



Report No.: FR882322AC

FCC Test Report

FCC ID : 2AKWYXBP202

Equipment : Digital Transmission System
Brand Name : DynaScan Technology Corp.

Model Name : XBP202

Applicant : DYNASCAN TECHNOLOGY CORP.

7F, 66 Huaya 1st Road, Guishan Taoyuan

33383,Taiwan

Manufacturer : DYNASCAN TECHNOLOGY CORP.

7F, 66 Huaya 1st Road, Guishan Taoyuan

33383,Taiwan

Standard : 47 CFR FCC Part 15.247

The product was received on Aug. 20, 2018, and testing was started from Aug. 20, 2018 and completed on Sep. 11, 2018. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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

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

Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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

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History of this test report

Version	Description	Issued Date
01	Initial issue of report	Sep. 26, 2018

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Summary of Test Result

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

Reviewed by: Jackson Tsai

Report Producer: Debby Hung

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General Description 1

Information 1.1

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]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11b	20	1TX
2.4-2.4835GHz	802.11g	20	1TX
2.4-2.4835GHz	802.11n HT20	20	1TX

Note:

- 11b mode uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.
- 11g, HT20 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	Gain (dBi)
1	1	PSA	-	PCB antenna	i-Pex	-0.29

For 2.4GHz function:

For IEEE 802.11 b/g/n mode (1TX/1RX)

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

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1.1.3 EUT Information

	Operational Condition						
EU	Γ Power T	уре	Fro	m Switch	ing Power S	upply	
EUT	Γ Function	n	\boxtimes	Point-to-	multipoint		Point-to-point
Bea	ımforminç	g Function		With bea	amforming	\boxtimes	Without beamforming
					Туре	of El	т
	Stand-alc	ne					
	Combine	d (EUT where	e the	radio pa	rt is fully inte	grated	within another device)
	Combine	d Equipment	- Bra	and Name	e / Model No	o.:	
\boxtimes	Plug-in ra	adio (EUT inte	ende	d for a va	riety of host	syste	ms)
	Host System - Brand Name: DynaScan						
<add> Host System - Model No.:</add>				el No.:	DS851LR4-	1,DS8	51LR3,DP851LT4-1,DP851LT3
Other:							

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Note. All the host system models are identical, the difference model for difference brand served as marketing strategy.

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11b	0.997	0.013	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11g	0.973	0.119	1.4m	1k
802.11n HT20	0.971	0.128	1.313m	1k

1.1.5 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FR882303AC Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
95 inch Host was added	Emissions in Restricted Frequency Bands and
85 inch Host was added	AC Conducted Emissions were evaluated

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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:

- 47 CFR FCC Part 15
- ANSI C63.10-2013
- KDB 558074 D01 v05

1.3 Testing Location Information

	Testing Location						
\boxtimes	HWA YA	ADD	:	No. 52, Huaya 1st Rd.,	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	Andy	24.5°C / 64.5%	23/Aug/2018
Radiated	03CH09-HY	Andy	23.2°C / 59%	24/Aug/2018
Radiated <add></add>	03CH03-HY	Justin	25.4°C / 55%	11/Sep/2018
AC Conduction	CO04-HY	Jerry	24.5°C / 55%	08/Sep/2018

1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%
Temperature	0.7 °C	Confidence levels of 95%
Humidity	4 %	Confidence levels of 95%

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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	RFTestTool
---------------	------------

Mode	Power Setting
802.11b_Nss1,(1Mbps)_1TX	-
2412MHz	80
2437MHz	80
2452MHz	80
2457MHz	72
2462MHz	72
802.11g_Nss1,(6Mbps)_1TX	-
2412MHz	70
2437MHz	80
2457MHz	80
2462MHz	68
802.11n HT20_Nss1,(MCS0)_1TX	-
2412MHz	69
2437MHz	80
2457MHz	80
2462MHz	66

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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	Switching Power Supply mode	

Т	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	

Th	The Worst Case Mode for Following Conformance Tests		
Tests Item	Emissions in Restricted Frequency Bands		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz	CTX		
1	Switching Power Supply mode		
Operating Mode > 1GHz	CTX		
	Y Plane		
Orthogonal Planes of EUT			
Worst Planes of EUT	V		

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2.4 **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
3	AC Power Source	GW	APS-9102	-

Support Equipment – Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Host	DynaScan	DS851LR4-1	-

	Support Equipment – AC Conduction			
No.	Equipment	Brand Name	Model Name	FCC ID
1	Host	DynaScan	DS851LR4-1	-

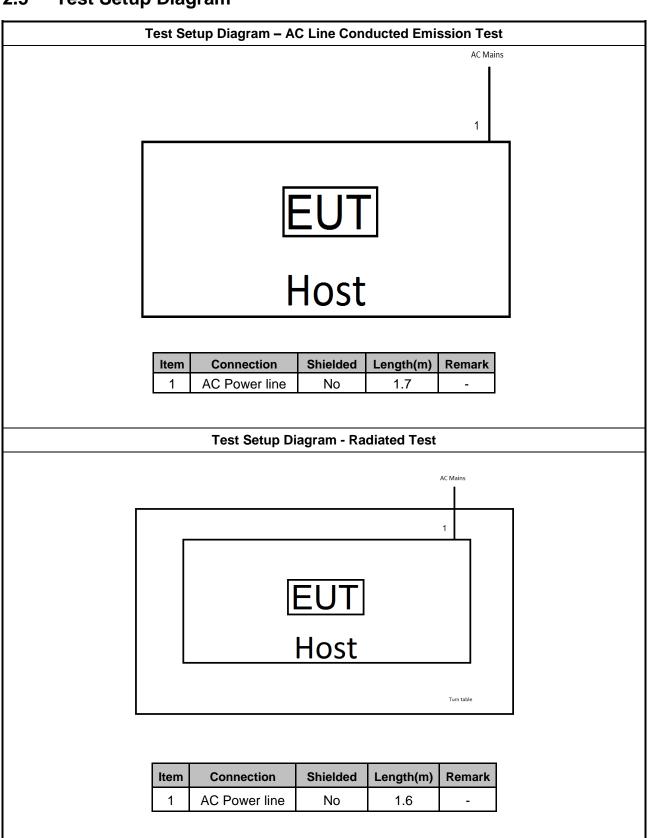
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Test Setup Diagram 2.5



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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	
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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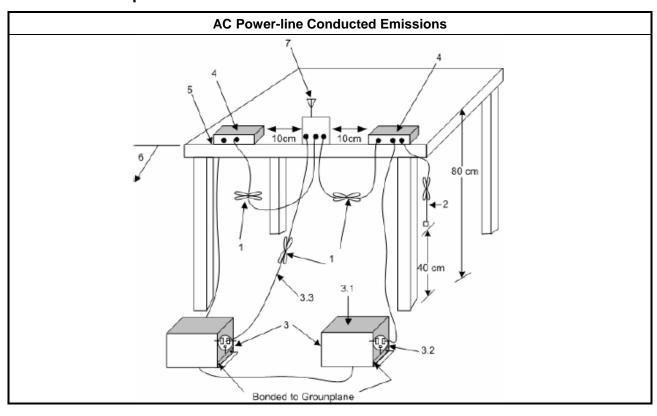
3.1.2 Measuring Instruments

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.		

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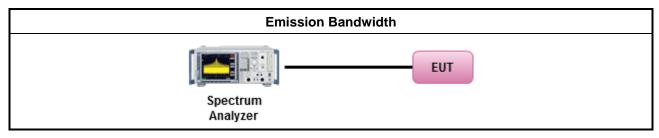
3.2.2 Measuring Instruments

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 8.2 (11.9.2.2 of ANSI C63.10) DTS bandwidth measurement.	
	Refer as RSS-Gen, clause 6.7 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

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: $P_{eirp} \le MAX(36, P_{Out} + G_{TX}) dBm$
		- Aggregate power on all beams: $P_{eirp} \le MAX(36, [P_{Out} + G_{TX} + 8]) dBm$
		aximum peak conducted output power or maximum conducted output power in dBm, emaximum 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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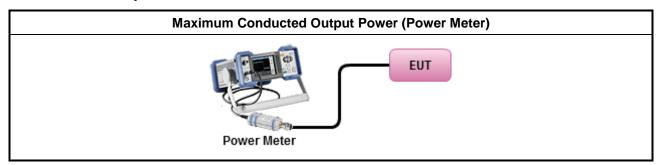
3.3.3 Test Procedures

	Test Method
•	Maximum Peak Conducted Output Power
	☐ Refer as KDB 558074, clause 8.3.1.1 (11.9.1.1 of ANSI C63.10) RBW ≥ EBW method.
	Refer as KDB 558074, clause 8.3.1.2 (11.9.1.2 of ANSI C63.10) integrated band power method.
	Refer as KDB 558074, clause 8.3.1.3 (11.9.1.3 of ANSI C63.10) peak power meter.
•	Maximum Average Conducted Output Power
	Refer as KDB 558074, clause 8.3.2.2 (11.9.2.2 of ANSI C63.10) using a spectrum analyzer.
	Refer as KDB 558074, clause 8.3.2.3 (11.9.2.3 of ANSI C63.10) using a 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

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3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

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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

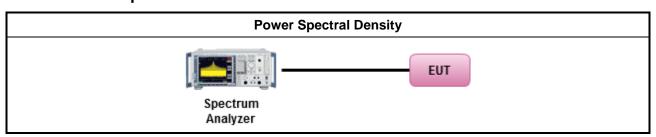
Refer a test equipment and calibration data table in this test report.

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 8.4 (11.10 of ANSI C63.10) Method PKPSD.
- 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			

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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.

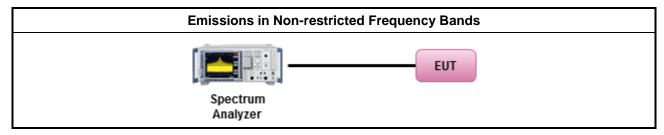
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

	Test Method
•	Refer as KDB 558074, clause 8.5 (11.11 of ANSI C63.10) for non-restricted frequency 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 (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

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- 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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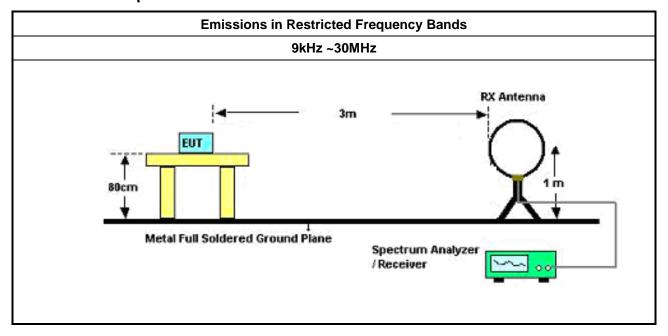
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- The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
- Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
- For the transmitter unwanted emissions shall be measured using following options below:
 - Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
- For the transmitter band-edge emissions shall be measured using following options below:
 - Refer as KDB 558074 clause 8.7.1, 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 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements.
 - Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).

3.6.4 Test Setup



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Report Template No.: HE1-C8 Ver3.1

30MHz~1GHz **RX Antenna** Ant. feed EUT point 80cm Metal Full Soldered Ground Plane Spectrum Analyzer /Receiver **Above 1GHz** 4M 3M & 1M 1.5M Spectrum Analyzer

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

TEL: 886-3-3273456 Pa FAX: 886-3-3270973 Iss

Report Template No.: HE1-C8 Ver3.1

FCC ID: 2AKWYXBP202

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Report No.: FR882322AC

Report Version : 01



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	ESR	102051	9KHz ~ 3.6GHz	03/May/2018	02/May/2019
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	17/Nov/2017	16/Nov/2018
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9kHz ~ 30MHz	06/Oct/2017	05/Oct/2018
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Puls e Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9 kHz ~ 30 MHz	12/Oct/2017	11/Oct/2018

NCR : Non-Calibration Require

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz ~ 1GHz	23/Apr/2018	22/Apr/2019
3m Semi Anechoic Chamber	Anechoic TDK		03CH09-HY	1GHz ~ 18GHz	14/Jun/2018	13/Jun/2019
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz ~ 26.5GHz	10/May/2018	09/May/2019
Amplifier	EMC	EMC9135	980232	9KHz~1GHz	27/Apr/2018	26/Apr/2019
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz ~ 44GHz	31/Jul/2018	30/Jul/2019
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D & MTJ6102-05	35418 / 3	30MHz~1GHz	09/Sep/2017	08/Sep/2018
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz~18GHz	30/Apr/2018	29/Apr/2019
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170614	18GHz~40GHz	09/Feb/2018	08/Feb/2019
Loop Antenna	TESEQ	HLA 6120	31244	9k-30MHz	29/Mar/2018	28/Mar/2019
RF Cable-R03m	Jye Bao	RG142	CB031	9kHz ~ 1GHz	01/Feb/2018	31/Jan/2019
RF Cable-high	HUBER+SUHNER	SUCOFLEX104	SN 556626/4 + 556627	1GHz ~ 40GHz	14/Mar/2018	13/Mar/2019

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FCC Test Report

Instrument for Radiated Test <Add>

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	31/Oct/2017	30/Oct/2018
3m Semi Anechoic Chamber	Anechoic SIDT FRANKONIA		03CH03-HY	1GHz ~ 18GHz 3m	01/Nov/2017	31/Oct/2018
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	23/Apr/2018	19/Apr/2019
Microwave System Preamplifier	KEYSIGHT	83017A	MY53270196	1GHz ~ 26.5GHz	30/Aug/2018	29/Aug/2019
Signal Analyzer	R&S	FSV40	101500	10Hz ~ 40GHz	18/Jul/2018	17/Jul/2019
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	29/Jan/2018	28/Jan/2019
RF Cable-high	SUHNER	SUCOFLEX 106	CB222	1GHz ~ 40GHz	29/Jan/2018	28/Jan/2019
Bilog Antenna & 5db Attenuator	SCHAFFNER/MTJ	CBL6112D / MTJ6102-05	2678 / 001	30 MHz ~ 2 GHz	07/Jul/2018	06/Jul/2019
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170154	18GHz ~ 40GHz	06/Feb/ 2018	05/Feb/2019
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1531	1GHz ~ 18GHz	18/Apr/ 2018	17/Apr/2019
Preamplifier	MITEQ	TTA1840-35-H G	1864481	18GHz ~ 40GHz	24/Aug/2018	23/Aug/2019

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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	ROHDE& SCHWARZ	FSP 40	100305	9kHz~40GHz	04/Jan/2018	03/Jan/2019
Temp. and Humidity Chamber	Giant Force	GTH-225-40-CP-AR	MAA1311-008	-40 ~ 100°C	30/May/2018	29/May/2019
Power Sensor	Anritsu	MA2411B	1339407	300MHz ~ 40GHz	06/Nov/2017	05/Nov/2018
Power Meter	Anritsu	ML2495A	1517010	300MHz ~ 40GHz	06/Nov/2017	05/Nov/2018
RF Cable-1m	HUBER+SUHNER	SUCOFLEX_104	MY37334/4	30MHz ~ 26.5GHz	26/Jan/2018	25/Jan/2019
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10710/4	30MHz ~ 26.5GHz	26/Jan/2018	25/Jan/2019
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10709/4	30MHz ~ 26.5GHz	26/Jan/2018	25/Jan/2019
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	26/Jul/2018	25/Jul/2019

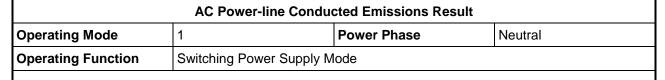
TEL: 886-3-3273456 Page Number : 23 of 23 FAX: 886-3-3270973 Issued Date : Sep. 26, 2018

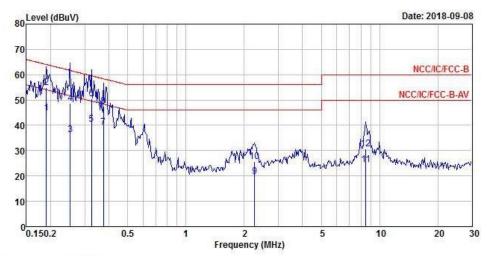
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	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	·
1	0.19	44.94	-9.08	54.02	35.31	9.62	0.01	Average
2	0.19	54.87	-9.15	64.02	45.24	9.62	0.01	QP
2 3 4 5	0.25	36.20	-15.49	51.69	26.55	9.62	0.03	Average
4	0.25	48.71	-12.98	61.69	39.06	9.62	0.03	QP
5	0.33	40.38	-9.19	49.57	30.70	9.61	0.07	Average
6 MAX	0.33	50.63	-8.94	59.57	40.95	9.61	0.07	QP
7	0.38	39.25	-9.14	48.39	29.55	9.61	0.09	Average
8	0.38	47.47	-10.92	58.39	37.77	9.61	0.09	QP
9	2.26	19.83	-26.17	46.00	10.18	9.63	0.02	Average
10	2.26	25.77	-30.23	56.00	16.12	9.63	0.02	QP
11	8.50	24.42	-25.58	50.00	14.56	9.68	0.18	Average
12	8.50	30.63	-29.37	60.00	20.77	9.68	0.18	QP

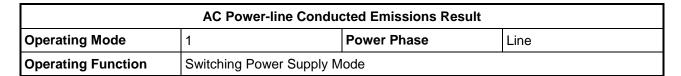
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

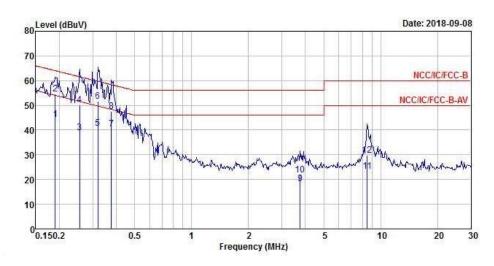
Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

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	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
9	MHz	dBuV	dB	dBuV	dBuV	dB	dB	2
1	0.19	44.34	-9.68	54.02	34.71	9.62	0.01	Average
2	0.19	54.49	-9.53	64.02	44.86	9.62	0.01	QP
3	0.26	38.98	-12.58	51.56	29.32	9.62	0.04	Average
2 3 4 5	0.26	50.15	-11.41	61.56	40.49	9.62	0.04	QP
5	0.32	40.62	-9.09	49.71	30.94	9.61	0.07	Average
6	0.32	51.54	-8.17	59.71	41.86	9.61	0.07	QP
7 MAX	0.38	40.49	-7.85	48.34	30.79	9.61	0.09	Average
8	0.38	47.40	-10.94	58.34	37.70	9.61	0.09	QP
9	3.76	18.23	-27.77	46.00	8.52	9.63	0.08	Average
10	3.76	21.89	-34.11	56.00	12.18	9.63	0.08	QP
11	8.50	23.18	-26.82	50.00	13.35	9.65	0.18	Average
12	8.50	29.71	-30.29	60.00	19.88	9.65	0.18	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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EBW Result Appendix B

Summary

Mode	Max-N dB	Max-N dB Max-OBW		Min-N dB	Min-OBW
	(Hz)	(Hz) (Hz)		(Hz)	(Hz)
2.4-2.4835GHz	-	-		-	-
802.11b_Nss1,(1Mbps)_1TX	10.05M	15.267M	15M3G1D	9.025M	14.068M
802.11g_Nss1,(6Mbps)_1TX	15.1M	16.692M	16M7D1D	14.925M	16.392M
802.11n HT20_Nss1,(MCS0)_1TX	15.025M	17.716M	17M7D1D	14.975M	17.491M

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

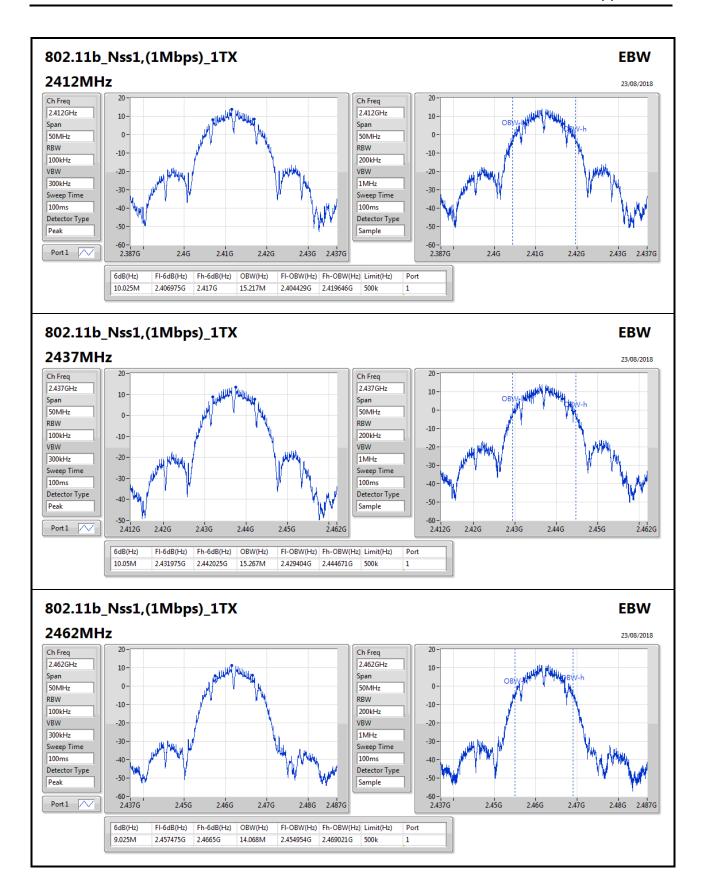
Mode	Result	Limit	Port 1-N dB	Port 1-OBW
		(Hz)	(Hz)	(Hz)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-
2412MHz_TnomVnom	Pass	500k	10.025M	15.217M
2437MHz_TnomVnom	Pass	500k	10.05M	15.267M
2462MHz_TnomVnom	Pass	500k	9.025M	14.068M
802.11g_Nss1,(6Mbps)_1TX	=	-	-	-
2412MHz_TnomVnom	Pass	500k	15.1M	16.442M
2437MHz_TnomVnom	Pass	500k	14.925M	16.692M
2462MHz_TnomVnom	Pass	500k	15.025M	16.392M
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-
2412MHz_TnomVnom	Pass	500k	14.975M	17.566M
2437MHz_TnomVnom	Pass	500k	15M	17.716M
2462MHz_TnomVnom	Pass	500k	15.025M	17.491M

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 882322 SPORTON LAB.

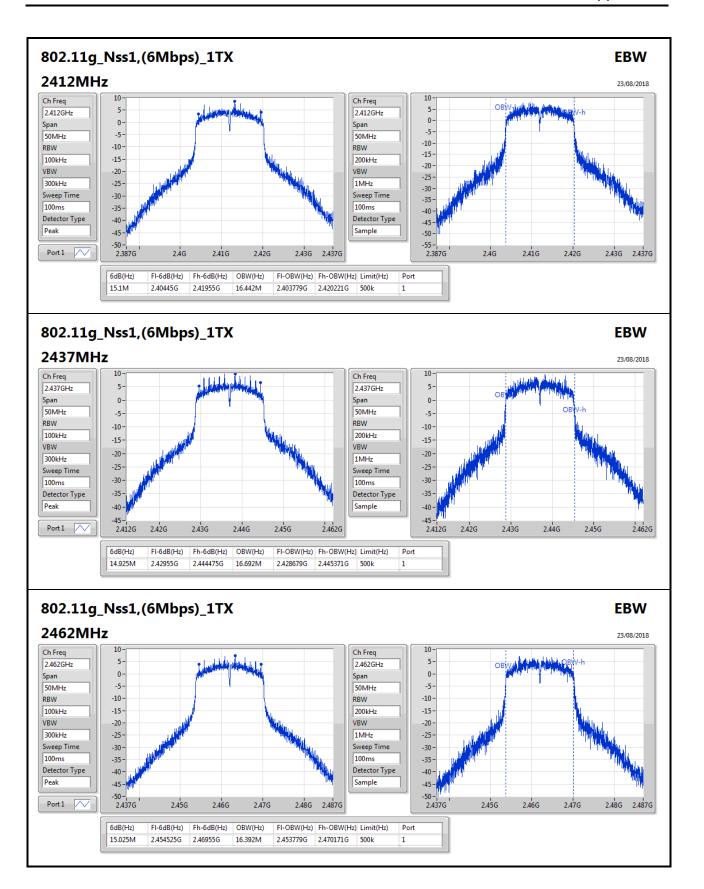
Appendix B EBW Result



SPORTON INTERNATIONAL INC.

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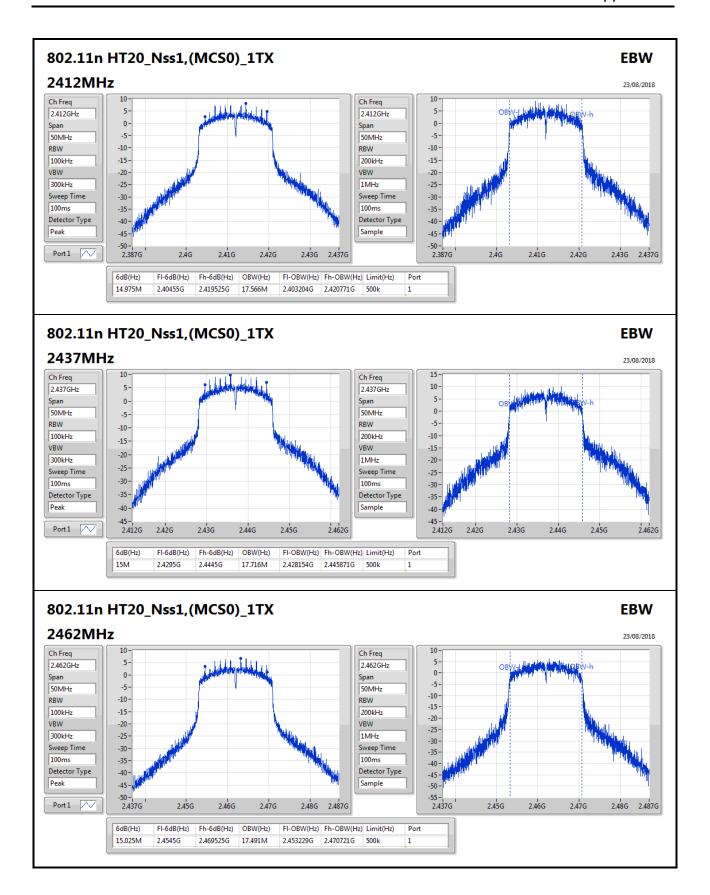
Appendix B EBW Result



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EBW Result Appendix B



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Appendix C **AV Power Result**

Summary

Mode	Total Power	Total Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_1TX	23.12	0.20512
802.11g_Nss1,(6Mbps)_1TX	20.51	0.11246
802.11n HT20_Nss1,(MCS0)_1TX	20.55	0.11350

Result

Mode	Result	DG	Port 1	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-
2412MHz_TnomVnom	Pass	-0.29	22.84	22.84	30.00
2437MHz_TnomVnom	Pass	-0.29	22.85	22.85	30.00
2452MHz_TnomVnom	Pass	-0.29	23.12	23.12	30.00
2457MHz_TnomVnom	Pass	-0.29	20.39	20.39	30.00
2462MHz_TnomVnom	Pass	-0.29	20.12	20.12	30.00
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-
2412MHz_TnomVnom	Pass	-0.29	19.14	19.14	30.00
2437MHz_TnomVnom	Pass	-0.29	20.11	20.11	30.00
2457MHz_TnomVnom	Pass	-0.29	20.51	20.51	30.00
2462MHz_TnomVnom	Pass	-0.29	18.12	18.12	30.00
802.11n HT20_Nss1,(MCS0)_1TX	-	-	=	=	-
2412MHz_TnomVnom	Pass	-0.29	18.56	18.56	30.00
2437MHz_TnomVnom	Pass	-0.29	20.31	20.31	30.00
2457MHz_TnomVnom	Pass	-0.29	20.55	20.55	30.00
2462MHz_TnomVnom	Pass	-0.29	17.49	17.49	30.00

DG = Directional Gain; Port X = Port X output power
Note : Conducted average output power is for reference only

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PSD Result Appendix D

Summary

Mode	PD
	(dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_1TX	0.96
802.11g_Nss1,(6Mbps)_1TX	-5.31
802.11n HT20_Nss1,(MCS0)_1TX	-5.89

RBW=3kHz.

Result

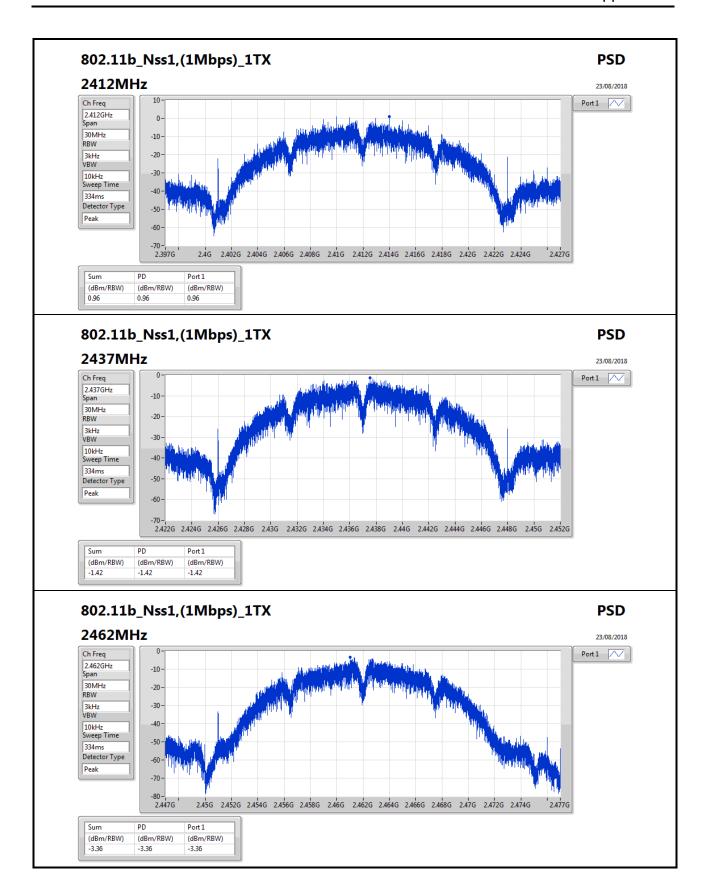
Mode	Result	DG	Port 1	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-
2412MHz_TnomVnom	Pass	-0.29	0.96	0.96	8.00
2437MHz_TnomVnom	Pass	-0.29	-1.42	-1.42	8.00
2462MHz_TnomVnom	Pass	-0.29	-3.36	-3.36	8.00
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-
2412MHz_TnomVnom	Pass	-0.29	-6.12	-6.12	8.00
2437MHz_TnomVnom	Pass	-0.29	-5.31	-5.31	8.00
2462MHz_TnomVnom	Pass	-0.29	-7.11	-7.11	8.00
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-	-
2412MHz_TnomVnom	Pass	-0.29	-7.01	-7.01	8.00
2437MHz_TnomVnom	Pass	-0.29	-5.89	-5.89	8.00
2462MHz_TnomVnom	Pass	-0.29	-7.86	-7.86	8.00

SPORTON INTERNATIONAL INC. Page No. : D1 of D4

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

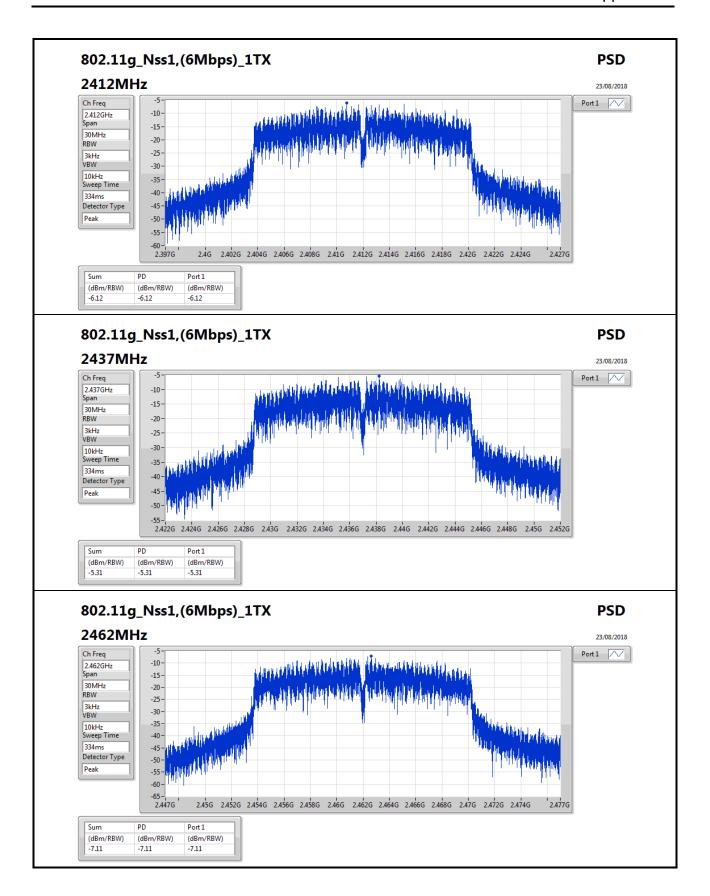
PSD Result Appendix D



SPORTON INTERNATIONAL INC.

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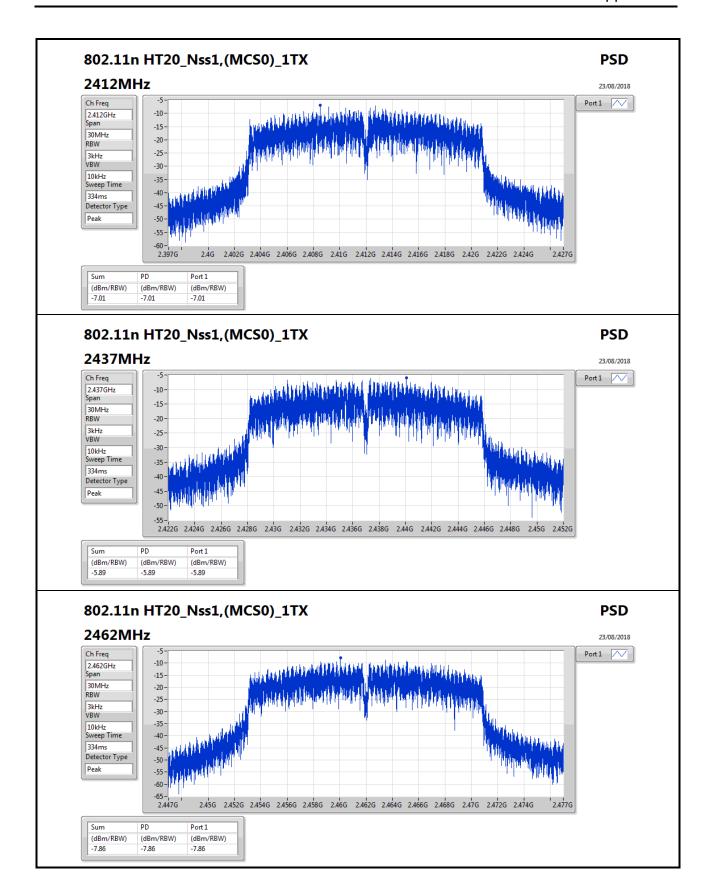
PSD Result Appendix D



SPORTON INTERNATIONAL INC.

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PSD Result Appendix D



SPORTON INTERNATIONAL INC.

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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)	
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
802.11b_Nss1,(1Mbps)_1TX	Pass	2.437575G	13.20	-16.80	2.30641G	-58.95	2.39752G	-18.07	2.48542G	-54.72	7.235136G	-47.14	1
802.11g_Nss1,(6Mbps)_1TX	Pass	2.439412G	9.58	-20.42	2.15729G	-62.11	2.39704G	-20.73	2.4875G	-57.81	16.967461G	-54.74	1
802.11n HT20_Nss1,(MCS0)_1TX	Pass	2.435738G	9.58	-20.42	801.23M	-62.71	2.3996G	-20.78	2.49102G	-57.66	16.284737G	-55.04	1

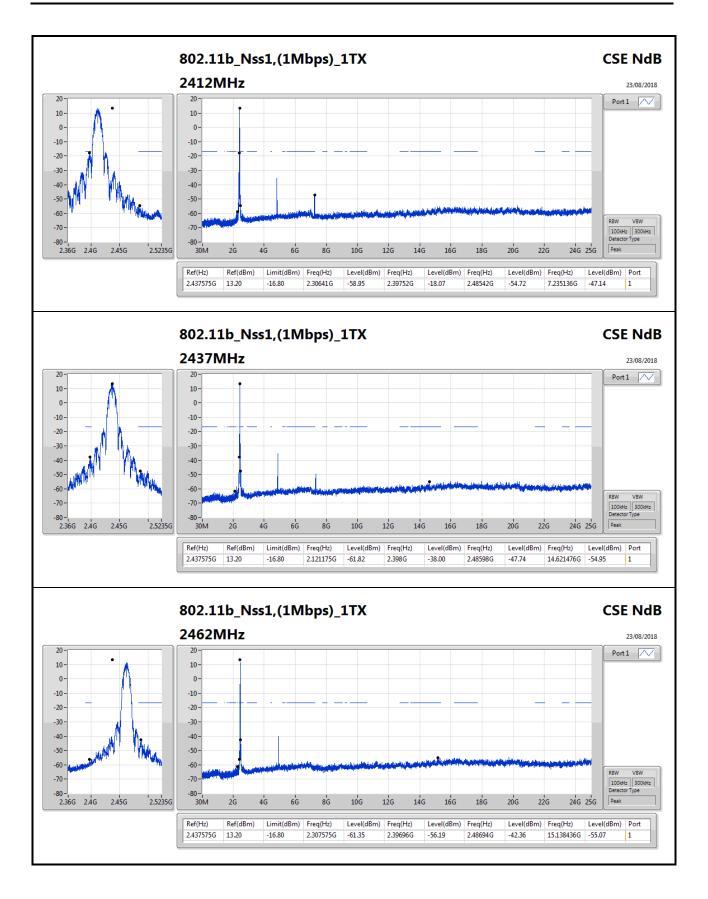
Result

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_TnomVnom	Pass	2.437575G	13.20	-16.80	2.30641G	-58.95	2.39752G	-18.07	2.48542G	-54.72	7.235136G	-47.14	1
2437MHz_TnomVnom	Pass	2.437575G	13.20	-16.80	2.121175G	-61.82	2.398G	-38.00	2.48598G	-47.74	14.621476G	-54.95	1
2462MHz_TnomVnom	Pass	2.437575G	13.20	-16.80	2.307575G	-61.35	2.39696G	-56.19	2.48694G	-42.36	15.138436G	-55.07	1
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz_TnomVnom	Pass	2.439412G	9.58	-20.42	2.15729G	-62.11	2.39704G	-20.73	2.4875G	-57.81	16.967461G	-54.74	1
2437MHz_TnomVnom	Pass	2.439412G	9.58	-20.42	2.302915G	-63.07	2.39896G	-46.34	2.48446G	-47.99	15.155293G	-54.68	1
2462MHz_TnomVnom	Pass	2.439412G	9.58	-20.42	2.16661G	-62.63	2.39992G	-56.80	2.48382G	-35.19	17.543421G	-54.67	1
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz_TnomVnom	Pass	2.435738G	9.58	-20.42	801.23M	-62.71	2.3996G	-20.78	2.49102G	-57.66	16.284737G	-55.04	1
2437MHz_TnomVnom	Pass	2.435738G	9.58	-20.42	2.172435G	-62.35	2.39896G	-46.13	2.48566G	-47.20	16.321261G	-54.20	1
2462MHz_TnomVnom	Pass	2.435738G	9.58	-20.42	1.967395G	-62.66	2.39696G	-56.63	2.48446G	-34.48	16.590979G	-54.80	1

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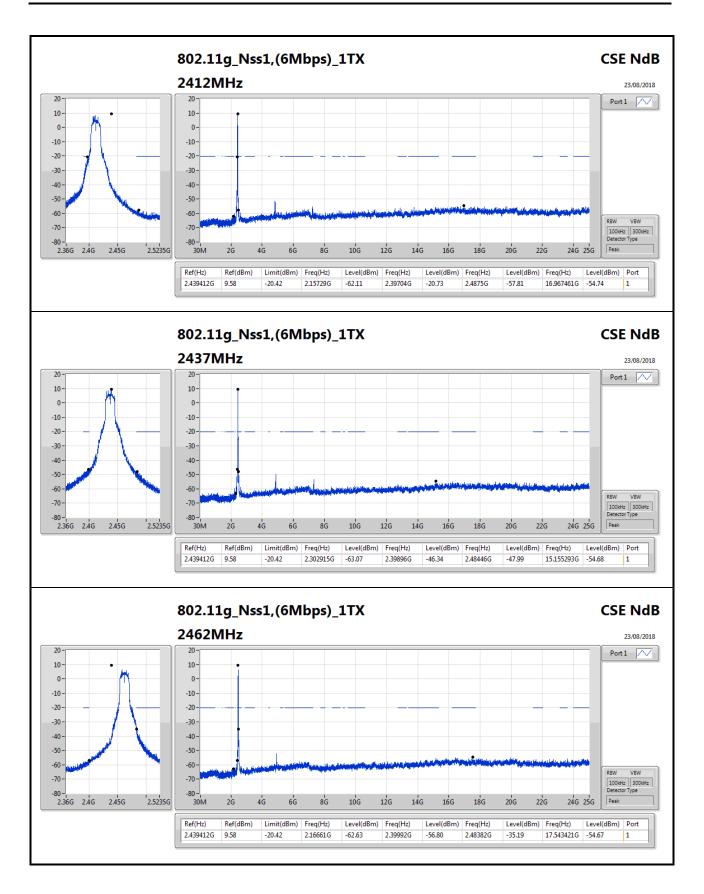




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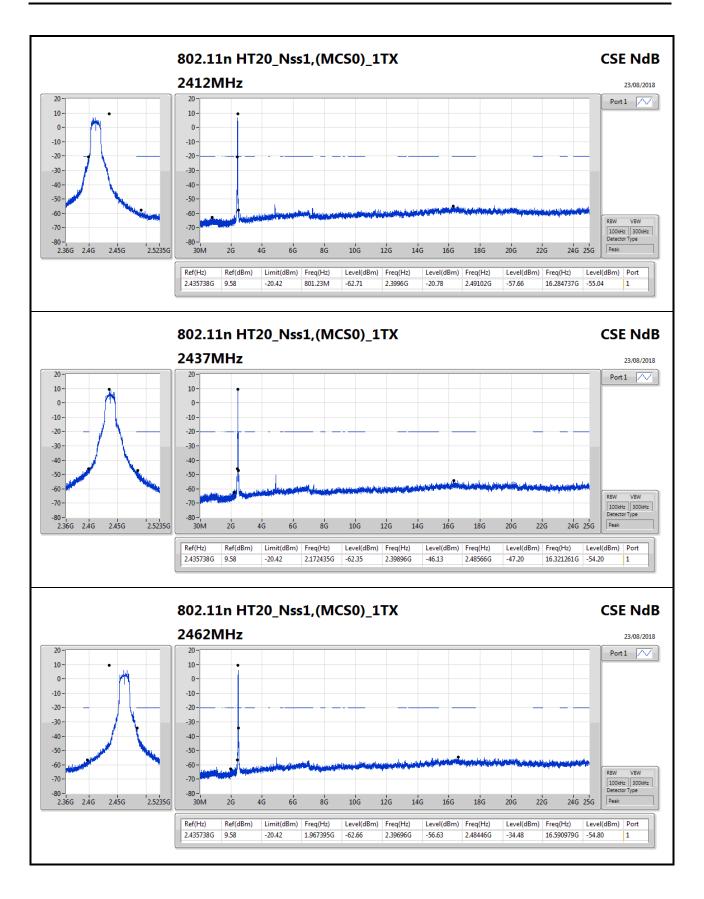
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RSE TX below 1GHz Result

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)	
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
802.11n HT20_Nss1,(MCS0)_1TX	Pass	PK	668.26M	41.88	46.00	-4.12	0.25	3	Vertical	0	1.00	-

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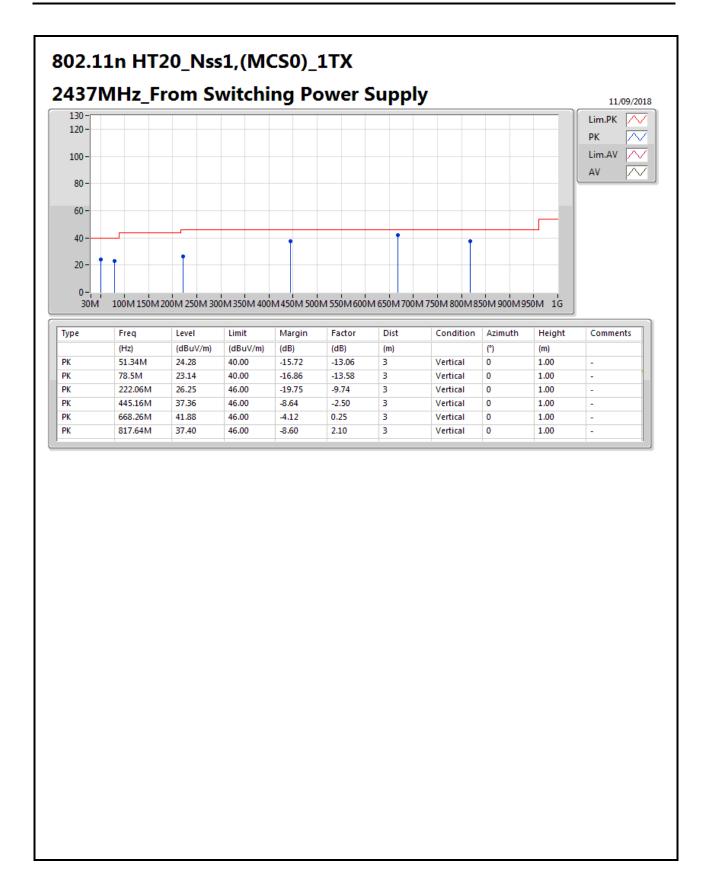
RSE TX below 1GHz Result

Appendix F.1

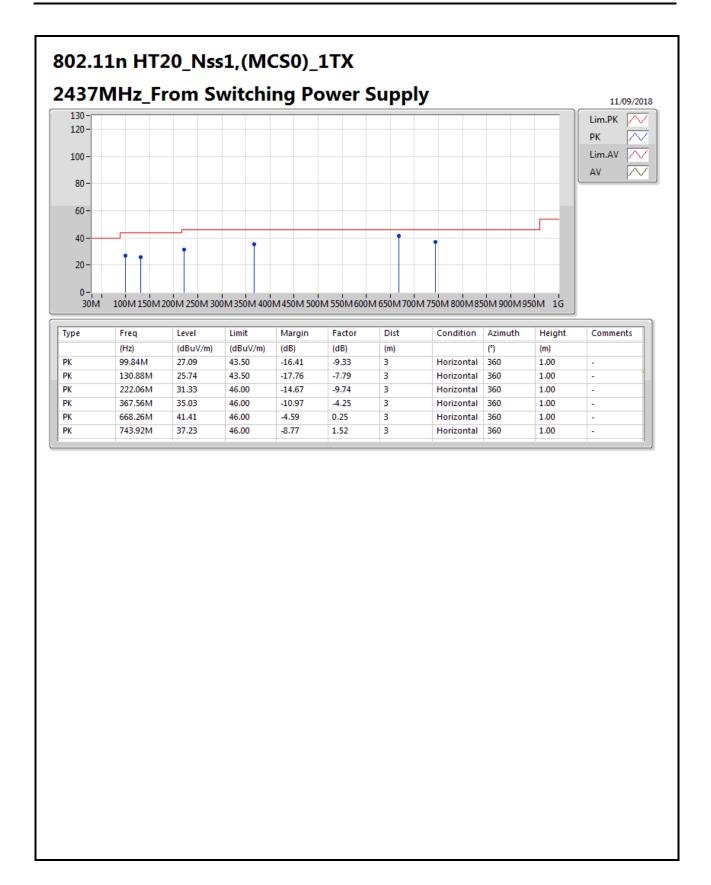
Result

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-	-	-	-	-	-
2437MHz	Pass	PK	51.34M	24.28	40.00	-15.72	-13.06	3	Vertical	0	1.00	-
2437MHz	Pass	PK	78.5M	23.14	40.00	-16.86	-13.58	3	Vertical	0	1.00	-
2437MHz	Pass	PK	222.06M	26.25	46.00	-19.75	-9.74	3	Vertical	0	1.00	-
2437MHz	Pass	PK	445.16M	37.36	46.00	-8.64	-2.50	3	Vertical	0	1.00	-
2437MHz	Pass	PK	668.26M	41.88	46.00	-4.12	0.25	3	Vertical	0	1.00	-
2437MHz	Pass	PK	817.64M	37.40	46.00	-8.60	2.10	3	Vertical	0	1.00	-
2437MHz	Pass	PK	99.84M	27.09	43.50	-16.41	-9.33	3	Horizontal	360	1.00	-
2437MHz	Pass	PK	130.88M	25.74	43.50	-17.76	-7.79	3	Horizontal	360	1.00	-
2437MHz	Pass	PK	222.06M	31.33	46.00	-14.67	-9.74	3	Horizontal	360	1.00	-
2437MHz	Pass	PK	367.56M	35.03	46.00	-10.97	-4.25	3	Horizontal	360	1.00	-
2437MHz	Pass	PK	668.26M	41.41	46.00	-4.59	0.25	3	Horizontal	360	1.00	-
2437MHz	Pass	PK	743.92M	37.23	46.00	-8.77	1.52	3	Horizontal	360	1.00	-











Appendix F.2

Summary

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
802.11b_Nss1,(1Mbps)_1TX	Pass	AV	2.4998G	43.50	54.00	-10.50	30.75	3	Horizontal	148	1.16	-
802.11g_Nss1,(6Mbps)_1TX	Pass	AV	2.483502G	53.09	54.00	-0.91	31.11	3	Horizontal	117	1.42	-
802.11n HT20_Nss1,(MCS0)_1TX	Pass	AV	2.389998G	53.66	54.00	-0.34	30.77	3	Horizontal	128	1.47	-

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Appendix F.2

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_Nss1,(1Mbps)_1TX	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	AV	2.3852G	48.12	54.00	-5.88	30.76	3	Vertical	135	1.48	-
2412MHz	Pass	AV	2.4112G	96.37	Inf	-Inf	30.85	3	Vertical	135	1.48	-
2412MHz	Pass	PK	2.3856G	58.41	74.00	-15.59	30.76	3	Vertical	135	1.48	-
2412MHz	Pass	PK	2.4124G	98.88	Inf	-Inf	30.85	3	Vertical	135	1.48	-
2412MHz	Pass	AV	2.3862G	53.82	54.00	-0.18	30.76	3	Horizontal	100	1.81	-
2412MHz	Pass	AV	2.4128G	98.23	Inf	-Inf	30.86	3	Horizontal	100	1.81	-
2412MHz	Pass	PK	2.386G	61.14	74.00	-12.86	30.76	3	Horizontal	100	1.81	-
2412MHz	Pass	PK	2.4124G	100.88	Inf	-Inf	30.85	3	Horizontal	100	1.81	-
2412MHz	Pass	AV	4.82175G	28.60	54.00	-25.40	2.12	3	Vertical	14	1.53	-
2412MHz	Pass	PK	4.82345G	43.65	74.00	-30.35	2.13	3	Vertical	14	1.53	-
2412MHz	Pass	AV	4.82169G	28.65	54.00	-25.35	2.12	3	Horizontal	10	2.40	-
2412MHz	Pass	PK	4.82232G	43.00	74.00	-31.00	2.13	3	Horizontal	10	2.40	-
2437MHz	Pass	AV	2.3886G	43.03	54.00	-10.97	30.77	3	Vertical	67	1.08	-
2437MHz	Pass	AV	2.4362G	97.44	Inf	-Inf	30.94	3	Vertical	67	1.08	-
2437MHz	Pass	AV	2.4998G	43.57	54.00	-10.43	31.17	3	Vertical	67	1.08	-
2437MHz	Pass	PK	2.3854G	56.27	74.00	-17.73	30.76	3	Vertical	67	1.08	-
2437MHz	Pass	PK	2.4362G	99.54	Inf	-Inf	30.94	3	Vertical	67	1.08	-
2437MHz	Pass	PK	2.4962G	56.88	74.00	-17.12	31.16	3	Vertical	67	1.08	-
2437MHz	Pass	AV	2.3882G	46.74	54.00	-7.26	30.77	3	Horizontal	118	1.23	-
2437MHz	Pass	AV	2.4378G	102.51	Inf	-Inf	30.95	3	Horizontal	118	1.23	-
2437MHz	Pass	AV	2.485G	45.19	54.00	-8.81	31.12	3	Horizontal	118	1.23	-
2437MHz	Pass	PK	2.387G	57.33	74.00	-16.67	30.76	3	Horizontal	118	1.23	-
2437MHz	Pass	PK	2.4378G	104.82	Inf	-Inf	30.95	3	Horizontal	118	1.23	-
2437MHz	Pass	PK	2.4854G	58.03	74.00	-15.97	31.12	3	Horizontal	118	1.23	-
2437MHz	Pass	AV	4.87401G	29.54	54.00	-24.46	2.26	3	Vertical	37	1.98	-
2437MHz	Pass	PK	4.87538G	42.56	74.00	-31.44	2.26	3	Vertical	37	1.98	-
2437MHz	Pass	AV	4.874G	33.81	54.00	-20.19	2.26	3	Horizontal	100	1.59	-
2437MHz	Pass	PK	4.87416G	44.08	74.00	-29.92	2.26	3	Horizontal	100	1.59	-
2452MHz	Pass	AV	2.3764G	43.22	54.00	-10.78	30.72	3	Vertical	123	1.26	-
2452MHz	Pass	AV	2.4512G	97.15	Inf	-Inf	30.99	3	Vertical	123	1.26	-
2452MHz	Pass	AV	2.4896G	45.23	54.00	-8.77	31.13	3	Vertical	123	1.26	-
2452MHz	Pass	PK	2.3784G	56.81	74.00	-17.19	30.73	3	Vertical	123	1.26	-
2452MHz	Pass	PK	2.4512G	99.31	Inf	-Inf	30.99	3	Vertical	123	1.26	-
2452MHz	Pass	PK	2.4872G	57.08	74.00	-16.92	31.12	3	Vertical	123	1.26	-
2452MHz	Pass	AV	2.3896G	43.29	54.00	-10.71	30.77	3	Horizontal	116	1.12	-
2452MHz	Pass	AV	2.4512G	104.61	Inf	-Inf	30.99	3	Horizontal	116	1.12	-
2452MHz	Pass	AV	2.4896G	53.10	54.00	-0.90	31.13	3	Horizontal	116	1.12	-
2452MHz	Pass	PK	2.3788G	55.89	74.00	-18.11	30.74	3	Horizontal	116	1.12	-
2452MHz	Pass	PK	2.4512G	106.68	Inf	-Inf	30.99	3	Horizontal	116	1.12	-
2452MHz	Pass	PK	2.4896G	60.63	74.00	-13.37	31.13	3	Horizontal	116	1.12	-
2457MHz	Pass	AV	2.4562G	96.05	Inf	-Inf	31.01	3	Vertical	123	1.50	-
2457MHz	Pass	AV	2.4838G	45.36	54.00	-8.64	31.11	3	Vertical	123	1.50	-
2457MHz	Pass	PK	2.4578G	98.27	Inf	-Inf	31.02	3	Vertical	123	1.50	-
2457MHz	Pass	PK	2.4836G	57.45	74.00	-16.55	31.11	3	Vertical	123	1.50	-
2457MHz	Pass	AV	2.4562G	102.95	Inf	-Inf	31.01	3	Horizontal	118	1.14	-
2457MHz	Pass	AV	2.4836G	51.49	54.00	-2.51	31.11	3	Horizontal	118	1.14	-
2457MHz	Pass	PK	2.456G	104.99	Inf	-Inf	31.01	3	Horizontal	118	1.14	-

SPORTON INTERNATIONAL INC.

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Appendix F.2

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	1100411	.,,,,	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
2457MHz	Pass	PK	2.4838G	60.59	74.00	-13.41	31.11	3	Horizontal	118	1.14	_
2462MHz	Pass	AV	2.4612G	91.34	Inf	-Inf	30.62	3	Vertical	220	1.48	_
2462MHz	Pass	AV	2.4996G	42.82	54.00	-11.18	30.75	3	Vertical	220	1.48	_
2462MHz	Pass	PK	2.4612G	94.93	Inf	-Inf	30.62	3	Vertical	220	1.48	_
2462MHz	Pass	PK	2.4918G	53.73	74.00	-20.27	30.72	3	Vertical	220	1.48	_
2462MHz	Pass	AV	2.4612G	98.16	Inf	-20.21 -Inf	30.62	3	Horizontal	148	1.16	_
2462MHz	Pass	AV	2.4998G	43.50	54.00	-10.50	30.75	3	Horizontal	148	1.16	_
2462MHz	Pass	PK	2.4612G	101.83	Inf	-10.50 -Inf	30.62	3	Horizontal	148	1.16	
2462MHz				54.93				3				-
	Pass	PK	2.4886G		74.00	-19.07	30.71	3	Horizontal	148	1.16	-
2462MHz	Pass	AV	4.92408G	31.44	54.00	-22.56	1.48		Vertical	108	1.49	-
2462MHz	Pass	PK	4.92456G	44.03	74.00	-29.97	1.48	3	Vertical	108	1.49	-
2462MHz	Pass	AV	4.92396G	37.00	54.00	-17.00	1.48	3	Horizontal	116	1.44	-
2462MHz	Pass	PK	4.924G	45.30	74.00	-28.70	1.48	3	Horizontal	116	1.44	-
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	AV	2.389998G	47.34	54.00	-6.66	30.77	3	Vertical	129	1.71	-
2412MHz	Pass	AV	2.4102G	89.15	Inf	-Inf	30.85	3	Vertical	129	1.71	-
2412MHz	Pass	PK	2.3898G	64.74	74.00	-9.26	30.77	3	Vertical	129	1.71	-
2412MHz	Pass	PK	2.411G	99.07	Inf	-Inf	30.85	3	Vertical	129	1.71	-
2412MHz	Pass	AV	2.389998G	52.89	54.00	-1.11	30.77	3	Horizontal	119	1.59	-
2412MHz	Pass	AV	2.4106G	93.60	Inf	-Inf	30.85	3	Horizontal	119	1.59	-
2412MHz	Pass	PK	2.389998G	71.48	74.00	-2.52	30.77	3	Horizontal	119	1.59	-
2412MHz	Pass	PK	2.4112G	103.74	Inf	-Inf	30.85	3	Horizontal	119	1.59	-
2412MHz	Pass	AV	4.82808G	29.96	54.00	-24.04	2.14	3	Vertical	70	1.29	-
2412MHz	Pass	PK	4.82252G	42.45	74.00	-31.55	2.13	3	Vertical	70	1.29	-
2412MHz	Pass	AV	4.8288G	29.91	54.00	-24.09	2.14	3	Horizontal	163	1.04	-
2412MHz	Pass	PK	4.82272G	42.53	74.00	-31.47	2.13	3	Horizontal	163	1.04	-
2437MHz	Pass	AV	2.377G	43.58	54.00	-10.42	30.73	3	Vertical	67	1.08	-
2437MHz	Pass	AV	2.4378G	90.76	Inf	-Inf	30.95	3	Vertical	67	1.08	-
2437MHz	Pass	AV	2.4886G	44.17	54.00	-9.83	31.13	3	Vertical	67	1.08	-
2437MHz	Pass	PK	2.3826G	56.50	74.00	-17.50	30.75	3	Vertical	67	1.08	-
2437MHz	Pass	PK	2.435G	101.14	Inf	-Inf	30.94	3	Vertical	67	1.08	-
2437MHz	Pass	PK	2.4946G	57.10	74.00	-16.90	31.15	3	Vertical	67	1.08	-
2437MHz	Pass	AV	2.387G	44.07	54.00	-9.93	30.76	3	Horizontal	114	1.20	-
2437MHz	Pass	AV	2.4382G	96.16	Inf	-Inf	30.95	3	Horizontal	114	1.20	-
2437MHz	Pass	AV	2.489G	44.65	54.00	-9.35	31.13	3	Horizontal	114	1.20	-
2437MHz	Pass	PK	2.3766G	56.28	74.00	-17.72	30.72	3	Horizontal	114	1.20	-
2437MHz	Pass	PK	2.437G	106.88	Inf	-Inf	30.94	3	Horizontal	114	1.20	-
2437MHz	Pass	PK	2.4838G	57.91	74.00	-16.09	31.11	3	Horizontal	114	1.20	-
2437MHz	Pass	AV	4.8787G	29.59	54.00	-24.41	2.27	3	Vertical	164	1.38	-
2437MHz	Pass	PK	4.86958G	42.98	74.00	-31.02	2.24	3	Vertical	164	1.38	-
2437MHz	Pass	AV	4.87311G	29.68	54.00	-24.32	2.25	3	Horizontal	236	1.44	-
2437MHz	Pass	PK	4.87218G	42.40	74.00	-31.60	2.25	3	Horizontal	236	1.44	-
2457MHz	Pass	AV	2.458G	91.09	Inf	-Inf	31.02	3	Vertical	123	1.50	-
2457MHz	Pass	AV	2.4836G	45.58	54.00	-8.42	31.11	3	Vertical	123	1.50	-
2457MHz	Pass	PK	2.4546G	101.21	Inf	-Inf	31.01	3	Vertical	123	1.50	_
2457MHz	Pass	PK	2.4340G 2.4856G	61.54	74.00	-12.46	31.12	3	Vertical	123	1.50	-
2457MHz	Pass	AV	2.458G	97.80	Inf	-12.40 -Inf	31.02	3	Horizontal	117	1.01	_
2457MHz	Pass	AV	2.483502G	50.86	54.00	-3.14	31.02	3	Horizontal	117	1.01	
2457MHz 2457MHz		PK	2.483502G 2.4568G	108.55		-3.14 -Inf		3				-
ZHIWITCPZ	Pass	ΓN	2.40000	100.00	Inf	-1111	31.01	٥	Horizontal	117	1.01	-

SPORTON INTERNATIONAL INC.

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Appendix F.2

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
2457MHz	Pass	PK	2.4844G	70.09	74.00	-3.91	31.12	3	Horizontal	117	1.01	-
2462MHz	Pass	AV	2.4612G	89.83	Inf	-Inf	31.03	3	Vertical	122	1.55	-
2462MHz	Pass	AV	2.483502G	48.01	54.00	-5.99	31.11	3	Vertical	122	1.55	-
2462MHz	Pass	PK	2.4592G	99.15	Inf	-Inf	31.02	3	Vertical	122	1.55	-
2462MHz	Pass	PK	2.483502G	63.88	74.00	-10.12	31.11	3	Vertical	122	1.55	-
2462MHz	Pass	AV	2.461G	96.57	Inf	-Inf	31.03	3	Horizontal	117	1.42	-
2462MHz	Pass	AV	2.483502G	53.09	54.00	-0.91	31.11	3	Horizontal	117	1.42	-
2462MHz	Pass	PK	2.4604G	106.14	Inf	-Inf	31.03	3	Horizontal	117	1.42	-
2462MHz	Pass	PK	2.483502G	71.21	74.00	-2.79	31.11	3	Horizontal	117	1.42	-
2462MHz	Pass	AV	4.92398G	29.90	54.00	-24.10	2.38	3	Vertical	326	1.13	-
2462MHz	Pass	PK	4.92772G	42.56	74.00	-31.44	2.39	3	Vertical	326	1.13	-
2462MHz	Pass	AV	4.92832G	29.85	54.00	-24.15	2.39	3	Horizontal	257	2.03	-
2462MHz	Pass	PK	4.92696G	43.01	74.00	-30.99	2.39	3	Horizontal	257	2.03	-
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	AV	2.389998G	49.87	54.00	-4.13	30.77	3	Vertical	119	1.94	-
2412MHz	Pass	AV	2.4106G	88.94	Inf	-Inf	30.85	3	Vertical	119	1.94	-
2412MHz	Pass	PK	2.3898G	66.61	74.00	-7.39	30.77	3	Vertical	119	1.94	-
2412MHz	Pass	PK	2.4132G	98.32	Inf	-Inf	30.86	3	Vertical	119	1.94	-
2412MHz	Pass	AV	2.389998G	53.66	54.00	-0.34	30.77	3	Horizontal	128	1.47	-
2412MHz	Pass	AV	2.411G	93.76	Inf	-Inf	30.85	3	Horizontal	128	1.47	-
2412MHz	Pass	PK	2.389998G	71.84	74.00	-2.16	30.77	3	Horizontal	128	1.47	-
2412MHz	Pass	PK	2.4142G	103.61	Inf	-Inf	30.86	3	Horizontal	128	1.47	-
2412MHz	Pass	AV	4.82884G	29.93	54.00	-24.07	2.14	3	Vertical	262	2.45	_
2412MHz	Pass	PK	4.82862G	43.39	74.00	-30.61	2.14	3	Vertical	262	2.45	_
2412MHz	Pass	AV	4.829G	30.12	54.00	-23.88	2.14	3	Horizontal	314	1.24	_
2412MHz	Pass	PK	4.82868G	42.75	74.00	-31.25	2.14	3	Horizontal	314	1.24	-
2437MHz	Pass	AV	2.3706G	43.26	54.00	-10.74	30.71	3	Vertical	66	1.09	-
2437MHz	Pass	AV	2.4354G	90.09	Inf	-Inf	30.94	3	Vertical	66	1.09	-
2437MHz	Pass	AV	2.4946G	44.02	54.00	-9.98	31.15	3	Vertical	66	1.09	-
2437MHz	Pass	PK	2.3442G	55.36	74.00	-18.64	30.61	3	Vertical	66	1.09	-
2437MHz	Pass	PK	2.4358G	100.07	Inf	-Inf	30.94	3	Vertical	66	1.09	-
2437MHz	Pass	PK	2.4846G	56.13	74.00	-17.87	31.12	3	Vertical	66	1.09	-
2437MHz	Pass	AV	2.3874G	43.70	54.00	-10.30	30.76	3	Horizontal	114	1.39	_
2437MHz	Pass	AV	2.4394G	95.70	Inf	-Inf	30.95	3	Horizontal	114	1.39	_
2437MHz	Pass	AV	2.483502G	44.69	54.00	-9.31	31.11	3	Horizontal	114	1.39	_
2437MHz	Pass	PK	2.3662G	55.79	74.00	-18.21	30.70	3	Horizontal	114	1.39	-
2437MHz	Pass	PK	2.4402G	105.03	Inf	-Inf	30.95	3	Horizontal	114	1.39	-
2437MHz	Pass	PK	2.4866G	56.41	74.00	-17.59	31.12	3	Horizontal	114	1.39	-
2437MHz	Pass	AV	4.87614G	29.56	54.00	-24.44	2.26	3	Vertical	356	2.28	-
2437MHz	Pass	PK	4.87786G	42.53	74.00	-31.47	2.26	3	Vertical	356	2.28	-
2437MHz	Pass	AV	4.87506G	29.61	54.00	-24.39	2.26	3	Horizontal	178	1.90	-
2437MHz	Pass	PK	4.87246G	42.80	74.00	-31.20	2.25	3	Horizontal	178	1.90	-
2457MHz	Pass	AV	2.4584G	91.00	Inf	-Inf	31.02	3	Vertical	122	1.50	-
2457MHz	Pass	AV	2.483502G	46.13	54.00	-7.87	31.11	3	Vertical	122	1.50	-
2457MHz	Pass	PK	2.4558G	100.75	Inf	-Inf	31.01	3	Vertical	122	1.50	_
2457MHz	Pass	PK	2.483502G	63.16	74.00	-10.84	31.11	3	Vertical	122	1.50	_
2457MHz	Pass	AV	2.456G	97.22	Inf	-10.04 -Inf	31.01	3	Horizontal	117	1.40	-
2457MHz	Pass	AV	2.483502G	50.51	54.00	-3.49	31.11	3	Horizontal	117	1.40	-
2457MHz	Pass	PK	2.465302G 2.4566G	106.73	Inf	-5.49 -Inf	31.01	3	Horizontal	117	1.40	_
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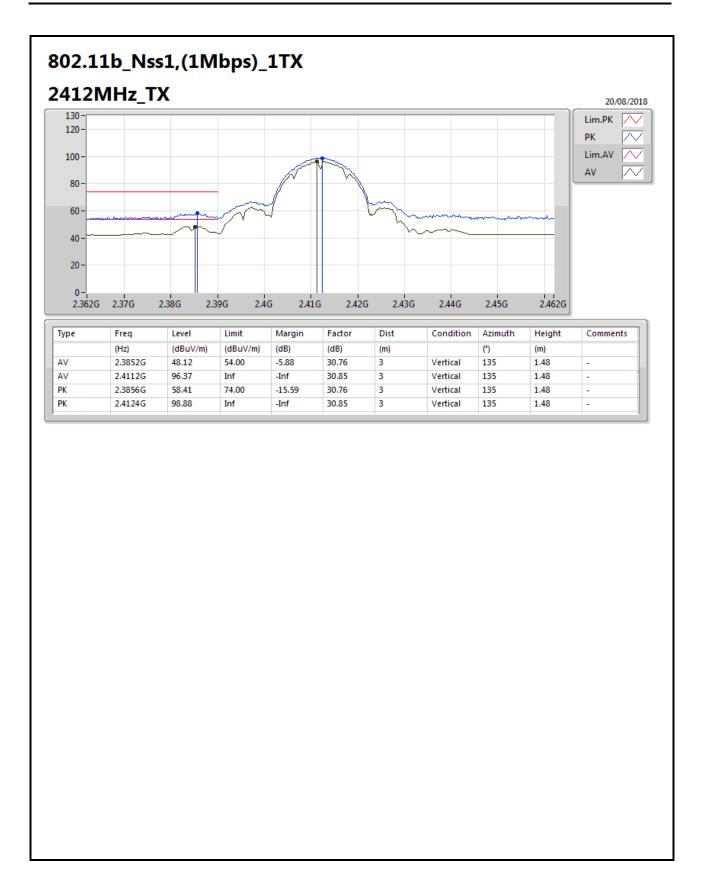
Appendix F.2

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
2457MHz	Pass	PK	2.4846G	67.97	74.00	-6.03	31.12	3	Horizontal	117	1.40	-
2462MHz	Pass	AV	2.4602G	89.35	Inf	-Inf	31.03	3	Vertical	122	1.50	-
2462MHz	Pass	AV	2.4836G	47.06	54.00	-6.94	31.11	3	Vertical	122	1.50	-
2462MHz	Pass	PK	2.4594G	98.86	Inf	-Inf	31.02	3	Vertical	122	1.50	-
2462MHz	Pass	PK	2.4838G	62.35	74.00	-11.65	31.11	3	Vertical	122	1.50	-
2462MHz	Pass	AV	2.4612G	95.96	Inf	-Inf	31.03	3	Horizontal	116	1.01	-
2462MHz	Pass	AV	2.483502G	53.15	54.00	-0.85	31.11	3	Horizontal	116	1.01	-
2462MHz	Pass	PK	2.4604G	105.91	Inf	-Inf	31.03	3	Horizontal	116	1.01	-
2462MHz	Pass	PK	2.483502G	71.83	74.00	-2.17	31.11	3	Horizontal	116	1.01	-
2462MHz	Pass	AV	4.92676G	29.90	54.00	-24.10	2.39	3	Vertical	35	1.41	-
2462MHz	Pass	PK	4.9264G	42.54	74.00	-31.46	2.39	3	Vertical	35	1.41	-
2462MHz	Pass	AV	4.92632G	29.72	54.00	-24.28	2.39	3	Horizontal	132	1.06	-
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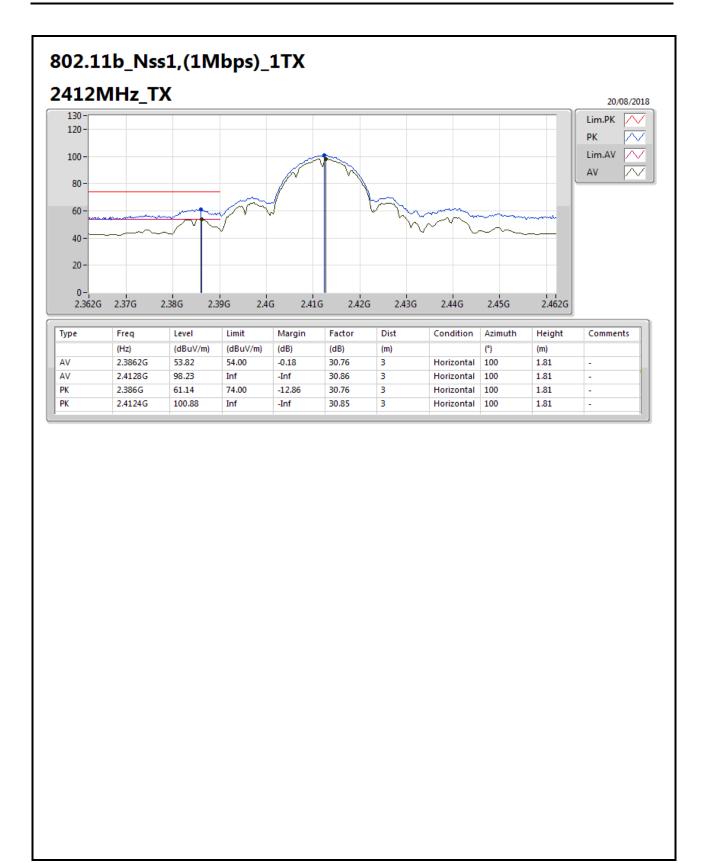
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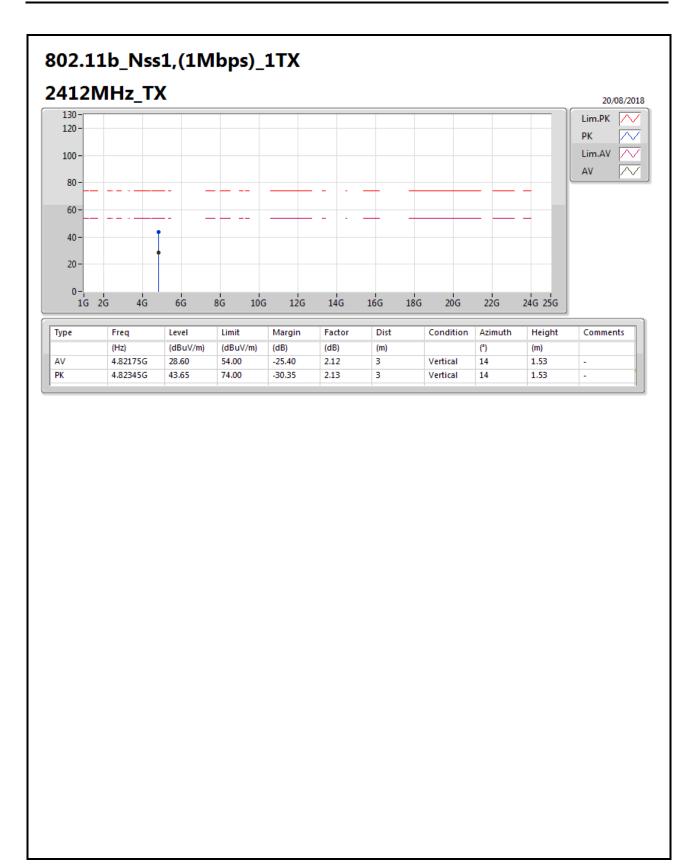
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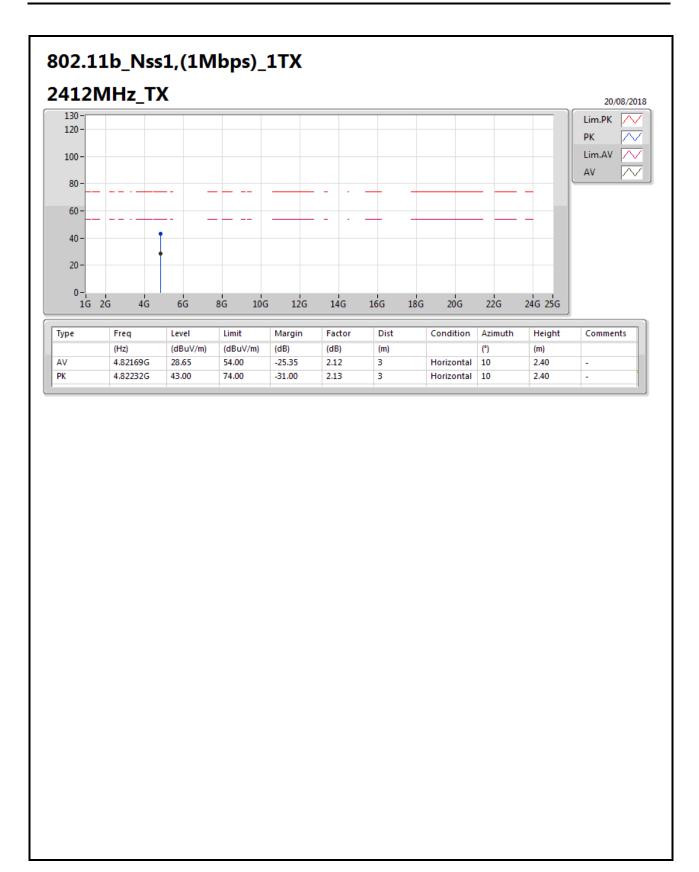
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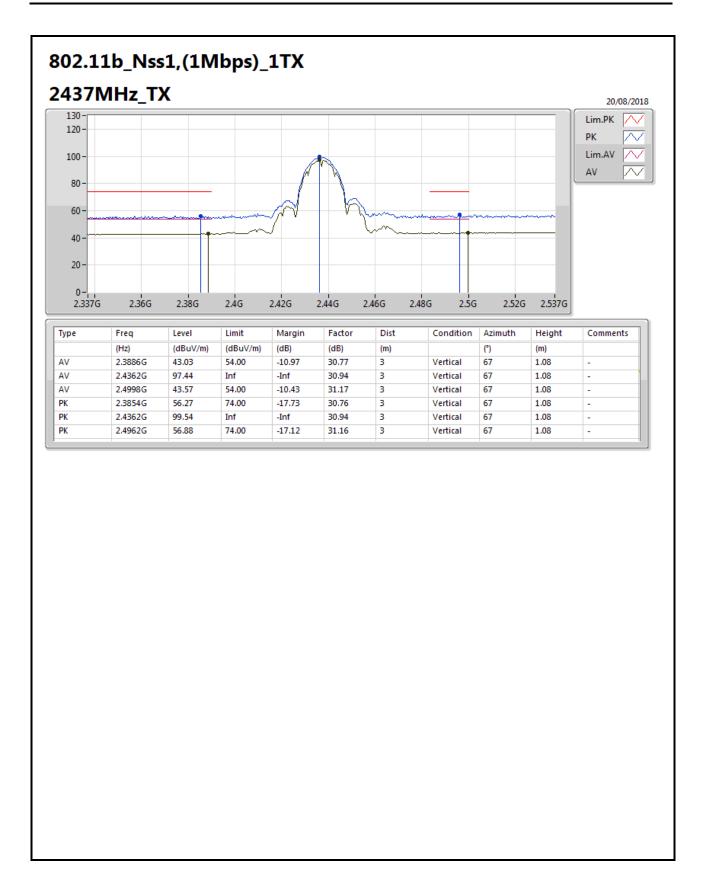
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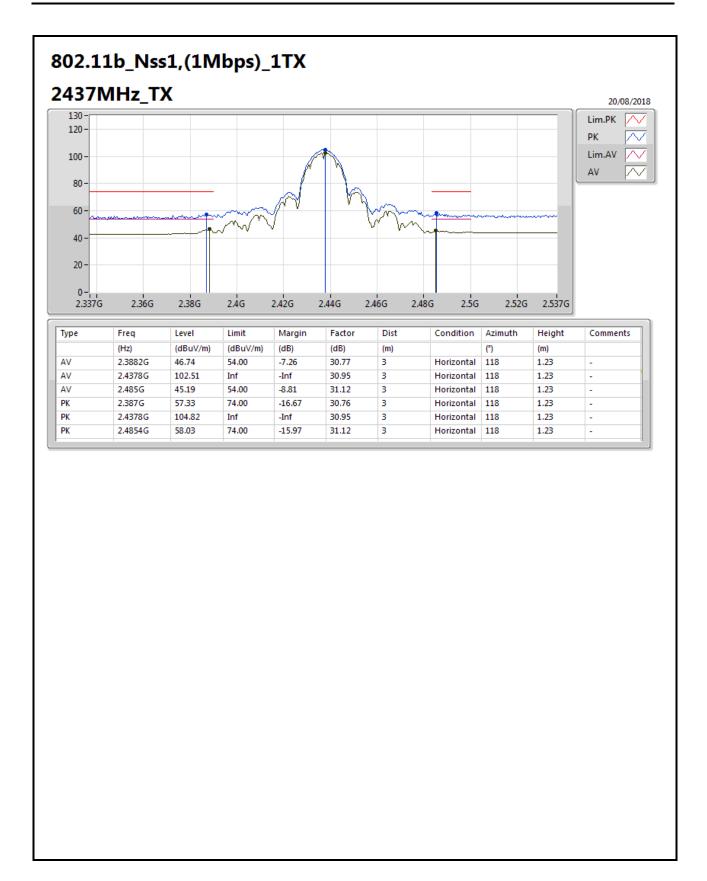
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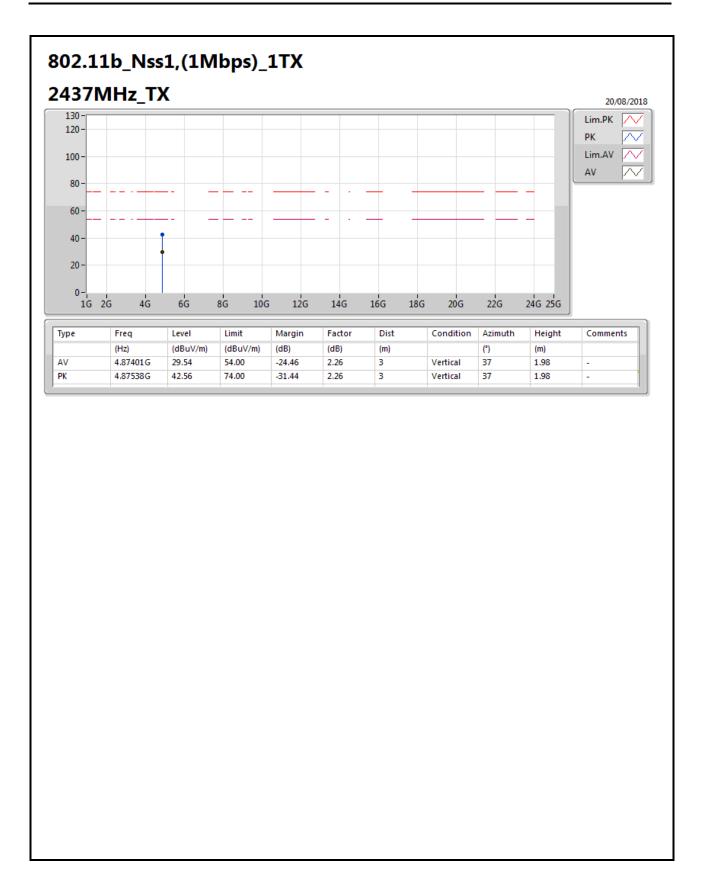
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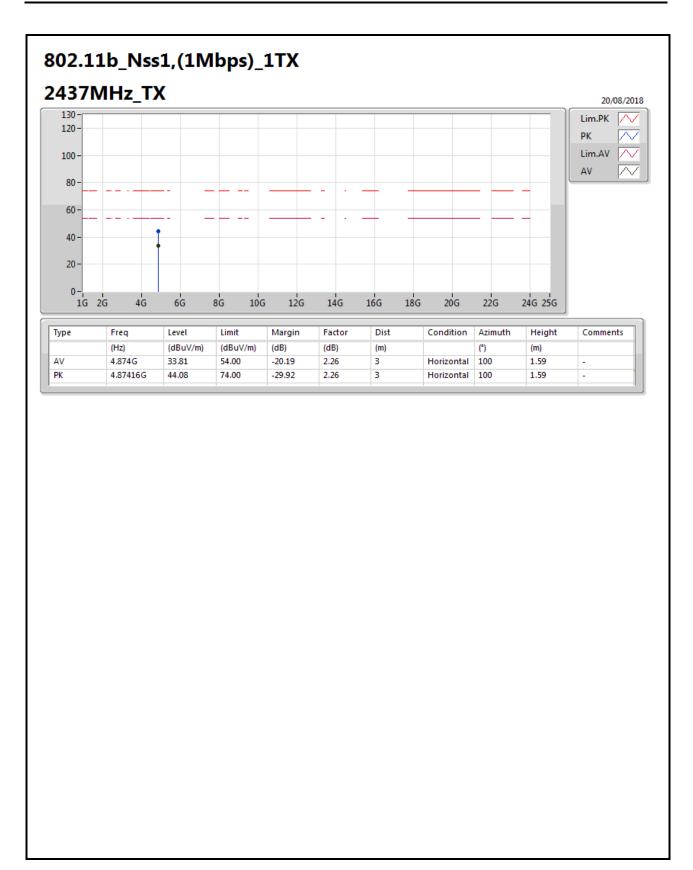
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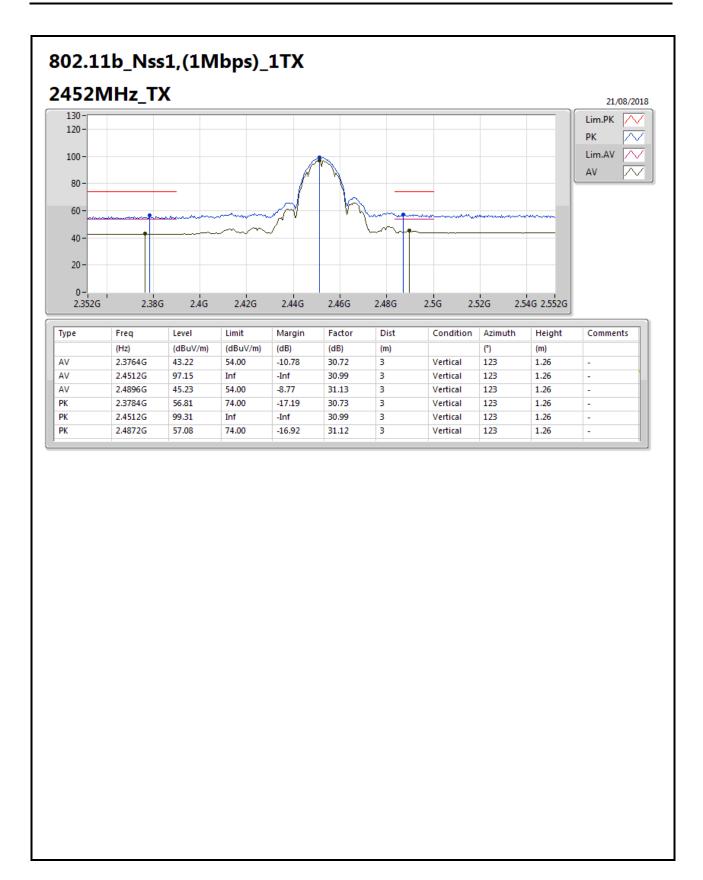
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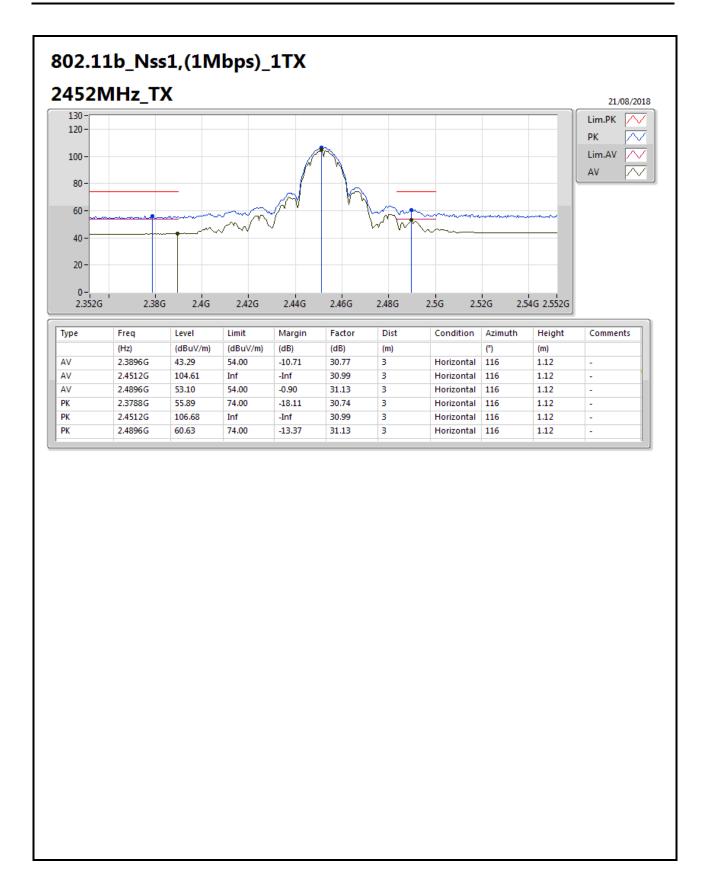
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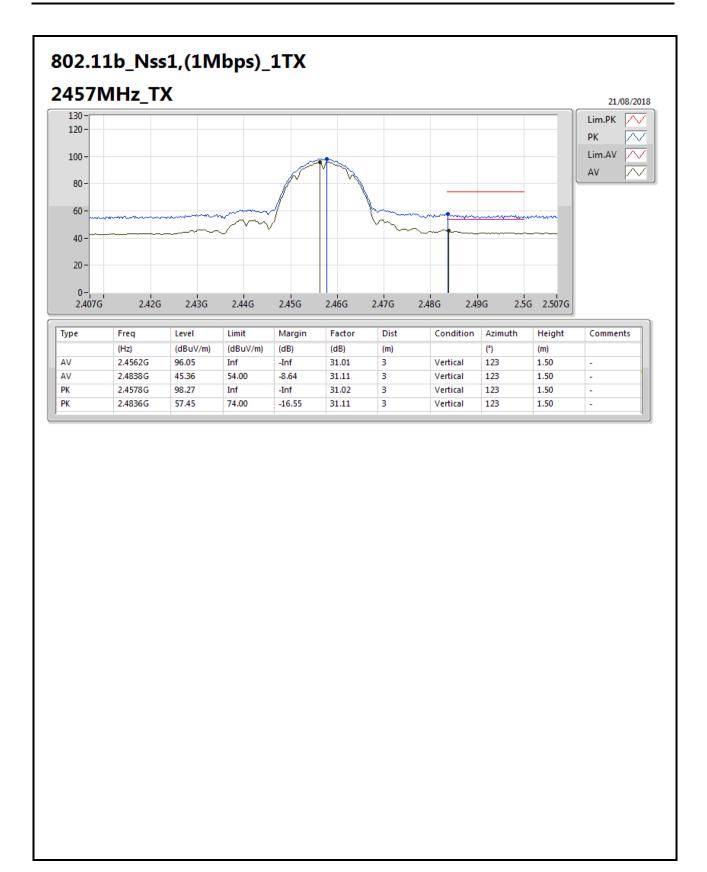
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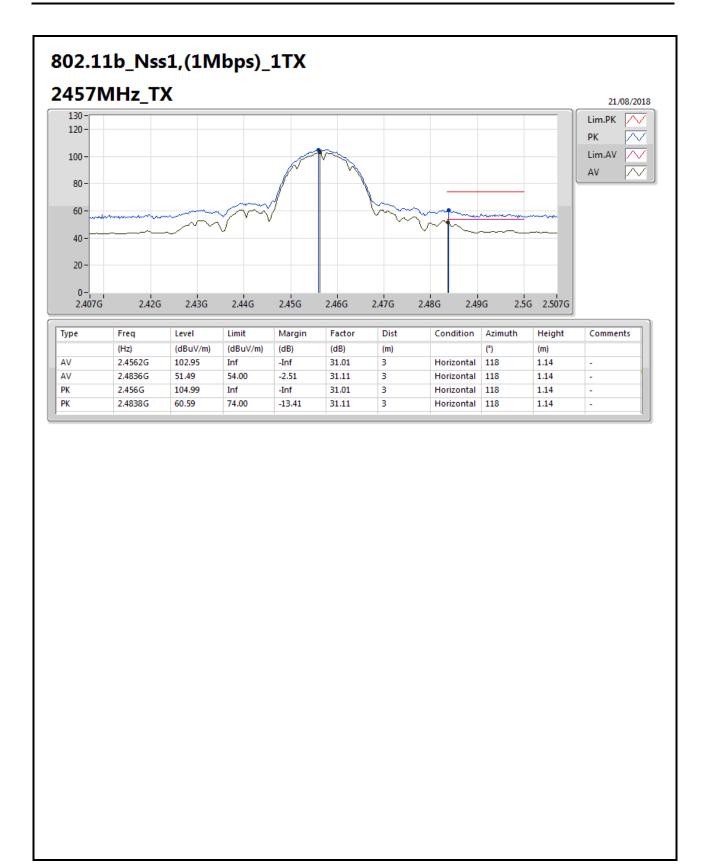
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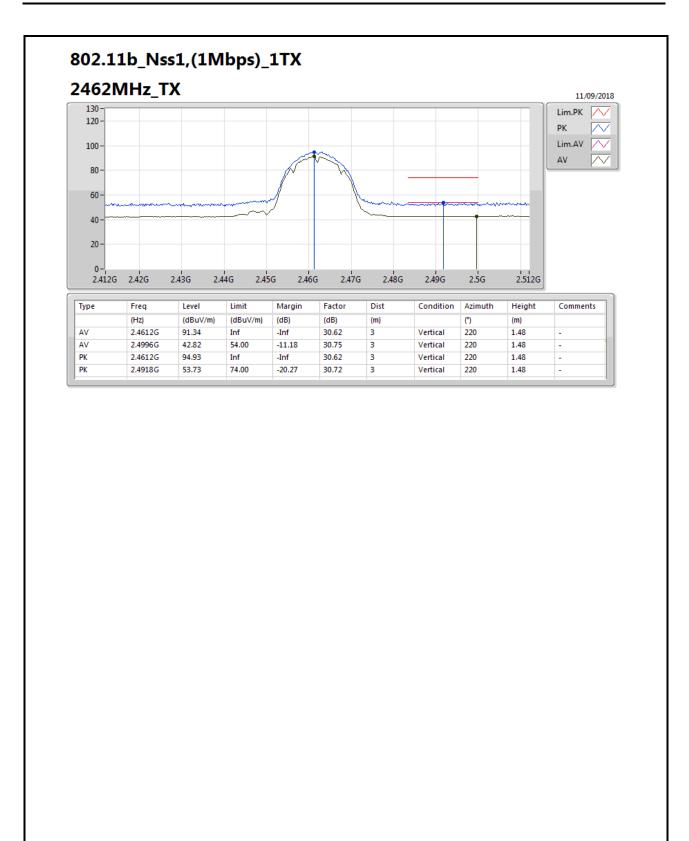
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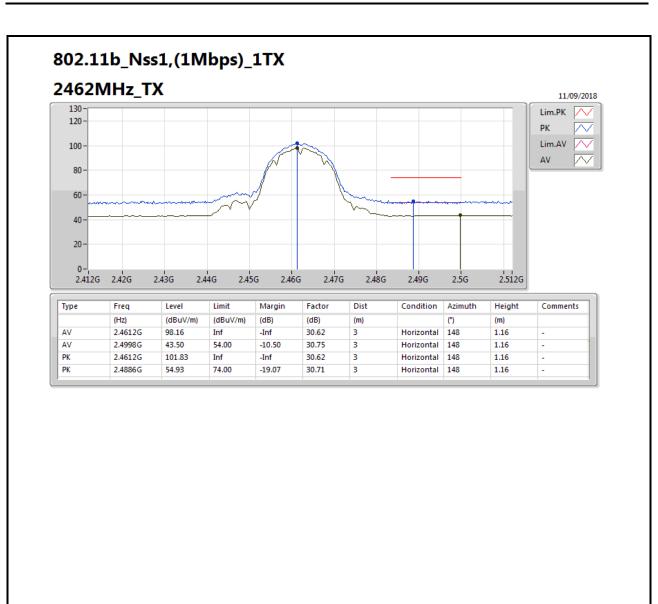
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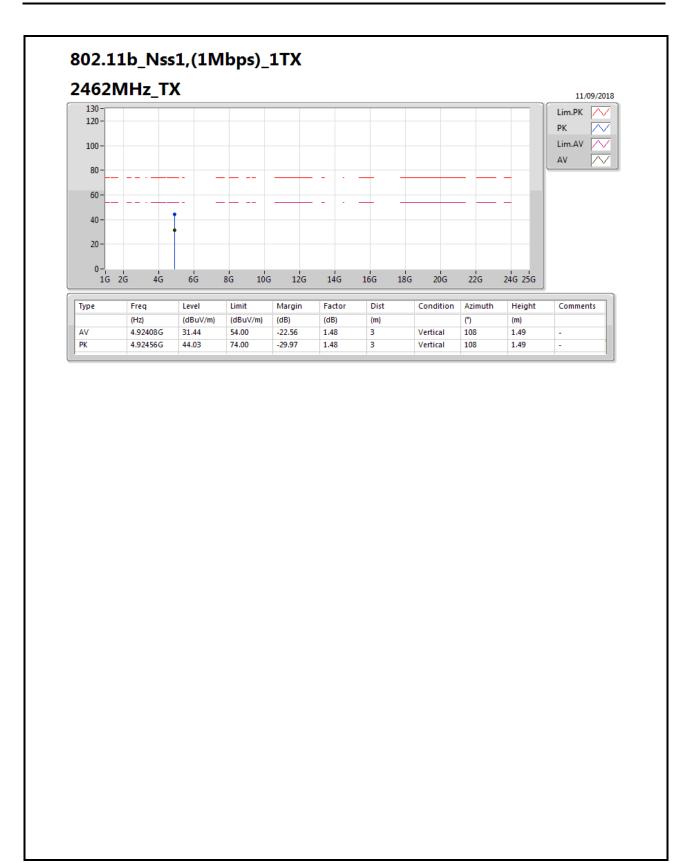


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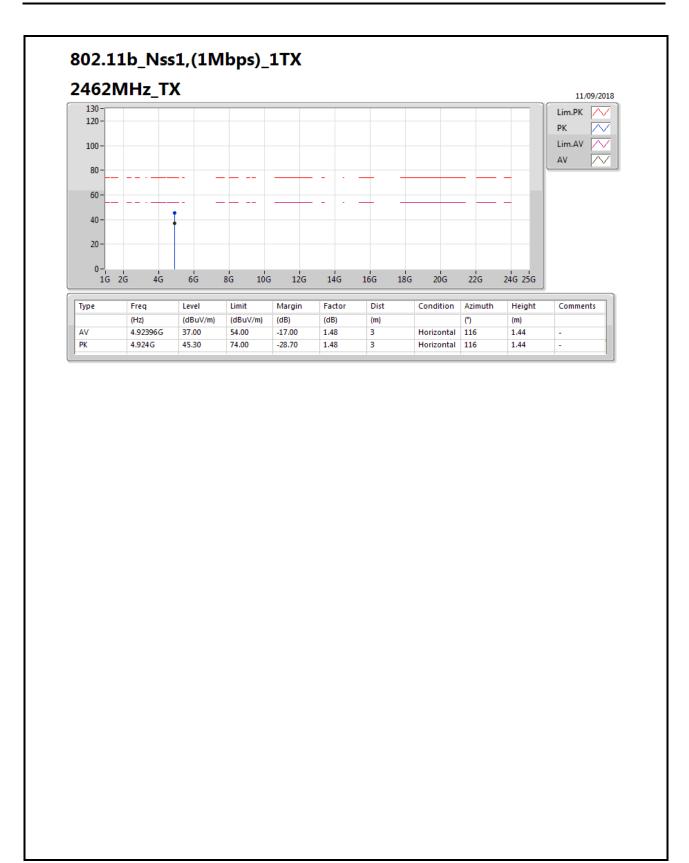
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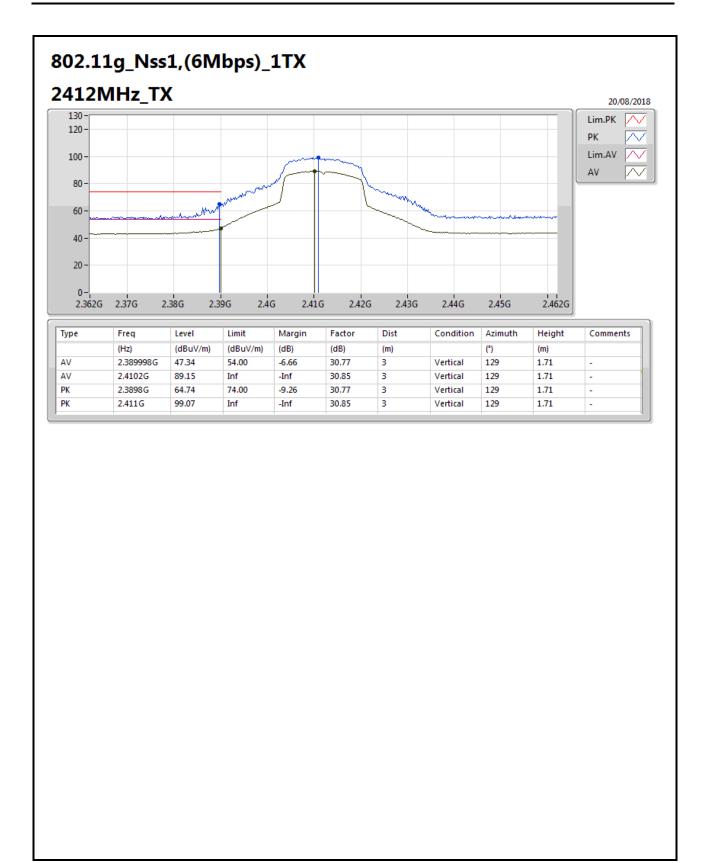
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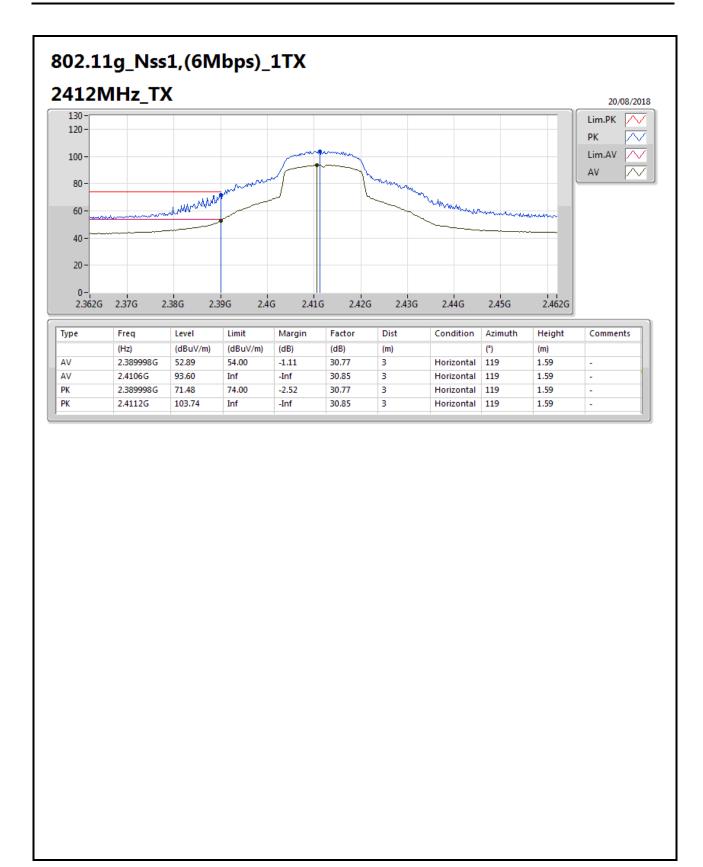
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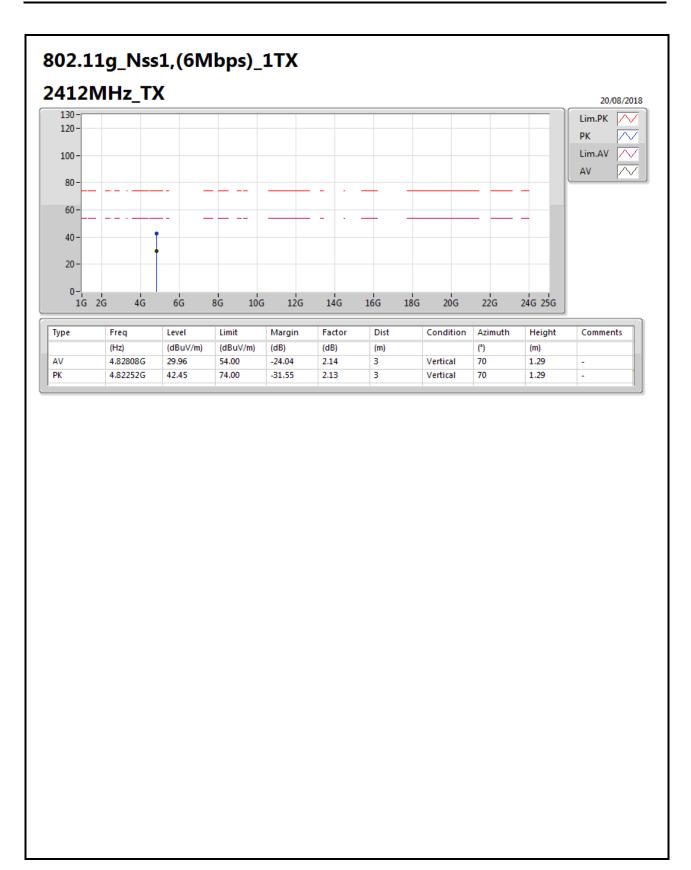
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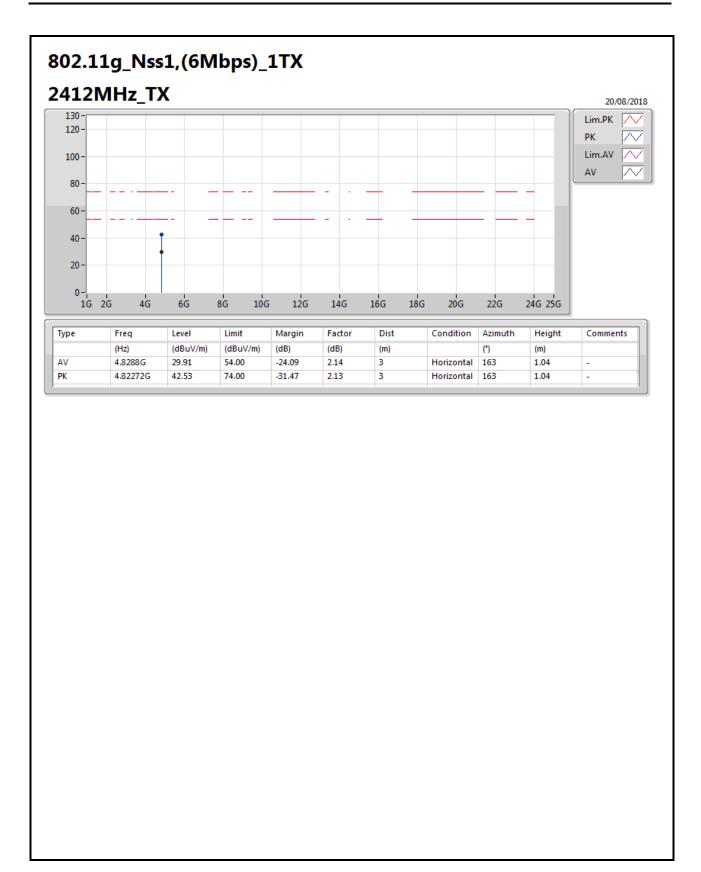
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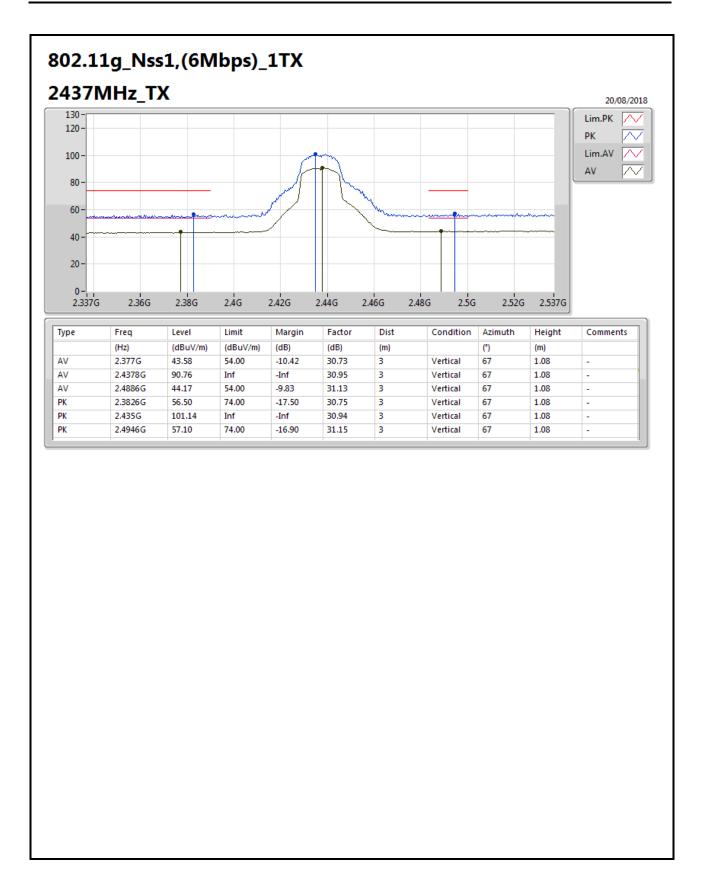
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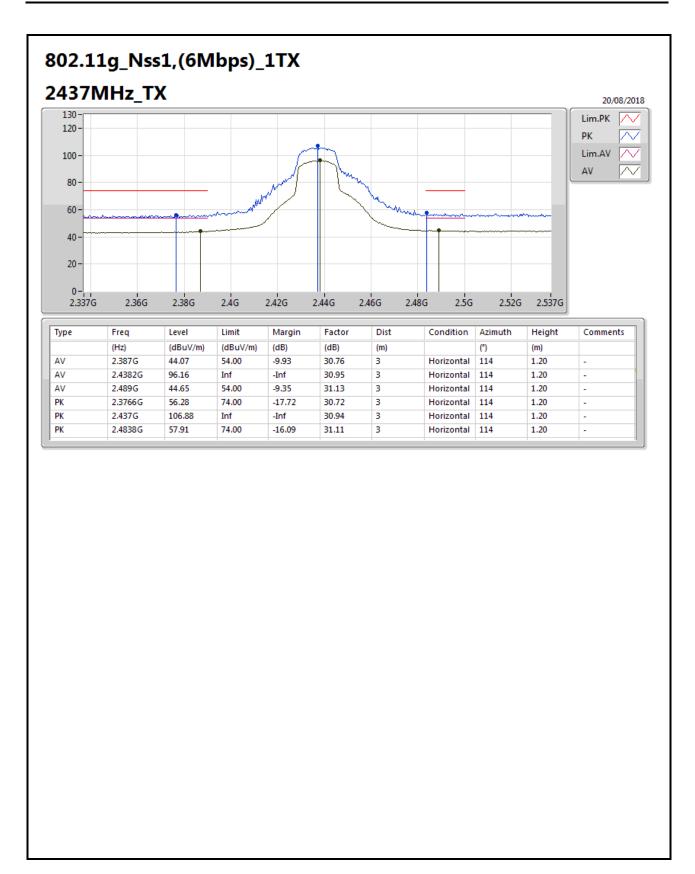
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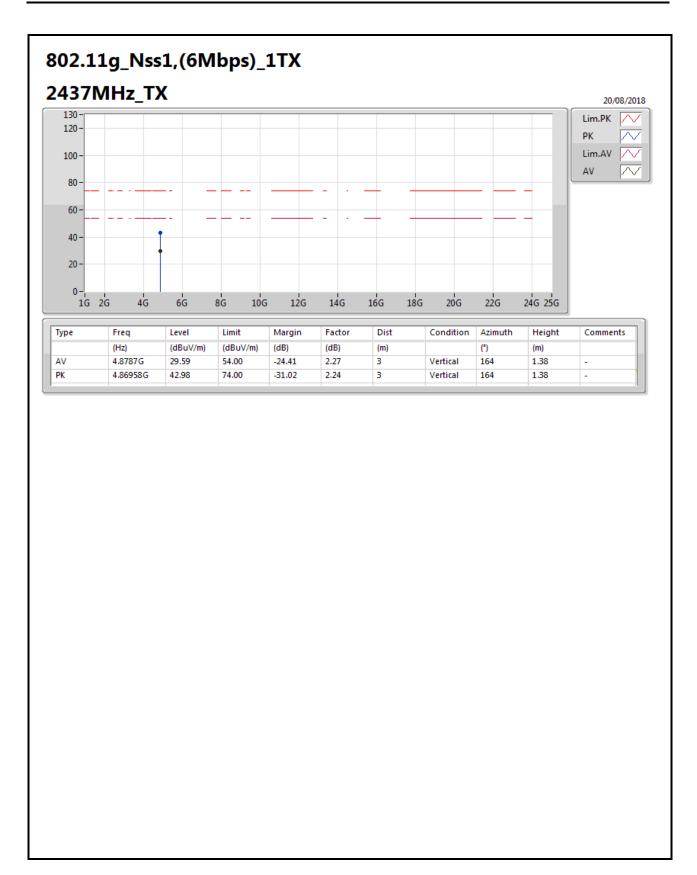
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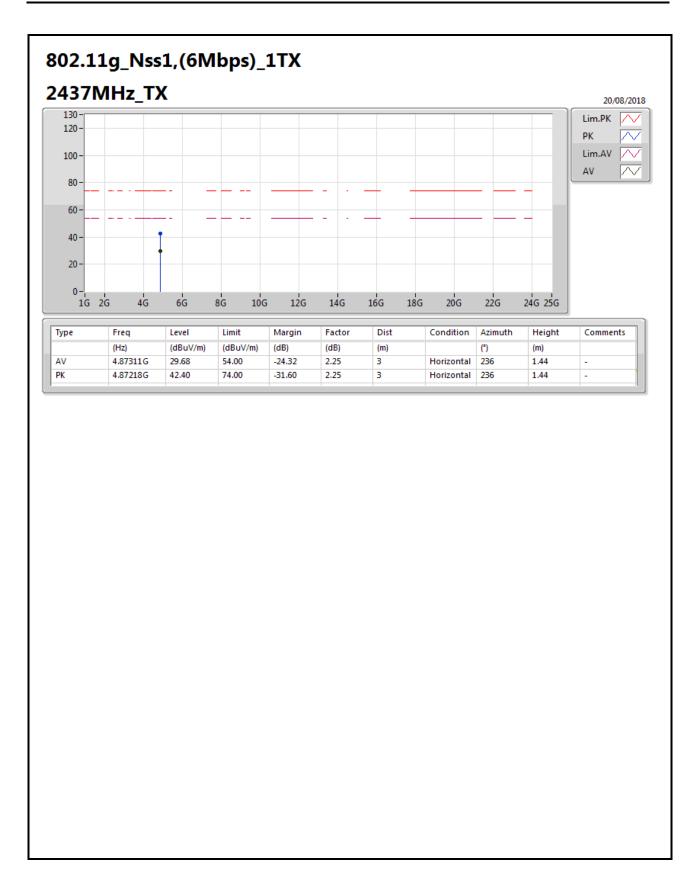
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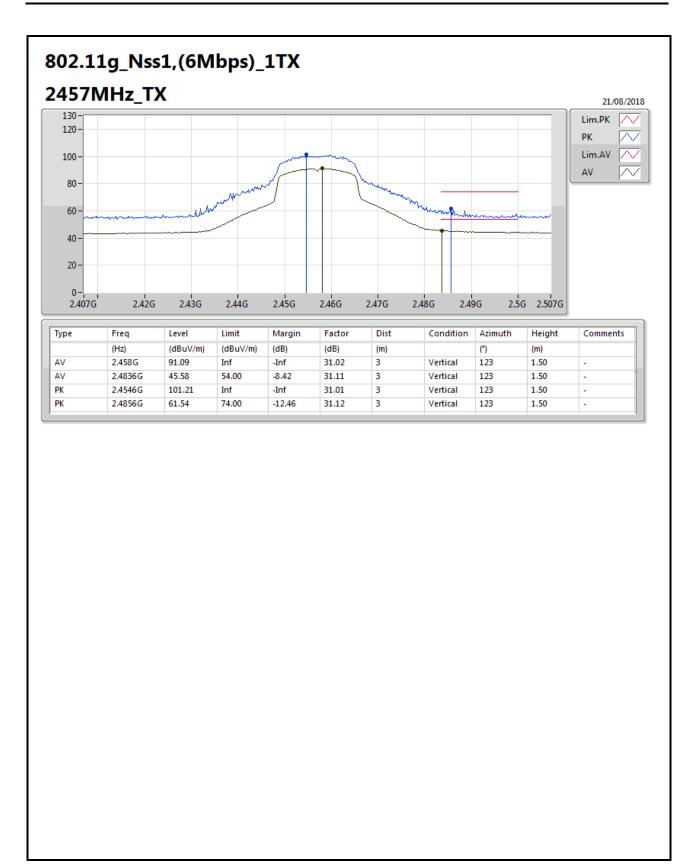
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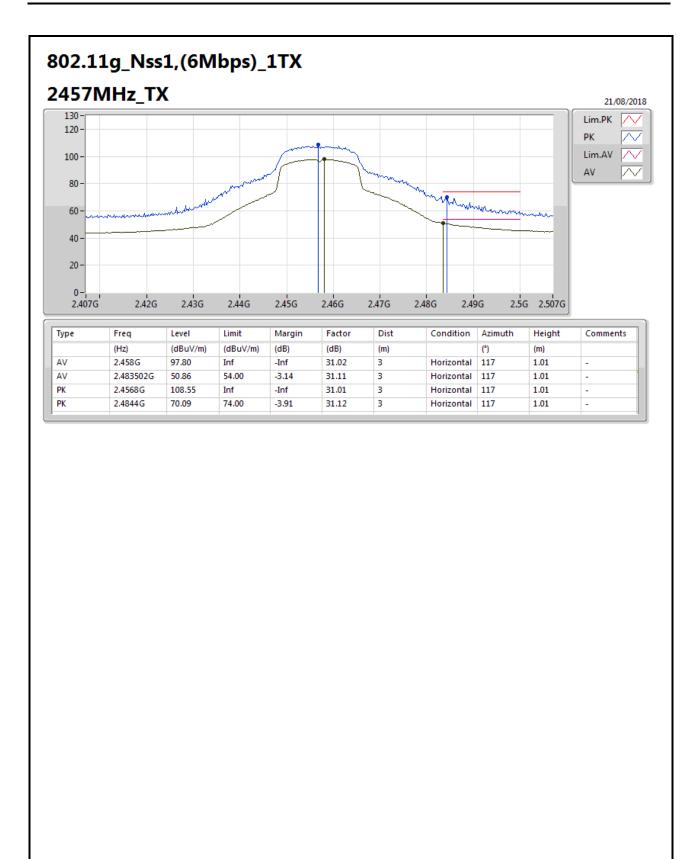
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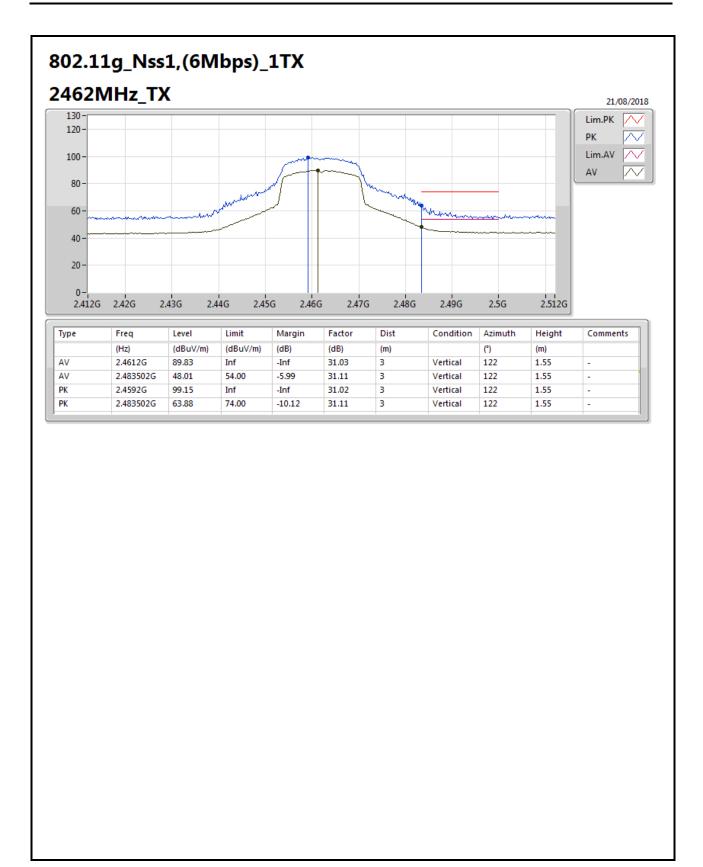
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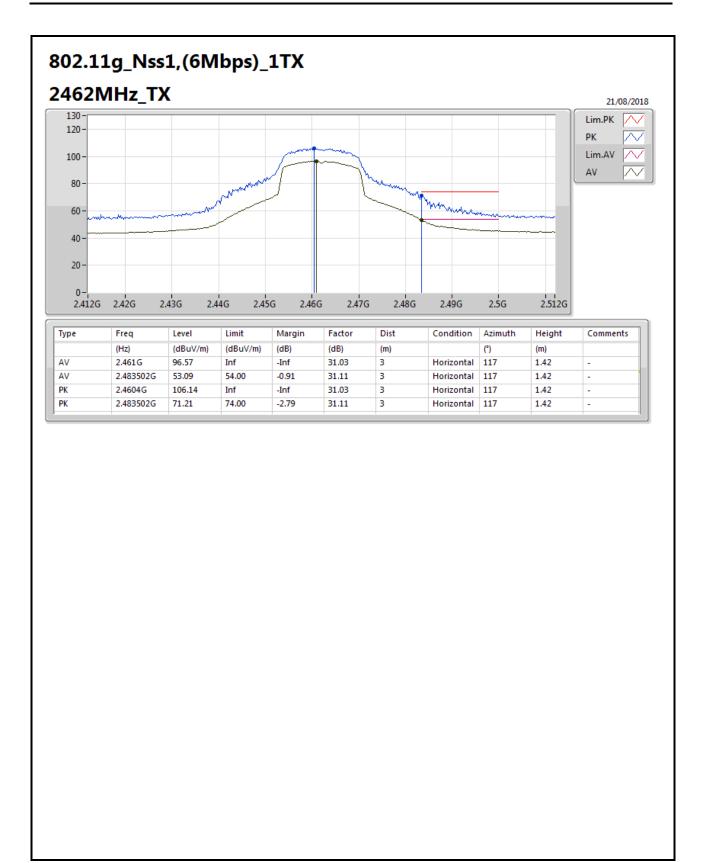
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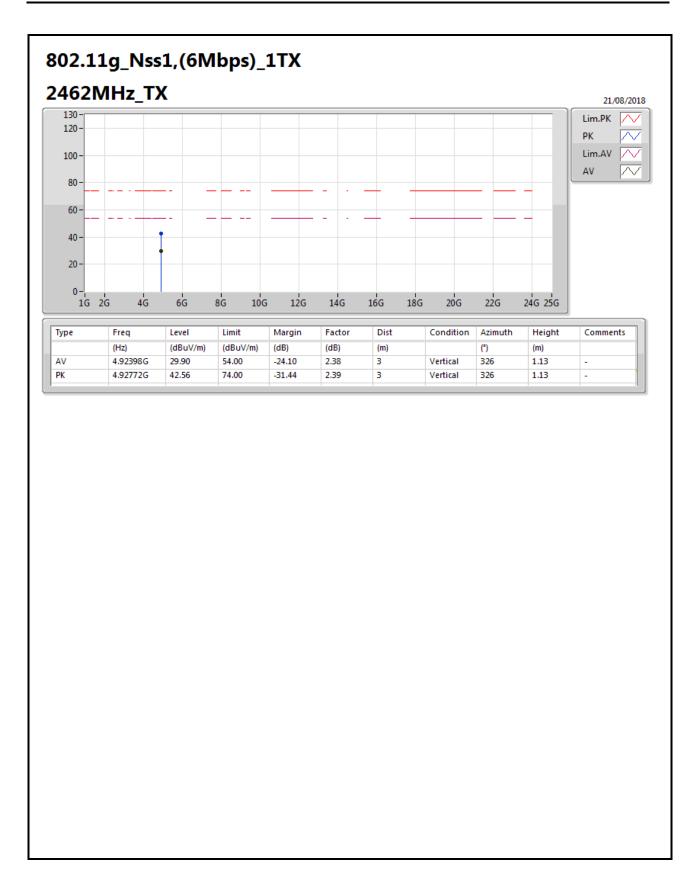
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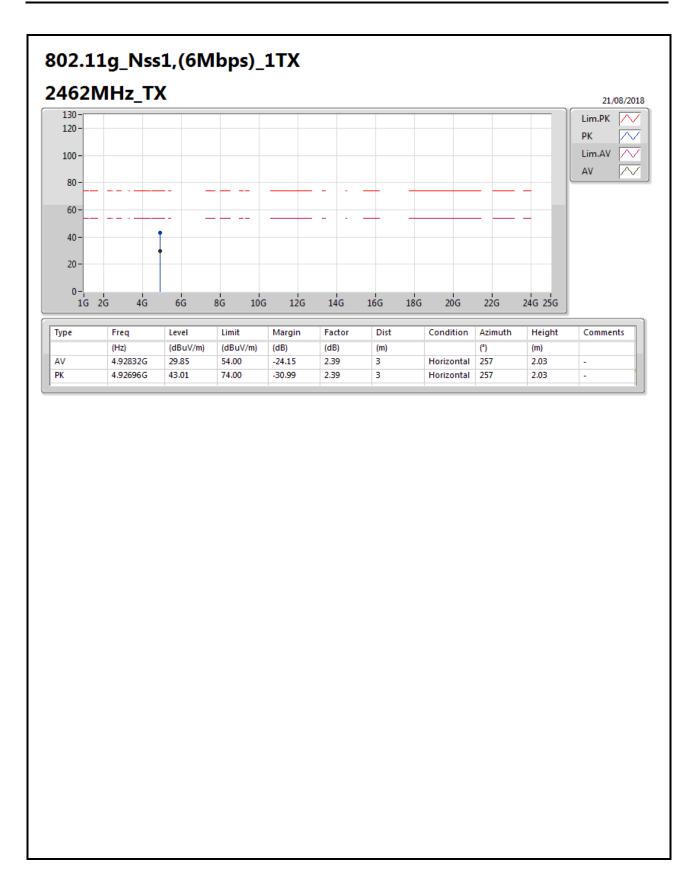
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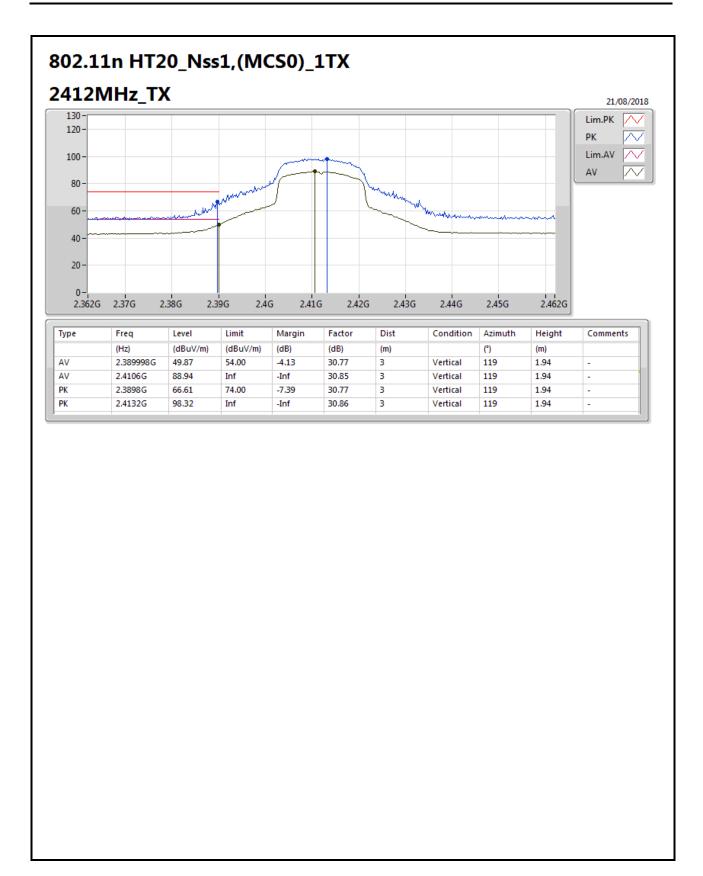
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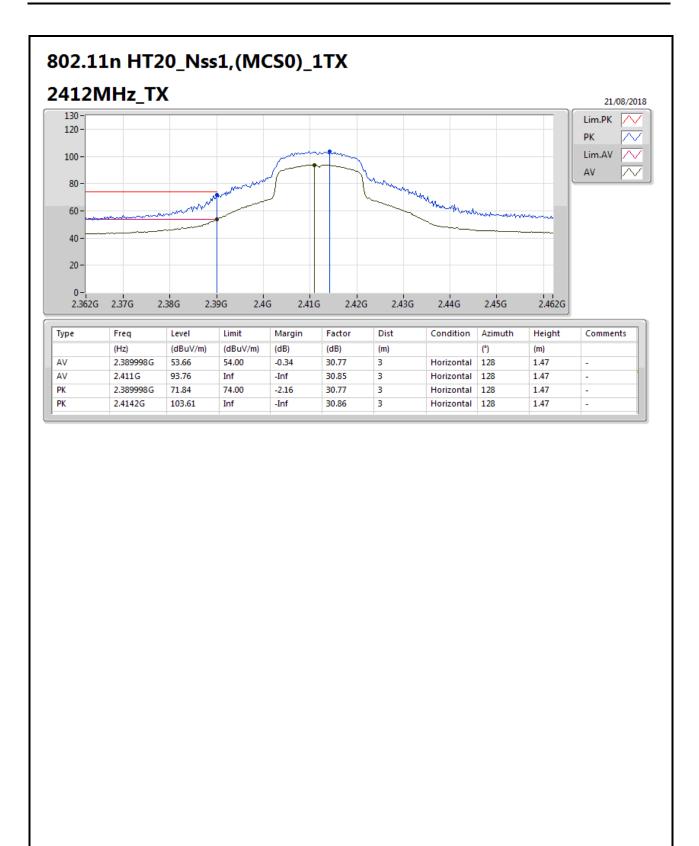
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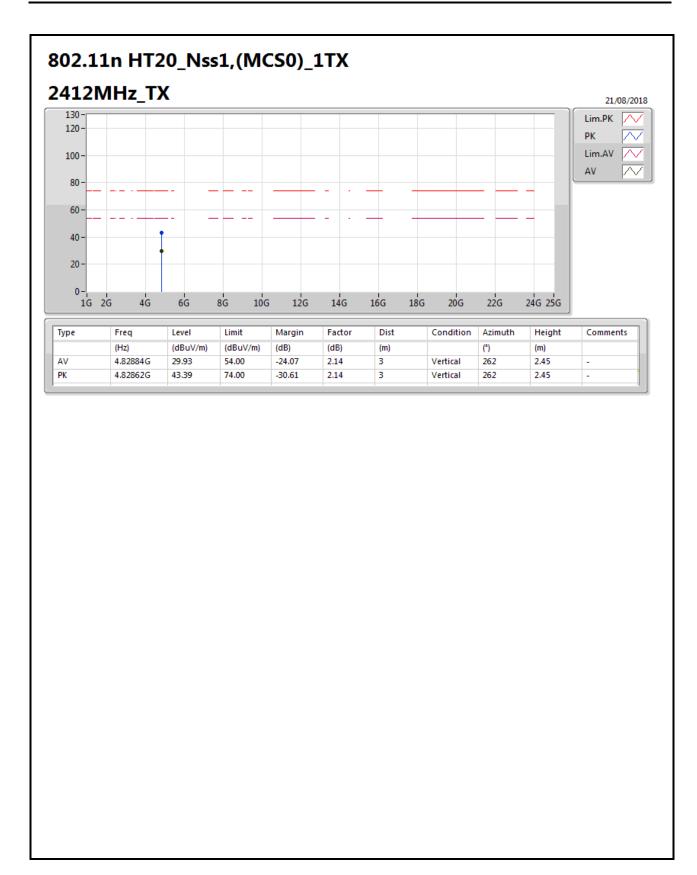
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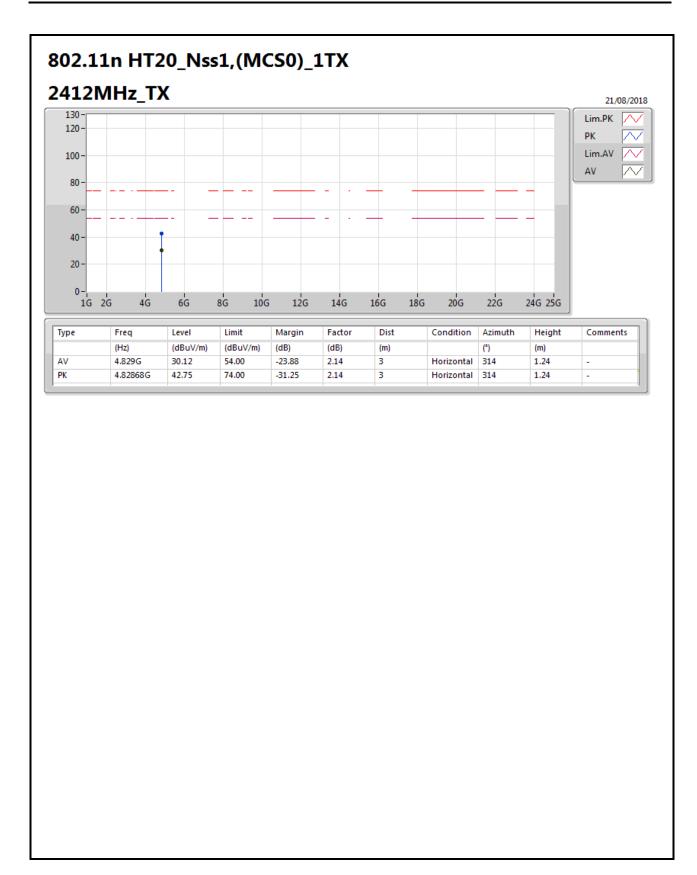
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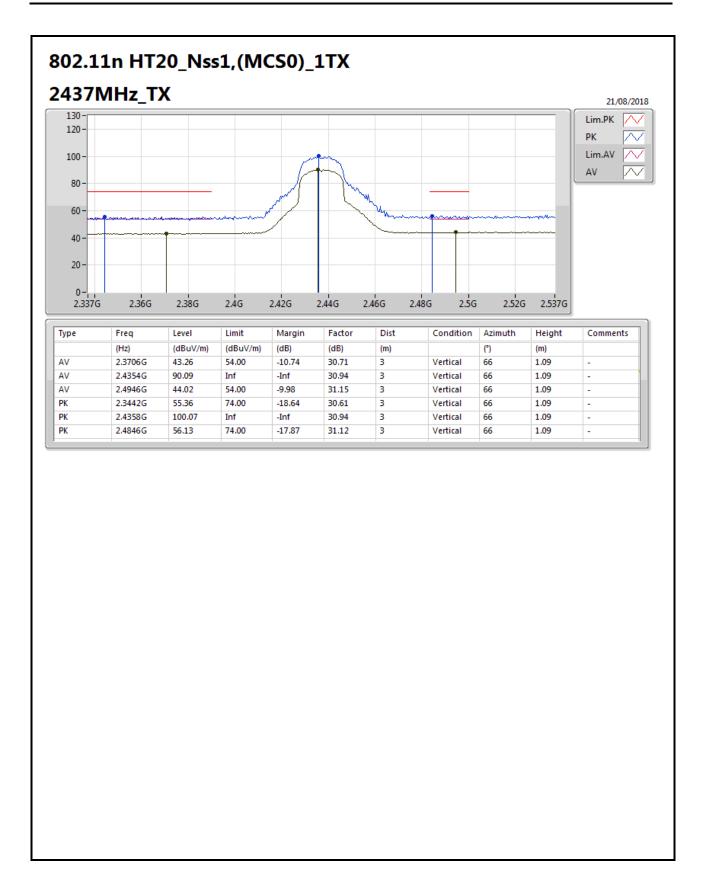
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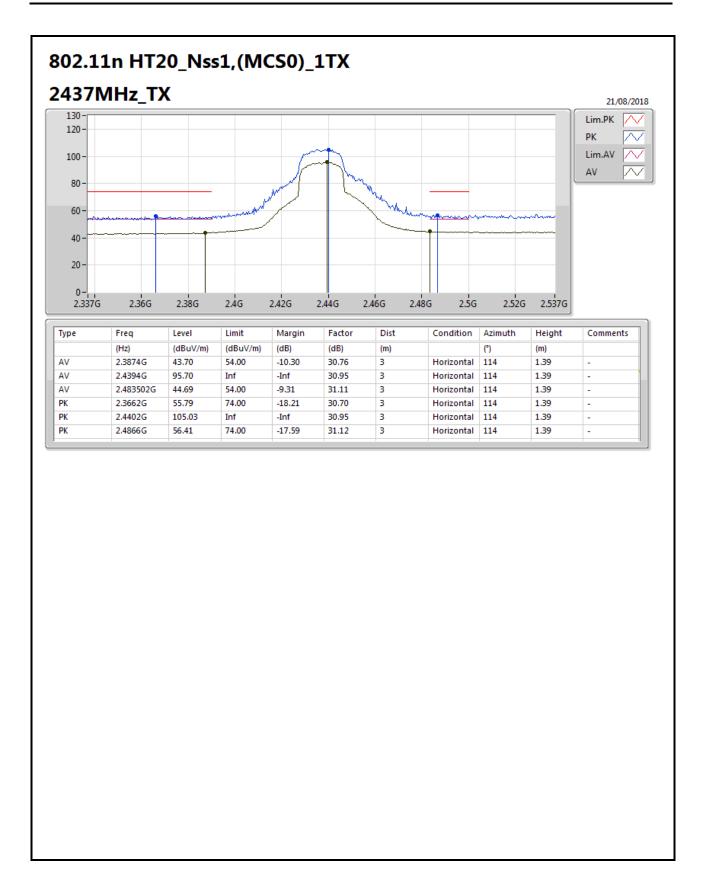
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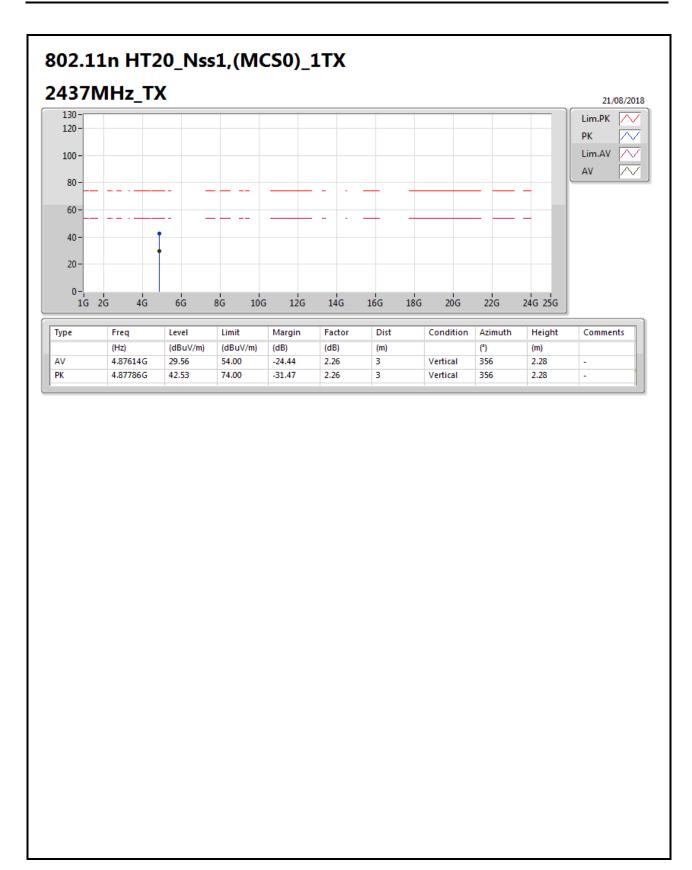
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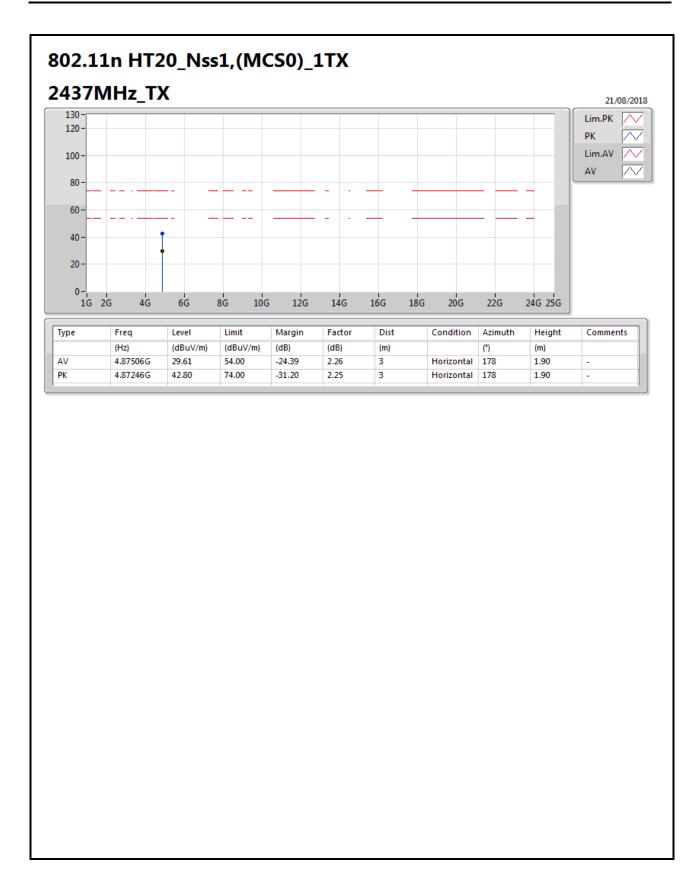
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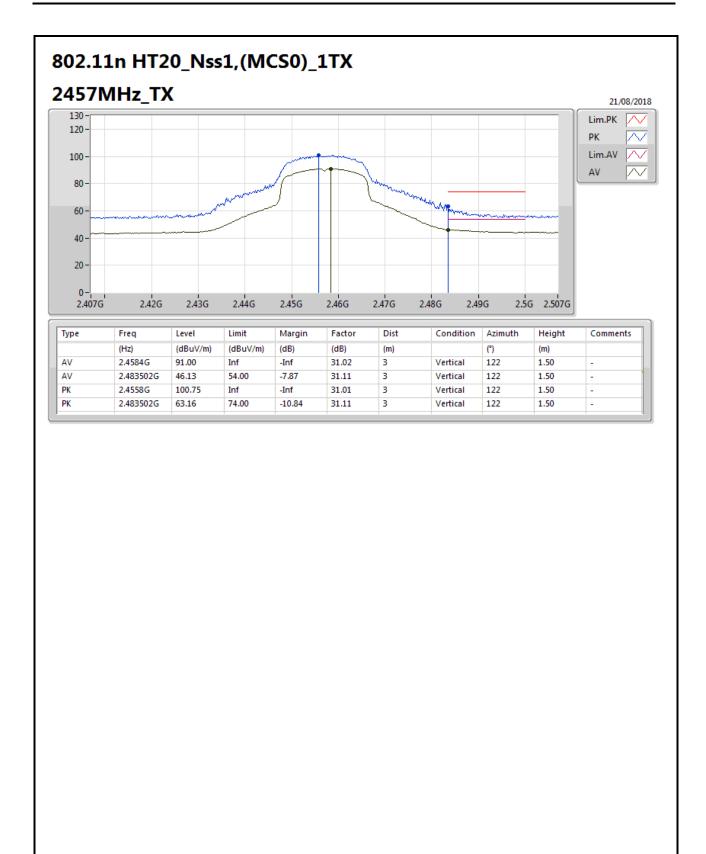
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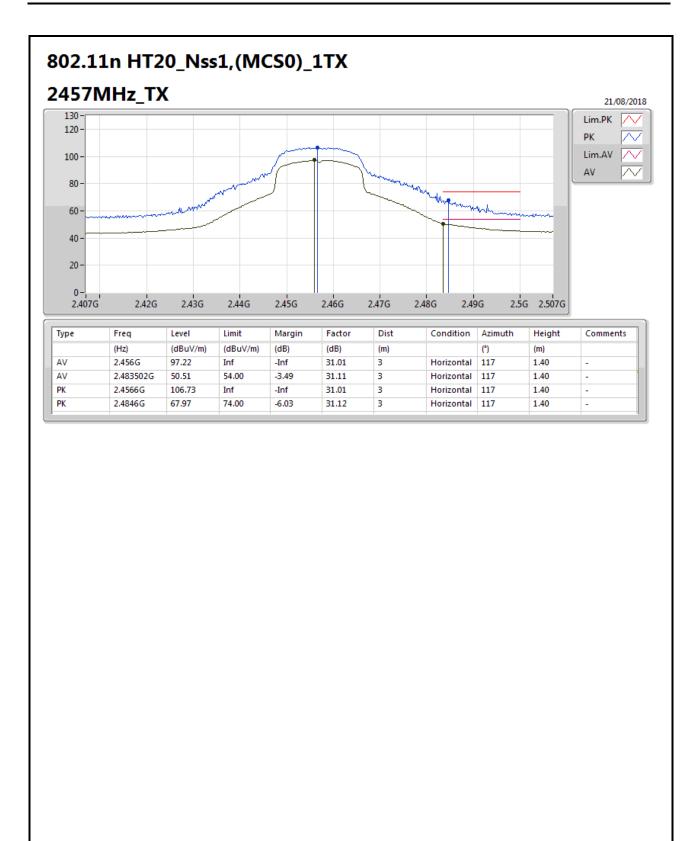
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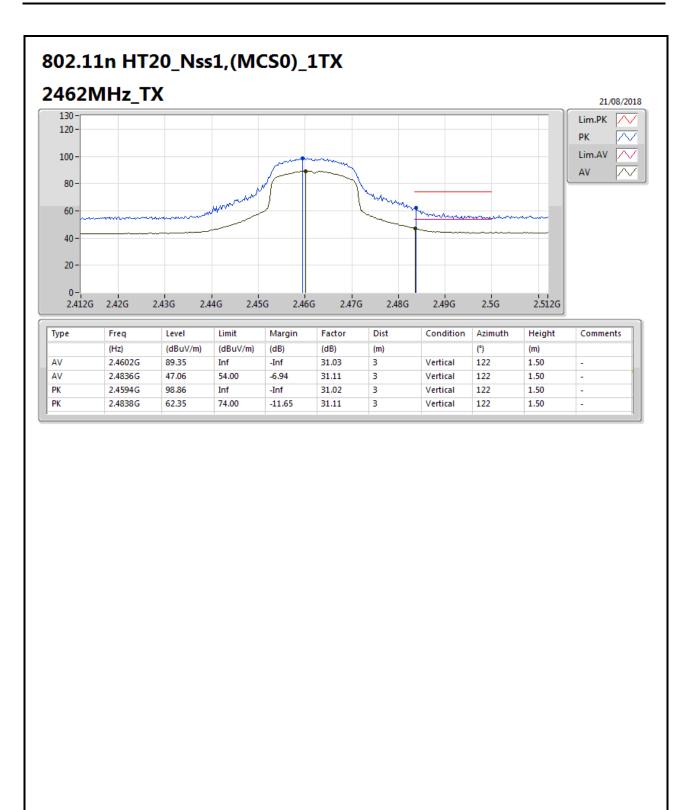
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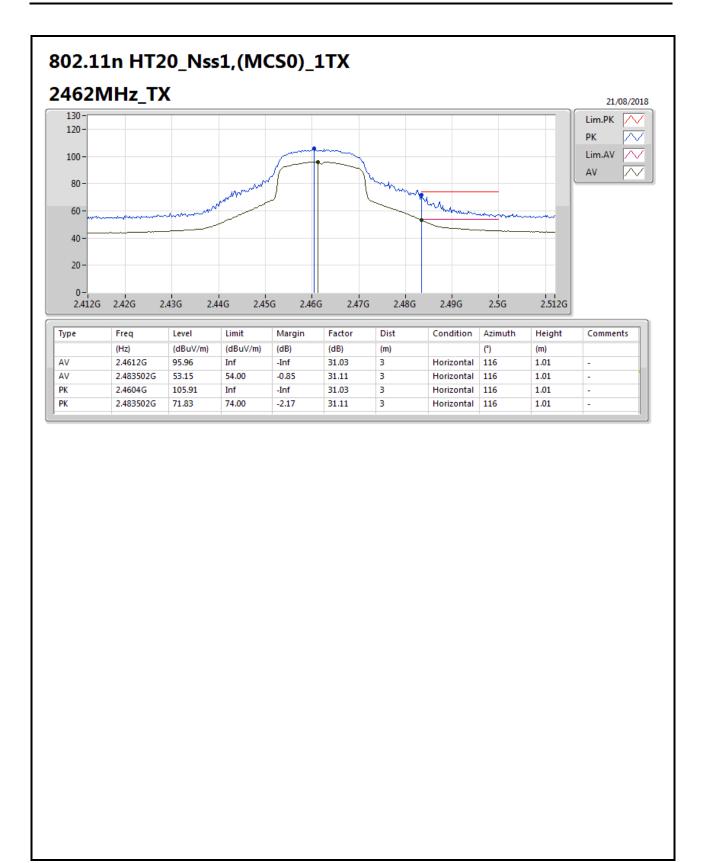
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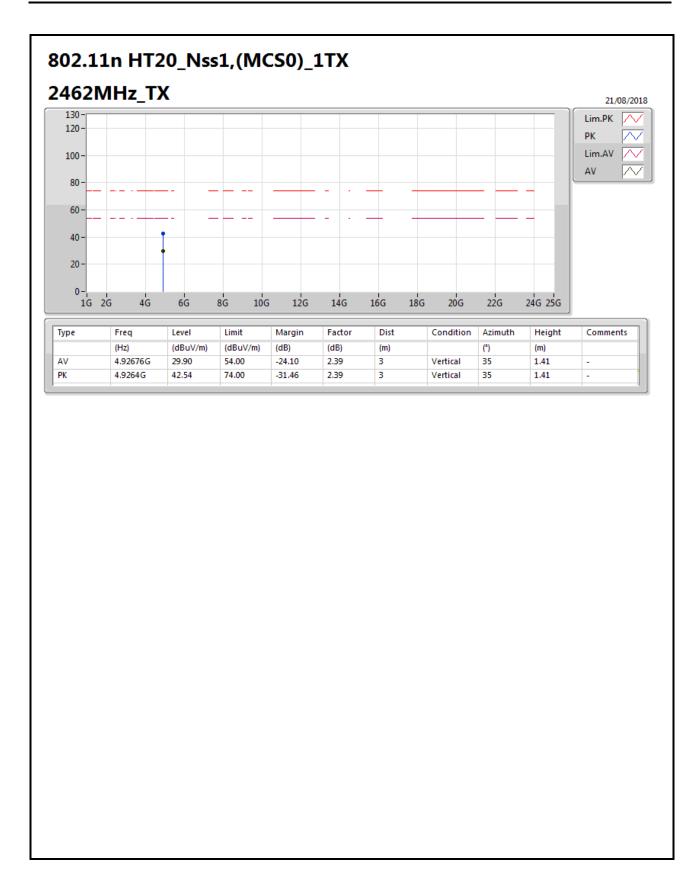
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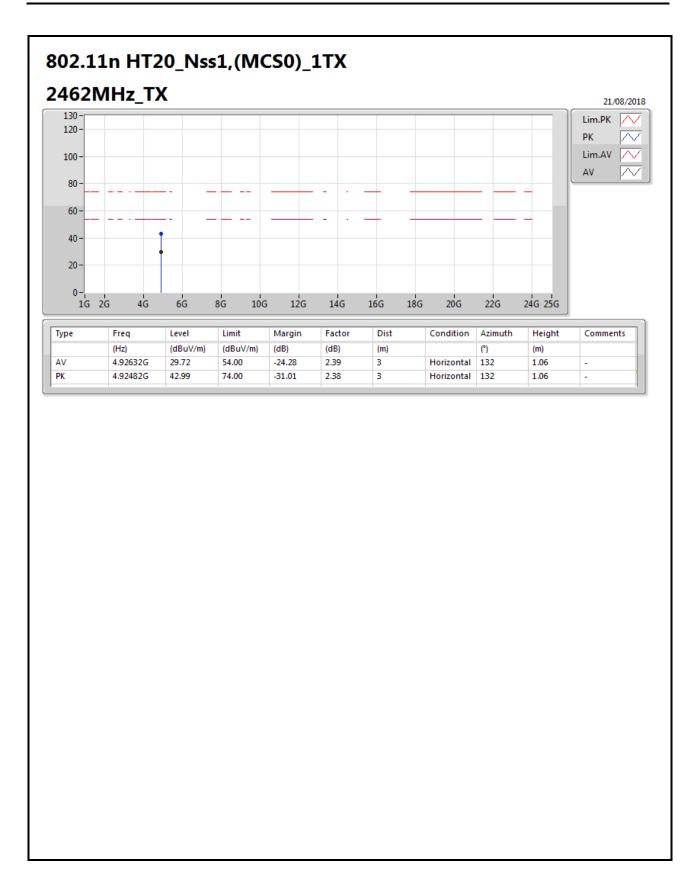
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