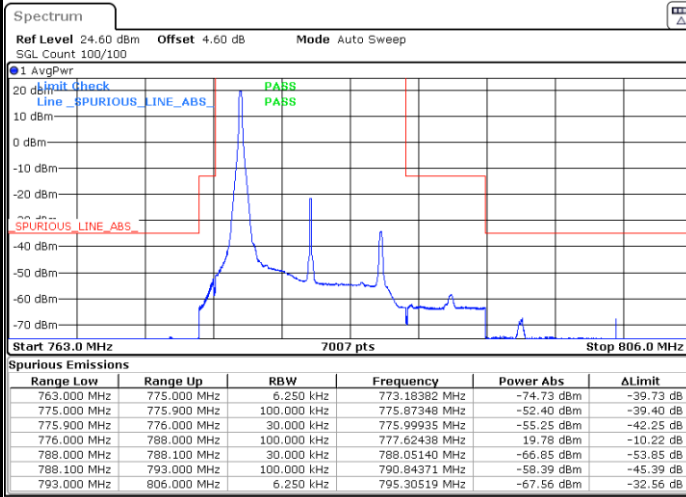


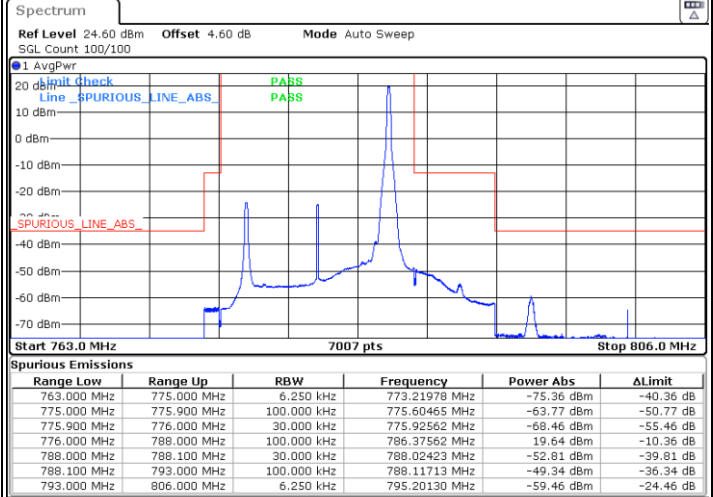


LTE Band 13 / 10MHz / 64QAM

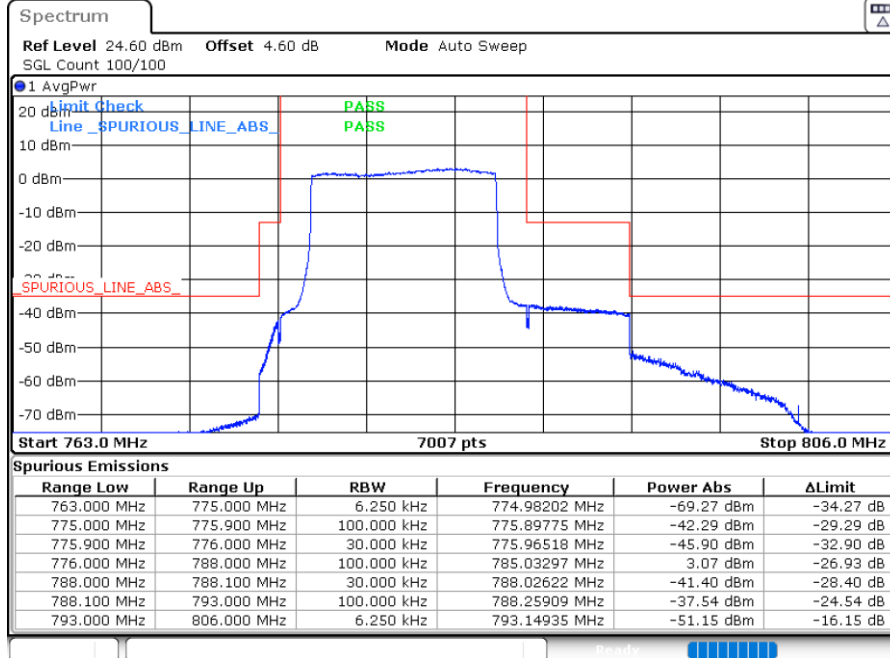
middle Band Edge / 1 RB



middle Band Edge / 1 RB



middle Band Edge / Full RB

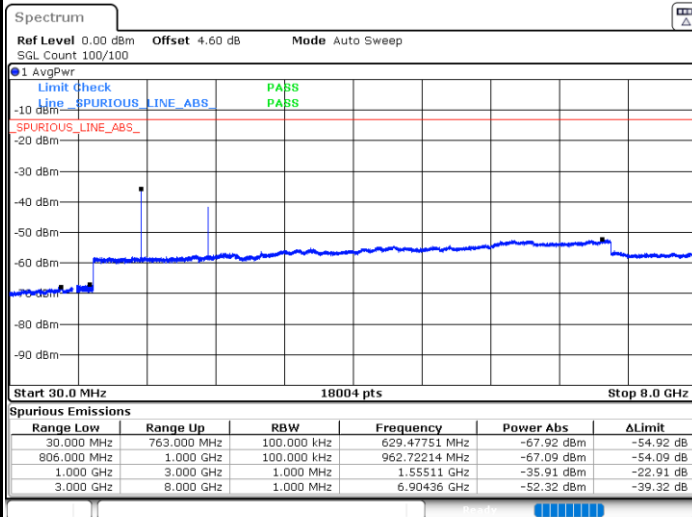




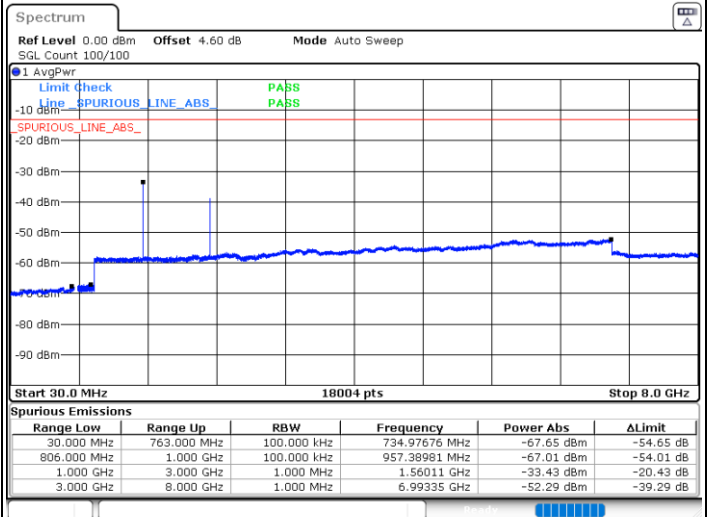
Conducted Spurious Emission

LTE Band 13 / 5MHz

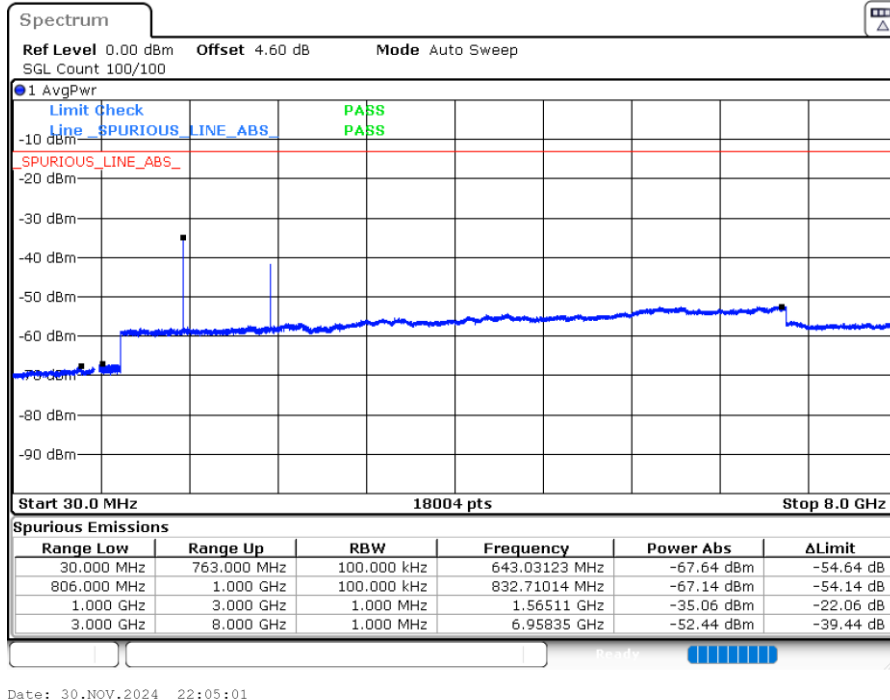
Lowest Channel / QPSK



Middle Channel / QPSK



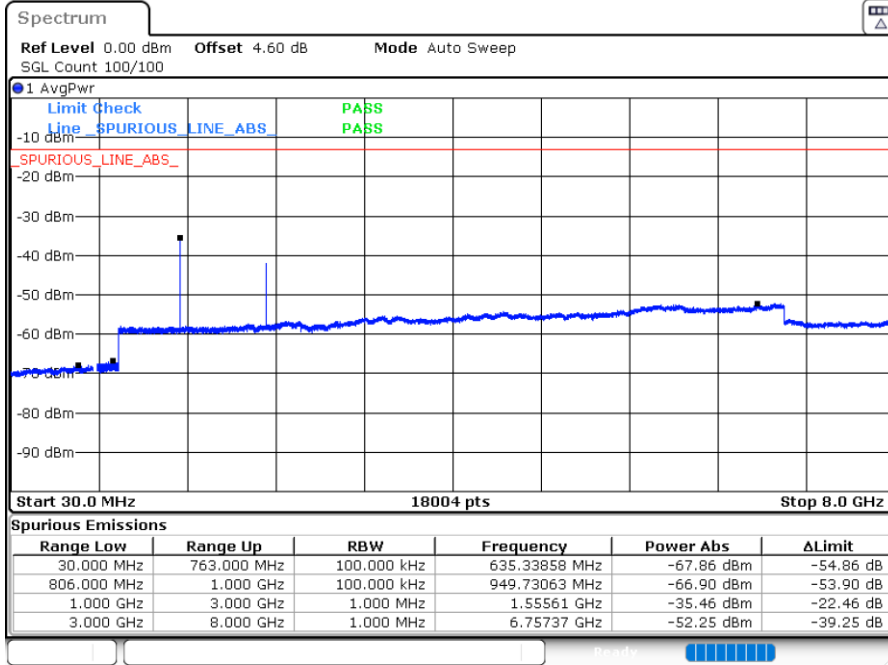
Highest Channel / QPSK





LTE Band 13 / 10MHz

Middle Channel / QPSK



Date: 30.NOV.2024 22:44:26

Frequency Stability

Test Conditions		LTE Band 13 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0022	PASS
40	Normal Voltage	0.0036	
30	Normal Voltage	0.0029	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0039	
0	Normal Voltage	0.0012	
-10	Normal Voltage	0.0029	
-20	Normal Voltage	0.0033	
-30	Normal Voltage	0.0052	
20	Maximum Voltage	0.0019	
20	Normal Voltage	0.0010	
20	Minimum Voltage	0.0009	

Note:

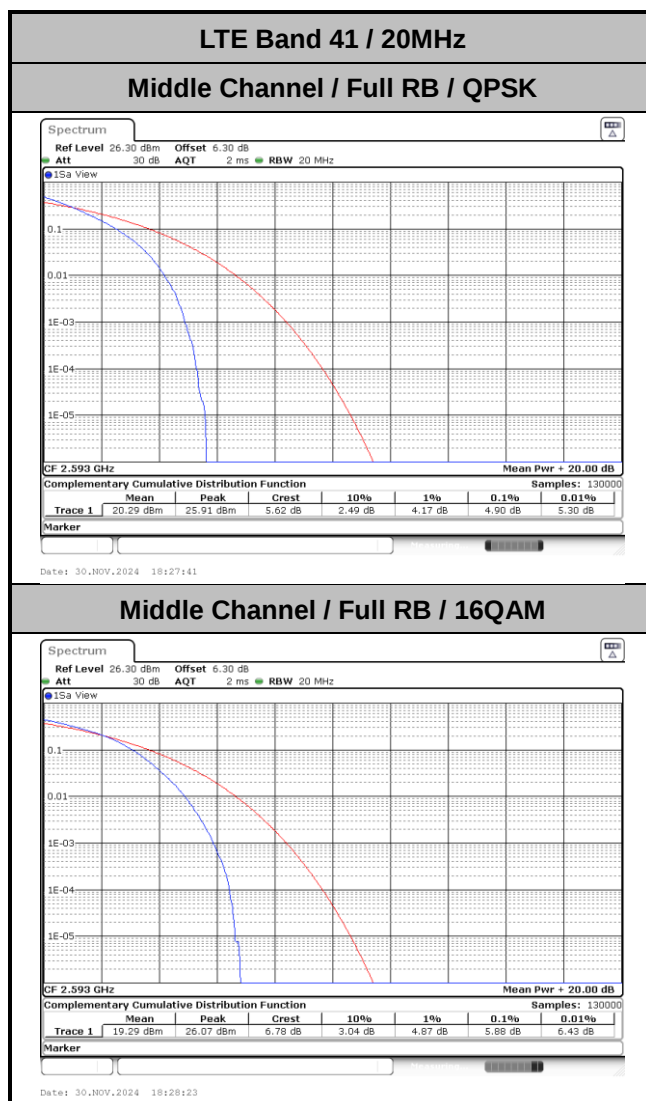
1. Normal Voltage =3.8V. ; Minimum Voltage =3.2V. ; Maximum Voltage =4.75 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.

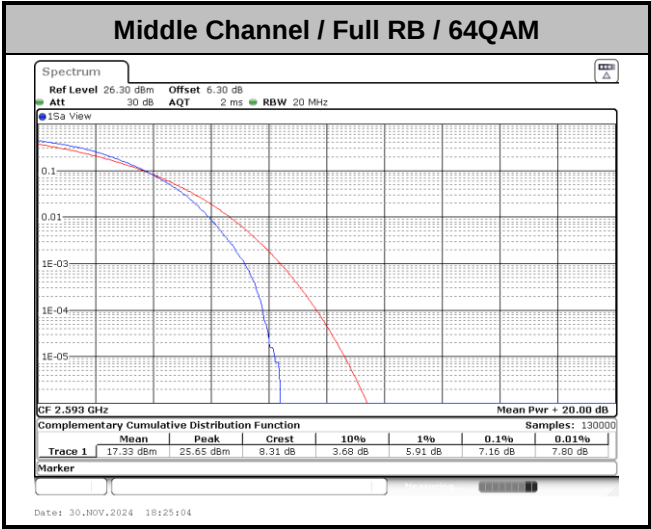


LTE Band 41

Peak-to-Average Ratio

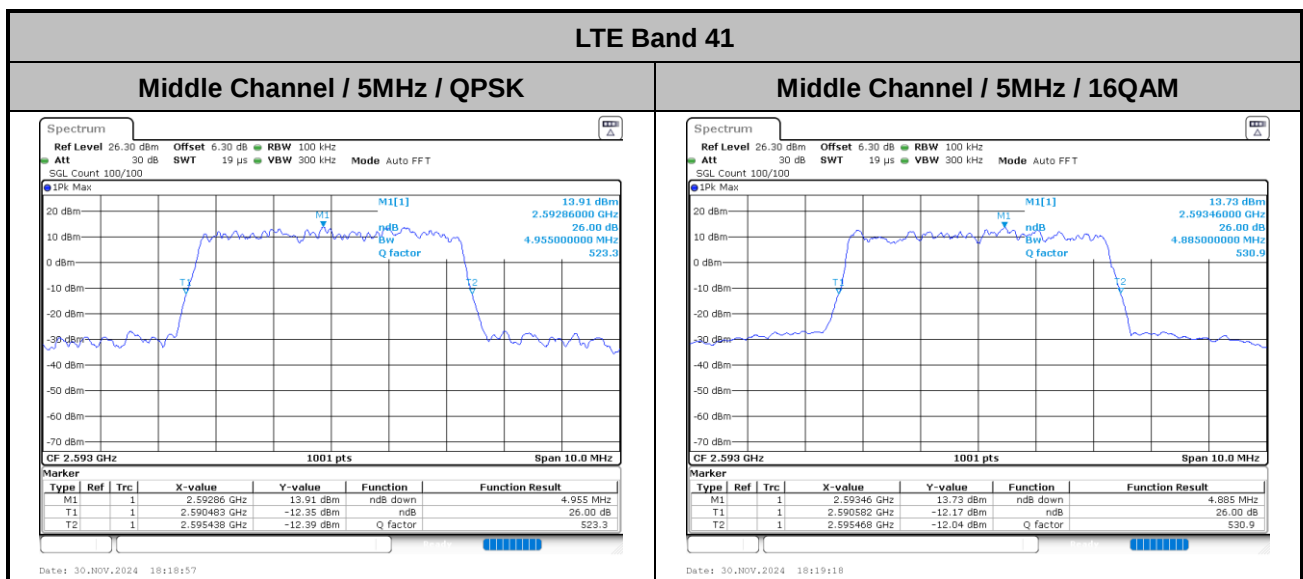
Mode	LTE Band 41 / 20MHz			
Mod.	QPSK	16QAM	64QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Result
Middle CH	4.90	5.88	7.16	PASS





**26dB Bandwidth**

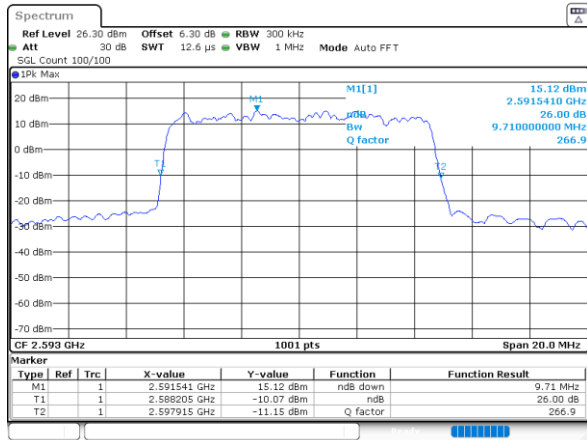
Mode	LTE Band 41 : 26dB BW(MHz)	
BW	5MHz	
Mod.	QPSK	16QAM
Middle CH	4.96	4.89
BW	10MHz	
Mod.	QPSK	16QAM
Middle CH	9.71	9.61
BW	15MHz	
Mod.	QPSK	16QAM
Middle CH	14.15	15.50
BW	20MHz	
Mod.	QPSK	16QAM
Middle CH	18.86	18.78



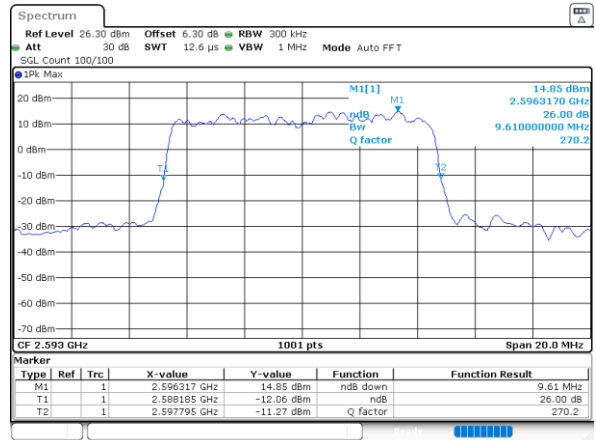


LTE Band 41

Middle Channel / 10MHz / QPSK

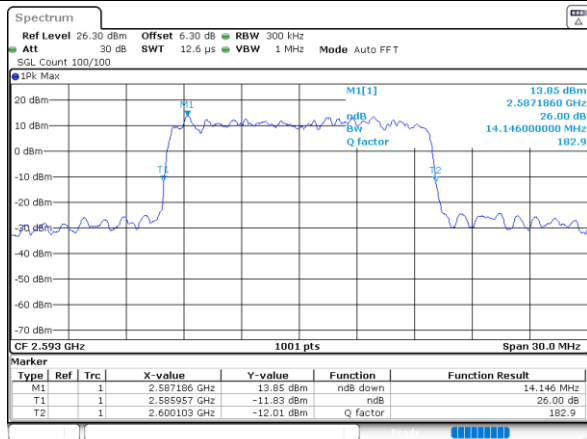


Middle Channel / 10MHz / 16QAM

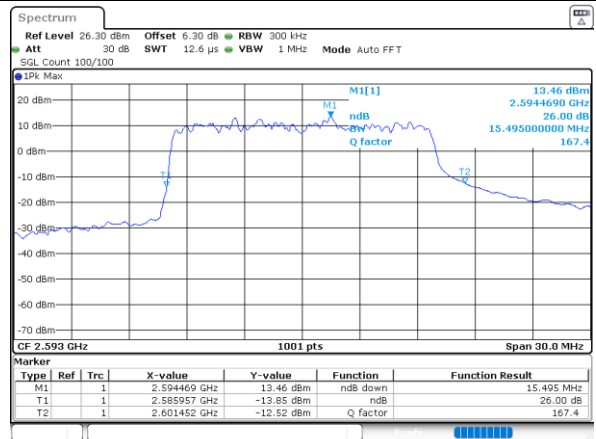


LTE Band 41

Middle Channel / 15MHz / QPSK

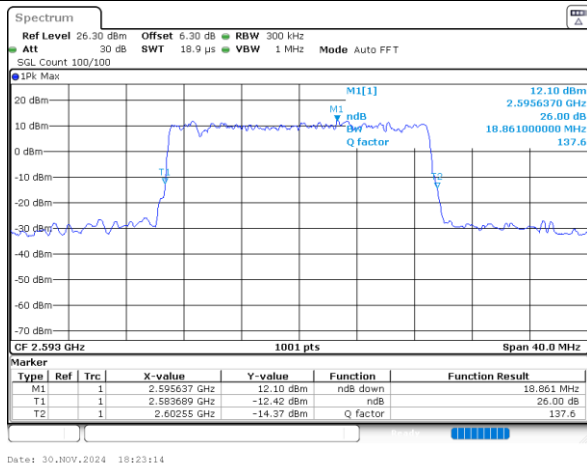


Middle Channel / 15MHz / 16QAM

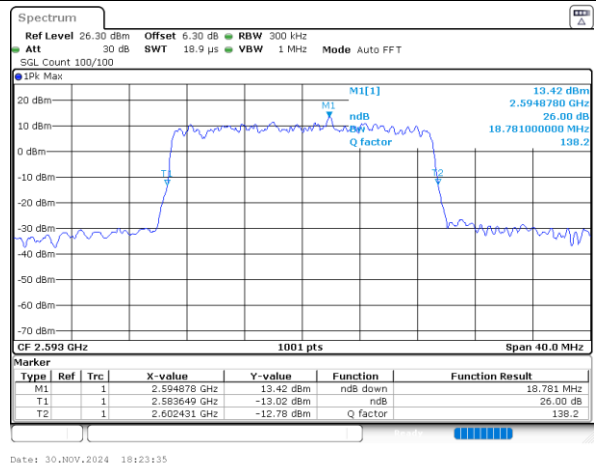


LTE Band 41

Middle Channel / 20MHz / QPSK



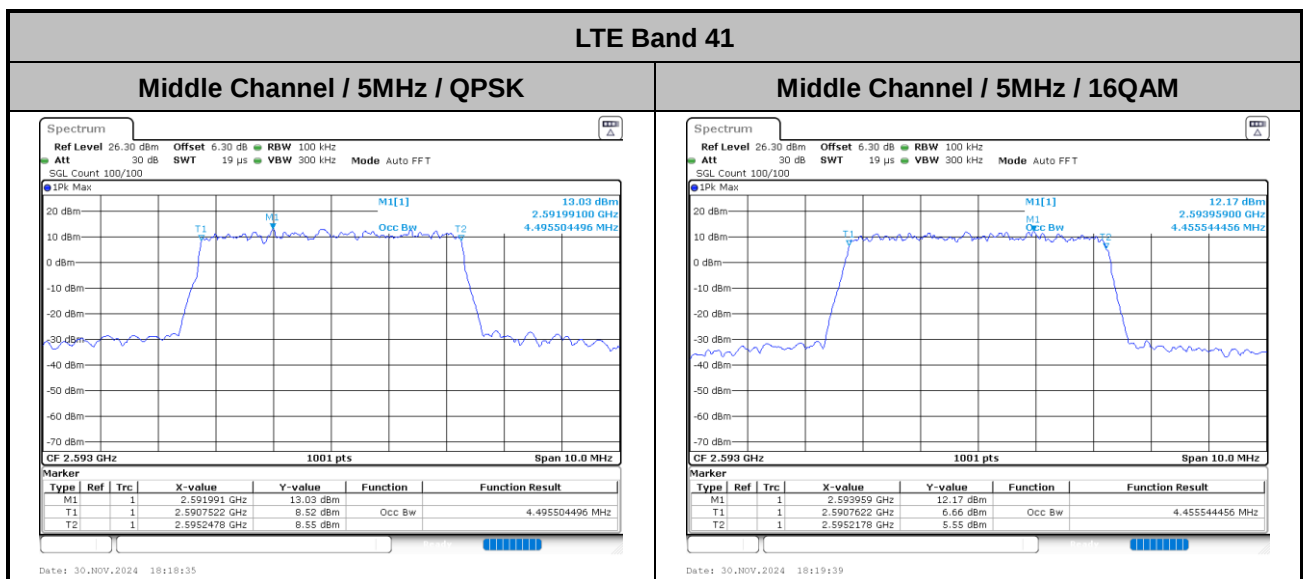
Middle Channel / 20MHz / 16QAM





Occupied Bandwidth

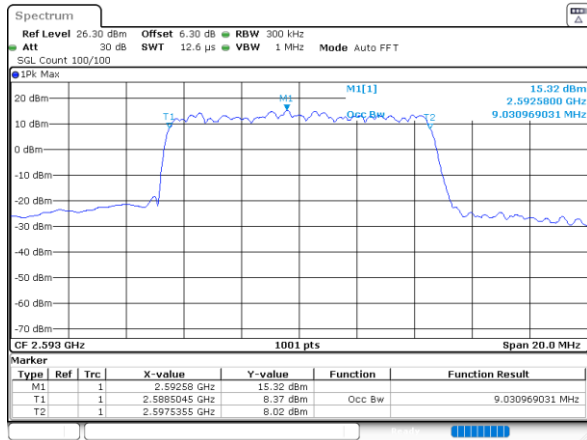
Mode	LTE Band 41 : 99%OBW(MHz)	
BW	5MHz	
Mod.	QPSK	16QAM
Middle CH	4.50	4.46
BW	10MHz	
Mod.	QPSK	16QAM
Middle CH	9.03	9.03
BW	15MHz	
Mod.	QPSK	16QAM
Middle CH	13.46	13.43
BW	20MHz	
Mod.	QPSK	16QAM
Middle CH	17.86	17.86



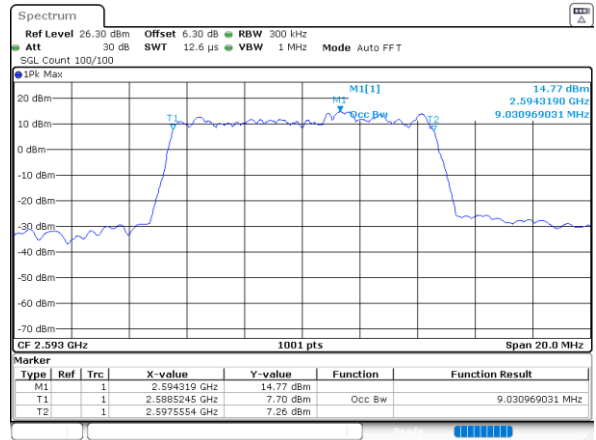


LTE Band 41

Middle Channel / 10MHz / QPSK

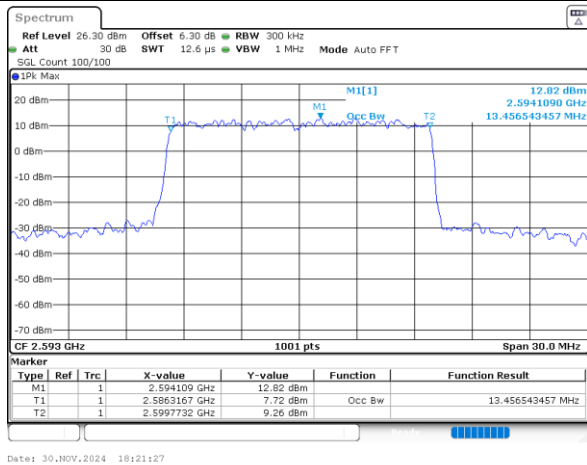


Middle Channel / 10MHz / 16QAM

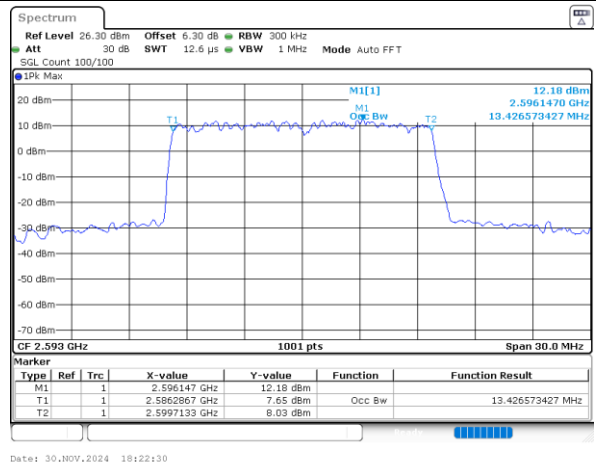


LTE Band 41

Middle Channel / 15MHz / QPSK

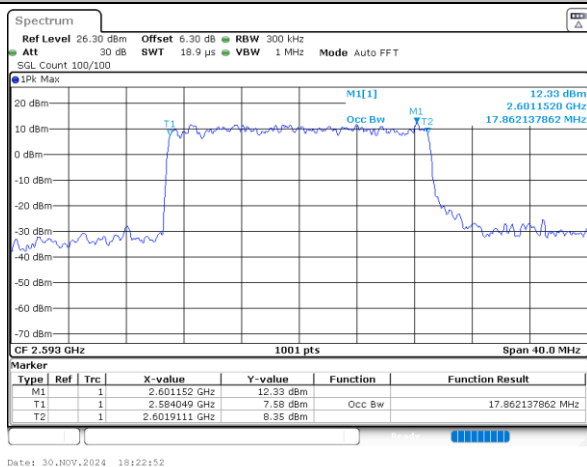


Middle Channel / 15MHz / 16QAM

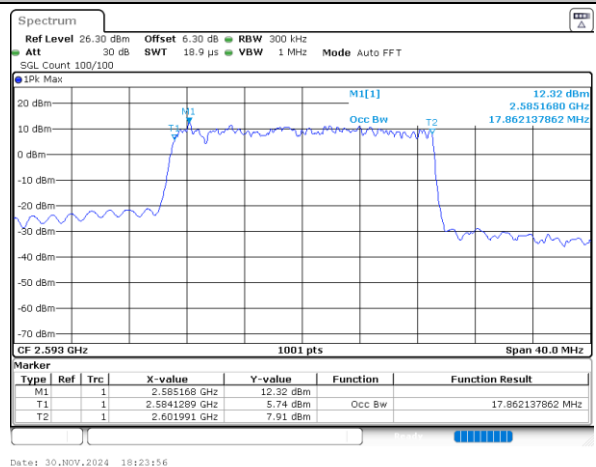


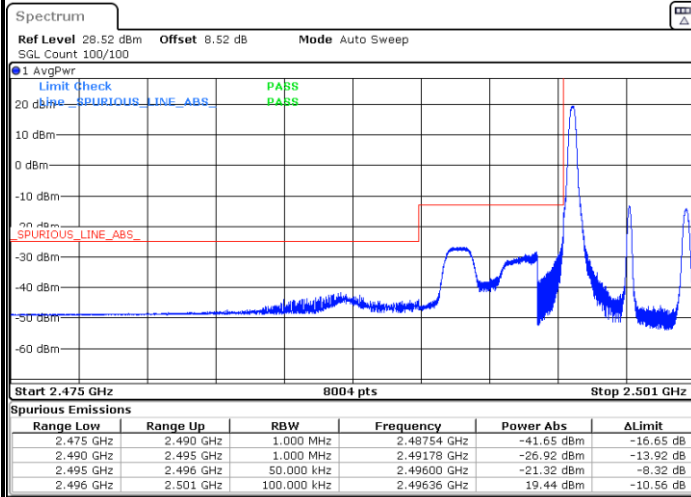
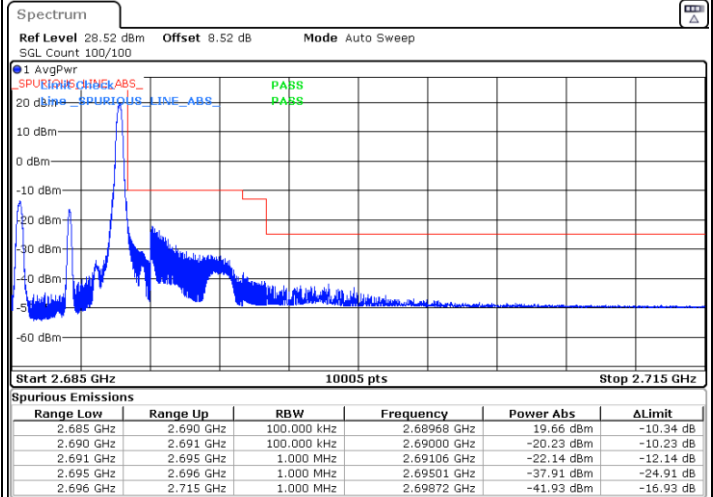
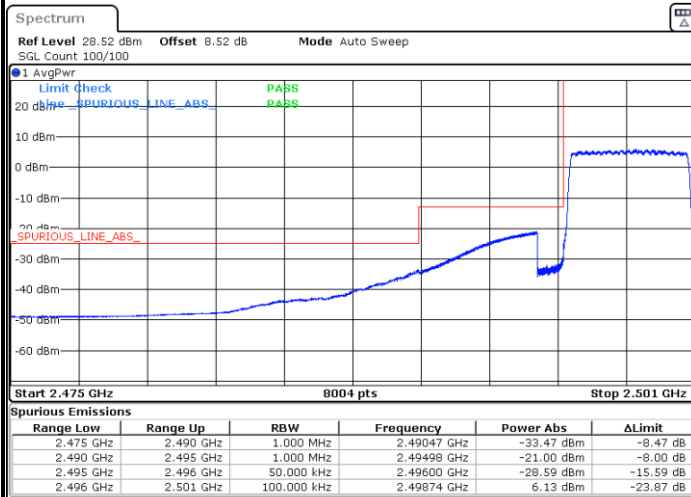
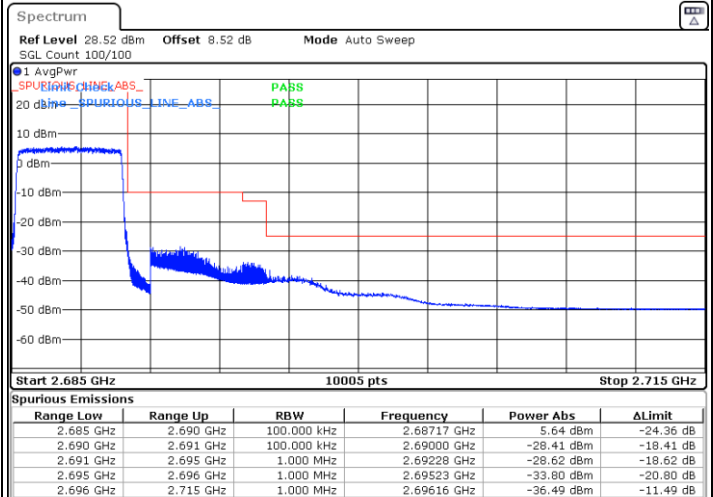
LTE Band 41

Middle Channel / 20MHz / QPSK



Middle Channel / 20MHz / 16QAM

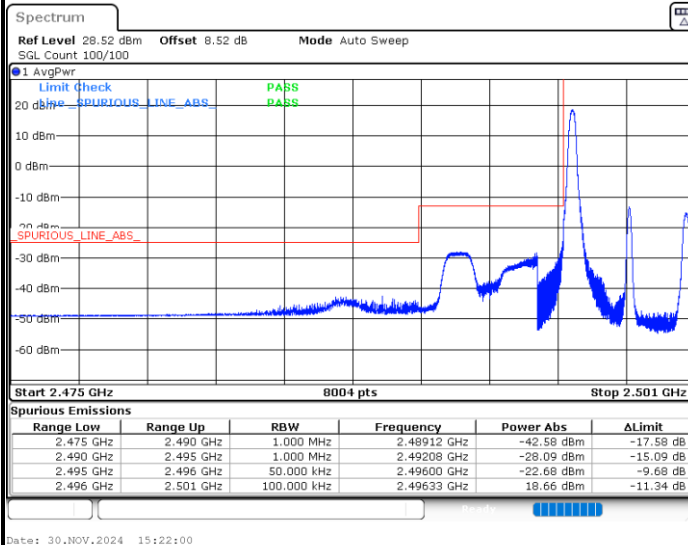


**Conducted Band Edge****LTE Band 41 / 5MHz / QPSK****Lowest Band Edge / 1 RB****Highest Band Edge / 1 RB****Lowest Band Edge / Full RB****Highest Band Edge / Full RB**

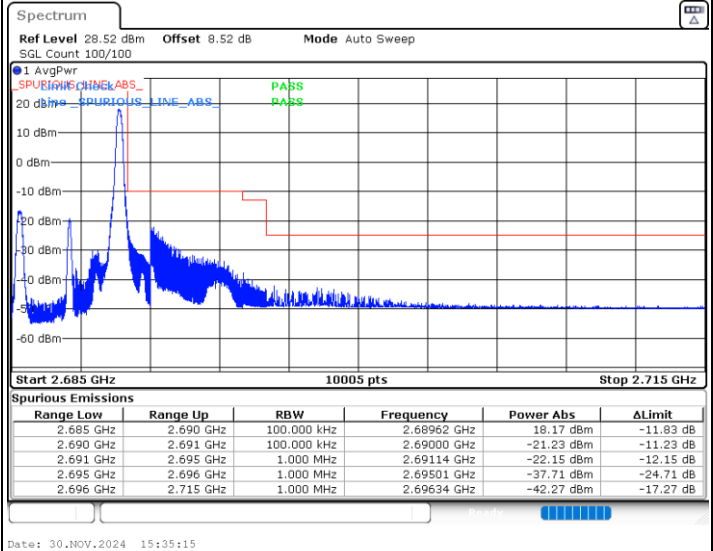


LTE Band 41 / 5MHz / 16QAM

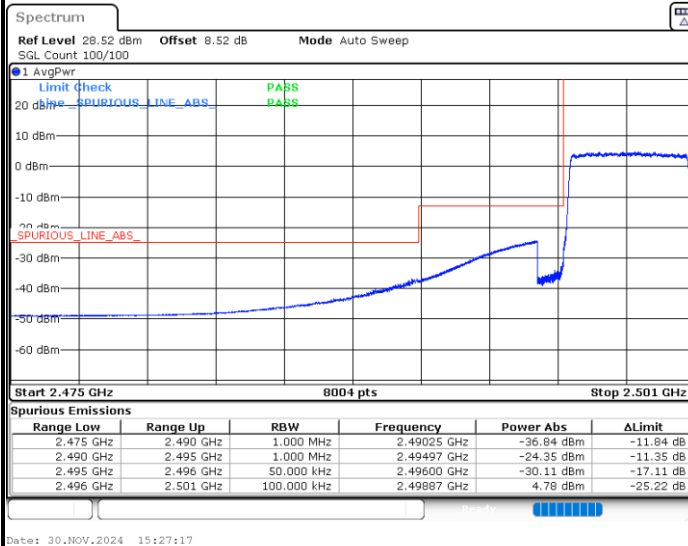
Lowest Band Edge / 1RB



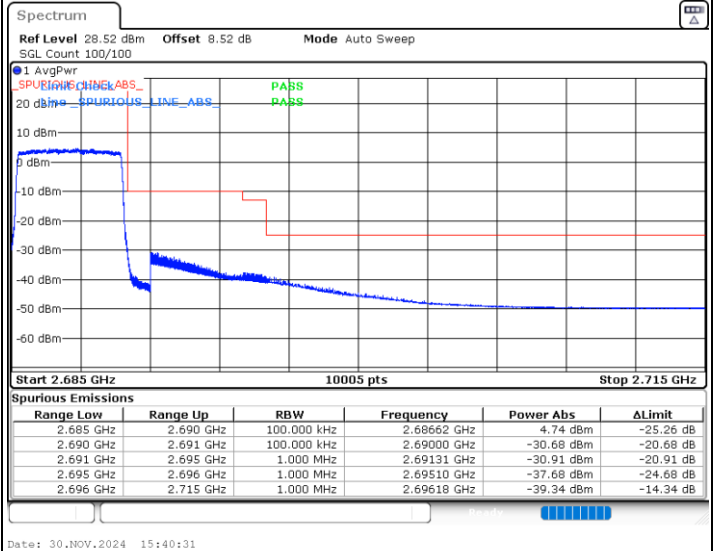
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



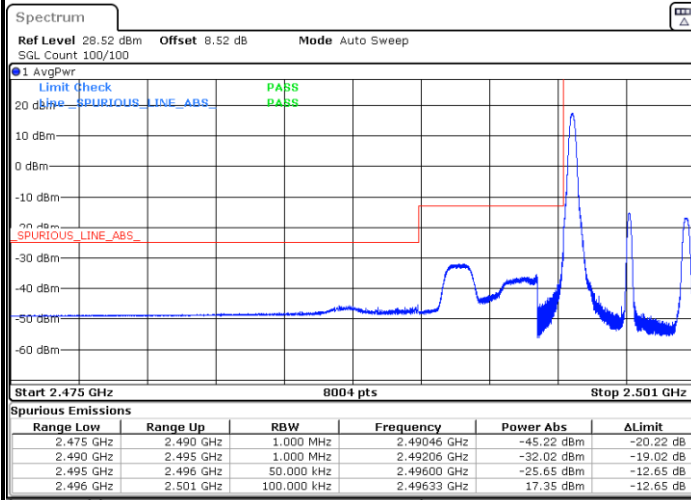
Highest Band Edge / Full RB





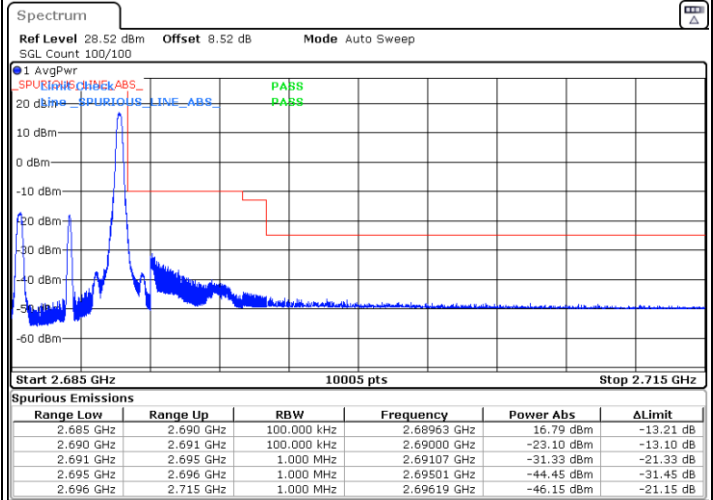
LTE Band 41 / 5MHz / 64QAM

Lowest Band Edge / 1RB



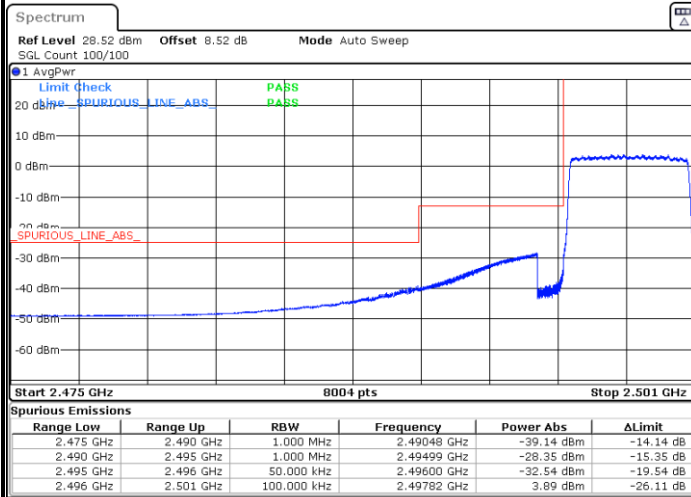
Date: 30.NOV.2024 15:23:46

Highest Band Edge / 1 RB



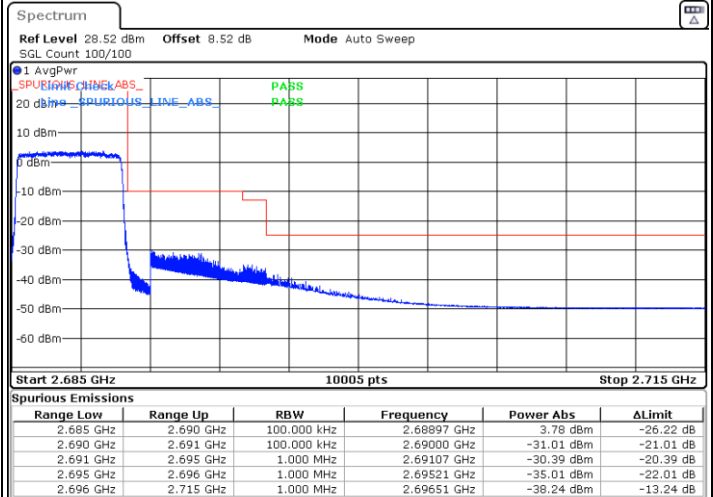
Date: 30.NOV.2024 15:37:00

Lowest Band Edge / Full RB



Date: 30.NOV.2024 15:25:32

Highest Band Edge / Full RB

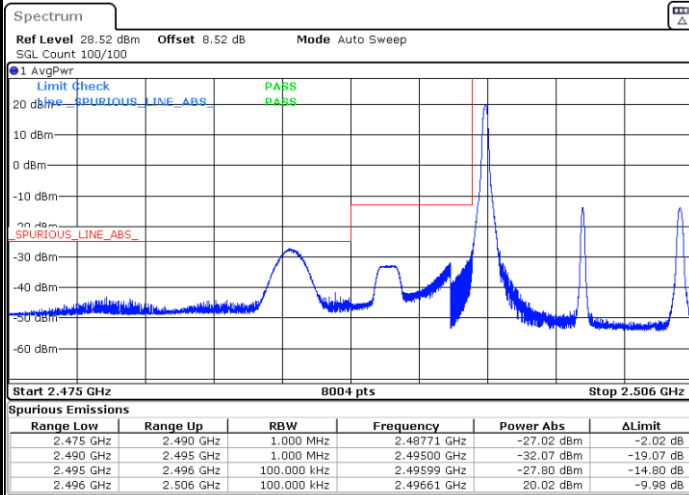


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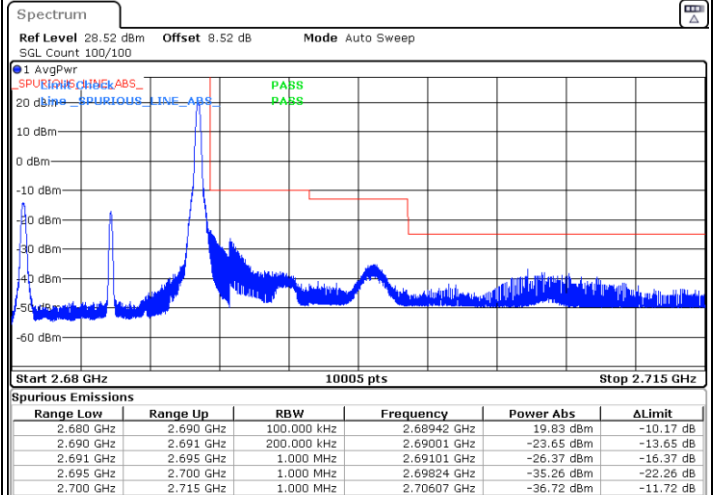


LTE Band 41 / 10MHz / QPSK

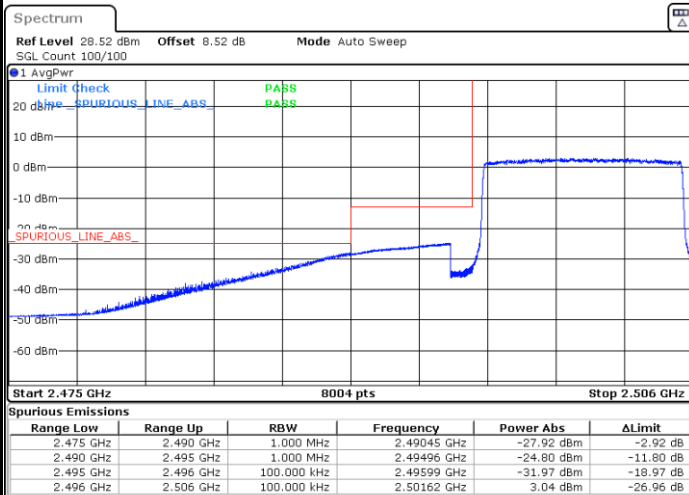
Lowest Band Edge / 1 RB



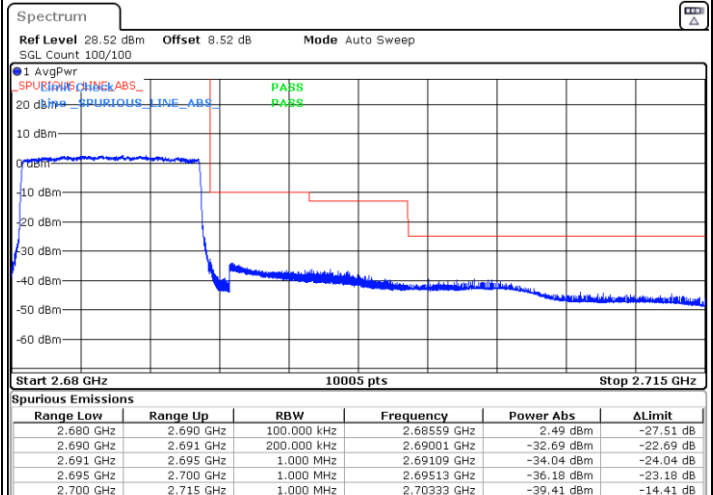
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



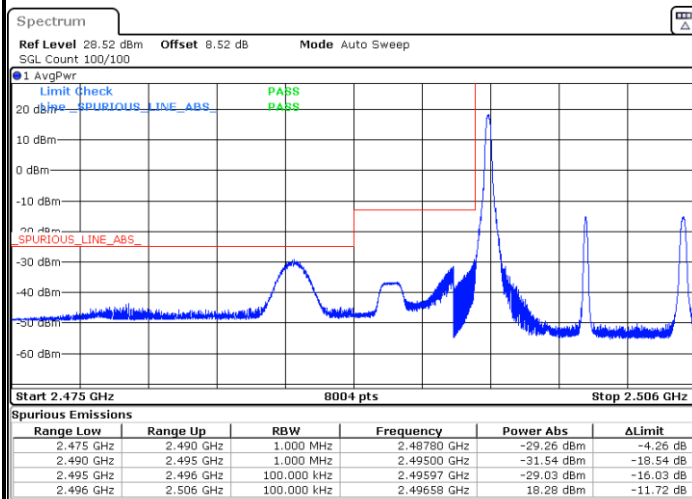
Highest Band Edge / Full RB



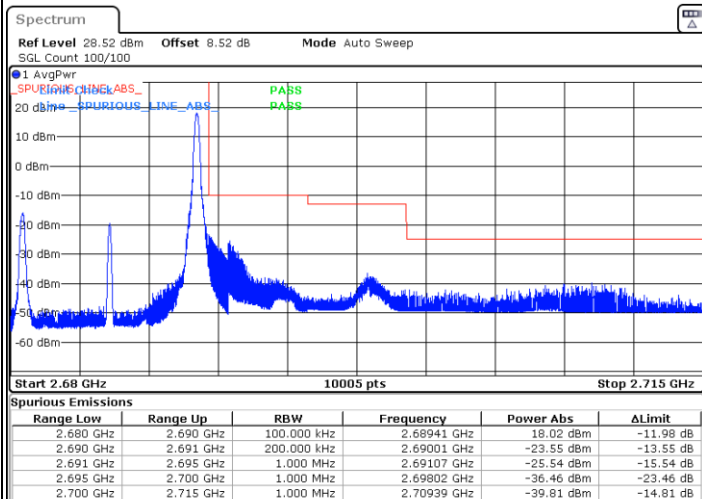


LTE Band 41 / 10MHz / 16QAM

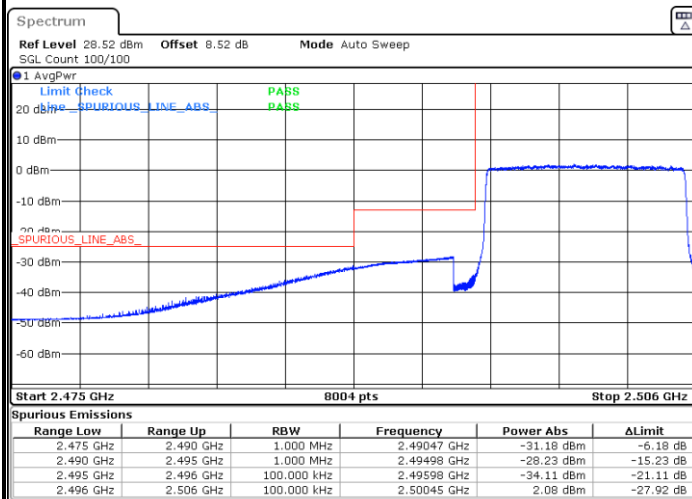
Lowest Band Edge / 1 RB



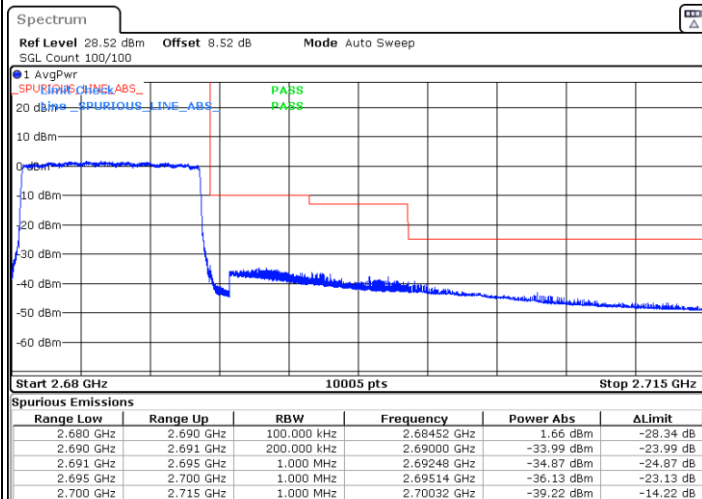
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



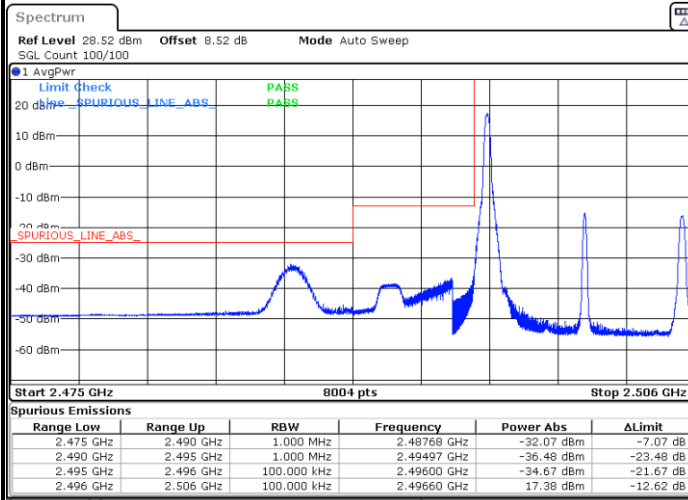
Highest Band Edge / Full RB



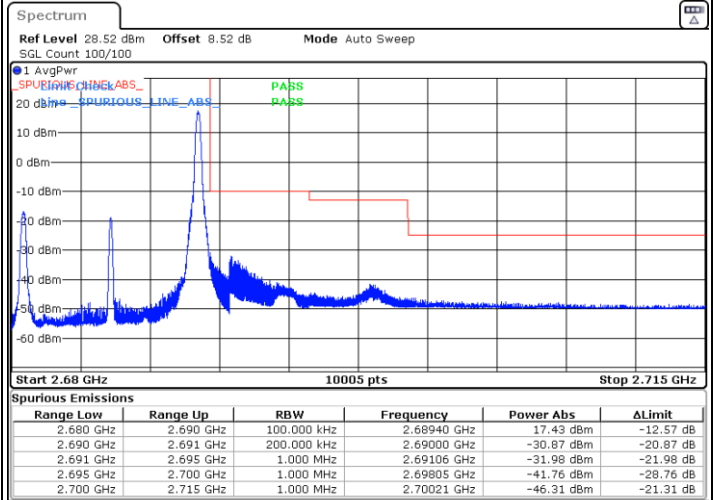


LTE Band 41 / 10MHz / 64QAM

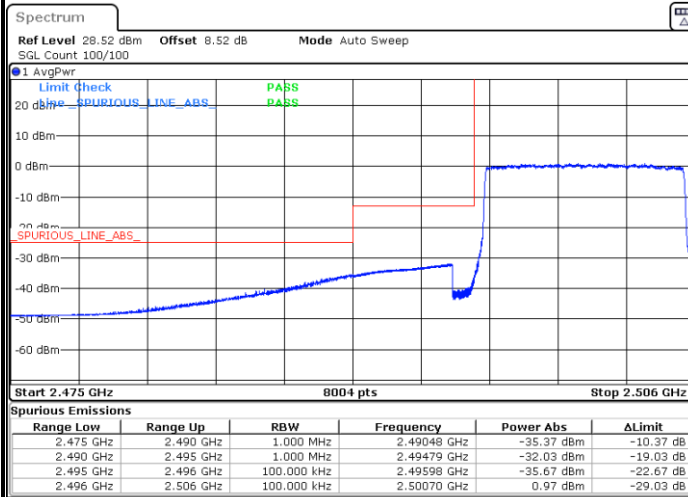
Lowest Band Edge / 1 RB



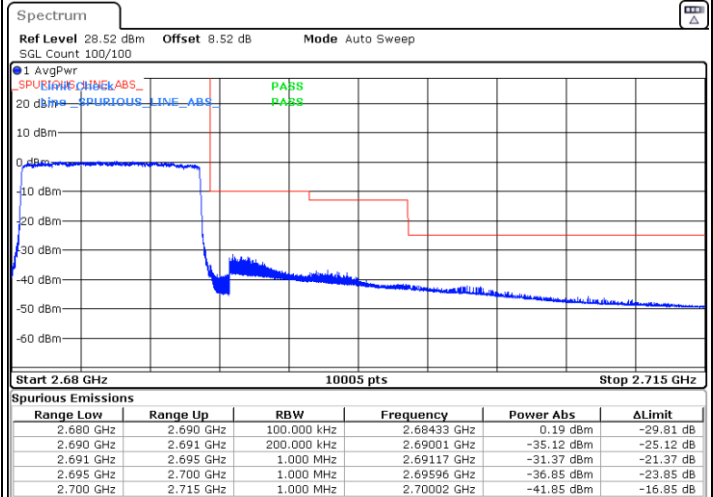
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



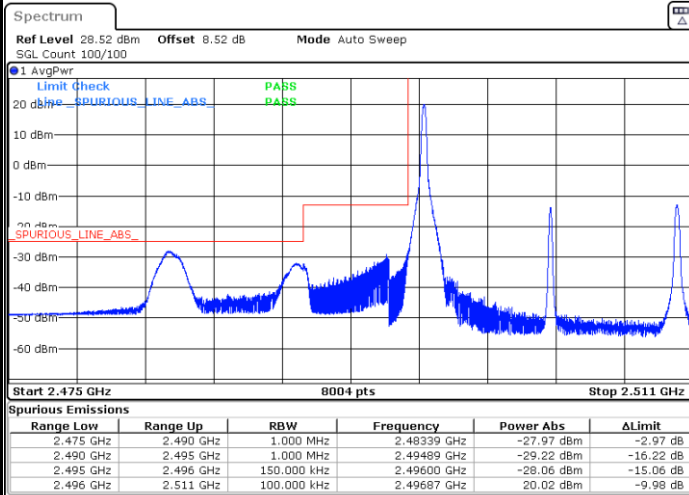
Highest Band Edge / Full RB



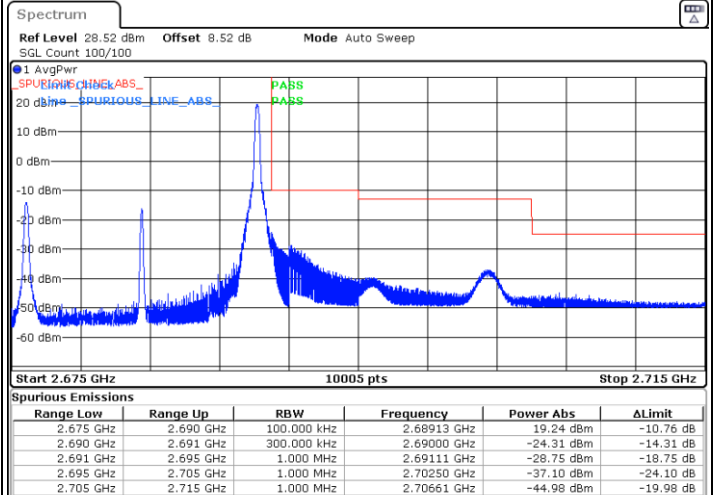


LTE Band 41 / 15MHz / QPSK

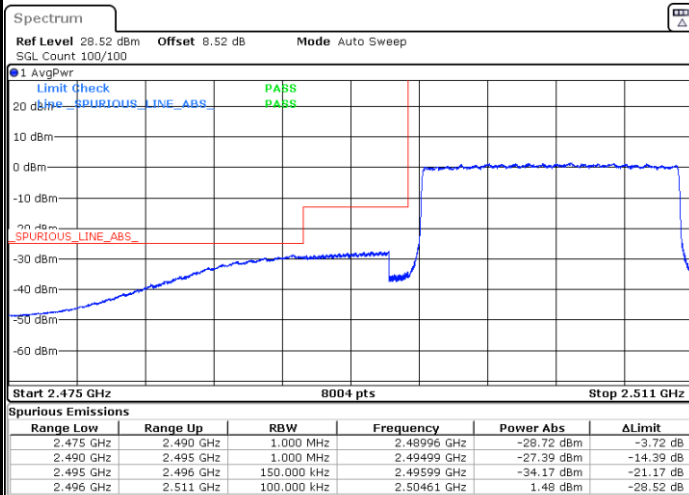
Lowest Band Edge / 1 RB



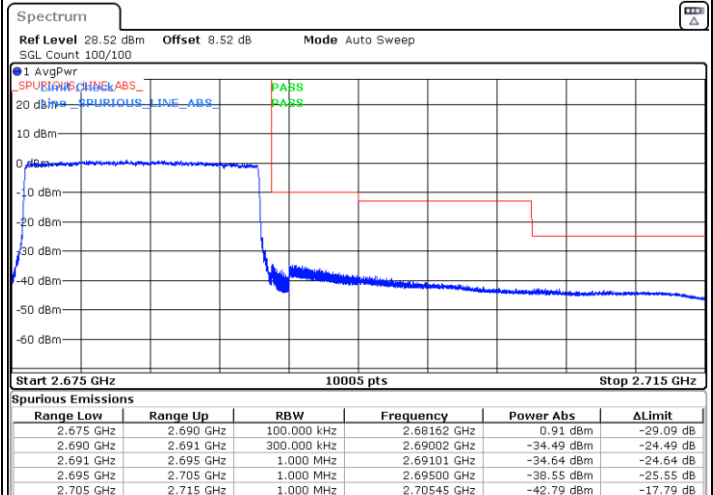
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



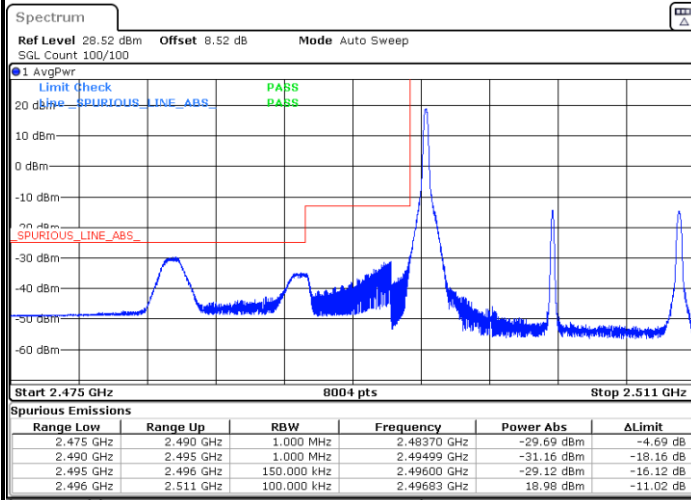
Highest Band Edge / Full RB



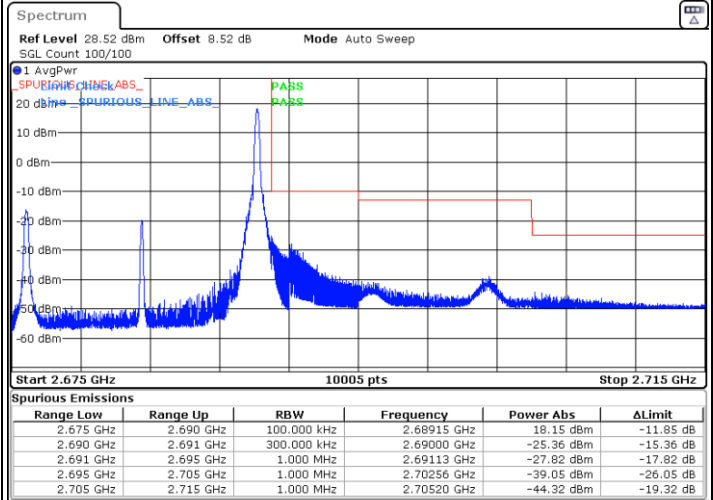


LTE Band 41 / 15MHz / 16QAM

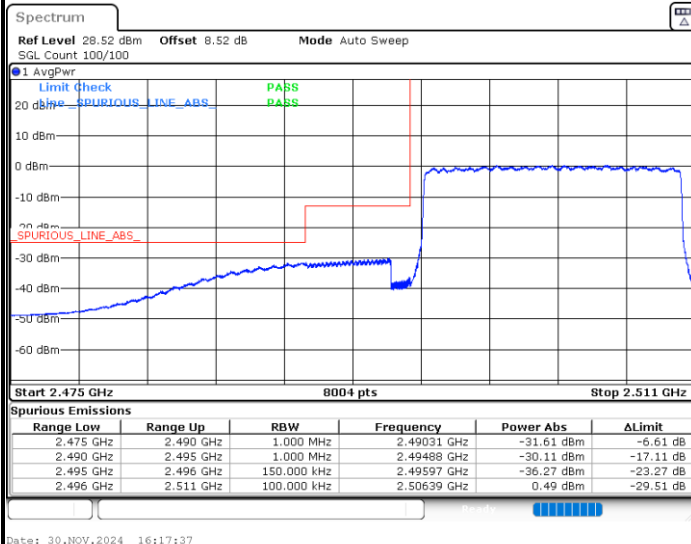
Lowest Band Edge / 1 RB



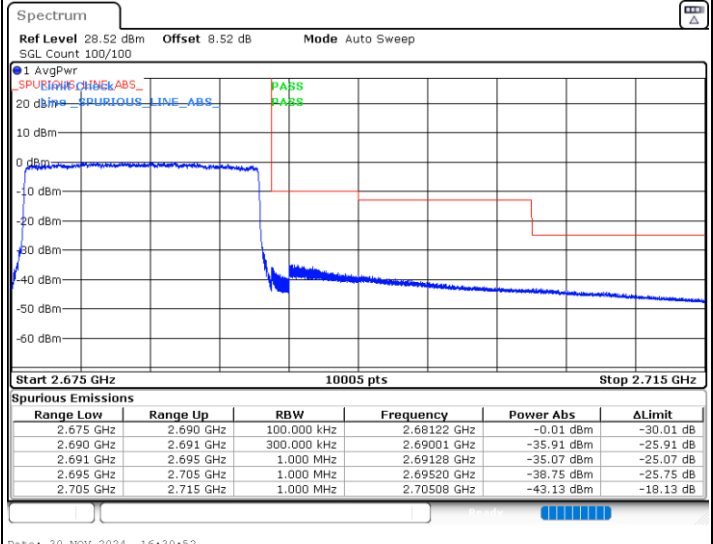
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



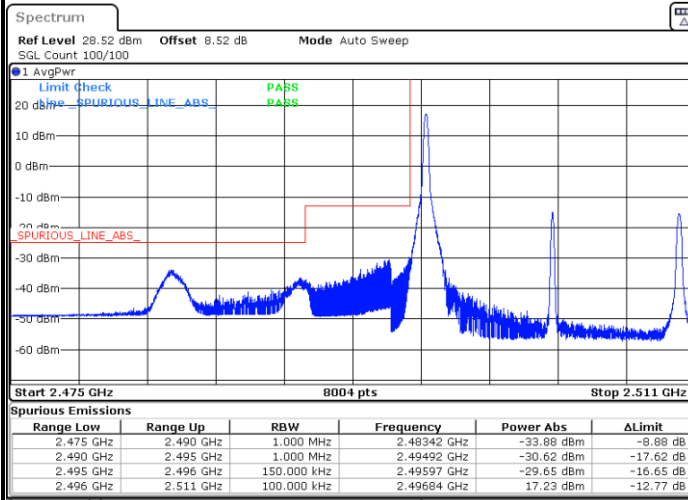
Highest Band Edge / Full RB





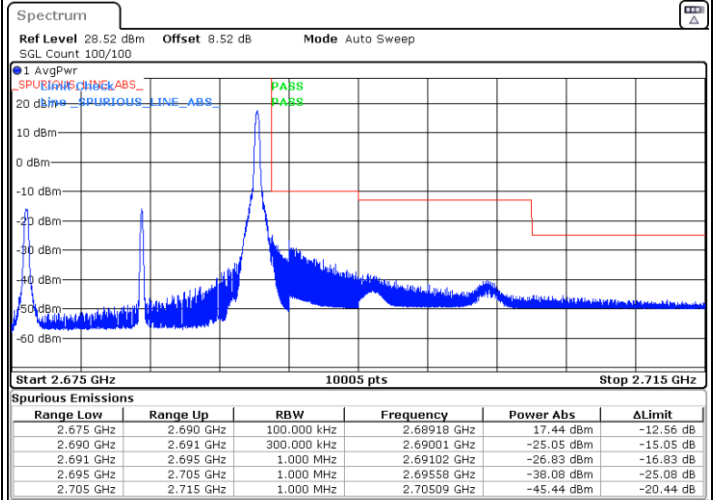
LTE Band 41 / 15MHz / 64QAM

Lowest Band Edge / 1 RB



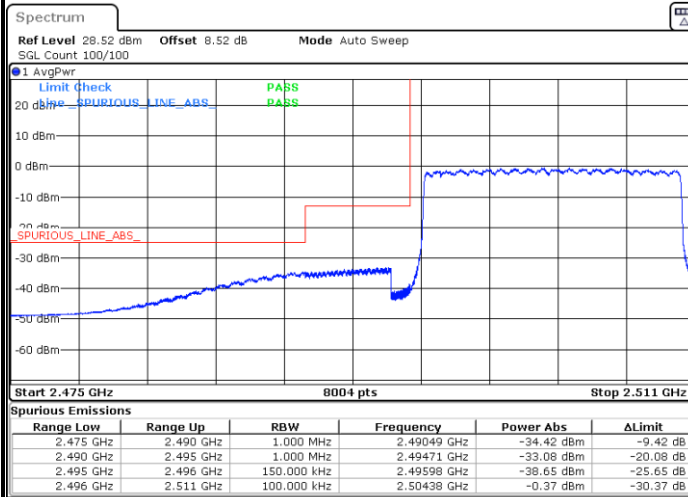
Date: 30.NOV.2024 16:14:06

Highest Band Edge / 1 RB



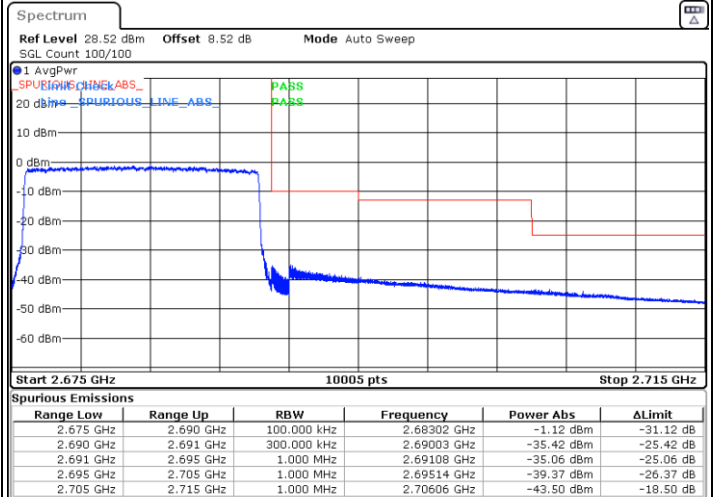
Date: 30.NOV.2024 16:27:21

Lowest Band Edge / Full RB



Date: 30.NOV.2024 16:15:52

Highest Band Edge / Full RB

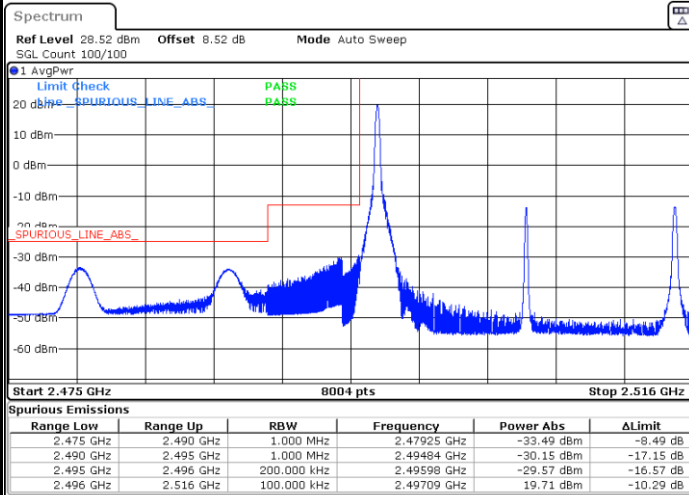


Date: 30.NOV.2024 16:29:06

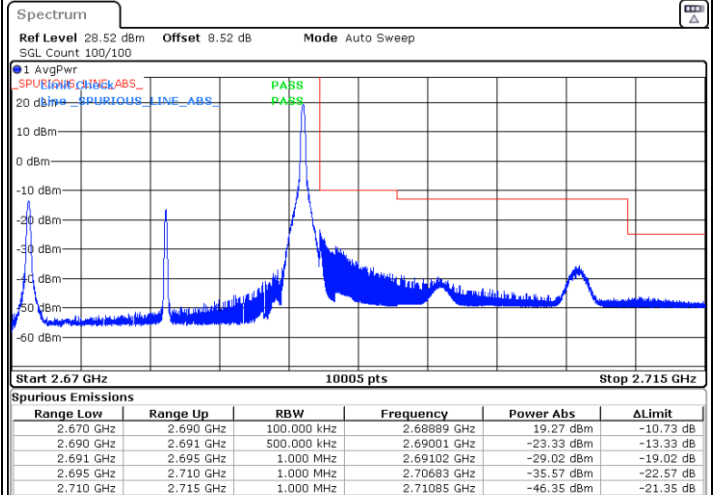


LTE Band 41 / 20MHz / QPSK

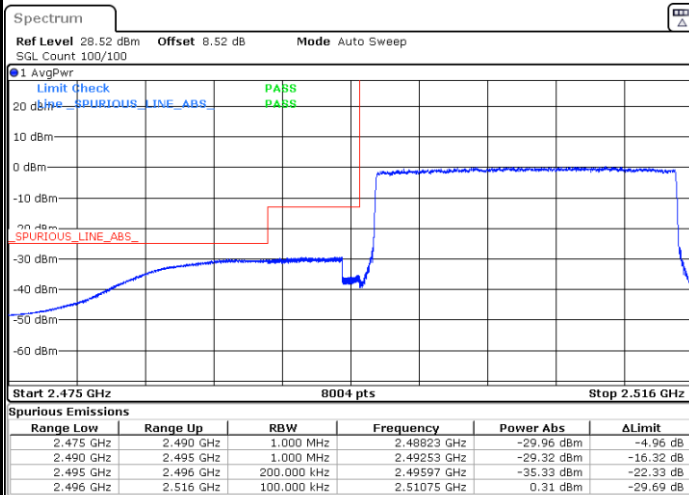
Lowest Band Edge / 1 RB



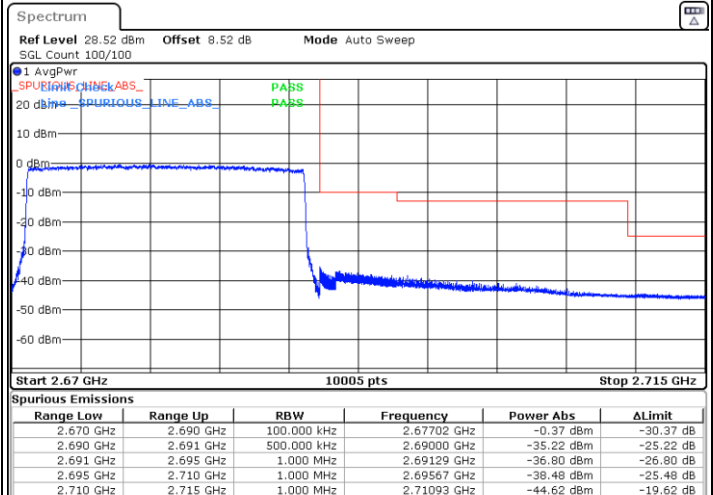
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



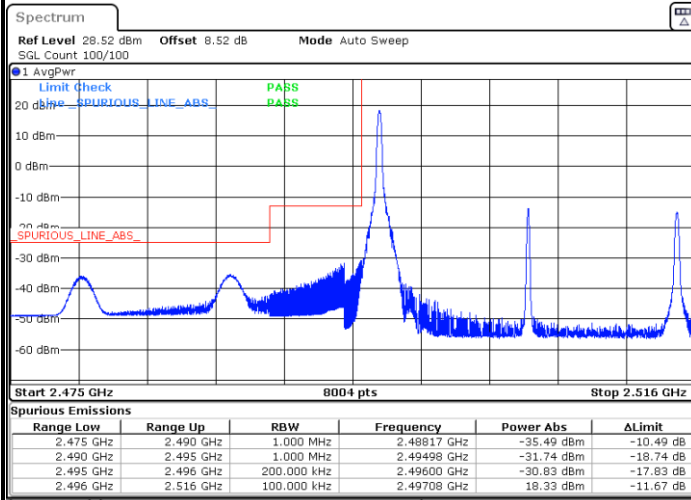
Highest Band Edge / Full RB



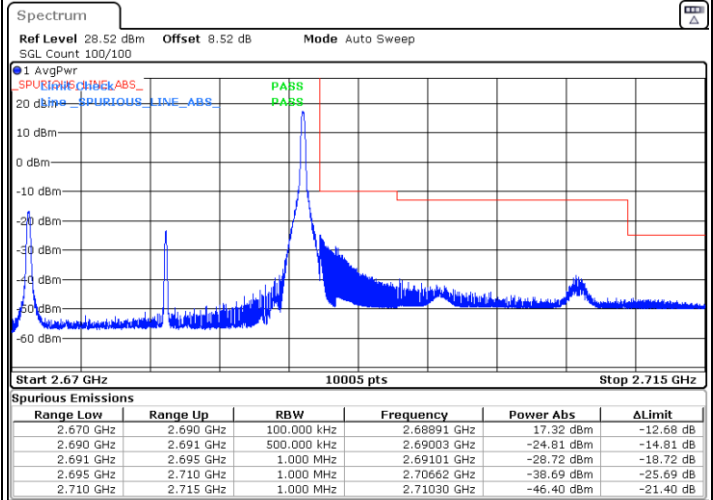


LTE Band 41 / 20MHz / 16QAM

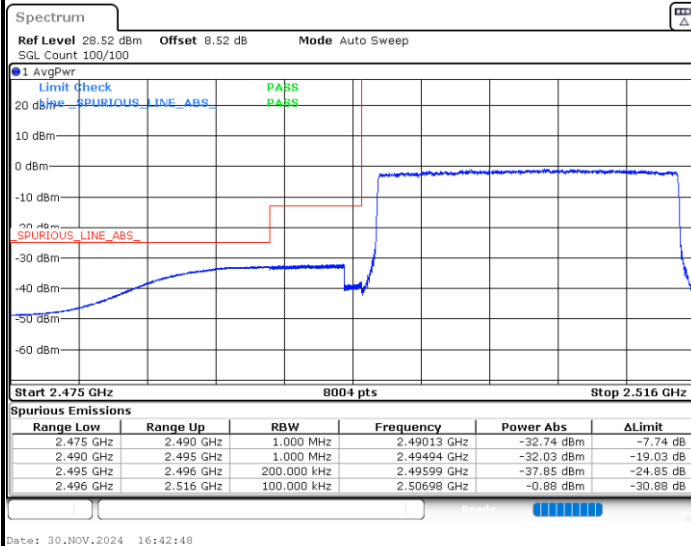
Lowest Band Edge / 1 RB



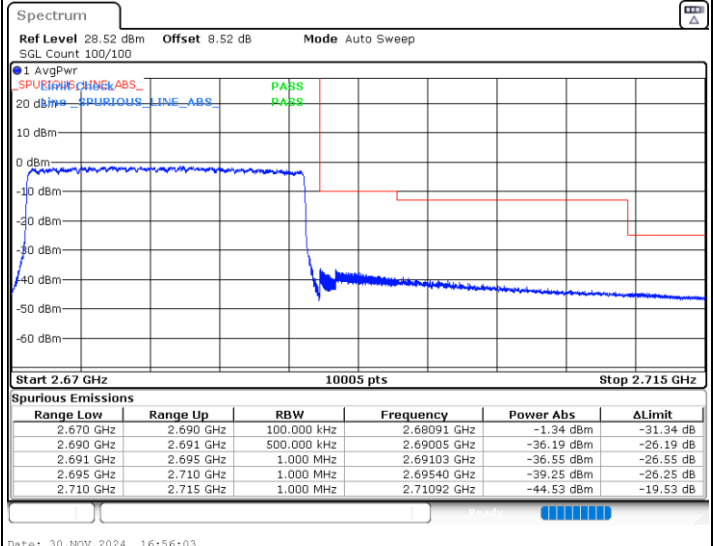
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



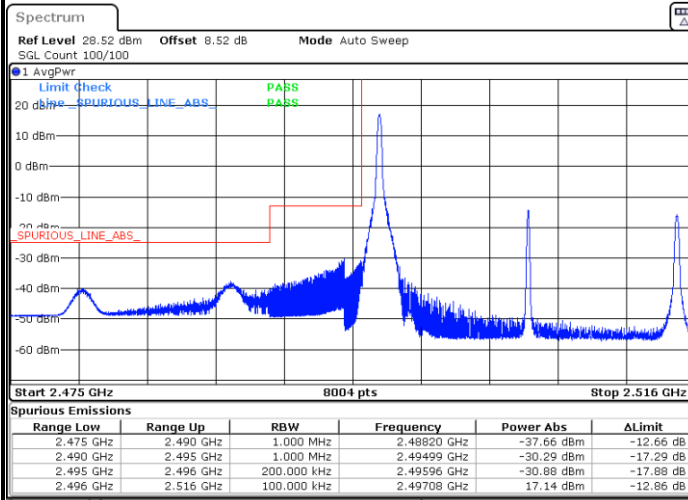
Highest Band Edge / Full RB



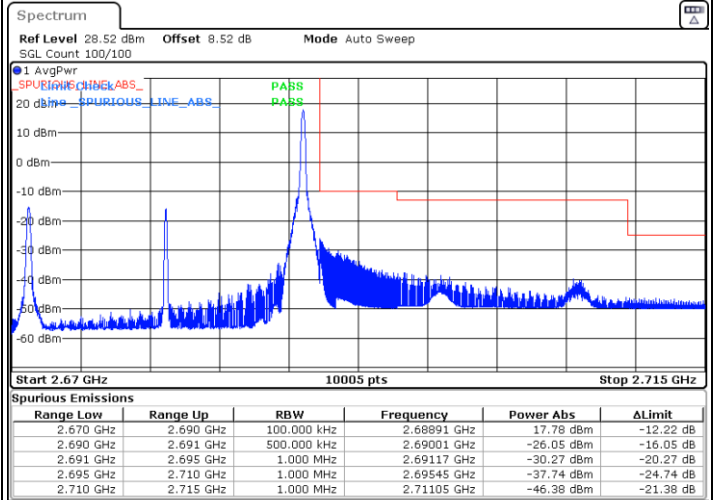


LTE Band 41 / 20MHz / 64QAM

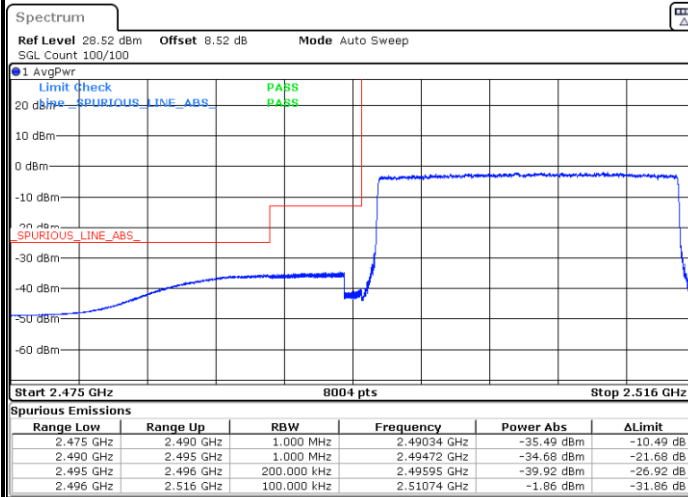
Lowest Band Edge / 1 RB



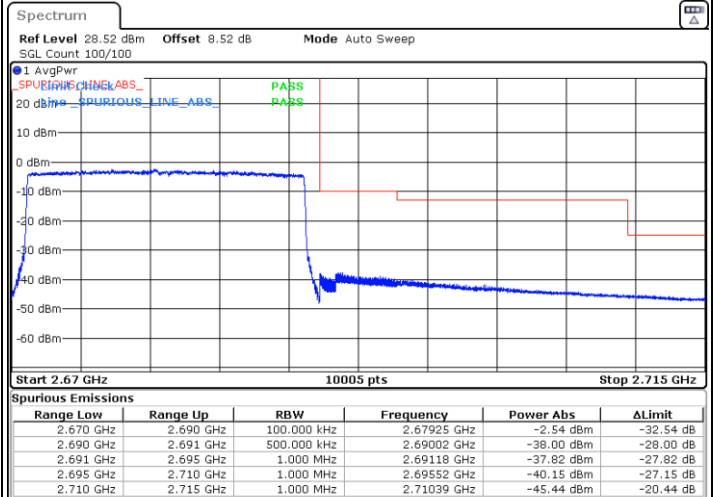
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



Highest Band Edge / Full RB

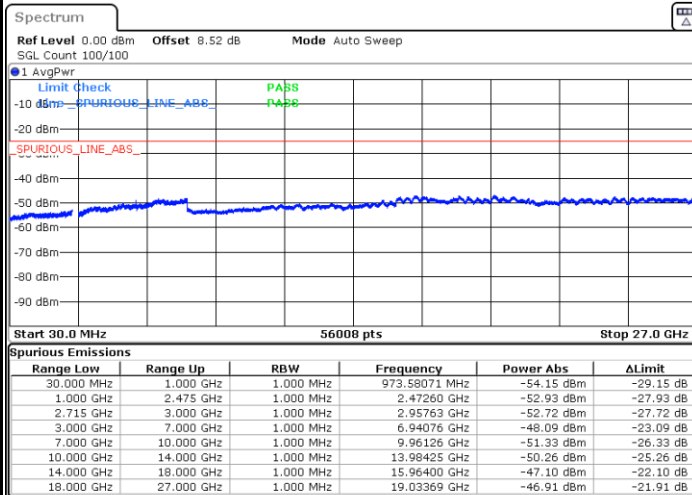




Conducted Spurious Emission

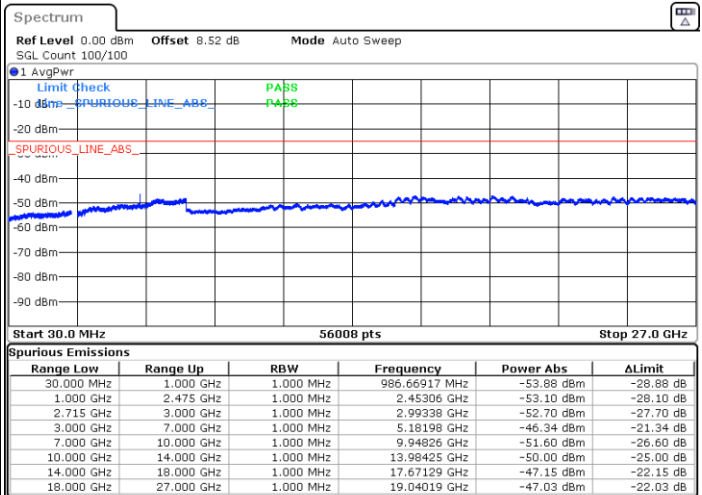
LTE Band 41 / 5MHz

Lowest Channel / QPSK



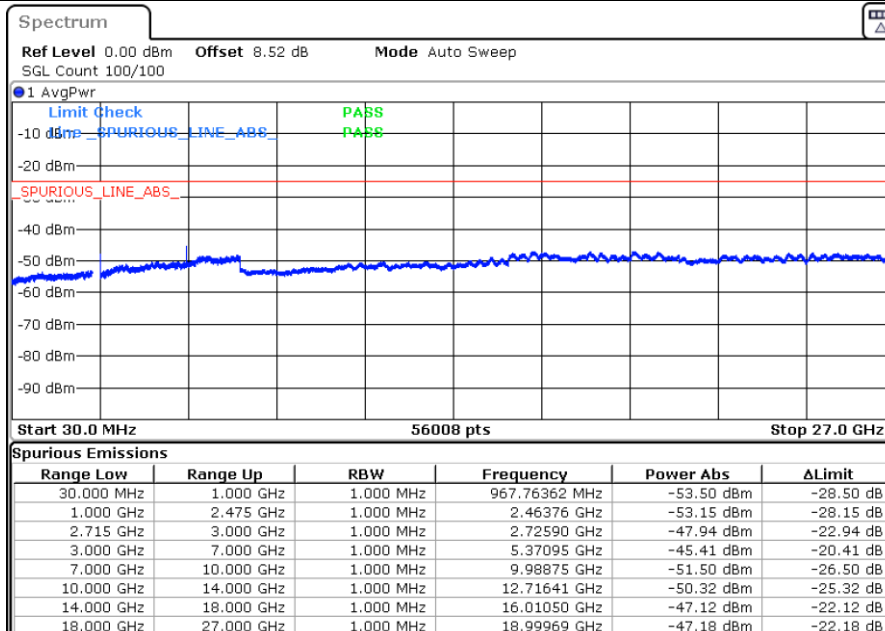
Date: 30.NOV.2024 15:18:29

Middle Channel / QPSK



Date: 30.NOV.2024 15:30:23

Highest Channel / QPSK

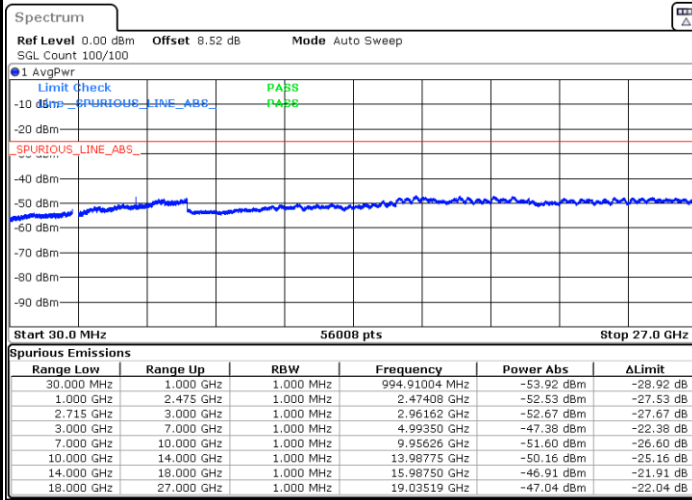


Date: 30.NOV.2024 15:31:43



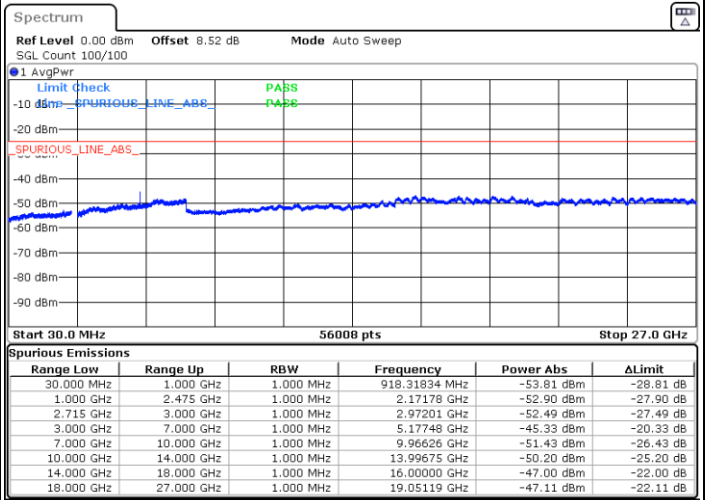
LTE Band 41 / 10MHz

Lowest Channel / QPSK



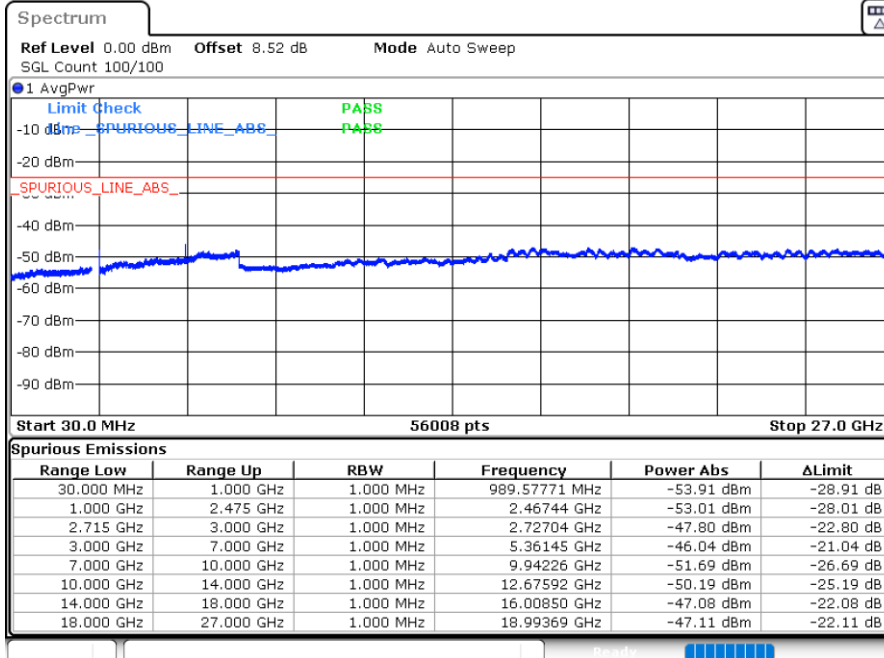
Date: 30.NOV.2024 15:43:38

Middle Channel / QPSK



Date: 30.NOV.2024 15:55:33

Highest Channel / QPSK

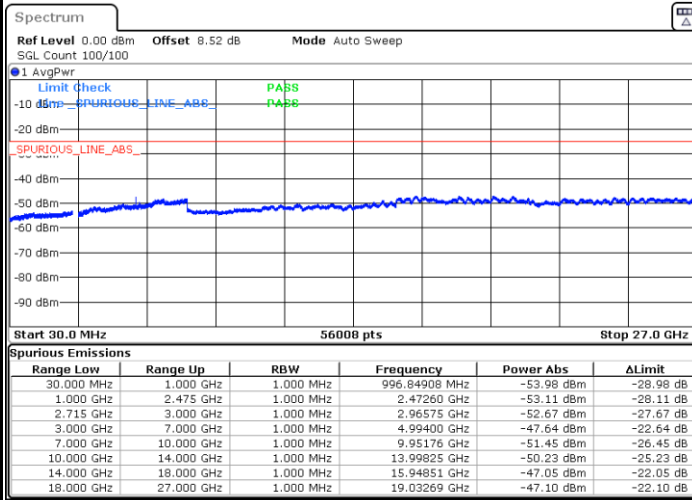


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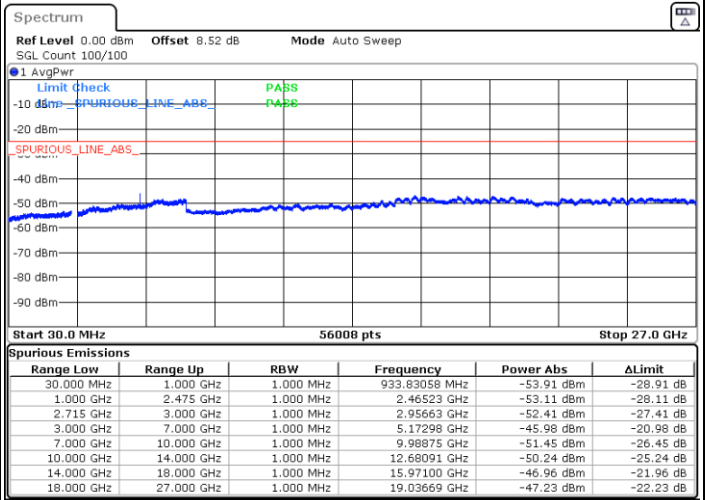
LTE Band 41 / 15MHz

Lowest Channel / QPSK



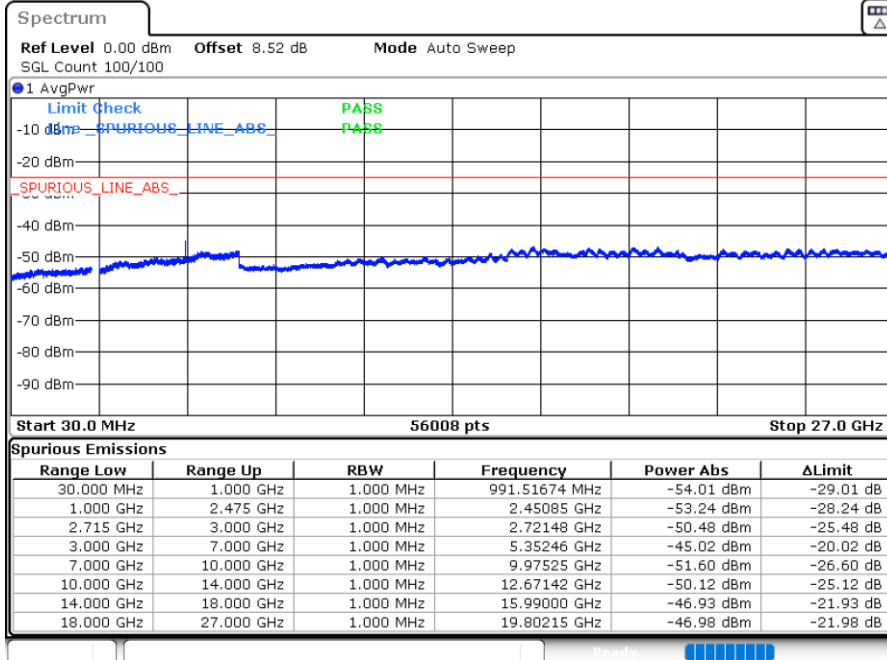
Date: 30.NOV.2024 16:08:48

Middle Channel / QPSK



Date: 30.NOV.2024 16:20:43

Highest Channel / QPSK

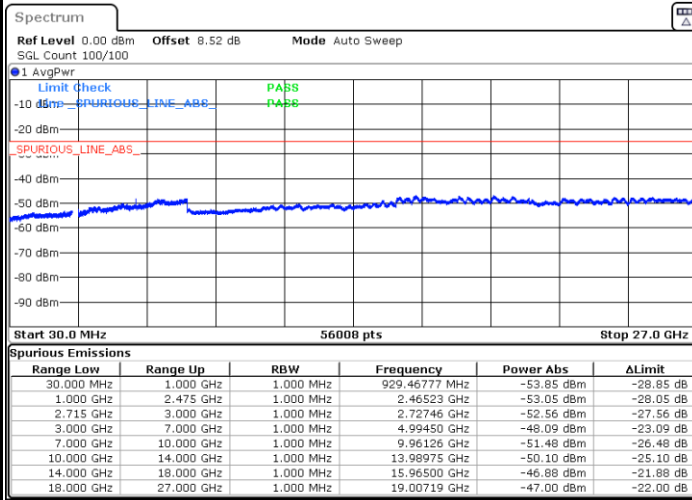


Date: 30.NOV.2024 16:22:04



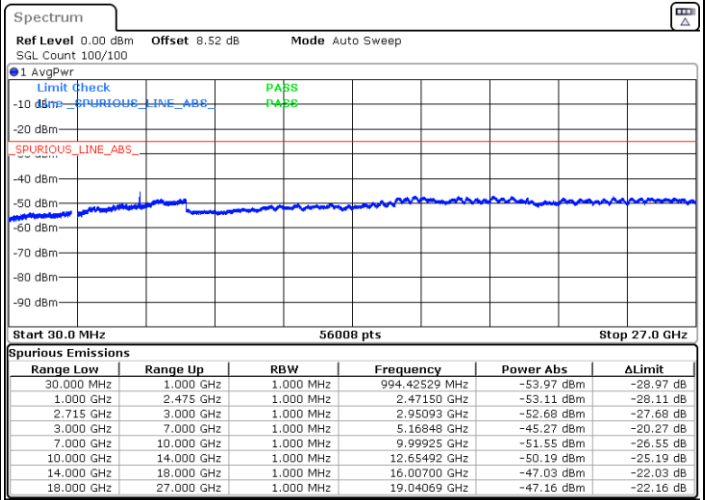
LTE Band 41 / 20MHz

Lowest Channel / QPSK



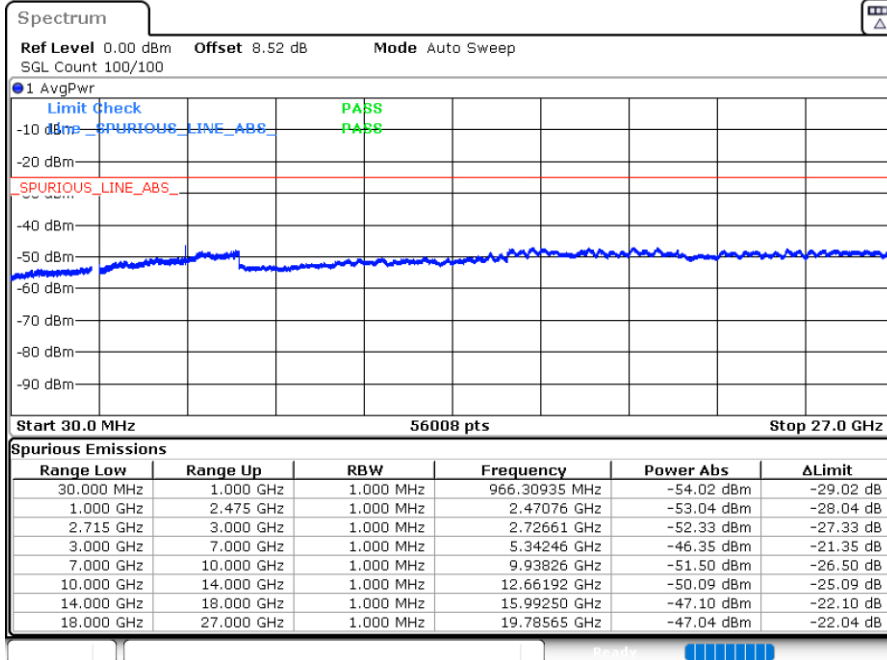
Date: 30.NOV.2024 16:33:58

Middle Channel / QPSK



Date: 30.NOV.2024 16:45:54

Highest Channel / QPSK



Date: 30.NOV.2024 16:47:14

Frequency Stability

Test Conditions		LTE Band 41 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0016	PASS
40	Normal Voltage	0.0033	
30	Normal Voltage	0.0012	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0021	
0	Normal Voltage	0.0025	
-10	Normal Voltage	0.0010	
-20	Normal Voltage	0.0018	
-30	Normal Voltage	0.0052	
20	Maximum Voltage	0.0031	
20	Normal Voltage	0.0022	
20	Minimum Voltage	0.0065	

Note:

1. Normal Voltage =3.8 V. ; Minimum Voltage =3.2 V. ; Maximum Voltage =4.75V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.



Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

Test Engineer :	Bruce	Temperature :	23~25°C
		Relative Humidity :	41~42%

LTE Band 7 / 20MHz / QPSK								
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)
Lowest	4995	-52.94	-25	-27.94	-63.15	3.03	13.24	H
	7500	-36.95	-25	-11.95	-46.40	3.56	13.01	H
	10005	-42.83	-25	-17.83	-52.35	3.92	13.44	H
	12510	-54.96	-25	-29.96	-64.88	4.44	14.36	H
	15000	-50.54	-25	-25.54	-60.91	4.77	15.14	H
	4995	-56.19	-25	-31.19	-66.40	3.03	13.24	V
	7500	-54.07	-25	-29.07	-63.52	3.56	13.01	V
	10005	-57.09	-25	-32.09	-66.61	3.92	13.44	V
	12505	-58.16	-25	-33.16	-68.08	4.44	14.36	V
	15000	-52.75	-25	-27.75	-63.12	4.77	15.14	V
Middle	5055	-57.00	-25	-32.00	-67.21	3.03	13.24	H
	7575	-38.42	-25	-13.42	-47.87	3.56	13.01	H
	10110	-40.10	-25	-15.10	-49.62	3.92	13.44	H
	5055	-60.70	-25	-35.70	-70.91	3.03	13.24	V
	7575	-52.53	-25	-27.53	-61.98	3.56	13.01	V
	10110	-58.40	-25	-33.40	-67.92	3.92	13.44	V
Highest	5100	-53.71	-25	-28.71	-63.92	3.03	13.24	H
	7650	-39.75	-25	-14.75	-49.20	3.56	13.01	H
	10200	-36.26	-25	-11.26	-45.78	3.92	13.44	H
	12750	-55.86	-25	-30.86	-65.78	4.44	14.36	H
	5100	-60.02	-25	-35.02	-70.23	3.03	13.24	V
	7650	-51.68	-25	-26.68	-61.13	3.56	13.01	V
	10200	-58.49	-25	-33.49	-68.01	3.92	13.44	V

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



LTE Band 12 / 10MHz / QPSK								
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)
Lowest	1400	-60.96	-13	-47.96	-67.93	1.58	10.70	H
	2096	-57.09	-13	-44.09	-65.34	2.102	12.50	H
	2800	-58.29	-13	-45.29	-67.18	2.856	13.90	H
	3496	-57.09	-13	-44.09	-64.85	3.093	13.00	H
	4200	-55.96	-13	-42.96	-64.73	3.178	14.10	H
	4896	-49.33	-13	-36.33	-56.57	3.306	12.70	H
	5600	-48.65	-13	-35.65	-56.24	3.406	13.15	H
	6296	-48.99	-13	-35.99	-56.87	3.516	13.55	H
	1400	-61.42	-13	-48.42	-68.39	1.58	10.70	V
	2096	-58.38	-13	-45.38	-66.63	2.10	12.50	V
	2800	-56.61	-13	-43.61	-65.50	2.86	13.90	V
Middle	1408	-65.19	-13	-52.19	-72.16	1.58	10.70	H
	2112	-56.06	-13	-43.06	-64.31	2.102	12.50	H
	2808	-58.30	-13	-45.30	-67.19	2.856	13.90	H
	3512	-56.48	-13	-43.48	-64.24	3.093	13.00	H
	4216	-54.86	-13	-41.86	-63.63	3.178	14.10	H
	4920	-49.76	-13	-36.76	-57.00	3.306	12.70	H
	5624	-51.25	-13	-38.25	-58.84	3.406	13.15	H
	6328	-45.54	-13	-32.54	-53.42	3.516	13.55	H
	1408	-62.54	-13	-49.54	-69.51	1.58	10.70	V
	2112	-58.58	-13	-45.58	-66.83	2.10	12.50	V
	2808	-56.92	-13	-43.92	-65.81	2.86	13.90	V
Highest	1416	-61.21	-13	-48.21	-68.18	1.58	10.70	H
	2119	-56.95	-13	-43.95	-65.20	2.102	12.50	H
	2824	-57.50	-13	-44.50	-66.39	2.856	13.90	H
	3528	-57.82	-13	-44.82	-65.58	3.093	13.00	H
	4240	-52.87	-13	-39.87	-61.64	3.178	14.10	H
	4944	-47.12	-13	-34.12	-54.36	3.306	12.70	H
	5656	-49.44	-13	-36.44	-57.03	3.406	13.15	H
	6360	-44.10	-13	-31.10	-51.98	3.516	13.55	H
	1416	-62.51	-13	-49.51	-69.48	1.58	10.70	V
	2120	-58.89	-13	-45.89	-67.14	2.10	12.50	V
	2824	-54.82	-13	-41.82	-63.71	2.86	13.90	V
	3528	-57.60	-13	-44.60	-65.36	3.09	13.00	V
	4240	-56.60	-13	-43.60	-65.37	3.18	14.10	V
	4944	-53.59	-13	-40.59	-60.83	3.31	12.70	V

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



LTE Band 13 / 5MHz / QPSK								
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)
Lowest	1552	-62.46	-13	-49.46	-65.09	1.09	5.87	H
	2328	-46.45	-13	-33.45	-48.85	1.37	5.92	H
	3112	-56.80	-13	-43.80	-60.69	1.64	7.68	H
	3888	-54.91	-13	-41.91	-58.97	1.72	7.93	H
	4664	-50.56	-13	-37.56	-54.97	1.89	8.45	H
	5440	-49.90	-13	-36.90	-54.64	2.03	8.92	H
	6216	-43.83	-13	-30.83	-49.08	2.28	9.68	H
	1552	-62.37	-13	-49.37	-65.00	1.09	5.87	V
	2328	-55.43	-13	-42.43	-57.83	1.37	5.92	V
	3112	-54.16	-13	-41.16	-58.05	1.64	7.68	V
Middle	1560	-60.47	-42.15	-18.32	-63.10	1.09	5.87	H
	2336	-56.76	-13	-43.76	-59.16	1.37	5.92	H
	3120	-57.75	-13	-44.75	-61.64	1.64	7.68	H
	3896	-53.59	-13	-40.59	-57.65	1.72	7.93	H
	4680	-49.15	-13	-36.15	-53.56	1.89	8.45	H
	5456	-47.65	-13	-34.65	-52.39	2.03	8.92	H
	6216	-43.83	-13	-30.83	-49.08	2.28	9.68	H
	1560	-59.35	-42.15	-17.20	-61.98	1.09	5.87	V
	2336	-58.03	-13	-45.03	-60.43	1.37	5.92	V
	3120	-55.26	-13	-42.26	-59.15	1.64	7.68	V
	3896	-54.81	-13	-41.81	-58.87	1.72	7.93	V
	4680	-54.04	-13	-41.04	-58.45	1.89	8.45	V
	5456	-55.18	-13	-42.18	-59.92	2.03	8.92	V
	1560	-65.43	-42.15	-23.28	-68.06	1.09	5.87	H
Highest	2344	-58.46	-13	-45.46	-60.86	1.37	5.92	H
	3128	-57.48	-13	-44.48	-61.37	1.64	7.68	H
	1568	-61.26	-42.15	-19.11	-63.89	1.09	5.87	V
	2344	-57.98	-13	-44.98	-60.38	1.37	5.92	V
	3128	-55.02	-13	-42.02	-58.91	1.64	7.68	V

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

LTE Band 13 / 10 MHz / QPSK								
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	1552	-62.22	-13	-49.22	-64.85	1.09	5.87	H
	2336	-48.62	-13	-35.62	-51.02	1.37	5.92	H
	3112	-57.45	-13	-44.45	-61.34	1.64	7.68	H
	3888	-54.39	-13	-41.39	-58.45	1.72	7.93	H
	4664	-51.87	-13	-38.87	-56.28	1.89	8.45	H
	5440	-50.59	-13	-37.59	-55.33	2.03	8.92	H
	6224	-45.40	-13	-32.40	-50.65	2.28	9.68	H
	1552	-62.37	-13	-49.37	-65.00	1.09	5.87	V
	2328	-58.42	-13	-45.42	-60.82	1.37	5.92	V
	3112	-54.31	-13	-41.31	-58.20	1.64	7.68	V

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

LTE Band 41 / 20 MHz / QPSK								
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)
Lowest	4995	-49.32	-25	-24.32	-59.53	3.03	13.24	H
	7485	-34.37	-25	-9.37	-43.82	3.56	13.01	H
	9990	-32.96	-25	-7.96	-42.48	3.92	13.44	H
	12480	-49.76	-25	-24.76	-59.68	4.44	14.36	H
	14985	-39.58	-25	-14.58	-49.95	4.77	15.14	H
	4995	-52.22	-25	-27.22	-62.43	3.03	13.24	V
	7485	-47.94	-25	-22.94	-57.39	3.56	13.01	V
	9990	-52.53	-25	-27.53	-62.05	3.92	13.44	V
	12480	-56.53	-25	-31.53	-66.45	4.44	14.36	V
	14985	-49.59	-25	-24.59	-59.96	4.77	15.14	V
Middle	5160	-53.37	-25	-28.37	-63.58	3.03	13.24	H
	7755	-33.00	-25	-8.00	-42.45	3.56	13.01	H
	10335	-39.78	-25	-14.78	-49.30	3.92	13.44	H
	12915	-52.22	-25	-27.22	-62.14	4.44	14.36	H
	15510	-52.84	-25	-27.84	-63.21	4.77	15.14	H
	5160	-58.56	-25	-33.56	-68.77	3.03	13.24	V
	7755	-49.41	-25	-24.41	-58.86	3.56	13.01	V
	10335	-56.11	-25	-31.11	-65.63	3.92	13.44	V
Highest	5340	-48.54	-25	-23.54	-58.75	3.03	13.24	H
	8010	-38.18	-25	-13.18	-47.63	3.56	13.01	H
	10680	-45.94	-25	-20.94	-55.46	3.92	13.44	H
	13350	-55.97	-25	-30.97	-65.89	4.44	14.36	H
	5340	-57.42	-25	-32.42	-67.63	3.03	13.24	V
	8010	-52.65	-25	-27.65	-62.10	3.56	13.01	V
	10680	-59.02	-25	-34.02	-68.54	3.92	13.44	V

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