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AirMagnet 802.11a/b/g/n Wireless PC Card (C1060) Datasheet

Datasheet
AirMagnet, Inc.
March 2010

Technical Specifications

Main Chipset	➤ Atheros® AR5416, AR5133					
Frequency range	➤ USA: 2.400 ~ 2.483GHz, 5.15 ~ 5.35GHz, 5.725 ~ 5.825GHz ➤ Europe: 2.400 ~ 2.483GHz, 5.15 ~ 5.35GHz, 5.47 ~ 5.725GHz					
Modulation technique	➤ 802.11n a/b/g DSSS (DBPSK, DQPSK, CCK) OFDM (BPSK, QPSK, 16-QAM, 64-QAM) DSSS (Direct Sequence Spread Spectrum) with DBPSK (Differential Binary Phase Shift Keying 1Mbps), DQPSK (Differential Quaternary Phase Shift Keying 2Mbps), and CCK (Complementary Code Keying 5.5&11Mbps), and OFDM (Orthogonal Frequency Division Multiplexing with BPSK for 6,9Mbps, QPSK for 12,18Mbps, 16QAM for 24,36Mbps, 64QAM for 48,54Mbps)					
Host interface	➤ Cardbus 32-bit Type II interface in 2Tx/3Rx design.					
Channels support	➤ 802.11n b/g US/Canada: 11 (1 ~ 11) Major European country: 13 (1 ~ 13) France: 4 (10 ~ 13) ➤ 802.11n a 1). US/Canada: 12 non-overlapping channels (36,40,44,48,52,56,60,64; 149,153,157,161) 2). Europe: 19 non-overlapping channel (36,40,44,48,52,56,60,64; 100,104,108,112,116,120,124,128,132,136,140)					
Operation voltage	➤ 3.3V +/- 5%					
Power consumption @25° C & Win2K environment		802.11a	802.11b	802.11g	802.11n(2.4GHz)	802.11n(5GHz)
		Avg/Max (mA)	Avg/Max	Avg/Max	Avg/Max (mA)	Avg/Max (mA)
	➤ Continue Tx	615/716	614/720	547/639	584/685	632/732
	➤ FTP Tx	384/600	487/640	351/480	486/669	572/698
	➤ FTP Rx	433/524	379/611	386/499	406/653	474/676
	➤ Standby mode	437/502	393/485	391/468	383/456	393/490
	➤ Power saving	38/487	41/447	42/454	42/417	101/426
	***The maximum current consumption would be impacted by radiation environment and the driver mechanism.					
Output power	➤ 802.11a	Test Frequencies	6-24_Target	36_Target	48_Target	54_Target
		4920	15	15	15	15
		5170	15	15	15	15
		5230	15	15	15	15
		5260	14	14	14	14
		5320	14	14	14	14
		5500	17	16	16	15
		5600	17	16	16	15
		5700	17	16	16	15
		5825	17	16	16	15
	➤ 802.11b	Test Frequencies	1/2_Target	5.5_Target	11_Target	
		2412	16	16	16	
		2472	16	16	16	
		2484	16	16	16	

	<p>➤ 802.11g</p> <table border="1"> <thead> <tr> <th>Test Frequencies</th> <th>6-24_Target</th> <th>36_Target</th> <th>48_Target</th> <th>54_Target</th> </tr> </thead> <tbody> <tr> <td>2412</td> <td>17</td> <td>17</td> <td>17</td> <td>16</td> </tr> <tr> <td>2437</td> <td>17</td> <td>17</td> <td>17</td> <td>16</td> </tr> <tr> <td>2472</td> <td>17</td> <td>17</td> <td>17</td> <td>16</td> </tr> </tbody> </table> <p>➤ 802.11n Freq. 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➤	802.11g			
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	BPSK	1/2	-5	-21/-15
	BPSK	3/4	-8	-21/-15
	QPSK	1/2	-10	-21/-15
	QPSK	3/4	-13	-23/-20
	16-QAM	1/2	-16	-25/-20
	16-QAM	3/4	-19	-27/-22
	64-QAM	2/3	-22	-28/-25
	64-QAM	3/4	-25	-30/-27
➤	802.11ng			
	Modulation	Code Rate	Relative constellation error (dB) IEEE Spec (1Tx dB)	Relative constellation error (dB) Typical/Maximum (2Tx dB)
✧	HT20			
	BPSK	1/2	-5	-20/-15
	QPSK	1/2	-10	-20/-16
	QPSK	3/4	-13	-20/-16
	16-QAM	1/2	-16	-25/-20
	16-QAM	3/4	-19	-29/-22
	64-QAM	2/3	-22	-29/-24
	64-QAM	3/4	-25	-30/-26
	64-QAM	5/6	-28	-31/-28
✧	HT40			
	BPSK	1/2	-5	-21/-15
	QPSK	1/2	-10	-21/-15
	QPSK	3/4	-13	-21/-15
	16-QAM	1/2	-16	-25/-20
	16-QAM	3/4	-19	-28/-22
	64-QAM	2/3	-22	-30/-24
	64-QAM	3/4	-25	-31/-26
	64-QAM	5/6	-28	-32/-28
➤	802.11na			
	Modulation	Code Rate	Relative constellation error (dB) IEEE Spec (1Tx dB)	Relative constellation error (dB) Typical/Maximum (2Tx dB)
✧	HT20			
	BPSK	1/2	-5	-26/-15
	QPSK	1/2	-10	-26/-16
	QPSK	3/4	-13	-26/-16
	16-QAM	1/2	-16	-28/-20
	16-QAM	3/4	-19	-29/-22
	64-QAM	2/3	-22	-30/-24
	64-QAM	3/4	-25	-30/-26
	64-QAM	5/6	-28	-30/-28
✧	HT40			
	BPSK	1/2	-5	-20/-15
	QPSK	1/2	-10	-20/-15
	QPSK	3/4	-13	-20/-15
	16-QAM	1/2	-16	-25/-20
	16-QAM	3/4	-19	-26/-22
	64-QAM	2/3	-22	-28/-24

	64-QAM	3/4	-25	-31/-26
	64-QAM	5/6	-28	-32/-28
Sensitivity	➤ 802.11a			
	Modulation	Code Rate	IEEE Spec (1Rx dBm)	Typical/Maximum (3Rx dBm)
	BPSK	1/2	-82	-94/-90
	BPSK	3/4	-81	-94/-90
	QPSK	1/2	-79	-94/-89
	QPSK	3/4	-77	-93/-88
	16-QAM	1/2	-74	-90/-86
	16-QAM	3/4	-70	-87/-82
	64-QAM	2/3	-66	-83/-79
	64-QAM	3/4	-65	-81/-77
	➤ 802.11b			
	Modulation		IEEE Spec (1Rx dBm)	Typical/Maximum (3Rx dBm)
	DBPSK		-82	-99/-95
	DQPSK		-80	-93/-89
	CCK		-76	-90/-86
	➤ 802.11g			
	Modulation	Code Rate	IEEE Spec (1Rx dBm)	Typical/Maximum (3Rx dBm)
	BPSK	1/2	-82	-95/-91
	BPSK	3/4	-81	-95/-91
	QPSK	1/2	-79	-95/-91
	QPSK	3/4	-77	-94/-90
	16-QAM	1/2	-74	-91/-87
	16-QAM	3/4	-70	-88/-84
	64-QAM	2/3	-66	-84/-80
	64-QAM	3/4	-65	-82/-77
	➤ 802.11ng			
	Modulation	Code Rate	IEEE Spec (1Rx dBm)	Typical/Maximum (3Rx dBm)
	✧ HT20			
	BPSK	1/2	-80	-95/-91
	QPSK	1/2	-77	-94/-90
	QPSK	3/4	-75	-91/-87
	16-QAM	1/2	-72	-88/-84
	16-QAM	3/4	-68	-85/-81
	64-QAM	2/3	-64	-81/-77
	64-QAM	3/4	-63	-80/-76
	64-QAM	5/6	-62	-77/-72
	✧ HT40			
	BPSK	1/2	-77	-91/-86
	QPSK	1/2	-74	-90/-86
	QPSK	3/4	-72	-88/-83
	16-QAM	1/2	-69	-85/-81
	16-QAM	3/4	-65	-82/-78
64-QAM	2/3	-61	-78/-74	
64-QAM	3/4	-60	-77/-72	
64-QAM	5/6	-59	-74/-70	
➤ 802.11na				
Modulation	Code Rate	IEEE Spec (1Rx dBm)	Typical/Maximum (3Rx dBm)	
✧ HT20				
BPSK	1/2	-80	-94/-90	
QPSK	1/2	-77	-92/-88	
QPSK	3/4	-75	-90/-86	

	16-QAM 1/2 -72 -87/-83 16-QAM 3/4 -68 -84/-81 64-QAM 2/3 -64 -81/-76 64-QAM 3/4 -63 -79/-75 64-QAM 5/6 -62 -76/-72 ❖ HT40 BPSK 1/2 -77 -90/-86 QPSK 1/2 -74 -89/-85 QPSK 3/4 -72 -88/-84 16-QAM 1/2 -69 -85/-80 16-QAM 3/4 -65 -81/-77 64-QAM 2/3 -61 -78/-73 64-QAM 3/4 -60 -76/-72 64-QAM 5/6 -59 -74/-70
Operation distance	➤ 802.11a Outdoor: 50 m @54Mbps, 300 m @6Mbps Indoor: 30 m @54Mbps, 100 m @6Mbps ➤ 802.11b Outdoor: 150 m @11Mbps, 300 m @1Mbps Indoor: 30 m @11Mbps, 100 m @1Mbps ➤ 802.11g Outdoor: 50 m @54Mbps, 300 m @6Mbps Indoor: 30 m @54Mbps, 100 m @6Mbps ➤ 802.11n Outdoor: 250 m @6.5Mbps (MCS0: 1 Nss/20MHz BW) 30 m @130Mbps (MCS15: 2 Nss/20MHz BW) 30 m @300Mbps (MCS15: 2 Nss/40MHz BW) Indoor: 100 m @6.5Mbps (MCS0: 1 Nss/20MHz BW) 20 m @130Mbps (MCS15: 2 Nss/20MHz BW) 20 m @300Mbps (MCS15: 2 Nss/40MHz BW)
Operation System supported	➤ Windows® XP™ Pro, Vista™ Business/Ultimate, Windows 7 Professional/Ultimate
PCB Dimension	➤ 112mm(L) x 48mm(W) x 0.787mm(T) 4L FR4
Security	➤ 64-bit, 128-bit, 152-bit WEP Encryption ➤ 802.1x Authentication ➤ AES-CCM & TKIP Encryption
Operation mode	➤ Infrastructure mode
Transfer data rate	➤ 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps ➤ 802.11b: 1, 2, 5.5, 11Mbps ➤ 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps ➤ 802.11n: @800GI(400GI) <ul style="list-style-type: none"> ● 20MHz BW <ul style="list-style-type: none"> ▪ 1 Nss: 65(72.2) Mbps maximal ▪ 2 Nss: 130(144.444) Mbps maximal ● 40MHz BW <ul style="list-style-type: none"> ▪ 1 Nss: 135(150) Mbps maximal ▪ 2 Nss: 270(300) Mbps maximal
Operation temperature	➤ 0° ~ 55° C
Storage temperature	➤ -20° ~ 80° C
FAA	➤ S/W audio On/Off support
Certifications	➤ FCC part 15 (USA) FCC ID: RD7-C1060

Operation distance depends on real environment.

	<ul style="list-style-type: none">➤ IC RSS210 (Canada) IC ID: 7491A-C1060➤ EN301893 v1.4.1 (2007-07), EN301893 v1.4.1 (2007-02), EN300328v1.7.1 (2006-10)➤ RoHS compliance
Media access protocol	<ul style="list-style-type: none">➤ CSMA/CA with ACK architecture 32-bit MAC
Antenna	<ul style="list-style-type: none">➤ Dual Band Metal PIFA Antenna x 2 and Chip Antenna x 1