



RADIO TEST REPORT

FCC ID : 2AYRA-08450

Equipment : Linksys Velop Micro-Router 6

Brand Name : Linksys

Model Name : LN1100 v2, LN1110 v2, LN1115 v2

Applicant : Linksys USA, Inc.

121 Theory, Irvine, CA. 92617, USA

Standard : 47 CFR FCC Part 15.407

The product was received on Jan. 02, 2024, and testing was started from Jan. 12, 2024 and completed on Feb. 21, 2024. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory

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

TEL: 886-3-656-9065 FAX: 886-3-656-9085

Report Template No.: CB-A12_6 Ver2.0

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Report Version : 02

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Appendix A. Test Results of AC Power-line Conducted Emissions

Appendix B. Test Results of Emission Bandwidth

Appendix C. Test Results of Maximum EIRP Output Power

Appendix D. Test Results of EIRP Power Spectral Density

Appendix E. Test Results of Unwanted Emissions

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Photographs of EUT v01

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Report No.: FR3D2303AC

History of this test report

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Report No.	Version	Description	Issued Date
FR3D2303AC	01	Initial issue of report	Mar. 29, 2024
FR3D2303AC	02	Adding Subordinate for Device Type in section 1.1.4.	Apr. 02, 2024

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Summary of Test Result

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Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.407(a)	Emission Bandwidth	PASS	-
3.3	15.407(a)	Maximum EIRP Output Power	PASS	-
3.4	15.407(a)	EIRP 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	
5725-5895	a, n (HT20), ac (VHT20), ax (HEW20)	5845-5885	169-177 [3]	
5725-5895	n (HT40), ac (VHT40), ax (HEW40)	5835-5875	167-175 [2]	
5725-5895	ac (VHT80), ax (HEW80)	5855	171 [1]	
5725-5895	ac (VHT160), ax (HEW160)	5815	163 [1]	

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Band	Mode	BWch (MHz)	Nant
5.725-5.895GHz	802.11a	20	2TX
5.725-5.895GHz	802.11n HT20	20	2TX
5.725-5.895GHz	802.11n HT20-BF	20	2TX
5.725-5.895GHz	802.11ac VHT20	20	2TX
5.725-5.895GHz	802.11ac VHT20-BF	20	2TX
5.725-5.895GHz	802.11ax HEW20	20	2TX
5.725-5.895GHz	802.11ax HEW20-BF	20	2TX
5.725-5.895GHz	802.11n HT40	40	2TX
5.725-5.895GHz	802.11n HT40-BF	40	2TX
5.725-5.895GHz	802.11ac VHT40	40	2TX
5.725-5.895GHz	802.11ac VHT40-BF	40	2TX
5.725-5.895GHz	802.11ax HEW40	40	2TX
5.725-5.895GHz	802.11ax HEW40-BF	40	2TX
5.725-5.895GHz	802.11ac VHT80	80	2TX
5.725-5.895GHz	802.11ac VHT80-BF	80	2TX
5.725-5.895GHz	802.11ax HEW80	80	2TX
5.725-5.895GHz	802.11ax HEW80-BF	80	2TX
5.725-5.895GHz	802.11ac VHT160	160	2TX
5.725-5.895GHz	802.11ac VHT160-BF	160	2TX
5.725-5.895GHz	802.11ax HEW160	160	2TX
5.725-5.895GHz	802.11ax HEW160-BF	160	2TX

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Note:

- 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- VHT20, VHT40, VHT80 and VHT160 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.

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- HEW20, HEW40, HEW80 and HEW160 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

A m 4	Port			Brand	Model Name	Antonno Timo	Connector	Gain
Ant.	2.4GHz	5GHz	Bluetooth		Model Name	Antenna Type	Connector	(dBi)
1	1	-	-	GALTRONICS	02102073-08042E1	Dipole Antenna	U.FL	
2	2	-	-	GALTRONICS	02102073-08042E2	Dipole Antenna	U.FL	
3	-	1	-	GALTRONICS	02102142-08042E2	Dipole Antenna	U.FL	Note1
4	-	2	-	GALTRONICS	02102142-08042E1	Dipole Antenna	U.FL	
5	-	-	1	GALTRONICS	02036073-07196-1	Metal onboard	U.FL	

Note1:

		Antenna Gain (dBi)					
Ant.	WLAN 2.4GHz	WLAN 5GHz UNII 1	WLAN	WLAN 5GHz UNII 2C	WLAN 5GHz UNII 3	WLAN 5GHz UNII 4	Bluetooth
1	2.04	-	-	-	-	-	_
2	1.53	-	-	-	-	-	-
3	-	2.10	2.63	2.68	2.68	2.53	-
4	-	3.19	3.27	2.98	3.50	3.50	-
5	-	-	-	-	-	-	2.92

Note 2: The above information was declared by manufacturer.

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Note 3: Directional gain information

Type	Maximum Output Power	Power Spectral Density
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for N ANT ≤ 4	Directional/Kiin = $10 \cdot \log \left[\frac{\sum_{j=1}^{N_{obs}} \left[\sum_{k=1}^{N_{obs}} B_{j,k} \right]^{2}}{N_{obs}} \right]$
BF	$Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{pos}} \left[\sum_{k=1}^{N_{pos}} S_{j,k} \right]^{2}}{N_{osc}} \right]$	$DirectionalGain = 10 \cdot \log \frac{\sum_{j=1}^{N_{min}} \left[\sum_{k=1}^{N_{min}} \delta_{j,k}\right]^{2}}{N_{min}}$

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Ex.

Directional Gain (NSS1) formula :
$$\frac{\sum_{j=1}^{N_{w}} \left\{\sum_{k=1}^{N_{w}} \mathbb{E}_{j,k}\right\}^{2}}{N_{ser}}$$

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

2.4G DG = 4.80 dBi 5G UNII-1 DG = 5.67 dBi 5G UNII-2A DG = 5.97 dBi 5G UNII-2C DG = 5.84 dB 5G UNII-3 DG = 6.11 dBi 5G UNII-4 DG = 6.04 dBi

<For 2.4GHz function>

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

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

Port 1 and Port 2 could transmit/receive simultaneously.

<For 5GHz function>

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

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

Port 1 and Port 2 could transmit/receive simultaneously.

<For Bluetooth function> (1TX/1RX):

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

Port 1 could transmit/receive simultaneously.

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1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz)_1/T
802.11a_Nss 1,(6D)	0.991	0.04	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ax HEW20-BF_Nss 1,(M0)	0.919	0.37	1.78m	1k
802.11ax HEW40-BF_Nss 1,(M0)	0.919	0.37	1.78m	1k
802.11ax HEW80-BF_Nss 1,(M0)	0.919	0.37	1.904m	1k
802.11ax HEW160-BF_Nss 1,(M0)	0.923	0.35	1.904m	1k

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

1.1.4 EUT Operational Condition

EUT Power Type	Fror	n Power Adapter		
	\boxtimes	With beamforming		Without beamforming
Beamforming Function	The product has beamforming function for n/VHT/ax in 2.4GHz and n/ac/ax in 5GHz.			
Function	\boxtimes	Point-to-multipoint		Point-to-point
Davies Type	\boxtimes	Indoor Access Point	\boxtimes	Subordinate
Device Type		☐ Indoor Client		
Channel Puncturing Function		Supported	\boxtimes	Unsupported
Support RU	\boxtimes	Full RU		Partial RU
Test Software Version		For Non-beamforming mode: QRCT V4.0.00192.0 For Beamforming mode: DOS[6.1.7601]		

Note: The above information was declared by manufacturer.

1.1.5 Table for Multiple Listing

The model names in the following table are all refer to the identical product.

Model Name	Description
LN1100 v2	For retail
LN1110 v2	For e-commerce
LN1115 v2	For Warehouse

Note 1: From the above models, model: LN1100 v2 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 Supports Function

Function
AP Router
Mesh

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

Note2: 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 D01 v02r01
- FCC KDB 412172 D01 v01r01
- FCC KDB 414788 D01 v01r01
- FCC KDB 291074 D02 v01

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	TH03-CB	Owen Hsu	21.6~22.6 / 68~69	Jan. 17, 2024~ Jan. 25, 2024
Radiated (Below 1GHz)	03CH05-CB	Gordon Hung	21.9-22.4 / 55-58	Feb. 21, 2024
	03CH01-CB	Gordon Hung	21.6-22.7 / 56-59	Jan. 12, 2024~ Jan. 24, 2024
Radiated (Above 1GHz)	03CH03-CB	Gordon Hung	21.4-22.5 / 55-58	Jan. 12, 2024~ Jan. 24, 2024
	03CH05-CB	Gordon Hung	21.9-22.4 / 55-58	Jan. 12, 2024~ Jan. 24, 2024
AC Conduction	CO01-CB	Summer Li	19-20 / 54-55	Jan. 25, 2024

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1.4 Measurement Uncertainty

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

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.1 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.1 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.2 dB	Confidence levels of 95%
Conducted Emission	3.1 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Power Density Measurement	3.1 dB	Confidence levels of 95%
Bandwidth Measurement	2.2%	Confidence levels of 95%

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2 Test Configuration of EUT

2.1 Test Channel Mode

Mode
802.11a_Nss1,(6Mbps)_2TX
5845MHz
5865MHz
5885MHz
802.11ax HEW20-BF_Nss1,(MCS0)_2TX
5845MHz
5865MHz
5885MHz
802.11ax HEW40-BF_Nss1,(MCS0)_2TX
5835MHz
5875MHz
802.11ax HEW80-BF_Nss1,(MCS0)_2TX
5855MHz
802.11ax HEW160-BF_Nss1,(MCS0)_2TX
5815MHz

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Note:

- Evaluated HEW20/HEW 40/HEW80/HEW160 mode only. Due to similar modulation, the power setting of HT20/HT40/VHT20/VHT40/VHT160 mode are the same or lower than HEW20/HEW40/ HEW80/HEW160.
- The EUT supports non-beamforming and beamforming mode, only beamforming mode has been selected to test.

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2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests		
Tests Item	AC power-line conducted emissions	
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz	
Operating Mode	Normal Link	
1	EUT + Adapter 1	
2	EUT + Adapter 2	
3	EUT + Adapter 3 + US Plug	
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 EIRP Output Power EIRP 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 EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz	СТХ		

For WLAN mode:

After evaluating, the worst case was found at Z axis from Unwanted Emissions above 1GHz. Thus, the measurement will follow this same test configuration.

For Bluetooth mode:

After evaluating, the worst case was found at Y axis from Unwanted Emissions above 1GHz. Thus, the measurement will follow this same test configuration.

1	EUT in Z axis + WLAN 2.4GHz + Adapter 1
2	EUT in Z axis + WLAN 2.4GHz + Adapter 2
3	EUT in Z axis + WLAN 2.4GHz + Adapter 3 + US Plug

Mode 3 has been evaluated to be the worst case among Mode $1\sim3$, thus measurement for Mode $4\sim5$ will follow this same test mode.

follow this same test mode.			
4	EUT in Z axis + WLAN 5GHz + Adapter 3 + US Plug		
5	EUT in Y axis + Bluetooth + Adapter 3 + US Plug		

For operating mode 4 is the worst case and it was record in this test report.

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Operating Mode > 1GHz	СТХ		
After evaluating, the worst case was found at Z axis, so it was selected to perform test and its test result was written in the report.			
1	EUT in Z axis		

The Worst Case Mode for Following Conformance Tests			
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation		
Operating Mode			
1	WLAN 2.4GHz + WLAN 5GHz + Bluetooth		
Refer to Sporton Test Report No.: FA3D2303 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 DOS.
- 3. Executed "Lantest.exe" to link with the remote workstation to transmit and receive packet by Client and transmit duty cycle no less than 98%.

For Normal Link Mode:

During the test, the EUT operation to normal function.

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2.4 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
Adapter 1	Ktec	KSA-18W-120150VU	INPUT: 100-240V ~ 50/60Hz, 0.5A OUTPUT: 12V, 1.5A
Adapter 2	MOSO	MS-V1500R120-018H0-US	INPUT: 100-240V~50/60Hz, 0.6A max. OUTPUT: 12V, 1.5A
Adapter 3	Ktec	KSA-18W-120150D5	INPUT: 100-240V ~ 50/60Hz, 0.5A OUTPUT: 12.0V, 1.5A, 18.0W
Others			
RJ-45 cable*1, non-shielded, 1m			
US Plug*1 (Equip with Adapter 3 use only)			

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2.5 Support Equipment

For AC Conduction:

10171	1 of Ao Conduction:				
	Support Equipment				
No. Equipment Brand Name Model Name FCC ID					
Α	LAN NB	DELL	E6430	N/A	
В	2.4G NB	DELL	E6430	N/A	
С	5G NB	DELL	E6430	N/A	
D	WAN NB	DELL	E6430	N/A	
Е	iPhone 12	Apple	A2403	N/A	

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

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.	No. Equipment Brand Name Model Name FCC ID			
Α	Notebook	DELL	E4300	N/A
В	Client	Linksys	LN1100 v2	N/A
С	Notebook	DELL	E4300	N/A

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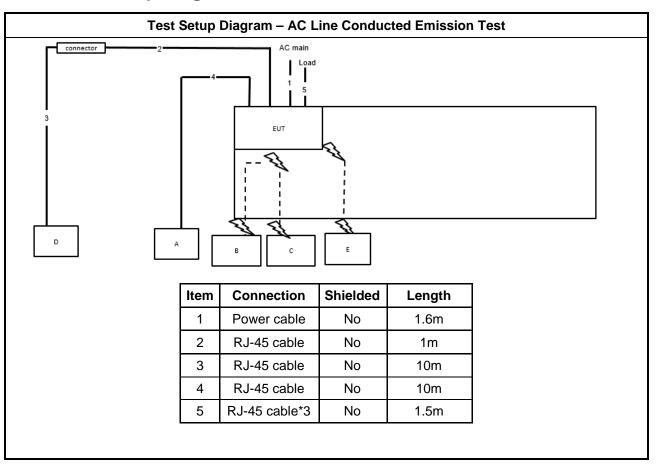
For RF Conducted / Beamforming mode:

	Support Equipment			
No.	No. Equipment Brand Name Model Name FCC ID			
Α	Notebook	DELL	E4300	N/A
В	Notebook	DELL	E4300	N/A
С	Client	Linksys	LN1100 v2	N/A

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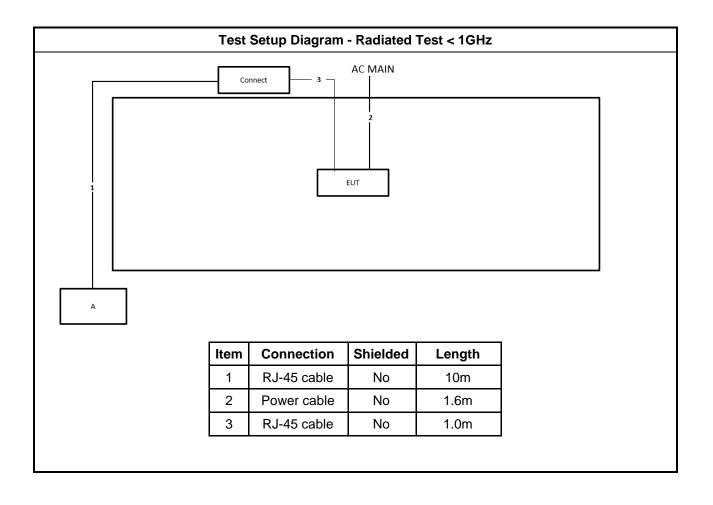
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2.6 Test Setup Diagram

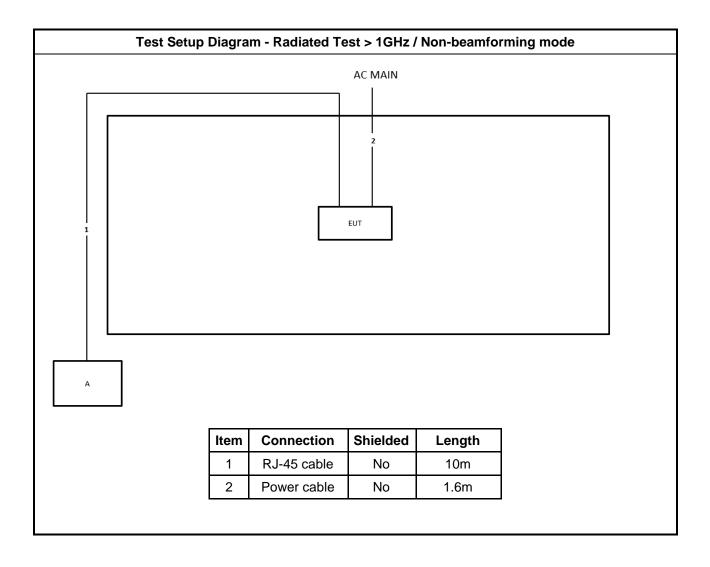


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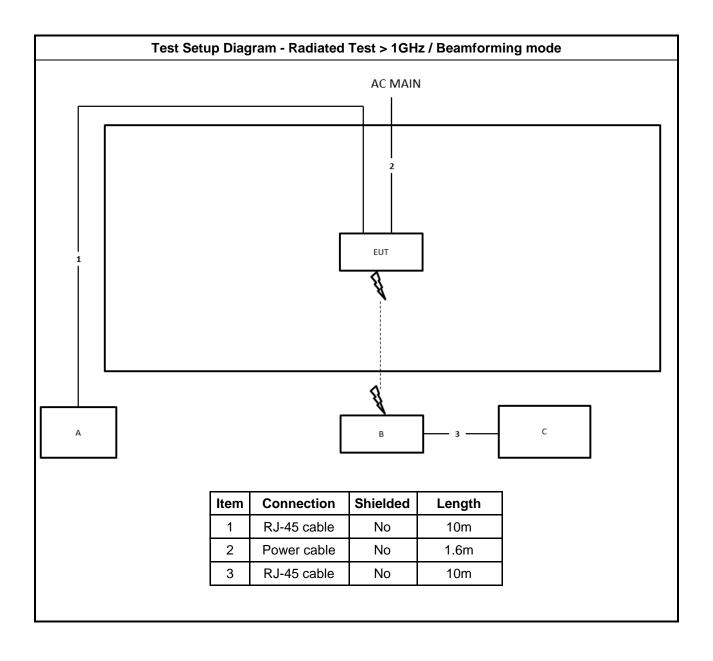
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3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

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

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3.1.2 Measuring Instruments

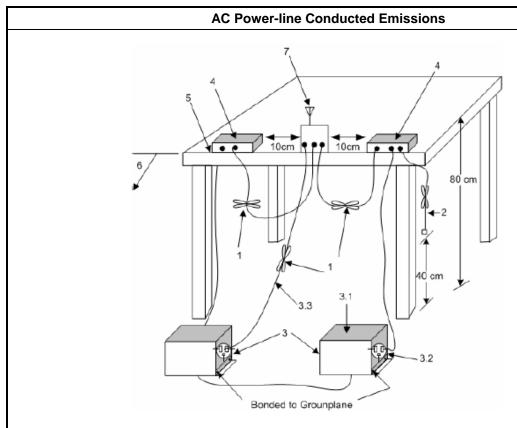
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

	Test Method
\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	UNII Devices		
	For the 5.85-5.895 GHz band, 26 dB emission bandwidth ,N/A. 6 dB emission bandwidth ≥ 500kHz.		
LE-	LE-LAN Devices		
	For the 5.85-5.895 GHz band, 26 dB emission bandwidth ,N/A. 6 dB emission bandwidth ≥ 500kHz.		

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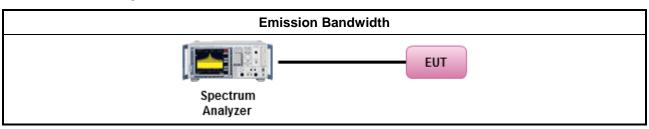
3.2.2 Measuring Instruments

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 EIRP Output Power

3.3.1 Limit

	Maximum EIRP Output Power Limit				
UNI	UNII Devices				
\boxtimes					
	■ Indoor AP & subordinate device < 36 dBm				
	■ Client device < 30 dBm				
LE-I	LE-LAN Devices				
	For the 5.85-5.895 GHz band:				
	■ Indoor AP & subordinate device < 36 dBm				
	■ Indoor client device < 30 dBm				
	■ Fixed outdoor AP device < 36 dBm				
	■ Fixed outdoor client device < 30 dBm				

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3.3.2 Measuring Instruments

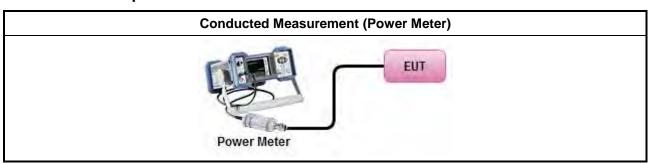
Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

		Test Method		
	Average over on/off periods with duty factor			
		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)		
	Wid	eband 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: $P_{total} = P_1 + P_2 + \ldots + P_n$ (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



3.3.5 Test Result of Maximum EIRP Output Power

Refer as Appendix C

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3.4 EIRP Power Spectral Density

3.4.1 Limit

	EIRP Power Spectral Density Limit			
UNI	UNII Devices			
\boxtimes				
	■ Indoor AP & subordinate device < 20dBm/MHz			
	■ Client device < 14dBm/MHz			
LE-	LAN Devices			
	For the 5.85-5.895 GHz band:			
	■ Indoor AP & subordinate device < 20 dBm/MHz			
	■ Indoor client device < 14 dBm/MHz			
	■ Fixed outdoor AP device < 23 dBm/MHz			
	■ Fixed outdoor client device < 17 dBm/MHz			

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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

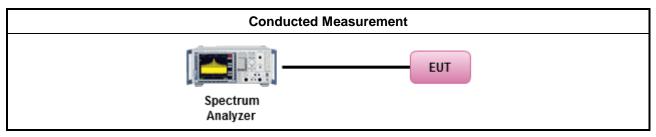
		Test Method		
•	outp func	k power spectral density procedures that the same method as used to determine the conducted ut power shall be used to determine the peak power spectral density and use the peak search tion on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density 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	/ 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)		
\boxtimes	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	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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3.4.4 Test Setup



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3.4.5 Test Result of EIRP 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 (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.

	Un-restricted band emissions above 1GHz Limit						
Opera	ating Band	Limit					
⊠ UNII [5.895	Devices 5.85 - GHz	(i) For an indoor access point or subordinate device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of 15 dBm/MHz and shall decrease linearly to an e.i.r.p. of - 7 dBm/MHz at or above 5.925 GHz. (ii) For a client device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of -5 dBm/MHz and shall decrease linearly to an e.i.r.p. of -27 dBm/MHz at or above 5.925 GHz. (iii) For a client device or indoor access point or subordinate device, all emissions below 5.725 GHz shall not exceed an e.i.r.p. of -27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/ MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.725 GHz.					
	N Devices 5.85 5 GHz	(i) Fixed outdoor access points and fixed outdoor client devices shall not exceed -27 dBm/MHz e.i.r.p. spectral density at or above the 5895 MHz band edge. (ii) Indoor access points or indoor subordinate devices shall not exceed 15 dBm/MHz e.i.r.p. spectral density at the 5895 MHz band edge and shall decrease linearly to not exceed -7 dBm/MHz e.i.r.p. spectral density at or above 5925 MHz. (iii) Client devices shall not exceed -5 dBm/MHz e.i.r.p. spectral density at the 5895 MHz band edge and shall decrease linearly to not exceed -27 dBm/MHz e.i.r.p. spectral density at or above 5925 MHz.					

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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 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

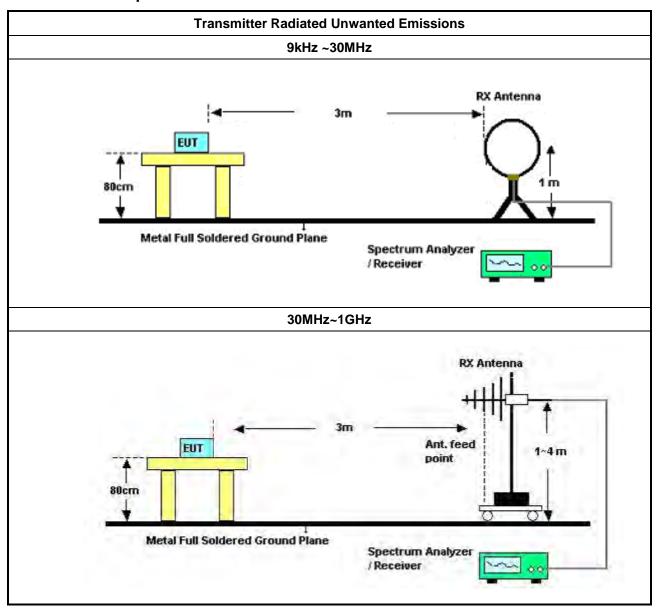
Test Method

- 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.

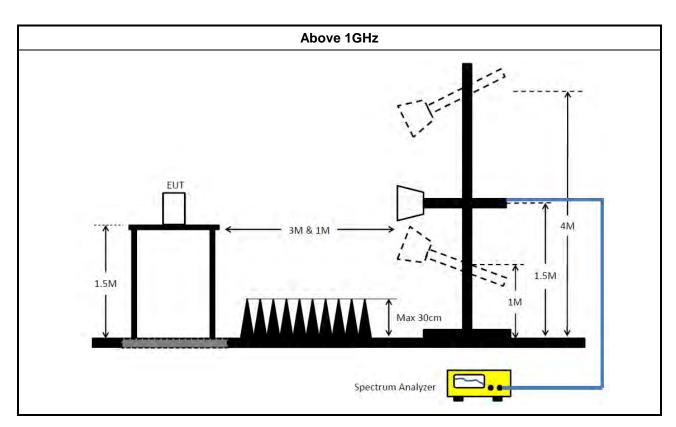
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3.5.4 Test Setup



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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
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz Feb. 20, 2023		Feb. 19, 2024	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-5 0-16-2	04083	150kHz ~ 100MHz Feb. 16, 2023		Feb. 15, 2024	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 27, 2023	Apr. 26, 2024	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 09, 2023	Feb. 08, 2024	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	Oct. 17, 2023	Oct. 16, 2024	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6121	65417	9kHz - 30 MHz	Oct. 13, 2023	Oct. 12, 2024	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz Aug. 02, 2023		Aug. 01, 2024	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH05-CB	1GHz ~18GHz 3m Sep. 29, 2023		Sep. 28, 2024	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz Mar. 24, 2023		Mar. 23, 2024	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA9120 D	BBHA 9120 D-1291	1GHz~18GHz Jun. 08, 2023		Jun. 07, 2024	Radiation (03CH05-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz Sep. 04, 2023		Sep. 03, 2024	Radiation (03CH05-CB)
Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	MHz ~ 3GHz May 03, 2023		Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630 SE	980287	1GHz – 26.5GHz	1GHz – 26.5GHz Jun. 30, 2023		Radiation (03CH05-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz Nov. 24, 2023		Nov. 23, 2024	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz		Apr. 17, 2024	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz Jun. 13, 2023		Jun. 12, 2024	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz Dec. 06, 2023		Dec. 05, 2024	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz Oct. 02, 2023		Oct. 01, 2024	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz Oct. 02, 2023		Oct. 01, 2024	Radiation (03CH05-CB)

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Calibration Calibration Instrument Brand Model No. Serial No. Characteristics Remark Date **Due Date** Radiation Jan. 10, 2025 High Cable Woken WCA0929M 40G#5+6 1GHz ~ 40 GHz Jan. 11, 2024 (03CH05-CB) Radiation Test Software **SPORTON** SENSE V5.10 N.C.R. N.C.R. (03CH05-CB) 3m Semi Anechoic 1GHz ~18GHz Radiation **TDK** SAC-3M 03CH01-CB May 05, 2023 May 04, 2024 (03CH01-CB) Chamber 3m **VSWR** Radiation **ETS-LINDGREN** 3115 00075790 750MHz ~ 18GHz Oct. 30, 2023 Oct. 29, 2024 Horn Antenna (03CH01-CB) Radiation Horn Antenna Schwarzbeck **BBHA 9170** BBHA9170252 15GHz ~ 40GHz Sep. 04, 2023 Sep. 03, 2024 (03CH01-CB) Radiation Pre-Amplifier Agilent 8449B May 18, 2023 May 17, 2024 3008A02121 1GHz ~ 26.5GHz (03CH01-CB) Radiation Pre-Amplifier SGH **SGH184** 20221107-3 Nov. 23, 2024 18GHz ~ 40GHz Nov. 24, 2023 (03CH01-CB) Signal Radiation R&S FSV3044 101437 10kHz ~ 44GHz Nov. 28, 2023 Nov. 27, 2024 Analyzer (03CH01-CB) Radiation RF Cable-high Woken RG402 High Cable-16 1 GHz ~ 18 GHz Nov. 06, 2023 Nov. 05, 2024 (03CH01-CB) Radiation 1 GHz ~ 18 GHz RF Cable-high Woken RG402 Nov. 06, 2023 Nov. 05, 2024 Cable-16+17 (03CH01-CB) Radiation High Cable Woken WCA0929M 40G#5+6 1GHz ~ 40 GHz Dec. 06, 2023 Dec. 05, 2024 (03CH01-CB) Radiation Woken WCA0929M 40G#5 1GHz ~ 40 GHz Oct. 02, 2023 Oct. 01, 2024 High Cable (03CH01-CB) Radiation 1GHz ~ 40 GHz Oct. 01, 2024 High Cable Woken WCA0929M 40G#6 Oct. 02, 2023 (03CH01-CB) Radiation **Test Software SPORTON** SENSE V5.10 N.C.R. N.C.R. (03CH01-CB) 3m Semi 1GHz ~18GHz Radiation Anechoic TDK SAC-3M 03CH03-CB May 04, 2023 May 03, 2024 Chamber (03CH03-CB) 3m **VSWR** Radiation Horn Antenna **ETS**·Lindgren 3115 6821 750MHz~18GHz Feb. 03, 2023 Feb. 02, 2024 (03CH03-CB) Radiation Schwarzbeck **BBHA 9170** BBHA9170252 15GHz ~ 40GHz Horn Antenna Sep. 04, 2023 Sep. 03, 2024 (03CH03-CB) Radiation Pre-Amplifier Agilent 8449B 3008A02097 1GHz ~ 26.5GHz Jun. 30, 2023 Jun. 29, 2024 (03CH03-CB) Radiation SGH SGH184 18GHz ~ 40GHz Pre-Amplifier 20221107-3 Nov. 24, 2023 Nov. 23, 2024 (03CH03-CB) Spectrum Radiation R&S FSP40 100019 9kHz ~ 40GHz Jun. 11, 2024 Jun. 12, 2023 Analyzer (03CH03-CB) High Radiation RG402 RF Cable-high Woken 1GHz ~ 18GHz Nov. 07, 2023 Nov. 06, 2024 Cable-20+29 (03CH03-CB)

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Instrument	Brand	Model No.	Serial No.	Characteristics Calibration Date		Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-29	1GHz ~ 18GHz Nov. 07, 2023		Nov. 06, 2024	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Jan. 11, 2024	Jan. 10, 2025	Radiation (03CH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH03-CB)
Spectrum analyzer	R&S	FSV40	101028	9kHz~40GHz	Dec. 22, 2023	Dec. 21, 2024	Conducted (TH03-CB)
Power Sensor	Anritsu	MA2411B	1726195	300MHz~40GHz Sep. 04, 2023		Sep. 03, 2024	Conducted (TH03-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz Sep. 04, 2023		Sep. 03, 2024	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-11	30MHz –18 GHz Oct. 02, 2023		Oct. 01, 2024	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-12	30MHz –18 GHz Oct. 02, 2023		Oct. 01, 2024	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-13	30MHz –18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1 GHz –18 GHz Oct. 02, 2023		Oct. 01, 2024	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-15	1 GHz –18 GHz Oct. 02, 2023		Oct. 01, 2024	Conducted (TH03-CB)
Switch	SPTCB	SP-SWI	SWI-03	1 ~26.5 GHz	Oct. 03, 2023	Oct. 02, 2024	Conducted (TH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH03-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

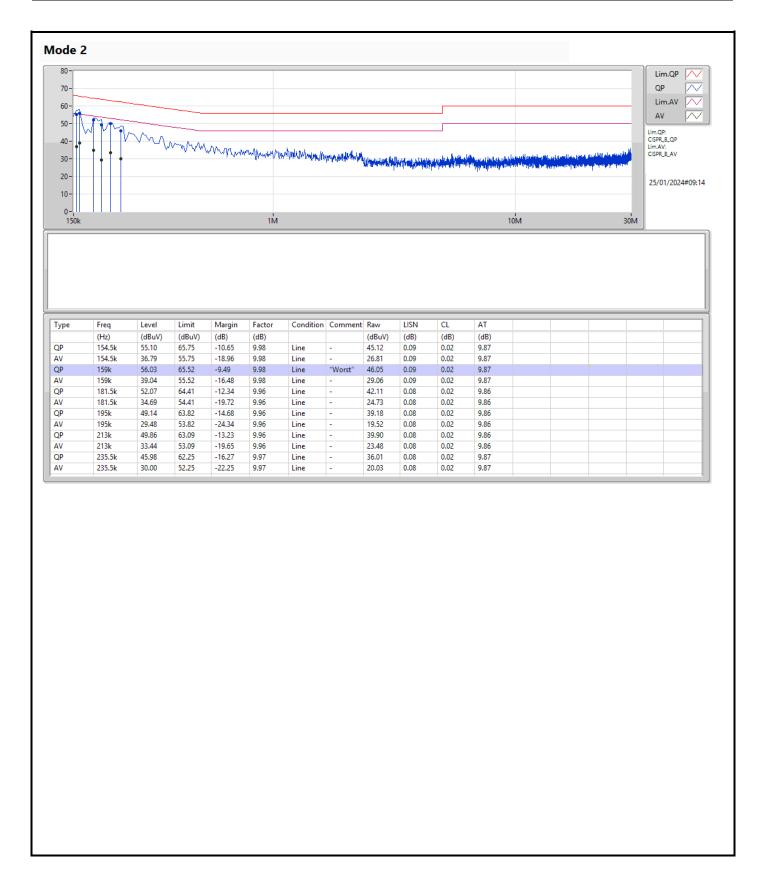
Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 2	Pass	QP	159k	56.03	65.52	-9.49	Line

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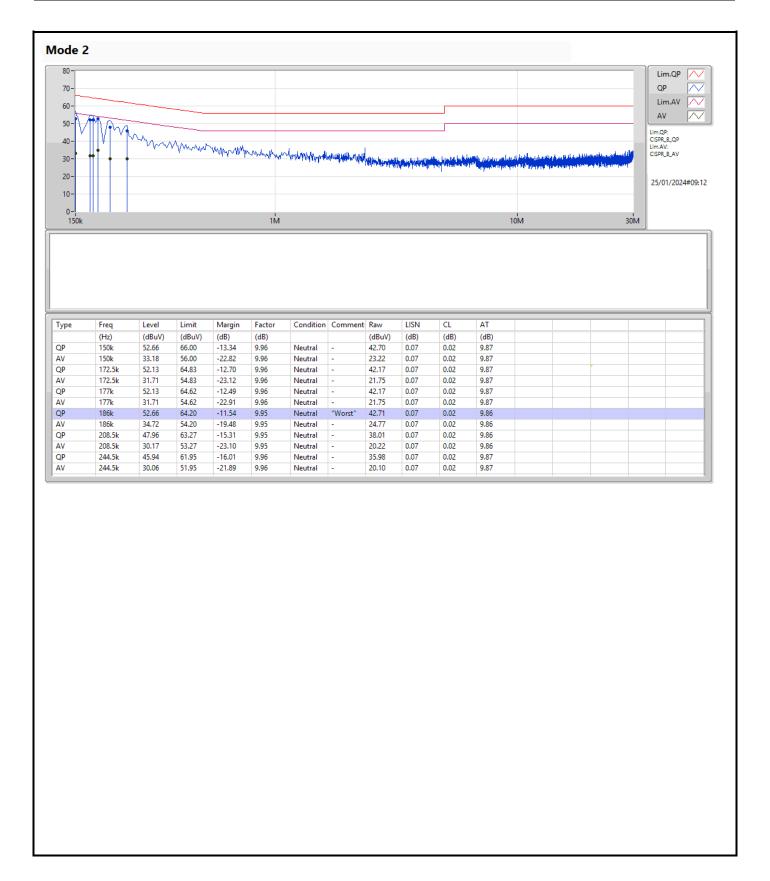
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Appendix B **EBW**

Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
5.725-5.895GHz	-	-	=	-	-
802.11a_Nss1,(6Mbps)_2TX	16.335M	16.712M	16M7D1D	14.465M	16.272M
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	18.92M	19.147M	19M1D1D	17.765M	18.859M
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	37.84M	38.265M	38M3D1D	36.08M	37.781M
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	54.78M	77.906M	77M9D1D	51.7M	77.288M
802.11ax HEW160-BF_Nss1,(MCS0)_2TX	137.72M	154.773M	155MD1D	121.88M	154.339M

 $\label{eq:max-NdB} Max-N\,dB = Maximum\,6dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,other\,band;\\ Max-OBW = Maximum\,99\%\,occupied\,bandwidth;\\ Min-N\,dB = Minimum\,6dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,other\,band;\\ Min-OBW = Minimum\,99\%\,occupied\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,other\,band;\\ Min-OBW = Minimum\,99\%\,occupied\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,band\,/\,Maximum\,26dB\,down\,bandwidth\,for\,5.725-5.85GHz\,bandwidth\,for\,5.725-5.85GHz\,bandwidth\,for\,5.725-5.85GHz\,bandwidth\,for\,5.725-5.85GHz\,bandwidth\,for\,5.725-5.85GHz\,bandwidth\,for\,5.725-5.85GHz\,bandwidth\,for\,5.725-5.85GHz\,bandwidth\,for\,5.725-5.85GHz\,bandwidth\,for\,5.725-5.85GHz\,bandwidth\,for\,5.725-5.85GHz\,bandwidth\,for\,5.725-5.85GHz\,bandwidth\,for\,5.725-5.85GHz\,bandwidth\,for\,5.725-5.85GHz\,bandwidth\,for\,5.725-5$

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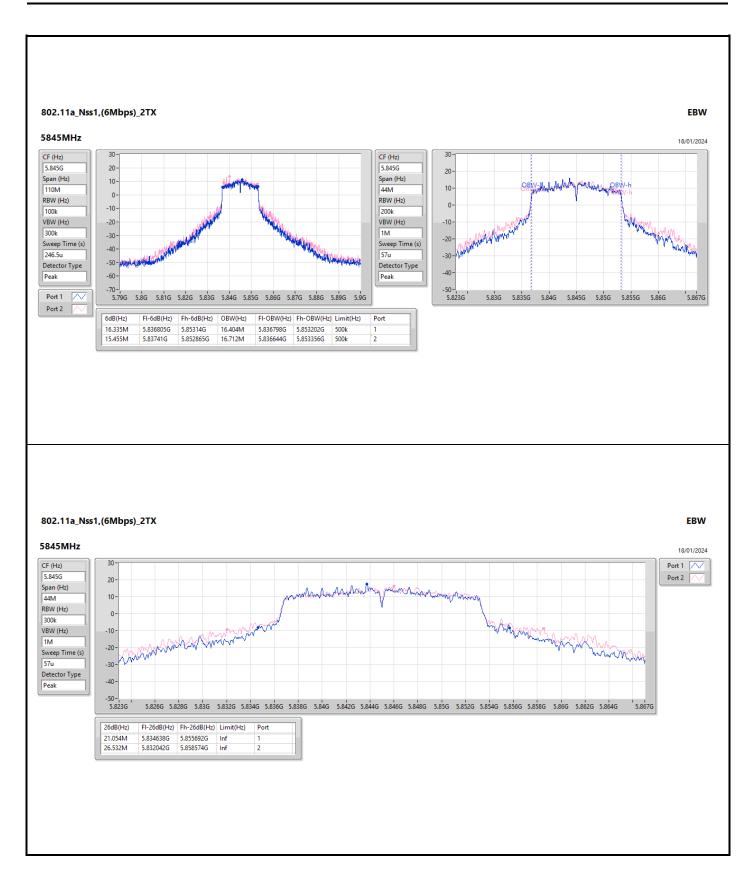
Result

Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
5845MHz	Pass	500k	16.335M	16.404M	15.455M	16.712M
5865MHz	Pass	500k	14.465M	16.272M	16.06M	16.316M
5885MHz	Pass	500k	16.335M	16.272M	15.895M	16.294M
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5845MHz	Pass	500k	17.765M	18.951M	18.92M	19.147M
5865MHz	Pass	500k	18.81M	18.859M	18.535M	18.889M
5885MHz	Pass	500k	18.92M	18.889M	18.92M	18.884M
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5835MHz	Pass	500k	36.08M	37.997M	36.85M	38.265M
5875MHz	Pass	500k	37.84M	37.781M	37.07M	37.981M
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5855MHz	Pass	500k	51.7M	77.288M	54.78M	77.906M
802.11ax HEW160-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5815MHz	Pass	500k	121.88M	154.773M	137.72M	154.339M

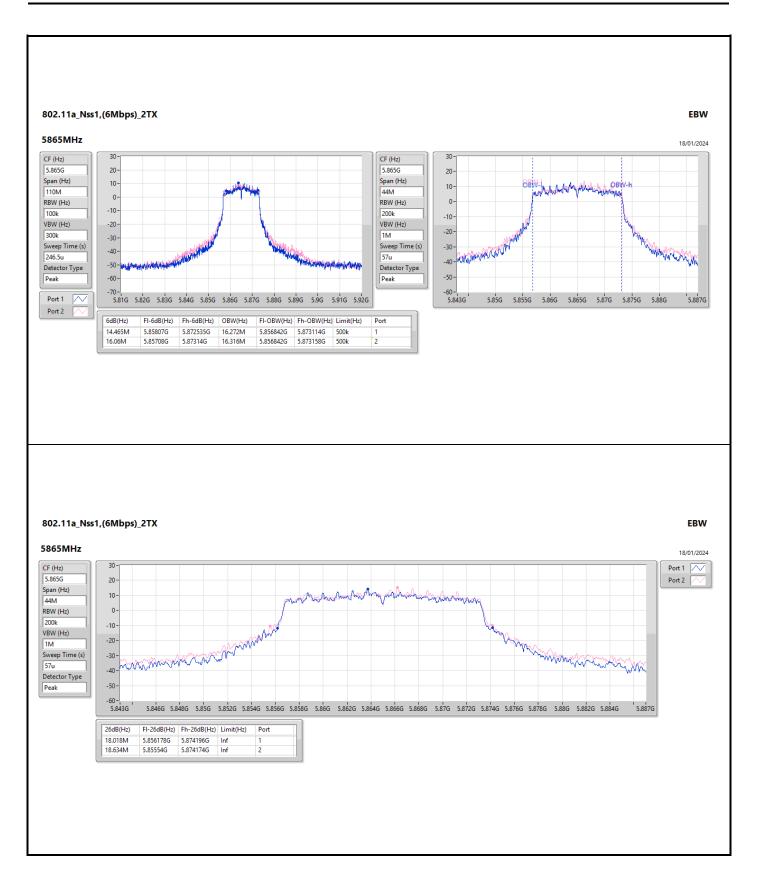
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth

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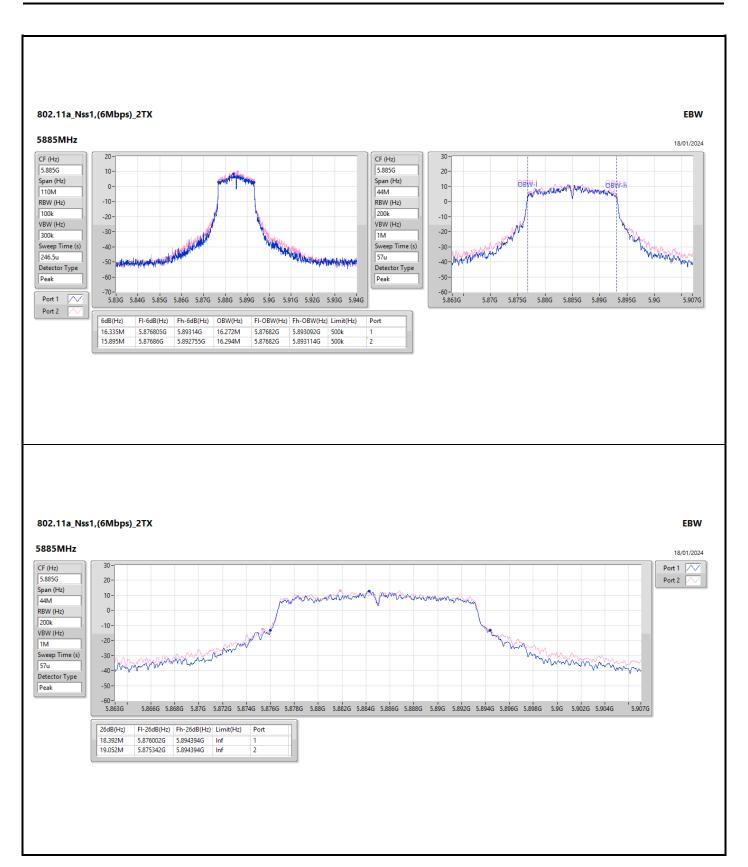


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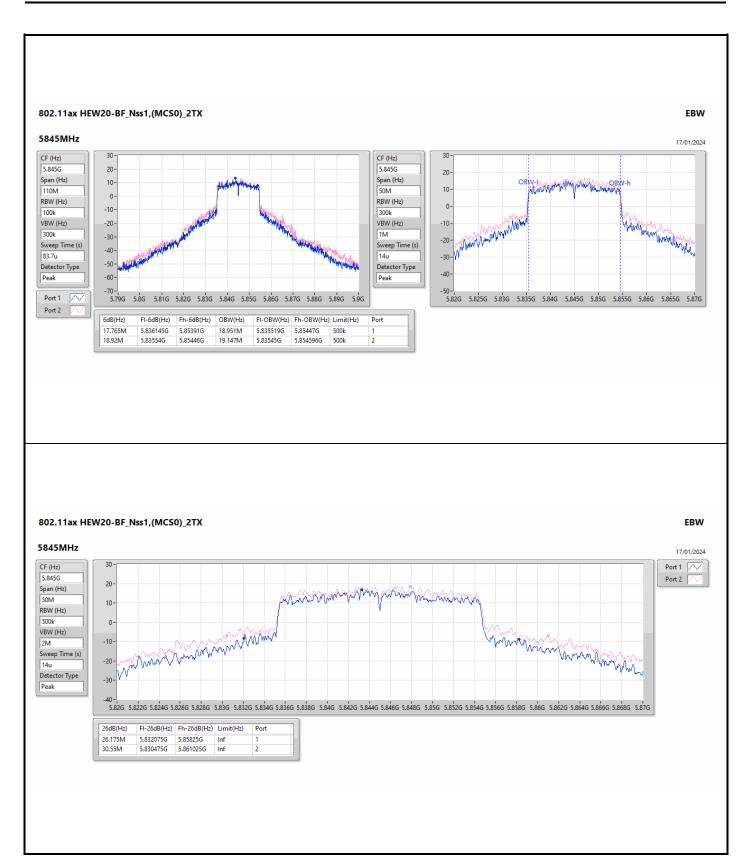
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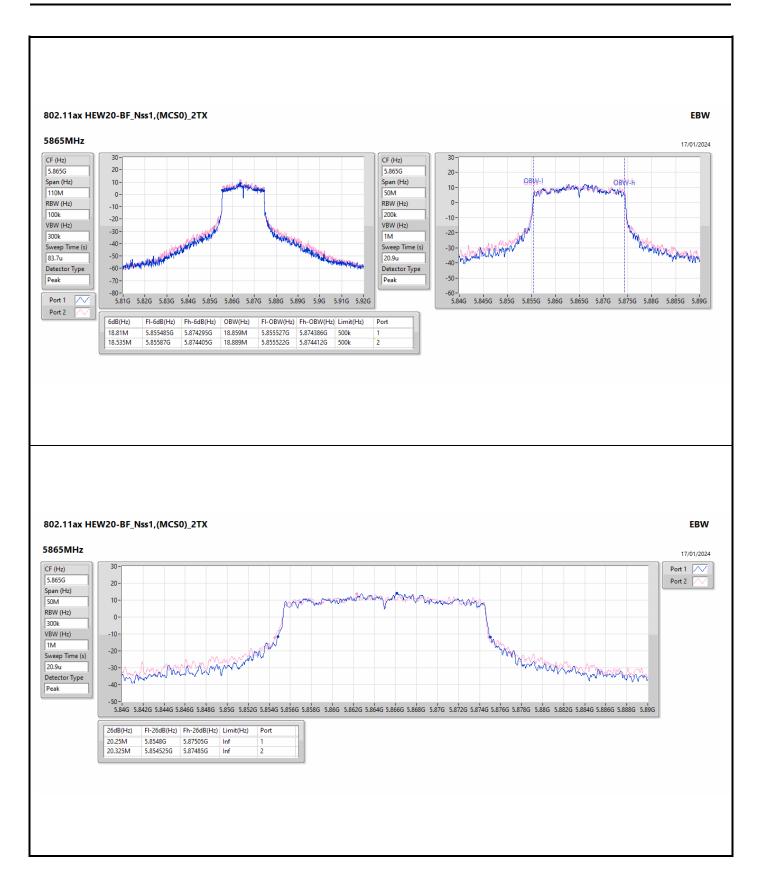


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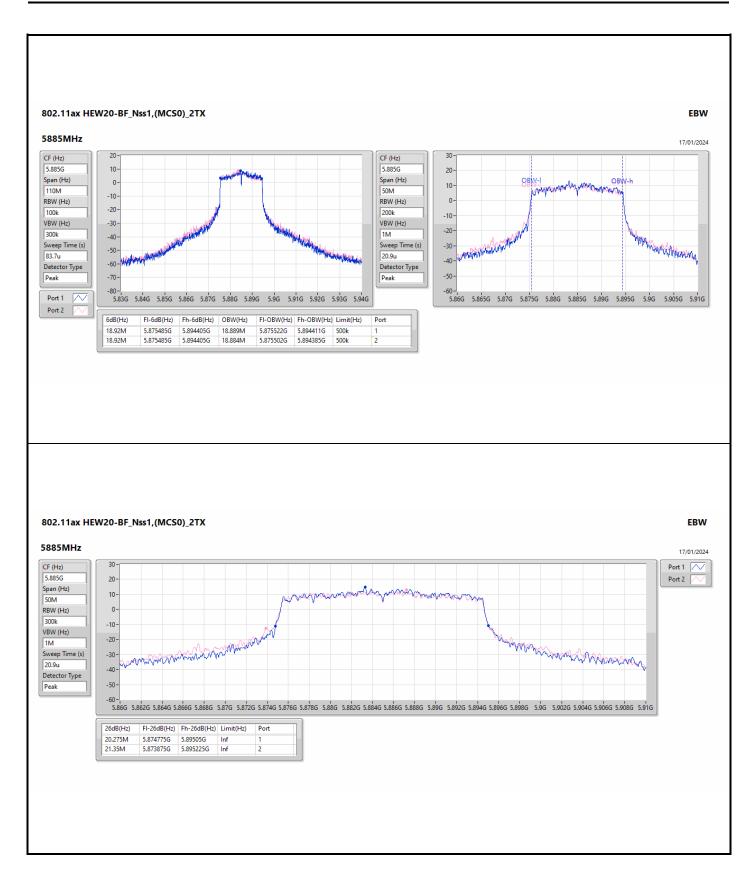
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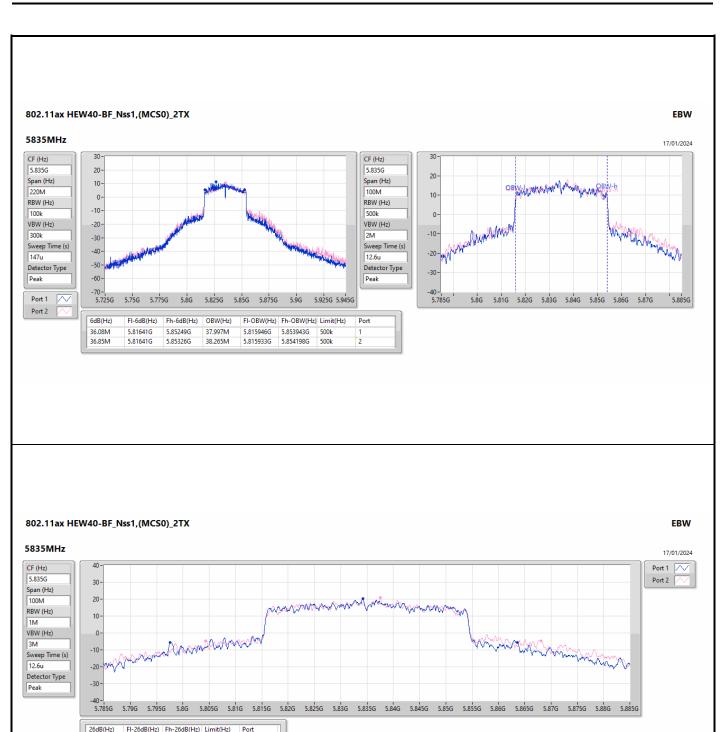


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65.95M

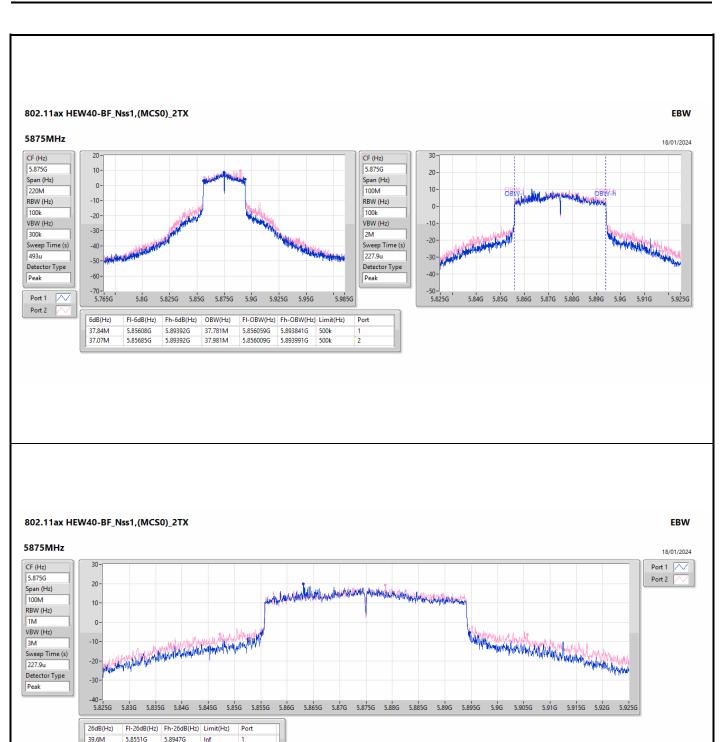
5.7976G

5.86355G

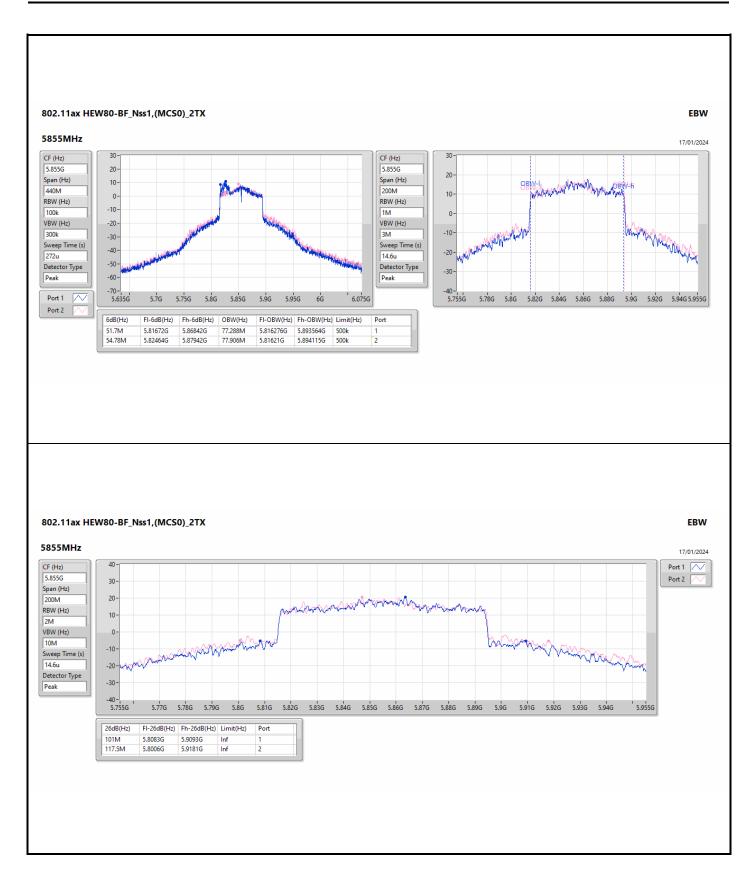
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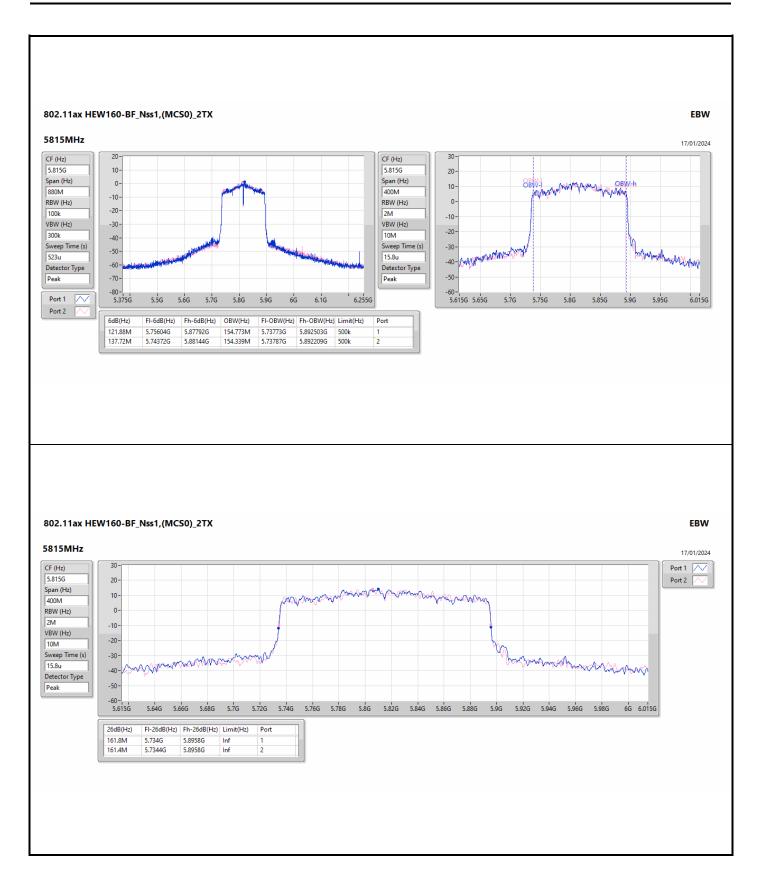
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Average Power Appendix C

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.725-5.895GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	28.11	0.64714	31.61	1.44877
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	28.92	0.77983	34.96	3.13329
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	29.27	0.84528	35.31	3.39625
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	29.02	0.79799	35.06	3.20627
802.11ax HEW160-BF_Nss1,(MCS0)_2TX	24.73	0.29717	30.77	1.19399

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Average Power Appendix C

Result

Mode	Result	DG	Port 1	Port 2	Total Power	EIRP	EIRP Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-
5845MHz	Pass	3.50	24.61	25.54	28.11	31.61	36.00
5865MHz	Pass	3.50	21.63	22.60	25.15	28.65	36.00
5885MHz	Pass	3.50	21.55	22.59	25.11	28.61	36.00
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
5845MHz	Pass	6.04	25.65	26.15	28.92	34.96	36.00
5865MHz	Pass	6.04	22.71	23.31	26.03	32.07	36.00
5885MHz	Pass	6.04	22.83	22.94	25.90	31.94	36.00
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
5835MHz	Pass	6.04	26.14	26.37	29.27	35.31	36.00
5875MHz	Pass	6.04	24.70	25.10	27.91	33.95	36.00
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
5855MHz	Pass	6.04	25.81	26.21	29.02	35.06	36.00
802.11ax HEW160-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
5815MHz	Pass	6.04	21.70	21.73	24.73	30.77	36.00

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

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Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
5.725-5.895GHz	-	-
802.11a_Nss1,(6Mbps)_2TX	13.67	19.71
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	13.87	19.91
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	13.25	19.29
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	11.73	17.77
802.11ax HEW160-BF_Nss1,(MCS0)_2TX	0.86	6.90

 $RBW = 500kHz \ for \ 5.725\text{-}5.85GHz \ band \ / \ 1MHz \ for \ other \ band;$

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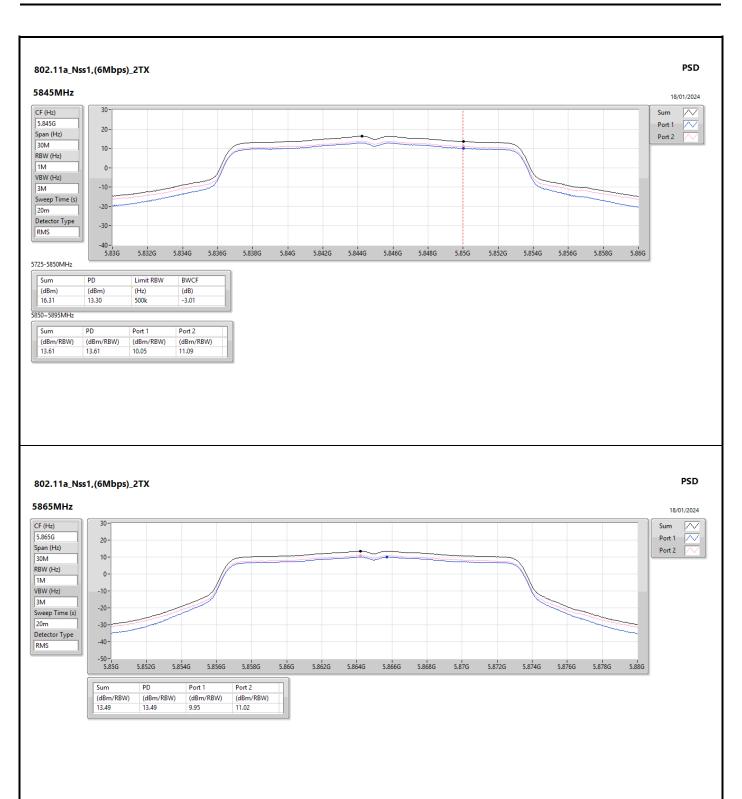
Result

Mode	Result	DG	Port 1	Port 2	PD	EIRP PD	EIRP PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-
5845MHz	Pass	6.04	10.05	11.09	13.61	19.65	20.00
5865MHz	Pass	6.04	9.95	11.02	13.49	19.53	20.00
5885MHz	Pass	6.04	10.09	11.21	13.67	19.71	20.00
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
5845MHz	Pass	6.04	10.55	11.08	13.75	19.79	20.00
5865MHz	Pass	6.04	10.61	11.30	13.87	19.91	20.00
5885MHz	Pass	6.04	10.62	10.89	13.69	19.73	20.00
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
5835MHz	Pass	6.04	7.54	7.82	10.69	16.73	20.00
5875MHz	Pass	6.04	10.13	10.48	13.25	19.29	20.00
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
5855MHz	Pass	6.04	8.51	8.99	11.73	17.77	20.00
802.11ax HEW160-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
5815MHz	Pass	6.04	-2.28	-2.02	0.86	6.90	20.00

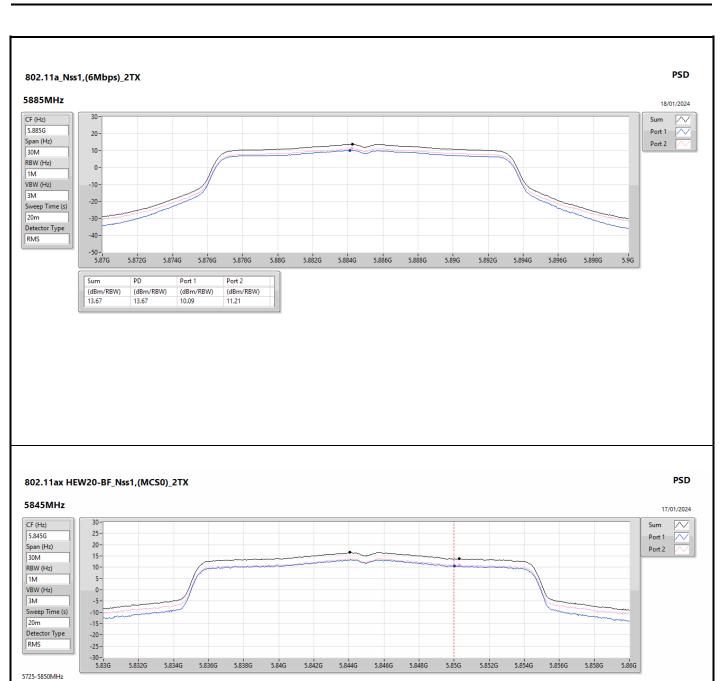
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DG = Directional Gain; RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band; PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;



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Sum

16.53

5850~5895MHz

(dBm/RBW) 13.75 PD

13.52

(dBm/RBW) 13.75 Limit RBW

(dBm/RBW) 10.55

(Hz)

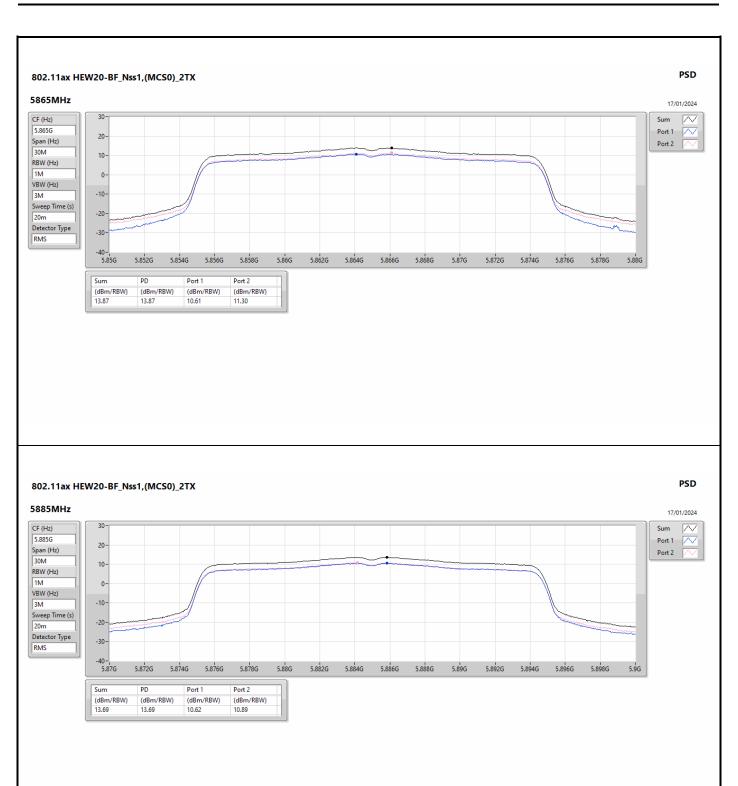
500k

BWCF

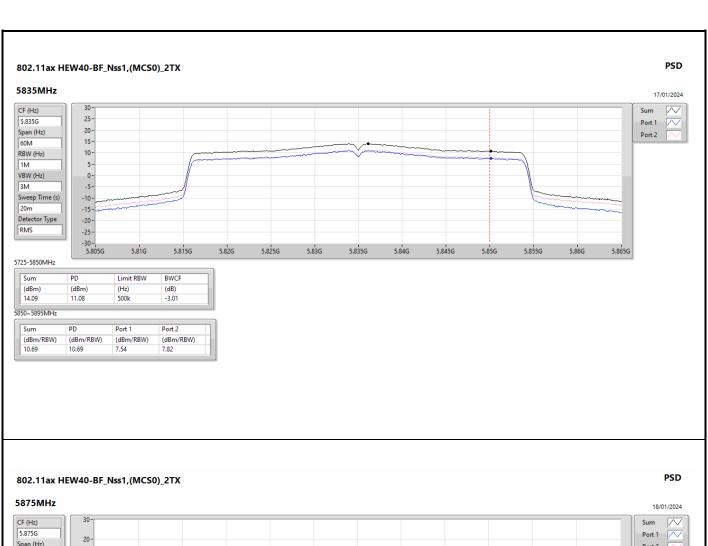
-3.01

(dBm/RBW) 11.08

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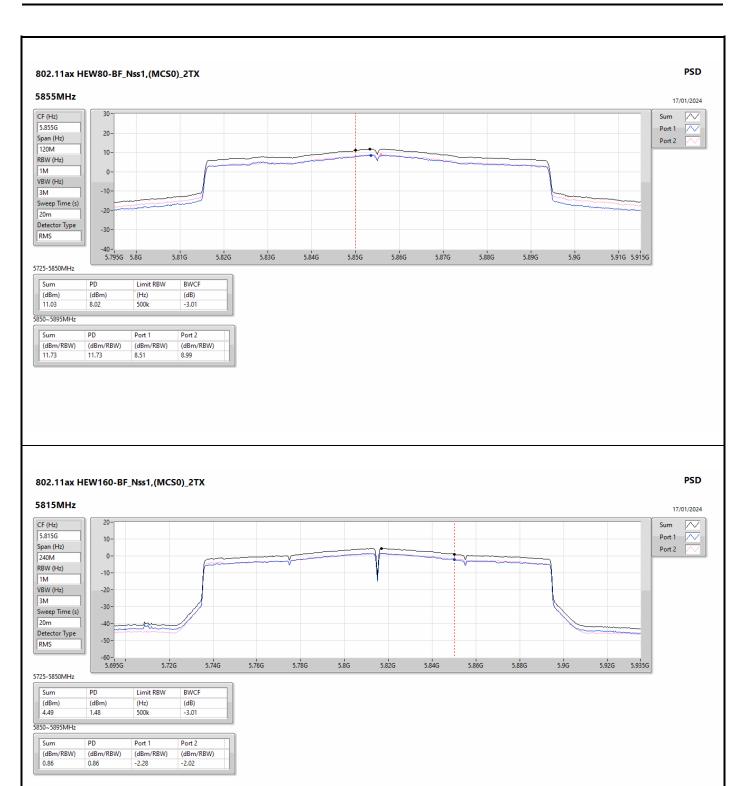
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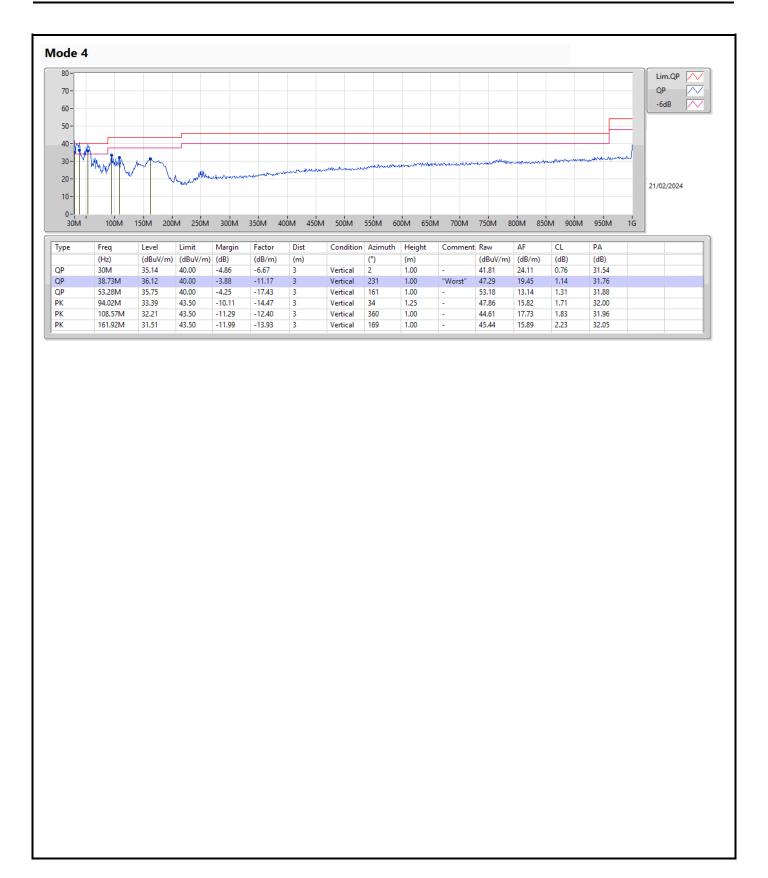
Radiated Emissions below 1GHz

Appendix E.1

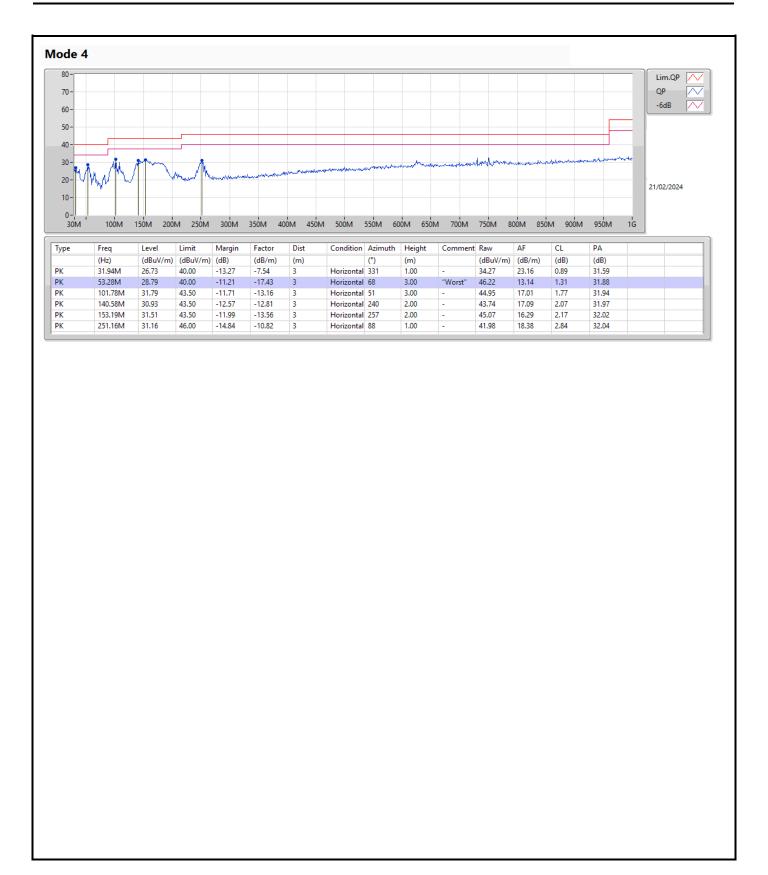
Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 4	Pass	QP	38.73M	36.12	40.00	-3.88	Vertical

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RSE TX above 1GHz

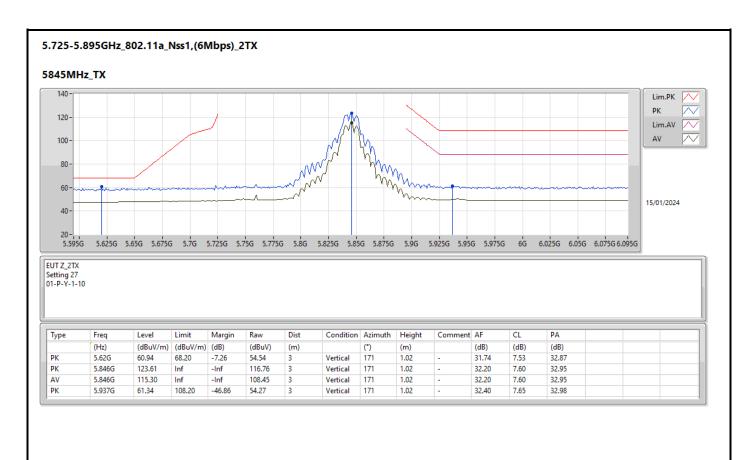
Appendix E.2

Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
5.725-5.895GHz	-	-	-	-	-	-	-	-	-	-	-
802.11ax HEW160-BF_Nss1,(MCS0)_2TX	Pass	PK	5.646G	65.17	68.20	-3.03	3	Vertical	175	1.04	-

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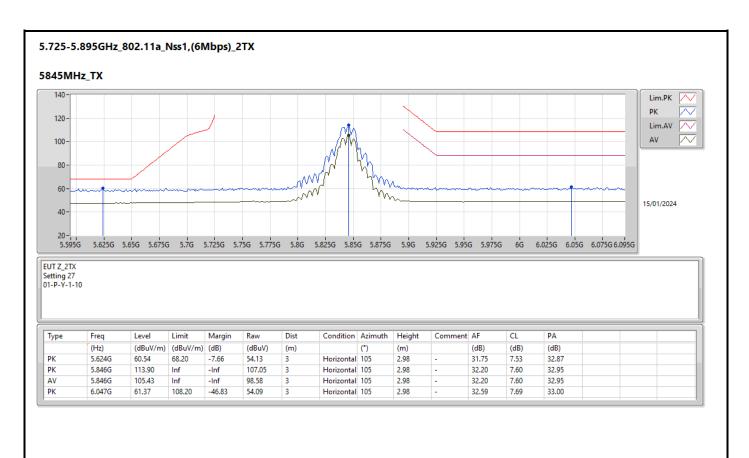




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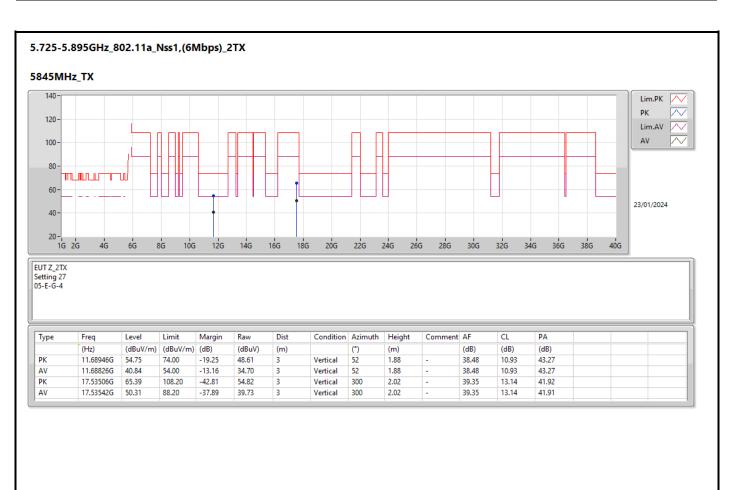




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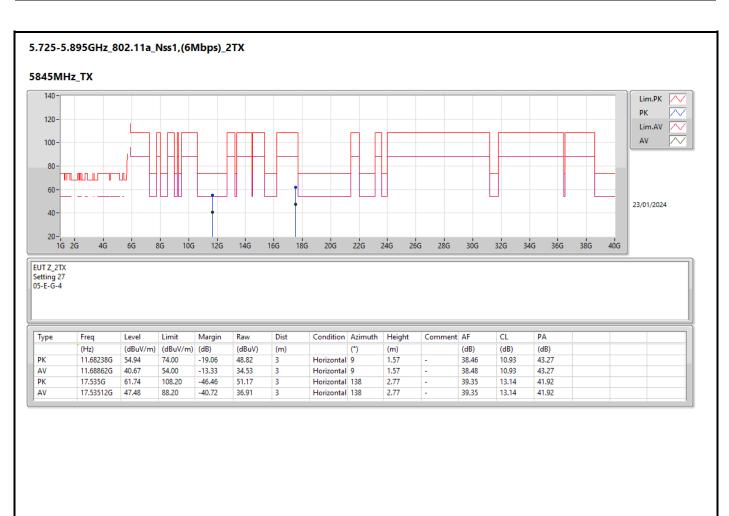




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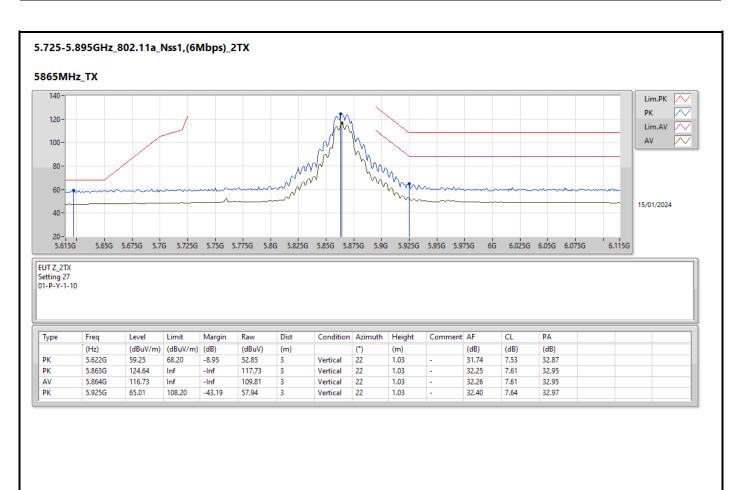




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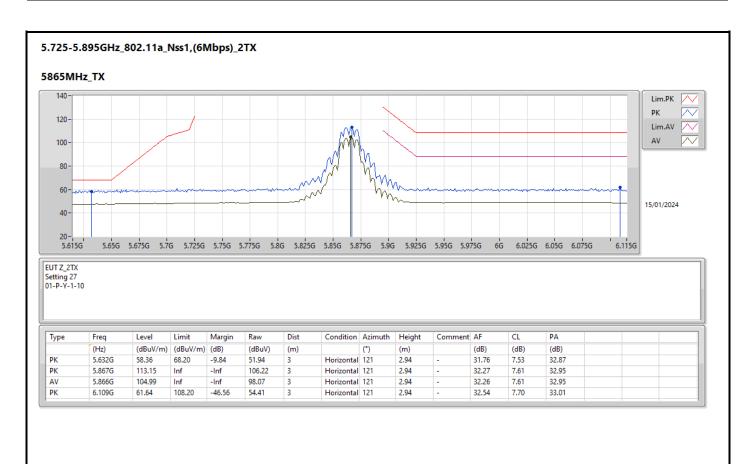




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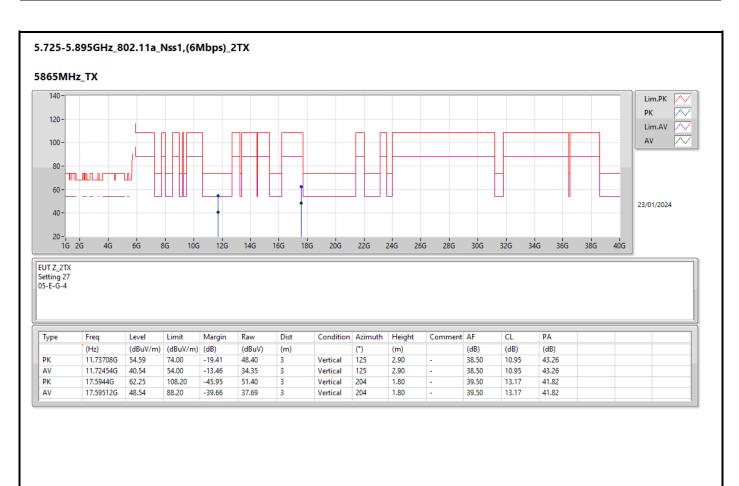




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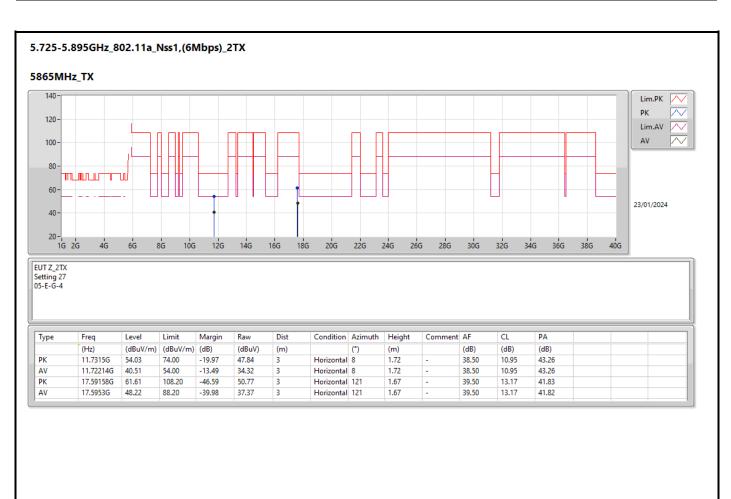
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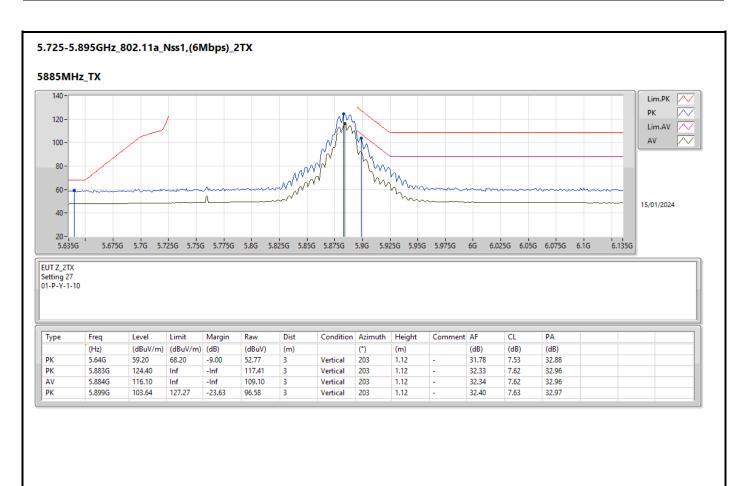
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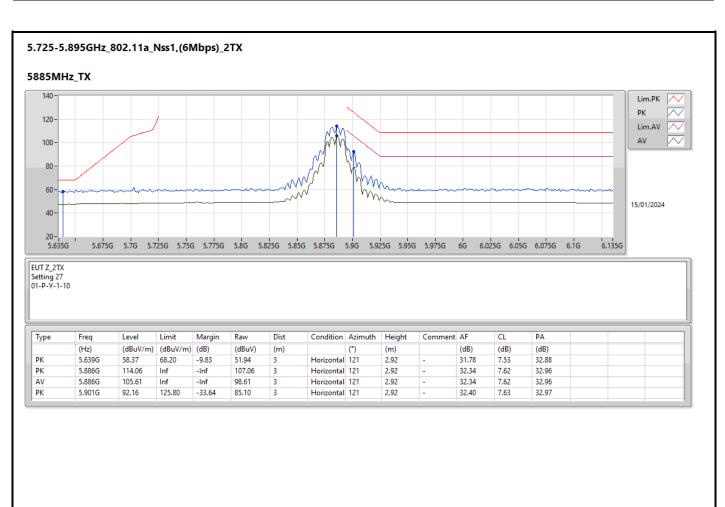




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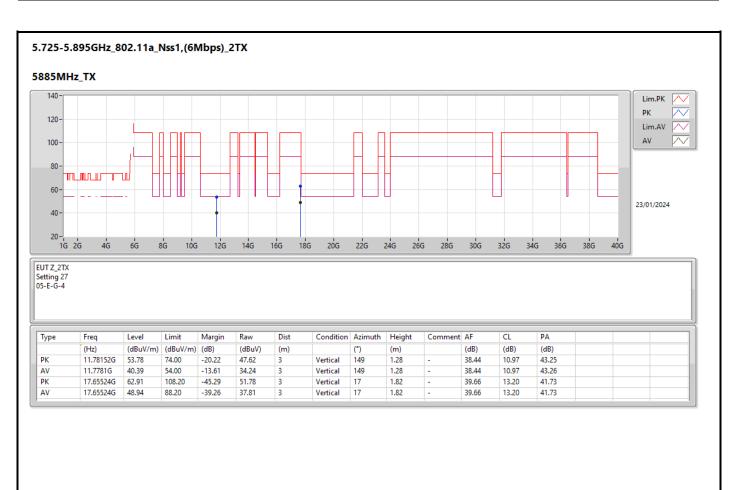
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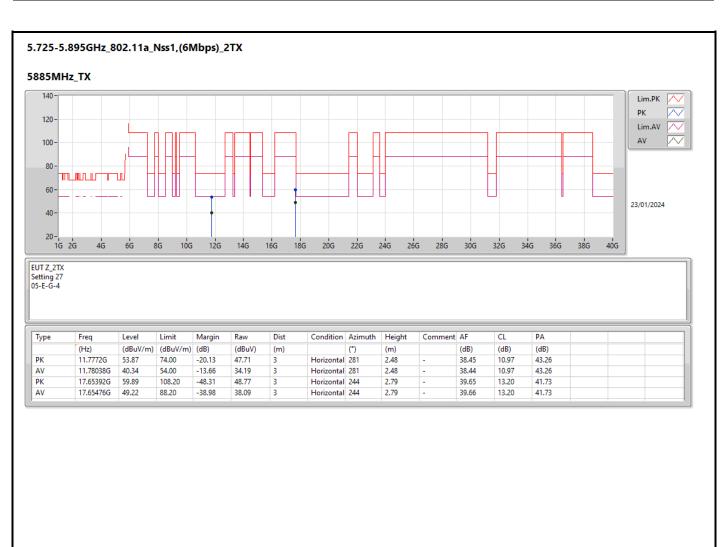
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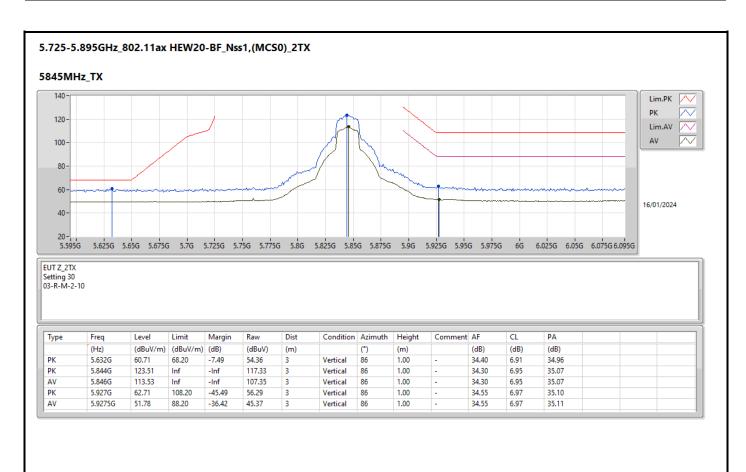
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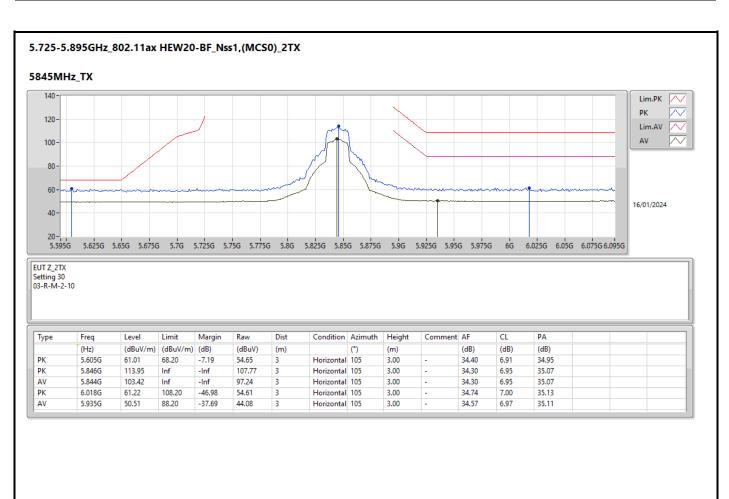




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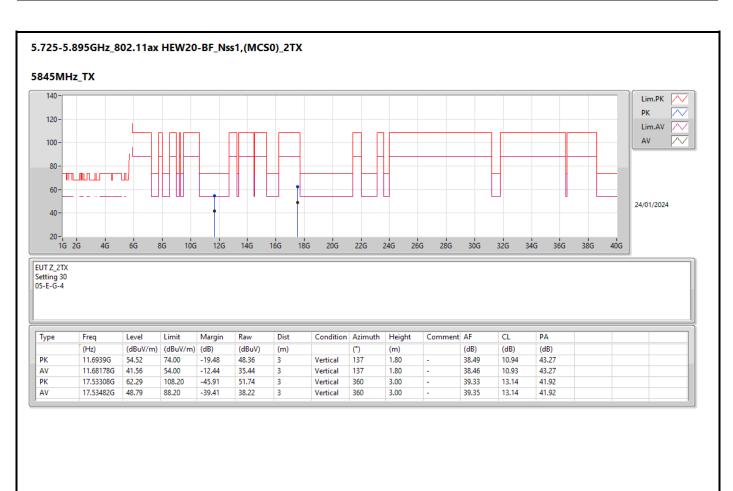




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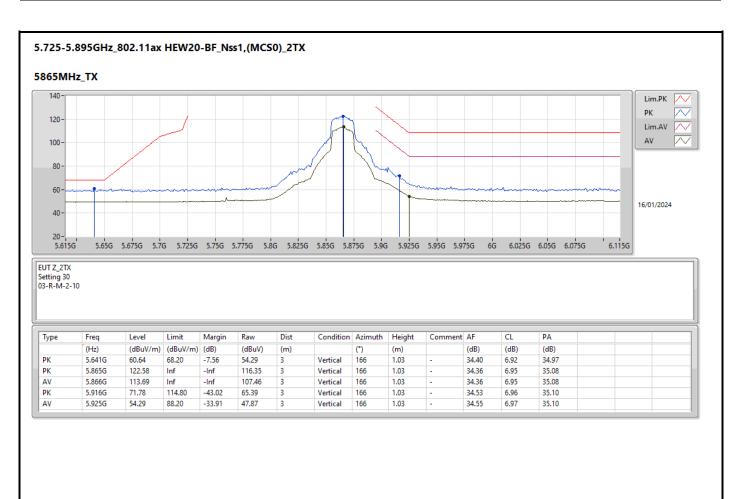
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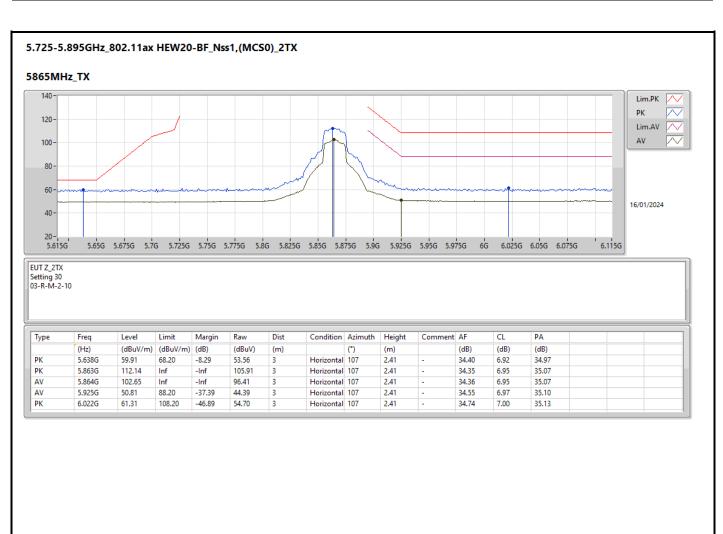




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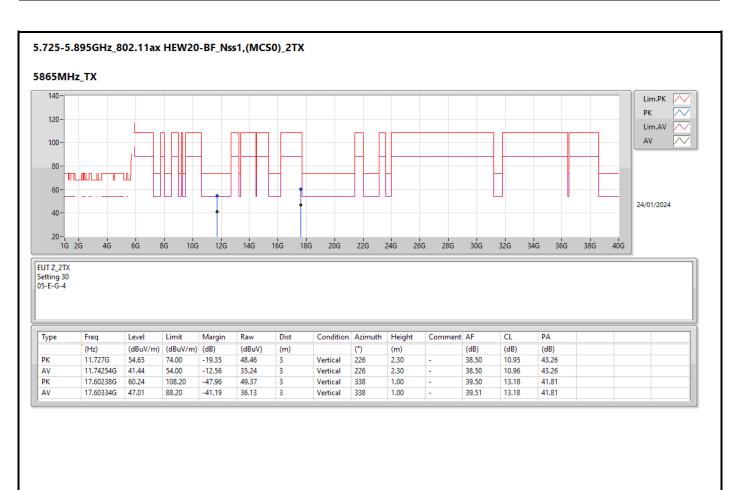




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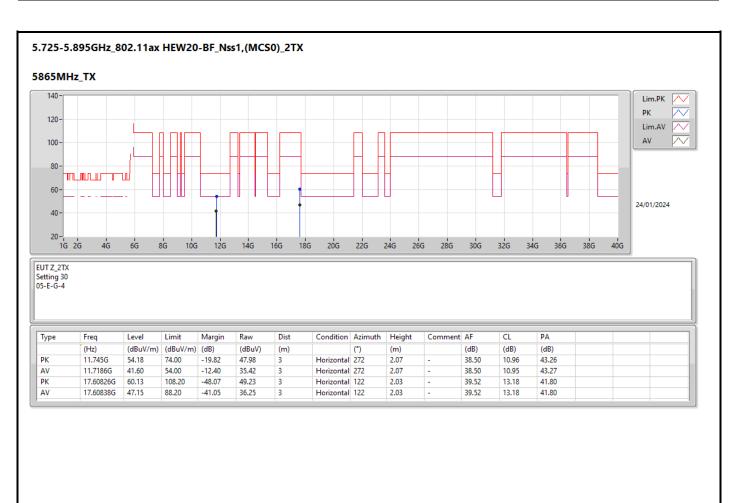




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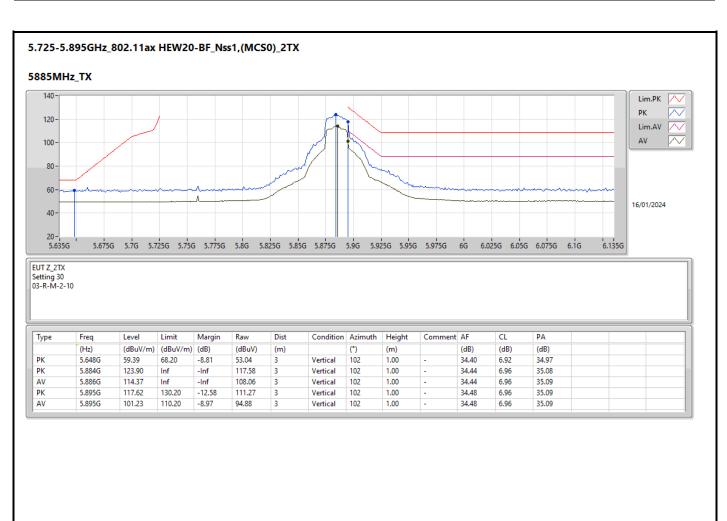
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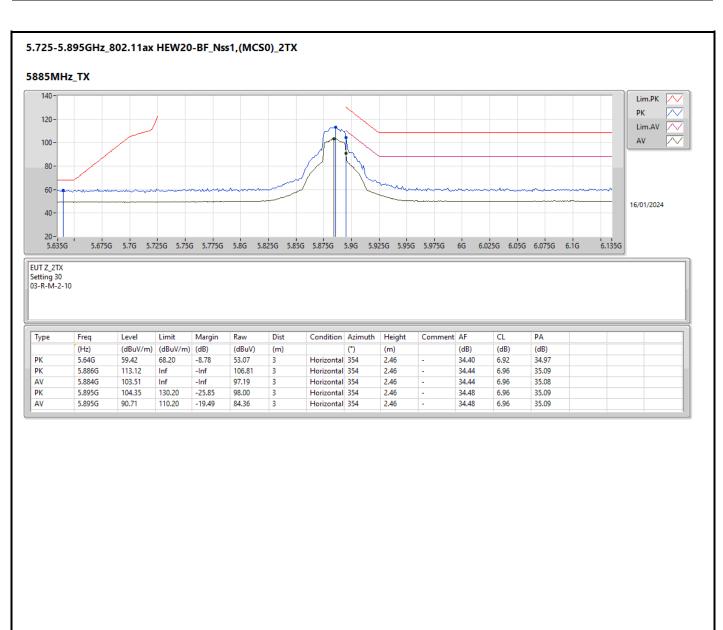


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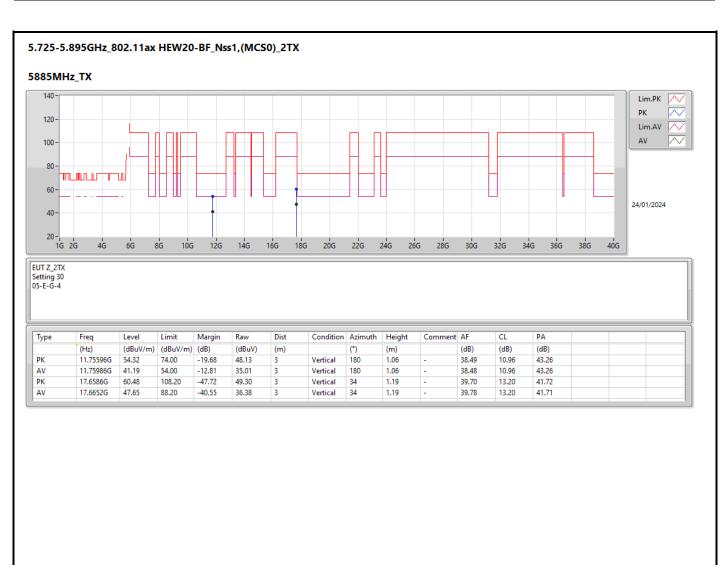






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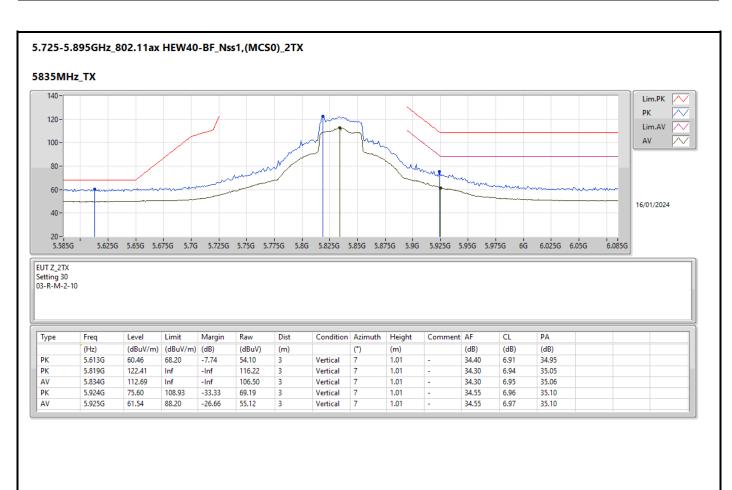
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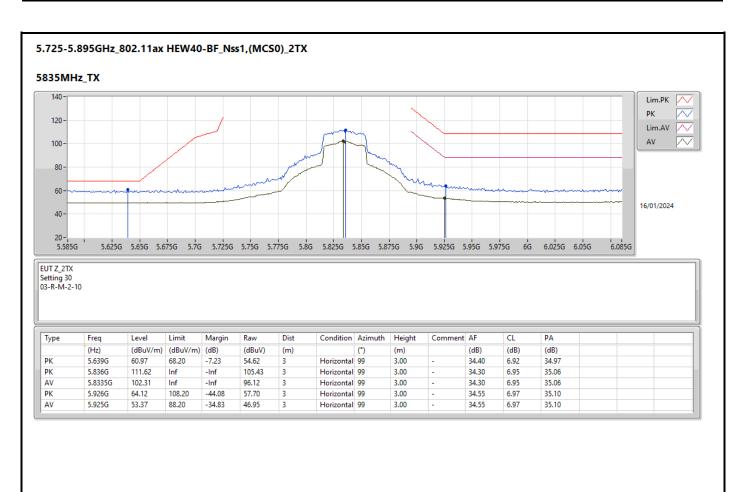






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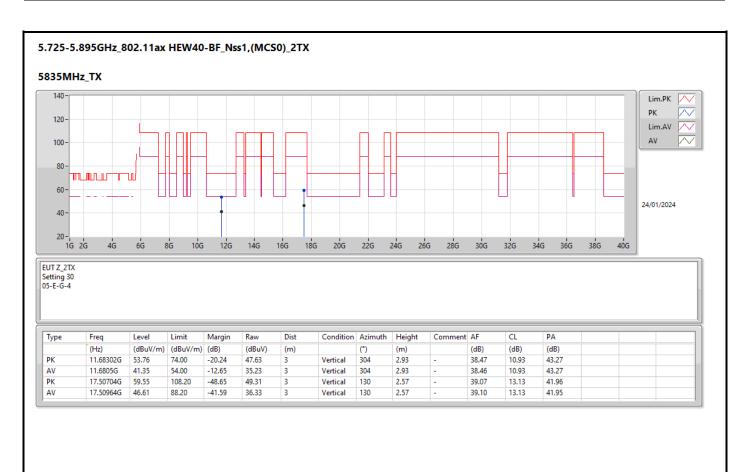




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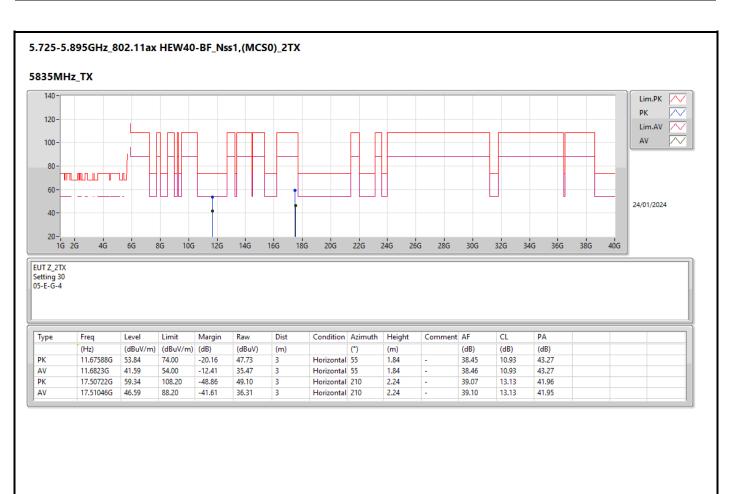
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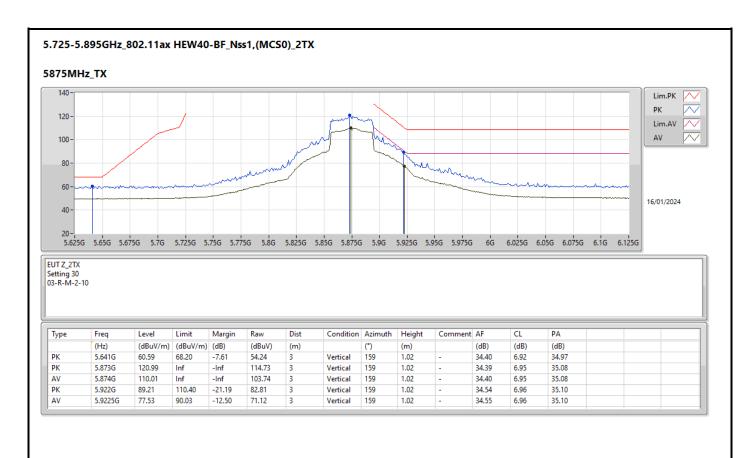




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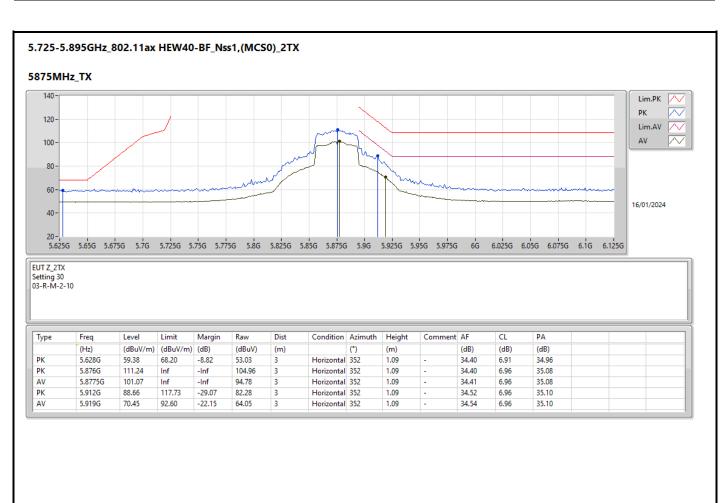




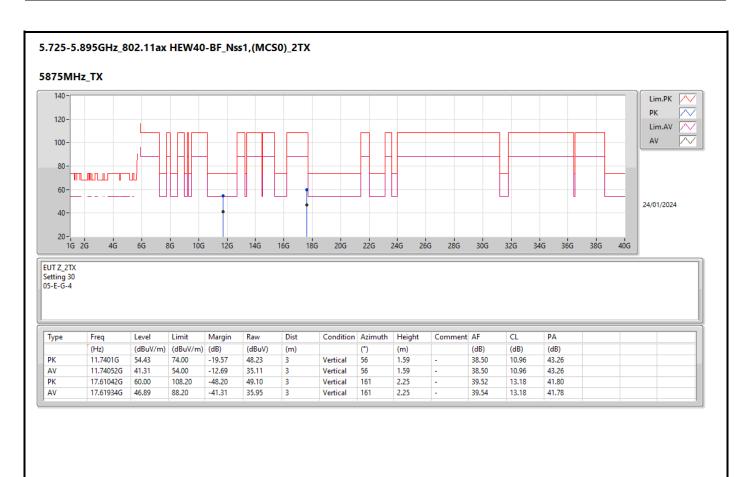
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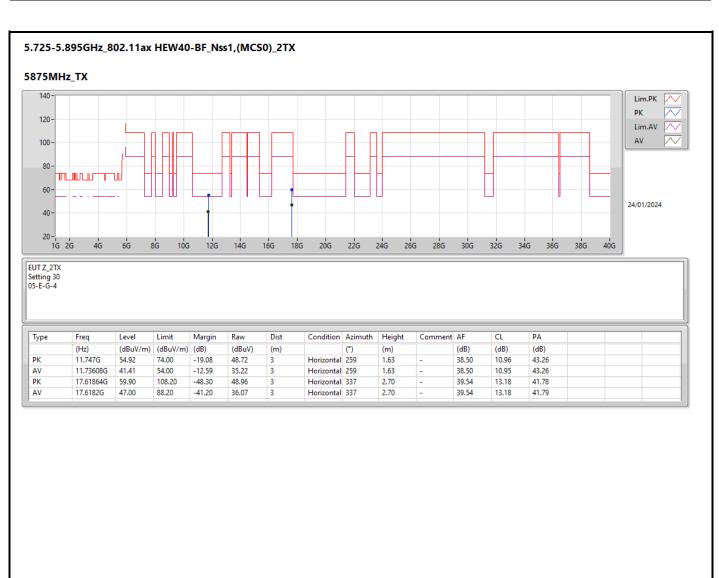






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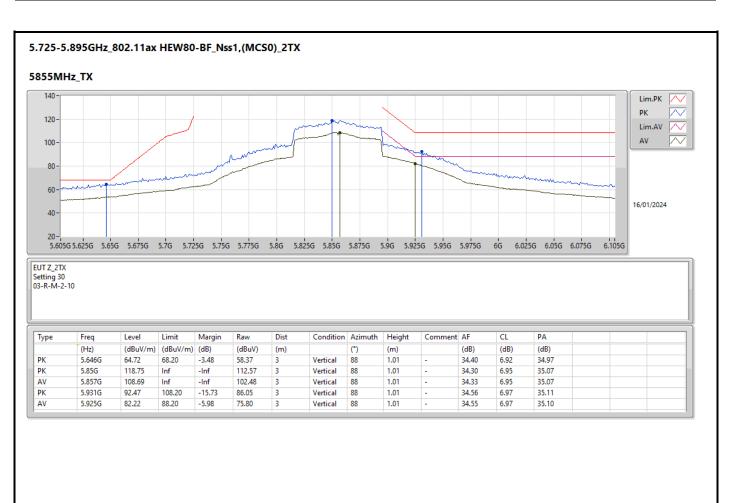




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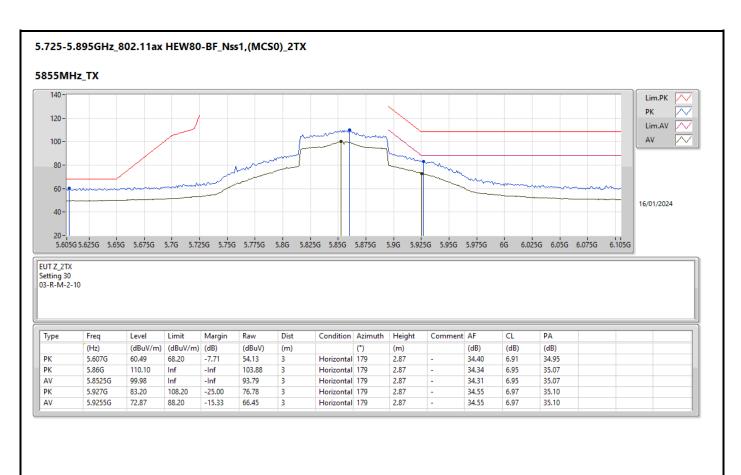




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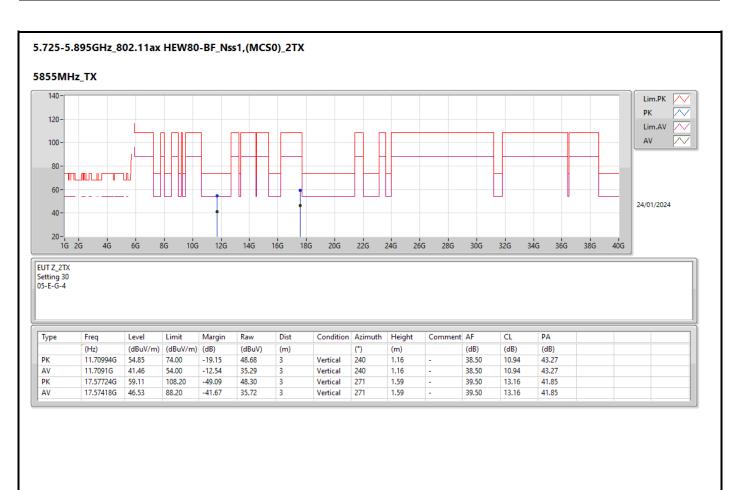
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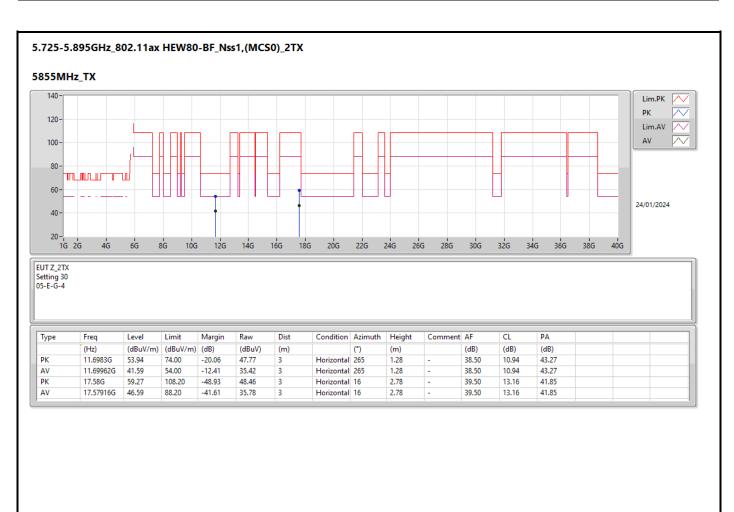




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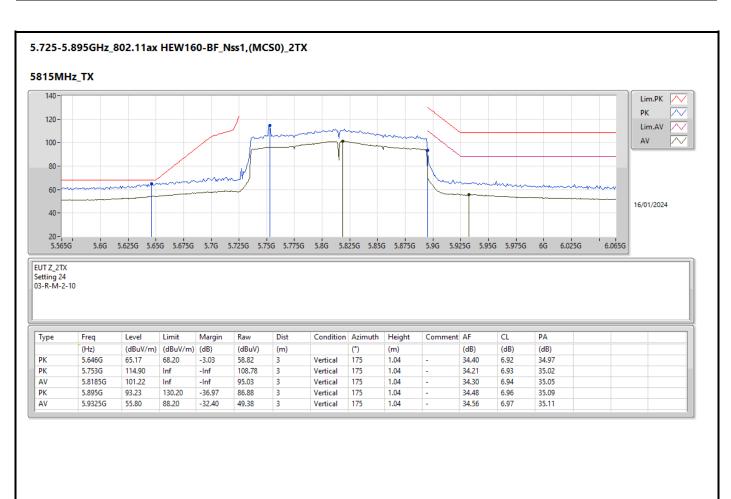




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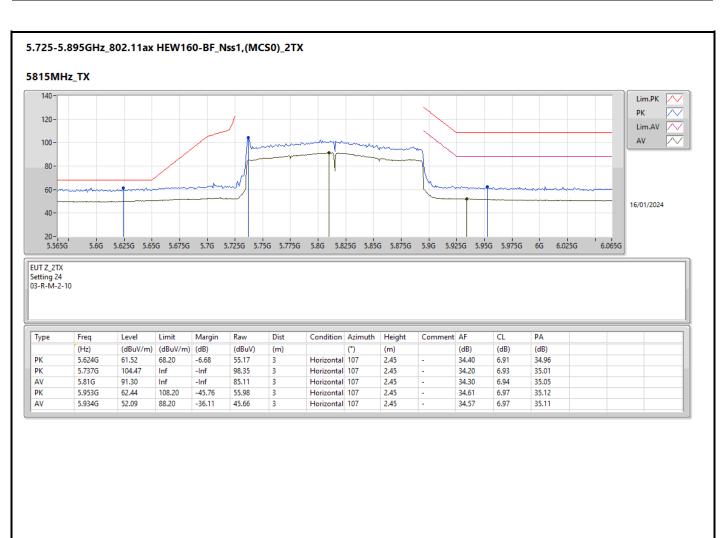




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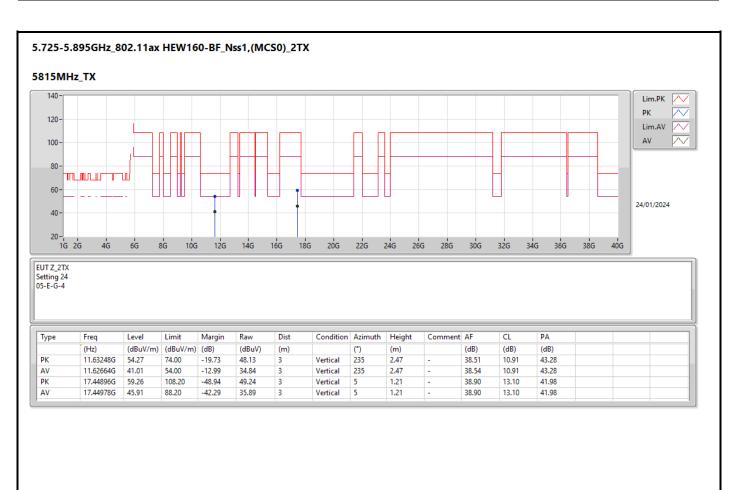




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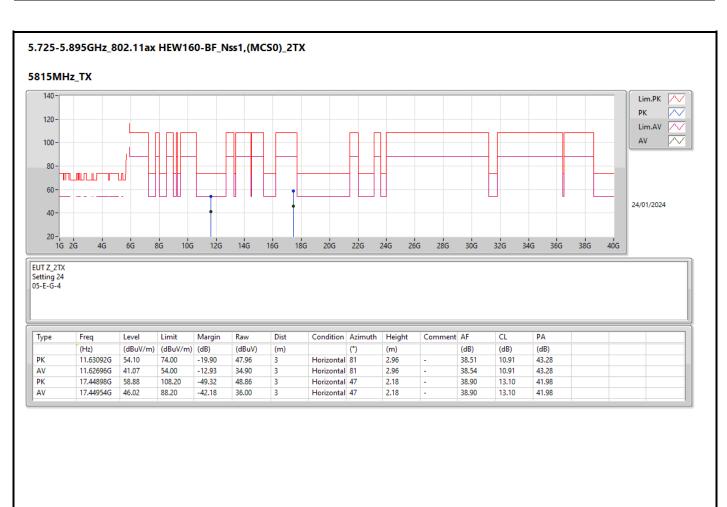




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