**Testing AP Dataplane throughput at different packet sizes**

**Goal:** Setup and run a Dataplane test for an AP using the LANforge CT523c or similar system in order to test how well the AP can handle sending and receiving packets with different packet sizes.

In this test scenario, the LANforge CT523c is used to generate packets of different sizes in the upstream and downstream direction through an AP. This example assumes you have some experience with Chamber View, and that you have a LANforge system, a programmable attenuator like the CT704b and two isolation chambers like the CT820a. The AP should be in one chamber, the LANforge system is in the other chamber, and the attenuator is cabled between them. In this example, the Attenuator is left at an optimal configuration, but you can also use this same Dataplane test to generate a report at different RF signal levels using the Attenuator. This feature requires LANforge version 5.3.9 or higher.

1. Configure Chamber View for Dataplane and Similar Tests.
A. Open Chamber View by clicking on the 'Chamber View' button in the LANforge-GUI. If you have an appropriate scenario already created, then skip to the next section, otherwise you will need to build a scenario that matches your system. You can right-click in Chamber View to create various objects.

B. Create a Device Under Test (DUT) Profile that matches your AP. The BSSID is important to configured so that LANforge knows when it is connected to the correct AP.
C. Create a chamber object to hold the DUT, and add the DUT to that chamber. If you have no chambers, you can create a fake chamber, but your test will not be isolated and may not function as desired.

D. Create a chamber object to hold the LANforge system, and add the LANforge to it. Add connections from this chamber to the DUT chamber, specifying the proper Attenuator modules.
E. Configure an Upstream profile using eth1 on the LANforge system.

F. Configure an STA profile on the LANforge system.

G. Configure a Chamber View Scenario and add the STA profile (mapped to desired wiphyX radio and DUT). Add an upstream profile mapped to DUT LAN side (or possibly WAN side if that is more appropriate for your DUT).

2. Use Chamber View for Dataplane test.
A. Open Chamber View by clicking on the 'Chamber View' button in the LANforge-GUI. Load appropriate scenario, apply the Scenario, then build the scenario.
B. Select the **Dataplane** test and click **Run Test**. You should see the Dataplane Test configuration window pop up. It will remember the last configuration for most fields. Select the DUT and WiFi station device, and select the combinations of traffic types and packet sizes you wish to send.
C. When the configuration is complete, click the **Start** button (which will change to 'Stop' once start is clicked) to start the test. An interactive report window will be created and will be updated as the test runs.

**Objective**

The Candela WiFi data plane test is designed to conduct an automatic testing of all combinations of station types, MIMO types, Channel bandwidths, Traffic types, Traffic direction, Frame sizes etc... It will run a quick throughput test at every combination of these test variables and plot all the results in a set of charts to compare performance. The user is allowed to define an intended load as a percentage of the max theoretical PHY rate for every test combination. The expected behavior is that for every test combination the achieved throughput should be at least 70% of the theoretical max PHY rate under ideal test conditions. This test provides a way to go through hundreds of combinations in a fully automated fashion and very easily find patterns and problem areas which can be further debugged using more specific testing.

D. When the test is complete, click the **Save HTML** button to save an HTML report and generate the PDF. The PDF file will be linked from the HTML page. You can also click 'Save PDF' and the browser will be directed to open the pdf file directly. Please see this example **Dataplane Report**.