

## WL5018B Dual-Band Draft 802.11n 3x3 MIMO mini-PCI Wireless Network Adapter

# **Product Specifications**

Version 2.0



#### 1. Description:

The *WL5018B* provides ultra-high performance (up to 270 Mbps) transmission rate in the 2.4GHz and 5 GHz band. Backward compatible with the current 802.11 a/b/g network devices gives your laptop the freedom of wireless connectivity with the performance, security, and manageability that businesses desire. A firmware-based architecture is capable of supporting the latest industry standards in the security and quality of service (QoS), as the draft 802.11i and 802.11e standards, respectively. The *WL5018B* is complemented by drivers and networking tools for various versions of the *Windows*® operating system. Extensive technical documentation on integration issues such as antenna design, customizing drivers, and management software can be obtained by request.

#### 2. Features:

- IEEE 802.11a/b/g/n standard compliant
- 3x3 MIMO wireless system
- Ultra-high data rate up to 270 Mbps
- Auto fallback data rate under noisy environment
- Support both 2.4Ghz and 5Ghz band operation
- Support WEP (64-bit/128-bit), 802.1x, and WPA/WPA2
- Conformable to industry-standard Mini-PCI Card Type III-B specification
- Easy integration into mobile and hand-held platforms
- Flexible for design and antenna placement
- Low power consumption & Automatic power management to reduce battery use
- Independent Tx Power Control on a per channel
- Automatic Tx Gain adjustment during temperature variations

#### 3. Application:

- Home and/or office wireless networking
- Wireless multimedia
- Wireless extension of existing wired network



### 4. Product Specifications:

Antenna Connector   Hirose connector supported with diversity     Medium Access Protocol   CSMA/CA (Collision Avoidance) with ACK     Frequency Band   2.4~2.4835 GHz and 4.9~5.85 GHz     Number of Channels   Up to 14 Channels depending on regions     Modulation   CCK/PSK, DOPSK, DBPSK, OFDM     Supported Rates   54, 48, 36, 24, 18, 12, 9, 6, 11, 5.5, 2, 1 Mbps     20 MHz BW: 130, 117, 104, 78, 52, 39, 26, 13 Mbps   40 MHz BW: 270, 243, 216, 162, 108, 81, 54, 27 Mbps     Maximum Receive Level   -20dBm (with PER< 10%) for 802.11g     Antenna   External (Hirose U-F-L)     Output Power   3x3: 13.5~16.5 dBm     11b: 15.5~18.5 dBm   11b: 15.5~18.5 dBm     11b: 15.5~18.5 dBm   11b: 16.5 dBm     802.11g Receive Sensitivity   Data Rates   Receive Sensitivity     54 Mbps   -86 dBm (typ)     11 Mbps   -93 dBm (typ.)     11 Mbps   -93 dBm (typ.)     11 Mbps   -93 dBm (typ.)     Voltage   3.3 VDC from host (+/-0.2V)     Power Consumption   Standby (average) < 20mW     Security   WEP (64-bit/128-bit), 802.1x     WPAWPA2 (TKIP, AES)   Operating System     Operating System   Windows 98	WLAN Standards		a/a
Medium Access ProtocolCSMA/CA (Collision Avoidance) with ACKFrequency Band2.4~2.4835 GHz and 4.9~5.85 GHzNumber of ChannelsUp to 14 Channels depending on regionsModulationCCK/PSK, DQPSK, DBPSK, OFDMSupported Rates54, 48, 36, 24, 18, 12, 9, 6, 11, 5.5, 2, 1 Mbps 20 MHz BW: 130, 117, 104, 78, 52, 39, 26, 13 Mbps 40 MHz BW: 270, 243, 216, 162, 108, 81, 54, 27 MbpsMaximum Receive Level-20dBm (with PER<10%) for 802.11g		IEEE 802.11 a/b/g/n	
Frequency Band     2.4~2.4835 GHz and 4.9~5.85 GHz       Number of Channels     Up to 14 Channels depending on regions       Modulation     CCK/PSK, DQPSK, DBPSK, OFDM       Supported Rates     54, 48, 36, 24, 18, 12, 9, 6, 11, 5.5, 2, 1 Mbps       20 MHz BW: 130, 117, 104, 78, 52, 39, 26, 13 Mbps     40 MHz BW: 270, 243, 216, 162, 108, 81, 54, 27 Mbps       Maximum Receive Level     -20dBm (with PER< 10%) for 802.11g       Antenna     External (Hirose U-F-L)       Output Power     3x3: 13.5~16.5 dBm       11g: 13.5~16.5 dBm     11a: 13.5~16.5 dBm       11b: 15.5~18.5 dBm     11a: 13.5~16.5 dBm       11b: 15.5~18.5 dBm     11a: 3.5~16.5 dBm       11b: 15.5~18.5 dBm     11b       Security     Data Rates     Receive Sensitivity       54 Mbps     -68 dBm (typ)       11 Mbps     -85 dBm (typ.)       6 Mbps     -86 dBm (typ.)       1 Mbps     -93 dBm (typ.)       Voltage     3.3 VDC from host (+/-0.2V)       Power Consumption     Standby (average) < 20mW       Security     WEP (64-bit/128-bit), 802.1x       WPAWPA2 (TKIP, AES)     Operating System       Operation Environment     Tem			
Number of Channels     Up to 14 Channels depending on regions       Modulation     CCK/PSK, DQPSK, DBPSK, OFDM       Supported Rates     54, 48, 36, 24, 18, 12, 9, 6, 11, 5.5, 2, 1 Mbps 20 MHz BW: 130, 117, 104, 78, 52, 39, 26, 13 Mbps 40 MHz BW: 270, 243, 216, 162, 108, 81, 54, 27 Mbps       Maximum Receive Level     -20dBm (with PER< 10%) for 802.11g	Medium Access Protocol	CSMA/CA (Collision Avoidance) with ACK	
Modulation     CCK/PSK, DQPSK, DBPSK, OFDM       Supported Rates     54, 48, 36, 24, 18, 12, 9, 6, 11, 5.5, 2, 1 Mbps       20 MHz BW: 130, 117, 104, 78, 52, 39, 26, 13 Mbps     40 MHz BW: 270, 243, 216, 162, 108, 81, 54, 27 Mbps       Maximum Receive Level     -20dBm (with PER< 10%) for 802.11g       Antenna     External (Hirose U-F-L)       Output Power     3x3: 13.5~16.5 dBm       11g: 13.5~16.5 dBm     11g: 13.5~16.5 dBm       11a: 13.5~16.5 dBm     11a: 13.5~16.5 dBm       802.11g Receive Sensitivity     Data Rates     Receive Sensitivity       6 Mbps     -68 dBm (typ)       11 Mbps     -93 dBm (typ.)       6 Mbps     -93 dBm (typ.)       1 Mbps     -93 dBm (typ.)       5 Kandby (average) < 20mW     Security       Voltage     3.3 VDC from host (+/-0.2V)       Power Consumption     Standby (average) < 20mW       Security     WEP (64-bit/128-bit), 802.1x       WPA/WPA2 (TKIP, AES)     Operating System       Operating System     Windows 98SE/ME/2K/XP, Linux       Operating Environment     Temperature: 0 ~ 70 °C       Humidity:     5~95% RH (non-condensing)	Frequency Band	2.4~2.4835 GHz and 4.9~5.85 GHz	
Supported Rates     54, 48, 36, 24, 18, 12, 9, 6, 11, 5.5, 2, 1 Mbps       20 MHz BW: 130, 117, 104, 78, 52, 39, 26, 13 Mbps     40 MHz BW: 270, 243, 216, 162, 108, 81, 54, 27 Mbps       Maximum Receive Level     -20dBm (with PER< 10%) for 802.11g       Antenna     External (Hirose U-F-L)       Output Power     3x3: 13.5~16.5 dBm       11g: 13.5~16.5 dBm     11b: 15.5~18.5 dBm       11a: 13.5~16.5 dBm     11a: 13.5~16.5 dBm       802.11g Receive Sensitivity     Data Rates     Receive Sensitivity       54 Mbps     -68 dBm (typ)       11 Mbps     -85dBm (typ.)       11 Mbps     -93 dBm (typ.)       12 Mbps     -93 dBm (typ.)       54 Mbps     -93 dBm (typ.)       54 Mbps     -93 dBm (typ.)       11 Mbps     -93 dBm (typ.)       12 Mbps     -93 dBm (typ.)       13 Mbps     -93 dBm (typ.)       14 Mbps     -93 dBm (typ.)       55 Mbps     -93 dBm (typ.)       56 Mbps     -93 dBm (typ.)       57 Mbps     -93 dBm (typ.)       58 Mbps     -93 dBm (typ.)       59 Mbps     -93 dBm (typ.)       50 Mbps	Number of Channels	Up to 14 Channels depending on regions	
20 MHz BW: 130, 117, 104, 78, 52, 39, 26, 13 Mbps     40 MHz BW: 270, 243, 216, 162, 108, 81, 54, 27 Mbps     Maximum Receive Level   -20dBm (with PER< 10%) for 802.11g     Antenna   External (Hirose U-F-L)     Output Power   3x3: 13.5~16.5 dBm     11g: 13.5~16.5 dBm   11g: 13.5~16.5 dBm     11a: 13.5~16.5 dBm   11a: 13.5~16.5 dBm     802.11g Receive Sensitivity   Data Rates   Receive Sensitivity     54 Mbps   -68 dBm (typ)     11 Mbps   -85dBm (typ.)     6 Mbps   -86 dBm (typ.)     1 Mbps   -93 dBm (typ.)     9 WeP (64-bit/128-bit), 802.1x   WPA/WPA2 (TKIP, AES)     Operating System   Windows 98SE/ME/2K/XP, Linux     Operation Environment   Temperature:   0 ~ 70 °C     Humidity:   5~95% RH (non-condensing)	Modulation	CCK/PSK, DQPSK, DBPSK, OFDM	
40 MHz BW: 270, 243, 216, 162, 108, 81, 54, 27 Mbps     Maximum Receive Level   -20dBm (with PER< 10%) for 802.11g     Antenna   External (Hirose U-F-L)     Output Power   3x3: 13.5~16.5 dBm     11g: 13.5~16.5 dBm   11g: 13.5~16.5 dBm     11b: 15.5~18.5 dBm   11a: 13.5~16.5 dBm     802.11g Receive Sensitivity   Data Rates   Receive Sensitivity     54 Mbps   -68 dBm (typ.)     11 Mbps   -85dBm (typ.)     6 Mbps   -86 dBm (typ.)     1 Mbps   -93 dBm (typ.)     Voltage   3.3 VDC from host (+/-0.2V)     Power Consumption   Standby (average) < 20mW     Security   WEP (64-bit/128-bit), 802.1x     WPA/WPA2 (TKIP, AES)   Operating System     Operating System   Windows 98SE/ME/2K/XP, Linux     Operation Environment   Temperature: 0 ~ 70 °C     Humidity:   5-95% RH (non-condensing)	Supported Rates	54, 48, 36, 24, 18, 12, 9, 6, 11, 5.5, 2, 1 Mbps	
Maximum Receive Level    20dBm (with PER< 10%) for 802.11g       Antenna     External (Hirose U-F-L)       Output Power     3x3: 13.5~16.5 dBm       11g: 13.5~16.5 dBm     11g: 13.5~16.5 dBm       11b: 15.5~18.5 dBm     11a: 13.5~16.5 dBm       802.11g Receive Sensitivity     Data Rates     Receive Sensitivity       6 Mbps     -68 dBm (typ)       11 Mbps     -85dBm (typ.)       6 Mbps     -93 dBm (typ.)       1 Mbps     -93 dBm (typ.)       Voltage     3.3 VDC from host (+/-0.2V)       Power Consumption     Standby (average) < 20mW       Security     WEP (64-bit/128-bit), 802.1x       WPA/WPA2 (TKIP, AES)     Operating System       Operating System     Windows 98SE/ME/2K/XP, Linux       Operation Environment     Temperature: 0 ~ 70 °C       Humidity:     5~95% RH (non-condensing)		20 MHz BW: 130, 117, 104, 78, 52, 39, 26, 13 Mbps	
Antenna     External (Hirose U-F-L)       Output Power     3x3: 13.5~16.5 dBm       11g: 13.5~16.5 dBm     11g: 13.5~16.5 dBm       11b: 15.5~18.5 dBm     11a: 13.5~16.5 dBm       802.11g Receive Sensitivity     Data Rates     Receive Sensitivity       54 Mbps     -68 dBm (typ)       11 Mbps     -85dBm (typ.)       6 Mbps     -86 dBm (typ.)       1 Mbps     -93 dBm (typ.)       9 Work Consumption     Standby (average) < 20mW       Security     WEP (64-bit/128-bit), 802.1x       WPA/WPA2 (TKIP, AES)     Windows 98SE/ME/2K/XP, Linux       Operation Environment     Temperature:     0 ~ 70 °C       Humidity:     5~95% RH (non-condensing)		40 MHz BW: 270, 243, 216, 162, 108, 81, 54, 27 Mbps	
Output Power     3x3: 13.5~16.5 dBm       11g: 13.5~16.5 dBm     11g: 13.5~16.5 dBm       11b: 15.5~18.5 dBm     11a: 13.5~16.5 dBm       802.11g Receive Sensitivity     Data Rates     Receive Sensitivity       54 Mbps     -68 dBm (typ)       11 Mbps     -85 dBm (typ.)       6 Mbps     -86 dBm (typ.)       1 Mbps     -93 dBm (typ.)       Voltage     3.3 VDC from host (+/-0.2V)       Power Consumption     Standby (average) < 20mW       Security     WEP (64-bit/128-bit), 802.1x       WPA/WPA2 (TKIP, AES)     WPA/WPA2 (TKIP, AES)       Operating System     Windows 98SE/ME/2K/XP, Linux       Operation Environment     Temperature: 0 ~ 70 °C       Humidity:     5~95% RH (non-condensing)	Maximum Receive Level	-20dBm (with PER< 10%) for 802.11g	
11g: 13.5~16.5 dBm     11b: 15.5~18.5 dBm     11b: 15.5~18.5 dBm     11a: 13.5~16.5 dBm     802.11g Receive Sensitivity     Data Rates   Receive Sensitivity     54 Mbps   -68 dBm (typ)     11 Mbps   -85 dBm (typ.)     6 Mbps   -86 dBm (typ.)     1 Mbps   -93 dBm (typ.)     1 Mbps   -93 dBm (typ.)     Voltage   3.3 VDC from host (+/-0.2V)     Power Consumption   Standby (average) < 20mW     Security   WEP (64-bit/128-bit), 802.1x     WPA/WPA2 (TKIP, AES)   Vindows 98SE/ME/2K/XP, Linux     Operating System   Windows 98SE/ME/2K/XP, Linux     Operation Environment   Temperature:   0 ~ 70 °C     Humidity:   5~95% RH (non-condensing)	Antenna	External (Hirose U-F-L)	
11b: 15.5~18.5 dBm     11b: 13.5~16.5 dBm     802.11g Receive Sensitivity     54 Mbps   -68 dBm (typ)     54 Mbps   -85 dBm (typ.)     11 Mbps   -85 dBm (typ.)     6 Mbps   -86 dBm (typ.)     1 Mbps   -93 dBm (typ.)     1 Mbps   -93 dBm (typ.)     Voltage   3.3 VDC from host (+/-0.2V)     Power Consumption   Standby (average) < 20mW     Security   WEP (64-bit/128-bit), 802.1x     WPA/WPA2 (TKIP, AES)   Windows 98SE/ME/2K/XP, Linux     Operating System   Windows 98SE/ME/2K/XP, Linux     Operation Environment   Temperature: 0 ~ 70 °C     Humidity:   5~95% RH (non-condensing)	Output Power	3x3: 13.5~16.5 dBm	
11a: 13.5~16.5 dBm802.11g Receive SensitivityData RatesReceive Sensitivity54 Mbps-68 dBm (typ)11 Mbps-85dBm (typ.)6 Mbps-86 dBm (typ.)1 Mbps-93 dBm (typ.)1 Mbps-93 dBm (typ.)Voltage3.3 VDC from host (+/-0.2V)Power ConsumptionStandby (average) < 20mWSecurityWEP (64-bit/128-bit), 802.1xWPA/WPA2 (TKIP, AES)Operating SystemWindows 98SE/ME/2K/XP, LinuxOperation EnvironmentTemperature: 0 ~ 70 °CHumidity:5~95% RH (non-condensing)		11g: 13.5~16.5 dBm	
802.11g Receive SensitivityData RatesReceive Sensitivity54 Mbps-68 dBm (typ)54 Mbps-86 dBm (typ.)11 Mbps-85dBm (typ.)6 Mbps-86 dBm (typ.)1 Mbps-93 dBm (typ.)Voltage3.3 VDC from host (+/-0.2V)Power ConsumptionStandby (average) < 20mWSecurityWEP (64-bit/128-bit), 802.1xVpA/WPA2 (TKIP, AES)Windows 98SE/ME/2K/XP, LinuxOperating SystemWindows 98SE/ME/2K/XP, LinuxOperation EnvironmentTemperature:0 ~ 70 °CHumidity:5~95% RH (non-condensing)		11b: 15.5~18.5 dBm	
54 Mbps   -68 dBm (typ)     11 Mbps   -85dBm (typ.)     6 Mbps   -86 dBm (typ.)     1 Mbps   -93 dBm (typ.)     1 Mbps   -93 dBm (typ.)     Voltage   3.3 VDC from host (+/-0.2V)     Power Consumption   Standby (average) < 20mW     Security   WEP (64-bit/128-bit), 802.1x     WPA/WPA2 (TKIP, AES)   Windows 98SE/ME/2K/XP, Linux     Operation Environment   Temperature: 0 ~ 70 °C     Humidity:   5~95% RH (non-condensing)		11a: 13.5~16.5 dBm	
11 Mbps   -85dBm (typ.)     6 Mbps   -86 dBm (typ.)     1 Mbps   -93 dBm (typ.)     1 Mbps   -93 dBm (typ.)     Voltage   3.3 VDC from host (+/-0.2V)     Power Consumption   Standby (average) < 20mW     Security   WEP (64-bit/128-bit), 802.1x     WPA/WPA2 (TKIP, AES)   Windows 98SE/ME/2K/XP, Linux     Operation Environment   Temperature: 0 ~ 70 °C     Humidity:   5~95% RH (non-condensing)	802.11g Receive Sensitivity	Data Rates	Receive Sensitivity
6 Mbps-86 dBm (typ.)1 Mbps-93 dBm (typ.)1 Mbps-93 dBm (typ.)Voltage3.3 VDC from host (+/-0.2V)Power ConsumptionStandby (average) < 20mWSecurityWEP (64-bit/128-bit), 802.1xWPA/WPA2 (TKIP, AES)WPA/WPA2 (TKIP, AES)Operating SystemWindows 98SE/ME/2K/XP, LinuxOperation EnvironmentTemperature: 0 ~ 70 °CHumidity:5~95% RH (non-condensing)		54 Mbps	-68 dBm (typ)
1 Mbps   -93 dBm (typ.)     Voltage   3.3 VDC from host (+/-0.2V)     Power Consumption   Standby (average) < 20mW     Security   WEP (64-bit/128-bit), 802.1x     WPA/WPA2 (TKIP, AES)   WPA/WPA2 (TKIP, AES)     Operating System   Windows 98SE/ME/2K/XP, Linux     Operation Environment   Temperature: 0 ~ 70 °C     Humidity:   5~95% RH (non-condensing)		11 Mbps	-85dBm (typ.)
Voltage3.3 VDC from host (+/-0.2V)Power ConsumptionStandby (average) < 20mW		6 Mbps	-86 dBm (typ.)
Power ConsumptionStandby (average) < 20mW		1 Mbps	-93 dBm (typ.)
Security WEP (64-bit/128-bit), 802.1x   Operating System Windows 98SE/ME/2K/XP, Linux   Operation Environment Temperature: 0 ~ 70 °C   Humidity: 5~95% RH (non-condensing)	Voltage	3.3 VDC from host (+/-0.2V)	
WPA/WPA2 (TKIP, AES)     Operating System   Windows 98SE/ME/2K/XP, Linux     Operation Environment   Temperature: 0 ~ 70 °C     Humidity:   5~95% RH (non-condensing)	Power Consumption	Standby (average) < 20mW	
Operating System   Windows 98SE/ME/2K/XP, Linux     Operation Environment   Temperature:   0 ~ 70 °C     Humidity:   5~95% RH (non-condensing)	Security	WEP (64-bit/128-bit), 802.1x	
Operation EnvironmentTemperature:0 ~ 70 °CHumidity:5~95% RH (non-condensing)		WPA/WPA2 (TKIP, AES)	
Humidity: 5~95% RH (non-condensing)	Operating System	Windows 98SE/ME/2K/XP, Linux	
	Operation Environment	Temperature:	0~70 °C
Storage EnvironmentTemperature:-10 ~ 75 °C		Humidity:	5~95% RH (non-condensing)
-	Storage Environment	Temperature:	-10 ~ 75 ℃
Humidity: 95% RH (non-condensing)	_	Humidity:	95% RH (non-condensing)