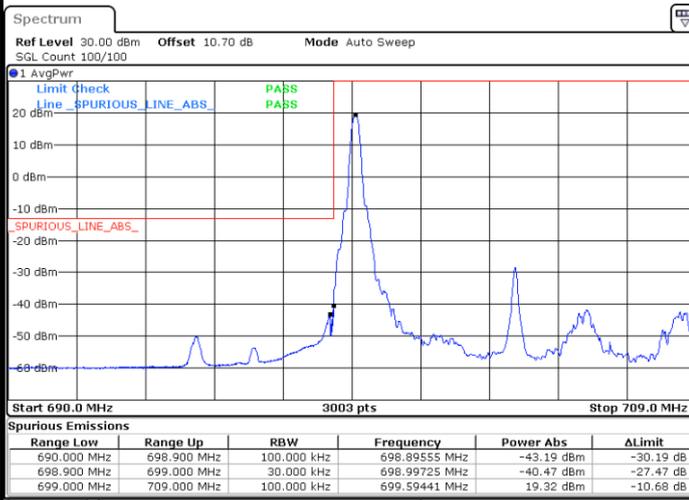




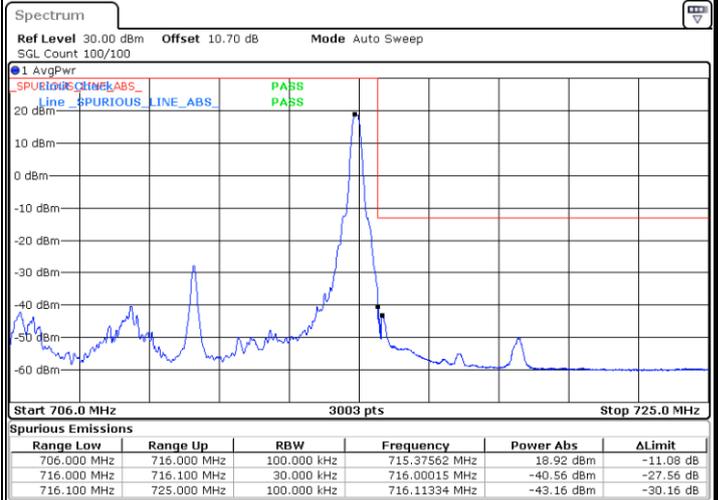
LTE Band 12 / 10MHz / QPSK

Lowest Band Edge / 1 RB



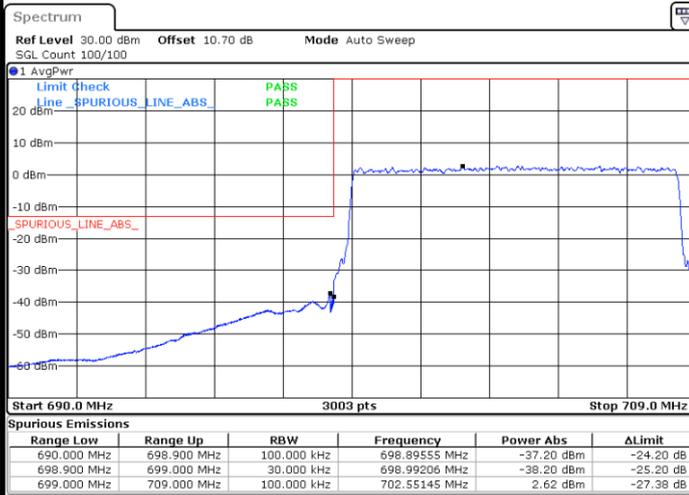
Date: 16 DEC 2019 11:27:24

Highest Band Edge / 1 RB



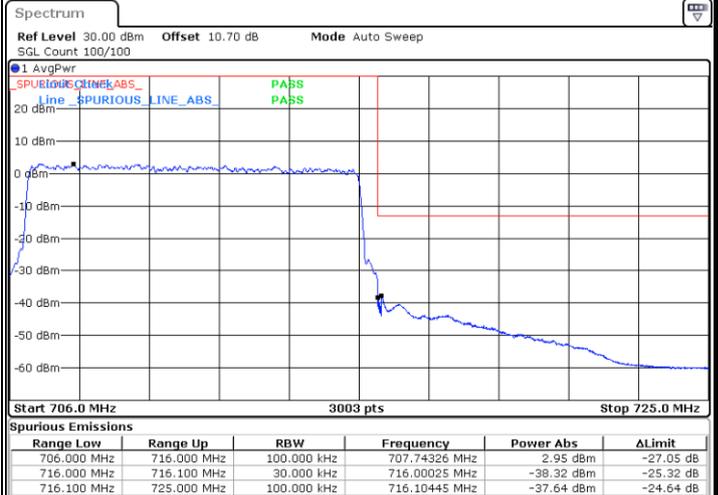
Date: 16 DEC 2019 11:35:44

Lowest Band Edge / Full RB



Date: 16 DEC 2019 11:24:22

Highest Band Edge / Full RB

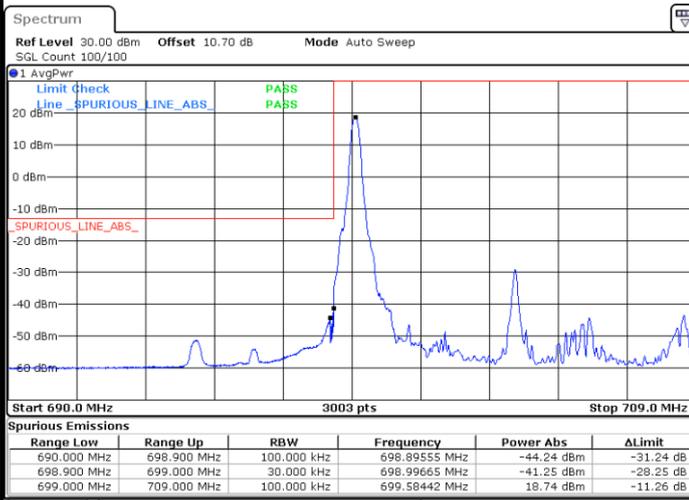


Date: 16 DEC 2019 11:32:41



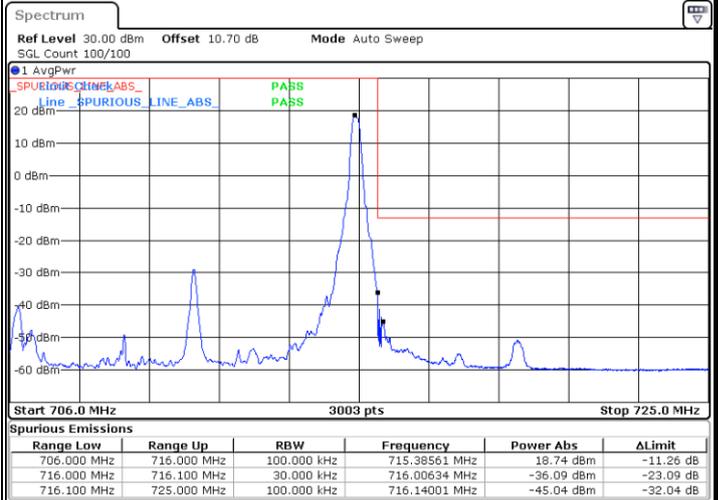
LTE Band 12 / 10MHz / 16QAM

Lowest Band Edge / 1 RB



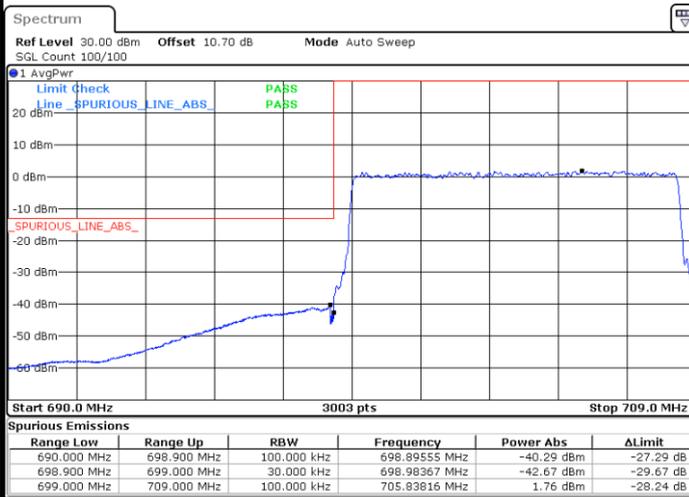
Date: 16 DEC 2019 11:26:23

Highest Band Edge / 1 RB



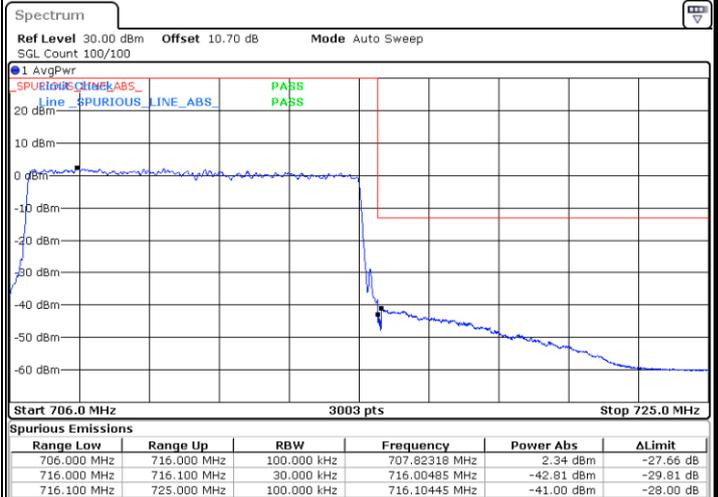
Date: 16 DEC 2019 11:34:43

Lowest Band Edge / Full RB



Date: 16 DEC 2019 11:25:22

Highest Band Edge / Full RB

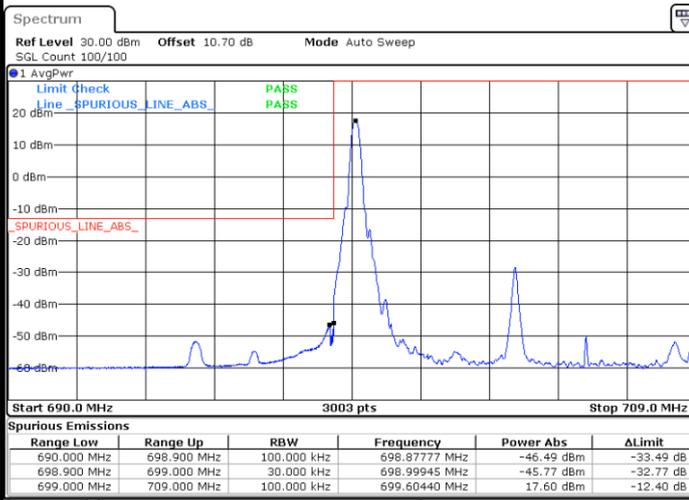


Date: 16 DEC 2019 11:33:42



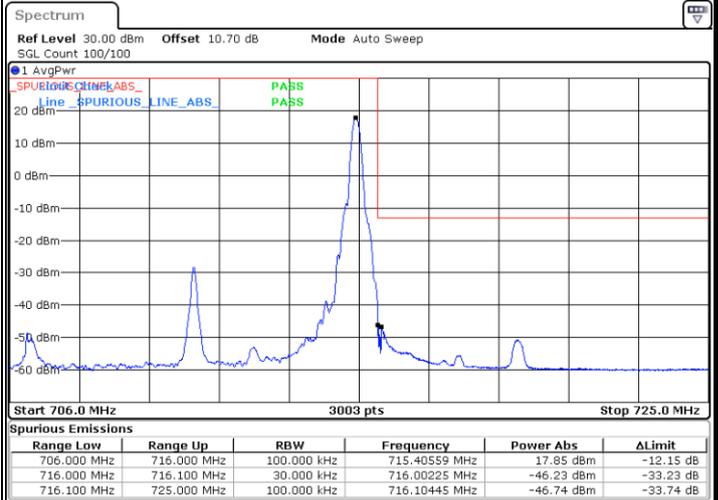
LTE Band 12 / 10MHz / 64QAM

Lowest Band Edge / 1 RB



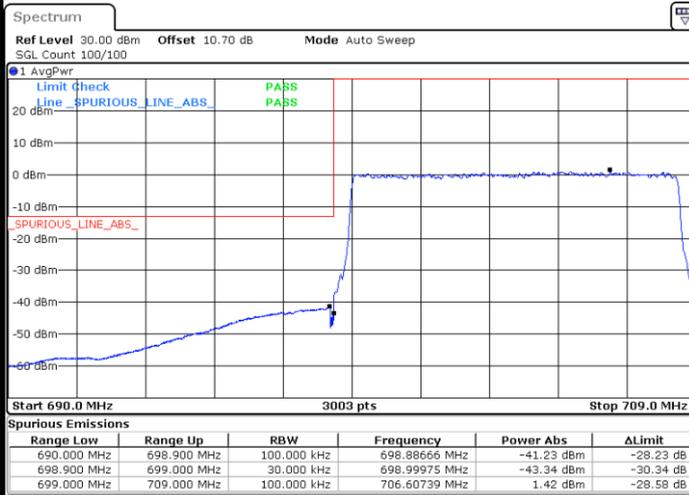
Date: 16 DEC 2019 14:57:06

Highest Band Edge / 1 RB



Date: 16 DEC 2019 15:01:15

Lowest Band Edge / Full RB



Date: 16 DEC 2019 14:56:05

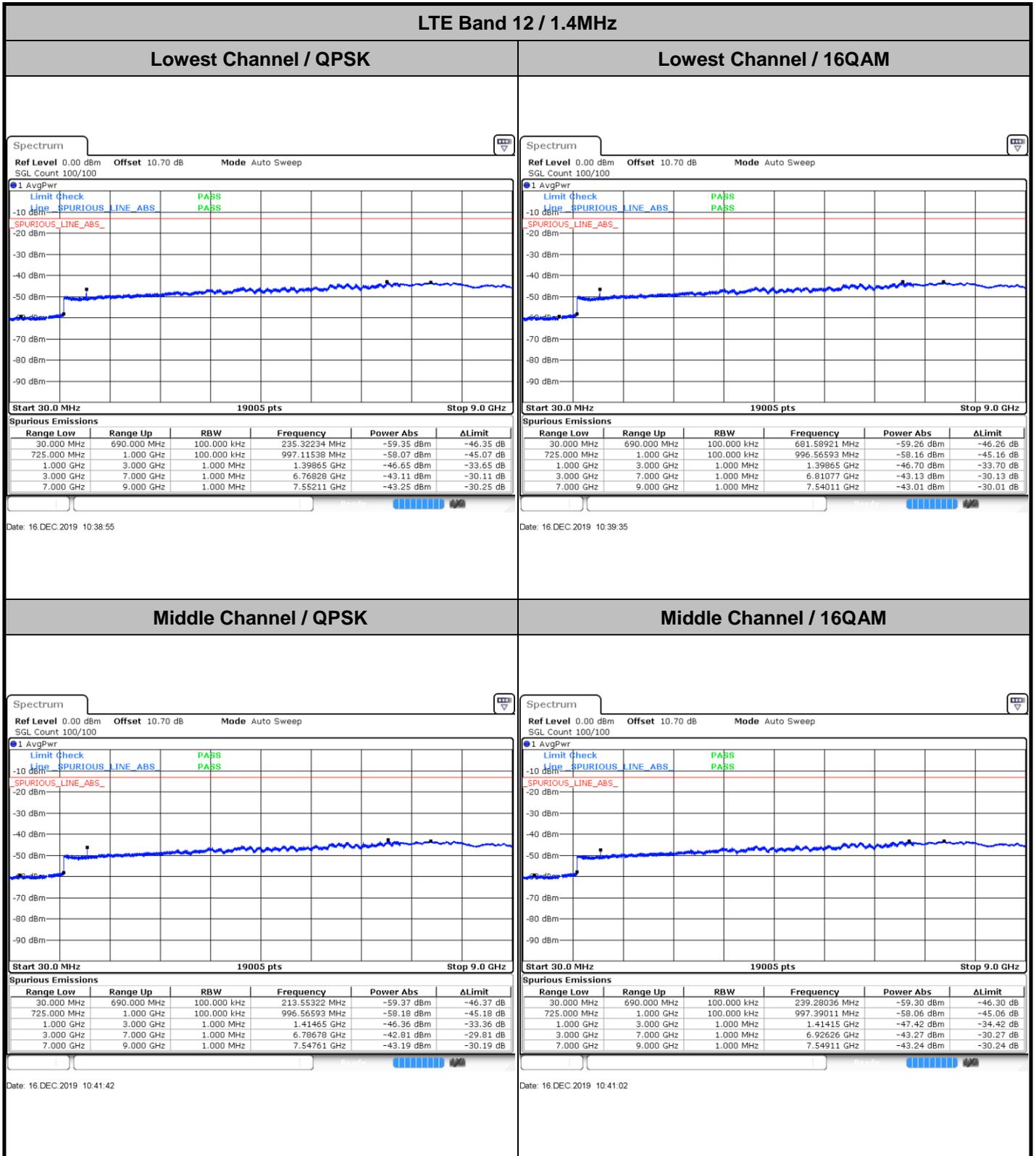
Highest Band Edge / Full RB



Date: 16 DEC 2019 15:00:14



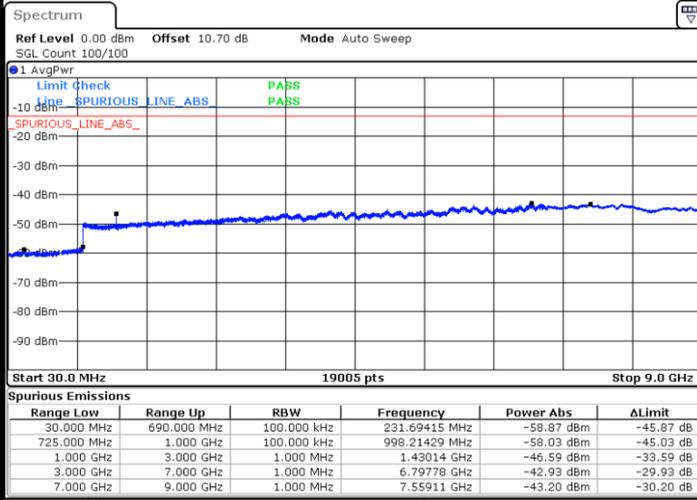
Conducted Spurious Emission





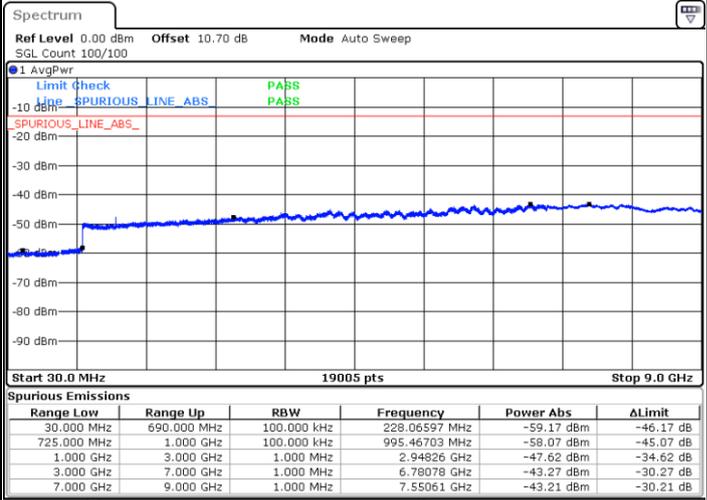
LTE Band 12 / 1.4MHz

Highest Channel / QPSK



Date: 16.DEC.2019 10:47:14

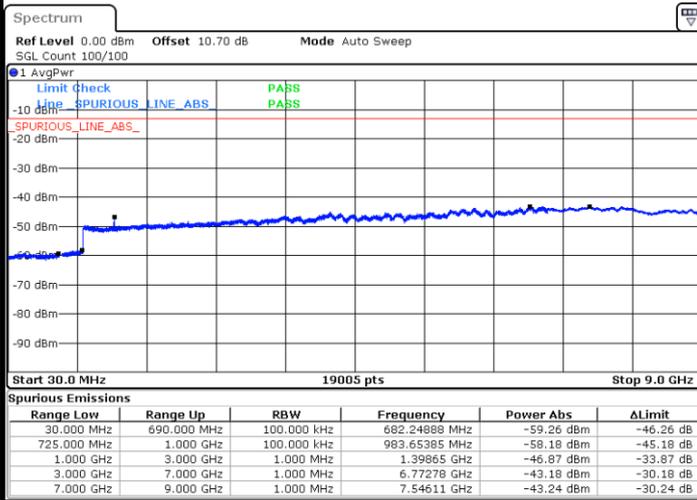
Highest Channel / 16QAM



Date: 16.DEC.2019 10:47:55

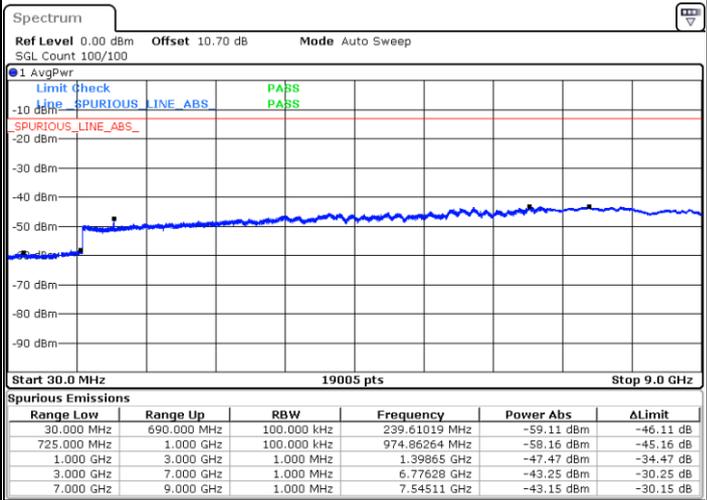
LTE Band 12 / 3MHz

Lowest Channel / QPSK



Date: 16.DEC.2019 10:53:28

Lowest Channel / 16QAM



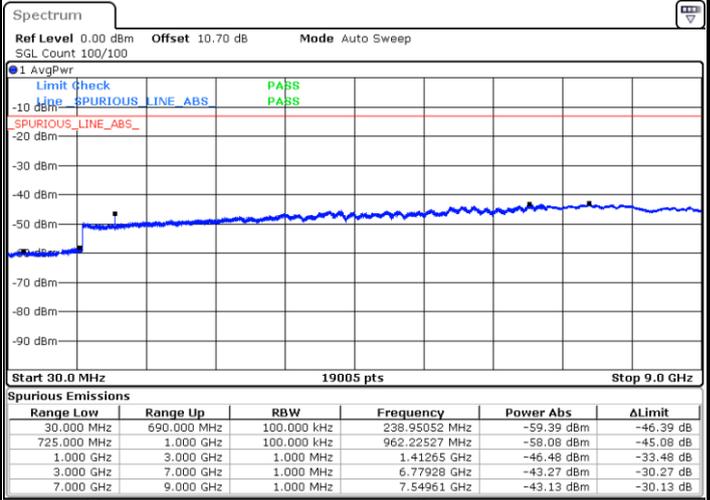
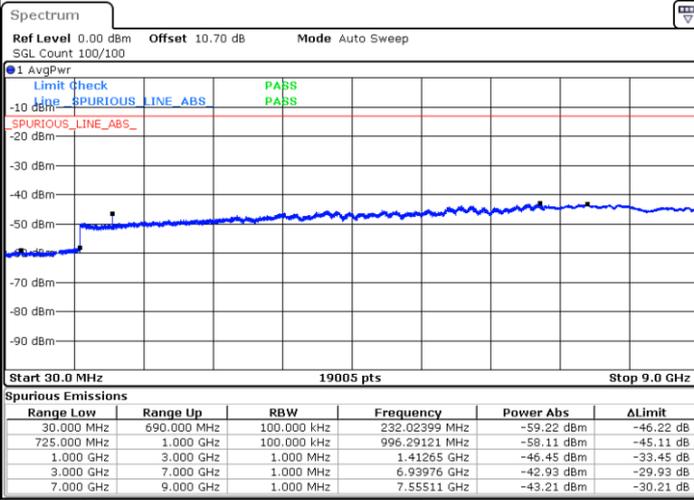
Date: 16.DEC.2019 10:54:09



LTE Band 12 / 3MHz

Middle Channel / QPSK

Middle Channel / 16QAM

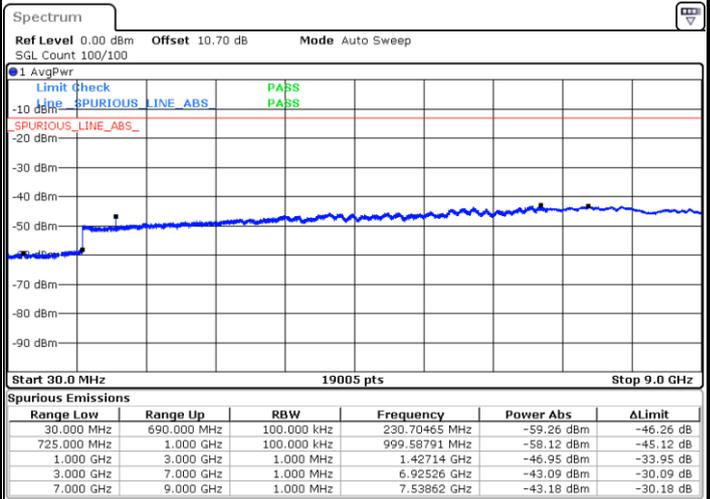
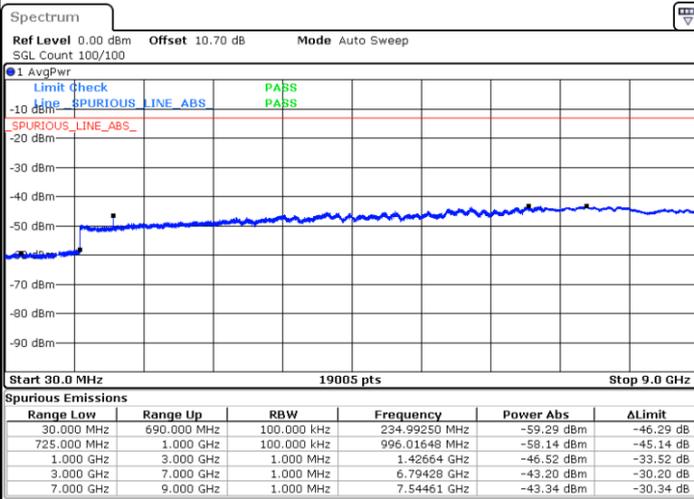


Date: 16 DEC.2019 10:56:16

Date: 16 DEC.2019 10:55:36

Highest Channel / QPSK

Highest Channel / 16QAM



Date: 16 DEC.2019 11:01:49

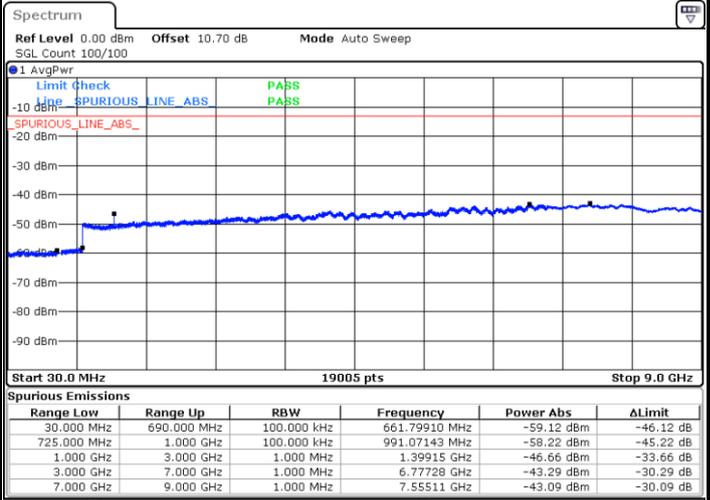
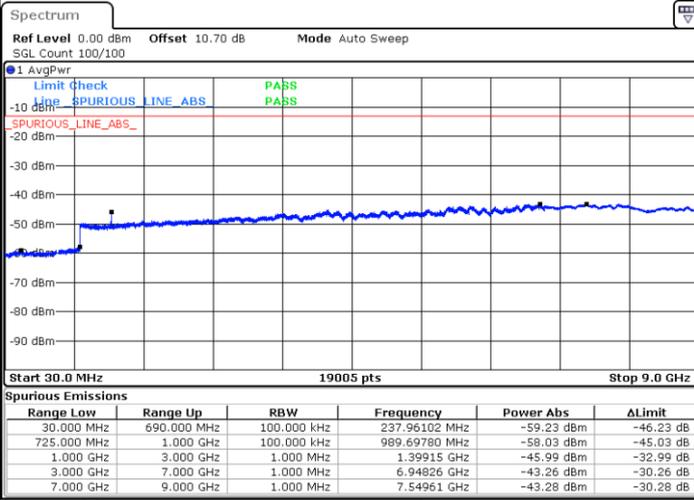
Date: 16 DEC.2019 11:02:30



LTE Band 12 / 5MHz

Lowest Channel / QPSK

Lowest Channel / 16QAM

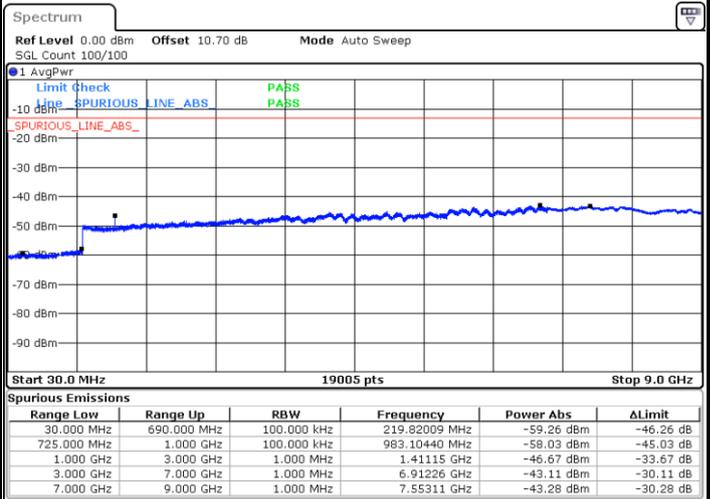
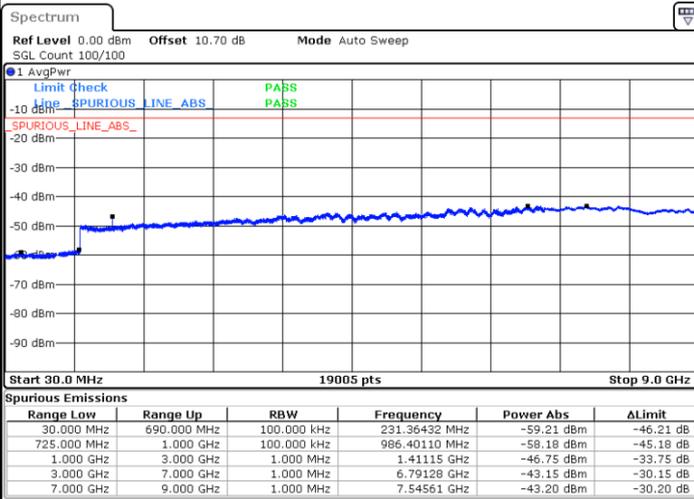


Date: 16.DEC.2019 11:08:04

Date: 16.DEC.2019 11:08:45

Middle Channel / QPSK

Middle Channel / 16QAM



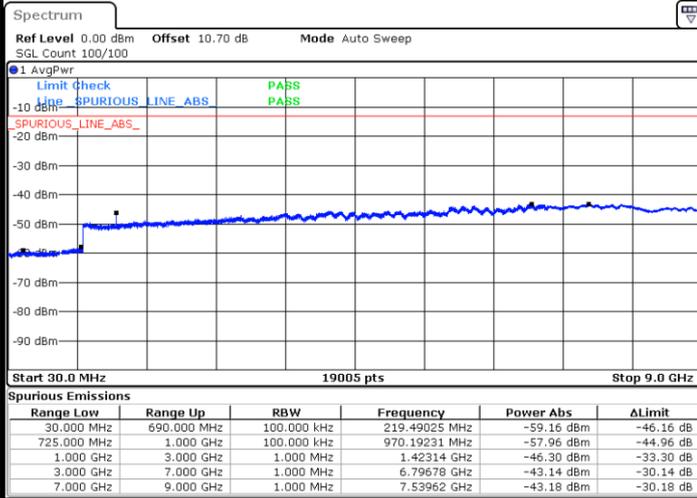
Date: 16.DEC.2019 11:16:19

Date: 16.DEC.2019 11:15:39



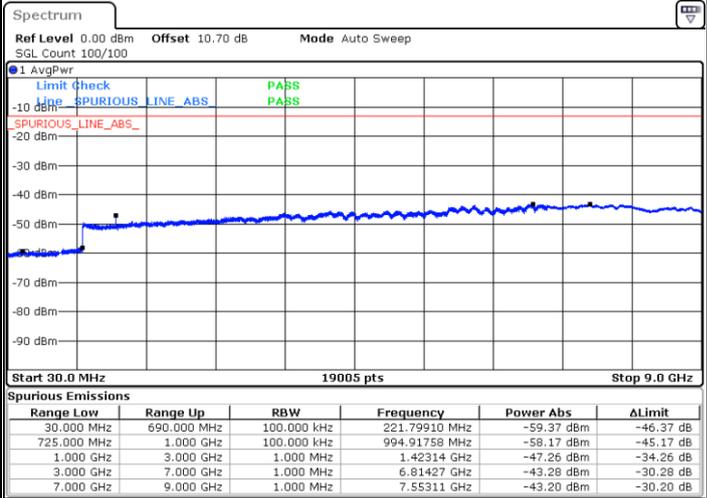
LTE Band 12 / 5MHz

Highest Channel / QPSK



Date: 16.DEC.2019 11:22:33

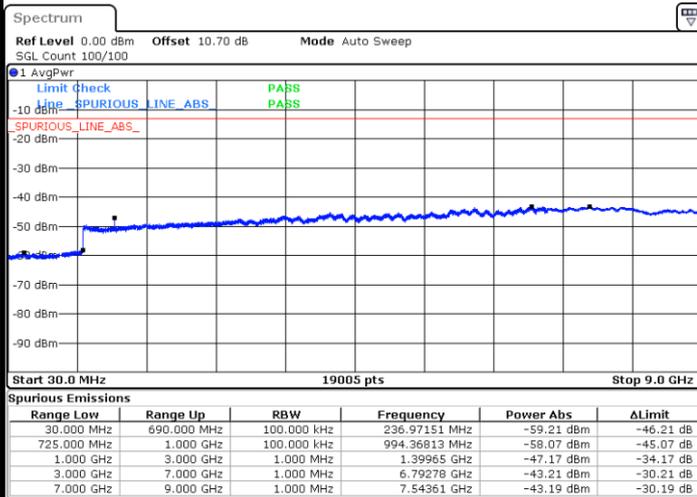
Highest Channel / 16QAM



Date: 16.DEC.2019 11:21:52

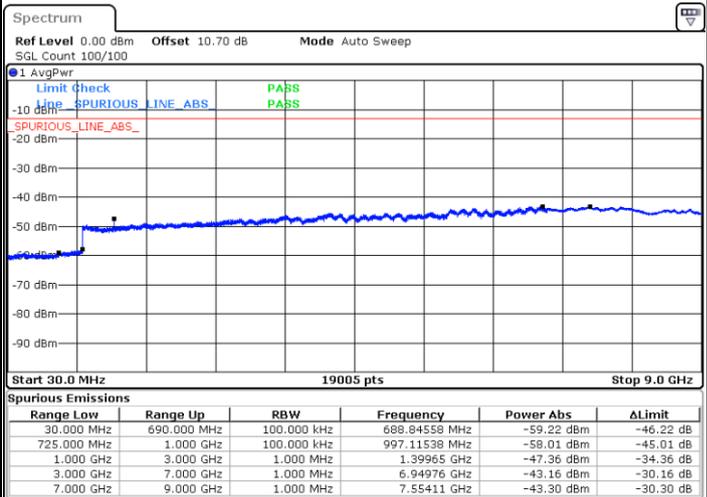
LTE Band 12 / 10MHz

Lowest Channel / QPSK



Date: 16.DEC.2019 11:28:05

Lowest Channel / 16QAM



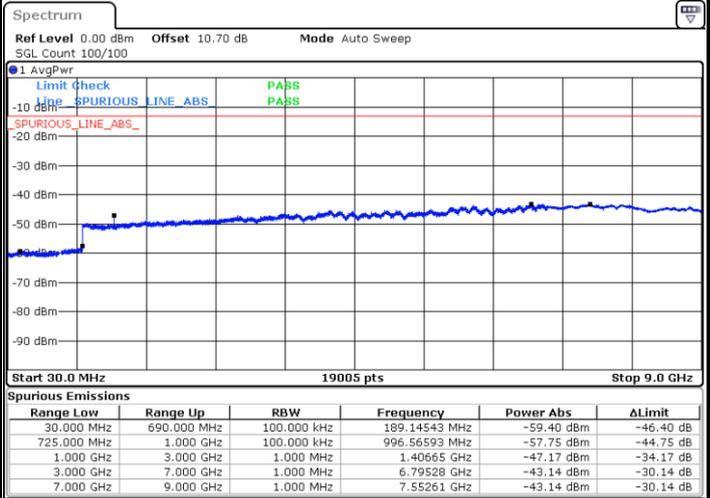
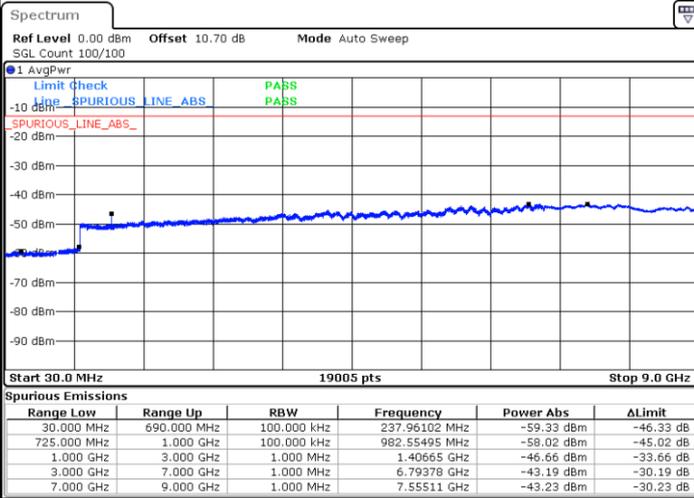
Date: 16.DEC.2019 11:28:46



LTE Band 12 / 10MHz

Middle Channel / QPSK

Middle Channel / 16QAM

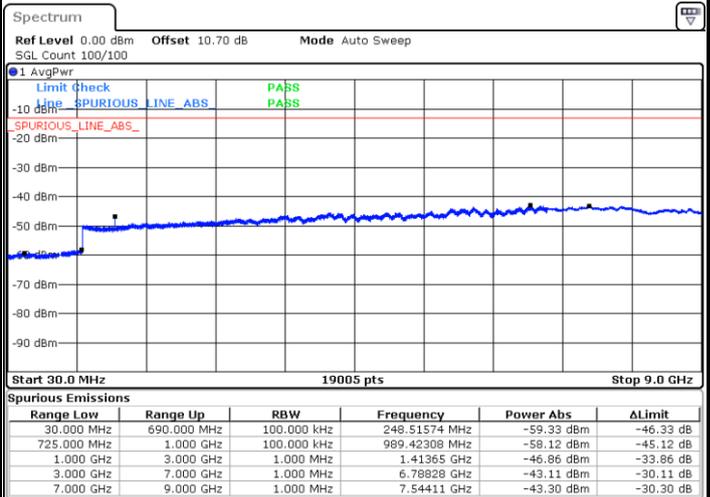
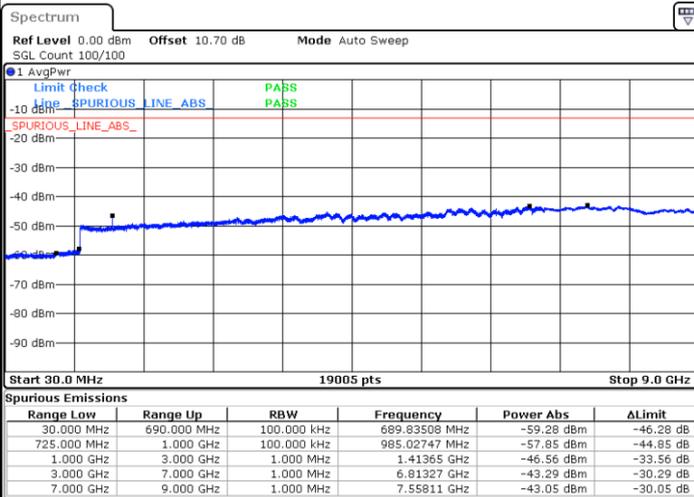


Date: 16.DEC.2019 11:30:53

Date: 16.DEC.2019 11:30:13

Highest Channel / QPSK

Highest Channel / 16QAM



Date: 16.DEC.2019 11:36:25

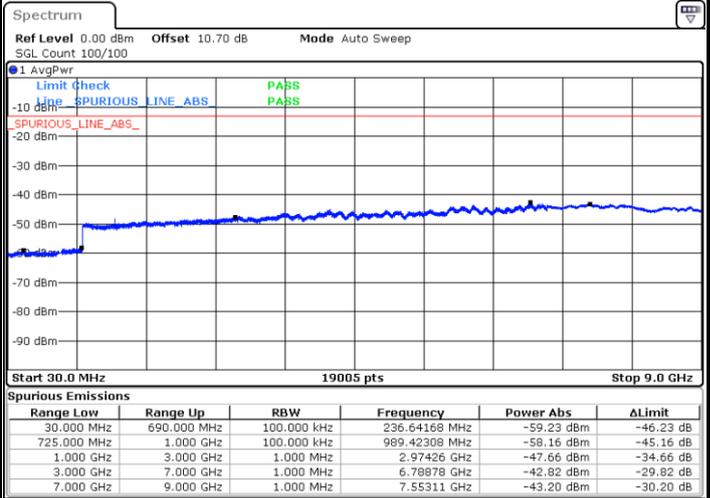
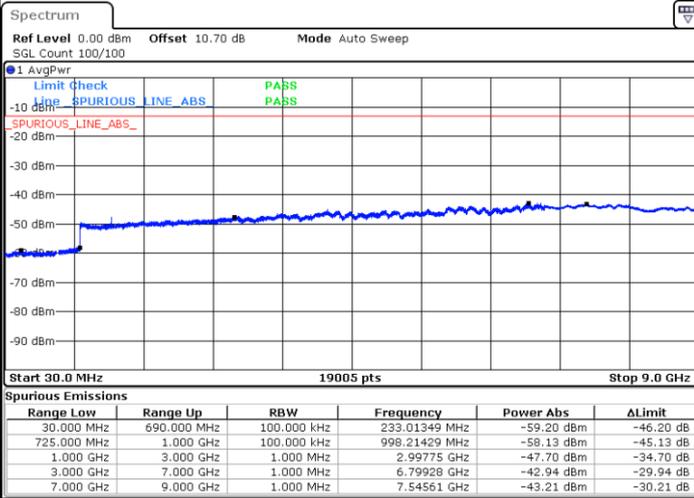
Date: 16.DEC.2019 11:37:06



LTE Band 12 / 1.4MHz

Lowest Channel / 64QAM

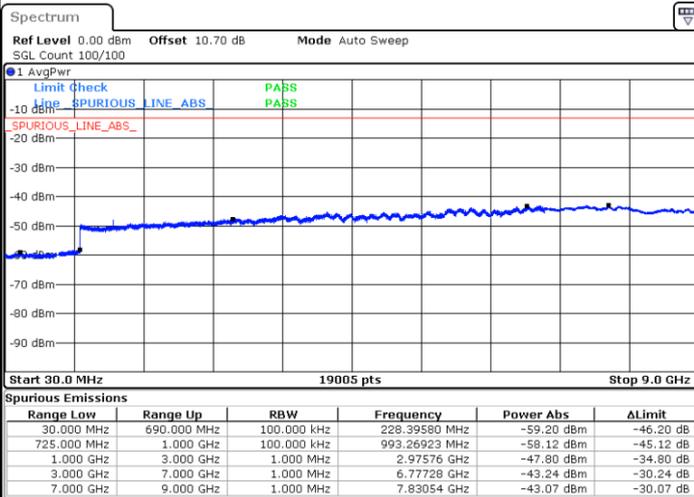
Middle Channel / 64QAM



Date: 16.DEC.2019 14:35:58

Date: 16.DEC.2019 14:37:01

Highest Channel / 64QAM



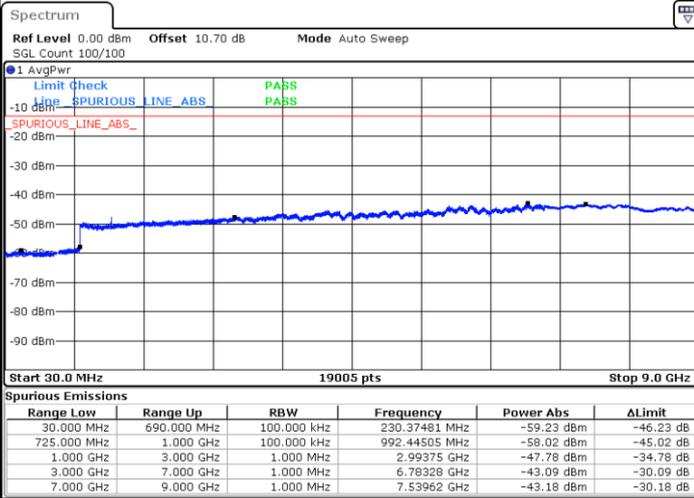
Date: 16.DEC.2019 14:40:07



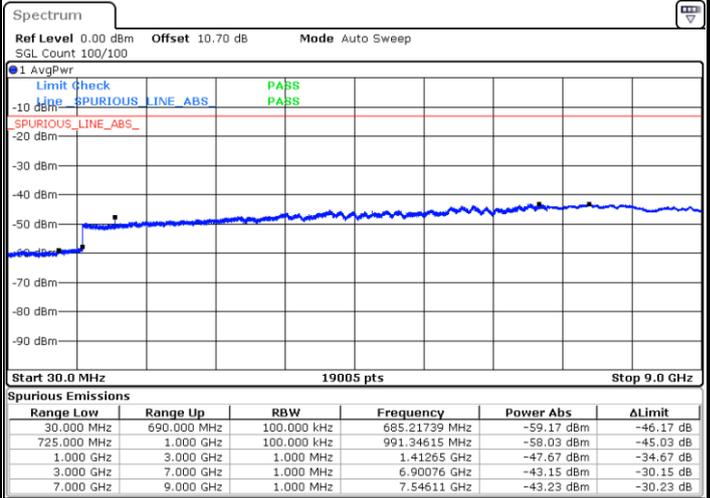
LTE Band 12 / 3MHz

Lowest Channel / 64QAM

Middle Channel / 64QAM

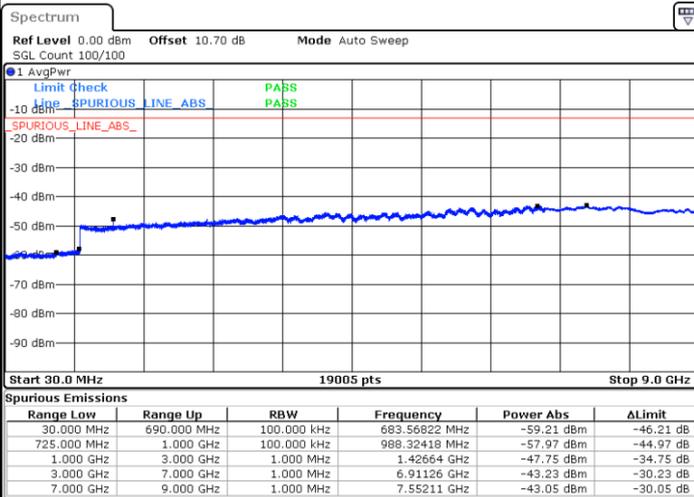


Date: 16.DEC.2019 14:43:13



Date: 16.DEC.2019 14:44:18

Highest Channel / 64QAM



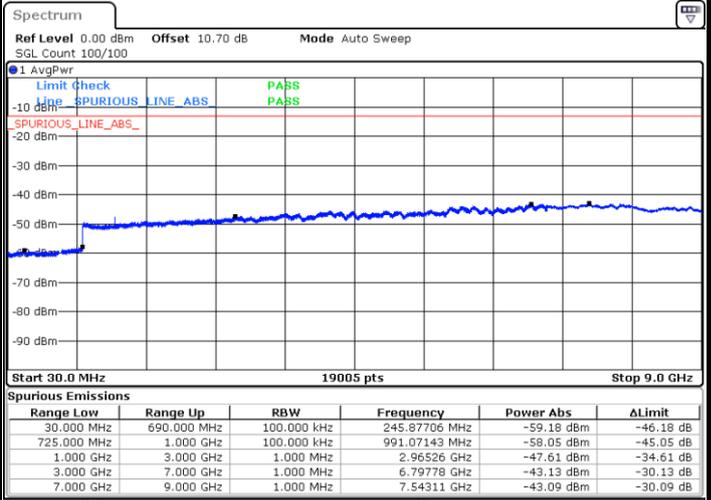
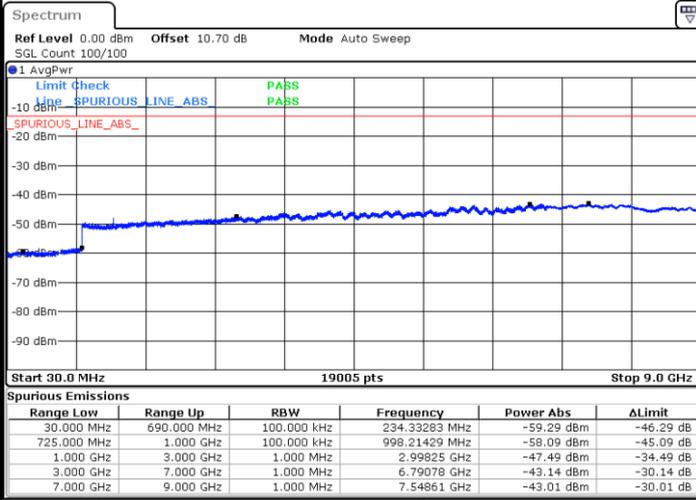
Date: 16.DEC.2019 14:47:24



LTE Band 12 / 5MHz

Lowest Channel / 64QAM

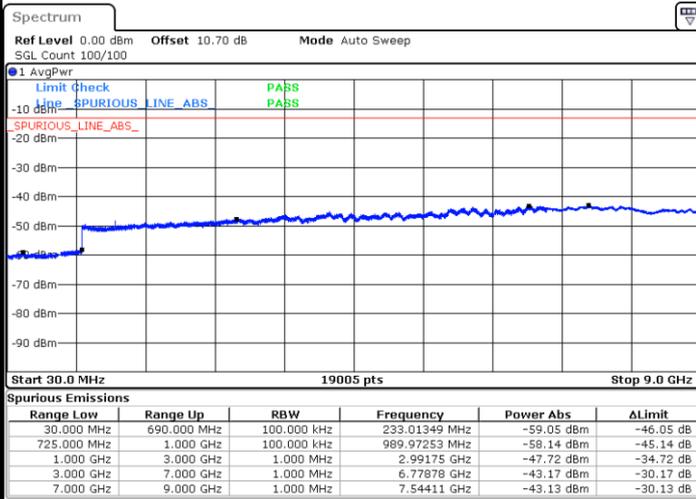
Middle Channel / 64QAM



Date: 16.DEC.2019 14:50:31

Date: 16.DEC.2019 14:51:35

Highest Channel / 64QAM



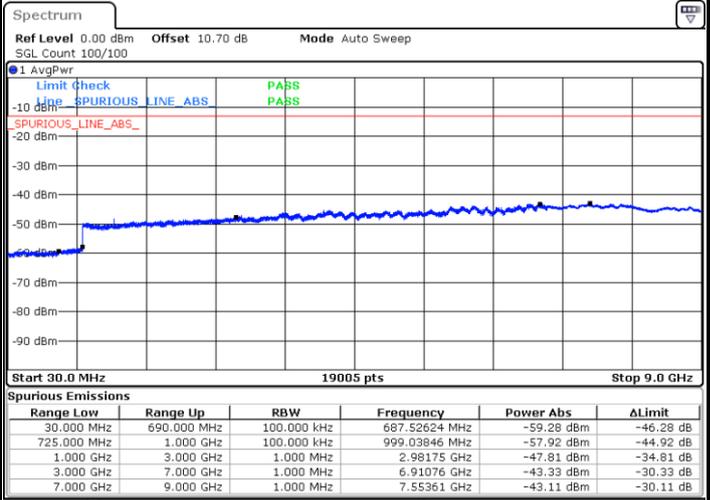
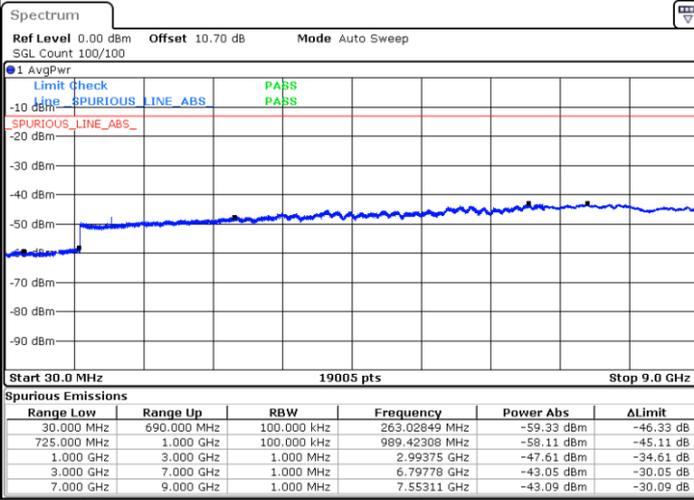
Date: 16.DEC.2019 14:54:41



LTE Band 12 / 10MHz

Lowest Channel / 64QAM

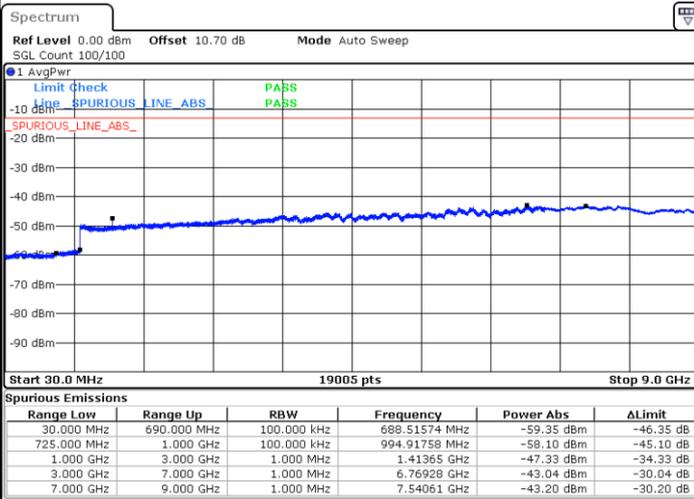
Middle Channel / 64QAM



Date: 16.DEC.2019 14:57:47

Date: 16.DEC.2019 14:58:51

Highest Channel / 64QAM



Date: 16.DEC.2019 15:01:56



Frequency Stability

Test Conditions		LTE Band 12 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0099	PASS
40	Normal Voltage	0.0025	
30	Normal Voltage	0.0055	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0096	
0	Normal Voltage	0.0041	
-10	Normal Voltage	0.0013	
-20	Normal Voltage	0.0035	
-30	Normal Voltage	0.0055	
20	Maximum Voltage	0.0025	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0010	

Note:

1. Normal Voltage =3.85 V. ; Battery End Point (BEP) =3.65 V. ; Maximum Voltage =4.25 V.
2. The frequency fundamental emissions stay within the authorized frequency block.



Appendix B. Test Results of ERP/EIRP and Radiated Test

ERP/EIRP

LTE Band 5 / 1.4MHz (Average) (GT - LC = -3.39 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	3	1	22.54	0.1795	17.00	0.0501
Middle		3	1	22.48	0.1770	16.94	0.0494
Highest		3	1	22.46	0.1762	16.92	0.0492
Lowest	16QAM	1	3	22.03	0.1596	16.49	0.0446
Middle		1	3	21.94	0.1563	16.40	0.0437
Highest		1	3	21.99	0.1581	16.45	0.0442
Lowest	64QAM	1	3	20.89	0.1227	15.35	0.0343
Middle		1	3	20.84	0.1213	15.30	0.0339
Highest		1	3	20.91	0.1233	15.37	0.0344
Limit	ERP < 7W			Result		PASS	

LTE Band 5 / 3MHz (Average) (GT - LC = -3.39 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	22.54	0.1795	17.00	0.0501
Middle		1	0	22.50	0.1778	16.96	0.0497
Highest		1	0	22.53	0.1791	16.99	0.0500
Lowest	16QAM	1	0	22.02	0.1592	16.48	0.0445
Middle		1	0	21.91	0.1552	16.37	0.0434
Highest		1	0	22.01	0.1589	16.47	0.0444
Lowest	64QAM	1	0	20.92	0.1236	15.38	0.0345
Middle		1	0	20.83	0.1211	15.29	0.0338
Highest		1	0	20.96	0.1247	15.42	0.0348
Limit	ERP < 7W			Result		PASS	

LTE Band 5 / 5MHz (Average) (GT - LC = -3.39 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	12	22.54	0.1795	17.00	0.0501
Middle		1	12	22.47	0.1766	16.93	0.0493
Highest		1	12	22.48	0.1770	16.94	0.0494
Lowest	16QAM	1	0	22.02	0.1592	16.48	0.0445
Middle		1	0	21.89	0.1545	16.35	0.0432
Highest		1	0	22.08	0.1614	16.54	0.0451
Lowest	64QAM	1	0	20.95	0.1245	15.41	0.0348
Middle		1	0	20.84	0.1213	15.30	0.0339
Highest		1	0	20.98	0.1253	15.44	0.0350
Limit	ERP < 7W			Result		PASS	



LTE Band 5 / 10MHz (Average) (GT - LC = -3.39 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	22.55	0.1799	17.01	0.0502
Middle		1	0	22.51	0.1782	16.97	0.0498
Highest		1	0	22.54	0.1795	17.00	0.0501
Lowest	16QAM	1	25	21.99	0.1581	16.45	0.0442
Middle		1	25	21.99	0.1581	16.45	0.0442
Highest		1	25	22.10	0.1622	16.56	0.0453
Lowest	64QAM	1	25	20.84	0.1213	15.30	0.0339
Middle		1	25	20.86	0.1219	15.32	0.0340
Highest		1	25	21.00	0.1259	15.46	0.0352
Limit	ERP < 7W			Result		PASS	



LTE Band 12 / 1.4MHz (Average) (GT - LC = -3.57 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	3	22.43	0.1750	16.71	0.0469
Middle		1	3	22.45	0.1758	16.73	0.0471
Highest		1	3	22.48	0.1770	16.76	0.0474
Lowest	16QAM	1	3	21.88	0.1542	16.16	0.0413
Middle		1	3	21.86	0.1535	16.14	0.0411
Highest		1	3	21.98	0.1578	16.26	0.0423
Lowest	64QAM	1	3	20.86	0.1219	15.14	0.0327
Middle		1	3	20.76	0.1191	15.04	0.0319
Highest		1	3	20.90	0.1230	15.18	0.0330
Limit	ERP < 3W			Result		PASS	

LTE Band 12 / 3MHz (Average) (GT - LC = -3.57 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	14	22.45	0.1758	16.73	0.0471
Middle		1	14	22.47	0.1766	16.75	0.0473
Highest		1	14	22.50	0.1778	16.78	0.0476
Lowest	16QAM	1	0	21.90	0.1549	16.18	0.0415
Middle		1	0	21.84	0.1528	16.12	0.0409
Highest		1	0	21.99	0.1581	16.27	0.0424
Lowest	64QAM	1	0	20.78	0.1197	15.06	0.0321
Middle		1	0	20.78	0.1197	15.06	0.0321
Highest		1	0	20.89	0.1227	15.17	0.0329
Limit	ERP < 3W			Result		PASS	

LTE Band 12 / 5MHz (Average) (GT - LC = -3.57 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	12	22.44	0.1754	16.72	0.0470
Middle		1	12	22.47	0.1766	16.75	0.0473
Highest		1	12	22.52	0.1786	16.80	0.0479
Lowest	16QAM	1	12	21.90	0.1549	16.18	0.0415
Middle		1	12	21.86	0.1535	16.14	0.0411
Highest		1	12	22.02	0.1592	16.30	0.0427
Lowest	64QAM	1	12	20.80	0.1202	15.08	0.0322
Middle		1	12	20.80	0.1202	15.08	0.0322
Highest		1	12	20.89	0.1227	15.17	0.0329
Limit	ERP < 3W			Result		PASS	



LTE Band 12 / 10MHz (Average) (GT - LC = -3.57 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	49	22.55	0.1799	16.83	0.0482
Middle		1	49	22.54	0.1795	16.82	0.0481
Highest		1	49	22.53	0.1791	16.81	0.0480
Lowest	16QAM	1	49	21.90	0.1549	16.18	0.0415
Middle		1	49	22.03	0.1596	16.31	0.0428
Highest		1	49	22.00	0.1585	16.28	0.0425
Lowest	64QAM	1	49	20.86	0.1219	15.14	0.0327
Middle		1	49	20.97	0.1250	15.25	0.0335
Highest		1	49	20.92	0.1236	15.20	0.0331
Limit	ERP < 3W			Result		PASS	



Radiated Spurious Emission

LTE Band 5

LTE Band 5 / 10MHz / QPSK									
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)
Lowest	1649	-60.53	-13	-47.53	-70.62	-66.13	0.92	8.67	H
	2473	-56.36	-13	-43.36	-70.67	-63.73	1.14	10.66	H
	3298	-55.24	-13	-42.24	-70.91	-63.78	1.32	12.02	H
									H
									H
									H
	1649	-60.72	-13	-47.72	-70.28	-66.32	0.92	8.67	V
	2473	-55.74	-13	-42.74	-70.2	-63.11	1.14	10.66	V
	3298	-55.00	-13	-42.00	-71.14	-63.54	1.32	12.02	V
									V
									V
									V
Middle	1664	-60.49	-13	-47.49	-70.62	-66.14	0.93	8.72	H
	2496	-56.60	-13	-43.60	-70.9	-64.00	1.15	10.69	H
	3328	-55.42	-13	-42.42	-71.01	-64.03	1.33	12.09	H
									H
									H
									H
	1664	-61.03	-13	-48.03	-70.57	-66.68	0.93	8.72	V
	2496	-55.87	-13	-42.87	-70.38	-63.27	1.15	10.69	V
	3328	-54.75	-13	-41.75	-70.8	-63.36	1.33	12.09	V
									V
									V
									V



Highest	1679	-60.45	-13	-47.45	-70.63	-66.15	0.93	8.78	H
	2518	-56.91	-13	-43.91	-71.2	-64.33	1.15	10.72	H
	3358	-55.66	-13	-42.66	-71.17	-64.33	1.33	12.16	H
									H
									H
									H
									H
	1679	-61.08	-13	-48.08	-70.61	-66.78	0.93	8.78	V
	2518	-56.66	-13	-43.66	-71.12	-64.08	1.15	10.72	V
	3358	-55.04	-13	-42.04	-71	-63.71	1.33	12.16	V
									V
									V
									V
									V

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



LTE Band 12

LTE Band 12 / 10MHz / QPSK									
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)
Lowest	1416	-59.28	-13	-46.28	-70.50	-64.00	0.85	7.71	H
	2125	-56.13	-13	-43.13	-70.73	-63.09	1.07	10.18	H
	2833	-56.00	-13	-43.00	-70.99	-63.72	1.23	11.10	H
									H
									H
									H
	1416	-60.15	-13	-47.15	-70.16	-64.87	0.85	7.71	V
	2125	-57.42	-13	-44.42	-70.88	-64.38	1.07	10.18	V
	2833	-56.06	-13	-43.06	-71.03	-63.78	1.23	11.10	V
									V
									V
									V
Middle	1423	-59.22	-13	-46.22	-70.40	-63.97	0.85	7.75	H
	2135	-55.86	-13	-42.86	70.62	-62.83	1.07	10.19	H
	2847	-55.66	-13	-42.66	-70.70	-63.39	1.23	11.12	H
									H
									H
									H
	1423	-60.15	-13	-47.15	-70.13	-64.90	0.85	7.75	V
	2135	-57.12	-13	-44.12	-70.73	-64.09	1.07	10.19	V
	2847	-55.67	-13	-42.67	-70.70	-63.40	1.23	11.12	V
									V
									V
									V



Highest	1430	-59.16	-13	-46.16	-70.29	-63.94	0.85	7.78	H
	2146	-56.04	-13	-43.04	-70.97	-63.02	1.07	10.20	H
	2861	-55.63	-13	-42.63	-70.71	-63.38	1.24	11.13	H
									H
									H
									H
									H
	1430	-60.28	-13	-47.28	-70.23	-65.06	0.85	7.78	V
	2146	-56.79	-13	-43.79	-70.55	-63.77	1.07	10.20	V
	2861	-55.52	-13	-42.52	-70.60	-63.27	1.24	11.13	V
									V
									V
									V
									V

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