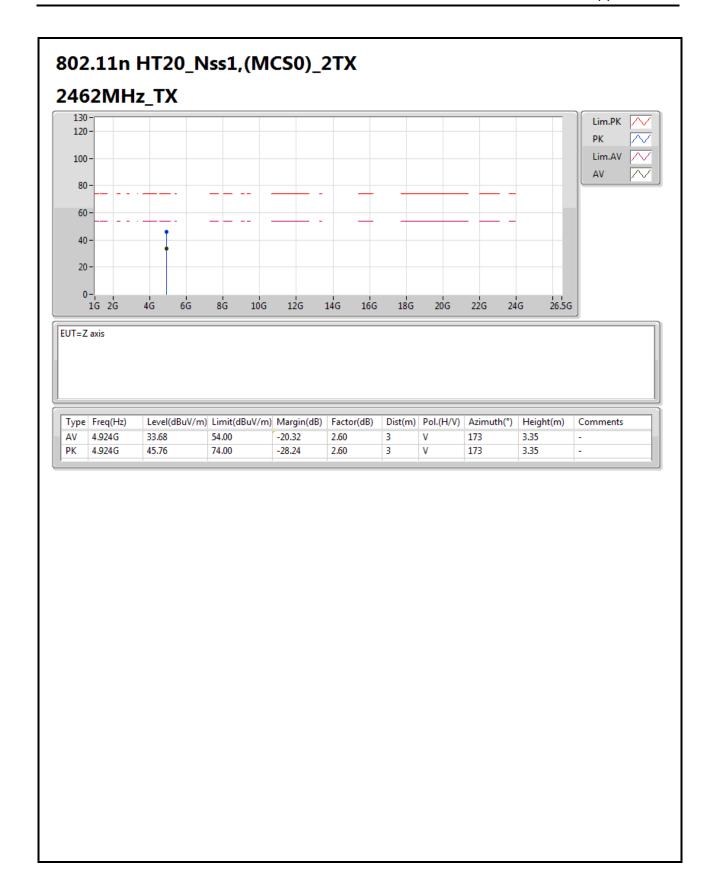
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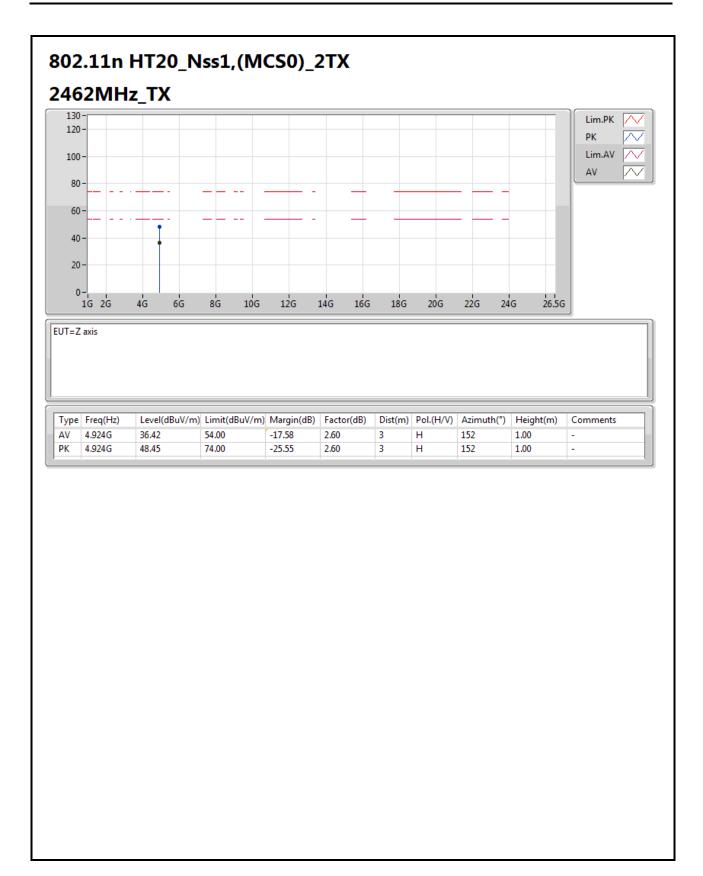
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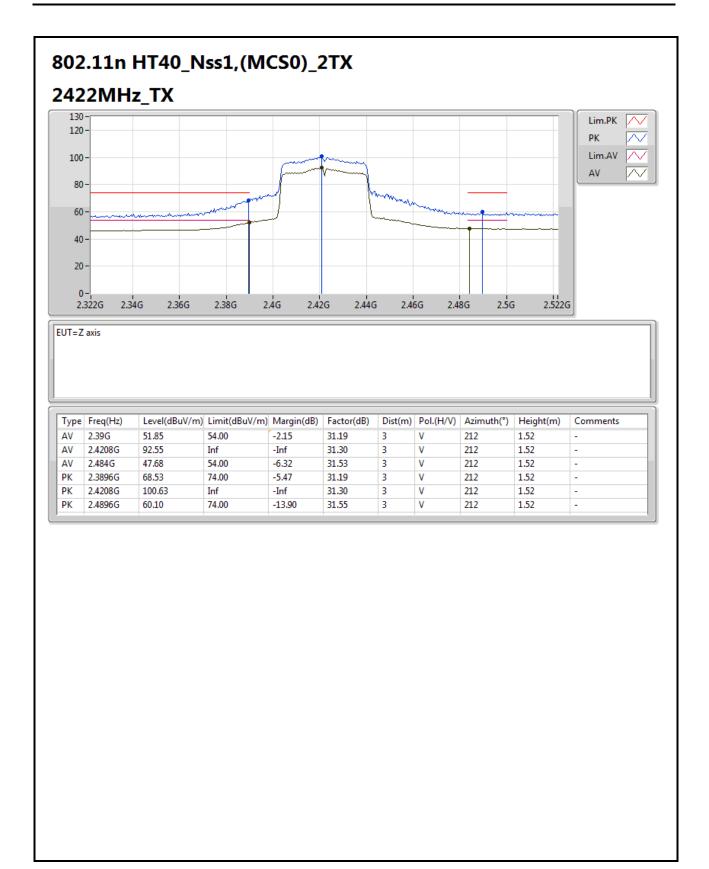


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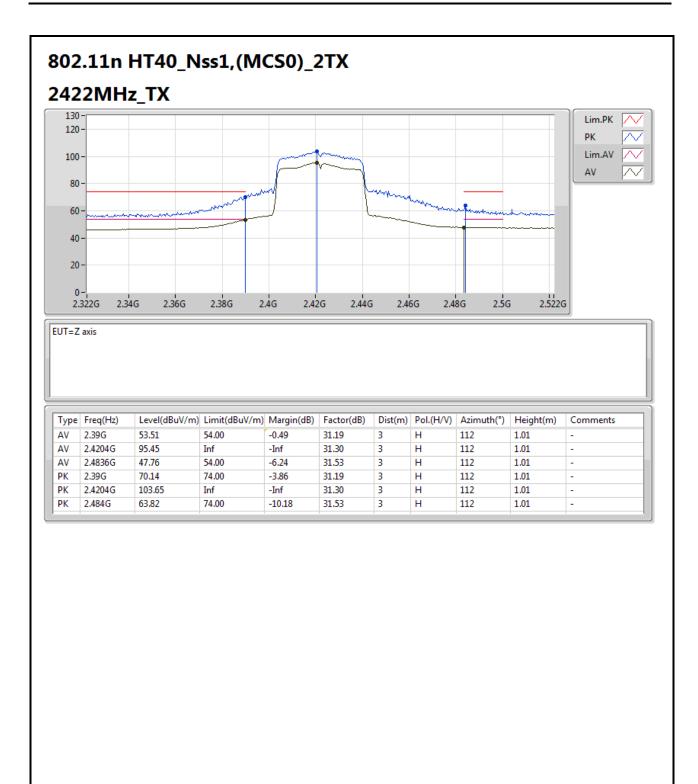






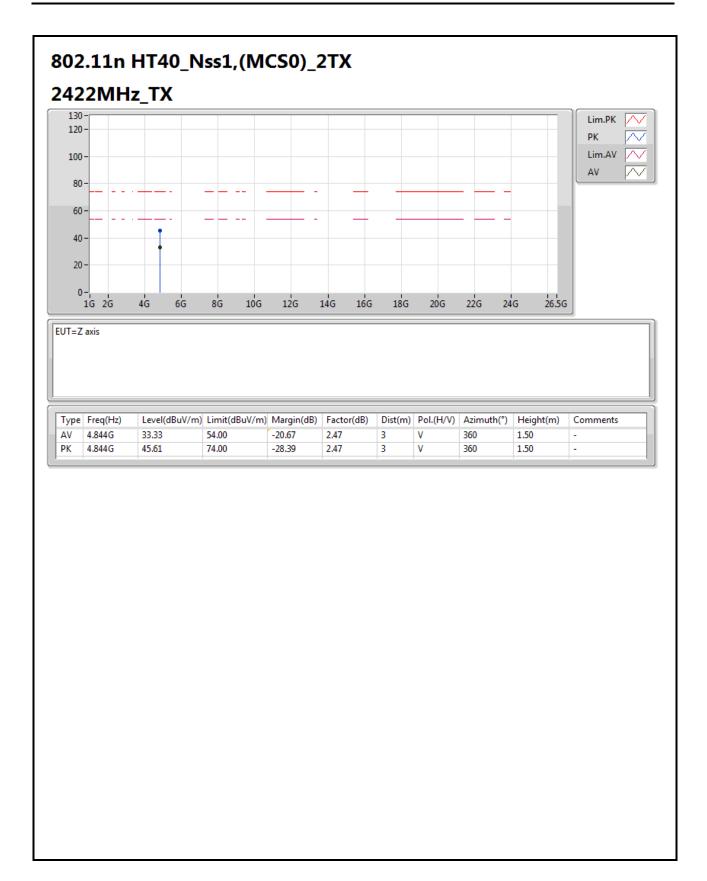
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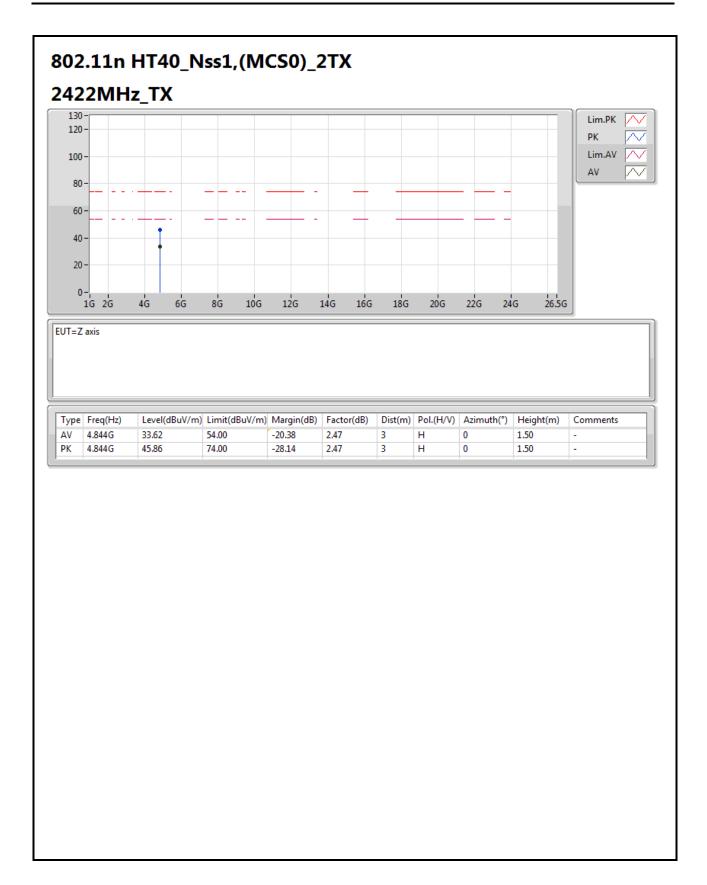
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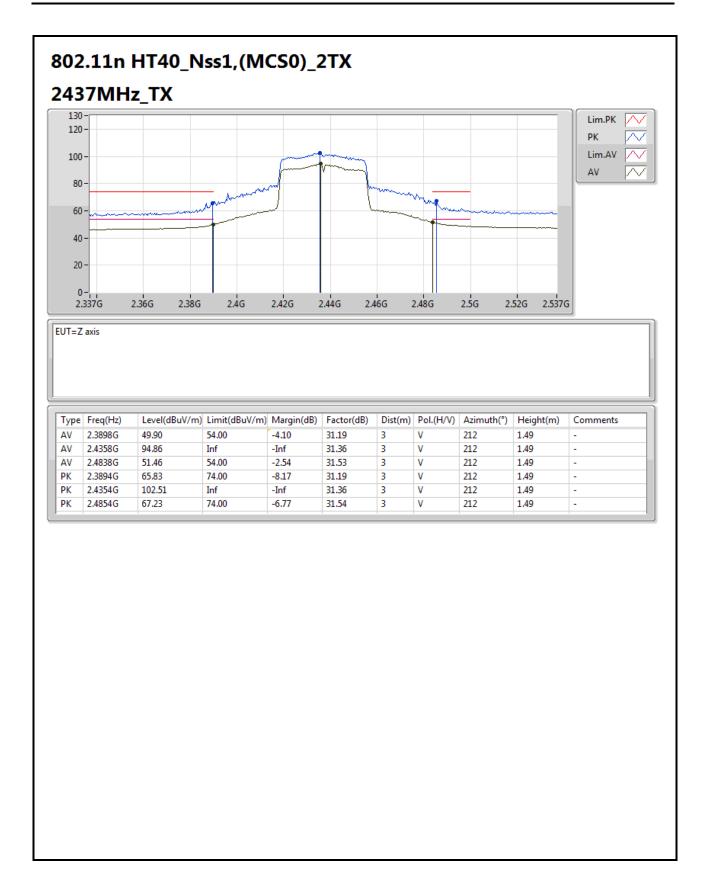
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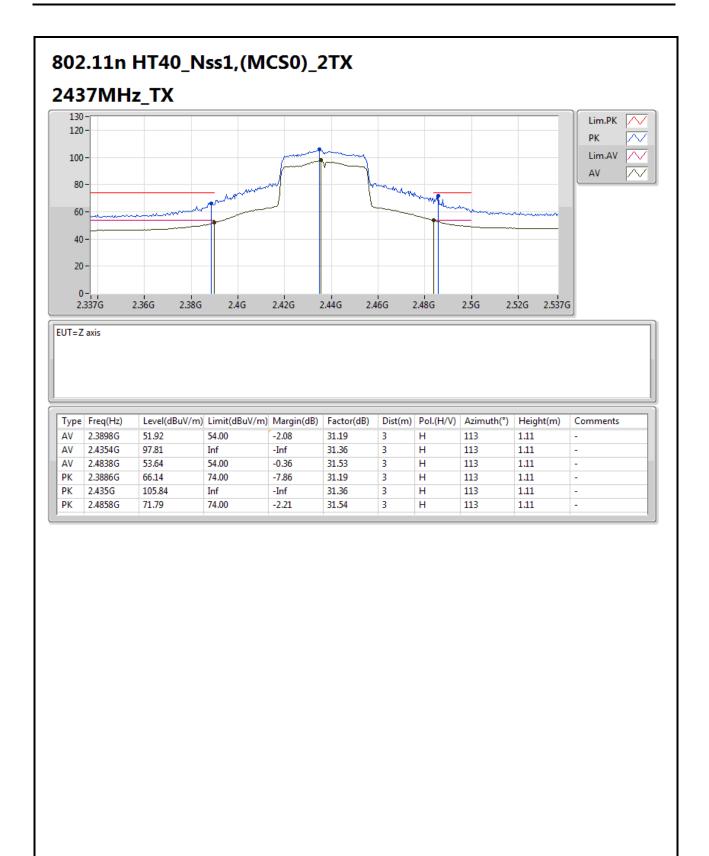
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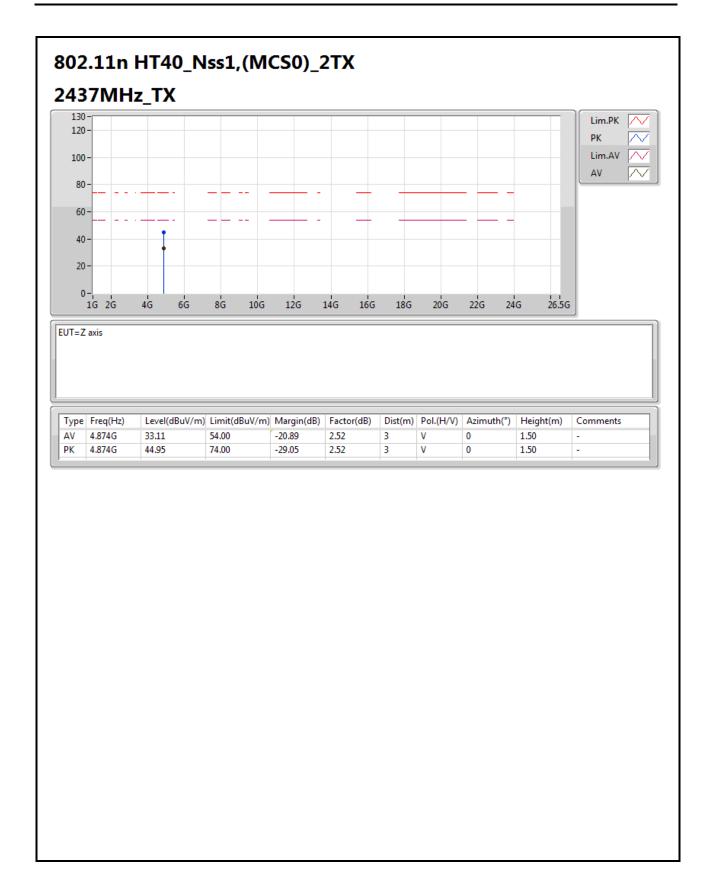
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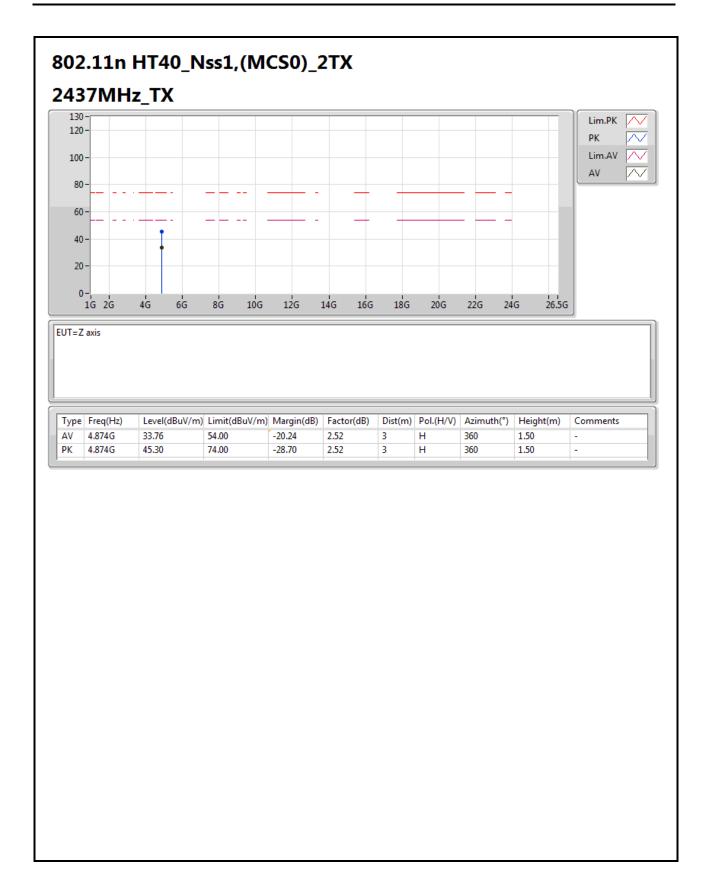
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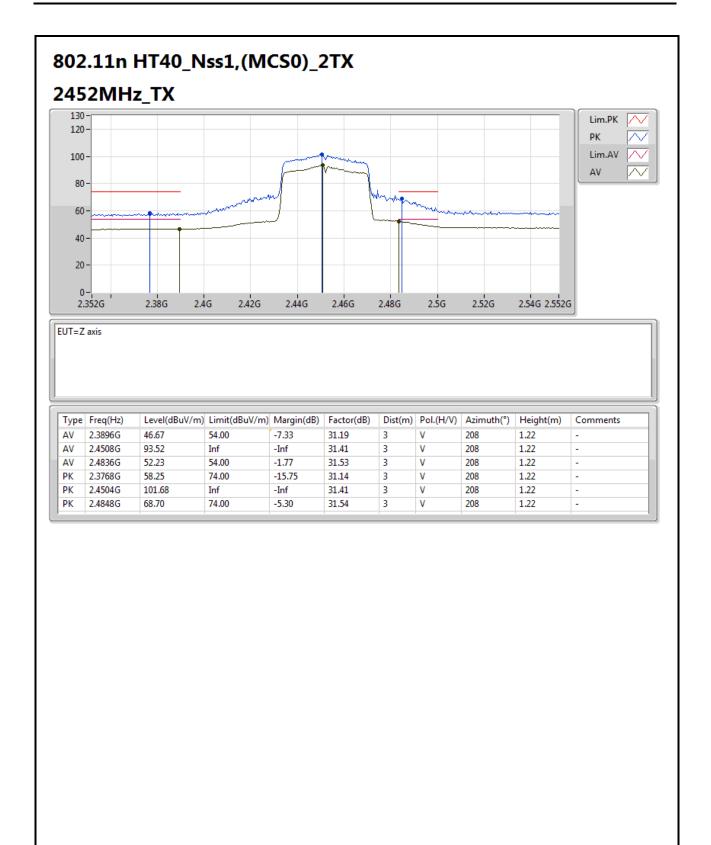
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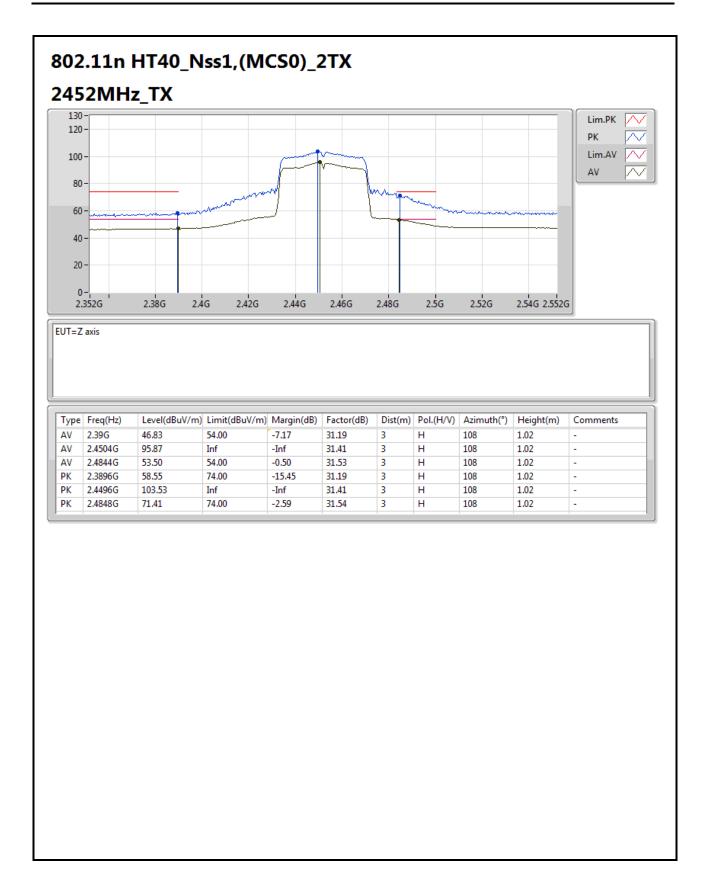
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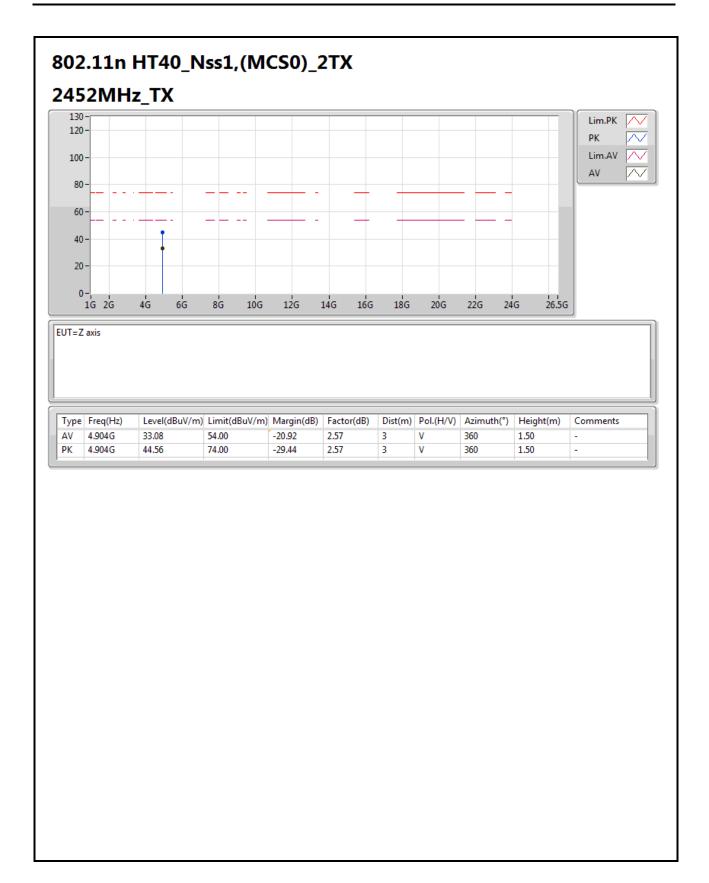
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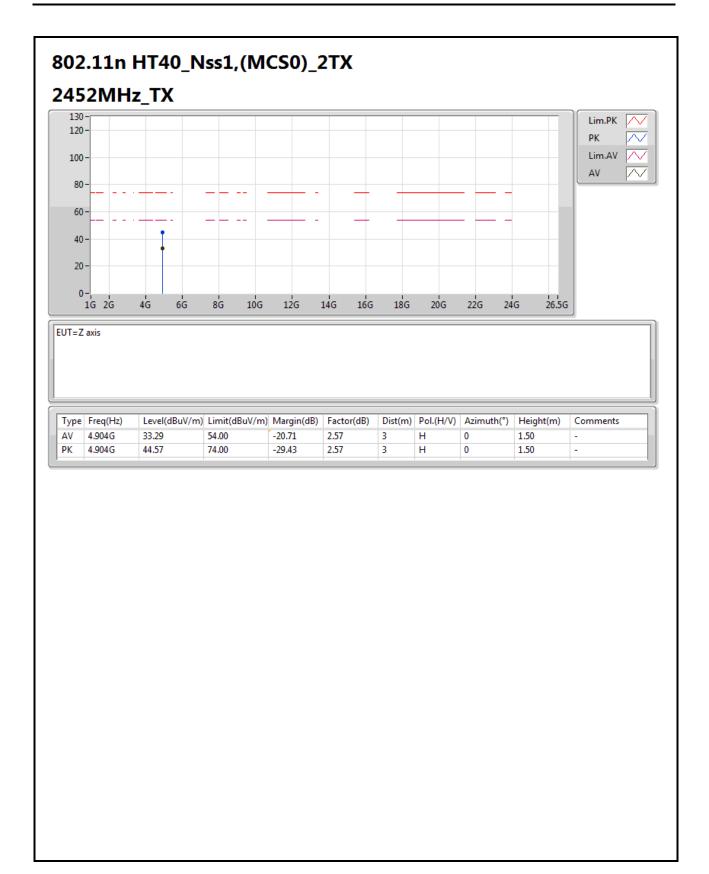
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RSE above 1GHz Result

Appendix G

732918

Summary

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
Mode1	Pass	AV	2.14G	28.56	54.00	-25.44	-0.97	3	Horizontal	360	1.50	-

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