



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	0.0069	PASS
40	Normal Voltage	0.0165	
30	Normal Voltage	0.0042	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0059	
0	Normal Voltage	0.0044	
-10	Normal Voltage	0.0072	
-20	Normal Voltage	0.0045	
-30	Normal Voltage	0.0010	
20	Maximum Voltage	0.0035	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0016	

Note:

1. Normal Voltage =3.7 V. ; Battery End Point (BEP) =3.4 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 Band 2 / 1.4MHz (Average) (GT - LC = 1.43 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	22.13	0.1633	23.56	0.2270
Middle		1	0	22.09	0.1618	23.52	0.2249
Highest		1	0	22.17	0.1648	23.60	0.2291
Lowest	16QAM	1	0	21.50	0.1413	22.93	0.1963
Middle		1	0	21.44	0.1393	22.87	0.1936
Highest		1	0	21.53	0.1422	22.96	0.1977
Limit	EIRP < 2W			Result		PASS	

LTE Band 2 / 3MHz (Average) (GT - LC = 1.43 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	22.03	0.1596	23.46	0.2218
Middle		1	0	22.17	0.1648	23.60	0.2291
Highest		1	0	22.21	0.1663	23.64	0.2312
Lowest	16QAM	1	0	21.38	0.1374	22.81	0.1910
Middle		1	0	21.36	0.1368	22.79	0.1901
Highest		1	0	21.52	0.1419	22.95	0.1972
Limit	EIRP < 2W			Result		PASS	

LTE Band 2 / 5MHz (Average) (GT - LC = 1.43 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	22.17	0.1648	23.60	0.2291
Middle		1	0	22.16	0.1644	23.59	0.2286
Highest		1	0	22.20	0.1660	23.63	0.2307
Lowest	16QAM	1	0	21.48	0.1406	22.91	0.1954
Middle		1	0	21.46	0.1400	22.89	0.1945
Highest		1	0	21.59	0.1442	23.02	0.2004
Limit	EIRP < 2W			Result		PASS	



LTE Band 2 / 10MHz (Average) (GT - LC = 1.43 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	22.37	0.1726	23.80	0.2399
Middle		1	0	22.25	0.1679	23.68	0.2333
Highest		1	0	22.62	0.1828	24.05	0.2541
Lowest	16QAM	1	0	21.66	0.1466	23.09	0.2037
Middle		1	0	21.62	0.1452	23.05	0.2018
Highest		1	0	21.88	0.1542	23.31	0.2143
Limit	EIRP < 2W			Result		PASS	

LTE Band 2 / 15MHz (Average) (GT - LC = 1.43 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	22.54	0.1795	23.97	0.2495
Middle		1	0	22.76	0.1888	24.19	0.2624
Highest		1	0	22.75	0.1884	24.18	0.2618
Lowest	16QAM	1	0	21.78	0.1507	23.21	0.2094
Middle		1	0	22.10	0.1622	23.53	0.2254
Highest		1	0	22.03	0.1596	23.46	0.2218
Limit	EIRP < 2W			Result		PASS	

LTE Band 2 / 20MHz (Average) (GT - LC = 1.43 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	22.50	0.1778	23.93	0.2472
Middle		1	0	22.45	0.1758	23.88	0.2443
Highest		1	0	22.79	0.1901	24.22	0.2642
Lowest	16QAM	1	0	21.86	0.1535	23.29	0.2133
Middle		1	0	21.97	0.1574	23.40	0.2188
Highest		1	0	22.33	0.1710	23.76	0.2377
Limit	EIRP < 2W			Result		PASS	



LTE Band 4 / 1.4MHz (Average) (GT - LC = 1.76 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	3	1	22.63	0.1832	24.39	0.2748
Middle		3	1	22.45	0.1758	24.21	0.2636
Highest		3	1	22.57	0.1807	24.33	0.2710
Lowest	16QAM	1	5	21.97	0.1574	23.73	0.2360
Middle		1	5	21.83	0.1524	23.59	0.2286
Highest		1	5	21.92	0.1556	23.68	0.2333
Limit	EIRP < 1W			Result		PASS	

LTE Band 4 / 3MHz (Average) (GT - LC = 1.76 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	22.63	0.1832	24.39	0.2748
Middle		1	0	22.44	0.1754	24.20	0.2630
Highest		1	0	22.44	0.1754	24.20	0.2630
Lowest	16QAM	1	0	22.01	0.1589	23.77	0.2382
Middle		1	0	21.77	0.1503	23.53	0.2254
Highest		1	0	21.81	0.1517	23.57	0.2275
Limit	EIRP < 1W			Result		PASS	

LTE Band 4 / 5MHz (Average) (GT - LC = 1.76 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	22.70	0.1862	24.46	0.2793
Middle		1	0	22.63	0.1832	24.39	0.2748
Highest		1	0	22.49	0.1774	24.25	0.2661
Lowest	16QAM	1	0	22.05	0.1603	23.81	0.2404
Middle		1	0	21.93	0.1560	23.69	0.2339
Highest		1	0	21.90	0.1549	23.66	0.2323
Limit	EIRP < 1W			Result		PASS	



LTE Band 4 / 10MHz (Average) (GT - LC = 1.76 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	22.98	0.1986	24.74	0.2979
Middle		1	0	22.72	0.1871	24.48	0.2805
Highest		1	0	22.75	0.1884	24.51	0.2825
Lowest	16QAM	1	0	22.27	0.1687	24.03	0.2529
Middle		1	0	22.02	0.1592	23.78	0.2388
Highest		1	0	22.13	0.1633	23.89	0.2449
Limit	EIRP < 1W			Result		PASS	

LTE Band 4 / 15MHz (Average) (GT - LC = 1.76 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.11	0.2046	24.87	0.3069
Middle		1	0	22.79	0.1901	24.55	0.2851
Highest		1	0	22.97	0.1982	24.73	0.2972
Lowest	16QAM	1	0	22.49	0.1774	24.25	0.2661
Middle		1	0	22.16	0.1644	23.92	0.2466
Highest		1	0	22.22	0.1667	23.98	0.2500
Limit	EIRP < 1W			Result		PASS	

LTE Band 4 / 20MHz (Average) (GT - LC = 1.76 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.12	0.2051	24.88	0.3076
Middle		1	0	22.78	0.1897	24.54	0.2844
Highest		1	0	22.82	0.1914	24.58	0.2871
Lowest	16QAM	1	0	22.41	0.1742	24.17	0.2612
Middle		1	0	22.22	0.1667	23.98	0.2500
Highest		1	0	21.68	0.1472	23.44	0.2208
Limit	EIRP < 1W			Result		PASS	



LTE Band 5 / 1.4MHz (Average) (GT - LC = -0.52 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	22.15	0.1641	19.48	0.0887
Middle		1	0	22.21	0.1663	19.54	0.0899
Highest		1	0	22.25	0.1679	19.58	0.0908
Lowest	16QAM	1	3	21.55	0.1429	18.88	0.0773
Middle		1	3	21.61	0.1449	18.94	0.0783
Highest		1	3	21.59	0.1442	18.92	0.0780
Limit	ERP < 7W			Result		PASS	

LTE Band 5 / 3MHz (Average) (GT - LC = -0.52 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	22.16	0.1644	19.49	0.0889
Middle		1	0	22.28	0.1690	19.61	0.0914
Highest		1	0	22.11	0.1626	19.44	0.0879
Lowest	16QAM	1	0	21.37	0.1371	18.70	0.0741
Middle		1	0	21.50	0.1413	18.83	0.0764
Highest		1	0	21.36	0.1368	18.69	0.0740
Limit	ERP < 7W			Result		PASS	

LTE Band 5 / 5MHz (Average) (GT - LC = -0.52 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	22.08	0.1614	19.41	0.0873
Middle		1	0	22.19	0.1656	19.52	0.0895
Highest		1	0	22.04	0.1600	19.37	0.0865
Lowest	16QAM	1	0	21.40	0.1380	18.73	0.0746
Middle		1	0	21.48	0.1406	18.81	0.0760
Highest		1	0	21.38	0.1374	18.71	0.0743
Limit	ERP < 7W			Result		PASS	



LTE Band 5 / 10MHz (Average) (GT - LC = -0.52 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	22.29	0.1694	19.62	0.0916
Middle		1	0	22.20	0.1660	19.53	0.0897
Highest		1	0	22.10	0.1622	19.43	0.0877
Lowest	16QAM	1	0	21.40	0.1380	18.73	0.0746
Middle		1	0	21.51	0.1416	18.84	0.0766
Highest		1	0	21.47	0.1403	18.80	0.0759
Limit	ERP < 7W			Result		PASS	



LTE Band 12 / 1.4MHz (Average) (GT - LC = -3.22 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	22.24	0.1675	16.87	0.0486
Middle		1	0	22.33	0.1710	16.96	0.0497
Highest		1	0	22.32	0.1706	16.95	0.0495
Lowest	16QAM	1	5	21.53	0.1422	16.16	0.0413
Middle		1	5	21.52	0.1419	16.15	0.0412
Highest		1	5	21.62	0.1452	16.25	0.0422
Limit	ERP < 3W			Result		PASS	

LTE Band 12 / 3MHz (Average) (GT - LC = -3.22 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	14	22.20	0.1660	16.83	0.0482
Middle		1	14	22.12	0.1629	16.75	0.0473
Highest		1	14	22.28	0.1690	16.91	0.0491
Lowest	16QAM	1	8	21.46	0.1400	16.09	0.0406
Middle		1	8	21.44	0.1393	16.07	0.0405
Highest		1	8	21.42	0.1387	16.05	0.0403
Limit	ERP < 3W			Result		PASS	

LTE Band 12 / 5MHz (Average) (GT - LC = -3.22 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	12	22.24	0.1675	16.87	0.0486
Middle		1	12	22.24	0.1675	16.87	0.0486
Highest		1	12	22.19	0.1656	16.82	0.0481
Lowest	16QAM	1	24	21.32	0.1355	15.95	0.0394
Middle		1	24	21.30	0.1349	15.93	0.0392
Highest		1	24	21.48	0.1406	16.11	0.0408
Limit	ERP < 3W			Result		PASS	



LTE Band 12 / 10MHz (Average) (GT - LC = -3.22 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	22.24	0.1675	16.87	0.0486
Middle		1	0	22.31	0.1702	16.94	0.0494
Highest		1	0	22.35	0.1718	16.98	0.0499
Lowest	16QAM	1	0	21.53	0.1422	16.16	0.0413
Middle		1	0	21.51	0.1416	16.14	0.0411
Highest		1	0	21.58	0.1439	16.21	0.0418
Limit	ERP < 3W			Result		PASS	



Radiated Spurious Emission

LTE Band 2

LTE Band 2 / 20MHz / 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	3702	-43.78	-13	-30.78	-60.77	-55.57	0.72	12.52	H
	5556	-38.53	-13	-25.53	-60.34	-50.7	1.00	13.17	H
	7404	-48.00	-13	-35.00	-73.11	-57.39	1.18	10.57	H
									H
									H
									H
									H
	3702	-43.73	-13	-30.73	-61.89	-55.52	0.72	12.52	V
	5556	-34.72	-13	-21.72	-56.65	-46.89	1.00	13.17	V
	7404	-51.27	-13	-38.27	-76.17	-60.66	1.18	10.57	V
									V
									V
									V
									V



Middle	3744	-39.34	-13	-26.34	-56.45	-51.14	0.70	12.50	H
	5616	-36.98	-13	-23.98	-58.71	-49.13	0.98	13.13	H
	7482	-45.85	-13	-32.85	-70.76	-55.1	1.18	10.43	H
									H
									H
									H
									H
	3744	-36.73	-13	-23.73	-55.03	-48.53	0.70	12.50	V
	5616	-33.98	-13	-20.98	-55.88	-46.13	0.98	13.13	V
	7482	-49.68	-13	-36.68	-75.57	-58.93	1.18	10.43	V
									V
									V
									V
									V
Highest	3780	-36.83	-13	-23.83	-54.02	-48.64	0.68	12.49	H
	5676	-38.70	-13	-25.70	-60.43	-50.81	0.99	13.09	H
	7566	-48.00	-13	-35.00	-73.02	-57.4	1.18	10.58	H
									H
									H
									H
									H
	3780	-34.33	-13	-21.33	-52.74	-46.14	0.68	12.49	V
	5676	-37.13	-13	-24.13	-59.04	-49.24	0.99	13.09	V
	7566	-50.55	-13	-37.55	-75.45	-59.95	1.18	10.58	V
									V
									V
									V
									V

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



LTE Band 4

LTE Band 4 / 20MHz / 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	3424	-43.10	-13	-30.10	-60.26	-54.7	0.77	12.37	H
	5136	-38.48	-13	-25.48	-59.18	-49.98	0.97	12.47	H
	6846	-44.39	-13	-31.39	-68.08	-55.21	0.82	11.64	H
									H
									H
									H
									H
	3424	-41.33	-13	-28.33	-58.3	-52.93	0.77	12.37	V
	5136	-40.53	-13	-27.53	-61.4	-52.03	0.97	12.47	V
	6846	-47.91	-13	-34.91	-72.07	-58.73	0.82	11.64	V
									V
									V
									V
									V
Middle	3450	-42.29	-13	-29.29	-59.47	-53.96	0.78	12.45	H
	5172	-37.29	-13	-24.29	-58.05	-48.85	0.98	12.54	H
	6894	-46.63	-13	-33.63	-70.43	-57.24	0.93	11.53	H
									H
									H
									H
									H
	3450	-42.06	-13	-29.06	-59.33	-53.73	0.78	12.45	V
	5172	-40.42	-13	-27.42	-61.34	-51.98	0.98	12.54	V
	6894	-48.99	-13	-35.99	-73.2	-59.6	0.93	11.53	V
									V
									V
									V
									V



Highest	3474	-43.28	-13	-30.28	-60.52	-55.02	0.78	12.52	H
	5208	-34.51	-13	-21.51	-55.33	-46.13	0.99	12.62	H
	6942	-43.61	-13	-30.61	-67.52	-54	1.03	11.43	H
									H
									H
									H
									H
	3474	-43.25	-13	-30.25	-61.16	-54.99	0.78	12.52	V
	5208	-37.16	-13	-24.16	-58.14	-48.78	0.99	12.62	V
	6942	-49.01	-13	-36.01	-73.28	-59.4	1.03	11.43	V
									V
									V
									V
									V

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



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	1648	-57.13	-13	-44.13	-67.04	-64.08	0.53	9.63	H	
	2472	-42.06	-13	-29.06	-55.5	-50.04	0.65	10.78	H	
	3296	-57.48	-13	-44.48	-73.62	-66.56	0.76	11.99	H	
										H
										H
										H
										H
	1648	-52.37	-13	-39.37	-61.99	-59.32	0.53	9.63	V	
	2472	-39.82	-13	-26.82	-53.75	-47.8	0.65	10.78	V	
	3296	-57.68	-13	-44.68	-73.79	-66.76	0.76	11.99	V	
										V
										V
										V
										V
Middle	1664	-53.88	-13	-40.88	-63.97	-60.86	0.53	9.66	H	
	2496	-38.81	-13	-25.81	-52.22	-46.8	0.65	10.80	H	
	3328	-55.27	-13	-42.27	-71.48	-64.44	0.76	12.08	H	
										H
										H
										H
										H
	1664	-54.68	-13	-41.68	-64.37	-61.66	0.53	9.66	V	
	2496	-36.00	-13	-23.00	-49.83	-43.99	0.65	10.80	V	
	3328	-56.07	-13	-43.07	-72.09	-65.24	0.76	12.08	V	
										V
										V
										V
										V



Highest	1680	-61.20	-13	-48.20	-71.45	-68.22	0.53	9.70	H
	2520	-48.07	-13	-35.07	-61.52	-56.07	0.66	10.81	H
	3360	-58.52	-13	-45.52	-74.76	-67.78	0.77	12.18	H
									H
									H
									H
									H
	1680	-57.20	-13	-44.20	-66.95	-64.22	0.53	9.70	V
	2520	-41.93	-13	-28.93	-55.76	-49.93	0.66	10.81	V
	3360	-58.67	-13	-45.67	-74.65	-67.93	0.77	12.18	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	1400	-44.49	-13.00	-31.49	-55.60	-50.54	0.50	8.70	H	
	2096	-51.99	-13.00	-38.99	-65.49	-59.73	0.59	10.48	H	
	3496	-58.18	-13.00	-45.18	-74.76	-67.84	0.78	12.59	H	
										H
										H
										H
										H
	1400	-44.39	-13.00	-31.39	-55.56	-50.44	0.50	8.70	V	
	2096	-40.71	-13.00	-27.71	-53.97	-48.45	0.59	10.48	V	
	3496	-43.56	-13.00	-30.56	-61.11	-53.22	0.78	12.59	V	
										V
										V
										V
										V
Middle	1408	-46.63	-13.00	-33.63	-57.84	-52.73	0.50	8.75	H	
	2112	-34.51	-13.00	-21.51	-48.30	-42.26	0.59	10.49	H	
	3512	-44.24	-13.00	-31.24	-60.77	-53.90	0.78	12.60	H	
										H
										H
										H
										H
	1408	-48.57	-13.00	-35.57	-59.58	-54.67	0.50	8.75	V	
	2112	-44.65	-13.00	-31.65	-58.26	-52.40	0.59	10.49	V	
	3512	-52.61	-13.00	-39.61	-70.13	-62.27	0.78	12.60	V	
										V
										V
										V
										V



Highest	1416	-51.96	-13.00	-38.96	-63.17	-58.10	0.50	8.80	H
	2120	-38.51	-13.00	-25.51	-52.29	-46.26	0.59	10.50	H
	2824	-59.60	-13.00	-46.60	-74.06	-67.74	0.71	10.99	H
	3536	-42.14	-13.00	-29.14	-58.61	-51.79	0.78	12.59	H
	4240	-55.58	-13.00	-42.58	-73.14	-64.90	0.84	12.30	H
	4944	-53.89	-13.00	-40.89	-74.48	-63.28	0.66	12.20	H
									H
	1416	-50.52	-13.00	-37.52	-61.53	-56.66	0.50	8.80	V
	2120	-36.62	-13.00	-23.62	-50.22	-44.37	0.59	10.50	V
	2824	-59.54	-13.00	-46.54	-74.38	-67.68	0.71	10.99	V
	3536	-40.78	-13.00	-27.78	-58.27	-50.43	0.78	12.59	V
	4240	-54.66	-13.00	-41.66	-73.48	-63.98	0.84	12.30	V
	4944	-52.24	-13.00	-39.24	-72.97	-61.63	0.66	12.20	V
									V

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