

Appendix for LTE Band 4

Product Name: Smart Phone

Model No: Black G4

Appendix A: Average Power Output Data

Test Result

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
1.4MHz	19957	1710.7	QPSK	1	0	23.35	23.0±1	/
				1	2	23.45	23.0±1	/
				1	5	23.35	23.0±1	/
				3	0	23.39	23.0±1	/
				3	1	23.48	23.0±1	/
				3	2	23.39	23.0±1	/
				6	0	22.4	23.0±1	1.0
			16QAM	1	0	22.44	22.0±1	1.0
				1	2	22.53	22.0±1	1.0
				1	5	22.41	22.0±1	1.0
				3	0	22.46	22.0±1	1.0
				3	1	22.5	22.0±1	1.0
				3	2	22.41	22.0±1	1.0
				6	0	21.52	22.0±1	1.0
	20175	1732.5	QPSK	1	0	22.98	23.0±1	/
				1	2	23.09	23.0±1	/
				1	5	22.95	23.0±1	/
				3	0	23.07	23.0±1	/
				3	1	23.13	23.0±1	/
				3	2	23.04	23.0±1	/
				6	0	22.07	23.0±1	1.0
			16QAM	1	0	22.35	22.0±1	1.0
				1	2	22.47	22.0±1	1.0
				1	5	22.34	22.0±1	1.0
				3	0	22.22	22.0±1	1.0
				3	1	22.29	22.0±1	1.0
				3	2	22.25	22.0±1	1.0
				6	0	21.01	22.0±1	1.0
	20393	1754.3	QPSK	1	0	22.99	23.0±1	/
				1	2	23.1	23.0±1	/
				1	5	22.98	23.0±1	/
				3	0	23.1	23.0±1	/
				3	1	23.15	23.0±1	/
				3	2	23.11	23.0±1	/
				6	0	22.08	23.0±1	1.0

			16QAM	1	0	22.06	22.0±1	1.0
				1	2	22.11	22.0±1	1.0
				1	5	22.07	22.0±1	1.0
				3	0	22.25	22.0±1	1.0
				3	1	22.33	22.0±1	1.0
				3	2	22.28	22.0±1	1.0
				6	0	21.32	22.0±1	1.0

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
3MHz	19965	1711.5	QPSK	1	0	23.33	23.0±1	/
				1	8	23.45	23.0±1	/
				1	14	23.26	23.0±1	/
				6	0	22.34	23.0±1	1.0
				6	4	22.39	23.0±1	1.0
				6	9	22.33	23.0±1	1.0
				15	0	22.33	23.0±1	1.0
			16QAM	1	0	22.27	22.0±1	1.0
				1	8	22.38	22.0±1	1.0
				1	14	22.2	22.0±1	1.0
				8	0	21.48	22.0±1	1.0
				8	4	21.49	22.0±1	1.0
				8	9	21.44	22.0±1	1.0
				15	0	21.38	22.0±1	1.0
	20175	1732.5	QPSK	1	0	23.01	23.0±1	/
				1	8	23.16	23.0±1	/
				1	14	23.01	23.0±1	/
				6	0	22.01	23.0±1	1.0
				6	4	22.04	23.0±1	1.0
				6	9	22.03	23.0±1	1.0
				15	0	22	23.0±1	1.0
			16QAM	1	0	22.39	22.0±1	1.0
				1	8	22.51	22.0±1	1.0
				1	14	22.34	22.0±1	1.0
				6	0	21.14	22.0±1	1.0
				6	4	21.09	22.0±1	1.0
				6	9	21.1	22.0±1	1.0
				15	0	21.07	22.0±1	1.0
	20385	1753.5	QPSK	1	0	23.04	23.0±1	/
				1	8	23.24	23.0±1	/
				1	14	23	23.0±1	/

				6	0	22.07	23.0±1	1.0
				6	4	22.11	23.0±1	1.0
				6	9	22.07	23.0±1	1.0
				15	0	22.06	23.0±1	1.0
			16QAM	1	0	22.1	22.0±1	1.0
				1	8	22.23	22.0±1	1.0
				1	14	22.04	22.0±1	1.0
				8	0	21.16	22.0±1	1.0
				8	4	21.18	22.0±1	1.0
				8	9	21.17	22.0±1	1.0
				15	0	21.08	22.0±1	1.0

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
5MHz	19975	1712.5	QPSK	1	0	23.2	23.0±1	/
				1	49	23.43	23.0±1	/
				1	99	23.14	23.0±1	/
				12	0	22.31	23.0±1	1.0
				12	24	22.37	23.0±1	1.0
				12	49	22.35	23.0±1	1.0
				25	0	22.3	23.0±1	1.0
			16QAM	1	0	22.43	22.0±1	1.0
				1	49	22.61	22.0±1	1.0
				1	99	22.34	22.0±1	1.0
				12	0	21.37	22.0±1	1.0
				12	24	21.41	22.0±1	1.0
				12	49	21.39	22.0±1	1.0
				25	0	21.36	22.0±1	1.0
	20175	1732.5	QPSK	1	0	22.9	23.0±1	/
				1	49	23.16	23.0±1	/
				1	99	22.88	23.0±1	/
				12	0	22	23.0±1	1.0
				12	24	22.08	23.0±1	1.0
				12	49	22.03	23.0±1	1.0
				25	0	22.01	23.0±1	1.0
			16QAM	1	0	22.44	22.0±1	1.0
				1	49	22.66	22.0±1	1.0
				1	99	22.42	22.0±1	1.0
				12	0	21.17	22.0±1	1.0
				12	24	21.19	22.0±1	1.0
				12	49	21.14	22.0±1	1.0

	20375	1752.5	QPSK	25	0	21.11	22.0±1	1.0
				1	0	23.02	23.0±1	/
				1	49	23.3	23.0±1	/
				1	99	23.04	23.0±1	/
				12	0	22.08	23.0±1	1.0
				12	24	22.12	23.0±1	1.0
				12	49	22.08	23.0±1	1.0
			16QAM	25	0	22.04	23.0±1	1.0
				1	0	22.09	22.0±1	1.0
				1	49	22.32	22.0±1	1.0
				1	99	22.08	22.0±1	1.0
				12	0	21.16	22.0±1	1.0
				12	24	21.22	22.0±1	1.0
				12	49	21.14	22.0±1	1.0
				25	0	21.09	22.0±1	1.0

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
10MHz	20000	1715	QPSK	1	0	23.33	23.0±1	/
				1	49	23.35	23.0±1	/
				1	99	23.18	23.0±1	/
				25	0	22.29	23.0±1	1.0
				25	24	22.3	23.0±1	1.0
				25	49	22.33	23.0±1	1.0
				50	0	22.34	23.0±1	1.0
			16QAM	1	0	22.2	22.0±1	1.0
				1	49	22.22	22.0±1	1.0
				1	99	22.07	22.0±1	1.0
				25	0	21.33	22.0±1	1.0
				25	24	21.35	22.0±1	1.0
				25	49	21.37	22.0±1	1.0
				50	0	21.32	22.0±1	1.0
	20175	1732.5	QPSK	1	0	23.04	23.0±1	/
				1	49	23.11	23.0±1	/
				1	99	22.99	23.0±1	/
				25	0	22.09	23.0±1	1.0
				25	24	22.09	23.0±1	1.0
				25	49	22.08	23.0±1	1.0
				50	0	22.1	23.0±1	1.0
			16QAM	1	0	22.35	22.0±1	1.0
				1	49	22.45	22.0±1	1.0

	20350	1750		1	99	22.33	22.0±1	1.0
				25	0	21.12	22.0±1	1.0
				25	24	21.11	22.0±1	1.0
				25	49	21.15	22.0±1	1.0
				50	0	21.14	22.0±1	1.0
			QPSK	1	0	23	23.0±1	/
				1	49	23.13	23.0±1	/
				1	99	23.03	23.0±1	/
				25	0	22.15	23.0±1	1.0
				25	24	22.11	23.0±1	1.0
				25	49	22.09	23.0±1	1.0
				50	0	22.14	23.0±1	1.0
			16QAM	1	0	22.01	22.0±1	1.0
				1	49	22.17	22.0±1	1.0
				1	99	22.03	22.0±1	1.0
				25	0	21.31	22.0±1	1.0
				25	24	21.28	22.0±1	1.0
				25	49	21.27	22.0±1	1.0
				50	0	21.25	22.0±1	1.0

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
15MHz	20025	1717.5	QPSK	1	0	23.19	23.0±1	/
				1	49	23.34	23.0±1	/
				1	99	22.98	23.0±1	/
				36	0	22.33	23.0±1	1.0
				36	24	22.34	23.0±1	1.0
				36	49	22.3	23.0±1	1.0
				75	0	22.33	23.0±1	1.0
			16QAM	1	0	22.15	22.0±1	1.0
				1	49	22.28	22.0±1	1.0
				1	99	21.95	22.0±1	1.0
				36	0	21.28	22.0±1	1.0
				36	24	21.24	22.0±1	1.0
				36	49	21.25	22.0±1	1.0
				75	0	21.29	22.0±1	1.0
	20175	1732.5	QPSK	1	0	22.96	23.0±1	/
				1	49	23.19	23.0±1	/
				1	99	22.93	23.0±1	/
				36	0	22.17	23.0±1	1.0
				36	24	22.15	23.0±1	1.0

				36	49	22.16	23.0±1	1.0
				75	0	22.13	23.0±1	1.0
			16QAM	1	0	22.33	22.0±1	1.0
				1	49	22.52	22.0±1	1.0
				1	99	22.24	22.0±1	1.0
				36	0	21.14	22.0±1	1.0
				36	24	21.15	22.0±1	1.0
				36	49	21.12	22.0±1	1.0
				75	0	21.12	22.0±1	1.0
				1	0	22.94	23.0±1	/
				1	49	23.27	23.0±1	/
	20325	1747.5	QPSK	1	99	22.99	23.0±1	/
				36	0	22.14	23.0±1	1.0
				36	24	22.14	23.0±1	1.0
				36	49	22.15	23.0±1	1.0
				75	0	22.14	23.0±1	1.0
			16QAM	1	0	22.34	22.0±1	1.0
				1	49	22.62	22.0±1	1.0
				1	99	22.35	22.0±1	1.0
				36	0	21.12	22.0±1	1.0
				36	24	21.18	22.0±1	1.0
				36	49	21.14	22.0±1	1.0
				75	0	21.15	22.0±1	1.0

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
20MHz	20050	1720	QPSK	1	0	22.95	23.0±1	/
				1	49	23.26	23.0±1	/
				1	99	22.73	23.0±1	/
				50	0	22.15	23.0±1	1.0
				50	24	22.19	23.0±1	1.0
				50	49	22.19	23.0±1	1.0
				100	0	22.2	23.0±1	1.0
			16QAM	1	0	22.53	22.0±1	1.0
				1	49	22.85	22.0±1	1.0
				1	99	22.32	22.0±1	1.0
				50	0	21.17	22.0±1	1.0
				50	24	21.23	22.0±1	1.0
				50	49	21.24	22.0±1	1.0
				100	0	21.23	22.0±1	1.0
	20175	1732.5	QPSK	1	0	22.76	23.0±1	/

				1	49	23.14	23.0±1	/
				1	99	22.79	23.0±1	/
				50	0	22.11	23.0±1	1.0
				50	24	22.09	23.0±1	1.0
				50	49	22.05	23.0±1	1.0
				100	0	22.07	23.0±1	1.0
			16QAM	1	0	22.24	22.0±1	1.0
				1	49	22.54	22.0±1	1.0
				1	99	22.18	22.0±1	1.0
				50	0	21.1	22.0±1	1.0
				50	24	21.13	22.0±1	1.0
				50	49	21.07	22.0±1	1.0
				100	0	21.08	22.0±1	1.0
	20300	1745	QPSK	1	0	22.7	23.0±1	/
				1	49	23.13	23.0±1	/
				1	99	22.77	23.0±1	/
				50	0	22.11	23.0±1	1.0
				50	24	22.09	23.0±1	1.0
				50	49	22.07	23.0±1	1.0
				100	0	22.08	23.0±1	1.0
			16QAM	1	0	22.14	22.0±1	1.0
				1	49	22.54	22.0±1	1.0
				1	99	22.19	22.0±1	1.0
				50	0	21.11	22.0±1	1.0
				50	24	21.12	22.0±1	1.0
				50	49	21.11	22.0±1	1.0
				100	0	21.13	22.0±1	1.0

Appendix B: Peak-to-Average Ratio(CCDF)

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band4	1.4MHz	QPSK	19957	1RB#0	4.26	13	PASS
Band4	1.4MHz	QPSK	19957	6RB#0	5.04	13	PASS
Band4	1.4MHz	16QAM	19957	1RB#0	5.33	13	PASS
Band4	1.4MHz	16QAM	19957	6RB#0	5.91	13	PASS
Band4	1.4MHz	QPSK	20175	1RB#0	3.91	13	PASS
Band4	1.4MHz	QPSK	20175	6RB#0	4.70	13	PASS
Band4	1.4MHz	16QAM	20175	1RB#0	5.01	13	PASS
Band4	1.4MHz	16QAM	20175	6RB#0	5.59	13	PASS
Band4	1.4MHz	QPSK	20393	1RB#0	4.64	13	PASS
Band4	1.4MHz	QPSK	20393	6RB#0	5.22	13	PASS
Band4	1.4MHz	16QAM	20393	1RB#0	5.68	13	PASS
Band4	1.4MHz	16QAM	20393	6RB#0	6.03	13	PASS
Band4	3MHz	QPSK	19965	1RB#0	4.26	13	PASS
Band4	3MHz	QPSK	19965	15RB#0	5.10	13	PASS
Band4	3MHz	16QAM	19965	1RB#0	5.13	13	PASS
Band4	3MHz	16QAM	19965	15RB#0	5.94	13	PASS
Band4	3MHz	QPSK	20175	1RB#0	3.94	13	PASS
Band4	3MHz	QPSK	20175	15RB#0	4.78	13	PASS
Band4	3MHz	16QAM	20175	1RB#0	4.78	13	PASS
Band4	3MHz	16QAM	20175	15RB#0	5.68	13	PASS
Band4	3MHz	QPSK	20385	1RB#0	4.70	13	PASS
Band4	3MHz	QPSK	20385	15RB#0	5.30	13	PASS
Band4	3MHz	16QAM	20385	1RB#0	5.59	13	PASS
Band4	3MHz	16QAM	20385	15RB#0	6.14	13	PASS
Band4	5MHz	QPSK	19975	1RB#0	4.38	13	PASS
Band4	5MHz	QPSK	19975	25RB#0	5.16	13	PASS
Band4	5MHz	16QAM	19975	1RB#0	5.16	13	PASS
Band4	5MHz	16QAM	19975	25RB#0	6.00	13	PASS
Band4	5MHz	QPSK	20175	1RB#0	4.00	13	PASS
Band4	5MHz	QPSK	20175	25RB#0	4.84	13	PASS
Band4	5MHz	16QAM	20175	1RB#0	4.81	13	PASS
Band4	5MHz	16QAM	20175	25RB#0	5.65	13	PASS
Band4	5MHz	QPSK	20375	1RB#0	4.81	13	PASS
Band4	5MHz	QPSK	20375	25RB#0	5.36	13	PASS
Band4	5MHz	16QAM	20375	1RB#0	5.48	13	PASS
Band4	5MHz	16QAM	20375	25RB#0	6.12	13	PASS

Band4	10MHz	QPSK	20000	1RB#0	4.29	13	PASS
Band4	10MHz	QPSK	20000	50RB#0	5.10	13	PASS
Band4	10MHz	16QAM	20000	1RB#0	5.16	13	PASS
Band4	10MHz	16QAM	20000	50RB#0	5.94	13	PASS
Band4	10MHz	QPSK	20175	1RB#0	3.86	13	PASS
Band4	10MHz	QPSK	20175	50RB#0	4.81	13	PASS
Band4	10MHz	16QAM	20175	1RB#0	4.78	13	PASS
Band4	10MHz	16QAM	20175	50RB#0	5.68	13	PASS
Band4	10MHz	QPSK	20350	1RB#0	4.61	13	PASS
Band4	10MHz	QPSK	20350	50RB#0	5.30	13	PASS
Band4	10MHz	16QAM	20350	1RB#0	5.51	13	PASS
Band4	10MHz	16QAM	20350	50RB#0	6.09	13	PASS
Band4	15MHz	QPSK	20025	1RB#0	4.32	13	PASS
Band4	15MHz	QPSK	20025	75RB#0	5.16	13	PASS
Band4	15MHz	16QAM	20025	1RB#0	5.22	13	PASS
Band4	15MHz	16QAM	20025	75RB#0	5.88	13	PASS
Band4	15MHz	QPSK	20175	1RB#0	3.91	13	PASS
Band4	15MHz	QPSK	20175	75RB#0	5.01	13	PASS
Band4	15MHz	16QAM	20175	1RB#0	4.81	13	PASS
Band4	15MHz	16QAM	20175	75RB#0	5.80	13	PASS
Band4	15MHz	QPSK	20325	1RB#0	4.46	13	PASS
Band4	15MHz	QPSK	20325	75RB#0	5.51	13	PASS
Band4	15MHz	16QAM	20325	1RB#0	5.33	13	PASS
Band4	15MHz	16QAM	20325	75RB#0	6.17	13	PASS
Band4	20MHz	QPSK	20050	1RB#0	4.38	13	PASS
Band4	20MHz	QPSK	20050	100RB#0	4.99	13	PASS
Band4	20MHz	16QAM	20050	1RB#0	5.13	13	PASS
Band4	20MHz	16QAM	20050	100RB#0	5.88	13	PASS
Band4	20MHz	QPSK	20175	1RB#0	4.03	13	PASS
Band4	20MHz	QPSK	20175	100RB#0	4.99	13	PASS
Band4	20MHz	16QAM	20175	1RB#0	5.01	13	PASS
Band4	20MHz	16QAM	20175	100RB#0	5.80	13	PASS
Band4	20MHz	QPSK	20300	1RB#0	4.17	13	PASS
Band4	20MHz	QPSK	20300	100RB#0	5.22	13	PASS
Band4	20MHz	16QAM	20300	1RB#0	4.96	13	PASS
Band4	20MHz	16QAM	20300	100RB#0	6.06	13	PASS

Test Graphs



















