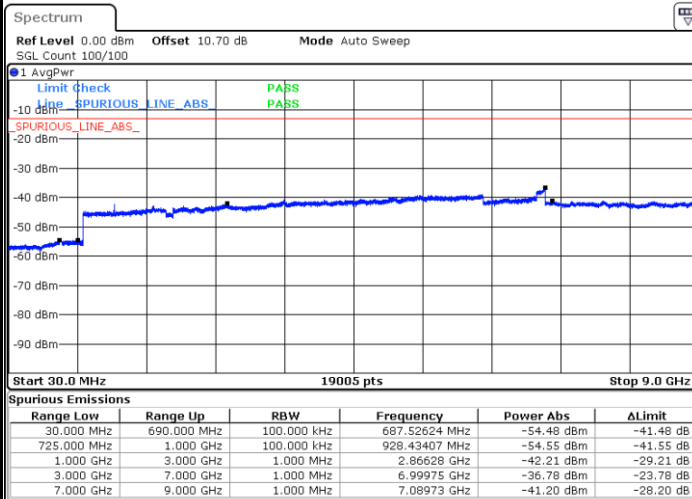




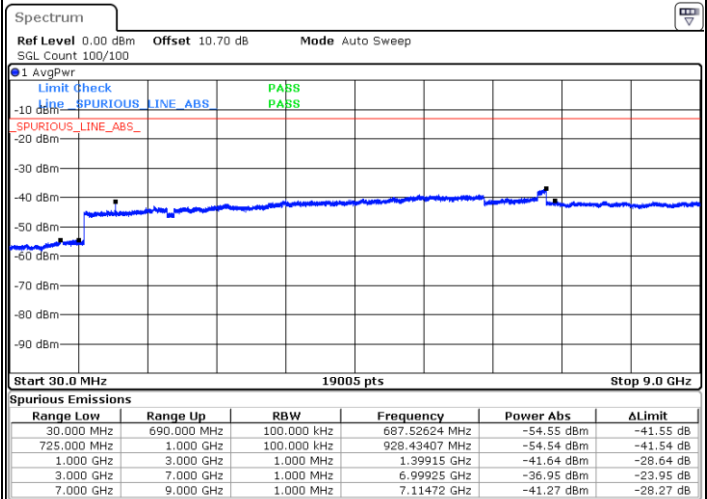
LTE Band 12 / 5MHz

Lowest Channel / QPSK



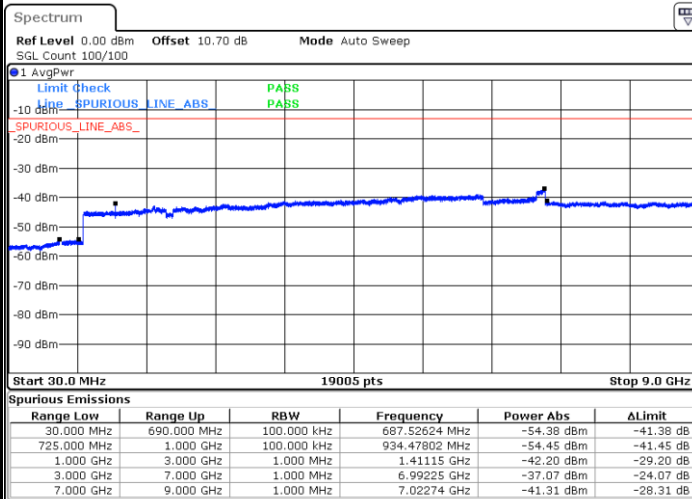
Date: 13.FEB.2020 05:54:38

Lowest Channel / 16QAM



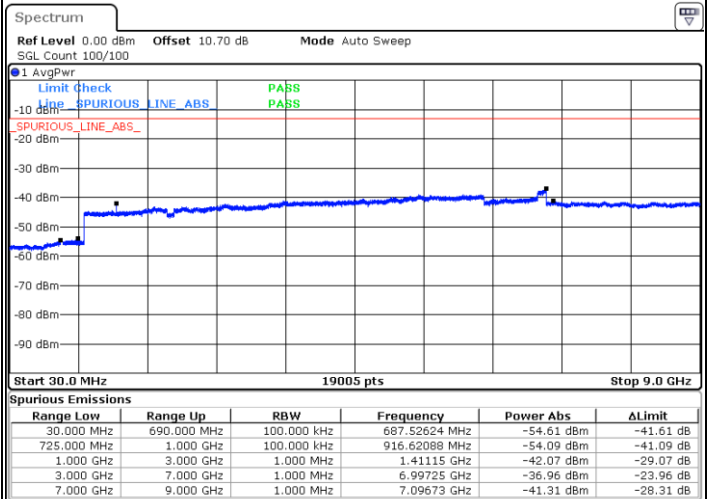
Date: 13.FEB.2020 05:55:52

Middle Channel / QPSK



Date: 13.FEB.2020 05:59:45

Middle Channel / 16QAM

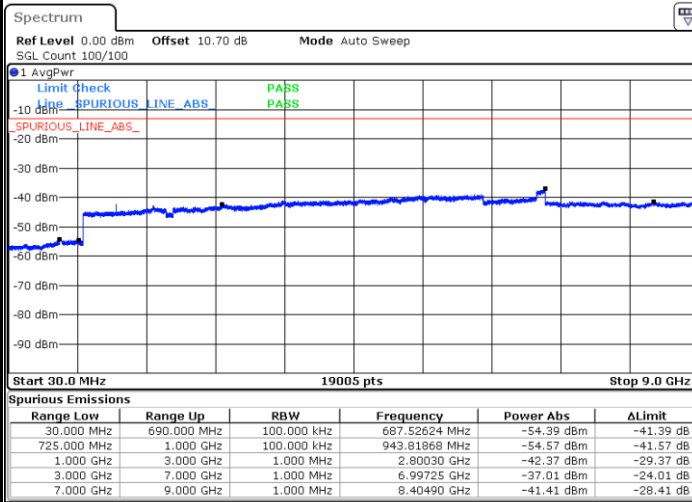


Date: 13.FEB.2020 05:58:41



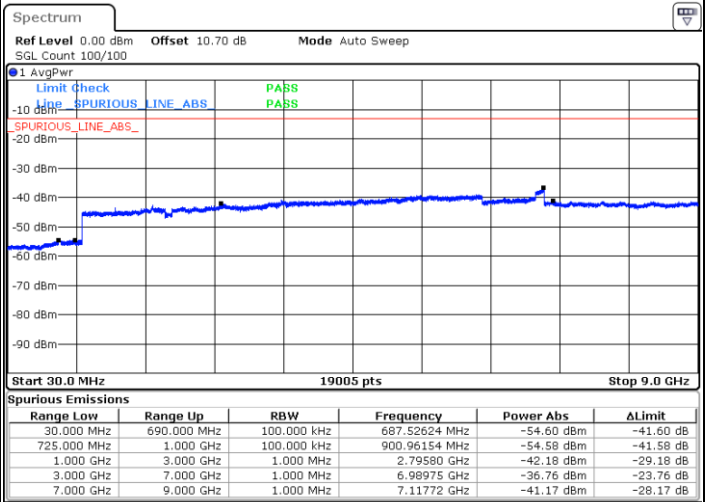
LTE Band 12 / 5MHz

Highest Channel / QPSK



Date: 13.FEB.2020 06:28:27

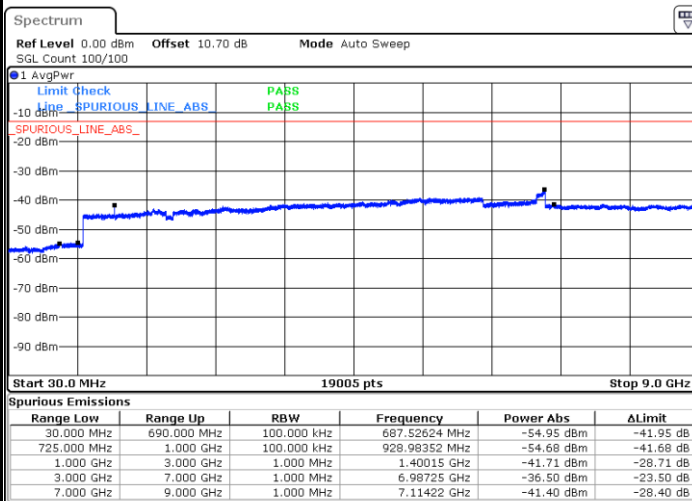
Highest Channel / 16QAM



Date: 13.FEB.2020 06:27:16

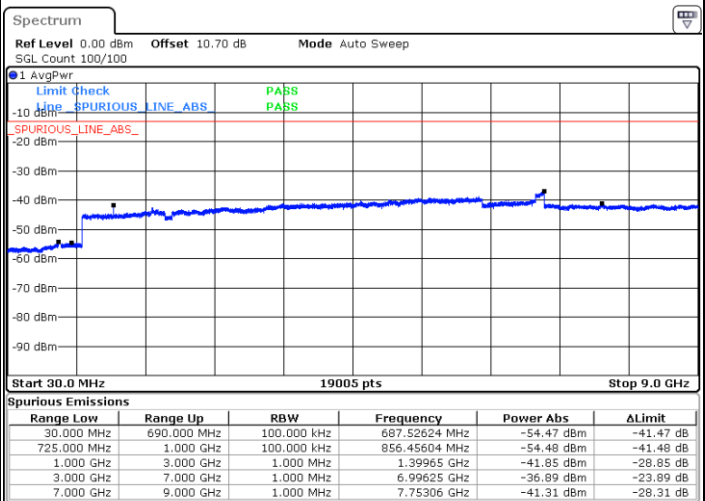
LTE Band 12 / 10MHz

Lowest Channel / QPSK



Date: 13.FEB.2020 06:36:51

Lowest Channel / 16QAM

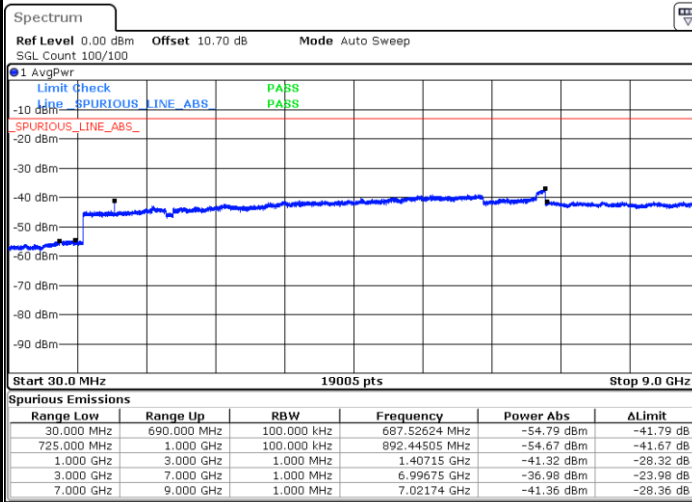


Date: 13.FEB.2020 06:38:03



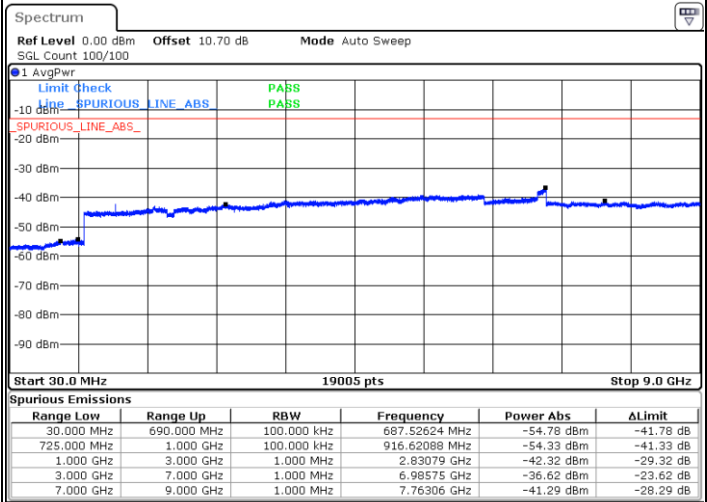
LTE Band 12 / 10MHz

Middle Channel / QPSK



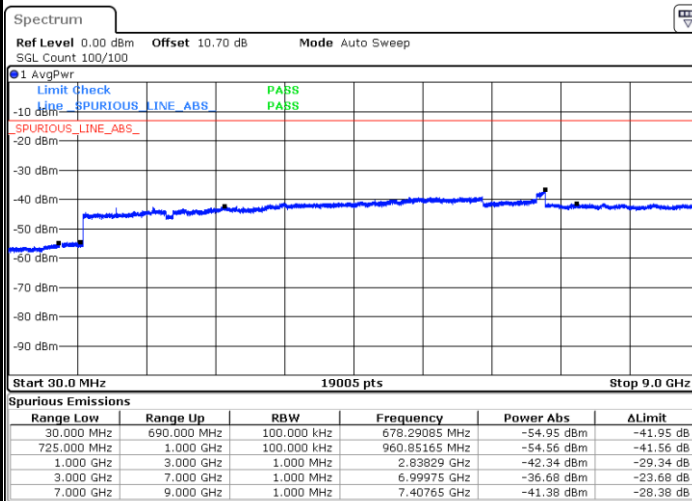
Date: 13.FEB.2020 06:42:05

Middle Channel / 16QAM



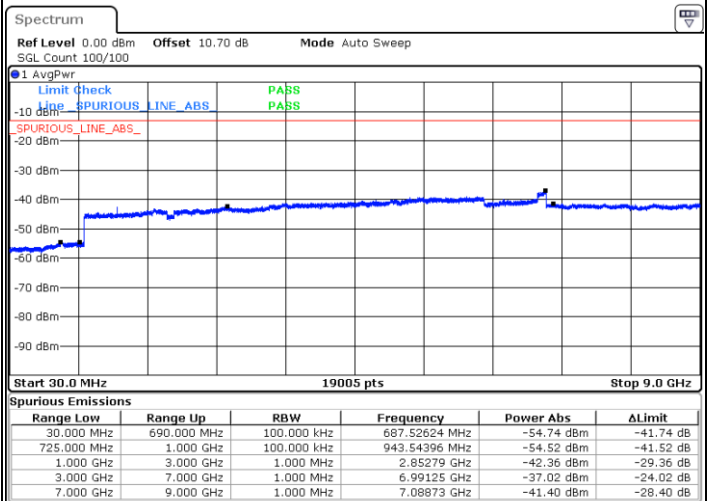
Date: 13.FEB.2020 06:40:45

Highest Channel / QPSK



Date: 13.FEB.2020 06:52:53

Highest Channel / 16QAM



Date: 13.FEB.2020 06:53:57

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	0.0082	PASS
40	Normal Voltage	0.0114	
30	Normal Voltage	0.0148	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0011	
0	Normal Voltage	0.0030	
-10	Normal Voltage	0.0092	
-20	Normal Voltage	0.0011	
-30	Normal Voltage	0.0143	
20	Maximum Voltage	0.0106	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0140	

Note:

1. Normal Voltage =3.8 V. ; Battery End Point (BEP) =3.3 V. ; Maximum Voltage =4.2 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 2 / 1.4MHz (Average) (GT - LC = 3 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.13	0.2056	26.13	0.4102
Middle		1	0	22.90	0.1950	25.90	0.3890
Highest		1	0	23.21	0.2094	26.21	0.4178
Lowest	16QAM	1	5	22.36	0.1722	25.36	0.3436
Middle		1	5	22.14	0.1637	25.14	0.3266
Highest		1	5	22.46	0.1762	25.46	0.3516
Limit	EIRP < 2W			Result		PASS	

LTE Cat. M1 Band 2 / 3MHz (Average) (GT - LC = 3 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.30	0.2138	26.30	0.4266
Middle		1	0	23.10	0.2042	26.10	0.4074
Highest		1	0	23.30	0.2138	26.30	0.4266
Lowest	16QAM	1	0	22.33	0.1710	25.33	0.3412
Middle		1	0	22.12	0.1629	25.12	0.3251
Highest		1	0	23.37	0.2173	26.37	0.4335
Limit	EIRP < 2W			Result		PASS	

LTE Cat. M1 Band 2 / 5MHz (Average) (GT - LC = 3 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.23	0.2104	26.23	0.4198
Middle		1	0	23.01	0.2000	26.01	0.3990
Highest		1	0	23.75	0.2371	26.75	0.4732
Lowest	16QAM	1	0	23.65	0.2317	26.65	0.4624
Middle		1	0	23.47	0.2223	26.47	0.4436
Highest		1	0	23.72	0.2355	26.72	0.4699
Limit	EIRP < 2W			Result		PASS	



LTE Cat. M1 Band 2 / 10MHz (Average) (GT - LC = 3 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	3	0	23.68	0.2333	26.68	0.4656
Middle		3	0	23.34	0.2158	26.34	0.4305
Highest		3	0	23.61	0.2296	26.61	0.4581
Lowest	16QAM	1	0	23.67	0.2328	26.67	0.4645
Middle		1	0	23.45	0.2213	26.45	0.4416
Highest		1	0	23.72	0.2355	26.72	0.4699
Limit	EIRP < 2W			Result		PASS	

LTE Cat. M1 Band 2 / 15MHz (Average) (GT - LC = 3 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	3	0	23.58	0.2280	26.58	0.4550
Middle		3	0	23.63	0.2307	26.63	0.4603
Highest		3	0	23.72	0.2355	26.72	0.4699
Lowest	16QAM	1	0	23.62	0.2301	26.62	0.4592
Middle		1	0	23.57	0.2275	26.57	0.4539
Highest		1	0	23.78	0.2388	26.78	0.4764
Limit	EIRP < 2W			Result		PASS	

LTE Cat. M1 Band 2 / 20MHz (Average) (GT - LC = 3 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	3	0	23.54	0.2259	26.54	0.4508
Middle		3	0	23.43	0.2203	26.43	0.4395
Highest		3	0	23.64	0.2312	26.64	0.4613
Lowest	16QAM	1	5	23.61	0.2296	26.61	0.4581
Middle		1	5	23.43	0.2203	26.43	0.4395
Highest		1	5	23.73	0.2360	26.73	0.4710
Limit	EIRP < 2W			Result		PASS	



LTE Cat. M1 Band 4 / 1.4MHz (Average) (GT - LC = 2 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.07	0.2028	25.07	0.3214
Middle		1	0	23.32	0.2148	25.32	0.3404
Highest		1	0	23.46	0.2218	25.46	0.3516
Lowest	16QAM	1	0	22.43	0.1750	24.43	0.2773
Middle		1	0	22.72	0.1871	24.72	0.2965
Highest		1	0	22.94	0.1968	24.94	0.3119
Limit	EIRP < 1W			Result		PASS	

LTE Cat. M1 Band 4 / 3MHz (Average) (GT - LC = 2 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.25	0.2113	25.25	0.3350
Middle		1	0	23.52	0.2249	25.52	0.3565
Highest		1	0	23.70	0.2344	25.70	0.3715
Lowest	16QAM	1	0	22.30	0.1698	24.30	0.2692
Middle		1	0	22.62	0.1828	24.62	0.2897
Highest		1	0	22.77	0.1892	24.77	0.2999
Limit	EIRP < 1W			Result		PASS	

LTE Cat. M1 Band 4 / 5MHz (Average) (GT - LC = 2 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	3	0	23.90	0.2455	25.90	0.3890
Middle		3	0	24.06	0.2547	26.06	0.4036
Highest		3	0	24.17	0.2612	26.17	0.4140
Lowest	16QAM	1	0	23.87	0.2438	25.87	0.3864
Middle		1	0	24.04	0.2535	26.04	0.4018
Highest		1	0	24.23	0.2649	26.23	0.4198
Limit	EIRP < 1W			Result		PASS	



LTE Cat. M1 Band 4 / 10MHz (Average) (GT - LC = 2 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	3	0	23.92	0.2466	25.92	0.3908
Middle		3	0	24.12	0.2582	26.12	0.4093
Highest		3	0	24.32	0.2704	26.32	0.4285
Lowest	16QAM	1	5	23.87	0.2438	25.87	0.3864
Middle		1	5	24.10	0.2570	26.10	0.4074
Highest		1	5	24.27	0.2673	26.27	0.4236
Limit	EIRP < 1W			Result		PASS	

LTE Cat. M1 Band 4 / 15MHz (Average) (GT - LC = 2 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	3	0	23.80	0.2399	25.80	0.3802
Middle		3	0	23.92	0.2466	25.92	0.3908
Highest		3	0	24.24	0.2655	26.24	0.4207
Lowest	16QAM	1	0	23.83	0.2415	25.83	0.3828
Middle		1	0	23.99	0.2506	25.99	0.3972
Highest		1	0	24.25	0.2661	26.25	0.4217
Limit	EIRP < 1W			Result		PASS	

LTE Cat. M1 Band 4 / 20MHz (Average) (GT - LC = 2 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	3	0	23.54	0.2259	25.54	0.3581
Middle		3	0	23.97	0.2495	25.97	0.3954
Highest		3	0	24.12	0.2582	26.12	0.4093
Lowest	16QAM	1	0	23.78	0.2388	25.78	0.3784
Middle		1	0	24.05	0.2541	26.05	0.4027
Highest		1	0	24.17	0.2612	26.17	0.4140
Limit	EIRP < 1W			Result		PASS	



LTE Cat. M1 Band 12 / 1.4MHz (Average) (GT - LC = 2 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	22.82	0.1914	22.67	0.1849
Middle		1	0	22.65	0.1841	22.50	0.1778
Highest		1	0	22.77	0.1892	22.62	0.1828
Lowest	16QAM	1	0	22.07	0.1611	21.92	0.1556
Middle		1	0	22.10	0.1622	21.95	0.1567
Highest		1	0	22.09	0.1618	21.94	0.1563
Limit	ERP < 3W			Result		PASS	

LTE Cat. M1 Band 12 / 3MHz (Average) (GT - LC = 2 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	23.10	0.2042	22.95	0.1972
Middle		1	0	22.95	0.1972	22.80	0.1905
Highest		1	0	22.99	0.1991	22.84	0.1923
Lowest	16QAM	1	0	22.07	0.1611	21.92	0.1556
Middle		1	0	21.93	0.1560	21.78	0.1507
Highest		1	0	21.96	0.1570	21.81	0.1517
Limit	ERP < 3W			Result		PASS	

LTE Cat. M1 Band 12 / 5MHz (Average) (GT - LC = 2 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	5	22.97	0.1982	22.82	0.1914
Middle		1	5	22.85	0.1928	22.70	0.1862
Highest		1	5	22.85	0.1928	22.70	0.1862
Lowest	16QAM	1	0	23.26	0.2118	23.11	0.2046
Middle		1	0	23.18	0.2080	23.03	0.2009
Highest		1	0	23.22	0.2099	23.07	0.2028
Limit	ERP < 3W			Result		PASS	



LTE Cat. M1 Band 12 / 10MHz (Average) (GT - LC = 2 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	3	0	23.19	0.2084	23.04	0.2014
Middle		3	0	23.01	0.2000	22.86	0.1932
Highest		3	0	23.07	0.2028	22.92	0.1959
Lowest	16QAM	1	0	23.32	0.2148	23.17	0.2075
Middle		1	0	23.23	0.2104	23.08	0.2032
Highest		1	0	23.19	0.2084	23.04	0.2014
Limit	ERP < 3W			Result		PASS	

**Radiated Spurious Emission****LTE Band 2**

LTE Band 2 / 15MHz / 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	3702	-50.02	-13	-37.02	-70.85	-56.59	1.67	8.24	H
	5556	-46.04	-13	-33.04	-71.29	-53.11	2.66	9.72	H
	7398	-53.05	-13	-40.05	-80.63	-62.18	2.46	11.60	H
	3702	-51.66	-13	-38.66	-72.46	-58.23	1.67	8.24	V
	5556	-46.02	-13	-33.02	-71.18	-53.09	2.66	9.72	V
	7398	-52.74	-13	-39.74	-80.61	-61.87	2.46	11.60	V
Middle	3744	-54.44	-13	-41.44	-75.25	-61.05	1.68	8.29	H
	5616	-55.64	-13	-42.64	-80.98	-62.69	2.69	9.75	H
	7488	-52.81	-13	-39.81	-80.42	-62.15	2.43	11.78	H
	3744	-54.78	-13	-41.78	-75.49	-61.39	1.68	8.29	V
	5616	-55.44	-13	-42.44	-80.8	-62.49	2.69	9.75	V
	7488	-52.32	-13	-39.32	-80.21	-61.66	2.43	11.78	V
Highest	3792	-54.17	-13	-41.17	-74.87	-60.82	1.70	8.35	H
	5688	-47.14	-13	-34.14	-72.6	-54.18	2.73	9.78	H
	7578	-52.99	-13	-39.99	-80.89	-62.43	2.40	11.85	H
	3792	-52.73	-13	-39.73	-73.47	-59.38	1.70	8.35	V
	5688	-45.42	-13	-32.42	-70.92	-52.46	2.73	9.78	V
	7578	-52.12	-13	-39.12	-80.22	-61.56	2.40	11.85	V

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



LTE Band 4

LTE Band 4 / 10MHz / QPSK									
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	-45.97	-13	-32.97	-66.66	-52.04	1.58	7.65	H
	5130	-56.34	-13	-43.34	-80.27	-63.63	2.41	9.70	H
	6840	-53.65	-13	-40.65	-80.68	-61.62	2.64	10.61	H
	3420	-37.22	-13	-24.22	-57.97	-43.29	1.58	7.65	V
	5130	-52.46	-13	-39.46	-76.34	-59.75	2.41	9.70	V
	6840	-53.36	-13	-40.36	-80.29	-61.33	2.64	10.61	V
Middle	3456	-47.07	-13	-34.07	-68	-53.29	1.59	7.81	H
	5184	-52.12	-13	-39.12	-76.2	-59.38	2.44	9.70	H
	6912	-54.09	-13	-41.09	-81.2	-62.17	2.62	10.69	H
	3456	-38.89	-13	-25.89	-59.8	-45.11	1.59	7.81	V
	5184	-50.48	-13	-37.48	-74.38	-57.74	2.44	9.70	V
	6912	-53.84	-13	-40.84	-80.99	-61.92	2.62	10.69	V
Highest	3492	-48.08	-13	-35.08	-69.19	-54.44	1.60	7.96	H
	5238	-52.15	-13	-39.15	-76.26	-59.38	2.47	9.70	H
	6984	-54.09	-13	-41.09	-81.39	-62.28	2.60	10.78	H
	3492	-39.28	-13	-26.28	-60.21	-45.64	1.60	7.96	V
	5238	-48.79	-13	-35.79	-72.86	-56.02	2.47	9.70	V
	6984	-53.24	-13	-40.24	-80.66	-61.43	2.60	10.78	V

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

**LTE Band 12**

LTE Band 12 / 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)
Lowest	1400	-57.16	-13	-44.16	-58.12	-58.82	0.87	4.68	H
	2104	-51.93	-13	-38.93	-39.83	-52.83	1.17	4.21	H
	2800	-53.83	-13	-40.83	-41.79	-55.94	1.38	5.64	H
	6296	-52.62	-13	-39.62	-40.64	-57.73	2.82	10.08	H
	1400	-57.68	-13	-44.68	-68.58	-59.34	0.87	4.68	V
	2104	-55.19	-13	-42.19	-71.07	-56.09	1.17	4.21	V
	2800	-53.78	-13	-40.78	-72.36	-55.89	1.38	5.64	V
	6296	-52.51	-13	-39.51	-78.61	-57.62	2.82	10.08	V
Middle	1408	-57.81	-13	-44.81	-68.21	-59.52	0.87	4.73	H
	2112	-51.75	-13	-38.75	-67.37	-52.67	1.17	4.24	H
	2816	-54.07	-13	-41.07	-71.77	-56.18	1.39	5.65	H
	6328	-52.59	-13	-39.59	-78.70	-57.73	2.81	10.10	H
	1408	-58.31	-13	-45.31	-69.23	-60.02	0.87	4.73	V
	2112	-54.96	-13	-41.96	-70.92	-55.88	1.17	4.24	V
	2816	-54.43	-13	-41.43	-73.14	-56.54	1.39	5.65	V
	6328	-52.72	-13	-39.72	-78.68	-57.86	2.81	10.10	V
Highest	1416	-58.87	-13	-45.87	-69.43	-60.62	0.87	4.78	H
	2120	-50.78	-13	-37.78	-66.50	-51.72	1.17	4.26	H
	2824	-55.23	-13	-42.23	-72.96	-57.35	1.39	5.66	H
	6360	-53.05	-13	-40.05	-79.36	-58.22	2.80	10.12	H
	1416	-58.78	-13	-45.78	-69.67	-60.53	0.87	4.78	V
	2120	-54.55	-13	-41.55	-70.62	-55.49	1.17	4.26	V
	2824	-55.56	-13	-42.56	-74.02	-57.68	1.39	5.66	V
	6360	-52.66	-13	-39.66	-78.65	-57.83	2.80	10.12	V

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