TEST REPORT
Tolly.

#212142

November 2012

Commissioned by
Huawei Technologies Co., Ltd

Huawei AP7110 WLAN Access Point

Rate/Range Performance Evaluation vs. Cisco Aironet 3602i 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 AP throughput at greater distances 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 AP7110 WLAN AP with 3x3:3 MIMO capabilities and compare that to the Cisco Systems 4x4:3 MIMO-based AP. In tests of a single client, the Huawei AP7110 outperformed the Cisco Aironet 3602i AP in every test scenario. See Figure 1.

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THE BOTTOM LINE

Huawei AP7110 WLAN Access Point provides:

1 23% higher average single-client throughput at 5 ft distance than Cisco Aironet 3602i AP

2 Maximum single-client downstream TCP throughput of 281Mbps over the 5GHz band

3 Better coverage performance with higher average downstream single-client throughput from all tested distances (5 ft to 60 ft) compared to Cisco Aironet 3602i AP

Huawei AP7110 3x3:3 MIMO Access Point 802.11n LAN-to-WLAN Performance
Single-Client, Downstream Throughput
(as reported by IxChariot v5.40)
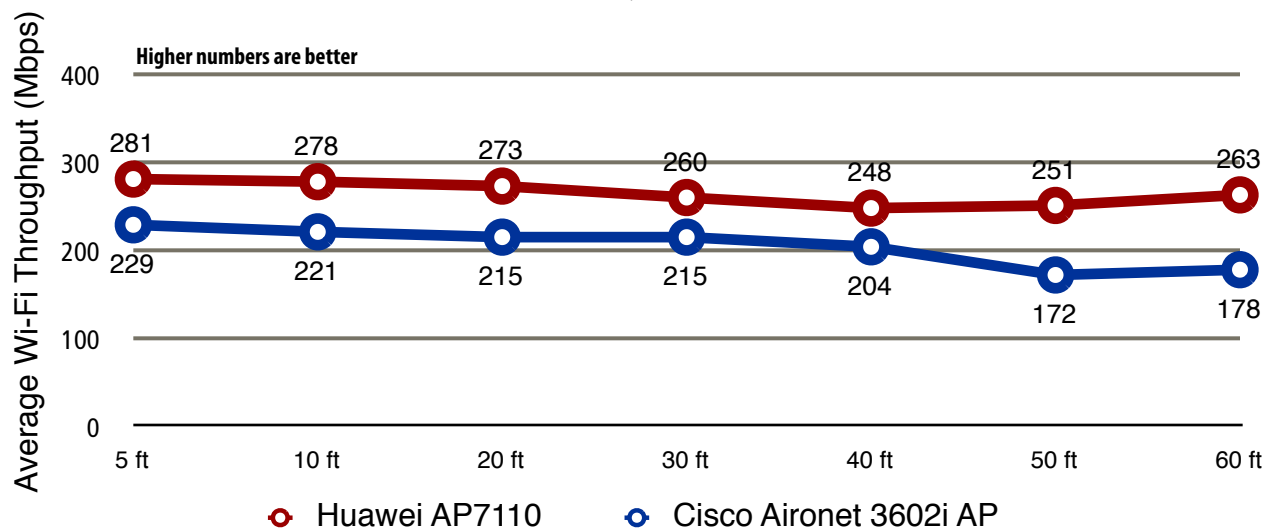
Note: Traffic was unencrypted TCP. 5GHz Band. Distance is from client to AP under test.

Source: Tolly, September 2012

Figure 1

Executive Summary (con't)

The Huawei AP7110 access point is equipped with 3 antennas, supports 3 spatial streams and works in conjunction with the Huawei AC6605 controller.

The Cisco Systems Aironet 3602i access point is equipped with 4 antennas[1], also supports 3 spatial streams and works in conjunction with the Cisco 5508 Wireless Controller.

Tests benchmarked the throughput from a station connected to the wired Gigabit Ethernet LAN to a computer connected to the WLAN access point under test.

Tests were run at various distances between the client and the access point ranging from 5 to 60 feet.

At the first test point of 5 ft, the Huawei AP7110 delivered over 280Mbps of throughput to the test client. This was 52Mbps greater throughput than the Cisco Aironet solution at 229Mbps. See Table 1.

In tests ranging from 5 to 40 ft, the Huawei AP7110 throughput advantage was as great as 58Mbps, at 20 ft, and always at least 44Mbps greater throughput than Cisco.

At greater distances, the Huawei solution provided an even greater throughput advantage.

With tests at 50 and 60 ft, the Huawei solution still delivered over 250Mbps of

Huawei Technologies, Co., Ltd

AP7110 Access Point

802.11n WLAN Performance

Tested September 2012

throughput where, at both distances, the Cisco Aironet solution delivered less then 180Mbps. In these cases, the Huawei throughput advantage increased to 79 and 85Mbps more than Cisco at 50 and 60 ft respectively.

Huawei AP7110 3x3:3 MIMO Access Point 802.11n LAN-to-WLAN Performance
Single-Client, Downstream Throughput
(as reported by IxChariot v5.40)

DUT	Single-Client Throughput at Various Distances (Mbps)						
	5 ft	10 ft	20 ft	30 ft	40 ft	50 ft	60 ft
Huawei Throughput Advantage (Mbps)	52	57	58	45	44	79	85
Percentage of Huawei Throughput Advantage over Cisco	22.7%	25.8%	27.0%	20.9%	21.6%	45.9%	47.8%
Huawei AP7110	281	278	273	260	248	251	263
Cisco Aironet 3602i AP	229	221	215	215	204	172	178

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

Source: Tolly, September 2012

Table 1

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[1] According to Cisco Systems documentation, the 4th antenna is used for beam forming.

Test Setup & Methodology

Test Environment

Table 2 provides details of the WLAN solutions under test.

Tests were run in a vacant office environment measuring 80 ft x 40 ft.

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.

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 149+ channels were used for both solutions.

Six pairs of traffic were used for Huawei AP7110. Eight pairs of traffic were used for the Cisco Aironet 3602i AP as the results were better than the results with six pairs of traffic.

Non-essential features such as Data Encryption, Rogue Detection, etc. were all disabled on the Cisco AP in order to get the best throughput results.

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.

Huawei Enterprise Wireless LAN Portfolio

HUAWEI | Enterprise

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

In addition to the AP7110 featured in this report, Huawei provides single- and dual-band access points for both indoor and outdoor deployments in the AP60xx, AP63xx, AP65xx and AP66xx product families.

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	IXIA TESTED http://www.ixiacom.com

Throughput Test Bed Diagram
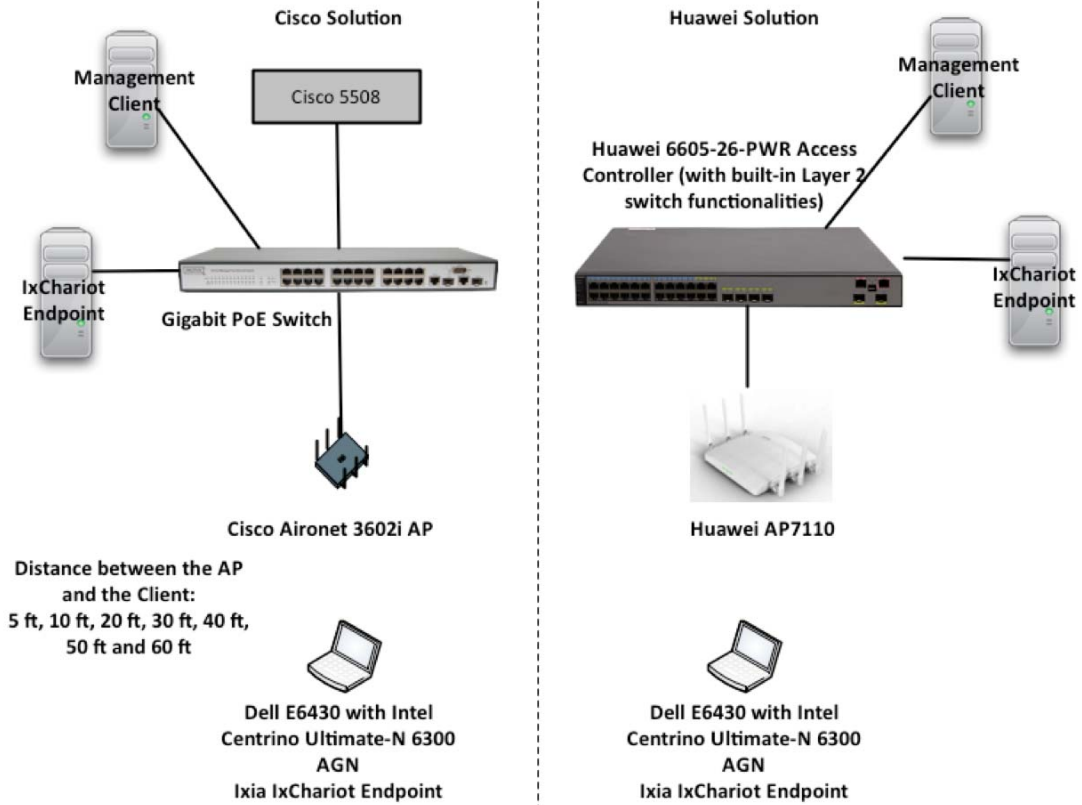
Source: Tolly, September 2012

Figure 2

Systems Under Test

Vendor	Controller	Access Point
Huawei Technologies, Co., Ltd	Huawei AC6605-26-PWR Access Controller Software version V2R2C00	Huawei AP7110 Access Point
Cisco Systems, Inc.	5508 Wireless Controller Software version 7.0.103.0	Cisco Aironet 3602i (AIR-CAP3602i-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:
http://www.tolly.com

Interaction with Competitors

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

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

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