Wi-Fi routers for offices serve both high-speed entertainment

EA9500 Max-Stream AC5400 MU-MIMO Gigabit Router is a dual-purpose product that serves as both a Wi-Fi Router for home office offices, and for high-speed entertainment needs.

Modern home network systems today have changed and gone beyond some previous rules, there are some exceptions with the need to increase the number of access devices according to other needs. each other and increasingly requires network traffic to increase as much as streaming multiple video streams simultaneously. Multi-User MIMO technology (MU-MIMO) can provide significantly more network bandwidth for many users than the previous generation Single-User MIMO (SU-MIMO) technology.

EA9500 Max-Stream AC5400 MU-MIMO Gigabit Router is a Linksys designed product for both purposes that **both works as a Wi-Fi Router for home office offices, both for fast entertainment needs. altitude** everyone in a family.

Tolly is Linksys, Inc. Authorized to test the total network throughput of Wi-Fi Router EA9500 for many connected devices and comparable to other similar Wi-Fi Router Tri-band devices.**The result is Linksys' Wi-Fi solution for 40% higher network bandwidth than competitors** .

Compare wireless LAN performance

Tests are conducted in residential environments and are measured by 2 devices with different configurations. All tests will be **performed on the Linksys EA9500 and three other Wi-Fi routers in the same segment** and support Wi-Fi AC with MU-MIMO 4x4 technology.

In the first test, 4 connected devices were spaced 2.5m apart from the Router. This measure shows the advantages of MU-MIMO when serving multiple connected devices at the same distance.

And in the second test, these 4 connected devices will be placed 2 devices close together and away from the other 2 devices located on the other floor of the house. This measurement will show the performance of the Wi-Fi Router when serving multiple devices in different areas at the same time.

Test results compare wireless LAN performance

Many connected devices, direct Wi-Fi waves

The average speed for each connected device that the Linksys EA9500 achieves is 198Mbps with the total bandwidth measured on all four connected devices is 792Mbps. While the rest of the routers only offer 150Mbps or less.

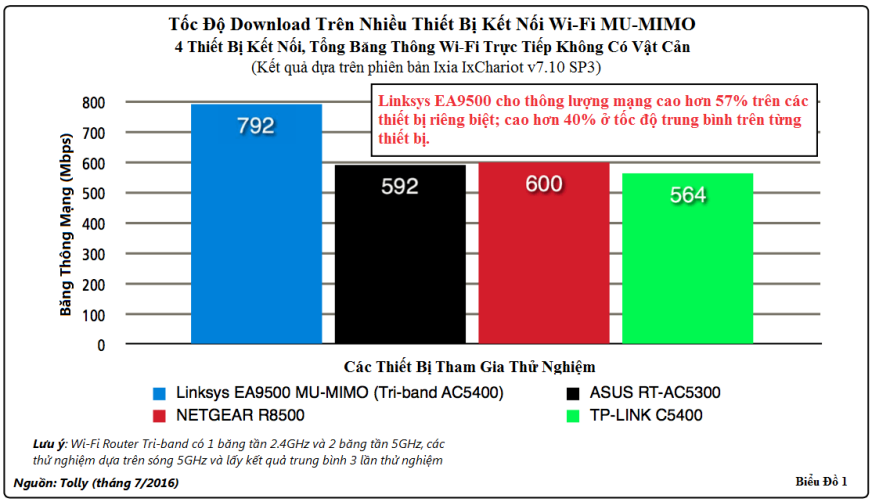

Chart 1

Many connected devices, different Wi-Fi wave distance

Four connected devices will be placed in different locations in the house at this measurement to best reflect Linksys's superior advantages. And during this test, the EA9500 always gave the highest performance when serving a separate connected device with 192Mbps speed, a completely superior result compared to the 156Mbps of the Router in the next position.

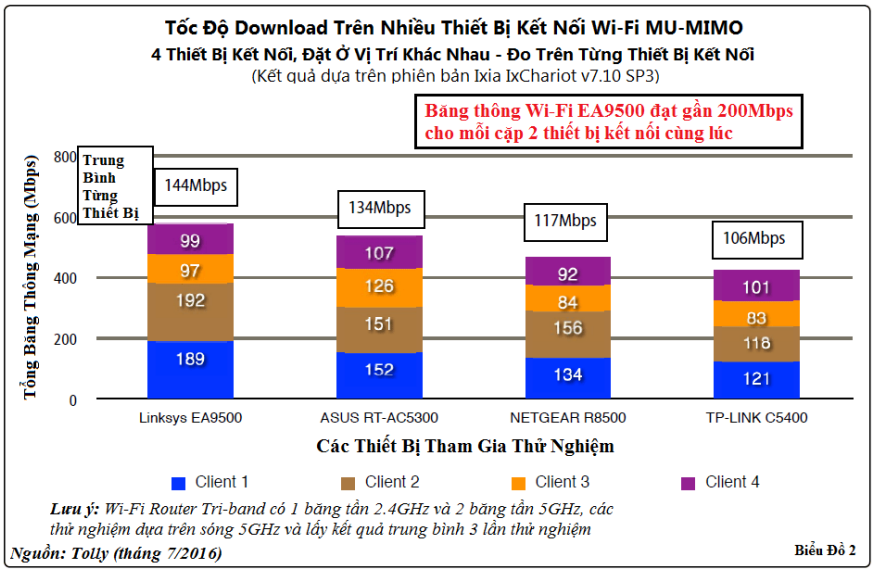

Chart 2

Installation and testing methods

The purpose of the test is to measure the performance of the Router's Wi-Fi network to determine the download speeds of these routers on the 5GHz band that support the fastest 802.11ac standard with the latest MU-MIMO technology.

Test system

All Router devices support the latest Wi-Fi standard and are certified as commercial standard products. All routers are updated with the latest firmware (Firmware EA9500 is v1.1.5.172212). Tested devices (including Router devices and devices connected to the Router) are all configured in the same way as bandwidth, channel, transmit power and security encryption parameters. Routers are connected to the main router (DHCP allocation) using an Ethernet network cable via Gigabit Ethernet switch, WPA2-PSK encryption is used for Wi-Fi security during testing.

Test environment and installation

All tests are done on the 5GHz band.

4 connected devices - direct Wi-Fi waves (no obstacles)

Kết Quả Chi Tiết Thử Nghiệm Tốc Độ Download Wi-Fi MU-MIMO
(Dữ Liệu Tổng Hợp Biểu Đồ 1)

Tốc Độ Download Trên Nhiều Thiết Bị Kết Nối Wi-Fi MU-MIMO 4 Thiết Bị Kết Nối, Tổng Băng Thông Wi-Fi Trực Tiếp Không Có Vật Cản (Kết quả dựa trên phiên bản Ixia IxChariot v7.10 SP3)				
	Linksys EA9500 (Tri-band AC5400)	Asus RT-AC5300 (Tri-band AC5300)	NETGEAR R8500 (Tri-band AC5300)	TP-LINK C5400 (Tri-band AC5400)
Thiết Bị Kết Nối 1	212.80	157.14	161.48	146.60
Thiết Bị Kết Nối 2	175.86	148.24	145.87	159.53
Thiết Bị Kết Nối 3	217.70	148.68	152.11	138.59
Thiết Bị Kết Nối 4	185.64	137.55	140.52	119.43
Trung Bình Mỗi Thiết Bị Kết Nối	198.00	147.90	150.00	141.03
Tổng Cộng	**792**	**592**	**600**	**564**

Lưu ý: *Wi-Fi Router Tri-band có 1 băng tần 2.4GHz và 2 băng tần 5GHz, các thử nghiệm dựa trên sóng 5GHz và lấy kết quả trung bình 3 lần thử nghiệm*

Nguồn: Tolly (tháng 7/2016)

Bảng Số Liệu 1

4 connected devices - direct Wi-Fi waves (no obstacles)

Use four Acer Aspire V3-371-51UJ laptops, two laptops with the first 5GHz Wi-Fi network and two laptops connected to the other 5GHz Wi-Fi network. The test was done in a home environment and there were absolutely no other 5Ghz Wi-Fi signal waves around. Tests are direct Wi-Fi waves with no obstacles, 5GHz wave channels are 40 and 153 respectively with maximum 80MHz channel width.

Connected devices are placed on the table and have the same distance of 2.5m to the Router in the central position with a height of 0.5m above the ground.

The result is due to the traffic of data transmitted through the network implemented by the dedicated Ixia IxChariot application through the script. 4 connected devices (Acer laptops) all run the IxChariot Endpoint application and transmit to another IxChariot Endpoint device connected to the test network using Ethernet networks via the Gigabit Ethernet switch mentioned above. The test time for each measurement is 1 minute in each test location and will be measured 3 times to get the average value. Tolly's engineers are always closely

monitoring to make sure the devices are connected to the correct Wi-Fi signal and the router is testing accordingly.

4 connected devices - located in different locations

4 Acer Aspire laptops V3-371-51UJ will be put into 2 groups: 2 laptops in the bedroom on the 1st floor at a distance of 6m compared to the Router located on the 2nd floor, the remaining 2 laptops are placed on the 2nd floor with Router via 1 Wall with distance 9m to Router.

Các Hệ Thống Thử Nghiệm Wi-Fi 802.11ac

Hãng	Model	Phiên Bản Firmware	Luồng MIMO	Số Lượng & Kiểu An-ten
Linksys, Inc.	EA9500	1.1.5.172212	4x4	8 External
ASUS	RT-AC5300	3.0.0.4.380_3341	4x4	8 External
NETGEAR, Inc.	R8500	1.0.264_1.0.62	4x4	4 External & 4 Internal
TP-LINK Technologies Co. Ltd	C5400	1.0.0	4x4	8 External

Nguồn: Tolly (tháng 7/2016) **Bảng Số Liệu 2**

Calculating relative performance

To calculate performance superiority between routers, the formula used is 1 - (T1 / T2). In which T1 is the best result and T2 is the slower result. This result is multiplied by 100 to best represent the percentage.

Thông Tin Chi Tiết Thiết Bị Kết Nối

Chức Năng	Chariot Endpoint & Console (Cáp Mạng Ethernet)	Chariot Endpoint & Console (Wi-Fi 5GHz)
Số Lượng Thiết Bị	1	4
Thương Hiệu	HP	Acer
Model	Envy 17	Aspire V3-371-51UJ
CPU	Intel i7 2630QM	Intel i5 5200U
Hệ Điều Hành	Windows 7	Windows 8.1
Mạng Ehternet / Wi-Fi	Ethernet Realtek PCIe GBE Family Controller	WUSB6100M
Phiên Bản Driver	7.23.623.2010	11.1.0.49 (4/27/2016)
Phiên Bản Chariot	Console & Endpoint 7.10 SP3	Endpoint 9.1

Nguồn: Tolly (tháng 7/2016) **Bảng Số Liệu 3**

Conclude

Linksys EA9500 Max-Stream AC5400 MU-MIMO Gigabit Router showed positive results as follows:

1. Total network bandwidth is up to 40% higher in Wi-Fi signal tests directly without obstructions.
2. 57% higher network throughput when measuring Wi-Fi connection directly to each connected device separately.
3. Average network speed on connected devices is 36% higher in mixed Wi-Fi wave tests between different times and different distances.

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