

Datasheet: AirMagnet WiFi Analyzer

AirMagnet WiFi Analyzer PRO helps IT staff quickly solve end-user issues while automatically detecting security threats and wireless network vulnerabilities. The solution enables network engineers to easily test and diagnose dozens of common security and wireless performance issues, including throughput and connectivity issues, device conflicts and signal multipath problems by providing:

- Complete 802.11a/b/g/n/ac monitoring
- Instant answers on wireless issues
- Wi-Fi packet and interference analysis
- WLAN client roaming root cause analysis
- Active troubleshooting toolkit

AirMagnet WiFi Analyzer PRO includes a full compliance reporting engine, which automatically maps collected network information to requirements for compliance with policy and industry regulations.



AirMagnet WiFi Analyzer PRO is the industry's "de-facto" tool for managing enterprise 802.11a/b/g/n/ac and 4.9 GHz Wi-Fi networks. At the heart of AirMagnet WiFi Analyzer PRO is the AirWISE® engine, which automatically detects the root cause of dozens of security and performance problems, explains alarms in simple terms, and offers recommendations on how to solve or manage complex issues. It is a highly portable WLAN software tool that travels to the source of WLAN problems enabling faster and accurate fault finding without any AP downtime. With this dedicated Wi-Fi troubleshooting solution, users are guaranteed to find any WLAN faults compared to "time-slicing monitoring functionality" built inside the WLAN infrastructure. The solution enables network managers to easily test and diagnose dozens of common wireless performance issues, including throughput issues, connectivity issues, device conflicts and signal multipath problems. AirMagnet WiFi Analyzer includes a full compliance reporting engine, which automatically maps collected network information to requirements for wireless network compliance with policy and industry regulations. With the latest support for 802.11ac, AirMagnet WiFi Analyzer is the industry's most accurate 802.11ac troubleshooting and optimization tool that never misses any Wi-Fi traffic and helps solve problems right the first time.

Portable Troubleshooting Solution with no AP Downtime

It is important to note that all troubleshooting solutions or tools are not the same, and it is critical to solve problems right the first time, irrespective of the location of the problem and more importantly with no impact to the performance of the AP infrastructure. There is a huge misconception that by using freeware apps or basic troubleshooting capabilities built inside the AP infrastructure, you can solve issues that impact the security and performance of the network. Freeware and many low cost apps provide nothing more than a list of networks and their properties, and do nothing to solve real world problems. They do not match the capabilities of a

true wireless network analyzer like AirMagnet WiFi Analyzer PRO that can solve any problem in the Wi-Fi network. Many of the AP Infrastructure solutions claim built-in troubleshooting with partial scanning or full time scanning options. Both options have severe limitations on solving problems. Part time scanning methods lead to slower detection of problems in the network and can even miss the issue altogether. With full time scanning, you are limited by taking the AP away from its core purpose of providing data services for dedicated scanning or sniffing. Moreover, the APs are fixed on the ceiling and cannot travel to the location of the problem. With AirMagnet WiFi Analyzer PRO, all of these limitations are enabled with full featured dedicated on-site troubleshooting with zero AP downtime.

802.11ac Analysis and Troubleshooting

802.11ac is the next generation WLAN standard that promises gigabit speeds, but with this great promise comes a lot of challenges that the users are expected to deal with. With AirMagnet WiFi Analyzer PRO network engineers are equipped with the critical data needed to quickly solve end-user issues and prevent costly rework and escalations. AirMagnet WiFi Analyzer PRO is the industry's only wireless network analyzer that does not miss any 802.11ac traffic with full 3 X 3 support*, and can solve any problems on the 802.11ac network. More importantly all of this is done with full time scanning and traveling to the location of the problem for more effective troubleshooting, with zero AP downtime (no need to take the AP offline for monitoring and troubleshooting) compared to reusing the AP for the purpose or other tools that rely on fixed APs for troubleshooting. It also plays a critical role in helping users optimize the migration path from legacy technologies to this new standard with its unique 802.11ac Toolkit providing clear direction and details on how to leverage new 802.11ac options to maximize throughput and performance. This toolkit includes:

- 802.11ac throughput calculator tool: compare vendor AP performance based on specifications and capabilities of those devices
- 802.11ac efficiency and analysis tool: analyzes conversations between APs and stations, and indicates if the network is using 802.11ac and 802.11n to its full potential using simple color legends, and helps pinpoint performance problems
- 802.11ac throughput simulator tool: the simulator tool calculates the network throughput, utilization and the overhead under user-specified conditions by simulating the existing infrastructure or simulating the addition of new APs or stations in the network

*Note: 3 X 3 802.11ac support and toolkit coming in a release in Q4'2014. Please contact AirMagnet (info@airmagnet.com) for more details on the beta program.

WLAN Network Health Summary

AirMagnet WiFi Analyzer PRO provides users with the complete inventory of devices, including APs, clients and smart devices that are operating in the environment. For each device, users are powered with detailed configuration information and traffic statistics for each device. AirMagnet WiFi Analyzer PRO also includes a dashboard that provides a live snapshot into the overall health of the WLAN network and helps users focus on top issues that need immediate attention to ensure maximized WLAN security and performance. Users are powered with a variety of charts, including the ones for channel utilization, top talkers in the network, WLAN interference levels, mismatched configurations, overloaded APs, security and performance problems, etc. Users can drill down for deeper investigation into WLAN statistics for every device, channel and wireless frame.

Built-In Wireless Expertise

AirMagnet WiFi Analyzer PRO reduces the complexity with instant answers from its real-time analysis engine called AirWISE®. This engine automatically detects the root cause of hundreds of security threats and performance issues before they impact the network. It goes a step further and also guides the user on how to solve the issue and avoid its occurrence in the future. All of this leads to faster and more accurate troubleshooting, thus saving costly internal resources. It can also automatically alert and notify you on more than 150+ threats and issues including:

1. Security issues such as rogue devices, denial of service attacks, security penetration attacks, authentication and encryption issues, configuration vulnerabilities for your infrastructure
2. Performance issues such as channel or device overload, deployment and operation errors, RF management issues, traffic problems, and QoS and VoWLAN issues.

AirMagnet WiFi Analyzer PRO includes "How-To" guides to walk IT administrators through the identification of an issue, including security, performance, interference, device configuration issues, and guides them to solving the issue. The library also includes information on the solutions major functions and how to use them in identification and resolution of WLAN issues.

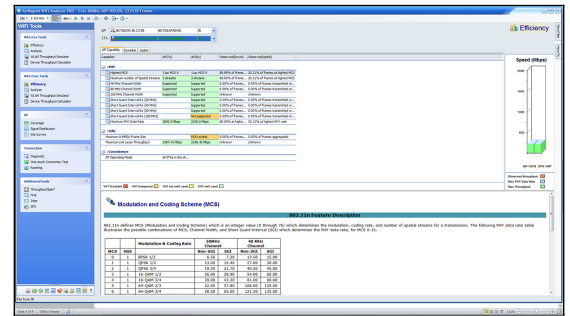


Figure 1: 802.11ac analysis and troubleshooting

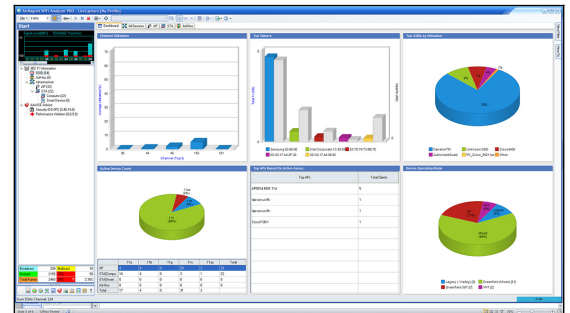


Figure 2: Network health summary

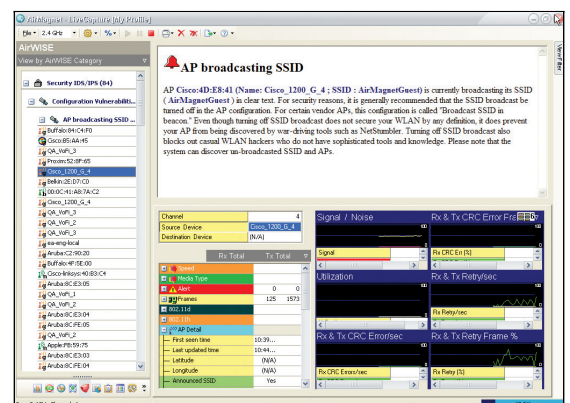


Figure 3: AirWISE Expert screen

Real-time Wi-Fi Troubleshooting

AirMagnet WiFi Analyzer PRO provides in-depth frame statistics for every channel and device operating in the spectrum. With the channel utilization and throughput trending graphs, users can solve many of the issues that lower the overall performance of the WLAN network. Users can view trending graphs for signal strength, noise, frames, errors, retries, bandwidth and many more for every WLAN channel and device. These valuable graphs provide critical pointers to issues that are influencing the WLAN network performance. For example, graphs for packet retry and error rates reveal areas where WLAN communications are failing. On AirMagnet WiFi Analyzer PRO's decode screen, users can view and analyze a list of real-time packets including 3X3 802.11n and 3X3 802.11ac packets, it also includes support for monitoring upperlayer protocols. AirMagnet WiFi Analyzer PRO gives users the option to apply a filter in order to isolate particular packets of interest, based on a specific channel, SSID, node, IP address, or type of frame. WPA-PSK and WPA2-PSK encrypted packets can be decrypted. With the multi-adapter support in AirMagnet WiFi Analyzer PRO, users can monitor multiple channels simultaneously using individual adapters inserted into the same PC.

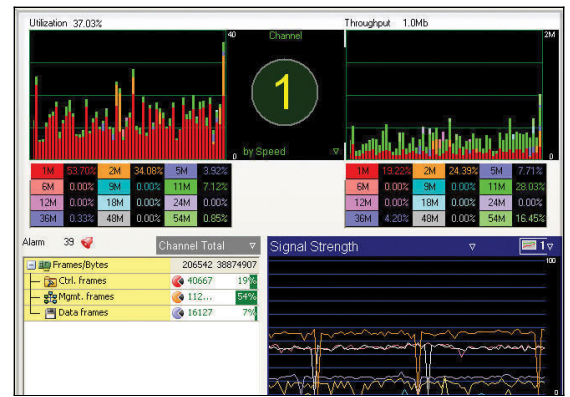


Figure 4: Trending graphs for detailed analysis

WLAN Client Roaming Analysis

AirMagnet WiFi Analyzer PRO leverages support for multiple WLAN adapters plugged into the computer to troubleshoot client roaming problems – one of IT staff most commonly reported problems for WLAN networks. Smooth coordinated client roaming is key to providing users with the mobility and seamless connectivity expected from a wireless deployment for any application, including data, voice and video.

It provides advanced details on all roaming transactions for any WLAN client including stations, phones, and handheld scanners. Users are powered with AirWISE® expertise to get detailed reasons for the roaming event taking place, device and channel parameters that influence the roam, and visibility into whether the roam was good or not.

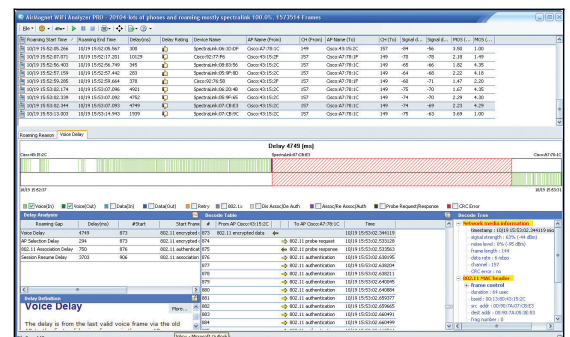


Figure 5: Roaming analysis screen

For VoWLAN phones, users can monitor voice delays and other statistics as the phone roams from one AP to another in the middle of a conversation. The application provides VoFi-specific data (such as WiMOS, signal strength, etc.) leading up to the attempt, and packet transmission rates for the conversation. With this root cause analysis on roaming problems, users can minimize the likelihood of any roaming problems recurring in the WLAN network.

Active Troubleshooting Tools

AirMagnet WiFi Analyzer PRO is the industry's only wireless network analyzer that includes a suite of active Wi-Fi troubleshooting tools to quickly pinpoint and solve wireless network problems. This includes users not being able to connect to the network, users experiencing slower connections to the network or WLAN applications, 802.11n and 802.11ac misconfigurations, traffic/infrastructure overloads, hardware failures, roaming problems, multipath interference problems and more. With these tools available at the users' fingertips, they can solve any kind of problem that are impacting the network performance. These tools include:

- Device locator: geiger-counter tool that helps physically locate any unauthorized or policy violating device.
- Connection test: single-click end-to-end network connectivity (DHCP, ping, trace) and application performance (HTTP, FTP, audio, video) measurement tool.
- Signal distribution tool: detect any multipath issues in the network.
- Roaming tool: measures roaming times for clients between APs.
- Performance/Iperf tool: measures uplink and downlink throughput performance of the network.
- 802.11n and 802.11ac throughput calculator tool: compare vendor AP performance based on specifications and capabilities of those devices.
- 802.11n and 802.11ac efficiency and analysis tool: analyzes conversations between APs and stations, and indicates if the network is using 802.11ac and 802.11n to its full potential using simple color legends.
- 802.11n and 802.11ac throughput simulator tool: the simulator tool calculates the network throughput, utilization and the overhead under user-specified conditions by simulating the existing infrastructure or simulating the addition of new APs or stations in the network.

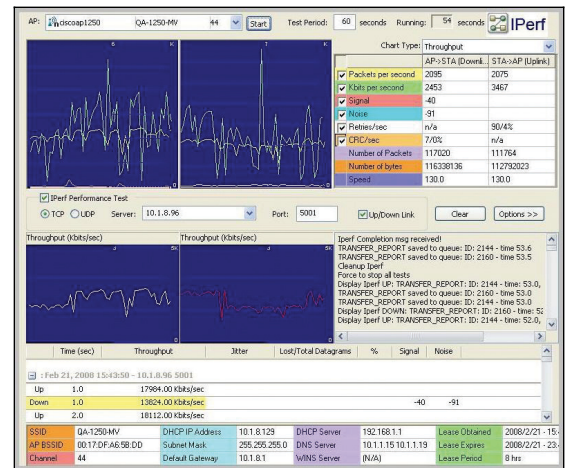


Figure 6: Throughput measurement tool

Sophisticated Wireless Attack Detection

In addition to the unauthorized device and stumbling tools detection, AirMagnet WiFi Analyzer PRO detects sophisticated attacks launched against the corporate wireless network, aimed at disrupting the wireless services. These include Denial of Service attacks against the corporate AP/STA/Infrastructure, such as RF Jamming attacks, association and encryption-based DoS attacks, wireless disconnection attacks, and many more. AirMagnet WiFi Analyzer PRO also detects penetration attempts against the wireless infrastructure, including a variety of dictionary attacks, fake access points, WEP cracking tools, man-in-the-middle attacks, illegal wireless frames attack, hotspot attacks, honeypot attacks, etc.

It scans 200+ extended channels in the 5 GHz spectrum. Since wireless hackers won't necessarily restrict their efforts to the commonly used channels, the ability to scan a wider range of the spectrum is becoming increasingly necessary.

Integrated Reporting

AirMagnet WiFi Analyzer PRO's integrated reporter makes it easy to turn Wi-Fi analysis sessions into professional customized reports. Choose from a library of pre-built reports or generate targeted reports by selecting specific items of interest from the user interface. Reports cover all areas of management including RF statistics, channel reports, device reports, security/performance issue reports and compliance reports for a variety of regulatory standards including HIPAA, PCI, SOX and more. Reports provide a step-by-step pass/fail assessment of each section of the standard.

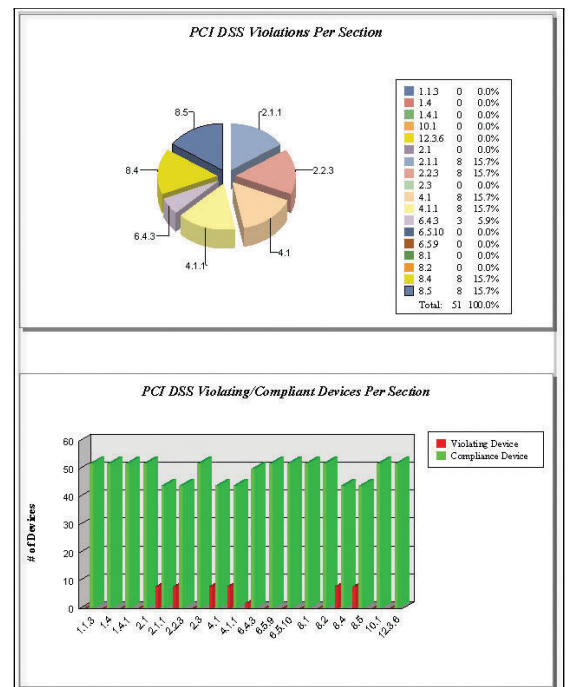


Figure 7: AirMagnet WiFi Analyzer compliance reports

Complete Wi-Fi Interference Detection and Analysis

Interference is one of the leading causes for poor connectivity and performance problems in the network. This interference can be from other Wi-Fi devices due to poor channel planning (adjacent or co-channel interference) or could be from non Wi-Fi interference sources. AirMagnet WiFi Analyzer PRO's interference status indicator lists the overall interference status for each Wi-Fi channel, calculated based on the Wi-Fi interference score for the devices contributing to the interference; a list of hidden nodes and non Wi-Fi devices (non Wi-Fi detection requires AirMagnet WiFi Analyzer PRO and RF spectrum analyzers installed on the same machine) operating in the channel. This enables users to plan future Wi-Fi deployments or modify their existing deployment to increase network performance.

802.11ac and 802.11n Troubleshooting Toolkit

AirMagnet WiFi Analyzer PRO includes a new toolkit to walk users through 802.11ac and 802.11n optimization and troubleshooting.

WLAN Throughput Simulator tool: calculates network throughput, utilization and overhead under user-specified conditions by simulating the existing network or simulating the addition of new APs or stations in the network.

Throughput/perf tool: allows users to run a performance test on any AP in the environment and measure the maximum WLAN bandwidth at a particular location; find the optimum configuration for maximizing WLAN throughput and test devices under various traffic stress scenarios.

Efficiency tool: analyzes conversations between 802.11ac/n APs and stations, and indicates if the network is using 802.11ac and 802.11n to its full potential using simple color legends. The tool provides guidance on what option is not being well-used and how to better use it along with an independent visibility into the uplink and downlink performance.

Analysis tool: provides detailed statistics for any AP Station conversation helping the user to pinpoint low throughput problems. These include 20/40/80/160 MHz channel usage, use of SGI, 802.11ac MCS index, PHY Data Rates & A-MPDU (802.11n only).

Device Calculator tool: allows users to simply enter 802.11ac or 802.11n AP specifications and calculate the expected network performance taking into account the capabilities of the clients that would connect to it.

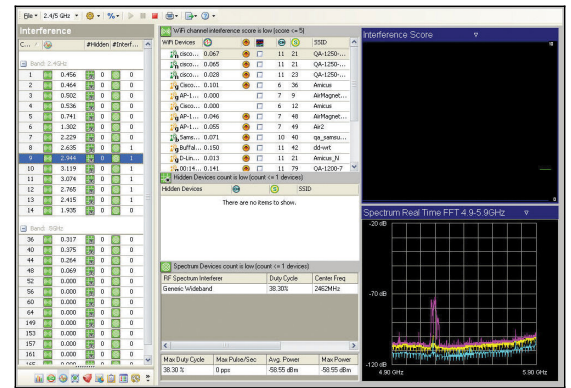


Figure 8: Wi-Fi and non-Wi-Fi interference analysis

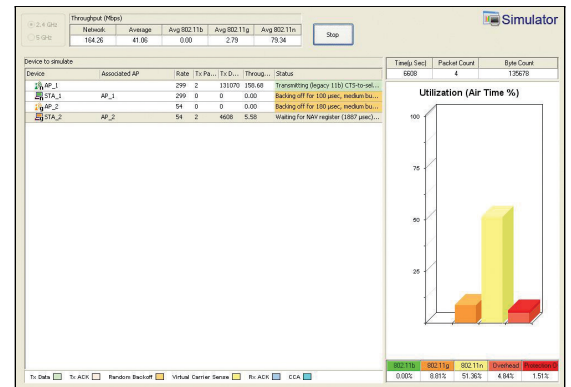


Figure 9: Simulate performance of the network

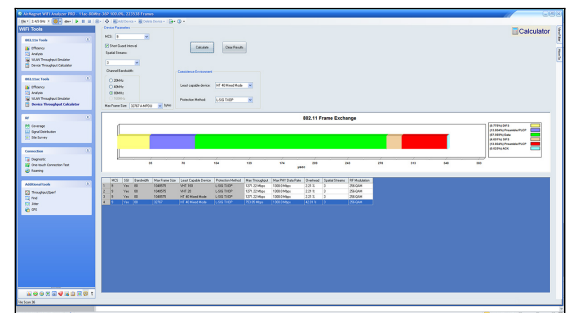


Figure 10: Analyze 802.11n conversations

BYOD Classification

With the recent Wi-Fi explosion and the ever growing BYOD (Bring Your Own Device) phenomenon, IT groups within organizations face the constant challenge of both supporting these devices as well as troubleshooting issues caused by these devices. AirMagnet WiFi Analyzer PRO instantly detects and classifies smart phones and tablets that connect to the network. This capability allows IT professionals to authorize these devices, quickly troubleshoot and resolve issues caused by these devices as well as determine performance and security impact to the WLAN network. For example, users can very quickly see rogue smart devices that connect to the network and determine whether a specific smart device is consuming a lot of bandwidth by accessing the Top Talkers graph in the dashboard.

Type: STA(GSmart Device)									
7	Apple, iPhone, 146	Unknown N	12/8/08:00:24	12/8/08:00:36	STA(GSmart Device)	Phone 5/Psd 4/Psd Min	1,2,3		
7	Apple, iPhone, 83	Unknown N	12/8/08:00:50	12/8/08:00:50	STA(GSmart Device)	Phone 5/Psd 4/Psd Min	1,2,3		
9	Sams., Galaxy, 100	Unknown N	12/8/08:01:26	12/8/09:32:53	STA(GSmart Device)	Samsung			
7	Apple, iPhone, 100	WPd4.2 N	12/8/08:06:20	12/8/09:32:08	STA(GSmart Device)	Phone 4/iPhone 4/Psd 1,2,3			
7	Apple, iPhone, 89	WPd4.2 N	12/8/08:07:44	12/8/08:07:44	STA(GSmart Device)	Phone 5/Psd 4/Psd Min	1,2,3		
7	Apple, iPhone, 100	WPd4.2 N	12/8/08:09:05	12/8/09:32:13	STA(GSmart Device)	Phone 4/iPhone 4/Psd 1,2,3			
7	Apple, iPhone, 73	Unknown N	12/8/08:09:35	12/8/08:09:35	STA(GSmart Device)	Phone 4/iPhone 4/Psd 1,2,3			
7	Apple, iPhone, 89	Open, ? N	12/8/08:13:09	12/8/09:32:58	STA(GSmart Device)	Phone 4/iPhone 4/Psd 1,2,3			
7	Apple, iPhone, 79	Unknown N	12/8/08:15:12	12/8/08:15:12	STA(GSmart Device)	Phone 4/iPhone 4/Psd 1,2,3			
7	Apple, iPhone, 83	Unknown N	12/8/08:19:47	12/8/08:19:47	STA(GSmart Device)	Phone 4/iPhone 4/Psd 1,2,3			
7	Motor., Moto, 79	7.2c Open, shams, AuthorizeGuest	12/8/08:20:19	12/8/09:30:19	STA(GSmart Device)	Phone 5/Psd 4/Psd Min	1,2,3		
7	Motor., Moto, 74	7.2c Open, mtsabul, pressGLAX	12/8/08:20:19	12/8/09:30:19	STA(GSmart Device)	Motorola			
7	Apple, iPhone, 100	Open N	12/8/08:23:34	12/8/08:58:50	STA(GSmart Device)	Phone 4/iPhone 4/Psd 1,2,3			
7	Motor., Moto, 79	Unknown N	12/8/08:45:47	12/8/08:45:47	STA(GSmart Device)	Motorola			
157	Apple, iPhone, 100	WPd4.2 N	12/8/08:53:26	12/8/09:33:07	STA(GSmart Device)	Phone 5/Psd 4/Psd Min	1,2,3		
7	Apple, iPhone, 83	Open N	12/8/08:55:38	12/8/09:28:16	STA(GSmart Device)	Google Nexus 7			
7	HTC, HTC, 85	Open N	12/8/08:55:40	12/8/09:28:16	STA(GSmart Device)	Google Nexus 7			
7	HTC, HTC, 85	Open N	12/8/09:03:02	12/8/09:32:39	STA(GSmart Device)	Google Nexus 7			
7	HTC, HTC, 85	Open N	12/8/09:09:07	12/8/09:12:19	STA(GSmart Device)	Samsung			
7	Sams., Galaxy, 100	Unknown N	12/8/09:09:24	12/8/09:27:35	STA(GSmart Device)	Google Nexus			

Figure 11: Smart Devices

Ordering Guide

Product Name	Model
AirMagnet WiFi Analyzer PRO	AM/A1150
AirMagnet Spectrum XT (optional)	AM/B4070
AirMagnet Multi-adapter kit for WiFi Analyzer PRO (US, World Mode and Japan versions available)	AM/C1090
PROXIM ORINOCO 8494 802.11A/B/G/N USB Adapter (US, World Mode and Japan versions available)	AM/C1080
AirMagnet 802.11 a/b/g/n Wireless PCI Express Card	AM/C1096
Fluke Networks 802.11 A/B/G/N/AC 3X3 Express Card Adapter (Available in Q4'2014)	AM/C1097

Minimum System Requirements

Microsoft® Windows 8 Pro/Enterprise (32-bit and 64-bit) or Microsoft® Windows 7 Enterprise/Business/Ultimate/Professional or XP™ Professional (SP3)/Tablet PC Edition 2005 (SP3) or MAC OS X Leopard™ (Apple® MacBook® Pro running Windows XP™ PRO with SP3 or Windows 7-64bit using Boot Camp®). Note: [1] 64 bit Operating System supported on Windows 8 for Intel 6300, Intel 6205, Intel 6250 and Proxim Orinoco 8494 802.11 a/b/g/n USB adapter [2] 64 bit Operating System supported on Windows 7 for 802.11a/b/g/n USB adapters, Intel 802.11a/b/g/n 6200, Intel 802.11a/b/g/n 6300 adapters, and Atheros XB112 AR9380 11abgn PCIe Mini-Card adapters only.

Intel® Core™ 2 Duo 2.00 GHz (Intel® Core™ i5 or higher recommended)
1 GB memory (2 GB recommended) for Windows XP™. 4 GB or higher required for Windows 7/8.
An AirMagnet supported spectrum adapter and license (Required for viewing spectrum data and classifying non-802.11 devices)
500 MB of free disk space for installation
Supported wireless adapter
Fluke Networks OptiView® Support: OptiView® XG Network Analysis Tablet, OptiView® Series II/III Integrated Network Analyzer

Please visit the website for more detailed information on minimum system requirements. www.flukenetworks.com