# ETSI EN 301 893 V2.1.1 (2017-05)

# DYNAMIC FREQUENCY SELECTION

# TEST REPORT

For

## SHENZHEN TENDA TECHNOLOGY CO.,LTD.

6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China. 518052

**Tested Model: RX12 Pro**
**Multiple Model: TX12 Pro**

| | |
|---|---|
| **Report Type:** Original Report | **Product Type:** AX3000 Dual Band Gigabit WiFi 6 Router |
| **Report Number:** | DG2220812-36651E-22B |
| **Report Date:** | 2022-11-03 |
| **Reviewed By:** | Rocky Xiao<br>RF Engineer |
| **Approved By:** | Ivan Cao<br>Assistant Manager |
| **Test Laboratory:** | Bay Area Compliance Laboratories Corp. (Dongguan)<br>No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China<br>Tel: +86-769-86858888<br>Fax: +86-769-86858891<br>www.baclcorp.com.cn |

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# GENERAL INFORMATION

## Product Description for Equipment under Test (EUT)

| | | |
|---|---|---|
| **Product Name:** | | AX3000 Dual Band Gigabit WiFi 6 Router |
| **Tested Model:** | | RX12 Pro |
| **Multiple Model:** | | TX12 Pro |
| **Model defference:** | | Refer to the DOS |
| **Rated Input Voltage:** | | 12Vdc from adapter |
| **EU Adapter Information** | **Model:** | BN074-A18012E |
| | **Input:** | 100-240Vac 50/60Hz 0.6A |
| | **Output:** | 12Vdc 1.5A |
| **UK Adapter Information** | **Model:** | BN074-A18012B |
| | **Input:** | 100-240Vac 50/60Hz 0.6A |
| | **Output:** | 12Vdc 1.5A |
| **Serial Number:** | | DG2220812-36651E-RF -S1 |
| **EUT Received Date:** | | 2022.8.15 |
| **EUT Received Status:** | | Good |

## Technical Specification

| | | |
|---|---|---|
| **Operation Frequency Range (MHz):** | | 5250~5350 MHz |
| **RF Output Power (EIRP) (dBm):** | | 19.97 |
| **Number of Chains** | **Transmit:** | 2 |
| | **Receive:** | 2 |
| **Antenna Gain (dBi)▲:** | | 6 |
| **Beamforming Gain(dB)▲:** | | 3 |
| **Modulation Type:** | | OFDM, OFDMA |

## Objective

The following type approved report of radio equipment is prepared on behalf of ***SHENZHEN TENDA TECHNOLOGY CO.,LTD*** in accordance with ETSI EN 301 893 V2.1.1 (2017-05), Broadband Radio Access Networks (BRAN); 5 GHz high performance RLAN; Harmonized EN covering the essential requirements of article 3.2 of Directive 2014/53/EU.

The objective of the manufacturer is to determine compliance with ETSI EN 301 893 V2.1.1 (2017-05) for the following tests:

Dynamic Frequency Selection (DFS)

In order to determine compliance, the manufacturer or a contracted laboratory makes measurements and takes the necessary steps to ensure that the equipment complies with the appropriate technical standards.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product which may result in lowering the immunity should be checked to ensure that compliance has been maintained (i.e., harnessing and/or I/O cable change, etc.).

## Related Submittal(s)/Grchain (s)

No Related Submittals.

## Test Methodology

All measurement contained in this report were conducted in accordance with EN 301 893 V2.1.1 (2017-05) §4.2.6.

## Declarations

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk '▲'. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.
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# SYSTEM TEST CONFIGURATION

## Justification

The system was configured for testing according to EN 301 893.

## EUT Exercise Software

N/A

## Support Equipment List and Details

| Manufacturer | Description | Model | Serial Number |
|---|---|---|---|
| Lenovo | Laptop | 2347A21 | 00331-10000-00001-AA887 |
| Asustek | Laptop | FX504G | J6NRCX014047232 |

## External Cable

| Cable Description | Shielding Type | Ferrite Core | Length (m) | From Port | To |
|---|---|---|---|---|---|
| / | / | / | / | / | / |

# SUMMARY OF TEST RESULTS

The following result table represents the list of measurements required under the EN 301 893 V2.1.1 (2017-05).

| Items | Description of Test | Result |
|---|---|---|
| Channel Available Check | Initial Channel Availability Check Time (CAC) | Compliant |
| | Radar Burst at the Beginning of the CAC | Compliant |
| | Radar Burst at the End of the CAC | Compliant |
| Channel Move Time | Channel Move Time | Compliant |
| | Channel Closing Transmission Time | Compliant |
| Non-Occupancy Period | Statistical Performance Check | Compliant |
| In-Service Monitoring | Probability and Availability of the Usable Channels | Compliant* |

Note: EUT is a master device.
Compliant*: It's declared by manufacturer.

# APPLICABLE STANDARDS

## DFS Requirement

EN 301 893 V2.1.1 §4.2.6; Annex D

**Table 1: Applicability of DFS Requirements**

| Requirement | DFS Operational mode | | |
|---|---|---|---|
| | Master | Slave without radar detection (see table D.2, note 2) | Slave with radar detection (see table D.2, note 2) |
| Channel Availability Check | ✓ | Not required | ✓ (see note 2) |
| Off-Channel CAC (see note 1) | ✓ | Not required | ✓ (see note 2) |
| In-Service Monitoring | ✓ | Not required | ✓ |
| Channel Shutdown | ✓ | ✓ | ✓ |
| Non-Occupancy Period | ✓ | Not required | ✓ |
| Uniform Spreading | ✓ | Not required | Not required |
| NOTE 1: Where implemented by the manufacturer.<br>NOTE 2: A slave with radar detection is not required to perform a CAC or *Off-Channel CAC* at initial use of the channel but only after the slave has detected a radar signal on the *Operating Channel* by *In-Service Monitoring*. | | | |

**Table 2: DFS Requirement values**

| Parameter | Value |
|---|---|
| Channel Availability Check Time | 60 s (see note 1) |
| Minimum Off-Channel CAC Time | 6 minutes (see note 2) |
| Maximum Off-Channel CAC Time | 4 hours (see note 2) |
| Channel Move Time | 10 s |
| Channel Closing Transmission Time | 1 s |
| Non-Occupancy Period | 30 minutes |
| NOTE 1: For channels whose nominal bandwidth falls completely or partly within the band 5 600 MHz to 5 650 MHz, the *Channel Availability Check Time* shall be 10 minutes.<br>NOTE 2: For channels whose nominal bandwidth falls completely or partly within the band 5 600 MHz to 5 650 MHz, the *Off-Channel CAC Time* shall be within the range 1 to 24 hours. | |

**Table 3: Interference Threshold values, Master**

| e.i.r.p. Spectral Density (dBm/MHz) | Value (see note 1 and note 2) |
|---|---|
| 10 | -62 dBm |
| NOTE 1: This is the level at the input of the receiver of an RLAN device with a maximum e.i.r.p. density of 10 dBm/MHz and assuming a 0 dBi receive antenna. For devices employing different e.i.r.p. spectral density and/or a different receive antenna gain G (dBi) the Radar Detection Threshold Level at the receiver input follows the following relationship: DFS Detection Threshold (dBm) = -62 + 10 - e.i.r.p. Spectral Density (dBm/MHz) + G (dBi); however the Radar Detection Threshold Level shall not be less than -64 dBm assuming a 0 dBi receive antenna gain. | |
| NOTE 2: Slave devices with a maximum e.i.r.p. of less than 23 dBm do not have to implement radar detection unless these devices are used in fixed outdoor point to point or fixed outdoor point to multipoint applications (see clause 4.2.6.1.3). | |

**Table 4: Interference Threshold values, Master**

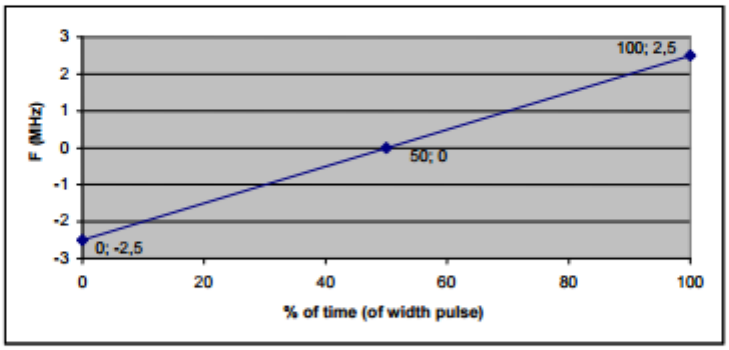
| Pulse width W (μs) | Pulse repetition frequency PRF (PPS) | Pulses per burst (PPB) |
|---|---|---|
| 1 | 700 | 18 |

**Table 5: Parameters of DSF Test Signals**

| Radar test signal # (see note 1 to note 3) | Pulse width W (µs) | | Pulse repetition frequency PRF (PPS) | | Number of different PRFs | Pulses per burst for each PRF (PPB) (see note 5) |
|---|---|---|---|---|---|---|
| | Min | Max | Min | Max | | |
| 1 | 0,5 | 5 | 200 | 1 000 | 1 | 10 (see note 6) |
| 2 | 0,5 | 15 | 200 | 1 600 | 1 | 15 (see note 6) |
| 3 | 0,5 | 15 | 2 300 | 4 000 | 1 | 25 |
| 4 | 20 | 30 | 2 000 | 4 000 | 1 | 20 |
| 5 | 0,5 | 2 | 300 | 400 | 2/3 | 10 (see note 6) |
| 6 | 0,5 | 2 | 400 | 1 200 | 2/3 | 15 (see note 6) |

NOTE 1: Radar test signals #1 to #4 are constant PRF based signals. See figure D.1. These radar test signals are intended to simulate also radars using a packet based Staggered PRF. See figure D.2.

NOTE 2: Radar test signal #4 is a modulated radar test signal. The modulation to be used is a chirp modulation with a ±2,5 MHz frequency deviation which is described below.




NOTE 3: Radar test signals #5 and #6 are single pulse based Staggered PRF radar test signals using 2 or 3 different PRF values. For radar test signal #5, the difference between the PRF values chosen shall be between 20 PPS and 50 PPS. For radar test signal #6, the difference between the PRF values chosen shall be between 80 PPS and 400 PPS. See figure D.3.

NOTE 4: Apart for the Off-Channel CAC testing, the radar test signals above shall only contain a single burst of pulses. See figure D.1, figure D.3 and figure D.4.
For the Off-Channel CAC testing, repetitive bursts shall be used for the total duration of the test. See figure D.2 and figure D.5. See also clause 4.2.6.2.3, clause 5.4.8.2.1.4.2 and clause 5.4.8.2.1.4.3.

NOTE 5: The total number of pulses in a burst is equal to the number of pulses for a single PRF multiplied by the number of different PRFs used.

NOTE 6: For the CAC and Off-Channel CAC requirements, the minimum number of pulses (for each PRF) for any of the radar test signals to be detected in the band 5 600 MHz to 5 650 MHz shall be 18.

**Table 6: Detection probability**

| Parameter | Detection Probability ($P_d$) | |
|---|---|---|
| | Channels whose nominal bandwidth falls partly or completely within the 5 600 MHz to 5 650 MHz band | Other channels |
| CAC, Off-Channel CAC | 99,99 % | 60 % |
| In-Service Monitoring | 60 % | 60 % |

NOTE: $P_d$ gives the probability of detection per simulated radar burst and represents a minimum level of detection performance under defined conditions. Therefore $P_d$ does not represent the overall detection probability for any particular radar under real life conditions.

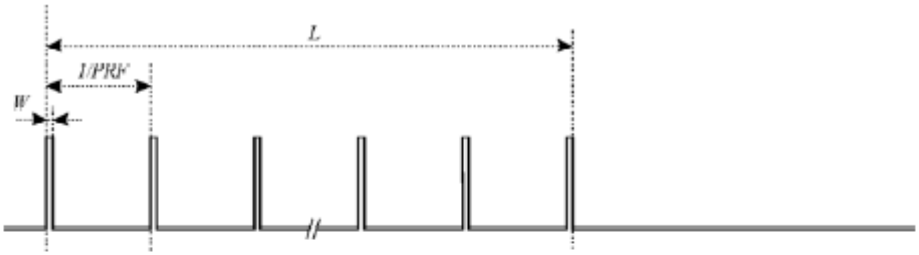



Figure D.1: General structure of a single burst/constant PRF based radar test signal

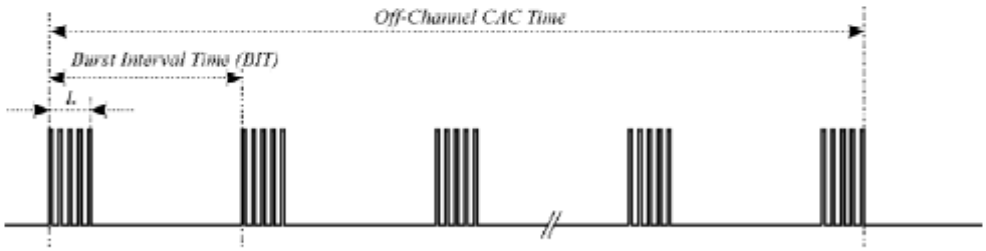



Figure D.2: General structure of a multiple burst/constant PRF based radar test signal

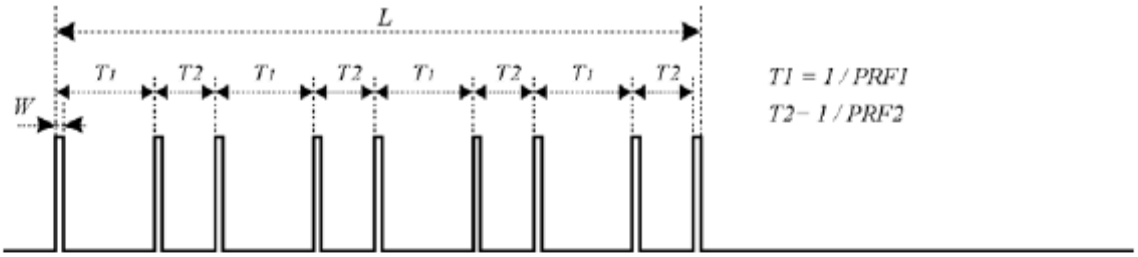



Figure D.3: General structure of a single burst/single pulse based staggered PRF radar test signal

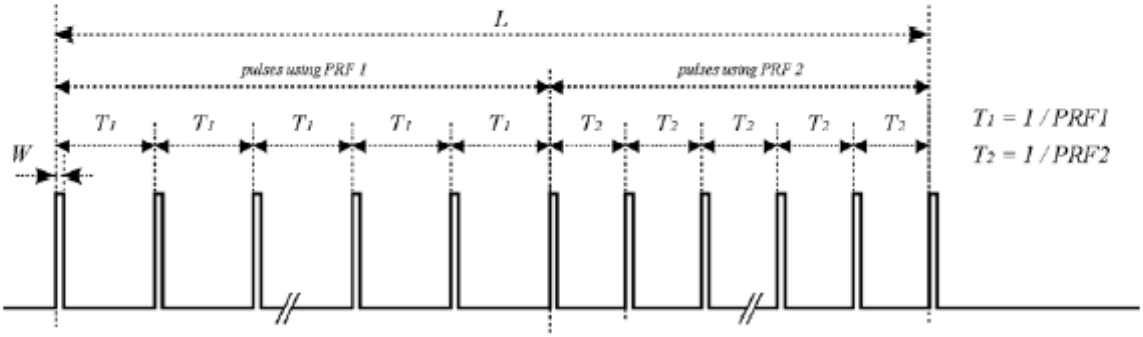



Figure D.4: General structure of a single burst/packet based staggered PRF radar test signal

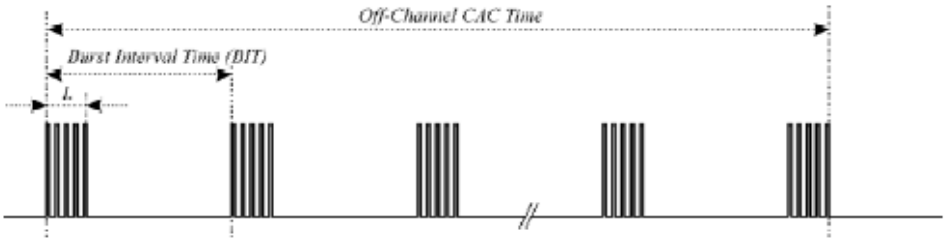



Figure D.5: General structure of a multiple burst/packet based staggered PRF based radar test signal

## DFS Definition

**Channel Available Check:** The Channel Availability Check is defined as the mechanism by which an RLAN device checks a channel for the presence of radar signals.

**Off-Channel CAC:** The Off-Channel CAC is defined as a mechanism by which a RLAN monitors channel(s), different from the Operating Channel, for the presence of radar signals.

**In-Service Monitoring:** The In-Service Monitoring is defined as the process by which an RLAN monitors the Operating Channel for the presence of radar signals.

**Channel Shutdown:** The Channel Shutdown is defined as the process initiated by the RLAN device immediately after a radar signal has been detected on an Operating Channel.

**Channel Move Time:** The time to cease all transmissions on the current Channel upon detection of a Radar Waveform above the DFS Detection Threshold.

**Channel Closing Transmission Time:** The total duration of transmissions, consisting of data signals and the aggregate of control signals, by a WLAN device during the Channel Move Time.

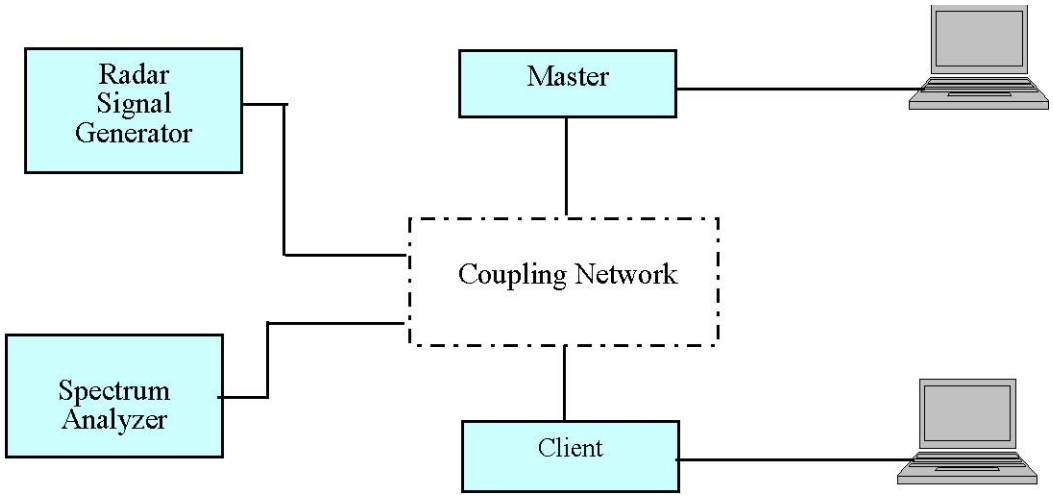
**Non-Occupancy Period:** The Non-Occupancy Period is defined as the time during which the RLAN device shall not make any transmissions on a channel after a radar signal was detected on that channel by either the Channel Availability Check or the In-Service Monitoring.

**Detection Threshold:** Received signal level, above which the device must be able to detect radar.

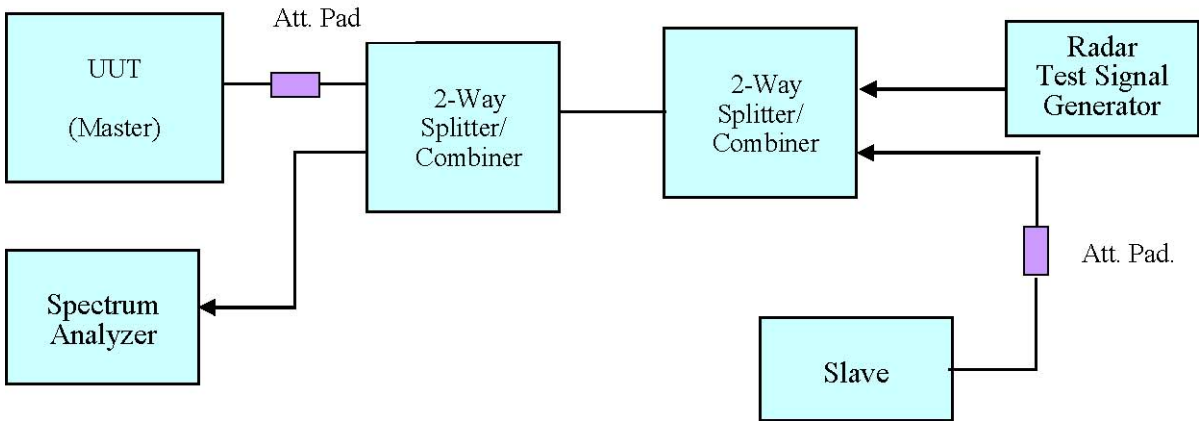
# DFS MEASUREMENT SYSTEM

BACL DFS measurement system consists of two subsystems: (1) The radar signal generating subsystem and (2) the traffic monitoring subsystem.

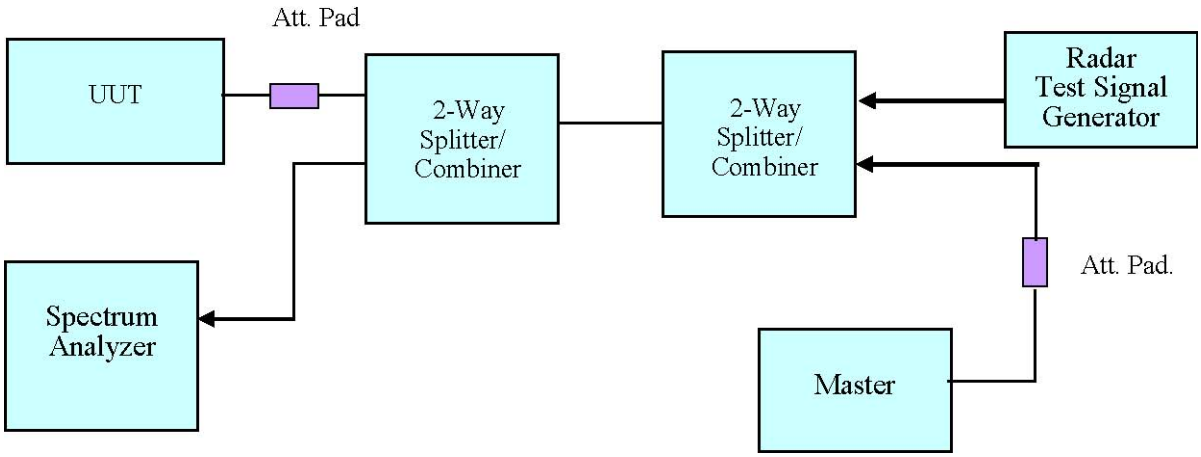
## System Block Diagram




## Conducted Method

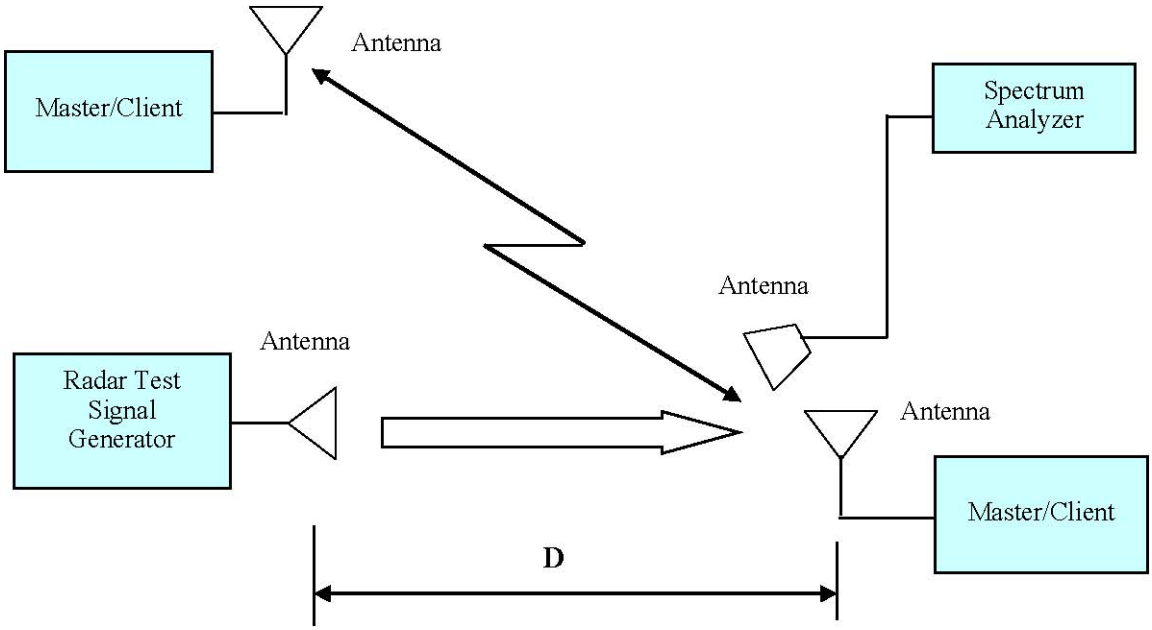



**Setup for Master with injection at the Master**




**Setup for Client with injection at the Master**

## Radiated Method



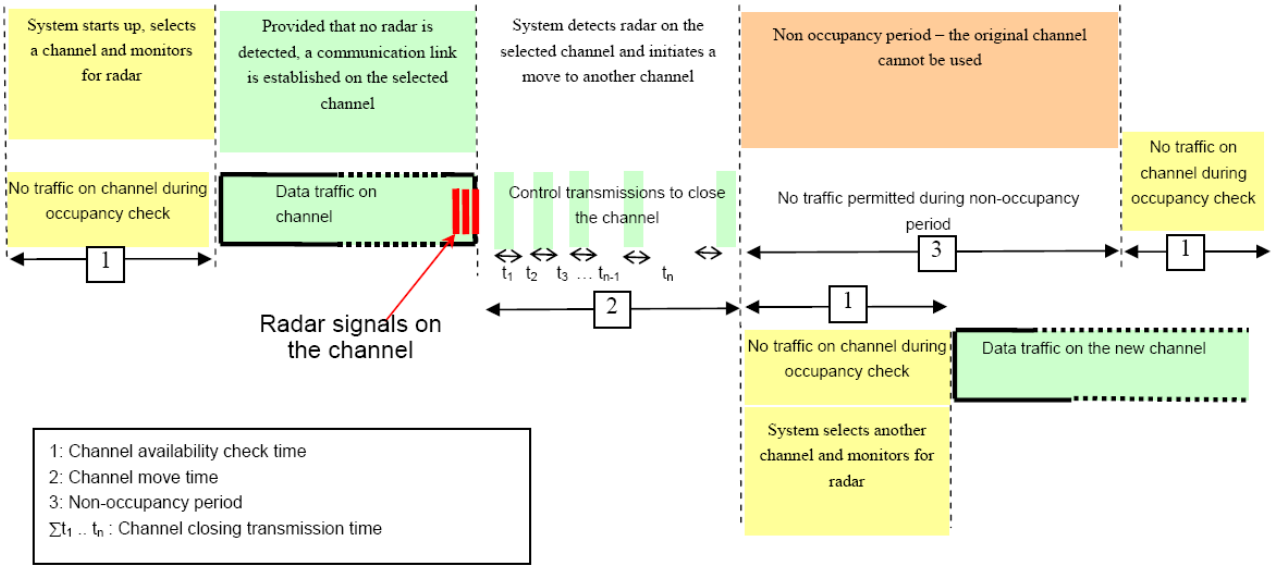

**Setup for Radiated Method**

## Test Procedure

A spectrum analyzer is used as a monitor verifies that the EUT status including Channel Closing Transmission Time and Channel Move Time, and does not transmit on a Channel during the Non-Occupancy Period after the diction and Channel move. It is also used to monitor EUT transmissions during the Channel Availability Check Time.

## DFS Implementation

Please refer to the block diagram:



# TEST RESULTS

## Description of EUT

The calibrated radiated DFS detection threshold level is set following ETSI EN 301 893 V2.1.1 (2017 - 05) Annex D for this band.

WLAN traffic is generated by streaming the video file "Test File.mpg", this file is used by IP and Frame based systems for loading the test channel during the In-service compliance testing of the U-NII device. The file is streamed from the Access Point to the Client in full motion video mode using the media player with the V2.61 Codec package.

## Test Equipment List and Details

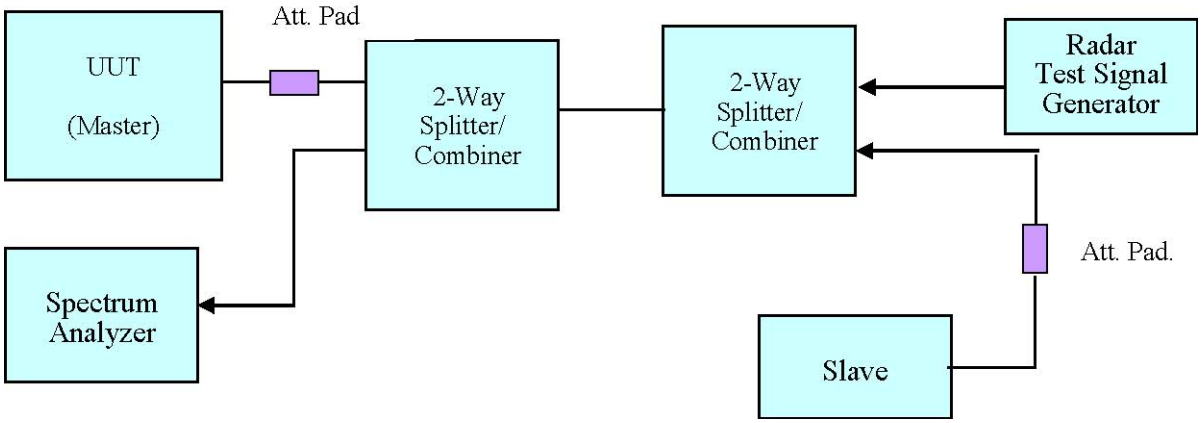
| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| Unknown | Coaxial Cable | C-SJ00-0010 | C0010/01 | Each time | N/A |
| E-Microwave | Coaxial Attenuators | EMCA10-5RN-6 | OE01203239 | 2021/9/4 | 2022/9/3 |
| Agilent | Vector Signal Generator | N5182A | MY49060274 | 2021/10/26 | 2022/10/25 |
| Keysight | MXA Signal Analyzer | N9020A | MY48490137 | 2021/10/26 | 2022/10/25 |
| Tonscend | RF Control Unit | JS0806-2 | 19G8060171 | 2021/10/26 | 2022/10/25 |

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

## Environmental Conditions

| | |
|---|---|
| **Temperature:** | 23.2°C |
| **Relative Humidity:** | 47 % |
| **ATM Pressure:** | 101.4kpa |
| **Tester:** | Ivy Tang |
| **Test Date:** | 2022.10.14 |

## Radar Waveform Calibration




***DFS Detection Threshold (dBm) = -62 + 10 - e.i.r.p. Spectral Density (dBm/MHz) + G (dBi)***

*Where,*
*Maximum e.i.r.p. Spectral Density (dBm/MHz) is 8.96dBm/MHz;*
*G (dBi) is 8dBi.*

*So,*
*DFS Detection Threshold (dBm) = -62 + 10 - e.i.r.p. Spectral Density (dBm/MHz) + G (dBi)=-53.96 dBm/MHz*
*≈54dBm/MHz*

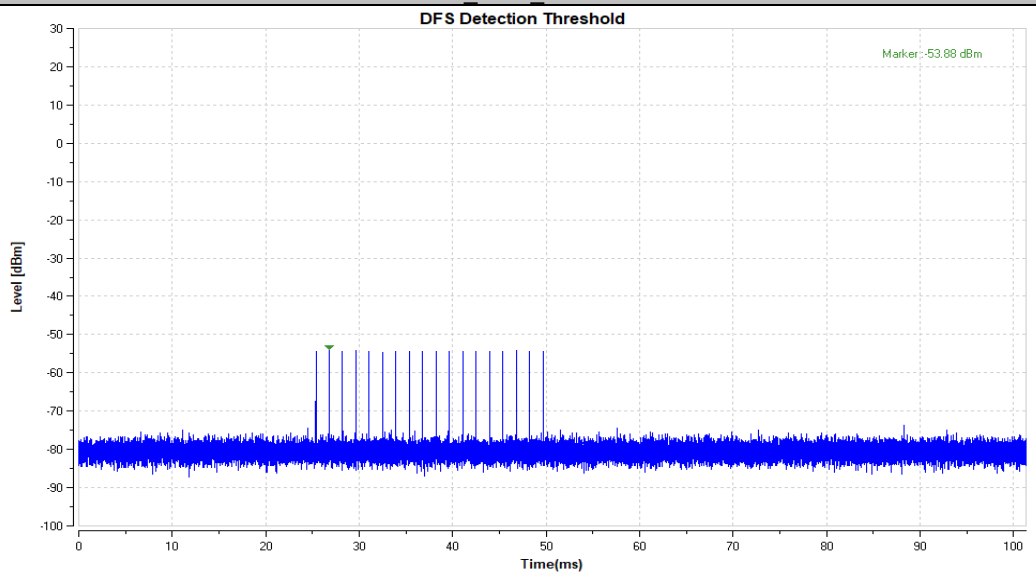
## Test Result

| TestMode | Frequency[MHz] | Radar Type | Result | Limit[dbm] | Verdict |
|---|---|---|---|---|---|
| 11n 20 | 5320 | Reference | -53.88 | -46.90 | PASS |
| | | Type1 | -53.70 | -46.90 | PASS |
| | | Type2 | -53.60 | -46.90 | PASS |
| | | Type3 | -53.55 | -46.90 | PASS |
| | | Type4 | -53.63 | -46.90 | PASS |
| | | Type5 | -53.59 | -46.90 | PASS |
| | | Type6 | -53.48 | -46.90 | PASS |
| 11ac 40MIMO | 5310 | Reference | -51.09 | -44.23 | PASS |
| | | Type1 | -51.04 | -44.23 | PASS |
| | | Type2 | -50.95 | -44.23 | PASS |
| | | Type3 | -50.92 | -44.23 | PASS |
| | | Type4 | -50.93 | -44.23 | PASS |
| | | Type5 | -50.95 | -44.23 | PASS |
| | | Type6 | -50.93 | -44.23 | PASS |
| 11ac 80MIMO | 5290 | Reference | -47.68 | -40.34 | PASS |
| | | Type1 | -47.62 | -40.34 | PASS |
| | | Type2 | -47.52 | -40.34 | PASS |
| | | Type3 | -47.53 | -40.34 | PASS |
| | | Type4 | -47.53 | -40.34 | PASS |
| | | Type5 | -47.55 | -40.34 | PASS |
| | | Type6 | -47.51 | -40.34 | PASS |
| 11ax 160MIMO | 5290 | Reference | -46.64 | -39.11 | PASS |
| | | Type1 | -46.56 | -39.11 | PASS |
| | | Type2 | -46.50 | -39.11 | PASS |
| | | Type3 | -46.48 | -39.11 | PASS |
| | | Type4 | -46.54 | -39.11 | PASS |
| | | Type5 | -46.49 | -39.11 | PASS |
| | | Type6 | -46.50 | -39.11 | PASS |

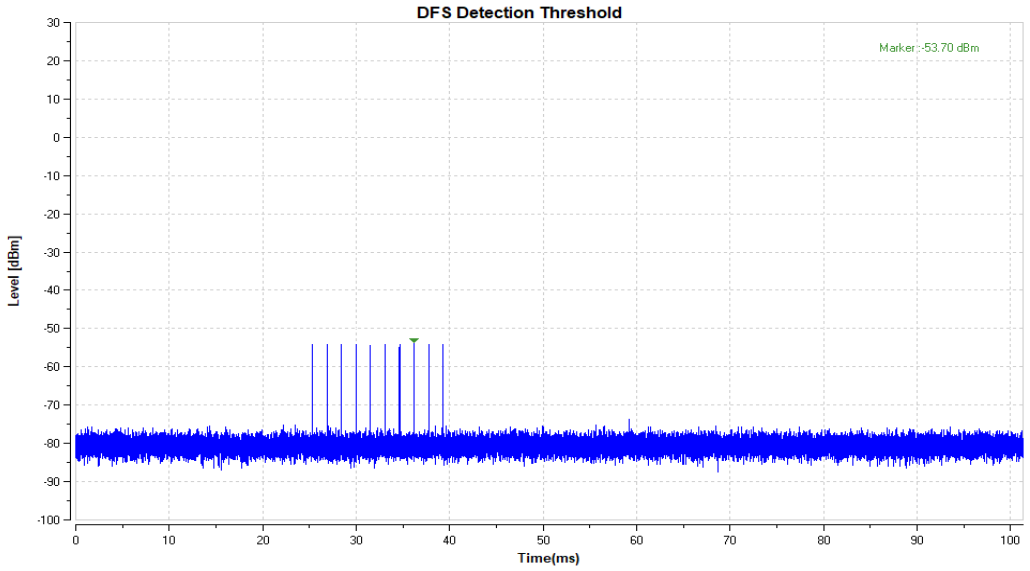
Note: For 802.11 ax160 mode, only half of the band(5250-5330MHz) fall into the DFS band(5250-5350MHz), so the centre frequency(5290MHz, 80MHz bandwidth) in the DFS band was selected for full DFS test.

Plots of Radar Waveforms

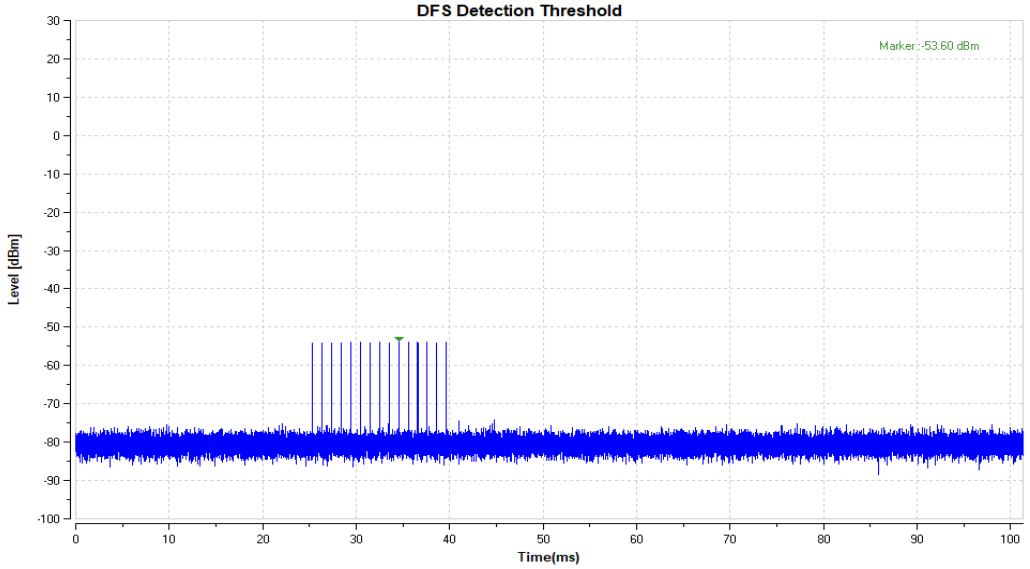
11n 20_5320_Reference



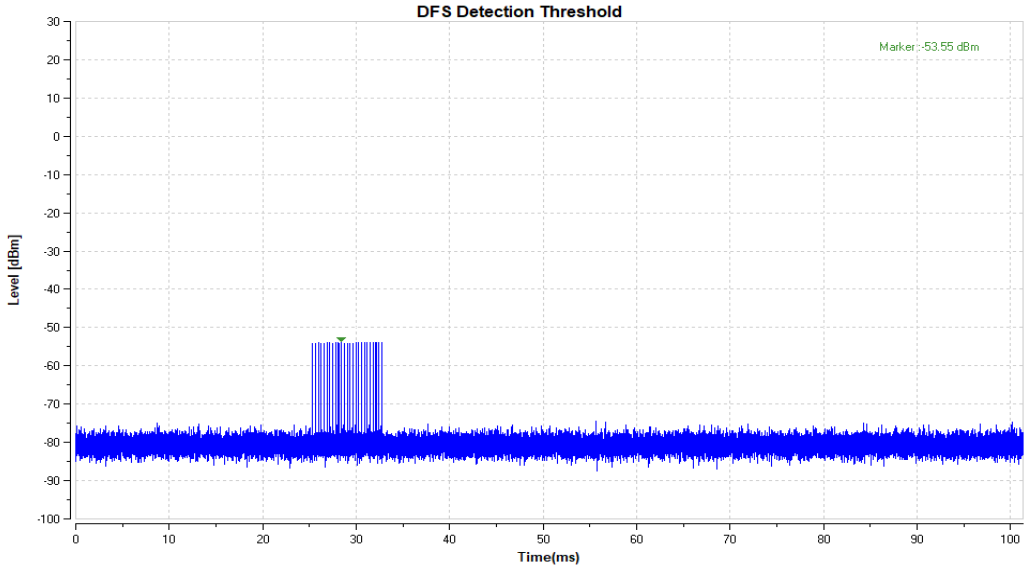

11n 20_5320_Type1



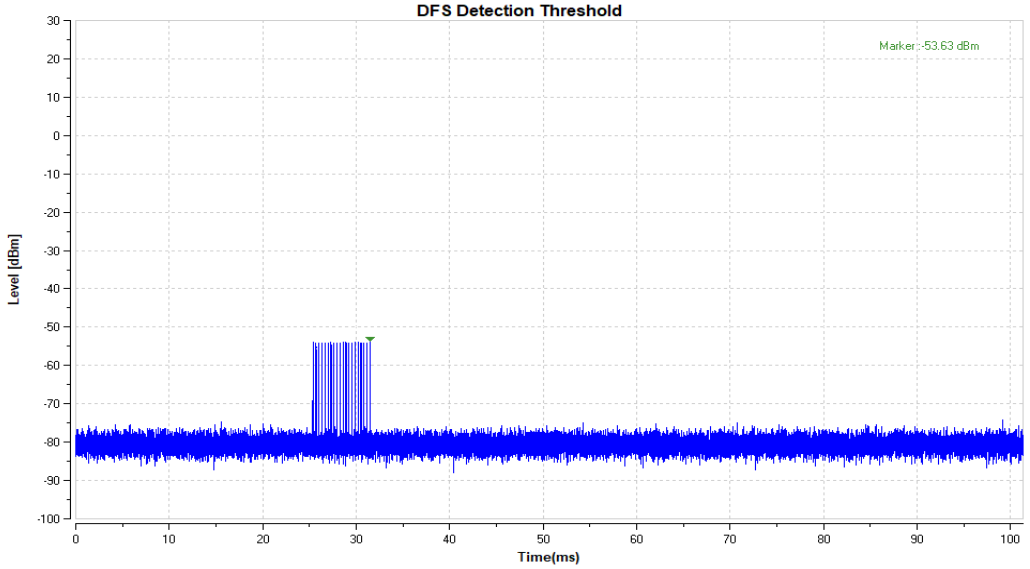
11n 20_5320_Type2



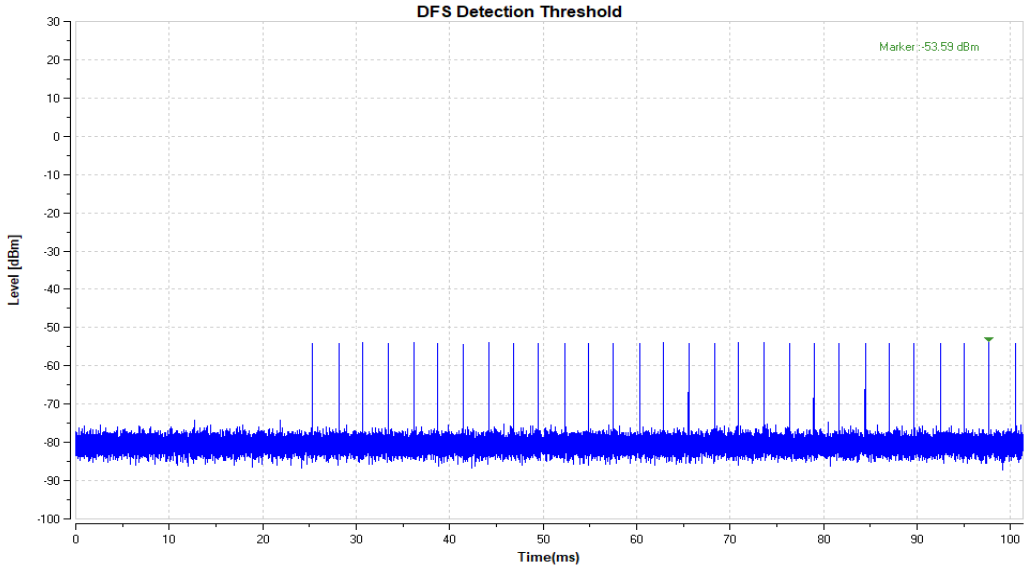

11n 20_5320_Type3



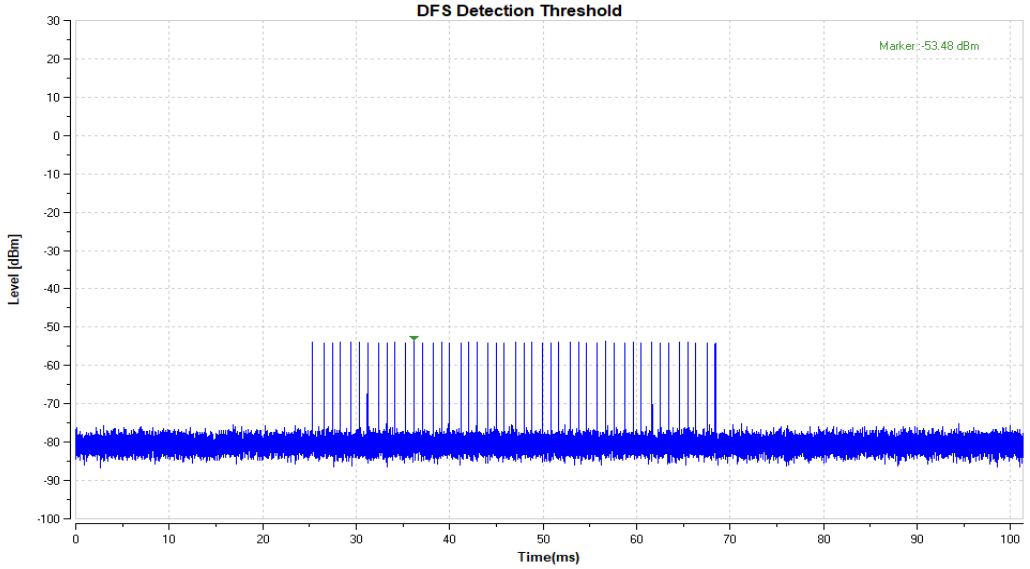
11n 20_5320_Type4



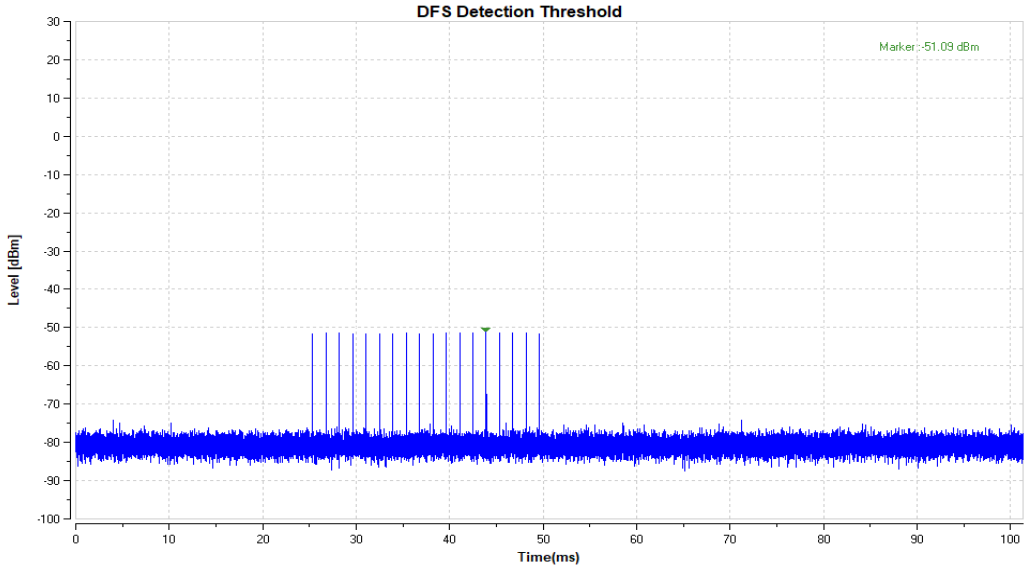

11n 20_5320_Type5



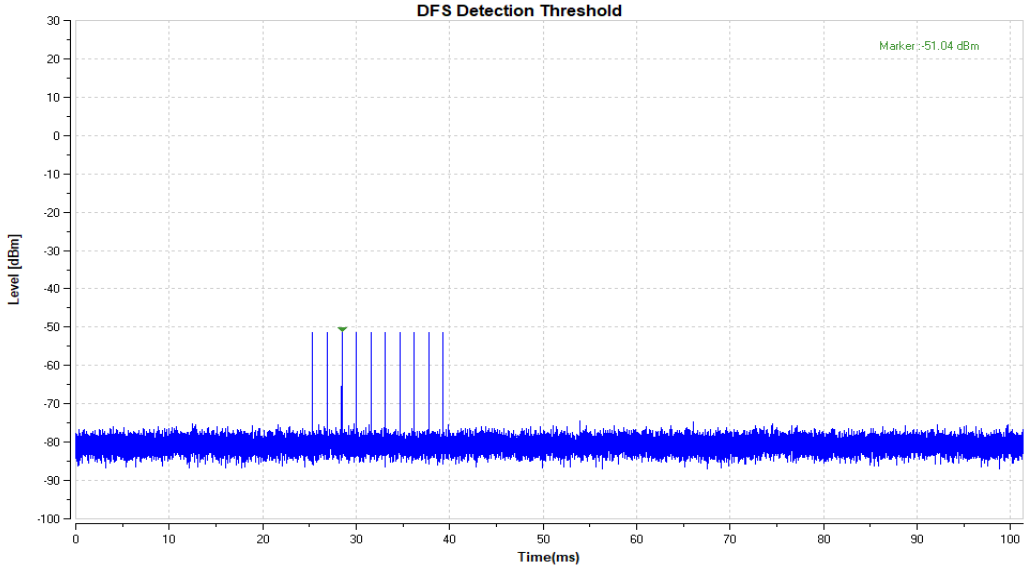
11n 20_5320_Type6



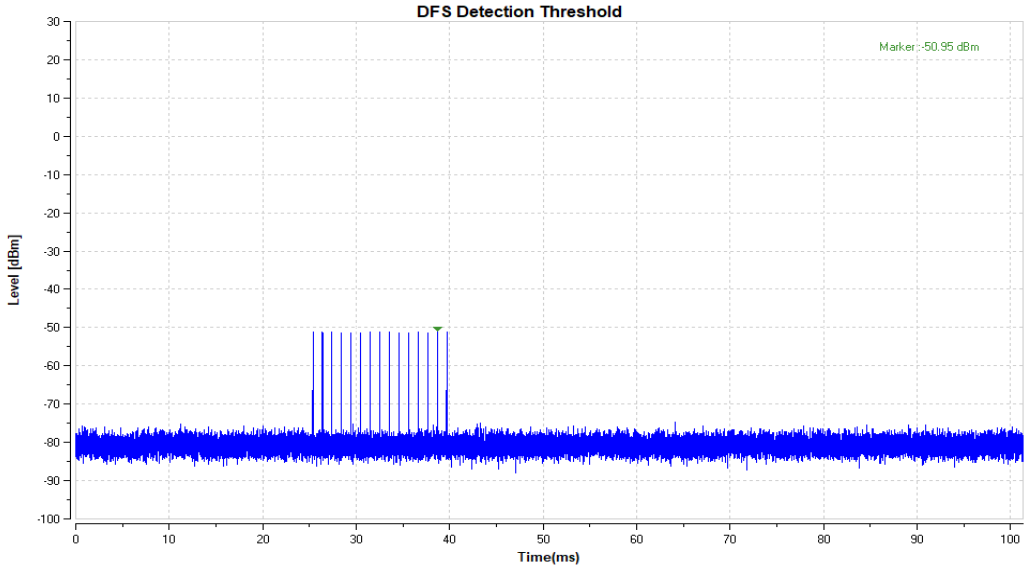

11ac 40MIMO_5310_Reference



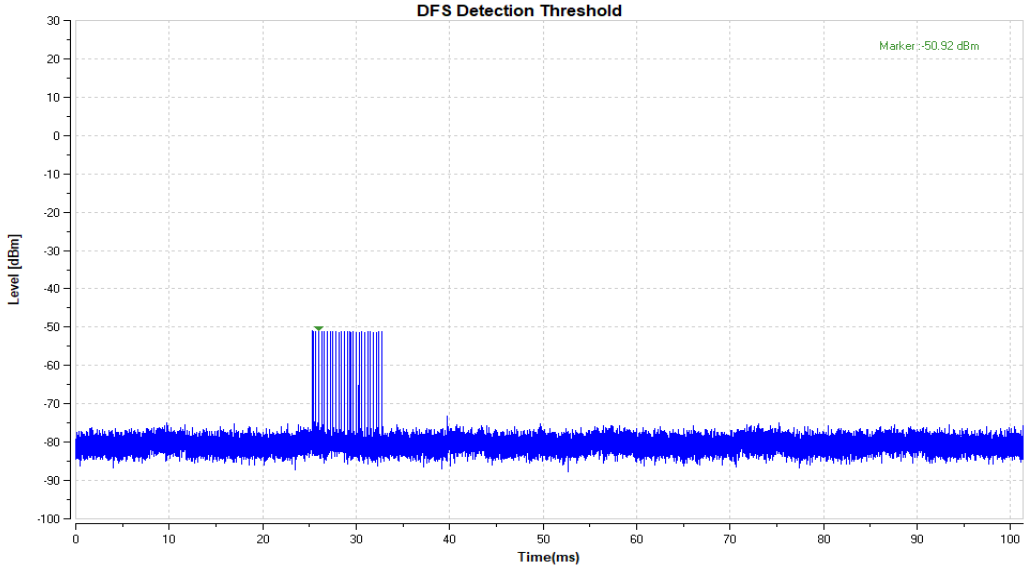
11ac 40MIMO_5310_Type1



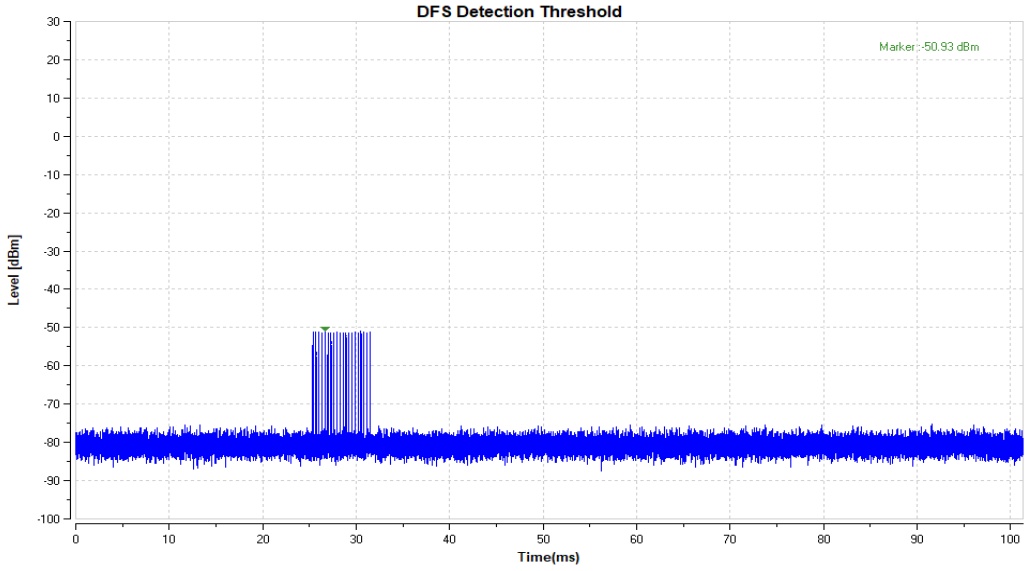

11ac 40MIMO_5310_Type2



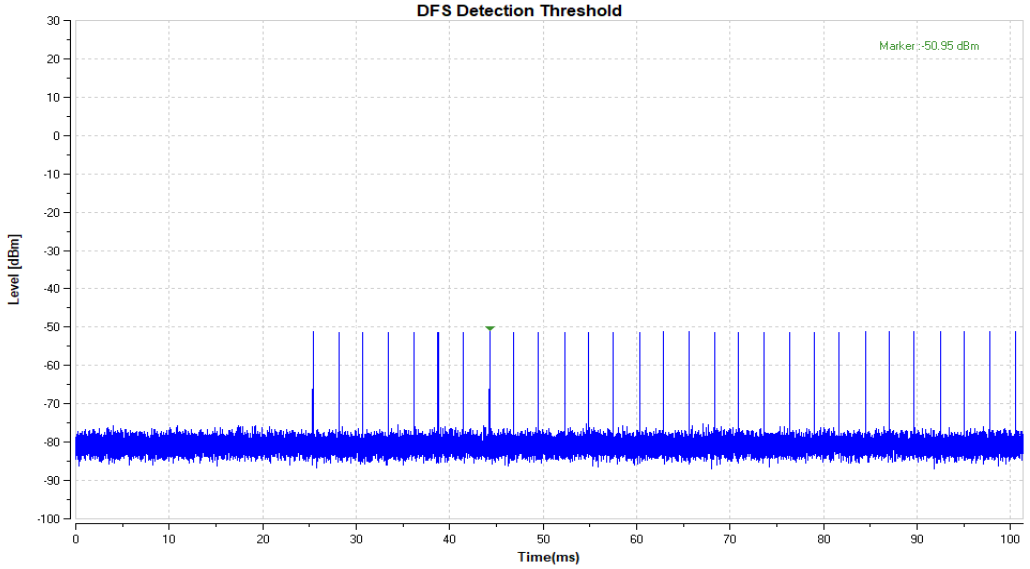
11ac 40MIMO_5310_Type3



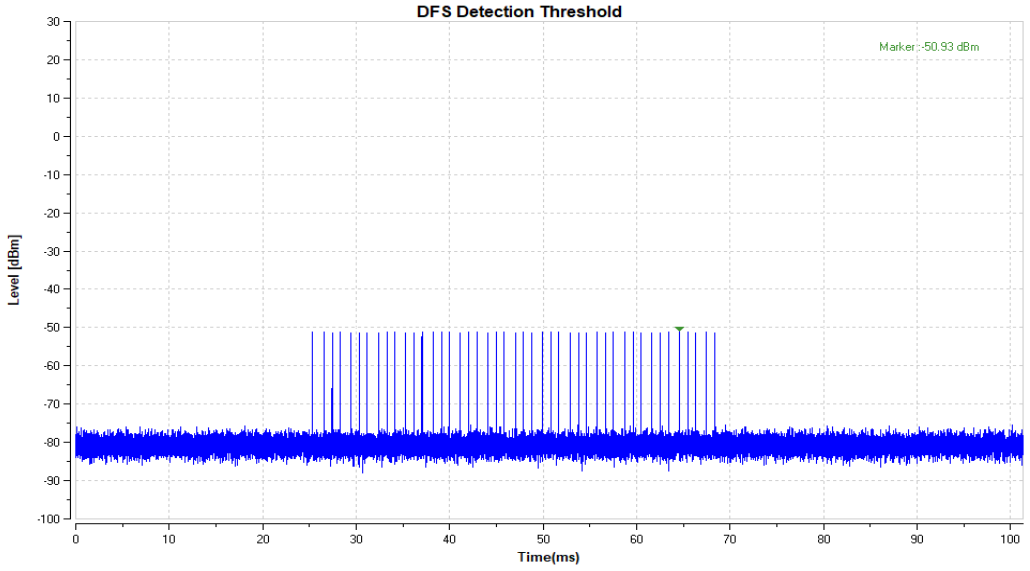

11ac 40MIMO_5310_Type4

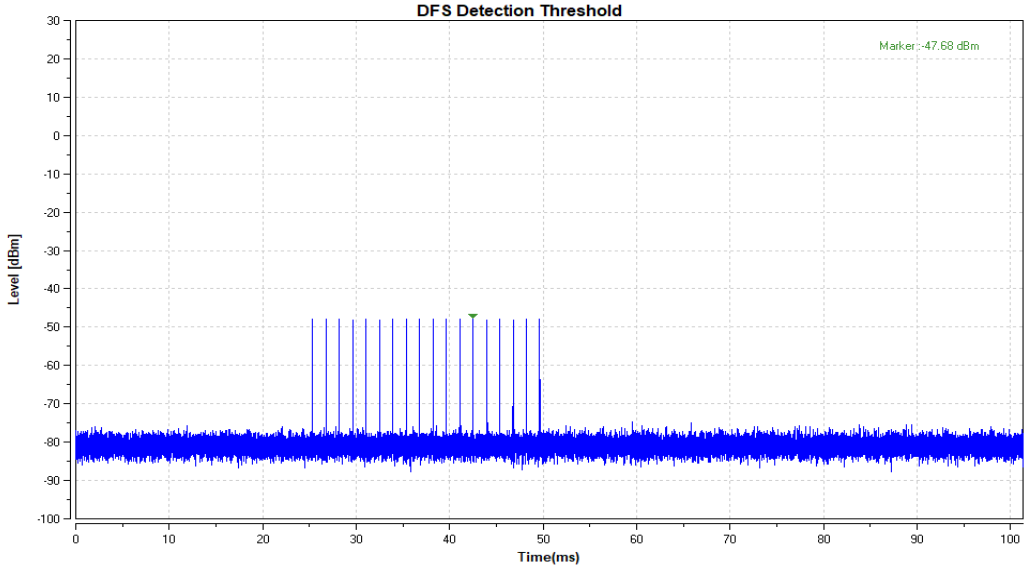
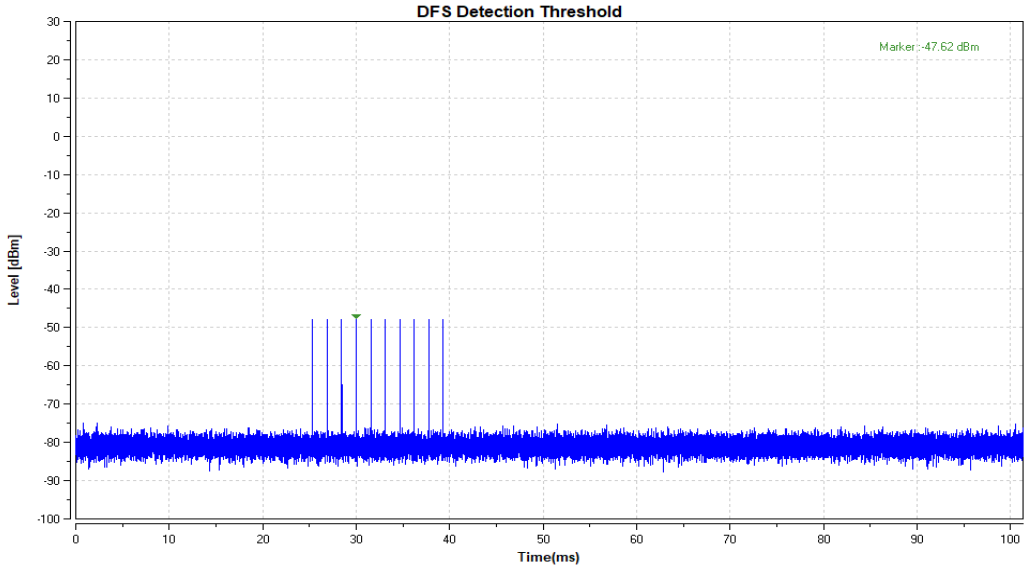


11ac 40MIMO_5310_Type5

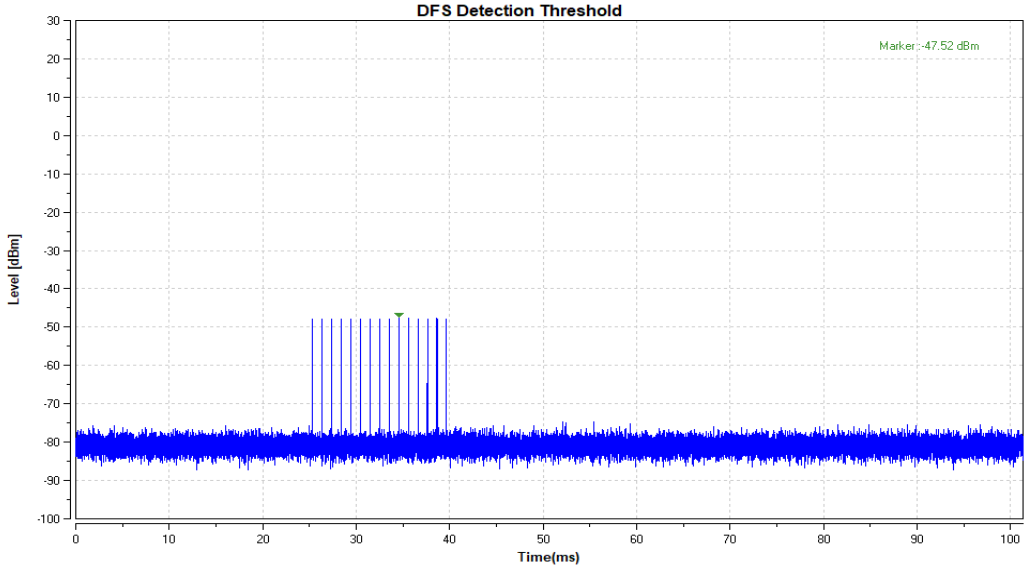



11ac 40MIMO_5310_Type6

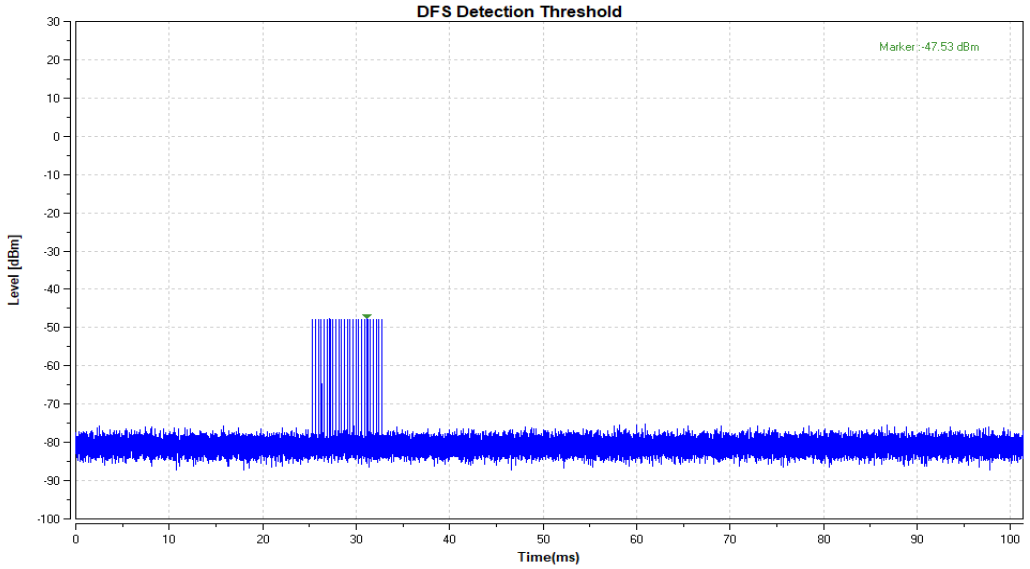


| 11ac 80MIMO_5290_Reference |
| --- |
|  |
| 11ac 80MIMO_5290_Type1 |
|  |

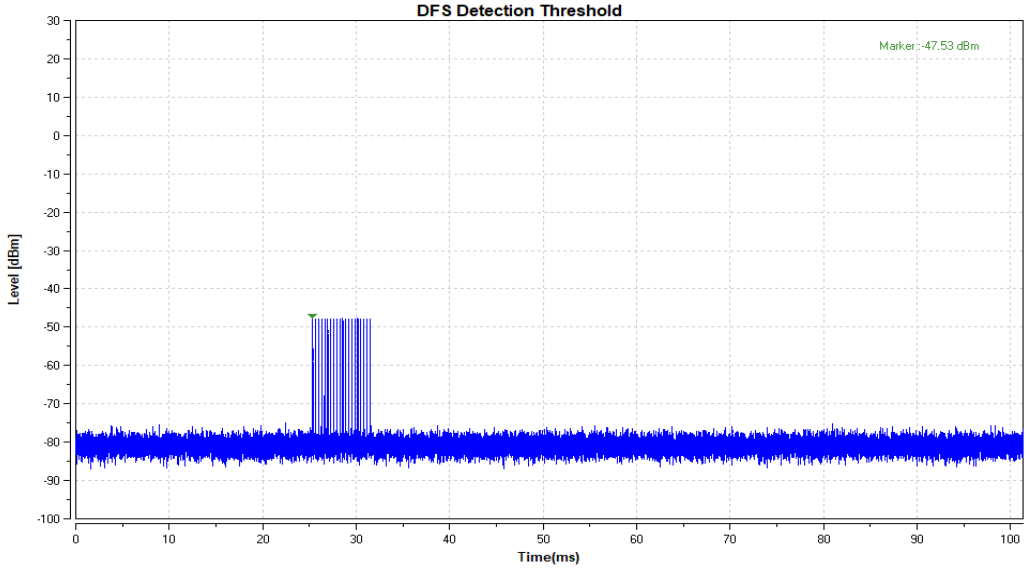
11ac 80MIMO_5290_Type2



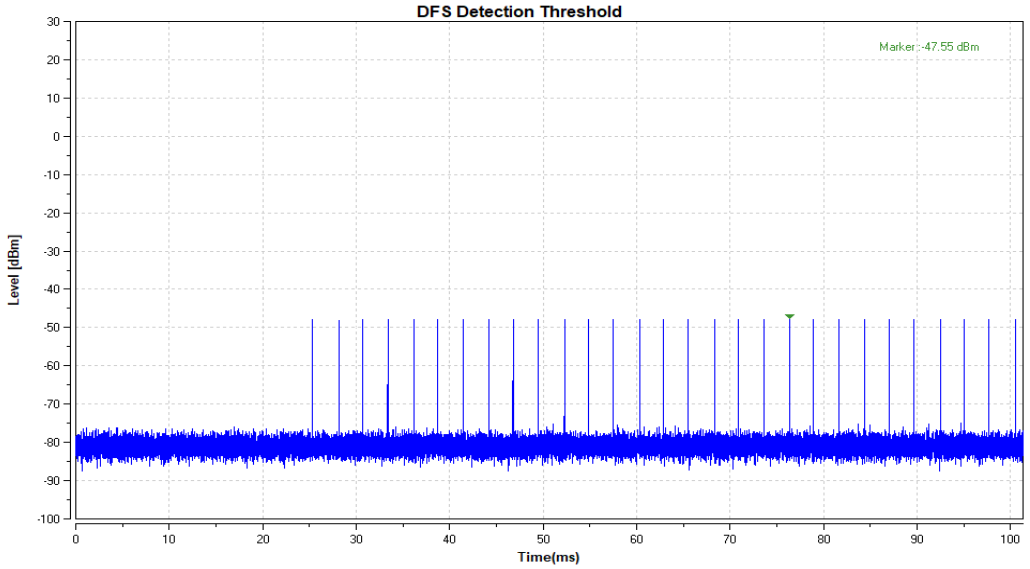

11ac 80MIMO_5290_Type3



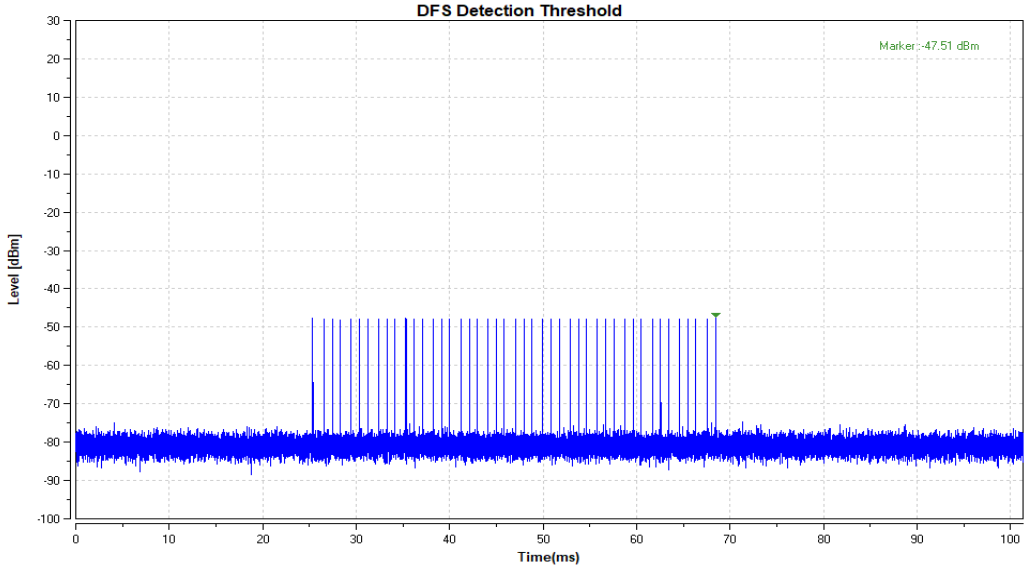
11ac 80MIMO_5290_Type4



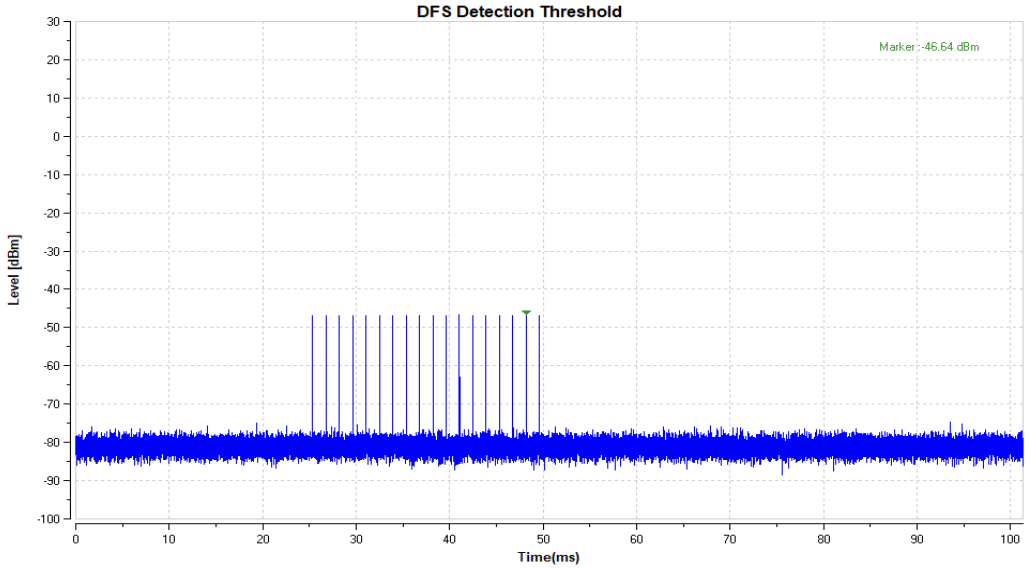

11ac 80MIMO_5290_Type5



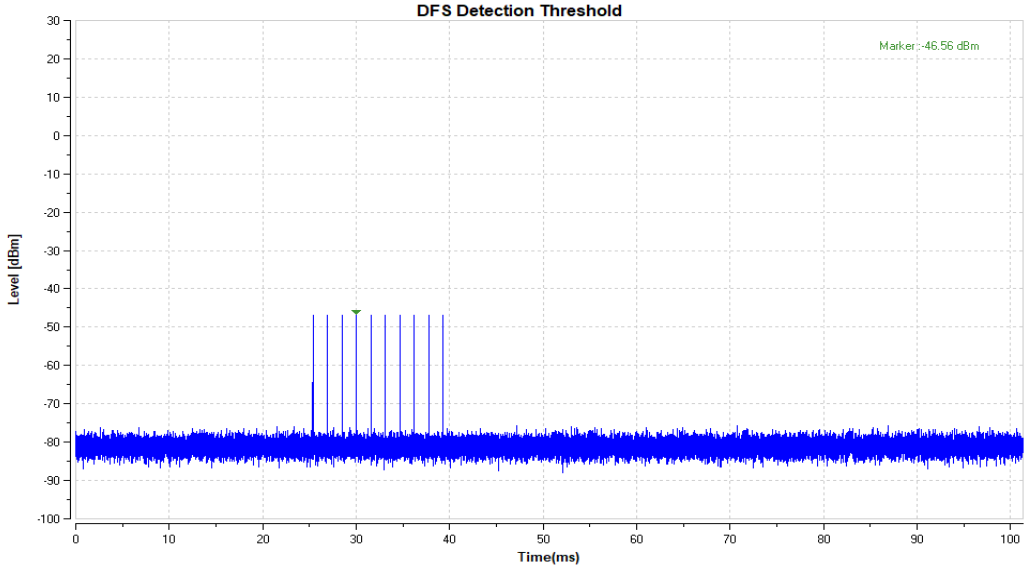
11ac 80MIMO_5290_Type6



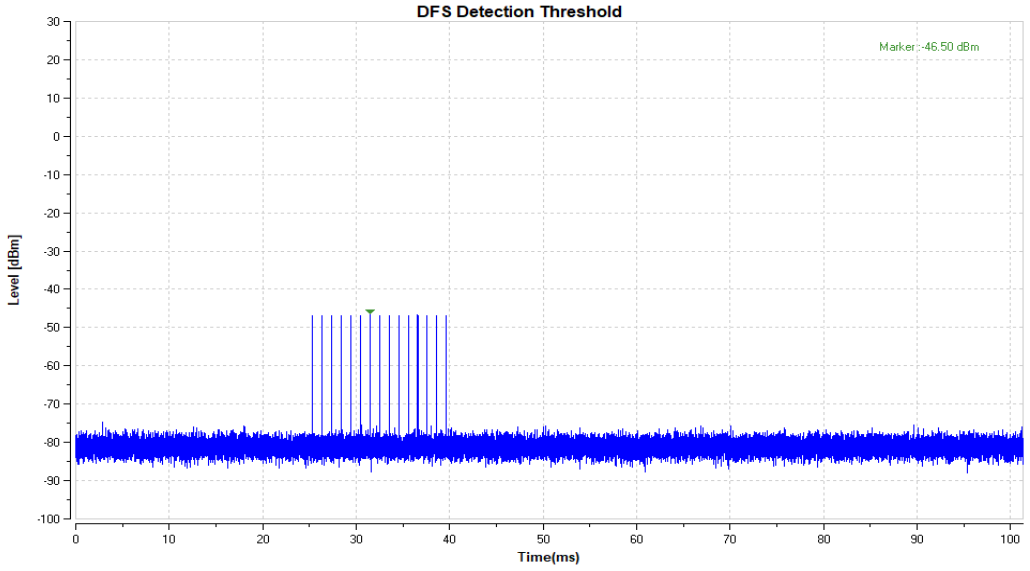

11ax 160MIMO_5290_Reference



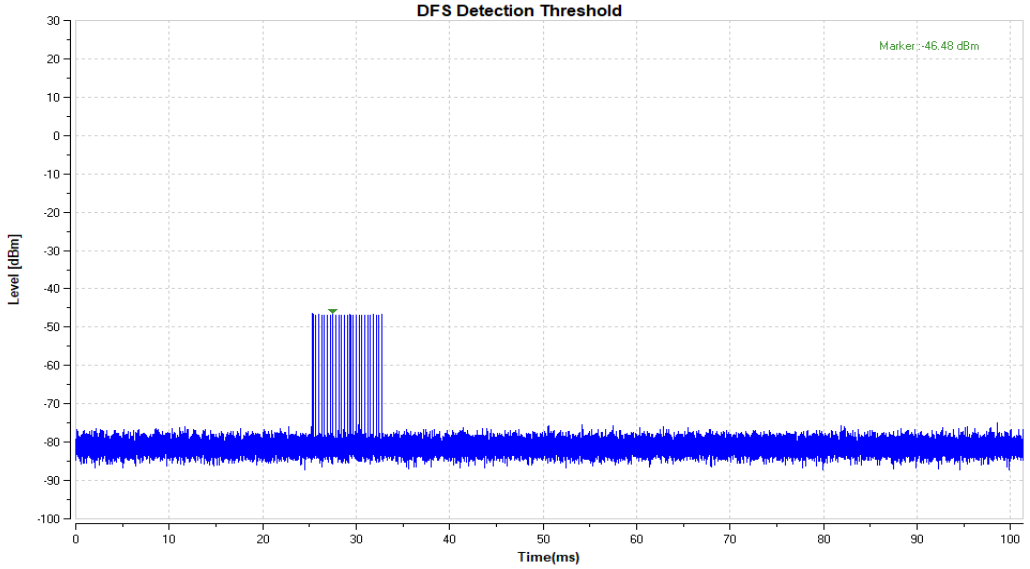
11ax 160MIMO_5290_Type1



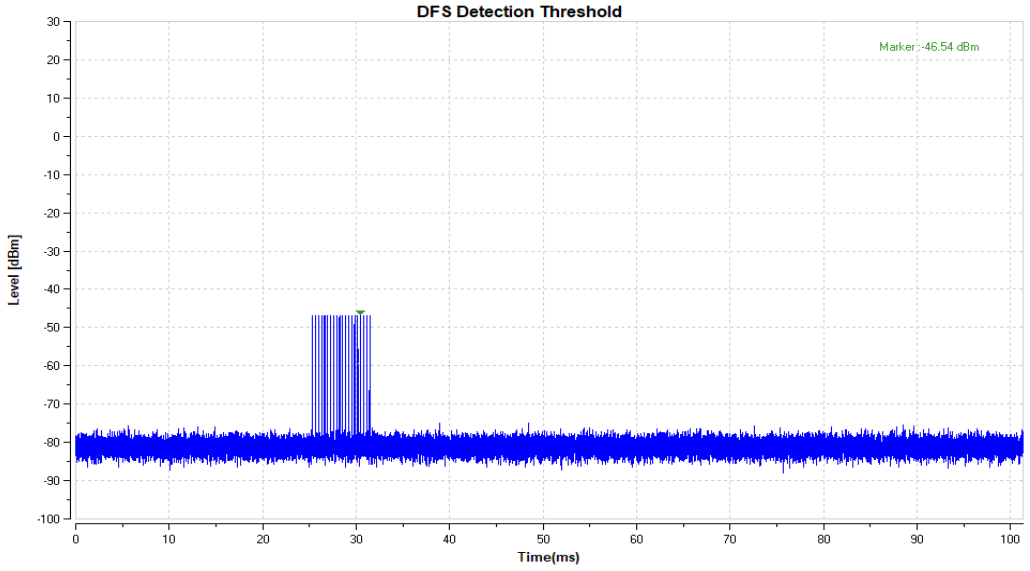

11ax 160MIMO_5290_Type2



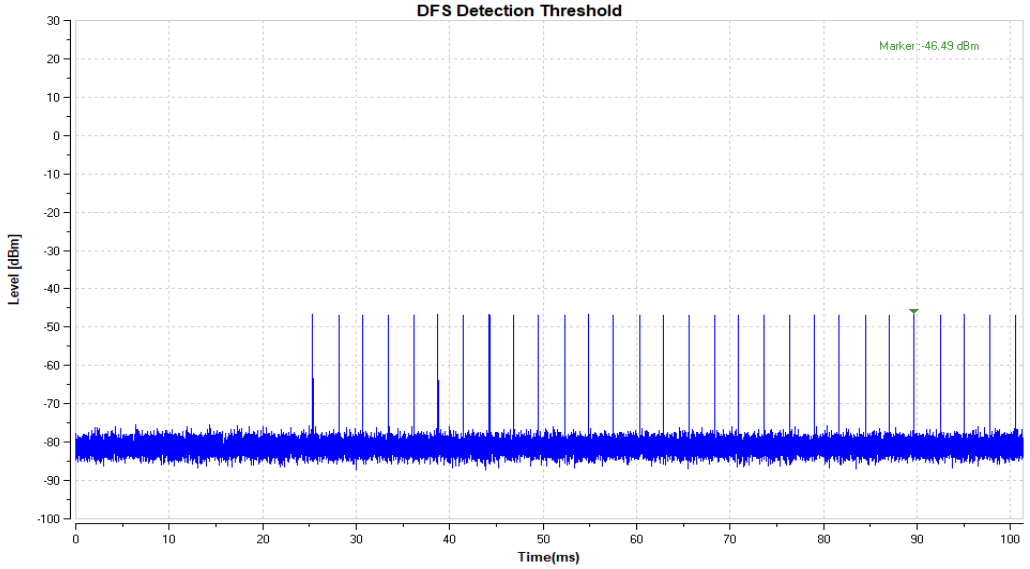
11ax 160MIMO_5290_Type3



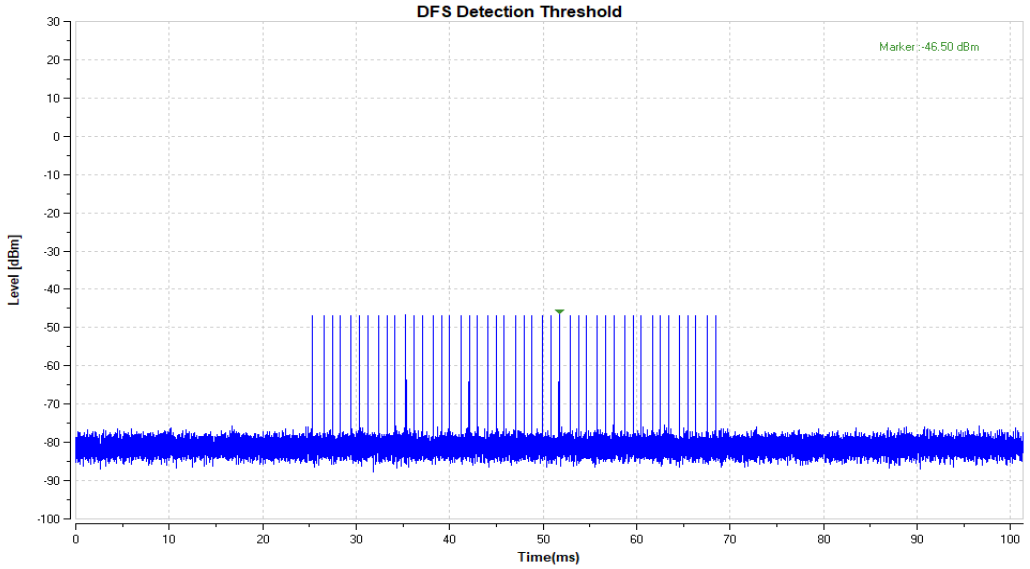

11ax 160MIMO_5290_Type4



11ax 160MIMO_5290_Type5




11ax 160MIMO_5290_Type6



## Channel Availability Check Time (CAC)

Test Procedure:

1) Measure the initial power-up time of EUT.

2) With link established on channel, apply a radar signal within 0~2 seconds after the initial power-up period; monitor the transmissions on channel from the spectrum analyzer.

3) Reboot EUT, with a link established on channel, except for 5600-5650MHz, apply a radar signal within 58~60 seconds after the initial power-up period, and monitor the transmission on channel from the spectrum analyzer. For 5600-5650 apply a radar signal within 598~600 seconds after the initial power-up period, and monitor the transmission on channel from the spectrum analyzer.

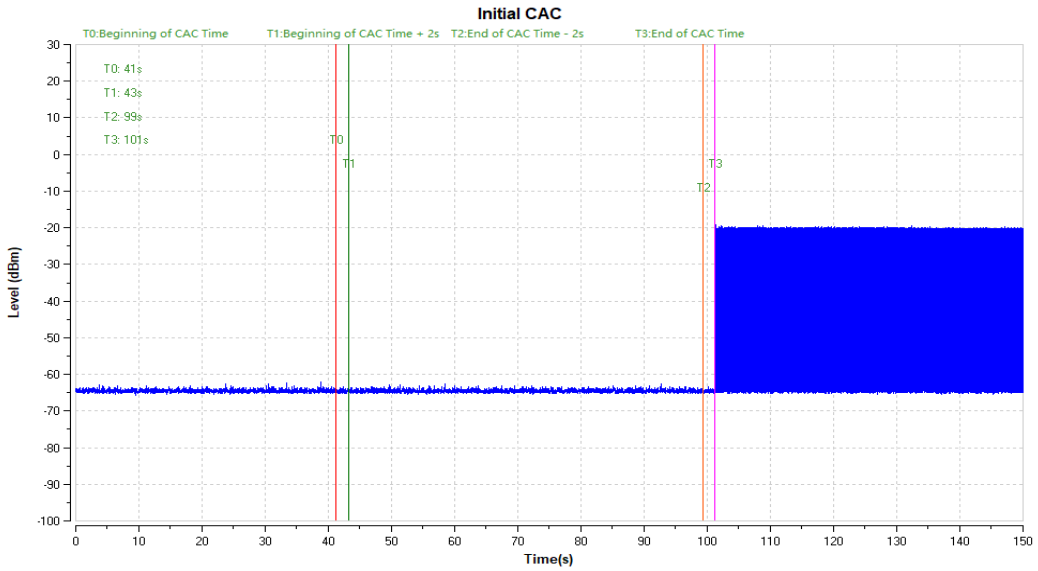
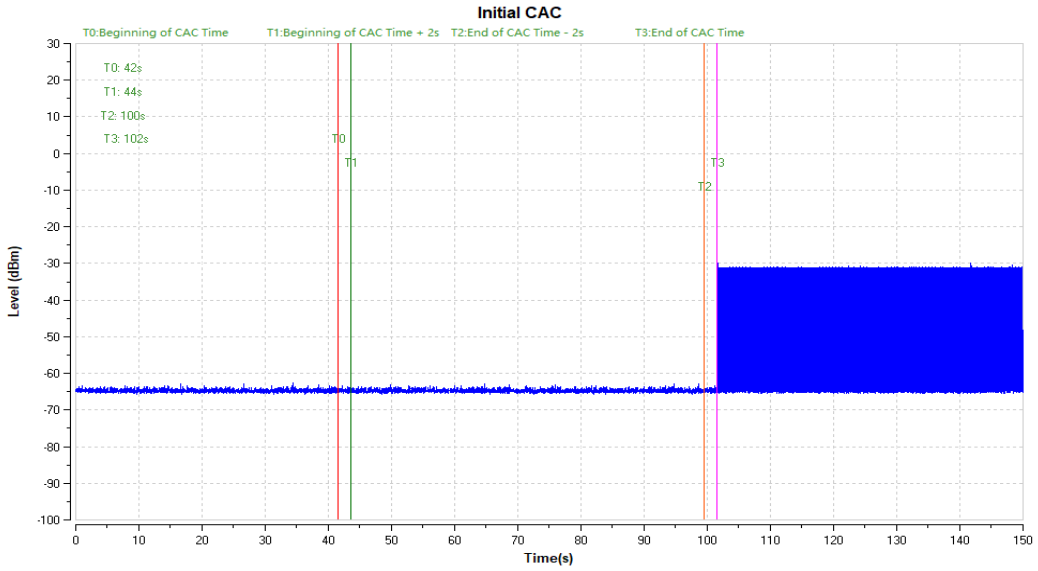
**EUT Initial power-up Cycle Time**

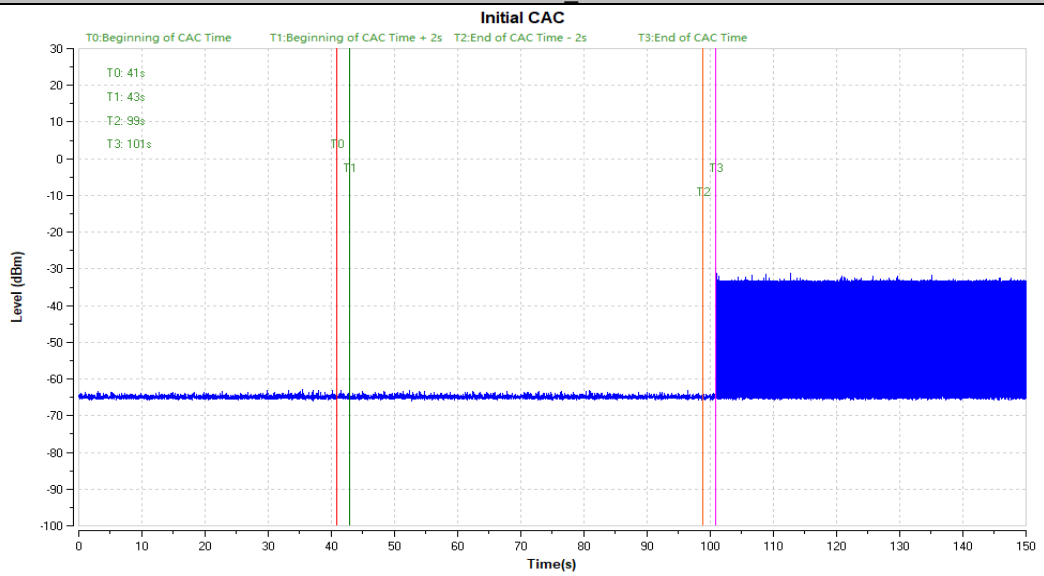
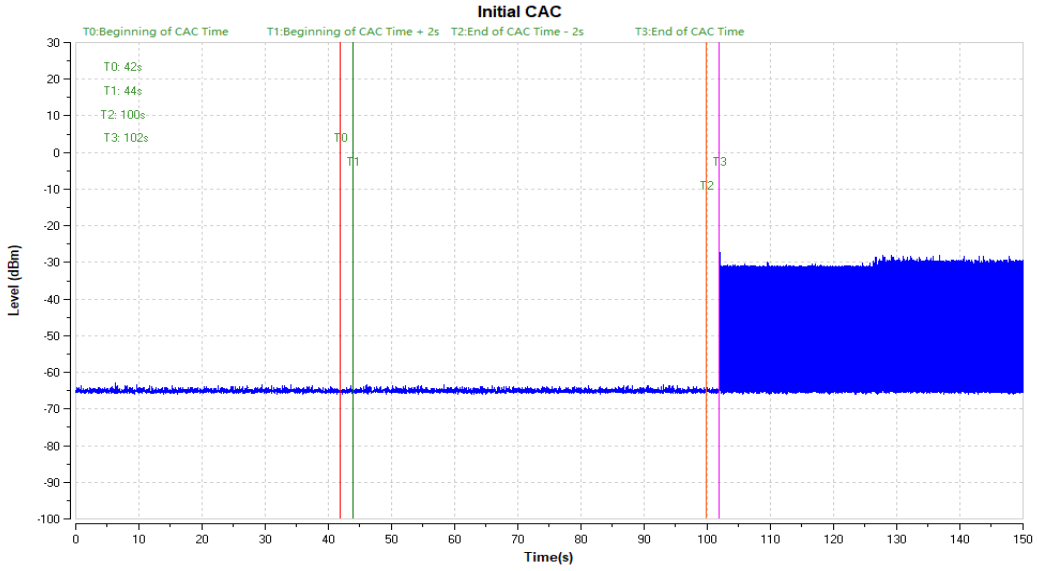
## Test Result

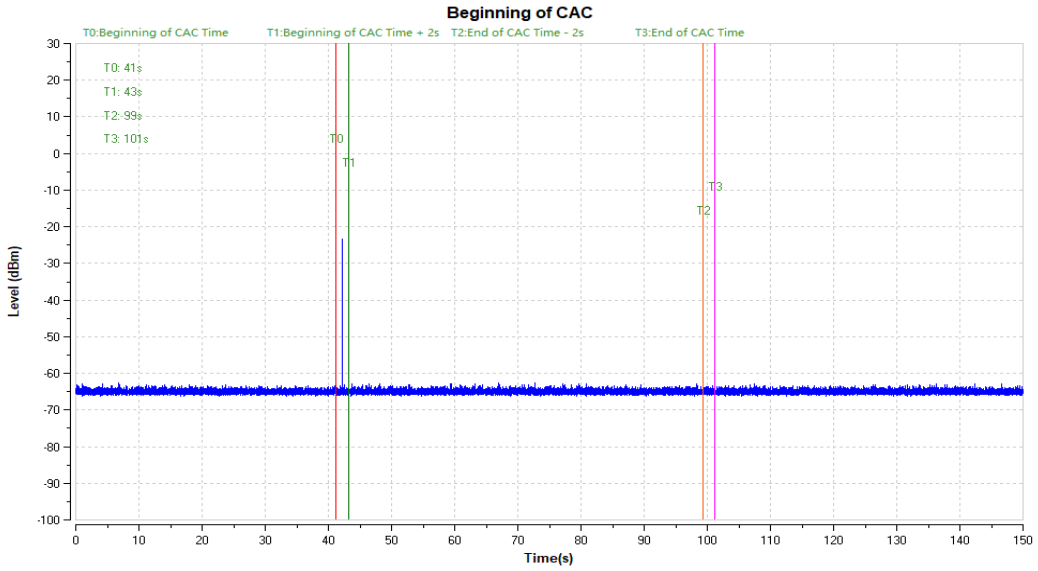
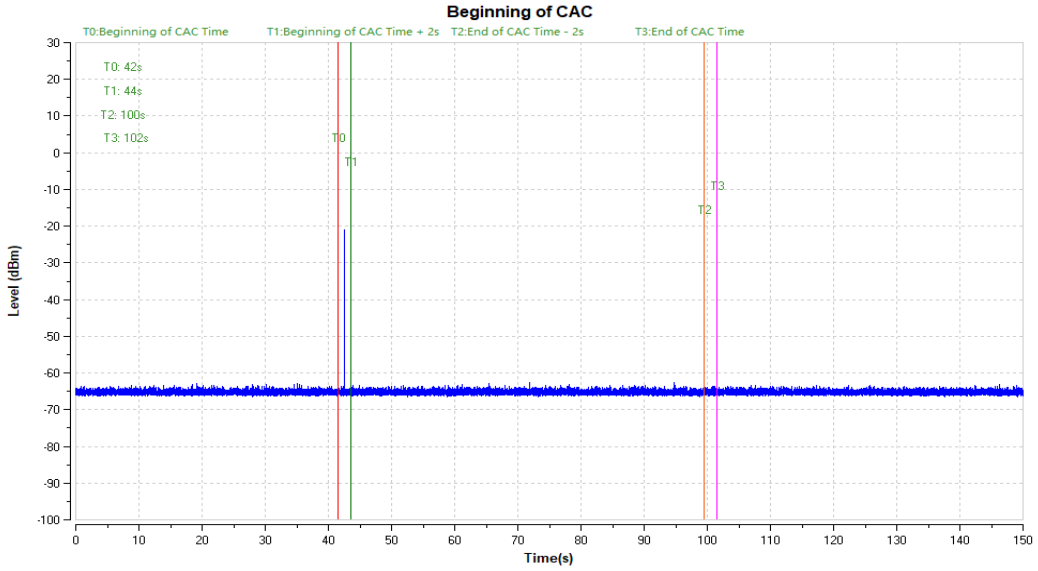
**Initial Channel Availability Check Time**

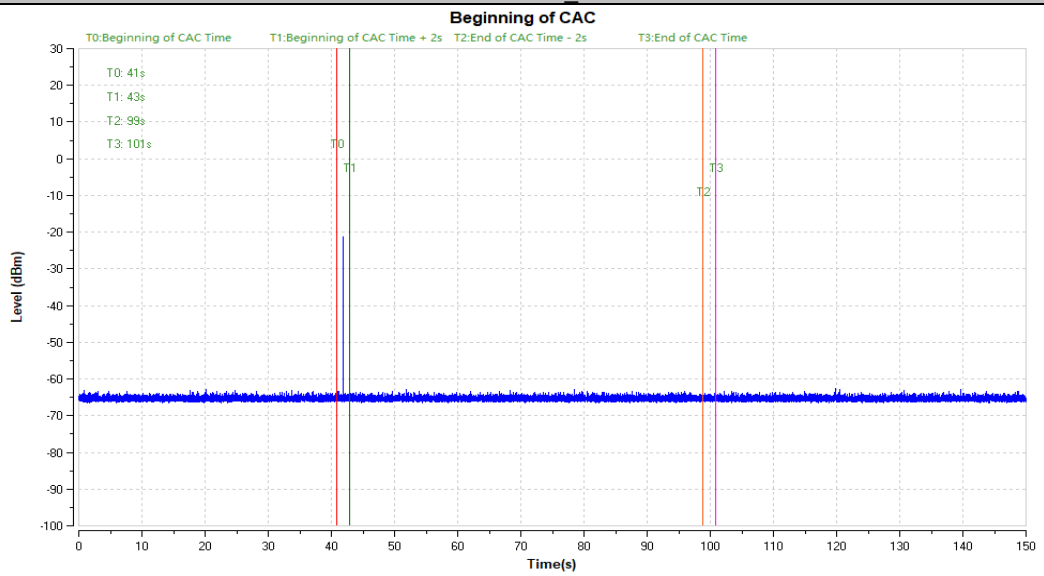
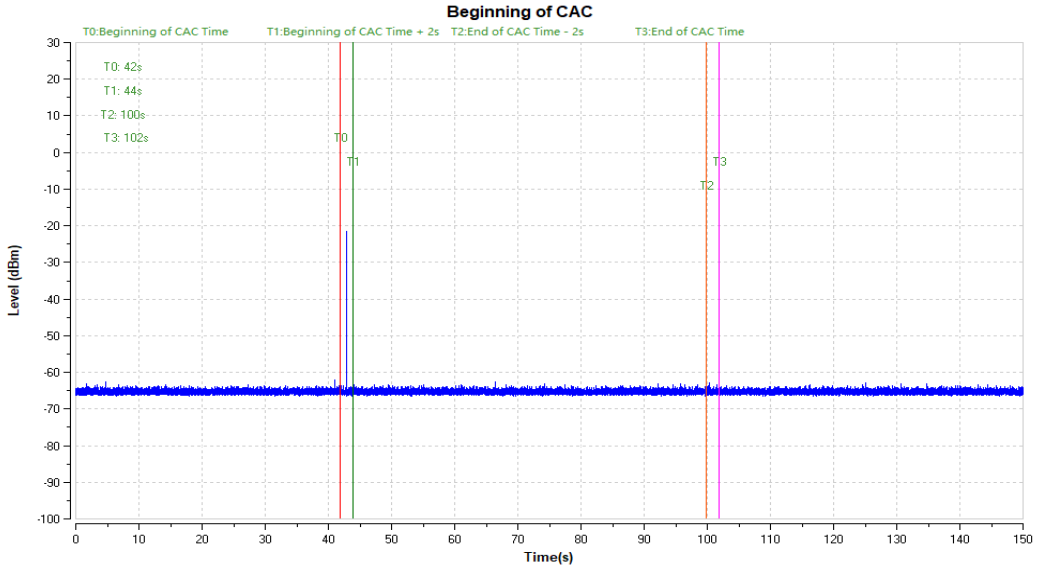
| TestMode | Frequency[MHz] | Result | Verdict |
|---|---|---|---|
| 11n 20 | 5320 | See test Graph | PASS |
| 11ac 40MIMO | 5310 | See test Graph | PASS |
| 11ac 80MIMO | 5290 | See test Graph | PASS |
| 11ax 160MIMO | 5290 | See test Graph | PASS |

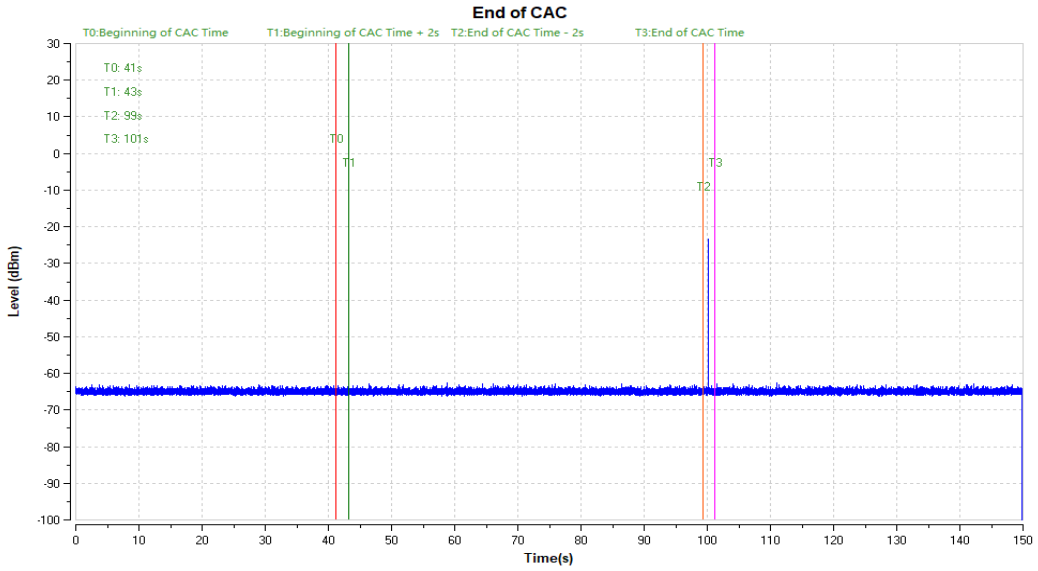
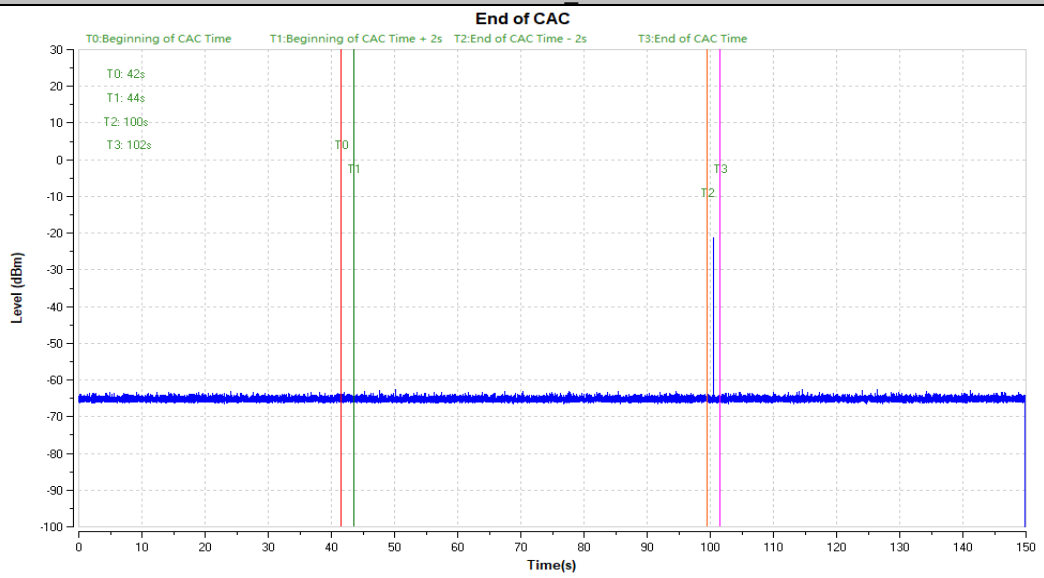
**Please refer to the following plots.**

| Initial Channel Availability Check Time |
|---|
| 11n 20_5320 |
|  |
| 11ac 40MIMO_5310 |
|  |

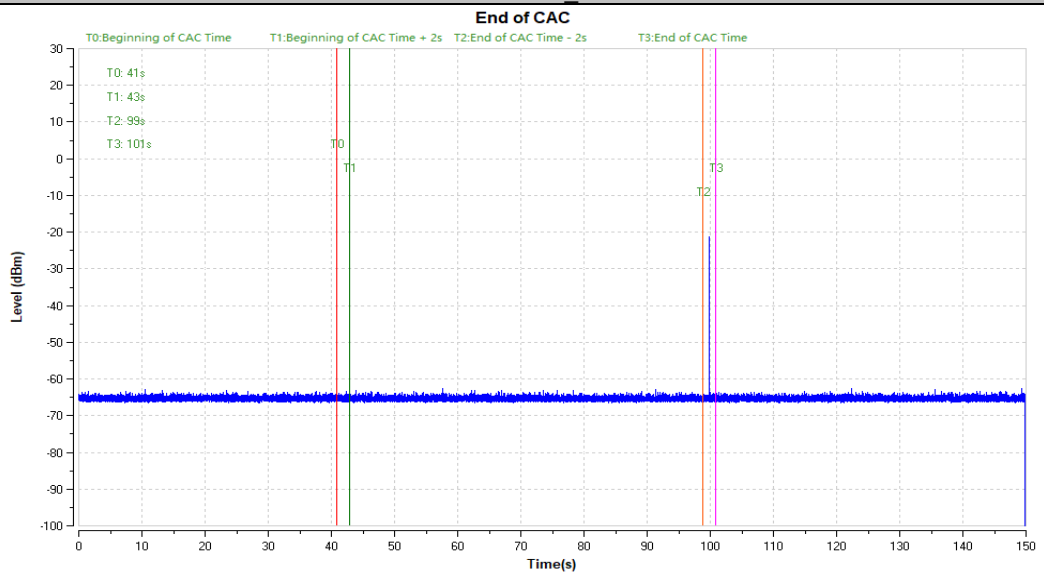
| 11ac 80MIMO_5290 |
| --- |
|  |
| 11ax 160MIMO_5290 |
|  |

| Beginning of Channel Availability Check Time |
|---|
| 11n 20_5320 |
|  |
| 11ac 40MIMO_5310 |
|  |

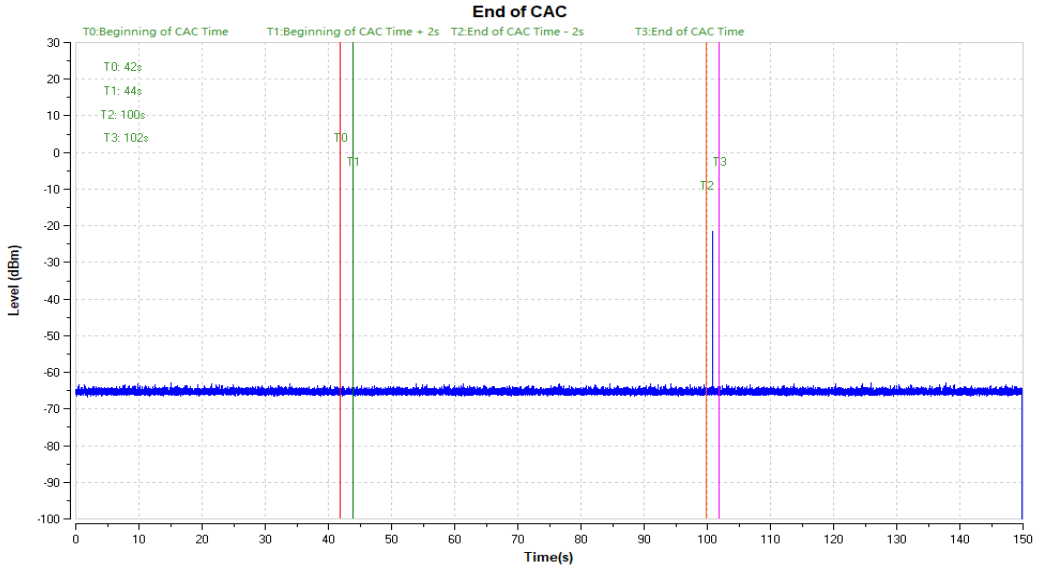
| 11ac 80MIMO_5290 |
| --- |
|  |
| 11ax 160MIMO_5290 |
|  |

| End of Channel Availability Check Time |
|---|
| 11n 20_5320 |
|  |
| 11ac 40MIMO_5310 |
|  |

11ac 80MIMO_5290




11ax 160MIMO_5290



## Channel Move Time and Channel Closing Transmission Time

Test Procedure:

Perform radar at a level of 10 dB above the level defined in clause 5.3.8.2.1 on the selected channel.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time = N * Dwell Time

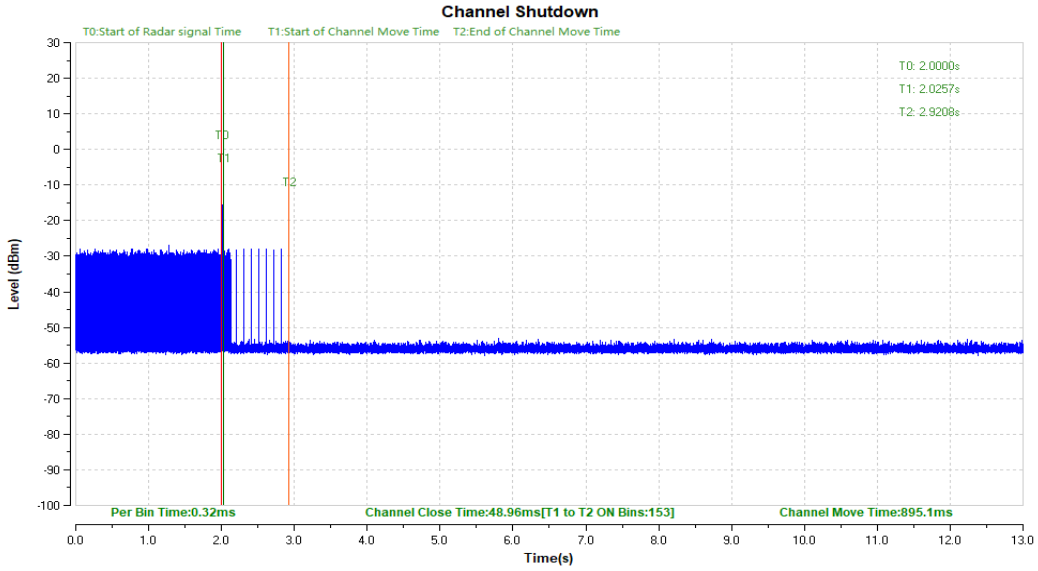
N is the number of spectrum analyzer bins showing a device transmission
Dwell Time is the dwell time per bin (i.e. Dwell Time = S/B, S is the sweep time and B is the number of bin, i.e. 8192)

## Test Result

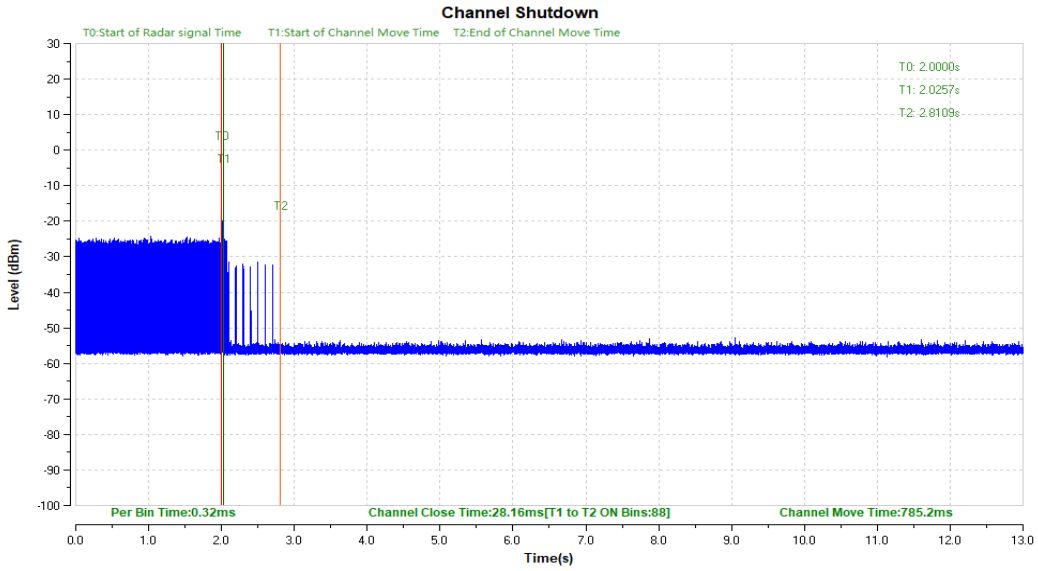
| TestMode | Frequency[MHz] | CCTT[ms] | Limit[ms] | CMT[ms] | Limit[ms] | Verdict |
|---|---|---|---|---|---|---|
| 11n 20 | 5320 | 48.96 | 1000 | 895.1 | 10000 | PASS |
| 11ac 40MIMO | 5310 | 28.16 | 1000 | 785.2 | 10000 | PASS |
| 11ac 80MIMO | 5290 | 23.36 | 1000 | 62.4 | 10000 | PASS |
| 11ax 160MIMO | 5290 | 8 | 1000 | 20.8 | 10000 | PASS |

Please refer to the following tables and plots.

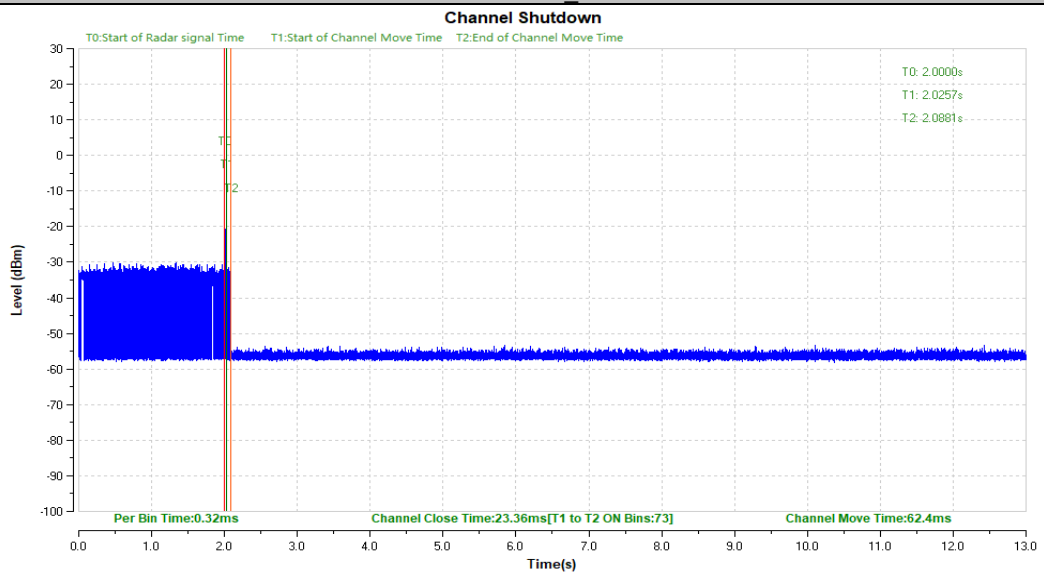
11n 20_5320



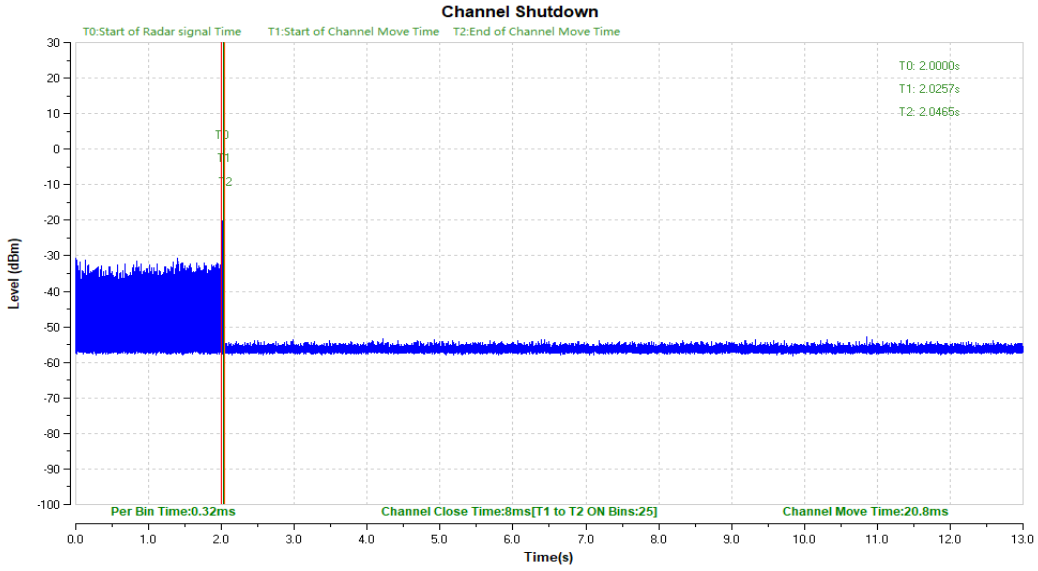

11ac 40MIMO_5310



11ac 80MIMO_5290




11ax 160MIMO_5290



## Non-Occupancy Period

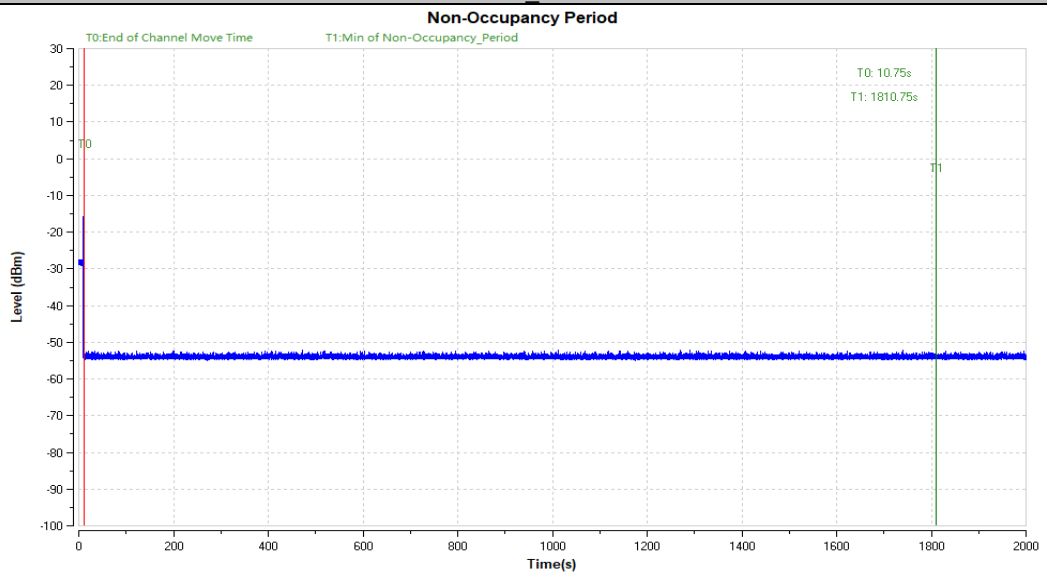
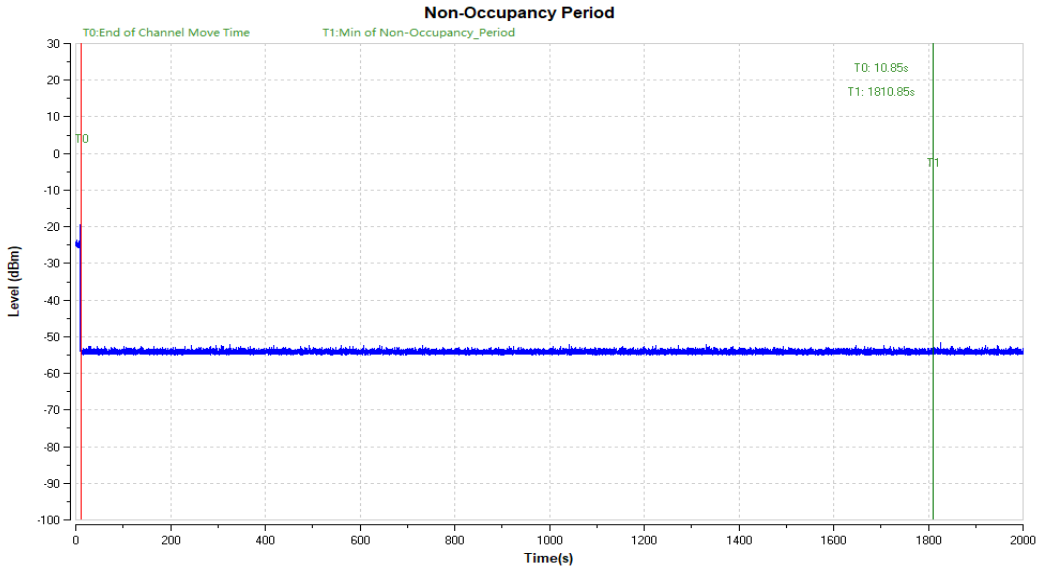
Test Procedure

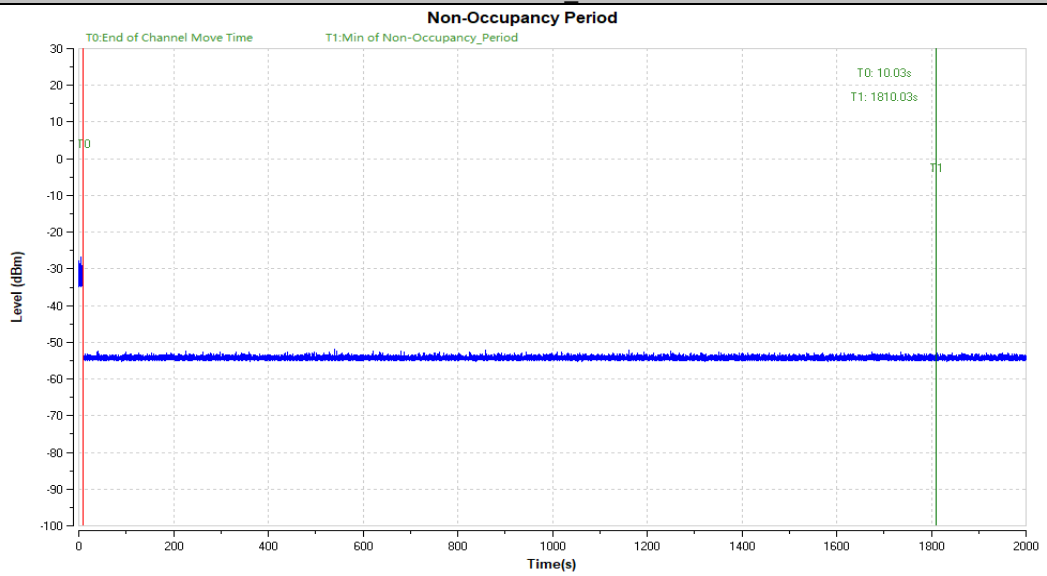
Measure the EUT for more than 30 minutes following the channel close/move time to verify that the EUT does not resume any transmissions on this channel. Provide one plot to demonstrate no transmission on the channel for the non-occupancy period (30 minutes observation time)

## Test Result

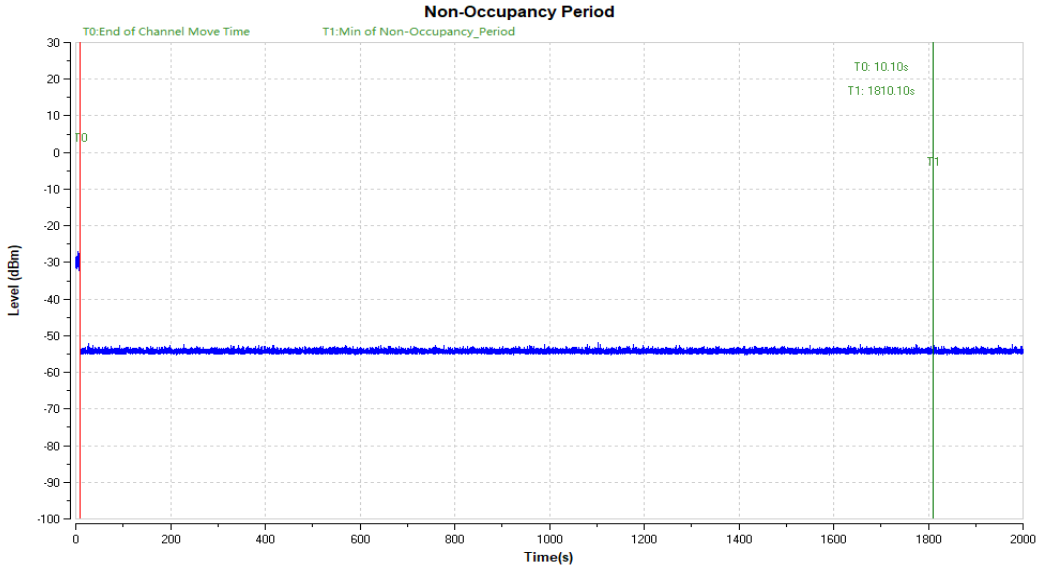
| TestMode | Frequency[MHz] | Result | Limit[s] | Verdict |
|---|---|---|---|---|
| 11n 20 | 5320 | see test graph | ≥1800 | PASS |
| 11ac 40MIMO | 5310 | see test graph | ≥1800 | PASS |
| 11ac 80MIMO | 5290 | see test graph | ≥1800 | PASS |
| 11ax 160MIMO | 5290 | see test graph | ≥1800 | PASS |

Please refer to the following plots.

| 11n 20_5320 |
| --- |
|  |
| 11ac 40MIMO_5310 |
|  |

| 11ac 80MIMO_5290 |
| --- |
|  |



| 11ax 160MIMO_5290 |
| --- |
|  |

**Interference Detection Threshold**

Procedure:

The different steps below define the procedure to verify the Interference Detection Threshold during the Channel Availability Check Time.

a) The signal generator and UUT are connected using Set-up A described in clause 5.3.8.1.2.1. The power of the UUT is switched off.

b) The UUT is powered on at T0.T1 denotes the instant when the UUT has completed its power-up sequence (Tpower_up) and is ready to start the radar detection. The channel Availability Check is expected to commence on Chr at instant T1 and is expected to end no sooner than T1+Tch_avail_check unless radar is detected sooner.

NOTE 1: Additional verification may be needed to define T1 in case it is not exactly known or indicated by the UUT.

c) A single burst radar test signal is generated on Chr using any of the radar test signals defined in table D.4
at a level defined in clause 5.3.8.2.1. This single-burst radar test signal may commence at any time within
the applicable Channel Availability Check Time.

NOTE 2: For the purpose of reducing test time, it is recommended that the single-burst test signal starts approximately 10 s after T1.

d) It shall be recorded if the radar test signal was detected.

e) The steps c) to d) shall be performed 20 times and each time a different radar test signal shall be generated from options provided in table D.4. The radar test signal shall be detected at least 12 times out of the 20 trials in order to comply with the detection probability specified for this frequency range in table D.5.

Where the declared channel plan includes channels whose nominal bandwidth falls completely or partly within the 5600 MHz to 5650 MHz band, additional testing as described in the steps below shall be performed on a channel within this band.

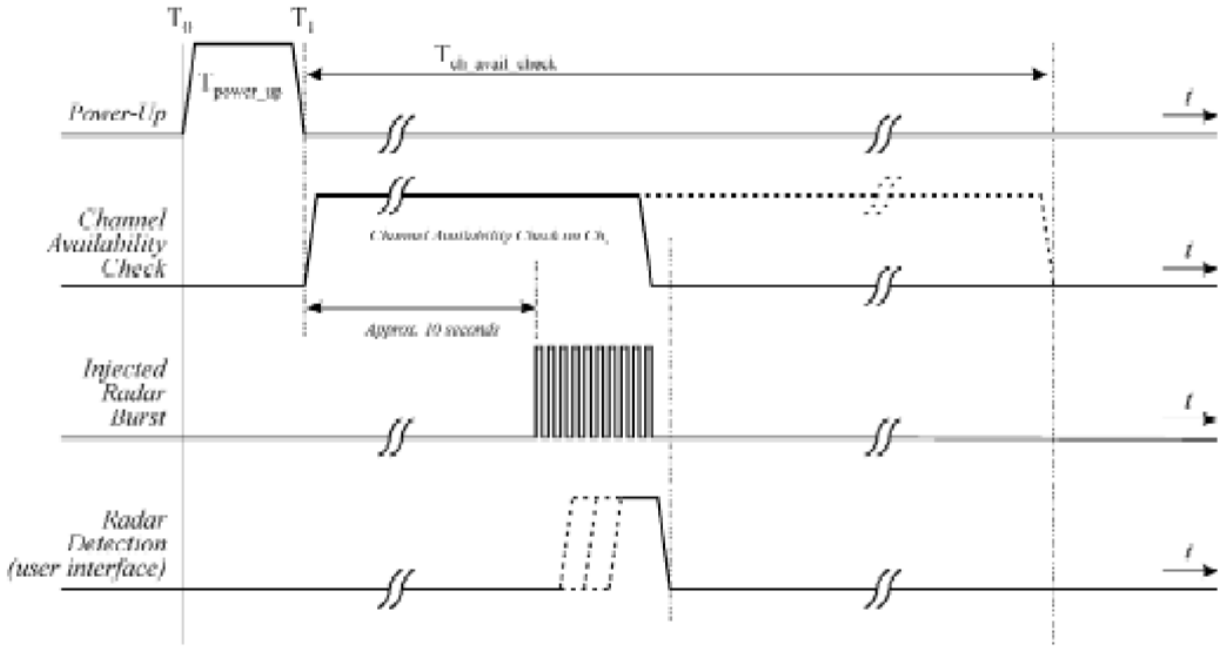
f) A single burst radar test signal is generated on Chr using any of the radar test signals defined in table D.4(except signals #3 and #4) at a level of 10 dB above the level defined in clause 5.3.8.2.1. This single burst radar test signal may commence at any time within the applicable Channel Availability Check Time.

NOTE 3: For the purpose of reducing test time, it is recommended that the single burst radar test signal starts approximately 10 s after T1.

g) Step f) shall be performed 20 times, each time a different radar test signal shall be generated from options provided in table D.4 (except signals #3 and #4). The radar test signal shall be detected during each of these trials and this shall be recorded.

$$\text{Detection Ratio} = \frac{\text{Total Waveform Detections}}{\text{Total Waveform Trials}} \times 100$$

**Example of timing for radar testing during the Channel Availability Check**



## Test Result

| TestMode | Frequency[MHz] | Radar Type | Pass Times | Fail Times | Probability (%) | Limit (%) | Verdict |
|---|---|---|---|---|---|---|---|
| 11n 20 | 5320 | Type1~Type6 | 16 | 4 | 80.00 | 60 | PASS |
| 11ac 40MIMO | 5310 | Type1~Type6 | 15 | 5 | 75.00 | 60 | PASS |
| 11ac 80MIMO | 5290 | Type1~Type6 | 18 | 2 | 90.00 | 60 | PASS |
| 11ax 160MIMO | 5290 | Type1~Type6 | 13 | 7 | 65.00 | 60 | PASS |

## In-Service Monitoring

Procedure:

The steps below define the procedure to verify the In-Service Monitoring and Interference Detection Threshold during the In-Service Monitoring.

a) When the UUT is a master device, a slave device will be used that associates with the UUT. The signal generator and the UUT are connected using Set-up A described in clause 5.3.8.1.2.1.

When the UUT is a slave device with a Radar Interference Detection function, the UUT shall associate with
a master device. The signal generator and the UUT are connected using Set-up C described in clause .3.8.1.2.3.

b) The UUT shall transmit a test transmission sequence in accordance with clause 5.1.2.2 on the selected channel Chr.

c) At a certain time T0, a single burst radar test signal is generated on Chr using radar test signal #1 defined in table D.4 and at a level defined in clause 5.3.8.2.1.T1 denotes the end of the radar burst.

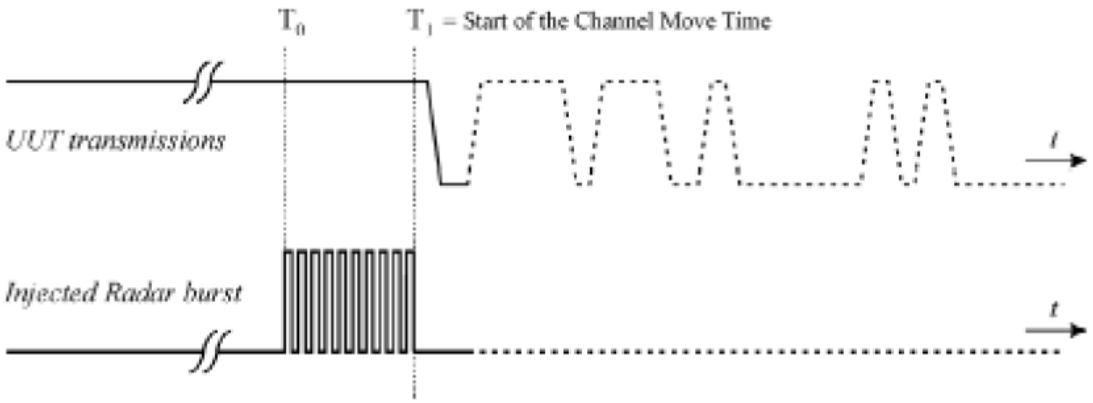
d) It shall be recorded if the radar test signal was detected.

e) The steps b) to d) shall be performed 20 times. The radar test signal shall be detected at least 12 times out of the 20 trials in order to comply with the detection probability specified in table D.5.

f) Step b) to e) shall be repeated for each of the radar test signals defined in table D.4 and as described in clause 5.3.8.1.1.

$$\text{Detection Ratio} = \frac{\text{Total Waveform Detections}}{\text{Total Waveform Trials}} \times 100$$

**Figure: Example of timing for radar testing during In-Service Monitoring**



**Result:**

## Test Result

| TestMode | Frequency[MHz] | Radar Type | Pass Times | Fail Times | Probability (%) | Limit (%) | Verdict |
|---|---|---|---|---|---|---|---|
| 11n 20 | 5320 | Type1 | 12 | 8 | 60.00 | 60 | PASS |
| | | Type2 | 16 | 4 | 80.00 | 60 | PASS |
| | | Type3 | 14 | 6 | 70.00 | 60 | PASS |
| | | Type4 | 15 | 5 | 75.00 | 60 | PASS |
| | | Type5 | 12 | 8 | 60.00 | 60 | PASS |
| | | Type6 | 13 | 7 | 65.00 | 60 | PASS |
| 11ac 40MIMO | 5310 | Type1 | 15 | 5 | 75.00 | 60 | PASS |
| | | Type2 | 15 | 5 | 75.00 | 60 | PASS |
| | | Type3 | 15 | 5 | 75.00 | 60 | PASS |
| | | Type4 | 13 | 7 | 65.00 | 60 | PASS |
| | | Type5 | 13 | 7 | 65.00 | 60 | PASS |
| | | Type6 | 13 | 7 | 65.00 | 60 | PASS |
| 11ac 80MIMO | 5290 | Type1 | 18 | 2 | 90.00 | 60 | PASS |
| | | Type2 | 18 | 2 | 90.00 | 60 | PASS |
| | | Type3 | 19 | 1 | 95.00 | 60 | PASS |
| | | Type4 | 19 | 1 | 95.00 | 60 | PASS |
| | | Type5 | 12 | 8 | 60.00 | 60 | PASS |
| | | Type6 | 18 | 2 | 90.00 | 60 | PASS |
| 11ax 160MIMO | 5290 | Type1 | 16 | 4 | 80.00 | 60 | PASS |
| | | Type2 | 17 | 3 | 85.00 | 60 | PASS |
| | | Type3 | 17 | 3 | 85.00 | 60 | PASS |
| | | Type4 | 14 | 6 | 70.00 | 60 | PASS |
| | | Type5 | 12 | 8 | 60.00 | 60 | PASS |
| | | Type6 | 16 | 4 | 80.00 | 60 | PASS |

| TestMode | Frequency[MHz] | Radar Type | Trial ID | Pulse width(μs) | PRI(μs) | Pulses per Burst | Detection (1: Yes; 0: No) |
|---|---|---|---|---|---|---|---|
| 11n 20 | 5320 | Type1 | 0 | 3.0 | 1550.4 | 10 | 0 |
| | | Type1 | 1 | 0.6 | 4347.8 | 10 | 1 |
| | | Type1 | 2 | 1.7 | 2375.3 | 10 | 0 |
| | | Type1 | 3 | 4.7 | 1058.2 | 10 | 1 |
| | | Type1 | 4 | 3.7 | 1292.0 | 10 | 1 |
| | | Type1 | 5 | 2.6 | 1724.1 | 10 | 0 |
| | | Type1 | 6 | 2.9 | 1574.8 | 10 | 0 |
| | | Type1 | 7 | 2.1 | 2024.3 | 10 | 0 |
| | | Type1 | 8 | 2.9 | 1594.9 | 10 | 1 |
| | | Type1 | 9 | 0.7 | 3984.1 | 10 | 0 |
| | | Type1 | 10 | 3.7 | 1295.3 | 10 | 0 |
| | | Type1 | 11 | 4.5 | 1100.1 | 10 | 1 |
| | | Type1 | 12 | 3.0 | 1560.1 | 10 | 1 |
| | | Type1 | 13 | 1.9 | 2217.3 | 10 | 1 |
| | | Type1 | 14 | 4.4 | 1116.1 | 10 | 1 |
| | | Type1 | 15 | 2.7 | 1669.4 | 10 | 1 |
| | | Type1 | 16 | 5.0 | 1011.1 | 10 | 1 |
| | | Type1 | 17 | 2.1 | 2092.1 | 10 | 1 |
| | | Type1 | 18 | 2.6 | 1730.1 | 10 | 1 |
| | | Type1 | 19 | 1.9 | 2202.6 | 10 | 0 |
| | | Type2 | 0 | 8.6 | 1022.5 | 15 | 1 |
| | | Type2 | 1 | 1.0 | 3952.6 | 15 | 1 |
| | | Type2 | 2 | 4.5 | 1706.5 | 15 | 1 |
| | | Type2 | 3 | 14.0 | 665.3 | 15 | 1 |
| | | Type2 | 4 | 10.9 | 830.6 | 15 | 1 |
| | | Type2 | 5 | 7.4 | 1157.4 | 15 | 1 |
| | | Type2 | 6 | 8.4 | 1040.6 | 15 | 1 |
| | | Type2 | 7 | 5.8 | 1400.6 | 15 | 1 |
| | | Type2 | 8 | 8.2 | 1054.9 | 15 | 1 |
| | | Type2 | 9 | 1.4 | 3448.3 | 15 | 0 |
| | | Type2 | 10 | 10.9 | 833.3 | 15 | 0 |
| | | Type2 | 11 | 13.4 | 694.4 | 15 | 1 |
| | | Type2 | 12 | 8.5 | 1028.8 | 15 | 1 |
| | | Type2 | 13 | 5.0 | 1562.5 | 15 | 0 |
| | | Type2 | 14 | 13.1 | 705.7 | 15 | 1 |
| | | Type2 | 15 | 7.7 | 1112.3 | 15 | 0 |
| | | Type2 | 16 | 14.8 | 632.5 | 15 | 1 |
| | | Type2 | 17 | 5.5 | 1455.6 | 15 | 1 |
| | | Type2 | 18 | 7.3 | 1161.4 | 15 | 1 |
| | | Type2 | 19 | 5.1 | 1550.4 | 15 | 1 |
| | | Type3 | 0 | 8.6 | 308.2 | 25 | 0 |
| | | Type3 | 1 | 1.0 | 422.8 | 25 | 1 |
| | | Type3 | 2 | 4.5 | 361.1 | 25 | 0 |
| | | Type3 | 3 | 14.0 | 257.6 | 25 | 1 |
| | | Type3 | 4 | 10.9 | 284.2 | 25 | 0 |
| | | Type3 | 5 | 7.4 | 321.9 | 25 | 1 |
| | | Type3 | 6 | 8.4 | 310.2 | 25 | 0 |
| | | Type3 | 7 | 5.8 | 342.0 | 25 | 1 |
| | | Type3 | 8 | 8.2 | 311.7 | 25 | 1 |
| | | Type3 | 9 | 1.4 | 414.9 | 25 | 1 |
| | | Type3 | 10 | 10.9 | 284.6 | 25 | 0 |
| | | Type3 | 11 | 13.4 | 262.7 | 25 | 1 |
| | | Type3 | 12 | 8.5 | 308.8 | 25 | 1 |
| | | Type3 | 13 | 5.0 | 352.9 | 25 | 1 |
| | | Type3 | 14 | 13.1 | 264.7 | 25 | 1 |
| | | Type3 | 15 | 7.7 | 317.6 | 25 | 1 |
| | | Type3 | 16 | 14.8 | 251.4 | 25 | 1 |
| | | Type3 | 17 | 5.5 | 345.8 | 25 | 1 |
| | | Type3 | 18 | 7.3 | 322.3 | 25 | 1 |
| | | Type3 | 19 | 5.1 | 352.1 | 25 | 0 |
| | | Type4 | 0 | 25.6 | 321.3 | 20 | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Type4 | 1 | 20.3 | 481.7 | 20 | 1 |
| | | Type4 | 2 | 22.7 | 391.8 | 20 | 1 |
| | | Type4 | 3 | 29.3 | 259.0 | 20 | 1 |
| | | Type4 | 4 | 27.2 | 291.3 | 20 | 1 |
| | | Type4 | 5 | 24.7 | 339.1 | 20 | 0 |
| | | Type4 | 6 | 25.4 | 323.9 | 20 | 0 |
| | | Type4 | 7 | 23.7 | 365.8 | 20 | 1 |
| | | Type4 | 8 | 25.3 | 325.9 | 20 | 0 |
| | | Type4 | 9 | 20.6 | 469.7 | 20 | 0 |
| | | Type4 | 10 | 27.2 | 291.7 | 20 | 1 |
| | | Type4 | 11 | 28.9 | 265.2 | 20 | 1 |
| | | Type4 | 12 | 25.5 | 322.3 | 20 | 1 |
| | | Type4 | 13 | 23.1 | 380.5 | 20 | 1 |
| | | Type4 | 14 | 28.7 | 267.5 | 20 | 1 |
| | | Type4 | 15 | 25.0 | 333.4 | 20 | 1 |
| | | Type4 | 16 | 29.9 | 251.7 | 20 | 1 |
| | | Type4 | 17 | 23.5 | 370.9 | 20 | 1 |
| | | Type4 | 18 | 24.7 | 339.7 | 20 | 1 |
| | | Type4 | 19 | 23.2 | 379.4 | 20 | 0 |
| | | Type5 | 0 | 1.4 | 2809.0 | 30 | 0 |
| | | Type5 | 1 | 0.5 | 3300.3 | 20 | 0 |
| | | Type5 | 2 | 0.9 | 3058.1 | 20 | 0 |
| | | Type5 | 3 | 2.0 | 2544.5 | 30 | 1 |
| | | Type5 | 4 | 1.7 | 2688.2 | 30 | 1 |
| | | Type5 | 5 | 1.3 | 2881.8 | 20 | 1 |
| | | Type5 | 6 | 1.4 | 2824.9 | 30 | 1 |
| | | Type5 | 7 | 1.1 | 2967.4 | 20 | 1 |
| | | Type5 | 8 | 1.4 | 2832.9 | 30 | 1 |
| | | Type5 | 9 | 0.6 | 3268.0 | 20 | 1 |
| | | Type5 | 10 | 1.7 | 2688.2 | 30 | 1 |
| | | Type5 | 11 | 2.0 | 2570.7 | 30 | 1 |
| | | Type5 | 12 | 1.4 | 2816.9 | 30 | 0 |
| | | Type5 | 13 | 1.0 | 3021.1 | 20 | 0 |
| | | Type5 | 14 | 1.9 | 2584.0 | 30 | 1 |
| | | Type5 | 15 | 1.3 | 2857.1 | 20 | 0 |
| | | Type5 | 16 | 2.0 | 2506.3 | 30 | 1 |
| | | Type5 | 17 | 1.0 | 2985.1 | 20 | 0 |
| | | Type5 | 18 | 1.3 | 2881.8 | 20 | 0 |
| | | Type5 | 19 | 1.0 | 3012.0 | 20 | 1 |
| | | Type6 | 0 | 1.4 | 1183.4 | 45 | 0 |
| | | Type6 | 1 | 0.5 | 2325.6 | 30 | 1 |
| | | Type6 | 2 | 0.9 | 1610.3 | 30 | 0 |
| | | Type6 | 3 | 2.0 | 873.4 | 45 | 1 |
| | | Type6 | 4 | 1.7 | 1026.7 | 45 | 1 |
| | | Type6 | 5 | 1.3 | 1282.1 | 30 | 0 |
| | | Type6 | 6 | 1.4 | 1197.6 | 45 | 0 |
| | | Type6 | 7 | 1.1 | 1440.9 | 30 | 0 |
| | | Type6 | 8 | 1.4 | 1209.2 | 45 | 0 |
| | | Type6 | 9 | 0.6 | 2217.3 | 30 | 1 |
| | | Type6 | 10 | 1.7 | 1028.8 | 45 | 1 |
| | | Type6 | 11 | 2.0 | 901.7 | 45 | 1 |
| | | Type6 | 12 | 1.4 | 1189.1 | 45 | 1 |
| | | Type6 | 13 | 1.0 | 1536.1 | 30 | 1 |
| | | Type6 | 14 | 1.9 | 912.4 | 45 | 1 |
| | | Type6 | 15 | 1.3 | 1251.6 | 30 | 1 |
| | | Type6 | 16 | 2.0 | 841.0 | 45 | 1 |
| | | Type6 | 17 | 1.0 | 1474.9 | 30 | 1 |
| | | Type6 | 18 | 1.3 | 1285.3 | 30 | 0 |
| | | Type6 | 19 | 1.0 | 1529.1 | 30 | 1 |
| 11ac 40MIMO | 5310 | Type1 | 0 | 3.0 | 1550.4 | 10 | 1 |
| | | Type1 | 1 | 0.6 | 4347.8 | 10 | 1 |
| | | Type1 | 2 | 1.7 | 2375.3 | 10 | 1 |
| | | Type1 | 3 | 4.7 | 1058.2 | 10 | 1 |
| | | Type1 | 4 | 3.7 | 1292.0 | 10 | 1 |
| | | Type1 | 5 | 2.6 | 1724.1 | 10 | 0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Type1 | 6 | 2.9 | 1574.8 | 10 | 1 |
| | | Type1 | 7 | 2.1 | 2024.3 | 10 | 1 |
| | | Type1 | 8 | 2.9 | 1594.9 | 10 | 1 |
| | | Type1 | 9 | 0.7 | 3984.1 | 10 | 0 |
| | | Type1 | 10 | 3.7 | 1295.3 | 10 | 1 |
| | | Type1 | 11 | 4.5 | 1100.1 | 10 | 1 |
| | | Type1 | 12 | 3.0 | 1560.1 | 10 | 0 |
| | | Type1 | 13 | 1.9 | 2217.3 | 10 | 1 |
| | | Type1 | 14 | 4.4 | 1116.1 | 10 | 1 |
| | | Type1 | 15 | 2.7 | 1669.4 | 10 | 1 |
| | | Type1 | 16 | 5.0 | 1011.1 | 10 | 0 |
| | | Type1 | 17 | 2.1 | 2092.1 | 10 | 0 |
| | | Type1 | 18 | 2.6 | 1730.1 | 10 | 1 |
| | | Type1 | 19 | 1.9 | 2202.6 | 10 | 1 |
| | | Type2 | 0 | 8.6 | 1022.5 | 15 | 1 |
| | | Type2 | 1 | 1.0 | 3952.6 | 15 | 1 |
| | | Type2 | 2 | 4.5 | 1706.5 | 15 | 1 |
| | | Type2 | 3 | 14.0 | 665.3 | 15 | 1 |
| | | Type2 | 4 | 10.9 | 830.6 | 15 | 1 |
| | | Type2 | 5 | 7.4 | 1157.4 | 15 | 1 |
| | | Type2 | 6 | 8.4 | 1040.6 | 15 | 0 |
| | | Type2 | 7 | 5.8 | 1400.6 | 15 | 1 |
| | | Type2 | 8 | 8.2 | 1054.9 | 15 | 0 |
| | | Type2 | 9 | 1.4 | 3448.3 | 15 | 1 |
| | | Type2 | 10 | 10.9 | 833.3 | 15 | 0 |
| | | Type2 | 11 | 13.4 | 694.4 | 15 | 1 |
| | | Type2 | 12 | 8.5 | 1028.8 | 15 | 1 |
| | | Type2 | 13 | 5.0 | 1562.5 | 15 | 1 |
| | | Type2 | 14 | 13.1 | 705.7 | 15 | 1 |
| | | Type2 | 15 | 7.7 | 1112.3 | 15 | 1 |
| | | Type2 | 16 | 14.8 | 632.5 | 15 | 0 |
| | | Type2 | 17 | 5.5 | 1455.6 | 15 | 1 |
| | | Type2 | 18 | 7.3 | 1161.4 | 15 | 1 |
| | | Type2 | 19 | 5.1 | 1550.4 | 15 | 0 |
| | | Type3 | 0 | 8.6 | 308.2 | 25 | 1 |
| | | Type3 | 1 | 1.0 | 422.8 | 25 | 1 |
| | | Type3 | 2 | 4.5 | 361.1 | 25 | 0 |
| | | Type3 | 3 | 14.0 | 257.6 | 25 | 1 |
| | | Type3 | 4 | 10.9 | 284.2 | 25 | 1 |
| | | Type3 | 5 | 7.4 | 321.9 | 25 | 1 |
| | | Type3 | 6 | 8.4 | 310.2 | 25 | 1 |
| | | Type3 | 7 | 5.8 | 342.0 | 25 | 1 |
| | | Type3 | 8 | 8.2 | 311.7 | 25 | 1 |
| | | Type3 | 9 | 1.4 | 414.9 | 25 | 1 |
| | | Type3 | 10 | 10.9 | 284.6 | 25 | 1 |
| | | Type3 | 11 | 13.4 | 262.7 | 25 | 0 |
| | | Type3 | 12 | 8.5 | 308.8 | 25 | 1 |
| | | Type3 | 13 | 5.0 | 352.9 | 25 | 0 |
| | | Type3 | 14 | 13.1 | 264.7 | 25 | 1 |
| | | Type3 | 15 | 7.7 | 317.6 | 25 | 0 |
| | | Type3 | 16 | 14.8 | 251.4 | 25 | 1 |
| | | Type3 | 17 | 5.5 | 345.8 | 25 | 1 |
| | | Type3 | 18 | 7.3 | 322.3 | 25 | 1 |
| | | Type3 | 19 | 5.1 | 352.1 | 25 | 0 |
| | | Type4 | 0 | 25.6 | 321.3 | 20 | 0 |
| | | Type4 | 1 | 20.3 | 481.7 | 20 | 1 |
| | | Type4 | 2 | 22.7 | 391.8 | 20 | 1 |
| | | Type4 | 3 | 29.3 | 259.0 | 20 | 0 |
| | | Type4 | 4 | 27.2 | 291.3 | 20 | 1 |
| | | Type4 | 5 | 24.7 | 339.1 | 20 | 1 |
| | | Type4 | 6 | 25.4 | 323.9 | 20 | 1 |
| | | Type4 | 7 | 23.7 | 365.8 | 20 | 1 |
| | | Type4 | 8 | 25.3 | 325.9 | 20 | 1 |
| | | Type4 | 9 | 20.6 | 469.7 | 20 | 1 |
| | | Type4 | 10 | 27.2 | 291.7 | 20 | 0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Type4 | 11 | 28.9 | 265.2 | 20 | 0 |
| | | Type4 | 12 | 25.5 | 322.3 | 20 | 0 |
| | | Type4 | 13 | 23.1 | 380.5 | 20 | 1 |
| | | Type4 | 14 | 28.7 | 267.5 | 20 | 1 |
| | | Type4 | 15 | 25.0 | 333.4 | 20 | 0 |
| | | Type4 | 16 | 29.9 | 251.7 | 20 | 1 |
| | | Type4 | 17 | 23.5 | 370.9 | 20 | 0 |
| | | Type4 | 18 | 24.7 | 339.7 | 20 | 1 |
| | | Type4 | 19 | 23.2 | 379.4 | 20 | 1 |
| | | Type5 | 0 | 1.4 | 2809.0 | 30 | 1 |
| | | Type5 | 1 | 0.5 | 3300.3 | 20 | 1 |
| | | Type5 | 2 | 0.9 | 3058.1 | 20 | 1 |
| | | Type5 | 3 | 2.0 | 2544.5 | 30 | 1 |
| | | Type5 | 4 | 1.7 | 2688.2 | 30 | 1 |
| | | Type5 | 5 | 1.3 | 2881.8 | 20 | 0 |
| | | Type5 | 6 | 1.4 | 2824.9 | 30 | 1 |
| | | Type5 | 7 | 1.1 | 2967.4 | 20 | 0 |
| | | Type5 | 8 | 1.4 | 2832.9 | 30 | 1 |
| | | Type5 | 9 | 0.6 | 3268.0 | 20 | 0 |
| | | Type5 | 10 | 1.7 | 2688.2 | 30 | 1 |
| | | Type5 | 11 | 2.0 | 2570.7 | 30 | 1 |
| | | Type5 | 12 | 1.4 | 2816.9 | 30 | 1 |
| | | Type5 | 13 | 1.0 | 3021.1 | 20 | 0 |
| | | Type5 | 14 | 1.9 | 2584.0 | 30 | 1 |
| | | Type5 | 15 | 1.3 | 2857.1 | 20 | 0 |
| | | Type5 | 16 | 2.0 | 2506.3 | 30 | 1 |
| | | Type5 | 17 | 1.0 | 2985.1 | 20 | 0 |
| | | Type5 | 18 | 1.3 | 2881.8 | 20 | 0 |
| | | Type5 | 19 | 1.0 | 3012.0 | 20 | 1 |
| | | Type6 | 0 | 1.4 | 1183.4 | 45 | 1 |
| | | Type6 | 1 | 0.5 | 2325.6 | 30 | 0 |
| | | Type6 | 2 | 0.9 | 1610.3 | 30 | 0 |
| | | Type6 | 3 | 2.0 | 873.4 | 45 | 1 |
| | | Type6 | 4 | 1.7 | 1026.7 | 45 | 1 |
| | | Type6 | 5 | 1.3 | 1282.1 | 30 | 0 |
| | | Type6 | 6 | 1.4 | 1197.6 | 45 | 1 |
| | | Type6 | 7 | 1.1 | 1440.9 | 30 | 1 |
| | | Type6 | 8 | 1.4 | 1209.2 | 45 | 1 |
| | | Type6 | 9 | 0.6 | 2217.3 | 30 | 0 |
| | | Type6 | 10 | 1.7 | 1028.8 | 45 | 1 |
| | | Type6 | 11 | 2.0 | 901.7 | 45 | 1 |
| | | Type6 | 12 | 1.4 | 1189.1 | 45 | 1 |
| | | Type6 | 13 | 1.0 | 1536.1 | 30 | 0 |
| | | Type6 | 14 | 1.9 | 912.4 | 45 | 1 |
| | | Type6 | 15 | 1.3 | 1251.6 | 30 | 1 |
| | | Type6 | 16 | 2.0 | 841.0 | 45 | 1 |
| | | Type6 | 17 | 1.0 | 1474.9 | 30 | 0 |
| | | Type6 | 18 | 1.3 | 1285.3 | 30 | 1 |
| | | Type6 | 19 | 1.0 | 1529.1 | 30 | 0 |
| 11ac 80MIMO | 5290 | Type1 | 0 | 3.0 | 1550.4 | 10 | 1 |
| | | Type1 | 1 | 0.6 | 4347.8 | 10 | 1 |
| | | Type1 | 2 | 1.7 | 2375.3 | 10 | 1 |
| | | Type1 | 3 | 4.7 | 1058.2 | 10 | 1 |
| | | Type1 | 4 | 3.7 | 1292.0 | 10 | 0 |
| | | Type1 | 5 | 2.6 | 1724.1 | 10 | 1 |
| | | Type1 | 6 | 2.9 | 1574.8 | 10 | 1 |
| | | Type1 | 7 | 2.1 | 2024.3 | 10 | 1 |
| | | Type1 | 8 | 2.9 | 1594.9 | 10 | 1 |
| | | Type1 | 9 | 0.7 | 3984.1 | 10 | 1 |
| | | Type1 | 10 | 3.7 | 1295.3 | 10 | 1 |
| | | Type1 | 11 | 4.5 | 1100.1 | 10 | 1 |
| | | Type1 | 12 | 3.0 | 1560.1 | 10 | 1 |
| | | Type1 | 13 | 1.9 | 2217.3 | 10 | 1 |
| | | Type1 | 14 | 4.4 | 1116.1 | 10 | 0 |
| | | Type1 | 15 | 2.7 | 1669.4 | 10 | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Type1 | 16 | 5.0 | 1011.1 | 10 | 1 |
| | | Type1 | 17 | 2.1 | 2092.1 | 10 | 1 |
| | | Type1 | 18 | 2.6 | 1730.1 | 10 | 1 |
| | | Type1 | 19 | 1.9 | 2202.6 | 10 | 1 |
| | | Type2 | 0 | 8.6 | 1022.5 | 15 | 1 |
| | | Type2 | 1 | 1.0 | 3952.6 | 15 | 1 |
| | | Type2 | 2 | 4.5 | 1706.5 | 15 | 1 |
| | | Type2 | 3 | 14.0 | 665.3 | 15 | 1 |
| | | Type2 | 4 | 10.9 | 830.6 | 15 | 1 |
| | | Type2 | 5 | 7.4 | 1157.4 | 15 | 1 |
| | | Type2 | 6 | 8.4 | 1040.6 | 15 | 1 |
| | | Type2 | 7 | 5.8 | 1400.6 | 15 | 1 |
| | | Type2 | 8 | 8.2 | 1054.9 | 15 | 1 |
| | | Type2 | 9 | 1.4 | 3448.3 | 15 | 1 |
| | | Type2 | 10 | 10.9 | 833.3 | 15 | 1 |
| | | Type2 | 11 | 13.4 | 694.4 | 15 | 1 |
| | | Type2 | 12 | 8.5 | 1028.8 | 15 | 1 |
| | | Type2 | 13 | 5.0 | 1562.5 | 15 | 1 |
| | | Type2 | 14 | 13.1 | 705.7 | 15 | 1 |
| | | Type2 | 15 | 7.7 | 1112.3 | 15 | 1 |
| | | Type2 | 16 | 14.8 | 632.5 | 15 | 0 |
| | | Type2 | 17 | 5.5 | 1455.6 | 15 | 1 |
| | | Type2 | 18 | 7.3 | 1161.4 | 15 | 0 |
| | | Type2 | 19 | 5.1 | 1550.4 | 15 | 1 |
| | | Type3 | 0 | 8.6 | 308.2 | 25 | 1 |
| | | Type3 | 1 | 1.0 | 422.8 | 25 | 1 |
| | | Type3 | 2 | 4.5 | 361.1 | 25 | 1 |
| | | Type3 | 3 | 14.0 | 257.6 | 25 | 1 |
| | | Type3 | 4 | 10.9 | 284.2 | 25 | 1 |
| | | Type3 | 5 | 7.4 | 321.9 | 25 | 1 |
| | | Type3 | 6 | 8.4 | 310.2 | 25 | 1 |
| | | Type3 | 7 | 5.8 | 342.0 | 25 | 1 |
| | | Type3 | 8 | 8.2 | 311.7 | 25 | 1 |
| | | Type3 | 9 | 1.4 | 414.9 | 25 | 1 |
| | | Type3 | 10 | 10.9 | 284.6 | 25 | 1 |
| | | Type3 | 11 | 13.4 | 262.7 | 25 | 1 |
| | | Type3 | 12 | 8.5 | 308.8 | 25 | 1 |
| | | Type3 | 13 | 5.0 | 352.9 | 25 | 1 |
| | | Type3 | 14 | 13.1 | 264.7 | 25 | 1 |
| | | Type3 | 15 | 7.7 | 317.6 | 25 | 1 |
| | | Type3 | 16 | 14.8 | 251.4 | 25 | 1 |
| | | Type3 | 17 | 5.5 | 345.8 | 25 | 1 |
| | | Type3 | 18 | 7.3 | 322.3 | 25 | 1 |
| | | Type3 | 19 | 5.1 | 352.1 | 25 | 0 |
| | | Type4 | 0 | 25.6 | 321.3 | 20 | 0 |
| | | Type4 | 1 | 20.3 | 481.7 | 20 | 1 |
| | | Type4 | 2 | 22.7 | 391.8 | 20 | 1 |
| | | Type4 | 3 | 29.3 | 259.0 | 20 | 1 |
| | | Type4 | 4 | 27.2 | 291.3 | 20 | 1 |
| | | Type4 | 5 | 24.7 | 339.1 | 20 | 1 |
| | | Type4 | 6 | 25.4 | 323.9 | 20 | 1 |
| | | Type4 | 7 | 23.7 | 365.8 | 20 | 1 |
| | | Type4 | 8 | 25.3 | 325.9 | 20 | 1 |
| | | Type4 | 9 | 20.6 | 469.7 | 20 | 1 |
| | | Type4 | 10 | 27.2 | 291.7 | 20 | 1 |
| | | Type4 | 11 | 28.9 | 265.2 | 20 | 1 |
| | | Type4 | 12 | 25.5 | 322.3 | 20 | 1 |
| | | Type4 | 13 | 23.1 | 380.5 | 20 | 1 |
| | | Type4 | 14 | 28.7 | 267.5 | 20 | 1 |
| | | Type4 | 15 | 25.0 | 333.4 | 20 | 1 |
| | | Type4 | 16 | 29.9 | 251.7 | 20 | 1 |
| | | Type4 | 17 | 23.5 | 370.9 | 20 | 1 |
| | | Type4 | 18 | 24.7 | 339.7 | 20 | 1 |
| | | Type4 | 19 | 23.2 | 379.4 | 20 | 1 |
| | | Type5 | 0 | 1.4 | 2809.0 | 30 | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Type5 | 1 | 0.5 | 3300.3 | 20 | 1 |
| | | Type5 | 2 | 0.9 | 3058.1 | 20 | 0 |
| | | Type5 | 3 | 2.0 | 2544.5 | 30 | 1 |
| | | Type5 | 4 | 1.7 | 2688.2 | 30 | 1 |
| | | Type5 | 5 | 1.3 | 2881.8 | 20 | 0 |
| | | Type5 | 6 | 1.4 | 2824.9 | 30 | 1 |
| | | Type5 | 7 | 1.1 | 2967.4 | 20 | 0 |
| | | Type5 | 8 | 1.4 | 2832.9 | 30 | 1 |
| | | Type5 | 9 | 0.6 | 3268.0 | 20 | 0 |
| | | Type5 | 10 | 1.7 | 2688.2 | 30 | 1 |
| | | Type5 | 11 | 2.0 | 2570.7 | 30 | 0 |
| | | Type5 | 12 | 1.4 | 2816.9 | 30 | 1 |
| | | Type5 | 13 | 1.0 | 3021.1 | 20 | 0 |
| | | Type5 | 14 | 1.9 | 2584.0 | 30 | 1 |
| | | Type5 | 15 | 1.3 | 2857.1 | 20 | 0 |
| | | Type5 | 16 | 2.0 | 2506.3 | 30 | 1 |
| | | Type5 | 17 | 1.0 | 2985.1 | 20 | 0 |
| | | Type5 | 18 | 1.3 | 2881.8 | 20 | 1 |
| | | Type5 | 19 | 1.0 | 3012.0 | 20 | 1 |
| | | Type6 | 0 | 1.4 | 1183.4 | 45 | 0 |
| | | Type6 | 1 | 0.5 | 2325.6 | 30 | 1 |
| | | Type6 | 2 | 0.9 | 1610.3 | 30 | 1 |
| | | Type6 | 3 | 2.0 | 873.4 | 45 | 1 |
| | | Type6 | 4 | 1.7 | 1026.7 | 45 | 1 |
| | | Type6 | 5 | 1.3 | 1282.1 | 30 | 1 |
| | | Type6 | 6 | 1.4 | 1197.6 | 45 | 1 |
| | | Type6 | 7 | 1.1 | 1440.9 | 30 | 1 |
| | | Type6 | 8 | 1.4 | 1209.2 | 45 | 1 |
| | | Type6 | 9 | 0.6 | 2217.3 | 30 | 0 |
| | | Type6 | 10 | 1.7 | 1028.8 | 45 | 1 |
| | | Type6 | 11 | 2.0 | 901.7 | 45 | 1 |
| | | Type6 | 12 | 1.4 | 1189.1 | 45 | 1 |
| | | Type6 | 13 | 1.0 | 1536.1 | 30 | 1 |
| | | Type6 | 14 | 1.9 | 912.4 | 45 | 1 |
| | | Type6 | 15 | 1.3 | 1251.6 | 30 | 1 |
| | | Type6 | 16 | 2.0 | 841.0 | 45 | 1 |
| | | Type6 | 17 | 1.0 | 1474.9 | 30 | 1 |
| | | Type6 | 18 | 1.3 | 1285.3 | 30 | 1 |
| | | Type6 | 19 | 1.0 | 1529.1 | 30 | 1 |
| 11ax 160MIMO | 5290 | Type1 | 0 | 3.0 | 1550.4 | 10 | 1 |
| | | Type1 | 1 | 0.6 | 4347.8 | 10 | 1 |
| | | Type1 | 2 | 1.7 | 2375.3 | 10 | 1 |
| | | Type1 | 3 | 4.7 | 1058.2 | 10 | 0 |
| | | Type1 | 4 | 3.7 | 1292.0 | 10 | 1 |
| | | Type1 | 5 | 2.6 | 1724.1 | 10 | 1 |
| | | Type1 | 6 | 2.9 | 1574.8 | 10 | 1 |
| | | Type1 | 7 | 2.1 | 2024.3 | 10 | 1 |
| | | Type1 | 8 | 2.9 | 1594.9 | 10 | 1 |
| | | Type1 | 9 | 0.7 | 3984.1 | 10 | 1 |
| | | Type1 | 10 | 3.7 | 1295.3 | 10 | 0 |
| | | Type1 | 11 | 4.5 | 1100.1 | 10 | 0 |
| | | Type1 | 12 | 3.0 | 1560.1 | 10 | 0 |
| | | Type1 | 13 | 1.9 | 2217.3 | 10 | 1 |
| | | Type1 | 14 | 4.4 | 1116.1 | 10 | 1 |
| | | Type1 | 15 | 2.7 | 1669.4 | 10 | 1 |
| | | Type1 | 16 | 5.0 | 1011.1 | 10 | 1 |
| | | Type1 | 17 | 2.1 | 2092.1 | 10 | 1 |
| | | Type1 | 18 | 2.6 | 1730.1 | 10 | 1 |
| | | Type1 | 19 | 1.9 | 2202.6 | 10 | 1 |
| | | Type2 | 0 | 8.6 | 1022.5 | 15 | 1 |
| | | Type2 | 1 | 1.0 | 3952.6 | 15 | 1 |
| | | Type2 | 2 | 4.5 | 1706.5 | 15 | 1 |
| | | Type2 | 3 | 14.0 | 665.3 | 15 | 1 |
| | | Type2 | 4 | 10.9 | 830.6 | 15 | 1 |
| | | Type2 | 5 | 7.4 | 1157.4 | 15 | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Type2 | 6 | 8.4 | 1040.6 | 15 | 1 |
| | | Type2 | 7 | 5.8 | 1400.6 | 15 | 1 |
| | | Type2 | 8 | 8.2 | 1054.9 | 15 | 0 |
| | | Type2 | 9 | 1.4 | 3448.3 | 15 | 1 |
| | | Type2 | 10 | 10.9 | 833.3 | 15 | 0 |
| | | Type2 | 11 | 13.4 | 694.4 | 15 | 1 |
| | | Type2 | 12 | 8.5 | 1028.8 | 15 | 1 |
| | | Type2 | 13 | 5.0 | 1562.5 | 15 | 1 |
| | | Type2 | 14 | 13.1 | 705.7 | 15 | 0 |
| | | Type2 | 15 | 7.7 | 1112.3 | 15 | 1 |
| | | Type2 | 16 | 14.8 | 632.5 | 15 | 1 |
| | | Type2 | 17 | 5.5 | 1455.6 | 15 | 1 |
| | | Type2 | 18 | 7.3 | 1161.4 | 15 | 1 |
| | | Type2 | 19 | 5.1 | 1550.4 | 15 | 1 |
| | | Type3 | 0 | 8.6 | 308.2 | 25 | 1 |
| | | Type3 | 1 | 1.0 | 422.8 | 25 | 1 |
| | | Type3 | 2 | 4.5 | 361.1 | 25 | 1 |
| | | Type3 | 3 | 14.0 | 257.6 | 25 | 1 |
| | | Type3 | 4 | 10.9 | 284.2 | 25 | 0 |
| | | Type3 | 5 | 7.4 | 321.9 | 25 | 1 |
| | | Type3 | 6 | 8.4 | 310.2 | 25 | 1 |
| | | Type3 | 7 | 5.8 | 342.0 | 25 | 1 |
| | | Type3 | 8 | 8.2 | 311.7 | 25 | 1 |
| | | Type3 | 9 | 1.4 | 414.9 | 25 | 1 |
| | | Type3 | 10 | 10.9 | 284.6 | 25 | 1 |
| | | Type3 | 11 | 13.4 | 262.7 | 25 | 1 |
| | | Type3 | 12 | 8.5 | 308.8 | 25 | 0 |
| | | Type3 | 13 | 5.0 | 352.9 | 25 | 0 |
| | | Type3 | 14 | 13.1 | 264.7 | 25 | 1 |
| | | Type3 | 15 | 7.7 | 317.6 | 25 | 1 |
| | | Type3 | 16 | 14.8 | 251.4 | 25 | 1 |
| | | Type3 | 17 | 5.5 | 345.8 | 25 | 1 |
| | | Type3 | 18 | 7.3 | 322.3 | 25 | 1 |
| | | Type3 | 19 | 5.1 | 352.1 | 25 | 1 |
| | | Type4 | 0 | 25.6 | 321.3 | 20 | 1 |
| | | Type4 | 1 | 20.3 | 481.7 | 20 | 1 |
| | | Type4 | 2 | 22.7 | 391.8 | 20 | 1 |
| | | Type4 | 3 | 29.3 | 259.0 | 20 | 1 |
| | | Type4 | 4 | 27.2 | 291.3 | 20 | 0 |
| | | Type4 | 5 | 24.7 | 339.1 | 20 | 1 |
| | | Type4 | 6 | 25.4 | 323.9 | 20 | 0 |
| | | Type4 | 7 | 23.7 | 365.8 | 20 | 1 |
| | | Type4 | 8 | 25.3 | 325.9 | 20 | 1 |
| | | Type4 | 9 | 20.6 | 469.7 | 20 | 1 |
| | | Type4 | 10 | 27.2 | 291.7 | 20 | 0 |
| | | Type4 | 11 | 28.9 | 265.2 | 20 | 0 |
| | | Type4 | 12 | 25.5 | 322.3 | 20 | 1 |
| | | Type4 | 13 | 23.1 | 380.5 | 20 | 1 |
| | | Type4 | 14 | 28.7 | 267.5 | 20 | 1 |
| | | Type4 | 15 | 25.0 | 333.4 | 20 | 1 |
| | | Type4 | 16 | 29.9 | 251.7 | 20 | 0 |
| | | Type4 | 17 | 23.5 | 370.9 | 20 | 1 |
| | | Type4 | 18 | 24.7 | 339.7 | 20 | 0 |
| | | Type4 | 19 | 23.2 | 379.4 | 20 | 1 |
| | | Type5 | 0 | 1.4 | 2809.0 | 30 | 1 |
| | | Type5 | 1 | 0.5 | 3300.3 | 20 | 0 |
| | | Type5 | 2 | 0.9 | 3058.1 | 20 | 1 |
| | | Type5 | 3 | 2.0 | 2544.5 | 30 | 1 |
| | | Type5 | 4 | 1.7 | 2688.2 | 30 | 0 |
| | | Type5 | 5 | 1.3 | 2881.8 | 20 | 1 |
| | | Type5 | 6 | 1.4 | 2824.9 | 30 | 0 |
| | | Type5 | 7 | 1.1 | 2967.4 | 20 | 1 |
| | | Type5 | 8 | 1.4 | 2832.9 | 30 | 1 |
| | | Type5 | 9 | 0.6 | 3268.0 | 20 | 1 |
| | | Type5 | 10 | 1.7 | 2688.2 | 30 | 0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Type5 | 11 | 2.0 | 2570.7 | 30 | 1 |
| | | Type5 | 12 | 1.4 | 2816.9 | 30 | 1 |
| | | Type5 | 13 | 1.0 | 3021.1 | 20 | 1 |
| | | Type5 | 14 | 1.9 | 2584.0 | 30 | 1 |
| | | Type5 | 15 | 1.3 | 2857.1 | 20 | 1 |
| | | Type5 | 16 | 2.0 | 2506.3 | 30 | 0 |
| | | Type5 | 17 | 1.0 | 2985.1 | 20 | 0 |
| | | Type5 | 18 | 1.3 | 2881.8 | 20 | 0 |
| | | Type5 | 19 | 1.0 | 3012.0 | 20 | 0 |
| | | Type6 | 0 | 1.4 | 1183.4 | 45 | 0 |
| | | Type6 | 1 | 0.5 | 2325.6 | 30 | 0 |
| | | Type6 | 2 | 0.9 | 1610.3 | 30 | 0 |
| | | Type6 | 3 | 2.0 | 873.4 | 45 | 1 |
| | | Type6 | 4 | 1.7 | 1026.7 | 45 | 1 |
| | | Type6 | 5 | 1.3 | 1282.1 | 30 | 1 |
| | | Type6 | 6 | 1.4 | 1197.6 | 45 | 1 |
| | | Type6 | 7 | 1.1 | 1440.9 | 30 | 1 |
| | | Type6 | 8 | 1.4 | 1209.2 | 45 | 1 |
| | | Type6 | 9 | 0.6 | 2217.3 | 30 | 0 |
| | | Type6 | 10 | 1.7 | 1028.8 | 45 | 1 |
| | | Type6 | 11 | 2.0 | 901.7 | 45 | 1 |
| | | Type6 | 12 | 1.4 | 1189.1 | 45 | 1 |
| | | Type6 | 13 | 1.0 | 1536.1 | 30 | 1 |
| | | Type6 | 14 | 1.9 | 912.4 | 45 | 1 |
| | | Type6 | 15 | 1.3 | 1251.6 | 30 | 1 |
| | | Type6 | 16 | 2.0 | 841.0 | 45 | 1 |
| | | Type6 | 17 | 1.0 | 1474.9 | 30 | 1 |
| | | Type6 | 18 | 1.3 | 1285.3 | 30 | 1 |
| | | Type6 | 19 | 1.0 | 1529.1 | 30 | 1 |

# EXHIBIT A – EUT PHOTOGRAPHS

For photos in this section, please refer to report No.: DG2220812-36651E-02.

# EXHIBIT B - TEST SETUP PHOTOGRAPHS

# DECLARATION OF SIMILARITY LETTER

SHENZHEN TENDA TECHNOLOGY CO.,LTD.
Add: 6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China. 518052
Tel: 86-755-27657098 Fax: 866-755-27657178
E-mail: cert@tenda.cn

## DECLARATION OF SIMILARITY

Date: 2022-08-16

To whom it may concern

Dear Sir or Madam:

We, SHENZHEN TENDA TECHNOLOGY CO.,LTD.,hereby declare that the product: AX3000 Dual Band Gigabit WiFi 6 Router, model: TX12 Pro are electrically identical with the model: RX12 Pro which was tested by BACL(Dongguan)with the same electromagnetic emissions and electromagnetic compatibility characteristics.

A description of the differences between those models and that are declared similar are as follows:
They are the same product, and just the different model name. the rest are the same.
The detail information, please check the reports.

Please contact me should there be need for any additional clarification or information.

Best Regards,

Signature:

Printed Name: Shen Yue
Title: Engineer

******END OF REPORT******