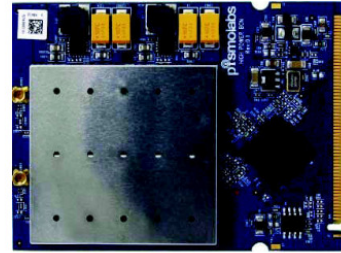


Pismolabs N Series

## Pismo N21 miniTPCI

High Power 2x2 802.11n MIMO  
Industrial Grade Operating Temperature



### Hardware Specification

Core Component	
WiFi Chipset	Atheros AR9220
Radio	2x2 MIMO 802.11 b/g/n
Interface	32Tbit miniTPCI
MMCX Connector	2
Operation	
Power Consumption	54Mbps (4.8W), MCS0 (4.8W), MCS15 (6W) [Continuous TX mode]
Temperature	T40°C to 65°C
Humidity	15 to 95%
Form Factor & Misc	
PCB	80mm x 60mm x 1.0mm
Certification	FCC, CE (100mW limited), RoHS

### Radio Specification

	Transmit Power, EVM	Receive Sensitivity
802.11b/g	27dBm@1T24Mbps, EVM < T16dB 26dBm@36Mbps, EVM < T19dB 25dBm@48Mbps, EVM < T22dB 24dBm@54Mbps, EVM < T25dB (+/T 2.0dB)	T92dBm@1Mbps T89dBm@11Mbps T92dBm@6Mbps T88dBm@24Mbps T84dBm@36Mbps T80dBm@48Mbps T78dBm@54Mbps (+/T 2.0dB)
2.4GHz 802.11n HT20	27dBm@MCS0/8, EVM < T5dB 27dBm@MCS1/9, EVM < T10dB 27dBm@MCS2/10, EVM < T13dB 27dBm@MCS3/11, EVM < T16dB 26dBm@MCS4/12, EVM < T19dB 25dBm@MCS5/13, EVM < T22dB 24dBm@MCS6/14, EVM < T25dB 23dBm@MCS7/15, EVM < T28dB (+/T 2.0dB)	T93dBm@MCS0/8 T92dBm@MCS1/9 T90dBm@MCS2/10 T86dBm@MCS3/11 T83dBm@MCS4/12 T78dBm@MCS5/13 T77dBm@MCS6/14 T75dBm@MCS7/15 (+/T 2.0dB)

<p>2.4GHz 802.11n HT40</p>	<p>27dBm@MCS0/8, EVM &lt; T5dB  27dBm@MCS1/9, EVM &lt; T10dB  27dBm@MCS2/10, EVM &lt; T13dB  27dBm@MCS3/11, EVM &lt; T16dB  26dBm@MCS4/12, EVM &lt; T19dB  25dBm@MCS5/13, EVM &lt; T22dB  24dBm@MCS6/14, EVM &lt; T25dB  23dBm@MCS7/15, EVM &lt; T28dB  (+/T 2.0dB)</p>	<p>T90dBm@MCS0/8  T89dBm@MCS1/9  T87dBm@MCS2/10  T84dBm@MCS3/11  T80dBm@MCS4/12  T75dBm@MCS5/13  T74dBm@MCS6/14  T72dBm@MCS7/15  (+/T 2.0dB)</p>
--------------------------------	---	--

## U.S. Regulatory Wireless Notice

### **Federal Communication Commission Interference Statement**

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 of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- 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 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.

**IMPORTANT NOTE:****FCC Radiation Exposure Statement:**

This module 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 antenna & the user and transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Or

This module should be installed and operated with minimum distance 35cm between the antenna & user when this transmitter can co-located with additional one WiFi module (FCC ID:U8G-P1121) and two LTE modules (FCC ID:N7NMC7355).

**This device is intended only for OEM integrators under the following conditions:**

- 1) 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,
- 2) The antenna must be installed such that 35 cm is maintained between the antenna and users, and transmitter can co-located with additional one WiFi module (FCC ID:U8G-P1121) and two LTE modules (FCC ID:N7NMC7355), (remark: other installation requirement of LTE module (FCC ID:N7MC7355) must follow its installation guidance)
- 3) For all products market in US, OEM has to limit the operation channels in CH1 to CH11 for 2.4G band by supplied firmware programming tool. OEM shall not supply any tool or info to the end-user regarding to Regulatory Domain change.

As long as 3 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

**IMPORTANT NOTE:** In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not 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**

If the module is used stand-alone and not co-located with other transmitter(s), the final end product must be labeled in a visible area with the following:

“Contains FCC ID: U8G-P1121”

or

If the module is used co-located with additional WiFi module(FCC ID:U8G-P1121) and two LTE modules (FCC ID N7NMC7355), the final end product must be labeled in a visible area with the following: (remark: other installation requirement of LTE module (FCC ID:N7MC7355) must follow its installation guidance)

“Contain FCC ID: U8GP1121”

“Contain FCC ID: N7NMC7355”

**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 and the minimum installation distance between the end product and the user as show in this manual.