TEST REPORT

Report Number : 14982436-E29V1

Applicant : APPLE, INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A.

Model : A3083

FCC ID : BCG-E8666A

EUT Description : SMARTPHONE

Test Standard : FCC CFR 47 PART 30 MOBILE TRANSMITTER (5GM)

Date Of Issue:
June 30, 2024

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
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CERT #0751.05

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	06/30/2024	Initial Issue	GP CHIN

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	APPLE, INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A
EUT DESCRIPTION:	SMARTPHONE
MODEL:	A3083
BRAND:	APPLE
SERIAL NUMBERS:	JP2524PHYH, N6W4PVTR9W, GR40YYY7KR
SAMPLE RECEIPT DATES:	04/12/2024, 05/20/2024, 05/30/2024
DATE TESTED:	April 24th – June 23rd, 2024

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 30 Mobile Transmitter (5GM)	Complies

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested can demonstrate compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not considered unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For
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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods:

1. FCC CFR 47 Part 2
2. FCC CFR 47 Part 30
3. ANSI C63.26-2015
4. KDB 842590 D01 Upper Microwave Flexible Use Service v01r02
5. KDB 971168 D01 Power Meas. License Digital Systems v03r01

3. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, certification #0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company No.	FCC Registration
☒	Building 1: 47173 Benicia Street, Fremont, California, USA	US0104	2324A	208313
☐	Building 2: 47266 Benicia Street, Fremont, California, USA	US0104	22541	208313
☒	Building 4: 47658 Kato Rd, Fremont, California, USA	US0104	2324B	208313

4. CALIBRATION AND UNCERTAINTY

4.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

4.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

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4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U_{LAB}
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case TRP, 18000 to 26000 MHz	4.10 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB
Worst Case TRP, 26000 to 40000 MHz	4.95 dB
Worst Case Radiated Disturbance, >40000 MHz	2.89 dB
Worst Case TRP, >40000 MHz	2.94 dB
Temperature	±0.9 °C
Voltages	±0.45 %
Time	±0.02 %

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

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a smartphone with cellular GSM, GPRS, EGPRS, WCDMA, LTE, 5GNR1, 5GNR2, IEEE 802.11a/b/g/n/ac/ax/be, Bluetooth (BT), Ultra-Wideband (UWB), Global Positioning System (GPS), Near-Field Communication (NFC), Narrow-Band (NB) UNII, 802.15.4, 802.15.4ab-NB, Wireless Power Transfer (WPT) and Mobile Satellite Service (MSS) technologies. The rechargeable battery is not user accessible. This device is not user-serviceable and requires special tools to disassemble.

This test report addresses the TDD 5G NR operational mode on following frequency bands:

n258 (denoted as n258 SB1 in this report): 24.25 – 24.45 GHz
n258 (denoted as n258 SB2 in this report): 24.75 – 25.25 GHz
n261: 27.5 – 28.35 GHz
n260: 37 – 40 GHz

The EUT contains one set of 5G FR2 RFIC Chipset/Antenna radio, which supports SISO, SISO-Dual and MIMO modes in UE channel bandwidths of 50 MHz and 100 MHz, with 120 kHz SCS and up to 4 component carriers (1CC to 4CC) for carrier aggregation technique. The SISO mode operates with either the horizontal or vertical elements active. The SISO-Dual and MIMO modes operate with both horizontal and vertical elements active at similar power level per polarization. MIMO mode only supports CP-OFDM access scheme, but SISO-Dual supports both CP-OFDM and DFT-s-OFDM access schemes. DFT-s-OFDM operates at higher power level than CP-OFDM.

QPSK, 16QAM and 64QAM modulation formats are used in all three SISO, SISO-Dual and MIMO modes. Pi/2 BPSK modulation format is only used in SISO and SISO-Dual modes.

5.2. DESCRIPTION OF AVAILABLE ANTENNA

The EUT utilizes one set of 1x5 elements integrated dual-polarized patch antenna array, named as Ant M1. The peak antenna gains of horizontal/vertical polarization and the nominal antenna gain of cross-polarizations of each antenna, based on frequency bands, are listed in the following table.

Frequency Band	Peak Gain (Horizontal/Vertical)	Cross-Polarization
	(dBi)	(dBi)
n258 SB1 & SB2	14.1	16.5
n261	14.0	16.2
n260	14.5	16.5

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5.3. MAXIMUM OBW AND EIRP

Maximum Occupied Bandwidth based on frequency bands.

Frequency Band	Control System	CH BW (MHz)	CCs Active	OBW (MHz)	Emission Designator	Modulation
n258 SB1	SISO-Dual	50	4	195.09	195MG7W	QPSK
	SISO-Dual	50	4	195.28	195MD7W	16QAM
n258 SB2	MIMO	100	4	392.13	392MG7W	QPSK
	SISO-Dual	100	4	390.02	390MD7W	16QAM
n261	MIMO	100	4	392.41	392MG7W	QPSK
	SISO-Dual	100	4	390.11	390MD7W	64QAM
n260	MIMO	100	4	392.38	392MG7W	QPSK
	SISO-Dual	100	4	390.40	390MD7W	64QAM

Maximum Average EIRP based on frequency bands.

Frequency Band	Control System	CH BW (MHz)	CCs Active	Avg EIRP (dBm)	Avg EIRP (W)	Modulation
n258 SB1	SISO-Dual	100	1	31.17	1.309	QPSK
	SISO-Dual	50	1	28.64	0.731	16QAM
n258 SB2	SISO-Dual	50	1	30.99	1.256	QPSK
	SISO-Dual	100	1	28.46	0.701	16QAM
n261	SISO-Dual	50	1	31.70	1.479	QPSK
	SISO-Dual	50	1	28.56	0.718	16QAM
n260	SISO-Dual	100	1	31.01	1.262	QPSK
	SISO-Dual	100	1	28.70	0.741	16QAM

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5.4. SOFTWARE AND FIRMWARE

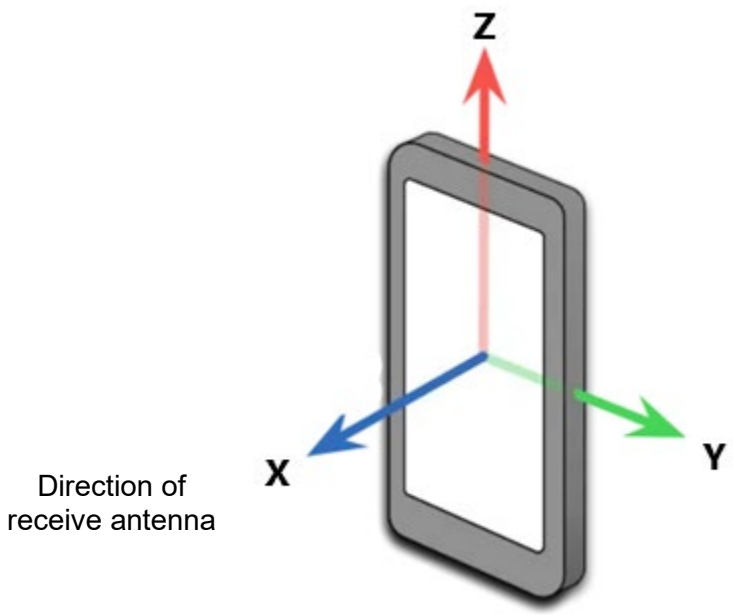
The Software/Firmware version used at test is 0.02.01.

5.5. WORST CASE ORIENTATION

For all 5G NR FR2 Bands, the worst-case scenario for all measurements is based on the EIRP measurement investigation results. EIRPs were measured on Pi/2 BPSK, QPSK, 16QAM and 64QAM modulations. It was found that QPSK results in SISO-Dual supporting DFT-s-OFDM were worst case.

The fundamental and radiated spurious emission were investigated in three orthogonal planes, XY (azimuth), XZ (roll and elevation) and YZ (receive antenna polarization), where is applicable on all 3 antenna arrays.

In the exploratory scan, the EUT is placed on an open-air fixture, allowing no blockage of the signal as measured by the receive antenna. The positioners, one at a time, perform a sweep, taking EIRP readings using peak detection at small increments of step size. The positioner is then moved to its maximum EIRP orientation found during the sweep, and the next positioner will repeat the scan process. Once all positioners have individually scanned, the positioners will execute an additional set of scans for increased accuracy to identify the final optimum position resulting in highest EIRP for the frequency or band under investigation.



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5.6. BEAM ID

In all tests, the following Peak Beam ID settings of each frequency band were applied for final measurements.

Frequency Band	BID	Paired with
n258 SB1	147	19
n258 SB2	147	19
n261	142	14
n260	143	15

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST			
Description	**Manufacturer**	**Model**	**Serial Number**
LAPTOP + Adapter	Apple	MacBook Pro	HRP046790
Brisket Cable-USB Adapter	Apple	---	F2010M20000815
LAPTOP + Adapter	Apple	MacBook Pro	1PWR5000019-00303
Brisket Cable-USB Adapter	Apple	---	F2010M20000852
LAPTOP + Adapter	Apple	MacBook Pro	1PWR5000019
Brisket Cable-USB Adapter	Apple	---	F2010M20000890
LAPTOP + Adapter	Apple	MacBook Pro	FVFG319FQ05F
Brisket Cable-USB Adapter	Apple	---	F2010M20000859

I/O CABLES

I/O Cable List						
Cable No.	**Port**	**No. of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	Support Laptop Power	2	USB Type C	Shielded	1.8	--
2	Data	2	USB Type A	Shielded	7	--
3	Data + DC Power	2	USB Type C	Shielded	1	--
4	DC Power	2	USB Type A	Shielded	1	
5	DC Power	1	Clip leads	Un-shielded	1	--
6	AC Line	1	3-prong	Un-shielded	1.8	--

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TEST SETUP

Radiated spurious emission measurements from 30 MHz – 18 GHz were performed in a semi anechoic chamber (SAC) conforming to the normalized site attenuation requirements specified in ANSI C63.4 for below 1 GHz and the site validation criteria called out in CISPR 16-1-4:2019 over the frequency range 1 - 18 GHz.

Radiated power (EIRP) measurements of the fundamental signal and radiated spurious emissions (EIRP and TRP) measurements above 18 GHz were performed in four full anechoic chambers (FAC), 01-mmW-A, -B, -C & -D. In accordance with ANSI C63.26 and KDB publication 842590 D01 v01r02, the chambers meet the sVSWR validation requirements called out in CISPR 16-1-4:2019 over the frequency range 1 - 18 GHz. As required by ANSI C63.26, the reflection contributions are reduced to the extent possible to allow for measurements to be made up to 200 GHz in accordance with KDB 842590. The chamber absorber reflectivity fully supports chamber performance over this frequency range.

A roll-axis positioner was used to manipulate the EUT through the positions in space. The positioner was mounted on top of a turntable, bringing the EUT's antenna height on the test fixture to 1.5 m from ground plate. The test procedures for exploratory scan and final measurement were described in Section 5.5.

In the search of Beam ID pair transmitting the highest EIRP of each frequency band to use at final test, the Manufacturer provided 3 pairs of Beam ID of each antenna array that yield the highest EIRPs for investigation. These Beam ID pairs were selected from the simulated results based on EIRP Simulation tool.

All tests were performed in a non-signaling, stand-alone Factory Test Mode (FTM) of operation. FTM software was used to configure EUT at continuous Tx operation in EN-DC mode. When implemented out in the field, the EUT will operate with a maximum uplink configuration (i.e., a maximum uplink duty cycle of 100%).

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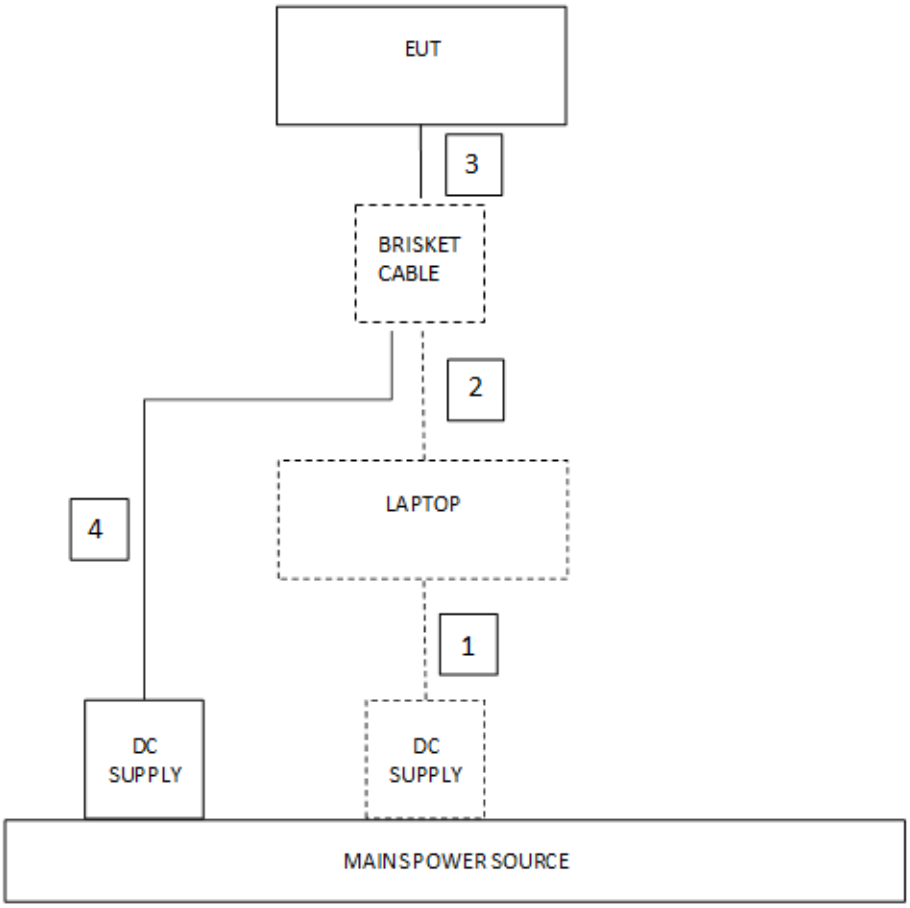
SETUP DIAGRAM FOR TESTS

RF TESTS



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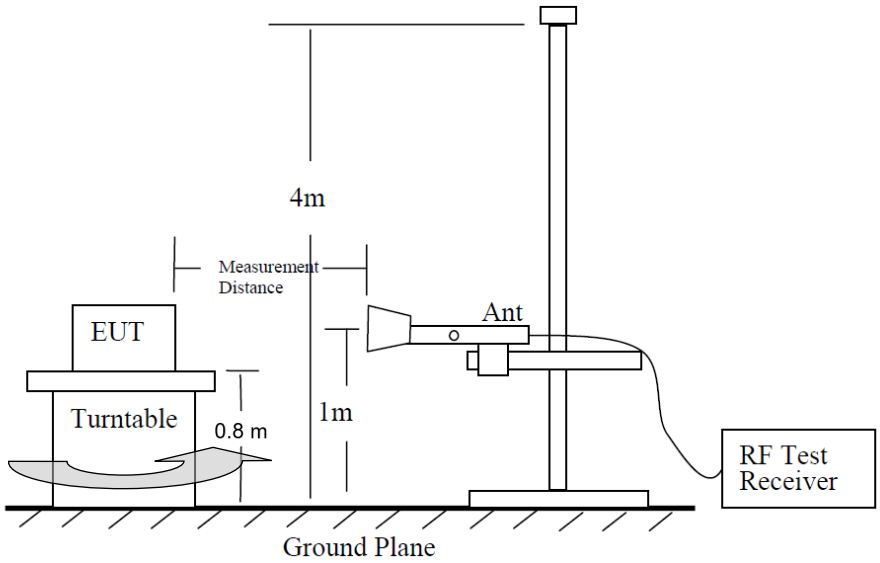
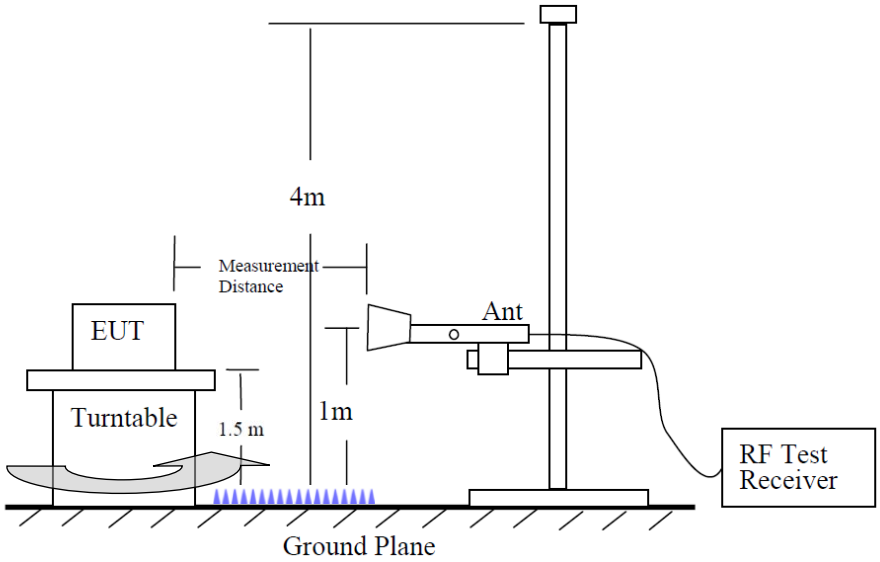
TEST SITE DIAGRAM – Below 1 GHz



TEST SITE DIAGRAM – 1 - 18 GHz



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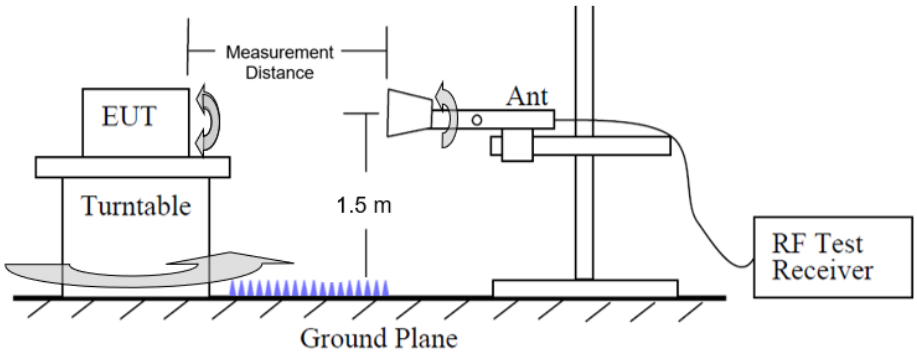
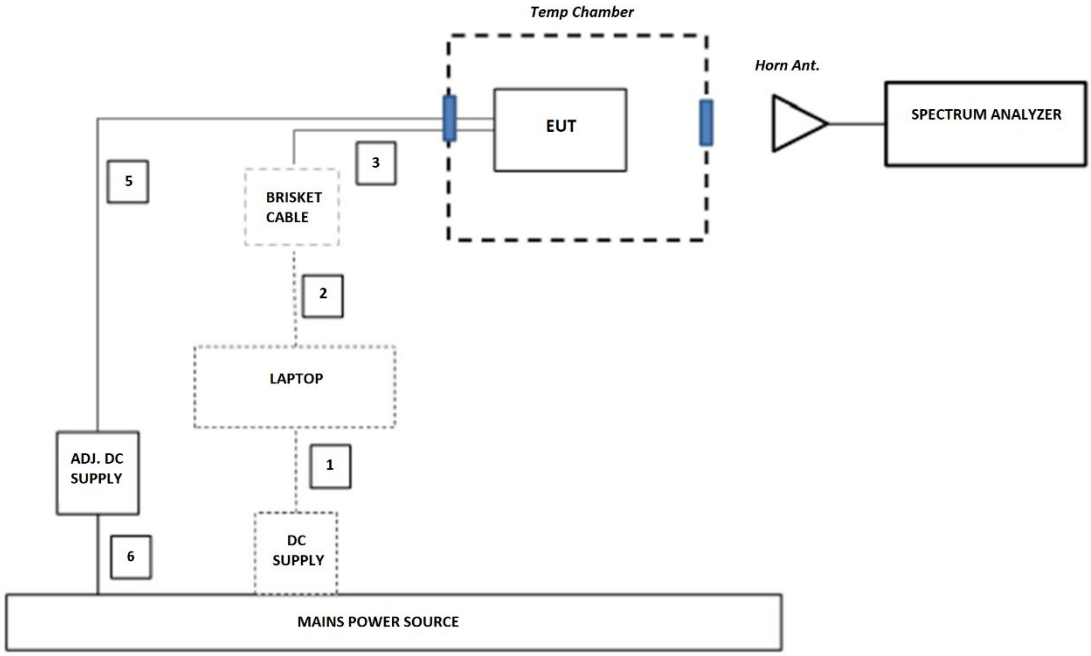
TEST SITE DIAGRAM – Above 18 GHz & mmWave



FREQUENCY STABILITY



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FAR-FIELD DISTANCE AND MEASUREMENT DISTANCE

The equipment under test was transmitting while connected to its integral antenna and placed on a turntable.

The measurement distance is in the far field per formula $2D^2/\lambda$ where D is the larger dimension of the antenna. For fundamental or band edge emissions, the largest far-field distance of either the EUT antenna or measurement antenna shall be used. For above 18 GHz spurious emissions, the far-field distance will be based on the measured antenna. In this case, the measurement antenna has the largest far-field distance. The EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest EIRP reading on the receive spectrum analyzer.

Frequency Range (GHz)	Wavelength (m)	Far Field Distance (m)	Measurement Distance Used (m)
18-26.5	0.0113	3.13	3.30
26.5-40	0.0075	2.61	3.00
40-50	0.0060	1.61	3.00
50-75	0.0040	1.05	1.50
75-110	0.0027	0.70	1.00
110-170	0.0018	0.46	1.00
170-200	0.0015	0.24	0.50

Radiated power levels are investigated while the receive antenna was rotated through all angles to determine the worst-case polarization/positioning.

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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List					
Description	**Manufacturer**	**Model**	**Local ID**	**Last Cal**	**Cal Due**
Spectrum Analyzer, 2 Hz to 50 GHz	Rohde & Schwarz	FSW50	226791	2/12/2024	2/28/2025
Spectrum Analyzer, 2 Hz to 50 GHz	Rohde & Schwarz	FSW50	195710	2/16/2024	2/28/2025
Spectrum Analyzer, 2 Hz to 50 GHz	Rohde & Schwarz	FSW50	199181	2/14/2024	2/28/2025
Spectrum Analyzer, 2 Hz to 50 GHz	Rohde & Schwarz	FSW50	215756	2/13/2024	2/28/2025
EMI Test Receiver, 1 Hz to 44 GHz	Rohde & Schwarz	ESW44	191429	2/11/2024	2/28/2025
EMI Test Receiver, 1 Hz to 44 GHz	Rohde & Schwarz	ESW44	191430	2/17/2024	2/28/2025
Antenna, Horn 18-26.5 GHz	Com-Power	AH-826	222324	9/5/2023	9/30/2024
Antenna, Horn 26.5-40 GHz	Com-Power	AH-640	222327	8/16/2023	8/31/2024
Antenna, Horn 18-26.5 GHz	Com-Power	AH-826	222326	9/25/2023	9/30/2024
Antenna, Horn 26.5-40 GHz	Com-Power	AH-640	222328	9/25/2023	9/30/2024
Antenna, Horn 18-26.5 GHz	Com-Power	AH-826	220520	6/11/2023	6/30/2024*
Antenna, Horn 26.5-40 GHz	Com-Power	AH-640	222329	8/16/2023	8/31/2024
Antenna, Double Ridge Guide Horn 1 to 18 GHz	ETS	3117	206805	7/11/2023	7/31/2024
Amplifier, 100KHz to 1GHz, 32dB	Keysight Technologies	8447D	29654	2/05/2024	2/28/2025
Antenna, Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	174374	4/06/2024	4/31/2026
RF Filter Box, 1-18GHz	UL-FR1	NA	171013	2/2/2024	2/24/2025
Environmental Chamber	Thermotron Industries	SM-16C Mini-Max	179936	12/15/23	6/30/2024*
Digital Multimeter	Fluke	115	246585	4/2/2024	4/2/2025
50V/3A Adj. DC Power Supply	Rigol	DP712	PRE0214721	CNR	CNR
Horn antenna, 35-50 GHz	CMI	HO22R	201518	8/2/2023	8/31/2024
LNA, 40-50 GHz	Evarant	SBL-3335033040-2222-E1	199504	8/3/2023	8/3/2024
Waveguide BandPass Filter, 40-50 GHz	Evarant	SWF-46308340-22-B1	222195	8/4/2023	8/4/2024
Horn antenna, 35-50 GHz	CMI	HO22R	201517	8/2/2023	8/31/2024
LNA, 40-50 GHz	Evarant	SBL-3335033040-2222-E1	215450	8/3/2023	8/3/2024
Waveguide BandPass Filter, 40-50 GHz	Evarant	SWF-46308340-22-B1	222196	8/4/2023	8/4/2024
50-75 GHz Horn	CMI	HO15R	210519	8/2/2023	8/31/2024
LNA, 50-75 GHz	VIVA TECH	VTLNA-15-6018-FB	202496	8/24/2023	8/24/2024
50 – 75 GHz Downconverter	VDI	WR15SAX-F	198529	11/14/2023	11/14/2024
75-110 GHz Horn	CMI	HO10R	201522	8/2/2023	8/31/2024
LNA, 75-110 GHz	Spacek Labs	SLW-22-5	202520	8/15/2023	8/15/2024
75 – 110 GHz Downconverter	VDI	WR10SAX-F	198531	11/14/2023	11/14/2024
110-170 GHz Horn	CMI	HO6R	201528	8/2/2023	8/31/2024
LNA 110-170 GHz	SAGE Millimeter, Inc.	SBL-1141741860-0606-EI	199832	8/31/2023	8/31/2024
110-170 GHz Downconverter	VDI	WR6.5SAX-F	197515	11/14/2023	11/14/2024
170-260 GHz Horn	CMI	HO4R	201525	8/2/2023	8/31/2024
170-260 GHz Downconverter	VDI	WR4.3SAX-F	199495	11/14/2023	11/14/2024
UL EMC Radiated Software	Version	Rev.9.5.18 Jan 2023			
mmWave FR2 Automation Tool Software	Version	V2023.4.29.0			

*Equipment was used to perform tests prior to the calibration due date.

All horn antennas at and above the 33-50 GHz band are standard gain horns. In accordance with ANSI C63.26:2015, Clause 4.5.3 (a), Standard gain horns need not be periodically recalibrated, unless damage or deterioration is suspected or known to have occurred. The connector shall be checked periodically for damage. If a standard gain horn is not periodically recalibrated, its critical dimensions (see Annex A of IEEE Std 1309™-2013) shall be verified and documented on an annual basis.

UL measures the critical dimensions on an annual basis and checks for damage and deterioration before each test.

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7. SUMMARY OF TEST RESULTS

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
2.1049	Occupied Bandwidth	N/A	Radiated	Compliant
2.1046 30.202	Equivalent Isotropic Radiated Power (EIRP)	+43 dBm	Radiated	Compliant
2.1051 30.203	Out-of-Band Emissions at the Band Edge	-13 dBm/MHz for all out-of-band emissions. -5 dBm/MHz from the band edge up to 10% of the channel BW	Radiated	Compliant
2.1051 2.957(f) 30.203	Radiated Spurious Emissions	-13 dBm/MHz for all out-of-band emissions	Radiated	Compliant
2.1055	Frequency Stability	Fundamental emissions are contained within allocated frequency band	Radiated	Compliant

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8. APPLICABLE LIMITS AND TEST RESULTS

8.1. OCCUPIED BANDWIDTHS

RULE PART

FCC: §2.1049

LIMIT

For reporting purposes only.

TEST PROCEDURES

99% bandwidth measurement function of the signal analyzer was used to measure 99% occupied.

- RBW = 1 – 5% of OBW
- VBW ≥ 3 x RBW
- Span = 1.5x of OBW, typical
- Detection = Peak
- Trace Mode = Max Hold
- Sweep = Auto Couple
- The trace is allowed to stabilize

KDB 842590 D01 Upper Microwave Flexible Use Service v01r02 Section 4.3
ANSI C63.26-2015 Clause 5.4.4

All modulations were investigated in SISO-Dual mode and only QPSK modulation in SISO and MIMO modes with Full RB allocation to determine worst case configuration. All modes of operations were investigated, and results are reported in this section.

To minimize report size, the 1CC to 4CC plots of Full RB, SISO-Dual, QPSK, Mid CH of both channel bandwidths are provided to demonstrate the test parameter setting on the signal analyzer. The tabular data includes data for the other combinations of test modes.

RESULTS

See the following pages.

Employee IDs: 19459, 24303, 27294, 27446, 27780, 31925, 32226, 103479
Test Date: 04/24/24 – 06/15/24
Test Locations: 01-mmW-A, -B, -C & -D

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8.1.1. OBW n258 SB1

RESULTS

n258 SB1, Full-RB

CCs Active	CH BW	Control System	Modulation	Channel	OBW (MHz)
1	50	SISO-DUAL	Pi/2 BPSK	Mid	45.72
		SISO-DUAL	QPSK	Low	45.73
				Mid	45.82
				High	45.78
		MIMO		Mid	45.88
		SISO		Mid	46.03
		SISO-DUAL	16QAM	Mid	45.81
		SISO-DUAL	64QAM	Mid	45.65
	100	SISO-DUAL	Pi/2 BPSK	Mid	91.99
		SISO-DUAL	QPSK	Low	92.45
				Mid	92.45
				High	93.43
		MIMO		Mid	95.80
		SISO		Mid	93.15
		SISO-DUAL	16QAM	Mid	93.14
		SISO-DUAL	64QAM	Mid	92.35
2	50	SISO-DUAL	Pi/2 BPSK	Mid	96.34
		SISO-DUAL	QPSK	Low	96.19
				Mid	96.56
				High	95.95
		MIMO		Mid	96.00
		SISO		Mid	96.81
		SISO-DUAL	16QAM	Mid	96.80
		SISO-DUAL	64QAM	Mid	96.74
	100	SISO-DUAL	Pi/2 BPSK	Mid	191.22
		SISO-DUAL	QPSK	Mid	191.02
		MIMO		Mid	193.86
		SISO		Mid	191.14
		SISO-DUAL	16QAM	Mid	190.84
		SISO-DUAL	64QAM	Mid	190.94

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n258 SB1, Full-RB

CCs Active	CH BW	Control System	Modulation	Channel	OBW (MHz)
3	50	SISO-DUAL	Pi/2 BPSK	Mid	145.87
		SISO-DUAL	QPSK	Low	144.92
				Mid	145.94
				High	144.89
		MIMO		Mid	145.53
		SISO		Mid	146.48
		SISO-DUAL	16QAM	Mid	145.96
		SISO-DUAL	64QAM	Mid	145.64
4	50	SISO-DUAL	Pi/2 BPSK	Mid	194.84
		SISO-DUAL	QPSK	Low	195.09
				Mid	194.96
				High	195.03
		MIMO		Mid	194.46
		SISO		Mid	194.67
		SISO-DUAL	16QAM	Mid	195.28
		SISO-DUAL	64QAM	Mid	194.75

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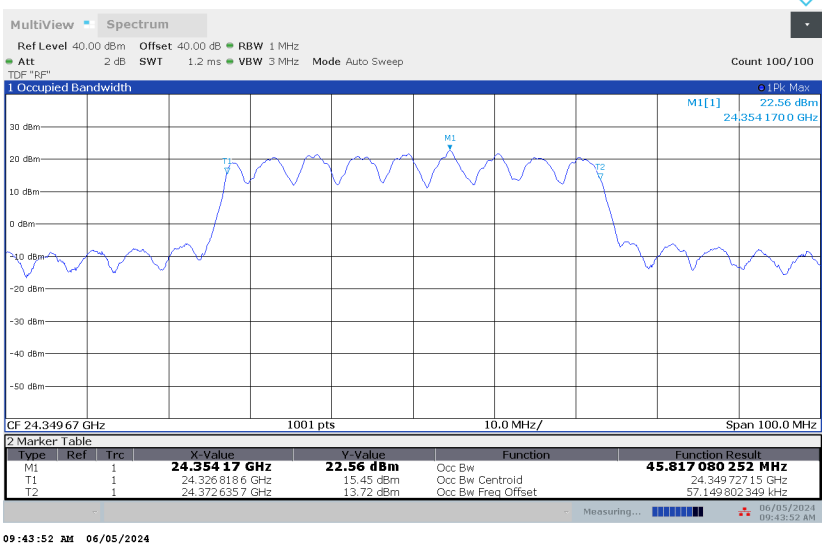
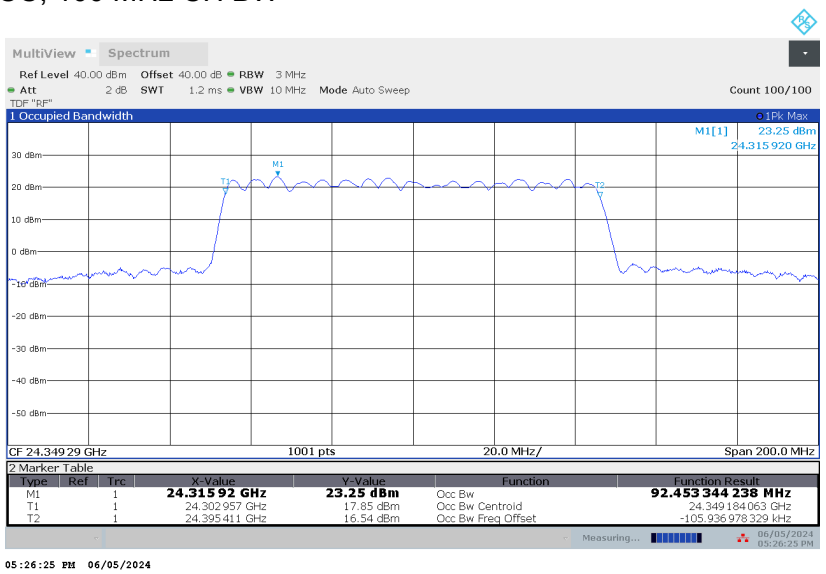
n258 SB1, Full-RB, SISO-Dual, QPSK, Mid-CH

1CC, 50 MHz CH BW



1CC, 100 MHz CH BW



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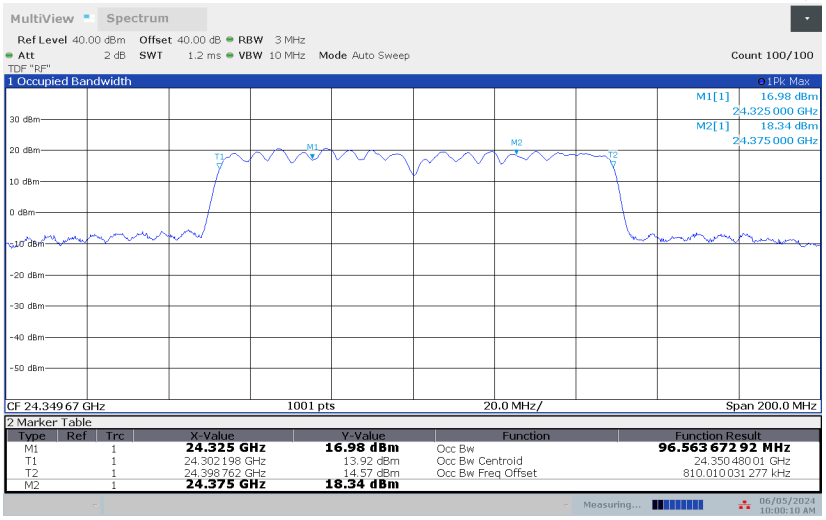
2CC, 50 MHz CH BW



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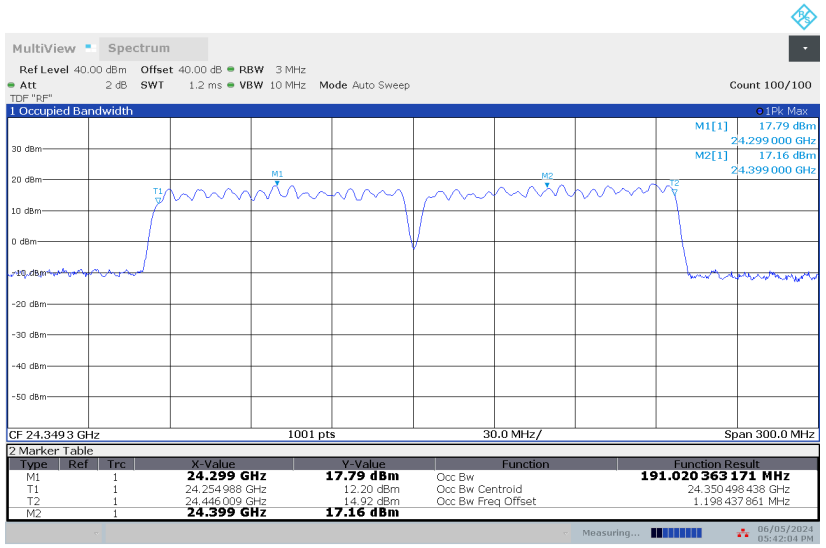
2CC, 100 MHz CH BW



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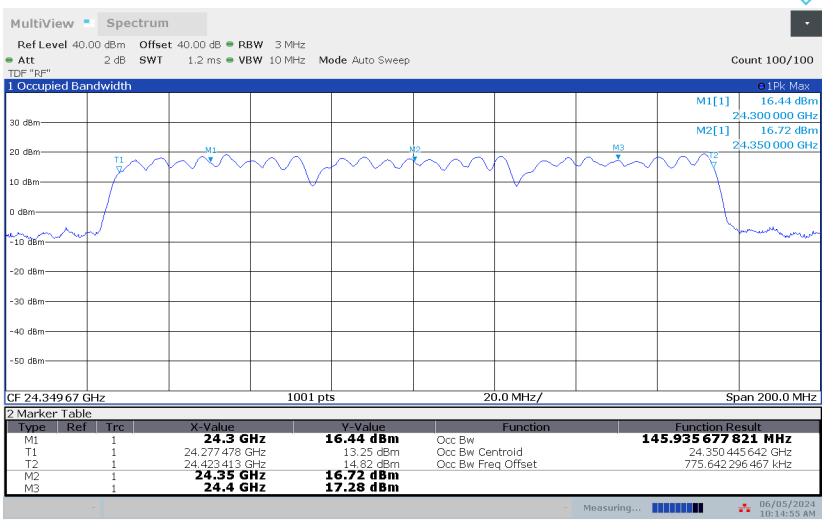
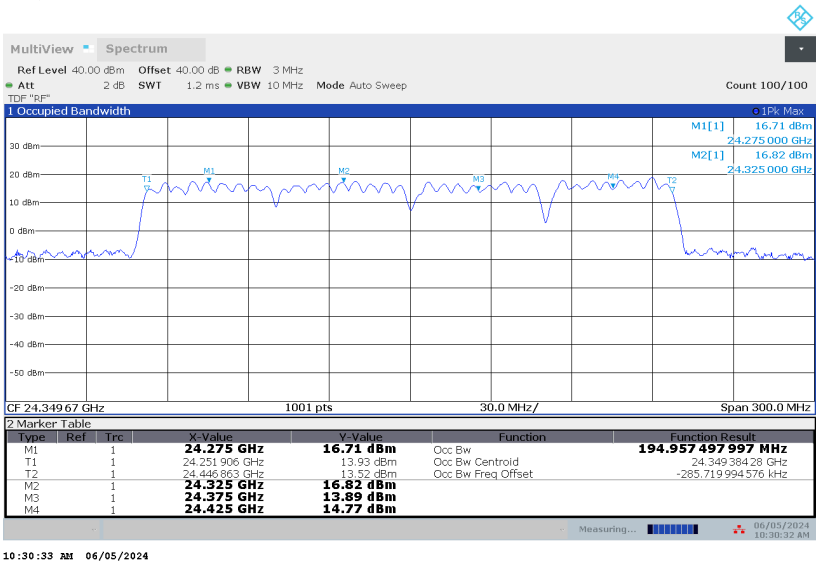
3CC, 50 MHz CH BW



4CC, 50 MHz CH BW



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8.1.2. OBW n258 SB2

RESULTS

n258 SB2, Full-RB

CCs Active	CH BW	Control System	Modulation	Channel	OBW (MHz)
1	50	SISO-DUAL	Pi/2 BPSK	Mid	45.44
		SISO-DUAL	QPSK	Low	46.10
				Mid	45.72
				High	45.85
		MIMO		Mid	46.08
		SISO		Mid	46.05
		SISO-DUAL	16QAM	Mid	45.89
		SISO-DUAL	64QAM	Mid	45.51
	100	SISO-DUAL	Pi/2 BPSK	Mid	92.43
		SISO-DUAL	QPSK	Low	92.40
				Mid	92.69
				High	93.33
		MIMO		Mid	95.84
		SISO		Mid	92.77
		SISO-DUAL	16QAM	Mid	92.50
		SISO-DUAL	64QAM	Mid	92.17
2	50	SISO-DUAL	Pi/2 BPSK	Mid	96.15
		SISO-DUAL	QPSK	Low	95.88
				Mid	95.66
				High	96.79
		MIMO		Mid	96.11
		SISO		Mid	96.64
		SISO-DUAL	16QAM	Mid	96.04
		SISO-DUAL	64QAM	Mid	95.64
	100	SISO-DUAL	Pi/2 BPSK	Mid	190.84
		SISO-DUAL	QPSK	Low	190.06
				Mid	190.96
				High	189.73
		MIMO		Mid	193.63
		SISO		Mid	191.04
		SISO-DUAL	16QAM	Mid	190.97
		SISO-DUAL	64QAM	Mid	191.07

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n258 SB2, Full-RB

CCs Active	CH BW	Control System	Modulation	Channel	OBW (MHz)
3	50	SISO-DUAL	Pi/2 BPSK	Mid	144.94
		SISO-DUAL	QPSK	Low	144.98
				Mid	145.00
				High	145.51
		MIMO		Mid	145.41
		SISO		Mid	145.79
		SISO-DUAL	16QAM	Mid	145.19
		SISO-DUAL	64QAM	Mid	145.13
	100	SISO-DUAL	Pi/2 BPSK	Mid	291.29
		SISO-DUAL	QPSK	Low	291.84
				Mid	291.03
				High	291.45
		MIMO		Mid	293.41
		SISO		Mid	291.32
		SISO-DUAL	16QAM	Mid	291.02
		SISO-DUAL	64QAM	Mid	291.34
4	50	SISO-DUAL	Pi/2 BPSK	Mid	194.82
		SISO-DUAL	QPSK	Low	194.58
				Mid	195.80
				High	196.06
		MIMO		Mid	194.61
		SISO		Mid	195.23
		SISO-DUAL	16QAM	Mid	195.02
		SISO-DUAL	64QAM	Mid	194.65
	100	SISO-DUAL	Pi/2 BPSK	Mid	390.09
		SISO-DUAL	QPSK	Low	390.50
				Mid	391.25
				High	390.80
		MIMO		Mid	392.13
		SISO		Mid	389.73
		SISO-DUAL	16QAM	Mid	390.02
		SISO-DUAL	64QAM	Mid	389.58

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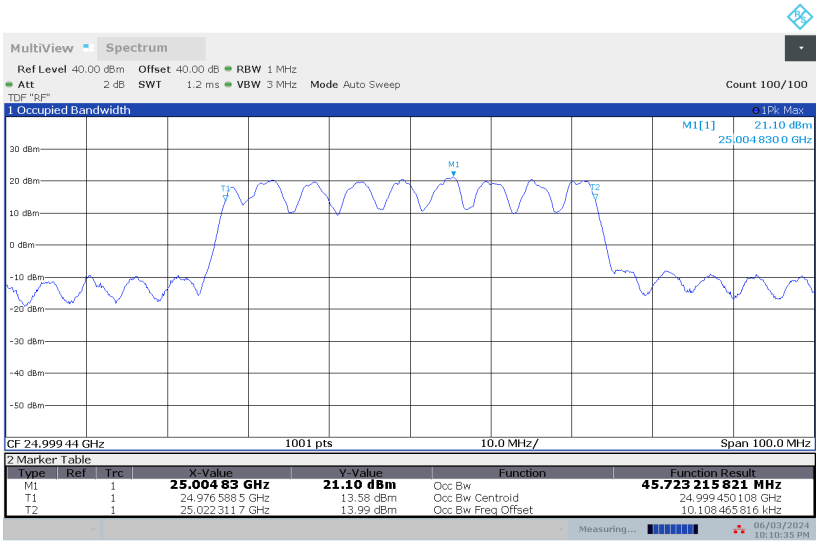
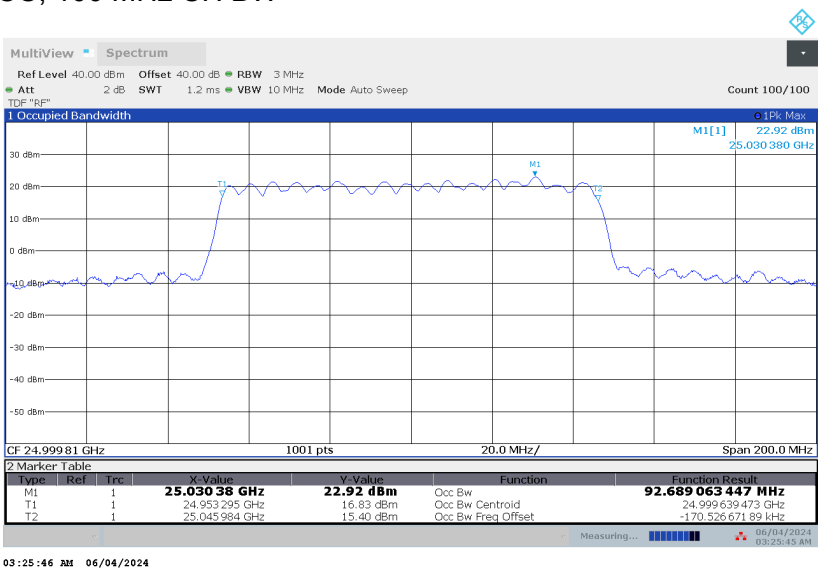
n258 SB2, Full-RB, SISO-Dual, QPSK, Mid-CH

1CC, 50 MHz CH BW



1CC, 100 MHz CH BW



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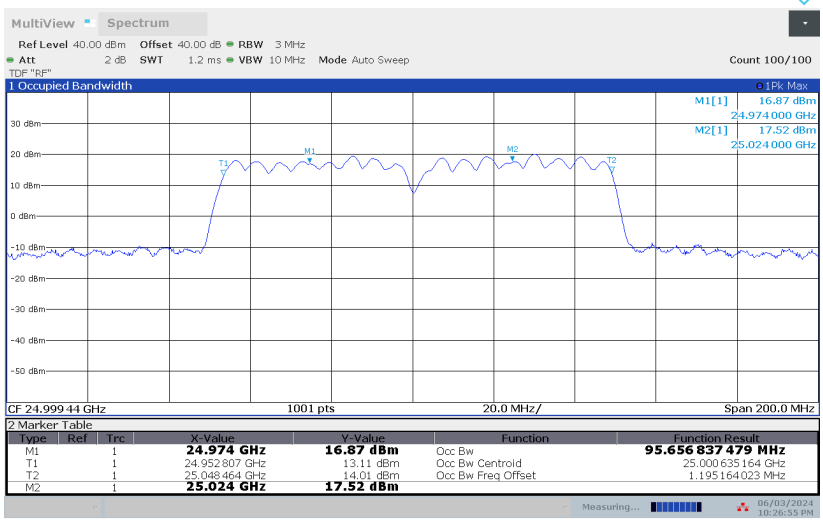
2CC, 50 MHz CH BW



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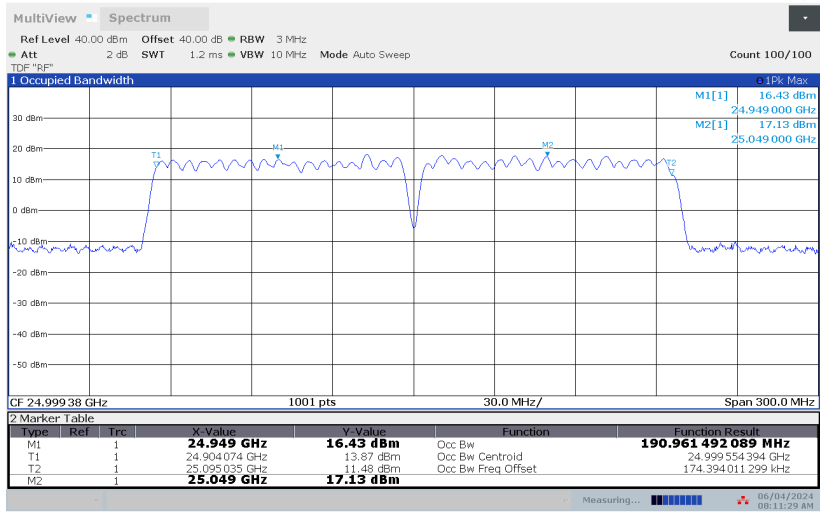
2CC, 100 MHz CH BW



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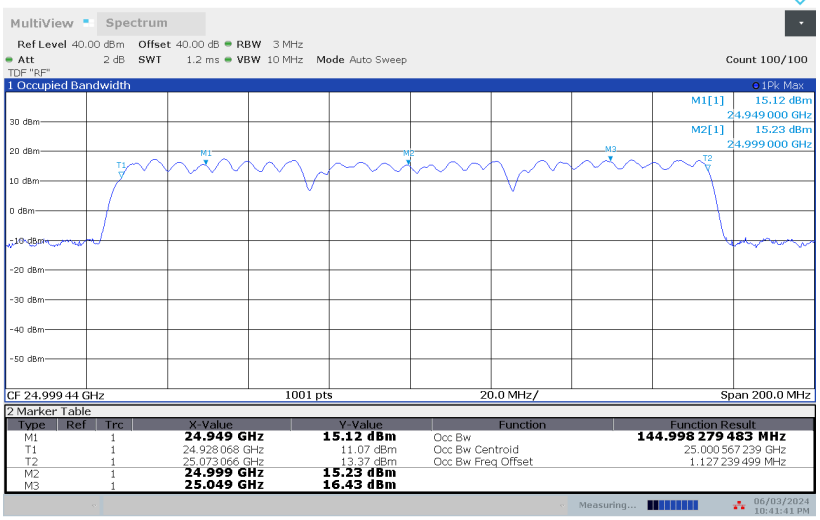
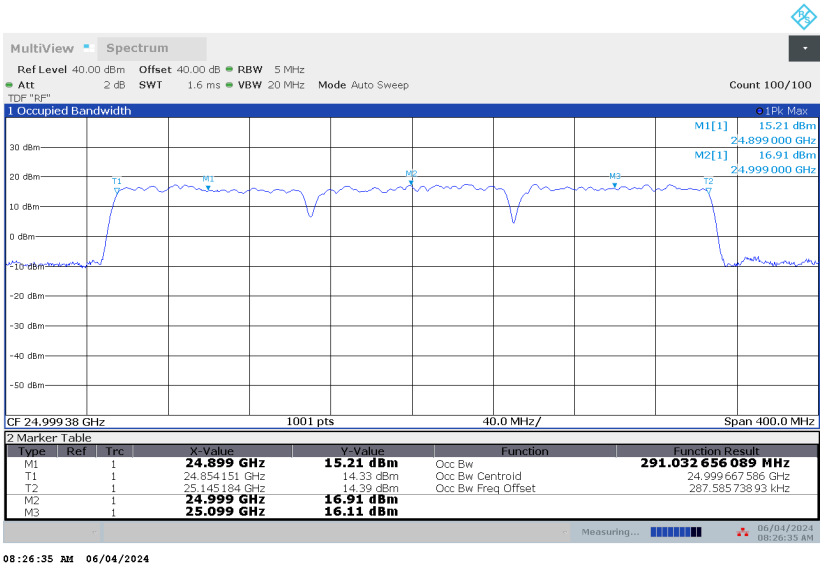
3CC, 50 MHz CH BW



3CC, 100 MHz CH BW



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4CC, 50 MHz CH BW

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4CC, 100 MHz CH BW

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8.1.3. OBW n261

RESULTS

n261, Full-RB

CCs Active	CH BW	Control System	Modulation	Channel	OBW (MHz)
1	50	SISO-DUAL	Pi/2 BPSK	Mid	45.66
		SISO-DUAL	QPSK	Low	45.59
				Mid	46.14
				High	45.41
		MIMO		Mid	45.68
		SISO		Mid	45.98
		SISO-DUAL	16QAM	Mid	46.11
		SISO-DUAL	64QAM	Mid	45.86
	100	SISO-DUAL	Pi/2 BPSK	Mid	91.73
		SISO-DUAL	QPSK	Low	92.43
				Mid	92.41
				High	91.70
		MIMO		Mid	95.13
		SISO		Mid	92.35
		SISO-DUAL	16QAM	Mid	92.24
		SISO-DUAL	64QAM	Mid	91.97
2	50	SISO-DUAL	Pi/2 BPSK	Mid	95.63
		SISO-DUAL	QPSK	Low	95.98
				Mid	96.46
				High	96.29
		MIMO		Mid	95.93
		SISO		Mid	96.43
		SISO-DUAL	16QAM	Mid	96.34
		SISO-DUAL	64QAM	Mid	96.14
	100	SISO-DUAL	Pi/2 BPSK	Mid	190.44
		SISO-DUAL	QPSK	Low	191.81
				Mid	191.55
				High	191.58
		MIMO		Mid	193.81
		SISO		Mid	191.05
		SISO-DUAL	16QAM	Mid	190.39
		SISO-DUAL	64QAM	Mid	190.88

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n261, Full-RB

CCs Active	CH BW	Control System	Modulation	Channel	OBW (MHz)
3	50	SISO-DUAL	Pi/2 BPSK	Mid	145.88
		SISO-DUAL	QPSK	Low	145.36
				Mid	146.83
				High	145.39
		MIMO		Mid	144.97
		SISO		Mid	145.56
		SISO-DUAL	16QAM	Mid	146.46
		SISO-DUAL	64QAM	Mid	145.81
	100	SISO-DUAL	Pi/2 BPSK	Mid	289.69
		SISO-DUAL	QPSK	Low	290.94
				Mid	290.20
				High	289.87
		MIMO		Mid	292.84
		SISO		Mid	291.53
		SISO-DUAL	16QAM	Mid	291.60
		SISO-DUAL	64QAM	Mid	290.57
4	50	SISO-DUAL	Pi/2 BPSK	Mid	194.75
		SISO-DUAL	QPSK	Low	194.74
				Mid	194.76
				High	194.58
		MIMO		Mid	195.56
		SISO		Mid	195.10
		SISO-DUAL	16QAM	Mid	194.58
		SISO-DUAL	64QAM	Mid	195.42
	100	SISO-DUAL	Pi/2 BPSK	Mid	389.40
		SISO-DUAL	QPSK	Low	390.86
				Mid	389.55
				High	389.76
		MIMO		Mid	392.41
		SISO		Mid	389.77
		SISO-DUAL	16QAM	Mid	389.69
		SISO-DUAL	64QAM	Mid	390.11

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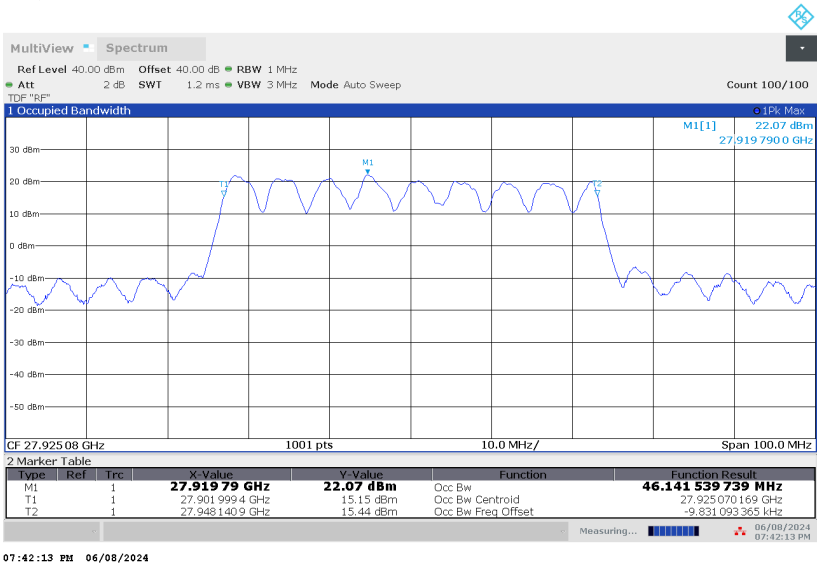
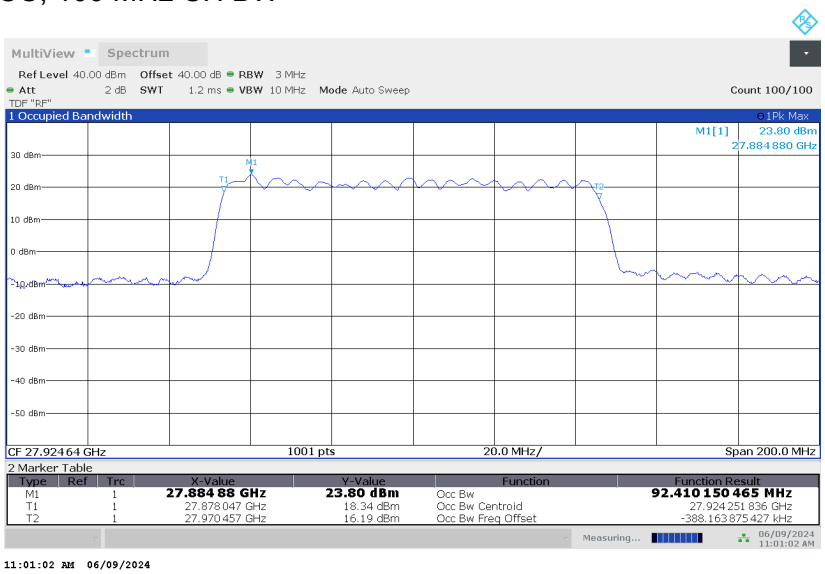
n261, Full-RB, SISO-Dual, QPSK, Mid-CH

1CC, 50 MHz CH BW



1CC, 100 MHz CH BW



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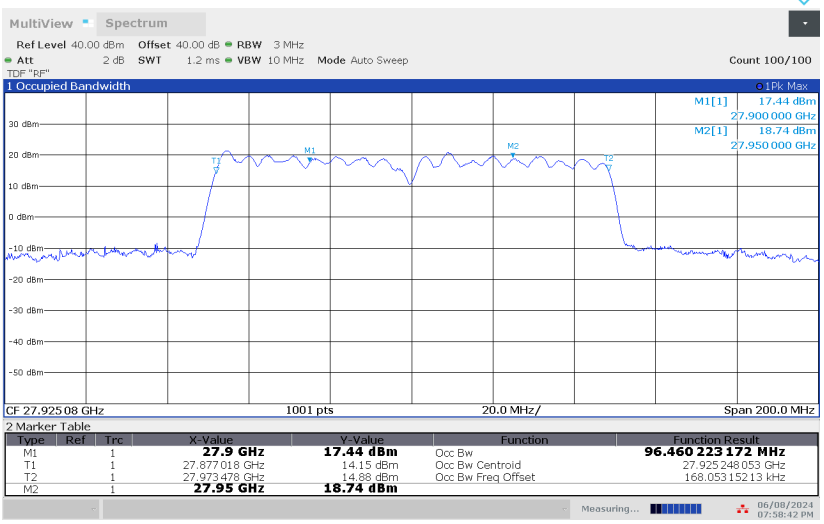
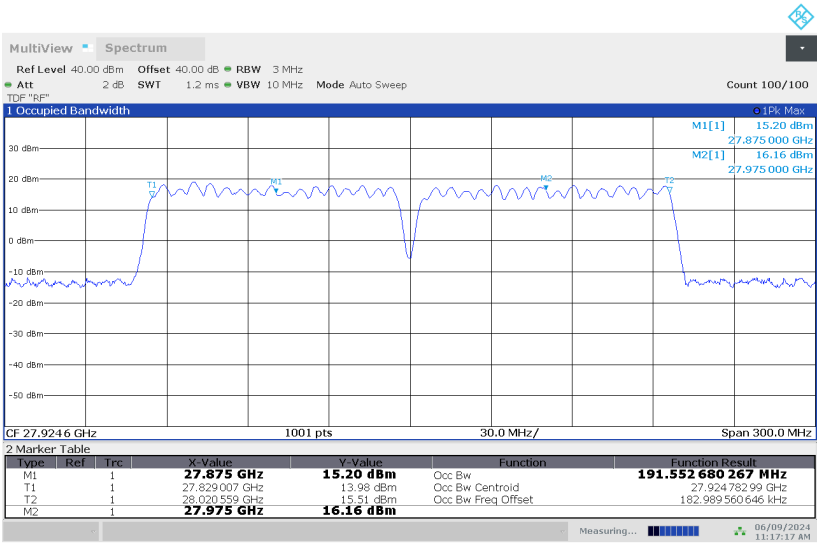
2CC, 50 MHz CH BW



07:58:42 PM 06/08/2024

2CC, 100 MHz CH BW



11:17:18 AM 06/09/2024

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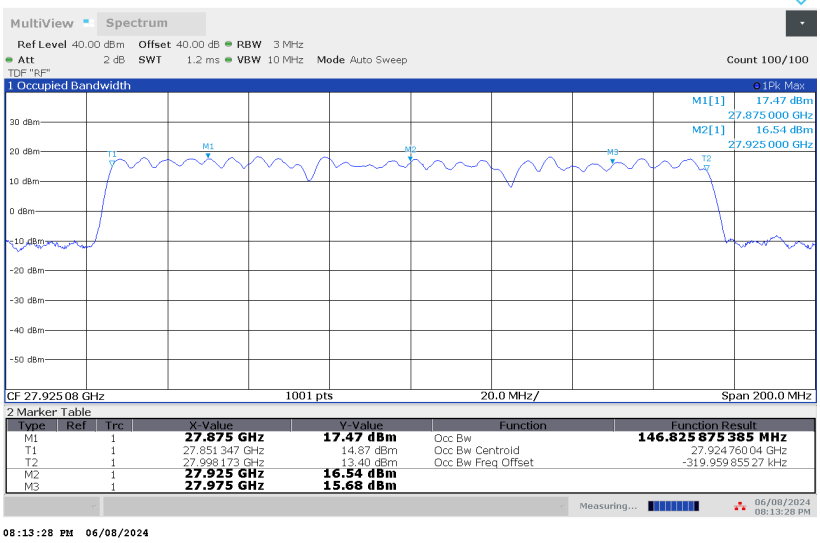
3CC, 50 MHz CH BW



3CC, 100 MHz CH BW

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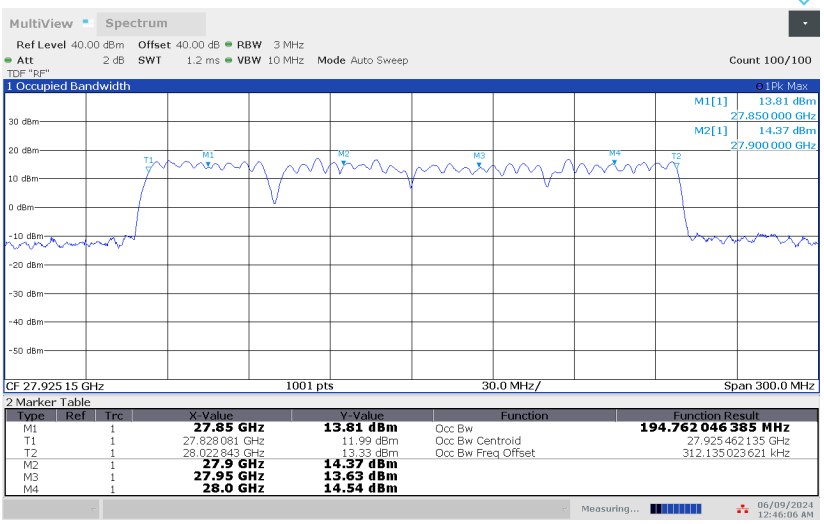
4CC, 50 MHz CH BW



4CC, 100 MHz CH BW

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8.1.4. OBW n260

RESULTS

n260, Full-RB

CCs Active	CH BW	Control System	Modulation	Channel	OBW (MHz)
1	50	SISO-DUAL	Pi/2 BPSK	Mid	46.09
		SISO-DUAL	QPSK	Low	46.47
				Mid	45.74
				High	46.26
		MIMO		Mid	46.25
		SISO		Mid	46.03
		SISO-DUAL	16QAM	Mid	45.64
		SISO-DUAL	64QAM	Mid	45.73
	100	SISO-DUAL	Pi/2 BPSK	Mid	92.40
		SISO-DUAL	QPSK	Low	92.82
				Mid	92.52
				High	92.72
		MIMO		Mid	95.98
		SISO		Mid	92.88
		SISO-DUAL	16QAM	Mid	92.28
		SISO-DUAL	64QAM	Mid	92.05
2	50	SISO-DUAL	Pi/2 BPSK	Mid	96.42
		SISO-DUAL	QPSK	Low	96.97
				Mid	96.21
				High	96.41
		MIMO		Mid	95.97
		SISO		Mid	96.88
		SISO-DUAL	16QAM	Mid	96.07
		SISO-DUAL	64QAM	Mid	96.49
	100	SISO-DUAL	Pi/2 BPSK	Mid	190.68
		SISO-DUAL	QPSK	Low	191.18
				Mid	190.87
				High	191.70
		MIMO		Mid	194.36
		SISO		Mid	191.39
		SISO-DUAL	16QAM	Mid	191.24
		SISO-DUAL	64QAM	Mid	191.54

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n260, Full-RB

CCs Active	CH BW	Control System	Modulation	Channel	OBW (MHz)
3	50	SISO-DUAL	Pi/2 BPSK	Mid	145.59
		SISO-DUAL	QPSK	Low	145.79
				Mid	145.32
				High	145.53
		MIMO		Mid	144.96
		SISO		Mid	146.65
		SISO-DUAL	16QAM	Mid	145.01
		SISO-DUAL	64QAM	Mid	145.33
	100	SISO-DUAL	Pi/2 BPSK	Mid	290.51
		SISO-DUAL	QPSK	Low	290.40
				Mid	291.74
				High	290.80
		MIMO		Mid	293.70
		SISO		Mid	291.21
		SISO-DUAL	16QAM	Mid	290.70
		SISO-DUAL	64QAM	Mid	291.30
4	50	SISO-DUAL	Pi/2 BPSK	Mid	195.07
		SISO-DUAL	QPSK	Low	195.91
				Mid	195.42
				High	194.53
		MIMO		Mid	194.71
		SISO		Mid	195.69
		SISO-DUAL	16QAM	Mid	194.50
		SISO-DUAL	64QAM	Mid	195.14
	100	SISO-DUAL	Pi/2 BPSK	Mid	389.73
		SISO-DUAL	QPSK	Low	390.37
				Mid	390.57
				High	389.56
		MIMO		Mid	392.38
		SISO		Mid	391.01
		SISO-DUAL	16QAM	Mid	389.80
		SISO-DUAL	64QAM	Mid	390.40

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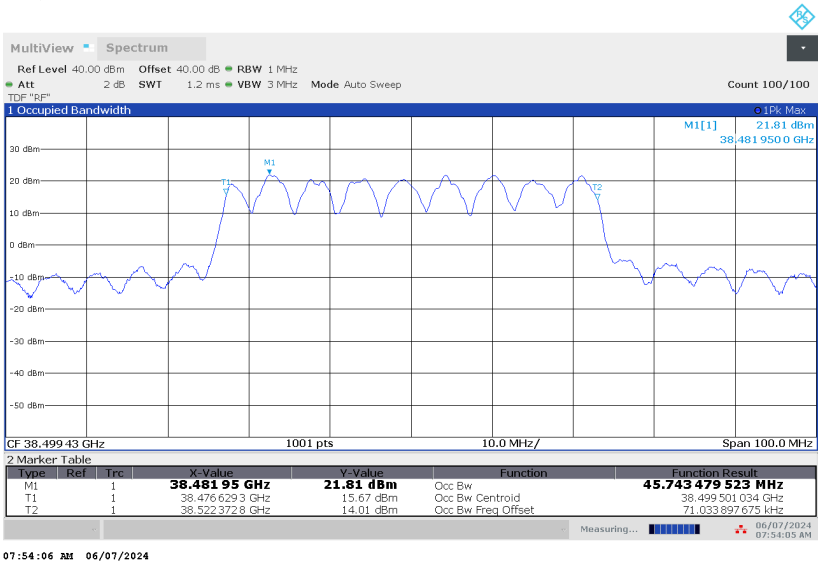
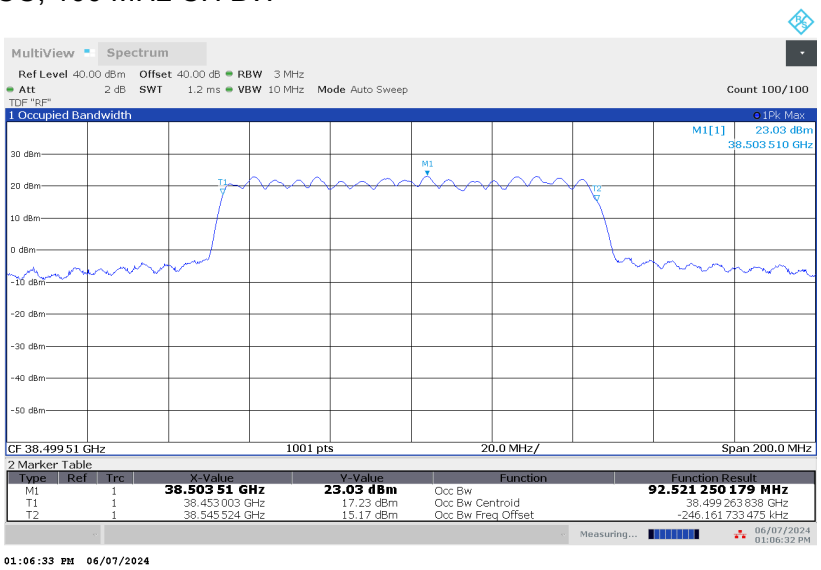
n260, Full-RB, SISO-Dual, QPSK, Mid-CH

1CC, 50 MHz CH BW



1CC, 100 MHz CH BW



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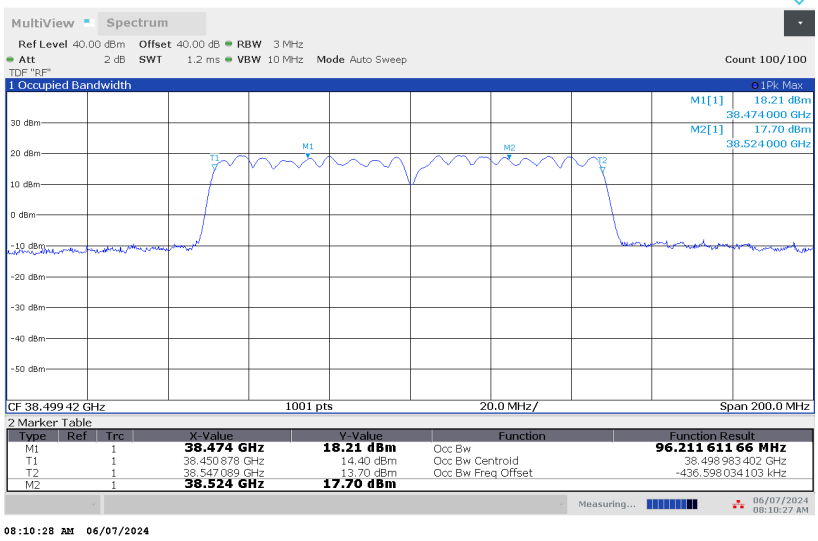
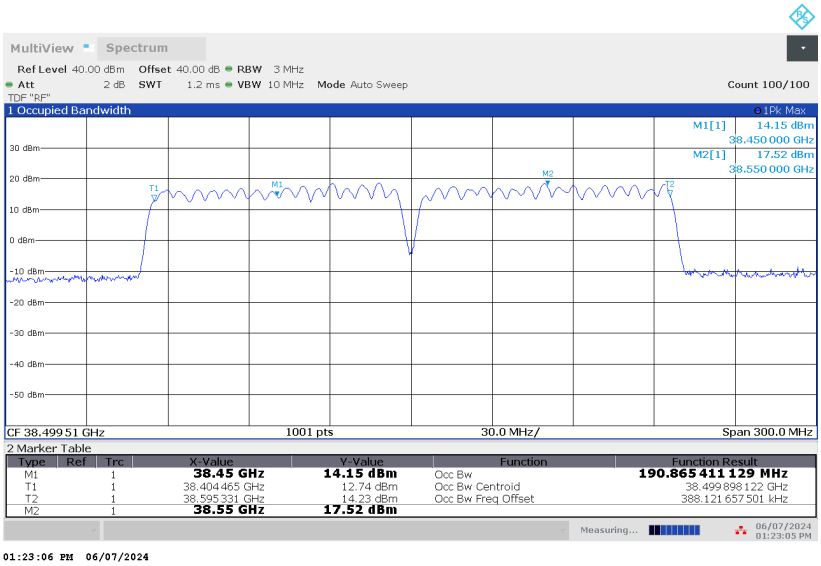
2CC, 50 MHz CH BW



2CC, 100 MHz CH BW



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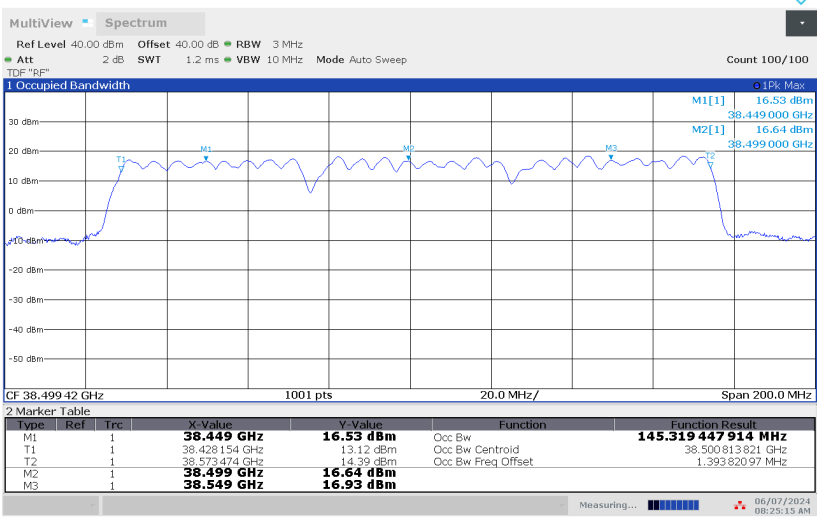
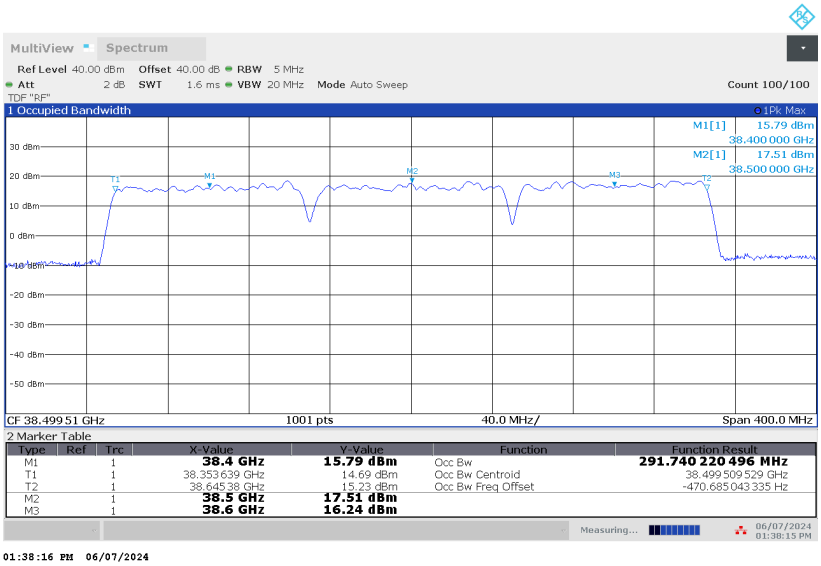
3CC, 50 MHz CH BW



3CC, 100 MHz CH BW



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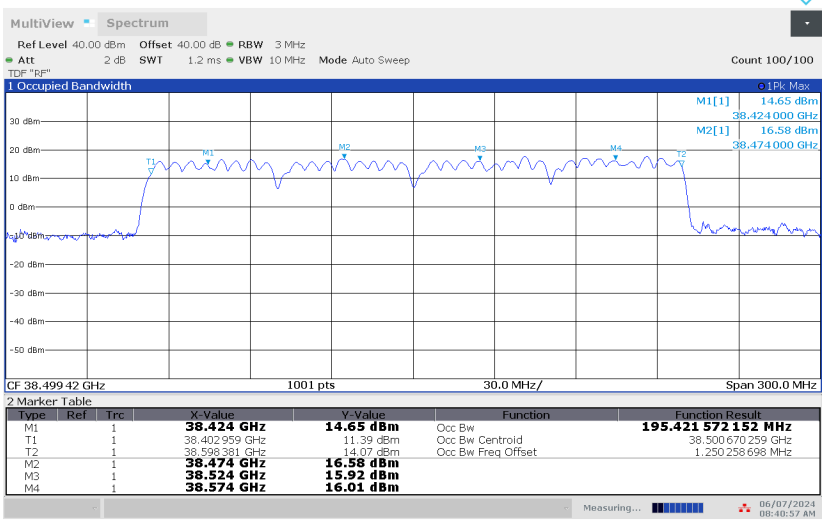
4CC, 50 MHz CH BW



4CC, 100 MHz CH BW

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8.2. EQUIVALENT ISOTROPIC RADIATED POWERS

RULE PART(S)

FCC: §2.1046, §30.202

LIMIT

30.202 (b) - For mobile stations, the average power of the sum of all antenna elements is limited to a maximum EIRP of +43 dBm.

TEST PROCEDURES

Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.

- RBW = 1 – 5% of OBW
- VBW ≥ 3 x RBW
- Span = 2x to 3x of OBW
- Number of measurement points in sweep > 2 x span / RBW
- Sweep Time = Auto Couple
- Detection = Power Averaging (RMS)
- Trace Mode = Average over 100 sweeps

KDB 842590 D01 Upper Microwave Flexible Use Service v01r02 Section 4.2
ANSI C63.26-2015 Clause 5.2, Clause 5.5, Clause 6.4, and Annex C.5.2

EIRP measurements of variable frequency bands were performed at the far field test distance listed on Section 5.

EIRP was calculated using the equations on ANSI C63.26-2015 Annex C.5.2. The total correction factors of horn antenna gain, cable loss and far-field path loss were calculated using equations C.8 and C.9, and pre-loaded into spectrum analyzer.

Sample calculation of EIRP:

Total Correction Factor = Cable Loss (dB) – Horn Ant Gain (dBi) + Path Loss (dB)
= 4 – 23 + 71
= 52 dB

EIRP = $P_{measured}$(dBm), where Total Correction Factor preloaded.

In order to properly display of signal level on the plots, the pre-loaded correction factors were intentional lowered by 40 dB and an offset factor of 40 dB was applied on spectrum analyzer to compensate the true correction factors across frequency range of measurement.

Radiated power levels are investigated while the receive antenna was rotated through all angles to determine the worst-case polarization/positioning.

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The SISO mode operates with either the horizontal or vertical elements active. The SISO-Dual mode operates with both horizontal and vertical elements active at the same power per polarization as the SISO mode. Therefore, the SISO-Dual mode represents the highest total EIRP across both SISO and SISO-Dual modes, only spot checks were performed on the SISO mode to confirm this. Single RB (highest power) and full RB allocations were measured.

Pi/2 BPSK, QPSK, 16QAM and 64QAM modulations were all investigated in SISO-Dual mode. The highest power mode is QPSK for the modulations with SISO-Dual mode. Spot checks in QPSK modulation were performed on the SISO and MIMO modes. Full data is provided for these combinations.

To minimize report size, the 1CC to 4CC plots of Full RB, SISO-Dual, QPSK, any of tested low/mid/high CH with both channel bandwidths are provided to demonstrate the test parameter setting on signal analyzer. The tabular data includes data for the other combinations of test modes.

RESULTS

See the following pages.

Employee IDs: 19459, 24303, 27294, 27446, 27780, 31925, 32226, 103479
Test Date: 04/24/24 – 06/15/24
Test Locations: 01-mmW-A, -B, -C & -D

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8.2.1. EIRP n258 SB1

SISO

CCs Active	CH BW	Modulation	Channel	Frequency	Ant Pol	RB	Avg EIRP	Limit	Margin
	(MHz)			(GHz)		(Size/Offset)	(dBm)	(dBm)	(dB)
1	50	QPSK	Mid	24.349	V	1/15	29.70	43	-13.30
	100			24.349		1/32	29.98	43	-13.02
2	50			24.324		1/15	23.25	43	-19.75
	100			24.299		1/32	23.66	43	-19.34
3	50			24.299		1/15	23.33	43	-19.67
4	50			24.274		1/15	23.63	43	-19.37

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SISO-Dual

CCs Active	CH BW (MHz)	Modulation	Channel	Frequency (GHz)	RB (Size/Offset)	Avg EIRP (dBm)	Limit (dBm)	Margin (dB)
1	50	Pi/2 BPSK	Mid	24.349	1/15	30.63	43	-12.37
		QPSK	Low	24.253	1/0	28.40	43	-14.60
				24.274	1/15	30.75	43	-12.25
				24.275	32/0	26.63	43	-16.37
			Mid	24.349	1/15	30.61	43	-12.39
				24.350	32/0	26.45	43	-16.55
			High	24.420	1/15	30.09	43	-12.91
				24.447	1/31	27.89	43	-15.11
				24.425	32/0	27.47	43	-15.53
		16QAM	Mid	24.349	1/15	28.64	43	-14.36
		64QAM	Mid	24.349	1/15	26.76	43	-16.24
	100	Pi/2 BPSK	Mid	24.349	1/32	30.75	43	-12.25
		QPSK	Low	24.253	1/0	28.18	43	-14.82
				24.299	1/32	30.88	43	-12.12
				24.298	64/0	26.47	43	-16.53
			Mid	24.349	1/32	30.63	43	-12.37
				24.350	64/1	26.59	43	-16.41
			High	24.399	1/32	31.17	43	-11.83
				24.447	1/65	28.31	43	-14.69
				24.401	64/2	26.72	43	-16.28
		16QAM	Mid	24.349	1/32	28.31	43	-14.69
		64QAM	Mid	24.349	1/32	26.52	43	-16.48
2	50	QPSK	Low	24.253	1/0	23.85	43	-19.15
				24.275	32/0	24.36	43	-18.64
			Mid	24.303	1/0	24.80	43	-18.20
				24.324	1/15	23.71	43	-19.29
				24.347	1/31	24.09	43	-18.91
			High	24.397	1/31	24.99	43	-18.01
				24.375	32/0	24.95	43	-18.05
	100	Pi/2 BPSK	Mid	24.300	64/1	24.78	43	-18.22
		QPSK	Low	24.253	1/0	24.03	43	-18.97
			Mid	24.253	1/0	24.67	43	-18.33
				24.299	1/32	23.94	43	-19.06
				24.347	1/65	23.90	43	-19.10
				24.300	64/1	24.77	43	-18.23
			High	24.347	1/65	23.72	43	-19.28
		16QAM	Mid	24.300	64/1	22.97	43	-20.03
		64QAM	Mid	24.300	64/1	20.95	43	-22.05

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SISO-Dual

CCs Active	CH BW (MHz)	Modulation	Channel	Frequency (GHz)	RB (Size/Offset)	Avg EIRP (dBm)	Limit (dBm)	Margin (dB)
3	50	QPSK	Low	24.253	1/0	23.39	43	-19.61
				24.275	32/0	24.25	43	-18.75
			Mid	24.278	1/0	23.91	43	-19.09
				24.299	1/15	24.09	43	-18.91
				24.322	1/31	24.73	43	-18.27
			High	24.347	1/31	24.53	43	-18.47
				24.325	32/0	24.96	43	-18.04
4	50	QPSK	Low	24.253	1/0	23.67	43	-19.33
				24.275	32/0	24.54	43	-18.46
			Mid	24.253	1/0	24.02	43	-18.98
				24.274	1/15	24.41	43	-18.59
				24.297	1/31	24.24	43	-18.76
			High	24.297	1/31	23.26	43	-19.74
				24.275	32/0	25.13	43	-17.87

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MIMO

CCs Active	CH BW (MHz)	Modulation	Channel	Frequency (GHz)	RB (Size/Offset)	Avg EIRP (dBm)	Limit (dBm)	Margin (dB)
1	50	QPSK	Low	24.275	32/0	24.73	43	-18.27
			Mid	24.349	1/15	28.71	43	-14.29
				24.350	32/0	25.13	43	-17.87
			High	24.425	32/0	25.73	43	-17.27
	100		Mid	24.351	1/33	29.08	43	-13.92
				24.350	66/0	26.17	43	-16.83
2	50	QPSK	Low	24.275	32/0	22.57	43	-20.43
			Mid	24.324	1/15	24.42	43	-18.58
				24.325	32/0	23.39	43	-19.61
			High	24.375	32/0	23.39	43	-19.61
	100		Mid	24.301	1/33	25.67	43	-17.33
				24.301	66/0	24.44	43	-18.56
3	50	QPSK	Low	24.275	32/0	22.69	43	-20.31
			Mid	24.299	1/15	24.71	43	-18.29
				24.300	32/0	23.46	43	-19.54
			High	24.325	32/0	23.38	43	-19.62
4	50	QPSK	Low	24.275	32/0	22.89	43	-20.11
			Mid	24.274	1/15	24.97	43	-18.03
				24.275	32/0	23.62	43	-19.38
			High	24.275	32/0	23.51	43	-19.49

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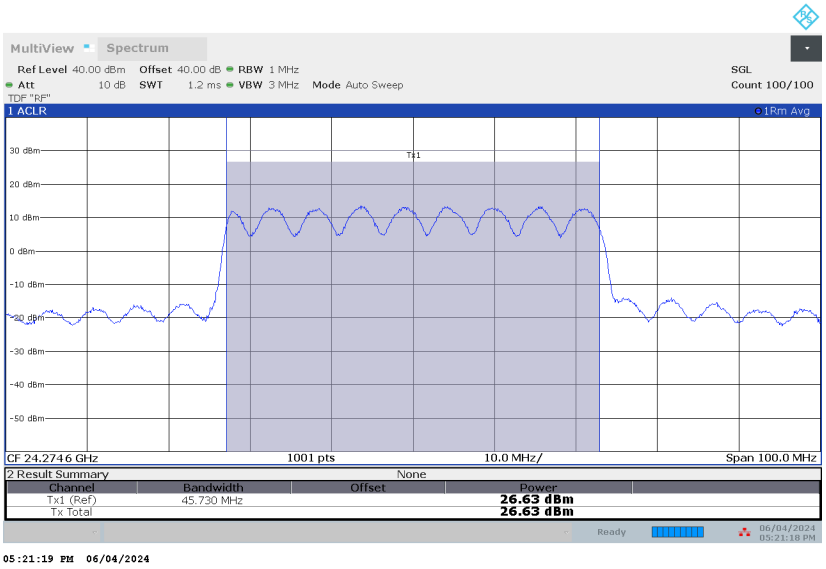
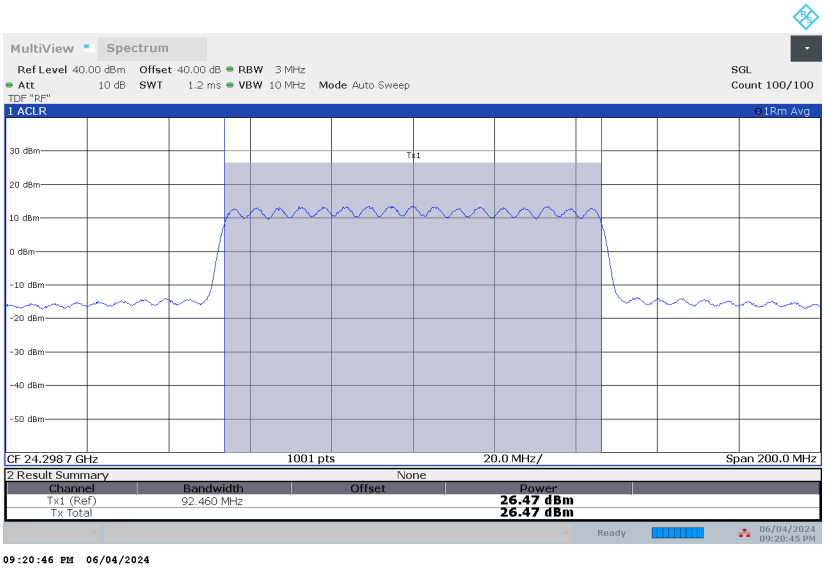
n258 SB1, Full-RB, SISO-Dual, QPSK, 1CC

50 MHz CH BW, Low CH



100 MHz CH BW, Low CH



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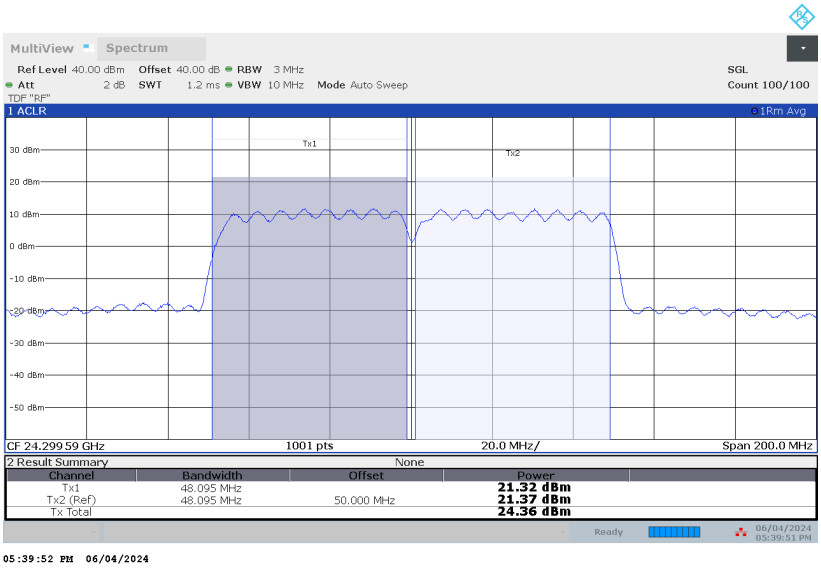
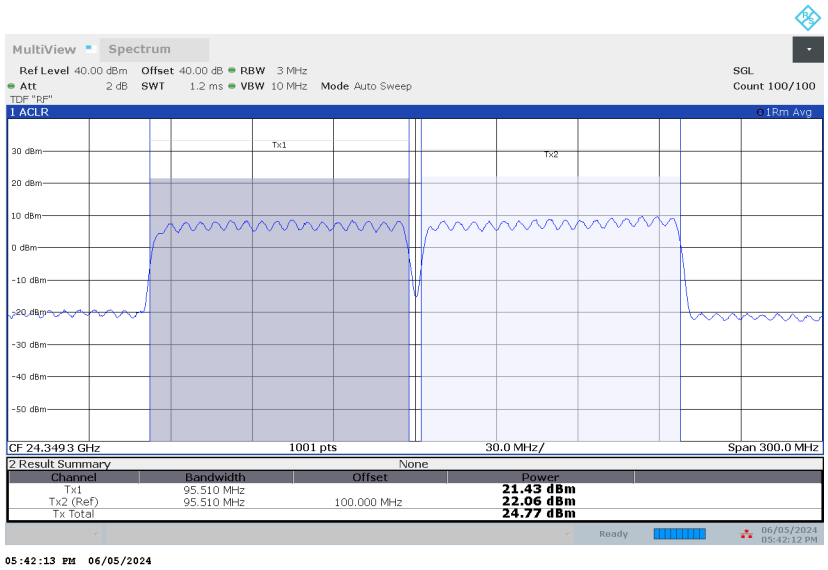
n258 SB1, Full-RB, SISO-Dual, QPSK, 2CC

50 MHz CH BW, Low CH



100 MHz CH BW, Mid CH



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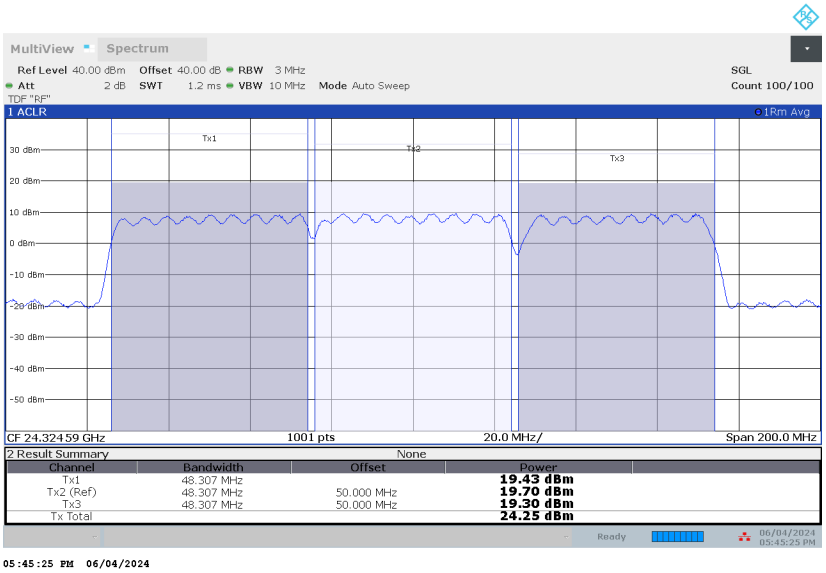
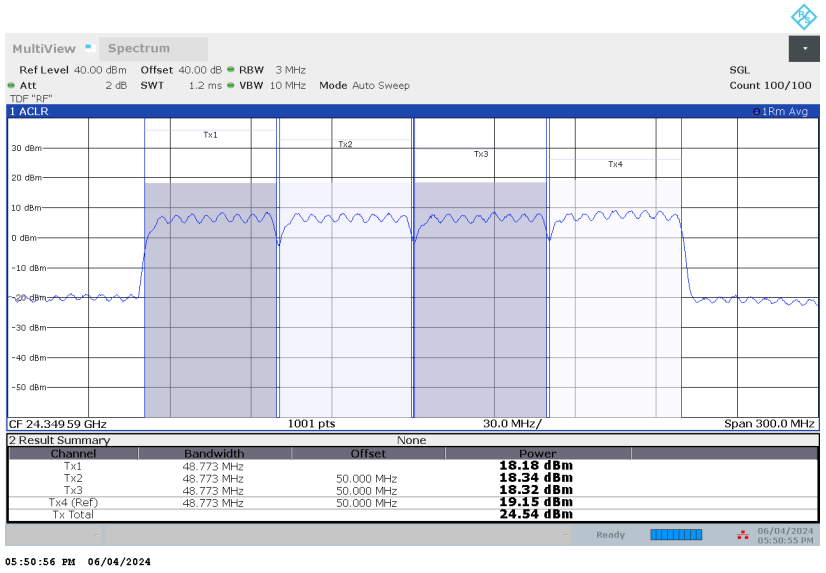
n258 SB1, Full-RB, SISO-Dual, QPSK, 3CC

50 MHz CH BW, Low CH



n258 SB1, Full-RB, SISO-Dual, QPSK, 4CC

50 MHz CH BW, Low CH



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8.2.2. EIRP n258 SB2

SISO

CCs Active	CH BW	Modulation	Channel	Frequency	Ant Pol	RB	Avg EIRP	Limit	Margin
	(MHz)			(GHz)		(Size/Offset)	(dBm)	(dBm)	(dB)
1	50	QPSK	Mid	24.999	V	1/15	29.76	43	-13.24
	100			24.999		1/32	29.75	43	-13.25
2	50			24.974		1/15	23.03	43	-19.97
	100			24.949		1/32	23.13	43	-19.87
3	50			24.949		1/15	23.14	43	-19.86
	100			24.899		1/32	22.83	43	-20.17
4	50			24.924		1/15	23.24	43	-19.76
	100			24.849		1/32	22.83	43	-20.17

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SISO-Dual

CCs Active	CH BW (MHz)	Modulation	Channel	Frequency (GHz)	RB (Size/Offset)	Avg EIRP (dBm)	Limit (dBm)	Margin (dB)
1	50	Pi/2 BPSK	Mid	24.999	1/15	29.71	43	-13.29
		QPSK	Low	24.753	1/0	27.34	43	-15.66
				24.774	1/15	30.42	43	-12.58
				24.775	32/0	25.67	43	-17.33
			Mid	24.999	1/15	29.93	43	-13.07
				25.000	32/0	25.46	43	-17.54
			High	25.224	1/15	30.99	43	-12.01
				25.247	1/31	28.38	43	-14.62
				25.225	32/0	26.28	43	-16.72
		16QAM	Mid	24.999	1/15	27.93	43	-15.07
		64QAM		24.999	1/15	25.40	43	-17.60
	100	Pi/2 BPSK	Mid	24.999	1/32	30.41	43	-12.59
		QPSK	Low	24.753	1/0	27.08	43	-15.92
				24.799	1/32	30.82	43	-12.18
				24.799	64/0	25.46	43	-17.54
			Mid	24.999	1/32	30.57	43	-12.43
			High	25.199	1/32	30.80	43	-12.20
				25.247	1/65	28.13	43	-14.87
				25.201	64/2	25.85	43	-17.15
		16QAM	Mid	24.999	1/32	28.46	43	-14.54
		64QAM		24.999	1/32	26.05	43	-16.95
2	50	QPSK	Low	24.753	1/0	22.85	43	-20.15
				24.775	32/0	23.26	43	-19.74
			Mid	24.952	1/0	22.36	43	-20.64
				24.974	1/15	22.76	43	-20.24
				24.997	1/31	23.09	43	-19.91
			High	25.197	1/31	23.86	43	-19.14
				25.175	32/0	23.85	43	-19.15
	100	Pi/2 BPSK	Mid	24.949	64/1	24.30	43	-18.70
		QPSK	Low	24.753	1/0	22.73	43	-20.27
				24.799	64/0	24.13	43	-18.87
			Mid	24.903	1/0	23.89	43	-19.11
				24.949	1/32	23.37	43	-19.63
				24.997	1/65	22.59	43	-20.41
			High	25.147	1/65	22.25	43	-20.75
				25.101	64/2	24.20	43	-18.80
		16QAM	Mid	24.949	64/1	22.43	43	-20.57
		64QAM		24.949	64/1	20.34	43	-22.66

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SISO-Dual

CCs Active	CH BW (MHz)	Modulation	Channel	Frequency (GHz)	RB (Size/Offset)	Avg EIRP (dBm)	Limit (dBm)	Margin (dB)
3	50	QPSK	Low	24.753	1/0	22.72	43	-20.28
				24.775	32/0	23.77	43	-19.23
			Mid	24.928	1/0	22.83	43	-20.17
				24.949	1/15	23.19	43	-19.81
				24.972	1/31	23.54	43	-19.46
			High	25.147	1/31	23.55	43	-19.45
				25.125	32/0	23.94	43	-19.06
	100	QPSK	Low	24.753	1/0	22.58	43	-20.42
				24.799	64/0	23.99	43	-19.01
			Mid	24.853	1/0	23.57	43	-19.43
				24.899	1/32	23.27	43	-19.73
				24.947	1/65	22.24	43	-20.76
			High	25.047	1/65	22.97	43	-20.03
				25.001	64/2	24.07	43	-18.93
4	50	QPSK	Low	24.753	1/0	22.86	43	-20.14
				24.775	32/0	24.14	43	-18.86
			Mid	24.902	1/0	22.77	43	-20.23
				24.924	1/15	22.12	43	-20.88
				24.947	1/31	22.66	43	-20.34
			High	25.097	1/31	22.59	43	-20.41
				25.075	32/0	24.58	43	-18.42
	100	Pi/2 BPSK	Mid	24.849	64/1	24.33	43	-18.67
		QPSK	Low	24.753	1/0	22.60	43	-20.40
				24.799	64/0	24.12	43	-18.88
			Mid	24.803	1/0	23.40	43	-19.60
				24.849	1/32	23.29	43	-19.71
				24.897	1/65	22.07	43	-20.93
			High	24.947	1/65	22.31	43	-20.69
				24.901	64/2	24.23	43	-18.77
		16QAM	Mid	24.849	64/1	22.53	43	-20.47
		64QAM	Mid	24.849	64/1	20.45	43	-22.55

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MIMO

CCs Active	CH BW (MHz)	Modulation	Channel	Frequency (GHz)	RB (Size/Offset)	Avg EIRP (dBm)	Limit (dBm)	Margin (dB)
1	50	QPSK	Low	24.775	32/0	23.41	43	-19.59
			Mid	24.999	1/15	27.28	43	-15.72
				25.000	32/0	24.08	43	-18.92
			High	25.225	32/0	24.05	43	-18.95
	100		Low	24.799	66/0	24.24	43	-18.76
			Mid	25.001	1/33	28.58	43	-14.42
				24.999	66/0	24.93	43	-18.07
			High	25.199	66/0	25.57	43	-17.43
2	50	QPSK	Low	24.775	32/0	21.18	43	-21.82
			Mid	24.974	1/15	23.51	43	-19.49
				24.975	32/0	22.00	43	-21.00
			High	25.175	32/0	21.89	43	-21.11
	100		Low	24.799	66/0	22.68	43	-20.32
			Mid	24.951	1/33	24.95	43	-18.05
				24.949	66/0	23.59	43	-19.41
			High	25.099	66/0	24.09	43	-18.91
3	50	QPSK	Low	24.775	32/0	21.87	43	-21.13
			Mid	24.949	1/15	23.68	43	-19.32
				24.950	32/0	22.23	43	-20.77
			High	25.125	32/0	22.08	43	-20.92
	100		Low	24.799	66/0	22.59	43	-20.41
			Mid	24.901	1/33	25.00	43	-18.00
				24.899	66/0	23.63	43	-19.37
			High	24.999	66/0	24.03	43	-18.97
4	50	QPSK	Low	24.775	32/0	22.11	43	-20.89
			Mid	24.924	1/15	23.73	43	-19.27
				24.925	32/0	22.61	43	-20.39
			High	25.075	32/0	22.58	43	-20.42
	100		Low	24.799	66/0	22.68	43	-20.32
			Mid	24.851	1/33	25.10	43	-17.90
				24.849	66/0	23.71	43	-19.29
			High	24.899	66/0	23.92	43	-19.08

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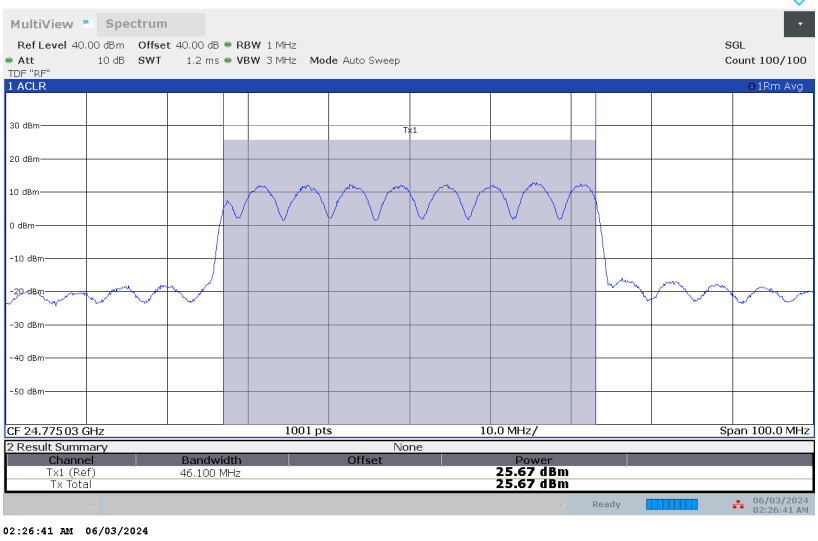
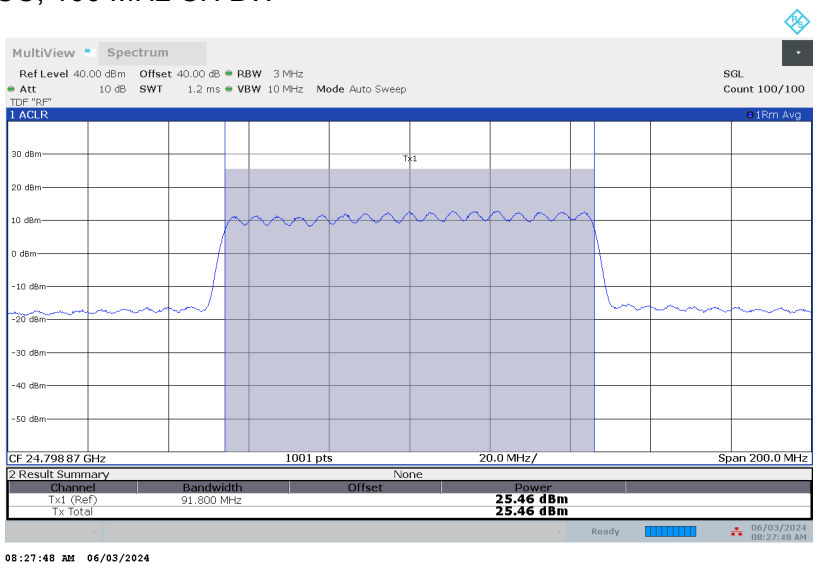
n258 SB2, Full-RB, SISO-Dual, QPSK, Low CH

1CC, 50 MHz CH BW



1CC, 100 MHz CH BW



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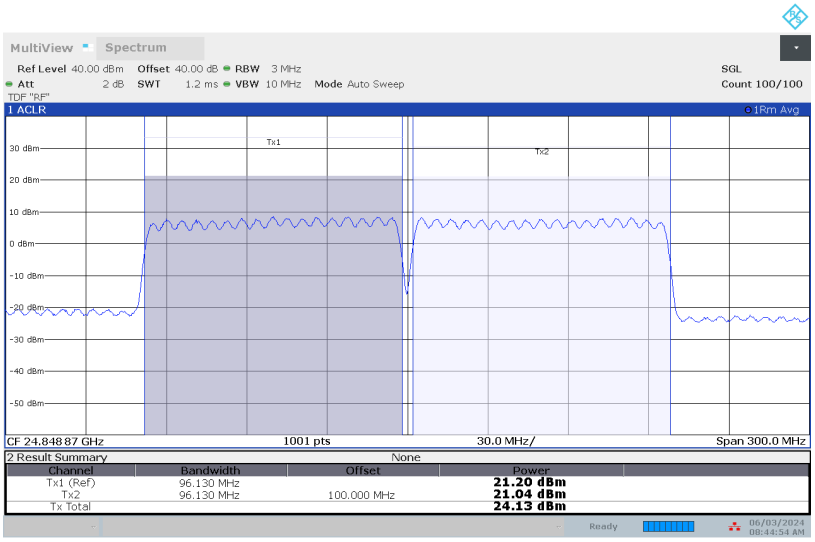
2CC, 50 MHz CH BW

02:45:04 AM 06/03/2024

2CC, 100 MHz CH BW



08:44:54 AM 06/03/2024

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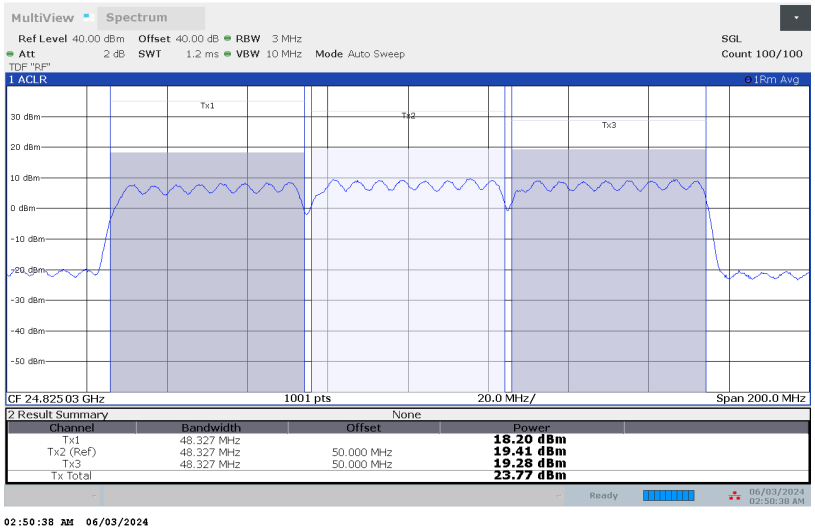
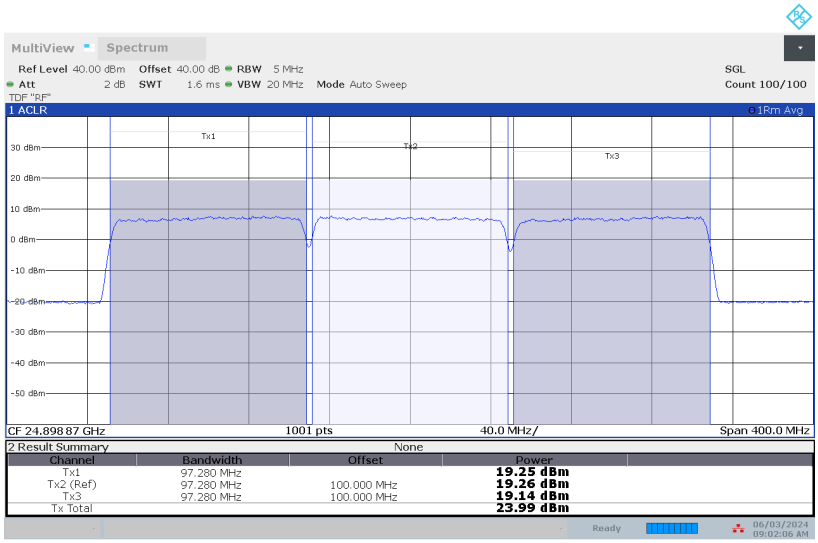
3CC, 50 MHz CH BW



02:50:38 AM 06/03/2024

3CC, 100 MHz CH BW



09:02:06 AM 06/03/2024

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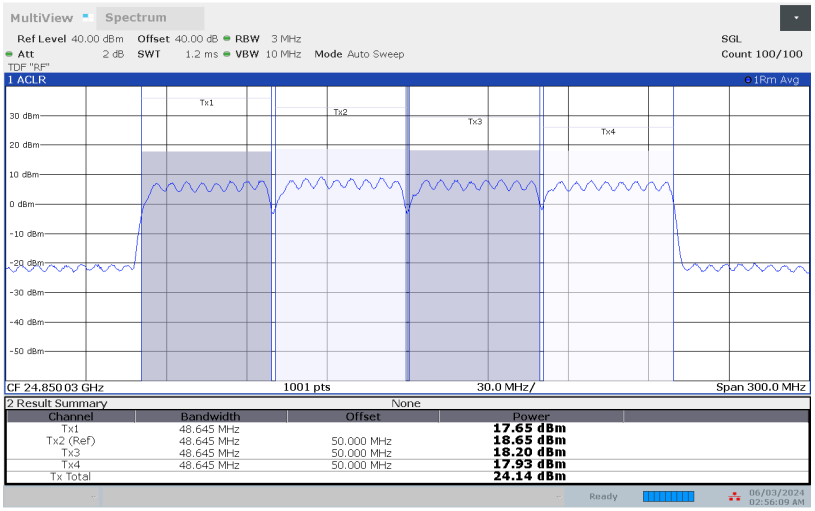
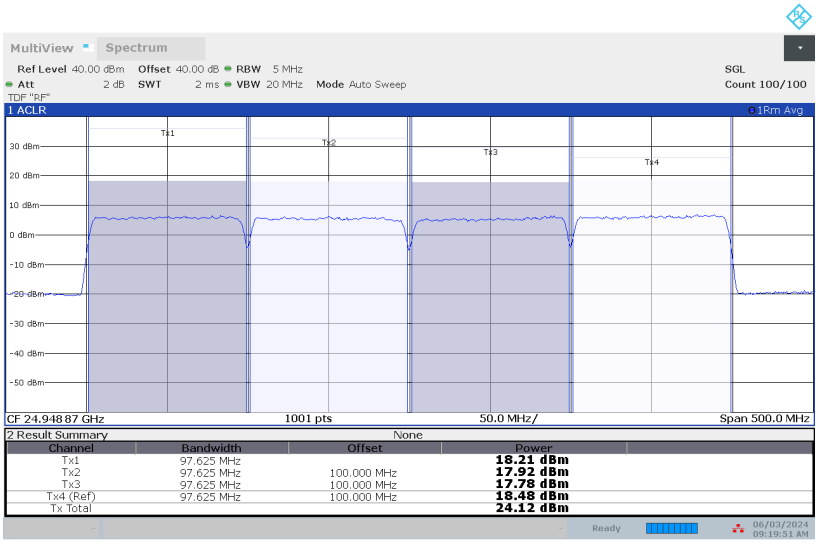
4CC, 50 MHz CH BW



02:56:10 AM 06/03/2024

4CC, 100 MHz CH BW



09:19:51 AM 06/03/2024

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8.2.3. EIRP n261

SISO

CCs Active	CH BW (MHz)	Modulation	Channel	Frequency (GHz)	Ant Pol	RB (Size/Offset)	Avg EIRP (dBm)	Limit (dBm)	Margin (dB)
1	50	QPSK	Mid	27.924	H	1/15	29.47	43	-13.53
	100			27.924		1/32	28.88	43	-14.12
2	50			27.899		1/15	22.51	43	-20.49
	100			27.874		1/32	22.28	43	-20.72
3	50			27.874		1/15	22.51	43	-20.49
	100			27.824		1/32	22.41	43	-20.59
4	50			27.849		1/15	22.41	43	-20.59
	100			27.774		1/32	22.38	43	-20.62

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SISO-Dual

CCs Active	CH BW (MHz)	Modulation	Channel	Frequency (GHz)	RB (Size/Offset)	Avg EIRP (dBm)	Limit (dBm)	Margin (dB)
1	50	Pi/2 BPSK	Mid	27.925	1/15	30.72	43	-12.28
		QPSK	Low	27.502	1/0	28.94	43	-14.06
				27.524	1/15	31.70	43	-11.30
				27.529	32/0	27.04	43	-15.96
			Mid	27.925	1/15	30.67	43	-12.33
				27.925	32/0	26.89	43	-16.11
			High	28.324	1/15	29.81	43	-13.19
				28.374	1/31	27.65	43	-15.35
				28.325	32/0	26.24	43	-16.76
		16QAM	Mid	27.925	1/15	28.56	43	-14.44
		64QAM	Mid	27.925	1/15	26.48	43	-16.52
	100	Pi/2 BPSK	Mid	27.924	1/32	30.35	43	-12.65
		QPSK	Low	27.503	1/0	29.23	43	-13.77
				27.549	1/32	31.34	43	-11.66
				27.549	64/0	27.03	43	-15.97
			Mid	27.924	1/32	30.28	43	-12.72
			High	28.299	1/32	30.24	43	-12.76
				28.347	1/65	27.72	43	-15.28
				28.301	64/2	26.05	43	-16.95
		16QAM	Mid	27.924	1/32	28.17	43	-14.83
		64QAM	Mid	27.924	1/32	26.75	43	-16.25
2	50	QPSK	Low	27.502	1/0	24.23	43	-18.77
				27.525	32/0	24.54	43	-18.46
			Mid	27.878	1/0	24.09	43	-18.91
				27.899	1/15	24.14	43	-18.86
				27.922	1/31	24.32	43	-18.68
			High	28.297	1/31	23.44	43	-19.56
				28.275	32/0	24.04	43	-18.96
	100	Pi/2 BPSK	Mid	27.875	64/1	24.91	43	-18.09
		QPSK	Low	27.503	1/0	24.83	43	-18.17
				27.549	64/0	24.74	43	-18.26
			Mid	27.828	1/0	24.81	43	-18.19
				27.874	1/32	23.59	43	-19.41
				27.875	64/1	23.52	43	-19.48
			High	28.247	1/65	22.06	43	-20.94
				28.201	64/2	23.92	43	-19.08
		16QAM	Mid	27.875	64/1	23.07	43	-19.93
		64QAM	Mid	27.875	64/1	21.12	43	-21.88

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SISO-Dual

CCs Active	CH BW (MHz)	Modulation	Channel	Frequency (GHz)	RB (Size/Offset)	Avg EIRP (dBm)	Limit (dBm)	Margin (dB)
3	50	QPSK	Low	27.503	1/0	23.67	43	-19.33
				27.525	32/0	24.44	43	-18.56
			Mid	27.853	1/0	24.28	43	-18.72
				27.874	1/15	24.06	43	-18.94
				27.897	1/31	23.70	43	-19.30
			High	28.247	1/31	22.40	43	-20.60
				28.225	32/0	24.05	43	-18.95
	100	QPSK	Low	27.503	1/0	24.35	43	-18.65
				27.549	64/0	24.54	43	-18.46
			Mid	27.778	1/0	24.02	43	-18.98
				27.824	1/32	23.94	43	-19.06
				27.872	1/65	22.27	43	-20.73
			High	28.147	1/65	23.50	43	-19.50
				28.101	64/2	23.69	43	-19.31
4	50	QPSK	Low	27.503	1/0	23.55	43	-19.45
				27.525	32/0	24.56	43	-18.44
			Mid	27.828	1/0	23.34	43	-19.66
				27.849	1/15	24.00	43	-19.00
				27.872	1/31	23.71	43	-19.29
			High	28.197	1/31	22.78	43	-20.22
				28.175	32/0	24.19	43	-18.81
	100	Pi/2 BPSK	Mid	27.775	64/1	24.80	43	-18.20
		QPSK	Low	27.503	1/0	24.04	43	-18.96
				37.549	64/0	24.62	43	-18.38
			Mid	27.728	1/0	22.85	43	-20.15
				27.774	1/32	23.95	43	-19.05
				27.822	1/65	22.19	43	-20.81
			High	28.047	1/65	23.46	43	-19.54
				28.001	64/2	23.76	43	-19.24
		16QAM	Mid	27.775	64/1	22.98	43	-20.02
		64QAM	Mid	27.775	64/1	20.95	43	-22.05

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MIMO

CCs Active	CH BW (MHz)	Modulation	Channel	Frequency (GHz)	RB (Size/Offset)	Avg EIRP (dBm)	Limit (dBm)	Margin (dB)
1	50	QPSK	Low	27.524	32/0	24.86	43	-18.14
			Mid	27.924	1/15	27.14	43	-15.86
				27.924	32/0	25.01	43	-17.99
			High	28.325	32/0	23.97	43	-19.03
	100		Low	27.550	66/0	25.28	43	-17.72
			Mid	27.926	1/33	28.28	43	-14.72
				27.924	66/0	24.97	43	-18.03
			High	28.301	66/0	24.50	43	-18.50
2	50	QPSK	Low	27.524	32/0	22.55	43	-20.45
			Mid	27.899	1/15	23.62	43	-19.38
				27.899	32/0	22.77	43	-20.23
			High	28.275	32/0	22.02	43	-20.98
	100		Low	27.550	66/0	23.22	43	-19.78
			Mid	27.876	1/33	25.03	43	-17.97
				27.874	66/0	23.12	43	-19.88
			High	28.200	66/0	22.59	43	-20.41
3	50	QPSK	Low	25.524	32/0	22.59	43	-20.41
			Mid	27.874	1/15	23.66	43	-19.34
				27.874	32/0	22.97	43	-20.03
			High	28.225	32/0	22.11	43	-20.89
	100		Low	27.550	66/0	22.95	43	-20.05
			Mid	27.826	1/33	25.08	43	-17.92
				27.824	66/0	22.96	43	-20.04
			High	28.100	66/0	22.63	43	-20.37
4	50	QPSK	Low	27.524	32/0	22.53	43	-20.47
			Mid	27.849	1/15	23.84	43	-19.16
				27.849	32/0	23.16	43	-19.84
			High	28.175	32/0	22.11	43	-20.89
	100		Low	27.550	66/0	23.06	43	-19.94
			Mid	27.776	1/33	24.92	43	-18.08
				27.774	66/0	23.42	43	-19.58
			High	28.000	66/0	22.69	43	-20.31

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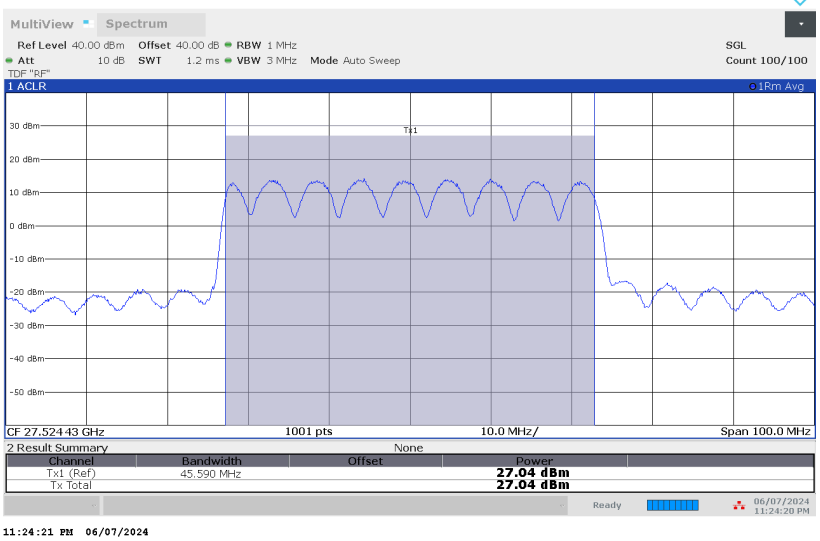
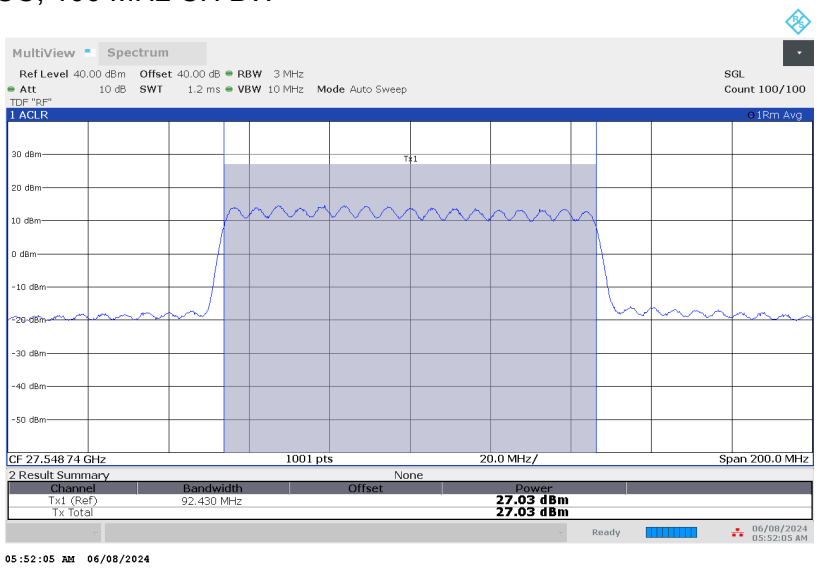
n261, Full-RB, SISO-Dual, QPSK, Low CH

1CC, 50 MHz CH BW



1CC, 100 MHz CH BW



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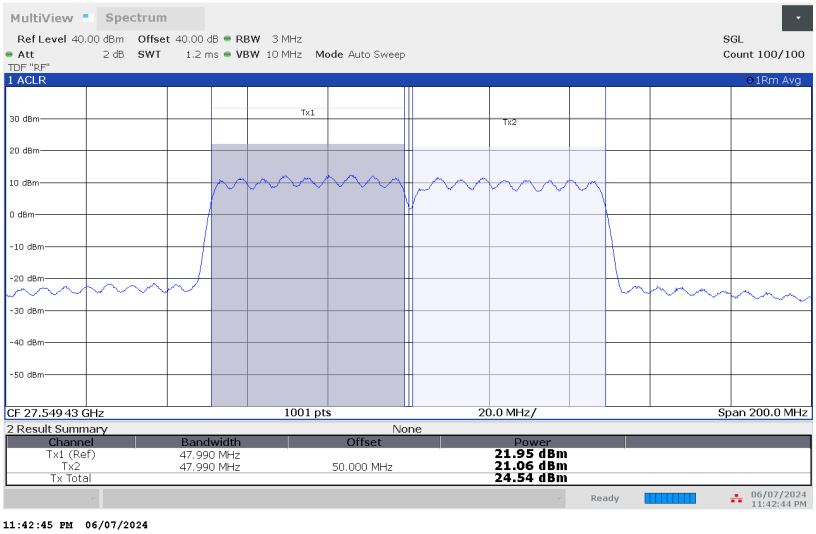
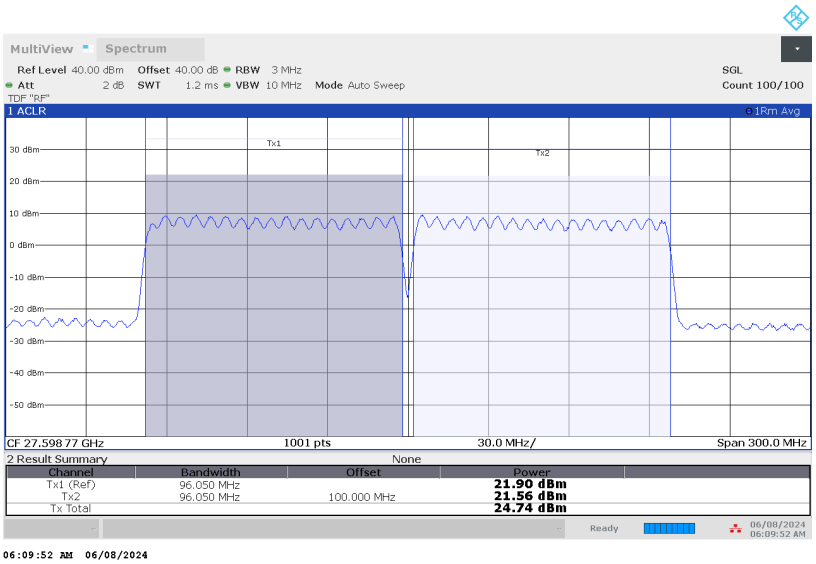
2CC, 50 MHz CH BW



2CC, 100 MHz CH BW



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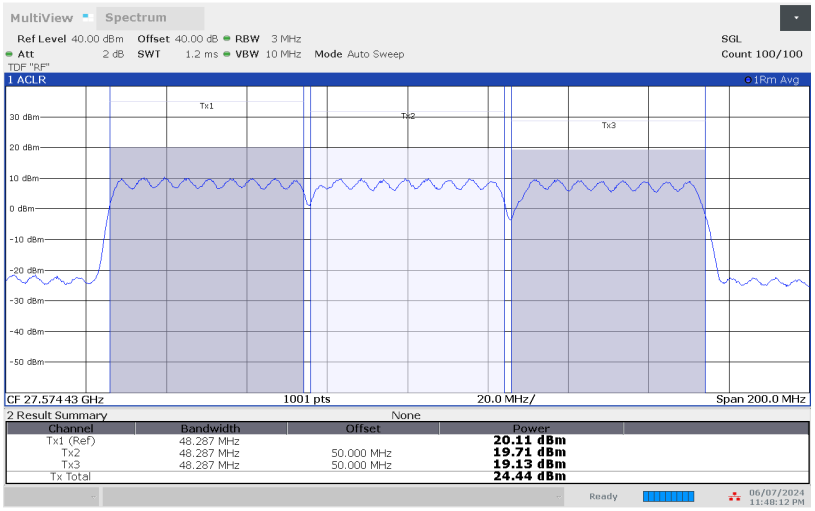
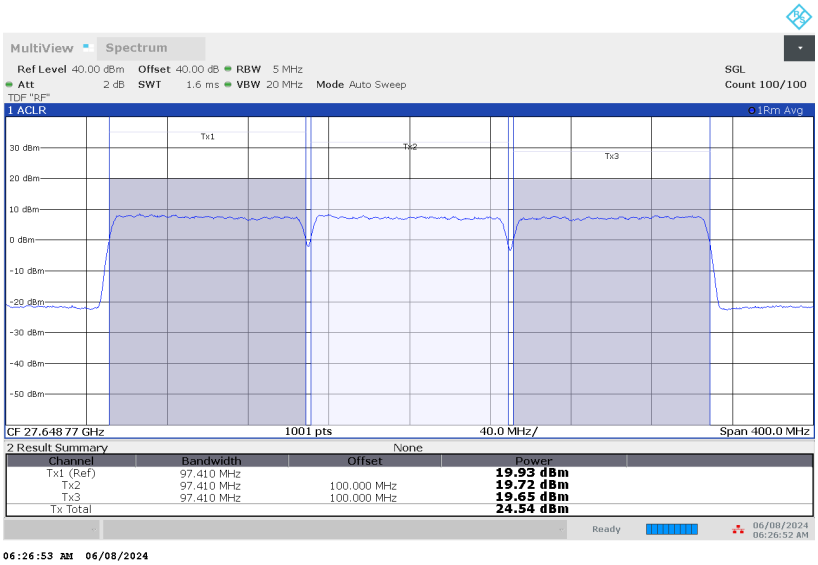
3CC, 50 MHz CH BW



3CC, 100 MHz CH BW



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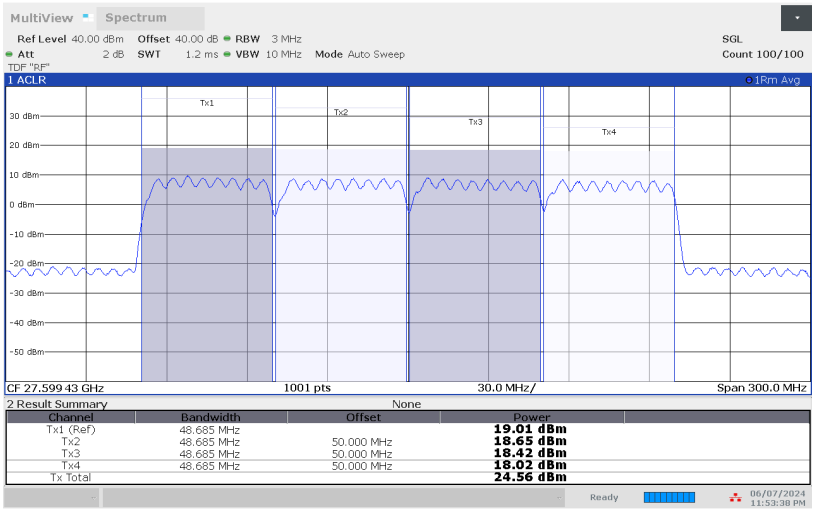
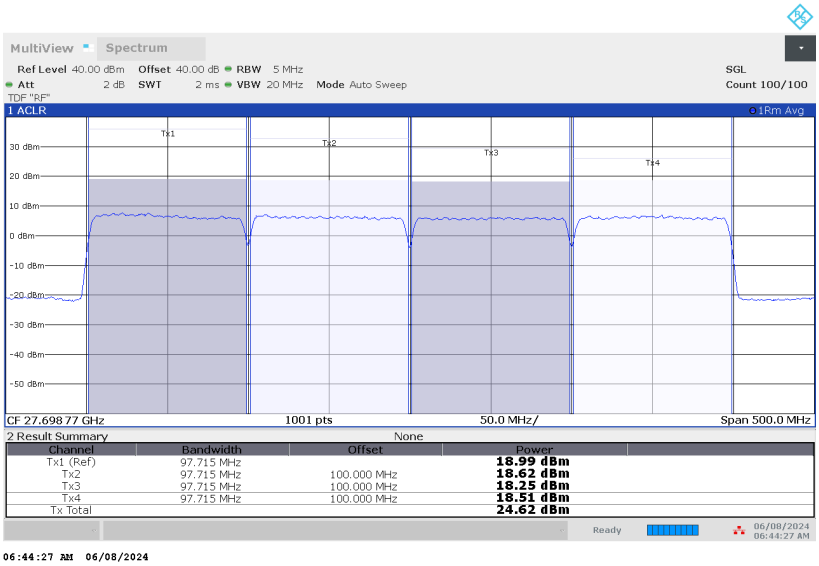
4CC, 50 MHz CH BW



4CC, 100 MHz CH BW



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8.2.4. EIRP n260

SISO

CCs Active	CH BW	Modulation	Channel	Frequency	Ant Pol	RB	Avg EIRP	Limit	Margin
	(MHz)			(GHz)		(Size/Offset)	(dBm)	(dBm)	(dB)
1	50	QPSK	Mid	38.499	V	1/15	27.74	43	-15.26
	100			38.499		1/32	27.96	43	-15.04
2	50			38.474		1/15	21.17	43	-21.83
	100			38.449		1/32	21.27	43	-21.73
3	50			38.449		1/15	21.30	43	-21.70
	100			38.399		1/32	21.50	43	-21.50
4	50			38.424		1/15	21.46	43	-21.54
	100			38.349		1/32	21.49	43	-21.51

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SISO-Dual

CCs Active	CH BW (MHz)	Modulation	Channel	Frequency (GHz)	RB (Size/Offset)	Avg EIRP (dBm)	Limit (dBm)	Margin (dB)
1	50	Pi/2 BPSK	Mid	38.499	1/15	30.11	43	-12.89
		QPSK	Low	37.003	1/0	28.02	43	-14.98
				37.024	1/15	30.98	43	-12.02
				37.025	32/0	27.58	43	-15.42
			Mid	38.499	1/15	30.32	43	-12.68
				38.500	32/0	25.69	43	-17.31
			High	39.974	1/15	30.74	43	-12.26
				39.997	1/31	26.98	43	-16.02
				39.975	32/0	27.18	43	-15.82
		16QAM	Mid	38.499	1/15	28.21	43	-14.79
		64QAM	Mid	38.499	1/15	26.26	43	-16.74
	100	Pi/2 BPSK	Mid	38.499	1/32	30.96	43	-12.04
		QPSK	Low	37.003	1/0	27.70	43	-15.30
				37.049	1/32	30.73	43	-12.27
				37.048	64/0	27.99	43	-15.01
			Mid	38.499	1/32	31.01	43	-11.99
			High	39.949	1/32	30.84	43	-12.16
				39.997	1/65	28.00	43	-15.00
				39.951	64/2	26.58	43	-16.42
		16QAM	Mid	38.499	1/32	28.70	43	-14.30
		64QAM		38.499	1/32	27.20	43	-15.80
2	50	QPSK	Low	37.003	1/0	23.89	43	-19.11
				37.025	32/0	24.60	43	-18.40
			Mid	38.452	1/0	23.16	43	-19.84
				38.474	1/15	23.04	43	-19.96
				38.497	1/31	24.70	43	-18.30
			High	39.947	1/31	24.19	43	-18.81
				39.925	32/0	23.93	43	-19.07
	100	Pi/2 BPSK	Mid	38.450	64/1	24.48	43	-18.52
		QPSK	Low	37.003	1/0	22.57	43	-20.43
				37.049	64/0	25.00	43	-18.00
			Mid	38.403	1/0	23.82	43	-19.18
				38.449	1/32	23.98	43	-19.02
				38.497	1/65	24.48	43	-18.52
			High	39.897	1/65	22.64	43	-20.36
				39.851	64/2	23.75	43	-19.25
		16QAM	Mid	38.450	64/1	22.97	43	-20.03
		64QAM	Mid	38.450	64/1	21.11	43	-21.89

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SISO-Dual

CCs Active	CH BW (MHz)	Modulation	Channel	Frequency (GHz)	RB (Size/Offset)	Avg EIRP (dBm)	Limit (dBm)	Margin (dB)
3	50	QPSK	Low	37.003	1/0	23.98	43	-19.02
				37.025	32/0	24.56	43	-18.44
			Mid	38.428	1/0	23.80	43	-19.20
				38.449	1/15	23.71	43	-19.29
				38.472	1/31	23.97	43	-19.03
			High	39.897	1/31	23.96	43	-19.04
				39.875	32/0	23.90	43	-19.10
	100	QPSK	Low	37.003	1/0	23.65	43	-19.35
				37.049	64/0	24.90	43	-18.10
			Mid	38.353	1/0	23.00	43	-20.00
				38.399	1/32	24.12	43	-18.88
				38.447	1/65	24.34	43	-18.66
			High	39.797	1/65	24.70	43	-18.30
				39.751	64/2	23.46	43	-19.54
4	50	QPSK	Low	37.003	1/0	24.85	43	-18.15
				37.025	32/0	24.58	43	-18.42
			Mid	38.402	1/0	24.89	43	-18.11
				38.424	1/15	23.24	43	-19.76
				38.447	1/31	24.14	43	-18.86
			High	39.847	1/31	23.79	43	-19.21
				39.825	32/0	23.71	43	-19.29
	100	Pi/2 BPSK	Mid	38.350	64/1	24.64	43	-18.36
		QPSK	Low	37.003	1/0	23.54	43	-19.46
				37.049	64/0	24.92	43	-18.08
			Mid	38.303	1/0	23.42	43	-19.58
				38.349	1/32	24.08	43	-18.92
				38.397	1/65	24.35	43	-18.65
			High	39.697	1/65	22.89	43	-20.11
				39.651	64/2	23.63	43	-19.37
		16QAM	Mid	38.350	64/1	23.08	43	-19.92
		64QAM	Mid	38.350	64/1	21.13	43	-21.87

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MIMO

CCs Active	CH BW (MHz)	Modulation	Channel	Frequency (GHz)	RB (Size/Offset)	Avg EIRP	Limit (dBm)	Margin (dB)
1	50	QPSK	Low	37.025	32/0	26.42	43	-16.58
			Mid	38.498	1/15	27.64	43	-15.36
				38.499	32/0	24.64	43	-18.36
			High	39.975	32/0	25.15	43	-17.85
	100		Low	37.050	66/0	26.11	43	-16.89
			Mid	38.501	1/33	28.61	43	-14.39
				38.500	66/0	24.94	43	-18.06
			High	39.950	66/0	25.08	43	-17.92
2	50	QPSK	Low	37.025	32/0	23.96	43	-19.04
			Mid	38.474	1/15	23.75	43	-19.25
				38.474	32/0	22.67	43	-20.33
			High	39.925	32/0	22.48	43	-20.52
	100		Low	37.050	66/0	23.67	43	-19.33
			Mid	38.451	1/33	24.61	43	-18.39
				38.450	66/0	23.34	43	-19.66
			High	39.850	66/0	22.97	43	-20.03
3	50	QPSK	Low	37.025	32/0	23.76	43	-19.24
			Mid	38.449	1/15	24.05	43	-18.95
				38.449	32/0	22.82	43	-20.18
			High	39.875	32/0	22.43	43	-20.57
	100		Low	37.050	66/0	23.54	43	-19.46
			Mid	38.401	1/33	25.00	43	-18.00
				38.400	66/0	23.27	43	-19.73
			High	39.750	66/0	22.72	43	-20.28
4	50	QPSK	Low	37.025	32/0	23.87	43	-19.13
			Mid	38.424	1/15	24.28	43	-18.72
				38.424	32/0	22.83	43	-20.17
			High	39.825	32/0	22.31	43	-20.69
	100		Low	37.050	66/0	23.66	43	-19.34
			Mid	38.351	1/33	24.98	43	-18.02
				38.350	66/0	23.46	43	-19.54
			High	39.650	66/0	22.79	43	-20.21

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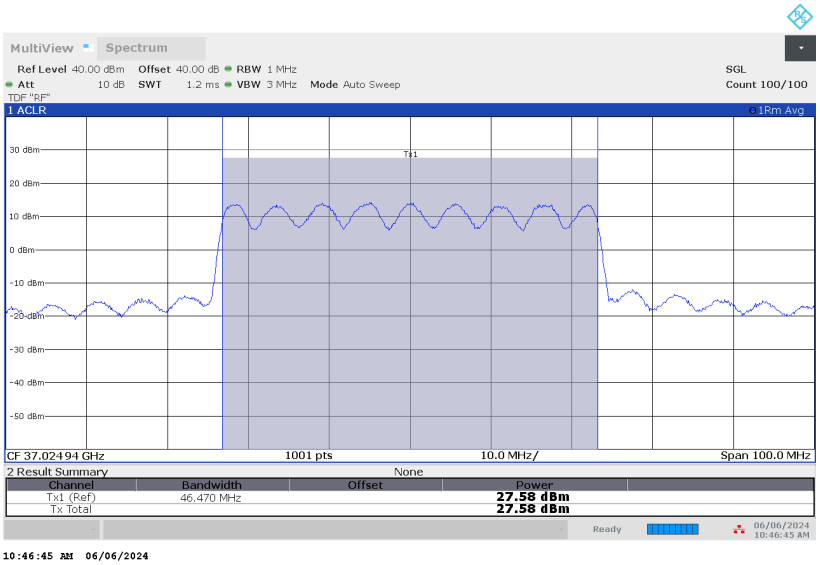
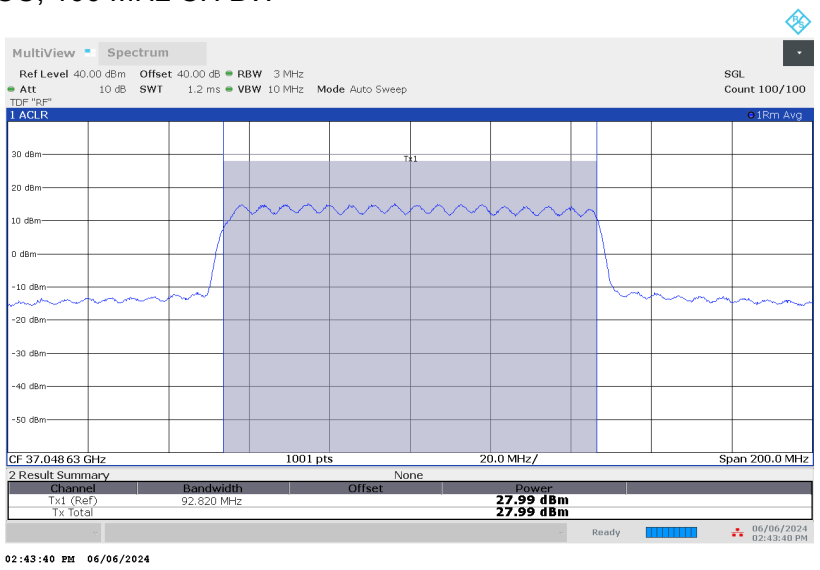
n260, Full-RB, SISO-Dual, QPSK, Low CH

1CC, 50 MHz CH BW



1CC, 100 MHz CH BW



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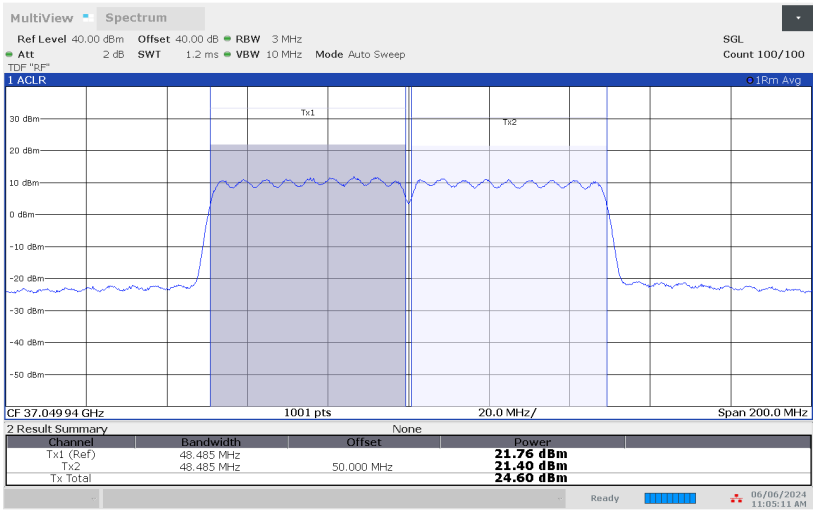
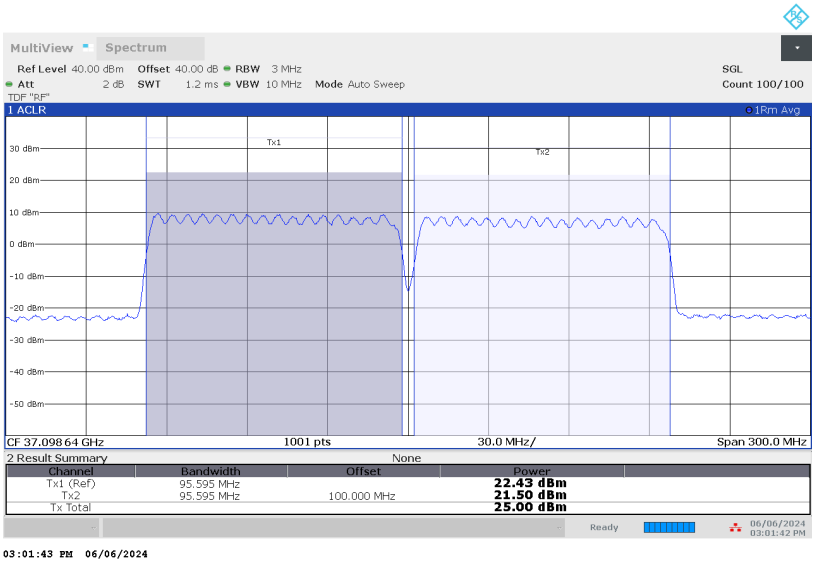
2CC, 50 MHz CH BW



2CC, 100 MHz CH BW



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3CC, 50 MHz CH BW

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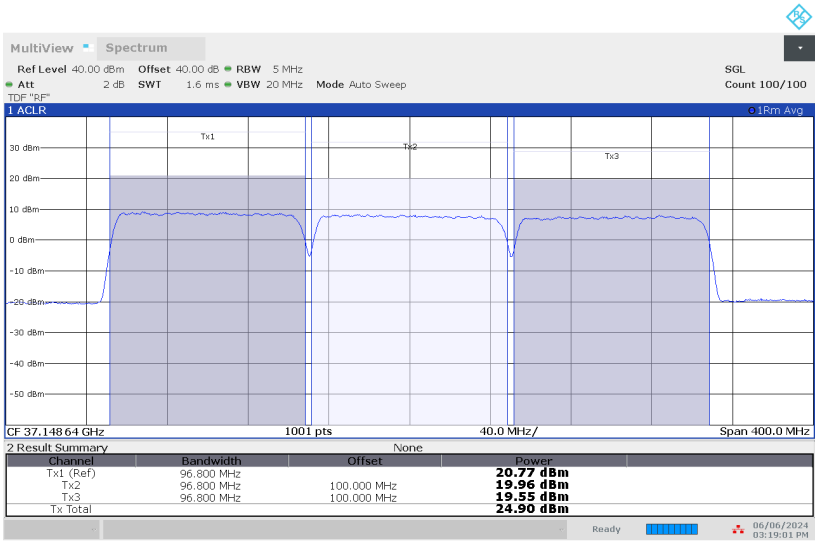
3CC, 100 MHz CH BW



03:19:01 PM 06/06/2024

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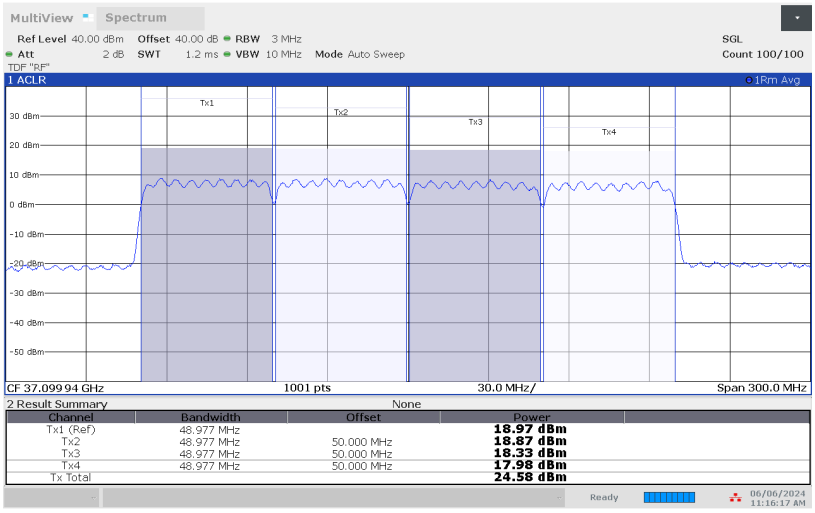
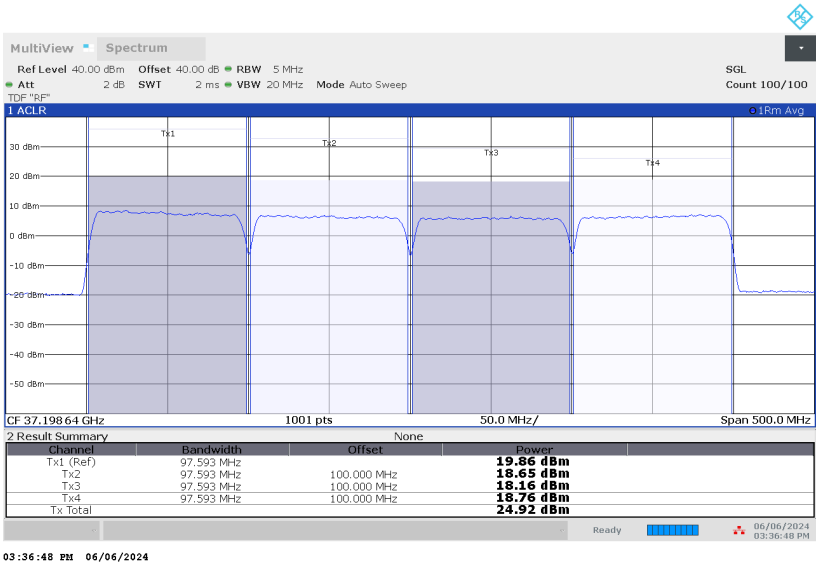
4CC, 50 MHz CH BW



4CC, 100 MHz CH BW



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8.3. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §2.1051, §30.203

LIMITS

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. However, in the bands immediately outside and adjacent to the licensee's frequency block, having a bandwidth equal to 10 percent of the channel bandwidth, the conductive power or the total radiated power of any emission shall be −5 dBm/MHz or lower.

TEST PROCEDURE

- RBW = 1 MHz
- VBW ≥ 3 x RBW
- Number of measurement points in sweep > 2 x span / RBW
- Sweep Time = Auto Couple
- Detection = Power Averaging (RMS)
- Trace Mode = Average

KDB 842590 D01 Upper Microwave Flexible Use Service v01r02 Section 4.4.2
ANSI C63.26-2015 Clause 5.2, Clause 5.5, Clause 6.4, and Annex C.5.2

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

Band Edge measurements of variable frequency bands were performed at the far field test distance listed on Section 5.

EIRP was calculated using the equations on ANSI C63.26-2015 Annex C.5.2. The total correction factors of horn antenna gain, cable loss and far-field path loss were calculated using equations C.8 and C.9, and pre-loaded into spectrum analyzer. Antenna gain of EUT is not factored into the EIRP calculation of BE measurements.

Sample calculation of EIRP:

Total Correction Factor = Cable Loss (dB) – Horn Ant Gain (dBi) + Path Loss (dB)
= 4 – 23 + 71
= 52 dB

EIRP = $P_{measured}$(dBm), where Total Correction Factor preloaded.

In order to properly display of signal level on the plots, the pre-loaded correction factors were intentional lowered by 40 dB and an offset factor of 40 dB was applied on spectrum analyzer to compensate the true correction factors across the frequency range of measurement.

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Pi/2 BPSK, QPSK, 16QAM and 64QAM modulations were all investigated in SISO-Dual mode, since the highest band edge emissions were for the SISO-Dual antenna configuration, consistent with this also being the configuration with the highest EIRP. The SISO-Dual mode was, therefore, used for the final band-edge measurements to represent worse case of both SISO-Dual and SISO modes. Additional measurements were made with QPSK modulation on the MIMO mode as it has a wider bandwidth than the SISO-Dual mode. Both Single RB (highest power) and Full RB allocations were measured.

Band edge measurements for multi-carrier (2CC - 4CC) QPSK modulated operations Single RB and Full RB allocations were investigated in each carrier in the (50 MHz + 50 MHz) and (100 MHz + 100 MHz) modes. Note that inter-modulation products which can be seen in the band edge plots are evaluated as part of the radiated spurious emission measurements.

The 1CC to 4CC plots of worst-case SISO-Dual and MIMO, QPSK of both channel bandwidths are provided to demonstrate the test parameter setting on signal analyzer. The tabular data includes data for the Pi/2 BPSK, 16QAM and 64QAM modulations.

RESULTS

See the following pages.

Employee IDs: 19459, 24303, 27294, 27446, 27780, 31925, 32226, 103479
Test Date: 04/24/24 – 06/12/24
Test Locations: 01-mmW-A, -B, -C & -D

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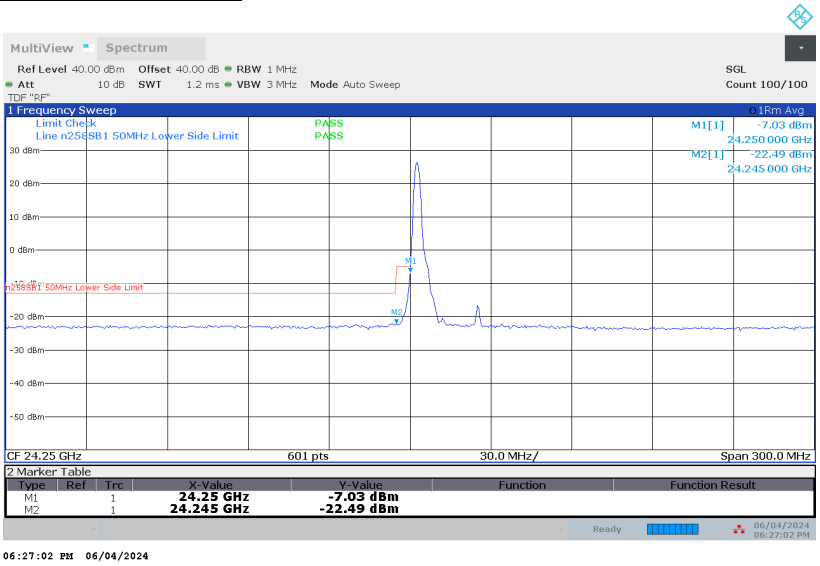
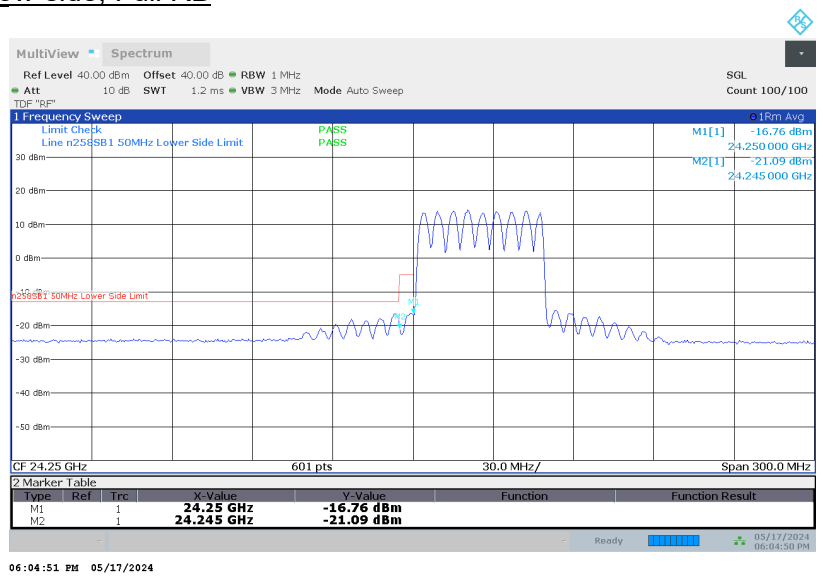
8.3.1. BAND EDGE n258 SB1 SISO-DUAL 1CC

50 MHz, SISO-DUAL, 1CC, QPSK

Low-side, Single RB



Low-side, Full RB



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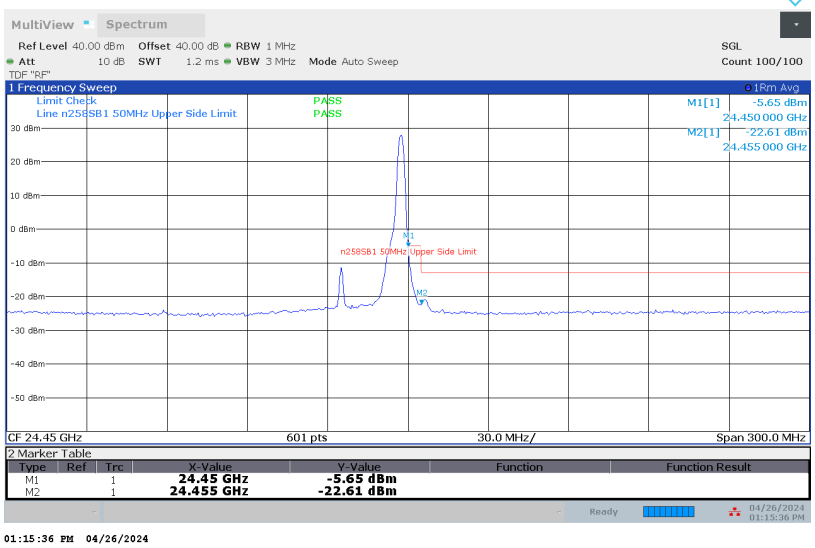
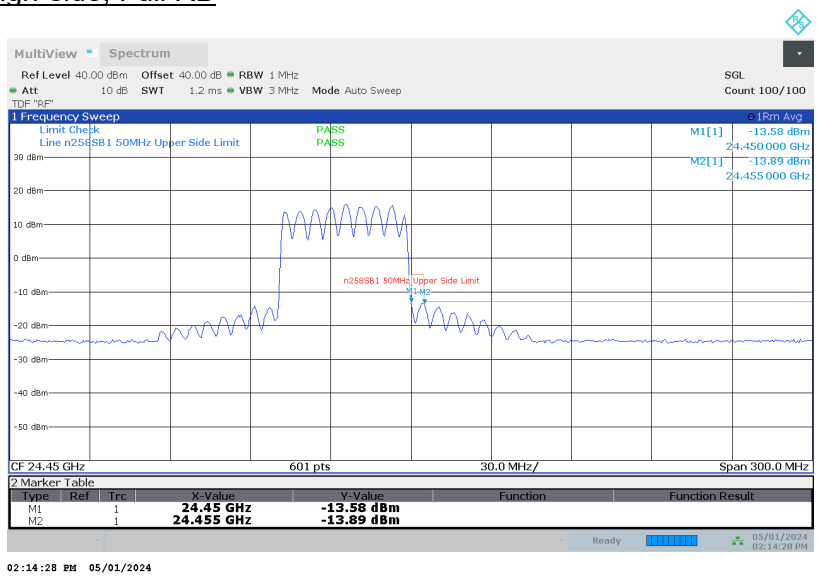
50 MHz, SISO-DUAL, 1CC, QPSK

High-side, Single RB



High-side, Full RB



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50 MHz, SISO-DUAL, 1CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-7.03	-5	-2.03
			24.245	-22.49	-13	-9.49
	L	32/0	24.25	-16.76	-5	-11.76
			24.245	-21.09	-13	-8.09
	H	1/31	24.45	-5.65	-5	-0.65
			24.455	-22.61	-13	-9.61
	H	32/0	24.45	-13.58	-5	-8.58
			24.455	-13.89	-13	-0.89

50 MHz, SISO-DUAL, 1CC, Pi/2 BPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-8.39	-5	-3.39
			24.245	-22.17	-13	-9.17
	H	1/31	24.45	-5.15	-5	-0.15
			24.455	-22.58	-13	-9.58

50 MHz, SISO-DUAL, 1CC, 16QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-9.53	-5	-4.53
			24.245	-23.55	-13	-10.55
	H	1/31	24.45	-5.18	-5	-0.18
			24.455	-23.15	-13	-10.15

50 MHz, SISO-DUAL, 1CC, 64QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-12.17	-5	-7.17
			24.245	-23.95	-13	-10.95
	H	1/31	24.45	-8.54	-5	-3.54
			24.455	-23.82	-13	-10.82

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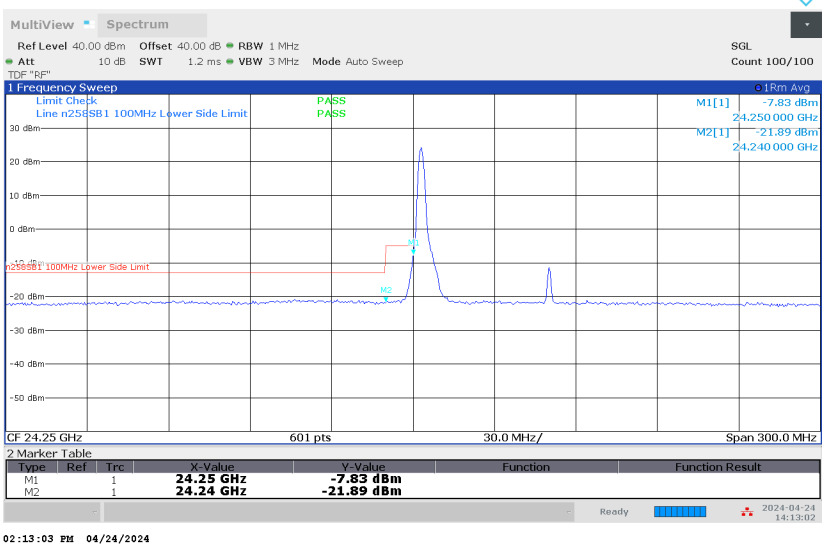
100 MHz, SISO-DUAL, 1CC, QPSK

Low-side, Single RB



Low-side, Full RB

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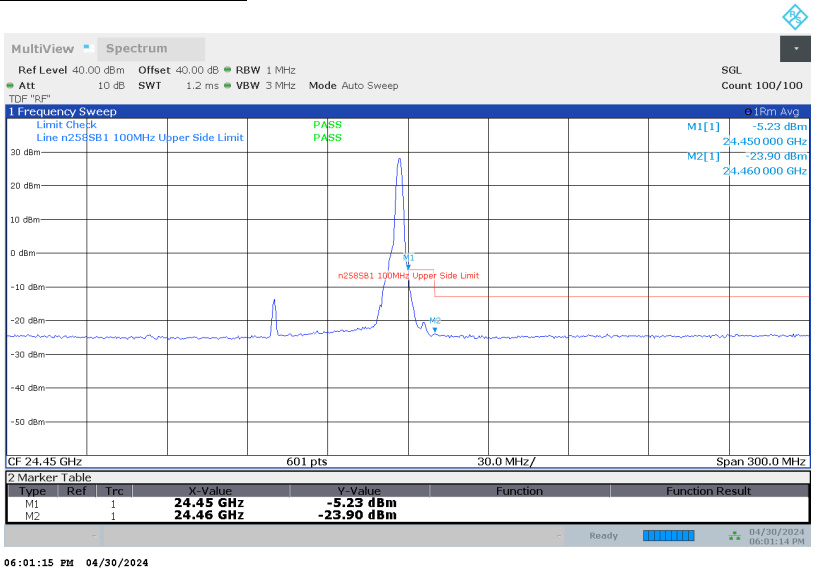
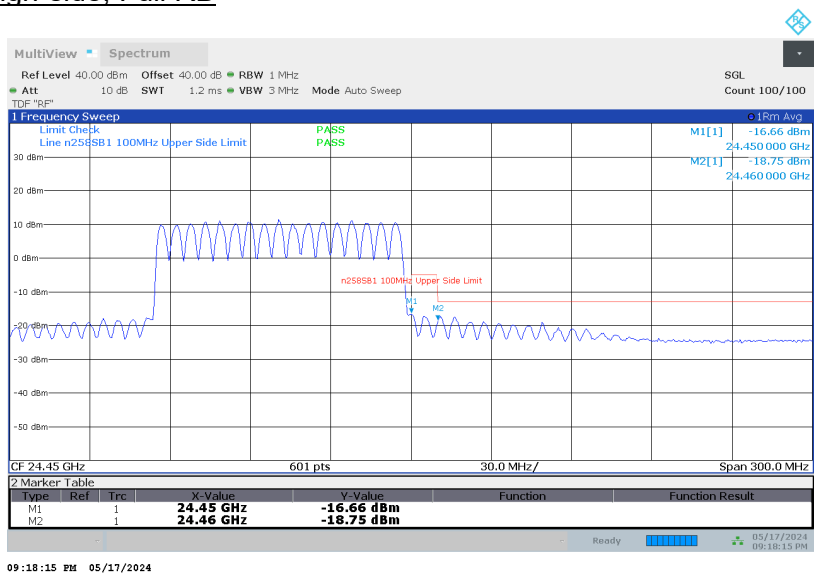
100 MHz, SISO-DUAL, 1CC, QPSK

High-side, Single RB



High-side, Full RB



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100 MHz, SISO-DUAL, 1CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
100	L	1/0	24.25	-7.83	-5	-2.83
			24.24	-21.89	-13	-8.89
	L	64/0	24.25	-18.57	-5	-13.57
			24.24	-20.50	-13	-7.50
	H	1/65	24.45	-5.23	-5	-0.23
			24.46	-23.90	-13	-10.90
	H	64/2	24.45	-16.66	-5	-11.66
			24.46	-18.75	-13	-5.75

100 MHz, SISO-DUAL, 1CC, Pi/2 BPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
100	L	64/0	24.25	-18.05	-5	-13.05
			24.24	-20.78	-13	-7.78
	H	64/2	24.45	-16.88	-5	-11.88
			24.46	-21.38	-13	-8.38

100 MHz, SISO-DUAL, 1CC, 16QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
100	L	64/0	24.25	-19.53	-5	-14.53
			24.24	-19.88	-13	-6.88
	H	64/2	24.45	-19.00	-5	-14.00
			24.46	-20.47	-13	-7.47

100 MHz, SISO-DUAL, 1CC, 64QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
100	L	64/0	24.25	-20.16	-5	-15.16
			24.24	-21.42	-13	-8.42
	H	64/2	24.45	-22.04	-5	-17.04
			24.46	-23.86	-13	-10.86

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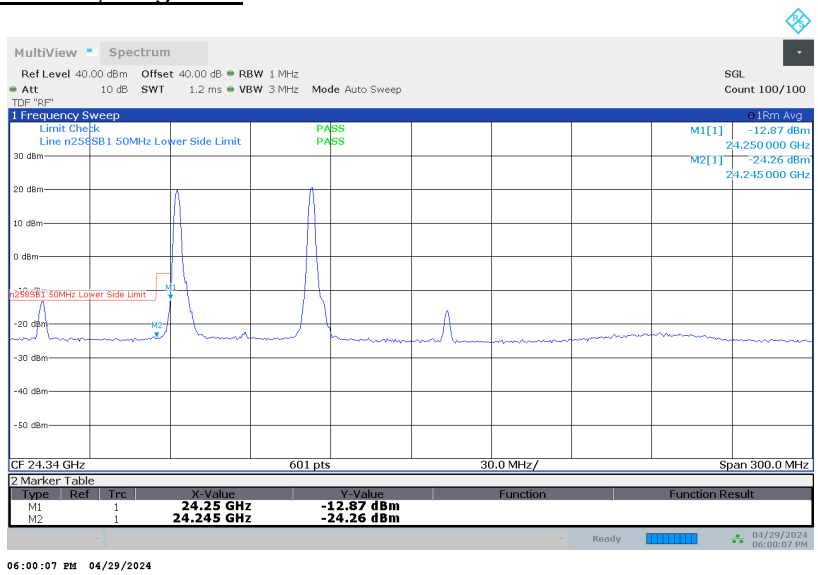
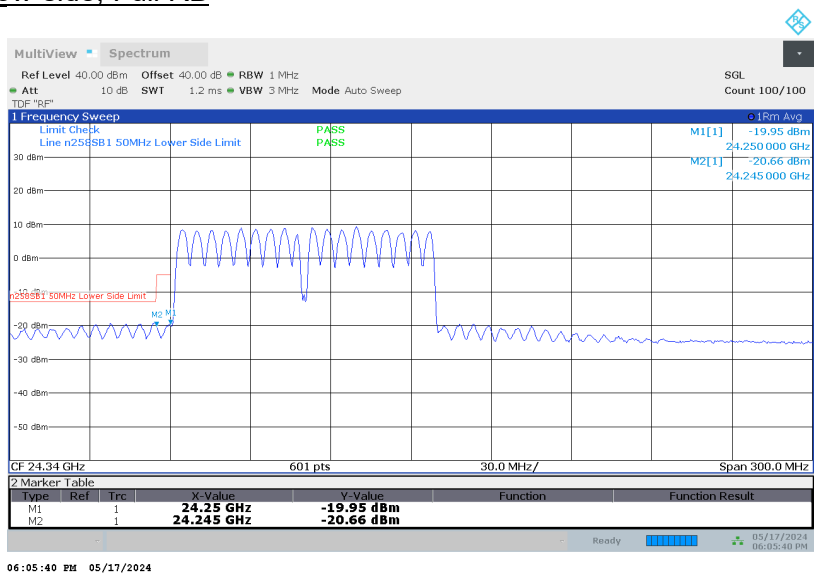
8.3.2. BAND EDGE n258 SB1 SISO-DUAL 2CC

50 MHz, SISO-DUAL, 2CC, QPSK

Low-side, Single RB



Low-side, Full RB



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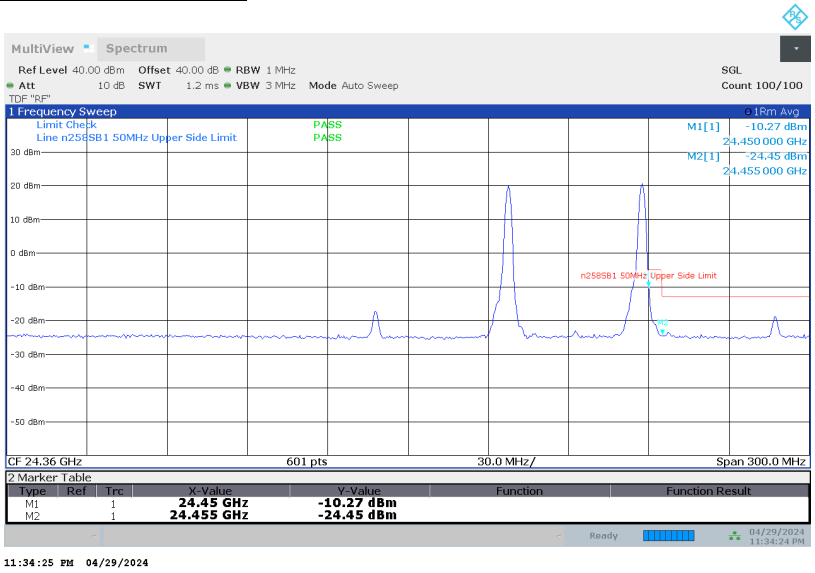
50 MHz, SISO-DUAL, 2CC, QPSK

High-side, Single RB



11:34:25 PM 04/29/2024

High-side, Full RB

08:14:08 PM 05/17/2024

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50 MHz, SISO-DUAL, 2CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-12.87	-5	-7.87
			24.245	-24.26	-13	-11.26
	L	32/0	24.25	-19.95	-5	-14.95
			24.245	-20.66	-13	-7.66
	H	1/31	24.45	-10.27	-5	-5.27
			24.455	-24.45	-13	-11.45
	H	32/0	24.45	-20.16	-5	-15.16
			24.455	-20.25	-13	-7.25

50 MHz, SISO-DUAL, 2CC, Pi/2 BPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-12.31	-5	-7.31
			24.245	-22.81	-13	-9.81
	H	1/31	24.45	-13.76	-5	-8.76
			24.455	-23.16	-13	-10.16

50 MHz, SISO-DUAL, 2CC, 16QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-13.35	-5	-8.35
			24.245	-22.93	-13	-9.93
	H	1/31	24.45	-15.09	-5	-10.09
			24.455	-24.71	-13	-11.71

50 MHz, SISO-DUAL, 2CC, 64QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-13.44	-5	-8.44
			24.245	-23.09	-13	-10.09
	H	1/31	24.45	-20.74	-5	-15.74
			24.455	-23.37	-13	-10.37

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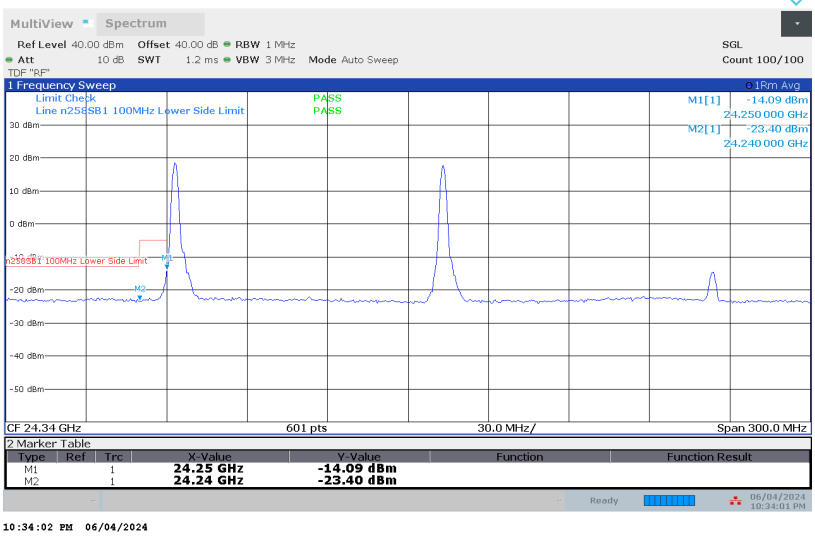
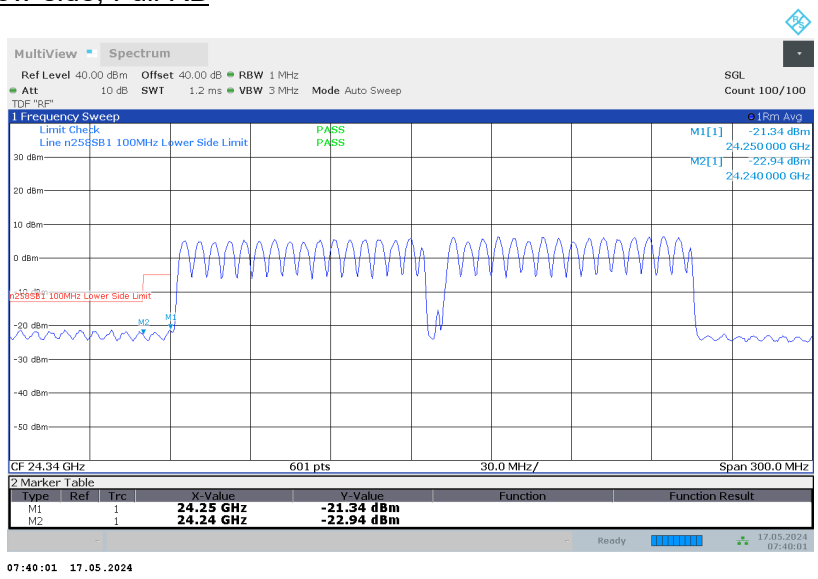
100 MHz, SISO-DUAL, 2CC, QPSK

Low-side, Single RB



Low-side, Full RB



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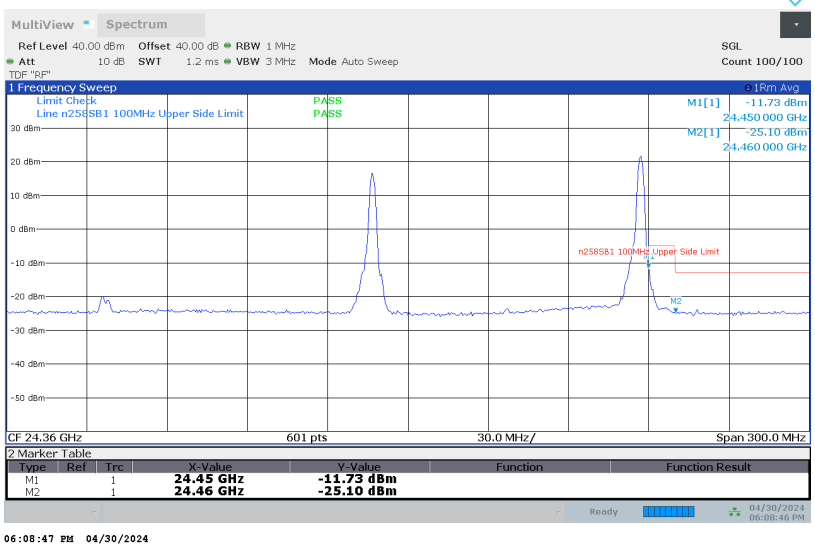
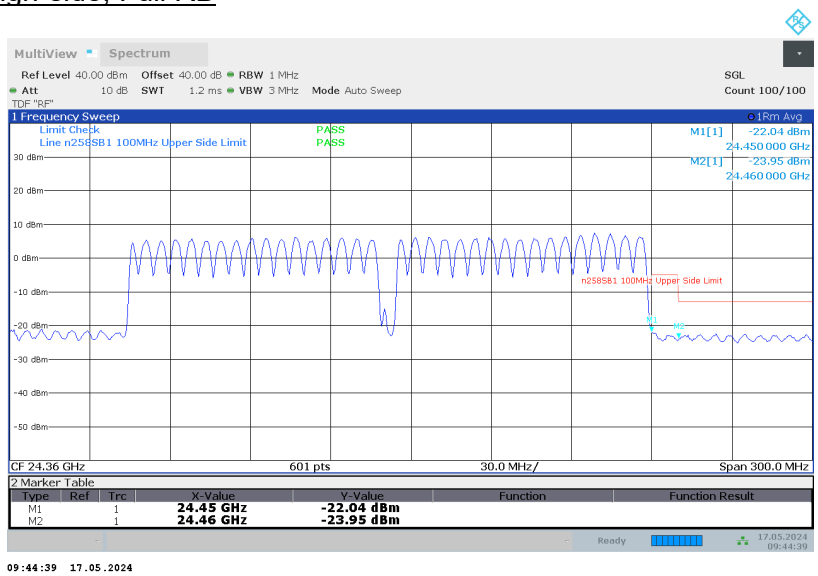
100 MHz, SISO-DUAL, 2CC, QPSK

High-side, Single RB



High-side, Full RB



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100 MHz, SISO-DUAL, 2CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
100	L	1/0	24.25	-14.09	-5	-9.09
			24.24	-23.40	-13	-10.40
	L	64/0	24.25	-21.34	-5	-16.34
			24.24	-22.94	-13	-9.94
	H	1/65	24.45	-11.73	-5	-6.73
			24.46	-25.10	-13	-12.10
	H	64/2	24.45	-22.04	-5	-17.04
			24.46	-23.95	-13	-10.95

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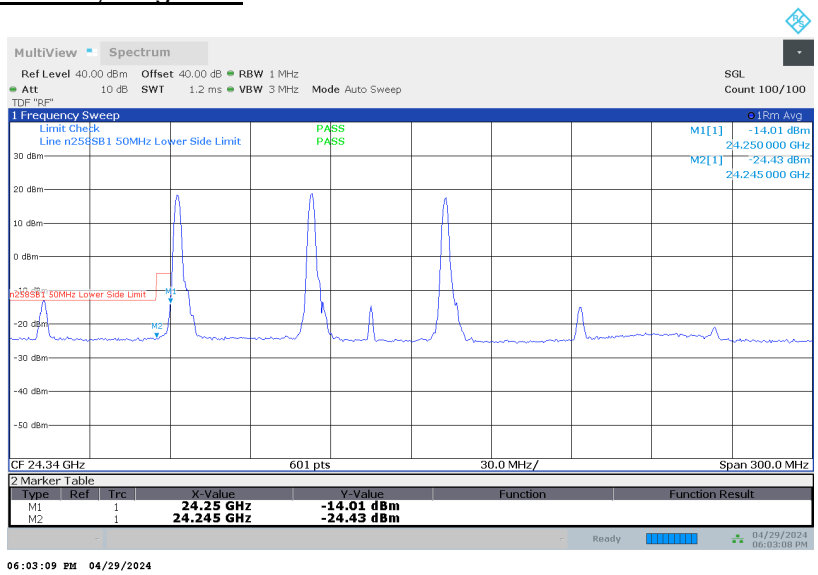
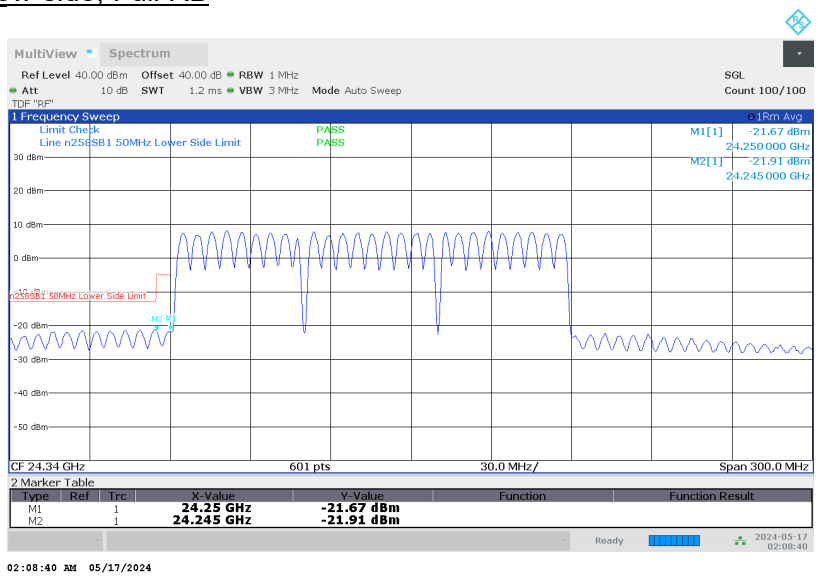
8.3.3. BAND EDGE n258 SB1 SISO-DUAL 3CC

50 MHz, SISO-DUAL, 3CC, QPSK

Low-side, Single RB



Low-side, Full RB



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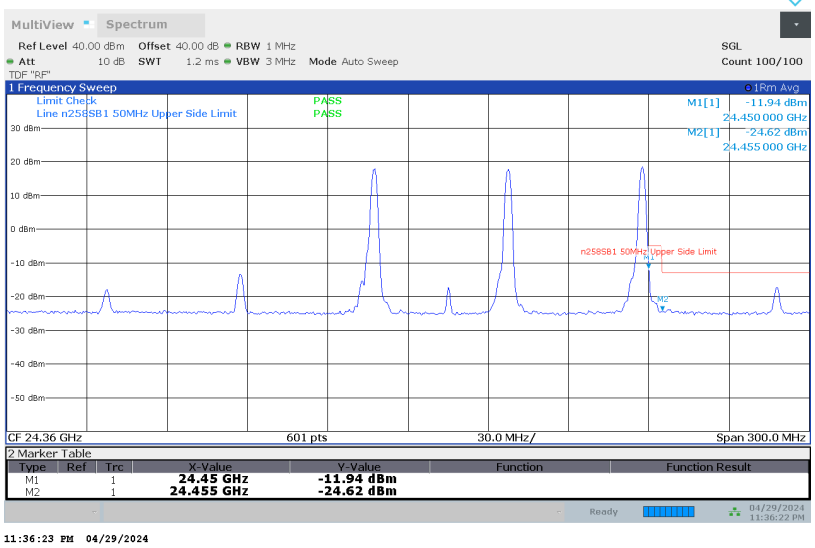
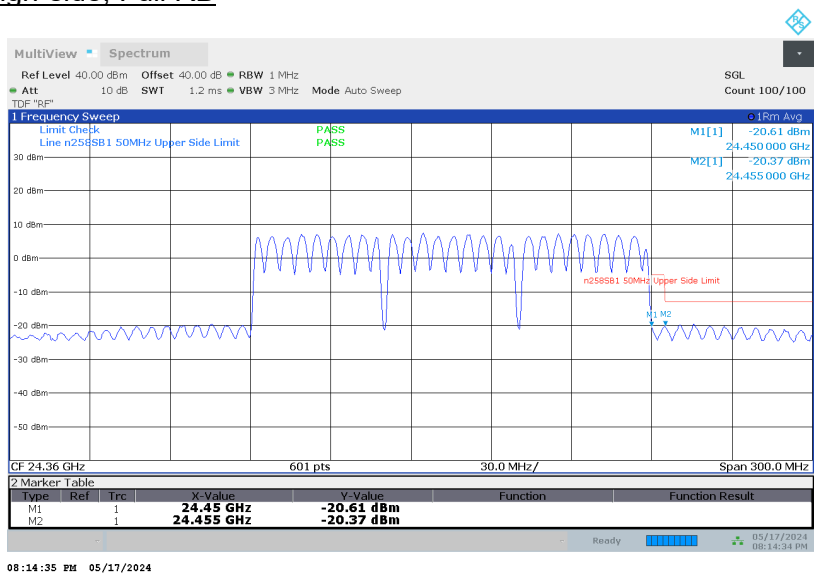
50 MHz, SISO-DUAL, 3CC, QPSK

High-side, Single RB



High-side, Full RB



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50 MHz, SISO-DUAL, 3CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-14.01	-5	-9.01
			24.245	-24.43	-13	-11.43
	L	32/0	24.25	-21.67	-5	-16.67
			24.245	-21.91	-13	-8.91
	H	1/31	24.45	-11.94	-5	-6.94
			24.455	-24.62	-13	-11.62
	H	32/0	24.45	-20.61	-5	-15.61
			24.455	-20.37	-13	-7.37

50 MHz, SISO-DUAL, 3CC, Pi/2 BPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-15.27	-5	-10.27
			24.245	-24.60	-13	-11.60
	H	1/31	24.45	-12.98	-5	-7.98
			24.455	-24.84	-13	-11.84

50 MHz, SISO-DUAL, 3CC, 16QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-15.42	-5	-10.42
			24.245	-23.20	-13	-10.20
	H	1/31	24.45	-14.84	-5	-9.84
			24.455	-24.48	-13	-11.48

50 MHz, SISO-DUAL, 3CC, 64QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-17.45	-5	-12.45
			24.245	-24.25	-13	-11.25
	H	1/31	24.45	-15.30	-5	-10.30
			24.455	-22.94	-13	-9.94

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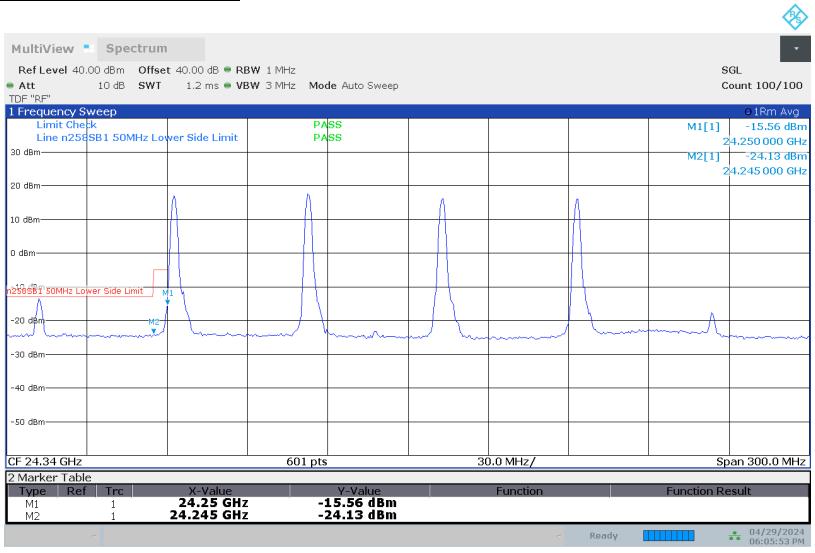
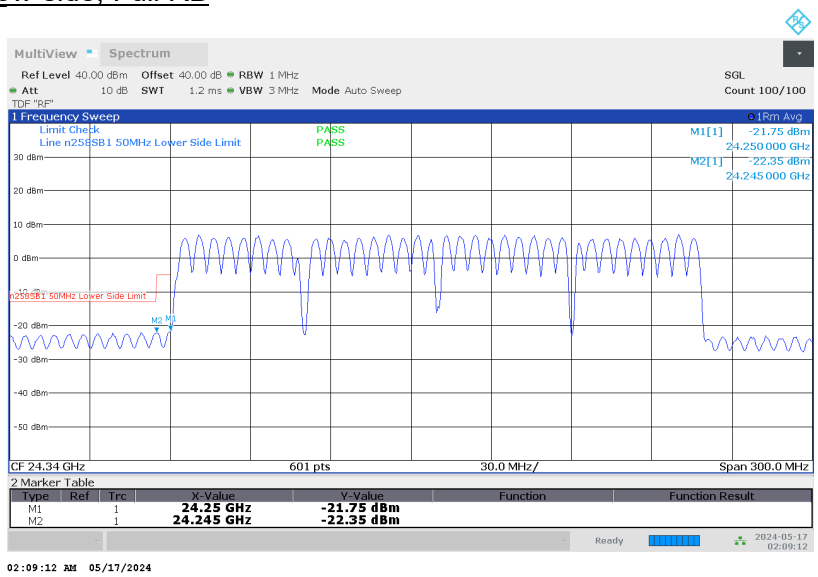
8.3.4. BAND EDGE n258 SB1 SISO-DUAL 4CC

50 MHz, SISO-DUAL, 4CC, QPSK

Low-side, Single RB



Low-side, Full RB



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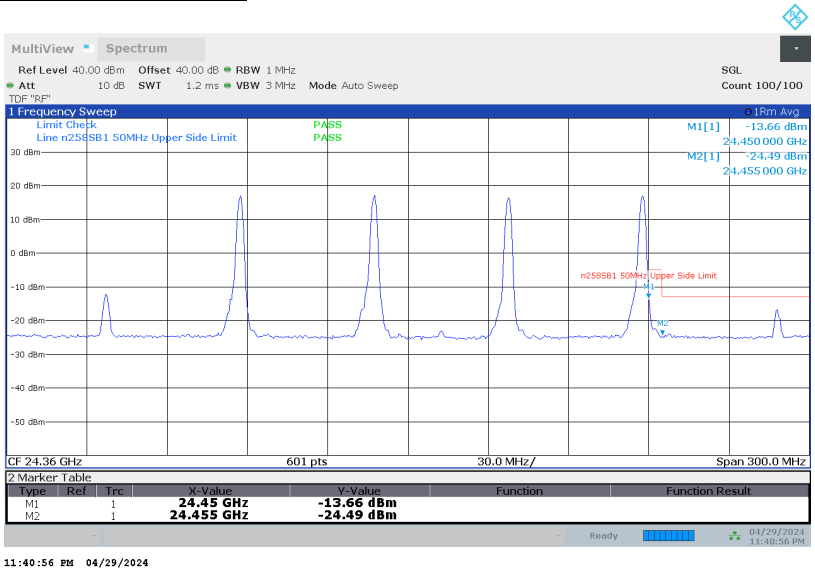
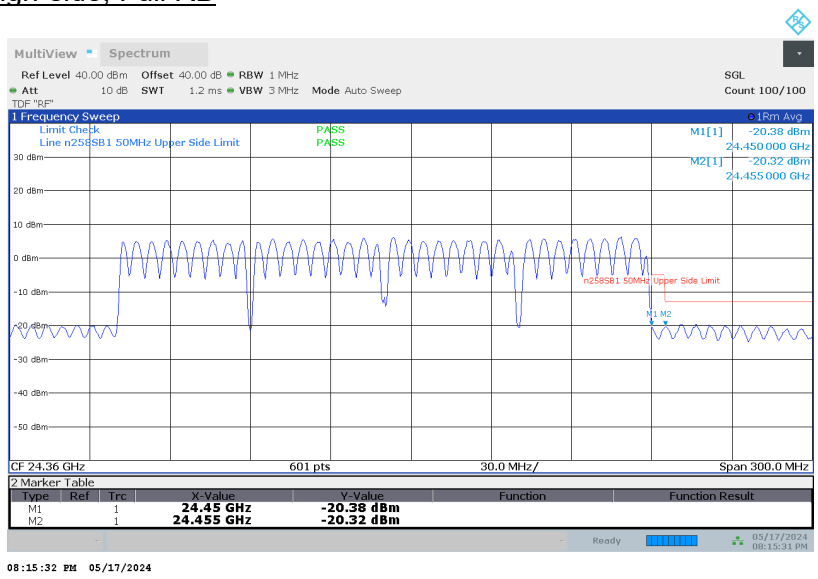
50 MHz, SISO-DUAL, 4CC, QPSK

High-side, Single RB



High-side, Full RB



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50 MHz, SISO-DUAL, 4CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-15.56	-5	-10.56
			24.245	-24.13	-13	-11.13
	L	32/0	24.25	-21.75	-5	-16.75
			24.245	-22.35	-13	-9.35
	H	1/31	24.45	-13.66	-5	-8.66
			24.455	-24.49	-13	-11.49
	H	32/0	24.45	-20.38	-5	-15.38
			24.455	-20.32	-13	-7.32

50 MHz, SISO-DUAL, 4CC, Pi/2 BPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-14.52	-5	-9.52
			24.245	-24.56	-13	-11.56
	H	1/31	24.45	-13.52	-5	-8.52
			24.455	-24.57	-13	-11.57

50 MHz, SISO-DUAL, 4CC, 16QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-16.44	-5	-11.44
			24.245	-23.09	-13	-10.09
	H	1/31	24.45	-15.52	-5	-10.52
			24.455	-25.07	-13	-12.07

50 MHz, SISO-DUAL, 4CC, 64QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-17.99	-5	-12.99
			24.245	-24.81	-13	-11.81
	H	1/31	24.45	-16.60	-5	-11.60
			24.455	-23.86	-13	-10.86

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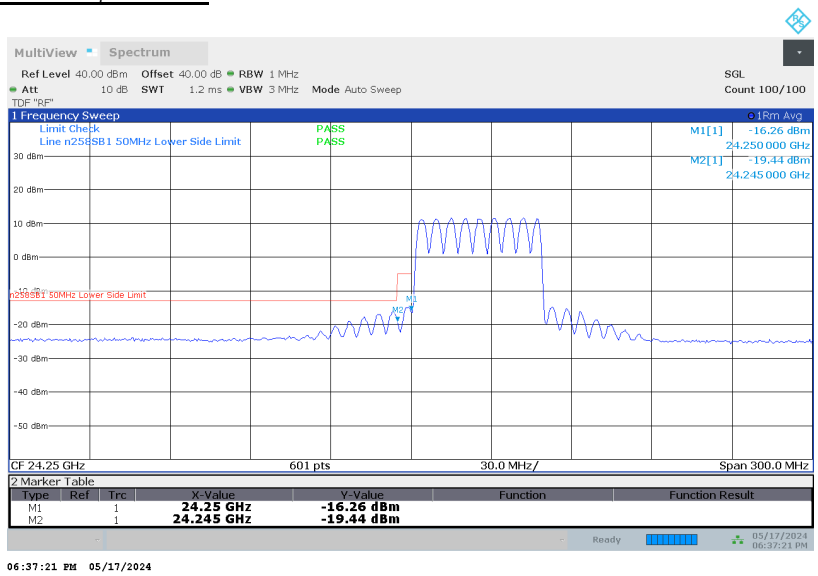
8.3.5. BAND EDGE n258 SB1 MIMO 1CC

50 MHz, MIMO, 1CC, QPSK

Low-side, Single RB

Low-side, Full RB



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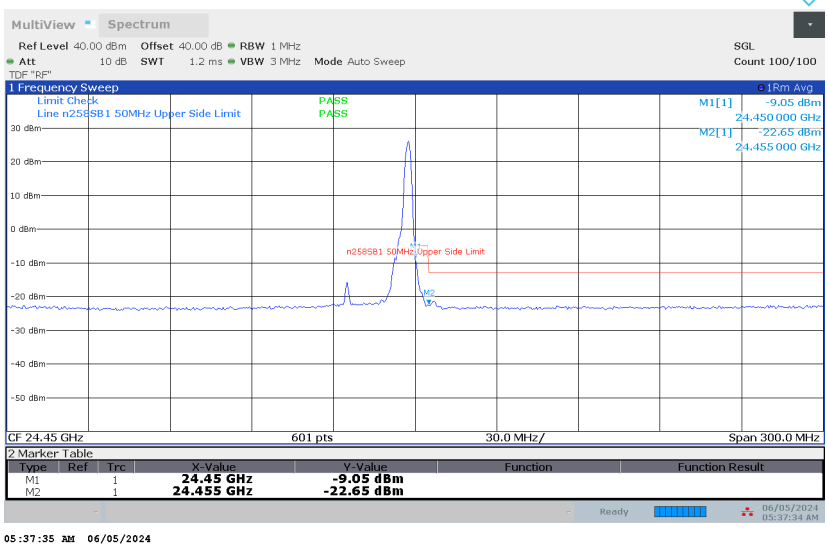
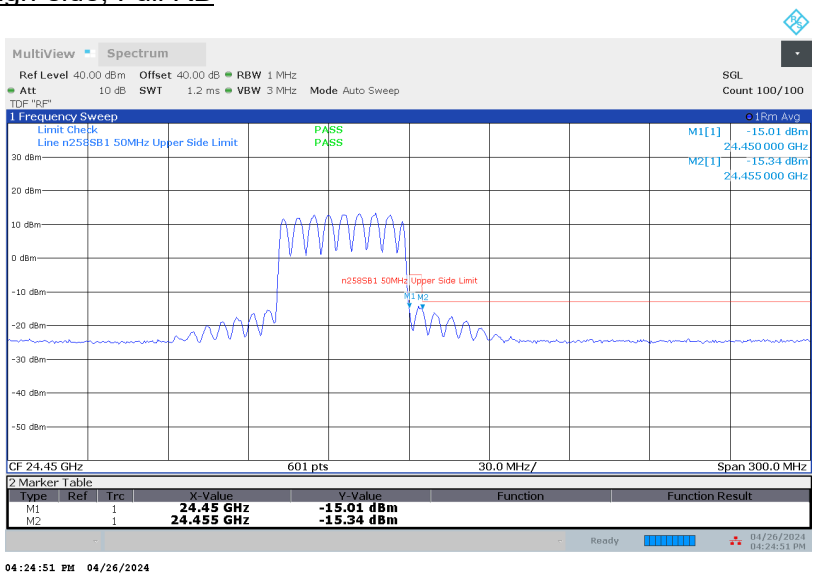
50 MHz, MIMO, 1CC, QPSK

High-side, Single RB



High-side, Full RB



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50 MHz, MIMO, 1CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-10.88	-5	-5.88
			24.245	-23.55	-13	-10.55
	L	32/0	24.25	-16.26	-5	-11.26
			24.245	-19.44	-13	-6.44
	H	1/31	24.45	-9.05	-5	-4.05
			24.455	-22.65	-13	-9.65
	H	32/0	24.45	-15.01	-5	-10.01
			24.455	-15.34	-13	-2.34

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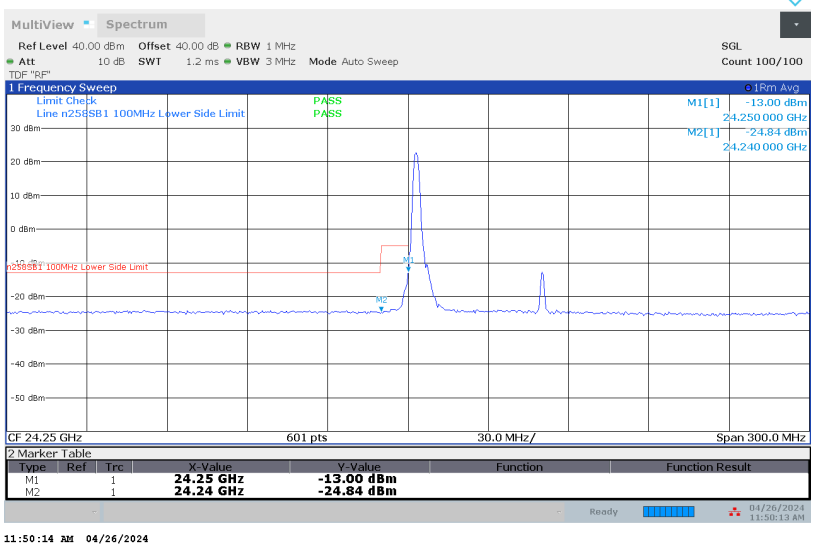
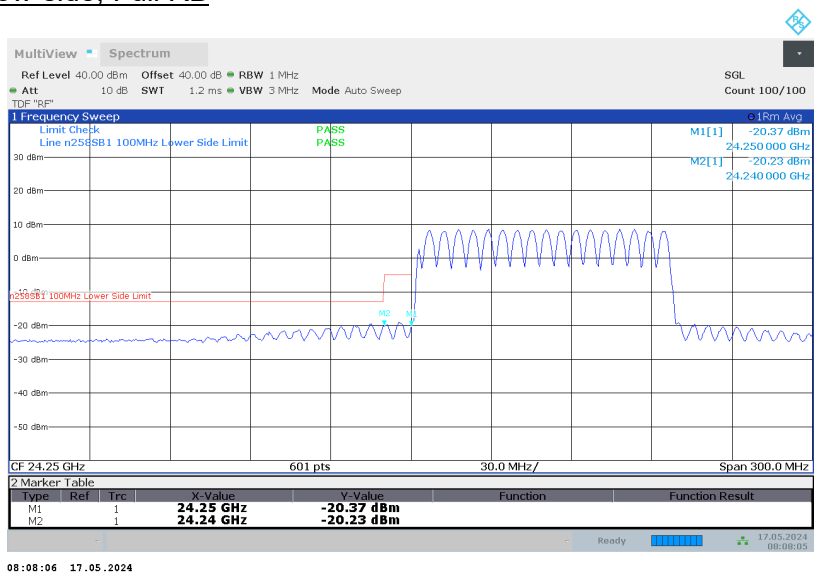
100 MHz, MIMO, 1CC, QPSK

Low-side, Single RB



Low-side, Full RB



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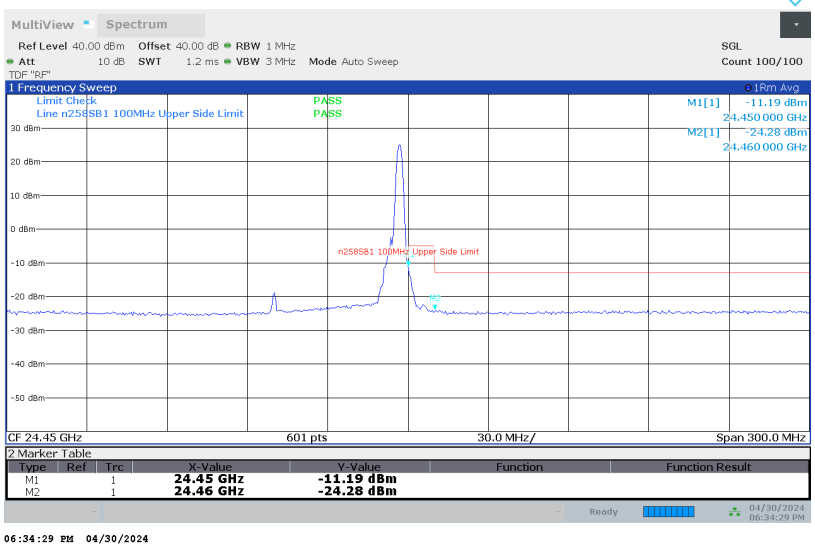
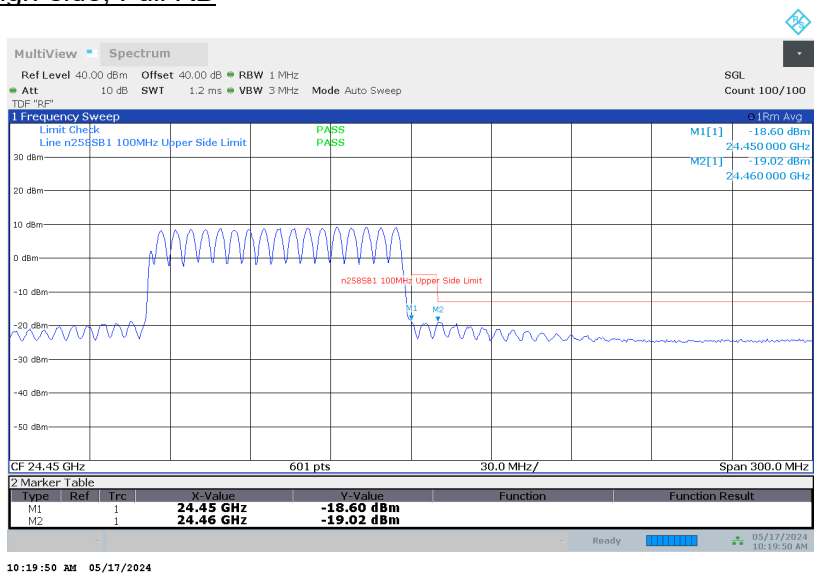
100 MHz, MIMO, 1CC, QPSK

High-side, Single RB



High-side, Full RB



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100 MHz, MIMO, 1CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
100	L	1/0	24.25	-13.00	-5	-8.00
			24.24	-24.84	-13	-11.84
	L	66/0	24.25	-20.37	-5	-15.37
			24.24	-20.23	-13	-7.23
	H	1/65	24.45	-11.19	-5	-6.19
			24.46	-24.28	-13	-11.28
	H	66/0	24.45	-18.60	-5	-13.60
			24.46	-19.02	-13	-6.02

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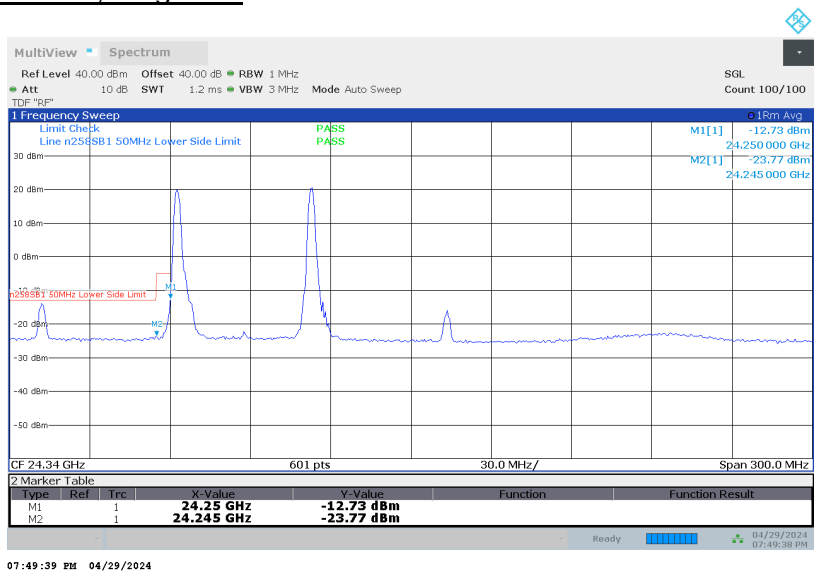
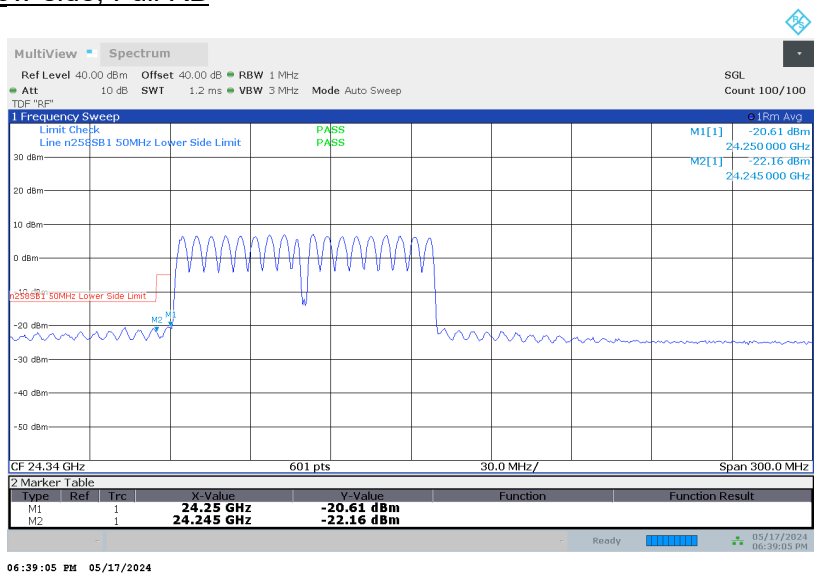
8.3.6. BAND EDGE n258 SB1 MIMO 2CC

50 MHz, MIMO, 2CC, QPSK

Low-side, Single RB



Low-side, Full RB



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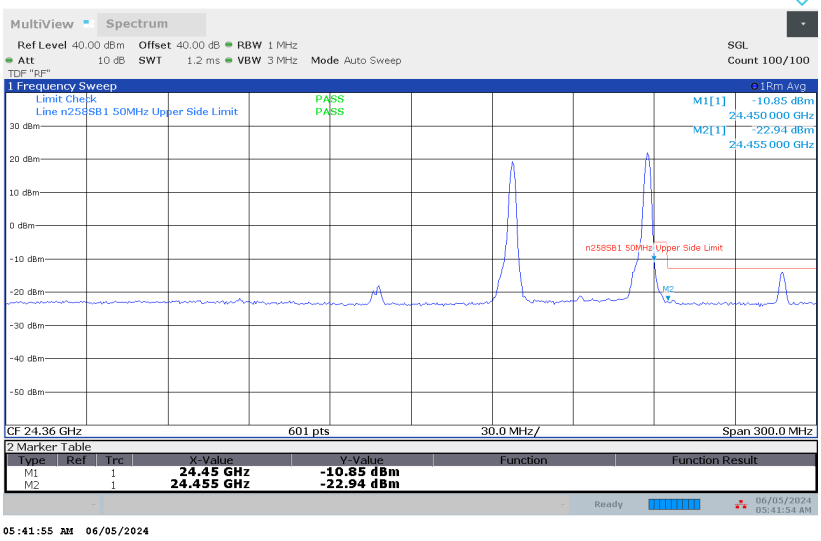
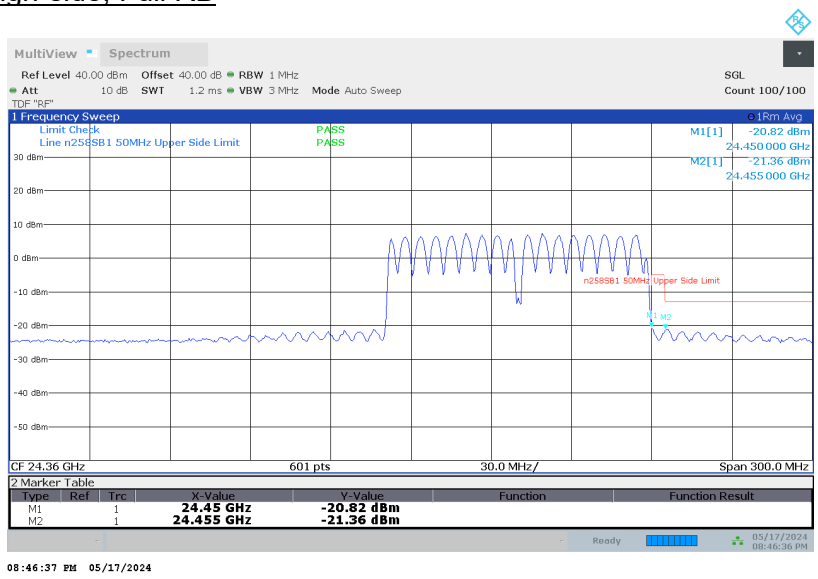
50 MHz, MIMO, 2CC, QPSK

High-side, Single RB



High-side, Full RB



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50 MHz, MIMO, 2CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-12.73	-5	-7.73
			24.245	-23.77	-13	-10.77
	L	32/0	24.25	-20.61	-5	-15.61
			24.245	-22.16	-13	-9.16
	H	1/31	24.45	-10.85	-5	-5.85
			24.455	-22.94	-13	-9.94
	H	32/0	24.45	-20.82	-5	-15.82
			24.455	-21.36	-13	-8.36

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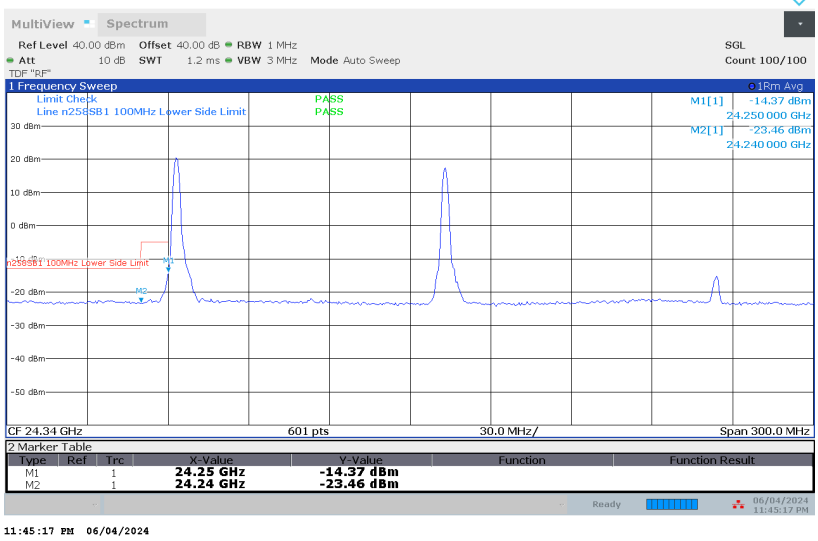
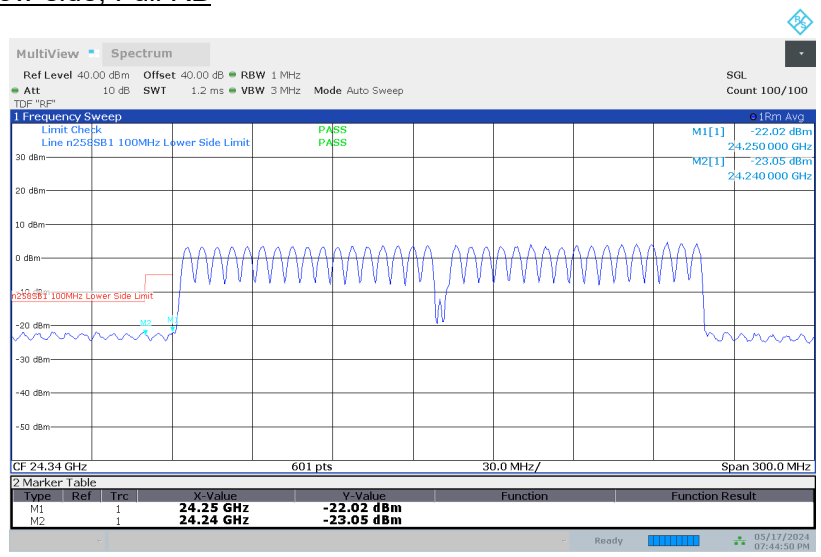
100 MHz, MIMO, 2CC, QPSK

Low-side, Single RB



11:45:17 PM 06/04/2024

Low-side, Full RB



07:44:51 PM 05/17/2024

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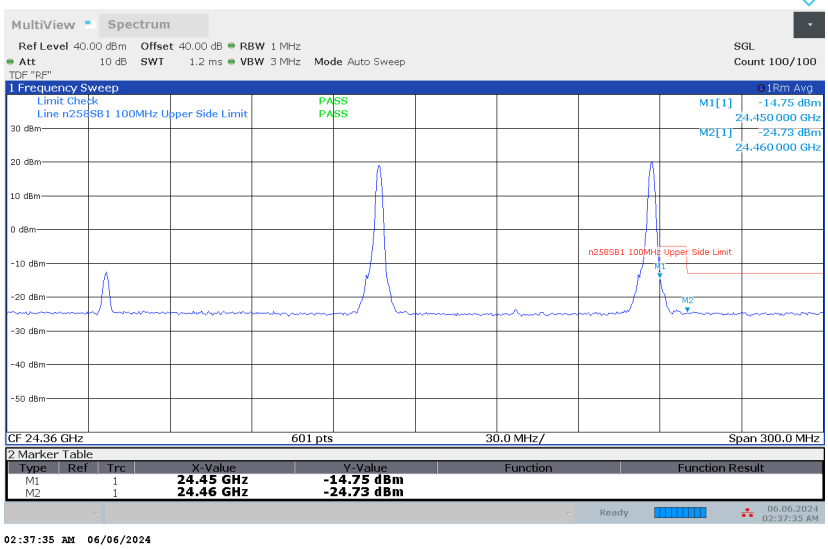
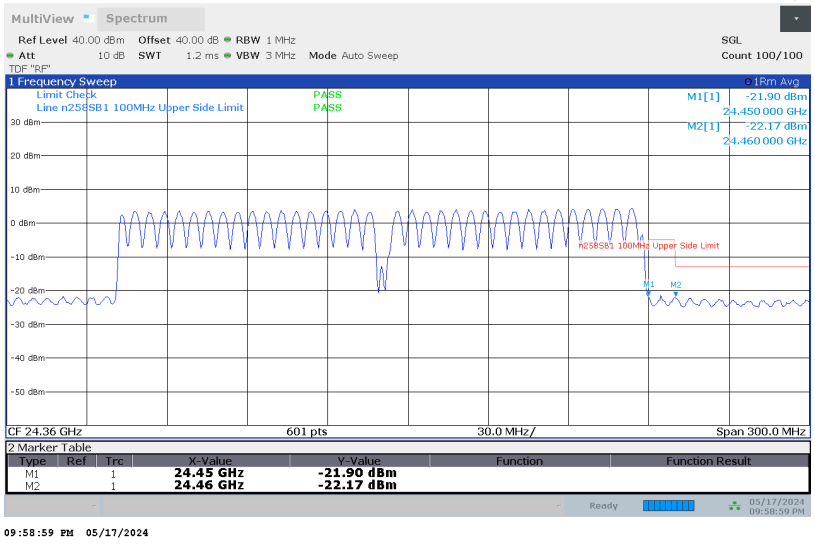
100 MHz, MIMO, 2CC, QPSK

High-side, Single RB



High-side, Full RB



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100 MHz, MIMO, 2CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
100	L	1/0	24.25	-14.37	-5	-9.37
			24.24	-23.46	-13	-10.46
	L	66/0	24.25	-22.02	-5	-17.02
			24.24	-23.05	-13	-10.05
	H	1/65	24.45	-14.75	-5	-9.75
			24.46	-24.73	-13	-11.73
	H	66/0	24.45	-21.90	-5	-16.90
			24.46	-22.17	-13	-9.17

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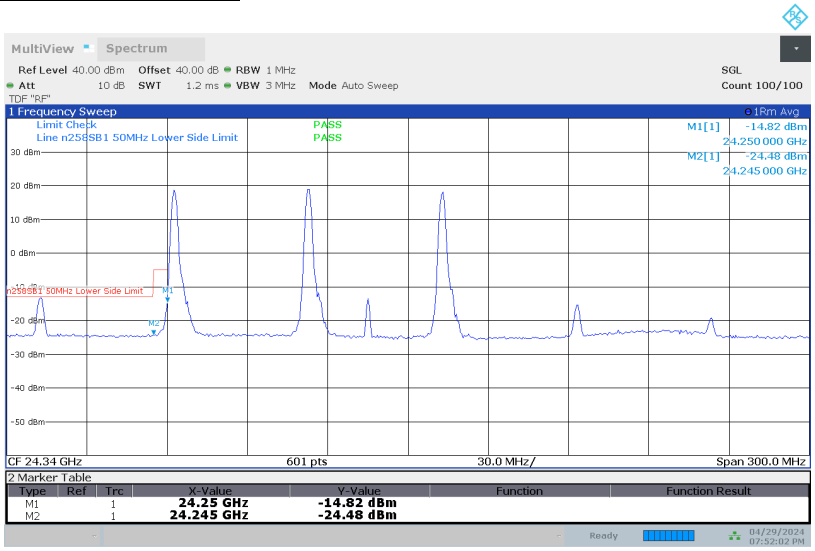
8.3.7. BAND EDGE n258 SB1 MIMO 3CC

50 MHz, MIMO, 3CC, QPSK

Low-side, Single RB



Low-side, Full RB

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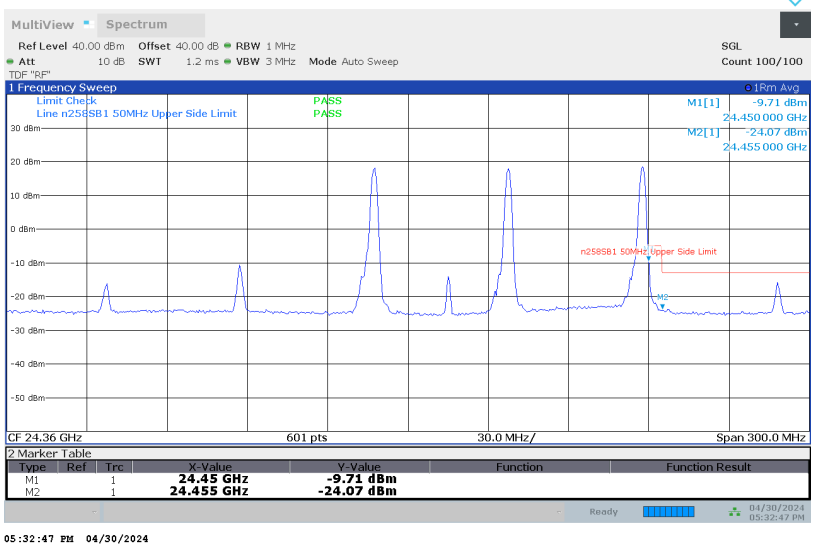
50 MHz, MIMO, 3CC, QPSK

High-side, Single RB



High-side, Full RB

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50 MHz, MIMO, 3CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-14.82	-5	-9.82
			24.245	-24.48	-13	-11.48
	L	32/0	24.25	-22.22	-5	-17.22
			24.245	-22.82	-13	-9.82
	H	1/31	24.45	-9.71	-5	-4.71
			24.455	-24.07	-13	-11.07
	H	32/0	24.45	-21.66	-5	-16.66
			24.455	-22.33	-13	-9.33

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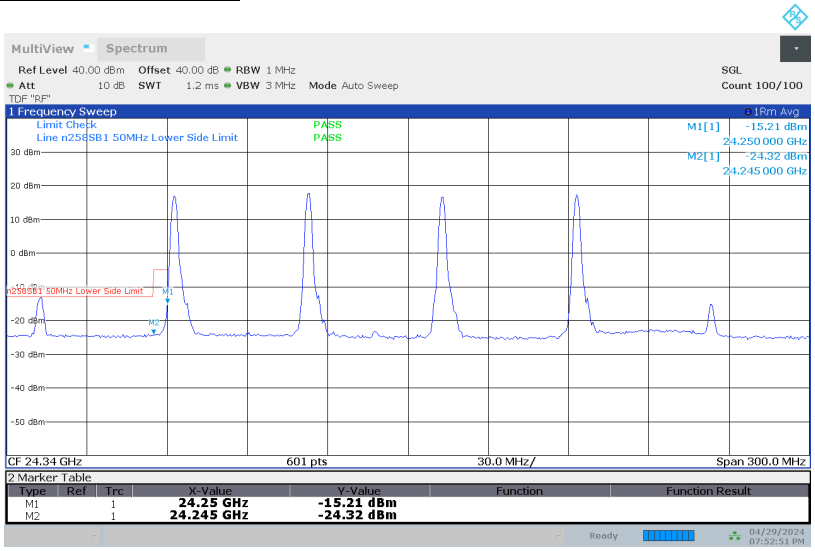
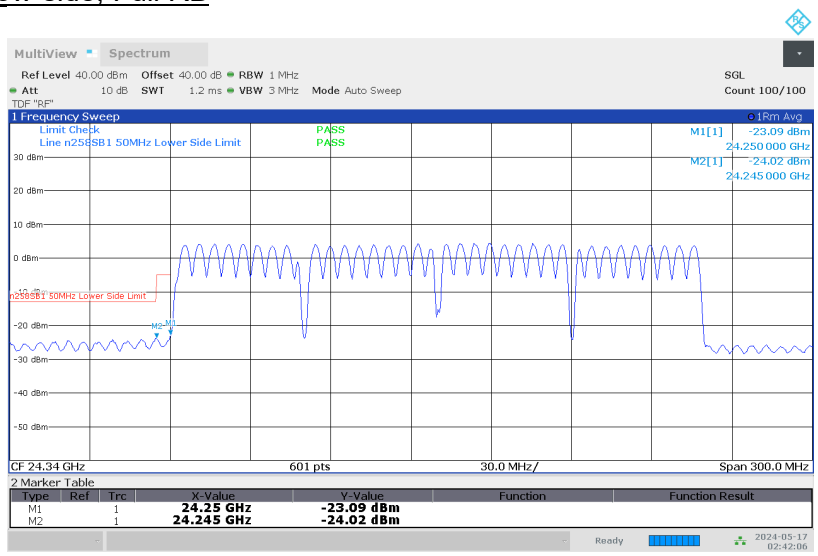
8.3.8. BAND EDGE n258 SB1 MIMO 4CC

50 MHz, MIMO, 4CC, QPSK

Low-side, Single RB



Low-side, Full RB



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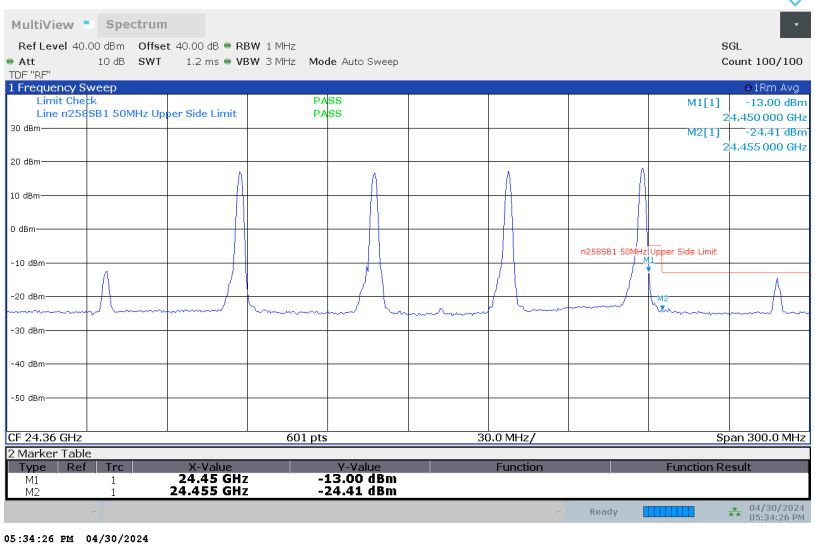
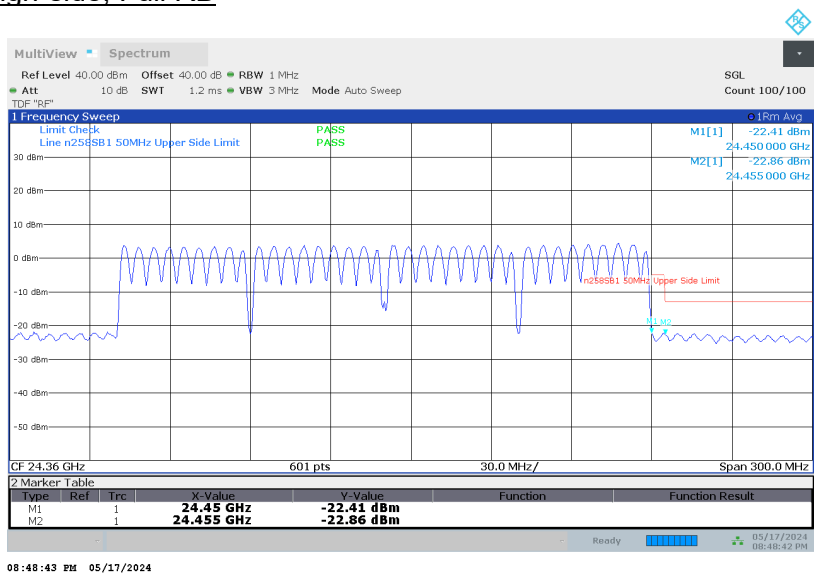
50 MHz, MIMO, 4CC, QPSK

High-side, Single RB



High-side, Full RB



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50 MHz, MIMO, 4CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.25	-15.21	-5	-10.21
			24.245	-24.32	-13	-11.32
	L	32/0	24.25	-23.09	-5	-18.09
			24.245	-24.02	-13	-11.02
	H	1/31	24.45	-13.00	-5	-8.00
			24.455	-24.41	-13	-11.41
	H	32/0	24.45	-22.41	-5	-17.41
			24.455	-22.86	-13	-9.86

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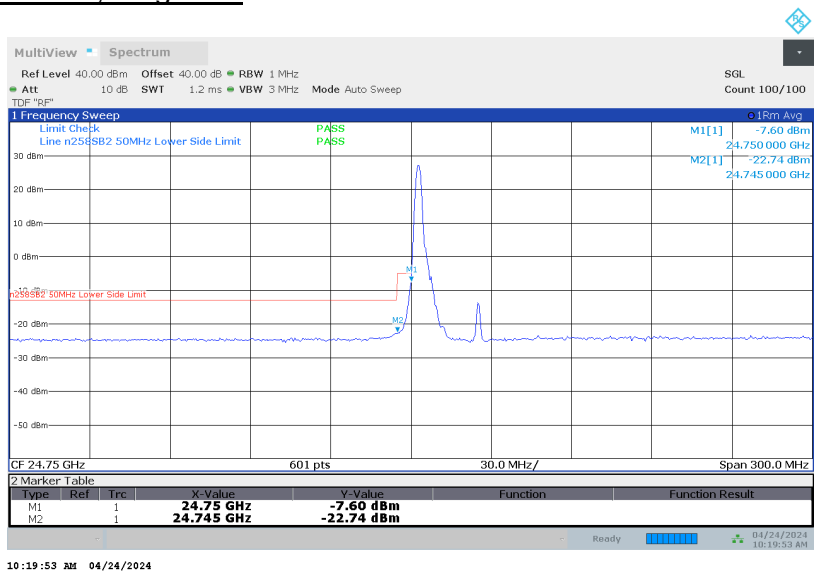
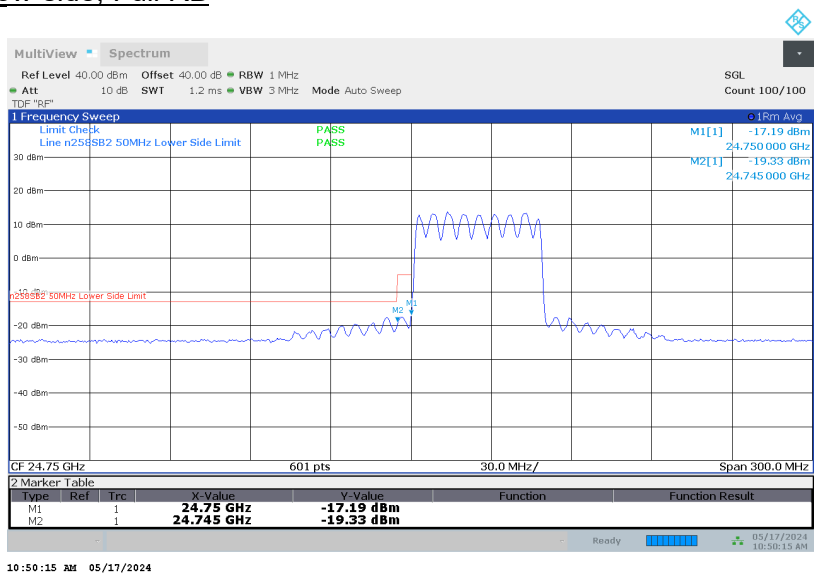
8.3.9. BAND EDGE n258 SB2 SISO-DUAL 1CC

50 MHz, SISO-DUAL, 1CC, QPSK

Low-side, Single RB



Low-side, Full RB



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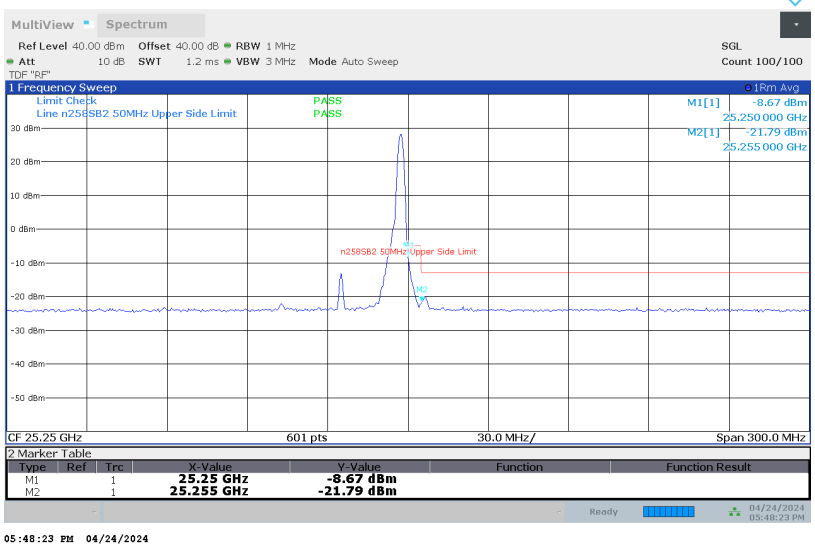
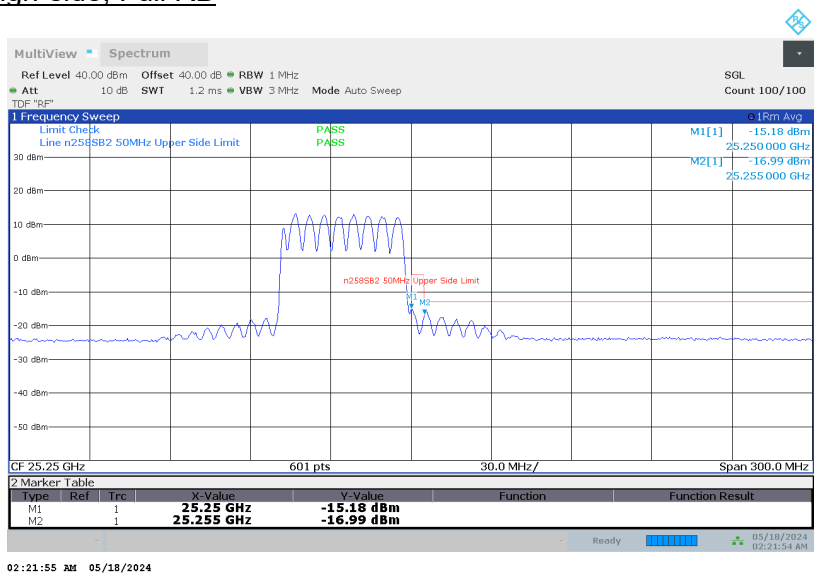
50 MHz, SISO-DUAL, 1CC, QPSK

High-side, Single RB



High-side, Full RB



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50 MHz, SISO-DUAL, 1CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.75	-7.60	-5	-2.60
			24.745	-22.74	-13	-9.74
	L	32/0	24.75	-17.19	-5	-12.19
			24.745	-19.33	-13	-6.33
	H	1/31	25.25	-8.67	-5	-3.67
			25.255	-21.79	-13	-8.79
	H	32/0	25.25	-15.18	-5	-10.18
			25.255	-16.99	-13	-3.99

50 MHz, SISO-DUAL, 1CC, Pi/2 BPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.75	-8.37	-5	-3.37
			24.745	-23.78	-13	-10.78
	L	32/0	24.75	-17.62	-5	-12.62
			24.745	-21.45	-13	-8.45
	H	1/31	25.25	-8.86	-5	-3.86
			25.255	-22.87	-13	-9.87
	H	32/0	25.25	-18.86	-5	-13.86
			25.255	-21.66	-13	-8.66

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50 MHz, SISO-DUAL, 1CC, 16QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.75	-8.72	-5	-3.72
			24.745	-22.84	-13	-9.84
	L	32/0	24.75	-20.97	-5	-15.97
			24.745	-21.45	-13	-8.45
	H	1/31	25.25	-8.52	-5	-3.52
			25.255	-22.96	-13	-9.96
	H	32/0	25.25	-19.72	-5	-14.72
			25.255	-21.59	-13	-8.59

50 MHz, SISO-DUAL, 1CC, 64QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.75	-12.46	-5	-7.46
			24.745	-23.89	-13	-10.89
	L	32/0	24.75	-21.57	-5	-16.57
			24.745	-22.20	-13	-9.20
	H	1/31	25.25	-8.88	-5	-3.88
			25.255	-23.79	-13	-10.79
	H	32/0	25.25	-22.11	-5	-17.11
			25.255	-23.35	-13	-10.35

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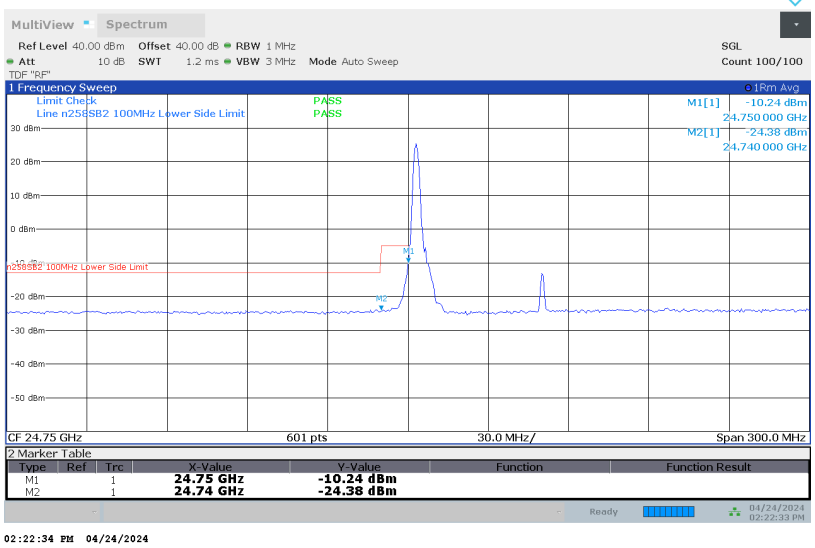
100 MHz, SISO-DUAL, 1CC, QPSK

Low-side, Single RB



Low-side, Full RB

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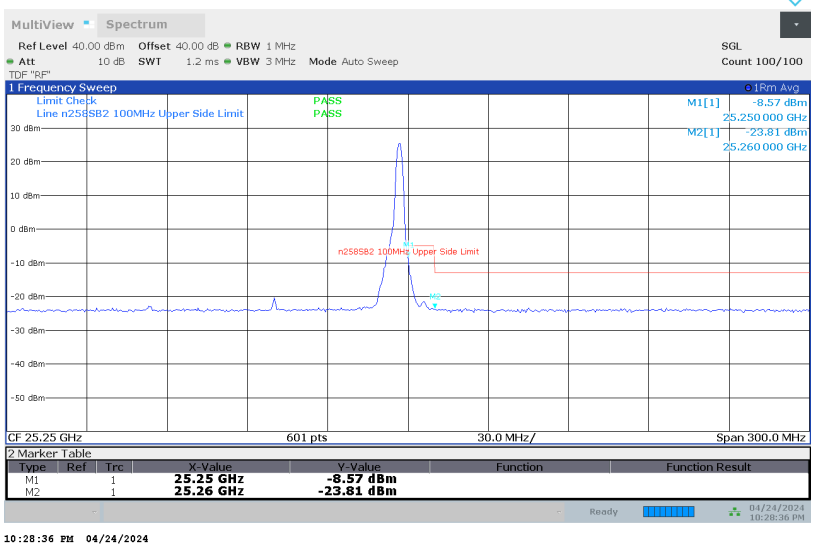
100 MHz, SISO-DUAL, 1CC, QPSK

High-side, Single RB



10:28:36 PM 04/24/2024

High-side, Full RB

08:17:19 PM 04/24/2024

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100 MHz, SISO-DUAL, 1CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
100	L	1/0	24.75	-10.24	-5	-5.24
			24.74	-24.38	-13	-11.38
	L	64/0	24.75	-16.78	-5	-11.78
			24.74	-19.35	-13	-6.35
	H	1/65	25.25	-8.57	-5	-3.57
			25.26	-23.81	-13	-10.81
	H	64/2	25.25	-15.32	-5	-10.32
			25.26	-17.00	-13	-4.00

100 MHz, SISO-DUAL, 1CC, Pi/2 BPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
100	L	64/0	24.75	-19.90	-5	-14.90
			24.74	-20.79	-13	-7.79
	H	64/2	25.25	-16.96	-5	-11.96
			25.26	-20.97	-13	-7.97

100 MHz, SISO-DUAL, 1CC, 16QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
100	L	64/0	24.75	-20.63	-5	-15.63
			24.74	-22.06	-13	-9.06
	H	64/2	25.25	-20.80	-5	-15.80
			25.26	-22.83	-13	-9.83

100 MHz, SISO-DUAL, 1CC, 64QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
100	L	64/0	24.75	-22.57	-5	-17.57
			24.74	-24.35	-13	-11.35
	H	64/2	25.25	-20.83	-5	-15.83
			25.26	-23.01	-13	-10.01

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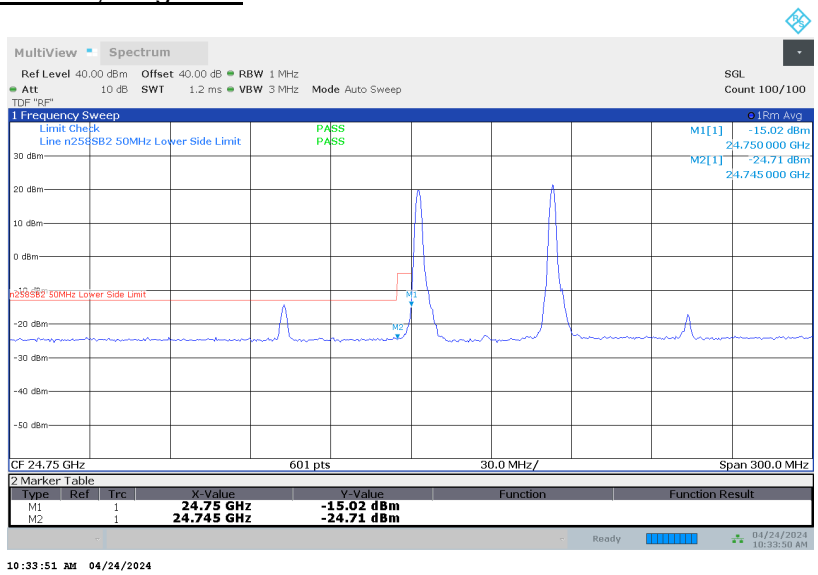
8.3.10. BAND EDGE n258 SB2 SISO-DUAL 2CC

50 MHz, SISO-DUAL, 2CC, QPSK

Low-side, Single RB



Low-side, Full RB

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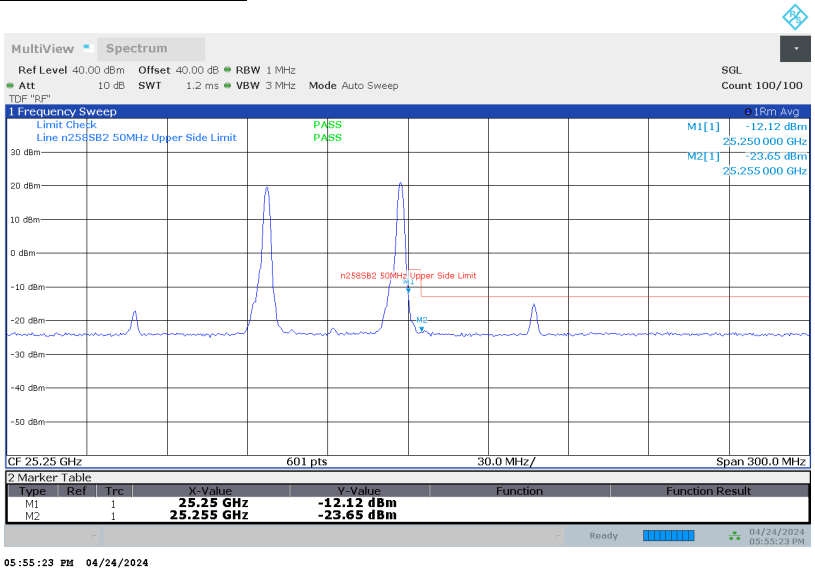
50 MHz, SISO-DUAL, 2CC, QPSK

High-side, Single RB



High-side, Full RB

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50 MHz, SISO-DUAL, 2CC, QPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.75	-15.02	-5	-10.02
			24.745	-24.71	-13	-11.71
	L	32/0	24.75	-20.21	-5	-15.21
			24.745	-20.74	-13	-7.74
	H	1/31	25.25	-12.12	-5	-7.12
			25.255	-23.65	-13	-10.65
	H	32/0	25.25	-20.53	-5	-15.53
			25.255	-21.21	-13	-8.21

50 MHz, SISO-DUAL, 2CC, Pi/2 BPSK

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.75	-15.03	-5	-10.03
			24.745	-24.61	-13	-11.61
	H	1/31	25.25	-13.68	-5	-8.68
			25.255	-23.74	-13	-10.74

50 MHz, SISO-DUAL, 2CC, 16QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.75	-16.40	-5	-11.40
			24.745	-24.75	-13	-11.75
	H	1/31	25.25	-17.16	-5	-12.16
			25.255	-24.01	-13	-11.01

50 MHz, SISO-DUAL, 2CC, 64QAM

BW	Channel	RB	Freq.	Avg EIRP	Avg TRP Limit	Margin
(MHz)		(Size Offset)	(GHz)	(dBm)	(dBm)	(dB)
50	L	1/0	24.75	-17.53	-5	-12.53
			24.745	-24.27	-13	-11.27
	H	1/31	25.25	-16.95	-5	-11.95
			25.255	-24.04	-13	-11.04

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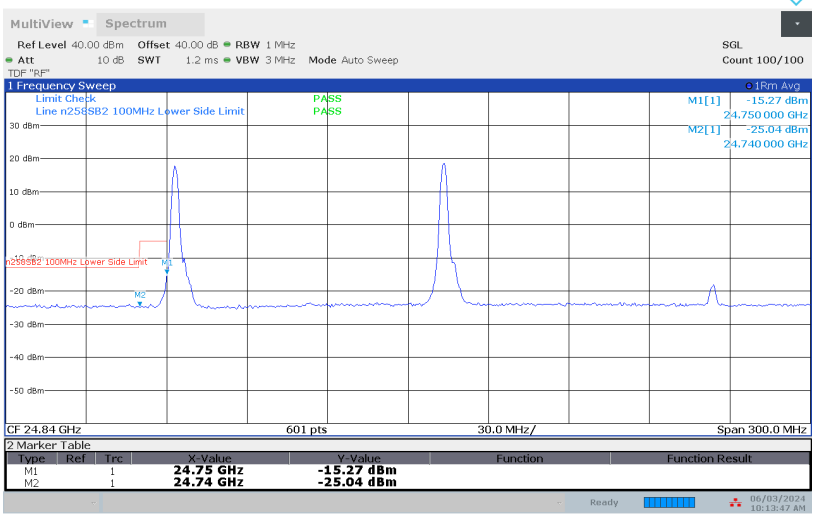
100 MHz, SISO-DUAL, 2CC, QPSK

Low-side, Single RB



10:13:47 AM 06/03/2024

Low-side, Full RB

12:04:42 PM 05/17/2024

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