

White
paper

October 2008

S302

Premium dual front Camera phone



Preface

Purpose of this document

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

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

People who can benefit from this document include:

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

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For more information about these professional services, go to the Sony Ericsson Developer World Web site.

Document history

Change history

2008-10-29	Revision 9	SynchML updated
2008-10-24	Revision 8	DM updated
2008-10-17	Revision 7	Video wrapping updated
2008-09-26	Revision 6	Product overview updated
2008-09-15	Revision 5	M2 card size updated
2008-09-10	Revision 4	Secure email updated
2008-08-15	Revision 3	MMS formats updated
2008-08-05	Revision 2	Second revision
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Product overview

S302 is a dual front camera phone. S302 includes a 2-megapixel camera with a 2.5x digital zoom, Photo fix, LED photo light, horizontal camera UI and a large 2-inch 262 K colour screen. All this is packaged into a slim 10.9 mm, with a high gloss surface finish.

Taking pictures with S302 is just as easy as taking pictures with a digital camera. Hold it horizontally, press the camera key to start, use the large display to find the target and take the picture. S302 features LED photo light which improves the picture quality when taking pictures in darker environments. Photo light is not a common feature in S302's price segment. The slide show function makes it possible for the users to let family and friends look at all pictures stored in the picture album.

S302 also features Photo fix and picture blogging. Photo fix optimises the image quality by adjusting the light balance and contrast after a picture has been taken. Picture blogging makes it possible for users to take a picture and upload it to their site instantly. As well as taking still images, users can also record short video clips by simply switching to video mode once they have started the camera.

Pictures and video clips can easily be shared with friends via MMS or email, or be transferred to a computer using Bluetooth™ or a USB cable.

The built-in FM radio supports RDS and the user can pre-set channels for quick access. The media player features video playback. S302 supports the MP3 and AAC format.

Content such as pictures, music, ringtones, themes, games and video clips can be saved on the memory card, a Memory Stick Micro™ (M2™), which has a capacity of up to 4 GB.

To enhance the gaming experience, several Java™ games are already preloaded on the phone.

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

Key features

2.0 megapixel camera

The 2.0 megapixel camera includes a 2.5x digital zoom, a built-in LED photo light and Photo fix to ensure high quality pictures. Taking a picture and sending it as part of a multimedia message or as an email attachment, or posting it on a Web site, is just a few clicks away.

LED photo light

Lighting conditions can be enhanced by using the built-in LED photo light, which is easily activated via the camera settings and a keypad shortcut.

2.0 inch colour screen

The 2.0 inch (176 x 220 pixels) full graphic 262K UBC (Ultra Bright Colour) colour screen enhances viewing of high-quality content in the phone.

Video camera

The built-in camera captures a video recording and stores it in the phone or on the Memory Stick Micro™ (M2™). A video clip can be shared as a picture message with friends or family. The phone supports QCIF (Quarter CIF), 176 x 144 pixels resolution, size video recording, and streaming and playback.

Video recording

Recording a video clip and sending it as part of a picture message or as an email attachment is just a few clicks away. A recorded video clip can also be sent via Bluetooth™ or a USB cable to a computer.

Picture blog

The Picture blog application provides an easy way to send pictures to the Internet. The pictures are posted on users' personal Web blog page where their friends can easily access and comment on pictures. Picture blog is not available in all countries.

Bluetooth™ wireless technology

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

RDS FM Radio

The FM radio with RDS (Radio Data System) offers instant and easy access to FM radio channels. The RDS function brings information directly to the screen, sent out by the radio station that the user is currently tuned to. Plug in the portable handsfree that works as an antenna and start listening to the radio. The radio can also be used as an alarm signal.

Memory Stick Micro™ (M2™)

Different kinds of content (pictures, audio, video clips and so on) can be saved on the memory card and transferred to other memory card compatible products, such as digital cameras, video cameras, portable music players, TVs, photo printers and computers. The phone can handle memory cards (M2™) up to 4GB.

Media player

Play music, audiobooks and video clips, streamed or downloaded. The folder system enables the user, for example, to organise favourite songs into groups and create simple playlists. The music player key gives users direct access to their music files without having to browse the menus.

News Reader

The user can subscribe to and read favourite RSS feeds with the News reader application.

USB 2.0 mass storage

When connecting the phone to a computer using a USB cable, the memory card appears on the computer screen as a removable disk. The user can then quickly and easily drag and drop, for example, music and image files between folders in the phone and the computer.

Java™

Additional Java applications give users a chance to personalise the functions in their phones, and developers the opportunity to create new applications.

3D Gaming

Gaming is a popular feature in mobile phones and with Java, users can download new games and skill levels to extend the entertainment experience. Several games are already included in the phone.

Polyphonic sound

The phone supports polyphonic ringtones with 40 simultaneous voices or instruments.

Picture Messaging (MMS)

MMS (Multimedia Messaging Service) is the logical extension of SMS (Short Messaging Service) and EMS (Enhanced Messaging Service). MMS allows sound, image and video to be combined in a message.

Images



Technologies in detail

This chapter offers a detailed description of the technologies available in this product.

Functions and features

The following table is a description of the features in S302. It also compares S302 with two other Sony Ericsson products.

Feature	S302	K550	K510
3D games	Yes	Yes	Yes
Alarm clock Set a time for single or recurring weekly alarms	Yes	Yes	Yes
Antenna Built-in	Yes	Yes	Yes
Backlight Illuminates your phone screen	Yes	Yes	Yes
Battery	3.6V, 950 mAh, Lithium Polymer	3.6V, 950 mAh, Lithium Polymer	3.6V, 750 mAh, Lithium Polymer
Battery charging time	At least 90% charged within 2 hours	At least 90% charged within 2 hours	At least 90% charged within 2 hours
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	Yes with enhanced data rate.	Yes
Business card exchange, vCard Exchange contact information	Yes	Yes	Yes
Calculator	Yes	Yes	Yes
Calendar Fully functional calendar with day, week and month views and reminders	Yes	Yes	Yes
Call list View calls made and received	Yes	Yes	Yes with enhanced functionality
Camera	2.0 megapixel	2.0 megapixel	1.3 megapixel
Camera activation Dedicated camera activation. Press once and the integrated camera activates	Yes, camera button	Yes, open the lens cover and the camera functionality starts automatically	Yes, camera button

Feature	S302	K550	K510
Camera menu Easy-to-use horizontal digital camera menu	Yes	Yes	No
Camera scene modes Easy-to-use horizontal digital camera menu	Yes	Yes	No
Chinese input method Text input methods based on Simplified or Traditional Chinese: Bopomofo, Pinyin or Stroke	Yes	Yes	Yes
cHTML A mobile device adapted version of the standard Internet communications protocol HTML	No	Yes	Yes
Clock Visible clock on the screen	Yes	Yes	Yes
Co-branding area	7 x 22 mm	6.5 x 22 mm	8 x 22 mm
Code memo A safe place to save all your PIN codes and other information. To access code memo, only one PIN code is needed	Yes	Yes	Yes
Colour	Crystal Blue Thunder Grey	Jet Black Pearl White	Midnight Black Polished Purple
Contacts Phonebook with fields for name, phone and fax numbers, email addresses, Web address, title, company address info, personal address info and birthday	Yes	Yes	Yes
Conference calls Support for multi-party calling	Yes	Yes	Yes
Content online Downloadable pictures and ringtones available online	Yes	Yes	Yes

Feature	S302	K550	K510
Copyright protection - DRM 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)	Yes OMA DRM v1	Yes OMA DRM v1	Yes OMA DRM v1
Design	Stick phone, dual front	Stick phone, with active lens cover	Stick phone, dual front
CSS Cascading Style Sheets, the de facto standard style sheet language on the Web, specified by W3C	Yes		
Device Management (DM) DM uses GPRS as a 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, WAP and Java. Device Management is achieved by supporting Over The Air provisioning 7.1 (OTA) and OMA Client Provisioning 1.1 (CP)	No	Yes	Yes
Digital camera menu	Yes	Yes	Yes
Digital zoom	2.5x	2.2x (VGA mode)	4x
DOM2 Document Object Model (DOM) Level 2 HTML Specification, specified by W3C	Yes	No	No
Email Built-in email client with inbox, outbox, compose, send and other functions. Supports attachments	Yes	Yes	Yes
EMS (Enhanced Messaging Service) Text messaging (SMS) with pictures and sounds	Yes	Yes	Yes

Feature	S302	K550	K510
Exterior description			
Length (mm):	100.5	102	101.4
Width (mm):	46.3	46	44
Thickness (mm):	10.9 (screen) 12.0 (camera)	14	17,3 (screen) 18.5 (camera)
Weight (g):		95	82
Fast port	Yes	Yes	Yes
A system connector which enables faster data transfer between the phone and a computer			
File manager	Yes	Yes	Yes
Folder structure storage to help you save and organize pictures, sounds and other phone content		with enhanced functionality for camera content	with enhanced functionality for camera content
Flight mode	Yes	Yes	No
All radio transmitters and receivers are deactivated, making it possible to use the phone only as a Walkman® in aeroplanes, hospitals and other situations where using a mobile phone is prohibited			
FM radio with RDS	Yes	Yes	Yes
FM radio with presets, auto and manual search. Portable handsfree is used as an antenna. The radio can also be used as an alarm signal			
Frames	No	No	No
Before you take a picture, you can choose to have a frame surrounding the picture			
Games download	Yes	Yes	Yes
Replace your in-phone games with new ones			
Games embedded	Yes	Yes	Yes
GPRS	Yes		No
General Packet Radio Services - a communications standard enabling packet data transfer similar to Internet at 28.8 Kbps-58.6 Kbps. It is recommended that you have GPRS to use MMS and content download services	Multislot class 10 supported (4+2)	Data transfer of 21.4 kbit/s per timeslot.	

Feature	S302	K550	K510
High Speed Data HSCSD — a communications standard enabling GSM data transfer 14.4-28.8 Kbps	No	Yes	Yes
HTML HyperText Markup Language — the standard Internet communications protocol	Yes	Yes	No
Icon Desktop A graphic icon desktop with interactive icons	Yes	Yes	Yes
Infrared port A wireless connector enabling connection of the phone to a laptop or another infrared device. In order to share pictures, synchronize or use the phone as a modem	No	Yes	Yes
Instant messaging Chat — several people can take part in a mobile messaging session, where each one sees what the other is writing	No	Yes	Yes
Internet security Encrypts confidential information such as credit card and bank account numbers. Necessary for mobile banking and shopping	Yes	Yes SSL/TLS	Yes SSL/TLS
Java™ Support for Java™ technology	Java 2, Micro Edition (J2ME™), Java 3D™	Java ME Platform, Java 3D™	Java 2, Micro Edition (J2ME™), Java 3D™
Joystick A four-directional stick navigation control with press function	No	Yes	Yes
Keypad lock Lock the phone keys so they do not activate a function in the phone	Yes	Yes	Yes

Feature	S302	K550	K510
Keys	Keypad with 12 keys 3 soft keys Shortcut key C key 4+1 way navigation key Combined on/off key Volume/camera zoom key Play/Pause key Camera key	Keypad with 12 keys 2 soft keys Back key C key 4+1 way navigation key Separate on/off key Volume/camera zoom key Camera key Activity menu key	Keypad with 12 keys 2 selection keys Back key C key 8+1 way navigation key Separate on/off key Volume/camera zoom key Camera button Activity menu key
Lunar calendar A calendar system used in China and other parts of Asia. A lunar month is determined by the period required for the moon to complete its full cycle of 29.5 days	Yes	Yes	Yes
Macromedia™ Flash Lite™ For impressive animated wallpapers, menus and other graphic elements	No	Yes	Yes
Mega Bass™ An audio feature which enhances bass frequencies for better overall music experience	No	No	Yes
Memory (built-in) Phone memory that is free to use (depending on software configuration/file content)	Up to 20 MB	Up to 64 MB	Up to 28 MB
Memory card (included) Separate memory card for storing of pictures, audio, video clips and so on	No	No	1 GB on Memory Stick PRO Duo™

Feature	S302	K550	K510
Memory Stick Micro™ (M2™) slot Slot for inserting a mini peripheral storage device (up to 4 GB). Compatible with many cameras, computers and other devices	Yes	Yes	Yes
Menu shortcuts Option to dedicate shortcuts to the most-used phone functions	Yes	Yes	Yes
MMS (Multimedia Messaging Service) Picture messaging with text and sound	Yes	Yes	Yes
MMS video Support in the phone for sending video clips using MMS	Yes	Yes	Yes
Modem GSM Internet dial-up support	Yes	Yes	Yes
MusicDJ™ A sampler music tool with MIDI drum, guitar, keyboard, bass and brass loops in different music styles, which can be combined to create polyphonic ringtones	No	Yes	Yes
Music tones Music tones, also called master tones, are DRM (Digital Rights Management) protected music by original artists. Various digital audio formats are supported	Yes	Yes	Yes
My friends Wireless Village server community	No	Yes	Yes
Networks	GSM (R99) Quad band a variant: GSM 850, GSM 1800, GSM 1900 i and c variant: e-GSM 900, GSM 1800, GSM 1900	GPRS and EDGE in all bands No 3G GSM 850, (R99) 900, 1800, 1900, e-GSM 900	

Feature	S302	K550	K510
<p>OMA Data Synchronization (SyncML)</p> <p>A device communications standard that enables remote synchronization between devices</p>	SyncML 1.1	SyncML 1.2 SyncML 1.1	SyncML 1.2 SyncML 1.1
<p>OTA (over the air) settings</p> <p>WAP, email and other settings can be sent over the air to the phone</p>	Yes	Yes	Yes
<p>PhotoDJ™</p> <p>A drawing tool in the phone where existing pictures and photos can be edited</p>	No	Yes	Yes
<p>Picture blog</p> <p>Share up to full-size pictures over the Internet on your personal Web page. The size of uploaded pictures is dependent on customisations</p>	Yes	Yes	No
<p>Picture effects</p> <p>Add picture effects as fun layers to a saved picture</p>	No	No	No
<p>Picture gallery</p> <p>A thumbnail image gallery where sections of several pictures can be viewed at the same time</p>	Yes	Yes	Yes
<p>Picture phonebook</p> <p>Add pictures to the contacts. When someone calls, a picture appears on screen</p>	Yes	Yes	Yes
<p>Picture wallpaper</p> <p>Background picture seen on the screen when the phone is in standby mode</p>	Yes	Yes	Yes
<p>PIM Sync (Personal Information Management)</p> <p>Synchronize the phone with a PC</p>	No	Yes	Yes
<p>PlayNow™ (direct link)</p> <p>Listen to music or preview games before you purchase and download to your phone</p>	Yes	Yes	Yes
<p>Polyphonic ringtones</p>	40 tones	72 tones	40 tones

Feature	S302	K550	K510
<p>Predictive text input</p> <p>When the user writes text, predictive text input software predicts what word the user is writing and finishes it for the user. The prediction is based on previous words used and a customisable dictionary</p>	Yes, from Zi corporation.	Yes, T9™ Text Input	Yes, T9™ Text Input
<p>Push email (IMAP Idle)</p>	No	Yes	Yes OMA email notification
<p>Redial</p> <p>Identify and redial the most recent caller</p>	Yes	Yes	Yes
<p>RSS feeds</p> <p>Use the News Reader application to view the up-to-the-minute news on the subscribed RSS feeds</p>	No	Yes	Yes
<p>Screen</p> <p>Type: Size: Resolution: Technology: Screen colours: Backlight colour (screen): Backlight colour (keypad):</p>	Full graphical 2.0 inches 176 x 220 pixels TFT 262,000 (18 bit) White Blue	Full graphical 1.9 inches 220 x 176 pixels TFD, QCIG+alpha 262,000 (18 bit) White	Full graphical 1.8 inches 240 x 320 pixels TFT 262,000 (18 bit) White
<p>Screen saver</p> <p>When the phone has not been used for a while, a screen saver activates and the phone goes into sleep mode</p>	Yes	Yes	Yes
<p>Shut down menu</p> <p>Shut down the phone, lock the keys, turn on silent or activate a profile</p>	No		
<p>Side volume keys</p> <p>Controls on the side of the phone that regulate the volume of incoming sound</p>	Yes	Yes	No
<p>SIM card lock</p> <p>The ability to protect the SIM card with a four-digit PIN code</p>	Yes	Yes	Yes

Feature	S302	K550	K510
Sleep mode A power saving feature that minimises battery power consumed when the phone is in standby	Yes	Yes	Yes
SMS, long (text messaging) Concatenated SMS text messaging	Yes	Yes	Yes
Sony Ericsson Remote Update Service Download the latest operator approved version of the mobile phone software over the air	No	Yes	Yes
Sony Ericsson Update Service Connect the phone to an Internet-connected computer, download the latest operator-approved version of the mobile phone software from the Web, www.sonyericsson.com/support , and update the mobile phone	No	Yes	Yes
Sound recorder A mini recording device in the phone that lets the user record voice messages or other sounds	No	Yes	Yes
Speakerphone Loudspeaker suitable for using the phone as an office handsfree	Yes	Yes	Yes
Speed dialling Allocating contacts in the phonebook to specific keys on the keypad	Yes	Yes	Yes
Standby time	Up to 300 hours	Up to 350 hours	Up to 360 hours
Status view The screen shows the network being used, time and other status information	Yes	Yes	Yes
Stopwatch	Yes	Yes	Yes
SVG Tiny 1.1 Scalable Vector Graphics for impressive animated wallpapers, menus and other graphic elements	Yes not in browser	Yes	Yes

Feature	S302	K550	K510
Synchronization PC Synchronize and share phone content with a computer	No	Yes	Yes
Talk time	Up to 7 hours	GSM: Up to 7 hours UMTS: Up to 2 hours 30 minutes	Up to 7 hours
Tasks Keeps track of important things to do	Yes	Yes	Yes
Themes Phone menu texts and background graphics	Yes, but not downloadable	Yes	Yes
Time Line Search (Time View) Search for pictures and videos by month or day	No	No	No
Timer Set the phone to alert after a specific time lapse.	Yes	Yes	Yes
USB connectivity support Connect the phone to a computer with a USB cable. The memory in the phone appears on the computer screen as a mass storage device	Yes	Yes	Yes
Vibrating alert The phone vibrates when a call comes in	Yes	Yes	Yes
Video calling When the user makes a video call, the recipient can be seen on the screen. The service requires UMTS/WCDMA.	No	No	No
Video player Record, play and transfer video clips to another phone or a computer via an available transfer method	Yes	Yes	Yes
Video streaming Real time streaming of video, for example, live cam	Yes	Yes	Yes

Feature	S302	K550	K510
<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>	No	Yes	Yes
<p>Voicemail</p> <p>Support for voicemail operator service including automatic answering and message recording</p>	Yes	Yes	Yes
<p>Walkman® key</p> <p>Get direct access to music files without having to move between the menus. Press the Walkman® key to gain direct access to the Walkman® player. Press to minimise and use other functions with music still playing</p>	No	No	No
<p>Walkman® player</p> <p>Advanced digital music player. Supports playing music, streamed or downloaded</p>	No	No	No
<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	Yes

Facts and figures

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

Technical specifications

General technical data

System	Quad band GSM phase 2 recommendations. GSM 850, GSM 900, GSM 1800, GSM 1900 and e-GSM supported
Speech coding	HR, FR, EFR, AMR supported where available, for high speech quality
GSM SIM/USIM card	Small plug-in card, 1.8 V and 3 V
Memory (user free)	Up to 20 MB internal (depending on software configuration/file content). Memory Stick Micro™ (M2™) which has a capacity of up to 4 GB
Data transfer speeds	Up to 85.6 Kbps (downlink) Up to 42.8 Kbps (uplink)

Performance and technical characteristics

Dimension	GSM 850 (a variant)	GSM 900/ E-GSM 900 (i and c variant)	GSM 1800 (a, i and c variant)	GSM 1900 (a, i and c variant)
Frequency range (MHz)	TX: 824–849 MHz RX: 869–894 MHz	TX: 880–915 RX: 925–960	TX: 1710–1785 RX: 1805–1880	TX: 1850–910 RX: 1930–1990
Channel spacing	200 kHz	200 kHz	200 kHz	200 kHz
Number of channels	124 Carriers *8 (TDMA)	174 Carriers *8 (TDMA)	374 Carriers *8 (TDMA)	299 Carriers *8 (TDMA)
Modulation	8PSK/GMSK	GMSK	GMSK	GMSK
TX Phase Accuracy	< 5° RMS Phase error (burst)	< 5° RMS Phase error (burst)	< 5° RMS Phase error (burst)	< 5° RMS Phase error (burst)
Duplex spacing	45 MHz	45 MHz	95 MHz	80 MHz
Frequency stability	+/- 0.1 ppm	+/- 0.1 ppm	+/- 0.1 ppm	+/- 0.1 ppm
Voltage operation (nominal)	3.6 V	3.6 V	3.6 V	3.6 V
Transmitter RF power output	33 dBm Class 4 (2 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	GSM 850 (a variant)	GSM 900/ E-GSM 900 (i and c variant)	GSM 1800 (a, i and c variant)	GSM 1900 (a, i and c variant)
Transmitter Spurious emission (according to specification)	< -36 dBm up to 1 GHz < -30 dBm over 1 GHz (according to spec.)	< -36 dBm up to 1 GHz < -30 dBm over 1 GHz	< - 30 dBm	< - 30 dBm
Receiver RF sensitivity	Better than – 102 dBm	Better than – 102 dBm	– 102 dBm	– 102 dBm
Receiver RX Bit error rate	< 2.4%	< 2.4%	< 2.4%	< 2.4%

USSD technical data

Feature	Support
USSD support	GSM Phase 1/2 (Cross-phase compatibility). GPRS behaviour according to class B
Mode support mode	UI-mode supported SAT initiated USSD supported
UI-mode details	<ul style="list-style-type: none"> • Ability to scroll up and down in USSD messages • Ability 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 (4+2). CS-1, CS-2, CS-3, CS-4. 9.050 bps, 13.400 bps, 15.600 bps, 21.400 bps supported (network-dependent)
Indicator of attachment to the GPRS service	Yes, an icon in the top left corner, a filled triangle if attached
Indicator of PDP context activation	Yes, dynamic from left side, an animated globe.
Medium Access Modes	Dynamic allocation
Support of Packet Control Channels (PBCCH/PCCCH)	Yes
Network operation mode	NOM I, II, III

Dimension	Support
Support of GPRS/CS combined procedures	Yes
Network control mode	NC0 and NC2
Support of access in 2 phases	Yes
Support of PRACH on 11 bits	Yes
Support of GPRS re-selection C31/C32	Yes
Support of static and dynamic addressing	Yes
Support of power control uplink and downlink	Uplink = yes, downlink is a network feature
Support of ciphering algorithms	GEA1, GEA2
Support of compression algorithms	Yes, IP header compression
Support of the QoS modification procedure	Yes, when initiated by the network (not by the phone)
Downlink data rate	Up to 85.600 bps for packet data communication, using 4 time slots in coding scheme CS-4
Uplink data rate	Up to 42.800 bps for packet data communication, using 2 time slots in coding scheme CS-4
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
IP connectivity	PDP type IP is supported. IP termination in mobile or TE (laptop, PDA) supported
Application	WAP over GPRS supported (UDP/IP and GPRS-SMS) SMS over GPRS supported (SMS-MT, SMS-MO)
QoS	QoS negotiation supported. Default requested QoS sent by the phone at PDP context activation is reliability Class 3. Peak/Mean/Delay/Precedence. Class: subscribed. Precedence class supported (1,2,3). Reliability class 1-5 supported. Delay classes supported (1,2,3,4). Mean and peak throughput rate limited by multi slot class 4 and CS-4.

Dimension	Support
PDP context	10 PDP context descriptions are stored in the phone. PDP context description is edited via application in mobile, AT-command or via OTA. Simultaneous PDP contexts are supported, maximum 2.
SIM	GPRS aware, as well as non-GPRS aware, SIM cards are supported

SIM AT services supported

Service	Mode	Support
CALL CONTROL BY SIM		Yes
DATA DOWNLOAD TO SIM	Cell Broadcast SMS	Yes 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

Service	Mode	Support
GET INPUT	General: number 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	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
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

Service	Mode	Support
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
	Sub address 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 redial	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 redial	Yes
	'04' = set up call, disconnecting all other calls (if any)	Yes
	'05' = set up call, disconnecting all other calls (if any), with redial	Yes
	SET UP EVENT LIST	'00' = MT call
'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		N/A
'07' = Language selection		Yes
'08' = Browser termination		Yes
'09' = Data available		Yes
'0A' = Channel status	Yes	

Service	Mode	Support
SET UP IDLE MODE		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 and a 60-second time-out limit for the user to clear the text. Key responses:

- Long Back – input session terminated by user
- Back – backward move in input session

Any other key clears the display 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 input session
- Back – backward move in input session
- OK – command performed successfully

Get input

Prompt for character input. The phone will refuse to accept further input when maximum response length is reached. 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 input session
- Back – Backward move in input session
- OK – Command performed successfully

Select item

Scroll to highlight item for selection. Key responses:

- Navigation key press down – scroll down list
- Navigation key press up – scroll up list
- Long Back – terminates input session
- Back – backward move in input 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 input 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 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

Music player

File types	Formats	Extensions
Audio	AAC MP3 (192 Kbit/s for local playback) MP4 M4A 3GP AMR-NB WAV	.mp4, .3gp .mp3 .mp4 .m4a .3gp .amr .wav
Video (including audio part)	MP4 (video: MPEG-4, audio: AAC) 3GP (video: MPEG-4 or H.263, audio: AAC)	.mp4 .3gp
Streaming transport	RTSP according to 3GPP™	
Video encoding	H.263	
Video decoding	MPEG-4 Simple Visual Profile Level 0 H.263	
Audio encoding	AMR-NB	
Audio decoding	AAC, AMR-NB, AMR-WB, AAC+, AAC/LC, WAV, mid, 3gp, MP4, M4A, IMY, PMR, MP3	

Feature	Support
Automatic pause on telephone call	Yes
Playlists	Yes
Play mode	Shuffle or Loop
Equaliser	Yes
Sorting by artist or file	No

Ringtone file formats

File types	Formats	Extensions
Ringtones	MIDI (General MIDI 1, SP-MIDI) iMelody AMR-NB MP3 MP4 3GP M4A WAV	.mid .imy .amr .mp3 .mp4 .3gp .m4a .wav

Radio with RDS

System	VHF/FM
Output	Portable handsfree. Internal loudspeaker. External loudspeakers.
Save channels	Yes, 10 presets
Antenna	Stereo portable handsfree

Imaging/Messaging

2.0 megapixel camera

Facts and figures	
Picture sizes (resolution)	VGA (640 x 480) 1 MP (1280 x 960) 1280 x 1024 2 MP (1600 x 1200) Note: MP = megapixel
Colour depth	18 bit, 262K colours

Facts and figures

Camera memory	Phone memory or memory card, no memory dedicated to the camera only
Digital zoom	2.5x
Night mode	Yes
Self-timer	Yes
Effects	Negative/Sepia/Black&White/Off
Photo fix	Improves an under-exposed picture by calculating and adjusting the lighth balance
Picture quality	Choose between High or Low
White balance	
Photo light	
Shutter sound	No/Click sound
Shoot mode	Normal/Burst
Video recorder	
Video sizes	176 x 144 (n 128 x 96)
Shoot mode	For picture message/ normal quality video

Pictures and animations

Formats	JPEG, BMP, GIF (including animated), PNG and WBMP, SWF and SVG-t
Sharing via	MMS, EMS, WAP, BT, email or cable

Image decoders

Decoder	Details	Size	Colour depth	File format
GIF	87a/89a	128 x 128 pixels	256	GIF
JPEG	ISO/IEC JPEG Baseline DCT Progressive DCT Non-differential Huffman coding Symbol: SOF2	VGA		JFIF v1.02
BMP	The bitmap image format used by Windows®	XRAM dependent, default is VGA	24 bit	
WBMP				
PNG				

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, default is VGA	24 bit	
WBMP				

Short Messaging Service

Feature	Support
SMS centre number	The SMS centre number can be preloaded
Pictures	A picture or icon can inserted into the text message. EMS compliant mobile phones will be able to see the picture correctly
Input methods	Predictive text input and multitap
Reply to messages	Received messages can be replied to by SMS, MMS, voice message and email
Message creation methods support	Predictive writing and multitap
Copy, cut and paste words	No

Feature	Support
Teaching of predictive words that are not in the predictive dictionary	Yes
Options when creating a message:	
Save a sent message in the "Sent messages" folder	Yes
Insert a line in the message	Yes
Assign a validity period to the message	Yes
Use pre-defined messages	Yes
Options when receiving a message:	
Reply to the sender	Yes
Forward the message	Yes
Save the message on the SIM card	No
Get the delivery time and date	Yes
Options for a previously sent message:	
Delivery report of the message	Yes, if delivery report was requested at time of sending
Forward the message	Yes
Save the message on the SIM card	No
Know the remaining capacity storage	No, but notification when 95% full
Options for a previously received message:	
Reply to the sender	Yes
Save the message on the SIM card	No
Forward the message	Yes
Know the remaining capacity storage	No, but notification when 95% full
Supported ways of replying to a received SMS message:	
via SMS	Yes
via MMS	No
via email	No
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)	No
via USSD session	No

Feature	Support
Option to send an SMS message to a list of recipients	Yes
Option to write an email address as a recipient address	Yes
SMS storage	On the SIM card 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	20
Storage capacity	200 and the space left on the SIM card
Outgoing messages	<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 • Option to re-use the content of an EMS message. Sounds and pictures can be inserted in a new message, if the object is not protected using ODI
Concatenated messages	A receipt is received in the phone when all parts of a concatenated message have been delivered
Insert objects	Options 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	<ul style="list-style-type: none"> • send and receive melodies via EMS, if the melodies are not protected by ODI • download melodies and commercial tunes from WAP portals • create melodies on WAP portals
WBMP	Yes

Feature	Support
Picture sizes	16x16 pixels, 32x32 pixels, variable size in black and white
Pictures	Edit pictures by using the phone keypad. Send and receive pictures via EMS, if the pictures are not protected by ODI. Create pictures on WAP portals. Download pictures from WAP portals. Receive pictures in enhanced messages originated by service providers.
Animations	The phone supports 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 colour animations.
TP-PID field value given by the phone before sending an EMS message	0 x 00

Multimedia Messaging Service

Feature	Support
MMS/CSD parameters and MMS/GPRS parameters placement	MMS 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	MMS/CSD: Yes MMS/GPRS: Yes
Possibility to configure the MMS parameters by OTA provisioning	MMS/CSD: Yes MMS/GPRS: Yes
Possibility for all the parameters from the parameters set to be OTA provisioned at the same time	MMS/CSD: Yes MMS/GPRS: Yes
Possibility for only one parameter from the parameters set to be OTA provisioned	MMS/CSD: No MMS/GPRS: No
OTA provisioning solution	OMA client provisioning 1.1
Supplier indication of realised 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

Feature	Support
Functionalities the user is able to set during message composition	Message subject. Message priority. Email recipient address. Message Cc recipient(s) address(es). Message Bcc recipient(s) address(es). Delivery report request. Delivery time. MSISDN recipient address. Validity period.
The user can insert multimedia elements into multimedia messages from:	File Manager. Camera. Contacts. Calendar.
Option for sent messages to be memorised in a folder in the phone memory	Yes
Actions that the user can perform after message notification:	Auto Download - home/roaming
Actions that the user can perform after message retrieval	Reply to the sender of the SMS/MMS/Voice message. Reply to the sender and Cc people the MMS/Voice message. Reply to the sender and Bcc people the MMS/Voice message. Forward the MMS. Delete the message. Save the message in the phone memory. Call the sender of a message. View details. Save items.
Multimedia codecs/formats supported for audio	AMR, iMelody, MIDI, WAV
Multimedia codecs/formats supported for video	3GPP™
Multimedia codecs/formats supported for images and animations	GIF87, GIF89A, JPEG, PNG, WBMP, SVG
Formats for message presentation	message body + attachments (email presentation). SMIL version as described in OMA MMS IOP document version 1.2

Feature	Support
Maximum message size that can be handled by the phone for a message	Maximum size can be customised.
MMS User Agent reports problems to the user if:	<p>Message not sent causes no user subscription to service, if included in ResponseText.</p> <p>Message not sent causes required functionality not supported by MMS Relay/Server, if included in ResponseText.</p> <p>Message not sent causes insufficient credit (in case of prepaid charging), if included in ResponseText.</p> <p>Note: Please see WAP209.</p>

Email client technical data

Feature	Support
Bearer type GSM Data (IP)	Yes, ISDN and analogue
Character sets	<p>ISO: ISO-8859-1, ISO-8859-2, ISO-8859-5, ISO-8859-7, ISO-8859-9, ISO-8859-10</p> <p>Windows: Windows-1251, Windows-1252, Windows-1254, Windows-1255, Windows-1258</p> <p>US-ASCII</p> <p>Unicode: UTF-7, UTF-8, UTF-16</p> <p>Japanese: Shift_JIS</p> <p>Cyrillic: KOI8-R</p> <p>Simplified Chinese: GB2312</p> <p>Traditional Chinese: BIG5</p>
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	No
Remote configuration	OMA Client Provisioning and Nokia Smart Messaging
HTML mail	Yes (tags removed)
Inline images	No
Message management	Window of 20 latest messages. Headers only or size limits
ESMTP	No
Background sending	Yes

Connectivity

OMA Data Synchronization (SyncML) technical data

Feature	Support for SyncML
SyncML compliance	The phone is fully SyncML compliant, having passed SyncML Conformance testing. SyncML 1.1.2 is used and is 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
Option for operators to extend SyncML functionality	The device may be configured to include preset SyncML settings and to control whether SyncML 1.1.
Option to synchronize other phones using SyncML	No
Transport method for SyncML messages	HTTP
Synchronization application placement	Inside the phone
Option for the user to configure login parameters (e.g. 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 and Notes), Username and PWD for databases, databases to be synchronised (on/off), Internet profile, Synchronisation interval, Server ID and Server PWD and permission to allow server-alerted synchronisation. Can be provisioned with OMA Client provisioning v1.1
Mechanisms used by the phone to capture changes made by the end user (that is 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

Browser technical data

Feature	Support in the browser
Back to previous page	Yes
Bearer type GPRS (IP)	Yes
Bearer type GSM Data (IP)	Yes, ISDN and analogue
Bookmarks	Yes, up to 100 named bookmarks for easy access to frequently visited pages, with folders and sorting supported
Bookmark Export/Import	Partial, can be sent using vBookmark format via SMS.
Cache	Yes (size 300 kB)
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</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 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 with. 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
Colour	Colour display
Home page	Yes, up to 10 different; one for each WAP profile
HTML version for WAP browser	XHTML, Mobile Profile 1.2, HTML 4.01, WAP 2.0/WML 1.3, CSS, DOM2, ECMAScript
Hyperlinks in text	Yes, highlighted as blue text
Hyperlinks in images	Yes, indicated by a frame
Image animation	Yes

Feature	Support in the browser
Image and animation formats	GIF (including animated) WBMP, no transparent layers, JPEG, PNG, BMP, SWF and SVG-t
Network settings	Up to 10 different settings available by selecting WAP profile (Internet, Banking, Gateway and so on)
OTA support	Yes
PPP authentication	PAP, supported
Reload page	Yes
Security	TLSv1 SSLv3 WIM on SIM ICC X.509 certificate support, WAP Profile
User Agent Profiles	Yes, list of client characteristics, for example display size
WAP/WML	WAP 2.0/WML 1.3
Internet profiles	Dynamic, up to 10 Internet profiles, each with its own settings

Operator technical data

Feature	Support for WAP
Web browser	OpenWave 7.2
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 profile • 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, PNG, BMP, WBMP
PROVISIONING	
Provisioning types	OMA Client provisioning (v1.1)
Total parameter sets	10 (shared between the provisioning types) < or = 10 (total number of profiles)

Feature	Support for WAP	
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	OMA Client Provisioning	
OTA via SMS	Uses security mechanism (SEC) methods according to WAP-183- ProvCont-20010724-a (see www.openmobilealliance.org)	
Interface		
Bearer	OMA Client Provisioning	
OTA via SMS	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	OMA Client Provisioning	
OTA via SMS	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 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	
Applicative provisioning		
Preferred bearer customisation	Yes	
Email customization	Yes, but not through provisioning	
Other applications/features	Yes (MMS, SyncML, Wireless Village)	

Feature	Support for WAP
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
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 saved
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 trustworthy
WSP push sessions	No
HTTP push session	Yes
White list	Service Centre, IP address

Feature	Support for WAP
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	No, WSP not supported
URL location	On the manufacturer WAP site
WTAI	
WTA Make Call	Yes
WTA Send DTMF	Yes
WTA Add Phonebook	Yes
DOWNLOAD	
WAP solutions	
HTTP GET solution to download content over WAP	Yes
Download Fun from Openwave	No
Other download content over WAP	Yes, download limit (HTTP protocol).
Download application/product memory check	Yes
Downloaded object solution	Yes. The user is informed where the content is saved and asked if it should be used at once or later
UAP indication for downloading	Yes
Other features	Yes. Save, delete, forward, use and manage
Object formats	All formats that are supported in the phone can be downloaded
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	Yes
Elements	
Pop-up menus	Yes, in XHTML

Feature	Support for WAP
Radio buttons	Yes, in XHTML
Check boxes	Yes, in XHTML
Buttons	Available as XHTML form controls

Java

Feature	Functionalities
Java 2, Micro Edition (J2ME)	<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) • PDA Optional Packages for J2ME Platform (JSR 75) • Web Services (JSR 172)
Java 3D	<ul style="list-style-type: none"> • Mascot Capsule Micro3D Version 4 API • Mobile 3D Graphics API for J2ME (JSR 184)
Nokia UI API	<ul style="list-style-type: none"> •

Abbreviations

3GPP™

3rd Generation Partnership Project. Collaboration between a number of telecommunications standards bodies to specify 3G. 3GPP™ also maintains and develops the specifications for GSM.

AAC

Advanced Audio Coding.

AMR

Adaptive Multi-Rate. 3GPP™ standard for speech coding (compression).

API

Application Programming Interface.

CLDC

Connected Limited Device Configuration

CS

Circuit Switched. Connection from A to B which has a fixed bandwidth and is maintained over a period of time, for example a voice telephone call.

CS-1 to CS-4

Coding Scheme. Determines the data rate per timeslot in GPRS.

CSD

Circuit Switched Data. CSD is a GSM service providing a CS data connection at a rate of 9.6 or 14.4 Kbps.

CSS

Cascading Style Sheet.

DM

Device Management. DM utilises 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, WAP and Java.

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, and so on.

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 core 900 frequency band. This extension gives increased network capability.

EFR

Enhanced Full Rate. Speech coding.

EMS

Enhanced Messaging Service. An extension of SMS enabling pictures, animations, sound and text formatting to be added to text messages. 3GPP™ has included EMS in the standards for SMS.

ETSI

European Telecommunications Standards Institute.

FM

Frequency Modulation of the (radio) carrier wave.

FR

Full Rate. Speech coding.

GIF

Graphics Interchange Format. Format for storing images which also supports animated images. Highly compressed by limiting the colour palette to 16 or 256 colours.

GPRS

General Packet Radio Services.

GSM

Global System for Mobile Communications. 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.

IMAP

Internet Message Access Protocol. A method of accessing email or bulletin board messages that are kept on a mail server. IMAP Idle is an optional expansion of the IMAP email protocol that allows the server to send new message updates to the client in real time.

IrDA

Infrared Data Association.

JPEG

Joint Photographic Experts Group. Best known for the JPG format for still image compression.

MIDI

Musical Instrument Digital Interface.

MIDP

Mobile Information Device Profile.

ME

Mobile Equipment (phone excluding SIM card).

MMI

Man-Machine Interface. Same as User Interface (UI).

MMAPI

Mobile Media Application Programming Interface

MMS

Multimedia Messaging Service. Logical extension of SMS and EMS, MMS defines a service enabling sound, images and video to be combined into multimedia messages.

MP3

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

MPEG

Moving Picture Experts Group. A working group of ISO/IEC in charge of the development of standards for coded representation of digital audio and video.

MT

Mobile Termination.

ODI

Object Distribution Indicator. Part of EMS release 5, ODI is a mechanism for controlling distribution of contents (pictures, melodies and so on) within short messages.

OMA

Open Mobile Alliance. Promotes interoperability and a wireless standard for delivering email, textbased Web pages and data to mobile phones, PDAs, pagers and other mobile terminals. OMA email enables the mobile email client to be notified of a new email using mobile network protocols.

OTA

Over the air configuration. To provide settings for the phone by way of sending a message, SMS, 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. Generic term for applications such as Contacts, Calendar, Tasks and so on.

PNG

Portable Network Graphic.

Quad band

GSM 850/900/1800/1900.

QVGA

Quarter Video Graphics Array

RDS

Radio Data System

RSS

Really Simple Syndication

RTSP

Real Time Streaming Protocol. Session control

SI

Service Indication

SL

Service Loading

SIM card

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

SMS

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

SP-MIDI

Scalable Polyphony MIDI.

SS

Supplementary Services.

SSL

Secure Socket Layer.

TLS

Transport Layer Security.

Tri band

GSM 850/1800/1900 or GSM 900/1800/1900.

UI

User Interface.

URL

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

USB mass storage

Universal Serial Bus mass storage. When connecting a PC to the phone, the phone memory appears as a removable disk along with other disks and drives in the PC. The user can then quickly and easily drag and drop items between folders in the phone and the PC such as images, documents, music and video.

USSD

Unstructured Supplementary Services Data. Narrow-band GSM data service.

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. Graphics standard introduced by IBM, having a resolution of 640x480 pixels.

VHF

Very high frequency. A band of radio frequencies falling between 30 and 300 Megahertz.

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.

WAV

Waveform Audio File.

WBMP

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

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.

WSP

Wireless Session Protocol

XHTML

Extensible HyperText 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.ianywhere.com
- www.gsmworld.com
- www.imc.org
- www.imc.org/pdi
- www.3gpp.org
- www.irda.org
- www.etsi.org
- www.wapforum.org
- www.syncml.org
- www.w3.org/TR/xhtml-basic
- www.java.sun.com
- www.cognimatics.com

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