

RADIO TEST REPORT

FCC ID : MSQ-RTBE8H00

Equipment : ROG STRIX WiFi 7 Tri-Band Gaming Router

Brand Name : ASUS

Model Name : GS-BE18000, GS-BE12000

Applicant : ASUSTeK COMPUTER INC.

1F., No. 15, Lide Rd., Beitou, Taipei City 112, Taiwan

Standard : 47 CFR FCC Part 15.407

The product was received on Jan. 09, 2025, and testing was started from Jan. 09, 2025 and completed on Feb. 19, 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: Rex Liao

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-A12_1 Ver1.4

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Report Version : 01

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Appendix B. Test Results of Emission Bandwidth

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Appendix E. Test Results of Unwanted Emissions

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Photographs of EUT v01

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History of this test report

Report No. : FR510722AB

Report No.	Version	Description	Issued Date
FR510722AB	01	Initial issue of report	Feb. 25, 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	15.407(a)	Emission Bandwidth	PASS	-
3.3	15.407(a)	Maximum Output Power	PASS	-
3.4	15.407(a)	Power Spectral Density	PASS	-
3.5	15.407(b)	Unwanted Emissions	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: Cathy Chiu

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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
5150-5250	a, n (HT20), ac (VHT20),	5180-5240	36-48 [4]
5725-5850	ax (HEW20), be (EHT20)	5745-5825	149-165 [5]
5150-5250	n (HT40), ac (VHT40),	5190-5230	38-46 [2]
5725-5850	ax (HEW40), be (EHT40)	5755-5795	151-159 [2]
5150-5250	ac (VHT80), ax (HEW80),	5210	42 [1]
5725-5850	be (EHT80)	5775	155 [1]

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Band	Mode	BWch	Nant
5.15-5.25GHz	802.11a	20	4TX
5.15-5.25GHz	802.11n HT20	20	4TX
5.15-5.25GHz	802.11n HT20-BF	20	4TX
5.15-5.25GHz	802.11ac VHT20	20	4TX
5.15-5.25GHz	802.11ac VHT20-BF	20	4TX
5.15-5.25GHz	802.11ax HEW20	20	4TX
5.15-5.25GHz	802.11ax HEW20-BF	20	4TX
5.15-5.25GHz	802.11be EHT20	20	4TX
5.15-5.25GHz	802.11be EHT20-BF	20	4TX
5.15-5.25GHz	802.11n HT40	40	4TX
5.15-5.25GHz	802.11n HT40-BF	40	4TX
5.15-5.25GHz	802.11ac VHT40	40	4TX
5.15-5.25GHz	802.11ac VHT40-BF	40	4TX
5.15-5.25GHz	802.11ax HEW40	40	4TX
5.15-5.25GHz	802.11ax HEW40-BF	40	4TX
5.15-5.25GHz	802.11ac VHT80	80	4TX
5.15-5.25GHz	802.11be EHT40-BF	80	4TX
5.15-5.25GHz	802.11ac VHT80	80	4TX
5.15-5.25GHz	802.11ac VHT80-BF	80	4TX
5.15-5.25GHz	802.11ax HEW80	80	4TX
5.15-5.25GHz	802.11ax HEW80-BF	80	4TX
5.15-5.25GHz	802.11be EHT80	80	4TX
5.15-5.25GHz	802.11be EHT80-BF	80	4TX
5.725-5.85GHz	802.11a	20	4TX
5.725-5.85GHz	802.11n HT20	20	4TX
5.725-5.85GHz	802.11n HT20-BF	20	4TX
5.725-5.85GHz	802.11ac VHT20	20	4TX
5.725-5.85GHz	802.11ac VHT20-BF	20	4TX
5.725-5.85GHz	802.11ax HEW20	20	4TX
5.725-5.85GHz	802.11ax HEW20-BF	20	4TX
5.725-5.85GHz	802.11be EHT20	20	4TX

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5.725-5.85GHz	802.11be EHT20-BF	20	4TX
5.725-5.85GHz	802.11n HT40	40	4TX
5.725-5.85GHz	802.11n HT40-BF	40	4TX
5.725-5.85GHz	802.11ac VHT40	40	4TX
5.725-5.85GHz	802.11ac VHT40-BF	40	4TX
5.725-5.85GHz	802.11ax HEW40	40	4TX
5.725-5.85GHz	802.11ax HEW40-BF	40	4TX
5.725-5.85GHz	802.11be EHT40	40	4TX
5.725-5.85GHz	802.11be EHT40-BF	40	4TX
5.725-5.85GHz	802.11ac VHT80	80	4TX
5.725-5.85GHz	802.11ac VHT80-BF	80	4TX
5.725-5.85GHz	802.11ax HEW80	80	4TX
5.725-5.85GHz	802.11ax HEW80-BF	80	4TX
5.725-5.85GHz	802.11be EHT80	80	4TX
5.725-5.85GHz	802.11be EHT80-BF	80	4TX

Note:

- 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- VHT20, VHT40, VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- HEW20, HEW40, HEW80 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- EHT20, EHT40, EHT80 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

Ant.		Port		Brand	Model Name	Antonno Tyno	Connector	Coin (dBi)
Ant.	2.4GHz	5GHz	6GHz		Model Name	Antenna Type	Connector	Gain (dBi)
1	1	1	1	LYNwave	MLX24X-121AA0-A	PCB Antenna	I-PEX	
2	2	2	1	LYNwave	MLX24X-121AA0-A	PCB Antenna	I-PEX	
3	-	-	4	LYNwave	MLX24X-121AA0-A	Dipole Antenna	I-PEX	
4	-	-	2	LYNwave	MLX24X-121AA0-A	Dipole Antenna	I-PEX	Note 1
5	-	3	-	LYNwave	MLX24X-121AA0-A	Dipole Antenna	I-PEX	Note 1
6	-	4	-	LYNwave	MLX24X-121AA0-A	Dipole Antenna	I-PEX	
7	-	-	1	LYNwave	MLX24X-121AA0-A	Dipole Antenna	I-PEX	
8		-	3	LYNwave	MLX24X-121AA0-A	Dipole Antenna	I-PEX	

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Note 1:

		Antenna Gain (dBi)							
Ant.	WLAN	WLAN 5GHz	WLAN 5GHz	WLAN 5GHz	WLAN 5GHz	WLAN 6GHz	WLAN 6GHz	WLAN 6GHz	WLAN 6GHz
	2.4GHz	UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 5	UNII 6	UNII 7	UNII 8
1	2.87	4.03	4.06	3.8	2.74	-	-	-	=
2	2.66	2.23	3.44	3.5	3.04	-	-	-	=
3	=	-	-	-	-	4.66	3.16	3.19	3.36
4	=	-	-	-	-	3.59	4.42	3.92	3.08
5	=	4.56	5.15	4.91	4.77	-	-	-	=
6	=	2.04	2.49	3.65	3.25	-	-	-	=
7	-	-	=	-	-	4.57	4.78	4.74	3.82
8	-	-	=	-	-	4.65	3.94	4.11	4.32

	Directional Gain (dBi)								
Item	WLAN	WLAN 5GHz	WLAN 5GHz	WLAN 5GHz	WLAN 5GHz	WLAN 6GHz	WLAN 6GHz	WLAN 6GHz	WLAN 6GHz
	2.4GHz	UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 5	UNII 6	UNII 7	UNII 8
2T1S	5.38	-	=	-	=	-	=	-	-
2T2S	2.87	-	-	-	-	-		-	-
4T1S	=	5.4	5.57	5.43	4.91	6.77	6.44	6.79	5.87
4T2S	=	4.56	5.15	4.91	4.77	4.66	4.78	4.74	4.32
4T4S	-	4.56	5.15	4.91	4.77	4.66	4.78	4.74	4.32

Note 2: Maximum Directional Gain following KDB662911 D03.

For WLAN 2.4GHz function:

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

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

Port 1 and Port 2 could transmit/receive simultaneously.

For WLAN 5GHz function:

For IEEE 802.11n/ac/ax/be mode (4TX/4RX):

Port 1, Port 2, Port 3 and Port 4 can be use as transmitting/receiving antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.

For WLAN 6GHz function:

For IEEE 802.11ax/be mode (4TX/4RX):

Port 1, Port 2, Port 3 and Port 4 can be use as transmitting/receiving antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.

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1.1.3 Mode Test Duty Cycle

Mode		DCF	Т	VBW
		(dB)	(s)	(Hz)_1/T
802.11a_Nss 1,(6D)	0.99	0.04	3.012m	10Hz (DC>=0.98)
802.11be EHT20-BF_Nss 1,(M0)	0.914	0.39	3.125m	500
802.11be EHT40-BF_Nss 1,(M0)	0.967	0.15	4.644m	300
802.11be EHT80-BF_Nss 1,(M0)	0.955	0.2	4.773m	300

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N	Oto	
N	o_{ic}	

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

1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter				
	\boxtimes	With beamforming		Without beamforming	
Beamforming Function	The product has beamforming function for n/VHT/ax/be in 2.4GHz and n/ac/ax/be in 5GHz.				
		Outdoor P2M	\boxtimes	Indoor P2M	
Function		Fixed P2P		Client	
	\boxtimes	Point-to-multipoint		Point-to-point	
		Supported Static Punctur	ing		
Channel Puncturing Function		Supported Dynamic Puncturing			
Support RU	\boxtimes	Full RU		Partial RU	
Test Software Version	Mtool 3.3.0.9				

Note: The above information was declared by manufacturer.

1.1.5 Table for Multiple Listing

EUT	Equipment Name	Model Name	Description
1	ROG STRIX WiFi 7	GS-BE18000	The housing processing technique uses spray painting.
2	Tri-Band Gaming Router	GS-BE12000	The housing processing technique uses a textured finish

Note 1: From the above models, model: GS-BE18000 (EUT 1) was 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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1.1.6 Table for EUT Support Function

Function	Supports Band	
AP Router	Master	
Bridge	Slave without radar detection	
Repeater	Master	
Mesh	Master	

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Note1: For above table list, only AP Router mode was tested and recorded in this test.

Note2: The USB port on this device supports both storage and WWAN functionality and EUT in WWAN mode, 2.5G WAN 8 ports will be fixed in LAN function.

Note3: 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
- ANSI C63.10-2013
- FCC KDB 789033 D02 v02r01

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

- FCC KDB 662911 D03 v01
- FCC KDB 412172 D01 v01r01
- 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	Ken Yeh	22.2~22.2 / 58~62	Feb. 08, 2025~ Feb. 19, 2025
Radiated (Below 1GHz and Co-location)	03CH04-CB	Jackson Peng	22.7-23.8 / 58-60	Feb. 19, 2025
	03CH01-CB		22.1-23.1 / 60-62	
Radiated (Above 1GHz)	03CH02-CB	1 190KSON PANO 1 22-23/61-63 1	Jan. 09, 2025~ Feb. 13, 2025	
(* 12313 † 3 11 <u>2</u>)	03CH05-CB		21.9-22.4 / 60-62	
AC Conduction	CO02-CB	Bob Chang	22~23 / 62~63	Feb. 05, 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% confidence

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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

Mode
802.11a_Nss1,(6Mbps)_4TX
5180MHz
5200MHz
5240MHz
5745MHz
5785MHz
5825MHz
802.11be EHT20-BF_Nss1,(MCS0)_4TX
5180MHz
5200MHz
5240MHz
5745MHz
5785MHz
5825MHz
802.11be EHT40-BF_Nss1,(MCS0)_4TX
5190MHz
5230MHz
5755MHz
5795MHz
802.11be EHT80-BF_Nss1,(MCS0)_4TX
5210MHz
5775MHz

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Note:

 Evaluated EHT20/EHT40/EHT80 mode only, due to similar modulation. The power setting of HT20/ HT40/VHT20/VHT40/VHT80/HEW20/HEW40/HEW80 mode are the same or lower than EHT20/ EHT40/EHT80.

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2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests			
Tests Item	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 + WAN mode			
2 EUT + Adapter + WWAN mode			
For operating mode 2 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 Emission Bandwidth Maximum Output Power Power Spectral Density			
Test Condition Conducted measurement at transmit chains			

The Worst Case Mode for Following Conformance Tests				
Tests Item Unwanted Emissions				
Test Condition Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in regardless of spatial multiplexing MIMO configuration), the radiated test sh be performed with highest antenna gain of each antenna type.				
Operating Mode < 1GHz	СТХ			
After evaluating, and the was written in the report.	vorst case was found at Y axis, so it was selected to perform test and its test result			
1	EUT in Y axis + WLAN 2.4GHz + Adapter			
2 EUT in Y axis + WLAN 5GHz + Adapter				
For operating mode 2 is the worst case and it was record in this test report.				
Operating Mode > 1GHz CTX				
After evaluating, and the worst case was found at Y axis, so it was selected to perform test and its test result was written in the report.				
1 EUT in Y axis				

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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			
Operating Mode Normal Link			
After evaluating, and the worst case was found at Y axis, so it was selected to perform test and its test result was written in the report.			
1 EUT in Y axis + WLAN 2.4GHz + WLAN 5GHz			
Refer to Appendix F for Radiated Emission Co-location.			

The Worst Case Mode for Following Conformance Tests					
Tests Item Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation					
Operating Mode	Operating Mode				
1 EUT + WLAN 2.4GHz + WLAN 5GHz UNII 1, 3					
2 EUT + WLAN 2.4GHz + WLAN 5GHz UNII 1, 3 + WWAN					
Refer to Sporton Test Report No.: FA510722 for Co-location RF Exposure Evaluation.					

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 7 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 Mtool 3.3.0.9.
- 3. Executed "Lantest.exe" to link with the remote workstation to transmit and receive packet by Clien 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 Name	Brand Name	Model Name	Rating	
Adapter	LEI	MU36D1120300-A1	INPUT: 100-240V ~ 50/60Hz, 1.0A OUTPUT: 12V, 3A	
Others				
RJ-45 cable*1, shielded, 1.5m				

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2.5 Support Equipment

For AC Conduction:

	Support Equipment					
No.	Equipment	Brand Name	Model Name	FCC ID		
Α	WWAN Dongle	CHT	E169	N/A		
В	WAN (LAN Function) PC	ASUS	S300TA	TX2-RTL8821CE		
С	LAN1 NB	DELL	E6430	N/A		
D	LAN7 NB	DELL	E6430	N/A		
Е	2.4G NB	Apple	A1278	N/A		
F	5G NB	Apple	A1278	N/A		
G	6G NB	DELL	E7240	N/A		
Н	6G Device	INTEL	BE200	PD9BE200NG		
I	SIM Card	Anritsu	N/A	N/A		
J	WWAN Base station	Anritsu	MT8820C	N/A		

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

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

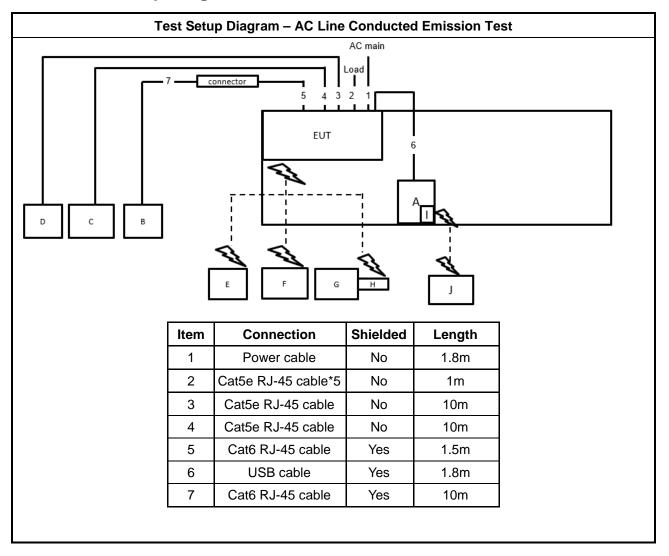
For Radiated (above 1GHz) / Beamforming mode:

	Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID	
Α	Notebook	DELL	E4300	N/A	
В	Client	ASUS	RT-BE96U	N/A	
С	Notebook	DELL	E4300	N/A	

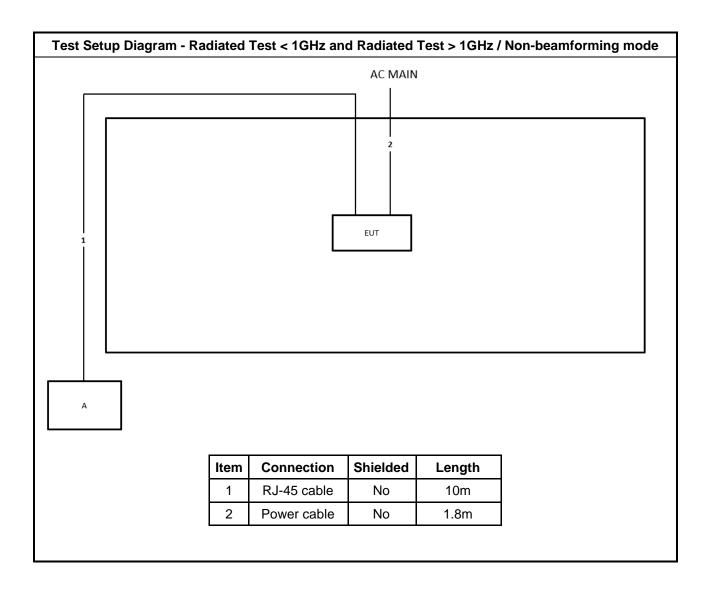
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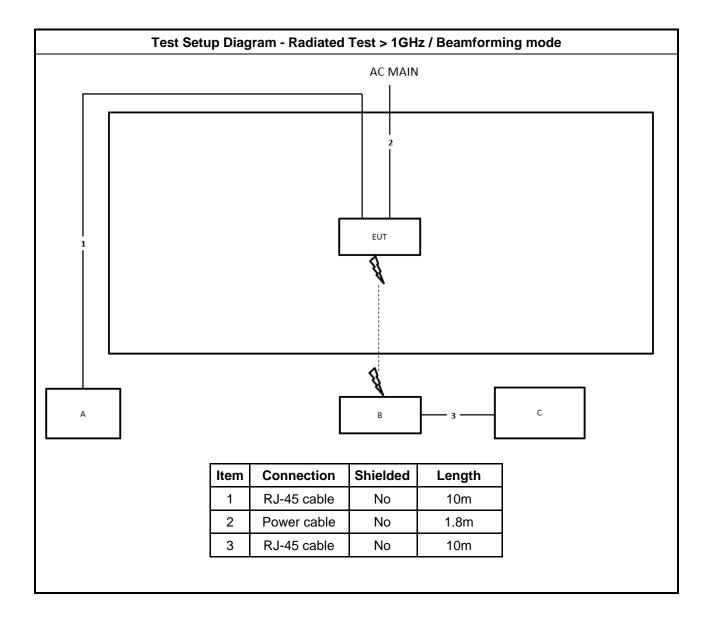
2.6 Test Setup Diagram



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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

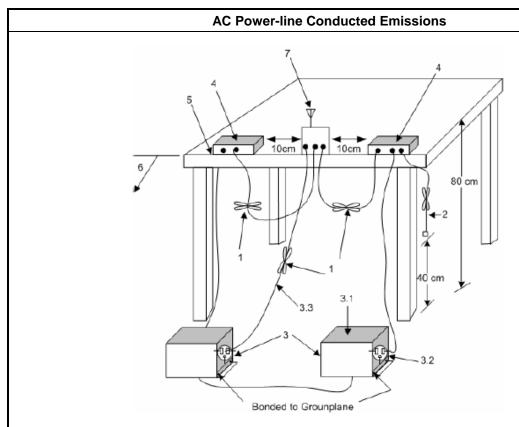
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

	Test Method
\boxtimes	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 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

	Emission Bandwidth Limit
UNI	I Devices
\boxtimes	For the 5.15-5.25 GHz band, N/A
	For the 5.25-5.35 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.
	For the $5.47-5.725$ GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.
\boxtimes	For the 5.725-5.85 GHz band, 26 dB emission bandwidth ,N/A. 6 dB emission bandwidth ≥ 500kHz.
LE-	LAN Devices
	For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
	For the 5.725-5.85 GHz band, 6 dB emission bandwidth ≥ 500kHz.

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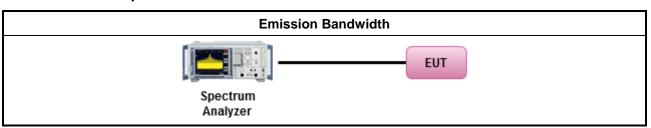
3.2.2 Measuring Instruments

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 789033 D02, clause C for EBW and clause D for OBW measurement.	
		Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.	
		Refer as IC RSS-Gen, clause 4.6 for 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 Output Power

3.3.1 Limit

	Maximum Output Power Limit		
UNI	II Devices		
\boxtimes	For the 5.15-5.25 GHz band:		
	 Outdoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If G_{TX} > 6 dBi, then P_{Out} = 30 - (G_{TX} - 6). e.i.r.p. at any elevation angle above 30 degrees ≤ 125mW [21dBm] 		
	Indoor AP: the maximum conducted output power (P _{Out}) shall not exceed the lesser of 1 W. If G _{TX} > 6 dBi, then P _{Out} = 30 − (G _{TX} − 6)		
	 Point-to-point AP: the maximum conducted output power (Pout) shall not exceed the lesser of 1 W If G_{TX} > 23 dBi, then Pout = 30 - (G_{TX} - 23). 		
	■ Mobile or Portable Client: the maximum conducted output power (P _{Out}) shall not exceed the lesser of 250 mW. If G _{TX} > 6 dBi, then P _{Out} = 24 - (G _{TX} - 6).		
	For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.		
	For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.		
\boxtimes	For the 5.725-5.85 GHz band:		
	Point-to-multipoint systems (P2M): the maximum conducted output power (P _{Out}) shall not exceed the lesser of 1 W. If G _{TX} > 6 dBi, then P _{Out} = 30 − (G _{TX} − 6).		
	 Point-to-point systems (P2P): the maximum conducted output power (Pout) shall not exceed the lesser of 1 W. 		
LE-	LAN Devices		
	For the 5.15-5.25 GHz band:		
	■ For other devices: The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.		
	 Vehicles devices: The maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. 		
	For the 5.25-5.35 GHz band:		
	 For other devices: The maximum conducted output power shall not exceed 250 mW or 11 + 10 log 10 B, dBm, and the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz 		
	 Vehicles devices: The maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. 		
	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum conducted output power shall not exceed 250 mW or 11 + 10 log 10 B, dBm, and the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.		
	For the 5.725-5.85 GHz band:		

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Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$.

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 Point-to-point systems (P2P): the maximum conducted output power (Pout) shall not exceed the lesser of 1 W.

P_{Out} = maximum conducted output power in dBm,

G_{TX} = the maximum transmitting antenna directional gain in dBi.

3.3.2 Measuring Instruments

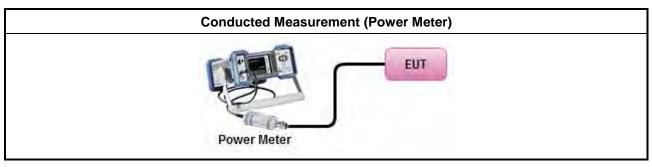
Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

		Test Method	
	Ave	rage over on/off periods with duty factor	
	Refer as FCC KDB 789033 D02, clause E Method SA-2 (spectral trace averaging).		
ļ		Refer as FCC KDB 789033 D02, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)	
	Wid	leband RF power meter and average over on/off periods with duty factor	
	\boxtimes	Refer as FCC KDB 789033 D02, clause E Method PM-G (using an RF average power meter).	
\boxtimes	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 _{total} = $P_{total} + DG$	
	For	radiated measurement.	
	•	Refer as FCC KDB 789033 D02 clause II A.1.F "Antenna-port Conducted versus Radiated Testing"	
	•	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.	
	-	Refer as FCC KDB 412172 D01 clause 2.2 for EIRP calculation.	

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3.3.4 Test Setup



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3.3.5 Test Result of Maximum Output Power

Refer as Appendix C

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3.4 Power Spectral Density

3.4.1 Limit

Peak Power Spectral Density Limit		
UNII Devices		
For the 5.15-5.25 GHz band:		
 Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If G_{TX} > 6 dBi, then P_{Out} = 17 - (G_{TX} - 6). 		
Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$.		
■ Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of $17dBm/MHz$. If $G_{TX} > 23$ dBi, then $P_{Out} = 17 - (G_{TX} - 23)$.		
 Mobile or Portable Client: the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If G_{TX} > 6 dBi, then PPSD= 11 - (G_{TX} - 6) 		
For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) \leq 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= 11 – ($G_{TX} - 6$).		
For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) \leq 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= 11 – ($G_{TX} - 6$).		
 Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If G_{TX} > 6 dBi, then PPSD= 30 - (G_{TX} - 6). 		
Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.		
LE-LAN Devices		
☐ For the 5.15-5.25 GHz band, the e.i.r.p. peak power spectral density (PPSD) \leq 10 dBm/MHz.		
☐ For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz.		
 e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where θ is the angle above the local horizontal plane (of the Earth) as shown below: -13 dBW/MHz for 0° ≤ θ < 8°; -13 - 0.716 (θ-8) dBW/MHz for 8° ≤ θ < 40° -35.9 - 1.22 (θ-40) dBW/MHz for 40° ≤ θ ≤ 45°; -42 dBW/MHz for θ > 45° 		
\square For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) \leq 11 dBm/MHz.		
☐ For the 5.725-5.85 GHz band:		
 Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If G_{TX} > 6 dBi, then PPSD= 30 - (G_{TX} - 6). 		
 Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. 		
PPSD = peak power spectral density that he same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz G_{TX} = the maximum transmitting antenna directional gain in dBi.		

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3.4.2 Measuring Instruments

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

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3.4.3 Test Procedures

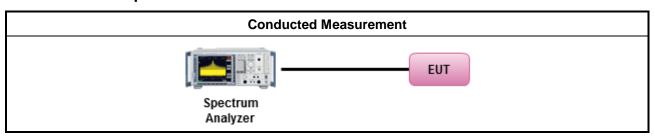
	Test Method			
•	Peak power spectral density procedures that the same method as used to determine the conducted output power shall be used to determine the peak power spectral density and use the peak search function on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density shall be measured using below options:			
	Refer as FCC KDB 789033 D02, F)5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth			
	[duty	v cycle ≥ 98% or external video / power trigger]		
	\boxtimes	Refer as FCC KDB 789033 D02, clause E Method SA-1 (spectral trace averaging).		
		Refer as FCC KDB 789033 D02, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)		
	duty	cycle < 98% and average over on/off periods with duty factor		
	\boxtimes	Refer as FCC KDB 789033 D02, clause E Method SA-2 (spectral trace averaging).		
		Refer as FCC KDB 789033 D02, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)		
	For	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.		
	•	If multiple transmit chains, EIRP PPSD calculation could be following as methods: PPSD _{total} = PPSD ₁ + PPSD ₂ + + PPSD _n (calculated in linear unit [mW] and transfer to log unit [dBm]) EIRP _{total} = PPSD _{total} + DG		
	For ı	adiated measurement.		
	•	Refer as FCC KDB 789033 D02 clause II A.1.F "Antenna-port Conducted versus Radiated Testing"		
	•	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.		

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Test Method ■ Refer as FCC KDB 412172 D01 clause 2.2 for EIRP calculation.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

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3.5 Unwanted Emissions

3.5.1 Transmitter Unwanted Emissions Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m) Measure Distance	
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	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.

Un-restricted band emissions above 1GHz Limit		
Operating Band	Limit	
⊠ 5.15 - 5.25 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]	
☐ 5.25 - 5.35 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]	
☐ 5.47 - 5.725 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]	
⊠ 5.725 - 5.85 GHz	all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	

Note 1: 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

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linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

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3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

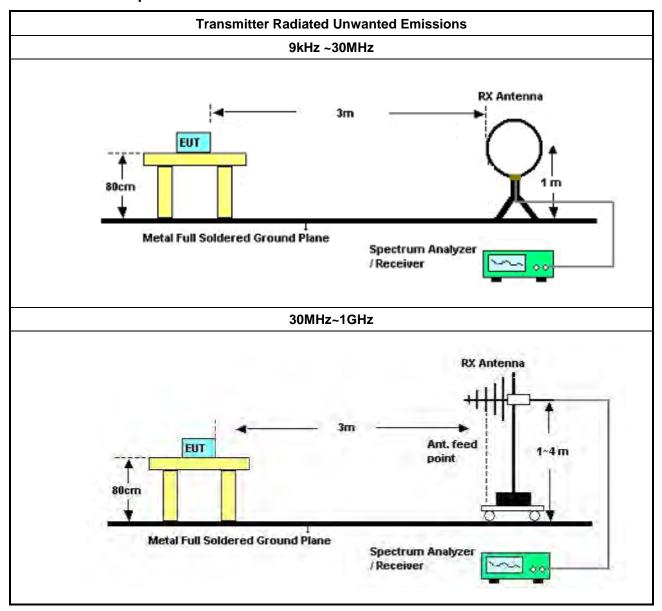
Test Method

- 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. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. 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).
- The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
- For the transmitter unwanted emissions shall be measured using following options below:
 - Refer as FCC KDB 789033 D02, clause G)2) for unwanted emissions into non-restricted bands.
 - Refer as FCC KDB 789033 D02, clause G)1) for unwanted emissions into restricted bands.
 - Refer as FCC KDB 789033 D02, G)6) Method AD (Trace Averaging).
 - Refer as FCC KDB 789033 D02, G)6) Method VB (Reduced VBW).
 - 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 789033 D02, clause G)5) measurement procedure peak limit.
 - Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
- For radiated measurement.
 - Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
 - Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
 - Refer as ANSI C63.10. clause 6.6 for radiated emissions above 1GHz.
- The any unwanted emissions level shall not exceed the fundamental emission level.
- All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

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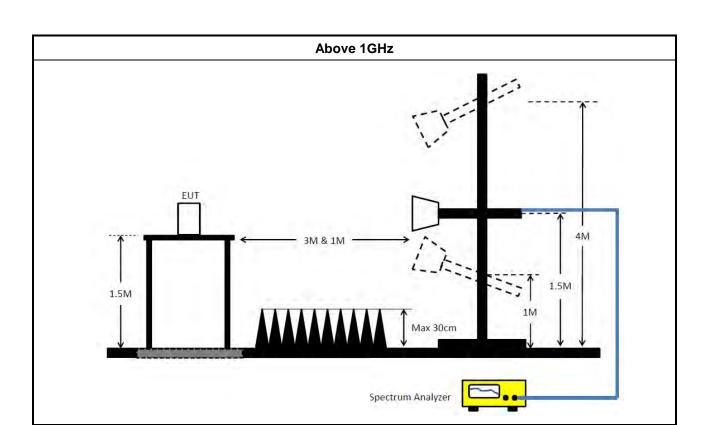


Test Setup 3.5.4



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3.5.5 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.

3.5.6 Transmitter Unwanted Emissions (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.

3.5.7 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E

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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. 14, 2025	Conduction (CO02-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	9kHz ~ 30MHz		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)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH01-CB	1GHz ~18GHz 3m	May 04, 2024	May 03, 2025	Radiation (03CH01-CB)
Horn Antenna	ETS·Lindgren	3115	00143147	750MHz~18GHz	Oct. 18, 2024	Oct. 17, 2025	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Sep. 23, 2024	Sep. 22, 2025	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02121	1GHz ~ 26.5GHz	May 17, 2024	May 16, 2025	Radiation (03CH01-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 25, 2024	Nov. 24, 2025	Radiation (03CH01-CB)
Signal Analyzer	R&S	FSV3044	101437	10kHz ~ 44GHz	Dec. 12, 2024	Dec. 11, 2025	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16	1 GHz ~ 18 GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16+17	1 GHz ~ 18 GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH01-CB)
Test Software	SPORTON	SENSE-15407 _NII	V5.11. 23	5.15GHz- 7.115GHz	N.C.R.	N.C.R.	Radiation (03CH01-CB)
3m Semi Anechoic Chamber VSWR	RIKEN	SAC-3M	03CH02-CB	1GHz ~18GHz	Mar. 24, 2024	Mar. 23, 2025	Radiation (03CH02-CB)
Horn Antenna	EMCO	3115	9610-4976	1GHz ~ 18GHz	1GHz ~ 18GHz		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)

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		T			T	T	
Instrument	Brand	Model No.	Serial No.	Characteristics Calibration Date		Calibration Due Date	Remark
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz Nov. 25, 2024		Nov. 24, 2025	Radiation (03CH02-CB)
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)
RF Cable-high	Woken	RG402	High Cable-18+19	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-15407 _NII	V5.11. 23	5.15GHz- 7.115GHz	N.C.R.	N.C.R.	Radiation (03CH02-CB)
Loop Antenna	Teseq	HLA 6121	65417	9kHz - 30MHz	Oct. 16, 2024	Oct. 15, 2025	Radiation (03CH04-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH04-CB	30 MHz ~ 1 GHz	Jul. 31, 2024	Jul. 30, 2025	Radiation (03CH04-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH04-CB	1GHz ~18GHz 3m	Feb. 22, 2024	Feb. 21, 2025	Radiation (03CH04-CB)
BILOG ANTENNA with 6 dB attenuator	Schaffner & EMCI	CBL6112B & N-6-06	22021&AT-N06 07	30MHz ~ 1GHz	Oct. 05, 2024	Oct. 04, 2025	Radiation (03CH04-CB)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	BBHA 9120D-01816	1GHz~18GHz	Dec. 20, 2024	Dec. 19, 2025	Radiation (03CH04-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Sep. 23, 2024	Sep. 22, 2025	Radiation (03CH04-CB)
Pre-Amplifier	EMCI	EMC330N	980391	20MHz ~ 3GHz	May 22, 2024	May 21, 2025	Radiation (03CH04-CB)
Pre-Amplifier	SGH	SGH5265	20211115-1	1~ 26.5GHz	Jan. 16, 2025	Jan. 15, 2026	Radiation (03CH04-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 25, 2024	Nov. 24, 2025	Radiation (03CH04-CB)
Spectrum Analyzer	R&S	FSP40	100142	9kHz~40GHz	9kHz~40GHz Mar. 19, 2024		Radiation (03CH04-CB
EMI Test Receiver	R&S	ESR7	102172	9kHz ~ 7GHz Oct. 21, 2024		Oct. 20, 2025	Radiation (03CH04-CB)
RF Cable-low	Woken	RG402	Low Cable-03+67	30MHz – 1GHz Oct. 01, 2024		Sep. 30, 2025	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21	1GHz - 18GHz Oct. 01, 2024		Sep. 30, 2025	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21+67	1GHz - 18GHz Oct. 01, 2024 Sep		Sep. 30, 2025	Radiation (03CH04-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH04-CB)
Test Software	SPORTON	SENSE-EMI	V5.11.8	30MHz-40GHz	N.C.R.	N.C.R.	Radiation (03CH04-CB)

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Instrument	Brand	Model No.	Serial No.	Characteristics Calibration Date		Calibration Due Date	Remark
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)
Test Software	SPORTON	SENSE-15407 _NII	V5.11. 23	5.15GHz- 7.115GHz	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)
Cable 9k-18G	Woken	RG402	Cable-95	9 kHz –18 GHz	Oct. 01, 2024	Sep. 30, 2025	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz Mar. 01, 2024 F		Feb. 28, 2025	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	MY45100745	50MHz~18GHz	50MHz~18GHz Jul. 12, 2024 Jul. 11,		Conducted (TH01-CB)
Test Software	SPORTON	SENSE-15407 _NII	V5.11. 23	5.15GHz- 7.115GHz	N.C.R.	N.C.R.	Conducted (TH01-CB)

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

NCR means Non-Calibration required.

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Conducted Emissions at Powerline

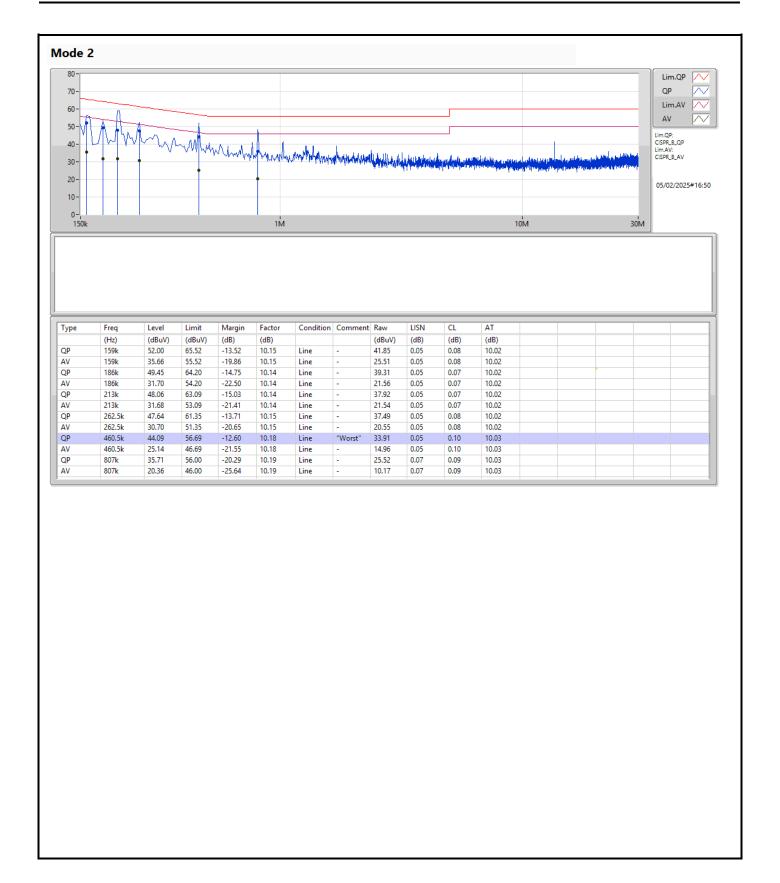
Appendix A

Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 2	Pass	QP	460.5k	44.09	56.69	-12.60	Line

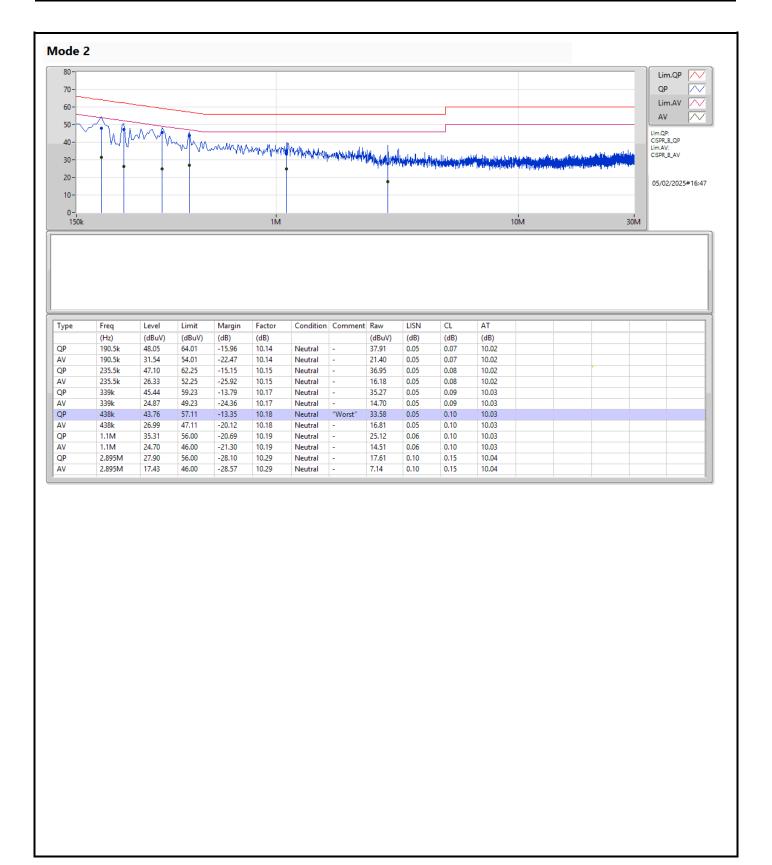
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Appendix B **EBW**

Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
5.15-5.25GHz	=	=	=	-	=
802.11a_Nss1,(6Mbps)_4TX	22.935M	17.085M	17M1D1D	21.285M	16.598M
802.11be EHT20-BF_Nss1,(MCS0)_4TX	23.925M	19.193M	19M2D1D	20.9M	18.991M
802.11be EHT40-BF_Nss1,(MCS0)_4TX	65.01M	37.881M	37M9D1D	40.81M	37.781M
802.11be EHT80-BF_Nss1,(MCS0)_4TX	92.84M	77.461M	77M5D1D	80.52M	77.161M
5.725-5.85GHz	-	-	-	ī	=
802.11a_Nss1,(6Mbps)_4TX	16.555M	17.204M	17M2D1D	16.335M	16.7M
802.11be EHT20-BF_Nss1,(MCS0)_4TX	19.14M	19.17M	19M2D1D	17.49M	18.97M
802.11be EHT40-BF_Nss1,(MCS0)_4TX	38.06M	38.008M	38M0D1D	37.51M	37.684M
802.11be EHT80-BF_Nss1,(MCS0)_4TX	77M	77.261M	77M3D1D	57.86M	76.962M

 $\label{eq:max-NdB} \mbox{ Asximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;} \mbox{ Max-OBW = Maximum 99% occupied bandwidth;} \mbox{ Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;} \mbox{ Min-OBW = Minimum 99% occupied bandwidth} \mbox{ } \mbox{ Coupled bandwidth} \mbox{ Min-OBW = Minimum 99% occupied bandwidth} \mbox{ } \mbox{ Min-N dB = Maximum 26dB down bandwidth for other band;} \mbox{ Min-N dB = Minimum 99% occupied bandwidth} \mbox{ } \mbox{$

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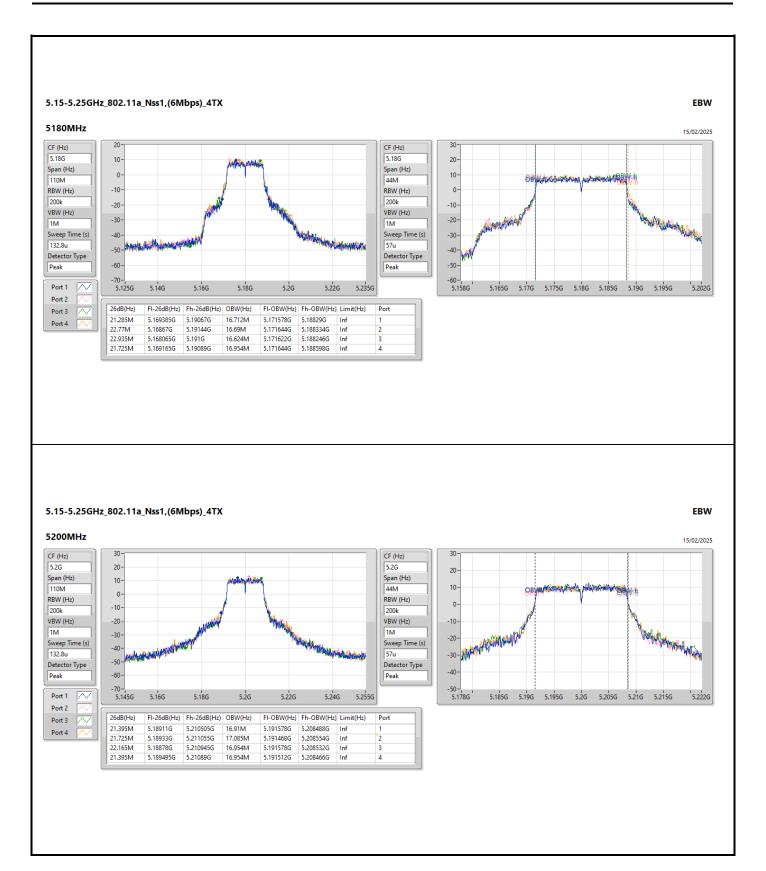


Result

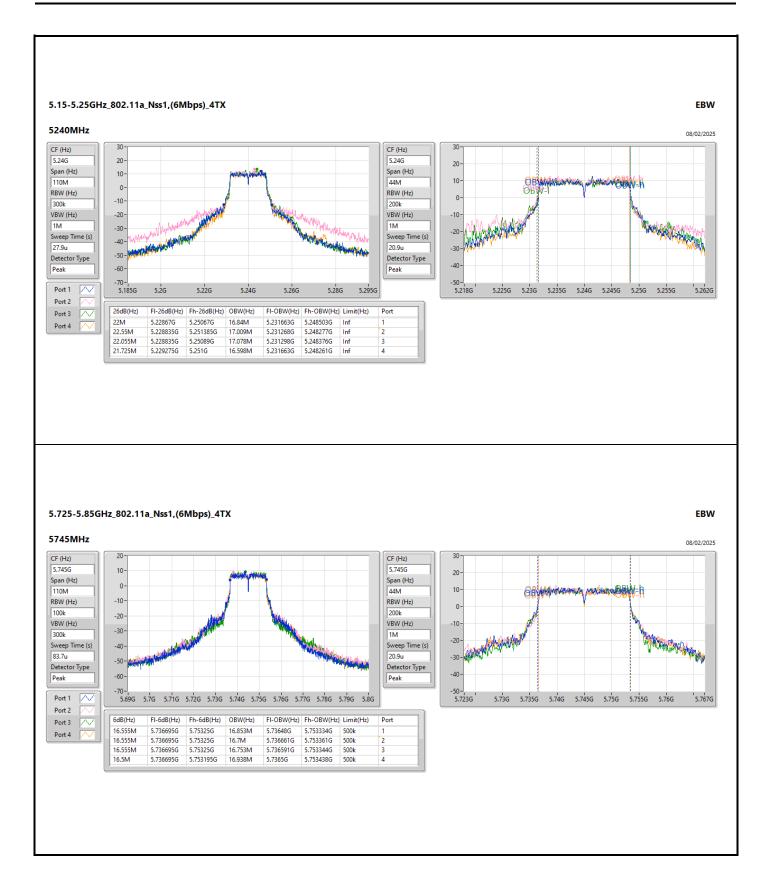
Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW	Port 3-N dB	Port 3-OBW	Port 4-N dB	Port 4-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	21.285M	16.712M	22.77M	16.69M	22.935M	16.624M	21.725M	16.954M
5200MHz	Pass	Inf	21.395M	16.91M	21.725M	17.085M	22.165M	16.954M	21.395M	16.954M
5240MHz	Pass	Inf	22M	16.84M	22.55M	17.009M	22.055M	17.078M	21.725M	16.598M
5745MHz	Pass	500k	16.555M	16.853M	16.555M	16.7M	16.555M	16.753M	16.5M	16.938M
5785MHz	Pass	500k	16.555M	16.807M	16.335M	17.061M	16.445M	17.088M	16.5M	16.75M
5825MHz	Pass	500k	16.555M	16.896M	16.555M	17.204M	16.445M	17.126M	16.555M	16.924M
802.11be EHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	21.89M	19.09M	23.925M	19.115M	21.56M	19.065M	21.34M	18.991M
5200MHz	Pass	Inf	21.12M	19.115M	21.89M	19.065M	21.67M	19.14M	20.9M	19.015M
5240MHz	Pass	Inf	21.285M	19.029M	21.505M	19.058M	23.87M	19.114M	21.835M	19.193M
5745MHz	Pass	500k	17.49M	19.063M	18.865M	19.17M	19.085M	19.032M	18.975M	19.039M
5785MHz	Pass	500k	19.085M	19.078M	19.14M	19.054M	19.14M	18.97M	19.085M	19.103M
5825MHz	Pass	500k	19.14M	19.15M	19.03M	19.165M	19.085M	19.04M	19.14M	19.005M
802.11be EHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	42.13M	37.831M	51.81M	37.881M	40.81M	37.831M	41.91M	37.781M
5230MHz	Pass	Inf	65.01M	37.781M	48.07M	37.831M	42.24M	37.781M	43.23M	37.881M
5755MHz	Pass	500k	38.06M	37.897M	37.51M	37.807M	37.95M	37.879M	38.06M	37.78M
5795MHz	Pass	500k	37.84M	37.791M	37.73M	38.008M	37.95M	37.684M	37.62M	37.881M
802.11be EHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	92.84M	77.261M	87.78M	77.161M	80.52M	77.261M	81.84M	77.461M
5775MHz	Pass	500k	77M	77.161M	57.86M	77.261M	76.12M	76.962M	76.56M	77.161M

Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth

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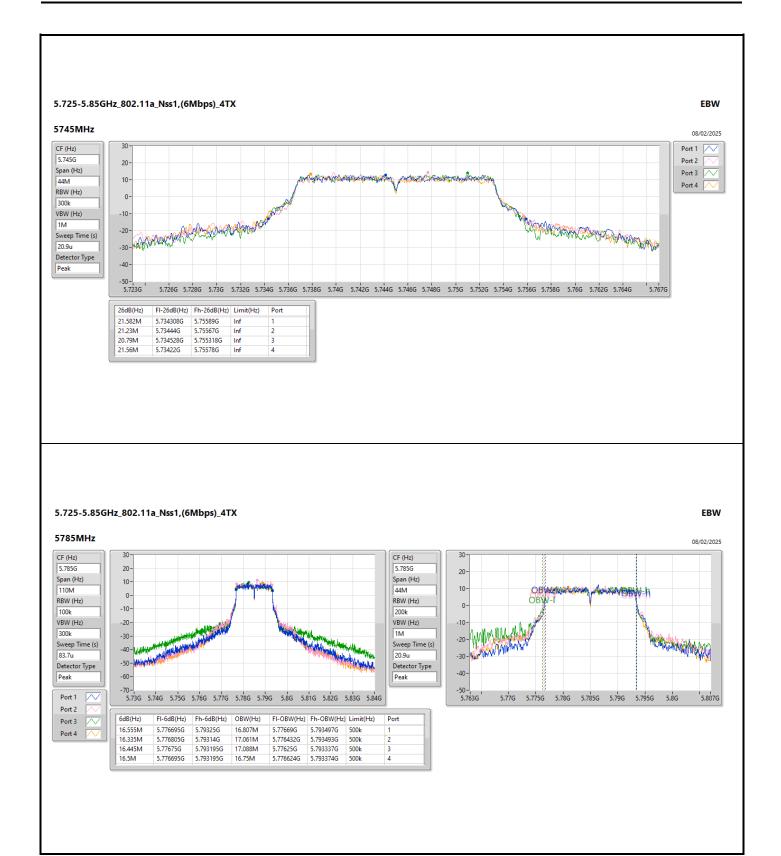


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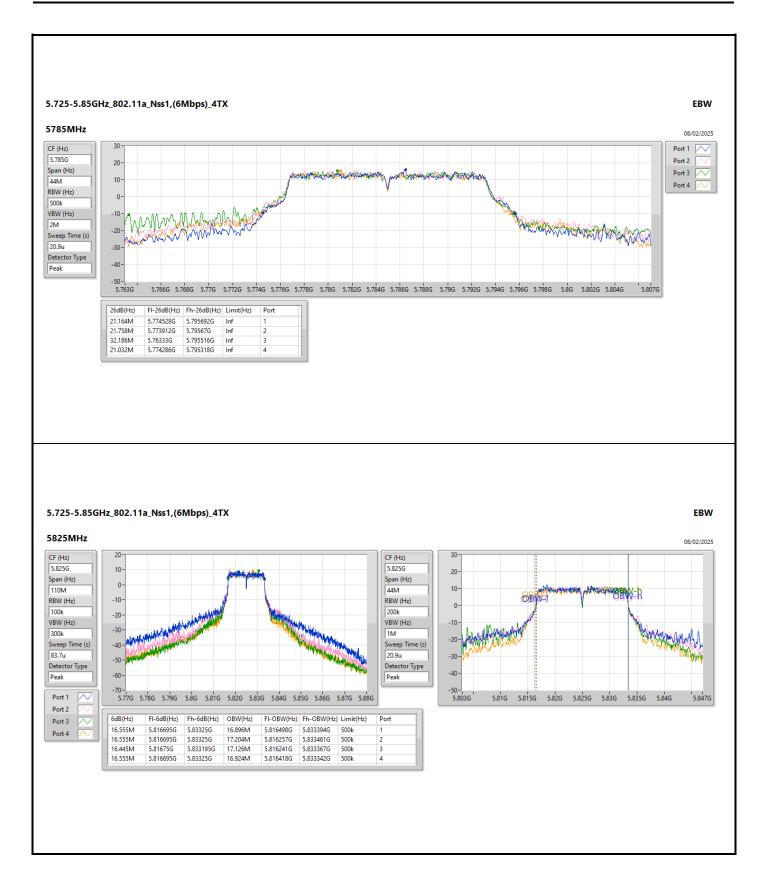
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EBW Appendix B



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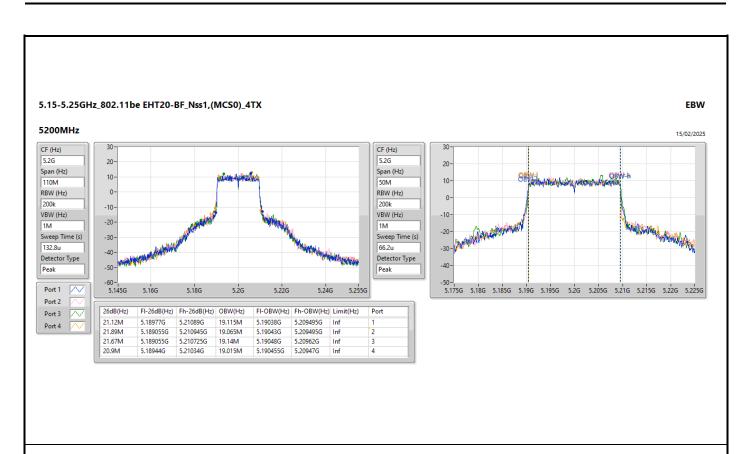
EBW Appendix B



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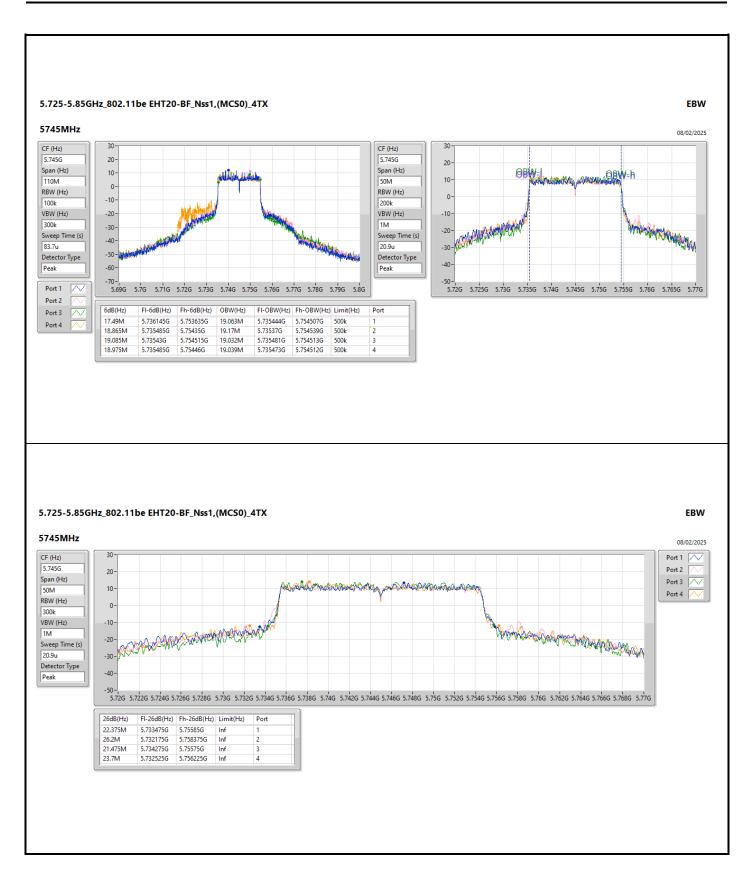


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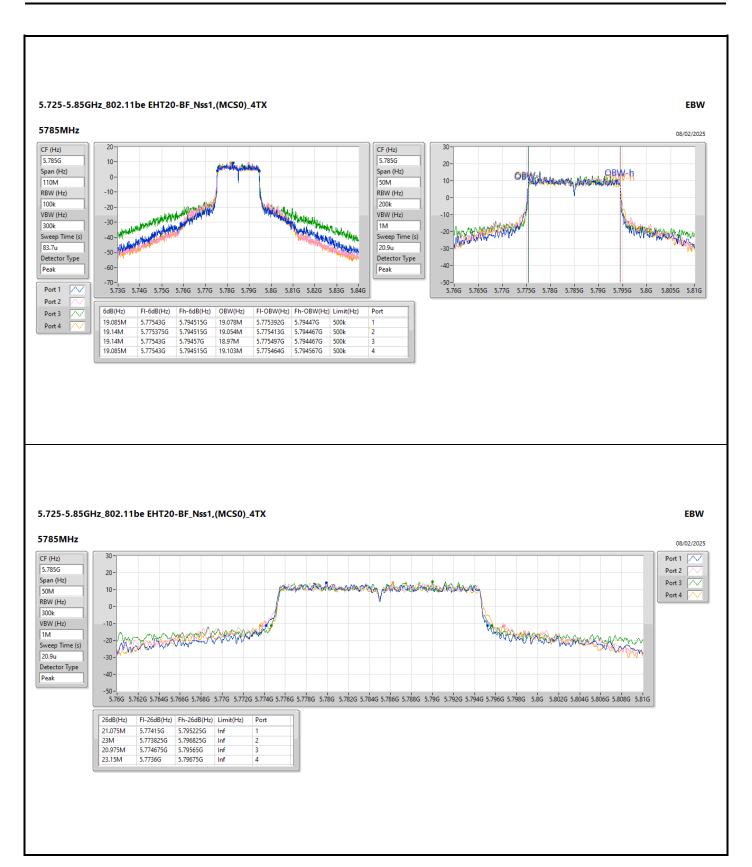




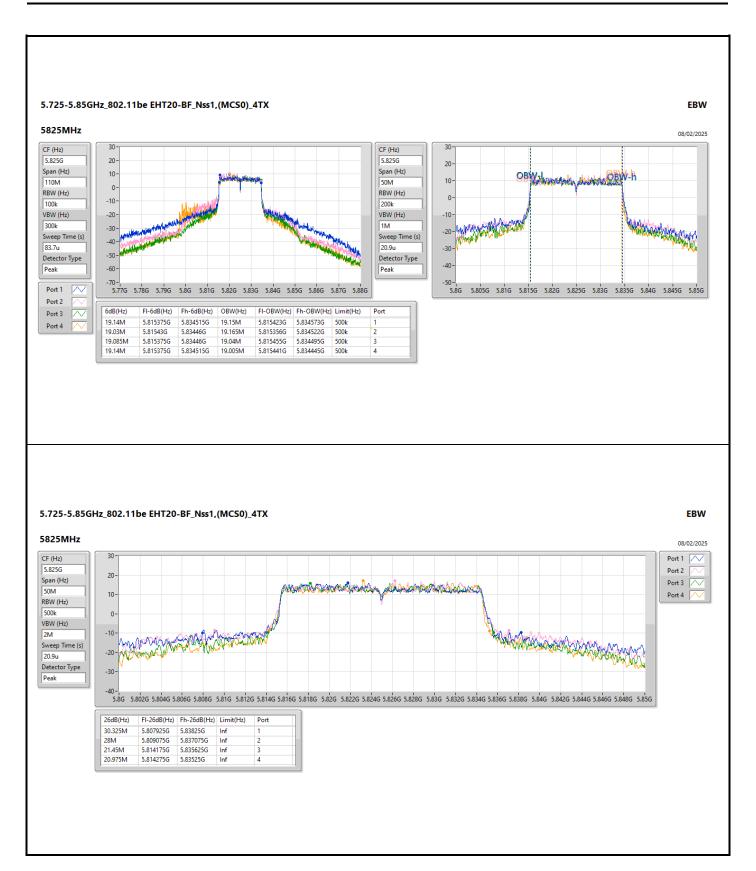
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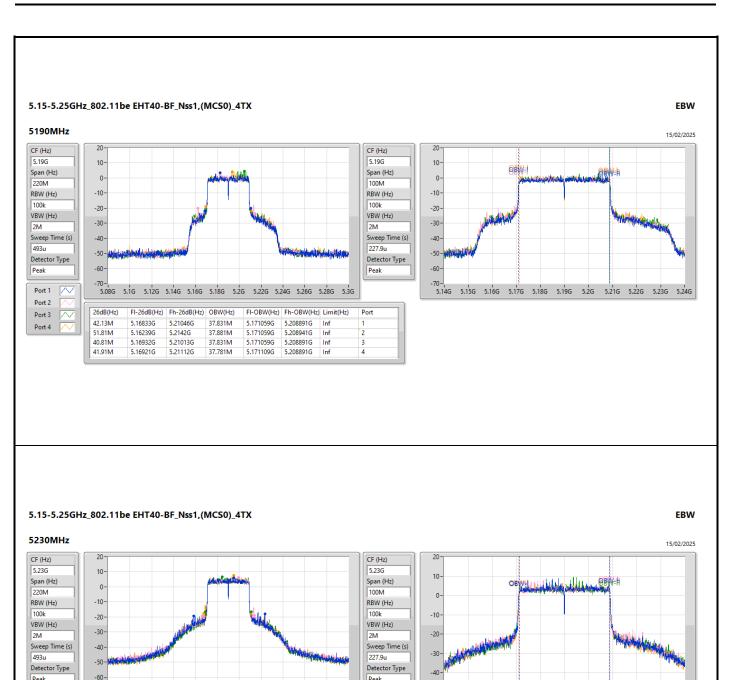


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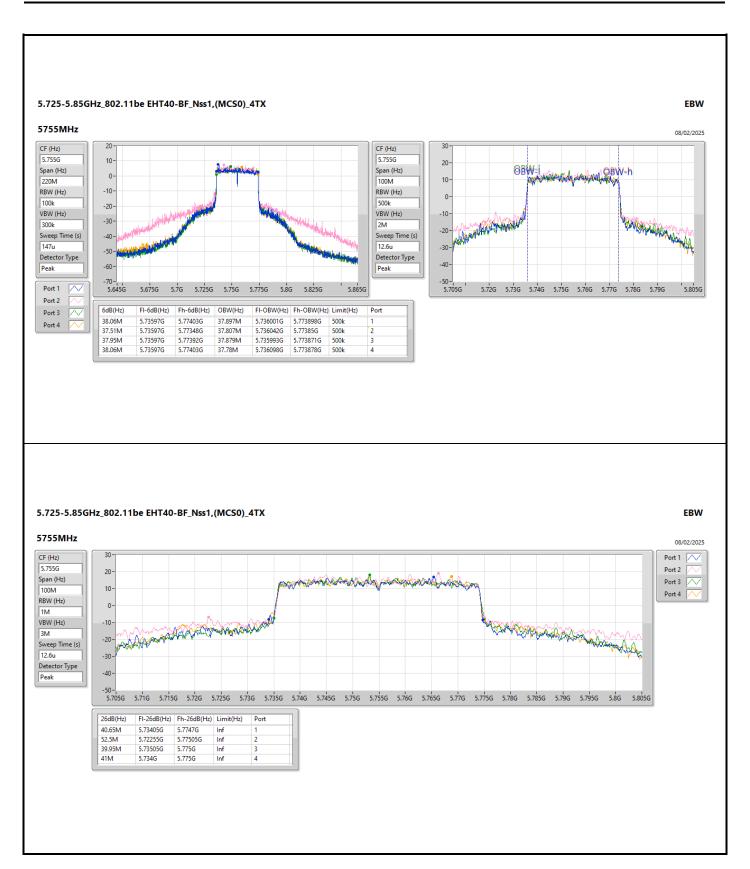
Port 1 Port 2 Port 3 EBW Appendix B



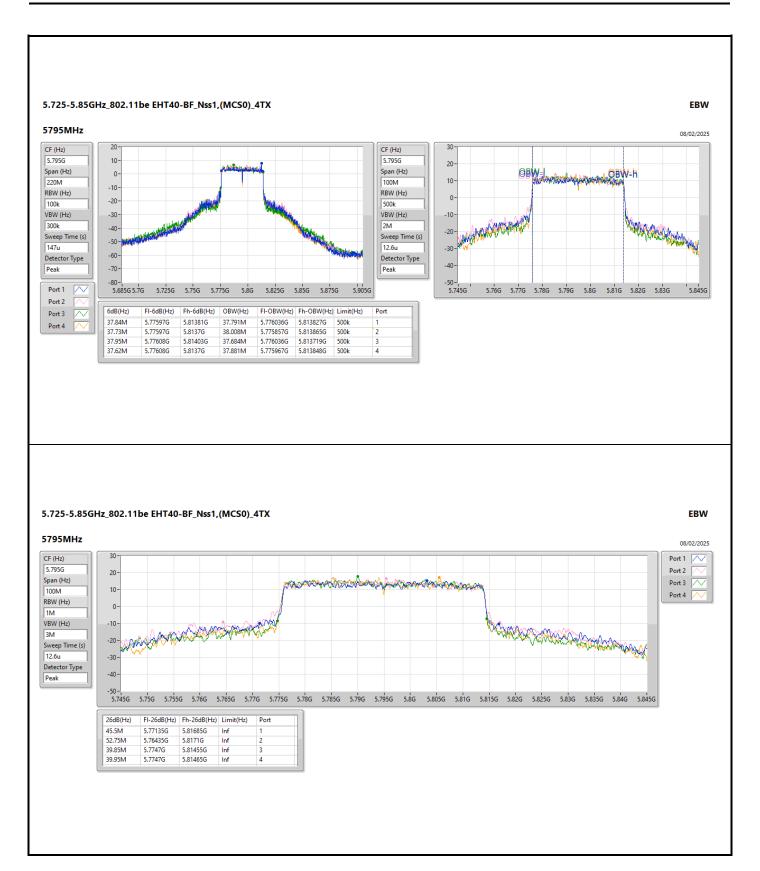
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8.07M	5.20591G	5.25398G	37.831M	5.211109G	5.248941G	Inf	2
2.24M	5.20899G	5.25123G	37.781M	5.211109G	5.248891G	Inf	3
3.23M	5.20745G	5.25068G	37.881M	5.211009G	5.248891G	Inf	4

-70 - 5.12G 5.14G 5.16G 5.18G 5.2G 5.22G 5.24G 5.26G 5.28G 5.3G 5.32G 5.34G

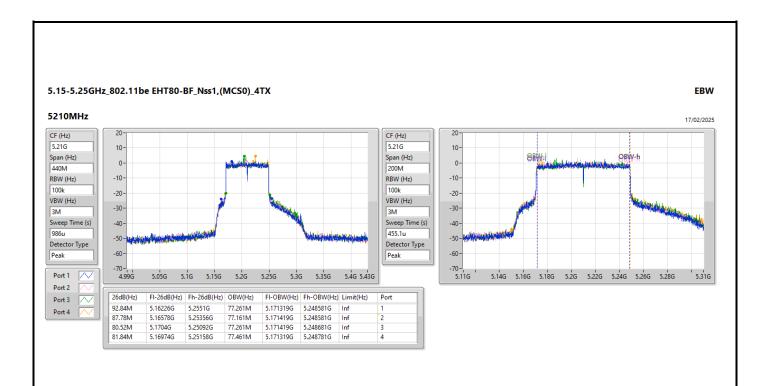
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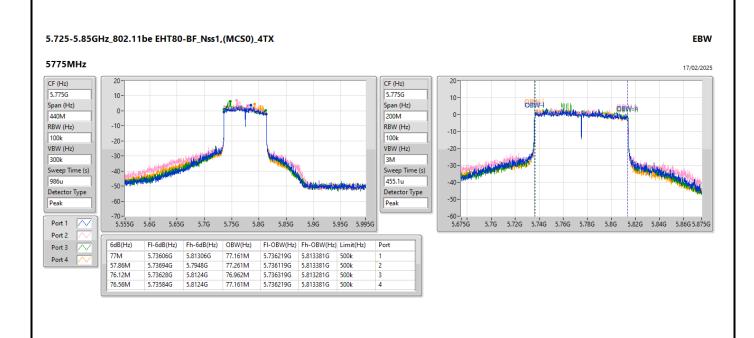


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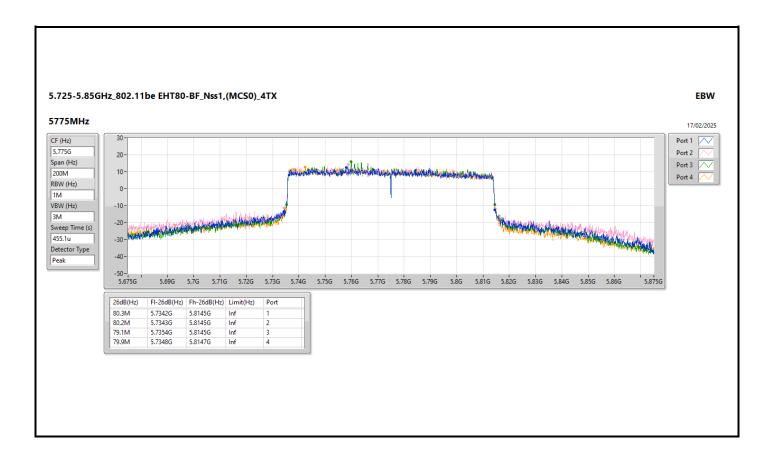
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Average Power Appendix C

Summary

Mode	Total Power	Total Power
	(dBm)	(W)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	29.94	0.98628
802.11be EHT20-BF_Nss1,(MCS0)_4TX	29.89	0.97499
802.11be EHT40-BF_Nss1,(MCS0)_4TX	29.62	0.91622
802.11be EHT80-BF_Nss1,(MCS0)_4TX	27.27	0.53333
5.725-5.85GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	29.81	0.95719
802.11be EHT20-BF_Nss1,(MCS0)_4TX	29.96	0.99083
802.11be EHT40-BF_Nss1,(MCS0)_4TX	29.95	0.98855
802.11be EHT80-BF_Nss1,(MCS0)_4TX	29.76	0.94624

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Appendix C Average Power

Result

Mode	Result	DG	Port 1	Port 2	Port 3	Port 4	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	4.56	21.24	21.32	21.47	21.47	27.40	30.00
5200MHz	Pass	4.56	23.44	23.37	23.58	23.56	29.51	30.00
5240MHz	Pass	4.56	23.62	24.56	23.48	23.93	29.94	30.00
5745MHz	Pass	4.77	23.70	23.87	24.00	23.56	29.81	30.00
5785MHz	Pass	4.77	23.67	23.87	23.80	23.58	29.75	30.00
5825MHz	Pass	4.77	23.81	23.84	23.71	23.45	29.73	30.00
802.11be EHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	5.40	20.61	20.72	21.09	21.12	26.91	30.00
5200MHz	Pass	5.40	23.36	23.28	23.47	23.49	29.42	30.00
5240MHz	Pass	5.40	23.65	24.44	23.40	23.90	29.89	30.00
5745MHz	Pass	4.91	23.57	23.85	23.98	23.62	29.78	30.00
5785MHz	Pass	4.91	23.86	24.14	24.15	23.59	29.96	30.00
5825MHz	Pass	4.91	24.05	24.04	23.93	23.60	29.93	30.00
802.11be EHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	5.40	19.19	19.30	19.52	19.72	25.46	30.00
5230MHz	Pass	5.40	23.67	23.55	23.50	23.66	29.62	30.00
5755MHz	Pass	4.91	23.65	24.48	23.74	23.80	29.95	30.00
5795MHz	Pass	4.91	23.76	23.99	23.97	23.70	29.88	30.00
802.11be EHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	5.40	21.17	21.38	21.29	21.14	27.27	30.00
5775MHz	Pass	4.91	23.61	23.84	23.75	23.74	29.76	30.00

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

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Summary

Mode	PD (dBm/RBW)
5.15-5.25GHz	-
802.11a_Nss1,(6Mbps)_4TX	16.63
802.11be EHT20-BF_Nss1,(MCS0)_4TX	16.44
802.11be EHT40-BF_Nss1,(MCS0)_4TX	13.54
802.11be EHT80-BF_Nss1,(MCS0)_4TX	8.26
5.725-5.85GHz	-
802.11a_Nss1,(6Mbps)_4TX	14.83
802.11be EHT20-BF_Nss1,(MCS0)_4TX	14.87
802.11be EHT40-BF_Nss1,(MCS0)_4TX	11.88
802.11be EHT80-BF_Nss1,(MCS0)_4TX	9.54

RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

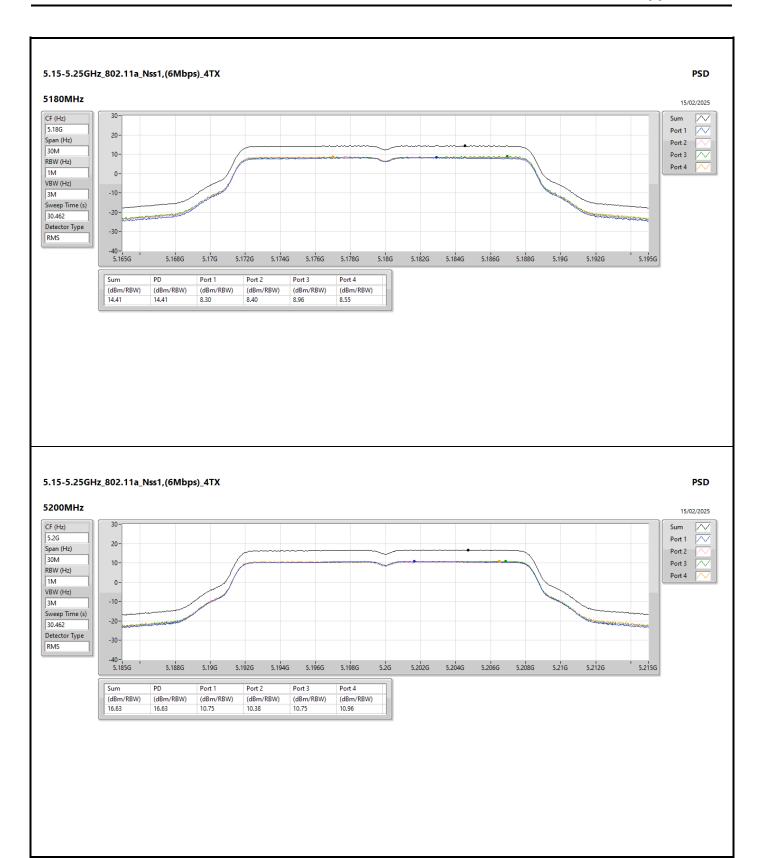
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Result

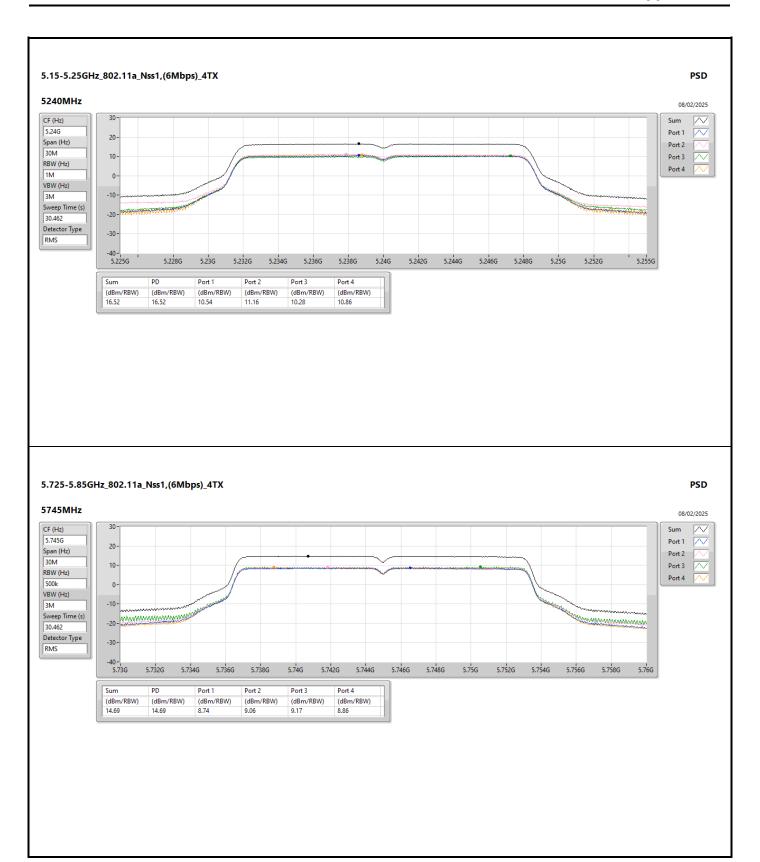
Mode	Result	DG	Port 1	Port 2	Port 3	Port 4	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	5.40	8.30	8.40	8.96	8.55	14.41	17.00
5200MHz	Pass	5.40	10.75	10.38	10.75	10.96	16.63	17.00
5240MHz	Pass	5.40	10.54	11.16	10.28	10.86	16.52	17.00
5745MHz	Pass	4.91	8.74	9.06	9.17	8.86	14.69	30.00
5785MHz	Pass	4.91	8.95	9.24	8.95	8.80	14.79	30.00
5825MHz	Pass	4.91	8.99	9.18	9.14	8.74	14.83	30.00
802.11be EHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	5.40	7.44	7.96	8.16	7.85	13.73	17.00
5200MHz	Pass	5.40	10.43	10.28	10.68	10.68	16.44	17.00
5240MHz	Pass	5.40	10.26	10.73	10.22	10.23	16.26	17.00
5745MHz	Pass	4.91	8.54	8.68	8.80	8.63	14.52	30.00
5785MHz	Pass	4.91	8.65	9.02	9.02	8.74	14.78	30.00
5825MHz	Pass	4.91	9.03	9.01	8.93	8.71	14.87	30.00
802.11be EHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	5.40	2.96	3.06	3.45	3.40	9.12	17.00
5230MHz	Pass	5.40	7.73	7.78	7.72	7.58	13.54	17.00
5755MHz	Pass	4.91	5.59	6.34	5.86	5.56	11.67	30.00
5795MHz	Pass	4.91	5.59	6.22	6.06	5.95	11.88	30.00
802.11be EHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	5.40	2.22	2.57	2.40	2.29	8.26	17.00
5775MHz	Pass	4.91	3.25	3.80	3.77	3.71	9.54	30.00

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DG = Directional Gain; RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band; 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.

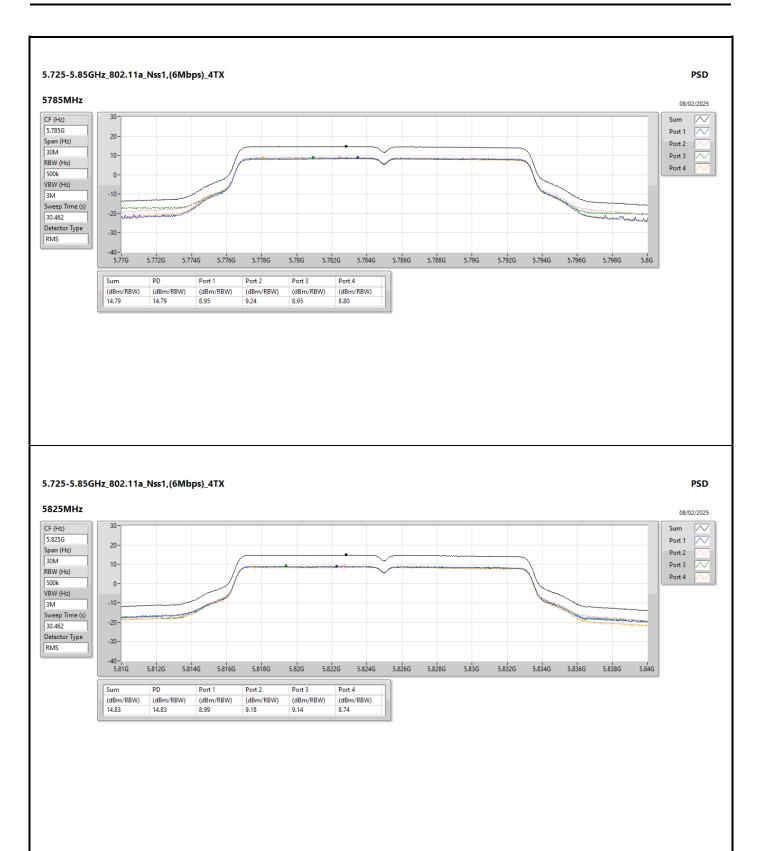


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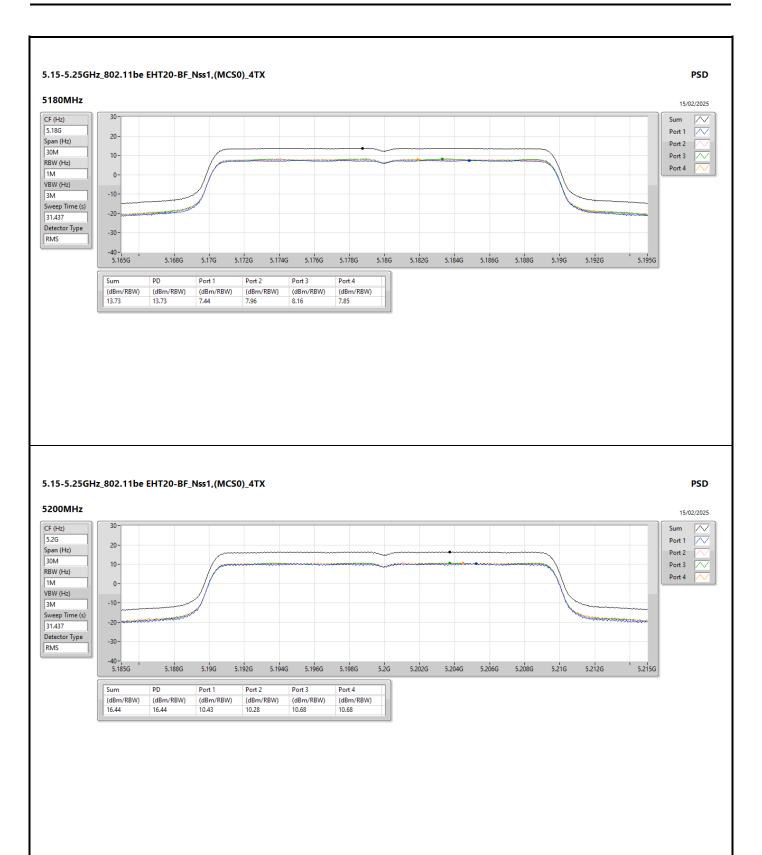
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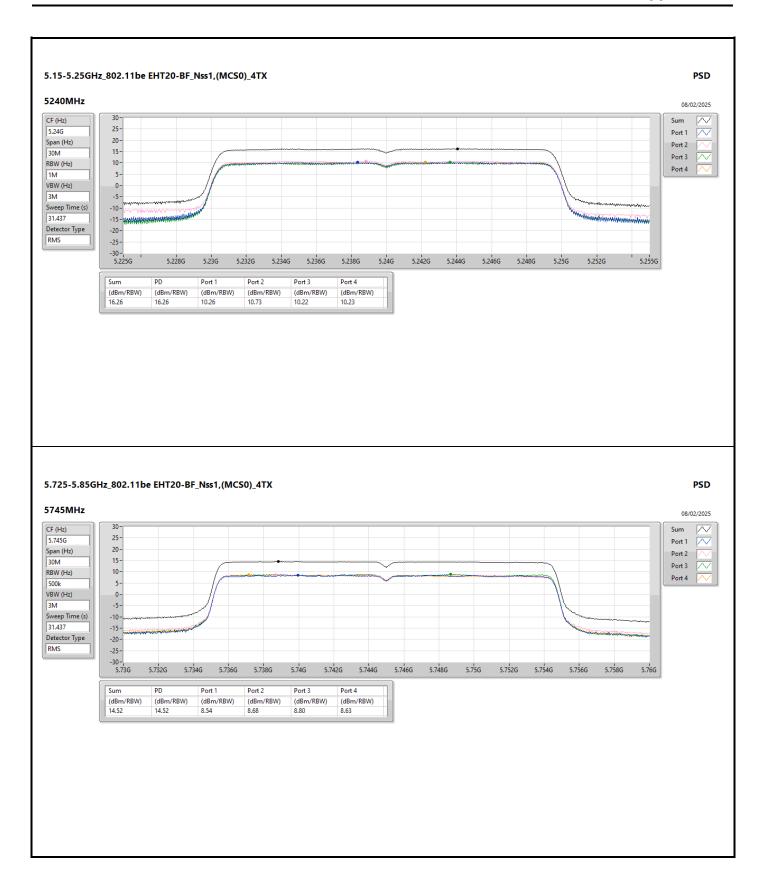
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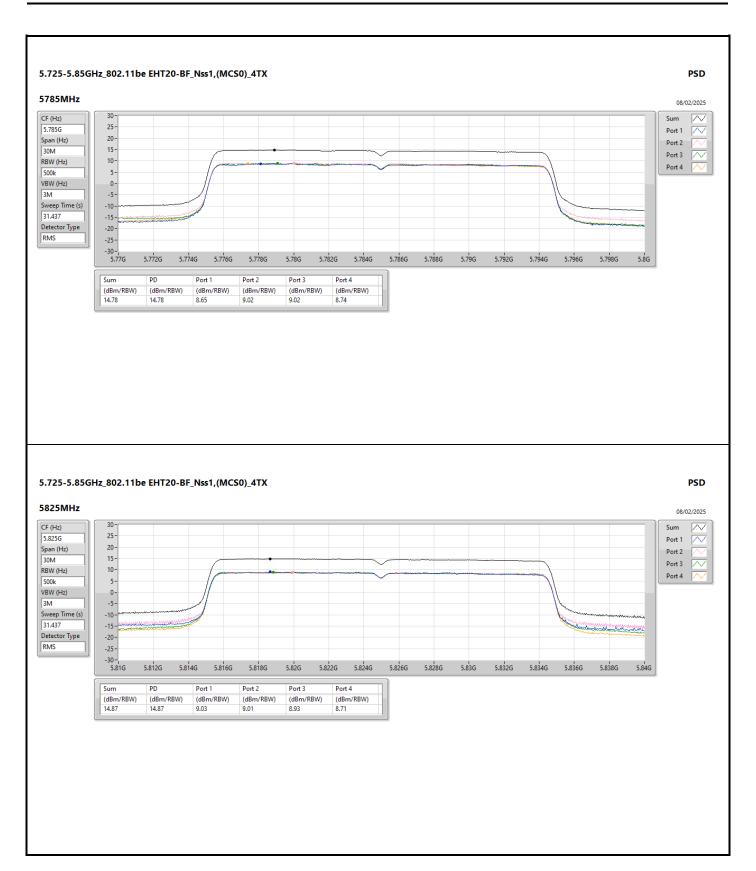


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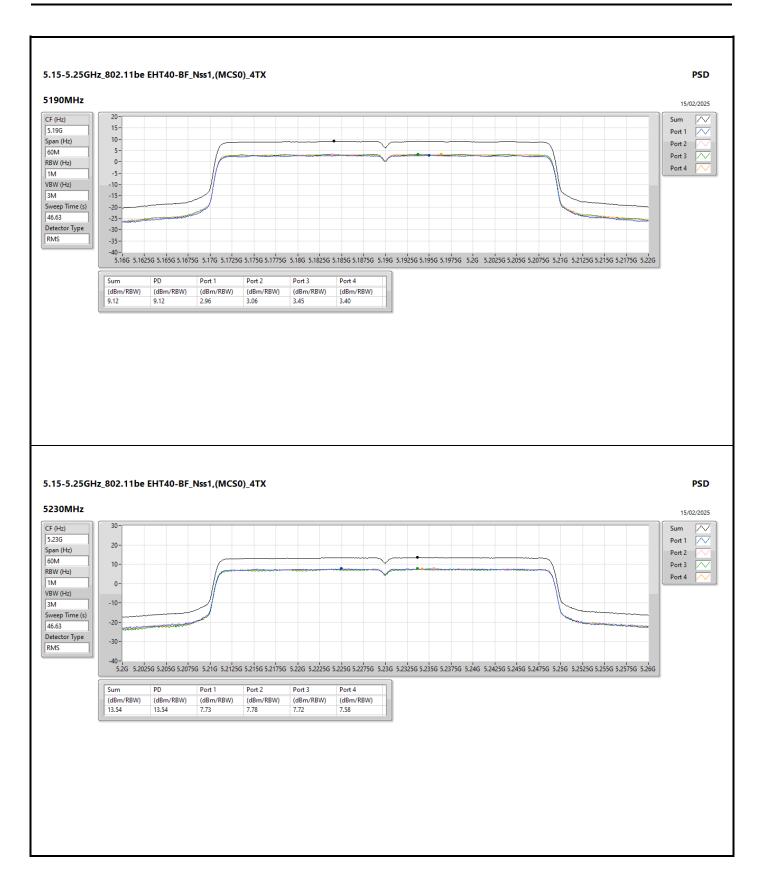


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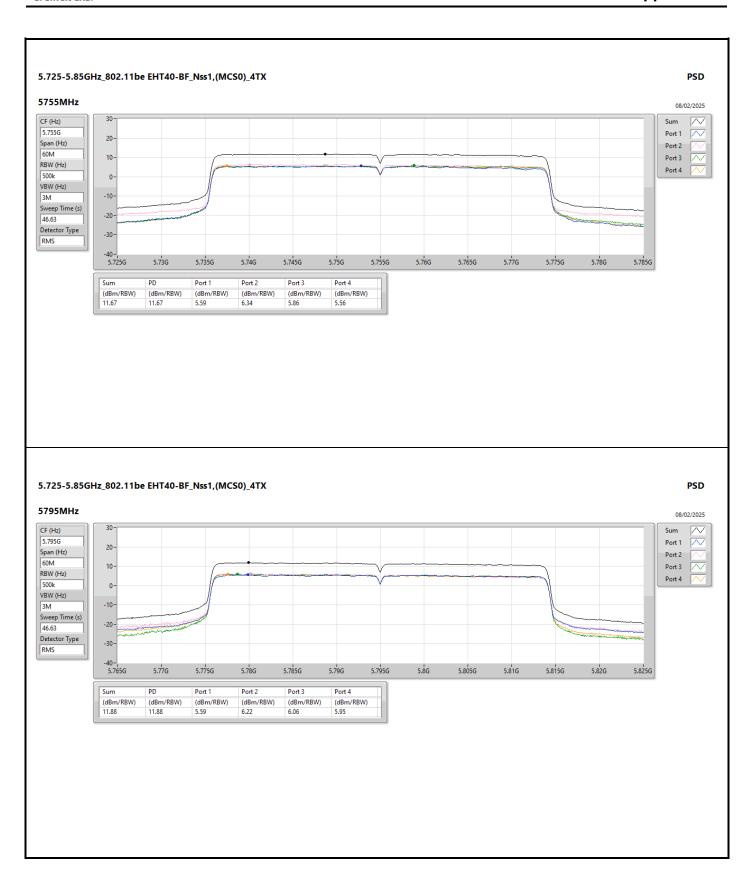
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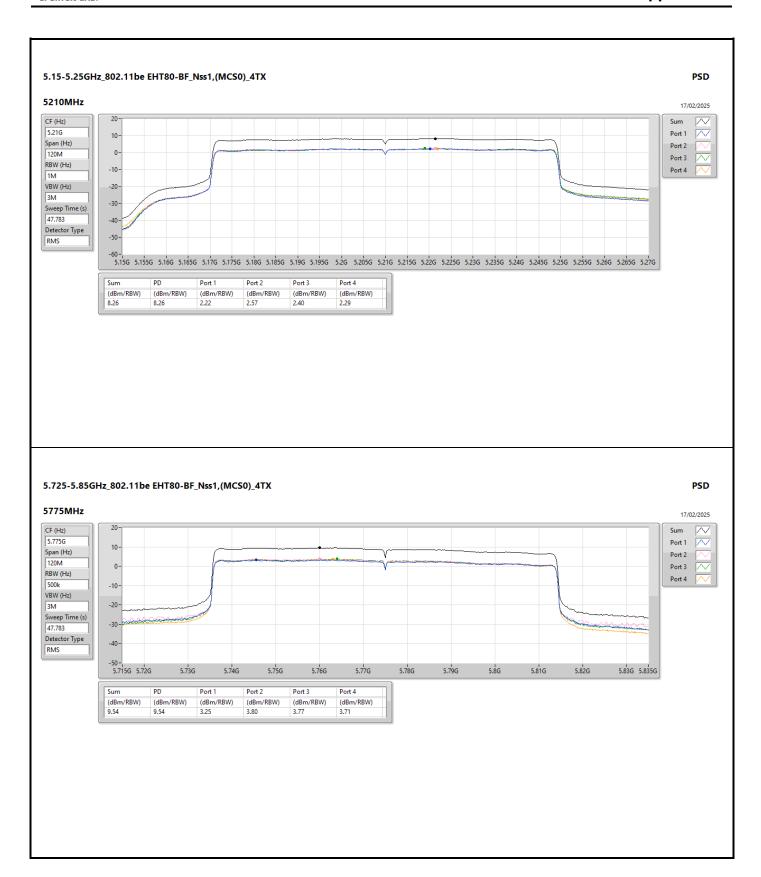
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Radiated Emissions below 1GHz

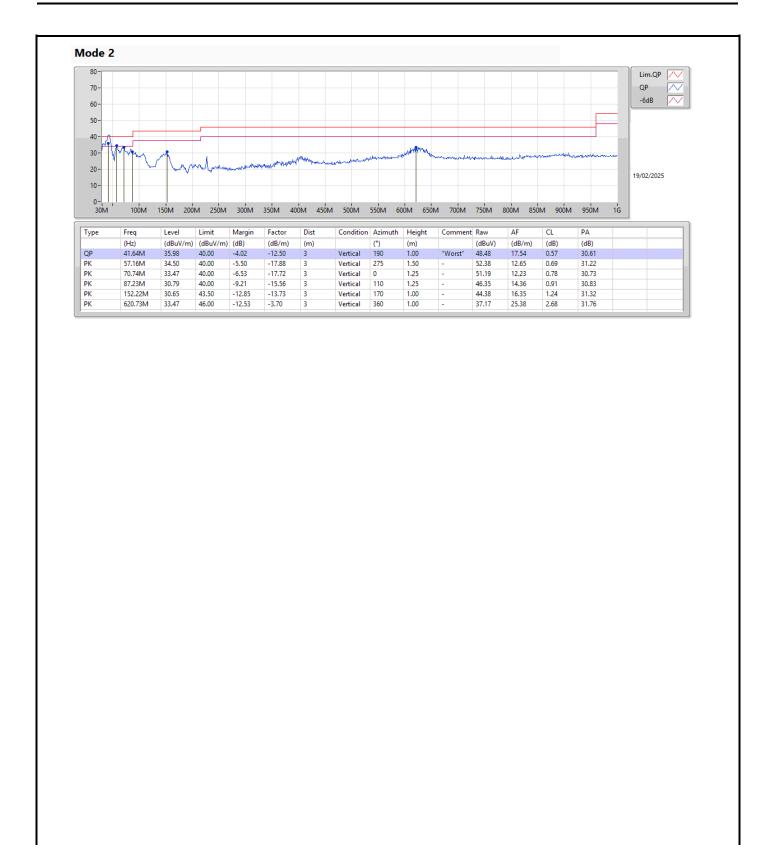
Appendix E.1

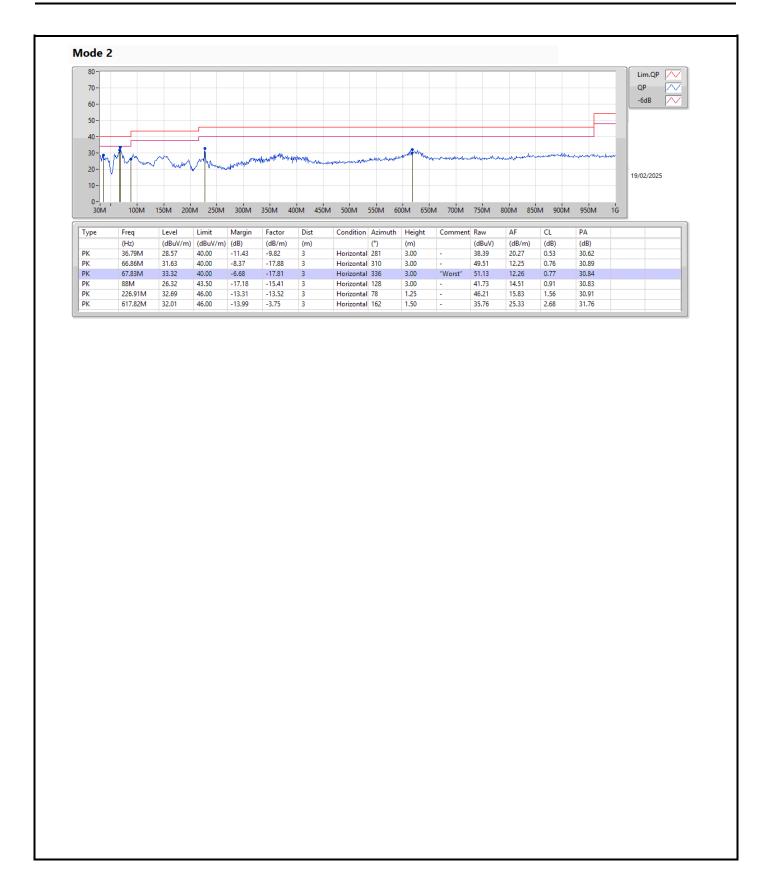
Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 2	Pass	QP	41.64M	35.98	40.00	-4.02	Vertical

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RSE TX above 1GHz

Appendix E.2

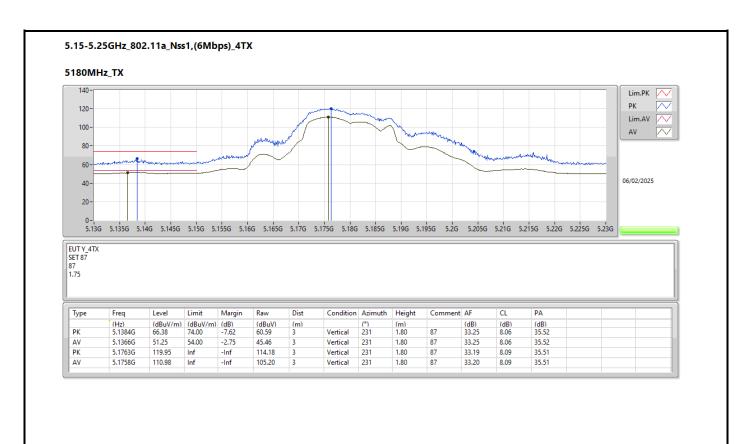
Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
5.725-5.85GHz	-	-	-	-	-	-	-	-	-	-	-
802.11be EHT80-BF_Nss1,(MCS0)_4TX	Pass	PK	5.644G	67.14	68.20	-1.06	3	Horizontal	243.7	1.89	-

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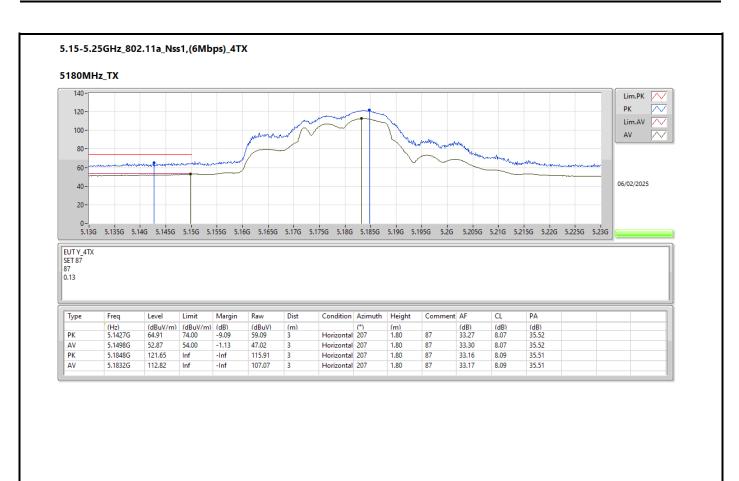
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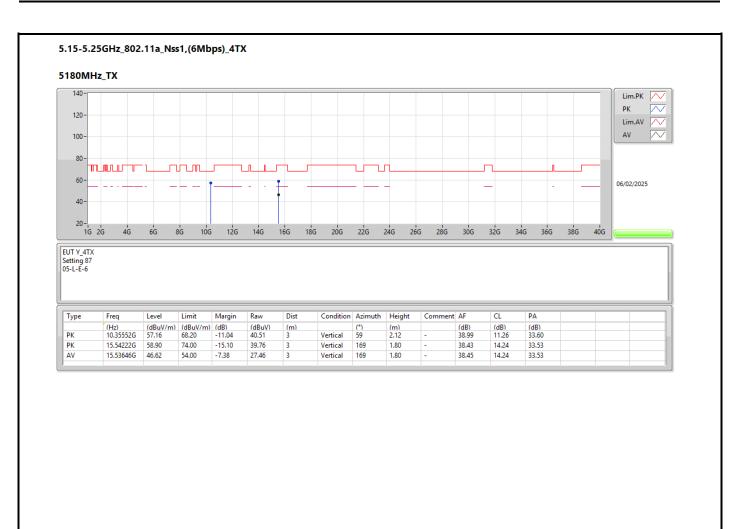
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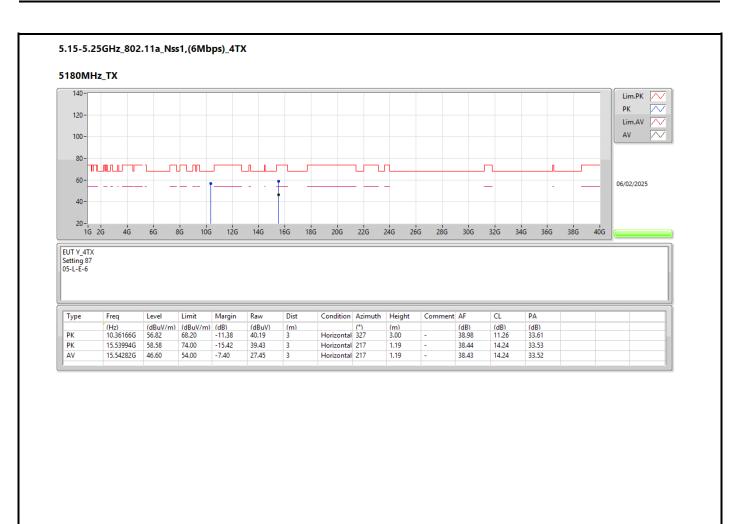


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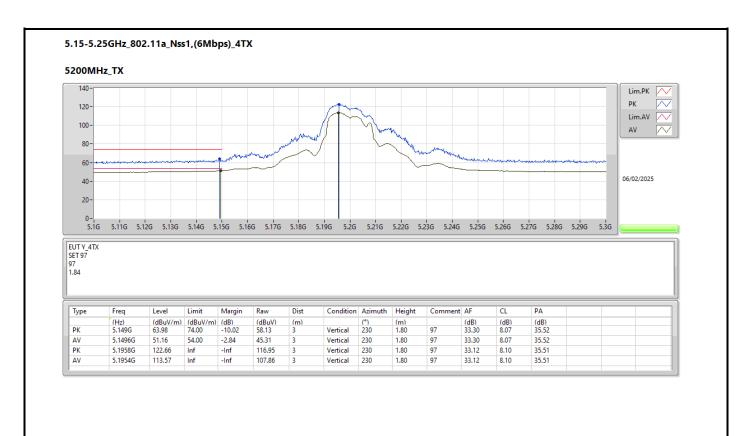








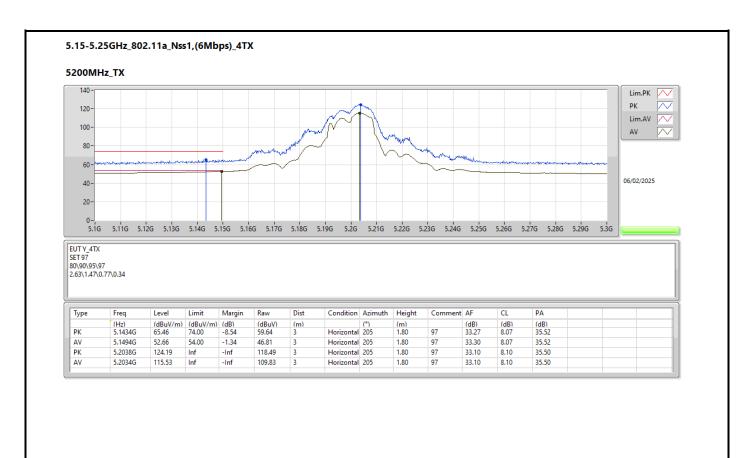




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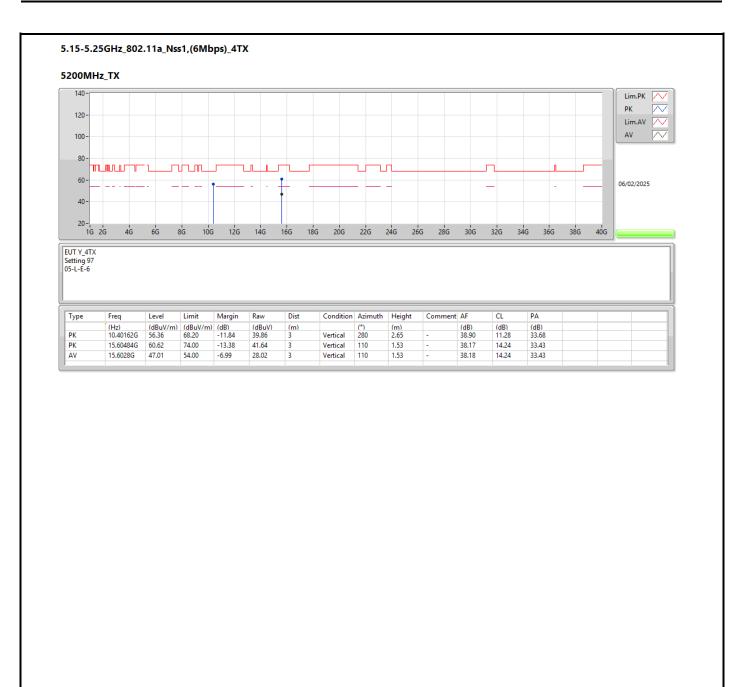
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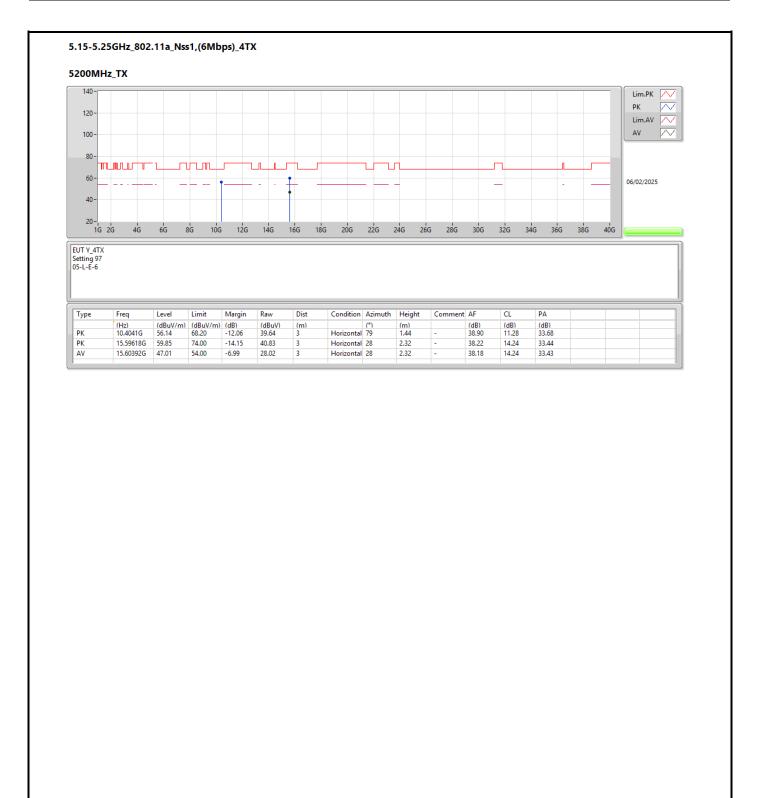


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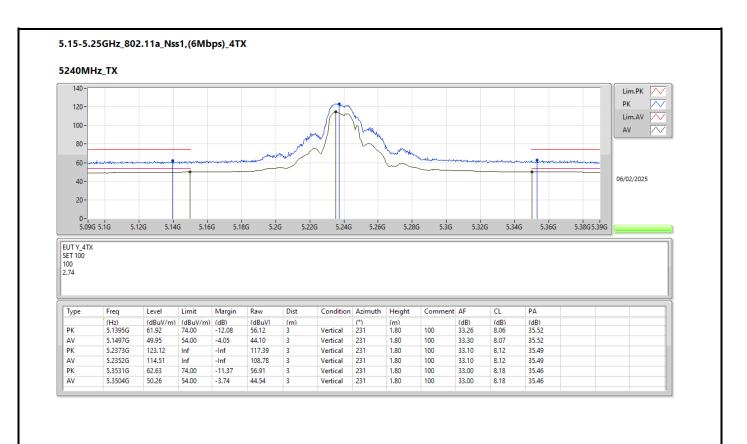




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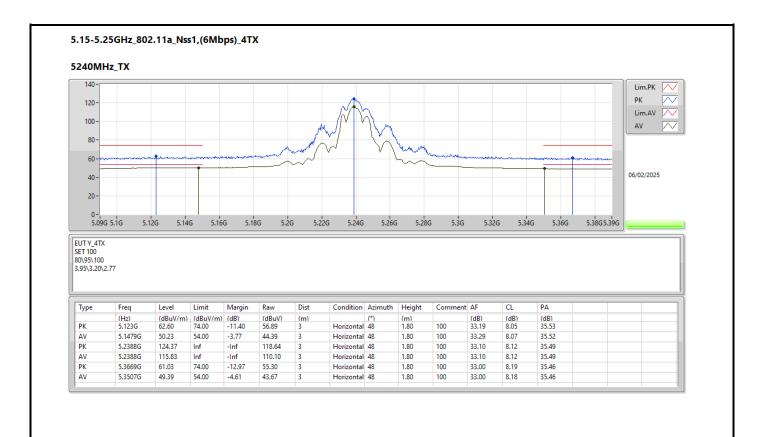




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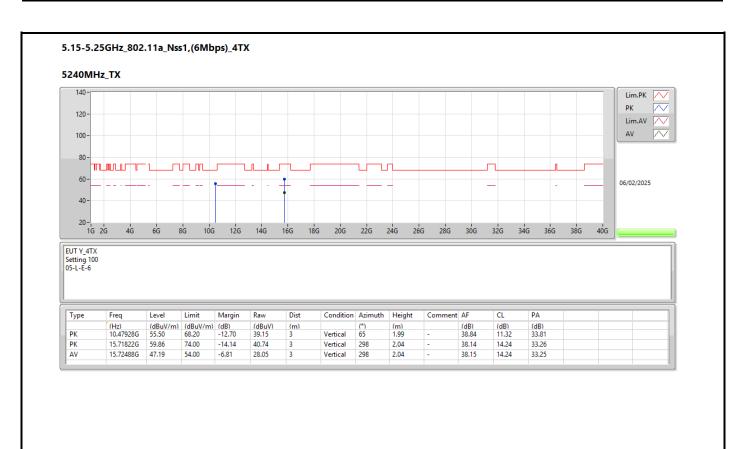




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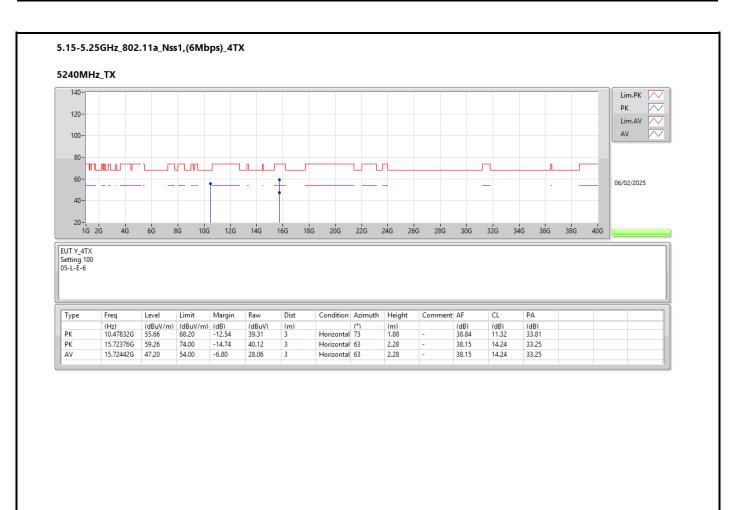




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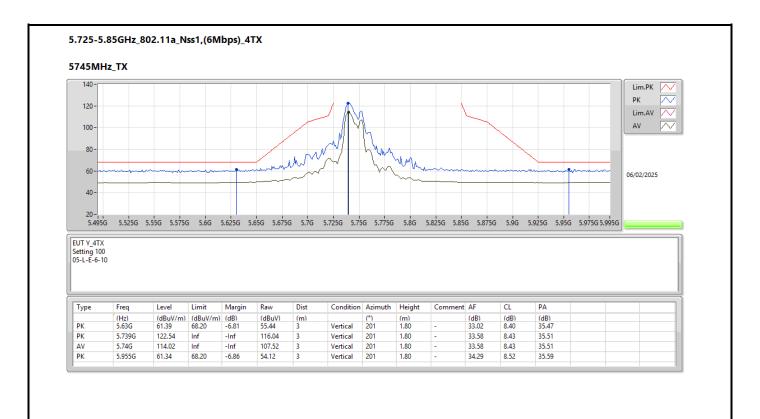




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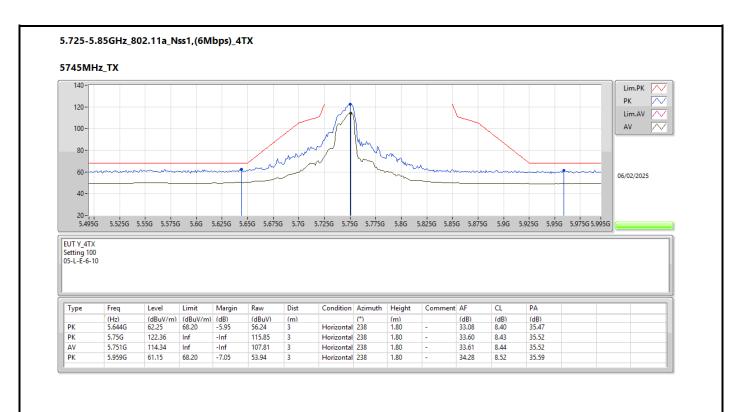




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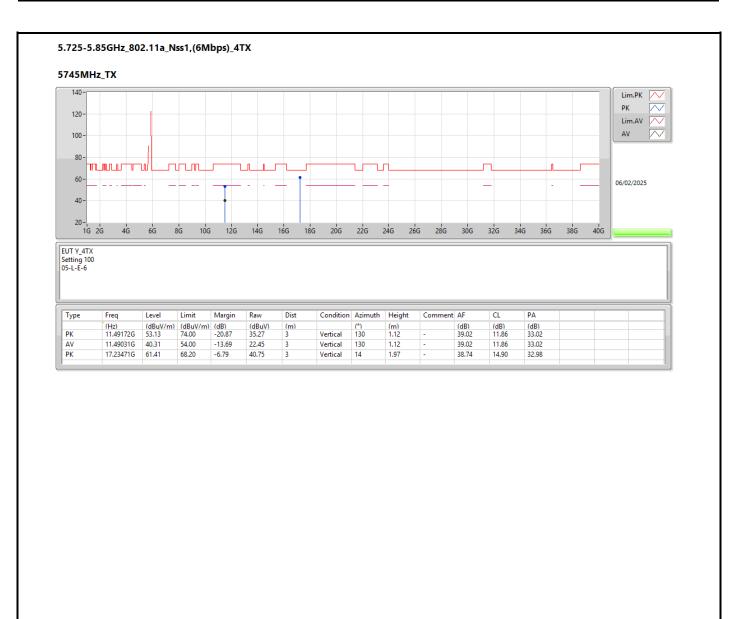




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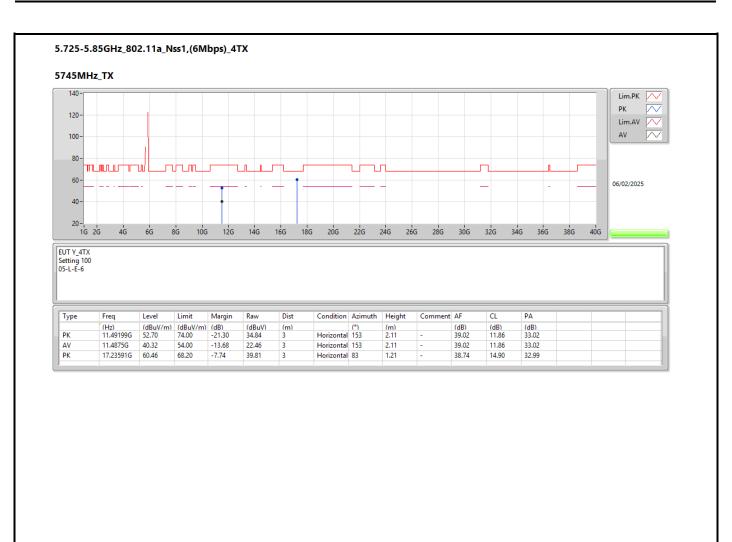




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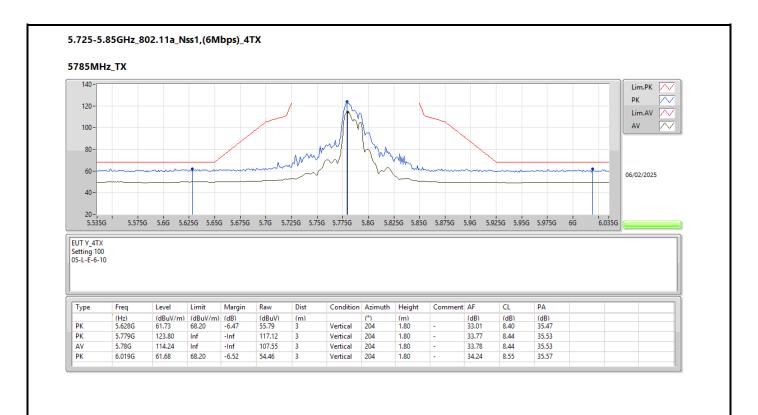




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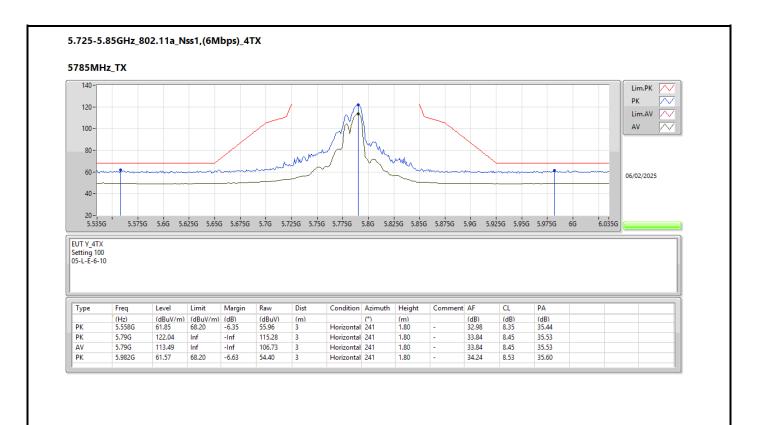




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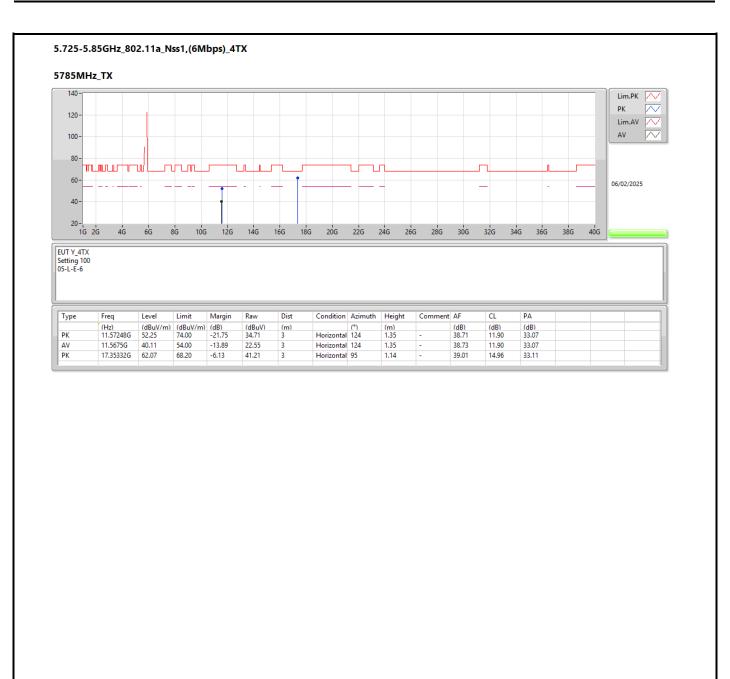
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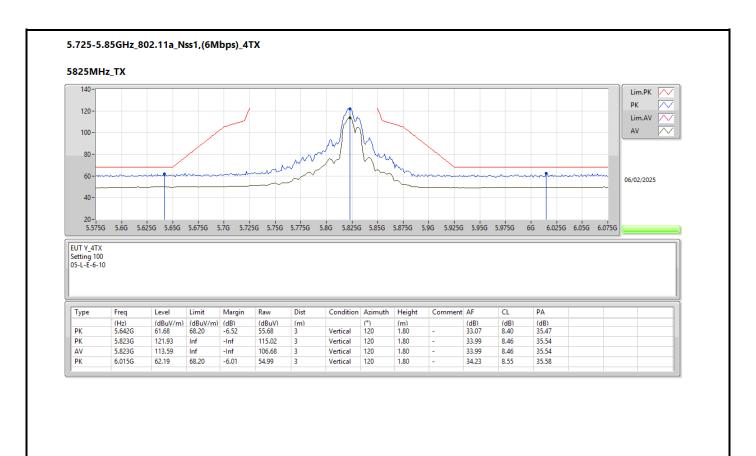




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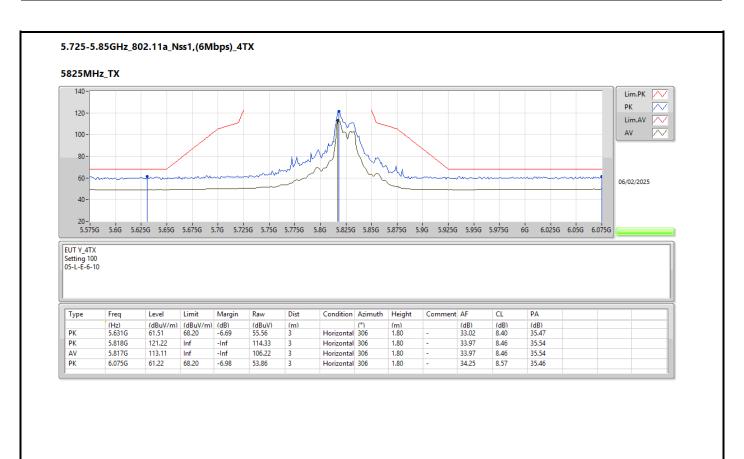




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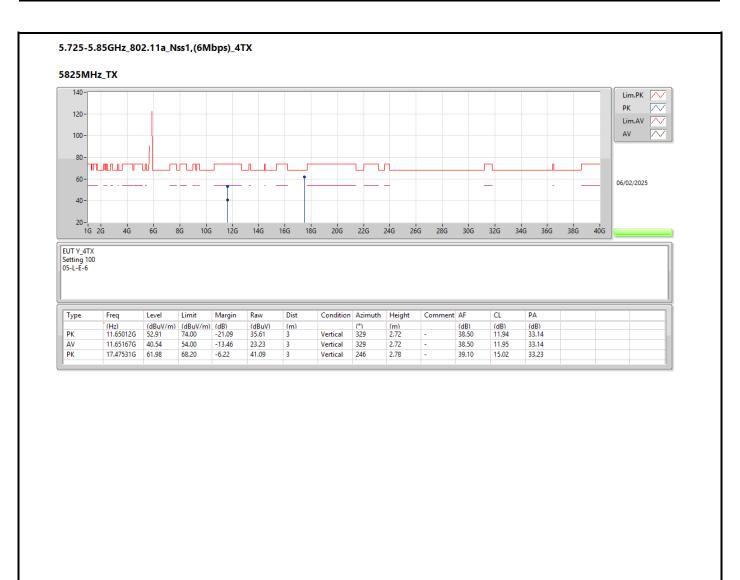




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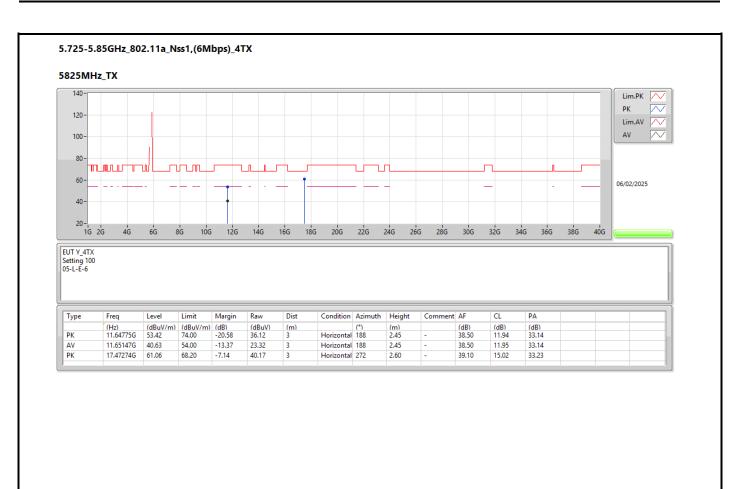




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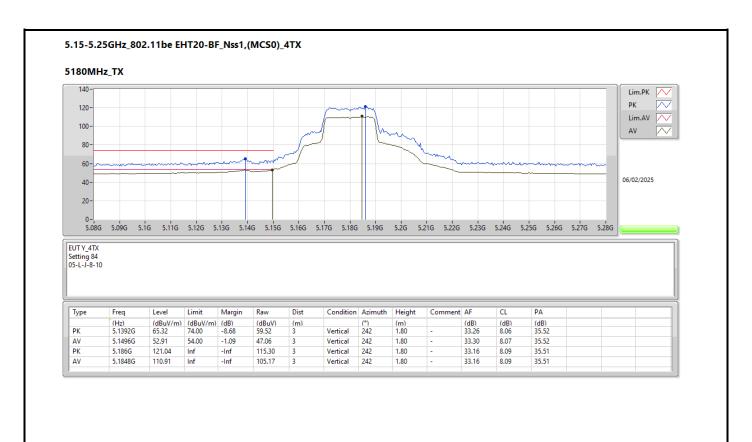




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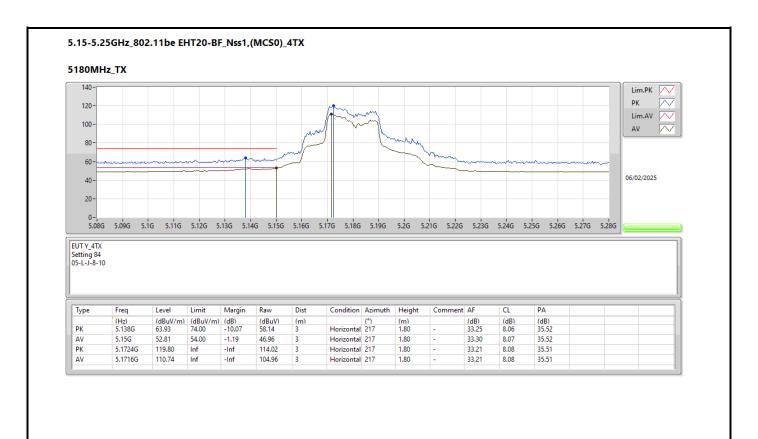




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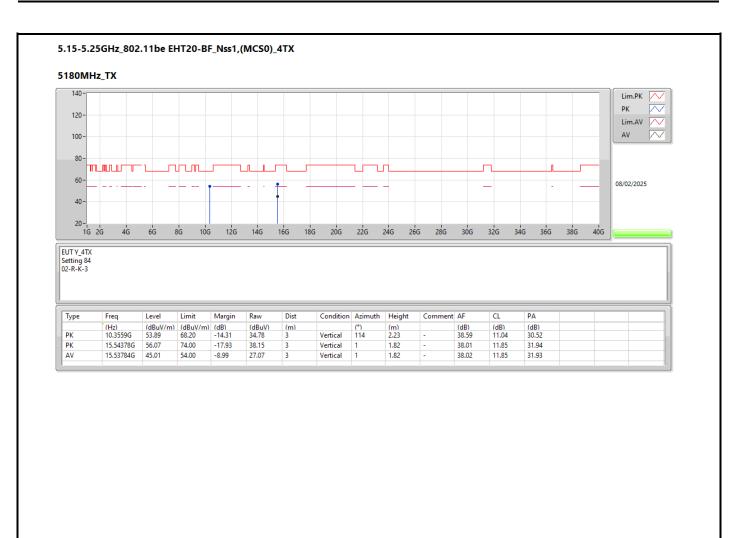




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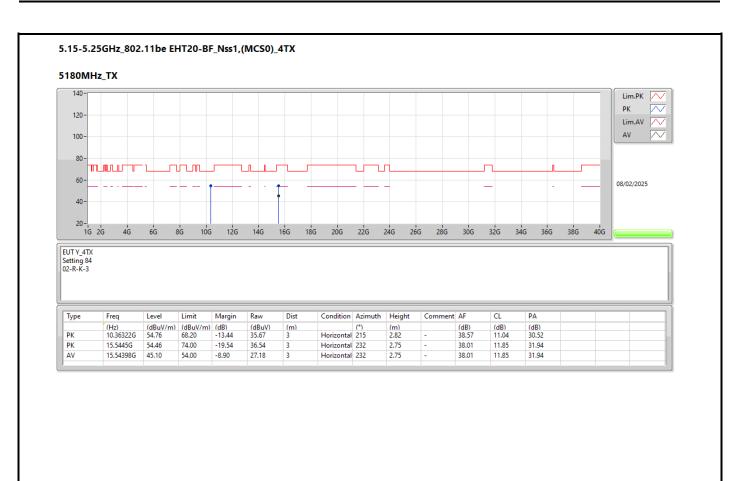




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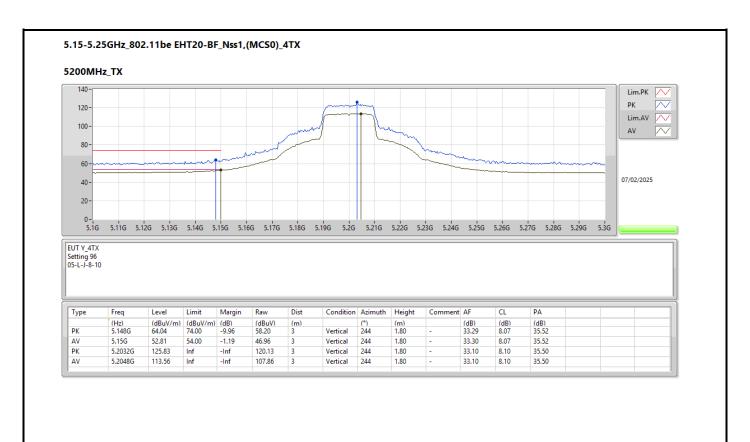




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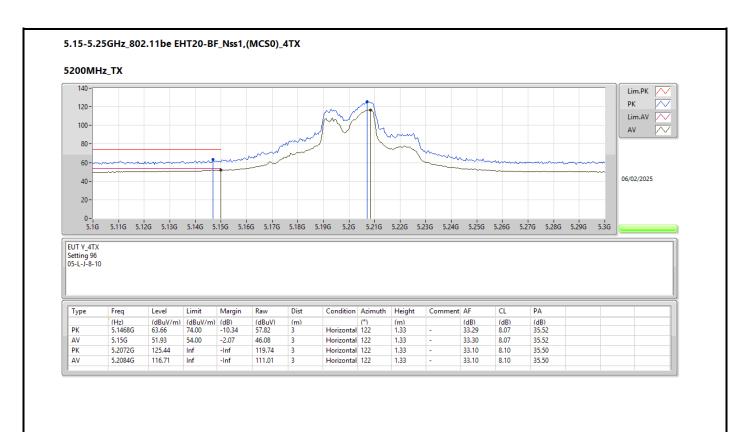




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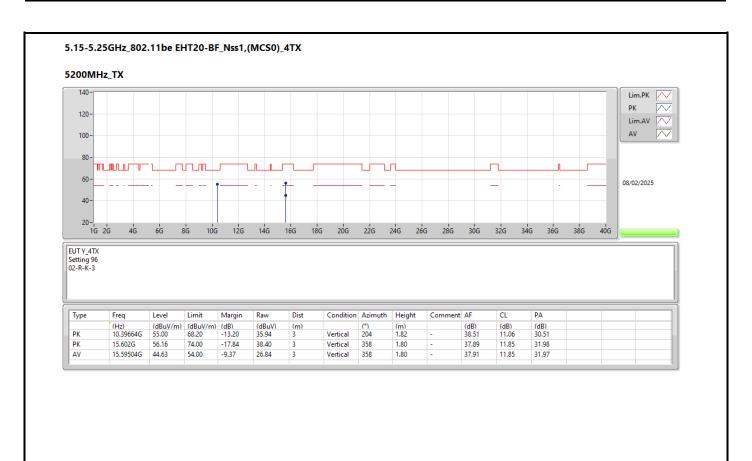




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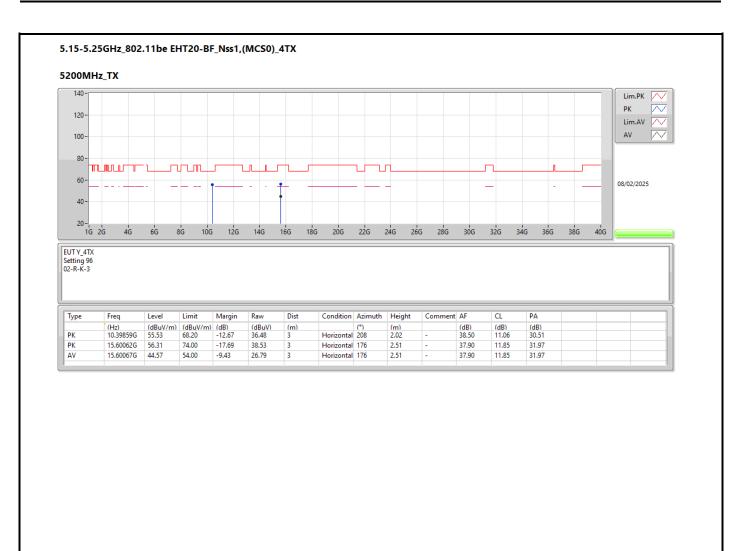




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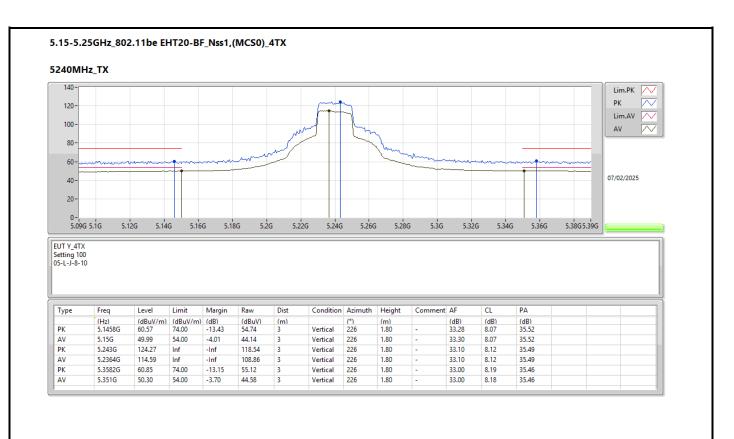




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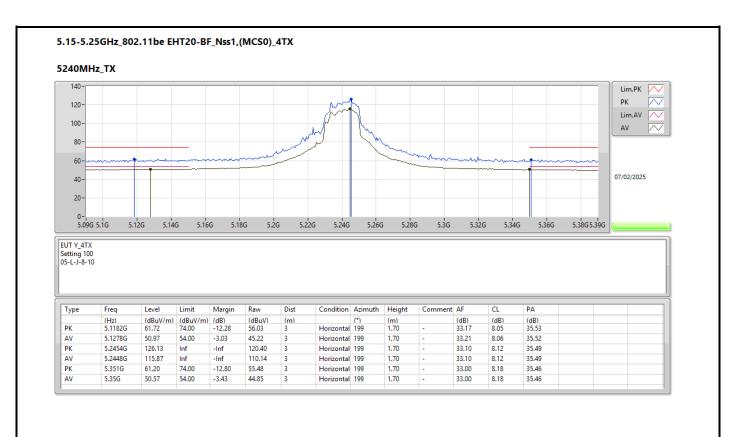




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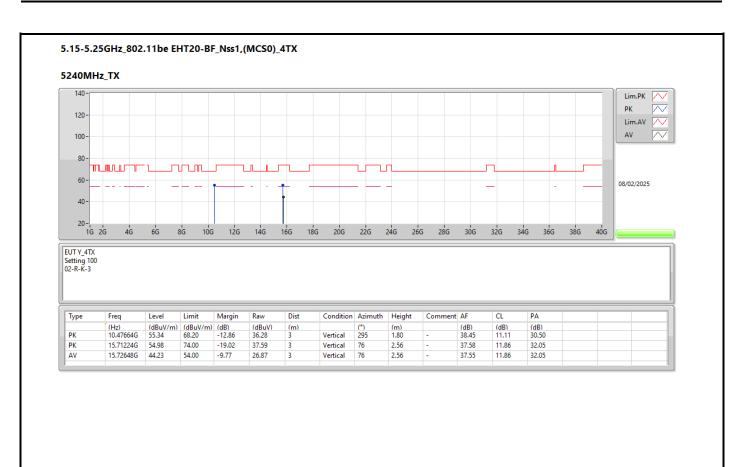




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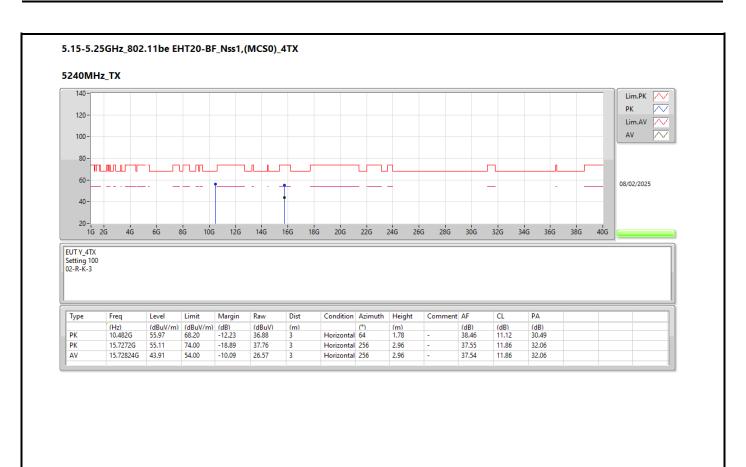




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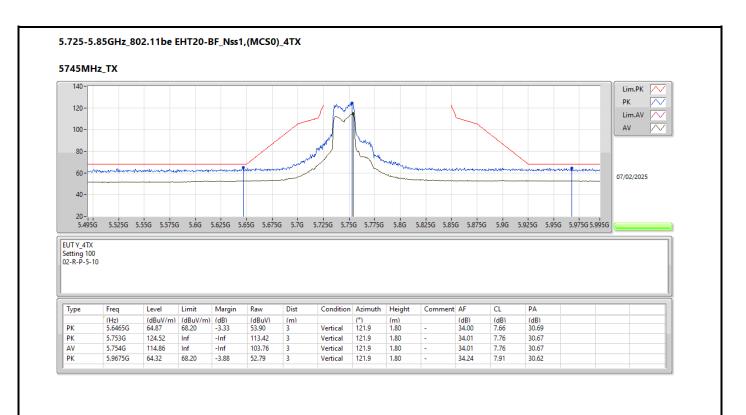




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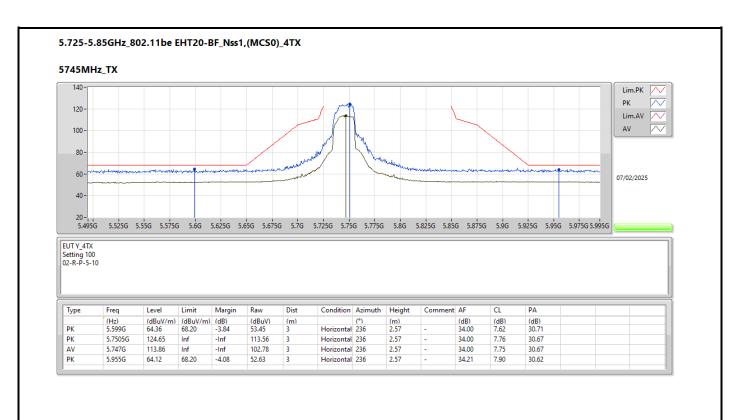




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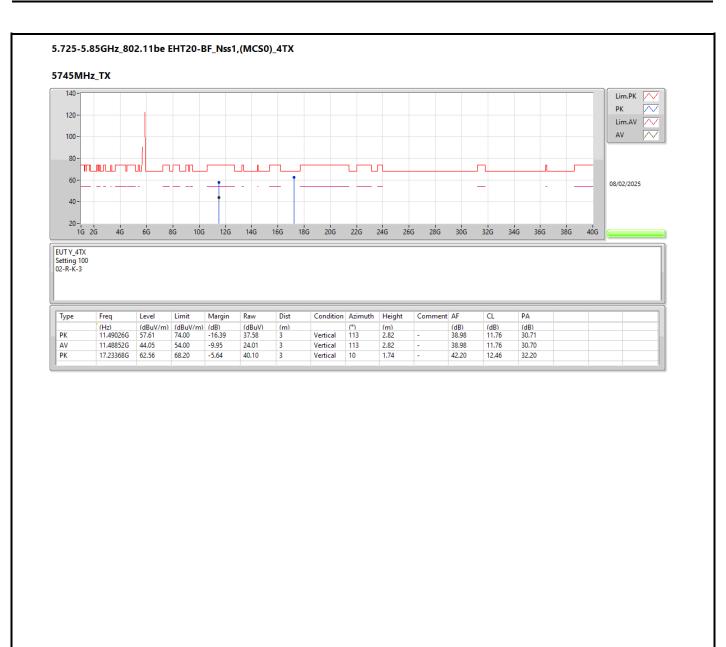




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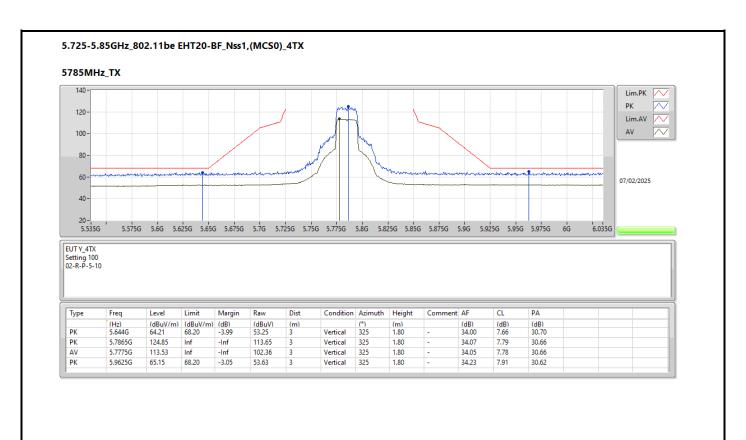




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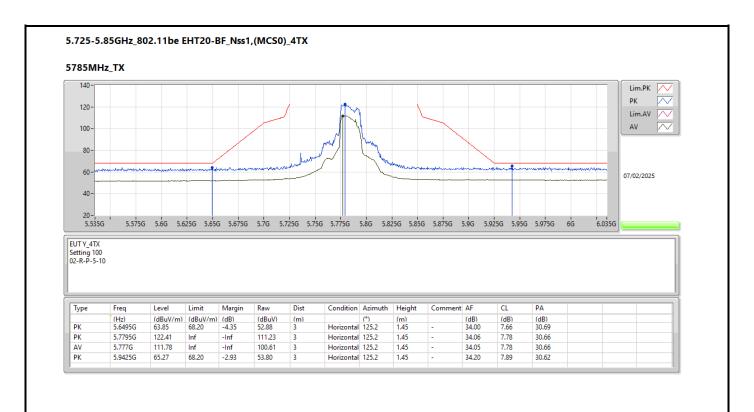




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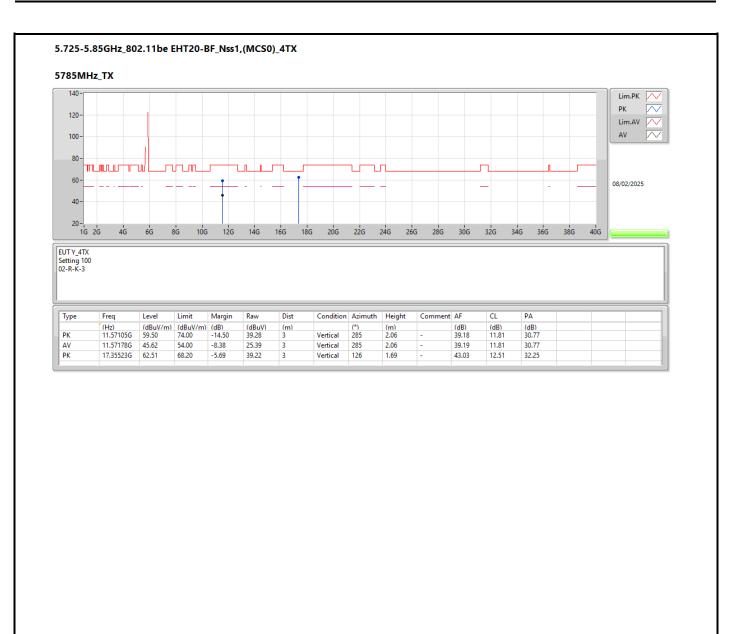




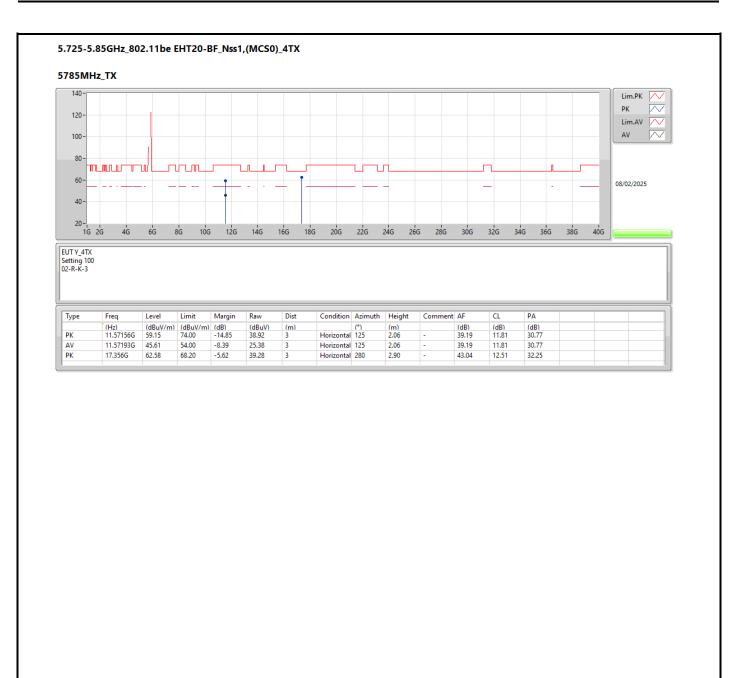
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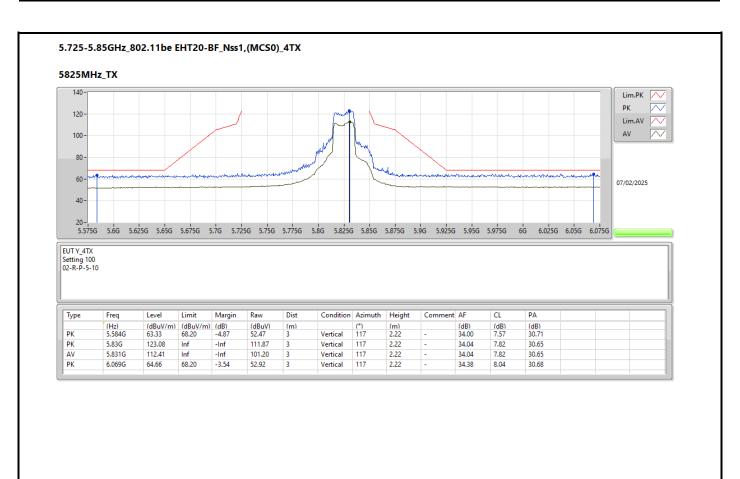






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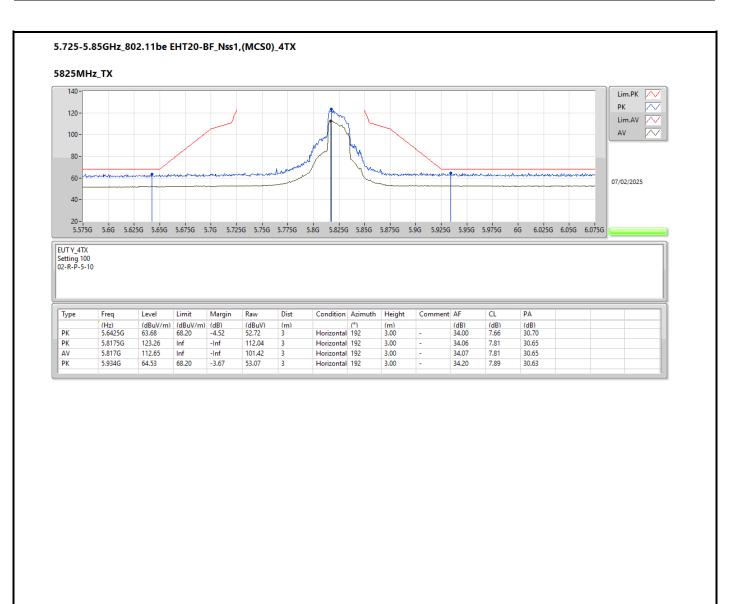




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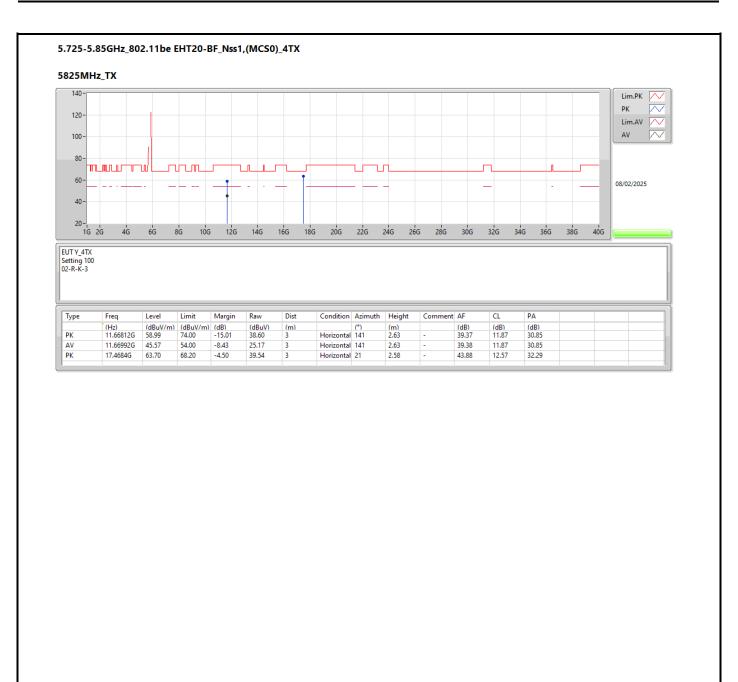




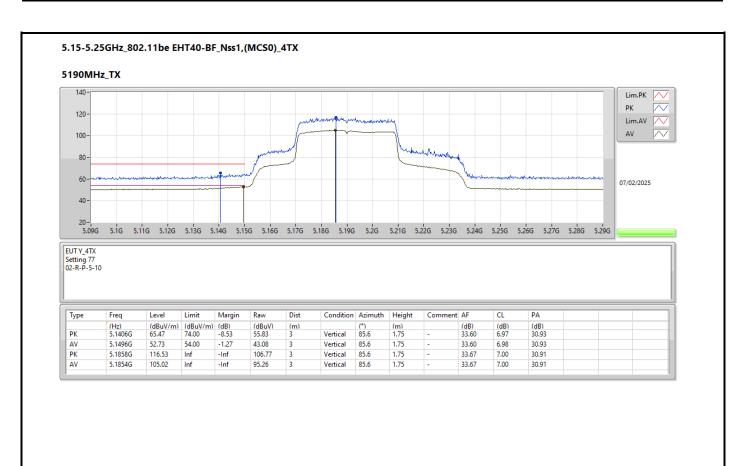








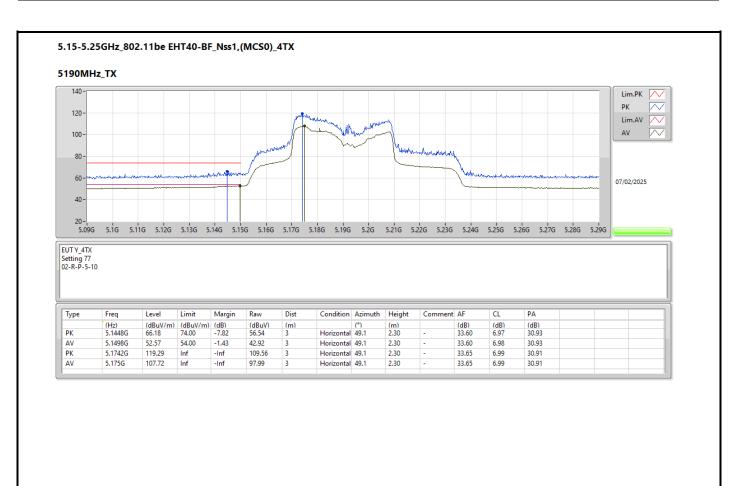




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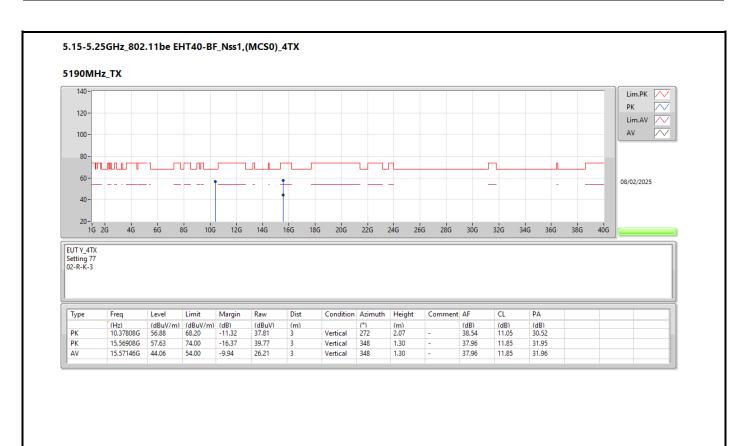




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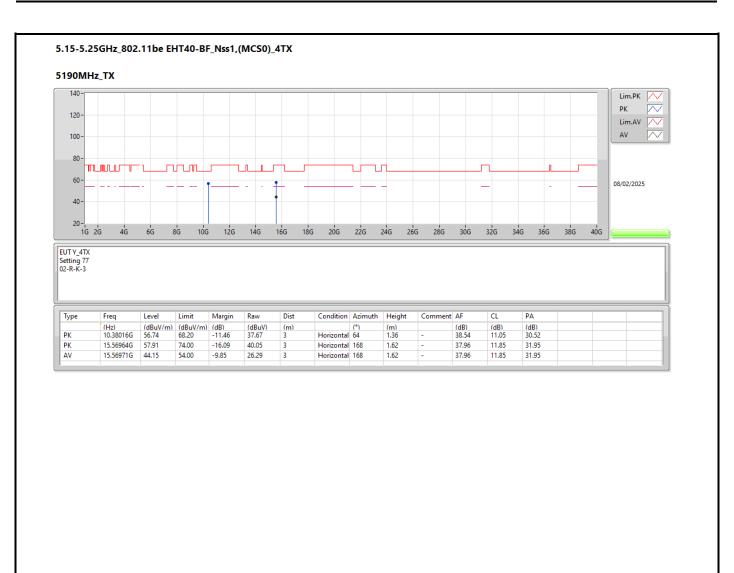




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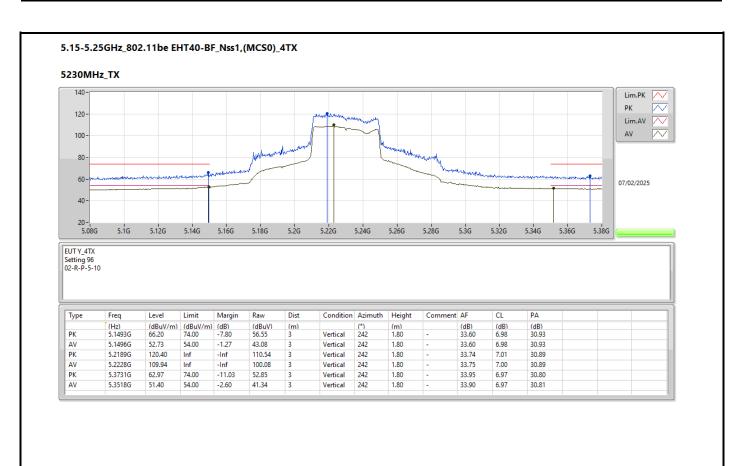




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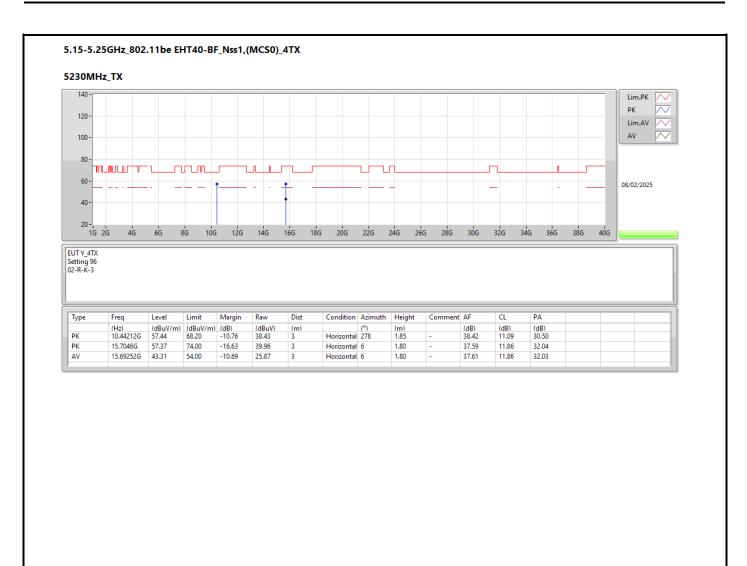




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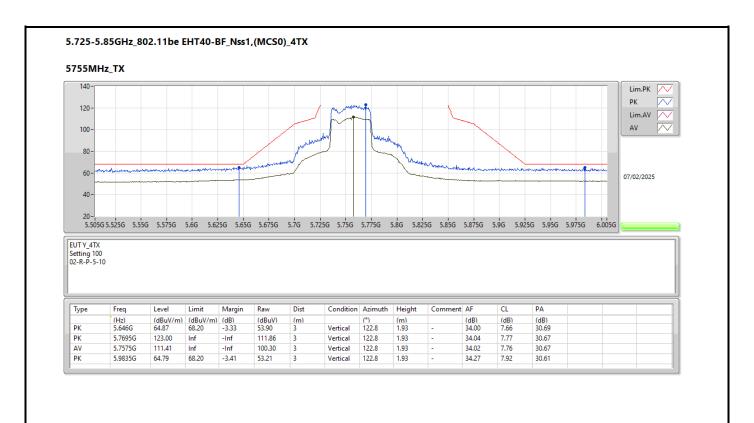




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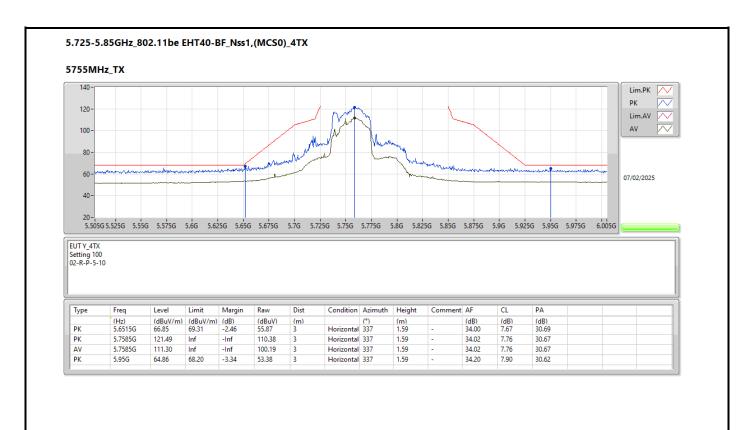




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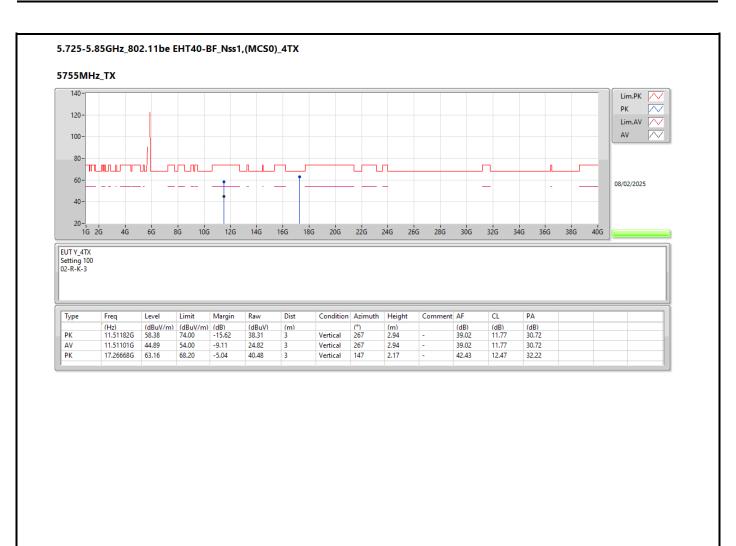
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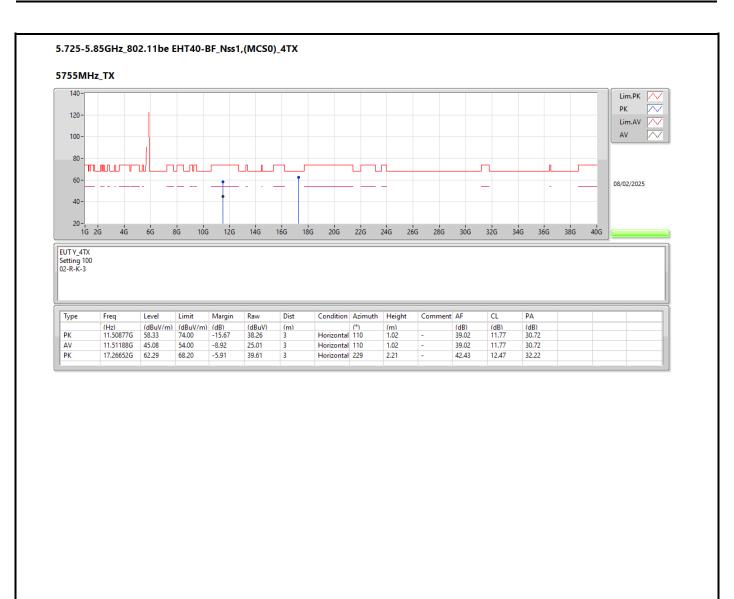




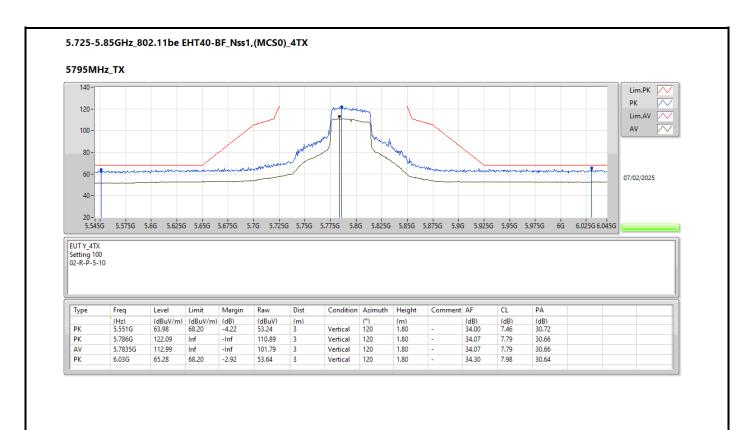
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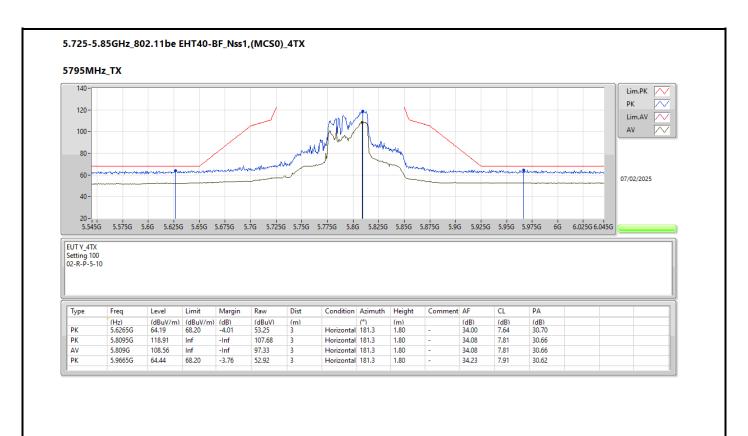




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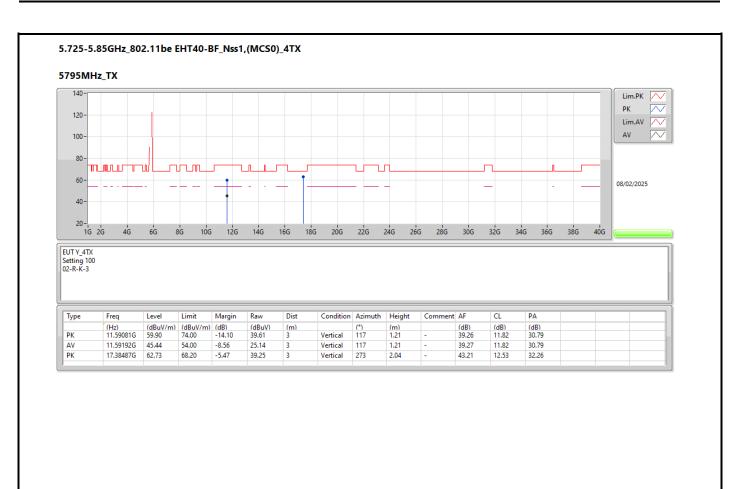




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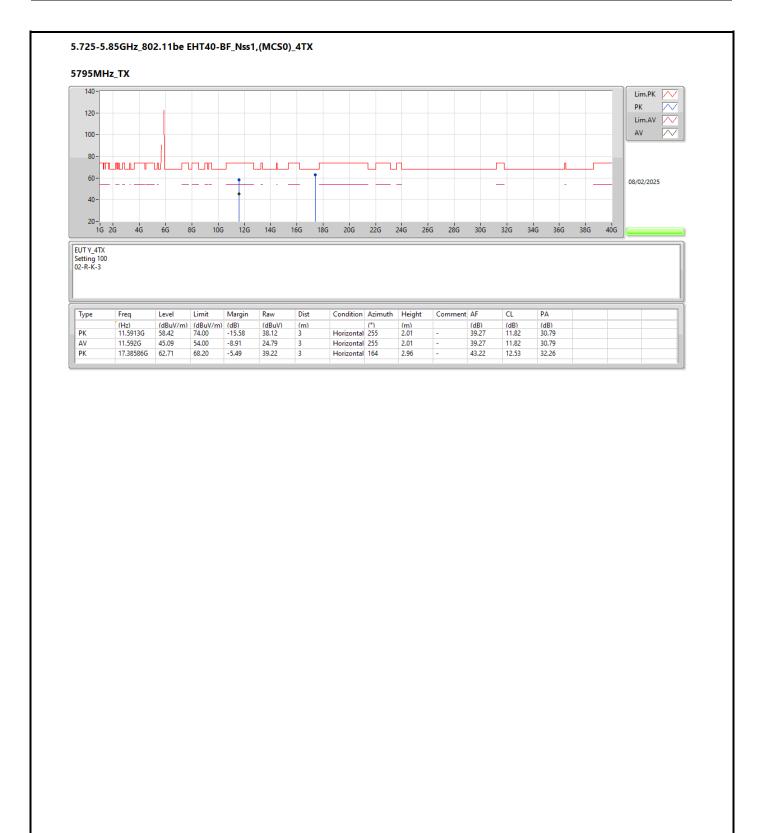




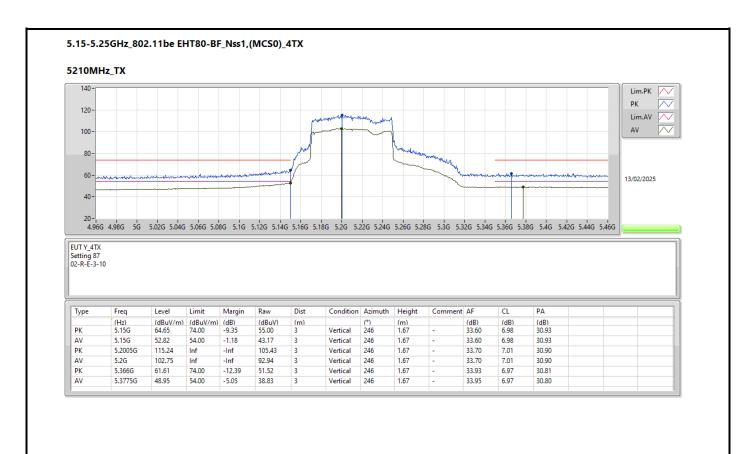
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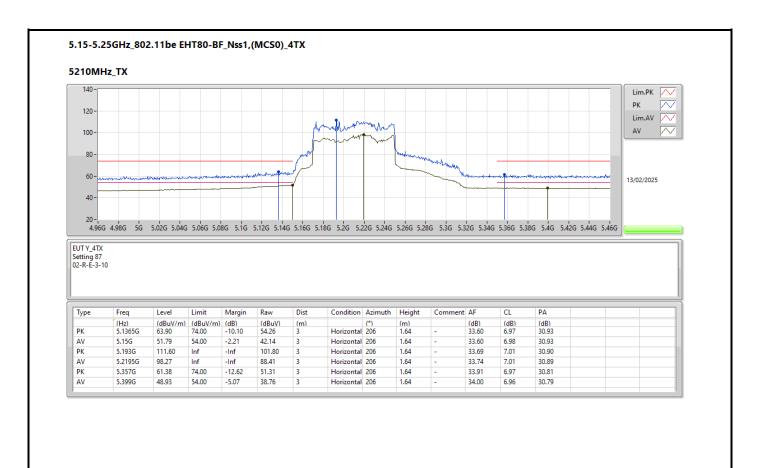




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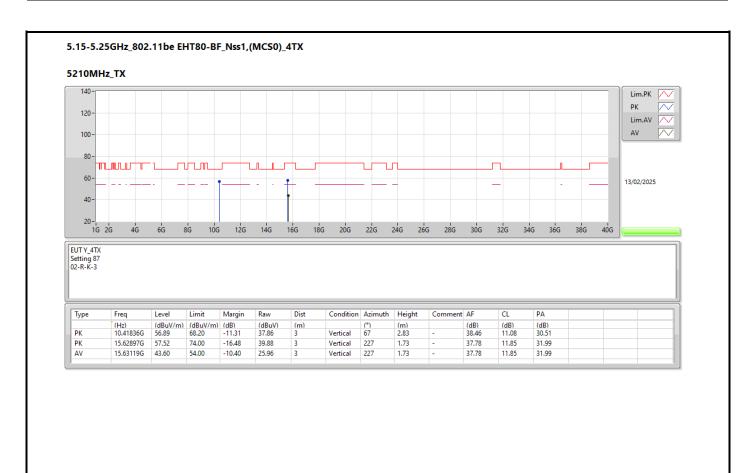




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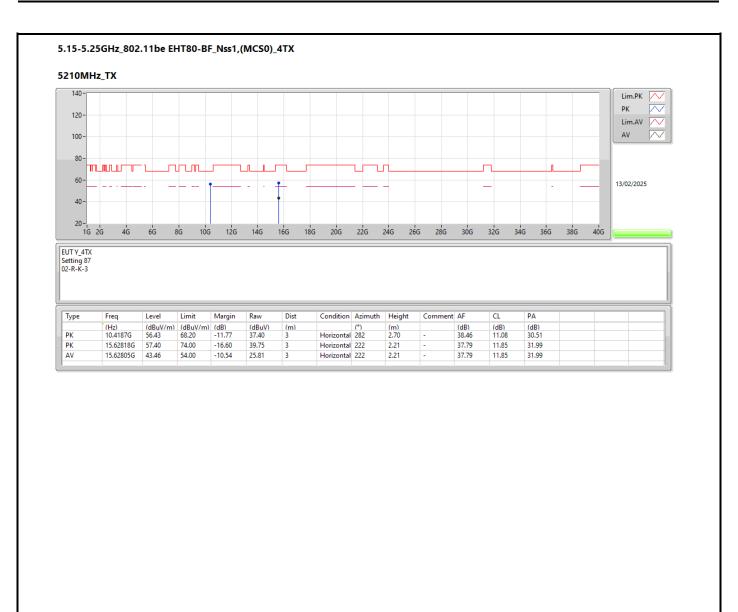




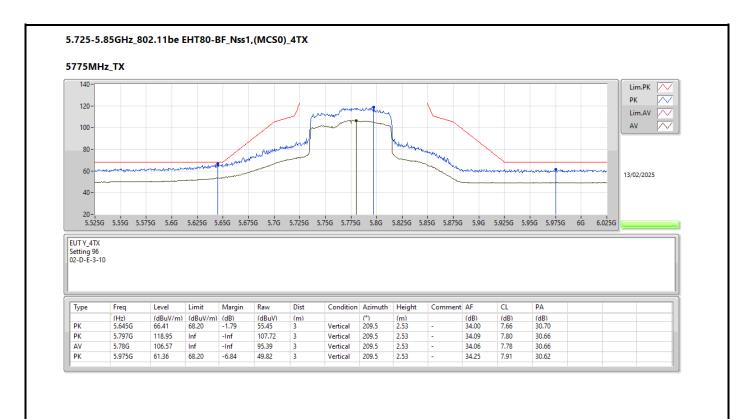
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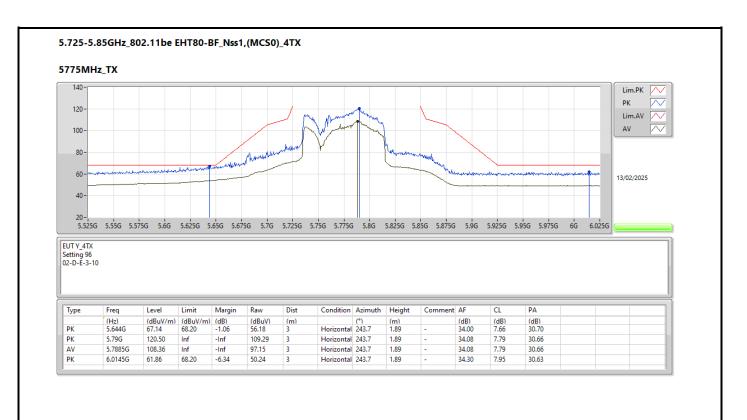




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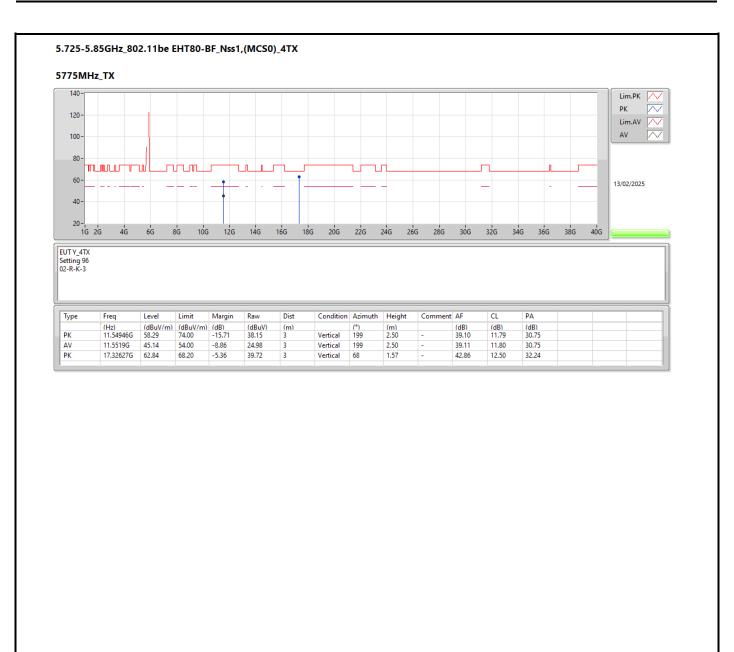




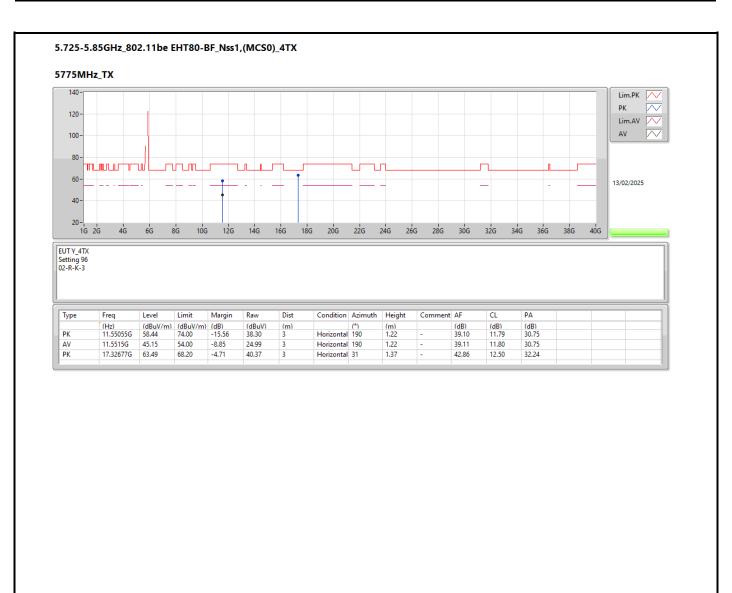
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Radiated Emissions_Co-location Emissions

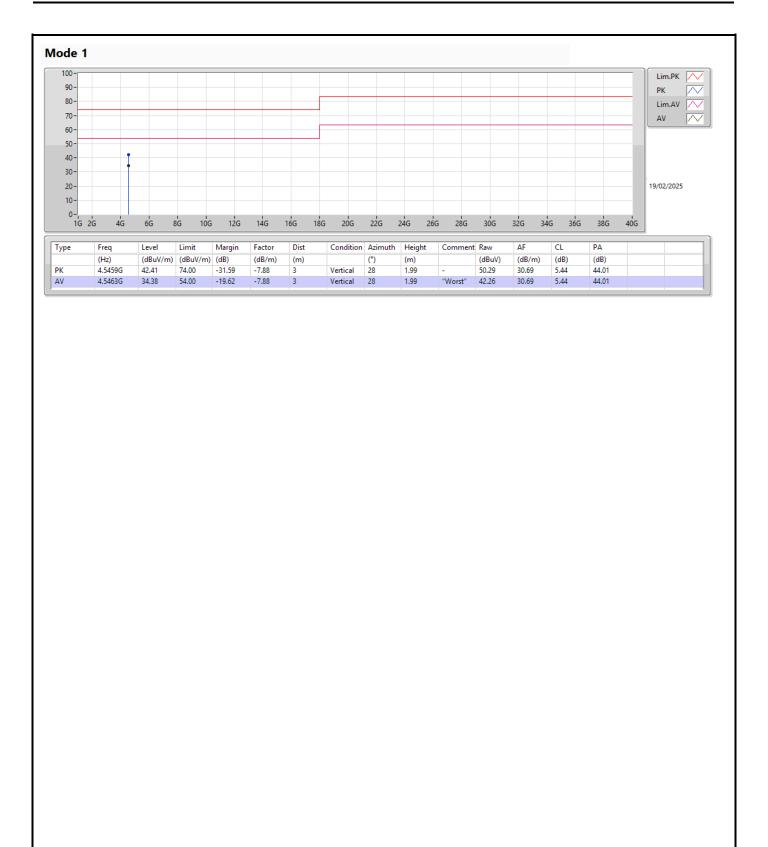
Appendix F

Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	AV	4.5463G	34.38	54.00	-19.62	Vertical

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