

Report No.: FR770525-02AC

FCC Test Report

Equipment **GigaHub**

Brand Name Calix

Model No. 823G-1

FCC ID 2ABLK-823G-1

Standard 47 CFR FCC Part 15.247

Operating Band 2400 MHz - 2483.5 MHz

Function Point-to-multipoint; Point-to-point

Applicant Calix Inc.

1035 N. McDowell Blvd., Petaluma, CA 94954,

United States

The product sample received on Aug. 18, 2017 and completely tested on Sep. 04, 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

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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
FR770525-02AC	Rev. 01	Initial issue of report	Sep. 18, 2017
FR770525-02AC	Rev. 02	1.Update Equipment Name 2.delete Manufacturer This report is the latest version replacing for the report issued on Sep. 18, 2017.	Sep. 26, 2017
FR770525-02AC	Rev. 03	1.Update Equipment Name (From GigaCenter to GigaHub) This report is the latest version replacing for the report issued on Sep. 26, 2017.	Nov. 06, 2017

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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]

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Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11b	20	1TX(Port 1)
2.4-2.4835GHz	802.11g	20	1TX(Port 1)
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.
 VHT20, VHT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	WNC	WNC	PCB	I-PEX	3.64
2	2	WNC	WNC	PCB	I-PEX	3.63

Note: 1: 802.11b/g support diversity function and pre-tested port 1 and port 2 on each single chain, the worst case was port 1 and it was record in this test report.

Note: 2: 802.11n used two antennas are for signal transmitting and receiving.(2T2R Spatial Multiplexing MIMO configuration)

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1.1.3 EUT Information

	Operational Condition							
EU	T Power T	уре	Fro	m AC Adapter				
Bea	amforming	g Function		With beamformi	ng [\boxtimes	Without beamforming	
				7	Гуре of	EU	İΤ	
\boxtimes	Stand-alo	ne						
	Combine	d (EUT where	e the	radio part is fully	/ integra	atec	within another device)	
	Combine	d Equipment	- Bra	and Name / Mode	el No.:			
	Plug-in radio (EUT intended for a variety of host systems)							
	Host System - Brand Name / Model No.:							
	Other:							

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1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11b	1	0	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11g	0.997	0.013	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11n HT20	0.995	0.022	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11n HT40	0.997	0.013	n/a (DC>=0.98)	n/a (DC>=0.98)

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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					
				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	TH06-HY	Andy	24.3°C / 65.5%	01/Sep/2017
Radiated	03CH03-HY	Thor	24.3°C / 63.4%	27/Aug/2017
AC Conduction	CO04-HY	Daniel	25.1°C / 59.15%	04/Sep/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 Ver.	MP_TEST 1.3.8.0
--------------------	-----------------

Mode	Power Setting
802.11b_Nss1,(1Mbps)_1TX	-
2412MHz	42
2437MHz	51
2462MHz	53
802.11g_Nss1,(6Mbps)_1TX	-
2412MHz	50
2437MHz	63
2462MHz	55
802.11n HT20_Nss1,(MCS0)_2TX	-
2412MHz	46,46
2437MHz	59,59
2462MHz	49,49
802.11n HT40_Nss1,(MCS0)_2TX	-
2422MHz	41,41
2437MHz	50,50
2452MHz	47,47

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2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests		
Tests Item AC power-line conducted emissions		
Condition AC power-line conducted measurement for line and neutral		
Operating Mode CTX		
1	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	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	Operating Mode < 1GHz CTX		
1	Adapter mode		
Operating Mode > 1GHz	CTX		
	Y Plane		
Orthogonal Planes of EUT			
Worst Planes of EUT	V		

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2.4 Accessories

Accessories				
	Brand Name	AMIGO	Model Name	AMS157-1202000FU
AC Adapter 1	Power Rating	I/P: 100- 240 Vac, 1A, O/P: 12 Vdc, 2 A		
	Power Cord	1.47 meter, non-shiel	1.47 meter, non-shielded cable, with w/o ferrite core	
AC Adapter 2	Brand Name	Shenzhen Frecom	Model Name	F24W5-120200SPAU
	Power Rating	I/P: 100- 240 Vac, 0.6A, O/P: 12 Vdc, 2 A		
	Power Cord	1.47 meter, non-shielded cable, w/o ferrite core		rrite core
D I44 Coblo	Category	-	In/Out door	In door
RJ11 Cable	0.5 meter, shield or non-shielded cable			
RJ45 Cable	Category	-	In/Out door	In door
	0.5 meter, no	n-shielded cable		

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2.5 Support Equipment

		Support Equipment -	RF Conducted	
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	DOC
2	Adapter for NB	DELL	HA65NM130	DOC

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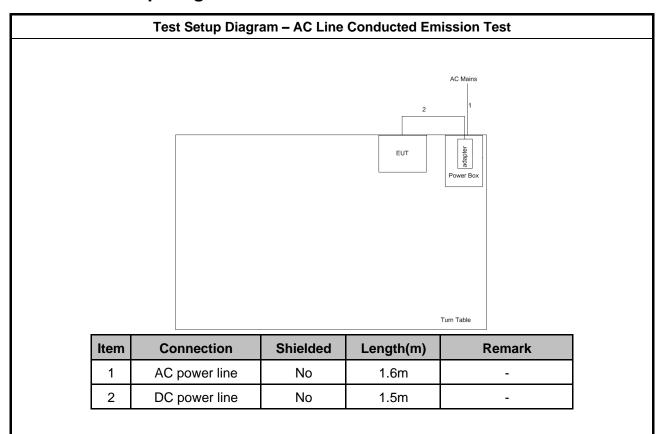
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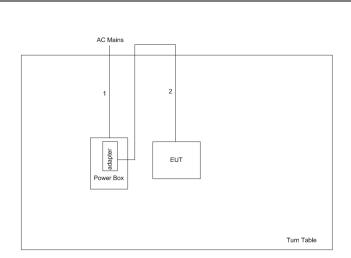
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2.6 **Test Setup Diagram**



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Test Setup Diagram - Radiated Test

Item	Connection	Shielded	Length(m)	Remark
1	AC power line	No	1.6m	-
2	DC power line	No	1.5m	-

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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 Powe	er-line Conducted Emissions L	imit
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

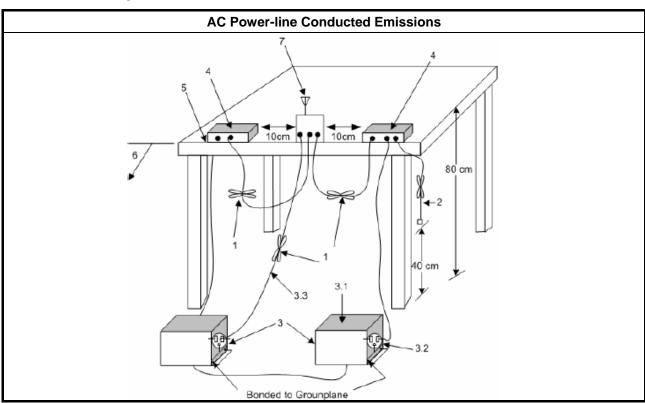
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

	Test Method
□ Refer as	s 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

Emission Bandwidth						
Spectrum Analyzer						

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

Max	imu	m Conducted Output Power Limit						
	•	If $G_{TX} \le 6$ dBi, then $P_{Out} \le 30$ 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						
e.i.r	.p. P	ower Limit:						
•	240	0-2483.5 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						
		- Aggregate power on all beams: P _{eirp} ≤ MAX(36, [P _{Out} + G _{TX} + 8]) dBm						
		aximum peak conducted output power or maximum conducted output power in dBm, e maximum transmitting antenna directional gain in dBi.						

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3.3.2 Measuring Instruments

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

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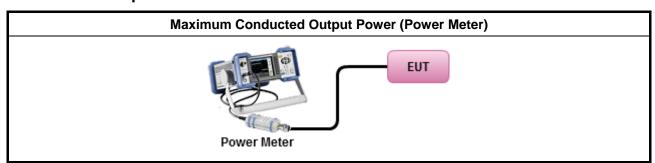
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3.3.3 Test Procedures

	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

3.3.4 Test Setup



3.3.5 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

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

3.4.2 Measuring Instruments

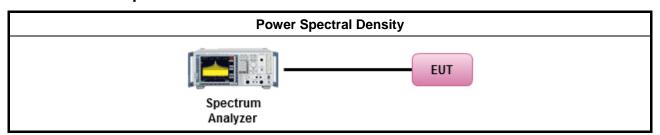
Refer a test equipment and calibration data table in this test report.

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

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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				

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- 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.

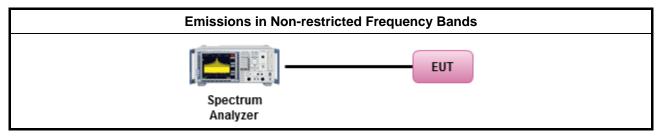
3.5.2 Measuring Instruments

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

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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 (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.

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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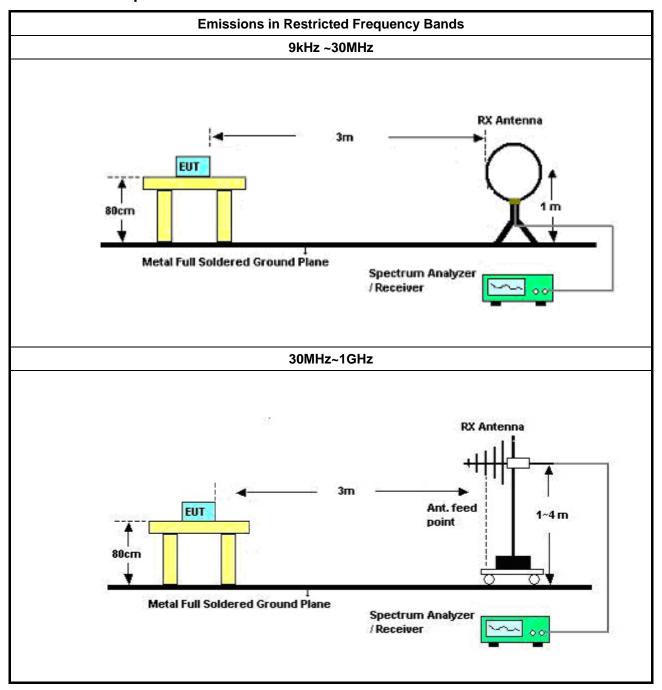
 TEL: 886-3-3273456
 Report Version
 : Rev. 03

 FAX: 886-3-3270973
 Issued Date
 : Nov. 06, 2017



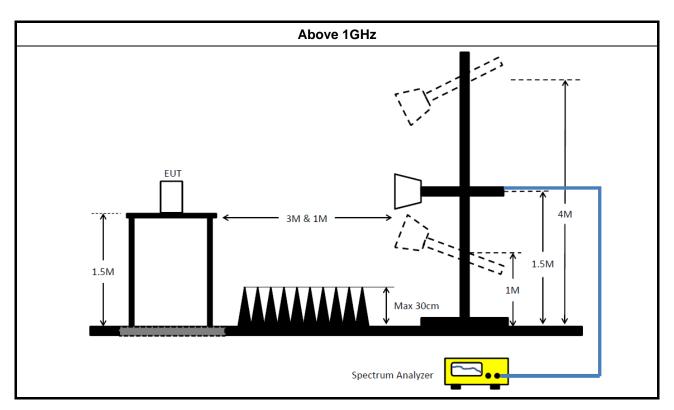
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Test Setup 3.6.4



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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. All amplitude of spurious emissions that are attenuated by more than 20 dB 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	ırer 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/2016	14/Nov/2017		
RF Cable-CON	HUBER+SUHNER	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		

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NCR : Non-Calibration Require

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz	28/Nov/2016	27/Nov/2017
3m Semi Anechoic Chamber	Anechoic SIDT FRANKONIA		03CH03-HY 1GHz ~ 18GHz		16/Dec/2016	15/Dec/2017
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	19/Apr/2017	18/Apr/2018
Amplifier	KEYSIGHT	83017A	MY53270197	1GHz ~ 26.5GHz	29/Aug/2016	28/Aug/2017
Spectrum	R&S	FSV40	101500	9kHz ~ 40GHz	28/Jun/2017	27/Jun/2018
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30MHz ~ 1GHz	08/Jul/2017	07/Jul/2018
Horn Antenna	SCHWARZBECK	BBHA 9120D	BBHA 9120D 1531	1GHz ~ 18GHz	25/Apr/2017	24/Apr/2018
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	18GHz ~ 40GHz	06/Feb/2017	05/Feb/2018
Loop Antenna	TESEQ	HLA 6120	24155	9 kHz~30 MHz	02/Mar/2017	01/Mar/2018
RF-Cable-high	SUHNER	SUHNER	CB222	1GHz ~ 40GHz	26/Jan/2017	25/Jan/2018
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	26/Jan/2017	25/Jan/2018
Receiver	R&S	ESU-26	100422/026	20Hz ~ 26.5GHz	21/Sep/2016	20/Sep/2017

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FCC Test Report

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Serial No. Spec.		Calibration Due Date
Spectrum Analyzer R&S		FSV 40	101013	10Hz~40GHz	30/Dec/2016	29/Dec/2017
Power Sensor	Anritsu	MA2411B	1027452	300MHz ~ 40GHz	24/Feb/2017	23/Feb/2018
Power Meter	Anritsu	ML2495A	1124009	300MHz ~ 40GHz	24/Feb/2017	23/Feb/2018
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	27/Jul/2017	26/Jul/2018
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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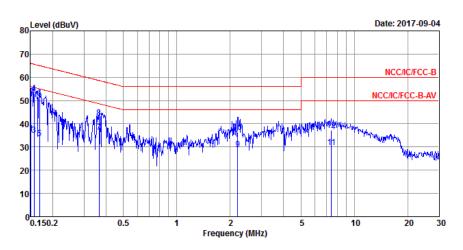
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AC Power-line Conducted Emissions

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

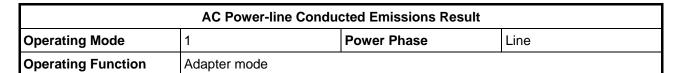


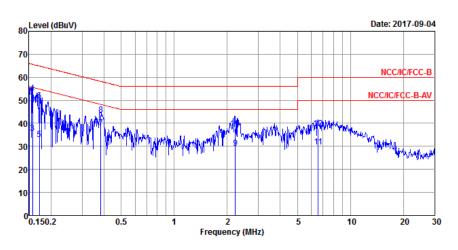
			Over	Limit	Kead	LIZN	Cable	
	Freq	Level	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15080	35.86	-20.10	55.96	26.04	9.60	0.22	Average
2	0.15080	51.60	-14.36	65.96	41.78	9.60	0.22	QP
3	0.15733	35.05	-20.55	55.60	25.21	9.61	0.23	Average
4	0.15733	52.99	-12.61	65.60	43.15	9.61	0.23	QP
5	0.16854	33.62	-21.41	55.03	23.74	9.63	0.25	Average
6	0.16854	51.04	-13.99	65.03	41.16	9.63	0.25	QP
7 MAX	0.36531	36.33	-12.28	48.61	26.56	9.64	0.13	Average
8	0.36531	42.45	-16.16	58.61	32.68	9.64	0.13	_
9	2.20147	29.00	-17.00	46.00	19.07	9.66	0.27	Average
10	2.20147	36.25	-19.75	56.00	26.32	9.66	0.27	OP
11	7.44647	29.69	-20.31	50.00	19.79	9.73		Äverage
12	7.44647	37.32	-22.68	60.00	27.42	9.73	0.17	_
								•

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.)







			0ver	Limit	Read	LISN	Cable	
	Freq	Level	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
	0.45000	26.50	40.40	F.C. 0.0	06.64	0.66	0.00	
1	0.15000	36.52	-19.48	56.00	26.64	9.66	0.22	Average
2	0.15000	51.94	-14.06	66.00	42.06	9.66	0.22	QP
3	0.15733	35.69	-19.91	55.60	25.80	9.66	0.23	Average
4	0.15733	53.10	-12.50	65.60	43.21	9.66	0.23	QP
5	0.17125	33.04	-21.86	54.90	23.12	9.66	0.26	Average
6	0.17125	49.88	-15.02	64.90	39.96	9.66	0.26	QP
7 MAX	0.38315	38.12	-10.09	48.21	28.33	9.68	0.11	Average
8	0.38315	43.61	-14.60	58.21	33.82	9.68	0.11	QP
9	2.22493	29.13	-16.87	46.00	19.07	9.79	0.27	Average
10	2.22493	37.68	-18.32	56.00	27.62	9.79	0.27	QP
11	6.55731	29.86	-20.14	50.00	19.96	9.75	0.15	Average
12	6.55731	37.82	-22.18	60.00	27.92	9.75	0.15	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.)

SPORTON INTERNATIONAL INC.



EBW Result Appendix B

Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-
2.4-2.4835GHz	10.075M	15.242M	15M2G1D	10.075M	15.092M
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-
2.4-2.4835GHz	16.525M	17.941M	17M9D1D	16.525M	16.492M
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-
2.4-2.4835GHz	17.825M	17.866M	17M9D1D	17.75M	17.716M
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-
2.4-2.4835GHz	36.4M	36.082M	36M1D1D	36.35M	36.032M

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;

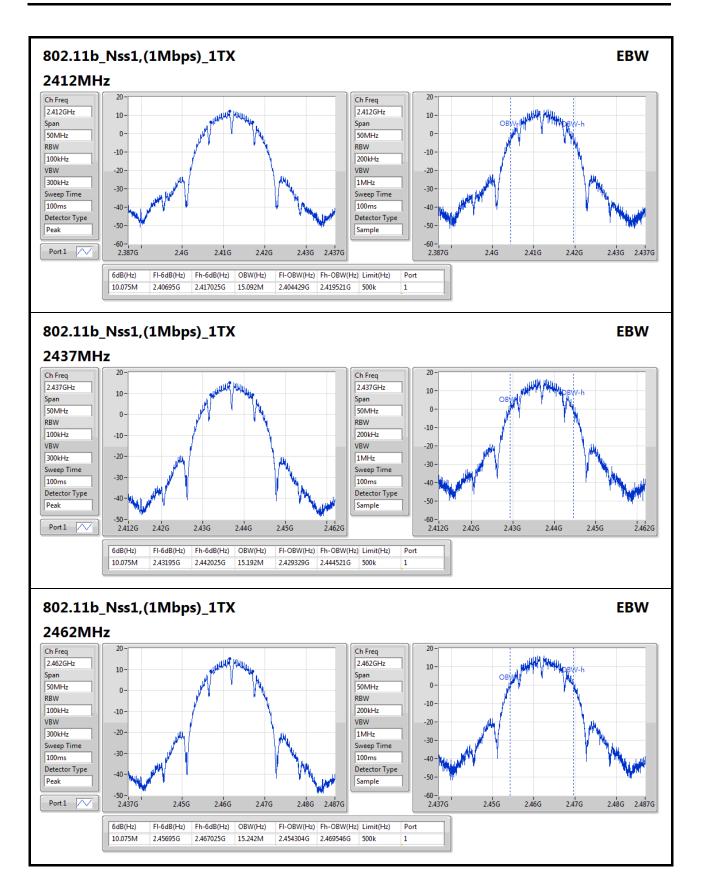
Result

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_Nss1,(1Mbps)_1TX	-	-	-	-	-	-	
2412MHz	Pass	500k	10.075M	15.092M			
2437MHz	Pass	500k	10.075M	15.192M			
2462MHz	Pass	500k	10.075M	15.242M			
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-	-	
2412MHz	Pass	500k	16.525M	16.492M			
2437MHz	Pass	500k	16.525M	17.941M			
2462MHz	Pass	500k	16.525M	16.542M			
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	
2412MHz	Pass	500k	17.775M	17.766M	17.775M	17.766M	
2437MHz	Pass	500k	17.825M	17.866M	17.825M	17.866M	
2462MHz	Pass	500k	17.75M	17.716M	17.825M	17.741M	
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	
2422MHz	Pass	500k	36.35M	36.032M	36.4M	36.032M	
2437MHz	Pass	500k	36.4M	36.082M	36.4M	36.082M	
2452MHz	Pass	500k	36.35M	36.032M	36.4M	36.082M	

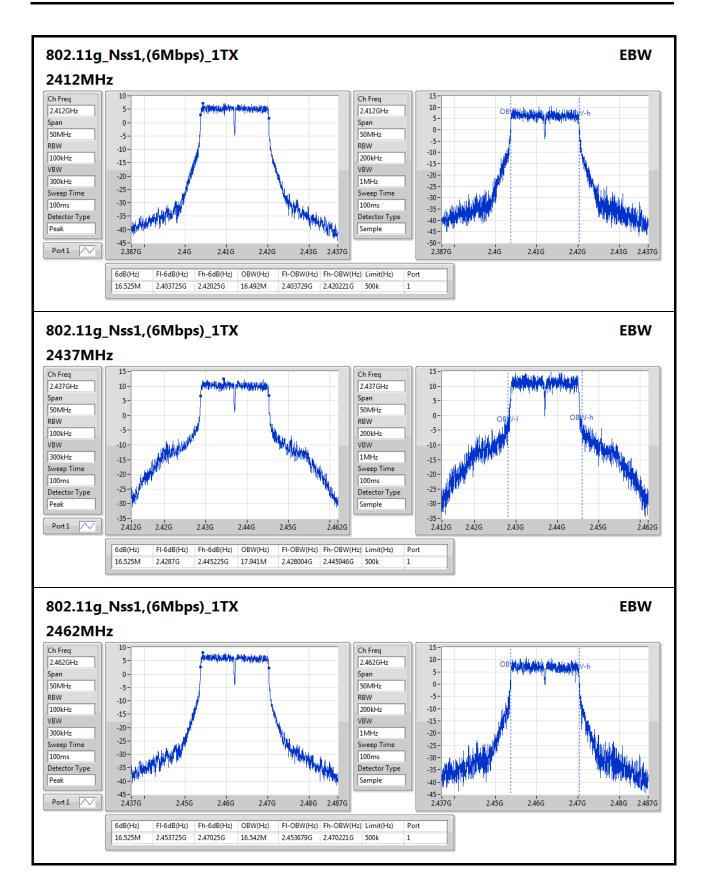
Port X-N dB = Port X 6dB down bandwidth; Port X-OBW = Port X 99% occupied bandwidth;

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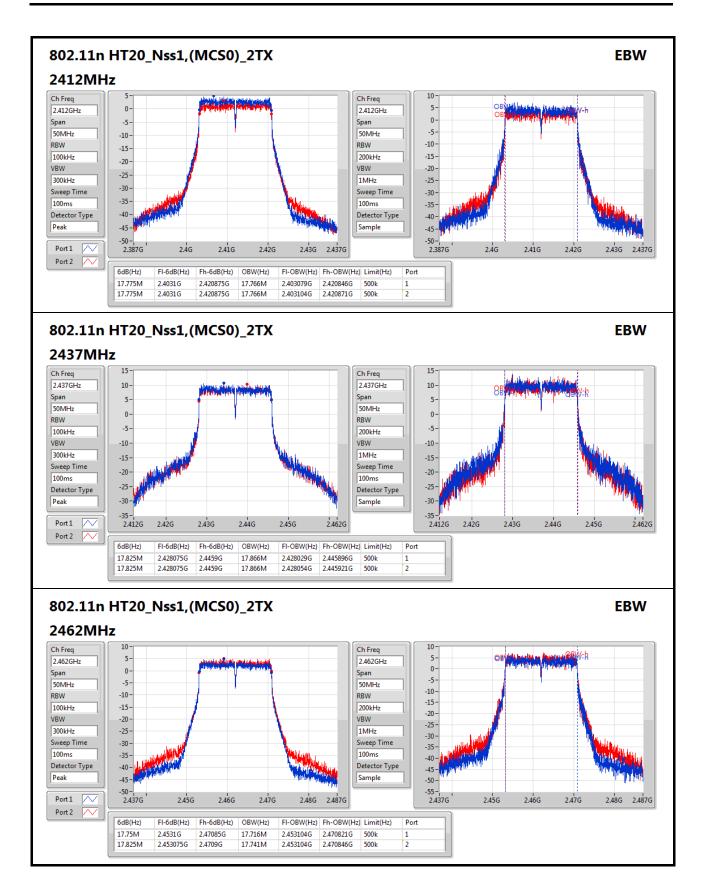
TEL: 886-3-327-3456 FAX: 886-3-327-0973 770525-02



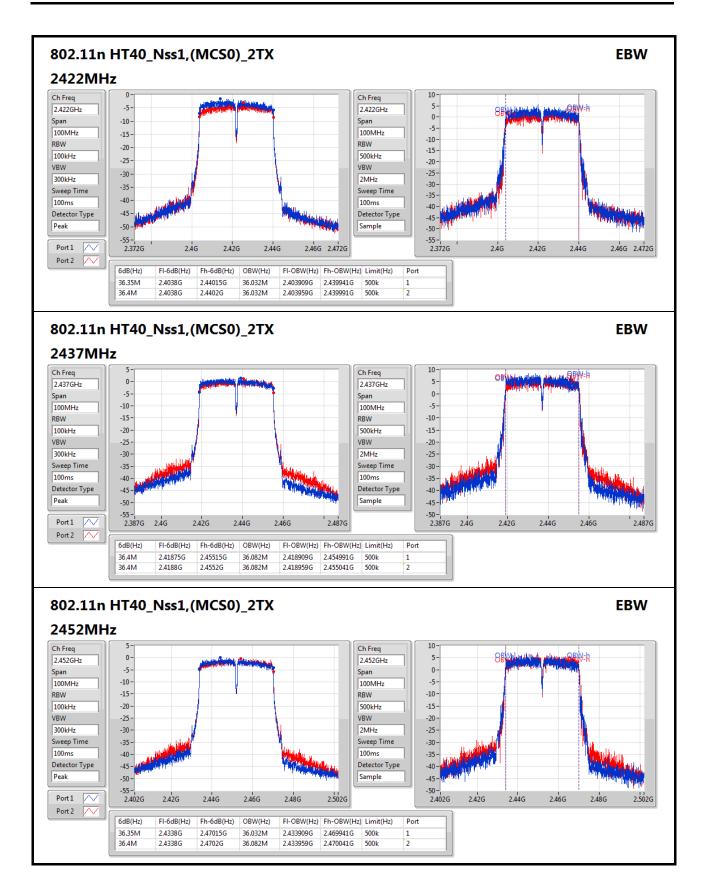














AV Power Result Appendix C

Summary

Mode	Total Power	Total Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_1TX	25.73	0.37411
802.11g_Nss1,(6Mbps)_1TX	26.16	0.41305
802.11n HT20_Nss1,(MCS0)_2TX	27.53	0.56624
802.11n HT40_Nss1,(MCS0)_2TX	21.88	0.15417

Result

Mode	Result	DG	Port 1	Port 2	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-	-
2412MHz	Pass	3.64	21.99		21.99	30.00
2437MHz	Pass	3.64	24.89		24.89	30.00
2462MHz	Pass	3.64	25.73		25.73	30.00
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-	-
2412MHz	Pass	3.64	21.29		21.29	30.00
2437MHz	Pass	3.64	26.16		26.16	30.00
2462MHz	Pass	3.64	22.08		22.08	30.00
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.64	17.16	16.86	20.02	30.00
2437MHz	Pass	3.64	24.66	24.38	27.53	30.00
2462MHz	Pass	3.64	18.83	19.37	22.12	30.00
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	3.64	15.55	14.18	17.93	30.00
2437MHz	Pass	3.64	19.06	18.67	21.88	30.00
2452MHz	Pass	3.64	17.16	17.31	20.25	30.00

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

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Appendix D **PSD Result**

Summary

Mode	PD		
	(dBm/RBW)		
2.4-2.4835GHz	-		
802.11b_Nss1,(1Mbps)_1TX	-4.38		
802.11g_Nss1,(6Mbps)_1TX	-2.49		
802.11n HT20_Nss1,(MCS0)_2TX	-1.90		
802.11n HT40_Nss1,(MCS0)_2TX	-8.71		

RBW=3kHz.

Result

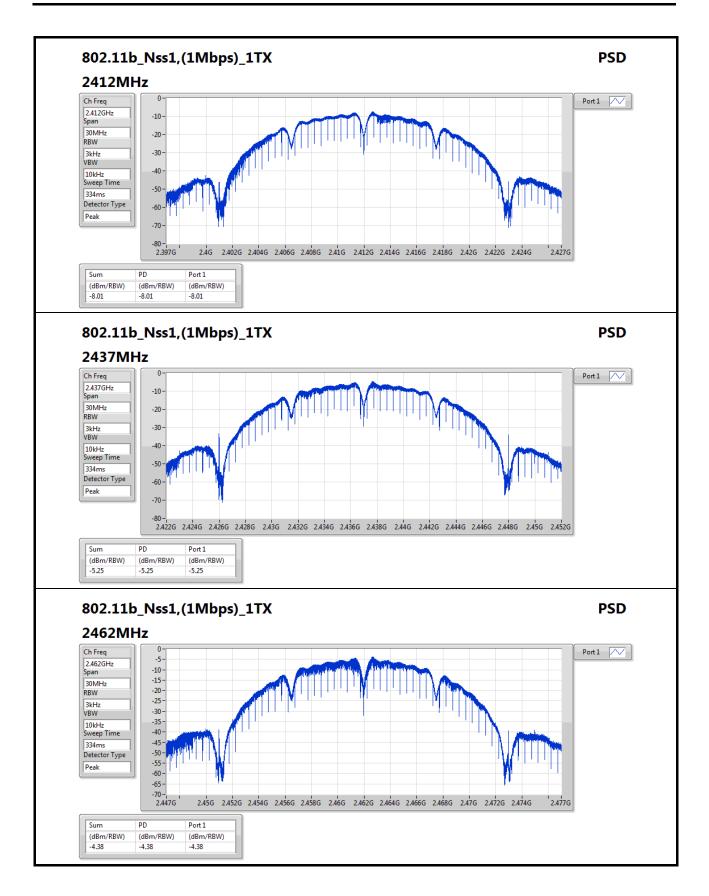
Mode	Result	DG	Port 1	Port 2	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-	-
2412MHz	Pass	3.64	-8.01		-8.01	8.00
2437MHz	Pass	3.64	-5.25		-5.25	8.00
2462MHz	Pass	3.64	-4.38		-4.38	8.00
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-	-
2412MHz	Pass	3.64	-7.29		-7.29	8.00
2437MHz	Pass	3.64	-2.49		-2.49	8.00
2462MHz	Pass	3.64	-6.62		-6.62	8.00
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	6.65	-12.21	-12.40	-9.38	7.35
2437MHz	Pass	6.65	-3.51	-4.23	-1.90	7.35
2462MHz	Pass	6.65	-9.09	-8.81	-6.83	7.35
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	6.65	-13.42	-16.47	-12.94	7.35
2437MHz	Pass	6.65	-11.38	-12.01	-8.71	7.35
2452MHz	Pass	6.65	-12.88	-12.90	-9.88	7.35

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;

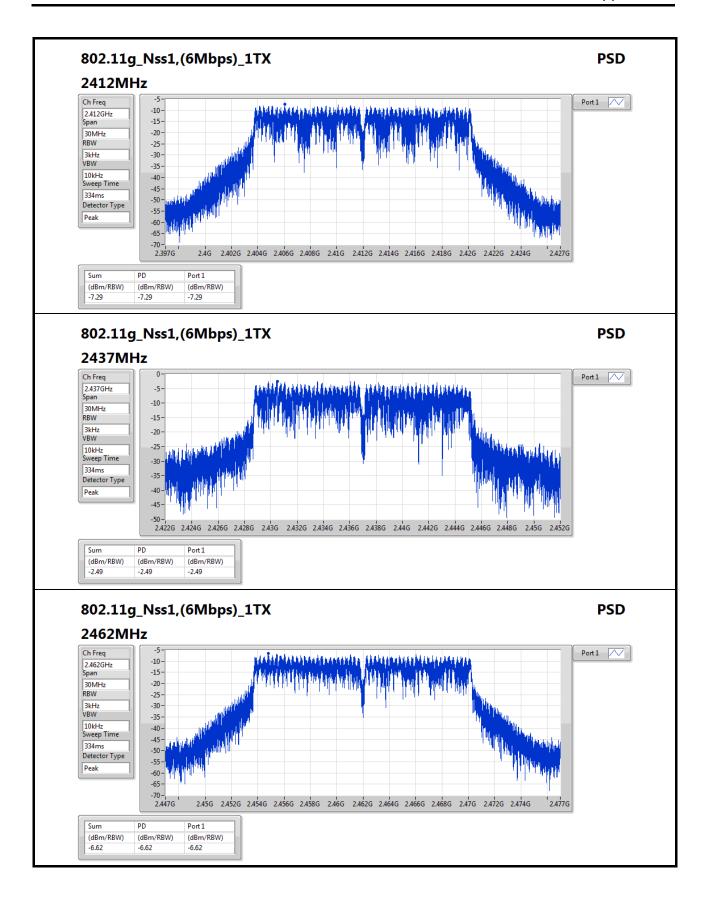
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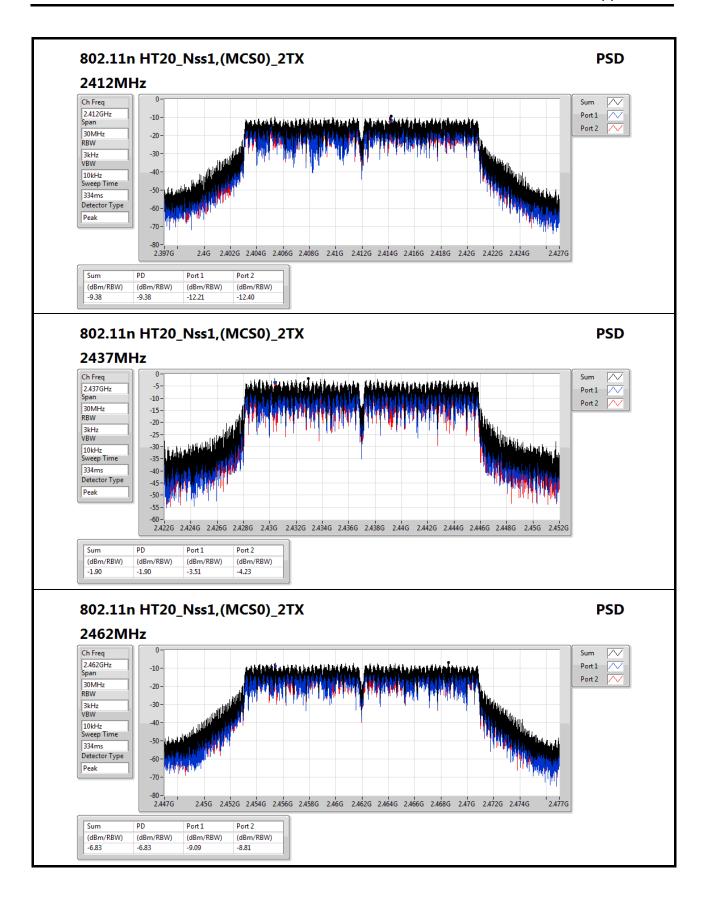
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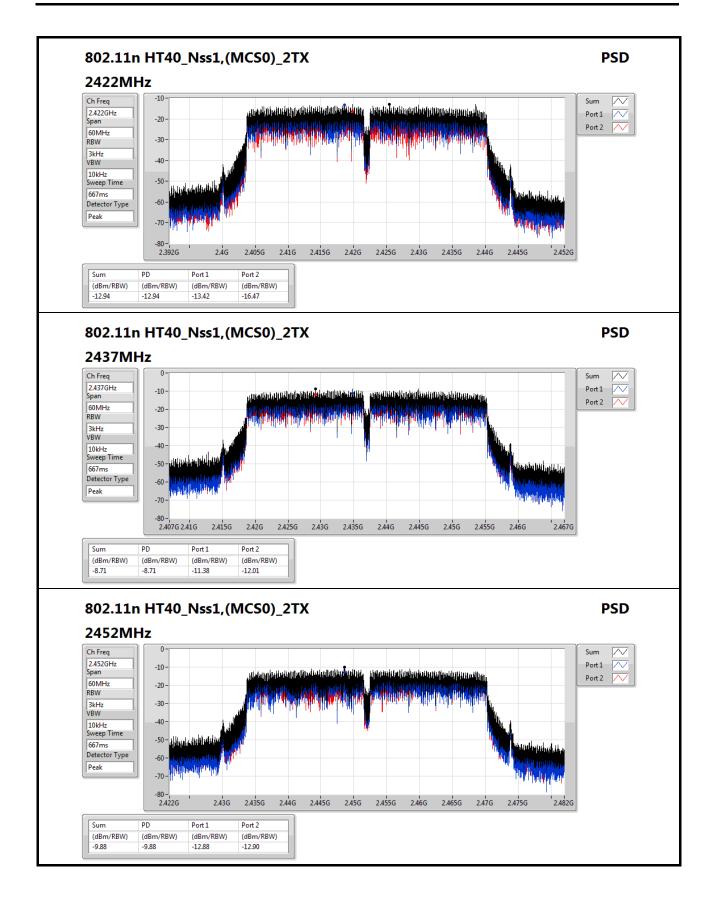






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CSE Non-restricted Band Result

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 F	HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
	2.4-2.4835GHz	Pass	2.431563G	10.29	-19.71	2.307575G	-53.82	2.39992G	-27.43	2.48478G	-52.51	15.138436G	-53.55	1

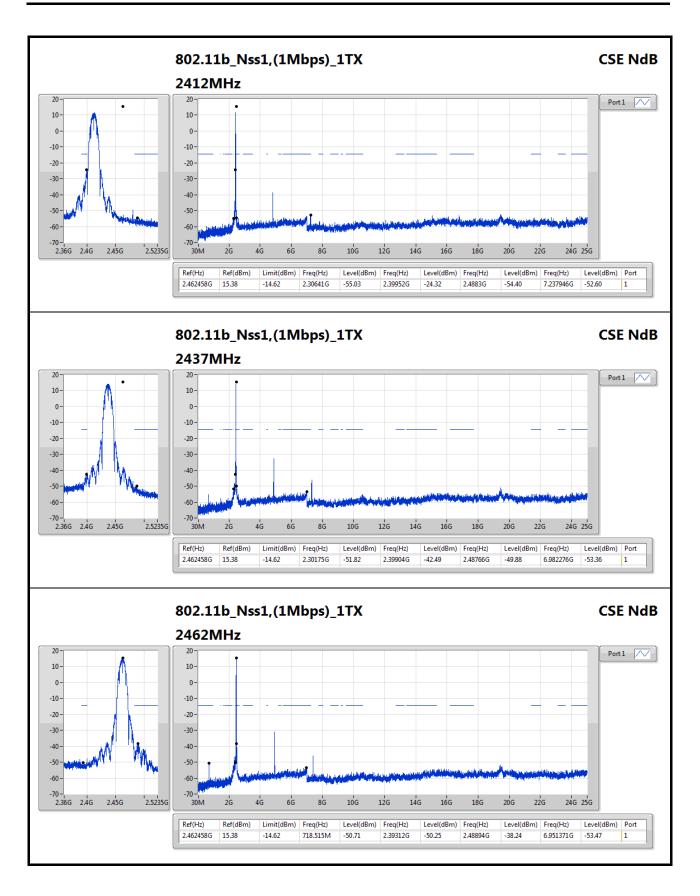
Result

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_Nss1,(1Mbps)_1TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.462458G	15.38	-14.62	2.30641G	-55.03	2.39952G	-24.32	2.4883G	-54.40	7.237946G	-52.60	1
2437MHz	Pass	2.462458G	15.38	-14.62	2.30175G	-51.82	2.39904G	-42.49	2.48766G	-49.88	6.982276G	-53.36	1
2462MHz	Pass	2.462458G	15.38	-14.62	718.515M	-50.71	2.39312G	-50.25	2.48894G	-38.24	6.951371G	-53.47	1
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.429225G	12.01	-17.99	2.309905G	-53.18	2.39992G	-25.74	2.48534G	-51.94	6.951371G	-51.85	1
2437MHz	Pass	2.429225G	12.01	-17.99	2.305245G	-53.32	2.39832G	-33.35	2.48414G	-40.59	6.982276G	-53.53	1
2462MHz	Pass	2.429225G	12.01	-17.99	2.30874G	-52.56	2.39536G	-50.11	2.48382G	-31.72	6.976657G	-53.08	1
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.431563G	10.29	-19.71	2.307575G	-53.82	2.39992G	-27.43	2.48478G	-52.51	15.138436G	-53.55	1
2412MHz	Pass	2.431563G	10.29	-19.71	2.300585G	-57.54	2.39992G	-28.19	2.49198G	-50.91	2.599358G	-51.41	2
2437MHz	Pass	2.431563G	10.29	-19.71	2.30874G	-53.22	2.39824G	-35.21	2.48414G	-44.31	6.993514G	-53.22	1
2437MHz	Pass	2.431563G	10.29	-19.71	2.309905G	-55.53	2.39832G	-32.90	2.48414G	-41.46	2.599358G	-51.39	2
2462MHz	Pass	2.431563G	10.29	-19.71	2.30641G	-52.86	2.39992G	-49.43	2.48422G	-42.72	5.588733G	-52.83	1
2462MHz	Pass	2.431563G	10.29	-19.71	2.300585G	-56.49	2.39808G	-51.95	2.48382G	-39.38	2.599358G	-50.23	2
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.432231G	1.96	-28.04	2.300535G	-56.90	2.39984G	-35.80	2.48542G	-53.80	6.977881G	-52.72	1
2422MHz	Pass	2.432231G	1.96	-28.04	2.30397G	-58.78	2.39424G	-37.36	2.48574G	-53.72	6.938618G	-52.80	2
2437MHz	Pass	2.432231G	1.96	-28.04	2.30626G	-54.64	2.39952G	-40.30	2.48414G	-47.45	6.994709G	-53.77	1
2437MHz	Pass	2.432231G	1.96	-28.04	2.309695G	-56.61	2.39984G	-36.16	2.48414G	-44.27	2.599959G	-51.27	2
2452MHz	Pass	2.432231G	1.96	-28.04	2.309695G	-54.76	2.39888G	-46.02	2.48446G	-44.80	6.983491G	-51.79	1
2452MHz	Pass	2.432231G	1.96	-28.04	2.188325G	-57.01	2.39664G	-45.74	2.48654G	-40.58	2.599959G	-51.18	2

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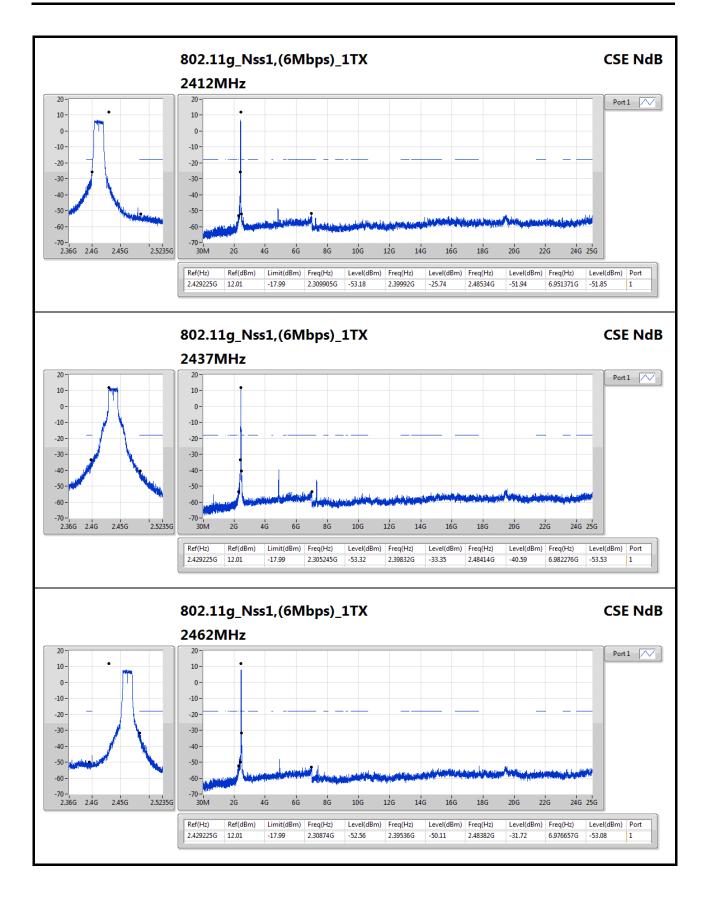
TEL: 886-3-327-3456 FAX: 886-3-327-0973 770525-02





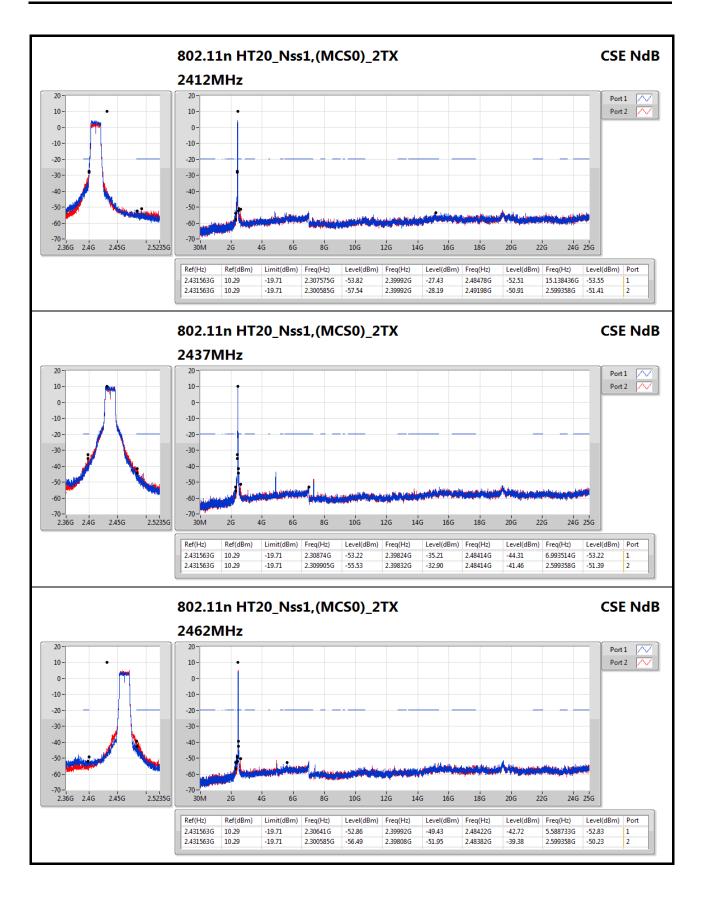
TEL: 886-3-327-3456 FAX: 886-3-327-0973 Page No. : E2 of E5





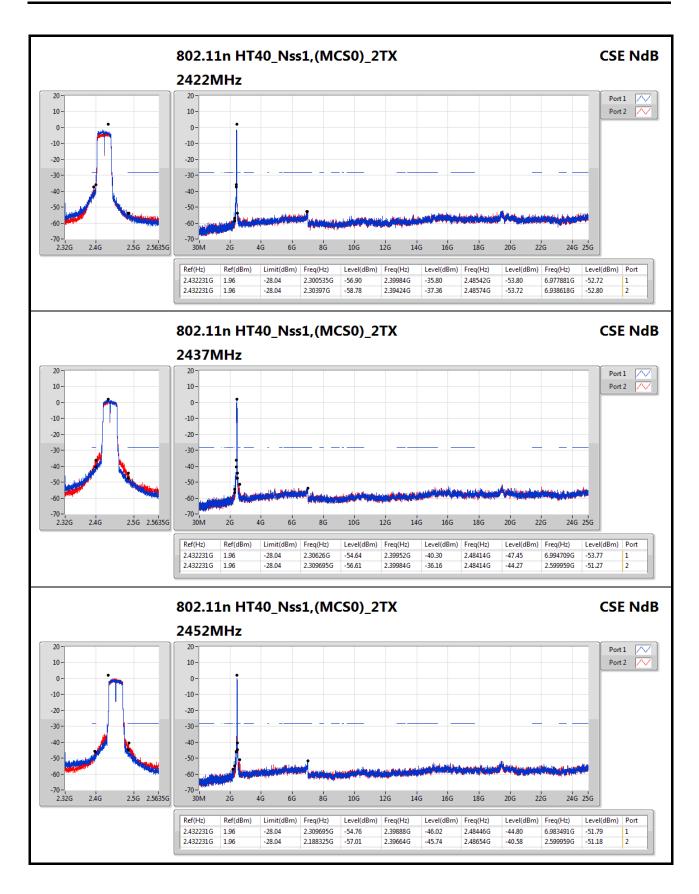
TEL: 886-3-327-3456 FAX: 886-3-327-0973 Page No. : E3 of E5





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RSE TX below 1GHz Result

Appendix F.1

Summary

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	PK	299.66M	35.88	46.00	-10.12	-5.83	3	Horizontal	360	1.00	-

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RSE TX below 1GHz Result

Appendix F.1

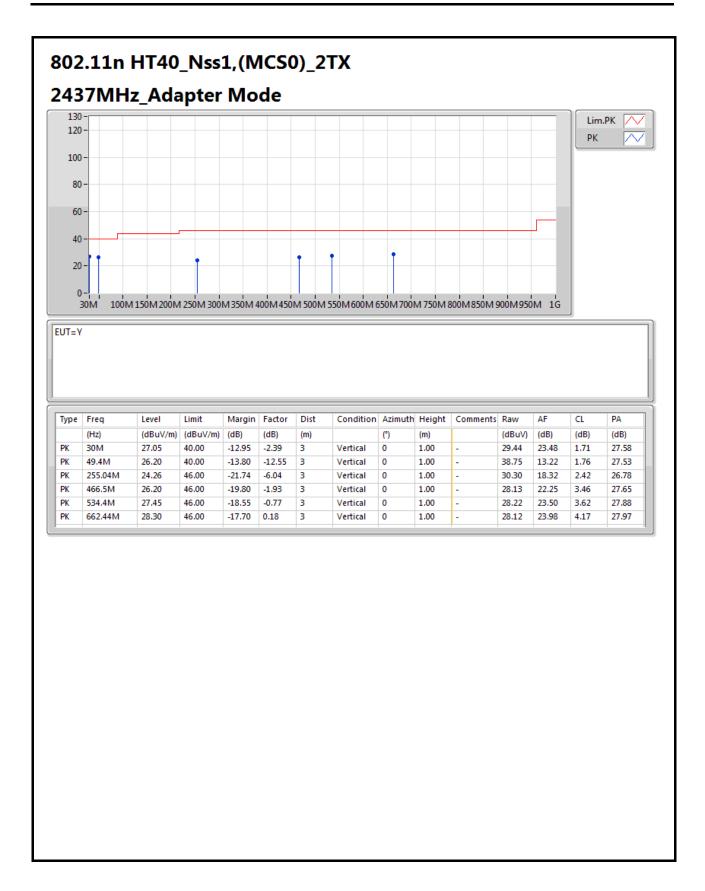
770525-02

Result

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-
2437MHz	Pass	PK	31.94M	24.46	40.00	-15.54	-3.57	3	Horizontal	360	1.00	-
2437MHz	Pass	PK	117.3M	23.66	43.50	-19.84	-8.01	3	Horizontal	360	1.00	-
2437MHz	Pass	PK	299.66M	35.88	46.00	-10.12	-5.83	3	Horizontal	360	1.00	-
2437MHz	Pass	PK	466.5M	29.83	46.00	-16.17	-1.93	3	Horizontal	360	1.00	-
2437MHz	Pass	PK	658.56M	30.94	46.00	-15.06	0.18	3	Horizontal	360	1.00	-
2437MHz	Pass	PK	840.92M	30.57	46.00	-15.43	2.34	3	Horizontal	360	1.00	-
2437MHz	Pass	PK	30M	27.05	40.00	-12.95	-2.39	3	Vertical	0	1.00	-
2437MHz	Pass	PK	49.4M	26.20	40.00	-13.80	-12.55	3	Vertical	0	1.00	-
2437MHz	Pass	PK	255.04M	24.26	46.00	-21.74	-6.04	3	Vertical	0	1.00	-
2437MHz	Pass	PK	466.5M	26.20	46.00	-19.80	-1.93	3	Vertical	0	1.00	-
2437MHz	Pass	PK	534.4M	27.45	46.00	-18.55	-0.77	3	Vertical	0	1.00	-
2437MHz	Pass	PK	662.44M	28.30	46.00	-17.70	0.18	3	Vertical	0	1.00	-

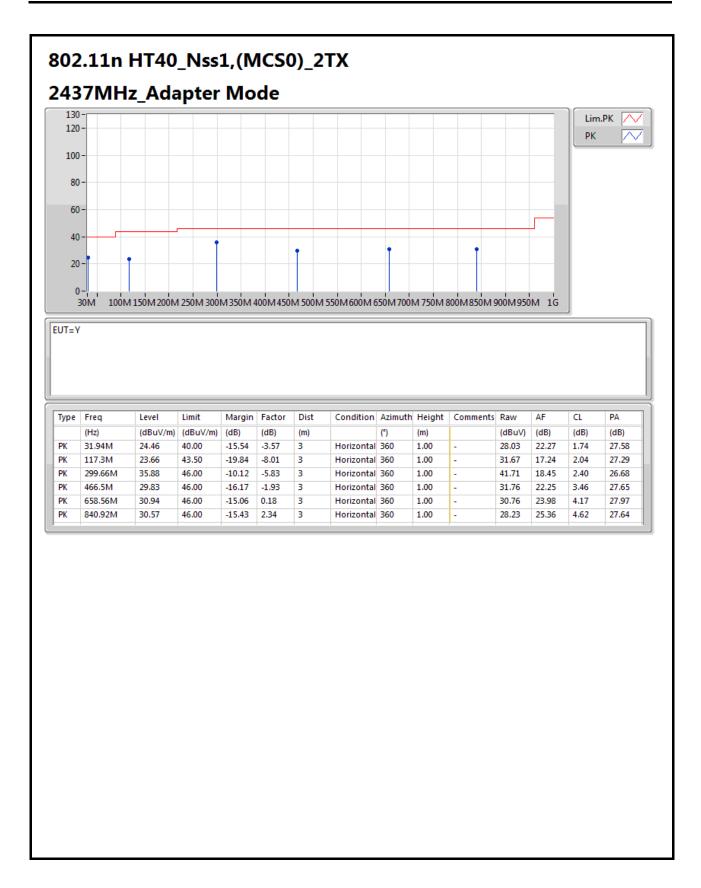
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Appendix F.2

770525-02

Summary

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	AV	2.39G	53.92	54.00	-0.08	31.45	3	Vertical	250	2.21	-

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Result

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
802.11b_(1Mbps)_1TX	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	AV	2.3862G	52.36	54.00	-1.64	31.43	3	Horizontal	338	1.76	-
2412MHz	Pass	AV	2.4112G	105.56	Inf	-Inf	31.52	3	Horizontal	338	1.76	-
2412MHz	Pass	AV	4.824G	52.33	54.00	-1.67	2.25	3	Horizontal	55	2.28	-
2412MHz	Pass	PK	2.386G	62.21	74.00	-11.79	31.43	3	Horizontal	338	1.76	-
2412MHz	Pass	PK	2.412G	108.42	Inf	-Inf	31.52	3	Horizontal	338	1.76	-
2412MHz	Pass	PK	4.824G	54.89	74.00	-19.11	2.25	3	Horizontal	55	2.28	-
2412MHz	Pass	AV	2.3862G	52.08	54.00	-1.92	31.43	3	Vertical	290	1.78	-
2412MHz	Pass	AV	2.4112G	106.42	Inf	-Inf	31.52	3	Vertical	290	1.78	-
2412MHz	Pass	AV	4.824G	42.58	54.00	-11.42	2.25	3	Vertical	152	2.63	-
2412MHz	Pass	PK	2.3868G	62.02	74.00	-11.98	31.43	3	Vertical	290	1.78	-
2412MHz	Pass	PK	2.4118G	109.28	Inf	-Inf	31.52	3	Vertical	290	1.78	-
2412MHz	Pass	PK	4.824G	48.91	74.00	-25.09	2.25	3	Vertical	152	2.63	-
2437MHz	Pass	AV	2.3894G	47.86	54.00	-6.14	31.44	3	Horizontal	217	1.72	-
2437MHz	Pass	AV	2.4362G	109.27	Inf	-Inf	31.61	3	Horizontal	217	1.72	-
2437MHz	Pass	AV	2.485G	47.36	54.00	-6.64	31.79	3	Horizontal	217	1.72	-
2437MHz	Pass	AV	4.874G	53.68	54.00	-0.32	2.36	3	Horizontal	141	2.83	-
2437MHz	Pass	PK	2.377G	59.70	74.00	-14.30	31.40	3	Horizontal	217	1.72	-
2437MHz	Pass	PK	2.437G	112.08	Inf	-Inf	31.61	3	Horizontal	217	1.72	-
2437MHz	Pass	PK	2.495G	59.98	74.00	-14.02	31.82	3	Horizontal	217	1.72	-
2437MHz	Pass	PK	4.874G	55.81	74.00	-18.19	2.36	3	Horizontal	141	2.83	-
2437MHz	Pass	AV	2.3878G	46.68	54.00	-7.32	31.44	3	Vertical	338	1.76	-
2437MHz	Pass	AV	2.4362G	107.88	Inf	-Inf	31.61	3	Vertical	338	1.76	-
2437MHz	Pass	AV	2.4878G	46.99	54.00	-7.01	31.80	3	Vertical	338	1.76	-
2437MHz	Pass	AV	4.874G	45.80	54.00	-8.20	2.36	3	Vertical	157	3.69	-
2437MHz	Pass	PK	2.3462G	60.31	74.00	-13.69	31.29	3	Vertical	338	1.76	-
2437MHz	Pass	PK	2.437G	110.68	Inf	-Inf	31.61	3	Vertical	338	1.76	-
2437MHz	Pass	PK	2.4862G	59.82	74.00	-14.18	31.79	3	Vertical	338	1.76	-
2437MHz	Pass	PK	4.874G	50.38	74.00	-23.62	2.36	3	Vertical	157	3.69	-
2462MHz	Pass	AV	2.4628G	110.18	Inf	-Inf	31.71	3	Horizontal	217	1.70	-
2462MHz	Pass	AV	2.483502G	52.62	54.00	-1.38	31.78	3	Horizontal	217	1.70	-
2462MHz	Pass	AV	4.924G	53.53	54.00	-0.47	2.47	3	Horizontal	57	2.47	-
2462MHz	Pass	PK	2.462G	112.91	Inf	-Inf	31.70	3	Horizontal	217	1.70	-
2462MHz	Pass	PK	2.4838G	63.66	74.00	-10.34	31.78	3	Horizontal	217	1.70	-
2462MHz	Pass	PK	4.924G	55.78	74.00	-18.22	2.47	3	Horizontal	57	2.47	-
2462MHz	Pass	AV	2.4628G	109.50	Inf	-Inf	31.71	3	Vertical	335	1.73	-
2462MHz	Pass	AV	2.4988G	52.31	54.00	-1.69	31.84	3	Vertical	335	1.73	-
2462MHz	Pass	AV	4.924G	43.77	54.00	-10.23	2.47	3	Vertical	155	2.76	-
2462MHz	Pass	PK	2.462G	112.23	Inf	-Inf	31.70	3	Vertical	335	1.73	-
2462MHz	Pass	PK	2.4944G	62.71	74.00	-11.29	31.82	3	Vertical	335	1.73	-
2462MHz	Pass	PK	4.924G	49.02	74.00	-24.98	2.47	3	Vertical	155	2.76	-
802.11g_(6Mbps)_1TX	-	-	•	-	-		-	-	-	-	-	-
2412MHz	Pass	AV	2.3898G	53.13	54.00	-0.87	31.44	3	Horizontal	222	1.59	-
2412MHz	Pass	AV	2.4094G	100.35	Inf	-Inf	31.51	3	Horizontal	222	1.59	-
2412MHz	Pass	AV	4.824G	37.67	54.00	-16.33	2.25	3	Horizontal	59	2.84	-
2412MHz	Pass	PK	2.389G	70.10	74.00	-3.90	31.44	3	Horizontal	222	1.59	-
2412MHz	Pass	PK	2.4056G	110.05	Inf	-Inf	31.50	3	Horizontal	222	1.59	-
2412MHz	Pass	PK	4.824G	51.08	74.00	-22.92	2.25	3	Horizontal	59	2.84	-

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Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
mode	result	1,400	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)	Condition	(°)	(m)	Comments
2412MHz	Pass	AV	2.3898G	51.63	54.00	-2.37	31.44	3	Vertical	292	1.74	
2412MHz	Pass	AV	2.406G	100.63	Inf	-Inf	31.50	3	Vertical	292	1.74	
2412MHz	Pass	AV	4.824G	32.80	54.00	-21.20	2.25	3	Vertical	235	1.50	_
2412MHz	Pass	PK	2.3892G	68.50	74.00	-5.50	31.44	3	Vertical	292	1.74	_
2412MHz	Pass	PK	2.4056G	110.35	Inf	-Inf	31.50	3	Vertical	292	1.74	
2412MHz	Pass	PK	4.824G	44.48	74.00	-29.52	2.25	3	Vertical	235	1.50	_
2437MHz	Pass	AV	2.389998G	51.02	54.00	-2.98	31.44	3	Horizontal	217	1.73	
2437MHz	Pass	AV	2.4342G	105.10	Inf	-2.30 -Inf	31.60	3	Horizontal	217	1.73	<u> </u>
2437MHz	Pass	AV	2.483502G	49.83	54.00	-4.17	31.78	3	Horizontal	217	1.73	-
2437MHz		AV	4.874G	40.86	54.00	-13.14	2.36	3			2.49	-
	Pass								Horizontal	57		-
2437MHz	Pass	PK	2.389998G	65.64	74.00	-8.36	31.44	3	Horizontal	217	1.73	-
2437MHz	Pass	PK	2.4306G	114.79	Inf	-Inf	31.59	3	Horizontal	217	1.73	-
2437MHz	Pass	PK	2.4846G	64.83	74.00	-9.17	31.78	3	Horizontal	217	1.73	-
2437MHz	Pass	PK	4.874G	54.27	74.00	-19.73	2.36	3	Horizontal	57	2.49	-
2437MHz	Pass	AV	2.389998G	50.60	54.00	-3.40	31.44	3	Vertical	289	1.99	-
2437MHz	Pass	AV	2.4298G	105.69	Inf	-Inf	31.59	3	Vertical	289	1.99	-
2437MHz	Pass	AV	2.4838G	50.50	54.00	-3.50	31.78	3	Vertical	289	1.99	-
2437MHz	Pass	AV	4.874G	34.77	54.00	-19.23	2.36	3	Vertical	329	1.50	-
2437MHz	Pass	PK	2.389998G	65.42	74.00	-8.58	31.44	3	Vertical	289	1.99	-
2437MHz	Pass	PK	2.4298G	115.33	Inf	-Inf	31.59	3	Vertical	289	1.99	-
2437MHz	Pass	PK	2.4842G	65.68	74.00	-8.32	31.78	3	Vertical	289	1.99	-
2437MHz	Pass	PK	4.874G	44.56	74.00	-29.44	2.36	3	Vertical	329	1.50	-
2462MHz	Pass	AV	2.4594G	100.43	Inf	-Inf	31.69	3	Horizontal	213	1.85	-
2462MHz	Pass	AV	2.483502G	53.42	54.00	-0.58	31.78	3	Horizontal	213	1.85	-
2462MHz	Pass	AV	4.924G	34.98	54.00	-19.02	2.47	3	Horizontal	136	2.88	-
2462MHz	Pass	PK	2.4636G	110.01	Inf	-Inf	31.71	3	Horizontal	213	1.85	-
2462MHz	Pass	PK	2.485G	72.26	74.00	-1.74	31.79	3	Horizontal	213	1.85	-
2462MHz	Pass	PK	4.924G	48.89	74.00	-25.11	2.47	3	Horizontal	136	2.88	-
2462MHz	Pass	AV	2.4594G	101.61	Inf	-Inf	31.69	3	Vertical	290	1.81	-
2462MHz	Pass	AV	2.483502G	53.76	54.00	-0.24	31.78	3	Vertical	290	1.81	-
2462MHz	Pass	AV	4.924G	31.00	54.00	-23.00	2.47	3	Vertical	129	1.50	-
2462MHz	Pass	PK	2.4556G	111.19	Inf	-Inf	31.68	3	Vertical	290	1.81	-
2462MHz	Pass	PK	2.4852G	72.51	74.00	-1.49	31.79	3	Vertical	290	1.81	-
2462MHz	Pass	PK	4.924G	44.88	74.00	-29.12	2.47	3	Vertical	129	1.50	-
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	AV	2.39G	51.57	54.00	-2.43	31.45	3	Horizontal	352	2.23	-
2412MHz	Pass	AV	2.405G	97.39	Inf	-Inf	31.50	3	Horizontal	352	2.23	-
2412MHz	Pass	AV	4.824G	33.00	54.00	-21.00	1.51	3	Horizontal	51	2.75	-
2412MHz	Pass	PK	2.39G	68.15	74.00	-5.85	31.45	3	Horizontal	352	2.23	-
2412MHz	Pass	PK	2.409G	107.75	Inf	-Inf	31.51	3	Horizontal	352	2.23	-
2412MHz	Pass	PK	4.824G	47.70	74.00	-26.30	1.51	3	Horizontal	51	2.75	-
2412MHz	Pass	AV	2.39G	53.61	54.00	-0.39	31.45	3	Vertical	295	1.74	-
2412MHz	Pass	AV	2.4064G	101.28	Inf	-Inf	31.50	3	Vertical	295	1.74	-
2412MHz	Pass	AV	4.824G	29.95	54.00	-24.05	1.51	3	Vertical	43	1.50	-
2412MHz	Pass	PK	2.39G	69.01	74.00	-4.99	31.45	3	Vertical	295	1.74	-
2412MHz	Pass	PK	2.4072G	111.47	Inf	-Inf	31.51	3	Vertical	295	1.74	-
2412MHz	Pass	PK	4.824G	44.06	74.00	-29.94	1.51	3	Vertical	43	1.50	-
2437MHz	Pass	AV	2.3894G	48.13	54.00	-5.87	31.44	3	Horizontal	344	2.68	-
			 	103.89	Inf	-Inf	31.59	3	Horizontal	344	2.68	-

SPORTON INTERNATIONAL INC.

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	1	1		1	1		1	1	1		1	1
Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
2437MHz	Pass	AV	2.4838G	48.07	54.00	-5.93	31.78	3	Horizontal	344	2.68	-
2437MHz	Pass	AV	4.874G	34.75	54.00	-19.25	1.64	3	Horizontal	132	1.50	-
2437MHz	Pass	PK	2.389998G	67.99	74.00	-6.01	31.44	3	Horizontal	344	2.68	-
2437MHz	Pass	PK	2.4338G	113.88	Inf	-Inf	31.60	3	Horizontal	344	2.68	-
2437MHz	Pass	PK	2.4866G	64.39	74.00	-9.61	31.79	3	Horizontal	344	2.68	-
2437MHz	Pass	PK	4.874G	48.17	74.00	-25.83	1.64	3	Horizontal	132	1.50	-
2437MHz	Pass	AV	2.389998G	51.69	54.00	-2.31	31.44	3	Vertical	251	1.94	-
2437MHz	Pass	AV	2.4302G	108.61	Inf	-Inf	31.59	3	Vertical	251	1.94	-
2437MHz	Pass	AV	2.483502G	50.66	54.00	-3.34	31.78	3	Vertical	251	1.94	-
2437MHz	Pass	AV	4.874G	31.24	54.00	-22.76	1.64	3	Vertical	144	2.64	-
2437MHz	Pass	PK	2.389998G	73.71	74.00	-0.29	31.44	3	Vertical	251	1.94	-
2437MHz	Pass	PK	2.4338G	118.43	Inf	-Inf	31.60	3	Vertical	251	1.94	-
2437MHz	Pass	PK	2.4866G	70.39	74.00	-3.61	31.79	3	Vertical	251	1.94	-
2437MHz	Pass	PK	4.874G	45.90	74.00	-28.10	1.64	3	Vertical	144	2.64	-
2462MHz	Pass	AV	2.4564G	97.26	Inf	-Inf	31.68	3	Horizontal	46	1.95	-
2462MHz	Pass	AV	2.483502G	50.14	54.00	-3.86	31.78	3	Horizontal	46	1.95	-
2462MHz	Pass	AV	4.924G	31.60	54.00	-22.40	1.77	3	Horizontal	135	1.50	-
2462MHz	Pass	PK	2.459G	107.80	Inf	-Inf	31.69	3	Horizontal	46	1.95	-
2462MHz	Pass	PK	2.483502G	65.11	74.00	-8.89	31.78	3	Horizontal	46	1.95	-
2462MHz	Pass	PK	4.924G	46.13	74.00	-27.87	1.77	3	Horizontal	135	1.50	_
2462MHz	Pass	AV	2.4674G	102.96	Inf	-Inf	31.72	3	Vertical	251	1.92	_
2462MHz	Pass	AV	2.4836G	53.89	54.00	-0.11	31.78	3	Vertical	251	1.92	_
2462MHz	Pass	AV	4.924G	30.19	54.00	-23.81	1.77	3	Vertical	358	1.50	_
2462MHz	Pass	PK	2.459G	113.11	Inf	-Inf	31.69	3	Vertical	251	1.92	_
2462MHz	Pass	PK	2.483502G	69.43	74.00	-4.57	31.78	3	Vertical	251	1.92	_
2462MHz	Pass	PK	4.924G	43.83	74.00	-30.17	1.77	3	Vertical	358	1.50	_
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-30.17	-	-	-	-	1.50	_
2422MHz	Pass	AV	2.39G	50.11	54.00	-3.89	31.45	3	Horizontal	345	3.09	
2422MHz	Pass	AV	2.4176G	92.34	Inf	-5.09 -Inf	31.54	3	Horizontal	345	3.09	-
2422MHz	1											-
	Pass	AV	2.4868G	46.54	54.00	-7.46	31.79	3	Horizontal	345	3.09	-
2422MHz	Pass	AV	4.844G	30.68	54.00	-23.32	1.56	3	Horizontal	141	2.98	-
2422MHz	Pass	PK	2.384G	62.32	74.00	-11.68	31.42	3	Horizontal	345	3.09	-
2422MHz	Pass	PK	2.418G	101.98	Inf	-Inf	31.54	3	Horizontal	345	3.09	-
2422MHz	Pass	PK	2.4868G	59.43	74.00	-14.57	31.79	3	Horizontal	345	3.09	-
2422MHz	Pass	PK	4.844G	44.75	74.00	-29.25	1.56	3	Horizontal	141	2.98	-
2422MHz	Pass	AV	2.39G	53.92	54.00	-0.08	31.45	3	Vertical	250	2.21	-
2422MHz	Pass	AV	2.4184G	96.04	Inf	-Inf	31.55	3	Vertical	250	2.21	-
2422MHz	Pass	AV	2.484G	47.07	54.00	-6.93	31.78	3	Vertical	250	2.21	-
2422MHz	Pass	AV	4.844G	29.89	54.00	-24.11	1.56	3	Vertical	97	2.00	-
2422MHz	Pass	PK	2.3888G	67.87	74.00	-6.13	31.44	3	Vertical	250	2.21	-
2422MHz	Pass	PK	2.42G	105.86	Inf	-Inf	31.55	3	Vertical	250	2.21	-
2422MHz	Pass	PK	2.4936G	59.91	74.00	-14.09	31.82	3	Vertical	250	2.21	-
2422MHz	Pass	PK	4.844G	43.66	74.00	-30.34	1.56	3	Vertical	97	2.00	-
2437MHz	Pass	AV	2.3894G	49.38	54.00	-4.62	31.44	3	Horizontal	178	1.91	-
2437MHz	Pass	AV	2.4338G	94.24	Inf	-Inf	31.60	3	Horizontal	178	1.91	-
2437MHz	Pass	AV	2.4838G	48.02	54.00	-5.98	31.78	3	Horizontal	178	1.91	-
2437MHz	Pass	AV	4.874G	31.25	54.00	-22.75	1.64	3	Horizontal	148	2.91	-
2437MHz	Pass	PK	2.3866G	62.21	74.00	-11.79	31.43	3	Horizontal	178	1.91	-
2437MHz	Pass	PK	2.435G	104.21	Inf	-Inf	31.61	3	Horizontal	178	1.91	-

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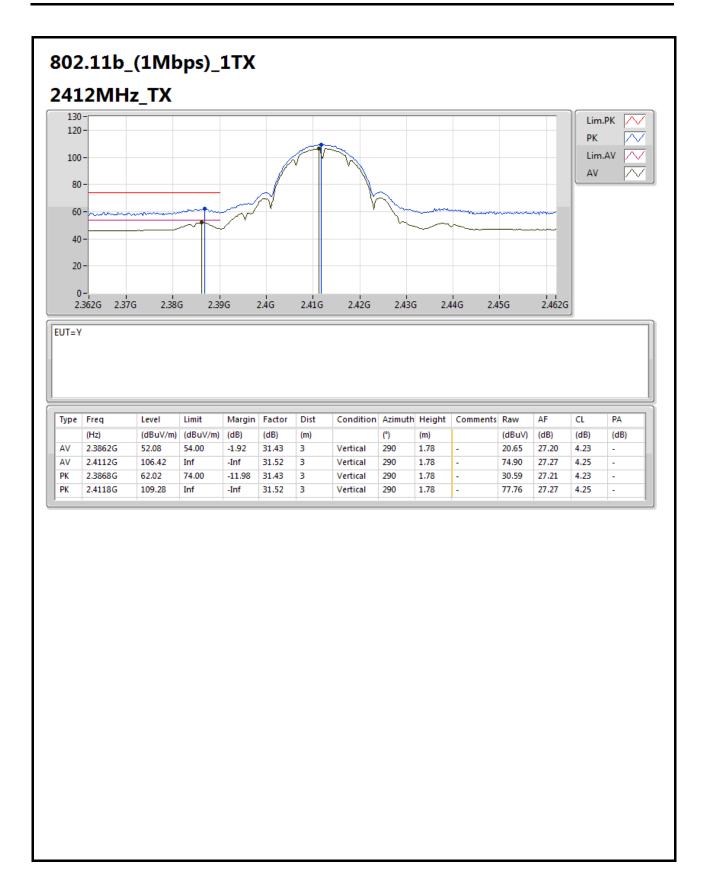




Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
2437MHz	Pass	PK	2.4858G	61.67	74.00	-12.33	31.79	3	Horizontal	178	1.91	-
2437MHz	Pass	PK	4.874G	44.71	74.00	-29.29	1.64	3	Horizontal	148	2.91	-
2437MHz	Pass	AV	2.3894G	53.81	54.00	-0.19	31.44	3	Vertical	252	1.92	-
2437MHz	Pass	AV	2.4314G	99.83	Inf	-Inf	31.59	3	Vertical	252	1.92	-
2437MHz	Pass	AV	2.483502G	50.58	54.00	-3.42	31.78	3	Vertical	252	1.92	-
2437MHz	Pass	AV	4.874G	29.95	54.00	-24.05	1.64	3	Vertical	121	1.50	-
2437MHz	Pass	PK	2.387G	66.59	74.00	-7.41	31.43	3	Vertical	252	1.92	-
2437MHz	Pass	PK	2.4274G	109.48	Inf	-Inf	31.58	3	Vertical	252	1.92	-
2437MHz	Pass	PK	2.483502G	64.13	74.00	-9.87	31.78	3	Vertical	252	1.92	-
2437MHz	Pass	PK	4.874G	43.80	74.00	-30.20	1.64	3	Vertical	121	1.50	-
2452MHz	Pass	AV	2.3888G	46.37	54.00	-7.63	31.44	3	Horizontal	47	2.74	-
2452MHz	Pass	AV	2.4476G	93.46	Inf	-Inf	31.65	3	Horizontal	47	2.74	-
2452MHz	Pass	AV	2.484G	51.10	54.00	-2.90	31.78	3	Horizontal	47	2.74	-
2452MHz	Pass	AV	4.904G	30.22	54.00	-23.78	1.72	3	Horizontal	51	2.39	-
2452MHz	Pass	PK	2.3604G	59.21	74.00	-14.79	31.34	3	Horizontal	47	2.74	-
2452MHz	Pass	PK	2.4444G	103.13	Inf	-Inf	31.64	3	Horizontal	47	2.74	-
2452MHz	Pass	PK	2.4836G	64.67	74.00	-9.33	31.78	3	Horizontal	47	2.74	-
2452MHz	Pass	PK	4.904G	44.61	74.00	-29.39	1.72	3	Horizontal	51	2.39	-
2452MHz	Pass	AV	2.3896G	48.86	54.00	-5.14	31.44	3	Vertical	250	2.01	-
2452MHz	Pass	AV	2.4564G	98.08	Inf	-Inf	31.68	3	Vertical	250	2.01	-
2452MHz	Pass	AV	2.4836G	53.11	54.00	-0.89	31.78	3	Vertical	250	2.01	-
2452MHz	Pass	AV	4.904G	29.79	54.00	-24.21	1.72	3	Vertical	231	1.61	-
2452MHz	Pass	PK	2.3896G	61.87	74.00	-12.13	31.44	3	Vertical	250	2.01	-
2452MHz	Pass	PK	2.45G	107.86	Inf	-Inf	31.66	3	Vertical	250	2.01	-
2452MHz	Pass	PK	2.4836G	66.75	74.00	-7.25	31.78	3	Vertical	250	2.01	-
2452MHz	Pass	PK	4.904G	44.21	74.00	-29.79	1.72	3	Vertical	231	1.61	-

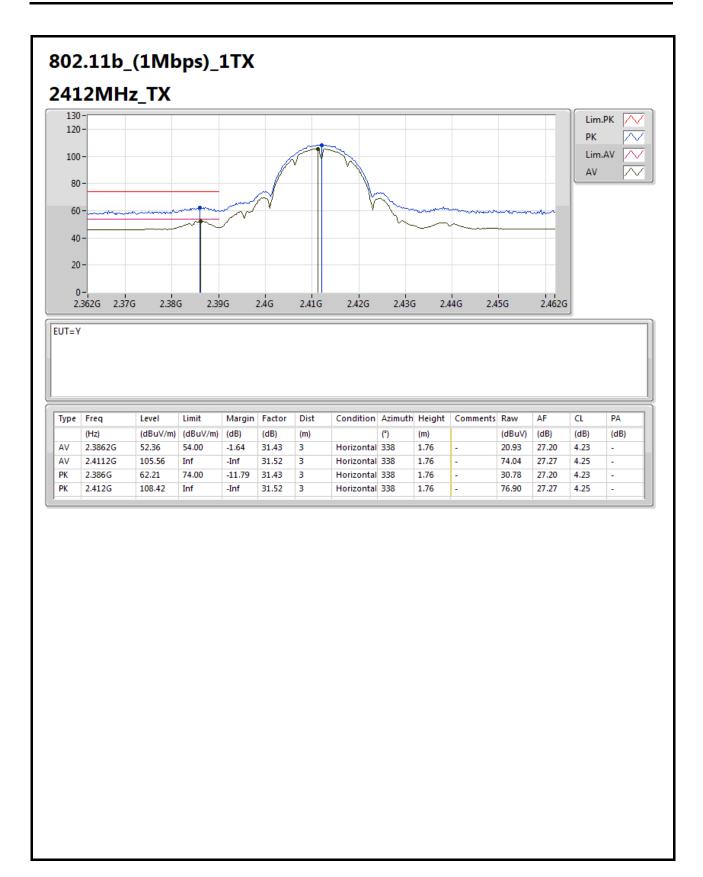
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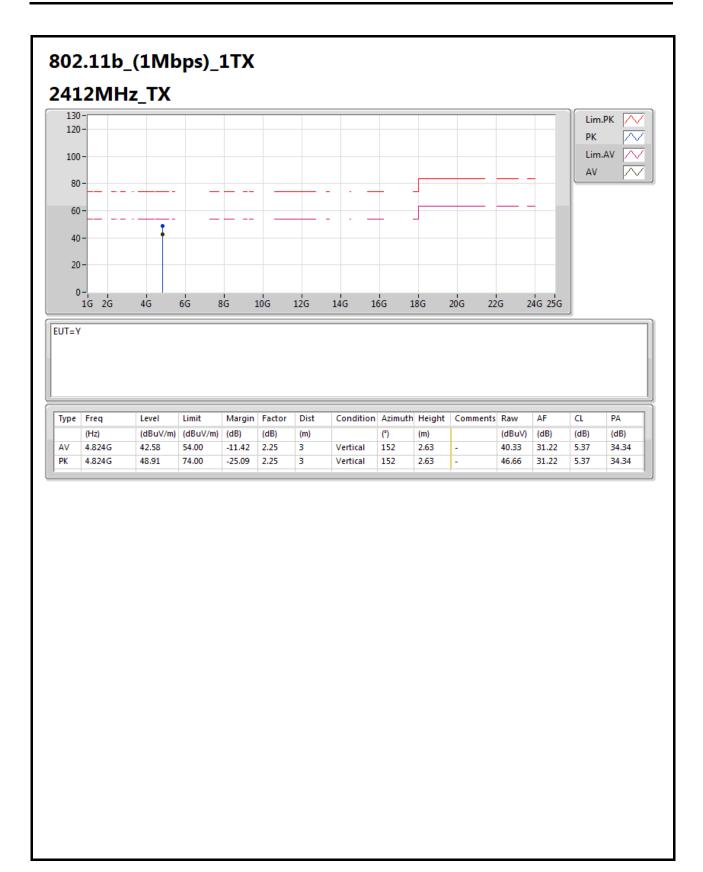


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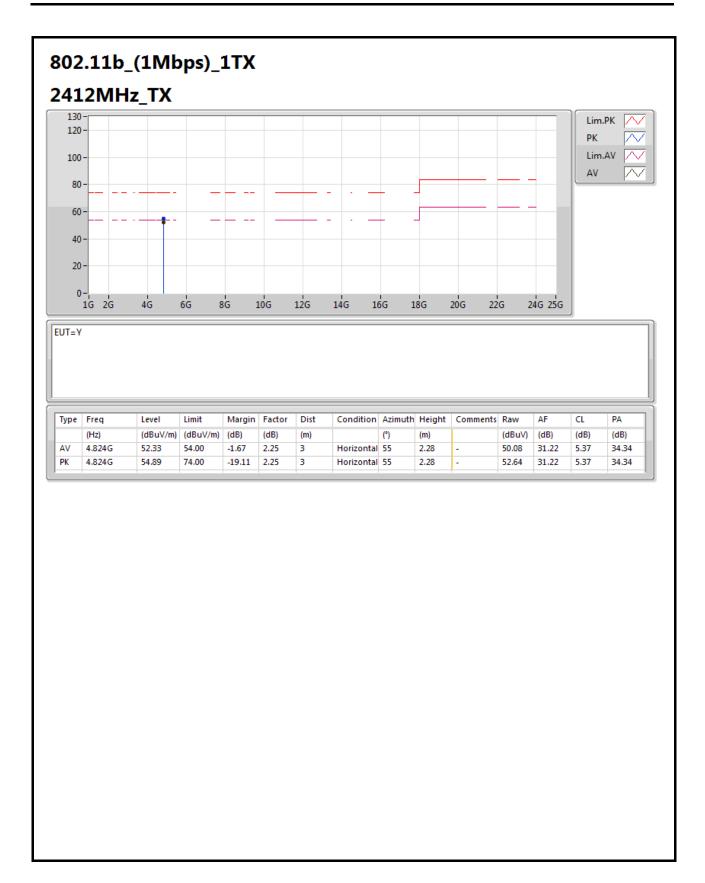






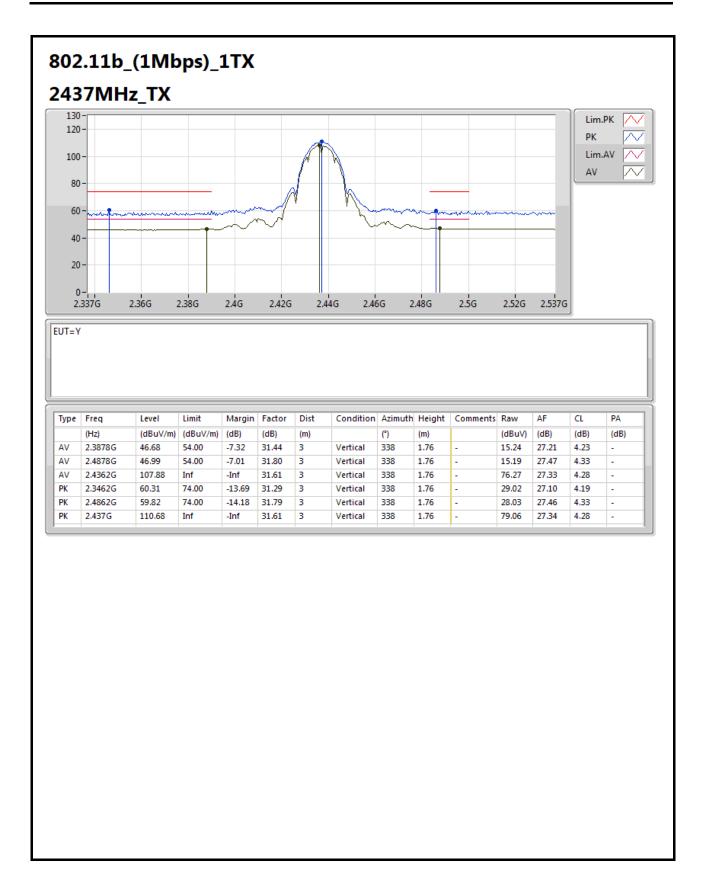






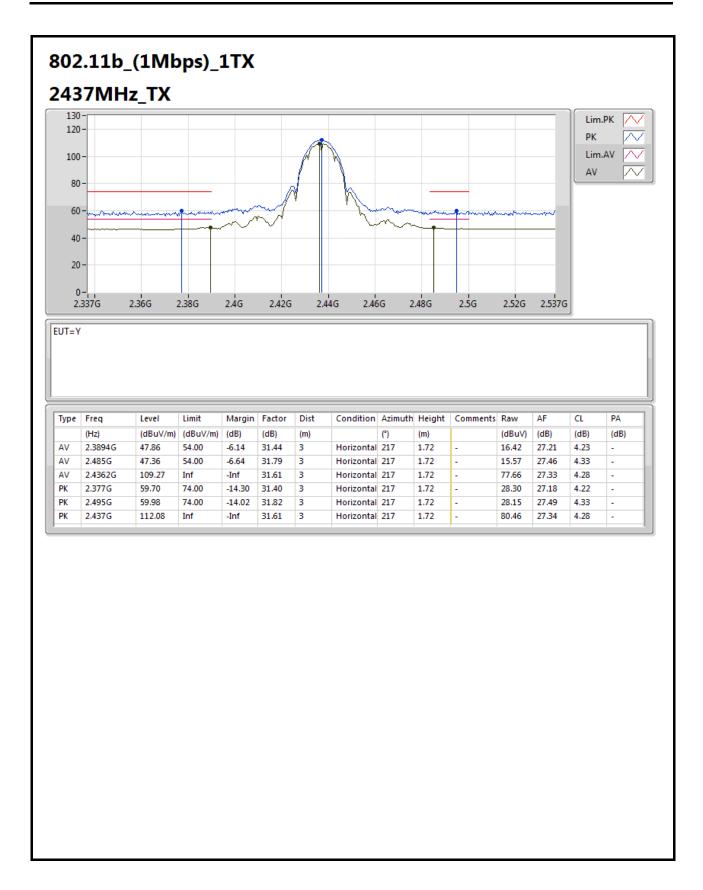
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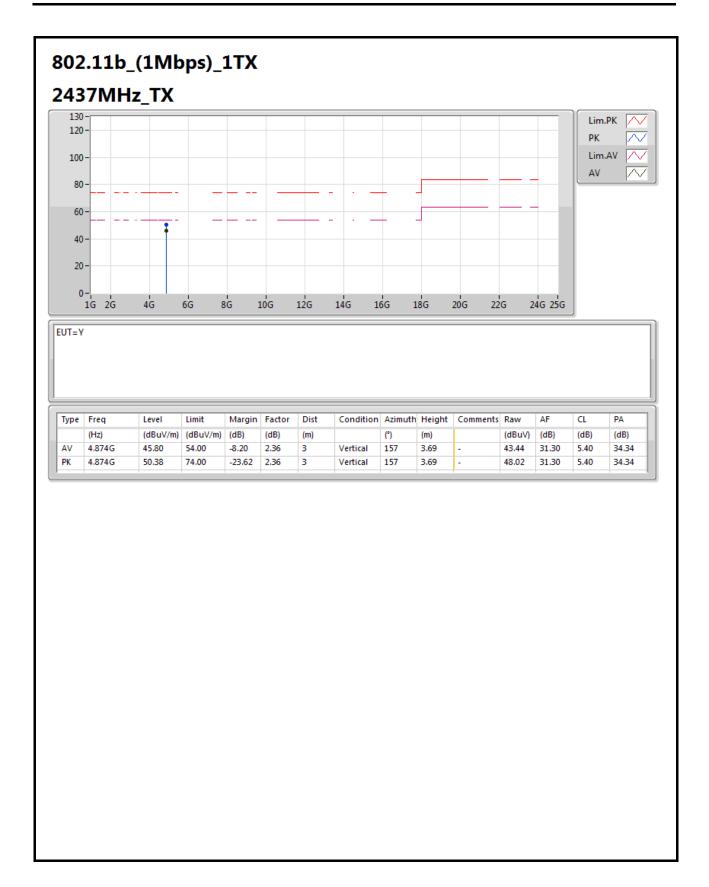
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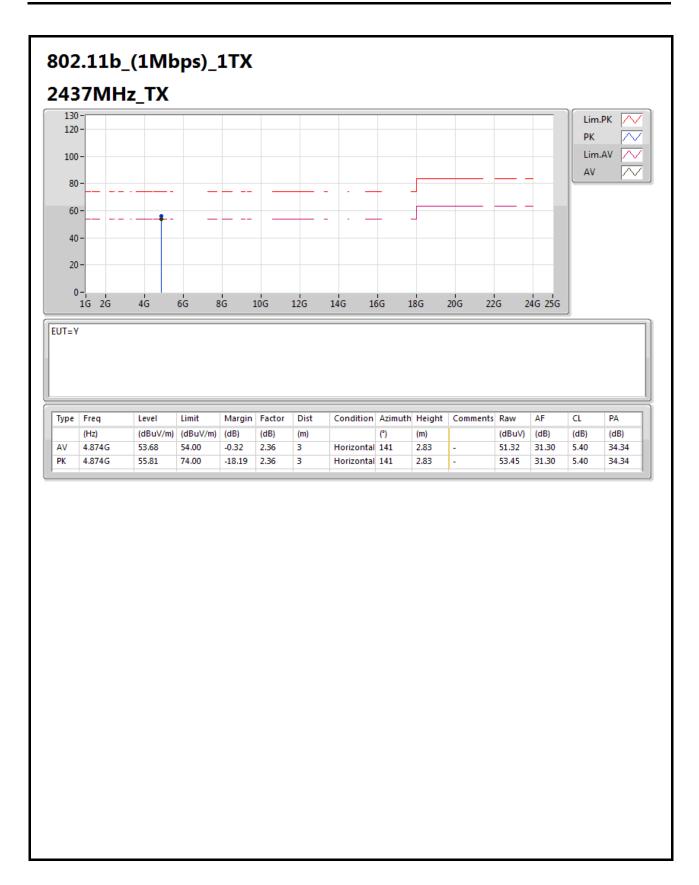


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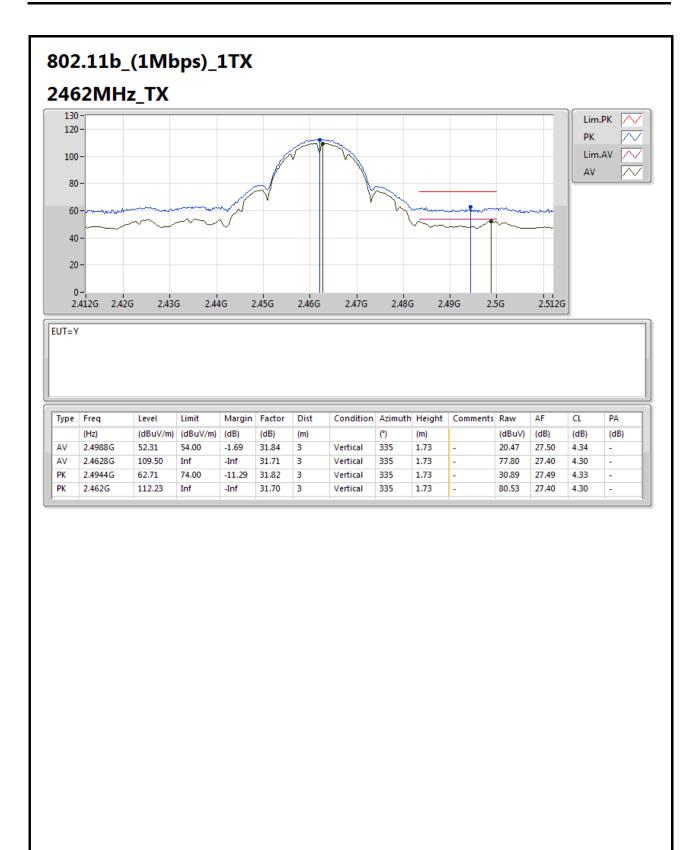






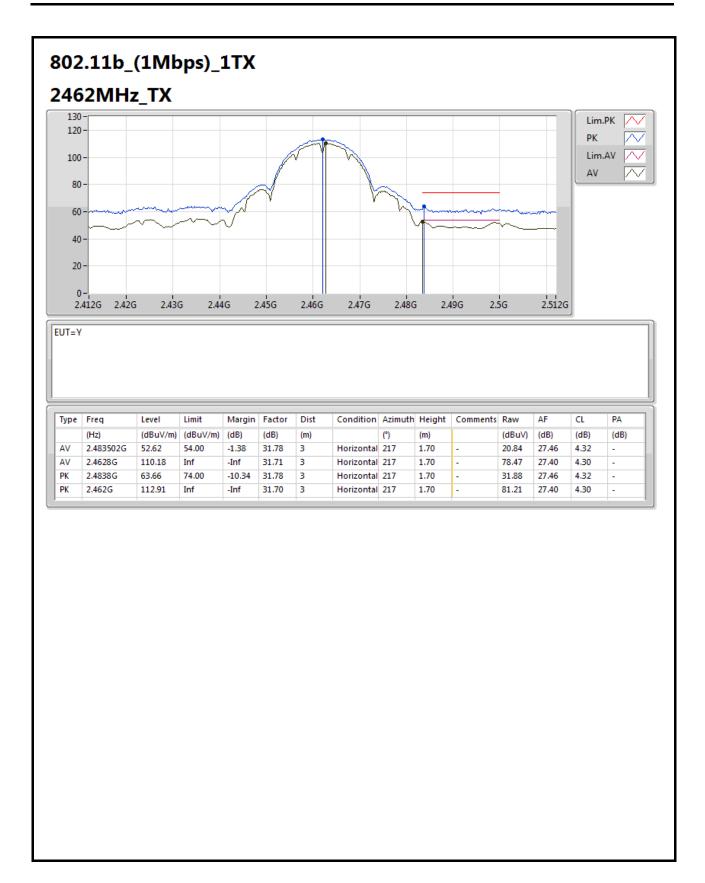
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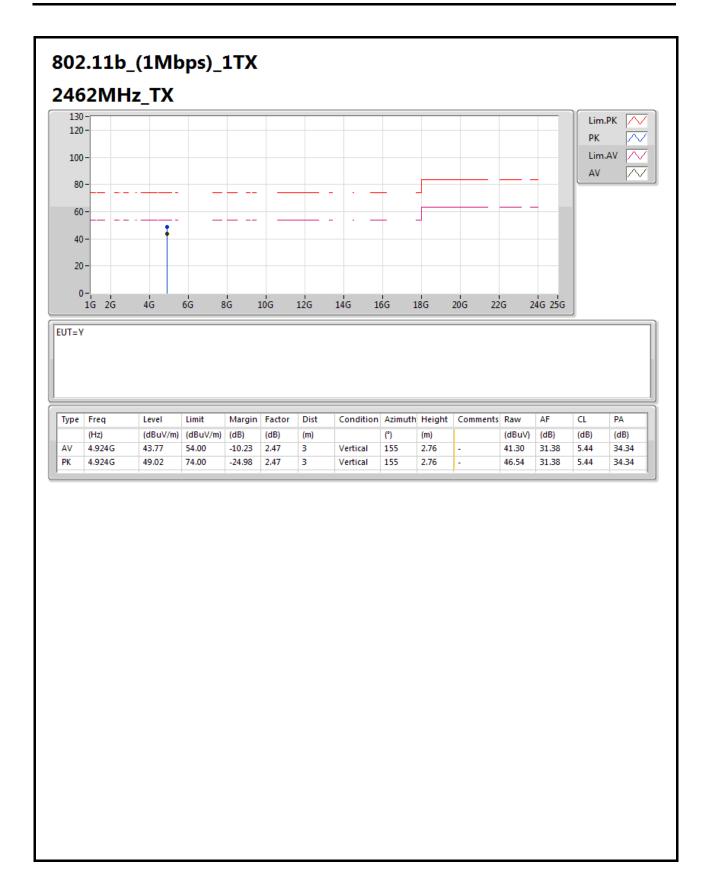
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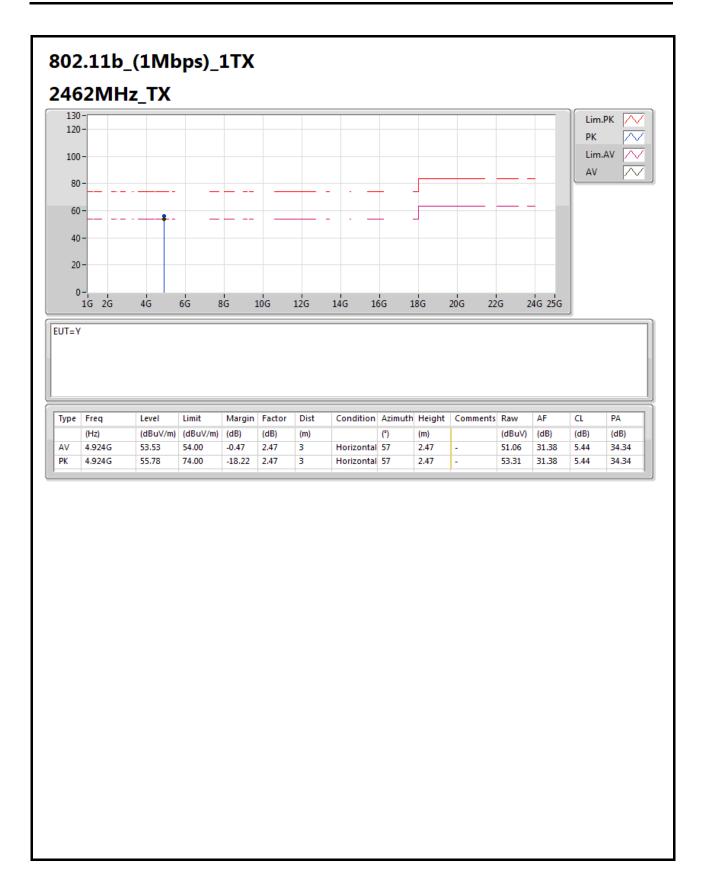
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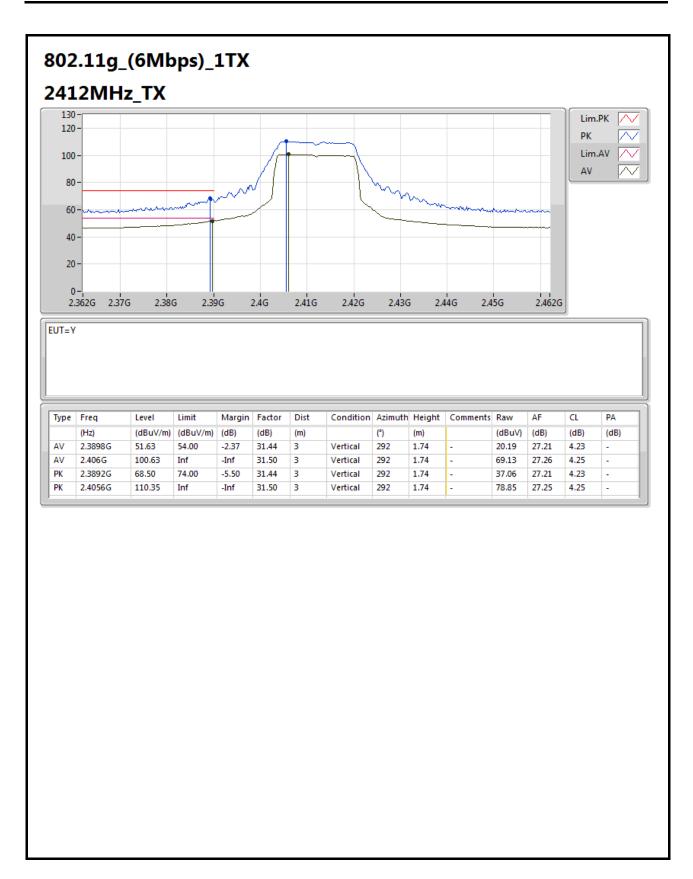
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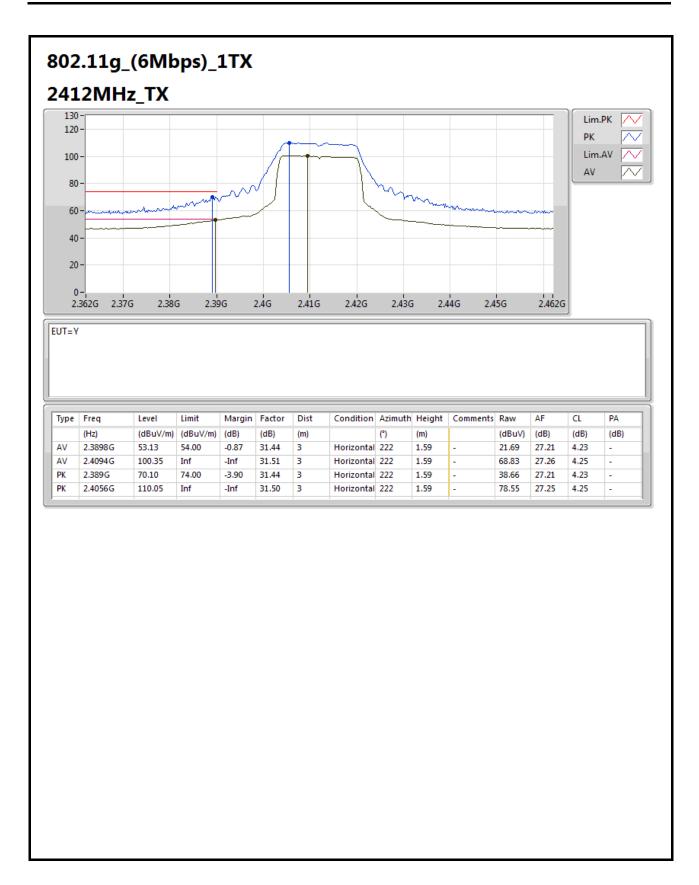
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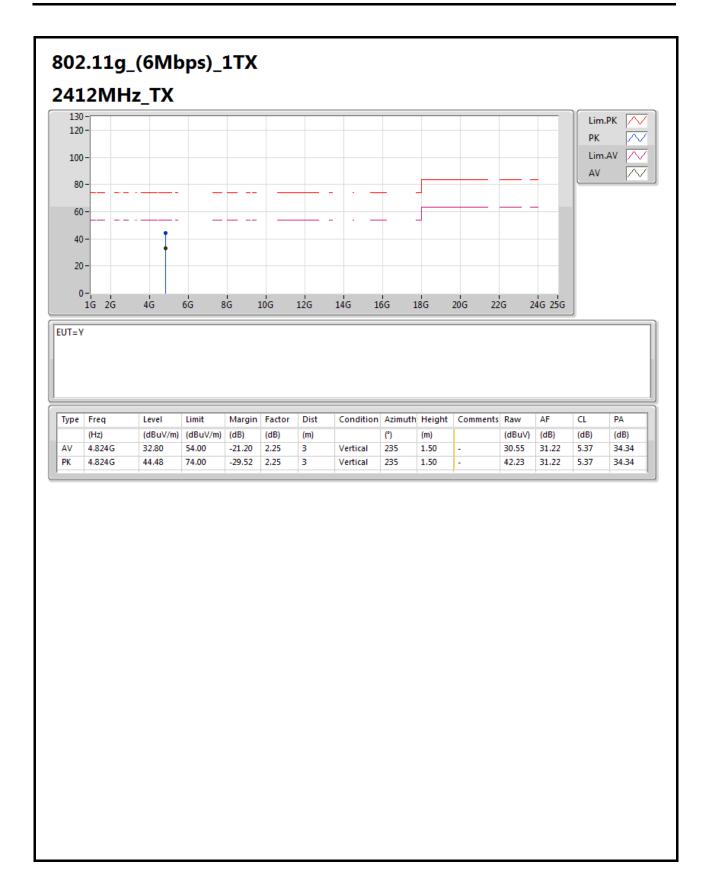
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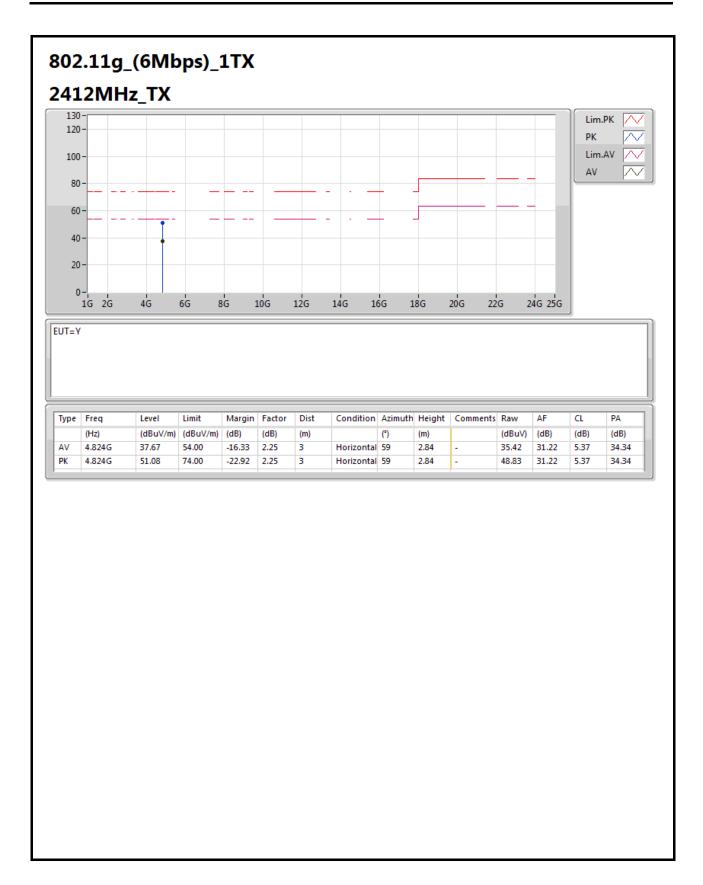
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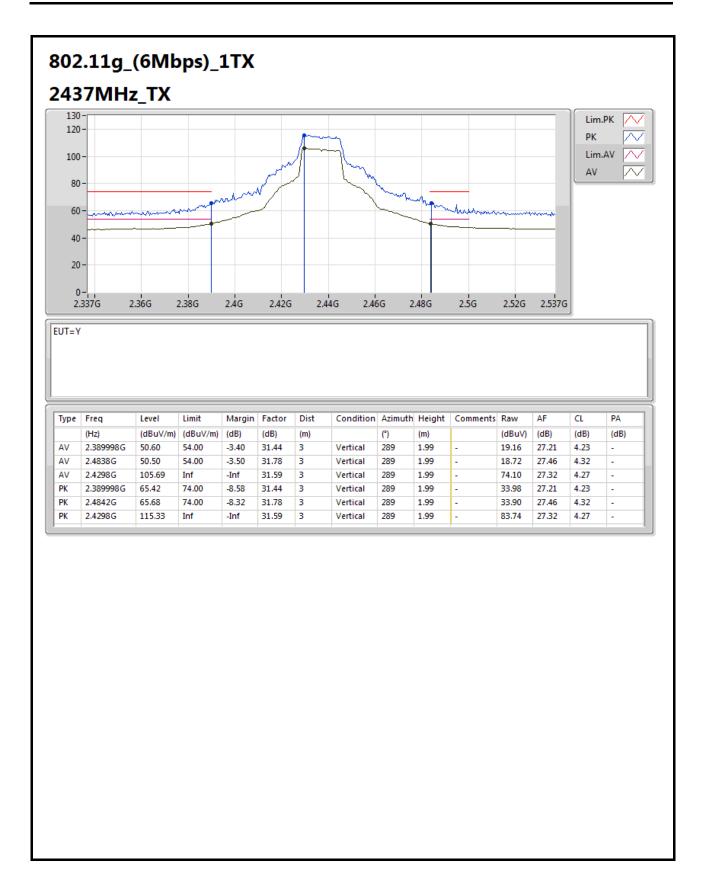
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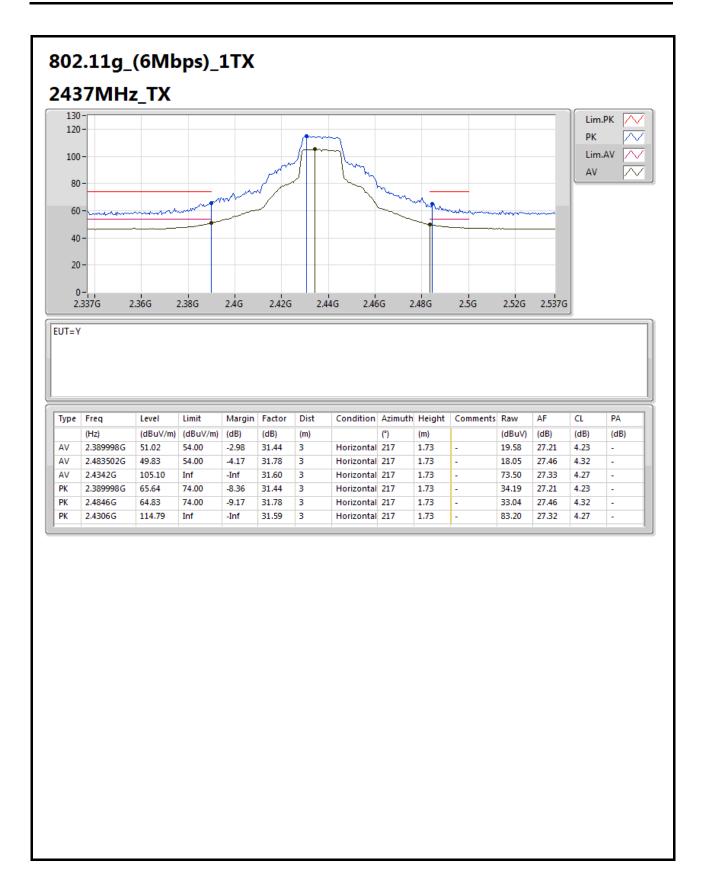
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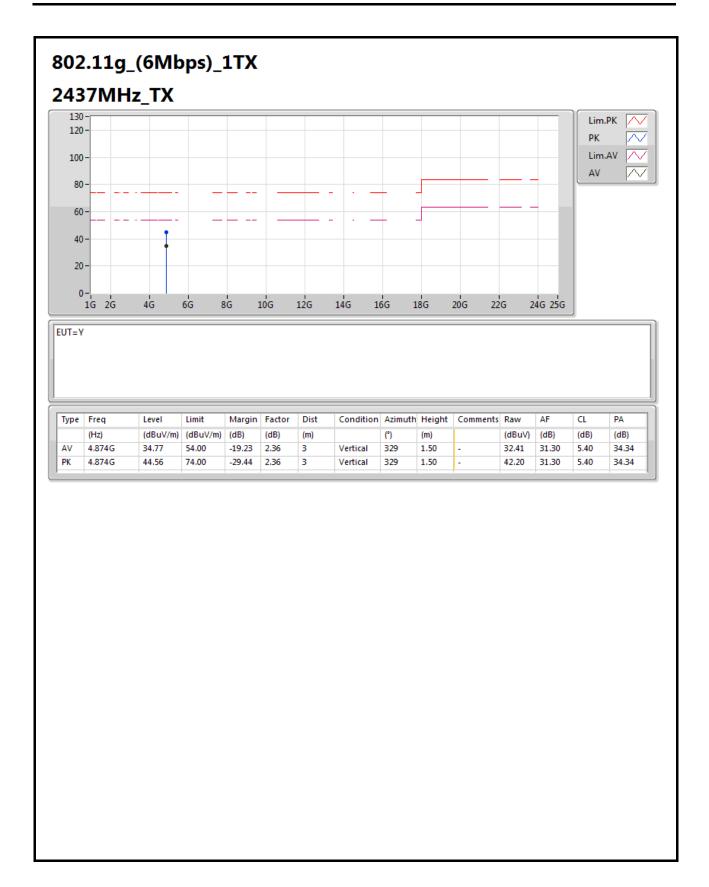
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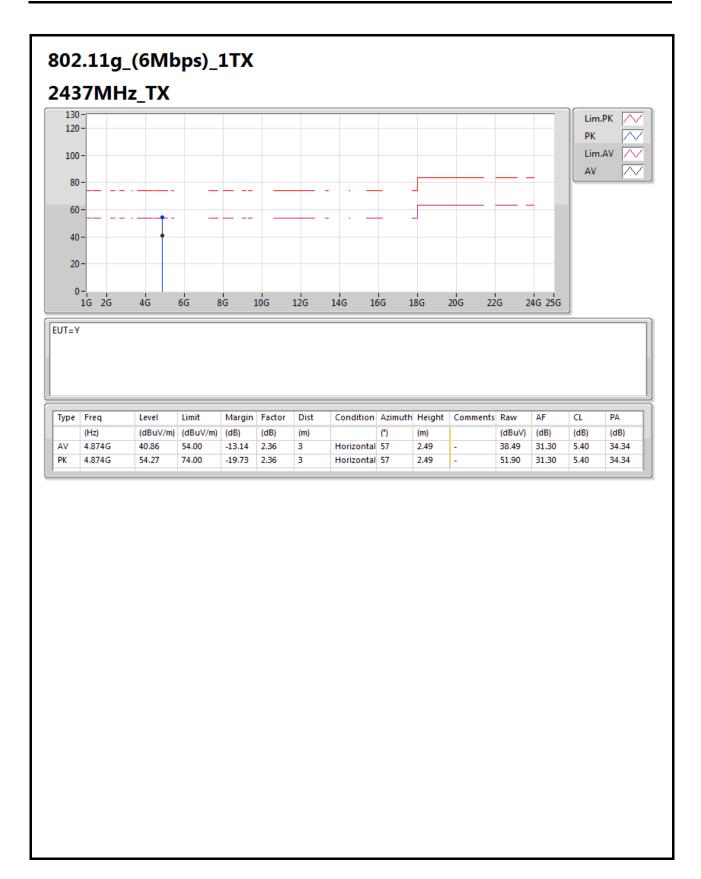
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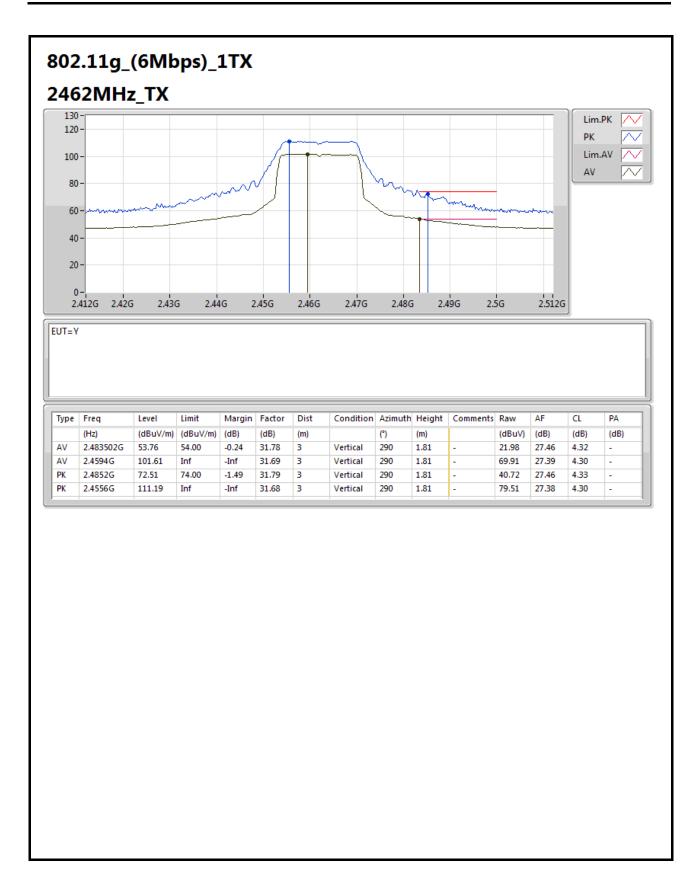
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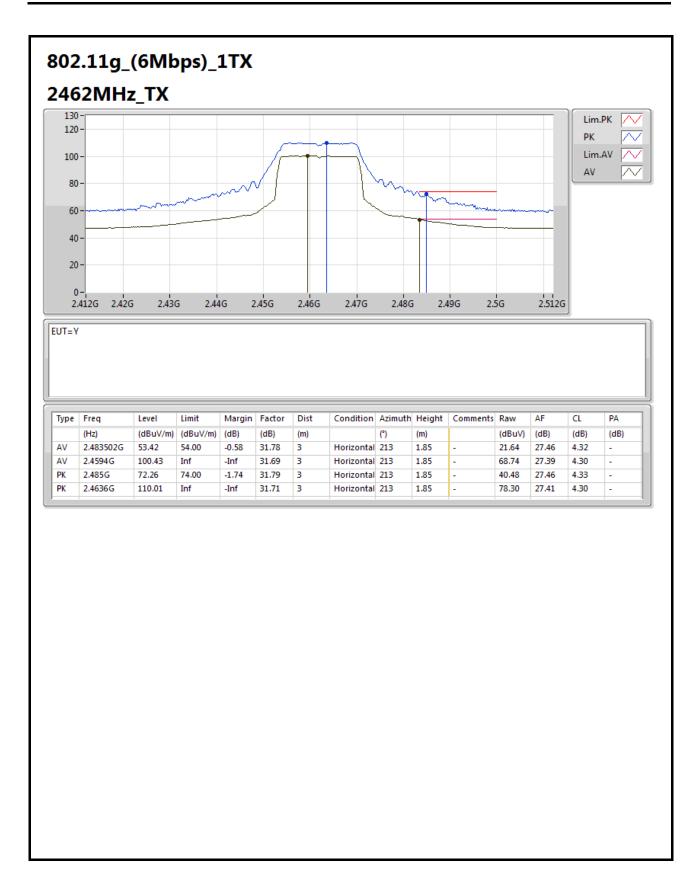
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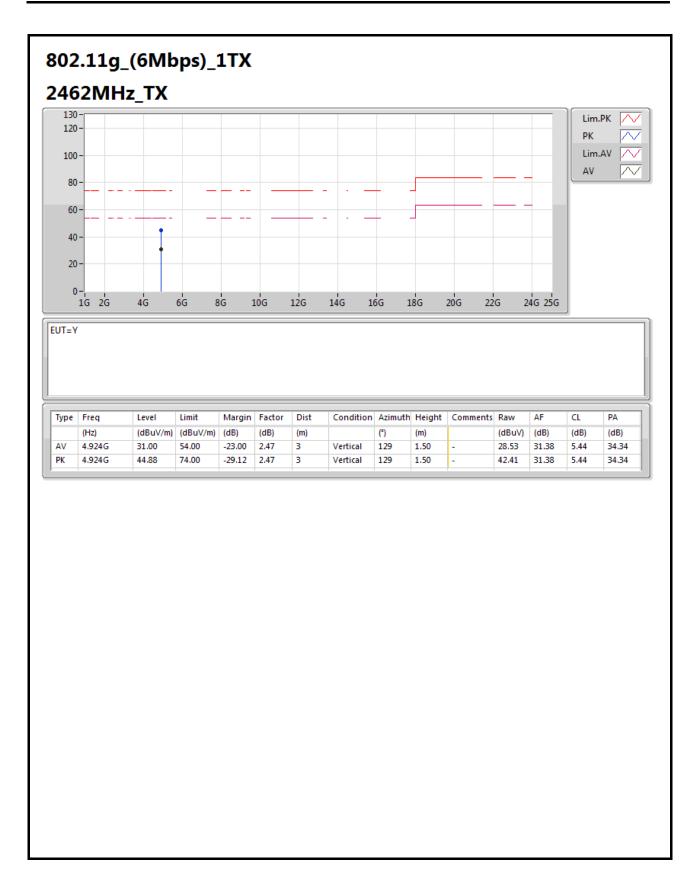
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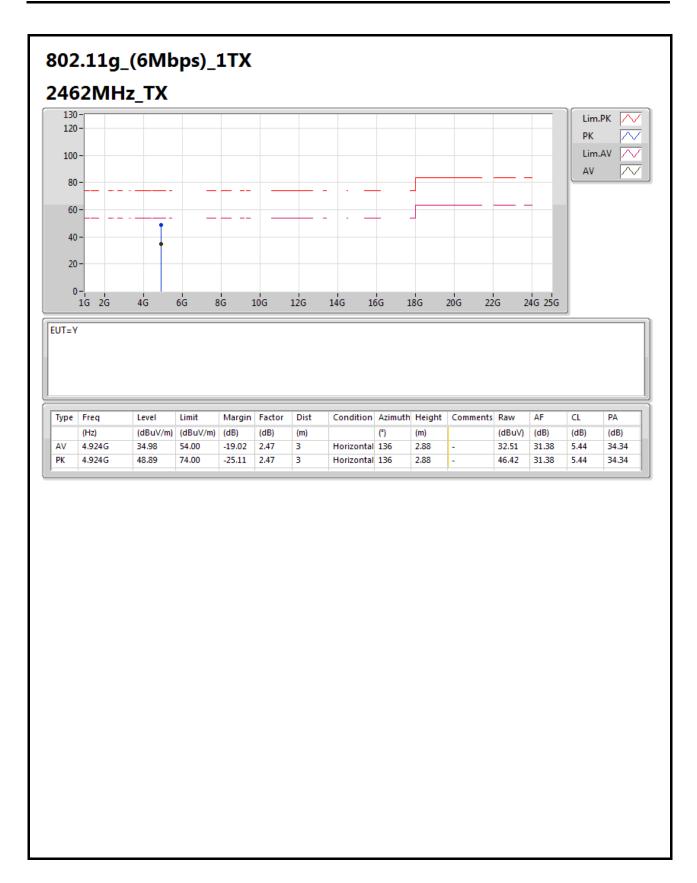
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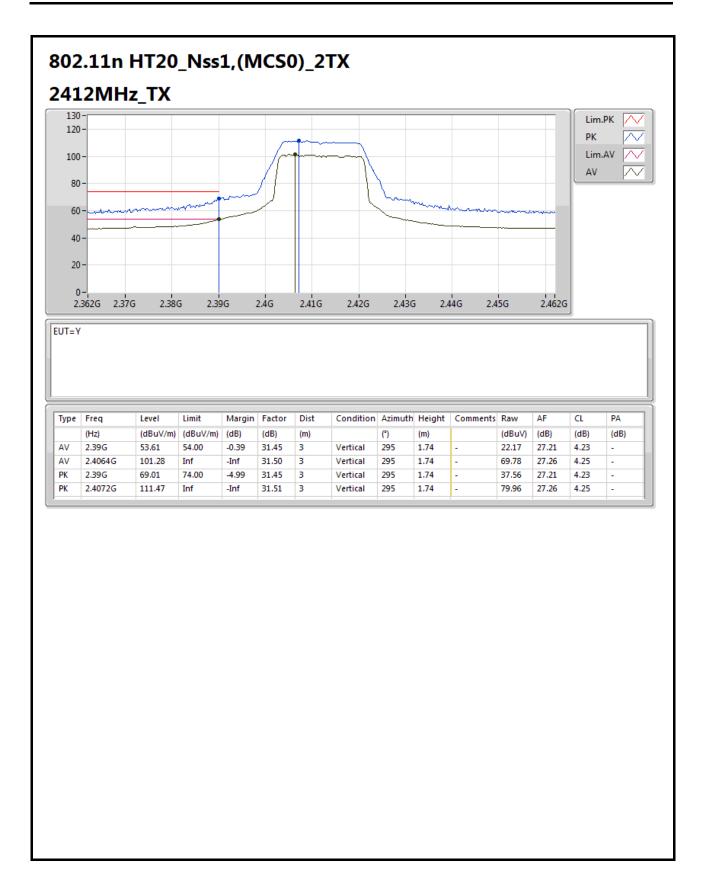
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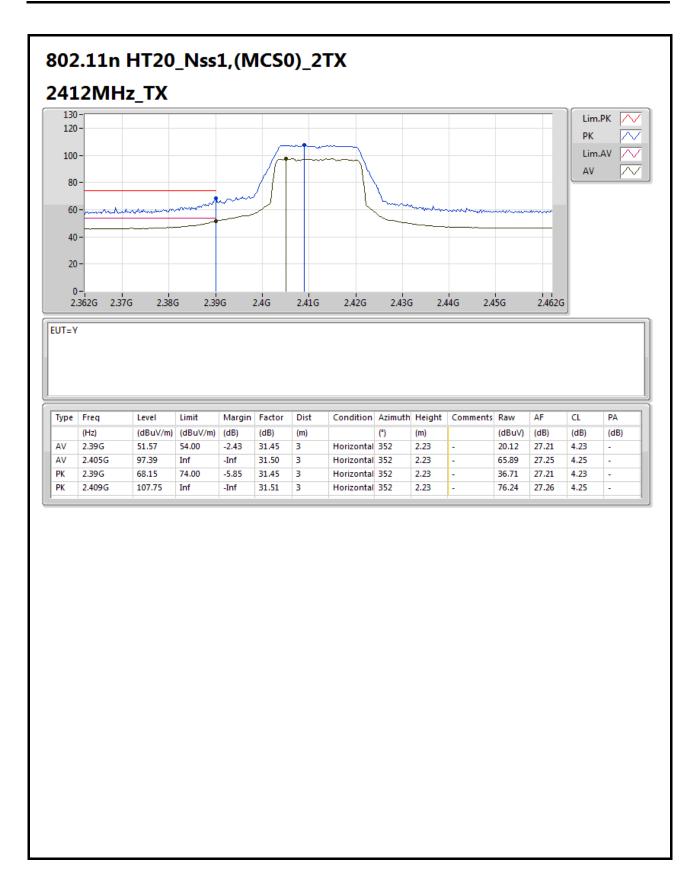
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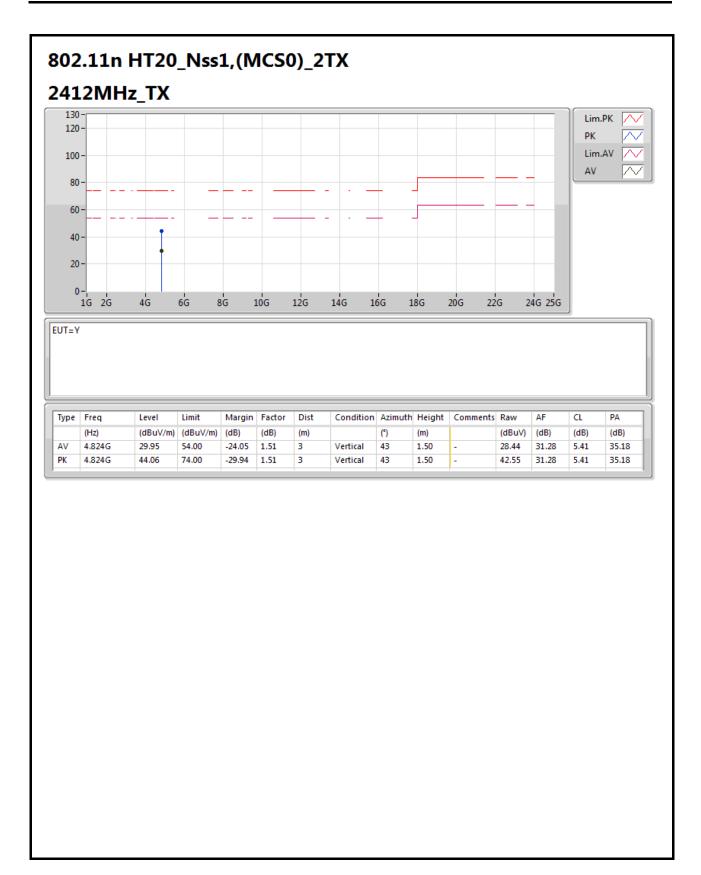
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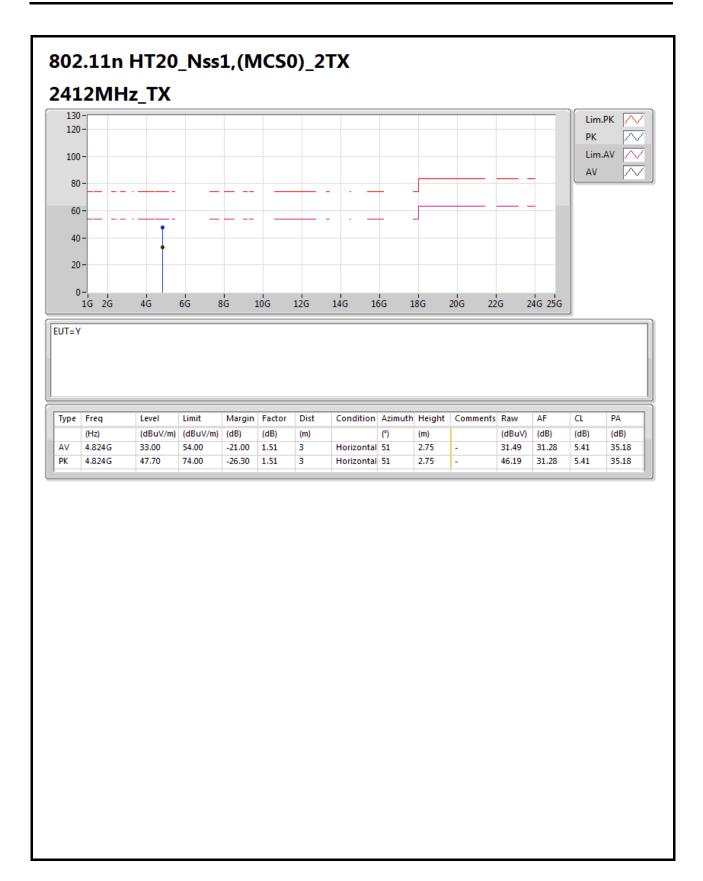
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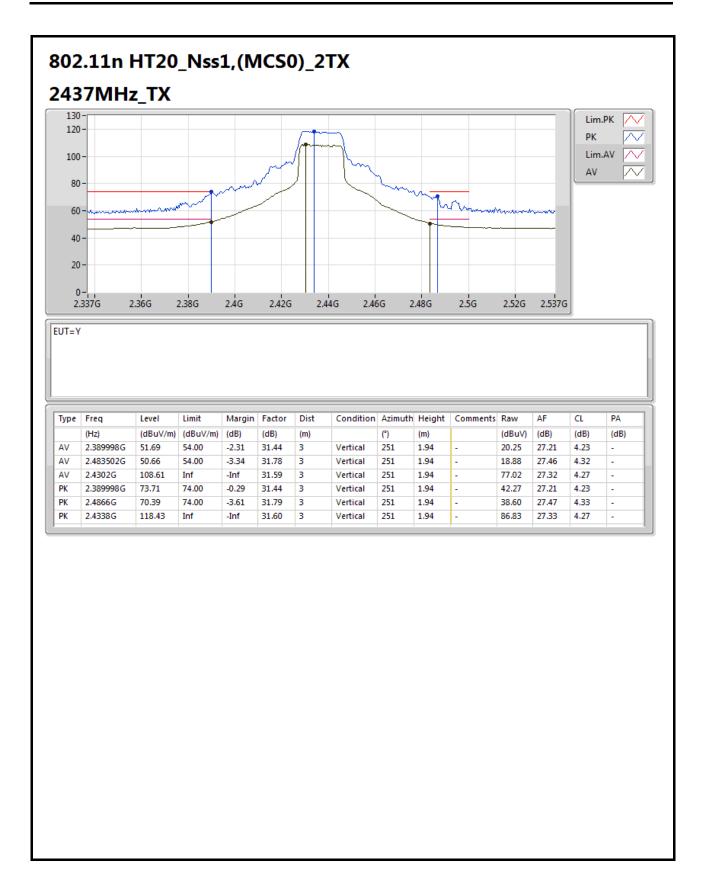
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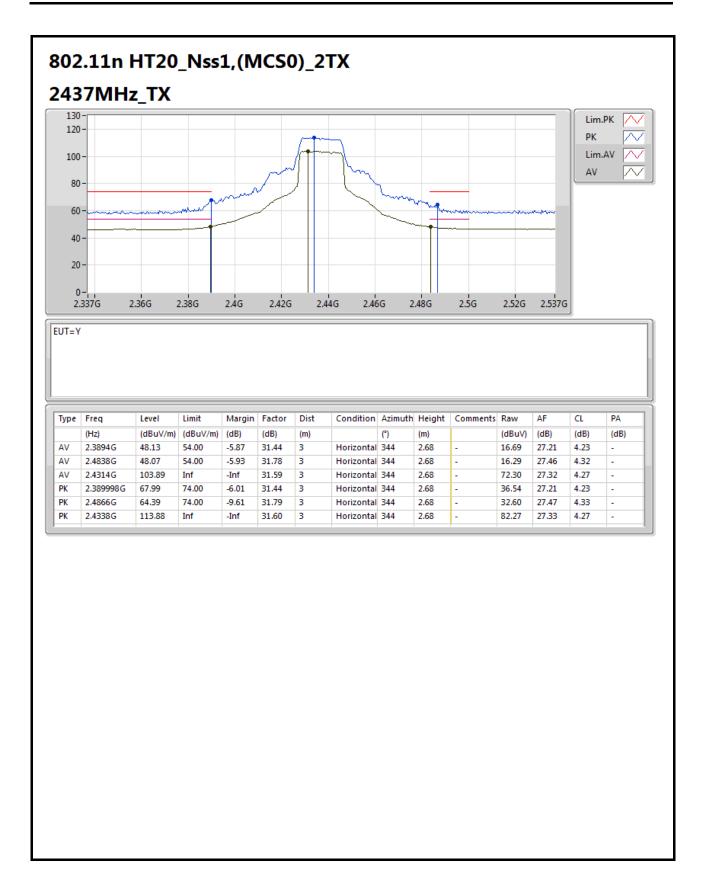
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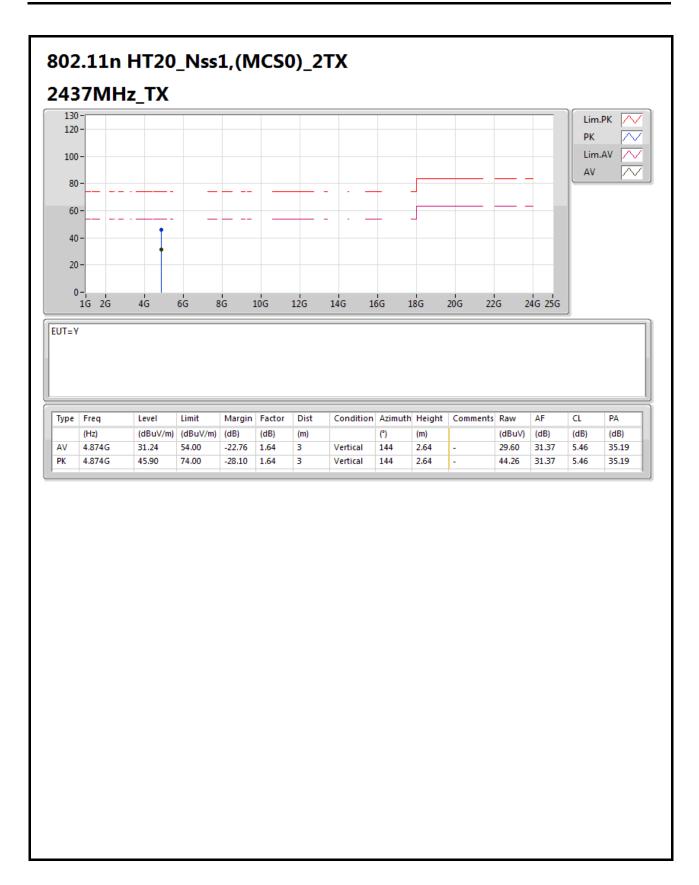
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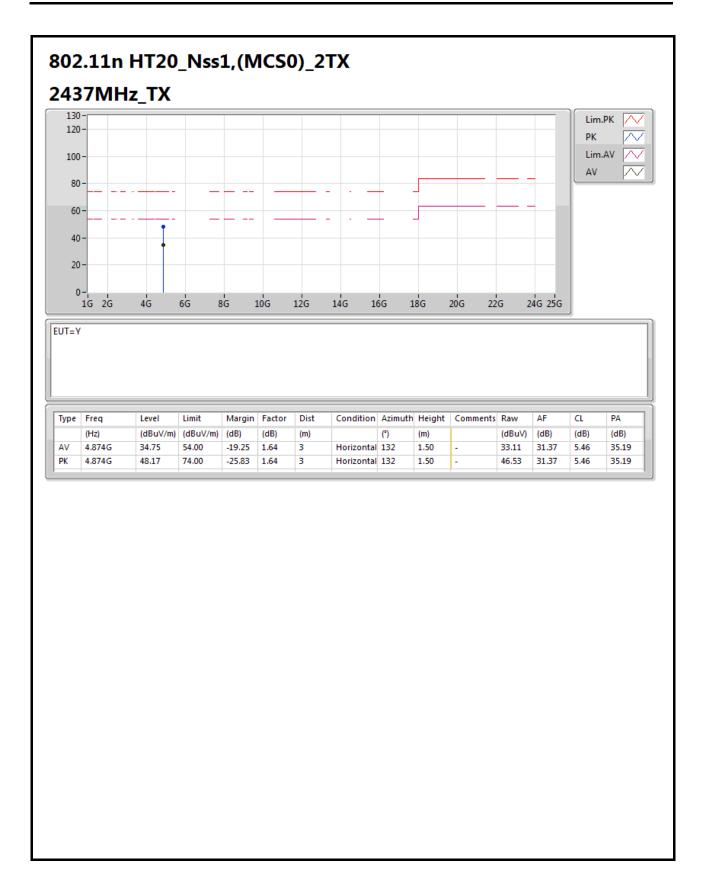
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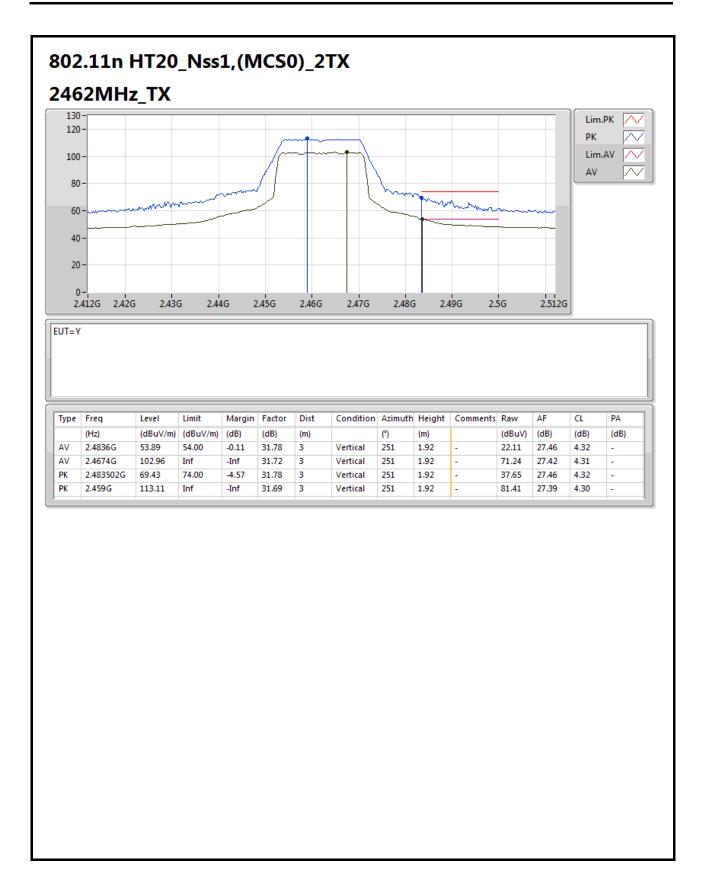
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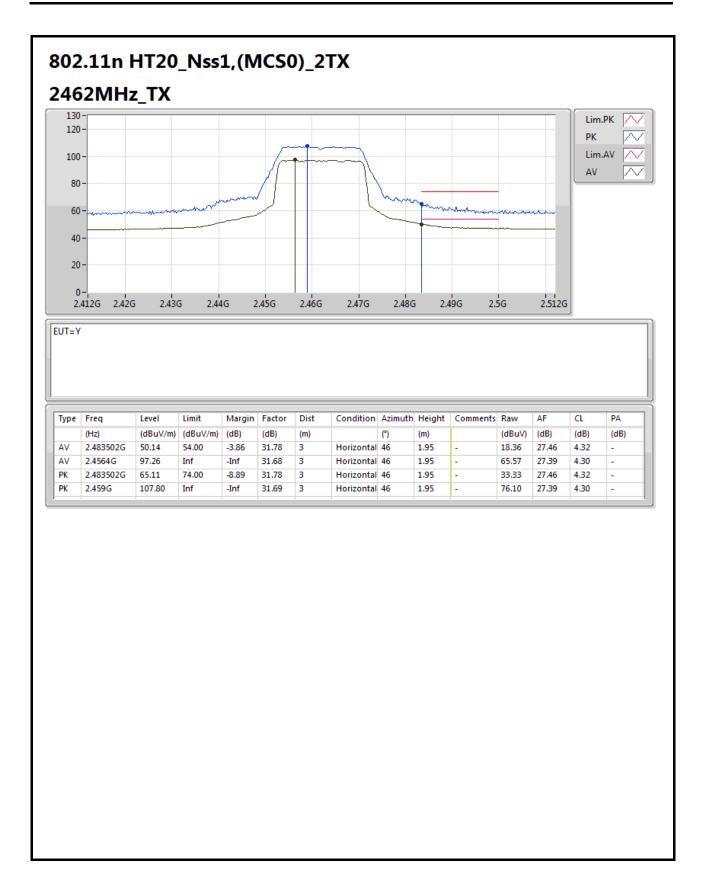
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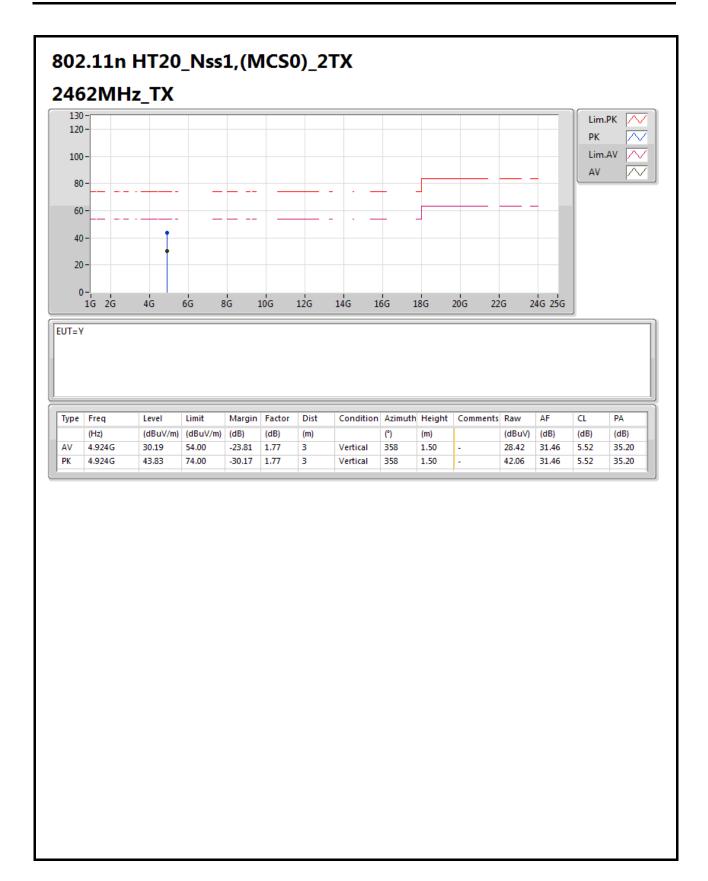
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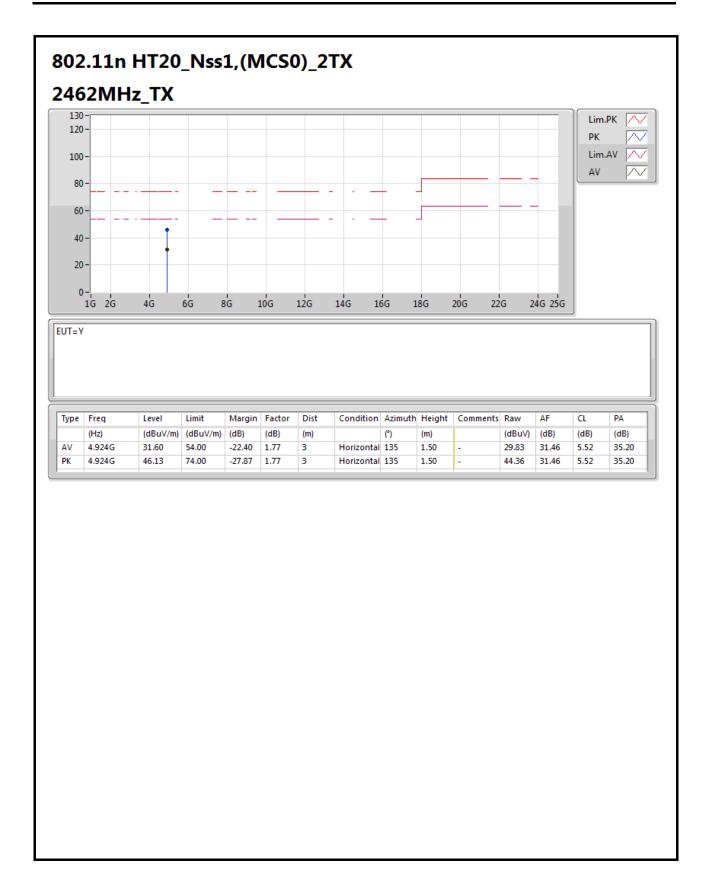
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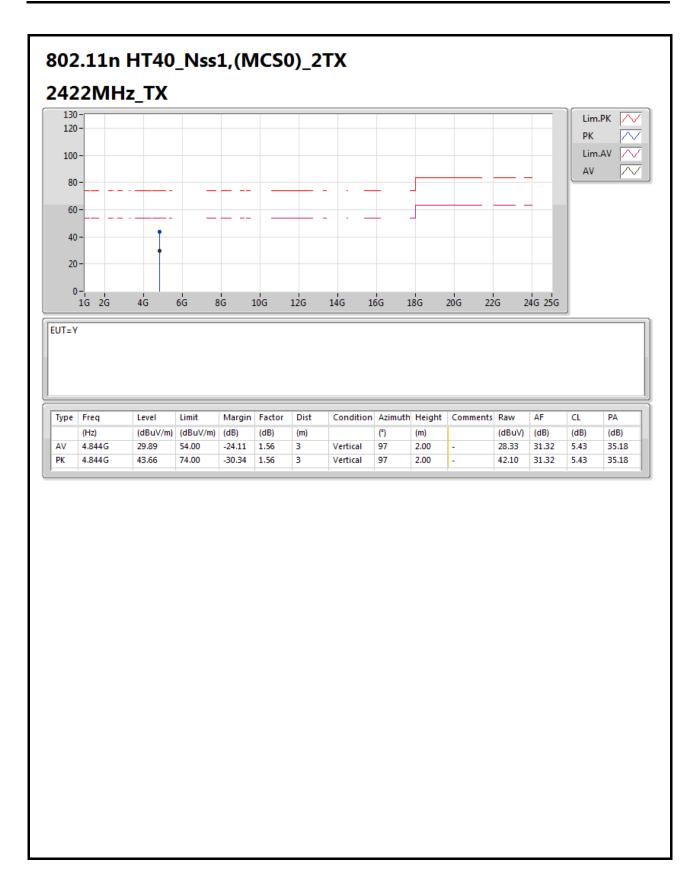
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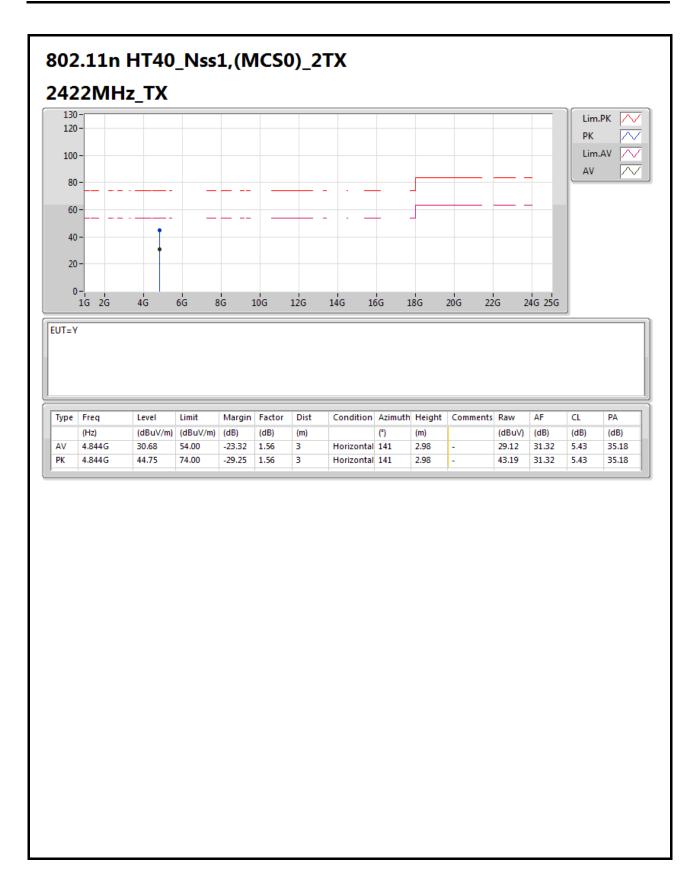
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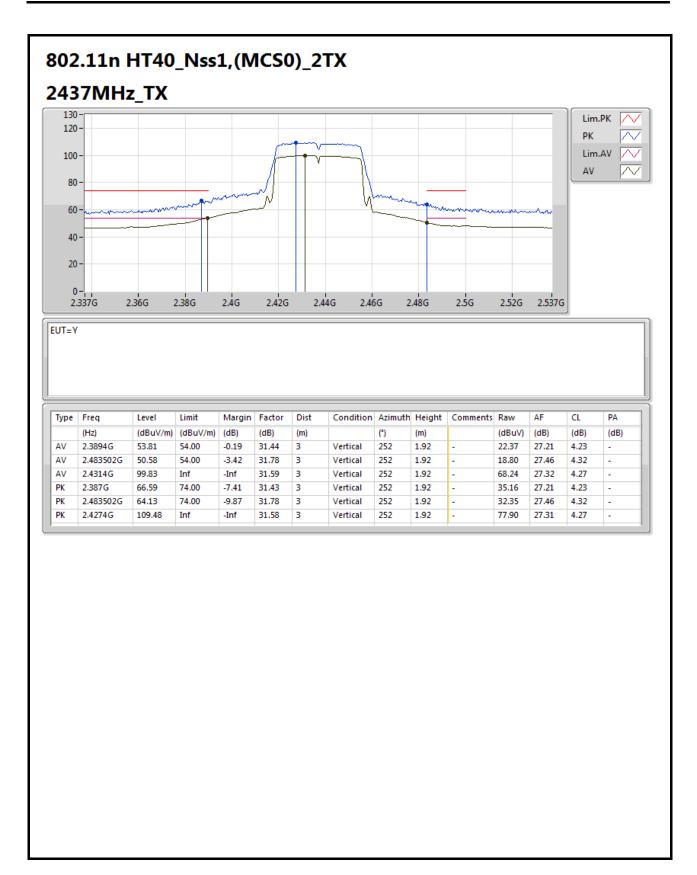
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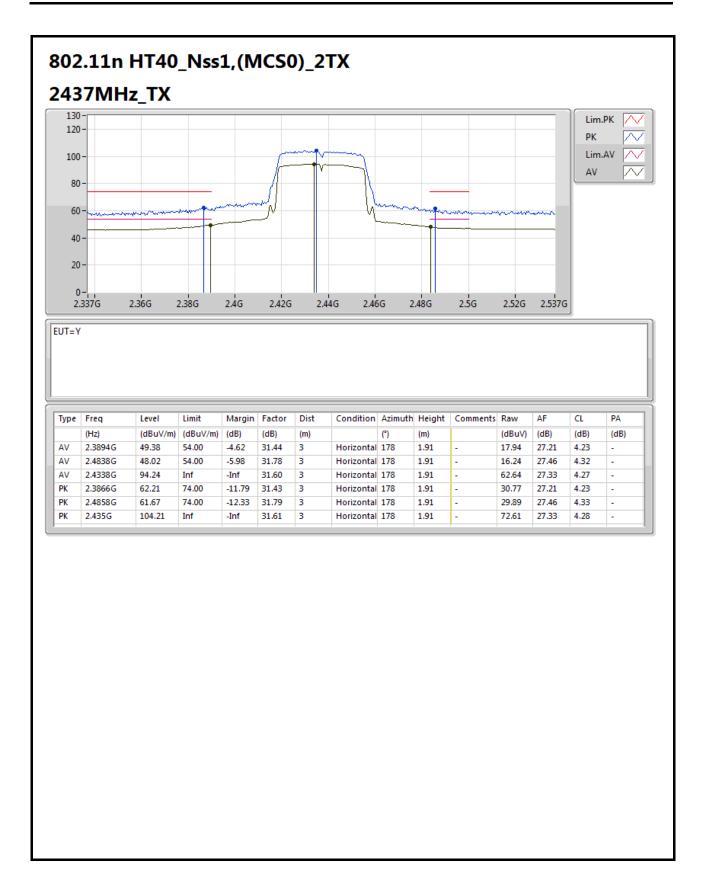
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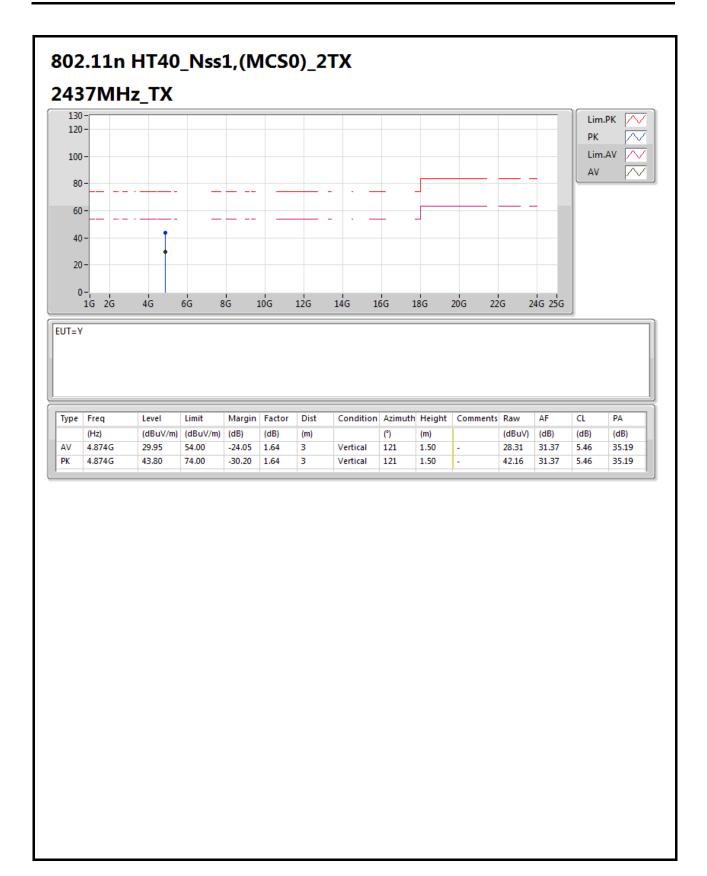
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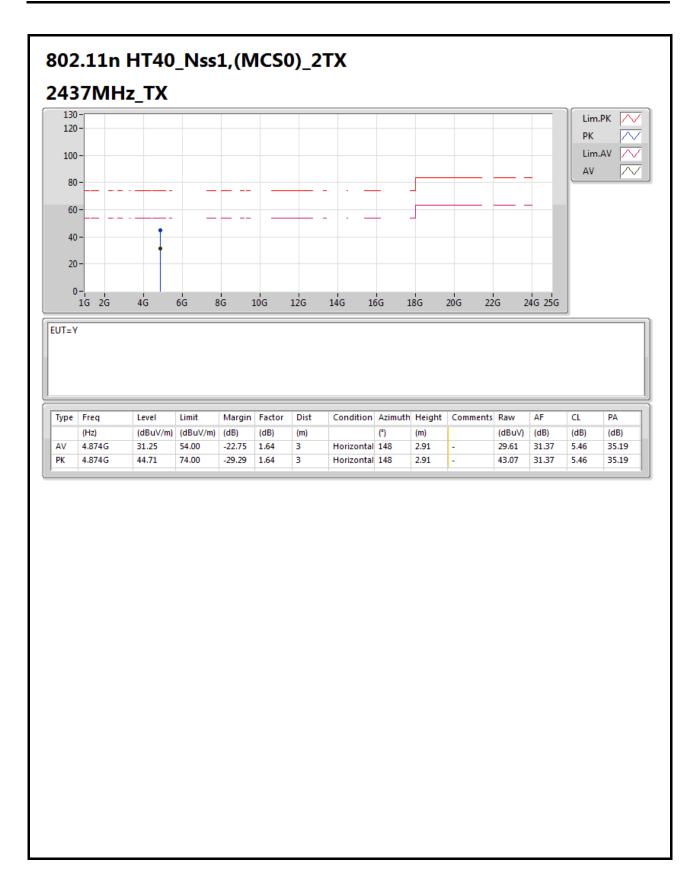
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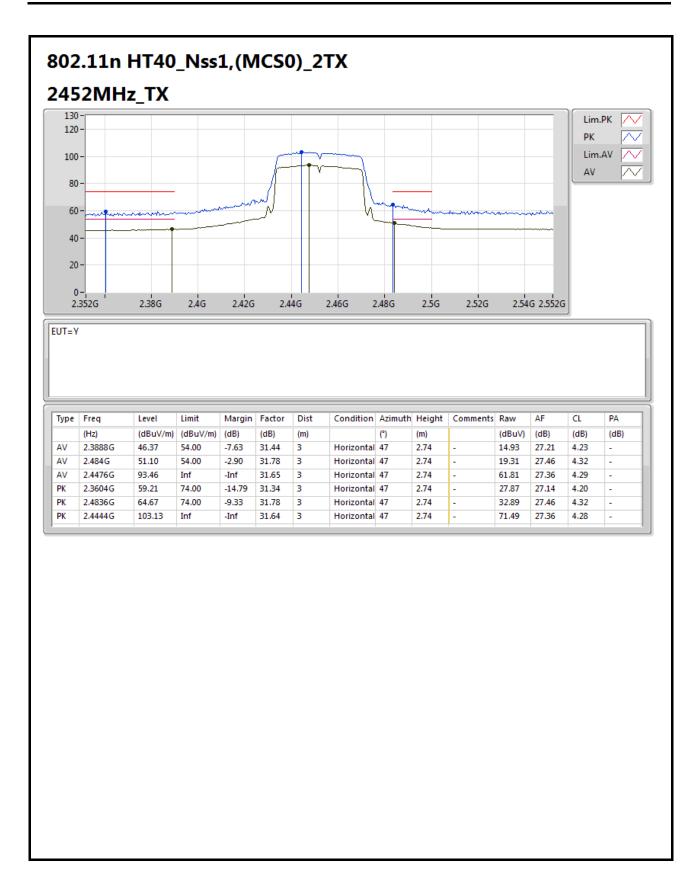
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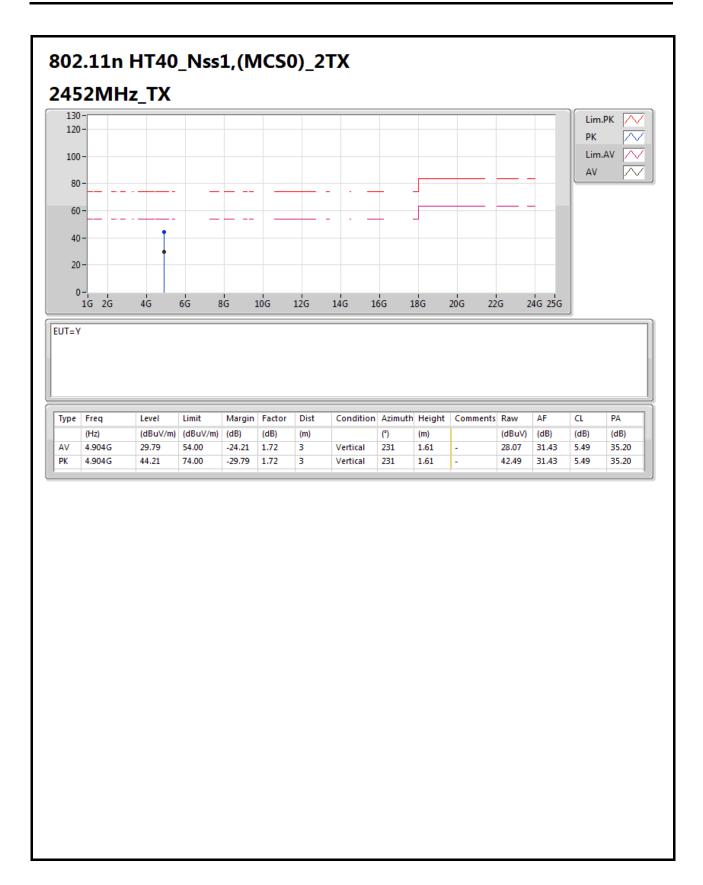
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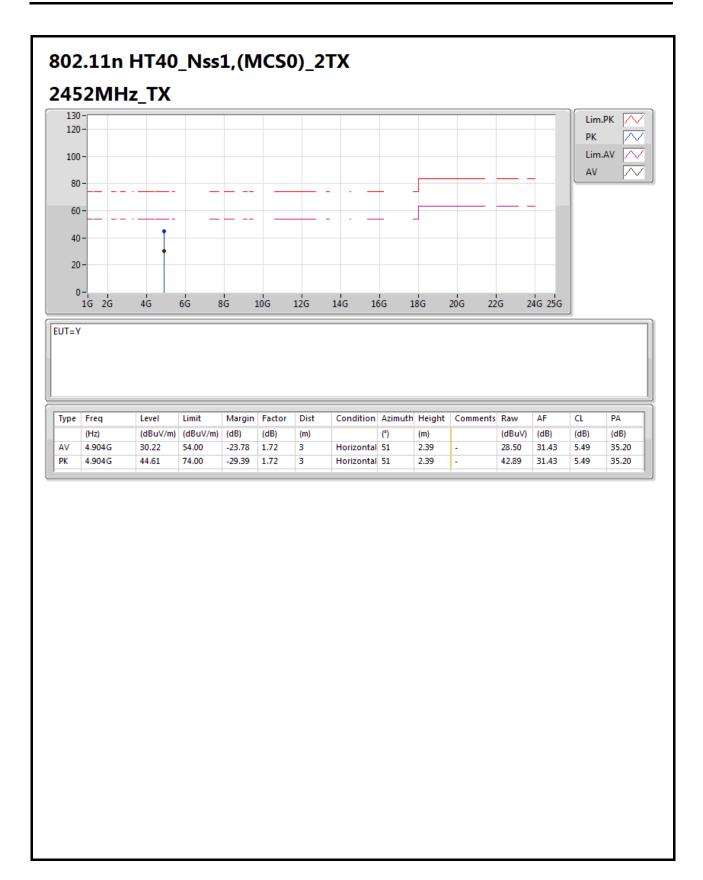
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