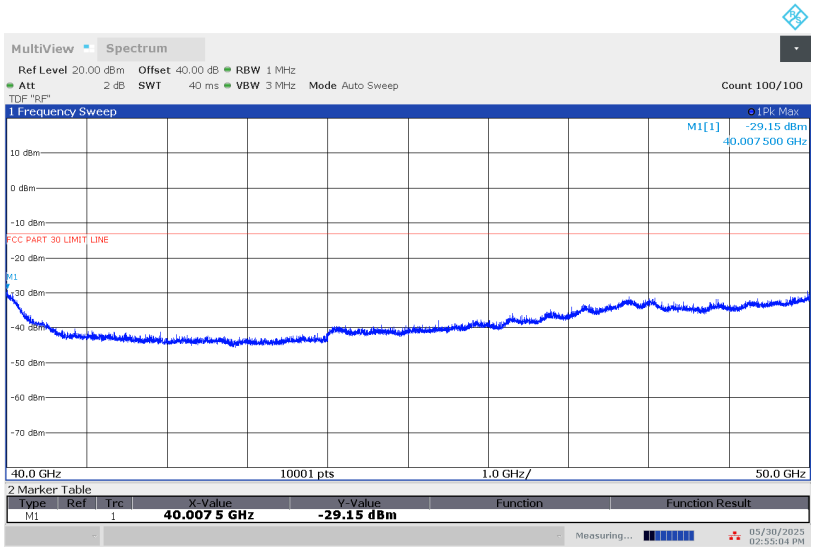
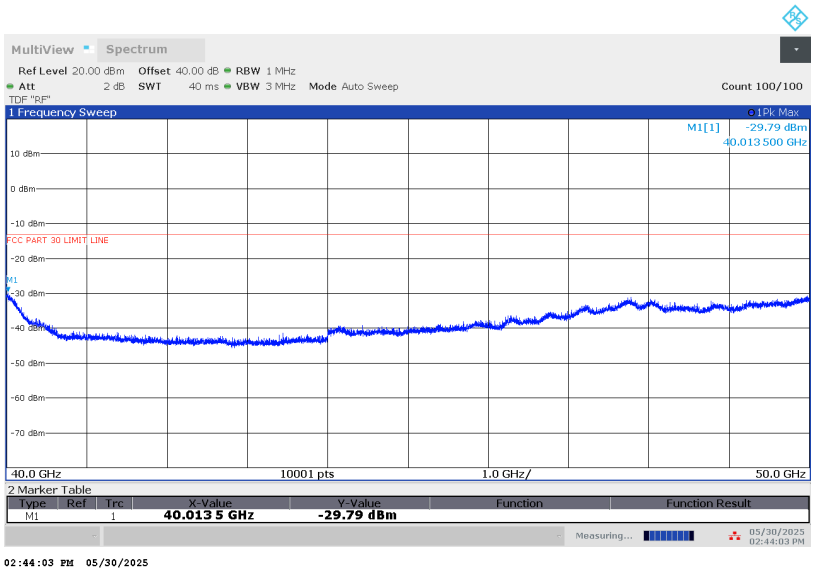
8.4.26. RSE n261 40 - 50 GHz

40 – 50 GHz, 1CC (Pre-scan using Pk Det.)
Horizontal



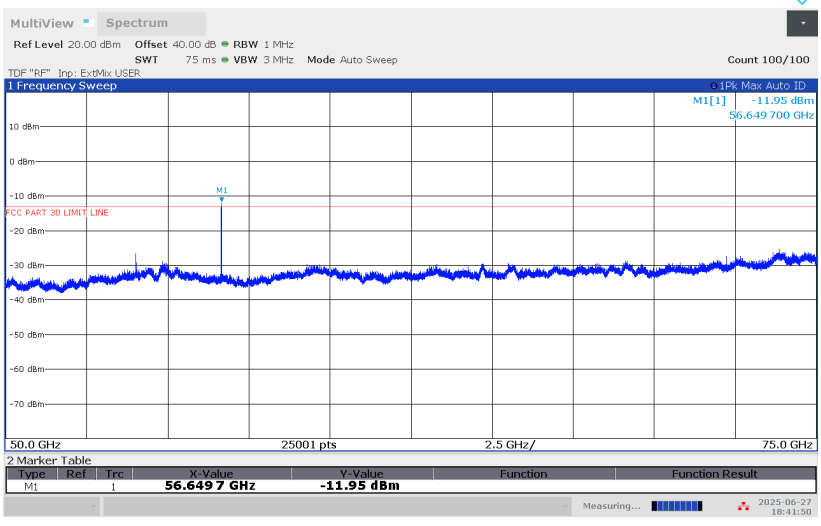
40 – 50 GHz, 1CC (Pre-scan using Pk Det.)
Vertical



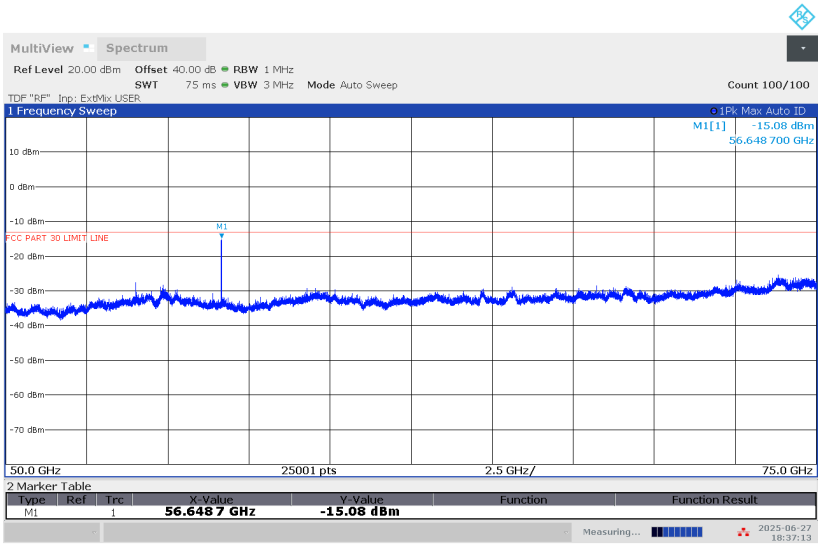
No emission detected using Peak Detection.

8.4.27. RSE n261 50 - 75 GHz

50 - 75 GHz, 1CC (Pre-scan using Pk Det.)
Horizontal



50 - 75 GHz, 1CC (Pre-scan using Pk Det.)
Vertical



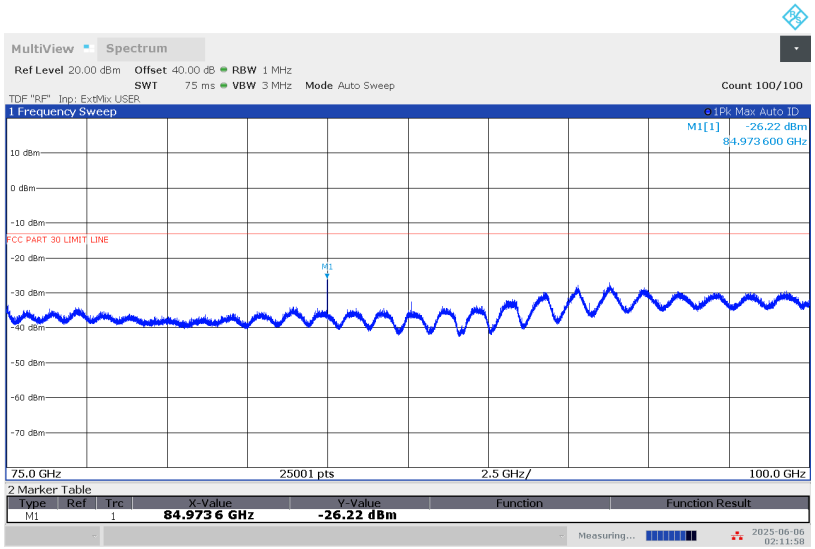
Emissions detected using Peak Detection at pre-scan. Avg EIRP or TRP was measured.

50 - 75 GHz n261, 1CC

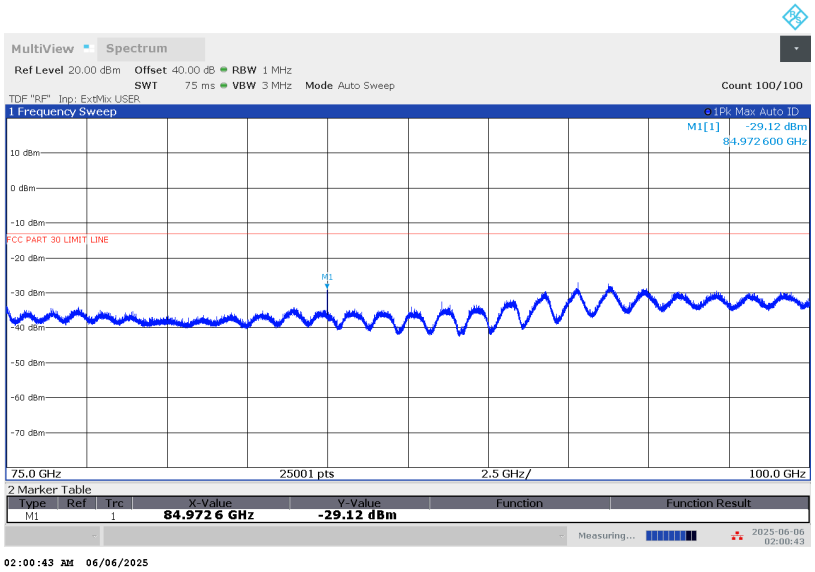
Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
56.648	3	H	-27.03	-13	-14.03
56.648	3	V	-16.96	-13	-3.96

8.4.28. RSE n261 75 - 100 GHz

75 - 100 GHz, 1CC (Pre-scan using Pk Det.)
Horizontal



75 - 100 GHz, 1CC (Pre-scan using Pk Det.)
Vertical



Emissions detected using Peak Detection at pre-scan. Avg EIRP or TRP was measured.

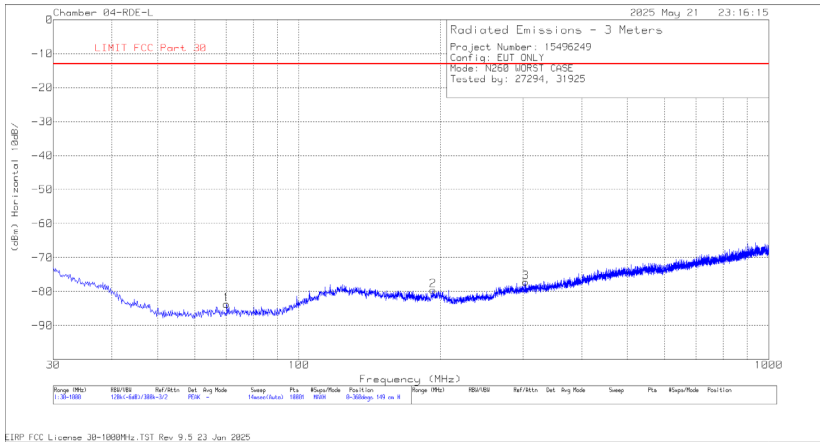
75 - 100 GHz n261

Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
84.973	3	H	-28.96	-13	-15.96
84.973	3	V	-42.16	-13	-29.16

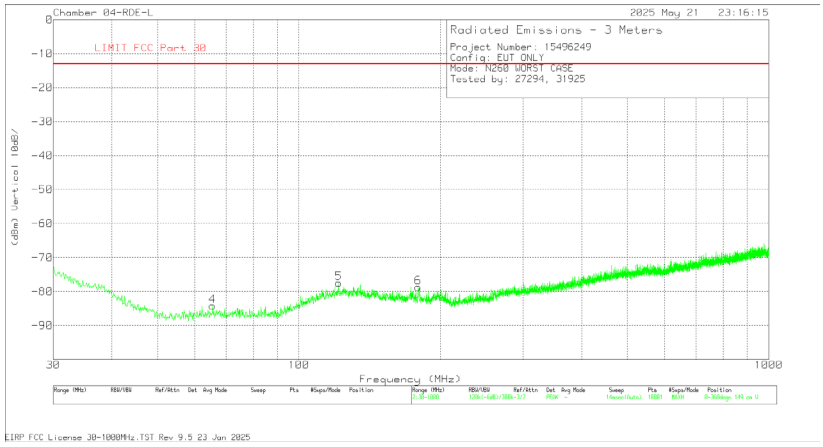
8.4.29. RSE n260 30 – 1000 MHz

30 – 1000 MHz, 1CC (Pre-scan using Pk Det.)

Horizontal



Vertical



Trace Markers

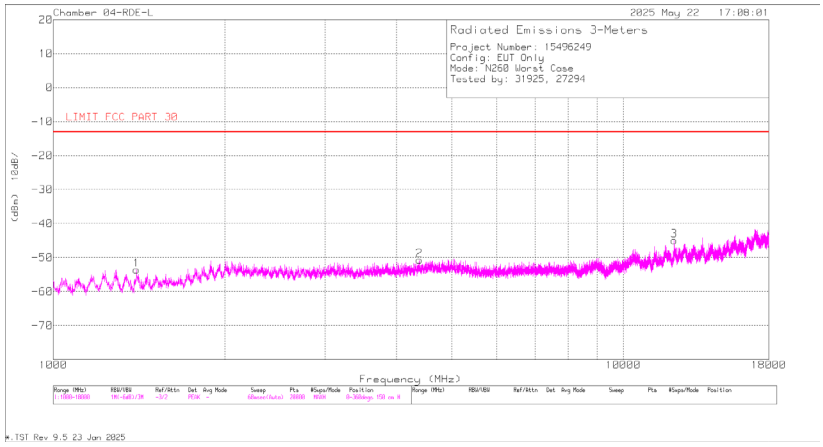
Marker	Frequency (MHz)	Meter Reading (dBm)	Det	174374 ACF (dB/m)	Amp/Cbls (dB)	Unit Conversion (dB)	Corrected Reading (dBm)	LIMIT FCC Part 30 (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	70.158	-77.84	Pk	13.9	-31.5	11.7	-83.74	-13	-70.74	0-360	149	H
2	192.96	-78.85	Pk	17.5	-29.9	11.7	-79.55	-13	-66.55	0-360	149	H
3	303.54	-78.37	Pk	19.5	-30.0	11.7	-77.17	-13	-64.17	0-360	149	H
4	65.502	-78.16	Pk	13.8	-31.6	11.7	-84.26	-13	-71.26	0-360	149	V
5	121.471	-78.20	Pk	19.6	-30.6	11.7	-77.50	-13	-64.50	0-360	149	V
6	179.477	-77.58	Pk	17.2	-30.0	11.7	-78.68	-13	-65.68	0-360	149	V

Pk - Peak detector

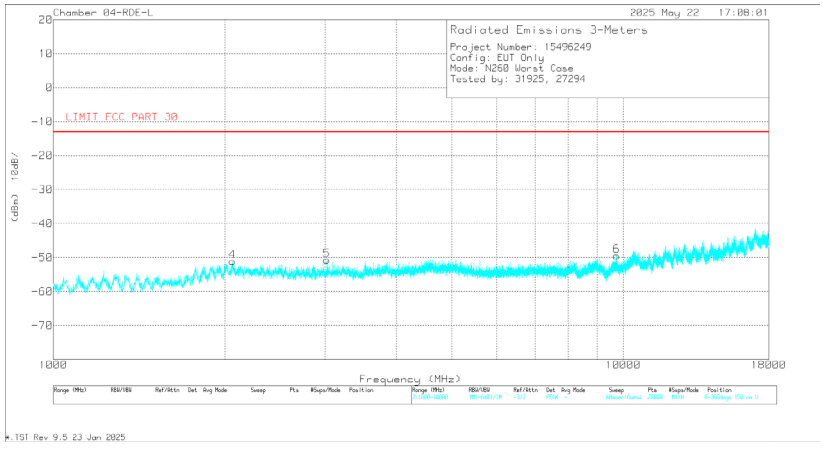
8.4.30. RSE n260 1 - 18 GHz

1 – 18 GHz, 1CC (Pre-scan using Pk Det.)

Horizontal



Vertical



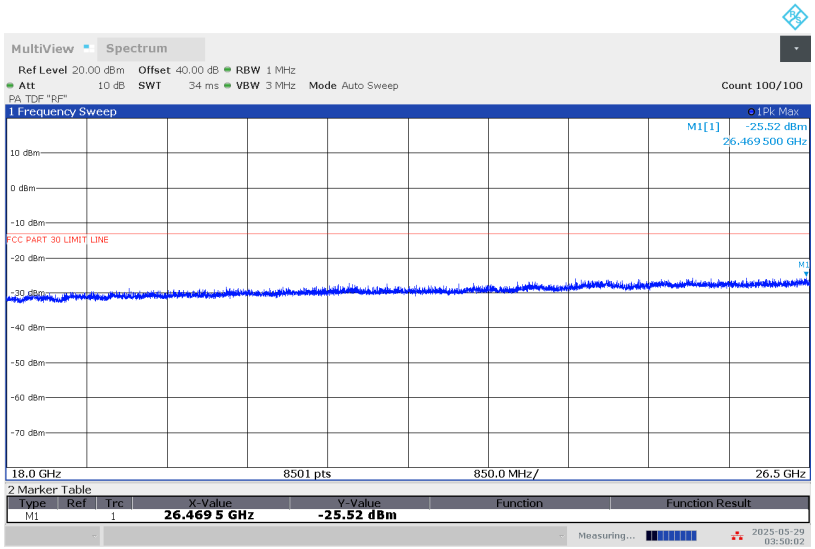
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	206805 ACF (dB/m)	Amp/Cbl (dB)	Unit Conversion (dB)	Corrected Reading (dBm)	LIMIT FCC PART 30 (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1400.37	-46.86	Pk	28.2	-46.6	11.7	-53.56	-13	-40.56	0-360	150	H
2	4386.571	-52.15	Pk	33.7	-44.0	11.7	-50.75	-13	-37.75	0-360	150	H
3	12284.321	-60.47	Pk	38.6	-34.8	11.7	-44.97	-13	-31.97	0-360	150	H
4	2062.554	-48.18	Pk	31.6	-46.2	11.7	-51.08	-13	-38.08	0-360	150	V
5	3021.402	-49.80	Pk	32.8	-45.4	11.7	-50.70	-13	-37.70	0-360	150	V
6	9727.391	-62.48	Pk	36.9	-35.6	11.7	-49.48	-13	-36.48	0-360	150	V

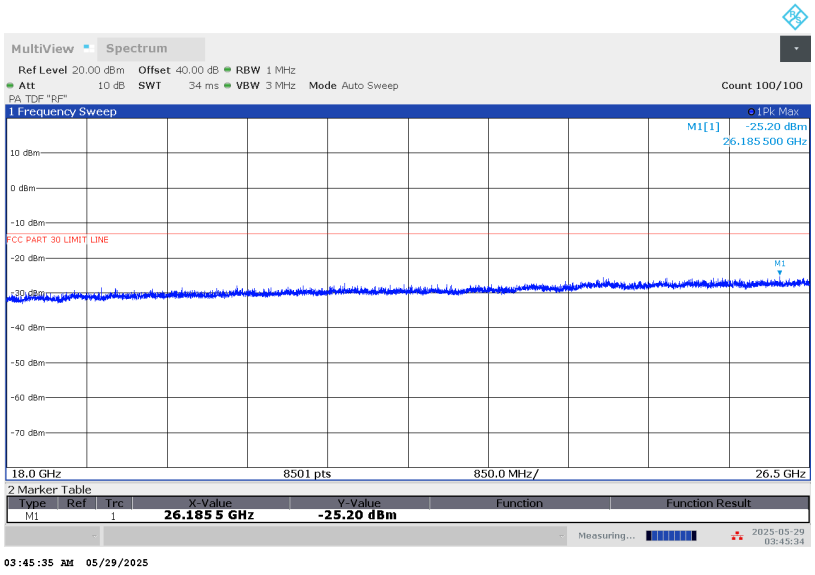
Pk - Peak detector

8.4.31. RSE n260 18 - 26.5 GHz

18 - 26.5 GHz, 1CC (Pre-scan using Pk Det.)
Horizontal



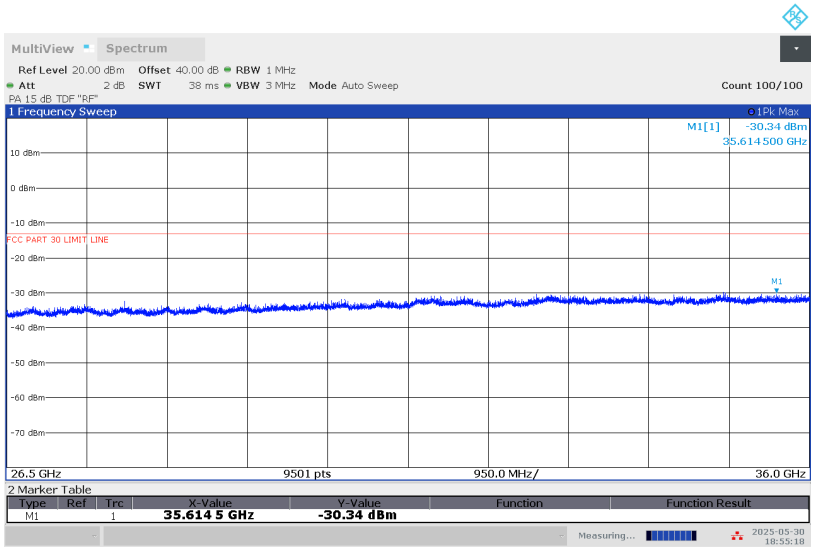
18 - 26.5 GHz, 1CC (Pre-scan using Pk Det.)
Vertical



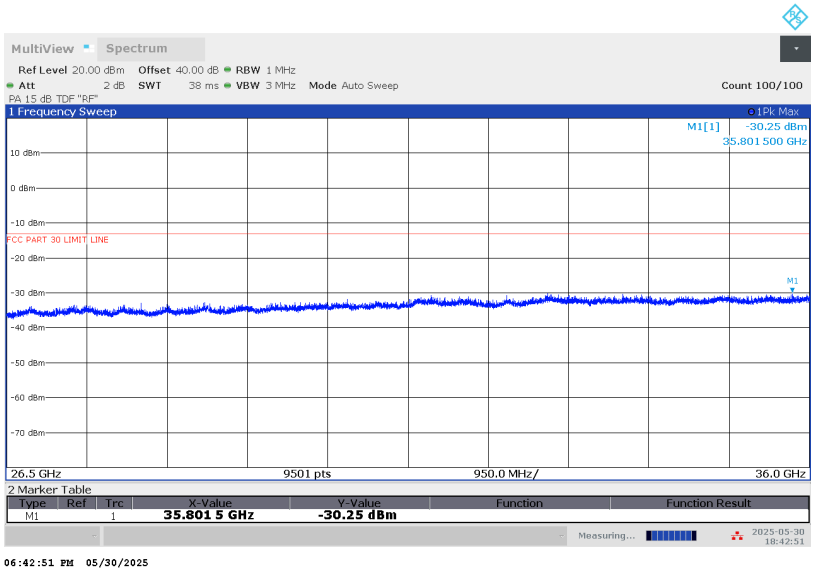
No emission detected using Peak Detection.

8.4.32. RSE n260 26.5 - 36 GHz

26.5 - 36 GHz, 1CC (Pre-scan using Pk Det.)
Horizontal



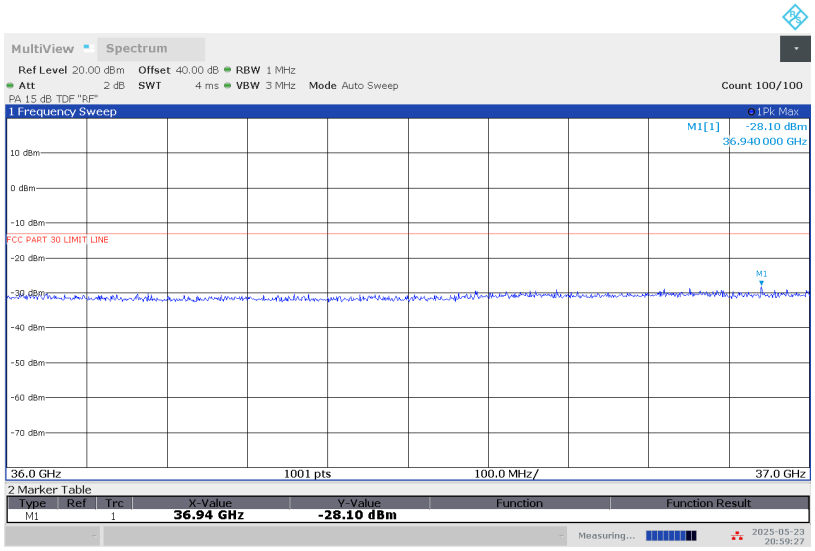
26.5 - 36 GHz, 1CC (Pre-scan using Pk Det.)
Vertical



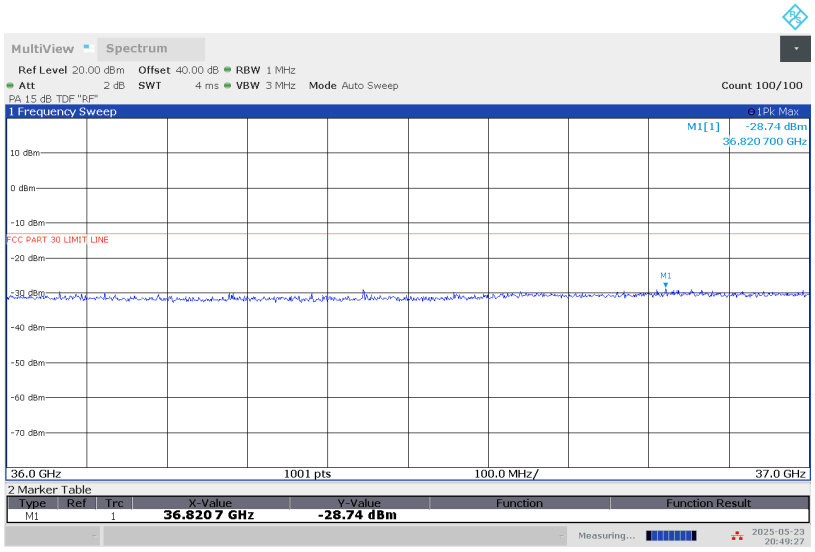
No emission detected using Peak Detection.

8.4.33. RSE n260 36 – 37 GHz

36 - 37 GHz, 1CC (Pre-scan using Pk Det.)
Horizontal

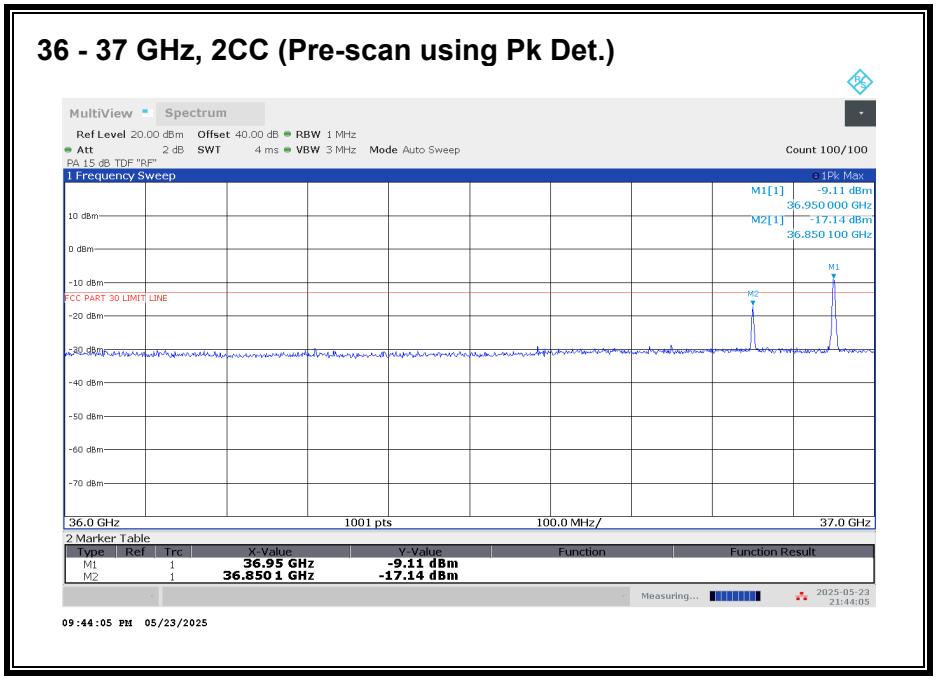


36 - 37 GHz, 1CC (Pre-scan using Pk Det.)
Vertical



No emission detected using Peak Detection.

36 - 37 GHz n260, 2CC



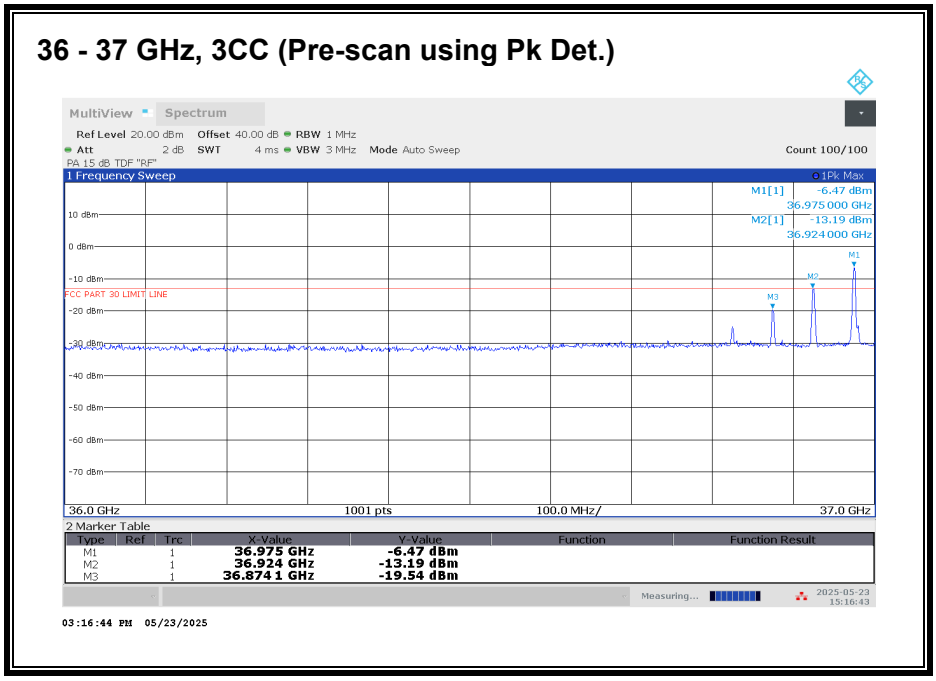
Worst case configuration:
SISO-DUAL_QPSK_(100 MHz + 100 MHz) _Low CH_RB Offset 1/32 (1RB-M)

Emissions detected using Peak Detection at pre-scan. Avg EIRP or TRP was measured.

All emissions were investigated, and the highest emission was reported.

Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
36.949	3	V	-18.48	-13	-5.48

36 - 37 GHz n260, 3CC



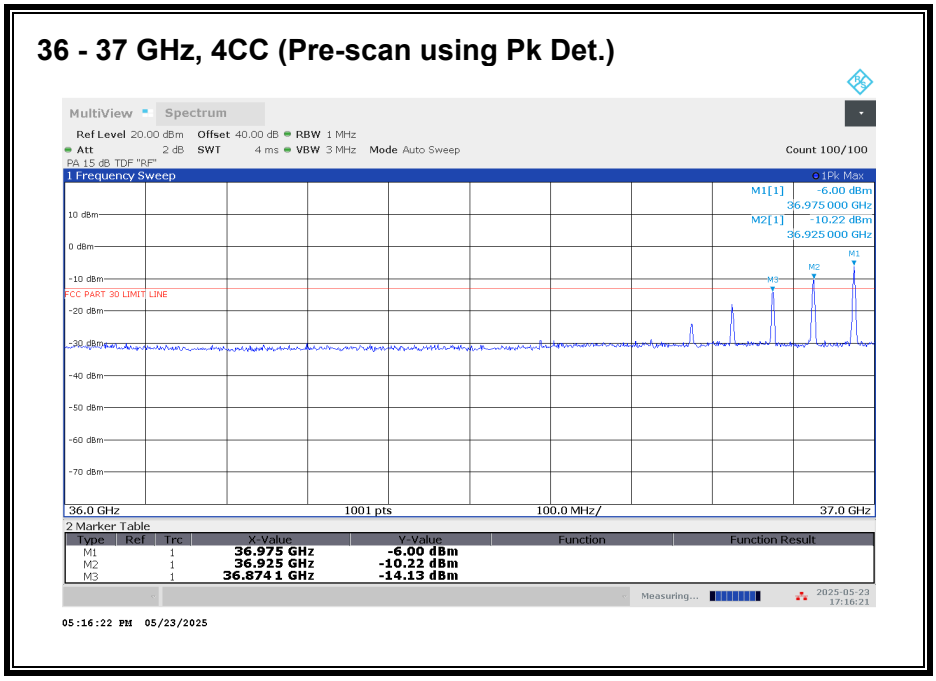
Worst case configuration:
SISO-DUAL_QPSK_(50 MHz + 50 MHz + 50 MHz) _Low CH_RB Offset 1/15 (1RB-M)

Emissions detected using Peak Detection at pre-scan. Avg EIRP or TRP was measured.

All emissions were investigated, and the highest emission was reported.

Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
36.974	3	H	-17.29	-13	-4.29

36 - 37 GHz n260, 4CC



Worst case configuration:
SISO-DUAL_QPSK_(50 MHz + 50 MHz + 50 MHz + 50 MHz)_Low CH_RB Offset 1/15 (1RB-M)

Emissions detected using Peak Detection at pre-scan. Avg EIRP or TRP was measured.

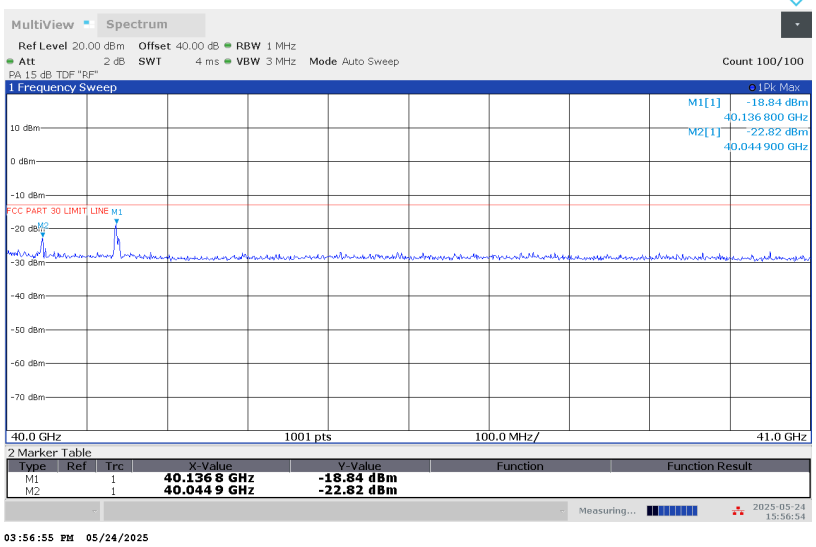
All emissions were investigated, and the highest emission was reported.

Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
36.974	3	H	-18.87	-13	-5.87

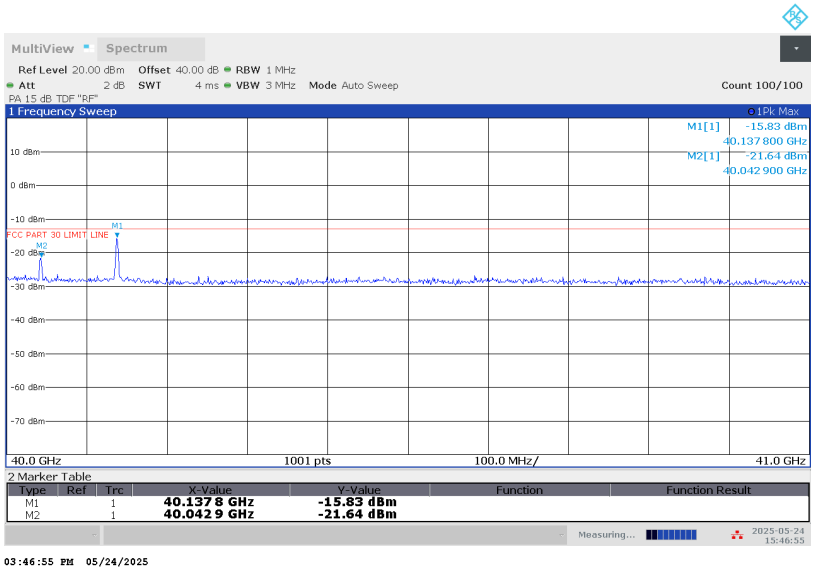
8.4.34. RSE n260 40 – 41 GHz

Note: 37 - 40 GHz covered by Fundamental and BE measurements.

40 – 41 GHz, 1CC (Pre-scan using Pk Det.)
Horizontal



40 – 41 GHz, 1CC (Pre-scan using Pk Det.)
Vertical



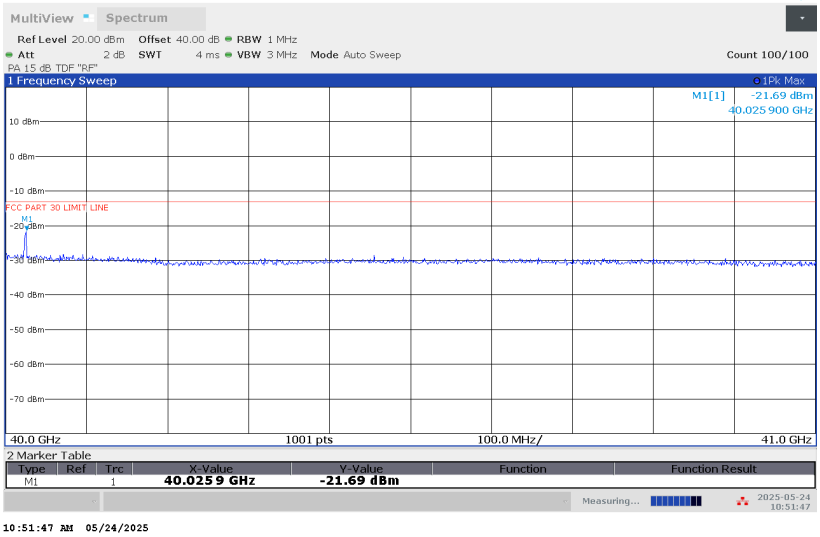
Emissions detected using Peak Detection at pre-scan. Avg EIRP or TRP was measured.

40 - 41 GHz n260, 1CC

Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
40.138	3	H	-30.39	-13	-17.39
40.138	3	V	-25.54	-13	-12.54
40.043	3	H	-35.13	-13	-22.13
40.043	3	V	-29.42	-13	-16.42

40 – 41 GHz n260, 2CC

40 – 41 GHz, 2CC (Pre-scan using Pk Det.)



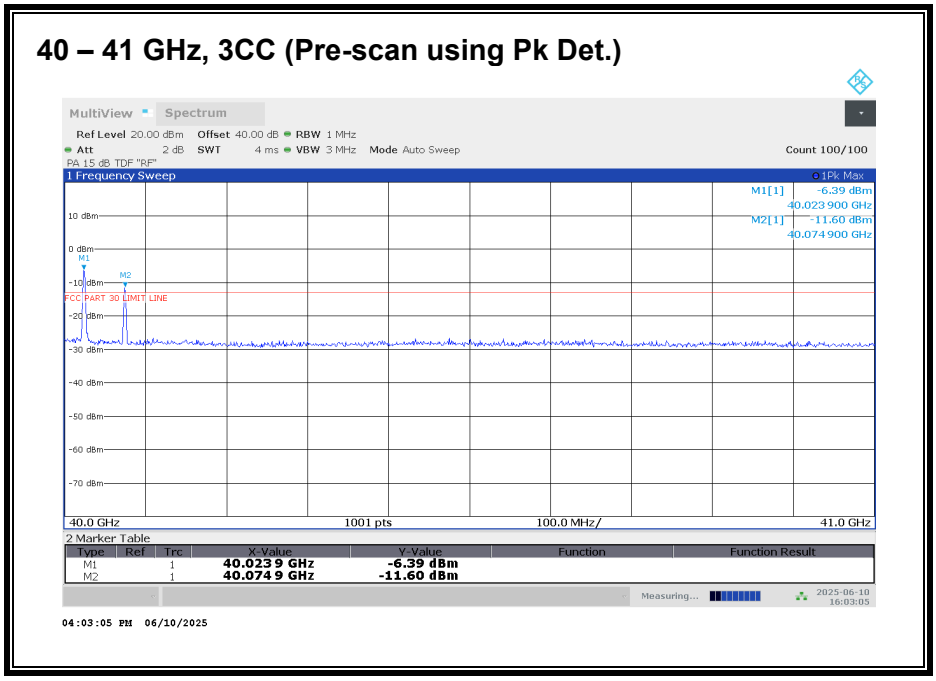
Worst case configuration:
SISO-DUAL_QPSK_(50 MHz + 50 MHz)_High CH_RB Offset 1/15 (1RB-M)

Emissions detected using Peak Detection at pre-scan. Avg EIRP or TRP was measured.

All emissions were investigated, and the highest emission was reported.

Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
40.024	3	H	-15.77	-13	-2.77

40 – 41 GHz n260, 3CC



Worst case configuration:
SISO-DUAL_QPSK_(50 MHz + 50 MHz + 50 MHz)_High CH_RB Offset 1/15 (1RB-M)

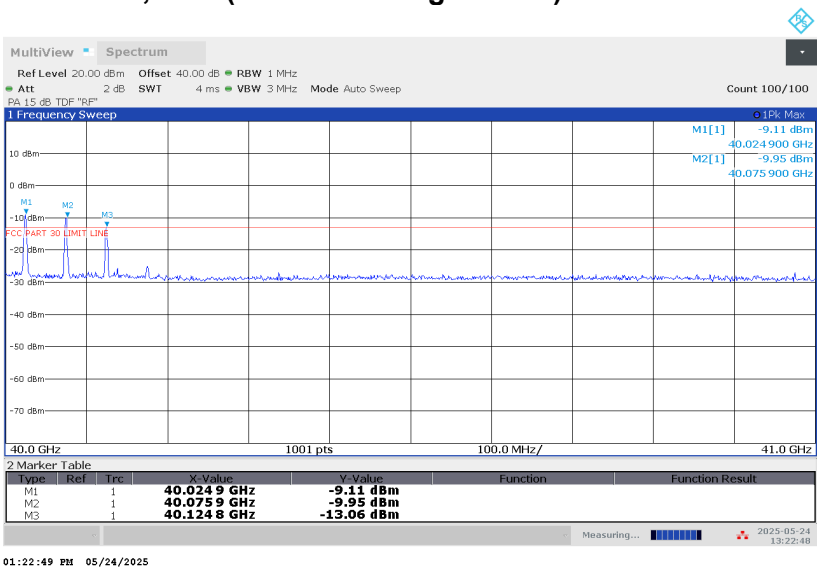
Emissions detected using Peak Detection at pre-scan. Avg EIRP or TRP was measured.

All emissions were investigated, and the highest emission was reported.

Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
40.024	3	H	-14.70	-13	-1.70

40 – 41 GHz n260, 4CC

40 – 41 GHz, 4CC (Pre-scan using Pk Det.)



Worst case configuration:
SISO-DUAL_QPSK_(50 MHz + 50 MHz + 50 MHz + 50 MHz)_High CH_RB Offset 1/15 (1RB-M)

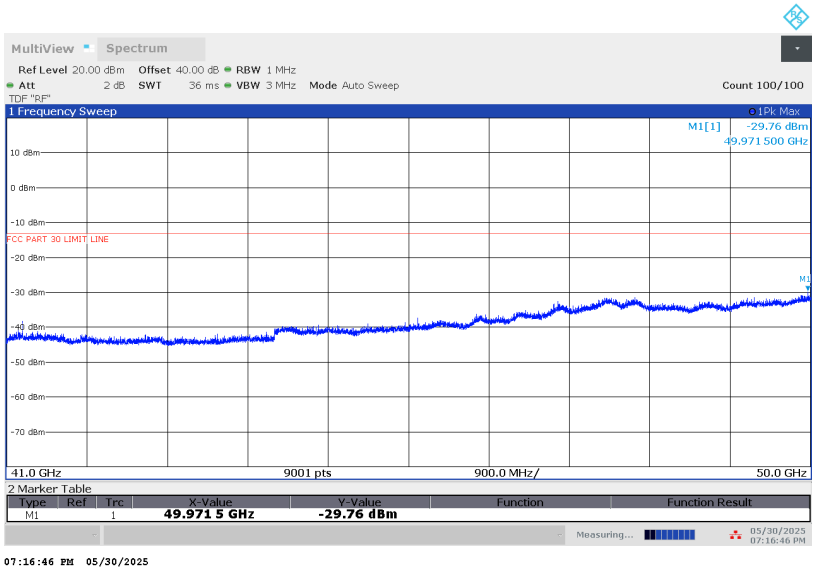
Emissions detected using Peak Detection at pre-scan. Avg EIRP or TRP was measured.

All emissions were investigated, and the highest emission was reported.

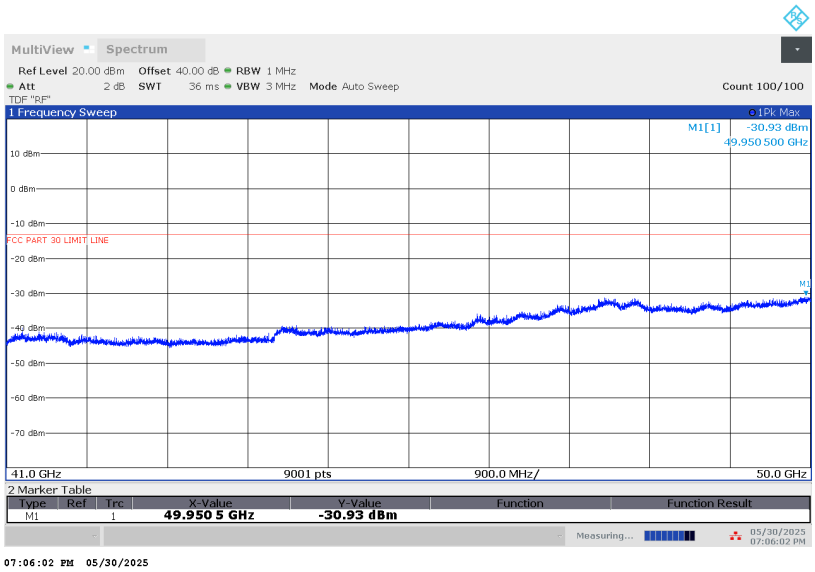
Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
40.024	3	H	-14.67	-13	-1.67

8.4.35. RSE n260 41 – 50 GHz

41 – 50 GHz, 1CC (Pre-scan using Pk Det.)
Horizontal



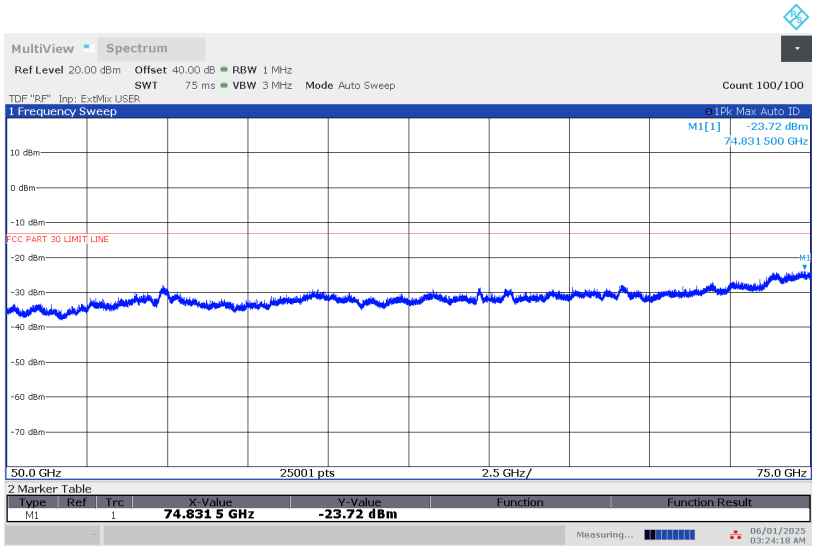
41 – 50 GHz, 1CC (Pre-scan using Pk Det.)
Vertical



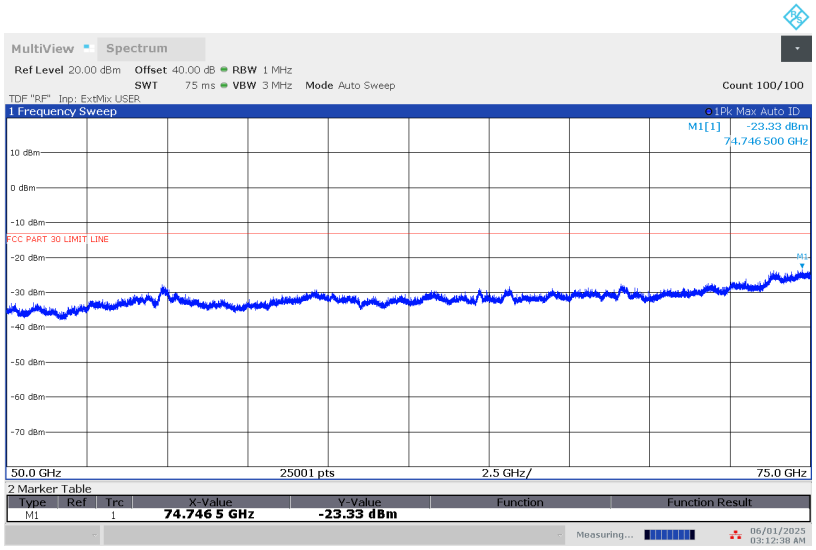
No emission detected using Peak Detection.

8.4.36. RSE n260 50 - 75 GHz

50 - 75 GHz, 1CC (Pre-scan using Pk Det.)
Horizontal



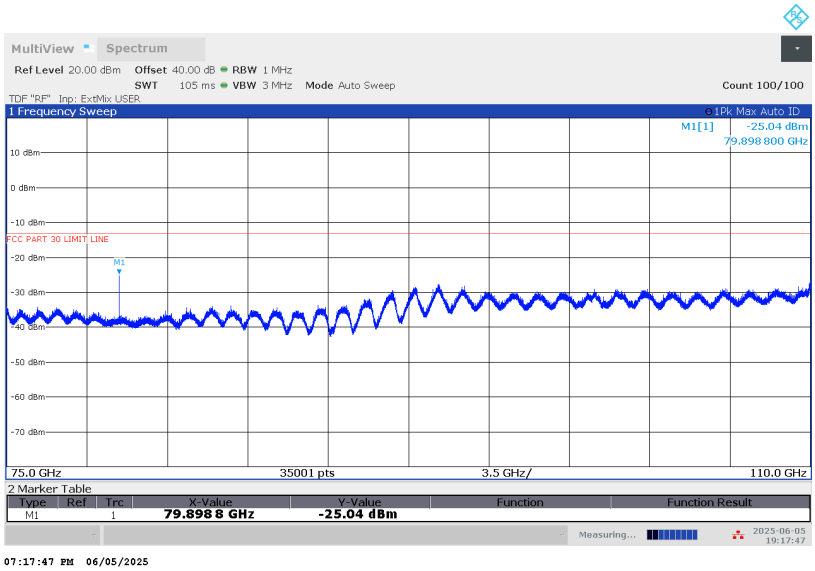
50 - 75 GHz, 1CC (Pre-scan using Pk Det.)
Vertical



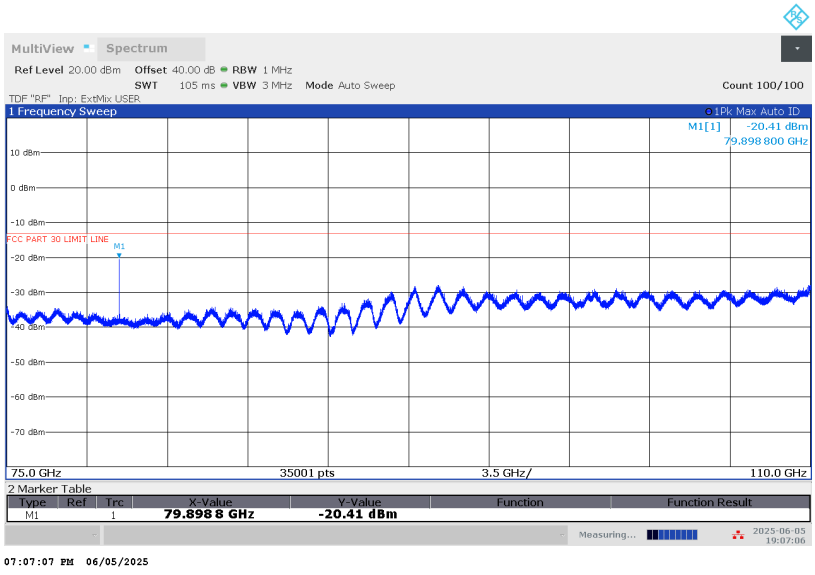
No emission detected using Peak Detection.

8.4.37. RSE n260 75 - 110 GHz

75 - 110 GHz, 1CC (Pre-scan using Pk Det.)
Horizontal



75 - 110 GHz, 1CC (Pre-scan using Pk Det.)
Vertical



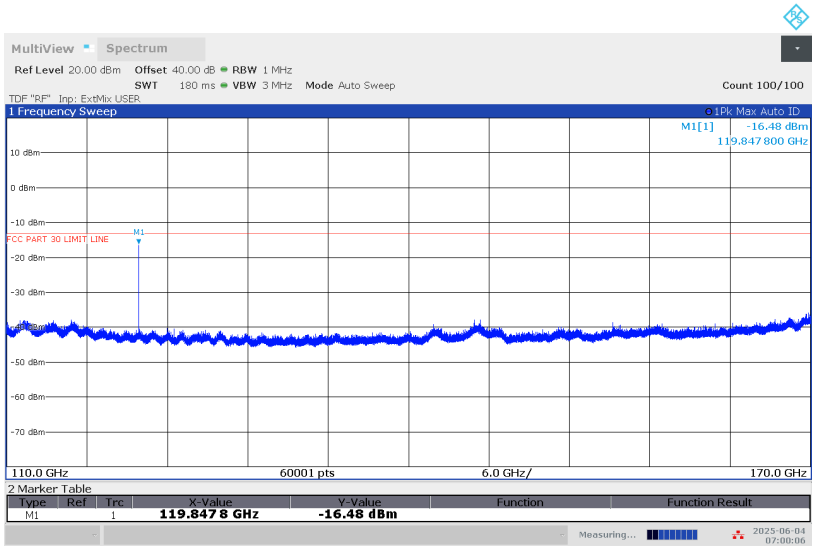
Emissions detected using Peak Detection at pre-scan. Avg EIRP or TRP was measured.

75 - 110 GHz n260, 1CC

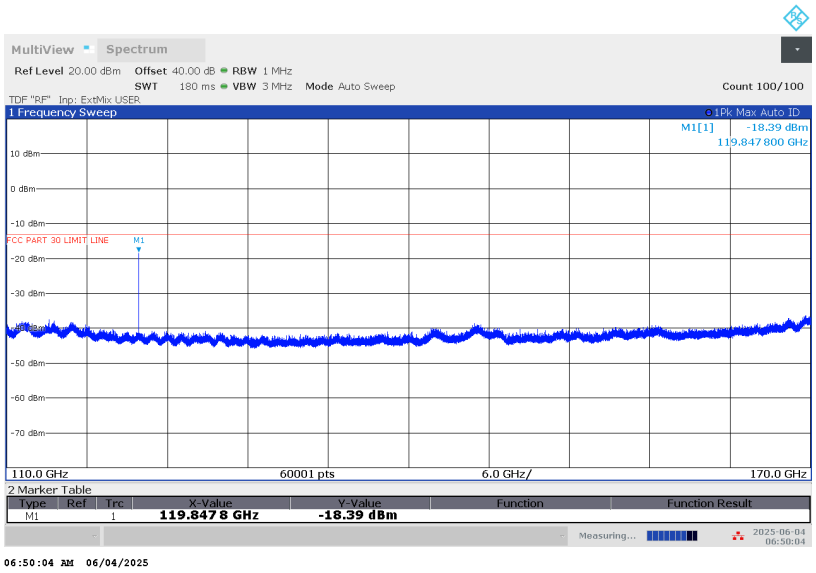
Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
79.898	3	H	-35.08	-13	-22.08
79.898	3	V	-23.77	-13	-10.77

8.4.38. RSE n260 110 - 170 GHz

110 - 170 GHz, 1CC (Pre-scan using Pk Det.)
Horizontal



110 - 170 GHz, 1CC (Pre-scan using Pk Det.)
Vertical



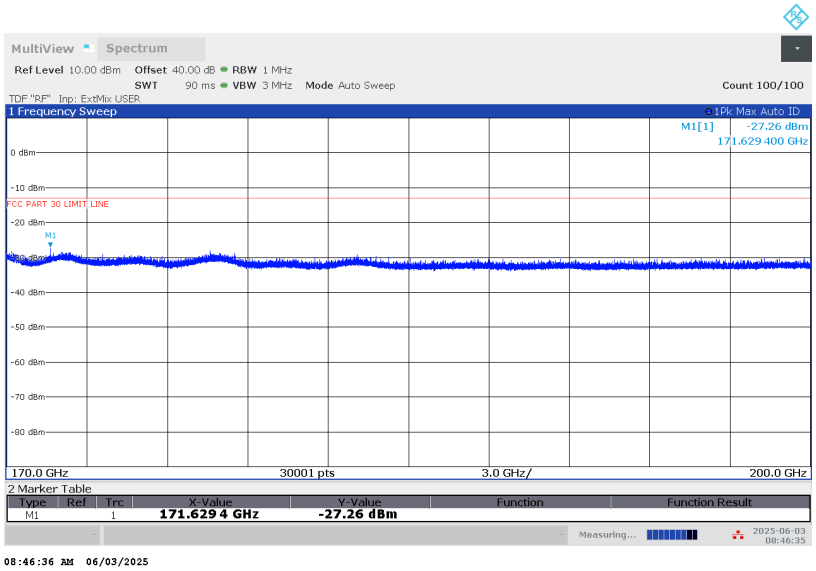
Emissions detected using Peak Detection at pre-scan. Avg EIRP or TRP was measured.

110 - 170 GHz n260, 1CC

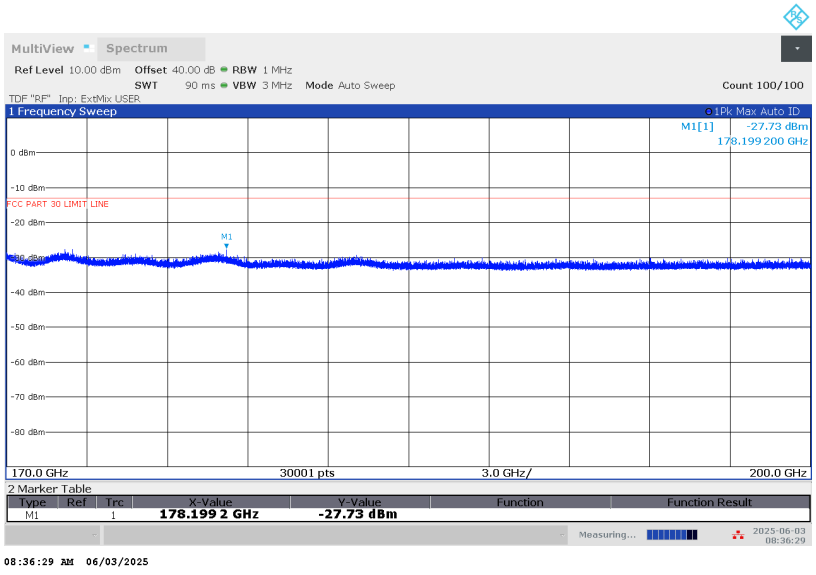
Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
119.847	1	H	-23.51	-13	-10.51
119.847	1	V	-31.47	-13	-18.47

8.4.39. RSE n260 170 - 200 GHz

170 - 200 GHz, 1CC (Pre-scan using Pk Det.)
Horizontal



170 - 200 GHz, 1CC (Pre-scan using Pk Det.)
Vertical



No emission detected using Peak Detection.

8.5. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055

LIMIT

For reporting purposes only

TEST PROCEDURES

KDB 842590 D01 Upper Microwave Flexible Use Service v01r03 Section 4.5
ANSI C63.26-2015 Section 5.6

Test procedures for temperature variation:

a. Position the EUT in temperature/humidity chamber with power off.
b. Set the chamber temperature to 50°C and stabilize the EUT for at least 30 minutes.
c. Record maximum change in frequency within one minute after powering the EUT.
d. Decrease chamber temperature at 10°C intervals from 50°C to -30°C. Record maximum change in frequency at each temperature.
e. A period of at least 30 minutes is provided to allow stabilization of the equipment at each temperature level.

- Temp. = −30°C to +50°C

Test procedures for voltage variation:

a. Position the EUT in temperature/humidity chamber with power off.
b. Set the chamber temperature to 20°C.
c. Record maximum frequency change within one minute after powering the EUT.
d. The primary supply voltage is varied from 85% to 115% of the nominal value for hand-carried, battery-powered equipment. Primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

- Voltage = (85% - 115%)
- Nominal: 3.8 VDC; Low: 3.23 VDC; High: 4.37 VDC

The measurements were performed with the CW signal of center frequency of each frequency band.

RESULTS

See the following pages.

Employee IDs: 103479, 31925
Test Date: 07/02/2025 - 07/03/2025
Test Location: Temperature Chamber A

UL VERIFICATION SERVICES INC
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8.5.1. FREQUENCY STABILITY n258 SB1

Input Voltage	Environment	Frequency	Delta
	Temperature (ºC)	(GHz)	(kHz)
Nominal	50	24.3550648	21.78
Nominal	40	24.3550450	1.95
Nominal	30	24.3550322	-10.83
Nominal	**20**	**24.3550431**	**Reference**
Nominal	10	24.3550232	-19.82
Nominal	0	24.3549952	-47.83
Nominal	-10	24.3550032	-39.85
Nominal	-20	24.3549987	-44.39
Nominal	-30	24.3549775	-65.53
115%	20	24.3550475	4.46
85%	20	24.3550184	-24.63

8.5.2. FREQUENCY STABILITY n258 SB2

Input Voltage	Environment	Frequency	Delta
	Temperature (ºC)	(GHz)	(kHz)
Nominal	50	25.0050454	20.26
Nominal	40	25.0050316	6.42
Nominal	30	25.0050160	-9.10
Nominal	**20**	**25.0050251**	**Reference**
Nominal	10	25.0049997	-25.45
Nominal	0	25.0049857	-39.48
Nominal	-10	25.0049785	-46.61
Nominal	-20	25.0049690	-56.09
Nominal	-30	25.0049605	-64.64
115%	20	25.0050235	-1.59
85%	20	25.0049896	-35.50

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8.5.3. FREQUENCY STABILITY n261

Input Voltage	Environment	Frequency	Delta
	Temperature (ºC)	(GHz)	(kHz)
Nominal	50	27.9299796	19.20
Nominal	40	27.9299710	10.68
Nominal	30	27.9299520	-8.33
Nominal	**20**	**27.9299604**	**Reference**
Nominal	10	27.9299308	-29.56
Nominal	0	27.9299242	-36.13
Nominal	-10	27.9299095	-50.81
Nominal	-20	27.9298986	-61.73
Nominal	-30	27.9298797	-80.67
115%	20	27.9299608	0.41
85%	20	27.9299268	-33.54

8.5.4. FREQUENCY STABILITY n260

Input Voltage	Environment	Frequency	Delta
	Temperature (ºC)	(GHz)	(kHz)
Nominal	50	38.5049968	33.39
Nominal	40	38.5049812	17.80
Nominal	30	38.5049634	0.02
Nominal	**20**	**38.5049634**	**Reference**
Nominal	10	38.5048914	-72.01
Nominal	0	38.5049012	-62.16
Nominal	-10	38.5048728	-90.57
Nominal	-20	38.5048736	-89.76
Nominal	-30	38.5048654	-98.00
115%	20	38.5049653	1.94
85%	20	38.5049405	-22.89

The occupied bandwidths (Section 8.1) are smaller than the channel bandwidths by at least 1.76 MHz (98.24 MHz from n258 SB1, 2CC, 50 MHz BW, SISO-Dual, QPSK, Low CH) for all modes of operation, therefore the signal is at least 0.88 MHz from either edge of the channel. As the channels are fully contained within the FCC-allocated bands, and the frequency stability is significantly less than 0.88 MHz, with a maximum frequency shift of 98 kHz (n260 at -30ºC) over the test conditions, the signal is always contained within the allocated channel and band.

9. SETUP PHOTOS

Please refer to 15496249-EP39V1 for setup photos.

END OF REPORT

UL VERIFICATION SERVICES INC
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

APPENDIX A

1. 50 - 75 GHz VDI WR15SAX-F

Serial No.: SAX 954

2. 75 - 110 GHz VDI WR10SAX-F

Serial No.: SAX 955

3. 110 - 170 GHz VDI WR6.5SAX-F

Serial No.: SAX 956

4. 170 - 260 GHz VDI WR4.3SAX-F

Serial No.: SAX 987

Docusign Envelope ID: 220920A2-8696-4628-BD78-124DD1F104B2

Virginia Diodes, Inc
979 2nd St. SE
Suite 309
Charlottesville, VA 22902
Phone: 434-297-3257
Fax: 434-297-3258

Certificate of Conformance

To: UL LLC
47173 Benicia Street
Fremont, CA 94538
United States

From: Virginia Diodes, Inc
979 2nd St. SE
Suite 309
Charlottesville, VA 22902

Packing List No: 243720
Shipping Date: 9/18/2024
Today's Date: 09/18/2024
PO Number: 7862030966

Quantity Shipped	Unit	Description	Order-Job Number
1	EA	RETEST-WR15SAX-F - WR15SAX-F / SN: SAX 954	240422-01
1	EA	RETEST-WR10SAX-F - WR10SAX-F / SN: SAX 955	240422-02
1	EA	RETEST-WR6.5SAX-F - WR6.5SAX-F / SN: SAX 956	240422-03
1	EA	RETEST-WR4.3SAX-F - WR4.3SAX-F / SN: SAX 987	240422-04

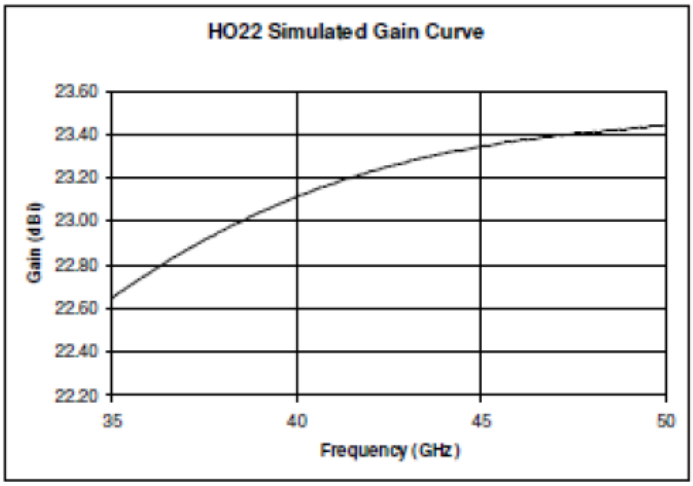
The VDI product(s) in this shipment meet(s) the guidelines for performance specifications established in accordance with the corresponding Purchase Order. Data presented in the User Guide, where applicable, has been obtained in accordance with VDI's Quality Management System. All instruments, used to obtain data, which require calibration have been calibrated with equipment traceable to the National Institute of Standards and Technology (NIST) and through NIST to the International System of Units (SI).

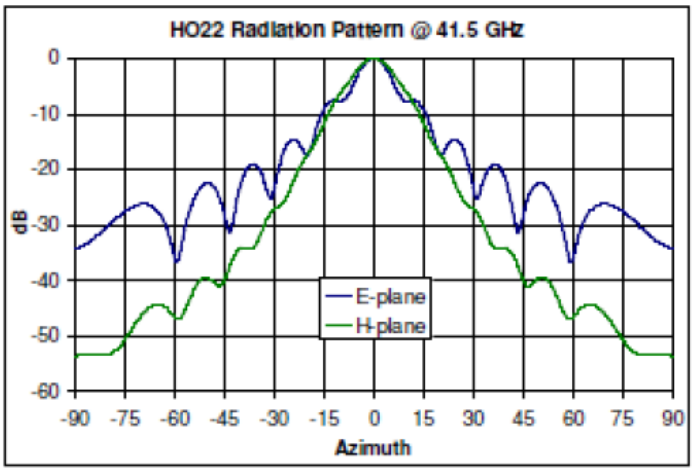
Heather St. Amand

Authorized Signature
Virginia Diodes, Inc

5. 33 - 50 GHz CMI HO22R HORN ANTENNA

24 Boston Court
Longmont, CO 80501
303 651-0707 (P)
303 651-0706 (F)
www.custommicrowave.com





6. 50 - 75 GHz CMI HO15R HORN ANTENNA

custom microwave inc.
24 Boston Court
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303 651-0706(F)
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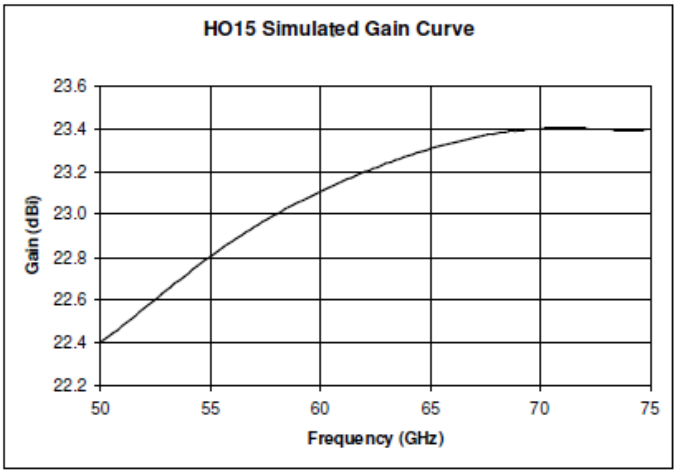

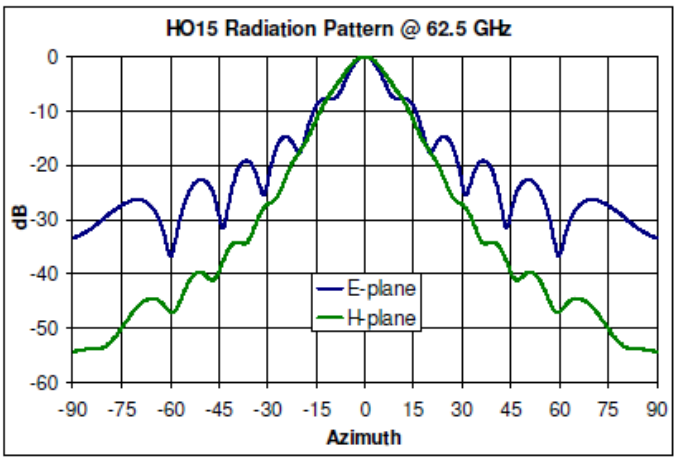

7. 75 - 110 GHz CMI HO10R HORN ANTENNA

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303 651-0706(F)
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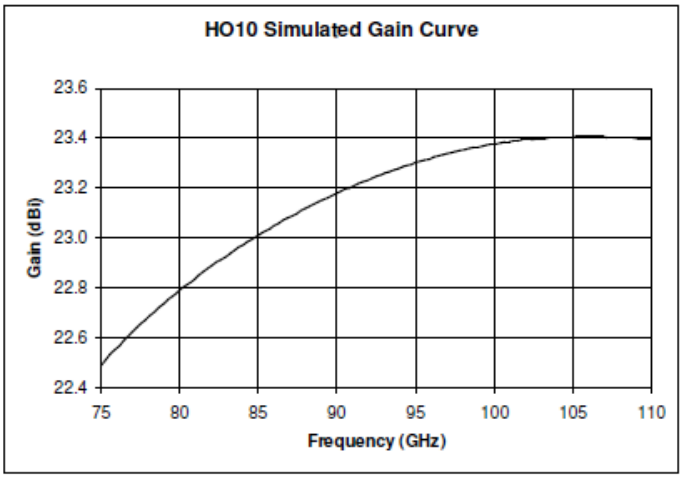

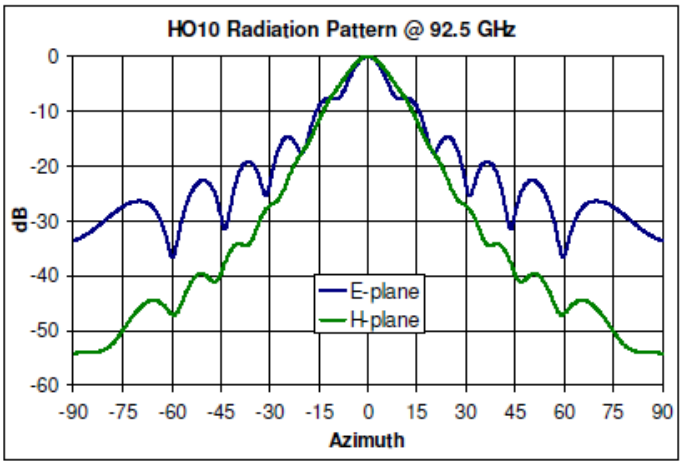

8. 110 - 170 GHz CMI HO6R HORN ANTENNA

24 Boston Court
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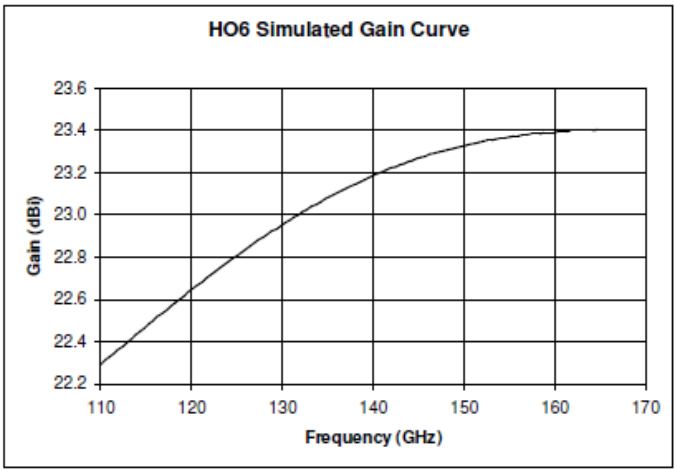

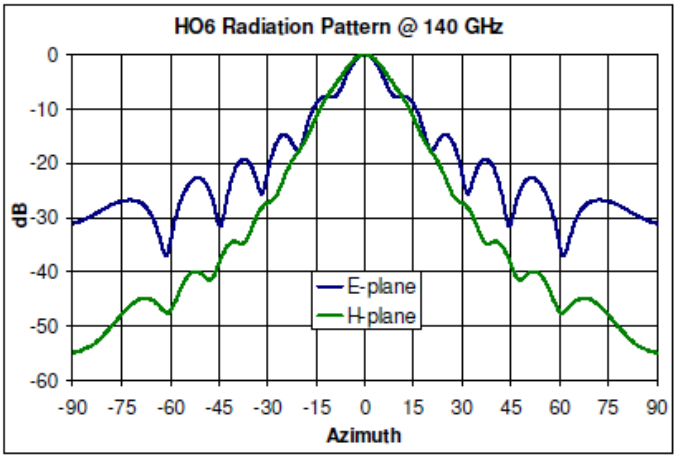

9. 170 - 260 GHz CMI HO4R HORN ANTENNA

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