

White paper

February 2007

W880

So thin, so rich in 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 technology and its main applications, as well as the main 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
- Market units and sales

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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, visit the Sony Ericsson Developer World Web site.

Document history

Change history

| | | |
|------------|-----|--------------------------|
| 2007-02-05 | R1A | First published version. |
|------------|-----|--------------------------|

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Product overview

W880 is the phone to be seen with, it has slim sophisticated design and high quality feel. The metal front and the soft touch back give W880 a unique look. With a thickness of only 9.4 mm W880 will be almost invisible and un-feelable in a pocket.

The next generation Walkman® provides a state of the art music experience in a slim shell. Combined with mobile phone functionality and a 2.0 megapixel camera W880 becomes the ultimate gadget for everybody on the move.

TrackID™ helps you in any situation where you hear a song you like but do not know the artist or song name. Have TrackID™ record 10 seconds of the song and it will provide you with song name, artist name and album name.

The 3G technology brings your phone to a new level with higher downloading speed, video telephony provides you with eye-to-eye contact with people far away.

This ultra slim card style phone has a 1.8-inch 262k QVGA colour screen. Memory capacity is up to 16 MB internally and 1 GB Memory Stick Micro™ (M2™), which is included together with an adaptor in the kit at purchase.

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 for you to synchronize or transfer files between phone and computer.

Note: To provide continuously updated information about the implemented technology and functionality of this product, this White Paper will be released in updated revisions.

Key features

Walkman® player 2.0

The Walkman® player converts the phone into a portable music player that supports AAC, AAC+, Enhanced ACC+, MP3, MP4, M4A, 3GP, AMR NB, AMR WB, WAV, SP-MIDI, G-MIDI, RealAudio 8, WMA 8, WMA 9 and Mobile XMF 1.0 audio formats.

The Walkman® player key gives you direct access to your music files without having to browse the menus. Play music, streamed or downloaded.

Music recognition - TrackID™

Obtain title, artist and album information about songs you hear and like. Recording music from an external source, using the microphone.

Memory Stick Micro™ (M2™) slot

The memory slot supports Memory Stick Micro™ (M2™), a 1GB memory card is comes with your phone. Different kinds of content (pictures, audio, video clips etc.) can be stored on the memory card, and transferred to other memory card compatible consumer products, for example Sony digital cameras, camcorders, portable music players, TVs, photo printers and computers.

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 and fixed focus to take quality pictures with ease. The horizontal user interface adds extra usage quality when handling the camera. The main camera captures a video recording and stores it in the phone. A video clip can be shared as a picture message with friends or family. The phone supports QCIF size video recording and streaming and QVGA playback.

Accessing video call mode via the main menu activates the VGA video call camera.

PlayNow™

Content such as music, video and images may be previewed before purchase. A unique direct link to download music, video, games, themes and images, which is easy to use and promises you best-selling content for mobile download. By selecting PlayNow™, you can, for example, go straight to a live list of top music hits.

It will be possible to download all formats supported in the phone. Music, video and images may be previewed before purchase.

Disc2Phone ver. 1.4

Music management 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.

1.8-inch colour screen

The 1.8-inch (320 x 240 pixels) full graphic QVGA 262k colour screen enhances viewing, facilitating high-quality multimedia and entertainment.

RSS Reader

Really Simple Syndication (RSS) is used to deliver frequently updated content (such as news headlines) from a Web site as feeds to readers during browsing.

Bluetooth™ wireless technology

Several devices (simultaneous Bluetooth connections) can be connected using Bluetooth wireless technology. For example, when it rings, the phone 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

Stream music from the phone to a compatible Bluetooth™ headset.

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.

Gaming

Gaming is a 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.

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.

Push email

W880 supports push email, a method of pushing new email messages automatically to mobile devices. You receive a notification in your phone from your email server that you have a new email.

Images



Technologies in detail

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

Functions and features

The following includes short descriptions of the technologies available in W880 compared with the W850.

| Feature | W880 | W850 |
|--|--|--|
| 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 a time for simple or recurring weekly alarms. | Yes | Yes |
| Backlight Light to illuminate the phone screen. | White | White |
| Battery | 3.6V, 950mAh, Lithium Polymer | 3.6V, 900mAh, 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™ wireless technology Wireless connectivity between devices. The out of range distance varies and depends on where you are. Support for specification of the Bluetooth System, version 2.0. | Yes with enhanced data rate (EDR) | Yes with enhanced data rate (EDR) |
| 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 |

| Feature | W880 | W850 |
|---|-----------------------------|--------------------------------|
| Call list View calls made and received. | Yes | Yes |
| Camera 2.0 Megapixel | 2.0 Megapixel | 2.0 Megapixel |
| Camera button A dedicated camera button. Press once to activate the integrated camera. | Yes | Yes |
| Camera file browser Browse the picture folder without leaving the camera function. | Yes | Yes |
| Camera keys on top When the camera is used in horizontal mode - the side buttons 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 On-screen clock. | Yes | Yes |
| Co-branding area 41.3 x 7 mm | 41.3 x 7 mm | 21.8 x 6.51 mm |
| 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 |
| Colour Flame Black Steel Silver | Flame Black Steel Silver | Precious Black Golden White |
| Contacts Phonebook with fields for name, phone and fax numbers, email address, street address, company, title. | Yes | Yes |
| Conference calls Support for multiparty calling. | Yes | Yes |

| Feature | W880 | W850 |
|---|---|---|
| <p>Content online</p> <p>Downloadable pictures, games, themes, ringtones available online.</p> | Yes | Yes |
| <p>Copyright protection - DRM</p> <p>DRM (Digital Rights Management) features the rights and copy protection of downloaded content (audio, pictures, music tones, video, entertainment features such as games and Java applications).</p> | Yes, OMA DRM v2 | Yes, OMA DRM v2 |
| <p>Design</p> | Stick | Slider form |
| <p>Device Management (DM)</p> <p>DM uses GPRS as bearer (basic network connectivity needs to be in place) of the provisioning data and allows the operator to access the phone and check and set different settings such as network connectivity (GPRS), email, MMS, Internet 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.</p> | Yes | Yes |
| <p>Digital zoom</p> | 2.5x | 2.5x |
| <p>Email</p> <p>Built-in email client with inbox, outbox, compose/send messages and other functions.</p> | Yes | Yes |
| <p>EMS (Enhanced messaging)</p> <p>Text messaging (SMS) with support for pictures and sounds.</p> | Yes | Yes |
| <p>Exterior description</p> <p>Length x Width x Thickness (mm)</p> <p>Weight (g)</p> | 103 x 46.5 x 9.4 71 | 98 x 47 x 21 118 |
| <p>Fast port, A1 connector</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 |

| Feature | W880 | W850 |
|--|--------------------------|--------------------------|
| <p>Flight mode</p> <p>Only certain functions are available, such as the calendar, the Walkman® player or a game. All phone radio transmitters and receivers are deactivated but the user will have the option of activating the Bluetooth™ wireless technology. The phone may then be used in some areas, such as aeroplanes or hospitals, where full mobile phone functionality is prohibited.</p> | Yes | Yes |
| <p>Games download</p> <p>Add new games to the phone.</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.</p> <p>Multislot class 10 supported (max 5 simultaneously).</p> | Yes | Yes |
| <p>High Speed Data</p> <p>HSCSD – a communications standard enabling GSM data transfer 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>Instant messaging (Wireless Village)</p> <p>Chat – several people can take part in a mobile messaging session.</p> | Yes | Yes |
| <p>Internet browser</p> <p>cHTML – A mobile device adapted version of the standard Internet communications protocol HTML.</p> <p>Full HTML support, ECMA script, DOM levels 1 & 2, etc).</p> <p>Progressive download of video files.</p> | Yes Yes Yes Yes | Yes Yes Yes Yes |
| <p>Internet security</p> <p>Encrypts confidential information such as credit card and bank account numbers. Necessary for mobile banking and shopping.</p> | Yes SSL/TLS | Yes, SSL/TLS |

| Feature | W880 | W850 |
|---|--|--|
| Java™ Support for Java Platform, Micro Edition™ technology. | Java Platform, Micro Edition™, Java 3D™ | Java Platform, Micro Edition™, Java 3D™ |
| Keys - navigation and more | 8+1 navigation 2 soft Back Clear, on/off Activity menu Internet, operator | 8+1 navigation 2 soft Back Clear Activity menu Internet, operator |
| Keys - keypad | 12 alphanumeric | 12 alphanumeric |
| Keys and buttons - side and other | Volume/camera zoom Walkman® Camera button | Volume/camera zoom Multimedia (play/stop button) Separate on/off Camera button Photo A/B keys: A=Camera or Video shoot mode B= Camera scenes or Video Night mode |
| Macromedia™ Flash Lite™ 1.1+ For impressive animated wallpapers, menus and other graphic elements. | Yes | Yes |
| Media player A combined digital media player for music and video. Play music and video clips, streamed or downloaded and the folder system enables you, for example, to organize favourite songs into groups and create simple playlists. A practical play/stop function makes it easier to listen to music any time, anywhere. | See Walkman® player and Video player | See Walkman® player and Video player |
| Mega Bass™ An audio feature which enhances bass frequencies for better overall music experience. | Yes | Yes |

| Feature | W880 | W850 |
|--|---|---|
| Memory (built-in) User-free memory in phone. | Up to 16 MB | Up to 64 MB |
| Memory card slot Slot for inserting a mini peripheral storage device. Compatible with many cameras, computers and other devices. | Memory Stick Micro™ (M2™) (up to 1 GB) | Memory Stick PRO Duo™ (up to 4GB) |
| Menu shortcuts A function making it possible to dedicate shortcuts to the most-used phone functions. | Yes | Yes |
| MMS (Multimedia messaging) Picture messaging with text and sound. | Yes | Yes |
| MMS video Support in the phone for sending video using MMS. | Yes | Yes |
| Modem GSM Internet dial-up support. | Yes | Yes |
| MusicDJ™ A sampler music tool with MIDI drum, basses, chords and accent loops in different music styles, which can be combined to create polyphonic ringtones. | 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 |
| My friends Wireless Village server community. | Yes | Yes |
| Networks 3G GSM | UMTS 2100 GSM 900, 1800, 1900, E-GSM 900 | UMTS 2100 GSM 900, 1800, 1900, E-GSM 900 |
| OMA Data Synchronization (SyncML) A device communications standard that enables remote synchronization between devices. | Yes SyncML 1.2 SyncML 1.1 | Yes SyncML 1.2 SyncML 1.1 |

| Feature | W880 | W850 |
|--|---|---|
| OTA settings Internet, email and other settings can be sent over the air to the phone. | Yes | Yes |
| PhotoDJ™ A drawing tool in the phone where new pictures and existing pictures and photos can be edited. | Yes | Yes |
| Picture gallery A thumbnail view image gallery where sections of several pictures can be viewed at the same time. | Yes | Yes |
| Picture phonebook Add a picture to a saved contact. The picture appears on the screen when the saved contact calls. | Yes | Yes |
| PlayNow™ (direct link) Listen to music before you purchase and download to your phone. | Yes | Yes |
| PlayNow™ Games (direct link) Preview games straight from the phone desktop in three clicks before you purchase and download. | Yes | Yes |
| Polyphonic ringtones | 72 tones | 40 tones |
| Predictive text input | Yes | Yes |
| Push email | Yes OMA email notification IMAP Idle | Yes OMA email notification IMAP Idle |
| RSS Reader Frequently updated content delivered as feeds via a Web site, for example, news headlines in the browser. | Yes | Yes |
| Screen Type: Size: Resolution: Technology: Colours displayed together: Backlight colour: | Full graphical 1.8 inches 320 x 240 pixels QVGA 262k (18bit) White | Full graphical 2.0 inches 320 x 240 pixels TFT, QVGA 262k (18 bit) White |
| Screen saver | Yes | Yes |

| Feature | W880 | W850 |
|---|-----------------|-----------------|
| <p>Settings download (Ready to run)</p> <p>Set up functions, such as the Internet browser and picture messaging, that require a connection to the Internet.</p> <p>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.</p> | Yes | Yes |
| <p>SIM card lock</p> <p>The possibility to protect the SIM card with a four-digit PIN code.</p> | Yes | Yes |
| <p>SMS long (Text messaging)</p> <p>Concatenated SMS text messaging.</p> | Yes | Yes |
| <p>Sleep mode</p> <p>A power-saving feature that minimizes battery power consumed when the phone is in standby.</p> | Yes | Yes |
| <p>Sony Ericsson Remote Update Service</p> <p>Download the latest operator-approved software, over the air, for your mobile phone.</p> | Yes | Yes |
| <p>Sony Ericsson Update Service</p> <p>Connect the phone to an Internet-connected computer, download the latest operator-approved software from the Web, www.sonyericsson.com/support, and update your mobile phone.</p> | Yes | Yes |
| <p>Sound recorder</p> <p>A 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> | Up to 425 hours | Up to 350 hours |
| <p>Status view</p> <p>The screen shows the network being used, the time and other status information</p> | Yes | Yes |
| <p>Stopwatch</p> | Yes | Yes |

| Feature | W880 | W850 |
|---|--|---------------|
| SVG Tiny 1.1 Scalable Vector Graphics for impressive animated wallpapers, menus and other graphic elements. | Yes | Yes |
| Synchronization PC Synchronize and share phone content with a computer. | Yes | Yes |
| Talk time GSM UMTS | Up to 6 hours 30 mins Up to 2 hours 50 mins | Up to 7 hours |
| Tasks Keeps track of important things you have to do. | Yes | Yes |
| Themes Phone menu texts and background graphics. | Yes | Yes |
| Timer Set the phone to alert after a specific time. | Yes | Yes |
| Twin camera Two cameras - a video camera optimized for video calling located above the main screen and an additional camera capable of taking still pictures and recording video. | Yes | Yes |
| UMTS A 3G technology standard capable of data transfer 384 kbps. | Yes | Yes |
| USB connectivity support Connect the phone to a computer with the USB cable provided and the memory in the phone appears on the computer screen as a mass storage device. | Yes | Yes |
| Vibrating alert The phone vibrates when a call comes in. | Yes | Yes |
| Video call camera | Yes | Yes |

| Feature | W880 | W850 |
|---|----------------|----------------|
| <p>Video calling</p> <p>When you make a video call, the recipient can be seen in the screen. The service requires UMTS/WCDMA.</p> | Yes | Yes |
| <p>Video call talk time</p> | 1 hour 30 mins | 1 hour 55 mins |
| <p>VideoDJ™</p> <p>Create video sequences by combining different clips and adding music and images.</p> | Yes | Yes |
| <p>Video player</p> <p>Play video clips, streamed or downloaded. Record and transfer video clips to another phone or a computer via available transfer method.</p> | Yes | Yes |
| <p>Video streaming</p> <p>Real-time streaming of video, for example, live cam. Media can also be downloaded and saved in the phone memory.</p> | Yes | Yes |
| <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 phonebook and when a call is made, the voice command can be used instead of pressing keys.</p> | Yes | Yes |
| <p>Voicemail</p> <p>Support for voicemail operator service including automatic answering and message recording.</p> | Yes | Yes |
| <p>Walkman® player</p> <p>A digital music 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 stop function simplifies listening.</p> | Yes | Yes |
| <p>Walkman® player key</p> <p>Get direct access to your music files without having to browse the menus. Press the Walkman® player key to gain direct access to the Walkman® player.</p> | Yes | Yes |

| Feature | W880 | W850 |
|--|------|------|
| WAP 1.2.1 A mobile Internet standard to access specially designed Internet sites. | 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 |

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 | Up to 16 MB internal (depending on software configuration/file content) + slot for Memory Stick Micro™ (M2™). |
| 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 | 24dBm 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. DTM Mode supported (subset of class A). |
| 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 stored in mobile PDP context description is edited via application in mobile, 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 - ENT For more information, see www.sonyericsson.com/developer , |

SIM AT services supported

| Service | Mode | Support |
|---------------------|-------------|----------------|
| CALL CONTROL BY SIM | | Yes |
| MO SMS CONTROL | | No |

| 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 |

| Service | Mode | Support |
|---------------------------|--|----------------|
| POLLING OFF | | Yes |
| POLL INTERVAL | | Yes |
| 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 1 = SMS packing by the ME required | Yes |
| | | Yes |
| SEND SS | | Yes |
| SEND USSD | | Yes |

| Service | Mode | Support |
|----------------------------|--|---------------------------------|
| 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 |
| SET UP EVENT LIST | '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 |
| | '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 |

| 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 and a 60-second timeout 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 command 'Set up Call', 'putting all other calls on hold' is sent, the user will see 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 will see the text 'Setting up a call current call will be disconnected'. 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 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 will be available for selection, in the same way as the Select Item command.

Entertainment

Walkman® player 2.0, Video player

| File types | Formats | Extensions |
|---------------------------------|---|---|
| Audio | AAC, AAC+, Enhanced ACC+ MP3 MP4 M4A 3GP AMR NB AMR WB WAV SP-MIDI G-MIDI RealAudio 8 WMA 8 WMA 9 Mobile XMF 1.0 | .mp4, .3gp .mp3 .mp4 .m4a .3gp .amr .awb .wav .mid .mid .ra .wma .wma .xmf |
| Video (including audio part) | MP4 (video: MPEG4, audio: AAC, AMR) 3GP (video: MPEG4 or H.263, H.264, audio: AAC or AMR) RealVideo 8 WMV 8 WMV 9 | .mp4 .3gp .rv .wmv .wmv |
| Streaming transport | RTSP according to 3GPP™ | |
| Features | Automatic pause on telephone call Playlists Play mode (shuffel or loop) Equalizer Stereo widening Visulizations Light effects Skins Sorting by artist or file Minimizing the Walkman® player | |
| Meta data | ISO: ISO-8859-1 Unicode: UTF-16 ID3 tag: v1, v2.x | |
| Loudspeaker output power | Up to 0.5W | |

Ringtone file formats

| File types | Formats | Extensions |
|------------|---|--|
| Ringtones | MIDI (General MIDI 1, SP-MIDI) E-Melody I-Melody AMR-NB MP3 MP4 3GP M4A WAV RHZ XMF | .mid .emy .imy .amr .mp3 .mp4 .3gp .m4a .wav .rhz .xmf |

Imaging/Messaging

2.0 Megapixel camera

| Facts and figures | |
|----------------------------|---|
| Picture sizes (resolution) | VGA (640 x 480 pixels) 1 Megapixel (1280 x 960 pixels) 2 Megapixel (1600 x 1200 pixels) |
| Colour depth | 24 bit (8 bit per RGB channel), 262k colours |
| Camera memory | Using phone memory or Memory Stick Micro™ (M2™); no memory dedicated to the camera only. |
| Digital zoom | 2.5x with VGA picture size |
| Photo light | No |
| Auto focus | No |
| Night mode | Yes |
| Self-timer | Yes |
| Effects | Negative/ Sepia/ Black&White/ Off |
| 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 |
| Macro setting | No |
| Video recorder | |

Facts and figures

| | |
|-------------------|---|
| Video sizes | 176 x 144 pixels 128 x 96 pixels |
| Video shoot mode | For picture message/ High quality video |
| Digital zoom | 4x |
| Format | .3GP |
| Frames per second | 10 (in night mode 7) |

Video call camera**Facts and figures**

| | |
|----------------------------|--|
| Picture sizes (resolution) | 176 x 144 pixels (QCIF) 128 x 96 pixels (SQCIF) |
| Digital zoom | Video call camera: 2x zoom |
| Night mode | Yes |
| White balance | No |
| Brightness | Yes |
| Video coding | H.263 (Profile 0) MPEG4 |
| Audio coding | AMR |

Pictures and animations

| | |
|-------------|---|
| Formats | JPEG, BMP, GIF (including animated), PNG, WBMP, Macromedia™ Flash™ and SVG. |
| Sharing via | Bluetooth™, MMS, email, computer file transfer, cable or memory card. |

Image decoders

| Decoder | Details | Size | Colour depth | File format |
|---------|---------|------|--------------|-------------|
| GIF | 87a/89a | | | |

| | | | |
|------|--|--|--------------------|
| JPEG | ISO/IEC JPEG Baseline DCT Progressive DCT Non-differential Huffman coding Symbol 'SOF2' | VGA | JFIF v1.02 EXIF |
| BMP | The bitmap image format used by Windows®. | XRAM dependent, 24 bit default is VGA | |

Image encoders

| Decoder | Details | Size | Colour depth | File format |
|---------|---|--|--------------|-------------|
| GIF | 89a | | | |
| JPEG | ISO/IEC JPEG Baseline DCT Non-differential Huffman coding Symbol 'SOF0' | VGA | | JFIF v1.02 |
| BMP | The bitmap image format used by Windows®. | XRAM dependent, 24 bit default is VGA | | |
| WBMP | | | | |

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 phone will be able to see the picture correctly. |
| Reply to messages | It is possible to reply to received messages by SMS, MMS, voice message. |
| 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 |

| Feature | Support |
|--|---|
| 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 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 (only to the sender, not to all or part of the message recipients). |
| 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 | Yes |
| via phone call (set up a call to the number contained in the message body) | Yes |
| via WAP call (go to the WAP address contained in the message body) | Yes |
| via USSD session | No |
| Print via infrared | No |
| Possibility to send an SMS to a list of recipients | Yes |
| Possibility to write an email address as a recipient address | Yes, if email gateway is present. |

| Feature | Support |
|-------------------------|------------------------------|
| SMS storage | On the SIM and in the phone. |
| Nokia Picture Messaging | Yes |

Enhanced Messaging Service - Unified

| Feature | Support |
|---|--|
| Level of compliance supported by the mobile 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 mobile phone is able to handle to generate a concatenated message | 10 |
| Capacity storage | Up to 1000 and the space on the SIM card. |
| Outgoing messages | It is possible to... <ul style="list-style-type: none"> • 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 | <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. |
| Delivery report for concatenated messages | A receipt is received in the mobile 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 | Chimeshigh, chimeslow, chordhigh, chordlow, claps, ding, drums, fanfare, notification, tada. |
| I-melody | Yes, version 1.2. |
| Melodies | It is possible to... <ul style="list-style-type: none"> • receive (always), send via 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. |

| Feature | Support |
|--|---|
| Pictures | It is possible to... <ul style="list-style-type: none"> • edit pictures using PhotoDJ™. • receive (always), send via 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 send and receive animations. |
| TP-PID field value given by the mobile 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. |
| Possibility to pre-configure the MMS parameters in factory | <ul style="list-style-type: none"> • MMS/CSD: Yes • MMS/GPRS: Yes |
| 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 |

| Feature | Support |
|--|---|
| Functionalities that the user is able to set during message composition: | <ul style="list-style-type: none"> • message subject • message priority • recipients number • message Cc, Bcc recipient(s) number(s) • 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: | <p>File Manager Directly from camera Contacts Calendar Task Note Browser (vBookmark)</p> |
| Possibility for sent messages to be memorized into a folder in mobile 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 MMS • delete the message • save message into terminal • call the sender of a message • Save item • Mark as unread • Details |
| Multimedia codecs/formats supported for audio | AMR, MP3, Real Audio 8, AMR-WB, WAV, MP4, MIDI, iMelody, 3GPP™, XMF, M4A, RHZ, WMA. |
| Multimedia codecs/formats supported for video | MP4, 3GPP™, SDP, Real Video 8, WMV, MS-ASF |
| Multimedia codecs/formats supported for image | JPEG, GIF87, GIF89A, PNG, SVG, WBMP, BMP, Shockwave Flash. |
| Supported formats for message presentation: | <ul style="list-style-type: none"> • message body + attachments (email presentation) • SMIL version as described in OMA MMS IOP document version 1.2 |
| Maximum message size that can be handled by the mobile phone for message | Content Class and Creation mode are applied. Maximum size can also be customized. |

Email client technical data

| Feature | Support |
|---------------------------|--|
| Bearer type UTMS (IP) | Yes |
| Bearer type GSM Data (IP) | Yes, 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 |
| 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

Bluetooth™ technical data

| Dimension | Support |
|--------------------------------|--|
| Bluetooth capability statement | This phone supports Bluetooth Specification, version 2.0 with enhanced data rate (EDR). |
| Bluetooth functions | 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 1, typical +3dBm or 2mW |
| Frequency band | 2.4 GHz - the unlicensed ISM band. |
| Power consumption | GSM host processor excluded: <ul style="list-style-type: none"> • Standby, Bluetooth On mode: <0.5mA • Voice to headset (HV3): 15 mA (11 mA with EDR functionality, 2EV3). Dependent on various parameters such as whether the phone is master or slave. • Data mode average: 27mA at 172.8 kbps symmetrical |
| Data transmission rate | Up to 600 kbps asymmetric and up to 350 kbps symmetric from an application level. |

OMA Data Synchronization (SyncML) technical data

| Feature | Support for Sync ML |
|---|--|
| SyncML compliance | The mobile 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 mobile phones using SyncML. | No |
| Transport method for SyncML messages. | HTTP, OBEX (USB, Bluetooth) |
| Synchronization application placement. | Inside the mobile phone. |
| 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, Tasks, Notes and Bookmarks), Username and PWD for Databases, Databases to be synchronized (on/off), Internet profile, Synchronization interval, Server ID and Server PWD, 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 mobile phone to capture changes made by the end-user (i.e. how does the SyncML client in the mobile 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 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 via Bluetooth™, SMS, MMS and email. |
| Cache | Yes (size 300 kB). |
| Character sets * | <p>UTF-8 (Default), UTF-16, USASCII, Latin1, UCS2.</p> <p>*) When creating WML applications, it is recommended to always save the page contents as UTF-8, 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> |
| Clear cache | Yes |
| Home page | Yes, up to 10 different; one for each Internet profile. |
| HTML version for WAP browser | <p>XHTML, Mobile Profile 1.2</p> <p>Full HTML is supported</p> <p>ECMA Script is supported</p> <p>DOM level 1& 2 is supported</p> <p>WAP 2.0/WML 1.3</p> |
| Hyperlinks in Text | Yes, highlighted as blue underlined text. |
| Hyperlinks in Images | Yes, indicated by a frame |
| Image Animation | Yes |
| Image Formats | GIF (interlaced and non-interlaced) WBMP, no transparent layers, JPEG, PNG, BMP and SVG. |
| 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 |

| Feature | Support in the browser |
|---------------------|---|
| Security | TLS version 1, Client authentication SSL version 3, Client authentication WIM on SIM ICC X.509 certificate support, WAP Profile WPKI OTA download of trusted certificates |
| Tables | Yes |
| 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, MNG, BMP, WBMP | | | | |
| Provisioning | | | | | |
| Provisioning types | <table border="0"> <tr> <td>The Ericsson-Nokia OTA solution</td> <td>OMA Client provisioning (v1.1)</td> </tr> <tr> <td colspan="2">Over the Air Settings Specification, v7.1 © Ericsson and Nokia</td> </tr> </table> | The Ericsson-Nokia OTA solution | OMA Client provisioning (v1.1) | Over the Air Settings Specification, v7.1 © Ericsson and Nokia | |
| 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). | | | | |

| Feature | Support for browser | |
|----------------------------------|--|---|
| Parameter set list | name, homepage and homepage title (1st bookmark element), proxy/GW address, bookmarks (remaining bookmark elements), CSD phone number, CSD data rate, CSD dial type, GPRS APN, protocol authentication, GW authentication, secure connection on/off | name, homepage, proxy/GW address, CSD phone number, CSD data rate, CSD dial type, CSD response timer, GPRS APN, protocol authentication, GW authentication, GPRS QoS |
| Parameter sets include | CSD, GPRS (different sets). | |
| Factory pre-configuration | CSD (possibility to lock a setting), GPRS. | |
| OTA | CSD, GPRS configuration possible. | |
| Security mechanism | | |
| Bearer | The Ericsson-Nokia solution | OMA Client Provisioning |
| OTA via 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 via 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 via Cell Broadcast | - | - |
| Re-provisioning Interface | The Ericsson-Nokia solution | OMA Client Provisioning |

| Feature | Support for browser | |
|--------------------------------------|--|--|
| OTA via SMS | Same interface as above. | If the settings previously installed were privileged or have higher priority, it might not be possible to install the settings again unless the terminal is reset, otherwise as above. |
| OTA via 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. | |
| SWIM certificate | Both client and trusted certificates can be used for digital signatures. | |
| Applicative provisioning | | |
| Preferred bearer customization | Yes | |
| Email customization | Yes | |
| Other applications/features | Yes (MMS, SyncML, Wireless Village, OMA Device Management, Push To Talk). | |
| 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 | Yes | |
| Session Initiation Application (SIA) | Yes | |
| Man Machine Interface | | |
| SI/content retrieval postponing | Yes | |

| Feature | Support for browser |
|---|---|
| SI menu structure accessibility | Messaging, Inbox |
| SL reception warning | The user can choose whether 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 | Depends on the size of the push messages. Around 20 push messages with a size of 500 bytes can be stored. |
| Push deactivate | 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 reliable. |
| WSP push sessions | The White List is supported. |
| Denial of service/spoofing | |
| User agent profile | |
| UA profile content sent at beginning of WSP session | No |
| OA profile content size | |
| 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 |

| Feature | Support for browser |
|---|---|
| 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, in XHTML. |
| Radio buttons | Yes, in XHTML. |
| Check boxes | Yes, in XHTML. |
| Buttons | Available as XHTML form controls. |

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™ (JSR 82) • PDA Optional Packages for Java™ ME platform (JSR 75) • Web Services (JSR 172) • Advanced Multimedia Supplements API (Camera Capabilities of JSR-234) |
| Java 3D | <ul style="list-style-type: none"> • Mascot Capsule Micro3D Version 3 • Mobile 3D Graphics API for Java™ ME platform (JSR 184) |

Abbreviations

3GPP™

3rd Generation Partnership Project

AAC

Advanced Audio Coding

AMR

Adaptive Multi Rate.
Audio format for speech sounds.

API

Application Programming Interface.

CS

Circuit Switched.

CSD

Circuit Switched Data.

Deck

A collection of WML cards.

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.

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.

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.

HTML

HyperText Markup Language.

HTTP

HyperText Transfer Protocol.

JPEG

Joint photographer expert group.

M2

Memory Stick Micro™ (M2™).

MIDI

Musical Instrument Digital Interface.

ME

Mobile Equipment.

MMI

Man-Machine Interface. See UI.

MP

Megapixel.

MP3

MPEG-1 layer 3. An effective audio coding scheme.

MPEG4/MPG4

MPEG-4 extends the earlier MPEG-1 and MPEG-2 algorithms with synthesis of speech and video, fractal compression, computer visualisation and artificial intelligence-based image processing techniques.

MT

Mobile Termination.

ODI

Object Distribution Indicator .

OMA

Open Mobile Alliance.

OTA

Over-The-Air Configuration. To provide settings for the phone by way of sending an SMS message over the network to the phone. This reduces the need for the user to configure the phone manually.

PDA

Personal Digital Assistant.

PDP

Packet Data Protocol.

PIM

Personal Information Management.

PNG

Portable Network Graphic.

RDS

Radio Data System.

RSS

Really Simple Syndication.

RTSP

Real Time Streaming Protocol session control.

SDK

Software Development Kit

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.

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.

WAP

Wireless Application Protocol. Handheld devices, low bandwidth, binary coded, a deck/card metaphor to specify a service. A card is typically a unit of interaction with the user, that is, either presentation of information or request for information from the user. A collection of cards is called a deck, which usually constitutes a service.

WAP Application

A collection of WML cards, with the new context attribute set in the entry card.

WAP service

A WML application residing on a Web site.

WAV

Windows media audio.

WBMP

Wireless BitMap.
A graphic format optimized for mobile computing devices.

WMA

Windows Media Audio.

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.

WMLScript

WMLScript can be used to enhance the functionality of a service, just as, for example, Java Script may be utilized in HTML. It makes it possible to add procedural logic and computational functions to WAP-based services.

WMV

Windows Media Video.

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.irda.org
- www.etsi.fr
- www.openmobilealliance.org
- www.imc.org/pdi/
- www.w3.org/TR/xhtml1-basic/
- www.java.sun.com
- www.memorystick.org/
- www.memorystick.com/

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