



Appendix A

Transmitter Output Power

According to FCC Part 2.1046 & FCC Part 27.50(b) (10)

According to IC RSS-Gen, §4.8 & RSS-130, §4.4



Conducted Power of Transmitter

Table 1 Measurement Results (LTE) BAND 13

TM1 & TM2 RF Output Power(Conducted) BAND 13				
Test Mode	TN/VN			
	Modulation	RB	Measured (dBm)	Limit (dBm)
Channel (B) 5MHz(BW)	QPSK	1RB#0	23.13	34.8
		1RB#max	22.94	34.8
		12RB#6	21.87	34.8
		Full	21.75	34.8
	16QAM	1RB#0	22.22	34.8
		1RB#max	22.08	34.8
		12RB#6	21.00	34.8
		Full	20.81	34.8
Channel (B) 10MHz(BW)	QPSK	1RB#0	22.97	34.8
		1RB#max	22.87	34.8
		25RB#13	21.85	34.8
		Full	21.60	34.8
	16QAM	1RB#0	22.14	34.8
		1RB#max	22.03	34.8
		25RB#13	20.80	34.8
		Full	20.59	34.8
Channel (M) 5MHz(BW)	QPSK	1RB#0	22.92	34.8
		1RB#max	22.98	34.8
		12RB#6	21.80	34.8
		Full	21.69	34.8
	16QAM	1RB#0	22.05	34.8
		1RB#max	22.10	34.8
		12RB#6	21.00	34.8
		Full	20.79	34.8
Channel (M) 10MHz(BW)	QPSK	1RB#0	23.01	34.8
		1RB#max	22.84	34.8
		25RB#13	21.75	34.8
		Full	21.61	34.8
	16QAM	1RB#0	22.14	34.8
		1RB#max	21.95	34.8
		25RB#13	20.73	34.8



		Full	20.56	34.8
Channel (T) 5MHz(BW)	QPSK	1RB#0	22.95	34.8
		1RB#max	22.73	34.8
		12RB#6	21.91	34.8
		Full	21.95	34.8
	16QAM	1RB#0	22.07	34.8
		1RB#max	22.01	34.8
		12RB#6	21.06	34.8
		Full	20.93	34.8
Channel (T) 10MHz(BW)	QPSK	1RB#0	22.95	34.8
		1RB#max	22.85	34.8
		25RB#13	21.71	34.8
		Full	21.64	34.8
	16QAM	1RB#0	22.16	34.8
		1RB#max	21.99	34.8
		25RB#13	20.82	34.8
		Full	20.59	34.8

Note: RBW > emission bandwidth, VBW > 3 x RBW.



Peak-to-Average Ratio

Table 2 Measurement Results (LTE) BAND 13

Peak-to-Average Ratio				
Test Mode	TN/VN			
	Modulation	RB	Measured (dB)	Limit (dB)
Channel (B) 5MHz(BW)	QPSK	1RB#0	5.25	13
		1RB#max	5.34	13
		12RB#6	5.15	13
		Full	5.43	13
	16QAM	1RB#0	6.13	13
		1RB#max	6.25	13
		12RB#6	6.34	13
		Full	6.15	13
Channel (B) 10MHz(BW)	QPSK	1RB#0	5.35	13
		1RB#max	5.13	13
		25RB#13	5.51	13
		Full	5.31	13
	16QAM	1RB#0	6.35	13
		1RB#max	6.43	13
		25RB#13	6.37	13
		Full	6.37	13
Channel (M) 5MHz(BW)	QPSK	1RB#0	5.58	13
		1RB#max	5.35	13
		12RB#6	5.48	13
		Full	5.18	13
	16QAM	1RB#0	6.24	13
		1RB#max	6.24	13
		12RB#6	6.28	13
		Full	6.29	13
Channel (M) 10MHz(BW)	QPSK	1RB#0	5.23	13
		1RB#max	5.31	13
		25RB#13	5.43	13
		Full	5.12	13
	16QAM	1RB#0	6.35	13
		1RB#max	6.15	13



		25RB#13	6.53	13
		Full	6.44	13
Channel (T) 5MHz(BW)	QPSK	1RB#0	5.28	13
		1RB#max	5.34	13
		12RB#6	5.15	13
		Full	5.38	13
	16QAM	1RB#0	6.45	13
		1RB#max	6.35	13
		12RB#6	6.12	13
		Full	6.35	13
Channel (T) 10MHz(BW)	QPSK	1RB#0	5.23	13
		1RB#max	5.37	13
		25RB#13	5.45	13
		Full	5.21	13
	16QAM	1RB#0	6.35	13
		1RB#max	6.34	13
		25RB#13	6.35	13
		Full	6.28	13



Effective Radiated Power of Transmitter (ERP)

Table 3 Substitution Results (LTE) BAND 13

Test Mode			Meas. Level [dBm]	Substitution Antenna Type	SGP[dBm]	Substitution Gain [dbd]	Cable Loss [dB]	Substitution Level (ERP) [dBm]	FCC limit [dBm]	Result
Channel	Modulation	RB								
Channel (B) 5MHz(BW)	QPSK	1 RB/#0	19.98	Horn Ant.	23.18	-2.75	0.6	19.83	34.8	Pass
		1 RB/#max	19.79	Horn Ant.	22.99	-2.75	0.6	19.64	34.8	Pass
		12 RB/#6	18.72	Horn Ant.	21.92	-2.75	0.6	18.57	34.8	Pass
		Full	18.60	Horn Ant.	21.80	-2.75	0.6	18.45	34.8	Pass
	16QAM	1 RB/#0	19.07	Horn Ant.	22.27	-2.75	0.6	18.92	34.8	Pass
		1 RB/#max	18.93	Horn Ant.	22.13	-2.75	0.6	18.78	34.8	Pass
		12 RB/#6	17.85	Horn Ant.	21.05	-2.75	0.6	17.70	34.8	Pass
		Full	17.66	Horn Ant.	20.86	-2.75	0.6	17.51	34.8	Pass
Channel (B) 10MHz(BW)	QPSK	1 RB/#0	19.82	Horn Ant.	23.02	-2.75	0.6	19.67	34.8	Pass
		1 RB/#max	19.72	Horn Ant.	22.92	-2.75	0.6	19.57	34.8	Pass
		25 RB/#13	18.70	Horn Ant.	21.90	-2.75	0.6	18.55	34.8	Pass
		Full	18.45	Horn Ant.	21.65	-2.75	0.6	18.30	34.8	Pass
	16QAM	1 RB/#0	18.99	Horn Ant.	22.19	-2.75	0.6	18.84	34.8	Pass
		1 RB/#max	18.88	Horn Ant.	22.08	-2.75	0.6	18.73	34.8	Pass
		25 RB/#13	17.65	Horn Ant.	20.85	-2.75	0.6	17.50	34.8	Pass



		Full	17.44	Horn Ant.	20.64	-2.75	0.6	17.29	34.8	Pass
Channel (M) 5MHz(BW)	QPSK	1 RB/#0	19.77	Horn Ant.	23.09	-2.87	0.6	19.62	34.8	Pass
		1 RB/#max	19.83	Horn Ant.	23.15	-2.87	0.6	19.68	34.8	Pass
		12 RB/#6	18.65	Horn Ant.	21.97	-2.87	0.6	18.50	34.8	Pass
		Full	18.54	Horn Ant.	21.86	-2.87	0.6	18.39	34.8	Pass
	16QAM	1 RB/#0	18.90	Horn Ant.	22.22	-2.87	0.6	18.75	34.8	Pass
		1 RB/#max	18.95	Horn Ant.	22.27	-2.87	0.6	18.80	34.8	Pass
		12 RB/#6	17.85	Horn Ant.	21.17	-2.87	0.6	17.70	34.8	Pass
		Full	17.64	Horn Ant.	20.96	-2.87	0.6	17.49	34.8	Pass
Channel (M) 10MHz(BW)	QPSK	1 RB/#0	19.86	Horn Ant.	23.18	-2.87	0.6	19.71	34.8	Pass
		1 RB/#max	19.69	Horn Ant.	23.01	-2.87	0.6	19.54	34.8	Pass
		25 RB/#13	18.60	Horn Ant.	21.92	-2.87	0.6	18.45	34.8	Pass
		Full	18.46	Horn Ant.	21.78	-2.87	0.6	18.31	34.8	Pass
	16QAM	1 RB/#0	18.99	Horn Ant.	22.31	-2.87	0.6	18.84	34.8	Pass
		1 RB/#max	18.80	Horn Ant.	22.12	-2.87	0.6	18.65	34.8	Pass
		25 RB/#13	17.58	Horn Ant.	20.90	-2.87	0.6	17.43	34.8	Pass
		Full	17.41	Horn Ant.	20.73	-2.87	0.6	17.26	34.8	Pass
Channel (T) 5MHz(BW)	QPSK	1 RB/#0	19.80	Horn Ant.	23.10	-2.85	0.6	19.65	34.8	Pass
		1 RB/#max	19.58	Horn Ant.	22.88	-2.85	0.6	19.43	34.8	Pass



		12 RB/#6	18.76	Horn Ant.	22.06	-2.85	0.6	18.61	34.8	Pass
		Full	18.80	Horn Ant.	22.10	-2.85	0.6	18.65	34.8	Pass
	16QAM	1 RB/#0	18.92	Horn Ant.	22.22	-2.85	0.6	18.77	34.8	Pass
		1 RB/#max	18.86	Horn Ant.	22.16	-2.85	0.6	18.71	34.8	Pass
		12 RB/#6	17.91	Horn Ant.	21.21	-2.85	0.6	17.76	34.8	Pass
		Full	17.78	Horn Ant.	21.08	-2.85	0.6	17.63	34.8	Pass
Channel (T) 10MHz(BW)	QPSK	1 RB/#0	19.80	Horn Ant.	23.10	-2.85	0.6	19.65	34.8	Pass
		1 RB/#max	19.70	Horn Ant.	23.00	-2.85	0.6	19.55	34.8	Pass
		25 RB/#13	18.56	Horn Ant.	21.86	-2.85	0.6	18.41	34.8	Pass
		Full	18.49	Horn Ant.	21.79	-2.85	0.6	18.34	34.8	Pass
	16QAM	1 RB/#0	19.01	Horn Ant.	22.31	-2.85	0.6	18.86	34.8	Pass
		1 RB/#max	18.84	Horn Ant.	22.14	-2.85	0.6	18.69	34.8	Pass
		25 RB/#13	17.67	Horn Ant.	20.97	-2.85	0.6	17.52	34.8	Pass
		Full	17.44	Horn Ant.	20.74	-2.85	0.6	17.29	34.8	Pass

Note1: a, For getting the ERP (Efficient Radiated Power) in substitution method, the following formula should be taken to calculate it,

$$ERP [dBm] = SGP [dBm] - Cable Loss [dB] + Gain [dBd]$$

b, SGP=Signal Generator Level

Note2: RBW > emission bandwidth, VBW > 3 x RBW.

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