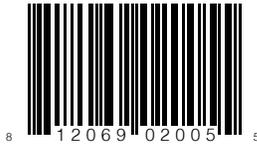


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MPN

**AEH-AR9462-LC**

UPC



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PRODUCT PAGE

EVALUATION / RFQ



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SAMPLES

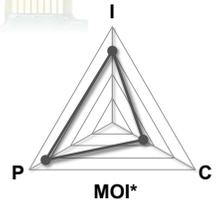


@OxfordTEC

# 300Mbps IEEE 802.11abgn two chain, dual band WLAN with Bluetooth 4.0 Low Energy Combo and WiFi Direct® & Miracast® - Half Size MiniPCI Express Module

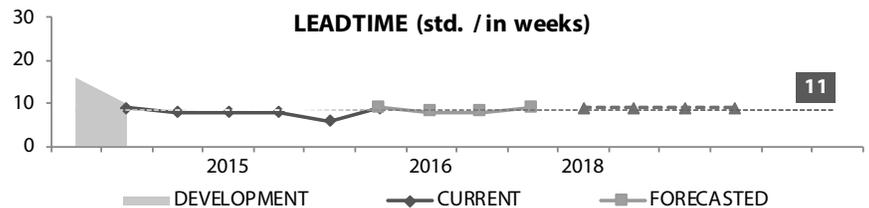
a.k.a. Atheros Reference Design WB222 (QCA P/N AR5B22)

## DATASHEET



B	B	A	3	2	3 weeks
TECHPOINT	LIFESPOT	VAROD	VERTICALS	DCO	ELT

\* Page 2 for key legend. Commercial data refresh: February 2018



End-of-life as of 2018-03-31  
End-of-support period 2019-03-31  
Replaced by LCB variant

End-of-Life: Replaced by LCB variant



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## Revision History

Releases	Date	Notes	Prepared	Approved
Version 1.0	2013/03/12	Standard Version Spec (w/o WoW)	Kuo	RChang
Version 1.1	2013/4/25	Update TX/RX data	Amos	RChang
Version 1.2	2013/06/15	Update General Specifications Add Module Photo	Wang	RChang
Version 1.3	2013/11/29	Added WiFi Direct Compliance	Kuo	LTu
Version 1.4	2014/03/10	Updated Standard Packaging. Added example / standard label in description.	Kuo	LTu
Version 1.5	2014/05/30	Aligned PID to Qualcomm-Atheros Added Market Orientation Index	James	LTu
Version 1.6	2014/07/07	Added Chipset Option Updated Bluetooth & Miracast® Compliance	James	LTu
Version 1.7	2015/01/16	Added Temperature Grade Option X Updated Mechanical Drawing	Paul/Chris	LTu
Version 1.8	2015/05/21	Corrected table: Connector Pin-out Definitions Temperature Range definition for Option X	Paul	LTu
Version 1.9	2015/06/19	Spellings and marketing collateral corrections	Chris	LTu
Version 1.10	2017/03/07	General document refresh Lifecycle Status updates reported on datasheet	Joanna	LTu



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End-Of-Life Replaced by LCB variant

## \* Commercial Key Legend

Indicators that assess the specific product for its position in the technology curve and the supply chain responsiveness it enjoys. They combine an inner-outer view: both from outside factors and from internal corporate and production support.

- MOI [Market Orientation Index]** A value calculated from the grading of the factors below. Used as a rule-of-thumb to aid design-in and procurement evaluation. MOI depicts the present product affinity to Innovation (I), Customer Empathy (C) and Price Focus (P).
- TECHPOINT** The position of the product within the specific technology-innovation curve for its class. VALUES: Advanced (A), Barring (B), Common (C), Dissolving (D).
- LIFESPOT** Estimated lifespan indicator. VALUES: Agonist (A), Bold (B), Current (C), Distressed (D); the earlier the letter the earlier the position in the specific product lifecycle.
- VAROD [Variants On-Demand]** An indicator of the depth and difficulties On-Demand product variations can reach and encounter. VALUES: Auxiliary (A), Basic (B), Core (C), Deep (D).
- VERTICALS** It is an index of the spread of product applications in different vertical markets. VALUES: 1 to 4; the more the target markets the higher the number, the less the product specificity to markets.
- DCO [Design Cost Orientation]** Commodity index related to the cost point for the product's design conception. VALUES: 1 to 4; the higher the number the more cost aware is the core design.
- ELT [Effective Lead Time]** Adjusted lead-time in weeks. This is a compound value based on the timeframe for the fulfillment of the 90% of unscheduled orders received accounting also for the industrial lead-time and internal inventory buffering. VALUE: number of ELT weeks.

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**300MBPS IEEE 802.11ABGN TWO CHAIN, DUAL BAND WLAN WITH BLUETOOTH 4.0 LOW ENERGY COMBO AND WIFI DIRECT® & MIRACAST® - HALF SIZE MINIPCI EXPRESS MODULE** **1**

**REVISION HISTORY** **2**

**\* COMMERCIAL KEY LEGEND** **3**

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## 1. Description

**Dual Band 11N + BT4.0:** The AEH-AR9462 module is a combo mPCI-E module, with both WLAN IEEE 802.11a/b/g/n and Bluetooth 4.0 SMART READY, including BLE and HS support, on the same single chip.

**Compliance:** With World level Regulatory Compliance and full compatibility with the latest industry standards like 802.11h regulatory adaptability, Wi-Fi Protected Setup™ via PIN and Push-Button (PBC), Passpoint™ and Voice protocols, the AEH-AR9462 provides a modern all-round solution at an optimal price point. Its Bluetooth system can be enabled and disabled independently, it uses the same antenna and it is fully compliant to BT4.0, 3.0HS & v2.1 that support EDR of 2Mbps and 3Mbps for data and audio communications.

**DirectConnect:** The AEH-AR9462 is WiFi Direct® & Miracast® Certified enabling easy direct connectivity and wireless display functionality with other compliant devices without the need of a wireless access point.

**Less Power - Longer Range:** A high level of integration and full implementation of power management functions specified in the AEH-AR9462 minimizes system power requirements. It conserves power with 1x1 downshift, using Dynamic MIMO, Power Save and low platform power with CoolMode. Unlike ordinary wireless networking technologies that are confused by signal reflections, the MIMO implementation in this module actually uses reflections to increase the range and reduce “dead spots” in the wireless coverage area.

## 2. Top Features



- Single Combo Wireless + BT 4.0 BLE coexistence Chip, Half Size Mini PCIe / USB Module
- Dual Band (DB) 2.4Ghz + 5 Ghz wireless connection up to 300Mbps
- Two antenna connectors for MIMO 2Tx2R (2 Transmit & 2 Receive) technology
- Lowest (best-in-class) power consumption
- Support for DirectConnect / Wi-Fi CERTIFIED Direct® and Miracast®
- Modular World Regulatory Certification (50+ domains)



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### 3. Specifications

SOLUTION DESIGN	<b>Chipset</b>	Qualcomm-Atheros combo AR9462-AL3A
	<b>Standard</b>	IEEE 802.11 a/b/g/n Wi-Fi / Bluetooth v4.0 Standard, V3.0+HS, V2.1+EDR
	<b>Industrial Reference</b>	Qualcomm Atheros reference design WB222 (QCA P/N AR5B22)
APPEARANCE	<b>Communications Interface</b>	WLAN via PCI Express Standard 1.1 host I/O Bluetooth via USB with connections mapped to assigned PCIE PINs
	<b>Form Factor</b>	Mini PCIE format, Half Size (length) of the standard mPCIE dimensions - Minicard
ANTENNA	<b>Configuration</b>	Two Streams (2 chains), 2x2, 2 Connectors, MIMO
	<b>Type</b>	I-PEX / U.FL connectors: CH0 for WLAN and BT co-existence – CH1 for WLAN
WIRELESS PARAMETERS	<b>Frequency Band</b>	WLAN: 2.4 GHz ISM Bands 2.412-2.472 GHz, 2.484 GHz 5.15-5.25 GHz (FCC UNII-low band) for US/Canada, Japan and Europe 5.25-5.35 GHz (FCC UNII-middle band) for US/Canada and Europe 5.47-5.725 GHz for Europe 5.725-5.825 GHz (FCC UNII-high band) for US/Canada  BT: 2402MHz~2483MHz
	<b>Data Transfer Rates</b>	WLAN 2.4GHz: 11n: Up to 300Mbps(dynamic) 11g: Up to 54Mbps(dynamic) 11b: Up to 11Mbps(dynamic) WLAN 5GHz: 11n: Up to 300Mbps(dynamic) 11a: Up to 54Mbps(dynamic)  BT: 1 Mbps, 2Mbps and Up to 3Mbps EDR)
	<b>Media Access Control</b>	CSMA/CA with ACK
	<b>Channel</b>	2.4GHz: 1-13 (14 only for Japan) 5GHz: 36-48 149-165 Supports Fast Channel Switch (FTS): 1ms within and 2ms across bands
	<b>Bandwidth Support</b>	5Mhz, 10Mhz, 20Mhz 40Mhz, 80Mhz
	<b>Channel Spacing</b>	5MHz

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<b>Spreading / Modulation</b>	WLAN 802.11a/g/n: OFDM 802.11b: CCK(11, 5.5Mbps), DQPSK(2Mbps), BPSK(1Mbps)  BT: Header GFSK Payload 2M: 4-DQPSK Payload 3M: 8DPSK						
<b>RF Output Power</b>	802.11a: Typical 11 dBm at 54M / 15dBm at 6M +/- 2dBm 802.11b: Typical 17dBm +/- 2 dBm 802.11g: Typical 15 dBm at 54M / 17dBm at 6M +/- 2dBm 802.11n 5G HT20 : Typical 9 dBm at MCS7 / 14dBm at MCS0 +/- 2dBm 802.11n 5G HT40 : Typical 9 dBm at MCS7 / 14dBm at MCS0 +/- 2dBm 802.11n 2.4G HT20 : Typical 14 dBm at MCS7 / 17dBm at MCS0 +/- 2dBm 802.11n 2.4G HT40 : Typical 14 dBm at MCS7 / 16dBm at MCS0 +/- 2dBm  BT: (Class 2 Device) -6 ≤ Output Power ≤ +7 dBm (Conductive)						
<b>RF Receive Sensitivity (Typical)</b>	802.11a: 54M less than 68 dBm 802.11b: 11M less than 78dBm 802.11g: 54M less than 68 dBm 802.11n 2.4G: HT20 MCS7 less than 64 dBm HT40 MCS7 less than 61 dBm 802.11n 5G: HT20 MCS7 less than 64 dBm HT40 MCS7 less than 61 dBm						
<b>Operating Range</b>	Open Space: ~300 m; Indoor: ~100 m (The transmission speed may vary according to the environment)						
<b>Wireless Security</b>	WEP 64-bit and 128-bit encryption WPA (Wi-Fi Protected Access) WPA2 (Wi-Fi Protected Access)						
<b>ADVANCED FEATURES</b>	MU-MIMO Client, 11n TxBF (Transmission Beamforming), STBC, Superior BT/WIFI Coexistence, LTE Coexistence, Spectrum Analysis, Channel Agility, Locationing, Traffic Classification, Congestion Control, Ultra-low Power Modes.						
<b>WORKING MODES</b>	Infrastructure, Client, Bridge, Ad-hoc, BT Stack Modes						
<b>SAFETY, EMISSION &amp; REGULATORY</b>	Pre-scan/scan reports on request following Atheros WB222 certifications. Almost 50 domain modular certification available, including FCC, CE, IC and TELEC (including optional MKK). Compliant with RoHS						
<b>PROTOCOLS</b>	<table border="0"> <tr> <td style="padding-right: 10px;"><b>IEEE WLAN Network</b></td> <td>802.11n, 802.11g, 802.11b, 802.11a, 802.11d, 802.11e, 802.11j and 802.11i</td> </tr> <tr> <td><b>Other Standards</b></td> <td>USB Bluetooth 4.0 : Low Energy (BLE), High Speed (BHS), Enhanced Data Rate (EDR)</td> </tr> <tr> <td><b>Industry Standards</b></td> <td>Wi-Fi CERTIFIED Direct®, Wi-Fi CERTIFIED Miracast®</td> </tr> </table>	<b>IEEE WLAN Network</b>	802.11n, 802.11g, 802.11b, 802.11a, 802.11d, 802.11e, 802.11j and 802.11i	<b>Other Standards</b>	USB Bluetooth 4.0 : Low Energy (BLE), High Speed (BHS), Enhanced Data Rate (EDR)	<b>Industry Standards</b>	Wi-Fi CERTIFIED Direct®, Wi-Fi CERTIFIED Miracast®
<b>IEEE WLAN Network</b>	802.11n, 802.11g, 802.11b, 802.11a, 802.11d, 802.11e, 802.11j and 802.11i						
<b>Other Standards</b>	USB Bluetooth 4.0 : Low Energy (BLE), High Speed (BHS), Enhanced Data Rate (EDR)						
<b>Industry Standards</b>	Wi-Fi CERTIFIED Direct®, Wi-Fi CERTIFIED Miracast®						

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HOST SYSTEM REQUIREMENTS	<b>Operating System</b>	WLAN: Windows (32 & 64 bits) XP/Vista/7/8, OSX, Linux, Chrome OS (Android) Bluetooth: Any upper layer Bluetooth stack. GNU/Linux BlueZ as the basis for its Bluetooth host stack.
	<b>Operating Temperature</b>	-0° ~ +80° Celsius
ENVIRONMENT	<b>Storage Temperature</b>	-40° ~ +85° Celsius
	<b>Operating Humidity</b>	10%~90% non-condensing
	<b>Storage Humidity</b>	5%~90% non-condensing
	<b>I/O Voltage</b>	3.3V +/-10%
ELECTRICAL	<b>Power Consumption</b>	WLAN: Transmit Packet Test HT 40*: 269.11 mA Receiver Packet Test HT 40*: 149.94 mA * Measurements with BT disabled, on DC battery power, Win7 x64 system.  BT: Transmit Packet: 41.5 mA Receiver Packet: 30.0 mA
	<b>Dimensions</b>	29.85mm x 26.65mm x 3.15mm (with shielding)
MECHANICAL	<b>Weight</b>	3.1 g
	<b>Packing style</b>	ESD Sleeves in Carton Box Package (optional: open plastic tray modality)
PACKAGING	<b>Package Contents</b>	AEH-AR9462-LC IEEE 802.11 a/b/g/n mPCI-E module

## 4. Ratings / Characteristics

### 4-1. Absolute Maximum Ratings

Symbol	Parameter	Max. Rating	Unit
V <sub>dd33</sub>	Maximum I/O supply voltage	3.63	V
RFin	Maximum RF input (reference to 50 Ω)	+10	dBm
T <sub>store</sub>	Storage temperature	-40~+90	°C

### 4-2. Recommended Operating Conditions

Symbol	Parameter	Rating	Unit
V <sub>dd33</sub>	I/O voltage	2.97~3.63	V

### 4-3. General DC Electrical Characteristics

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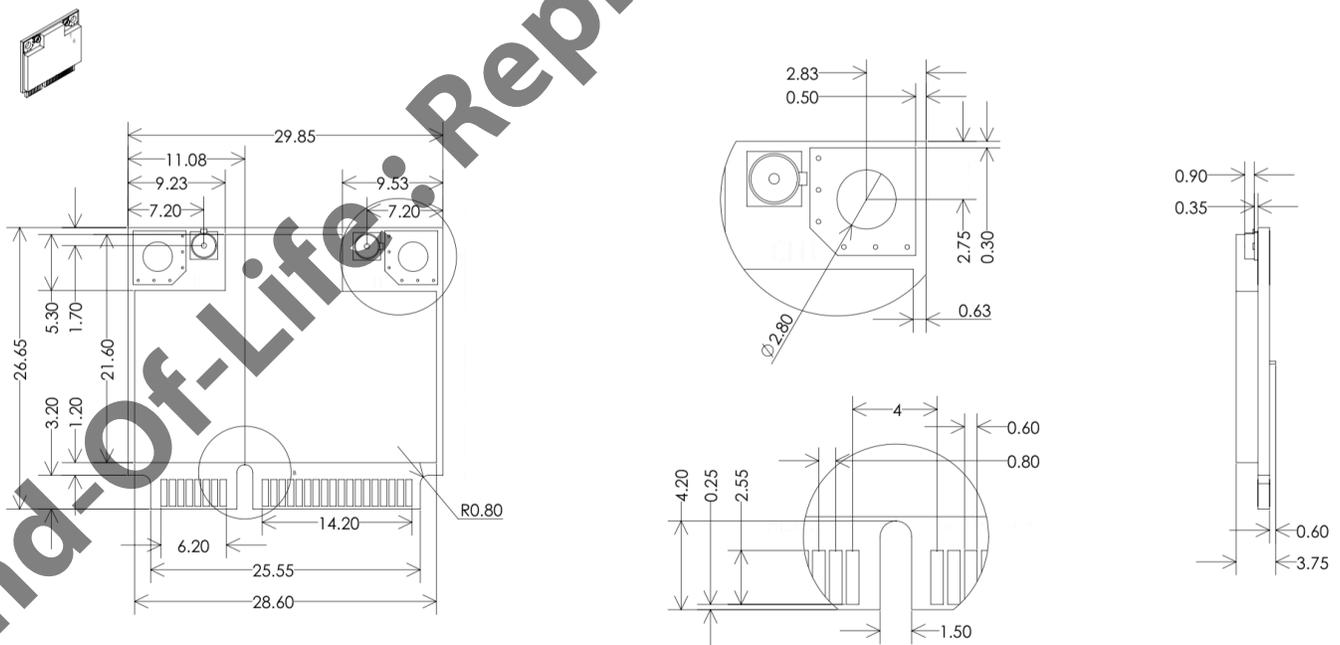
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Symbol	Parameter	Min. Rating	Max. Rating	Unit
V <sub>IH</sub>	High Level Input Voltage	1.9	3.6	V
V <sub>IL</sub>	Low Level Input Voltage	-	0.75	V
V <sub>CH</sub>	High Level Output Voltage	2.4	2.8	V
V <sub>CL</sub>	Low Level Output Voltage	0	0.1	V

#### 4-4. GPIO Interface Characteristics

Signal Name (To chip GPIO PIN)	Mini PCI-E PIN	Type	Driver	PU/DP Resistance
WLAN_LED	44	O	24 mA (Max)	None-PU
WLAN_DISABLE	20	I	-	100 KΩ PU

### 5. Mechanical Drawing



\* Measures in millimeters (mm). Tolerance below 0.15mm unless otherwise specified.

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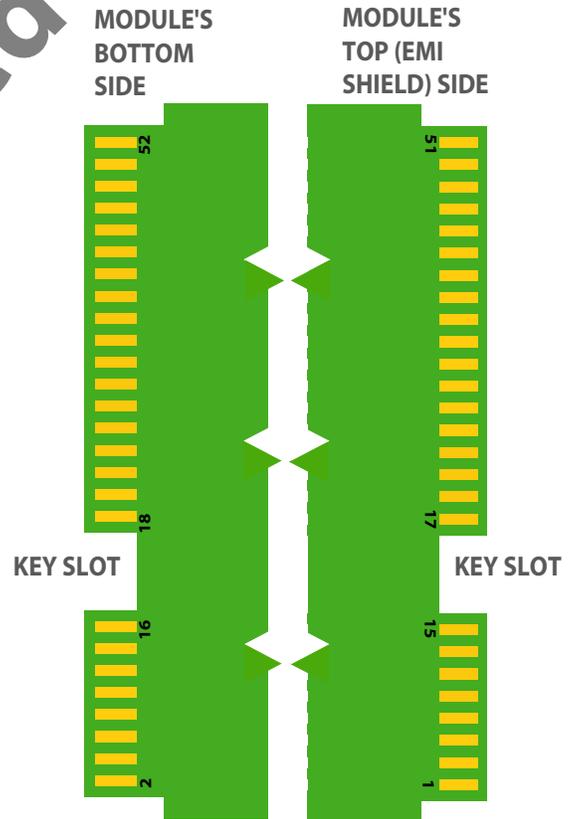
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## 6. Connector Pin-out Definitions

Pin #	Definition	Basic Description	Type
1	WAKE_L	No connect. Should be left open.	NC
2	3.3V	3.3V power supply	Power
4	GND	Ground	GND
5	BT_DISABLE	BT disable control. Low disable BT. Module P.U	Input
7	CLKREQ_L	Reference clock request.	Output
9	GND	Ground	GND
11	REFCLK-	Differential reference clock	Input
13	REFCLK+	Differential reference clock	Input
15	GND	Ground	GND
18	GND	Ground	GND
20	W_DISABLE_L	WLAN disable control. Low disable WLAN. Module P.U	Input
21	GND	Ground	GND
22	PERST_L	PCI express fundamental reset	Input
23	PERn0	Differential receive RX-	Input
25	PERp0	Differential receive RX+	Input
26	GND	Ground	GND
27	GND	Ground	GND
29	GND	Ground	GND
31	PETp0	Differential transmit TX+	Output
33	PETn0	Differential transmit TX-	Output
34	GND	Ground	GND
35	GND	Ground	GND
36	USB_D-	USB Differential signal	I/O
38	USB_D+	USB Differential signal	I/O
40	GND	Ground	GND
43	GND	Ground	GND
44	LED_WLAN_L	Active low signal. The signal is used to provide WLAN status indicators via LED.	Output
46	LED_WPAN_L	Active low signal. The signal is used to provide BT status indicators via LED.	Output
50	GND	Ground	GND
52	3.3V	3.3V power supply	Power

Interface type	Bus Signaling	Standard
PCIe (for WLAN and GPIO)	PCIe	PCI-SIG v1.1
USB (for Bluetooth)	USB	USB 2.0

\*Physical Layer Form Factor follows standard PCIe definitions. See graphic representation below.

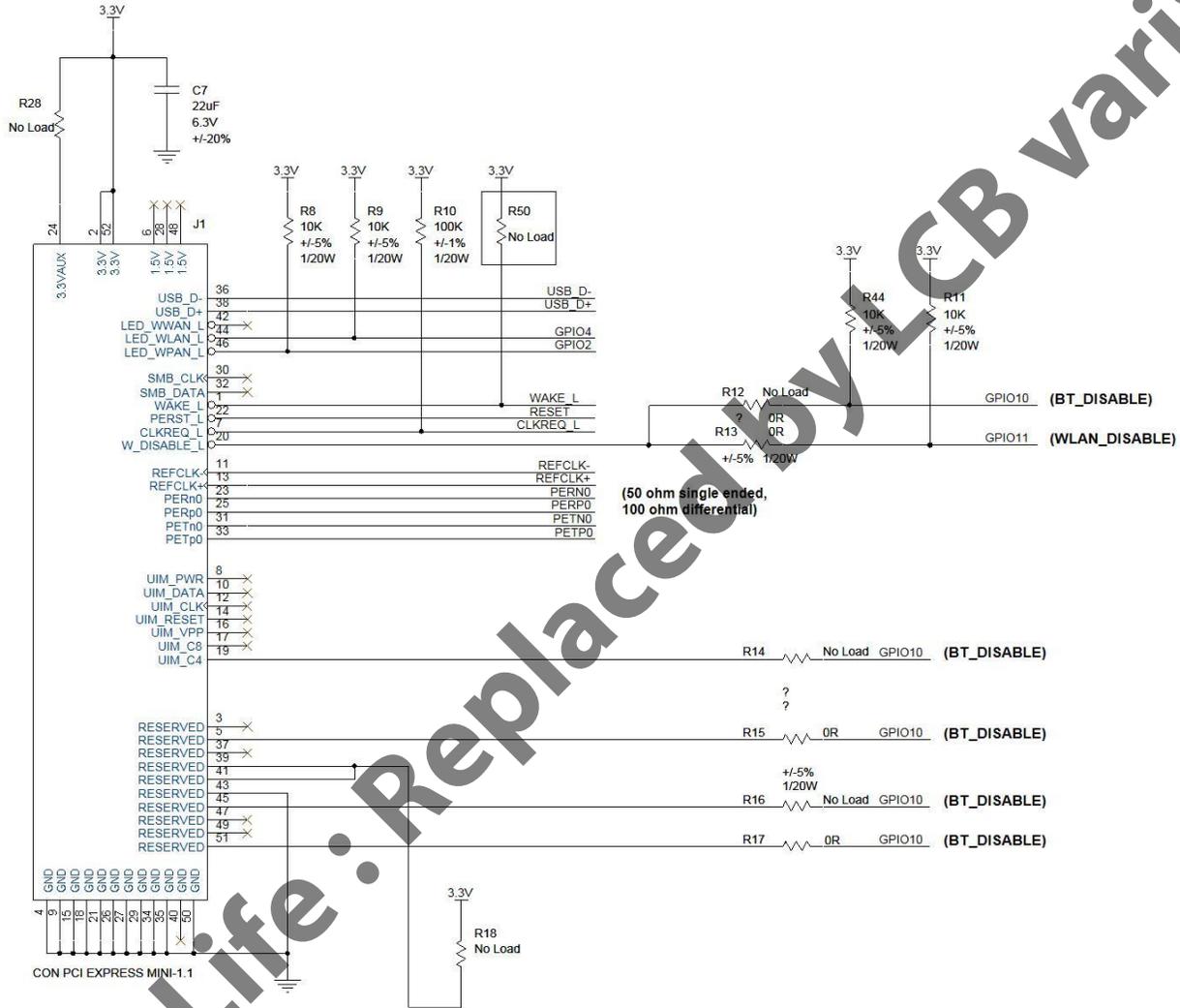


\*Pin/Contact Numbers not appearing in the above table are either reserved or unused.



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## 7. Connector Pin Assignment



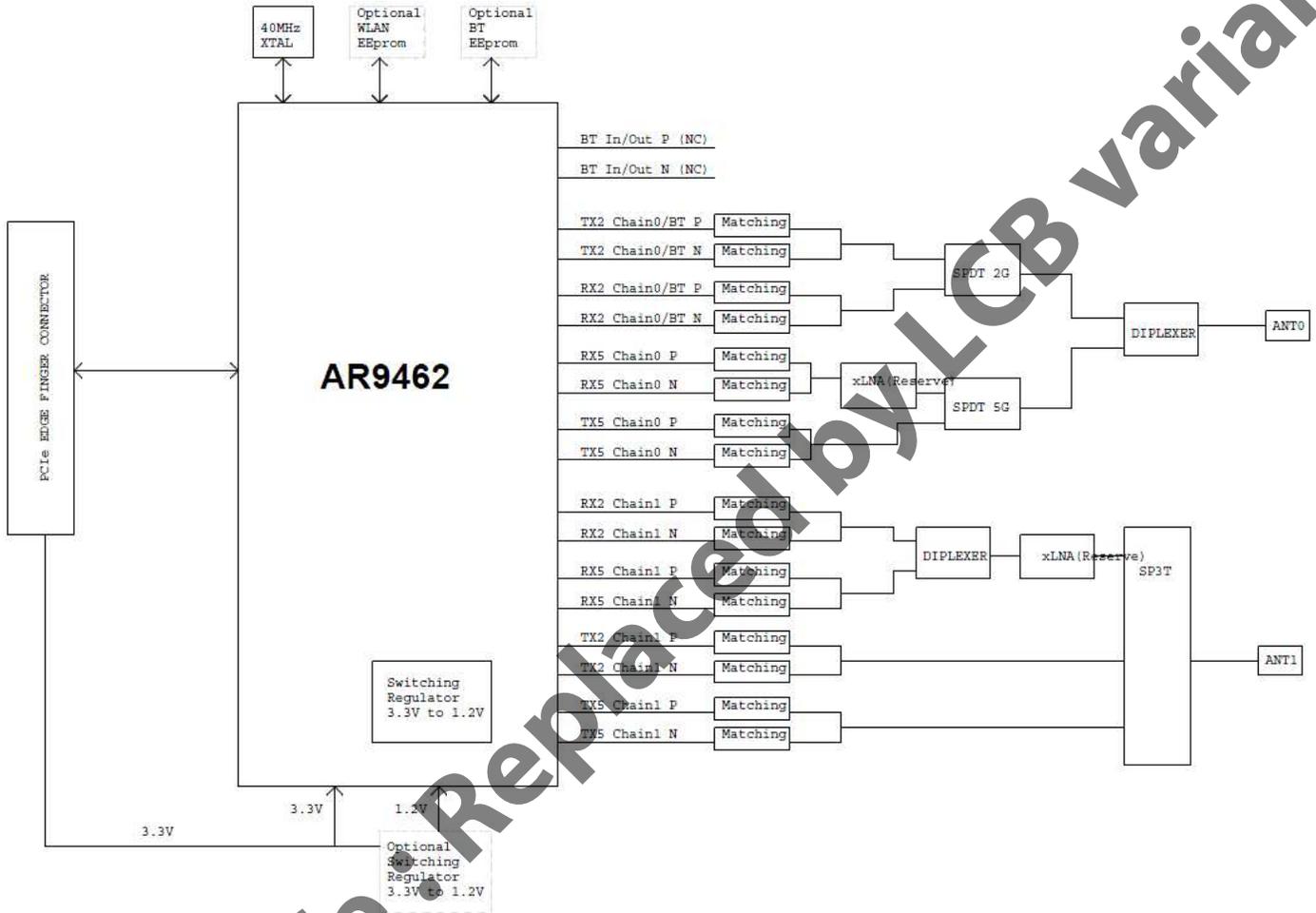
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## 8. Block Diagram



## 9. Environmental Performance Qualification

Throughput test at controlled thermal conditions with 70dB attenuation: TBC

## 10. Standard Domain Code & Identification

The Regulatory Domain pre-programmed as standard is 0x6C [wide open world mode].



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Other regulatory domain codes can be pre-programmed on-request at production batch level.

Implemented as standard are identifiers following Qualcomm Atheros WB222 (p/n AR5B22) reference design:

	Vendor ID (VID)	Subsystem Vendor ID (SVID)	Device ID (DID)	Subsystem ID (SSID)
<b>STANDARD WLAN</b>	0x168C	0x168C	0x0034	0x3117
<b>STANDARD BT</b>	0x3004	----	0x0CF3	----

## 11. Product Label

### 10-1. Front (Shield) Side Regulatory Label

Standard label is shown here. It pull-opens to reveal full content and it does include the required marking for the following regulatory areas: FCC (USA), ETSI (Europe), KCC (South Korea), TELEC (Japan), NCC (Taiwan), Industry Canada, China MIIT, ETA (India), TRA (UAE), ANATEL (Brazil), CNC (Argentina), RCPATAR (Mexico), ICASA (South Africa), C-TICK (Australia & New Zealand), SDPPI (Indonesia), NTC (Philippines), GOST-R (Russia), TKC (Ukraine), PTA (Pakistan), NTRA (Egypt), MOC 51-31312 (Israel).



### 10-2. Back (Flat) Side Labels

Standard label is shown here. It includes the required marking for the following regulatory areas: EU Safety & Environmental. Serial Numbers label (human legible and barcode) plus Variant Number.

Bluetooth MAC NIC ID label (human legible and barcode).

Wireless LAN NIC MAC ID label (human legible and barcode).



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### 10-3. On-Demand Labeling

Labels can be tailored to report customer’s part number and regulatory compliance following Qualcomm Atheros WB222 (p/n AR5B22) reference design certifications for any of the countries and domains required.

The full regulatory domain country list is available on request.

Regulatory documentation is available on request.

## 12. ESD Processes

See Notices appended.

## 13. Standard Packaging, Storage & Shipping

ESD Sleeve, Inner Box & Outer Carton level standard packing schematic \* :



	Module in ESD Sleeve	Inner Box Kit (K)	Master Carton (M)
CONTENT (UNITS)	1	60	960
INVENTORY SKU	AEH-AR9462-LC	AEH-AR9462-LC-K	AEH-AR9462-LC-M
OUTER DIMENSIONS	70 x 60 x 3.5 mm	204 x 165 x 65 mm	430 x 350 x 285 mm
GROSS WEIGHT	3.2 gr	350 gr	6000 gr
PICK & PACK METHOD	Padded envelope or carton box depending on quantity. Padded & separated.	In outer carton packaging.	As-is.

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PACKAGING COMPLIANCE **	ANSI/ESD S20.20, IEC 61340-5-1, RoHS2	RoHS2	RoHS2
HTS CODE (HS)	8517.62	8517.62	8517.62
NAFTA / ECCN	On request	On request	On request

\* Packaging modality and artwork can be designed as per customer’s requirements.

\*\* The Packaging modality and the selection of its materials is made with environmental responsibility and commitment to resource preservation. Please reuse and recycle where possible.

The AEH-AR9462 constitutes a sensitive electronic device and caution is required when handling it.

ESD handling, shipment and storage notices apply:



DO NOT OPEN OR HANDLE EXCEPT AT A STATIC-FREE WORKSTATION



DO NOT SHIP OR STORE NEAR STRONG ELECTROSTATIC, ELECTROMAGNETIC OR RADIOACTIVE FIELDS

## 14. Ordering Information

Public variants, their differential characteristics and ordering information:

	Ordering P/N	Variant IDs	Description
<b>STANDARD PRODUCT</b>	AEH-AR9462-LC	- /A / 00	- Standard product - Standard packaging



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## 15. NOTICES

**STORAGE:** The product shall be stored without opening the packing according to storage environmental conditions noted within this datasheet. - The product shall be stored in non corrosive gas (Cl<sub>2</sub>, NH<sub>3</sub>, SO<sub>2</sub>, Nox, etc.). - Any excess mechanical shock including, but not limited to, sticking the packing materials by sharp object and dropping the product, shall not be applied in order not to damage the packing materials.

**SHELVE LIFE:** Product left more than two years after reception needs to be confirmed to its specifications before use.

**HANDLING:** Be careful in handling or transporting products because excessive stress or mechanical shock may break products. - Handle with care if products may have cracks or damages on their terminals, the characteristics of products may change. Do not touch products with bare hands as such may result in electrostatic damage. - Since the application of static electricity or overvoltage may cause defect in the product or deterioration of its reliability, caution must be taken against exposure to any static electricity generated by electrified items such as workbenches, soldering irons, tools, carrying containers, etc.

**LAND PATTERN & DIMENSIONS:** All the ground terminals should be connected to the ground patterns. Furthermore, the ground pattern should be provided between IN and OUT terminals. Please refer to the specifications for the standard land dimensions.

**MECHANICAL PLACEMENT:** When mounting products connected to other components, products may be stressed and broken by uneven forces. To prevent products from damages, be sure to follow the specifications for the tools and interfaces being used.

**CLEANING:** Since this Product is Moisture Sensitive, any cleaning is not permitted.

**OPERATIONAL ENVIRONMENTAL CONDITIONS:** Products are designed to work for electronic products under normal environmental conditions (ambient temperature, humidity and pressure). If products are used under the following circumstances, it may damage products and leakage of electricity and abnormal temperature may occur:

- In an atmosphere containing corrosive gasses (Cl<sub>2</sub>, NH<sub>3</sub>, SO<sub>x</sub>, NO<sub>x</sub>) or combustible and volatile gases - Dusty place - Direct sunlight place - Water splashing place - Humid place where water condenses - Freezing place - etc.

If there are possibilities for products to be used under the preceding clause, consult with AIRETOS before actual use. As it might be a cause of degradation or destruction to apply static electricity to products, do not apply static electricity or excessive voltage while assembling and measuring.

**INPUT POWER CAPACITY:** Products shall be used in the input power capacity as specified in this specification. Discuss with AIRETOS beforehand, in need that the components are used beyond such input power capacity range.

**LIMITATION OF APPLICATIONS:** The product is designed and manufactured for consumer application only and is not available for any application listed below which requires especially high reliability for the prevention of such defect as may directly cause damage to the third party's life, body or property.

- Aircraft equipment - Aerospace equipment - Undersea equipment - Power plant control equipment - Medical equipment - Transportation equipment (vehicles, trains, ships, etc.) - Traffic signal equipment - Disaster prevention / crime prevention equipment - Data-processing equipment - Application of similar complexity and/or reliability requirements to the applications listed in the above.

In case the product is to be used in equipment or electric circuit that requires high safety or reliability function or performances, sufficient reliability evaluation check for safety shall be performed before commercial shipment and moreover, due consideration to install a protective circuit is strongly recommended at customer's design stage. Please provide and appropriate fail-safe function on your product to prevent any damages that may be caused by the abnormal function or the failure of our product.

**QUALITY CONTROL:** Testing and other quality control techniques are used to the extent AIRETOS deems necessary. Unless mandated by government requirements, AIRETOS does not necessarily test all parameters of each product.

**LIFECYCLE:** Please note that we may discontinue the manufacture of products, due to reasons such as end of supply of materials and/or components from our suppliers.

**CONFORMITY:** Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product. Please conduct validation and verification of the products in actual condition of mounting and operating environment before commercial shipment of the equipment. All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, under the condition and in the environment agreed upon between you and us. You are requested not to use our product deviating from such agreement. We consider it not appropriate to include other terms and conditions for transaction warranty in product specifications, drawings or other technical documents. Therefore, even if your original part of this product specification includes such terms and conditions as warranty clause, product liability clause, or intellectual property infringement liability clause, we are not able to accept such terms and conditions in this product specification unless they are based on the governmental regulation or what we have agreed otherwise in a separate contact. We would like to suggest that you propose to discuss them under negotiation of contract.

**DISCLAIMER:** Please note that the only warranty that AIRETOS (DBA part of the VoxMicro LTD Group) provides regarding the products is its conformance to the specifications provided herein. Accordingly, AIRETOS shall not be responsible for any defects in products or equipment incorporating such products, which are caused under the conditions other than those specified in this specification.

AIRETOS HEREBY DISCLAIMS ALL OTHER WARRANTIES REGARDING THE PRODUCTS, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, THAT THEY ARE DEFECT-FREE, OR AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. YOU AGREE TO INDEMNIFY AND DEFEND AIRETOS AND ITS AFFILIATES AGAINST ALL CLAIMS, DAMAGES, COSTS, AND EXPENSES THAT MAY BE INCURRED, INCLUDING WITHOUT LIMITATION, ATTORNEY FEES AND COSTS, DUE TO THE USE OF PRODUCTS.

AIRETOS's liability under this warranty shall be limited to products that are returned during the warranty period to the address designated by AIRETOS and that are determined by AIRETOS not to conform to such warranty. If AIRETOS elects to repair or replace such products, AIRETOS shall have reasonable time to repair such products or provide replacements. Repaired products shall be warranted for the remainder of the original warranty period. Replaced products shall be warranted for a new full warranty period.

For avoidance of doubt, AIRETOS shall not be liable for any defects that are caused by neglect, misuse or mistreatment by an entity other than AIRETOS including improper installation or testing, or for any products that have been altered or modified in any way by an entity other than AIRETOS. Moreover, AIRETOS shall not be liable for any defects that result from your or third party's design, specifications or instructions for such products.



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- 10 YEARS**

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  - OEM/ODM WIRELESS MODULE MARKET
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DECADES OF

  - CUMMILATIVE ENGINEERING EXPERIENCE
- Icon: People**

HUNDREDS OF

  - ROUTINE INDUSTRIAL CUSTOMERS
- Icon: Tuning Fork**

THOUSANDS OF

  - TUNING HOURS YEARLY
- Icon: Layers**

MILLIONS OF

  - INTERNAL AND EXTERNAL INVESTMENTS

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FOR FURTHER INFORMATION, DEVELOPMENT SAMPLES, CUSTOMIZATION AND VOLUME PRICING CONTACT US VIA [AIRETOS.COM](http://AIRETOS.COM) OR VIA THE VOXMICRO GROUP WHOLESALERS - FOR CONTACTS SEE [WWW.VOXMICRO.TEL](http://WWW.VOXMICRO.TEL)

