Local Service Organization Service Manual

BE INSPIRED

SK65

Release	Date	Department	Notes to changes

Our innovation shapes the future

Table of Contents

1   GPRS (General Packet Radio Service)

GPRS is a new non-voice value added services that allows information to be sent and received across a GSM mobile telephone network. It supplements today's Circuit Switched Data (CSD) and Short Message Services (SMS). GPRS involves overlaying a packet based air interface on the existing circuit switched GSM network. This gives the option to use a packet-based data service. The information is split into separated but related "packets" before being transmitted and reassembled at the receiving end. Theoretically, maximum speeds of up to 171.2 kilobits per second (kbps) are achievable with GPRS using all eight timeslots at the same time. This is about 3 times as fast as the data transmission speed possible over today's fixed telecommunications networks and 10 times as fast as current Circuit Switched Data services on GSM networks.
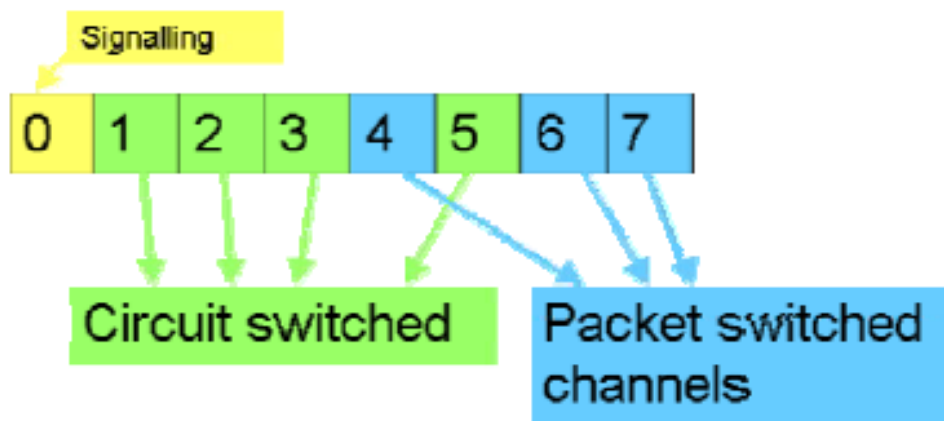

Figure1. Example of GPRS data transmission

Example: Cell with 1 Frequency channel:
1 physical channel for signaling, 4 physical channels for Circuit switched and 3 physical channels for Packet switched.

2   K-Java Application

Java-based game system		
Java Application Manager (JAM)	Application launcher and download manager. Supports HTTP-based OTA download of applications over GPRS and CSD.	yes
RAM for Java applications	Available RAM for Java applications (i.e. Program code and data) during application runtime: Minimum 100 Kbytes (Has to be taken as working assumption for application development). Goal: 145 Kbytes as SL45i (not committed)	yes
MIDP 1.0, CLDC 1.0	As SL45i, including performance optimizations from SL45i-Infusio.	yes
'OEM extensions'	Proprietary API extension as SL45i. Including 'Siemens Game API'	yes
HTTP API over GPRS	Sl45i: only CSD	yes

3   Key Features

Bands	• Triple Band E-GSM 900 / GSM 1800 / GSM 1900 • EGSM Phase 2 / phase 2+ • GPRS Multi Class 10
Battery	• Li-Ion Battery Pack • Nominal Voltage : 3.7V • Nominal Capacity : 750 mAh • GSM Capacity : 700 mAh
Stand-by Time	• up to 250 h (standard battery)
Talk Time	• up to 300 min (standard battery)
SIM Card	• Small ("Plug In") 1.8 V or 3V SIM card (Phase II) • To insert the SIM card, the battery pack must be removed.
GSM Antenna	• Integrated triple band antenna for EMEA/APAC.
Dimensions	• 120 x 47 x 22 mm (L x W x H)
Volume	• 115 cm³
Weight	• 144 g
Charging time	• < 2 h for 100%
Storage	• 64 MByte (up to 30 MB for user memory)
Receiver Sensitivity	• GSM 900: -102dBm (Specification, static & with fading) • GSM 1800/1900: -102 dBm (Specification, static & with fading) Receiver sensitivity must comply with the corresponding GSM recommendations in all operating conditions (temperature, battery level, etc)

Transmitter Power	• GSM 900: nominal 2W (Specification: Class 4 Mobile phone) • GSM 1800/1900: nominal 1W (Specification: Class 1 Mobile phone) Transmitter output characteristics is according to GSM 11.10 specification implying all specified operating conditions (temperature, battery level ...). Transmitter set points will be specified for GSM and PCN when typical values and statistical values become available.
Speech Codec	• Half Rate, Full Rate, Enhanced Full Rate and Adaptive Multi Rate speech coders are available as standard.
Temperature Range	• -10^{0}C to +55^{0}C (Normal operation) • -30^{0}C to +85^{0}C (Storage capability)

Display	- Type: Full Graphic - Resolution: 132 x 176 Pixel - No. of colours: 64K - Technology: 2,05" TFT (Epson) - Active area: 30.03mm x 30.03mm - Pixel size: 0.077mm x 0.231mm. (1 Pixel consists of 3 sub-pixels in red, green and blue) - Illumination: White LED (3 LEDs integrated); Adjustable - Frame rate: 15 frames/seconds - No. of lines: 5 / 7
12-Block Keypad	12-digit block (0-9, #, *) - Bridgeless keypad - Front side decorated - Tactile finder on key "5" - colour adapted to display lens 4 white LEDs for keypad
Function block with Operator key	- chrome plated except operator key - two function keys (SEND, END) - ON/OFF key combined with the END key; the symbol ⏻ (I inside O) is used as a symbol for ON/OFF. 2 white LED's for function block - Operator key front side decorated - Operator key changeable
QWERTZ/Y-Keypad	37 key (18 left and 19 right side) - front side decorated - tactile finder on key "F" and "J" - illumination by 12 red LED - colour adapted to display lens
Acoustics	- Three-in-one-loudspeaker for handset, handsfree and ringing tones - Uni-directional microphone - Loud signal emitter (sound ringer) - Polyphonic ringer tones (parallel to GPRS: 16 voices; all other Use Cases: 32 voices) - Hands free mode - Different selectable volume levels for handsfree, handset and ringer mode (for the amount see SW product description)
Connectivity	USB, IR SIR(115kBit), BT

4 Comparison with Previous Product

Feature	R65/R66 Ulysses	SL65/66 IRIS	SK65 NEO-2
Supported Systems	Triple Band (EMEA, APAC) GSM 900/GSM1800/ GSM1900	Trippel/Dualband (EMEA, APAC) GSM 900/GSM1800/ GSM1900	Triple Band (EMEA, APAC) GSM900/GSM1800/GSM 1900
Stand-by Time	≥ 220h (approx. 3mA quiescent current)	SL55: 200h SL56: 175h	NEO-2: 230h @ DRX9(~3mA quiescent current)
Talk Time	≥ 4,5 h (approx. 150mA average current for lowest TX-power level)	SL55: 210min SL56: 180min	NEO-2: 280min (~150mA for the lowest TX-PWR level)
Battery Technology Battery Capacity	Li-Ion Battery Pack NOMINAL CAP.: 750MAH	Li-Ion Battery Pack NOMINAL CAP.: 500 MAH	Li-Ion Battery Pack NOMINAL CAP.: 750MAH
Weight	Approx. 90 g	Approx. 75g	Approx. 145g
Volume	Approx. 78 cm^3	Approx. 63 cm^3	Approx. 120cm^3
Length	108 mm	81,6mm	122mm
Width	44…47 mm	44.5mm	47mm
Thickness	17…18 mm	21,9mm	22mm
SIM	Plug-In 1.8V/3V	Plug-In 1.8V/3V	Plug-In 1.8V/3V
Antenna	Integrated	Integrated	Integrated
Antenna Performance in comparison to S35	R65: -0,8 dB @ 900 MHz -0,5 dB @ 1800 MHz R66	SL55 28,3dBm@900MHz 26,1dBm@1800MHz 25,2dBm@1900MHz SL56 27,0dBm@850MHz - 26,7dBm@1900MHz	NEO-2 29,0dBm@900MHz 26,0dBm@1800MHz 27,0dBm@1900MHz
Antenna Performance in comparison to C56	-1,5 dB @ 1900MHz		
Half Rate	Yes	Yes	Yes
Enhanced Full Rate	Yes	Yes	Yes
AMR	Yes	Yes	Yes
Fax/Data	Yes	Yes	Yes
GPRS	Yes (Class 10)	Yes (Class 8)	Yes (Class 10)
Keypad Illumination	Yes (white)	Yes (white)	Yes (white)
Display / Display Illumination	TFT/TFD 64k colour	STN 4k colour	TFT 64k colour
Ringer volume level	Min. 95 dB(A) @ 5cm Typ. ≥98dB(A) @ 5cm (for dedicated Siemens-standard melodies) Min. 100dB(A) @ 5cm (only for rectangular sound signals)	- Typ. ≥ 95dB(A) @ 5cm	- Typ. ≥ 95dB(A) @ 5cm

5 Accessories

For SK 65, the following accessories will be available.

Description	Part number
Car Charger Plus ECC-600	L36880-N7101-A109
Car Data Adapter HKO-690	L36880-N7101-A800
Car Kit Bluetooth HKW-600	L36880-N6551-A100
Car Kit Comfort HKC-640	L36880-N4961-A705
Car Kit Portable HKP-500	L36880-N5601-A109
Car Kit Upgrade HKO-650	L36880-N7401-A120
Charger Adapter ECA-500	L36880-N7401-A104
Data Cable DCA-500	L36880-N5601-A110
Data Cable USB DCA-510	L36880-N5601-A111
Data Cable USB DCA-540	L36880-N6501-A102
Headset Bluetooth TM AUS HHB-620	L36880-N7401-A102
Headset Bluetooth TM EU HHB-600	L36880-N7401-A100
Headset Bluetooth TM UK HHB-610	L36880-N7401-A101
Headset Bluetooth TM US HHB-640	L36880-N7401-A105
Headset HHS-500	L36880-N5601-A107
Headset with PTT HHS-510	L36880-N5601-A108
Headset Purestyle HHS-610	L36880-N7101-A500
Li-Ion Battery 750mAh EBA-660	L36880-N7101-A111
Mobile Holder Antenna HMH-640	L36880-N4961-A703
SyncStation DSC-600	L36880-N7101-A113
Leather Holster FCL-630	L36880-N4961-A700
Travel Charger ETC-500 EU	L36880-N5601-A104
Travel Charger ETC-510 UK	L36880-N5601-A105

Note: Visit the Communication Market for updated accessories:
https://communication-market.siemens.de/

5.1 SK65 Interface to accessories

The phone has got a full compatible interface to accessories. The I/O-Connector (Lumberg-(slim)-connector) shall be in the same position as in the 55 series.

All shown interfaces are for car-cradle. Interfaces for Belt-Clip will not be necessary.

Slim Lumberg I/O Connector

6 Unit Description of SK65

The SK65 is a phone with an integrated QWERTY Keypad that is reachable by rotating the back part clockwise. While the QWERTY Keypad is accessible the appearance of the phone is a striking cross. The housing parts are made of lacquered plastic-parts (1-shot-molding; 1 colour). The mechanical concept is unique for Siemens and there is no comparable product known from any competitor. There will be two colour variants, black/silver and white/silver. The common silver parts are the housings and the differentiation (black or white) will be done by the Battery Cover, Keypads and Display Lens.

The rotational movement is limited to 90°. The closed/opened position will be detected independently by Hall Sensors.

The Hinge Mechanism is made from stainless steel and will support an accurate move.

6.1 Exploded View of SK65

Upper Part

Upper Case Shell black

Keypad black latin

Earphone

MMI Board

Gasket MMI

Frame MMI Board

Display Module

Flex Rotary

LCD Board

Metal Plate

Screw Torx 1.4 x 3.6

IRDA Lens

Frame Case

Hinge Buffer

Lower Part

Operator Key

Transceiver Unit

Side Key Switch

Side Key Outside

Keypad Qwerty

Key Metal Dome Foil Left

Key Metal Dome Foil Right

Swapboard

Screw Torx

Case with Antenna

Vibramotor

Microphone

Case with Vibra and Micro

Battery Li-Ion

Battery Cover

7 Disassembly of SK65

Note: ESD concept; the internal circuits will be more susceptible to ESD because of the use of exchangeable housing. The construction of the internal block must be/is designed, in the best possible way, to protect the circuit against sparks.

The keypad must be completely closed to prevent any occurrence of an ESD disruptive discharge.

The SIM contacts may be open, thus reachable for ESD contact discharge. This could lead to damage or destruction of the S-Gold pins.

It is a requirement for the service personnel to observe ESD protection rules while performing servicing the SK65.

Step 1	Step 2
Front view of the SK65	Back View of the SK65

Step 3

Remove Battery cover.

Step 4
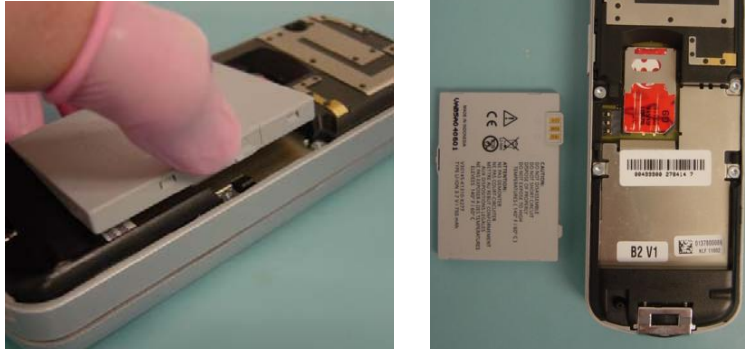
Remove Battery

Step 5
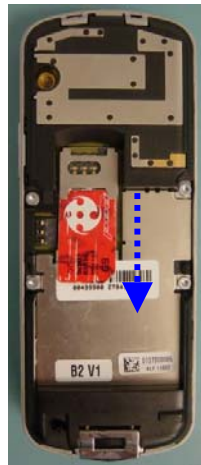
Remove SIM Card

| |
|---|
| **Step 6** |

Remove the 4 screws (as indicated) with T5 Plus screw driver (set Torque = 16 cNm).

Step7
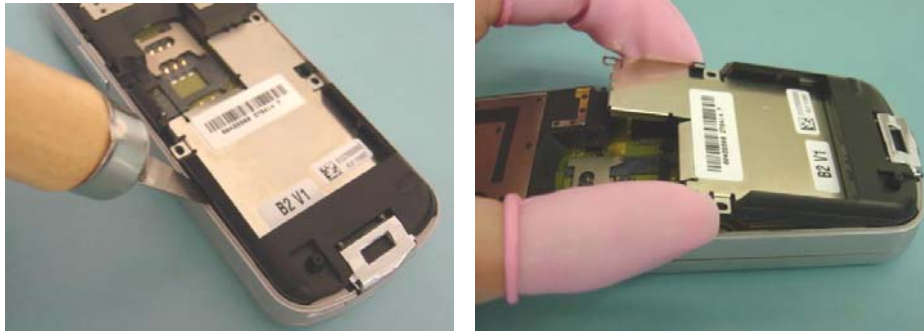
Remove Case with Vibra and Micro.

Step 8
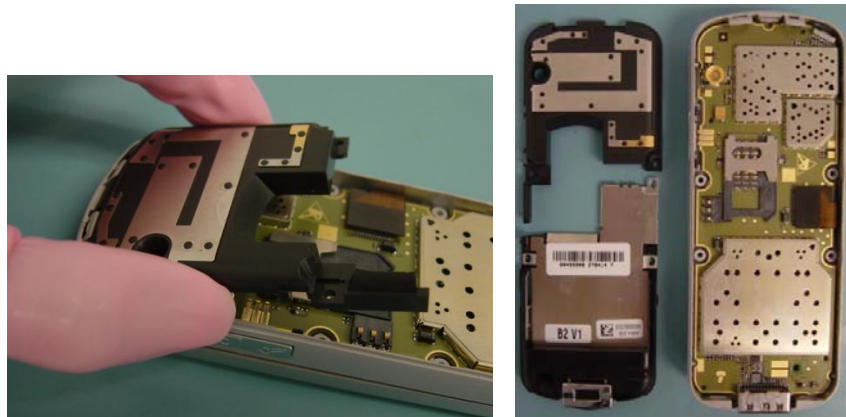
Remove Case with Antenna.

Step 9
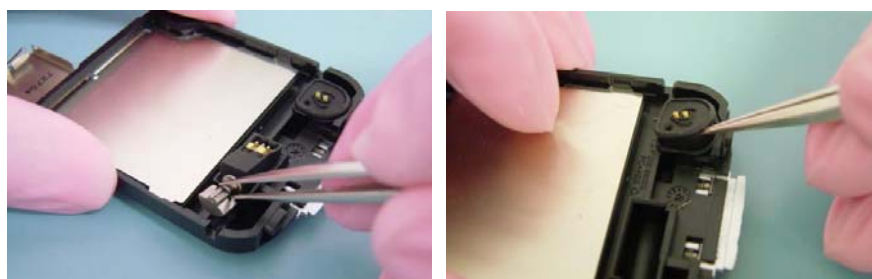

Remove Virbamotor.   Remove Microphone.

Step 10
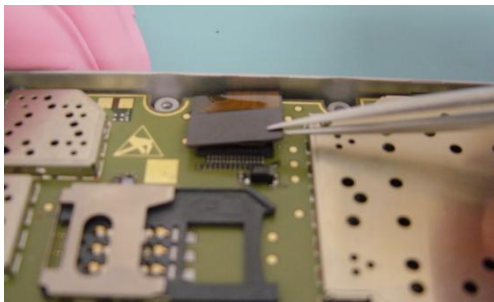

Disconnect the Flex connector.
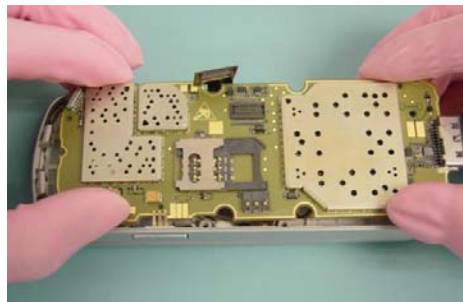
Remove PCB.
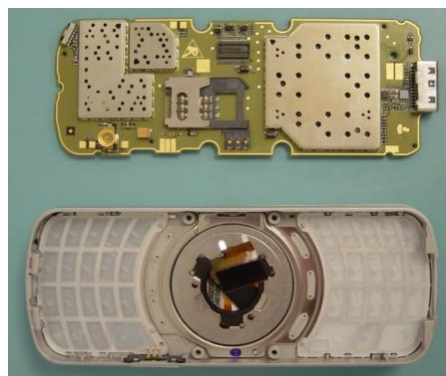
Step 11

Remove Hinge Buffer.

Step 12
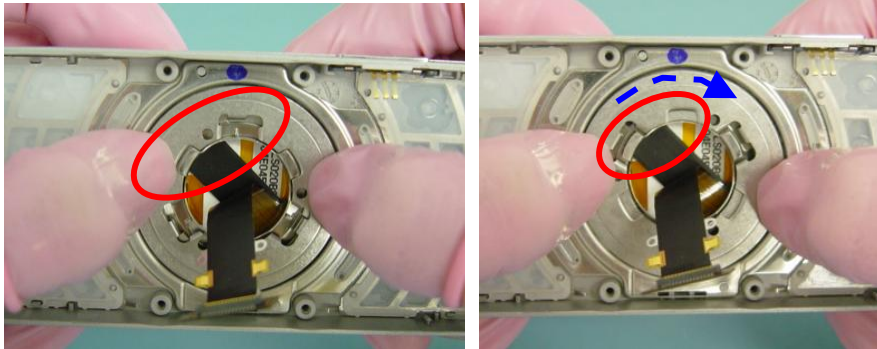
(a) Push the hinge inward with thumb and hold.   (b) rotate hinge in clockwise direction
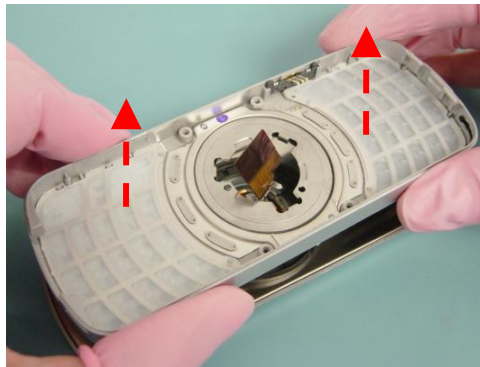

Remove Frame Case.

Step 13
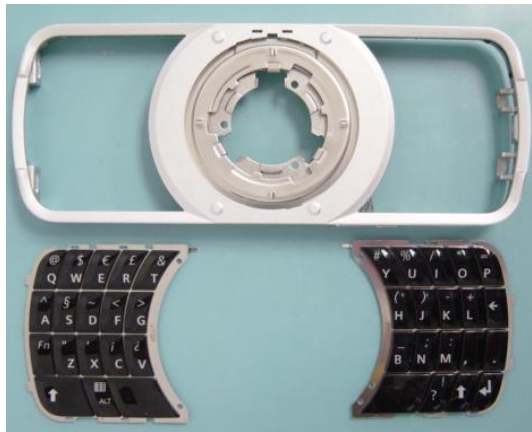
Remove Keypad Qwerty.

Step 14
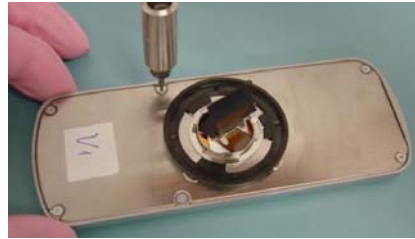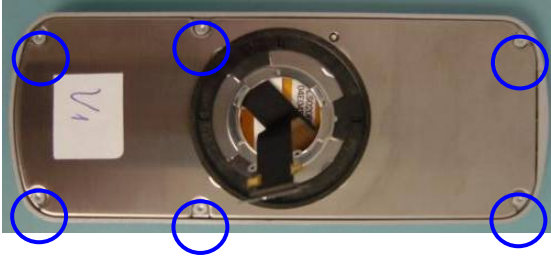
Remove the 6 screws (as indicated) with T3 Plus screw driver.

Step 15
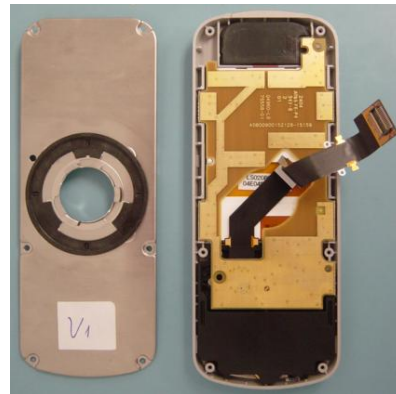
Remove Metal Plate.

Step 16
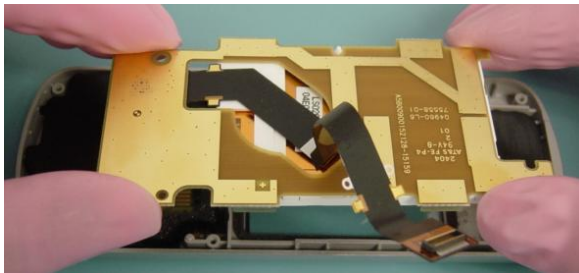
Remove LCD Board.   Place foil over Display module for protection.

Step 17
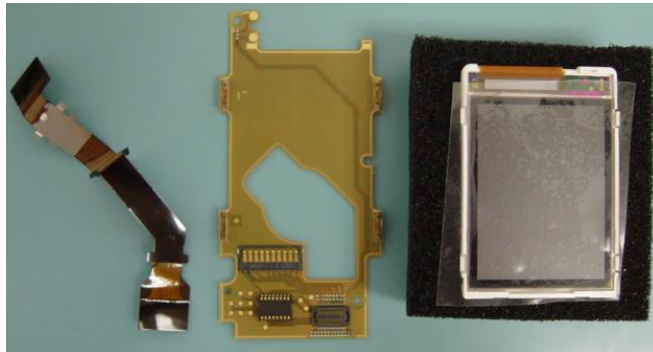
Remove Flex Rotary and Display module.

Step 18

Remove Frame MMI Board (with Gasket MMI).

Remove MMI Board and Keypad (black latin).

Step 19
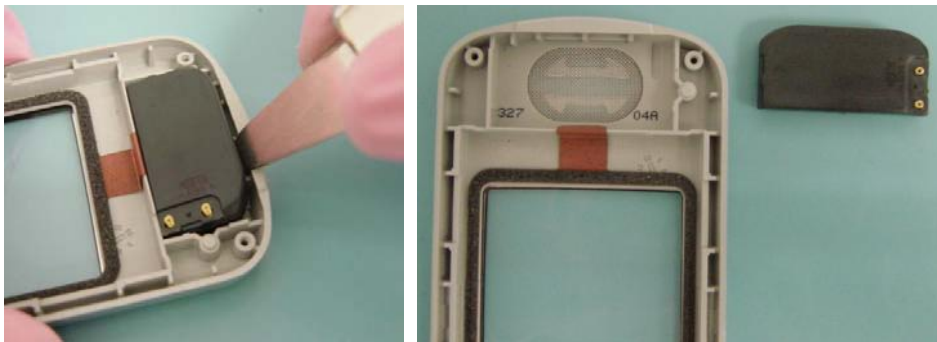
Remove Earphone.

Step 20

Fully disassembled SK65 (Upper parts)

Fully disassembled SK65 (Lower parts)

8 Reassembly of SK65

For the reassembly of the SK65, reverse the disassembly procedures from Step 20 to Step1. However there are some areas to be taken note of during reassembling of the phone.

During the installation of the SIM card, make sure that the SIM card is inserted properly and that the golden contact area is facing downwards. Insert the SIM card downwards to lock the SIM card into position.

Installation of the SIM card

During the installation of the battery, make sure that the hinges are properly in place (See picture below). Otherwise the battery will not be able to fit into the phone properly.
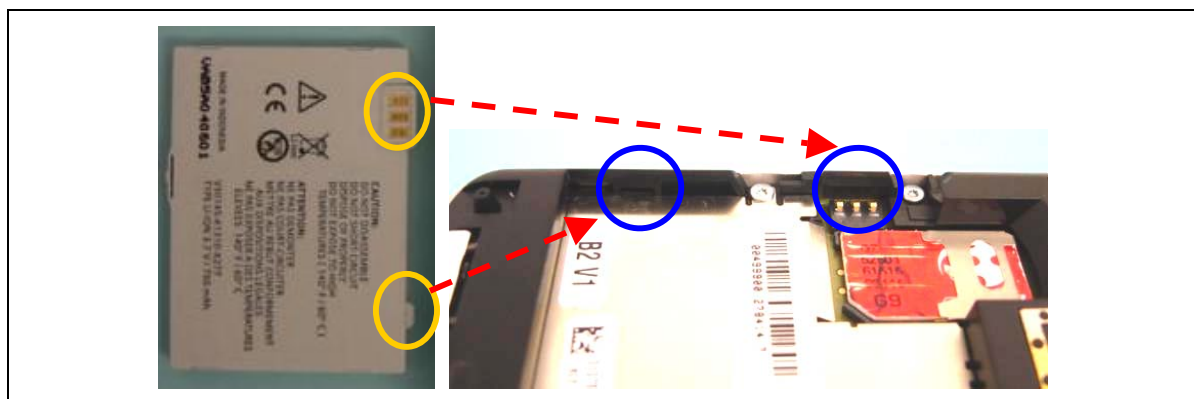
9   Mobile Software Programming

The common mobile software available is divided into language groups. However, this software does not contain the specific settings, such as ringing tones, greeting text, and short dial list etc., required by the operator or service provider. Therefore, it is common to have some menu item(s) differ in different variants or are not visible at all. These settings are stored in different memory area of the mobile and will be activated depending on the customer specific model or variant of the phone by a separate test step during the production process.

Due to this separation of common mobile software and customer specific initialization, it is possible to fulfil the demands of the market requiring customization and flexibility. As a consequence the software programming process in the LSO is divided into two different steps as followed:

- Software update to actual version and appropriate language group
- Programming of CUSTOMER SPECIFIC INITIALIZATION
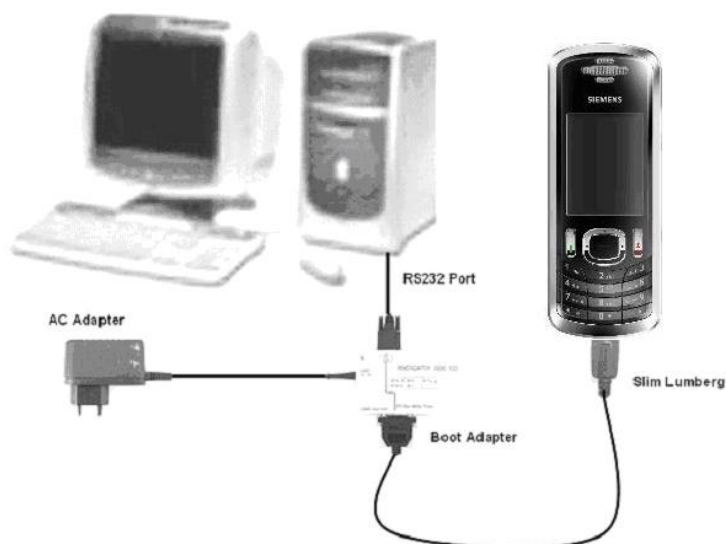
Figure 1. SK65 Software Programming Setup

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9.1 Mobile Software Updating

The software of the mobile, R65 series is loaded from a PC directly. Hardware interconnection between the mobile and the PC is shown in Figure 1. Because of the new type of external connector used in X55 series (Slim-Lumberg type) an additional adaptor cable between mobile and boot adaptor is required. Table 1 listed all the hardware requirements

If you use the battery dummy, make sure that the power supply voltage is correctly adjusted.

Description	Part No.
Bootadapter 2000 incl. AC-Adapter, serial cable and mobile connection cable	L36880-N9241-A200
IBM Compatible PC – Pentium	-
Adapter cable – Slim Lumberg to Old	F30032-P226-A1

TABLE 1. EQUIPMENT LIST FOR SOFTWARE PROGRAMMING

9.2 Flow Chart for Software Upgrading

```
┌─────────────────┐      ┌─────────────────┐      ┌─────────────────┐
│ Plug in the Boot│      │ Start the SWUP  │      │ S/W upgrading in│
│ Adaptor to the PC│     │ program         │      │ progress        │
│ and Mobile      │      └─────────────────┘      └─────────────────┘
└─────────────────┘               │                        │
         │                        ▼                        ▼
┌─────────────────┐      ┌─────────────────┐           ◇ ERROR? ◇ ──── YES
│ Connect the AC  │      │ Select & Execute│              │
│ adaptor to the  │      │ the "Mobile S/W"│              NO
│ Boot Adaptor    │      └─────────────────┘              │
└─────────────────┘               │                        ▼
         │                        ▼                ┌─────────────────┐
┌─────────────────┐           ◇ ERROR? ◇ ── NO    │ TEST Mobile     │
│ Power up Boot   │              │                 └─────────────────┘
│ Adaptor & check │              YES                        │
│ LED.            │               │                        ▼
└─────────────────┘               ▼                ┌─────────────────┐
         │                ┌─────────────────┐      │ Take note of error│
      ◇ OK? ◇ ── YES      │ Check           │      │ and repeat      │
         │                │ H/W setup = S/W │      │ process         │
         NO               └─────────────────┘      └─────────────────┘
         │                        │                        │
┌─────────────────┐               ▼                        ▼
│ Check AC Adaptor│            ◇ OK? ◇              ┌─────────────────┐
└─────────────────┘               │                 │ Feedback Error to│
         │                        │                 │ Tech. Supp. Dep │
 YES ◇ OK? ◇                      ▼                 └─────────────────┘
         │                ┌─────────────────┐                │
         NO               │ Correct Settings│                ▼
         │                └─────────────────┘             ( END )
┌─────────────────┐
│ Faulty AC Adaptor│
└─────────────────┘
         │
┌─────────────────┐
│ Faulty Boot     │
│ Adaptor         │
└─────────────────┘
```

FLOW CHART FOR S/W PROGRAMMING PROCESS

10   Siemens Service Equipment User Manual

Introduction

Every LSO repairing Siemens handset must ensure that the quality standards are observed. Siemens has developed an automatic testing system that will perform all necessary measurements. This testing system is known as:

Siemens Mobile Service Equipment

All mobile Phones have to be tested with the GRT-Software.
The Service Partner is responsible to ensure that all required hardware is available.

For questions, please check the service information form Jan.04 or ask you Service Manager.

Make sure that your CTS firmware is Version 3.01 or higher. For CMD 55 it must be Version 4.03 and higher. Please check with the Service Info SB_0500 for the CTS/CMD Hardware Options.

11 JPICS (*Java* based Product Information Controlling System)

Overview

The following functions are available for the LSO:

- General mobile information

- Generate PINCODE

- Generate SIMLOCK-UNLOCK-Code

- Print IMEI labels

- Lock, Unlock and Test the BF-Bus

The access to the JPICS server which is located in Kamp-Lintfort is protected by chip card and in addition using secure socket layer (SSL) connection.

The JPICS server is only available for authorized users with a specially coded chip card.

These chip cards and the administration of the JPICS web server and the PICS database-server can only be provided by the JPICS-TRUST-Center of the responsible department in Kamp-Lintfort.

In case of any questions or requests concerning chip cards or administration of the databases please ask your responsible Siemens Customer Care Manager.

Installation overview

The following installation description assumes that a web browser is already installed. JPICS is tested with the following browsers

1. Internet Explorer Version 5.5 and higher

2. Netscape Version 6 and higher

For further information regarding supported browsers, browser version and supported

operating systems, see the Sun FAQ's.

Here is a step by step instruction to install all the required components:
It is necessary to follow this order!

1. Card reader (Omnikey)

2. CardOS interface (Siemens)

3. JPICS Certificates

4. Java Plugin JVM/JRE (Sun)

5. Java additional components

Every user is responsible for a proper installation matching the license agreements.

For installation and further access you need the following:

1. The JPICS Installation-CD

2. A chip card. Chip cards can be ordered via your responsible Customer Care Manager within Siemens.

3. A supported chip card reader (Smarty or Siemens B1) in order to access your chip card.

Remark:

We recommend using Siemens B1 reader. Similar device to B1 is Cardman 9010.

Generate Codes

In the module "**Generate Codes**"you can choose to generate:

- Master – Phonecodes

- Simlock Unlock – Codes

Master - Phonecodes

The **Master – Phonecode** is used to unlock blocked mobiles.

Master – Phonecodes can only be supplied for mobiles which have been delivered in a regular manner.

Simlock Unlock - Code

The **Simlock-Unlock-Codes** can only be generated if the following conditions are given:

- Mobile must have an active **Simlock** inside.

- The user must be given the authorization to obtain **Simlock Unlock- Codes** for the variant of the operator to which the mobile was delivered last time.

Printing IMEI label

The module "**Print IMEI label**" offers the possibility to re-print IMEI labels for mobiles again.

You are able to print 1 label in just one step.

To prevent that misaligned labels are being printed, the setting "Print test labels = ✓" is activated as default. After having printed a well-aligned test label you can uncheck the setting and print the correct label.

Hint:

For correct printing of IMEI labels you must have a **Zebra – label printer** with special material that fits for label printing. This printer has to be connected to local LPT1 printer port (also see Installation of IMPRINT) and MUST feature a printing resolution of 300dpi.

12   International Mobile Equipment Identity, IMEI

The mobile equipment is uniquely identified by the International Mobile Equipment Identity, IMEI, which consists of 15 digits. Type approval granted to a type of mobile is allocated 6 digits. The final assembly code is used to identify the final assembly plant and is assigned with 2 digits. 6 digits have been allocated for the equipment serial number for manufacturer and the last digit is spare.

The part number for the SL65 is L36880-N7700-Axx-x where the last 4 letters specify the housing and software variant.

Re-use of IMEI label is possible by using a hair-dryer to remove the IMEI label.

On this IMEI label, Siemens has also includes the date code for production or service, which conforms to the industrial standard DIN EN 60062. The date code comprises of 2 characters: first character denotes the Year and the second character denotes the Month.

For example: **M3**

C O D E	Y E A R	M O N T H	C O D E
M	2 0 0 0	M A R C H	**3**
N	2 0 0 1	A P R I L	4
P	2 0 0 2	M A Y	5
R	2 0 0 3	J U N E	6
S	2 0 0 4	J U L Y	7

TABLE 2   DIN EN 60062 DATE CODE

To display the IMEI number, exit code and SW/HW version, key: *#06#.

13 General Testing Information

General Information

The technical instruction for testing GSM mobile phones is to ensure the best repair quality.

Validity

This procedure is to apply for all from Siemens AG authorized level 2 up to 2.5e workshops.

Procedure

All following checks and measurements have to be carried out in an ESD protected environment and with ESD protected equipment/tools. For all activities the international ESD regulations have to be considered.

Get delivery:

> ➢ Ensure that every required information like fault description, customer data a.s.o. is available.
> ➢ Ensure that the packing of the defective items is according to packing requirements.
> ➢ Ensure that there is a description available, how to unpack the defective items and what to do with them.

Enter data into your database:

(Depends on your application system)

> ➢ Ensure that every data, which is required for the IRIS-Reporting is available in your database.
> ➢ Ensure that there is a description available for the employees how to enter the data.

Incoming check and check after assembling:

!! Verify the customers fault description!!

> After a successful verification pass the defective item to the responsible troubleshooting group.

> If the fault description can not be verified, perform additional tests to save time and to improve repair quality.

   - Switch on the device and enter PIN code if necessary unblock phone.

   - Check the <u>function</u> of all **keys** including **side keys.**

   - Check the **display** for error in <u>line and row</u>, and for <u>illumination.</u>

   - Check the **ringer/loudspeaker** acoustics by individual validation.

   - Perform a **GSM Test** as described on page 35.

Check the storage capability:

> Check internal resistance and capacity of the battery.

> Check battery charging capability of the mobile phone.

> Check charging capability of the power supply.

> Check current consumption of the mobile phone in different mode.

Visual inspection:

> Check the entire board for liquid damages.

> Check the entire board for electrical damages.

> Check the housing of the mobile phone for damages.

SW update:

> Carry out a software update and data reset according to the master tables and operator/customer requirements.

Repairs:
> **The disassembling as well as the assembling of a mobile phone has to be carried out by considering the rules mentioned in the dedicated manuals. If special equipment is required the service partner has to use it and to ensure the correct function of the tools.**
> **If components and especially soldered components have to be replaced all rules mentioned in dedicated manuals or additional information e.g. service information have to be considered**

GSM Test:

➤ Connect the mobile/board via internal antenna (antenna coupler) and external antenna (car cradle) to a GSM tester.

➤ Use a Test SIM.

➤ Skip GSM 900/GSM1800 or GSM1900 test cases if not performed by the mobile phone.

Internal Antenna

Test case	Parameter	Measurements	Limits
1 Location Update	• GSM900 • BS Power = -55 dBm • middle BCCH	• Display check	• individual check
2 Call from BS	• low TCH • PCL 5 • BS Power = -55 dBm • middle BCCH	• Ringer/Loudspeaker check	• individual check
3 TX GSM900	• low TCH • PCL 5 • BS Power = -55 dBm • middle BCCH	• Frequency Error • Phase Error RMS • Phase Error Peak • Average Power • Power Time Template	• GSM Spec.
4 Handover to GSM1800 Including Handover Check			
5 TX GSM1800	• low TCH • PCL 0 • BS Power = -55 dBm • middle BCCH	• Frequency Error • Phase Error RMS • Phase Error Peak • Average Power • Power Time Template	• GSM Spec.
6 Handover to GSM1900 Including Handover Check			
7 TX GSM1900	• low TCH • PCL 0 • BS Power = -55 dBm • middle BCCH	• Frequency Error • Phase Error RMS • Phase Error Peak • Average Power • Power Time Template	• GSM Spec.
8 Call relaese from BS			

External Antenna

Test case	Parameter	Measurements	Limits
9 Call from MS	• GSM900 • high TCH • PCL 6 • BS Power = -55 dBm • middle BCCH	• Keyboard check	• individual check
10 TX GSM900	• high TCH • PCL 6 • BS Power = -55 dBm • middle BCCH	• Frequency Error • Phase Error RMS • Phase Error Peak • Average Power • Power Time Template	• GSM Spec.
11 RX GSM900	• high TCH • BS Power = -102 dBm • 50 Frames • middle BCCH	• RX Level • RX Qual • BER Class Ib • BER Class II • BER Erased Frames	• GSM Spec.
12 Handover to GSM1800 Including Handover Check			
13 TX GSM1800	• high TCH • PCL 1 • BS Power = -55 dBm • middle BCCH	• Frequency Error • Phase Error RMS • Phase Error Peak • Average Power • Power Time Template	• GSM Spec.
14 RX GSM1800	• high TCH • BS Power = -102 dBm • 50 Frames • middle BCCH	• RX Level • RX Qual • BER Class Ib • BER Class II • BER Erased Frames	• GSM Spec.
15 Call relaese from MS			

16	Handover to GSM1900 Including Handover Check			
17	TX GSM1900	• high TCH • PCL 1 • BS Power = -55 dBm • middle BCCH	• Frequency Error • Phase Error RMS • Phase Error Peak • Average Power • Power Time Template	• GSM Spec.
18	RX GSM1900	• high TCH • BS Power = -102 dBm • 50 Frames • middle BCCH	• RX Level • RX Qual • BER Class Ib • BER Class II • BER Erased Frames	• GSM Spec.
19	Echo Test	• high TCH • PCL 1 • BS Power = -70 dBm • middle BCCH		• individual check

Final Inspection:

The final inspection contains:

1) A 100% network test (location update, and set up call).

2) Refer to point 3.3.

3) A random sample checks of:

- data reset (if required)

- optical appearance

- complete function

4) Check if PIN-Code is activated (delete the PIN-Code if necessary).

Basis is the international standard of **DIN ISO 2859**.

Use Normal Sample Plan Level II and the Quality Border 0,4 for LSO.

Remark: All sample checks must be documented.

Annex 1

Test SIM Card

There are two different "Test SIM Cards" in use:

    1) Test SIM Card from the company **"ORGA"**

           Pin 1 number: 0000
           PUK 1   :   12345678

           Pin 2 number: 0000
           PUK 2   :   23456789

    2) Test SIM Card from the company **"T-D1"**

           Pin 1 number: 1234
           PUK   :   76543210

           Pin 2 number: 5678
           PUK 2   :   98765432

Annex 2

Battery Date Code overview

Varta
Date code example ────────────▶ N 9 A VA

Year (N:2001, O:2002...)
Month (1:Jan, 2:Feb,…9:Sep, O:Oct, N:Nov, D:Dec)
Revision Letter (A, B,…)

Supplier Code
(Maker's marking)

Hitachi / Maxwell
Date code example ────────────▶ N 9 A MX

Year (N:2001, O:2002...)
Month (1:Jan, 2:Feb,…9:Sep, O:Oct, N:Nov, D:Dec)
Revision Letter (A, B,…)

Supplier Code
(Maker's marking)

Sanyo
Date code example ────────────▶ N 9 A SY

Year (N:2001, O:2002...)
Month (1:Jan, 2:Feb,…9:Sep, O:Oct, N:Nov, D:Dec)
Revision Letter (A, B,…)

Supplier Code
(Maker's marking)

NEC
Date code example ────────────▶ N 8 A NT

Year (N:2001, O:2002...)
Month (1:Jan, 2:Feb,…9:Sep, O:Oct, N:Nov, D:Dec)
Revision Letter (A, B,…)

Supplier Code
(Maker's marking)

Panasonic
Date code example ────────────▶ O N A PAN

Year (N:2001, O:2002...)
Month (1:Jan, 2:Feb,…9:Sep, O:Oct, N:Nov, D:Dec)
Revision Letter (A, B,…)

Supplier Code
(Maker's marking)

Sony
Date code example ────────────▶ P N A SO

Year (O:2002, P:2003...)
Month (1:Jan, 2:Feb,…9:Sep, O:Oct, N:Nov, D:Dec)
Revision Letter (A, B,…)

Supplier Code
(Maker's marking)

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