W hite paper

C902

Getting the picture

Sony Ericsson

Preface

Purpose of this document

This White paper will be published in several revisions as the phone is developed. Therefore, some of the headings and tables in this document contain limited information. Additional information and facts will be forthcoming in later revisions.

The aim of this White paper is to give the reader an understanding of the main functions and features of this phone.

People who can benefit from this document include:

• Operators
• Service providers
• Software developers
• Support engineers
• Application developers

Sony Ericsson Developer World

On www.sonyericsson.com/developer, developers will find documentation and tools such as phone White papers, Developers guidelines for different technologies, SDKs and relevant APIs. The Web site also contains discussion forums monitored by the Sony Ericsson Developer Support team, an extensive Knowledge Base, Tips & Tricks, example code and news.

Sony Ericsson also offers technical support services to professional developers. For more information about these professional services, go to the Sony Ericsson Developer World Web site.

Document history

Change history			
2008-05-08	Version 3	Third revision
2008-03-19	Version 2	Second revision
2008-02-08	Version 1	First revision

May 2008

Contents

May 2008

Product overview

C902 is a slim stick phone that catches consumers' eyes through its innovative design including the new slide-out lens cover and easy-to-use high quality technology. Being a Cyber-shot phone, the core pillars building up the experience of C902 are never miss a shot, ease of use and share your experiences.

C902 comes with a full range of features including 5 megapixel auto-focus camera, eight touch keys for fast access to camera settings, face detection, Photo flash, BestPic™ with light, video recording with stereo sound and light, automatic blog creator and Photo feeds in Media UI (User Interface).

Features include:

- 5.0 megapixel camera with auto focus and face detection.
- Easy-to-use horizontal digital camera menu with eight touch keys for shortcuts to settings.
- Photo flash.
- BestPic™ with light.
- Auto rotate.
- Photo fix to improve an under-exposed picture immediately.
- Automatic blog creator.
- The ability to share images using mobile blogging.
- Video blogging.
- Dual microphones for stereo sound when recording video.
- 2.0-inch QVGA scratch resistant screen.
- Web browser supporting HTML.
- Dynamic Web pointer for Web browsing.

- PictBridge™ to print pictures directly on a printer.
- The latest in 3G/HSPDA/EDGE technology for voice and video telephony.
- Slide shows with music, transitions and more.
- 3D gaming.
- Web feeds.
- Web feeds ticker in standby.
- FM radio with RDS and track identification.
- A handsfree and USB cable provided in the kit.
- A memory card reader for Memory Stick Micro™ (M2™) memory cards.

Key features

Slide-out lens cover

C902 is a slim and stylish stick phone with an innovative design including the new slide-out lens cover which is a new unique design element. The discreet slide-out lens cover activates and gives immediate access to the 5 megapixel camera but it also protects it.

5 Megapixel camera

The main camera is 5 megapixel and includes 16x digital zoom with auto focus, an image and video stabilizer, Photo flash, BestPic™ with light, Auto rotate, Face detection and Photo fix. All this comes together for high quality pictures. Photo flash works automatically for pictures, and you can use light with BestPic™ and when recording videos. A picture can be shared as a picture message, email message or blog with friends or family. Pictures can also be transferred to another phone or computer using any available transfer method, such as Bluetooth™ or USB cable. The camera is protected by a lens cover and the horizontal user interface allows for easier camera handling.

Camera touch keys

If you need to adjust the camera settings, onscreen touch keys appear above and below the camera viewfinder. They act as shortcuts to commonly used camera features.

Face detection

The camera brings an off-centre face into focus if there are people in the picture. The camera will find and focus on a face and make it look sharp.

BestPic™ with light

A unique function for Sony Ericsson camera imaging. Taking a single picture or even a burst of pictures does not always catch the moment, which may have been just before or just after the camera key was pressed. BestPic™ is designed to solve this problem. Press the camera key half way down and the camera starts capturing pictures. Press the key fully down, and nine pictures appear automatically. The pictures range from left (just before pressing the camera key fully down) to centre (camera key fully down) to right (just after pressing the camera key fully down). The centre picture is the default picture, but not necessarily the best one. Browse the picture series and save the best pictures. BestPic™ has been updated and can now be used together with light.

Auto rotate

Capturing a portrait photo with a horizontal camera usually results in a picture that must be rotated when viewed. Auto rotate registers picture orientation when the picture is taken, whether in portrait or landscape mode, and saves this information with the picture. When viewed, the picture appears as the orientation with which it was taken.

2.0-inch colour screen

The large 2.0-inch (240x320 pixels) full graphic QVGA 262k colour screen enhances viewing, facilitating high-quality multimedia and entertainment.

Video camera

The built-in camera captures a video recording and saves it in the phone or on a memory card. A video clip can be shared as a picture message or email with friends or family, or using any available transfer method such as Bluetooth™ wireless technology. The phone supports QVGA size video recording.

Video call camera

There is also a QCIF (Quarter Common Intermediate Format) video call camera. Accessing video call mode via the main menu activates the QCIF video call camera.

Mobile blogging

Send pictures and video clips using the Internet to show on your personal blog, allowing people easy access to view and comment on your pictures and video clips.

Geo tagging

When a photo is taken it is tagged with cell-id information, meaning that the approximate location where the photo was taken can be shown on a map.

PictBridge™ – Camera printing

Print pictures from the phone using the USB cable directly to a printer, without a computer or photo editing software.

Photo tags

Navigate through your captured photos and thousands of downsized photos transferred from your computer. View captured photos and video clips in an intuitive timeline view. Play animated slide shows with music and different moods. Tag your photos to find them faster. The built-in sensor in the camera ensures that all photos are rotated correctly.

Media

A unique Sony Ericsson media experience. All media can be accessed directly from the desktop. Navigate seamlessly through captured photos and video clips, pictures, photo tags, music, videos and more.

Music player

Located in Media. Play downloaded music and audio. The navigation system enables you, for example, to browse through your favourite tracks and create simple playlists.

Video player

Located in Media. Play saved and downloaded video clips.

Sony Ericsson Media Manager

Music, photo and video clip management software is available on the CD which is included in the kit. Transfer music, video clips and photos to and from your phone. Prepare files for transfer even when your phone is not connected to your computer. Search for and select music on your computer or audio CDs and convert your existing audio tracks to formats that are suitable for mobile use before transferring them to your phone. You can also subscribe to feeds such as video and music podcasts.

PlayNow™ 4.0

A unique and easy-to-use direct link for purchasing and downloading content like music, games, ringtones and themes. Users can preview music tracks and ringtones before purchase.

Most formats that are supported in the phone are possible to download. The music formats are MP3, MP4 and WAV (Polyphonic 24 voices or more).

PlayNow™ 5.0

A unique and easy-to-use direct-link for downloading ringtones, full track music, games, themes and wall-papers. PlayNow™ offers best-selling content for mobile download. Users can preview content before purchase. Users have access to a catalogue of thousands of tracks and ringtones from both international and local labels.

By combining the PlayNow™ catalogue with unique applications like TrackID™ users are presented with a My TrackID™ list and TrackID™ Charts by country, created by TrackID™ users around the world. These charts are based on what songs other users are searching for and want to hear the most. PlayNow™ supports MP3 and Windows Media DRM file formats for music.

M-BUZZ™

M-BUZZ™ is a promotional site for breaking new and developing artists. M-BUZZ™ includes full track music, videos, gig schedules and information about the stars of tomorrow. M-BUZZ™ provides consumers with the possibility to discover new music which otherwise might pass them by. At the same time, the site offers artists and songwriters the opportunity to have their music heard by millions of consumers.

Stereo widening

The Stereo Widening and Mega Bass™ effects improve the sound experience when listening to music through a stereo Bluetooth headset, external stereo speakers or a stereo portable handsfree.

TrackID™

TrackID™ enables the user to identify a track playing on the built-in radio, or a track playing in the room. A few seconds of the song is sampled, the phone connects to an online database, which identifies the song and returns Title, Artist and Album information.

3D Gaming

Gaming is a very popular feature in mobile phones. At purchase there are premium quality 3D games pre-loaded. Shake the phone to control gaming functions. Tilt the phone forwards, backwards, left or right to accelerate, decelerate, turn left or turn right. With Java™, users can download new games and skill levels to further enhance their entertainment experience.

Web feeds

A built-in RSS (Really Simple Syndication) Reader is used in combination with the Internet browser. When browsing, frequently updated content such as news headlines or podcasts can be received as feeds.

Web feeds ticker

News headlines you subscribe to can be shown in standby using Web feeds.

HTML Web browser support

Browse the Internet and look at Web sites in a different way with Access NetFront™ 3.4 – an HTML browser which supports a complete Web standard suite.

Landscape browsing support

View Web pages in landscape mode.

Push email

The phone supports push email, a method of pushing new email messages automatically to mobile devices. Push email increases mobile email usability, with email being delivered in the background (similar to SMS or MMS).

Java™

Download additional applications which are information- and entertainment-based. This gives users a chance to personalize the functions and features in their phones, and developers the opportunity to create new applications. Java Platform 8.3 (JP-8.3), supports a range of new Java programming features including instant messaging (chat) and presence-based functionality, handling banking, payment transactions, user identification and authentication through secure encryption technology.

Bluetooth™ wireless technology

Several devices (simultaneous Bluetooth™ connections) can be connected up to 10 metres (33 feet) away using Bluetooth wireless technology. For example, when the phone rings, it can be answered with a Bluetooth headset, and images can be sent to another phone at the same time. Several mobile phones can take part in a Bluetooth-supported game and the phone and a computer can exchange data such as images, video clips, vCards, music files and calendar data. Bluetooth version 2.0 and Enhanced Data Rate (EDR) is supported.

Bluetooth™ audio streaming

Listen to audio in compatible devices. By connecting a Bluetooth Advanced Audio Distribution Profile (A2DP) compatible accessory, such as a stereo Bluetooth headset or a Bluetooth music receiver, you can enjoy high quality stereo audio streaming wirelessly from the phone. Many A2DP accessories also support the Bluetooth Audio Video Remote Control Profile (AVRCP) allowing you to control the player in the phone using the accessory interface.

USB 2.0 mass storage

When connecting the phone to a computer using the provided USB cable, the memory in the phone appears on the computer screen as a removable disk along with other disks and drives in the computer. You can then quickly and easily drag and drop items such as images, documents, music and video clips between folders in the phone and the computer.

Media Transfer Protocol (MTP)

With Media Transfer Protocol you can transfer media files and synchronize playlists when the phone is connected to the computer using the USB cable. It is possible to use MTP in Media transfer mode or Phone mode. MTP is supported by Windows Media Player 11 and higher in Windows XP and in Windows Vista™ it is also supported.

Personal Information Management (PIM)

Stay up-to-date with everyday events by synchronizing phone contacts, calendar appointments, tasks and notes in the phone with similar programs in a computer. The USB cable which comes with the phone, or the built-in Bluetooth feature can be used together with the synchronization software which is available on the CD in the kit or can be downloaded from www.sonyericsson.com/support. Smart search your contacts and call list for phone numbers or names from standby.

Common Internet File System (CIFS)

The Common Internet File System enables file transfer to and from your phone. The phone acts as a file server which allows you to copy and move files between your PC and the server. You can use this feature when connected using the USB cable or the Bluetooth connection.

Images

Technologies in detail

This chapter includes short descriptions of the technologies available in this product compared to other Sony Ericsson products.

Functions and features

The following includes short descriptions of the technologies available in C902, C702 and K850i.

Feature	C902	C702	K850i
3D games	Yes	Yes	Yes
3G enabled	Yes	Yes	Yes
Activity menu (multi-tasking) The user can easily handle missed calls, new text and picture messages, task reminders, shortcuts and get quick access to favourite Internet bookmarks	Yes, with enhanced functionality for background applications.	Yes, with enhanced functionality for background applications.	Yes, with enhanced functionality for background applications.
Adobe™ Flash Lite™ For animated wallpapers, menus and other graphic elements	Yes	Yes	No
Alarm clock Set up to five individual times for single or recurring weekly alarms	Yes	Yes	Yes
Auto rotate The picture appears as a landscape or portrait picture, as it was originally taken	Yes	No	Yes
Backlight White backlight to illuminate the phone screen	Yes	Yes	Yes
Battery	BST-38 3.6V, 950mAh, Lithium Polymer	BST-33 3.6V, 950mAh, Lithium Polymer	BST-38 3.6V, 930mAh, Lithium Polymer
Battery charging time	At least 90% charged within 2 hours. Fully charged within 2.5 hours	At least 90% charged within 2 hours. Fully charged within 2.5 hours	At least 90% charged within 2 hours. Fully charged within 2.5 hours

May 2008

Feature	C902	C702	K850i
BestPic™ Enhance picture taking by automatically capturing a range of nine pictures ranging from before to after a camera key press. Select the best picture to catch the moment. You can also save more than one picture. Select BestPic™ speed BestPic™ with light	Yes Yes Yes	No No No	Yes Yes No
Bluetooth™ audio streaming Listen to audio in compatible devices	Yes	Yes	Yes
Bluetooth™ audio video remote control Control music player functions from a Bluetooth™ accessory, and control the volume in the accessory from the phone	Yes	Yes	Yes
Bluetooth™ PAN Connect the phone to Internet using Bluetooth™ technology	Yes	Yes	Yes
Bluetooth™ wireless technology Wireless connectivity between devices within a range of up to 10 metres (33 feet). Support for specification of the Bluetooth System, version 2.0 and EDR	Yes	Yes	Yes
Business card exchange Exchange contact information	Yes	Yes	Yes
Calculator	Yes	Yes	Yes
Calendar Calendar with day, week and month views and reminders	Yes	Yes	Yes
Call list View calls made and received	Yes	Yes	Yes
Camera	5.0 Megapixel	3.2 Megapixel	5.0 Megapixel
Camera active lens cover Open the cover and camera functionality starts automatically	Yes	Yes	Yes

Feature	C902	C702	K850i
Camera auto focus The camera automatically focuses on the subject in a focus area in the screen/viewfinder	Yes	Yes	Yes
Camera face detection The camera brings an off-centre face into focus	Yes	Yes	No
Camera file browser Browse the picture folder without leaving the camera function	Yes	Yes	Yes
Camera flash	Yes	Yes	Yes, Xenon Flash
Camera image stabilizer Picture and video image stabilizer functionality. If available, use to keep the image steady	Yes	No	Yes
Camera key A dedicated camera key	Yes	Yes	Yes
Camera keys on top When the camera is used in horizontal mode, the side keys with camera functionality are on top, for a digital still camera feel. For photo key functionality, see also "Keys – side and other" on page 20	Yes	Yes	Yes
Camera menu Easy-to-use horizontal digital camera menu	Yes	Yes	Yes
Camera scene modes Use predefined settings when taking pictures in different environments, for example, at night or fast-moving objects	Yes	Yes	Yes
Camera settings bar Settings bar with options and info texts	Yes	Yes	Yes
Camera touch keys Above and below the camera viewfinder there are eight touch keys, acting as shortcuts to commonly used camera features	Yes	No	No

May 2008

Feature	C902	C702	K850i
Chinese input method Chinese input methods: Text input methods based on Simplified or Traditional Chinese. Bopomofo, Pinyin or Stroke	Yes	Yes	Yes
Circuit Switched Data CSD	Yes	Yes	Yes
HSCSD – a communications standard enabling GSM data transfer 14.4 Kbps.	Yes	Yes	Yes
Clock On-screen clock that keeps time even when the phone is off	Yes	Yes	Yes
Co-branding area	47.4 × 6.75 mm	22 x 5 mm	Yes
Code memo A safe place to save all PIN codes and other information. To access Code memo, only one PIN code is needed	Yes	Yes	Yes
Colour	Luscious Red Swift Black	Cool Cyan Speed Black	Luminous Green Velvet Blue Quicksilver Black
Contacts Phonebook with fields for name, phone,fax and instant messaging information, presence information, email address, Web site, title, company address info, personal address info and birthday	Yes	Yes	Yes (Not instant messaging information)
Conference calls Support for multiparty calling	Yes	Yes	Yes
Connector A1 (Fast port)	Yes (side)	Yes (bottom)	Yes (side)
Content online Downloadable pictures, games, themes, ringtones available online	Yes	Yes	Yes

Feature	C902	C702	K850i
Copyright protection - DRM DRM (Digital Rights Management) features the rights and copy protection of downloaded content (audio, pictures, music tones, video clips and entertainment features such as games, Java applications etc.)	Yes, OMA DRM 1.0 and OMA DRM 2.0, Microsoft DRM Janus, Microsoft DRM Camese	Yes, OMA DRM 1.0 and OMA DRM 2.0, Microsoft DRM Janus, Microsoft DRM Camese	Yes, OMA DRM 1.0 and OMA DRM 2.0, Microsoft DRM Janus, Microsoft DRM Camese
Device Management (DM) DM utilizes GPRS as a bearer (basic network connectivity needs to be in place) of the provisioning data and allows the operator to access the phone, check and send out different settings such as network connectivity (GPRS), email, MMS, Internet settings and Java™. Device Management is achieved by supporting OMA Client Provisioning 1.1 (CP) and OMA Device Management (DM) 1.2	Yes	Yes	Yes
Digital zoom	16x for pictures 16x for video clips 2x for video calls	2.0x for pictures (VGA mode) 2.0x for video recording	16x for pictures 16x for video clips 16x for video calls (on main camera) 2x for video calls (on QCIF camera)
Dual microphones Two microphones give stereo sound to video clips recorded by the phone	Yes	No	No
Email Built-in email client with inbox, outbox, compose/send and other functions	Yes	Yes	Yes
EMS (Enhanced messaging) Text messaging (SMS) with support for pictures and sounds Note: EMS is not available for operators who use unified messaging	Yes	Yes	Yes

Feature	C902	C702	K850i
Exterior description			
Size mm (Length x width x thickness/thinnest)	108 x 49 x 10.5	106 x 48 x 15.5	103 x 48.5 x 18
Fast port A system connector which enables faster data transfer between the phone and a computer	Yes	Yes	Yes
File manager Folder structure storage to help save and organize pictures, sounds and other phone content	Yes, with enhanced functionality for camera content	Yes, with enhanced functionality for camera content	Yes, with enhanced functionality for camera content
Flash themes	Yes	Yes	Yes
Flight mode All phone radio transceivers are inactivated. Flight mode starts the phone so that only certain functions are available, such as the calendar, the music player or a game. The phone may then be used in some areas, such as aeroplanes or hospitals, where full mobile phone functionality is not allowed	Yes	Yes	Yes
Bluetooth™ function availability in Flight mode	Yes	Yes	Yes
FM radio with RDS FM radio with presets, auto and manual search. The handsfree is used as an antenna. The radio can also be used as an alarm signal	Yes	Yes	Yes
FM radio with TrackID™ Identify tracks playing on the radio	Yes	Yes	Yes
Form factor	Stick	Stick	Stick
Games download Add more games to your phone	Yes	Yes	Yes
Games embedded	Yes	Yes	Yes
Geo tagging Photos are tagged with geo data and can be shown on a map	Yes, geo data from cell-id	Yes, geo data from GPS	No

Feature	C902	C702	K850i
Google Maps for mobile Preloaded application with support for cell-id and GPS. View satellite imagery, find locations and calculate routes	Yes (No built-in GPS, but support for GPS Enabler HGE-100)	Yes	No
GPRS General Packet Radio Services – a communications standard enabling packet data transfer of 21.4 Kbps per time slot. Multislot class 10 supported (max 5 simultaneously)	Yes	Yes	Yes
GPS Support for GPS Enabler HGE-100	Yes	Built-in GPS	No
High Speed Data HSDPA – High Speed Downlink Packet Access	Yes	Yes	Yes
Icon Desktop 12 A graphic icon desktop with 12 interactive icons	Yes	Yes	Yes
Image formats **5 MP** (2592x1944 pixels)	Yes	No	Yes
3 MP (2048x1536 pixels)	Yes	Yes	Yes
2 MP (1632x1224 pixels)	Yes	Yes	No
1 MP (1280x960 pixels)	Yes	Yes	Yes
VGA (640x480 pixels) Note: MP = Megapixel. When the picture stabilizer is on, the image size may be slightly reduced	Yes	Yes	Yes
Instant messaging (Wireless Village/My friends) Chat – several people can take part in a mobile messaging session. Instant messaging/Wireless Village server community	Yes	Yes	Yes

Feature	C902	C702	K850i
Internet blogging Share over the Internet on your personal Web site. The size of uploaded pictures is dependent on customizations	Yes	Yes	Yes
Internet browser	Yes	Yes	Yes
Full HTML support, ECMA script, DOM level 1&2, CSS 1&2 etc.	Yes	Yes	Yes
Support for AJAX (Asynchronous JavaScript and XML)	Yes	Yes	Yes
Progressive download of video files	Yes	Yes	Yes
Direct access to Bookmarks, Search Internet and Enter address	Yes	Yes	Yes
Internet security Encrypts confidential information such as credit card and bank account numbers. Necessary for mobile banking and shopping	Yes, SSL/TLS	Yes, SSL/TLS	Yes, SSL/TLS
Java™			
Support for J2ME™ technology	Java 2, Micro Edition (J2ME™), Java 3D™	Java 2, Micro Edition (J2ME™), Java 3D™	Java 2, Micro Edition (J2ME™), Java 3D™
Java Platform 8.3 (JP-8.3) Support for new Java programming features including instant messaging/chat, banking, payment transactions, user identification and authentication through secure encryption technology.	Yes	Yes	No

Feature	C902	C702	K850i
Keys – navigation and more	4+1 navigation key multimedia (play/stop) on navigation key centre 2 (left + right) selection keys C (Clear) key Activity menu key End key Call key	4+1 navigation key multimedia (play/stop) on navigation key centre 2 (left + right) selection keys C (Clear) key Activity menu key End key Call key	4 navigation keys 1 centre touch option 2 (left + right) touch options C (Clear) key Activity menu key Red end key Green call key
Keys – keypad	12 alphanumeric	12 alphanumeric	12 alphanumeric
Keys – side and other	Volume/camera zoom key Camera key	Volume/camera zoom key Camera key On/off key on top	Volume/camera zoom key Camera key Camera on/off key Separate on/off key Mode switch (picture, video, view)
Lunar calendar A calendar system used in China and other parts of Asia. A lunar month is determined by the period required for the moon to complete its full cycle of 29.5 days and is available in Chinese phone variants	Yes	Yes	Yes

Feature	C902	C702	K850i
Media A centre for all media content with horizontal and vertical navigation. You can view photos, listen to music, watch video clips	Yes	Yes	Yes
Media player	See Music player and Video player	See Music player and Video player	See Music player and Video player
Mega Bass™ An audio feature which enhances bass frequencies for better overall music experience	Yes	Yes	Yes
Memory (built-in) Phone memory that is free to use (depending on software configuration and file content). Many applications share phone memory. The maximum amount of storage available for any one application, such as calendar entries, is affected by the amount of memory used by other applications, such as messaging, music, pictures and so on	Up to 160 MB	Up to 150 MB	Up to 40 MB
Memory card reader (slot) A slot for inserting a micro peripheral storage device Memory card support: Memory Stick Micro™ (M2™)	Yes Yes	Yes Yes	Yes Yes
Menu layout options Possiblity to change the layout of the icons in the main menu	Yes	Yes	No
Menu shortcuts A function making it possible to dedicate shortcuts to the most-used phone functions	Yes	Yes	Yes
MMS (Multimedia messaging) Picture messaging with text and sound	Yes	Yes	Yes
MMS video Support in the phone for sending video clips using MMS	Yes	Yes	Yes

May 2008

Feature	C902	C702	K850i
Modem Circuit Switched/Packet Switched Internet dial-up support	Yes	Yes	Yes
MusicDJ™ A sampler music tool with MIDI drum, guitar, keyboard, bass and brass loops in different music styles, which can be combined to create polyphonic ringtones	Yes	Yes	Yes
Music listening time	Up to 25 hours	Up to 25 hours	Up to 40 hours
Music player 3.0 A digital music player with horizontal navigation. Play music you have transferred or downloaded. The list structure system enables you, for example, to organize favourite songs into groups and create simple playlists.	Yes	Yes	Yes
Music tones Music tones, also called master tones, are DRM protected music by original artists. Various digital audio formats are supported	Yes	Yes	Yes
My friends See Instant messaging	Yes	Yes	Yes
Networks 3G/HSDPA	UMTS/ HSDPA 2100	UMTS/ HSDPA 2100	UMTS 850/ 1900/2100
GSM/GPRS/EDGE	GSM/EDGE 850, 900, 1800, 1900 MHz	GSM/EDGE 850/900/ 1800/1900 MHz	GSM (R99) 850, 900, 1800, 1900, E-GSM 900
OMA Data Synchronization (SyncML) A device communications standard that enables remote synchronization between devices	Yes OMA DS 1.2 OMA DS 1.1.2	Yes OMA DS 1.2 OMA DS 1.1.2	Yes OMA DS 1.2 OMA DS 1.1.2
OTA settings Internet, email and other settings can be sent over the air to the phone	Yes OMA CP 1.1	Yes OMA CP 1.1	Yes OMA CP 1.1

May 2008

Feature	C902	C702	K850i
Photo light (built-in) When lighting conditions are poor, activate the picture light	Yes	Yes	No, Automatic Xenon flash
PhotoDJ™ A drawing tool in the phone where existing pictures can be altered	Yes	Yes	Yes
Photo fix Improves an under-exposed picture by calculating and adjusting the light balance	Yes	Yes	Yes
PictBridge™ Transfer images from the phone via the USB cable directly to a printer, without a computer or photo editing software	Yes	Yes	Yes
Picture gallery A thumbnail image gallery where sections of several pictures can be viewed at the same time	Yes Use photo tags	Yes Use photo tags	Yes Use photo tags
Picture phonebook Add a picture to a saved contact. The picture appears on the screen when the saved contact calls	Yes	Yes	Yes
PlayNow™ (direct link) Listen to music before you purchase and download it to your phone	Yes	Yes	Yes
PlayNow™ Games (direct link) Download and purchase games straight from the phone desktop	Yes	Yes	Yes
Polyphonic voices	72	72	72
Powersave default setting for display light	Yes	Yes	Yes
Predictive text input	Yes	Yes	Yes
Push email	Yes	Yes	Yes
RSS reader	See Web feeds	See Web feeds	See Web feeds

May 2008

Feature	C902	C702	K850i
Screen Type: Size: Resolution: Technology: Colours displayed together: Backlight colour:	Full graphical 2.0 inches 320x240 pixels TFT, QVGA 262,000 (18 bit) White	Full graphical 2.2 inches 320x240 pixels QVGA 262,000 (18 bit) White	Full graphical 2.2 inches 320x240 pixels TFT, QVGA 262,000 (18 bit) White
Screen saver	Yes	Yes	Yes
Settings download (Ready to run) Set up functions that require a connection to the Internet such as the Internet browser and picture messaging. This function runs in the setup wizard or can also be chosen in the Settings menu. This function is not included in the setup wizard for customized phones	Yes	Yes	Yes
SIM card lock The possibility to protect the SIM card with a four-digit PIN code	Yes	Yes	Yes
Smart search Search for numbers and contacts from standby by using the number keys. Call or send messages from a filtered list of search results.	Yes	Yes	Yes
SMS long (Text messaging) Concatenated SMS text messaging	Yes	Yes	Yes
Sleep mode A power-saving feature that minimizes the battery power consumed when the phone is in standby	Yes	Yes	Yes
Sony Ericsson Remote Update Service Download the latest operator-approved software, over the air, for your mobile phone	Yes	Yes	Yes

Feature	C902	C702	K850i
Sony Ericsson Update Service Connect the phone to an Internet-connected computer, download the latest operator-approved software from the Web site, www.sonyericsson.com/support and update the mobile device	Yes	Yes	Yes
Sound recorder A recording device in the phone that can record voice messages or other sounds	Yes	Yes	Yes
Speakerphone	Yes	Yes	Yes
Speed dialling Allocate contacts in the phone book to specific keys on the keypad	Yes	Yes	Yes
Standby time GSM UMTS	Up to: 380 hours 360 hours	Up to: 318 hours 319 hours	Up to: 400 hours 350 hours
Status view The screen shows the network being used, the time and other status information	Yes	Yes	Yes
Stereo microphone	Yes	No	No
Stopwatch	Yes	Yes	Yes
SVG Tiny Scalable Vector Graphics for impressive animated wallpapers, menus and other graphic elements	Yes	Yes	Yes
Synchronization PC Synchronize and share phone content with a computer	Yes	Yes	Yes
Talk time GSM UMTS	Up to: 9 hours 4 hours	Up to: 12 hours 5 hours	Up to: 9 hours 3.5 hours
Tasks Keeps track of important things you have to do	Yes	Yes	Yes

Feature	C902	C702	K850i
Themes Phone menu texts and background graphics	Yes	Yes	Yes
Timer Set the phone to alert after a specific time	Yes	Yes	Yes
TrackID™ Music recognition	Yes	Yes	No
Text search for artist, album, track, lyrics etc.	Yes	Yes	No
UMTS	Yes	Yes	Yes
USB connectivity support Connect the phone to a computer using the USB cable provided.	Yes USB 2.0 Hi-Speed	Yes USB 2.0 Hi-Speed	Yes USB 2.0 Hi-Speed
USB ethernet emulation Connect to the Internet using the phone or the computer	Yes	Yes	Yes
Vibrating alert The phone vibrates when a call comes in	Yes	Yes	Yes
Video blogging Share video clips over the Internet on your personal Web site. The size of uploaded video clips is dependent on customizations	Yes	Yes	Yes
Video call camera	Yes	Yes	Yes
Video calling When you make a video call, the other party can be seen on the screen. The service requires UMTS/WCDMA	Yes	Yes	Yes
Video call talk time	Target Up to 2 hours 30 minutes	Target Up to 2 hours	Target Up to 2 hours 30 minutes
VideoDJ™ Create video sequences by combining different clips and adding music and images	Yes	Yes	Yes

May 2008

Feature	C902	C702	K850i
Video player Play video clips you have transferred or downloaded. Transfer video clips to another phone or a computer using an available transfer method	Yes	Yes	Yes
Video streaming Real-time streaming of video clips, for example, live cam. Media can also be downloaded and saved in the phone memory	Yes	Yes	Yes
Viewfinder When using the camera, a picture can be previewed before it is captured	Yes	Yes	Yes
Voice control Voice answer, reject and call. Assign voice commands to items in the phonebook. When a call is made, the voice command can be used instead of pressing keys	Yes	Yes	Yes
Voicemail Support for voicemail operator service including automatic answering and message recording	Yes	Yes	Yes
WAP 2.0 XHTML A mobile Internet standard to access specially designed Internet sites. WAP 2.0 supports colour and interactive lists	Yes	Yes	Yes
Web feeds Frequently updated content delivered as feeds via a Web site, for example, news headlines in the browser	Yes	Yes	Yes
Web feeds ticker View news headers in standby	Yes	Yes	Yes
Weight	106.6 g	105.5 g	118 g

May 2008

Facts and figures

This chapter offers readers a detailed listing of all the technical data relating to the product. Comprehensive descriptions of performance and technical characteristics are presented in table format for quick and easy access.

Technical specifications

General technical data

System	Quad-band GSM Release 5 recommendations, GSM-850, GSM 900, e-GSM 900, GSM 1800, GSM 1900 Single-band UMTS/HSDPA 2100 supported
Speech coding	HR, FR, EFR, AMR, supported where available, for high speech quality.
GSM SIM/ UMTS USIM card	GSM SIM - GSM 11.11, UMTS SIM - 3GPP™ TS 31.101. Small plug-in card, 1,8 V and 3 V.
Memory	Up to 160 MB internal (depending on software configuration/file content) + extra slot for supported memory cards.
Data transfer speeds	Up to 3.6 Mbps (downlink, HSDPA, cat 6) Up to 384 Kbps (uplink, WCDMA R99)

Performance and technical characteristics

Property	WCDMA 2100
Frequency range (MHz)	TX:1920–1980 RX:2110–2170
Channel spacing	5 MHz with 200 kHz channel rasters
Number of channels	277
Modulation	QPSK (WCDMA R99) QPSK/16 QAM (HSDPA)
TTI	10 ms (WCDMA R99) 2 ms (HSDPA)
TX Phase Accuracy	Error Vector Magnitude: <17.5%
Duplex spacing	190 MHz
Frequency stability	+/- 0.1 ppm
Voltage operation (nominal)	3.6 V
Transmitter RF power output	24 dBm Class 3 (0.25 W peak)
Transmitter Output impedance	50 ohm
Transmitter Spurious emission (according to specification)	< -36 dBm up to 1 GHz < -30 dBm over 1 GHz (according to 3GPP™ spec.)

Property	WCDMA 2100
Receiver RF sensitivity	Better than -106.7 dBm @ 12.2 kbps CS voice
Receiver RX Bit error rate	< 0.1%

Property	GSM 850	GSM 900/ E-GSM 900
Frequency range (MHz)	TX: 824–849 RX: 869–894	TX: 880–915 RX: 925–960
Channel spacing	200 kHz	200 kHz
Number of channels	124 Carriers *8 (TDMA)	174 Carriers *8 (TDMA)
Modulation	GMSK	GMSK
TX Phase Accuracy	< 5° RMS Phase error (burst)	< 5° RMS Phase error (burst)
Duplex spacing	45 MHz	45 MHz
Frequency stability	+/- 0.1ppm	+/- 0.1ppm
Voltage operation (nominal)	3.6 V	3.6 V
Transmitter RF power output	33 dBm Class 4 (2 W peak)	33 dBm Class 4 (2 W peak)
Transmitter Output impedance	50 ohm	50 ohm
Transmitter Spurious emission (according to specification)	< -36 dBm up to 1 GHz < -30 dBm over 1 GHz	< -36 dBm up to 1 GHz < -30 dBm over 1 GHz
Receiver RF sensitivity	Better than – 104 dBm	Better than – 102 dBm
Receiver RX Bit error rate	< 2.4%	< 2.4%

Property	GSM 1800	GSM 1900
Frequency range (MHz)	TX: 1710–1785 RX: 1805–1880	TX:1850–1910 RX:1930–1990
Channel spacing	200 kHz	200 kHz
Number of channels	374 Carriers *8 (TDMA)	299 Carriers *8 (TDMA)
Modulation	GMSK	GMSK
TX Phase Accuracy	< 5° RMS Phase error (burst)	< 5° RMS Phase error (burst)
Duplex spacing	95 MHz	80 MHz
Frequency stability	+/- 0.1ppm	+/- 0.1ppm
Voltage operation (nominal)	3.6 V	3.6 V
Transmitter RF power output	30 dBm Class 1 (1 W peak)	30 dBm Class 1 (1 W peak)

Property	GSM 1800	GSM 1900
Transmitter Output impedance	50 ohm	50 ohm
Transmitter Spurious emission (according to specification)	< - 30 dBm	< - 30 dBm
Receiver RF sensitivity	Better than – 102 dBm	Better than – 102 dBm
Receiver RX Bit error rate	< 2.4%	< 2.4%

USSD technical data

Feature	Support
USSD support	GSM Phase 1/2 (Cross-phase compatibility)
Mode support	UI-mode supported SAT initiated USSD supported
UI-mode details	• It is possible to scroll the text up and down in USSD messages. • It is possible to highlight embedded numbers and take actions accordingly.

GPRS technical data

Property	Support
Compatible GPRS/EDGE and SMG specifications	Release 99 according to ETSI specification
Data rates GPRS (per time slot)	Coding scheme CS-1: 9 Kbps CS-2:13,4 Kbps CS-3:15,6 Kbps CS-4:21,4 Kbps (network-dependent).
Data rates EDGE (per time slot)	Modulation & coding scheme (MCS) MCS-1 (GMSK): 8,0 Kbps MCS-2 (GMSK): 11,4 Kbps MCS-3 (GMSK): 14,8 Kbps MCS-4 (GMSK): 17,6 Kbps MCS-5 (8-PSK): 22,4 Kbps MCS-6 (8-PSK): 29,4 Kbps MCS-7 (8-PSK): 44,8 Kbps MCS-8 (8-PSK): 54,4 Kbps MCS-9 (8-PSK): 59,2 Kbps
Medium Access Modes	Dynamic allocation
Support of Packet Control Channels (PBCCH/PCCCH)	Yes
Network operation mode	NOM I, II, III

Property	Support
Support of GPRS/CS combined procedures	Yes
Network control mode	NC0 and 2
Support of access in 2 phases	Yes
Support of PRACH on 11 bits	Yes
Support of GPRS re-selection C31/ C32	Yes
Support of static and dynamic addressing	Yes
Support of power control Uplink and Downlink	Uplink = yes, Downlink is a network feature
Support of ciphering algorithms	GEA1, GEA2
Support of compression algorithms	Yes, V42bis and IP header compression
Mode of operation	Class B and Class C modes of operation supported
R Reference point	Physical layer: Support of RS232 PPP is supported as L2 layer in the R reference point Authentication algorithms PAP, CHAP supported
IP connectivity	PDP type IP is supported. IP termination in mobile or TE (laptop, PDA) is supported
PDP context	10 PDP context descriptions saved in the phone. PDP context description is edited via application in the phone, AT-command or via OTA. Simultaneous PDP contexts are supported, maximum 4
SIM	GPRS aware, as well as non-GPRS aware, SIM cards are supported
AT commands	Some of the supported commands: AT+CGDCONT - DEFINE PDP CONTEXT AT+CGEQREQ - Quality of Service Profile (REQUESTED) AT+CGEQMIN - Quality of Service Profile (Minimum Acceptable) AT+CGATT - PACKET DOMAIN SERVICE ATTACH OR DETACH AT+CGACT - PDP CONTEXT ACTIVATE OR DEACTIVATE AT+CGDATA - ENTER DATA STATE For more information, see www.sonyericsson.com/developer

SIM AT services supported

Service	Mode	Support
CALL CONTROL BY SIM		Yes
MO SMS CONTROL		Yes

Service		Mode	Support
DATA DOWNLOAD TO SIM		Cell Broadcast	Yes
		SMS	Yes
DISPLAY TEXT		Text of up to 240 characters (120 UCS2 coded).	Yes
	bit 1:	0 = normal priority	Yes
		1 = high priority	Yes
	bit 8:	0 = clear message after a delay	Yes
		1 = wait for user to clear message	Yes
GET INKEY		General: The GET_INKEY requires that the user confirms his/her choice	Yes
	bit 1:	0 = digits (0-9, *, # and +) only	Yes
		1 = alphabet set	Yes
	bit 2:	0 = SMS default alphabet	Yes
		1 = UCS2 alphabet	Yes
	bit 3:	0 = character sets defined by bit 1 and bit 2 are enabled	Yes
		1 = character sets defined by bit 1 and bit 2 are disabled and the Yes/No response is requested	Yes
GET INPUT		General: No. of hidden input characters	252
	bit 1:	0 = digits (0-9, *, # and +) only	Yes
		1 = alphabet set	Yes
	bit 2:	0 = SMS default alphabet	Yes
		1 = UCS2 alphabet	Yes
	bit 3:	0 = ME may echo user input on the display	Yes
		1 = user input not to be revealed in any way (see note)	Yes
	bit 4:	0 = user input to be in unpacked format	Yes
		1 = user input to be in SMS packed format	Yes
	bit 8:	0 = no help information available	Yes
		1 = help information available	Yes
LAUNCH BROWSER			Yes
MORE TIME			Yes
PLAY TONE			Yes
POLLING OFF			Yes
POLL INTERVAL			Yes

Service	Mode	Support
PROVIDE LOCAL INFORMATION	'00' = Location Information (MCC, MNC, LAC and Cell Identity)	Yes
	'01' = IMEI of the ME	Yes
	'02' = Network Measurement results	Yes
	'03' = Date, time and time zone (DTTinPLI)	Yes
	'04' - Language setting	Yes
	'05' - Timing advance	Yes
REFRESH	General: The reset option requests the user to wait while the phone restarts	Yes
	'00' = (U)SIM Initialization and Full File Change Notification	Yes
	'01' = File Change Notification	Yes
	'02' = (U)SIM Initialization and File Change Notification	Yes
	'03' = (U)SIM Initialization	Yes
	'04' = (U)SIM Reset	Yes
	'05' = SIM/USIM Application Reset	Yes
	'06' = 3G Session Reset	Yes
SELECT ITEM		Yes
SEND DTMF		Yes
SEND SHORT MESSAGE	bit 1: 0 = packing not required 1 = SMS packing by the ME required	Yes Yes
SEND SS		Yes
SEND USSD		Yes

Service	Mode	Support
SET UP CALL	General: Capability configuration Set-up speech call CallParty Subaddress DTMF support	Yes No Yes
	'00' = set up call, but only if not currently busy on another call	Yes
	'01' = set up call, but only if not currently busy on another call, with re-dial	Yes
	'02' = set up call, putting all other calls (if any) on hold	Yes
	'03' = set up call, putting all other calls (if any) on hold, with re-dial	Yes
	'04' = set up call, disconnecting all other calls (if any)	Yes
	'05' = set up call, disconnecting all other calls (if any), with re-dial	Yes
SET UP EVENT LIST	'00' = MT call	Yes
	'01' = Call connected	Yes
	'02' = Call disconnected	Yes
	'03' = Location status	Yes
	'04' = User activity	Yes
	'05' = Idle screen available	Yes
	'06' = Card reader status	Not Applicable
	'07' = Language selection	Yes
	'08' = Browser termination	Yes
	'09' = Data available	Yes
	'OA' = Channel status	Yes
SET UP IDLE MODE TEXT		Yes, 1 row of text is supported
SET UP MENU		Yes
TIMER MANAGEMENT		Yes
OPEN CHANNEL		Yes
CLOSE CHANNEL		Yes
RECEIVE DATA		Yes

Service	Mode	Support
SEND DATA		Yes
GET CHANNEL STATUS		Yes

User Interaction with SIM AT

Display text

Text of up to 240 characters (120 UCS coded) is supported.

Text clearing times are 5-20 seconds with a 60-second time-out limit for the user to clear the text. 'Key' responses:

- 'End key' – Proactive session terminated by user.
- 'Back' – Backward move in proactive session.

MSK clears the screen if the command is performed successfully.

Get inkey

Prompt for a one-character input. Pressing 'Ok' without entering a character gives warning message "Text too short". 'Key' responses:

- 'C' clears current character.
- 'End key' terminates the proactive session.
- 'Back' – Backward move in the proactive session.
- 'OK' – Command performed successfully.

Get input

Prompt for character input. The phone will refuse to accept further input when maximum response length is exceeded. UI Maximum Response lengths:

- Digits Only – 160 characters.
- SMS default alphabet characters – 160 characters.
- Hidden Characters (digits only) – 20 characters.

'Key' responses:

- 'C' clears current character.
- 'End key' terminates the proactive session.
- 'Back' – Backward move in proactive session.
- 'OK' – Command performed successfully.

Select item

Scroll to highlight item for selection. 'Key' responses:

- Navigational key press down – Scroll down list.
- Navigational key press up – Scroll up list.
- End key terminates proactive session.
- 'Back' – Backward move in proactive session.
- 'OK'– Command performed successfully.

Send short message

Alpha Identifier text is displayed, if it is present. Otherwise, there is no user indication if the customization for default text is not enabled. If the customization for default text is enabled, and there is no Alpha Identifier, default message "Sending message" is displayed. Default responses are "Message failed" or "Message sent" for the customization enabled case with no Alpha Identifier.

'Key' responses:

- End key or 'Back' ends the proactive session.

Set up call

If you are on a call when the commands 'Set up Call', 'Putting all other calls on hold' are sent, the user will see the "Let SIM card setup call" user confirmation text. If 'OK' is pressed the current call will be put on hold and the new call set up. If the phone is on a call when the command 'Set Up Call, disconnecting all other calls' is sent, the user will see the 'Let SIM card setup call' user information text. If the 'OK' key is pressed the current call will be disconnected and the new call set up.

Set up menu

Incorporates a SIM Application Toolkit Menu Item into the ME's main menu structure.

If an Alpha Identifier is supplied in the Set Up Menu command, this is used as the SIM AT entry in the ME's main menu. If null alpha identifier is supplied

and several items are found in the menu, the default title "ONLINE SERVICES" is used. If the SIM AT Menu Item is selected by pressing 'Select', all the items sent in the Set Up Menu command will be available for selection, in the same way as the Select Item command.

Entertainment

Audio and Video

File types	Formats	Extensions
Audio (All listed audio file formats are supported ringtone file formats)	MP4	.mp4
	MP3	.mp3
	M4A	.m4a
	3GPP™	.3gp
	AMR-NB	.amr
	AMR-WB	.awb, .amr
	WAV	.wav
	General MIDI (GM)	.mid
	SP-MIDI	.mid
	RealAudio® 8	.ra, .rm
	iMelody	.imy
	XMF	.xmf
	WMA	.wma
	WMA Pro (profile M0)	.wma
Video (including audio part)	MP4 (video: MPEG4, audio: AAC or AMR)	.mp4
	3GPP™ (video: MPEG4 or H.263, H.264, audio: AAC or AMR)	.3gp
	RealVideo® 8, 9, 10	.rv, .rm
	WMV	wmv, .asf
Streaming transport	RTSP according to 3GPP™	
Video encoding	H.263 Profile 0, Level 10 MPEG-4 Simple Visual Profile Level 3	
Video decoding	MPEG-4 Simple Visual Profile Levels 0, 1, 2 H.263 Profile 0, Levels 10, 20, 45 H.264 Baseline Profile (Main subset), Levels 1b, 1.1, 1.2, (up-to QVGA/30fps) RealVideo 8	

File types	Formats	Extensions
Audio encoding	AMR-NB AAC (for video recording only)	
Audio decoding	MP3 (MPEG-1/2/2.5, audio layer 3) AAC AAC+ eAAC+ AMR-NB AMR-WB RealAudio 8 (depending on configuration) WMA version 2,7,8: Class 1 WMA version 9: Level 3 WMA Pro (profile M0) GM GML SP-MIDI	

Java™

Feature	Functionalities
Java™ Platform, Micro Edition	• JSR-75 PDA/File • JSR-82 Bluetooth Wireless Technology API • JSR 118 MIDP 2.1 • JSR-120 Wireless Messaging API • JSR-205 Wireless Messaging API 2.0 • JSR-135 MMAPI 1.1 • JSR 139 CLDC 1.1 • JSR-172 Web Services • JSR-177 Security and Trust Services • JSR-180 SIP • JSR-184 Mobile 3D Graphics • JSR 185 Java™ Technology for the Wireless Industry • JSR-211 Content Handler • JSR-226 SVG • JSR-229 Payment • JSR-234 Adv Multimedia Supplements • JSR-238 Mobile Internationalization • JSR-239 OpenGL ES • JSR-248 Mobile Service Architexture • JSR-256 Mobile Sensor API (accelerometer) • Nokia UI API
Java 3D	• Mascot Capsule Ver.3 • JSR-239 OpenGL ES • JSR-184 Mobile 3D Graphics API for J2ME™

Imaging/Messaging

5 Megapixel camera

Digital still camera (DSC)	
True colour	Yes
Digital zoom	Main camera: 16x zoom
Photo fix	Improves an under-exposed picture by calculating and adjusting the light balance
Still camera settings bar	
Shoot modes	Normal, BestPic™, Panorama, Frames
Scenes	Auto, Twilight landscape, Twilight portrait, Landscape, Portrait, Beach/Snow, Sports, Document
Picture sizes (resolution)	**5 MP** (2592x1944 pixels) **3 MP** (2048x1536 pixels) **1 MP** (1280x960 pixels) **VGA** (640x480 pixels) Note: MP = Megapixel
Focus	Auto, Macro, Infinity
Flash	Off, Auto
ISO setting	ISO 400, ISO 200, ISO 100, ISO Auto
Self-timer	Off, On
Effects	Off, Black & white, Negative, Sepia, Solarize
White balance	Auto, Daylight, Cloudy, Fluorescent, Incandescent
Metering mode	Normal, Spot
Still camera setup	
Picture quality	Normal, Fine
Shutter sounds	Yes
Image stabilizer	Available for twilight landscape and landscape scenes
Auto rotate	Off, On
Reset file number	Yes
Save to memory	Memory card, phone memory
Video recorder	
Video size (resolution)	QVGA 320x240 pixels
Frame rate	30 fps (frames per second)

Digital zoom	
Video camera settings bar	
Video clip length	For video, For picture message
Focus	Yes, same as camera
Light	Off, Auto
Night mode	Off, On
Self-timer	Yes, same as camera
Effects	Yes, same as camera
White balance	Yes, same as camera
Metering mode	Yes, same as camera
Turn on/off microphone	Off, On
Video camera setup	
Image stabilizer	Off, On
Reset file number	Yes, same as camera
Save to memory	Yes, same as camera

Video telephony

Picture sizes (resolution)	QCIF (176x144 pixels) SQCIF (128x96 pixels)
Digital zoom	Video call camera: 2x zoom Main camera when used for video telephony: 2x zoom
Night mode	Yes
White balance	Auto
Brightness	Yes
Video coding	H.263 MPEG-4 (Simple Visual Profile Level 0)
Audio coding	AMR

Images

Images can be shared using a Bluetooth connection, MMS, email message, computer file transfer or memory card.

The image size is limited by the amount of free RAM.

Formats	Details
JPEG	ISO/IEC JPEG Baseline DCT Progressive DCT Non-differential Unlimited size
GIF	87a, 89a, support for interlacement, animation and transparency. Unlimited size
BMP	Windows® bitmap format
PNG	Unlimited size
SVG	SVG Tiny 1.2
WBMP	Wireless bitmap Unlimited size

Supported character set

Decoding text (Incoming MMS)	
US-ASCII	UTF-16
ISO-8859-1	KOI8-R
ISO-8859-2	GB2312
Windows-1251	GB 18030
ISO 10646 (UCS-2)	GB 13000
UTF-7	BIG-5
UTF-8	
Coding Text (Outgoing MMS)	
UTF-8	

Short Messaging Service

Feature	Support
SMS Service Centre Number	It is possible to pre-load the SMS Service Centre Number
Pictures	It is possible to insert a picture or an icon into the text message. EMS compliant mobile phones will be able to see the picture correctly

Feature	Support
Reply to messages	It is possible to reply to received messages by SMS, MMS, voice message and email
Input methods:	Predictive writing and multitap
Copy and paste words	Yes
Teaching of predictive words that are not in the predictive dictionary	Yes
Possibilities when creating a message:	
Save a sent message in a "Sent items" folder	Yes
Insert a line in the message	Yes
Assign a validity period to the message	Yes
Use predefined messages	Yes
Possibilities when receiving a message:	
Reply to the sender	Yes
Forward the message	Yes
Save the message on the SIM card	Yes
Get delivery time and date	Yes
Possibilities of the previously sent message:	
Delivery report of the message	Yes (if requested when sending)
Forward the message	Yes
Save the message on the SIM card	Yes
Know the remaining capacity storage	Yes, > 95% full warning, capacity on SIM when saving to SIM
Possibilities of the previously received message:	
Reply to the sender	Yes
Save the message in the inbox	Yes
Forward the message	Yes
Know the remaining capacity storage	Yes, > 95% full warning, capacity on SIM when saving to SIM
Supported ways for replying to a received SMS:	
Via SMS, MMS, voice message, email	Yes
Via phone call (set up a call to the number contained in the message body)	Yes

Feature	Support
Via Web browser (go to the Web address contained in the message body)	Yes
Via USSD session	No
Print via infrared	No
Possibility to enable the user to send a text message to a list of recipients	Yes
Possibility to write an email address as a recipient address	Yes, if email gateway is present
SMS storage	In the phone memory, on the SIM card, or on memory card
Nokia Picture Messaging	Yes

Enhanced Messaging Service

Feature	Support
Level of compliance supported by the phone regarding the specifications described in release 99	Enhanced Messaging Service (EMS) according to the standard 3GPP™ TS 23.040 v4.3.0, with the addition of the ODI feature from 3GPP™ TS 23.040 v5.0.0
Number of messages that the phone is able to handle to generate a concatenated message	10
Outgoing messages	It is possible to: • See how many short messages an EMS message consists of before sending it. • Choose whether to send the message or not after writing it.
Incoming messages	• A signal is heard once all parts of the message have been received or when a time-out occurs. • It is possible to re-use the content of an EMS message. Sounds, pictures, and animations can be inserted in a new message, if the object is not protected using ODI.
Delivery report for concatenated messages	A receipt is received in the phone when all parts of a concatenated message have been delivered if a delivery report is requested when it is being sent
Insert objects	It is possible to add pictures, animations and sounds to an EMS message
Sounds	Chimes high, chimes low, ding, tada, notify, drum, claps, fanfare, chords high, chords low
I-melody	Yes, version 1.2

Feature	Support
Melodies	It is possible to: • Receive (always), send using EMS (if not copyright protected). • Download melodies and commercial tunes from the Web.
WBMP	Yes
Picture sizes	16x16, 32x32 pixels, variable size in black and white
Pictures	It is possible to: • Edit pictures using PhotoDJ™. • Receive (always), send using EMS (if not copyright protected). • Download pictures from the Web.
Animations	There is support for the following animations: Angry, Crying, Flirty, Happy, Kiss, Sad, Tongue, Wow, Confused, Devil, Glasses, Indifferent, Laughter, Sceptical and Wink, as defined in 3GPP™ TS 23.040 v4.3.0. It is possible to send and receive animations
TP-PID field value given by the phone before sending an EMS message	0x00

Multimedia Messaging Service

Feature	Support
MMS/CSD parameters and MMS/GPRS parameters placement	MMS is bound to an MMS profile. A MMS profile is bound to a Data account. A data account contains either CSD parameters or GPRS parameters and possibly proxy settings
Possibility to pre-configure the MMS parameters in the factory	• MMS/CSD: Yes • MMS/GPRS: Yes
Possibility to configure the MMS parameters by OTA provisioning	• MMS/CSD: Yes • MMS/GPRS: Yes
Possibility for all the parameters from the parameters set to be OTA provisioned at the same time	• MMS/CSD: Yes • MMS/GPRS: Yes
Possibility for only one parameter, in the set of parameters, to be OTA provisioned	• MMS/CSD: No • MMS/GPRS: No
Supplier indication of realized interoperability tests between its MMS User Agent and MMS Relay/Server from other suppliers	Yes
Support of a standard procedure for OTA provisioning of MMS parameters	OMA Client Provisioning 1.1

May 2008

Feature	Support
Functionalities that the user is able to set during message composition:	• Message subject • Message priority • Email recipient address • Message Cc, Bcc recipient(s) address(es) • Delivery report request • Read report request • MSISDN recipient address • Delivery time • Validity period
From where can the user insert multimedia elements into multimedia messages:	File Manager Photo album Camera Contacts Calendar Task Note Browser (vBookmark) VideoDJ™ PhotoDJ™ MusicDJ™ Sound recorder
Possibility for sent messages to be memorized into a folder in phone memory	Yes
Actions that the user can perform after message retrieval:	• Reply to the sender of the message SMS/MMS • Reply to the sender and to Cc, Bcc people SMS/MMS • Forward the message • Delete the message • Save message in a dedicated folder • Call the sender of a message • Save item • Mark as unread • Details
Multimedia codecs/formats supported for audio	AAC, AMR, MPEG Layer 3, Real 8, AWB, WAV, MP4, MIDI, iMelody, 3GPP™, XMF, M4A, WMA
Multimedia codecs/formats supported for video	MPG4, 3GPP™, SDP, Real 8, WMV
Multimedia codecs/formats supported for image	JPEG, GIF87, GIF89A, PNG, SVG, WBMP, BMP
Supported formats for message presentation:	• Message body plus attachments (email presentation) • SMIL version as described in OMA MMS IOP document version 1.2
Maximum message size that can be handled by the phone	Content Class and Creation mode are applied. Maximum size can also be customized
Maximum number of objects supported in a message	30 objects is standard. It is possible to increase the number through configuration

Feature	Support
Maximum text size	5,000 characters/text
Capacity storage	Depending on the availabe user memory. Recommended maximum: 1000

Email client technical data

Feature	Support
Bearer type (IP)	Yes
Bearer type GSM Data (IP)	Yes, GPRS, HSCSD, ISDN and analog
Character sets	ISO: ISO-8859-1, ISO-8859-2, ISO-8859-5, ISO-8859-7, ISO-8859-9, ISO-8859-10 Windows: Windows-1251, Windows-1252, Windows-1254, Windows-1255, Windows-1258 US-ASCII Unicode: UTF-7, UTF-8, UTF-16 Japanese: Shift_JIS, ISO-2022-JP Cyrillic: KOI8-R Simplified Chinese: GB2312, GB18030 Traditional Chinese: Big5 Thai: TIS-60
OTA provisioning solution	OMA Client Provisioning 1.1
Protocols	POP3 and IMAP4
Push email	IMAP IDLE (extension of IMAP4 Rev1), OMA Email Notification 1.0 and scheduled checking, Exchange ActiveSync® (EAS)
Secure email	SSL/TLS, both port methods (POPS/IMAPS) and STARTTLS
HTML mail	Yes (tags removed)
Thumbnailed image attachments	Yes
Message management	User selectable inbox size, save messages to Memory Stick, arrange messages by date, size and Email address.
ESMTP	Yes
Background sending	Yes

Connectivity

Bluetooth™ technical data

Dimension	Support
Bluetooth capability statement	This phone supports Bluetooth Specification, version 2.0 with enhanced data rate (EDR)
Bluetooth profiles	Advanced Audio Distribution Profile Audio/Video Remote Control Profile Basic Imaging Profile Dial-up Networking Profile File Transfer Profile Generic Access Profile Generic Object Exchange Profile Handsfree Profile Headset Profile Human Interface Device Profile Object Push Profile Personal Area Networking Profile Phonebook Access Profile Serial Port Profile Synchronization Profile SyncML OBEX binding
Connectable devices	All products supporting Bluetooth spec. 1.1, or higher, and at least one of the profiles above
Coverage area	Varies due to radio performance between the connected devices and the occurrence of obstacles. Up to 10 metres (33 feet)
Transmission power	Class 1, typical +3 dBm or 2 mW
Frequency band	2.4 GHz – the unlicensed ISM band
Power consumption	GSM host processor excluded: • Standby, Bluetooth On mode: <0.6 mA • Voice to headset (HV3 master): 11 mA (7 mA with EDR functionality, 2EV3 master). Dependent on various parameters such as if the phone is master or slave • Data mode average: 27mA at 172.8 Kbps symmetrical (DH1)
Data transmission rate	• Data speed at least 800 Kbps on a Dial-up Networking connection (requires access to HSDPA network and may be limited by capacity situation on the 3G base station) • Data speed typically 1.0 Mbps on an Object Push connection between two phones (in case of using similar phones and if no other Bluetooth devices are connected)

OMA Data Synchronization (SyncML™) technical data

Feature	Support for Sync ML
SyncML compliance	The phone is fully SyncML compliant, having passed SyncML Conformance testing. OMA DS 1.2 or OMA DS 1.1.2 is used depending on configuration and both are supported in Server-alerted synchronization
Basic data formats	Contacts: vCard 2.1, Calendar: vCalendar 1.0 (vEvent) Tasks: vCalendar 1.0 (vTodo) Notes: text/plain, Bookmarks:vBookmark 1.0
Possibility for operators to extend SyncML functionality	The device may be configured to include preset SyncML settings, and to control whether SyncML 1.1 or SyncML 1.2 will be used
Transport method for SyncML messages	HTTP, HTTPS, OBEX (USB, Bluetooth)
Possibility for the user to configure login parameters (for example, username and password) to access the remote database	Yes
Configuration parameters that can be entered/modified by the user	Server URL, Username, User PWD, Paths to databases (Calendar, Contacts, Notes, Tasks and Bookmarks), UserID and PWD for databases, Databases to be synchronized (On/Off), Internet profile, Synchronization interval, Server ID and Server PWD, permission to allow server-alerted synchronization and roaming options. Can be provisioned with OMA Client provisioning v1.1 and OMA Device Management v1.2
Ability to deal with multiple servers	Yes
Ability to perform conflict resolution actions	Yes

Microsoft® Exchange ActiveSync®

Feature	Support for Exchange ActiveSync
Protocol version	The phone supports version 2.5 of Microsoft Exchange ActiveSync
Supported applications	Email, Calendar, Phonebook
Transport method used	HTTP, HTTPS
Possibility for the user to configure login parameters for remote server	Yes
Configuration parameters that can be entered/modified by the user	Server URL, username, domain name, password, applications to sync, email message size, email attachment size, email date range, message alert sound, calendar date range, interval sync, secure connection, roaming option

Feature	Support for Exchange ActiveSync
Ability to use multiple servers	No
Ability to perform conflict resolution	No

Web browser technical data

Feature	Support in the browser
Bookmarks	Yes, with folders and sorting supported
Bookmark Export/Import	Yes, can be sent and received using vBookmark format using Bluetooth™, SMS, MMS and email
Browser compliancy	The Web browser is compliant with the following standards: HTML ver. 4.01 XHTML Basic 1.0 XHTML 1.1, Module-based XHTML XHTML Mobile profile WML 1.3 Cascading Style Sheets, level 2 revision 1, CSS 2.1 Specification Wireless CSS Specification, Version 26-Oct-2001 (WAP-239-WCSS-20011026-a) ECMA-script according to specifications found at http://www.ecma-international.org/publications/standards/Stnindex.htm ECMAScript Mobile Profile AJAX Document Object Model Level 2 (DOM 2) Scalable Vector Graphics, Mobile SVG Profile: SVG Tiny, version 1.2 For further details, see the *WAP User Agent strings and profiles for Sony Ericsson mobile phones* Developers guidelines at Developer World http://developer.sonyericsson.com/
Browser version	Access NetFront 3.4
Cache	Yes (size 2 MB)
Character sets *	Most standard character sets, among others UTF-8 (Default), UTF-16, USASCII, Latin1, UCS2. For updated and detailed information, see the *WAP User Agent strings and profiles for Sony Ericsson mobile phones* Developers guidelines at Developer World http://developer.sonyericsson.com/ * When creating pages, it is recommended to always save the page contents as UTF-8.
Clear cache	Yes, persistent. By user interaction, at SIM card change or master reset
Frames	Full Frame support: Frames, IFrames
Image formats and animations	GIF (interlaced and non-interlaced) WBMP, JPEG, PNG, BMP and SVG. Animated GIFs, animated SVG and Flash

May 2008

Feature	Support in the browser
Schemes	Wtai, mailto:, smsto:, tel, rtsp, http, https
Streaming	Progressive download, RTSP, Java script controls
Web feeds	Ticker, podcasts, enclosures, OPML import. No support for ATOM
User agent profile	
User Agent Profiles	Yes, list of client characteristics - for example screen size. For details, see the *WAP User Agent strings and profiles for Sony Ericsson mobile phones* Developers guidelines at Developer World http://developer.sonyericsson.com/
URL sent pointing to the UA profile at the beginning of browser session	Yes. For details, see the *WAP User Agent strings and profiles for Sony Ericsson mobile phones* Developers guidelines at Developer World http://developer.sonyericsson.com/
Download	
OMA download functionality	Yes
HTTP GET solution to download content/ Uses browser for download	Yes
Other download content	Yes. No download limit when using HTTP protocol
Download application/product memory check	Yes
Downloaded object solution	Yes. The user is informed where the content is saved and asked if it should be used at once or later
UAP indication for downloading	Yes
Other features	Yes. Save, delete, forward, use, manage
Object formats	All formats can be downloaded and saved, but only formats supported by the phone can be used by the phone
Resume	Yes
Background download	Yes
Progressive download	Yes
Streaming	Yes
Browser navigation	
Selection keys	Yes. Two selection keys and centre navigation key
Separate/dedicated back or erase keys	Yes
Display backlight on when browsing	Yes
Predictive writing	Yes

May 2008

Feature	Support in the browser
"http://" string displayed automatically when entering URLs	Not displayed but the "http://" is added automatically to the URL
"www" added automatically when entering URLs	No
Combined Search/Go To input field	Intelligent input field changes appearance (Search or Go to) depending on user input. "www", ".com" and other URL syntax can be used to trigger the Go To appearance
Internet network features	
Bluetooth (as local connection)	Yes
Infrared (as local connection)	No
Network settings	Yes
PPP Authentication	PAP, CHAP supported
Security	HTTPS authentication TLS version 1 SSL version 3 WIM on SIM ICC X.509 certificate support, Mobile Profile WPKI OTA download of trusted certificates
USB (as local connection)	Yes
PUSH	
Content types	
Service Indication (SI)	Yes
Service Loading (SL)	Yes
Cache Operation (CO) content type	No
Session Initiation Application (SIA)	Yes
Man Machine Interface	
SI/content retrieval postponing	Yes
SI menu structure accessibility	Messaging, Inbox
SL reception warning	The user can make a choice if a dialogue is wanted or not before loading the SL
SIA reception warning	Yes
Cache size limitations	The oldest push in the inbox will be discarded
Number of push messages	Depends on the size of the push messages. Around 20 push messages with a size of 1024 bytes URL and 1024 bytes Indications for Service Indication can be saved.

Feature	Support in the browser
Push deactivate	Yes
Dynamic push menu changes	No. There are no changes in the menus when activating/deactivating push
Security	
Mechanisms for push	None
Trust with PPG	Sending a SIA is the most reliable
WSP push sessions	No
HTTP push sessions	The White List (a setting to allow push messages only from certain addresses) is supported for IP address
SMS connection-less push	The White List (a setting to allow push messages only from certain addresses) is supported for SMS Center
Denial of service/spoofing	Setting to select when to allow push messages: Always, always ask or never. There is also a setting to select whether to allow push messages from all senders or only from certain addresses (the White List)

Client Provisioning

Feature	Support
Provisioning types	**OMA Client Provisioning (v1.1)**
Total Parameter sets	10 (shared between the provisioning types) < or = 10 (total number of data accounts)
Parameter set list	See the *Device Management v3* Developers Guideline at Developer World http://www.sonyericsson.com
Factory pre-configuration	Yes. This also provides the possibility to lock a setting
Bearer	
SMS	Uses security mechanism (SEC) methods according to OMA-WAP-ProvCont-v1_1-20050428-C(see www.openmobilealliance.org). For NETWPIN the user is asked to accept to install received settings. For USERPIN, USERNETWPIN and USERPINMAC the user is subsequently asked to enter a PIN code that is a shared secret between the service provider and the user
Carrier reset/provisioning	Yes, but not if the set is pre-configured in the factory and locked
SWIM	Not used for provisioning. The SWIM is only used for wireless security, both SSL/TLS connections and digital signatures
Applicative provisioning	
Preferred bearer customization	Yes

Feature	Support
Other applications/features	Yes (MMS, Email, OMA Data Synchronization, Wireless Village, OMA Device Management, Streaming)
Technologies	
OMA Client Provisioning	Yes, Client Provisioning version 1.1
Nokia/Ericsson OTA	No
Openwave OTA	No
Other	No
Provisioning bearer	SMS

May 2008

Abbreviations

3GPP™

3rd Generation Partnership Project

AAC

Advanced Audio Coding

AAC+

High Efficiency AAC v.1

AJAX

Asynchronous JavaScript and XML

AMR

Adaptive Multi Rate. Audio format for speech sounds

AMR-NB

Adaptive Multi Rate Narrow Band

AMR-WB

Adaptive Multi Rate Wide Band, a more efficient codec that supports speech with higher quality

API

Application Programming Interface

Bluetooth PAN

Bluetooth Personal Area Network

CS

Circuit Switched

CSD

Circuit Switched Data

DRM

Digital Rights Management. Controlling copying and distribution of contents, with respect to intellectual property rights

DTMF or Touch Tone

Dual Tone Multi-Frequency signal. Codes sent as tone signals. Used for telephone banking, accessing an answering machine, etc.

EDGE

Enhanced Data Rates for GSM Evolution

e-GSM

Extended GSM. New frequencies specified by the European Radio Communications Committee (ERC) for GSM use when additional spectrum is needed (network-dependent). It allows operators to transmit and receive just outside GSM's core 900 frequency band. This extension provides increased network capability

eAAC+

High Efficiency AAC v.2

EDR

Enhanced Data Rate

EFR

Enhanced Full Rate, speech coding

EMS

Enhanced Messaging Service. Allows the user to add simple pixel pictures and animations, sounds and melodies to a text message. The EMS 3GPP™ standard also includes text formatting

ETSI

European Telecommunications Standards Institute

FM

Frequency Modulation of the (radio) carrier wave

FR

Full Rate, speech coding.

GIF

Graphics Interchange Format

GPRS

General Packet Radio Services

GSM

Global System for Mobile Communications. GSM is the world's most widely used digital mobile phone system, now operating in over 100 countries around the world, particularly in Europe and Asia-Pacific.

The GSM system family includes GSM 850, GSM 900, GSM 1800 and GSM 1900. There are different phases of roll-out for the GSM system and GSM phones are either phase 1 or phase 2 compliant

HR

Half Rate, speech coding

HSCSD

High Speed Circuit Switched Data

HSDPA

High Speed Downlink Packet Access

HTML

HyperText Markup Language

HTTP

HyperText Transfer Protocol

IrDA

Infrared Data Association

JPEG

Joint Photographer Expert Group

MIDI

Musical Instrument Digital Interface

ME

Mobile Equipment

MMI

Man-Machine Interface. See UI

MP

Megapixel

MP3

Short for "MPEG-1 layer 3", an audio coding scheme

MPEG4/MPG4

Moving Picture Experts Group. MPEG-4 is a standard used primarily to compress audio and visual digital data.

MT

Mobile Termination

ODI

Object Distribution Indicator

OMA

Open Mobile Alliance

OTA

Over The Air

PDA

Personal Digital Assistant

PDP

Packet Data Protocol

PIM

Personal Information Management

PNG

Portable Network Graphic

QCIF

Quarter Common Intermediate Format

RDS

Radio Data System

RSS

Really Simple Syndication

RTSP

Real Time Streaming Protocol session control.

SI

Service Indication

SL

Service Loading

SIM card

Subscriber Identity Module card – a card that must be inserted in any GSM-based mobile phone. It contains subscriber details, security information and memory for a personal directory of numbers. The card can be a small plug-in type or credit card-sized, but both types have the same functions. The phone uses the small plug-in card.

SMS

Short Messaging Service. Allows messages of up to 160 characters to be sent and received via the network operator's message centre to a mobile phone

SP-MIDI

Scalable Polyphony MIDI

SS

Supplementary Services

SSL

Secure Socket Layer

TLS

Transport Layer Security

TTI

Transmission Time Interval

UI

User Interface

URL

Uniform Resource Locator.
The global address of documents and other resources on the World Wide Web

USSD

Unstructured Supplementary Services Data

vCard

vCard automates the exchange of personal information typically found on a traditional business card, for use in applications such as Internet mail, voicemail, Web browsers, telephony applications, call centres, conferences, PIMs /PDAs, pagers, fax, office equipment and smart cards. vCard is specified by IETF

VGA

Video Graphics Array

WAV

Waveform audio format

WMA

Windows Media Audio

WMA Pro

Windows Media Audio Professional

WBMP

Wireless BitMap.
A graphic format optimized for mobile computing devices

WCDMA

Wideband Code Division Multiple Access

WML

Wireless Markup Language. A markup language used for authoring services, fulfilling the same purpose as HyperText Markup Language (HTML) does on the World Wide Web (WWW). In contrast to HTML, WML is designed to fit small handheld devices

WWW

World Wide Web

XHTML

Extensible HyperText Markup Language

XML

Extensible Markup Language

Related information

Documents

- Sony Ericsson User guide
- Sony Ericsson FAQ
- AT Command Reference Manual
- WAP 2.0 Specifications

Links

- www.sonyericsson.com/
- www.ericsson.com/mobilityworld/
- www.midi.org
- www.extendedsystems.com
- www.gsmworld.com/
- www.bluetooth.com
- www.imc.org
- www.3gpp.org
- www.irda.org

- www.etsi.fr
- www.openmobilealliance.org
- www.imc.org/pdi/
- www.w3.org/TR/xhtml-basic/
- www.java.sun.com
- www.memorystick.org/
- www.memorystick.com/
- www.sonyericsson.com/updateservice
- www.sonyericsson.com/support

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