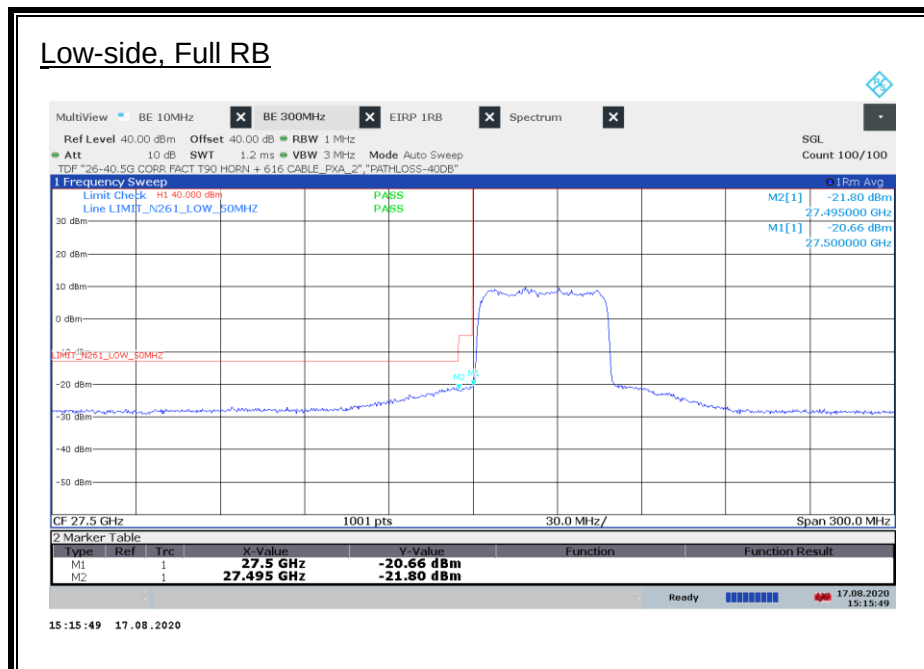
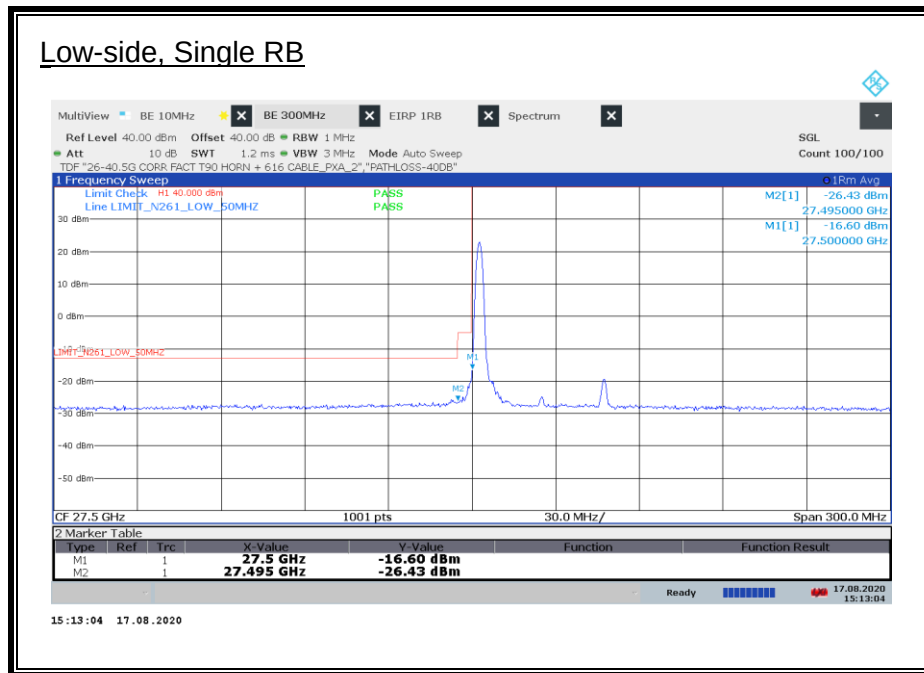


ANT M2, 100 MHz, MIMO, 2CC, QPSK



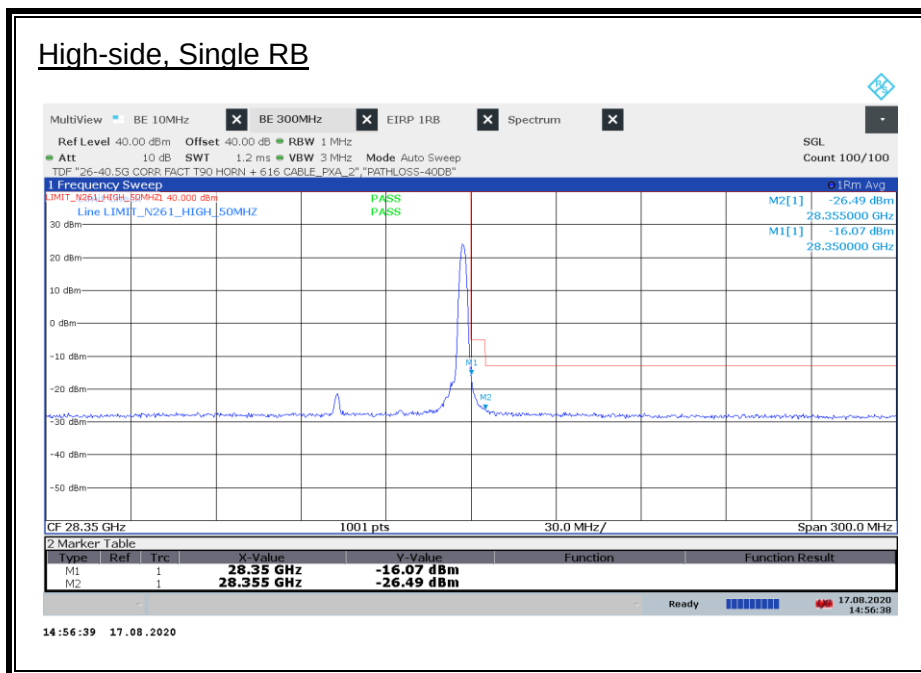
8.3.5. BAND EDGE RESULTS n261 SISO-DUAL 1CC

ANT M1, 50 MHz, SISO-DUAL, 1CC, QPSK

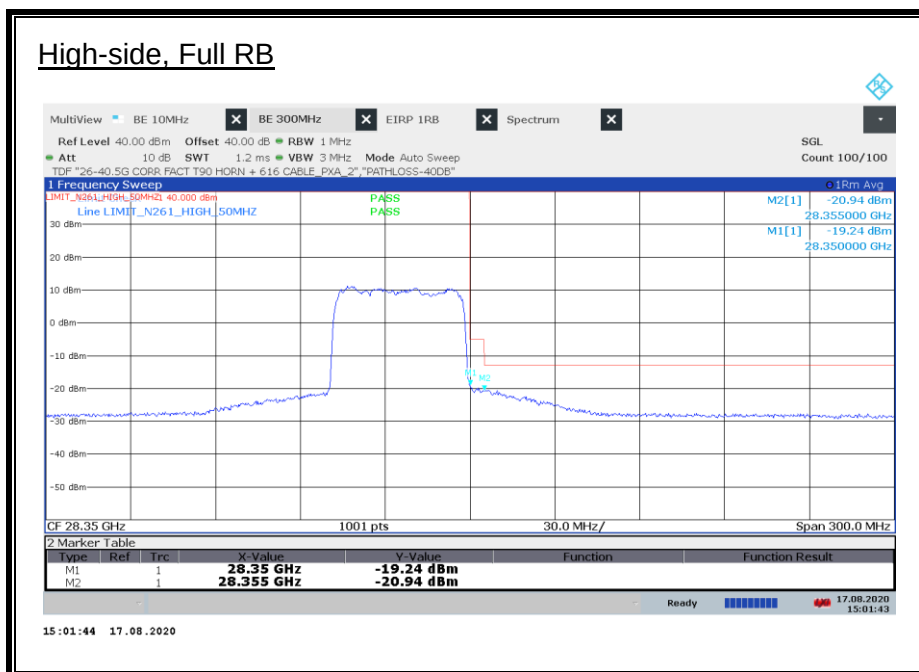


ANT M1, 50 MHz, SISO-DUAL, 1CC, QPSK

High-side, Single RB

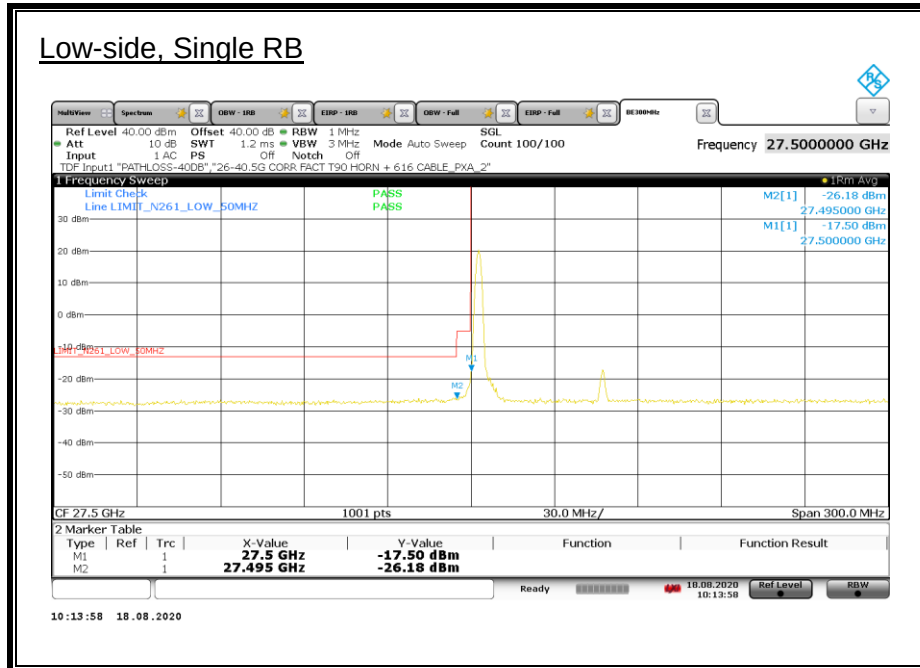


High-side, Full RB

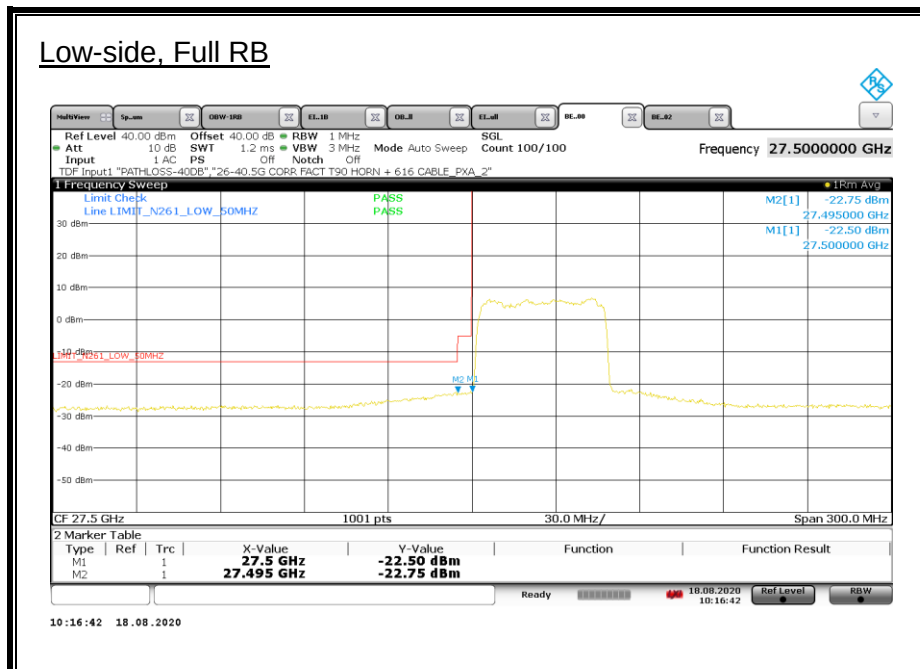


ANT M2, 50 MHz, SISO-DUAL, 1CC, QPSK

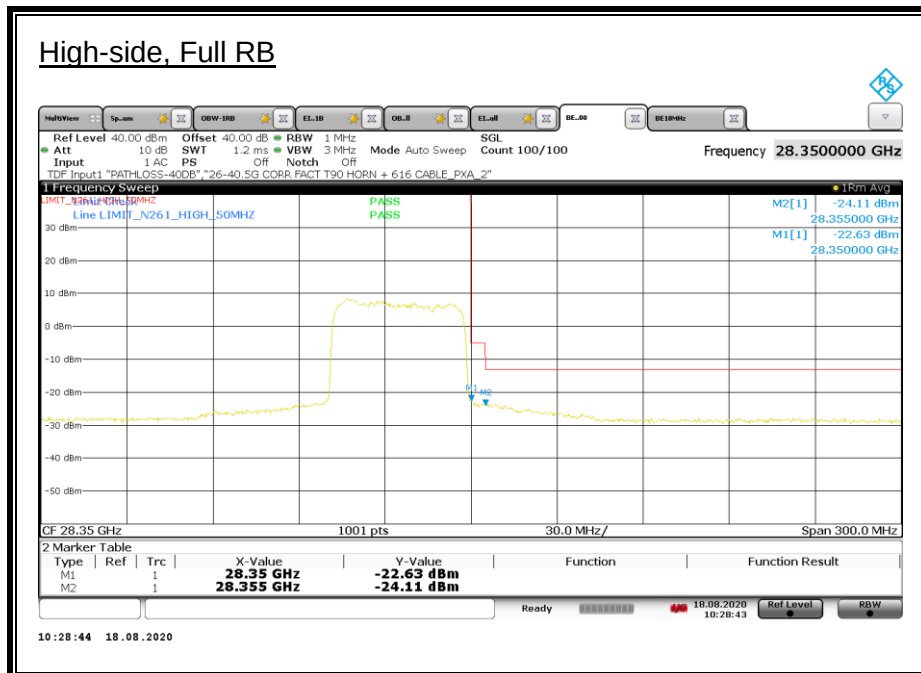
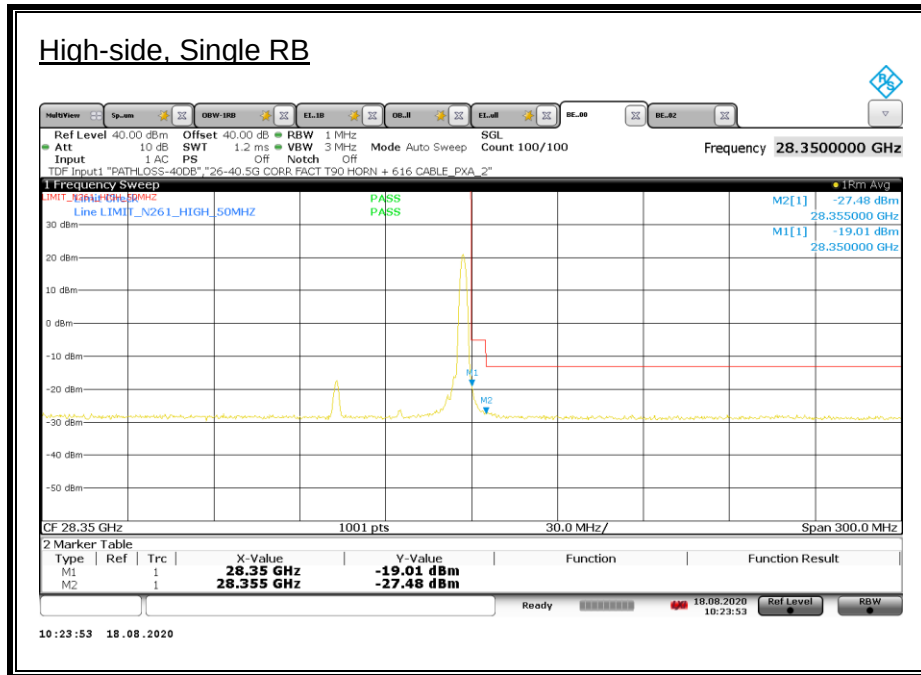
Low-side, Single RB



Low-side, Full RB



ANT M2, 50 MHz, SISO-DUAL, 1CC, QPSK



ANT M1, 100 MHz, SISO-DUAL, 1CC, QPSK

Low-side, Single RB

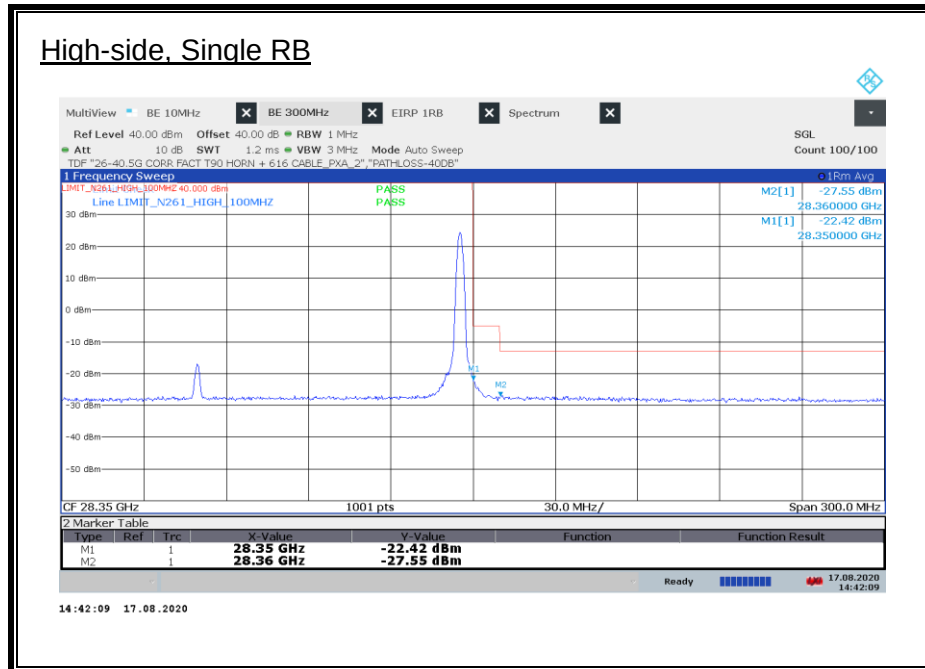


Low-side, Full RB

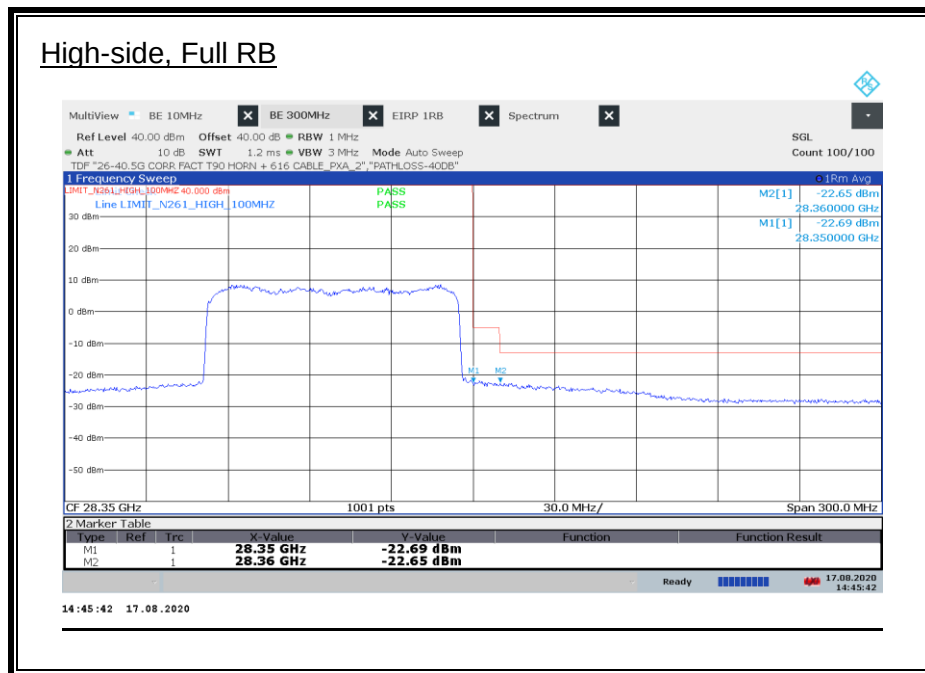


ANT M1, 100 MHz, SISO-DUAL, 1CC, QPSK

High-side, Single RB

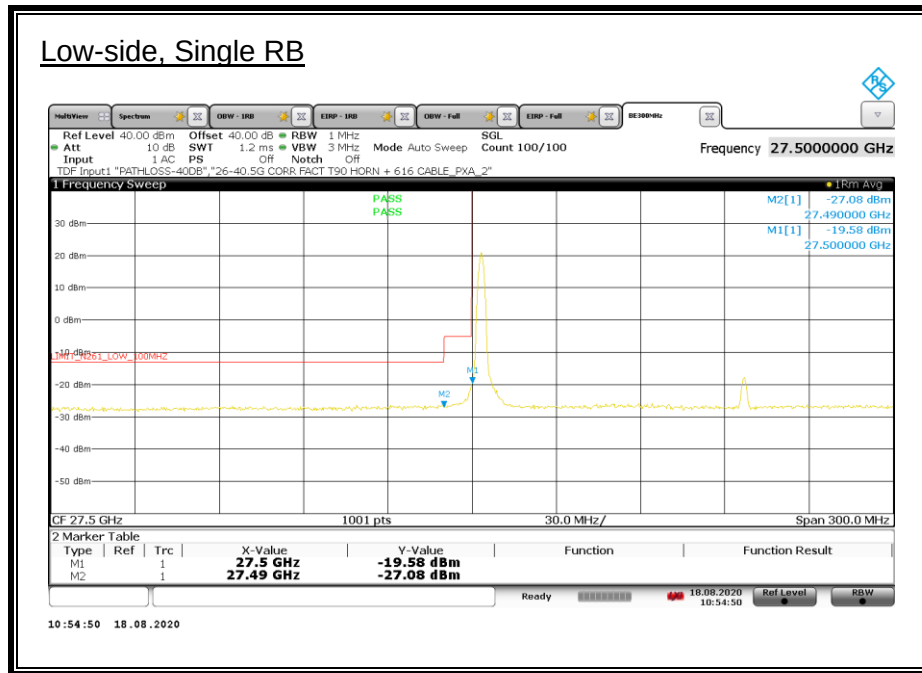


High-side, Full RB

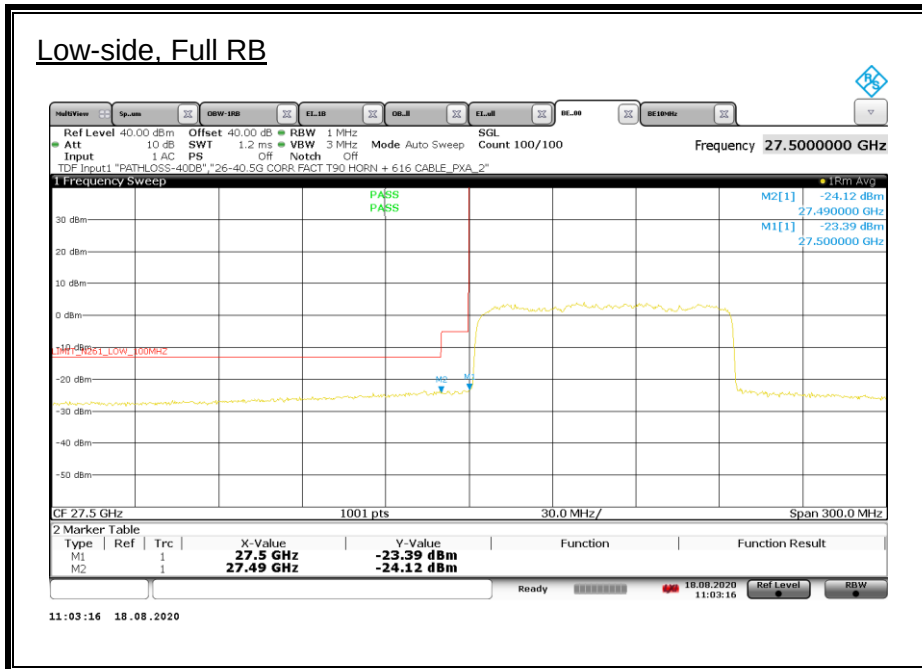


ANT M2, 100 MHz, SISO-DUAL, 1CC, QPSK

Low-side, Single RB

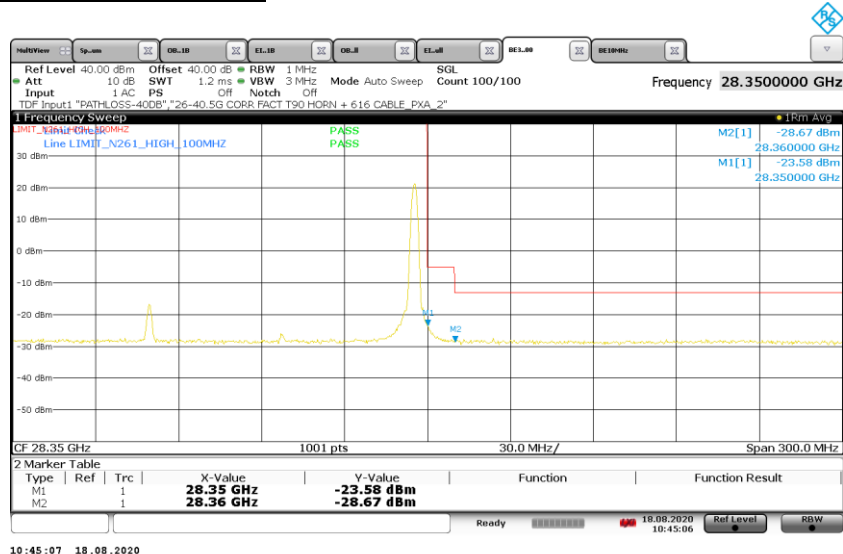


Low-side, Full RB

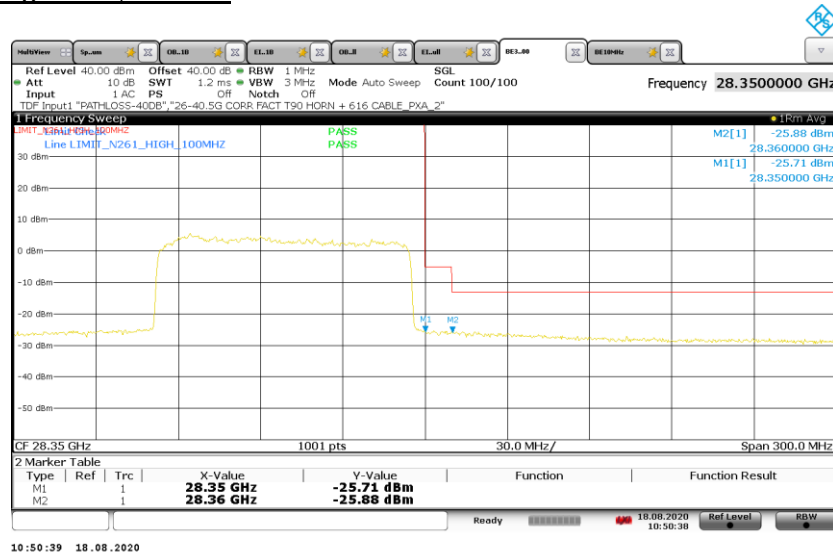


ANT M2, 100 MHz, SISO-DUAL, 1CC, QPSK

High-side, Single RB

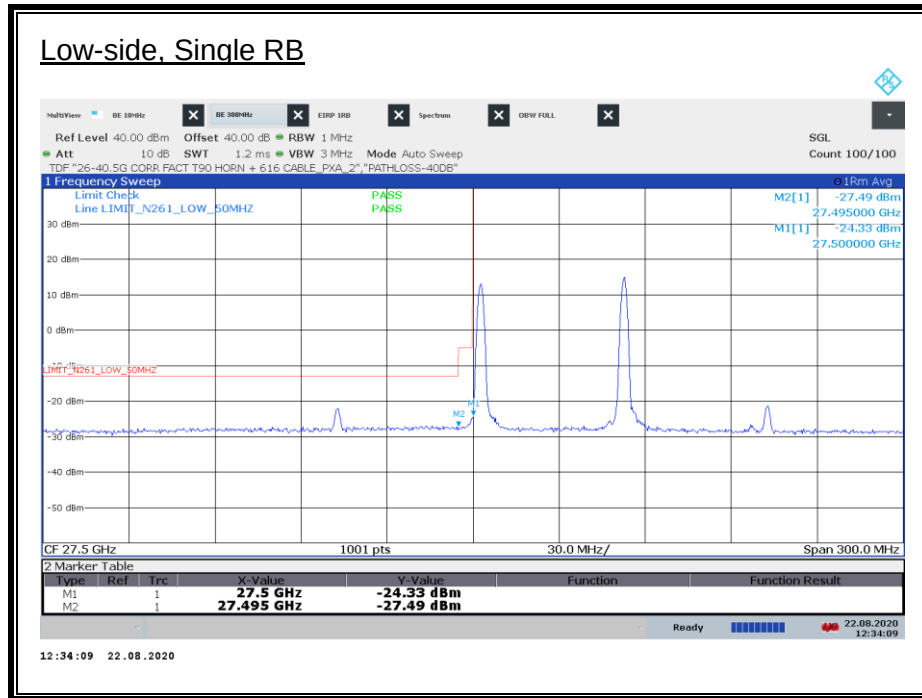


High-side, Full RB



8.3.6. BAND EDGE RESULTS n261 SISO-DUAL 2CC

ANT M1, 50 MHz, SISO-DUAL, 2CC, QPSK



ANT M1, 50 MHz, SISO-DUAL, 2CC, QPSK



ANT M2, 50 MHz, SISO-DUAL, 2CC, QPSK



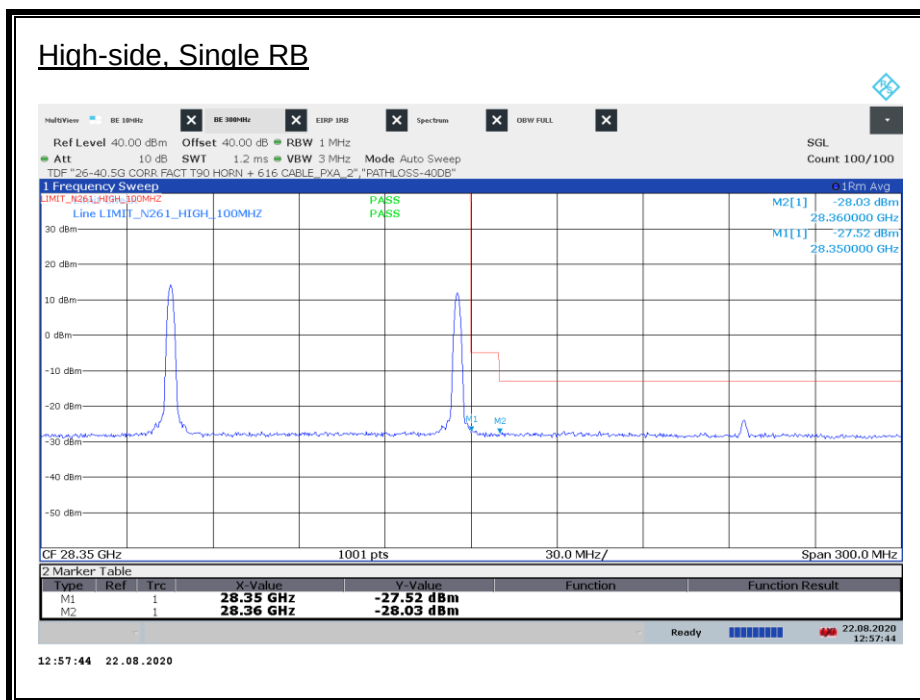
ANT M2, 50 MHz, SISO-DUAL, 2CC, QPSK



ANT M1, 100 MHz, SISO-DUAL, 2CC, QPSK



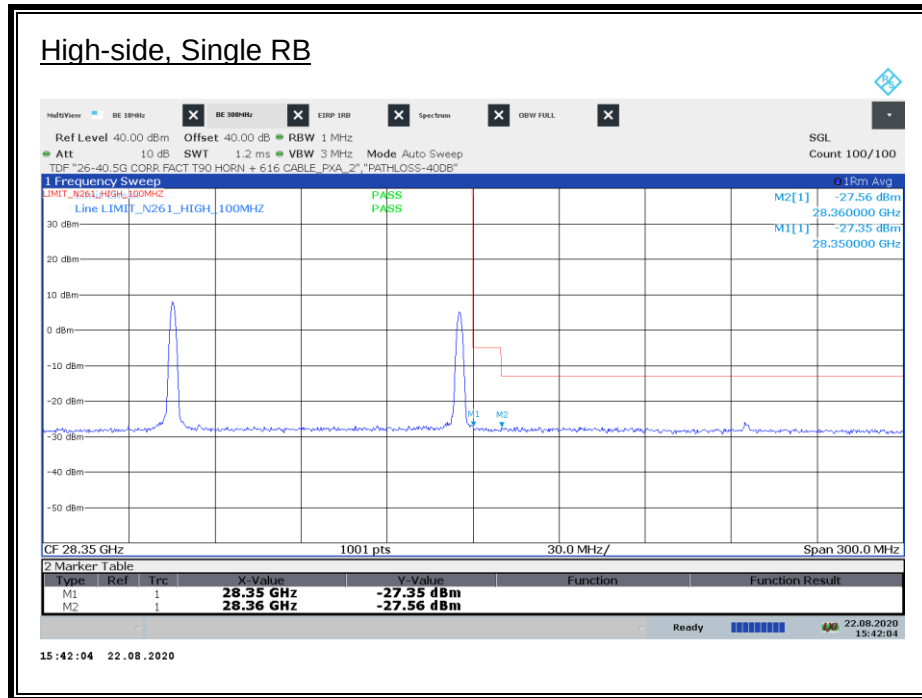
ANT M1, 100 MHz, SISO-DUAL, 2CC, QPSK



ANT M2, 100 MHz, SISO-DUAL, 2CC, QPSK

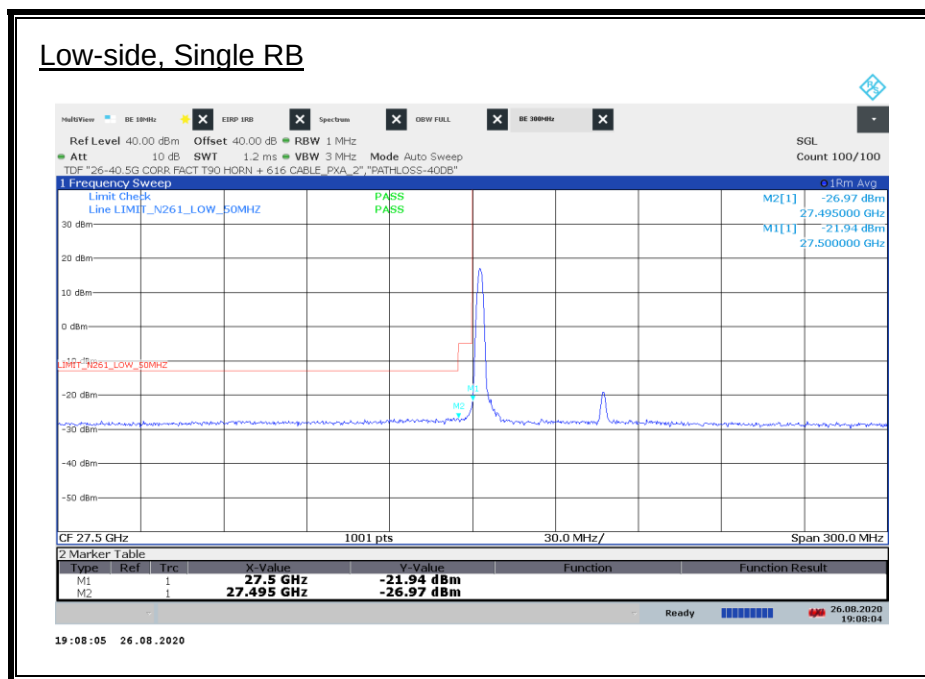


ANT M2, 100 MHz, SISO-DUAL, 2CC, QPSK



8.3.7. BAND EDGE RESULTS n261 MIMO 1CC

ANT M1, 50 MHz, MIMO, 1CC, QPSK



ANT M1, 50 MHz, MIMO, 1CC, QPSK

High-side, Single RB

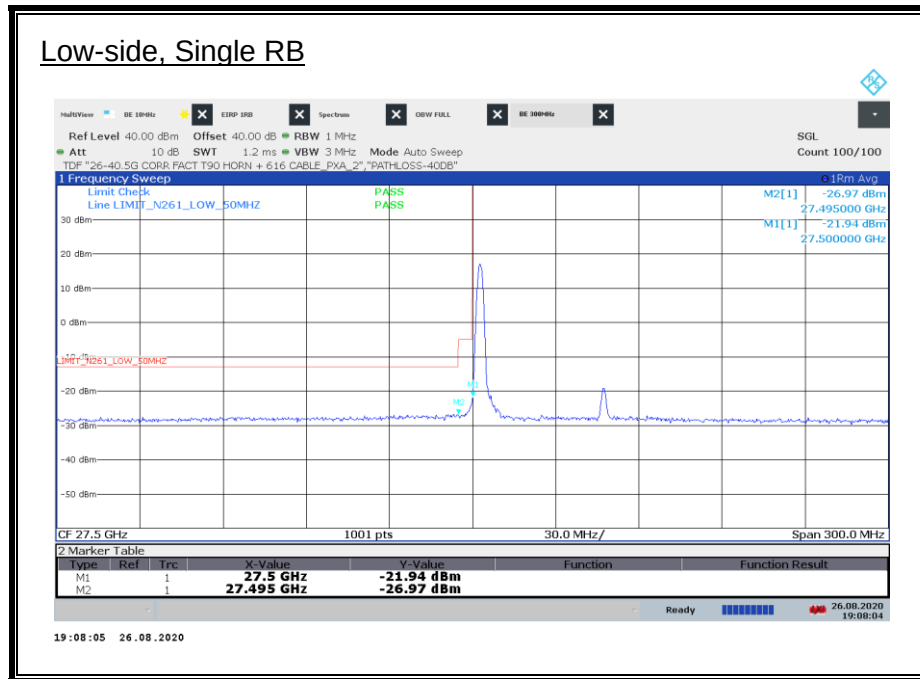


High-side, Full RB



ANT M2, 50 MHz, MIMO, 1CC, QPSK

Low-side, Single RB

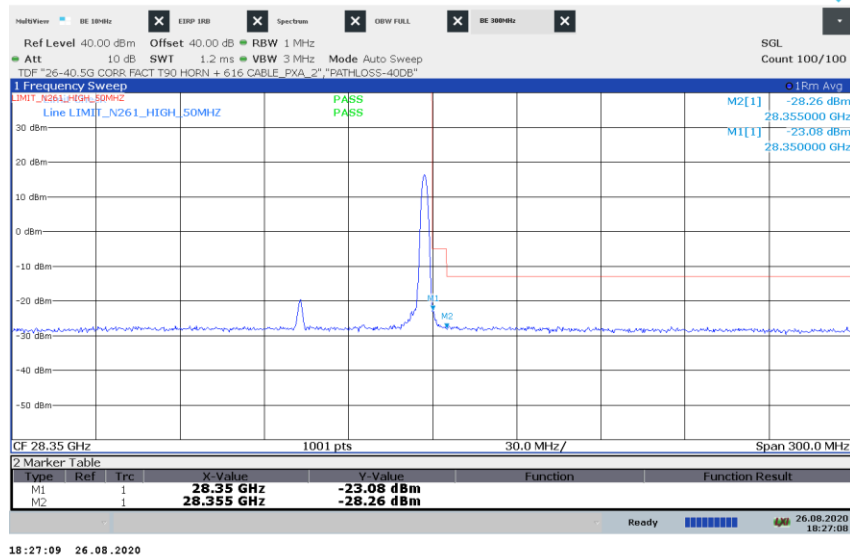


Low-side, Full RB

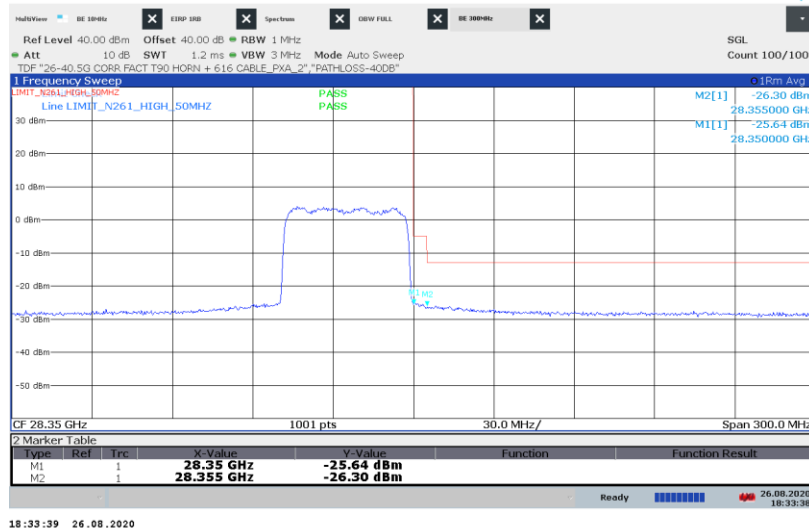


ANT M2, 50 MHz, MIMO, 1CC, QPSK

High-side, Single RB

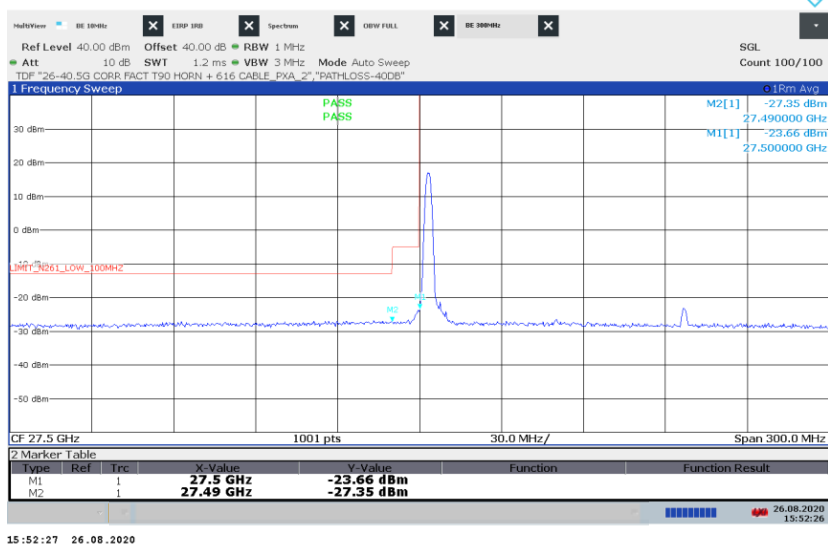


High-side, Full RB



ANT M1, 100 MHz, MIMO, 1CC, QPSK

Low-side, Single RB

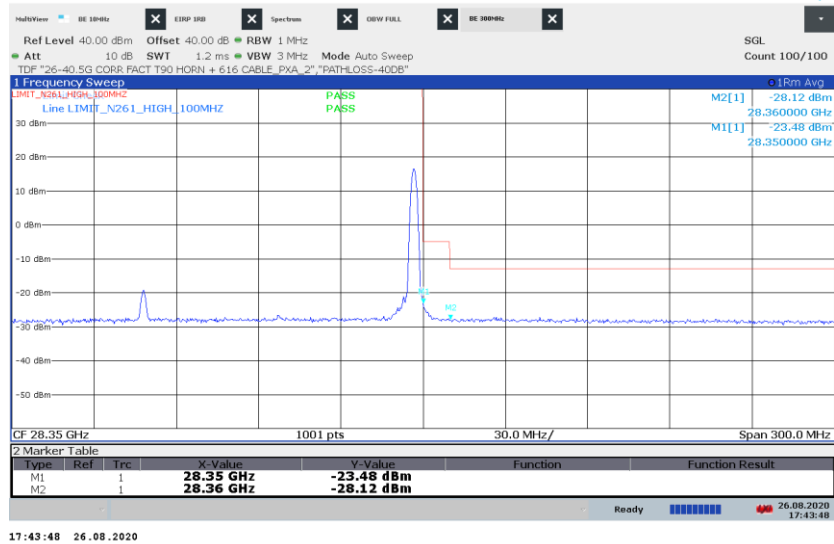


Low-side, Full RB



ANT M1, 100 MHz, MIMO, 1CC, QPSK

High-side, Single RB



High-side, Full RB

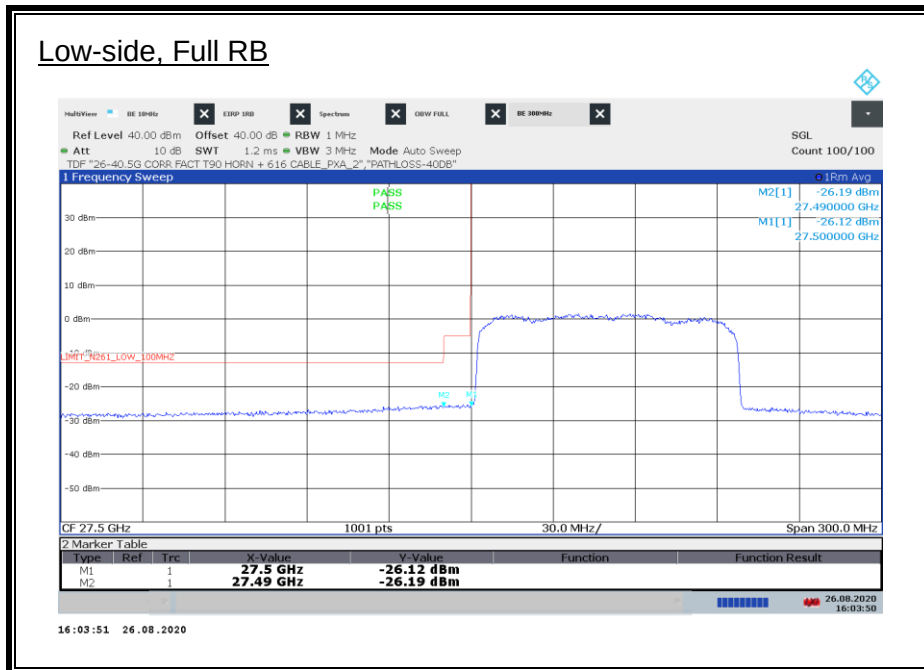


ANT M2, 100 MHz, MIMO, 1CC, QPSK

Low-side, Single RB

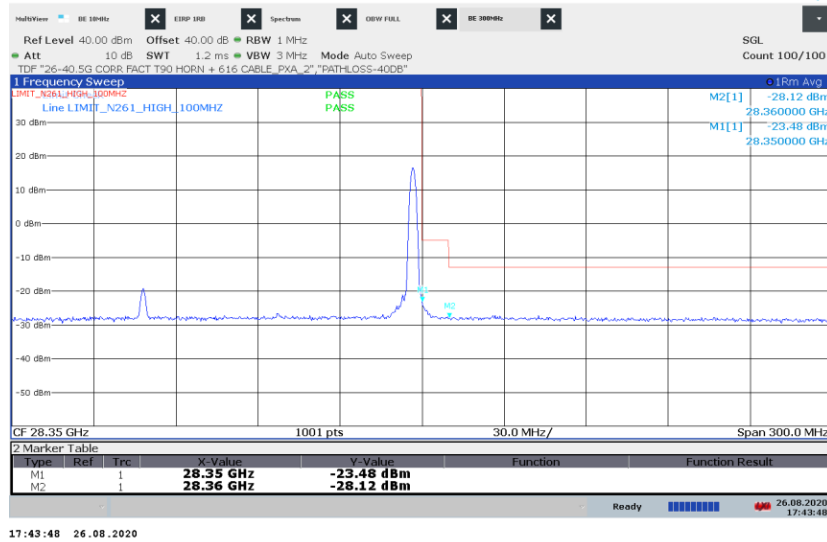


Low-side, Full RB

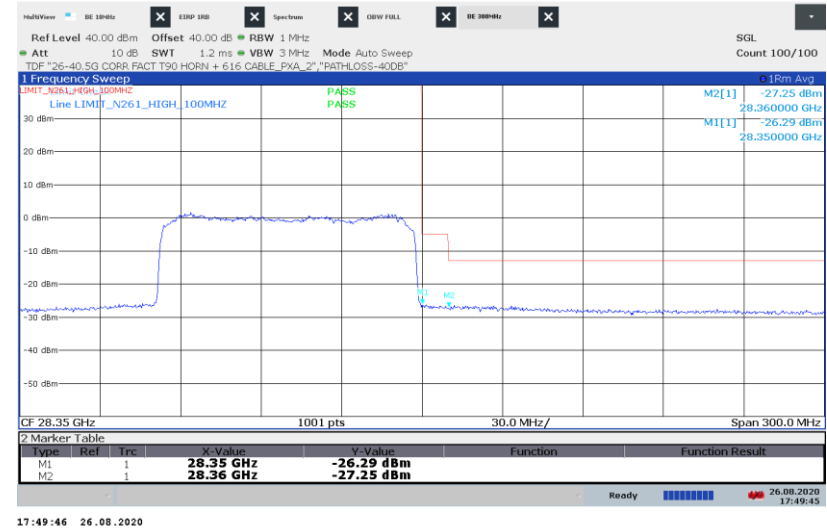


ANT M2, 100 MHz, MIMO, 1CC, QPSK

High-side, Single RB

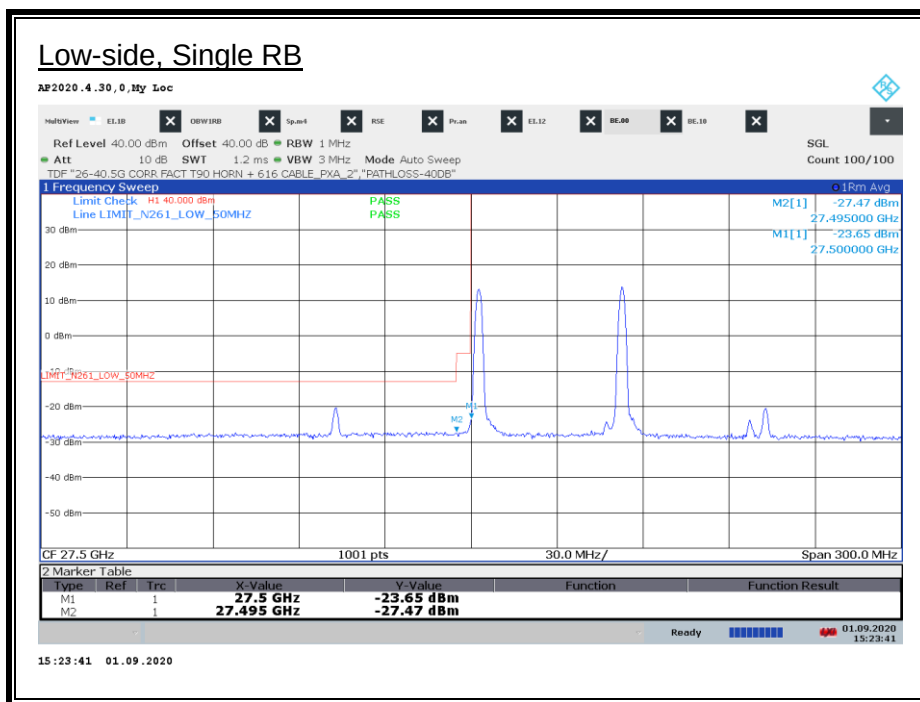


High-side, Full RB



8.3.8. BAND EDGE RESULTS n261 MIMO 2CC

ANT M1, 50 MHz, MIMO, 2CC, QPSK



ANT M1, 50 MHz, MIMO, 2CC, QPSK



ANT M2, 50 MHz, MIMO, 2CC, QPSK



ANT M2, 50 MHz, MIMO, 2CC, QPSK



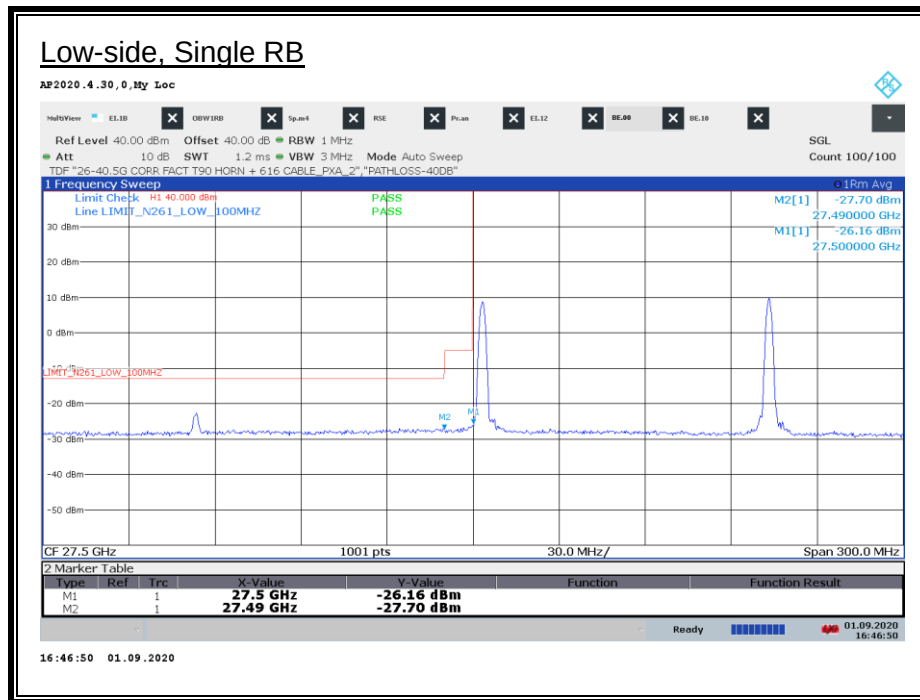
ANT M1, 100 MHz, MIMO, 2CC, QPSK



ANT M1, 100 MHz, MIMO, 2CC, QPSK



ANT M2, 100 MHz, MIMO, 2CC, QPSK



ANT M2, 100 MHz, MIMO, 2CC, QPSK



8.4. RADIATED SPURIOUS EMISSIONS

RULE PART(S)

FCC: §2.1051, §30.203

LIMIT

30.203 - (a) The conductive power or the total radiated power of any emission outside a licensee's frequency block shall be -13 dBm/MHz or lower.

TEST PROCEDURE

KDB 842590 D01 Upper Microwave Flexible Use Service v01 Section 4.4.2 and Section 4.4.3. ANSI C63.26-2015 Clause 5.5.4 and Annex C.5.2.

All radiated spurious emissions were measured as EIRP to compare with the §30.203 TRP limits to demonstrate compliance.

RSE was investigated from 30 MHz – 100 GHz on n261 band and 30 MHz – 200 GHz on n260 band.

Plots below 18 GHz are corrected field strength levels, measured at 3 meter test distance. The average EIRP reported below is calculated per section 5.2.7 of ANSI C63.26-2015 which states: $EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m. The field strength E is calculated $E (dB\mu V/m) = \text{Spectrum Analyzer Level (dBm)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} + 107$. All appropriate Antenna Factor and Cable Loss have been applied in the spectrum analyzer for each measurement.

RSEs above 18 GHz were measured at the appropriate far field distances listed on Section 5 on this report (FAR-FIELD DISTANCE AND MEASUREMENT DISTANCE). Then, the EIRP of RSE was calculated using the equations on ANSI C63.26-2015 Annex C.5.2, as described on Sections 8.2 and 8.3.

RSEs from 18 – 50 GHz were measured using a spectrum analyzer or EMI receiver with an internal preamplifier when applicable. Emissions above 50 GHz were measured using a harmonic mixer with spectrum analyzer, while an external LNA was used when applicable.

RSEs from 1 – 200 GHz were measured at 1.5 meters height.

All RSEs were measured for the configuration with the highest EIRP (SISO-Dual antenna configuration with QPSK modulation and a single RB) as representing the worst case. Preliminary radiated emissions tests on the low, middle and high channels indicated that the worst case radiated spurious emissions were on the channel with the highest power and so only the test data for that channel is included in this report.

As the single RB with 1CC mode has the highest power and is the same for all channel bandwidths, therefore the single RB with 1CC for the narrowest channel bandwidth was used as the worst case for purposes of RSE measurements.

The following worst case EIRP 1CC modes were used at tests at the pre-determined worst case y-axis (portrait) orientation:

n260 band:

Ant M1: SISO-Dual_QPSK_50 MHz_Mid CH, RB Offset 1/15 (1RB_M)

Ant M2: SISO-Dual_QPSK_100 MHz_Mid CH, RB Offset 1/32 (1RB_M)

n261 band:

Ant M1: SISO-Dual_QPSK_100 MHz_Mid CH, RB Offset 1/15 (1RB_M)

Ant M2: SISO-Dual_QPSK_100 MHz_Low CH, RB Offset 1/32 (1RB_M)

In addition, the 2CC multi-carrier operations were verified for IMD product at the near upper and lower band edge regions. The measurements were made with the single RB active in each channel and plots showing the IMD product are provided. Both (50 MHz + 50 MHz) and (100 MHz + 100 MHz) channel bandwidths are tested and the signal level of the IMD products are similar for both modes. The test data for the worst case IMD emissions are reported.

Where the measured EIRP value is within 2 dB of the limit, a TRP measurement is made, otherwise the EIRP value is compared with the §30.203 TRP limits to demonstrate compliance.

For simultaneous transmission of multiple channels in the UWB, Wi-Fi bands, 5G FR2 bands and BT band, no noticeable new emission was found.

RESULTS

See the following pages.

TESTED BY:

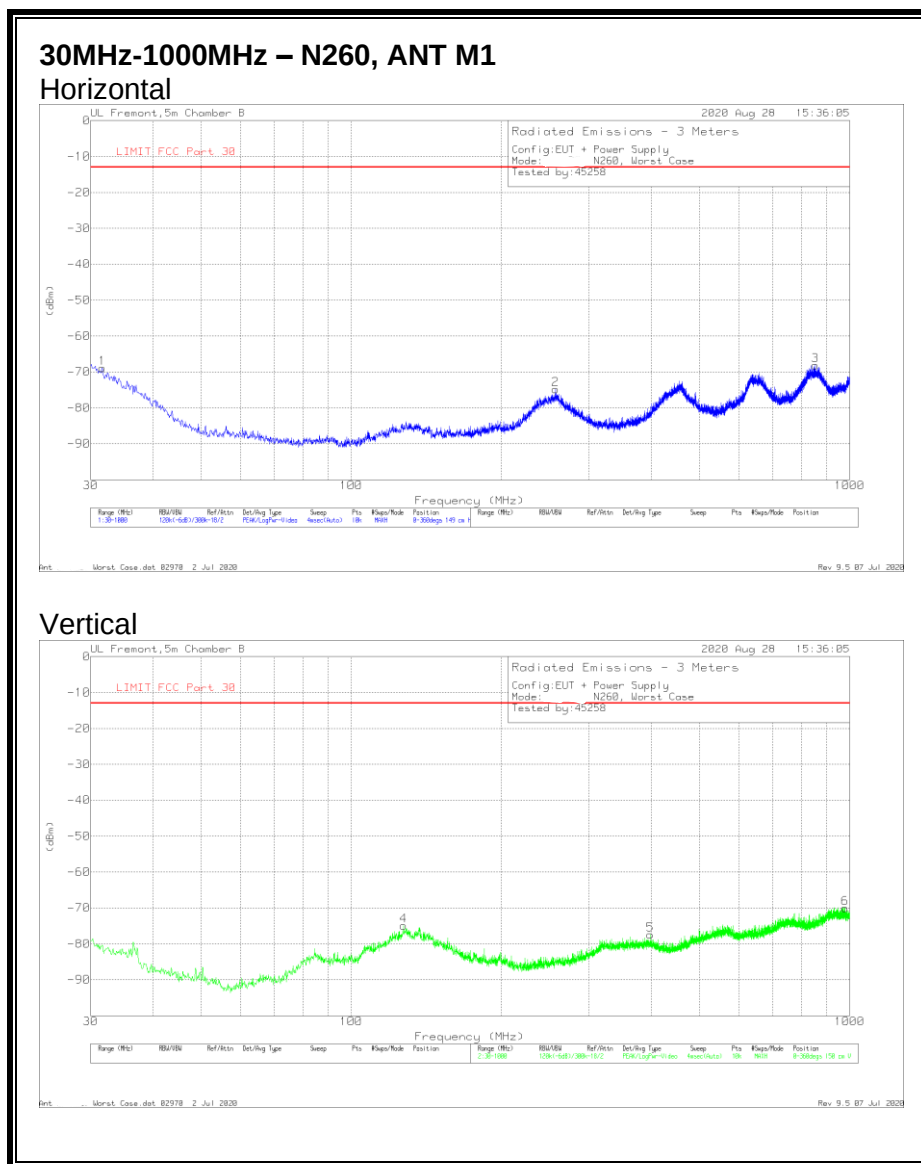
Below 18 GHz Test Site: Chamber B

Above 18 GHz:

Employee IDs: 19296 & 24160, n261 band, Chamber 2

Employee IDs: 19470 & 19437, n260 band, Chamber 3

8.4.1. RADIATED EMISSIONS 30 MHz - 1 GHz n260



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	AF T407 (dBm)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT FCC Part 30 (dBm/MHz)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	31.649	-79.5	Pk	25.8	-31.4	16.2	-68.9	-13	-55.9	0-360	149	H
4	127.388	-79.12	Pk	19.7	-30.4	14.9	-74.92	-13	-61.92	0-360	150	V
2	257.077	-78.99	Pk	17.6	-29.7	16.3	-74.79	-13	-61.79	0-360	149	H
5	398.115	-78.95	Pk	21.3	-29.2	9.4	-77.45	-13	-64.45	0-360	150	V
3	853.918	-79.73	Pk	27.8	-27.3	11.1	-68.13	-13	-55.13	0-360	149	H
6	978.854	-80.94	Pk	28.9	-25.9	7.9	-70.04	-13	-57.04	0-360	150	V

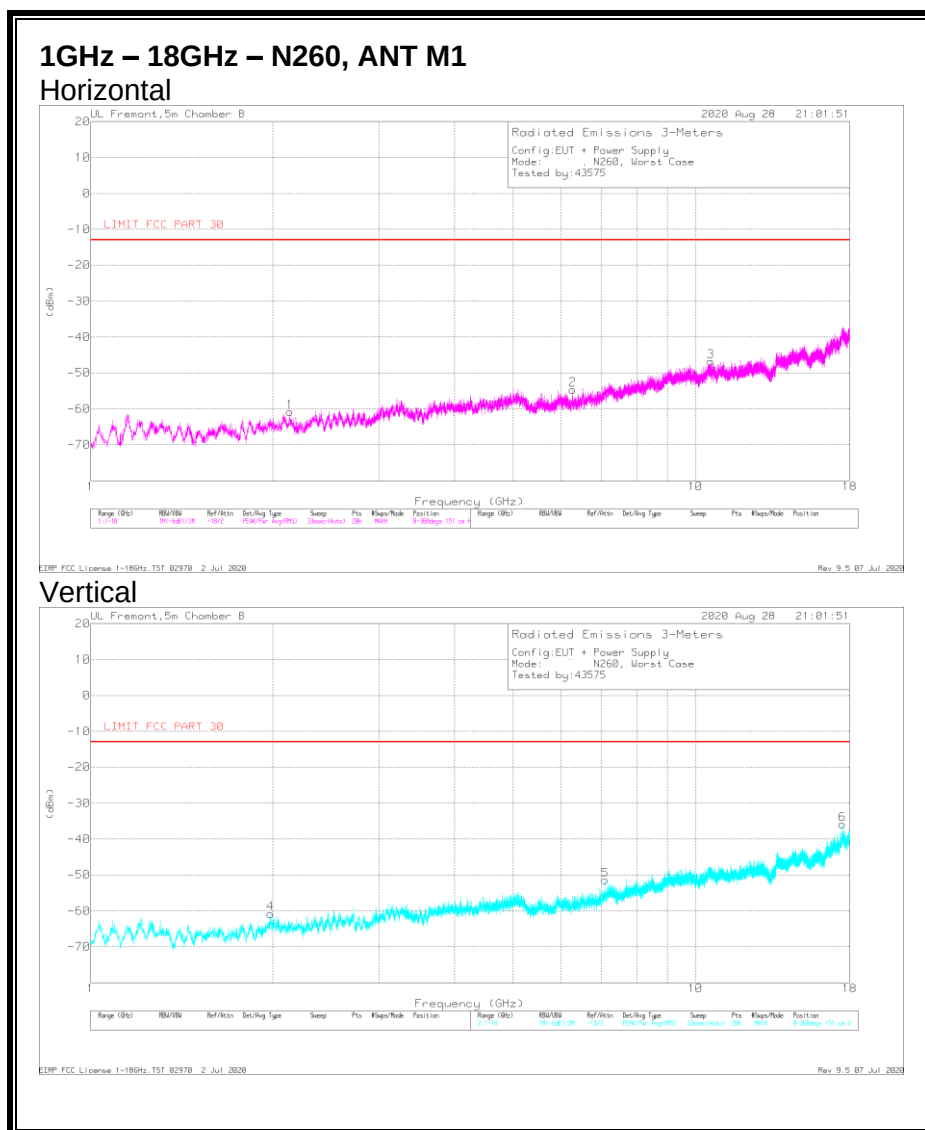
Pk - Peak detector
Rev 9.5 07 Jul 2020



Marker	Frequency (MHz)	Meter Reading (dBm)	Det	AF T407 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT FCC Part 30 (dBm/MHz)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.776	-79.75	Pk	26.5	-31.4	16.8	-67.85	-13	-54.85	0-360	150	H
4	128.746	-79.21	Pk	19.6	-30.4	15.1	-74.91	-13	-61.91	0-360	150	V
2	646.435	-80.21	Pk	25.7	-28.6	12	-71.11	-13	-58.11	0-360	150	H
5	752.747	-80.19	Pk	26.5	-28	8.9	-72.79	-13	-59.79	0-360	150	V
3	848.292	-81.01	Pk	27.7	-27.4	11	-69.71	-13	-56.71	0-360	150	H
6	935.398	-81.31	Pk	28.4	-26.3	8.7	-70.51	-13	-57.51	0-360	150	V

UL VERIFICATION SERVICES INC FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

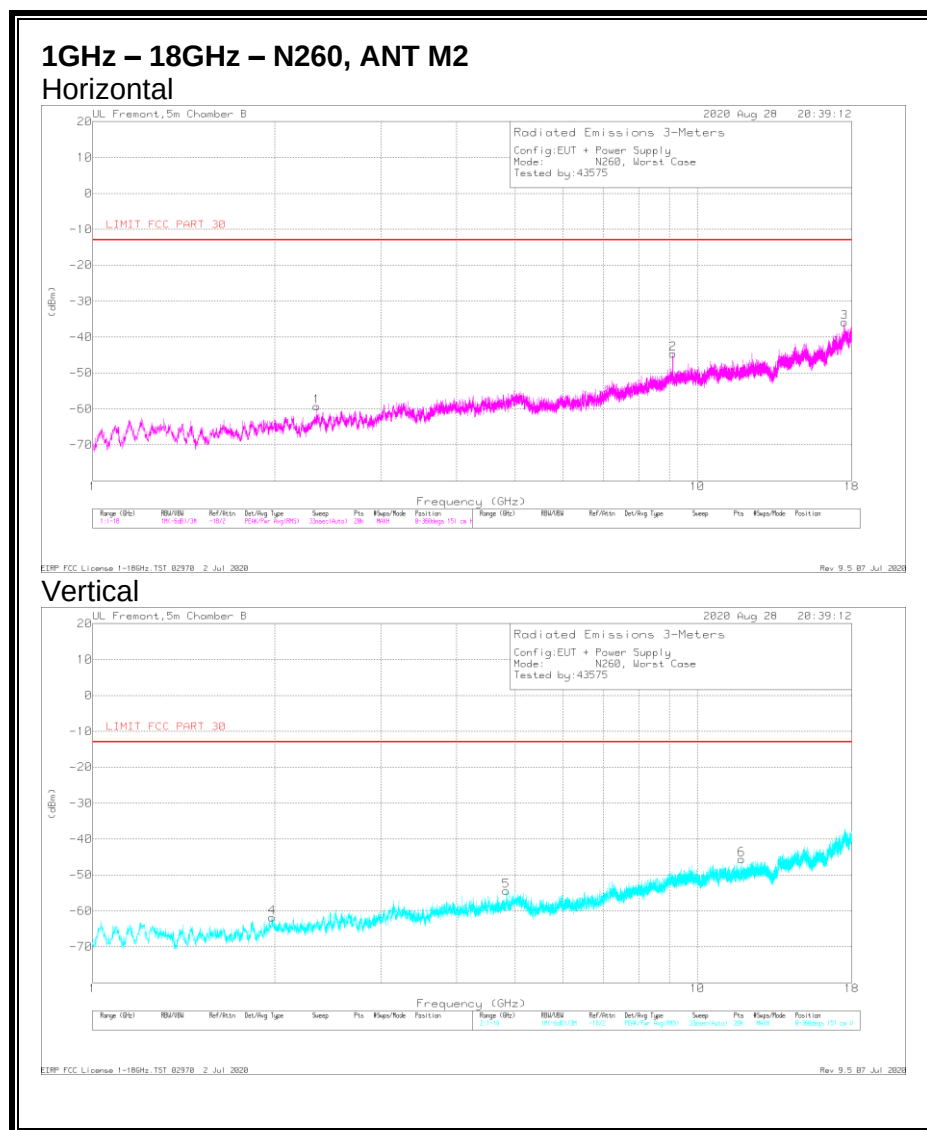
8.4.2. RADIATED EMISSIONS 1-18 GHz n260



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT FCC Part 30 (dBm/MHz)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	1.98265	-69.58	Pk	27.3	-29.9	11.4	-60.78	-13	-47.78	0-360	151	V
1	2.13651	-69.81	Pk	26.9	-29.6	11.7	-60.81	-13	-47.81	0-360	151	H
2	6.26772	-71.23	Pk	34.5	-25.1	7.2	-54.63	-13	-41.63	0-360	151	H
5	7.09056	-71.99	Pk	36.7	-23.6	7.5	-51.39	-13	-38.39	0-360	151	V
3	10.61229	-74.89	Pk	39.5	-19.6	8.2	-46.79	-13	-33.79	0-360	151	H
6	17.51549	-74.47	Pk	42.8	-16.4	12.2	-35.87	-13	-22.87	0-360	151	V

Pk - Peak detector
Rev 9.5 07 Jul 2020

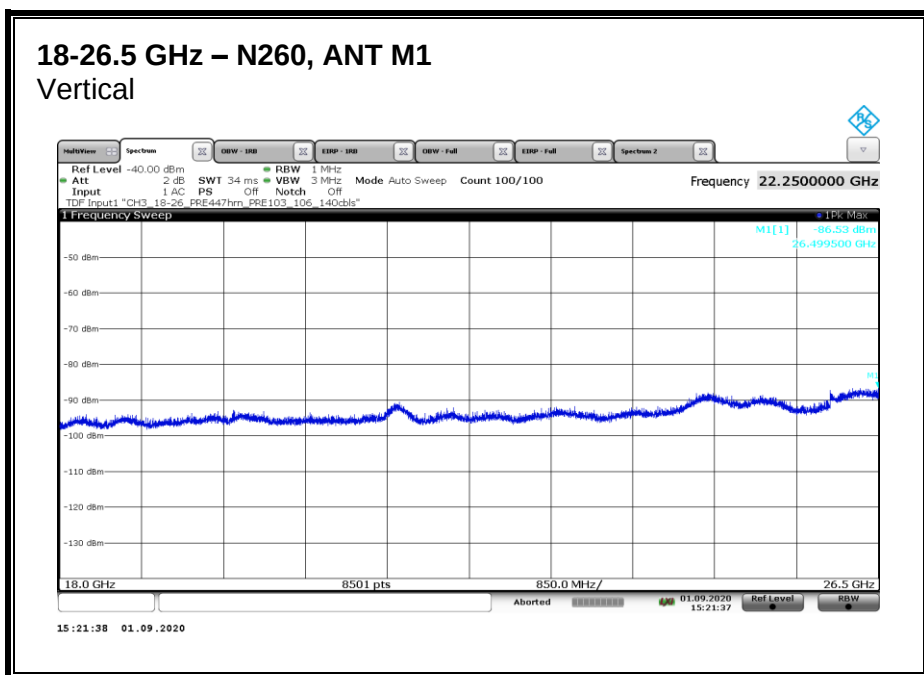
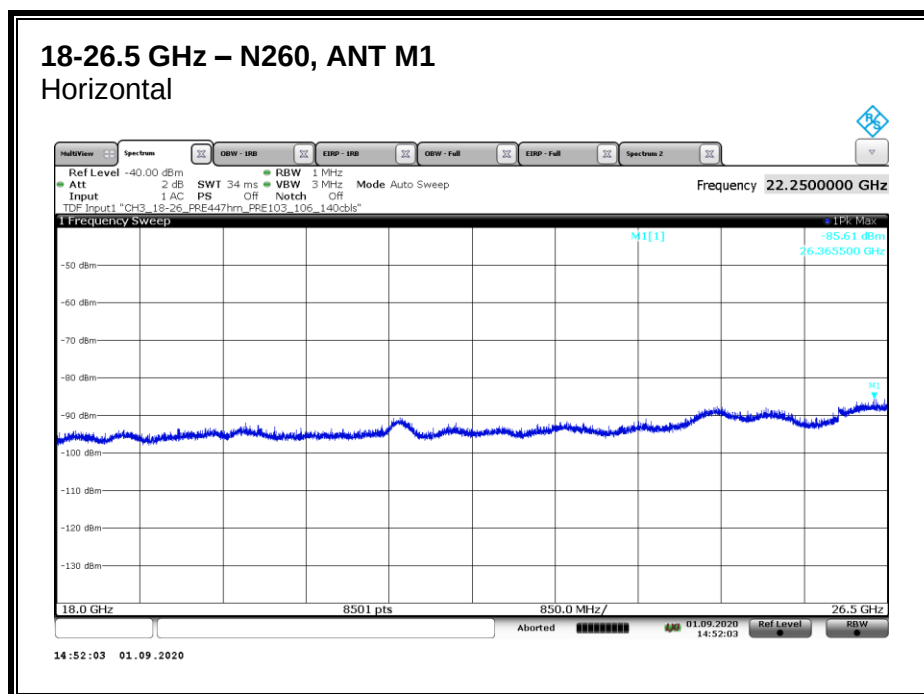


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT FCC Part 30 (dBm/MHz)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	1.97925	-70.57	Pk	27.3	-29.9	11.3	-61.87	-13	-48.87	0-360	151	V
1	2.34817	-67.88	Pk	28	-29.5	10.1	-59.28	-13	-46.28	0-360	151	H
5	4.83199	-69.65	Pk	33.1	-27	9.1	-54.45	-13	-41.45	0-360	151	V
2	9.11026	-69.99	Pk	38.7	-21.2	7.8	-44.69	-13	-31.69	0-360	151	H
6	11.8372	-73.77	Pk	39.3	-20	8.8	-45.67	-13	-32.67	0-360	151	V
3	17.52144	-74.53	Pk	42.9	-16.4	12.2	-35.83	-13	-22.83	0-360	151	H

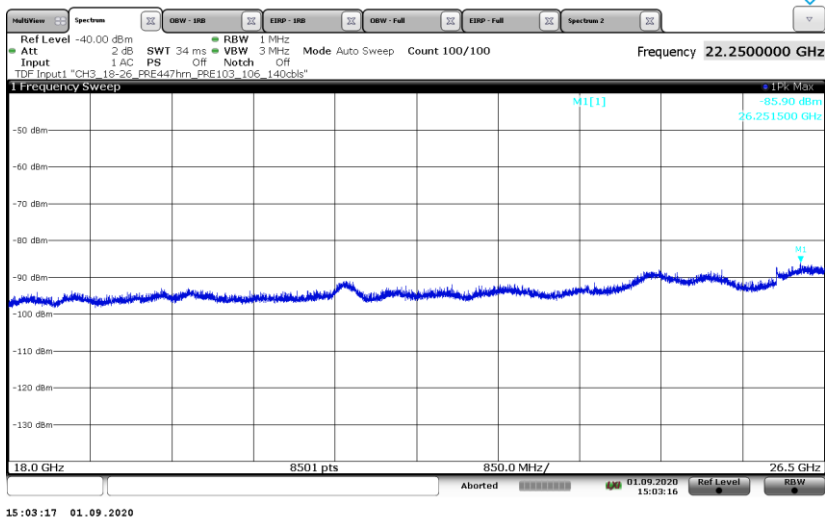
EIRP FCC License 1-18GHz.TST 02970 2 Jul 2020
Rev 9.5 07 Jul 2020

8.4.3. RADIATED EMISSIONS 18-26.5 GHz n260

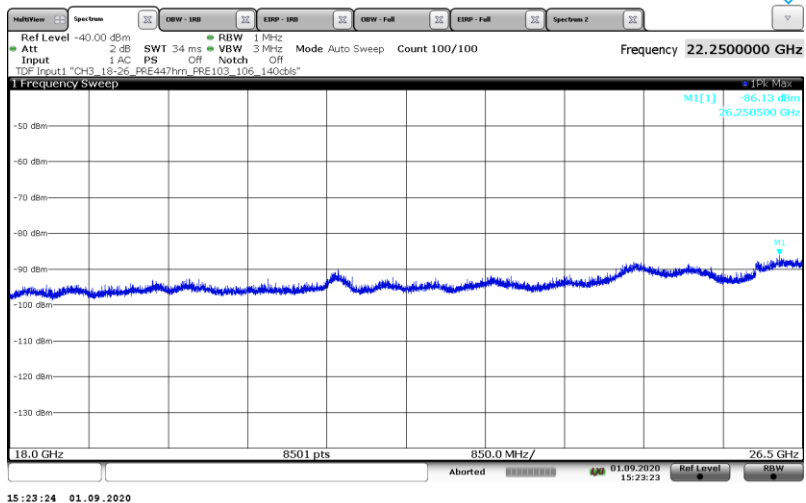


No Emission using Peak Detection.

18-26.5 GHz – N260, ANT M2
Horizontal



18-26.5 GHz – N260, ANT M2
Vertical

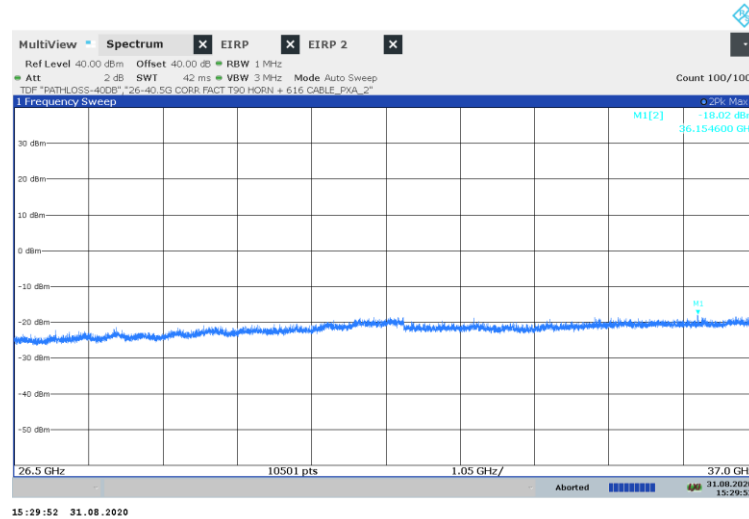


No Emission using Peak Detection.

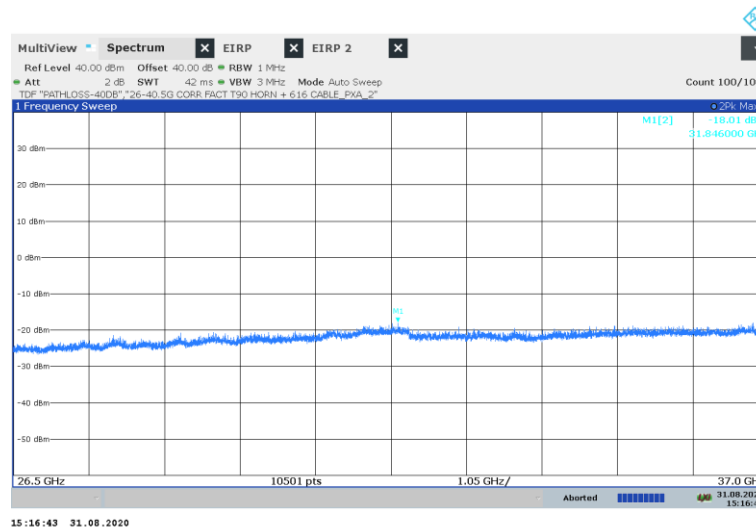
8.4.4. RADIATED EMISSIONS 26.5-37 GHz n260

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

26.5-37 GHz – N260, ANT M1 Horizontal

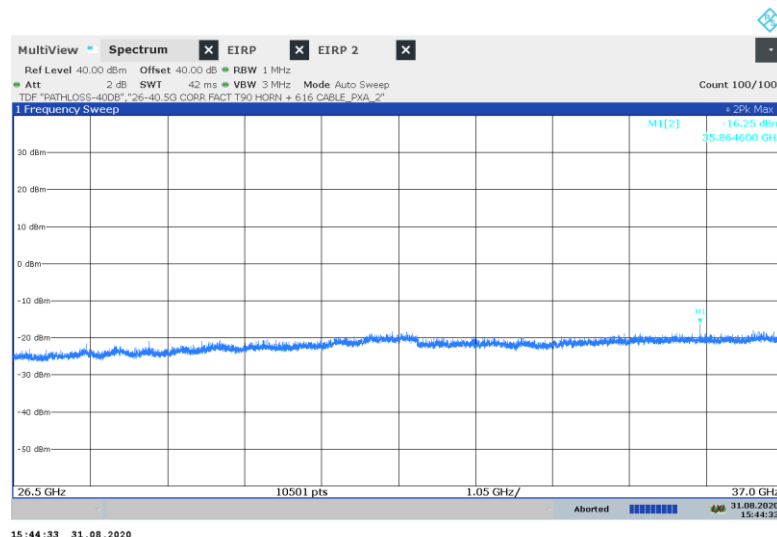


26.5-37 GHz – N260, ANT M1 Vertical

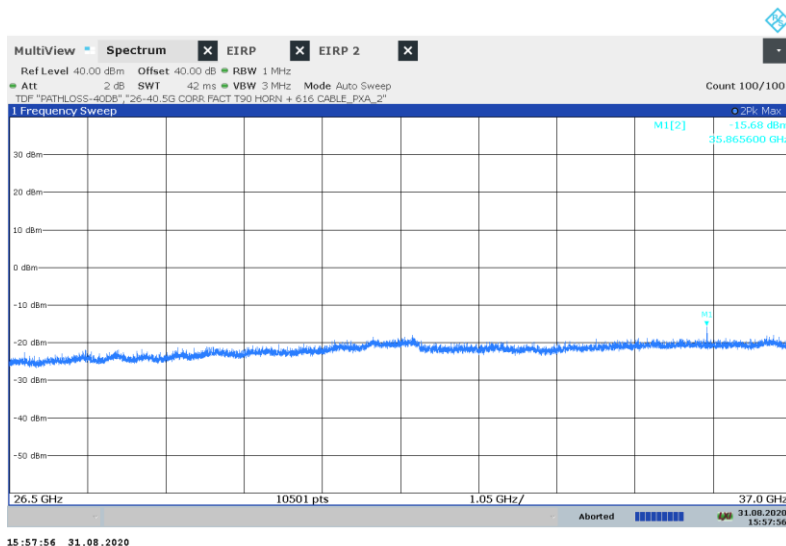


No Emission using Peak Detection.

26.5-37 GHz – N260, ANT M2 Horizontal



26.5-37 GHz – N260, ANT M2 Vertical

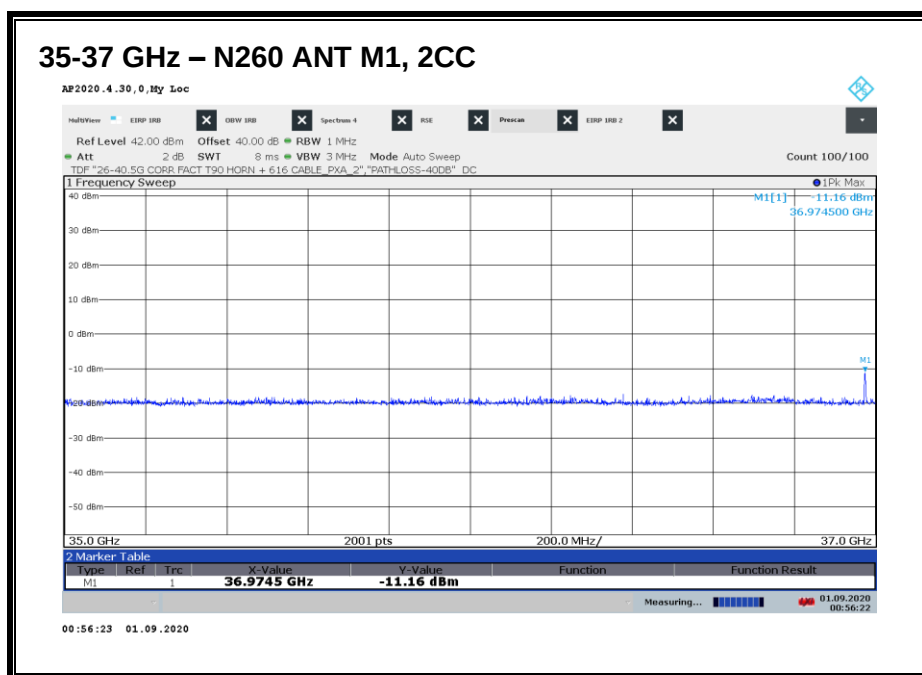


Emissions detected using Peak Detection. Avg EIRP was measured.

26.5-35 GHz n260

EIRP Results

Antenna	Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
	(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
M2	35.863	3	H	-24.67	-13	-11.67
M2	35.863	3	V	-25.56	-13	-12.56



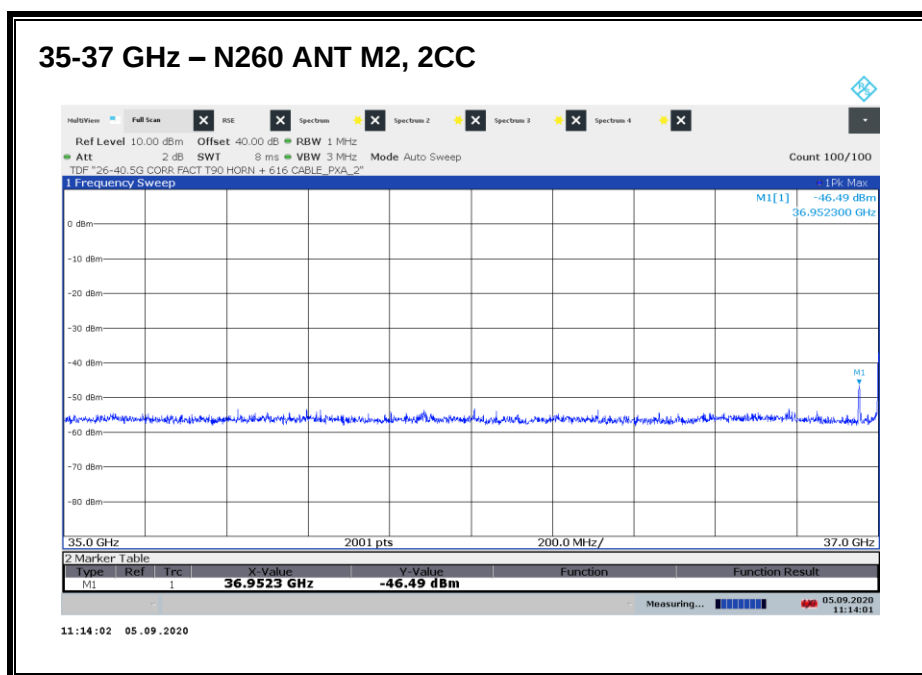
Emission detected using Peak Detection. Avg EIRP was measured.

EIRP RESULTS, 2CC

Worst case configuration:

SISO-DUAL_QPSK_(50 MHz + 50 MHz)_Low CH_RB Offset 1/0 (1RB-L)

Antenna	Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
	(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
M1	36.9741	3	H	-23.29	-13	-10.29



Emission detected using Peak Detection. Avg EIRP was measured.

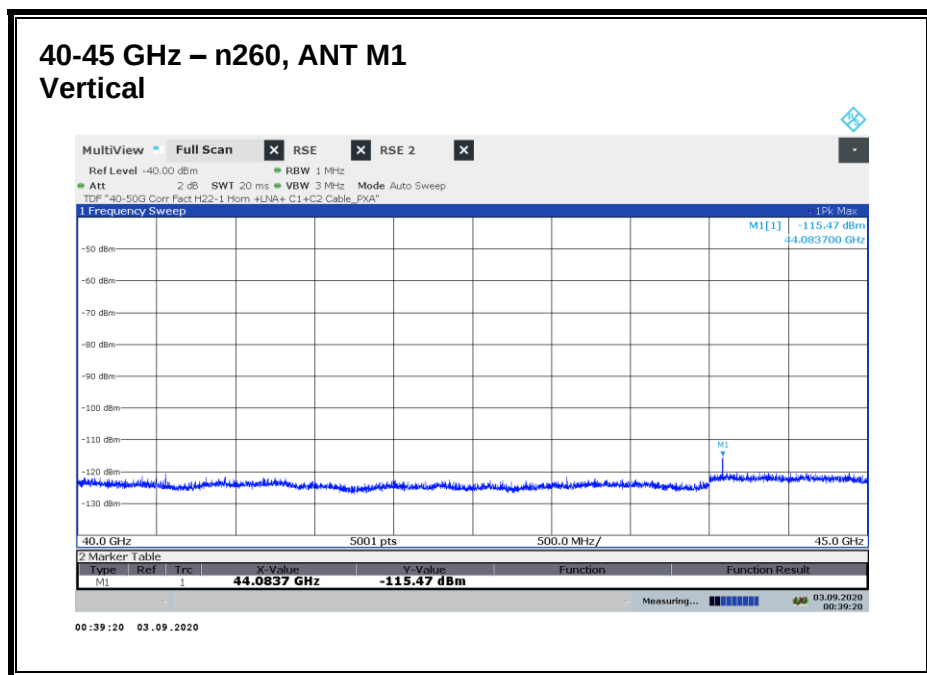
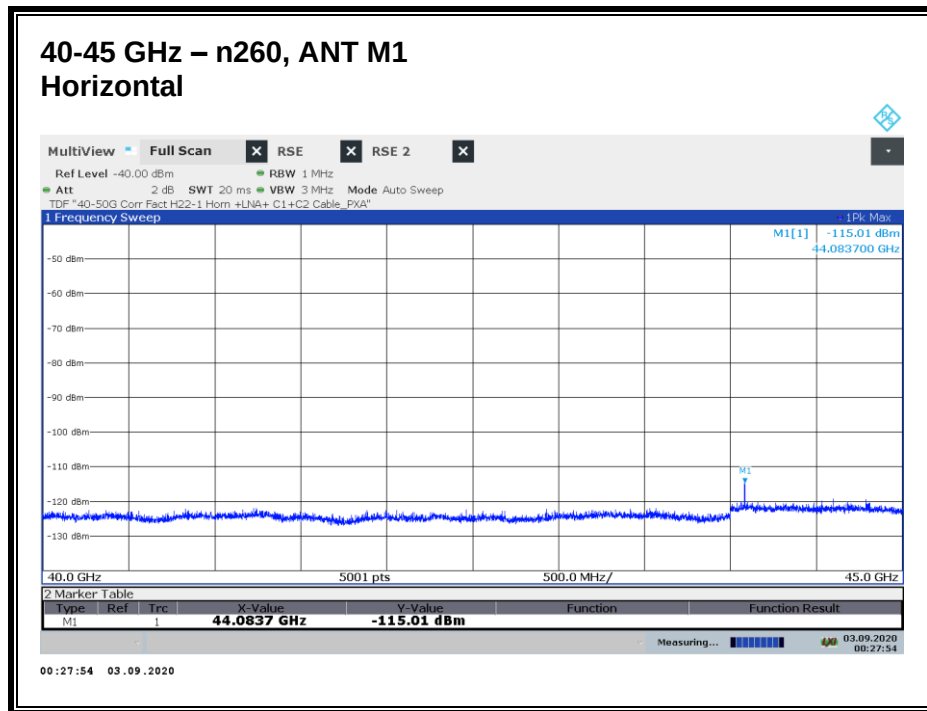
EIRP RESULTS, 2CC

Worst case configuration:

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

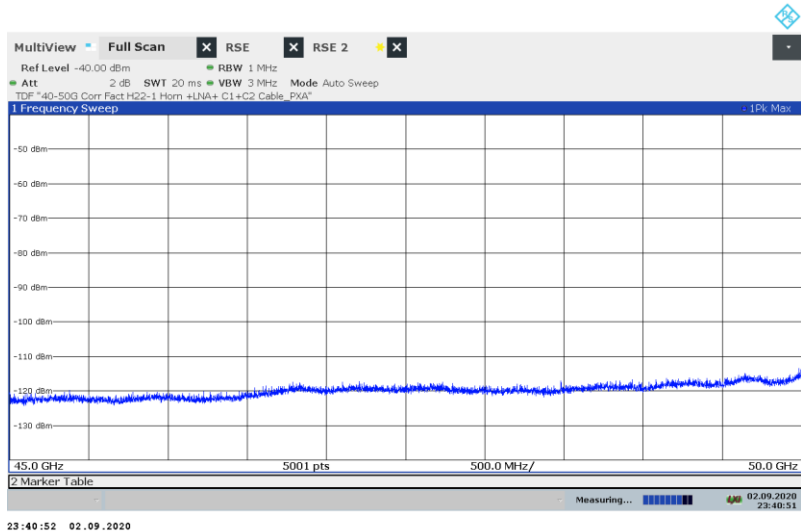
Antenna	Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
	(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
M2	36.9528	3	H	-23.54	-13	-10.54

8.4.5. RADIATED EMISSIONS 40-50 GHz n260

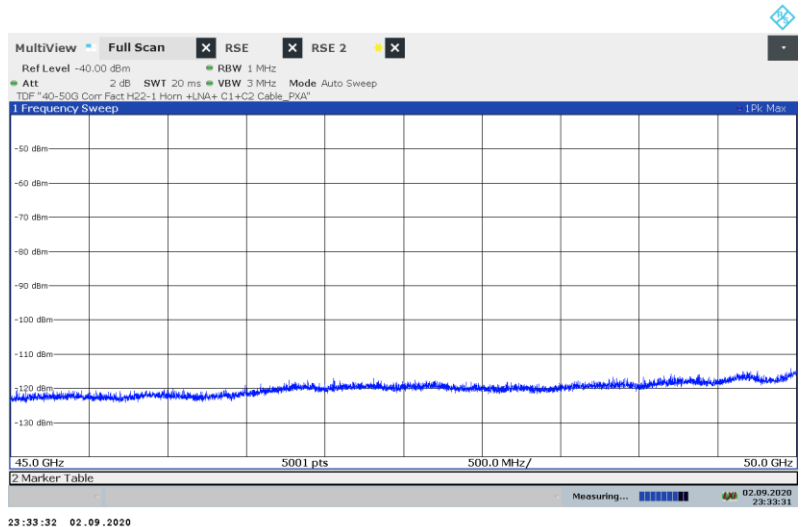


Emissions detected using Peak Detection. Avg EIRP was measured.

45-50 GHz – n260, ANT M1 Horizontal

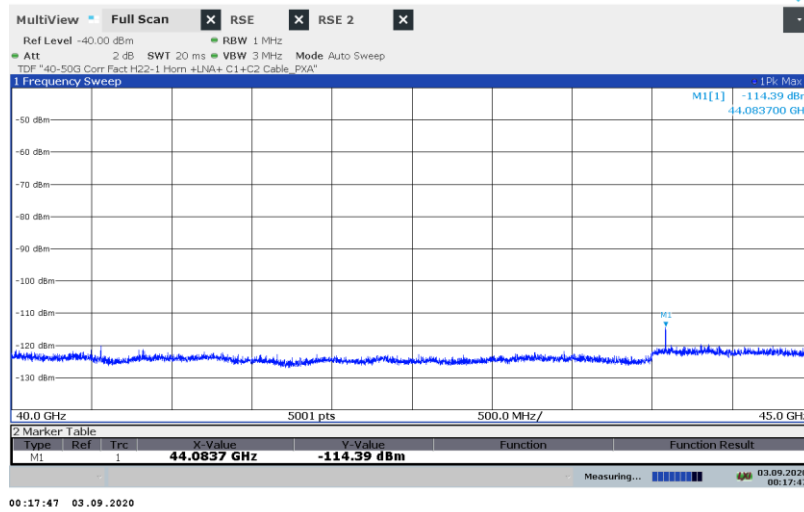


45-50 GHz – n260, ANT M1 Vertical

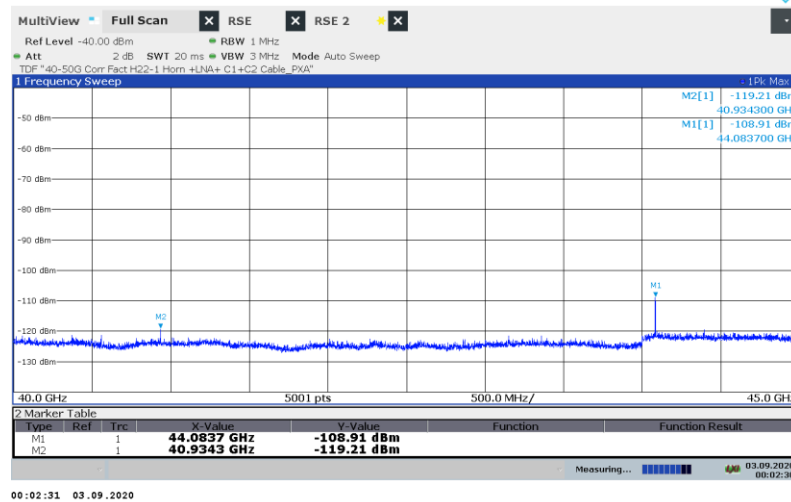


No Emission using Peak Detection.

40-45 GHz – n260, ANT M2 Horizontal

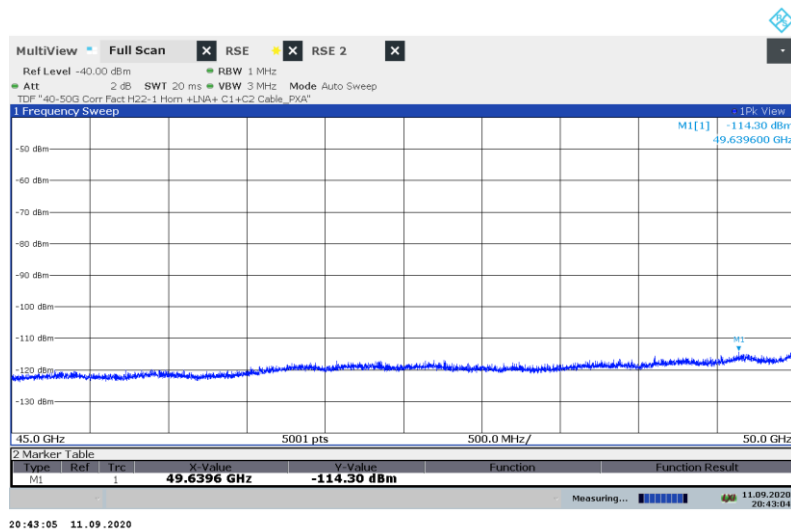


40-45 GHz – n260, ANT M2 Vertical

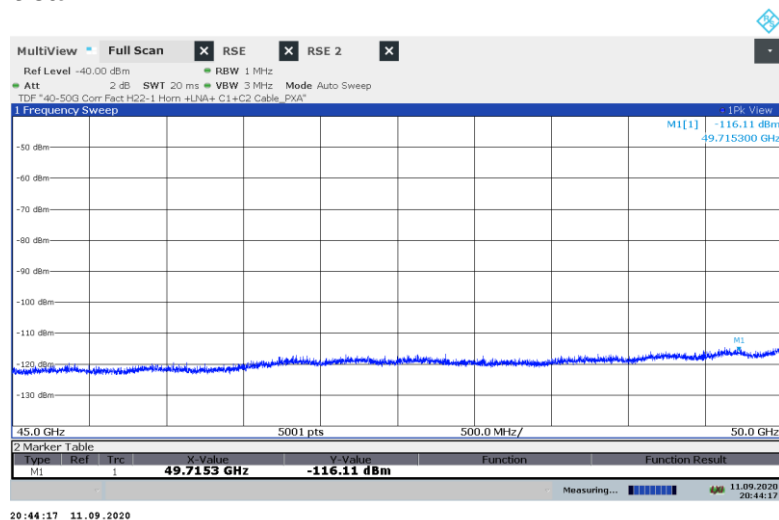


Emissions detected using Peak Detection. Avg EIRP was measured.

45-50 GHz – n260, ANT M2 Horizontal



45-50 GHz – n260, ANT M2 Vertical

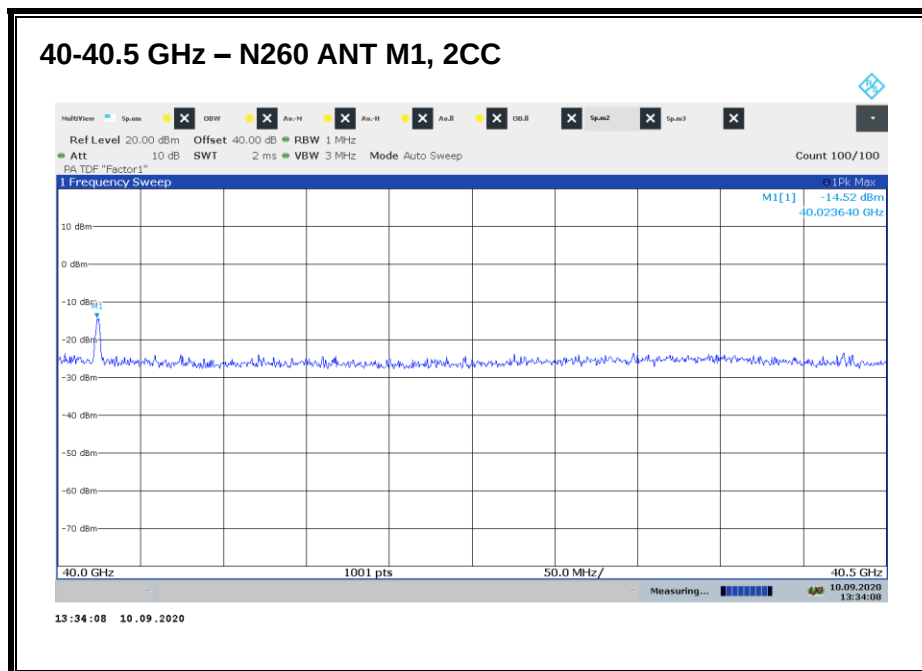


No Emission using Peak Detection.

40-50 GHz n260

EIRP Results

Antenna	Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
	(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
M1	44.083	3	H	-45.94	-13	-32.94
M1	44.083	3	V	-43.26	-13	-30.26
M2	44.083	3	H	-49.66	-13	-36.66
M2	44.083	3	V	-38.93	-13	-25.93
M2	40.934	3	V	-53.76	-13	-40.76



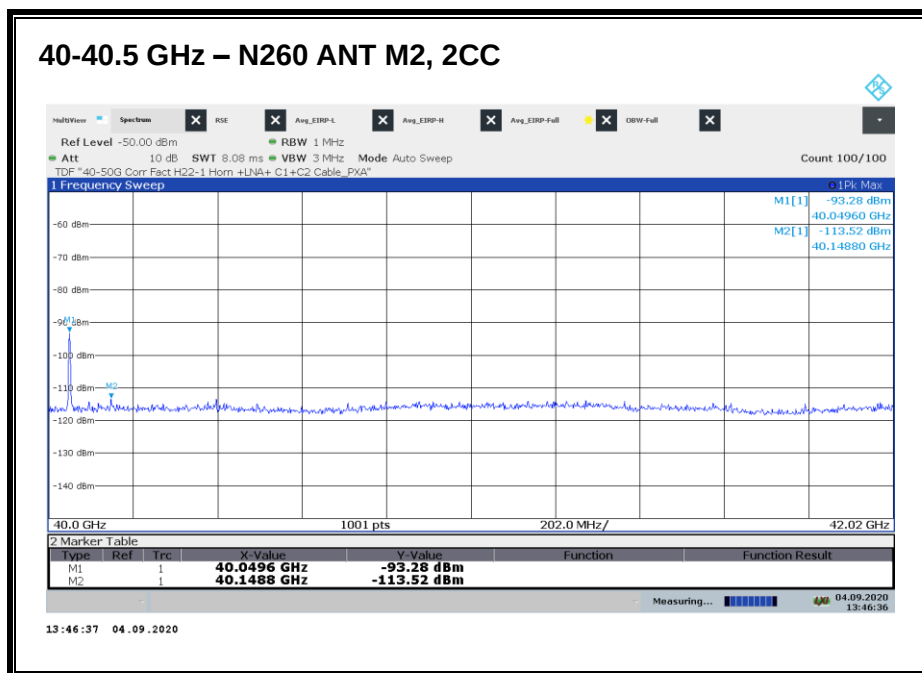
Emissions detected using Peak Detection. Avg EIRP was measured.

EIRP RESULTS, 2CC

Worst case configuration:

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

Antenna	Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
	(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
M1	40.0238	3	V	-25.28	-13	-12.28



Emission detected using Peak Detection. Avg EIRP was measured on highest emission.

EIRP RESULTS, 2CC

Worst case configuration:

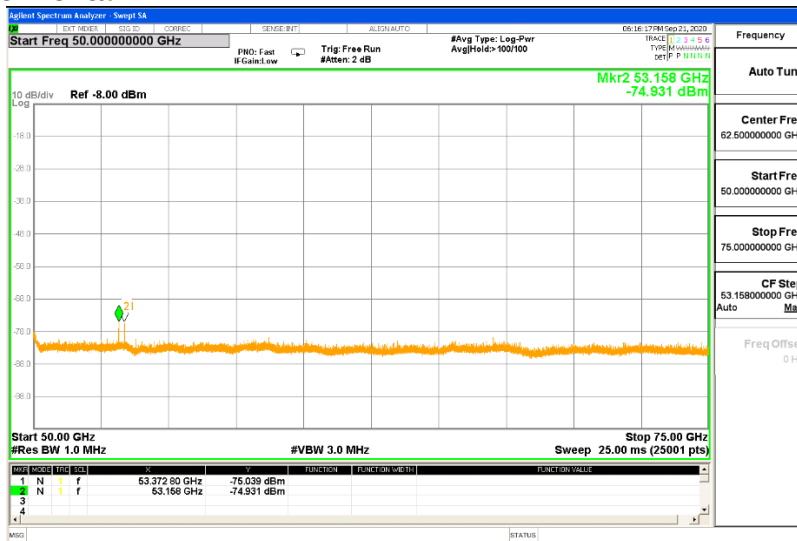
SISO-DUAL_QPSK_(50 MHz + 50 MHz)_High CH_RB Offset 1/0 (1RB-L)

Highest emission in this band was investigated.

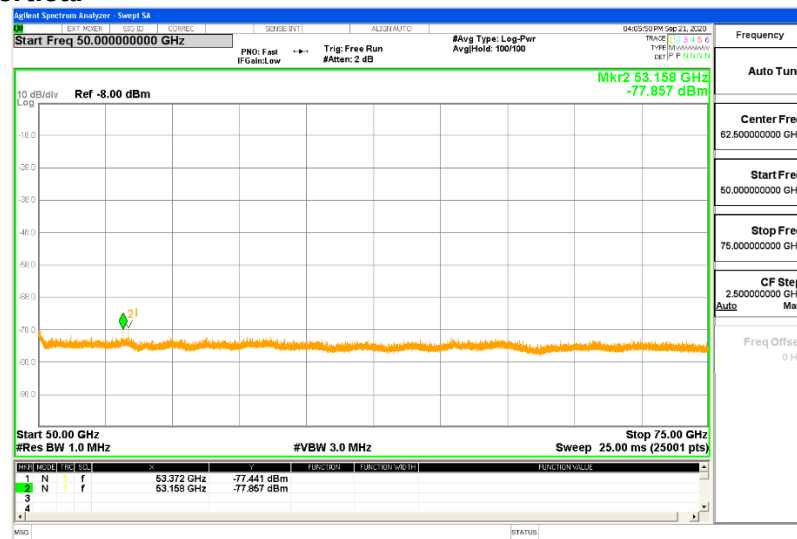
Antenna	Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
	(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
M2	40.0489	3	H	-21.04	-13	-8.04

8.4.6. RADIATED EMISSIONS 50-75 GHz n260

50-75 GHz – n260, ANT M1 Horizontal

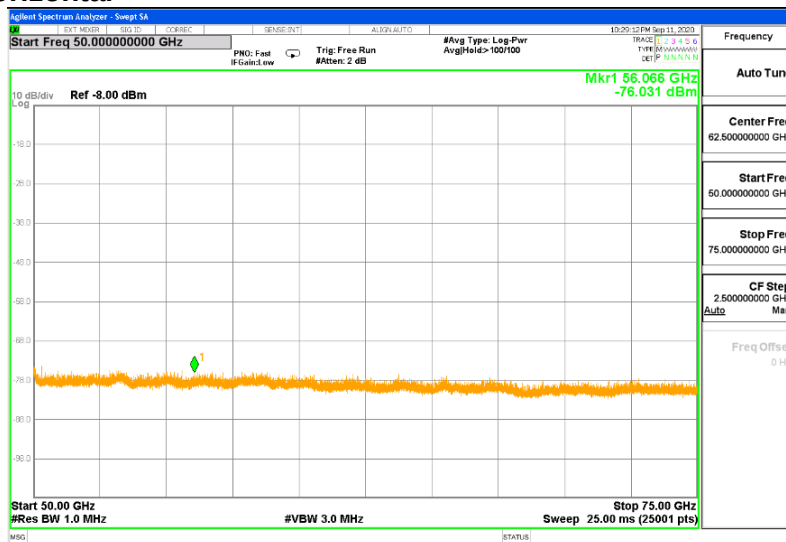


50-75 GHz – n260, ANT M1 Vertical

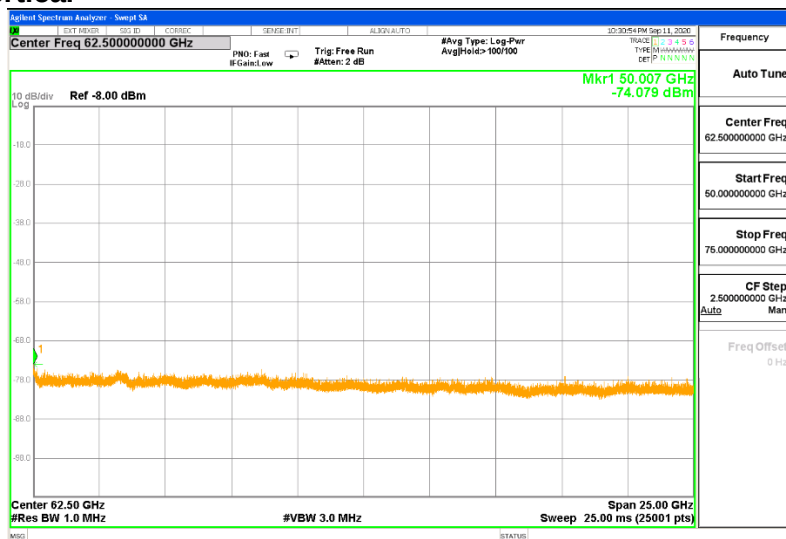


Emissions detected using Peak Detection. Avg EIRP was measured.

50-75 GHz – n260, ANT M2 Horizontal



50-75 GHz – n260, ANT M2 Vertical



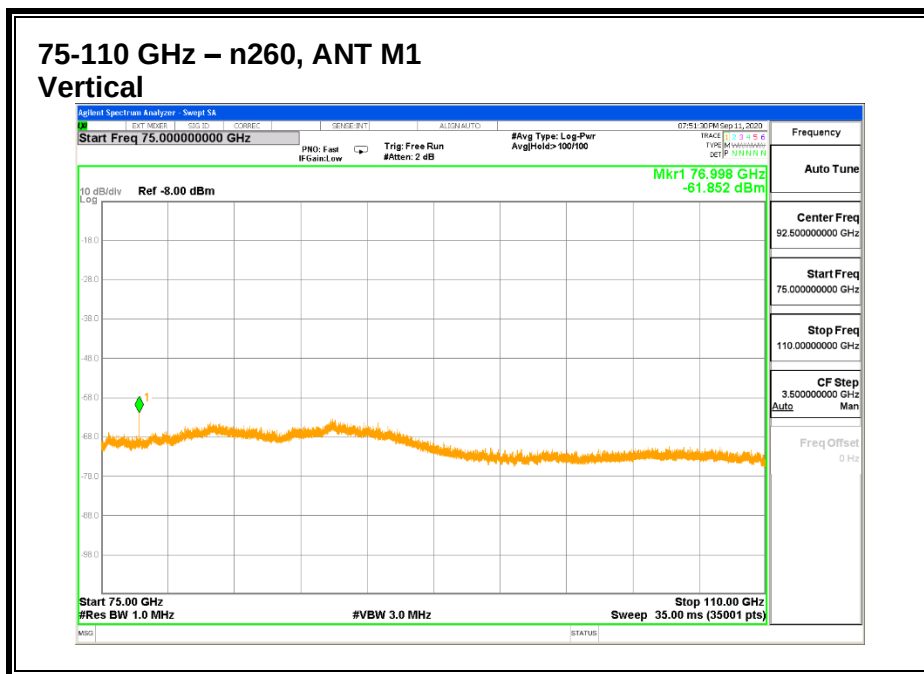
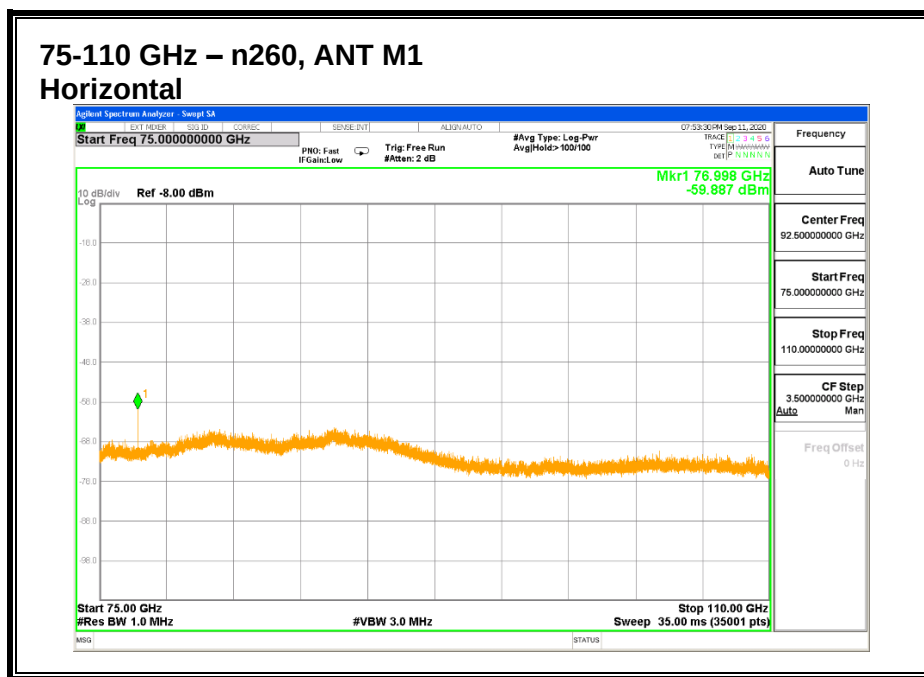
No Emission using Peak Detection.

50-75 GHz n260

EIRP Results

Antenna	Freq.	Meas. Distance	Rx Ant. Polarity	Corrected Avg EIRP	TRP Limit	Margin
	(GHz)	(m)	H/V	(dBm)	(dBm)	(dB)
M1	53.1577	1.5	H	-32.16	-13	-19.16
M1	53.3728	1.5	H	-23.21	-13	-10.21
M1	53.1577	1.5	V	-39.71	-13	-26.71
M1	53.3728	1.5	V	-40.39	-13	-27.39

8.4.7. RADIATED EMISSIONS 75-110 GHz n260



Emissions detected using Peak Detection. Avg EIRP was measured.