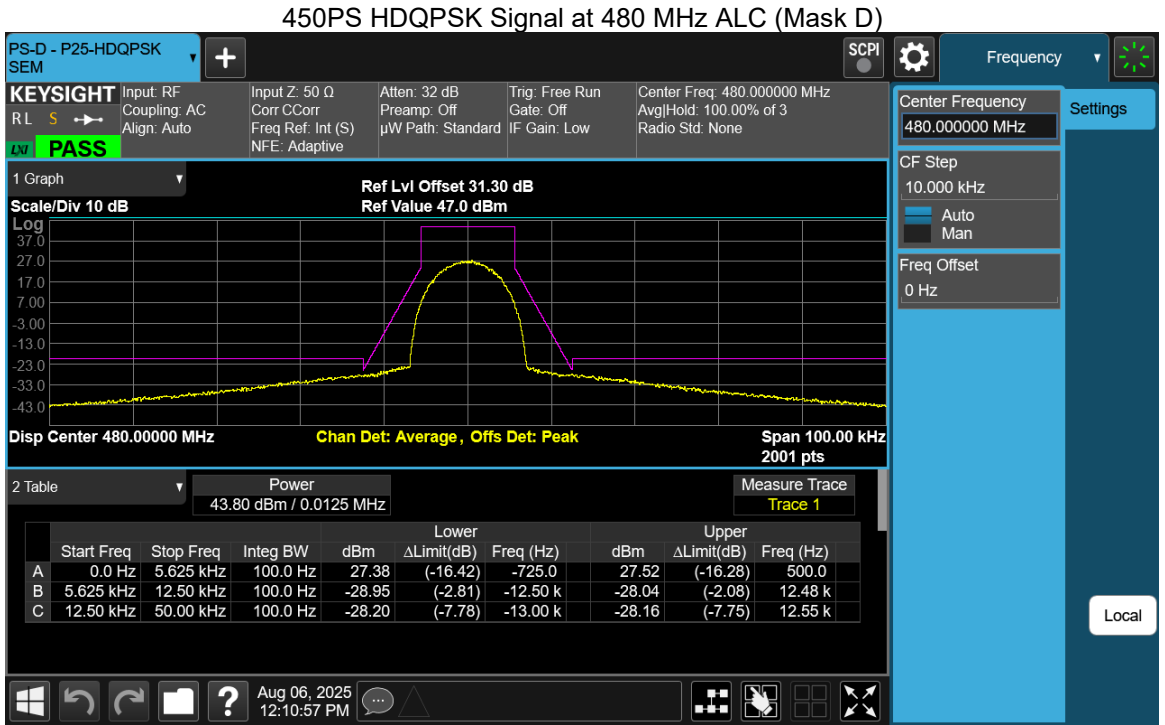
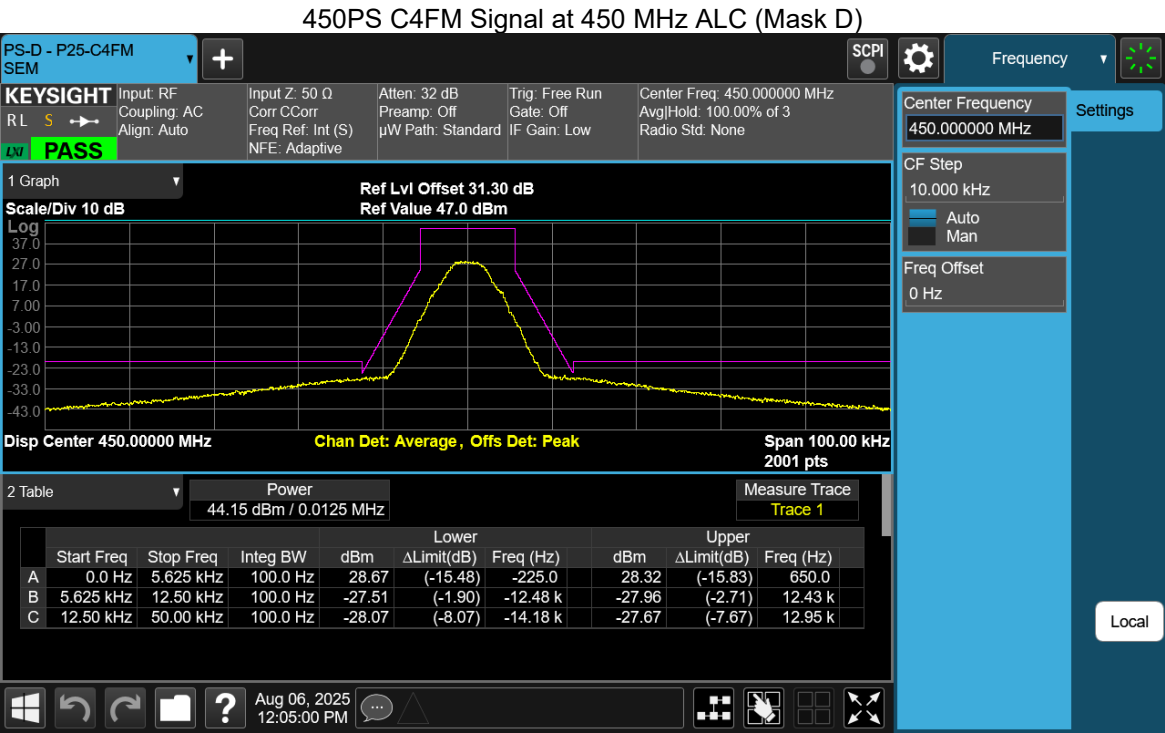
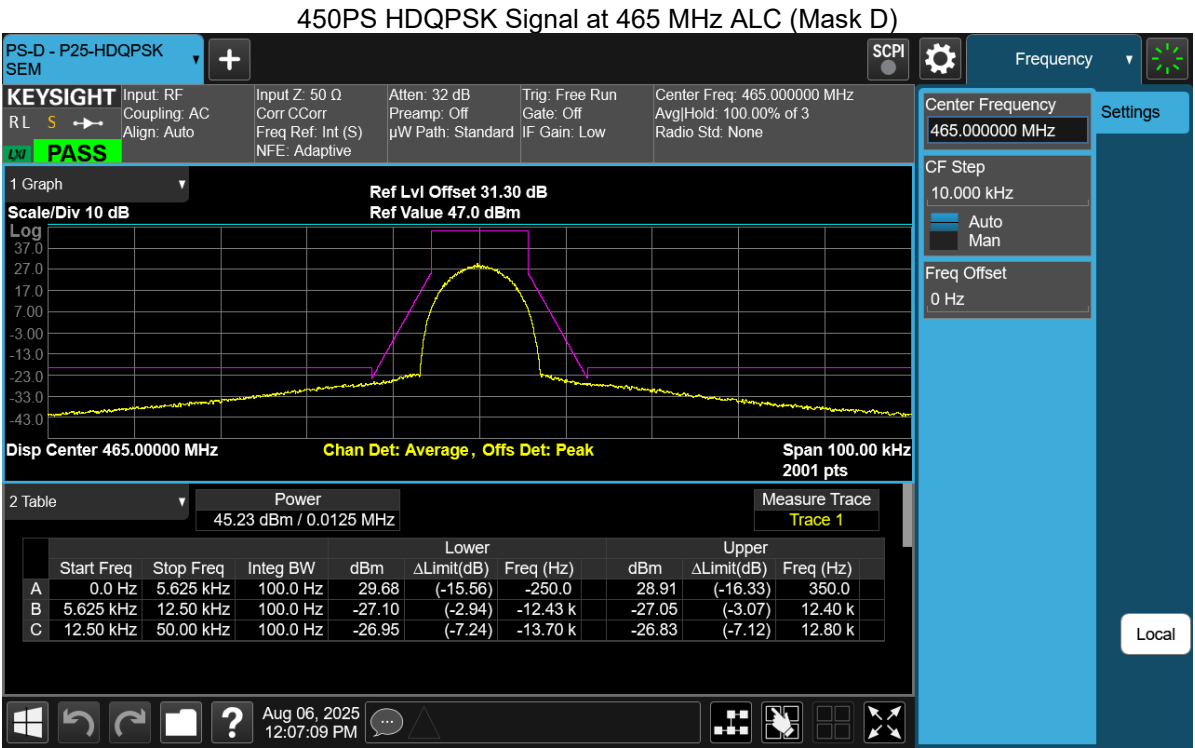
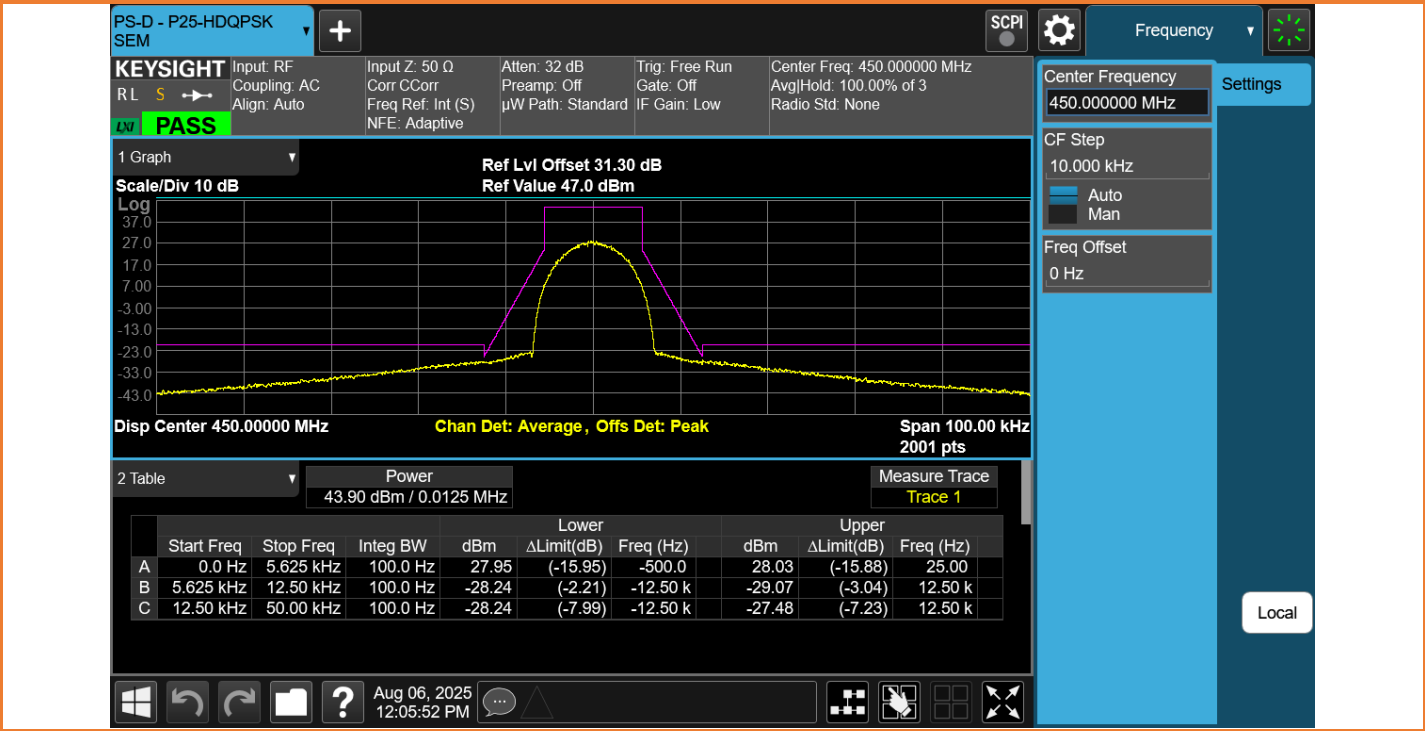






450PS HDQPSK Signal at 450 MHz ALC (Mask D)



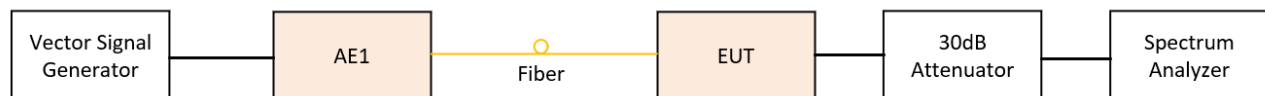
5. Input/Output Power and Amplifier/Booster Gain

Governing Doc	RSS-119, Issue 12 2015, Amendment (April 1, 2022) RSS-Gen, Issue 5 2018 FCC Part 90	Room Temperature (°C)	20.5		
Test Procedure	ANSI C63.26-2015, Section 7.2.3.3 KDB 935210 D05, v01r04, Clause 3.4, 4.4	Relative Humidity (%)	38.6		
Test Location	Richmond	Barometric Pressure (kPa)	101.8		
Test Engineer	Jack Qin	Date	2025-08-07		
EUT Voltage	☒ +48VDC ☐ 120VAC @ 60Hz				
Test Equipment Used	Manufacturer	Model	Serial Number	Calibration date	Calibration due
Signal Generator	Keysight	N5172B	MY53050270	Dec 12, 2023	Dec 12, 2026
Spectrum Analyzer	Keysight	N9020B	MY62153079	Oct 25, 2023	Oct 25, 2025
Span:	☒ Max Gain Frequency $\pm$ 1500kHz				
Detector:	☒ Peak				
RBW/VBW:	☒ 100k Hz/ 300 kHz				
Type of Facility:	☒ Tabletop				
Distance:	☒ Direct				
Maximum booster gain is 56.8 dB.					
Compliant ☒ Non-Compliant ☐ Not Applicable ☐					

Test setup

The procedure used was ANSI/TIA-603-E-2016 and FCC KDB 935210 D05 Indus Booster Basic Meas v01r02:. A CW tone was input at the frequency where the system gain is the maximum in the pass band, with the nominal input power level. The spectrum analyzer was connected to the output RF port via a 50 Ohm 30 dB attenuator. The maximum hold trace and peak detector was used to capture the output power. The output power minus the input power equals to the booster gain in dB.

The EUT was set to **Operation Mode #1 with configuration Mode #1.**



Prepared by: LabTest Certification Inc.
Date Issued: 2025-10-09
Project No.: 25-1213

Client: Avari Wireless Inc.
Report No.: 20.01.25-1213-1
Revision No.: 0

Test results

Test Band	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)	Gain (dB)
450	465	-11.8	44.96	56.8

6. Out-Of-Band / Out-Of-Block Intermodulation and Spurious Emissions

Governing Doc	RSS-119, Issue 12 2015, Amendment (April 1, 2022) RSS-Gen, Issue 5 2018 FCC Part 90			Room Temperature (°C)	20.5
Test Procedure	ANSI C63.26-2015, Section 7.2.3.6 Section 7.2.3.7 KDB 935210 D05, v01r04,			Relative Humidity (%)	38.6
Test Location	Richmond			Barometric Pressure	101.8
Test Engineer	Jack Qin			Date	2025-08-07
EUT Voltage	☒ +48VDC ☐ 120VAC @ 60Hz				
Test Equipment	Manufacturer	Model	Serial Number	Calibration date	Calibration due
Signal Generator	Keysight	N5172B	MY53050270	Dec 12, 2023	Dec 12, 2026
Spectrum	Keysight	N9020B	MY62153079	Oct 25, 2023	Oct 25, 2025
Frequency	☒ Max Gain Frequency $\pm$ 50kHz				
Detector:	☒ Average				
RBW/VBW:	☒ 100/910Hz				
Type of Facility:	☒ Tabletop				
Distance:	☒ Direct				
On UHF band: The intermodulation product of 2 tone is below the -13dBm emission limit with input power - 0.5 dB below AGC threshold - 2 dB below AGC threshold - 3 dB above AGC threshold					
Compliant ☒ Non-Compliant ☐ Not Applicable ☐					

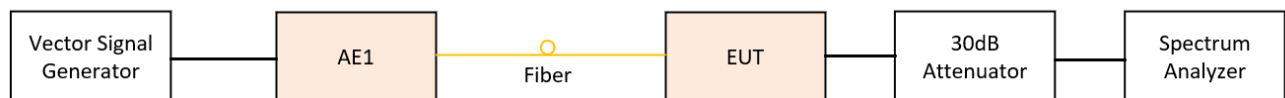
Test setup

The procedure used was ANSI C63.26-2015. Two tones (CW) method was used. The input power to the amplifier was set at maximum drive level by combining the two tones. The two tones were chosen in such a way (1) the third order intermodulation product frequencies are located within the pass band of the DUT and (2) they produce the worst-case emissions out of band.

Based on FCC KDB 935210 D05 Indus Booster Basic Meas v01r03: 2019, the two tone was located on either side of the maximum gain frequency in the passing band, and separated with the available spacing, which is 12.5kHz.

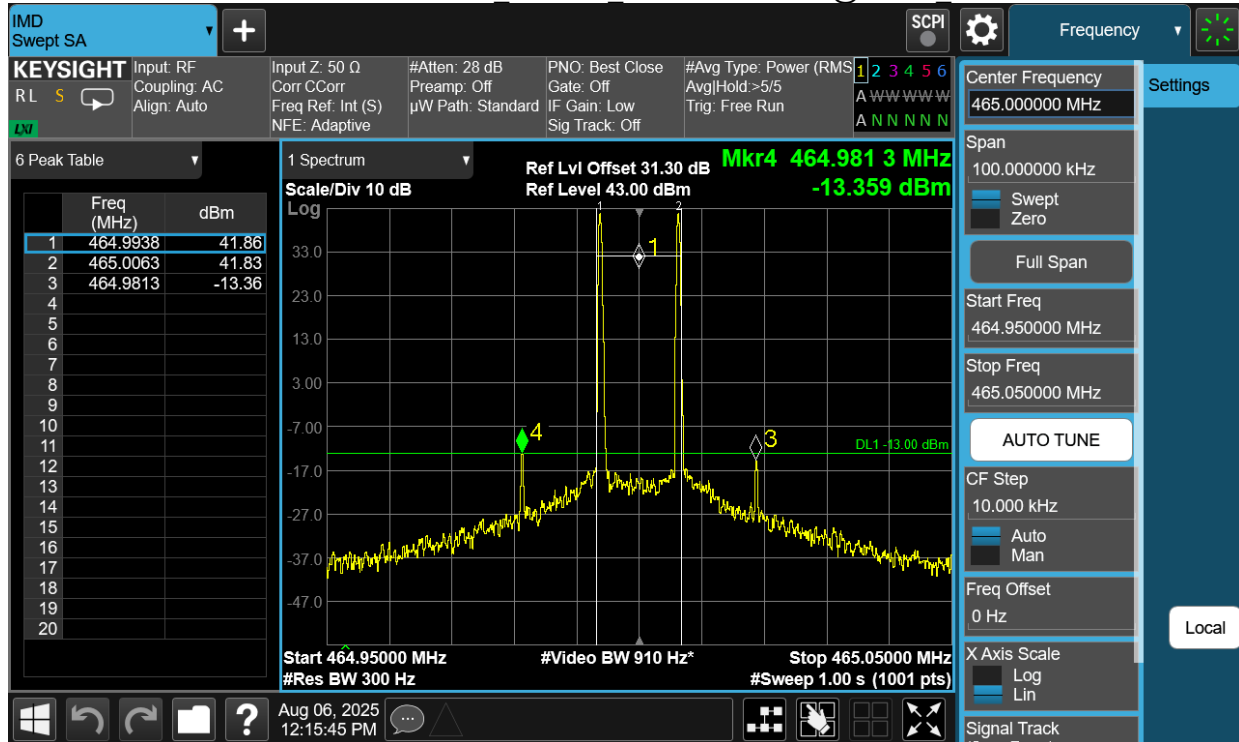
Measurements were performed with modulated tone at identical input amplitude which produced integrated maximum rated output power.

The EUT was set to **Operation Mode #1 with configuration Mode #1.**

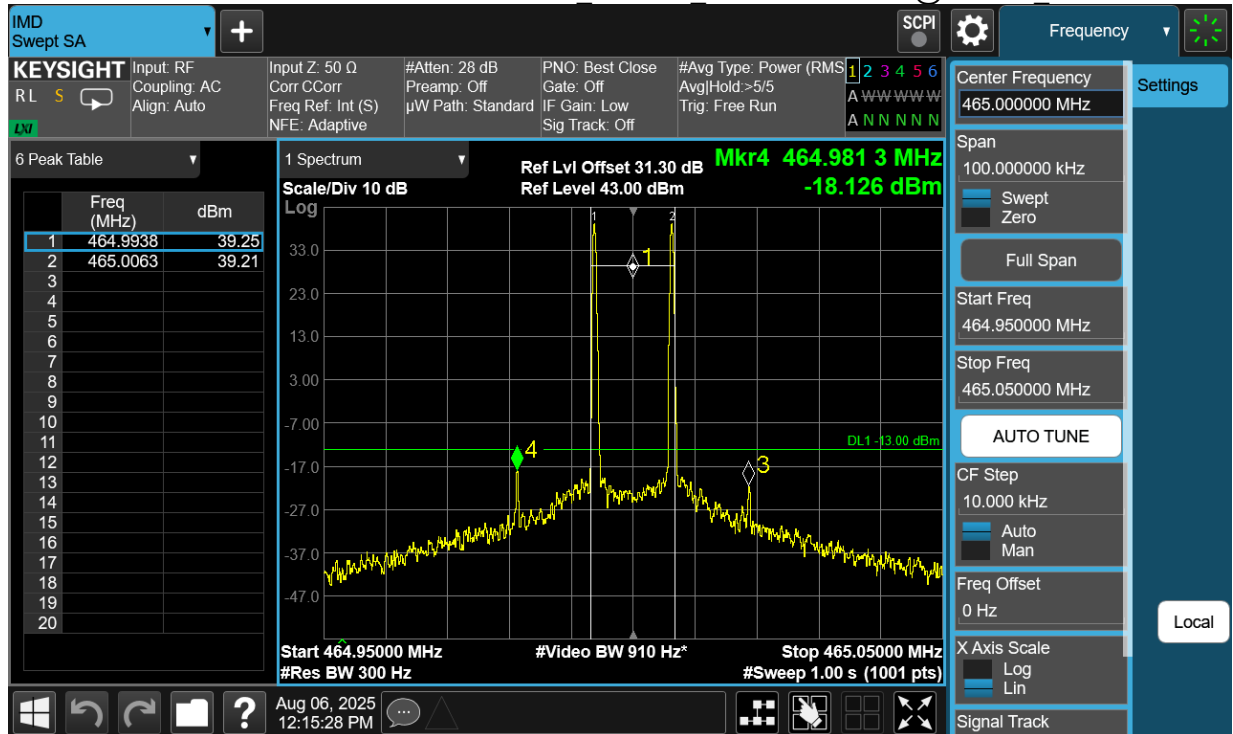


Test results

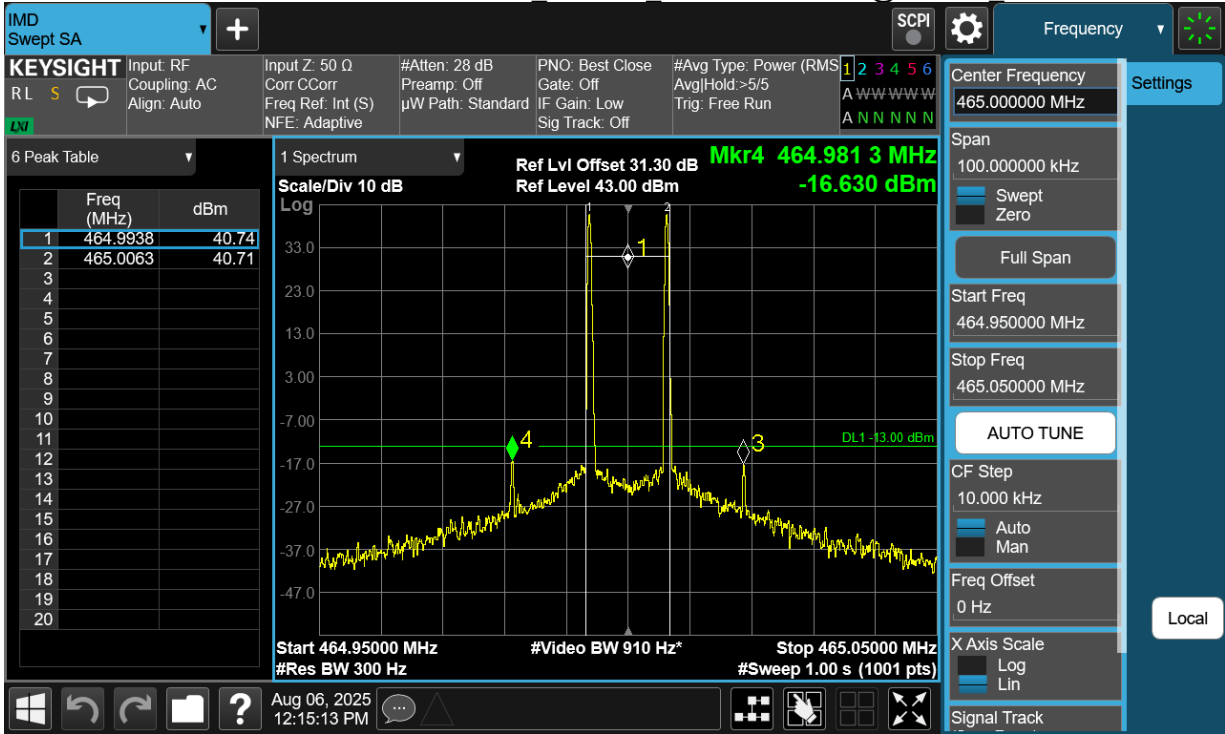
Two Carrier IMD AGC 465MHz 2C-Center-2Tone@-9dBm Table



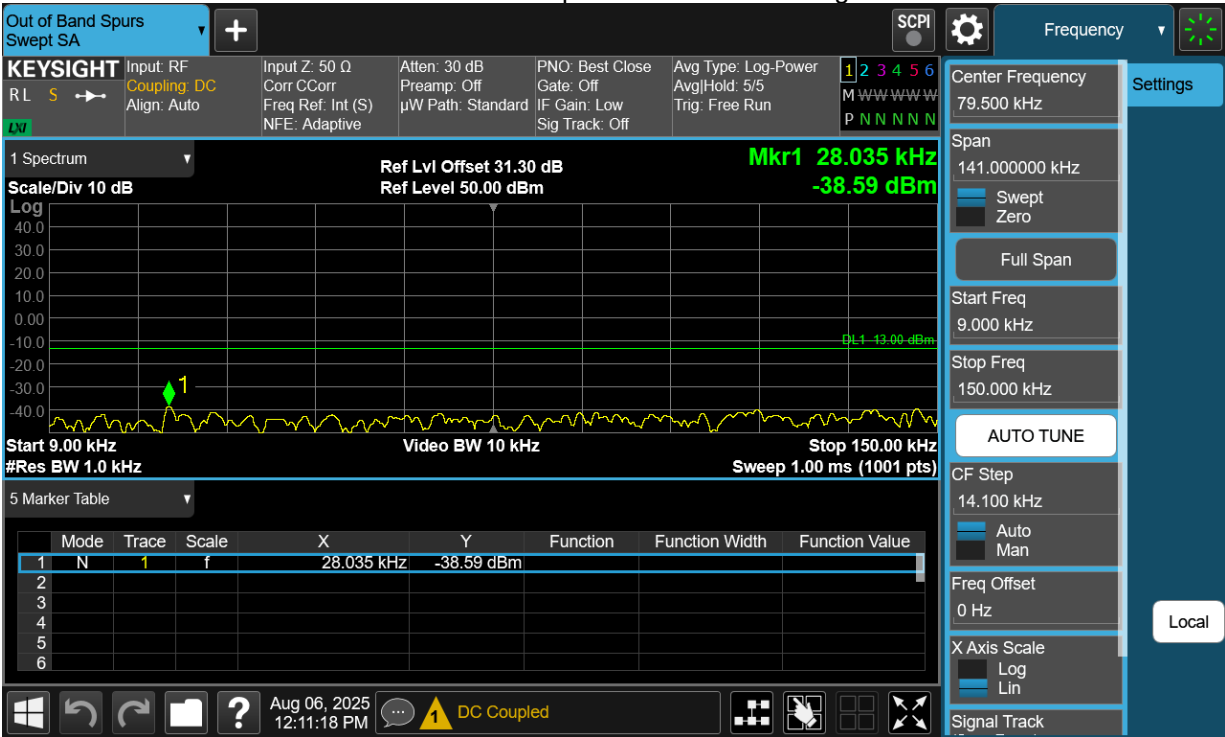
Two Carrier IMD at 2 dB Down Tx Pwr 465MHz 2C-Center-2Tone@-14dBm Table



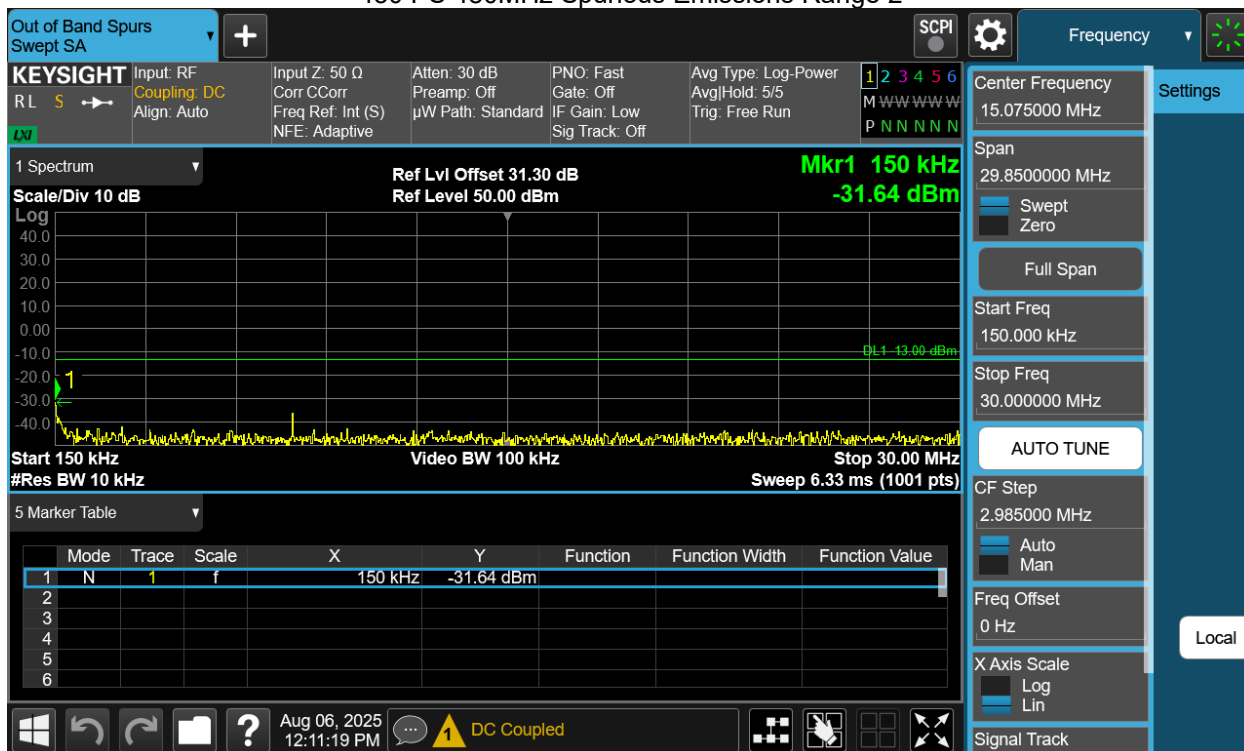
Two Carrier IMD at Max Tx Pwr 465MHz 2C-Center-2Tone@-12dBm Table



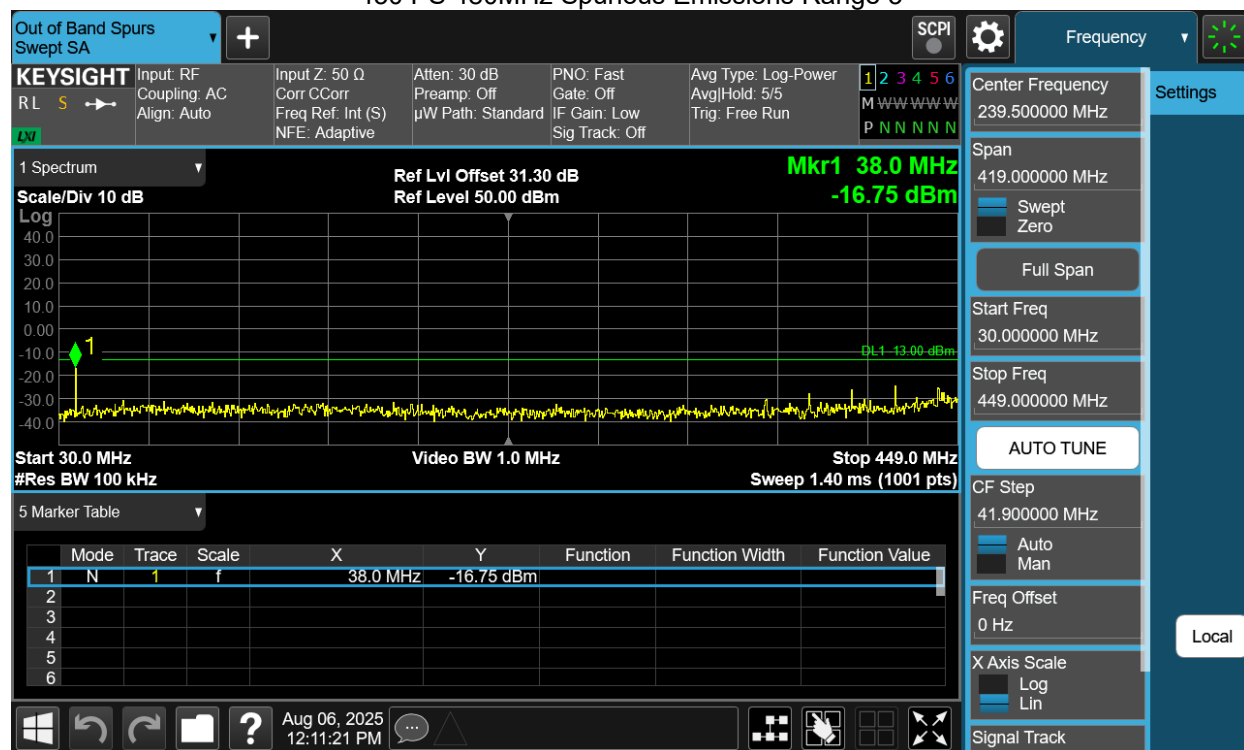
450 PS 480MHz Spurious Emissions Range 1



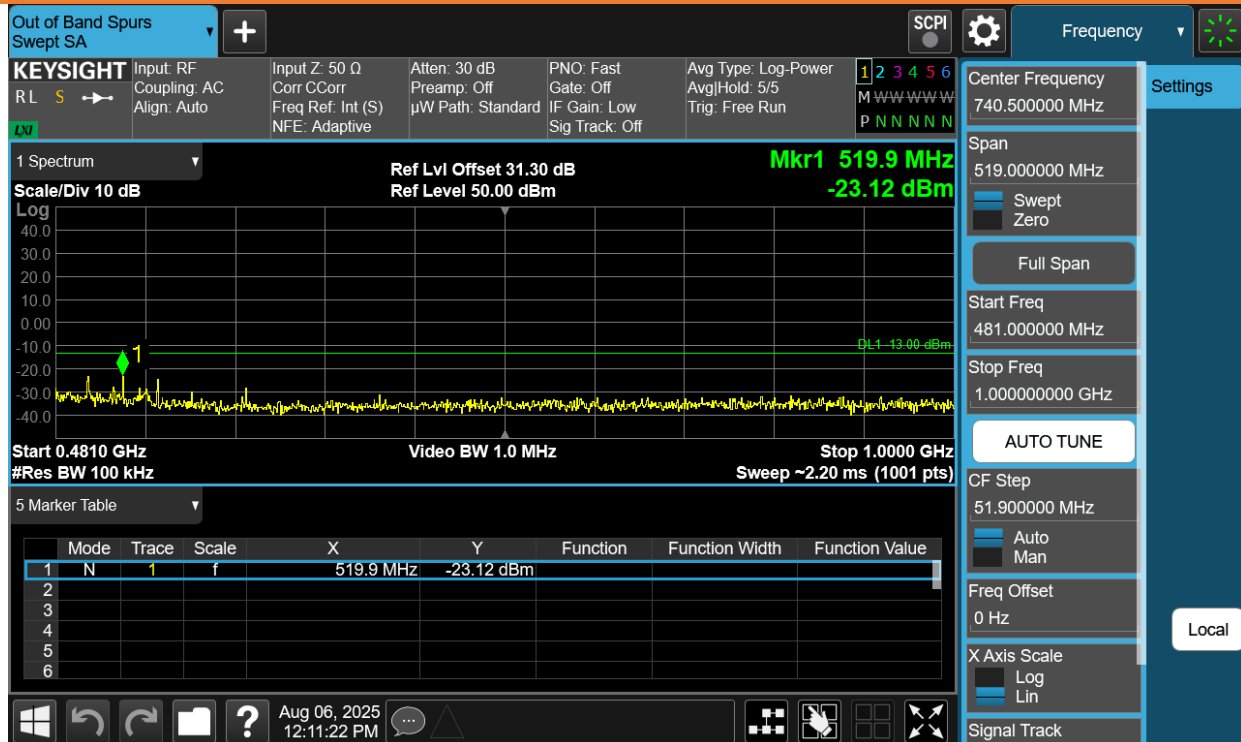
450 PS 480MHz Spurious Emissions Range 2



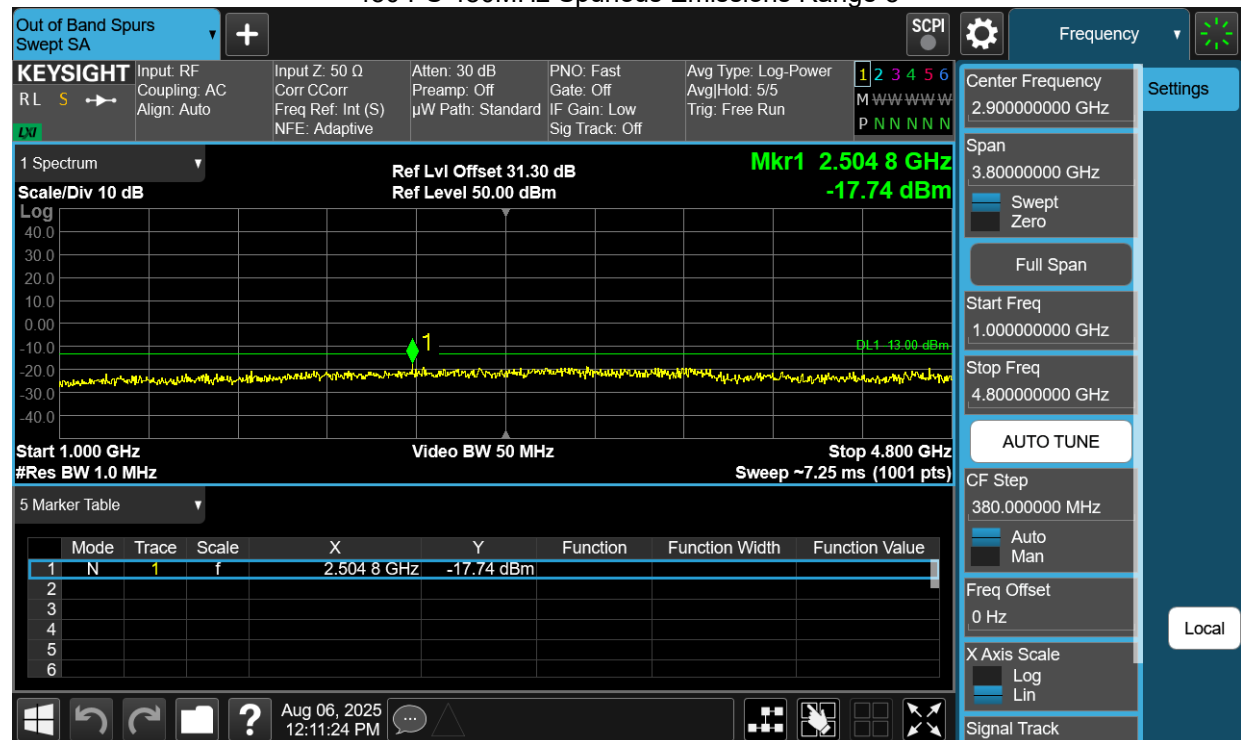
450 PS 480MHz Spurious Emissions Range 3



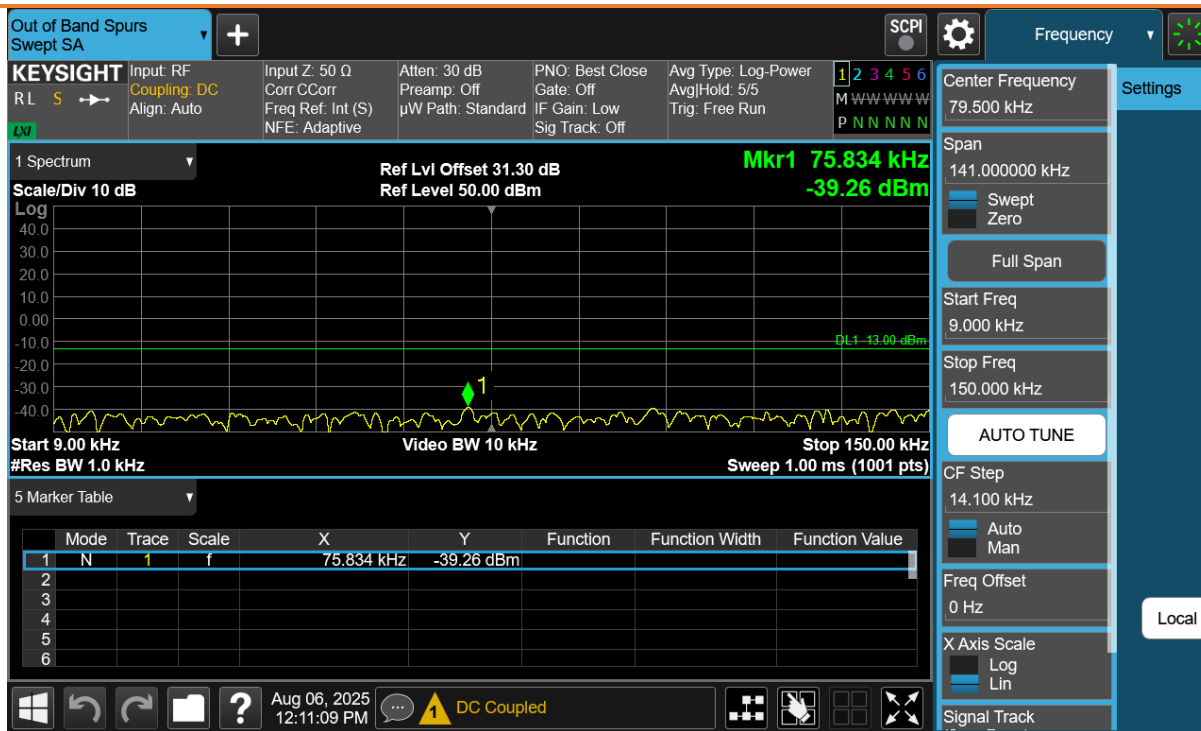
450 PS 480MHz Spurious Emissions Range 4



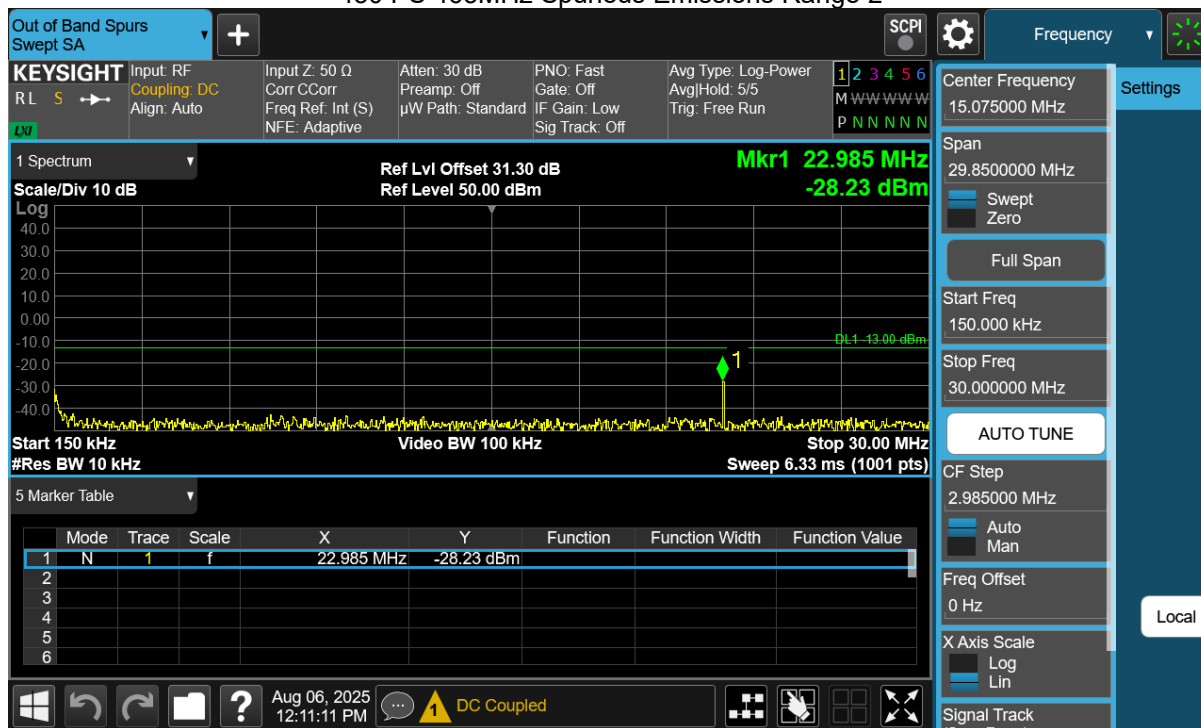
450 PS 480MHz Spurious Emissions Range 5



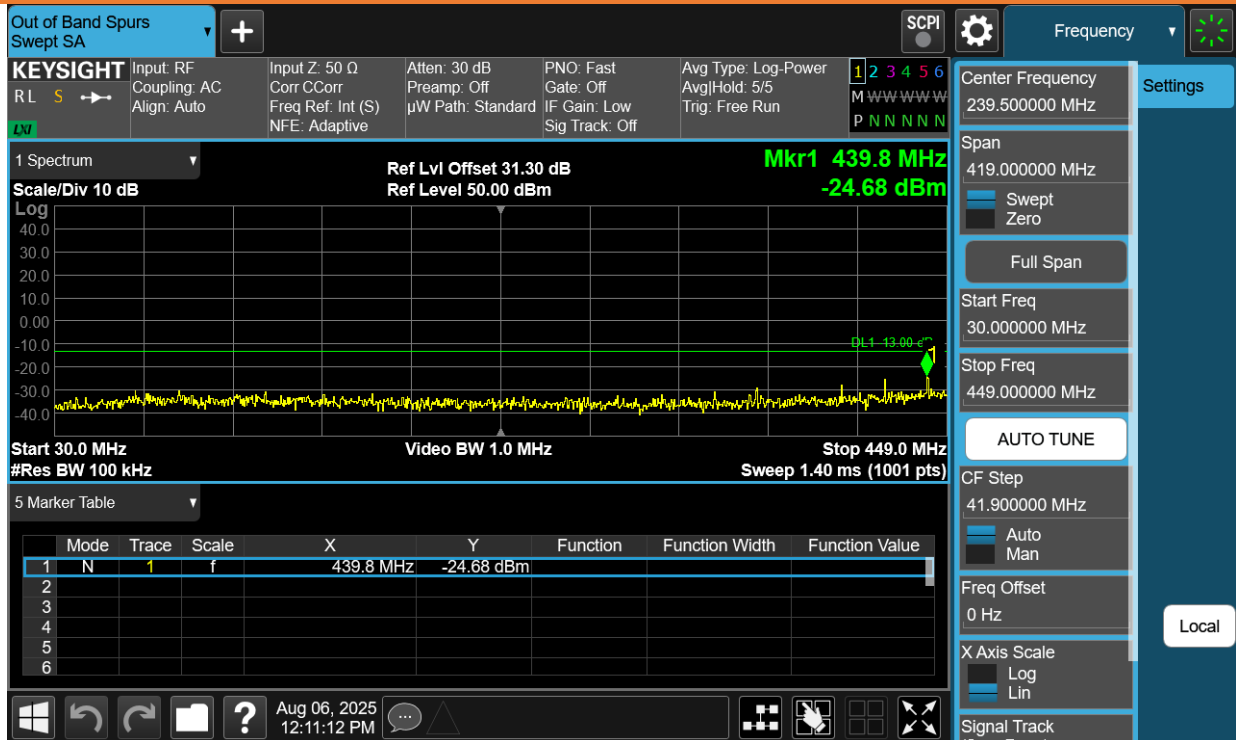
450 PS 465MHz Spurious Emissions Range 1



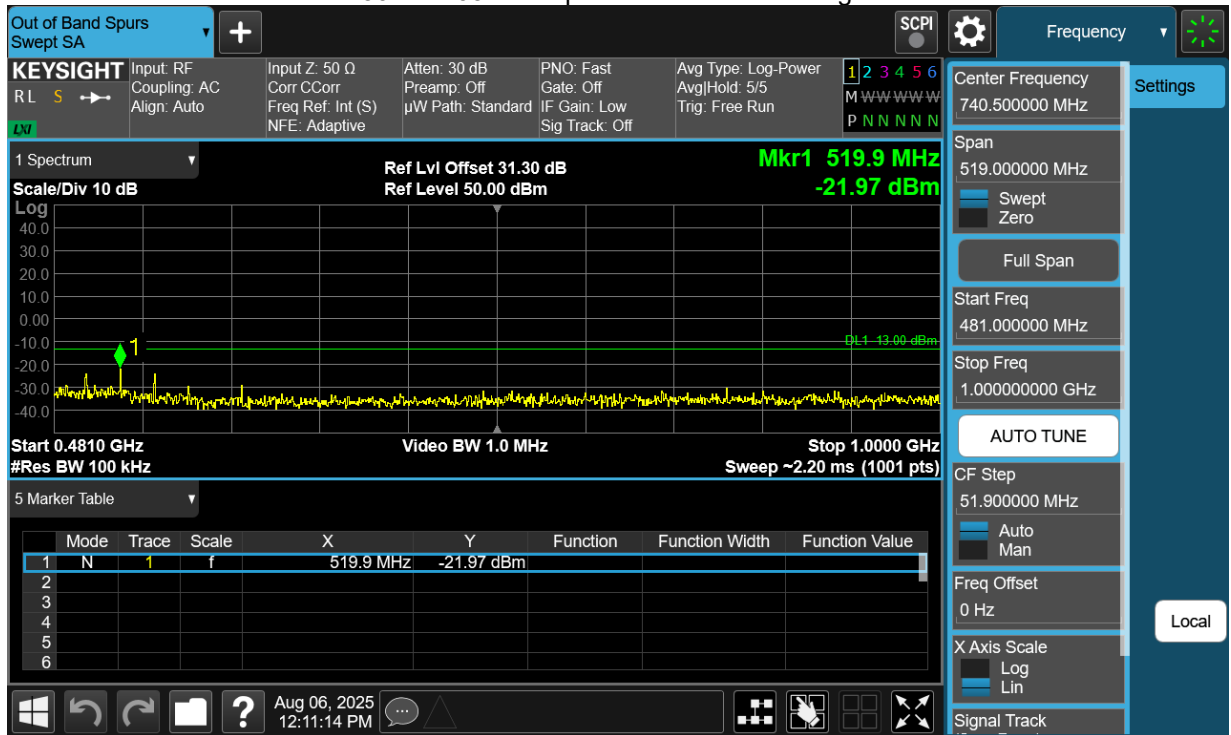
450 PS 465MHz Spurious Emissions Range 2



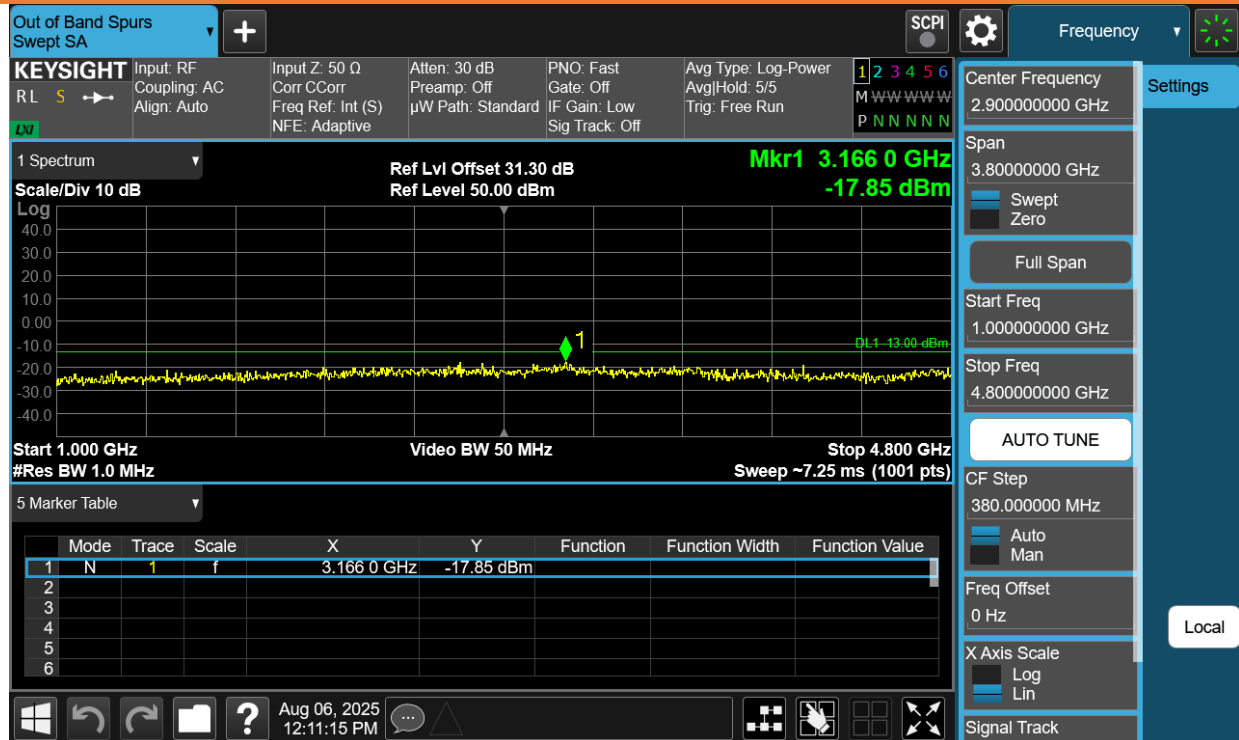
450 PS 465MHz Spurious Emissions Range 3



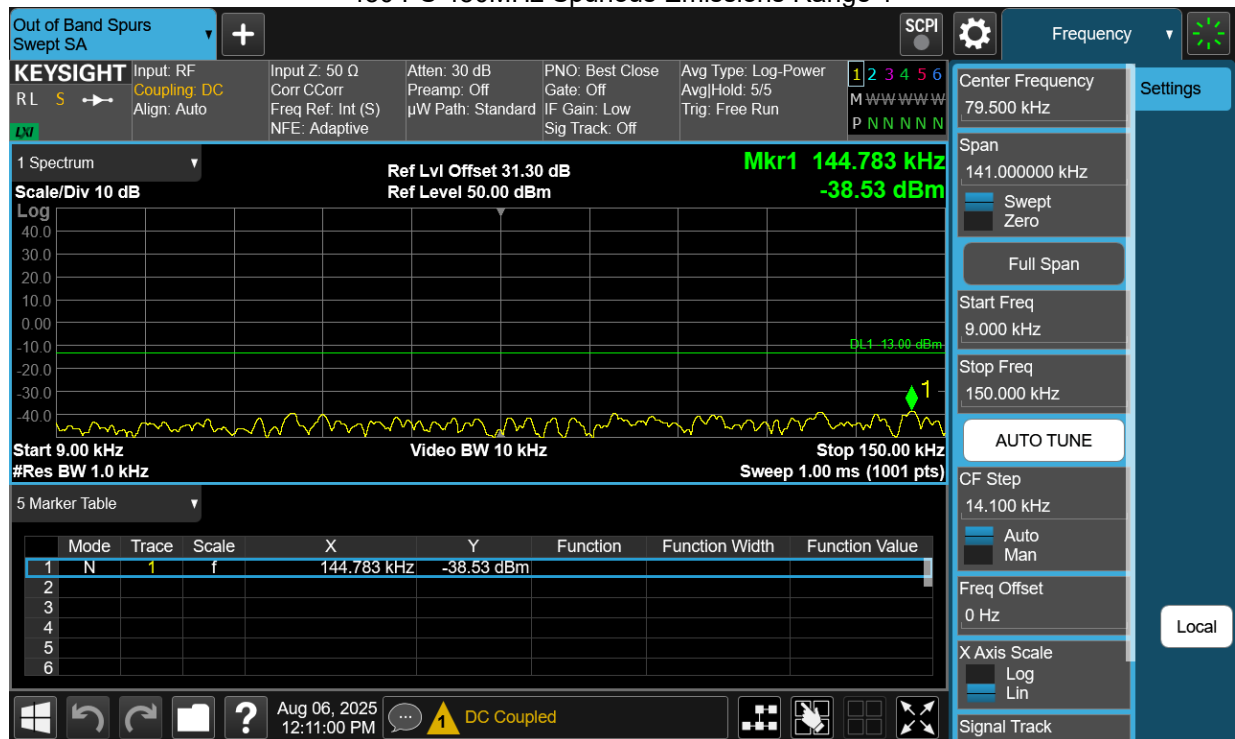
450 PS 465MHz Spurious Emissions Range 4



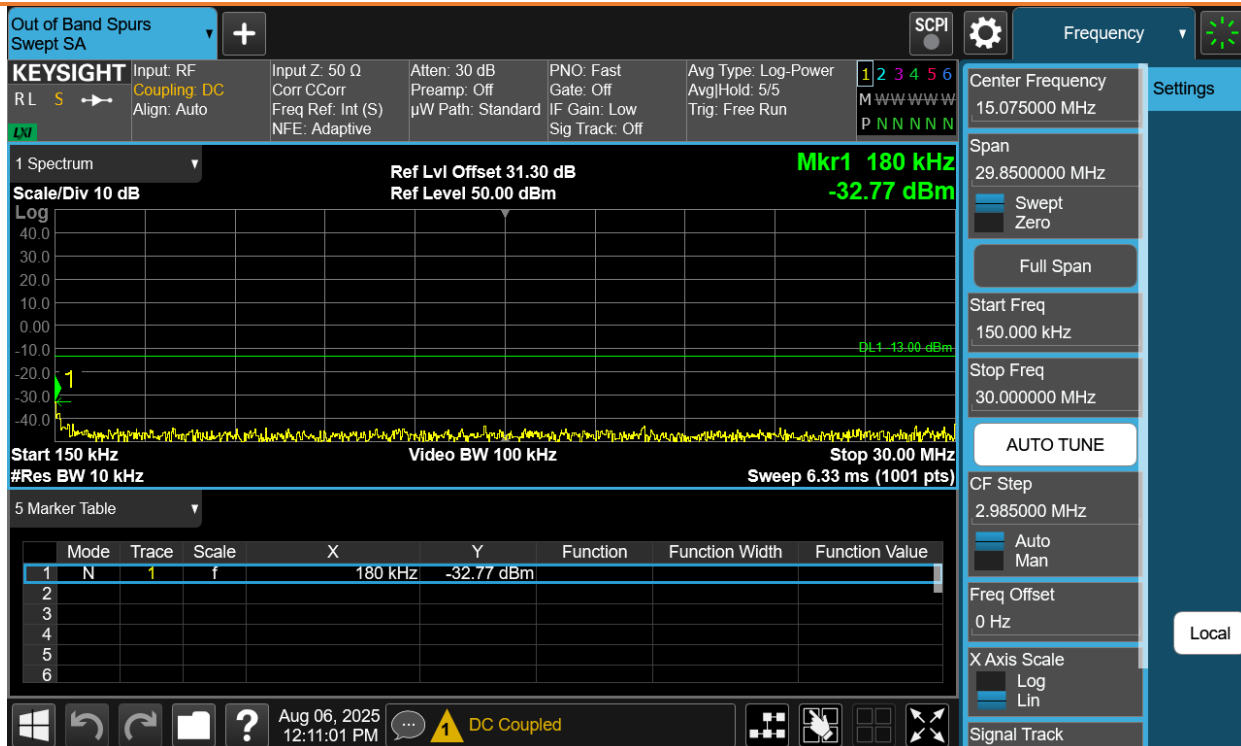
450 PS 465MHz Spurious Emissions Range 5



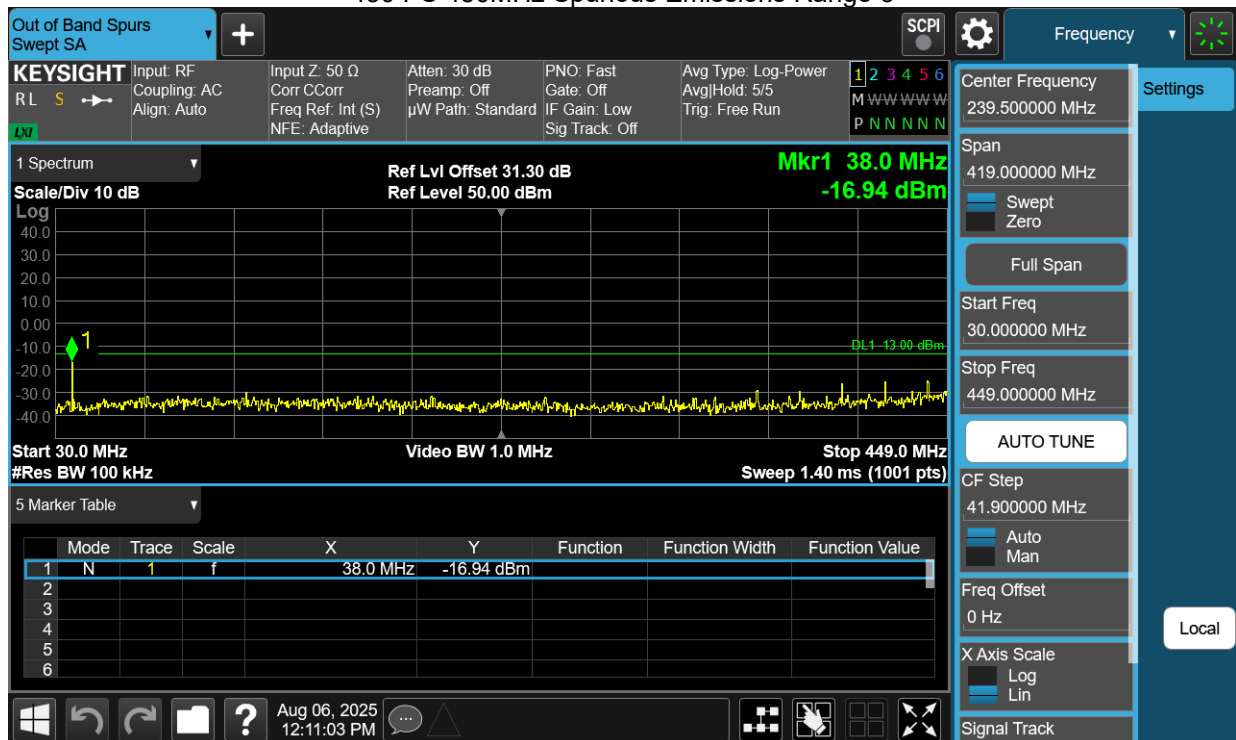
450 PS 450MHz Spurious Emissions Range 1



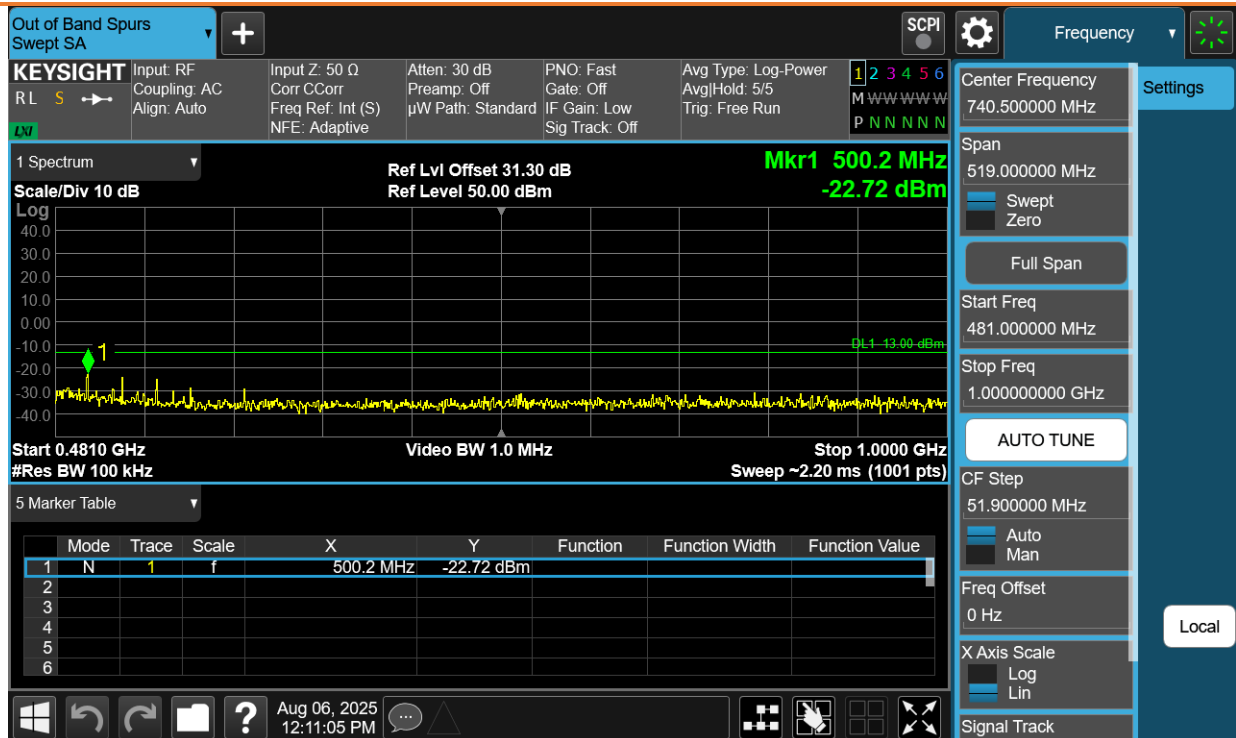
450 PS 450MHz Spurious Emissions Range 2



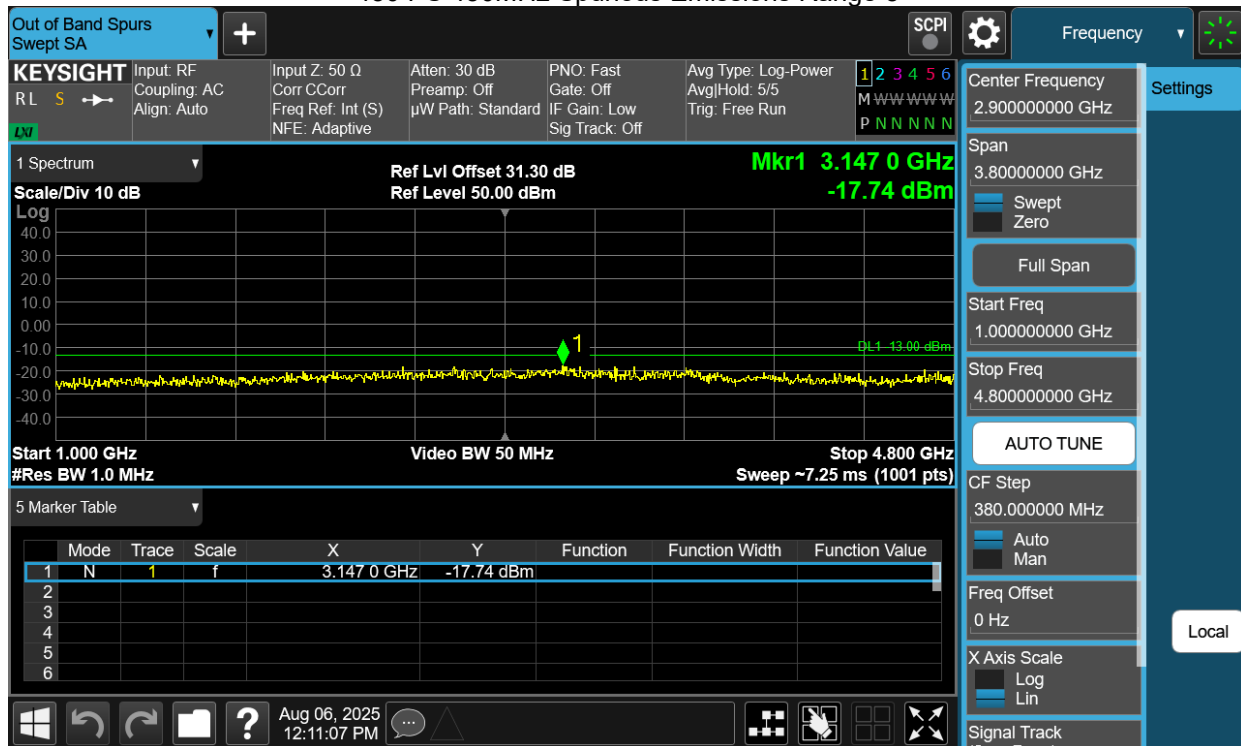
450 PS 450MHz Spurious Emissions Range 3



450 PS 450MHz Spurious Emissions Range 4



450 PS 450MHz Spurious Emissions Range 5



7. Noise Figure

Governing Doc	RSS-119, Issue 12 2015, Amendment (April 1, 2022) RSS-Gen, Issue 5 2018 FCC Part 90		Room Temperature (°C)	20.5	
Test Procedure	ANSI C63.26-2015, Section 7.2.3.5 KDB 935210 D05, v01r04, Clause 4.6		Relative Humidity (%)	38.6	
Test Location	Richmond		Barometric Pressure (kPa)	101.8	
Test Engineer	Jack Qin		Date	2025-08-07	
EUT Voltage	☒ +48VDC ☐ 120VAC @ 60Hz				
Test Equipment	Manufacturer	Model	Serial Number	Calibration date	Calibration due
Signal Generator	Keysight	N5172B	MY53050270	Dec 12, 2023	Dec 12, 2026
Spectrum	Keysight	N9020B	MY62153079	Oct 25, 2023	Oct 25, 2025
Frequency Range:	☒ 2 times of the passband on each band				
Detector:	☒ Average				
RBW:	☒ 910 kHz				
Type of Facility:	☒ Tabletop				
Distance:	☒ Direct				
Noise Figure on each band is less than the 9 dB required.					
Compliant ☒ Non-Compliant ☐ Not Applicable ☐					

Test setup

Based on FCC KDB 935210 D05 Indus Booster Basic Meas v01r03: 2019, the system maximum gain and the noise density is measured. Measurements were performed within the EUT's passband.

The noise figure is then calculated by $NF = NP - Gain + KTB \text{ Noise}$; where NP is in band noise power per Herz, Gain is measured at the maximum noise frequency with -55 dBm input signal in UL. KTB Noise is 174dB/Hz.

The EUT was set to **Operation Mode #1 with configuration Mode #1**.



Prepared by: LabTest Certification Inc.
Date Issued: 2025-10-09
Project No.: 25-1213

Client: Avari Wireless Inc.
Report No.: 20.01.25-1213-1
Revision No.: 0

Test results

Test Band	Gain (dB)	kTB (dBm/Hz)	Measured Value (dBm/Hz)	Noise Figure (dB)
450 PS	53.9	174	-117	3.12

Prepared by: LabTest Certification Inc.
Date Issued: 2025-10-09
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Client: Avari Wireless Inc.
Report No.: 20.01.25-1213-1
Revision No.: 0

8. Frequency Stability

RU40 are synchronized to the same reference clock. Therefore, there is no frequency error after down and up frequency conversion are performed.

The frequency stability check is not applicable to the EUT.

9. Radiated Spurious Emissions – Enclosure 9 kHz – 30 MHz

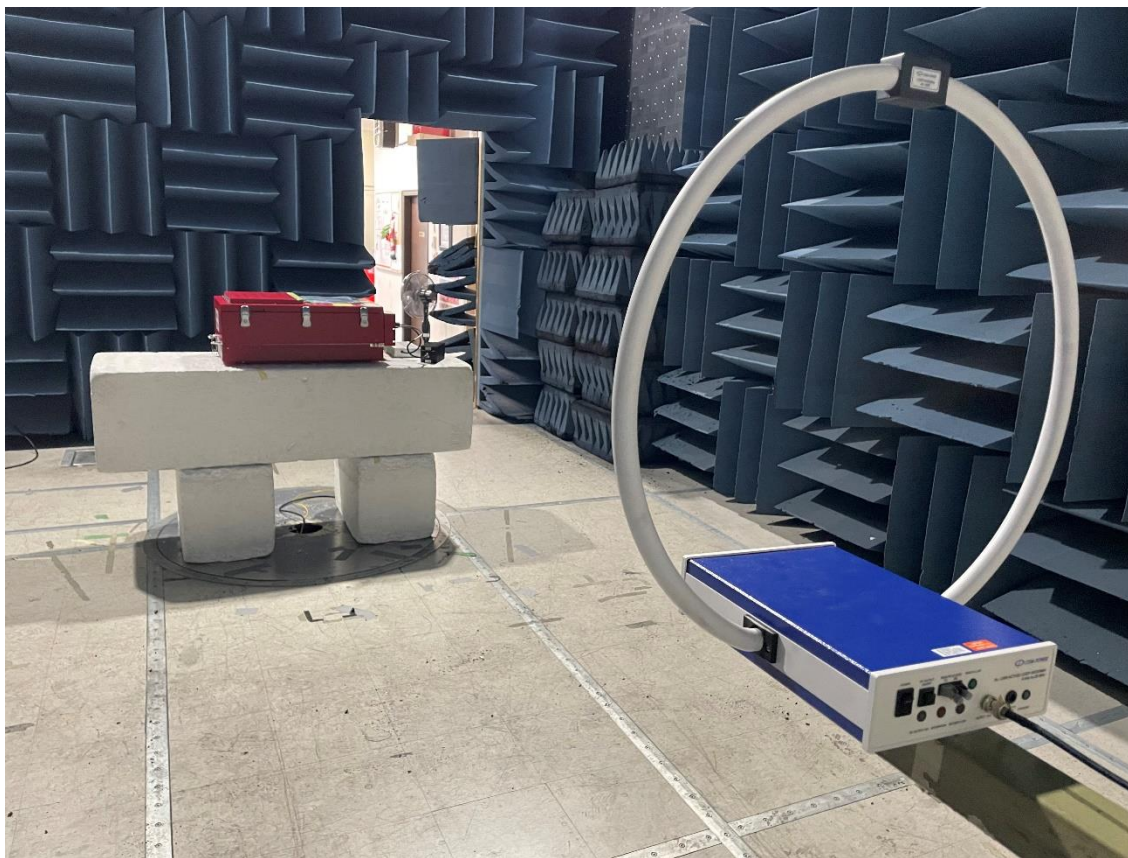
Standard	RSS-119, Issue 12 2015, Amendment (April 1, 2022) RSS-Gen, Issue 5 2018 FCC Part 90 FCC Part 2.1053											
Test method	ANSI C63.26-2015, Section 5.5 KDB 935210 D05, v01r04, Clause 3.8, 4.9											
Tested by	Jack Qin											
Test date	2025-08-07											
Test location	Richmond lab, stand #2											
Applied limit	<table border="1"> <thead> <tr> <th colspan="2">Radiated Emission FCC/ISED</th> </tr> <tr> <th>Frequency</th><th>Field strength (microvolts/meter)</th></tr> </thead> <tbody> <tr> <td>9 - 490 kHz</td><td>2400/F(kHz) at 300 m</td></tr> <tr> <td>490 - 1705 kHz</td><td>24000/F(kHz) at 30 m</td></tr> <tr> <td>1.705 - 30 MHz</td><td>30 at 30 m</td></tr> </tbody> </table> Note 1. The lower limit shall apply at the transition frequency Note 2. Additional provisions may be required for cases where interference occurs Note 3: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector. RSS – Gen, Clause 8.10 Restricted frequency bands - The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7. - Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in the above table. - Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in the above table.		Radiated Emission FCC/ISED		Frequency	Field strength (microvolts/meter)	9 - 490 kHz	2400/F(kHz) at 300 m	490 - 1705 kHz	24000/F(kHz) at 30 m	1.705 - 30 MHz	30 at 30 m
Radiated Emission FCC/ISED												
Frequency	Field strength (microvolts/meter)											
9 - 490 kHz	2400/F(kHz) at 300 m											
490 - 1705 kHz	24000/F(kHz) at 30 m											
1.705 - 30 MHz	30 at 30 m											
Test set-up description	☒ Equipment on a table of 80 cm height ☐ Equipment on the floor (insulated from ground plane) ☐ Other:											
Test method applied	☒ SAC with measurement distance [m]: ☒ 3 ☐ 10 ☐ FAR CISPR 16-2-3 with measurement distance [m]: 3 ☐ FAR IEC 61000-4-22 with measurement distance [m]: 3 ☐ TEM Waveguide according to IEC 61000-4-20											
Compliant ☒ Non-Compliant ☐ Not Applicable ☐												

Test Method

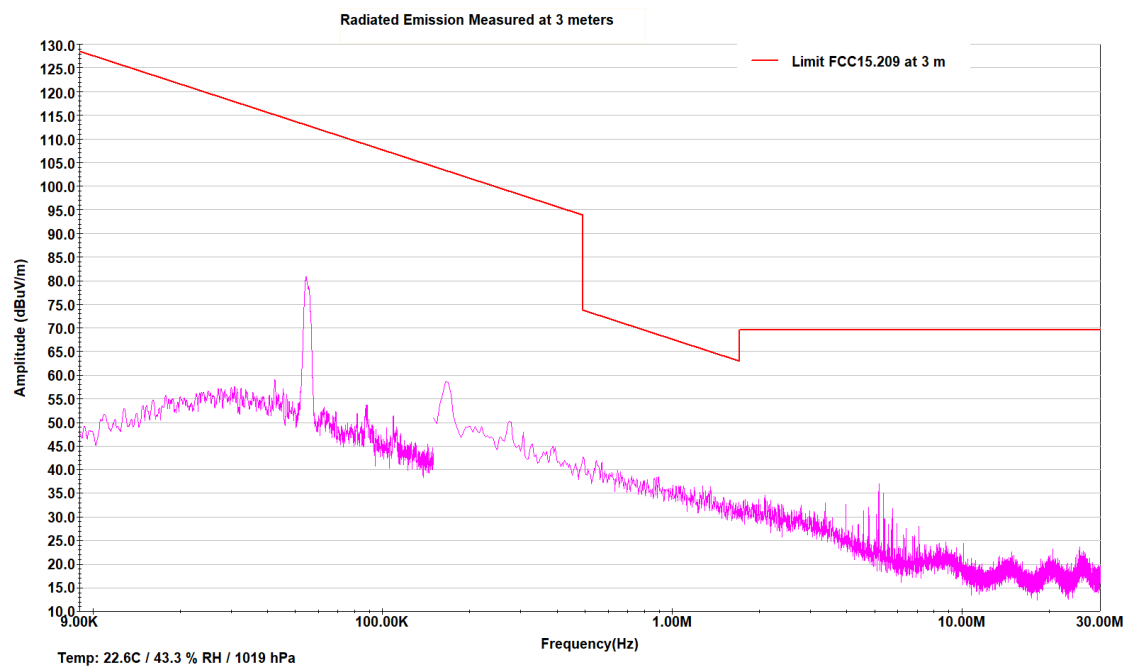
This test measures the radiating levels from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices. Testing was performed in accordance with the test standard(s) referenced in the test summary section of this report. The Equipment Under Test (EUT) was configured based upon the requirements of the applicable test standard. Initially, the primary emission frequencies are identified by positioning a broadband receive antenna three meter from the EUT.

A scan was made with an EMC Analyzer, controlled by EMC Test Software, Tile7! with the receiver in the peak mode. To ensure that the maximum emission at each discrete frequency of interest is observed, the receive antenna is varied in height from one to four meters with both horizontal and vertical polarities while the turntable is rotated to determine the worst emitting configuration. Measurements were then made using CISPR quasi peak when the peak readings were within 20dB of the limit line. The numerical results are included herein to demonstrate compliance.

Test Setup



Test result



Note: No Qpeak measurements were conducted when the emission was identified as either ambient noise or 20 dB, or more, below the limit line.

10. Radiated Spurious Emissions – Enclosure 30 MHz – 1 GHz

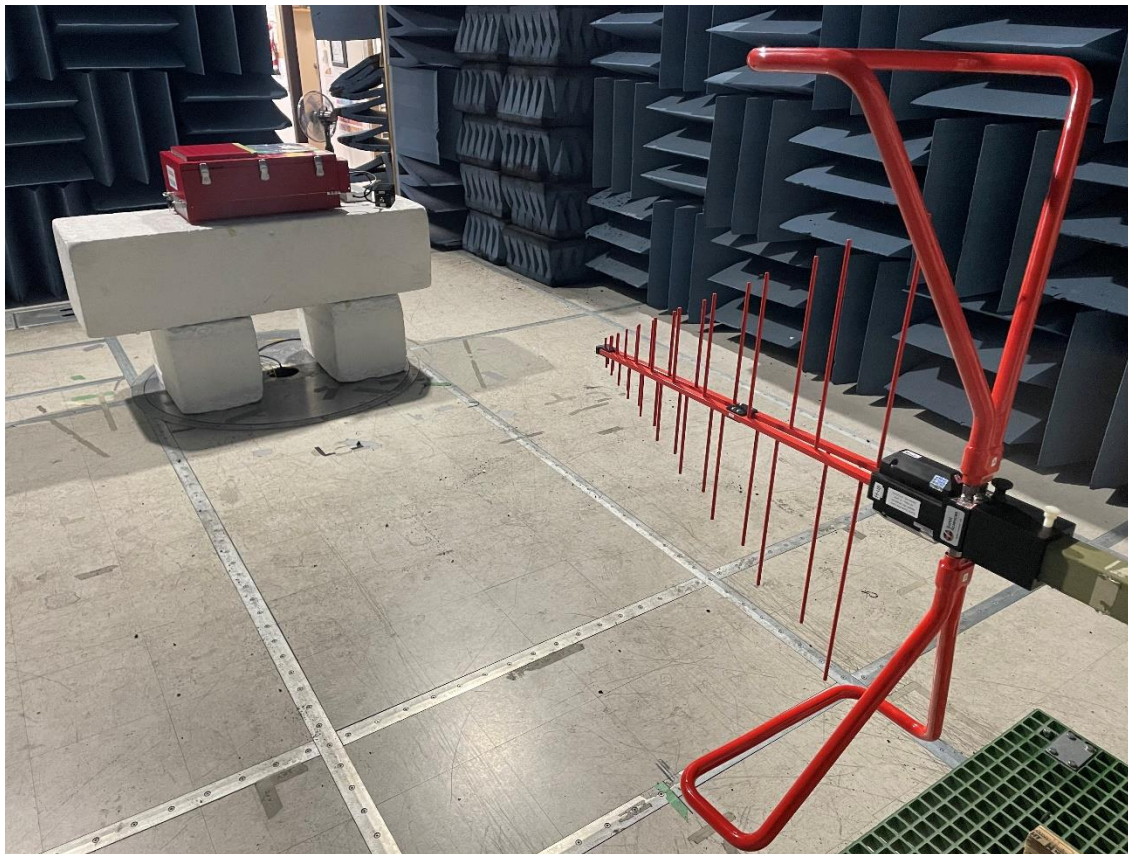
Standard	RSS-119, Issue 12 2015, Amendment (April 1, 2022) RSS-Gen, Issue 5 2018 FCC Part 90 FCC Part 2.1053													
Test method	ANSI C63.26-2015, Section 5.5 KDB 935210 D05, v01r04, Clause 3.8, 4.9													
Tested by	Jack Qin													
Test date	2025-08-07													
Test location	Richmond lab, stand #2													
Applied limit	<table border="1"> <thead> <tr> <th colspan="2">Radiated Emission FCC/ISED Class B Limit at 3 Meters</th> </tr> <tr> <th>Frequency (MHz)</th><th>Quasi-peak (dB μV/m)</th></tr> </thead> <tbody> <tr> <td>30 – 88</td><td>40</td></tr> <tr> <td>88 – 216</td><td>43.52</td></tr> <tr> <td>216 - 960</td><td>46.02</td></tr> <tr> <td>Above 960</td><td>53.98</td></tr> </tbody> </table> Note 1. The lower limit shall apply at the transition frequency Note 2. Additional provisions may be required for cases where interference occurs Note 3. Additionally, the level of any transmitter unwanted emission shall not exceed the level of the transmitter's fundamental emission. RSS – Gen, Clause 8.10 Restricted frequency bands a. The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7. b. Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in the above table. c. Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in the above table.		Radiated Emission FCC/ISED Class B Limit at 3 Meters		Frequency (MHz)	Quasi-peak (dB μ V/m)	30 – 88	40	88 – 216	43.52	216 - 960	46.02	Above 960	53.98
Radiated Emission FCC/ISED Class B Limit at 3 Meters														
Frequency (MHz)	Quasi-peak (dB μ V/m)													
30 – 88	40													
88 – 216	43.52													
216 - 960	46.02													
Above 960	53.98													
Test set-up description	☒ Equipment on a table of 80 cm height ☐ Equipment on the floor (insulated from ground plane) ☐ Other:													
Test method applied	☒ SAC with measurement distance [m]: ☒ 3 ☐ 10 ☐ FAR CISPR 16-2-3 with measurement distance [m]: 3 ☐ FAR IEC 61000-4-22 with measurement distance [m]: 3 ☐ TEM Waveguide according to IEC 61000-4-20													
Compliant ☒ Non-Compliant ☐ Not Applicable ☐														

Test Method

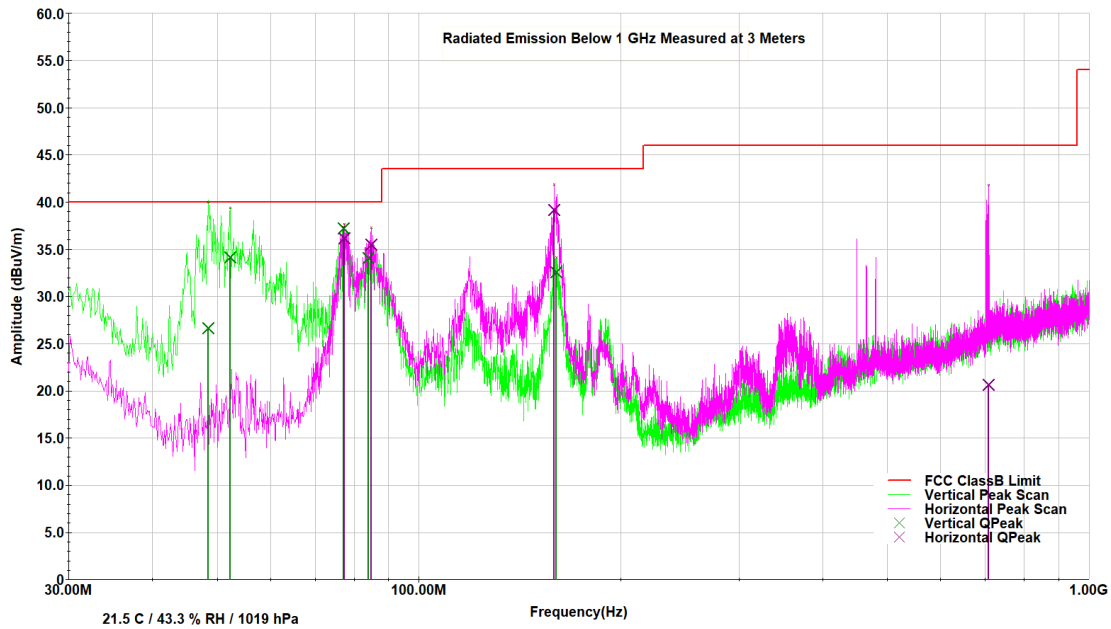
This test measures the radiating levels from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices. Testing was performed in accordance with the test standard(s) referenced in the test summary section of this report. The Equipment Under Test (EUT) was configured based upon the requirements of the applicable test standard. Initially, the primary emission frequencies are identified by positioning a broadband receive antenna three meter from the EUT.

A scan was made with an EMC Analyzer, controlled by EMC Test Software, Tile7! with the receiver in the peak mode. The receiver IF bandwidth was 120 kHz and scan step was less than 30kHz. To ensure that the maximum emission at each discrete frequency of interest is observed, the receive antenna is varied in height from one to four meters with both horizontal and vertical polarities while the turntable is rotated to determine the worst emitting configuration. Measurements were then made using CISPR quasi peak when the peak readings were within 20dB of the limit line. The numerical results are included herein to demonstrate compliance.

Test Setup



Test Result



Frequency	Antenna Polarization	Raw Quasi-peak	Antenna Factor	Correction Factor	QPeak	Margin	Limit
MHz	V/H	dBuV	dB/m	dB	dBuV/m	dB	dBuV/m
48.51774	V	13.3	12.5	0.8	26.6	13.4	40
52.25086	V	22	11.3	0.8	34.1	5.9	40
77.20534	V	23.8	12.5	0.9	37.2	2.8	40
83.94733	V	21.6	11.5	0.9	34	6	40
160.2898	V	15.3	16	1.2	32.5	11	43.5
77.37176	H	22.8	12.5	0.9	36.2	3.8	40
84.79009	H	23.1	11.4	0.9	35.5	4.5	40
159.0342	H	22	16	1.2	39.2	4.3	43.5
708.0581	H	-5.8	23.7	2.7	20.6	25.4	46

Note:

- (1) Quasi-peak (dBuV/m) = Raw Quasi-peak (dBuV) + Antenna Factor (dB/m) + Correction Factor (dB)
- (2) Only the worst-case frequencies were selected for the final Quasi-peak measurement.

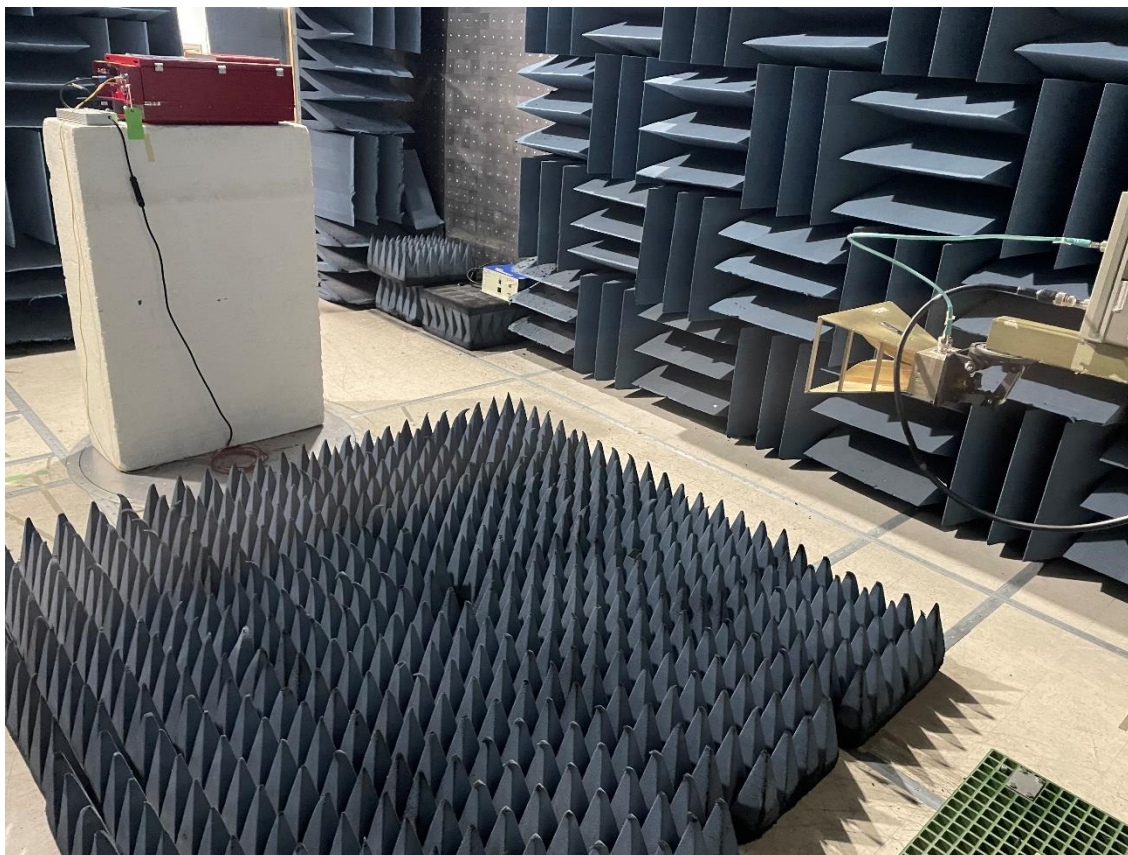
11. Radiated Spurious Emissions – Enclosure above 1 GHz

Standard	RSS-119, Issue 12 2015, Amendment (April 1, 2022) RSS-Gen, Issue 5 2018 FCC Part 90 FCC Part 2.1053										
Test Method	ANSI C63.26-2015, Section 5.5 KDB 935210 D05, v01r04, Clause 3.8, 4.9										
Tested by	Jack Qin										
Test date	2025-08-07										
Test location	Richmond, Stand #3										
Applied limit	<table border="1"> <thead> <tr> <th colspan="3">Radiated Emission FCC/ISED Class B Limit at 3 Meters</th> </tr> <tr> <th>Frequency (GHz)</th><th>Average (dBμV/m)</th><th>Peak (dBμV/m)</th></tr> </thead> <tbody> <tr> <td>> 1</td><td>54</td><td>74</td></tr> </tbody> </table> RSS – Gen, Clause 8.10 Restricted frequency bands - The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7. - Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in the above table. - Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in the above table.		Radiated Emission FCC/ISED Class B Limit at 3 Meters			Frequency (GHz)	Average (dB μ V/m)	Peak (dB μ V/m)	> 1	54	74
Radiated Emission FCC/ISED Class B Limit at 3 Meters											
Frequency (GHz)	Average (dB μ V/m)	Peak (dB μ V/m)									
> 1	54	74									
Test set-up description	☒ Equipment on a table of 150 cm height ☐ Equipment on the floor (insulated from ground plane) ☐ Other:										
Test method applied	☐ OATS or SAC with measurement distance [m]: ☒ 3 ☐ 10 ☒ FAR CISPR 16-2-3 with measurement distance [m]: 3 ☐ FAR IEC 61000-4-22 with measurement distance [m]: 3 ☐ TEM Waveguide according to IEC 61000-4-20										
Compliant ☒ Non-Compliant ☐ Not Applicable ☐											

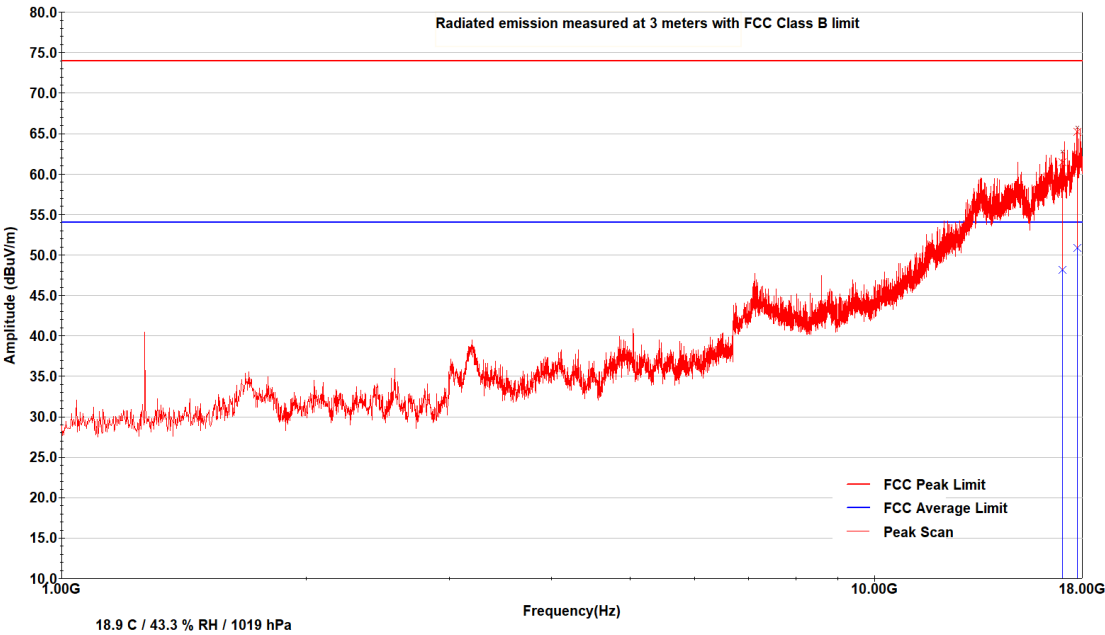
Test Method

This test measures the radiating levels from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices. Testing was performed in accordance with the test standards referenced in the test summary section of this report. The EUT was configured based upon the requirements of the applicable test standard. Initially, the primary emission frequencies are identified by positioning a broadband receive antenna three meter from the EUT. A scan was made with an EMC Analyzer, controlled by EMC Test Software, Tile7 with the receiver in the peak mode. The receiver IF bandwidth was 1MHz and scan step was about 0.5 MHz. To ensure that the maximum emission at each discrete frequency of interest is observed, the receive antenna is varied in height from one to four meters with both horizontal and vertical polarities while the turntable is rotated to determine the worst emitting configuration. Measurements were then made using CISPR averaging when the peak readings were within 20 dB of the peak limit line. The numerical results are included herein to demonstrate compliance.

Test Setup



Test Result



Frequency	Antenna Polarization	Antenna Factor	Correction Factor	Raw Average	Average	Average Margin	FCC Average Limit	RAW Peak	Peak	Peak Margin	FCC Peak Limit
MHz	V/H	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m	dBuV	dBuV/m	dB	dBuV/m
17023	H	41.7	-12.7	19.2	48.1	5.9	54	32.45	61.42	12.58	74
17746	V	43.4	-10.9	18.4	50.9	3.1	54	32.8	65.2	8.8	74

Note: Only the worst-case frequencies were selected for the final measurement.

Annex

Annex 1 – List of Test Equipment

Equipment	Manufacturer	Model	LabTest ID/SN	Last calibration	Calibration due*
EMC Analyzer	Agilent Technologies	E7405A	272	21-Feb-2025	21-Feb-2026
LISN	Com-Power	LIN-120C	920	2025-09-03	2027-09-03
Horn Antenna	A.H Systems	SAS-571	227C	2025-02-04	2027-02-04
Broadband Antenna	Sunol	JB1	371	2025-01-13	2027-01-13
RF Preamplifier	Agilent	8449B	273	IHC	IHC
EMC Shielded Enclosure	USC	USC-26	374	IHC	IHC
RF Cable	A.H. Systems	SAC-26G-3	227D	IHC	IHC
RF Cable	MRO	NA	NA	IHC	IHC
Used Software	Tile 7!, v7.3.0.6				

* Calibration interval extended based on enough calibration data and experience of use (see IECEE OD-5011:2015 clause 8.3)

Annex 1 – Measurement Uncertainties

For all measurements where guidance for the calculation of the instrumentation uncertainty of a measurement is specified in CISPR 16-4-2/EN55016-4-2, IEC/EN 61000-4 series or a product standard, the measurement instrumentation uncertainty has been calculated and applied in accordance with these standards.

Uncertainties have been calculated according to the LabTest internal document, DCN. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%

Parameter	Uncertainty
Radio Frequency	± 1 ppm
Conducted RF Power	± 1 dB
Temperature	± 1.0 °C
Humidity	± 5.0 %
Radiated Emission, 30 to 18,000MHz	± 4.93 dB
Conducted Measurements, 0.15 to 30MHz	± 3.52 dB

(Uncertainty figures are valid to a confidence level of 95%.)

Annex 2 - ISO 17025 ACCREDITATION CERTIFICATE

For complete scope of certification use

https://labtestcert.com/wp-content/uploads/2024/04/LabTest-Certification-Inc-Cert-and-Scope-File-03-12-2024_1710259791.pdf

END OF REPORT

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