

Appendix A

Transmitter Output Power

According to FCC Part 2.1046 & FCC Part 27.50(c)

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



Conducted Power of Transmitter

Table 1 Measurement Results (LTE) BAND 17

TM1 & TM2 RF Output Power(Conducted) BAND 17				
Test Mode	TN/VN			
	Modulation	RB	Measured (dBm)	Limit (dBm)
Channel (B) 5MHz(BW)	QPSK	1RB#0	23.84	34.8
		1RB#max	23.58	34.8
		12RB#6	22.76	34.8
		Full	22.53	34.8
	16QAM	1RB#0	22.86	34.8
		1RB#max	22.72	34.8
		12RB#6	21.75	34.8
		Full	21.49	34.8
Channel (B) 10MHz(BW)	QPSK	1RB#0	23.68	34.8
		1RB#max	23.45	34.8
		25RB#13	22.54	34.8
		Full	22.42	34.8
	16QAM	1RB#0	22.86	34.8
		1RB#max	22.62	34.8
		25RB#13	21.47	34.8
		Full	21.34	34.8
Channel (M) 5MHz(BW)	QPSK	1RB#0	23.57	34.8
		1RB#max	23.78	34.8
		12RB#6	22.73	34.8
		Full	22.54	34.8
	16QAM	1RB#0	22.73	34.8
		1RB#max	22.80	34.8
		12RB#6	21.66	34.8
		Full	21.47	34.8
Channel (M) 10MHz(BW)	QPSK	1RB#0	23.67	34.8
		1RB#max	23.73	34.8
		25RB#13	22.52	34.8
		Full	22.40	34.8
	16QAM	1RB#0	22.82	34.8
		1RB#max	22.87	34.8
		25RB#13	21.48	34.8
		Full	21.31	34.8

Channel (T) 5MHz(BW)	QPSK	1RB#0	23.57	34.8
		1RB#max	23.69	34.8
		12RB#6	22.65	34.8
		Full	22.50	34.8
	16QAM	1RB#0	22.75	34.8
		1RB#max	22.78	34.8
		12RB#6	21.74	34.8
		Full	21.48	34.8
Channel (T) 10MHz(BW)	QPSK	1RB#0	23.70	34.8
		1RB#max	23.74	34.8
		25RB#13	22.58	34.8
		Full	22.45	34.8
	16QAM	1RB#0	22.83	34.8
		1RB#max	22.87	34.8
		25RB#13	21.51	34.8
		Full	21.30	34.8

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

Peak-to-Average Ratio

Table 2 Measurement Results (LTE) BAND 17

Peak-to-Average Ratio				
Test Mode	TN/VN			
	Modulation	RB	Measured (dB)	Limit (dB)
Channel (B) 5MHz(BW)	QPSK	1RB#0	5.32	13
		1RB#max	5.25	13
		12RB#6	5.16	13
		Full	5.35	13
	16QAM	1RB#0	6.05	13
		1RB#max	6.08	13
		12RB#6	6.13	13
		Full	6.28	13
Channel (B) 10MHz(BW)	QPSK	1RB#0	5.22	13
		1RB#max	5.26	13
		25RB#13	5.32	13
		Full	5.18	13
	16QAM	1RB#0	6.25	13
		1RB#max	6.38	13
		25RB#13	6.14	13
		Full	6.18	13
Channel (M) 5MHz(BW)	QPSK	1RB#0	5.35	13
		1RB#max	5.27	13
		12RB#6	5.16	13
		Full	5.31	13
	16QAM	1RB#0	6.07	13
		1RB#max	6.06	13
		12RB#6	6.17	13
		Full	6.28	13
Channel (M) 10MHz(BW)	QPSK	1RB#0	5.23	13
		1RB#max	5.27	13
		25RB#13	5.39	13
		Full	5.11	13
	16QAM	1RB#0	6.25	13
		1RB#max	6.37	13
		25RB#13	6.16	13

		Full	6.19	13
Channel (T) 5MHz(BW)	QPSK	1RB#0	5.32	13
		1RB#max	5.34	13
		12RB#6	5.37	13
		Full	5.23	13
	16QAM	1RB#0	6.24	13
		1RB#max	6.38	13
		12RB#6	6.11	13
		Full	6.16	13
Channel (T) 10MHz(BW)	QPSK	1RB#0	5.28	13
		1RB#max	5.27	13
		25RB#13	5.34	13
		Full	5.13	13
	16QAM	1RB#0	6.27	13
		1RB#max	6.33	13
		25RB#13	6.11	13
		Full	6.13	13

Effective Radiated Power of Transmitter (ERP)

Table 3 Substitution Results (LTE) BAND 17

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	20.69	Horn Ant.	23.90	-2.75	0.6	20.55	34.8	Pass
		1 RB/#max	20.43	Horn Ant.	23.64	-2.75	0.6	20.29	34.8	Pass
		12 RB/#6	19.61	Horn Ant.	22.82	-2.75	0.6	19.47	34.8	Pass
		Full	19.38	Horn Ant.	22.59	-2.75	0.6	19.24	34.8	Pass
	16QAM	1 RB/#0	19.71	Horn Ant.	22.92	-2.75	0.6	19.57	34.8	Pass
		1 RB/#max	19.57	Horn Ant.	22.78	-2.75	0.6	19.43	34.8	Pass
		12 RB/#6	18.60	Horn Ant.	21.81	-2.75	0.6	18.46	34.8	Pass
		Full	18.34	Horn Ant.	21.55	-2.75	0.6	18.20	34.8	Pass
Channel (B) 10MHz(BW)	QPSK	1 RB/#0	20.53	Horn Ant.	23.74	-2.75	0.6	20.39	34.8	Pass
		1 RB/#max	20.30	Horn Ant.	23.51	-2.75	0.6	20.16	34.8	Pass
		25 RB/#13	19.39	Horn Ant.	22.60	-2.75	0.6	19.25	34.8	Pass
		Full	19.27	Horn Ant.	22.48	-2.75	0.6	19.13	34.8	Pass
	16QAM	1 RB/#0	19.71	Horn Ant.	22.92	-2.75	0.6	19.57	34.8	Pass
		1 RB/#max	19.47	Horn Ant.	22.68	-2.75	0.6	19.33	34.8	Pass
		25 RB/#13	18.32	Horn Ant.	21.53	-2.75	0.6	18.18	34.8	Pass
		Full	18.19	Horn Ant.	21.40	-2.75	0.6	18.05	34.8	Pass



Channel (M) 5MHz(B W)	QPSK	1 RB/#0	20.42	Horn Ant.	23.75	-2.87	0.6	20.28	34.8	Pass
		1 RB/#max	20.63	Horn Ant.	23.96	-2.87	0.6	20.49	34.8	Pass
		12 RB/#6	19.58	Horn Ant.	22.91	-2.87	0.6	19.44	34.8	Pass
		Full	19.39	Horn Ant.	22.72	-2.87	0.6	19.25	34.8	Pass
	16QAM	1 RB/#0	19.58	Horn Ant.	22.91	-2.87	0.6	19.44	34.8	Pass
		1 RB/#max	19.65	Horn Ant.	22.98	-2.87	0.6	19.51	34.8	Pass
		12 RB/#6	18.51	Horn Ant.	21.84	-2.87	0.6	18.37	34.8	Pass
		Full	18.32	Horn Ant.	21.65	-2.87	0.6	18.18	34.8	Pass
Channel (M) 10MHz(B W)	QPSK	1 RB/#0	20.52	Horn Ant.	23.85	-2.87	0.6	20.38	34.8	Pass
		1 RB/#max	20.58	Horn Ant.	23.91	-2.87	0.6	20.44	34.8	Pass
		25 RB/#13	19.37	Horn Ant.	22.70	-2.87	0.6	19.23	34.8	Pass
		Full	19.25	Horn Ant.	22.58	-2.87	0.6	19.11	34.8	Pass
	16QAM	1 RB/#0	19.67	Horn Ant.	23.00	-2.87	0.6	19.53	34.8	Pass
		1 RB/#max	19.72	Horn Ant.	23.05	-2.87	0.6	19.58	34.8	Pass
		25 RB/#13	18.33	Horn Ant.	21.66	-2.87	0.6	18.19	34.8	Pass
		Full	18.16	Horn Ant.	21.49	-2.87	0.6	18.02	34.8	Pass
Channel (T) 5MHz(B W)	QPSK	1 RB/#0	20.42	Horn Ant.	23.73	-2.85	0.6	20.28	34.8	Pass
		1 RB/#max	20.54	Horn Ant.	23.85	-2.85	0.6	20.40	34.8	Pass
		12 RB/#6	19.50	Horn Ant.	22.81	-2.85	0.6	19.36	34.8	Pass
		Full	19.35	Horn Ant.	22.66	-2.85	0.6	19.21	34.8	Pass



	16QAM	1 RB/#0	19.60	Horn Ant.	22.91	-2.85	0.6	19.46	34.8	Pass
		1 RB/#max	19.63	Horn Ant.	22.94	-2.85	0.6	19.49	34.8	Pass
		12 RB/#6	18.59	Horn Ant.	21.90	-2.85	0.6	18.45	34.8	Pass
		Full	18.33	Horn Ant.	21.64	-2.85	0.6	18.19	34.8	Pass
Channel (T) 10MHz(BW)	QPSK	1 RB/#0	20.55	Horn Ant.	23.86	-2.85	0.6	20.41	34.8	Pass
		1 RB/#max	20.59	Horn Ant.	23.90	-2.85	0.6	20.45	34.8	Pass
		25 RB/#13	19.43	Horn Ant.	22.74	-2.85	0.6	19.29	34.8	Pass
		Full	19.30	Horn Ant.	22.61	-2.85	0.6	19.16	34.8	Pass
	16QAM	1 RB/#0	19.68	Horn Ant.	22.99	-2.85	0.6	19.54	34.8	Pass
		1 RB/#max	19.72	Horn Ant.	23.03	-2.85	0.6	19.58	34.8	Pass
		25 RB/#13	18.36	Horn Ant.	21.67	-2.85	0.6	18.22	34.8	Pass
		Full	18.15	Horn Ant.	21.46	-2.85	0.6	18.01	34.8	Pass

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

$$\text{ERP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dbd]}$$

b, SGP=Signal Generator Level

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

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