ZDC ZN-U9021

User's Manual

Copyright description

The company's user manual contains no explicit or implicit guarantees, including the sale or installation of a guarantee for a special purpose.

The company has the right to change or amend the manual without notice. Without the written permission of the company, any content of this manual shall be copied.

About this manual

Use this manual to install and use a wireless access point. This manual includes the configuration process and methods to help customers solve unforeseen problems.

In order to highlight some of the need to pay attention to the content, this manual uses the following special characters and styles to express:

Warning

Said there will be a potential risk operation will cause damage to the device hardware, data loss, equipment can not be normal use and other issues.

Be careful

To remind you that you have important information to remind you of your use of the equipment.

Bold: said there are important steps to set up the function or need your attention.

FCC Statement:　This device complies with Part 15 of the FCC rules.

Operation is subject to the following twoconditions:

1) this device may not cause harmful interference,

2) this device must acceptany interference received, including interference

　　that may cause undesired operation.

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

Note: This equipment has been tested and found to comply with the limits for a Class B digitaldevice, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonableprotection against harmful interference in a residential installation. This equipment generates, usesand can radiate radio frequency energy and, if not installed and used in accordance with theinstructions, may cause harmful interference to radio communications. However, there is noguarantee that interference will not occur in a particular installation. If this equipment does causeharmful interference to radio or television reception, which can be determined by turning theequipment off and on, the user is encouraged to try to correct the interference by one or more ofthe 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 isconnected.

—Consult the dealer or an experienced radio/TV technician for help.

SAR Statement

This Product meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies.The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. FCC RF Exposure Information and Statement the SAR limit of USA (FCC) is

1.6 W/kg averaged over one gram of tissue.Device PAU08 (FCC ID:

QISZN-U9021) has been tested against this SAR limit. SAR information on this

can be viewed

on-line at http://www.fcc.gov/oet/ea/fccid/. Please use the device FCC ID

number for search.This device was tested for typical

operations 5mm from the body. To maintain compliance with FCC RF

exposure requirements, 5mm separation distance should .

maintained to the user's bodies

Catalog

Chapter 1 Introduction to use

Install equipment

1、 the ZN-U9021 into the notebook or desktop USB interface;

2、 to ensure that the host is installed 10.04.4 Ubuntu system;

3、 in the system, in order to execute the following commands:

1). Install 2.6.34 kernel

    $ dpkg -i linux-headers-2.6.34-020634_2.6.34-020634.201502251850_all.deb

    $ dpkg -i linux-headers-2.6.34-020634-generic_2.6.34-020634.201502251850_i386.deb

    $ dpkg -i linux-image-2.6.34-020634-generic_2.6.34-020634.201502251850_i386.deb

2). reboot

3). check ubuntu kernel version

    $ uname -r

    2.6.34-020634-generic

4). Install packages show below

    $ sudo apt-get update

    $ sudo apt-get install bison

    $ sudo apt-get install flex

    $ sudo apt-get install gettext

    $ sudo apt-get install libncurses-dev

    $ sudo apt-get install uboot-mkimage

    $ sudo apt-get install sharutils

    $ sudo apt-get install build-essential

    $ sudo apt-get install tftpd

    $ sudo apt-get install texinfo

    $ sudo apt-get install tofrodos

    $ sudo apt-get install telnetd

    $ sudo apt-get install sysstat

    $ sudo apt-get install rpm

    $ sudo apt-get install wget

    $ sudo apt-get install bzip2

    $ sudo apt-get install fakeroot

    $ sudo apt-get install libncurses5-dev

    $ sudo apt-get install kernel-package

    $ sudo apt-get install zlib1g-dev

    $ sudo apt-get install libnl-dev

5). Enable TCMD, modify "WLAN-AIO/build/scripts/x86/config.x86"

    export DEF_CONFIG_NL80211_TESTMODE=y

6). Patch driver

    $ make BOARD_TYPE=x86 drivers_patch

7). Compile driver (root privilege)

$ export CONFIG_NL80211_TESTMODE=y

$ make BOARD_TYPE=x86

8). Create the folder "/lib/firmware/ath6k/AR6004/hw3.0" and copy bdata.bin, otp.bin, utf.bin
to there.

9). Check USB (like 0cf3:9375 Atheros Communications, Inc.)

$ lsusb

10). Insert modules

$ cd WLAN-AIO/rootfs-x86.build/lib/modules

$ insmod ./compat.ko

$ insmod ./cfg80211.ko

$ insmod ./ath6kl_usb.ko ath6kl_p2p=0 debug_quirks=0x10

11). Run TCMD

$ ./athtestcmd -i wlan0 --tx tx99 --txfreq 6 --txchain 1 --txrate 12 --mode ht20 --txpwr
10

12). Stop TCMD

$ ./athtestcmd -i wlan0 --tx off

Access LAN via AP

1、 in the operating system, into the corresponding folder directory:

2、 LS command to see the folder in the file, and the implementation of the test.sh
script file:

3、 when the screen shows the following contents of the command to perform
successfully:

4、 Use the iwconfig command to see if the device is connected to the AP:

```
root@liujiang-zdc:/home/liujiang/WLAN-AIO/rootfs-x86.build# iwconfig
lo         no wireless extensions.

eth0       no wireless extensions.

wlan0      IEEE 802.11abgn  ESSID:"ar9375_test"
           Mode:Managed  Frequency:2.462 GHz  Access Point: 30:49:3B:07:FE:19
           Bit Rate=26 Mb/s   Tx-Power=17 dBm
           Retry  long limit:7   RTS thr:off    Fragment thr:off
           Encryption key:off
           Power Management:on
           Link Quality=33/70  Signal level=-77 dBm
           Rx invalid nwid:0  Rx invalid crypt:0  Rx invalid frag:0
           Tx excessive retries:0  Invalid misc:0   Missed beacon:0

p2p0       IEEE 802.11abgn  ESSID:off/any
           Mode:Managed  Access Point: Not-Associated   Tx-Power=17 dBm
           Retry  long limit:7   RTS thr:off    Fragment thr:off
           Encryption key:off
           Power Management:on
```

5、 according to the actual need to modify the test.sh file, so that the device associated with different SSID, but also by modifying the wlan0 and eth0 port IP address and iptables configuration device to adapt to different network environment.

```
echo 1 > /proc/sys/net/ipv4/ip_forward
rmmod iwlagn
rmmod iwlcore
rmmod mac80211
rmmod cfg80211
insmod ./lib/modules/compat.ko
insmod ./lib/modules/cfg80211.ko
insmod ./lib/modules/ath6kl_usb.ko ath6kl_p2p=0x19 debug_quirks=0x200
service network-manager stop
apt-get remove network-manager
ifconfig wlan0 down
iwconfig wlan0 essid "ar9375_test"
ifconfig wlan0 192.168.2.200 up
ifconfig eth0 192.168.78.200 up
iptables -t nat -A POSTROUTING -s 192.168.78.0/24 -o wlan0 -j MASQUERADE
iptables -A FORWARD -i eth0 -j ACCEPT
```

PC access and run Chariot

1, will be installed with the Chariot software PC access equipment installed PC's cable network;

2. For example, the wlan0 address of the PC port of the device is 192.168.2.200/24, and the address of the eth0 port is 192.168.78.200/24;

3, the PC Chariot cable end to do the following settings:

Gateway: 192.168.78.200

4, and PC connected to the wlan0 network card to do the following settings:

IP:192.168.2.100/24

Gateway: 192.168.2.200

5, according to the above method, the two installed Chariot computer can carry on the rate test.

The second chapter is the function and performance specifications (the main parts specifications, system compatibility specifications)

Product label

Product specifications

Serial number	Project	Project description	Requirement specification
Main parts specifications			
1	Network adapter type		WIFI

Serial number	Project	Project description	Requirement specification
2	Outgoing port number		1
3	Outgoing port type		Wireless
4	Special specifications 1		Protocol compatible 802.11b/g/n
5	Special specifications 2		WiFi working band is 2.4G, the working channel is 1 to 13, a total of 13 channels. AP mode, when the WiFi is subject to the same frequency interference, support for automatic frequency hopping function.
6	Special specifications 3		Integrated antenna Antenna main direction parallel USB interface direction
7	Special specifications 4		The antenna efficiency is more than 20%, to air
8	Special specifications 5		The antenna VSWR is less than or equal to 4
9	Special specifications 6		Encryption mode: WPA/WPA2, WPA-PSK/WPA2-PSK (TKIP/AES)
10	Special specifications 7		The power consumption is less than 1.8W
11	Special specifications 8		Throughput rate: more than 5Mbit/s, @80 meters without shelter tug test, need to put the USB WiFi 3911E in the distance testing machine structure.

Serial number	Project	Project description	Requirement specification
12	Special specifications 9		Maximum Target Power for Production Unit 802.11b CH1~11: 17.5±1 dBm, CH12: 15±1 dBm, CH13: 13±1 dBm 802.11g CH1~11: 16±1 dBm, CH12: 13±1 dBm, CH13: 11±1 dBm 802.11n-HT20 CH1~11: 15±1 dBm, CH12: 13±1 dBm, CH13: 11±1 dBm
13	Special specifications 8		Receiving sensitivity: (Reference) 11b_1Mbps:-83dBm 11b_11Mbps:-76dBm 11g_6Mbps:-82dBm 11g_54Mbps:-65dBm 11n_HT20_MCS0:-82dBm 11n_HT20_MCS7:-64dBm

Serial number	Project	Project description	Requirement specification
14	Special specifications 9		Transmit spurious requirements: (WiFi antenna, conducting spurious test) $\leqslant$ -36dBm/MHz , @9KHz~700MHz； $\leqslant$ -97dBm/MHz , @700~1000MHz； $\leqslant$ -88dBm/MHz , @1000~1710MHz； $\leqslant$ -97dBm/MHz , @1710~2370MHz； $\leqslant$ -97dBm/MHz , @2500~2690MHz； $\leqslant$ -88dBm/MHz , @2690~3400MHz； $\leqslant$ -97dBm/MHz , @3400~3800MHz； $\leqslant$ -36dBm/MHz , @3.8~12.75GHz；

Serial number	Project	Project description	Requirement specification
15	Special specifications 10		Transmit spurious requirements: (WiFi antenna, conducting spurious test) ≤-36dBm/MHz, @9KHz~700MHz; ≤ -97dBm/MHz , @700~1000MHz; ≤ -88dBm/MHz , @1000~1710MHz; ≤ -97dBm/MHz , @1710~2370MHz; ≤ -97dBm/MHz , @2500~2690MHz; ≤ -88dBm/MHz , @2690~3400MHz; ≤ -97dBm/MHz , @3400~3800MHz; ≤ -36dBm/MHz , @3.8~12.75GHz;
16	Special specifications 11		Support AP mode
17	Special specifications 12		Easy to plug in narrow space
18	Optical module		Same encoding under different module driver to maintain the same
19	Physical size		No light module

Serial number	Project	Project description	Requirement specification
20	Physical interface		No light module Length: 40mm Width: 19mm High: less than 7mm Note: the above dimensions are included in the tolerance, and the USB connector is in the middle of the module.
21	Machine shell		1, USB 2 standard interface 2, the shape and size of the detailed requirements in the attachment: 《ZN-U9021.pdf》
22	Operating system		The outer plastic shell is required for easy operation.
23	Drive		Linux
24	Drive		Provides direct compiled source code to HUAWEI, can be directly compiled to the Linux system.

Second chapter quality and reliability specifications

Serial number	Project	Project description	Requirement specification
1	Device failure rate (FIT)	Required maximum device failure rate	100fit
2	Other	Consider the need to specify the indicators.	Life 8 years

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Serial number	Project	Project description	Requirement specification
1	Operating temperature range		-20 C ~ +70, note: this temperature range to ensure that the performance indicators meet the specifications. This temperature refers to the WiFi USB single plate temperature.
2	Temperature cycling		1 for /min, 2 for 3h, and for the extreme value
3	Storage temperature range		-40～+90℃
4	Working humidity range		10%～90%
5	Are required to meet the ROHS instruction	Refers to the material does not contain lead, mercury, cadmium, six valence chromium, more than 6 kinds of toxic substances, such as, poly methyl bromide, two kinds of toxic substances or to meet the requirements of the ROHS directive.	Need to meet

Chapter 1 The second chapter EMC and safety regulations

Serial number	Project	Project description	Requirement specification
1	Specifications	IEC specifications / UL specifications / other	Complete CE certification, provide certification report
2	Test report	Provided by the formal authority of the test room, preferably third party test report, including the corresponding standard requirements of all test items	Provide CE certification report
3	Reliability test		Reliability test report for -40~85

Fourth chapter product life cycle

Serial number	Project	Project description	Requirement specification
1	Product life cycle requirements	5 years or more	Over 5 years

Accessory：

1、the overall shape and size of the following requirements are as follows:

Appendix. National / regional and channel

Table 6 national / regional frequency division list

Country / Region	2.4G Band
Australia	1-13
Austria	1-13
Canada	1-11
China	1-13
Denmark	1-13
Finland	1-13
France	1-13
Germany	1-13
Hongkong	1-13
Iceland	1-13
Ireland	1-13
Italy	1-13
Japan	11g: 1-13 / 11b: 1-14
Liechtenstein	1-13
Luxemburg	1-13
Holland	1-13
New Zealand	1-13
Norway	1-13
Portugal	1-13
Singapore	1-13
Spain	1-13
Sweden	1-13
Switzerland	1-13
Taiwan	1-13
Britain	1-13
U.S.A	1-13