

Wireless Phone Systems for your Organisation

A Plantronics
White Paper

An Evaluation of the Plantronics
CS60 Micro Wireless Headset System

Overview

Decision makers in the enterprise are increasingly faced with more choices regarding their phone systems and associated equipment. IT professionals must make critical decisions about their company's equipment; yet have less time to evaluate the various options. The purpose of this white paper is to provide specific information regarding wireless headsets so that equipment that best fits the needs of the organisation is easily selected.

Wireless headset systems are a relatively new phenomenon that has been gaining in popularity in the workplace over the past five years. As an industry leader, Plantronics has helped lead this charge in creating hands-free solutions with enhanced mobility. Wireless headsets allow business professionals to roam around their offices, down the hall to pick up photocopies or to conference rooms to have private conversations.



The Plantronics CS60 wireless headset system is one of the most refined technologies in the wireless product arena. CS60 consists of two key components: a base unit and a wireless headset linked via a secure radio signal. The base unit connects to a standard office phone through the handset port, and has an optional handset lifter so you can pick up calls even when you are away from your desk. The CS60 headset is uniquely paired to its base, and the system provides maximum levels of call security.

Plantronics History

The CS60 wireless headset system is the end result of a long history of detailed R&D. As the premier manufacturer in the industry, Plantronics introduced its first headsets for the office market over 40 years ago. Since then, Plantronics have been used for a variety of business critical applications. In fact Neil Armstrong's historic words "One small step for man" were spoken through a Plantronics headset.



A Radio-Based System

The CS60 operates in the 1880-1900 MHz radio band. The product is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

The CS60 uses a low-power transmitter that averages 0.5mW, a fraction of the transmit signal level used by most mobile phones. This differentiation in transmit levels allows for electromagnetic compatibility with the majority of other devices. With the exception of EKG, EEG and a few other types of equipment, the CS60 can be used in the immediate vicinity of almost any device. There is no signal interference when used in the proximity of mobile phones, unless the devices are placed just a few centimetres apart.



An Organizational Asset

Based on customer survey data, CS60 users in an office environment experience a high level of satisfaction with the product. 85% of respondents surveyed reported using their wireless headset more than 75% of the time they spend on the phone. 55% reported using their CS60 almost exclusively.

The data showed the top reasons for using a CS60 being as follows:

- Hands-free roaming 90% of respondents
- Comfort 86% of respondents
- Free hands for typing 86% of respondents
- Ergonomic advantages 71% of respondents

The small and medium-sized businesses participating in the survey viewed the CS60 overall as an important productivity tool. The productivity advantages can of course translate into the enterprise as well.



CS60 in the Workplace

To provide an illustration of how the CS60 wireless headset system can be implemented in an office environment, more detail on the usage habits of two types of workers is outlined below.

Administrative Assistant

One example of a CS60 user is an administrative assistant in a satellite office of a major life insurance company. Her responsibilities include answering calls for two agents, setting up appointments, making photocopies and working on service agreements. She may spend four to five hours a day of actual talk time on the phone. Prior to using the CS60, she did not use a headset - she simply answered her corded office phone.

Since using the CS60, this administrative assistant has reported noticeable productivity gains. She claims that the biggest advantage is to be able to walk around and accomplish her work without missing calls. She is free to roam the entire office - from the copy machine to the reception - and is still able to answer calls directly on her CS60. In fact, she only removes the CS60 when going to lunch.

Help Desk Support

Another example of effective use of CS60 can be demonstrated at the help desk of a large corporation. Here, help desk staff may spend four to six hours a day answering calls from employees who require assistance with their computers or phone equipment. They also spend a significant amount of time visiting internal clients at their desks, either in cubicles or offices.

They often need to work around a cluttered desk and piles of equipment in a busy office so the CS60's wireless capabilities are particularly valuable. The range of up to 100m from the base unit is also appealing as inbound calls can easily be taken when working away from their desks.

Product Analysis

As a decision maker in the purchase of new equipment for an organisation, it is helpful to understand the specification of a new piece of hardware. This step-by-step explanation of the CS60's key features is intended to address potential support issues as well as illustrate the features of the product that will appeal to users.

CS60 Product Highlights



Key Headset Features:

Noise-Cancelling Microphone (CS60 only) and Dynamic Speaker

Blocks out excess background noise so that call recipients experience optimum sound quality.

Call Answer Button

Used to pick up and end calls remotely when the user is away from the base (requires optional HL10 Handset Lifter).

Online Indicator

Green light illuminates when the headset is in use.

Volume Adjustment

Changes listen volume for CS60 user.

Mute Switch

User can mute their speech from the headset. So they can confer with colleagues

Battery

Uses a single Lithium-polymer cell, which generally lasts for the life of the unit. Battery life is maximized by docking the headset on the base when not in use.

Key Base Unit Features:

Volume Adjustment (Listen)

Initial setup control for listen adjustment the on base

Volume Adjustment (Talk)

Initial setup control for transmit adjustment on the base

Power Indicator (Red)

Shows that unit is plugged in and connected when lit.

Online Indicator (Green)

Green light illuminates when headset is in use.

Charging Indicator (Amber)

Flashes while headset is charging. Once completely charged, this indicator LED will stay on without flashing.

Telephone Configuration Dial

A four-position switch used to set up the compatibility with all common business phones.

CS60 Technical Specifications

Frequency

Frequency - the number of times that the wave cycle occurs each second - is fundamental to all wireless technology. Frequency affects the range of the wireless device, talk time without recharging, energy efficiency and user density.

The vast majority of digital wireless products use transmit frequency bands at 1900 MHz, 2.4GHz or 5.8GHz. 1900MHz devices generally provide better range and obstacle penetration such as walls. 2.4GHz and 5.8GHz devices generally offer more channels resulting in higher density. 802.11b (WiFi), the standard for wireless Ethernet, and Bluetooth both operate at 2.4GHz, with widespread use worldwide; 802.11a operates at 5.8GHz.

The CS60 was specifically designed to use the 1900 DECT band in order to maximise voice and sound clarity. The 1880-1900 MHz DECT band is a protected band and may only be used by devices conforming to the DECT standard.

In any given environment, too many wireless devices using the same frequency can cause signal interference. With the proliferation of 2.4GHz devices in products such as laptops, mobile phone headsets and networking equipment, the addition of another 2.4GHz device can increase the risk of interference. Plantronics chose the 1900MHz frequency band for the CS60 with the knowledge that 2.4GHz has become a business standard. On the rare occasion it is used in an environment with other 1900MHz products, users of the CS60 can experience minor interference. This is manifested in audio interruption, buzzing or shortened roaming range. Identifying the interferer and positioning the CS60 base unit away from it can solve the problem. Interference will only occur with other 1900MHz devices.

User Density

User density is defined as the number of wireless devices that can be used in a given environment without interference. As mentioned in the frequency discussion above, many businesses are using a greater number of 2.4GHz devices including laptops and PDAs using the 802.11 standard. If there are too many devices using the same frequency, performance may be degraded, causing greater interference such as static, signal interruption and poor sound quality. The fact that CS60 operates in the protected DECT band proves to be an asset for higher density in the majority of business situations.

When purchasing multiple CS60s for use in a single organization, it is important to consider the capacity to handle all these devices in a particular location. The CS60 has been proven to be effective in high-density situations.

In the majority of circumstances, up to 70 CS60's can be operated on a single site. This limit may often be exceeded depending on the particular environment, building construction and telephone usage patterns – i.e. the number of simultaneous calls. In the event that more than 70 CS60's are required at one location, please contact a Plantronics representative for advice.

Secure and Private Conversations

Another potential by-product of high user density is eavesdropping of conversations. Plantronics is acutely aware of security issues and alleviates this problem from occurring with the CS60 in a number of ways. The CS60 headset is paired with its base. Each headset and base is assigned a unique identity, and pairing can only occur when the headset has the identity that the base is expecting. A base can be paired with only one headset at a time. Users may change the headset that is paired with a base, but the prior pairing will be lost.

Digital coding and encryption (64-bit DECT), and user authentication are used to prevent others from eavesdropping on conversations. If someone does try to listen in on a conversation, he/she will merely hear a buzzing sound. The DECT standard is internationally recognized and confirmed as a secure method of voice transmission.

The CS60 also uses fixed-rate adaptive frequency hopping when the base and the remote are in range but audio is not enabled. This is done to ensure that the base and remote are compensating for changes in the radio signal spectrum due to other users and the presence of interferers, thus improving the reliability of the link, and adding a layer of extra security. The frequency hop sequence is random based on the physical environment.

The CS60 also uses aperiodic adaptive frequency hopping when an audio link is enabled for the same reason. The system is aperiodic because in this mode, rather than changing channels at a fixed interval of time, the system hops channels whenever there is another user sharing the same channel and producing interference. In an environment with many users, this adds to the security because users change channels from time to time, rather than staying in a fixed channel. This adaptive approach offers improved security relative to other systems that use a single, common and fixed hop sequence for frequency hopping.

A Win for your Company

Choosing and implementing the CS60 does not benefit just the end user, it benefits the entire organisation. Whether or not employees are using headsets as part of their daily office routine, you cannot ignore the abundance of wireless tools in today's environment. Wireless networking is already very common, as is the use of mobile phones. The next step in wireless adoption is in telecommunications equipment and use of the CS60 allows a company to be on the cutting edge of this important technology development.

Low Maintenance

From an IT perspective, the CS60 has minimal maintenance requirements. Once the unit is properly installed, CS60 users require very little ongoing support. According to a recent user survey, 75% of respondents reported that they are completely or very satisfied with the product. 84% of respondents claimed that they are extremely or very likely to recommend the CS60 to others. These high user satisfaction levels ensure that IT resources can be devoted to more important areas that require attention.

Exceptional Customer Service

In the rare occasions that technical support is required for the CS60, companies can rest assured that Plantronics will promptly address any concerns. Every product is backed by our two-year warranty and our service team is committed to ensuring quick resolution of any ordering, warranty, technical or training question.

A Win for Users

The CS60 provides advantages for all users. Non-headset users will rave about its hands-free convenience and corded headset users will praise its mobility. In addition to contributing to increased productivity in the workplace, the CS60 offers ergonomic benefits; in fact neck, shoulder and upper back muscle tension can be reduced by up to 31% by using a headset.



Mobility

The ability to multi-task is enhanced by talk range of the headset from the base. A CS60 user can roam up to 100m away from the base. In typical situations, optimal talk range is generally around 30 – 50m. For the majority of the time, wireless roaming occurs only within a few metres of the base i.e. in the immediate workspace, so this range is generally more than adequate for the average user.

Extended Talk Time

Users can also experience the convenience of long periods of talk time without recharging the CS60 headset. Tests have shown the battery to give up to 9 hours of talk time on a full charge. When the unit is in standby mode, the battery will last up to 30 hours, and will fully recharge in three hours when docked in the base unit. The battery is designed to last for the life of the product and leaving the headset docked when not in use does not reduce battery life.

Summary

The CS60 offers wireless convenience and increased productivity in a small or large office setting. Ease-of-use and hands-free roaming are the most popular reasons that workers choose the product. IT personnel will appreciate the advantages of the security it provides as well as its ability to maximise user density. The CS60 has been carefully crafted to optimise the user experience as well as the implementation experience, with Plantronics leveraging its experience as the leading provider of headsets to create a wireless solution that further reinforces our reputation for quality.

For more information, please contact your Plantronics Sales representative, visit our website www.plantronics.com or phone us on Freephone 0800 410 014