

# Cisco AP3600 Access Point with 802.11ac Module Testing

*Cisco AP 3602e/i with 802.11ac module demonstrated better downstream TCP throughput using clients that supported one, two and three spatial streams.*

Cisco recently engaged Miercom to evaluate the performance capabilities of the AP 3602e/i and the Aruba AP-225 Access Points using the IEEE 802.11ac Wi-Fi networking standard.

The Cisco access point incorporates ClientLink 2.0 architecture. Built on top of the 4x4 MIMO system, ClientLink 2.0 integrates real beam forming for any client, allowing for maximum Wi-Fi reception.

The charts in this document show the throughput performance of the Cisco AP 3602i access point in a Line of Sight (LOS) test transmitting to different clients that supported one, two and three spatial streams. Maximum rate of TCP downstream and upstream traffic that the access point could transmit was recorded in a Line of Sight (LOS) environment to a single client device five feet away.

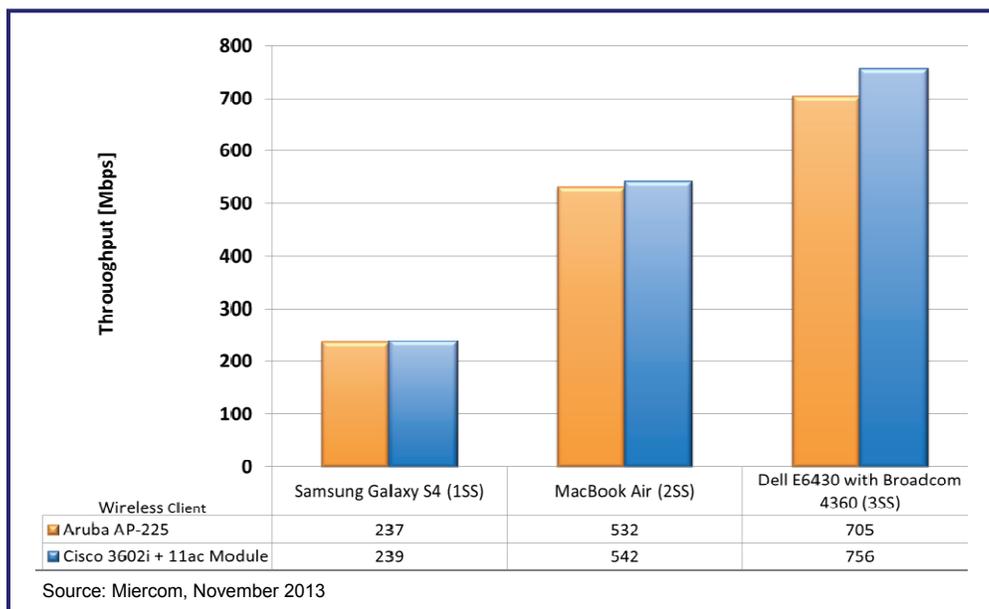
Client devices included a Samsung Galaxy S4 smartphone (1SS), a MacBook Air notebook (2SS), and a Dell Latitude E6430 laptop with Broadcom 4360 Wi-Fi chip (3SS). The Wi-Fi standard used in testing was 802.11ac with channel 149 and 80MHz width.

IxChariot was used for measuring throughput. Twenty endpoint pairs were used on the client device with a "High\_Performance\_Throughput.scr" default script.

**Using TCP downstream traffic, Cisco AP 3600 outperformed Aruba AP-225 by 7.28%, achieving 756 Mbps throughput with a 3SS client.**

The charts in this report are based on firmware version 7.5.102.6 for the Cisco Wireless Controller. It is a patch release with improvements that will be included in the next major firmware release.

## Cisco AP 3602i vs. Aruba AP-225 TCP Downstream Traffic using Firmware Version 7.5.102.6



Cisco AP 3602i access point outperformed Aruba AP-225 in two of the three spatial stream tests in transmitting TCP downstream traffic.

Aruba AP-225 was set to decrypt-tunnel mode on the 3x3:3SS client downstream test case. When configured in tunnel mode, throughput was reduced to 596 Mbps due to the added encryption.

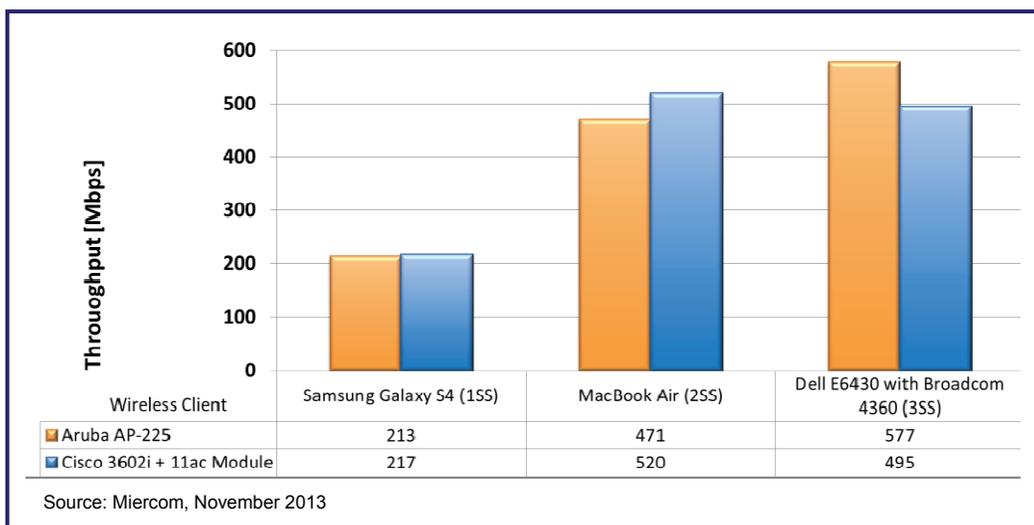
Using firmware 7.5.102.0, the Cisco AP 3602i recorded 240 Mbps for the 1x1:1SS test, 520 Mbps for the 2x2:2SS test, and 724 Mbps for the 3x3:3SS test.

Using TCP downstream traffic, Cisco AP 3602i outperformed the Aruba AP by 7.28% achieving 756 Mbps throughput with a 3SS client.

Cisco surpassed Aruba in two tests using TCP upstream traffic. Throughput using the MacBook Air client for the Cisco AP 3602i was 520 Mbps compared to 471 Mbps for the Aruba AP-225, 10.5% better. Using the 1SS client, Cisco achieved 217 Mbps compared to 213 Mbps for the AP-225, 1.9% better.

Bottom line, the Cisco AP3602i, with either firmware version, proved it could outperform the Aruba AP-225 and controller in the majority of performance tests shown in this report.

### Cisco AP 3602i vs. Aruba AP-225 TCP Upstream Traffic using Firmware Version 7.5.102.6



Using firmware version 7.5.102.6, the Cisco AP achieved 520 Mbps throughput when transmitting to the MacBook Air, a 2SS client, which was 10.5% better than the Aruba AP. Cisco also showed better performance by 1.9% when sending traffic to the Samsung Galaxy smartphone. Aruba AP-225 recorded 577Mbps using the 3SS client, a 16.6% better performance.

When using publicly available firmware version 7.5.102.0, test results were recorded at 220 Mbps for the 1x1:1SS test, 512 Mbps for the 2x2:2SS test, and 491 Mbps for the 3x3:3SS test.