



# Working Instruction, Electrical

Applicable for W890

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# 1 Moisture Sensitivity and Component Baking

**CAUTION!**

**THE W890 BOARD (ROA) ITSELF MUST BE BAKED PRIOR TO ANY REPAIRS ARE PERFORMED ON THE BOARD. THE BOARD SHOULD BE BAKED IN 125 DEGREES CELCIUS FOR 4 HOURS.**

Some components in this product are moisture sensitive and must be baked prior to use if they have been exposed to air. These components and their moisture sensitivity levels are specified in the Electrical Component Placing document. Below is a brief description of moisture sensitivity levels, but repair centers should visit the JEDEC website for more details before reworking moisture sensitive components. Search for the most recent version of the IPC/JEDEC J-STD-033A standard online at <http://www.jedec.org/>

- |                 |                                                                                                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LEVEL 1</b>  | <b>UNLIMITED FLOOR LIFE;</b> does not require dry pack or re-baking.                                                                                                  |
| <b>LEVEL 2</b>  | <b>1 YEAR FLOOR LIFE;</b> $\leq 30^{\circ}\text{C}$ ; 60% relative humidity (rh); shipped in dry pack; must be re-baked after being opened if floor life is exceeded. |
| <b>LEVEL 2A</b> | <b>4 WEEKS FLOOR LIFE;</b> $\leq 30^{\circ}\text{C}$ ; 60% rh; shipped in dry pack; must be re-baked after being opened if floor life is exceeded.                    |
| <b>LEVEL 3</b>  | <b>168 HOURS FLOOR LIFE;</b> $\leq 30^{\circ}\text{C}$ ; 60% rh; shipped in dry pack; must be re-baked after being opened if floor life is exceeded.                  |
| <b>LEVEL 4</b>  | <b>72 HOURS FLOOR LIFE;</b> $\leq 30^{\circ}\text{C}$ ; 60% rh; shipped in dry pack; must be re-baked after being opened if floor life is exceeded.                   |

Parts shipped from the Sony Ericsson Parts Warehouse are most likely NOT shipped in dry pack. This means the time elapsed between placing the order and receiving the parts must be considered as time exposed to the environment.

Different moisture sensitivity levels and exposure times create the need for different baking temperatures and times. More detailed information may be found in the most recent version of the IPC/JEDEC J-STD-033A standard. The standard is available online at <http://www.jedec.org/>.

## 2 Lead-free soldering

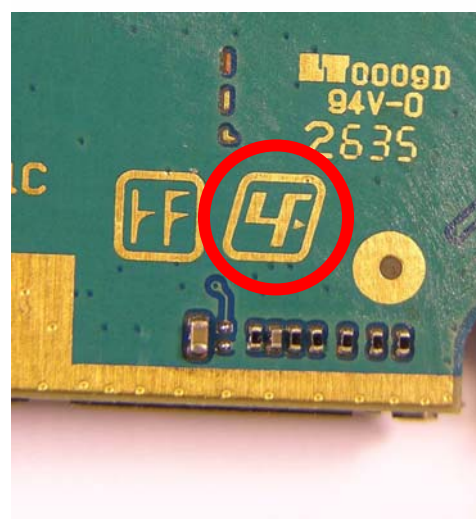
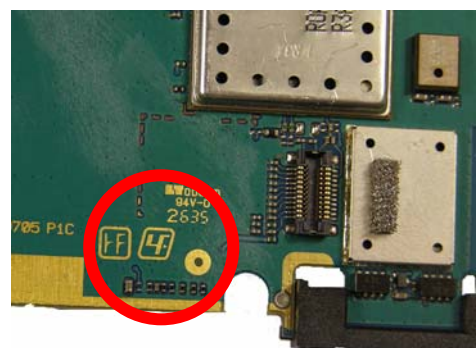
### 2.1 Lead-free Symbol

**NOTE!**

***This is a lead-free product!***

***All solder wire or paste used with this product must be lead-free.***

***All rework tools that directly contact the solder must remain lead-free. They must only be used for lead-free repairs.***



### 2.2 Hot air gun temperature requirements

The air temperature shall not exceed 330°C. The temperature shall be measured 5 mm from the nozzle outlet.

If it's not possible to remove and/ or solder with 330°C a BGA Rework Station or another repair process shall be considered to ensure high process control.

Too high temperature can cause damage and cracks due to thermal stress on sensitive components, e.g. ceramic components like capacitors.

### 2.3 Soldering tip temperature requirements

The soldering tip temperature shall be minimum 310°C and maximum 360°C.

Too high temperature can cause damage and cracks due to thermal stress on sensitive components, e.g. ceramic components like capacitors.

## **2.4 Bottom Heat**

Because of the higher temperature required for lead-free solder, bottom heat is strongly recommended for rework of all ASICs. This does not include small transistors or chips, but it does include fine pitch components and BGA type components.

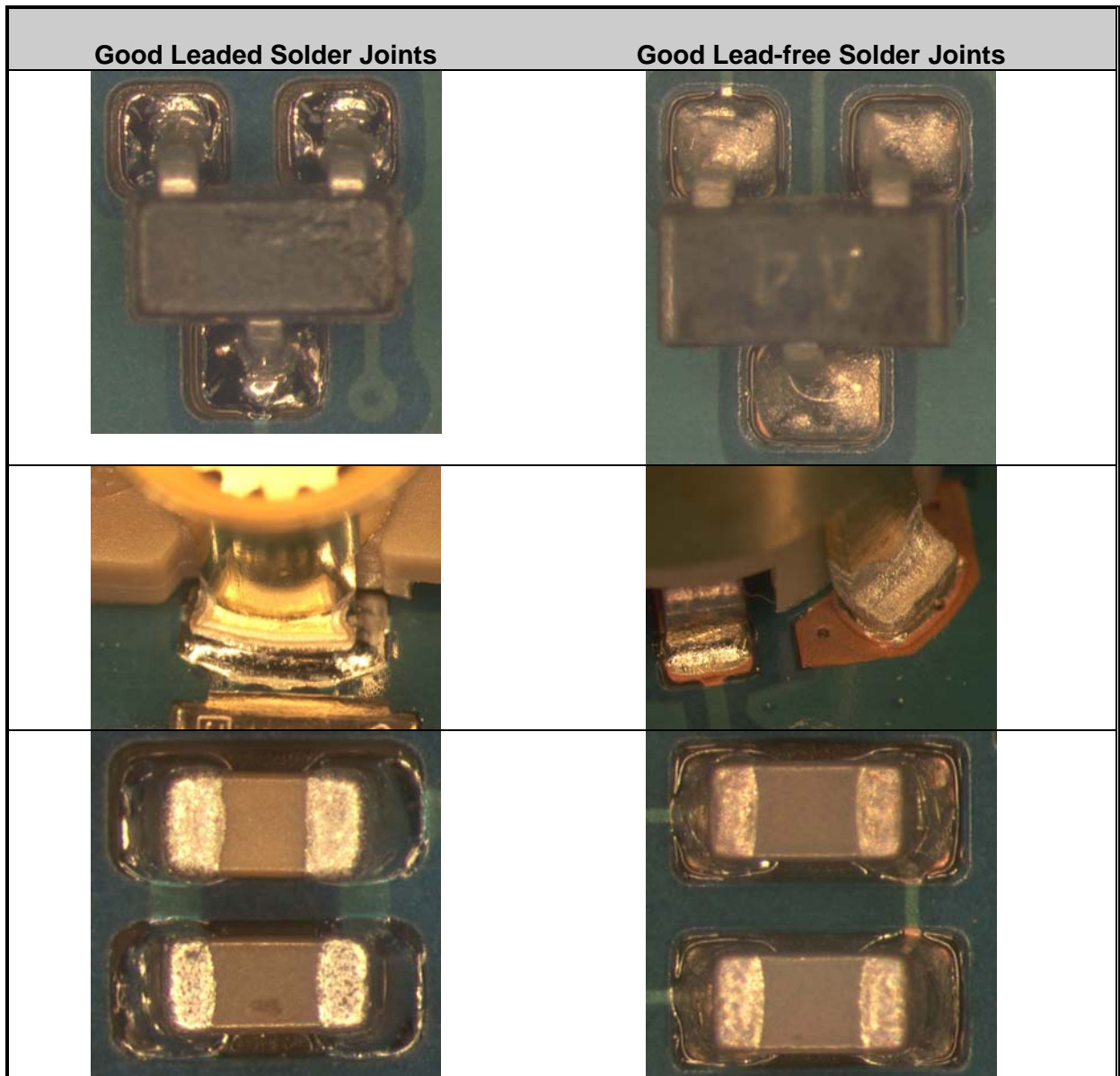
## **2.5 BGA rework specifications**

For all components that is required to be replaced by using BGA Rework Station follow Technical Requirement document, Space ID: 1207-2949 and Heat treatment document, Space ID: 1211-0389



## 2.6 Inspection

Lead-free solder joints are more difficult to inspect because they do not have shiny surfaces like leaded solder joints. Also, lead-free solder does not flow as well as leaded solder, so some of the solder pad area may remain exposed.



## 3 Replacement of components

### EQUIPMENT

Dentist hook  
 ESD-gloves (cotton gloves)  
 ESD-wristband  
 Soldering tool  
 Hot air soldering station  
 BGA replacement equipment  
 Pair of tweezers  
 Solder cleaning wiper (tin wick)  
 Solder paste lead-free (SN 96% Ag 3.5% Cu 0.5%).  
 Flux, RMA no-clean flux  
 Cutting pliers

### MECHANICAL INSTRUCTIONS

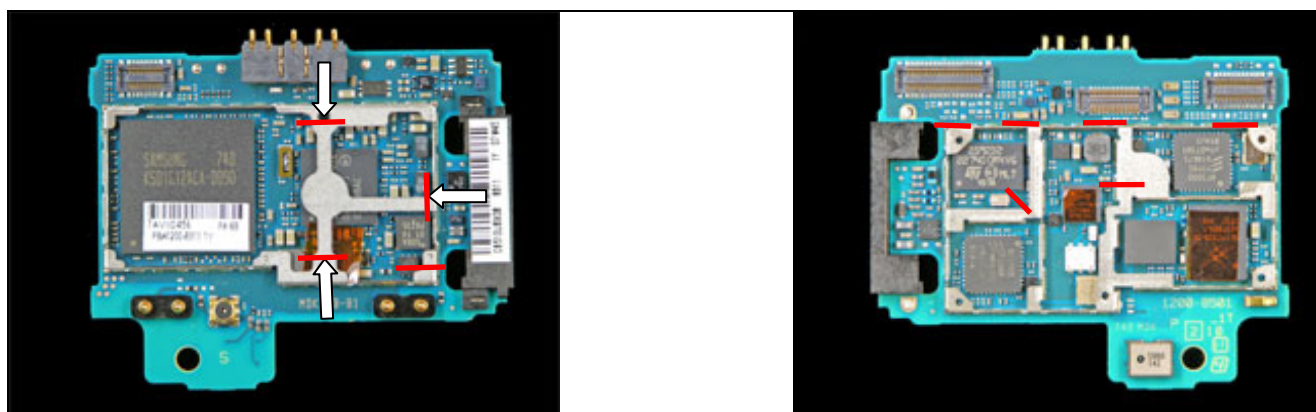
For all the following part replacements, disassemble and assemble the phone as described in *Working Instruction 1209-0972*

#### 3.1 Shield can fence modification

The arrows and the red lines show where the frame should be cut to enable rework.

After rework the **height of the frame should not be affected**.

On a reworked unit when the lid is mounted, it **should not be visible that rework has been performed** on the shield frame.



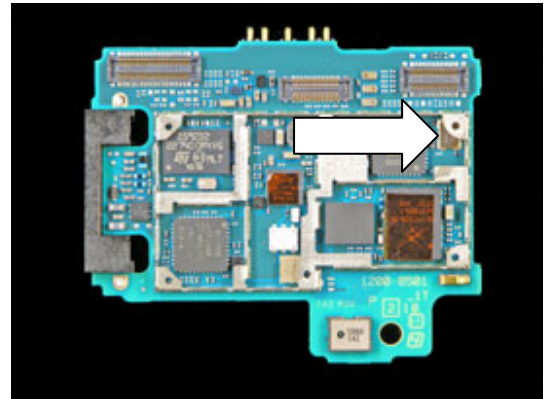


### 3.2 B1260

#### Crystal 26.0 MHz 3225

**SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 3.1!**

Use Hot air soldering station and Bottom Heat to replace component



### 3.3 B2100

#### Crystal 32768Hz +-20PPM 12.5pF

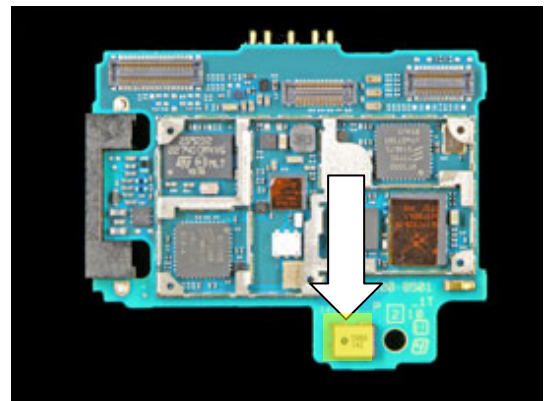
Use Hot air soldering station and Bottom Heat to replace component



### 3.4 B3100

#### MICROPHONE/CHARLOTTE

BGA replacement equipment  
Apply Capton tape on the new microphone top before mounting.  
Remove the tape after that!



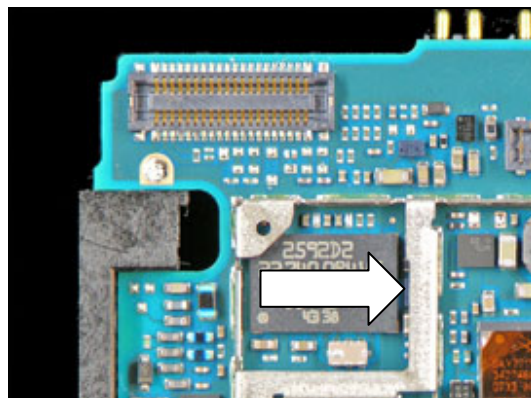


### 3.5 D2105

### IC Single bus buffer gate

**SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 3.1!**

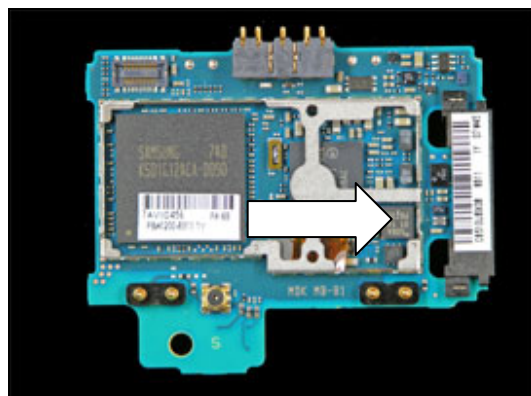
Use Hot air soldering station and Bottom Heat to replace component



### 3.6 D2400

### IC IF ISP1508 ES3 (3.5\*3.5\*0.8)

Use Hot air soldering station and Bottom Heat to replace component

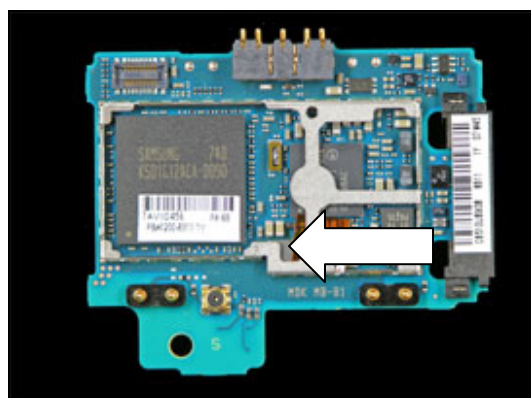


### 3.7 L2200

### Ind WW 4.7 uH K3012

**SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 3.1!**

Use Hot air soldering station and Bottom Heat to replace component



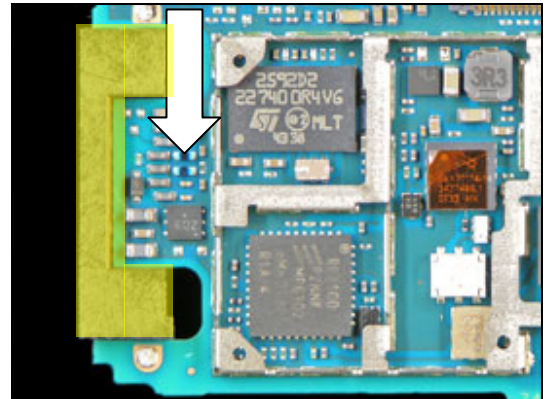
### 3.8 L2401

Inductor 120nH 5% 0402 0.11A

***Protect the System connector with Capton tape!***

Use Hot air soldering station and Bottom Heat to remove component

Use Soldering tool or Hot air soldering station and Bottom Heat to mount the new component



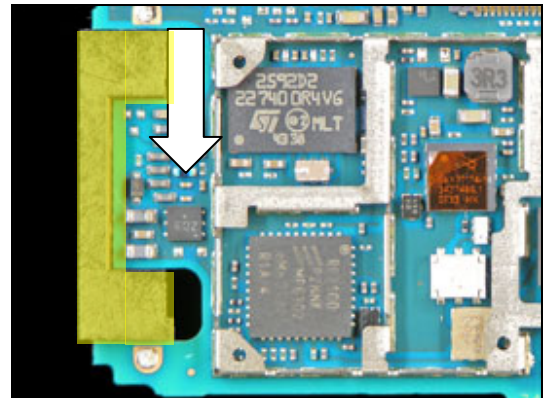
### 3.9 L2402

Inductor 120nH 5% 0402 0.11A

***Protect the System connector with Capton tape!***

Use Hot air soldering station and Bottom Heat to remove component

Use Soldering tool or Hot air soldering station and Bottom Heat to mount the new component



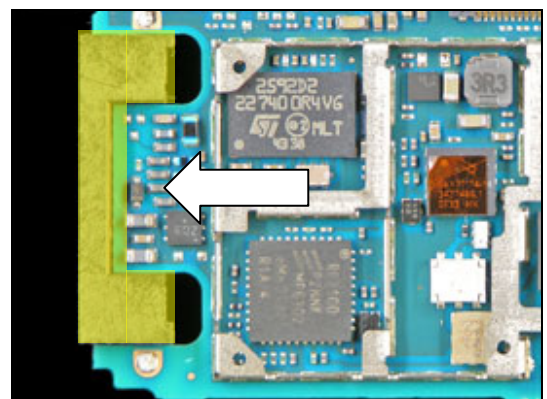
### 3.10 L2403

Filter 0.0 Hz 0402

***Protect the System connector with Capton tape!***

Use Hot air soldering station and Bottom Heat to remove component

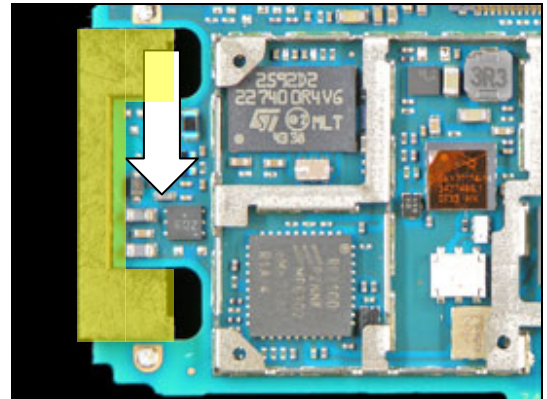
Use Soldering tool or Hot air soldering station and Bottom Heat to mount the new component



**3.11 L2404**
**Filter 0.0 Hz 0402**
***Protect the System connector with Capton tape!***

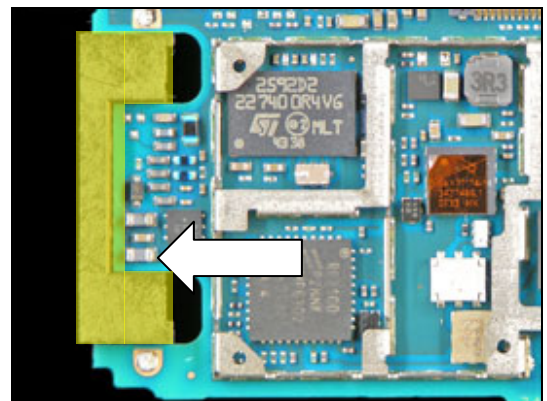
Use Hot air soldering station and Bottom Heat to remove component

Use Soldering tool or Hot air soldering station and Bottom Heat to mount the new component


**3.12 L2405**
**Filter 220ohm 0603 2A 0.05ohm Bead**
***Protect the System connector with Capton tape!***

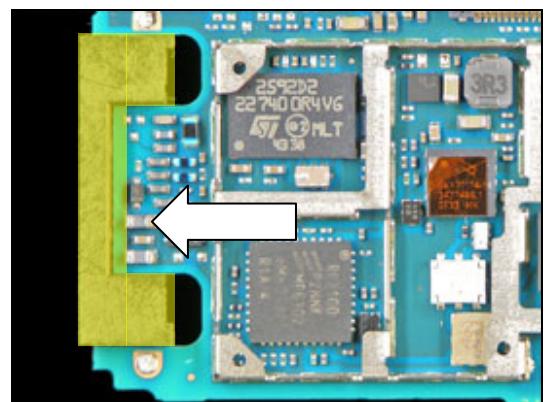
Use Hot air soldering station and Bottom Heat to replace component

Use Soldering tool or Hot air soldering station and Bottom Heat to mount the new component


**3.13 L2406**
**Filter 220ohm 0603 2A 0.05ohm Bead**
***Protect the System connector with Capton tape!***

Use Hot air soldering station and Bottom Heat to remove component

Use Soldering tool or Hot air soldering station and Bottom Heat to mount the new component



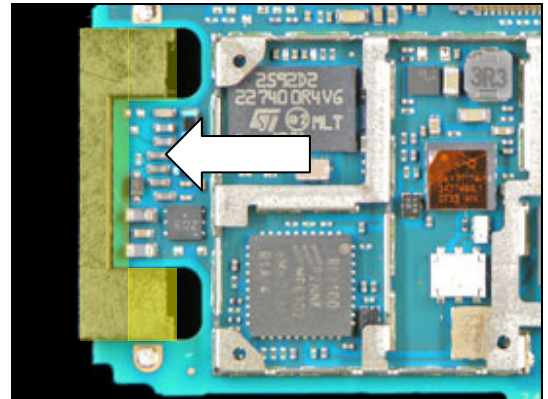
### 3.14 L2407

Filter 0.0 Hz 0402

***Protect the System connector with Capton tape!***

Use Hot air soldering station and Bottom Heat to remove component

Use Soldering tool or Hot air soldering station and Bottom Heat to mount the new component



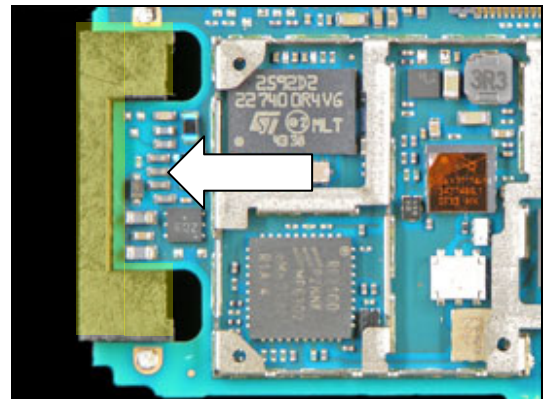
### 3.15 L2408

Filter 0.0 Hz 0402

***Protect the System connector with Capton tape!***

Use Hot air soldering station and Bottom Heat to remove component

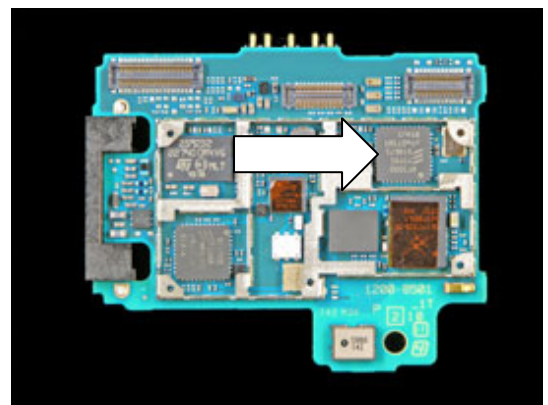
Use Soldering tool or Hot air soldering station and Bottom Heat to mount the new component



### 3.16 N1200

ASIC GIMLI

BGA replacement equipment

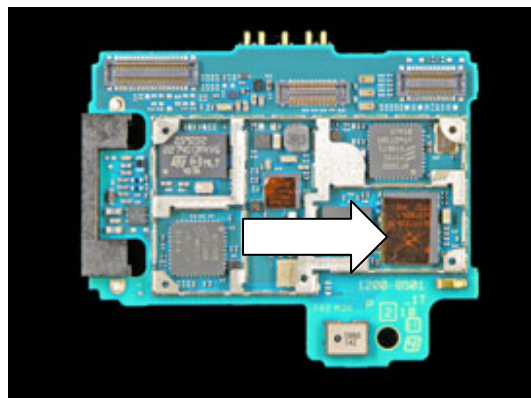




### 3.17 N1230

### PA Module 22 TERMINAL LGA

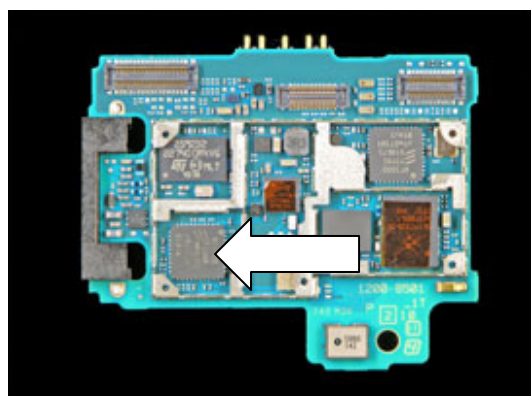
BGA replacement equipment



### 3.18 N1300

### ASIC YLVA

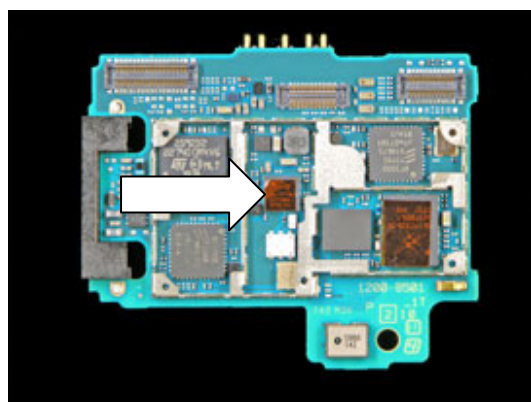
BGA replacement equipment



### 3.19 N1380

### Module PA WLAN 4040

Use Hot air soldering station and Bottom Heat to replace component

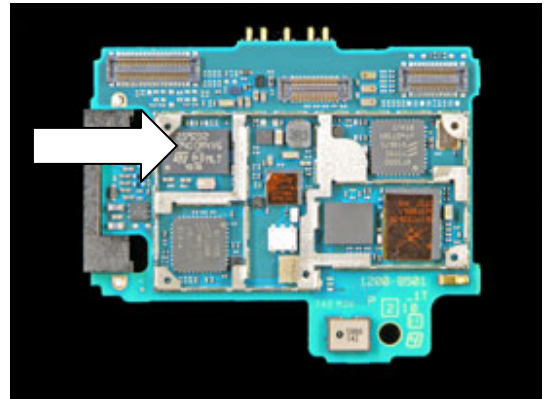


**3.20 N1400**

**Module Bluetooth + FM STLC2592**

**SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 3.1!**

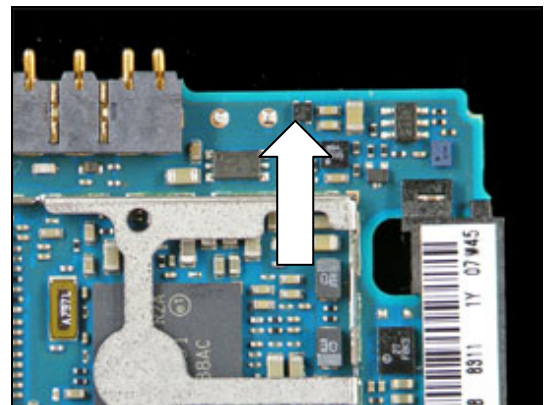
BGA replacement equipment



**3.21 N2201**

**IC Vreg PLP1010-4**

Use Hot air soldering station and Bottom Heat to replace component



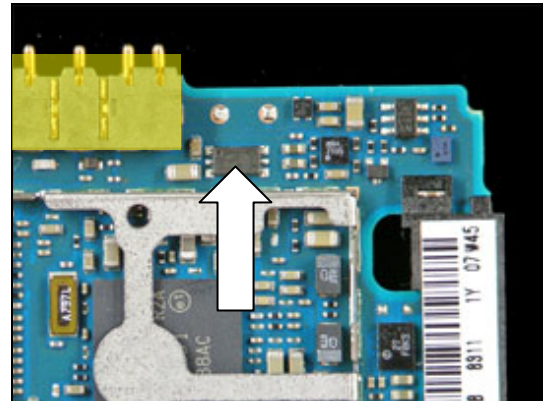


### 3.22 N2202

### IC Vreg SON-6

***Protect the Battery connector with Capton tape!***

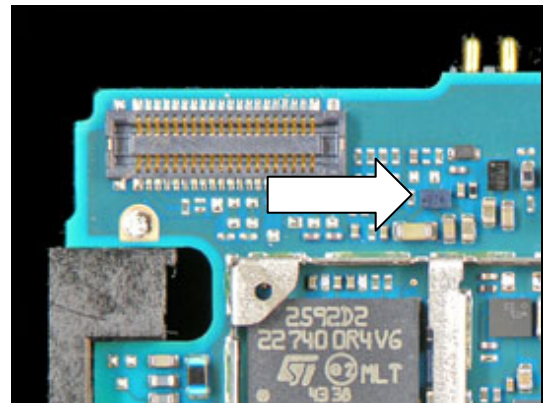
Use Hot air soldering station and Bottom Heat to replace component



### 3.23 N2203

### 2ch-LDO, Vout1=2.8V, Vout2=1.8V, WL-CSP6

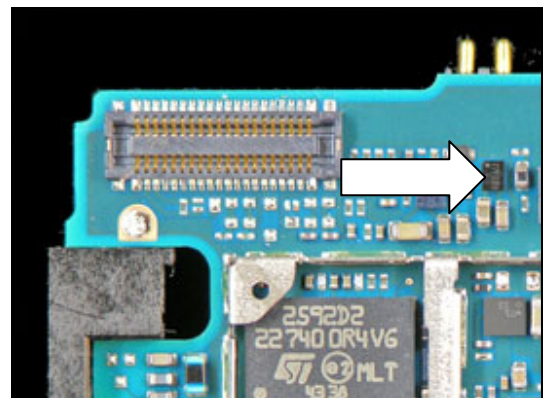
Use Hot air soldering station and Bottom Heat to replace component



### 3.24 N2204

### LDO1.8 V, 200mA, low noise, CS-5

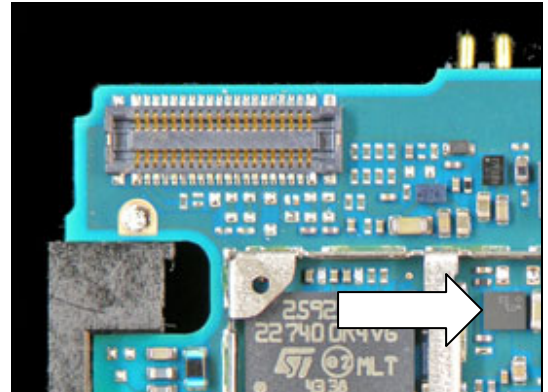
Use Hot air soldering station and Bottom Heat to replace component



### 3.25 N2205

### DC/DC Converter

Use Hot air soldering station and Bottom Heat to replace component

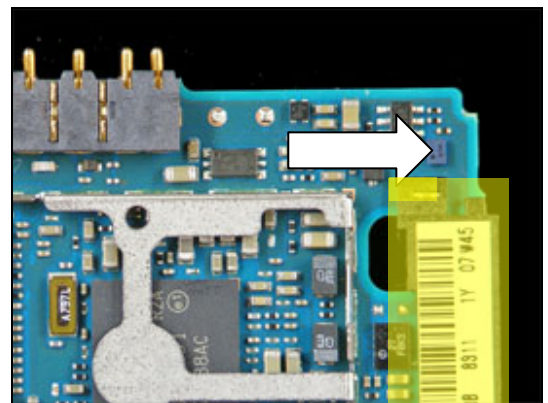


### 3.26 N2400

### 1-Bit Level Translator

***Protect the System connector with Capton tape!***

Use Hot air soldering station and Bottom Heat to replace component

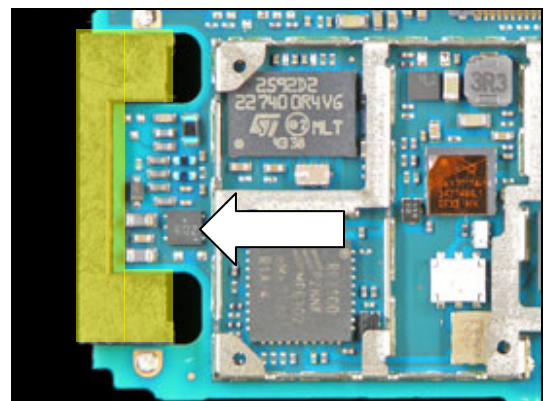


### 3.27 N2402

### IC ESD Prot UDFN 6 2x2 mm

***Protect the System connector with Capton tape!***

Use Hot air soldering station and Bottom Heat to replace component

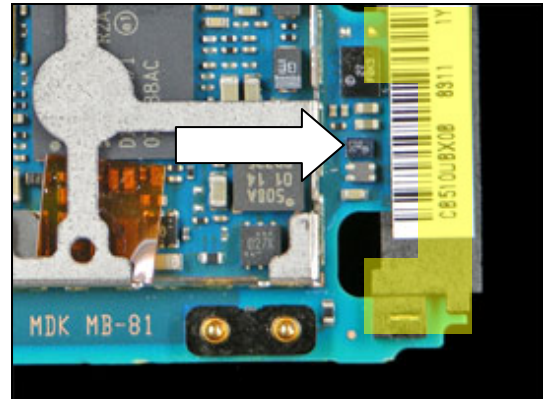


### 3.28 N2424

### ESD/EMI protection for USB

***Protect the System connector with Capton tape!***

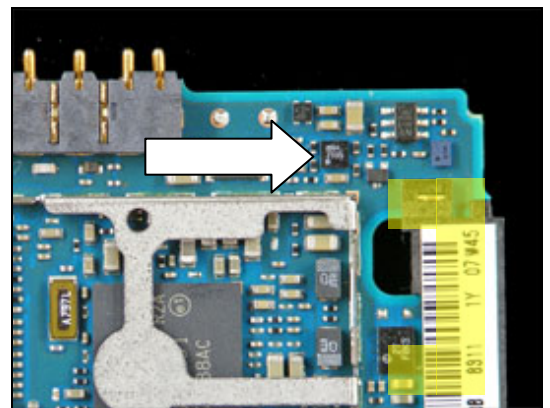
Use Hot air soldering station and Bottom Heat to replace component



### 3.29 N3100

### OPAMP 1W Pb-Free

Use Hot air soldering station and Bottom Heat to replace component

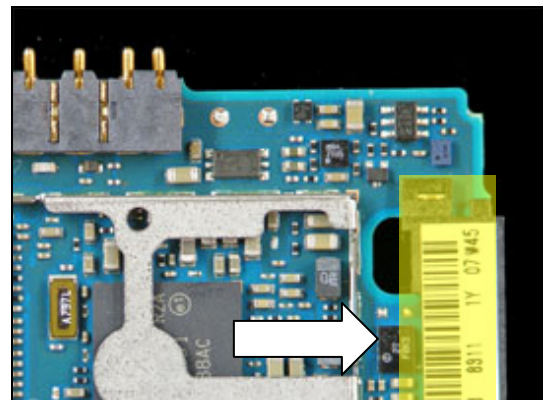


### 3.30 N3101

### ASIC Tjatte3 CSP20

***Protect the System connector with Capton tape!***

Use Hot air soldering station and Bottom Heat to replace component

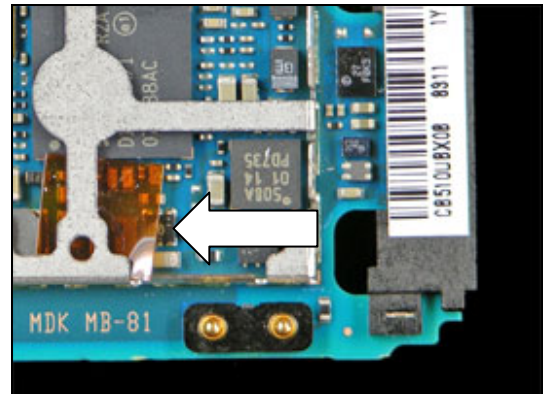


### 3.31 N4201

### Trans N-ch FET

**SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 3.1!**

Use Hot air soldering station and Bottom Heat to replace component



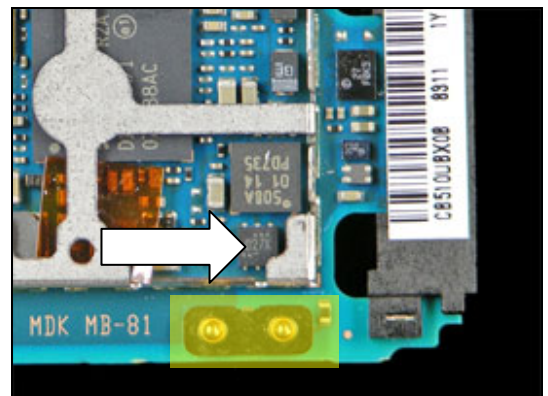
### 3.32 V2202

### TRANS V;DUAL\_PMOSFET;BYX101603\_A;REQ318

**SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 3.1!**

***Protect the Pogopin with Capton tape!***

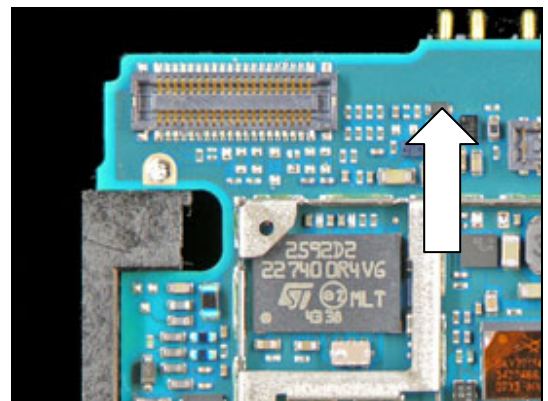
Use Hot air soldering station and Bottom Heat to replace component



### 3.33 V2402

### Switching Diode

Use Hot air soldering station and Bottom Heat to replace component



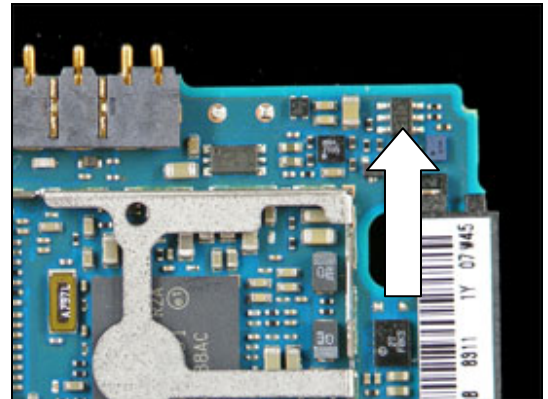


### 3.34 V2405

### MOSFET Complementary N P 20 V (D S)

Use Hot air soldering station and Bottom Heat to remove component

Use Soldering tool or Hot air soldering station and Bottom Heat to mount the new component



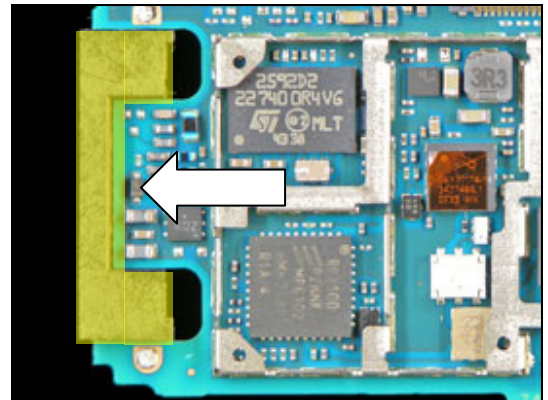
### 3.35 V2420

### Zener Diode voltage regulator 15V 5%

***Protect the System connector with Capton tape!***

Use Hot air soldering station and Bottom Heat to remove component

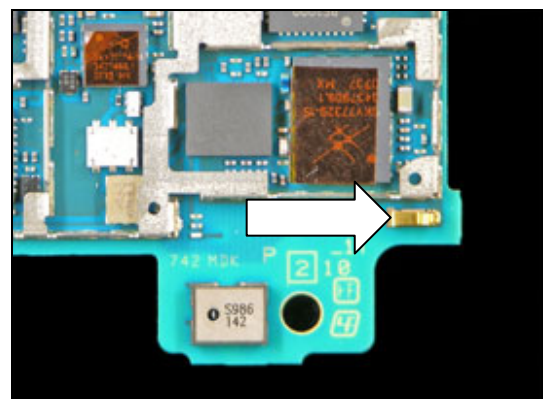
Use Soldering tool or Hot air soldering station and Bottom Heat to mount the new component



### 3.36 X1000

### Conn Leaf Spring

Use Hot air soldering station and Bottom Heat to replace component



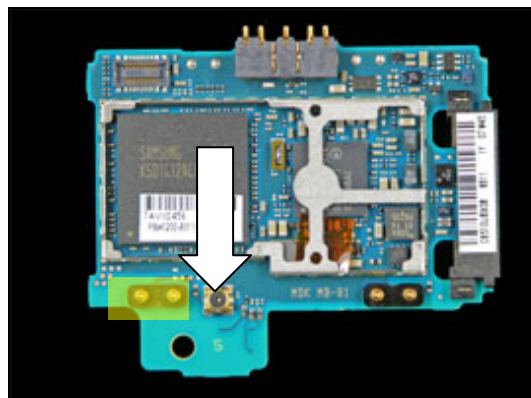
### 3.37 X1100

### Conn Antenna

***Protect the Pogopin with Capton tape!***

Use Hot air soldering station and Bottom Heat to remove component

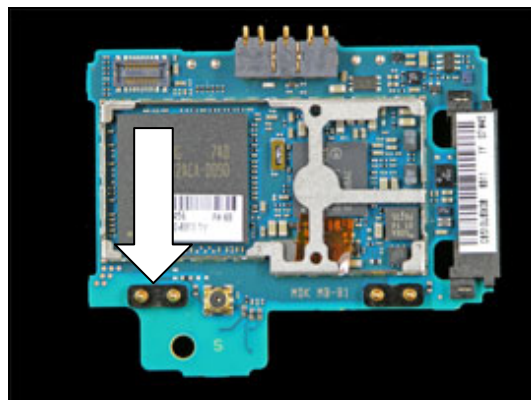
Use Soldering tool to mount the new component



### 3.38 X1203

### Conn Pogopin

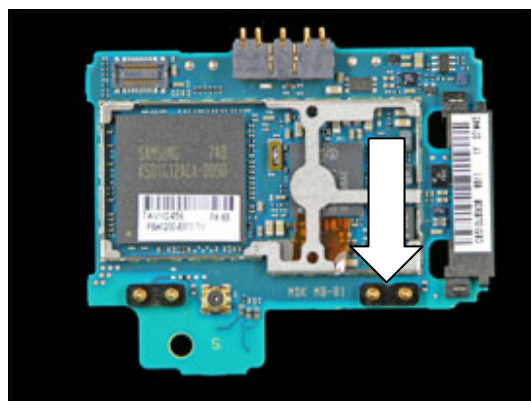
Use Hot air soldering station to replace component



### 3.39 X1400

### Conn Pogopin

Use Hot air soldering station to replace component

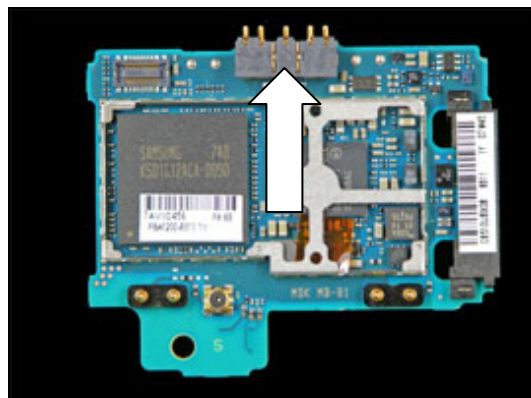




### 3.40 X2200

### Conn Pogopin 0p CSS5005-7L02E

Use Hot air soldering station and Bottom Heat to replace component

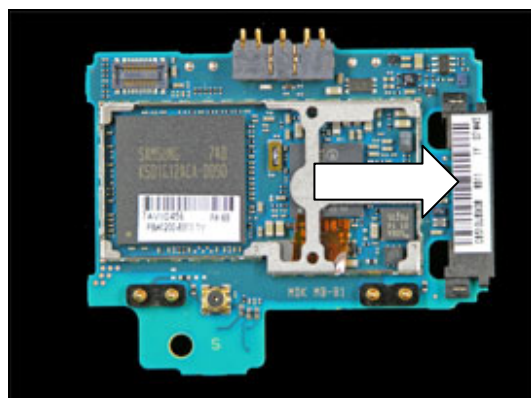


### 3.41 X2400

### 12p System Connector

Use Hot air soldering station and Bottom Heat to remove component

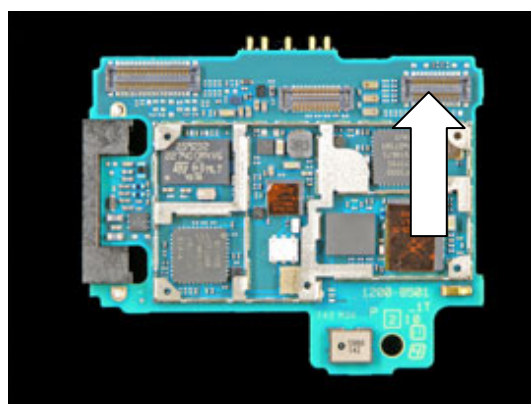
Use Soldering tool to mount the new component



### 3.42 X2401

### Conn BtB

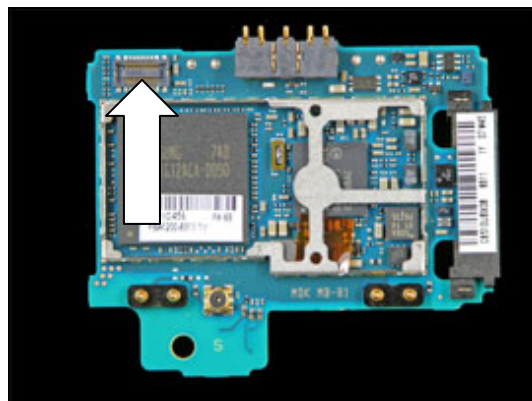
Use Hot air soldering station and Bottom Heat to replace component



### 3.43 X2402

### Conn BtB Receptacle 18p

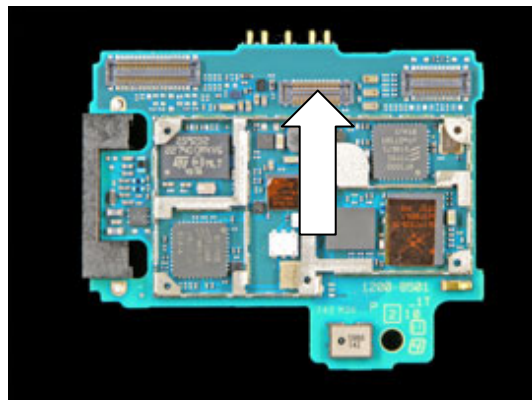
Use Hot air soldering station and Bottom Heat to replace component



### 3.44 X4201

### Conn BtB Receptacle 26p

Use Hot air soldering station and Bottom Heat to replace component

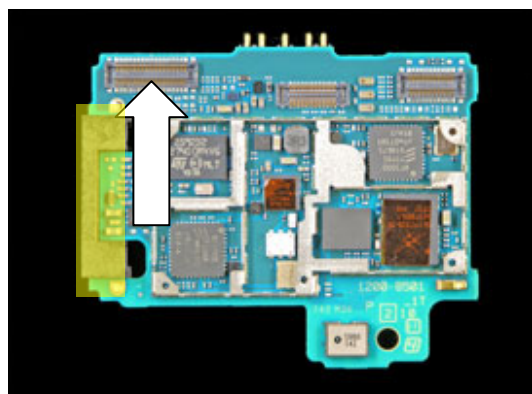


### 3.45 X4300

### Conn BtB

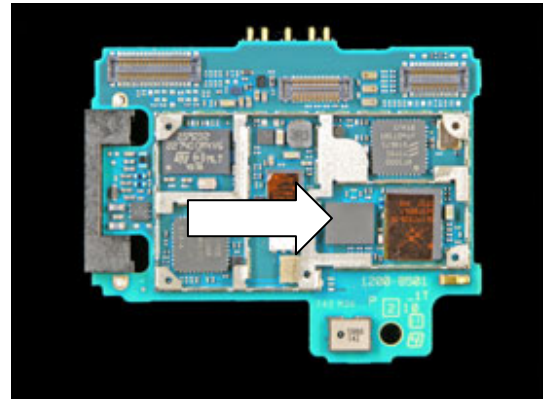
***Protect the System connector with Capton tape!***

Use Hot air soldering station and Bottom Heat to replace component



### 3.46 Z1230 Module GSM FEM/Switch/SAW/5.4x4.7x1.2mm

Use Hot air soldering station and Bottom Heat to replace component

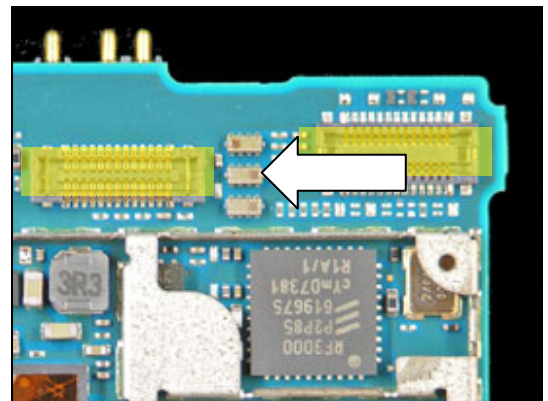


### 3.47 Z4200

Filter 400.0 MHz KNA16400

***Protect the BtB connector with Capton tape!***

Use Hot air soldering station and Bottom Heat to replace component

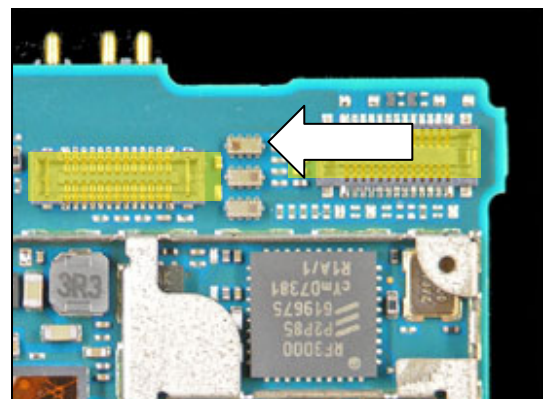


### 3.48 Z4201

Filter 400.0 MHz KNA16400

***Protect the BtB connector with Capton tape!***

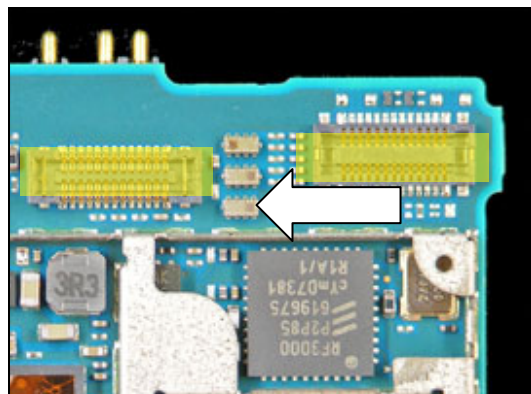
Use Hot air soldering station and Bottom Heat to replace component



**3.49 Z4202****Filter 400.0 MHz KNA16400**

***Protect the BtB connector with Capton tape!***

Use Hot air soldering station and Bottom Heat to replace component



## 4 Revision history

| Rev. | Date       | Changes / Comments                                       |
|------|------------|----------------------------------------------------------|
| 1    | 2008-02-20 | Initial release                                          |
| 2    | 2008-02-27 | No change made                                           |
| 3    | 2008-03-05 | No change made in content                                |
| 4    | 2008-03-31 | Added information for BGA profile support in Chapter 2.5 |
| 5    | 2008-11-12 | Changed baking time from 6 to 4 hours                    |