

# Local Service Organization Service Manual

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BE INSPIRED

## SL75



V 1.0

Version	Date	Department	Notes to change
V1.0	30.11.2005	COM D CCQ APAC SLI	New Document

Our innovation shapes the future

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## 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.

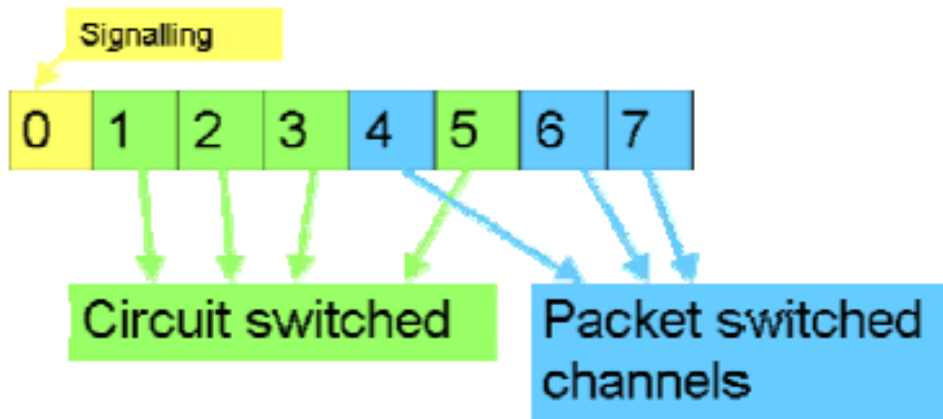


Figure1. Example of GPRS data transmission

**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	<ul style="list-style-type: none"><li>• Triple Band E-GSM 900 / GSM 1800 / GSM 1900</li><li>• GPRS Multi Class 10</li></ul>
Battery	<ul style="list-style-type: none"><li>• Li-Ion Battery Pack</li><li>• Nominal Voltage : 3.7V</li><li>• Nominal Capacity : 700 mAh</li><li>• GSM Capacity : 670 mAh</li><li>• Power Input : 2.0A (0.6 ms) / 0.25A (4 ms)</li><li>• Cut-off Threshold : 3.2V</li></ul>
Stand-by Time	≥ Approx. 290 h (Best Case)
Talk Time	≥ 4.7 hrs (Best Case)
SIM Card	<ul style="list-style-type: none"><li>• Small ("Plug In") 1.8 or 3V SIM card (Phase II)</li><li>• To insert the SIM card, the battery pack must be removed.</li></ul>
Speech Codec	<ul style="list-style-type: none"><li>• Triple Rate (HR/FR/EFR) and Adaptive Multi Rate are available as standard</li></ul>
Temperature Range	<ul style="list-style-type: none"><li>• -10<sup>0</sup>C to +55<sup>0</sup>C (Normal operation)</li><li>• -30<sup>0</sup>C to +85<sup>0</sup>C (Storage capability)</li></ul>
Display	<ul style="list-style-type: none"><li>• Type: Full Graphic</li><li>• Resolution: 132 x 176 Pixel</li><li>• Color depth: 262K</li><li>• Technology: TFT</li><li>• Active area / mm: 27.7 x 37.0</li><li>• Illumination: White LED (4 LEDs integrated)</li><li>• Frame rate: maximum 15 frames/seconds</li><li>• Pixel size per mm: 0.21mm x 0.21mm ( 1 pixel consist of 3 sub pixels in red, green and blue)</li></ul>
Keypad	<ul style="list-style-type: none"><li>• Hardcapes backside-printed</li><li>• 12-key-block (0-9, #, *)</li><li>• Dedicated operator hard key for quick and easy access to relevant operator services</li><li>• two function keys (SEND, END)</li><li>• ON/OFF key combined with the END key; the symbol ⓘ (I inside O) is used as a symbol for ON/OFF.</li><li>• 5 way-joystick with design-cap (soft material)</li><li>• 2 soft-keys for different SW-enabled functions</li><li>• white as illumination colour</li><li>• tactile finder on key "5"</li><li>• 2x4 white LEDs for keypad (main / slider keypad)</li></ul>

Acoustics	<ul style="list-style-type: none"><li>• Omni-directional microphone</li><li>• Three-in-one-earpiece for handset, handsfree and ringing tones</li><li>• Loud signal emitter (soundringer) (&gt;100dB(A) SPL @5cm, 'Hongkong-Spec.') only for rectangular sound signals (NOT POSSIBLE for all Soundringer melodies)</li><li>• Polyphonic ringer tones (parallel to GPRS: 16 voices; all other Use Cases: 32 voices)</li><li>• Hands free mode</li><li>• different selectable volume levels for handsfree, handset and ringer mode (for the amount see SW product description)</li></ul>
Memory	<ul style="list-style-type: none"><li>• Approx 20MB</li></ul>
Connectivity	<ul style="list-style-type: none"><li>• Bluetooth®</li><li>• USB</li></ul>
Multimedia	<ul style="list-style-type: none"><li>• Video recording / encoding, playback &amp; streaming</li><li>• MP3/AAC/AAC+/AAC++ ringtones/Real Audio 8*</li><li>• Video ringtone</li></ul>
Camera	<ul style="list-style-type: none"><li>• Integrated 1.3 Mega pixel with LED light</li></ul>

## 4 Comparison with Previous Product

Feature	IRIS	HYDRA	
<b>SIEMENS</b> Supported Systems SL75 Level 2 Service Manual	Triple Band (EMEA, APAC) GSM900/GSM1800/GSM1900	Triple Band (EMEA, APAC) GSM900/GSM1800/GSM1900	
Stand-by Time	SL65: 230h SL66: 120h (DRX2)	Up to 290h (Siemens best case approx. 2.3mA quiescent current)	
Talk Time	SL65: 270min SL66: 130min (GSM850 PowerLevel 5 DTX OFF)	Up to 4.7h (Siemens best case 143 mA average)	
Battery Technology Battery Capacity	Li-Ion Battery Pack Nominal Cap.: 700 mAh	IRIS Battery pack Norminal capacity 700mAh	
Weight	Approx. 85g	TBD	
Volume	Approx. 78 cm <sup>3</sup>	approx 78cm <sup>3</sup>	
Length	90,2mm	92mm	
Width	47,6mm	48mm	
Thickness	20,9mm	23mm	
SIM	Plug-In 1.8V/3V	Small (=”Plug In”) 1.8 V or 3 V-SIM card (Phase II)	
Antenna			
Antenna Performance in comparison	SL65 28,6dBm@900MHz 26,4dBm@1800MHz 25,2dBm@1900MHz	<b>Input PAH</b>	
Half Rate	Yes	Yes	
Enhanced Full Rate	Yes	Yes	
AMR	Yes	Yes	
Fax/Data	Yes	Yes	
GPRS	Yes (Class 10)	EDGE / Class 10	
Keypad Illumination	Yes (white)	2 * 4 White LED's	
Display / Display Illumination	TFT 65k colour	Enhanced TFT 256k Color 4 White LED's	
Exchangeable Memory	No	No	
Camera	Yes (integrated camera)		
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## 5 Accessories

For SL75, the following accessories will be available.

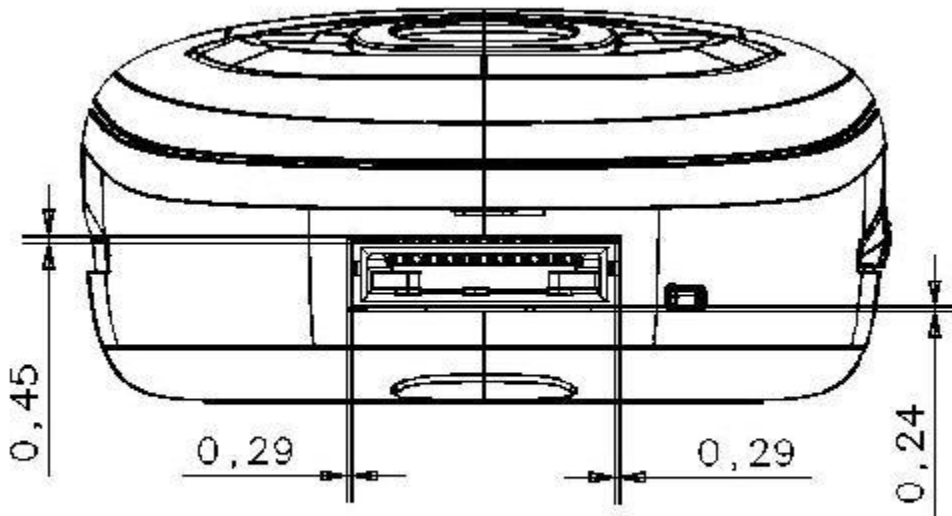
Description	Part number
Leather Case FCL-700	TBC
Tour Case FCT-650	TBC
Li-Ion Battery 720mAh EBA-730	TBC
Travel Charger ETC-500	L36880-N5601-A104
Travel Charger ETC-510	L36880-N5601-A105
Car Charger Plus ECC-600	L36880-N7101-A109
Car Charger ECC-500	TBC
Desk Top Stand EDS-600	L36880-N6881-A100
Headset Bluetooth® HHB-600	L36880-N7401-A100
Headset Bluetooth® HHB-610	L36880-N7401-A101
Headset Purestyle HHS-610	L36880-N7101-A500
Headset HHS-510	L36880-N5601-A108
Headset Stereo HHS-700	L36880-N7431-A101
Headset Bluetooth® HHB-700	TBC
Headset Bluetooth® HHB-710	TBC
Headset Bluetooth® Stereo HHB-750	TBC
Headset Basic HHS-500	L36880-N5601-A107
Charger Adapter ECA-500 (for Headset Bluetooth®)	L36880-N7401-A104
Car Kit Bluetooth® Portable HKW-700	TBC
Car Kit Bluetooth® HKW-600	L36880-N6551-A100
Car Kit Bluetooth® HKW-710	TBC
Car Kit Bluetooth® SIM HKW-720	TBC
Car Kit Portable HKP-500	L36880-N5601-A109
Mobile Music Set IMS-700	L36880-N7431-A110
Flash IFL-600	L36880-N7101-A400
Data Cable DCA-500	L36880-N5601-A110
Data Cable USB – serial DCA-510	L36880-N5601-A111
Data Cable USB – USB DCA-540	L36880-N6501-A102
SyncStation DSC-600	TBC

**Note:** Visit the Communication Market for updated accessories:

<https://communication-market.siemens.de/>

### 5.1 SL75 Interface to Accessories

Hydra does not have an external coax connection. Further more will the support for the cradles be done by the 3D shape not additional cuts or hulls are introduced. I/O is the standard slim Lumberg known from the 65Generation.



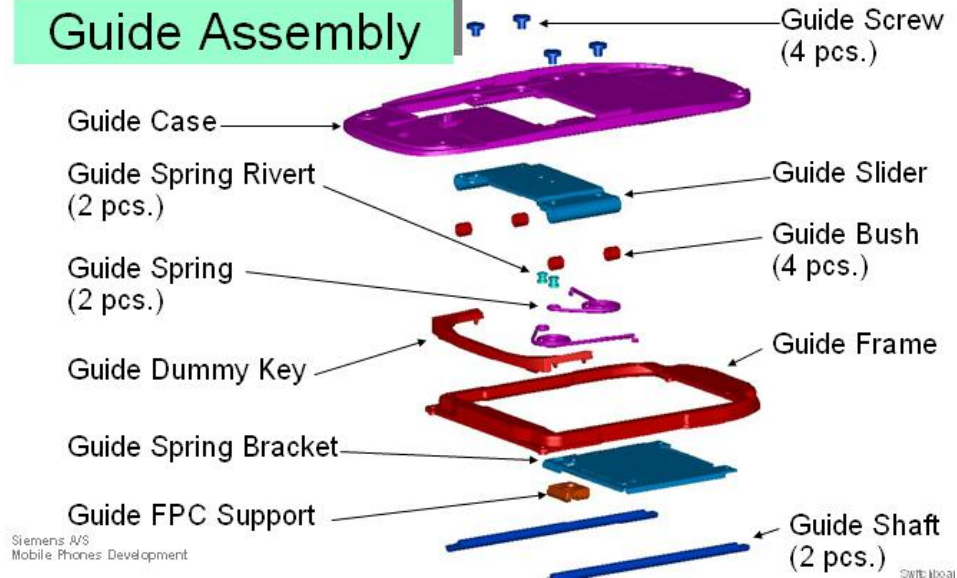
### 6 Unit Description of SL75

Hydra is a slider devices and the placement of different parts is analog to SL55 and SL65. Hydra is deviate from the former slider devices on two main points slider system and the number of parts. The slider system, which is delivered as one module is made in Magnesium and stainless steel. The slider movement is assisted by 2 springs.

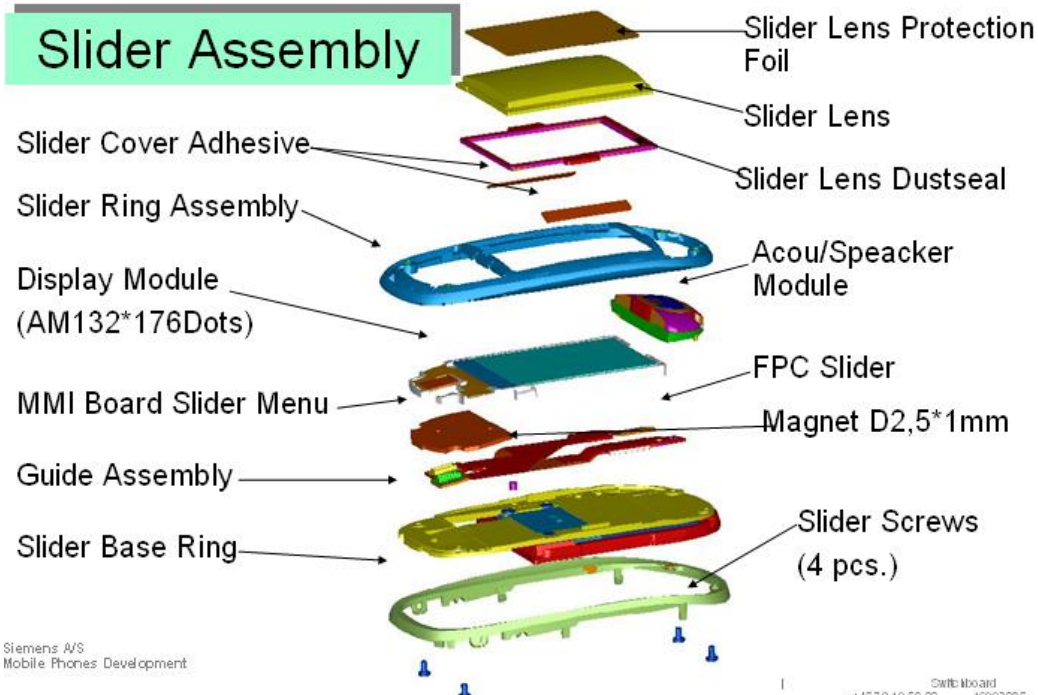


## 6.1 Exploded View of SL75

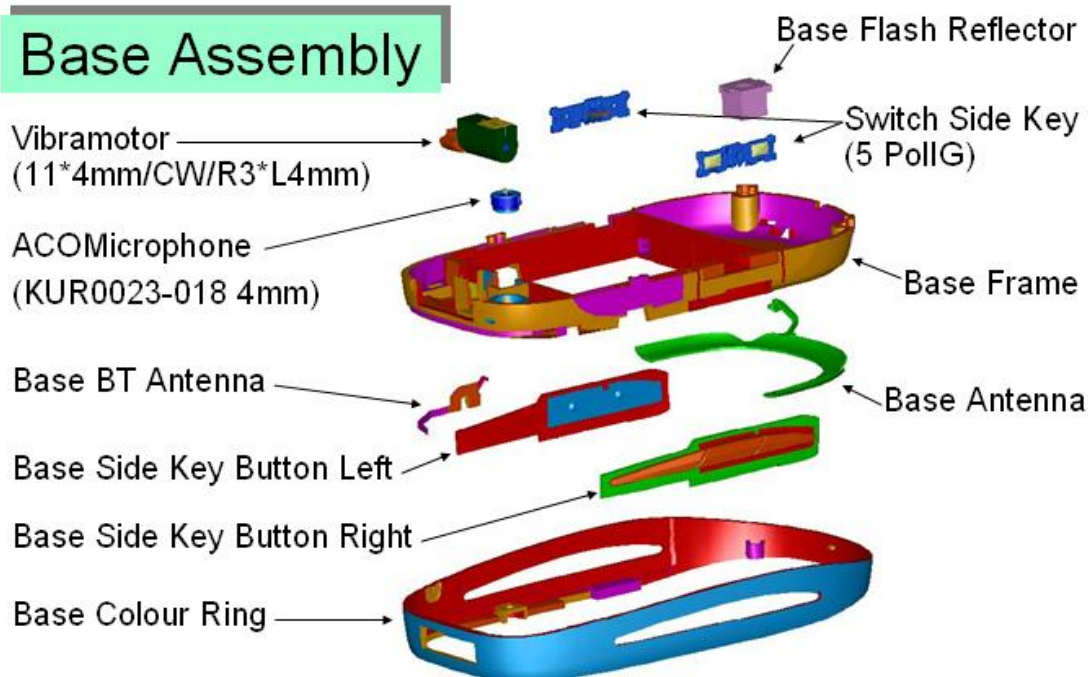
### Guide Assembly



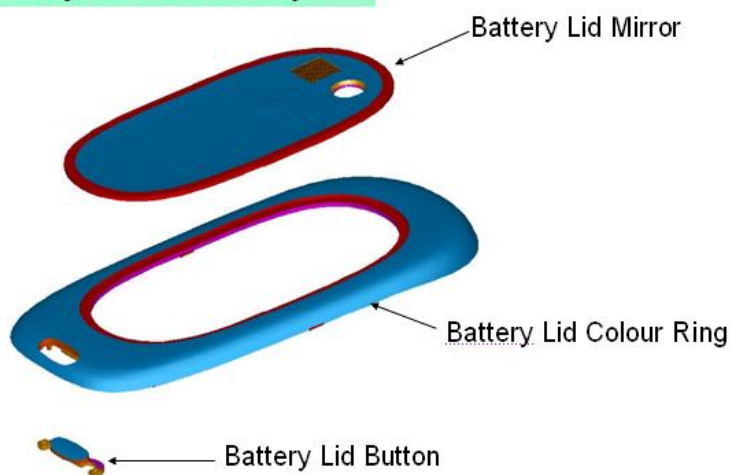
### Slider Assembly



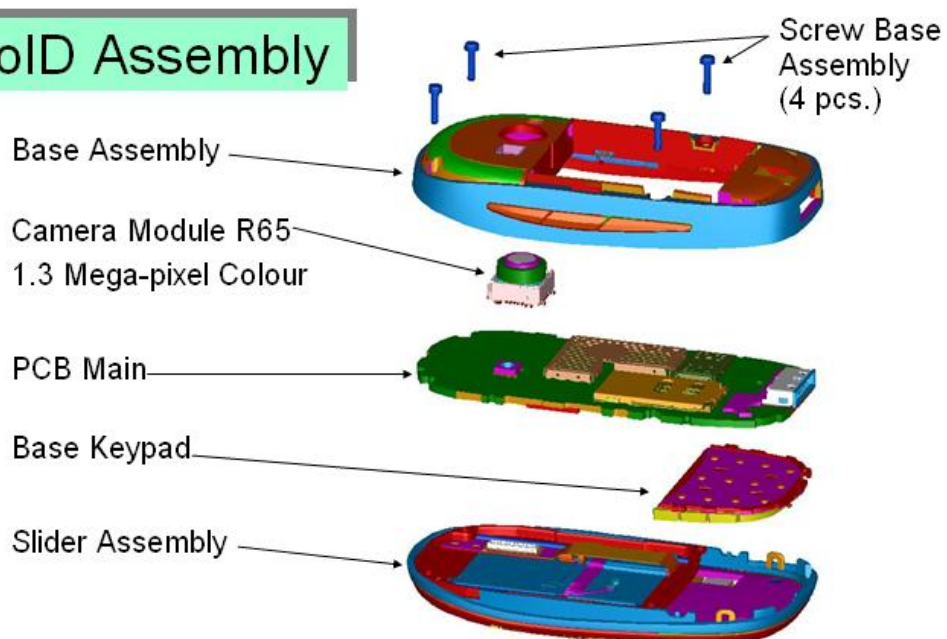
## Base Assembly



## Battery Assembly



## NoID Assembly





### 7 Disassembly of SL75

**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-Goldlite pins.

It is a requirement for the service personnel to observe ESD protection rules while performing servicing the SL75.

#### Step 1



Front view of the SL75

#### Step 2



Back View of the SL75

#### Step 3



Remove Battery cover.



### Step 4



Remove Battery.

### Step 5



Remove SIM card.

### Step 6



Unscrew the 4 T5 plus screws using a Torque screw driver.

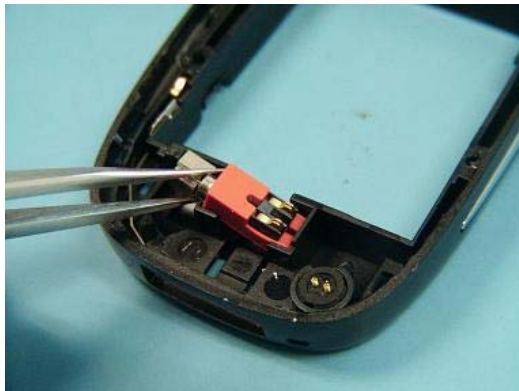


## Step 7



Remove Base assembly.

## Step 8



Remove Vibrator from Base assembly.

## Step 9



Remove Microphone from Base assembly.

### Step 10



Disconnect flex cable before removing main board from Slider assembly.

### Step 11

Remove Camera module – Refer to Chapter 9 for Camera Module assembling and disassembling instructions.

### Step 12



Remove Base keypad from Slider assembly.

### Step 13



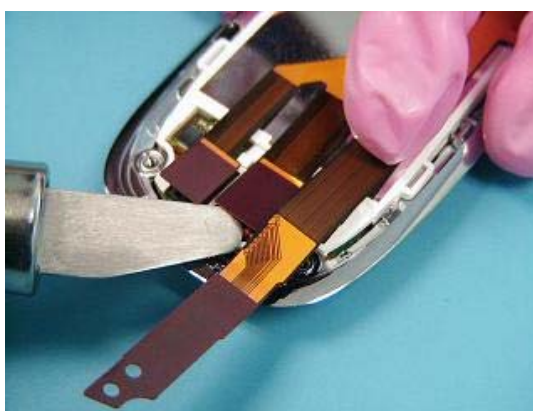
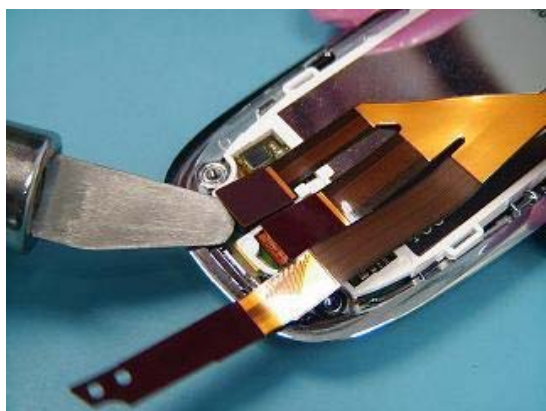
Remove 4 Guide screw from Slider assembly using Phillip screw driver ('+' type).

### Step 14



Remove Guide assembly from slider assembly.

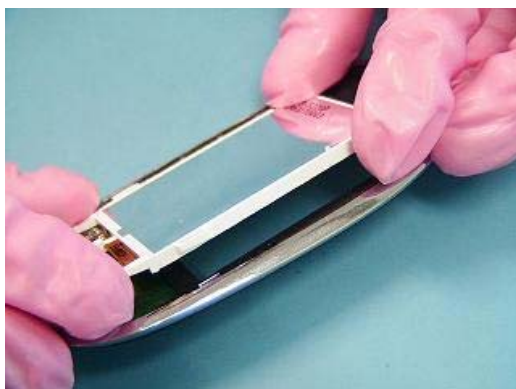
### Step 15





Remove flex cable using opening tool.

### Step 16



Remove Display Module – Place protective foil over on the Display Module.

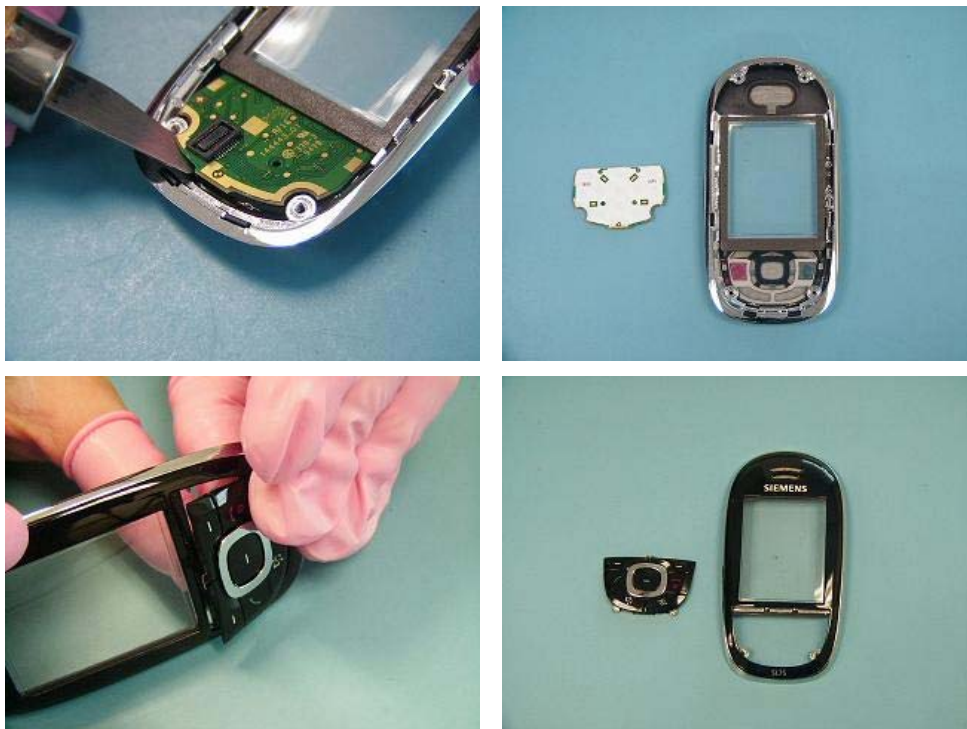
### Step 17



Remove Earphone.



## Step 18



Remove MMI and Keypad Slider ring assembly.

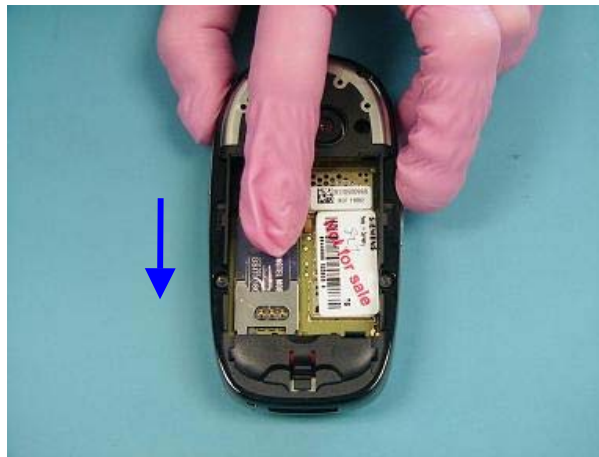


Fully disassembled SL75

### 8 Reassembly of SL75

**For the reassembly of the SL75, reverse the disassembly procedures from Step 18 to Step 1. 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.



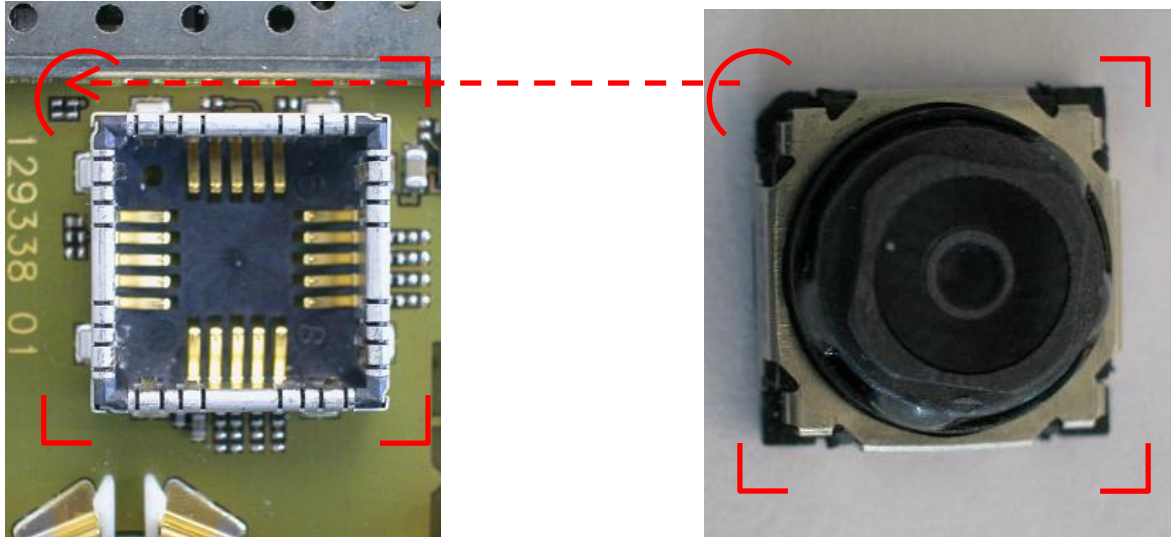
When placing the screws, set Torque not more than 6cNm.





## 9 Assembling and Disassembling of Camera Module

### Assembling of camera module



Place the Camera with the rounded corner into the corresponding corner of the Camera Connector.

### Disassembling of camera module

Tools required:

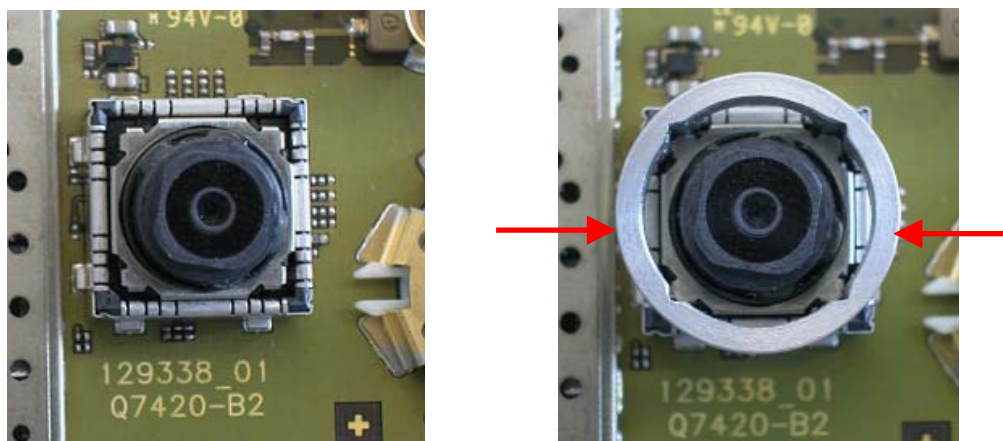


Description: Camera Ejector Jig  
Part number: F30032-P514-A1

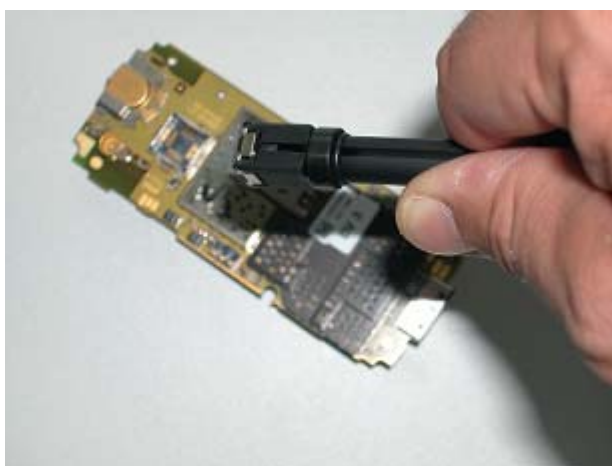
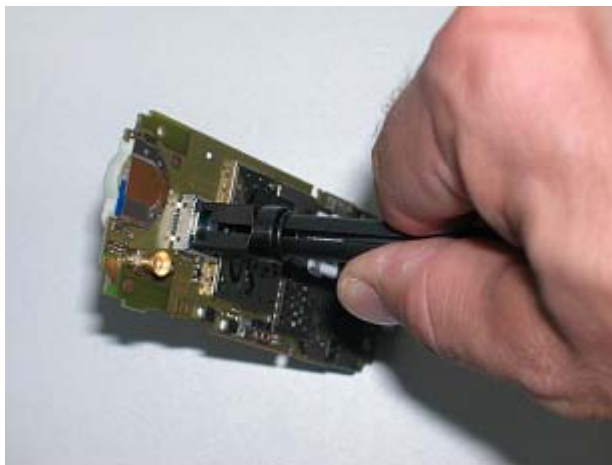
or



Description: Camera Ejector Tool Professional  
Part number: F30032-P507-A1



To disassemble the Camera, put the Camera Ejector jig or the camera ejector tool professional through the four edges between the Camera and the Camera connector. Now push the Ejector jig and pull out the Camera.



## 10 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

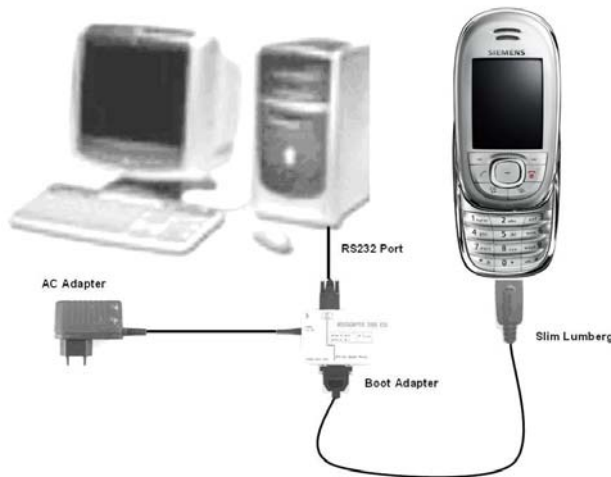


Figure 1. S65 Software Programming Setup

### 10.1 Mobile Software Updating

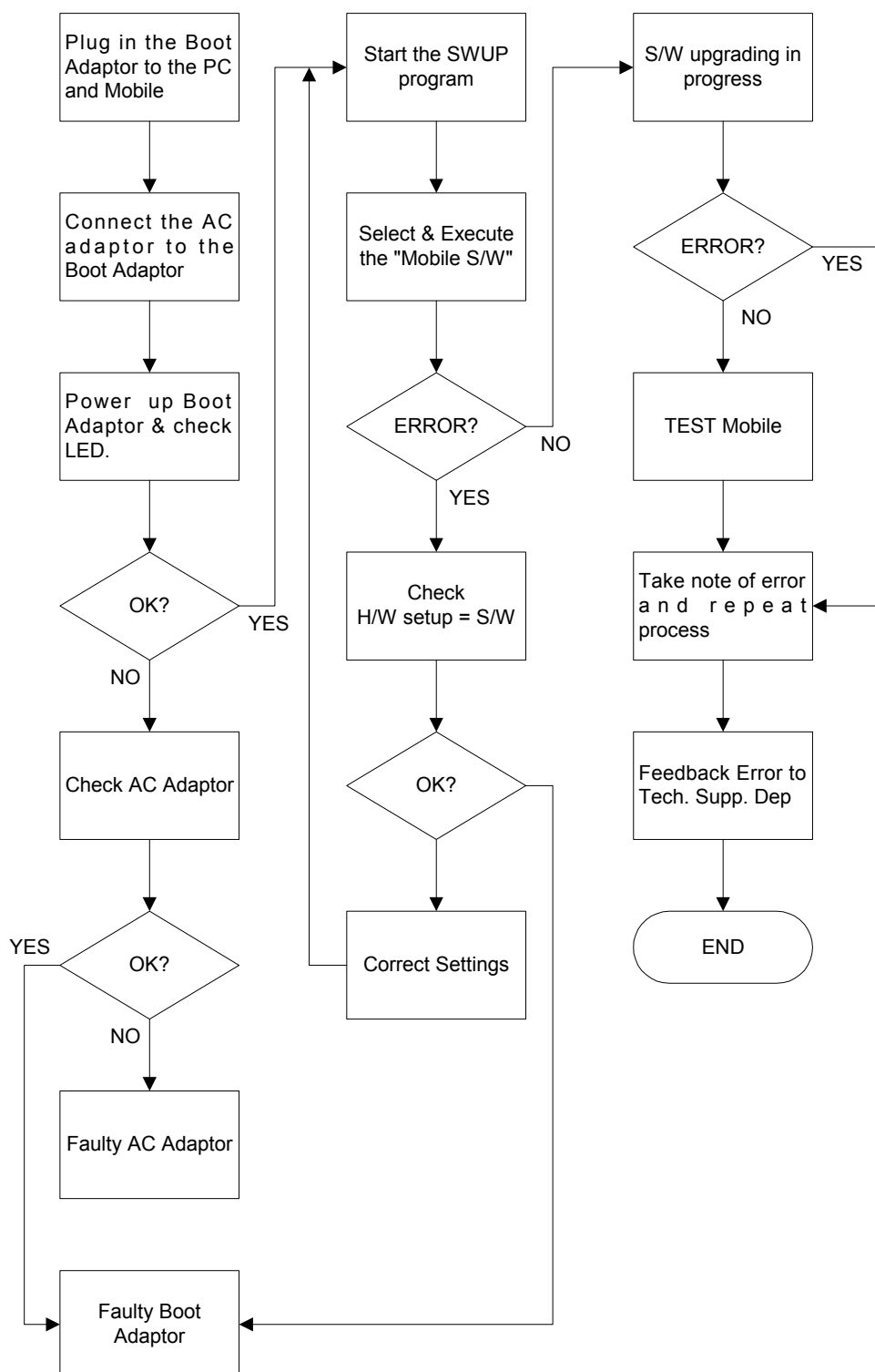
The software of the mobile, 75 series is loaded from a PC directly. Hardware interconnection between the mobile and the PC is shown in Figure 1. Because of the new type of external connector used in X55 series (Slim-Lumberg type) an additional adaptor cable between mobile and boot adaptor is required. 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

## 10.2 Flow Chart for Software Upgrading



### FLOW CHART FOR S/W PROGRAMMING PROCESS

## 11 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 every 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.***

## 12 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.

The screenshot displays the JPICS internet portal in Microsoft Internet Explorer. The page header includes the Siemens logo, navigation links (Global Home, My-Siemens, E-Mail), and a menu bar (Action, JPICS user menu, View, Extra, Window, Help). The main content area is titled "Masterphone-Code" and contains several input fields and buttons. On the left, a sidebar lists "Mobile info", "IMEI label printing", "Masterphone codes", and "BFBUS - Status". On the right, there is an image of a Siemens SL55 mobile phone. The bottom status bar shows a "connected" icon.

Masterphone-Code	
Input	
IMEI	351630001655108
Execute	
DB-Location	Kamp-Lintfort
Mobile data	
Producttype	SL55
Deliverypartnumber	L36880-Q4910-A10-3
SW version	005
Partnumber	L36880-Q4910-A10-3
Warranty	12.09.05
Status	Normal
Delivery information	
Deliverynote	0065801221
Deliverydate	25.06.03
Mobile codes	
Mobile unlock code	*#0003*18312287#

### 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.

The screenshot displays the JPICS internet portal in a Microsoft Internet Explorer browser window. The page title is "JPICS -- PICS internet portal -- --PICS KLF-- - Microsoft Internet Explorer von Siemens AG ICM MP KLF". The Siemens Mobile logo is at the top left, and navigation links "Global Home", "My Siemens", and "E-Mail" are at the top right. A menu bar includes "Action", "JPICS user menu", "View", "Extra", "Window", and "Help". The main content area is titled "Simlock-Unlock-Code" and includes a "Mask: Simlock-Unlock-Code" and "Username: FleurenJP" section. The "Get information for given IMEI" section contains an "IMEI" field with the value "350673547180612" and an "Execute" button. The "DB-Location" field is set to "Kamp-Lintfort". The "Mobile data" section displays fields for "Producttype" (C45), "Deliverypartnumber" (L36880-S5100-X139-15), "SW version" (049), "Partnumber" (S30880-S5100-A139-14), "Warranty" (21.08.05), and "Status" (Normal). The "Delivery information" section shows "Deliverynote" (0066015319) and "Deliverydate" (22.08.03). The "Mobile codes" section contains fields for "Networkcode", "Network Mastercode", "S. Providercode", "S. Provider Mastercode", "SIM-Mastercode", "SIM-Reenablecode", "Corporatecode", "Corporate Mastercode", "Network Subnet Code", and "Network Subnet Mastercode" (with a value starting with \*0004\*29101500). A small image of a Siemens mobile phone is shown on the right side of the form. The bottom status bar indicates "connected".

### Printing IMEI label

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

The screenshot shows a web browser window titled "JPICS -- PICS internet portal -- PICS KLF -- Microsoft Internet Explorer". The page header includes the Siemens Mobile logo, navigation links (Global Home, My-Siemens, E-Mail), and a menu (Action, JPICS user menu, View, Extra, Window, Help). The main content area is titled "Reprint IMEI Label" and "Masterphone-Code". It features two input sections: "Input" with fields for "IMEI" (containing "351630001655108") and "DB-Location" (containing "Kamp-Lintfort"), and a "Print label" button. Below this is another "Input" section with a checkbox labeled "Print test label(s)" and a slider control. The left sidebar contains links for "Mobile info", "IMEI label printing", "Masterphone codes", and "BFBus - Status". The bottom right corner shows a "connected" status icon.

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.

## 13 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 C65 is S30880-S7800-Axx-x where the last 4 letters specify the housing and software variant.

C65 series IMEI label is accessible by removing the battery.

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**

CODE	YEAR	MONTH	CODE
M	2000	MARCH	3
N	2001	APRIL	4
P	2002	MAY	5
R	2003	JUNE	6
S	2004	JULY	7

TABLE 2 DIN EN 60062 DATE CODE

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

## 14 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 function of all **keys** including **side keys**.
  - Check the **display** for error in line and row, and for illumination.
  - Check the **ringer/loudspeaker** acoustics by individual validation.
  - Perform a **GSM Test** as described on page 34.

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 release from BS			



External Antenna			
Test case	Parameter	Measurements	Limits
9 Call from MS	<ul style="list-style-type: none"> <li>GSM900</li> <li>high TCH</li> <li>PCL 6</li> <li>BS Power = -55 dBm</li> <li>middle BCCH</li> </ul>	<ul style="list-style-type: none"> <li>Keyboard check</li> </ul>	<ul style="list-style-type: none"> <li>individual check</li> </ul>
10 TX GSM900	<ul style="list-style-type: none"> <li>high TCH</li> <li>PCL 6</li> <li>BS Power = -55 dBm</li> <li>middle BCCH</li> </ul>	<ul style="list-style-type: none"> <li>Frequency Error</li> <li>Phase Error RMS</li> <li>Phase Error Peak</li> <li>Average Power</li> <li>Power Time Template</li> </ul>	<ul style="list-style-type: none"> <li>GSM Spec.</li> </ul>
11 RX GSM900	<ul style="list-style-type: none"> <li>high TCH</li> <li>BS Power = -102 dBm</li> <li>50 Frames</li> <li>middle BCCH</li> </ul>	<ul style="list-style-type: none"> <li>RX Level</li> <li>RX Qual</li> <li>BER Class Ib</li> <li>BER Class II</li> <li>BER Erased Frames</li> </ul>	<ul style="list-style-type: none"> <li>GSM Spec.</li> </ul>
12 Handover to GSM1800 Including Handover Check			
13 TX GSM1800	<ul style="list-style-type: none"> <li>high TCH</li> <li>PCL 1</li> <li>BS Power = -55 dBm</li> <li>middle BCCH</li> </ul>	<ul style="list-style-type: none"> <li>Frequency Error</li> <li>Phase Error RMS</li> <li>Phase Error Peak</li> <li>Average Power</li> <li>Power Time Template</li> </ul>	<ul style="list-style-type: none"> <li>GSM Spec.</li> </ul>
14 RX GSM1800	<ul style="list-style-type: none"> <li>high TCH</li> <li>BS Power = -102 dBm</li> <li>50 Frames</li> <li>middle BCCH</li> </ul>	<ul style="list-style-type: none"> <li>RX Level</li> <li>RX Qual</li> <li>BER Class Ib</li> <li>BER Class II</li> <li>BER Erased Frames</li> </ul>	<ul style="list-style-type: none"> <li>GSM Spec.</li> </ul>
15 Call release from MS			

16 Handover to GSM1900 Including Handover Check			
17 TX GSM1900	<ul style="list-style-type: none"><li>• high TCH</li><li>• PCL 1</li><li>• BS Power = -55 dBm</li><li>• middle BCCH</li></ul>	<ul style="list-style-type: none"><li>• Frequency Error</li><li>• Phase Error RMS</li><li>• Phase Error Peak</li><li>• Average Power</li><li>• Power Time Template</li></ul>	<ul style="list-style-type: none"><li>• GSM Spec.</li></ul>
18 RX GSM1900	<ul style="list-style-type: none"><li>• high TCH</li><li>• BS Power = -102 dBm</li><li>• 50 Frames</li><li>• middle BCCH</li></ul>	<ul style="list-style-type: none"><li>• RX Level</li><li>• RX Qual</li><li>• BER Class Ib</li><li>• BER Class II</li><li>• BER Erased Frames</li></ul>	<ul style="list-style-type: none"><li>• GSM Spec.</li></ul>
19 Echo Test	<ul style="list-style-type: none"><li>• high TCH</li><li>• PCL 1</li><li>• BS Power = -70 dBm</li><li>• middle BCCH</li></ul>		<ul style="list-style-type: none"><li>• individual check</li></ul>

### 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)