...Engineering ICT Solutions.

Uniquely Speaking

A technology e-newsletter from Unique Micro Design (Issue 11)

#1 Value Added Distributor of Edgeware Products and Solutions

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Introduction to Wireless Site Surveys

Introduction

The purpose of a Wireless Site Survey is to ensure that mobile devices and RF infrastructure provide reliable wireless data communication throughout the required operating area of the customer's site.

For the last 15 years or so, Wireless technology has been evolving, from a Vendor specific propriety base station systems to the standard WiFi (also known as IEEE802.11) based systems of today. Early on, the propriety base station systems were generally very expensive, requiring base stations and server gateways to operate. They were also more susceptible to noise, interference and device restrictions.

Born out of the need to provide cost effective wireless solutions at a time when wireless equipment was expensive and problematic, wireless site surveys were conducted.

Although technology has moved forward since those days, the requirement for a site survey where wireless is to be deployed in a commercial environment, is still as strong as ever. There are a number of reasons why a site survey is conducted. These include:

- **Budgetary** – Helps sales and financial people estimate total costs of deploying a new system for small initial outlay
- **Pre-Sales Tool** – Generally, in competitive sales opportunities, the bottom line determines who wins and loses a sale. Companies who engage professional survey personnel are able to qualify tender responses by providing documented results and eliminate "over selling" a solution which may price them out of a sale.
- **Coverage Guarantee** – Provides customers with an assurance that their facility has sufficient coverage to their specifications. Eliminates the "guessing game" approach which can lead to dead spots and overall poor system performance. Customers can be quick to blame their hardware suppliers and lose confidence in a Vendor, when often the problems are associated with poor coverage due to no survey testing.
- **Hardware Options** – Often customers are sold on the concept of a wireless solution, but have no understanding of equipment requirements to make it all work. The site survey provides customers with the necessary wireless hardware and antenna recommendations to make the system work.

Conducting a Site Survey

The initial steps in conducting a site survey are to collect information from the customer and make recommendations so a final goal can be defined for the survey outcomes. A number of factors need to be considered before commencing the survey. These include:

- Facility Type
- Building Construction
- Required Coverage Area
- Throughput Requirements
- System Redundancy
- Proposed Hardware (If Defined)
- Mobile Devices to be used
- System Usage
- Existing Network Infrastructure

- Aesthetics
- Potential Interference Sources.

Each site is unique. Walls, racking, large metal objects, environment and other site features obstruct and reflect radio signals in a highly complex manner which can lead to “dead” areas if the configuration of the wireless system installation is not optimised to suit the topology of individual sites.

To conduct the site survey of the radio coverage, the basic components used are a radio frequency enabled mobile device and an access point. The access point is positioned at numerous locations throughout a site. Radio frequency coverage is recorded by “walking through the site” with the mobile device to determine the limits of reliable coverage using various antennas to determine the optimum operating locations. Where required, different antenna types are used to improve, limit, and direct radio coverage.

The wireless site survey also consists of visual observations to establish the required equipment configuration, and the optimum location of the radio frequency network access points and associated items. Based on this process it is possible to determine the best locations for the access point mounting locations and the type of antenna needed to provide reliable communications throughout the desired coverage area. The recommendations for these locations will be based on considerations of installation and maintenance requirements, user convenience, costs, as well as radio performance.

Outcomes

Once the site survey has been completed, a document is produced outlining the results of the site survey. The document would generally consist of the following:

- **Site Information** – Location and description of site
- **Site Survey Requirements** – Specific to the site being surveyed
- **General Observations** – Additional information regarding the site
- **Access Point Locations** – Provides detailed description of the location of the access points including photos and locations and mounting instructions of antenna. Also provides recommendations for additional protective equipment, which may be required to protect against physical or lightning damage.
- **Installation Requirements** – Provides important information relating to the correct installation of wireless hardware.
- **Network Design** – During the survey process, the location of access points in relation to existing network infrastructure is taken into consideration. This provides a means to determine what existing infrastructure can be utilised and what additional network hardware is required to support the wireless hardware. It also provides data and electrical contractors with a guide to then be able to price the installation of data and power cabling to support the wireless system. Other details such as recommendations for POE equipment is also considered
- **Hardware Schedule** – Provides the total quantities of equipment required including wireless hardware and other components required to implement the system.
- **Coverage Maps** – Access Point coverage maps are provided showing the cells of coverage for each Access Point within the specifications defined by the customer

Summary

Wireless site surveys are an important first step to selling and implementing a new wireless system for a relatively low cost investment. It takes into consideration all the factors relating to a site and customers requirements and provides outcomes, which allow sales, implementation, installation and support personnel to define a path to move forward with the next phase of rolling out a new system. The site survey is also adaptable, allowing processes to change based on a single site, multiple site or project rollout. This means surveys can be tailored to suit a particular scenario, and can be incorporated into the installation phase for large rollouts.

UMD Update

1) Glenn Sheppard

Unique Micro Design (UMD) is pleased to announce that **Glenn Sheppard** has joined UMD’s **Technical Services Group** (TSG) as **Systems Engineer**.

Glenn joins UMD with a wide range of experience in Mobility and Point Of Sale systems. Glenn’s service delivery skills will further enhance UMD’s Professional Service products. UMD is now strategically positioned to offer, and deliver, a diverse range of service solutions to our dealer and customer base.

Glenn's experience comes from working at Southern Rework and TechComm Group (LogicCMG), where, for the past twelve years, he worked within the POS and RF industries, working closely with Symbol Technologies (Motorola) Wireless Products and NCR POS products. Over the years, his tasks and roles have included:

- Conducting Wireless Site Surveys
- Wireless Network Design and Implementation
- Project Management
- Staging of RF and POS hardware
- Installation of RF, POS and Eftpos Systems
- Sales of POS and Scanning Systems
- Providing Customer Support
- Field Service Support
- Software Upgrades
- Hardware Service and Upgrades

These roles will enhance UMD's abilities to provide key service solutions to our Dealer and Customer base.

2) Product Updates

	**Intermec CN3 Mobile Computer** The Intermec CN3 is a rugged, reliable and ergonomic mobile data collection terminal appropriately small for practical use in the demanding field environment. The CN3 provides features and functionality that are normally only found in larger, heavier and more costly devices http://www.umd.com.au/itd/products/intermec_cn3.html
MOTOROLA *PartnerSelect* *Authorized Reseller*	**Motorola (formally Symbol Technologies)** UMD have been appointed an "Authorised Reseller" of Motorola Enterprise Business Solution products. This include mobility, scanning and wireless devices.
	**Intermec Rigid UHF RFID Tag** Intermec's Rigid tag are a passive UHF Gen 2 RFID transponder that delivers superior performance on a variety of surfaces including plastic, wood and metal. The tag combines an impressive range with a rugged yet compact package designed for harsh industrial applications and temperatures ranging from. No other tag on the market can claim the ruggedness and worldwide useability of these tags. http://www.umd.com.au/itd/products/intermec_largerigid.html http://www.umd.com.au/itd/products/intermec_smallrigid.html
	**Denso BHT300 Series, Hand Held Terminal** The Denso BHT-300 Series batch terminal is an advanced data capture unit provided by Denso. The BHT-300 is provided with the largest screen in its class; high durability, easy to use keypad, beeper/ vibrator/LED operator feedback and high performance CCD barcode reader, or optional 2D(Q) reader. In addition, the BHT-300 Series is compatible with BHT-BASIC Version 4.0 software. http://www.umd.com.au/itd/products/denso_bht300b.html

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http://www.umd.com.au/newsletter.html or simply send me a e-mail.

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http://www.umd.com.au/feedback.html

Regards
Geoffrey Ramadan B.E.(Elec)
Managing Director

Unique Micro Design Pty Ltd	Wellington Road Business Park	
…Engineering ICT solutions	200 Wellington Road	
	Clayton, VIC 3168, Australia	
	PO Box 4297, Mulgrave, VIC 3170, Australia	
Contact Details	+61-3-9582-7070	Sales@umd.com.au
	+61-3-9582-7060	Service@umd.com.au
	+61-3-9582-7050	Support@umd.com.au
	+61-3-9582-7010	Accounts@umd.com.au
	+61-3-9582-7000	Reception@umd.com.au
	+61-3-9582-7001	Fax
Administration	If you wish to change, add or delete any contact details	
	DealerAdmin@umd.com.au or	
	www.umd.com.au/newsletter.html	
UMD FITS Service (Find-IT-Service)	Free service to find IT solutions	
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