

Appendix for LTE Band 2

Product Name: Smart Phone

Model No: Black S

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	18607	1850.7	QPSK	1	0	22.81	22.5±1	/
				1	2	22.84	22.5±1	/
				1	5	22.83	22.5±1	/
				3	0	22.84	22.5±1	/
				3	1	22.85	22.5±1	/
				3	2	22.75	22.5±1	/
				6	0	21.62	22.5±1	1.0
			16QAM	1	0	22.24	22.0±1	1.0
				1	2	22.07	22.0±1	1.0
				1	5	22.19	22.0±1	1.0
				3	0	21.83	22.0±1	1.0
				3	1	21.79	22.0±1	1.0
				3	2	21.84	22.0±1	1.0
				6	0	20.87	21.0±1	1.0
	18900	1880	QPSK	1	0	22.73	22.5±1	/
				1	2	22.75	22.5±1	/
				1	5	22.77	22.5±1	/
				3	0	22.63	22.5±1	/
				3	1	22.59	22.5±1	/
				3	2	22.49	22.5±1	/
				6	0	21.59	22.5±1	1.0
			16QAM	1	0	21.38	21.0±1	1.0
				1	2	21.18	21.0±1	1.0
				1	5	21.26	21.0±1	1.0
				3	0	21.5	21.0±1	1.0
				3	1	21.48	21.0±1	1.0
				3	2	21.5	21.0±1	1.0
				6	0	20.28	21.0±1	1.0
	19193	1909.3	QPSK	1	0	22.51	22.3±1	/
				1	2	22.51	22.3±1	/
				1	5	22.53	22.3±1	/
				3	0	22.41	22.3±1	/
				3	1	22.43	22.3±1	/
				3	2	22.3	22.3±1	/
				6	0	21.35	22.3±1	1.0

			16QAM	1	0	21.25	21.5±1	1.0
				1	2	21.25	21.5±1	1.0
				1	5	21.23	21.5±1	1.0
				3	0	21.86	21.5±1	1.0
				3	1	21.78	21.5±1	1.0
				3	2	21.77	21.5±1	1.0
				6	0	20.57	21.5±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	18615	1851.5	QPSK	1	0	22.78	22.5±1	/
				1	8	22.78	22.5±1	/
				1	14	22.68	22.5±1	/
				6	0	21.77	22.5±1	1.0
				6	4	21.79	22.5±1	1.0
				6	9	21.72	22.5±1	1.0
				15	0	21.74	22.5±1	1.0
			16QAM	1	0	21.96	21.5±1	1.0
				1	8	21.87	21.5±1	1.0
				1	14	21.9	21.5±1	1.0
				6	0	20.76	21.5±1	1.0
				6	4	20.67	21.5±1	1.0
				6	9	20.62	21.5±1	1.0
				15	0	20.87	21.5±1	1.0
	18900	1880	QPSK	1	0	22.73	23.0±1	/
				1	8	22.79	23.0±1	/
				1	14	22.77	23.0±1	/
				6	0	21.43	22.0±1	1.0
				6	4	21.5	22.0±1	1.0
				6	9	21.38	22.0±1	1.0
				15	0	21.44	22.0±1	1.0
			16QAM	1	0	21.4	21.5±1	1.0
				1	8	21.41	21.5±1	1.0
				1	14	21.3	21.5±1	1.0
				6	0	20.66	21.5±1	1.0
				6	4	20.74	21.5±1	1.0
				6	9	20.74	21.5±1	1.0
				15	0	20.59	21.5±1	1.0
	19185	1908.5	QPSK	1	0	22.52	22.5±1	/
				1	8	22.53	22.5±1	/
				1	14	22.51	22.5±1	/

				6	0	21.36	22.0±1	1.0
				6	4	21.26	22.0±1	1.0
				6	9	21.32	22.0±1	1.0
				15	0	21.24	22.0±1	1.0
			16QAM	1	0	21.31	21.5±1	1.0
				1	8	21.28	21.5±1	1.0
				1	14	21.32	21.5±1	1.0
				6	0	20.43	21.0±1	1.0
				6	4	20.45	21.0±1	1.0
				6	9	20.41	21.0±1	1.0
				15	0	20.33	21.0±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	18625	1852.5	QPSK	1	0	22.65	22.5±1	/
				1	12	22.6	22.5±1	/
				1	24	22.57	22.5±1	/
				12	0	21.69	22.5±1	1.0
				12	6	21.6	22.5±1	1.0
				12	11	21.68	22.5±1	1.0
				25	0	21.69	22.5±1	1.0
			16QAM	1	0	21.02	21.5±1	1.0
				1	12	20.91	21.5±1	1.0
				1	24	20.85	21.5±1	1.0
				12	0	20.78	21.5±1	1.0
				12	6	20.7	21.5±1	1.0
				12	11	20.71	21.5±1	1.0
				25	0	20.75	21.5±1	1.0
	18900	1880	QPSK	1	0	22.73	22.5±1	/
				1	12	22.63	22.5±1	/
				1	24	22.63	22.5±1	/
				12	0	21.59	22.0±1	1.0
				12	6	21.45	22.0±1	1.0
				12	11	21.5	22.0±1	1.0
				25	0	21.54	22.0±1	1.0
			16QAM	1	0	20.84	21.0±1	1.0
				1	12	20.87	21.0±1	1.0
				1	24	20.86	21.0±1	1.0
				12	0	20.65	21.0±1	1.0
				12	6	20.69	21.0±1	1.0
				12	11	20.65	21.0±1	1.0

	19175	1907.5	QPSK	25	0	20.77	21.0±1	1.0
				1	0	22.3	22.5±1	/
				1	12	22.18	22.5±1	/
				1	24	22.22	22.5±1	/
				12	0	21.43	22.0±1	1.0
				12	6	21.36	22.0±1	1.0
				12	11	21.31	22.0±1	1.0
			16QAM	25	0	21.37	22.0±1	1.0
				1	0	20.88	21.0±1	1.0
				1	12	20.81	21.0±1	1.0
				1	24	20.75	21.0±1	1.0
				12	0	20.4	21.0±1	1.0
				12	6	20.36	21.0±1	1.0
				12	11	20.43	21.0±1	1.0
				25	0	20.41	21.0±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	18650	1855	QPSK	1	0	22.74	22.5±1	/
				1	24	22.6	22.5±1	/
				1	49	22.56	22.5±1	/
				25	0	21.64	22.5±1	1.0
				25	12	21.64	22.5±1	1.0
				25	24	21.73	22.5±1	1.0
				50	0	21.65	22.5±1	1.0
			16QAM	1	0	21.85	21.5±1	1.0
				1	24	21.78	21.5±1	1.0
				1	49	21.77	21.5±1	1.0
				25	0	20.77	21.5±1	1.0
				25	12	20.66	21.5±1	1.0
				25	24	20.7	21.5±1	1.0
				50	0	20.71	21.5±1	1.0
	18900	1880	QPSK	1	0	22.57	22.5±1	/
				1	24	22.56	22.5±1	/
				1	49	22.55	22.5±1	/
				25	0	21.48	22.0±1	1.0
				25	12	21.54	22.0±1	1.0
				25	24	21.48	22.0±1	1.0
				50	0	21.6	22.0±1	1.0
			16QAM	1	0	21.97	21.5±1	1.0
				1	24	21.93	21.5±1	1.0

	19150	1905		1	49	21.99	21.5±1	1.0
				25	0	20.67	21.0±1	1.0
				25	12	20.68	21.0±1	1.0
				25	24	20.67	21.0±1	1.0
				50	0	20.66	21.0±1	1.0
			QPSK	1	0	22.72	22.5±1	/
				1	24	22.66	22.5±1	/
				1	49	22.56	22.5±1	/
				25	0	21.43	22.0±1	1.0
				25	12	21.29	22.0±1	1.0
				25	24	21.32	22.0±1	1.0
				50	0	21.41	22.0±1	1.0
			16QAM	1	0	21.1	21.0±1	1.0
				1	24	21.03	21.0±1	1.0
				1	49	21.03	21.0±1	1.0
				25	0	20.52	21.0±1	1.0
				25	12	20.54	21.0±1	1.0
				25	24	20.48	21.0±1	1.0
				50	0	20.46	21.0±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	18675	1857.5	QPSK	1	0	22.88	22.5±1	/
				1	37	22.76	22.5±1	/
				1	74	22.6	22.5±1	/
				36	0	21.72	22.0±1	1.0
				36	16	21.55	22.0±1	1.0
				36	35	21.59	22.0±1	1.0
				75	0	21.63	22.0±1	1.0
			16QAM	1	0	21.98	22.0±1	1.0
				1	37	21.85	22.0±1	1.0
				1	74	21.85	22.0±1	1.0
				36	0	20.6	21.0±1	1.0
				36	16	20.69	21.0±1	1.0
				36	35	20.6	21.0±1	1.0
				75	0	20.66	21.0±1	1.0
	18900	1880	QPSK	1	0	22.65	22.5±1	/
				1	37	22.58	22.5±1	/
				1	74	22.53	22.5±1	/
				36	0	21.5	22.0±1	1.0
				36	16	21.5	22.0±1	1.0

				36	35	21.48	22.0±1	1.0
				75	0	21.5	22.0±1	1.0
			16QAM	1	0	22.06	21.0±1	1.0
				1	37	22.09	21.0±1	1.0
				1	74	22.03	21.0±1	1.0
				36	0	20.75	21.0±1	1.0
				36	16	20.77	21.0±1	1.0
				36	35	20.66	21.0±1	1.0
				75	0	20.61	21.0±1	1.0
	19125	1902.5	QPSK	1	0	22.5	22.5±1	/
				1	37	22.35	22.5±1	/
				1	74	22.29	22.5±1	/
				36	0	21.41	22.0±1	1.0
				36	16	21.44	22.0±1	1.0
				36	35	21.44	22.0±1	1.0
				75	0	21.37	22.0±1	1.0
			16QAM	1	0	21.99	22.0±1	1.0
				1	37	21.85	22.0±1	1.0
				1	74	21.79	22.0±1	1.0
				36	0	20.58	21.0±1	1.0
				36	16	20.49	21.0±1	1.0
				36	35	20.41	21.0±1	1.0
				75	0	20.46	21.0±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	18700	1860	QPSK	1	0	22.94	23.0±1	/
				1	49	22.7	23.0±1	/
				1	99	22.74	23.0±1	/
				50	0	21.59	22.0±1	1.0
				50	24	21.68	22.0±1	1.0
				50	49	21.51	22.0±1	1.0
				100	0	21.61	22.0±1	1.0
			16QAM	1	0	21.05	21.0±1	1.0
				1	49	20.96	21.0±1	1.0
				1	99	20.97	21.0±1	1.0
				50	0	20.75	21.0±1	1.0
				50	24	20.69	21.0±1	1.0
				50	49	20.67	21.0±1	1.0
				100	0	20.61	21.0±1	1.0
	18900	1880	QPSK	1	0	22.5	22.5±1	/

				1	49	22.48	22.5±1	/
				1	99	22.45	22.5±1	/
				50	0	21.58	22.0±1	1.0
				50	24	21.55	22.0±1	1.0
				50	49	21.55	22.0±1	1.0
				100	0	21.49	22.0±1	1.0
			16QAM	1	0	20.96	21.0±1	1.0
				1	49	20.95	21.0±1	1.0
				1	99	20.83	21.0±1	1.0
				50	0	20.64	21.0±1	1.0
				50	24	20.69	21.0±1	1.0
				50	49	20.57	21.0±1	1.0
				100	0	20.61	21.0±1	1.0
	19100	1900	QPSK	1	0	22.4	22.0±1	/
				1	49	22.32	22.0±1	/
				1	99	22.24	22.0±1	/
				50	0	21.55	22.0±1	1.0
				50	24	21.52	22.0±1	1.0
				50	49	21.45	22.0±1	1.0
				100	0	21.35	22.0±1	1.0
			16QAM	1	0	21.51	21.0±1	1.0
				1	49	21.4	21.0±1	1.0
				1	99	21.35	21.0±1	1.0
				50	0	20.6	21.0±1	1.0
				50	24	20.54	21.0±1	1.0
				50	49	20.47	21.0±1	1.0
				100	0	20.5	21.0±1	1.0

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

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band2	1.4MHz	QPSK	18607	1RB#0	5.65	13	PASS
Band2	1.4MHz	QPSK	18607	6RB#0	6.03	13	PASS
Band2	1.4MHz	16QAM	18607	1RB#0	6.52	13	PASS
Band2	1.4MHz	16QAM	18607	6RB#0	6.78	13	PASS
Band2	1.4MHz	QPSK	18900	1RB#0	5.77	13	PASS
Band2	1.4MHz	QPSK	18900	6RB#0	6.09	13	PASS
Band2	1.4MHz	16QAM	18900	1RB#0	6.58	13	PASS
Band2	1.4MHz	16QAM	18900	6RB#0	6.90	13	PASS
Band2	1.4MHz	QPSK	19193	1RB#0	5.57	13	PASS
Band2	1.4MHz	QPSK	19193	6RB#0	5.97	13	PASS
Band2	1.4MHz	16QAM	19193	1RB#0	6.52	13	PASS
Band2	1.4MHz	16QAM	19193	6RB#0	6.75	13	PASS
Band2	3MHz	QPSK	18615	1RB#0	5.71	13	PASS
Band2	3MHz	QPSK	18615	15RB#0	6.12	13	PASS
Band2	3MHz	16QAM	18615	1RB#0	6.70	13	PASS
Band2	3MHz	16QAM	18615	15RB#0	6.93	13	PASS
Band2	3MHz	QPSK	18900	1RB#0	5.77	13	PASS
Band2	3MHz	QPSK	18900	15RB#0	6.12	13	PASS
Band2	3MHz	16QAM	18900	1RB#0	6.55	13	PASS
Band2	3MHz	16QAM	18900	15RB#0	6.90	13	PASS
Band2	3MHz	QPSK	19185	1RB#0	5.65	13	PASS
Band2	3MHz	QPSK	19185	15RB#0	6.03	13	PASS
Band2	3MHz	16QAM	19185	1RB#0	6.75	13	PASS
Band2	3MHz	16QAM	19185	15RB#0	6.84	13	PASS
Band2	5MHz	QPSK	18625	1RB#0	5.77	13	PASS
Band2	5MHz	QPSK	18625	25RB#0	6.14	13	PASS
Band2	5MHz	16QAM	18625	1RB#0	6.52	13	PASS
Band2	5MHz	16QAM	18625	25RB#0	6.90	13	PASS
Band2	5MHz	QPSK	18900	1RB#0	5.77	13	PASS
Band2	5MHz	QPSK	18900	25RB#0	6.09	13	PASS
Band2	5MHz	16QAM	18900	1RB#0	6.55	13	PASS
Band2	5MHz	16QAM	18900	25RB#0	6.78	13	PASS
Band2	5MHz	QPSK	19175	1RB#0	5.65	13	PASS
Band2	5MHz	QPSK	19175	25RB#0	6.00	13	PASS
Band2	5MHz	16QAM	19175	1RB#0	6.46	13	PASS
Band2	5MHz	16QAM	19175	25RB#0	6.70	13	PASS

Band2	10MHz	QPSK	18650	1RB#0	5.74	13	PASS
Band2	10MHz	QPSK	18650	50RB#0	6.23	13	PASS
Band2	10MHz	16QAM	18650	1RB#0	6.81	13	PASS
Band2	10MHz	16QAM	18650	50RB#0	6.99	13	PASS
Band2	10MHz	QPSK	18900	1RB#0	5.59	13	PASS
Band2	10MHz	QPSK	18900	50RB#0	6.09	13	PASS
Band2	10MHz	16QAM	18900	1RB#0	6.70	13	PASS
Band2	10MHz	16QAM	18900	50RB#0	6.84	13	PASS
Band2	10MHz	QPSK	19150	1RB#0	5.83	13	PASS
Band2	10MHz	QPSK	19150	50RB#0	5.97	13	PASS
Band2	10MHz	16QAM	19150	1RB#0	6.93	13	PASS
Band2	10MHz	16QAM	19150	50RB#0	6.72	13	PASS
Band2	15MHz	QPSK	18675	1RB#0	5.74	13	PASS
Band2	15MHz	QPSK	18675	75RB#0	6.46	13	PASS
Band2	15MHz	16QAM	18675	1RB#0	6.75	13	PASS
Band2	15MHz	16QAM	18675	75RB#0	6.96	13	PASS
Band2	15MHz	QPSK	18900	1RB#0	5.57	13	PASS
Band2	15MHz	QPSK	18900	75RB#0	6.38	13	PASS
Band2	15MHz	16QAM	18900	1RB#0	6.78	13	PASS
Band2	15MHz	16QAM	18900	75RB#0	6.87	13	PASS
Band2	15MHz	QPSK	19125	1RB#0	6.06	13	PASS
Band2	15MHz	QPSK	19125	75RB#0	6.12	13	PASS
Band2	15MHz	16QAM	19125	1RB#0	7.04	13	PASS
Band2	15MHz	16QAM	19125	75RB#0	6.70	13	PASS
Band2	20MHz	QPSK	18700	1RB#0	5.68	13	PASS
Band2	20MHz	QPSK	18700	100RB#0	5.91	13	PASS
Band2	20MHz	16QAM	18700	1RB#0	6.41	13	PASS
Band2	20MHz	16QAM	18700	100RB#0	6.81	13	PASS
Band2	20MHz	QPSK	18900	1RB#0	5.39	13	PASS
Band2	20MHz	QPSK	18900	100RB#0	6.03	13	PASS
Band2	20MHz	16QAM	18900	1RB#0	6.14	13	PASS
Band2	20MHz	16QAM	18900	100RB#0	6.81	13	PASS
Band2	20MHz	QPSK	19100	1RB#0	5.88	13	PASS
Band2	20MHz	QPSK	19100	100RB#0	5.68	13	PASS
Band2	20MHz	16QAM	19100	1RB#0	6.52	13	PASS
Band2	20MHz	16QAM	19100	100RB#0	6.64	13	PASS

Test Graphs



















