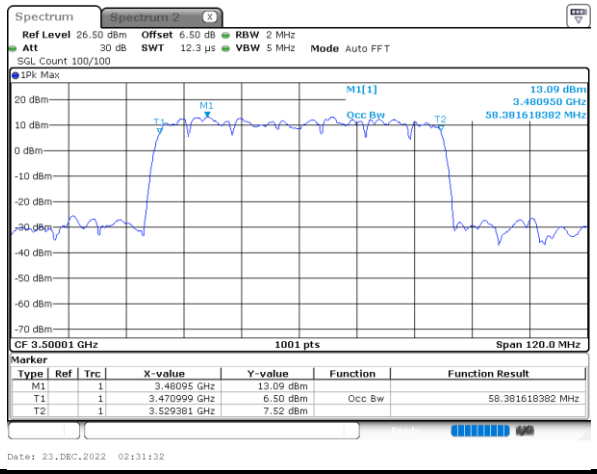
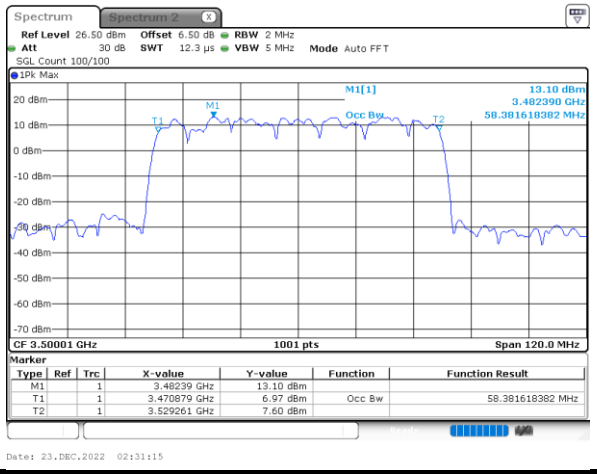
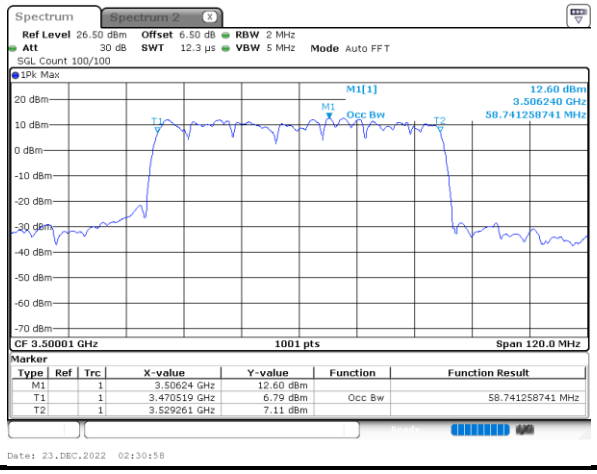
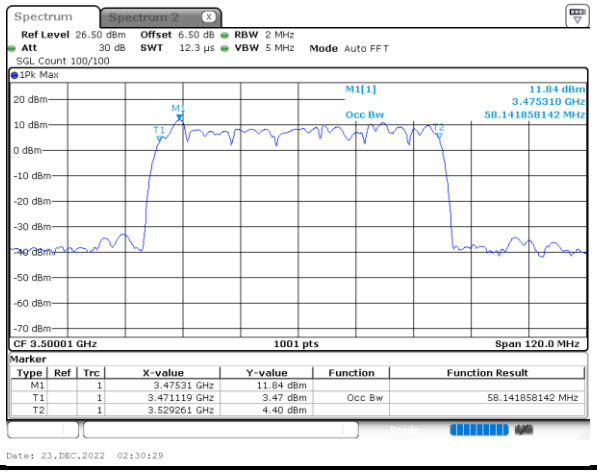
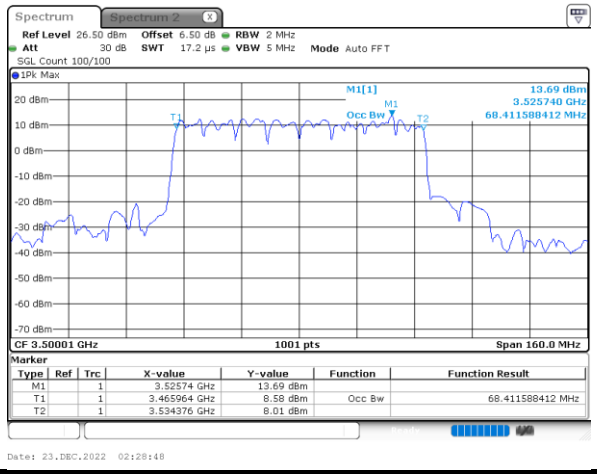
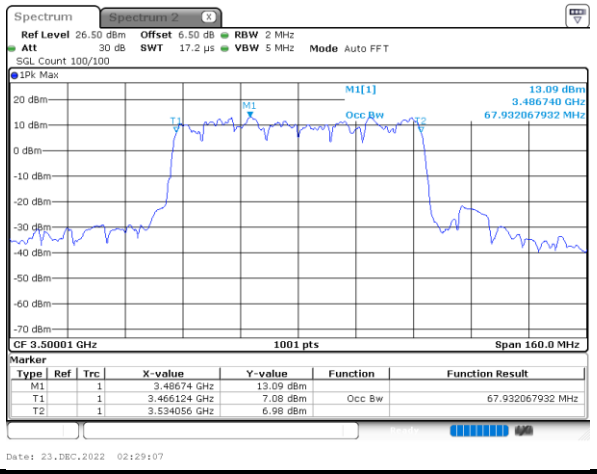
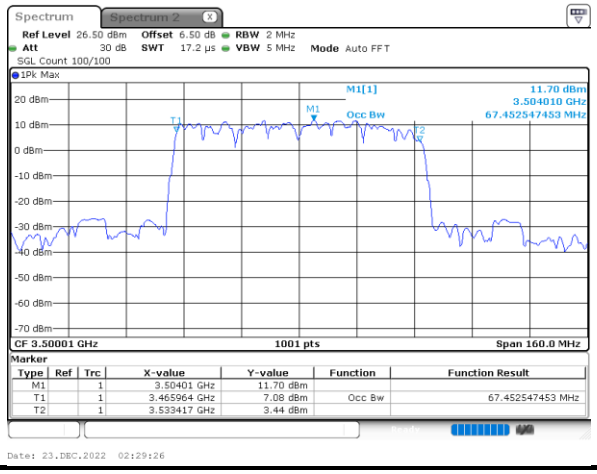
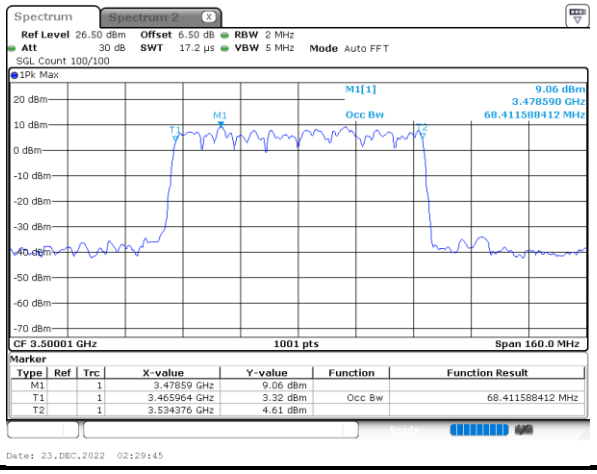
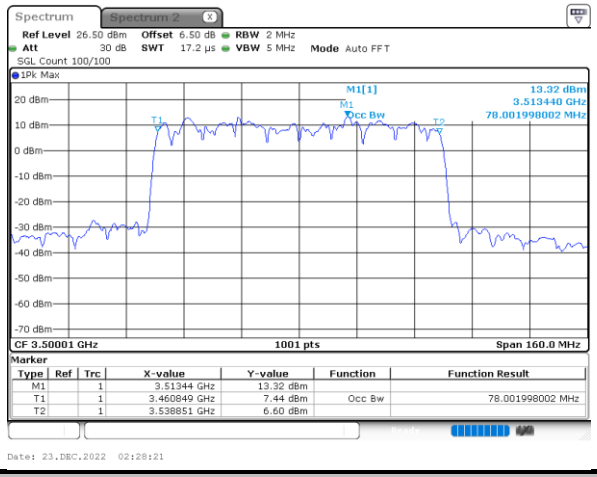
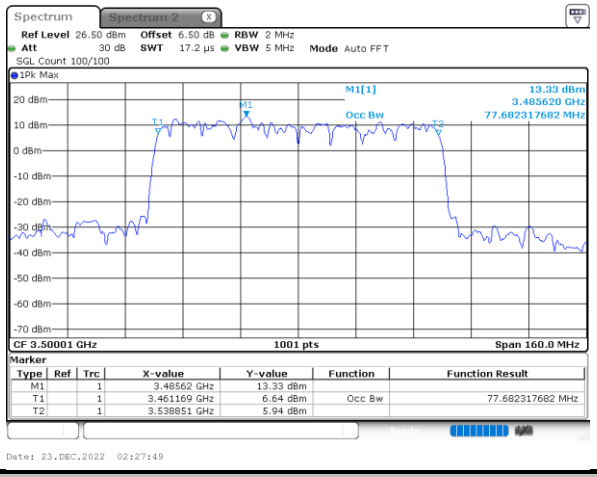
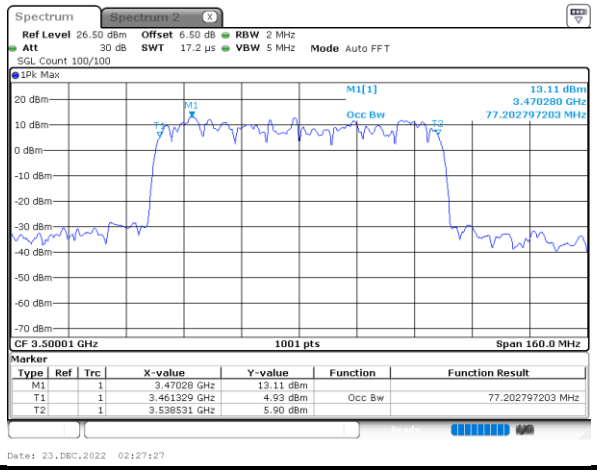
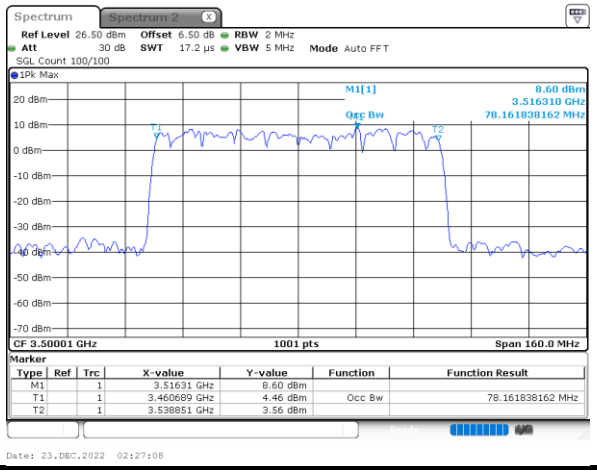
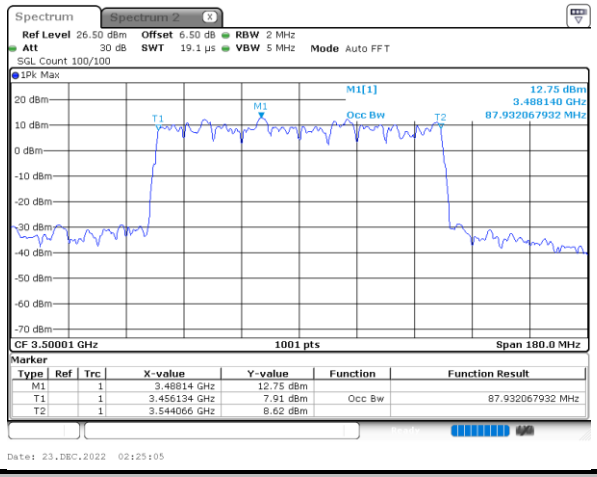
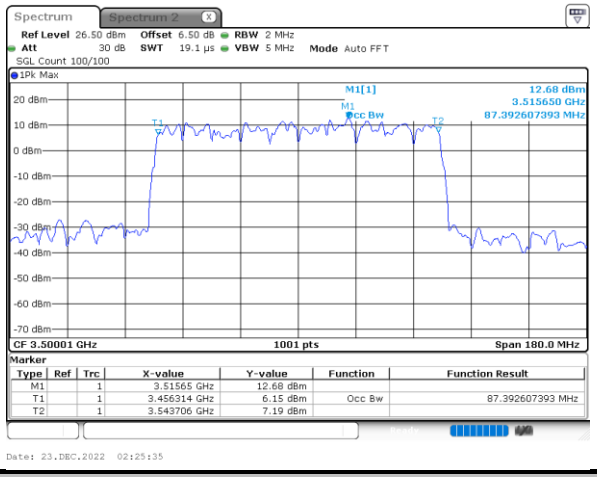
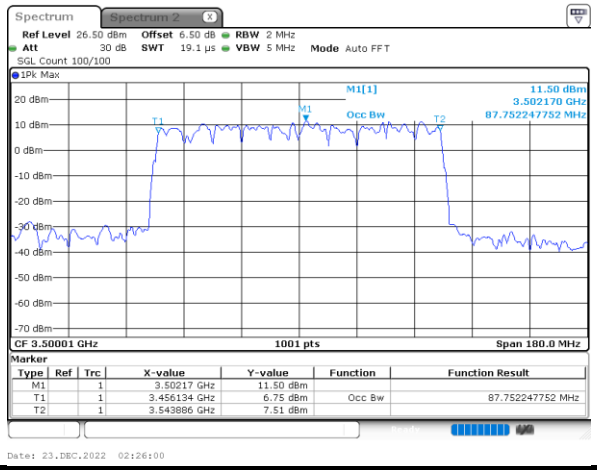
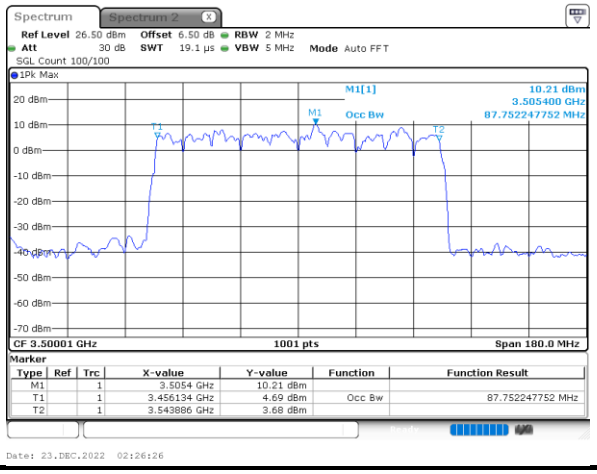
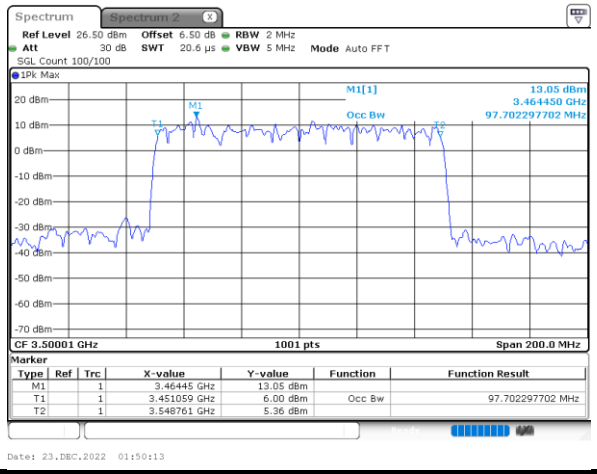
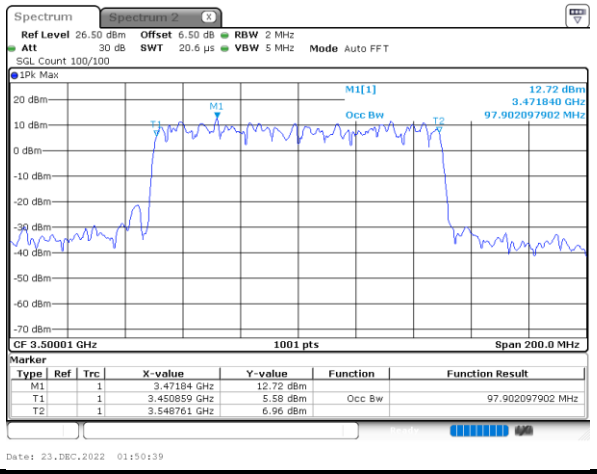
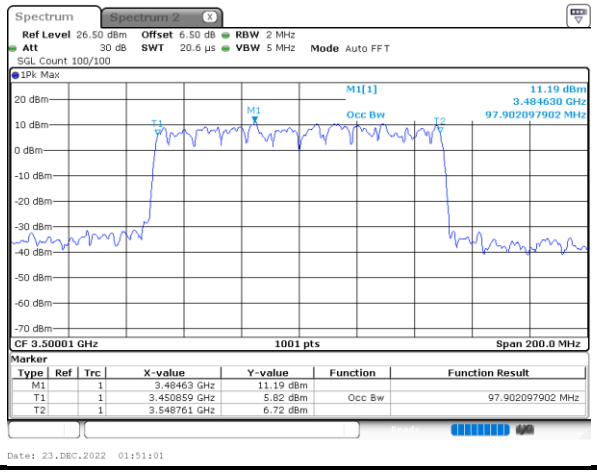
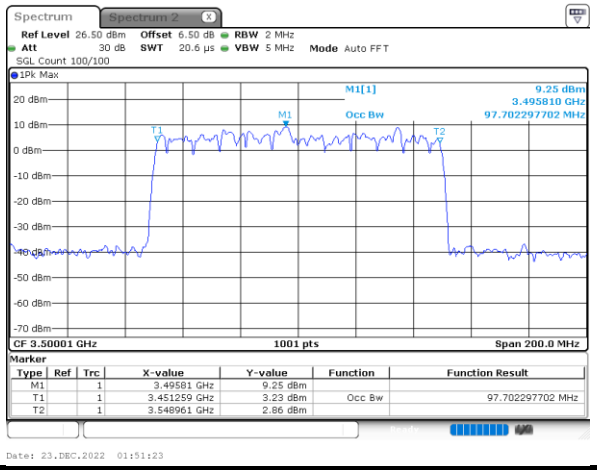
60MHz CP	
QPSK	16QAM
	
64QAM	256QAM
	

70MHz CP	
QPSK	16QAM
	
64QAM	256QAM
	

80MHz CP	
QPSK	16QAM
	
64QAM	256QAM
	

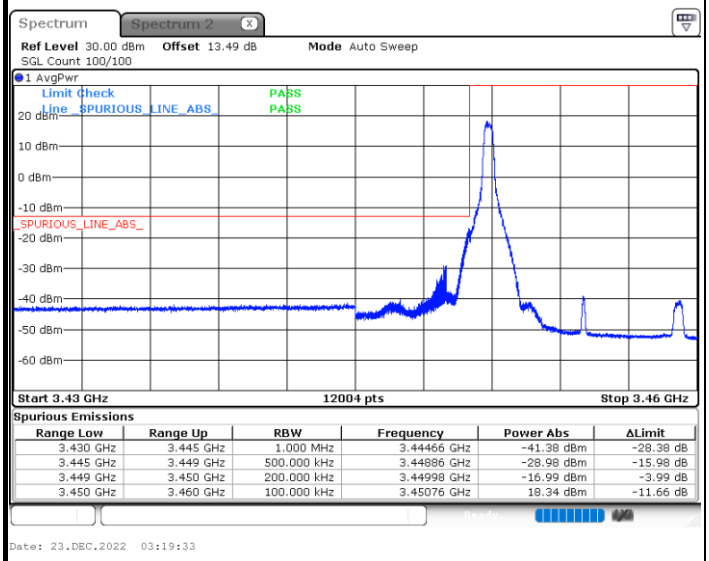
90MHz CP	
QPSK	16QAM
	
64QAM	256QAM
	

100MHz CP	
QPSK	16QAM
	
64QAM	256QAM
	

Conducted Band Edge

FR1 n78 / 10MHz / DFT-S OFDM / PI/2 BPSK

Lowest Band Edge / 1RB0

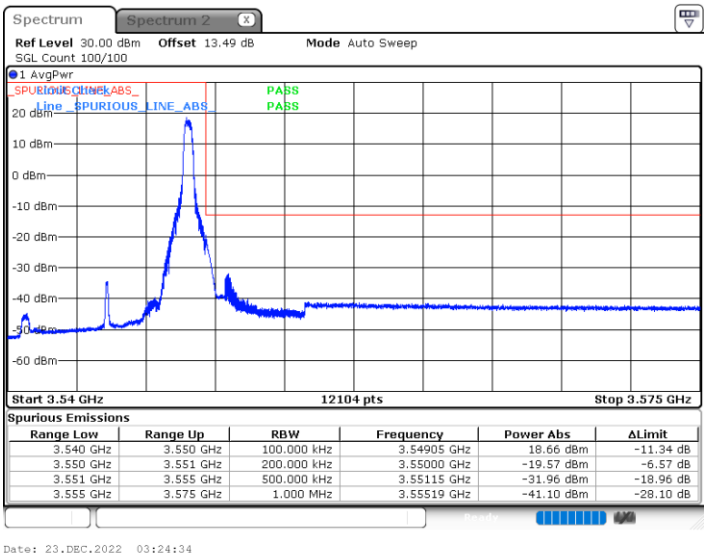


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.430 GHz	3.445 GHz	1.000 MHz	3.44466 GHz	-41.38 dBm	-28.38 dB
3.445 GHz	3.449 GHz	500.000 kHz	3.44886 GHz	-28.98 dBm	-15.98 dB
3.449 GHz	3.450 GHz	200.000 kHz	3.44998 GHz	-16.99 dBm	-3.99 dB
3.450 GHz	3.460 GHz	100.000 kHz	3.45076 GHz	18.34 dBm	-11.66 dB

Date: 23.DEC.2022 03:19:33

Highest Band Edge / 1RBmax

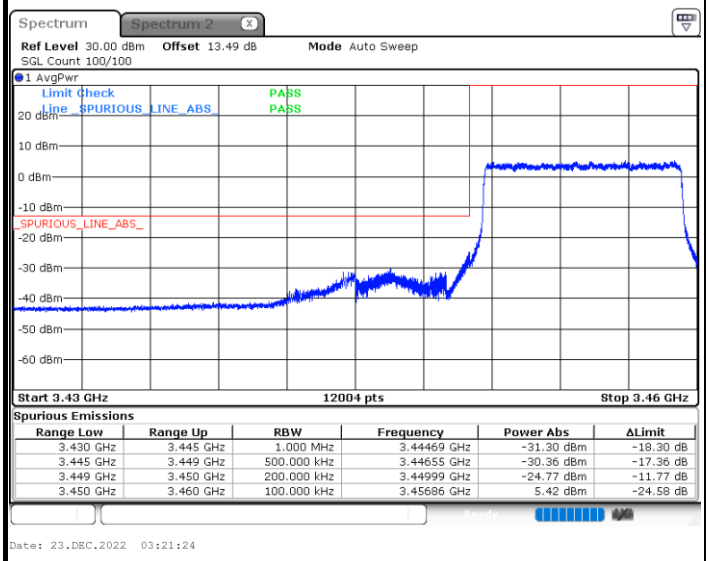


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.540 GHz	3.550 GHz	100.000 kHz	3.54905 GHz	18.66 dBm	-11.34 dB
3.550 GHz	3.551 GHz	200.000 kHz	3.55000 GHz	-19.57 dBm	-6.57 dB
3.551 GHz	3.555 GHz	500.000 kHz	3.55115 GHz	-31.96 dBm	-18.96 dB
3.555 GHz	3.575 GHz	1.000 MHz	3.55519 GHz	-41.10 dBm	-28.10 dB

Date: 23.DEC.2022 03:24:34

Lowest Band Edge / Full RB

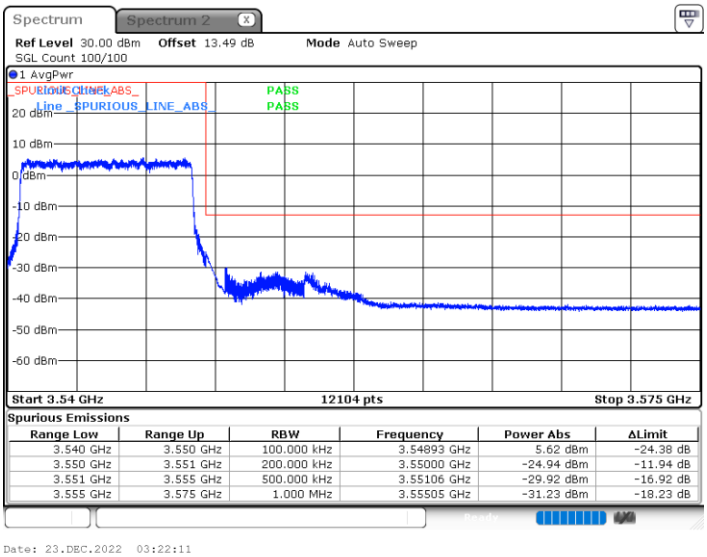


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.430 GHz	3.445 GHz	1.000 MHz	3.44469 GHz	-31.30 dBm	-18.30 dB
3.445 GHz	3.449 GHz	500.000 kHz	3.44655 GHz	-30.36 dBm	-17.36 dB
3.449 GHz	3.450 GHz	200.000 kHz	3.44999 GHz	-24.77 dBm	-11.77 dB
3.450 GHz	3.460 GHz	100.000 kHz	3.45686 GHz	5.42 dBm	-24.58 dB

Date: 23.DEC.2022 03:21:24

Highest Band Edge / Full RB

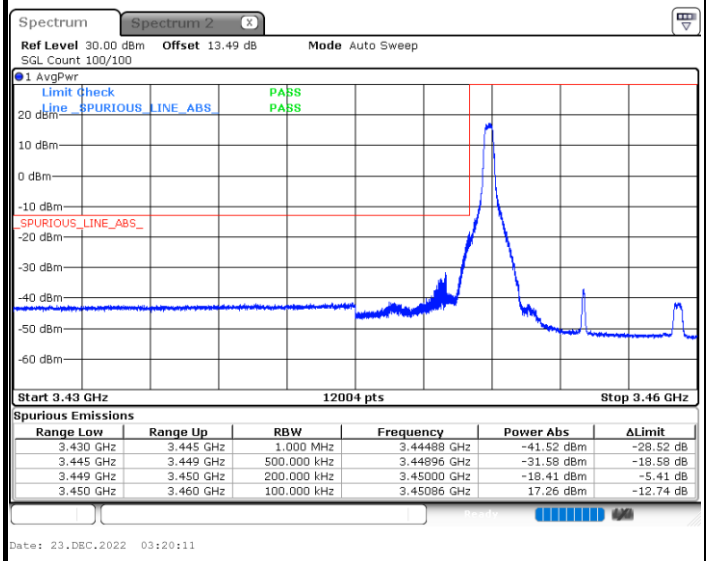


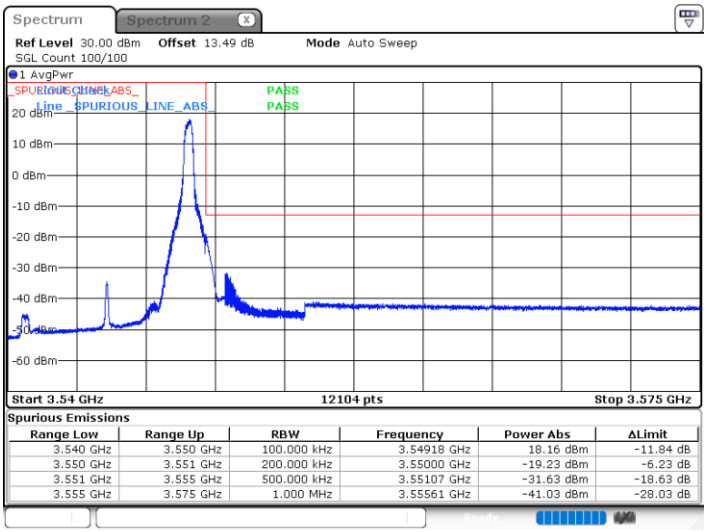
Spurious Emissions

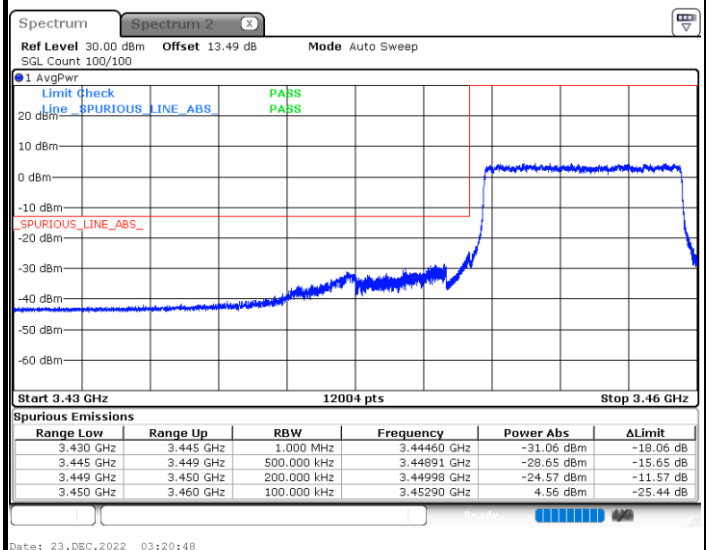
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.540 GHz	3.550 GHz	100.000 kHz	3.54893 GHz	5.62 dBm	-24.38 dB
3.550 GHz	3.551 GHz	200.000 kHz	3.55000 GHz	-24.94 dBm	-11.94 dB
3.551 GHz	3.555 GHz	500.000 kHz	3.55106 GHz	-29.92 dBm	-16.92 dB
3.555 GHz	3.575 GHz	1.000 MHz	3.55505 GHz	-31.23 dBm	-18.23 dB

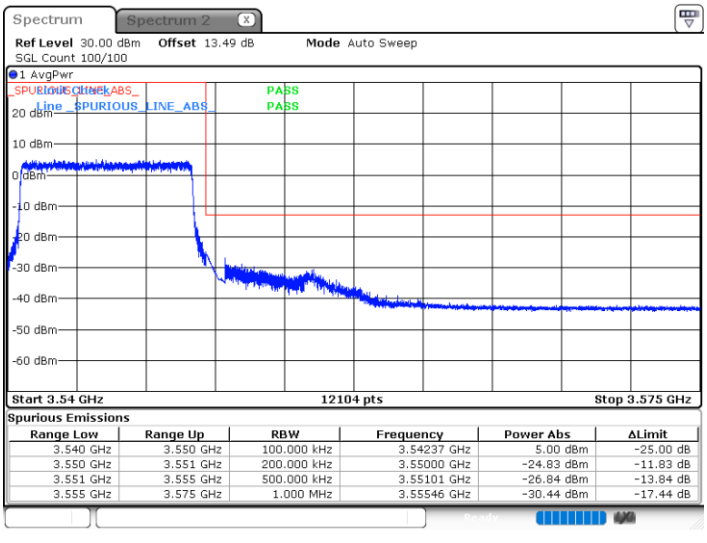
Date: 23.DEC.2022 03:22:11

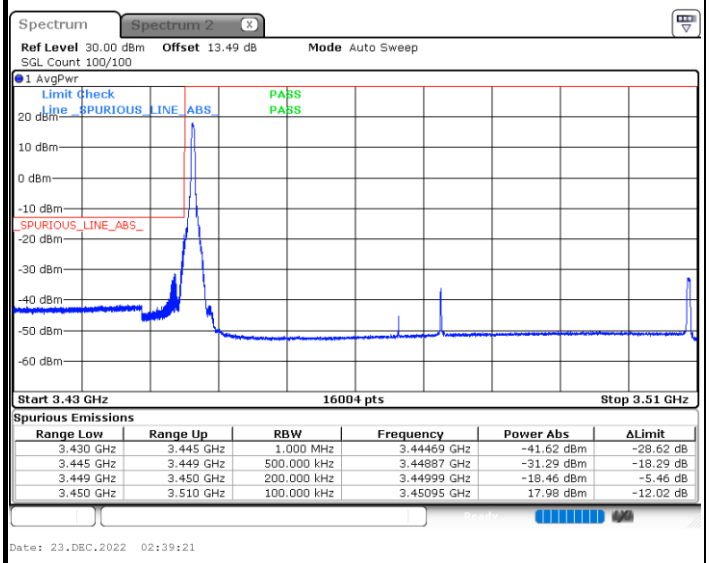
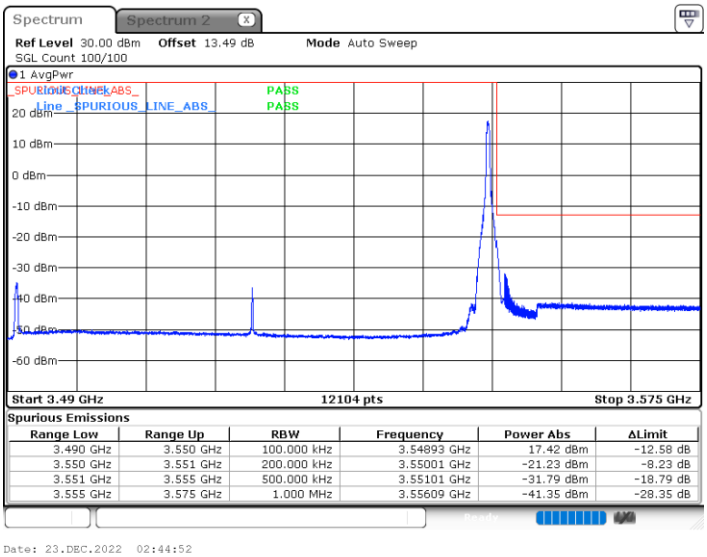
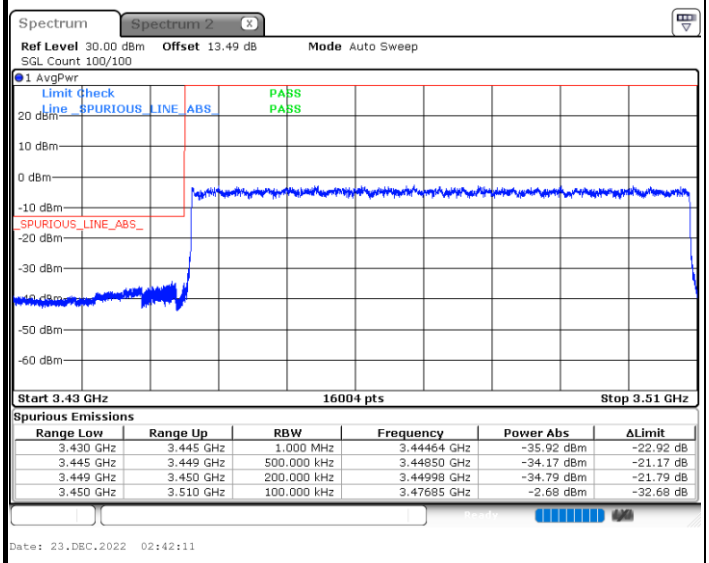
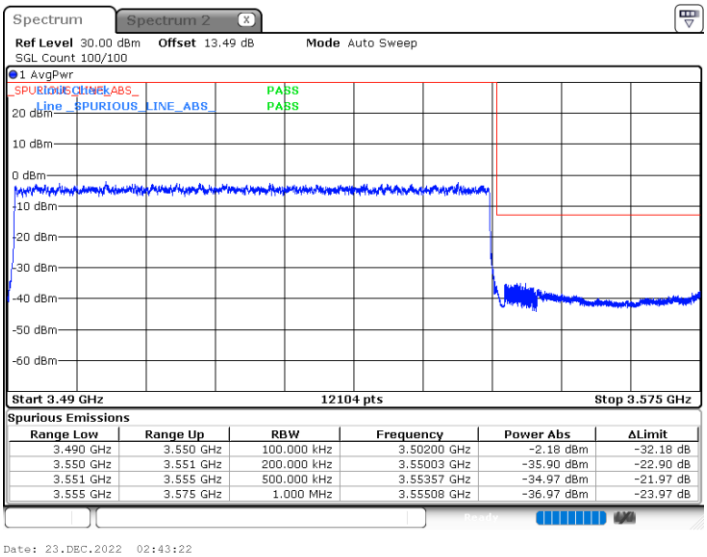
FR1 n78 / 10MHz / DFT-S OFDM / QPSK	
Lowest Band Edge / 1RB0	**Highest Band Edge / 1RBmax**
Lowest Band Edge / Full RB	**Highest Band Edge / Full RB**





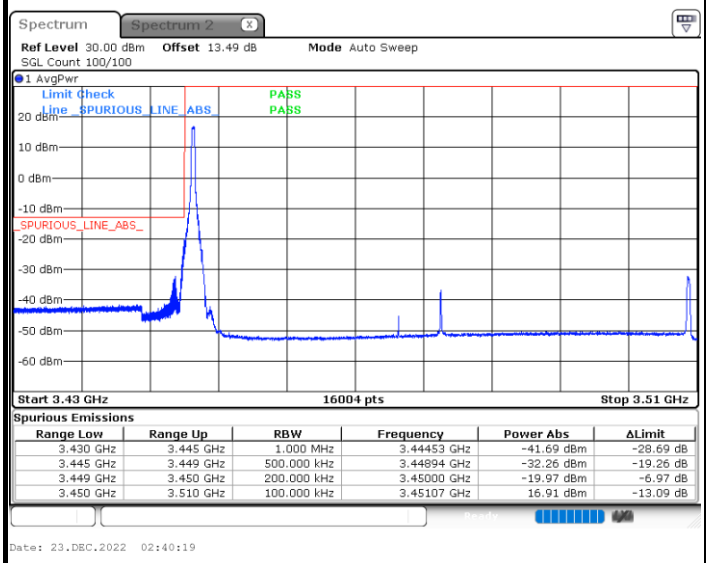




FR1 n78 / 60MHz / DFT-S OFDM / PI/2 BPSK	
Lowest Band Edge / 1RB0	**Highest Band Edge / 1RBmax**
	
Lowest Band Edge / Full RB	**Highest Band Edge / Full RB**
	

FR1 n78 / 60MHz / DFT-S OFDM / QPSK

Lowest Band Edge / 1RB0

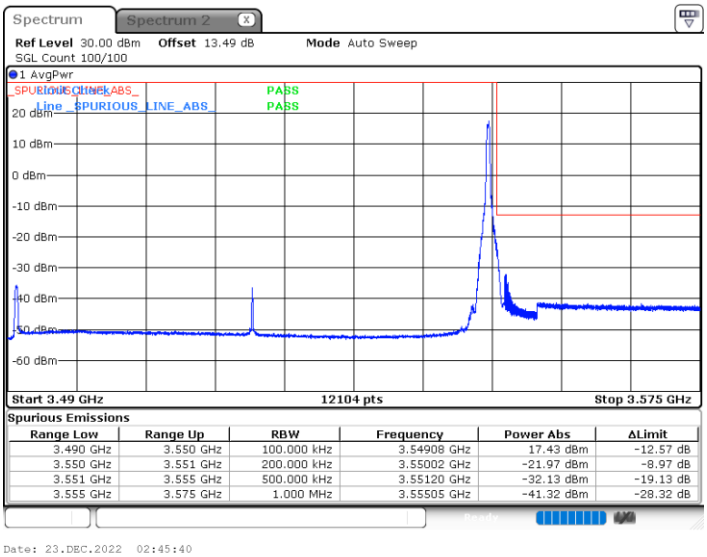


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.430 GHz	3.445 GHz	1.000 MHz	3.44453 GHz	-41.69 dBm	-28.69 dB
3.445 GHz	3.449 GHz	500.000 kHz	3.44894 GHz	-32.26 dBm	-19.26 dB
3.449 GHz	3.450 GHz	200.000 kHz	3.45000 GHz	-19.97 dBm	-6.97 dB
3.450 GHz	3.510 GHz	100.000 kHz	3.45107 GHz	16.91 dBm	-13.09 dB

Date: 23.DEC.2022 02:40:19

Highest Band Edge / 1RBmax

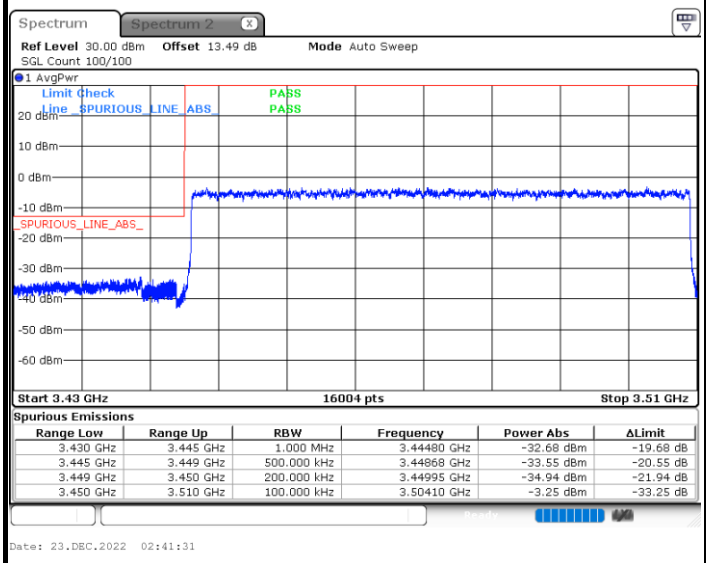


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.490 GHz	3.550 GHz	100.000 kHz	3.54908 GHz	17.43 dBm	-12.57 dB
3.550 GHz	3.551 GHz	200.000 kHz	3.55002 GHz	-21.97 dBm	-8.97 dB
3.551 GHz	3.555 GHz	500.000 kHz	3.55120 GHz	-32.13 dBm	-19.13 dB
3.555 GHz	3.575 GHz	1.000 MHz	3.55505 GHz	-41.32 dBm	-28.32 dB

Date: 23.DEC.2022 02:45:40

Lowest Band Edge / Full RB

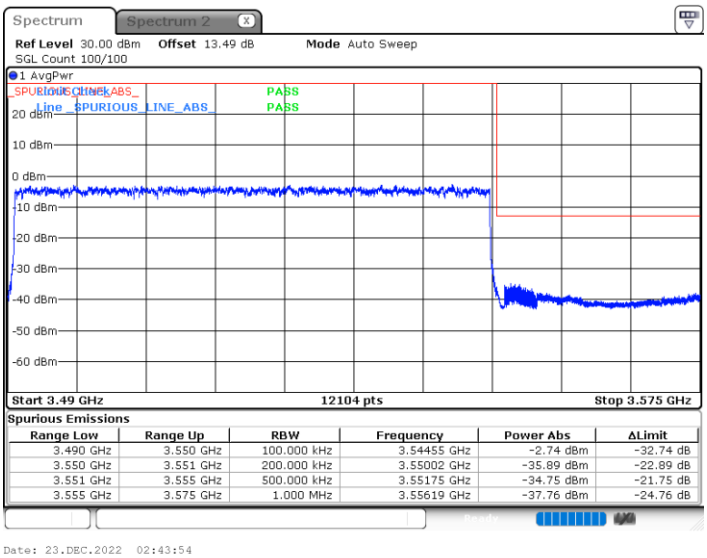


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.430 GHz	3.445 GHz	1.000 MHz	3.44480 GHz	-32.68 dBm	-19.68 dB
3.445 GHz	3.449 GHz	500.000 kHz	3.44868 GHz	-33.55 dBm	-20.55 dB
3.449 GHz	3.450 GHz	200.000 kHz	3.44995 GHz	-34.94 dBm	-21.94 dB
3.450 GHz	3.510 GHz	100.000 kHz	3.50410 GHz	-3.25 dBm	-33.25 dB

Date: 23.DEC.2022 02:41:31

Highest Band Edge / Full RB



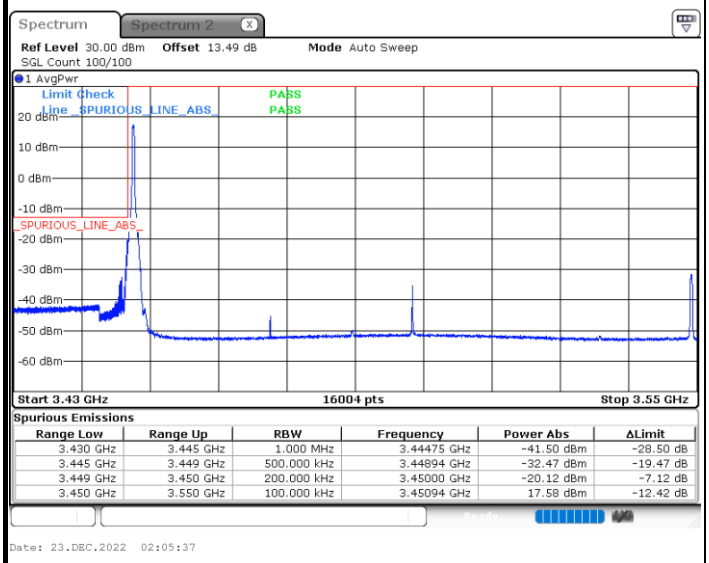
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.490 GHz	3.550 GHz	100.000 kHz	3.54455 GHz	-2.74 dBm	-32.74 dB
3.550 GHz	3.551 GHz	200.000 kHz	3.55002 GHz	-35.89 dBm	-22.89 dB
3.551 GHz	3.555 GHz	500.000 kHz	3.55175 GHz	-34.75 dBm	-21.75 dB
3.555 GHz	3.575 GHz	1.000 MHz	3.55619 GHz	-37.76 dBm	-24.76 dB

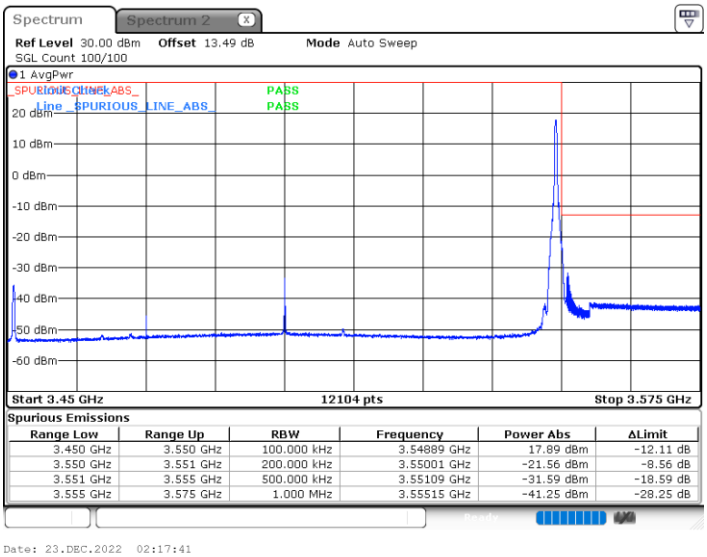
Date: 23.DEC.2022 02:43:54

FR1 n78 / 100MHz / DFT-S OFDM / PI/2 BPSK

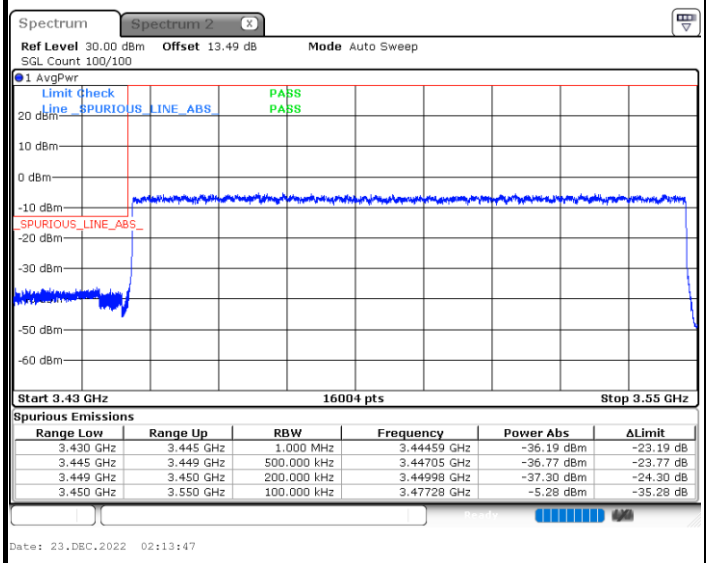
Lowest Band Edge / 1RB0



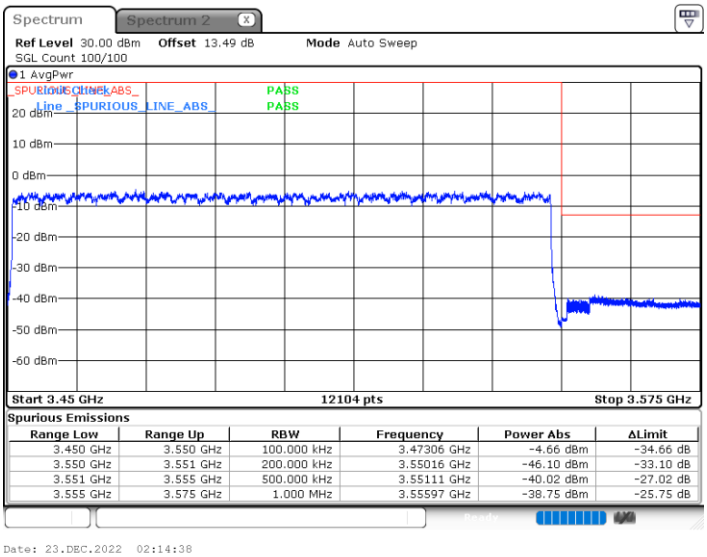
Highest Band Edge / 1RBmax



Lowest Band Edge / Full RB

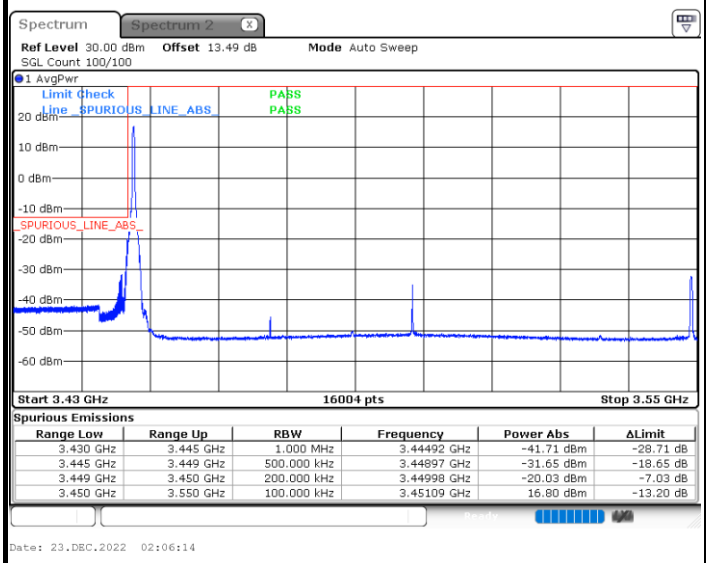


Highest Band Edge / Full RB



FR1 n78 / 100MHz / DFT-S OFDM / QPSK

Lowest Band Edge / 1RB0

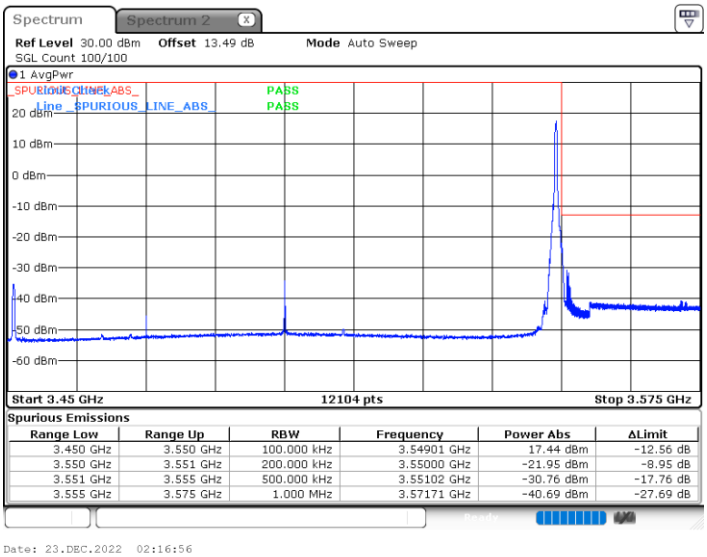


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.430 GHz	3.445 GHz	1.000 MHz	3.44492 GHz	-41.71 dBm	-28.71 dB
3.445 GHz	3.449 GHz	500.000 kHz	3.44897 GHz	-31.65 dBm	-18.65 dB
3.449 GHz	3.450 GHz	200.000 kHz	3.44998 GHz	-20.03 dBm	-7.03 dB
3.450 GHz	3.550 GHz	100.000 kHz	3.45109 GHz	16.80 dBm	-13.20 dB

Date: 23.DEC.2022 02:06:14

Highest Band Edge / 1RBmax

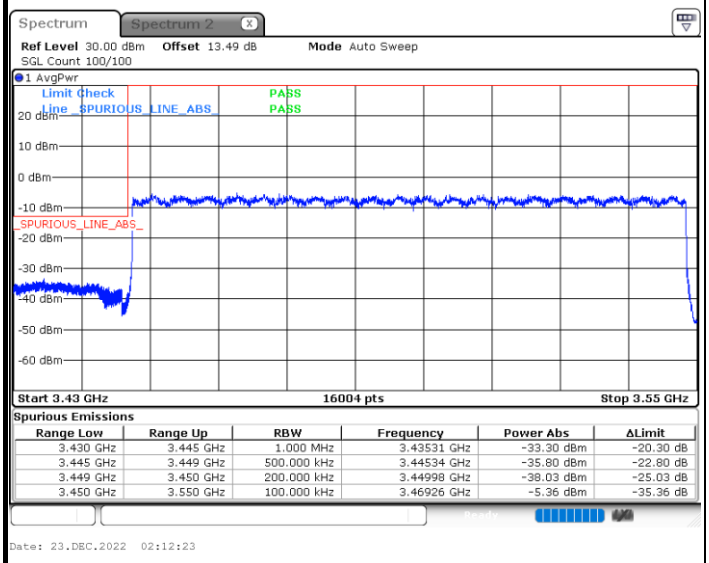


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.450 GHz	3.550 GHz	100.000 kHz	3.54901 GHz	17.44 dBm	-12.56 dB
3.550 GHz	3.551 GHz	200.000 kHz	3.55000 GHz	-21.95 dBm	-8.95 dB
3.551 GHz	3.555 GHz	500.000 kHz	3.55102 GHz	-30.76 dBm	-17.76 dB
3.555 GHz	3.575 GHz	1.000 MHz	3.57171 GHz	-40.69 dBm	-27.69 dB

Date: 23.DEC.2022 02:16:56

Lowest Band Edge / Full RB

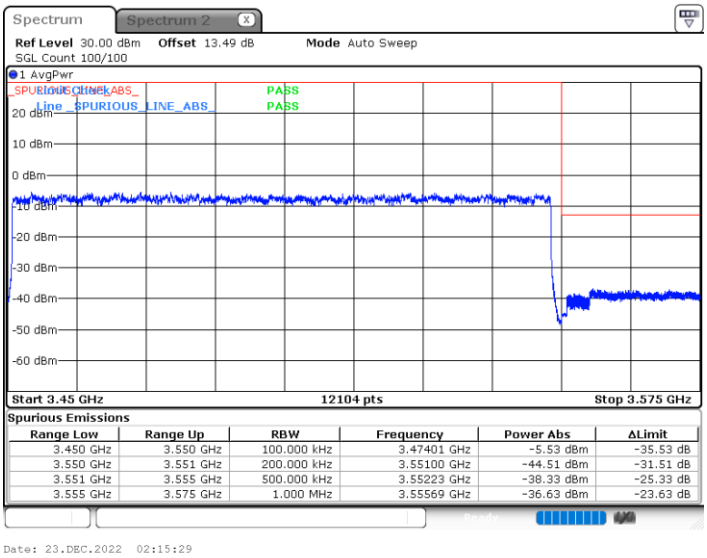


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.430 GHz	3.445 GHz	1.000 MHz	3.43531 GHz	-33.30 dBm	-20.30 dB
3.445 GHz	3.449 GHz	500.000 kHz	3.44534 GHz	-35.80 dBm	-22.80 dB
3.449 GHz	3.450 GHz	200.000 kHz	3.44998 GHz	-38.03 dBm	-25.03 dB
3.450 GHz	3.550 GHz	100.000 kHz	3.46926 GHz	-5.36 dBm	-35.36 dB

Date: 23.DEC.2022 02:12:23

Highest Band Edge / Full RB



Spurious Emissions

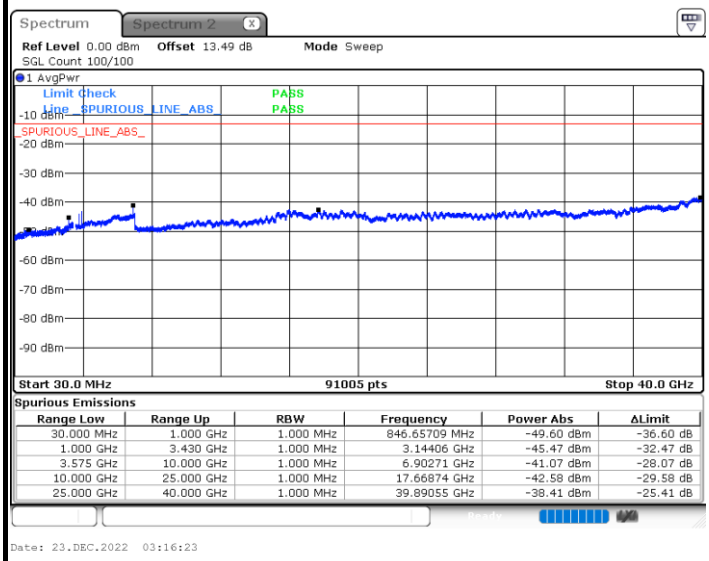
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.450 GHz	3.550 GHz	100.000 kHz	3.47401 GHz	-5.53 dBm	-35.53 dB
3.550 GHz	3.551 GHz	200.000 kHz	3.55100 GHz	-44.51 dBm	-31.51 dB
3.551 GHz	3.555 GHz	500.000 kHz	3.55223 GHz	-38.33 dBm	-25.33 dB
3.555 GHz	3.575 GHz	1.000 MHz	3.55569 GHz	-36.63 dBm	-23.63 dB

Date: 23.DEC.2022 02:15:29

Conducted Spurious Emission

FR1 n78 / 10MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB1

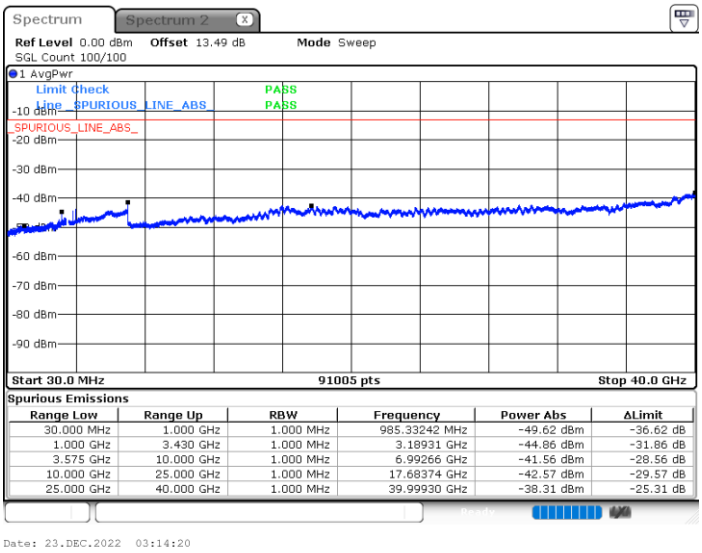


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	846.65709 MHz	-49.60 dBm	-36.60 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.14406 GHz	-45.47 dBm	-32.47 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.90271 GHz	-41.07 dBm	-28.07 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.66874 GHz	-42.58 dBm	-29.58 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.89055 GHz	-38.41 dBm	-25.41 dB

Date: 23.DEC.2022 03:16:23

Middle Channel / 1RB1

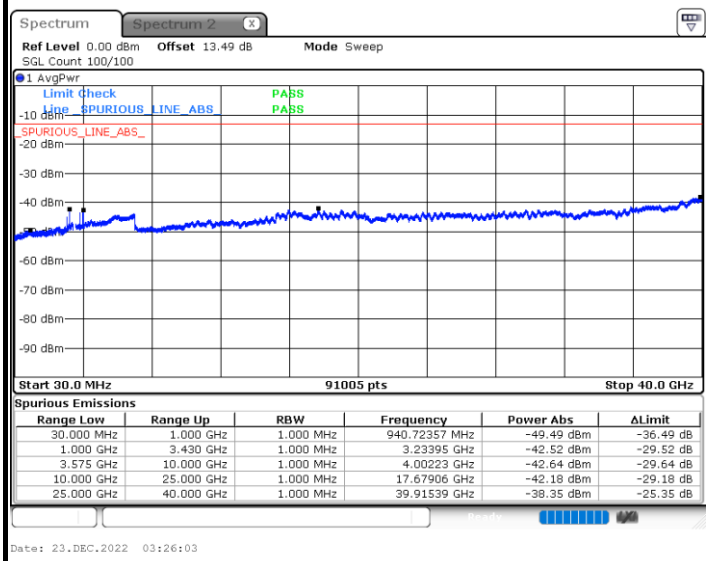


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	985.33242 MHz	-49.62 dBm	-36.62 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.18931 GHz	-44.86 dBm	-31.86 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.99266 GHz	-41.56 dBm	-28.56 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.68374 GHz	-42.57 dBm	-29.57 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.99930 GHz	-38.31 dBm	-25.31 dB

Date: 23.DEC.2022 03:14:20

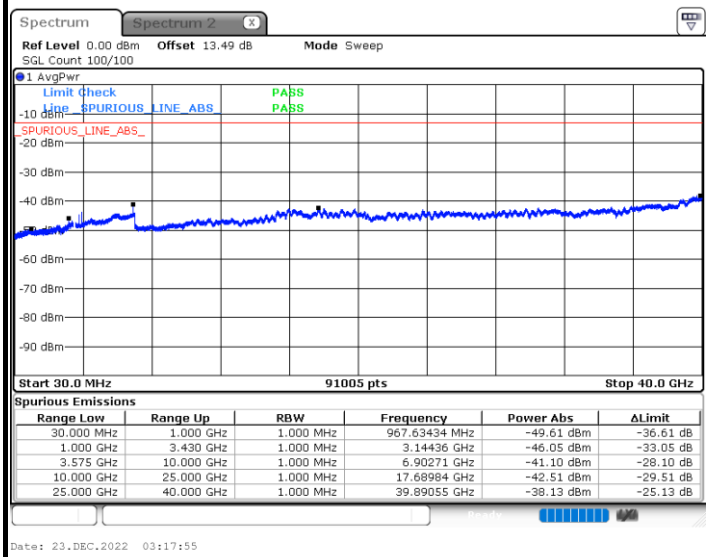
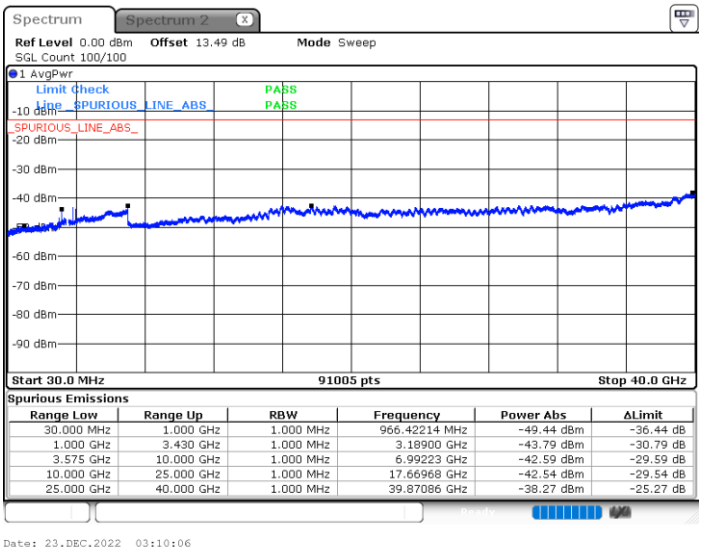
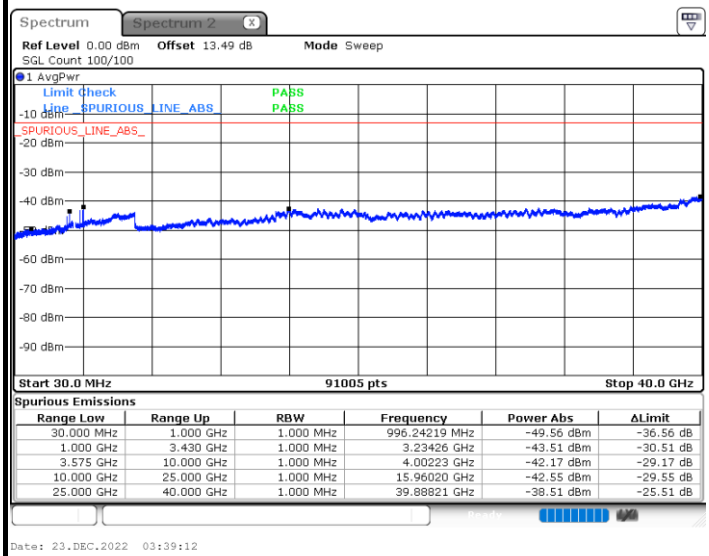
Highest Channel / 1RB1



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	940.72357 MHz	-49.49 dBm	-36.49 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.23395 GHz	-42.52 dBm	-29.52 dB
3.575 GHz	10.000 GHz	1.000 MHz	4.00223 GHz	-42.64 dBm	-29.64 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.67906 GHz	-42.18 dBm	-29.18 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.91539 GHz	-38.35 dBm	-25.35 dB

Date: 23.DEC.2022 03:26:03

FR1 n78 / 10MHz / DFT-S OFDM /QPSK	
Lowest Channel / 1RB1	**Middle Channel / 1RB1**
	
Highest Channel / 1RB1	
	

Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	967.63434 MHz	-49.61 dBm	-36.61 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.14436 GHz	-46.05 dBm	-33.05 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.90271 GHz	-41.10 dBm	-28.10 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.68984 GHz	-42.51 dBm	-29.51 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.89055 GHz	-38.13 dBm	-25.13 dB

Date: 23.DEC.2022 03:17:55

Spurious Emissions

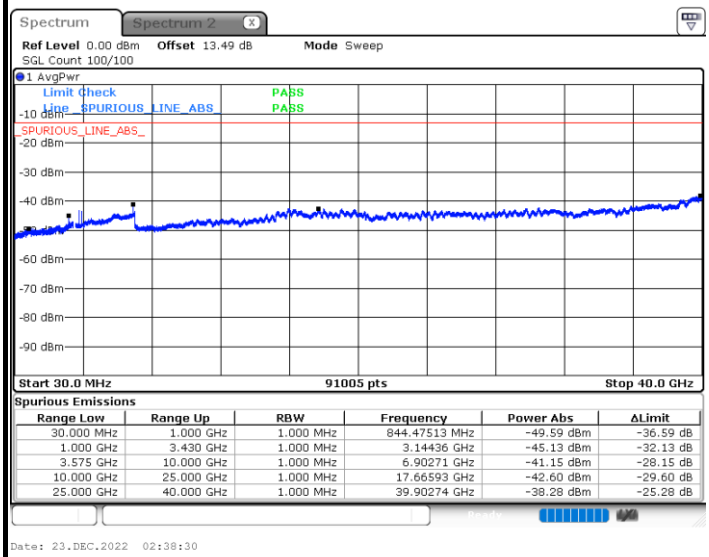
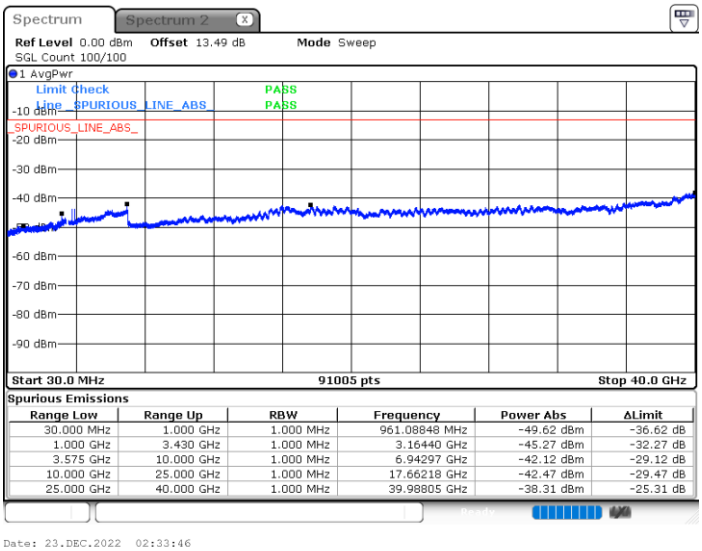
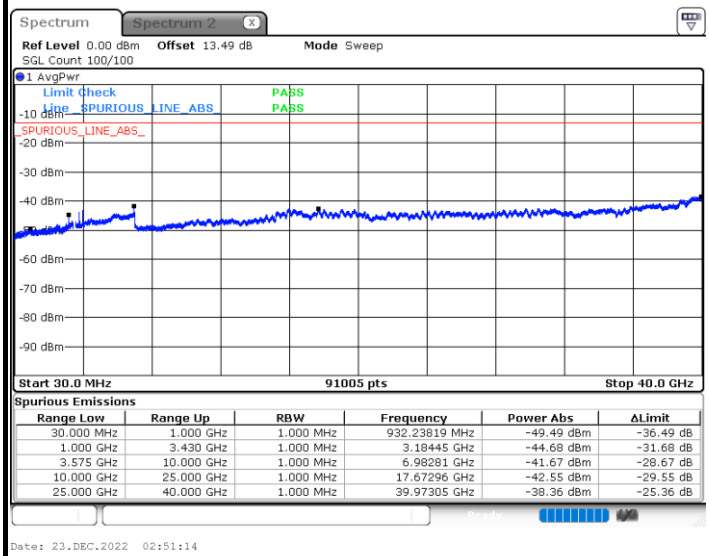
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	966.42214 MHz	-49.44 dBm	-36.44 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.18900 GHz	-43.79 dBm	-30.79 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.99223 GHz	-42.59 dBm	-29.59 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.66968 GHz	-42.54 dBm	-29.54 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.87086 GHz	-38.27 dBm	-25.27 dB

Date: 23.DEC.2022 03:10:06

Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	996.24219 MHz	-49.56 dBm	-36.56 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.23426 GHz	-43.51 dBm	-30.51 dB
3.575 GHz	10.000 GHz	1.000 MHz	4.00223 GHz	-42.17 dBm	-29.17 dB
10.000 GHz	25.000 GHz	1.000 MHz	15.96020 GHz	-42.55 dBm	-29.55 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.88821 GHz	-38.51 dBm	-25.51 dB

Date: 23.DEC.2022 03:39:12

FR1 n78 /60MHz / DFT-S OFDM / BPSK	
Lowest Channel / 1RB1	**Middle Channel / 1RB1**
	
Highest Channel / 1RB1	
	

Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	844.47513 MHz	-49.59 dBm	-36.59 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.14436 GHz	-45.13 dBm	-32.13 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.90271 GHz	-41.15 dBm	-28.15 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.66593 GHz	-42.60 dBm	-29.60 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.90274 GHz	-38.28 dBm	-25.28 dB

Date: 23.DEC.2022 02:38:30

Spurious Emissions

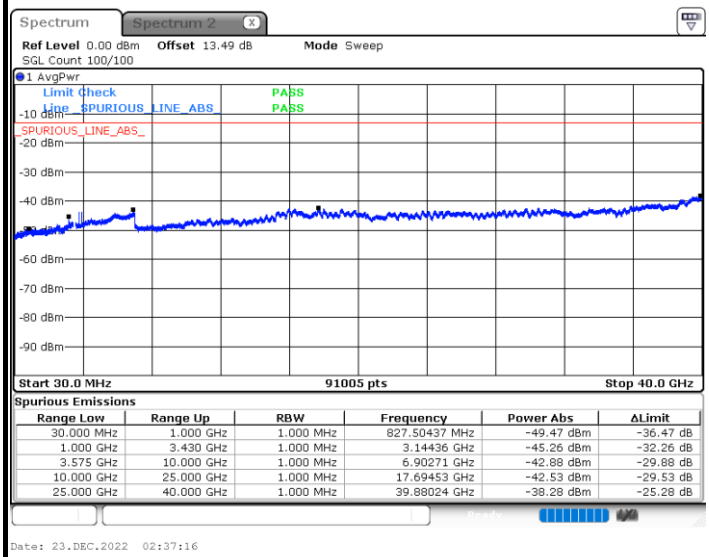
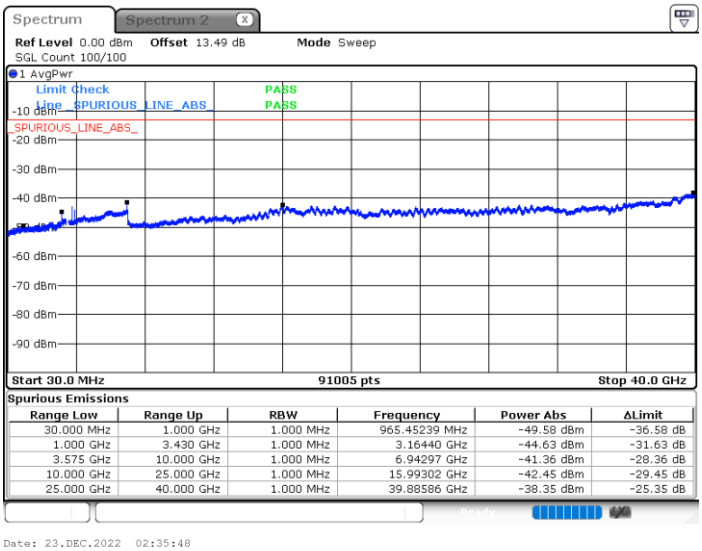
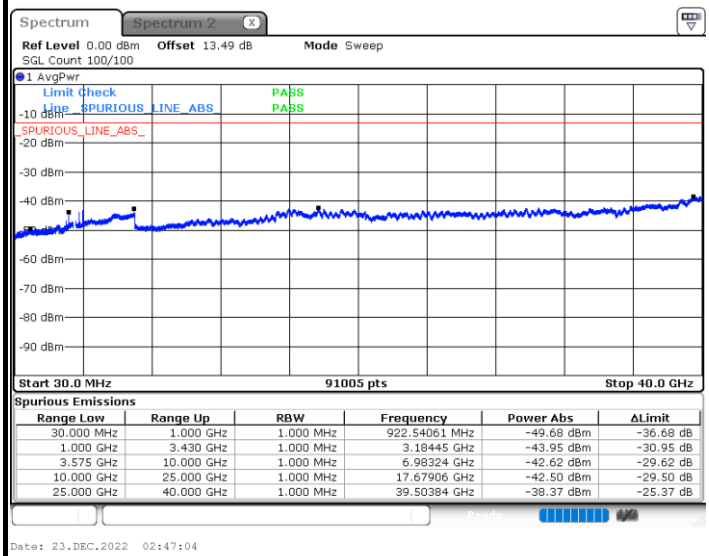
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	961.08848 MHz	-49.62 dBm	-36.62 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.16440 GHz	-45.27 dBm	-32.27 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.94297 GHz	-42.12 dBm	-29.12 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.66218 GHz	-42.47 dBm	-29.47 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.98805 GHz	-38.31 dBm	-25.31 dB

Date: 23.DEC.2022 02:33:46

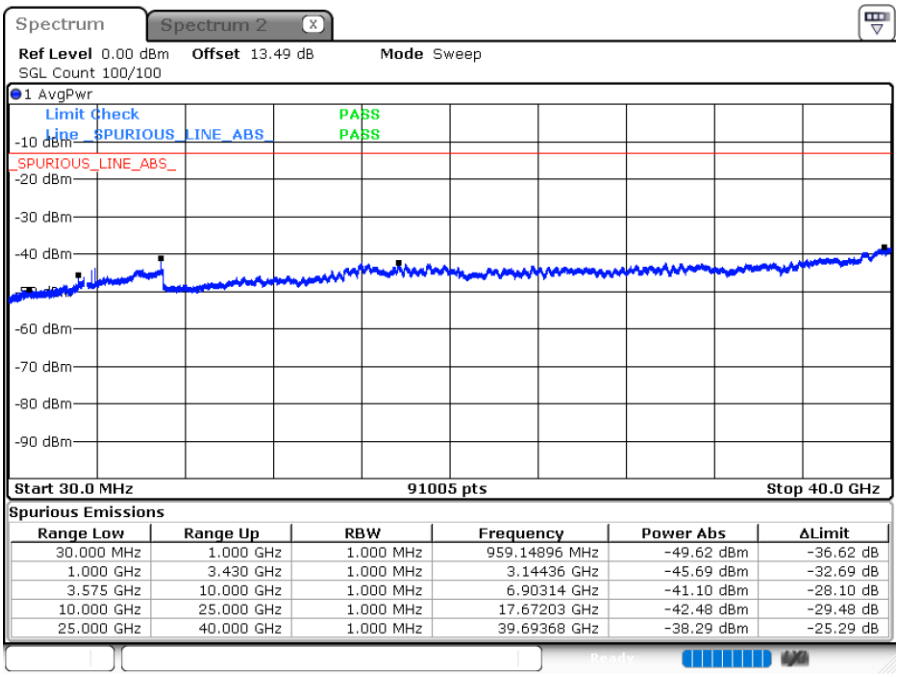
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	932.23819 MHz	-49.49 dBm	-36.49 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.18445 GHz	-44.68 dBm	-31.68 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.98281 GHz	-41.67 dBm	-28.67 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.67296 GHz	-42.55 dBm	-29.55 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.97305 GHz	-38.36 dBm	-25.36 dB

Date: 23.DEC.2022 02:51:14

FR1 n78 /60MHz / DFT-S OFDM /QPSK	
Lowest Channel / 1RB1	**Middle Channel / 1RB1**
	
Highest Channel / 1RB1	
	

FR1 n78 / 100MHz / DFT-S OFDM /BPSK
Middle Channel / 1RB1

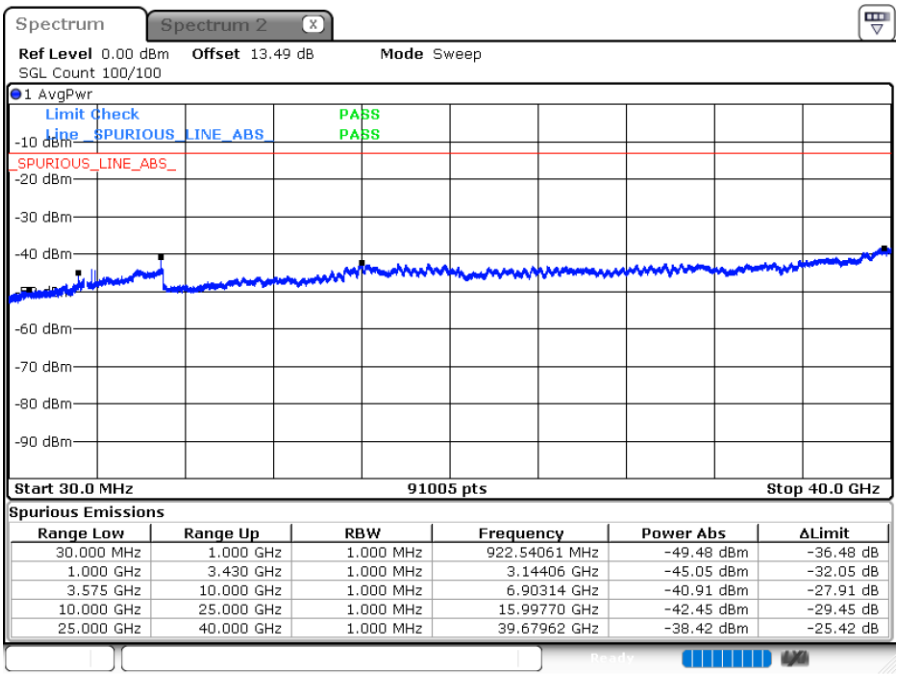


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	959.14896 MHz	-49.62 dBm	-36.62 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.14436 GHz	-45.69 dBm	-32.69 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.90314 GHz	-41.10 dBm	-28.10 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.67203 GHz	-42.48 dBm	-29.48 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.69368 GHz	-38.29 dBm	-25.29 dB

Date: 23.DEC.2022 02:04:02

FR1 n78 / 100MHz / DFT-S OFDM / QPSK
Middle Channel / 1RB1



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	922.54061 MHz	-49.48 dBm	-36.48 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.14406 GHz	-45.05 dBm	-32.05 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.90314 GHz	-40.91 dBm	-27.91 dB
10.000 GHz	25.000 GHz	1.000 MHz	15.99770 GHz	-42.45 dBm	-29.45 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.67962 GHz	-38.42 dBm	-25.42 dB

Date: 23.DEC.2022 02:01:07

Frequency Stability

Test Conditions		FR1 n78 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 20MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0025	PASS
40	Normal Voltage	0.0037	
30	Normal Voltage	0.0053	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0014	
0	Normal Voltage	0.0016	
-10	Normal Voltage	0.0032	
-20	Normal Voltage	0.0051	
-30	Normal Voltage	0.0011	
20	Maximum Voltage	0.0007	
20	Normal Voltage	0.0026	
20	Battery End Point	0.0013	

Note:

1. Normal Voltage =3.89 V. ; Battery End Point (BEP) =3.4 V. ; Maximum Voltage =4.48 V.

2. Note: The frequency fundamental emissions stay within the authorized frequency block.

Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

Test Engineer :	Carry Xu	Temperature :	23~25℃
		Relative Humidity :	41~42%

Note: Pre-scanned harmonic for the different antenna combinations, we choose the worst antenna mode to perform final test.

5G NR n77 SA / 100MHz / QPSK / ANT 7								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6900	-63.63	-13	-50.63	-73.84	3.03	13.24	H
	10356	-52.58	-13	-39.58	-62.03	3.56	13.01	H
	13818	-61.79	-13	-48.79	-71.31	3.92	13.44	H
	6900	-61.44	-13	-48.44	-71.65	3.03	13.24	V
	10356	-48.44	-13	-35.44	-57.89	3.56	13.01	V
	13818	-61.94	-13	-48.94	-71.46	3.92	13.44	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

5G NR DC_66A_n77A / LTE 10MHz + NR 100MHz / QPSK / ANT0(LTE) + ANT7(NR)								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6900	-62.44	-13	-49.44	-72.65	3.03	13.24	H
	10356	-54.84	-13	-41.84	-64.29	3.56	13.01	H
	13818	-61.79	-13	-48.79	-71.31	3.92	13.44	H
	6900	-60.51	-13	-47.51	-70.72	3.03	13.24	V
	10356	-49.66	-13	-36.66	-59.11	3.56	13.01	V
	13818	-61.94	-13	-48.94	-71.46	3.92	13.44	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.