WPEA-352ACN

PRODUCT INTRODUCTION

Antenna Type / connector Bus Interface PCI Express Form Factor Mini-PCIe 802.11b: from 1Mbps to 11Mbps 802.11a/g: from 6Mbps to 54Mbps 802.11n: from 6.5Mbps to 450Mbps(MCS 0-23) 802.11a: from 6.5Mbps to 1.3Gbps(MCS 0-9) 802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11a/g: OFDM (BPSK, QPSK, 16-QAM,64-QAM) 802.11a/g: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11a: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11a: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11a: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11a: 15dBm (BPSK,QPSK,16-QAM,64-QAM,84-	Standard	IEEE 802. 11ac/b/g/n		
Antenna Type / connector Bus Interface PCI Express Form Factor Mini-PCIe 802.11b: from 1Mbps to 11Mbps 802.11a: from 6.Mbps to 54Mbps 802.11a: from 6.5Mbps to 1.3Gbps(MCS 0-23) 802.11a: from 6.5Mbps to 1.3Gbps(MCS 0-9) 802.11b: DSSS (DBPSK, DQPSK, CCK) Spreading /Modulation 802.11a: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11a: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11a: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11a: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11a: 15dBm@54Mbps 802.11b: 18dBm@11Mbps 802.11b: 18dBm@11Mbps 802.11g: 15dBm@654Mbps 802.11g HT20: 13dBm@MCS7 802.11an HT20: 13dBm@MCS7 802.11an HT20: 13dBm@MCS7 802.11ar VHT80: 10dBm@MCS9 802.11a: <=-65dBm@54Mbps 802.11a: <=-65dBm@54Mbps 802.11a: <=-65dBm@64Mbps 802.11an HT40: <=-64dBm@MCS7 802.11an HT40: <=-64dBm@MCS7 802.11an HT40: <=-64dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS9 Operating Voltage 7 X Mode: TBD	Chipset solution			
Bus Interface	Radio stream [Note1]			
Mini-PCle	Antenna Type / connector	3 U.FL connectors		
B02.11b: from 1Mbps to 11Mbps	Bus Interface	PCI Express		
Boz.11a/g: from 6Mbps to 54Mbps	Form Factor	Mini-PCIe		
Bota Rate		802.11b: from 1Mbps to 11Mbps		
802.11n: from 6.5Mbps to 450Mbps(MCS 0-23) 802.11ac: from 6.5Mbps to 1.3Gbps(MCS 0-9) 802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11a/g: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11ac: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11ac: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11ac: OFDM (BPSK,QPSK,16-QAM,64-QAM, 256-QAM) 802.11ac: 11b/g/n: 2.400GHz ~ 2.4835GHz 5GHz: 11a/n: 5.150GHz ~ 5.850GHz 802.11a: 15dBm@54Mbps 802.11b: 18dBm@11Mbps 802.11g: 15dBm@54Mbps 802.11g: 15dBm@6CS7 802.11an HT20: 13dBm@MCS7 802.11an HT40: 13dBm@MCS7 802.11an HT40: 12dBm@MCS7 802.11an HT40: 12dBm@MCS9 802.11a: <=65dBm@54Mbps 802.11a: <=65dBm@54Mbps 802.11a: <=66dBm@11Mbps 802.11a: <=66dBm@6S4Mbps 802.11a: <=66dBm@MCS9 802.11a: <=66dBm@MCS9 802.11a: <=66dBm@MCS9 802.11a HT40: <=61dBm@MCS9 802.11an HT40: <=61dBm@MCS7 802.11an HT40: <=61dBm@MCS9 Operating Voltage 7X Mode: TBD	Data Data	802.11a/g: from 6Mbps to 54Mbps		
802.11b: DSSS (DBPSK, DQPSK, CCK) Spreading /Modulation 802.11a/g: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11a: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11a: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11a: OFDM (BPSK,QPSK,16-QAM,64-QAM, 256-QAM) 2.4GHz: 11b/g/n: 2.400GHz ~ 2.4835GHz 5GHz: 11a/n: 5.150GHz ~ 5.850GHz 802.11a: 15dBm@54Mbps 802.11b: 18dBm@11Mbps 802.11g: 15dBm@54Mbps 802.11g: 15dBm@654Mbps 802.11g: 17dBm@MCS7 802.11an HT20: 13dBm@MCS7 802.11an HT20: 13dBm@MCS7 802.11an HT20: 13dBm@MCS7 802.11an HT40: 12dBm@MCS7 802.11an VHT80: 10dBm@MCS9 802.11a: <=-65dBm@54Mbps 802.11a: <=-65dBm@54Mbps 802.11g: <=-65dBm@54Mbps 802.11g: <=-65dBm@54Mbps 802.11g: <=-65dBm@54Mbps 802.11g: <=-65dBm@54Mbps 802.11g: <=-65dBm@54Mbps 802.11g: <=-65dBm@64Mbps 802.11g: <=-65dBm@64Mbps 802.11g: <=-61dBm@MCS7 802.11g: HT20: <=-61dBm@MCS7 802.11g: HT20: <=-64dBm@MCS7 802.11g: HT20: <=-64dBm@MCS7 802.11g: HT20: <=-64dBm@MCS7 802.11g: HT20: <=-61dBm@MCS7 802.11g: HT20: <=-61dBm@MCS9 802.11g: HT20: HT20: <=-61dBm@MCS9 802.11g: HT20: HT20: HT20: HT20: HT20: HT20: HT20	Data Rate	802.11n: from 6.5Mbps to 450Mbps(MCS 0-23)		
Spreading /Modulation 802.11a/g: OFDM (BPSK,QPSK,16-QAM,64-QAM) Techniques 802.11n: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11ac: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11ac: OFDM (BPSK,QPSK,16-QAM,64-QAM) Frequency Range[Note2] 2.4GHz: 11b/g/n: 2.400GHz ~ 2.4835GHz 5GHz: 11a/n: 5.150GHz ~ 5.850GHz 802.11a: 15dBm@54Mbps 802.11b: 18dBm@54Mbps 802.11g: 15dBm@54Mbps 802.11g: 15dBm@54Mbps 802.11gn HT20: 13dBm@MCS7 802.11gn HT40: 13dBm@MCS7 802.11an HT40: 12dBm@MCS7 802.11ar VHT80: 10dBm@MCS9 802.11ac VHT80: 10dBm@MCS9 802.11g: <=-65dBm@54Mbps		802.11ac: from 6.5Mbps to 1.3Gbps(MCS 0-9)		
Receiver Sensitivity South Receiver Sensi		802.11b: DSSS (DBPSK, DQPSK, CCK)		
## 802.11ac: OFDM (BPSK,QPSK,16-QAM,64-QAM, 256-QAM) 2.4GHz: 11b/g/n: 2.400GHz ~ 2.4835GHz 5GHz: 11a/n: 5.150GHz ~ 5.850GHz 802.11a: 15dBm@54Mbps 802.11b: 18dBm@11Mbps 802.11g: 15dBm@54Mbps 802.11g: 15dBm@654Mbps 802.11gn HT20: 13dBm@MCS7 802.11an HT20: 13dBm@MCS7 802.11an HT40: 12dBm@MCS7 802.11an HT40: 12dBm@MCS7 802.11ac VHT80: 10dBm@MCS9 802.11a: <=-65dBm@54Mbps 802.11b: <=-76dBm@11Mbps 802.11g: <=-65dBm@54Mbps 802.11g: <=-65dBm@654Mbps 802.11gr +T-20: <64dBm@MCS7 802.11an HT40: <61dBm@MCS7 802.11an VHT80: <51dBm@MCS9 Operating Voltage TX Mode: TBD	Spreading /Modulation	802.11a/g: OFDM (BPSK,QPSK,16-QAM,64-QAM)		
2.4GHz: 11b/g/n: 2.400GHz ~ 2.4835GHz	Techniques	802.11n: OFDM (BPSK,QPSK,16-QAM,64-QAM)		
SGHz: 11a/n: 5.150GHz ~ 5.850GHz		802.11ac: OFDM (BPSK,QPSK,16-QAM,64-QAM, 256-QAM)		
\$6Hz: 11a/n: 5.150GHz ~ 5.850GHz 802.11a: 15dBm@54Mbps 802.11b: 18dBm@11Mbps 802.11g: 15dBm@54Mbps 802.11g: 15dBm@54Mbps 802.11gn HT20: 13dBm@MCS7 802.11gn HT40: 13dBm@MCS7 802.11an HT40: 13dBm@MCS7 802.11an HT40: 12dBm@MCS7 802.11an VHT80: 10dBm@MCS9 802.11a: <=-65dBm@54Mbps 802.11b: <=-76dBm@11Mbps 802.11g: <=-65dBm@54Mbps 802.11g: <=-65dBm@54Mbps 802.11g: <=-65dBm@MCS7 802.11gn HT20: <=-64dBm@MCS7 802.11gn HT40: <=-61dBm@MCS7 802.11gn HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an VHT80: <=-51dBm@MCS9 Operating Voltage 7X Mode: TBD	F	2.4GHz: 11b/g/n: 2.400GHz ~ 2.4835GHz		
## 802.11b: 18dBm@11Mbps ## 802.11g: 15dBm@54Mbps ## 802.11g: 15dBm@54Mbps ## 802.11g: 13dBm@MCS7 ## 802.11gn HT20: 13dBm@MCS7 ## 802.11an HT20: 13dBm@MCS7 ## 802.11an HT40: 12dBm@MCS7 ## 802.11ac VHT80: 10dBm@MCS9 ## 802.11ac VHT80: 10dBm@MCS9 ## 802.11b: <=-65dBm@54Mbps ## 802.11b: <=-76dBm@11Mbps ## 802.11g: <=-65dBm@54Mbps ## 802.11g: <=-65dBm@54Mbps ## 802.11g: <=-65dBm@54Mbps ## 802.11g: <=-61dBm@MCS7 ## 802.11gn HT20: <=-64dBm@MCS7 ## 802.11an HT20: <=-61dBm@MCS7 ## 802.11an HT40: <=-61dBm@MCS7 ## 802.11ac VHT80: <=-51dBm@MCS9	Frequency Range[Note2]	5GHz: 11a/n: 5.150GHz ~ 5.850GHz		
### Receiver Sensitivity 802.11g: 15dBm@54Mbps 802.11gn HT20: 13dBm@MCS7 802.11gn HT40: 13dBm@MCS7 802.11an HT40: 13dBm@MCS7 802.11an HT40: 12dBm@MCS7 802.11ac VHT80: 10dBm@MCS9 802.11ac VHT80: 10dBm@MCS9 802.11b: <=-65dBm@54Mbps 802.11b: <=-76dBm@11Mbps 802.11g: <=-65dBm@54Mbps 802.11g: <=-65dBm@MCS7 802.11gn HT20: <=-61dBm@MCS7 802.11gn HT40: <=-61dBm@MCS7 802.11an VHT80: <=-51dBm@MCS9 Operating Voltage		802.11a: 15dBm@54Mbps		
Transmit Output Power (Tolerance: +/-2dBm) 802.11gn HT20: 13dBm@MCS7 802.11an HT20: 13dBm@MCS7 802.11an HT40: 12dBm@MCS7 802.11ac VHT80: 10dBm@MCS9 802.11ac VHT80: 10dBm@MCS9 802.11b: <=-65dBm@54Mbps 802.11b: <=-76dBm@11Mbps 802.11g: <=-65dBm@54Mbps 802.11g: <=-65dBm@54Mbps 802.11gr HT20: <=-64dBm@MCS7 802.11gn HT20: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11ac VHT80: <=-51dBm@MCS9 Operating Voltage 7X Mode: TBD		802.11b: 18dBm@11Mbps		
(Tolerance: +/-2dBm) 802.11gn HT40: 13dBm@MCS7 802.11an HT20: 13dBm@MCS7 802.11an HT40: 12dBm@MCS9 802.11ac VHT80: 10dBm@MCS9 802.11a: <=-65dBm@54Mbps 802.11b: <=-76dBm@11Mbps 802.11g: <=-65dBm@54Mbps 802.11gn HT20: <=-64dBm@MCS7 802.11gn HT40: <=-61dBm@MCS7 802.11gn HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an VHT80: <=-51dBm@MCS9 Operating Voltage 7X Mode: TBD		802.11g: 15dBm@54Mbps		
802.11an HT20: 13dBm@MCS7 802.11an HT40: 12dBm@MCS7 802.11ac VHT80: 10dBm@MCS9 802.11a: <=-65dBm@54Mbps 802.11b: <=-76dBm@11Mbps 802.11g: <=-65dBm@54Mbps 802.11g: <=-65dBm@54Mbps 802.11gn HT20: <=-64dBm@MCS7 802.11gn HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an HT40: <=-51dBm@MCS7 802.11ac VHT80: <=-51dBm@MCS9 Operating Voltage 7X Mode: TBD	Transmit Output Power	802.11gn HT20: 13dBm@MCS7		
802.11an HT40: 12dBm@MCS7 802.11ac VHT80: 10dBm@MCS9 802.11a: <=-65dBm@54Mbps 802.11b: <=-76dBm@11Mbps 802.11g: <=-65dBm@54Mbps 802.11g: <=-65dBm@54Mbps 802.11gn HT20: <=-64dBm@MCS7 802.11gn HT40: <=-61dBm@MCS7 802.11an HT40: <=-64dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an VHT80: <=-61dBm@MCS7 802.11ac VHT80: <=-51dBm@MCS9 Operating Voltage 3.3 V TX Mode: TBD	(Tolerance: +/-2dBm)	802.11gn HT40: 13dBm@MCS7		
802.11ac VHT80: 10dBm@MCS9 802.11a: <=-65dBm@54Mbps 802.11b: <=-76dBm@11Mbps 802.11g: <=-65dBm@54Mbps 802.11g: <=-65dBm@54Mbps 802.11gn HT20: <=-64dBm@MCS7 802.11gn HT40: <=-61dBm@MCS7 802.11an HT20: <=-64dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11ac VHT80: <=-51dBm@MCS9 Operating Voltage 3.3 V TX Mode: TBD		802.11an HT20: 13dBm@MCS7		
802.11a: <=-65dBm@54Mbps 802.11b: <=-76dBm@11Mbps 802.11g: <=-65dBm@54Mbps 802.11g: <=-65dBm@54Mbps 802.11gn HT20: <=-64dBm@MCS7 802.11gn HT40: <=-61dBm@MCS7 802.11an HT20: <=-64dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11ac VHT80: <=-51dBm@MCS9 Operating Voltage 3.3 V TX Mode: TBD		802.11an HT40: 12dBm@MCS7		
802.11b: <=-76dBm@11Mbps 802.11g: <=-65dBm@54Mbps 802.11gn HT20: <=-64dBm@MCS7 802.11gn HT40: <=-61dBm@MCS7 802.11an HT20: <=-64dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11ac VHT80: <=-51dBm@MCS9 Operating Voltage 3.3 V TX Mode: TBD		802.11ac VHT80: 10dBm@MCS9		
802.11g: <=-65dBm@54Mbps 802.11gn HT20: <=-64dBm@MCS7 802.11gn HT40: <=-61dBm@MCS7 802.11an HT20: <=-64dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11ac VHT80: <=-51dBm@MCS9 Operating Voltage TX Mode: TBD TX Mode: TBD		802.11a: <=-65dBm@54Mbps		
Receiver Sensitivity 802.11gn HT20: <=-64dBm@MCS7		802.11b: <=-76dBm@11Mbps		
802.11gn HT40: <=-61dBm@MCS7 802.11an HT20: <=-64dBm@MCS7 802.11an HT40: <=-61dBm@MCS7 802.11ac VHT80: <=-51dBm@MCS9 Operating Voltage TX Mode: TBD TX Mode: TBD	Receiver Sensitivity	802.11g: <=-65dBm@54Mbps		
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802.11an HT40: <=-61dBm@MCS7 802.11ac VHT80: <=-51dBm@MCS9 Operating Voltage TX Mode: TBD TX Mode: TBD	·	802.11gn HT40: <=-61dBm@MCS7		
802.11ac VHT80: <=-51dBm@MCS9 Operating Voltage 3.3 V TX Mode: TBD		802.11an HT20: <=-64dBm@MCS7		
Operating Voltage 3.3 V TX Mode: TBD Power Consumption		802.11an HT40: <=-61dBm@MCS7		
TX Mode: TBD Power Consumption		802.11ac VHT80: <=-51dBm@MCS9		
Power Consumption	Operating Voltage	3.3 V		
FOWER CONSUMPLION	Dower Consumption	TX Mode: TBD		
KA MIOUE. I DD	rower Consumption	RX Mode: TBD		

Temperature Range	+0°C ~+40°C (Operating), -10°~+70°C (Storing)		
Humidity (non-condensing)	10~85 % (Operating), 5~90 % (Storing) [Note3]		
Security	WEP / WPA / WPA2, 802.1x		
OS supported	Linux		

Note:

- For Radio stream with diversity or MIMO design, all RF connectors on the module must be fitting
 - antennas in order to guarantee the module performance.
- 2. The frequency range is subject to local regulations.
- 3. The storing condition is only for product functionality, no included for parts appearance.

Antenna information

Antenna Model	Antenna Type	Connector	2400~2483.5MHz	5150~5250MHz
GEC6200	Dipole	RP-SMA Plug	3dbi	5dbi

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:

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 transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Country Code selection feature to be disabled for products marketed to the US/CANADA

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
- 2) The transmitter module may not be co-located with any other transmitter or antenna.
- 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 <u>transmitter</u> 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 <u>can not be met</u> (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID <u>can not</u> 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:RYK- WPEA352ACN".

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.