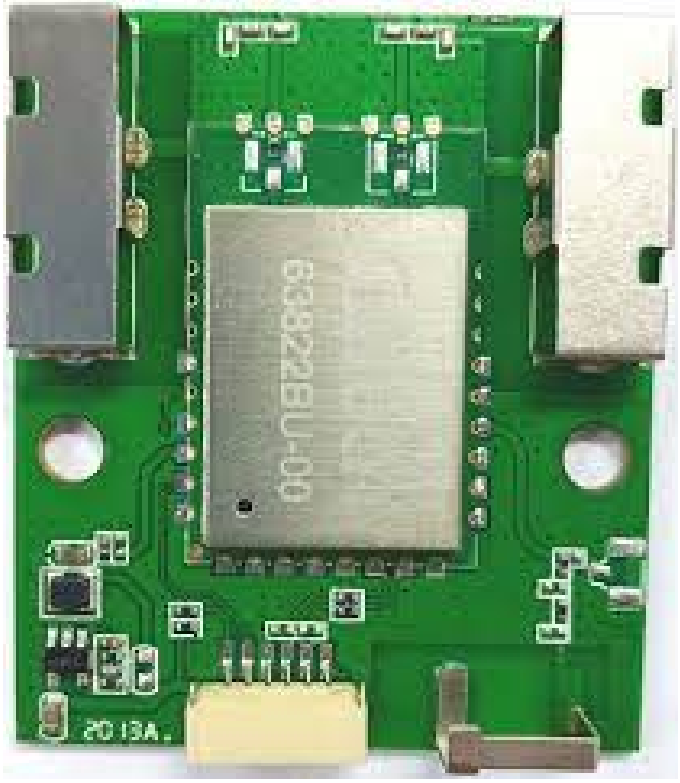
PANTUM CDW-G4822BU-01 WiFi Module User Manual

Contents

PANTUM CDW-G4822BU-01 WiFi Module



Overview

The CDW-G4822BU-01 is based on RTL8822BU-CG, which supports 2-stream 802.11ac solutions with multi-user MIMO (Multiple-Input, Multiple-Output) with Wireless LAN (WLAN) USB2.0 network interface controller. It combines a WLAN MAC, a 2T2R capable WLAN baseband, and RF in s single chip. The CDW-G4822BU-01 provides a complete solution for high-performance integrated wireless.

Features

- IEEE 802.11a/b/g/n/ac compatible WLAN
- 5MHz / 10MHz / 20MHz / 40MHz / 80MHz bandwidth transmission
- Complies with USB2.0 for WLAN controller
- Dual-band 2T2R mode with data rate up to 867Mbps
- Support 802.11ac 2×2, Wave-2 compliant with MU-MIMO
- Complete 802.11n MIMO solution for 2.4GHz and 5Ghz band
- Maximum PHY data rate up to 173.3 Mbps using 20MHz bandwidth,
- 400Mbps using 40MHz bandwidth, and 866.7Mbps using 80MHz bandwidth
- DSSS with DBPSK and DQPSK, CCK modulation with a long and short preamble, OFDM with BPSK, QPSK, 16QAM,64QAM and 256QAM modulation. Convolutional Coding Rate: 1/2, 2/3, 3/4,and 5/6
- Support STBC, Support LDPC
- Build-in both 2.4GHz and 5GHz PA, Build-in both 2.4GHz and 5GHz LNA
- Enhanced WLAN Coexistence Control to improve transmission quality in different profiles

Precautions

Pantum Regulatory Type/Model Number CDW-G4822BU-01; FCC ID:2AEGO4020WM 5G band I (5150-5350MHz) indoor use only. 5. Hereby, [Zhuhai Pantum Electronics Co., Ltd.] declares that the radio equipment

type [CDW-G4822BU-01] is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: **www.http:WWW.PANTUM.COM**

FCC regulatory compliance statement

Statement 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. §15.21 Information to user
Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

List of applicable FCC rules:

- 47 CFR Part 15, Subpart C 15.203
- 47 CFR Part 15, Subpart C 15.205
- 47 CFR Part 15, Subpart C 15.207
- 47 CFR Part 15, Subpart C 15.209
- 47 CFR Part 15, Subpart C 15.247
- 47 CFR Part 15, Subpart E 15.407

Summarize the specific operational use conditions
This module can be used in IoT devices, the input voltage to the module is nominally 5V. Only the embedded integral antenna is allowed. Any other external antenna is prohibited.

Limited module procedures
This module is not a limited module.
Trace antenna designs
The antenna is not a trace antenna.
RF exposure considerations
This Module complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Antennas
If you desire to increase antenna gain and either change antenna type or use the same antenna type certified, a Class II permissive change application is required to be filed by us, or you (host manufacturer) can take responsibility through the change in FCC ID (new application) procedure followed by a Class II permissive change application.
Label and compliance information
Please notice that if the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. following: "Contains FCC ID: 2AEGO4020WM" any similar wording that expresses the same meaning may be used. § 15.19 Labelling requirements shall comply on end-user device.
Labeling rules for a special device, please refer to §2.925, § 15.19 (a)(5), and relevant KDB publications. For E-label, please refer to §2.935.

Information on test modes and additional testing requirements
The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install-module. The module is limited to installation in mobile applications, a separate approval is required for all other operating configurations, including portable configurations with respect to §2.1093 and different antenna configurations.
Additional testing, Part 15 Subpart B disclaimer
This modular transmitter is only FCC authorized for the specific rule parts listed on our grant, host product

manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The host manufacturer in any case shall ensure host product that is installed and operating with the module is in compliance with Part 15B requirements. Please note that For a Class B or Class A digital device or peripheral, the instructions furnished in the user manual of the end-user product shall include the statement set out in. §15.105 Information to the user or such a similar statement and place it in a prominent location in the text of host product manual. Original texts as follows: For Class B
Note: 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.
- 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.

Frequency Band

Frequency Band:		
WiFi 2.4GHz:	2412MHz – 2462MHz	
WiFi 5GHz:	5180MHz – 5320MHz, 5500MHz – 5700MHz	
WiFi 5.8GHz:	5745MHz – 5825MHz	
maximum output power : (Declaration for EU Compliance)		
Radio	Frequency	Output Power
WLAN 2.4GHz	2412-2462MHz	18.58 dBm EIRP
WLAN 5GHz	5180-5320MHz 5500-5700MHz	20.48 dBm EIRP 21.73 dBm EIRP
WLAN 5.8GHz	5745-5825MHz	13.58 dBm EIRP

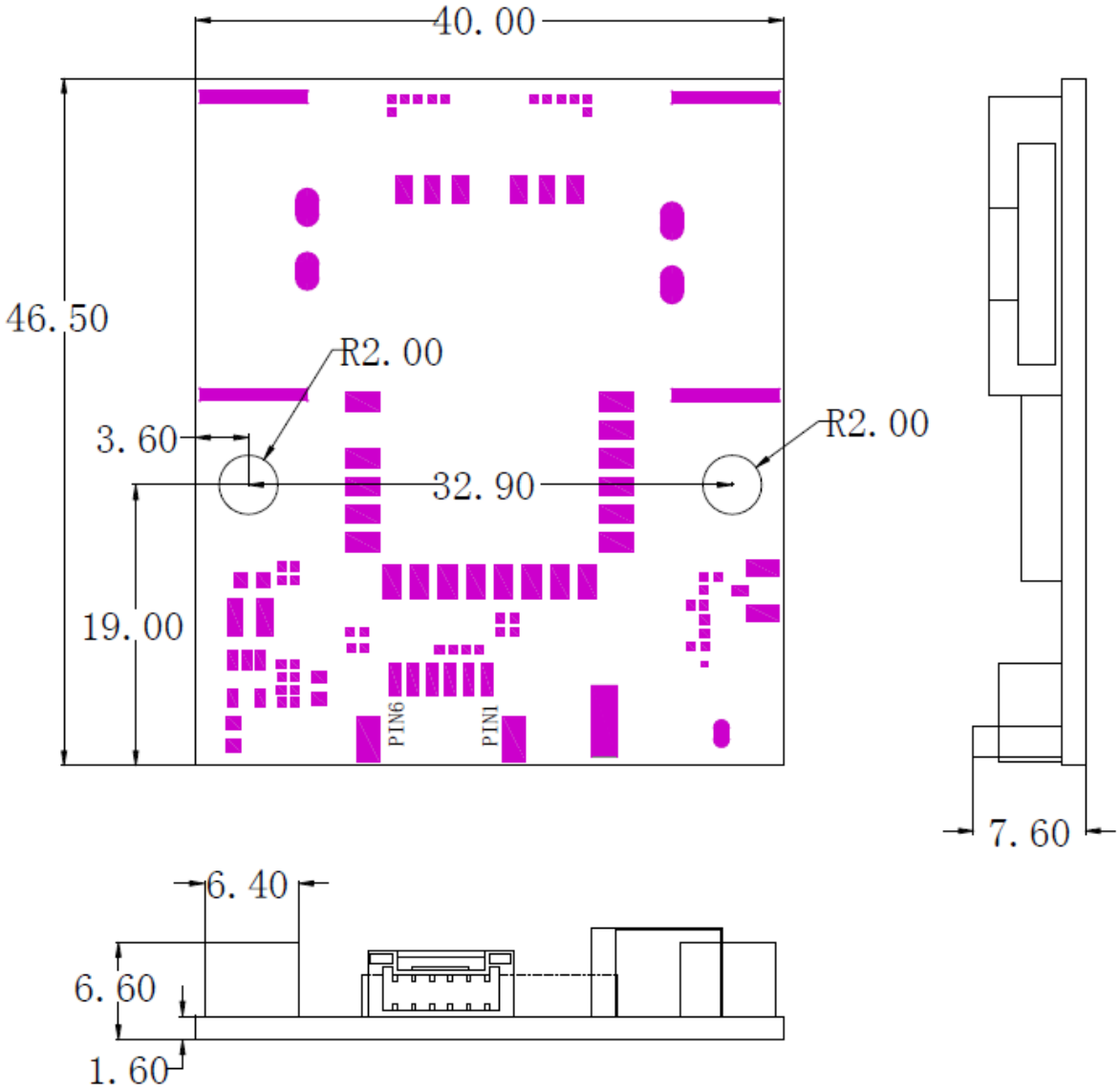
General Specification

Model	CDW-G4822BU-01
Product Name	WIFi 11a/b/g/n/ac 2T2R
Major Chipset	Realtek RTL8822BU-CG
Standard	IEEE 802.11a/b/g/n/ac
Data Transfer Rate	1,2,5.5,6,11,12,18,22,24,30,36,48,54,60, 90,120 and maximum of 867Mbps
Modulation Method	CCK//DBPSK/DQPSK/QPSK/16-QAM/ 64-QAM/256QAM
Frequency Band	2412MHz – 2462MHz,5180MHz – 5320MHz, 5500MHz -5700MHz,5745MHz – 5825MHz
Spread Spectrum	IEEE 802.11b: DSSS (Direct Sequence Spread Spectrum) IEEE802.11a/g/n/ac: OFDM (Orthogonal rthogonal Frequency Division Multiplexing)
Operation Mode	Ad hoc, Infrastructure
Antenna gain	2 dBi
Security	WEP, TKIP, AES, WPA, WPA2
Interface	USB 2.0
Operating Temperature	-20~ +70° C ambient temperature
Storage Temperature	-40 ~ 85°C ambient temperature
Humidity	5 to 90 % maximum (non-condensing)
Dimension	46.5x40x7.6mm (LxWxH)±0.2mm

DC Characteristics

Symbol	Parameter	Min.	Typ.	Max	Units
VD33	3.3V I/O supply Voltage	3.0	3.3	3.6	V
VD10	1.05V Core Supply Voltage	0.945	1.05	1.155	V
V_{IH}	Input high Voltage	2.0	3.3	3.6	V
V_{IL}	Input low Voltage	—	0	0.9	V
V_{OH}	output high Voltage	2.97	—	3.3	V
V_{OL}	output low Voltage	0	—	0.33	V

Dimension & Pin Assignments

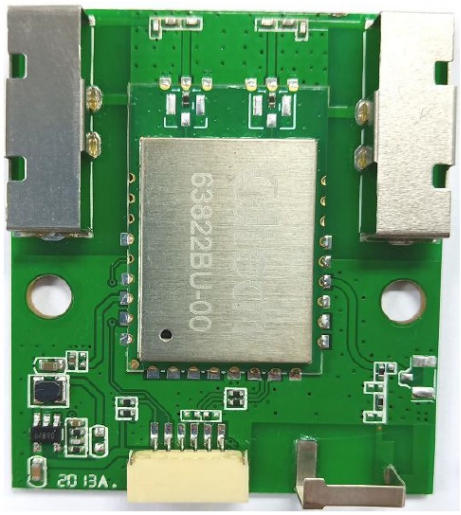
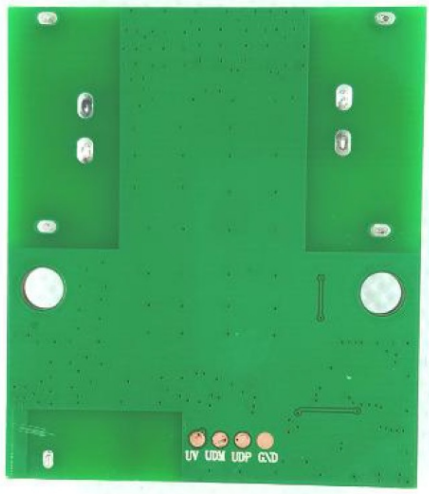


NO	Name	Type	Description
1	UV+	–	Power supply 5V is required MAX 5.5V
2	USB_DM	I/O	USB data-
3	USB_DP	I/O	USB data+
4	GND	–	Ground connections
5	BT_REG_ON	I	GPIO Control BT device enabled
6	ON/OFF	I	Control “EN” of DC-DC,High level (default)

Key material list

Type	P/N	supplier
Crystal	40Mhz	JWT FK , SFJ
WIFI IC	RTL8822BU	RTL
PCBA VER	63822BU G4822BU	A,O,S
JWT 40MHz 3225 FK 40MHz 3225 SFJ 40MHz 3225		

Modular photo

	
TOP VIEW	BOTTOM VIEW
Dimension	46.5x40x7.6mm (LxWxH)±0.2mm

Electrical Characteristics

GHz RF Specification

Feature	Description	
WLAN Standard	IEEE 802.11a/b/g/n/ac WiFi compliant	
Frequency Range	2.400 GHz ~ 2.497GHz (2.4 GHz ISM Band)	
Number of Channels	CH1-CH11(America, Canda),CH1-CH13(Europe,China),CH1-CH14(Japan)	
Modulation	802.11b : DQPSK, DBPSK, CCK 802.11 g/n : OFDM /64-QAM,16-QAM, QPSK, BPSK	
Receive Sensitivity (11b,20MHz) @8% PER	– 1Mbps	PER @ -93 dBm, typical
	– 2Mbps	PER @ -91 dBm, typical
	– 5.5Mbps	PER @ -88 dBm, typical
	– 11Mbps	PER @ -86 dBm, typical
Receive Sensitivity (11g,20MHz) @10% PER	– 6Mbps	PER @ -90 dBm, typical
	– 9Mbps	PER @ -89 dBm, typical
	– 12Mbps	PER @ -88 dBm, typical

	– 18Mbps	PER @ -85 dBm, typical
	– 24Mbps	PER @ -82 dBm, typical
	– 36Mbps	PER @ -79 dBm, typical
	– 48Mbps	PER @ -74 dBm, typical
	– 54Mbps	PER @ -72 dBm, typical
Receive Sensitivity (11n,20MHz) @ 10% PER	– MCS=0	PER @ -90 dBm, typical
	– MCS=1	PER @ -87 dBm, typical
	– MCS=2	PER @ -85 dBm, typical
	– MCS=3	PER @ -81 dBm, typical
	– MCS=4	PER @ -78 dBm, typical
	– MCS=5	PER @ -73 dBm, typical
	– MCS=6	PER @ -72 dBm, typical
	– MCS=7	PER @ -70 dBm, typical
Receive Sensitivity (11n,40MHz) @ 10% PER	– MCS=0	PER @ -87 dBm, typical
	– MCS=1	PER @ -84 dBm, typical
	– MCS=2	PER @ -82 dBm, typical
	– MCS=3	PER @ -79 dBm, typical
	– MCS=4	PER @ -75 dBm, typical
	– MCS=5	PER @ -71 dBm, typical
	– MCS=6	PER @ -69 dBm, typical
	– MCS=7	PER @ -68 dBm, typical
Maximum Input Level	802.11b : -10 dBm	
	802.11g/n : -20 dBm	

5GHz RF Specification

Feature	**Description**
WLAN Standard	IEEE 802.11a/n/ac 2×2, WiFi compliant
Frequency Range	5.15GHz ~ 5.35GHz 5.725GHz ~ 5.85GHz
Number of Channels	5.0GHz Please see the table
Modulation	802.11a : OFDM /64-QAM,16-QAM, QPSK, BPSK 802.11n : OFDM /64-QAM,16-QAM, QPSK, BPSK 802.11ac : OFDM /256-QAM

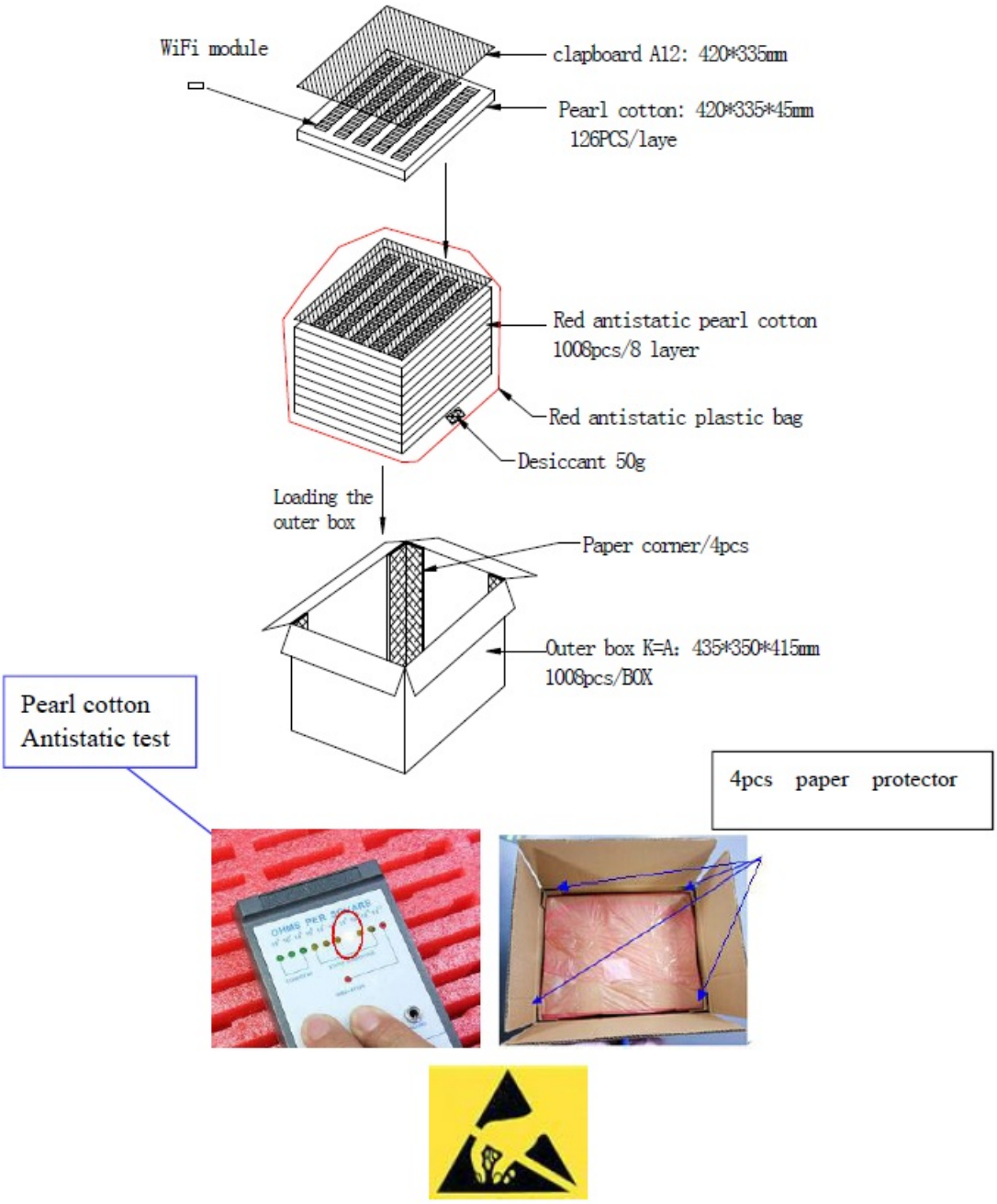
	– 6Mbps PER @ -89 dBm, typical

	– 9Mbps PER @ -88 dBm, typical
	– 12Mbps PER @ -87 dBm, typical
	– 18Mbps PER @ -84 dBm, typical
	– 24Mbps PER @ -81 dBm, typical
	– 36Mbps PER @ -78 dBm, typical
	– 48Mbps PER @ -73 dBm, typical
	– 54Mbps PER @ -72 dBm, typical
Receive Sensitivity (11n,20MHz) @10% PER	– MCS=0 PER @ -89 dBm, typical
	– MCS=1 PER @ -86 dBm, typical
	– MCS=2 PER @ -84 dBm, typical
	– MCS=3 PER @ -81 dBm, typical
	– MCS=4 PER @ -77 dBm, typical
	– MCS=5 PER @ -72 dBm, typical
	– MCS=6 PER @ -71 dBm, typical
	– MCS=7 PER @ -68 dBm, typical
Receive Sensitivity (11n,40MHz) @10% PER	– MCS=0 PER @ -86 dBm, typical
	– MCS=1 PER @ -83 dBm, typical
	– MCS=2 PER @ -81 dBm, typical
	– MCS=3 PER @ -78 dBm, typical
	– MCS=4 PER @ -74 dBm, typical
	– MCS=5 PER @ -70 dBm, typical
	– MCS=6 PER @ -68 dBm, typical
	– MCS=7 PER @ -67 dBm, typical
Receive Sensitivity (11ac,20MHz) @10% PER	– MCS=0, NSS1 PER @ -87 dBm, typical
	– MCS=1, NSS1 PER @ -85 dBm, typical
	– MCS=2, NSS1 PER @ -83 dBm, typical
	– MCS=3, NSS1 PER @ -80 dBm, typical
	– MCS=4, NSS1 PER @ -76 dBm, typical
	– MCS=5, NSS1 PER @ -71 dBm, typical
	– MCS=6, NSS1 PER @ -70 dBm, typical
	– MCS=7, NSS1 PER @ -69 dBm, typical

	– MCS=8, NSS1	PER @ -65 dBm, typical
	– MCS=0, NSS1	PER @ -85 dBm, typical
	– MCS=1, NSS1	PER @ -82 dBm, typical
	– MCS=2, NSS1	PER @ -80 dBm, typical
	– MCS=3, NSS1	PER @ -77 dBm, typical

	– MCS=4, NSS1	PER @ -74 dBm, typical
	– MCS=5, NSS1	PER @ -69 dBm, typical
	– MCS=6, NSS1	PER @ -68 dBm, typical
	– MCS=7, NSS1	PER @ -67 dBm, typical
	– MCS=8, NSS1	PER @ -62 dBm, typical
	– MCS=9, NSS1	PER @ -58 dBm, typical
Receive Sensitivity (11ac,80MHz) @10% PER	– MCS=0, NSS1	PER @ -82 dBm, typical
	– MCS=1, NSS1	PER @ -79 dBm, typical
	– MCS=2, NSS1	PER @ -77 dBm, typical
	– MCS=3, NSS1	PER @ -73 dBm, typical
	– MCS=4, NSS1	PER @ -70 dBm, typical
	– MCS=5, NSS1	PER @ -67 dBm, typical
	– MCS=6, NSS1	PER @ -65 dBm, typical
	– MCS=7, NSS1	PER @ -63 dBm, typical
	– MCS=8, NSS1	PER @ -59 dBm, typical
	– MCS=9, NSS1	PER @ -55 dBm, typical
Maximum Input Level	802.11a/n/ac : -20 dBm	

Packing information



ESD CAUTION

The CDW-G4822BU-01 is ESD (electrostatic discharge) sensitive device and may be damaged with ESD or spike voltage. Although CDW-G4822BU-01 is with built-in ESD protection circuitry, please handle with care to avoid the permanent malfunction or the performance degradation.

Documents / Resources

	PANTUM CDW-G4822BU-01 WiFi Module [pdf] User Manual 4020WM, 2AEGO4020WM, CDW-G4822BU-01 WiFi Module, WiFi Module