TEST REPORT

Tolly.

#212143

November 2012

Commissioned by
Huawei Technologies Co., Ltd

Huawei AP6010 WLAN Access Point

Performance Evaluation vs. Cisco Aironet 3502i AP

EXECUTIVE SUMMARY

Driven by growth in the number of mobile workers, Wi-Fi (802.11n) now provides the primary office connectivity for many businesses. Higher per-client and aggregate AP throughput can reduce the number of APs required in a given location and thus, lower the customer's investment in WLAN hardware.

Huawei commissioned Tolly to validate the performance of its AP6010 WLAN AP with 2x2:2 MIMO capabilities and compare that to the Cisco Systems 2x3:2 MIMO-based WLAN solution. The Huawei AP6010 outperformed the Cisco Aironet 3502i AP in all test scenarios. See Figure 1.

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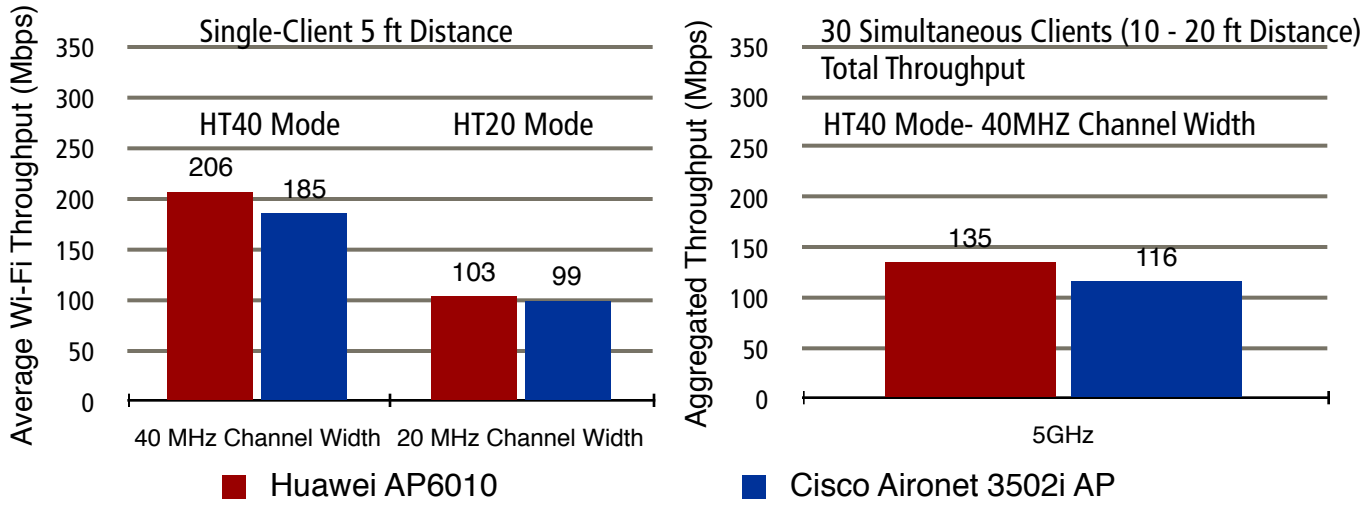
THE BOTTOM LINE

Huawei AP6010 WLAN Access Point provides:

1. 16% higher average multi-client throughput than the Cisco Aironet 3502i AP
2. 11% higher average single-client throughput at 5 ft distance than the Cisco Aironet 3502i AP
3. Higher throughput than the Cisco Aironet 3502i AP in all scenarios tested

Huawei AP6010 2x2:2 MIMO Access Point 802.11n LAN-to-WLAN Performance
Single- and Multi-Client Downstream Throughput
(as reported by IxChariot v5.40 and v7.0)



Notes: The throughput script in IxChariot was used with TCP packets. Unencrypted SSID. 5GHz Band. Distance is from client to AP under test.

Source: Tolly, September 2012

Figure 1

Executive Summary (con't)

The Huawei AP6010 access point is equipped with 2 antennas, supports 2 spatial streams and works in conjunction with the Huawei AC6605 controller.

The Cisco Systems Aironet 3502i access point is equipped with 2 antennas and supports 2 spatial streams and works in conjunction with the Cisco 5508 Wireless Controller.

Tests benchmarked the throughput from a single station connected to the wired Gigabit Ethernet LAN first to a single computer connected to the WLAN access point under test and then to 30 computers connected to the WLAN AP under test.

Benchmarked against the Cisco Aironet 3502i, the Huawei AP6010 delivered 21Mbps greater throughput with a 40MHz channel width and 4Mbps greater throughput with a channel width of 20MHz. See Table 1.

When benchmarked using 30 clients, the aggregate throughput for the Huawei AP6010 with a 40MHz channel width was 135Mbps, 19Mbps greater than the Cisco Aironet 3502i access point.

Huawei Technologies, Co., Ltd

AP6010 Access Point

802.11n WLAN Performance

Tested September 2012

WLAN AP Wired-to-WLAN Throughput Tests - Detailed Results (Mbps)

as reported by IxChariot v5.40

Devices Under Test	Single Client (5 ft distance)		30 Clients (10 - 20 ft distance)
	HT40 40 MHz Channel Width	HT20 20 MHz Channel Width	HT40 40 MHz Channel Width
Huawei Throughput Advantage over Cisco Aironet 3502i AP (Mbps)	21	4	19
Percentage of Huawei Throughput Advantage over Cisco Aironet 3502i AP	11.4%	4.0%	16.4%
Huawei AP6010 (2x2 MIMO technology with two spatial streams)	206	103	135
Cisco Aironet 3502i AP (2x3 MIMO technology with two spatial streams)	185	99	116

Note: All tests used downstream TCP traffic. Unencrypted SSID. 5GHz Band.

Source: Tolly, September 2012

Table 1

Test Setup & Methodology

Test Environment

Table 2 provides details of the WLAN solutions under test.

A Dell E6430 with an Intel Core i5 CPU and Intel Centrino Ultimate-N 6300 AGN (dual-band 3x3:3 capable) running Windows XP Professional was used as the WLAN client for the single-client throughput testing.

Multi-client testing throughput tests used 25 Dell E6430 with Intel Centrino Ultimate-N 6300 AGN, two HP EliteBook B470P with Intel Centrino Ultimate-N 6300 AGN and three Lenovo T420 with Intel Centrino Advanced-N 6205 processors.

Unnecessary features like Data Encryption, Rogue Detection, etc. were all disabled on the Cisco AP in order to get the best throughput results.

Wired-to-WLAN Single Client Throughput

Ixia IxChariot v5.40 with the built-in throughput test script was used for the single-client tests. TCP packets, downstream, unencrypted SSID, 5GHz with 157 channel (HT20) and 149+ channel (HT40) were used for both solutions.

Six pairs of traffic were used for the Huawei AP6010. Eight pairs of traffic were used for the Cisco 3502i AP as the results were better than the results using 6 pairs of traffic.

Huawei Enterprise Wireless LAN Portfolio

HUAWEI | Enterprise

Huawei offers a broad set of enterprise-class wireless LAN products.

In addition to the AP6010 featured in this report, Huawei provides single- and dual-band access points for both indoor and outdoor deployments in the AP63xx, AP65xx and AP66xx product families along with the new 3x3: AP7110 access point.

All Huawei WLAN products work with the Huawei AC6605 Access Controller.

For more information on Huawei's enterprise WLAN product line, scan the QR code or visit:

http://enterprise.huawei.com/en/products/network/wlan/index.htm

Source: Huawei, September 2012

Test Equipment Summary

The Tolly Group gratefully acknowledges the providers of test equipment/software used in this project.

Vendor	Product	Web
Ixia	IxChariot version 5.40 Build level: 011 IxChariot version 7.0 Build level: 114	IXIA TESTED http://www.ixiacom.com

Factory default power level was used for both Cisco and Huawei APs.

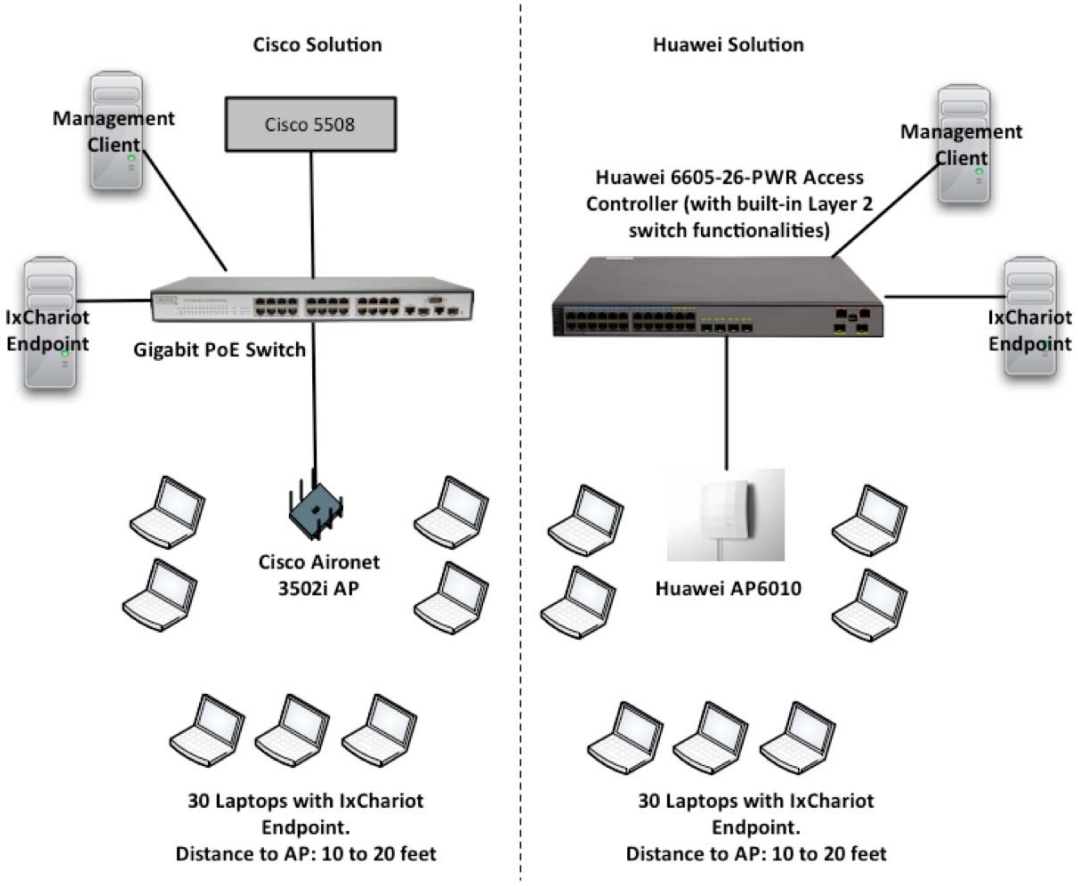
Each test was run at least three times. Results were averaged from three runs.

Wired-to-WLAN 30 Client Throughput

Ixia IxChariot v7.0 with the built-in throughput test script was used for the 30 client tests. TCP packets,

downstream, unencrypted SSID, 5GHz with 149+ channel (HT40) were used for both solutions. Each test was run at least three times. Results were averaged from three runs.

Multi-client Throughput Test Bed Diagram



Source: Tolly, September 2012

Figure 2

Systems Under Test

Vendor	Controller	Access Point
Huawei Technologies Co., Ltd	Huawei AC6605-26-PWR Access Controller Software version V2R2C000	Huawei AP6010 Access Point
Cisco Systems, Inc.	5508 Wireless Controller Software version 7.0.103.0	Cisco Aironet 3502i (AIR-CAP3502i-C-K9)

Source: Tolly, September 2012

Table 2

About Tolly…

The Tolly Group companies have been delivering world-class IT services for more than 20 years. Tolly is a leading global provider of third-party validation services for vendors of IT products, components and services.
You can reach the company by email at sales@tolly.com, or by telephone at +1 561.391.5610.

Visit Tolly on the Internet at:
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Interaction with Competitors

In accordance with Tolly's Fair Testing Charter, Tolly personnel invited representatives from Cisco Systems to participate in the evaluation and review the test plan. Cisco did not respond to the invitation.

For more information on the Tolly Fair Testing Charter, visit:
http://www.tolly.com/FTC.aspx

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212143-iv-1-yx-wt-2012-10-30-VerJ