EDUCATIONAL BRIEF

# Using Wi-Fi Signal Mapping Technology as a Sales Tool

Installers of wireless networks can influence customer satisfaction by demonstrating a high level of expertise and knowledge specific to the customer's network. In this article, we will discuss a simple and cost-effective method for increasing your credibility as a wireless network integrator, while also adding real value to the solutions you offer and install.

*Image 1: Example of Wi-Fi Coverage Heat Map*

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As any network installer knows, Wi-Fi is not an exact science and requires a certain amount of know-how to deliver reliable and seamless coverage. Wi-Fi users can be demanding, and oftentimes skeptical about the value being delivered. This being the case, what if you could show a customer a map of their entire building, complete with a graphical representation of actual wireless coverage? Now, take that concept one step further and show them a comparison between old and new network coverage; or perhaps as a comparison between alternative technologies. How would the use of such a tool improve your ability to demonstrate and charge for expertise, while also giving you confidence in making recommendations that you can stand behind?

The good news is that such Wi-Fi Signal Mapping tools are readily available and simple to use...and the best news of all? Using this technology to deliver greater value to your Wi-Fi installations won't cost you a thing!

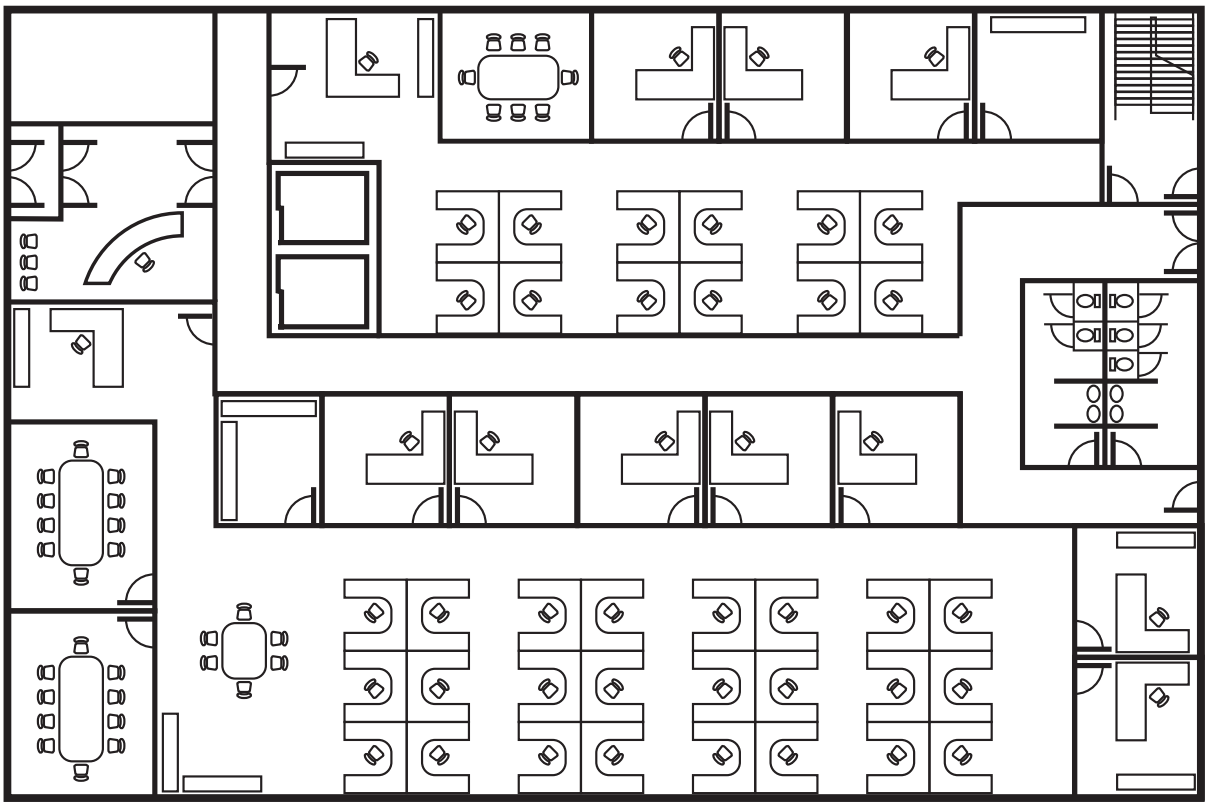

*Image 2: Floor plan of building to be surveyed*

## WHY USE WI-FI SIGNAL MAPPING TOOLS?

There are a number of ways network installers can use Wi-Fi Mapping tools to demonstrate value to their customers while also increasing reliability and confidence in their installations. As a manufacturer of fantastic WI-Fi equipment, Luxul always recommends that installers use Wi-Fi Signal Mapping tools to:

1. Perform before and after comparisons
2. Compare different Wi-Fi technology options
3. Identify potential problem areas; and
4. Optimize network coverage



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## WHAT WI-FI SIGNAL MAPPING TECHNOLOGY SHOULD I USE?

There are multiple excellent products available on the market to perform Wi-Fi Signal Mapping—each of which has certain advantages and disadvantages. Because of its cost effective nature (i.e. FREE) and relative ease of use, Luxul typically recommends the use of Ekahau HeatMapper. HeatMapper allows for the creation of a color-coded heat map showing wireless coverage within a particular environment. It can be downloaded freely at the for PC use at: http://www.ekahau.com/products/heatmapper/overview.html. For MAC users, Luxul recommends Netspot http://www.netspotapp.com.

We will not discuss the particulars of using Ekahau HeatMapper in this article. However, for detailed setup and usage information, visit luxul.com to watch the Ekahau Heatmapper "How To" video or download the "How To" document.

## WHAT EQUIPMENT IS NEEDED?

Using Wi-Fi Mapping tools effectively is easier than one might think and requires no special equipment. Testing will require the following:

- **One Computer** – Windows-based laptop with a wireless network adapter.
- **One or More Wireless Routers or Access Points** – Note that the Ekahau HeatMapper can simultaneously map multiple wireless networks.
- **Ekahau HeatMapper** – Installed on the Windows laptop.
- **Image of the Floor Plan or Environment to be Mapped** – This is not absolutely necessary, but can be helpful to get an accurate survey of the desired coverage area.

*The good news is that Wi-Fi Signal Mapping tools are readily available and simple to use*

## WHEN MAPPING SIGNAL COVERAGE, WHAT AM I LOOKING FOR?

Wireless technologies are not created equal. The choice of router or access points (AP), antenna technologies, and other components will all have an impact on Wi-Fi network performance. When evaluating the use of different products as part of an overall Wi-Fi network deployment strategy, signal mapping is an important part of the optimization process. When evaluating the wireless network signal reach and comparing the efficacy of different technologies within the network environment, it is suggested to test the following:

- **Wireless Coverage** – If a wireless network already exists or different technologies are being evaluated, test to determine wireless equipment capabilities and identify where there are holes in coverage. This will help to determine optimal device placement for maximizing coverage area, as well as to make decisions about what equipment to use.
- **Distance** – At short range, standard APs with dipole antennas will likely provide sufficient coverage. However, at longer ranges and wherever there are possible obstructions, other types of antennas (i.e. high gain directional and Circular Polarized) as well as higher powered AP technologies should be considered.

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With Ekahau HeatMapper, multiple technologies can be compared simultaneously to help determine an optimal solution for both coverage and distance. Once setup, HeatMapper will identify the approximate location of each active radio on the map as demonstrated in Image 3. When a highlighted radio is selected, the heat map for that radio is then displayed in colors that indicate the following:

- **Blue** (best signal available)
- **Green** (excellent signal)
- **Yellow** (very good signal)
- **Orange** (good signal)
- **Red** (poor signal)
- **No Coloration** (no signal)

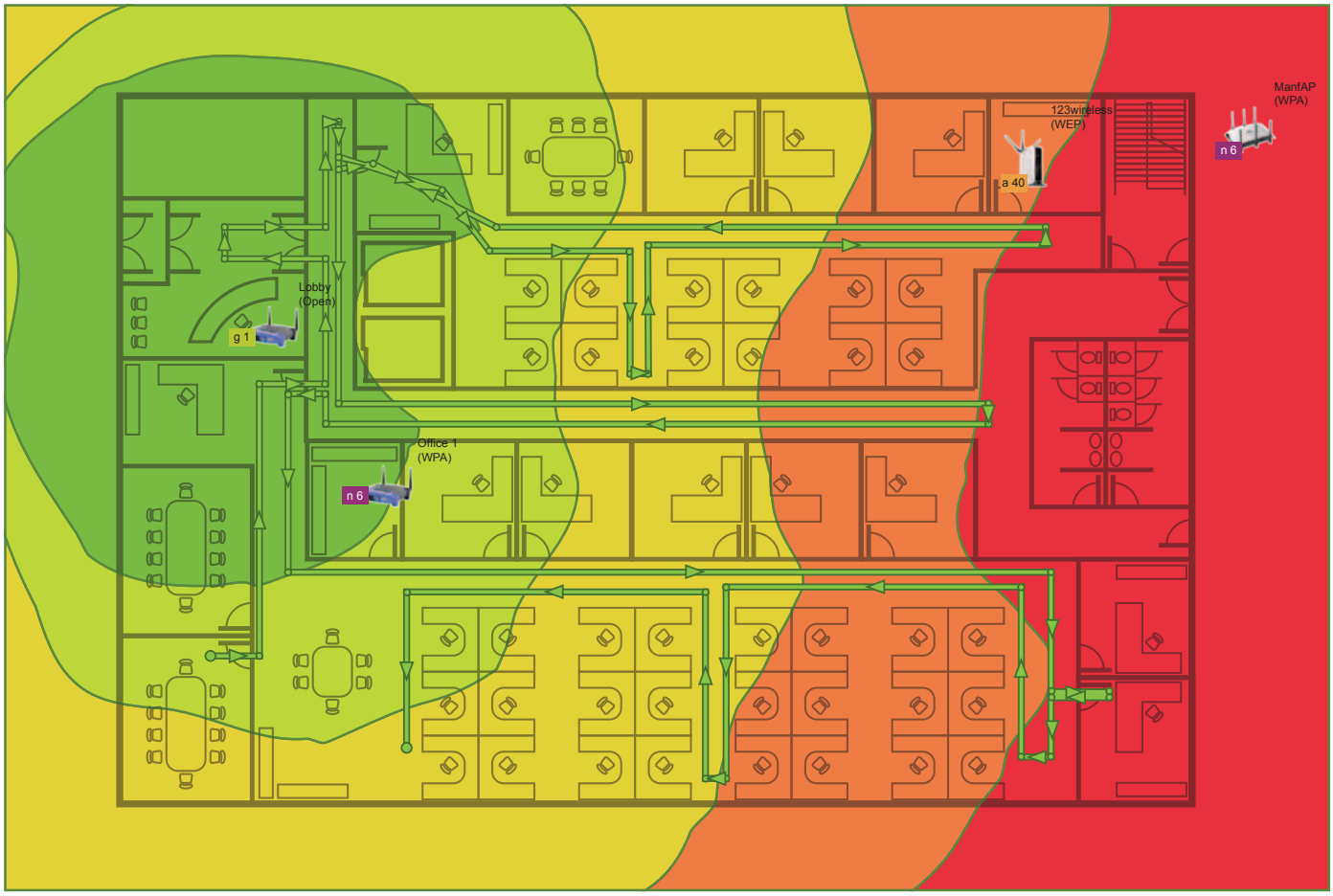


*Image 3: Floor plan of building after survey is completed with Ekahau HeatMapper*



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As demonstrated by the heat map in Image 3, the selected radio shows a good signal profile throughout a large portion of the building. Other active radios within the environment can also be seen, which can introduce signal and interference challenges that can now be more easily addressed by understanding the entire environment.

Mapping the coverage area of a wireless signal can be a fantastic sales tool that demonstrates installer knowledge, while also ensuring optimal Wi-Fi network functionality. In addition, mapping out the wireless signal can save significant time and effort by identifying potential issues before the installation is complete.

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**NOTE:** It's also important to note that while signal strength is an important factor in a network deployment, data throughput is also an essential measurement of network efficiency and should not be overlooked. A properly functioning network must demonstrate both consistent signal stability and sufficient data throughput. Luxul recommends at a minimum the use of Internet Speed Tests to test basic bandwidth and the use of iPerf for more advanced measurement. To learn more about how to use iPerf, visit www.luxul.com.

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