S6 GSM/PCN

Level 2.5

Repair Documentation

V1.4

Table of Contents:

1RF Connector

1.1Affected Units

1.1.1Type: S6 GSM / PCN

1.1.2Affected IMEIs / Date Codes: All / All

1.1.3Affected SW-Versions: All

1.1.4Fault Code for LSO reporting: 3RFC

1.2Fault Description

1.2.1Fault Symptoms for customers:

Customers experience a low Rx sensitivity of the hand-set, having problems registering to the network and making calls.

1.2.2Fault Symptom on GSM-Tester:

The GSM-Tester will show a low Tx-Power only on the *internal* antenna (aerial coupler measurement!).

1.3Priority:

☐ ..... Mandatory
¤ ..... Repair
☐ ..... Optional
☐ ..... Not Yet Defined

1.4Repair Documentation

1.4.1Description of procedure:

1.4.1.1Diagnosis

Visually check the status of the antenna connector. Look for a bent contact or dry soldering joint.

1.4.1.2Repair by component change

Use hot air blower to remove defective connector.

Resolder new connector afterwards.
Pin 1 is the RF pin, pins 2 and 3 are ground.

1.4.1.3Repair by SW-Booting

Not possible!

1.4.1.4Test

Retest handset after repair.

1.4.2List of needed material

1.4.2.1Components

Connector X751
Part-Number: L24859-Z1359-A24

1.4.2.2 Jigs and Tools

Soldering Iron
Hot Air Blower

1.4.2.3Special Tools

None

1.4.2.4Working materials

Desolder Wick / Braid
Solder
Flux

1.4.3Drawings

Figure 1: S6 Board RF Connector Side

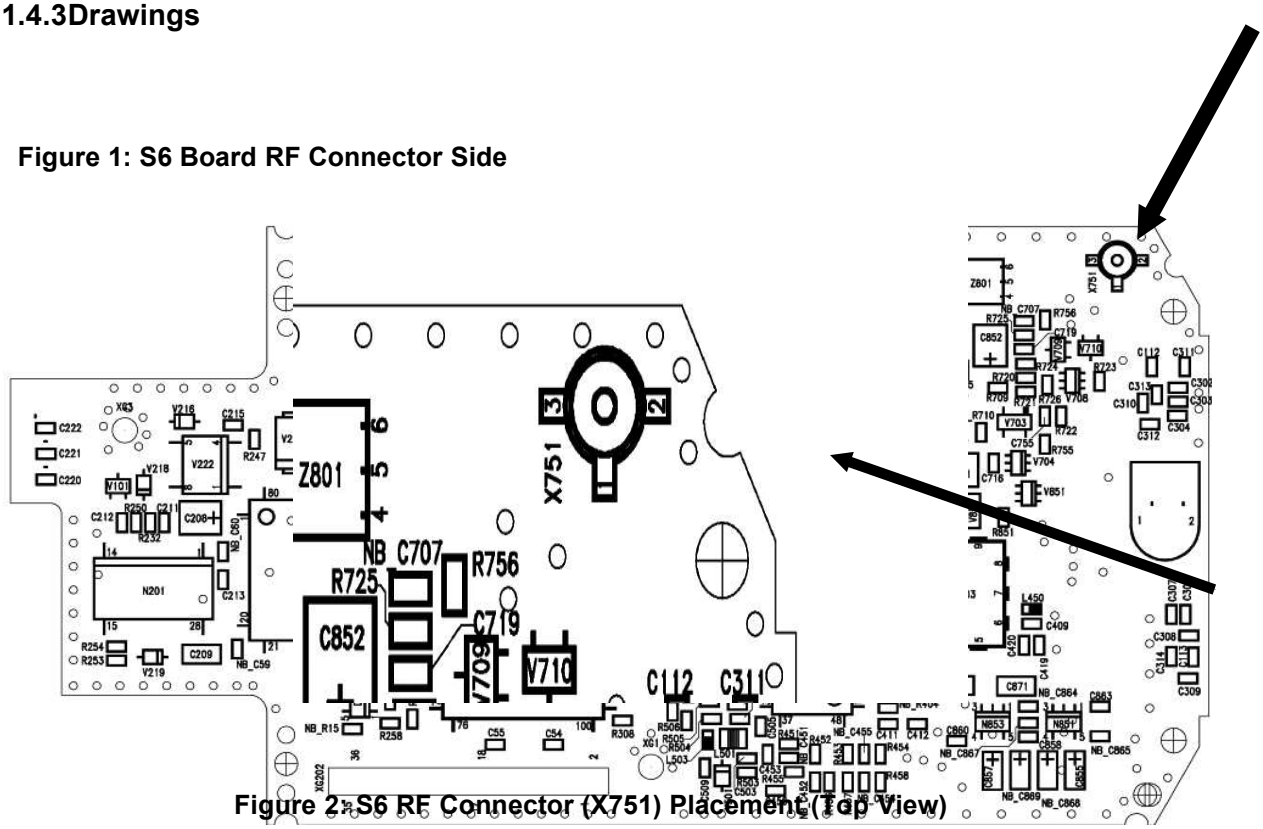


Figure 2: S6 RF Connector (X751) Placement (Top View)

2Exchange of External Connector

2.1Affected Units

2.1.1Type: S6 GSM / PCN

2.1.2Affected IMEIs / Date Codes: All / All

2.1.3Affected SW-Versions: All

2.1.4Fault Code for LSO reporting 3MOC

2.2Fault Description

2.2.1Fault Symptoms for customers:

Customers are unable to charge the battery, since the charging pin is broken/missing

Network search

Connector is physically damaged

2.2.2Fault Symptom on GSM-Tester:

Power problems on the external and internal antenna

Location update problems on external and internal antenna

2.3Priority:

☐ ..... Mandatory
☒ ..... Repair
☐ ..... Optional
☐ ..... Not Yet Defined

2.4Repair Documentation

2.4.1Description of procedure:

2.4.1.1Diagnosis

There is a mechanical switch in the bottom connector which switches between the external and internal antenna of the handset.
The switch is located behind pins 23, 24, 25 and 26, while 23 and 26 are ground connections and 24 and 25 are RF connections.
Dry joints at these pins will interrupt the RF connection both to the internal and external antenna of the handset, resulting in „network search“ problems.

See figure 2 for the location of the pins!

Furthermore if the connector is physically damaged (missing charging pin), it will have to be replaced.

2.4.1.2Repair by component change

Use hot air blower to remove defective connector.

Attention: Make sure that the neighbouring components are not exposed to heat!

Clean solder pads with desoldering wick afterwards.
Fix new connector and solder ground connections first (Pins 18, 20, 21, 22, 23 and 26 in figure 2).
Then the other connections are soldered, using only very little flux.
It is highly recommended to use a microscope during the work!
If too much flux is used, the connector will not work anymore!

2.4.1.3Repair by SW-Booting

Not possible!

2.4.1.4Test

After the connector change check solder joints with a microscope.
Check charging functionality by connecting a travel charger to charging plug. If the connection is right, the charging symbol must appear on the
handset display (make sure that a battery is inserted!).

2.4.2List of needed material

2.4.2.1Components

External Connector
Part-Number: L36851-Z1351-A70

2.4.2.2 Jigs and Tools

Soldering Iron
Hot Air Blower

2.4.2.3Special Tools

None

2.4.2.4Working materials

Desolder Wick / Braid
Solder
Flux

2.4.3Drawings

Figure 1: S6 Board External Connector Side

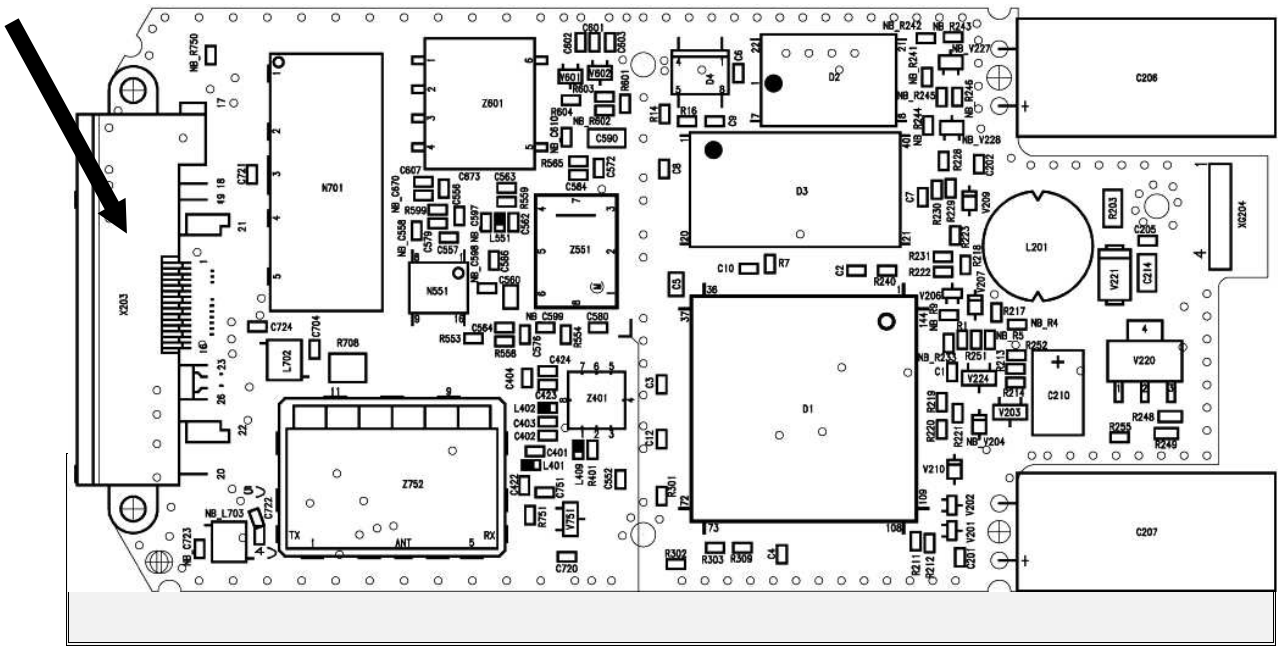
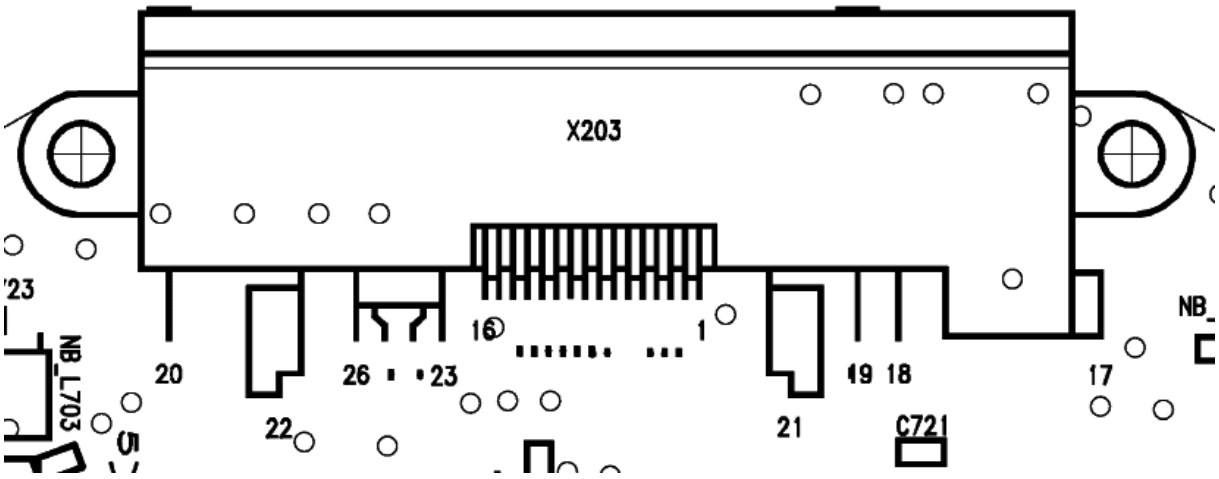


Figure 2: S6 External Connector (X203) Placement (Top View)



31A Fuse

3.1Affected Units

3.1.1Type: S6 GSM / PCN

3.1.2Affected IMEIs / Date Codes: All / All

3.1.3Affected SW-Versions: All

3.1.4Fault Code for LSO reporting 3FU1

3.2Fault Description

3.2.1Fault Symptoms for customers:

Customers are unable to charge the battery.

3.2.2Fault Symptom on GSM-Tester:

This fault cannot be detected with a GSM-Tester.

3.3Priority:

☐ ..... Mandatory
¤ ..... Repair
☐ ..... Optional
☐ ..... Not Yet Defined

3.4Repair Documentation

3.4.1Description of procedure:

3.4.1.1Diagnosis

If the customer connects a charger which delivers a current > 1 ampere, the fuse F201 will blow to protect the charging curcuitry. The Siemens chargers have a current limit of 700mA.

The status of F201 can easily be checked with a multimeter. If the resistance is infinit, the fuse is blown.

3.4.1.2Repair by component change

Use soldering iron to remove defective fuse.

Resolder new fuse afterwards.

3.4.1.3Repair by SW-Booting

Not possible!

3.4.1.4Test

Check resistance of fuse (< 1 Ohm) and check charging functionality afterwards by connecting a travel charger to complete phone.
If you have a battery inserted, the charging symbol must be visible on the handset display.

3.4.2List of needed material

3.4.2.1Components

Fuse F201 (1A)
Part-Number: L36145-A820-Y7

3.4.2.2 Jigs and Tools

Soldering Iron

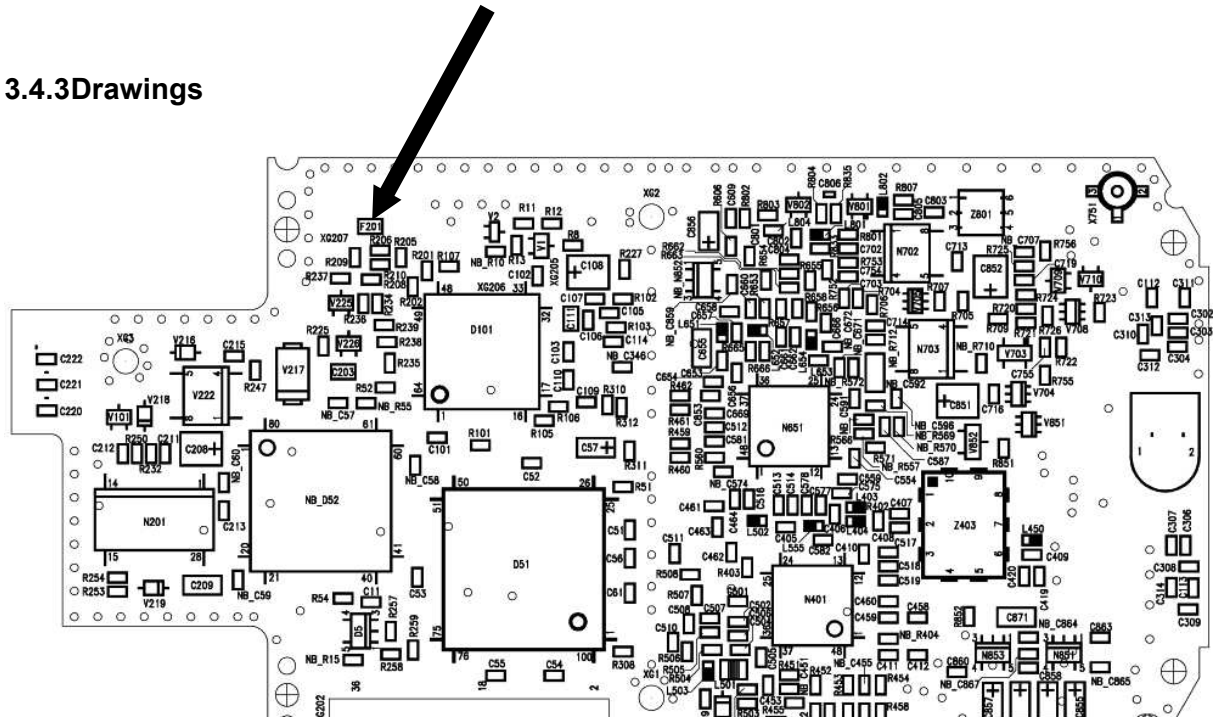
3.4.2.3Special Tools

None

3.4.2.4Working materials

Desolder Wick / Braid
Solder
Flux

3.4.3Drawings



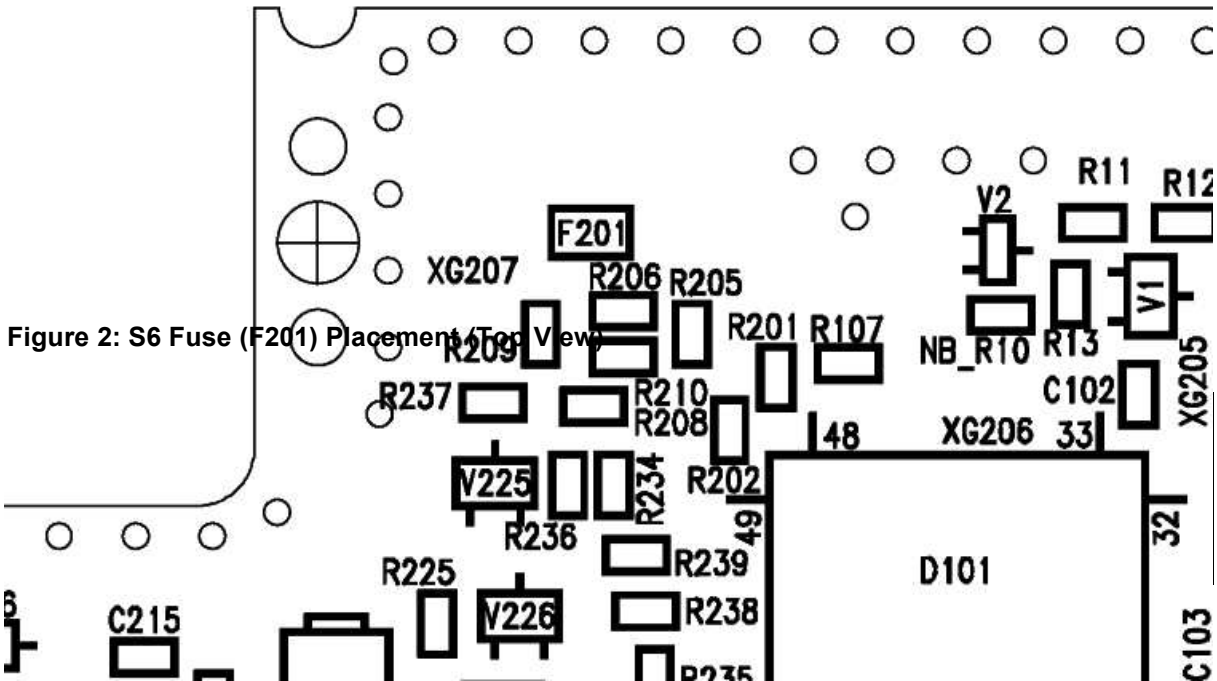


Figure 2: S6 Fuse (F201) Placement (Top View)

4Ringer

4.1Affected Units

4.1.1Type: S6 GSM / PCN MMI

4.1.2Affected IMEIs / Date Codes: All / All

4.1.3Affected SW-Versions: All

4.1.4Fault Code for LSO reporting 3RIN

4.2Fault Description

4.2.1Fault Symptoms for customers:

Ringer tone is not audible or distorted.

4.2.2Fault Symptom on GSM-Tester:

Ringer test fails.

4.3Priority:

☐ ..... Mandatory
¤ ..... Repair
☐ ..... Optional
☐ ..... Not Yet Defined

4.4Repair Documentation

4.4.1Description of procedure:

4.4.1.1Diagnosis

See symptoms above

4.4.1.2Repair by component change

Use soldering desoldering braid to remove defective ringer.

Resolder new ringer afterwards.

4.4.1.3Repair by SW-Booting

Not possible!

4.4.1.4Test

Retest handset.

4.4.2List of needed material

4.4.2.1Components

Ringer
Part-Number: L36178-Z2-C16

4.4.2.2 Jigs and Tools

Soldering Iron
Desoldering braid

4.4.2.3Special Tools

None

4.4.2.4Working materials

Desolder Wick / Braid
Solder
Flux

5ANNEX

5.1Dry joints / soldering problems

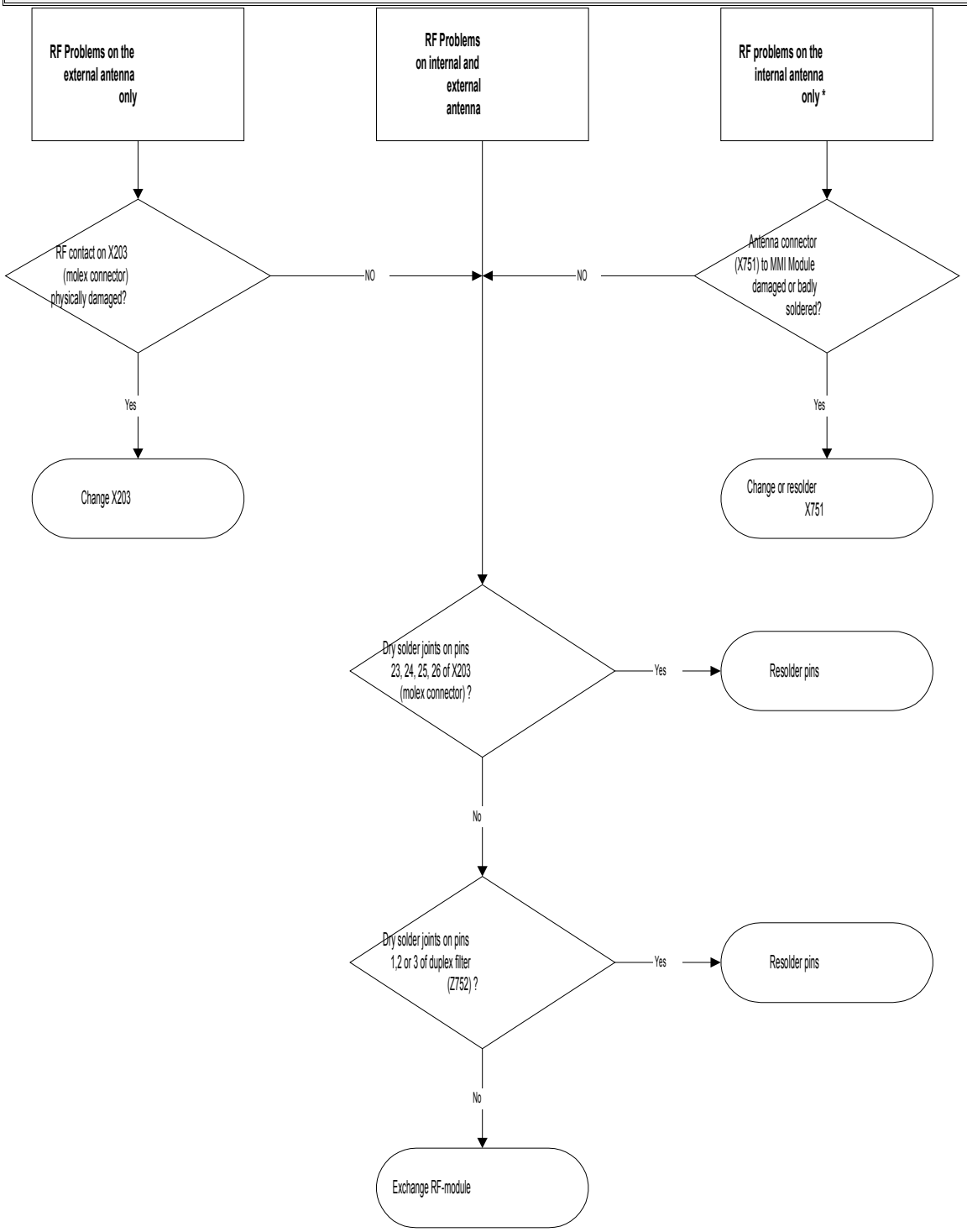
The S6 GSM/PCN, S6Classic GSM/PCN and the E10 have a mechanical antenna-switch in the bottom connector (molex connector).

As a consequence of this a lot of RF problems will come up, if the soldering is bad.
Due to the difficult production soldering process of the bottom connectors, a relatively high percentage of handsets could be affected by this problem.

RF problems are for example a low or completely missing output power, or a missing RX-sensitivity.

In order to analyze the situation, please use the diagram below.

Note: The S10 / S11 does not have a mechanical switch inside the molex connector, so dry joints will only affect the external handset antenna.



* Internal antenna problems could also be caused by the display module. Make sure that you test the board with a reference display module.