

Coppernic

Tune-up (dBm) procedure

This is to formally certify that:

The tune up procedures of access-ER HF/LF/BT HID CK
(FCC ID:XGK-ACERHIDCK)

The tune up procedures of is not open to end user. The end user is not allowed to perform final tune. All the power and frequency set up were finished at the manufacturer stage.

Tune up procedure shall be over the power range or at specific operating power levels.

Procedure:

1. Set the access-ER HF/LF/BT HID CK to operational voltage and on one certain channel in a special service mode by means of company proprietary software.
2. The actual power is measured at several power levels.
3. The gain factors of each individual access-ER HF/LF/BT HID CK are adjusted via the Board-test SW using automatic adjustment arithmetic until the Tune-up Range (dBm) value is met.

It must provide an operational voltage (DC 3.85V by battery) to turn on the device and on one certain channel in service mode by means of company proprietary software.

spectrum analyzer(Agilent, N9020A) and Power meter

(DARE, RPR3006W)measures the 2.4G/5G device specific RF characteristics.

Base station simulator (R&S CMW500) measures the 2G/3G/4G device specific RF characteristics. The maximum power of each individual channels are adjusted until the target value met.

Band GSM850	Burst-Averaged output Power (dBm)			
Tx Channel	Tune - up (dBm)	128	189	251
Frequency (MHz)		824.2	836.4	848.8
GSM (GMSK)	33.00	32.58	32.64	32.61
GPRS(GMSK, 1 TS)	33.00	32.56	32.60	32.57
GPRS(GMSK, 2 TS)	31.00	30.49	30.50	30.46
GPRS(GMSK, 3 TS)	29.00	28.59	28.56	28.55
GPRS(GMSK, 4 TS)	27.00	26.48	26.47	26.50
EGPRS(8PSK, 1 TS)	26.50	25.93	26.44	26.06
EGPRS(8PSK, 2 TS)	25.50	25.28	25.16	24.55
EGPRS(8PSK, 3 TS)	23.00	22.11	22.94	22.19
EGPRS(8PSK, 4 TS)	21.00	20.02	20.63	20.31
Band GSM1900	Burst-Averaged output Power (dBm)			
Tx Channel	Tune - up (dBm)	512	661	810
Frequency (MHz)		1850.2	1880	1909.8
GSM (GMSK)	30.50	30.12	30.14	29.96
GPRS(GMSK, 1 TS)	30.50	30.02	30.04	29.87
GPRS(GMSK, 2 TS)	28.50	28.08	27.84	27.48
GPRS(GMSK, 3 TS)	27.00	26.68	26.39	26.00
GPRS(GMSK, 4 TS)	25.00	24.50	24.18	23.82

EGPRS(8PSK, 1 TS)	25.50	24.89	25.19	24.42
EGPRS(8PSK, 2 TS)	24.50	23.86	24.22	23.48
EGPRS(8PSK, 3 TS)	22.00	21.54	21.15	20.91
EGPRS(8PSK, 4 TS)	19.50	18.45	19.15	18.92

WCDMA Band 2	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up (dBm)	9262	9400	9538
Frequency (MHz)		1852.4	1880	1907.6
RMC12.2K	23.50	23.06	23.05	22.98
HSDPA Sub 1	22.50	22.22	21.86	21.58
HSDPA Sub 2	22.00	21.73	21.63	21.26
HSDPA Sub 3	21.50	21.49	21.13	20.81
HSDPA Sub 4	21.50	21.41	21.15	20.96
HSUPA Sub 1	22.00	21.93	21.89	21.44
HSUPA Sub 2	22.00	21.98	21.79	21.46
HSUPA Sub 3	22.00	21.51	21.17	21.16
HSUPA Sub 4	22.00	21.96	21.80	21.55
HSUPA Sub 5	22.00	21.51	21.63	21.07
WCDMA Band 4	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up (dBm)	1312	1413	1513
Frequency (MHz)		1712.4	1732.6	1752.6
RMC12.2K	23.50	23.03	22.96	22.99
HSDPA Sub 1	22.50	22.29	21.60	22.24
HSDPA Sub 2	22.00	21.95	21.33	21.86
HSDPA Sub 3	22.00	21.62	20.68	21.70
HSDPA Sub 4	22.00	21.45	20.70	21.60
HSUPA Sub 1	22.50	21.91	21.31	22.05
HSUPA Sub 2	22.50	22.14	21.53	22.22
HSUPA Sub 3	22.00	21.76	21.03	21.85
HSUPA Sub 4	22.50	22.07	21.53	22.21
HSUPA Sub 5	22.00	21.92	21.22	21.89
WCDMA Band 5	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up (dBm)	4132	4182	4233
Frequency (MHz)		826.4	836.4	846.6
RMC12.2K	22.50	22.32	22.44	22.48
HSDPA Sub 1	23.00	22.78	22.70	22.74
HSDPA Sub 2	23.00	22.56	22.43	22.41
HSDPA Sub 3	21.50	21.27	21.49	21.23
HSDPA Sub 4	22.00	21.39	20.83	21.69
HSUPA Sub 1	22.50	22.06	21.96	21.98
HSUPA Sub 2	23.00	22.70	22.64	22.49
HSUPA Sub 3	22.50	22.16	22.05	21.98
HSUPA Sub 4	23.00	22.78	22.72	22.75
HSUPA Sub 5	22.00	21.80	21.96	21.79

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18607/1850.7	18900/1880	19193/1909.3
LTE Band 2	1.4MHz	QPSK	1	0	24.00	23.89	23.80	23.71
			1	2	24.00	23.79	23.95	23.83
			1	5	24.00	23.87	23.80	23.70
			3	0	24.00	23.92	23.93	23.80
			3	1	24.00	23.87	23.93	23.81
			3	2	24.00	22.97	23.89	23.80
			6	0	23.00	22.88	23.00	22.88
		16QAM	1	0	23.50	23.07	23.05	22.99
			1	2	23.50	22.90	23.24	23.06
			1	5	23.50	22.81	23.09	22.98
			3	0	23.00	22.86	22.96	22.81
			3	1	23.00	22.82	22.92	22.87
			3	2	23.00	21.95	22.94	22.86
			6	0	22.50	21.80	22.05	21.93
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18615/1851.5	18900/1880	19185/1908.5
LTE Band 2	3MHz	QPSK	1	0	24.00	23.74	23.84	23.75
			1	7	24.00	23.74	23.83	23.74
			1	14	24.00	23.74	23.81	23.68
			8	0	23.00	22.86	22.93	22.83
			8	4	23.00	22.88	22.94	22.85
			8	7	23.00	22.86	22.92	22.82
			15	0	23.00	22.90	22.95	22.84
		16QAM	1	0	23.50	22.90	23.09	23.01
			1	7	23.50	22.89	23.10	23.01
			1	14	23.50	22.82	23.09	22.98
			8	0	22.00	21.82	21.95	21.84
			8	4	22.00	21.83	21.96	21.88
			8	7	22.00	21.82	21.94	21.85
			15	0	22.00	21.80	21.90	21.78
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18625/1852.5	18900/1880	19175/1907.5
LTE Band 2	5MHz	QPSK	1	0	24.00	23.64	23.76	23.70
			1	12	24.00	23.76	23.84	23.77
			1	24	24.00	23.66	23.70	23.60
			12	0	23.00	22.89	22.92	22.82
			12	6	23.00	22.89	22.97	22.88
			12	11	23.00	22.79	22.92	22.82
			25	0	23.00	22.90	22.96	22.86
		16QAM	1	0	23.50	22.81	23.03	23.02
			1	12	23.50	22.87	23.08	23.13
			1	24	23.50	22.85	23.01	22.91

			12	0	22.00	21.79	21.92	21.78
			12	6	22.00	21.83	21.94	21.87
			12	11	22.00	21.76	21.89	21.83
			25	0	22.00	21.84	21.92	21.81
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18650/1855	18900/1880	19150/1905
LTE Band 2	10MHz	QPSK	1	0	24.00	23.72	23.85	23.87
			1	24	24.00	23.81	23.88	23.87
			1	49	24.00	23.75	23.75	23.71
			25	0	23.00	22.99	22.99	22.91
			25	12	23.00	22.94	22.98	22.93
			25	24	23.00	22.88	22.95	22.94
			50	0	23.00	22.96	22.99	22.95
		16QAM	1	0	23.50	22.91	23.06	23.21
			1	24	23.50	23.00	23.14	23.18
			1	49	23.50	22.96	23.03	23.03
			25	0	22.00	21.89	21.93	21.87
			25	12	22.00	21.85	21.95	21.91
			25	24	22.00	21.79	21.91	21.89
			50	0	22.00	21.86	21.94	21.89
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18675/1857.5	18900/1880	19125/1902.5
LTE Band 2	15MHz	QPSK	1	0	24.00	23.69	23.85	23.83
			1	37	24.00	23.81	23.86	23.86
			1	74	24.00	23.77	23.72	23.65
			36	0	23.50	22.98	22.99	23.02
			36	18	23.50	22.96	22.98	22.98
			36	37	23.50	22.95	22.91	22.96
			75	0	23.00	22.99	22.99	22.99
		16QAM	1	0	23.50	22.82	23.14	23.13
			1	37	23.50	23.03	23.13	23.14
			1	74	23.50	23.05	23.03	22.92
			36	0	22.00	21.91	21.95	22.00
			36	18	22.00	21.92	21.94	21.95
			36	37	22.00	21.93	21.90	21.92
			75	0	22.00	21.91	21.92	21.97
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18700/1860	18900/1880	19100/1900
LTE Band 2	20MHz	QPSK	1	0	24.00	23.52	23.67	23.67
			1	49	24.00	23.92	23.94	23.99
			1	99	24.00	23.62	23.53	23.49
			50	0	23.50	23.14	23.07	23.17
			50	24	23.50	23.04	23.04	23.04
			50	49	23.50	23.07	22.94	23.10

		16QAM	100	0	23.50	23.08	22.98	23.12
			1	0	23.50	22.64	22.97	22.98
			1	49	23.50	23.18	23.13	23.21
			1	99	23.50	22.96	22.78	22.75
			50	0	22.50	22.02	21.99	22.14
			50	24	22.50	21.96	21.96	21.99
			50	49	22.50	22.00	21.89	22.04
			100	0	22.50	21.98	21.90	22.07

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19957/1710.7	20175/1732.5	20393/1754.3
LTE Band 4	1.4MHz	QPSK	1	0	24.00	22.97	23.35	23.41
			1	2	24.00	23.10	23.49	23.50
			1	5	24.00	22.97	23.36	23.39
			3	0	23.50	23.02	23.41	23.43
			3	1	23.50	23.07	23.42	23.49
			3	2	23.50	23.05	23.41	23.40
			6	0	23.00	22.04	22.43	22.50
		16QAM	1	0	23.00	22.14	22.47	22.56
			1	2	23.00	22.24	22.72	22.58
			1	5	23.00	22.19	22.49	22.63
			3	0	22.50	22.00	22.43	22.34
			3	1	22.50	22.08	22.41	22.40
			3	2	22.50	22.04	22.40	22.41
			6	0	21.50	21.06	21.45	21.47
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19965/1711.5	20175/1732.5	20385/1753.5
LTE Band 4	3MHz	QPSK	1	0	23.50	23.05	23.43	23.43
			1	7	23.50	23.05	23.46	23.48
			1	14	23.50	23.06	23.43	23.46
			8	0	23.00	22.05	22.43	22.51
			8	4	23.00	22.09	22.50	22.53
			8	7	23.00	22.07	22.45	22.47
			15	0	23.00	22.06	22.46	22.50
		16QAM	1	0	23.00	22.30	22.59	22.55
			1	7	23.00	22.25	22.63	22.72
			1	14	23.00	22.29	22.66	22.62
			8	0	22.00	21.03	21.45	21.53
			8	4	22.00	21.10	21.48	21.53
			8	7	22.00	21.07	21.42	21.50
			15	0	21.50	21.00	21.42	21.48
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19975/1712.5	20175/1732.5	20375/1752.5
LTE	5MHz	QPSK	1	0	23.50	22.94	23.33	23.18

Band 4			1	12	23.50	23.09	23.46	23.01
			1	24	23.50	22.96	23.35	22.78
			12	0	22.50	22.03	22.44	21.87
			12	6	22.50	22.11	22.47	22.20
			12	11	22.50	22.09	22.47	22.06
			25	0	22.50	22.09	22.46	22.06
			25	0	22.50	22.09	22.46	22.06
		16QAM	1	0	23.00	22.14	22.57	22.04
			1	12	23.00	22.35	22.60	22.14
			1	24	23.00	22.16	22.61	22.08
			12	0	21.50	21.01	21.38	20.89
			12	6	21.50	21.06	21.46	21.18
			12	11	21.50	21.05	21.43	21.32
			25	0	21.50	21.03	21.41	21.36
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20000/1715	20175/1732.5	20350/1750
LTE Band 4	10MHz	QPSK	1	0	23.50	22.53	23.10	23.26
			1	24	23.50	22.66	23.03	23.24
			1	49	23.50	22.87	23.19	23.29
			25	0	23.00	21.60	22.23	22.42
			25	12	23.00	21.96	22.48	22.43
			25	24	23.00	22.05	22.56	22.44
			50	0	23.00	22.06	22.53	22.43
		16QAM	1	0	23.00	21.94	22.64	22.46
			1	24	23.00	21.90	22.51	22.60
			1	49	23.00	22.01	22.50	22.42
			25	0	21.50	20.74	21.38	21.34
			25	12	21.50	21.07	21.44	21.38
			25	24	21.50	21.17	21.47	21.40
			50	0	21.50	21.11	21.46	21.39
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20025/1717.5	20175/1732.5	20325/1747.5
LTE Band 4	15MHz	QPSK	1	0	23.50	22.92	23.32	23.21
			1	37	23.50	22.89	23.23	23.12
			1	74	23.50	23.21	23.31	22.95
			36	0	23.00	22.10	22.44	21.89
			36	18	23.00	22.22	22.52	22.06
			36	37	23.00	22.32	22.50	22.05
			75	0	23.00	22.24	22.51	21.98
		16QAM	1	0	23.00	22.21	22.42	22.00
			1	37	23.00	22.39	22.67	22.28
			1	74	23.00	22.45	22.62	21.97
			36	0	21.50	21.06	21.38	20.93
			36	18	21.50	21.20	21.47	21.03
			36	37	21.50	21.29	21.47	21.11
			75	0	21.50	21.18	21.43	21.07
Band	Band	Modulation	RB		Tune-	Channel/Frequency(MHz)		

	Width		Configuration		up (dBm)			
			RB Size	RB Offset		20050/1720	20175/1732.5	20300/1745
LTE Band 4	20MHz	QPSK	1	0	23.50	22.48	23.04	22.97
			1	49	23.50	22.83	23.05	23.02
			1	99	23.50	22.60	22.80	22.69
			50	0	23.00	21.69	21.95	21.89
			50	24	23.00	22.30	22.24	21.96
			50	49	23.00	22.36	22.55	21.96
			100	0	22.50	22.26	22.48	21.93
		16QAM	1	0	23.00	21.94	22.38	21.82
			1	49	23.00	22.36	22.64	22.21
			1	99	23.00	22.18	22.37	21.77
			50	0	21.50	21.04	21.28	20.91
			50	24	21.50	21.23	21.47	20.95
			50	49	21.50	21.31	21.48	20.94
			100	0	21.50	21.18	21.39	21.03

Band	Band Width	Modulation	RB Configuration		Tune- up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20407/824.7	20525/836.5	20643/848.3
LTE Band 5	1.4MHz	QPSK	1	0	23.50	23.23	23.27	23.22
			1	2	23.50	23.33	23.40	23.34
			1	5	23.50	23.23	23.25	23.21
			3	0	23.50	23.27	23.32	23.31
			3	1	23.50	23.31	23.37	23.34
			3	2	23.50	23.27	23.35	23.27
			6	0	22.50	22.37	22.44	22.40
		16QAM	1	0	23.00	22.44	22.58	22.38
			1	2	23.00	22.55	22.59	22.60
			1	5	23.00	22.42	22.41	22.38
			3	0	22.50	22.34	22.36	22.33
			3	1	22.50	22.37	22.36	22.35
			3	2	22.50	22.29	22.40	22.31
			6	0	21.50	21.40	21.47	21.40
Band	Band Width	Modulation	RB Configuration		Tune- up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20415/825.5	20525/836.5	20635/847.5
LTE Band 5	3MHz	QPSK	1	0	23.50	23.25	23.33	23.35
			1	7	23.50	23.25	23.32	23.32
			1	14	23.50	23.24	23.35	23.26
			8	0	22.50	22.33	22.42	22.42
			8	4	22.50	22.39	22.48	22.45
			8	7	22.50	22.34	22.44	22.39
			15	0	22.50	22.33	22.48	22.45
		16QAM	1	0	23.00	22.48	22.56	22.57
			1	7	23.00	22.47	22.55	22.53
			1	14	23.00	22.41	22.52	22.43

			8	0	21.50	21.35	21.40	21.38
			8	4	21.50	21.39	21.47	21.43
			8	7	21.50	21.33	21.44	21.37
			15	0	21.50	21.29	21.41	21.38
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20425/826.5	20525/836.5	20625/846.5
LTE Band 5	5MHz	QPSK	1	0	23.50	23.17	23.19	23.25
			1	12	23.50	23.25	23.32	23.34
			1	24	23.50	23.12	23.24	23.16
			12	0	23.00	22.34	22.41	22.43
			12	6	23.00	22.38	22.51	22.45
			12	11	23.00	22.30	22.45	22.35
			25	0	23.00	22.37	22.50	22.43
		16QAM	1	0	23.00	22.41	22.49	22.48
			1	12	23.00	22.46	22.57	22.49
			1	24	23.00	22.38	22.49	22.42
			12	0	21.50	21.30	21.37	21.34
			12	6	21.50	21.37	21.45	21.39
			12	11	21.50	21.31	21.39	21.32
			25	0	21.50	21.33	21.40	21.35
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20450/829	20525/836.5	20600/844
LTE Band 5	10MHz	QPSK	1	0	23.50	23.23	23.29	23.39
			1	24	23.50	23.36	23.42	23.47
			1	49	23.50	23.27	23.35	23.27
			25	0	23.00	22.44	22.52	22.63
			25	12	23.00	22.40	22.57	22.55
			25	24	23.00	22.39	22.55	22.47
			50	0	23.00	22.41	22.55	22.55
		16QAM	1	0	23.00	22.52	22.45	22.62
			1	24	23.00	22.51	22.69	22.58
			1	49	23.00	22.46	22.59	22.42
			25	0	22.00	21.39	21.44	21.54
			25	12	22.00	21.33	21.48	21.47
			25	24	22.00	21.33	21.47	21.38
			50	0	21.50	21.33	21.47	21.47

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20775/2502.5	21100/2535	21425/2567.5
LTE Band 7	5MHz	QPSK	1	0	25.00	24.79	24.65	24.28
			1	12	25.00	24.96	24.49	24.44
			1	24	25.00	24.84	24.58	24.39
			12	0	24.50	23.92	23.79	23.46
			12	6	24.50	24.04	23.97	23.57

			12	11	24.50	24.01	23.86	23.54
			25	0	24.50	24.03	23.93	23.52
		16QAM	1	0	24.00	23.91	23.72	23.51
			1	12	24.00	23.88	23.73	23.64
			1	24	24.00	23.79	23.85	23.60
			12	0	23.00	22.60	22.67	22.47
			12	6	23.00	22.77	22.79	22.57
			12	11	23.00	22.82	22.84	22.52
			25	0	23.00	22.89	22.78	22.50
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20800/2505	21100/2535	21400/2565
LTE Band 7	10MHz	QPSK	1	0	25.00	24.51	24.51	24.44
			1	24	25.00	24.63	24.57	24.60
			1	49	25.00	24.50	24.42	24.52
			25	0	24.00	23.62	23.56	23.58
			25	12	24.00	23.66	23.58	23.62
			25	24	24.00	23.63	23.61	23.64
			50	0	24.00	23.63	23.60	23.60
		16QAM	1	0	24.00	23.70	23.79	23.60
			1	24	24.00	23.72	23.71	23.75
			1	49	24.00	23.65	23.59	23.59
			25	0	23.00	22.54	22.49	22.50
			25	12	23.00	22.57	22.51	22.55
			25	24	23.00	22.55	22.54	22.57
			50	0	23.00	22.50	22.54	22.54
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20825/2507.5	21100/2535	21375/2562.5
LTE Band 7	15MHz	QPSK	1	0	25.00	24.52	24.55	24.41
			1	37	25.00	24.59	24.54	24.45
			1	74	25.00	24.52	24.47	24.46
			36	0	24.00	23.68	23.62	23.56
			36	18	24.00	23.69	23.61	23.53
			36	37	24.00	23.64	23.54	23.56
			75	0	24.00	23.72	23.60	23.57
		16QAM	1	0	24.00	23.66	23.73	23.57
			1	37	24.00	23.80	23.73	23.69
			1	74	24.00	23.74	23.67	23.63
			36	0	23.00	22.60	22.53	22.51
			36	18	23.00	22.63	22.50	22.48
			36	37	23.00	22.57	22.54	22.49
			75	0	23.00	22.61	22.51	22.44
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20850/2510	21100/2535	21350/2560
LTE	20MHz	QPSK	1	0	25.00	24.32	24.42	24.32

Band 7			1	49	25.00	24.64	24.60	24.55
			1	99	25.00	24.36	24.36	24.28
			50	0	24.00	23.74	23.59	23.62
			50	24	24.00	23.71	23.67	23.59
			50	49	24.00	23.63	23.63	23.53
			100	0	24.00	23.65	23.57	23.57
		16QAM	1	0	24.00	23.48	23.59	23.57
			1	49	24.00	23.86	23.80	23.70
			1	99	24.00	23.47	23.53	23.44
			50	0	23.00	22.63	22.50	22.56
			50	24	23.00	22.65	22.58	22.53
			50	49	23.00	22.57	22.53	22.49
			100	0	23.00	22.59	22.49	22.49

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23755/706.5	23790/710	23825/713.5
LTE Band 17	5MHz	QPSK	1	0	23.50	23.03	22.57	22.48
			1	12	23.50	22.78	22.59	22.57
			1	24	23.50	22.49	22.43	22.41
			12	0	22.00	21.76	21.67	21.64
			12	6	22.00	21.81	21.73	21.67
			12	11	22.00	21.75	21.65	21.57
			25	0	22.00	21.78	21.71	21.63
		16QAM	1	0	22.00	21.90	21.90	21.76
			1	12	22.00	21.99	21.94	21.83
			1	24	22.00	21.76	21.66	21.60
			12	0	21.00	20.74	20.67	20.57
			12	6	21.00	20.76	20.68	20.64
			12	11	21.00	20.72	20.61	20.52
			25	0	21.00	20.73	20.68	20.57
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23780/709	23790/710	23800/711
LTE Band 17	10MHz	QPSK	1	0	23.00	22.76	22.90	22.90
			1	24	23.00	22.75	22.72	22.71
			1	49	23.00	22.48	22.48	22.48
			25	0	22.00	21.81	21.80	21.77
			25	12	22.00	21.77	21.79	21.80
			25	24	22.00	21.75	21.73	21.66
			50	0	22.00	21.77	21.80	21.73
		16QAM	1	0	22.50	21.94	22.03	22.13
			1	24	22.50	22.02	21.95	22.00
			1	49	22.50	21.71	21.82	21.73
			25	0	21.00	20.78	20.75	20.70
			25	12	21.00	20.74	20.75	20.73
			25	24	21.00	20.66	20.73	20.58
			50	0	21.00	20.73	20.73	20.74

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26697/814.7	26740/819	26783/823.3
LTE Band 26a	1.4MHz	QPSK	1	0	24.00	23.44	23.24	23.15
			1	2	24.00	23.55	23.29	23.20
			1	5	24.00	23.42	23.18	23.11
			3	0	24.00	23.53	23.31	23.21
			3	1	24.00	23.54	23.32	23.20
			3	2	24.00	23.50	23.28	23.21
			6	0	23.00	22.52	22.42	22.28
		16QAM	1	0	23.00	22.76	22.41	22.44
			1	2	23.00	22.85	22.55	22.53
			1	5	23.00	22.54	22.35	22.39
			3	0	23.00	22.48	22.25	22.24
			3	1	23.00	22.53	22.28	22.25
			3	2	23.00	22.53	22.28	22.23
			6	0	22.00	21.55	21.35	21.33
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26705/818.5	26740/819	26775/822.5
LTE Band 26a	3MHz	QPSK	1	0	24.00	23.51	23.33	23.22
			1	7	24.00	23.47	23.27	23.18
			1	14	24.00	23.41	23.19	23.19
			8	0	23.00	22.48	22.35	22.30
			8	4	23.00	22.50	22.42	22.32
			8	7	23.00	22.47	22.38	22.29
			15	0	22.50	22.48	22.42	22.30
		16QAM	1	0	23.00	22.76	22.49	22.38
			1	7	23.00	22.61	22.44	22.42
			1	14	23.00	22.44	22.42	22.46
			8	0	21.50	21.49	21.34	21.29
			8	4	21.50	21.49	21.36	21.32
			8	7	21.50	21.42	21.34	21.28
			15	0	21.50	21.39	21.34	21.26
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26715/816.5	26740/819	26765/821.5
LTE Band 26a	5MHz	QPSK	1	0	23.50	23.43	23.33	23.19
			1	12	23.50	23.46	23.10	23.22
			1	24	23.50	23.17	23.02	23.07
			12	0	22.50	22.34	22.37	22.32
			12	6	22.50	22.47	22.42	22.36
			12	11	22.50	22.29	22.36	22.28
			25	0	22.50	22.42	22.44	22.35
		16QAM	1	0	23.00	22.55	22.45	22.35
			1	12	23.00	22.42	22.38	22.51

			1	24	23.00	22.03	22.24	22.33
			12	0	21.50	21.35	21.33	21.26
			12	6	21.50	21.42	21.33	21.30
			12	11	21.50	21.29	21.28	21.23
			25	0	21.50	21.42	21.36	21.29
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		/	26740/819	/
LTE Band 26a	10MHz	QPSK	1	0	23.50	/	23.50	/
			1	24	23.50	/	23.39	/
			1	49	23.50	/	23.14	/
			25	0	22.50	/	22.50	/
			25	12	22.50	/	22.50	/
			25	24	22.50	/	22.41	/
			50	0	22.50	/	22.46	/
		16QAM	1	0	22.50	/	22.73	/
			1	24	22.50	/	22.43	/
			1	49	22.50	/	22.38	/
			25	0	21.50	/	21.41	/
			25	12	21.50	/	21.39	/
			25	24	21.50	/	21.34	/
			50	0	21.50	/	21.36	/

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26797/824.7	26915/836.5	27033/848.3
LTE Band 26b	1.4MHz	QPSK	1	0	23.00	22.82	22.73	22.66
			1	2	23.00	22.74	22.81	22.74
			1	5	23.00	22.62	22.69	22.64
			3	0	23.00	22.70	22.79	22.72
			3	1	23.00	22.75	22.84	22.77
			3	2	23.00	22.68	22.80	22.71
			6	0	22.00	21.72	21.84	21.74
		16QAM	1	0	22.50	21.79	21.97	21.87
			1	2	22.50	22.07	22.05	21.86
			1	5	22.50	21.77	21.89	21.72
			3	0	22.00	21.65	21.75	21.73
			3	1	22.00	21.71	21.78	21.74
			3	2	22.00	21.68	21.74	21.62
			6	0	21.00	20.76	20.86	20.78
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26805/825.5	26915/836.5	27025/847.5
LTE Band 26b	3MHz	QPSK	1	0	23.00	22.71	22.80	22.80
			1	7	23.00	22.70	22.81	22.77
			1	14	23.00	22.69	22.83	22.72
			8	0	22.00	21.70	21.84	21.81

			8	4	22.00	21.72	21.84	21.79
			8	7	22.00	21.71	21.84	21.79
			15	0	22.00	21.69	21.84	21.78
		16QAM	1	0	22.00	21.97	21.99	21.99
			1	7	22.00	21.90	21.97	21.96
			1	14	22.00	21.85	21.95	21.90
			8	0	21.00	20.77	20.83	20.79
			8	4	21.00	20.75	20.87	20.77
			8	7	21.00	20.75	20.84	20.74
			15	0	21.00	20.68	20.78	20.75
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26815/826.5	26915/836.5	27015/846.5
LTE Band 26b	5MHz	QPSK	1	0	23.00	22.61	22.65	22.70
			1	12	23.00	22.69	22.82	22.78
			1	24	23.00	22.59	22.69	22.60
			12	0	22.00	21.69	21.81	21.81
			12	6	22.00	21.73	21.86	21.84
			12	11	22.00	21.68	21.79	21.70
			25	0	22.00	21.70	21.83	21.83
		16QAM	1	0	22.00	21.84	21.84	21.89
			1	12	22.00	21.90	21.95	21.96
			1	24	22.00	21.82	21.84	21.79
			12	0	21.00	20.67	20.78	20.80
			12	6	21.00	20.73	20.86	20.81
			12	11	21.00	20.66	20.79	20.70
			25	0	21.00	20.65	20.79	20.78
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26840/829	26915/836.5	26990/844
LTE Band 26b	10MHz	QPSK	1	0	23.00	22.70	22.68	22.81
			1	24	23.00	22.78	22.90	22.88
			1	49	23.00	22.70	22.80	22.69
			25	0	22.00	21.76	21.88	21.99
			25	12	22.00	21.73	21.90	21.93
			25	24	22.00	21.76	21.84	21.81
			50	0	22.00	21.77	21.87	21.91
		16QAM	1	0	22.50	21.96	21.88	22.06
			1	24	22.50	21.86	22.10	22.01
			1	49	22.50	21.93	21.97	21.76
			25	0	21.00	20.71	20.83	20.90
			25	12	21.00	20.68	20.86	20.85
			25	24	21.00	20.70	20.81	20.73
			50	0	21.00	20.70	20.84	20.83
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26865/831.5	26915/836.5	26965/841.5

LTE Band 26b	15MHz	QPSK	1	0	23.00	22.63	22.62	22.70
			1	37	23.00	22.69	22.81	22.81
			1	74	23.00	22.68	22.70	22.62
			36	0	22.00	21.71	21.81	21.87
			36	18	22.00	21.76	21.85	21.85
			36	37	22.00	21.79	21.84	21.80
			75	0	22.00	21.75	21.84	21.88
		16QAM	1	0	22.50	21.76	21.75	21.82
			1	37	22.50	21.93	22.06	22.03
			1	74	22.50	21.87	21.79	21.68
			36	0	21.00	20.67	20.78	20.83
			36	18	21.00	20.75	20.81	20.84
			36	37	21.00	20.76	20.78	20.77
			75	0	21.00	20.70	20.78	20.81

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		39675/2498.5	40620/2593	41565/2687.5
LTE Band 41	5MHz	QPSK	1	0	24.50	23.88	23.92	23.95
			1	12	24.50	24.04	24.03	24.04
			1	24	24.50	23.90	23.91	23.88
			12	0	23.50	23.00	23.06	23.02
			12	6	23.50	23.05	23.10	23.03
			12	11	23.50	23.02	23.07	22.98
			25	0	23.50	22.99	23.07	23.01
		16QAM	1	0	23.50	22.93	23.04	23.08
			1	12	23.50	23.10	23.16	23.18
			1	24	23.50	22.97	23.06	23.02
			12	0	22.50	21.96	22.07	22.01
			12	6	22.50	22.00	22.08	22.04
			12	11	22.50	21.98	22.07	21.99
			25	0	22.50	21.96	22.07	22.00
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		39700/2501	40620/2593	41540/2685
LTE Band 41	10MHz	QPSK	1	0	24.50	23.94	24.01	24.06
			1	24	24.50	24.08	24.13	24.12
			1	49	24.50	23.96	24.01	23.96
			25	0	23.50	22.98	23.12	23.04
			25	12	23.50	23.08	23.15	23.09
			25	24	23.50	23.05	23.17	23.06
			50	0	23.50	23.15	23.19	23.11
		16QAM	1	0	23.50	23.05	23.15	23.19
			1	24	23.50	23.18	23.24	23.28
			1	49	23.50	23.11	23.18	23.07
			25	0	22.50	22.00	22.12	22.06
			25	12	22.50	22.15	22.10	22.08
			25	24	22.50	22.20	22.16	22.06

			50	0	22.50	22.27	22.19	22.10
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		39725/2503.5	40620/2593	41515/2682.5
LTE Band 41	15MHz	QPSK	1	0	24.50	23.84	23.95	23.94
			1	37	24.50	24.01	23.99	23.99
			1	74	24.50	23.90	23.90	23.82
			36	0	23.50	23.05	23.12	23.02
			36	18	23.50	23.13	23.11	23.04
			36	37	23.50	23.06	23.14	23.02
			75	0	23.50	23.08	23.15	23.02
		16QAM	1	0	23.50	22.96	23.08	23.08
			1	37	23.50	23.17	23.17	23.15
			1	74	23.50	23.06	23.05	22.95
			36	0	22.50	22.11	22.07	21.98
			36	18	22.50	22.23	22.11	22.01
			36	37	22.50	22.20	22.19	21.97
			75	0	22.50	22.24	22.16	22.00
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		39750/2506	40620/2593	41490/2680
LTE Band 41	20MHz	QPSK	1	0	24.50	23.69	23.82	23.76
			1	49	24.50	24.06	24.06	24.06
			1	99	24.50	23.72	23.77	23.63
			50	0	23.50	23.07	23.14	22.96
			50	24	23.50	23.17	23.22	23.08
			50	49	23.50	23.14	23.13	23.04
			100	0	23.50	23.17	23.17	23.07
		16QAM	1	0	23.50	22.81	22.95	22.89
			1	49	23.50	23.21	23.20	23.20
			1	99	23.50	22.94	22.91	22.79
			50	0	22.50	22.16	22.14	21.95
			50	24	22.50	22.29	22.25	22.09
			50	49	22.50	22.42	22.12	22.03
			100	0	22.50	22.34	22.20	22.01

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11b	1	2412	17.00	15.42
	6	2437	17.00	16.90
	11	2462	17.00	16.57
802.11g	1	2412	14.50	14.43
	6	2437	14.50	13.99
	11	2462	14.50	14.09
802.11n HT20	1	2412	13.50	13.15
	6	2437	13.50	12.71
	11	2462	13.50	12.68

802.11n HT40	3	2422	13.00	12.22
	6	2437	13.00	12.45
	9	2452	13.00	12.90

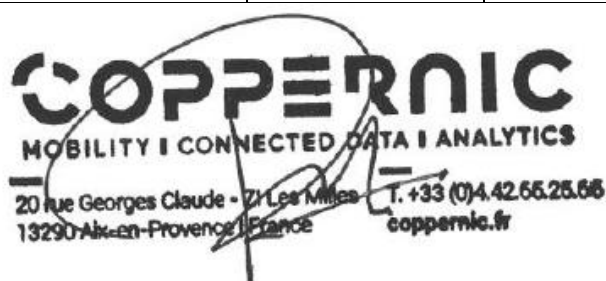
Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	36	5180	11.00	10.75
	40	5200	11.00	10.85
	48	5240	11.00	9.72
802.11n HT20	36	5180	11.00	10.10
	40	5200	11.00	10.82
	48	5240	11.00	10.33
802.11n HT40	38	5190	11.00	10.95
	46	5230	11.00	10.86
802.11ac VHT20	36	5180	11.00	10.25
	40	5200	11.00	10.91
	48	5240	11.00	10.46
802.11ac VHT40	38	5190	11.00	10.89
	46	5230	11.00	10.73
802.11ac VHT80	42	5210	10.50	10.45

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	52	5260	10.50	10.47
	56	5280	10.50	9.56
	64	5320	10.50	10.24
802.11n HT20	52	5260	10.50	10.49
	56	5280	10.50	9.57
	64	5320	10.50	10.27
802.11n HT40	54	5270	11.00	10.04
	62	5310	11.00	10.80
802.11ac VHT20	52	5260	10.50	10.48
	56	5280	10.50	9.51
	64	5320	10.50	10.24
802.11ac VHT40	54	5270	11.00	10.01
	62	5310	11.00	10.80
802.11ac VHT80	58	5290	11.50	11.02

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	100	5500	10.50	10.15
	120	5600	10.50	10.09
	140	5700	10.50	9.94
802.11n	100	5500	10.50	10.19
	120	5600	10.50	10.14
	140	5700	10.50	9.98
802.11n	102	5510	11.00	9.96
	118	5590	11.00	10.69
	134	5670	11.00	10.41
802.11ac (VHT20)	100	5500	10.50	10.25
	120	5600	10.50	10.10
	140	5700	10.50	9.97
802.11ac (VHT40)	102	5510	11.50	10.02
	118	5590	11.50	10.69
	134	5670	11.50	11.49
802.11ac (VHT80)	106	5530	11.00	10.51
	122	5610	11.00	9.51

BR+EDR	Output Power (dBm)				
	Channel	Tune-up (dBm)	Data Rates		
			1M	2M	3M
	0CH	-7.00	-6.76	-7.44	-6.70
	39CH	-6.00	-5.62	-7.23	-6.94
	78CH	-7.00	-6.66	-8.20	-7.98

BLE	Channel	Tune-up (dBm)	Output Power (dBm)	
			Data Rates 1M	Data Rates 2M
	0CH	3.50	3.15	3.34
	19CH	5.00	4.76	4.61
	39CH	4.00	3.91	3.76



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