

Wi-Fi Test Packages

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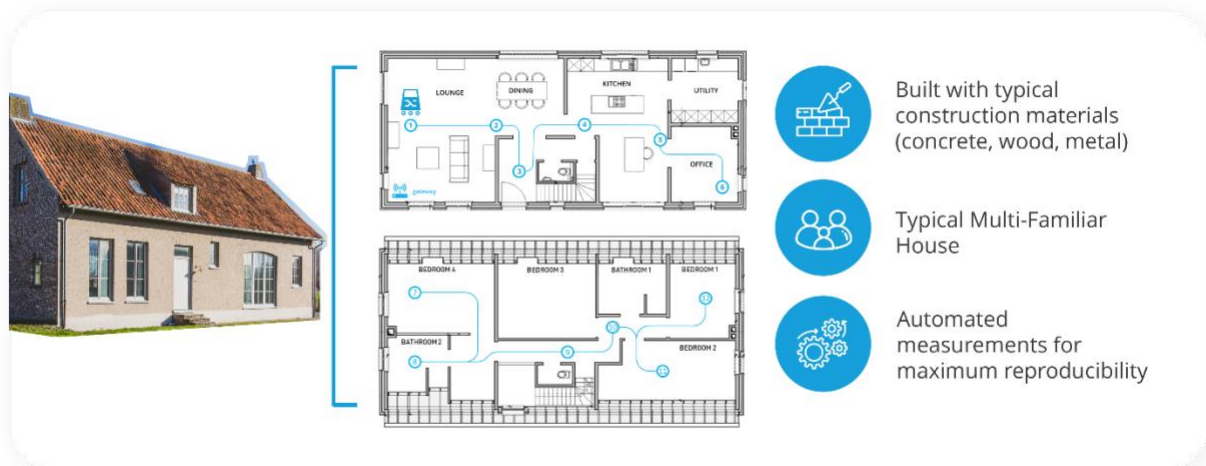


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1. Introduction

This document describes the test cases that are part of the Excentis Wi-Fi test packages that are created to validate real user experience in a controlled environment, using our testing tool - ByteBlower + Endpoint.



*The Excentis Wi-Fi Test House where all test cases, described in this document, are executed

The packages are split up into 2 main categories:

- **Standalone Set-up:** designed primarily for benchmarking and validating standalone access points / gateways
- **Mesh Set-up:** designed for multi-AP, Wi-Fi mesh solutions

1.1 Standalone Set-up packages

The following test cases are included in one or more packages and are intended for standalone setups:

- Rate versus location
- Multiclient
- QED
- Neighbor occupancy
- MLO performance (*Wi-Fi7 add-on*)
- MLO interference (*Wi-Fi7 add-on*)
- (L4S) low latency (*Wi-Fi7 add-on*)

All of which will be described further in this document.



1.2 Mesh Set-up packages

For the mesh set-ups, we have the following additional test cases:

- Roaming
- Stability

All of which will be described further in this document.



2. Test Cases

For each test, you will find

- Purpose: An explanation of what the test is and its objective.
- Execution: Instructions on how we run the test.
- Applicability: Guidelines on when we would execute the test.

2.1 Rate versus location



Purpose:

The goal is to find out what Wi-Fi throughput you can expect when moving through the house. You may get good connection when you stand next to your Wi-Fi router, but what if you move away to the kitchen or upstairs in your room?

We consistently conduct comparisons between different access points. Rather than simply stating whether an access point performed well or poorly, we rank the submitted products from best to worst.

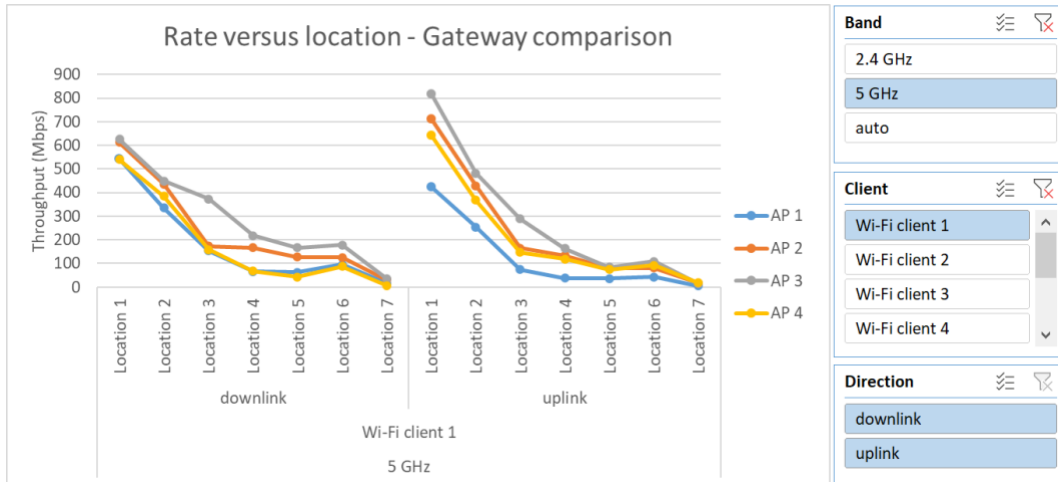
Execution:

We connect a wireless client (smartphone, laptop, MacBook, iPhone) to the access point and perform throughput tests in multiple rooms in the test house. We repeat this with a variety of different devices to get a representative results set.

We then evaluate key parameters to determine which access point performed the best.

- Which access point offered highest speeds?
- Were there unexpected large fluctuations in the speeds?
- Which access point could reach the most difficult (far-away) places best?





*Example output - rate vs location

- For all Wi-Fi support: Wi-Fi6, 6E, 7
- For all types: standalone and mesh
- For all packages: starter, standard and premium

2.2 Multiclient



Summary

The gateway can support up to 100 Wi-Fi clients simultaneously, with the maximum number of clients depending on the configuration.

For each client, the gateway can support up to 100 concurrent connections.

The gateway can support up to 100 concurrent connections per client.

Aggregating traffic from multiple concurrent sessions can be done, if the gateway has enough resources to handle the traffic.

Finally, if the gateway is configured to support up to 100 concurrent connections, the gateway can support up to 100 concurrent connections.



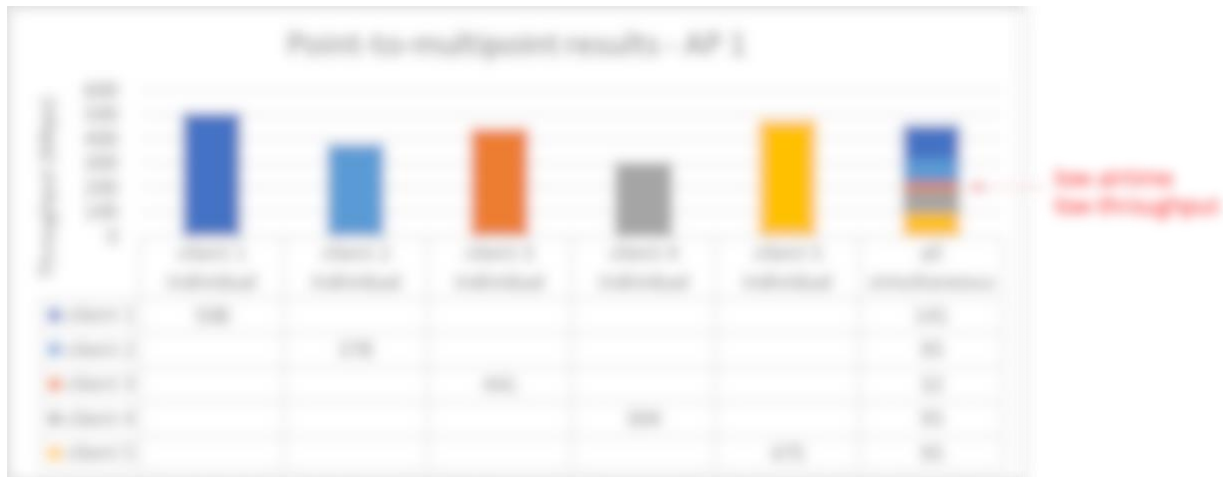
Results

The distribution of values for the program, by type, is as follows and overall is close to the 50/50 mix.

The overall composition

- The distribution of values for the program is as follows
- The distribution of values for the program is as follows

Key findings from the analysis are that, for the overall program, the distribution is as follows.



Summary - initial

Activity

- For the program, the distribution is as follows
- For the program, the distribution is as follows
- For the program, the distribution is as follows



2.3 QED – Quality of Experience Delivered



Impact

The goal of this study is to identify the QED components that are most likely to contribute to the success, satisfaction and other quality outcomes of the service.

The study will identify, measure and test the impact of the service, including the impact of the service on the customer.

The study will identify the service components that are most likely to contribute to the success, satisfaction and other quality outcomes of the service.

Method

The study will use a combination of qualitative and quantitative methods. This includes the use of surveys, interviews and focus groups, as well as the use of other data sources.

All of these methods will be used to identify the service components that are most likely to contribute to the success, satisfaction and other quality outcomes of the service.

The study will identify the service components that are most likely to contribute to the success, satisfaction and other quality outcomes of the service.

Activities

- Develop the survey instrument
- Develop the interview guide
- Conduct the survey and interviews, and the focus groups



2.4 Neighbor Occupancy



Scope

Identify the types of properties, which are subject to the provisions of the occupancy rules, and the types of properties, which are not subject to the rules.

For each type of property, identify the types of occupancy rules that apply to the property.

- Identify the types of occupancy rules that apply to the property.
- Identify the types of occupancy rules that do not apply to the property.

Identify the types of properties, which are subject to the provisions of the occupancy rules.

Limitations

Identify the types of properties, which are subject to the provisions of the occupancy rules, and the types of properties, which are not subject to the rules, and the types of occupancy rules that apply to the property.

Identify the types of properties, which are subject to the provisions of the occupancy rules.

Applicability

- For each type of property, identify the types of occupancy rules that apply to the property.
- For each type of property, identify the types of occupancy rules that do not apply to the property.
- Identify the types of properties, which are subject to the provisions of the occupancy rules.



2.5 Roaming



Roaming

The network operator is responsible for the roaming of the mobile phone. The goal of the network operator is to ensure that the mobile phone can be used in any country where the network operator has a roaming agreement. The network operator is responsible for the roaming of the mobile phone.

Roaming

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Roaming

- For the network operator, the roaming of the mobile phone is a key service.
- The network operator is responsible for the roaming of the mobile phone.
- The network operator is responsible for the roaming of the mobile phone.



2.6 Stability



Stability

When a system is subjected to a disturbance, it will return to its original state if the system is stable. The system is stable if the disturbance is bounded and the response is bounded. The system is unstable if the disturbance is bounded and the response is unbounded.

The goal of the stability analysis is to determine the stability of a system.

Stability

A system is stable if the response is bounded for any bounded input. The system is unstable if the response is unbounded for any bounded input.

The stability analysis is performed by determining the poles of the transfer function. The system is stable if all the poles are in the left half of the complex plane.

Stability

- For a system to be stable, all the poles must be in the left half of the complex plane.
- The system is unstable if any pole is in the right half of the complex plane.
- For a system to be stable, the poles must be in the left half of the complex plane.



2.7 MLO Performance (Wi-Fi7 add-on only)



Scope

MLO performance is the ability of the system to handle multiple concurrent connections and traffic. The goal of the test is to verify that the system can handle the expected number of concurrent connections and traffic. The test will measure the system's performance under various conditions, including:

- High traffic volume and high latency
- Multiple concurrent connections and traffic

Method

The test will be conducted using a network simulator, such as Mininet, to generate traffic and measure the system's performance.

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Results

- High traffic volume, under 100 Mbps
- High traffic volume, under 100 Mbps
- High traffic volume, under 100 Mbps



2.8 MLO Interference (Wi-Fi7 add-on only)



Scope

MLO interference is defined as any of the supported bands 2.4, 5 and 6 GHz operating in the same channel as the host device or as a result of the host device operating in the same channel as the host device or as a result of the host device operating in the same channel as the host device.

- Interference is caused by the host device.

Scenarios

When operating in the same band as the host device, the host device may cause interference to the host device or as a result of the host device operating in the same band as the host device.

Availability

- Only for 2.4, 5 and 6 GHz
- For 2.4, 5 and 6 GHz
- For 2.4, 5 and 6 GHz

2.9 (L4S) low latency (Wi-Fi7 add-on only)



Scope

The goal of the work is to reduce the latency of the host device, if the device supports L4S, to enable the use of L4S in the host device.



The company must be able to demonstrate the value of the investment to the shareholders and the board.

Issues

- **Adopt a clear and concise business plan that is easy to understand and that is supported by the board and the shareholders. The plan should be based on realistic assumptions and should be supported by a detailed financial model.**
- **Adopt a clear and concise business plan that is easy to understand and that is supported by the board and the shareholders. The plan should be based on realistic assumptions and should be supported by a detailed financial model.**

Activities

- **Develop a clear and concise business plan that is easy to understand and that is supported by the board and the shareholders.**
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- **Develop a clear and concise business plan that is easy to understand and that is supported by the board and the shareholders.**



3. Package specifications

	Starter	Standard	Premium
Rate vs location	4 clients	6 clients	9 clients
Multiclient	6 clients	6 clients	6 clients
QED	-	✓	✓
Neighbor occupancy	-	-	✓
Wi-Fi 7 add-on			
MLO performance	✓	✓	✓
MLO interference	-	-	✓
(L4S) low latency	-	✓	✓

*Excentis Wi-Fi Packages – details for standalone set-ups

	Starter	Standard	Premium
Rate vs location	4 clients	6 clients	9 clients
Multiclient	8 clients	8 clients	8 clients
QED	-	✓	✓
Neighbor occupancy	-	-	✓
Roaming	✓	✓	✓
Stability	8 hours	8 hours	24 hours
Wi-Fi 7 add-on			
MLO performance	✓	✓	✓
MLO interference	-	-	✓
(L4S) low latency	-	✓	✓

*Excentis Wi-Fi Packages – details for mesh set-ups



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