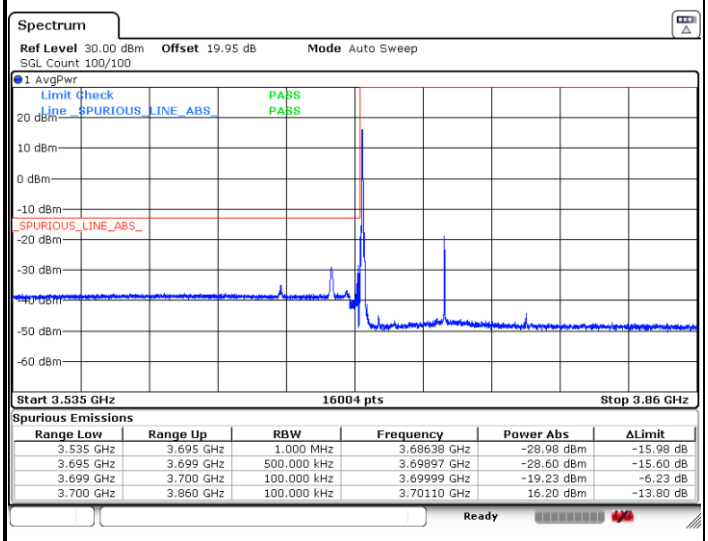
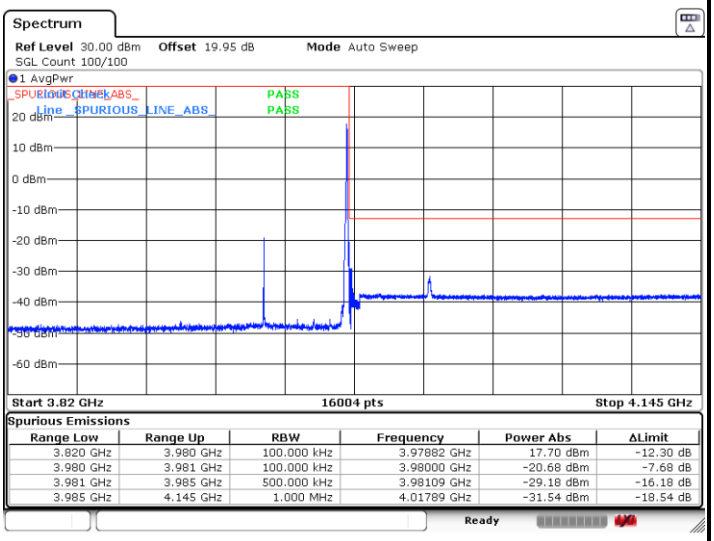
FR1 n77 / 80MHz / CP OFDM / 256QAM

Lowest Band Edge / 1RB0



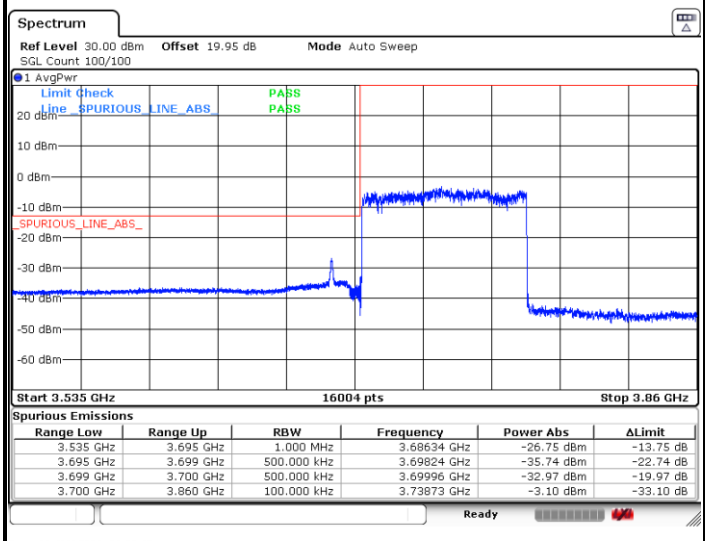
Date: 18.JAN.2021 01:06:51

Highest Band Edge / 1RBmax



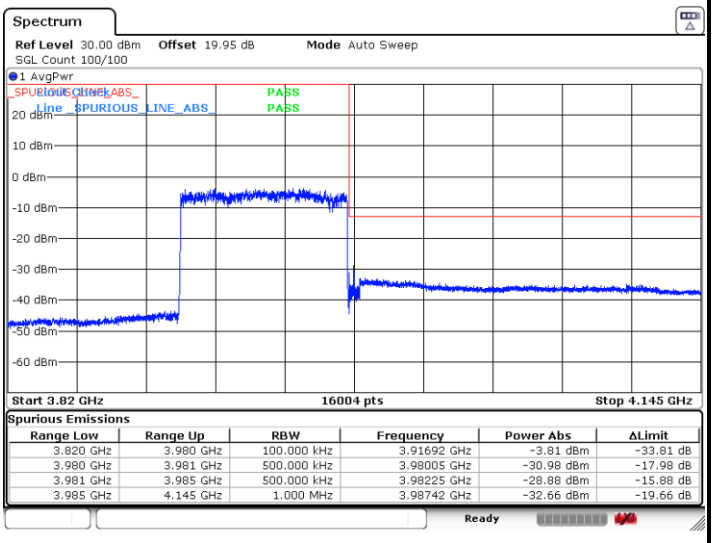
Date: 18.JAN.2021 01:16:27

Lowest Band Edge / Full RB



Date: 18.JAN.2021 01:09:49

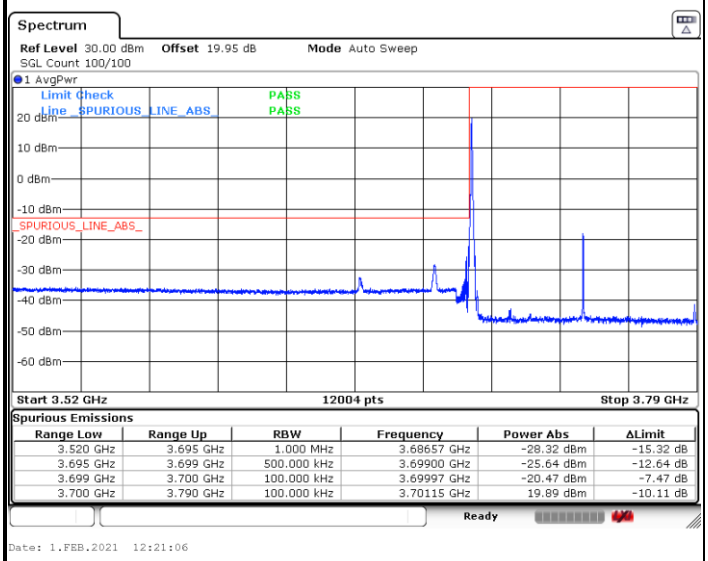
Highest Band Edge / Full RB



Date: 18.JAN.2021 01:13:12

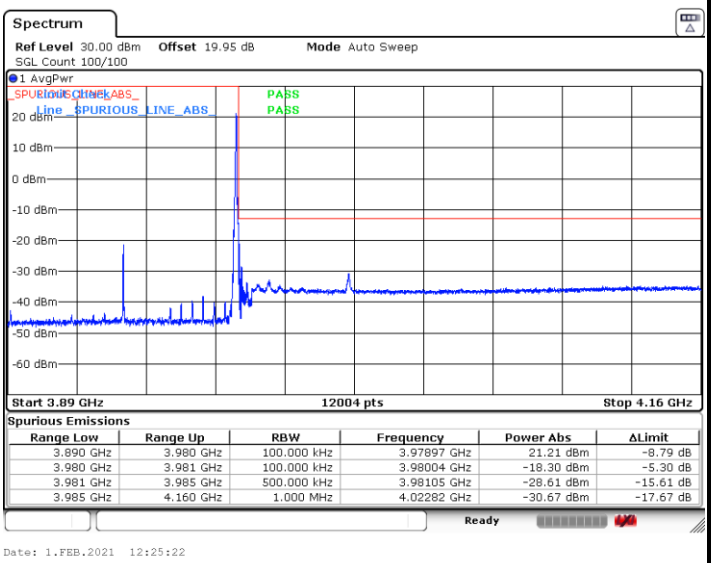
FR1 n77 /90MHz / CP OFDM / Q

Lowest Band Edge / 1RB0



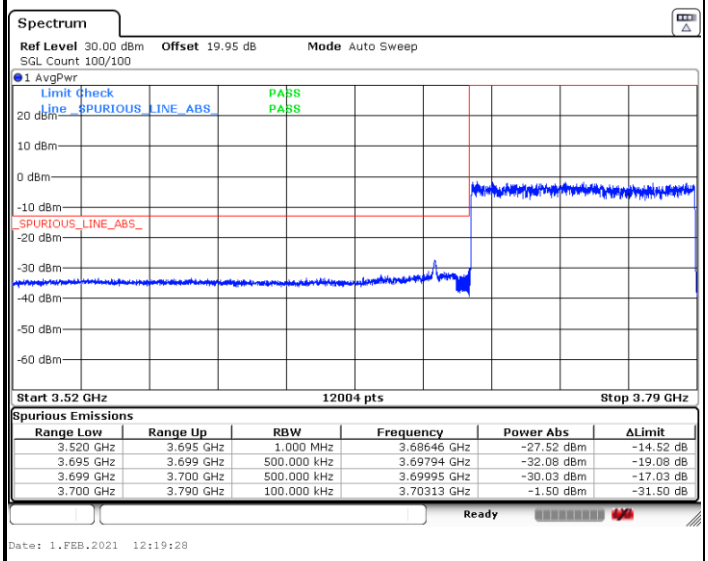
Date: 1.FEB.2021 12:21:06

Highest Band Edge / 1RBmax



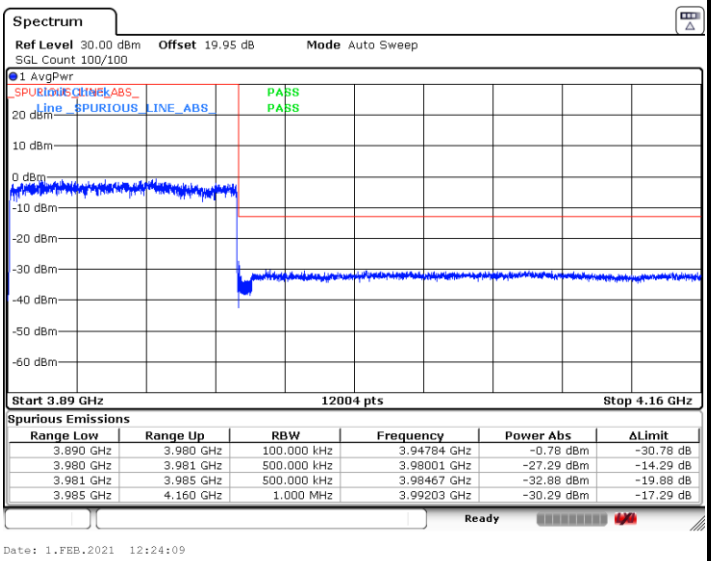
Date: 1.FEB.2021 12:25:22

Lowest Band Edge / Full RB

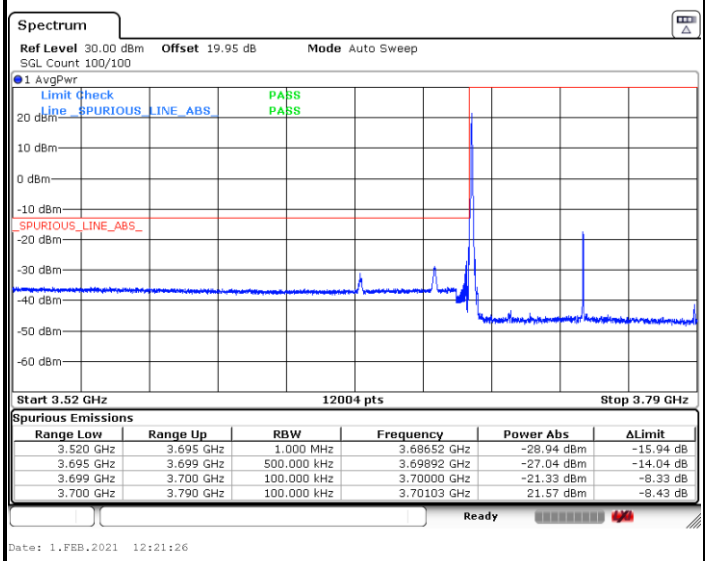
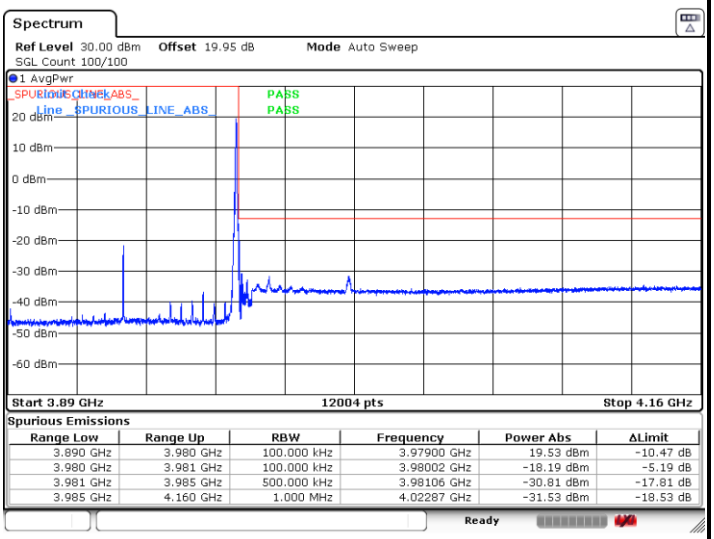
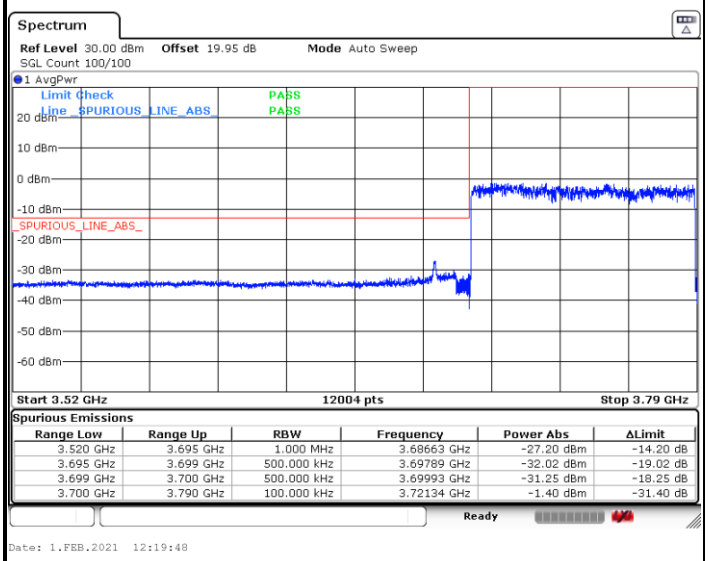
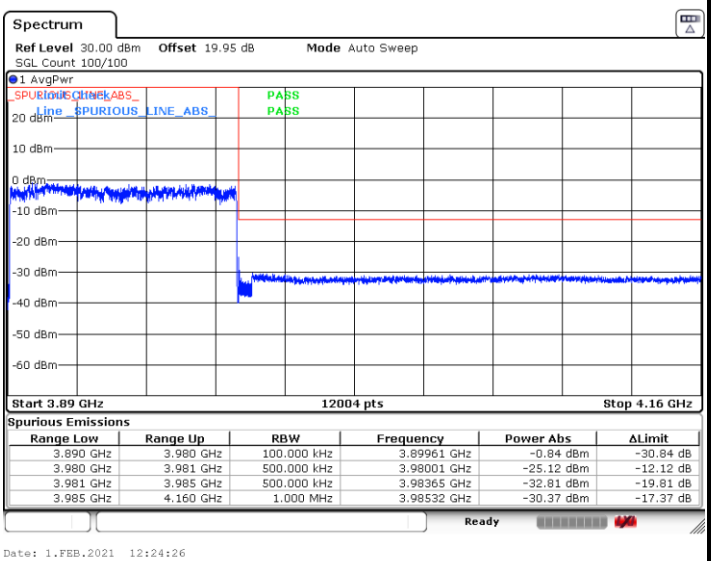


Date: 1.FEB.2021 12:19:28

Highest Band Edge / Full RB

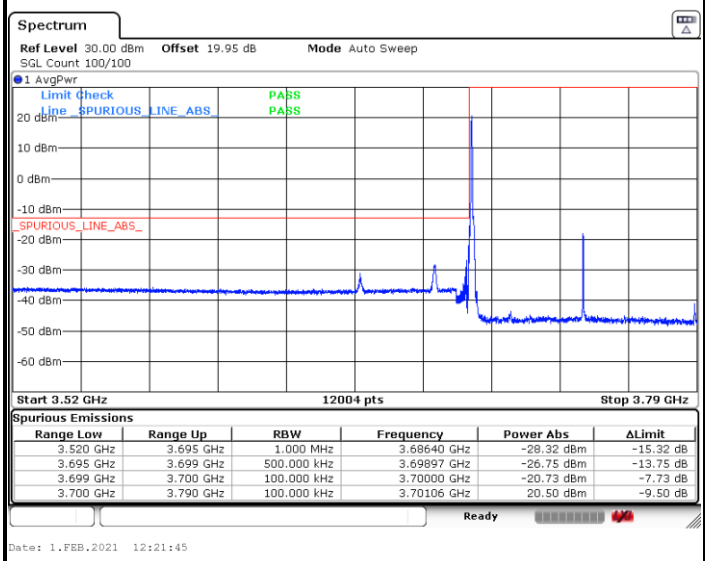


Date: 1.FEB.2021 12:24:09

FR1 n77 /90MHz / CP OFDM / 16Q	
Lowest Band Edge / 1RB0	**Highest Band Edge / 1RBmax**
	
Lowest Band Edge / Full RB	**Highest Band Edge / Full RB**
	

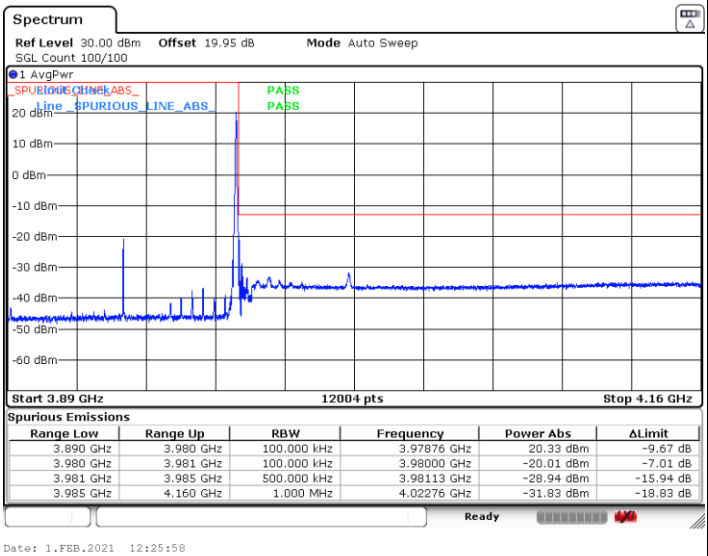
FR1 n77 /90MHz / CP OFDM / 64Q

Lowest Band Edge / 1RB0



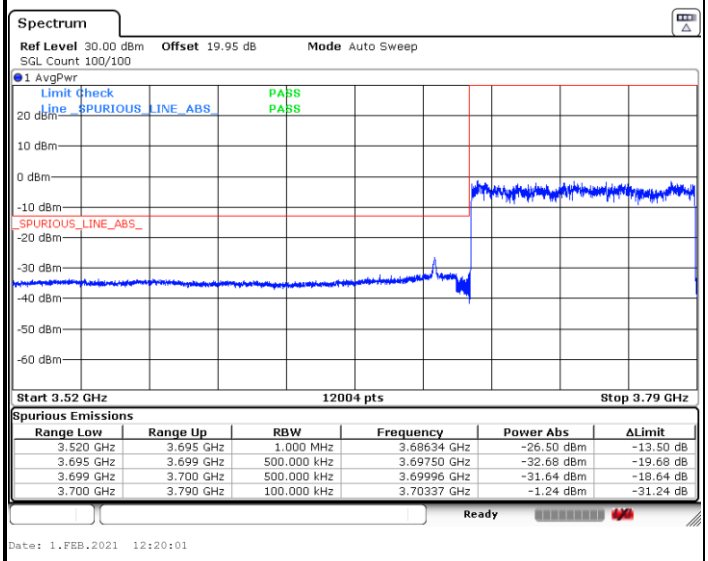
Date: 1.FEB.2021 12:21:45

Highest Band Edge / 1RBmax



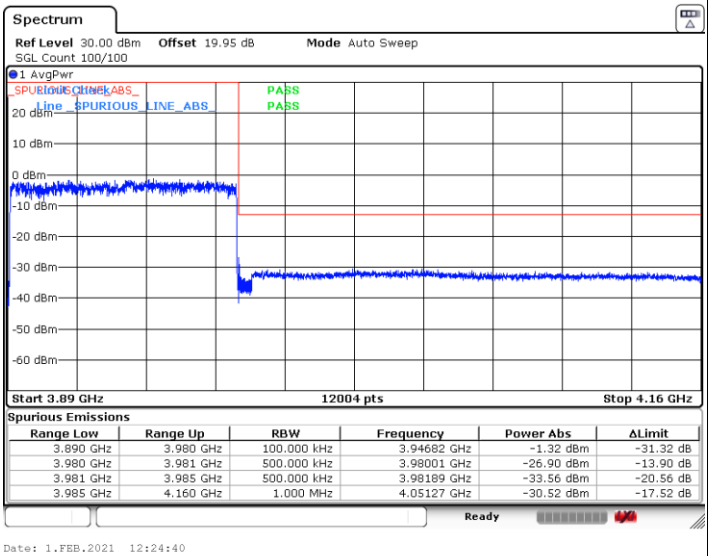
Date: 1.FEB.2021 12:25:58

Lowest Band Edge / Full RB



Date: 1.FEB.2021 12:20:01

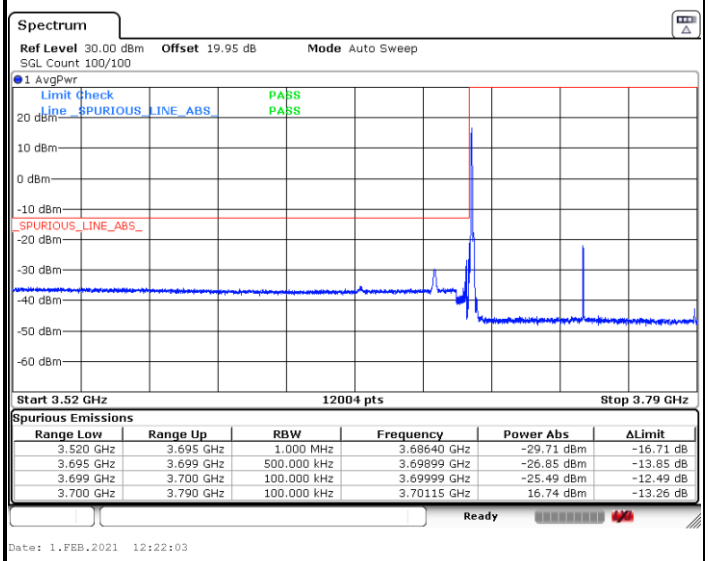
Highest Band Edge / Full RB



Date: 1.FEB.2021 12:24:40

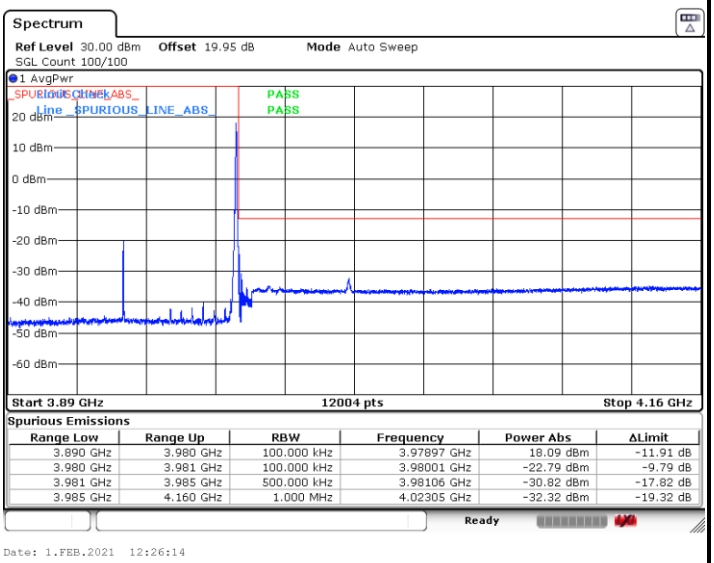
FR1 n77 /90MHz / CP OFDM / 256Q

Lowest Band Edge / 1RB0



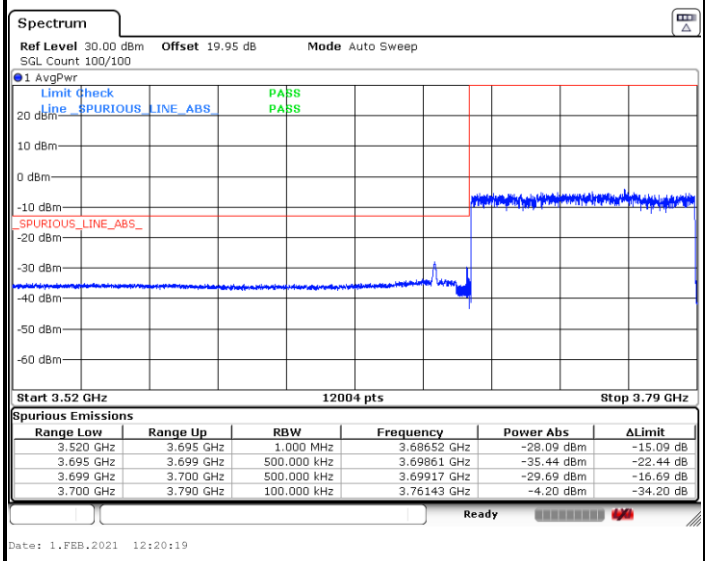
Date: 1.FEB.2021 12:22:03

Highest Band Edge / 1RBmax



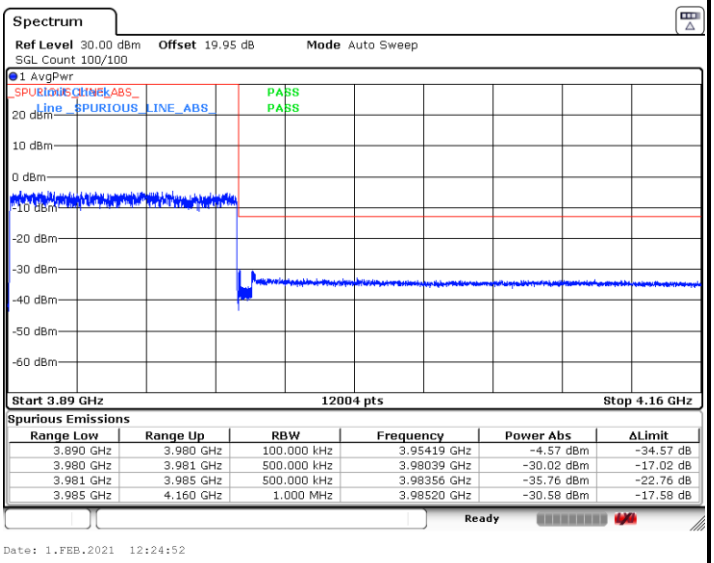
Date: 1.FEB.2021 12:26:14

Lowest Band Edge / Full RB



Date: 1.FEB.2021 12:20:19

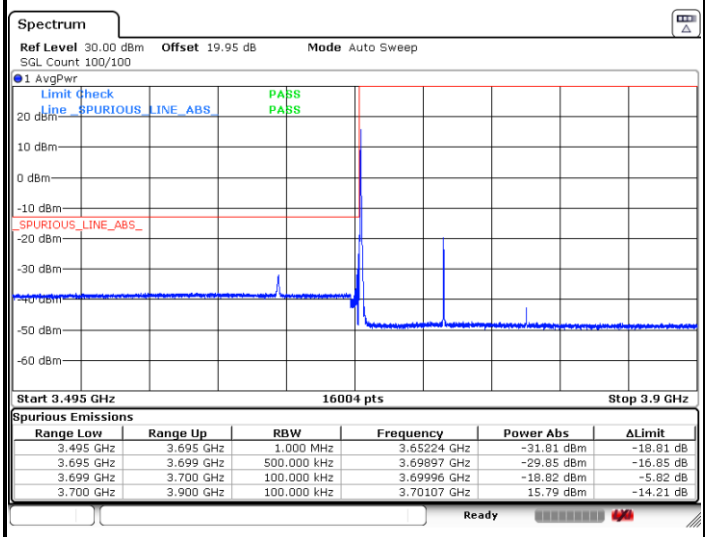
Highest Band Edge / Full RB



Date: 1.FEB.2021 12:24:52

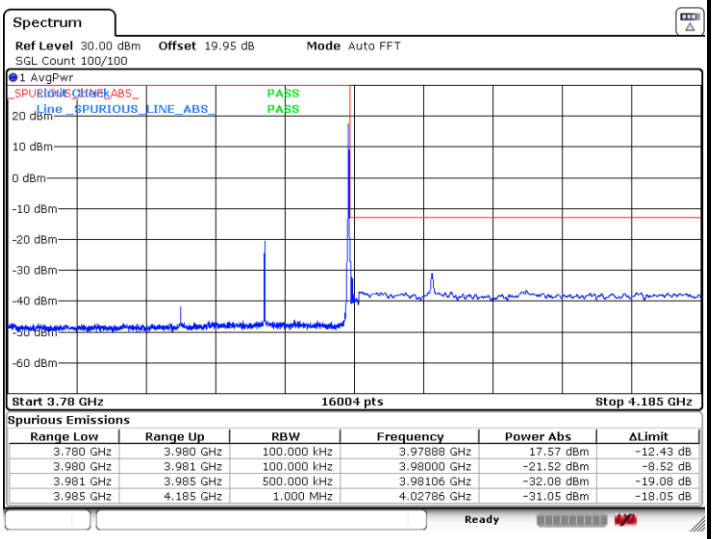
FR1 n77 / 100MHz / CP OFDM / QPSK

Lowest Band Edge / 1RB0



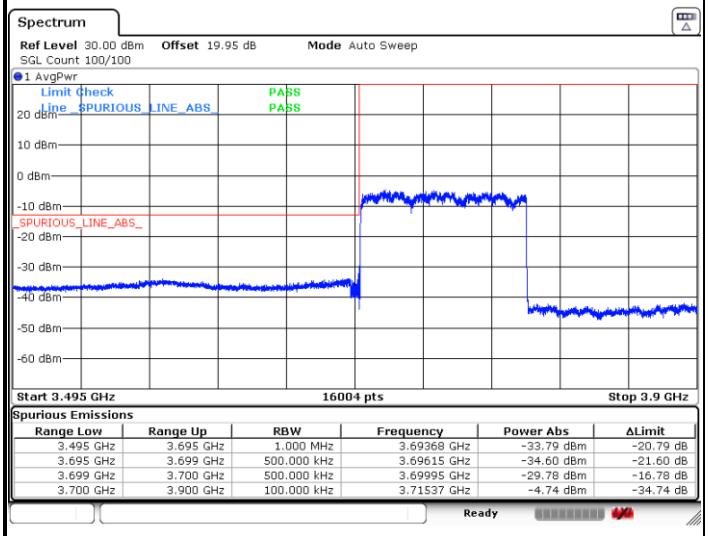
Date: 18.JAN.2021 00:11:10

Highest Band Edge / 1RBmax



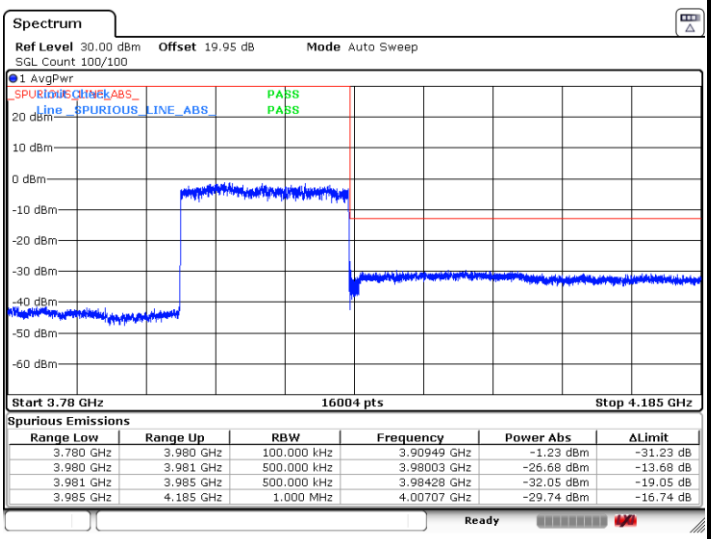
Date: 18.JAN.2021 00:58:45

Lowest Band Edge / Full RB



Date: 18.JAN.2021 00:16:00

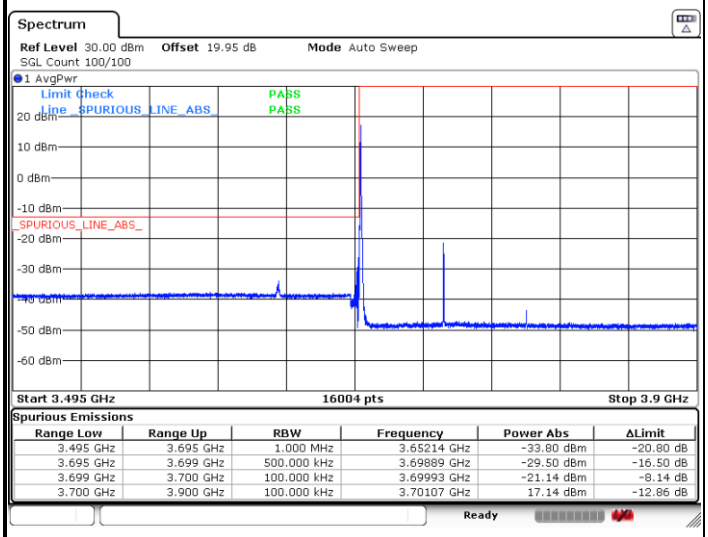
Highest Band Edge / Full RB



Date: 18.JAN.2021 00:54:51

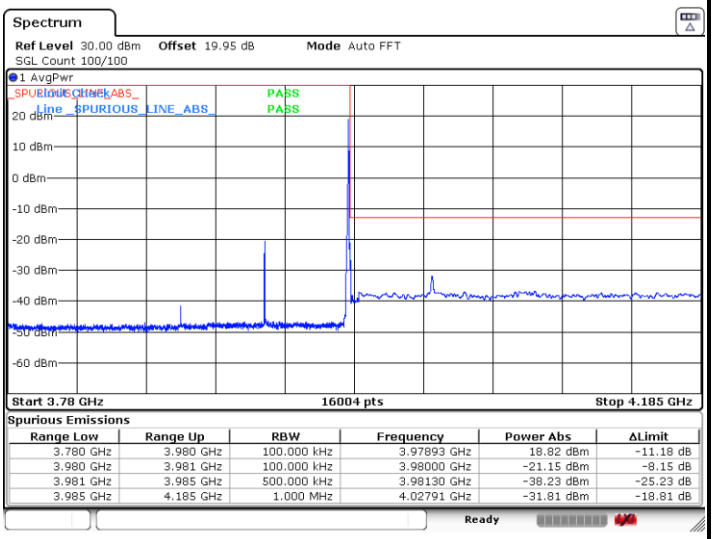
FR1 n77 / 100MHz / CP OFDM / 16Q

Lowest Band Edge / 1RB0



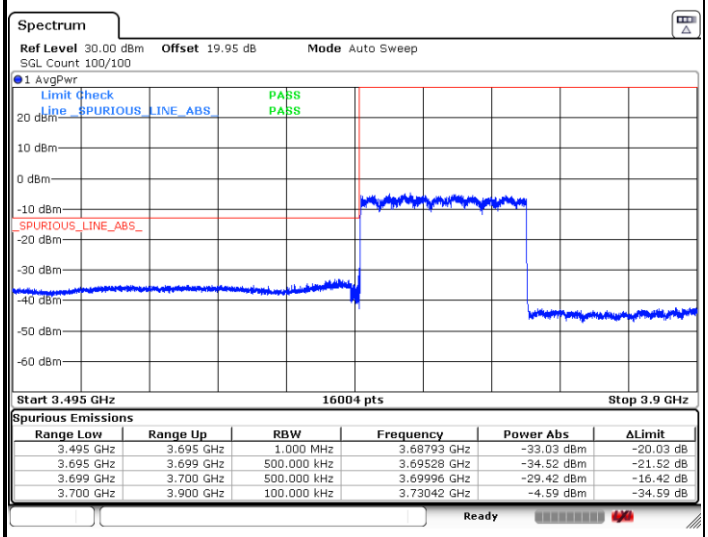
Date: 18.JAN.2021 00:12:20

Highest Band Edge / 1RBmax



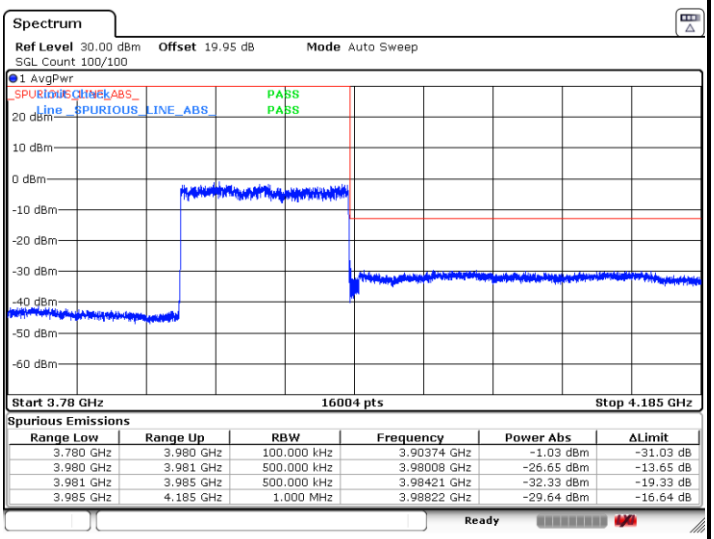
Date: 18.JAN.2021 00:59:20

Lowest Band Edge / Full RB



Date: 18.JAN.2021 00:15:22

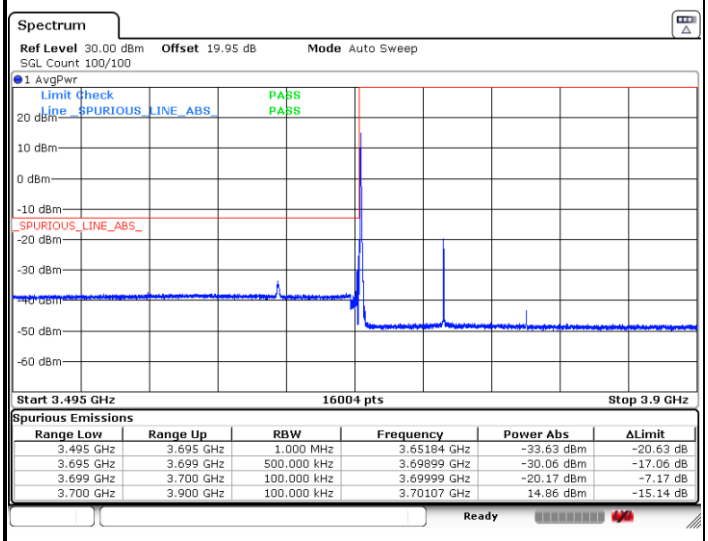
Highest Band Edge / Full RB



Date: 18.JAN.2021 00:56:32

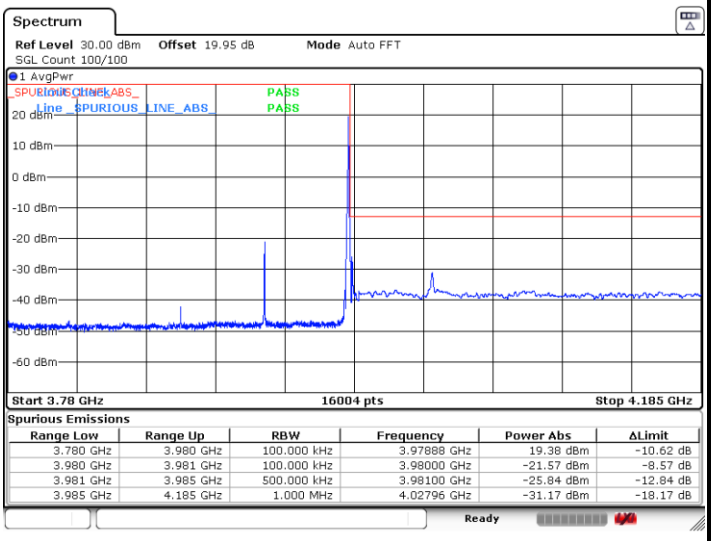
FR1 n77 /100MHz / CP OFDM / 64Q

Lowest Band Edge / 1RB0



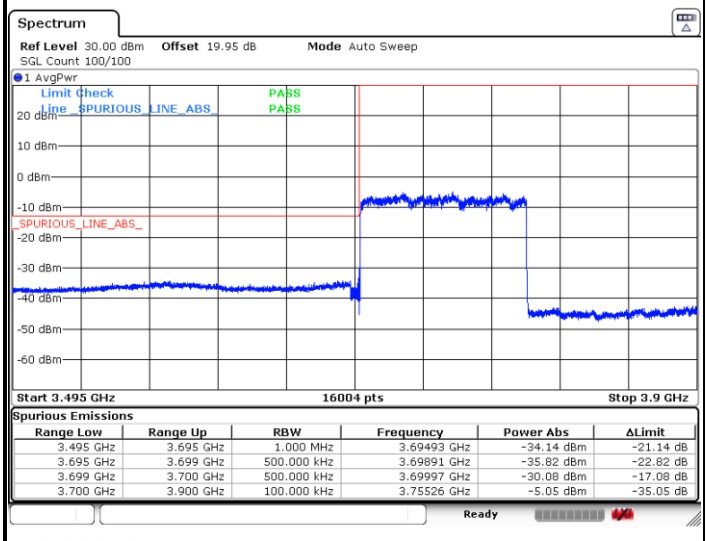
Date: 18.JAN.2021 00:12:44

Highest Band Edge / 1RBmax



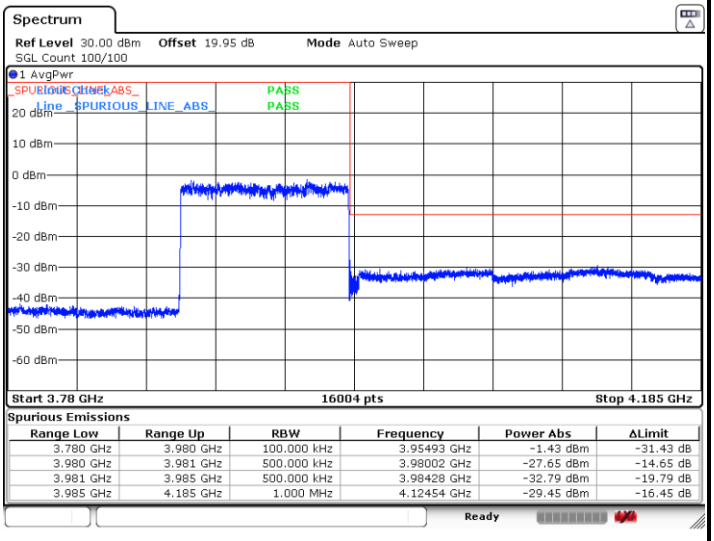
Date: 18.JAN.2021 00:59:43

Lowest Band Edge / Full RB



Date: 18.JAN.2021 00:14:39

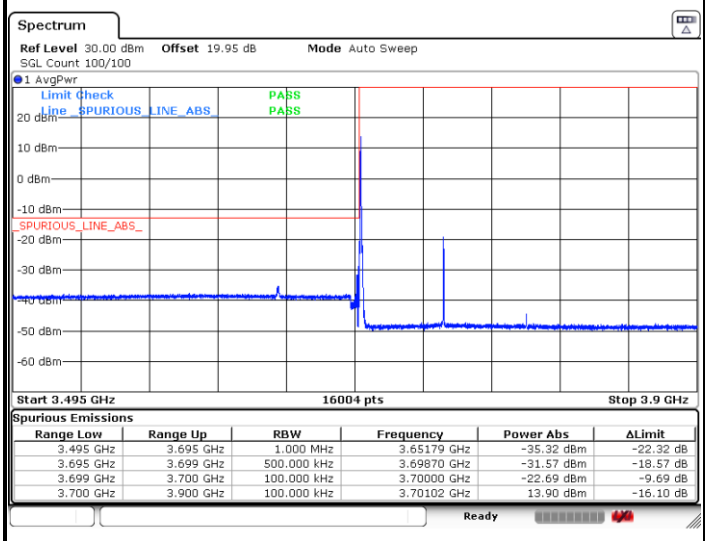
Highest Band Edge / Full RB



Date: 18.JAN.2021 00:56:51

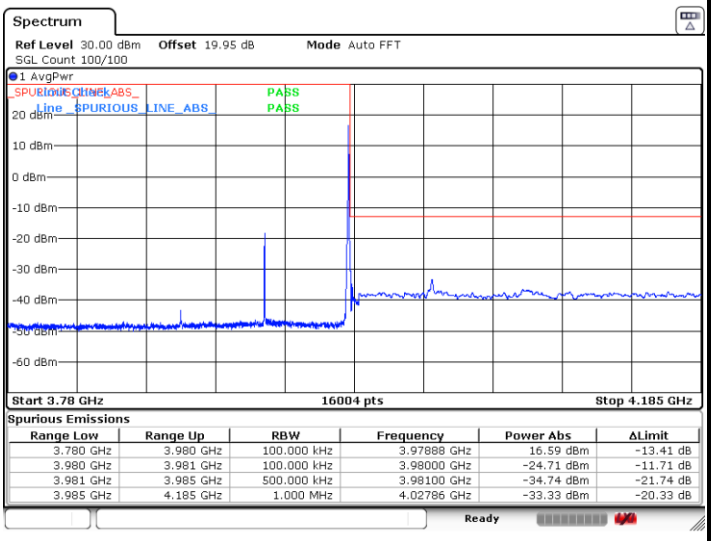
FR1 n77 /100MHz / CP OFDM / 256Q

Lowest Band Edge / 1RB0



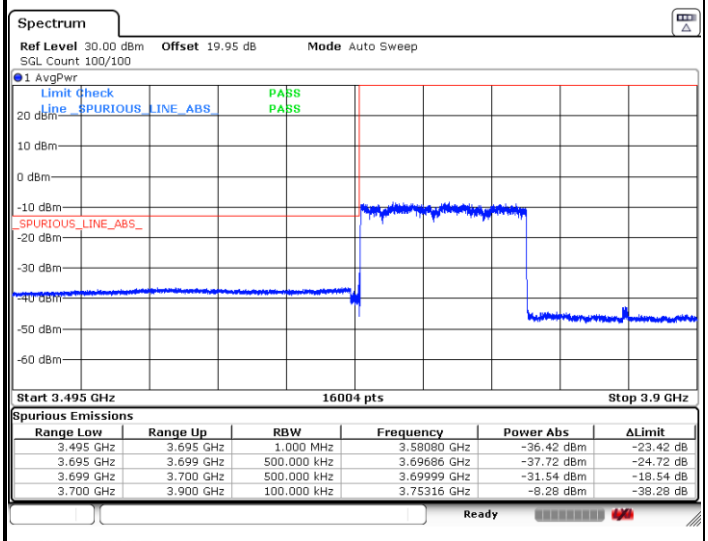
Date: 18.JAN.2021 00:13:12

Highest Band Edge / 1RBmax



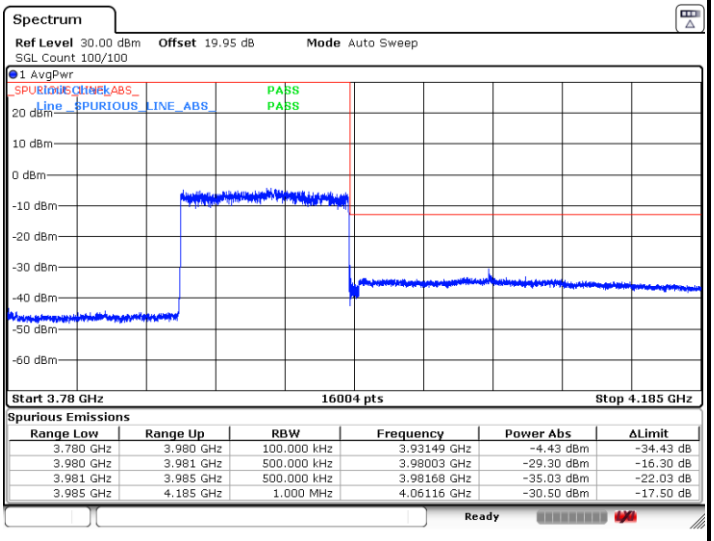
Date: 18.JAN.2021 01:00:15

Lowest Band Edge / Full RB



Date: 18.JAN.2021 00:13:53

Highest Band Edge / Full RB

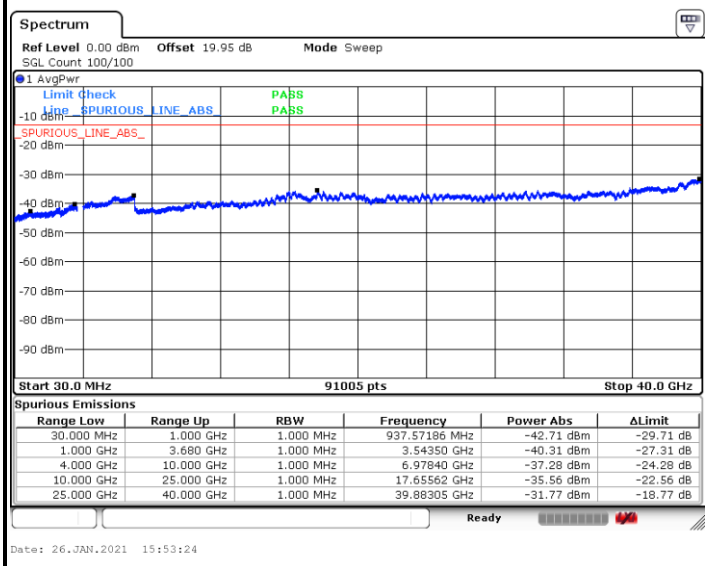


Date: 18.JAN.2021 00:57:13

Conducted Spurious Emission

FR1 n77 / 20MHz / CP OFDM / QPSK

Lowest Channel / 1RB0

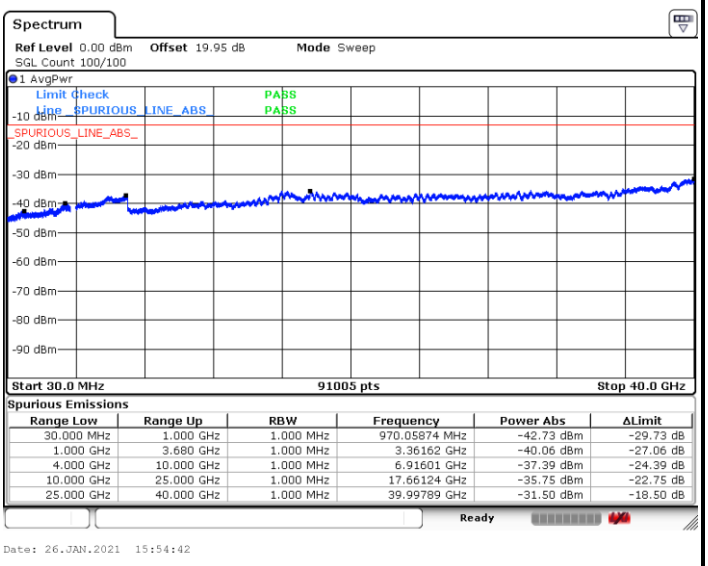


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	937.57186 MHz	-42.71 dBm	-29.71 dB
1.000 GHz	3.680 GHz	1.000 MHz	3.54350 GHz	-40.31 dBm	-27.31 dB
4.000 GHz	10.000 GHz	1.000 MHz	6.97840 GHz	-37.28 dBm	-24.28 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.65562 GHz	-35.56 dBm	-22.56 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.88305 GHz	-31.77 dBm	-18.77 dB

Date: 26.JAN.2021 15:53:24

Middle Channel / 1RB0

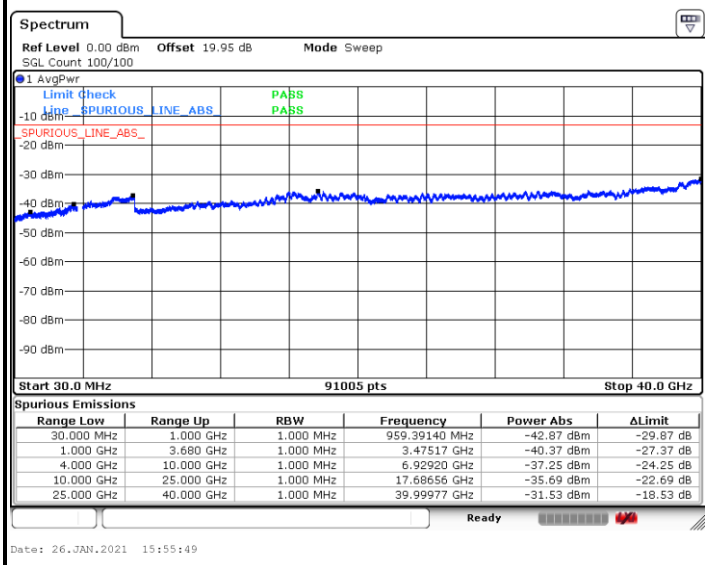


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	970.05874 MHz	-42.73 dBm	-29.73 dB
1.000 GHz	3.680 GHz	1.000 MHz	3.36162 GHz	-40.06 dBm	-27.06 dB
4.000 GHz	10.000 GHz	1.000 MHz	6.91601 GHz	-37.39 dBm	-24.39 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.66124 GHz	-35.75 dBm	-22.75 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.99789 GHz	-31.50 dBm	-18.50 dB

Date: 26.JAN.2021 15:54:42

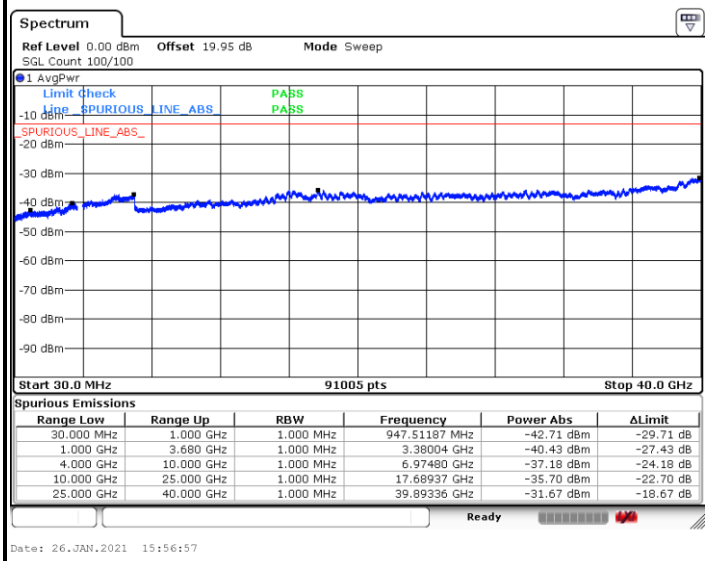
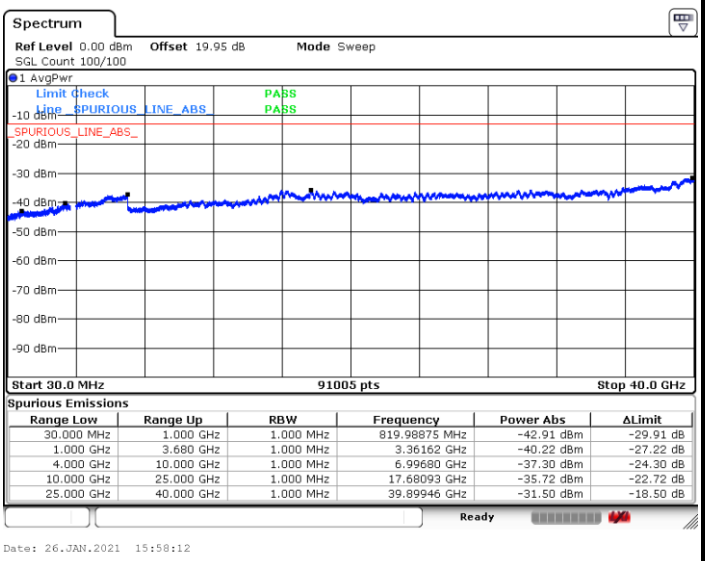
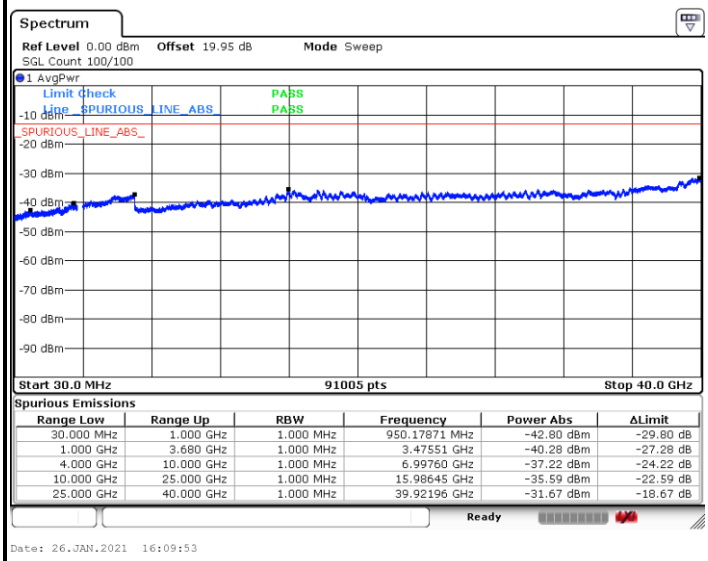
Highest Channel / 1RB0



Spurious Emissions

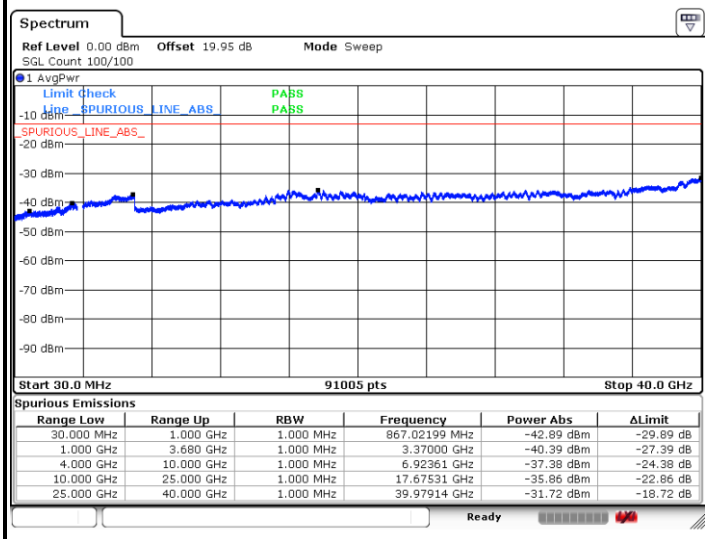
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	959.39140 MHz	-42.87 dBm	-29.87 dB
1.000 GHz	3.680 GHz	1.000 MHz	3.47517 GHz	-40.37 dBm	-27.37 dB
4.000 GHz	10.000 GHz	1.000 MHz	6.92920 GHz	-37.25 dBm	-24.25 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.68656 GHz	-35.69 dBm	-22.69 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.99977 GHz	-31.53 dBm	-18.53 dB

Date: 26.JAN.2021 15:55:49

FR1 n77 / 30MHz / CP OFDM / QPSK	
Lowest Channel / 1RB0	**Middle Channel / 1RB0**
	
Highest Channel / 1RB0	
	

FR1 n77 / 40MHz / CP OFDM / QPSK

Lowest Channel / 1RB0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	867.02199 MHz	-42.89 dBm	-29.89 dB
1.000 GHz	3.680 GHz	1.000 MHz	3.37000 GHz	-40.39 dBm	-27.39 dB
4.000 GHz	10.000 GHz	1.000 MHz	6.92361 GHz	-37.38 dBm	-24.38 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.67531 GHz	-35.86 dBm	-22.86 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.97914 GHz	-31.72 dBm	-18.72 dB

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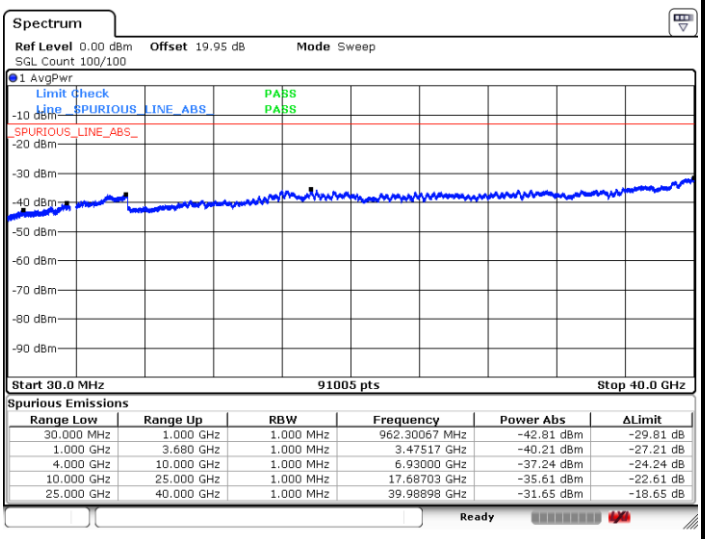
Middle Channel / 1RB0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	962.30067 MHz	-42.81 dBm	-29.81 dB
1.000 GHz	3.680 GHz	1.000 MHz	3.47517 GHz	-40.21 dBm	-27.21 dB
4.000 GHz	10.000 GHz	1.000 MHz	6.93000 GHz	-37.24 dBm	-24.24 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.68703 GHz	-35.61 dBm	-22.61 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.98898 GHz	-31.65 dBm	-18.65 dB

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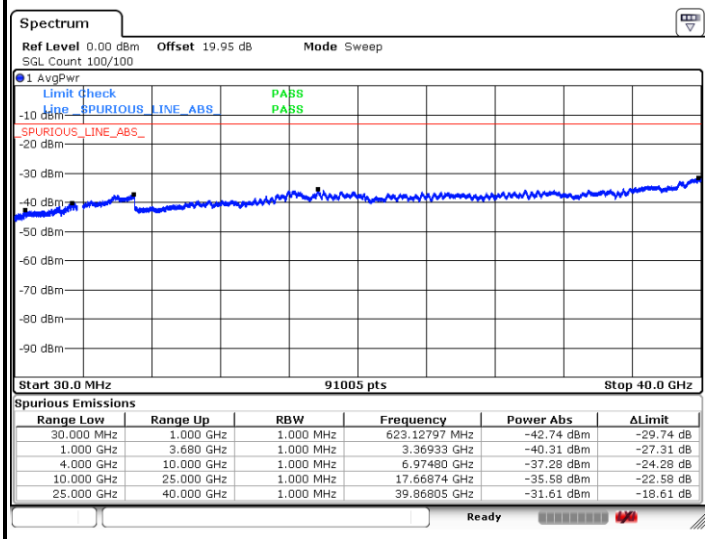
Highest Channel / 1RB0

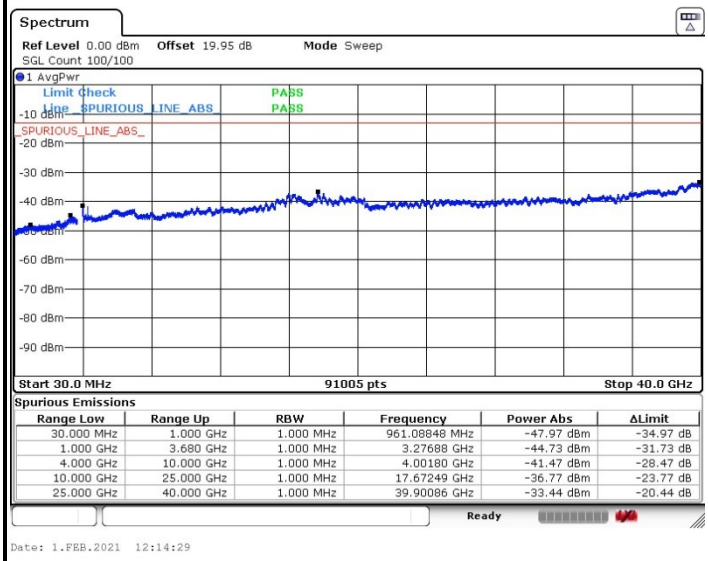


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	623.12797 MHz	-42.74 dBm	-29.74 dB
1.000 GHz	3.680 GHz	1.000 MHz	3.36933 GHz	-40.31 dBm	-27.31 dB
4.000 GHz	10.000 GHz	1.000 MHz	6.97480 GHz	-37.28 dBm	-24.28 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.66874 GHz	-35.58 dBm	-22.58 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.86805 GHz	-31.61 dBm	-18.61 dB

Date: 26.JAN.2021 16:15:00

FR1 n77 / 50MHz / CP OFDM / QPSK	
Lowest Channel / 1RB0	**Middle Channel / 1RB0**



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	961.08848 MHz	-47.97 dBm	-34.97 dB
1.000 GHz	3.680 GHz	1.000 MHz	3.27688 GHz	-44.73 dBm	-31.73 dB
4.000 GHz	10.000 GHz	1.000 MHz	4.00180 GHz	-41.47 dBm	-28.47 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.67249 GHz	-36.77 dBm	-23.77 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.90086 GHz	-33.44 dBm	-20.44 dB

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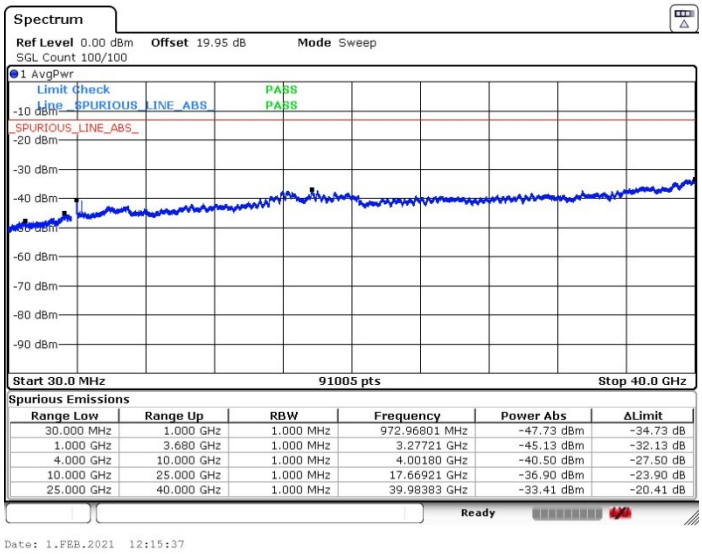

Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	972.96801 MHz	-47.73 dBm	-34.73 dB
1.000 GHz	3.680 GHz	1.000 MHz	3.27721 GHz	-45.13 dBm	-32.13 dB
4.000 GHz	10.000 GHz	1.000 MHz	4.00180 GHz	-40.50 dBm	-27.50 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.66921 GHz	-36.90 dBm	-23.90 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.98383 GHz	-33.41 dBm	-20.41 dB

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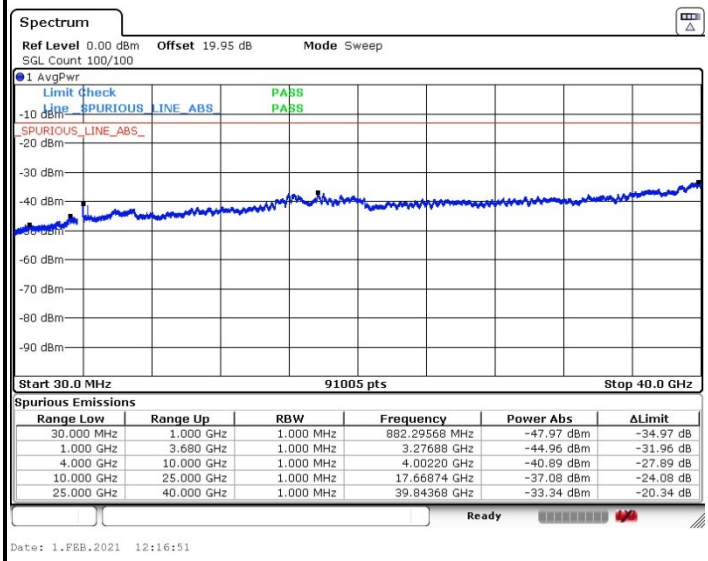
Highest Channel / 1RB0	



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	882.29568 MHz	-47.97 dBm	-34.97 dB
1.000 GHz	3.680 GHz	1.000 MHz	3.27688 GHz	-44.96 dBm	-31.96 dB
4.000 GHz	10.000 GHz	1.000 MHz	4.00220 GHz	-40.89 dBm	-27.89 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.66874 GHz	-37.08 dBm	-24.08 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.84368 GHz	-33.34 dBm	-20.34 dB

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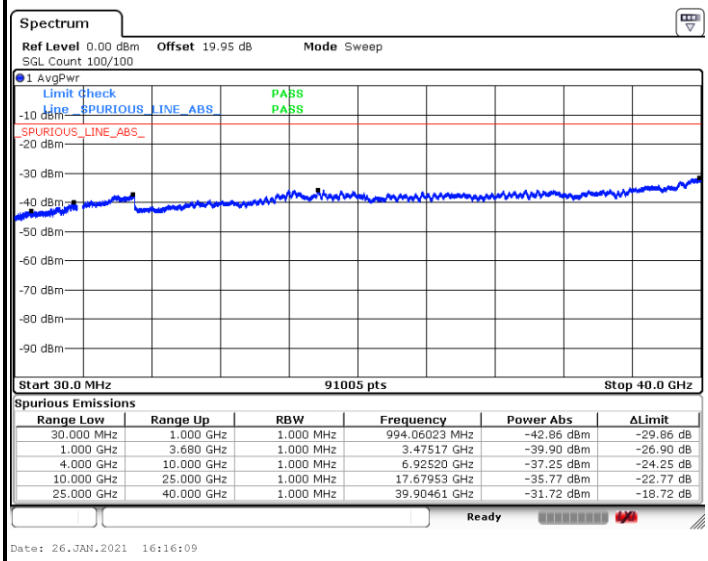
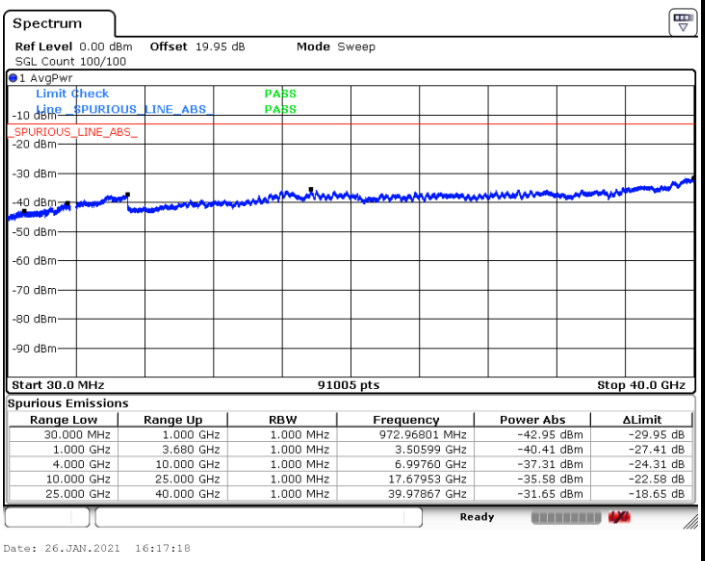
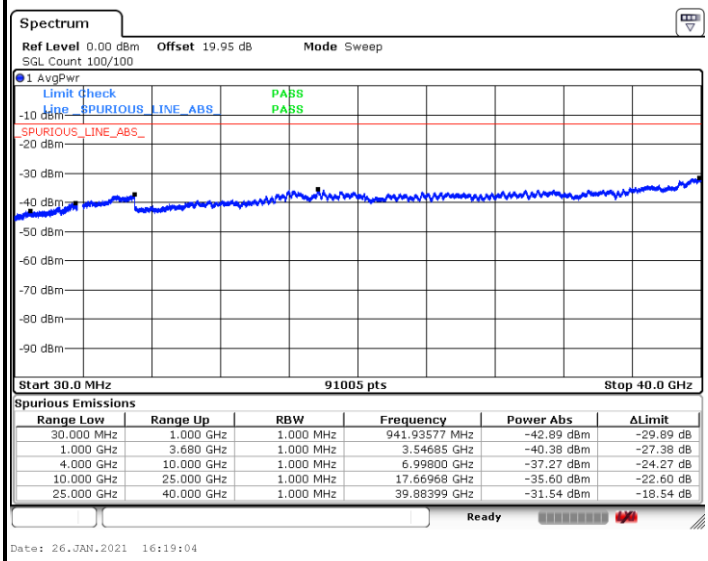
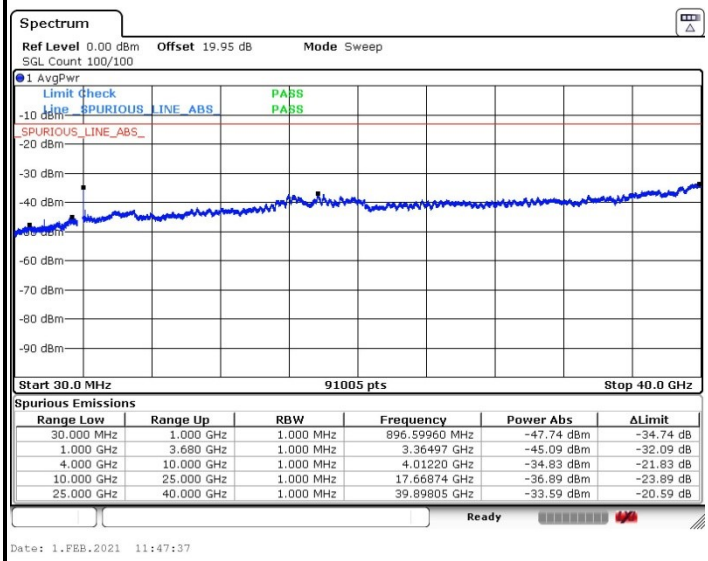
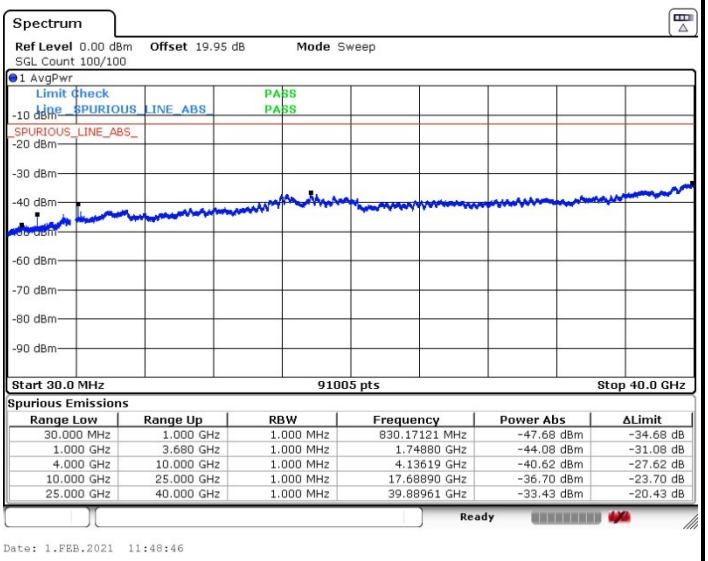
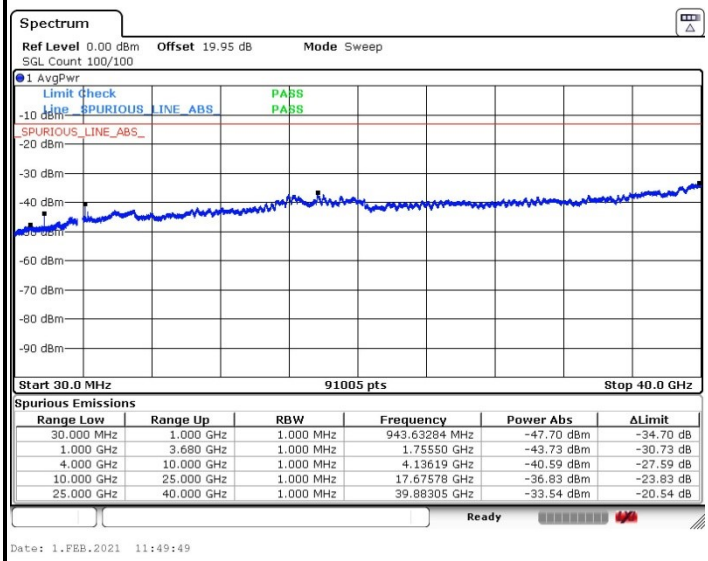
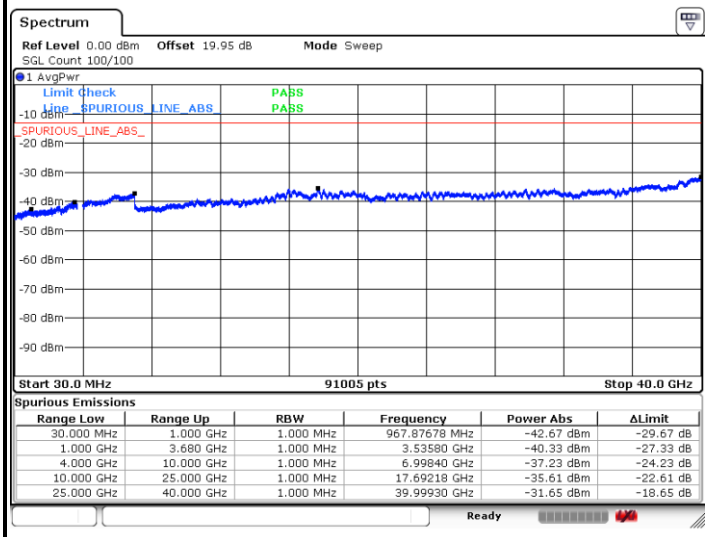
FR1 n77 / 60MHz / CP OFDM / QPSK	
Lowest Channel / 1RB0	**Middle Channel / 1RB0**
	
Highest Channel / 1RB0	
	

FR1 n77 / 70MHz / CP OFDM / QPSK	
Lowest Channel / 1RB0	**Middle Channel / 1RB0**
	
Highest Channel / 1RB0	
	

FR1 n77 / 80MHz / CP OFDM / QPSK

Lowest Channel / 1RB0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	967.87678 MHz	-42.67 dBm	-29.67 dB
1.000 GHz	3.680 GHz	1.000 MHz	3.53580 GHz	-40.33 dBm	-27.33 dB
4.000 GHz	10.000 GHz	1.000 MHz	6.99840 GHz	-37.23 dBm	-24.23 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.69218 GHz	-35.61 dBm	-22.61 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.99930 GHz	-31.65 dBm	-18.65 dB

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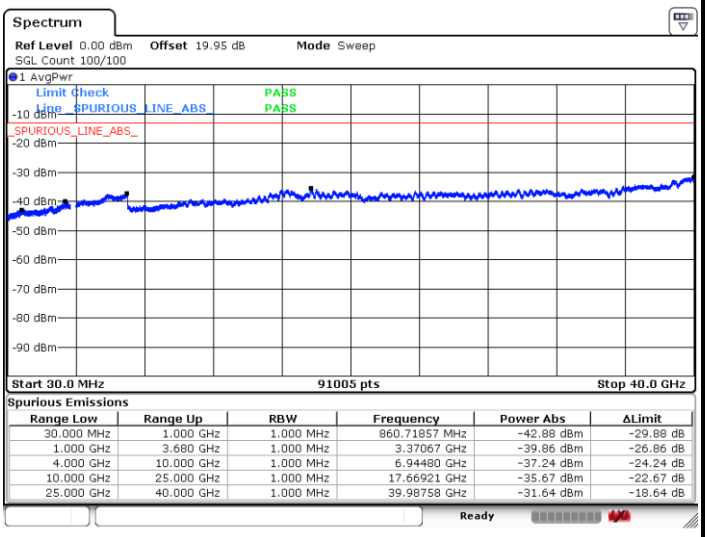
Middle Channel / 1RB0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	860.71857 MHz	-42.88 dBm	-29.88 dB
1.000 GHz	3.680 GHz	1.000 MHz	3.37067 GHz	-39.86 dBm	-26.86 dB
4.000 GHz	10.000 GHz	1.000 MHz	6.94480 GHz	-37.24 dBm	-24.24 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.66921 GHz	-35.67 dBm	-22.67 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.98758 GHz	-31.64 dBm	-18.64 dB

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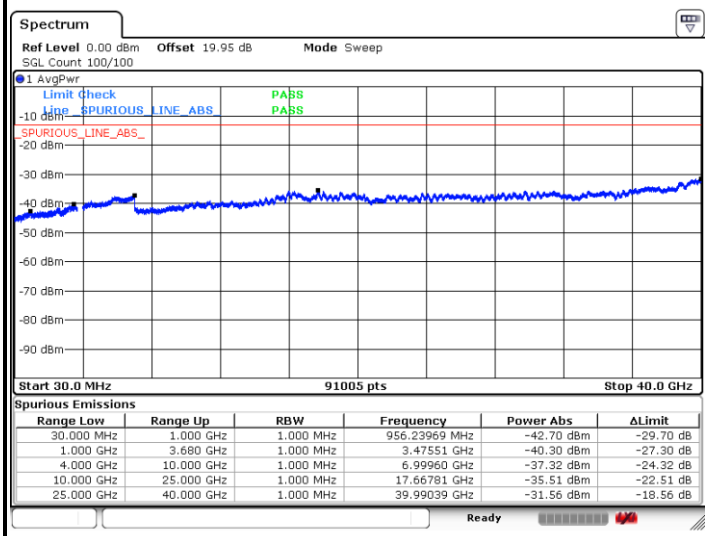
Highest Channel / 1RB0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	956.23969 MHz	-42.70 dBm	-29.70 dB
1.000 GHz	3.680 GHz	1.000 MHz	3.47551 GHz	-40.30 dBm	-27.30 dB
4.000 GHz	10.000 GHz	1.000 MHz	6.99960 GHz	-37.32 dBm	-24.32 dB
10.000 GHz	25.000 GHz	1.000 MHz	17.66781 GHz	-35.51 dBm	-22.51 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.99039 GHz	-31.56 dBm	-18.56 dB

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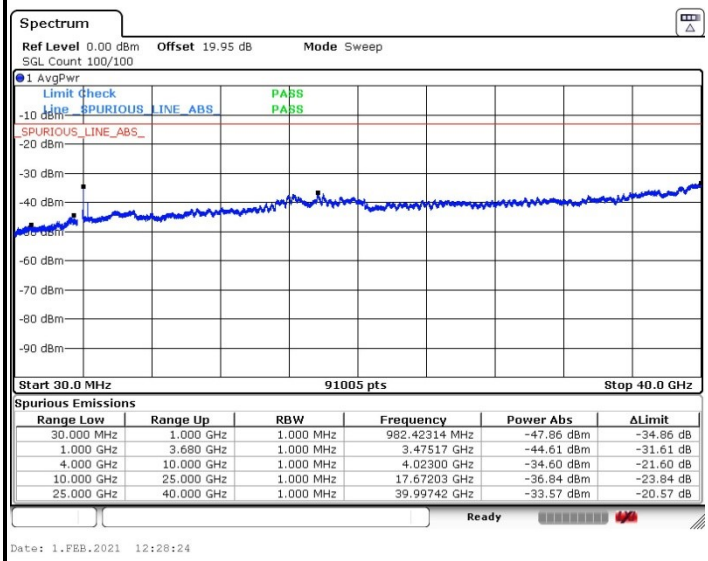
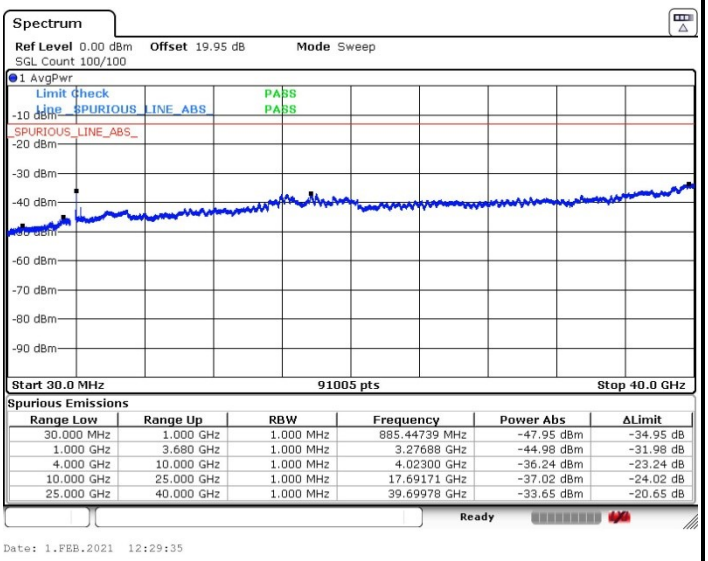
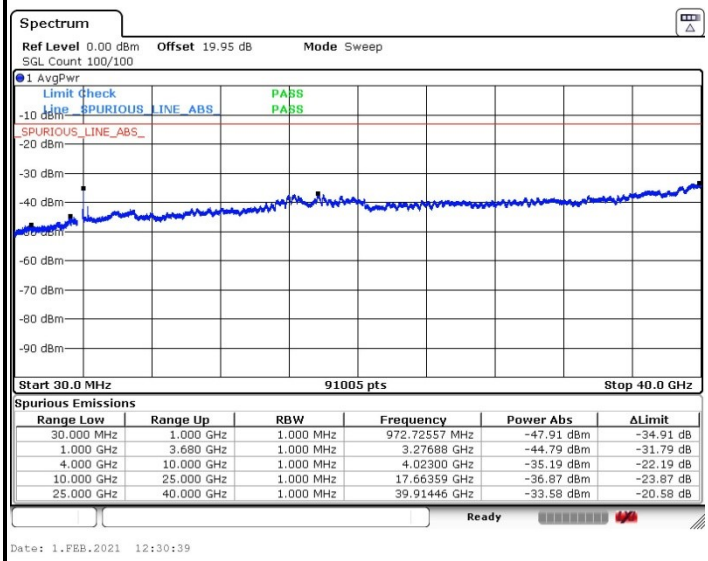
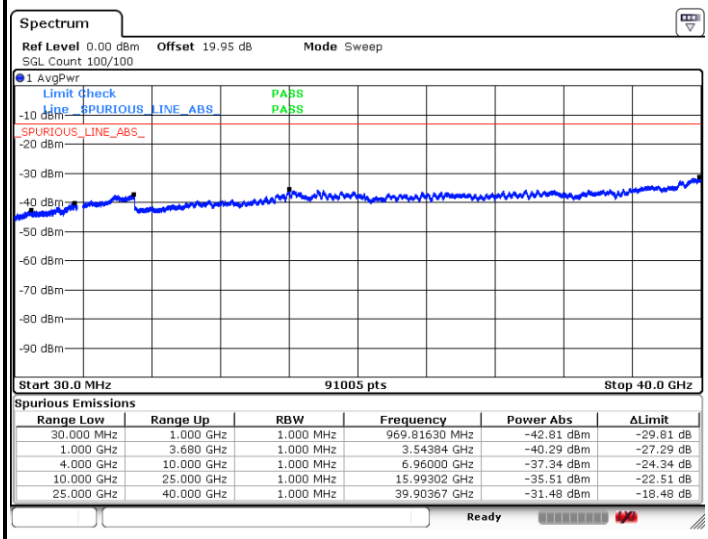
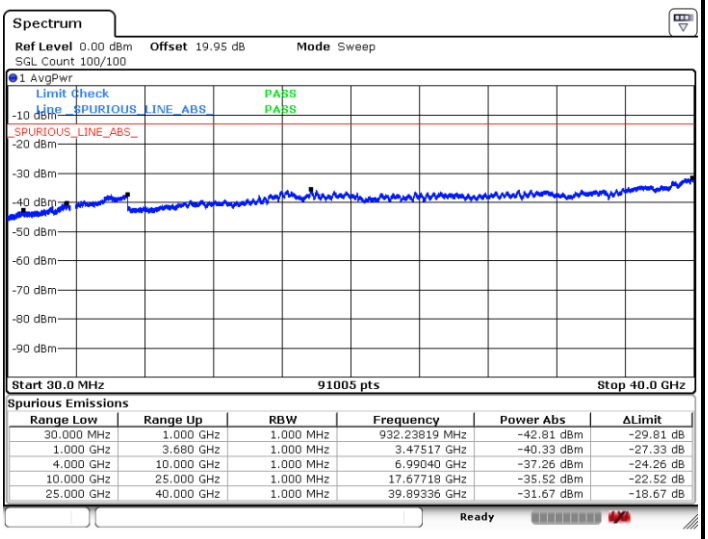
FR1 n77 / 90MHz / CP OFDM / QPSK	
Lowest Channel / 1RB0	**Middle Channel / 1RB0**
	
Highest Channel / 1RB0	
	

FR1 n77 / 100MHz / CP OFDM / QPSK

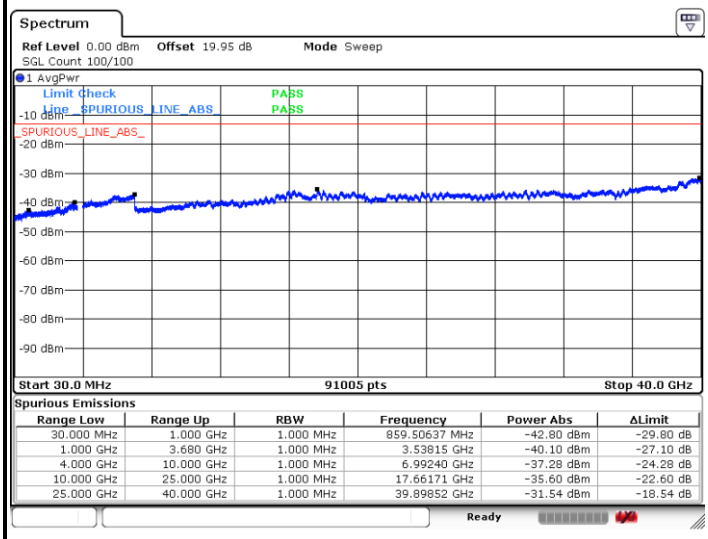
Lowest Channel / 1RB0



Middle Channel / 1RB0



Highest Channel / 1RB0



Frequency Stability

Test Conditions		FR1 n77_UL MIMO (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 100MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0019	PASS
40	Normal Voltage	0.0013	
30	Normal Voltage	0.0002	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0030	
0	Normal Voltage	0.0001	
-10	Normal Voltage	0.0012	
-20	Normal Voltage	0.0022	
-30	Normal Voltage	0.0019	
20	Maximum Voltage	0.0017	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0006	

Note:

1. Normal Voltage =3.87 V. ; Battery End Point (BEP) =3.6 V. ; Maximum Voltage =4.4 V.
2. .Note: The frequency fundamental emissions stay within the authorized frequency block.

Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

5G NR n5 / NR 20MHz / QPSK DFT-s-OFDM								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1654	-62.08	-13	-49.08	-69.05	1.58	10.70	H
	2482	-56.30	-13	-43.30	-64.55	2.102	12.50	H
	3312	-57.63	-13	-44.63	-66.52	2.856	13.90	H
	1654	-61.39	-13	-48.39	-68.36	1.58	10.70	V
	2482	-54.70	-13	-41.70	-62.95	2.10	12.50	V
	3312	-57.58	-13	-44.58	-66.47	2.86	13.90	V

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

EN-DC_7A_n5A / LTE 20MHz + NR 20MHz / QPSK DFT-s-OFDM								
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	1656	-62.72	-13	-49.72	-69.69	1.58	10.70	H
	2482	-57.98	-13	-44.98	-66.23	2.102	12.50	H
	3312	-57.75	-13	-44.75	-66.64	2.856	13.90	H
	1656	-60.79	-13	-47.79	-67.76	1.58	10.70	V
	2482	-54.13	-13	-41.13	-62.38	2.10	12.50	V
	3312	-57.65	-13	-44.65	-66.54	2.86	13.90	V

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

5G NR n7 / NR 20MHz / QPSK DFT-s-OFDM								
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	5052	-58.57	-25	-33.57	-68.78	3.03	13.24	H
	7576	-45.42	-25	-20.42	-54.87	3.56	13.01	H
	10100	-59.97	-25	-34.97	-69.49	3.92	13.44	H
	5052	-60.06	-25	-35.06	-70.27	3.03	13.24	V
	7576	-47.38	-25	-22.38	-56.83	3.56	13.01	V
	10100	-60.01	-25	-35.01	-69.53	3.92	13.44	V

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

EN-DC_2A_n7A / LTE 20MHz + NR 20MHz / QPSK DFT-s-OFDM								
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	5052	-61.91	-25	-36.91	-72.12	3.03	13.24	H
	7580	-61.21	-25	-36.21	-70.66	3.56	13.01	H
	10100	-60.12	-25	-35.12	-69.64	3.92	13.44	H
	5052	-61.92	-25	-36.92	-72.13	3.03	13.24	V
	7580	-61.10	-25	-36.10	-70.55	3.56	13.01	V
	10100	-60.28	-25	-35.28	-69.80	3.92	13.44	V

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

EN-DC_5A_n7A / LTE 10MHz + NR 20MHz / QPSK DFT-s-OFDM								
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	5012	-61.87	-25	-36.87	-72.08	3.03	13.24	H
	7580	-61.05	-25	-36.05	-70.50	3.56	13.01	H
	10100	-60.18	-25	-35.18	-69.70	3.92	13.44	H
	5012	-62.28	-25	-37.28	-72.49	3.03	13.24	V
	7580	-61.53	-25	-36.53	-70.98	3.56	13.01	V
	10100	-60.41	-25	-35.41	-69.93	3.92	13.44	V

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

5G NR n41 / NR 100MHz / QPSK DFT-s-OFDM								
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	5088	-56.64	-25	-31.64	-66.85	3.03	13.24	H
	7632	-40.96	-25	-15.96	-50.41	3.56	13.01	H
	10190	-59.29	-25	-34.29	-68.81	3.92	13.44	H
	5088	-54.07	-25	-29.07	-64.28	3.03	13.24	V
	7632	-45.10	-25	-20.10	-54.55	3.56	13.01	V
	10190	-59.90	-25	-34.90	-69.42	3.92	13.44	V

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

5G NR n41_UL MIMO / NR 100MHz / QPSK CP-OFDM								
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	5088	-59.40	-25	-34.40	-69.61	3.03	13.24	H
	7632	-47.88	-25	-22.88	-57.33	3.56	13.01	H
	10190	-59.81	-25	-34.81	-69.33	3.92	13.44	H
	5088	-57.61	-25	-32.61	-67.82	3.03	13.24	V
	7632	-43.95	-25	-18.95	-53.40	3.56	13.01	V
	10190	-60.13	-25	-35.13	-69.65	3.92	13.44	V

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

5G NR n77 / NR 100MHz / QPSK DFT-s-OFDM								
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	7584	-60.60	-13	-47.60	-71.34	2.604	13.34	H
	11388	-54.41	-13	-41.41	-64.92	3.011	13.52	H
	15180	-57.79	-13	-44.79	-67.99	3.271	13.47	H
	7584	-61.76	-13	-48.76	-72.50	2.604	13.34	V
	11388	-55.48	-13	-42.48	-65.99	3.011	13.52	V
	15180	-57.85	-13	-44.85	-68.05	3.271	13.47	V

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

5G NR n77_UL MIMO / NR 100MHz / QPSK CP-OFDM								
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	7584	-60.82	-13	-47.82	-71.56	2.604	13.34	H
	11388	-57.02	-13	-44.02	-67.53	3.011	13.52	H
	15180	-56.42	-13	-43.42	-66.62	3.271	13.47	H
	7584	-61.08	-13	-48.08	-71.82	2.604	13.34	V
	11388	-58.37	-13	-45.37	-68.88	3.011	13.52	V
	15180	-57.48	-13	-44.48	-67.68	3.271	13.47	V

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