





# RADIO TEST REPORT

FCC ID : TLZ-XM646

Equipment : IEEE 802.11 a/b/g/n/ac/ax Wireless LAN 1T1R and

BLE/802.15.4 Solution Family 12 x 12 LGA Module

Brand Name : AzureWave

Model Name : AW-XM646G-SUR, AW-XM646G-USB, AW-XM646F-S

UR.AW-XM646F-USB,AW-XM646C-SUR,AW-XM646

C-USB,AW-XM646B-SUR,AW-XM646B-USB

Applicant : AzureWave Technologies, Inc.

8F., No.94, Baozhong Rd., Xindian Dist., New

Taipei City, Taiwan 231

Manufacturer : AzureWave Technologies, Inc.

8F., No.94, Baozhong Rd., Xindian Dist., New

Taipei City, Taiwan 231

Standard: 47 CFR FCC Part 15.247

The product was received on Feb. 21, 2025, and testing was started from Mar. 21, 2025 and completed on Apr. 07, 2025. 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.)

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Appendix H. Test Photos Photographs of EUT v01

Report Template No.: CB-A10\_10 Ver1.3

Appendix G. Test Results of Radiated Emission Co-location

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Report No. : FR521124AC

Report Version : 01

# History of this test report

Report No.: FR521124AC

Report No.	Version	Description	Issued Date
FR521124AC	01	Initial issue of report	Apr. 16, 2025

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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.

Reviewed by: Sam Chen Report Producer: Wendy Pan

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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)	2412-2462	1-11 [11]

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Band	Mode	BWch	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
2.4-2.4835GHz	VHT20	20	1TX
2.4-2.4835GHz	802.11ax HEW20	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.
- VHT20 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- ◆ HEW20 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- BWch is the nominal channel bandwidth.

#### 1.1.2 Antenna Information

						Gain (	dBi)	
Ant.	Port	Brand	Model Name	Antenna	Connector	WLAN 2.4GHz,		
AIII.	Port	Dialiu	Type Connector	i Wodel Name		Connector	Bluetooth and	WLAN 5GHz
						Thread		
1	1	ARISTOTLE	RFA-27- JP326MHF4C198	PIFA Antenna	I-PEX	3.5	5	

Note 2: The above information was declared by manufacturer.

Note 3: For 2.4GHz function:

For IEEE 802.11 b/g/n/VHT/ax (1TX/1RX):

Only Port 1 can be used as transmitting/receiving antenna.

For 5GHz function:

For IEEE 802.11a/n/ac/ax (1TX/1RX):

Only Port 1 can be used as transmitting/receiving antenna.

For Bluetooth/Thread function (1TX/1RX):

Only Port 1 can be used as transmitting/receiving antenna.

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#### 1.1.3 Test Mode of Partial RU

Mode	Partial RU		
802.11ax HEW20	26	52	106

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# 1.1.4 Mode Test Duty Cycle

#### For Full RU:

Mode	DC	DCF	Т	VBW
		(dB)	(s)	(Hz)_1/T
802.11b_Nss 1,(1D)	0.999	0.01	8.625m	10Hz (DC>=0.98)
802.11g_Nss 1,(6D)	0.996	0.02	10.076m	10Hz (DC>=0.98)
802.11ax HEW20_Nss 1,(M0)	0.993	0.03	6.311m	10Hz (DC>=0.98)

#### For Partial RU:

Mode	DC	DCF	Т	VBW
		(dB)	(s)	(Hz)_1/T
802.11ax HEW20_Nss 1,(M0),RU26	1	0	100.003m	10Hz (DC>=0.98)
802.11ax HEW20_Nss 1,(M0),RU52	1	0	100.003m	10Hz (DC>=0.98)
802.11ax HEW20_Nss 1,(M0),RU106	1	0	100.003m	10Hz (DC>=0.98)

N	ata	

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

# 1.1.5 EUT Operational Condition

EUT Power Type	From host system				
Beamforming Function	☐ With beamforming ☐ Without beamforming				
Function	Point-to-multipoint Deint-to-point				
Support RU	Full RU Partial RU				
Test Software Version	labtool 2.0.0.22				

Note: The above information was declared by manufacturer.

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# 1.1.6 Table for Multiple Listing

The difference for each model is shown as below:

EUT	Model Name	WLAN 2.4G	WLAN 5G	Bluetooth	802.15.4	Interface	
1	AW-XM646G-SUR	V	V	V	V	SUR	
2	AW-XM646G-USB	V	V	V	V	USB	
-	AW-XM646F-SUR	V	V	V	Х	SUR	
-	AW-XM646F-USB	V	V	V	Х	USB	
-	AW-XM646C-SUR	V	Х	V	V	SUR	
-	AW-XM646C-USB	V	Х	V	V	USB	
-	AW-XM646B-SUR	V	Х	V	Х	SUR	
-	AW-XM646B-USB	V	Х	V	Х	USB	
Description							
In additio	n to the differences ment	tioned above, the	re are differer	ces in marketi	ng strategy.		

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Note 1: From the above EUT, EUT 1 and 2 were selected as representative model for the test and its data was recorded in this report.

Note 2: 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 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	Mason Chen	21.2~22.6 / 58~61	Mar. 24, 2025~ Mar. 29, 2025
Radiated below 1GHz	03CH06-CB	Eason Chen	21.9~23.1 / 60~62	Mar. 21, 2025~ Mar. 29, 2025
Radiated above 1GHz	03CH02-CB	Eason Chen	21.5~23.3 / 58~61	Mar. 21, 2025~ Mar. 29, 2025
Radiated above 1GHZ	03CH05-CB	Eason Chen	21.5~22.9 / 57~60	Mar. 21, 2025~ Mar. 29, 2025
Radiated Co-Location	03CH03-CB	Eason Chen	21.6~23.1 / 58~62	Mar. 21, 2025~ Mar. 29, 2025
AC Conduction	CO02-CB	Joe Chu	23~24 / 50~51	Apr. 07, 2025

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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%

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confidence level (based on a coverage factor (k=2)

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.8 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

#### For Full RU:

Mode	
802.11b_Nss1,(1Mbps)_1TX	
2412MHz	
2437MHz	
2462MHz	
802.11g_Nss1,(6Mbps)_1TX	
2412MHz	
2437MHz	
2462MHz	
802.11ax HEW20_Nss1,(MCS0)_1TX	
2412MHz	
2437MHz	
2457MHz	
2462MHz	

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#### For Partial RU:

Mode	
802.11ax HEW20_Nss1,(MCS0),RU26,#RU0_1TX	
2412MHz	
802.11ax HEW20_Nss1,(MCS0),RU52,#RU37_1TX	
2412MHz	
802.11ax HEW20_Nss1,(MCS0),RU106,#RU53_1TX	
2412MHz	
802.11ax HEW20_Nss1,(MCS0),RU26,#RU8_1TX	
2462MHz	
802.11ax HEW20_Nss1,(MCS0),RU52,#RU40_1TX	
2462MHz	
802.11ax HEW20_Nss1,(MCS0),RU106,#RU54_1TX	
2462MHz	

#### Note:

• HEW20 covers HT20/VHT20 due to similar modulation. The power setting for HT20/VHT20 is the same or lower than HEW20.

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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	CTX		
1 EUT 1 + Bluetooth			
2	EUT 2 + Bluetooth		
Mode 1 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 ~ 5 will follow this same test mode.			
3	EUT 1 + WLAN 2.4GHz		
4	EUT 1 + Thread		
5	EUT 1 + WLAN 5GHz		
For operating mode 4 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  Emissions in Non-restricted Frequency Bands			
Test Condition Conducted measurement at transmit chains			
The EUT was performed at EUT 1 and EUT 2 for Radiated emission above 1GHz test, and the worst case was found as EUT 1. Thus, the measurement will follow this same test configuration.			
1 EUT 1			

The Worst Case Mode for Following Conformance Tests			
Tests Item Power Spectral Density			
Test Condition Conducted measurement at transmit chains			
The EUT was performed at EUT 1 and EUT 2 for Radiated emission above 1GHz test, and the worst case was found as EUT 1. Thus, the measurement will follow this same test configuration.			
1 EUT 1 - Fully RU			
2	EUT 1 - Partial RU		

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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.			
	CTX			
Operating Mode < 1GHz	The EUT was performed at X axis, Y axis and Z axis position for Radiated emission above 1GHz test, and the worst case was found as below. Thus, the measurement will follow this same test configuration.			
1	EUT 1 in X axis + WLAN 2.4GHz			
2	EUT 2 in X axis + WLAN 2.4GHz			
Mode 1 has been evaluate follow this same test mode	ed to be the worst case among Mode 1~2, thus measurement for Mode 3 ~ 5 will $\cdot$ .			
3	EUT 1 in X axis + Bluetooth			
4	EUT 1 in Z axis + WLAN 5GHz			
5 EUT 1 in Z axis + Thread				
For operating mode 1 is th	e worst case and it was record in this test report.			
	CTX			
Operating Mode > 1GHz	1. The EUT was performed at X axis, Y axis and Z axis position the worst case was found as below. Thus, the measurement will follow this same test configuration.			
	2. The EUT 1 and EUT 2 performed the testing, and the worst case was found in EUT 1. Thus, the measurement will follow this same test configuration.			
1	For Full RU EUT 1 in X axis for Harmonic EUT 1 in Y axis for Bandedge			
For Partial RU  2 EUT 1 in X axis for Harmonic EUT 1 in Y axis for Bandedge				

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The Worst Case Mode for Following Conformance Tests			
Tests Item Simultaneous Transmission Analysis - Radiated Emission Co-location			
Test Condition Radiated measurement			
	Normal Link		
Operating Mode	The EUT was performed at EUT 1 and EUT 2 for Radiated emission above 1GHz test, and the worst case was found as EUT 1. Thus, the measurement will follow this same test configuration.		
1 EUT 1 + Bluetooth+WLAN 2.4GHz			
2 EUT 1 + Bluetooth+WLAN 5GHz			
Refer to Appendix G for Radiated Emission Co-location.			

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The Worst Case Mode for Following Conformance Tests			
Tests Item Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation			
Operating Mode			
1 Bluetooth + WLAN 2.4GHz			
2 Bluetooth + WLAN 5GHz			
Refer to Sporton Test Report No.: FA521124 for Co-location RF Exposure Evaluation.			

# 2.3 EUT Operation during Test

For Normal Link:

During the test, the EUT operation to normal function.

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

#### 2.4 Accessories

N/A

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# 2.5 Support Equipment

#### For AC Conduction:

Support Equipment					
No.	Equipment	Brand Name	Model Name	FCC ID	
Α	EUT Fixture	Azurewave	2460-i4	N/A	
В	Thread Fixture	Azurewave	3510	N/A	
С	NB	DELL	E6430	N/A	
D	Earphone	e-Power	GT02	N/A	
Е	Mouse	acer	MOBVUO	N/A	
F	NB	DELL	E6430	N/A	
G	USB HUB	INTOPIC	HB-16	N/A	

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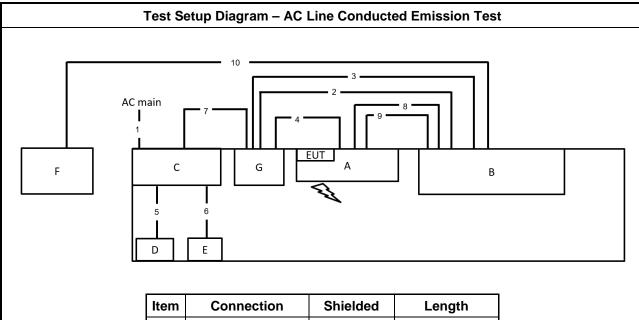
#### For Radiated and RF Conducted:

Support Equipment					
No.	No. Equipment Brand Name Model Name FCC ID				
Α	Notebook	DELL	E4300	N/A	
В	WLAN/Bluetooth Fixture	AzureWave	2460-i6	N/A	
С	EUT Fixture	Azurewave	2460-i4	N/A	

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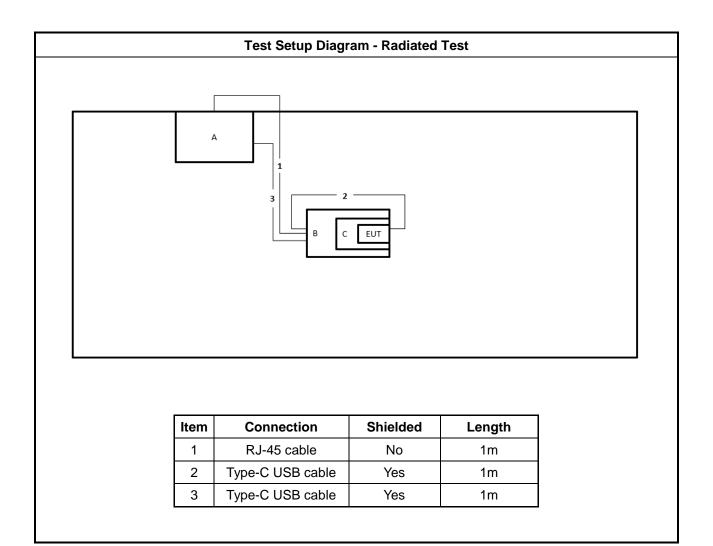
# 2.6 Test Setup Diagram



Item	Connection	Connection Shielded		
1	Power cable	No	2.3m	
2	Type C USB cable Yes		1m	
3	Micro USB cable	cable Yes 1.2m		
4	Type C USB cable	Yes	1m	
5	Audio cable	No	1.2m	
6	USB cable	Yes	1.2m	
7	USB cable	Yes	0.1m	
8	IPEX Cable*6	Yes	0.1m	
9	IPEX Cable	Yes	0.2m	
10	RJ-45 cable	No	10m	

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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

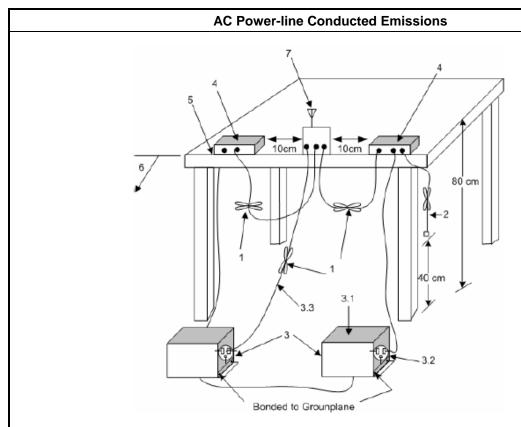
Refer a test equipment and calibration data table in this test report.

#### 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  $\Omega$  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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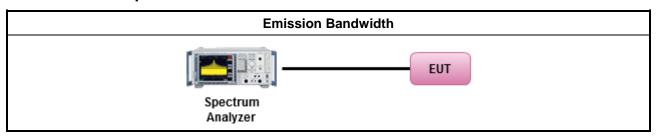
#### 3.2.2 Measuring Instruments

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:						
	$\boxtimes$	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<sub>TX</sub> ≤ 6 dBi, then P<sub>Out</sub> ≤ 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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 $\mathbf{P}_{\text{Out}}$  = maximum peak conducted output power or maximum conducted output power in dBm,  $\mathbf{G}_{\text{TX}}$  = 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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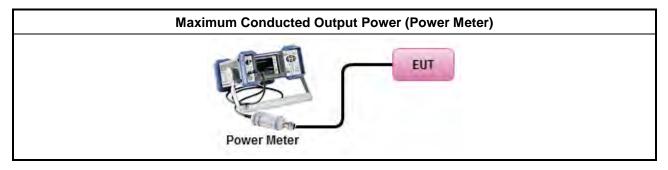
#### 3.3.3 Test Procedures

	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 AVGPI RF average power meter).						
		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: $P_{total} = P_1 + P_2 + + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) EIRP <sub>total</sub> = $P_{total} + DG$				

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# 3.3.4 Test Setup



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# 3.3.5 Test Result of Maximum Conducted Output Power

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

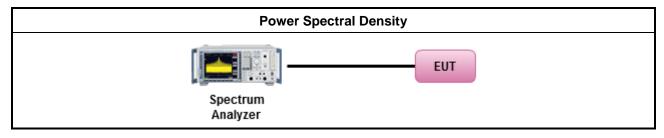
Refer a test equipment and calibration data table in this test report.

#### 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).				
	$\boxtimes$	Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10 Method Max. PSD.			
•	For c	conducted measurement.			
	-	If The 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.

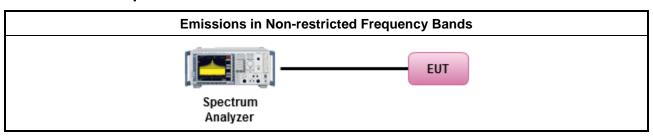
#### 3.5.2 Measuring Instruments

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

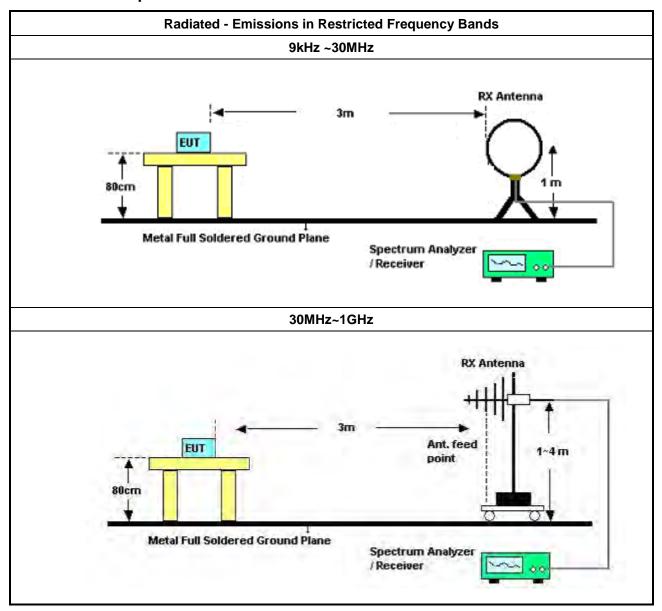
	Test Method					
•	The	average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].				
•	Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.					
•	For	the transmitter 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	or 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.				
	•	<ul> <li>Refer as FCC KDB 558074, clause 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.</li> </ul>				
	•	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, there resulting in apparent failures to satisfy the out-of-band limits even if the device is actual 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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Above 1GHz

Spectrum Analyzer

Above 1GHz

AMAX 30cm

Spectrum Analyzer

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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
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Apr. 15, 2024	Apr. 14, 2025	Conduction (CO02-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Feb. 06, 2025	Feb. 05, 2026	Conduction (CO02-CB)
EMI Receiver	Agilent	N9038A	MY52260140	9kHz ~ 8.4GHz	May 15, 2024	May 14, 2025	Conduction (CO02-CB)
COND Cable	Woken	Cable	02	0.15MHz ~ 30MHz	Oct. 16, 2024	Oct. 15, 2025	Conduction (CO02-CB)
Pulse Limiter	Schwarzbeck	VTSD 9561F-N	00378	9kHz ~ 30MHz	Oct. 16, 2024	Oct. 15, 2025	Conduction (CO02-CB)
Test Software	SPORTON	SENSE-EMI	V5.11	150kHz-30MHz	N.C.R.	N.C.R.	Conduction (CO02-CB)
Loop Antenna	Teseq	HLA 6121	65417	9kHz - 30MHz	Oct. 16, 2024	Oct. 15, 2025	Radiation (03CH06-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH06-CB	30 MHz ~ 1 GHz	Aug. 02, 2024	Aug. 01, 2025	Radiation (03CH06-CB)
Bilog Antenna with 6 dB attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37878 & AT-N0606	20MHz ~ 2GHz	Jul. 29, 2024	Jul. 28, 2025	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	310N	187290	0.1MHz ~ 1GHz	Nov. 02, 2024	Nov. 01, 2025	Radiation (03CH06-CB)
Signal analyzer	R&S	FSV3044	101667	9kHz~44GHz	Aug. 20, 2024	Aug. 19, 2025	Radiation (03CH06-CB)
EMI Test Receiver	R&S	ESR7	102172	9kHz ~ 7GHz	Oct. 21, 2024	Oct. 20, 2025	Radiation (03CH06-CB)
RF Cable-low	Woken	RG402	Low Cable-05+68	30MHz~1GHz	Oct. 24, 2024	Oct. 23, 2025	Radiation (03CH06-CB)
Test Software	SPORTON	SENSE-EMI	V5.11.8	30MHz-40GHz	N.C.R.	N.C.R.	Radiation (03CH06-CB)
3m Semi Anechoic Chamber VSWR	RIKEN	SAC-3M	03CH02-CB	1GHz ~18GHz	Mar. 24, 2024	Mar. 23, 2025	Radiation (03CH02-CB)
3m Semi Anechoic Chamber VSWR	RIKEN	SAC-3M	03CH02-CB	1GHz ~18GHz	Mar. 23, 2025	Mar. 22, 2026	Radiation (03CH02-CB)
Horn Antenna	EMCO	3115	9610-4976	1GHz ~ 18GHz	Apr. 12, 2024	Apr. 11, 2025	Radiation (03CH02-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Sep. 23, 2024	Sep. 22, 2025	Radiation (03CH02-CB)
Pre-Amplifier	Agilent	83017A	MY39501305	1GHz ~ 26.5GHz	Jun. 29, 2024	Jun. 28, 2025	Radiation (03CH02-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 25, 2024	Nov. 24, 2025	Radiation (03CH02-CB)

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	<b>T</b>						<b>T</b>
Instrument	Brand	Model No.	Serial No.	Characteristics Calibration Date		Calibration Due Date	Remark
Signal Analyzer	R&S	FSV3044	101536	10kHz ~ 44GHz Aug. 14, 2024		Aug. 13, 2025	Radiation (03CH02-CB)
RF Cable-high	Woken	RG402	High Cable-18	1GHz ~ 18GHz Jun. 20, 2024		Jun. 19, 2025	Radiation (03CH02-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH02-CB)
Test Software	SPORTON	SENSE-15247 _DTS	V5.11.23	2.4GHz-2.4835G Hz	N.C.R.	N.C.R.	Radiation (03CH03-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH03-CB	1GHz ~18GHz 3m	1 1/12// 1/3 /2/12/4 1		Radiation (03CH03-CB)
Horn Antenna	ETS·Lindgren	3115	6821	750MHz~18GHz	Feb. 20, 2025	Feb. 19, 2026	Radiation (03CH03-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Sep. 23, 2024	Sep. 22, 2025	Radiation (03CH03-CB)
Pre-Amplifier	Agilent	8449B	3008A02097	1GHz ~ 26.5GHz	Jun. 29, 2024	Jun. 28, 2025	Radiation (03CH03-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 25, 2024	Nov. 24, 2025	Radiation (03CH03-CB)
Spectrum Analyzer	R&S	FSP40	100019	9kHz ~ 40GHz	Jun. 11, 2024	Jun. 10, 2025	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-20+29	1GHz ~ 18GHz Oct. 01, 2024		Sep. 30, 2025	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-29	1GHz ~ 18GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	z ~ 40 GHz Oct. 01, 2024		Radiation (03CH03-CB)
Test Software	SPORTON	SENSE-EMI	V5.11.8	30MHz-40GHz	N.C.R.	N.C.R.	Radiation (03CH03-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH05-CB	1GHz ~18GHz 3m	Sep. 28, 2024	Sep. 27, 2025	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBE CK	BBHA9120D	BBHA 9120 D-1291	1GHz~18GHz	Jun. 20, 2024	Jun. 19, 2025	Radiation (03CH05-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Sep. 23, 2024	Sep. 22, 2025	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630SE	980287	1GHz – 26.5GHz	Jun. 29, 2024	Jun. 28, 2025	Radiation (03CH05-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 25, 2024	Nov. 24, 2025	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Apr. 17, 2024	Apr. 16, 2025	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH05-CB)

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Instrument	Brand	Model No.	Serial No.	Characteristics Calibration Date		Calibration Due Date	Remark
Test Software	SPORTON	SENSE-15247 _DTS	V5.11.23	2.4GHz-2.4835G Hz	N.C.R.	N.C.R.	Radiation (03CH05-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	May 27, 2024	May 26, 2025	Conducted (TH01-CB)
Switch	SPTCB	SP-SWI	SWI-01	1~18 GHz Oct. 02, 2024		Oct. 01, 2025	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 18 GHz Oct. 01, 2024		Sep. 30, 2025	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz – 18 GHz Oct. 01, 2024		Sep. 30, 2025	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz – 18 GHz	Oct. 01, 2024	Sep. 30, 2025	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz – 18 GHz Oct. 01, 2024		Sep. 30, 2025	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 18 GHz Oct. 01, 2024		Sep. 30, 2025	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz Mar. 01, 2024		Feb. 28, 2025	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	MY45100745	50MHz~18GHz	Jul. 12, 2024	Jul. 11, 2025	Conducted (TH01-CB)
Test Software	SPORTON	SENSE-15247 _DTS	V5.11.23	2.4GHz-2.4835G Hz	N.C.R.	N.C.R.	Conducted (TH01-CB)

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

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

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# **Conducted Emissions at Powerline**

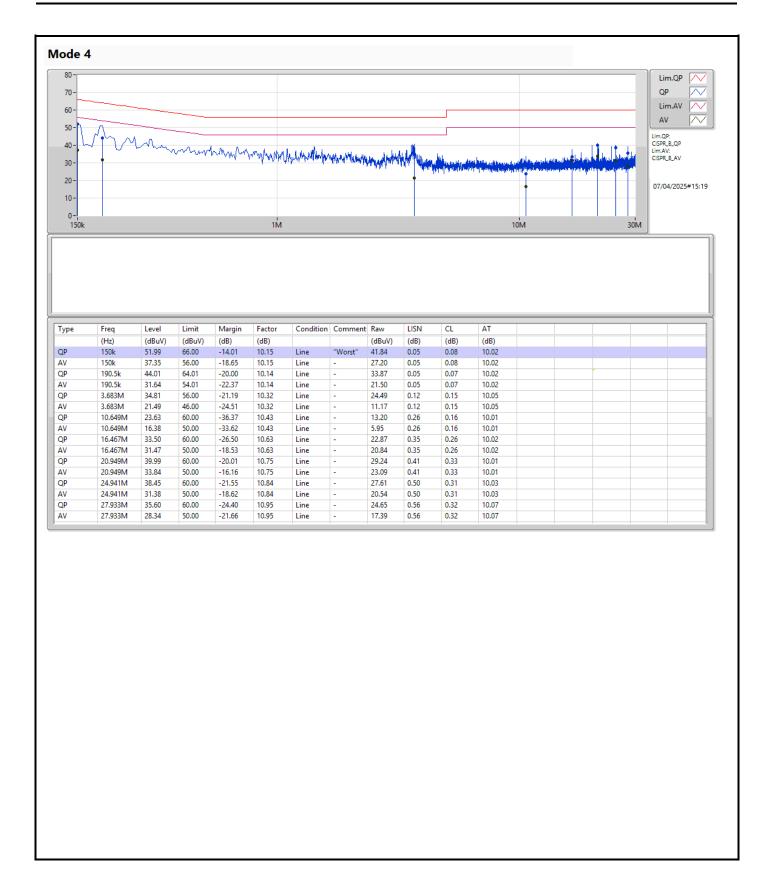
Appendix A

Summary

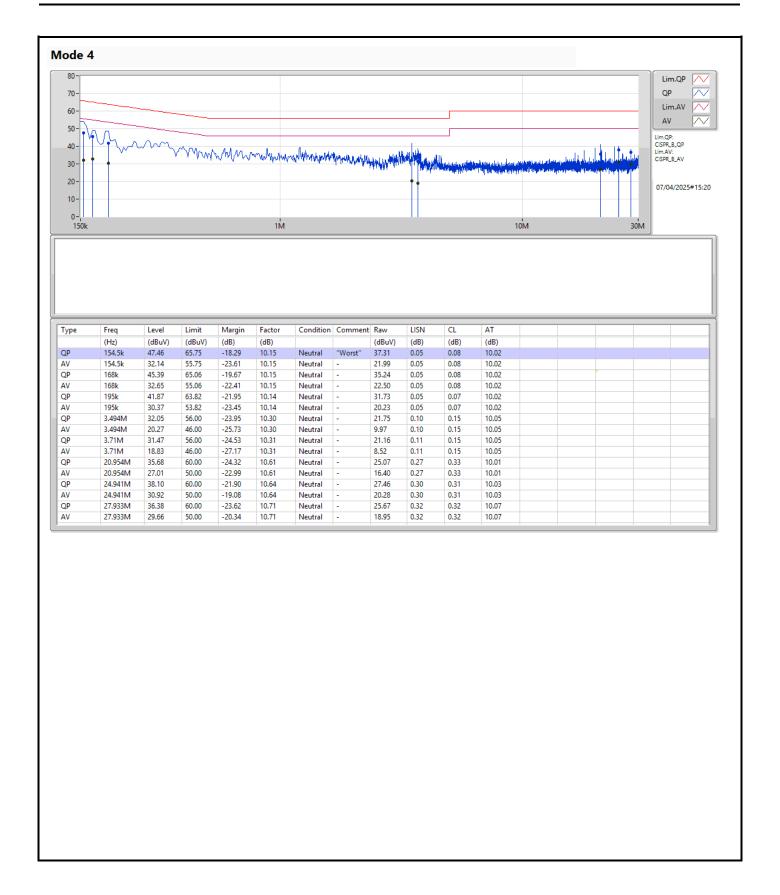
Mode	Result	Туре	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 4	Pass	QP	150k	51.99	66.00	-14.01	Line

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EBW Appendix B

#### Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_1TX	8.6M	12.354M	12M4G1D	8.4M	11.889M
802.11g_Nss1,(6Mbps)_1TX	16.575M	17.141M	17M1D1D	16.45M	16.594M
802.11ax HEW20_Nss1,(MCS0)_1TX	18.65M	18.893M	18M9D1D	16.125M	18.731M

 $\label{eq:max-N} Max-N\,dB = Maximum\ 6dB\ down\ bandwidth;\ Max-OBW = Maximum\ 99\%\ occupied\ bandwidth;\ Min-N\,dB = Minimum\ 6dB\ down\ bandwidth;\ Min-OBW = Minimum\ 99\%\ occupied\ bandwidth$ 

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## Result

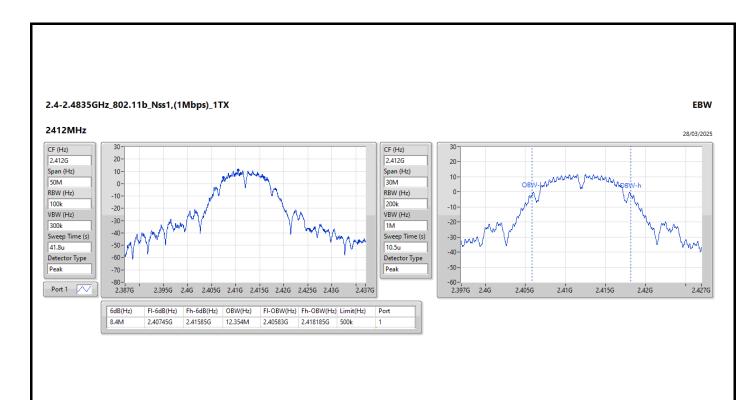
Mode	Result	Limit	Port 1-N dB	Port 1-OBW
		(Hz)	(Hz)	(Hz)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-
2412MHz	Pass	500k	8.4M	12.354M
2437MHz	Pass	500k	8.6M	11.889M
2462MHz	Pass	500k	8.575M	11.958M
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-
2412MHz	Pass	500k	16.45M	16.605M
2437MHz	Pass	500k	16.475M	17.141M
2462MHz	Pass	500k	16.575M	16.594M
802.11ax HEW20_Nss1,(MCS0)_1TX	-	-	-	-
2412MHz	Pass	500k	17.45M	18.731M
2437MHz	Pass	500k	18.65M	18.893M
2462MHz	Pass	500k	16.125M	18.813M

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

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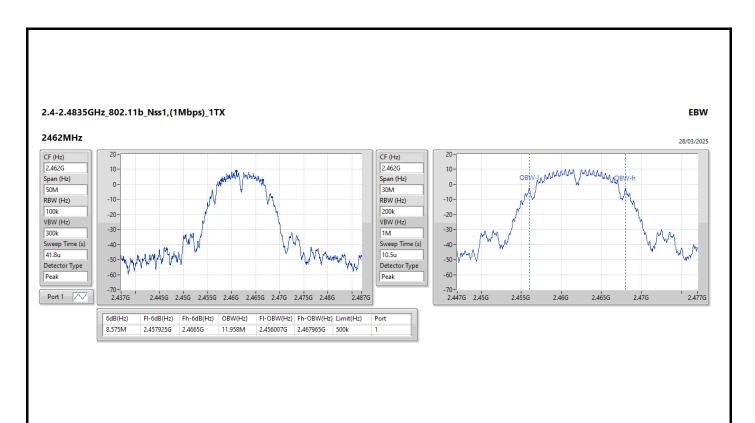
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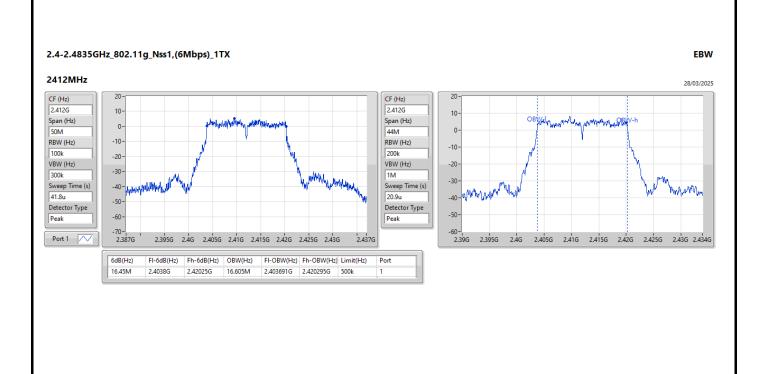
EBW Appendix B



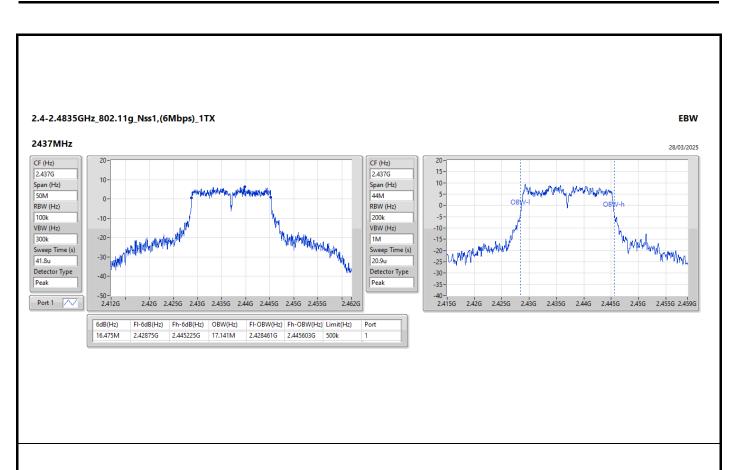


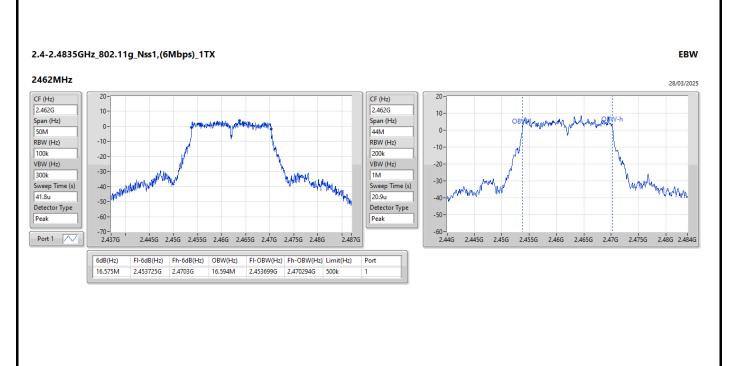
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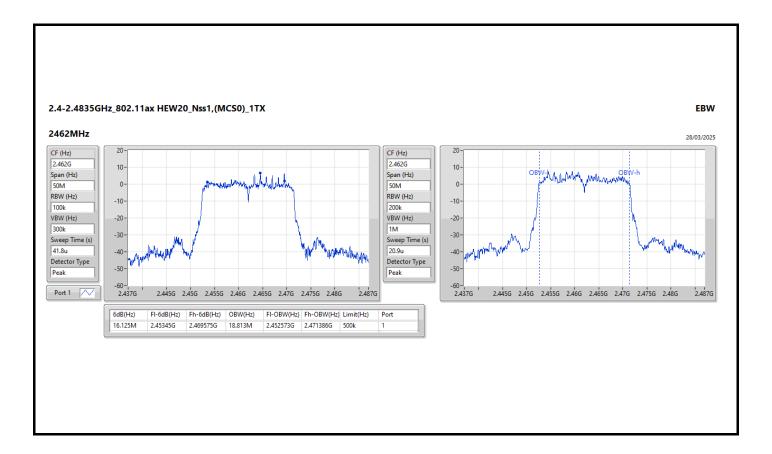


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EBW Appendix B



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Appendix C Average Power

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_1TX	21.52	0.14191
802.11g_Nss1,(6Mbps)_1TX	20.77	0.11940
802.11ax HEW20_Nss1,(MCS0)_1TX	20.43	0.11041

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Appendix C Average Power

## Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-
2412MHz	Pass	3.50	21.52	21.52	30.00
2437MHz	Pass	3.50	18.96	18.96	30.00
2462MHz	Pass	3.50	18.93	18.93	30.00
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-
2412MHz	Pass	3.50	18.92	18.92	30.00
2437MHz	Pass	3.50	20.77	20.77	30.00
2462MHz	Pass	3.50	18.31	18.31	30.00
802.11ax HEW20_Nss1,(MCS0)_1TX	-	-	-	-	-
2412MHz	Pass	3.50	19.31	19.31	30.00
2437MHz	Pass	3.50	20.43	20.43	30.00
2457MHz	Pass	3.50	20.05	20.05	30.00
2462MHz	Pass	3.50	17.36	17.36	30.00

DG = Directional Gain; Port X = Port X output power; Inf = There's no restriction for the limit.

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Test Mode: Mode 1 Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_1TX	-4.32
802.11g_Nss1,(6Mbps)_1TX	-6.08
802.11ax HEW20_Nss1,(MCS0)_1TX	-6.30

RBW = 3kHz;

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Appendix D.1 **PSD** 

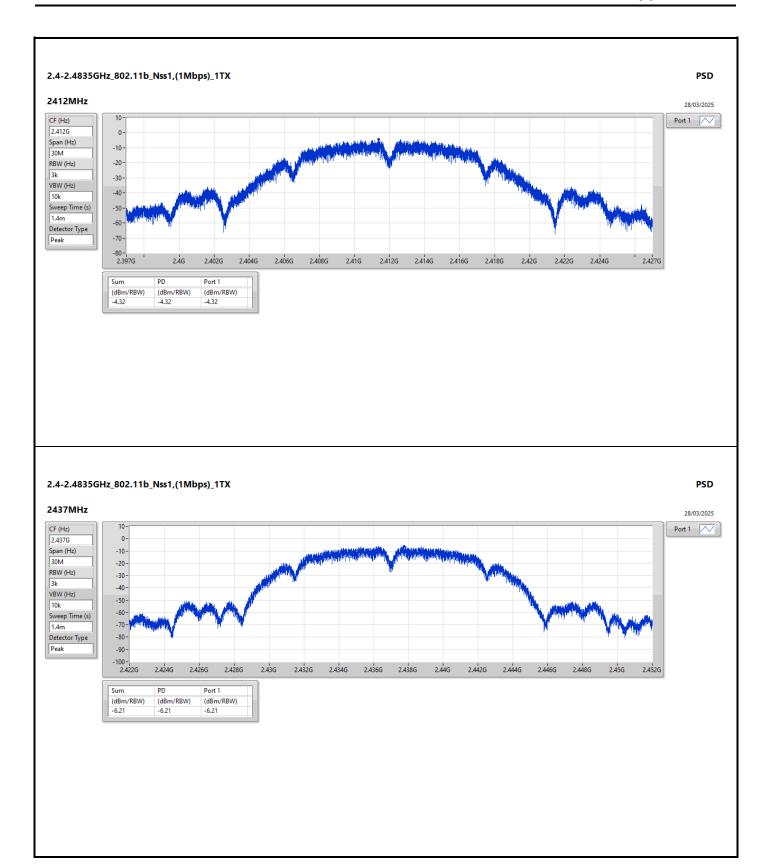
## Result

Mode	Result	DG	Port 1	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	÷	=
2412MHz	Pass	3.50	-4.32	-4.32	8.00
2437MHz	Pass	3.50	-6.21	-6.21	8.00
2462MHz	Pass	3.50	-6.17	-6.17	8.00
802.11g_Nss1,(6Mbps)_1TX	-	-	-	=	=
2412MHz	Pass	3.50	-8.22	-8.22	8.00
2437MHz	Pass	3.50	-6.08	-6.08	8.00
2462MHz	Pass	3.50	-8.46	-8.46	8.00
802.11ax HEW20_Nss1,(MCS0)_1TX	=	-	-	=	-
2412MHz	Pass	3.50	-8.69	-8.69	8.00
2437MHz	Pass	3.50	-6.30	-6.30	8.00
2462MHz	Pass	3.50	-10.51	-10.51	8.00

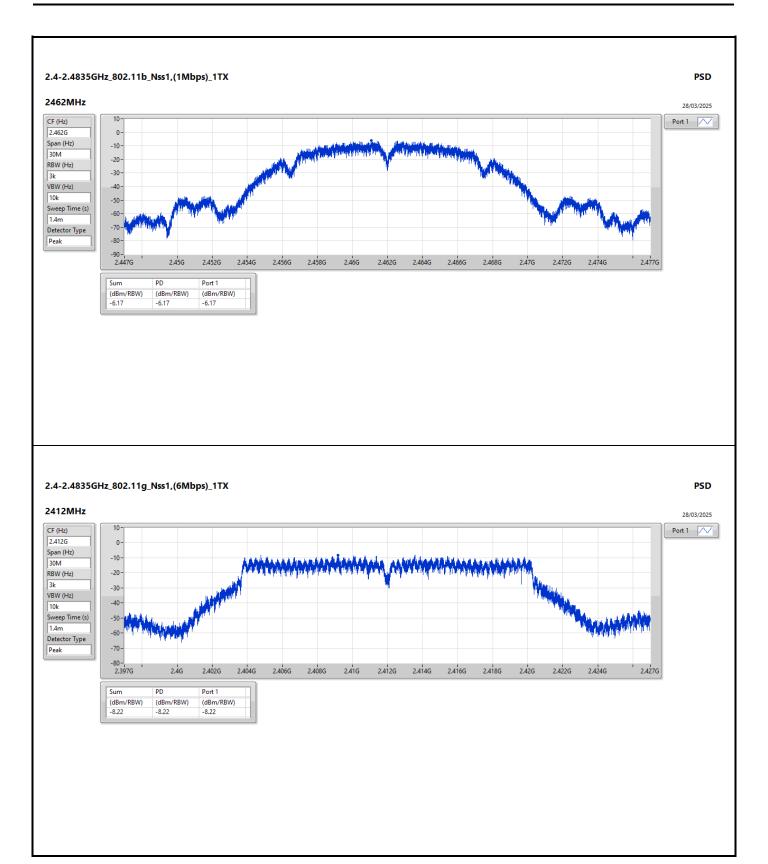
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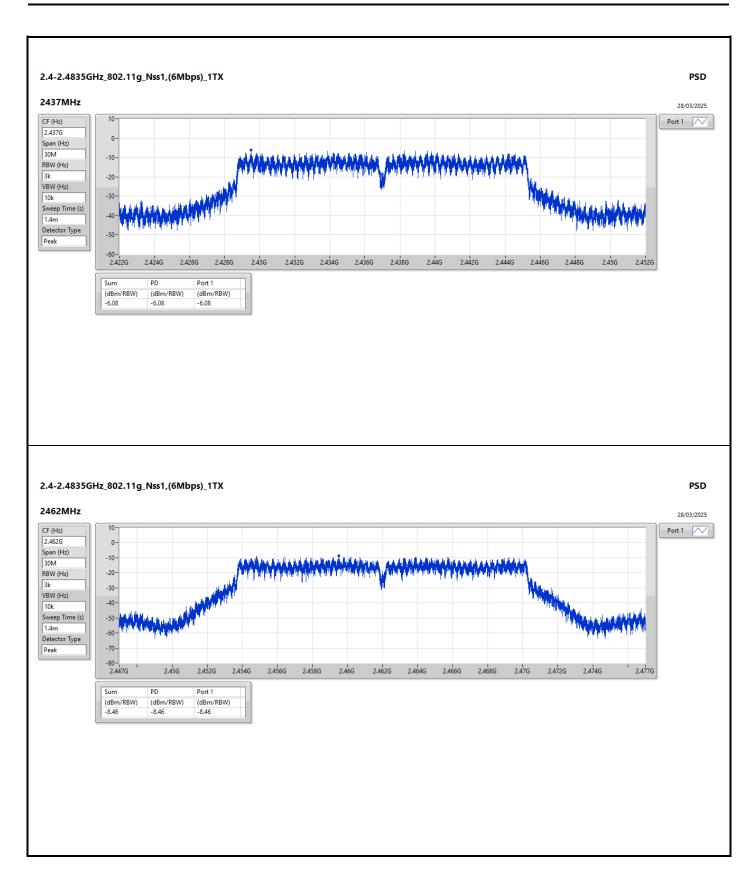
DG = Directional Gain; RBW = 3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;
Inf = There's no restriction for the limit.



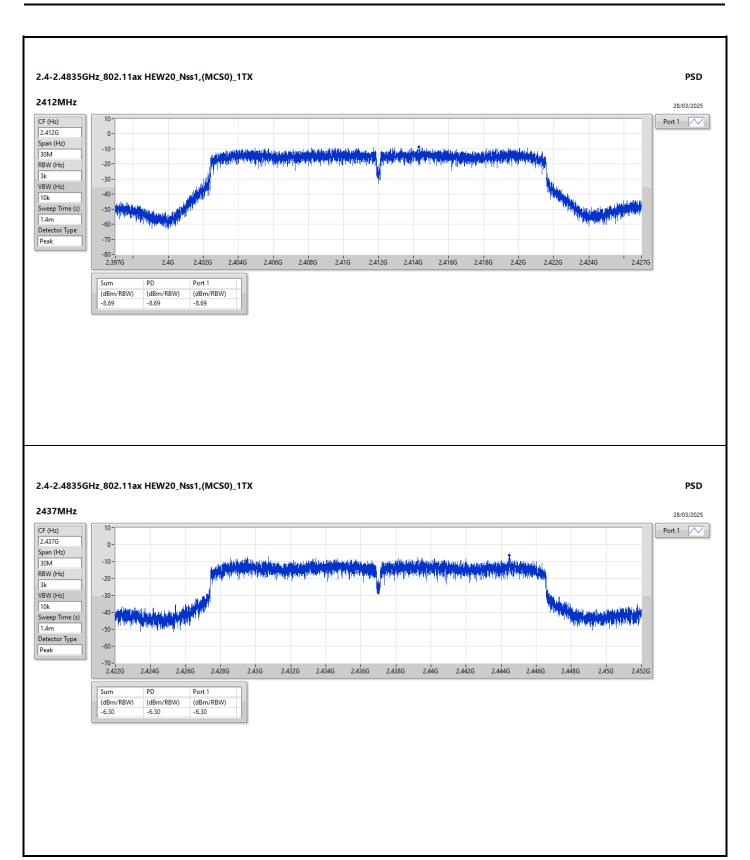
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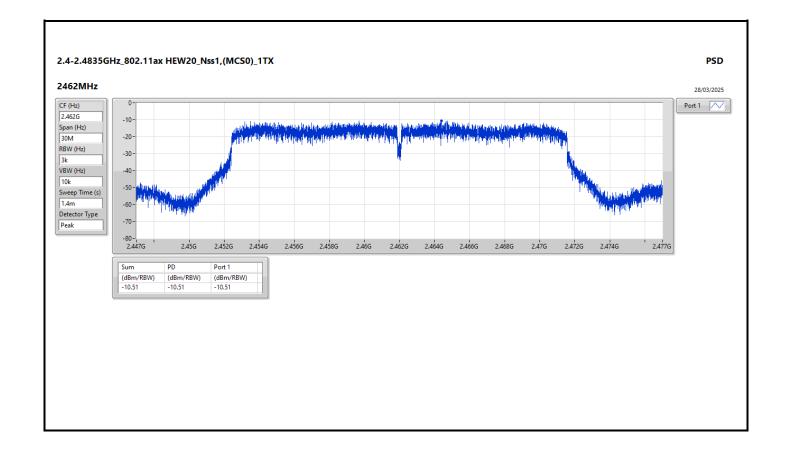
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Test Mode: Mode 2 Summary

Mode	PD
	(dBm/RBW)
2.4-2.4835GHz	-
802.11ax HEW20_Nss1,(MCS0),RU26,#RU0_1TX	-8.96

RBW = 3kHz;

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Appendix D.2 **PSD** 

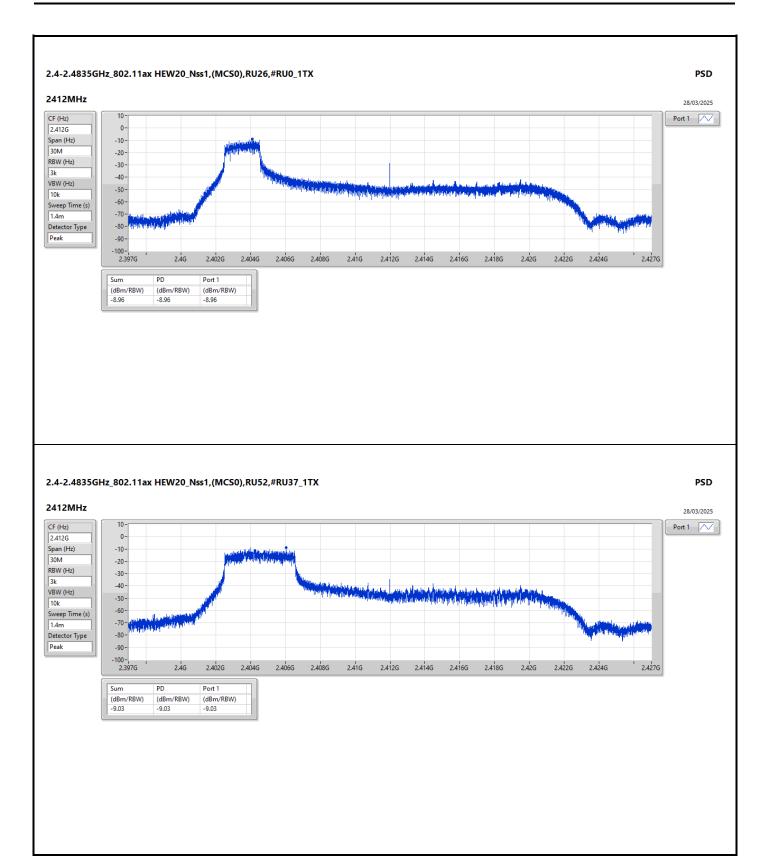
## Result

Mode	Result	DG	Port 1	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11ax HEW20_Nss1,(MCS0),RU26,#RU0_1TX	=	-	=	-	-
2412MHz	Pass	3.50	-8.96	-8.96	8.00
802.11ax HEW20_Nss1,(MCS0),RU52,#RU37_1TX	-	-	-	-	-
2412MHz	Pass	3.50	-9.03	-9.03	8.00
802.11ax HEW20_Nss1,(MCS0),RU106,#RU53_1TX	-	-	-	-	-
2412MHz	Pass	3.50	-9.00	-9.00	8.00
802.11ax HEW20_Nss1,(MCS0),RU26,#RU8_1TX	-	-	-	-	-
2462MHz	Pass	3.50	-10.74	-10.74	8.00
802.11ax HEW20_Nss1,(MCS0),RU52,#RU40_1TX	-	-	-	-	-
2462MHz	Pass	3.50	-10.92	-10.92	8.00
802.11ax HEW20_Nss1,(MCS0),RU106,#RU54_1TX	-	-	-	-	-
2462MHz	Pass	3.50	-10.83	-10.83	8.00

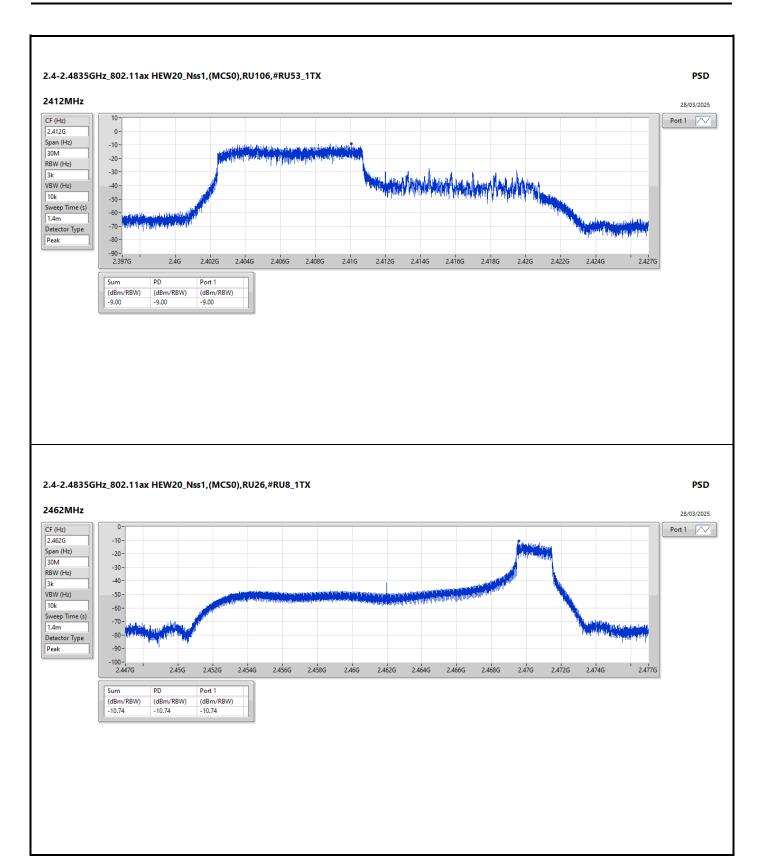
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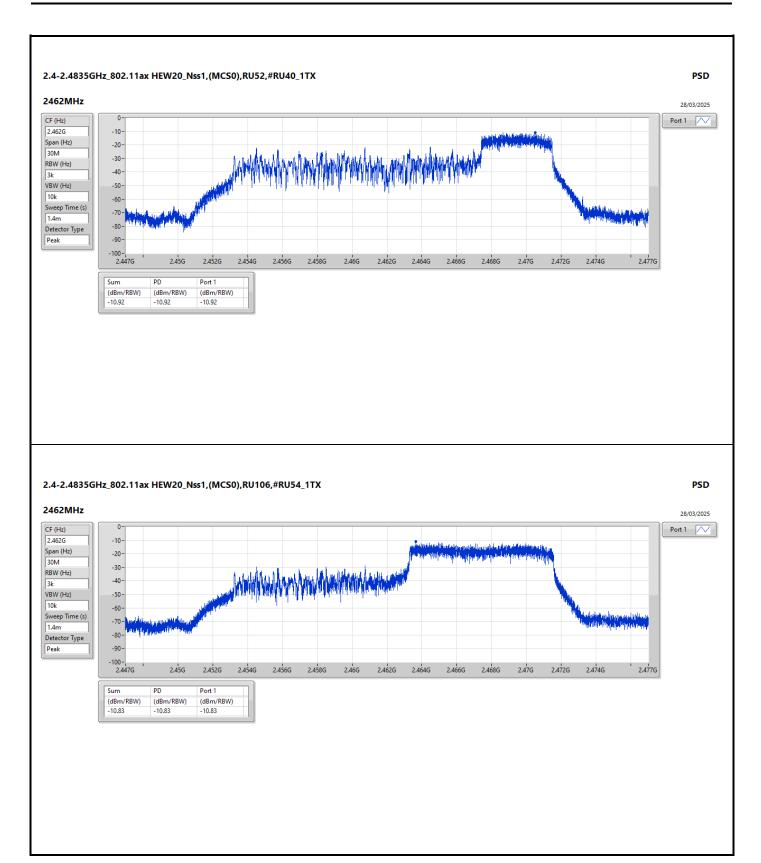
DG = Directional Gain; RBW = 3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;
Inf = There's no restriction for the limit.



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CSE (NdB Down) Appendix E

## Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Port								
2.4-2.4835GHz	-	-		-	-	-	-		-	-	-	-	-	-	-
802.11b_Nss1,(1Mbps)_1TX	Pass	2.41353G	11.97	-18.03	2.12584G	-54.50	2.4G	-24.30	2.4G	-23.50	2.50614G	-51.05	7.23514G	-46.11	1
802.11g_Nss1,(6Mbps)_1TX	Pass	2.43941G	10.23	-19.77	2.30525G	-54.06	2.39704G	-29.52	2.4G	-36.49	2.50166G	-51.18	21.57233G	-47.72	1
802.11ax HEW20_Nss1,(MCS0)_1TX	Pass	2.43941G	9.99	-20.01	1.80663G	-54.05	2.39736G	-26.63	2.4G	-34.80	2.50438G	-51.08	21.66786G	-47.31	1

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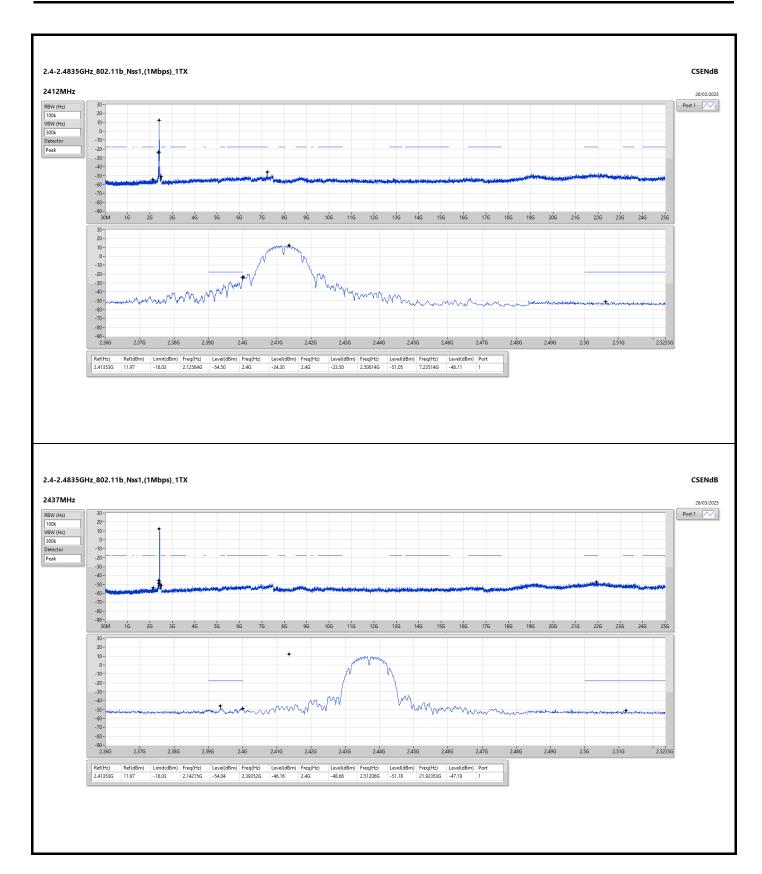
CSE (NdB Down) Appendix E

## Result

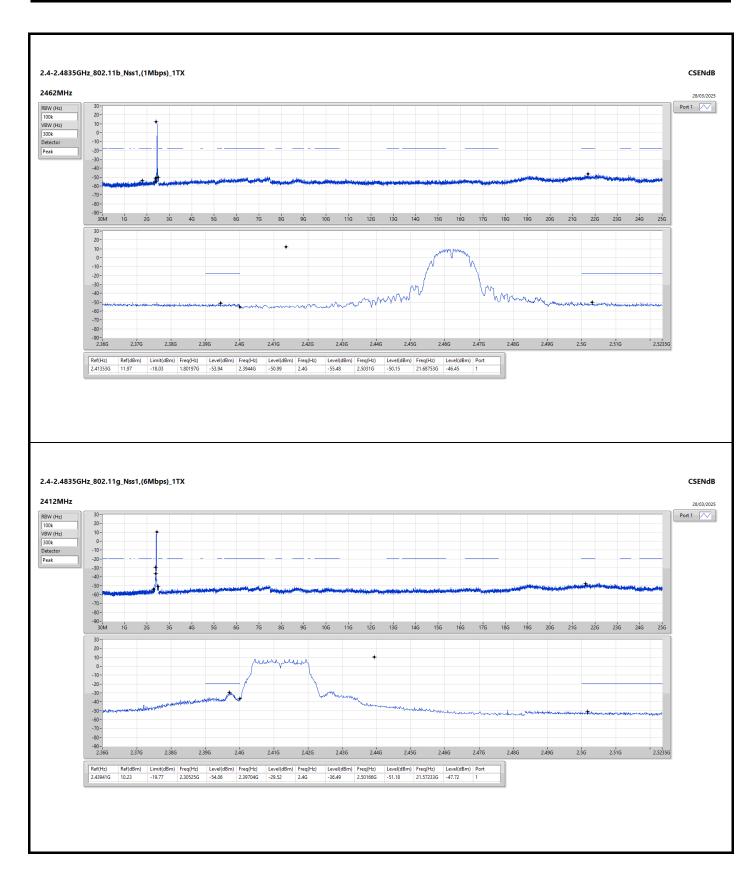
Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
802.11b_Nss1,(1Mbps)_1TX	-		-			-		-	-			,			-
2412MHz	Pass	2.41353G	11.97	-18.03	2.12584G	-54.50	2.4G	-24.30	2.4G	-23.50	2.50614G	-51.05	7.23514G	-46.11	1
2437MHz	Pass	2.41353G	11.97	-18.03	2.14215G	-54.04	2.39352G	-46.16	2.4G	-48.66	2.51206G	-51.18	21.92353G	-47.19	1
2462MHz	Pass	2.41353G	11.97	-18.03	1.80197G	-53.94	2.3944G	-50.99	2.4G	-55.48	2.5031G	-50.15	21.68753G	-46.45	1
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2412MHz	Pass	2.43941G	10.23	-19.77	2.30525G	-54.06	2.39704G	-29.52	2.4G	-36.49	2.50166G	-51.18	21.57233G	-47.72	1
2437MHz	Pass	2.43941G	10.23	-19.77	2.30641G	-53.89	2.39576G	-35.12	2.4G	-36.72	2.50198G	-46.35	21.73529G	-46.66	1
2462MHz	Pass	2.43941G	10.23	-19.77	2.06176G	-54.20	2.39032G	-50.14	2.4G	-54.68	2.50046G	-47.76	21.95162G	-47.56	1
802.11ax HEW20_Nss1,(MCS0)_1TX	-		-			-		-	-			,			-
2412MHz	Pass	2.43941G	9.99	-20.01	1.80663G	-54.05	2.39736G	-26.63	2.4G	-34.80	2.50438G	-51.08	21.66786G	-47.31	1
2437MHz	Pass	2.43941G	9.99	-20.01	2.30758G	-54.30	2.39824G	-36.52	2.4G	-38.01	2.50078G	-45.21	21.7381G	-47.61	1
2462MHz	Pass	2.43941G	9.99	-20.01	2.1736G	-54.36	2.3976G	-50.45	2.4G	-55.62	2.50046G	-48.13	21.80553G	-46.18	1

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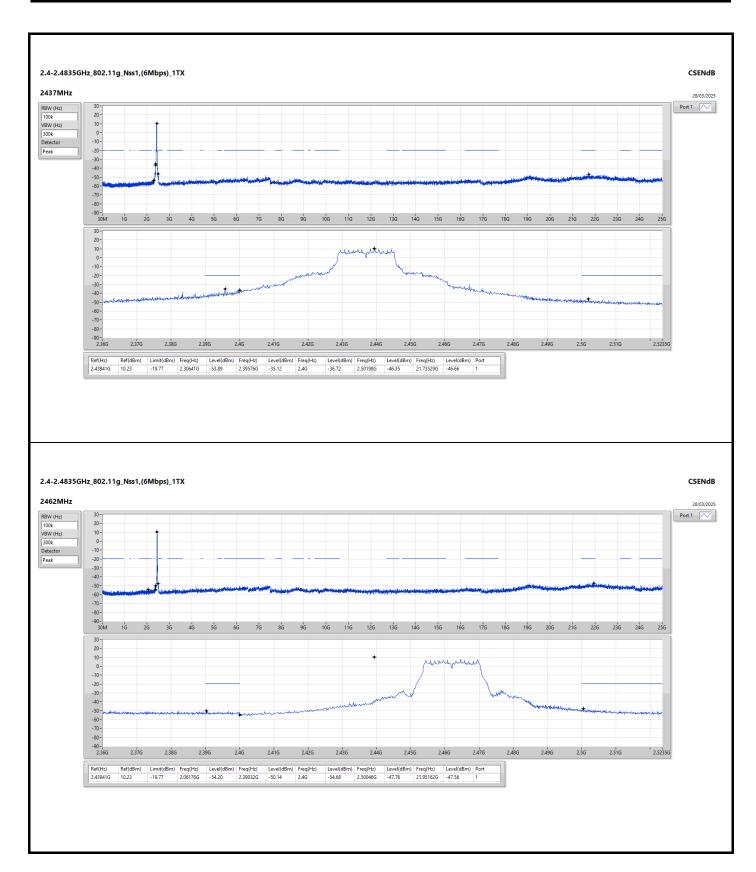
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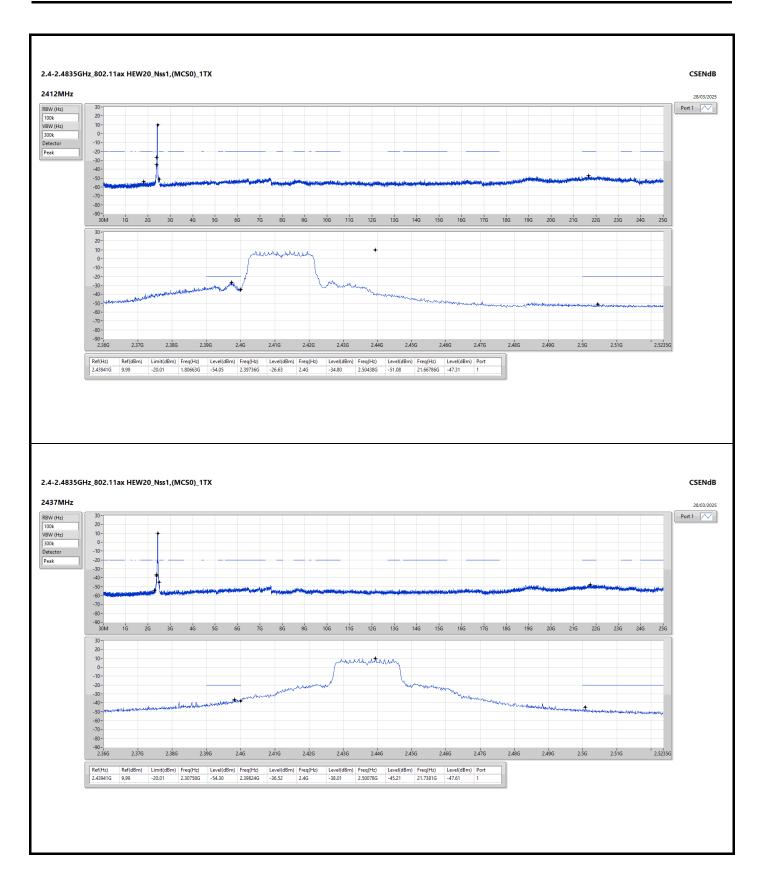
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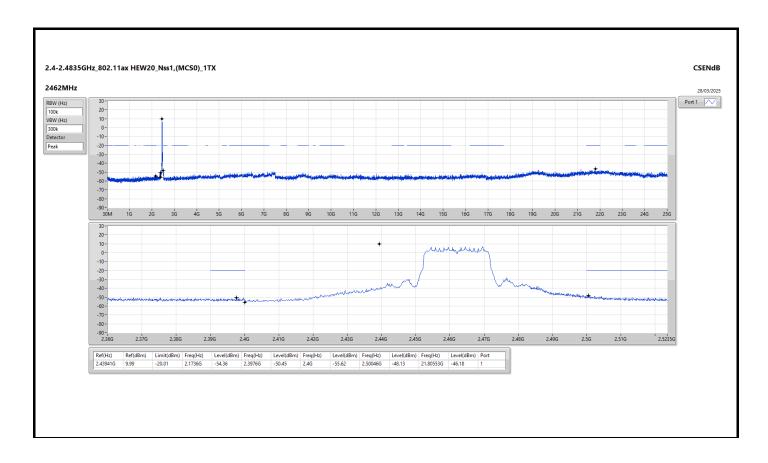
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## Radiated Emissions below 1GHz

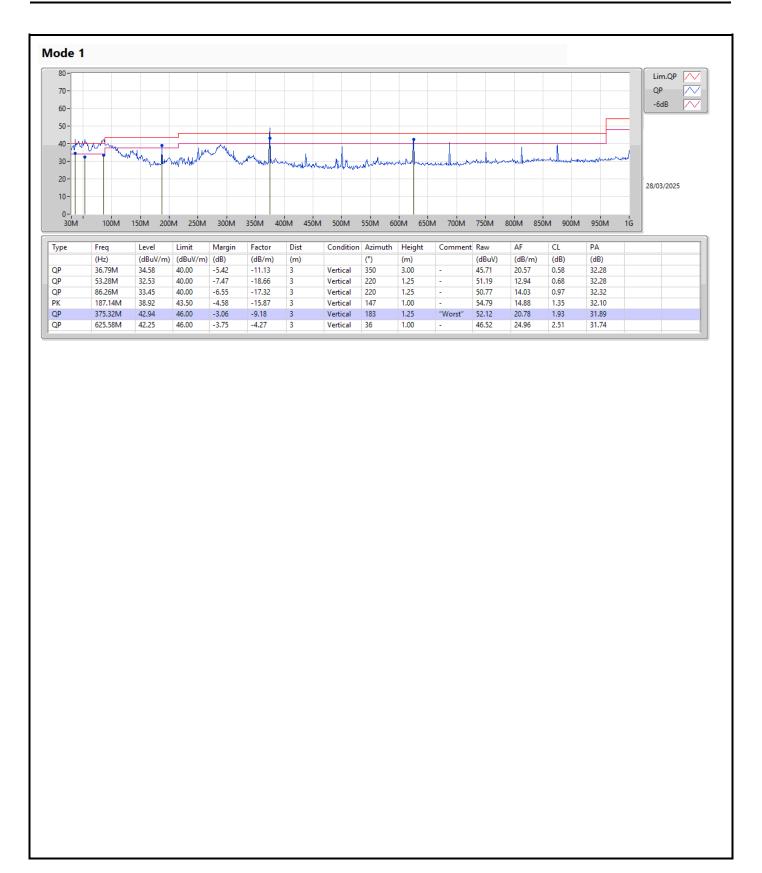
Appendix F.1

Summary

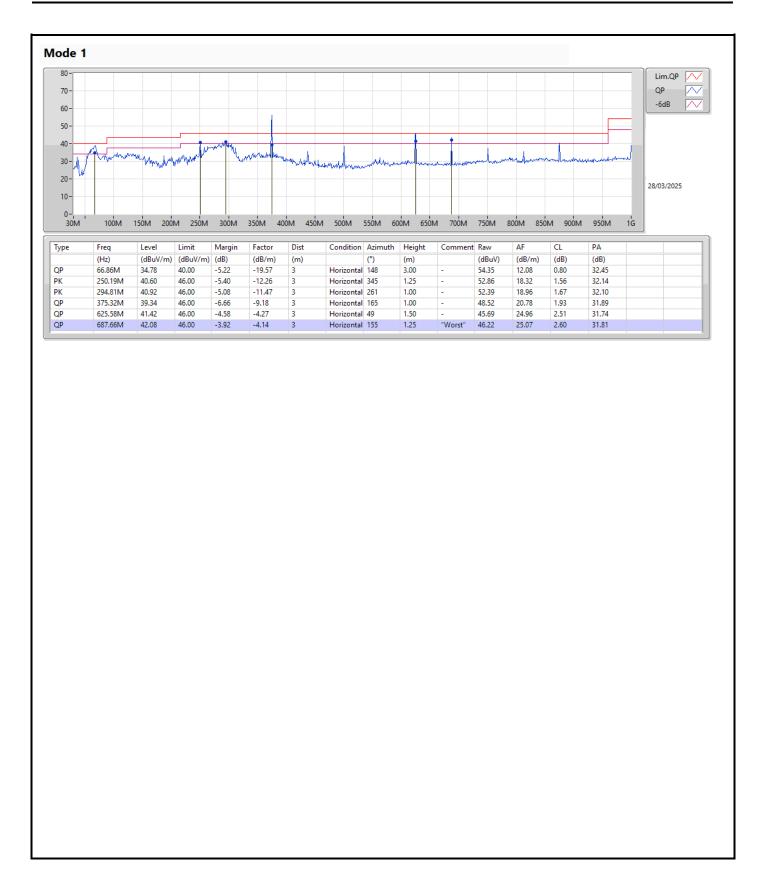
Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	QP	375.32M	42.94	46.00	-3.06	Vertical

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# RSE TX above 1GHz

Appendix F.2

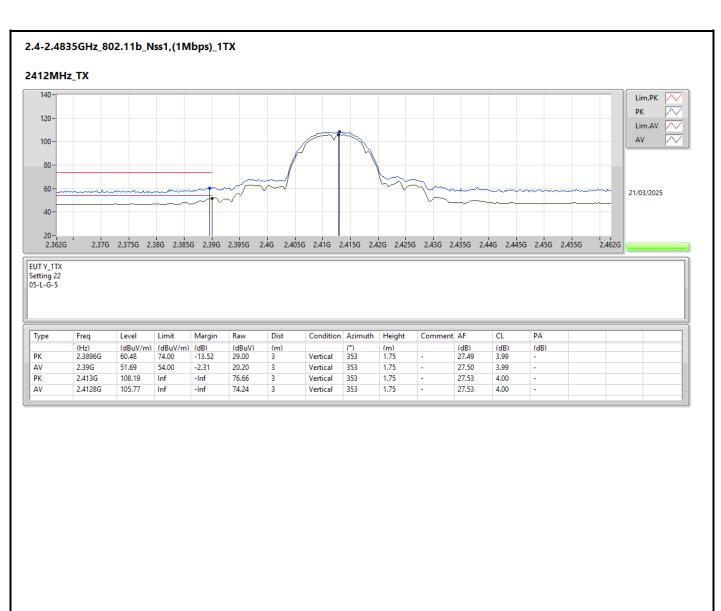
Test Mode: Mode 1 Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
802.11b_Nss1,(1Mbps)_1TX	Pass	AV	7.31174G	52.99	54.00	-1.01	3	Horizontal	58	1.95	-

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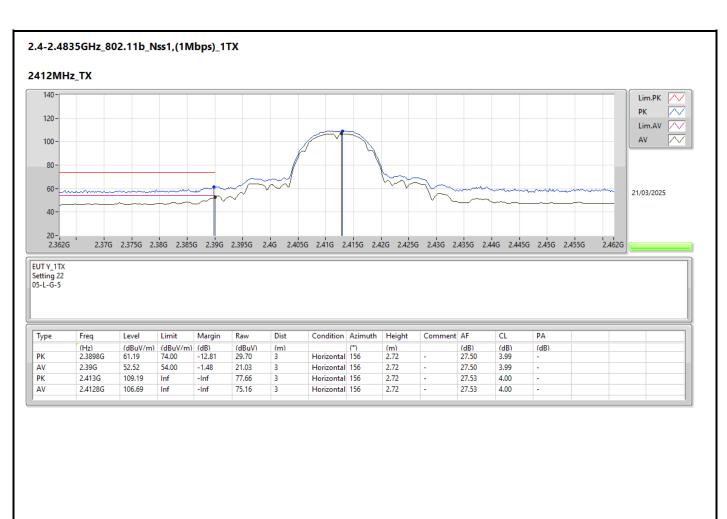
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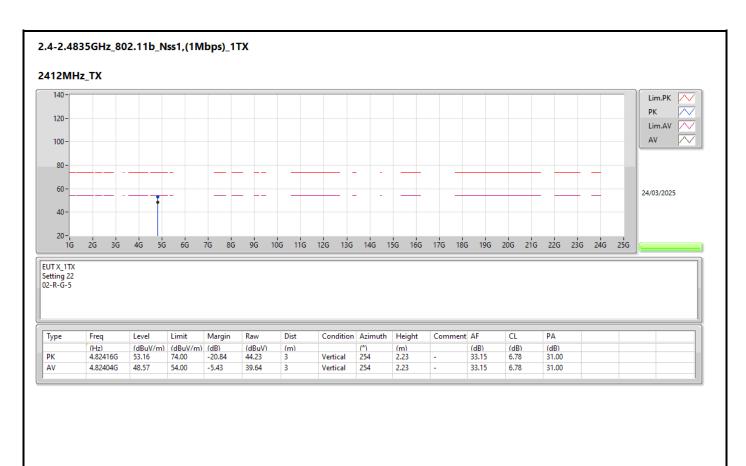
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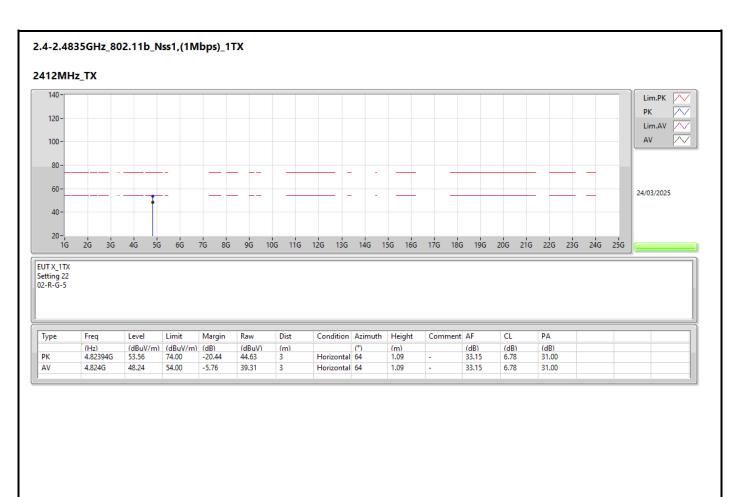
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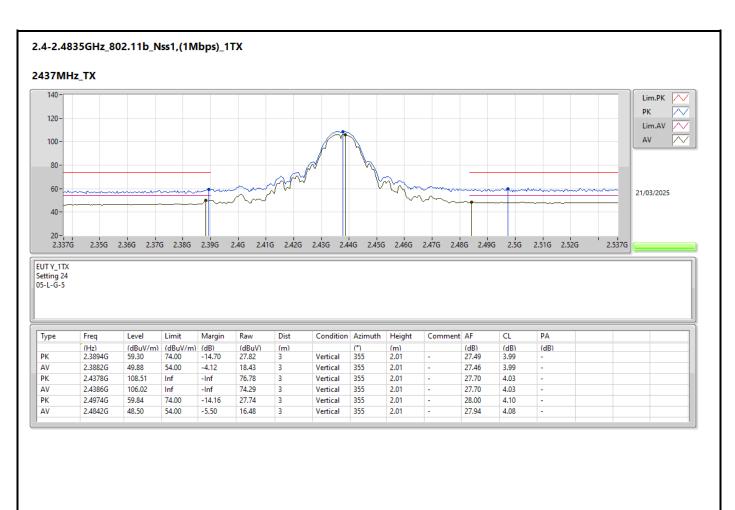
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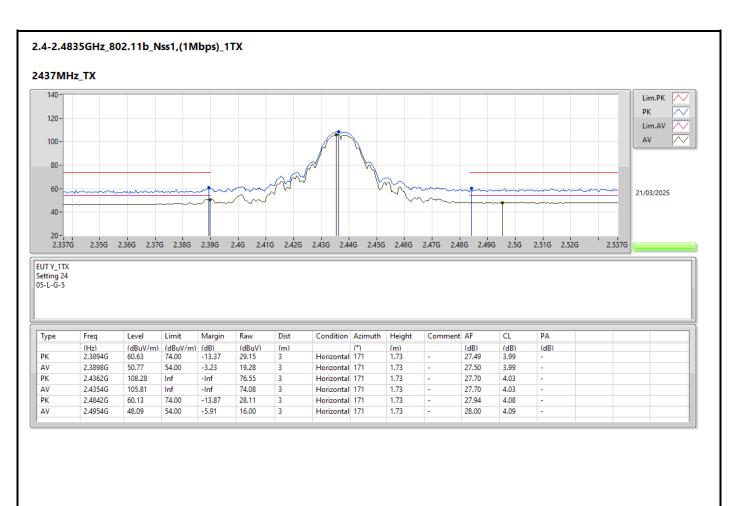
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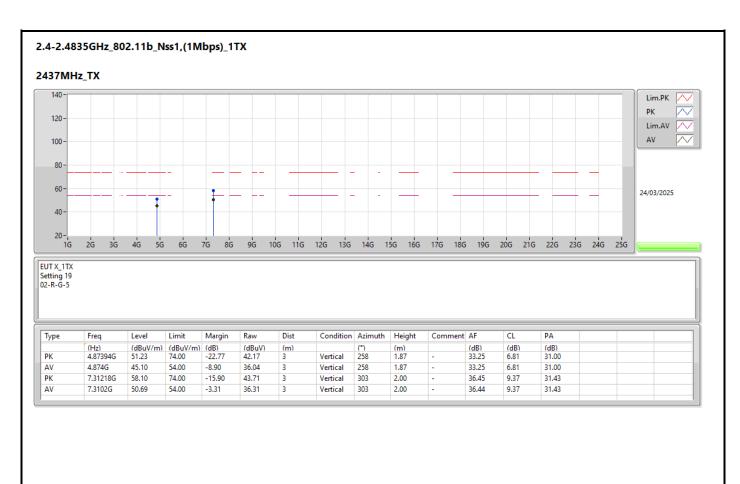
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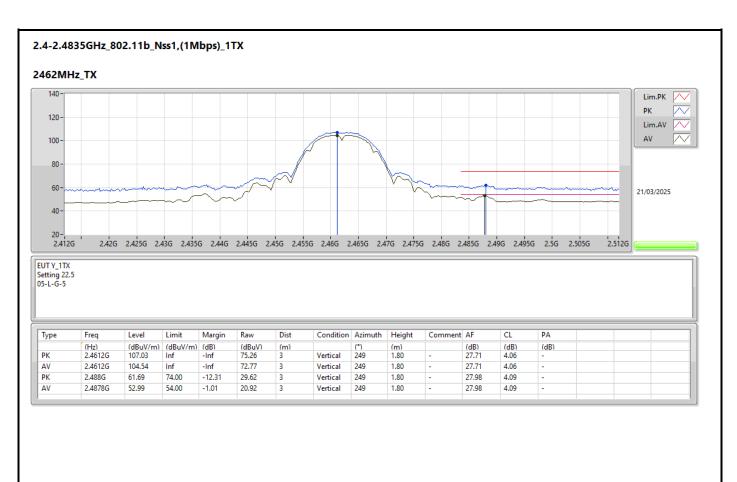


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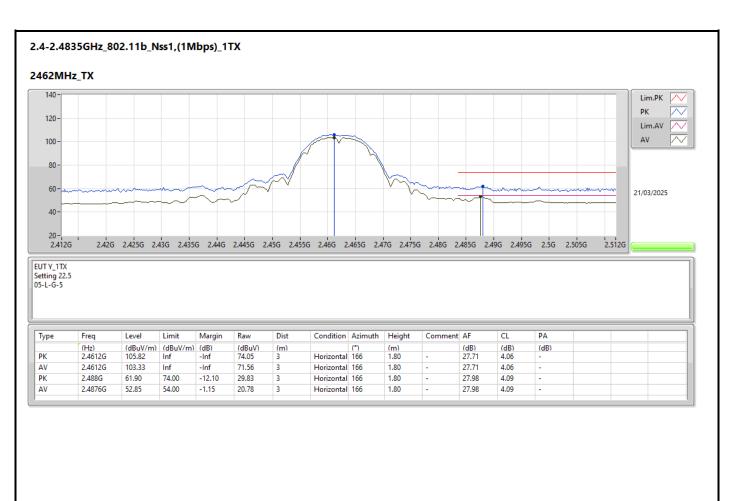






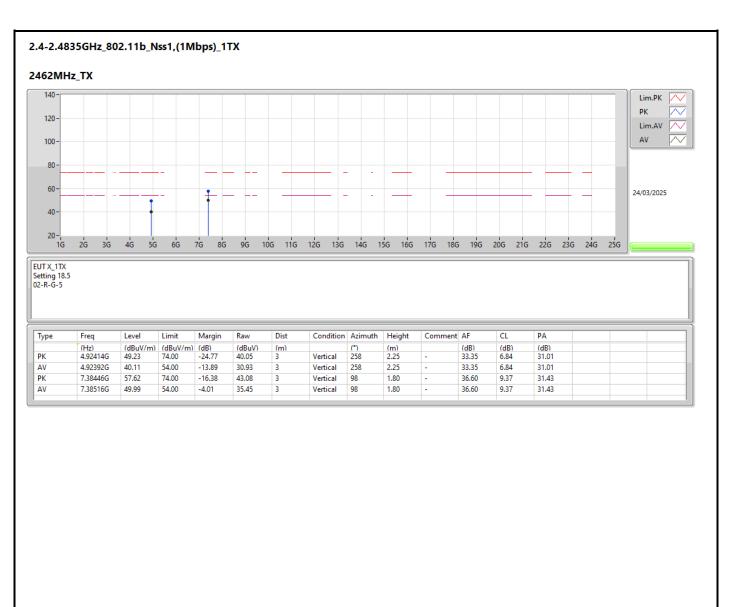
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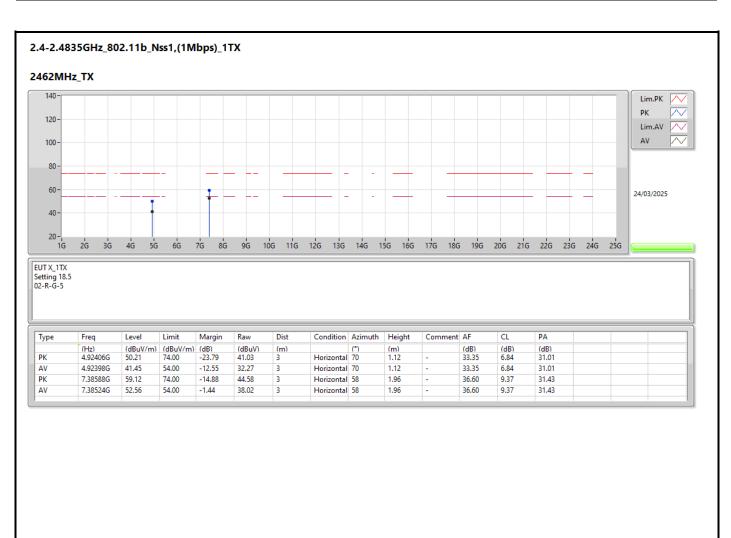
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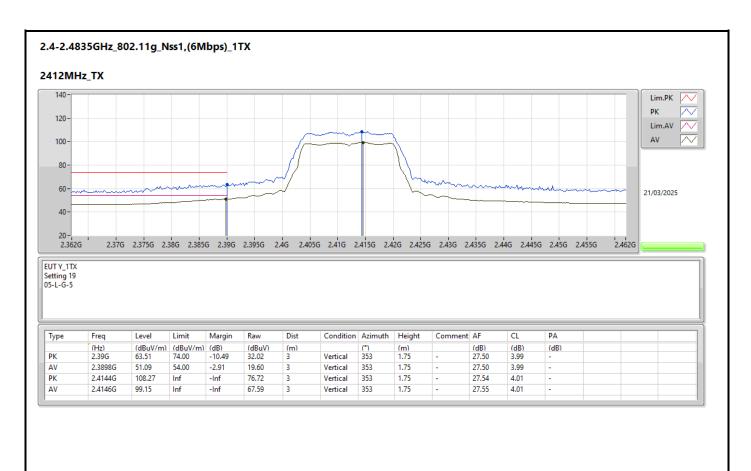
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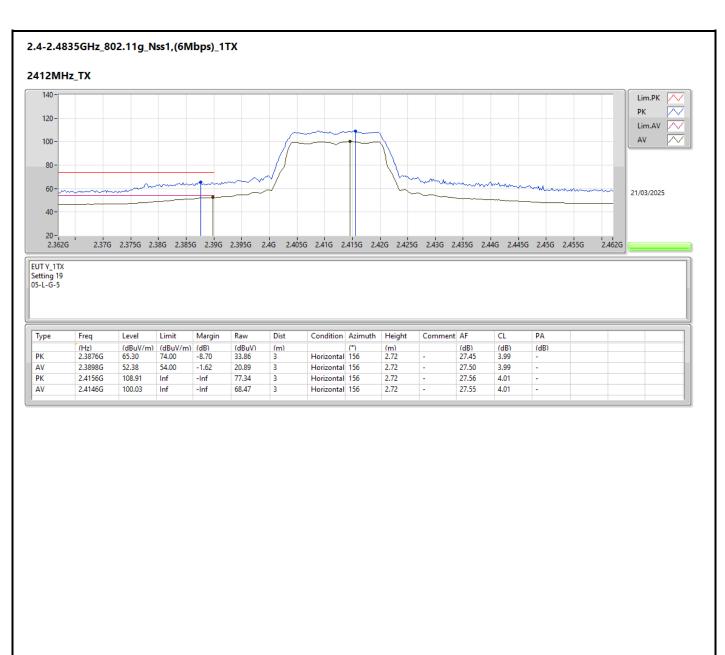
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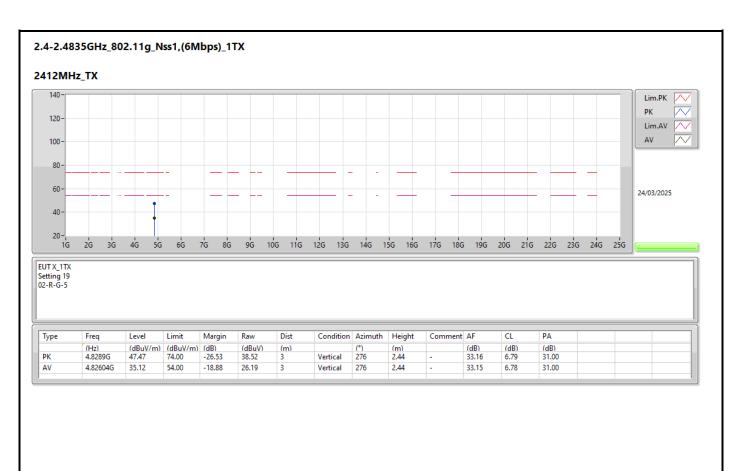
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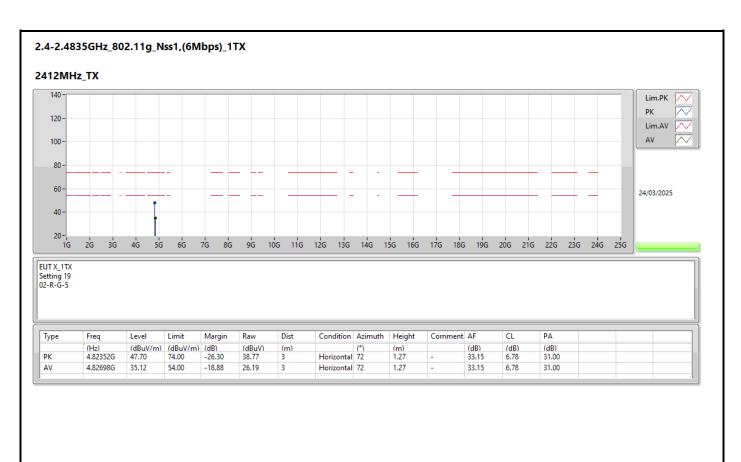
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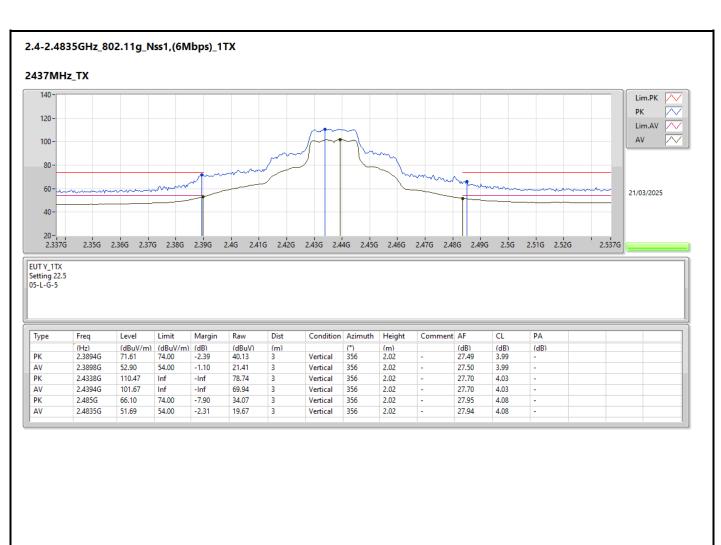
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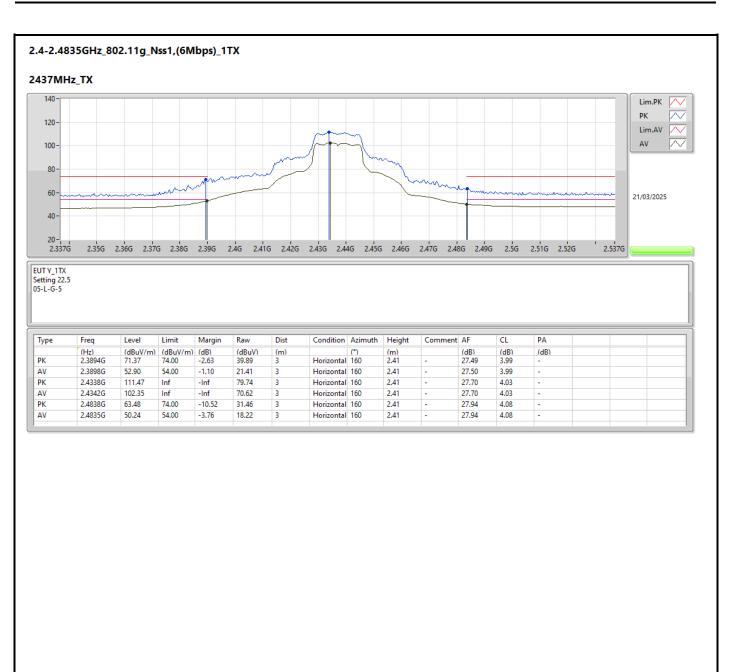


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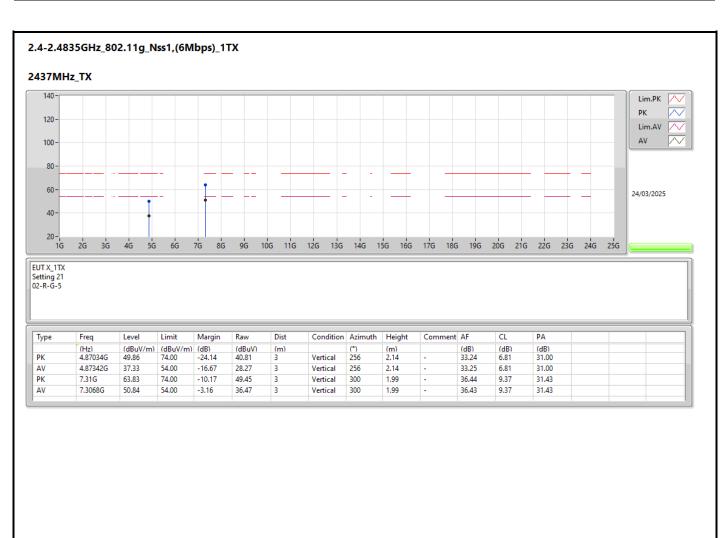


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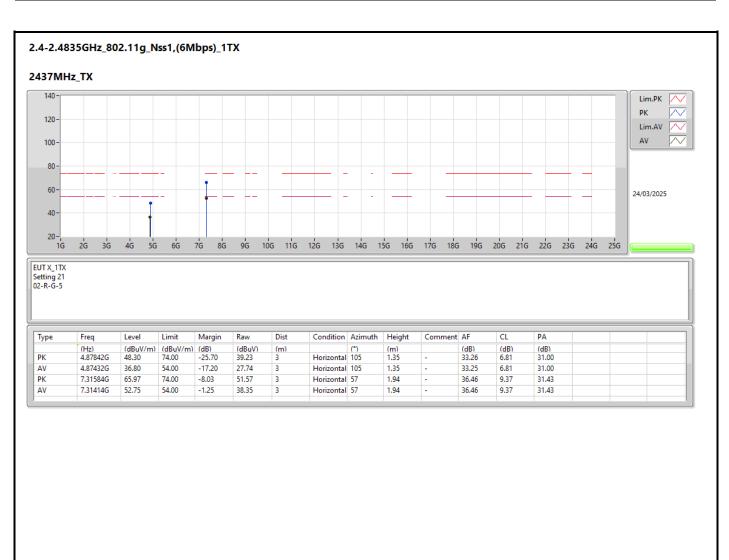
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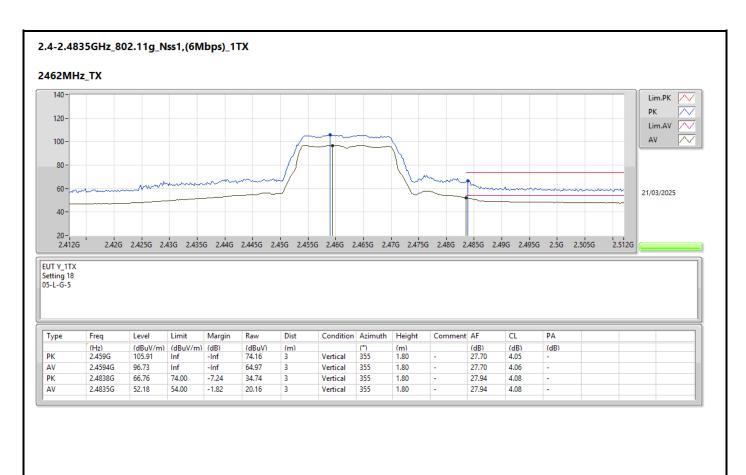
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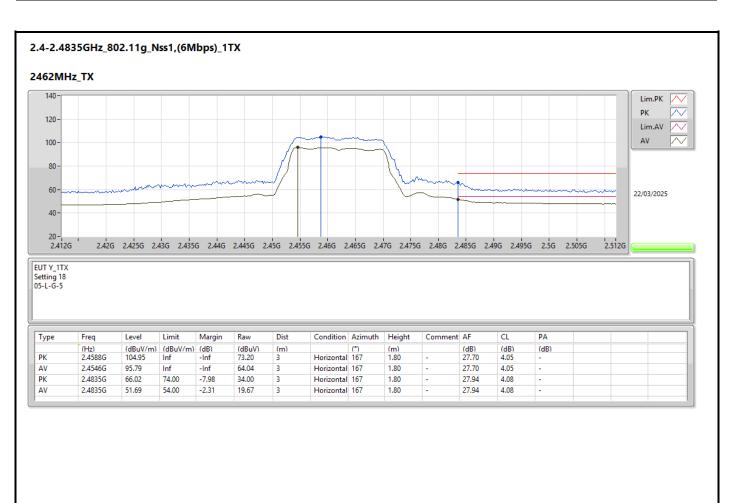
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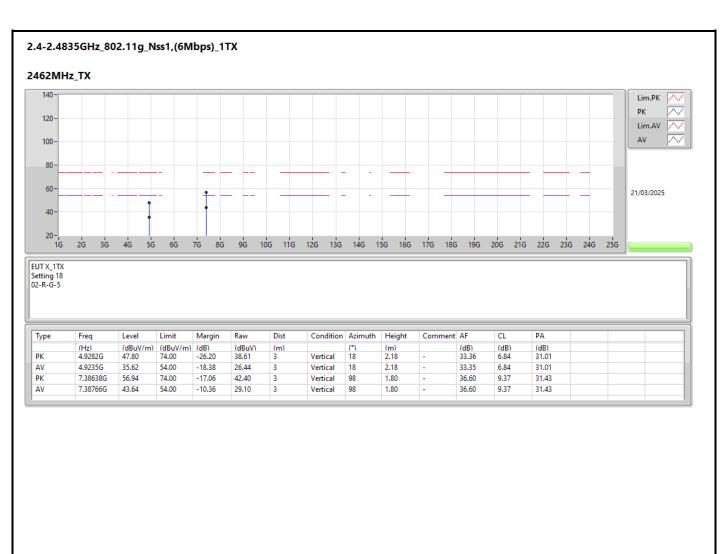
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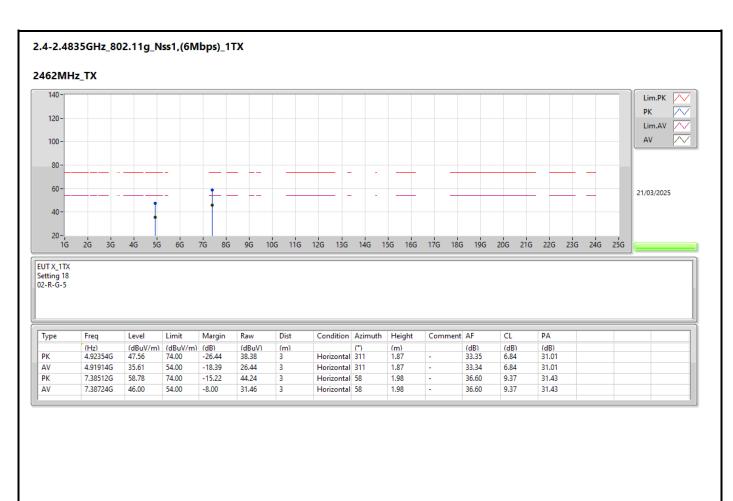
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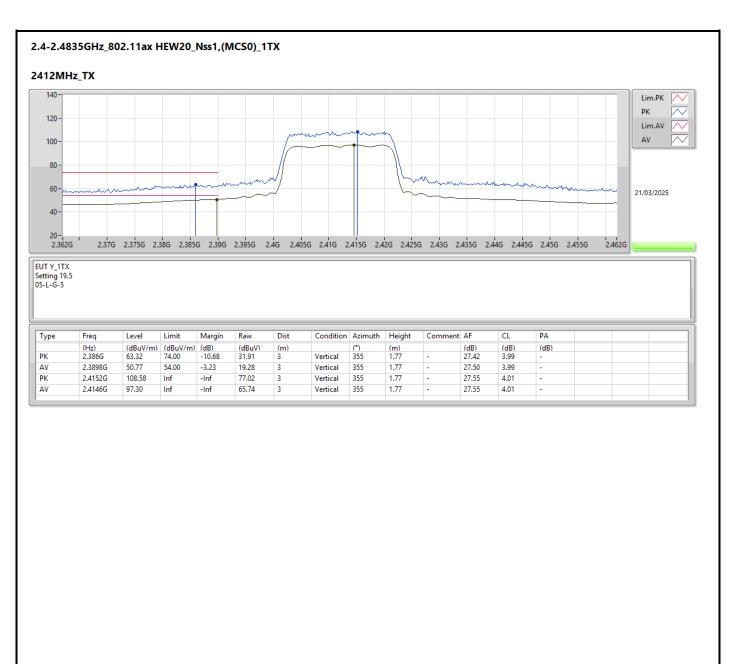
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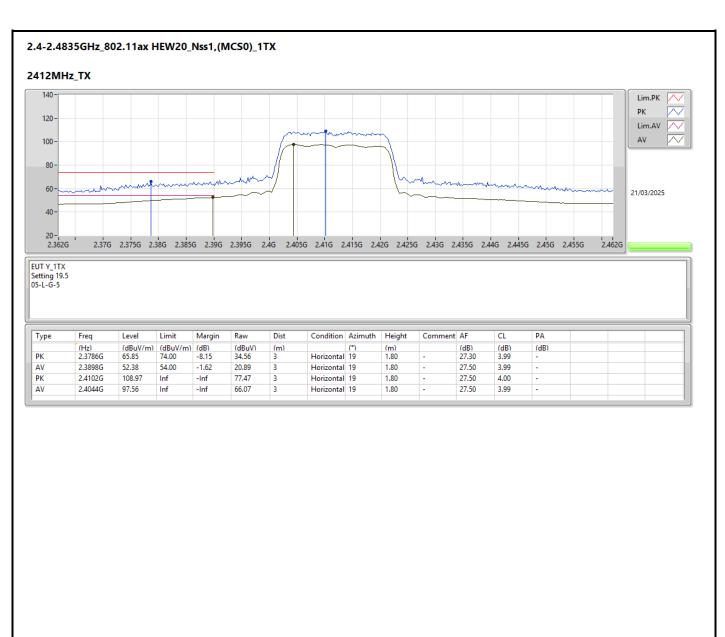
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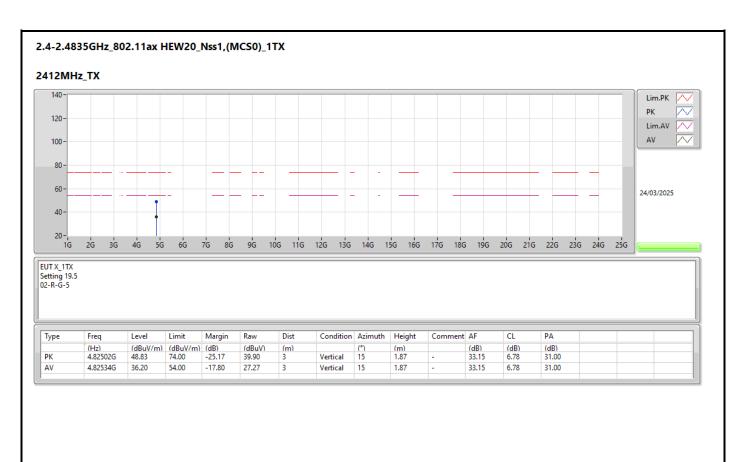
Page No. : 26 of **39** Report No. : FR521124AC





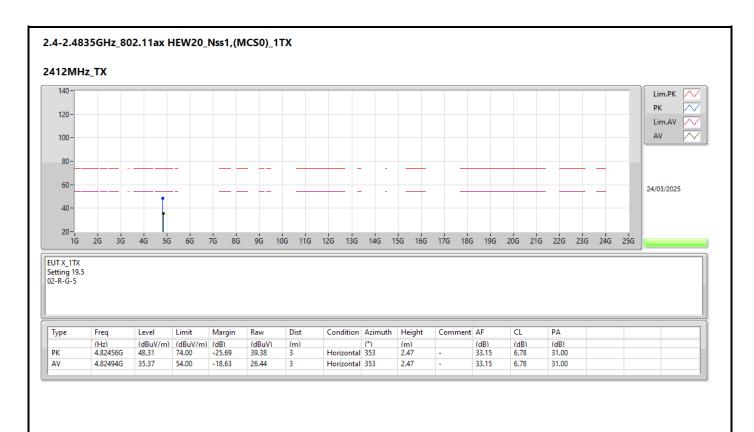
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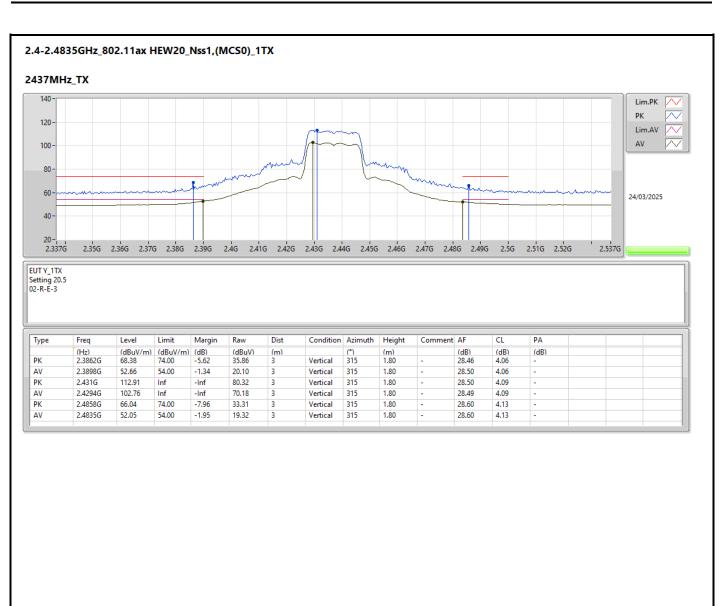


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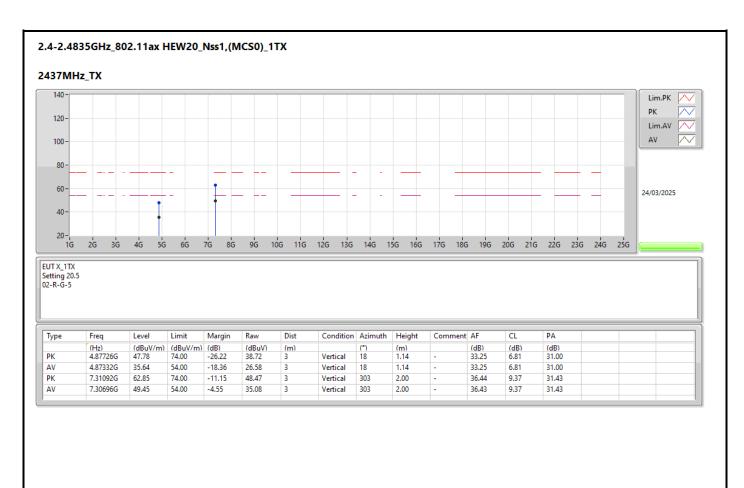
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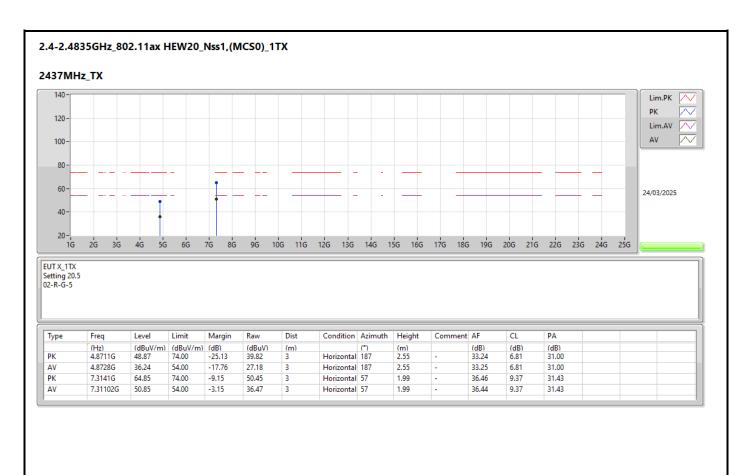
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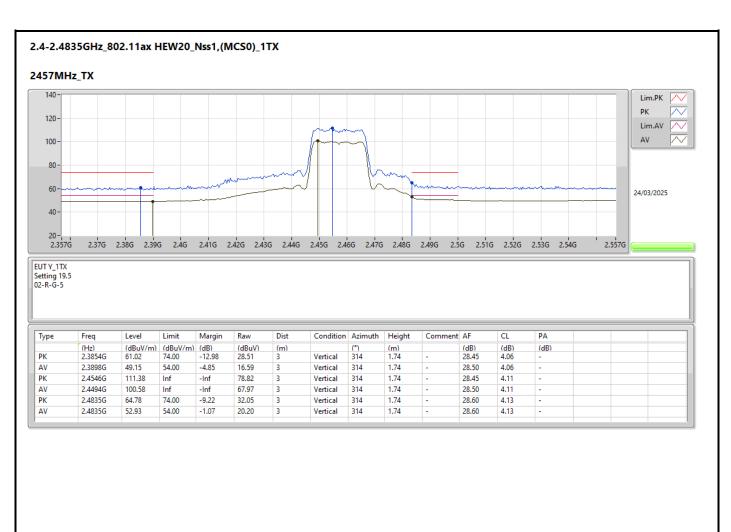
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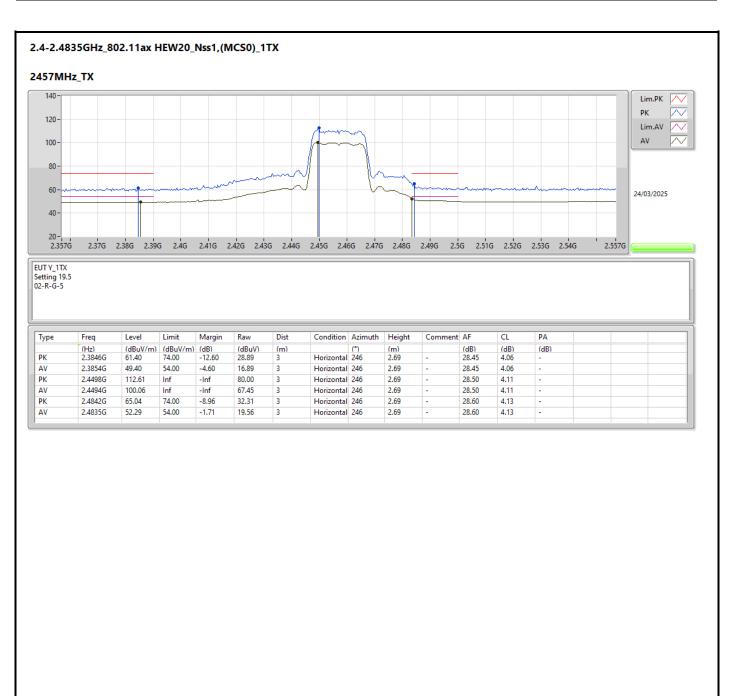
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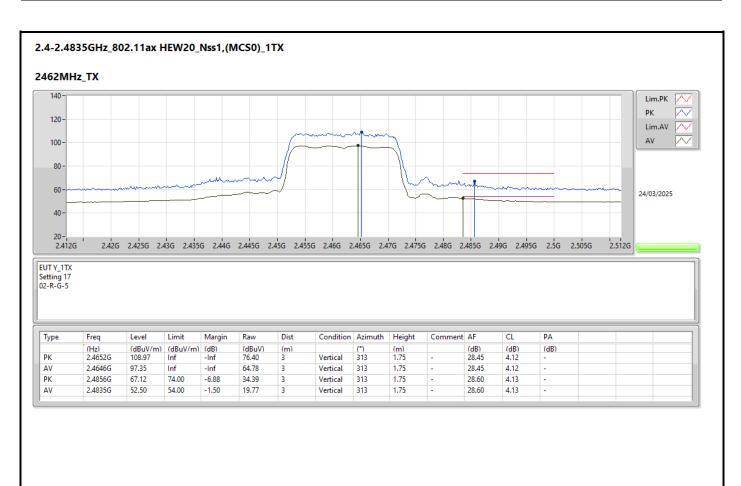
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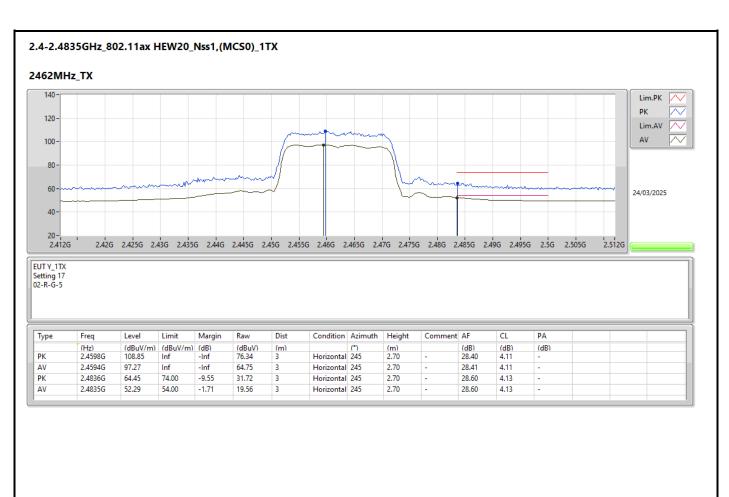
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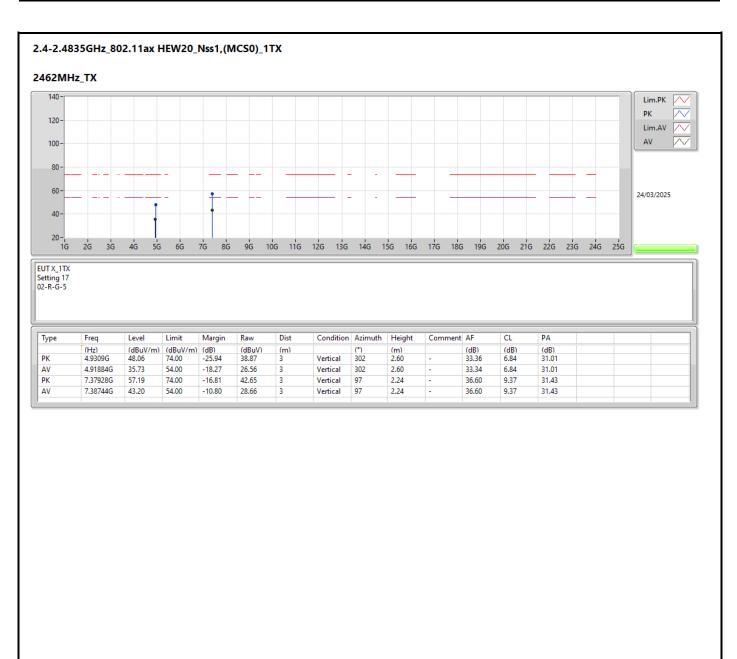
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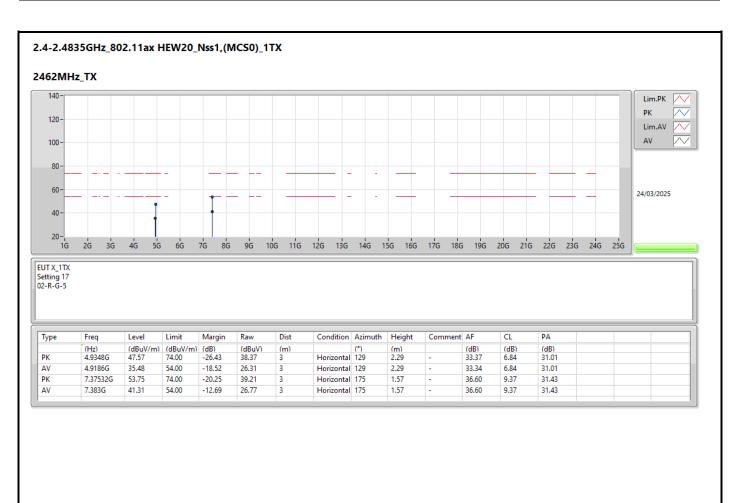
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## RSE TX above 1GHz

Appendix F.3

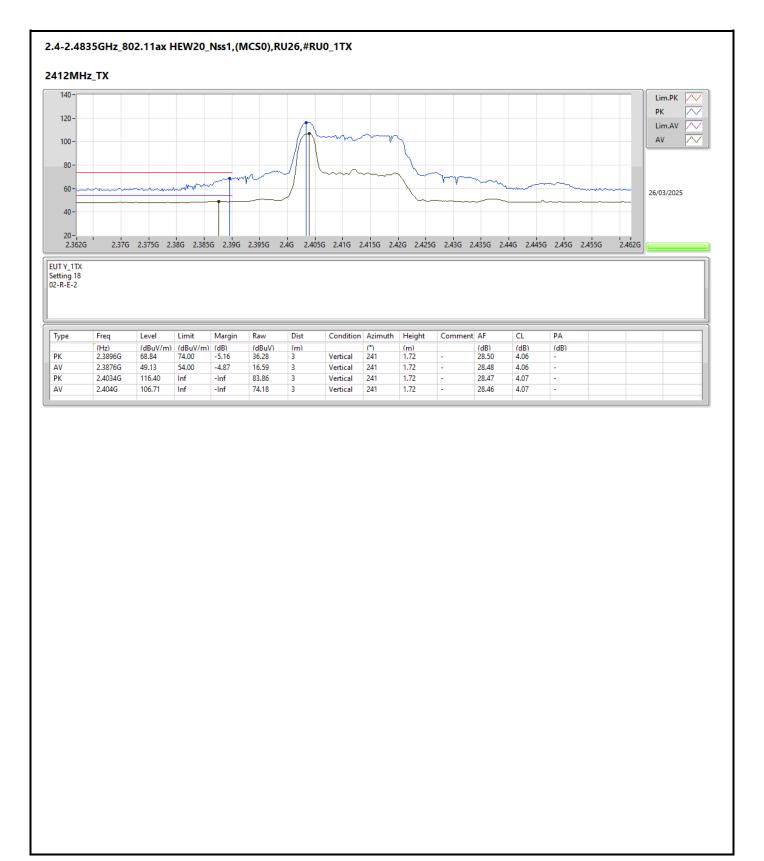
Test Mode: Mode 2 Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
802.11ax HEW20_Nss1,(MCS0),RU26,#RU0_1TX	Pass	PK	2.3892G	72.50	74.00	-1.50	3	Horizontal	352	3.00	-

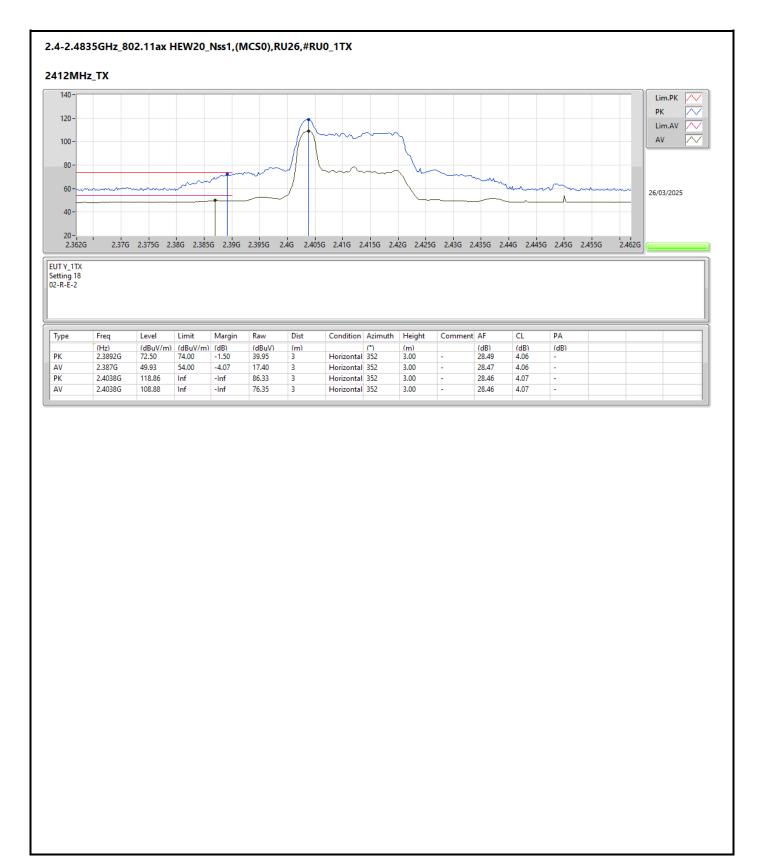
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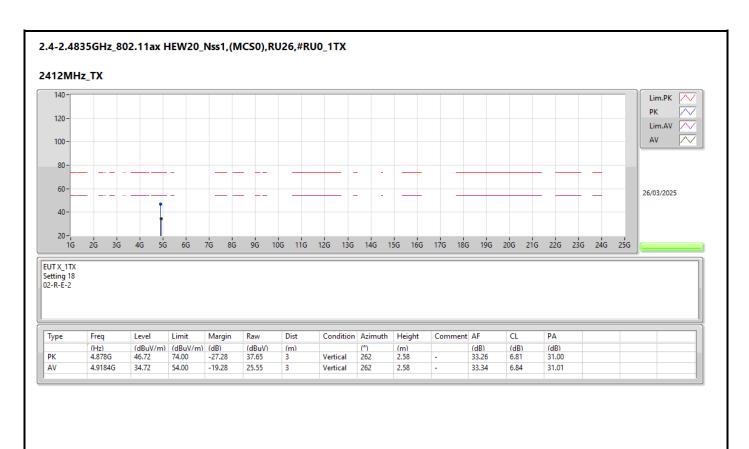






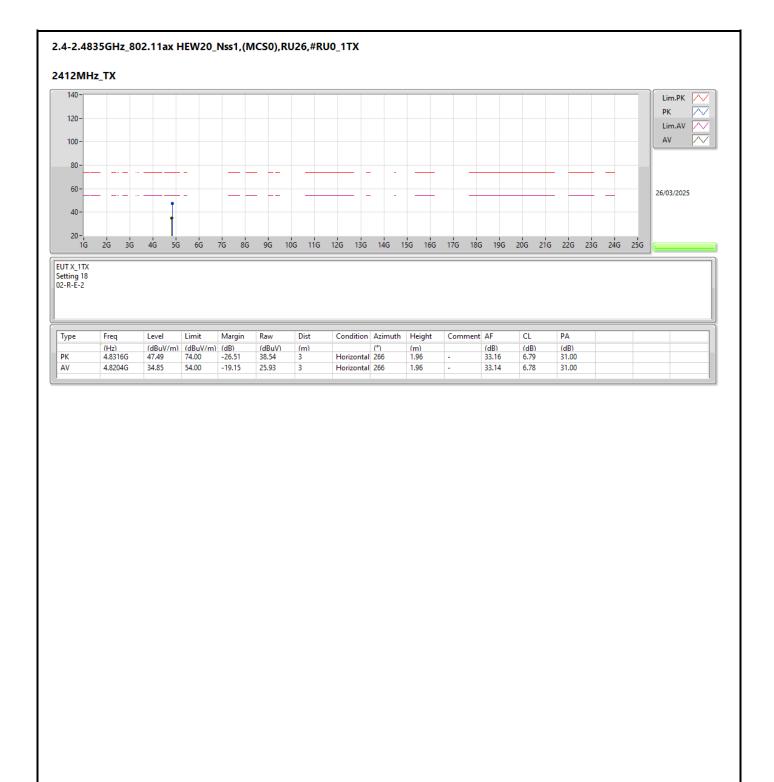






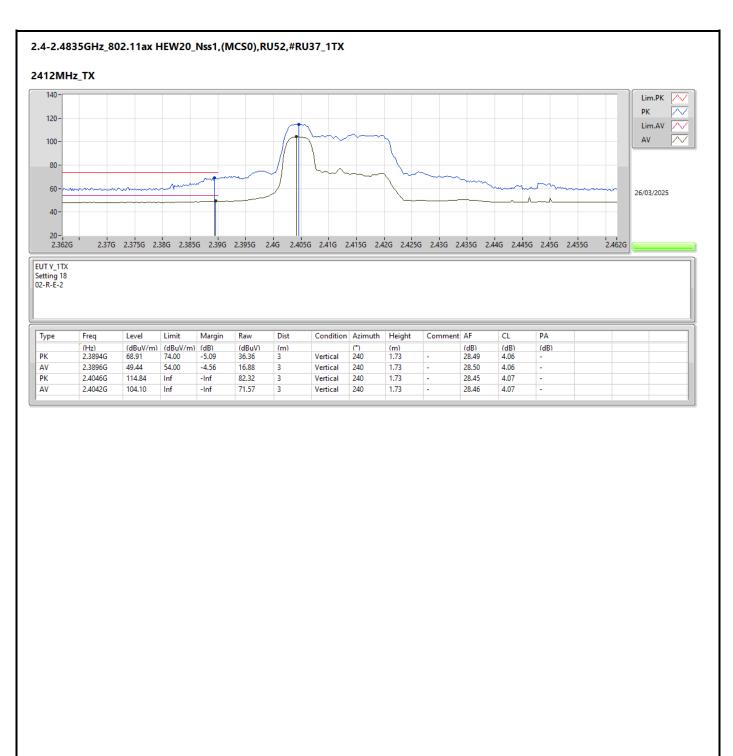
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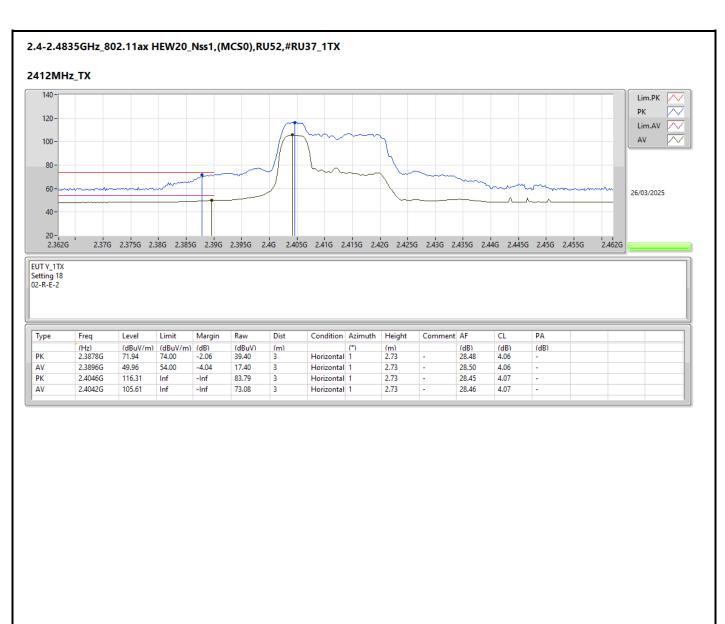
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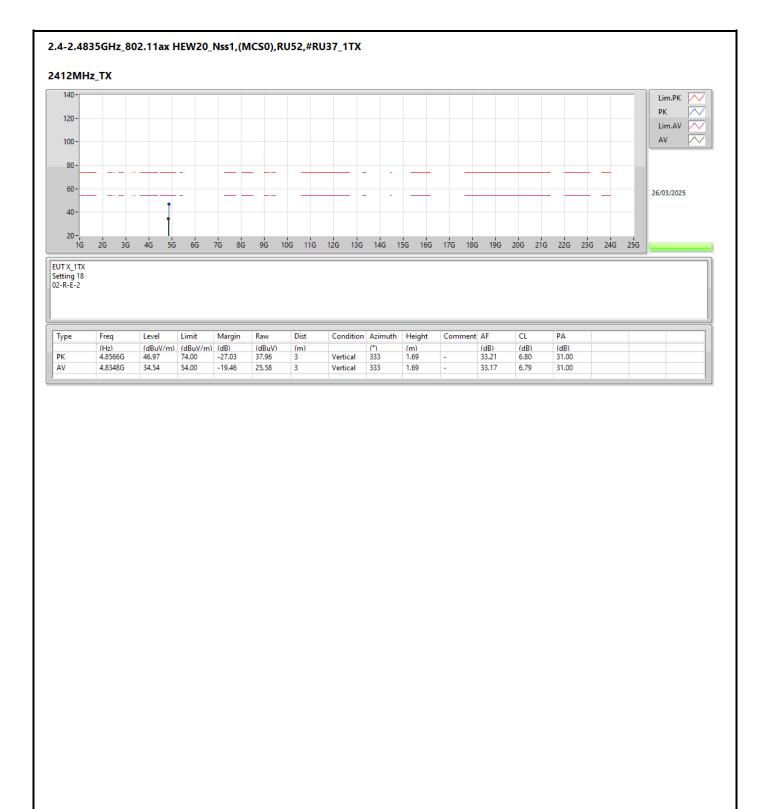
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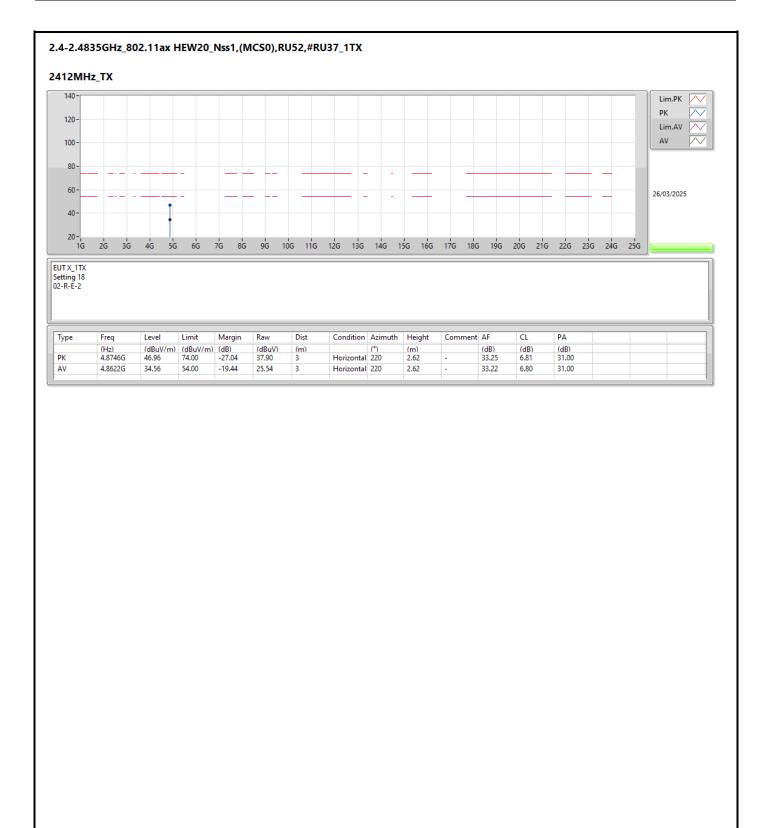


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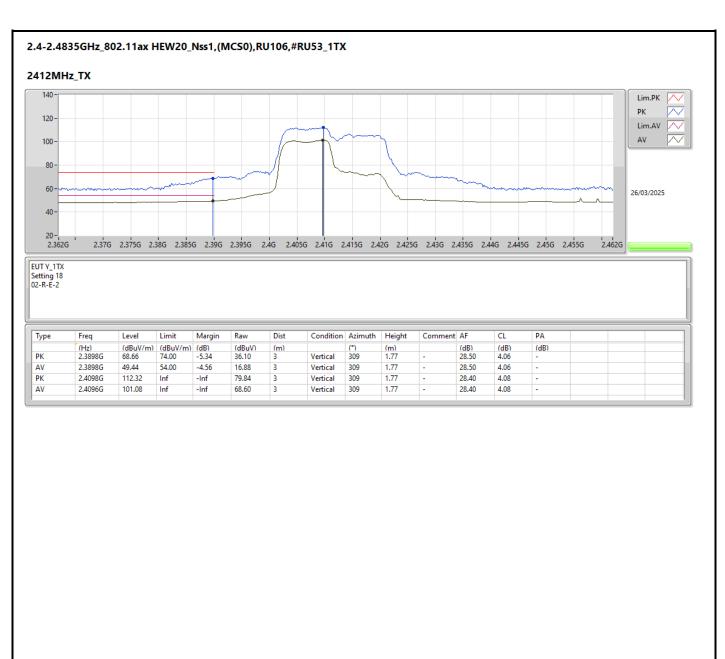






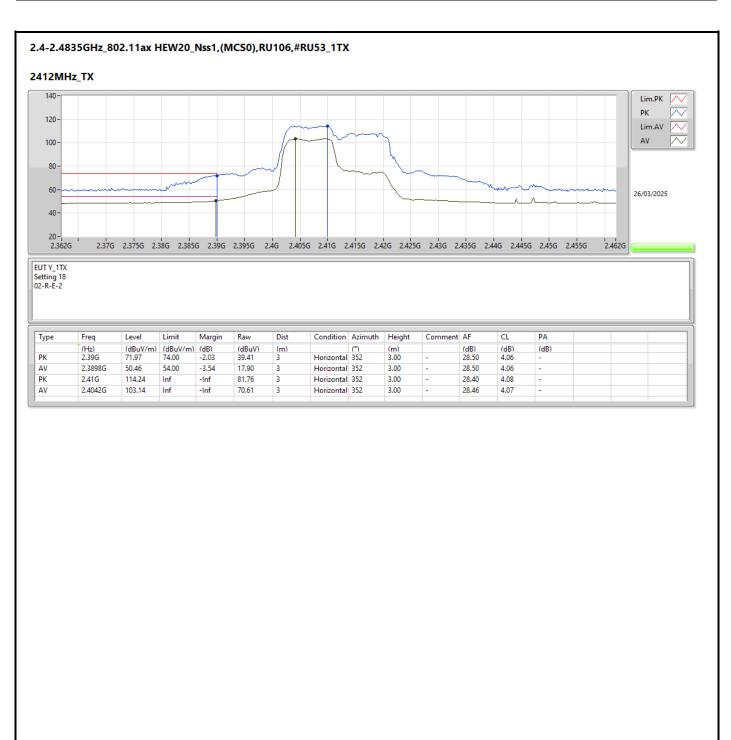






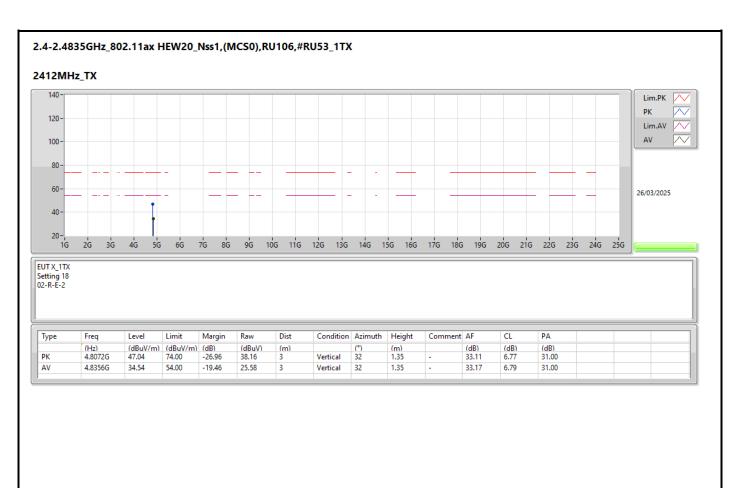
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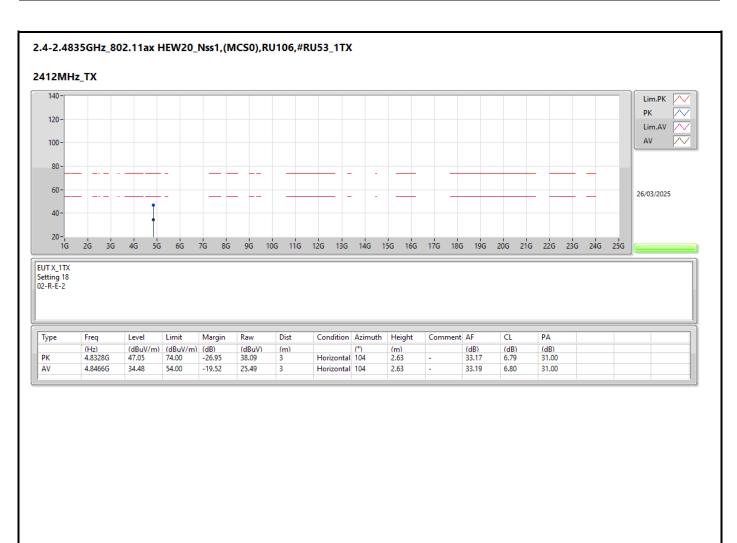
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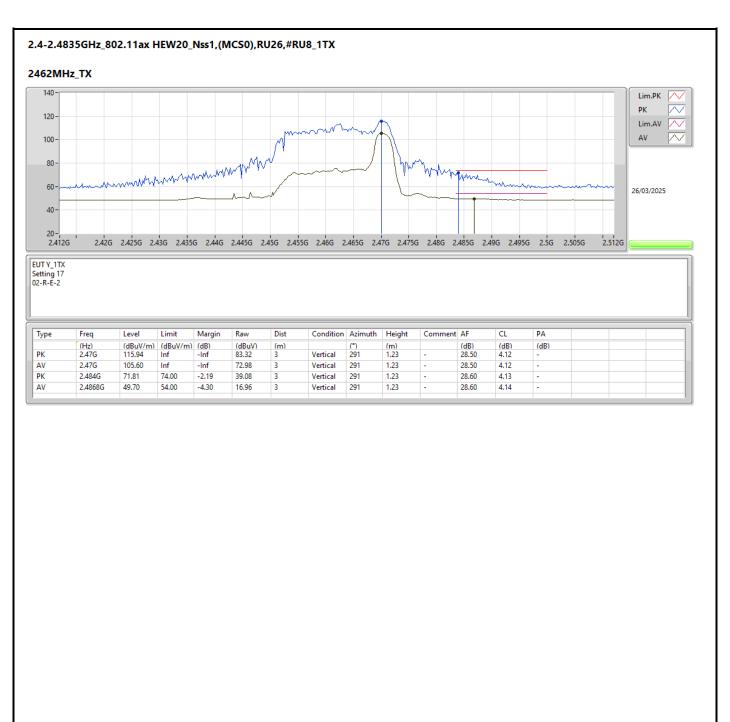
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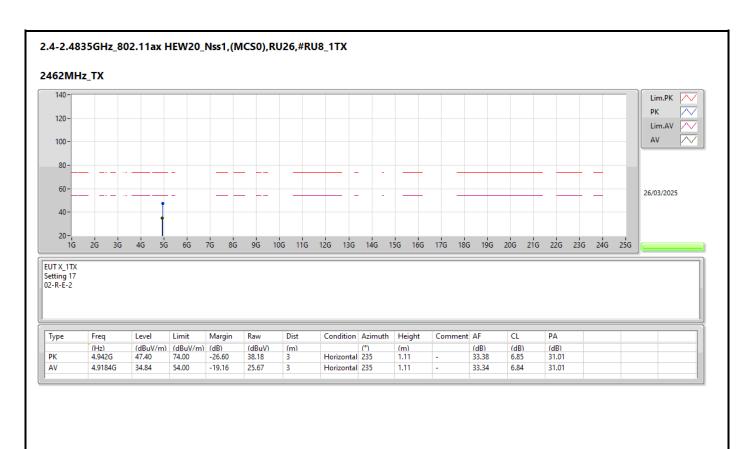






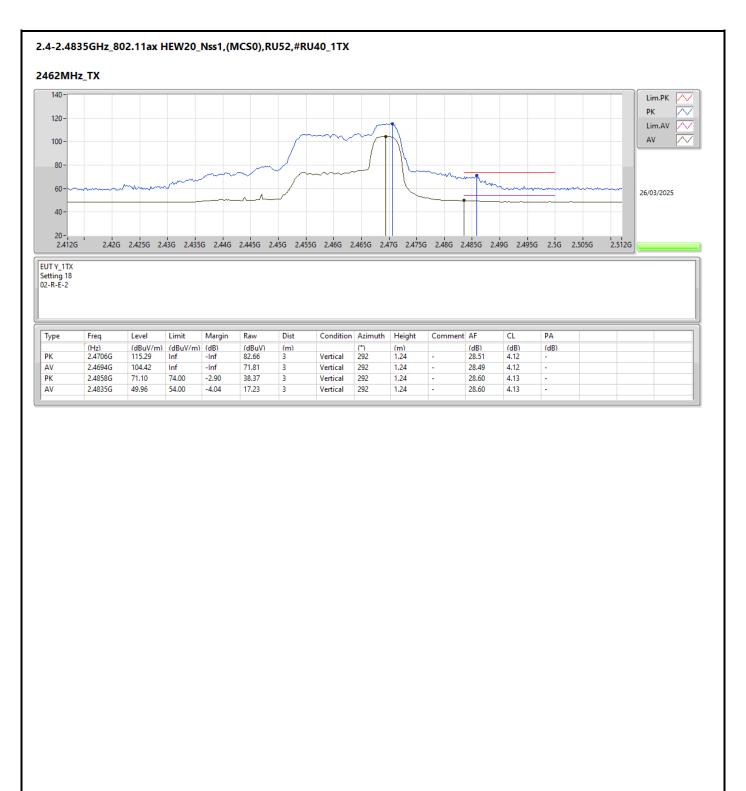
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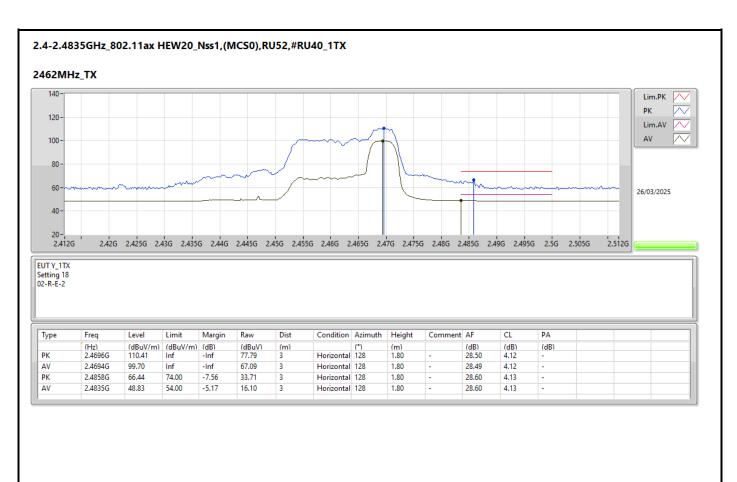


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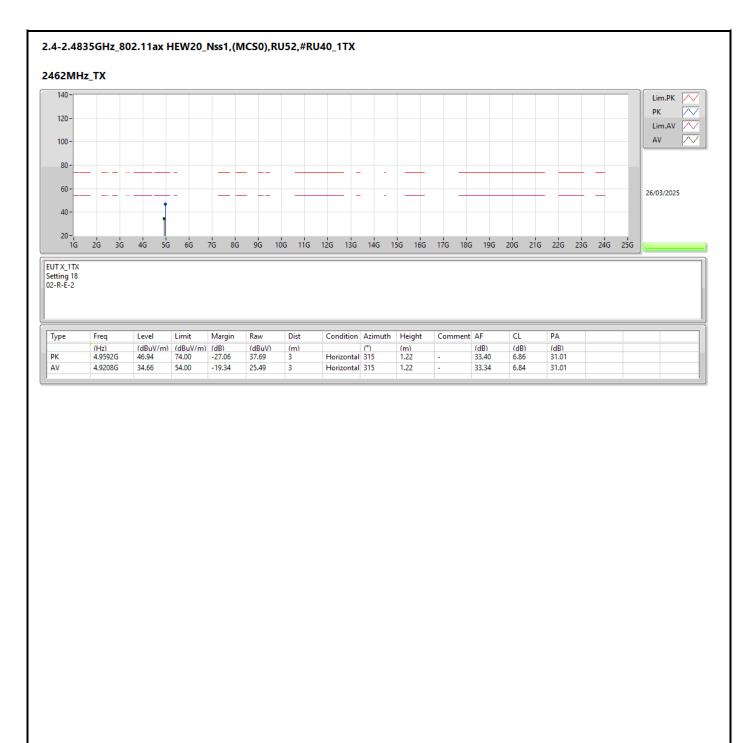
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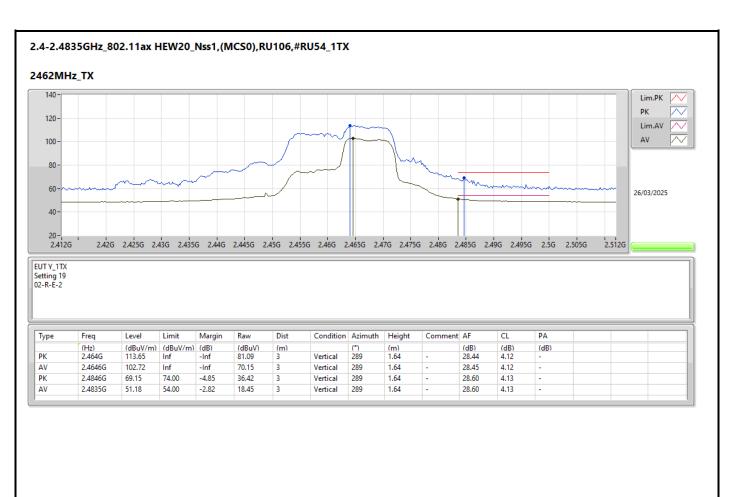
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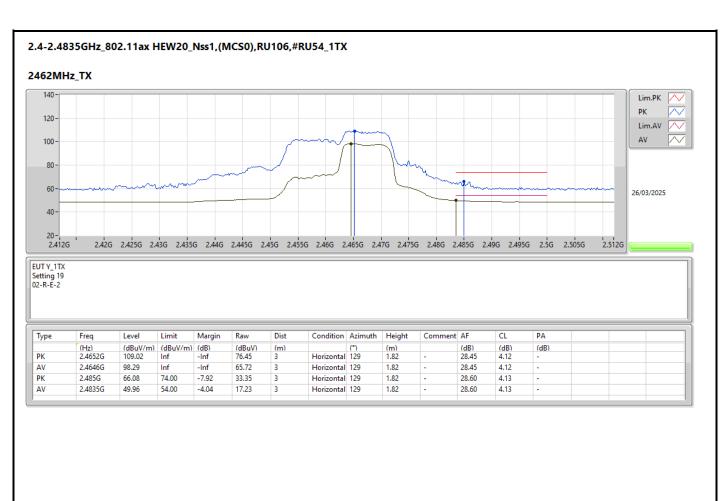
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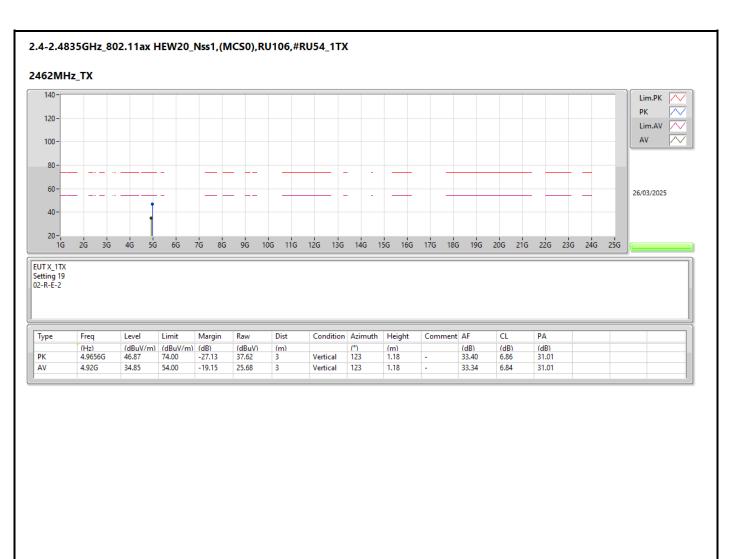
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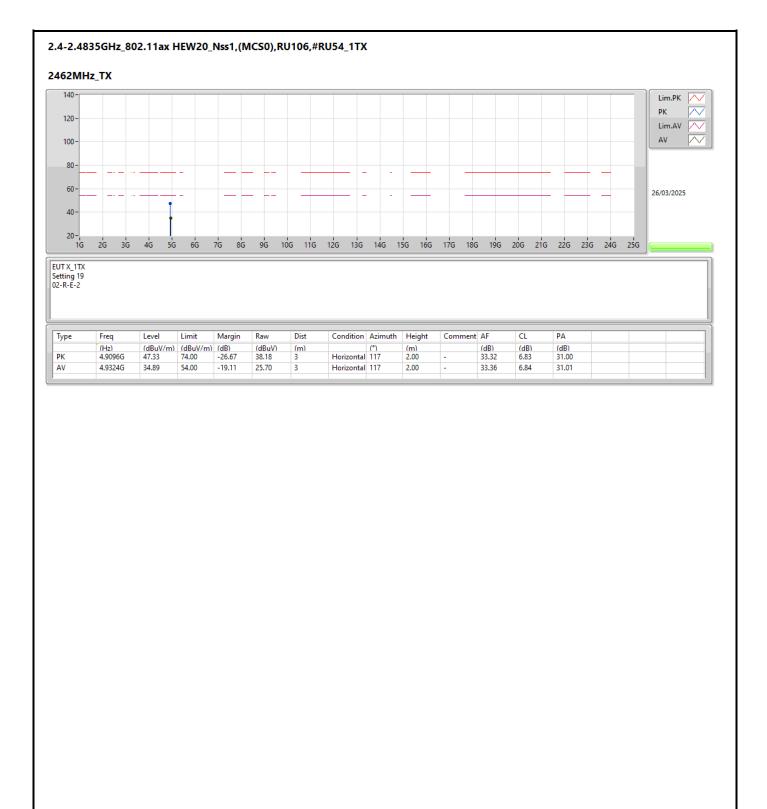
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## Radiated Emissions Co-Location

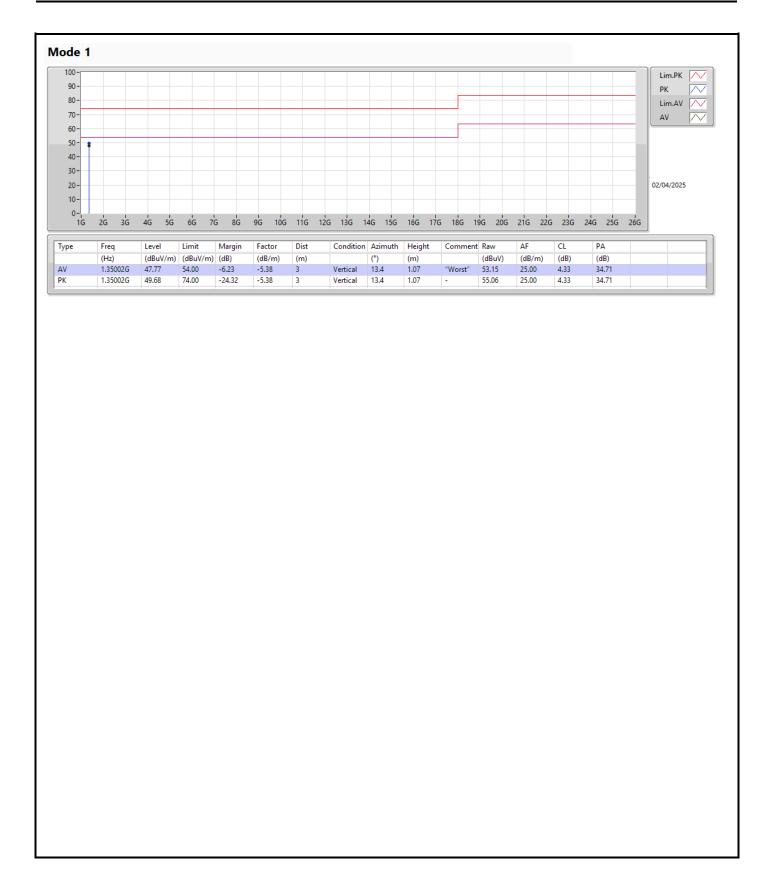
Appendix G

**Summary** 

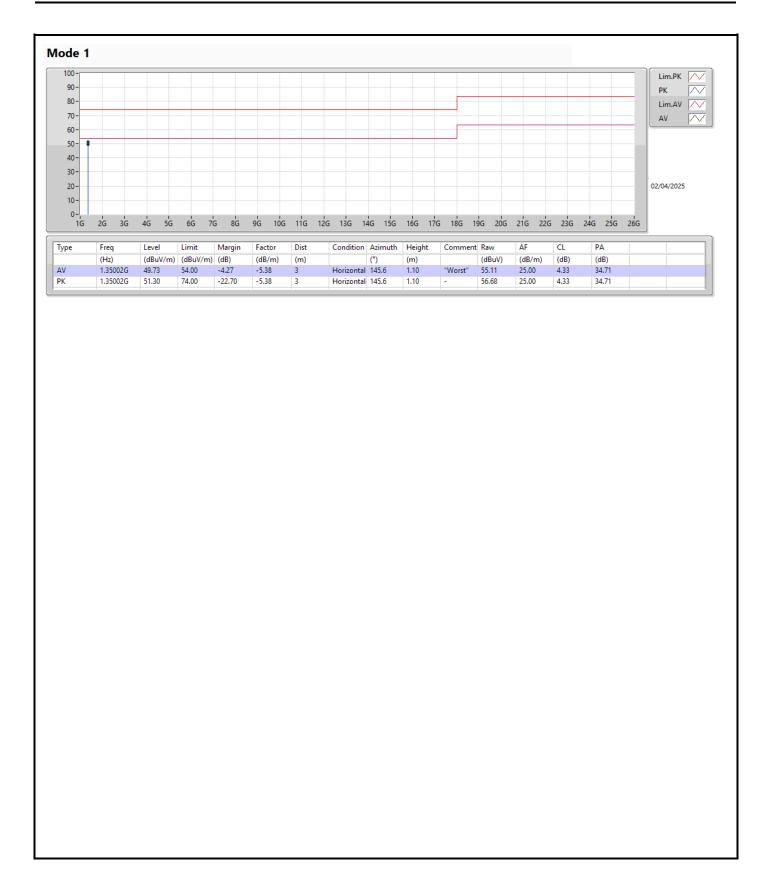
Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	AV	1.35002G	49.73	54.00	-4.27	Horizontal

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