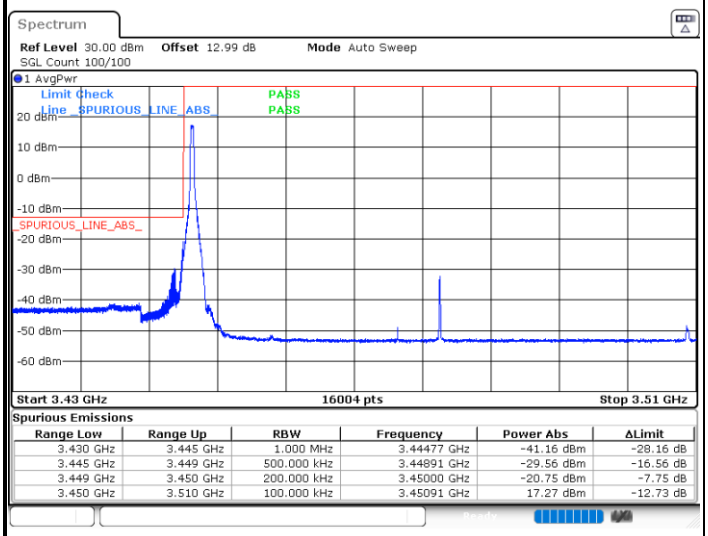
FR1 n78 / 60MHz / DFT-S OFDM / QPSK

Lowest Band Edge / 1RB0

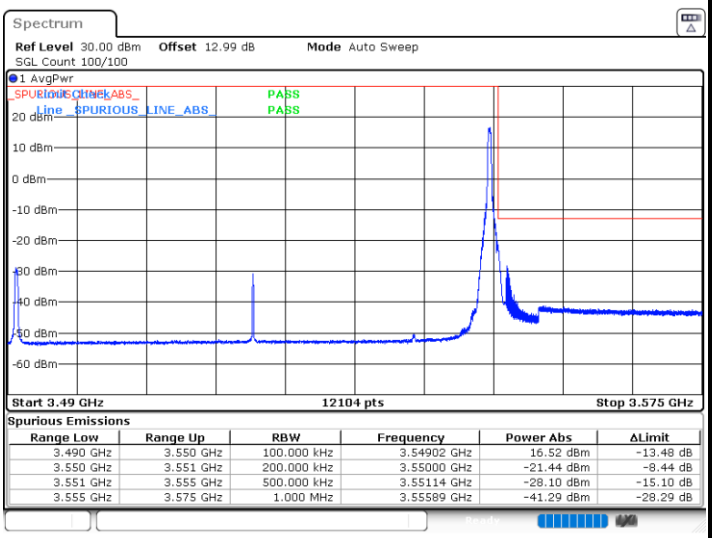


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.430 GHz	3.445 GHz	1.000 MHz	3.44477 GHz	-41.16 dBm	-28.16 dB
3.445 GHz	3.449 GHz	500.000 kHz	3.44891 GHz	-29.56 dBm	-16.56 dB
3.449 GHz	3.450 GHz	200.000 kHz	3.45000 GHz	-20.75 dBm	-7.75 dB
3.450 GHz	3.510 GHz	100.000 kHz	3.45091 GHz	17.27 dBm	-12.73 dB

Date: 30.MAY.2022 20:29:51

Highest Band Edge / 1RBmax

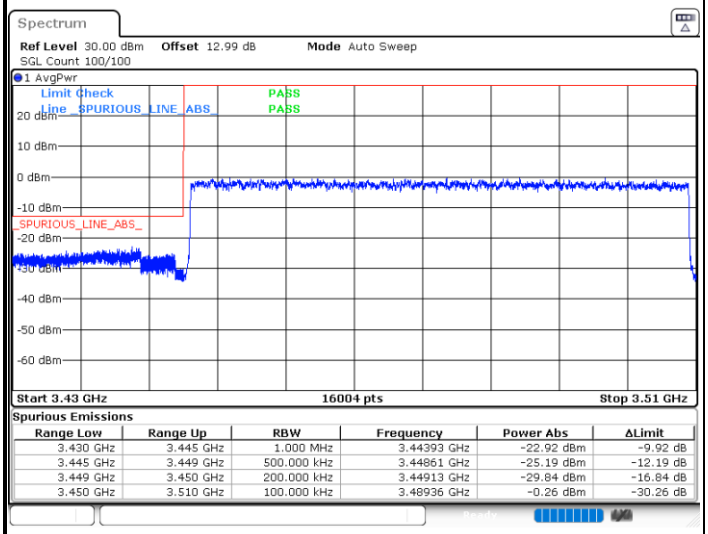


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.490 GHz	3.550 GHz	100.000 kHz	3.54902 GHz	16.52 dBm	-13.48 dB
3.550 GHz	3.551 GHz	200.000 kHz	3.55000 GHz	-21.44 dBm	-8.44 dB
3.551 GHz	3.555 GHz	500.000 kHz	3.55114 GHz	-28.10 dBm	-15.10 dB
3.555 GHz	3.575 GHz	1.000 MHz	3.55589 GHz	-41.29 dBm	-28.29 dB

Date: 30.MAY.2022 20:23:09

Lowest Band Edge / Full RB

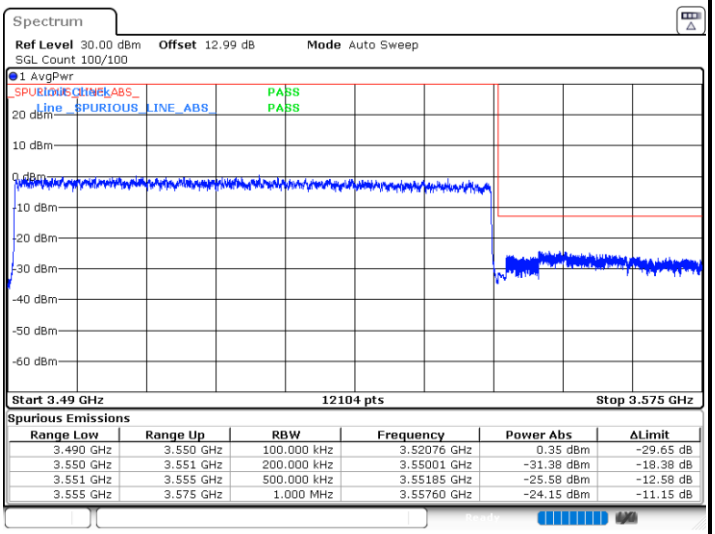


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.430 GHz	3.445 GHz	1.000 MHz	3.44393 GHz	-22.92 dBm	-9.92 dB
3.445 GHz	3.449 GHz	500.000 kHz	3.44861 GHz	-25.19 dBm	-12.19 dB
3.449 GHz	3.450 GHz	200.000 kHz	3.44913 GHz	-29.84 dBm	-16.84 dB
3.450 GHz	3.510 GHz	100.000 kHz	3.48936 GHz	-0.26 dBm	-30.26 dB

Date: 30.MAY.2022 20:25:13

Highest Band Edge / Full RB



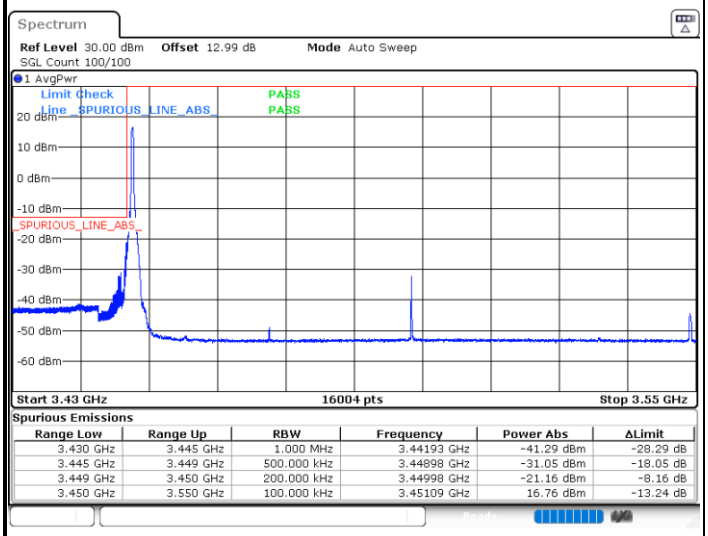
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.490 GHz	3.550 GHz	100.000 kHz	3.52076 GHz	0.35 dBm	-29.65 dB
3.550 GHz	3.551 GHz	200.000 kHz	3.55001 GHz	-31.38 dBm	-18.38 dB
3.551 GHz	3.555 GHz	500.000 kHz	3.55185 GHz	-25.58 dBm	-12.58 dB
3.555 GHz	3.575 GHz	1.000 MHz	3.55760 GHz	-24.15 dBm	-11.15 dB

Date: 30.MAY.2022 20:23:54

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

Lowest Band Edge / 1RB0

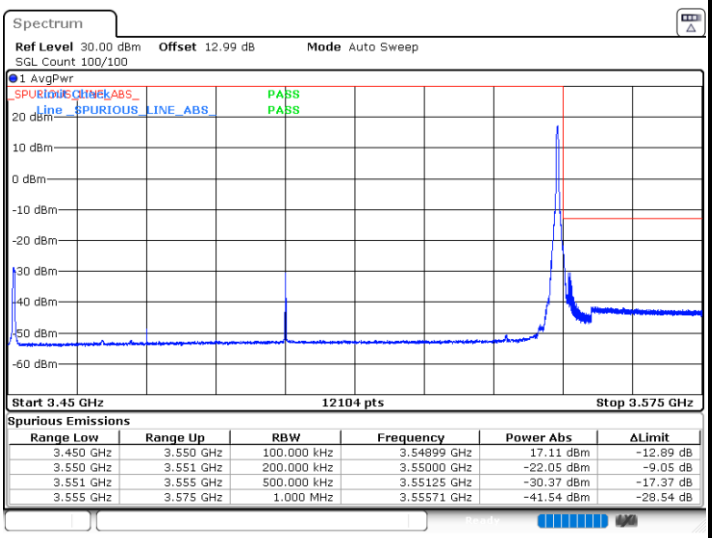


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.430 GHz	3.445 GHz	1.000 MHz	3.44193 GHz	-41.29 dBm	-28.29 dB
3.445 GHz	3.449 GHz	500.000 kHz	3.44898 GHz	-31.05 dBm	-18.05 dB
3.449 GHz	3.450 GHz	200.000 kHz	3.44998 GHz	-21.16 dBm	-8.16 dB
3.450 GHz	3.550 GHz	100.000 kHz	3.45109 GHz	16.76 dBm	-13.24 dB

Date: 30.MAY.2022 20:35:52

Highest Band Edge / 1RBmax

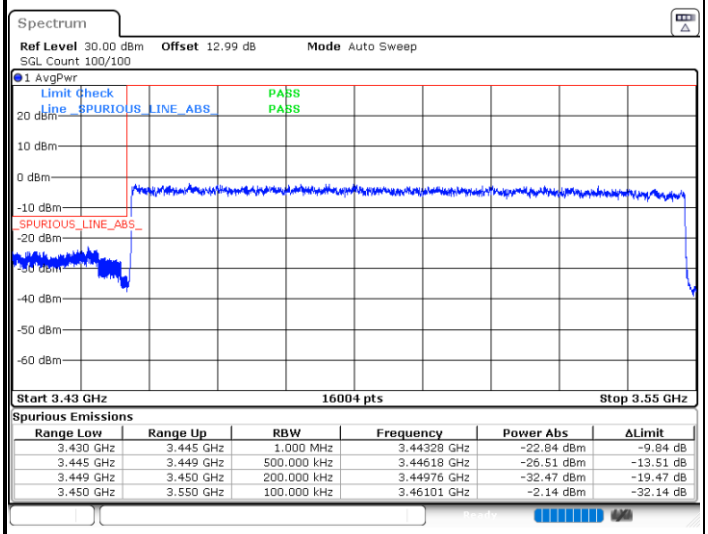


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.450 GHz	3.550 GHz	100.000 kHz	3.54899 GHz	17.11 dBm	-12.89 dB
3.550 GHz	3.551 GHz	200.000 kHz	3.55000 GHz	-22.05 dBm	-9.05 dB
3.551 GHz	3.555 GHz	500.000 kHz	3.55125 GHz	-30.37 dBm	-17.37 dB
3.555 GHz	3.575 GHz	1.000 MHz	3.55571 GHz	-41.54 dBm	-28.54 dB

Date: 30.MAY.2022 20:40:43

Lowest Band Edge / Full RB

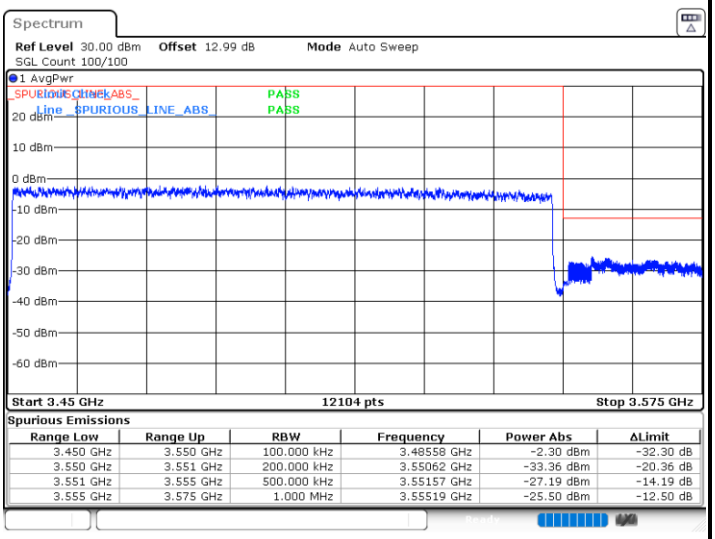


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.430 GHz	3.445 GHz	1.000 MHz	3.44328 GHz	-22.84 dBm	-9.84 dB
3.445 GHz	3.449 GHz	500.000 kHz	3.44618 GHz	-26.51 dBm	-13.51 dB
3.449 GHz	3.450 GHz	200.000 kHz	3.44976 GHz	-32.47 dBm	-19.47 dB
3.450 GHz	3.550 GHz	100.000 kHz	3.46101 GHz	-2.14 dBm	-32.14 dB

Date: 30.MAY.2022 20:39:49

Highest Band Edge / Full RB



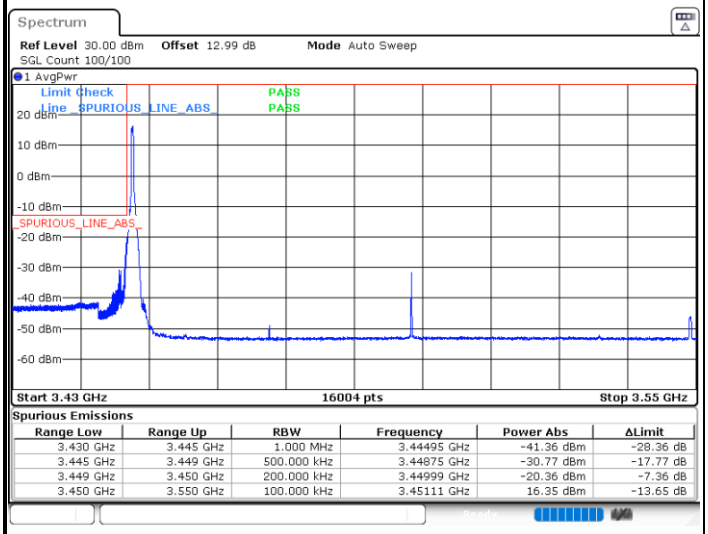
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.450 GHz	3.550 GHz	100.000 kHz	3.48558 GHz	-2.30 dBm	-32.30 dB
3.550 GHz	3.551 GHz	200.000 kHz	3.55062 GHz	-33.36 dBm	-20.36 dB
3.551 GHz	3.555 GHz	500.000 kHz	3.55157 GHz	-27.19 dBm	-14.19 dB
3.555 GHz	3.575 GHz	1.000 MHz	3.55519 GHz	-25.50 dBm	-12.50 dB

Date: 30.MAY.2022 20:43:26

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

Lowest Band Edge / 1RB0

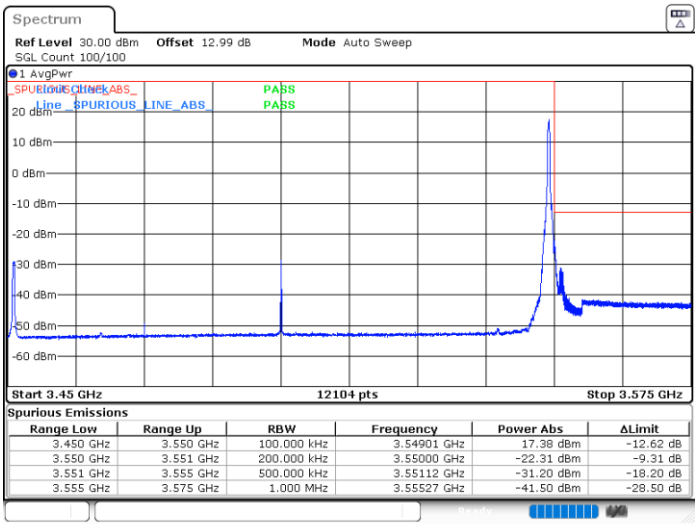


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.430 GHz	3.445 GHz	1.000 MHz	3.44495 GHz	-41.36 dBm	-28.36 dB
3.445 GHz	3.449 GHz	500.000 kHz	3.44875 GHz	-30.77 dBm	-17.77 dB
3.449 GHz	3.450 GHz	200.000 kHz	3.44999 GHz	-20.36 dBm	-7.36 dB
3.450 GHz	3.550 GHz	100.000 kHz	3.45111 GHz	16.35 dBm	-13.65 dB

Date: 30.MAY.2022 20:37:21

Highest Band Edge / 1RBmax

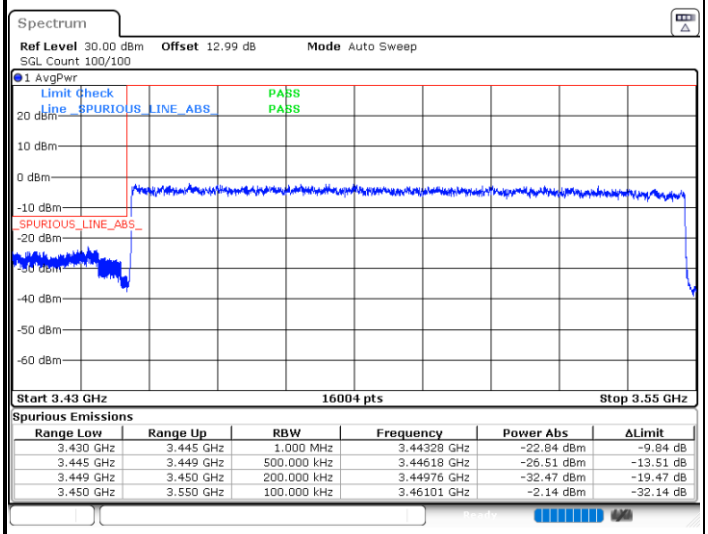


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.450 GHz	3.550 GHz	100.000 kHz	3.54901 GHz	17.38 dBm	-12.62 dB
3.550 GHz	3.551 GHz	200.000 kHz	3.55000 GHz	-22.31 dBm	-9.31 dB
3.551 GHz	3.555 GHz	500.000 kHz	3.55112 GHz	-31.20 dBm	-18.20 dB
3.555 GHz	3.575 GHz	1.000 MHz	3.55527 GHz	-41.50 dBm	-28.50 dB

Date: 30.MAY.2022 20:41:37

Lowest Band Edge / Full RB

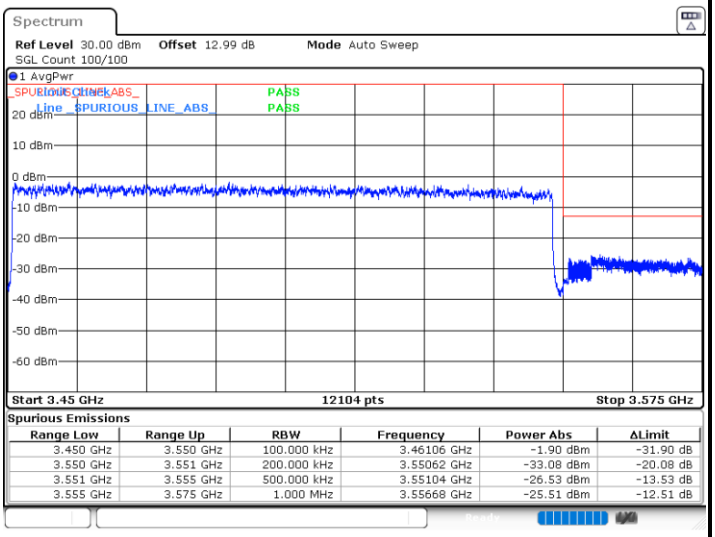


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.430 GHz	3.445 GHz	1.000 MHz	3.44328 GHz	-22.84 dBm	-9.84 dB
3.445 GHz	3.449 GHz	500.000 kHz	3.44618 GHz	-26.51 dBm	-13.51 dB
3.449 GHz	3.450 GHz	200.000 kHz	3.44976 GHz	-32.47 dBm	-19.47 dB
3.450 GHz	3.550 GHz	100.000 kHz	3.46101 GHz	-2.14 dBm	-32.14 dB

Date: 30.MAY.2022 20:39:49

Highest Band Edge / Full RB



Spurious Emissions

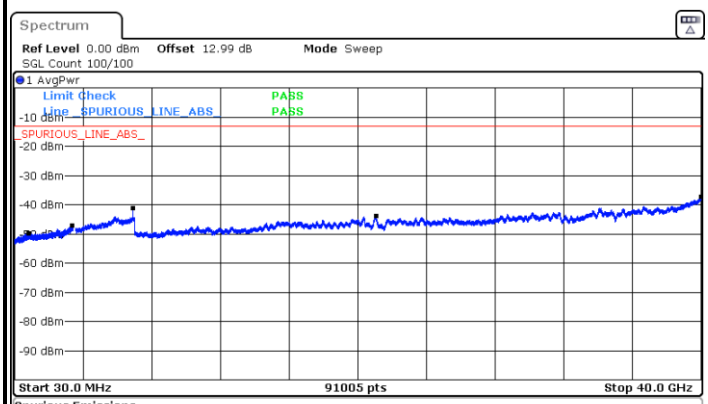
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.450 GHz	3.550 GHz	100.000 kHz	3.46106 GHz	-1.90 dBm	-31.90 dB
3.550 GHz	3.551 GHz	200.000 kHz	3.55062 GHz	-33.08 dBm	-20.08 dB
3.551 GHz	3.555 GHz	500.000 kHz	3.55104 GHz	-26.53 dBm	-13.53 dB
3.555 GHz	3.575 GHz	1.000 MHz	3.55668 GHz	-25.51 dBm	-12.51 dB

Date: 30.MAY.2022 20:42:31

Conducted Spurious Emission

FR1 n78 / 20MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB1

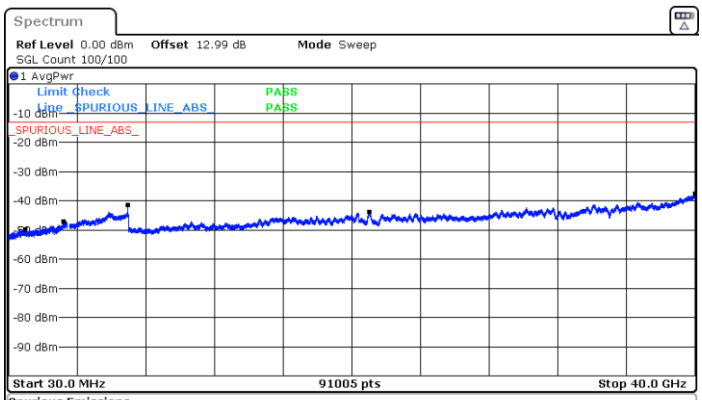


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	863.62784 MHz	-49.74 dBm	-36.74 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.38125 GHz	-47.20 dBm	-34.20 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.90229 GHz	-41.27 dBm	-28.27 dB
10.000 GHz	25.000 GHz	1.000 MHz	21.05958 GHz	-43.91 dBm	-30.91 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.99367 GHz	-37.38 dBm	-24.38 dB

Date: 30.MAY.2022 20:09:12

Middle Channel / 1RB1

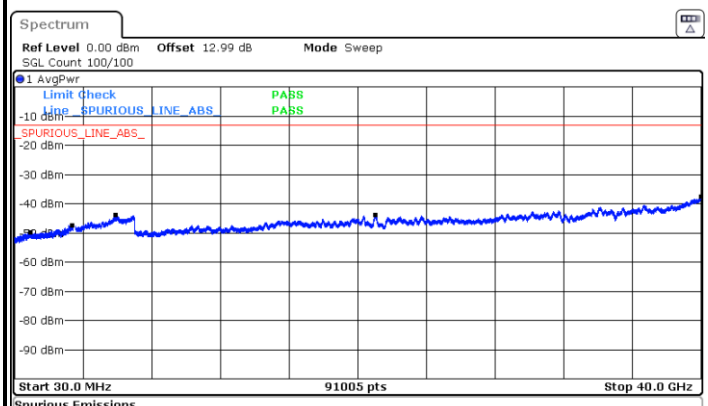


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	980.48363 MHz	-49.91 dBm	-36.91 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.19235 GHz	-47.19 dBm	-34.19 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.98195 GHz	-41.55 dBm	-28.55 dB
10.000 GHz	25.000 GHz	1.000 MHz	21.02817 GHz	-43.88 dBm	-30.88 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.98617 GHz	-37.55 dBm	-24.55 dB

Date: 30.MAY.2022 20:10:39

Highest Channel / 1RB1



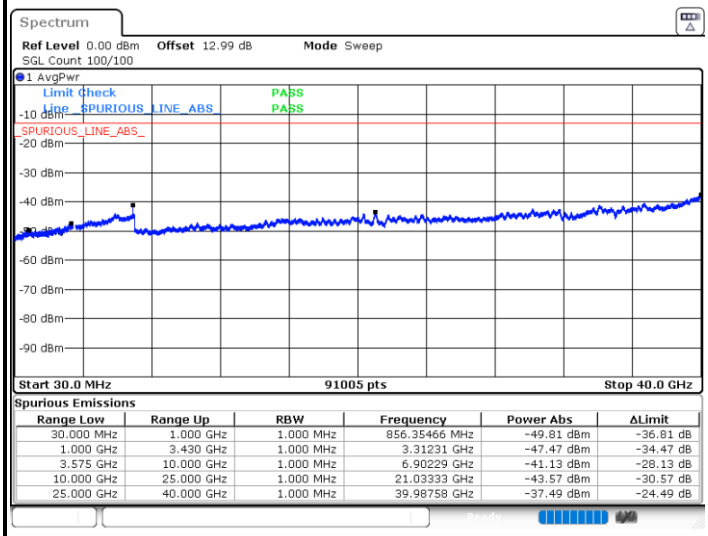
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	946.29968 MHz	-49.86 dBm	-36.86 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.37397 GHz	-47.32 dBm	-34.32 dB
3.575 GHz	10.000 GHz	1.000 MHz	5.88421 GHz	-43.98 dBm	-30.98 dB
10.000 GHz	25.000 GHz	1.000 MHz	21.01364 GHz	-43.98 dBm	-30.98 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.99742 GHz	-37.65 dBm	-24.65 dB

Date: 30.MAY.2022 20:01:18

FR1 n78 / 20MHz / DFT-S OFDM /QPSK

Lowest Channel / 1RB1

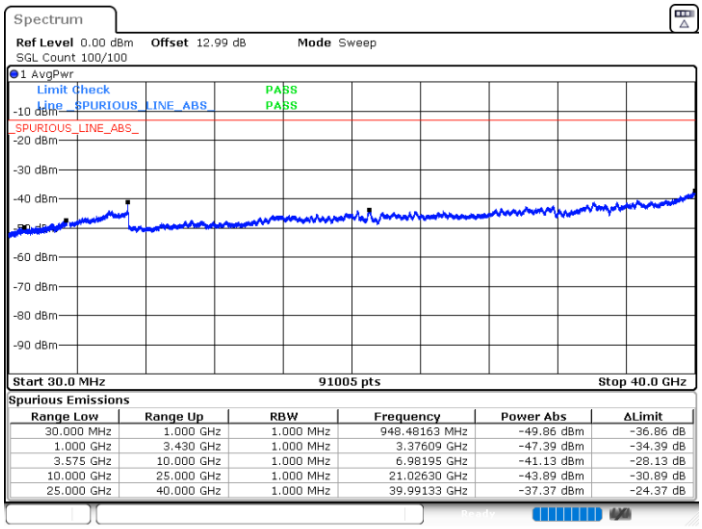


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	856.35466 MHz	-49.81 dBm	-36.81 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.31231 GHz	-47.47 dBm	-34.47 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.90229 GHz	-41.13 dBm	-28.13 dB
10.000 GHz	25.000 GHz	1.000 MHz	21.03333 GHz	-43.57 dBm	-30.57 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.98758 GHz	-37.49 dBm	-24.49 dB

Date: 30.MAY.2022 20:07:26

Middle Channel / 1RB1

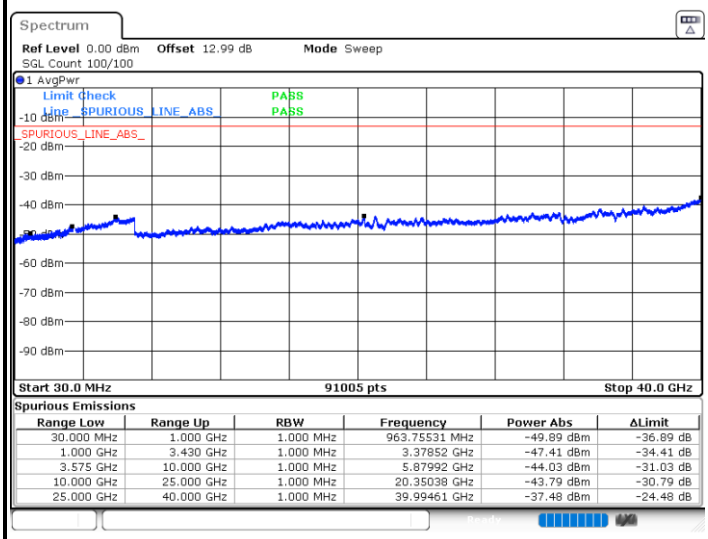


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	948.48163 MHz	-49.86 dBm	-36.86 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.37609 GHz	-47.39 dBm	-34.39 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.98195 GHz	-41.13 dBm	-28.13 dB
10.000 GHz	25.000 GHz	1.000 MHz	21.02630 GHz	-43.89 dBm	-30.89 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.99133 GHz	-37.37 dBm	-24.37 dB

Date: 30.MAY.2022 20:12:41

Highest Channel / 1RB1



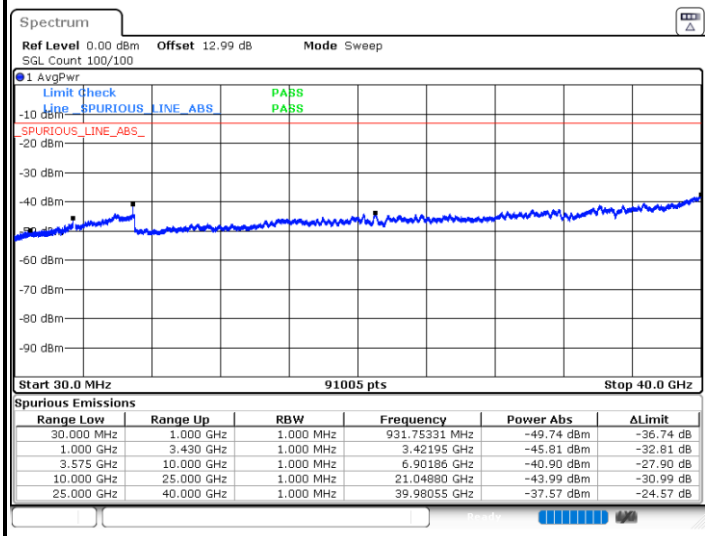
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	963.75531 MHz	-49.89 dBm	-36.89 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.37852 GHz	-47.41 dBm	-34.41 dB
3.575 GHz	10.000 GHz	1.000 MHz	5.87992 GHz	-44.03 dBm	-31.03 dB
10.000 GHz	25.000 GHz	1.000 MHz	20.35038 GHz	-43.79 dBm	-30.79 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.99461 GHz	-37.48 dBm	-24.48 dB

Date: 30.MAY.2022 20:05:59

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

Lowest Channel / 1RB1

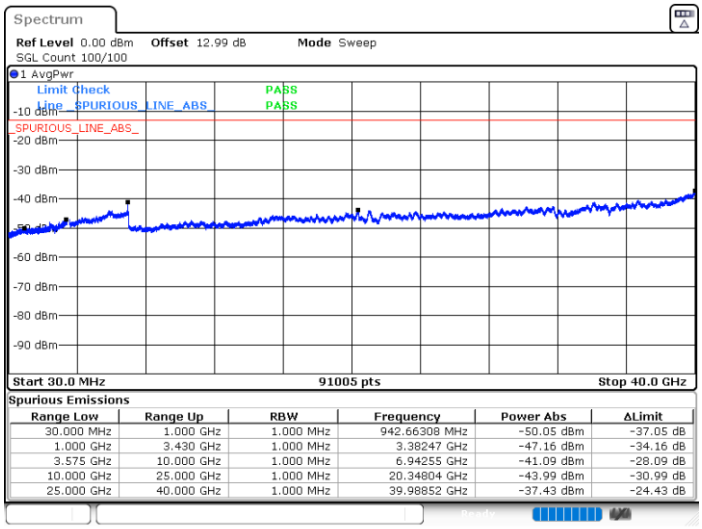


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	931.75331 MHz	-49.74 dBm	-36.74 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.42195 GHz	-45.81 dBm	-32.81 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.90186 GHz	-40.90 dBm	-27.90 dB
10.000 GHz	25.000 GHz	1.000 MHz	21.04880 GHz	-43.99 dBm	-30.99 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.98055 GHz	-37.57 dBm	-24.57 dB

Date: 30.MAY.2022 20:29:04

Middle Channel / 1RB1

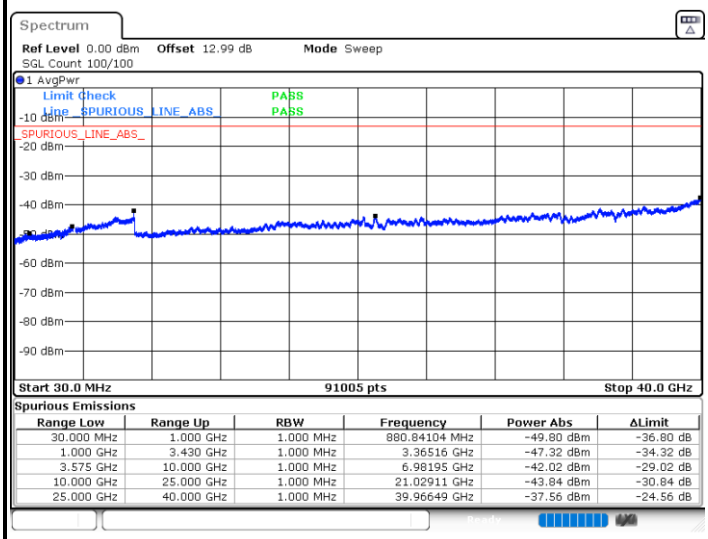


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	942.66308 MHz	-50.05 dBm	-37.05 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.38247 GHz	-47.16 dBm	-34.16 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.94255 GHz	-41.09 dBm	-28.09 dB
10.000 GHz	25.000 GHz	1.000 MHz	20.34804 GHz	-43.99 dBm	-30.99 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.98852 GHz	-37.43 dBm	-24.43 dB

Date: 30.MAY.2022 20:14:37

Highest Channel / 1RB1



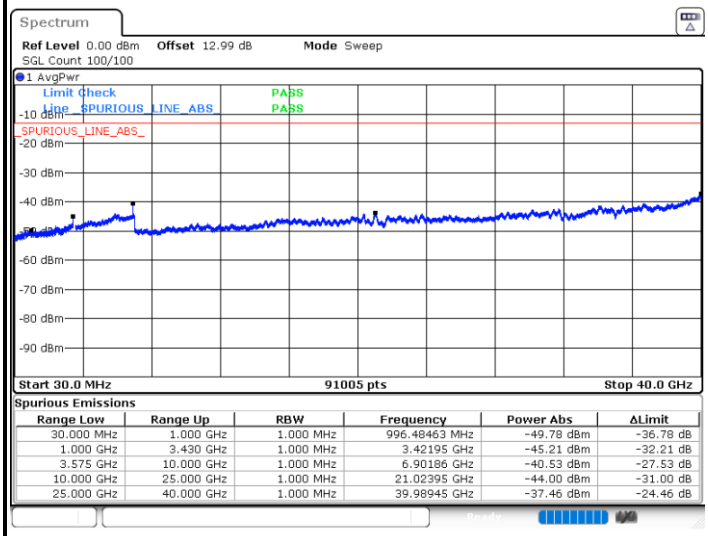
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	880.84104 MHz	-49.80 dBm	-36.80 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.36516 GHz	-47.32 dBm	-34.32 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.98195 GHz	-42.02 dBm	-29.02 dB
10.000 GHz	25.000 GHz	1.000 MHz	21.02911 GHz	-43.84 dBm	-30.84 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.96649 GHz	-37.56 dBm	-24.56 dB

Date: 30.MAY.2022 20:20:18

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

Lowest Channel / 1RB1

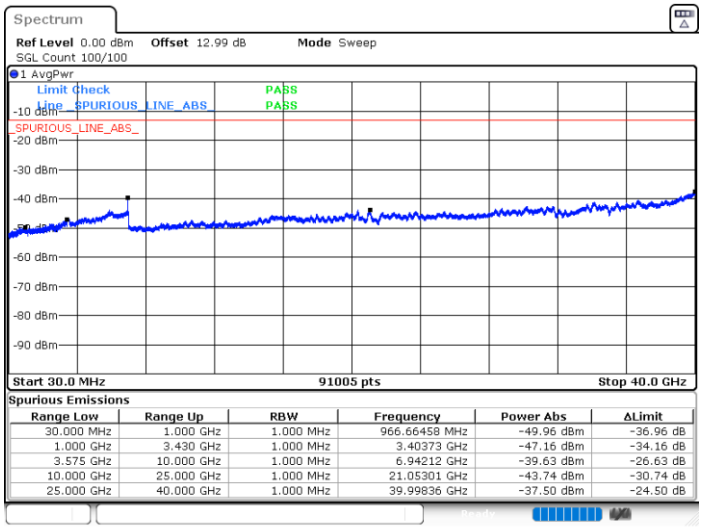


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	996.48463 MHz	-49.78 dBm	-36.78 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.42195 GHz	-45.21 dBm	-32.21 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.90186 GHz	-40.53 dBm	-27.53 dB
10.000 GHz	25.000 GHz	1.000 MHz	21.02395 GHz	-44.00 dBm	-31.00 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.98945 GHz	-37.46 dBm	-24.46 dB

Date: 30.MAY.2022 20:31:07

Middle Channel / 1RB1

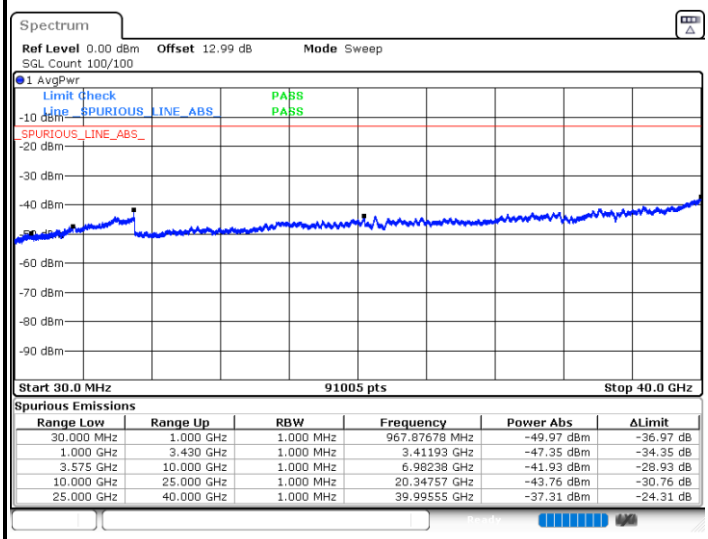


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	966.66458 MHz	-49.96 dBm	-36.96 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.40373 GHz	-47.16 dBm	-34.16 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.94212 GHz	-39.63 dBm	-26.63 dB
10.000 GHz	25.000 GHz	1.000 MHz	21.05301 GHz	-43.74 dBm	-30.74 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.99836 GHz	-37.50 dBm	-24.50 dB

Date: 30.MAY.2022 20:16:04

Highest Channel / 1RB1



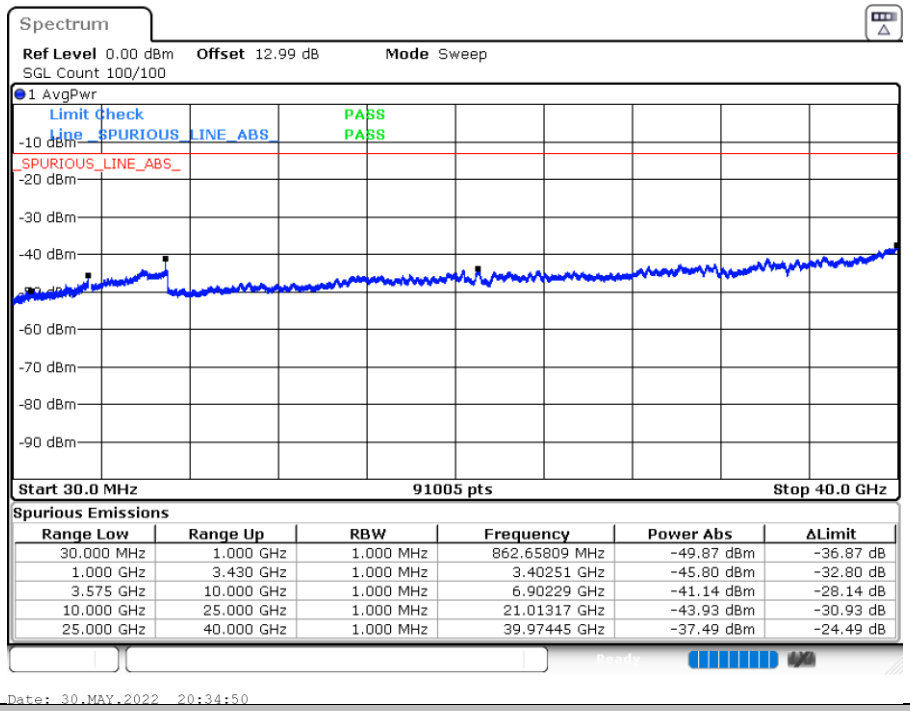
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	967.87678 MHz	-49.97 dBm	-36.97 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.41193 GHz	-47.35 dBm	-34.35 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.98238 GHz	-41.93 dBm	-28.93 dB
10.000 GHz	25.000 GHz	1.000 MHz	20.34757 GHz	-43.76 dBm	-30.76 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.99555 GHz	-37.31 dBm	-24.31 dB

Date: 30.MAY.2022 20:17:37

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	862.65809 MHz	-49.87 dBm	-36.87 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.40251 GHz	-45.80 dBm	-32.80 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.90229 GHz	-41.14 dBm	-28.14 dB
10.000 GHz	25.000 GHz	1.000 MHz	21.01317 GHz	-43.93 dBm	-30.93 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.97445 GHz	-37.49 dBm	-24.49 dB

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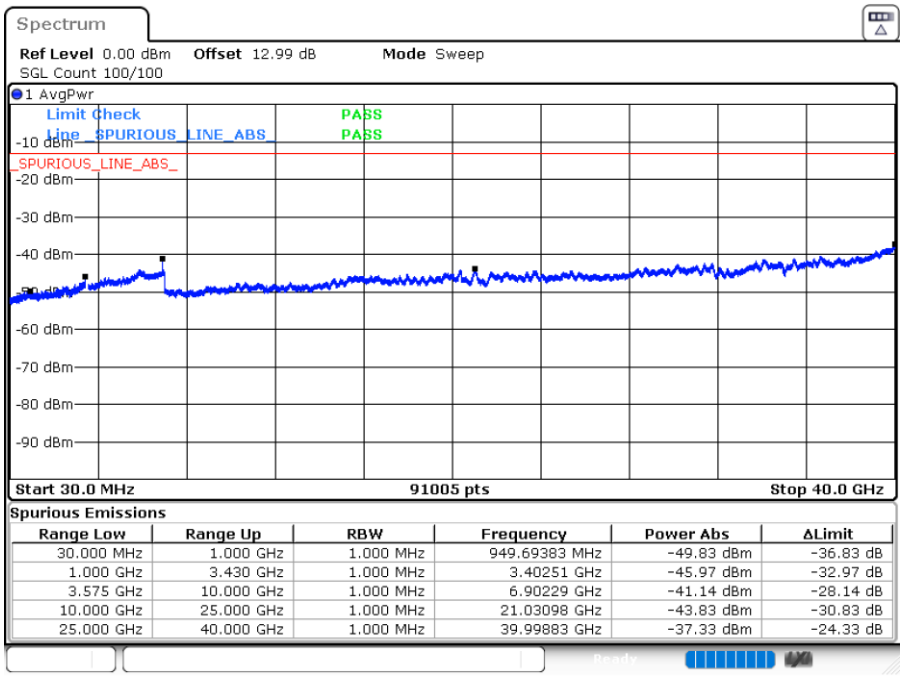
FR1 n78 / 100MHz / DFT-S OFDM / QPSK

Middle Channel / 1RB1



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	949.69383 MHz	-49.83 dBm	-36.83 dB
1.000 GHz	3.430 GHz	1.000 MHz	3.40251 GHz	-45.97 dBm	-32.97 dB
3.575 GHz	10.000 GHz	1.000 MHz	6.90229 GHz	-41.14 dBm	-28.14 dB
10.000 GHz	25.000 GHz	1.000 MHz	21.03098 GHz	-43.83 dBm	-30.83 dB
25.000 GHz	40.000 GHz	1.000 MHz	39.99883 GHz	-37.33 dBm	-24.33 dB

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Frequency Stability

Test Conditions		FR1 n41 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 20MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0078	PASS
40	Normal Voltage	0.0029	
30	Normal Voltage	0.0035	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0012	
0	Normal Voltage	0.0031	
-10	Normal Voltage	0.0046	
-20	Normal Voltage	0.0011	
-30	Normal Voltage	0.0010	
20	Maximum Voltage	0.0035	
20	Normal Voltage	0.0026	
20	Battery End Point	0.0031	

Note:

1. Normal Voltage =3.87 V. ; Battery End Point (BEP) =3.55 V. ; Maximum Voltage =4.45 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.

n78 SA / NR 100MHz / QPSK / ANT3								
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	-34.32	-13	-21.32	-44.80	2.76	13.24	H
	10356	-43.66	-13	-30.66	-53.25	3.42	13.01	H
	13800	-51.51	-13	-38.51	-61.12	3.83	13.44	H
	17256	-36.98	-13	-23.98	-46.00	4.41	13.43	H
	6900	-41.21	-13	-28.21	-51.65	2.80	13.24	V
	10356	-39.13	-13	-26.13	-48.68	3.46	13.01	V
	13800	-58.01	-13	-45.01	-67.57	3.88	13.44	V
	17256	-37.87	-13	-24.87	-46.84	4.46	13.43	V

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

EN-DC_13A_n78A / LTE 10MHz + NR 100MHz / QPSK / ANT0(LTE) & ANT3(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	-35.97	-13	-22.97	-46.45	2.76	13.24	H
	10356	-55.38	-13	-42.38	-64.97	3.42	13.01	H
	13806	-51.81	-13	-38.81	-61.42	3.83	13.44	H
	17256	-37.51	-13	-24.51	-46.53	4.41	13.43	H
	6900	-54.47	-13	-41.47	-64.91	2.80	13.24	V
	10356	-51.30	-13	-38.30	-60.85	3.46	13.01	V
	13806	-57.51	-13	-44.51	-67.07	3.88	13.44	V
	17256	-47.05	-13	-34.05	-56.02	4.46	13.43	V

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

THE END