



# Appendix A

## Transmitter Output Power

According to FCC Part 2.1046 & Part 27.50(c)  
According to IC RSS-Gen, §4.8 & RSS-130, §4.4



## Conducted Power of Transmitter

### Measurement Results

TM1 & TM2 RF Output Power(Conducted) BAND 12				
Test Mode	TN/VN			
	Modulation	RB	Measured (dBm)	Limit (dBm )
Channel (B) 1.4MHz(BW)	QPSK	1RB#0	23.70	34.8
		1RB#max	23.60	34.8
		3RB#2	23.64	34.8
		Full	22.70	34.8
	16QAM	1RB#0	22.83	34.8
		1RB#max	22.69	34.8
		3RB#2	22.52	34.8
		Full	21.36	34.8
Channel (B) 3MHz(BW)	QPSK	1RB#0	23.53	34.8
		1RB#max	23.53	34.8
		8RB#4	22.41	34.8
		Full	22.40	34.8
	16QAM	1RB#0	22.71	34.8
		1RB#max	22.67	34.8
		8RB#4	21.27	34.8
		Full	21.41	34.8
Channel (B) 5MHz(BW)	QPSK	1RB#0	23.53	34.8
		1RB#max	23.34	34.8
		12RB#6	22.46	34.8
		Full	22.34	34.8
	16QAM	1RB#0	22.69	34.8
		1RB#max	22.42	34.8
		12RB#6	21.44	34.8
		Full	21.28	34.8
Channel (B) 10MHz(BW)	QPSK	1RB#0	23.47	34.8
		1RB#max	23.22	34.8
		25RB#13	22.23	34.8
		Full	22.16	34.8



	16QAM	1RB#0	22.65	34.8
		1RB#max	22.35	34.8
		25RB#13	21.23	34.8
		Full	21.04	34.8
Channel (M) 1.4MHz(BW)	QPSK	1RB#0	23.41	34.8
		1RB#max	23.34	34.8
		3RB#2	23.34	34.8
		Full	22.41	34.8
	16QAM	1RB#0	22.50	34.8
		1RB#max	22.44	34.8
		3RB#2	22.32	34.8
		Full	21.21	34.8
Channel (M) 3MHz(BW)	QPSK	1RB#0	23.37	34.8
		1RB#max	23.30	34.8
		8RB#4	22.36	34.8
		Full	22.22	34.8
	16QAM	1RB#0	22.50	34.8
		1RB#max	22.40	34.8
		8RB#4	21.27	34.8
		Full	21.30	34.8
Channel (M) 5MHz(BW)	QPSK	1RB#0	23.21	34.8
		1RB#max	23.33	34.8
		12RB#6	22.28	34.8
		Full	22.20	34.8
	16QAM	1RB#0	22.32	34.8
		1RB#max	22.34	34.8
		12RB#6	21.34	34.8
		Full	21.19	34.8
Channel (M) 10MHz(BW)	QPSK	1RB#0	23.14	34.8
		1RB#max	23.21	34.8
		25RB#13	22.27	34.8
		Full	22.11	34.8
	16QAM	1RB#0	22.26	34.8
		1RB#max	22.38	34.8
		25RB#13	21.18	34.8



		Full	20.96	34.8
Channel (T) 1.4MHz(BW)	QPSK	1RB#0	23.45	34.8
		1RB#max	23.46	34.8
		3RB#2	23.44	34.8
	16QAM	Full	22.41	34.8
		1RB#0	22.64	34.8
		1RB#max	22.53	34.8
		3RB#2	22.32	34.8
Channel (T) 3MHz(BW)	QPSK	Full	21.23	34.8
		1RB#0	23.28	34.8
		1RB#max	23.40	34.8
		8RB#4	22.40	34.8
	16QAM	Full	22.32	34.8
		1RB#0	22.44	34.8
		1RB#max	22.56	34.8
Channel (T) 5MHz(BW)	QPSK	8RB#4	21.30	34.8
		Full	21.36	34.8
		1RB#0	23.27	34.8
		1RB#max	23.44	34.8
	16QAM	12RB#6	22.25	34.8
		Full	22.19	34.8
		1RB#0	22.39	34.8
Channel (T) 10MHz(BW)	QPSK	1RB#max	22.47	34.8
		12RB#6	21.23	34.8
		Full	21.18	34.8
		1RB#0	23.33	34.8
	16QAM	1RB#max	23.41	34.8
		25RB#13	22.05	34.8
		Full	22.05	34.8
1RB#0		22.48	34.8	
16QAM	1RB#max	22.51	34.8	
	25RB#13	21.07	34.8	
	Full	20.92	34.8	

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



## Peak-to-Average Ratio Measurement Results

Peak-to-Average Ratio				
Test Mode	TN/VN			
	Modulation	RB	Measured (dB)	Limit (dB)
Channel (B) 1.4MHz(BW)	QPSK	1RB#0	5.20	13
		1RB#max	5.19	13
		3RB#2	5.21	13
		Full	5.24	13
	16QAM	1RB#0	5.75	13
		1RB#max	5.72	13
		3RB#2	5.76	13
		Full	5.80	13
Channel (B) 3MHz(BW)	QPSK	1RB#0	4.98	13
		1RB#max	4.97	13
		8RB#4	5.01	13
		Full	5.01	13
	16QAM	1RB#0	5.80	13
		1RB#max	5.79	13
		8RB#4	5.85	13
		Full	5.87	13
Channel (B) 5MHz(BW)	QPSK	1RB#0	5.18	13
		1RB#max	5.19	13
		12RB#6	5.20	13
		Full	5.30	13
	16QAM	1RB#0	5.73	13
		1RB#max	5.71	13
		12RB#6	5.76	13
		Full	5.84	13
Channel (B) 10MHz(BW)	QPSK	1RB#0	4.93	13
		1RB#max	4.91	13
		25RB#13	4.96	13
		Full	4.97	13



	16QAM	1RB#0	5.81	13
		1RB#max	5.80	13
		25RB#13	5.83	13
		Full	5.86	13
Channel (M) 1.4MHz(BW)	QPSK	1RB#0	5.15	13
		1RB#max	5.13	13
		3RB#2	5.14	13
		Full	5.18	13
	16QAM	1RB#0	5.97	13
		1RB#max	5.91	13
		3RB#2	5.94	13
		Full	5.98	13
Channel (M) 3MHz(BW)	QPSK	1RB#0	5.01	13
		1RB#max	4.99	13
		8RB#4	4.97	13
		Full	5.03	13
	16QAM	1RB#0	5.87	13
		1RB#max	5.84	13
		8RB#4	5.83	13
		Full	5.89	13
Channel (M) 5MHz(BW)	QPSK	1RB#0	5.26	13
		1RB#max	5.24	13
		12RB#6	5.20	13
		Full	5.27	13
	16QAM	1RB#0	5.74	13
		1RB#max	5.77	13
		12RB#6	5.72	13
		Full	5.83	13
Channel (M) 10MHz(BW)	QPSK	1RB#0	4.97	13
		1RB#max	4.95	13
		25RB#13	4.97	13
		Full	5.01	13
	16QAM	1RB#0	5.83	13
		1RB#max	5.84	13
		25RB#13	5.85	13



		Full	5.89	13
Channel (T) 1.4MHz(BW)	QPSK	1RB#0	5.11	13
		1RB#max	5.10	13
		3RB#2	5.09	13
		Full	5.14	13
	16QAM	1RB#0	5.93	13
		1RB#max	5.89	13
		3RB#2	5.89	13
		Full	5.94	13
Channel (T) 3MHz(BW)	QPSK	1RB#0	4.99	13
		1RB#max	5.02	13
		8RB#4	5.01	13
		Full	5.02	13
	16QAM	1RB#0	5.84	13
		1RB#max	5.82	13
		8RB#4	5.80	13
		Full	5.82	13
Channel (T) 5MHz(BW)	QPSK	1RB#0	5.17	13
		1RB#max	5.18	13
		12RB#6	5.15	13
		Full	5.19	13
	16QAM	1RB#0	5.77	13
		1RB#max	5.79	13
		12RB#6	5.81	13
		Full	5.82	13
Channel (T) 10MHz(BW)	QPSK	1RB#0	5.01	13
		1RB#max	5.00	13
		25RB#13	4.96	13
		Full	5.01	13
	16QAM	1RB#0	5.81	13
		1RB#max	5.80	13
		25RB#13	5.85	13
		Full	5.87	13

**Effective Radiated Power of Transmitter (ERP)**

Substitution Results (LTE) BAND 12

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 (B) 1.4MHz (BW)	QPSK	1RB#0	20.55	Horn Ant.	23.78	-2.75	0.6	20.43	34.8	Pass
		1RB#max	20.45	Horn Ant.	23.68	-2.75	0.6	20.33	34.8	Pass
		3RB#2	20.49	Horn Ant.	23.72	-2.75	0.6	20.37	34.8	Pass
		Full	19.55	Horn Ant.	22.78	-2.75	0.6	19.43	34.8	Pass
	16QAM	1RB#0	19.68	Horn Ant.	22.91	-2.75	0.6	19.56	34.8	Pass
		1RB#max	19.54	Horn Ant.	22.77	-2.75	0.6	19.42	34.8	Pass
		3RB#2	19.37	Horn Ant.	22.60	-2.75	0.6	19.25	34.8	Pass
		Full	18.21	Horn Ant.	21.44	-2.75	0.6	18.09	34.8	Pass
Channel (B) 3MHz(BW)	QPSK	1RB#0	20.38	Horn Ant.	23.61	-2.75	0.6	20.26	34.8	Pass
		1RB#max	20.38	Horn Ant.	23.61	-2.75	0.6	20.26	34.8	Pass
		8RB#4	19.26	Horn Ant.	22.49	-2.75	0.6	19.14	34.8	Pass
		Full	19.25	Horn Ant.	22.48	-2.75	0.6	19.13	34.8	Pass
	16QAM	1RB#0	19.56	Horn Ant.	22.79	-2.75	0.6	19.44	34.8	Pass
		1RB#max	19.52	Horn Ant.	22.75	-2.75	0.6	19.40	34.8	Pass
		8RB#4	18.12	Horn Ant.	21.35	-2.75	0.6	18.00	34.8	Pass
		Full	18.26	Horn Ant.	21.49	-2.75	0.6	18.14	34.8	Pass
Channel (B)	QPSK	1 RB/#0	20.38	Horn Ant.	23.61	-2.75	0.6	20.26	34.8	Pass



5MHz(BW)		1 RB/#max	20.19	Horn Ant.	23.42	-2.75	0.6	20.07	34.8	Pass	
		12 RB/#6	19.31	Horn Ant.	22.54	-2.75	0.6	19.19	34.8	Pass	
		Full	19.19	Horn Ant.	22.42	-2.75	0.6	19.07	34.8	Pass	
	16QAM		1 RB/#0	19.54	Horn Ant.	22.77	-2.75	0.6	19.42	34.8	Pass
			1 RB/#max	19.27	Horn Ant.	22.50	-2.75	0.6	19.15	34.8	Pass
			12 RB/#6	18.29	Horn Ant.	21.52	-2.75	0.6	18.17	34.8	Pass
			Full	18.13	Horn Ant.	21.36	-2.75	0.6	18.01	34.8	Pass
Channel (B) 10MHz(BW)	QPSK	1 RB/#0	20.32	Horn Ant.	23.55	-2.75	0.6	20.20	34.8	Pass	
		1 RB/#max	20.07	Horn Ant.	23.30	-2.75	0.6	19.95	34.8	Pass	
		25 RB/#13	19.08	Horn Ant.	22.31	-2.75	0.6	18.96	34.8	Pass	
		Full	19.01	Horn Ant.	22.24	-2.75	0.6	18.89	34.8	Pass	
	16QAM		1 RB/#0	19.50	Horn Ant.	22.73	-2.75	0.6	19.38	34.8	Pass
			1 RB/#max	19.20	Horn Ant.	22.43	-2.75	0.6	19.08	34.8	Pass
			25 RB/#13	18.08	Horn Ant.	21.31	-2.75	0.6	17.96	34.8	Pass
			Full	17.89	Horn Ant.	21.12	-2.75	0.6	17.77	34.8	Pass
Channel (M) 1.4MHz(BW)	QPSK	1RB#0	20.26	Horn Ant.	23.61	-2.87	0.6	20.14	34.8	Pass	
		1RB#max	20.19	Horn Ant.	23.54	-2.87	0.6	20.07	34.8	Pass	
		3RB#2	20.19	Horn Ant.	23.54	-2.87	0.6	20.07	34.8	Pass	
		Full	19.26	Horn Ant.	22.61	-2.87	0.6	19.14	34.8	Pass	
	16QAM		1RB#0	19.35	Horn Ant.	22.70	-2.87	0.6	19.23	34.8	Pass
			1RB#max	19.29	Horn Ant.	22.64	-2.87	0.6	19.17	34.8	Pass
			3RB#2	19.17	Horn Ant.	22.52	-2.87	0.6	19.05	34.8	Pass



		Full	18.06	Horn Ant.	21.41	-2.87	0.6	17.94	34.8	Pass
Channel (M) 3MHz(BW)	QPSK	1RB#0	20.22	Horn Ant.	23.57	-2.87	0.6	20.10	34.8	Pass
		1RB#max	20.15	Horn Ant.	23.50	-2.87	0.6	20.03	34.8	Pass
		8RB#4	19.21	Horn Ant.	22.56	-2.87	0.6	19.09	34.8	Pass
		Full	19.07	Horn Ant.	22.42	-2.87	0.6	18.95	34.8	Pass
	16QAM	1RB#0	19.35	Horn Ant.	22.70	-2.87	0.6	19.23	34.8	Pass
		1RB#max	19.25	Horn Ant.	22.60	-2.87	0.6	19.13	34.8	Pass
		8RB#4	18.12	Horn Ant.	21.47	-2.87	0.6	18.00	34.8	Pass
		Full	18.15	Horn Ant.	21.50	-2.87	0.6	18.03	34.8	Pass
Channel (M) 5MHz(BW)	QPSK	1 RB/#0	20.06	Horn Ant.	23.41	-2.87	0.6	19.94	34.8	Pass
		1 RB/#max	20.18	Horn Ant.	23.53	-2.87	0.6	20.06	34.8	Pass
		12 RB/#6	19.13	Horn Ant.	22.48	-2.87	0.6	19.01	34.8	Pass
		Full	19.05	Horn Ant.	22.40	-2.87	0.6	18.93	34.8	Pass
	16QAM	1 RB/#0	19.17	Horn Ant.	22.52	-2.87	0.6	19.05	34.8	Pass
		1 RB/#max	19.19	Horn Ant.	22.54	-2.87	0.6	19.07	34.8	Pass
		12 RB/#6	18.19	Horn Ant.	21.54	-2.87	0.6	18.07	34.8	Pass
		Full	18.04	Horn Ant.	21.39	-2.87	0.6	17.92	34.8	Pass
Channel (M) 10MHz(BW)	QPSK	1 RB/#0	19.99	Horn Ant.	23.34	-2.87	0.6	19.87	34.8	Pass
		1 RB/#max	20.06	Horn Ant.	23.41	-2.87	0.6	19.94	34.8	Pass
		25 RB/#13	19.12	Horn Ant.	22.47	-2.87	0.6	19.00	34.8	Pass
		Full	18.96	Horn Ant.	22.31	-2.87	0.6	18.84	34.8	Pass
	16QAM	1 RB/#0	19.11	Horn Ant.	22.46	-2.87	0.6	18.99	34.8	Pass



		1 RB/#max	19.23	Horn Ant.	22.58	-2.87	0.6	19.11	34.8	Pass
		25 RB/#13	18.03	Horn Ant.	21.38	-2.87	0.6	17.91	34.8	Pass
		Full	17.81	Horn Ant.	21.16	-2.87	0.6	17.69	34.8	Pass
Channe l (T) 1.4MHz (BW)	QPSK	1RB#0	20.30	Horn Ant.	23.63	-2.85	0.6	20.18	34.8	Pass
		1RB#max	20.31	Horn Ant.	23.64	-2.85	0.6	20.19	34.8	Pass
		3RB#2	20.29	Horn Ant.	23.62	-2.85	0.6	20.17	34.8	Pass
		Full	19.26	Horn Ant.	22.59	-2.85	0.6	19.14	34.8	Pass
	16QAM	1RB#0	19.49	Horn Ant.	22.82	-2.85	0.6	19.37	34.8	Pass
		1RB#max	19.38	Horn Ant.	22.71	-2.85	0.6	19.26	34.8	Pass
		3RB#2	19.17	Horn Ant.	22.50	-2.85	0.6	19.05	34.8	Pass
		Full	18.08	Horn Ant.	21.41	-2.85	0.6	17.96	34.8	Pass
Channe l (T) 3MHz(B W)	QPSK	1RB#0	20.13	Horn Ant.	23.46	-2.85	0.6	20.01	34.8	Pass
		1RB#max	20.25	Horn Ant.	23.58	-2.85	0.6	20.13	34.8	Pass
		8RB#4	19.25	Horn Ant.	22.58	-2.85	0.6	19.13	34.8	Pass
		Full	19.17	Horn Ant.	22.50	-2.85	0.6	19.05	34.8	Pass
	16QAM	1RB#0	19.29	Horn Ant.	22.62	-2.85	0.6	19.17	34.8	Pass
		1RB#max	19.41	Horn Ant.	22.74	-2.85	0.6	19.29	34.8	Pass
		8RB#4	18.15	Horn Ant.	21.48	-2.85	0.6	18.03	34.8	Pass
		Full	18.21	Horn Ant.	21.54	-2.85	0.6	18.09	34.8	Pass
Channe l (T) 5MHz(B W)	QPSK	1 RB/#0	20.12	Horn Ant.	23.45	-2.85	0.6	20.00	34.8	Pass
		1 RB/#max	20.29	Horn Ant.	23.62	-2.85	0.6	20.17	34.8	Pass
		12 RB/#6	19.10	Horn Ant.	22.43	-2.85	0.6	18.98	34.8	Pass



	16QAM	Full	19.04	Horn Ant.	22.37	-2.85	0.6	18.92	34.8	Pass
		1 RB/#0	19.24	Horn Ant.	22.57	-2.85	0.6	19.12	34.8	Pass
		1 RB/#max	19.32	Horn Ant.	22.65	-2.85	0.6	19.20	34.8	Pass
		12 RB/#6	18.08	Horn Ant.	21.41	-2.85	0.6	17.96	34.8	Pass
		Full	18.03	Horn Ant.	21.36	-2.85	0.6	17.91	34.8	Pass
Channel (T) 10MHz(BW)	QPSK	1 RB/#0	20.18	Horn Ant.	23.51	-2.85	0.6	20.06	34.8	Pass
		1 RB/#max	20.26	Horn Ant.	23.59	-2.85	0.6	20.14	34.8	Pass
		25 RB/#13	18.90	Horn Ant.	22.23	-2.85	0.6	18.78	34.8	Pass
		Full	18.90	Horn Ant.	22.23	-2.85	0.6	18.78	34.8	Pass
	16QAM	1 RB/#0	19.33	Horn Ant.	22.66	-2.85	0.6	19.21	34.8	Pass
		1 RB/#max	19.36	Horn Ant.	22.69	-2.85	0.6	19.24	34.8	Pass
		25 RB/#13	17.92	Horn Ant.	21.25	-2.85	0.6	17.80	34.8	Pass
		Full	17.77	Horn Ant.	21.10	-2.85	0.6	17.65	34.8	Pass

Note1: a, For getting the ERP (Efficient Radiated Power) in substitution method, the following formula should take 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.

-----The END-----