Fact Sheet

Wireless Phone Technologies

This fact sheet has been developed for the Consumer Education Program by the Communications Commission of Kenya. It was compiled by studying material from various authoritative sources and adopting what is universally acceptable and relevant to the Kenyan situation. The fact sheet is intended to enable Consumers have a good understanding of the issues discussed and hence empower them when making decisions regarding ICT products and services.

Some of the terms employed in this fact sheet are technical in nature and should further explanation be needed it can be found in the *Glossary of Terms* which has been compiled with easy to understand explanations. If however one would like more information, one can get to us through the contact details provided at the end of this fact sheet.

Introduction

The two most common wireless phone technologies in use in Kenya are Global System for Mobile Communication (GSM) and Code Division Multiple Access (CDMA). 14% of the worldwide market uses CDMA while GSM is the most used cell phone technology in the world, with 73% of the worldwide market.

GSM phones

The Global System for Mobile Communications (GSM) is a second-generation wireless telecommunications standard for digital cellular services first deployed in Europe. GSM is based on TDMA technology and provides circuit-switched connections. It uses three frequency bands for phones, 900 MHz, 1800 MHz and 1900 MHz. A dual-band phone will work on two out of the three frequencies, while a tri-band phone will operate on all three frequency bands

GSM networks have wide international coverage, easy to switch devices because of SIM (*s*ubscriber *i*dentity *m*odule) cards, easy to port data such as contacts and phone numbers from device to device due to the SIM cards. Talktime is generally higher on GSM phones.

CDMA phones

Code Division Multiple Access is a digital wireless technology that employs a special coding scheme (where each transmitter is assigned a code) to allow many users to share a communication medium for data and telephone communication. CDMA uses a technology called spread spectrum where a signal is spread across multiple radio frequencies resulting in a signal with a wider bandwidth increasing its resistance to interference.

CDMA has wider coverage (allows for larger cell area than GSM). Calls can be placed in lower-signal strength situations, better reception/coverage in tunnels and rural areas.

3G – Technologies s

The third generation (3G) set of technologies available in the latest phones and networks allows the delivery of multimedia content to your handset. These phones and networks are capable of the high data rates, wide bandwidth and increased capacity needed to support the new range of digital services available for mobile devices, such as internet access, multimedia applications, and support for global roaming. Sporting highlights, latest films, video messages, and online gaming all are likely features your network provider will offer through your handset.

Satellite mobile phones

Satellite mobile phones are generally more expensive than land-based mobile phones, but they have a better geographic coverage. Satellite phones are appropriate for use in remote areas

Wireless Technology Features Suitable technologies and handsets for use may well be determined by what matters to the consumer. The consumer can ably make the decision on the choice by considering the following: services each provides and determine what is important to you. The following points may help in this regard:

a) Coverage. Both CDMA and GSM networks provide extensive metropolitan coverage.

b) Roaming. All the GSM networks in Kenya allow for roaming within East Africa and even greater, however not all phones purchased outside the country are capable of being used within the local GSM networks. No agreement between local CDMA networks companies and external CDMA companies are in place as yet to allow roaming.

c) Handset portability between networks. A customer on a GSM network is able to change between the two locally available GSM networks without having to change the handset (only the SIM is changed). At present there are no protocols to enable CDMA phones to move between networks.

d) Background noise suppression. CDMA digital technology suppresses unwanted background noise to ensure a clear signal is transmitted.

e) Compatibility with hearing aids. CDMA digital technology is more suitable for use with most hearing aids. However, customers should be aware that CDMA phones may also cause interference in some situations.

Wireless Phone Features

Convergence in technologies has now made it possible to use the mobile phone handset, not only for the traditional voice services, but also data services. It is not strange to have mobile phones with digital cameras, built in radio and/or MP3 players, phones with full colour screens for game playing and WAP information, and even

some phones can now take short video clips which can be sent via multimedia messaging.

Features in most handsets come in two types, the essential and the differential. The latter features are mostly for entertainment but knowing something about them will help you make the right choice.

In addition to the basic handset features, most mobile phones are designed to include:

a) Colour screen: Ccolour screens display web pages and pictures on the phone better and can be useful for games players as well.

b) Predictive text: character text features are mainly limited to 160 and the predictive text helps reduce the chances of thumb strain and enhances the speed of conversations.

c) Polyphonic Ringtones: These are ringing tones that consist of several notes played at one time through a speaker rather than a vibrator. Use of the speaker improvers the sound quality for melodious ringing tones. Part of the, Polyphonic ringtones augment the aesthetic feel of the mobile phone and can be downloaded straight to the phone and link the tones to specific callers/contacts on the phone.

d) Services: With the higher speeds of transmission and improved video quality, providers are increasing the quantities and types of services available to subscribers' Current news, weather updates, and sports news can all be accessed via the mobile phones.

e) Camera phones: A camera phone combines the features of a mobile phone and a digital camera. Camera phones not only function as the normal mobile phones, but are also capable of taking photographs that can then be transferred over-the-air to other phones. Some camera phones can record live video clips. Most 3G phones are equipped with a camera enabling them to be used for 2-way video calls.

f) Talk time: Talk time is usually measured in hours for any rechargeable communications device (mobile phone or cordless phone). It is the maximum expected duration in which a fully charged battery would last under perfect conditions (ambient temperature has a major impact on battery life). The average time is between 40 and 100 hours. However, this depends on the phone and its usage. Recharging time will also vary between models. Other factors that affect battery performance include, colour screens, video transmissions, the quality of network coverage. Where coverage is poor, the battery uses more energy to maintain a signal.

Other Wireless Phone Features

Bluetooth: Bluetooth technology enables electronic devices to communicate with each other without any physical links within a small radius. Bluetooth-equipped phones can be used via a wireless headset or wireless connections to personal computers in order to transmit information. Bluetooth requires that both devices be

fitted with the technology to enable the communication. Infrared enabled phones have similar capabilities but they tend to be slower than the Bluetooth enabled phones.

EDGE: Enhanced Data rates for GSM Evolution (EDGE) () is a faster version of GSM wireless service. EDGE enables data to be delivered at rates up to 384 Kbps on broadband connections. The standard is based on the GSM standards and uses Time Division Multiple Access (TDMA) technology.

GPRS: General Packet Radio Service (GPRS) is a packet-based wireless communication service that provides continuous connection to the Internet for mobile phone and computer users, it is the means by which second generation or 2G mobile phones can connect to the Internet. A GPRS enabled phone can collect e-mail and view WAP pages. Costs for such services are based on the amount of data received or downloaded.

MMS: Multimedia messaging (MMS) is used to send messages that include multimedia objects such pictures, sounds and text all in one message. The recipient needs to have a phone that supports this mode of messaging, which must in turn is supported by the service provider's network.

WAP: Wireless Application Protocol (WAP) are standards that enable second generation mobile phones access the Internet. WAP pages, essentially web pages adapted for the smaller screen, are now accessed by mobile phone users to get the latest information on a range of topics from results to shopping, the pages are a modification of the original and made suitable for the display in a of mobile phones.

WiMAX: Worldwide Interoperability for Microwave Access is a telecommunications technology aimed at providing wireless data over long distances in a variety of ways. They operate from point-to-point links to full mobile cellular type access.

For more information contact the Communication Commission of Kenya on the following address:

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Acknowledgement
This Fact Sheet was developed by Teknobyte (Kenya) in partnership with the Communications Commission of Kenya for the Consumer Education Outreach Programme.