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Chapter 1 Commands for Radio-frequency Parameters Configuration

1.1 a-mpdu

Command: a-mpdu

no a-mpdu

Function: Enable a-mpdu function of radio. The no command disables this function.

Parameters: None.

Default: a-mpdu is enabled as default.

Command Mode: Radio Configuration Mode.

Usage Guide: This command is used to enable a-mpdu function, a-mpdu function is used with the rf mode of n of radio.

Example: Disable a-mpdu function of radio.

```
AC(config- ap-radio-profile)#no a-mpdu
```

```
AC(config- ap-radio-profile)#a-mpdu
```

1.2 beacon-interval

Command: beacon-interval <20-2000>

no beacon-interval

Function: Configure the gap that AP send Beacon frame. The no command disables the gap configuration command and recovers the gap to be default.

Parameters: <20-2000>: The gap time of sending beacon frame. The unit is millisecond.

Default: 100 milliseconds.

Command Mode: Radio Configuration Mode.

Usage Guide: Using this command to show the existence of AP to Client. The value configured is must within the scope the parameter provided.

Example: Configure the gap that AP send Beacon frame as 20 milliseconds.

```
AC(config- ap-profile-radio)# beacon-interval 20
```

1.3 channel auto

Command: channel auto

no channel auto

Function: Enable the function of automatic adjustment channel. The no command disables this function.

Parameters: None.

Default: Disable.

Command Mode: Radio Configuration Mode.

Usage Guide: After enabling the function of automatic adjustment channel, AC will run the specific algorithm according to the radiofrequency environment. Choose the suitable channel from the automatic adjustment channel centrally to appoint it to the radiofrequency.

Example: Enable the function of automatic adjustment channel.

```
AC(config-ap-profile-radio)# channel auto
```

1.4 country-code

Command: `country-code <code>`

no country-code

Function: Configure the controller and the country-code of the AP which is managed by the controller. The no command recovers the country-code to be CN.

Parameters: `<code>` is the country-code configured, uppercase and lowercase are all OK.the command of show country-code can show all the lawful country-code.

Default: CN.

Command Mode: Wireless Global Mode.

Usage Guide: The country-code configured must conform the country which the device is used in. Because different lawful channel in different countries are not the same.

Example: Configure the country-code as us.

```
AC(config-wireless)# country-code us
```

1.5 dot11ac channel-bandwidth

Command: `dot11ac channel-bandwidth {20 | 40[primary-channellower|upper] | 80}`

Command: `dot11n channel-bandwidth {20 | 40[primary-channellower|upper] | 80}`

no dot11n channel-bandwidth

Function: Configure the channel bandwidth mode. The no command recovers the channel bandwidth mode to be default.

Parameters : 20 : Radio-frequency operation in the channel of 20MHz. 40 : Radio-frequency operation in the channel of 40MHz. **primary-channel lower:** In the channel of 40MHz, choose the lower bandwidth of 20Mhz as the main broadband.

primary-channel upper: In the channel of 40MHz, choose the higher bandwidth of 20MHz as the main broadband. 80: Radio-frequency operation in the channel of 40MHz.

Default: The default bandwidth is 20M for 2.4G radio and it is 40M for 5G radio in ac mode.

Command Mode: Radio Configuration Mode.

Usage Guide: At the case of IEEE802.11ac with this command, IEEE802.11ac can bind two adjacent bandwidth of 20MHz to make up to be a bandwidth of 40MHz. Then the speed will be increased doubled. It also can bind two adjacent bandwidth of 40MHz to make up to be a bandwidth of 80MHz, then the speed will be increased doubled again.

Example: Configure the radiofrequency configuration to be in the bandwidth mode of 20M.

```
AC(config-ap-profile-radio)#dot11ac channel-bandwidth 20
```

1.6 dot11bg protection

Command: dot11bg protection <0-100>

no dot11bg protection

Function: Configure the maximum restriction of the percentage that the Client in bg mode occupies buffer.

Parameters: <0-100>: The percentage that the Client in bg mode occupies buffer.

Default: 100.

Command Mode: Radio Configuration Mode.

Usage Guide: In the bgn mode, configure the the maximum restriction of the percentage that the Client in bg mode occupies buffer. This command is not effective in other modes.

Example: Configure the maximum restriction of the percentage that the Client in bg mode occupies buffer as 10%.

```
AC(config-ap-profile-radio)#dot11bg protection 10
```

1.7 dot11n channel-bandwidth

Command: dot11n channel-bandwidth {20 | 40 | both}

no dot11n channel-bandwidth

Function: Configure the channel bandwidth mode. When it is in the 802.11 mode, the no command recovers the channel bandwidth mode to be default.

Parameters: 20: The radiofrequency configuration is in the bandwidth mode of 20M.

40: The radiofrequency configuration is in the bandwidth mode of 40M.

Both: The radiofrequency configuration is in the bandwidth combination

mode of 20M/40M.

Default: The default bandwidth is 20M for 2.4G radio and it is 40M for 5G radio.

Command Mode: Radio Configuration Mode.

Usage Guide: At the case of IEEE802.11n with this command, IEEE802.11n can bind two adjacent bandwidth of 20MHz to make up to be a bandwidth of 40MHz. Then the speed will be increased doubled.

Example: Configure the radiofrequency configuration to be in the bandwidth mode of 20M.

```
AC(config-ap-profile-radio)#dot11n channel-bandwidth 20
```

1.8 dot11n primary-channel

Command: `dot11n primary-channel {lower | upper}`
`no dot11n primary-channel`

Function: Configure the different main broadband. The no command recovers the main broadband to be default.

Parameters: **lower:** In the channel of 40MHz, choose the lower bandwidth of 20Mhz as the main broadband. **Upper:** In the channel of 40MHz, choose the higher bandwidth of 20Mhz as the main broadband.

Default: The main broadband is lower.

Command Mode: Radio Configuration Mode.

Usage Guide: This command is relevant to IEEE802.11n. When binding two two adjacent bandwidth of 20MHz to make up to be a bandwidth of 40MHz, it can be used as two bandwidth of 20MHz in the actual work. (one is as the main broadband, and the other one is as the secondary broadband. When receiving and sending the data, the bandwidth of 40MHz can work and the single bandwidth of 20MHz can also work.)

Example: In the channel of 40MHz, choose the higher bandwidth of 20Mhz as the main broadband.

```
AC(config-ap-profile-radio)# dot11n primary-channel upper
```

1.9 dot11n short-guard-interval

Command: `dot11n short-guard-interval {enable | disable}`
`no dot11n short-guard-interval`

Function: Enable/disable the time interval function. The no command recovers the short time interval to be default.

Parameters: enable: enable the interval function and configure the interval as 400ns.
disable: disable the interval function and configure the interval as 800ns.

Default: Enable.

Command Mode: Radio Configuration Mode.

Usage Guide: This command is relevant to IEEE802.11n. Short GI (Guard Interval) is the improvement that the 802.11n done for the 802.11a/g. The GI of 11a/g is 800ns and the Short GI is 400ns. At the case of using Short GI, the speed can be increased 10%. The Short GI is unrelated to the bandwidth. It supports 20MHz and 40MHz.

Example: Disable the interval function.

```
AC(config-ap-profile-radio)#dot11n short-guard-interval disable
```

1.10 dot11n stbc-mode

Command: `dot11n stbc-mode {enable | disable}`
`no dot11n stbc-mode`

Function: Enable/disable STBC (Space-Time Block Coding). The no command recovers the STBC mode to be default.

Parameters: **enable:** sending the same data stream on more than one antennas at the same time. **disable:** distribute the data stream to two antennas to transmit. Disable the STBC function.

Default: Enable the STBC function.

Command Mode: Radio Configuration Mode.

Usage Guide: This command is relevant to IEEE802.11n. When enabling the STBC function, AP can send the same data stream on more than one antennas at the same time. It improves the coverage. Pay attention to the difference between disable and no command when using this command.

Example: Disable the STBC function.

```
AC(config-ap-profile-radio)#dotn11 stbc-mode disable
```

1.11 dtim-period

Command: `dtim-period <1-255>`
`no dtim-period`

Function: Configure the DTIM period. The no command recovers the DTIM period to be default.

Parameters: `<1-255>`: the Beacon frame number between two DTIM.

Default: 10 Beacons.

Command Mode: Radio Configuration Mode.

Usage Guide: The Client in the power saving mode must wake up after the DTIM period. The Client can listen to the Beacon frame to receive DTIM through this command to judge

the access point can help itself to cache the frame or not. The unit is Beacon interval.

Example: Configure the DTIM period as 60 Becons.

```
AC(config-ap-profile-radio)# dtim-period 60
```

1.12 enable

Command: **enable**

no enable

Function: Enable/disable the radiofrequency.

Parameters: None.

Default: Enable the radiofrequency.

Command Mode: Radio Configuration Mode.

Usage Guide: The accessing of Client or other WLAN service can be done only after enabling the radiofrequency.

Example: Disable radio 1.

```
AC(config- ap-profile)#radio 1
```

```
AC(config- ap-profile-radio)#no enable
```

1.13 fragmentation-threshold

Command: **fragmentation-threshold <256-2346>**

no fragmentation-threshold

Function: Configure the maximum packet length (MTU) of data packets transmitting without slice. The no command recovers it to be default.

Parameters: **<256-2346>**: the threshold value of data packets fragmentation. It only can be configured as even.

Default: 2346 (without slice)

Command Mode: Radio Configuration Mode.

Usage Guide: There is not the maximum packet length. If the threshold value is exceeded, it will be divided to sections. The range is 256 to 2346 bytes. This configuration is only effective for bg and a mode, n mode does not support slice (an and bgn mode does not support slice).

Example: Configure the maximum packet length as 256 byte.

```
AC(config- ap-profile)#radio 1
```

```
AC(config- ap-profile-radio)#fragmentation-threshold 256
```

1.14 incorrect-frame-no-ack

Command: `incorrect-frame-no-ack`
`no incorrect-frame-no-ack`

Function: When receiving the wrong frame, the ACK frame will not be sent.

Parameters: None.

Default: Send the ACK frame.

Command Mode: Radio Configuration Mode.

Usage Guide: If this function is enabled by AP, when receiving the wrong frame, the ACK frame will not be sent; this function is disabled as default, when receiving the wrong frame, the ACK frame will be still sent.

Example: When receiving the wrong frame, the ACK frame will not be sent.

```
AC(config- ap-profile)#radio 1
```

```
AC(config- ap-profile-radio)#incorrect-frame-no-ack
```

1.15 mcs-index <0-23>

Command: `mcs-index <0-23 | all>`
`no mcs-index <0-23 | all>`

Function: Configure MCS index value supported by radio. The no command deletes the appointed MCS index value.

Parameters: 0-23: range of MCS index value.

all: Enable all MCS index supported by radio.

Default: All index values are enabled.

Command Mode: Radio Configuration Mode.

Usage Guide: MCS index means different modulation methods. The rates supported by radio under different modulation methods are different. 0-7 means the MCS parameter of a single spatial stream, 8-15 means the MCS parameters of two spatial streams, 16-23 means the MCS parameters of three spatial streams.

Example: Disable all mcs index values.

```
AC(config- ap-profile)#radio 1
```

```
AC (config-ap-profile-radio)#no mcs-index all
```

1.16 mode

Command: `mode {a | b | g | bg | an | bgn | n-only-a | n-only-g | ac}`
`no mode`

Function: Configure the physical standard used by Radio (Radiofrequency Type). It

includes IEEE 802.11a, IEEE802.11b, IEEE802.11g, IEEE 802.11b/g, IEEE 802.11a/n, IEEE 802.11b/g/n, 5 GHz IEEE 802.11n and 2.4 GHz IEEE 802.11n. The no command recovers to the default mode.

Parameters: a: Choose 802.11a as the physical standard;

b: Choose 802.11b as the physical standard;

g: Choose 802.11g as the physical standard;

bg: Choose 802.11b/g as the physical standard;

an: Choose 802.11a/n as the physical standard;

bgn: Choose 802.11b/g/n as the physical standard;

n-only-a: Choose 802.11 in 5G as the physical standard;

n-only-g: Choose 802.11 in 2.4G as the physical standard.

ac: Choose 802.11ac as the physical standard.

Default: Radio 1 is bgn; Radio 2 is an.

Command Mode: Radio Configuration Mode.

Usage Guide: Make sure the mode chosen is supported by radio. Otherwise, it will show error.

Example: Configure radio 1 to choose 802.11 in 5G as the physical standard.

```
AC(config- ap-profile)#radio 1
```

```
AC(config- ap-profile-radio)#mode n-only-a
```

1.17 multicast tx-rate

Command: `multicast tx-rate <rate>`

`no multicast tx-rate`

Function: Configure the transmission rate of the empty multicast packets. The no command recovers to be default.

Parameters: rate: The effective transmission rate in the radiofrequency mode. When the radiofrequency type is 5G, the optional values are 6, 11, 12, 18, 24, 36, 48 and 54Mbps; when it is 2.4G, the optional values are 1, 2, 5.5, 6, 7, 11, 12, 18, 24, 36, 48 and 54Mbps. If the rate value is 0, the transmission rate of the packets is chosen automatically.

Default: 0 (auto).

Command Mode: Radio Configuration Mode.

Usage Guide: Choose the corresponding transmission rate value according to the different radiofrequency types.

Example: When the radiofrequency type is 5G, configure the transmission rate of the empty multicast packet as 54Mbps.

```
AC(config-ap-profile-radio)#multicast tx-rate 54
```

1.18 multicast tx-rate min

Command: multicast tx-rate min <min-rate>

no multicast tx-rate min

Function: Configure the minimum rate restriction of the empty multicast packets. The no command is used to recover to be default.

Parameters: <min-rate> is the minimum rate. When the radio mode is 2.4G, the values are 1, 2, 5.5, 6, 7, 11, 12, 18, 24, 36, 48 and 54Mbps; When it is 5G, the values are 6, 11, 12, 18, 24, 36, 48 and 54.

Command Mode: Radio Configuration Mode.

Default: The radio mode is 2.4G as default and the minimum rate is 1Mbps. When the radio mode is 5G, the minimum rate is 6Mbps.

Usage Guide: This command is used to configure the minimum rate of the multicast packets of radio. Only when the rate is configured to be “auto”, it is effective. After configuration, it needs to configure to issue.

Example: Configure the minimum rate restriction of the empty multicast packet as 6Mbps.
AC(config-ap-profile-radio)#multicast tx-rate min 6

1.19 power auto

Command: power auto

no power auto

Function: Enable the function of automatic adjusting power. The no command disables this function.

Parameters: None.

Default: None.

Command Mode: Radio Configuration Mode.

Usage Guide: After enabling this function, AC will run the specific algorithm according to the radiofrequency environment that AP is in to increase or decrease the transmission power.

Example: Enable the function of automatic adjusting power.

AC(config-ap-profile-radio)#power auto

1.20 power default

Command: power default <0-100>

no power default

Function: Configure the default power value. The no command deletes the default power

value configured by **power default** command and recovers to be default value.

Parameters: 0-100: The default percentage of transmission power.

Default: 100%.

Command Mode: Radio Configuration Mode.

Usage Guide: AP will transmit the radiofrequency with the default power when it starts. If enabling the function of automatic adjusting power, the power cannot be less than the default power. When the power is recovered to be default value, it is 100%.

Example: Configure the default power value as 50%.

```
AC(config-ap-profile-radio)#power default 50
```

1.21 protection

Command: **protection {auto | off}**
no protection

Function: Enable/disable the 802.11n protection function. The no command recovers to be the default automatic protection status.

Parameters: **auto:** Configure the protection algorithm as automatic mode; **off:** Disable the protection function.

Default: Enable.

Command Mode: Radio Configuration Mode.

Usage Guide: It is the relevant command with IEEE802.11n. it can be used directly. When enabling the 802.11n protection function, the protection function of 802.11n and 802.11g will be enabled at the same time.

Example: Enable the 802.11n protection function.

```
AC(config-ap-profile-radio)# protection auto
```

1.22 radio

Command: **radio <1-2>**

Function: Choose the radio number and enter the corresponding configuration. Currently, most two radio are supported by AP.

Parameters: <1-2> is the radio number.

Default: None.

Command Mode: AP Profile Configuration Mode.

Usage Guide: Enter the corresponding radio through this command to configure it.

Example: Enter the configuration of radio 1.

```
AC(config-wireless)#ap profile 1
```

```
AC(config- ap-profile)#radio 1
```

1.23 radio <1-2> {channel <channel> | power <0-100>}

Command: radio <1-2> {channel <channel> | power <0-100>}

Function: Configure the channel and power manually.

Parameters: 1-2: The radio interface on AP.

Channel: The regular or automatic channel of radio. Choosing the effective channel should be according to the country code in AP.

0-100: The regular or automatic transmission power of radio. It is input with the percentage of the maximum power, such as 35%.

Default: channel 0(auto), power 0(auto)

Command Mode: AP Configuration Mode.

Usage Guide: If the automatic adjusting function of channel is disabled, it needs to configure the channel manually. If the channel configured in AP cannot be used, this configuration will be ignored.

Example: Configure the identified channel of AP as 11 and the transmission power is configured as 1%.

```
AC(config-wireless)#ap database 00-03-0f-18-ec-f0
```

```
AC(config-ap)#radio 1 channel 11
```

```
AC(config-ap)#radio 1 power 1
```

1.24 rate

Command: rate {basic | supported} <value>

no rate {basic | supported} <value>

Function: Configure the rate set. The command is used to deletes the basic rate or the supported rate set configured by rate command from the relevant linked list.

Parameters: value: the effective transmission rate in the given radio mode.

Default: 802.11a supported: 6, 9, 12, 18, 24, 36, 48, 54 Mbps

802.11a basic: 6, 12, 24 Mbps

802.11b/g supported: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54 Mbps

802.11b/g basic: 1, 2, 5.5, 11 Mbps

Command Mode: Radio Configuration Mode.

Usage Guide: In 802.11 network, Supported Rates information element is used to appoint the rate supported (Supported). They are the rates supported by AP, when consulting rate with client, AP will choose the rate from the rates supported by the parameters to consult. But there are some rates that are mandatory (Basic), Client must support these rates, otherwise, it will not allowed to access. After adding rates in basic, it will not add rates in support and must add manually. Please pay attention to the relevant radio types when

configuring.

Example:

```
AC(config- ap-profile-radio)#mode bg
AC(config- ap-profile-radio)#rate basic 54
```

1.25 rate-limit

Command: `rate-limit`

`no rate-limit`

Function: Enable multicast and broadcast restriction function/multicast and broadcast outbreak restriction function. The no command disables this function.

Parameters: None.

Default: normal, 50 packets per second
burst, 75 packets per second

Command Mode: Radio Configuration Mode.

Usage Guide: Enable or disable multicast and broadcast restriction function/multicast and broadcast outbreak restriction function by this command.

Example: Enable multicast and broadcast restriction function/multicast and broadcast outbreak restriction function.

```
AC(config- ap-profile-radio)#rate-limit
```

1.26 rate-limit {normal <1-50> | burst <1-75>}

Command: `rate-limit { normal <1-50> | burst <1-75>}`

`no rate-limit [{normal | burst }]`

Function: Configure multicast and broadcast restriction threshold/multicast and broadcast outbreak restriction threshold. The no command recovers to be default value.

Parameters: **normal:** Appoint to recover the multicast and broadcast restriction threshold to be default value;

burst: Appoint to recover the multicast and broadcast outbreak restriction threshold to be default value.

Default: normal, 50 packets per second
burst, 75 packets per second

Command Mode: Radio Configuration Mode.

Usage Guide: normal is used to appoint the range of multicast and broadcast restriction threshold: 1-50 (packets/second). burst is used to appoint the range of multicast and broadcast outbreak restriction threshold: 1-75 (packets/second).

Example: Configure multicast and broadcast restriction threshold as 25 (packets/second)

```
AC(config- ap-profile-radio)#rate-limit normal 25
```

1.27 rts-threshold

Command: `rts-threshold <256-2346>`

`no rts-threshold`

Function: Configure RTS (Request to Send) threshold. The no command recovers to be default value.

Parameters: `<256-2346>` : The range of RTS threshold.

Default: 2346.

Command Mode: Radio Configuration Mode.

Usage Guide: When the length (bytes) of MPDU exceeded the threshold, 802.11 MAC will start RTS/CTS.

Example: Configure the RTS threshold as 2000.

```
AC(config- ap-profile-radio)# rts-threshold 2000
```

1.28 serial-num

Command: `serial-num`

`no serial-num`

Function: Configure the serial number of AP on AC. When AP connects to AC and authenticates, AC finds the serial number of this AP for comparing according to the serial numbers that AP reports. If they are same, the authentication is successful, otherwise, it fails.

Parameters: serial-num: it is the authentication method that AP connects to AC.

Command Mode: AP database Mode.

Default: Null.

Usage Guide: When use the command of serial-num for AP authentication, AC finds the serial number of this AP in the local configuration. If match, the authentication is successful, if no match, it fails.

Example: Configure the serial-num of AP on AC as 112233 and then delete it.

```
AC(config-ap)#serial-num 112233
```

```
AC(config-ap)# no serial-num
```

1.29 show wireless ap profile

Command: `show wireless ap profile [<1-1024> [radio [<1-2>]]]`

Function: Show the radio parameters configuration information of AP configuration policy.

Parameters: 1-1024: Profile ID; 1-2: radio interface.

Default: None.

Command Mode: Admin Mode.

Usage Guide: Show the radio parameters configuration information of AP configuration policy. The parameters are optional, please pay attention to the corresponding ap profile ID, otherwise, the relevant information cannot be shown.

Example: Show the radio parameters configuration information of AP configuration policy.

```
AC# show wireless ap profile 1 radio 1
AP Profile ID..... 1
Profile Name..... Default
Radio..... 1 - 802.11b/g/n
Status..... On
Mode..... 802.11b/g/n
RF Scan - Other Channels Mode..... Enable
RF Scan - Other Channels Scan Interval..... 60
RF Scan - Sentry Mode..... Disable
RF Scan - Sentry Scan Channels..... All
RF Scan - Scan Duration..... 10
Enable Broadcast/Multicast Rate Limiting..... Disable
Broadcast/Multicast Rate Limit..... 50
Broadcast/Multicast Rate Limit Burst..... 75
Beacon Interval..... 100
DTIM Period..... 10
Fragmentation Threshold..... 2346
RTS Threshold (bytes)..... 2346
Short Retry Limit..... 7
Long Retry Limit..... 4
Maximum Transmit Lifetime..... 512
Maximum Receive Lifetime..... 512
Maximum Clients..... 256
Automatic Channel Adjustment..... Enable
Automatic Power Adjustment..... Enable
Default Power (%)..... 1
Load Balancing..... Disable
Load Utilization (%)..... 60
Station Isolation..... Enable
Channel Bandwidth..... 20 MHz
Primary Channel..... Lower
```

Protection..... Auto
 Short Guard Interval..... Enabled
 STBC Mode..... Enabled
 Multicast Transmit Rate..... Auto
 Automatic Power Save Delivery Mode..... Enable
 No ACK..... Disable
 Radio Resource Measurement..... Enable
 schedulemode.....default

1.30 show wireless ap radio neighbor ap status

Command: show wireless ap <macaddr> radio <1-2> neighbor ap status

Function: In the radio report of AP, it includes the neighbor AP information of this AP. This command shows the status information of the neighbor AP.

Parameters: macaddr: Appoint the MAC address of AP. 1-2: Appoint the radio number.

Default: None.

Command Mode: Admin Mode.

Usage Guide: Appoint the MAC address of an AP, inputting the relevant radio number can show the status information of the neighbor AP.

Example: Show the status information of the neighbor AP.

AC#sho wireless ap 00-03-0f-18-ec-f0 radio 1 neighbor ap status

MAC address..... 00-03-0f-18-ec-f0

Location.....

Radio..... 1 - 802.11b/g/n

Neighbor AP MAC	SSID	RSSI	Status	Age
00-03-0f-18-ec-50	wlan1	52	Unknown	0d:04:26:22
00-03-0f-18-ec-90	wlan2	45	Unknown	0d:04:26:22

1.31 show wireless ap radio neighbor client status

Command: show wireless ap <macaddr> radio <1-2> neighbor client status

Function: AP can get the neighbor client information from the receiving client detection frame and the client connected to VAP through reading the radio report information. Discovery Reason appoints that the client type and classification standard are the way to discover the client. It is divided into the RF Scan client, the client discovered through detection request, the client associated with the other thin AP, the client associated with itself, the client associated with Ad-hoc network.

Parameters: macaddr: Appoint the MAC address of AP. 1-2: Appoint the radio number.

Default: None.

Command Mode: Admin Mode.

Usage Guide: Inputting the MAC of the appointed AP and the appointed radio number can show the status information of the neighbor client.

Example: Show the status information of the neighbor client of the appointed AP.

```
AC#show wireless ap 00-03-0f-18-ec-f0 radio 1 neighbor client status
MAC address..... 00-03-0f-18-ec-f0
Location.....
Radio..... 1 - 802.11b/g/n
Neighbor MAC      RSSI Channel Discovery Reason      Age
-----
e0-91-f5-42-f5-65 30    6      RF      0d:00:04:33
e0-91-f5-42-f5-68 33    6      RF      0d:00:01:33
e4-ce-8f-b9-8f-d4 15    11     RF      0d:00:54:43
```

1.32 show wireless ap status

Command: show wireless ap [*macaddr*] status

Function: Show the status information of the appointed AP.

Parameters: macaddr: Appoint the MAC address of AP.

Default: None.

Command Mode: Admin Mode.

Usage Guide: If the parameter is not appointed, show the main information of all AP; if the parameter is appointed, show the detailed information of the appointed AP. If enabling this command in Cluster Controller, show the status information of all AP in the whole cluster.

Example: Show the status information of the appointed AP.

```
AC#show wireless ap 00-03-0f-18-ec-f0
MAC address..... 00-03-0f-18-ec-f0
Location.....
IP Address..... 192.168.23.1
IP Subnet Mask..... 255.255.255.0
Managing Switch..... Local Switch
Switch MAC Address..... 00-03-0f-14-8f-7d
Switch IP Address..... 192.168.23.254
Status..... Managed
Configuration Status..... Success
Last Failing Configuration Element..... None
```

```

Configuration Failure Error.....
Debug Mode..... Disable
Code Download Status..... Not Started
Reset Status..... Not Started
Profile..... 1 - Default
Vendor ID..... DCN
Protocol Version..... 2
Software Version..... 0.0.0.19
Hardware Type..... 1 - DCWL-7952AP(R3), Indoor Single Radio a/b/g/n
Serial Number..... E6WL0330B707000001
Discovery Reason..... Switch IP Configured
Authenticated Clients..... 2
L2 Tunnel Interface..... ----
System Up Time..... 0d:04:18:53
Age..... 0d:00:00:01
CPU Type..... CN5010p1.1-400-SCP
CPU Usage(5s)..... 2%
CPU Usage(30s)..... 2%
CPU Usage(5min)..... 2%
Memory Size Total(KB)..... 121124
Memory Size Used(KB)..... 42884
    
```

1.33 show wireless client status

Command: show wireless client [*<macaddr>*] status

Function: Show the status information of client.

Parameters: macaddr: The MAC address of client.

Default: None.

Command Mode: Admin Mode.

Usage Guide: If the parameter is not appointed, show the status information of all client; If enabling this command in Cluster Controller, show the status information of all client in the whole cluster.

Example: Show the status information of all client.

AC#show wireless client status

MAC Address	VAP MAC Address	SSID	Status	Network Time
08-10-74-e0-80-c5	00-03-0f-18-ec-f3	wlan_1	Auth	0d:19:47:48
54-e6-fc-0b-a7-5b	00-03-0f-18-ec-f3	wlan_1	Auth	0d:04:23:58

Total Clients Associated with Local Switch..... 2

1.34 spatial-stream number <1-3>

Command: spatial-stream number <1-3>

no spatial-stream number

Function: Configure the number of spatial streams supported by radio, the no command recovers to be default.

Parameters: <1-3>: the number of spatial streams supported by radio.

Default: 1.

Command Mode: Radio Configuration Mode.

Usage Guide: Configure different spatial streams. AP has different launch rates. After configuring on ac, issue it to ap.

Example: Configure the number of spatial streams as 2 and issue it to ap.

```
AC(config- ap-radio-profile)# spatial-stream number 2
```

```
AC#wireless ap profile apply 1
```

1.35 wireless ap channel set radio

Command: wireless ap channel set <apMac> radio <1-2> <channel>

Function: Configure the work channel of managed AP manually.

Parameters: <apMac>: The MAC address of AP;

<1-2>: The radio interface of AP;

<channel>: The regular channel of the appointed radio. Choosing the effective channel should be according to the country code in AP.

Command Mode: Admin Mode.

Default: None.

Usage Guide: The channel configured by this command will not be saved into AP configuration. When AP or controller is restarted, this configuration will not exist any more.

Example: Configure the work channel of managed AP as 11 manually.

```
AC#wireless ap channel set 00-03-0f-18-ec-f0 radio 1 channel 11
```

1.36 wireless ap power set radio

Command: wireless ap power set <apMac> radio <1-2> <1-100>

Function: Configure the power value of Managed AP manually.

Parameters: <apMac>: The MAC address of AP;

<1-2>: The radio interface of AP;

<1-100>: The regular transmission power of the appointed radio. It is input with the percentage of the maximum power, such as 35%.

Command Mode: Admin Mode.

Default: None.

Usage Guide: The power configured by this command will not be saved into AP configuration. When AP or controller is restarted, this configuration will not exist any more.

Example: Configure the regular transmission power of Managed AP manually as 35%.

AC#wireless ap power set 00-03-0f-18-ec-f0 radio 1 35

Chapter 2 Commands for Radio-frequency Scanning

2.1 clear wireless ap rf-scan list

Command: clear wireless ap rf-scan list

Function: Delete all rf-scan record.

Parameters: None.

Default: None.

Command Mode: Admin Mode.

Usage Guide: Empty the AP list scanned by RF and let AP scan again.

Example: Delete all rf-scan record.

```
AC# clear wireless ap rf-scan list
Process with clear wireless ap rf-scan list? [Y/N] y
All RF Scan entries cleared.
```

2.2 debug wireless ap rfscan-report

Command: debug wireless ap <macaddr> rfscan-report {trace | neighbor-ap | neighbor-client | receive [dump]}

no debug wireless ap <macaddr> rfscan-report {trace | neighbor-ap | neighbor-client | receive [dump]}

Function: Enable/disable the debug on-off when the rf-scan report is handled.

Parameters: <macaddr>: the MAC address of AP which uploads the rf-scan report;

trace: show the tracking information handled by packets;

neighbor-ap: show the information of the neighbor AP;

neighbor-client: show the information of the neighbor client;

receive: show the information when receiving the packets;

dump: show the detailed content of the information packets.

Default: Disable the debug on-off.

Command Mode: Admin Mode.

Usage Guide: Enable/disable the debug on-off when the rf-scan report is handled. When inputting different parameters, show different debug information.

Example: Enable/disable the debug on-off when the rf-scan report is handled and show the tracking information of the packets.

```
AC#debug wireless ap 00-03-0f-18-ec-f0 rfscan-report trace
```

2.3 debug wireless ap rfscan-report-interval

Command: debug wireless ap <macaddr> rfscan-report-interval {trace | send | dump}

no debug wireless ap <macaddr> rfscan-report-interval {trace | send | dump}

Function: Enable/disable the debug on-off when handling the reporting time interval information of rf-scan report.

Parameters: <macaddr>: the MAC address of AP which receiving the reporting time interval information of rf-scan report;

trace: show the debug information when sending packets;

dump: show the detailed content of information packets.

Default: Disable the debug on-off.

Command Mode: Admin Mode.

Usage Guide: Enable/disable the debug on-off when handling the reporting time interval information of rf-scan report. Scan the debug information of the reporting time interval information of rf-scan report by RF.

Example: Enable/disable the debug on-off when handling the reporting time interval information of rf-scan report and show the debug information when sending packets.

```
AC#debug wireless ap 00-03-0f-18-ec-f0 rfscan-report-interval trace
```

2.4 rf-scan duration

Command: rf-scan duration <10-2000>

no rf-scan duration

Function: Configure rf-scan duration. It means when scanning by RF in active mode, monitor the time of neighbor flow around in a channel. The no command recovers to be default.

Parameters: <10-2000>: the duration of rf-scan, the unit is millisecond.

Default: 10 milliseconds.

Command Mode: Radio Configuration Mode.

Usage Guide: Configure the relevant rf-scan duration according to need.

Example: Configure the duration as 100ms.

```
AC(config-ap-profile-radio)#rf-scan duration 100
```

2.5 rf-scan other-channels

Command: rf-scan other-channels [interval <5-86400>]

no rf-scan other-channels

Function: Enable function of rf-scan in other channels. The no command disables this function. The RF works in the origin channel. The AP in active mode scans the origin channel only as default. If enabling this function, AP will scans all channels of work band in turn.

Parameters: interval: At intervals of time interval, AP will leave from the current channel to execute the function of rf-scan in other channels. <5-86400>: the time interval, the unit is second.

Default: This function is enabled and the time interval is 60s.

Command Mode: Radio Configuration Mode.

Usage Guide: The parameters after **rf-scan other-channels** are optional. If scanning in other channels, enable this command.

Example: Execute scanning in other channels once at intervals of 30 second.

AC(config-ap-profile-radio)#rf-scan other-channels interval 30

2.6 rfscan-report-interval

Command: rfscan-report-interval <30-65535>

no rfscan-report-interval

Function: Configure the interval of information reporting of the radio-frequency scanning.

Parameters: <30-65535>: the interval of information reporting of the radio-frequency scanning, the range is from 30 to 65535 and the unit is second.

Default: Do not configure. The actual interval is calculated according to the managed AP's number.

Command Mode: Wireless Global Configuration Mode.

Usage Guide: When the parameter is not configured, the interval of information reporting of the radio-frequency scanning is calculated according to the managed AP's number. More APs, the interval is longer; less APs, the interval is shorter, but 30s is the shortest. After configured the parameter by user, the interval adopts the configured value.

Example: Configure the interval of information reporting of the radio-frequency scanning as 60s.

AC((config-wireless)# rfscan-report-interval 60

2.7 rf-scan sentry

Command: rf-scan sentry [channels {a | bg | all}]

no rf-scan sentry

Function: Enable sentry mode. The no command disables this mode. Enabling active

mode, RF scan supports active mode and sentry mode. Active mode deals with user flow at the same time and report rf-scan monitoring information periodic; Sentry mode does not deal with user flow any more and it reports rf-scan monitoring information exclusively. At the case of default, radio works in active mode.

Parameters: channels: Appoint to scan channels in any mode; a: Do rf-scan in all channels of 802.11a (5G). bg: Do rf-scan in all channels of 802.11b/g (2.4G). all: Do rf-scan in all channels.

Default: Sentry mode is disabled.

Command Mode: Radio Configuration Mode.

Usage Guide: The parameters after **rf-scan sentry** are optional. When the parameters are not chosen, it is active mode and scan all channels by RF at the same time.

Example: Enable sentry mode and do rf-scan in all channels of 802.11a.

AC(config-ap-profile-radio)#rf-scan sentry channels a

2.8 show wireless ap rf-scan status

Command: show wireless ap [*macaddr*] rf-scan status

Function: Show information of rf-scan record.

Parameters: macaddr: the MAC address of AP.

Default: None.

Command Mode: Admin Mode.

Usage Guide: If the MAC address is not appointed, show the main information of the whole system; if the MAC address is appointed, show the detailed information of the relevant AP.

Example: Do not appoint the MAC address and show information of rf-scan record.

AC# show wireless ap rf-scan status

00-03-0f-04-02-c0	wlan_1	802.11b/g/n	11 Managed	0d:00:00:28
00-03-0f-04-02-cf	wlan_2	802.11b/g/n	11 Managed	0d:00:00:28
00-03-0f-08-03-00	wlan_portal	802.11b/g/n	11 Unknown	0d:00:00:28

2.9 show wireless ap rf-scan triangulation

Command: show wireless ap *macaddr* rf-scan triangulation

Function: Show information of the neighbor AP in rf-scan report recorded by AC.

Parameters: macaddr: the MAC address of AP.

Default: None.

Command Mode: Admin Mode.

Usage Guide: Inputting the relevant command according to MAC address of AP can show the location information of AP.

Example: Show the location information of AP.

AC#sho wireless ap 00-03-0f-08-03-00 rf-scan triangulation

			RSSI	Signal	Noise	
Sentry	MAC Address	Radio	(%)	(dBm)	(dBm)	Age
-----	-----	----	---	-----	-----	-----
Non-Sentry	00-03-0f-04-02-c0	1	29	-70	-83	0d:00:00:12

Chapter 3 Commands for RRM

3.1 rrm enable

Command: `rrm enable`

`no rrm enable`

Function: Enable radio resource measuring (RRM) function. After enabling RRM of AP, RRM can be consulted with client which supports RRM and configure relevant operations. The no command disables RRM. After disabling RRM, cluster would not adjust radio.

Parameters: None.

Default: Disable.

Command Mode: Radio Configuration Mode.

Usage Guide: Inputting the command can enable/disable RRM.

Example: Enable RRM.

```
AC(config-ap-profile-radio)#rrm enable
```

3.2 show wireless rrm channel-load current-request

Command: `show wireless rrm channel-load current-request`

Function: Show the current channel-load status.

Parameters: None.

Default: None.

Command Mode: Admin Mode.

Usage Guide: There is need for client and AP which supports RRM. Examine the current channel-load status through this command.

Example: Show the current channel-load status.

```
AC# show wireless rrm channel-load current-request
```

```
AP: 00-03-0f-08-03-00 client: 52-27-3A-BB-C7_E0
```

```
Channel: 23 Duration (in TUs): 444 Time Remaining:0d:00:00:00
```

```
Status: Aborted
```

3.3 show wireless rrm channel-load history

Command: `show wireless rrm channel-load history`

Function: Show short historical information of channel-load.

Parameters: None.

Default: None.

Command Mode: Admin Mode.

Usage Guide: There is need for client and AP which supports RRM. Inputting this command can show short historical information of channel-load.

Example: Show short historical information of channel-load.

```
AC#show wireless rrm channel-load history
```

```
Number of reports = 2 Age of earliest=0d:00:00:17 Age of latest=0d:00:00:08
```

```
Channel load: min/avg/max = 16/16/16 %
```

```
Successful measurements = 1
```

```
Faulty measurements = 1
```

```
    Too late from client : 0
```

```
    Incapable clients : 0
```

```
    Refused by client : 1
```

3.4 show wireless rrm channel-load history detail

Command: show wireless rrm channel-load history detail

Function: Show the detailed historical information of channel-load.

Parameters: None.

Default: None.

Command Mode: Admin Mode.

Usage Guide: Inputting this command can show the detailed historical information of channel-load.

Example: Show the detailed historical information of channel-load.

```
AC# show wireless rrm channel-load history detail
```

```
Number of reports = 2 Age of earliest=0d:00:00:17 Age of latest=0d:00:00:08
```

```
Channel load: min/avg/max = 16/16/16 %
```

```
-----  
Report #1  Age : 0d:00:00:19
```

```
AP: 00-03-0f-18-ec-f0  Client: 06-05-04-03-02-01
```

```
Duration: 444  Channel: 23
```

```
Load: 16%  Mode: Refused
```

```
-----  
Report #1  Age : 0d:00:00:22
```

```
AP: 00-03-0f-18-ec-f0  Client: 06-05-04-03-02-01
```

```
Duration: 444  Channel: 23
```

```
Load: 16%  Mode: Success
```

3.5 show wireless rrm neighbors

Command: show wireless rrm neighbors [ap <macaddr>]

Function: Show the current neighbor list of RRM.

Parameters: None.

Default: None.

Command Mode: Admin Mode.

Usage Guide: Read and show the current neighbor list of RRM. This command can show information of all neighbors, it can also show information related to the appointed AP.

Example: Show the neighbor list.

```
AC#show wireless rrm neighbors ap 00-03-0f-18-ec-f0
```

```
AP: 00-03-0f-18-ec-f0 Radio/VAP: 1/0 (00-03-0f-18-ec-f0)
```

```
=====
```

Neighbor	Chnl	RSSI	Age	SSID
00-03-0f-04-02-c0	6	40	0d:00:00:18	wlan_1

3.6 wireless rrm channel-load request channel

Command: wireless rrm channel-load request channel [<channel> | all]

Function: For channel-load, it needs to configure the measurement channel.

Parameters: <channel>: The appointed channel; all: All channel supported.

Default: None.

Command Mode: Admin Mode.

Usage Guide: Use it when building RRM-Channel-Load-Request Message. If appointing channel, measure channel-load only in the appointed channel; if configuring as all. Measure channel-load in all channel supported.

Example: For channel-load, configure all the measurement channel.

```
AC# wireless rrm channel-load request channel all
```

3.7 wireless rrm channel-load request client

Command: wireless rrm channel-load request client [<macaddr>]

Function: For channel-load, it needs to configure client which does the channel-load measurement.

Parameters: macaddr: the MAC address of client which does the channel-load measurement.

Default: None.

Command Mode: Admin Mode.

Usage Guide: There is need for client and AP which supports RRM to input them to system configuration for using when building RRM-Channel-Load-Request Message.

Example: Request channel-load measurement to AP whose MAC is 00-03-0f-08-03-00.

AC# wireless rrm channel-load request client 00-03-0f-08-03-00

3.8 wireless rrm channel-load request duration

Command: wireless rrm channel-load request duration [<TUs>]

Function: Configure measurement duration of channel-load.

Parameters: TUs: terms of time units (TUs), 1TU=1024us

Default: None.

Command Mode: Admin Mode.

Usage Guide: Use this command when building Channel-Load-Request Message. Client needs to measure for some time after receiving channel-load Request. Then it will report the result to AP. The measurement duration needs to be configured.

Example: Configure measurement duration of channel-load as 2TU.

AC# wireless rrm channel-load request duration 2

3.9 wireless rrm channel-load request send

Command: wireless rrm channel-load request send

Function : After configuring the measurement duration of channel-load, network management needs to send channel-load request.

Parameters: None.

Default: None.

Command Mode: Admin Mode.

Usage Guide: Build RRM-Channel-Load-Request Message and send to AP related to client which runs channel-load.

Example: Send RRM-Channel-Load-Request Message.

AC#wireless rrm channel-load request send

Chapter 4 Commands for Automatic Channel Adjustment

4.1 channel-plan err-threshold

Command: channel-plan {an | bgn} err-threshold <0-100>
no channel-plan {an | bgn} err-threshold

Function: Configure the error threshold. The no command recovers to be default of 30%.

Parameters: an: It is RSSI threshold configured by 802.11a/n; bgn: It is RSSI threshold configured by 802.11b/g/n; <0-100>: RSSI threshold configured.

Default: 30%.

Command Mode: Wireless Global Mode.

Usage Guide: Configure the error threshold. If the threshold is 0, it means that the error threshold is not used as the selection standard of alternative list.

Example: Configure the error threshold as 50%.

```
AC(config-wireless)#channel-plan bgn err-threshold 50
```

4.2 channel-plan history-depth

Command: channel-plan {an | bgn} history-depth <0-10>
no channel-plan {an | bgn} history-depth

Function: Configure history-depth of automatic channel adjustment. The no command recovers to be default. After automatic channel adjustment is running successfully, AC will record radio information of channel change. The history-depth can be configured. When the historical record achieves the configured depth, the new record will cover the old one.

Parameters: an: It is channel adjustment plan configured by 802.11a/n; bgn: It is channel adjustment plan configured by 802.11b/g/n; <0-100>: It is history-depth of the automatic channel adjustment.

Default: 5.

Command Mode: Wireless Global Mode.

Usage Guide: When adjust algorithm, this radio is suggested to change channel. If this radio has changed channel in historical record successfully, it does not need to change until the record is covered. It avoids that the same radio is adjusted more than once.

Example: Configure history-depth of automatic channel adjustment as 10.

```
AC(config-wireless)#channel-plan bgn history-depth 10
```

4.3 channel-plan interval

Command: channel-plan {an | bgn} interval <3-1440>

no channel-plan {an | bgn} interval

Function: Configure the automatic channel adjustment interval. The no command recovers the channel adjustment interval in periodic trigger mode to be default.

Parameters: an: It is channel adjustment plan configured by 802.11a; bgn: It is channel adjustment plan configured by 802.11b/g/n; <3-1440>: The unit is hour. Configure the adjustment interval.

Default: 30 (unit: minute).

Command Mode: Wireless Global Mode.

Usage Guide: When the trigger mode is periodic trigger, configuring the adjustment interval is needed.

Example: When the trigger mode is periodic trigger, configure the adjustment interval as 24.

```
AC(config-wireless)#channel-plan bgn interval 24
```

4.4 channel-plan mode

Command: channel-plan {an | bgn} mode {interval | manual | time}

Function: Configure trigger mode of the automatic channel adjustment algorithm.

Parameters: an: It is channel adjustment plan configured by 802.11a/n; bgn: It is channel adjustment plan configured by 802.11b/g/n; interval: In the configured interval, calculate and apply the new channel (periodic trigger); manual: User calculates and configures the new channel manually (manual trigger); time: Calculate and apply the new channel at the configured specific time (fixed time trigger).

Default: manual.

Command Mode: Wireless Global Mode.

Usage Guide: There are three trigger modes: fixed time trigger (hh:mm, within 24 hours), for example, configuring it as 10:10 means doing automatic channel adjustment at 10:10 every day and once a day; periodic trigger (unit is hour, the range is 6 to 24), for example, configuring it as 8 means doing once automatic channel adjustment every 8 hours; manual trigger, it means that administrator does automatic channel adjustment manually and issues automatic channel adjustment algorithm.

Example: Configure trigger mode of the automatic channel adjustment algorithm as periodic trigger.

```
AC(config-wireless)# channel-plan bgn mode interval
```

4.5 channel-plan rssi-threshold

Command: channel-plan {an | bgn} rssi-threshold <0-100>

no channel-plan {an | bgn} rssi-threshold

Function: Configure interference threshold of neighbors around. The no command recovers the threshold to be default of 10.

Parameters: an: It is RSSI threshold configured by 802.11a/n; bgn: It is RSSI threshold configured by 802.11b/g/n; <0-100>: It is RSSI threshold configured.

Default: 10.

Command Mode: Wireless Global Mode.

Usage Guide: Configure interference threshold of neighbors around (RSSI threshold). Configuring it as 0 means do not use RSSI threshold as the selection standard of alternative list.

Example: Configure RSSI threshold as 50.

```
AC(config-wireless)# channel-plan bgn rssi-threshold 50
```

4.6 channel-plan time

Command: channel-plan {an | bgn} time <hh:mm>

no channel-plan {an | bgn} time

Function: Configure fixed time of automatic channel adjustment. The no command recovers to be default.

Parameters: an: It is channel adjustment mode configured by 802.11a/n; bgn: It is channel adjustment mode configured by 802.11b/g/n; <hh:mm>: configure the fixed time of trigger.

Default: 00:00.

Command Mode: Wireless Global Mode.

Usage Guide: When the trigger mode is fixed time trigger, the accurate trigger time needs to be configured, do once a day from this time.

Example: When the trigger mode is fixed time trigger, configure the trigger time as 10:10.

```
AC(config-wireless)# channel-plan bgn time 10:10
```

4.7 show wireless ap profile radio auto-eligible

Command: show wireless ap profile <1-1024> radio <1-2> auto-eligible

Function: Show the configured channel which can participate channel adjustment. Show channel at current country code at the same time.

Parameters: <1-1024>: Profile ID; <1-2>: radio interface.

Default: None.

Command Mode: Admin Mode.

Usage Guide: Inputting this command can show the configured channel which can participate channel adjustment. Show channel at current country code at the same time. Please pay attention to the value of Profile ID and radio interface configured before, otherwise it cannot be shown.

Example: Show the 802.11b/g/n channel which can participate channel adjustment. Show channel at current country code at the same time.

```
AC# show wireless ap profile 1 radio 1 auto-eligible
```

```
AP Profile ID..... 1
Profile Name..... Default
Radio..... 1 - 802.11b/g/n
Mode..... 802.11b/g/n
Supported Channels (* = Auto Eligible)
```

```
-----
1*  2   3   4   5   6*  7   8
9   10  11* 12  13
```

4.8 show wireless channel-plan

Command: show wireless channel-plan {an | bgn}

Function: Show the configured parameters of automatic channel adjustment.

Parameters: an: It is channel adjustment mode configured by 802.11a; bgn: It is channel adjustment mode configured by 802.11b/g/n;

Default: None.

Command Mode: Admin Mode.

Usage Guide: Inputting this command can show the configured parameters of automatic channel adjustment.

Example: Show the parameters configured by 802.11b/g/n of automatic channel adjustment.

```
AC# show wireless channel-plan bgn
```

```
Channel Plan Mode..... Manual
Channel Plan Interval (hours)..... 6
Channel Plan Fixed Time (hh:mm)..... 00:00
Channel Plan History Depth..... 5
Channel Plan Rssi Threshold..... 10
Channel Plan Error Threshold..... 30
```

4.9 show wireless channel-plan history

Command: show wireless channel-plan history {an | bgn}

Function: Show the automatic channel adjustment history.

Parameters: an: It is channel adjustment mode configured by 802.11a; bgn: It is channel adjustment mode configured by 802.11b/g/n;

Default: None.

Command Mode: Admin Mode.

Usage Guide: This command is effective only on controller. If there is channel adjustment before, inputting this command can show the automatic channel adjustment history.

Example: Show the automatic channel adjustment history of 802.11b/g/n.

```
AC#show wireless channel-plan history bgn
Operational Status..... Active
Last Iteration..... 1
Last Algorithm Time..... JAN 01 20:37:15 2006
AP MAC Address      Location      Radio Iteration  Channel
-----
00-03-0f-04-02-c0          1      1      6
```

4.10 show wireless channel-plan proposed

Command: show wireless channel-plan proposed {an | bgn}

Function: Show the channel adjustment proposal in manual trigger mode.

Parameters: an: It is channel adjustment mode configured by 802.11a; bgn: It is channel adjustment mode configured by 802.11b/g/n;

Default: None.

Command Mode: Admin Mode.

Usage Guide: Inputting this command can show the channel adjustment proposal in manual trigger mode. The channel adjustment algorithm runs in different radio modes, the results are also different. So the radio mode must be appointed.

Example: Show the channel adjustment proposal in 802.11b/g/n manual trigger mode.

```
AC# show wireless channel-plan proposed bgn
Current Status..... Algorithm Completed
                        Current  New
AP MAC Address      Location  Radio Channel Channel
-----
00-03-0f-04-02-c0          1      11      6
```

4.11 wireless channel-plan

Command: wireless channel-plan {an | bgn} {apply | clear | start}

Function: Configure the automatic channel adjustment as manual trigger. When it is manual trigger, it needs to adjust the command and issue automatic channel adjustment algorithm manually. After algorithm is over, if there is AP needing to be adjusted channel, controller will not send message to change channel automatically. Network management must controll manually that receiving the channel distributed by automatic adjustment algorithm or not.

Parameters: an: It is channel adjustment mode configured by 802.11a/n; bgn: It is channel adjustment mode configured by 802.11b/g/n; apply: apply the channel adjustment plan existed; clear: clear the channel adjustment plan existed; start: apply the new channel adjustment plan.

Default: None.

Command Mode: Admin Mode.

Usage Guide: This command is effective only on controller. Send, clear and apply according to the command. If inputting start, issue the automatic algorithm to return to the AP needing to be adjusted and the channel which is adjusted or will be adjusted; if inputting clear, clear the result of algorithm; if inputting apply, receive the channel distributed by automatic adjustment algorithm and apply to the relevant AP.

Example: Issue new channel adjustment plan and apply it.

```
AC#wireless channel-plan bgn start
```

```
AC#wireless channel-plan bgn apply
```

Chapter 5 Commands for Automatic Power Adjustment

5.1 debug wireless

Command: `debug wireless {channel | power} {internal-info | error | msg}`
`no debug wireless {channel | power} {internal-info | error | msg}`

Function: Enable debug information of automatic channel and power adjustment. The no command disables this debug information.

Parameters: Channel: the relevant debug information of channel adjustment; Power: the relevant debug information of power adjustment; Internal-info: the main process information of algorithm; Error: the error information in algorithm execution; Msg: message content.

Default: Disable debug on-off.

Command Mode: Admin Mode.

Usage Guide: Inputting this command can enable debug on-off of automatic channel and power adjustment. Examine the relevant debug information in the process of channel and power adjustment.

Example: Enable debug on-off of automatic channel and power adjustment.

AC# debug wireless channel internal-info

5.2 debug wireless cellRecovery internal-info

Command: `debug wireless cellRecovery internal-info`
`no debug wireless cellRecovery internal-info`

Function: Enable debug information of black hole compensatory. The no command disables this debug information.

Parameters: None.

Default: None.

Command Mode: Admin Mode.

Usage Guide: Inputting command can enable debug on-off of black hole compensatory and examine the debug information.

Example: Enable debug on-off of black hole compensatory.

AC# debug wireless cellRecovery internal-info

5.3 power-plan framedup-threshold

Command: power-plan framedup-threshold <1-100>

no power-plan framedup-threshold

Function: Configure the repeated frames threshold. The no command recovers to be default.

Parameters: <1-100>: The repeated frames threshold configured.

Default: 5.

Command Mode: Wireless Global Mode.

Usage Guide: Configure the repeated frames threshold and judge if there is need to make the repeated frames as the standard when adjusting power. If it is greater than the threshold configured, it needs to increase power; otherwise, decrease power.

Example: Configure the repeated frames threshold as 10.

```
AC(config-wireless)#power-plan framedup-threshold 10
```

5.4 power-plan interval

Command: power-plan interval <15-1440>

no power-plan interval

Function: Configure the automatic power adjustment cycle. The no command recovers to be default.

Parameters: <15-1440>: Configure the automatic power adjustment cycle, the unit is minute.

Default: 15.

Command Mode: Wireless Global Mode.

Usage Guide: When the trigger mode is periodic trigger, it needs to configure the adjustment cycle.

Example: Configure the automatic power adjustment cycle as 60 minutes.

```
AC(config-wireless)#power-plan interval 60
```

5.5 power-plan mode

Command: power-plan mode {interval | manual}

Function: Configure the algorithm trigger ways of automatic power adjustment. There are two trigger modes: periodic trigger, for example, configure the adjustment cycle as 60 minutes, then the automatic power adjustment will be done once every 60 minutes; manual trigger, it means the administrator should execute automatic power adjustment command and issue the automatic power adjustment algorithm manually.

Parameters: interval: Configure the mode as periodic trigger; manual: Configure the mode as manual trigger.

Default: Manual.

Command Mode: Wireless Global Mode.

Usage Guide: According to different trigger ways, issue the automatic power adjustment algorithm in different time.

Example: Configure the mode as periodic trigger.

AC(config-wireless)#power-plan mode interval

5.6 power-plan retry-threshold

Command: power-plan retry-threshold <1-100>

no power-plan retry-threshold

Function: Configure the re-issued threshold. The no command recovers to be default of 5.

Parameters: <1-100>: the re-issued threshold configured.

Default: 5.

Command Mode: Wireless Global Mode.

Usage Guide: Configure the re-issued threshold to judge if there is need to make the re-issued number as the standard when adjusting power. If it is greater than the threshold configured, it needs to increase power; otherwise, decrease power.

Example: Configure the re-issued threshold to judge as 100.

AC(config-wireless)# power-plan retry-threshold 100

5.7 show wireless power-plan

Command: show wireless power-plan

Function: Show the automatic power adjustment parameters configured.

Parameters: None.

Default: None.

Command Mode: Admin Mode.

Usage Guide: Show the configuration situation of the automatic power adjustment parameters.

Example: Show the automatic power adjustment parameters configured.

AC# show wireless power-plan

Power Adjustment Mode..... Manual

Power Adjustment Interval (minutes)..... 15

Power Adjustment Retry Threshold 5

Power Adjustment Framedup Threshold 5

5.8 show wireless power-plan proposed

Command: show wireless power-plan proposed

Function: Show algorithm execution status and the adjustment suggestion after algorithm execution.

Parameters: None.

Default: None.

Command Mode: Admin Mode.

Usage Guide: After the network management issuing the automatic power adjustment algorithm manually, it should call this command manually to show the adjustment suggestion of power.

Example: Issue the new power adjustment way, than show the suggestion of power.

AC#wireless power-plan start

AC# show wireless power-plan proposed

```
Current Status..... Algorithm Completed
                                     Current  New
AP MAC Address      Location      Radio  Power  Power
-----
00-03-0f-04-02-80          1      1      11
```

5.9 wireless power-plan

Command: wireless power-plan {apply | clear | start}

Function: Configure the automatic power adjustment way as manual trigger. When the mode is manual trigger, the automatic adjustment command should be done manually. Issue the automatic power adjustment algorithm, after the algorithm is over, if there is AP which needs to be adjusted, controller will not send message to change power automatically. Network management must controlled if receiving the power distributed by automatic adjustment algorithm manually.

Parameters: apply: Use the power adjustment plan existed; Clear: Clear the power adjustment plan existed; start: Use the new power adjustment plan.

Default: None.

Command Mode: Admin Mode.

Usage Guide: This command is effective only on controller. According to the inputting command, execute to issue, clear and apply. If inputting start, issue the automatic adjustment algorithm and return to AP which needs to be adjusted and power which is

after adjustment; if inputting clear, clear the result of automatic adjustment algorithm; if inputting apply, receive the power adjusted by automatic adjustment algorithm and apply it to the relevant AP.

Example: Issue the new power adjustment way, after AC giving the new plan, apply the new plan by “apply”.

AC#wireless power-plan start

AC#wireless power-plan apply

Chapter 6 Commands for DFS

6.1 show wireless ap <macAddr> radio <1-2> radar status

Command: show wireless ap <macAddr> radio <1-2> radar status

Function: Show the radar information that the Radio detects on the managed AP.

Parameters: macAddr: the MAC address of the appointed AP.

1-2: appoint the radio number.

Command Mode: Admin Mode.

Default: None.

Usage Guide: Show the radar information that the Radio detects on the managed AP. This command only shows the radar scanning information of 5G frequency range. If the parameter of radio is appointed as 2.4G, it will show the information that it does not support it.

The main content includes:

Field	Description
Channel	Shows the supported channel of this frequency range.
Radar Detection Required	It marks whether this channel needs the radar detection.
Radar Detected Status	It marks that whether this channel detected the radar signal.
Last Radar Detected Time	The time from the last radar detection to now.

Example: Show the radar information that the Radio detects on the managed AP whose MAC address is 00-03-0f-26-16-20.

AC# show wireless ap 00-03-0f-26-16-20 radio 2 radar status

Channel	Radar Detection Required	Radar Detected Status	Last Radar Detected Time
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36	No	No	0d:00:00:00
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**Commands for
Radio-frequency Management****Chapter 6 Commands for DFS**

40	No	No	0d:00:00:00
44	No	No	0d:00:00:00
48	No	No	0d:00:00:00
52	Yes	No	0d:00:00:00
56	Yes	No	0d:00:00:00
60	Yes	No	0d:00:00:00
64	Yes	No	0d:00:00:00
100	Yes	No	0d:00:00:00
104	Yes	No	0d:00:00:00
108	Yes	No	0d:00:00:00
112	Yes	No	0d:00:00:00
116	Yes	No	0d:00:00:00
120	Yes	No	0d:00:00:00
124	Yes	No	0d:00:00:00
128	Yes	No	0d:00:00:00
132	Yes	No	0d:00:00:00
136	Yes	No	0d:00:00:00
140	Yes	No	0d:00:00:00
149	No	No	0d:00:00:00
153	No	No	0d:00:00:00
157	No	No	0d:00:00:00
161	No	No	0d:00:00:00
165	No	No	0d:00:00:00