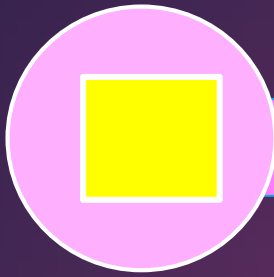


Teknologi Wi-Fi 1G (IEEE 802.11/Ac)

PT TELEKOMUNIKASI INDONESIA



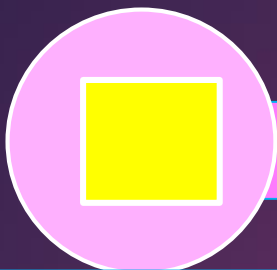
Wi-Fi (Wireless Fidelity)

PENGERTIAN

adalah sebuah teknologi yang memanfaatkan peralatan elektronik untuk bertukar data secara nirkabel (Menggunakan gelombang Radio) melalui sebuah jaringan computer, termasuk koneksi Internet berkecepatan tinggi.

<https://id.wikipedia.org/wiki/Wi-Fi>





Wi-Fi (Wireless Fidelity)



IEEE (Institute of Electrical and Electronic Engineers) merupakan sebuah badan yang mengatur yang mengatur standarisasi dalam bidang teknologi informasi. Seperti data yang saya ambil dari Wikipedia, Dalam IEEE ada code tertentu untuk standarisasi dalam teknologi komunikasi

802.1: LAN/MAN Management and Media Access Control Bridges

802.2: Logical Link Control (LLC)

802.3: CSMA/CD (Standar untuk Ethernet Coaxial atau UTP)

802.4: Token Bus

802.5: Token Ring (bisa menggunakan kabel STP)

802.6: Distributed Queue Dual Bus (DQDB) MAN

802.7: Broadband LAN

802.8: Fiber Optic LAN & MAN (Standar FDDI)

802.9: Integrated Services LAN Interface (standar ISDN)

802.10: LAN/MAN Security (untuk VPN)

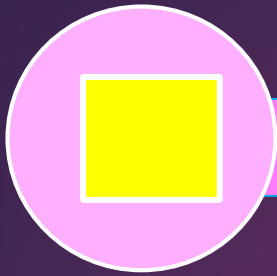
802.11: Wireless LAN (Wi-Fi)

802.12: Demand Priority Access Method

802.15: Wireless PAN (Personal Area Network) > IrDA dan Bluetooth

802.16: Broadband Wireless Access (standar untuk WiMAX)





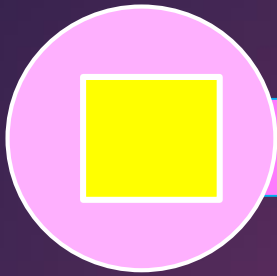
Wi-Fi (Wireless Fidelity)



Standards Wi-Fi

802.11 Wireless Standards					
IEEE Standard	802.11a	802.11b	802.11g	802.11n	802.11ac
Tahun diadopsi	1999	1999	2003	2009	2014
Frekuensi	5 Ghz	2.4 Ghz	2.4 Ghz	2.4/5 Ghz	5 Ghz
Kecepatan Data Maks	54 Mbps	11 Mbps	54 Mbps	600 Mbps	1 Gbps
Jenis Jangkauan Indoors	100 ft.	100 ft.	125 ft.	225 ft.	90 ft.
Jenis Jangkauan Outdoors	400 ft.	450 ft.	450 ft.	825 ft.	1.000 ft.





Wi-Fi (Wireless Fidelity)

Standards Wi-Fi (802.11/Ac)

Standard baru yaitu IEEE 802.11ac ini diharapkan mencapai kecepatan total seluruh device dan workstation adalah 1 Gbps. Untuk kecepatan maksimum setiap device atau workstation diharapkan mencapai 500 Mbps. Kecepatan yang tinggi ini bisa dicapai dengan mengembangkan bandwidth yang lebih lebar yaitu 160 Mhz, dukungan terhadap MIMO dan modulasi dengan kerapatan tinggi.



Tahun diadopsi	2014
Frekuensi	5 Ghz
Kecepatan Data Maks	1 Gbps
Jenis Jangkauan Indoors	90 ft.
Jenis Jangkauan Outdoors	1.000 ft.

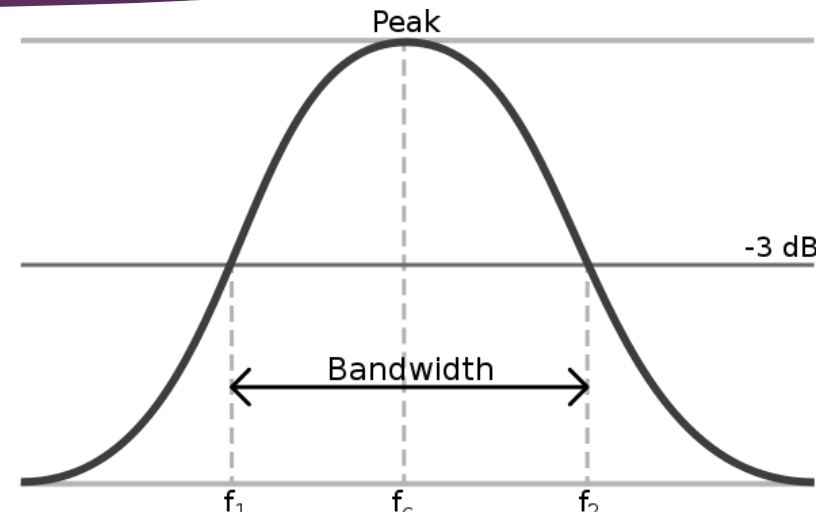
PENGERTIAN BANDWIDTH

BANDWIDTH

BANDWIDTH

Lebar Pita (Bahasa Inggris: bandwidth) dalam teknologi komunikasi adalah perbedaan antara frekuensi terendah dan frekuensi tertinggi dalam rentang tertentu, yang diukur dalam satuan Hz (hertz)

Jumlah atau volume suatu data (dalam satuan bit per detik/bps) yang dapat dikirimkan melalui sebuah saluran komunikasi. Istilah ini biasa digunakan pada web hosting dan ilmu komputer.



Bandwidth ...

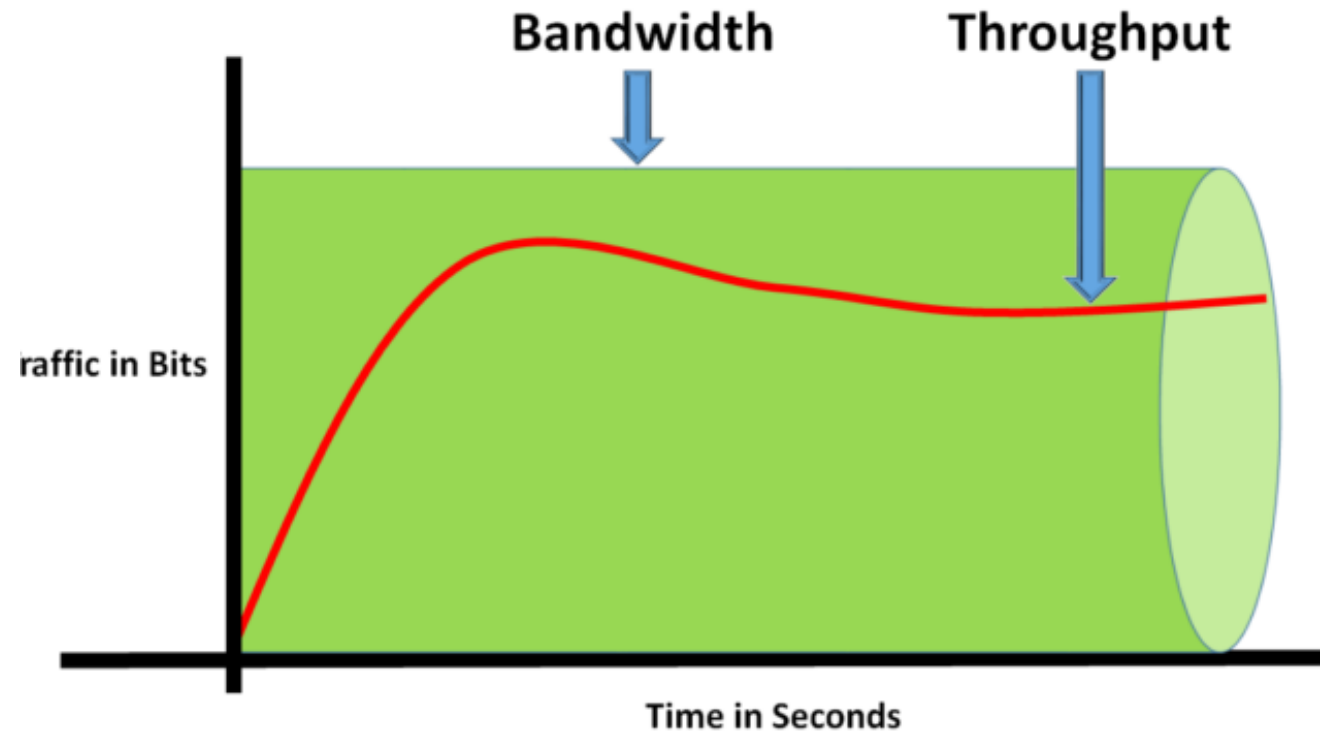


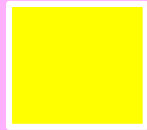
PENGERTIAN THROUGHPUT

THROUGHPUT

Throughput Yaitu

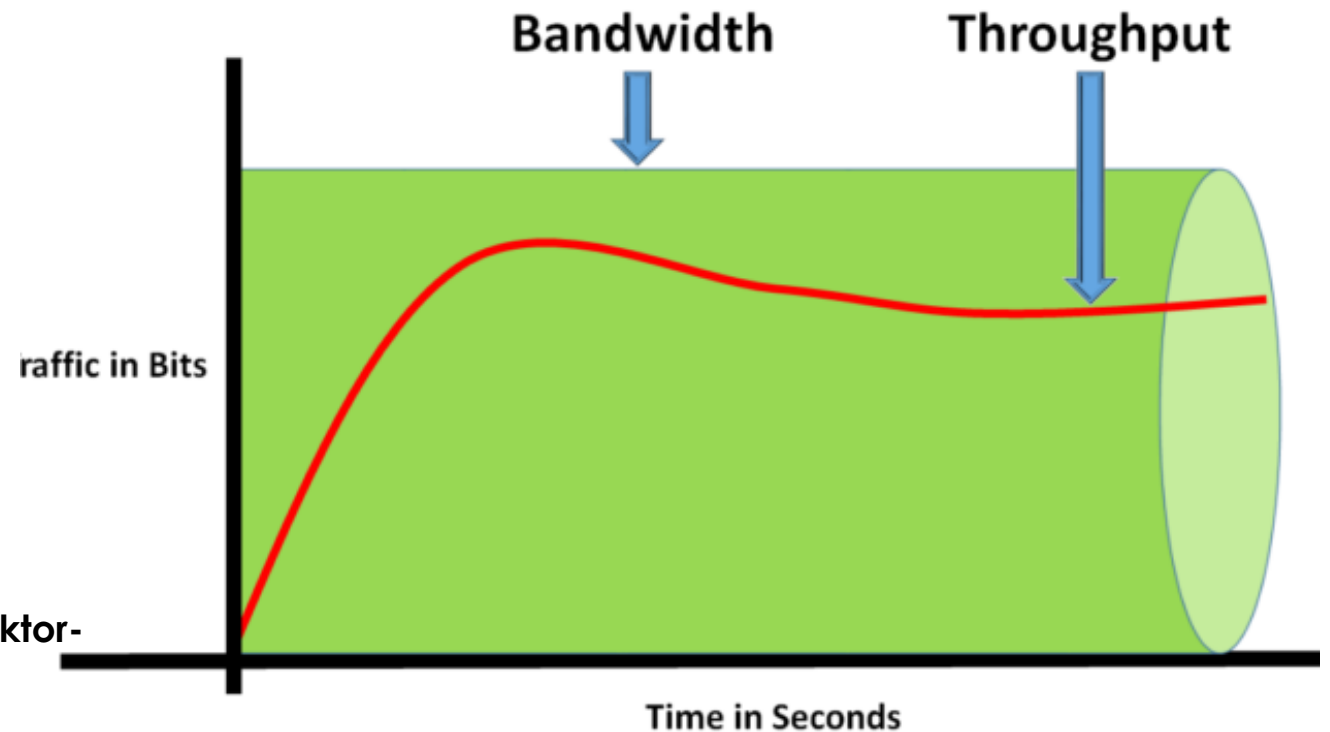
bandwidth yang sebenarnya (aktual) pada suatu waktu tertentu dan pada kondisi dan jaringan internet tertentu yang digunakan untuk mendownload/Upload suatu file dengan ukuran tertentu.



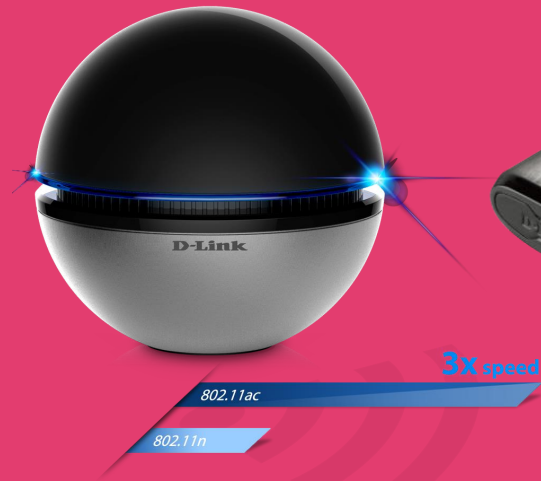


Faktor-faktor pengaruh Kecepatan bandwidth dan throughput

- ☐ Piranti/perangkat jaringan
- ☐ Tipe data yang ditransfer
- ☐ topologi jaringan
- ☐ banyaknya pengguna jaringan
- ☐ spesifikasi komputer client/user
- ☐ spesifikasi komputer server
- ☐ media transfer
- ☐ dan lain-lain



Sumber : <https://zaenalkhayat.wordpress.com/2012/10/10/faktor-yang-mempengaruhi-kecepatan-akses-internet/>

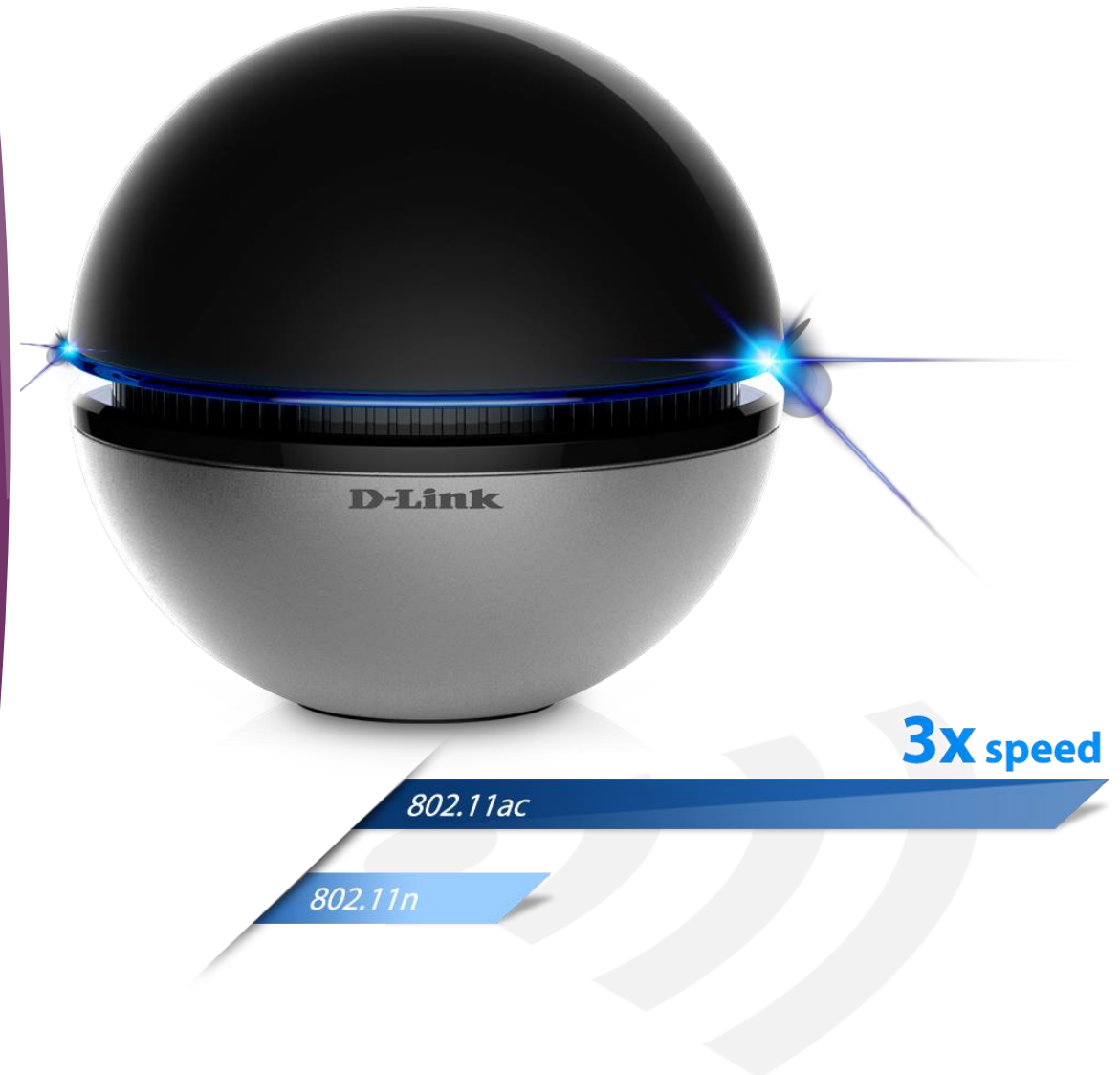


C1 Revision

WIFI USB ADAPTER

D-Link DWA-192

Version 1.0 | 06/16/2015



Spesifikasi d-link dwa 192

Technical Specifications

General Specifications

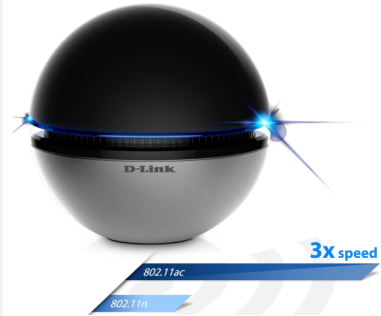
Interfaces	<ul style="list-style-type: none">• Micro-USB 3.0 port• LED On/Off Button	<ul style="list-style-type: none">• WPS button
Security	<ul style="list-style-type: none">• Wi-Fi Protected Access (WPA™ & WPA2™)	<ul style="list-style-type: none">• Wi-Fi Protected Setup (PBC)
Standards	<ul style="list-style-type: none">• IEEE 802.11ac• IEEE 802.11n• IEEE 802.11g	<ul style="list-style-type: none">• IEEE 802.11b• IEEE 802.11a
Antenna Type	<ul style="list-style-type: none">• Integrated antenna	
LED	<ul style="list-style-type: none">• Status	

Requirements

Operating System	<ul style="list-style-type: none">• Windows 8.1/8/7
Interface	<ul style="list-style-type: none">• Available USB port²

Physical

Dimensions	<ul style="list-style-type: none">• 79.92 x 79.92 x 77 mm (3.15 x 3.15 x 3.03 inches)	
Weight (± 10%)	<ul style="list-style-type: none">• 167 grams (5.89 ounces)	
Power	<ul style="list-style-type: none">• Operating Voltage: 5.0V DC ±10%	<ul style="list-style-type: none">• Current Consumption: 880 mA
Temperature	<ul style="list-style-type: none">• Operating: 0 to 40 °C (32 to 104 °F)	<ul style="list-style-type: none">• Storage: -20 to 75 °C (-4 to 167 °F)
Humidity	<ul style="list-style-type: none">• 10% to 90% (non-condensing)	<ul style="list-style-type: none">• 5% to 95% (non-condensing)
Certifications	<ul style="list-style-type: none">• FCC Class B• IC• CE• Wi-Fi Protected Setup	<ul style="list-style-type: none">• Wi-Fi Certified• RoHS• RCM



d-link dwa 192

Why You Want It



Ultimate Wi-Fi Performance

Gives your desktop or Laptop PC speeds up to 1900 Mbps² for a faster connection



USB 3.0

Interface 10x Faster than USB 2.0



Dual Band Wireless

2.4 GHz and 5 GHz bands for flexible connectivity



WPS Button

One button setup for a fast and secure connection



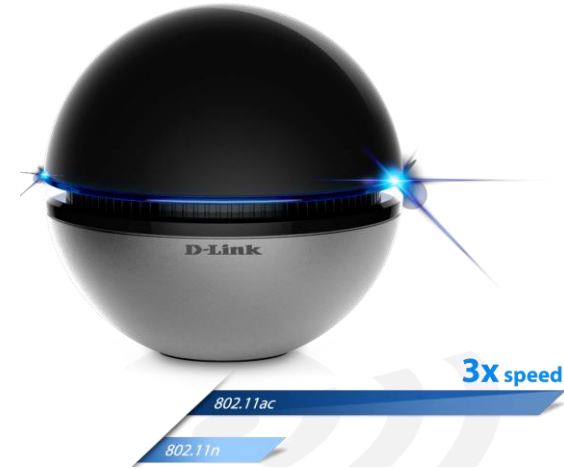
Advanced AC SmartBeam

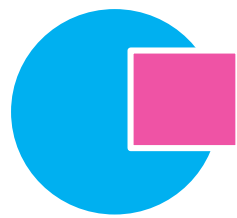
Focuses wireless signal towards your router for enhanced connection quality



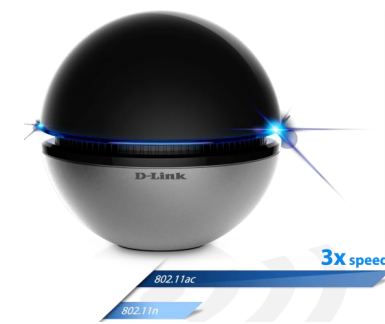
Backwards Compatible

Connects to legacy 802.11n/g/a networks





d-link dwa 192

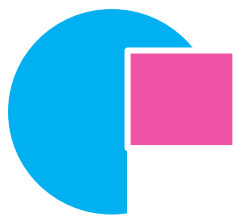


Do More With Dual-Band

Use the 2.4GHz Band for everyday tasks such as surfing the web or chatting online while leaving the high-speed 5GHz AC Band free for video streaming, online gaming and large file transfers.²



<http://www.dlink.com/uk/en/products/dwa-192-ac1900-ultra-wi-fi-usb-adapter>

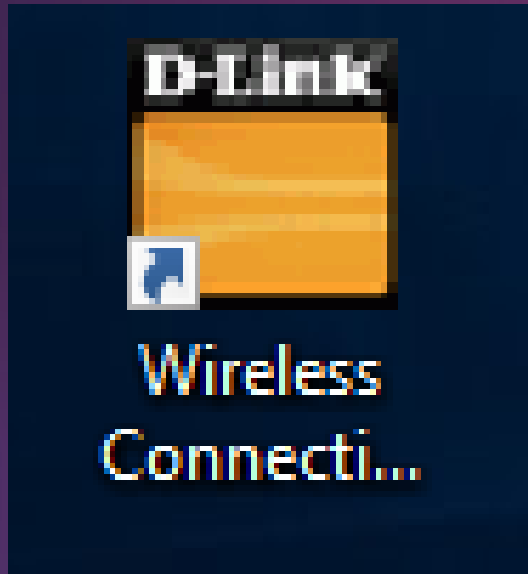


d-link dwa 192

Advanced AC SmartBeam Technology

Improves coverage by directing bandwidth to your devices as you move around your home.
You can stream HD video, surf the web, skype your friends and play online games from wherever you are so you will always get the best experience.



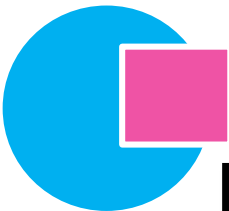


D-Link DWA-182

Version 3.0 | 09/06/2013




C1 Revision



Spesifikasi d-link DWA Link 182

Technical Specifications		
General Specifications		
Diagnostic LED	• Activity	
Security	• Wi-Fi Protected Access (WPA™ & WPA2™)	• Wi-Fi Protected Setup - PIN & PBC
Standards	• IEEE 802.11ac (Draft) • IEEE 802.11n • IEEE 802.11g	• IEEE 802.11b • IEEE 802.11a
Antenna Type	• Integrated Antenna	
Requirements		
Operating System	• Windows 7/Vista/XP SP3	
Compatible Browsers	• Internet Explorer® v7 or Mozilla® Firefox® v3.0	
Interface	• Available USB Port	
Physical		
Dimensions	• 97.3 x 29.1 x 13.5 mm (3.8 x 1.1 x 0.5 inches)	
Weight	• 20.5 grams (0.72 ounces)	
Power	• Operating Voltage: 5.0 V DC ±10%	• Power Consumption: 500 mA
Temperature	• Operating: 0 to 40 °C (32 to 104 °F)	• Storage: -20 to 75 °C (-4 to 167 °F)
Humidity	• 10% to 90% (non-condensing)	• 5% to 95% (non-condensing)
Certifications	• FCC Class B • IC • CE	• C-Tick • Wi-Fi Certified • Wi-Fi Protected Setup



C1 Revision

d-link DWA Link 182



1	WPS Button	Press the WPS button to automatically connect to a WPS-enabled wireless router or access point and establish connectivity. Refer to page 19.
2	USB Connector	Used to connect the DWA-182 to your computer.



NETGEAR
A6210 Genie

NETGEAR A6210





SPEKIFIKASI NETGEAR A6210

SPEKIFIKASI

Product Number	: A6210
Wi-Fi Technology	: 802.11ac
Wi-Fi Performance	: AC1200 (300 / 867 Mbps)
Wi-Fi Range	: Large Homes
Wi-Fi Bands	: Dual Band 2.4 or 5.0 GHz

Standards :

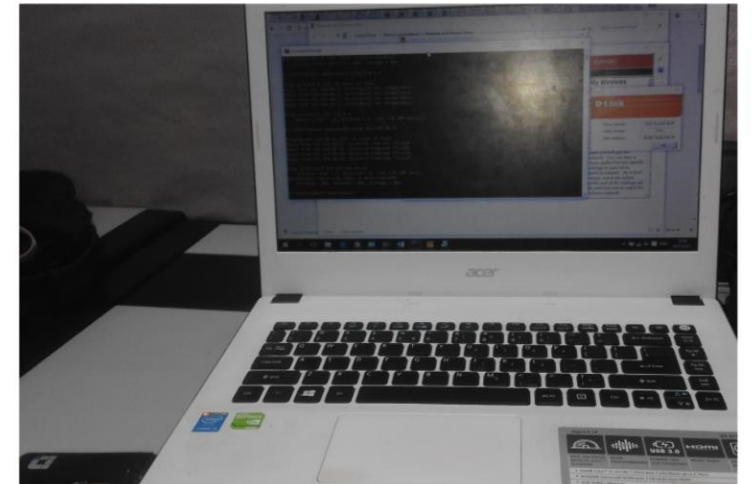
- IEEE 802.11 b/g/n 2.4 GHz
- IEEE 802.11 a/n/ac 5.0 GHz

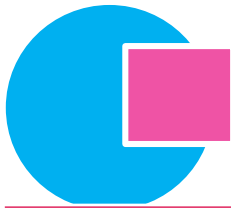
System Requirements :

- Intel Pentium class PC
- USB 3.0 recommended; compatible with USB 2.0 and 1.1
- Microsoft Windows 8, 7, Vista, and XP (32/64-bit)



SPEED TEST





SPEED TEST Wi-Fi WOW@IRS



Wifi 1G IEEE 802.11/AC "WOW@IRS"

WEBSITE : <http://beta.speedtest.net/>

D-LINK DWA-192

D-LINK DWA-182

NETGEAR A6210

Bandung

Singapore

Bandung

Singapore

Bandung

Singapore

PING

3 ms

29 ms

4 ms

28 ms

4 ms

25 ms

DOWNLOAD

116,46 Mbps

115,43 Mbps

97,53 Mbps

96,16 Mbps

60,62 Mbps

34,20 Mbps

UPLOAD

133,70 Mbps

129,58 Mbps

81,11 Mbps

82,00 Mbps

77,28 Mbps

62,73 Mbps

SPEED TEST Wi-Fi 802.11/Ac



1

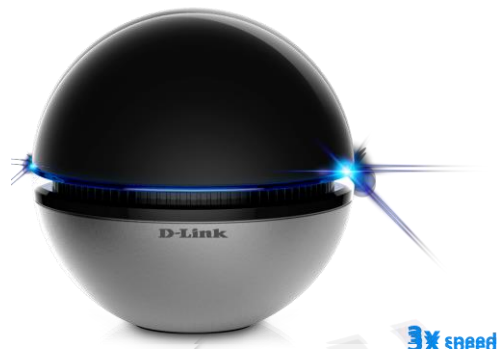
D-Link DWA 192 (WOW@IRS)

SINGAPORE

PING	DOWNLOAD	UPLOAD
29 ms	115.43 Mbps	129.58 Mbps

BANDUNG

PING	DOWNLOAD	UPLOAD
3 ms	116.46 Mbps	133.70 Mbps



2

D-Link DWA 182 (WOW@IRS)

SINGAPORE

PING	DOWNLOAD	UPLOAD
28 ms	96.19 Mbps	82.00 Mbps

BANDUNG

PING	DOWNLOAD	UPLOAD
4 ms	97.53 Mbps	81.11 Mbps



E1 Revision

3

NETGEAR A6210 (WOW@IRS)

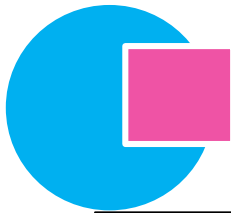
SINGAPORE

PING	DOWNLOAD	UPLOAD
25 ms	34.20 Mbps	62.73 Mbps

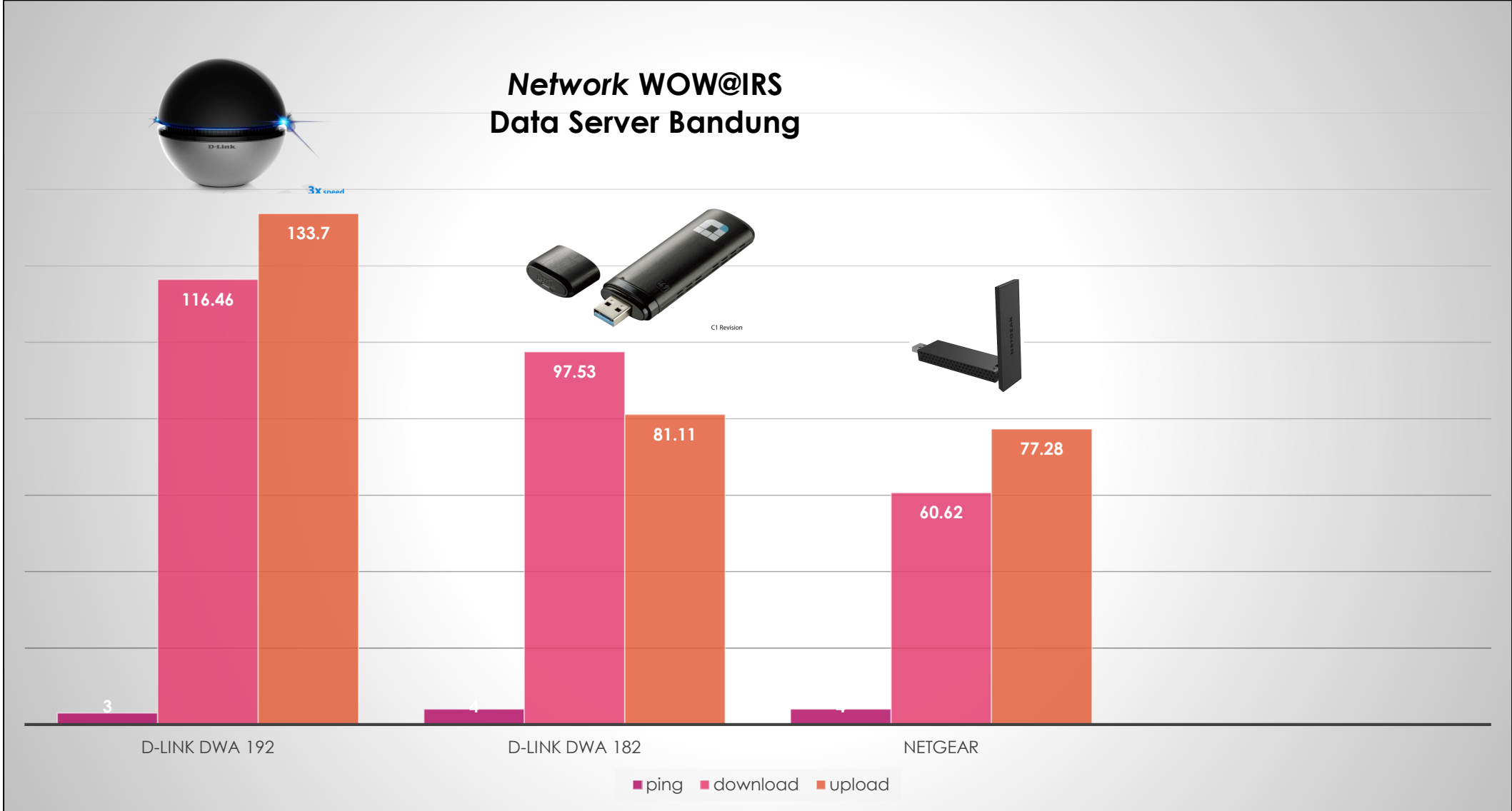
BANDUNG

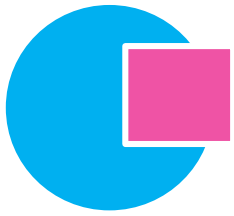
PING	DOWNLOAD	UPLOAD
4 ms	60.62 Mbps	77.29 Mbps



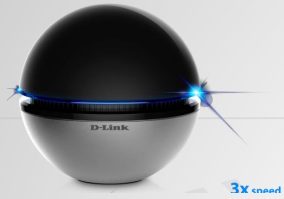


**SPEED TEST Wi-Fi WOW@IRS
data server Bandung**

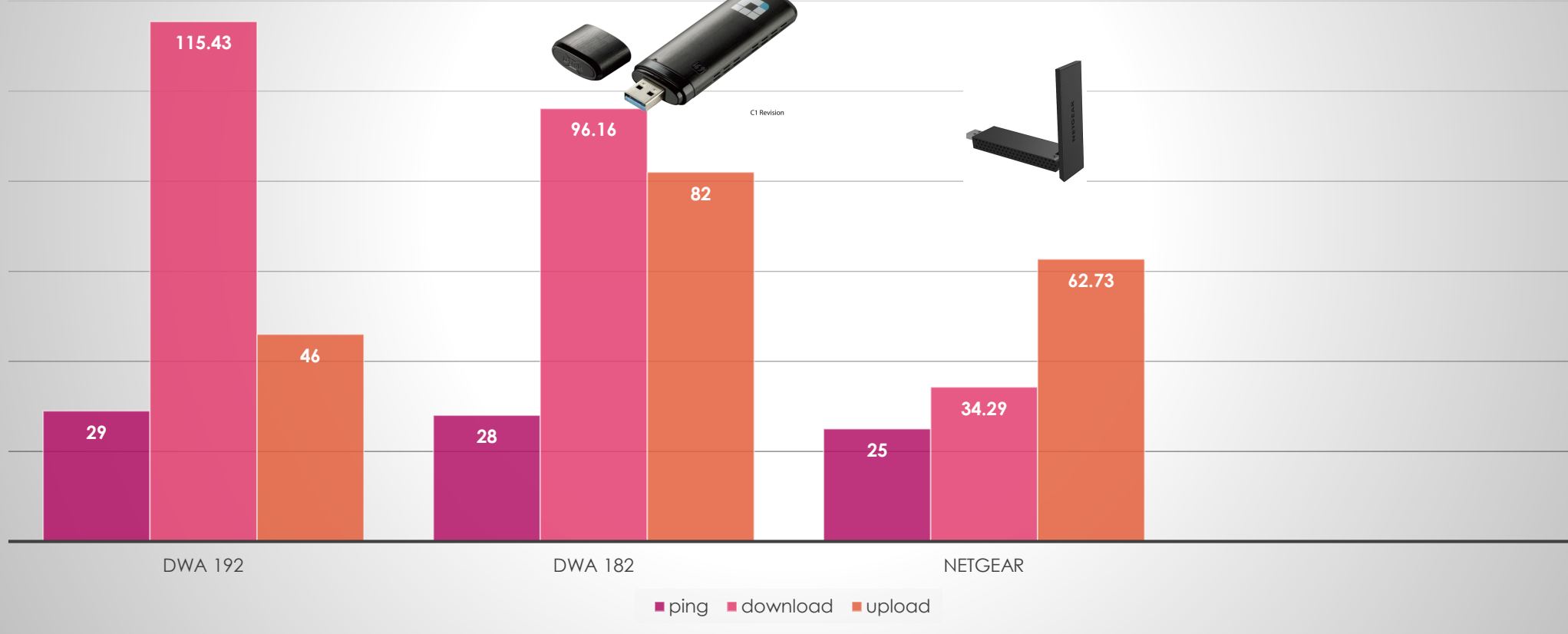
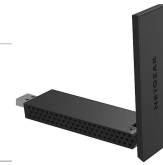




**SPEED TEST Wi-Fi WOW@IRS
data server singapore**



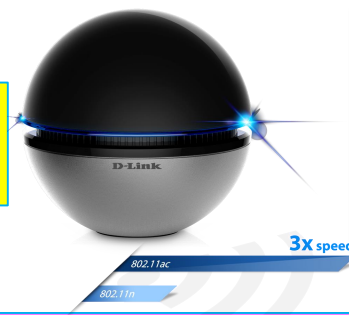
**Network WOW@IRS
Data Server Singapore**



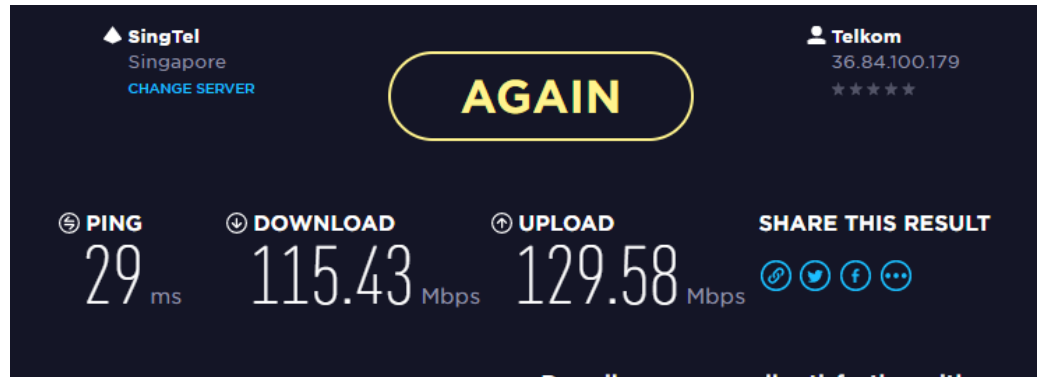
D-Link DWA-192



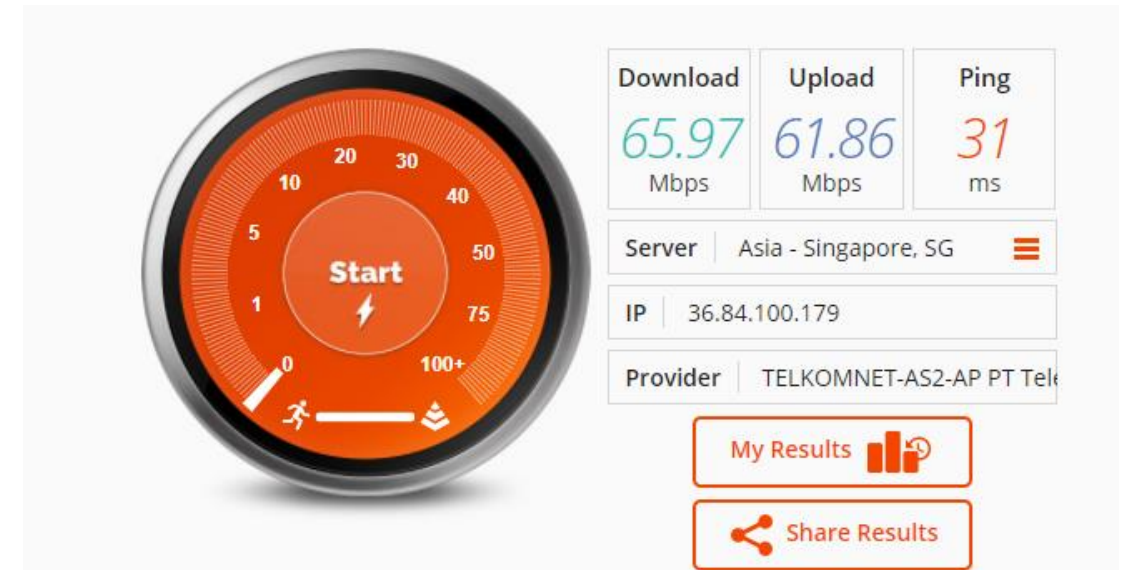
Wi-Fi 3 (D-Link DWA-192 AC1900 Wifi USB 3.0 Adapter) (WOW@IRS 2)



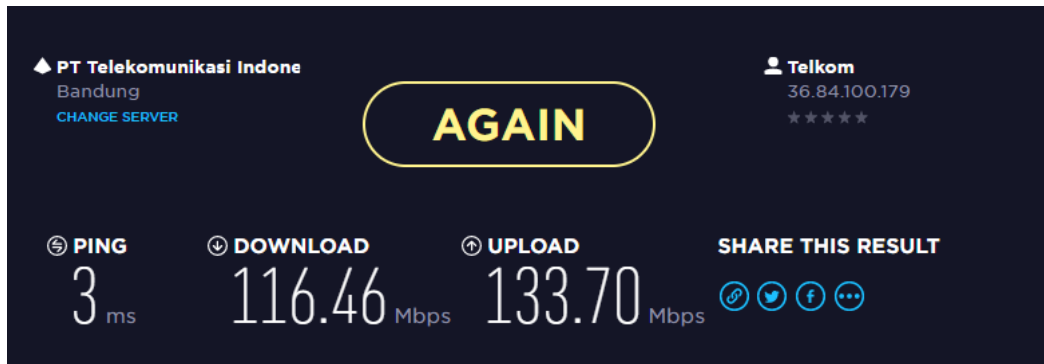
SINGAPORE

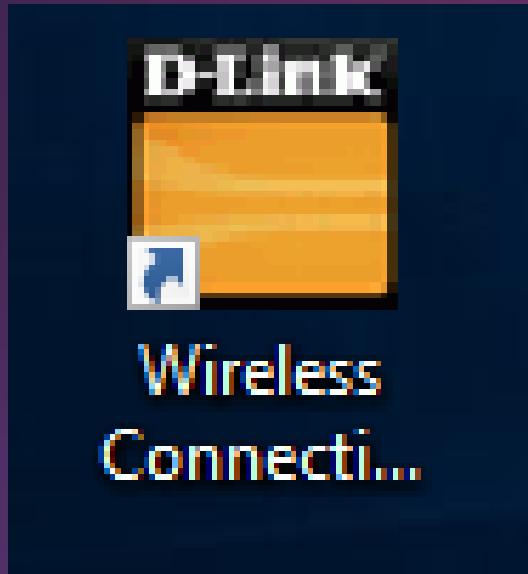


SINGAPORE



BANDUNG





D-Link DWA-182



C1 Revision



Wi-Fi 2
WOW@IRS 2
Wireless AC1200 Dual Band USB A...

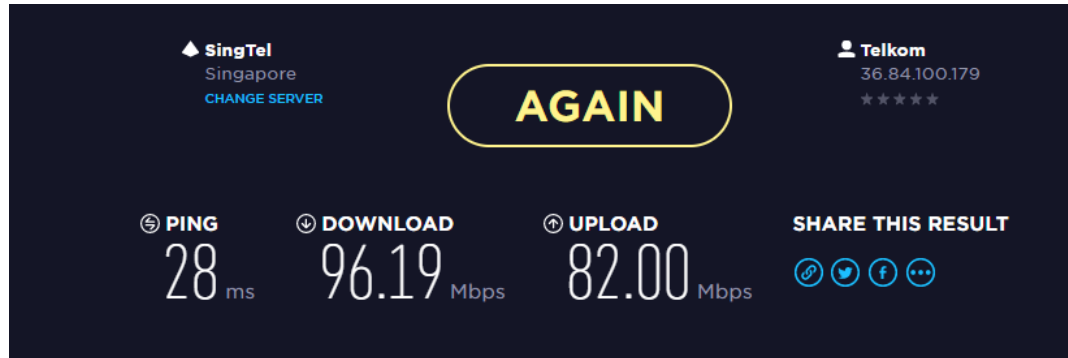


Wireless AC1200 Dual Band USB Adapter

Wi-Fi 2 (D-Link DWA-182 Wireless AC1200 Dual Band USB Adapter) (WOW@IRS 2)



SINGAPORE



SINGAPORE

Internet Speed Test + Deals From Internet Providers in Your Area



Download	Upload	Ping
73.22 Mbps	60.63 Mbps	31 ms

Server Asia - Singapore, SG

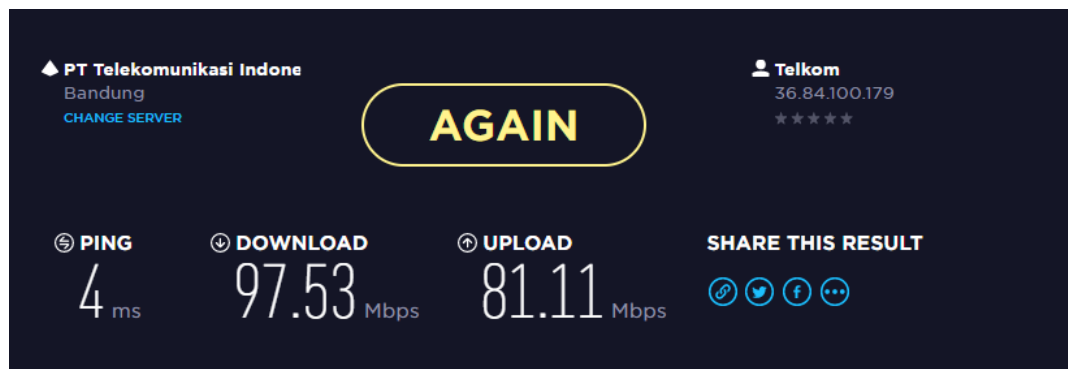
IP 36.84.100.179

Provider TELKOMNET-AS2-AP PT Telk

My Results

Share Results

BANDUNG





NETGEAR
A6210 Genie

NETGEAR A6210



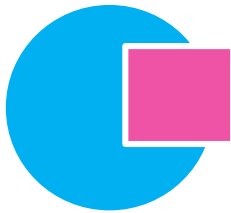
NETGEAR A6210 WiFi USB3.0 Adapter



Wi-Fi 4

WOW@IRS 2

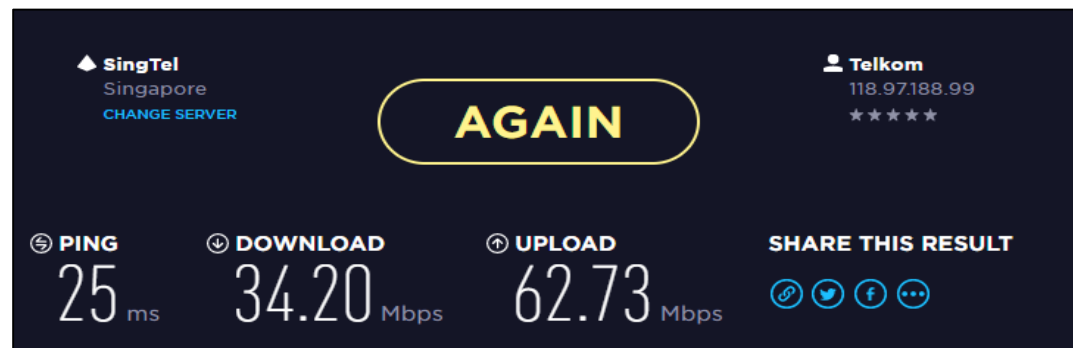
NETGEAR A6210 WiFi USB3.0 Ada...



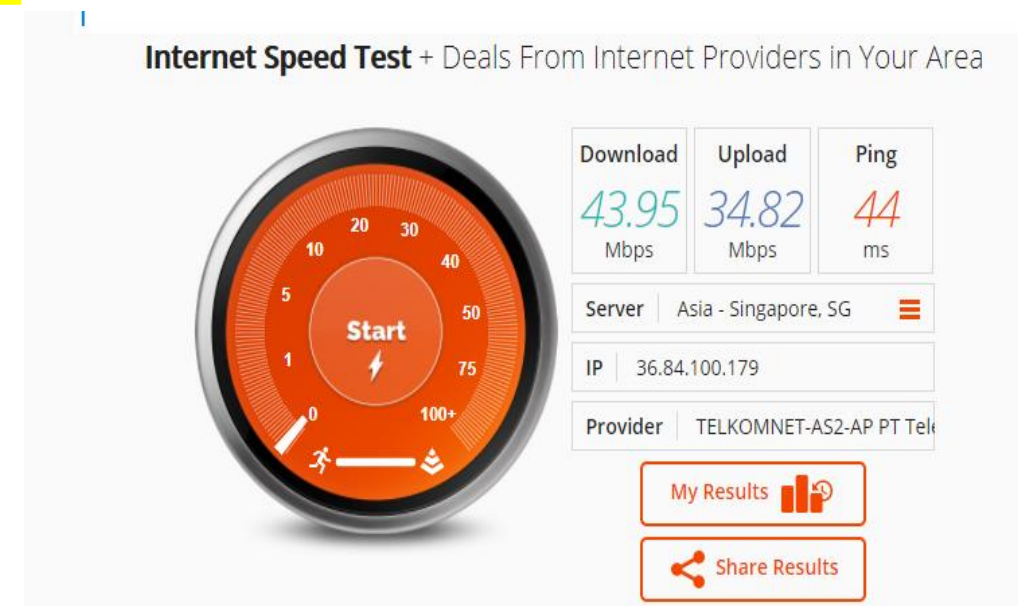
Wi-Fi 4 (NETGEAR A6210 Wi-Fi USB 3.0 ADAPTER) (WOW@IRS 2)



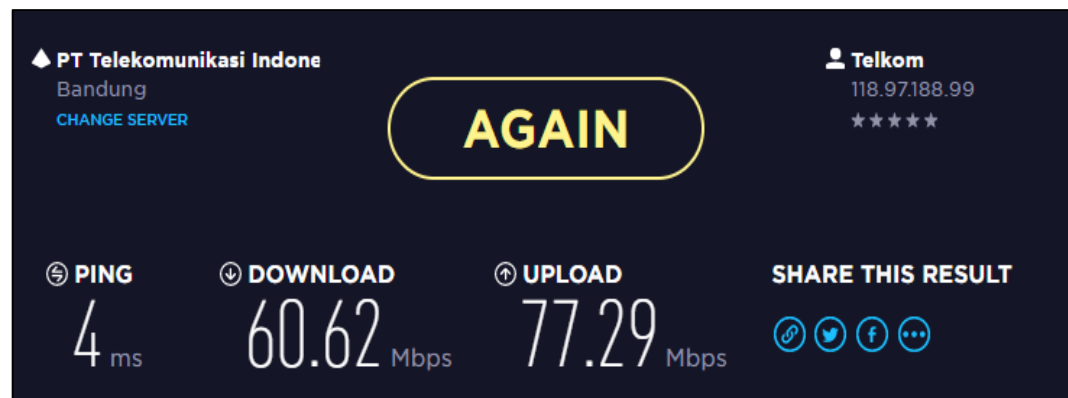
SINGAPORE



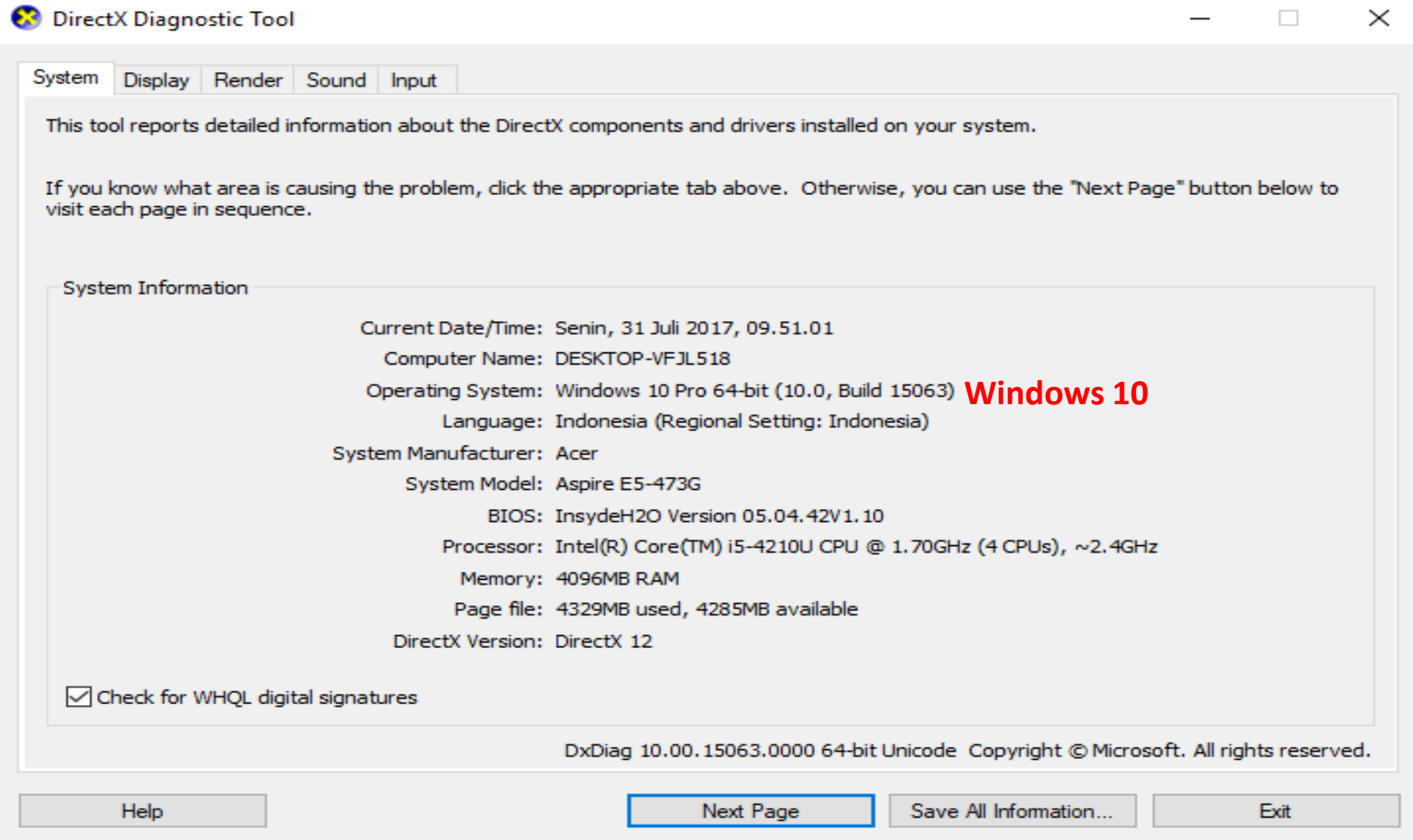
SINGAPORE



BANDUNG



Spesifikasi Laptop Yang digunakan



Spesifikasi Laptop Yang digunakan

CA. Command Prompt

```
Microsoft Windows [Version 10.0.15063]  
(c) 2017 Microsoft Corporation. All rights reserved.
```

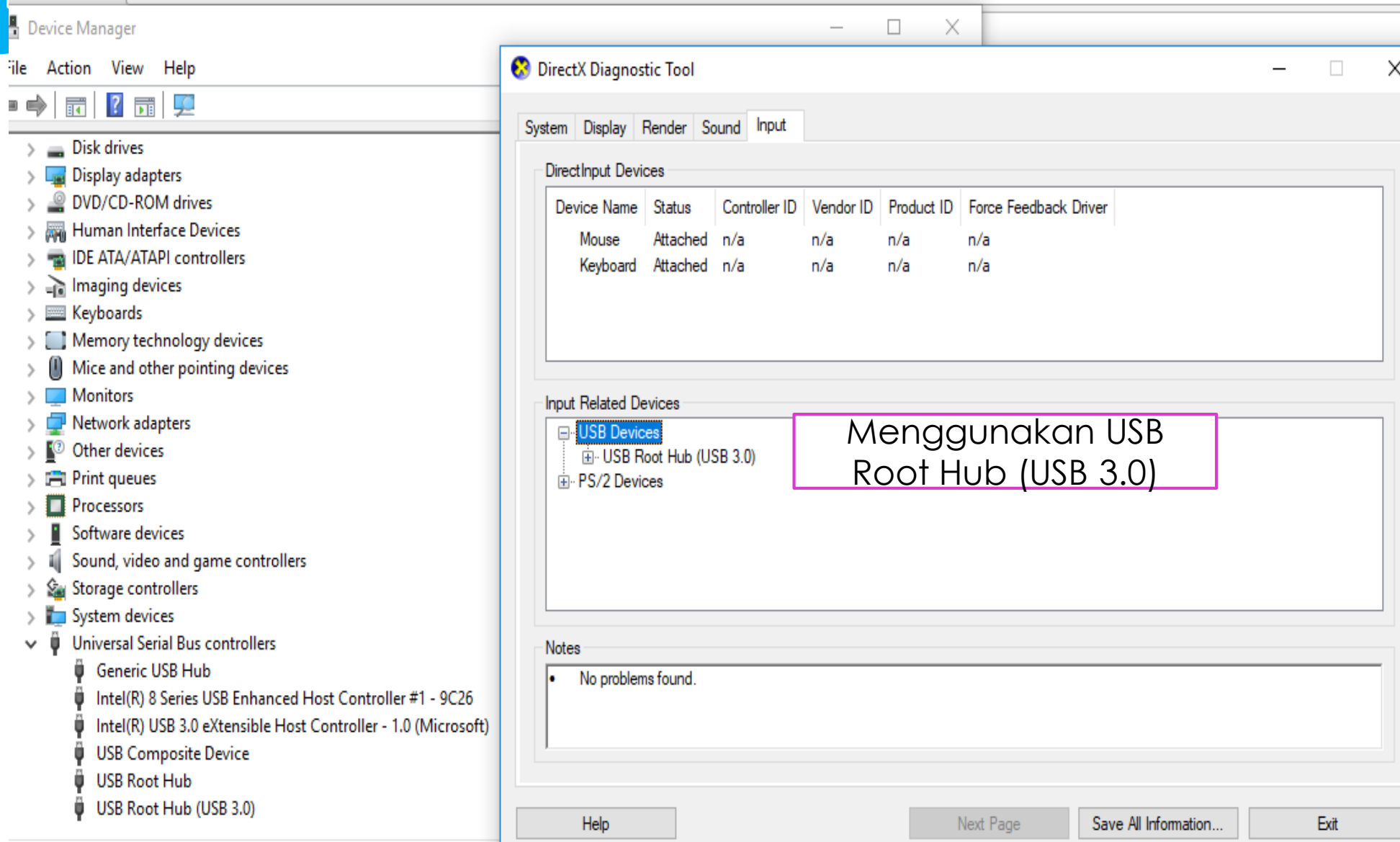
```
C:\Users\Komite Keperawatan>netsh wlan show drivers
```

```
Interface name: Wi-Fi
```

```
Driver           : Qualcomm Atheros AR956x Wireless Network Adapter  
Vendor           : Qualcomm Atheros Communications Inc.  
Provider         : Qualcomm Atheros Communications Inc.  
Date             : 26/03/2016  
Version          : 3.0.2.201  
INF file         : athw8x.inf  
Type             : Native Wi-Fi Driver  
Radio types supported : 802.11b 802.11g 802.11n  
FIPS 140-2 mode supported : Yes  
802.11w Management Frame Protection supported : Yes  
Hosted network supported : Yes  
Authentication and cipher supported in infrastructure mode:  
Open             None  
Open             WEP-40bit  
Open             WEP-104bit  
Open             WEP  
WPA-Enterprise   TKIP  
WPA-Personal     TKIP  
WPA2-Enterprise  TKIP  
WPA2-Personal    TKIP  
Vendor defined   TKIP  
WPA2-Enterprise  Vendor defined
```

Support Wifi
802.11/a/n/g

Spesifikasi Laptop Yang digunakan



The image shows two overlapping Windows windows. The background window is the 'Device Manager' application, displaying a list of hardware categories on the left. The 'Universal Serial Bus controllers' category is expanded, showing the following devices:

- Generic USB Hub
- Intel(R) 8 Series USB Enhanced Host Controller #1 - 9C26
- Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
- USB Composite Device
- USB Root Hub
- USB Root Hub (USB 3.0)

The foreground window is the 'DirectX Diagnostic Tool'. It has tabs for 'System', 'Display', 'Render', 'Sound', and 'Input'. The 'Input' tab is selected, showing 'DirectInput Devices' and 'Input Related Devices'.

DirectInput Devices

Device Name	Status	Controller ID	Vendor ID	Product ID	Force Feedback Driver
Mouse	Attached	n/a	n/a	n/a	n/a
Keyboard	Attached	n/a	n/a	n/a	n/a

Input Related Devices

- USB Devices
 - USB Root Hub (USB 3.0)
- PS/2 Devices

A pink box highlights the text 'Menggunakan USB Root Hub (USB 3.0)' next to the 'USB Root Hub (USB 3.0)' device.

Notes

- No problems found.

At the bottom of the DirectX Diagnostic Tool window, there are buttons for 'Help', 'Next Page', 'Save All Information...', and 'Exit'.

KESIMPULAN

- *WiFi USB adapter pada dasarnya memang diciptakan agar PC atau laptop bisa terkoneksi dengan jaringan WiFi modern yaitu 802.11ac dan bisa mengakomodasi kebutuhan transfer data kecepatan tinggi secara wireless.*
- *Dari hasil Data Speedtest menunjukkan bahwa Wifi USB Adapter **d link DWA-192 lebih cepat** dibandingkan dengan d-link DWA-182 dan Netgear A6210.*
 1. D-Link DWA-192 Singapore: Download: 115,43 Mbps Upload: 129,58 Mbps.
 2. D-Link DWA-182 Singapore: Download : 96,19 Mbps Upload : 82,00 Mbps.
 3. Netgear A6210 Singapore: Download : 34,20 Mbps Upload : 62,73 Mbps.
 4. D-Link DWA-192 Bandung: Download: 116,46 Mbps Upload: 133,70 Mbps.
 5. D-Link DWA-182 Bandung : Download : 97,53 Mbps Upload : 81,11 Mbps.
 6. Netgear A6210 Bandung: Download: 60,62 Mbps Upload: 77,28 Mbps.
- *Dari hasil Data Speedtest menunjukkan bahwa Wifi-1G IEEE 802.11/AC (WOW@IRS) lebih cepat dibandingkan dengan Wifi-1G IEEE 802.11/n (IDC-HOTSPOT).*

WOW@IRS D-Link DWA-192 Singapore : Download : 115,43 Mbps Upload : 25,77 Mbps

IDC-HOTSPOT D-Link DWA-192 Singapore : Download : 34,20 Mbps Upload : 62,73 Mbps
- *Terdapat beberapa faktor yang mempengaruhi kecepatan transfer data misalnya Piranti/perangkat jaringan, Tipe data yang ditransfer, topologi jaringan, banyaknya pengguna jaringan, spesifikasi komputer client/user, spesifikasi komputer server dan media transfer*

TERIMAKASIH