

White paper

September 2007

W660

Full music life experience



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 below 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 technology, applications, functions and features of the phone.

Note: This document contains general descriptions for this specific Sony Ericsson mobile phone.

People who can benefit from this document include:

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

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Sony Ericsson Developer World

On www.sonyericsson.com/developers_guidelines, 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

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Product overview

W660 is a stylish 3G Walkman® phone that gives a rich music experience and high speed connection. It is a natural step in the Sony Ericsson 'True Music' evolution. W660 truly touches your senses as the next generation Walkman®. The everyday need for multiple devices - such as a compact mobile phone, a quality Walkman® player and a digital camera- are all in the one device with easy-to-use functionality.

Features include:

- A state-of-the-art Walkman® player.
- Dedicated music keys.
- A music FM radio with RDS.
- Full music track download over the air using PlayNow™.
- Music recognition - TrackID™.
- The latest in 3G technology for voice and video telephony.
- 2.0 megapixel camera.
- Easy-to-use horizontal digital camera menu.
- Web browser HTML.
- RSS reader.
- Easy content management with PhotoDJ™ and VideoDJ™ and more.
- 3D gaming.

The slim elegant compact stick phone has a large 2-inch 262k TFT colour screen. Memory capacity is up to 16 MB internally with a memory slot for a Memory Stick Micro™ (M2™). The memory card supports up to 2 GB storage capacity (512 MB included). The ergonomic keypad allows you to write text messages quickly, type in phone numbers or search for particular content such as songs and pictures.

You can multitask with applications running in the background, for example, listen to your favourite tracks, talk and browse, send messages or download music at the same time.

A USB cable is provided so that you can synchronize or transfer files between your phone and a computer.

Key features

2.0-inch colour screen

The large 2.0-inch (176x220 pixels) full graphic 262k TFT colour screen enhances viewing, facilitating high-quality multimedia and entertainment.

Walkman® player 2.0

The Walkman® player converts the phone into a portable MP3 player. Play music, streamed or downloaded. The folder system enables you, for example, to organize your favourite songs into groups and create simple playlists. The Walkman® key gives you direct access to your music files without having to browse the menus.

FM Radio with RDS

The FM radio offers instant and easy access to FM radio channels.

Music recognition - TrackID™

Obtain title, artist and album information about unknown songs, when you are listening to the FM radio or recording music from an external source, using the microphone.

Disc2Phone

A computer ripping software on the CD which is included in the kit.

You can create your own playlists and albums and transfer them to the phone. Music files can be transferred from a computer to the phone by using software included on the CD in the box. Search for and select music on your computer or audio CDs and convert your existing audio tracks to MP3 format.

PlayNow™

Content such as music files, video clips and images may be previewed before purchase. A unique and easy-to-use direct link for the downloading of best selling content in the form of music files, video clips, games, themes, and images. By selecting PlayNow™, you can, for example, go straight to a live list of Top Music Hits.

2.0 Megapixel camera and Video call camera

There are two built-in cameras. The main camera is 2.0 Megapixel and includes 2.5x digital zoom for still images and 4x digital zoom for video recording and telephony. The horizontal user interface makes the camera even more user-friendly.

There is also a video call camera. When entering video call mode using the desktop menu, the video call camera is activated. During a video call, it is possible to switch between the video call camera and the main camera. By switching to the main camera you can show the other party what you see.

Memory Stick Micro™ (M2™)

There is support for Memory Stick Micro™ (M2™) of up to 2 GB (512 MB included). Different kinds of content (pictures, audio, video clips etc.) can be stored on the Memory Stick Micro (M2™) and transferred to other Memory Stick Micro™ (M2™) compatible products, for example digital cameras, camcorders, portable Walkmans, TVs, photo printers and computers.

RSS Reader

A built-in Really Simple Syndication (RSS) reader is used in combination with the Internet browser. When browsing, frequently updated content, such as news headlines and content from selected Web sites and blogs, can be received as feeds using a Web site. RSS feeds are set using the RSS reader and shown in the Internet browser.

HTML Web browser support

Browse the Internet and look at the Web sites in a different way with Access NetFront™ 3.3 – an HTML browser which supports a complete Web standard suite.

Picture blog

The picture blog application provides an easy way for sending pictures to the Internet. The pictures are posted to your personal blog Web page.

Push email

W660 supports push email, a method of pushing new emails automatically to mobile devices. Push email increases mobile email usability, with email being delivered in the background (similar to SMS or MMS).

3D Gaming

Gaming is a very popular feature in mobile phones, and with Java™, users can download new games and skill levels to further enhance their entertainment experience. Several embedded games are included in the phone at purchase.

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.

Bluetooth™ wireless technology

Several devices (simultaneous Bluetooth connections) can be connected up to 10 metres 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. There is support for Bluetooth version 2.0.

Bluetooth™ audio streaming

Listen to audio in compatible devices.

By connecting a Bluetooth A2DP compatible accessory 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 Walkman 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 Stick Micro™ (M2™) 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 files and video clips between folders in the phone and the computer.

Personal Information Management (PIM)

Stay up-to-date with everyday events by synchronizing phone contacts, calendar appointments and tasks 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.

Technologies in detail

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

Functions and features

The following includes short descriptions of the technologies available in W660 compared to K610.

Feature	W660	K610
3D games	Yes	Yes
3G Enabled Technology that enables 384 kbps data transfer and video telephony	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
Alarm clock Set alarms or recurrent alarms	Yes	Yes
Backlight White backlight to illuminate the phone screen	Yes	Yes
Battery	3.6V, 950 mAh, Lithium Polymer	3.6V, 900 mAh, 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
Bluetooth™ audio streaming	Yes	Yes
Bluetooth™ audio video remote control Use the phone as a remote control for home electronics, computer applications and other accessories	Yes	Yes
Bluetooth™ PAN Connect the phone to Internet using Bluetooth wireless technology	Yes	Yes
Bluetooth™ wireless technology Wireless connectivity between devices within a range of up to 10 metres. Support for specification of the Bluetooth System, version 2.0	Yes with enhanced data rate (EDR)	Yes with enhanced data rate (EDR)

Feature	W660	K610
Business card exchange Exchange contact information	Yes	Yes
Calculator	Yes	Yes
Calendar Calendar with day, week and month views and reminders	Yes with enhanced functionality	Yes with enhanced functionality
Call list View calls made and calls received	Yes	Yes
Camera	2.0 Megapixel	2.0 Megapixel
Camera button A dedicated camera button. Press once and the integrated camera activates	Yes	Yes
Camera file browser Browse the picture folder without leaving the camera function	Yes	Yes
Camera keys on top When using the camera in horizontal mode - the side keys with camera functionality are on top, for a digital still camera feel	Yes	Yes
Camera menu Easy-to-use horizontal digital camera menu	Yes	Yes
Chinese input method Chinese input methods: Text input methods based on Simplified or Traditional Chinese. Bopomofo, Pinyin or Stroke	Yes	Yes
Clock Onscreen clock that keeps time even when the phone is off	Yes	Yes
Co-branding area	30 x 5.6 mm	22 x 6.5 mm
Code memo A safe place to store all PIN codes and other information. To access Code memo, only one PIN code is needed	Yes	Yes
Colour	Record Black or Rose Red	Urban Silver or Evening Red or Misty White

Feature	W660	K610
Contacts Phone book with fields for name, phone and fax numbers, email address, street address, company, title	Yes	Yes
Conference calls Support for multi-party calling	Yes	Yes
Content online Downloadable pictures, games, themes, ringtones available online	Yes	Yes
Copyright protection - DRM DRM (Digital Rights Management) features the rights and copy protection of downloaded content (audio, pictures, music tones, video clips, entertainment features such as games, Java applications etc.)	Yes	Yes
Design	Stick front	Dual front
Device Management (DM) DM utilizes GPRS as bearer of the provisioning data (basic network connectivity needs to be in place) and allows the operator to access the phone and check and set different settings such as Network connectivity (GPRS), email, MMS, WAP and Java. Device Management is achieved by supporting Over The Air provisioning 7.1 (OTA), OMA Client Provisioning 1.1 (CP) and OMA Device Management (DM) 1.2	Yes	Yes
Digital zoom (still images)	2.5x	2.5x
Email Built-in email client with inbox, outbox, compose, send and other functions	Yes	Yes
EMS (Enhanced Messaging) Text messaging (SMS) with support for pictures and sounds	Yes	Yes
Exterior description Size mm (Length x width x thickness)	102.0 x 46.0 x 14.5	102.0 x 45.2 x 16.9
External Antenna Connector The phone has a built-in antenna with an external connector for use with an advanced car handsfree accessory	Yes	Yes

Feature	W660	K610
<p>Fast port</p> <p>A system connector which enables faster data transfer between the phone and a computer</p>	Yes	Yes
<p>File manager</p> <p>Folder structure storage to help store and organize pictures, sounds and other phone content</p>	Yes with enhanced functionality for camera content	Yes with enhanced functionality for camera content
<p>Flash Themes</p>	Yes	No
<p>Flight mode</p> <p>All phone radio transmitters and receivers are inactivated. This starts the phone with only certain functions available, such as the calendar, Walkman or a game. The phone may then be used in some prohibited areas, such as aeroplanes or hospitals, where full mobile phone functionality is not allowed</p>	Yes	Yes
<p>FM radio with RDS (Radio Data System)</p> <p>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</p>	Yes	No
<p>Games download</p>	Yes	Yes
<p>Games embedded</p>	Yes	Yes
<p>GPRS</p> <p>General Packet Radio Services - a communications standard enabling packet data transfer of 21,4 Kbit/s per timeslot. Multislot class 10 supported (max 5 simultaneously)</p>	Yes	Yes
<p>High Speed Data</p> <p>HSCSD - a communications standard enabling GSM data transfer at 14.4 - 28.8 kbps</p>	Yes	Yes
<p>Icon Desktop 12</p> <p>A graphic icon desktop with 12 interactive icons</p>	Yes	Yes
<p>Image formats</p> <p>VGA (640x480 pixels)</p> <p>1 MP (1280x960 pixels)</p> <p>2 MP (1600x1200 pixels) Note: MP = Megapixel (values are without fractions)</p>	Yes Yes Yes	Yes Yes Yes

Feature	W660	K610
Infrared port A wireless connector enabling to connect the phone to a laptop or other infrared device in order to share pictures, synchronize or use the phone as a modem	No	No
Instant messaging (Wireless Village) Chat - several people can take part in a mobile messaging session	Yes	Yes
Internet browser cHTML - A mobile device adapted version of the standard Internet communications protocol HTML Full HTML support, ECMA script, DOM level 1& 2, etc. Progressive download of video clips	Yes Yes Yes Yes	Yes 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
Java™ Support for J2ME™ technology	Java 2, Micro Edition (J2ME), Java 3D™	Java 2, Micro Edition (J2ME), Java 3D™
Keys - navigation and more	4+1 navigation 2 selection Back C Activity menu Walkman® key	4+1 navigation 2 selection Back C Activity menu Internet/operator
Keys - keypad	12 alphanumeric	12 alphanumeric
Keys - side and other	on/off volume/camera zoom camera key multimedia (play/stop)	on/off volume/camera zoom camera key multimedia (play/stop)
Long SMS (Text Messaging) Concatenated SMS text messaging	Yes	Yes

Feature	W660	K610
<p>Lunar calendar</p> <p>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</p>	Yes	Yes
<p>Macromedia® Flash Lite™</p> <p>For impressive animated wallpapers, menus and other graphic elements</p>	Yes	No
<p>Mega Bass™</p> <p>An audio feature which enhances bass frequencies for better overall music experience</p>	Yes	No
<p>Memory (built-in)</p> <p>User-dedicated memory in phone</p>	Up to 16 MB	Up to 16 MB
<p>Memory Stick Micro™ (M2™)</p> <p>Slot for inserting a micro peripheral storage device. Compatible with Memory Stick Micro™ (M2™) card readers or devices. A Memory Stick Micro™ (M2™) is supplied with the phone</p>	Yes 512 MB	Yes 64 MB
<p>Menu shortcuts</p> <p>A function making it possible to dedicate shortcuts to the most used phone functions</p>	Yes	Yes
<p>MMS (Multimedia messaging)</p> <p>Picture messaging with text and sound</p>	Yes	Yes
<p>MMS video</p> <p>Support in the phone for sending video clips using MMS</p>	Yes	Yes
<p>Mobile blogging</p> <p>Share up to full size pictures over the Internet on your personal Web page</p>	Yes	Yes
<p>Modem</p> <p>Circuit Switched/Packet Switched Internet dial-up support</p>	Yes	Yes
<p>MusicDJ™</p> <p>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</p>	Yes	Yes

Feature	W660	K610
<p>Music player</p> <p>A combined digital media player for music files and video clips. Play music and video clips, streamed or downloaded. A play and pause function simplifies listening</p>	No, see Walkman® player	Yes
<p>Music tones</p> <p>Music tones, also called master tones, are DRM protected music by original artists. Various digital audio formats are supported</p>	Yes	Yes
<p>Networks</p> <p>3G</p> <p>GSM/GPRS</p>	UMTS 2100 GSM (R99) 900, 1800, 1900, e-GSM 900	UMTS 2100 GSM (R99) 900, 1800, 1900, e-GSM 900
<p>OMA Data Synchronization (SyncML)</p> <p>A device communications standard that enables remote synchronization between devices</p>	Yes SyncML 1.2 SyncML 1.1	Yes SyncML 1.2 SyncML 1.1
<p>OTA settings</p> <p>WAP, email and other settings can be sent Over-The-Air to the phone</p>	Yes	Yes
<p>Phone registration</p> <p>If Settings Download is not run in the set up wizard, the user will be asked to register the phone by sending a text message to Sony Ericsson. No personal data is registered</p>	Yes	Yes
<p>PhotoDJ™</p> <p>A drawing tool in the phone where new pictures can be drawn from scratch and existing pictures and photos can be altered</p>	Yes	Yes
<p>Picture gallery</p> <p>A thumbnail image gallery where sections of several pictures can be viewed at the same time</p>	Yes	Yes
<p>Picture phone book</p> <p>Add a picture to a saved contact. The picture appears on the screen when the stored contact calls</p>	Yes	Yes
<p>PlayNow™ (direct-link)</p> <p>Listen to music before you purchase and download to your phone</p>	Yes	Yes

Feature	W660	K610
PlayNow™ Games (direct-link) Preview games straight from the phone desktop in three clicks before you purchase and download	Yes	Yes
Polyphonic voices	72	72
Predictive text input	Yes	Yes
Print on a printer Bluetooth connection and/or Memory Stick Micro™ (M2™)	Yes	Yes
Push email	Yes OMA email notification IMAP Idle	Yes OMA email notification IMAP Idle
RSS Feeds Use your phone to view up-to-the-minute news and other content from selected Web sites and blogs	Yes	Yes
Screen Type: Size: Resolution: Technology: Colours displayed together: Backlight colour:	Full graphical 2.0 inches 220 x 176 pixels TFT, QCIF+alpha 262,000 (18 bit) White	Full graphical 1.9 inches 220 x 176 pixels TFT, QCIF+alpha 262,000 (18 bit) White
Screensaver	Yes	Yes
Settings download Set up functions, such as the Internet browser and Picture messaging, that require a connection to the Internet. This function runs in the setup wizard or can also be chosen in the Settings Menu. It is not included for customized phones	Yes	Yes
SIM card lock The possibility to protect the SIM card with a four-digit PIN code	Yes	Yes
Sleep mode A power saving feature that minimizes battery power consumed when the phone is in standby	Yes	Yes
Sony Ericsson Remote Update Service Download the latest operator approved version of the mobile phone software over the air	Yes	Yes

Feature	W660	K610
<p>Sony Ericsson Update Service</p> <p>Connect the phone to an Internet-connected computer, download the latest operator-approved version of the mobile device software from the Web site www.sonyericsson.com/support and update the mobile device</p>	Yes	Yes
<p>Sound recorder</p> <p>A mini recording device in the phone that can record voice messages or other sounds</p>	Yes	Yes
<p>Speakerphone</p>	Yes	Yes
<p>Speed dialling</p> <p>Allocate contacts in the phone book to specific keys on the keypad</p>	Yes	Yes
<p>Standby Time</p>	Target GSM: up to 395 hours UMTS: up to 395 hours	Target GSM: up to 350 hours UMTS: up to 350 hours
<p>Status view</p> <p>The screen shows the network being used, time and other status information</p>	Yes	Yes
<p>Stopwatch</p>	Yes	Yes
<p>SVG Tiny 1.1</p> <p>Scalable Vector Graphics for impressive animated wallpapers, menus and other graphic elements</p>	Yes	Yes
<p>Synchronization computer</p> <p>Synchronize and share phone content with a computer</p>	Yes	Yes
<p>Talk Time</p>	Target GSM: up to 9 hours UMTS: up to 3 hours	Target GSM: up to 7 hours UMTS: up to 2 hours 30 minutes
<p>Tasks</p> <p>Keeps track of important things to do</p>	Yes	Yes
<p>Themes</p> <p>Phone menu texts and background graphics</p>	Yes	Yes

Feature	W660	K610
Timer Set the phone to alert after a specific time lapse	Yes	Yes
Music recognition - TrackID™ Obtain title, artist and album information about unknown songs when listening to the FM radio or recording music from an external source, using the microphone	Yes	No
Twin camera Two cameras - a camera capable of taking still pictures and recording video clips, and a video call camera located above the screen	Yes	Yes
UMTS A 3G technology standard capable of data transfer 384 kbps	Yes	Yes
USB connectivity support Connect the phone to a computer using the provided USB cable	Yes	Yes
Vibrating alert The phone vibrates when a call comes in	Yes	Yes
Video call camera	Yes	Yes
Video calling When making a video call, the called party can be seen in the screen. The service requires UMTS/WCDMA	Yes	Yes
Video call talk time	Target Up to 2 hours	Target Up to 1 hour 35 minutes
VideoDJ™ Create video sequences by combining different clips and adding music and images	Yes	Yes
Video player Play video clips, streamed or downloaded. Record and transfer video clips to another phone or a computer using available transfer method	Yes	Yes
Video streaming Real time streaming of video, for example, live cam. Media can also be downloaded and saved in the phone memory	Yes	Yes

Feature	W660	K610
<p>Viewfinder</p> <p>When using an in-phone camera or snap-on accessory camera, the picture can be previewed before it is captured</p>	Yes	Yes
<p>Voice control</p> <p>Voice answer, reject and call. Assign voice commands to items in the phone book and when a call is made, the voice command can be used instead of pressing keys</p>	Yes	Yes
<p>Voice mail</p> <p>Support for voice mail operator service including automatic answering and message recording</p>	Yes	Yes
<p>Walkman® player</p> <p>A digital Walkman player. It is possible to play music files in the folder system, organize your favourite songs into groups and creating simple playlists. A play and pause function simplifies listening</p>	Yes	No, see Music player
<p>Walkman® key</p> <p>Get direct access to your music files without having to browse the menus. Press the Walkman key to gain direct access to the Walkman</p>	Yes	No
<p>WAP 1.2.1</p> <p>A mobile Internet standard to access specially designed Internet sites</p>	Yes	Yes
<p>WAP 2.0 XHTML</p> <p>A mobile Internet standard to access specially designed Internet sites. WAP 2.0 supports colour and interactive lists</p>	Yes	Yes
<p>Weight</p>	93 g	89 g

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	Tri-band GSM Release 99 recommendations. GSM 900, GSM 1800, EGSM and WCDMA FDD mode supported, GSM 1900 and e-GSM mode 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	Internal memory up to 16 MB (depending on software configuration/ file content) + 512 MB Memory Stick Micro™ (M2™) is supplied
Data transfer speeds	Up to 384 kbps (downlink) Up to 384 kbps (uplink)

Performance and technical characteristics

Dimension	WCDMA	GSM 900/ e-GSM 900	GSM 1800	GSM 1900
Frequency range (MHz)	TX:1920 – 1980 RX:2110 – 2170	TX: 880 – 915 RX: 925 – 960	TX: 1710 – 1785 RX: 1805 – 1880	TX:1850 –1910 RX:1930 – 1990
Channel spacing	5 MHz with 200 kHz channel rasters	200 kHz	200 kHz	200 kHz
Number of channels	277	174 Carriers *8 (TDMA)	374 Carriers *8 (TDMA)	299 Carriers *8 (TDMA)
Modulation	QPSK	GMSK	GMSK	GMSK
TX Phase Accuracy	Error Vector Magnitude: <17.5%	< 5° RMS Phase error (burst)	< 5° RMS Phase error (burst)	< 5° RMS Phase error (burst)
Duplex spacing	190 MHz	45 MHz	95 MHz	80 MHz
Frequency stability	+/- 0.1 ppm	+/- 0.1ppm	+/- 0.1ppm	+/- 0.1ppm
Voltage operation (nominal)	3.6 V	3.6 V	3.6 V	3.6 V
Transmitter RF power output	24 dBm Class 3 (0.25 W peak)	33 dBm Class 4 (2 W peak)	30 dBm Class 1 (1 W peak)	30 dBm Class 1 (1 W peak)
Transmitter Output impedance	50 ohm	50 ohm	50 ohm	50 ohm

Dimension	WCDMA	GSM 900/ e-GSM 900	GSM 1800	GSM 1900
Transmitter Spurious emission (according to specification)	< -36 dBm up to 1 GHz < -30 dBm over 1 GHz (according to 3GPP™ spec.)	< -36 dBm up to 1 GHz < -30 dBm over 1 GHz	< - 30 dBm	< - 30 dBm
Receiver RF sensitivity	Better than - 106.7 dBm @ 12.2 kbps CS voice	Better than - 102 dBm	- 102 dBm	- 102 dBm
Receiver RX Bit error rate	< 0.1%	< 2.4%	< 2.4%	< 2.4%

USSD technical data

Feature	Support
USSD support	GSM Phase 1/2 (Cross-phase compatibility)
Mode support mode	UI-mode supported SAT initiated USSD supported
UI-mode details	<ul style="list-style-type: none"> 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

Dimension	Support
Compatible GPRS and SMG specifications	Release 99 according to ETSI specification
Data rates	Multislot class 10 supported (max 5 simultaneously). CS-1, CS-2, CS-3, CS-4 9,050 bps, 13,400 bps, 15,600 bps, 21,400 bps supported (network-dependent)
Medium Access Modes	Dynamic allocation
Support of Packet Control Channels (PBCCH/PCCCH)	Yes
Network operation mode	NOM I, II, III
Support of GPRS/CS combined procedures	Yes
Network control mode	NC0 and 2

Dimension	Support
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, GEA3
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) supported
PDP context	10 PDP context descriptions are stored in mobile. PDP context description is edited using application in mobile, AT-command or using 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		No
DATA DOWNLOAD TO SIM	Cell Broadcast SMS	Yes Yes

Service	Mode	Support
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 setting	Yes
REFRESH	General: The reset option requests the user to wait while the phone restarts	Yes
	'00' =SIM Initialization and Full File Change Notification	Yes
	'01' = File Change Notification	Yes
	'02' = SIM Initialization and File Change Notification	Yes
	'03' = SIM Initialization	Yes
	'04' = SIM Reset	Yes
SELECT ITEM		Yes
SEND DTMF		Yes
SEND SHORT MESSAGE	bit 1: 0 = packing not required	Yes
	1 = SMS packing by the ME required	Yes
SEND SS		Yes
SEND USSD		Yes
SET UP CALL	General: Capability configuration	Yes
	Set-up speech call CallParty	No
	Subaddress DTMF support	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

Service	Mode	Support
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
	'0A' = 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
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:

- 'Long Back' – Proactive session terminated by user.
 - 'Back' – Backward move in proactive session.
- Any other key 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 "Minimum 1 character". 'Key' responses:

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

Send short message

Default message "Sending message, please wait" can be replaced for the Alpha Identifier text, or suppressed completely if a null text is provided. Default responses are "MESSAGE FAILED" or "MESSAGE SENT". 'Key' responses:

- Long 'Back' or 'Back' ends the proactive session.

Set up call

If the ME is on a call when the commands 'Set up Call', 'putting all other calls on hold' are sent, the user sees the text 'Setting up a call current call will be held'. If 'OK' is pressed, the current call will be put on hold and the new call set up. If the ME is on a call when the command 'Set Up Call, disconnecting all other calls' is sent, the user sees the text 'Setting up a call current call will be disconnected'. If the 'OK' key is pressed, the current call is 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 no alpha identifier is supplied and several items are found in the menu, a default title is used. If the SIM AT Menu Item is selected by pressing 'Select', all the items sent in the Set Up Menu command are 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)	AAC, AAC+, Enhanced ACC+ MP3 M4A AMR-NB WAV G-MIDI 1 SP-MIDI eMelody iMelody RHZ XMF Mobile XMF WMA	.mp4,.3gp, .3ga .mp3 .m4a .amr, .wav .mid .mid .emy .imy .rhz .xmf .mxmf .wma
Video (including audio part)	MPEG-4, H.263 WMV	.mp4,.3gp ..wmv
QVGA playback	MP4, 3GPP™	
Streaming transport	RTSP according to 3GPP™	
Video encoding	H.263 Profile 0, Level 10	
Video decoding	MPEG-4 Simple Visual Profile Level 0 H.263 Profile 0, Level 10 H.264 Baseline Profile (Main subset), Level 1b	
Audio decoding	AAC, AMR, MPEG-1 Layer 3	

Java™

Feature	Functionalities
Java Platform, Micro Edition	<ul style="list-style-type: none"> • CLDC 1.1 (JSR 139) • MIDP 2.0 (JSR 118) • Wireless Messaging API (JSR 120/205) • Mobile Media API (JSR 135) • Java Technology for the Wireless Industry (JSR 185) • Java API for Bluetooth wireless technology (JSR 82) • PDA Optional Packages for Java ME Platform (JSR 75) • Web Services (JSR 172) • Advanced Multimedia Supplements (JSR-234, camera capabilities only)
Java 3D	<ul style="list-style-type: none"> • Mascot Capsule Micro3D Version 3 • Mobile 3D Graphics API for Java ME Platform (JSR 184)

Imaging/Messaging

2.0 Megapixel camera

Facts and figures	
Picture sizes (resolution)	VGA (640x480 pixels) 1 MP (1280x960 pixels) 2 MP (1600x1200 pixels)
	Note: MP = Megapixel (values without fractions)
Video sizes (resolution)	QCIF (176 x 144 pixels - applicable for video recording and video telephony)
Colour depth	24 bit (8 bits per RGB channel)
Camera memory	Using phone memory or Memory Stick Micro™ (M2™); no memory dedicated to the camera only
Digital zoom	2.5x zoom for still images (VGA mode). 4x zoom for video recording and telephony
Night mode	Yes
Self-timer	Yes
Effects	Negative/ Sepia/ Black&White/ Off

Facts and figures

White balance	Auto/ Incandescent/ Fluorescent/ Daylight/ Cloudy
Picture quality	Choose between Normal and Fine
Time and date	Add a time and date to a picture

Video telephony**Facts and figures**

Picture sizes (resolution)	QCIF (176 x 144 pixels)
Digital zoom	4x 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 Bluetooth connection, MMS, email, computer file transfer or cable.

Amount of free XRAM controls upper limit of image size and/or complexity that can be decoded.

Formats	Details
JPEG	ISO/IEC JPEG Baseline DCT Progressive DCT Non-differential Symbol 'SOF2'
GIF	87a, 89a, support for interlacement, animation and transparency
BMP	Windows® bitmap format
PNG	
SVG	SVG Tiny 1.1, support for anti aliasing, compression, opacity and gradients
M3G	
WBMP	Wireless bitmap

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
Capacity storage	Up to 1000
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 pre-defined messages	Yes
Possibilities when receiving a message:	
Reply to the sender	Yes
Forward the message	Yes
Save the message on SIM	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 SIM	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

Feature	Support
Know the remaining capacity storage	Yes, > 95% full warning, capacity on SIM when saving to SIM
Supported ways of replying to a received SMS message:	
Using SMS, MMS, voice message, email	Yes
Using phone call (set up a call to the number contained in the message body)	Yes
Using WAP call (go to the WAP address contained in the message body)	Yes
Using USSD session	No
Print using infrared	No
Possibility to offer the user the ability to send an SMS 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	On the SIM and in the phone
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
Capacity storage	Up to 1000
Outgoing messages	It is possible to: <ul style="list-style-type: none"> • See how many short messages an EMS message consists of before sending. • Choose whether to send the message or not after writing
Incoming messages	<ul style="list-style-type: none"> • A signal is heard once all parts of the message have been received or when a timeout 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

Feature	Support
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 sending
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
iMelody	Yes, version 1.2
Melodies	It is possible to: <ul style="list-style-type: none"> • Receive (always), send using EMS (if not copyright protected). • Download melodies and commercial tunes from WAP/WAP portals
WBMP	Yes
Picture sizes	16x16, 32x32 pixels, variable size in black and white
Pictures	It is possible to: <ul style="list-style-type: none"> • Edit pictures using PhotoDJ™. • Receive (always), send using EMS (if not copyright protected). • Download pictures from WAP/WAP portals
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: <ul style="list-style-type: none"> • 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. An MMS profile is bound to an Internet profile. An Internet profile is bound to a Data Account. A Data Account contains either CSD parameters or GPRS parameters
Capacity storage	Up to 500 (Subject to the availability of user memory)
Possibility to pre-configure the MMS parameters in factory	<ul style="list-style-type: none"> • MMS/CSD: Yes • MMS/GPRS: Yes

Feature	Support
Possibility to configure the MMS parameters by OTA provisioning	<ul style="list-style-type: none"> • MMS/CSD: Yes • MMS/GPRS: Yes
Possibility for all the parameters from the parameters set to be OTA provisioned at the same time	<ul style="list-style-type: none"> • MMS/CSD: Yes • MMS/GPRS: Yes
Possibility for only one parameter, in the set of parameters, to be OTA provisioned	<ul style="list-style-type: none"> • MMS/CSD: No • MMS/GPRS: No
OTA provisioning solution	OTA Settings Specification v7.1 © Ericsson and Nokia and OMA provisioning
Supplier indication of realized interoperability tests between its MMS User Agent and MMS Relay/Server from other suppliers	Yes
Support of a standard or a proprietary procedure for OTA provisioning of MMS parameters	Proprietary and OMA provisioning
Functionalities that the user is able to set during message composition:	<ul style="list-style-type: none"> • 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 Camera Contacts Calendar Task Note Browser (vBookmark)
Possibility for sent messages to be memorized into a folder in the phone memory	Yes
Actions that the user can perform after message retrieval:	<ul style="list-style-type: none"> • 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	AMR-NB, MP3, WAV, MP4, MIDI, iMelody, 3GPP™, XMF, M4A, RHZ, WMA

Feature	Support
Multimedia codecs/formats supported for video	MP4, 3GPP™, SDP, WMV
Multimedia codecs/formats supported for image	JPEG, GIF, PNG, SVGT, WBMP, BMP
Supported formats for message presentation:	<ul style="list-style-type: none"> • 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 for message	Content Class and Creation mode are applied. Also maximum size is possible to customize

Email client technical data

Feature	Support
Bearer type UMTS (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	Yes
Protocols	POP3 and IMAP4
Push email	IMAP Idle (extension of IMAP4Rev1), OMA Email Notification 1.0 and scheduled checking
Secure email	SSL/TLS, both port methods (POPS/IMAPS) and STARTTLS
Remote configuration	OMA Client Provisioning and Nokia Smart Messaging
HTML mail	Yes (tags removed)
Inline images	Yes
Message management	Window of 50 latest messages Headers only or size limits
ESMTP	Yes
Background sending	Yes

Connectivity

Supplied Memory Stick Micro™ (M2™) technical data

The medium indicating “class0” is for use with the bundled product. Certain functions might be limited when using “Class 0” medium with any other product.

Facts and figures	
Memory capacity	up to 2 GB (512 MB included)
Size (Length x width x thickness)	15 x 12.5 x 1.2 mm
Connector Pin	11-pin (Electrical contact)
Transfer speeds	Up to 138 Mbit/s

Bluetooth™ technical data

Dimension	Support
Bluetooth capability statement	This phone supports Bluetooth Specification, version 2.0 with enhanced data rate (EDR)
Bluetooth functions	<ul style="list-style-type: none"> Basic Imaging Profile Dial-up Networking Profile File Transfer Profile Generic Access Profile Generic Object Exchange Profile Handsfree Profile Headset Profile Human Interface Device (HID) Profile JSR-82 Java API Object Push Profile Personal Area Networking Profile Serial Port Profile Synchronization Profile SyncML OBEX binding Advanced Audio Distribution Profile (A2DP) Audio/Video Remote Control Profile Phonebook Access Profile
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 on remote device and the occurrence of obstacles. Up to 10 metres (33 feet)
Transmission power	Class 2, typical +3dBm or 2mW
Frequency band	2.4 GHz - the unlicensed ISM band

Dimension	Support
Power consumption	GSM host processor excluded: <ul style="list-style-type: none"> • 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	Up to 400 kbps

USB technical data

Dimension	Support
USB cable	DCU-60 (supplied with the phone)
Connector	Fast port
USB 2.0 full speed	Up to 12 Mbit/s
USB classes	Mass Storage Obex Modem Ethernet Device Management

OMA Data Synchronization (SyncML) technical data

Feature	Support for Sync ML
SyncML compliance	The phone is fully SyncML compliant, having passed SyncML Conformance testing. SyncML 1.2 or SyncML 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
Possibility to synchronize other phones using SyncML	No
Transport method for SyncML messages	HTTP, OBEX (USB, Bluetooth connection)
Synchronization application placement	Inside the phone

Feature	Support for Sync ML
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 password, Paths to databases (Calendar, Contacts, Tasks, Notes and Bookmarks), user name and password for Databases, Databases to be synchronized (on/off), Internet profile, Synchronization interval, Server ID and Server password, and permission to allow server-alerted synchronization. Can be provisioned with Ericsson Nokia OTA Settings Specification v7.1, OMA Client provisioning v1.1, and OMA Device Management 1.2
Mechanisms used by the phone to capture changes made by the end user (i.e. how does the SyncML client in the phone know which changes were made to the address book)	It uses a change log where it marks the contact as updated
Ability to deal with multiple servers	Yes
Ability to perform conflict resolution actions	No

Web browser technical data

Feature	Support in the browser
Back/forward to previous/next page	Yes
Bearer type GPRS	Yes
Bearer type GSM Data	Yes, HSCSD, ISDN and analog
Bookmarks	Yes, with folders and sorting supported
Bookmark export/import	Yes, can be sent and received using vBookmark format using Bluetooth connection, SMS, MMS and email
Cache	Yes (size 300 kB)
Clear cache	Yes
Home page	Yes, up to 10 different; one for each Internet profile
HTML version for WAP browser	XHTML, Mobile Profile 1.2 iHTML HTML 4.01 ECMA Script is supported DOM level 1& 2 is supported WAP 2.0/WML 1.3
Hyperlinks in text	Yes, highlighted as blue underlined text
Hyperlinks in images	Yes, indicated by a frame

Feature	Support in the browser
Character sets *	<p>ISO: ISO-8859-1, ISO-8859-2, ISO-8859-3, ISO-8859-4, ISO-8859-5, ISO-8859-6, ISO-8859-7, ISO-8859-8, ISO-8859-8-i, ISO-8859-9, ISO-8859-10</p> <p>Windows: windows-1250, windows-1251, windows-1252, windows-1253, windows-1254, windows-1255, windows-1256, windows-1257</p> <p>US-ASCII</p> <p>Unicode: UTF-8, UTF-16BE, UTF-16LE, ISO-10646-UCS-2, ISO-10646-UCS-2_LE, ISO-10646-UCS-4, ISO-10646-UCS-4_LE</p> <p>Japanese: Shift_JIS, EUC-JP, ISO-2022-JP</p> <p>Simplified Chinese: GB2312, GB_2312-80, GBK, GB18030</p> <p>Traditional Chinese: Big5</p> <p>Korean: EUC-KR, KS_C_5601-1987</p> <p>Cyrillic: KOI8-R</p> <p>Thai: windows-874, TIS-620</p> <p>Special: x-euc-jp, x-sjis, ISO8859-1</p> <p>*When creating HTML applications, it is recommended to always save the page contents as UTF-8 (Default), and that this is clearly indicated in the pages before publishing. This ensures that the contents of the application can be viewed, regardless of character sets used in gateways and the phone. All characters are not supported in all phones. The software version depends on which market the phone is associated to. Also, please note that the phone may not support input on a WAP Service which uses certain characters (languages), even if those characters are supported for browsing in the phone</p>
Image animation	Yes
Image formats	GIF, Animated GIF, JPEG, Progressive JPEG, PNG, BMP, WBMP, SVGT
Network settings	Up to 10 different settings available by selecting WAP profile (Internet, Banking, Gateway etc.)
OTA support	Yes
PPP authentication	PAP, CHAP supported
Reload page	Yes
Security	<p>TLSv1</p> <p>SSLv3</p> <p>WIM on SIM ICC</p> <p>X.509 certificate support, WAP Profile</p> <p>WPKI OTA download of trusted certificates</p>
Tables	Yes

Feature	Support in the browser
User Agent profiles	Yes, list of client characteristics - for example screen size
Internet profiles	Dynamic - up to 10 WAP profiles, each with its own settings

Web browser and Operator technical data

Feature	Support for browser																						
Web browser																							
Version	2.0 baseline																						
HTML	XHTML Mobile Profile																						
Access NetFront 3.3	<ul style="list-style-type: none"> HTML 4.01, XHTML 1.1 Including mobile phone CSS 1 & CSS 2 (Partial) ECMAScript 3rd edition (equal to Java script 1.5) DOM level1, level2 and Dynamic HTML (Partial) Graphic formats: GIF, Animated GIF, JPEG, Progressive JPEG, PNG, BMP, WBMP, SVG 																						
Provisioning																							
Provisioning types	The Ericsson-Nokia OTA solution OMA Client provisioning (v1.1) Over the Air Settings Specification, v7.1 © Ericsson and Nokia																						
Total Parameter sets	10 (shared between the WAP provisioning types). < or = 10 (total number of WAP profiles)																						
Parameter set list	<table> <tbody> <tr> <td>name</td> <td>name</td> </tr> <tr> <td>homepage and homepage title (1st bookmark element)</td> <td>homepage</td> </tr> <tr> <td>proxy/GW address</td> <td>proxy/GW address</td> </tr> <tr> <td>bookmarks (remaining bookmark elements)</td> <td>CSD phone number</td> </tr> <tr> <td>CSD phone number</td> <td>CSD data rate</td> </tr> <tr> <td>CSD data rate</td> <td>CSD dial type</td> </tr> <tr> <td>CSD dial type</td> <td>CSD response timer</td> </tr> <tr> <td>GPRS APN</td> <td>GPRS APN</td> </tr> <tr> <td>protocol authentication</td> <td>protocol authentication</td> </tr> <tr> <td>GW authentication</td> <td>GW authentication</td> </tr> <tr> <td>secure connection on/off</td> <td>GPRS QoS</td> </tr> </tbody> </table>	name	name	homepage and homepage title (1st bookmark element)	homepage	proxy/GW address	proxy/GW address	bookmarks (remaining bookmark elements)	CSD phone number	CSD phone number	CSD data rate	CSD data rate	CSD dial type	CSD dial type	CSD response timer	GPRS APN	GPRS APN	protocol authentication	protocol authentication	GW authentication	GW authentication	secure connection on/off	GPRS QoS
name	name																						
homepage and homepage title (1st bookmark element)	homepage																						
proxy/GW address	proxy/GW address																						
bookmarks (remaining bookmark elements)	CSD phone number																						
CSD phone number	CSD data rate																						
CSD data rate	CSD dial type																						
CSD dial type	CSD response timer																						
GPRS APN	GPRS APN																						
protocol authentication	protocol authentication																						
GW authentication	GW authentication																						
secure connection on/off	GPRS QoS																						
Parameter sets include	CSD, GPRS (different sets)																						
Factory pre-configuration	CSD (possibility to lock a setting), GPRS																						
OTA	CSD, GPRS configuration possible																						

Feature	Support for browser	
Security mechanism		
Bearer	The Ericsson-Nokia solution	OMA Client Provisioning
OTA using SMS	Operator verification through a code that can be included in the OTA configuration data. This code is shown to the user who can choose to install or not	Uses security mechanism (SEC) methods according to WAP-183-ProvCont-20010724-a. See www.openmobilealliance.org
Interface		
Bearer	The Ericsson-Nokia solution	OMA Client Provisioning
OTA using SMS	A question whether to install, with the code if available is asked. The user may have to choose whether to create a new WAP profile or to replace an existing WAP profile	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
OTA using Cell Broadcast	-	-
Re-provisioning Interface	The Ericsson-Nokia solution	OMA Client Provisioning
OTA using SMS	Same interface as above	If the settings previously installed were privileged or have higher priority, the settings might not be possible to install again unless the terminal is reset, otherwise as above
OTA using Cell Broadcast	-	-
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 WAP security, both SSI/TLS connections and digital signatures	
Applicative provisioning		
Preferred bearer customization	Yes	
Email customization	Yes	

Feature	Support for browser
Other applications/features	Yes (MMS, SyncML, Wireless Village, OMA Device Management, Streaming)
Technologies	
OMA Client provisioning	Yes, WAP provisioning document v1.1
Openwave OTA	No
Other	Yes, the Ericsson-Nokia solution. OTA Settings Specification v7.1
Provisioning bearer	SMS
Parameter sets available	< or = 10 (total number of Internet profiles)
Parameter sets for OTA modification	< or = 10 (total number of Internet profiles)
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. Messaging/Settings/Push/Allow push msg/Always ask
SIA reception warning	Yes
Cache size limitations	The oldest push in the inbox will be discarded
Number of push messages	Depending on the size of the push messages. Around 20 push messages with a size of 500 bytes can be stored
Push de-activate	Yes (Messaging/Settings/Push/Allow push msg)
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 trustful
WSP push sessions	The White List is supported

Feature	Support for browser
User agent profile	
UA profile content sent at beginning of WSP session	No
URL sent pointing to the UA profile at the beginning of WSP session	Yes
URL location	On the manufacturer Internet site
WTAI	mailto:scheme smsto:scheme mmsto:scheme
WTA Make Call	Yes
WTA Send DTMF	Yes
WTA Add Phone Book	Yes
DOWNLOAD	
OMA download functionality	Yes
HTTP GET solution to download content	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. Store, delete, forward, use, manage
Object formats	Formats supported in the phone
GRAPHICAL USER INTERFACE	
Man Machine Interface	
Selection keys	Yes
Separate/dedicated back or delete keys	Yes
Display backlight on when browsing	Yes
Predictive writing	Yes
“http://” string displayed automatically when entering URLs	Not displayed but the “http://” is added automatically to the URL
Elements	
Pop-up menus	Yes
Radio buttons	Yes

Feature	Support for browser
Check boxes	Yes
Buttons	Yes

Abbreviations

3GPP™

3rd Generation Partnership Project

AAC

Advanced Audio Coding

AAC+

Advanced Audio Coding

AMR

Adaptive Multi Rate

API

Application Programming Interface

CIF

Common Intermediate Format (352x288)

CS

Circuit Switched

CSD

Circuit Switched Data

Deck

A collection of WML cards

DRM

Digital Rights Management

DTMF or Touch Tone

Dual Tone Multi-Frequency

eAAC+

Also known as HE-AAC v2, aacPlus v2 and Enhanced aacPlus. See AAC

e-GSM

Extended GSM

EDR

Enhanced Data Rate

EFR

Enhanced Full Rate

EMS

Enhanced Messaging Service

ETSI

European Telecommunications Standards Institute

FM

Frequency Modulation

FR

Full Rate, speech coding

GIF

Graphics Interchange Format

GPRS

General Packet Radio Services

GSM

Global System for Mobile Communications

H.263

Video coding for low bit-rate communication. ITU-T recommendation

H.264

Also known as MPEG-4 Part 10

HR

Half Rate

HSCSD

High Speed Circuit Switched Data

HTML

HyperText Markup Language

HTTP

HyperText Transfer Protocol

IETF

Internet Engineering Task Force

JPEG

Joint Photographer Expert Group

MIDI

Musical Instrument Digital Interface

ME

Mobile Equipment

MMI

Man-Machine Interface. See UI

MP

Megapixel

MP3

MPEG-1 layer. See MPEG4/MPG4

MPEG4/MPG4

Moving Picture Experts Group

MT

Mobile Termination

ODI

Object Distribution Indicator

OMA

Open Mobile Alliance

OTA

Over-the Air Configuration

PAN

Personal Area Network

PDA

Personal Digital Assistant

PDP

Packet Data Protocol

PIM

Personal Information Management

PNG

Portable Network Graphic

QCIF

Quarter CIF. See CIF

RDS

Radio Data System

RSS

Really Simple Syndication

RTSP

Real Time Streaming Protocol

SI

Service Indication

SIM card

Subscriber Identity Module card

SL

Service Loading

SMS

Short Messaging Service

SP-MIDI

Scalable Polyphony MIDI. See MIDI

SS

Supplementary Services

SSL

Secure Socket Layer

SVG

Scalable Vector Graphics

SVGT

Scalable Vector Graphics Tiny

TFT

Thin Film Transistor

TLS

Transport Layer Security

UI

User interface

URL

Uniform Resource Locator

USSD

Unstructured Supplementary Services Data

vCard

vCard is specified by IETF. See IETF

VGA

Video Graphics Array

WAP

Wireless Application Protocol

WAV

Waveform Audio Format

WBMP

Wireless BitMap

WML

Wireless Markup Language

WMA

Windows Media Audio

WSP

Wireless Session Protocol

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

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