

BE INSPIRED**S75****V1.0**

Release	Date	Department	Notes to change
R 1.0	15.08.2005	COM D CCQ SLI APAC	New Document

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1 Introduction

This document describes the process and procedure regarding the verification of the customers fault description of Siemens Mobile Phones.

1.1 Purpose

Purpose of the instruction is to avoid unnecessary repairs and to optimise repairs. Beside this, the instruction is made to give the Service Partners a general orientation where to find and where to get required documents.

1.2 Scope

This document is the reference document for all Siemens authorised Service Partners. It has to be used from the Level 0 onwards up to the maximum repair Level.

1.3 Terms and Abbreviations

1.3.1 Terms

GOLD GSM One Logic Device is the micro controller used by the mobile phone.
There are two types in use. The E-Gold and the S-Gold (mostly used by 65series phones)

1.3.2 Abbreviations

GRT **G**lobal **R**epair **T**ool

2 Remark

All instructions given in this document are valid for S75.

3 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.

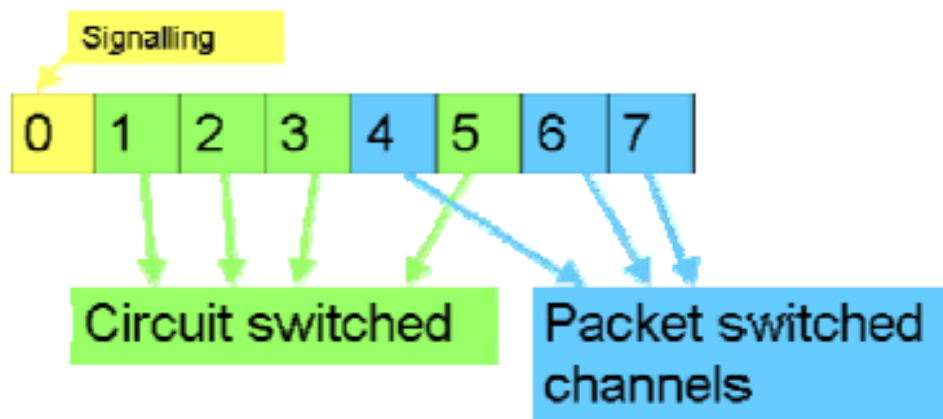


Figure1. Example of GPRS data transmission


Example: Cell with 1 Frequency channel:

1 physical channel for signaling, 4 physical channels for Circuit switched and 3 physical channels for Packet switched.

4 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

5 Key Features

Bands	<ul style="list-style-type: none">• Triple Band E-GSM 900 / GSM 1800 / GSM 1900• GPRS Multi Class 10
Battery	<ul style="list-style-type: none">• Li-Ion Battery Pack• Nominal Voltage : 3.7V• Nominal Capacity : 780 mAh• GSM Capacity : 750 mAh• Power Input : 2.0A (0.6 ms) / 0.25A (4 ms)• Cut-off Threshold : 3.2V
Stand-by Time	≥ Approx. 250 hrs (Best Case)
Talk Time	≥ 5 hrs (Best Case)
SIM Card	<ul style="list-style-type: none">• Small ("Plug In") 1.8 or 3V SIM card (Phase II)• To insert the SIM card, the battery pack must be removed.
Speech Codec	<ul style="list-style-type: none">• Triple Rate (HR/FR/EFR) and Adaptive Multi Rate are available as standard
Temperature Range	<ul style="list-style-type: none">• -30⁰C to +55⁰C (Normal operation)• -100⁰C to +85⁰C (Storage capability)
Display	<ul style="list-style-type: none">• Type: Full Graphic• Resolution: 132 x 176 Pixel• Display 262,144 colours• Technology: TFT• Panel dimensions: 32.3 x 47.1 mm• Active area / mm: 27.7 x 37.0 mm• Backlight: Lightguide +4 white side-shooter LEDs• Pixel size per mm: 0.21mm x 0.21mm (1 pixel consist of 3 sub pixels in red, green and blue)
Keypad	<ul style="list-style-type: none">• hardcaps in IMF-technology• 12-key-block (0-9, #, *)• two function keys (SEND, END)• ON/OFF key combined with the END key; the symbol  is used as a symbol for ON/OFF.• 5 way-joystick• 2 soft-keys for different SW-enabled functions• 1 dedicated hardkey (provider key)• white as illumination colour• tactile finder on key "5"• 6 white LEDs for keypad

Acoustics	<ul style="list-style-type: none">• Three-in-one-earpiece for handset, handsfree and ringing tones• Uni-directional microphone• Loud signal emitter (soundringer) (>100dB(A) SPL @5cm, 'Hongkong-Spec.') only for rectangular sound signals (NOT POSSIBLE for all Soundringer melodies)• Polyphonic ringer tones 64 voices• Hands free mode• different selectable volume levels for handsfree, handset and ringer mode (for the amount see SW product description)• Speaker Dependant (SD) Voice Name Dialling• Audio decoding: MP3 (ringtones and music player), Real Audio 8 (available within 2nd SW release), MPEG4 AAC/AAC+/AAC++ (ring tones and music player), AMR-NB, encoding: AMR-NB,
Memory	<ul style="list-style-type: none">• Approx 20MB internal
Connectivity	<ul style="list-style-type: none">• Bluetooth• Infrared
Ring tones	<ul style="list-style-type: none">• 64 chords polyphonic ringtones
Multimedia	<ul style="list-style-type: none">• Video resolution: QCIF, subQCIF; decoding (15fps): H263, MPEG4, Real Video 8 (available within 2nd SW release) ; encoding (15 fps): H263; streaming: Real Video 8 (available within 2nd SW release), 3GPP (H.263, MPEG4)• Audio streaming: AMR-NB, AAC, AAC++, Real Audio 8 (available within 2nd SW release,);
Camera	<ul style="list-style-type: none">• Integrated 1.3 Mega Pixel camera• integrated camera flash light

6 Comparison with Previous Product

Feature	CX65/CX66 Ulysses	X75 Minos	Delta
Supported Systems	Triple Band EGSM 900/GSM1800/ GSM1900 (EMEA, APAC) GSM 850/GSM1800/ GSM1900 (NAFTA)	Triple Band EGSM 900/GSM1800/ GSM1900 (EMEA, APAC)	No GSM 850
Stand-by Time	≥ 250h	≥ 250h	
Talk Time	≥ 5 h	≥ 5 h	
Battery Technology	Li-Ion Battery Pack	Li-Ion Battery Pack	
Battery Capacity	Nominal Cap.: 780 mAh	Nominal Cap.: 780 mAh	
Weight	Approx. 90 g	approx. 89 g	
Volume	Approx. 78 cm ³	approx. 84 cm ³	Higher volume
Length	108 mm	102.9 mm	6.1mm shorter
Width	44...47 mm	47.0 mm (Sidekeys)	
Thickness	17...18 mm	18.7 mm (Display)	0.7 mm thicker
SIM	Plug-In 1.8V/3V	Plug-In 1.8V/3V	
Antenna	Integrated	Integrated	
Antenna Performance in comparison	-0,8 dB @ 900 MHz -0,5 dB @ 1800 MHz	~28 dBm @ 900 MHz ~25 dBm @ 1800 MHz ~24 dBm @ 1900 MHz (2,7-Band-Antenna)	
Half Rate	Yes	Yes	
Enhanced Full Rate	Yes	Yes	
AMR	Yes	Yes	
Fax/Data	Yes	Yes	
GPRS	Yes (Class 10)	EDGE/Class 10	Higher data transfer rate
Keypad Illumination	Yes (white)	White LED	
Display / Display Illumination	TFT/TFD 132 x 176 Pixel 2,0" 65k colour	TFT/TFD 132 x 176 Pixel 1,8" 262k colour	Higher Resolution Colour
User Memory	Approx. 11 MB	20 MB internal	
Exchangeable Memory	no	Yes, RS-MMC reader available	Possibility for higher Memory
Camera	VGA	Mega pixel camera (integrated)	Higher Resolution New feature in CX-class
BT	No	Yes	
Flash light	No	Yes	
Video	decoding (15fps): H263 encoding (15 fps): H263	decoding (15fps): H263, MPEG4, Real Video 8 encoding (15 fps): H263 streaming: Real Video 8, 3GPP (H.263, MPEG4)	
Audio / Music	32 chords polyphonic ringtones	decoding: MP3, Real Audio 8, MPEG4, AAC/AAC+ / AAC++ , AMR-NB encoding: AMR-NB streaming: AMR-NB, AAC, AAC++, Real Audio 8 64 chords polyphonic	
Voice/ speech function	No	Speaker Dependant (SD) Voice Name Dialling Speaker Dependant (SD) Voice Control	
Sidekey	No	Yes	

7 Accessories

For S75, the following accessories will be available.

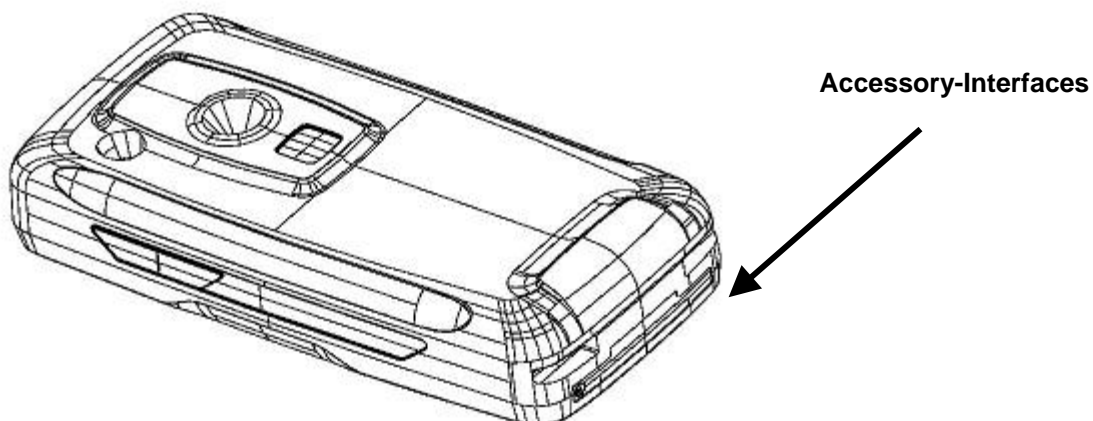
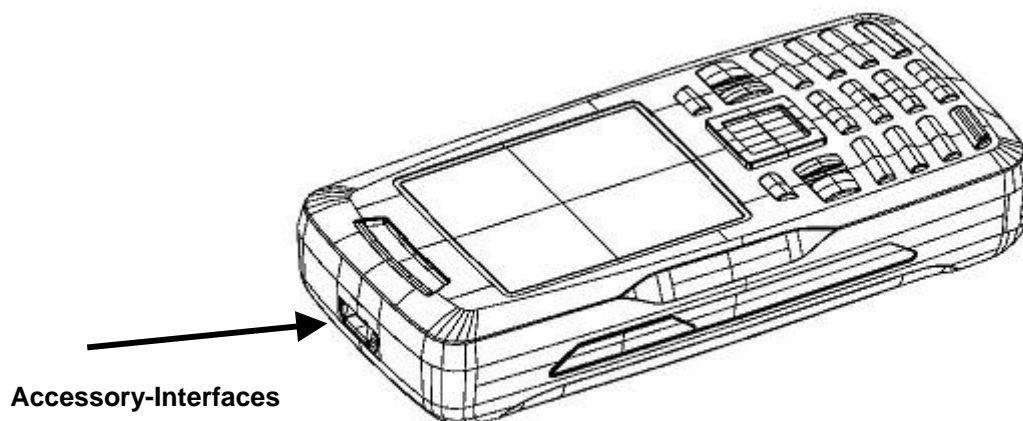
Description	Part number
Tour Case FCT-650	TBC
Belt Case FCL-600	TBC
Car Charger ECC-500	TBC
Li-Ion Battery 820mAh EBA-760	TBC
Travel Charger ETC-500	L36880-N5601-A104
Travel Charger ETC-510	L36880-N5601-A105
Car Charger Plus ECC-600	L36880-N7101-A109
Desk Top Stand EDS-600	TBC
Car Kit Bluetooth® Portable HKW-700	L36880-N7421-A101
Car Kit Bluetooth® HKW-600	L36880-N6551-A100
Car Kit Bluetooth® HKW-710 (successor of HKW-600)	TBC
Car Kit Bluetooth® SIM HKW-720	TBC
Mobile Holder HMH-765	TBC
Car Kit Easy Upgrade HK0-700	L36880-N7431-A103
Car Kit Upgrade HK0-650	L36880-N7401-A120
Headset Bluetooth® HHB-600	L36880-N7401-A100
Headset Bluetooth® HHB-610	L36880-N7401-A101
Headset Bluetooth® HHB-700	TBC
Headset Bluetooth® HHB-710	TBC
Headset Bluetooth® Stereo HHB-750	TBC
Headset Stereo HHS-700	L36880-N7431-A101
Charger Adapter ECA-500 (for Headset Bluetooth®)	L36880-N7401-A104
Mobile Music Set IMS-700	L36880-N7431-A110
Headset Purestyle HHS-610	L36880-N7101-A500
Headset HHS-510	L36880-N5601-A108
Headset Basic HHS-500	TBC
Car Kit Comfort Basic HKC-700	TBC
Car Kit Easy HKP-700	L36880-N7431-A100
Car Kit Portable HKP-500	L36880-N5601-A109
Mobile Holder Antenna HMH-760	TBC
Car Data Adapter HKO-690	L36880-N7101-A800
SyncStation DSC-600	TBC
Flash IFL-600	L36880-N7101-A400
Data Cable DCA-500 (RS232)	L36880-N5601-A110
Data Cable USB – serial DCA-510	L36880-N5601-A111
Data Cable USB – USB DCA-540	L36880-N6501-A102

Note: Visit the Communication Market for updated accessories:

<https://market.benqmobile.com>

7.1 S75 Interface to Accessories

The phone has got a full compatible interface to accessories. All shown interfaces are for car-cradle. Interfaces for Belt-Clip will not be necessary.



8 Unit Description of S75

The S75 Minos is designed as a Bar phone with two PCBs. The whole unit consists of a NoID-Block and parts for the customization. The NoID-Block itself is made of the soldered PCBs and the preassembled upper and lower cases. It is full functional and testable. The parts for the customization are the keypad, the front cover, the rear cover and the battery cover, but only the battery cover will be exchangeable for the end user.

Except of the upper case which is a 2 shot moulded plastic part all other cases and covers are 1 shot moulded plastic parts. The upper case is galvanized (1 colour) and the rear and battery covers are lacquered (1 colour). The decoration of the front cover is done by IMD and the decoration of the keypad by IMF. The lower case is without any additional surface decoration (1 colour).



8.1 Exploded View of S75

Front cover ass.



Keypad

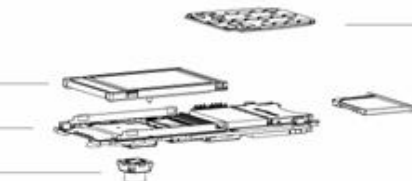
Upper case ass.



LCD-Module

PCB

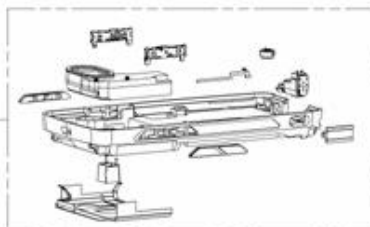
Camera-Module



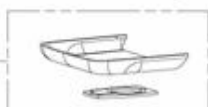
MMI

MMC-Tray

Lower case ass.



Rear cover ass.



Screws

- 4 for NoID-Block
- 2 for Front
cover

Battery cover ass.



Battery pack

9 Disassembly of S75

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 S75.

Step 1



Front view of the S75

Step 2



Back View of the S75

Step 3



Remove Battery cover.



Step 4

Remove Battery.

Step 5

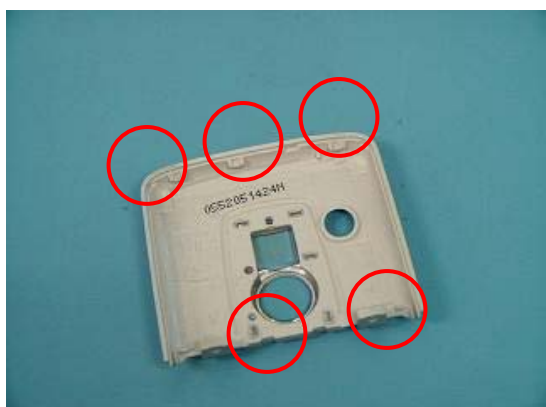
Remove SIM card.

Step 6

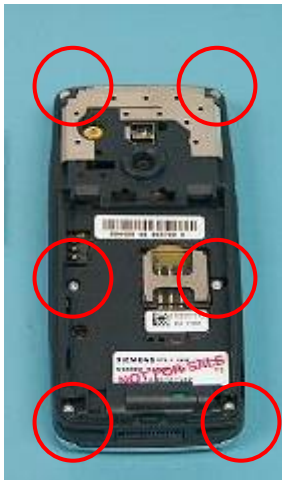
The rear cover of the S75 has 5 hooks. Start to release the first 2 of them. Use the “removal tool” F30032-P385-A1 and press it down.



To release the next 3 hooks in the upper part, push rear cover with the thumb angular ahead until you hear a “click” as a sign of release.



Check the hooks carefully. If you see any damage, do not use the cover again. Please keep in mind that damages caused by unprofessional opening are not reimbursed by BenQ Mobile.

Step 7

Unscrew the 6 T5 plus screws using a Torque screw driver.

Step 8

Remove Lower Mounting Frame.

Step 9

Remove Vibramotor using tweezers.

Step 10

Remove Microphone using Tweezer.

Step 11

Remove Earphone.

**Step 12**

Remove Main Board.

Step 13

Remove Display Module using Opening tool – Place protective foil over on the Display Module.

Step 14

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

Step 15

Remove MMI and Keypad using Opening tool.

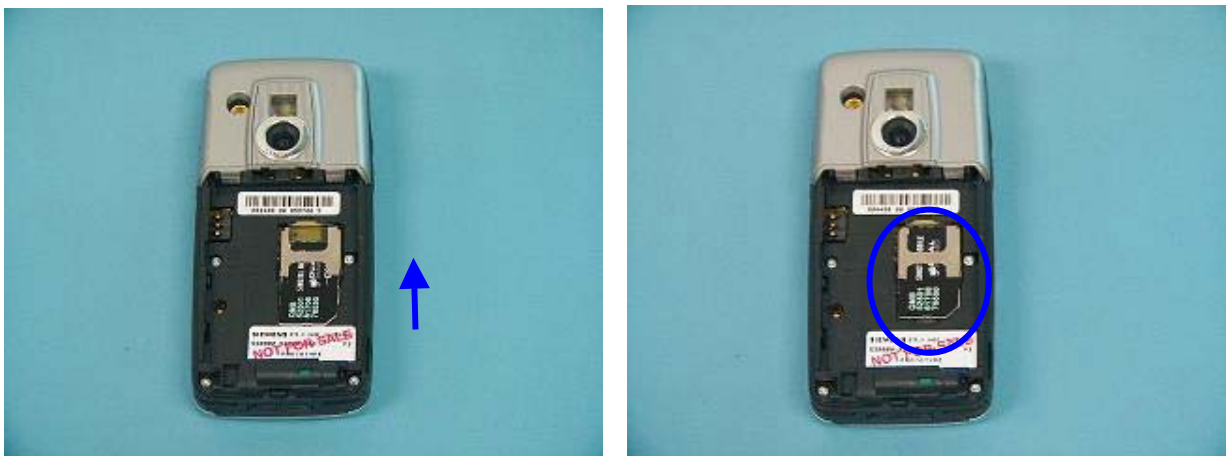


Fully disassembled S75

10 Assembly of S75

For the reassembly of the S75, reverse the disassembly procedures from Step 15 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.

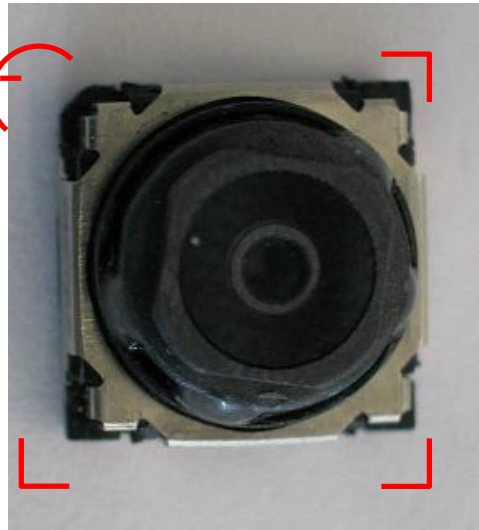
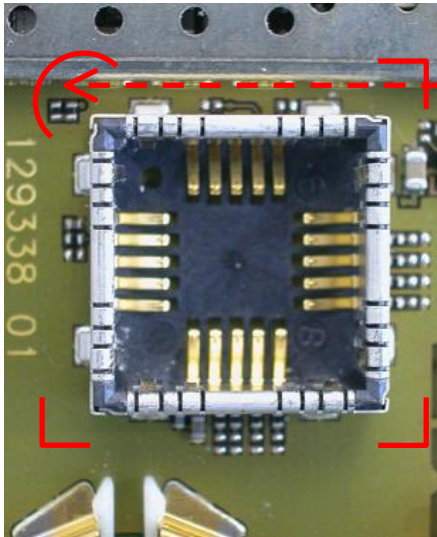
During the installation of the battery, make sure that the hinges are properly in place (See picture below). Otherwise the battery will not be able to fit into the phone properly.





When placing the screws, set Torque according to **TI_Info_All_Torque Overview_Rxx** available in the C-market <https://market.benqmobile.com/>

11 Assembling and Disassembling of Camera Module



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

Disassembling of camera module

Tools required:

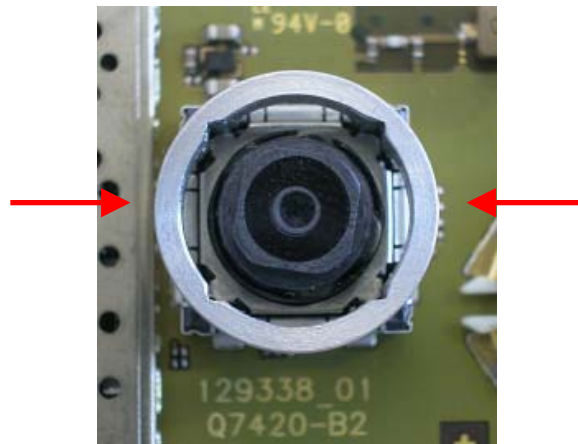


or

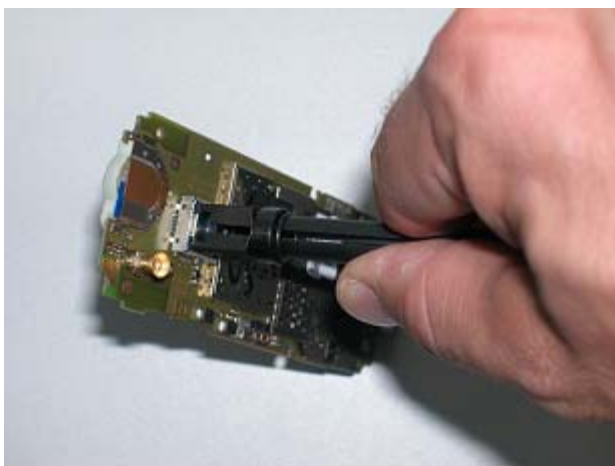


Description: Camera Ejector Jig
Part number: F30032-P514-A1

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.



12 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

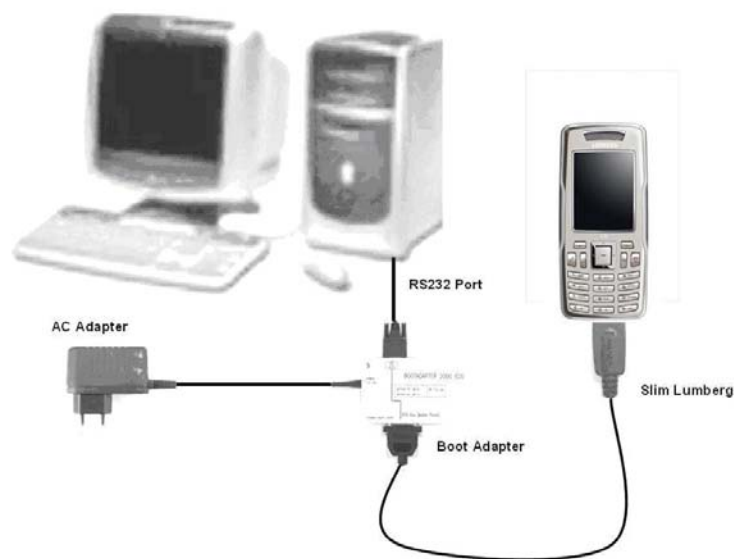


Figure 1. S75 Software Programming Setup

12.1 Mobile Software Updating

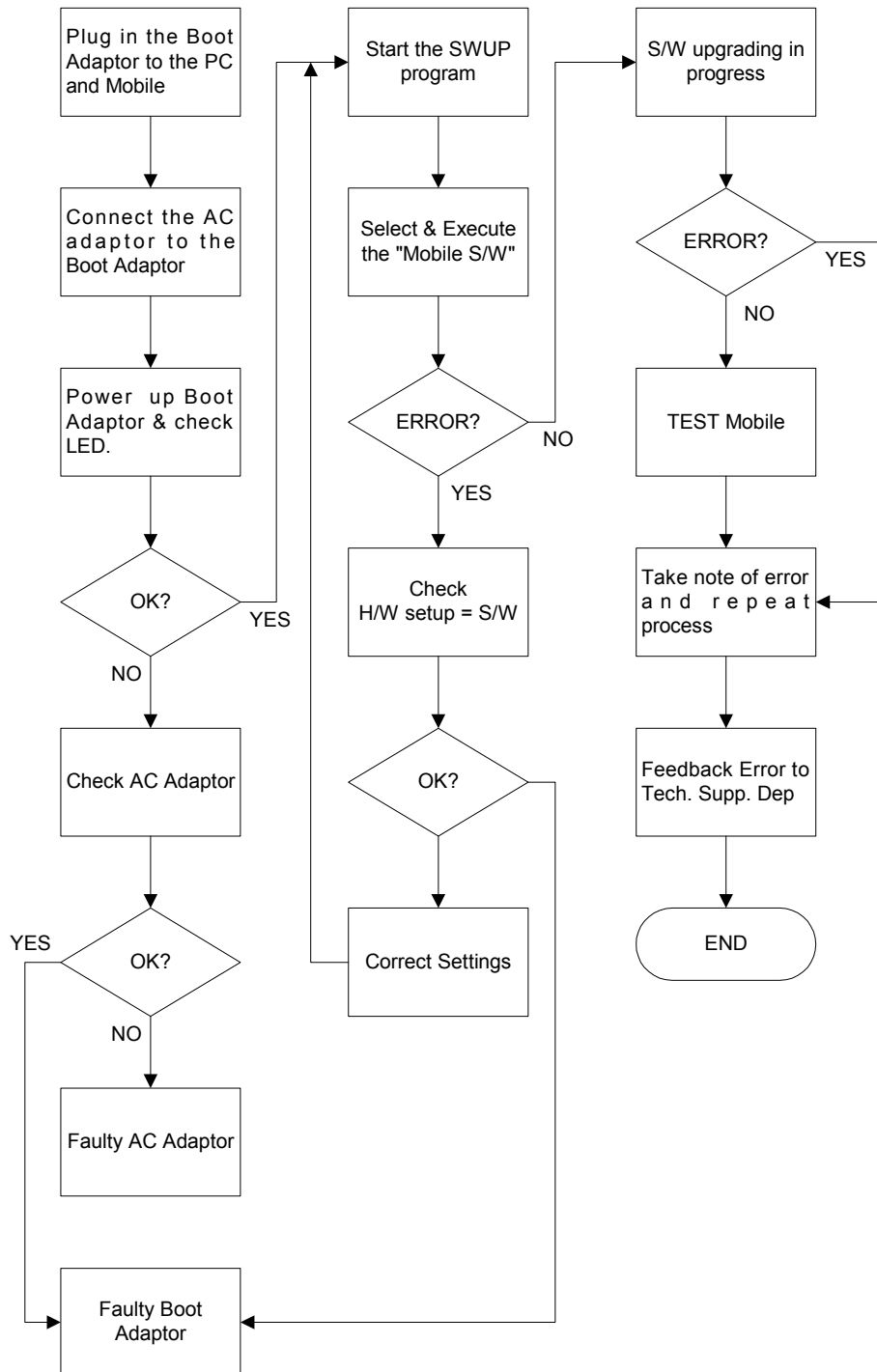
The software of the mobile, 75 series is loaded from a PC directly. Hardware interconnection between the mobile and the PC is shown in Figure 1. Because of the new type of external connector used in X55 series (Slim-Lumberg type) an additional adaptor cable between mobile and boot adaptor is required.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

12.2 Flow Chart for Software Upgrading



FLOW CHART FOR S/W PROGRAMMING PROCESS

13 Siemens Service Equipment User Manual

Introduction

Every LSO repairing BenQ Mobile 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:

BenQ 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.***

14 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.

14.1 Installation overview

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

[Internet Explorer](#) Version 5.5 and higher

[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!

[Card reader \(Omnikey\)](#)

[CardOS interface](#) (Siemens)

[JPICS Certificates](#)

[Java Plugin JVM/JRE](#) (Sun)

[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 BenQ Mobile B1 reader. Similar device to B1 is Cardman 9010.

14.2 Generate Codes

In the module “Generate Codes” you can choose to generate:

- Master – Phonecodes
- Simlock Unlock – Codes

14.2.1 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 SIEMENS Mobile JPICS internet portal in a Microsoft Internet Explorer browser window. The page title is "JPICS -- PICS internet portal -- --PICKL-- - Microsoft Internet Explorer". The SIEMENS Mobile logo is at the top left, with navigation links "Global Home", "My-Siemens", and "E-Mail" at the top right. A menu bar includes "Action", "JPICS user menu", "View", "Extra", "Window", and "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 "Masterphone-Code" section includes an "Input" area with an "IMEI" field (351630001655108) and an "Execute" button. Below this is a "Mobile data" section with fields for "Producttype" (SL55), "Deliverypartnumber" (L36880-Q4910-A10-3), "SW version" (005), "Partnumber" (L36880-Q4910-A10-3), "Warranty" (12.09.05), and "Status" (Normal). A "Delivery information" section has "Deliverynote" (0065801221) and "Deliverydate" (25.06.03). At the bottom, a "Mobile codes" section shows a "Mobile unlock code" (*#0003*18312287#). The status bar at the bottom right indicates "connected".

Masterphone-Code	
Input	
IMEI	351630001655108
<input type="button" value="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#

14.2.2 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.

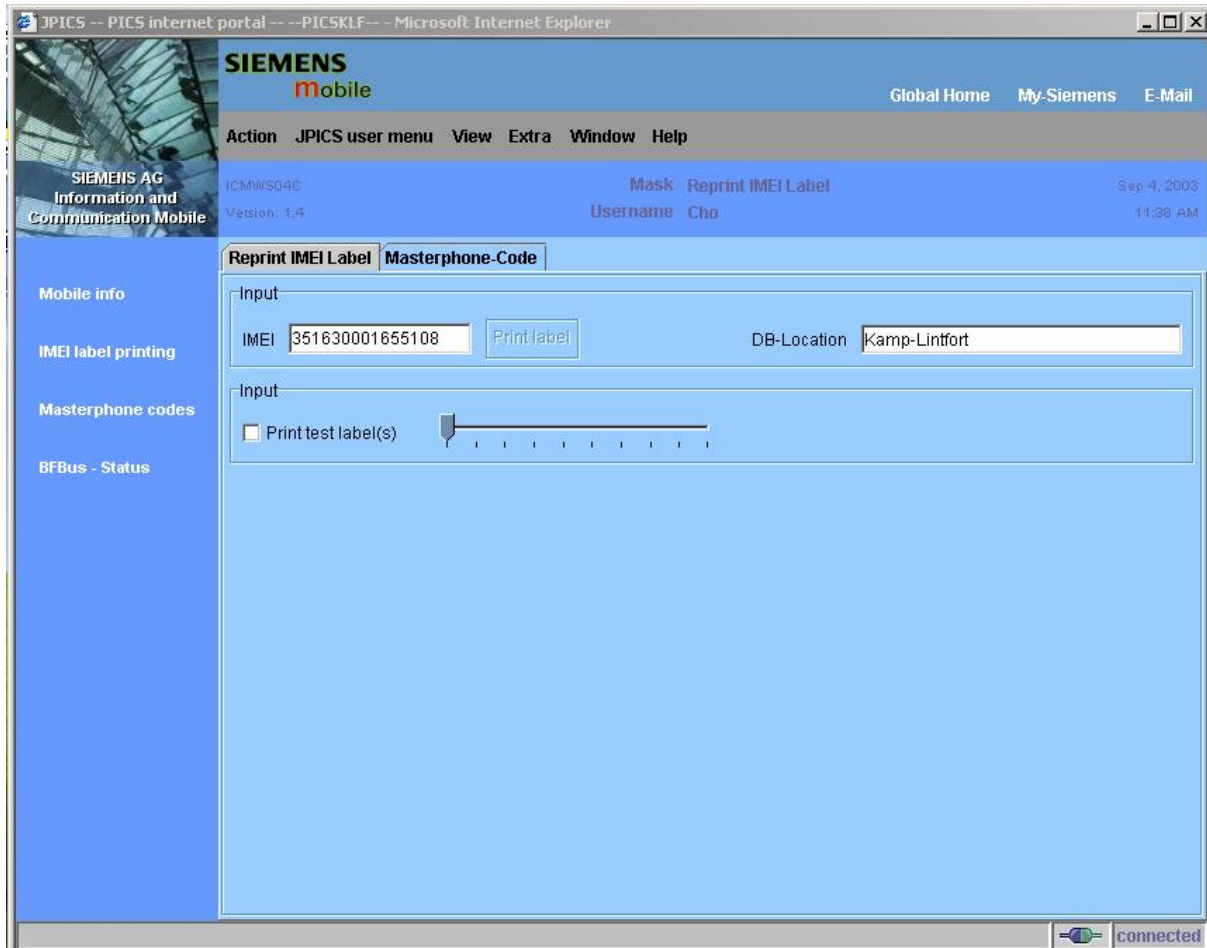
The screenshot displays the SIEMENS Mobile JPICS internet portal in a Microsoft Internet Explorer browser window. The page title is "JPICS -- PICS internet portal -- --PICS KLF-- - Microsoft Internet Explorer von Siemens AG ICM MP KLF". The page header includes the SIEMENS Mobile logo, navigation links (Global Home, My-Siemens, E-Mail), and a menu bar (Action, JPICS user menu, View, Extra, Window, Help). The main content area is titled "Simlock-Unlock-Code" and contains several sections:

- Mobile info:** Includes a link to "Get information for given IMEI".
- IMEI label printing:** A form with an IMEI input field (containing "350673547180612") and an "Execute" button. A "DB-Location" field contains "Kamp-Lintfort".
- Masterphone codes:** A section for "Mobile data" with fields for Producttype (C45), Deliverypartnumber (L36880-S5100-X139-15), SW version (049), Partnumber (S30880-S5100-A139-14), Warranty (21.08.05), and Status (Normal).
- Simlock unlock co...:** A section for "Delivery information" with fields for Deliverynote (0066015319) and Deliverydate (22.08.03).
- BFBus - Status:** A section for "Mobile codes" with fields for Networkcode, Network Mastercode, S. Providercode, S. Provider Mastercode, SIM-Mastercode, SIM-Reeanablecode, Corporatecode, Corporate Mastercode, Network Subnet Code, and Network Subnet Mastercode (containing "#0004*291001400#").

A small image of a mobile phone is visible on the right side of the page. The status bar at the bottom indicates "connected".

14.3 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.

15 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 S75 is S30880-S7700-Axx-x where the last 4 letters specify the housing and software variant.

S75 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#.

16 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	<ul style="list-style-type: none"> • GSM900 • BS Power = -55 dBm • middle BCCH 	<ul style="list-style-type: none"> • Display check 	<ul style="list-style-type: none"> • individual check
2 Call from BS	<ul style="list-style-type: none"> • low TCH • PCL 5 • BS Power = -55 dBm • middle BCCH 	<ul style="list-style-type: none"> • Ringer/Loudspeaker check 	<ul style="list-style-type: none"> • individual check
3 TX GSM900	<ul style="list-style-type: none"> • low TCH • PCL 5 • BS Power = -55 dBm • middle BCCH 	<ul style="list-style-type: none"> • Frequency Error • Phase Error RMS • Phase Error Peak • Average Power • Power Time Template 	<ul style="list-style-type: none"> • GSM Spec.
4 Handover to GSM1800 Including Handover Check			
5 TX GSM1800	<ul style="list-style-type: none"> • low TCH • PCL 0 • BS Power = -55 dBm • middle BCCH 	<ul style="list-style-type: none"> • Frequency Error • Phase Error RMS • Phase Error Peak • Average Power • Power Time Template 	<ul style="list-style-type: none"> • GSM Spec.
6 Handover to GSM1900 Including Handover Check			
7 TX GSM1900	<ul style="list-style-type: none"> • low TCH • PCL 0 • BS Power = -55 dBm • middle BCCH 	<ul style="list-style-type: none"> • Frequency Error • Phase Error RMS • Phase Error Peak • Average Power • Power Time Template 	<ul style="list-style-type: none"> • GSM Spec.
8 Call release from BS			

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

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

17 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

18 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)