Datasheet: AirMagnet Spectrum XT

AirMagnet Spectrum XT is the industry's first professional spectrum analyzer solution that combines in-depth RF analysis with real-time WLAN information for quicker and more accurate troubleshooting of performance problems.

This combined view of "impact analysis of RF interference" on the network's overall performance helps pin-point the root cause of those problems. AirMagnet Spectrum XT is the ideal solution for network engineers and installers/integrators for troubleshooting and deployment of WLAN networks, and is available in the universal and convenient USB form factor, allowing it to be used on any notebook, netbook or tablet PC.

Powered with the industry's largest RF interferer classification database for mobile spectrum analyzers, AirMagnet Spectrum XT detects, identifies and helps locate individual sources of RF interference, including non-WLAN devices such as Bluetooth, cordless phones, ZigBee, microwave ovens, wireless game controllers, and many more. AirMagnet Spectrum XT users are also empowered with the unique capability of automatically detecting repeat RF patterns and creating customized signature for any RF interference source detected in the environment.

Unmatched RF Spectrum Analysis

AirMagnet Spectrum XT provides complete visibility into the physical layer of the wireless LAN to identify RF interference and problems in the environment that impact the performance of the network. The solution offers a variety of spectrum and Wi-Fi graphs to help users visualize the RF spectrum.
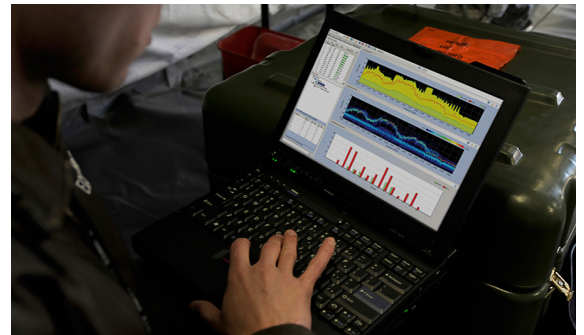
Real-Time FFT

AirMagnet Spectrum XT's FFT graph provides a real-time view into the RF energy in the environment with current, max, max-hold and average RF signal levels. Users can also overlay the channel duty-cycle on the real-time FFT graph to streamline their efforts in detecting and focusing on RF interference sources that have the maximum impact on the performance of the network.

Spectrum Density

The Spectrum Density graph provides a longer term view into the network by displaying live information on the signals that are common during the current capture session. This is helpful to identify infrequent transmitters.

Spectrogram

The Spectrogram graph provides a scrolling history of the RF environment and allows a visual understanding of the spectrum over time to see intermittent spikes or bursts of RF energy that may be causing WLAN network problems.

Duty Cycle

The Duty Cycle graph displays how often an interfering signal is present. A high duty cycle means an interferer is constantly transmitting and will most certainly cause problems on the affected channel.

Event Spectrogram

The Event Spectrogram graph provides a visual presentation of real-time information on interfering devices that are detected in the last 5 minutes. It includes information on power level and channels/frequencies affected by the device.

Channel Power

The Channel Power graph shows the maximum and average power levels across all the channels in the selected radio band.

Interference Power

The Interference Power graph displays the average power readings of interfering devices on the selected channel or channels.
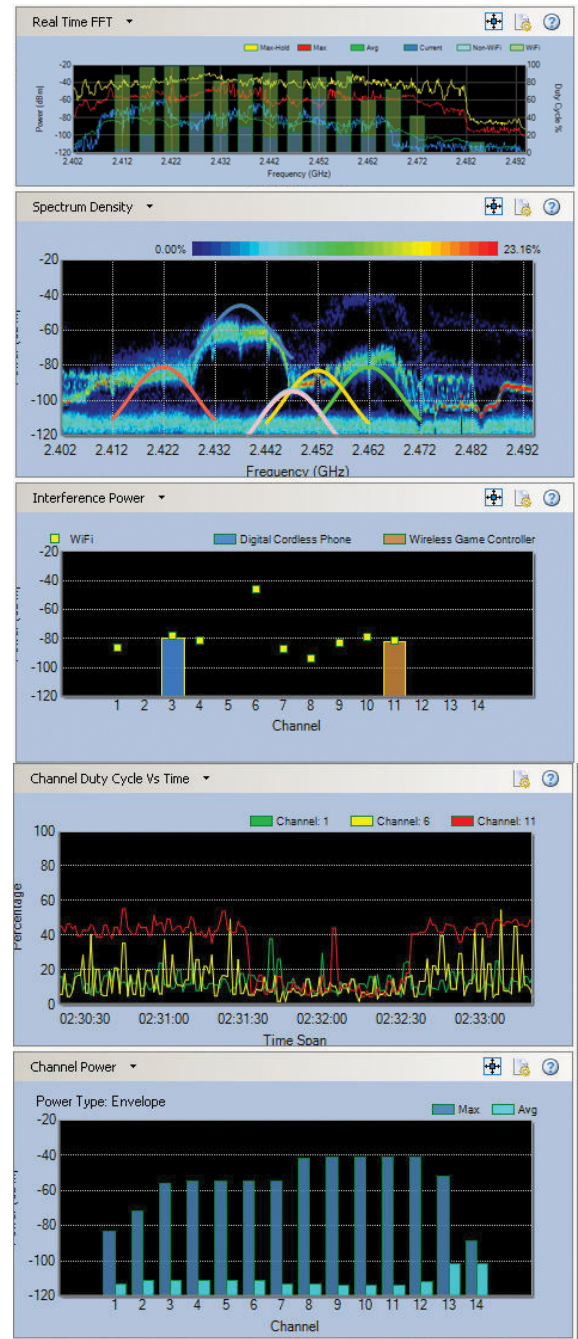

Figure 1: *RF spectrum graphs*

Channel Duty Cycle & Interference Power vs. Time Trending

These trending graphs show the average power in the channels that is above the noise floor and the maximum average power readings of interfering devices operating on the selected channel over a specific period of time.

Unique RF Interference and Wi-Fi Impact Analysis

To optimize and ensure top WLAN performance, AirMagnet Spectrum XT introduces a revolutionary approach to wireless troubleshooting that combines the power of RF spectrum analysis with WLAN traffic and device analysis. Users can plug in any supported wireless adapter and instantly see a combined or co-related single screen view showing the impact of RF interference or interference sources on the overall true performance of the WLAN.

AirMagnet Spectrum XT also provides a complete inventory of all Wi-Fi devices operating in the environment and their configured settings. Users are entitled to a number of Wi-Fi charts to solve problems faster and more efficiently including:

- AP Signal Strength
- Channels by Speed/Address/Media
- Top 10 APs by CRCs/Retry
- Channel SNR; Errors/Retry
- Channel Utilization
- Channel Occupancy

Automatic Identification and Location of Interference Sources

AirMagnet Spectrum XT offers real-time detection and identification of a number of non-WLAN sources that interfere and lower the performance of WLAN networks. The extensive device or source list includes Bluetooth devices, digital and analog cordless phones, conventional and inverter microwave ovens, wireless game controllers, digital video converter, FHSS devices, baby monitors, RF Jammers, radars, motion detectors, ZigBee devices and many more.

Users are also powered with detailed information for the interference source, including peak and average power, first and last seen time, center frequency, impacted channels, number of times the source was detected, and many more. With an additional Bluetooth adapter plugged into the same PC, AirMagnet Spectrum XT provides Bluetooth information such as ID, name, services, etc. for enhanced Bluetooth interferer analysis.

With AirMagnet Spectrum XT's built-in "device locator tool", users can physically locate any Wi-Fi or non-Wi-Fi interference sources operating in the RF environment. The device locator tool operates as a Geiger counter and beeps louder as users get closer to the location of the device.
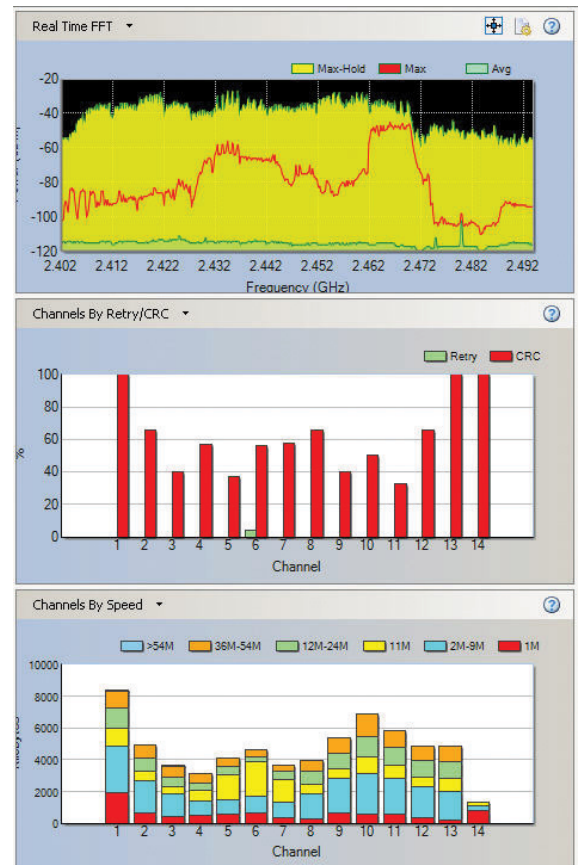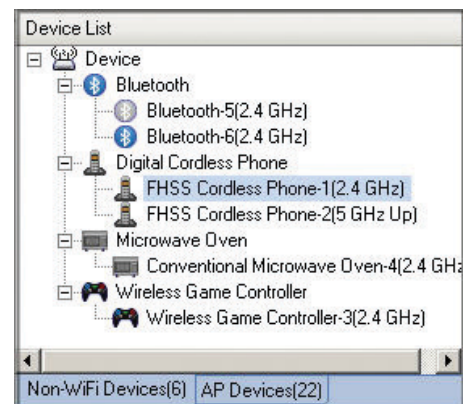
Figure 2: RF interference and Wi-Fi impact analysis

Figure 3: Detect and classify interfering sources

Unique Identification for any RF Interference Source

Users who own RF spectrum analyzers usually have to depend on the vendor to create default signatures or classifications for the detection and identification of RF interference sources. Timely response to these sources is critical to environments or enterprise networks to ensure the optimum performance for their WLAN users. Spectrum analyzer vendors themselves, struggle to keep up with the creation and inclusion of every unique RF interference sources within their native classification database that can cause havoc to the WLAN network.

To overcome this hurdle and provide users with a "zero-day" response to any RF interference source, AirMagnet Spectrum XT introduces the industry's first automated spectrum analysis capability that monitors the RF environment looking for unique and repeating RF patterns from these "unknown RF interference sources". Once the pattern of interest is detected and classified, users have the option of creating a customized signature for the pattern for future alerting. With this capability, users not only gain independence from the vendor's periodic classification updates, but also have a faster response to troubleshooting performance problems in their network.
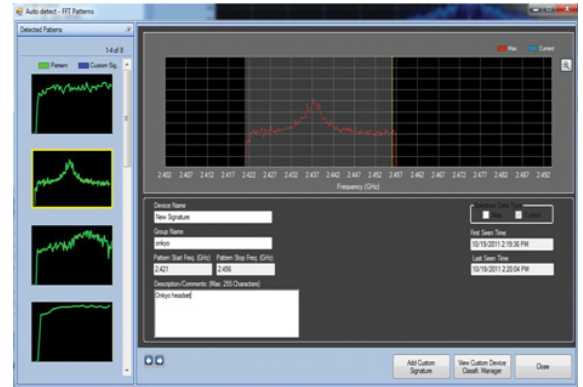
Integration with other AirMagnet Tools

AirMagnet WiFi Analyzer PRO

AirMagnet Spectrum XT users running AirMagnet WiFi Analyzer PRO on the same PC can view non-WLAN interference for every channel in the RF spectrum. Simple color indicators point to the level of impact of these RF interference sources on the performance of the WLAN network. This information helps users plan the channel settings for the current and planned WLAN infrastructure.
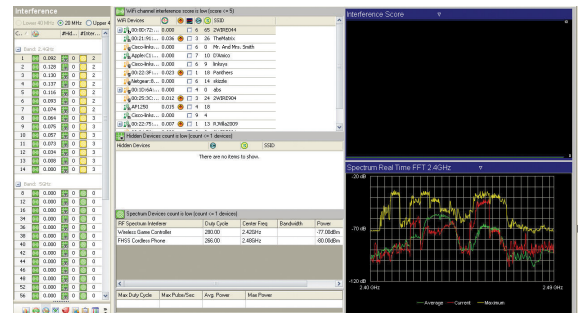
AirMagnet Survey PRO

It is recommended that before any WLAN deployment, installers perform an RF spectrum sweep to ensure that there are no interference sources operating in the environment. AirMagnet Survey PRO users running AirMagnet Spectrum XT on the same machine can perform RF spectrum surveys or sweeps at the same time, as a passive or active survey, reducing the walk-around time. Users also get the list of interference sources detected by AirMagnet Spectrum XT within AirMagnet Survey.
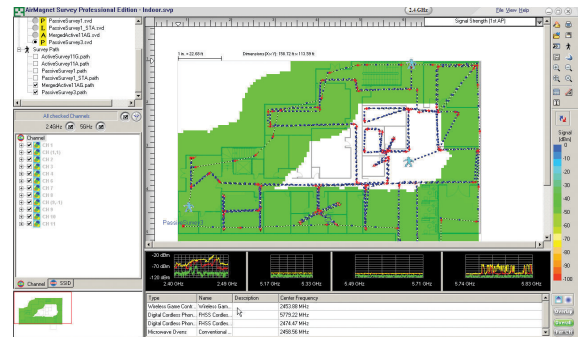
With this integration, users are entitled to unique heat maps within AirMagnet Survey, for example:

- Channel power heat map that provides a color-coded display of the power levels detected on each channel in the wireless spectrum.
- Interferer power/location heat map that displays non-WLAN interference sources or devices that are detected during the site survey.

Figure 4: Automated detection of any RF interference source

Figure 5: Integration with AirMagnet WiFi Analyzer

Figure 6: Integration with AirMagnet Survey

Record and Playback

AirMagnet Spectrum XT users can save their RF spectrum scans, retain them as hard evidence and play them back at a later time for post-capture investigation and analysis. This is very helpful as critical forensic information while investigating any Layer 1 Denial of Service attacks against the WLAN network. The saved trace files can also be shared between users for collaborative analysis and troubleshooting.

AirMagnet Spectrum XT's Instant Replay feature allows users to review the most recent spectrum information and play it back, as if it were being viewed live for the first time.

Integrated Reporting

AirMagnet Spectrum XT's integrated reporter makes it easy to turn RF spectrum analysis sessions into professional reports. AirMagnet Spectrum XT can generate reports on the RF spectrum graphs, Wi-Fi charts and the list of RF interference sources for the current environment. Reports can be exported in the Word, RTF, and PDF formats.
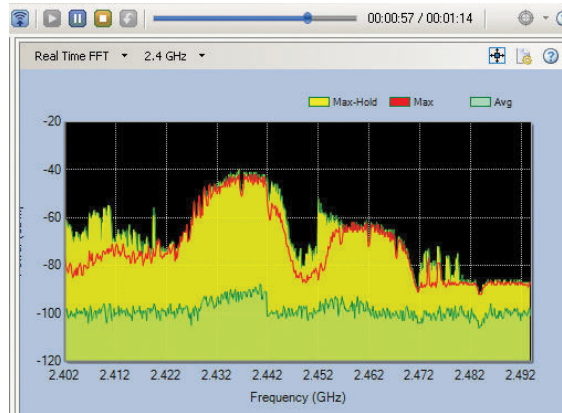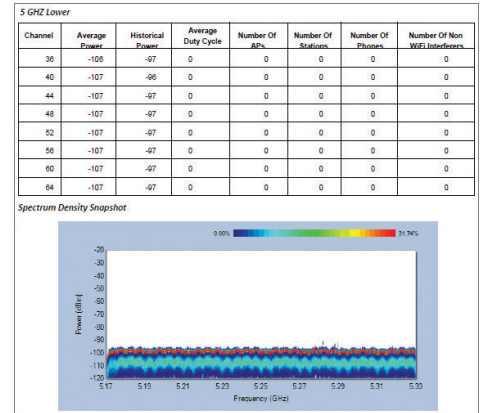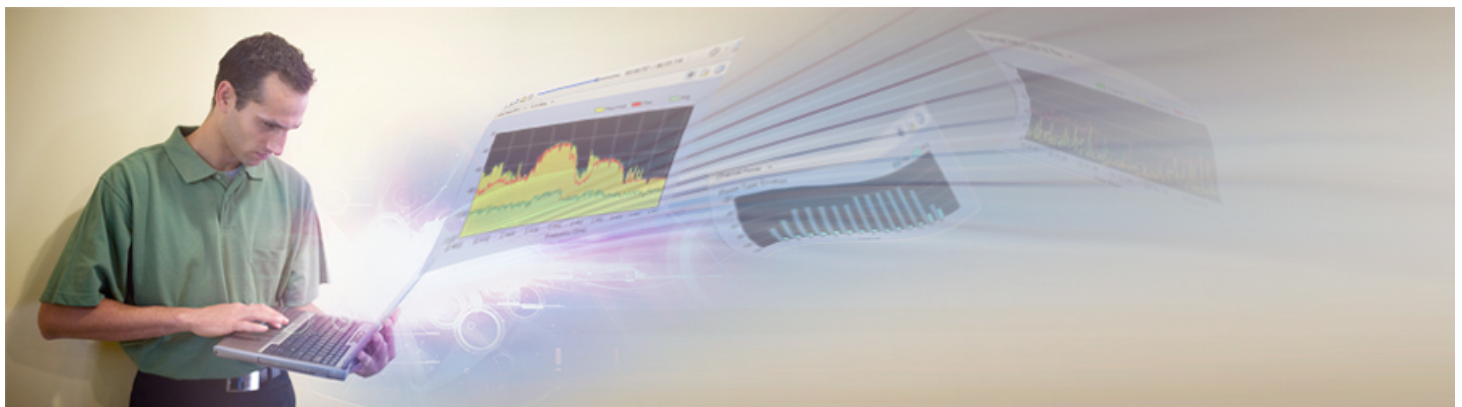

Figure 7: Record and playback features

Figure 8: Intergrated reporting

Product Facts

Part Number	Description
AM/B4070	AirMagnet Spectrum XT (USB Based)
AM/A4040	AirMagnet Directional Antenna

Technical Specifications

Specification	Description
Frequency range	2402 to 2494 MHz; 5160 to 5330 MHz; 5490 to 5710 MHz; 5735 to 5835 MHz; 4910 to 4990 MHz
USB Specs	Unit width 38.1mm; length 108.2mm; height 8 mm; weight 31.2 grams; operating temp: 0 to 70 C (32F to 158F)
DC power	Voltage supply 5 volts; Active Power: 2 Watts
Capture Limit	Dependent on Hard disk space
Amplitude accuracy	+/- 2 dB
Resolution Bandwidth	156.3 KHz
Max Input	0 dbm
Sweep time	64msec per 20 MHz or 64msec per channel

Sales: **www.flukenetworks.com/contact** Demo Download:**www.flukenetworks.com/SpectrumXT**

Minimum System Requirements

Description	Requirements
Adapters	AirMagnet Spectrum USB adapter (Required for viewing RF spectrum data and classifying non Wi-Fi sources of interference)
	Optional AirMagnet-supported Wi-Fi adapter* (Required for additional Wi-Fi analysis)
	Optional Windows-compatible Bluetooth adapter (Required for enhanced Bluetooth interferer information; Not supported on Fluke Networks Optiview INA)
Laptop/Tablet PC	Operating Systems: Microsoft® Windows 7 Enterprise/Professional/Ultimate 32-bit and 64-bit or Microsoft Windows 8 Pro/Enterprise 32-bit and 64-bit, or Microsoft Windows 8.1 Pro/Enterprise 64 bit or Microsoft® Windows 2003 Server 32-bit or Microsoft® Windows 2008 R2 Standard Edition 64-bit.
	Intel® Core™ 2 Duo 2.00 GHz (Intel® Core™ i5 or higher recommended).
	2 GB RAM required (4 GB recommended)
	250 MB free hard disk space
	Microsoft .NET framework 2.0
Apple® MacBook® Pro	Operating Systems: MAC OS X Version 10.4 or higher using Parallels Desktop®/VMware Fusion® or Boot Camp®/(running Microsoft® Windows 7 Enterprise/Professional/Ultimate 32-bit and 64-bit or Microsoft Windows 8 Pro/Enterprise 32-bit and 64-bit, or Microsoft Windows 8.1 Pro/Enterprise 64 bit)
	Intel®-based 2.2 GHz Core 2 Duo or higher
	2 GB RAM required (4 GB recommended)
	250 MB free hard disk space.
	Microsoft .NET framework 2.0
Fluke Networks OptiView® XG Network Analysis Tablet	Microsoft Windows® 7, Professional, SP1
	Intel® Pentium® 1.2 GHz
	4 GB memory
	128 GB removable solid state drive
	2 internal Atheros®-based 802.11a/b/g/n adapters
	1 internal RF spectrum adapter
	3 USB ports
	1024 x 768 touch display

*Visit AirMagnet Spectrum XT web page **www.flukenetworks.com/Spectrum_Adapters** for a complete list of supported adapters