

This brochure has been developed as part of the **Consumer Education Programme** of the **Communications Commission of Kenya**. It was compiled as a result of a review of material from various sources and presents the current perception of the information available on wireless phone technology, with particular relevance to its use in Kenya.

Note: some of the terms employed in this document are of a technical nature. Should further clarification be required please refer to the supplied Glossary of Terms.

Introduction

The two most common types of wireless phone technology in use in Kenya are:

GSM (Global System for Mobile Communication) and **CDMA** (Code Division Multiple Access). 73% of the global market uses GSM technology, while 14% uses CDMA.

GSM technology

GSM refers to second-generation wireless telecommunications standard for digital cellular services. First deployed in Europe, it is based on TDMA (Time

Division Multiple Access) technology. GSM uses three frequency bands: 900 MHz, 1800 MHz and 1900 MHz. Dual-band phones operate on two out of three of these frequencies, while tri-band phones operate on all three frequencies.

The advantages of GSM

GSM networks enjoy wide international coverage.

The use of a SIM (Subscriber Identity Module) card makes it easy to switch between different handsets and allows for the quick and easy import of data such as contacts and text-messages.

The amount of battery-supported 'talk-time' is generally higher on GSM phones.

CDMA technology

CDMA (Code Division Multiple Access) digital wireless technology employs a special coding scheme (whereby each transmitter is assigned a code), which allows multiple users to share common access to the network. Using 'spread spectrum' technology, a signal is spread across a broad spectrum

of radio frequencies, allowing for a signal with wider bandwidth and increased resistance to interference.

The advantages of CDMA

CDMA provides wider coverage than GSM and allows for a larger cell area.

CDMA-enabled calls can be placed in low signal strength conditions, thus CDMA phones offer better reception/coverage in rural areas.

3G technology

Third generation (3G) technology is the newest and most innovative technology available today. 3G mobile-phones and networks offer high data rates, wide bandwidth and increased capacity, all of which are required to support the new range of mobile-phone services. These include: internet access, multimedia applications, global roaming and access to such services as: sports news, the latest films, video messages, and online gaming.

Satellite mobile-phones

Mobile Satellite phones use satellite transmission rather than land-based transmission. Generally more expensive both to purchase and use than conventional land-based mobile-phones, they enjoy improved geographic coverage and are better-suited to use in remote areas.

Wireless technology features

When choosing a wireless service or device to use, you are advised to consider your requirement for the following features:

Optimum coverage

Both CDMA and GSM networks provide extensive metropolitan coverage.

'Roaming'

All the GSM networks in Kenya allow for 'roaming' (using the phone to 'roam' within different national networks) within East Africa. Not all mobile-phones purchased outside Kenya will work on the local GSM networks. CDMA phones have not been enabled to 'roam' in East Africa due to the fact that the necessary network agreements do not, as yet, exist.

Background-noise suppression

CDMA technology is efficient in suppressing background-noise and ensuring that a clear signal is transmitted.

Compatibility with hearing aids

CDMA phones are more suited to use with hearing aids (though in some cases they can cause interference).

Wireless phone features

The mobile-phone of today can be used not only for conventional conversations, but also for a wide range of other applications. Many mobile-phones are supplied with; built-in digital cameras, radios and MP3 players, full colour screens for playing games and accessing information via WAP. Some phones can be used to send short video clips via networks capable of supporting multimedia messaging services. Information on some essential and optional features is outlined below:

Colour screens

Colour screens facilitate the optimum display of pictures, games and web pages.

Predictive text

Predictive text (a facility that allows the phone to 'predict' which word you wish to use) enhances the speed of text exchange and reduces the risk of thumb-strain.

Polyphonic ring-tones

Polyphonic ringtones are melodious 'tunes', which can be downloaded directly to the mobile phones. They use a range of musical notes, which are relayed through a speaker for optimum quality.

Services

A wide range of services exist, all of which have been facilitated by the higher transmission speeds and improved video quality of modern mobile networks and phones. They include: news, weather and sports updates and much more, which are dependent on the network provider and the degree of multi-media accessible.

Camera phones

A camera phone combines the features of a mobile phone and a digital camera. Images captured can be transmitted to other similarly enabled phones, and vice versa. Certain 3G phones can also record live video clips, which can be used for 2-way video calls.

Talk time

'Talk time' refers to the maximum duration of time (using a fully-charged battery and operating under optimum conditions) for which a mobile-phone will sustain a conversation before its battery runs out. Ambient temperature has a major impact on battery-life, as does the use of colour screens, video transmission and the quality of transmission coverage: generally the poorer the coverage, the more energy the phone uses to maintain contact with the network.

Other wireless phone features

'Bluetooth'

'Bluetooth' technology enables similarly-enabled electronic devices to communicate with each other within a small radius and without any physical links. 'Bluetooth' technology is used to facilitate access to wireless headsets, other phones or connections to personal computers. Infra-red-enabled phones have similar capabilities, but tend to provide slower line-of-sight connections.

EDGE

Enhanced Data-rates for GSM Evolution (EDGE) refers to a faster version of the standard GSM wireless service, which is based on GSM standards while using TDMA technology. It allows for the transmission of data at speeds up to 384 Kbps on a broadband connection.

GPRS

General Packet Radio Service (GPRS) is a packet-based wireless communication service, which provides continuous Internet connection for mobile phone users. GPRS allows 2G (2nd generation) mobile-phones to connect to the Internet for the collection of emails or for accessing WAP pages. The cost of the service is usually based on the amount of data downloaded.

MMS

Multimedia Messaging (MMS) is used to send messages that include multimedia data such as; pictures, sounds and text. MMS requires an MMS-enabled phone and network-connection in order to function.

WAP

Wireless Application Protocol (WAP) refers to the standards that enable 2G (2nd generation) mobile-phones to access the Internet. WAP pages are those that have been specifically adapted for display on smaller mobile phone screens. WAP pages offer a range of information that includes; news, sports results, retail information and much more.

WiMAX

Worldwide Inter-operability for Microwave Access (WiMAX) refers to technology capable of transmitting wireless data over long distances. The range of WiMAX technology varies from 'point-to-point links' to full mobile cellular access.

Need to know more?

For further information on the above topic or any other aspect of health and safety with regard to communicational equipment, please contact:

Disclaimer: while every attempt has been made to ensure that the information included in this document is accurate, it is intended ONLY as a guideline towards the safe operation of communications equipment and should not be regarded as (or used in lieu of) legal advice. The Communications Commission of Kenya will not, therefore, accept any liability for the consequences of any actions taken, or decisions made upon the information offered.

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CONSUMER AFFAIRS DIVISION,
COMMUNICATIONS COMMISSION OF KENYA

P.O. BOX 14448, NAIROBI, 00800

Email: chukuahatua@cck.go.ke

TEL - 020 - 44 55 555, 0714 - 444 555, 0737 - 44 55 55

Wireless phone technologies



Communications
Commission
of Kenya

**CHUKUA
HATUA**
Pata huduma ya
mawasiliano unayostahili