

Tune-up (dBm) procedure

This is to formally certify that:

The tune up procedures of Data Processing Unit (FCC ID: 2A332-P8)

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 Intelligent Driving Assist System 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 Intelligent Driving Assist System are adjusted via the Board-test SW using automatic adjustment arithmetic until the Tune-up (dBm) value is met.

It must provide an operational voltage (DC 3.8V by battery) to turn on the device and on one certain channel in service mode by means of company proprietary software.

spectrum analyzer(R&S,FSV40) 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)	32±1	32.4	32.61	32.56
GPRS(GMSK, 1 TS)	32±1	32.73	32.93	32.85
GPRS(GMSK, 2 TS)	31.5±1	32.13	32.3	32.22
GPRS(GMSK, 3 TS)	30±1	30.31	30.52	30.43
GPRS(GMSK, 4 TS)	28.5±1	29.16	29.38	29.29
EDGE(GMSK, 1 TS)	25.5±1	25.35	26.24	26.29
EDGE(GMSK, 2 TS)	24.5±1	24.83	25.17	25.24
EDGE(GMSK, 3 TS)	23±1	23.12	23.79	23.41
EDGE(GMSK, 4 TS)	21.5±1	22.11	22.42	22.38
Band GSM1900	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up (dBm)	512	661	810
Frequency (MHz)		1850.2	1880	1909.8
GSM (GMSK)	29.5±1	29.95	30.06	30.19
GPRS(GMSK, 1 TS)	29.5±1	30	30.1	30.21
GPRS(GMSK, 2 TS)	29±1	29.25	29.37	29.5
GPRS(GMSK, 3 TS)	27±1	27.5	27.62	27.81
GPRS(GMSK, 4 TS)	26±1	26.43	26.55	26.74
EDGE(GMSK, 1 TS)	26.5±1	27.28	26.65	26.57
EDGE(GMSK, 2 TS)	25±1	25.92	25.97	25.92

EDGE(GMSK, 3 TS)	23±1	23.95	23.81	23.79
EDGE(GMSK, 4 TS)	22.5±1	23.07	22.86	22.45

Band	WCDMA Band 2			
Tx Channel	Tune-up	9262	9400	9538
Frequency (MHz)		1852.4	1880	1907.6
RMC 12.2Kbps	23±1	23.75	23.81	23.89
HSDPA Subtest-1	22±1	22.78	22.87	22.94
HSDPA Subtest-2	22±1	22.53	22.42	22.53
HSDPA Subtest-3	21±1	21.47	21.6	21.26
HSDPA Subtest-4	21±1	21.02	21.52	21.11
HSUPA Subtest-1	22±1	21.76	22.67	22.74
HSUPA Subtest-2	22±1	22.67	22.73	22.8
HSUPA Subtest-3	21±1	20.95	21.72	21.65
HSUPA Subtest-4	22±1	22.78	22.86	22.9
HSUPA Subtest-5	21.5±1	21.4	21.9	22.07
Band	WCDMA Band 4			
Tx Channel	Tune-up	1312	1413	1513
Frequency (MHz)		1712.4	1732.6	1752.6
RMC 12.2Kbps	23±1	23.51	23.48	23.6
HSDPA Subtest-1	22±1	22.55	22.52	22.62
HSDPA Subtest-2	21.5±1	22.13	22.24	22.19
HSDPA Subtest-3	20.5±1	20.87	21.17	20.79
HSDPA Subtest-4	20.5±1	21.29	21.15	21.25
HSUPA Subtest-1	22±1	21.54	22.34	22.5
HSUPA Subtest-2	22±1	22.5	22.47	22.59
HSUPA Subtest-3	20.5±1	20.83	21.24	21.39
HSUPA Subtest-4	22±1	22.58	22.54	22.68
HSUPA Subtest-5	21±1	21.08	21.89	21.75
Band	WCDMA Band 5			
Tx Channel	Tune-up	4132	4182	4233
Frequency (MHz)		826.4	836.4	846.6
RMC 12.2Kbps	23±1	23.58	23.63	23.58
HSDPA Subtest-1	22±1	22.66	22.67	22.66
HSDPA Subtest-2	21.5±1	22.27	22.29	22.3
HSDPA Subtest-3	20.5±1	21.33	21.19	21.2
HSDPA Subtest-4	20.5±1	21.29	21.28	21.08
HSUPA Subtest-1	21.5±1	21.15	22.47	22.41
HSUPA Subtest-2	22±1	22.5	22.56	22.51
HSUPA Subtest-3	20.5±1	21	21.34	21.29
HSUPA Subtest-4	22±1	22.61	22.65	22.57
HSUPA Subtest-5	21.5±1	21.24	22.01	21.93

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18607/1850.7	18900/1880	19193/1909.3
LTE Band 2	1.4MHz	QPSK	1	0	24±1	23.29	24.33	24.44
			1	2	24±1	24.46	24.42	24.57
			1	5	24±1	24.24	24.31	24.48
			3	0	23.5±1	24.29	24.33	24.29
			3	1	23.5±1	24.27	24.34	24.33
			3	2	23.5±1	24.21	24.33	24.3
		16QAM	6	0	22.5±1	23.27	23.23	23.47
			1	0	22.5±1	22.98	23.3	23.35
			1	2	22.5±1	23.1	23.37	23.41
			1	5	22.5±1	22.94	23.29	23.34
			3	0	22.5±1	23.3	23.42	23.4
			3	1	22.5±1	23.32	23.48	23.41
			3	2	22.5±1	23.3	23.4	23.39
6	0	21.5±1	22.39	22.43	22.46			
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18615/1851.5	18900/1880	19185/1908.5
LTE Band 2	3MHz	QPSK	1	0	24±1	23.2	24.27	24.43
			1	7	24±1	24.62	24.65	24.75
			1	14	24±1	24.33	24.17	24.54
			8	0	22.5±1	23.3	23.27	23.42
			8	4	22.5±1	23.31	23.29	23.49
			8	7	22.5±1	23.26	23.27	23.47
		16QAM	15	0	22.5±1	23.19	23.22	23.34
			1	0	23±1	23.03	23.57	23.36
			1	7	23±1	23.3	23.8	23.66
			1	14	23±1	22.93	23.56	23.36
			8	0	21.5±1	22.18	22.29	22.32
			8	4	21.5±1	22.22	22.29	22.39
			8	7	21.5±1	22.18	22.25	22.31
15	0	21.5±1	22.18	22.28	22.23			
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18625/1852.5	18900/1880	19175/1907.5
LTE Band 2	5MHz	QPSK	1	0	24±1	24.19	24.2	24.27
			1	12	24±1	24.55	24.59	24.76
			1	24	24±1	24.13	24.13	24.4

			12	0	22.5±1	23.22	23.25	23.28
			12	6	22.5±1	23.23	23.31	23.37
			12	11	22.5±1	23.14	23.28	23.34
			25	0	22.5±1	23.2	23.25	23.31
		16QAM	1	0	23±1	23.51	23.45	23.37
			1	12	23±1	23.69	23.71	23.76
			1	24	23±1	23.44	23.44	23.36
			12	0	21.5±1	22.17	22.16	22.29
			12	6	21.5±1	22.17	22.23	22.35
			12	11	21.5±1	22.07	22.22	22.3
			25	0	21.5±1	22.13	22.27	22.27
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18650/1855	18900/1880	19150/1905
LTE Band 2	10MHz	QPSK	1	0	24±1	24.34	24.24	24.38
			1	24	24±1	24.39	24.32	24.46
			1	49	24±1	24.26	24.18	24.49
			25	0	22.5±1	23.24	23.27	23.38
			25	12	22.5±1	23.17	23.24	23.34
			25	24	22.5±1	23.13	23.34	23.37
			50	0	22.5±1	23.15	23.27	23.34
		16QAM	1	0	23±1	23	23.52	23.26
			1	24	23±1	23.04	23.71	23.43
			1	49	23±1	22.89	23.54	23.34
			25	0	21.5±1	22.22	22.26	22.33
			25	12	21.5±1	22.14	22.29	22.3
			25	24	21.5±1	22.11	22.34	22.35
			50	0	21.5±1	22.11	22.29	22.35
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18675/1857.5	18900/1880	19125/1902.5
LTE Band 2	15MHz	QPSK	1	0	24±1	24.24	24.17	24.3
			1	37	24±1	24.54	24.47	24.65
			1	74	24±1	24.17	24.09	24.35
			36	0	23±1	23.43	23.32	23.54
			36	18	23±1	23.39	23.36	23.52
			36	37	23±1	23.33	23.4	23.55
			75	0	23±1	23.34	23.41	23.54
		16QAM	1	0	23±1	23.25	23.46	23.21
			1	37	23±1	23.46	23.76	23.52
			1	74	23±1	23.15	23.42	23.25
			36	0	21.5±1	22.25	22.29	22.47

			36	18	21.5±1	22.19	22.33	22.45
			36	37	21.5±1	22.15	22.31	22.48
			75	0	21.5±1	22.24	22.34	22.44
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18700/1860	18900/1880	19100/1900
LTE Band 2	20MHz	QPSK	1	0	24±1	24	24.01	24.07
			1	49	24±1	24.32	24.4	24.51
			1	99	24±1	23.96	23.99	24.21
			50	0	22.5±1	23.17	23.16	23.37
			50	24	22.5±1	23.13	23.22	23.28
			50	49	22.5±1	23.05	23.27	23.31
		16QAM	100	0	22.5±1	23.14	23.22	23.32
			1	0	23±1	23.12	23.26	23.13
			1	49	23±1	23.35	23.62	23.42
			1	99	23±1	23.11	23.17	23.14
			50	0	21.5±1	22.2	22.26	22.31
			50	24	21.5±1	22.17	22.32	22.24
			50	49	21.5±1	22.13	22.36	22.25
			100	0	21.5±1	22.09	22.3	22.31

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		19957/1710.7	20175/1732.5	20393/1754.3
LTE Band 4	1.4MHz	QPSK	1	0	23.5±1	22.75	23.76	22.93
			1	2	23.5±1	23.93	23.91	23.99
			1	5	23.5±1	23.81	23.75	23.91
			3	0	23±1	23.84	23.79	23.93
			3	1	23±1	23.85	23.79	23.93
			3	2	23±1	23.83	23.78	23.92
		16QAM	6	0	22±1	22.76	22.73	22.94
			1	0	22±1	22.59	22.53	22.67
			1	2	22±1	22.73	22.66	22.79
			1	5	22±1	22.81	22.54	22.71
			3	0	22.5±1	22.96	22.94	22.9
			3	1	22.5±1	22.95	22.92	23.07
			3	2	22.5±1	23.01	22.98	23.08
			6	0	21.5±1	21.96	21.92	22.08

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		19965/1711.5	20175/1732.5	20385/1753.5

LTE Band 4	3MHz	QPSK	1	0	23.5±1	22.79	23.8	23.93
			1	7	23.5±1	24.18	24.15	24.21
			1	14	23.5±1	23.87	23.78	23.9
			8	0	22±1	22.82	22.78	22.94
			8	4	22±1	22.83	22.8	22.99
			8	7	22±1	22.84	22.75	22.97
			15	0	22±1	22.81	22.74	22.92
		16QAM	1	0	23±1	22.67	23.02	23.27
			1	7	23±1	23.13	23.28	23.61
			1	14	23±1	22.62	22.96	23.28
			8	0	22±1	22.82	21.77	21.98
			8	4	22±1	21.89	21.8	22.02
			8	7	22±1	21.85	21.81	21.99
			15	0	21±1	21.8	21.89	21.99
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		19975/1712.5	20175/1732.5	20375/1752.5
LTE Band 4	5MHz	QPSK	1	0	23.5±1	23.77	23.63	23.83
			1	12	23.5±1	24.04	24.06	24.27
			1	24	23.5±1	23.8	23.68	23.88
			12	0	22±1	22.78	22.84	22.93
			12	6	22±1	22.87	22.82	22.99
			12	11	22±1	22.81	22.77	22.96
			25	0	22±1	22.85	22.78	22.98
		16QAM	1	0	23±1	23.1	22.97	23.3
			1	12	23±1	23.46	23.34	23.74
			1	24	23±1	23.09	23.01	23.35
			12	0	21.5±1	21.79	21.86	21.97
			12	6	21.5±1	21.85	21.9	22.04
			12	11	21.5±1	21.77	21.86	21.99
			25	0	21±1	21.91	21.83	21.93
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20000/1715	20175/1732.5	20350/1750
LTE Band 4	10MHz	QPSK	1	0	23.5±1	23.87	23.75	23.84
			1	24	23.5±1	24.02	23.9	24.02
			1	49	23.5±1	23.87	23.76	23.9
			25	0	22±1	22.85	22.82	22.96
			25	12	22±1	22.87	22.82	22.91
			25	24	22±1	22.89	22.81	22.93
			50	0	22±1	22.85	22.83	22.95
		16QAM	1	0	22.5±1	22.65	23.17	23.02

			1	24	22.5±1	22.82	23.32	23.14
			1	49	22.5±1	22.72	23.15	23.11
			25	0	21±1	21.86	21.91	22
			25	12	21±1	21.89	21.89	21.96
			25	24	21±1	21.96	21.9	21.97
			50	0	21.5±1	21.89	21.89	22.02
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20025/1717.5	20175/1732.5	20325/1747.5
LTE Band 4	15MHz	QPSK	1	0	23.5±1	23.81	23.67	23.71
			1	37	23.5±1	24.25	23.94	24.15
			1	74	23.5±1	23.77	23.59	23.81
			36	0	22±1	22.9	22.87	23
			36	18	22±1	22.88	22.88	22.98
			36	37	22±1	22.94	22.87	22.96
			75	0	22.5±1	22.92	22.89	23.02
		16QAM	1	0	23±1	22.96	22.87	23.13
			1	37	23±1	23.27	23.19	23.55
			1	74	23±1	22.98	22.76	23.2
			36	0	21.5±1	21.89	21.82	22
			36	18	21.5±1	21.99	21.85	22.02
			36	37	21.5±1	21.97	21.79	21.93
			75	0	21±1	21.88	21.88	22
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20050/1720	20175/1732.5	20300/1745
LTE Band 4	20MHz	QPSK	1	0	23.5±1	23.59	23.59	23.52
			1	49	23.5±1	23.93	23.92	24.01
			1	99	23.5±1	23.54	23.57	23.7
			50	0	22±1	22.74	22.83	22.94
			50	24	22±1	22.85	22.82	22.94
			50	49	22±1	22.82	22.71	22.83
			100	0	22±1	22.85	22.78	22.9
		16QAM	1	0	22.5±1	22.85	22.86	22.79
			1	49	22.5±1	23.31	23.12	23.22
			1	99	22.5±1	22.89	22.85	22.98
			50	0	21.5±1	21.87	21.84	22.02
			50	24	21.5±1	21.99	21.89	22
			50	49	21.5±1	21.93	21.73	21.9
			100	0	21±1	21.9	21.83	21.97

Band	Band	Modulation	RB	Tune-	Channel/Frequency(MHz)
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	Width		Configuration		up			
			RB Size	RB Offset		20407/824.7	20525/836.5	20643/848.3
LTE Band 5	1.4MHz	QPSK	1	0	23.5±1	22.64	23.7	23.56
			1	2	23.5±1	23.82	23.83	23.69
			1	5	23.5±1	23.64	23.67	23.57
			3	0	23±1	23.71	23.77	23.69
			3	1	23±1	23.67	23.74	23.75
			3	2	23±1	23.67	23.73	23.73
		16QAM	6	0	22±1	22.63	22.65	22.63
			1	0	22±1	22.4	22.77	22.75
			1	2	22±1	22.55	22.87	22.87
			1	5	22±1	22.36	22.77	22.74
			3	0	22±1	22.78	22.89	22.86
			3	1	22±1	22.78	22.9	22.89
			3	2	22±1	22.8	22.87	22.88
			6	0	21±1	21.79	21.82	21.76
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20415/825.5	20525/836.5	20635/847.5
LTE Band 5	3MHz	QPSK	1	0	23.5±1	23.67	23.7	23.61
			1	7	23.5±1	24.03	23.96	23.93
			1	14	23.5±1	23.76	23.64	23.65
			8	0	22±1	22.69	22.64	22.66
			8	4	22±1	22.69	22.67	22.66
			8	7	22±1	22.66	22.7	22.65
		16QAM	15	0	22±1	22.6	22.68	22.62
			1	0	22.5±1	22.47	23.09	22.77
			1	7	22.5±1	22.73	23.28	23.07
			1	14	22.5±1	22.44	23.06	22.79
			8	0	21±1	21.62	21.72	21.65
			8	4	21±1	21.65	21.76	21.68
			8	7	21±1	21.64	21.75	21.63
			15	0	21±1	21.67	21.74	21.59
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20425/826.5	20525/836.5	20625/846.5
LTE Band 5	5MHz	QPSK	1	0	23.5±1	23.55	23.59	23.53
			1	12	23.5±1	23.89	24.09	24.03
			1	24	23.5±1	23.6	23.57	23.58
			12	0	22±1	22.61	22.65	22.63
			12	6	22±1	22.68	22.76	22.68

			12	11	22±1	22.67	22.7	22.59
			25	0	22±1	22.63	22.71	22.62
		16QAM	1	0	22.5±1	23	22.87	22.8
			1	12	22.5±1	23.31	23.26	23.22
			1	24	22.5±1	23.01	22.87	22.82
			12	0	21±1	21.61	21.63	21.66
			12	6	21±1	21.65	21.71	21.71
			12	11	21±1	21.62	21.67	21.64
			25	0	21±1	21.6	21.76	21.62
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20450/829	20525/836.5	20600/844
LTE Band 5	10MHz	QPSK	1	0	23.5±1	23.73	23.68	23.66
			1	24	23.5±1	23.83	23.75	23.77
			1	49	23.5±1	23.77	23.62	23.71
			25	0	22±1	22.69	22.72	22.64
			25	12	22±1	22.65	22.72	22.69
			25	24	22±1	22.71	22.71	22.57
			50	0	22±1	22.66	22.71	22.59
		16QAM	1	0	22.5±1	23.02	22.81	22.5
			1	24	22.5±1	23.07	22.9	22.55
			1	49	22.5±1	23.03	22.81	22.55
			25	0	21±1	21.7	21.72	21.68
			25	12	21±1	21.66	21.72	21.64
			25	24	21±1	21.75	21.77	21.59
			50	0	21±1	21.67	21.75	21.58

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20775/2502.5	21100/2535	21425/2567.5
LTE Band 7	5MHz	QPSK	1	0	24±1	23.82	24.02	24.22
			1	12	24±1	24.34	24.44	24.67
			1	24	24±1	23.87	24.07	24.28
			12	0	22.5±1	22.83	23.12	23.38
			12	6	22.5±1	22.96	23.2	23.39
			12	11	22.5±1	23	23.16	23.24
			25	0	22.5±1	22.87	23.15	23.36
		16QAM	1	0	23±1	23.16	23.25	23.39
			1	12	23±1	23.58	23.63	23.77
			1	24	23±1	23.21	23.26	23.4
			12	0	21.5±1	21.77	21.99	22.32
		12	6	21.5±1	21.88	22.07	22.34	

			12	11	21.5±1	21.93	22.01	22.21
			25	0	21.5±1	21.83	22.11	22.25
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20800/2505	21100/2535	21400/2565
LTE Band 7	10MHz	QPSK	1	0	24±1	24	24.18	24.34
			1	24	24±1	24.2	24.29	24.39
			1	49	24±1	24.18	24.27	24.35
			25	0	22.5±1	22.79	23.14	23.42
			25	12	22.5±1	22.94	23.17	23.32
			25	24	22.5±1	23.06	23.26	23.26
			50	0	22.5±1	22.94	23.19	23.3
		16QAM	1	0	23±1	22.94	22.92	23.48
			1	24	23±1	23.08	23.08	23.68
			1	49	23±1	23.02	23	23.62
			25	0	21.5±1	21.77	22.07	22.3
			25	12	21.5±1	21.9	22.09	22.25
			25	24	21.5±1	22	22.2	22.2
			50	0	21.5±1	21.92	22.13	22.22
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20825/2507.5	21100/2535	21375/2562.5
LTE Band 7	15MHz	QPSK	1	0	24±1	23.93	24.01	24.23
			1	37	24±1	24.26	24.38	24.57
			1	74	24±1	24.05	24.07	24.28
			36	0	22.5±1	22.92	23.21	23.47
			36	18	22.5±1	23.08	23.29	23.44
			36	37	22.5±1	23.16	23.35	23.36
			75	0	22.5±1	23.03	23.26	23.41
		16QAM	1	0	23±1	22.89	23.1	23.34
			1	37	23±1	23.24	23.5	23.79
			1	74	23±1	22.99	23.16	23.52
			36	0	21.5±1	21.87	22.06	22.35
			36	18	21.5±1	22	22.18	22.32
			36	37	21.5±1	22.06	22.2	22.27
			75	0	21.5±1	21.95	22.23	22.3
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20850/2510	21100/2535	21350/2560
LTE Band	20MHz	QPSK	1	0	24±1	23.66	23.85	24.1
			1	49	24±1	24.13	24.32	24.45

7			1	99	24±1	23.81	24.04	24.17
			50	0	22.5±1	22.73	23.09	23.26
			50	24	22.5±1	22.9	23.2	23.26
			50	49	22.5±1	22.92	23.26	23.07
			100	0	22.5±1	22.79	23.16	23.17
		16QAM	1	0	23±1	22.8	23.06	23.07
			1	49	23±1	23.19	23.55	23.47
			1	99	23±1	22.96	23.18	23.27
			50	0	21.5±1	21.7	22.05	22.17
			50	24	21.5±1	21.89	22.17	22.19
			50	49	21.5±1	21.93	22.26	22.01
			100	0	21.5±1	21.8	22.12	22.09

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		23017/699.7	23095/707.5	23173/715.3
LTE Band 12	1.4MHz	QPSK	1	0	23±1	23.56	23.56	23.42
			1	2	23±1	23.74	23.69	23.62
			1	5	23±1	23.56	23.54	23.47
			3	0	23±1	23.63	23.65	23.63
			3	1	23±1	23.63	23.66	23.63
			3	2	23±1	23.65	23.63	23.62
			6	0	22±1	22.51	22.51	22.52
		16QAM	1	0	22±1	22.29	22.59	22.67
			1	2	22±1	22.47	22.69	22.77
			1	5	22±1	22.35	22.61	22.62
			3	0	22±1	22.69	22.74	22.82
			3	1	22±1	22.74	22.76	22.83
			3	2	22±1	22.79	22.7	22.8
6	0	21±1	21.74	21.73	21.72			

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		23025/700.5	23095/707.5	23165/714.5
LTE Band 12	3MHz	QPSK	1	0	23±1	23.52	23.52	23.47
			1	7	23±1	23.78	23.75	23.99
			1	14	23±1	23.4	23.42	23.47
			8	0	22±1	22.52	22.48	22.47
			8	4	22±1	22.54	22.5	22.51
			8	7	22±1	22.54	22.49	22.52
			15	0	22±1	22.52	22.44	22.48
			16QAM	1	0	22.5±1	22.35	22.9
		1		7	22.5±1	22.77	23.1	23.04

			1	14	22.5±1	22.38	22.84	22.59
			8	0	21±1	21.56	21.56	21.55
			8	4	21±1	21.61	21.61	21.61
			8	7	21±1	21.58	21.56	21.59
			15	0	21±1	21.7	21.58	21.51
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		23035/701.5	23095/707.5	23155/713.5
LTE Band 12	5MHz	QPSK	1	0	23±1	23.42	23.39	23.33
			1	12	23±1	23.83	23.74	23.71
			1	24	23±1	23.39	23.4	23.42
			12	0	22±1	22.53	22.5	22.54
			12	6	22±1	22.56	22.55	22.56
			12	11	22±1	22.5	22.49	22.51
		16QAM	25	0	22±1	22.58	22.46	22.6
			1	0	22.5±1	22.89	22.77	22.63
			1	12	22.5±1	23.21	23.1	23.22
			1	24	22.5±1	22.98	22.74	22.65
			12	0	21±1	21.61	21.51	21.63
			12	6	21±1	21.65	21.52	21.63
			12	11	21±1	21.58	21.49	21.62
			25	0	21±1	21.58	21.57	21.62
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		23060/704	23095/707.5	23130/711
LTE Band 12	10MHz	QPSK	1	0	23±1	23.49	23.47	23.43
			1	24	23±1	23.68	23.62	23.58
			1	49	23±1	23.53	23.47	23.48
			25	0	22±1	22.59	22.42	22.58
			25	12	22±1	22.55	22.53	22.53
			25	24	22±1	22.6	22.4	22.47
			50	0	22±1	22.61	22.43	22.56
		16QAM	1	0	22±1	22.61	22.32	22.8
			1	24	22±1	22.8	22.44	22.94
			1	49	22±1	22.6	22.3	22.85
			25	0	21±1	21.67	21.49	21.67
			25	12	21±1	21.61	21.58	21.6
			25	24	21±1	21.7	21.46	21.56
			50	0	21±1	21.74	21.47	21.6

Band	Band Width	Modulation	RB Configuration	Tune-up	Channel/Frequency(MHz)
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Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		23780/709	23790/710	23800/711
LTE Band 17	5MHz	QPSK	1	0	23.5±1	23.58	23.64	23.63
			1	12	23.5±1	23.99	24.05	23.99
			1	24	23.5±1	23.56	23.66	23.61
			12	0	22±1	22.67	22.64	22.82
			12	6	22±1	22.8	22.79	22.79
			12	11	22±1	22.78	22.65	22.72
			25	0	22±1	22.71	22.66	22.78
		16QAM	1	0	23±1	23.03	23.17	22.95
			1	12	23±1	23.41	23.57	23.36
			1	24	23±1	22.92	23.16	22.93
			12	0	21±1	21.8	21.75	21.79
			12	6	21±1	21.84	21.83	21.8
			12	11	21±1	21.84	21.7	21.74
			25	0	21±1	21.74	21.73	21.91
LTE Band 17	10MHz	QPSK	1	0	23.5±1	23.72	23.7	23.71
			1	24	23.5±1	23.8	23.78	23.84
			1	49	23.5±1	23.78	23.75	23.75
			25	0	22±1	22.67	22.73	22.74
			25	12	22±1	22.71	22.71	22.72
			25	24	22±1	22.56	22.55	22.69
			50	0	22±1	22.64	22.68	22.67
		16QAM	1	0	22.5±1	23.16	22.88	22.54
			1	24	22.5±1	23.14	22.95	22.63
			1	49	22.5±1	23.12	22.92	22.53
			25	0	21±1	21.78	21.79	21.81
			25	12	21±1	21.81	21.78	21.84
			25	24	21±1	21.66	21.65	21.76
			50	0	21±1	21.67	21.77	21.77

Mode	Channel	Frequency (MHz)	Tune-up	Output Power (dBm)
802.11b	1	2412	12.5±1	13.1
	6	2437	12.5±1	13.1
	11	2462	12.5±1	13.02
802.11g	1	2412	12±1	12.71
	6	2437	12±1	12.81
	11	2462	12±1	12.6
802.11n HT20	1	2412	12±1	12.78

	6	2437	12±1	12.54
	11	2462	12±1	12.32
802.11n HT40	3	2422	11.5±1	11.46
	6	2437	11.5±1	12.16
	9	2452	11.5±1	11.93

Mode	Channel	Frequency (MHz)	Tune-up	Output Power (dBm)
802.11a	36	5180	10±1	10.56
	40	5200	10±1	9.53
	48	5240	10±1	10.01
802.11n HT20	36	5180	8.5±1	9.29
	40	5200	8.5±1	8.42
	48	5240	8.5±1	8.76
802.11n HT40	38	5190	8±1	7.66
	46	5230	8±1	8.5
802.11ac VHT20	36	5180	8.8±1	9.05
	40	5200	8.8±1	7.98
	48	5240	8.8±1	9.77
802.11ac VHT40	38	5190	8±1	8.65
	46	5230	8±1	8.48
802.11ac VHT80	42	5210	7.5±1	8.06

Mode	Channel	Frequency (MHz)	Tune-up	Output Power (dBm)
802.11a	52	5260	9.5±1	10.33
	56	5280	9.5±1	9.43
	64	5320	9.5±1	8.97
802.11n HT20	52	5260	8±1	8.72
	56	5280	8±1	8.24
	64	5320	8±1	8.1
802.11n HT40	54	5270	7±1	7.51
	62	5310	7±1	6.4
802.11ac VHT20	52	5260	8.5±1	8.26
	56	5280	8.5±1	9.05
	64	5320	8.5±1	7.95
802.11ac VHT40	54	5270	7±1	7.84
	62	5310	7±1	6.93
802.11ac VHT80	58	5290	7±1	7.89

Mode	Channel	Frequency (MHz)	Tune-up	Output Power (dBm)
802.11a	100	5500	9±1	9.32
	120	5600	9±1	9.54
	140	5700	9±1	9.06
802.11n HT20	100	5500	8±1	8.19
	120	5600	8±1	8.53
	140	5700	8±1	8.72
802.11n HT40	102	5510	7.5±1	7.5
	118	5590	7.5±1	8.24
	134	5670	7.5±1	7.91
802.11ac VHT20	100	5500	8.5±1	9.41
	120	5600	8.5±1	8.88
	140	5700	8.5±1	7.98
802.11ac VHT40	102	5510	7.5±1	7.75
	118	5590	7.5±1	8.37
	134	5670	7.5±1	8.2
802.11ac VHT80	106	5530	7±1	7.7
	122	5610	7±1	7.86

Mode	Channel	Frequency (MHz)	Tune-up	Output Power (dBm)
802.11a	149	5745	9±1	9.33
	157	5785	9±1	9.57
	165	5825	9±1	8.99
802.11n HT20	149	5745	8.5±1	8.51
	157	5785	8.5±1	9.39
	165	5825	8.5±1	7.91
802.11n HT40	151	5755	8±1	8.1
	159	5795	8±1	8.61
802.11ac VHT20	149	5745	7±1	7.51
	157	5785	7±1	7.45
	165	5825	7±1	7.28
802.11ac VHT40	151	5755	7±1	7.1
	159	5795	7±1	7.52
802.11ac VHT80	155	5775	5.5±1	6.33

BR+EDR	Output Power (dBm)				
	Channel	Tune-up	Data Rates		
			1M	2M	3M
	0CH	5±1	5.645	4.712	4.675
39CH	5±1	5.224	4.245	4.203	

	78CH	5±1	5.208	4.34	4.301
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BLE	Channel	Tune-up	Output Power (dBm)
	0CH	-2±1	-1.562
	19CH	-3±1	-2.029
	39CH	-3±1	-2.022

Signature: 

Name: AMY LIU

Title: Manager