White Paper

October 2006

Z710

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

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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		
April 18, 2006	Version R1A	Released initial version.
May 17, 2006	Version R2A	Updated document.
May 18, 2006	Version R3A	Updated document.
May 24, 2006	Version R4A	Updated document.
June 14, 2006	Version R5A	Updated document.
June 22, 2006	Version R6A	Updated document.
October 2, 2006	Version R7A	Updated document.
October 5, 2006	Version R8A	Updated document.

Contents

Product overview

Stay Connected to friends and family. Z710 uses high performance connectivity applications such as Bluetooth™, Speakerphone, and Push email to keep in touch. Capture the moment with the 2.0 megapixel camera featuring a 2.5x digital zoom and 1600 x 1200 resolution. Share your experiences using mobile blogging to quickly post images and text to a personal Web page.

Z710 is a slim clamshell phone with classy sophisticated style, and a high quality finish. Use the phone without opening the clamshell! Designed with quick and easy access in mind, Z710 offers a large 1.5" external display, easy to read Caller ID, and message and events preview. Internally, Z710 sports a large, 1.9 inch, 176x220 262k TFT color main screen.

The built-in FM radio and media player, combined with the 64MB Expandable Memory Stick Micro™ (M2™) allow Z710 to double as a music device.

Note: To be able to give updated information about the implemented technology and functionality of this product as soon as possible, this White Paper will be released in updated revisions.

Key features

1.9 inch color screen

The 1.9 inch (176 x 220 pixels) full graphic 262k color screen enhances viewing, facilitating high-quality multimedia and entertainment.

2.0 Megapixel camera

With the 2.0 Megapixel camera which includes 2.5x digital zoom and many user friendly features, taking pictures becomes easy and fun. The user interface adds extra quality when it comes to handling the camera.

Media player

The media player converts the phone into a portable MP3, MPEG4, H263 player. Play music and video clips, streamed or downloaded. The folder system enables you, for example, to organize your favorite songs into groups and create simple playlists. A play and pause function has been added.

Communicorder

By using the built-in communicorder, a video recording can be captured and stored in the phone. A video clip can easily be sent off in a picture message for example to friends or family to share experiences with instantly. The Z710 supports viewing video clips in full screen mode.

Gaming

Gaming is already a very popular feature in mobile phones, and with Advanced Java, users can add new games and skill levels to further enhance the entertainment value of Sony Ericsson phones. Several embedded games are included in the phone at purchase. Both 2D and 3D gaming is supported.

JAVA™

Download extra content with Java™, for example, new information- and entertainment-based applications. This gives users a chance to personalize the functions and features in their phones, and developers the opportunity to create new applications.

HTML web browser support

Browse the internet and look at the web sites in different ways with Access NetFront 3.3, an HTML browser which supports a complete web standard suite.

Disc2Phone

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 memory, in a user-friendly way. Search for and select music on your computer or audio CDs and convert your existing audio tracks to MP3 format. Disc2Phone will be included on the CD in the box.

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, which is sent out by the currently tuned in radio station. Just plug in the handsfree that works as an antenna and start listening to desired music. The radio can also be used as an alarm signal.

Polyphonic Ringtones

With this format, the user can play, compose, edit and send melodies by using the Music DJ. The built-in sound synthesizer uses wave tables, real instrument sounds with 64 voices polyphonics. The new composer has an improved graphical user interface to simplify melody handling. All new and edited melodies are stored in MIDI format.

Bluetooth™ wireless technology

Several devices (simultaneous Bluetooth connections) can be connected to Z710 using Bluetooth wireless technology up to 33 feet (10 meters) away. For example, the phone can be answered with a Bluetooth headset when it rings 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, business e-cards, music files and calendar data.

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. Synchronize via USB, IR or Bluetooth using software provided on CD in the box (also available at www.SonyEricsson.com/support).

Memory Stick Micro™ (M2™)

A 64 MB Memory Stick Micro™ (M2™) is supplied in the phone kit. Memory Stick Micro™ (M2™) supports up to 1 GB. Different kinds of content (pictures, audio, video clips etc.) can be stored on the Memory Stick™, and transferred to other Sony Memory Stick-compatible consumer products using an adapter, for example Sony digital cameras, camcorders, portable music players, TVs, photo printers and computers.

Images


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Technologies in detail

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

Functions and features

The following table is a complete description of the features in Z710. It also compares the product with one other Sony Ericsson product.

Feature	Z710	K750	Z520
3D games support	X	X	X
Alarm clock Set a time and the phone will ring at that time.	X	X	X
AMR Adaptive MultiRate audio format for speech sounds.	X	X	X
Backlight Blue, white, or other colored backlight to illuminate the phone screen.	X	X	X
Battery	3.6V, 900mAh, Lithium Polymer	3.6V, 900mAh, Lithium Polymer and LI-Ion	3.6V, 900mAh, Lithium Polymer
Battery charging time	At least 90% charged after 120 minutes.	At least 90% charged after 120 minutes.	At least 90% charged after 120 minutes.
Bluetooth™ wireless technology Wireless connectivity between devices. Range - up to 33 feet (10 meters).	X	X	X
Business card exchange Exchange contact information.	X	X	X
Calculator	X	X	X
Calendar Fully functional calendar with day, week and month views and reminders.	X	X	X
Call list View calls made and calls received.	X	X	X
Camera	2.0 Megapixel	2.0 Megapixel AF	VGA

Feature	Z710	K750	Z520
Camera button A dedicated camera button. Press once and the integrated camera activates.	X	X	X
cHTML A mobile device adapted version of the standard Internet communications protocol HTML.	X		X
Clock Onscreen clock.	X	X	X
Co-branding area	19.82 x 4.86 mm	~18.31 x 5.28 mm	External: 16 x 5.5 mm Internal: 7.6 x 22 mm
Code memo A secure place to store all PIN codes and other information. To access Code memo, only one PIN code is needed.	X	X	X
Color	Twilight Black Metallic Sand	Oxidized Black Blasted Silver	Silver and white frames with various Style-Up™ cover options.
Contacts Phonebook with fields for name, phone and fax numbers, e-mail address, street address, company, title.	Up to 1,000 contacts. Up to 2,500 phone numbers.	Up to 1,000 contacts. Up to 2,500 phone numbers.	Up to 500 contacts.
Conference calls Support for multi-party calling.	X	X	X
Content online Downloadable pictures, games, themes, ringtones available online.	X	X	X

Feature	Z710	K750	Z520
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, java applications etc.).	Version 2.0	Version 1.0	Version 1.0
Design	Clamshell	Dual Front	Clamshell
Device Management (DM) DM utilizes 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. 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.	X	X	X
Digital zoom	2.5x	4x	2x
Display **Main screen** Type: Size: Resolution: Technology: Colors displayed together: Backlight color:	 Full graphical 1.9 inches 176 x 220 pixels TFT 262K White	 Full graphical 1.8 inches 176 x 220 TFT 262K White	 Full graphical 1.8 inches 128 x 160 pixels TFT 65K White

Feature	Z710	K750	Z520
External Display Type: Size: Resolution: Technology: Colors displayed together: Backlight color:	 Full graphical 1.5 inches 128 x 128 pixels Greyscale 4-level Blue on black background. Display setting can change to invert when backlight turns off for improved readability.	 n/a	 Full graphical 1 inch 80 x 101 pixels CSTN 4K White
EDGE EDGE provides all the benefits of GPRS at significantly higher data rates and enables feature-rich services that require higher data rates than GPRS can deliver. The added bandwidth can also be used to increase capacity for additional customers. Z710 supports EDGE Class 10 (4 +2 - sum 5).	X		
Email Built-in email client (POP3/IMAP4) with inbox, outbox, compose, send and other functions. Supports attachments.	X	X	X
EMS (Enhanced Messaging) Text messaging (SMS) with pictures and sounds.	X	X	X
Exterior description Length x Width X Thickness Weight	 86 x 48 x 24.5 mm 100g	 100 x 46 x 20.5 mm 99 g	 83.2 x 45.7 x 23.9 mm 96 g
Fast port A system connector which enables faster data transfer from phone to computer and computer to phone.	X	X	X

Feature	Z710	K750	Z520
File manager Folder structure storage to help store and organize pictures, sounds and other phone content.	X	X	X
FM radio with RDS (radio data support) FM radio with presets, auto and manual search. Portable handsfree is used as an antenna.	X	X	
Games embedded	X	X	X
GPRS General Packet Radio Services - a communications standard enabling packet data transfer similar to Internet - 28.8 kbps - 58.6 kbps. It is recommended to have GPRS to use MMS and content download services.	X	X	X
High Speed Data HSCSD - a communications standard enabling GSM data transfer 14.4 kbps.	X	X	X
Icon Desktop 12 A graphic icon desktop with 12 interactive icons.	X	X	X
Infrared port A wireless connector enabling to connect the phone to a laptop or other infrared device in order to share pictures, synchronize or use the phone as a modem.	X	X	X
Instant messaging (Wireless Village) Chat - several people can take part in a mobile messaging session where each one sees what the other is writing.	X	X	X

Feature	Z710	K750	Z520
Internet key A dedicated Internet key. Press once and the phone connects to a pre-set home page.	X	X	X
Java™ Support for Java™ technology.	Java 2, Micro Edition (J2ME™), Java 3D™	Java 2, Micro Edition (J2ME™), Java 3D™	Java 2, Micro Edition (J2ME™), Java 3D™
Keypad	**Inside clamshell:** 12 number keys, 2 selection keys, clear and back keys, 4+1 way navigation, activity menu key, Internet key, on/off key, and messaging key. **On clamshell:** play/ pause, skip forward, skip backward and menu. **Side**: camera key, and volume keys	12 number keys, 2 selection keys, clear and back keys, 4+1 way navigation, side volume keys, Internet key, on/off key, and side camera key.	12 number keys, 2 selection keys, clear and back keys, 4+1 way navigation, side volume keys, Internet key, on/off key, and side camera key.
Media player Advanced digital music player. Supports playing music or video clips, streamed or downloaded.	X	X	
Memory Phone memory that is free to use (depending on software configuration/file content).	64 MB on Expandable Memory Stick Micro™ (M2™) Up to 10 MB built-in	64 MB on Memory Stick Pro duo™ Up to 38 MB built-in	Up to 16MB built-in
Menu shortcuts A function making it possible to dedicate shortcuts to the most-used phone functions.	X	X	X
MMS (Multimedia messaging) Picture messaging with text and sound.	X	X	X
MMS video Support in the phone for sending video using MMS.	X	X	X

Feature	Z710	K750	Z520
Modem GSM Internet dial-up support.	X	X	X
Music tones Music tones, also called master tones, are DRM (Digital Rights Management) protected music by original artists. Various digital audio formats are supported.	X	X	X
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.	X	X	X
Networks	GSM 850 (3GPP 31.010-1), GSM 900 (CTR 19 and CTR 20) including e-GSM mode, GSM 1800 (CTR 31 and CTR 32) and GSM 1900. GPRS and EDGE in all bands.	GSM 900 (CTR 19 and CTR 20) including e-GSM mode and GSM 1800 (CTR 31 and CTR 32). GPRS in all bands.	GSM 850 (3GPP 31.010-1), GSM 900 (CTR 19 and CTR 20) including e-GSM mode, GSM 1800 (CTR 31 and CTR 32) and GSM 1900. GPRS in all bands.
OTA settings WAP, e-mail and other settings can be sent Over-The-Air to the phone.	X	X	X
PhotoDJ™ A drawing tool in the phone where new pictures can be drawn from scratch or by altering existing ones.	X	X	X
Picture gallery A thumbnail image gallery where sections of several pictures can be seen in the screen at the same time.	X	X	X
Picture phonebook Add pictures to the contacts. When someone calls, a picture of that person appears on screen.	X	X	X

Feature	Z710	K750	Z520
PlayNow™ Download and pre-listen to music ringtones straight from the phone desktop in three clicks.	X	X	X
PlayNow™ Games Preview games straight from the phone desktop in three clicks before you purchase and download.	X		X
Play/Pause Button Music is only one click away. Play/ Pause button allows listening to favorite tunes without having to move between menus.	X	X	
Polyphonic ringtones	64	40	40
Predictive text input	X	X	X
QuickShare™ QuickShare™ is easy experience sharing. With an integrated camera a view can be captured and sent in seconds.	X	X	X
SIM card lock The possibility to protect the SIM card with a four-digit PIN code.	X	X	X
SMS long (Text Messaging) Concatenated SMS text messaging.	X	X	X
Sony Ericsson Remote Update Service Download the latest operator approved version of the mobile phone software over the air.	X		
Sony Ericsson Update Service Connect the phone to an Internet - connected computer, download the latest operator-approved version of the mobile device software from the web, www.SonyEricsson.com/support and update the mobile device.	X	X	X

Feature	Z710	K750	Z520
Sound recorder A mini recording device in the phone that can record voice messages or other sounds.	X	X	X
Speakerphone Loudspeaker suitable for using the phone as an office handsfree.	X	X	X
Speed dialing Allocate contacts in the phonebook to specific keys on the keypad.	X	X	X
Standby Time	Up to 370 hours	Up to 400 hours	Up to 400 hours
Status view The screen shows the network being used, time and other status information.	X	X	X
Stopwatch	X	X	X
SVG Tiny 1.2 Scalable Vector Graphics for impressive animated wallpapers, menus and other graphic elements.	X	X	X
Synchronization PC Synchronize and share phone content with PC.	X	X	X
SyncML A device communications standard that enables remote synchronization between devices.	X	X	X
Talk Time	Up to 9 hours	Up to 9 hours	Up to 9 hours
Tasks Keeps track of important things to do.	X	X	X
Themes display Phone menu texts and background graphics.	X	X	X

Feature	Z710	K750	Z520
Timer Set the phone to alert after a specific time lapse.	X	X	X
USB connectivity support Connect the phone to a computer with a USB cable and the memory in the phone appears on the computer screen as a mass storage device.	X	X	X
Vibrating alert The phone vibrates when a call comes in.	X	X	X
Video player Record, play and transfer video clips to another phone or a computer via available transfer method.	X	X	X
Video streaming Real time streaming of video, for example, live cam. Media can also be downloaded and saved in the phone memory and then used with the media player.	X	X	X
VideoDJ™ Create video sequences by combining different clips and adding music and images.	X	X	X
Viewfinder screen When using an in-phone camera or snap-on accessory camera, the picture can be previewed before it is captured.	X	X	X
Voice control 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.	X	X	X

Feature	Z710	K750	Z520
Voice mail Support for voice mail operator service including automatic answering and message recording.	X	X	X
WAP 2.0 XHTML A mobile Internet standard to access specially designed Internet sites. WAP 2.0 supports color and interactive lists.	X	X	X

Facts and figures

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

Technical specifications

General technical data

System	Quad-band GSM phase 2 recommendations. GSM850 (3GPP 31.101-1), GSM 900 (CTR 19 and CTR 20), GSM 1800 (CTR 31 and CTR 32), GSM 1900 and e-GSM mode supported.
Speech coding	HR, FR, EFR, AMR, for high speech quality.
GSM SIM/ USIM card	GSM SIM - GSM 11.11, Small plug-in card, 1,8 V and 3 V.
Memory (user free)	Up to 64MB on Expandable Memory Stick Micro™ (M2™),10 MB built-in memory (depending on software configuration/file content)

Performance and technical characteristics

Dimension	**GSM 850**	**GSM 900/E-GSM 900**	**GSM 1800**	**GSM 1900**
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 –1910 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	8PSK/GMSK	8PSK/GMSK	8PSK/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	+/- 0.1ppm	+/- 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	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
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

Dimension	GSM 850	GSM 900/E-GSM 900	GSM 1800	GSM 1900
Receiver RF sensitivity	Better than – 102 dBm	Better than – 102 dBm	– 102 dBm	– 102 dBm
Receiver RX Bit error rate	< 2.4%	< -36 dBm up to 1 GHz < -30 dBm over 1 GHz	< 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	• 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 (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).
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
Support of access in 2 phases	Yes
Support of PRACH on 11 bits	Yes
Support of GPRS re-selection C31/C32	Yes

Dimension	Support
Support of static and dynamic addressing	Yes
Support of power control Uplink and Downlink	Uplink = yes, Downlink is a network feature.
Support of ciphering algorithms	GEA1, GEA2
Support of compression algorithms	Yes, V42bis and IP header compression.
Mode of operation	Class B and Class C modes of operation supported.
R Reference point	Physical layer: Support of RS232 PPP is supported as L2 layer in the R reference point Authentication algorithms PAP, CHAP supported
IP connectivity	PDP type IP is supported IP termination in mobile or TE (laptop, PDA) 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 2.
SIM	GPRS aware, as well as non-GPRS aware, SIM cards are supported.
AT commands supported	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

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

Service		Mode	Support
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 screen	Yes
		1 = user input not to be revealed in any way (see note)	Yes
	bit 4:	0 = user input to be in unpacked format	Yes
		1 = user input to be in SMS packed format	Yes
	bit 8:	0 = no help information available	Yes
		1 = help information available	Yes
LAUNCH BROWSER			Yes
MORE TIME			Yes
PLAY TONE			Yes
POLLING OFF			Yes
POLL INTERVAL			Yes
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

Service		Mode	Support
		'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
SET UP CALL		General: Capability configuration Set-up speech call CallParty Subaddress DTMF support	Yes No Yes
		'00' = set up call, but only if not currently busy on another call	Yes
		'01' = set up call, but only if not currently busy on another call, with re-dial	Yes
		'02' = set up call, putting all other calls (if any) on hold	Yes
		'03' = set up call, putting all other calls (if any) on hold, with re-dial	Yes
		'04' = set up call, disconnecting all other calls (if any)	Yes
		'05' = set up call, disconnecting all other calls (if any), with re-dial	Yes
SET UP EVENT LIST		'00' = MT call	Yes
		'01' = Call connected	Yes
		'02' = Call disconnected	Yes
		'03' = Location status	Yes

Service	Mode	Support
	'04' = User activity	Yes
	'05' = Idle screen available	Yes
	'06' = Card reader status	Not Applicable
	'07' = Language selection	Yes
	'08' = Browser termination	Yes
	'09' = Data available	Yes
	'OA' = Channel status	Yes
SET UP IDLE MODE TEXT		Yes, 1 row of text is supported
SET UP MENU		Yes
TIMER MANAGEMENT		Yes
OPEN CHANNEL		Yes
CLOSE CHANNEL		Yes
RECEIVE DATA		Yes
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’ – 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 Mobile Equipment (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.

Media player

File types	Formats	Extensions
Audio	AAC, AAC+, Enhanced AAC+ MP3 (192 kbit/s for local playback) MP4 M4A 3GP (Audio encoded in AAC or AMR, able to play back AAC+) AMR WAV G-MIDI (level 1 with 40 voices polyphony)	.mp4 .3pg .mp3 .mp4 .m4a .3gp .amr .wav .mid
Video (including audio part)	MP4 (video: MPEG4, audio: AAC, AAC+, enhanced AAC+ or AMR) 3GP (video: MPEG4 or H.263, audio: AAC or AMR)	.mp4 .3gp
Streaming transport	RTSP according to 3GPP™	
Video coding	MPEG-4 Simple Visual Profile Level 0 H.263 Profile 0 Level 10	
Audio coding	AAC, AAC+, enhanced AAC+, AMR, MPEG layer 3	
Features	Automatic loop of songs in folder Automatic pause on telephone call.	
Ringtone file formats	MIDI (General MIDI 1, SP-MIDI) E-Melody I-Melody AMR-WB AMR-NB MP3 MP4 3GP M4A WAVE XMF	

Radio with RDS

System	VHF/FM
Output	Portable handsfree External stereo speakers
Save channels	Yes, 20 presets

System	VHF/FM
Antenna	Stereo portable handsfree

Imaging/Messaging

2.0 Megapixel camera

Facts and figures	
Picture sizes (resolution)	1600 x 1200 1280 x 960 640 x 480
Color depth	24 bit (8 bit per RGB channel), 16.7 million colors
Camera memory	Using phone memory, no memory dedicated to the camera only.
Digital zoom	2.5x zoom
Picture light	No
Night mode	Yes
Self-timer	Yes
Effects	Negative/ Solarize/ Sepia/ Black&White/ Off
White balance	Auto/ Incandescent/ Fluorescent/ Daylight/ Cloudy
Picture quality	Choose between Normal and Fine
Shutter sound	4 shutter sounds
Time and date	Add a time and date to a picture
Auto focus	No
Shoot mode	Normal (no frame)/Panorama/Frames/Burst (4 pictures in rapid succession. Changes to 640x480 pixels automatically).
Video recorder	
Video sizes	176 x 144 128 x 96
Video shoot mode	For picture message/ High quality video
Format	.3GP
Frames per second	15

Pictures and animations

Formats	JPEG, BMP, GIF (including animated), PNG, WBMP and Scalable Vector Graphics (SVG)
Sharing via	IR, Bluetooth™, MMS, email or Cable.

Image decoders

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

Image encoders

Decoder	Details	Size	Color depth	File format
GIF	89a			
JPEG	ISO/IEC JPEG Baseline DCT Non-differential Huffman coding Symbol 'SOF0'			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 Center Number	It is possible to pre-load the SMS Center Number.
Pictures	It is possible to insert a picture or an icon into the text message. EMS compliant mobile handsets will be able to see the picture correctly.

Feature	Support
Input methods	Predictive text input and multitap.
Reply to messages	It is possible to reply to received messages by SMS, phone call or email.
Message creation methods support	Predictive writing and multitap.
Copy, cut and paste words	No
Teaching of predictive words that are not in the predictive dictionary	Yes
Possibilities when creating a message:	
save a sent message in a “Sent items” folder	Yes
insert a line in the message	Yes
assign a validity period to the message	Yes
use pre-defined messages	Yes
Possibilities when receiving a message:	
reply to the sender	Yes (only to the sender, not to all or part of the message recipients).
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
forward the message	Yes
save the message on SIM	Yes
know the remaining capacity storage	Yes
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
Supported ways for replying to a received SMS:	
via SMS	Yes

Feature	Support
via MMS	Yes
via Email	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
SMS over GPRS	Yes
Possibility to offer the user the ability of sending an SMS to a list of recipients	Yes, using groups in Contacts.
Possibility to write an email address as a recipient address	Yes, if SMS type = email.
SMS storage	On the SIM and in the phone.
Nokia Picture Messaging	Yes

Enhanced Messaging Service

Feature	Support
Level of compliance supported by the handset 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 handset is able to handle to generate a concatenated message	20
Capacity storage	100 and the space left on the SIM card.
Outgoing messages	It is possible to... • see how many short messages an EMS message consists of before sending it. • choose whether to send the message or not after writing it.
Incoming messages	• A signal is heard once all parts of the message have been received or when a 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.
Concatenated messages	A receipt is received in the handset when all parts of a concatenated message have been delivered.

Feature	Support
Insert objects	It is possible to add pictures, animations and sounds to an EMS message.
Sounds	Chimes high, chimes low, ding, tada, notify, drum, claps, fanfare, chords high, chords low.
I-melody	Yes, version 1.2.
Melodies	It is possible to... • send and receive melodies via EMS, if the melodies are not protected by copyright. • download melodies and commercial tunes from WAP/WAP portals. • create melodies on WAP/WAP portals.
WBMP	Yes
Picture sizes	16x16 mm, 32 x32 mm, variable size in black and white.
Pictures	It is possible to... • edit pictures by using the phone keypad. • send and receive pictures via EMS, if the pictures are not protected by copyright. • create pictures on WAP/WAP portals. • download pictures from WAP/WAP portals. • receive pictures in enhanced messages originated by service providers.
Animations	The handset supports the following animations: Angry, Crying, Flirty, Happy, Kiss, Sad, Tongue, Wow, Confused, Devil, Glasses, Indifferent, Laughter, Sceptical and Wink. Plus the other nine animations defined in 3GPP™ TS 23.040 v4.3.0. It is possible to... • send and receive animations.
TP-PID field value given by the handset before sending an EMS message	0x00

Multimedia Messaging Service

Feature	Support
MMS/CSD parameters and MMS/GPRS parameters placement	MMS is bound to a WAP profile. A WAP 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

Feature	Support
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	OTA Settings Specification v7.1 © Ericsson and Nokia
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
Functionalities that the user is able to set during message composition:	• message subject • message priority • email recipient address • message Cc recipient(s) address(es) • delivery report request • read report request • MSISDN recipient address
From where can the user insert multimedia elements into multimedia messages:	• File Manager • directly from camera • Contacts • Calendar
Possibility for sent messages to be memorized into a folder in handset memory	Yes
Actions that the user can perform after message notification:	• Auto Download • Always Ask
Actions that the user can perform after message retrieval:	• reply to the sender of the message SMS/MMS • reply to the sender and to Cc people SMS/MMS • forward the message MMS • delete the message • save message into terminal • call the sender of a message
Multimedia codecs/formats supported for audio	AMR
Multimedia codecs/formats supported for video	MPG4, 3GPP™, SDP
Multimedia codecs/formats supported for image	JPEG, GIF87, GIF89A, PNG, SVG, WBMP, BMP

Feature	Support
Supported formats for message presentation:	• 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 handset for message	Content Class and Creation mode are applied. Maximum size is 500K. Maximum size is possible to customize.
MMS User Agent will report problems to user in case of:	• message not sent causes no user subscription to service, if included in ResponseText (please see WAP209) • message not sent causes required functionality not supported by MMS Relay/Server, if included in ResponseText (please see WAP209) • message not sent causes insufficient credit (in case of prepaid charging), if included in ResponseText (please see WAP209)

Connectivity

Bluetooth™ technical data

Dimension	Support
Bluetooth capability statement	This phone is manufactured to meet Bluetooth Specification 2.0
Bluetooth functions	Advanced Audio Distribution Profile (A2DP) Basic Imaging Profile Basic Printing 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 Network Profile Serial Port Profile Service Discovery Application Profile Synchronization Profile SyncML OBEX binding
Connectable devices	All products supporting Bluetooth™ spec. 1.1, or higher, and at least one of the profiles above.
Coverage area	Varies due to radio performance on remote device and the occurrence of obstacles. Up to 33 feet (10 meters).

Dimension	Support
Transmission power	2mW (3 dBm)
Frequency band	2.4 GHz - the unlicensed ISM band.
Power consumption	GSM host processor excluded: • Standby, Bluetooth On mode: <0.9mA • Voice mode: 24 mA • Data mode average: 25mA
Data transmission rate	Up to 2 Mbps from an application level.

SyncML technical data

Feature	Support for Sync ML
SyncML compliance	The handset is fully SyncML 1.1 compliant (it passed SyncML Conformance testing).
Basic data formats	Contacts: vCard 2.1, Calendar: vCalendar 1.0, vTasks v1.0, vTodo v1.0, Notes: text/plain
Possibility for operators to extend SyncML functionality.	No
Possibility to synchronize other handsets using SyncML.	No
Transport method for SyncML messages.	HTTP, WSP (i.e. using a WAP connection), OBEX (IR, USB, Bluetooth)
Synchronization application placement.	Inside the handset.
Possibility 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, Server UserID, Server PWD, Paths to databases (Calendar, Contacts, Tasks and Notes) UserID and PWD for Databases, Databases to be synchronized (on/off), WAP Account, Synchronization interval and Remote initiation. Can be provisioned with Ericsson Nokia OTA Settings Specification v7.1 and OMA Client provisioning v1.1.
Mechanisms used by the handset to capture changes made by the end user (i.e. how does the SyncML client in the handset know which changes were made to the address book).	It uses a change log where it marks the contact as updated.

Feature	Support for Sync ML
Ability to deal with multiple servers.	Yes
Ability to perform conflict resolution actions.	No

Internet

Browser technical data

Feature	Support in the browser
Back to previous page	Yes
Bearer type GPRS (IP)	Yes
Bearer type GSM Data (IP)	Yes, HSCSD, ISDN and analog.
Bookmarks	Yes, up to 100 named bookmarks for easy access to frequently visited pages. Folders and sorting supported.
Bookmark Export/Import	Yes, can be sent and received using vBookmark format via Infrared, Bluetooth™, SMS, MMS and email.
Cache	Yes (size 300 kB).
Character sets *	UTF-8 (Default), UTF-16, USASCII, Latin1, UCS2. *) 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.
Clear cache	Yes
Color	Color screen.
Gateway	A WAP typically includes the following functions: A Protocol Gateway – the protocol gateway translates requests from the WAP protocol stack to the WWW protocol stack (HTTP and TCP/IP). Content Encoders and Decoders – the content encoders translate Web content into compact encoded formats to reduce the size and number of packets travelling over the wireless data network.
Home page	Yes, up to 10 different; one for each Internet profile.

Feature	Support in the browser
HTML version for browser	HTML 4.01, XHTML 1.1 including mobile profile, XHTML, Mobile Profile 1.2
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, SVG.
Network Settings	Up to 10 different settings available by selecting Internet profile (Internet, Banking, Gateway etc.).
OTA Support	Yes
PPP Authentication	PAP, CHAP supported.
Reload page	Yes
Security	TLS version 1, Client authentication SSL version 3, Client authentication WIM on SIM ICC X.509 certificate support, WAP Profile WMLScript signText WPKI OTA download of trusted certificates
Tables	Yes
User Agent Profiles	Yes, list of client characteristics - for example screen size.
WAP/WML WAP	WAP 2.0/WML 1.3
WAP profiles	Dynamic - up to 10 WAP profiles, each with its own settings.

Operator technical data

Feature	Support for WAP	
Web Browser		
Version	2.0 baseline	
HTML	XHTML Mobile Profile	
Provisioning		
Access NetFront 3.3	• HTML 4.01, XHTML 1.1 including mobile profile • CSS 1 & CSS 2 (partial) • ECMA Script 3rd edition/ equal to Java script 1.5 • DOM level 1, level 2 and Dynamic HTML (partial) • Graphic formats: GIF, Animated GIF, JPEG, Progressive JPEG, PNG, MNG, BMP, WBMP	
Provisioning types	The Ericsson-Nokia OTA solution Over the Air Settings Specification, v7.1 © Ericsson and Nokia	OMA Client provisioning (v1.0)
Total Parameter sets	10 (shared between the WAP provisioning types). < or = 10 (total number of WAP profiles).	
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 CSD response timer, GPRS QoS
Parameter sets include	WAP/CSD, WAP/GPRS (different sets).	
Factory pre-configuration	WAP/CSD (possibility to lock a setting), WAP/GPRS.	
OTA	WAP/CSD, WAP/GPRS configuration possible.	
Security mechanism		
Bearer	The Ericsson-Nokia solution	OMA Client Provisioning

Feature	Support for WAP	
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	-	The user is asked whether to accept the received settings or not.
Re-provisioning Interface	The Ericsson-Nokia solution	OMA Client Provisioning
OTA via SMS	Same interface as above.	If the settings previously installed were privileged or have higher priority, the settings might not be possible to install again unless the terminal is reset, otherwise as above.
OTA via Cell Broadcast	-	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.
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, digital signatures.	
SWIM certificate	Both client and trusted certificates can be used for digital signatures.	
Applicative provisioning		
Preferred bearer customization	Yes	
Email customization	Yes, but not through WAP provisioning.	
Other applications/features	Yes (MMS, SyncML, Wireless Village).	
Technologies		
OMA Client provisioning	Yes, WAP provisioning document v1.0.	

Feature	Support for WAP
Openwave OTA	No
Other	Yes. The Ericsson-Nokia solution. OTA Settings Specification v7.1.
Provisioning bearer	SMS, Cell Broadcast
Parameter sets available	< or = 10 (total number of WAP profiles)
Parameter sets for OTA modification	< or = 10 (total number of WAP 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 accessability	Messaging, Inbox
SL reception warning	The user can make a choice if a dialogue is wanted or not before loading the SL. Messaging/Settings/Push/Allow push msg/Always ask
SIA reception warning	Yes
Cache size limitations	The oldest push in the inbox will be discarded.
Number of push messages	Depending on the size of the push messages. Around 20 push messages with a size of 500 bytes can be stored.
Push de-activate	Yes (Messaging/Settings/Push/Allow push msg).
Dynamic push menu changes	No. There are no changes in the menus when activating/ deactivating push.
Security	
Mechanisms for push	None
Trust with PPG	Sending a SIA is the most trustful.
WSP push sessions	The White List is supported.
Denial of service/spoofing	
User agent profile	
UA profile content sent at beginning of WSP session	No
OA profile content size	

Feature	Support for WAP
URL sent pointing to the UA profile at the beginning of WSP session	Yes
URL location	On the manufacturer WAP site.
WTAI	
WTA Make Call	Yes
WTA Send DTMF	Yes
WTA Add Phonebook	Yes
Other WTA/WTAI	No
DOWNLOAD	
WAP solutions	
SAR/WSP/HTTP GET solution to download content over WAP	Yes
Download Fun from Openwave	No
Other download content over WAP	Yes. Content download limited to 300 kB when using WTP protocol. No download limit when using HTTP protocol.
Features	
Download application/product memory check	Yes
Downloaded object solution	Yes. The user is asked if the content is to be saved.
UAP indication for downloading	Yes
Other features	Yes. Store, delete, forward, use, manage.
Object formats	All formats that are supported in the phone will be possible to download.
GRAPHICAL USER INTERFACE	
Man Machine Interface	
Selection keys	Yes
Separate/dedicated back or erase 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	

Feature	Support for WAP
Number of display lines for a WAP connection	Up to 8 rows (or 7 rows plus 1 title row), depending on the selected font size. Each row is 21 pixels in height (a title row is 28 pixels).
Pop-up menus	Yes, in XHTML.
Radio buttons	Yes, in XHTML.
Check boxes	Yes, in XHTML.
Buttons	Available as XHTML form controls.

PTT is available only in Z715i

HAC is only available in Z712a

Java™

Feature	Functionalities
Java 2, Micro Edition (J2ME™)	• 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 J2ME™ Platform (JSR 75) • Web Services (JSR 172)
Java 3D™	• Mascot Capsule Micro3D Version 3 • Mobile 3D Graphics API for J2ME™ (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

ARPU

Average Revenue Per User

CS

Circuit Switched

CSD

Circuit Switched Data

CSS

Cascading Style Sheet

DRM

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

DTMF or Touch Tone

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

EDGE

Enhanced Data rates for Global Evolution.

eAAC+

Enhanced Advanced Audio Coder, formerly known as Enhanced Mpeg-4 AAC

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 gives increased network capability.

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

IrDA

Infrared Data Association

JPEG

Joint photographer expert group

LED

Light Emitting Diode

MIDI

Musical Instrument Digital Interface

ME

Mobile Equipment

MIME

Multipurpose Internet Mail Extensions.

MMI

Man-Machine Interface. See UI.

MP3

Short for "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.

MS

Mobile Station

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

Quad-Band

GSM 850/900/1800/1900.

QVGA

Quarter Video Graphics Array

RTSP

Real Time Streaming Protocol session control.

SI

Service Indication

SL

Service Loading.

SIM card

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

SMS

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

SP-MIDI

SP-MIDI stands for 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, voice mail, Web browsers, telephony applications, call centers, conferences, PIMs /PDAs, pagers, fax, office equipment, and smart cards. vCard is specified by IETF.

VGA

Video Graphics Array

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.

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

WAV (or WAVE) is a Microsoft and IBM audio file format standard for storing audio on PCs

WBMP

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

WWW

World Wide Web

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.extendedsystems.com
- www.gsmworld.com/
- www.bluetooth.com
- www.imc.org
- www.3gpp.org
- www.irda.org
- www.etsi.fr
- www.wapforum.org
- www.imc.org/pdi/
- www.syncml.org
- www.w3.org/TR/xhtml-basic/
- www.java.sun.com

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