

WP8721 Access Point

LITE-ON

User Guide

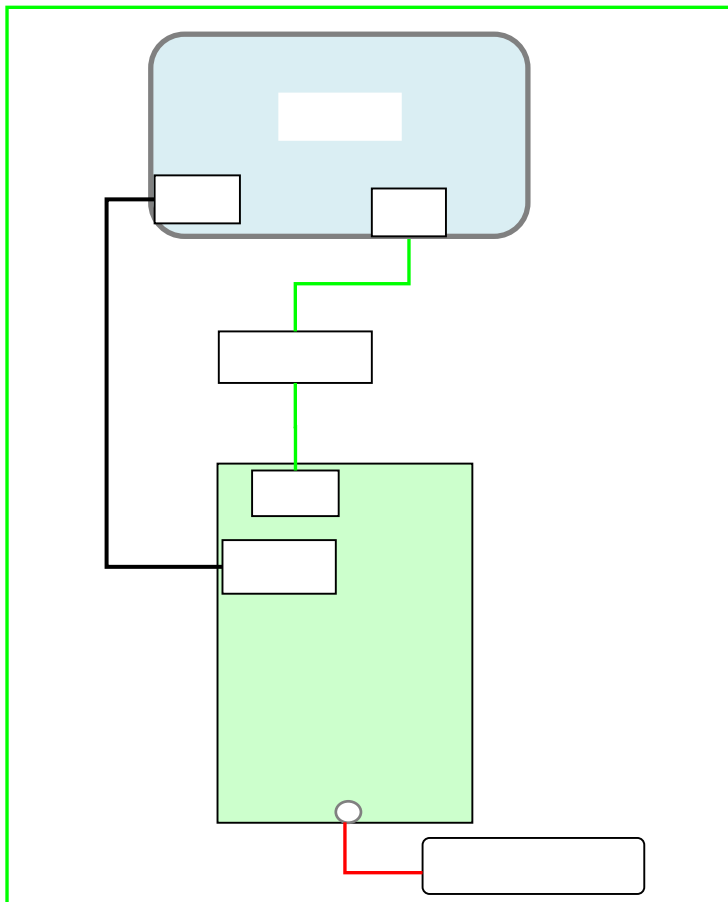
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1 Introduction

This document describes how to start RF test mode or AP mode, under test firmware.

1.1 Test Bench Setup



- 1) DUT software version: WP8721_TestFW_Rv0.0.3_20170524
- 2) COM port configuration:
Bits per second / Data bits / Parity / Stop bits / Flow control: 38400/8/None/1/None
- 3) Power adapter: 802.3at/af PoE or 12V DC
- 4) DUT default IP address: 192.168.1.254 in AP mode; 192.168.1.6 in RF test mode
- 5) Configure PC NIC IP address as 192.168.1.0 subnet, for example: 192.168.1.100.

2 RF Test Mode (by RealTek MPTool)

This chapter describes how to start RF test mode (especially continuous TX99 mode).

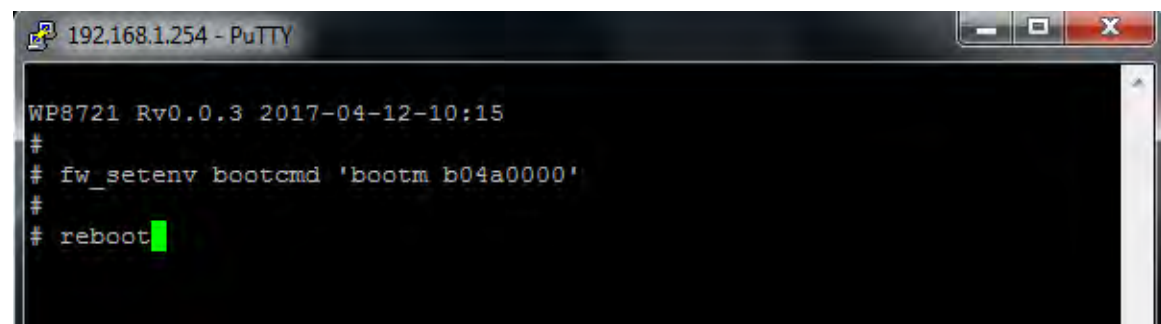
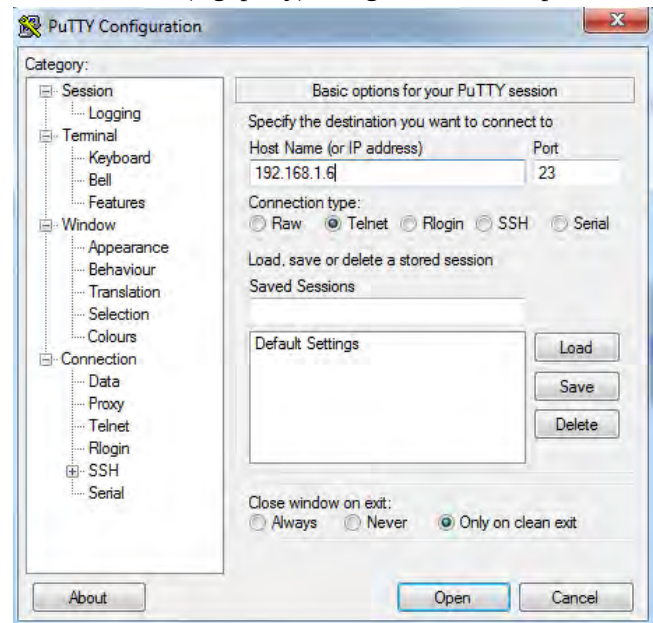
2.1 Switch from AP mode to RF test mode

Please the default mode is AP model, can be switched to RF test mode:

In Linux:

```
#  
# fw_setenv bootcmd 'bootm b04a0000'  
# reboot
```

Use telnet tool (e.g. putty) to login DUT and input command.



Or in u-boot (by serial console tool, e.g. putty):

```
8197F#
```

```
8197F# setenv bootcmd 'bootm b04a0000'; save; reset
8197F#
```

2.2 Run MP tool

Before running MP tool, make sure ping to 192.168.1.6 is OK.

Extract MP-Tool-v3.4-2016.0115.zip, run MP_TEST.exe.



00005076-MP-Tool-v3.4-2016.0115.zip

The screenshot shows the MP-Tool-v3.4-2016.0115 interface. The main window has tabs for General, Flash, and Flash_AC. The General tab is active, showing various configuration options. The IP address is set to 192.168.1.6. The IC Type is set to 97F + 8812. The Power Limit is set to 12. The RF Type is set to 81XXD. The RFE Type is set to RFE Type 1. The PA Type is set to PA Type 1. The Channel is set to 36. The Bandwidth is set to 20M. The GI is set to Long. The Power Index is set to 11. The RF test mode is selected. The serial terminal window shows the following output:

```
MAX_RX_BUF_LEN = 3000
eric-8822 [ODM_software_init][13462]
clock 40MHz
InitPON OK!!!
load efuse ok
rom_progress: 0x200006f
rom_progress: 0x400006f
InitMAC Page0
Init Download FW OK
halmac_init_mac_cfg OK
halmac_cfg_rx_aggregation OK
halmac_init_mac_cfg OK
[GetHwReg88XX][size PHY_REG_PG_8822Bmp_Type1]
[GetHwReg88XX][PHY_REG_PG_8822Bmp_Type1]
RL6302_MAC_PHY_Parameter_v018_20140708
[set_8822_trx_regs] +++
*****
**?2 efuse content 0x3D7 = 0xf6
!2 efuse content 0x3D8 = 0xf2
*****
Load Firmware Length=0?Enter testing mode
Enter test mode
wlanSupportAbility = 0x3
[97F] Bonding Type 97FS, PKGI
[97F] RFE type 0 PHY paramters: DEFAULT
eric-8822 [ODM_software_init][13462]
clock 40MHz
load efuse ok
rom_progress: 0x200006f
rom_progress: 0x400006f
[GetHwReg88XX][PHY_REG_PG_8197Fmp_Type0] size
[GetHwReg88XX][PHY_REG_PG_8197Fmp_Type0]
[GetHwReg88XX][rt18197Ffw]
[GetHwReg88XX][rt18197Ffw size]
[97F] default BB Swing=30
length=0?Enter testing mode
```

Note:

1. DUT IP address is 192.168.1.6 in RF test mode.

2.3 Continuous Tx

As shown in the bellow figure:

Dev, channel, bandwidth and ant can be changed. Then click Start to Tx continuously .

The screenshot shows the configuration window for the RTL8822B chip. Key sections include:

- General:** Displays 'WLAN0 : RTL8822B' and 'WLAN1 : RTL8197F'.
- Connection:** IP address 192.168.1.6, IC Type 97F + 8812.
- Test Setting:** Includes checkboxes for 'Infinitely Packet', 'Silent Mode', 'Enable DIG', 'Enable KFree', and 'Hardware TX Push'. A 'Start' button is highlighted with a red box.
- Power Tracking:** PG thermal, Current thermal, Tracking On/Off, and Read button.
- Statistics:** Tx/Rx Count for Wlan0 and Wlan1, Rx OK, Rx Error, and Reset button.
- Initial Gain Value:** A/B buttons and Read button.
- MAC:** Rx OK, Rx Error, and PHY buttons.
- Register Read/Write:** BB/RF, RF, Offset, and Value fields with Read/Write buttons.
- Continuous Monitor:** Enable Monitor checkbox, BB/RF, RF, Offset, and Value fields.
- HW Tx Configuration:** STBC, LDPC, Period, and Pattern settings.
- Tx Power Limit:** Tx Power Limit, Load Table, Antenna, TxPowerLimit, Region domain, and Limit Power (CCK, OFDM, HT1S, HT2S, HT3S, HT4S).
- Power by Rate Table:** Power by rate, Path, Apply Rx Gain, Load Power by Rate Table, and Get_From_Flash button.
- Rate Table:** A grid showing MCS values for different bandwidths (1M to 54M) and modulation schemes (CCK, OFDM, HT).

Red boxes highlight the following settings:

- Dev:** WLAN0
- Channel:** 36
- Bandwidth:** 20M
- Ant:** A

Note:

- 5G Wireless interface is wlan0; 2.4G Wireless interface is wlan1.
- Ant: A: chain-0; B: chain-1; A+B: chain0+1.

3 AP mode

3.1 Switch from RF test mode to AP mode

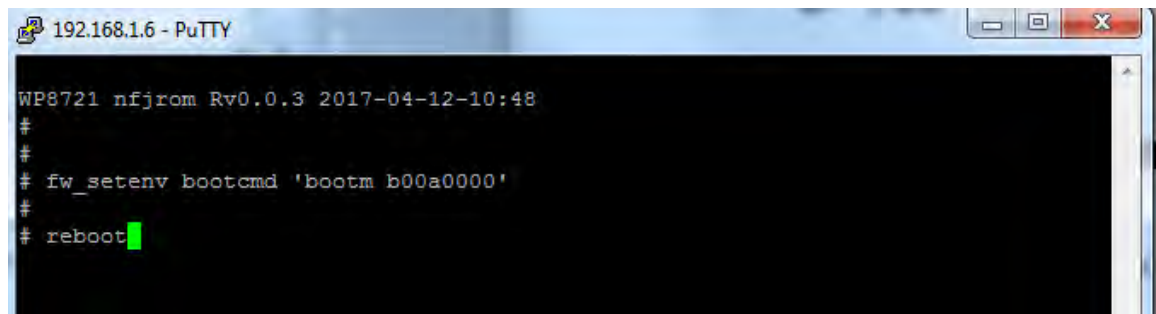
If current mode is RF test mode, can be switch to AP mode by bellow command. Please note the default mode is AP.

In Linux:

```
#
# fw_setenv bootcmd 'bootm b00a0000'
```

```
# reboot
#
```

Telnet login to 192.168.1.6:



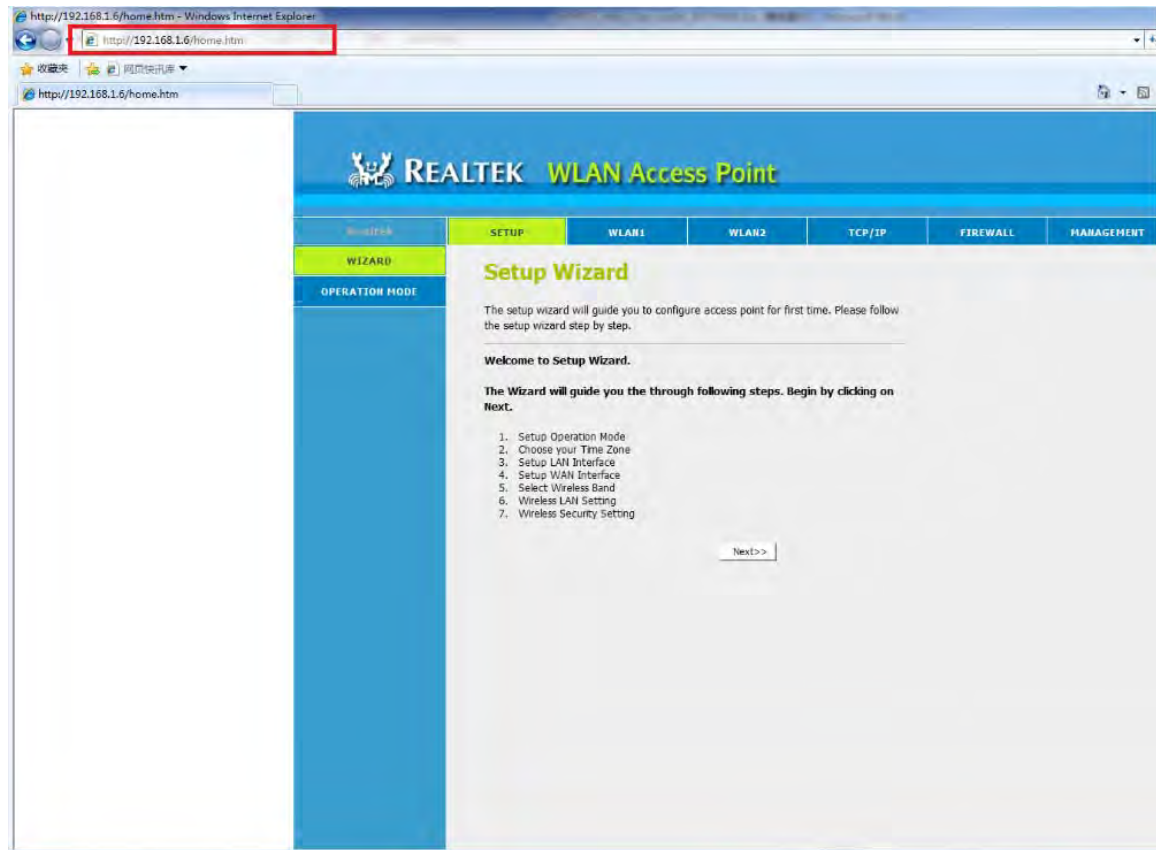
```
192.168.1.6 - PuTTY
WP8721 nfjrom Rv0.0.3 2017-04-12-10:48
#
#
# fw_setenv bootcmd 'bootm b00a0000'
#
# reboot
```

Or in u-boot (by serial console tool, e.g. putty):

```
8197F#
8197F# setenv bootcmd 'bootm b00a0000'; save; reset
8197F#
```

3.2 Login DUT

Input IP address in IE browser “192.168.1.254”, Web interface open as below:



3.3 Change SSID

Take 5G Wifi SSID as example, **5G Wireless Setting is in WLAN1, while 2G Wireless Setting is in WLAN2.**

5G default SSID is “RTK 11n AP 5G”, while 2G default SSID is “RTK 11n AP 2.4G”.

After Step “ Save & Apply”, there will be 20 seconds for restart wireless.

Step 1

Realtek **WLAN Access Point**

SETUP **WLAN1** WLAN2 TCP/IP FIREWALL MANAGEMENT

Wireless Basic Settings - wlan1

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

☐ Disable Wireless LAN Interface

Band: 5 GHz (A+N+AC)

Mode: AP MultipleAP

Network Type: Infrastructure

Step 2

SSID: wp8721_5g Add to Profile

Channel Width: 80MHz

Control Sideband: Auto

Channel Number: 44

Broadcast SSID: Enabled

WMM: Enabled

Data Rate: Auto

TX restrict: 0 Mbps (0:no restrict)

RX restrict: 0 Mbps (0:no restrict)

Associated Clients: Show Active Clients

☐ Enable Mac Clone (Single Ethernet Client)

☐ Enable Universal Repeater Mode (Acting as AP and client simultaneously)

SSID of Extended Interface: RTK_11n_AP_RPTD Add to Profile

Step 3

Save Save & Apply Reset

3.4 Change Channel

Take 2G Wifi as example. 2G(WLAN2) default Channel is 11, while 5G(WLAN1) default Channel is 44.

After Step “Save & Apply”, there will be 20 seconds for restart wireless.

Step 1

WLAN Access Point

SETUP WLAN1 **WLAN2** TCP/IP FIREWALL MANAGEMENT

Wireless Basic Settings - wlan2

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

☐ Disable Wireless LAN Interface

Band: 2.4 GHz (B+G+N)

Mode: AP MultipleAP

Network Type: Infrastructure

SSID: RTK 11n AP 2.4G Add to Profile

Channel Width: 40MHz

Control Sideband: Upper

Step 2

Channel Number: 11

Broadcast SSID: Enabled

WMM: Enabled

Data Rate: Auto

TX restrict: 0 Mbps (0:no restrict)

RX restrict: 0 Mbps (0:no restrict)

Associated Clients: Show Active Clients

☐ Enable Mac Clone (Single Ethernet Client)

☐ Enable Universal Repeater Mode (Acting as AP and client simultaneously)

SSID of Extended Interface: RTK 11n AP BRT1 Add to Profile

Step 3

Save Save & Apply Reset

Note:

Channel List

1. 2.4G 1,2,3,4,5,6,7,8,9,10,11
2. 5G 36,40,44,48,52,56,60,64,100,104,108,112,149,153,157,161

3.5 Change Mode and Bandwidth

Take 2G Wifi as example. 2G(WLAN2) default Band is B/G/N, MCS Mode is HT40, while 5G(WLAN1) default Band is A/AN/AC, MCS Mode is VHT80.

After Step "Save & Apply", there will be 20 seconds to restart wireless.

REALTEK WLAN Access Point

Step 1

WLAN Access Point | SETUP | WLAN1 | **WLAN2** | TCP/IP | FIREWALL | MANAGEMENT

Wireless Basic Settings - wlan2

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

Step 2

☐ Disable Wireless LAN Interface

Band: 2.4 GHz (B+G+N) ▼

Mode: AP ▼ MultipleAP

Network Type: Infrastructure ▼

SSID: RTK 11n AP 2.4G Add to Profile

Step 3

Channel Width: 20MHz ▼

Control Sideband: Upper ▼

Channel Number: 11 ▼

Broadcast SSID: Enabled ▼

WMM: Enabled ▼

Data Rate: Auto ▼

TX restrict: 0 Mbps (0:no restrict)

RX restrict: 0 Mbps (0:no restrict)

Associated Clients: Show Active Clients

☐ Enable Mac Clone (Single Ethernet Client)

☐ Enable Universal Repeater Mode (Acting as AP and client simultaneously)

SSID of Extended Interface: RTK 11n AP RPT1 Add to Profile

Step 4

Save Save & Apply Reset

3.6 Change IP address

Bellow figure show how to change DUT IP address if you need to change it.

REALTEK

WLAN Access Point

Step 1

WLAN Access Point

SETUP

WLAN1

WLAN2

TCP/IP

FIREWALL

MANAGEMENT

LAN SETTING

WAN SETTING

LAN Interface Setup

This page is used to configure the parameters for local area network which connects to the LAN port of your Access Point. Here you may change the setting for IP address, subnet mask, DHCP, etc..

IP Address:

192.168.1.6

Subnet Mask:

255.255.255.0

Default Gateway:

0.0.0.0

DHCP:

Server

DHCP Client Range:

192.168.1.100

192.168.1.200

Show Client

DHCP Lease Time:

480

(1 ~ 10080 minutes)

Static DHCP:

Set Static DHCP

Domain Name:

Realtek

802.1d Spanning Tree:

Disabled

Clone MAC Address:

000000000000

Save

Save & Apply

Reset

Step 2

Step 3

[End of file]

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.

This device is restricted for indoor use.

IMPORTANT NOTE:**FCC 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.