



More Capacity, Less Maintenance



Wi-Fi Site Survey

WLAN Planning & Optimization

On-Demand Audit

Continuous Audit & Tuning

www.wituners.com

WiTuners software suite for
optimizing enterprise
wireless networks

Want a free trial ?

1-888-346-6964



What is WiTuners

WLAN deployment planning, performance audit, and tuning, especially in real time, is notoriously difficult, complex, time consuming, and expensive., largely due to the complex nature of Wi-Fi environment and technologies. In the past few years, sub-optimal WLANs have survived without too many end user complaints as network load was typically light. Unfortunately, such a grace period is gone for good. Today, with more and more Access Points deployed, more and more bandwidth consuming video applications running and more and more Wi-Fi enabled client devices, such as tablets and smart phones, in use, a sub-optimal WLAN, which bottlenecks productivity, is no longer tolerable. The same is true for network operators looking for ways to offload their cellular networks. Is there a solution?

WiTuners, fully backed by its Advanced Wi-Fi Tuning Technologies, provides a suite of software to address this ever increasing demand for robust and predictable WLAN performance. With its capabilities of actual optimal planning and ongoing automated real-world performance based tuning, WiTuners is clearly separated from existing connectivity-based WLAN solutions.

WiTuners —More Capacity, Less Maintenance

Backed by WiTuners' Advanced Wi-Fi Tuning Technologies

WiTuners assures optimum wireless network performance, at all times - from the planning stage to daily usage and maintenance. It consists of several software modules for optimal WLAN planning and real-time performance audit and optimization, which can be purchased separately or together. In addition, WiTuners Mobile on Android facilitates performance assessment in the field.

WiTuners Planer - Deployment Planning & Optimization

Wondering why your WLAN performs so poorly? Checkout WiTuners Planner and see how optimal deployment planning can help in the first place..

WLAN performance depends on the accurate modeling of signal paths and transmission protocol events. Only WiTuners' Advanced Wi-Fi Tuning Technologies accommodates the necessary precision to deliver truly optimal performance by taking into account what others ignore in WLAN planning .

WiTuners On-Demand Audit & Tuning as You Need it

How is your WLAN and how should you tune it? Launch WiTuners, connect it to your WLAN,, perform an on-demand audit and optimization, and enjoy the improvement.

Once connected to your WLAN controller, WiTuners will check out your WLAN performance at any time and propose new configurations to optimize the network's performance according to your requirements.

WiTuners Connected - Continuous Audit and Tuning 24X7

If Wi-Fi is mission critical to your business, WiTuners Connected, a proactive and preventive Wi-Fi performance audit and tuning software as a service is for you.

WiTuners Connected continuously monitors and analyzes the performance of your network in real time and issues alerts when certain thresholds are exceeded. It provides optimal WLAN configurations in real-time and , if desired and supported, applies them automatically. This, together with the Trend Analysis feature, keeps your WLAN in optimum shape at all times.

WiTuners Mobile - Mobile Client App for Site Survey

Perform site survey, rogue AP detection, and field diagnosis from your mobile devices with ease!

Whether you are checking out your own APs or searching for rogue APs, WiTuners Mobile on Android provides you with a simple and efficient site survey tool for performance assessment.

WiTuners' Major Benefits

- ▶ Cutting-edge, vendor neutral software only solutions for WLAN firms to plan actual optimal wireless networks.
- ▶ Recurring revenue for WLAN installation firms to serve their wireless network owners with WiTuners' solutions by keeping the WLANs running optimally.
- ▶ Improved productivity for the owners of wireless networks with their WLANs maintained optimally on an on-going basis.
- ▶ Reduced operating cost for WLAN owners with WiTuners' unique automated optimization approach.
- ▶ Higher customer satisfaction rates for WLAN owners with optimal WLAN performance.



How different is the WiTuners solution?

WiTuners delivers optimal WLAN performance in real world conditions, both in planning and on-going maintenance stages of wireless network deployment, which is made possible by WiTuners' Advanced Tuning Technologies.



Key features

▶ Optimal Wi-Fi performance

Not all Wi-Fi deployment plans are created equal, only the best serve.

- Superior to conventional connectivity-only based technologies
- Complete and precise by correctly addressing salient factors from RF to MAC
- Calibrated with the real world Wi-Fi environment through WLAN Site Survey and Spectrum Analysis capabilities.
- Highly adaptable to specific performance requirements, deployment scenarios, devices properties, and traffic profiles
- Quickly reach optimums using WiTuners Advanced Wi-Fi Tuning Technologies.

▶ Automatic Optimization; Continuous and in Real-time

Networks conditions change, so should your WLANs, effortlessly.

- Vastly superior to error-prone manual approaches for performance tuning.
- Leverages third-party WLAN Management Systems without additional hardware support.
- Gives peace-of-mind through continuous performance audits of WLANs.
- Adaptation to changing network conditions and user demands assures optimum performance at all times.

▶ In-depth insights into actual WLAN performance

Easy to use "what-if" analysis avoids the risk and cost of real world trials and errors

- Change properties of traffic flows environment, and WLAN components then immediately see the effects through various heat-maps.
- Warns of coverage holes, hidden nodes effects, etc.
- Virtual Site Survey shows performance of various client types anywhere in the network.

▶ Ease of use with an unprecedented feature rich set

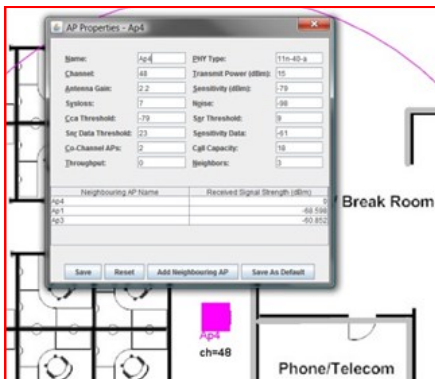
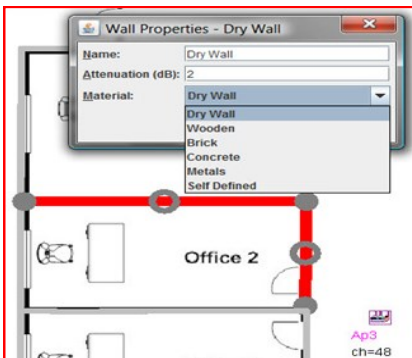
User experience matters, try WiTuners and see the difference

- Built-in wizards help automate tasks like WLAN upgrades and auto-deployment.
- Real 3-D multi-floor analysis reflects signal leaks from other floors.
- Import third party planning data to avoid duplication of work.
- Easy placing and specifying of walls greatly reduces the time it takes to plan a WLAN.
- Customizable reports for generated deployment plans.

Deployment planning of large scale Wi-Fi networks

Wi-Fi planning tools are not rare. They create deployment plans to install APs. Conventional network management software can identify bottlenecks and anomalous operation. However neither type of tool is capable of truly optimizing a WLAN to perform at its maximal efficiency at its given location. With smartphones and tablets, user mobility and dynamic media demands are growing, making optimization a moving target in time. This adds another dimension to the consequences of suboptimal operation.

WiTuners gives you the right tools to keep up with these changing requirements, traffic models, and the whims of Wi-Fi network users.



WiTuners' Advanced Wi-Fi Tuning Technologies help you to keep track of the types of traffic through each AP and tailor all of the configurations of those APs in such a way as to optimize the performance of the entire network or a particular network sector of choice.

To realistically take into account essential factors describing a Wi-Fi network in the real world, we fully specify:

- type of deployment environment (Office, Warehouse, Open Space etc.)
- multi-floor, 3D deployment area within which APs are placed
- walls and partitions with specified parameters
- AP specifications as well as 3D antenna patterns

When planning a wireless network, simple two dimensional thinking gets us in trouble. Electro-magnetic propagation is always three dimensional. In the real world, APs see not only their neighbors on the same floor but also those on the floor (or floors) above and below (or across an atrium).

For this reason, WiTuners uses a **True 3D Representation** of the environment, real world propagation behavior in the presence of walls, doorways, and floors, detailed AP specifications, and 3D antenna patterns. This comprehensive approach contributes to the fidelity of WiTuners' analytical techniques.

WiTuners uses a philosophy of progressive fidelity:

- ▶ Define the deployment area and you get a generic layout (coverage)
- ▶ Define the environment and propagation is considered (office, warehouse etc.)
- ▶ Define walls and the attenuation is well characterized (drywall, metal, concrete etc.)
- ▶ Define the AP equipment and the protocol fidelity improves
- ▶ Define antennas and coverage can be fine-tuned (3D patterns, gains, interference)
- ▶ Define specific customizable parameters and the Wi-Fi network representation is closer yet (delays, QoS etc.)

Start at the top of the list and you have a generic deployment plan. In fact, for some areas (like outdoors) it could work quite well as is. Progress down the list and the deployment plan (as well as the result) gets better and better. The choice is yours – simple or detailed – but WiTuners will always provide an optimal tuning approach based upon an audit of your Wi-Fi network's actual operations.

WiTuners utilizes **True Performance Based Optimization** in real time. The predicted optimizations are specific for the actual Wi-Fi network; verification ensures that network performance is not degraded as tuning is performed.

Performance checkup and what-if analysis

A desirable capability missing in most of Wi-Fi planning software is performance checkup, which shows the throughput or number of voice calls the network will support. A plan showing full connectivity in the entire deployment area on paper does not always lead to a satisfactory end-user experience in the real word. Users could get a five-bar signal but are still experiencing slow traffic or creepy voice connections over Wi-Fi.

Thanks to its Advanced Wi-Fi Tuning Technologies, WiTuners provides a whole suite of measures for performance checkup, for both new installs and existing ones, including:

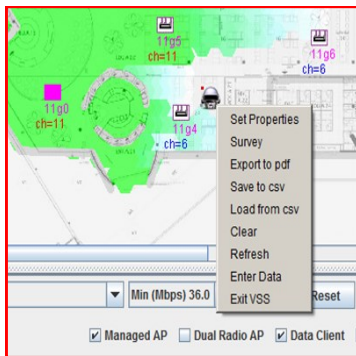
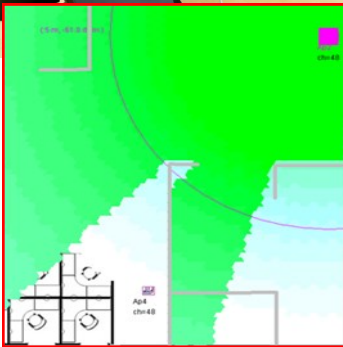
- ▶ one-click performance check-up to show predicted performance
- ▶ Virtual Site Survey for detailed performance statistics and hidden node detection at any location for various user-defined client types
- ▶ coverage hole detection showing *uncovered* as well as *under-covered* areas where the required performance, e.g. throughput, is not met.
- ▶ heat-maps with various metrics to view performance from multiple perspectives, such as link rates, quality of service and throughput.

With WiTuners' unique and comprehensive capability of performance checkup, users can not only ensure that a deployment plan meets the design requirements, but also identify and avoid many costly issues before they occur, therefore reducing operating cost while serving their end-users better.

Another distinguishing feature is WiTuners' powerful "what-if" analysis capability. Changes to Wi-Fi networks are common. Introducing a new user policy, Bring-Your-Own-Device (BYOD), for example, can dramatically change the Wi-Fi traffic pattern. Assessing the impacts and tuning a Wi-Fi network accordingly is extremely difficult. WiTuners makes such tasks easy and straightforward with its "what-if" analysis capability. One can simply customize the Wi-Fi environment, propagation, walls, AP properties, client types, move them around, add or delete them at will, then with a single click, see their impacts or perform an optimization.

With the "what-if" capability, it is also easy to identify and verify the root-causes of many Wi-Fi issues. A case study on our web site depicts such uses, showing how WiTuners helped a large airport pinpoint the root cause of a bothersome performance issue in their lounges. It shows how WiTuners advances

from the conventional costly, sometimes even damaging, trial-and-error manual tuning process to a rational, test-before-use process.

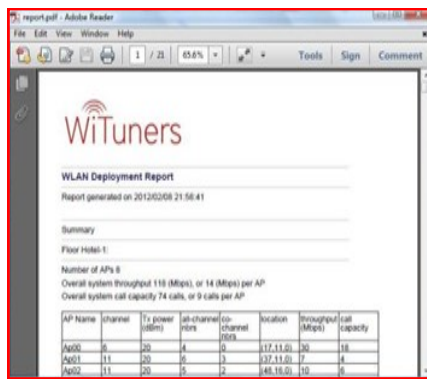
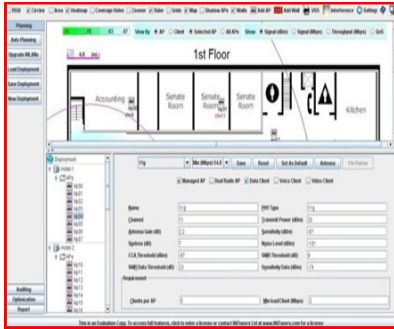


Client at [59.6,59.9,0] is within range of 5 AP(s), and the connected APs are in green. The strongest is 11g4

AP Name	RSSI at client	RSSI at AP	Channel	Rate (from AP)	Rate (to AP)	Throughput(Mbps)	QoS	Hidden Nodes
11g0	-78.1	-95.1	1	36 Mbps	unconnected	4	0%	
11g01	-78.4	-95.4	11	36 Mbps	unconnected	4	0%	
11g4	-52.3	-69.3	6	54 Mbps	54 Mbps	4	83.3%	
11g5	-64.5	-81.5	1	54 Mbps	18 Mbps	4	0%	
11g6	-69.1	-86.1	11	54 Mbps	6 Mbps	4	0%	

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Ongoing performance auditing, trend analysis, and optimization

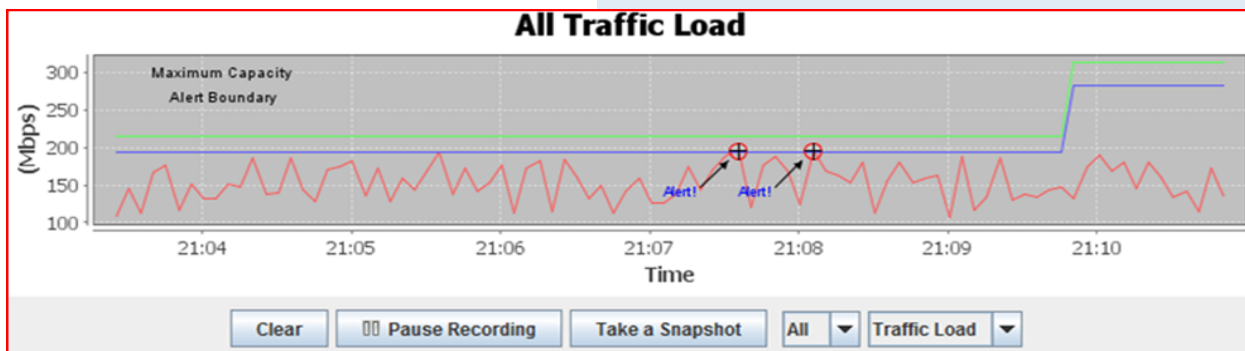


WiTuners' WLAN performance audit accurately observes environmental and performance stats retrieved from the WLAN management system. WiTuners thereby "sees" how the network behaves as other WLAN monitoring tools do. However, it is unique in that it "thinks" too. It predicts and generates an upper bound metric for the network's performance. A threshold level can be set slightly below this upper bound to trigger an alert that things may start to go bad in the real world.

When your Wi-Fi network administrator receives an alert, something must be done: selecting a set of optimal AP settings from a very large combination of changing variables. This has to be done quickly... fast enough to keep pace with the dynamic nature of a wireless network. With WiTuners, you can either click on the "Optimize" button in response to an alert box or, better yet, let WiTuners apply optimizations in nearly real-time.

WiTuners not only observes or "sees" Wi-Fi network performance, it also "thinks" or predicts how changes in equipment settings will affect performance. Thanks to its Advanced Wi-Fi Tuning Technologies, WiTuners' performance auditing and tuning takes on this difficult task and eliminate the risk of human error. The Wi-Fi network administrator is therefore freed from worrying

about the formidable task of manually tuning a Wi-Fi network and about the potential damage from making the wrong choices.



Some serious

network problems may be intermittent or otherwise difficult to catch. WiTuners' Trend Analysis feature allows the network administrator to selectively record system variables while the system is operating. When an audit alert occurs, the recorded data can facilitate analysis and help solve hard to catch network performance problems.

With WiTuners, organizations owning Wi-Fi networks will find that Wi-Fi network disruption is greatly reduced and customer satisfaction increased. End users will experience better connectivity, have a better wireless experience with faster connects, resulting in improved worker productivity. IT OPEX is reduced and unnecessary network equipment purchases avoided.



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Feature Summary

Innovative true performance based solution	▶ Pure software solution backed with WiTuners Advanced Wi-Fi Tuning Technologies, requiring no additional hardware that incurs not only cost but also potential performance degradation.
	▶ Whole stack optimization from RF to MAC on connectivity, throughput, quality of service
	▶ Customizable by main network load type (Data, Voice, Video, Interference)
	▶ Full mirroring of WLAN connectivity, environment and hardware factors
	▶ Per floor and per AP optimization
	▶ Real 3-D planning accounts for shadow APs on other floors
	▶ Customizable optimization goals
Automated and standard based approach for adaptive real-time Wi-Fi network control	▶ Email/text notification on performance alerts for hands-off auditing
	▶ One-click optimization on auditing alert
	▶ On-demand one-click performance checkup
	▶ Wizard for automated deployment planning and AP placement
	▶ Wizard for optimal auto-upgrade of existing Wi-Fi networks
	▶ Performance history stats recording and playback
	▶ Connects to real world WLANs via standard SNMP for performance auditing
	▶ Support of standard RF/PHY/MAC for 802.11b/a/g/n
	▶ Support of MIMO and Beam-forming ***
Powerful capabilities for examining Wi-Fi details and performing what-if analysis	▶ Vendor neutral
	▶ Virtual site survey for on-demand client specific performance check at any location
	▶ Virtual site survey recording and playback
	▶ Heat maps per AP and per floor for signal strength, RSSIs, data rate, throughput, and QoS
	▶ Heat map views in client view for user defined client types
	▶ Hidden node detection
	▶ Coverage hole detection
	▶ Trend Analysis based on captured audit records

Feature Summary

Full characterization of Wi-Fi networks and devices	▶ Full characterization of walls, floors, and propagation environment
	▶ Full characterization of APs and clients
	▶ Interference source placement and configuration***
	▶ Dual radio AP support
	▶ Dual Band Propagation analysis with 40 MHz support
	▶ Standard and customizable omni & directional antennas in 3D
Ease of use with a feature rich set	▶ Accessible from anywhere over Internet
	▶ Platform/OS independent, Java based application
	▶ GUI Configuration Wizards as well as batch input and output***
	▶ Drag and drop AP placement
	▶ Drag and drop wall placement and easy extensions
	▶ Group mode for AP placement and configuration
	▶ Group mode for wall placement and configuration
	▶ One-click wall build-up at borders of deployment areas
	▶ Convenient customizable deployment areas of irregular shapes
	▶ Detachable window for ease in multiple floor planning
	▶ Tooltips provide handy hints
	▶ Customizable reports for deployment plan in pdf or csv
	▶ Import and optimize third party plans
	▶ Free trial copy



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