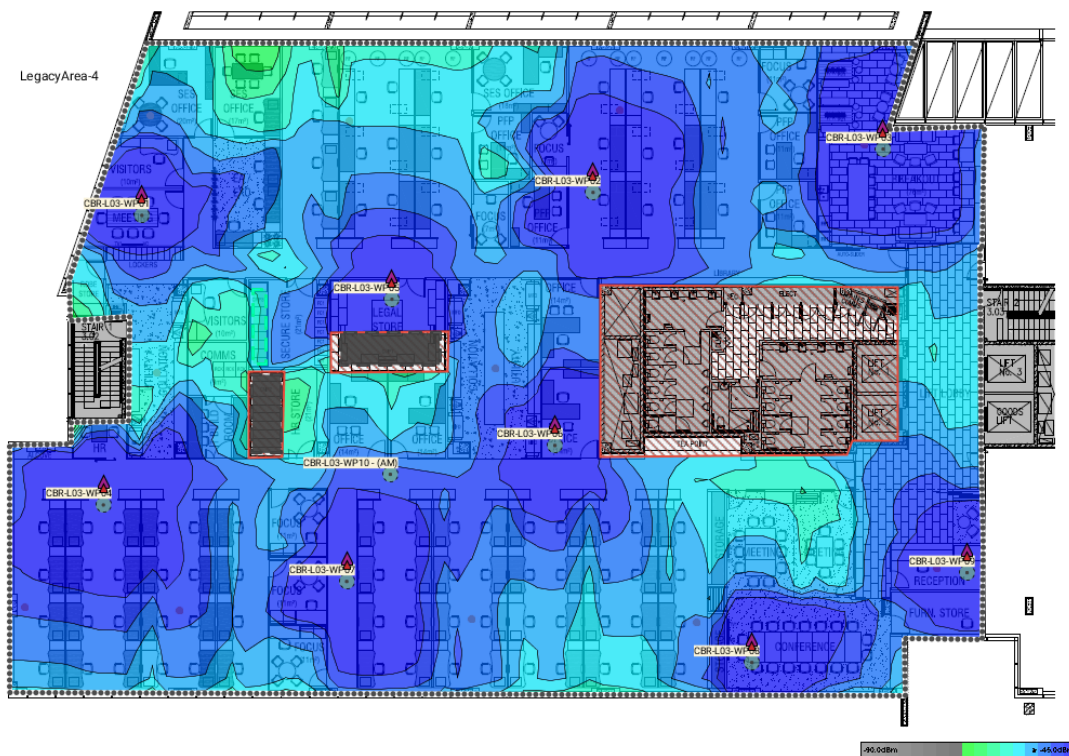


Wireless Design

Airxperts Services



Product Brochure

What Is It?

A **Wireless Design** is one of the most important steps in successfully delivering an enterprise-grade Wi-Fi service to employees, guests or customers.

Note: A wireless design is sometimes referred to as a Coverage Plan, RF Plan or simply a Site Survey

The Wireless Design is produced by a skilled engineer. The design will normally include the following:

- Number & Location of Access Points
- Access Point Hardware and Mounting Details
- Configuration of Access Point radios, including power and channel settings
- Configuration of Wi-Fi features, such as those affecting authentication, roaming & performance
- Remediation of any sources of Wi-Fi interference
- Remediation of any other potential factors impacting the service

What are some of the challenges affecting Wi-Fi?

Wi-Fi has evolved into a very capable technology. But, delivering a robust, secure and high-performance wireless network remains a specialist task at times. All wireless networks suffer from one or more of the following problems to some extent:

- Insufficient signal
- Excess signal
- Congestion
- Interference from other Wi-Fi sources
- Interference from non-Wi-Fi sources
- Sub-optimal configuration of infrastructure



The Technical Details

Wi-Fi uses *radio waves* for transmission. Those signals are transmitted over a shared medium – free space. That means your wireless environment is contested between your users, your access points, your neighbours and any other technologies using the same radio frequencies.

By its very nature Wi-Fi is a half-duplex technology. At any one time a user can be either transmitting or receiving – but not both. Moreover, there can only be one transmitter at a time on the same channel, whether it's one of your users, or one of your neighbours'. All transmitters are always competing over the same resource - **Air-Time** - the right to transmit in that specific timeslot. Everyone is listening and waiting for their chance to transmit.

That's where we come in...



How We Help

The larger your network, and the more demanding your requirements, the more likely you need a high-quality Wireless Design.

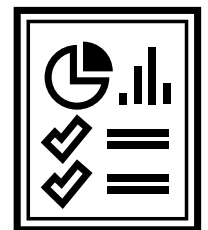
A **Wireless Design** is your solution to the problems to the above. Our design will detail how to:

- Maximise Air-Time to your users, where and when they need it
- Minimise the typical problems affect most wireless networks
- Maximise your return-on-investment with optimal performance

What Is Included?

The deliverables of your coverage plan are:

- Comprehensive Wireless Design Report:
 - Inventory of hardware, software and licences
 - Floor plans with AP locations marked
 - Heat-maps showing expected coverage
 - Recommended settings and configuration
- Installation Instructions:
 - High-Resolution Floor Plans for printing
 - Mounting notes



Special Requirements

We are experienced with planning for the following situations and requirements:

- High-Density
- Auditoriums & Theatres
- Outdoor crowds
- Point-to-point links
- Teaching spaces
- Voice over Wi-Fi
- Location Analytics
- Blue-dot services
- RFID tags
- Classified Networks
- Standards Compliance



Our Process

Our design process is a 4-phase approach.

This approach has been applied and refined over the course of many small to very large Wi-Fi projects, and the has successfully delivered plans for more than ten thousand access points so far:

1. **Discover**
2. **Design**
3. **Deploy**
4. **Verify**

Phase 1: Discover

This phase ideally takes place on-site.

- Requirements Workshop
- Determine business requirements
- Discover any practical and technical constraints
- Translate to technical requirements
- Site Discovery
- Visit the site to learn and evaluate the physical environment
- Site Survey
- Measure any existing RF signals
- Measure the existing RF environment
- Discover any potential sources of interference



Phase 2: Design

This phase takes place remotely

- Predictive Design
- Takes place in software using all information gathered in the Discover phase
- Produce the Wireless Design Report



Note: We use the industry-leading Ekahau Wi-Fi Planning Software

Phase 4: Verify

In this phase, we validate both the design and the implementation of the wireless service.

We verify that the actual implementation conforms to the design, and that the expected performance meets business requirements. We may recommend or undertake fine-tuning at this stage, as a result of this implementation.

Finally, we update your documentation to reflect the delivered solution. This is a guarantee of the delivered quality of service, but also a useful technical reference for the on-going management, and any future modifications required of the service.



When?

All Spaces

The best time for a wireless coverage plan is **early** in the delivery process.

The outcome of a coverage plan will normally include a bill of material for the access points and associated materials. In a project plan, the wireless coverage plan can be one of the first design items.



New Spaces

The best-time for a Site Discovery is still early, but *after* the fit-out is complete. This is because all the furniture, materials and internal walls in a space can affect the resulting wireless design.

However, sometimes this can clash with the requirement for a Site Discovery. Where new buildings and fit-outs have not been completed but parts need to be ordered. In this situation, a remote site discovery based on floor plans can take place. This will make the need for a post-implementation survey even more crucial.

About Airxperts

Airxperts is an Australian company specialising in Information Technology Consulting in the networking and mobility spaces.

We have been operating successfully for over 4 years and served many large corporate and government customers. In that time, we have developed a reputation for our technical expertise & high-quality work.

We are lean and focused, but well-equipped to tackle large projects, with proven results in the University and Defence spaces, for example.

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