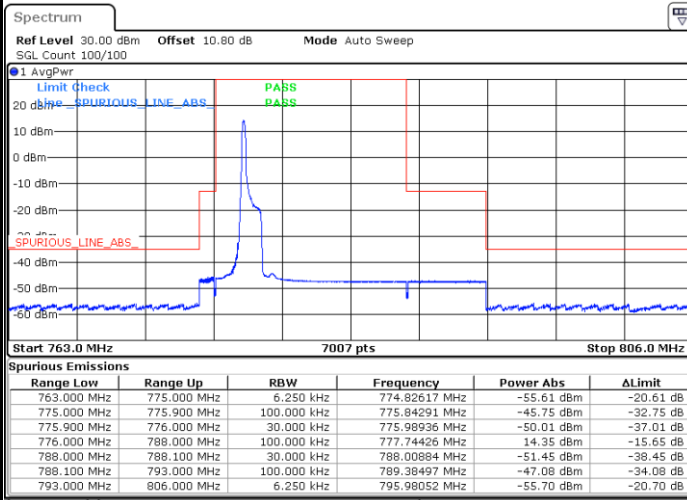




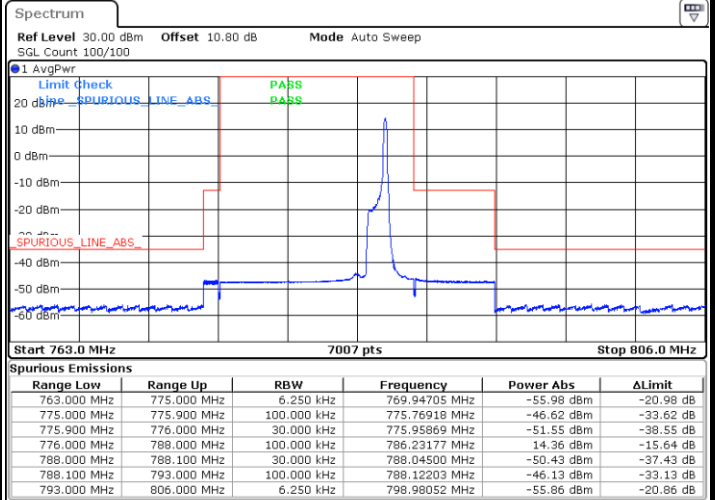
LTE Band 13 / 10MHz / QPSK

Lowest Band Edge / 1 RB



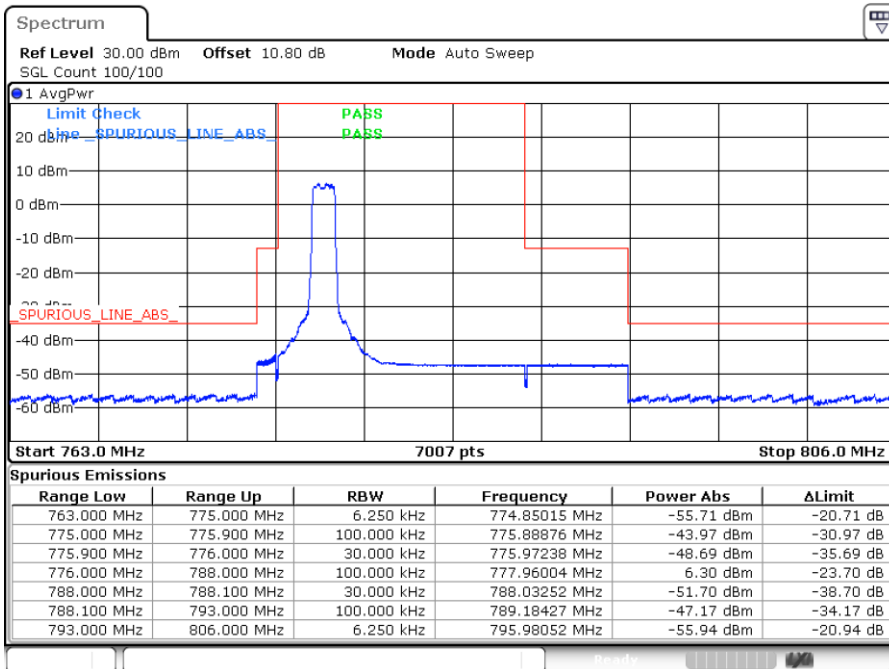
Date: 16.NOV.2019 00:44:01

Highest Band Edge / 1 RB



Date: 16.NOV.2019 00:45:54

Band Edge / Full RB

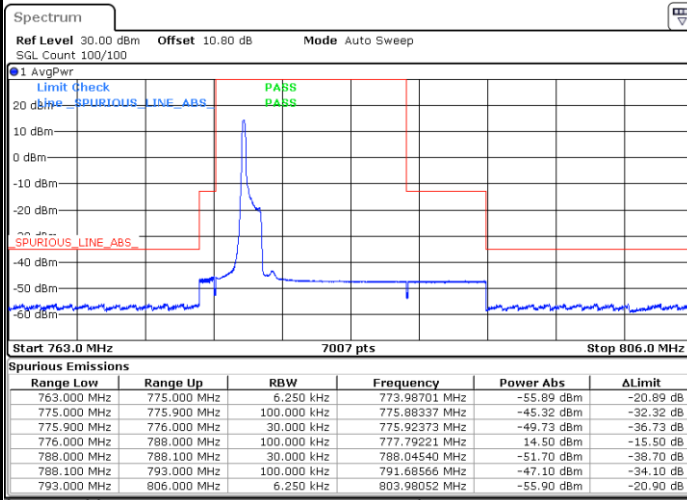


Date: 16.NOV.2019 00:38:26



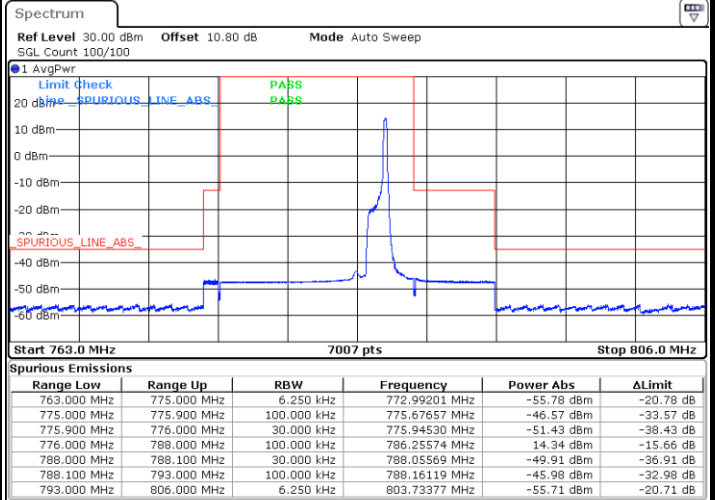
LTE Band 13 / 10MHz / 16QAM

Lowest Band Edge / 1 RB



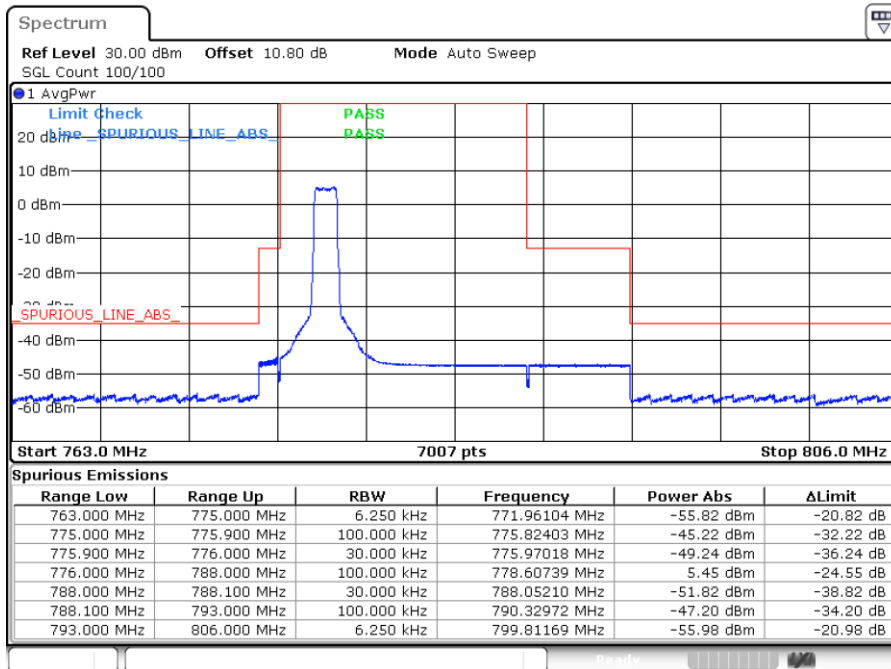
Date: 16.NOV.2019 00:42:00

Highest Band Edge / 1 RB



Date: 16.NOV.2019 00:47:37

Band Edge / Full RB



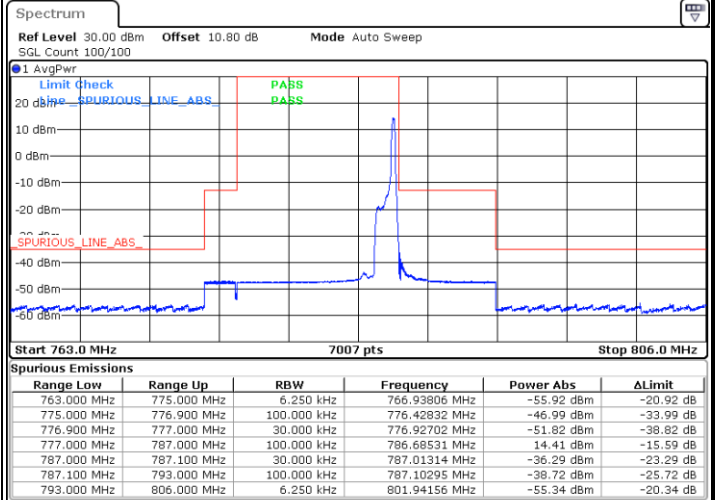
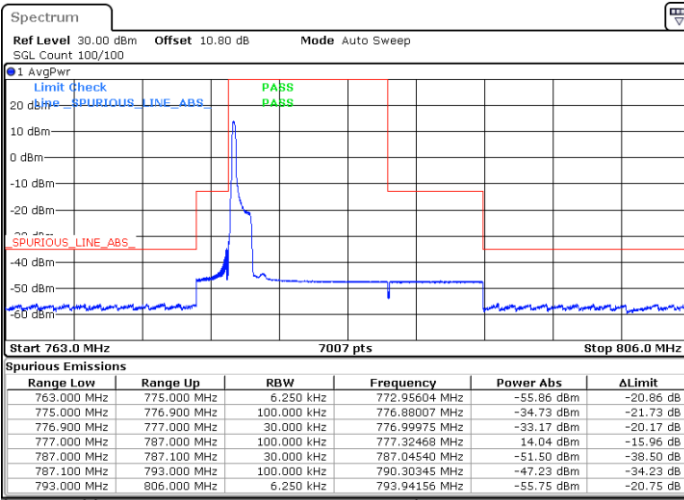
Date: 16.NOV.2019 00:40:11



IC LTE Band 13 / 5MHz / QPSK

Lowest Band Edge / 1 RB

Highest Band Edge / 1 RB

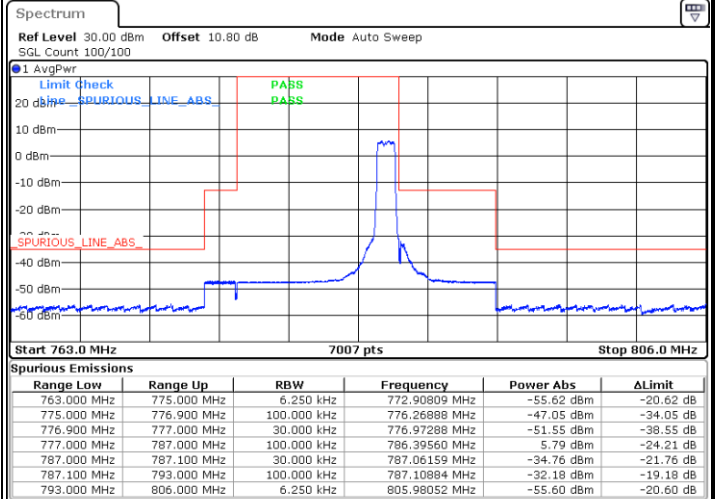
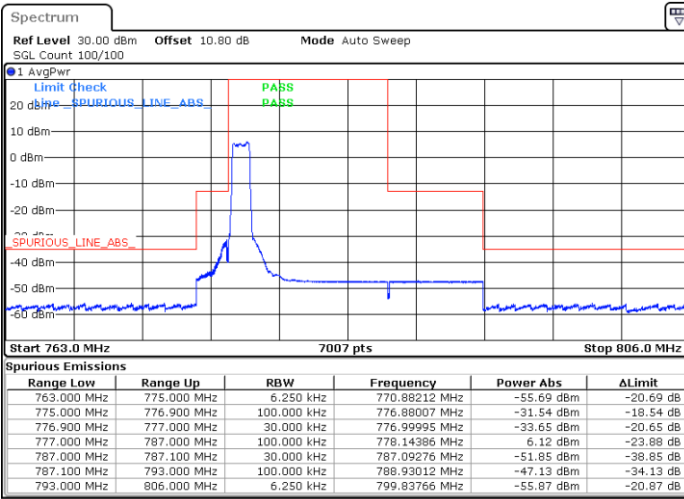


Date: 18.NOV.2019 21:42:28

Date: 18.NOV.2019 21:50:25

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 18.NOV.2019 21:36:31

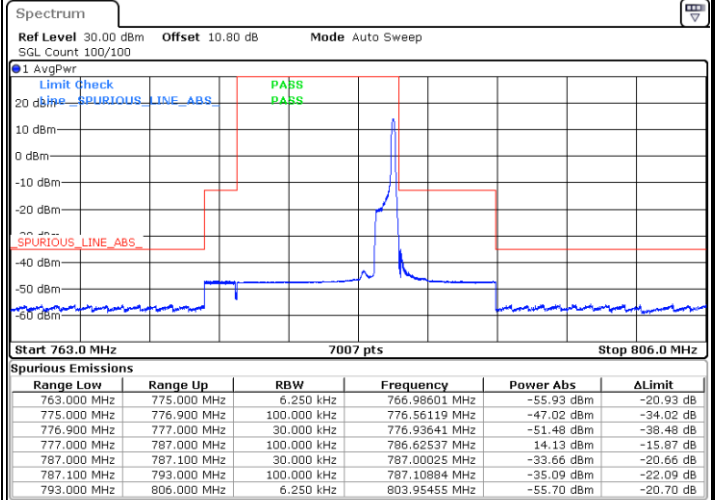
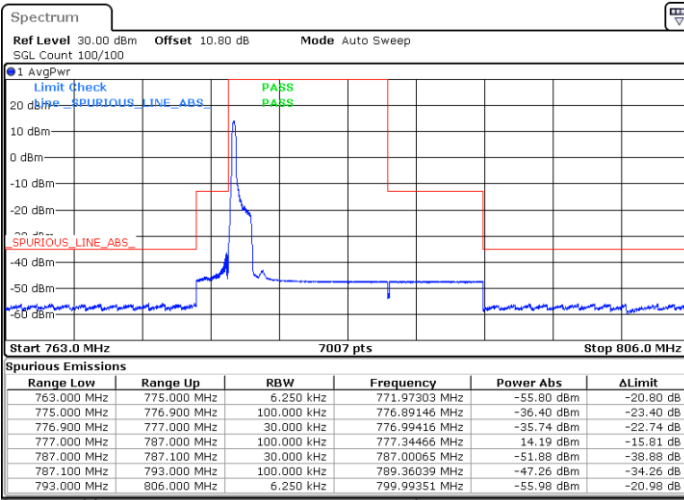
Date: 18.NOV.2019 21:44:29



IC LTE Band 13 / 5MHz / 16QAM

Lowest Band Edge / 1 RB

Highest Band Edge / 1 RB

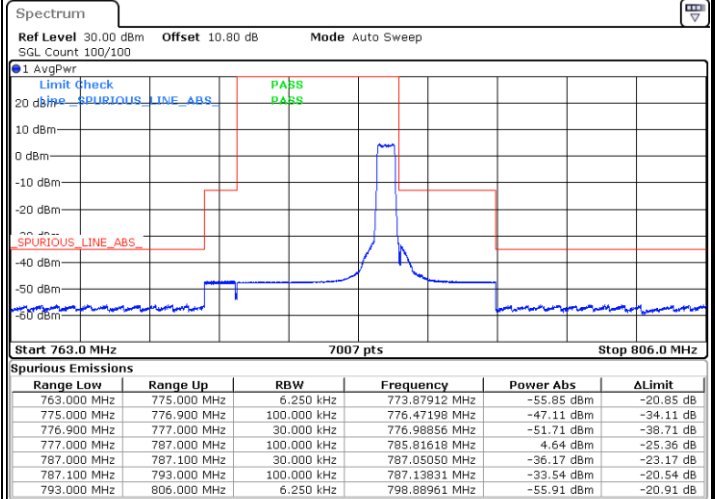
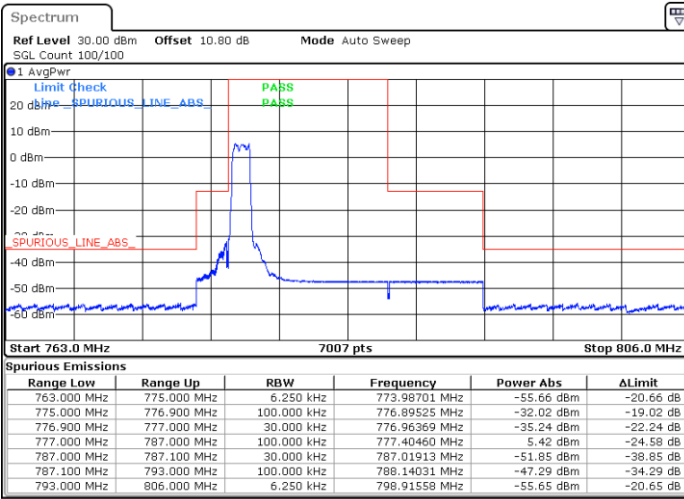


Date: 18.NOV.2019 21:40:33

Date: 18.NOV.2019 21:48:22

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



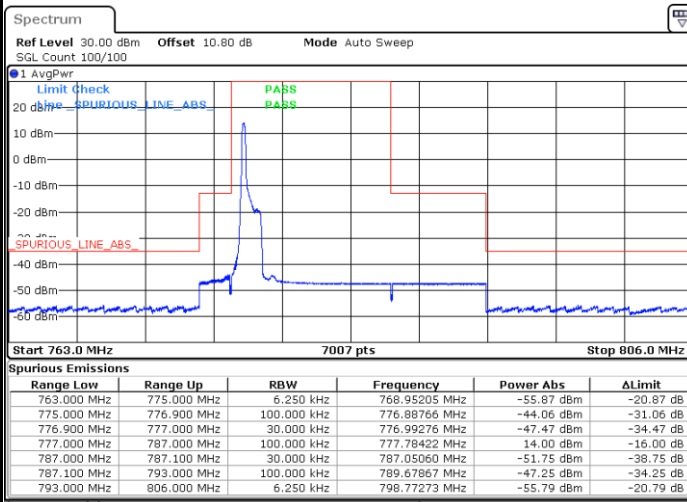
Date: 18.NOV.2019 21:38:47

Date: 18.NOV.2019 21:46:21



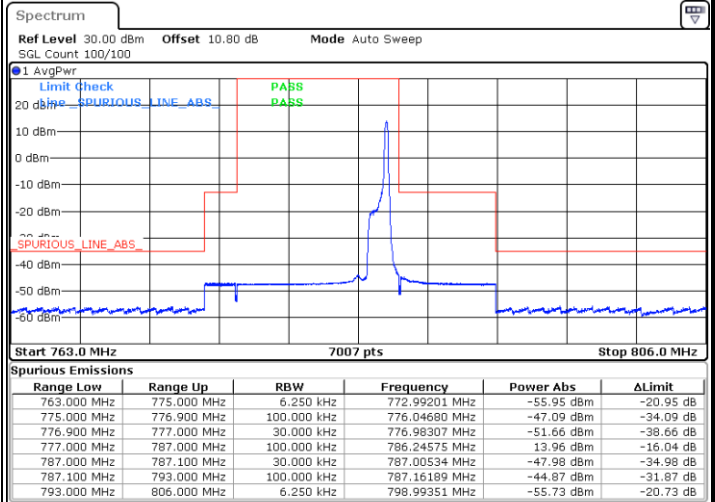
IC LTE Band 13 / 10MHz / QPSK

Lowest Band Edge / 1 RB



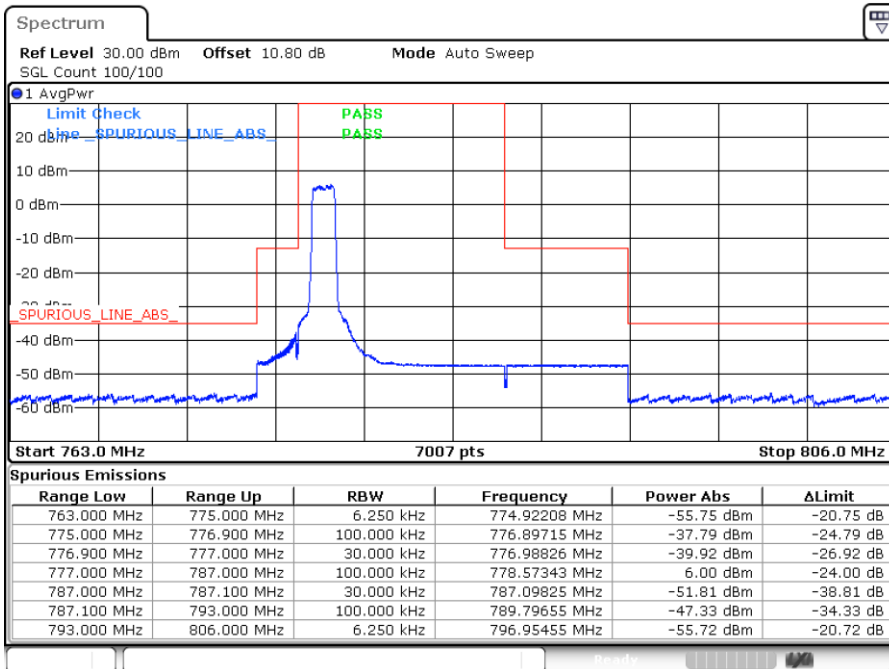
Date: 18.NOV.2019 21:58:16

Highest Band Edge / 1 RB



Date: 18.NOV.2019 22:00:33

Band Edge / Full RB



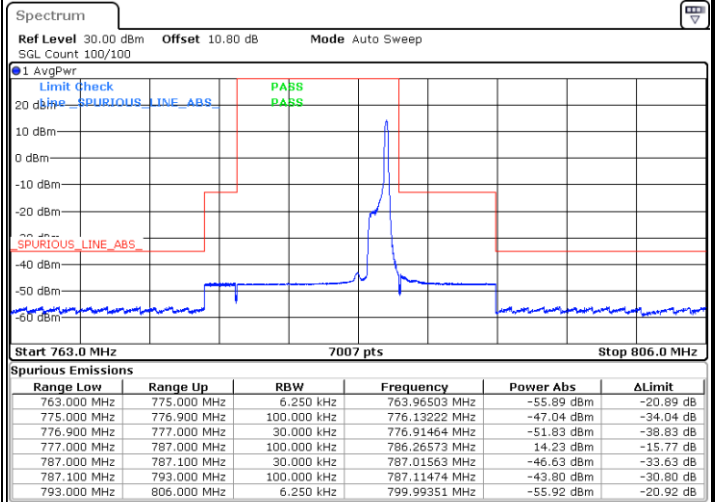
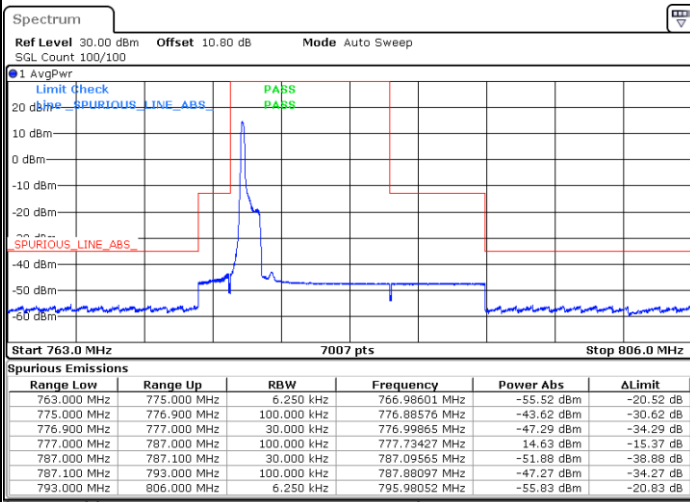
Date: 18.NOV.2019 21:53:06



IC LTE Band 13 / 10MHz / 16QAM

Lowest Band Edge / 1 RB

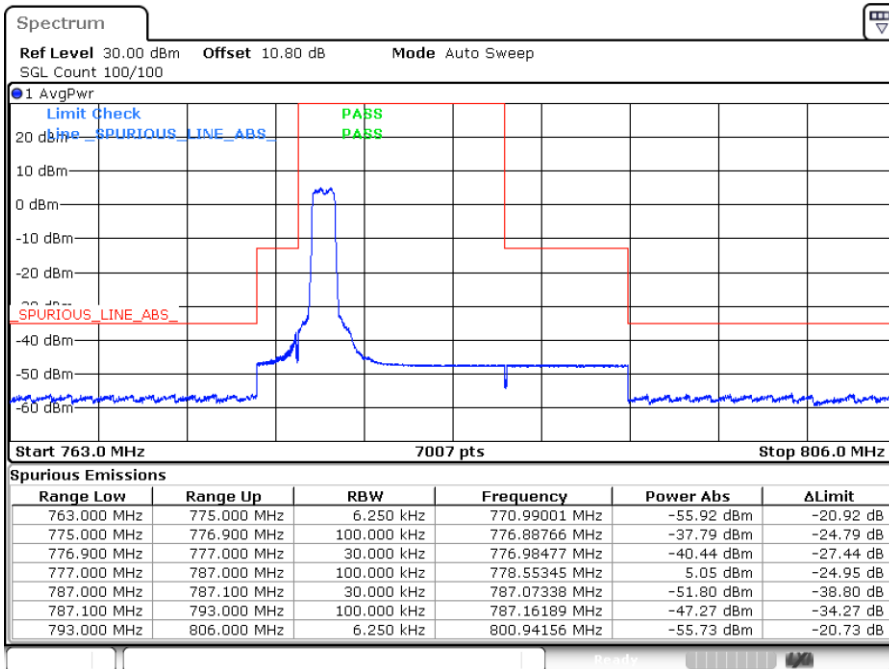
Highest Band Edge / 1 RB



Date: 18.NOV.2019 21:56:32

Date: 18.NOV.2019 22:02:25

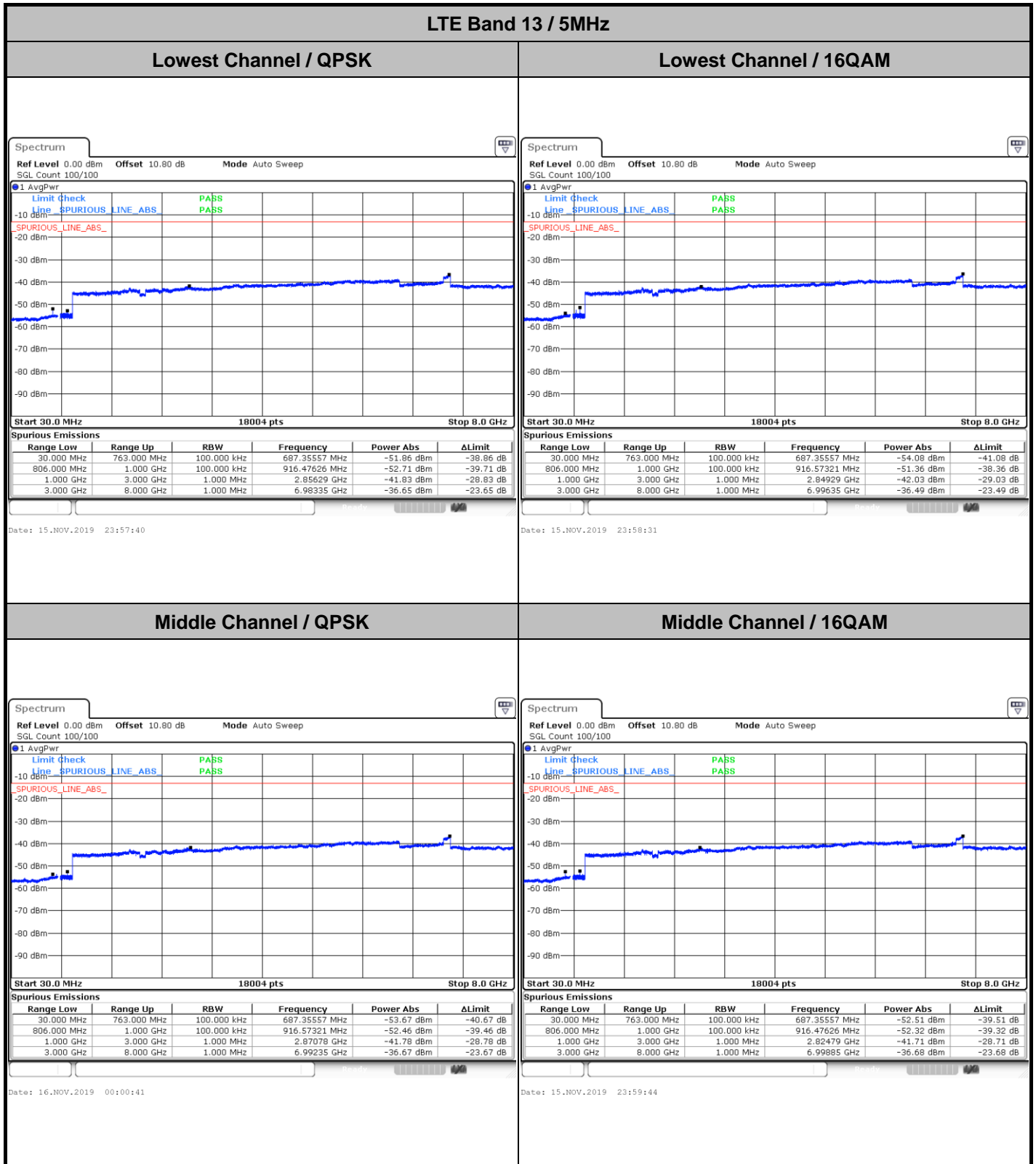
Band Edge / Full RB



Date: 18.NOV.2019 21:54:48



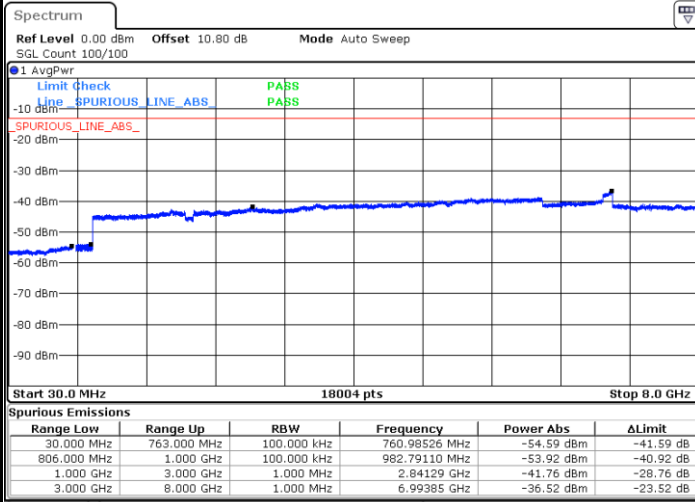
Conducted Spurious Emission





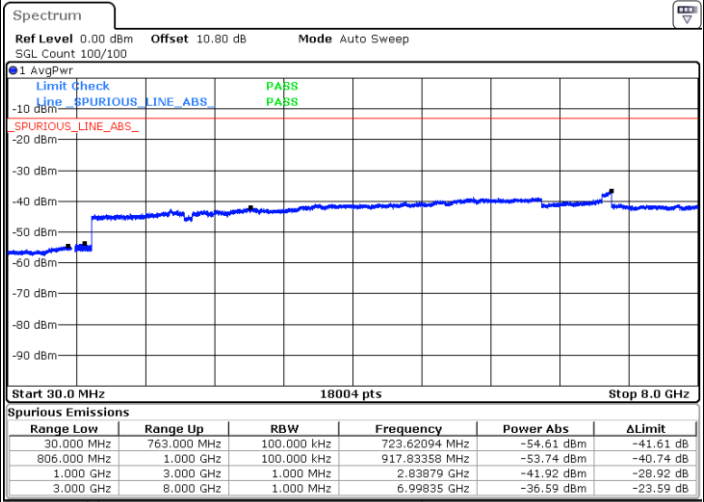
LTE Band 13 / 5MHz

Highest Channel / QPSK



Date: 16.NOV.2019 00:12:23

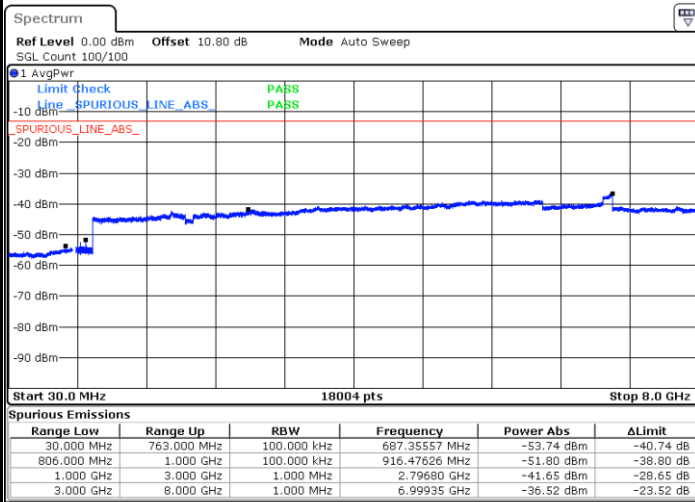
Highest Channel / 16QAM



Date: 16.NOV.2019 00:13:33

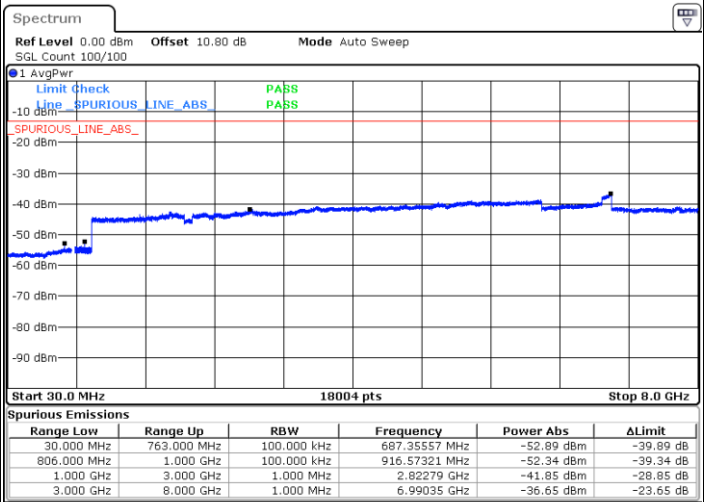
LTE Band 13 / 10MHz

Middle Channel / QPSK



Date: 16.NOV.2019 00:50:08

Middle Channel / 16QAM



Date: 16.NOV.2019 00:49:10



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	0.0118	PASS
40	Normal Voltage	0.0137	
30	Normal Voltage	0.0145	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0051	
0	Normal Voltage	0.0142	
-10	Normal Voltage	0.0060	
-20	Normal Voltage	0.0138	
-30	Normal Voltage	0.0047	
20	Maximum Voltage	0.0136	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0165	

Note:

1. Normal Voltage =3.85 V. ; Battery End Point (BEP) =3.5 V. ; Maximum Voltage =4.35 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 Cat. M1 Band 4 / 1.4MHz (Average) (GT - LC = -3.4 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.74	0.2366	20.34	0.1081
Middle		1	0	23.66	0.2323	20.26	0.1062
Highest		1	0	23.54	0.2259	20.14	0.1033
Lowest	16QAM	1	0	21.92	0.1556	18.52	0.0711
Middle		1	0	21.84	0.1528	18.44	0.0698
Highest		1	0	21.84	0.1528	18.44	0.0698
Limit	EIRP < 1W			Result		PASS	

LTE Cat. M1 Band 4 / 3MHz (Average) (GT - LC = -3.4 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.71	0.2350	20.31	0.1074
Middle		1	0	23.59	0.2286	20.19	0.1045
Highest		1	0	23.50	0.2239	20.10	0.1023
Lowest	16QAM	1	0	21.62	0.1452	18.22	0.0664
Middle		1	0	21.54	0.1426	18.14	0.0652
Highest		1	0	21.51	0.1416	18.11	0.0647
Limit	EIRP < 1W			Result		PASS	

LTE Cat. M1 Band 4 / 5MHz (Average) (GT - LC = -3.4 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.76	0.2377	20.36	0.1086
Middle		1	0	23.63	0.2307	20.23	0.1054
Highest		1	0	23.53	0.2254	20.13	0.1030
Lowest	16QAM	1	0	23.89	0.2449	20.49	0.1119
Middle		1	0	23.74	0.2366	20.34	0.1081
Highest		1	0	23.65	0.2317	20.25	0.1059
Limit	EIRP < 1W			Result		PASS	



LTE Cat. M1 Band 4 / 10MHz (Average) (GT - LC = -3.4 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.73	0.2360	20.33	0.1079
Middle		1	0	23.64	0.2312	20.24	0.1057
Highest		1	0	23.54	0.2259	20.14	0.1033
Lowest	16QAM	1	0	23.88	0.2443	20.48	0.1117
Middle		1	0	23.75	0.2371	20.35	0.1084
Highest		1	0	23.64	0.2312	20.24	0.1057
Limit	EIRP < 1W			Result		PASS	

LTE Cat. M1 Band 4 / 15MHz (Average) (GT - LC = -3.4 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.73	0.2360	20.33	0.1079
Middle		1	0	23.62	0.2301	20.22	0.1052
Highest		1	0	23.52	0.2249	20.12	0.1028
Lowest	16QAM	1	0	23.87	0.2438	20.47	0.1114
Middle		1	0	23.73	0.2360	20.33	0.1079
Highest		1	0	23.63	0.2307	20.23	0.1054
Limit	EIRP < 1W			Result		PASS	

LTE Cat. M1 Band 4 / 20MHz (Average) (GT - LC = -3.4 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.63	0.2307	20.23	0.1054
Middle		1	0	23.73	0.2360	20.33	0.1079
Highest		1	0	23.53	0.2254	20.13	0.1030
Lowest	16QAM	1	0	23.89	0.2449	20.49	0.1119
Middle		1	0	23.72	0.2355	20.32	0.1076
Highest		1	0	23.86	0.2432	20.46	0.1112
Limit	EIRP < 1W			Result		PASS	



LTE Cat. M1 Band 12 / 1.4MHz (Average) (GT - LC = -18 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	23.24	0.2109	3.09	0.0020
Middle		1	0	23.17	0.2075	3.02	0.0020
Highest		1	0	23.16	0.2070	3.01	0.0020
Lowest	16QAM	1	0	21.96	0.1570	1.81	0.0015
Middle		1	0	22.03	0.1596	1.88	0.0015
Highest		1	0	21.99	0.1581	1.84	0.0015
Limit	ERP < 3W			Result		PASS	

LTE Cat. M1 Band 12 / 3MHz (Average) (GT - LC = -18 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	3	0	21.95	0.1567	1.80	0.0015
Middle		3	0	21.90	0.1549	1.75	0.0015
Highest		3	0	22.88	0.1941	2.73	0.0019
Lowest	16QAM	1	0	21.83	0.1524	1.68	0.0015
Middle		1	0	21.81	0.1517	1.66	0.0015
Highest		1	0	23.01	0.2000	2.86	0.0019
Limit	ERP < 3W			Result		PASS	

LTE Cat. M1 Band 12 / 5MHz (Average) (GT - LC = -18 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	22.83	0.1919	2.68	0.0019
Middle		1	0	22.83	0.1919	2.68	0.0019
Highest		1	0	22.78	0.1897	2.63	0.0018
Lowest	16QAM	1	0	23.03	0.2009	2.88	0.0019
Middle		1	0	22.98	0.1986	2.83	0.0019
Highest		1	0	23.05	0.2018	2.90	0.0019
Limit	ERP < 3W			Result		PASS	

LTE Cat. M1 Band 12 / 10MHz (Average) (GT - LC = -18 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	3	0	22.96	0.1977	2.81	0.0019
Middle		3	0	22.94	0.1968	2.79	0.0019
Highest		3	0	22.89	0.1945	2.74	0.0019
Lowest	16QAM	3	0	23.11	0.2046	2.96	0.0020
Middle		3	0	23.03	0.2009	2.88	0.0019
Highest		3	0	23.01	0.2000	2.86	0.0019
Limit	ERP < 3W			Result		PASS	



LTE Cat. M1 Band 13 / 5MHz (Average) (GT - LC = -14.7 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	5	23.16	0.2070	6.31	0.0043
Middle		1	5	23.08	0.2032	6.23	0.0042
Highest		1	5	23.02	0.2004	6.17	0.0041
Lowest	16QAM	1	0	23.41	0.2193	6.56	0.0045
Middle		1	0	23.31	0.2143	6.46	0.0044
Highest		1	0	23.33	0.2153	6.48	0.0044
Limit	ERP < 3W			Result		PASS	

LTE Cat. M1 Band 13 / 10MHz (Average) (GT - LC = -14.7 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	-	-	-	-	-	-
Middle		3	0	23.27	0.2123	6.42	0.0044
Highest		-	-	-	-	-	-
Lowest	16QAM	-	-	-	-	-	-
Middle		1	0	23.35	0.2163	6.50	0.0045
Highest		-	-	-	-	-	-
Limit	ERP < 3W			Result		PASS	



Radiated Spurious Emission

LTE Band 4

LTE Band 4 / 20MHz / 16QAM									
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)
Lowest	3420	-42.15	-13	-29.15	-58.46	-53.11	1.35	12.31	H
	5135	-48.74	-13	-35.74	-70.46	-59.88	1.65	12.79	H
	6843	-38.94	-13	-25.94	-64.44	-49.32	1.74	12.12	H
	8558	-41.68	-13	-28.68	-69.44	-51.79	2.06	12.18	H
									H
	3420	-42.70	-13	-29.70	-59.43	-53.66	1.35	12.31	V
	5135	-47.63	-13	-34.63	-69.1	-58.77	1.65	12.79	V
	6843	-38.74	-13	-25.74	-63.84	-49.12	1.74	12.12	V
	8558	-36.56	-13	-23.56	-64.96	-46.67	2.06	12.18	V
									V
Middle	3448	-41.16	-13	-28.16	-57.74	-52.18	1.35	12.38	H
	5170	-50.33	-13	-37.33	-72.09	-61.51	1.65	12.84	H
	6899	-40.29	-13	-27.29	-66.06	-50.60	1.73	12.04	H
	8621	-41.88	-13	-28.88	-69.89	-51.97	2.06	12.15	H
									H
	3448	-44.24	-13	-31.24	-61.21	-55.26	1.35	12.38	V
	5170	-49.76	-13	-36.76	-71.31	-60.94	1.65	12.84	V
	6899	-37.42	-13	-24.42	-62.76	-47.73	1.73	12.04	V
	8621	-37.07	-13	-24.07	-65.85	-47.16	2.06	12.15	V
									V



Highest	3476	-41.93	-13	-28.93	-58.78	-53.02	1.36	12.44	H
	5212	-50.07	-13	-37.07	-71.88	-61.30	1.67	12.90	H
	6948	-41.85	-13	-28.85	-67.87	-52.10	1.73	11.97	H
	8684	-42.03	-13	-29.03	-70.18	-52.09	2.07	12.13	H
									H
									H
									H
	3476	-46.40	-13	-33.40	-63.62	-57.49	1.36	12.44	V
	5212	-50.05	-13	-37.05	-71.68	-61.28	1.67	12.90	V
	6948	-39.93	-13	-26.93	-65.49	-50.18	1.73	11.97	V
	8684	-38.52	-13	-25.52	-67.41	-48.58	2.07	12.13	V
									V
									V
									V

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



LTE Band 12

LTE Band 12 / 1.4MHz / 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	1400	-52.37	-13	-39.37	-63.68	-57.02	0.84	7.64	H
	2096	-46.92	-13	-33.92	-61.04	-53.84	1.06	10.13	H
	2800	-51.02	-13	-38.02	-65.89	-58.71	1.22	11.06	H
									H
									H
									H
									H
	1400	-54.31	-13	-41.31	-64.39	-58.96	0.84	7.64	V
	2096	-47.04	-13	-34.04	-60.06	-53.96	1.06	10.13	V
	2800	-54.84	-13	-41.84	-69.65	-62.53	1.22	11.06	V
									V
									V
									V
									V
Middle	1416	-49.66	-13	-36.66	-60.88	-54.38	0.85	7.71	H
	2120	-48.00	-13	-35.00	-62.52	-54.95	1.07	10.17	H
	2832	-55.20	-13	-42.20	-70.19	-62.92	1.23	11.10	H
									H
									H
									H
									H
	1416	-53.95	-13	-40.95	-63.96	-58.67	0.85	7.71	V
	2120	-47.47	-13	-34.47	-60.86	-54.42	1.07	10.17	V
	2832	-55.29	-13	-42.29	-70.25	-63.01	1.23	11.10	V
									V
									V
									V
									V



Highest	1432	-48.68	-13	-35.68	-59.80	-53.46	0.85	7.79	H
	2144	-48.70	-13	-35.70	-63.61	-55.68	1.07	10.20	H
	2856	-53.96	-13	-40.96	-69.02	-61.70	1.24	11.13	H
									H
									H
									H
									H
	1432	-51.66	-13	-38.66	-61.60	-56.44	0.85	7.79	V
	2144	-46.85	-13	-33.85	-60.59	-53.83	1.07	10.20	V
	2856	-56.62	-13	-43.62	-71.68	-64.36	1.24	11.13	V
									V
									V
									V
									V

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



LTE Band 13

LTE Band 13 / 5MHz / 16QAM									
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	1552	-45.71	-13	-32.71	-56.03	-50.97	0.89	8.30	H
	2336	-47.02	-13	-34.02	-61.84	-54.23	1.11	10.47	H
	3112	-52.63	-13	-39.63	-68.40	-60.76	1.29	11.57	H
	4664	-49.65	-13	-36.65	-70.31	-58.69	1.48	12.67	H
									H
									H
									H
	1552	-46.83	-13.00	-33.83	-56.44	-52.09	0.89	8.30	V
	2336	-49.82	-13	-36.82	-64.21	-57.03	1.11	10.47	V
	3112	-54.87	-13	-41.87	-70.98	-63.00	1.29	11.57	V
	4664	-51.40	-13	-38.40	-71.32	-60.44	1.48	12.67	V
									V
									V
									V
Middle	1560	-47.92	-42.15	-5.77	-58.18	-53.21	0.89	8.33	H
	2336	-45.89	-13	-32.89	-60.71	-53.10	1.11	10.47	H
	3120	-53.36	-13	-40.36	-69.14	-61.51	1.29	11.59	H
									H
									H
									H
									H
	1564	-48.15	-42.15	-6.00	-57.77	-53.45	0.89	8.34	V
	2336	-50.59	-13	-37.59	-64.98	-57.80	1.11	10.47	V
	3128	-54.26	-13	-41.26	-70.40	-62.42	1.29	11.61	V
									V
									V
									V
									V



Highest	1568	-46.43	-42.15	-4.28	-56.63	-51.75	0.89	8.36	H
	2344	-47.09	-13	-34.09	-61.84	-54.31	1.12	10.48	H
	3120	-55.31	-13	-42.31	-71.09	-63.46	1.29	11.59	H
									H
									H
									H
									H
	1568	-47.63	-42.15	-5.48	-57.24	-52.95	0.89	8.36	V
	2344	-48.86	-13	-35.86	-63.24	-56.08	1.12	10.48	V
	3120	-54.72	-13	-41.72	-70.86	-62.87	1.29	11.59	V
									V
									V
									V
									V

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



LTE Band 13 / 10MHz / 16QAM									
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)
Middle	1552	-50.65	-13	-37.65	-60.97	-55.91	0.89	8.30	H
	2336	-46.41	-13	-33.41	-61.23	-53.62	1.11	10.47	H
	3110	-54.37	-13	-41.37	-70.13	-62.49	1.29	11.56	H
	4664	-50.29	-13	-37.29	-70.95	-59.33	1.48	12.67	H
									H
									H
									H
	1552	-51.13	-13	-38.13	-60.74	-56.39	0.89	8.30	V
	2336	-51.70	-13	-38.70	-66.09	-58.91	1.11	10.47	V
	3110	-54.95	-13	-41.95	-71.06	-63.07	1.29	11.56	V
	4664	-48.96	-13	-35.96	-68.88	-58.00	1.48	12.67	V
									V
									V
									V

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