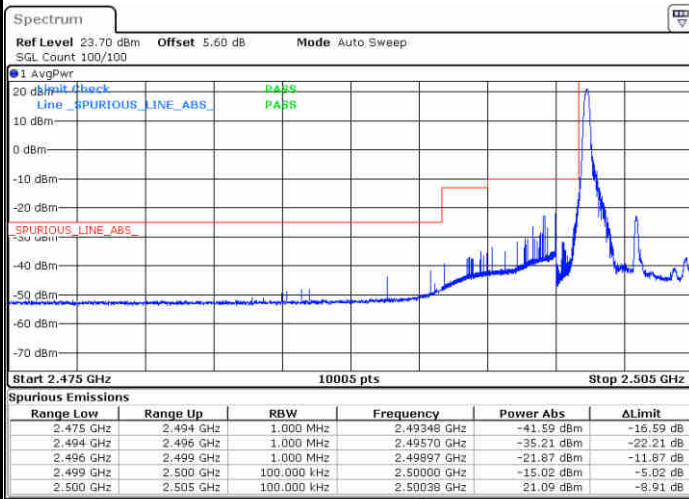




# Conducted Band Edge

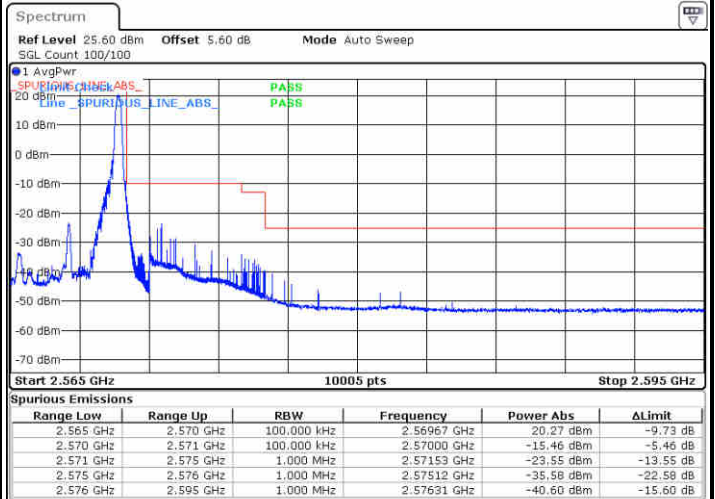
## NR N7 / 5MHz / BPSK

### Lowest Band Edge / 1 RB



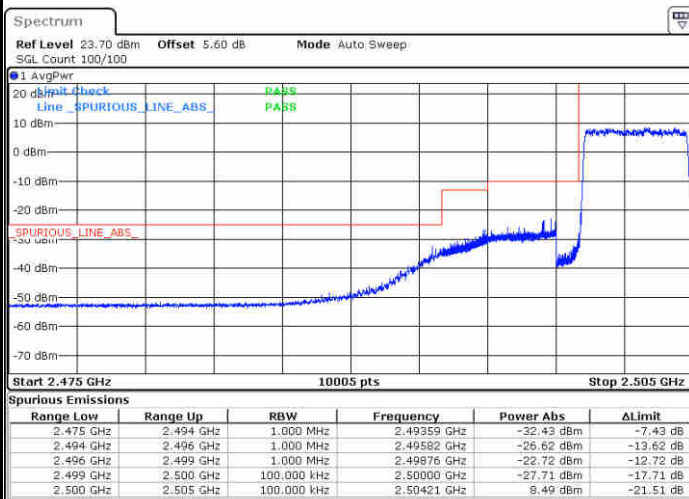
Date: 11.JUL.2020 16:25:14

### Highest Band Edge / 1 RB



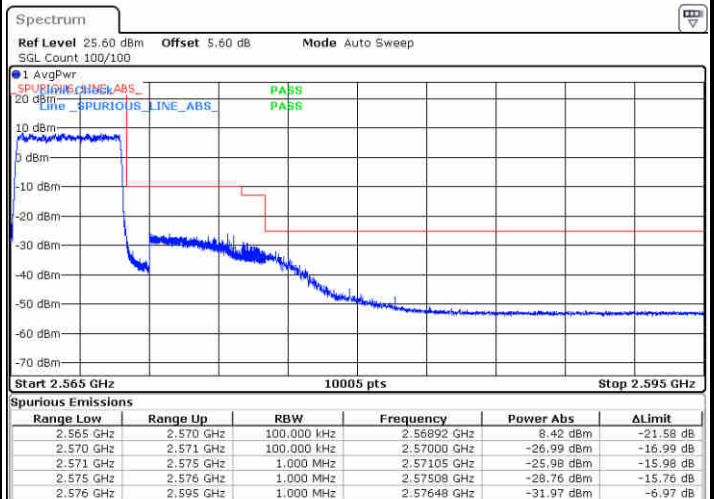
Date: 11.JUL.2020 16:42:37

### Lowest Band Edge / Full RB



Date: 11.JUL.2020 16:24:53

### Highest Band Edge / Full RB

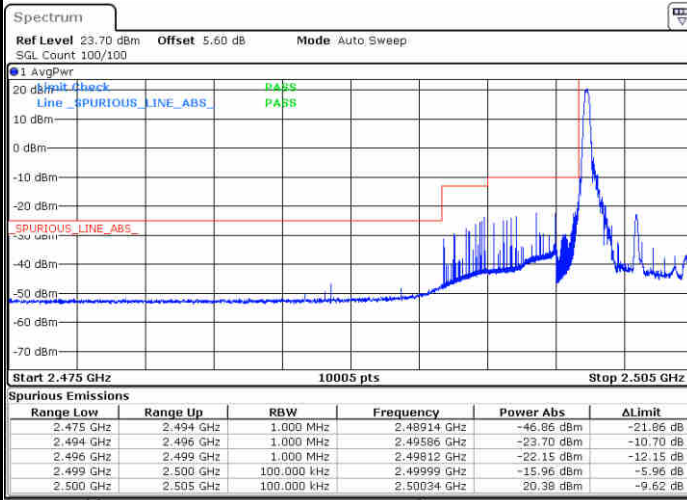


Date: 11.JUL.2020 16:43:56



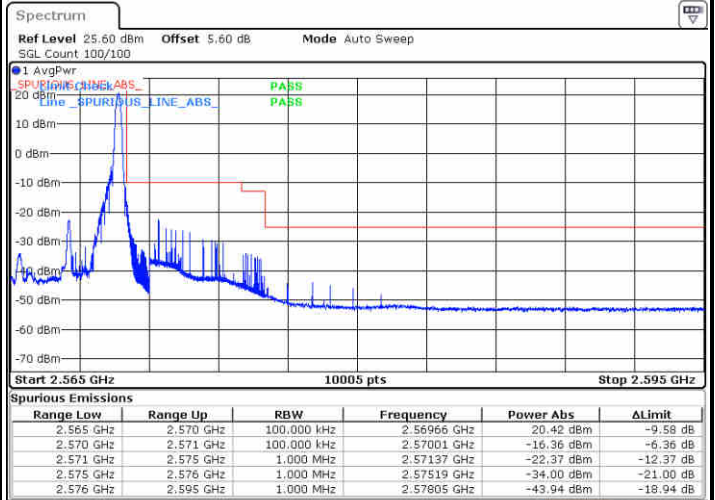
NR N7 / 5MHz / QPSK

Lowest Band Edge / 1 RB



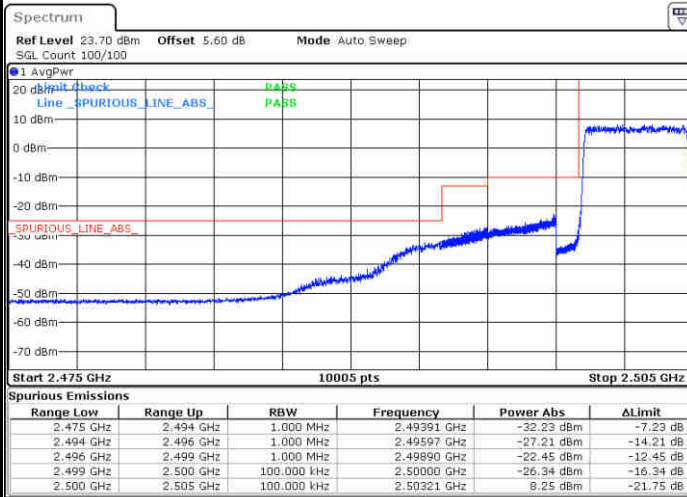
Date: 11.JUL.2020 16:25:39

Highest Band Edge / 1 RB



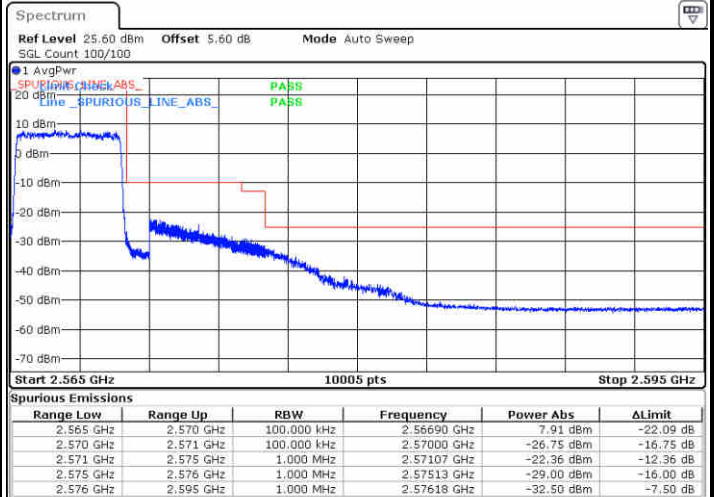
Date: 11.JUL.2020 16:42:51

Lowest Band Edge / Full RB



Date: 11.JUL.2020 16:26:00

Highest Band Edge / Full RB

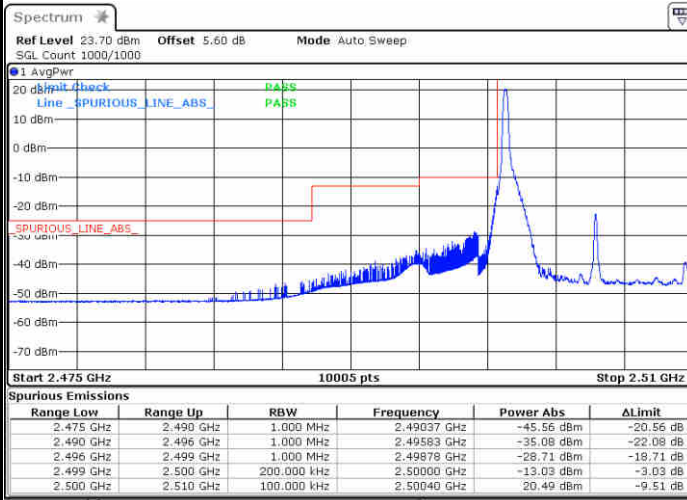


Date: 11.JUL.2020 16:42:17



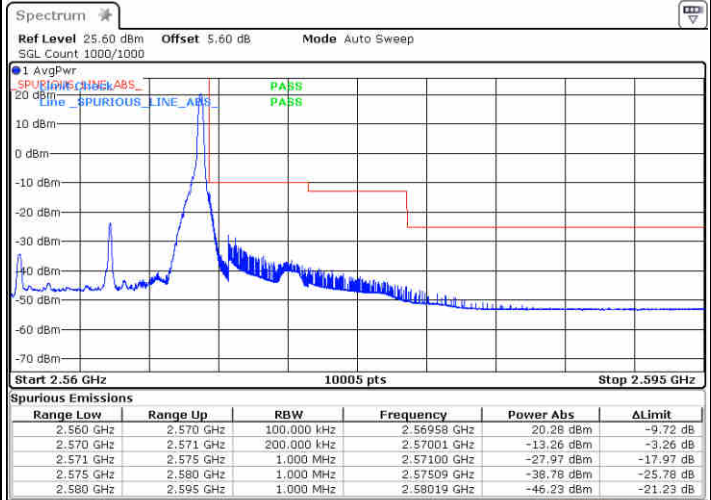
NR N7 / 10MHz / BPSK

Lowest Band Edge / 1 RB



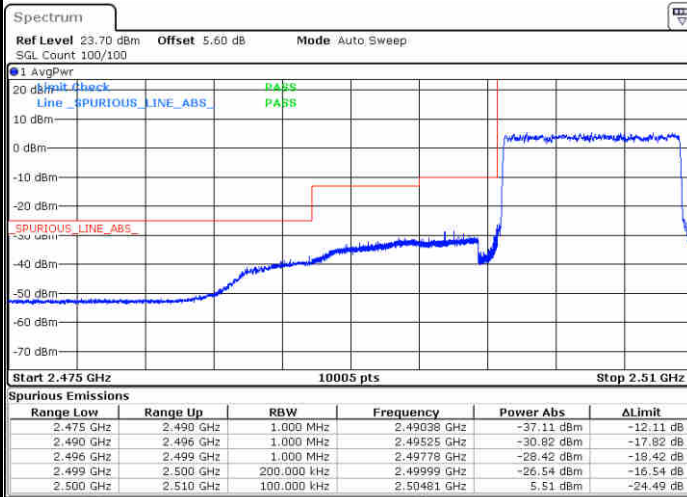
Date: 11.JUL.2020 16:19:57

Highest Band Edge / 1 RB



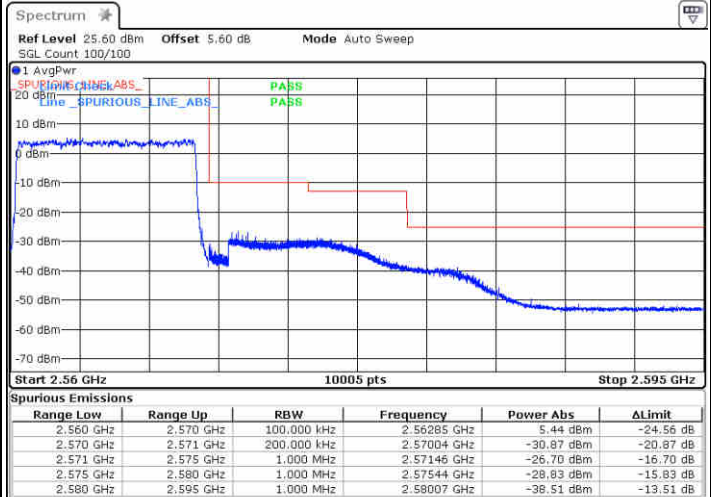
Date: 11.JUL.2020 16:12:59

Lowest Band Edge / Full RB



Date: 11.JUL.2020 16:18:51

Highest Band Edge / Full RB

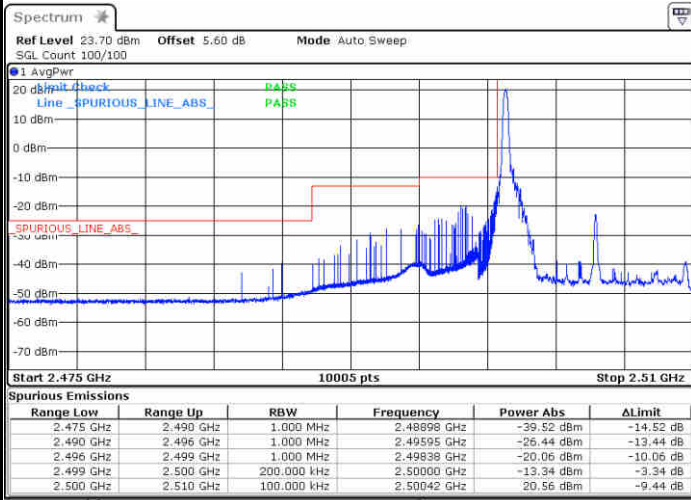


Date: 11.JUL.2020 16:17:59



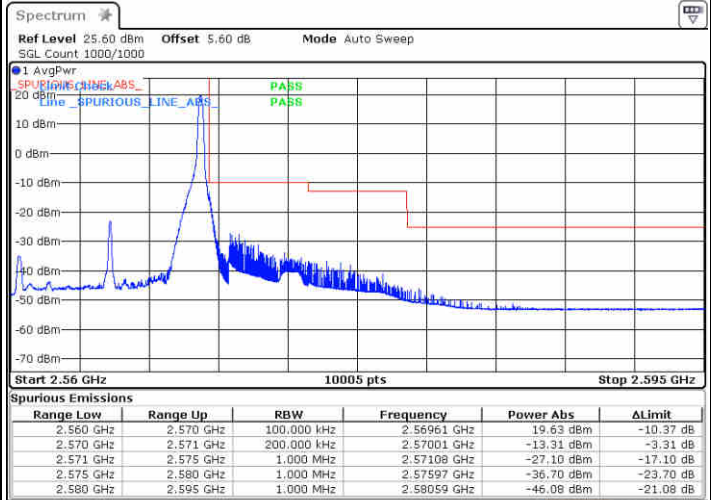
NR N7 / 10MHz / QPSK

Lowest Band Edge / 1 RB



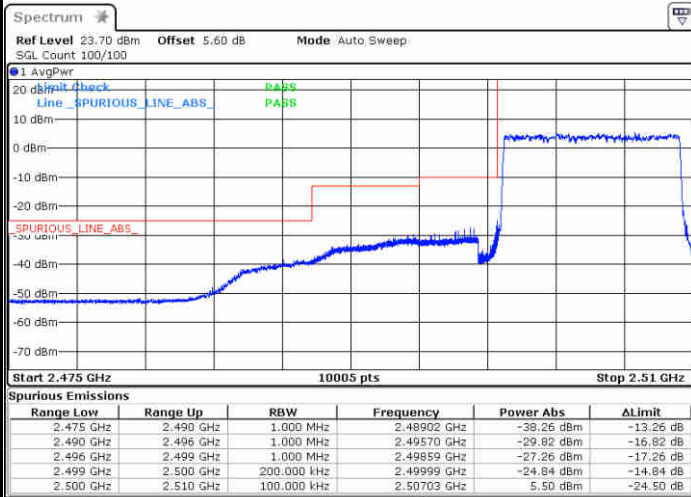
Date: 11.JUL.2020 16:20:31

Highest Band Edge / 1 RB



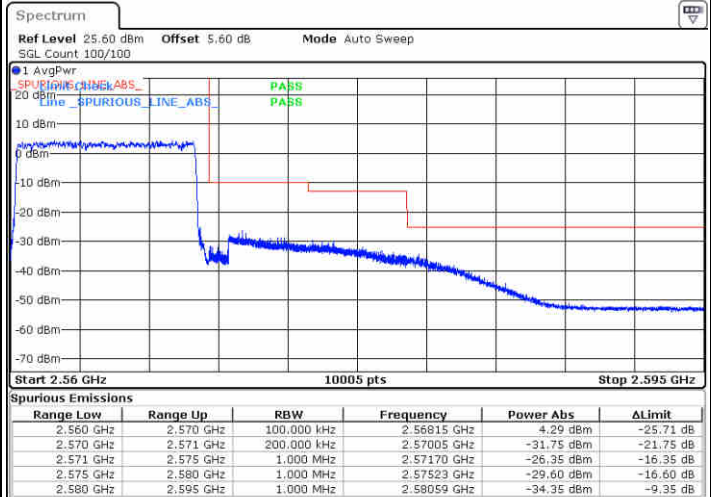
Date: 11.JUL.2020 16:04:15

Lowest Band Edge / Full RB



Date: 11.JUL.2020 16:21:06

Highest Band Edge / Full RB



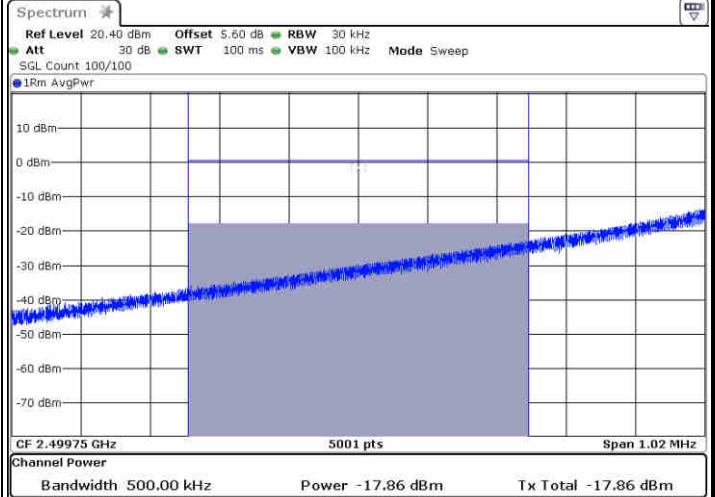
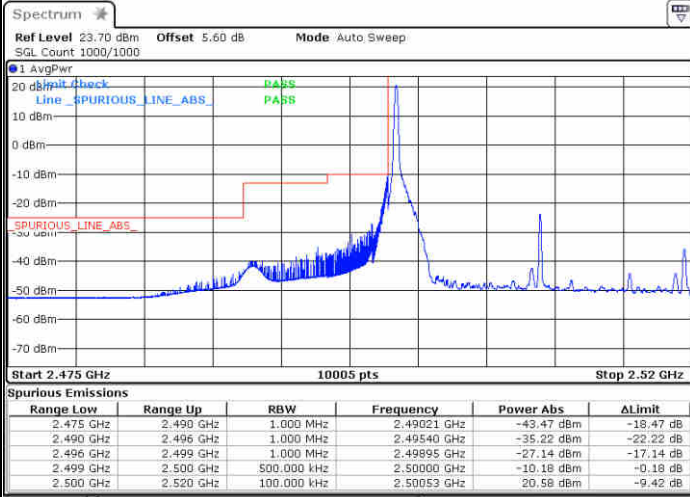
Date: 11.JUL.2020 16:01:53



NR N7 / 20MHz / BPSK

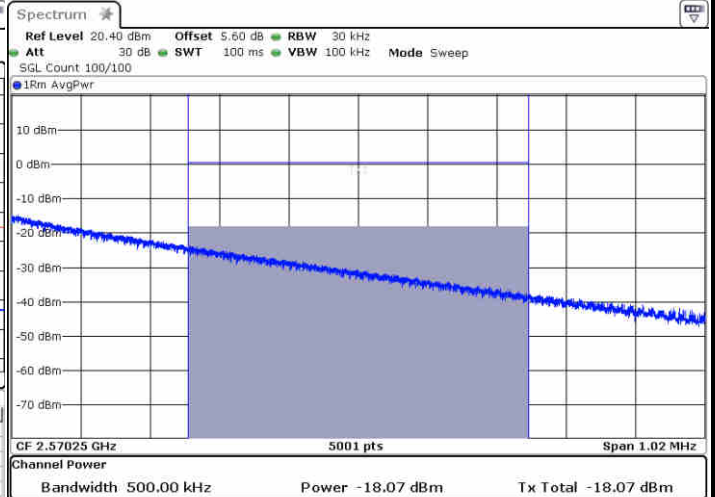
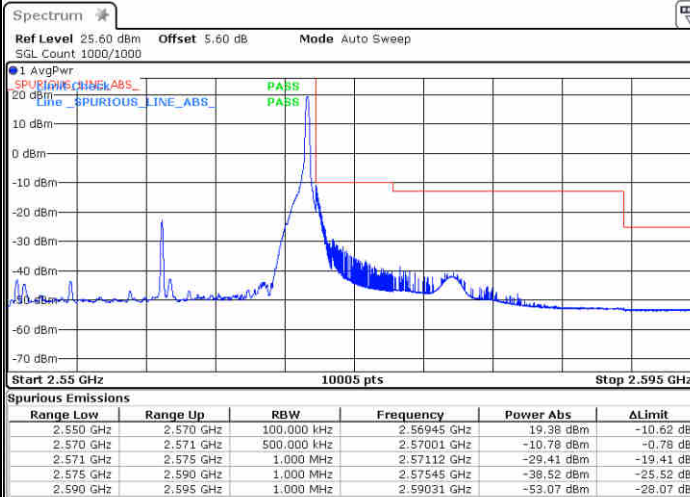
Lowest Band Edge / 1 RB

Channel Power < -13dBm Pass



Highest Band Edge / 1 RB

Channel Power < -13dBm Pass

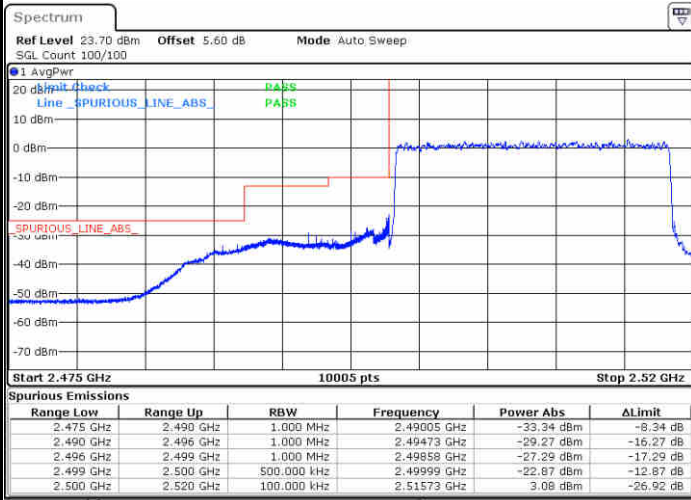




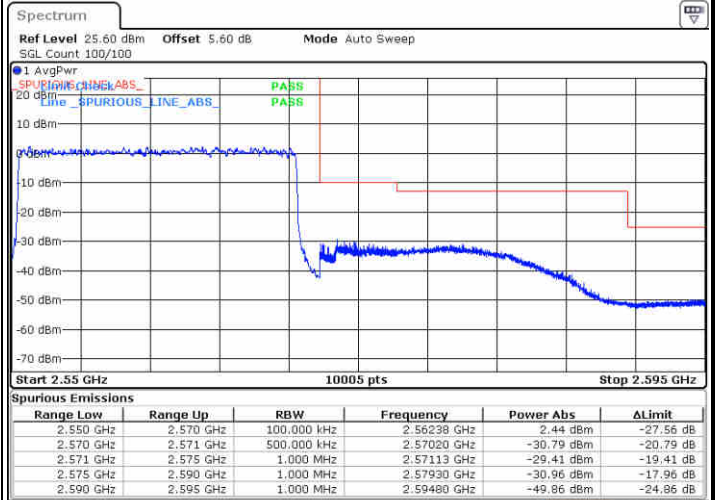
NR N7 / 20MHz / BPSK

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 11.JUL.2020 14:26:31

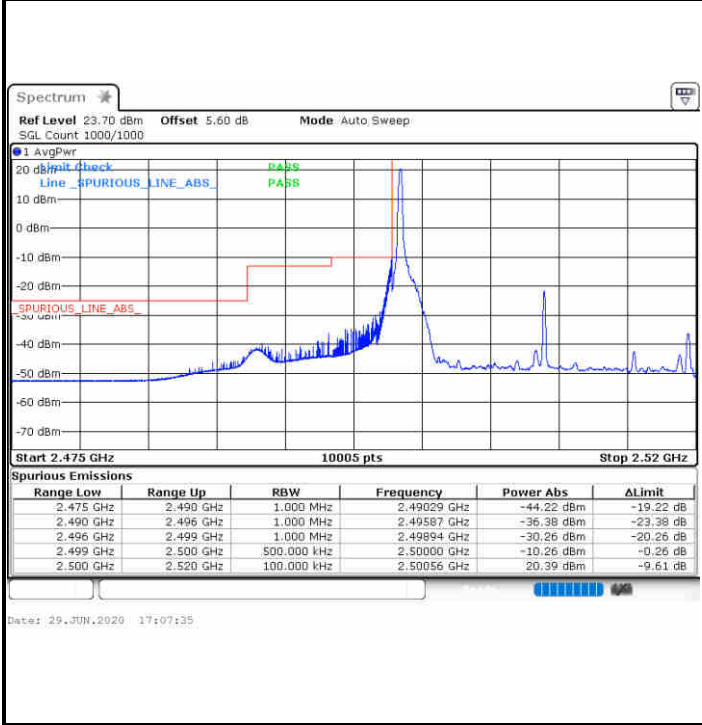


Date: 11.JUL.2020 14:48:32

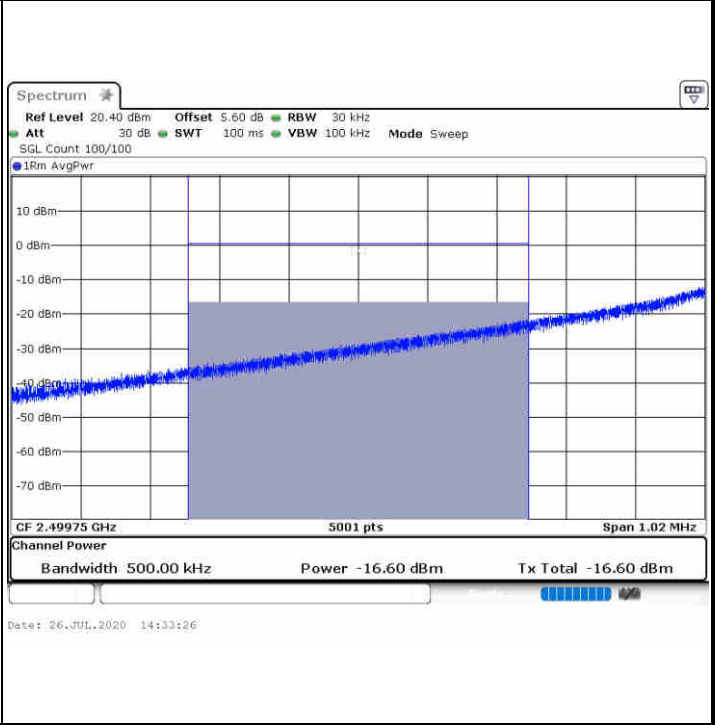


NR N7 / 20MHz / QPSK

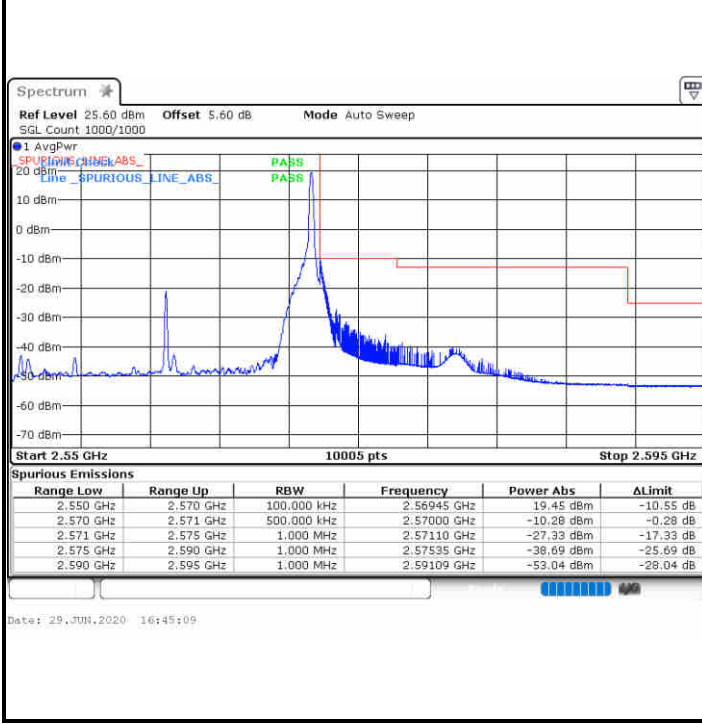
Lowest Band Edge / 1 RB



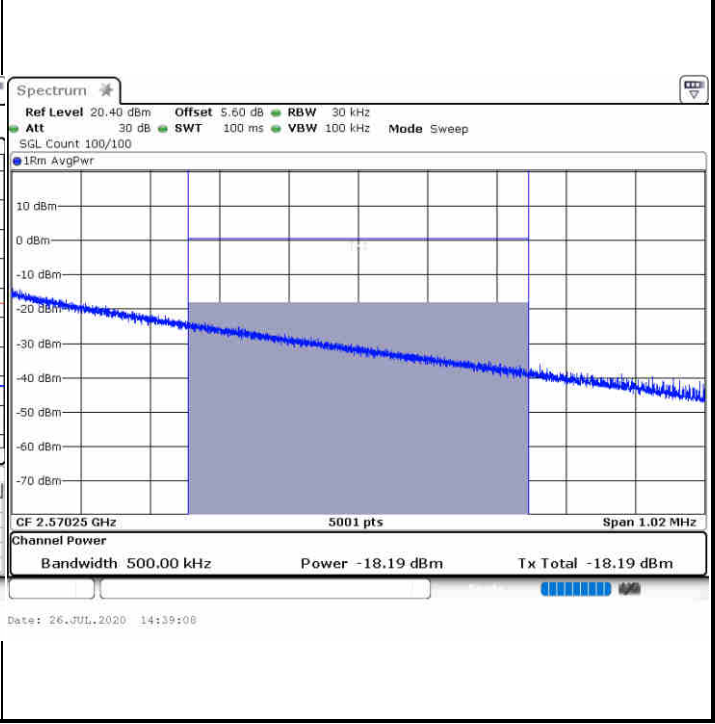
Channel Power < -13dBm Pass

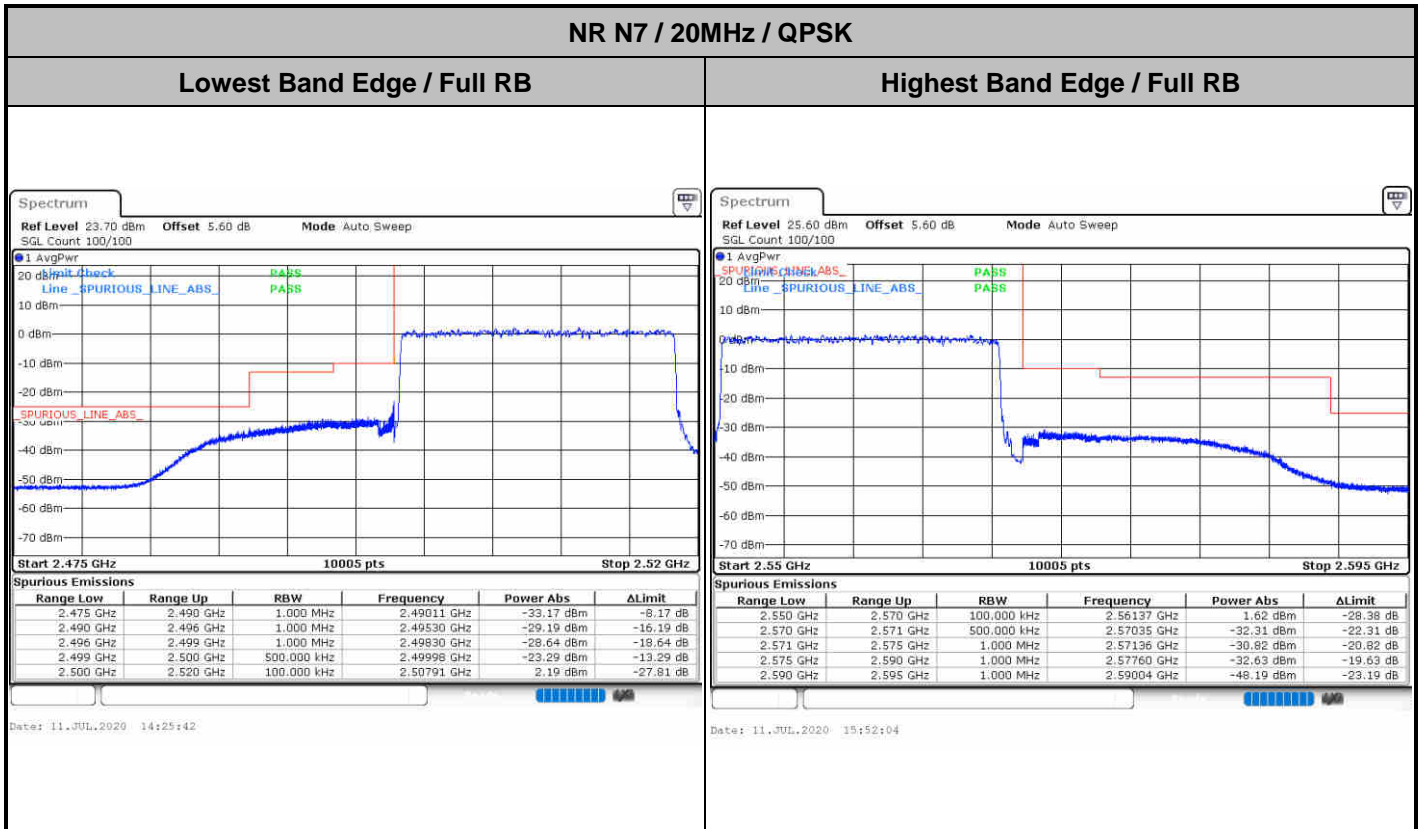


Highest Band Edge / 1 RB



Channel Power < -13dBm Pass





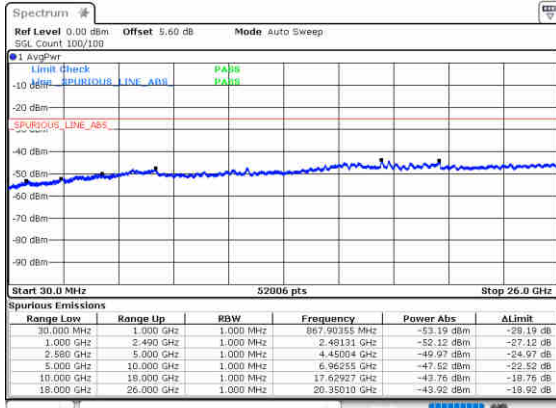




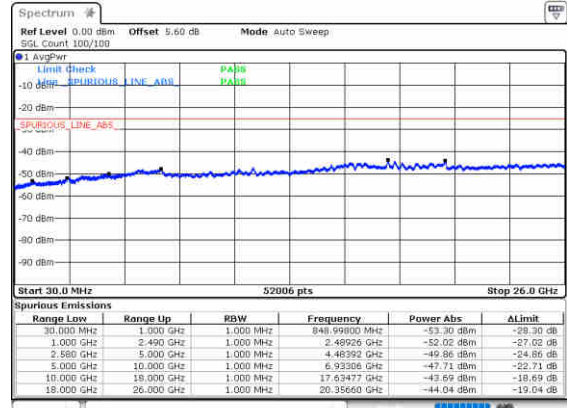
# Conducted Spurious Emission

## NR N7 / 5MHz

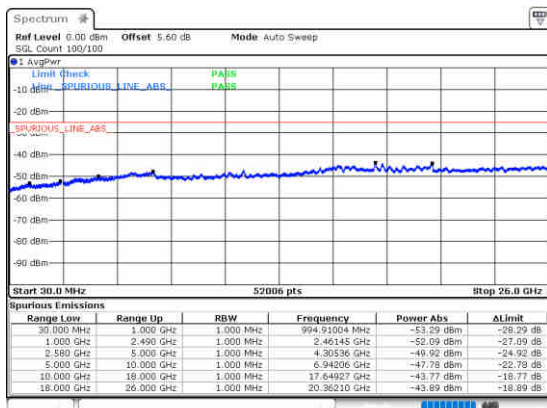
### Lowest Channel / BPSK



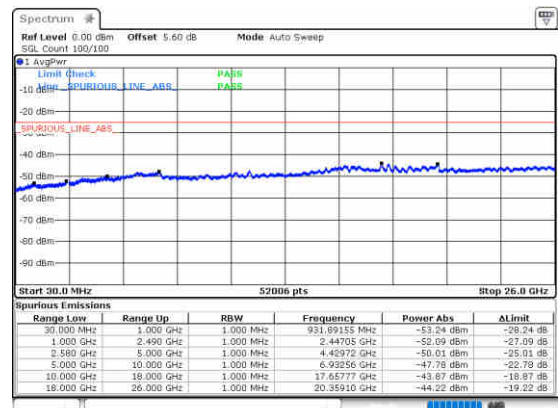
### Lowest Channel / QPSK



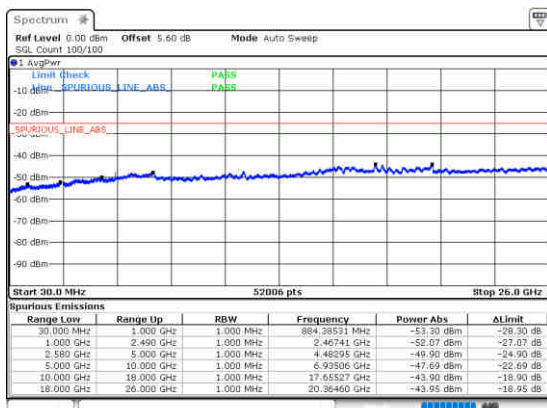
### Middle Channel / BPSK



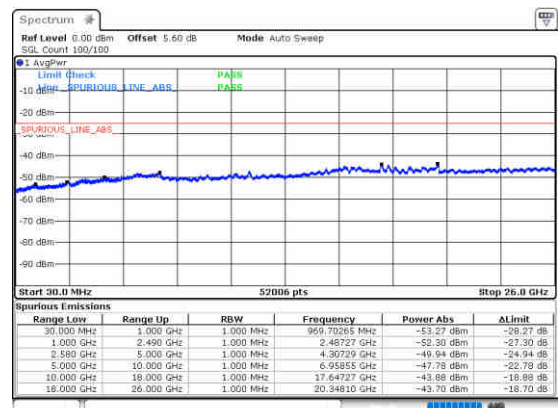
### Middle Channel / QPSK



### Highest Channel / BPSK



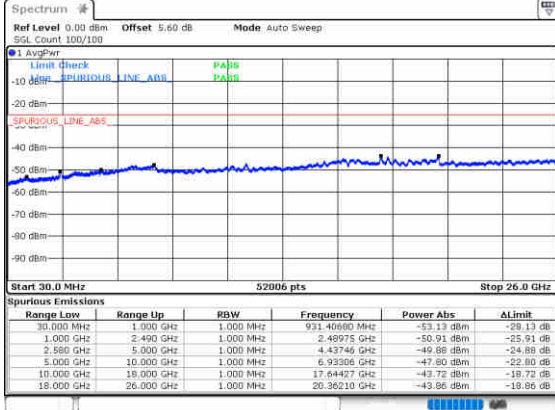
### Highest Channel / QPSK



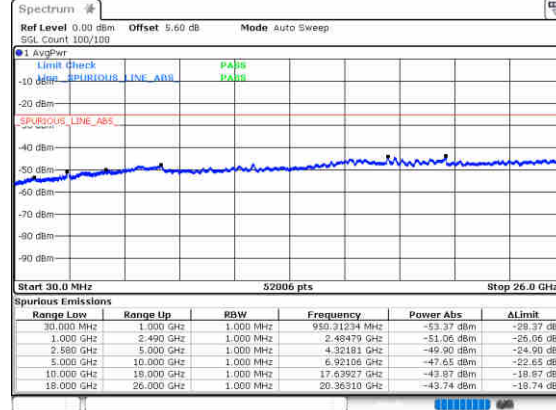


NR N7 / 10MHz

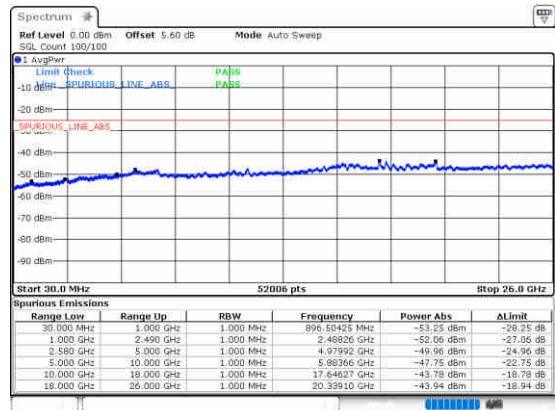
Lowest Channel / BPSK



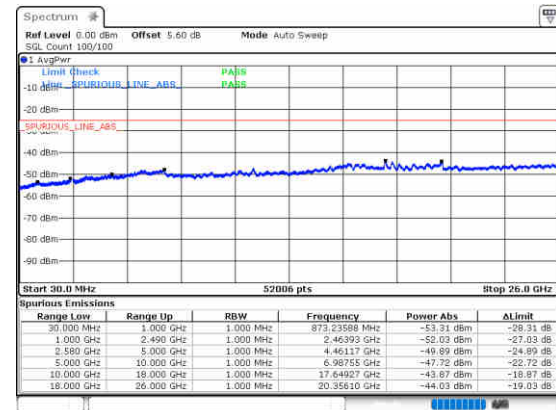
Lowest Channel / QPSK



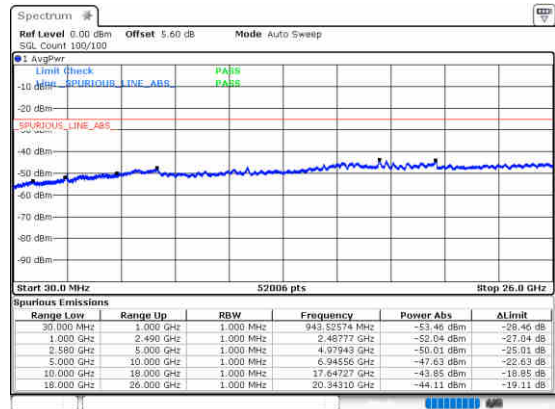
Middle Channel / BPSK



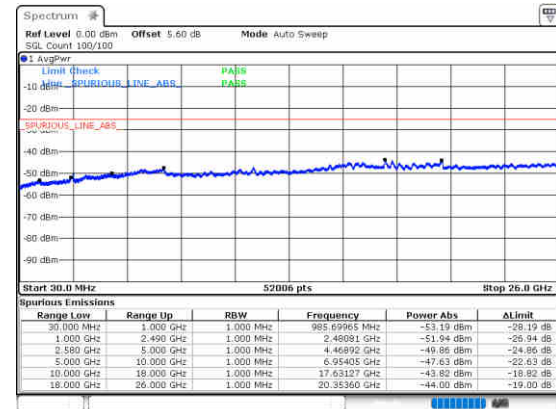
Middle Channel / QPSK



Highest Channel / BPSK



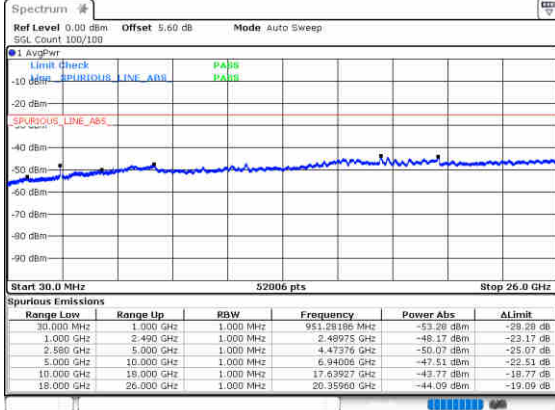
Highest Channel / QPSK



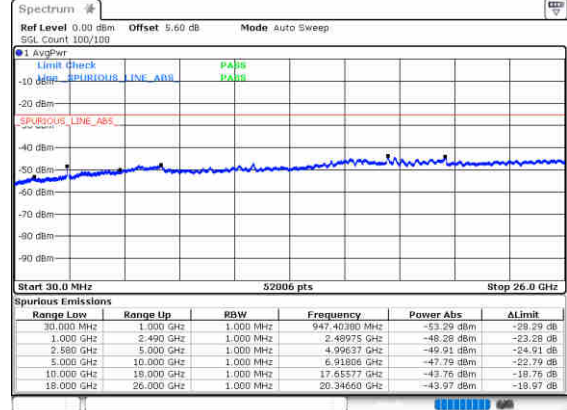


NR N7 / 20MHz

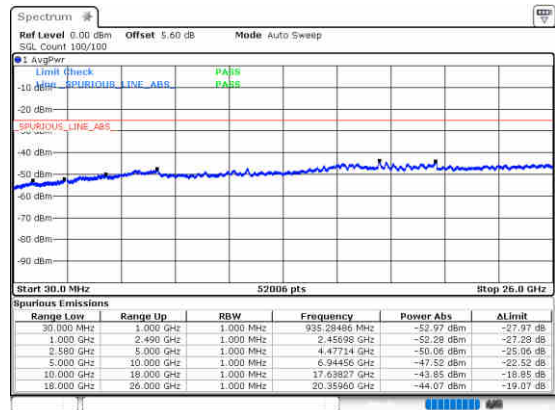
Lowest Channel / BPSK



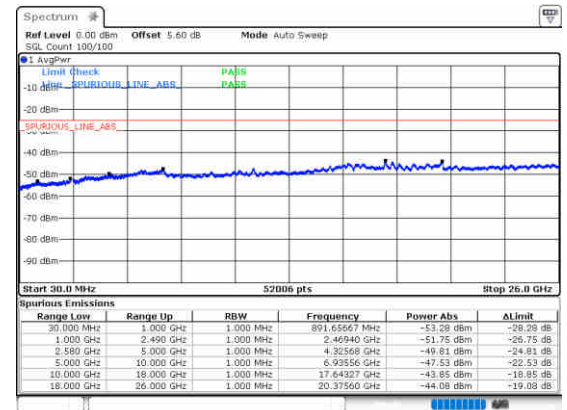
Lowest Channel / QPSK



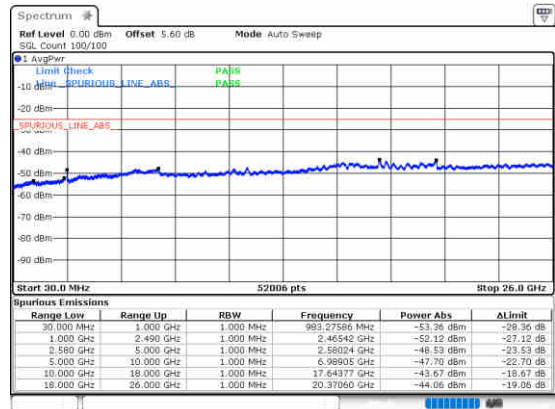
Middle Channel / BPSK



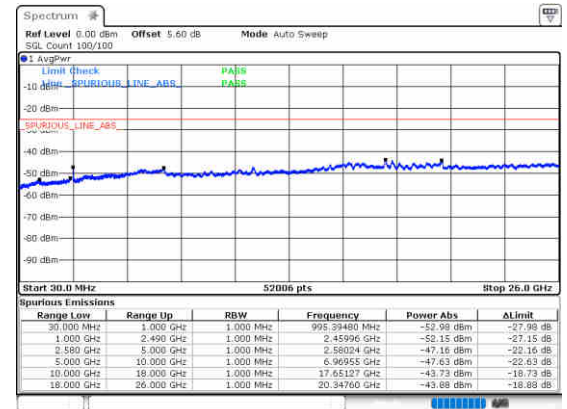
Middle Channel / QPSK



Highest Channel / BPSK



Highest Channel / QPSK





Frequency Stability

Test Conditions		N7 (BPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	NR 20MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0022	PASS
40	Normal Voltage	0.0011	
30	Normal Voltage	0.0025	
20(Ref.)	Normal Voltage	0.0013	
10	Normal Voltage	0.0005	
0	Normal Voltage	0.0006	
-10	Normal Voltage	0.0012	
-20	Normal Voltage	0.0006	
-30	Normal Voltage	0.0013	
20	Maximum Voltage	0.0013	
20	Normal Voltage	0.0015	
20	Battery End Point	0.0018	

Note:

1. Normal Voltage =3.85 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

#### Top Antenna

EN-DC_7A_n5A / LTE 20MHz + NR 5MHz / PI/2 BPSK DFT-s-OFDM									
Channel	Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
NR n5 Middle	1668.5	-68.28	-25	-43.28	-63.34	-71.53	4.00	9.40	H
	2502.75	-64.44	-25	-39.44	-62.95	-68.01	4.88	10.60	H
	3337	-62.57	-25	-37.57	-64.16	-67.50	5.52	12.60	H
	1668.5	-68.02	-25	-43.02	-62.92	-71.27	4.00	9.40	V
	2502.75	-64.15	-25	-39.15	-62.99	-67.72	4.88	10.60	V
	3337	-61.72	-25	-36.72	-63.64	-66.65	5.52	12.60	V
LTE Band7 Middle	5052.18	-55.97	-25	-30.97	-63.70	-63.98	7.14	12.70	H
	7578.27	-51.21	-25	-26.21	-65.02	-65.12	8.30	11.60	H
	10104.36	-46.60	-25	-21.60	-67.56	-67.28	10.48	12.00	H
	5052.18	-55.65	-25	-30.65	-63.7	-63.85	7.14	12.70	V
	7578.27	-51.02	-25	-26.02	-64.79	-65.11	8.30	11.60	V
	10104.36	-47.51	-25	-22.51	-67.57	-67.85	10.48	12.00	V

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

5G NR_n7 / 10MHz / QPSK DFT-s-OFDM									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	5061.18	-58.66	-25	-33.66	-81.29	-64.22	7.14	12.70	H
	7591.77	-56.40	-25	-31.40	-82.01	-59.70	8.30	11.60	H
	10122.36	-53.34	-25	-28.34	-82.71	-54.86	10.48	12.00	H
	5061.18	-57.41	-25	-32.41	-81.25	-62.97	7.14	12.70	V
	7591.77	-56.84	-25	-31.84	-82.45	-60.14	8.30	11.60	V
	10122.36	-51.99	-25	-26.99	-82.41	-53.51	10.48	12.00	V

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



**Bottom Antenna**

EN-DC_7A_n5A / LTE 20MHz + NR 5MHz / PI/2 BPSK DFT-s-OFDM									
Channel	Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
NR n5 Middle	1668.5	-68.19	-25	-43.19	-63.25	-71.44	4.00	9.40	H
	2502.75	-64.85	-25	-39.85	-63.36	-68.42	4.88	10.60	H
	3337	-62.01	-25	-37.01	-63.60	-66.94	5.52	12.60	H
	1668.5	-68.96	-25	-43.96	-63.86	-72.21	4.00	9.40	V
	2502.75	-64.76	-25	-39.76	-63.60	-68.33	4.88	10.60	V
	3337	-62.14	-25	-37.14	-64.06	-67.07	5.52	12.60	V
LTE Band7 Middle	5052.18	-55.69	-25	-30.69	-63.70	-61.25	7.14	12.70	H
	7578.27	-51.11	-25	-26.11	-65.02	-54.41	8.30	11.60	H
	10104.36	-46.88	-25	-21.88	-67.56	-48.40	10.48	12.00	H
	5052.18	-55.50	-25	-30.50	-63.7	-61.06	7.14	12.70	V
	7578.27	-50.70	-25	-25.70	-64.79	-54.00	8.30	11.60	V
	10104.36	-47.23	-25	-22.23	-67.57	-48.75	10.48	12.00	V

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

5G NR_n7 / 20MHz / PI/2 BPSK DFT-s-OFDM									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	5052.18	-58.59	-25	-33.59	-81.10	-64.15	7.14	12.70	H
	7578.27	-55.73	-25	-30.73	-81.41	-59.03	8.30	11.60	H
	10104.36	-53.36	-25	-28.36	-82.71	-54.88	10.48	12.00	H
	5052.18	-57.41	-25	-32.41	-81.25	-62.97	7.14	12.70	V
	7578.27	-55.55	-25	-30.55	-81.23	-58.85	8.30	11.60	V
	10104.36	-52.34	-25	-27.34	-82.67	-53.86	10.48	12.00	V

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



**Radiated Spurious Emission IM3 mode**

**Top Antenna**

EN-DC_7A_n5A (DFTs-OFDM)									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B7 BW 20 Lowest CH(20850 2510MHz) , 1RB0, QPSK	5002.18	-55.18	-25	-30.18	-63.02	-60.74	7.12	12.68	H
	7503.27	-50.85	-25	-25.85	-65.02	-54.18	8.26	11.59	H
	10004.36	-47.29	-25	-22.29	-67.72	-48.82	10.45	11.98	H
	5002.18	-54.98	-25	-29.98	-63.15	-60.54	7.12	12.68	V
	7503.27	-50.54	-25	-25.54	-64.78	-53.87	8.26	11.59	V
	10004.36	-47.76	-25	-22.76	-67.72	-49.29	10.45	11.98	V
NR n5 BW 5 Highest CH(169300 846.5MHz) 1RB23 PI/2 BPSK	1696.78	-68.42	-25	-43.42	-63.63	-71.59	4.10	9.42	H
	2545.17	-64.59	-25	-39.59	-63.39	-68.17	4.90	10.63	H
	3393.56	-61.86	-25	-36.86	-63.58	-66.78	5.55	12.62	H
	1696.78	-69.42	-25	-44.42	-64.47	-72.59	4.10	9.42	V
	2545.17	-64.89	-25	-39.89	-63.86	-68.47	4.90	10.63	V
	3393.56	-62.99	-25	-37.99	-64.72	-67.91	5.55	12.62	V

EN-DC_7A_n5A (DFTs-OFDM)									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
NR n5 BW 5 Lowest CH(165300 826.5MHz) , 1RB1, PI/2 BPSK	1650.36	-67.85	-25	-42.85	-62.81	-71.08	3.98	9.36	H
	2475.54	-65.07	-25	-40.07	-63.41	-68.62	4.85	10.55	H
	3300.72	-61.67	-25	-36.67	-63.42	-66.60	5.50	12.58	H
	1650.36	-67.80	-25	-42.80	-62.55	-71.03	3.98	9.36	V
	2475.54	-64.14	-25	-39.14	-62.88	-67.69	4.85	10.55	V
	3300.72	-61.89	-25	-36.89	-63.85	-66.82	5.50	12.58	V
LTE B7 BW 20 Highest CH(21350 2560MHz) 1RB0, QPSK	5102.18	-55.04	-25	-30.04	-63.22	-60.60	7.16	12.72	H
	7653.27	-50.88	-25	-25.88	-64.97	-54.18	8.33	11.63	H
	10204.36	-46.98	-25	-21.98	-67.91	-48.58	10.50	12.10	H
	5102.18	-55.04	-25	-30.04	-63.28	-60.60	7.16	12.72	V
	7653.27	-50.96	-25	-25.96	-65.25	-54.26	8.33	11.63	V
	10204.36	-47.34	-25	-22.34	-68.05	-48.94	10.50	12.10	V



**Bottom Antenna**

EN-DC_7A_n5A (DFTs-OFDM)									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B7 BW 20 Lowest CH(20850 2510MHz) , 1RB0, QPSK	5002.18	-55.43	-25	-30.43	-63.27	-60.99	7.12	12.68	H
	7503.27	-51.20	-25	-26.20	-65.37	-54.53	8.26	11.59	H
	10004.36	-47.44	-25	-22.44	-67.87	-48.97	10.45	11.98	H
	5002.18	-55.15	-25	-30.15	-63.32	-60.71	7.12	12.68	V
	7503.27	-51.22	-25	-26.22	-65.46	-54.55	8.26	11.59	V
	10004.36	-47.88	-25	-22.88	-67.84	-49.41	10.45	11.98	V
NR n5 BW 5 Highest CH(169300 846.5MHz) 1RB23 PI/2 BPSK	1696.78	-68.32	-25	-43.32	-63.53	-71.49	4.10	9.42	H
	2545.17	-63.55	-25	-38.55	-62.35	-67.13	4.90	10.63	H
	3393.56	-62.01	-25	-37.01	-63.73	-66.93	5.55	12.62	H
	1696.78	-69.18	-25	-44.18	-64.23	-72.35	4.10	9.42	V
	2545.17	-65.13	-25	-40.13	-64.10	-68.71	4.90	10.63	V
	3393.56	-62.64	-25	-37.64	-64.37	-67.56	5.55	12.62	V

EN-DC_7A_n5A (DFTs-OFDM)									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
NR n5 BW 5 Lowest CH(165300 826.5MHz) , 1RB1, PI/2 BPSK	1650.36	-67.91	-25	-42.91	-62.87	-71.14	3.98	9.36	H
	2475.54	-64.89	-25	-39.89	-63.23	-68.44	4.85	10.55	H
	3300.72	-61.94	-25	-36.94	-63.69	-66.87	5.50	12.58	H
	1650.36	-68.71	-25	-43.71	-63.46	-71.94	3.98	9.36	V
	2475.54	-61.60	-25	-36.60	-60.34	-65.15	4.85	10.55	V
	3300.72	-61.33	-25	-36.33	-63.29	-66.26	5.50	12.58	V
LTE B7 BW 20 Highest CH(21350 2560MHz) 1RB0, QPSK	5102.18	-55.21	-25	-30.21	-63.39	-60.77	7.16	12.72	H
	7653.27	-51.15	-25	-26.15	-65.24	-54.45	8.33	11.63	H
	10204.36	-47.23	-25	-22.23	-68.16	-48.83	10.50	12.10	H
	5102.18	-55.42	-25	-30.42	-63.66	-60.98	7.16	12.72	V
	7653.27	-50.90	-25	-25.90	-65.19	-54.20	8.33	11.63	V
	10204.36	-47.40	-25	-22.40	-68.11	-49.00	10.50	12.10	V