

XELIBRI X1

LEVEL 2.5

REPAIR DOCUMENTATION

V 1.0

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1 Introduction

The Xelibri X1 is a dual band (EGSM900/GSM1800) handportable phone with a Li-Ion battery. There are three different colours and six different variants. The colours are White, Smoke and Champaign with either Latin key pat or Chinese Stroke key pat.

Partnumber on IMEI label:

Xelibri X1: S30880-S9230-Axxx,

where xxx may be any number from 100, 101, 102...

This manual is intended to help you carry out repairs on level 2.5, meaning limited component repairs. Failure highlights are documented and should be repaired in the local workshops.

It must be noted that all repairs have to be carried out in an environment set up according to the ESD (Electrostatic Discharge Sensitive Devices) regulations defined in international standards.

If you have any questions regarding the repair procedures or technical questions about the spare parts do not hesitate to contact our technical support team in Kamp-Lintfort, Germany:

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2 Battery Connector

2.1 Affected Units

2.1.1 Type: **Xelibri X1**

2.1.2 Affected IMEIs / Date Codes: *All / All*

2.1.3 Affected SW-Versions: *All*

2.2 Fault Description

2.2.1 Fault Symptoms for customers:

Mobile does not switch on.
No charging

2.2.2 Fault Symptom on GSM-Tester:

This fault cannot be detected with a GSM-Tester.

2.3 Priority:

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

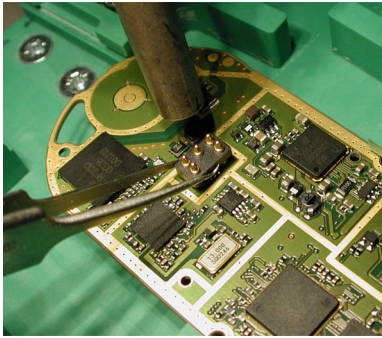
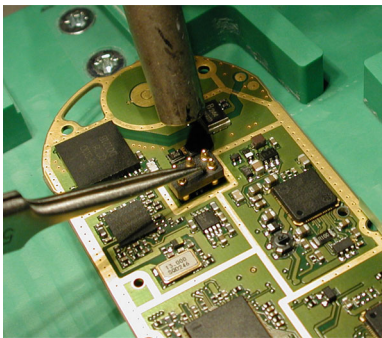
2.4 Repair Documentation

2.4.1 Description of procedure:

2.4.1.1 Diagnosis

Check the battery connector visually. Watch for oxidation and dry joints!

2.4.1.2 Repair by component change

#	Figure	Instruction	Note
1	 <p>Figure 2-1</p>	Use a hot air blower to remove the defective battery connector. Avoid excessive heat! Watch surrounding components!!	
2	 <p>Figure 2-2</p>	Re-solder the new battery connector by using a hot air blower. Check that the connector is straight and exactly in right place.	

2.4.1.3 Repair by SW-Bootling

Not possible!

2.4.1.4 Test

Retest the handset after the repair.

2.4.2 List of needed material

2.4.2.1 Components

Battery connector pogo 3.3mm/5.2mm SMD
Part Number: Siemens code: xxx

2.4.2.2 Jigs and Tools

Hot air blower
Tweezers
Inspection lamp

2.4.2.3 Special Tools

None

2.4.2.4 Working materials

Flux
Solder

2.4.3 Drawings

Figure 1: Xelibri X1 board, battery connector side

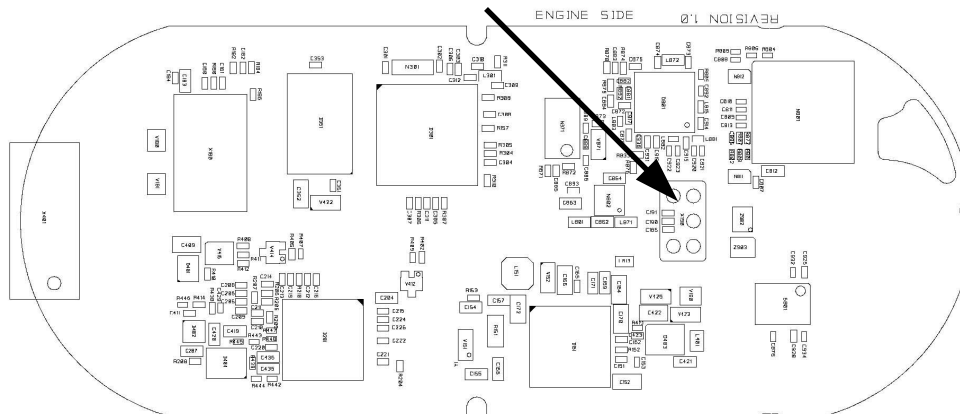


Figure 2: Xelibri X1 battery connector pin description

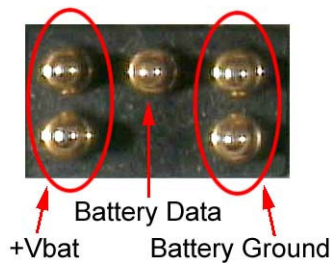
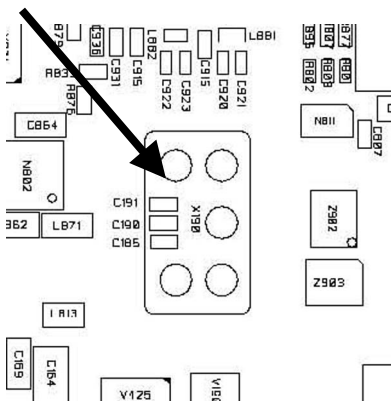


Figure 3: Xelibri X1 battery connector placement (top view)



3 SIM card reader

3.1 Affected Units

3.1.1 Type: Xelibri X1

3.1.2 Affected IMEIs / Date Codes: All / All

3.1.3 Affected SW-Versions: All

3.2 Fault Description

3.2.1 Fault Symptoms for customers:

Handset does not accept the SIM card.

3.2.2 Fault Symptom on GSM-Tester:

This fault cannot be detected with a GSM-Tester.

3.3 Priority:

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

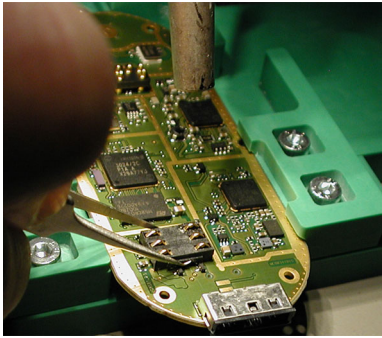
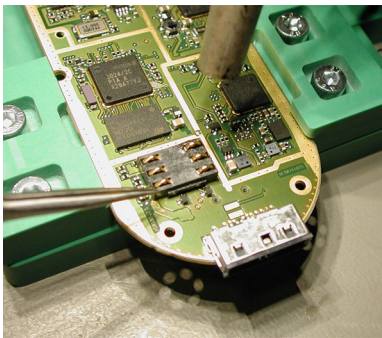
3.4 Repair Documentation

3.4.1 Description of procedure:

3.4.1.1 Diagnosis

Check the status of the SIM card reader visually. Watch for oxidation and dry solder joints.

3.4.1.2 Repair by component change

#	Figure	Instruction	Note
1	 <p>Figure 3-1</p>	Use a hot air blower to remove the defective SIM card reader. Avoid excessive heat! Watch surrounding components!!	
2	 <p>Figure 3-2</p>	Re-solder the new SIM card reader by using a hot air blower. Check that the SIM card reader is straight and exactly in right place.	

3.4.1.3 Repair by SW-Bootling

Not possible!

3.4.1.4 Test

The functionality of the SIM card reader can be tested with the following signals:

- Measure VSIM (2.75 V - 3.3 V) from capacitor R186. Voltage appears only for a short time if a SIM card is not inserted when the phone is switched on, and when a SIM card is inserted, present voltage should stay constantly approx. 2.9 V when the power is on.
- SIMCLK on V181 pin 1. This signal will only appear if a SIM card is inserted and working. The Clock signal is not present always, but will come in intervals.
- SIMDATA on V181 pin 2. This signal will only appear if a SIM card is inserted and working and when SIMCLK is present.

3.4.2 List of needed material

3.4.2.1 Components

Generic SIM contact module SMD
Part Number: Siemens code: xxx

3.4.2.2 Jigs and Tools

Hot air blower
Tweezers

3.4.2.3 Special Tools

None

3.4.2.4 Working materials

Flux
Solder

3.4.3 Drawings

Figure 1: Xelibri X1 board, SIM card reader side

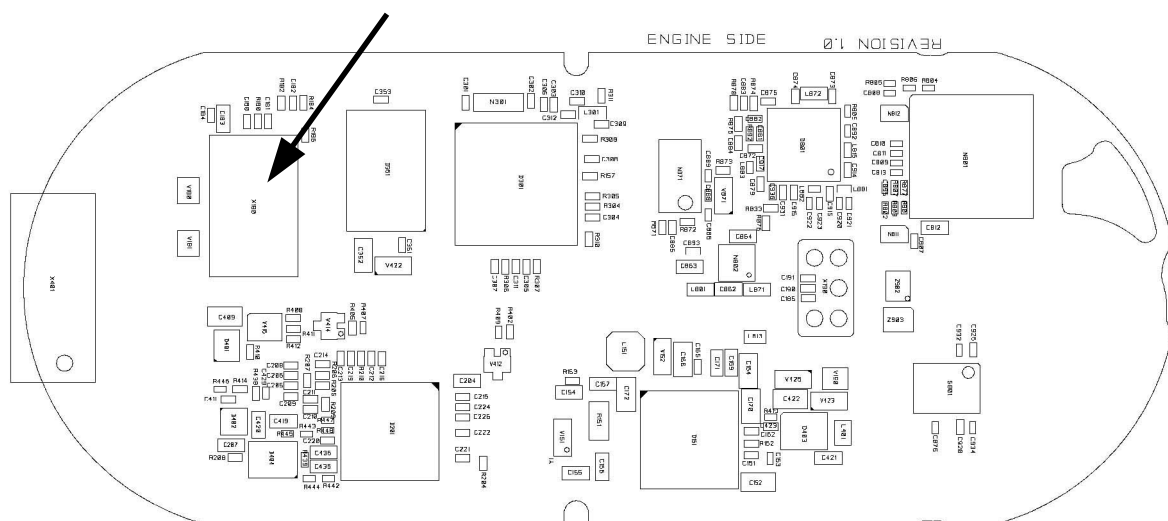
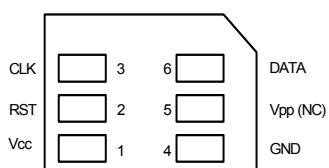


Figure 2: Pin order, top view (SIM connector)



4 SYSTEM CONNECTOR

4.1 Affected Units

4.1.1 Type: **Xelibri X1**

4.1.2 Affected IMEIs / Date Codes: *All / All*

4.1.3 Affected SW-Versions: *All*

4.2 Fault Description

4.2.1 Fault Symptoms for customers:

Charging problems.
Problems with external loudspeaker or microphone
when using a car kit.
Problems with accessories connected at the system
connector.
Problems with SW booting.

4.2.2 Fault Symptom on GSM-Tester:

This fault cannot be detected with a GSM-Tester.

4.3 Priority:

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


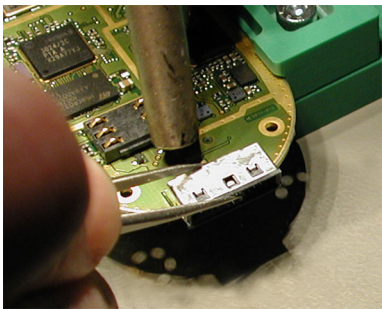
4.4 Repair Documentation

4.4.1 Description of procedure:

4.4.1.1 Diagnosis

Check the system connector visually. Watch for dry joints!

4.4.1.2 Repair by component change

#	Figure	Instruction	Note
1	 <p>Figure 4-1</p>	Use a hot air blower to remove the defective system connector. Avoid excessive heat! Watch surrounding components!	
2	 <p>Figure 4-2</p>	Re-solder the new system connector by using a hot air blower, and a soldering iron if necessary. Check that the system connector is straight and exactly in right place.	

4.4.1.3 Repair by SW-Bootng

Not possible!

4.4.1.4 Test

Charging problems can be discovered by measuring the voltage between pins 1 (Power) and 2 (GND). Voltage should be between 5V and 9,5V if system connector is working.

In order to detect an accessory when plugged into the system connector, the following pins on the connector are used in the detection scenario: POWER, TX/D+, RX/D-, DATA/CTS, CLK/DCD and RTS. Table 1 shows the pins and their possible use in a detection scenario.

Table 1: Accessory coding options

Pin No.	Signal name	Default level	Default direction	Possible coding options
1	POWER	L(Z)	Off	Open or charge source (Set by accessory)
2	GND	GND	-	
3	TX/D+	H(Z)	Out	High/Low (Set by Phone)
4	RX/D-	L(Z)	In	Open, Tx or high (Set by accessory)
5	DATA/CTS	H(Z)	In	Open, Tx or low (Set by accessory)
6	RTS	H(Z)	In	Open, Tx or low (Set by accessory)
7	CLK/DCD	H(Z)	In	Open, Tx or low (Set by accessory)

The different coding options for the supported accessories can be seen in Table 2.

Table 2: Accessory coding table

RX/D-	DATA/CTS	CLK/DCD	RTS	Description
OPEN	OPEN	OPEN	OPEN	Default: No accessory connected
TX/D+	GND	OPEN	TX/D+	Headset
TX/D+	GND	GND	TX/D+	Headset with PTT pressed
HIGH	OPEN	GND	OPEN	Car Kit portable

4.4.2 List of needed material

4.4.2.1 Components

System connector Female 12PIN SMD
Part Number: Siemens code: xxx

4.4.2.2 Jigs and Tools

Hot air blower
Soldering iron
Tweezers

4.4.2.3 Special Tools

None

4.4.2.4 Working materials

Flux
Solder

4.4.3 Drawings

Figure 1: Xelibri X1 board, system connector side

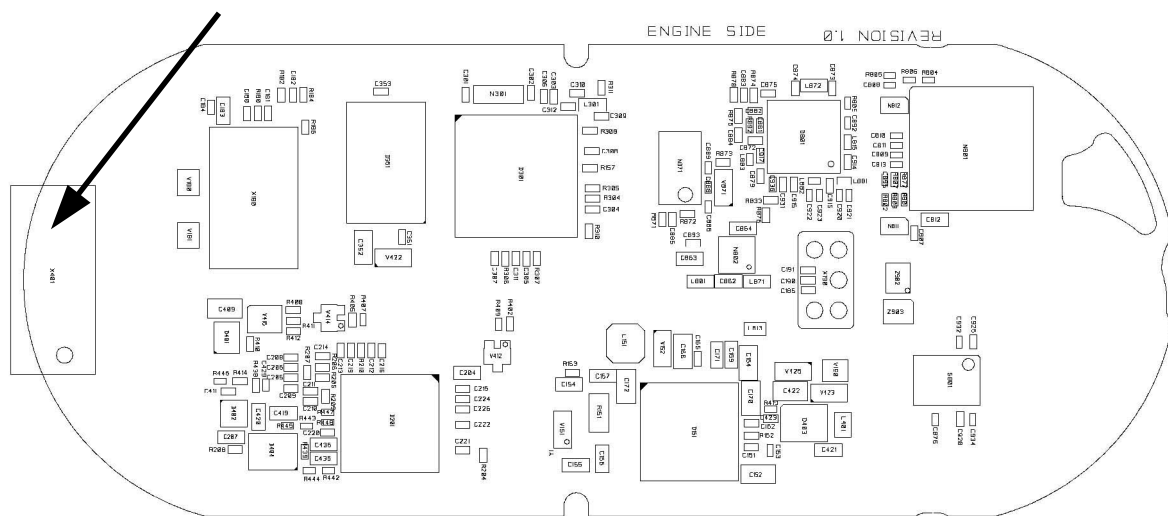


Table 3: Xelibri X1 system connector pin description

Lumberg plug, 12 pole, front view



Pin	Name	IN/OUT	Notes
1	POWER	I	Charging Current
2	GND		Common GND
3	TX	O	Serial interface, used for Flash programming and ITP commands
4	RX	I	Serial interface, used for Flash programming and ITP commands
5	DATA/CTS	I/O	Serial interface, used for AT-commands. Data line for accessory bus. Use as CTS in data operation. Used for accessory detection
6	RTS	I	Used for accessory detection
7	CLK/DCD	I/O	Serial interface, used for AT-commands. Used for accessory detection
8	Audio L	O	Dual -ended (other end is Audio R) output for external receiver (mono)
9	Audio_Ref/V PP	I	Used for 12V flash programming voltage
10	Audio R	O	Dual -ended (other end is Audio L) output for external receiver (mono)
11	Gnd_Micro		GND external microphone
12	Micro	I	Input for external microphone

Table 4: Lumberg signal levels

Pin no.	Signal name	Level	Min [V]	Max [V]
3	TX/D+	$V_{OH} V_{OL}$	2.17 0	3.00 0.20
4	RX/D-	$V_{IH} V_{IL}$	2.10 0	3.60 0.48
5	DATA/CTS	$V_{IH} V_{IL}$ $V_{OH} V_{OL}$	2.10 0 2.17 0	3.30 0.46 3.00 0.42
6	RTS	$V_{IH} V_{IL}$	2.10 0	3.30 0.46
7	CLK/DCD	$V_{IH} V_{IL}$	2.10 0	3.30 0.46

5 RTC BATTERY

5.1 Affected Units

5.1.1 Type: **Xelibri X1**

5.1.2 Affected IMEIs / Date Codes: *All / All*

5.1.3 Affected SW-Versions: *All*

5.2 Fault Description

5.2.1 Fault Symptoms for customers:

The clock is reset when power is switched off.

5.2.2 Fault Symptom on GSM-Tester:

This fault cannot be detected with a GSM-tester.

5.3 Priority:

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

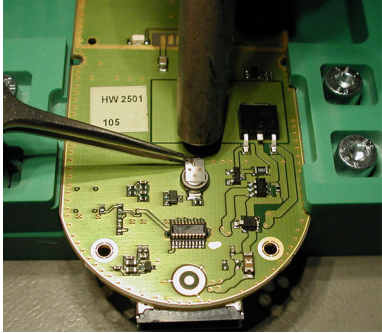
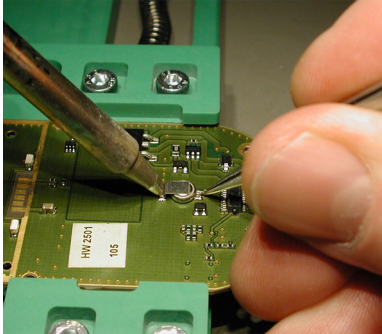
5.4 Repair Documentation

5.4.1 Description of procedure:

5.4.1.1 Diagnosis

Check the RTC battery visually. Watch for dry joints!

5.4.1.2 Repair by component change

#	Figure	Instruction	Note
1	 <p>Figure 5-1</p>	Use a hot air blower to remove the defective RTC battery. Avoid excessive heat! Watch surrounding components!	
2	 <p>Figure 5-2</p>	Resolder the new RTC battery by using a hot air blower and a soldering iron if necessary. Check that the RTC battery is exactly in right place. Watch surrounding components!	

5.4.1.3 Repair by SW-Bootling

Not possible!

5.4.1.4 Test

Retest the handset after the repair.

5.4.2 List of needed material

5.4.2.1 Components

RTC-BATTERY SMD VA6
Part Number: Siemens code: xxx

5.4.2.2 Jigs and Tools

Hot air blower
Soldering iron
Tweezers

5.4.2.3 Special Tools

None

5.4.2.4 Working materials

Flux
Solder

5.4.3 Drawings

Figure 1: Xelibri X1 board, RTC battery SMD VA6

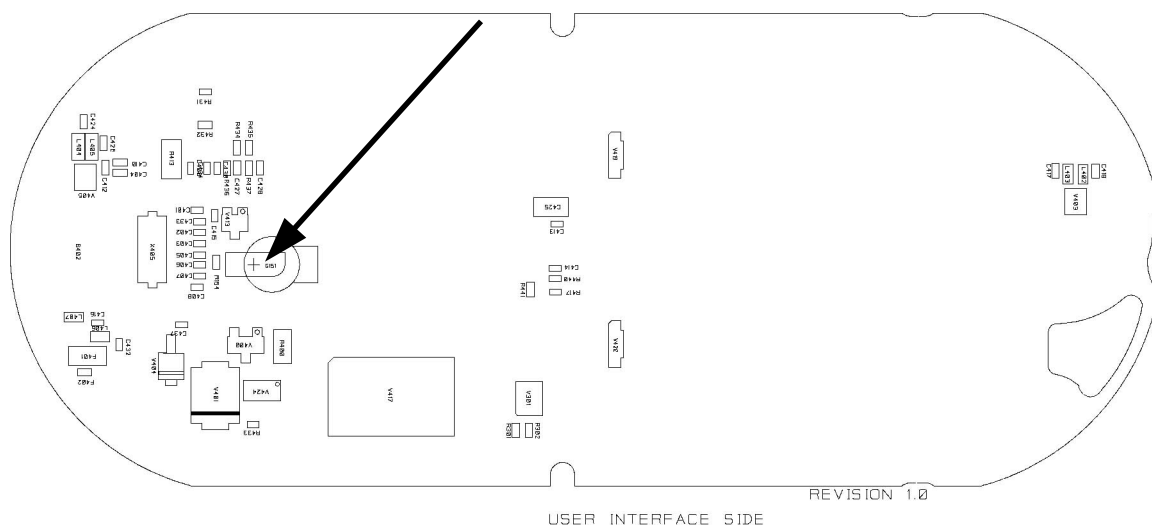
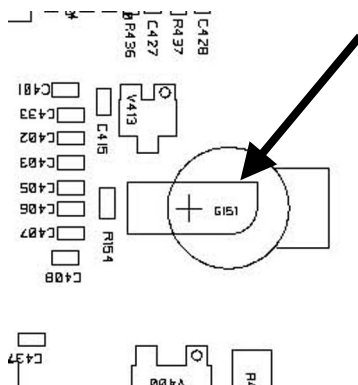


Figure 2: Xelibri X1 RTC battery SMD placement (top view)



6 KEY PAT CONNECTOR

6.1 Affected Units

6.1.1 Type: **Xelibri X1**

6.1.2 Affected IMEIs / Date Codes: *All / All*

6.1.3 Affected SW-Versions: *All*

6.2 Fault Description

6.2.1 Fault Symptoms for customers:

The key pat does not work.

6.2.2 Fault Symptom on GSM-Tester:

This fault cannot be detected with a GSM-tester.

6.3 Priority:

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

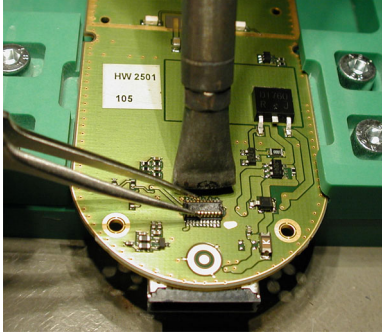
6.4 Repair Documentation

6.4.1 Description of procedure:

6.4.1.1 Diagnosis

Check the Connector visually. Watch for dry joints!

6.4.1.2 Repair by component change

#	Figure	Instruction	Note
1	 <p>Figure 6-1</p>	Use a hot air blower to remove the defective keymat connector. Avoid excessive heat! Watch surrounding components!	
2		Resolder the new keymat connector by using a hot air blower and a soldering iron if necessary. Check that the keymat connector is straight and exactly in right place. Watch surrounding components!	

6.4.1.3 Repair by SW-Bootling

Not possible!

6.4.1.4 Test

Retest the handset after the repair.

6.4.2 List of needed material

6.4.2.1 Components

SMD CONNECTOR 20PIN MALE
Part Number: Siemens code: xxx

6.4.2.2 Jigs and Tools

Hot air blower
Soldering iron
Tweezers

6.4.2.3 Special Tools

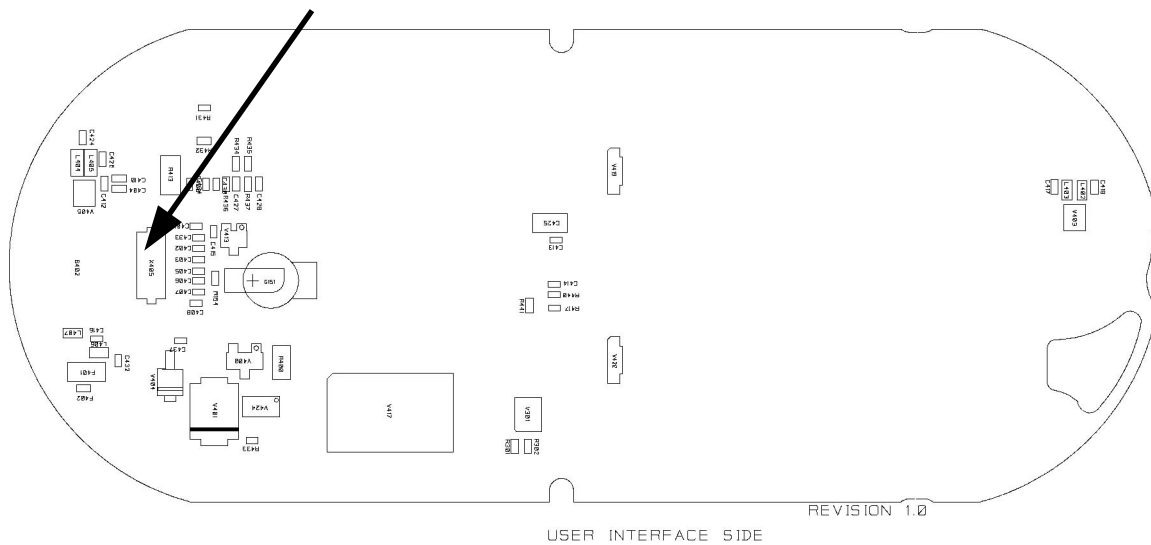
None

6.4.2.4 Working materials

Flux
Solder

6.4.3 Drawings

Figure 1: Xelibri X1 board, key pat connector



7 Display LEDs

7.1 Affected Units

7.1.1 Type: **Xelibri X1**

7.1.2 Affected IMEIs / Date Codes: *All / All*

7.1.3 Affected SW-Versions: *All*

7.2 Fault Description

7.2.1 Fault Symptoms for customers:

Display LEDs are not lit.

7.2.2 Fault Symptom on GSM-Tester:

This fault cannot be detected with a GSM-tester.

7.3 Priority:

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

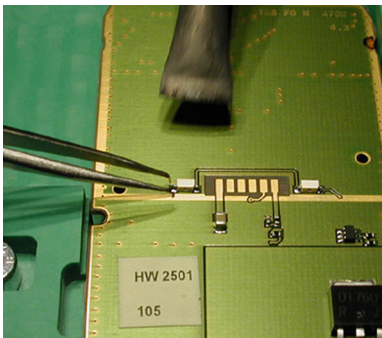
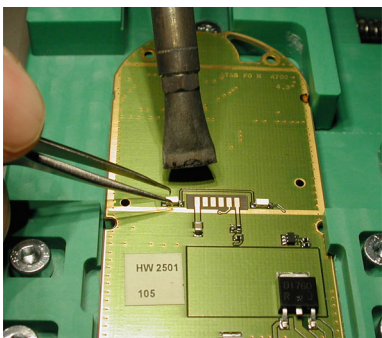
7.4 Repair Documentation

7.4.1 Description of procedure:

7.4.1.1 Diagnosis

Check the display LEDs visually. Watch for dry joints!

7.4.1.2 Repair by component change

#	Figure	Instruction	Note
1	 <p>Figure 7-1</p>	Use a hot air blower to remove the defective display LED. Avoid excessive heat! Watch surrounding components!	
2	 <p>Figure 7-2</p>	Re-solder the new display LED by using a hot air blower and a soldering iron if necessary. Watch surrounding components!	

7.4.1.3 Repair by SW-Bootling

Not possible!

7.4.1.4 Test

Retest the handset after the repair.

7.4.2 List of needed material

7.4.2.1 Components

LED COLOR WHITE SIDEFIRE 10mA 3.4V 3.1x1.2mm SMD
Part number: Siemens code: xxx

7.4.2.2 Jigs and Tools

Hot air blower
Soldering iron

Tweezers

7.4.2.3 Special Tools

None

7.4.2.4 Working materials

Flux
Solder

7.4.3 Drawings

Figure 1: Xelibri X1 board, display LEDs side

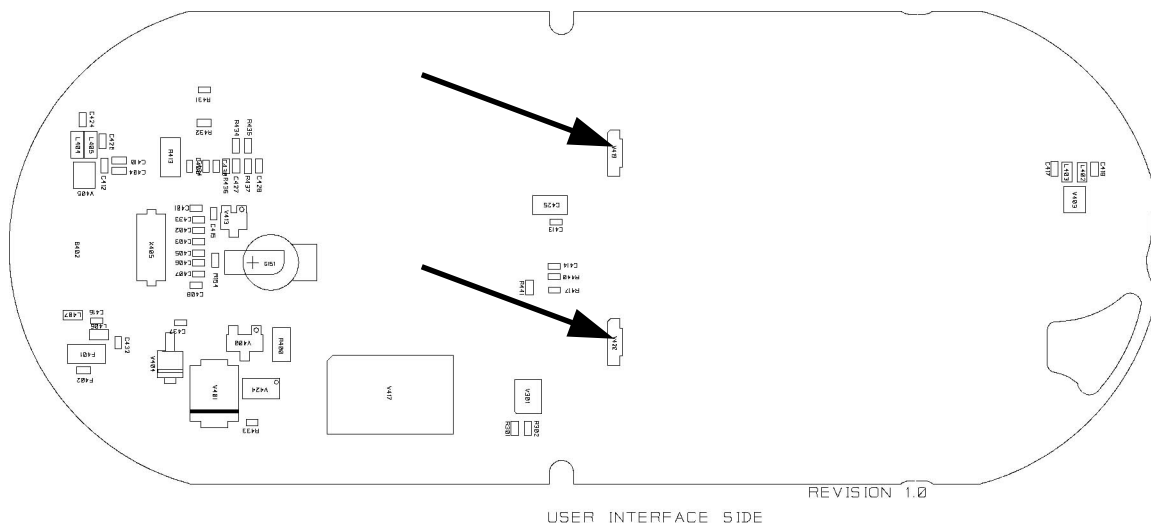


Figure 2: Xelibri X1 display LEDs placement (top view)

