



## AirMagnet VoFi Analyzer

AN AIRMAGNET MOBILITY SOLUTION



Voice-over-WLAN lets enterprises combine the cost-savings of Voice-over-IP with the flexibility and mobility of wireless LANs. However, voice applications have strict requirements and can be affected by even small problems in the network, the RF environment or the phones themselves. AirMagnet VoFi Analyzer automatically recognizes and diagnoses these unique issues that impact call quality and reliability, and provides a simple interface designed for the task of troubleshooting voice problems. The solution is unlike any other network analyzer and leverages patent-pending technology to calculate wireless call quality and detect voice problems even on fully encrypted networks and traffic - thus ensuring network staff can instantly diagnose any problem without compromising the security of the network. VoFi Analyzer PRO offers even deeper analysis by integrating diagnostic data from the phone, air, and wired sides of a given call. This provides a truly complete view into any voice problem and lets staff manage any voice deployment with complete confidence.

### VOICE-OVER-WLAN ANALYSIS AND TROUBLESHOOTING

Live Call Quality Analysis of Any 802.11a/b/g Voice Deployment

Automatic Detection of Voice Problems

Visual Correlation of Important Voice Metrics

Full Functionality Even on Encrypted Networks

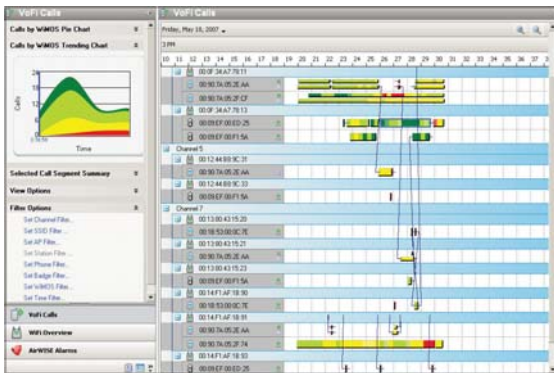
Integrated Air, Phone and Wire Analysis (PRO version only)

Detailed Voice Reporting



## Call Quality Made Easy

A poor or unreliable VoFi call can have any number of potential sources: it may be an issue in the phone, the RF environment, the WLAN itself, QoS settings, the IP-PBX and so on. This complexity can make voice problems particularly challenging and time-consuming to diagnose. AirMagnet VoFi Analyzer automatically analyzes each of these areas (even on encrypted traffic) and identifies the true source of any WiFi voice problem, enabling IT staff to keep voice deployments operating at peak levels while saving hours of troubleshooting time.



Call View provides a complete and concise top-down view of all calls and roaming events

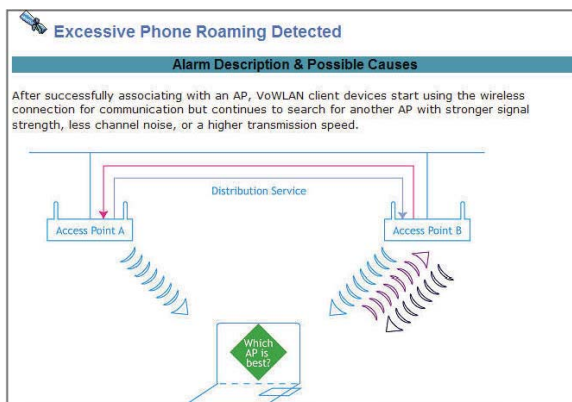
### Visibility Into Your Call Quality

AirMagnet VoFi Analyzer displays your network in terms of calls and call quality. AirMagnet's patent-pending technology scans all 802.11a/b/g devices, distinguishes between voice and data traffic, and automatically scores every call in terms of WiR-Value and WiMOS Score based on a variety of packet metrics, such as loss rate and jitter. The solution independently scores and tracks both sides of a call (AP to phone and phone to AP), allowing users to distinguish problems that are rooted on one side of the call. Each call is color-coded according to call quality, making it easy to visualize phones or calls with problems. This provides a full history of all calls on the network, and quickly reveals problems that are tied to a particular phone, channel or a given period in time.

### Demystify Call Roaming

Smooth coordinated call roaming is a key to providing users with the mobility and seamless connectivity required from a wireless voice deployment. If these roaming events are not properly coordinated or if phones roam too often, it can lead to dropped calls. The VoFi Analyzer provides full visibility into all roaming events, allowing users to see which calls have roamed, how often they roamed and the APs and channels that they roamed to. This can help network staff to identify problem phones that may be constantly roaming or "thrashing" between APs or alternatively identify problems affecting an entire channel that may be causing many phones to roam. Additionally, the VoFi Analyzer includes a unique "Follow Phone" mode that lets the analyzer to lock on to a particular phone and follow it through any number of AP and channel roams, ensuring the deepest level of phone and call analysis.

## AirWISE: Simple Answers to Complex Problems

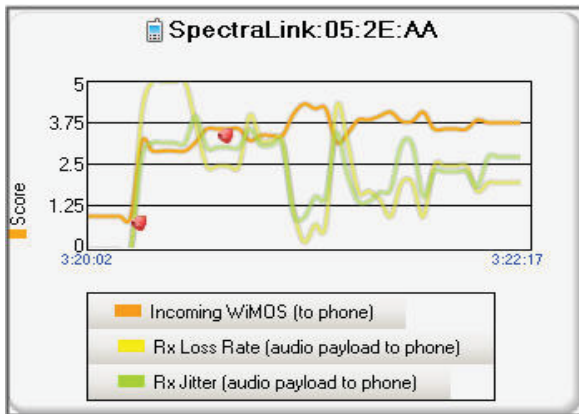


AirWISE automatically detects, explains and recommends solutions to voice problems

AirMagnet VoFi Analyzer vastly simplifies troubleshooting voice problems with a specially adapted version of the AirWISE analysis engine that automatically diagnoses over 60 types of wireless call problems. The AirWISE engine constantly captures and analyzes live voice traffic to provide staff with immediate answers to their voice-over-WLAN problems. AirWISE covers all types of voice issues including QoS problems, roaming issues, power-save problems, overloaded devices, phone problems, fragmentation, one-way audio and much more. When a problem is detected, an AirWISE alarm explains the issue in detail, and names the specific phone, AP or channel at the heart of the issue. This allows network staff to immediately understand the source of voice problems and saves hours of time that would normally be spent manually investigating the problem.

AirWISE is also fully customizable to ensure users can tune the analysis engine to their unique voice deployment. Alarms thresholds are configurable and can be tied to particular wireless VLANs or SSIDs, ensuring staff only get alarms for the events that they care about. Alarms are displayed in a fully customizable interface which can be sorted and filtered by a variety of factors such as source device, affected channel, type of problem, time, severity and more.

# Complete Call Analysis and Troubleshooting



Call Detail Charts show important trends and correlate call roaming events and alerts

## Correlate Call Metrics

AirMagnet VoFi Analyzer users can simply click on a call to gain access to a wealth of detailed diagnostic information. The solution provides easy-to-read charts that correlate changes in call quality with more than 50 critical call metrics. For example, a user could use these charts to see if poor call quality was related to changes in packet jitter, signal quality or a spike in the number of users competing for the same AP. These call charts also show when roaming events occurred as well as when alarms were triggered, making it easy to place key events in relation to changes in performance. Users can choose from a library of pre-built graphs or construct their own from dozens of metrics including CRC errors, fragmentation, active call count, data utilization and much more.

## View Calls in Context

AirMagnet VoFi Analyzer provides details on how each call fits in to the overall wireless environment. The application shows how many voice and data clients are competing for the same AP and channel resources. Additionally, the analyzer displays the relative amounts of voice and data traffic and also tracks key 802.11e statistics such as video, best effort and background traffic. Finally, the solution gives a complete connection history for all devices on the channel illustrating which devices have roamed the most.

# AirMagnet VoFi PRO - Air, Phone and Wire

AirMagnet VoFi PRO offers all the capabilities found in the standard version of the analyzer plus the ability to integrate call information from the wired side of a connection as well as from the Wi-Fi phones themselves. This support opens the door to an unprecedented level of analysis that combines data from the air, phone and wire.

Time	Message Type	Syslog Message
May 18 15:19:...	Call Start	- Jan 1 00:37:58.05 0090.7a
May 18 15:19:...	Call Start	- Jan 1 00:37:58.69 0090.7a
May 18 15:20:...	Radio Threshold Ex...	- Jan 1 00:38:03.06 0090.7a
May 18 15:20:...	Audio Threshold Ex...	- Jan 1 00:38:03.09 0090.7a
May 18 15:20:...	Radio Threshold Ex...	- Jan 1 00:38:03.71 0090.7a
May 18 15:20:...	Audio Threshold Ex...	- Jan 1 00:38:03.74 0090.7a
May 18 15:20:...	Radio Threshold Ex...	- Jan 1 00:38:08.07 0090.7a
May 18 15:20:...	Audio Threshold Ex...	- Jan 1 00:38:08.09 0090.7a
May 18 15:20:...	Radio Threshold Ex...	- Jan 1 00:38:08.72 0090.7a
May 18 15:20:...	Audio Threshold Ex...	- Jan 1 00:38:08.75 0090.7a
May 18 15:20:...	Radio Threshold Ex...	- Jan 1 00:38:13.06 0090.7a
May 18 15:20:...	Audio Threshold Ex...	- Jan 1 00:38:13.09 0090.7a
May 18 15:20:...	Radio Threshold Ex...	- Jan 1 00:38:13.70 0090.7a
May 18 15:20:...	Audio Threshold Ex...	- Jan 1 00:38:13.74 0090.7a

Select Cisco Call Manager Version:

Syslog  Cisco V5/6/7  Cisco V4

Cisco V5/6/7 Configuration

Call Manager Server:   
Example: 10.10.5.6 or CMServerName

FTP Host:   
Example: 10.10.5.70 or FTPHostName

FTP UserName:

FTP Password:

CDR Query Interval:  In minutes

VoFi PRO integrates with leading voice solutions for correlated air, phone and wire analysis

## Integration with Syslog-Capable Phones

One of the key capabilities found in the PRO version of the VoFi Analyzer is the ability to receive call diagnostic information directly from Cisco phones (Cisco 7921) and Spectralink phones (Netlink 8020, 8030, e340, h340, i640). This enables staff to gain additional insight into call performance from the unique perspective of the end-user. When this Syslog information is available, AirMagnet shows side-by-side comparisons of call quality readings taken from the air compared to those taken from the phone. Likewise, users can also chart a variety of statistics taken directly from the phones (jitter, loss rate, call quality etc) or even investigate Syslog data directly in the Decode View.

## Integration with Cisco Call Manager

VoFi PRO also offers the option to integrate with Cisco's Call Manager and Call Manager Express to retrieve additional call information and diagnostics. This integration allows the VoFi Analyzer to retrieve the phone number associated with a particular call, investigate the termination reason for the call and collect a variety of call diagnostics such as latency, jitter, and lost and retried packet rates.

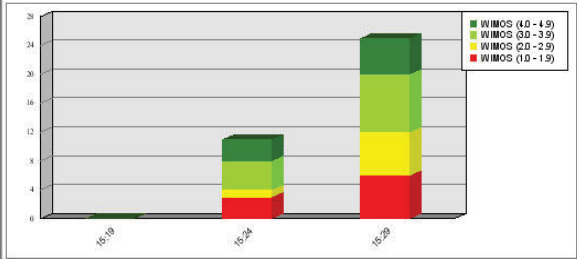
## Integration with Vocera Server

AirMagnet VoFi PRO also offers integration with Vocera server deployments allowing the analyzer to retrieve a variety of user information stored in the database making it easy to tie a particular Vocera badge to its user or user role.

# Integrated Voice Reports

## Calls Based on WiMOS Range

The chart below displays the WiMOS for all calls since AirMagnet VoFi was started. The chart is divided into 5-minute intervals, with each bar representing all calls that took place within that interval. Calls are divided into quality ranges by different colors, with the highest WiMOS (4.0-4.9) displayed in dark green, 3.0-3.9 in bright green, 2.0-2.9 in yellow, and anything lower than 2.0 in red. This chart can help users determine the number of phones experiencing poor call quality. If the graph is predominantly red or yellow, there may be a problem with the implementation of the VoFi network.



Customizable reports provide professional records of voice performance

With the touch of a button, network managers can turn their analysis and troubleshooting sessions into customized reports, covering all the critical areas of voice. Users can generate call quality reports in terms of WiMOS Scores, WiR-Value, detailed Roaming Reports, as well as device and alarm reports covering all the events captured during the session. These reports can then be exported as PDF, Word doc or Excel for easy sharing with management and staff.

## Product Facts

Part #	Description
A2200	AirMagnet VoFi Standard
A2210	AirMagnet VoFi PRO, includes integration with Cisco Call Manager, Syslog Phones and Vocera Server
A2215	AirMagnet VoFi Upgrade, Upgrades VoFi Standard license to VoFi PRO

### Minimum System Requirements

Laptop/Notebook or Tablet PC

Microsoft® Windows Vista™ Business/Ultimate (SP1), or XP™ Professional (SP3)

Intel® Pentium® M 1.6 GHz (Intel® Core™ 2 Duo 2.00 GHz or higher recommended)

1 GB memory (2 GB recommended)

2 GB free hard disk space

Cardbus or mini PCI slot (whichever applicable)

AirMagnet-supported wireless network adapter

**Patents:** U.S. Patent No. 7009957, 7236460, 7292562, 7289465, ZL030807586, 7385948 and 7130289. Additional patents pending.

## For More Information

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