



# OEM/Integrators Installation Manual

Version 1.1

April 07. 2014

This document is confidential and subject to change

- 1. The RF module limited to OEM installation ONLY.
- The OEM integrator is responsible for the compliance to all the rules that apply to the product into which this certified RF module is integrated.
- 2. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- 3. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
- This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - – Reorient or relocate the receiving antenna.
  - – Increase the separation between the equipment and receiver.
  - – I Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - – I Consult the dealer or an experienced radio/TV technician for help.
- **FCC Caution**
  - Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or ransmitter.
- **Radiation Exposure Statement**
  - This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

- **This device is intended only for OEM integrators under the following conditions:**
- The antenna must be installed such that 20 cm is maintained between the antenna and users, and The transmitter module may not be co-located with any other transmitter or antenna. As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.
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- **IMPORTANT NOTE:**
- In the event that these conditions cannot be met (for example certain laptop configurations or colocation with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.
- **End Product Labeling**
- This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: “Contains FCC ID: ZD7-WiMi300”.
- The grantee's FCC ID can be used only when all FCC/ IC compliance requirements are met.
- **Manual Information To the End User**
- The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.
- The end user manual shall include all required regulatory information/warning as show in this manual.
- **Operations in 5.15-5.25GHz band are for indoor use only.**

# Features



## Key Features :

- *3x3 antenna Configuration*
- 802.11n Network Standards (HT 40 only)
- Modulation modes: BPSK, QPSK, 16QAM and 64QAM
- WPS Certified– Wireless Protected Setup for easy set up and security configuration
- Optimal channel selection and connection management
- *Seamless channel switch* under interference
- 40 MHz bandwidth support.
- 300MHz PHY Rate Support and STBC Support for Extended Range
- Antenna: 3x IPex Connectors (3T/3R) – U.FL
- MAC Filtering – No Restriction Mode, White List Mode, Black List Mode; Up to 32 connections
- WDS Enables network management units to collect statistics and manage the device remotely
- Support Low Power Mode

## Standard & Certifications:

- FCC
- RoHS Compliance

# Specification



Chipset	
Mac/BB Processor	Lantiq PSB8231
RF Chip	Lantiq PSB8301
Radio	
Standards	2009 IEEE 802.11a, IEEE 802.11n
Antenna U.FL	3 x IpeX Connectors (3T/3R)
RF connector impedance	50 ohm
Operating Frequency	802.11n : 5.190 ~ 5.230GHz, 5.755 ~ 5.795GHz
Modulation	IEEE 802.11n : OFDM
Certifications	
Output Power (Per Antenna @ -25dB EVM)	802.11n HT40 : 5.190 ~ 5.230GHz 17.0 +/- 1dBm (Avg) 5.755 ~ 5.795GHz 25.0 +/- 1dBm (PK)
Receive Sensitivity (PER <10%)	802.11a 64QAM 5/6 <= -75dBm
	802.11a BPSK 1/2 <= -88dBm
	802.11n HT40, 64QAM 5/6 <= -75dBm (@3 antennas)
	802.11n HT20, 64QAM 5/6 <= -78dBm (@3 antennas)
	802.11n HT40, BPSK 1/2 <= -92dBm (@3 antennas)
	802.11n HT20, BPSK 1/2 <= -94dBm (@3 antennas)
Receiver Max Power Sensitivity (PER < 10%)	-20dBm

# Specification



Power Supply		
Input Voltage / Average Power		3.3V / 5.5W
Environmental		
Output Power (Per Antenna @ -25dB EVM)	Temperature	Humidity
	0 ~ 50 °C	10% to 85% Non-Condensing
	-20 ~ 85 °C	5% to 90% Non-Condensing
Utility		
Driver Support		Linux 2.6.33
Wireless Statistics		Link quality, RSSI, noise level packet statistics
Dimensions		
Dimensions(PCBA)		50.95mm x 32 mm
Manufacturing compliant		Lead-free RoHS

# Specification

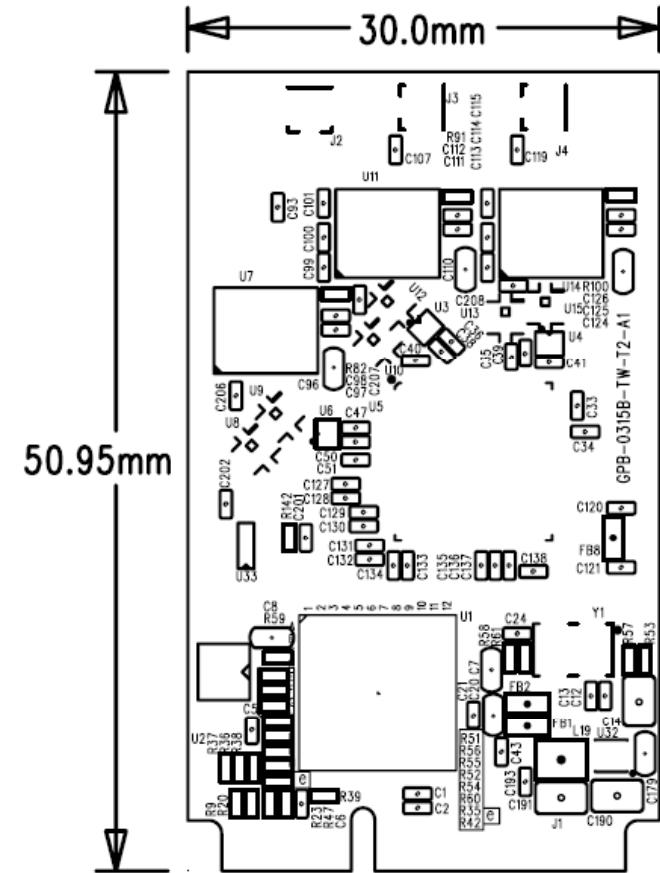
Power Supply		
Input Voltage / Average Power	3.3V / 5.5W	
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Output Power (Per Antenna @ -25dB EVM)	Temperature	Humidity
	0 ~ 50 °C	10% to 85% Non-Condensing
	-20 ~ 85 °C	5% to 90% Non-Condensing
Utility		
Driver Support	Linux 2.6.33	
Wireless Statistics	Link quality, RSSI, noise level packet statistics	
Dimensions		
Dimensions(PCBA)	50.95mm x 32 mm	
Manufacturing compliant	Lead-free RoHS	

# Mechanical Specification



### PCB Dimension:

- *Width : 30.0mm*
- *Height : 50.95mm*
- *Thickness : 1.0 mm*



- *PCB Form Factor complied with PCI express Mini Card Electromechanical Specification Rev 1.2(Oct. 26, 2007), Figure 2-3 : Full Mini Card*

# Pin Out Definitions – 1 of 2

Pin #	Name	Pin #	Name
51	Reserved	52	+3.3V aux
49	Reserved	50	GND
47	Reserved	48	+1.5V
45	Reserved	46	LED_WPAN#
43	GND	44	LED_WLAN#
41	+3.3V aux	42	LED_WWAN#
39	+3.3V aux	40	GND
37	GND	38	USB_Dp
35	GND	36	USB_Dn
33	PETp0	34	GND
31	PETn0	32	SMB_DATA
29	GND	30	SMB_CLK
27	GND	28	+1.5V
25	PERp0	26	GND
23	PERn0	24	+3.3V aux
21	GND	22	PERST#
19	Reserved	20	W_DISABLE#
17	Reserved	18	GND
Mechanical Key			
15	GND	16	Reserved

## Pin Out Definitions – 2 of 2

Pin #	Name	Pin #	Name
13	REFCLKp	14	Reserved
11	REFCLKn	12	Reserved
9	GND	10	Reserved
7	CLKREQ#	8	Reserved
5	Reserved	6	+1.5V
3	Reserved	4	GND
1	WAKE#	2	+3.3V aux

# Antenna Spec



Manufacturer : Antenna-pro [www.antenna-pro.com](http://www.antenna-pro.com)

Model NO. : KMDA5158-06SMA

Antenna Type : 2.4~5.8G Dual Band WiFi Dipole antenna

(4 dBi(2.4 GHz), 7 dBi(5 GHz))

Antenna connect : SMA (Male Rev)

