



Report No.: FR450311AA

RADIO TEST REPORT

FCC ID : N89-711C341XV1

Equipment : BE11000 Wireless Tri Band Ceiling Mount Access Point

Brand Name : SonicFi

Model Name : RAP7110C-341X

Applicant : CyberTAN Technology Inc.

No. 99, Park Avenue III Science-based Industrial Park

Hsinchu Taiwan 308

Manufacturer : CyberTAN Technology Inc.

No. 99, Park Avenue III Science-based Industrial Park

Hsinchu Taiwan 308

Standard : 47 CFR FCC Part 15.247

The product was received on May 14, 2024, and testing was started from May 14, 2024 and completed on Jul. 18, 2024. We, Sporton International Inc. Hsinchu 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 test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory

No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)

TEL: 886-3-656-9065

FAX: 886-3-656-9085

Report Template No.: CB-A10_10 Ver1.3

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Report Version : 01

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History of this test report

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Report No.	Version	Description	Issued Date
FR450311AA	01	Initial issue of report	Aug. 27, 2024

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Summary of Test Result

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

Conformity Assessment Condition:

- 1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
- 2. The measurement uncertainty please refer to each test result in the chapter "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

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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), VHT20, ax (HEW20), be (EHT20)	2412-2462	1-11 [11]
2400-2483.5	n (HT40), VHT40, ax (HEW40), be (EHT40)	2422-2452	3-9 [7]

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Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11b	20	2TX
2.4-2.4835GHz	802.11g	20	2TX
2.4-2.4835GHz	802.11n HT20	20	2TX
2.4-2.4835GHz	802.11n HT20-BF	20	2TX
2.4-2.4835GHz	VHT20	20	2TX
2.4-2.4835GHz	VHT20-BF	20	2TX
2.4-2.4835GHz	802.11ax HEW20	20	2TX
2.4-2.4835GHz	802.11ax HEW20-BF	20	2TX
2.4-2.4835GHz	802.11be EHT20	20	2TX
2.4-2.4835GHz	802.11be EHT20-BF	20	2TX
2.4-2.4835GHz	802.11n HT40	40	2TX
2.4-2.4835GHz	802.11n HT40-BF	40	2TX
2.4-2.4835GHz	VHT40	40	2TX
2.4-2.4835GHz	VHT40-BF	40	2TX
2.4-2.4835GHz	802.11ax HEW40	40	2TX
2.4-2.4835GHz	802.11ax HEW40-BF	40	2TX
2.4-2.4835GHz	802.11be EHT40	40	2TX
2.4-2.4835GHz	802.11be EHT40-BF	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.
- HEW20, HEW40 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- EHT20, EHT40 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM modulation.
- BWch is the nominal channel bandwidth.

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1.1.2 Antenna Information

A 4	Port			Drawal	Madal Nama	Antonna Tima	Commenter	Cain (dBi)
Ant.	2.4GHz	5GHz	6GHz	Brand	Model Name	Antenna Type	Connector	Gain (dbi)
1	1	-	-	Galtronics	02102073-08050-1	Dipole Antenna	I-PEX	
2	2	-	-	Galtronics	02102073-08050-2	Dipole Antenna	I-PEX	
3	-	1	-	Galtronics	02102142-08050-1	Dipole Antenna	I-PEX	Note1
4	-	2	-	Galtronics	02102142-08050-2	Dipole Antenna	I-PEX	Note1
5	-	-	1	Galtronics	02102475-08050-1	Dipole Antenna	I-PEX	
6	-	-	2	Galtronics	02102475-08050-2	Dipole Antenna	I-PEX	

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Note1:

	Antenna Gain (dBi)									
Ant.	WLAN 2.4GHz	WLAN 5GHz UNII 1	WLAN 5GHz UNII 2A	WLAN 5GHz UNII 2C	WLAN 5GHz UNII 3	WLAN 6GHz UNII 5	WLAN 6GHz UNII 6	WLAN 6GHz UNII 7	WLAN 6GHz UNII 8	
1	2.45	-	-	-	-	-	-	-	-	
2	2.65	-	-	-	-	-	-	-	-	
3	-	1.53	2.17	2.17	2.16	-	-	-	-	
4	-	3.55	3.55	3.53	3.23	-	-	-	-	
5	-	-	-	-	-	2.07	2.24	1.99	2.10	
6	-	-	-	-	-	2.55	2.42	2.65	2.15	

Note2: The above information was declared by manufacturer.

Note3: The lowest gain is 1.63dBi at 6GHz.

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Note4: Directional gain information

Type	Maximum Output Power	Power Spectral Density		
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for N ANT ≤ 4	$Directional Gain = 10 \cdot \log \frac{\sum_{j=1}^{N_{col}} {\sum_{k=1}^{N_{col}} \mathcal{E}_{j,k}^{2}}^{2}}{N_{sort}}^{2}$		
BF	DirectionalGain = $10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ext}} \left\{ \sum_{k=1}^{N_{ext}} \delta_{j,k} \right\}^{2}}{N_{ext}} \right]$	$Directional/state = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{opt}} \left(\sum_{k=1}^{N_{opt}} \theta_{j,k} \right)^2}{N_{opt}} \right]$		

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Ex.

Directional Gain (NSS1) formula:

$$Directional Gain = 10 \cdot \log \frac{\sum_{j=1}^{N_{abs}} \left\{ \sum_{k=1}^{N_{abs}} g_{j,k} \right\}^{2}}{N_{abs}}$$

$$\begin{split} \text{NSS1}(g1,1) &= 10^{G1/20} \; ; \text{NSS1}(g1,2) = 10^{G2/20} \; ; \text{NSS1}(g1,2) = 10^{G3/20} ; \text{NSS1}(g1,2) = 10^{G4/20} \\ \text{gj,k} &= & (\text{Nss1}(g1,1) \; + \; \text{Nss1}(g1,2) \; + \; \text{Nss1}(g1,3) \; + \; \text{Nss1}(g1,4) \;)^2 \\ \text{DG} &= & 10 \; \text{log}[(\text{Nss1}(g1,1) \; + \; \text{Nss1}(g1,2) \; + \; \text{Nss1}(g1,3) \; + \; \text{Nss1}(g1,4))^2 \; / \; \text{N}_{\text{ANT}}] \Rightarrow 10 \\ \text{log}[(10^{G1/20} \; + \; 10^{G2/20} \; + \; 10^{G3/20} \; + \; 10^{G4/20} \;)^2 \; / \; \text{N}_{\text{ANT}}] \\ \text{Where} : \end{split}$$

2.4G G1=2.45 dBi; G2 = 2.65 dBi;

5G UNII-1. G1=1.53 dBi; G2 = 3.55 dBi; 5G UNII-2A G1=2.17 dBi; G2 = 3.55 dBi; 5G UNII-2C G1=2.17 dBi; G2 = 3.53 dBi; 5G UNII-3 G1=2.16 dBi; G2 = 3.23dBi;

2.4G DG=5.56 dBi;

5G UNII-1 DG=5.61 dBi; 5G UNII-2A DG=5.90 dBi; 5G UNII-2C DG=5.89 dBi; 5G UNII-3 DG=5.72dBi;

For 2.4GHz function:

For IEEE 802.11b/g/n/VHT/ax/be (2TX/2RX):

Port 1 and Port 2 can be used as transmitting/receiving antenna. Port 1 and Port 2 could transmit/receive simultaneously.

For 5GHz function:

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

Port 1 and Port 2 can be used as transmitting/receiving antenna. Port 1 and Port 2 could transmit/receive simultaneously.

For 6GHz function:

For IEEE 802.11ax/be (2TX/2RX):

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

Port 1 and Port 2 could transmit/receive simultaneously.

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1.1.3 Mode Test Duty Cycle

Mode	DC	DCF	T	VBW
		(dB)	(s)	(Hz)_1/T
802.11b_Nss 1,(1D)	0.862	0.64	688.75u	3k
802.11g_Nss 1,(6D)	0.992	0.03	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11be EHT20-BF_Nss 1,(M0)	0.954	0.2	3.727m	300
802.11be EHT40-BF_Nss 1,(M0)	0.954	0.2	3.726m	300

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V	O.	t۵.	
V	U	ιc.	

- DC is Duty Cycle.
- DCF is Duty Cycle Factor.

1.1.4 EUT Operational Condition

EUT Power Type	Fro	From Power Adapter or PoE				
	\boxtimes	With beamforming		Without beamforming		
Beamforming Function	The product has beamforming function for n/VHT/ax/be in 2.4GHz, n/ac/ax/be in 5GHz and ax/be in 6GHz.					
Function	\boxtimes	Point-to-multipoint		Point-to-point		
Support RU	\boxtimes	Full RU		Partial RU		
Test Software Version	For Non-beamforming mode: QSPR V6.00.00114.1 For Beamforming mode: DOS [ver 6.1.7601]					

Note: The above information was declared by manufacturer.

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1.2 Applicable 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 15.247
- ANSI C63.10-2013

The following reference test guidance is not within the scope of accreditation of TAF.

- FCC KDB 558074 D01 v05r02
- FCC KDB 662911 D01 v02r01
- FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location Information

Test Lab.: Sporton International Inc. Hsinchu Laboratory

Hsinchu ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)

(TAF: 3787) TEL: 886-3-656-9065 FAX: 886-3-656-9085

Test site Designation No. TW3787 with FCC.

Conformity Assessment Body Identifier (CABID) TW3787 with ISED.

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
RF Conducted	TH01-CB	Owen Hsu	23.3~24.8 / 61~64	May 16, 2024~ Jul. 02, 2024
Radiated below 1GHz	03CH06-CB	Gordon Hung	21.7~22.9 / 58~62	Jul. 18, 2024
	03CH01-CB	Gordon Hung	22.6~23.2 / 59~63	May 14, 2024~ Jun. 29, 2024
Radiated above 1GHz	03CH02-CB	Gordon Hung	22.3~22.9 / 57~63	May 14, 2024~ Jun. 29, 2024
	03CH03-CB	Gordon Hung	22.4~23.9 / 59~60	May 14, 2024~ Jun. 29, 2024
AC Conduction	CO01-CB	Elvin Yeh	22~23 / 52~53	May 29, 2024

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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)

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Test Date: Before May 28, 2024

001 Duilot Doto 10 may 20, 202 :				
Test Items	Uncertainty	Remark		
Radiated Emission (1GHz ~ 18GHz)	4.1 dB	Confidence levels of 95%		
Radiated Emission (18GHz ~ 40GHz)	4.2 dB	Confidence levels of 95%		
Conducted Emission	3.1 dB	Confidence levels of 95%		
Output Power Measurement	0.8 dB	Confidence levels of 95%		
Power Density Measurement	3.1 dB	Confidence levels of 95%		
Bandwidth Measurement	2.2%	Confidence levels of 95%		

Test Date: After May 27, 2024

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	4.1 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.2 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.0 dB	Confidence levels of 95%
Conducted Emission	3.1 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Power Density Measurement	3.1 dB	Confidence levels of 95%
Bandwidth Measurement	2.1 %	Confidence levels of 95%

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2 Test Configuration of EUT

2.1 Test Channel Mode

Mode
802.11b_Nss1,(1Mbps)_2TX
2412MHz
2437MHz
2462MHz
802.11g_Nss1,(6Mbps)_2TX
2412MHz
2437MHz
2462MHz
802.11be EHT20-BF_Nss1,(MCS0)_2TX
2412MHz
2417MHz
2437MHz
2462MHz
802.11be EHT40-BF_Nss1,(MCS0)_2TX
2422MHz
2437MHz
2452MHz

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Note:

- Evaluated EHT20/EHT40 mode only due to the similar modulation. The power setting of HT20/HT40/VHT20/VHT40/HEW20/HEW40 mode are the same or lower than EHT20/EHT40.
- The EUT supports non-beamforming and beamforming modes, after evaluating, the beamforming mode has been selected to test.

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2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests		
Tests Item	AC power-line conducted emissions	
Condition AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz		
Operating Mode Normal Link		
1	EUT + Adapter	
2 EUT + PoE		
For operating mode 1 is the worst case and it was record in this test report.		

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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	СТХ			
After evaluating, and the w was written in the report.	orst case was found at Z axis, so it was selected to perform test and its test result			
1	EUT in Z axis + WLAN 2.4GHz + Adapter			
2	EUT in Z axis + WLAN 2.4GHz + PoE			
Mode 2 has been evaluate follow this same test mode	ed to be the worst case among Mode 1~2, thus measurement for Mode 3 ~ 4 will			
3	EUT in Z axis + WLAN 5GHz + PoE			
4	EUT in Z axis + WLAN 6GHz + PoE			
For operating mode 4 is th	e worst case and it was record in this test report.			
Operating Mode > 1GHz CTX				
After evaluating, and the w was written in the report.	orst case was found at Z axis, so it was selected to perform test and its test result			
1	EUT in Z axis			

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The Worst Case Mode for Following Conformance Tests			
Tests Item Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation			
Operating Mode			
1 WLAN 2.4GHz + WLAN 5GHz + WLAN 6GHz			
Refer to Sporton Test Report No.: FA450311 for Co-location RF Exposure Evaluation.			

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

The PoE information as below:

Support Unit	Brand Name	Model Number
PoE	Delta	ADH-65AR N

2.3 EUT Operation during Test

For CTX Mode:

non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

beamforming mode:

During the test, the following programs under WIN 10 were executed.

The program was executed as follows:

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

For Normal Link Mode:

During the test, the EUT operation to normal function.

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2.4 Accessories

Accessories				
Equipment Brand Model Name Name			Rating	
Adapter	Ktec	KSA-30W-120250VU	INPUT:100-240V ~ 50/60Hz, 1.0A OUTPUT: 12V, 2.5A	
	Other			
Mounting kit*1				

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2.5 Support Equipment

For AC Conduction:

	1 of Ao Conduction.					
	Support Equipment					
No.	Equipment	Brand Name	Model Name	FCC ID		
Α	10G LAN PC	DELL	OPTIPLEX 3010	N/A		
В	2.4G NB	DELL	E6430	N/A		
С	5G NB	DELL	E6430	N/A		
D	6G NB	DELL	E7240	N/A		
Е	6G Device	INTEL	BE200	PD9BE200NG		

For Radiated (below 1GHz) and Radiated (above 1GHz) / Non-beamforming mode:

	Support Equipment				
No.	No. Equipment Brand Name Model Name FCC ID				
Α	Notebook	DELL	E4300	N/A	

For Radiated (above 1GHz) / Beamforming mode:

	Support Equipment				
No.	No. Equipment Brand Name Model Name FCC ID				
Α	Notebook	DELL	E4300	N/A	
В	Client	SonicFi	RAP7110C-341X	N/A	
С	Notebook	DELL	E4300	N/A	

For RF Conducted / Non-beamforming mode:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
Α	Notebook	DELL	E4300	N/A

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For RF Conducted / Beamforming mode:

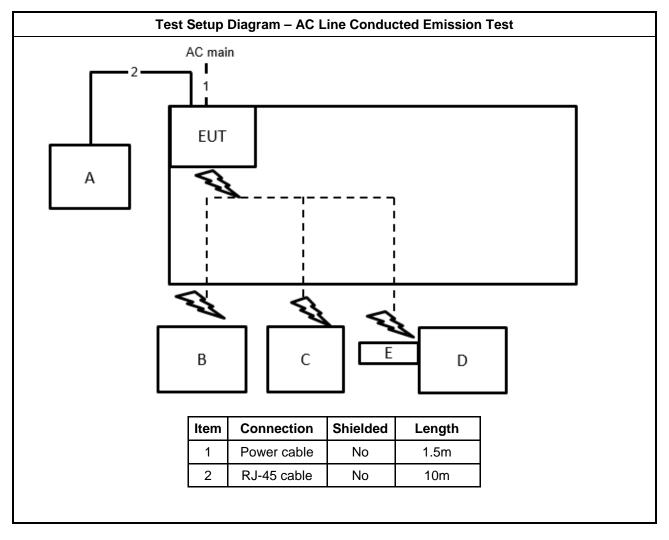
	Support Equipment					
No.	Equipment	Brand Name	Model Name	FCC ID		
Α	Notebook	DELL	E4300	N/A		
В	Notebook	DELL	E4300	N/A		
С	Client	SonicFi	RAP7110C-341X	N/A		

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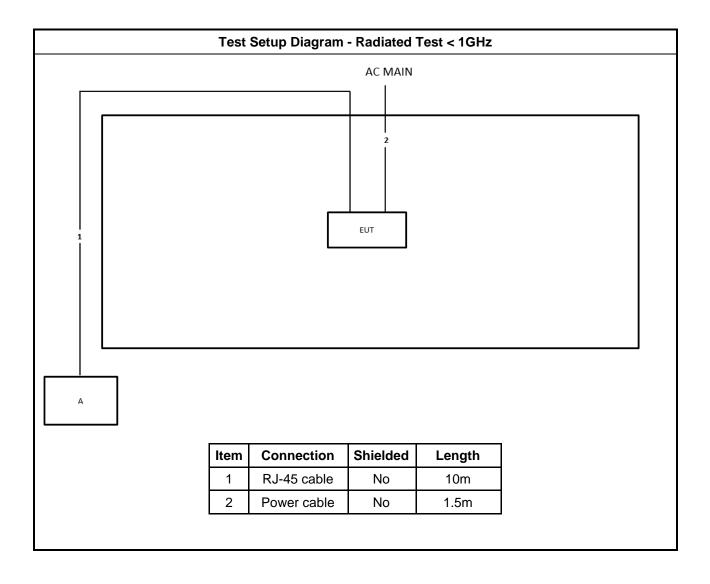


2.6 Test Setup Diagram



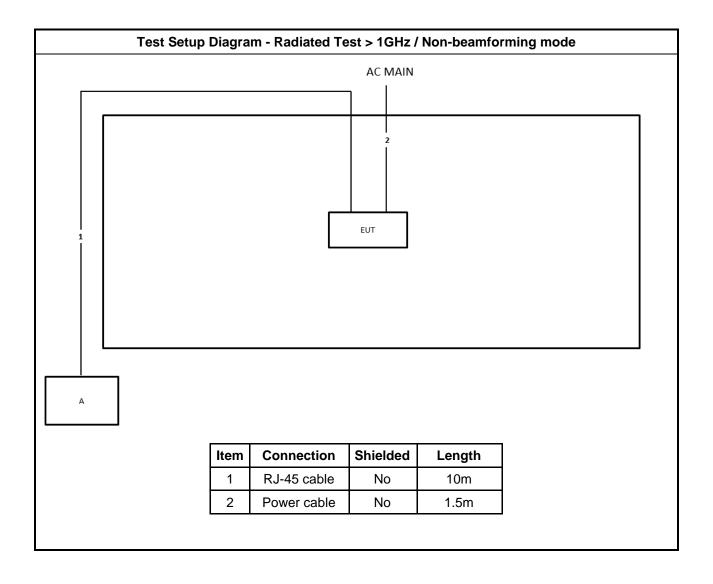
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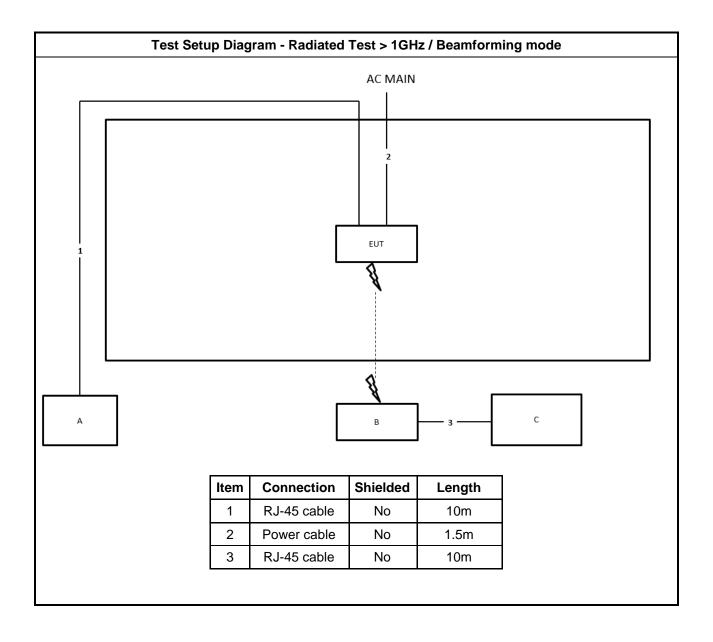
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3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit			
Frequency Emission (MHz)	Quasi-Peak	Average	
0.15-0.5	66 - 56 *	56 - 46 *	
0.5-5	56	46	
5-30	60	50	
Note 1: * Decreases with the logarithm of the frequency.			

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3.1.2 Measuring Instruments

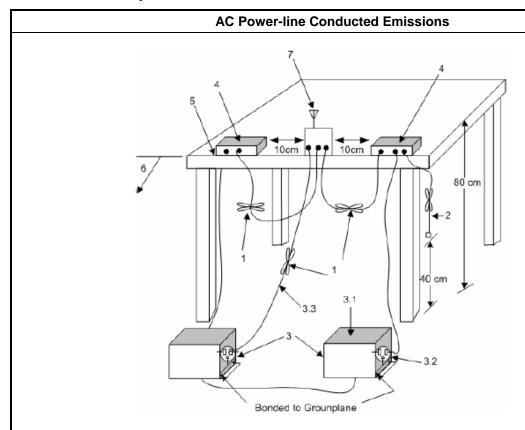
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

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

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3.1.4 Test Setup



1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.

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

3.1.5 Measurement Results Calculation

The measured Level is calculated using:

- a. Corrected Reading: LISN Factor (LISN) + Attenuator (AT/AUX) + Cable Loss (CL) + Read Level (Raw) = Level
- b. Margin = -Limit + Level

3.1.6 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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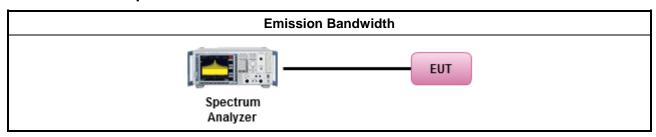
3.2.2 Measuring Instruments

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 FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.1 Option 1 for 6 dB bandwidth measurement.
		Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 Option 2 for 6 dB bandwidth measurement.
		Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

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3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit

- If G_{TX} ≤ 6 dBi, then P_{Out} ≤ 30 dBm (1 W)
- Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)$ dBm
- Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3$ dBm
- Smart antenna system (SAS):
 - Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3$ dBm
 - Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3$ dBm
 - Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3 + 8$ dB dBm

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 P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.

3.3.2 Measuring Instruments

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

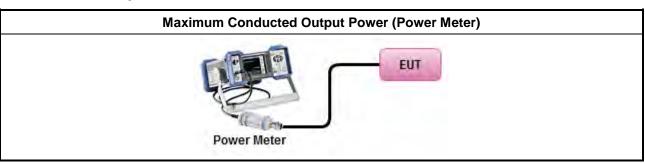
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3.3.3 Test Procedures

		Test Method
•	Max	imum Peak Conducted Output Power
		Refer as FCC KDB 558074, clause 8.3.1.1 & C63.10 clause 11.9.1.1 (RBW ≥ EBW method).
		Refer as FCC KDB 558074, clause 8.3.1.3 & C63.10 clause 11.9.1.3 (peak power meter).
•	Max	imum Conducted Output Power
	[duty	/ cycle ≥ 98% or external video / power trigger]
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.2 Method AVGSA-1.
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.3 Method AVGSA-1A. (alternative)
	duty	cycle < 98% and average over on/off periods with duty factor
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.4 Method AVGSA-2.
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.5 Method AVGSA-2A (alternative)
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.6 Method AVGSA-3
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.7 Method AVGSA-3A (alternative)
	Mea	surement using a power meter (PM)
		Refer as FCC KDB 558074, clause $8.3.2.3 \& C63.10$ clause $11.9.2.3.1$ Method AVGPM (using an RF average power meter).
	\boxtimes	Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.2 Method AVGPM-G (using an gate RF average power meter).
•	For	conducted measurement.
	•	If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
	•	If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \ldots + P_n$ (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



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3.3.5 Test Result of Maximum Conducted Output Power

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Refer as Appendix C

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3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

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

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3.4.2 Measuring Instruments

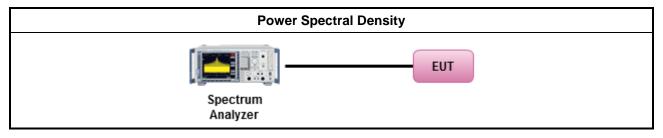
Refer a test equipment and calibration data table in this test report.

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).			
	\boxtimes	Ref	er as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10 Method Max. PSD.	
•	For	cond	ucted measurement.	
	•	If Th	ne EUT supports multiple transmit chains using options given below:	
			Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.	
			Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,	
			Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.	

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3.4.4 Test Setup



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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 (dBc)	
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.

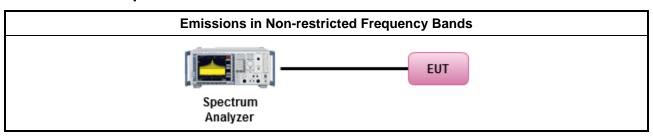
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method	
 Refer as FCC KDB 558074, clause 8.5 for unwanted emissions into non-restricted bands. 	

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

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3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions Limit					
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (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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3.6.3 Test Procedures

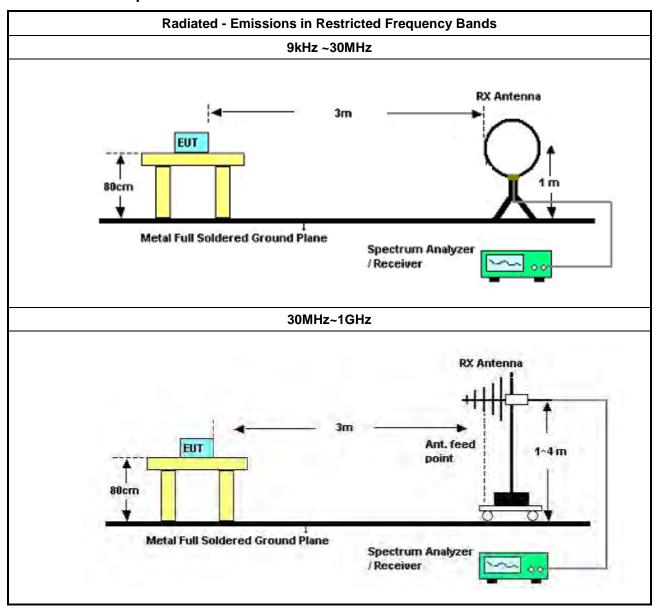
		Test Method		
•	The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].			
•	Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.			
•	For	the transmitter unwanted emissions shall be measured using following options below:		
	•	Refer as FCC KDB 558074, clause 8.6 for unwanted emissions into restricted bands.		
		Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.1(trace averaging for duty cycle ≥98%).		
		Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.2(trace averaging + duty factor).		
		☐ Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.3(Reduced VBW≥1/T).		
		☐ Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time.		
		Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.		
		Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.4 measurement procedure peak limit.		
•	For	the transmitter band-edge emissions shall be measured using following options below:		
	•	Refer as FCC KDB 558074 clause 8.7 & C63.10 clause 11.13.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.		
	•	Refer as FCC KDB 558074, clause 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.		
	•	Refer as FCC KDB 558074, clause 8.7 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).		
	•	For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB		
	•	For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.		

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3.6.4 Test Setup



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3.6.5 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna factor (AF) + Cable loss (CL) + Read level (Raw) - Preamp factor (PA)(if applicable) = Level.

3.6.6 Emissions in Restricted Frequency Bands (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.

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

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

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

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4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics Calibration Date		Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz Mar. 01, 2024		Feb. 28, 2025	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-5 0-16-2	04083	150kHz ~ Feb. 19, 2024		Feb. 18, 2025	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz		Apr. 23, 2025	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 08, 2024	Feb. 07, 2025	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	Oct. 17, 2023	Oct. 16, 2024	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6121	65417	9kHz - 30 MHz	Oct. 13, 2023	Oct. 12, 2024	Radiation (03CH06-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH06-CB	30 MHz ~ 1 GHz Aug. 03, 2023		Aug. 02, 2024	Radiation (03CH06-CB)
Bilog Antenna with 6 dB attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37878 & AT-N0606	20MHz ~ 2GHz Jul. 30, 2023		Jul. 29, 2024	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	310N	187290	0.1MHz ~ 1GHz Nov. 03, 2023		Nov. 02, 2024	Radiation (03CH06-CB)
Signal Analyzer	R&S	FSV40	101904	9kHz ~ 40GHz		Apr. 25, 2025	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESR7	102172	9kHz ~ 7GHz Oct. 20, 2023		Oct. 19, 2024	Radiation (03CH06-CB)
RF Cable-low	Woken	RG402	Low Cable-24+68	30MHz~1GHz Oct. 02, 2023		Oct. 01, 2024	Radiation (03CH06-CB)
Test Software	SPORTON	SENSE	V5.10	- N.C.R.		N.C.R.	Radiation (03CH06-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH01-CB	1GHz ~18GHz 3m	1 May 04 2024		Radiation (03CH01-CB)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120D-01816	1GHz~18GHz	Dec. 20, 2023	Dec. 19, 2024	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz Sep. 04, 2023		Sep. 03, 2024	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02121	1GHz ~ 26.5GHz May 18, 2023		May 17, 2024	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02121	1GHz ~ 26.5GHz	May 17, 2024	May 16, 2025	Radiation (03CH01-CB)
Signal Analyzer	R&S	FSV3044	101437	10kHz ~ 44GHz	Nov. 28, 2023	Nov. 27, 2024	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16	1 GHz ~ 18 GHz	Nov. 06, 2023	Nov. 05, 2024	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16+17	1 GHz ~ 18 GHz	Nov. 06, 2023	Nov. 05, 2024	Radiation (03CH01-CB)

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Calibration Calibration Instrument **Brand** Model No. Serial No. Characteristics Remark Date **Due Date** Radiation High Cable Woken WCA0929M 40G#5+6 1GHz ~ 40 GHz Jan. 11, 2024 Jan. 10, 2025 (03CH01-CB) Radiation **Test Software** SPORTON SENSE V5.10 N.C.R. N.C.R. (03CH01-CB) 3m Semi Anechoic Radiation RIKEN SAC-3M 03CH02-CB 1GHz ~18GHz Mar. 24, 2024 Mar. 23, 2025 Chamber (03CH02-CB) **VSWR** Radiation Horn Antenna **EMCO** 3115 9610-4976 1GHz ~ 18GHz Apr. 12, 2024 Apr. 11, 2025 (03CH02-CB) Radiation Horn Antenna Schwarzbeck **BBHA 9170** BBHA9170252 15GHz ~ 40GHz Sep. 04, 2023 Sep. 03, 2024 (03CH02-CB) Radiation Pre-Amplifier 83017A MY39501305 1GHz ~ 26.5GHz Agilent Jun. 30, 2023 Jun. 29, 2024 (03CH02-CB) Signal Radiation R&S FSV3044 101536 10kHz ~ 44GHz Jul. 24, 2023 Jul. 23, 2024 Analyzer (03CH02-CB) Radiation RF Cable-high Woken RG402 High Cable-18 1GHz ~ 18GHz Oct. 02, 2023 Oct. 01, 2024 (03CH02-CB) Radiation RF Cable-high Woken RG402 1GHz ~ 18GHz Oct. 02, 2023 Oct. 01, 2024 Cable-18+19 (03CH02-CB) Radiation High Cable Woken WCA0929M 40G#5+6 1GHz ~ 40 GHz Jan. 11, 2024 Jan. 10, 2025 (03CH02-CB) Radiation **Test Software** SPORTON **SENSE** V5.10 N.C.R. N.C.R. (03CH02-CB) 3m Semi Anechoic 1GHz ~18GHz Radiation May 03, 2024 03CH03-CB **TDK** SAC-3M May 02, 2025 Chamber (03CH03-CB) **VSWR** Radiation Horn Antenna ETS · Lindgren 3115 6821 750MHz~18GHz Jan. 24, 2024 Jan. 23, 2025 (03CH03-CB) Radiation Horn Antenna Schwarzbeck **BBHA 9170** BBHA9170252 15GHz ~ 40GHz Sep. 04, 2023 Sep. 03, 2024 (03CH03-CB) Radiation 8449B 3008A02097 Pre-Amplifier 1GHz ~ 26.5GHz Jun. 30, 2023 Jun. 29, 2024 Agilent (03CH03-CB) Spectrum Radiation R&S FSP40 100019 9kHz ~ 40GHz Jun. 12, 2023 Jun. 11, 2024 Analyzer (03CH03-CB) Spectrum Radiation 100019 R&S FSP40 9kHz ~ 40GHz Jun. 11, 2024 Jun. 10, 2025 (03CH03-CB) Analyzer High Radiation RF Cable-high Woken RG402 1GHz ~ 18GHz Feb. 29, 2024 Feb. 28, 2025 Cable-20+29 (03CH03-CB) Radiation Woken RG402 High Cable-29 1GHz ~ 18GHz Feb. 29, 2024 Feb. 28, 2025 RF Cable-high (03CH03-CB) Radiation High Cable Woken WCA0929M 40G#5+6 1GHz ~ 40 GHz Jan. 11, 2024 Jan. 10, 2025 (03CH03-CB) Radiation **Test Software SPORTON** SENSE V5.10 N.C.R. N.C.R. (03CH03-CB) Spectrum Conducted R&S FSV40 100979 9kHz~40GHz May 29, 2023 May 28, 2024 (TH01-CB) analyzer Conducted R&S FSV40 100979 9kHz~40GHz May 27, 2024 May 26, 2025 (TH01-CB) analyzer

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Instrument	Brand	Model No.	Serial No.	Characteristics Calibration Date		Calibration Due Date	Remark
Switch	SPTCB	SP-SWI	SWI-01	1~26.5 GHz Oct. 03, 2023		Oct. 02, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-30	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz	Mar. 01, 2024	Feb. 28, 2025	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	GB41291199	50MHz~18GHz	Mar. 04, 2024	Mar. 03, 2025	Conducted (TH01-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH01-CB)

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

NCR means Non-Calibration required.

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Conducted Emissions at Powerline

Appendix A

Summary

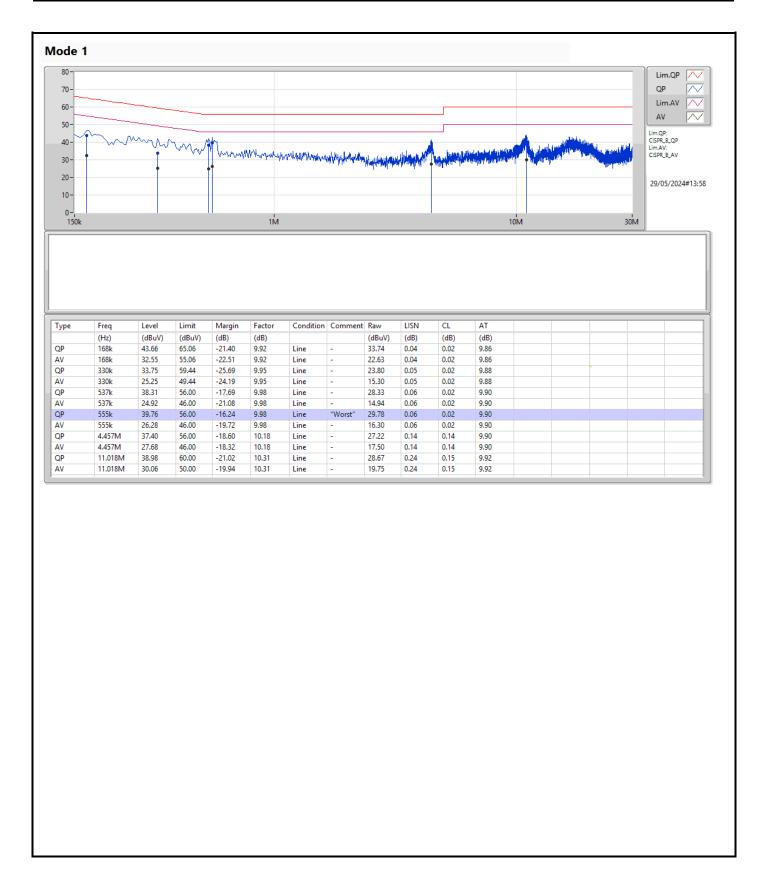
Mode	Result	Туре	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	546k	40.03	56.00	-15.97	Neutral

Sporton International Inc. Hsinchu Laboratory

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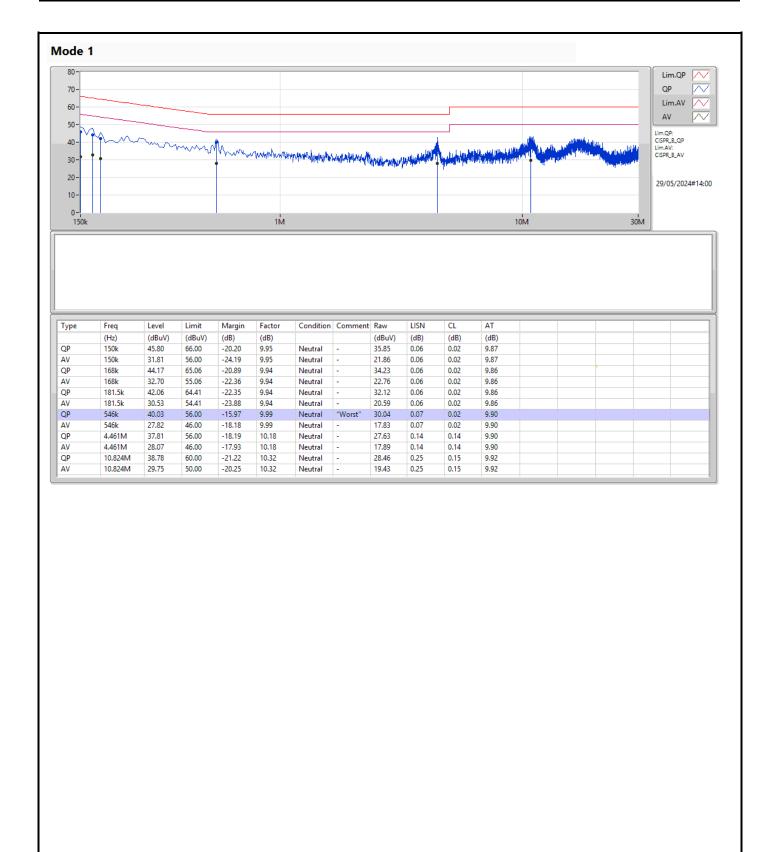




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Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
2.4-2.4835GHz	-	=	=	ū	-
802.11b_Nss1,(1Mbps)_2TX	8.25M	13.252M	13M3G1D	6.625M	13.084M
802.11g_Nss1,(6Mbps)_2TX	16.3M	16.794M	16M8D1D	15.45M	16.453M
802.11be EHT20-BF_Nss1,(MCS0)_2TX	17.175M	18.908M	18M9D1D	13.3M	18.808M
802.11be EHT40-BF_Nss1,(MCS0)_2TX	37.7M	37.902M	37M9D1D	15.9M	37.521M

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

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Result

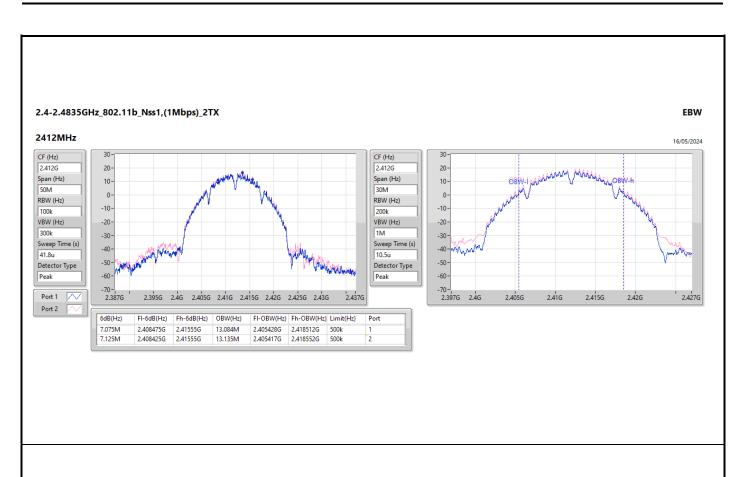
Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11b_Nss1,(1Mbps)_2TX	-	-	=	-	-	-
2412MHz	Pass	500k	7.075M	13.084M	7.125M	13.135M
2437MHz	Pass	500k	7.825M	13.099M	8.075M	13.184M
2462MHz	Pass	500k	8.25M	13.104M	6.625M	13.252M
802.11g_Nss1,(6Mbps)_2TX	-	-	=	-	-	-
2412MHz	Pass	500k	15.975M	16.453M	16.3M	16.749M
2437MHz	Pass	500k	16.3M	16.461M	15.45M	16.794M
2462MHz	Pass	500k	15.825M	16.66M	16.3M	16.719M
802.11be EHT20-BF_Nss1,(MCS0)_2TX	-	-	=	-	-	-
2412MHz	Pass	500k	16.825M	18.825M	13.3M	18.894M
2437MHz	Pass	500k	17.175M	18.908M	16.975M	18.865M
2462MHz	Pass	500k	14.25M	18.808M	15.85M	18.838M
802.11be EHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	=
2422MHz	Pass	500k	15.9M	37.664M	37.25M	37.521M
2437MHz	Pass	500k	18.9M	37.902M	16.15M	37.635M
2452MHz	Pass	500k	37.7M	37.625M	16.9M	37.874M

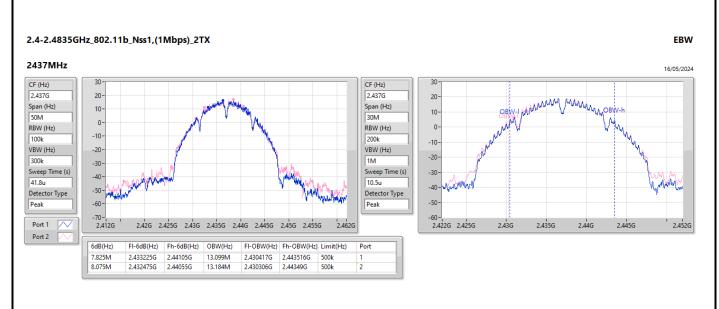
Port X-N dB = Port X 6dB down bandwidth; Port X-OBW = Port X 99% occupied bandwidth

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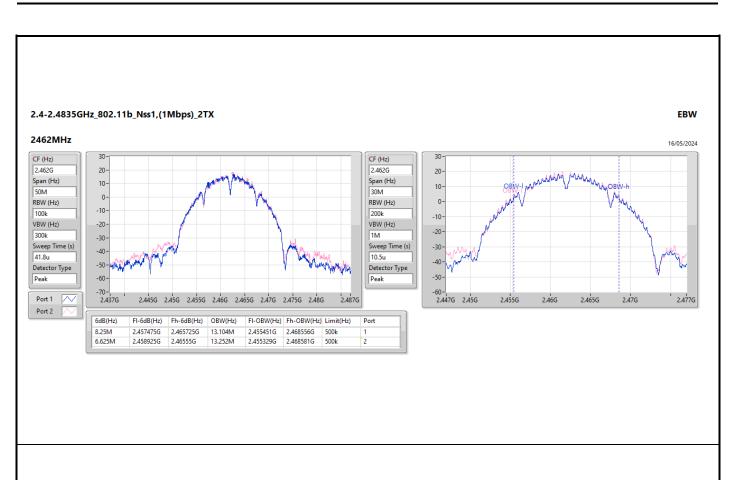
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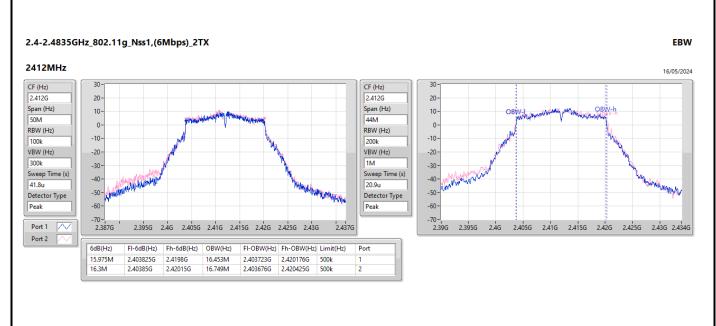




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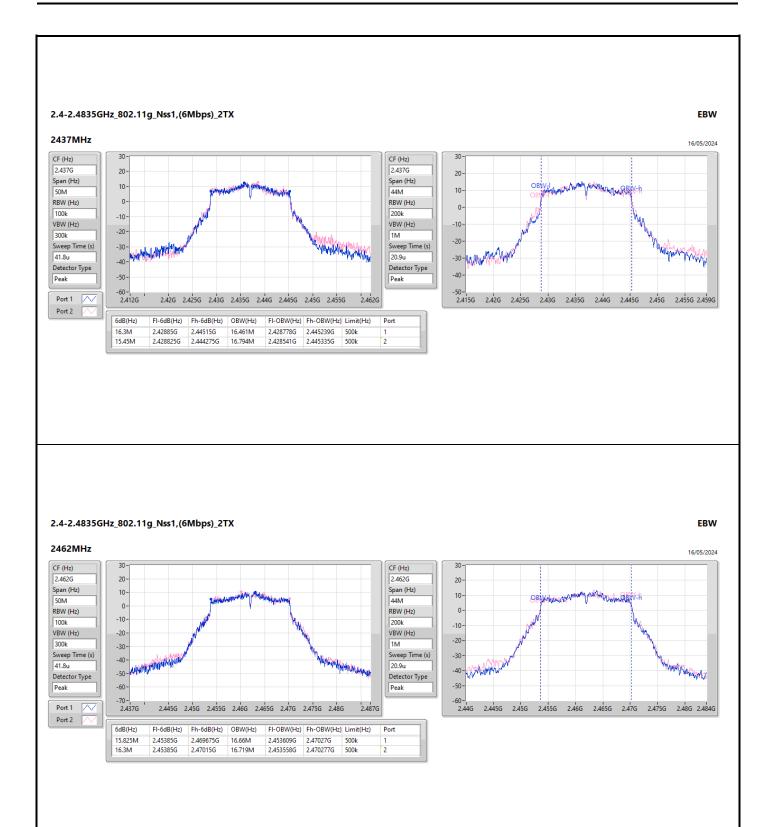
Report No. : FR450311AA





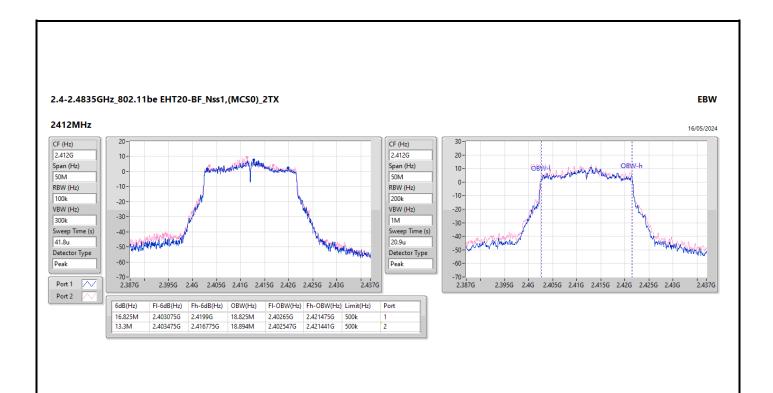
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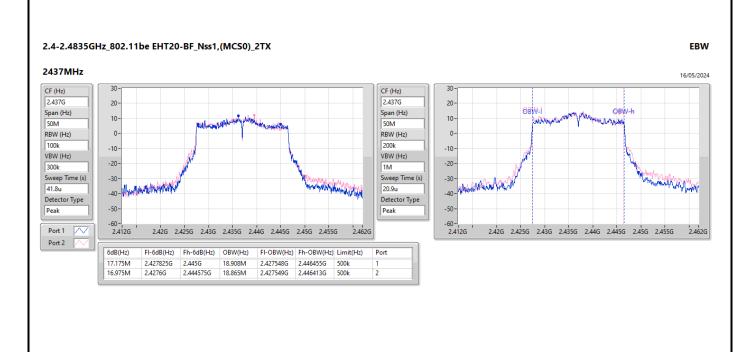
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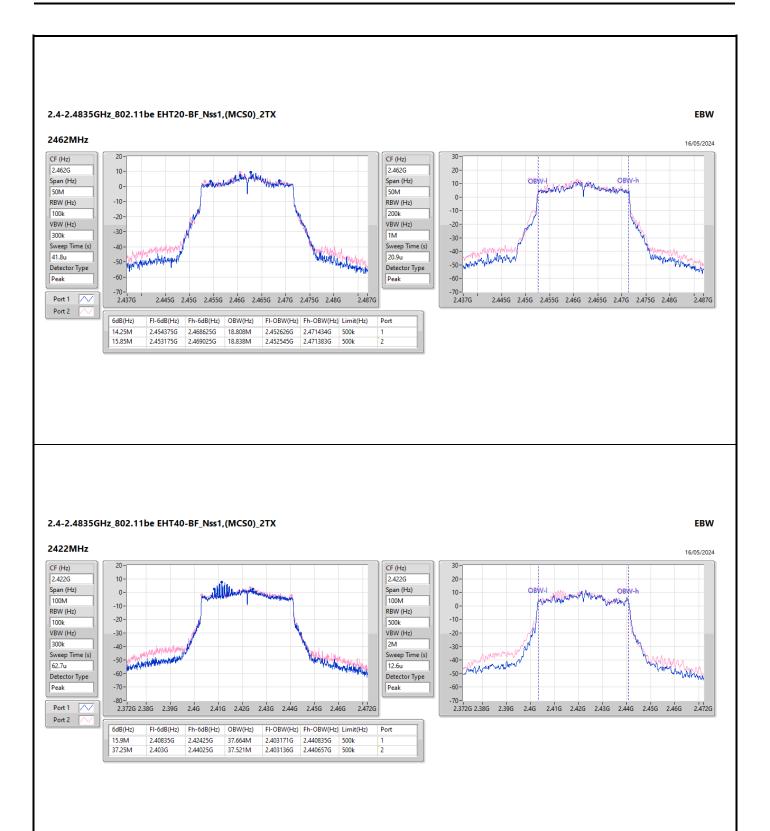
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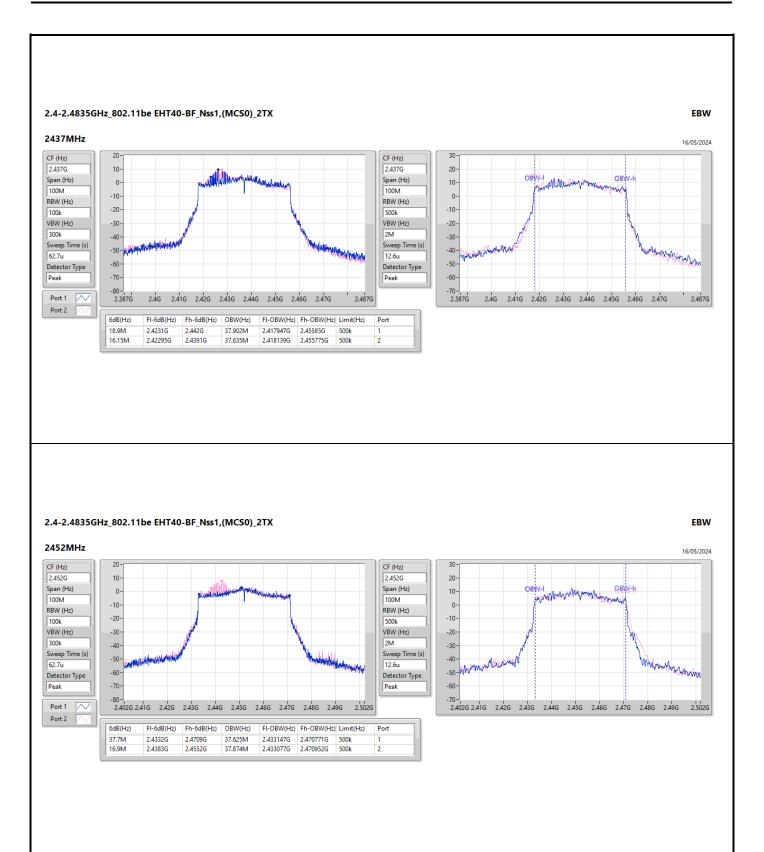
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Average Power Appendix C

Summary

Mode	Total Power	Total Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	29.95	0.98855
802.11g_Nss1,(6Mbps)_2TX	28.44	0.69823
802.11be EHT20-BF_Nss1,(MCS0)_2TX	27.37	0.54576
802.11be EHT40-BF_Nss1,(MCS0)_2TX	24.07	0.25527

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Average Power Appendix C

Result

Mode	Result	DG	Port 1	Port 2	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	2.65	26.03	26.51	29.29	30.00
2437MHz	Pass	2.65	26.48	27.00	29.76	30.00
2462MHz	Pass	2.65	26.79	27.08	29.95	30.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	2.65	22.31	22.91	25.63	30.00
2437MHz	Pass	2.65	25.26	25.60	28.44	30.00
2462MHz	Pass	2.65	23.13	23.52	26.34	30.00
802.11be EHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.56	20.44	20.82	23.64	30.00
2417MHz	Pass	5.56	21.86	22.35	25.12	30.00
2437MHz	Pass	5.56	24.28	24.43	27.37	30.00
2462MHz	Pass	5.56	21.15	21.57	24.38	30.00
802.11be EHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	5.56	18.63	19.34	22.01	30.00
2437MHz	Pass	5.56	20.92	21.20	24.07	30.00
2452MHz	Pass	5.56	19.00	19.14	22.08	30.00

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

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Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	5.79
802.11g_Nss1,(6Mbps)_2TX	1.20
802.11be EHT20-BF_Nss1,(MCS0)_2TX	0.75
802.11be EHT40-BF_Nss1,(MCS0)_2TX	-6.11

RBW = 3kHz;

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Appendix D **PSD**

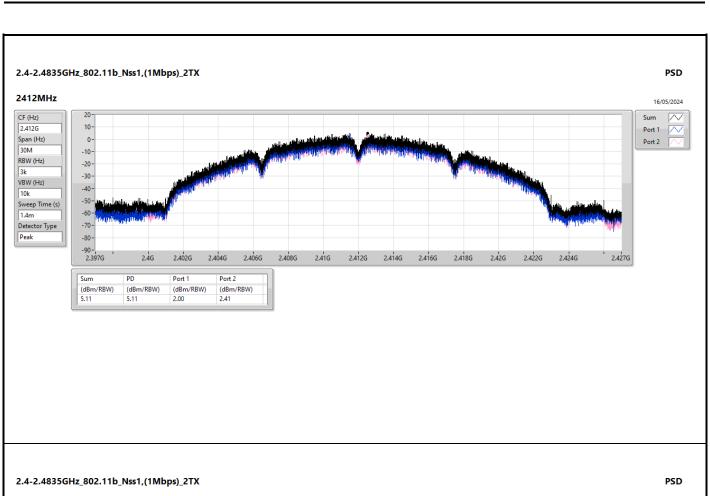
Result

Mode	Result	DG	Port 1	Port 2	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.56	2.00	2.41	5.11	8.00
2437MHz	Pass	5.56	2.88	2.26	5.24	8.00
2462MHz	Pass	5.56	2.72	3.31	5.79	8.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.56	-2.69	-4.22	-1.43	8.00
2437MHz	Pass	5.56	-1.44	-0.20	1.20	8.00
2462MHz	Pass	5.56	-2.10	-3.56	-0.73	8.00
802.11be EHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.56	-5.91	-5.00	-3.69	8.00
2437MHz	Pass	5.56	-1.77	-1.15	0.75	8.00
2462MHz	Pass	5.56	-3.91	-4.43	-1.92	8.00
802.11be EHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	5.56	-10.05	-9.17	-8.13	8.00
2437MHz	Pass	5.56	-8.50	-7.42	-6.11	8.00
2452MHz	Pass	5.56	-8.87	-9.76	-8.01	8.00

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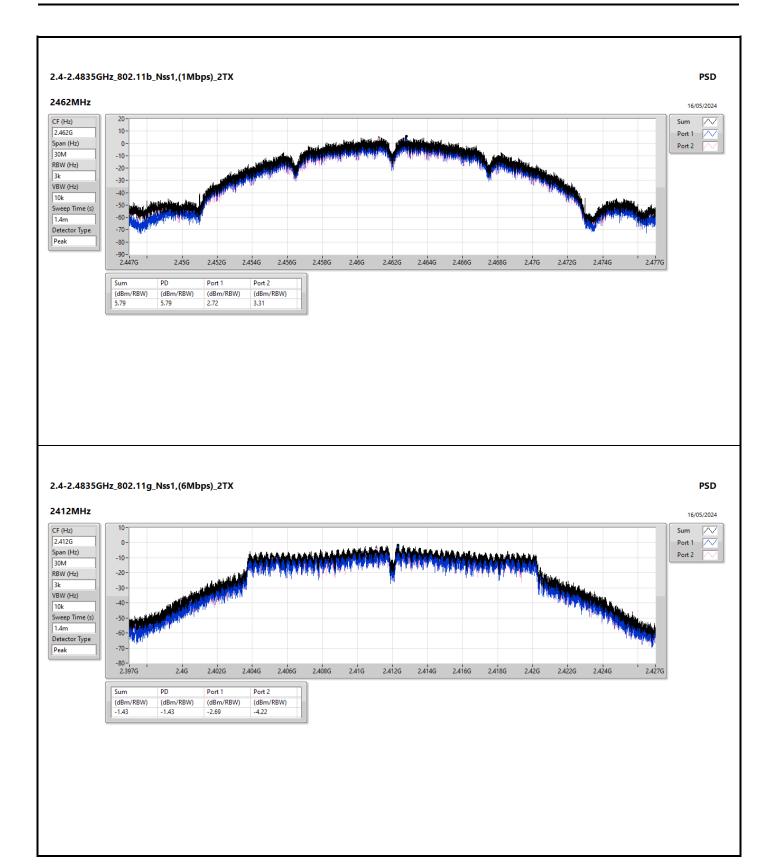
DG = Directional Gain; RBW = 3kHz; PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;



2437MHz 16/05/2024 CF (Hz) Sum 10-2.437G Port 1 / Span (Hz) 0-30M -10-RBW (Hz) -20--30-VBW (Hz) -40-1.4m -70-Detector Type -80-Peak 2.432G 2.434G 2.436G 2.438G 2.44G 2.442G 2.444G 2.446G 2.448G 2.45G 2.43G 2.452G Sum PD Port 1 Port 2 (dBm/RBW) 5.24 (dBm/RBW) (dBm/RBW) (dBm/RBW) 5.24 2.88 2.26

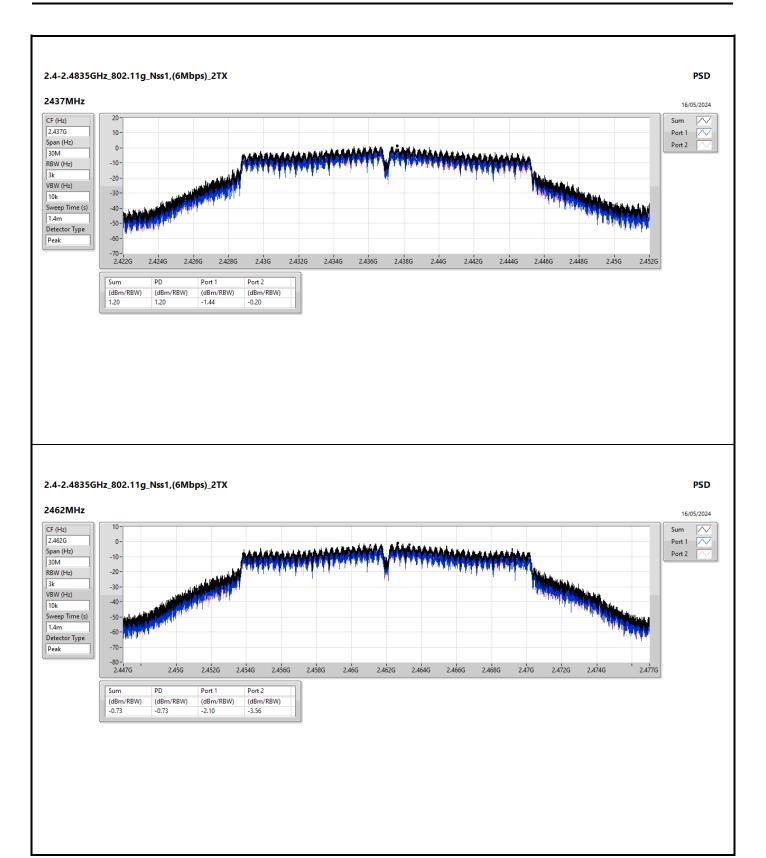
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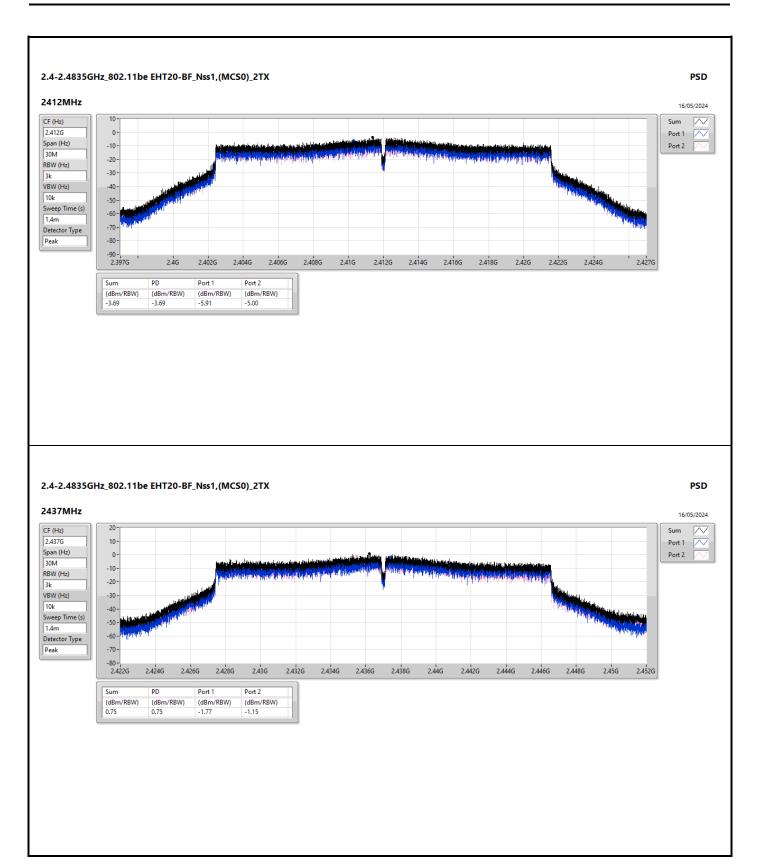
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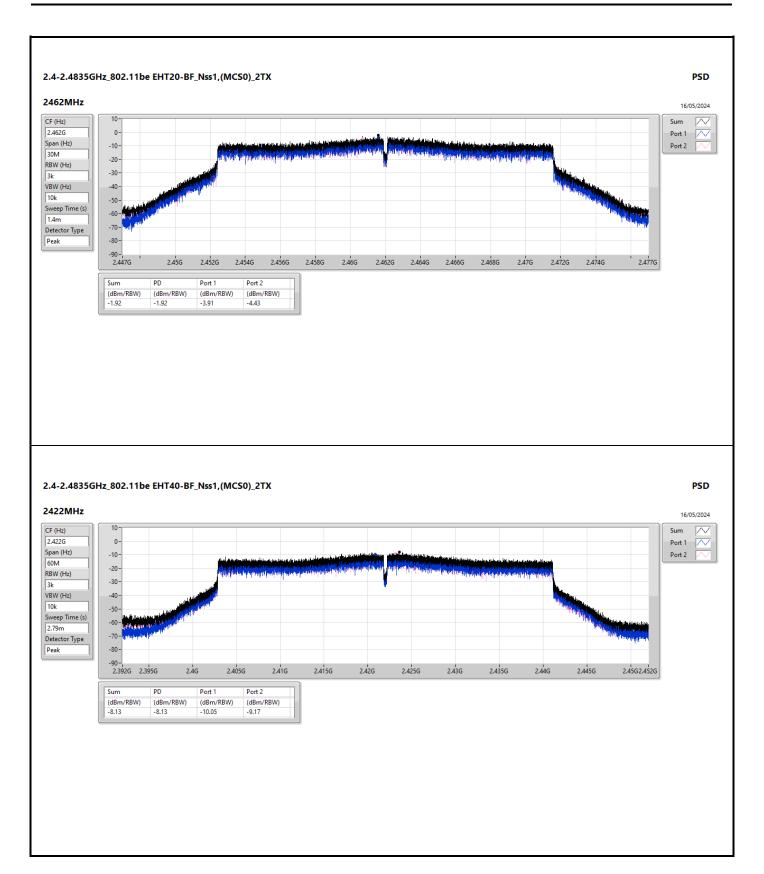
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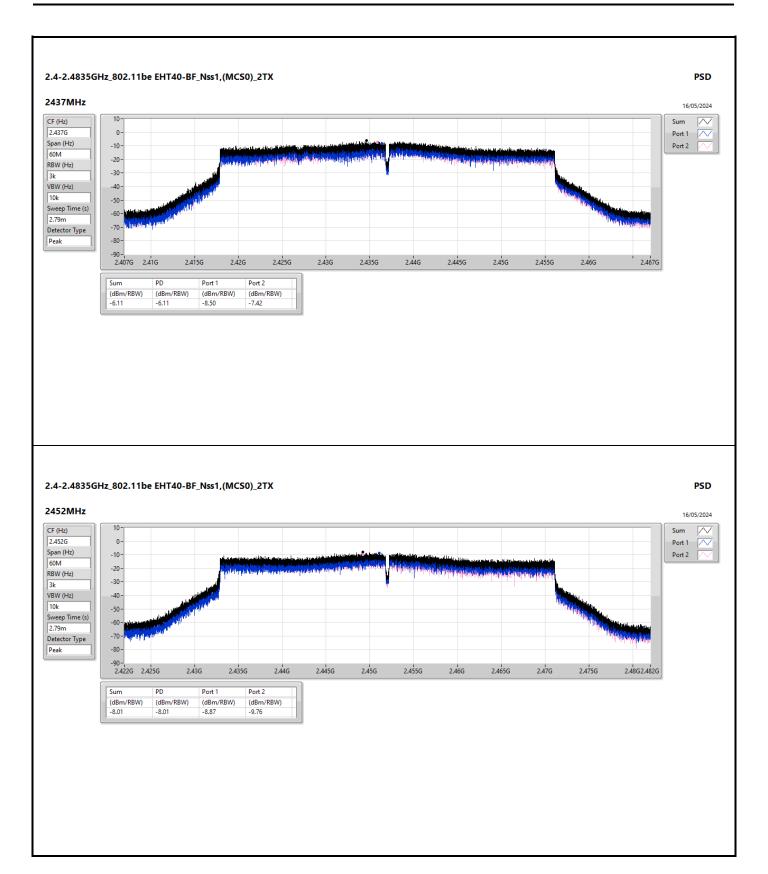
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CSE (NdB Down) Appendix E

Summary

Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
2.4-2.4835GHz	-		-	-	-	-		-		-		-	-	-	
802.11b_Nss1,(1Mbps)_2TX	Pass	2.46146G	17.69	-12.31	2.14914G	-45.05	2.39752G	-30.90	2.4G	-32.74	2.5207G	-45.97	24.92976G	-39.62	1
802.11g_Nss1,(6Mbps)_2TX	Pass	2.43824G	16.59	-13.41	2.19923G	-46.08	2.4G	-21.93	2.4G	-20.00	2.51678G	-48.14	21.97691G	-43.78	2
802.11be EHT20-BF_Nss1,(MCS0)_2TX	Pass	2.43758G	15.29	-14.71	2.19574G	-45.14	2.39984G	-24.84	2.4G	-23.34	2.51846G	-49.05	21.73248G	-44.08	2
802.11be EHT40-BF_Nss1,(MCS0)_2TX	Pass	2.42889G	10.97	-19.03	34.58M	-48.13	2.4G	-25.45	2.4G	-24.46	2.54798G	-49.04	21.53076G	-44.06	2

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CSE (NdB Down) Appendix E

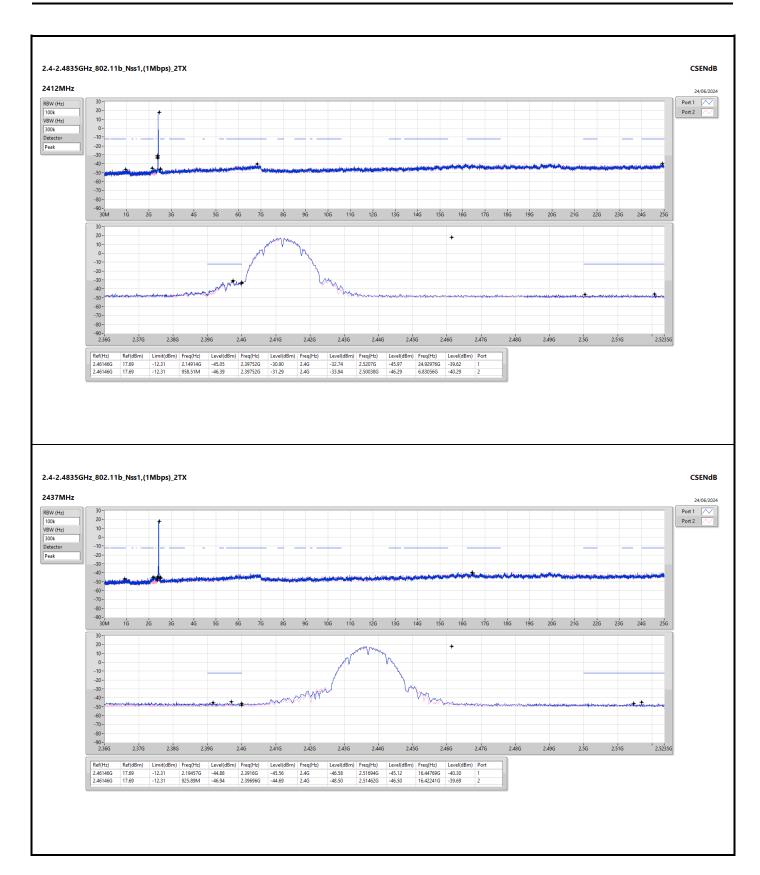
Result

Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-		-	-	-		-	-	-	-
2412MHz	Pass	2.46146G	17.69	-12.31	2.14914G	-45.05	2.39752G	-30.90	2.4G	-32.74	2.5207G	-45.97	24.92976G	-39.62	1
2412MHz	Pass	2.46146G	17.69	-12.31	958.51M	-46.39	2.39752G	-31.29	2.4G	-33.94	2.50038G	-46.29	6.83056G	-40.29	2
2437MHz	Pass	2.46146G	17.69	-12.31	2.19457G	-44.88	2.3916G	-45.56	2.4G	-46.58	2.51694G	-45.12	16.44769G	-40.30	1
2437MHz	Pass	2.46146G	17.69	-12.31	925.89M	-46.94	2.39696G	-44.69	2.4G	-48.50	2.51462G	-46.50	16.42241G	-39.69	2
2462MHz	Pass	2.46146G	17.69	-12.31	2.15962G	-46.26	2.39728G	-45.56	2.4G	-48.63	2.51638G	-45.99	24.83143G	-39.17	1
2462MHz	Pass	2.46146G	17.69	-12.31	2.30525G	-46.56	2.4G	-43.66	2.4G	-45.36	2.51014G	-45.85	24.51395G	-40.23	2
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.43824G	16.59	-13.41	49.81M	-46.25	2.4G	-22.34	2.4G	-21.71	2.50014G	-48.79	21.78586G	-43.42	1
2412MHz	Pass	2.43824G	16.59	-13.41	2.19923G	-46.08	2.4G	-21.93	2.4G	-20.00	2.51678G	-48.14	21.97691G	-43.78	2
2437MHz	Pass	2.43824G	16.59	-13.41	2.30059G	-46.93	2.39984G	-39.71	2.4G	-41.02	2.5027G	-47.68	21.72686G	-43.41	1
2437MHz	Pass	2.43824G	16.59	-13.41	2.1771G	-44.04	2.39944G	-40.11	2.4G	-42.43	2.51574G	-47.51	21.5611G	-43.55	2
2462MHz	Pass	2.43824G	16.59	-13.41	49.81M	-46.59	2.4G	-45.32	2.4G	-44.07	2.5155G	-47.32	21.63414G	-44.12	1
2462MHz	Pass	2.43824G	16.59	-13.41	2.16312G	-43.89	2.39704G	-46.03	2.4G	-46.58	2.51486G	-48.41	21.47962G	-43.42	2
802.11be EHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.43758G	15.29	-14.71	2.17244G	-48.60	2.39984G	-25.60	2.4G	-23.99	2.50366G	-49.00	21.69314G	-43.24	1
2412MHz	Pass	2.43758G	15.29	-14.71	2.19574G	-45.14	2.39984G	-24.84	2.4G	-23.34	2.51846G	-49.05	21.73248G	-44.08	2
2437MHz	Pass	2.43758G	15.29	-14.71	2.05827G	-48.20	2.39952G	-39.37	2.4G	-42.13	2.51102G	-47.86	23.17097G	-43.93	1
2437MHz	Pass	2.43758G	15.29	-14.71	2.19457G	-44.71	2.3992G	-41.53	2.4G	-42.39	2.52126G	-48.74	21.68472G	-43.12	2
2462MHz	Pass	2.43758G	15.29	-14.71	2.30525G	-48.23	2.4G	-48.78	2.4G	-49.63	2.50454G	-48.61	21.72967G	-43.96	1
2462MHz	Pass	2.43758G	15.29	-14.71	2.30059G	-45.30	2.3932G	-47.24	2.4G	-48.58	2.50102G	-48.63	21.533G	-43.86	2
802.11be EHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.42889G	10.97	-19.03	75.8M	-48.23	2.4G	-24.77	2.4G	-26.08	2.50894G	-48.80	21.66257G	-43.75	1
2422MHz	Pass	2.42889G	10.97	-19.03	34.58M	-48.13	2.4G	-25.45	2.4G	-24.46	2.54798G	-49.04	21.53076G	-44.06	2
2437MHz	Pass	2.42889G	10.97	-19.03	32.29M	-48.93	2.39776G	-41.92	2.4G	-42.07	2.51838G	-48.17	21.49149G	-43.64	1
2437MHz	Pass	2.42889G	10.97	-19.03	2.15856G	-46.52	2.39952G	-37.47	2.4G	-42.38	2.5603G	-48.19	21.46345G	-43.42	2
2452MHz	Pass	2.42889G	10.97	-19.03	49.47M	-46.75	2.4G	-48.14	2.4G	-47.90	2.51806G	-48.75	21.53917G	-43.71	1
2452MHz	Pass	2.42889G	10.97	-19.03	2.16085G	-46.74	2.39984G	-46.77	2.4G	-47.53	2.52654G	-48.51	7.24151G	-43.70	2

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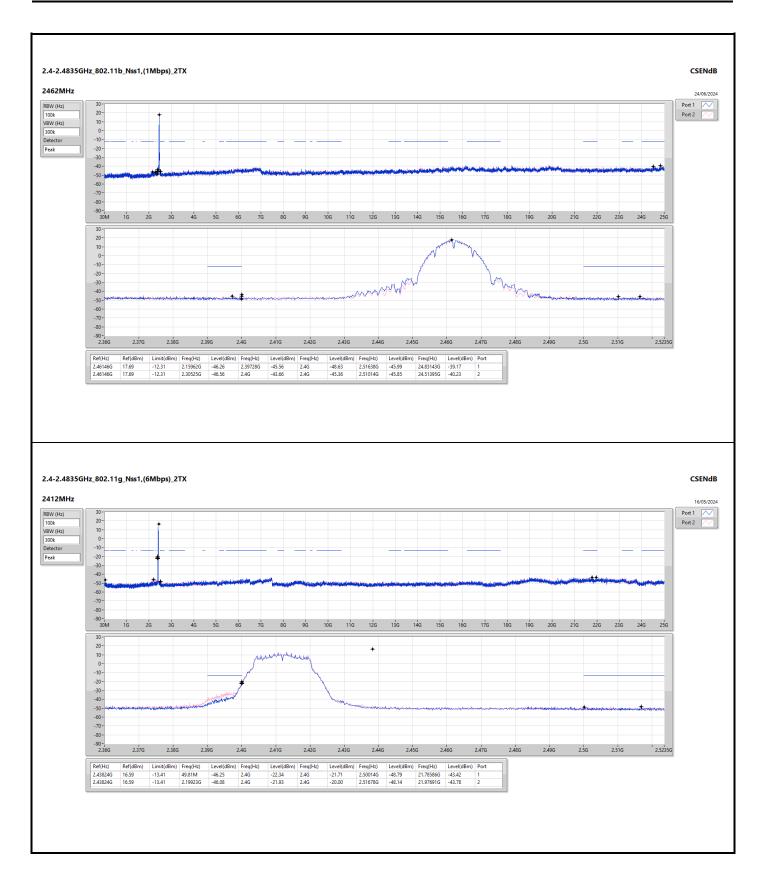
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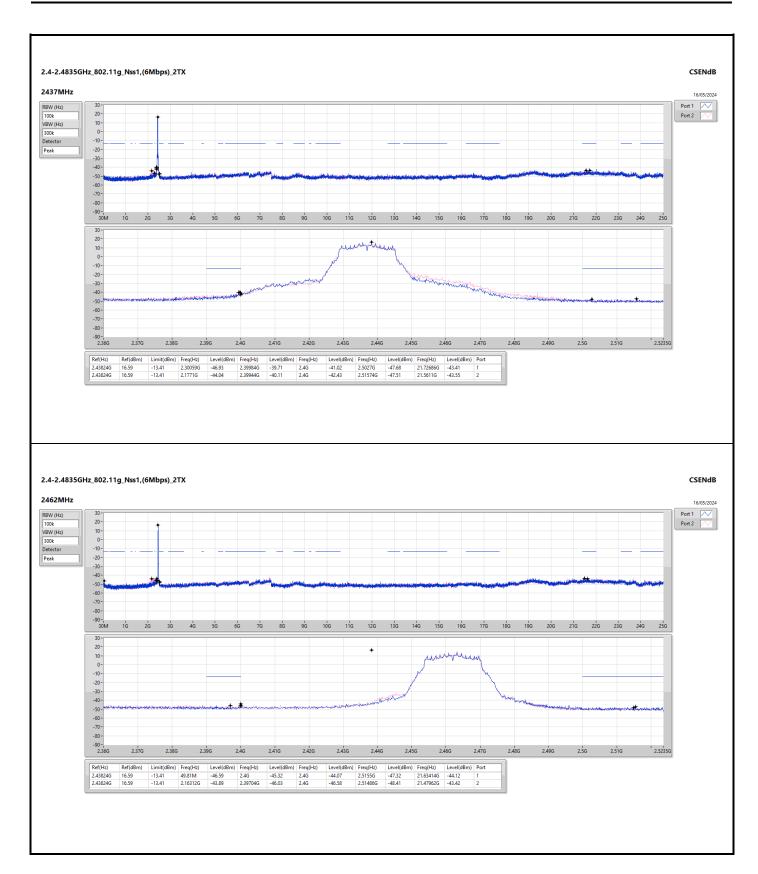
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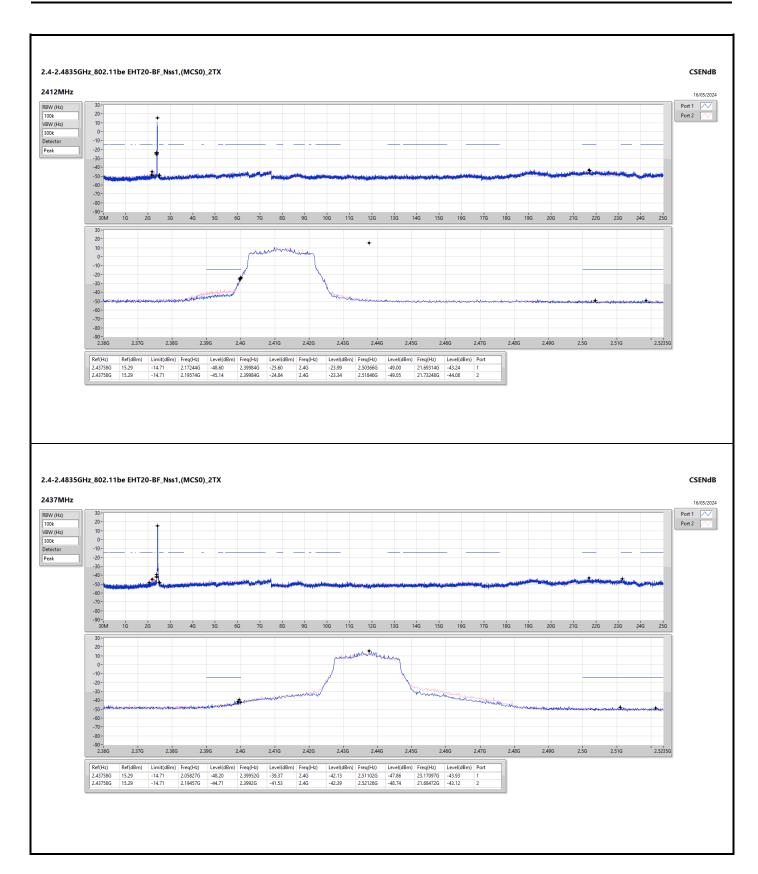
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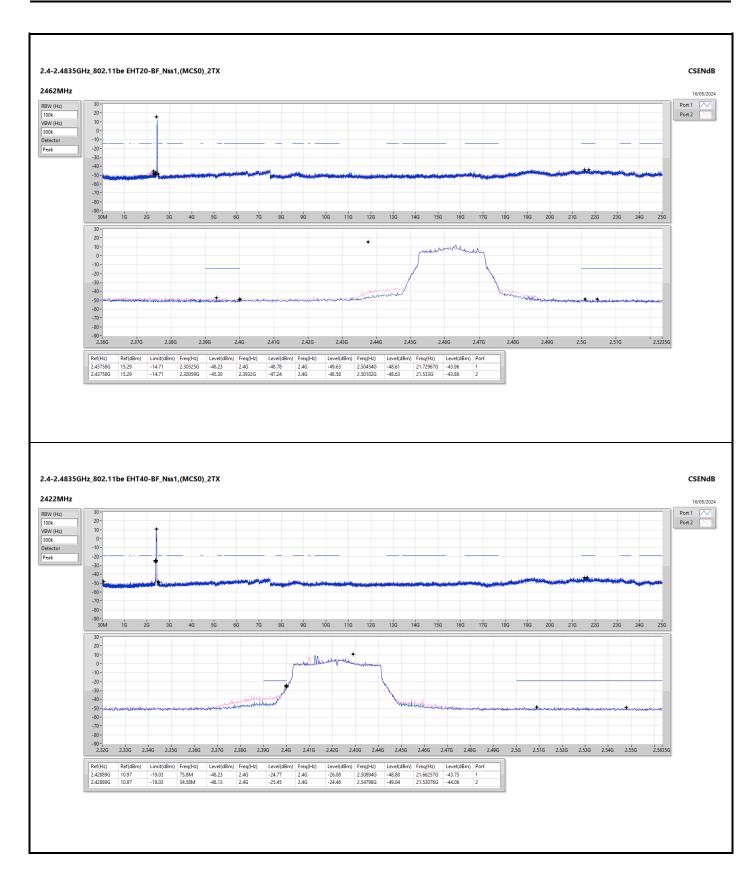
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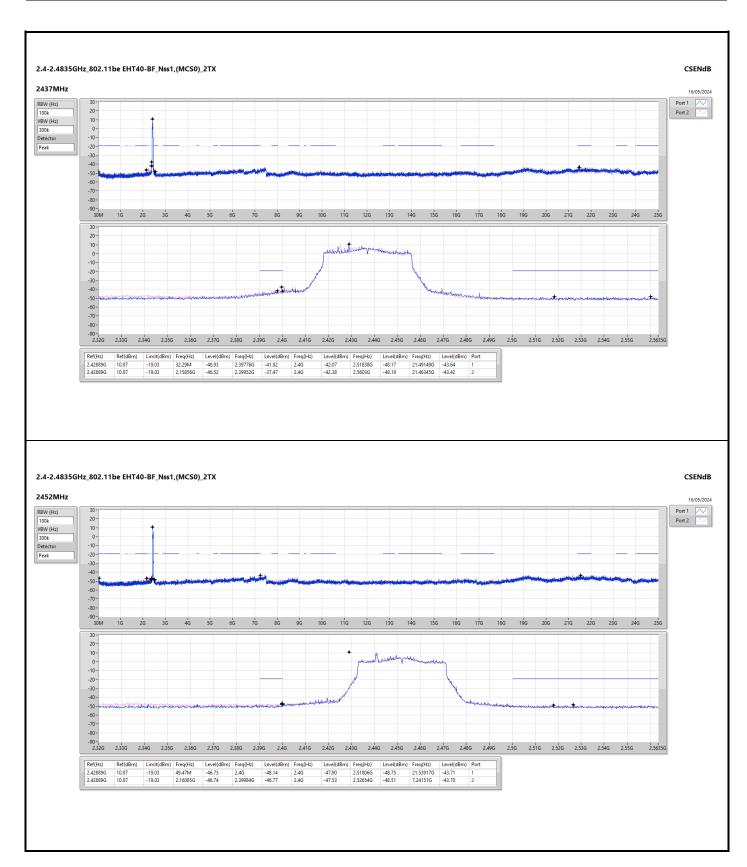
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Radiated Emissions below 1GHz

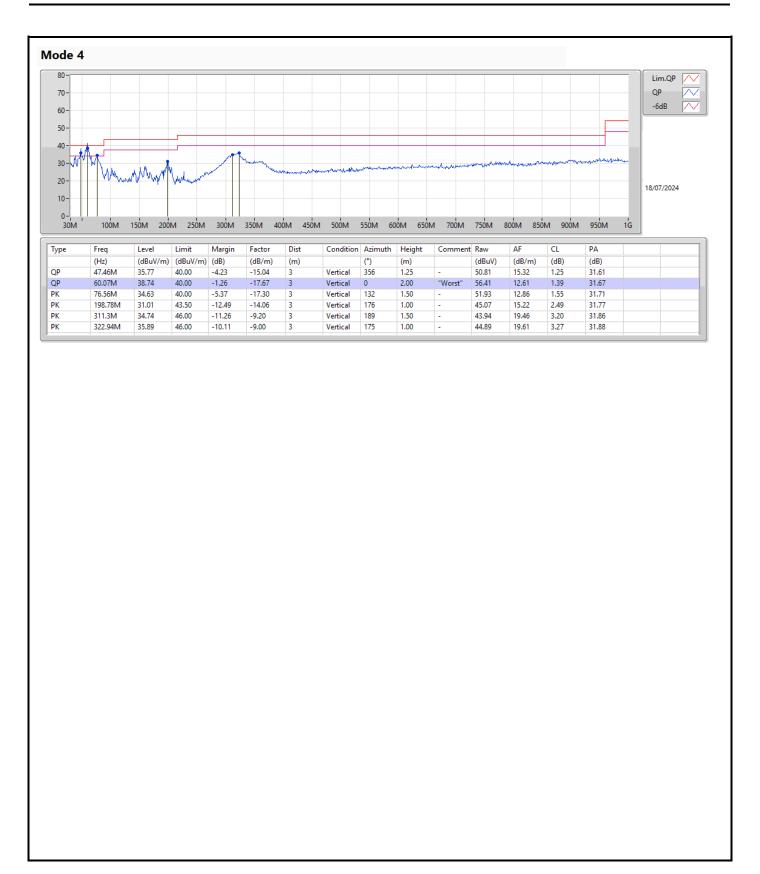
Appendix F.1

Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 4	Pass	QP	60.07M	38.74	40.00	-1.26	Vertical

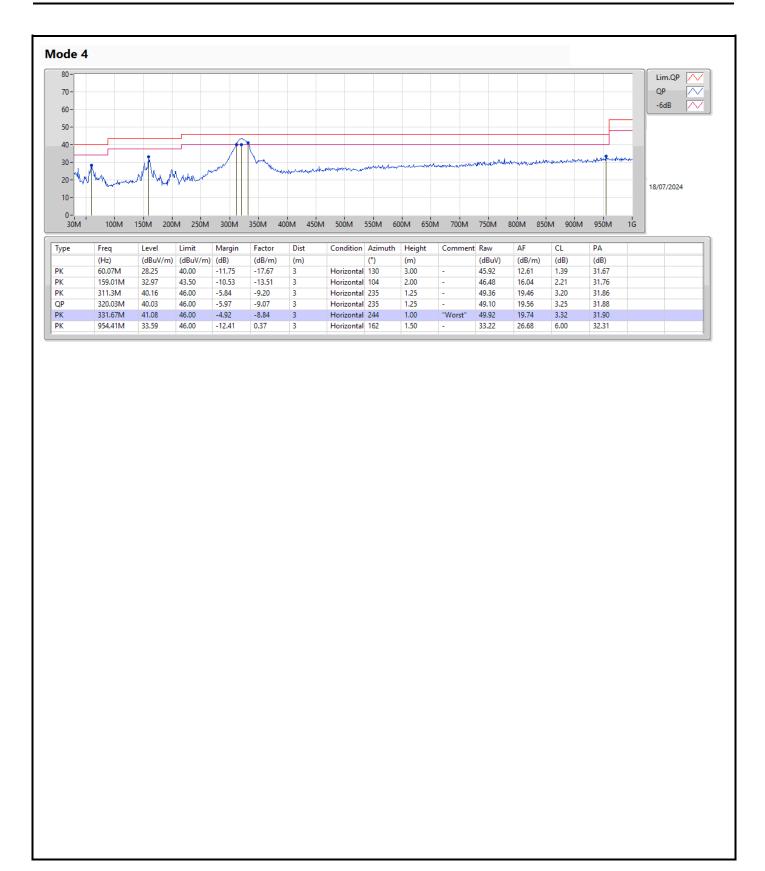
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RSE TX above 1GHz

Appendix F.2

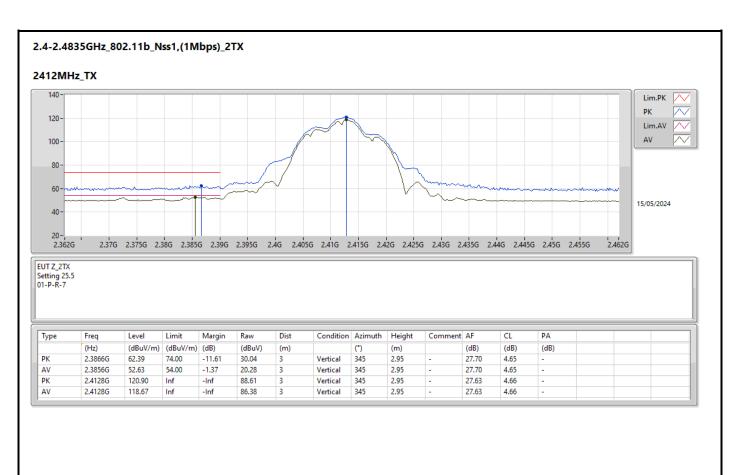
Summary

Mode	Result	Туре	Freq	Level	Limit	Margin	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(m)		(°)	(m)	
2.4-2.4835GHz	-	-		-	-	-	-	-	-		-
802.11g_Nss1,(6Mbps)_2TX	Pass	AV	2.4835G	53.80	54.00	-0.20	3	Vertical	31	1.80	-

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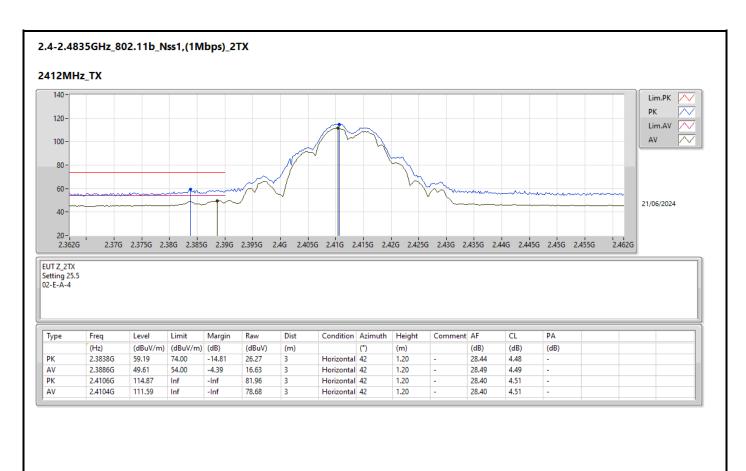




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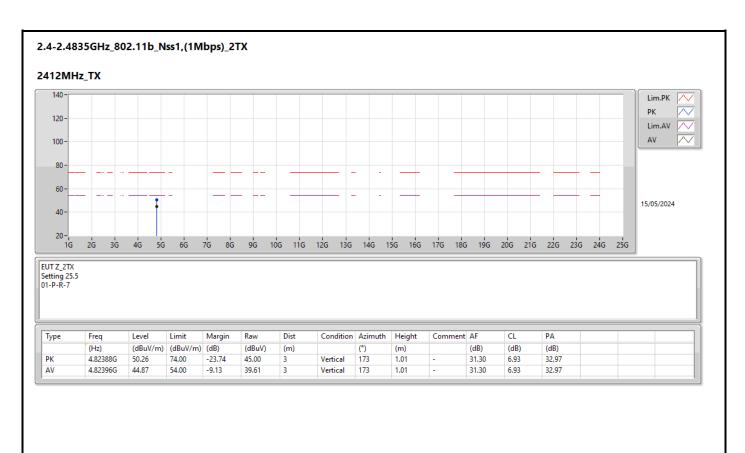




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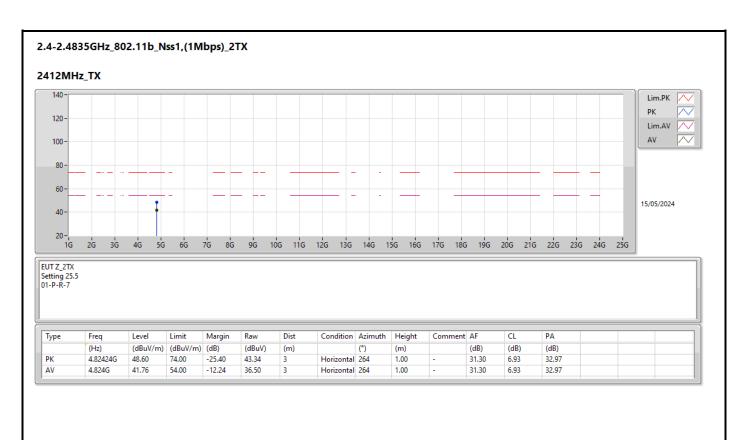




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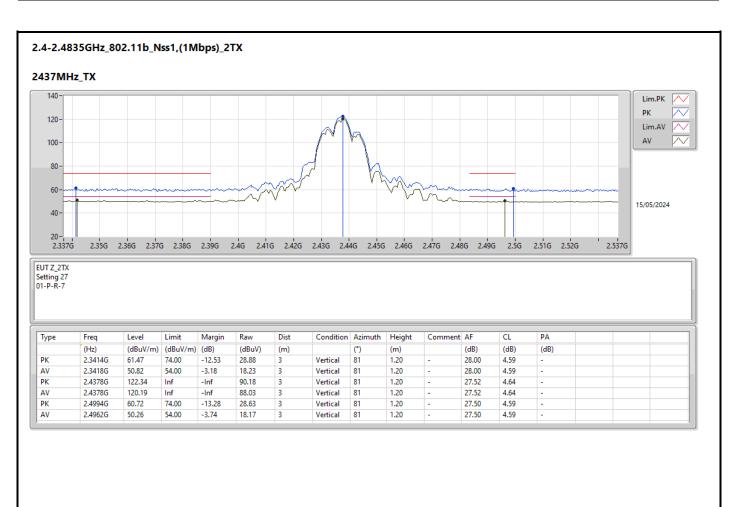




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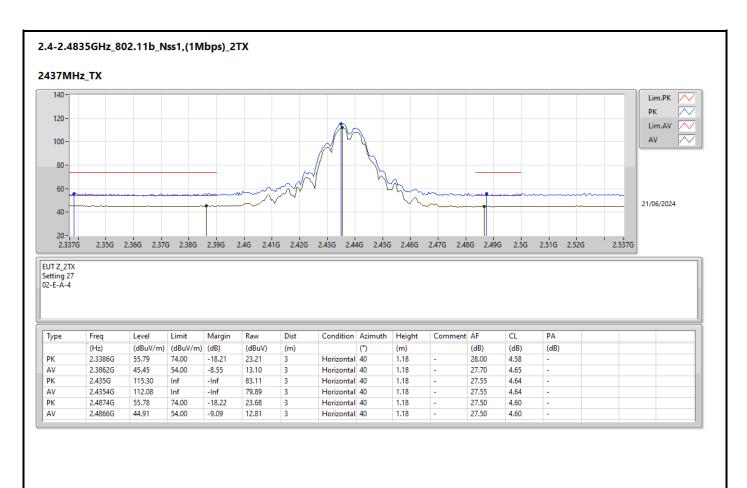




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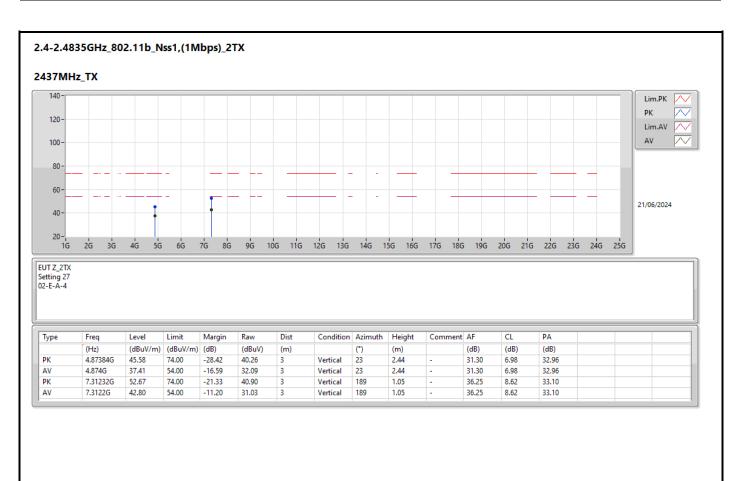




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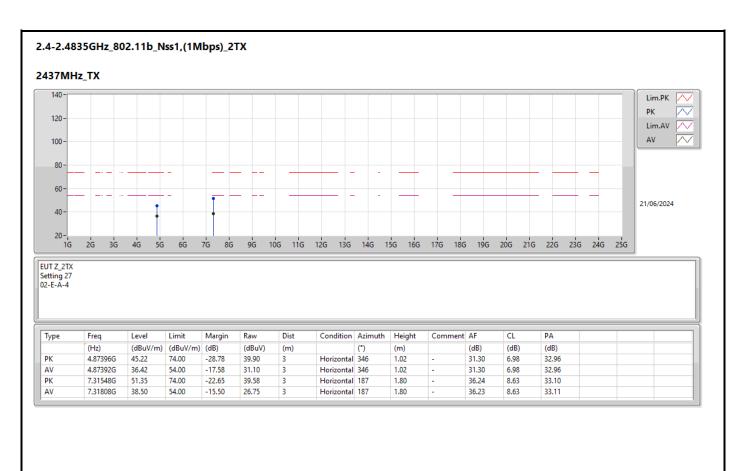




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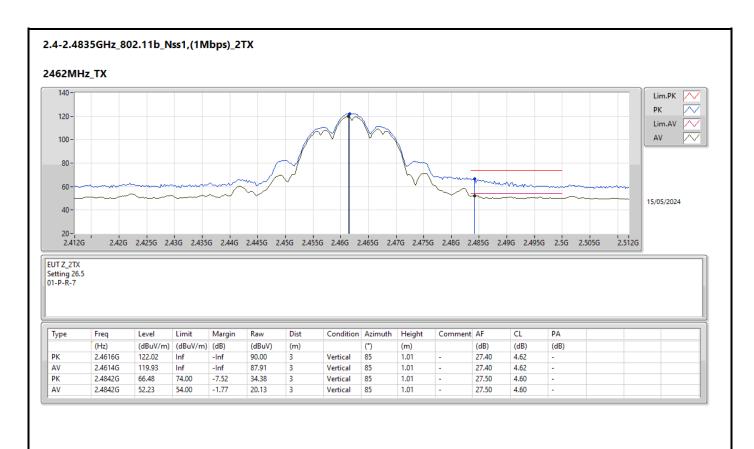




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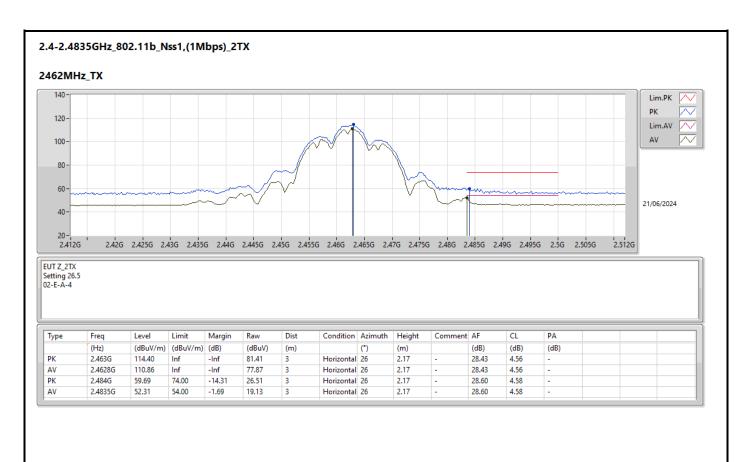




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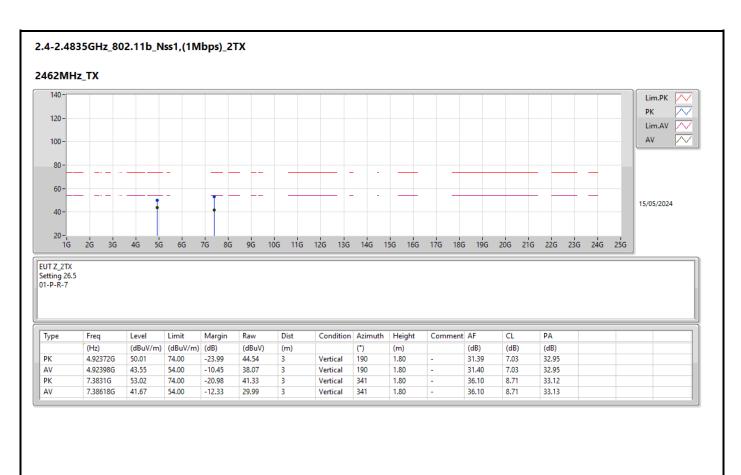




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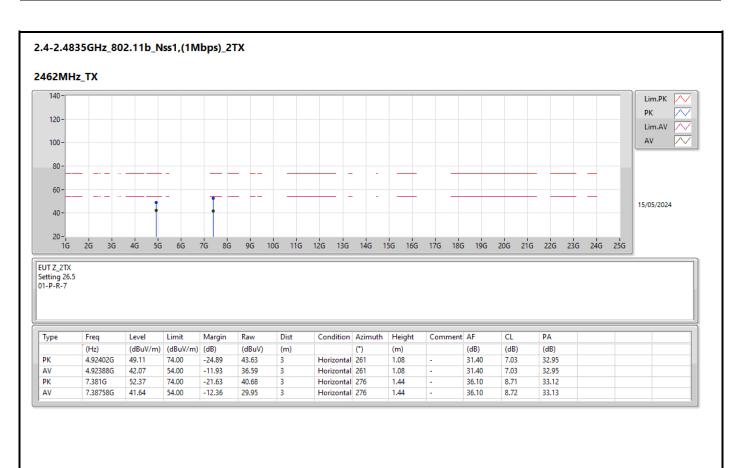




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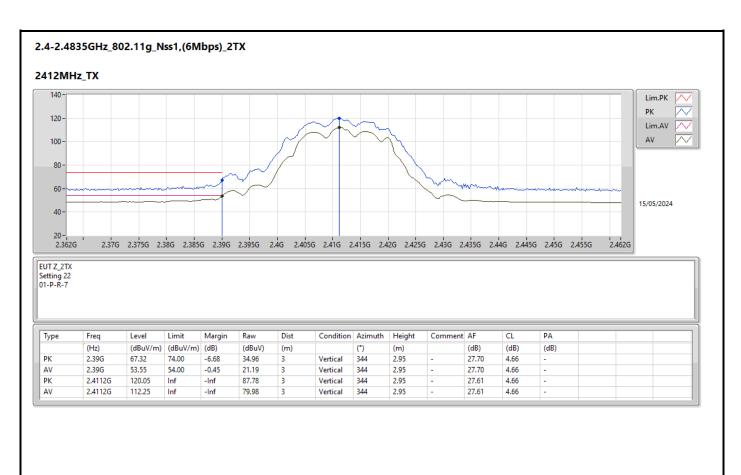




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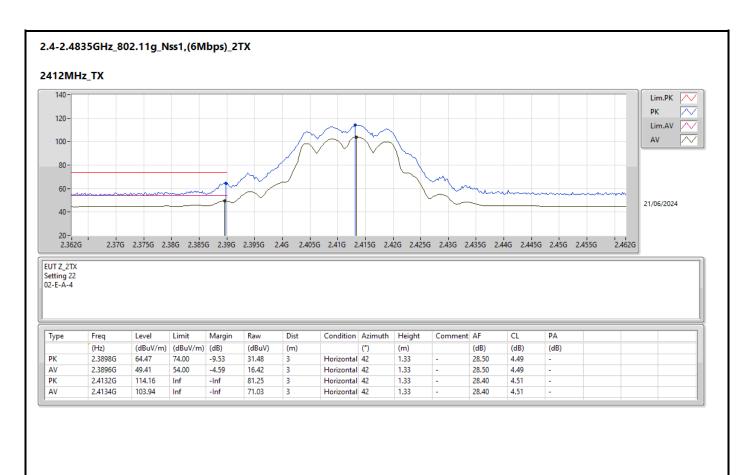




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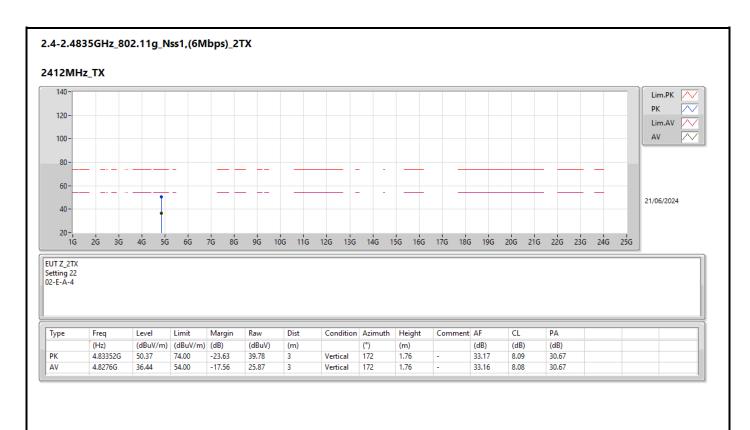




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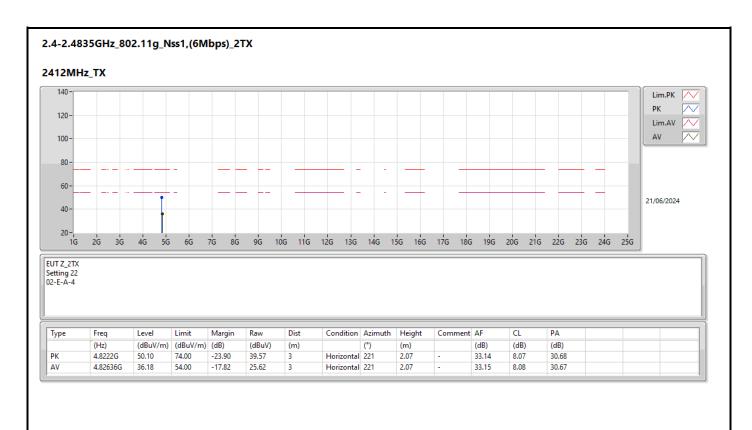




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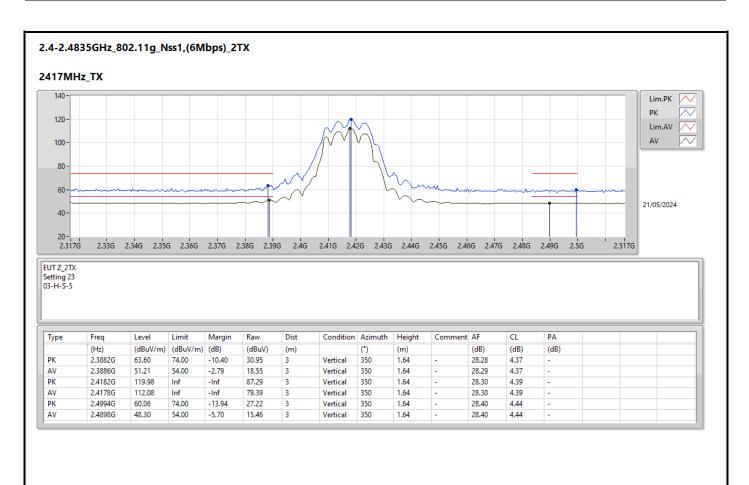




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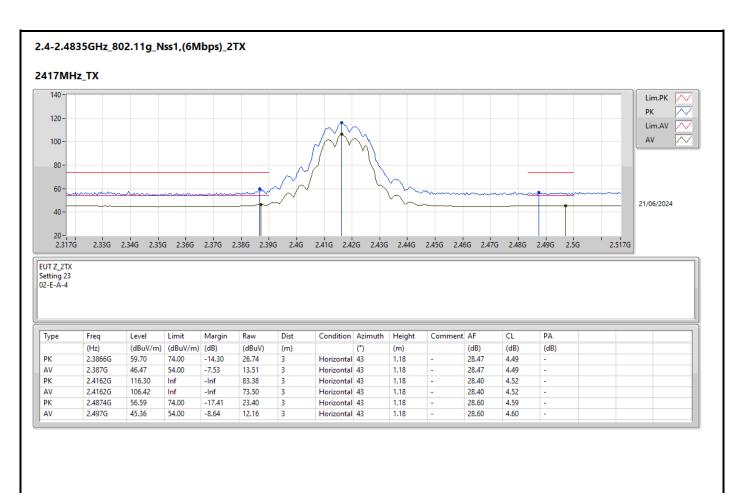




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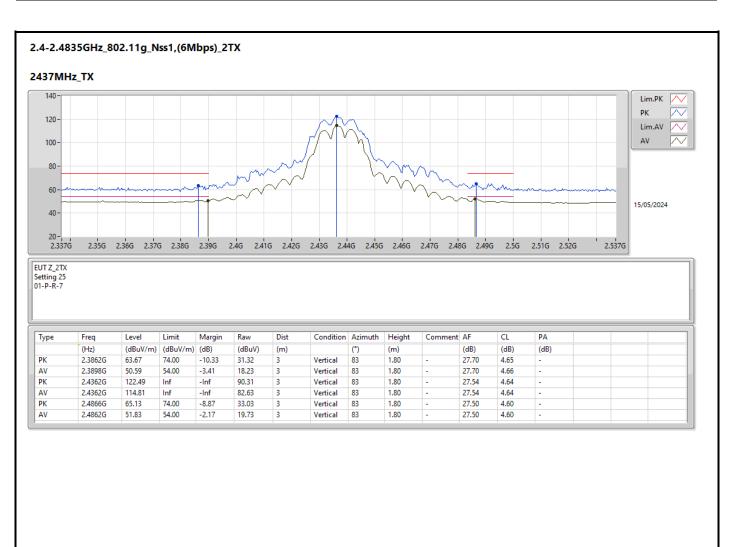




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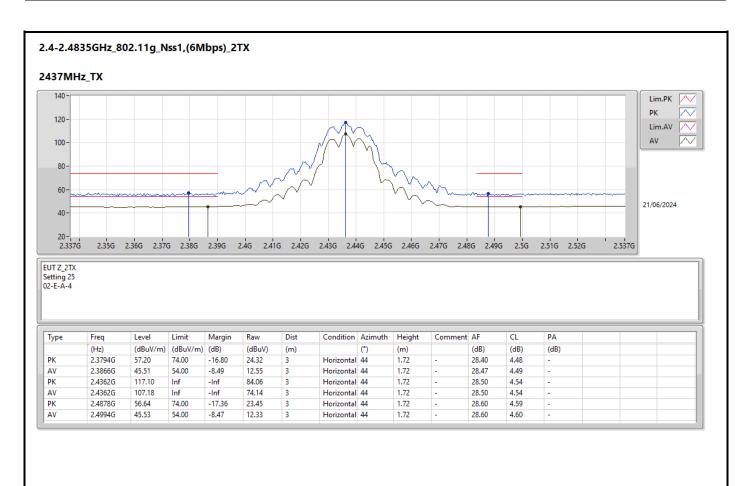




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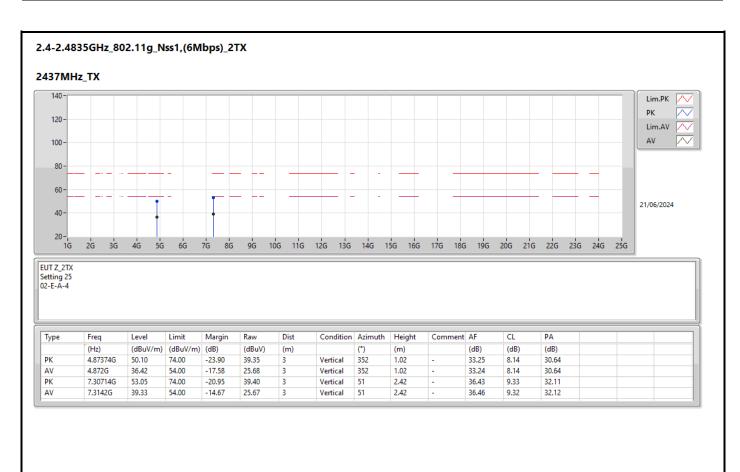




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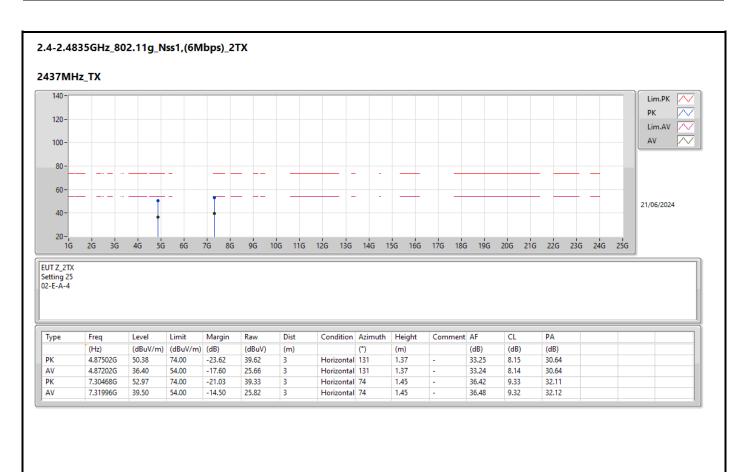




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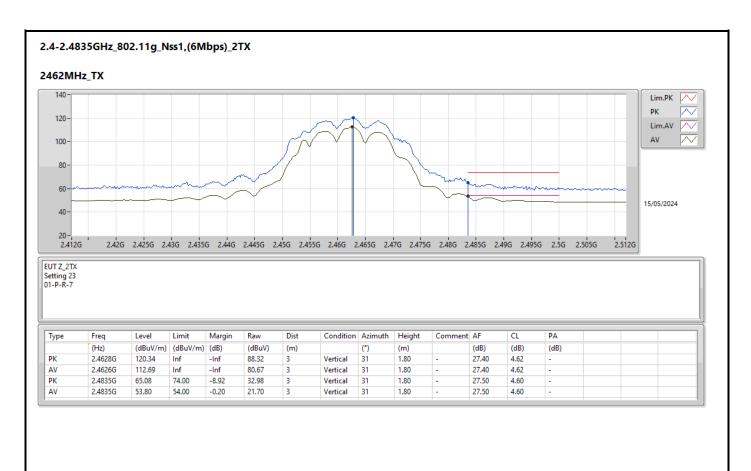




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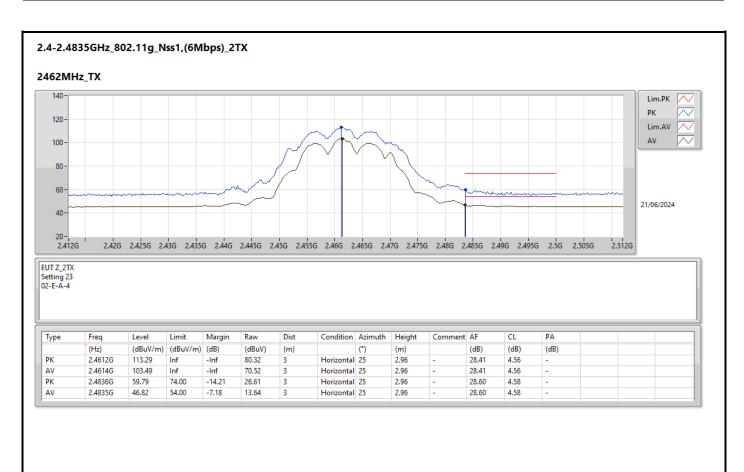




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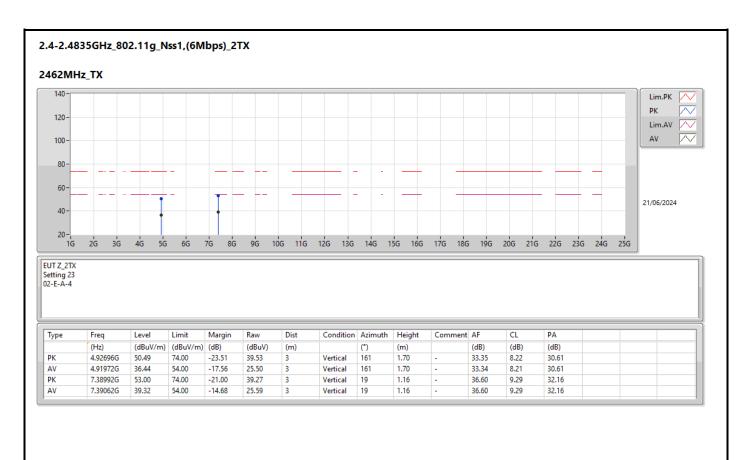




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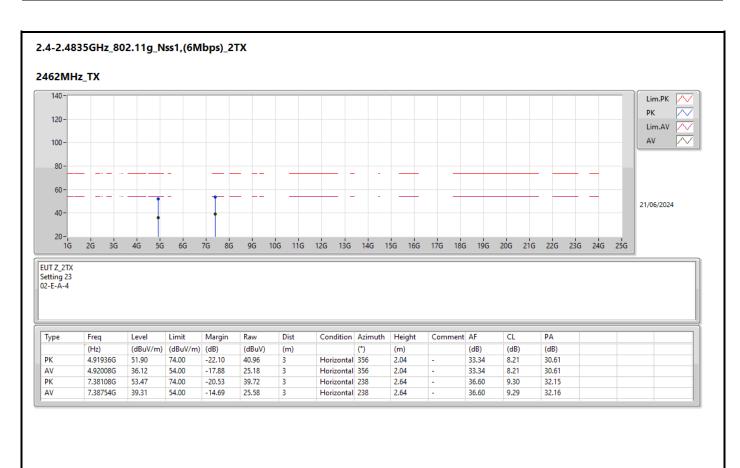




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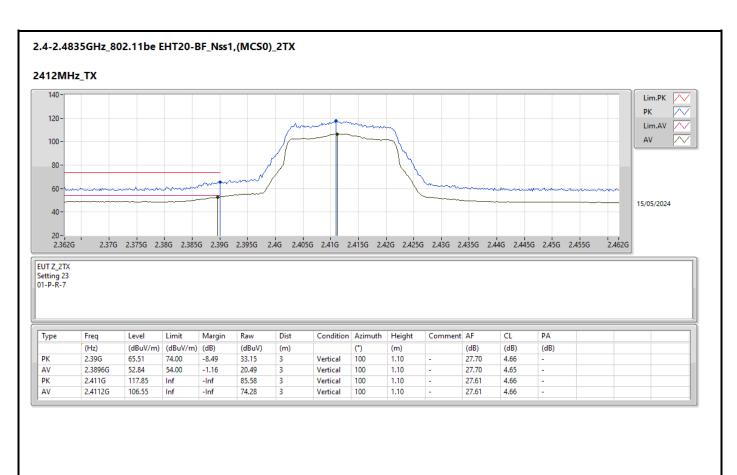




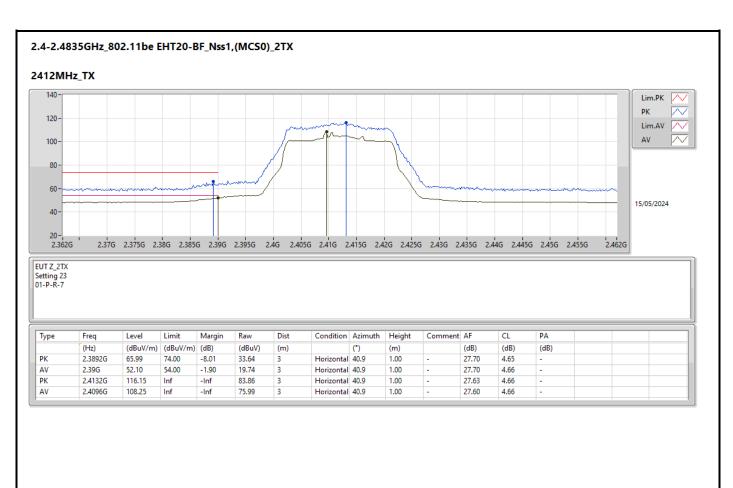
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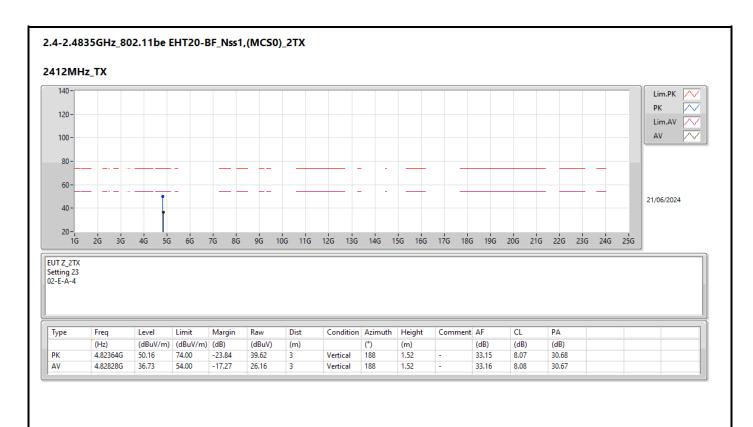






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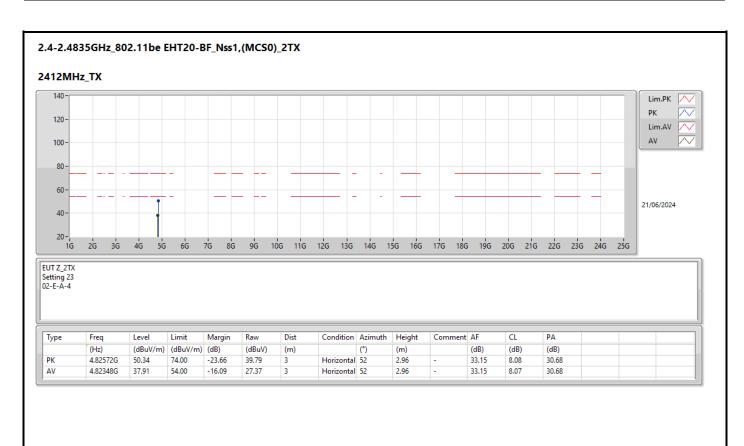




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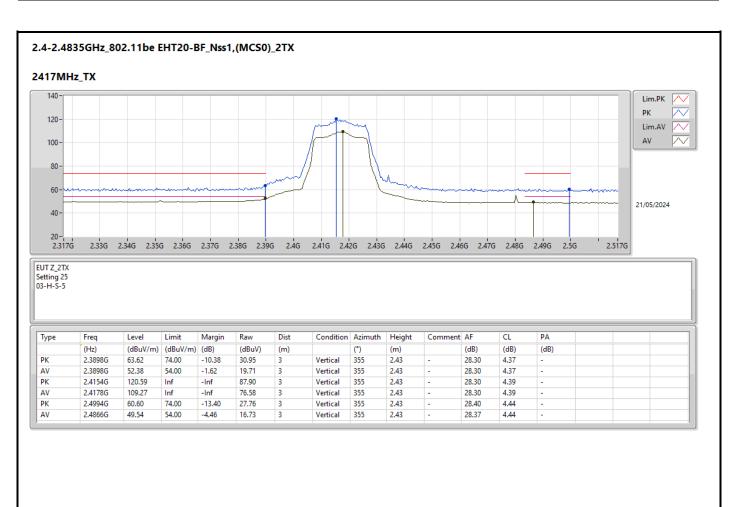




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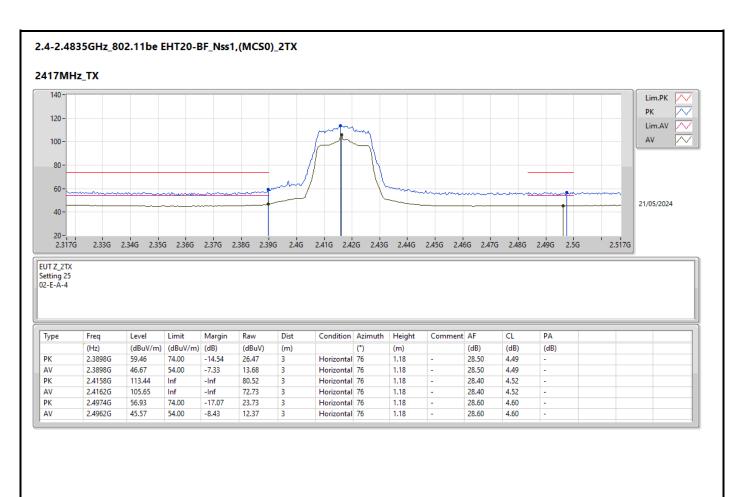




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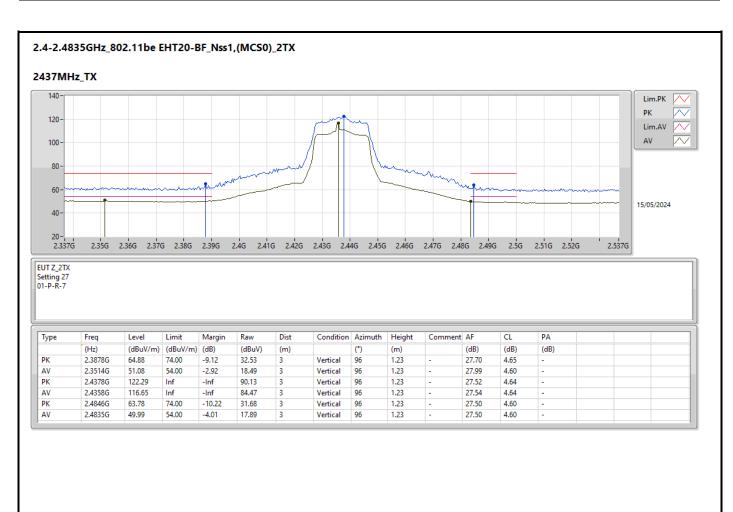




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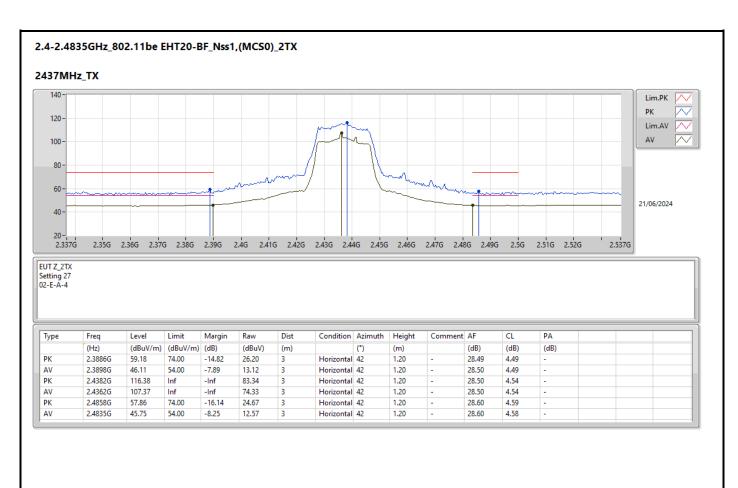




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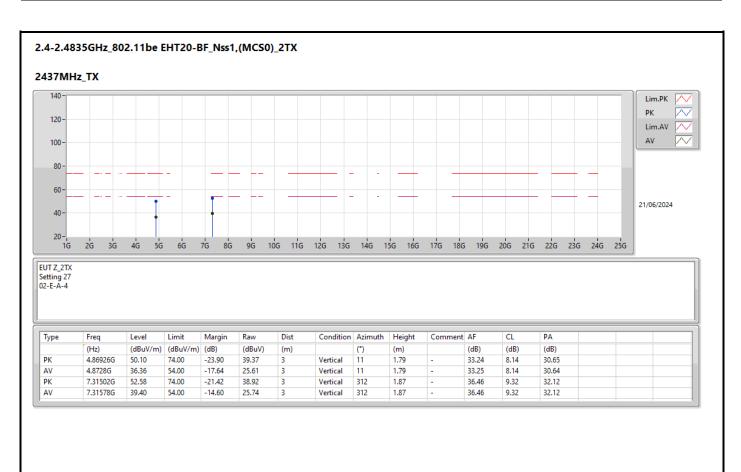




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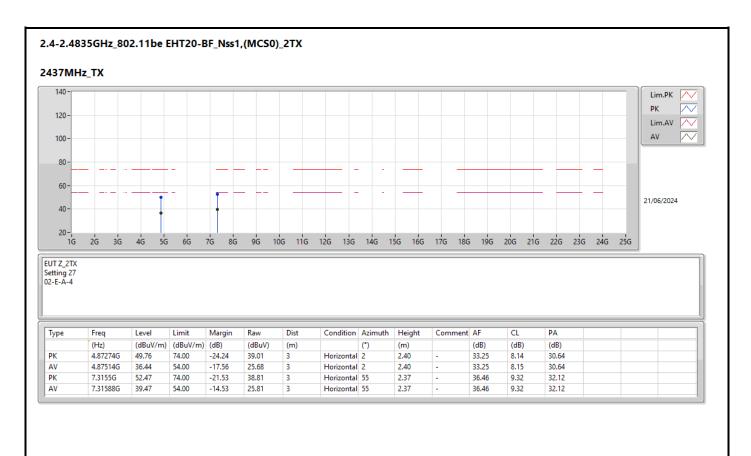




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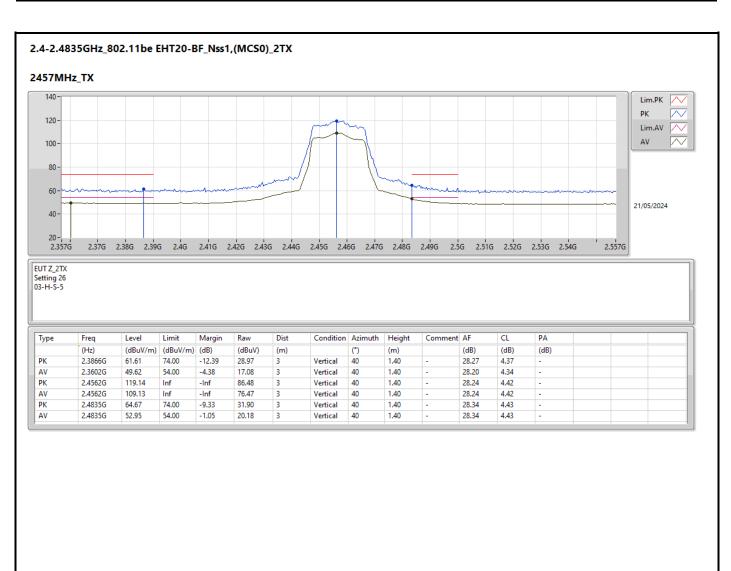




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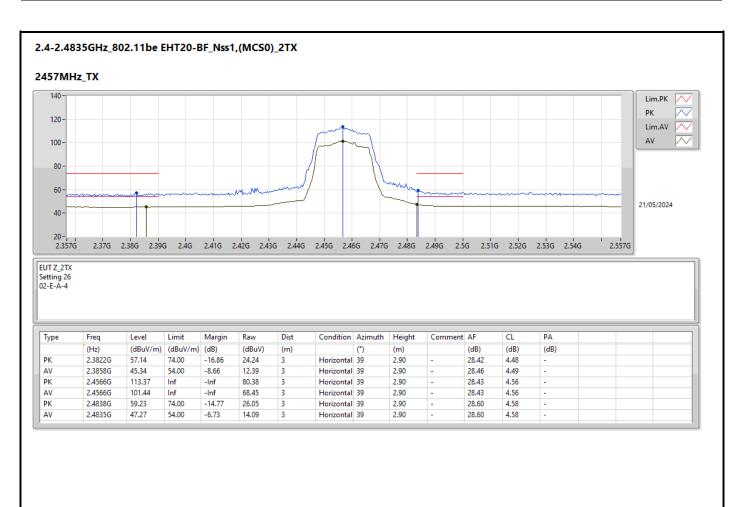




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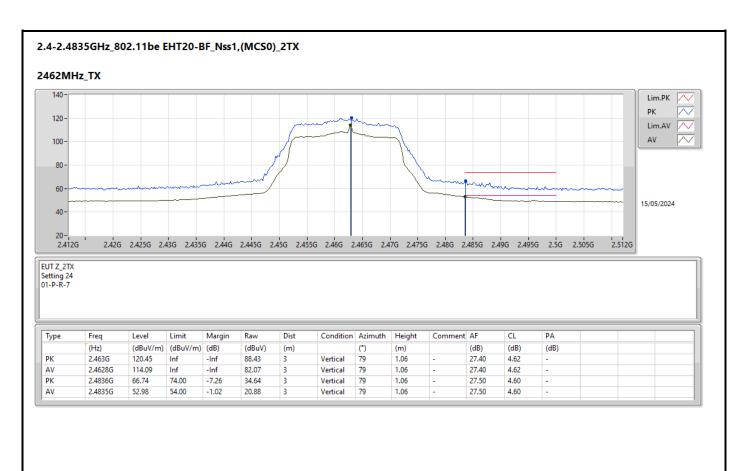




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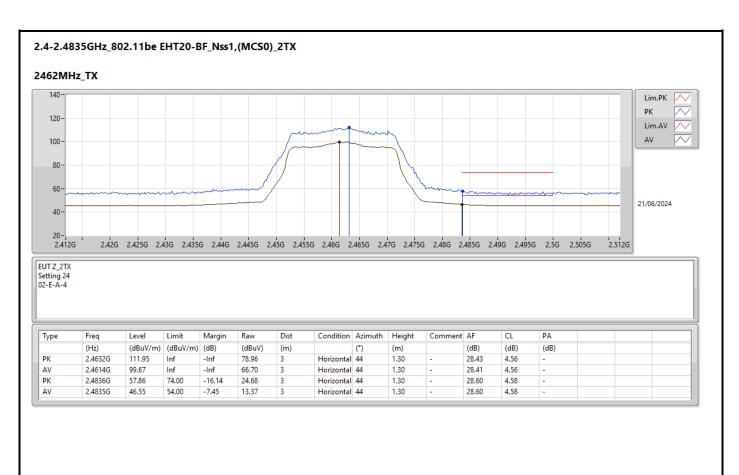




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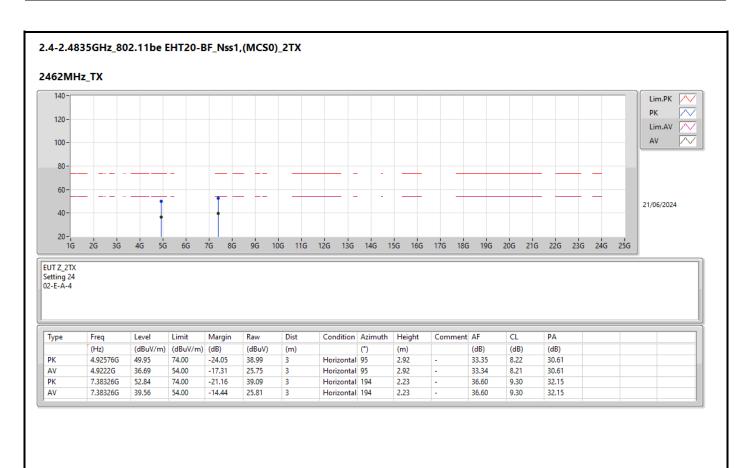




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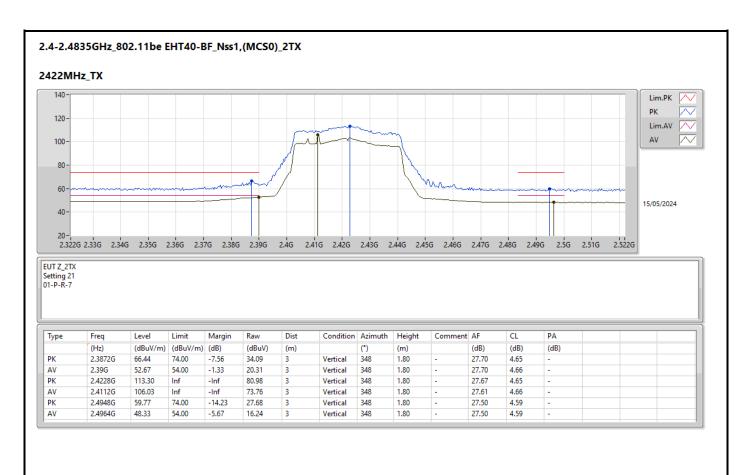




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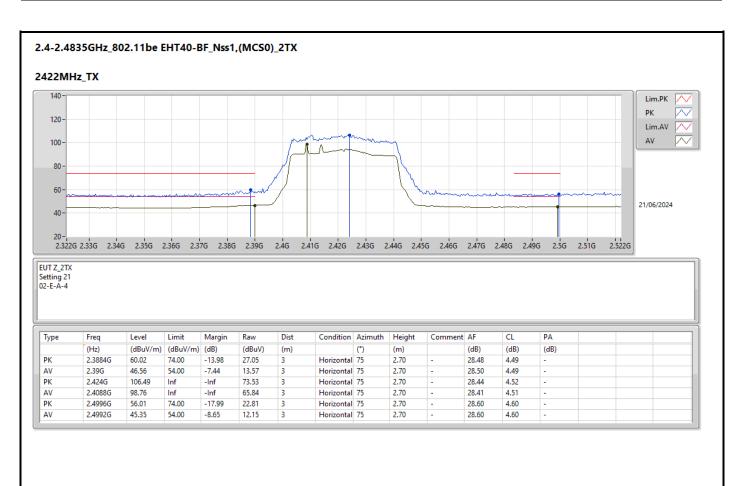




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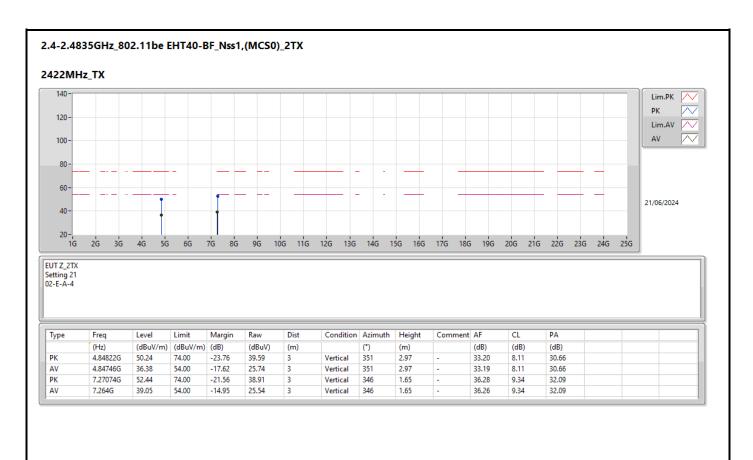




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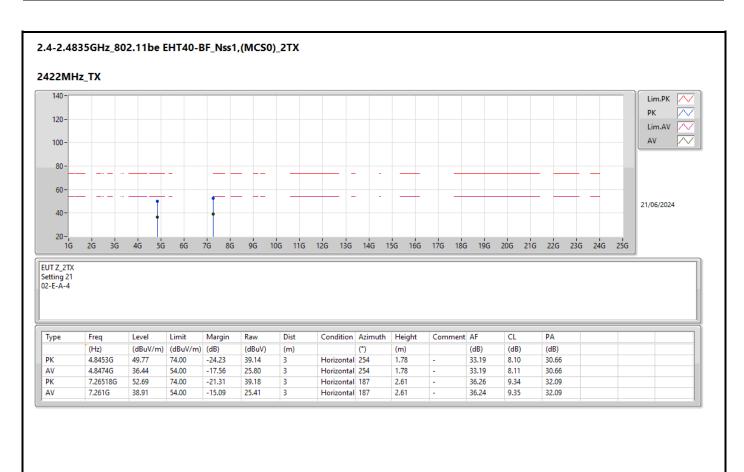




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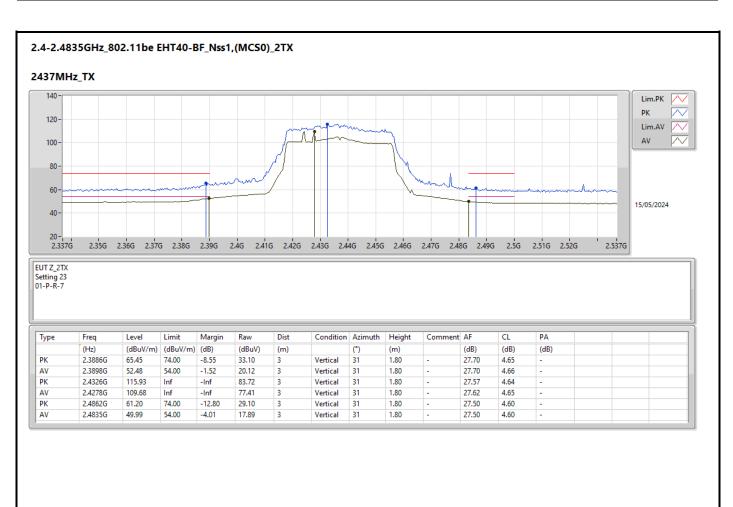




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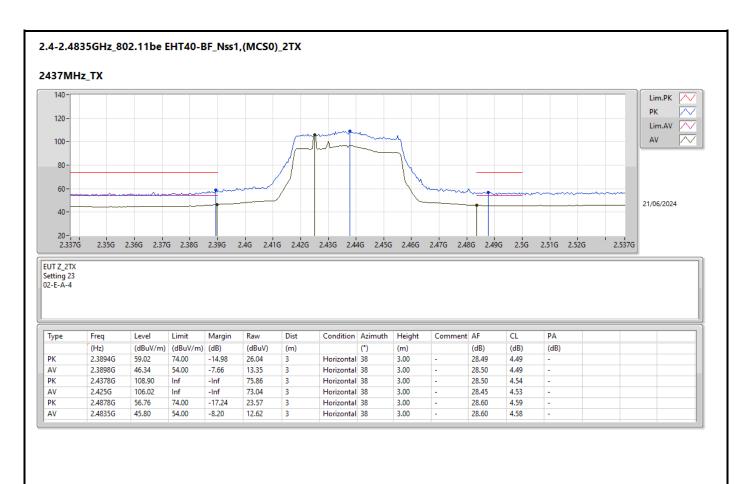




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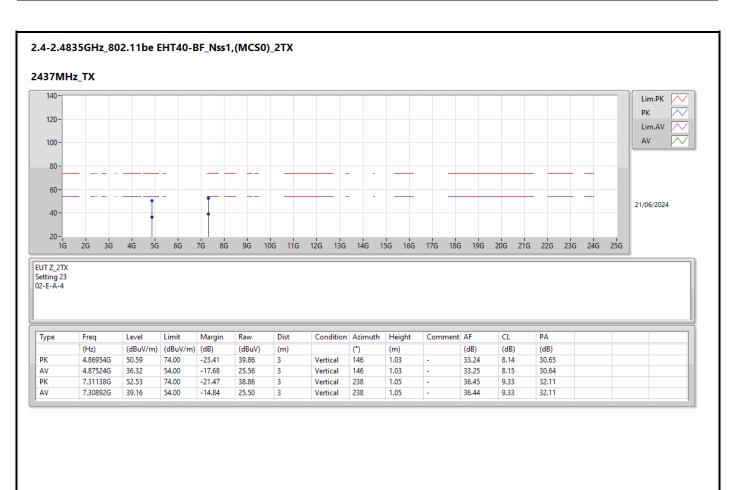




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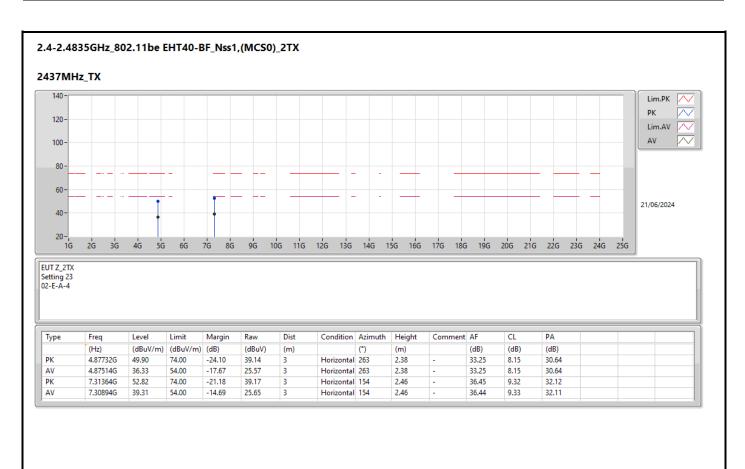




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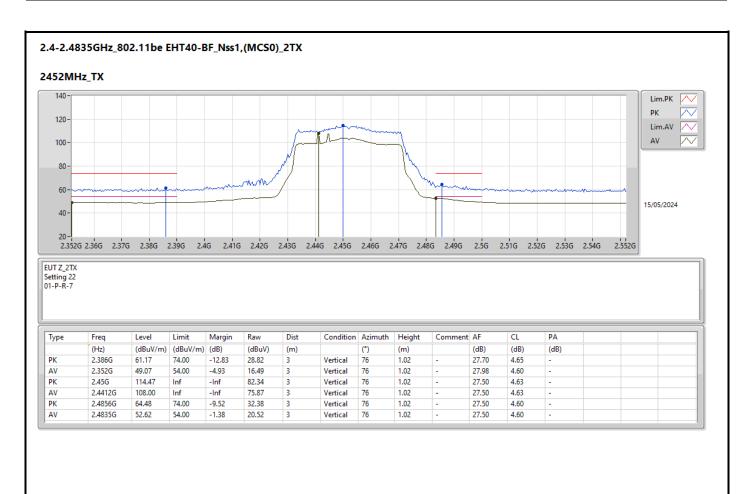




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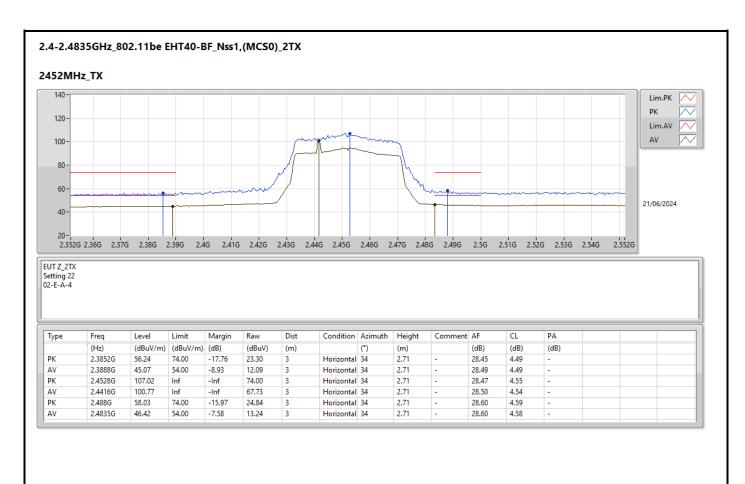




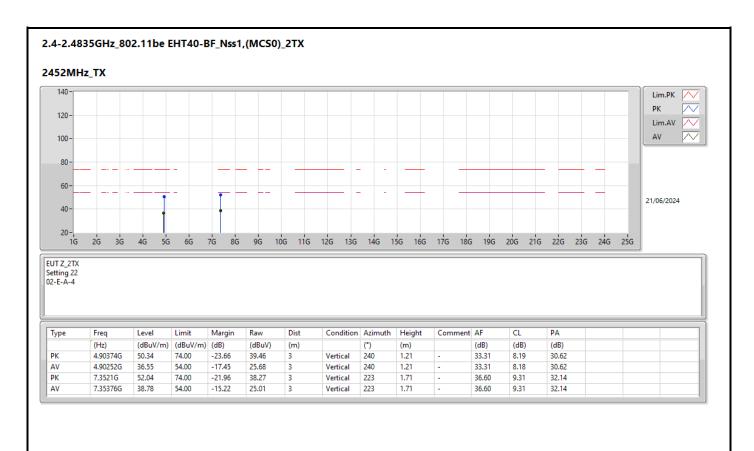
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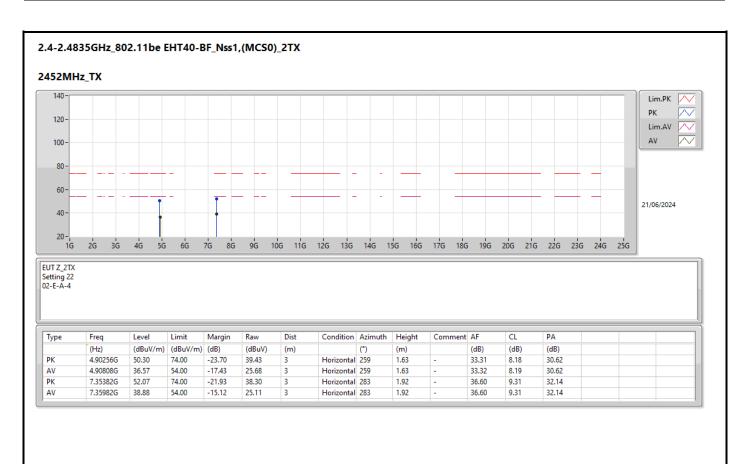




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