Aerohive Networks Inc.

AP170 Outdoor Antenna Alignment Test

Revision History

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| --- | --- | --- | --- |
| Version | Date | Author | Description |
| 1.0 | 07/05/2011 | Tiezhu Zhu | Initial version |
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Glossary and Abbreviations

ACSP: Advanced Channel Selection Procedure

# Introduction

AP170 is an outdoor AP using dual AR92xx chip based MB92 (2x2) radios with high power PAs. The AP base board utilizes AR7161 CPU with 128 MB of RAM and 64MB of FLASH.

ETSI and FCC both have different operating frequency ranges and power requirements for 5G outdoor.

Outdoor AP sometimes utilizes the directional/sector antennas to improve the radio range. In order to help steering the directional antenna to point to the right direction, we will implement a RSSI based utility called antenna alignment.

For outdoor APs with distance is more than 500 meters, we need to implement the radio operating range adjustment utility so that we can close the link with up to 10 Km distance.

# Test strategy for Outdoor AP170

## AP170 HW Info block

### Check HW info, outdoor AP170 antenna ID should be outdoor and other AP antenna ID should be indoor

### CLI Check: system environment [ indoor | outdoor ].

## Outdoor AP 5G Radio channel Plans.

**Antenna ID affection:**

### Under FCC country code, check if 5G channel be correctly selected if antenna set outdoor

### Under FCC country code, check if 5G channel be correctly selected if antenna set 0

### Under FCC enable DFS, check if 5G channel be correctly selected if antenna set outdoor

### Under FCC enable DFS, check if 5G channel be correctly selected if antenna set 0

### Under ETSI country code 826, check if 5G channel be correctly selected if antenna set outdoor

### Under ETSI country code 724 Spain, check if 5G channel be correctly selected if antenna set outdoor

### Under ETSI DFS enable, check if 5G channel be correctly selected if antenna set outdoor

### Under 2.4G FCC/ETSI, check if 2.4G channel be correctly selected if antenna set outdoor

### Under 2.4G FCC/ETSI, check if 2.4G channel be correctly selected if antenna set indoor

Channel Power checking:

### Check FCC channel power setting

### Check ETSI 826 channel power setting

### Check ETSI Spain Channel power setting

## Radio range test

**CLI Check:**

### CLI Check: Check if interface wifi0/wifi1 radio range X can be set, and X value is in scope

**Range Formula check:**

### Sniffer to check if ACK delay obey the rule under range 300/1200/3000/10000 meters

### Sniffer to check if CTS delay obey the rule under range 300/1200/3000/10000 meters

### Sniffer to check if NAV value correct under range 300/1200/3000/10000 meters

**CSMA/CS mechanism check:**

### Check if DIFS/PIFS/SIFS work as normal under range 10000

### Topology: One client is near Portal AP and another is far away 3000 meters to check if can conflict free

### Topology: Two client is far away portal AP with 3000 meters to check if it can conflict free

**Coverage Test:**

### Do Coverage test under range 300/600/1200/3000/5000/10000

### Under coverage test to check if AMPDU work

### Under coverage test to check SNR VS radio range VS MCS rate

### Under coverage test to check if voice work

### Under coverage test to check if packet loss reasonable

### Check the client connectivity stability under coverage test

### Check if chain 1\*1 1\*2 2\*1 work under different range

## Antenna Alignment Test

**CLI Check: exec antenna-alignment interface <wifiX> peer <peer-MAC> [interval <1 – 30>] [count <1 - 1000>] [text-size <16 – 1024>]**

### Check if wifi0/wifi1 and peer MAC can be pushed to AP

### Check if interval and count and text size can be pushed to AP

### The MP should do continuously scan until find portal AP both under dual and backhaul mode in 5Ghz band

### The MP should do continuously san until find portal AP both under dual and backhaul mode in 2.4Ghz band

### Antenna alignment can’t be conducted under access mode

### exec antenna alignment CLI to check if MP can receive beacon/ACK/response RSSI in wifi0 band

### exec antenna alignment CLI to check if MP can receive beacon/ACK/response RSSI in wifi1 band

### Under mesh state, change MP angle to check if RSSI value change

### Change CLI different interval/count/text size to check if peer and the sender obey the rule

### Under different a/b/g/n mode, check if antenna alignment still work

### Under different chain mode, check if antenna alignment work

### Set MP interval to 1 second and portal AP access link with one client, check if portal AP’s client will be disconnected

### After set antenna alignment interval to 1 second, check if portal AP’s client be disconnected under traffic mode

### After set antenna alignment interval to 1 second, check if portal AP’s client be disconnected under VOIP mode

### During antenna alignment, check if MP will break alignment after find radar

### During antenna alignment, check if MP will re-mesh after portal AP find radar

### Under antenna alignment, check if ACK/Beacon/Response RSSI value display correctly

### Run iperf and check MP performance, normally MP performance should be positive correlated with RSSI value

### Run iperf in MP and check if alignment data will be aggregated

**Datagram sniffer and RSSI value test**

### Sniffer antenna alignment request frame to check chain number and TX power/Chain/TX sequence and etc

### Sniffer antenna alignment response frame to check chain number and TX power/Chain/TX sequence and etc

### Sniffer antenna alignment ACK value

### Check if request datagram consistence with responding datagram

### Check if TX sequence overflow after 65535 seconds

### After the request frame lost, check if AP give reason and timeout mechanism work

### Check if RSSI value truly show real time value

### Check if uplink RSSI same as downlink RSSI

### Check if ACSP power have been truly feedback to peer and sender

# Topology

<List all topology used in your case if you have>

# Test Case

## AP170 HW Info block

### Check HW Info-1

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | AP170-HW-Info-1 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP110 AP120 AP170 AP320 AP340 AP330 AP350 | | |
| Description | Check bootload HW info, outdoor AP170 antenna ID should be 1 and other AP antenna ID should be 0 | | |
| Pre-condition |  | | |
| Test procedure | 1. Download the latest version image to all kinds of AP 2. Show HW-info to check antenna ID | | |
| Expect result | Only AP170 antenna ID is 1 and other AP’s antenna ID should be 0. | | |

### Check HW-info-2

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | AP170-HW-Info-2 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP170 | | |
| Description | **CLI Check:** system environment [ indoor | outdoor ] | | |
| Pre-condition |  | | |
| Test procedure | 1. Push system environment indoor CLI to AP170 2. Show hw-info to check antenna ID 3. Push system environment outdoor CLI to AP170 4. Show hw-info to check antenna ID 5. Push system environment outdoor CLI to AP330 6. Show hw-info to check antenna ID | | |
| Expect result | AP170 and other APs all can support both indoor and outdoor mode | | |

## Outdoor AP 5G Radio channel Plans

### Under FCC country code, check if 5G channel be correctly selected if antenna set 1

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Outdoor-channel-1 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP170 | | |
| Description | Under FCC country code, check if 5G channel be correctly selected if antenna set 1 | | |
| Pre-condition |  | | |
| Test procedure | 1. Set AP170 region code to FCC and reboot 2. Push CLI system environment outdoor to AP and reboot 3. Show interface wifi1 channel , check if wifi1 channel have been correctly selected | | |
| Expect result | Wifi1 channel will be correctly selected | | |

### Under FCC country code, check if 5G channel be correctly selected if antenna Id set to indoor

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Outdoor-channel-2 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP170 | | |
| Description | Under FCC country code, check if 5G channel be correctly selected if antenna Id set to indoor | | |
| Pre-condition |  | | |
| Test procedure | 1. Set AP170 region code to FCC and reboot 2. Push CLI system environment indoor to AP and reboot 3. Show interface wifi1 channel, check if wifi1 channel have been correctly selected | | |
| Expect result | Wifi1 channel will be correctly selected | | |

### Under FCC enable DFS, check if 5G channel be correctly selected if antenna set outdoor

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Outdoor-channel-3 | | |
| Priority | Accept | Automation Flag |  |
| Topology to use | AP170 | | |
| Description | Under FCC enable DFS, check if 5G channel be correctly selected if antenna set outdoor | | |
| Pre-condition |  | | |
| Test procedure | 1. Set AP170 region code to FCC and reboot 2. Enable DFS channel and save configure 3. Push CLI system environment outdoor to AP and reboot 4. Show interface wifi1 channel , check if wifi1 DFS channel have been correctly selected | | |
| Expect result | Wifi1 channel will be correctly selected | | |

### Under FCC enable DFS, check if 5G channel be correctly selected if antenna set indoor

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Outdoor-channel-4 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP170 | | |
| Description | Under FCC enable DFS, check if 5G channel be correctly selected if antenna set 0 | | |
| Pre-condition |  | | |
| Test procedure | 1. Set AP170 region code to FCC and reboot 2. Enable DFS channel and save configure 3. Push CLI system environment indoor to AP and reboot 4. Show interface wifi1 channel , check if wifi1 DFS channel have been correctly selected | | |
| Expect result | Wifi1 channel will be correctly selected | | |

### Under ETSI 826 country code, check if 5G channel be correctly selected if antenna set 1

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Outdoor-channel-5 | | |
| Priority | Accept | Automation Flag |  |
| Topology to use | AP170 | | |
| Description | Under ETSI 826 country code, check if 5G channel be correctly selected if antenna set 1 | | |
| Pre-condition |  | | |
| Test procedure | 1. Set AP170 region code to world and set country code to 826 and reboot 2. Push CLI system environment outdoor to AP and reboot 3. Show interface wifi1 channel , check if wifi1 channel have been correctly selected | | |
| Expect result | Wifi1 channel will be correctly selected | | |

### Under ETSI 724 Spain country code, check if 5G channel be correctly selected if antenna set 1

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Outdoor-channel-6 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP170 | | |
| Description | Under ETSI 724 Spain country code, check if 5G channel be correctly selected if antenna set 1 | | |
| Pre-condition |  | | |
| Test procedure | 1. Set AP170 region code to world and set country code to 724 and reboot 2. Push CLI system environment outdoor to AP and reboot 3. Show interface wifi1 channel , check if wifi1 channel have been correctly selected | | |
| Expect result | Wifi1 channel will be correctly selected | | |

### Under ETSI DFS enable, check if 5G channel be correctly selected if antenna set 1

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Outdoor-channel-7 | | |
| Priority | Accept | Automation Flag |  |
| Topology to use | AP170 | | |
| Description | Under ETSI 826 country code enable DFS, check if 5G channel be correctly selected if antenna set 1 | | |
| Pre-condition |  | | |
| Test procedure | 1. Set AP170 region code to world and country code to 826, then reboot 2. Enable DFS channel and save configure 3. Push CLI system environment outdoor to AP and reboot 4. Show interface wifi1 channel , check if wifi1 DFS channel have been correctly selected | | |
| Expect result | Wifi1 channel will be correctly selected | | |

### Under 2.4G FCC/ETSI, check if 2.4G channel be correctly selected if antenna set 1

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Outdoor-channel-8 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP170 | | |
| Description | Under 2.4G FCC/ETSI, check if 2.4G channel be correctly selected if antenna set 1 | | |
| Pre-condition |  | | |
| Test procedure | 1. Set AP170 region code to FCC and reboot 2. Push CLI system environment outdoor to AP and reboot 3. Show interface wifi0 channel , check if wifi1 channel have been correctly selected 4. Set AP170 region code to world 826 and reboot 5. Push CLI system environment outdoor to AP and reboot 6. Show interface wifi0 channel , check if wifi1 channel have been correctly selected | | |
| Expect result | Wifi0 channel will be correctly selected | | |

### Under 2.4G FCC/ETSI, check if 2.4G channel be correctly selected if antenna set 0

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Outdoor-channel-9 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP170 | | |
| Description | Under 2.4G FCC/ETSI, check if 2.4G channel be correctly selected if antenna set 0 | | |
| Pre-condition |  | | |
| Test procedure | 1. Set AP170 region code to FCC and reboot 2. Push CLI system environment indoor to AP and reboot 3. Show interface wifi0 channel , check if wifi1 channel have been correctly selected 4. Set AP170 region code to world 826 and reboot 5. Push CLI system environment indoor to AP and reboot 6. Show interface wifi0 channel , check if wifi1 channel have been correctly selected | | |
| Expect result | Wifi0 channel will be correctly selected | | |

### Check FCC channel power setting

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Outdoor-channel-10 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP170 | | |
| Description | Under FCC region, check if channel power obey FCC rule under outdoor mode | | |
| Pre-condition |  | | |
| Test procedure | 1. Set AP region to FCC and set outdoor mode, then reboot 2. Set wifi0/wifi1 static power to 20dbm 3. Set wifi0 static channel to 1 and show acsp to check channel 1 max power 4. repeat step 3 from channel 1 to 11 and check if max power obey the rule 5. set wifi1 static channel to 36 and show acsp to check channel 36 max power 6. repeat step 5 from channel 36 to 165 and check if max power obey the rule | | |
| Expect result | All wifi0 and wifi1 power should obey the rule | | |

### Check ETSI 826 channel power setting

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Outdoor-channel-11 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP170 | | |
| Description | Under ETSI 826 country, check if channel power obey ETSI rule under outdoor mode | | |
| Pre-condition |  | | |
| Test procedure | 1. Set AP region to world country code 826 and set outdoor mode, then reboot 2. Set wifi0/wifi1 static power to 20dbm 3. Set wifi0 static channel to 1 and show acsp to check channel 1 max power 4. repeat step 3 from channel 1 to 11 and check if max power obey the rule 5. set wifi1 static channel to 36 and show acsp to check channel 36 max power 6. repeat step 5 from channel 36 to 140 and check if max power obey the rule | | |
| Expect result | All wifi0 and wifi1 power should obey the rule | | |

### Check ETSI 724 Spain channel power setting

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Outdoor-channel-12 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP170 | | |
| Description | Under ETSI 724 country, check if channel power obey ETSI rule under outdoor mode | | |
| Pre-condition |  | | |
| Test procedure | 1. Set AP region to world country code 724 and set outdoor mode, then reboot 2. Set wifi0/wifi1 static power to 20dbm 3. Set wifi0 static channel to 1 and show acsp to check channel 1 max power 4. repeat step 3 from channel 1 to 11 and check if max power obey the rule 5. set wifi1 static channel to 36 and show acsp to check channel 36 max power 6. repeat step 5 from channel 36 to 140 and check if max power obey the rule | | |
| Expect result | All wifi0 and wifi1 power should obey the rule | | |

## Radio range Test

### CLI Check:

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Radio-range-1 | | |
| Priority | Accept | Automation Flag |  |
| Topology to use | AP170 | | |
| Description | CLI Check: Check if interface wifi0/wifi1 radio range X can be set, and X value is in scope | | |
| Pre-condition | CLI: Interface wifiX radio range X | | |
| Test procedure | 1. Push CLI: interface wifi0 radio range 600 to wifi0 and check if it success 2. Push CLI: interface wifi1 radio range 600 to wifi1 and check if it success 3. Push CLI: interface wifi1 radio range 300 to wifi1 and check if it success 4. Push CLI: interface wifi1 radio range 10000 to wifi1 and check if it success 5. Push CLI: interface wifi1 radio range 1 to wifi1 and check if it success 6. Push CLI: interface wifi1 radio range 10001 to wifi1 and check if it success | | |
| Expect result |  | | |

### Sniffer to check if ACK delay obey the rule under range 300/1200/3000/10000 meters

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Radio-range-2 | | |
| Priority | Accept | Automation Flag |  |
| Topology to use | AP170 ------------client | | |
| Description | Sniffer to check if ACK delay obey the rule under range 300/1200/3000/10000 meters | | |
| Pre-condition | Client connected with AP170 in relative clear environment | | |
| Test procedure | 1. Push radio range 300 CLI to AP170 and put client far away 300 meters 2. Run iperf downlink in AP and client 3. Sniffer ACK frame to check if ACK frame delay obey radio range rule 4. Push radio range 1200 to AP170 and repeat step 1 to step 3 5. Push radio range 3000 to AP170 and repeat step 1 to step 3 6. Push radio range 10000 to AP170 and repeat step 1 to step 3 | | |
| Expect result | Different radio range VS different delay | | |

### Sniffer to check if CTS delay obey the rule under range 300/1200/3000/10000 meters

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Radio-range-3 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP170 ------------client | | |
| Description | Sniffer to check if CTS delay obey the rule under range 300/1200/3000/10000 meters | | |
| Pre-condition | Client connected with AP170 in relative clear environment | | |
| Test procedure | 1. Push radio range 300 CLI to AP170 and put client far away 300 meters 2. Run iperf downlink in AP and client 3. Sniffer CTS frame to check if CTS frame delay obey radio range rule 4. Push radio range 1200 to AP170 and repeat step 1 to step 3 5. Push radio range 3000 to AP170 and repeat step 1 to step 3 6. Push radio range 10000 to AP170 and repeat step 1 to step 3 | | |
| Expect result | Different radio range VS different delay | | |

### Sniffer to check if NAV value correct under range 300/1200/3000/10000 meters

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Radio-range-4 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP170 ------------client | | |
| Description | Sniffer to check if NAV value correct under range 300/1200/3000/10000 meters | | |
| Pre-condition | Client connected with AP170 in relative clear environment | | |
| Test procedure | 1. Push radio range 300 CLI to AP170 and put client far away 300 meters 2. Run iperf downlink in AP and client 3. Sniffer RTS and CTS frame to check if NAV also include radio range 4. Push radio range 1200 to AP170 and repeat step 1 to step 3 5. Push radio range 3000 to AP170 and repeat step 1 to step 3 6. Push radio range 10000 to AP170 and repeat step 1 to step 3 | | |
| Expect result | Different radio range VS different delay | | |

### Check if DIFS/PIFS/SIFS work as normal under range 10000

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Radio-range-5 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP170 ------------client 1  |  Client2 | | |
| Description | Check if DIFS/PIFS/SIFS work as normal under range 10000 | | |
| Pre-condition | Client1 and client2 connected with AP170 in relative clear environment | | |
| Test procedure | 1. Push radio range 10000 CLI to AP170 and put client far away 10000 meters 2. Run iperf from AP to client1 and client2 at same time 3. Sniffer NAV value and check if DIFS work normally 4. Simulate radar events and sniffer channel switch IE, 5. Check if PIFS work normally and considering radio range 6. Run iperf from AP to client1 7. Sniffer NAV value and check if SIFS work normally | | |
| Expect result | Even at largest range, DIFS/PIFS/SIFS still can work | | |

### Topology: One client is near Portal AP and another is far away 3000 meters to check if can conflict

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Radio-range-6 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP170 ------------client 1  |  Client2 | | |
| Description | Topology: One client is near Portal AP and another is far away 3000 meters to check if can conflict | | |
| Pre-condition | Client1 and client2 connected with AP170 in relative clear environment | | |
| Test procedure | 1. Set radio range 3000 to portal AP 2. Client1 is 5 meters away AP and client2 is 3000 meters away AP 3. Run traffic in client1 and client2 at the same time 4. Sniffer CSMA/CS mechanism to check the conflict and show interface wifi0 counter to check CRC rate | | |
| Expect result | No conflict for radio range issue | | |

### Topology: Two client is far away portal AP with 3000 meters to check if it can conflict

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Radio-range-7 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP170 ------------client 1  |  Client2 | | |
| Description | Topology: Two client is far away portal AP with 3000 meters to check if it can conflict | | |
| Pre-condition | Client1 and client2 connected with AP170 in relative clear environment | | |
| Test procedure | 1. Set radio range 3000 to portal AP 2. Client1 and client2 are3000 meters away AP 3. Run traffic in client1 and client2 at the same time 4. Sniffer CSMA/CS mechanism to check the conflict and show interface wifi0 counter to check CRC rate | | |
| Expect result | No conflict for radio range issue | | |

### Do Coverage test under range 300/600/1200/3000/5000/10000

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Radio-range-8 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP170 ------------client 1  |  Client2 | | |
| Description | Do Coverage test under range 300/600/1200/3000/5000/10000 | | |
| Pre-condition | Client1 connected with AP170 in relative clear environment, client2 connect AP170 through Ethernet line | | |
| Test procedure | 1. Set radio range 300 for portal AP in wifi1 2. Connect client1 in wifi1 and connect client2 in eth0 3. Clear in wifi0 counter and clear ssid counter 4. Run downlink chariot from client2 to client1 and record the throughput 5. Set radio range to 600/1200/3000/5000/10000 and repeat step 1 to step 4, record all throughput 6. Connect client1 to wifi0 band and repeat above test step from step1 to step5 | | |
| Expect result | We can support stated range coverage test | | |

### Under coverage test to check if AMPDU work

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Radio-range-9 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP170 ------------client 1  |  Client2 | | |
| Description | Under coverage test to check if AMPDU work | | |
| Pre-condition | Client1 connected with AP170 in relative clear environment, client2 connect AP170 through Ethernet line | | |
| Test procedure | 1. Set radio range 300 for portal AP in wifi1 2. Connect client1 in wifi1 and connect client2 in eth0 3. Clear in wifi0 counter and clear ssid counter 4. Run downlink chariot from client2 to client1 and record the throughput 5. Show in wifi1 counter and Sniffer data frame to check if AMPDU work 6. Set radio range to 600/1200/3000/5000/10000 and repeat step 1 to step 6, check the AMPDU function | | |
| Expect result | AMPDU will be triggered in some range | | |

### Under coverage test to check SNR VS radio range VS MCS rate

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Radio-range-10 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP170 ------------client 1  |  Client2 | | |
| Description | Under coverage test to check SNR VS radio range VS MCS rate | | |
| Pre-condition | Client1 connected with AP170 in relative clear environment, client2 connect AP170 through Ethernet line | | |
| Test procedure | 1. Set radio range 300 for portal AP in wifi1 2. Connect client1 in wifi1 and connect client2 in eth0 3. Clear in wifi0 counter and clear ssid counter 4. Run downlink chariot from client2 to client1 and record the throughput 5. Show interface ssid XXX station MAC XXXX to check its SNR and mcs rate 6. Set radio range to 600/1200/3000/5000/10000 and repeat step 1 to step 6, check SNR and MCS rate | | |
| Expect result | SNR and MCS rate should decrease with radio range further | | |

### Under coverage test to check if voice work

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Radio-range-11 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP170 ------------client 1  |  Client2 | | |
| Description | Under coverage test to check if voice work | | |
| Pre-condition | Client1 connected with AP170 in relative clear environment, client2 connect AP170 through Ethernet line | | |
| Test procedure | 1. Set radio range 300 for portal AP in wifi1 2. Connect client1 in wifi1 and connect client2 in eth0 3. Clear in wifi0 counter and clear ssid counter 4. Run qos 6 voice traffic from client1 to client2, check if voice traffic run smoothly 5. Set radio range to 600/1200/3000/5000/10000 and repeat step 1 to step 4, check voice traffic | | |
| Expect result | Voice traffic can run in some radio range | | |

### Under coverage test to check if packet loss reasonable

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Radio-range-12 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP170 ------------client 1  |  Client2 | | |
| Description | Under coverage test to check if packet loss reasonable | | |
| Pre-condition | Client1 connected with AP170 in relative clear environment, client2 connect AP170 through Ethernet line | | |
| Test procedure | 1. Set radio range 300 for portal AP in wifi1 2. Connect client1 in wifi1 and connect client2 in eth0 3. Clear in wifi0 counter and clear ssid counter 4. Run traffic and check if packet loss reasonable compared with RSSI, and set more high radio range to check if packet loss reduction 5. Set radio range to 600/1200/3000/5000/10000 and repeat step 1 to step 4, check packet loss | | |
| Expect result | Packet loss will be reasonable for different radio range setting | | |

### Check the client connectivity stability under coverage test

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Radio-range-13 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP170 ------------client 1  |  Client2 | | |
| Description | Check the client connectivity stability under coverage test | | |
| Pre-condition | Client1 connected with AP170 in relative clear environment, client2 connect AP170 through Ethernet line | | |
| Test procedure | 1. Set radio range 300 for portal AP in wifi1 2. Connect client1 in wifi1 and connect client2 in eth0 3. Clear in wifi0 counter and clear ssid counter 4. Run traffic and check if client stability, and set more high radio range to check if client stability improvement 5. Set radio range to 600/1200/3000/5000/10000 and repeat step 1 to step 4, check client stability | | |
| Expect result | Client should be stable after take out RSSI issue | | |

### Check if chain 1\*1 1\*2 2\*1 work under different range

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Radio-range-14 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP170 ------------client 1  |  Client2 | | |
| Description | Check if chain 1\*1 1\*2 2\*1 work under different range | | |
| Pre-condition | Client1 connected with AP170 in relative clear environment, client2 connect AP170 through Ethernet line | | |
| Test procedure | 1. Set radio range 300 for portal AP in wifi1 and set radio chain to 2\*2 2. Connect client1 in wifi1 and connect client2 in eth0 3. Clear in wifi0 counter and clear ssid counter 4. Run traffic and check if client stability 5. Set radio range to 600/1200/3000/5000/10000 and repeat step 1 to step 4, check client stability 6. Set AP chain to 1\*1/1\*2/2\*1, and repeat step 1 to step 5 | | |
| Expect result | AP’s all chain mode also can work in different radio range | | |

## Antenna Alignment Test

### CLI Check-1

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-1 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP MP | | |
| Description | Check if wifi0/wifi1 and peer MAC can be pushed to AP | | |
| Pre-condition | CLI Check: exec antenna-alignment interface <wifiX> peer <peer-MAC> [interval <1 – 30>] [count <1 - 1000>] [text-size <16 – 1024>] | | |
| Test procedure | 1. Pushed CLI wifi0 to MP and check result 2. Pushed CLI wifi1 to MP and check result 3. Pushed CLI AP wifi0 MAC address to MP and check the result 4. Pushed CLI AP wifi1 MAC address to MP and check the result | | |
| Expect result | All wifi0 and wifi1 can be set to MP | | |

### CLI Check-2

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-2 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP MP | | |
| Description | Check if interval and count and text size can be pushed to AP | | |
| Pre-condition | CLI Check: exec antenna-alignment interface <wifiX> peer <peer-MAC> [interval <1 – 30>] [count <1 - 1000>] [text-size <16 – 1024>] | | |
| Test procedure | 1. Pushed CLI interval 1 to 30 into MP and check result 2. Pushed CLI interval 0 and 31 into MP and check result 3. Pushed CLI count 1 to 1000 into Mp and check result 4. Pushed CLI count 0 and 1001 into MP and check result 5. Pushed text size 16 to 1024 into MP and check result 6. Pushed text size 15 and 1025 into MP and check result | | |
| Expect result | All digital num can be well distinguished | | |

### The MP should do continuously scan until find portal AP both under dual and backhaul mode in 5Ghz band

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-3 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP MP | | |
| Description | The MP should do continuously scan until find portal AP both under dual and backhaul mode in 5Ghz band | | |
| Pre-condition | MP is far away 3000 meters from portal AP | | |
| Test procedure | 1. Configure portal AP and MP with same hive 2. Open debug dcd chnl mode for MP and set MP to outdoor mode 3. Set wifi1 band to backhaul mode 4. Check if MP continuously do scan until find portal AP 5. Set wifi1 band to dual mode 6. Check if MP continuously do scan until find portal AP | | |
| Expect result | MP will continuously do scan | | |

### The MP should do continuously scan until find portal AP both under dual and backhaul mode in 2.4Ghz band

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-4 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP MP | | |
| Description | The MP should do continuously scan until find portal AP both under dual and backhaul mode in 2.4Ghz band | | |
| Pre-condition | MP is far away 3000 meters from portal AP | | |
| Test procedure | 1. Configure portal AP and MP with same hive 2. Open debug dcd chnl mode for MP and set MP to outdoor mode 3. Set wifi0 band to backhaul mode 4. Check if MP continuously do scan until find portal AP 5. Set wifi0 band to dual mode 6. Check if MP continuously do scan until find portal AP | | |
| Expect result | MP will continuously do scan | | |

### Antena alignment can’t be conducted under access mode

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-5 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP MP | | |
| Description | Antenna alignment can’t be conducted under access mode | | |
| Pre-condition | MP is far away 3000 meters from portal AP | | |
| Test procedure | 1. Configure MP and AP with same Hive 2. Configure MP wifi1/wifi0 access mode 3. Exec antenna alignment CLI in wifi0 and check if alignment work 4. Exec antenna alignment CLI in wifi1 and check if alignment work | | |
| Expect result | Access mode can’t conduct antenna alignment | | |

### exec antenna alignment CLI to check if MP can receive beacon/ACK/response RSSI in wifi0 band

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-6 | | |
| Priority | Accept | Automation Flag |  |
| Topology to use | AP MP | | |
| Description | exec antenna alignment CLI to check if MP can receive beacon/ACK/response RSSI in wifi0 band | | |
| Pre-condition | MP is far away 3000 meters from portal AP | | |
| Test procedure | 1. Configure AP/MP with same hive 2. Configure AP/MP wifi0 band dual mode 3. Exec antenna alignment CLI in MP 4. Check if MP will show beacon/ACK/response RSSI in console | | |
| Expect result | MP should display beacon/ACK/response RSSI | | |

### exec antenna alignment CLI to check if MP can receive beacon/ACK/response RSSI in wifi1 band

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-7 | | |
| Priority | Accept | Automation Flag |  |
| Topology to use | AP MP | | |
| Description | exec antenna alignment CLI to check if MP can receive beacon/ACK/response RSSI in wifi1 band | | |
| Pre-condition | MP is far away 3000 meters from portal AP | | |
| Test procedure | 1. Configure AP/MP with same hive 2. Configure AP/MP wifi1 band dual mode 3. Exec antenna alignment CLI in MP 4. Check if MP will show beacon/ACK/response RSSI in console | | |
| Expect result | MP should display beacon/ACK/response RSSI | | |

### Under mesh state, change MP angle to check if RSSI value change

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-8 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP MP | | |
| Description | Under mesh state, change MP angle to check if RSSI value change | | |
| Pre-condition | MP is far away 3000 meters from portal AP | | |
| Test procedure | 1. Configure AP/MP with same hive 2. Configure AP/MP wifi1 band dual mode 3. Exec antenna alignment CLI in MP 4. Check if MP will show beacon/ACK/response RSSI in console 5. Change MP angle and check if RSSI value change | | |
| Expect result | RSSI value should change with MP angle change | | |

### Change CLI different interval/count/text size to check if peer and the sender obey the rule

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-9 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP MP | | |
| Description | Change CLI different interval/count/text size to check if peer and the sender obey the rule | | |
| Pre-condition | MP is far away 3000 meters from portal AP | | |
| Test procedure | 1. Configure AP/MP with same hive 2. Configure AP/MP wifi1 band dual mode 3. Exec antenna alignment CLI in MP and set interval to 3 seconds 4. Check if MP will show beacon/ACK/response RSSI base on 3seconds 5. Exec antenna alignment CLI in MP and set count to 100 6. Check if MP will show beacon/ACK/response RSSI base on 100 count 7. Exec antenna alignment CLI in MP and set text size to 20 with character AAA 8. Sniffer to check if text size is 20 and character is AA | | |
| Expect result | RSSI and text will change base on setting parameter | | |

### Under different a/b/g/n mode, check if antenna alignment still work

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-10 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP MP | | |
| Description | Under different a/b/g/n mode, check if antenna alignment still work | | |
| Pre-condition | MP is far away 3000 meters from portal AP | | |
| Test procedure | 1. Configure AP with same hive and wifi1/wifi0 dual mode 2. Configure MP wifi0 b/g mode and disable wifi1 3. After MP have meshed with portal AP in wifi0, exec antenna alignment CLI to check if RSSI value dynamic change 4. Configure MP wifi1 11a mode and disable wifi0 5. After MP have meshed with portal AP in wifi1, exec antenna alignment CLI to check if RSSI value dynamic change 6. Configure MP wifi1 11na mode and disable wifi0 7. After MP have meshed with portal AP in wifi1, exec antenna alignment CLI to check if RSSI value dynamic change | | |
| Expect result | a/b/g /n mode all can be alignment | | |

### Under different chain mode, check if antenna alignment work

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-11 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP MP | | |
| Description | Under different chain mode, check if antenna alignment work | | |
| Pre-condition | MP is far away 3000 meters from portal AP | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. Configure MP with chain 1\*2 and portal AP 2\*2 3. After MP have meshed with portal AP in wifi1, exec antenna alignment CLI to check if RSSI value dynamic change 4. Configure MP with chain 2\*1 and portal AP 2\*2 5. After MP have meshed with portal AP in wifi1, exec antenna alignment CLI to check if RSSI value dynamic change 6. Configure MP with chain 1\*1 and portal AP 2\*2 7. After MP have meshed with portal AP in wifi1, exec antenna alignment CLI to check if RSSI value dynamic change 8. Configure MP with chain 2\*2 and portal AP 1\*1 9. After MP have meshed with portal AP in wifi1, exec antenna alignment CLI to check if RSSI value dynamic change | | |
| Expect result | All chain mode can be work | | |

### Set MP interval to 1 second and portal AP access link with one client, check if portal AP’s client will be disconnected

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-12 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | Under different chain mode, check if antenna alignment work | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal AP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, exec antenna alignment and set interval to 1 second 3. In portal AP, check if client will be disconnected | | |
| Expect result | Client will keep connected with AP | | |

### After set antenna alignment interval to 1 second, check if portal AP’s client will be disconnected under traffic mode

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-13 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | After set antenna alignment interval to 1 second, check if portal AP’s client will be disconnected under traffic mode | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal AP connect with one client | | |
| Test procedure | 1. Configure AP/Mp with same hive 2. Exec antenna alignment CLI on MP and set interval to 1 second 3. Run iperf in client and portal AP, check if client traffic break | | |
| Expect result | Client will keep the traffic | | |

### After set antenna alignment interval to 1 second, check if portal AP’s client will be disconnected under VOIP mode

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-14 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | After set antenna alignment interval to 1 second, check if portal AP’s client will be disconnected under VOIP mode | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal AP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, exec antenna alignment and set interval to 1 second 3. Run VOIP in client and portal AP, check if voice will be broken | | |
| Expect result | Voice will be kept | | |

### During antenna alignment, check if MP will break alignment after find radar

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-15 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | During antenna alignment, check if MP will break alignment after find radar | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal AP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, exec antenna alignment and set interval to 1 second 3. Simulate radar events in MP and check if MP will stop alignment | | |
| Expect result | MP will stop alignment and re-mesh | | |

### During antenna alignment, check if MP will re-mesh after portal AP find radar

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-16 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | During antenna alignment, check if MP will re-mesh after portal AP find radar | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal AP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, exec antenna alignment and set interval to 1 second 3. Simulate radar events in portal AP and check if MP will re-mesh with portal AP | | |
| Expect result | MP will re-mesh with portal AP | | |

### Under antenna alignment, check if ACK/Beacon/Response RSSI value display correctly

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-17 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | Under antenna alignment, check if ACK/Beacon/Response RSSI value display correctly | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal AP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, exec antenna alignment and set interval to 1 second 3. Check if ACK/Beacon/Response RSSI is same in relative clear air | | |
| Expect result | ACK/Beacon/Response RSSI should be similar in open clear air | | |

### Run iperf and check MP performance, normally MP performance should be positive related with RSSI value

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-18 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | Run iperf and check MP performance, normally MP performance should be positive related with RSSI value | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal MP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, connect client to MP 3. exec antenna alignment and set interval to 1 second, ACK/Beacon/response RSSI will show in MP 4. Run downlink iperf in portal AP and client, compare the data rate with alignment RSSI. | | |
| Expect result | Throughput curve will have positive correlation with RSSI | | |

### Run iperf in MP and check if alignment data will be aggregated

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-19 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | Run iperf and check MP performance, normally MP performance should be positive related with RSSI value | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal MP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, connect client to MP 3. exec antenna alignment and set interval to 1 second, ACK/Beacon/response RSSI will show in MP 4. Run downlink iperf in portal AP and client, sniffer data frame and check if alignment data frame be aggregated | | |
| Expect result | Alignment data frame should not be aggregated | | |

### Sniffer antenna alignment request frame to check chain number and TX power/Chain/TX sequence and etc

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-20 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | Sniffer antenna alignment request frame to check chain number and TX power/Chain/TX sequence and etc | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal MP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, exec antenna alignment and set interval to 1 second 3. Sniffer request frame to get TX power/chain/TX sequence 4. Show acsp and show interface wifi0/wifi1 to check if request frame include correct TX power/Chain. 5. And check if TX sequence continuously increase every 1 second | | |
| Expect result | TX power and TX chain should match with radio setting. TX sequence increase every second | | |

### Sniffer antenna alignment response frame to check chain number and TX power/Chain/TX sequence and etc

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-21 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | Sniffer antenna alignment response frame to check chain number and TX power/Chain/TX sequence and etc | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal MP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, exec antenna alignment and set interval to 1 second 3. Sniffer response frame to get TX power/chain/TX sequence 4. Show acsp and show interface wifi0/wifi1 to check if request frame include correct TX power/Chain. 5. And check if TX sequence continuously increase every 1 second | | |
| Expect result | TX power and TX chain should match with radio setting. TX sequence increase every second | | |

### Sniffer antenna alignment ACK value

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-22 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | Sniffer antenna alignment ACK value | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal MP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, exec antenna alignment and set interval to 1 second 3. Sniffer ACK frame to check if ACK include normal information | | |
| Expect result |  | | |

### Check if responding datagram consist with request datagram

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-23 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | Check if request datagram consistence with responding datagram | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal MP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, exec antenna alignment and set interval to 1 second 3. Sniffer request datagram and responding datagram, check if responding datagram consist with request datagram every second | | |
| Expect result | Responding frame should consist with request frame | | |

### Check if TX sequence overflow after 65535 seconds

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-24 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | Check if TX sequence overflow after 65535 seconds | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal MP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, exec antenna alignment and set interval to 1 second 3. Check if TX sequence overflow after 65535 seconds | | |
| Expect result | No overflow | | |

### After the request frame lost, check if AP give reason and timeout mechanism work

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-25 | | |
| Priority | High | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | After the request frame lost, check if AP give reason and timeout mechanism work | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal MP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, exec antenna alignment and set interval to 1 second 3. During alignment, change MP static power from 20dbm to 1dbm, And request frame maybe lost 4. If request frame lost, the peer will not give out ACK frame or response frame. Check if MP give lost reason 5. Keep weak signal for MP and check if MP will give timeout for response frame lost | | |
| Expect result | MP will give frame lost reason | | |

### Check if RSSI value truly show real time value

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-26 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | Check if RSSI value truly show real time value | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal MP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, exec antenna alignment and set interval to 1 second 3. Show acsp neighbor to check the power and compare with real time RSSI 4. Put one iron board between MP and portal AP, the real time RSSI value will decrease | | |
| Expect result | RSSI value should match with neighbor SNR and change with environment | | |

### Check if uplink RSSI same as downlink RSSI

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-27 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | Check if uplink RSSI same as downlink RSSI | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal MP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. Set portal AP and MP with same power 19dbm 3. After MP meshed with portal, exec antenna alignment and set interval to 1 second 4. Sniffer respond frame and check request frame RSSI 5. Check if request frame RSSI similar with respond frame RSSI | | |
| Expect result | Request frame RSSI should almost same with respond frame in open clear air for same channel and same RF environment | | |

### Check if ACSP power have been truly feedback to peer and sender

|  |  |  |  |
| --- | --- | --- | --- |
| Case ID | Antenna-alignment-28 | | |
| Priority | Middle | Automation Flag |  |
| Topology to use | AP MP  |  Client | | |
| Description | Check if uplink RSSI same as downlink RSSI | | |
| Pre-condition | MP is far away 3000 meters from portal AP and portal MP connect with one client | | |
| Test procedure | 1. Configure AP with same hive and wifi1 dual mode 2. After MP meshed with portal, exec antenna alignment and set interval to 1 second 3. During antenna alignment, change MP static power and sniffer request frame and respond frame, check if TX power have been reflected in request frame and respond frame 4. Change portal AP static power and sniffer respond frame, check if TX power have been reflected in respond frame | | |
| Expect result | TX power change will be indicated in request and respond frame | | |

# Stress Test Case

# Duration Test Case

# Performance Test Case

# Scalability Test Case

# Compatibility Test Case

# CLI Management (Automation Status: Yes/No)

system environment [ indoor | outdoor ]

interface <wifix> radio range <number>

exec antenna-alignment interface <wifix> peer <MAC\_addr> count <number> interval <number> text-size <number>

# GUI Management-HiveManager

<List HM test case or test log>

# GUI Management-HiveUI

<List HiveUI test case or test log>