

# Specification

## 95946

Delock mini PCI Express WLAN 3T3R 450 Mbps 2,4 + 5,8 GHz half-size  
EAN: 4043919959464



edition: 08/2012

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### Device Overall Description

The module is designed to provide wireless LAN function on a small formfactor with PCI Express interface. The wireless LAN function is based on Ralink RT3593 MAC/BBP/Transceiver and 2.4/5 GHz RF single chip with 450Mbps PHY rate supporting. It fully complies with current IEEE 802.11n and IEEE 802.11 a/b/g standards.

### Features

- Ralink RT3593 MAC/BBP/RF
- 3T3R Modes
- 11b: 1,2,5.5,11Mbps
- 11g: 6,9,12,18,24,36,48,54Mbps
- 11a: 6,9,12,18,24,36,48,54Mbps
- 11n(20MHz): MCS0-23 with Shout Guard Interval Support(up to 450Mbps)
- 11n(40MHz): MCS0-23 with Shout Guard Interval Support(up to 450Mbps)
- Reverse Direction Data Flow and Frame Aggregation
- WEP 64/128,WPA,WPA2,WAPI
- QoS-WMM, WMM-PS
- Multiple BSSID Support
- Bluetooth Co-existence
- Low Power with Advanced Power Management
- Tx Beam Forming
- PCI Express 1.1

### Security

- Complete Security Features - WEP 64/128, WPA, WPA2, 802.1x,and 802.11i
- Cisco CCX Compliant

### Certification

- Microsoft WHQL
- Wi-Fi Certification: 802.11 b/g/n, WPA, WPA2, WMM, WMM-PS

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### Channel assignment

#### 2,4 GHz Channel support

Channel	Channel frequency	FCC (US)	IC (CA)	ETSI (EU)	Japan JP)
1	2412 Mhz	x	x	x	x
2	2417 Mhz	x	x	x	x
3	2422 Mhz	x	x	x	x
4	2427 Mhz	x	x	x	x
5	2432 Mhz	x	x	x	x
6	2437 Mhz	x	x	x	x
7	2442 Mhz	x	x	x	x
8	2447 Mhz	x	x	x	x
9	2452 Mhz	x	x	x	x
10	2457 Mhz	x	x	x	x
11	2462 Mhz	x	x	x	x
12	2467 Mhz			x	x
13	2472 Mhz			x	x
14	2484 Mhz				x

#### 5 GHz Channel support

5 GHz Band	FCC (US)	IC (CA)	ETSI (EU)	Japan JP)
5150 - 5350 MHz	x	x	x	x
5470 - 5725 MHz	x	x*	x	x
5725 - 5850 MHz	x	x		

#### KEY:

US = United States, CA = Canada, EU = European Countries (except France and Spain) JP = Japan  
Many countries and region are currently revising the channel assignment.

X = Supported

\* 5600 - 5650 MHz interdict

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### RF characteristics

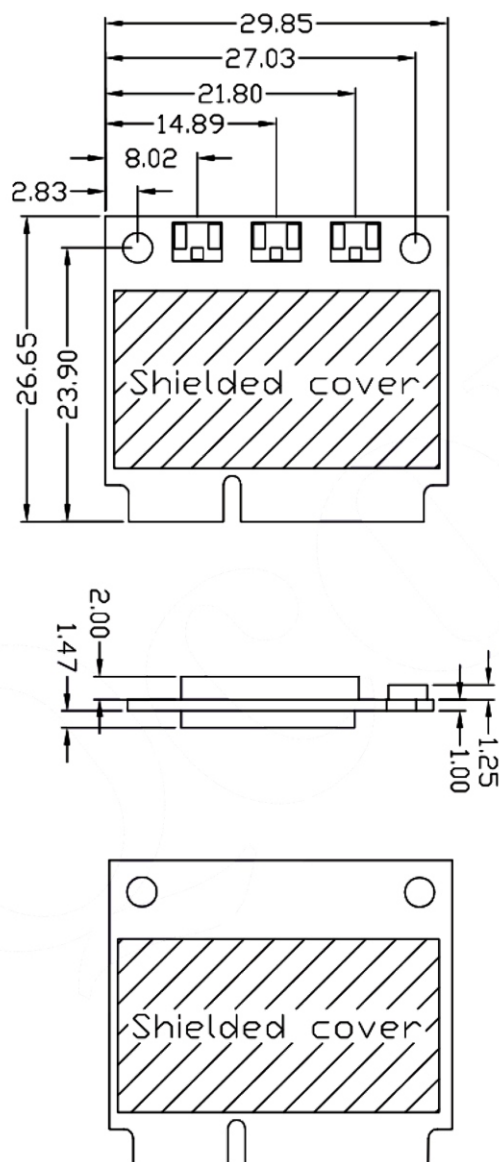
RF Characteristics	Minimum	Typical	Maximum	Units
PC Interface mechanical	Mini PCI Express			
Internal Antenna Impedance		50		ohms
Operating Temperature Range	0		65	°C
Storage Temperature Range	-20		85	°C
Supply Voltage	3,13	3,3	3,46	V
Transmit Continuance Packet Test(MAX)			970	mA
Receiver Continuance Packet Test(MAX)			600	mA
Module connect AP Current			220	mA
Radio off Current		36		mA
RX Sensitivity(11b,11 Mbps)		-85		dBm
RX Sensitivity(11g,54 Mbps)		-71		dBm
RX Sensitivity(11a,54 Mbps)		-70		dBm
RX Sensitivity (11n,450 Mbps)		-61		dBm
TX Output Power(11b,11M)		16		dBm
TX Output Power(11g, 54Mbps)		13		dBm
TX Output Power(11a, 54 Mbps)		11		dBm
TX Output Power(2,4 GHz 11n, MCS0)		17		dBm
TX Output Power(2,4 GHz 11n, MCS23)		13		dBm
TX Output Power(5 GHz 11n, MCS0)		15		dBm
TX Output Power(5 GHz 11n, MCS23)		11		dBm
TX Spectral Mask (CCK)		PASS		
TX Spectral Mask (OFDM)		PASS		
TX Spectral Mask (11n,20MHz)		PASS		
TX Spectral Mask (11n,40MHz)		PASS		
Preamble Length		Long/Short		

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## Mechanical drawing



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### Antenna connector

Connector	Vendor	Part#
Antenna x3	I-PEX, Hirose	I-PEX: 20279-00E-01 HIROSE: U.FL-R-SMT-1(10) or compliance

### Operating conditions

Voltage Range	3.3V +/-0.3V
Operating Temperature Range	0°C - 60°C
Storage Temperature Range	-20°C - 85°C
Relative Humidity during Operating	Max. 95% (Non-Condensing)
Relative Humidity during Storage	Max. 95% (Non-Condensing)

### LED status:

LED status	WLAN card activity
on	associated and authenticated but not transmitting or receiving
slow blink	scanning for AP
intermittent blink	activity proportional to transmitting/receiving speed
off	radio off

### Software & OS support

Operating System	Driver
Windows 2000	Available
Windows XP	Available
Windows Vista 32/64	Available
Windows 7 32/64	Available
WinCE 5.0 & 6.0	Available
Linux 2.4.x / 2.6.x	Available
MAC OS 10.3 & 10.4	Available

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### **WEEE note**

The WEEE (Waste Electrical and Electronic Equipment) directive, which came into force on 13 February 2003, lead to a comprehensive change in the disposal of used electric products. It is the main purpose of this directive to avoid electric waste products (WEEE), while simultaneously promoting the re-usage, recycling and other forms of reconditioning in order to reduce the amount of waste. The WEEE logo on the product and the package shows that the product should not be disposed of with regular garbage. You are responsible for disposing all used electric and electronic devices at the corresponding collection sites. The separate collection and meaningful re-usage of electronic waste helps to deal with natural resources more economically. In addition, re-using electronic waste contributes to the preservation of the environment and human health. Additional information regarding the disposal of electric and electronic devices, their re-usage and the collection sites can be found at your local authorities, disposal companies, specialist shops and the manufacturer of the product.

### **RoHS conformity**

This product complies with the directive 2002/95/EC of the European parliament and the council from January 27th 2003 concerning the restricted use of dangerous substances in electrical and electronical devices (RoHS) as well as its modification. This product complies with the directive 2011/65/EU which becomes effective from January 3rd 2013.



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### Support Delock

If you have further questions, please contact our customer support  
support@delock.de.

You can find current product information on our homepage: [www.delock.com](http://www.delock.com).

### Final clause

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Beeskowdamm 13/15, 14167 Berlin, Germany