## APPLICABILITY TABLE

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APPLICABILITY TABLE

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1 INTRODUCTION

1.1 Scope
This document provides a guideline for FOTA setup on the LE910S1-xxx.

1.2 Audience
Readers of this document should be familiar with Telit modules and their ease of control by means of AT Commands.

1.3 Contact Information, Support
For technical support and general questions please e-mail:

- TS-EMEA@telit.com
- TS-AMERICAS@telit.com
- TS-APAC@telit.com
- TS-SRD@telit.com

Alternatively, use:

https://www.telit.com/contact-us/

Product information and technical documents are accessible 24/7 on our web site:

https://www.telit.com
1.4 Symbol Conventions

**Danger:** This information MUST be followed or catastrophic equipment failure or personal injury may occur.

**Warning:** Alerts the user on important steps about the module integration.

**Note/Tip:** Provides advice and suggestions that may be useful when integrating the module.

**Electro-static Discharge:** Notifies the user to take proper grounding precautions before handling the product.

*Table 1: Symbol Conventions*

All dates are in ISO 8601 format, that is YYYY-MM-DD.

1.5 Related Documents

- 80672ST11051A LE910S1 AT Commands Reference Guide
- 1VV0301715 LE910S1-Hardware Design Guide
**Note:**

**(EN)** The integration of the LE910S1 cellular module within user application shall be done according to the design rules described in this manual.

**(IT)** L’integrazione del modulo cellulare LE910S1 all’interno dell’applicazione dell’utente dovrà rispettare le indicazioni progettuali descritte in questo manuale.


**(SL)** Integracija LE910S1 modula v uporabniški aplikaciji bo morala upoštevati projektna navodila, opisana v tem priročniku.

**(SP)** La utilización del modulo LE910S1 debe ser conforme a los usos para los cuales ha sido diseñado descritos en este manual del usuario.

**(FR)** L’intégration du module cellulaire LE910S1 dans l’application de l’utilisateur sera faite selon les règles de conception décrites dans ce manuel.

**(HE)** האינטגרציה של המודול LE910S1 בỨית גיוס ת$$$$ מ$$ית על פי ה$$קציות ה$$מפורט ב$$ה ה____$$ך עצם ה____$$כתי.$$לсталיט §® ת$לטיט produktów. זה המא$ן ת$$ מקוון ללא פא$ה המא$ן ת$לטיט §® אחרים מחברת ה____$$כלית ל____$라도 LE910S1

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## CONFIGURATION

LE910S1 module connected to UART port

SIM with data transfer capabilities

DELTA File

Before any “Firmware Over The Air” test can be run, Telit must provide new delta files. Each direction and version contains its own delta file named “system_patch.bin” which contains information about the booth firmware and target firmware.

Delta files are provided upon request each time FOTA is to be performed. For the new delta file refer to 1.3. Contact Information, Support

### 2.1 UART PORT

<table>
<thead>
<tr>
<th>PAD</th>
<th>Signal</th>
<th>I/O</th>
<th>Function</th>
<th>Type</th>
<th>Comment</th>
</tr>
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<tbody>
<tr>
<td>N15</td>
<td>C103/TXD</td>
<td>I</td>
<td>Serial data input (TXD) from DTE</td>
<td>1.8V</td>
<td></td>
</tr>
<tr>
<td>M15</td>
<td>C104/RXD</td>
<td>O</td>
<td>Serial data output to DTE</td>
<td>1.8V</td>
<td></td>
</tr>
<tr>
<td>M14</td>
<td>C108/DTR</td>
<td>I</td>
<td>Input for Data Terminal Ready (DTR) from DTE</td>
<td>1.8V</td>
<td></td>
</tr>
<tr>
<td>L14</td>
<td>C105/RTS</td>
<td>I</td>
<td>Input for Request to send signal (RTS) from DTE</td>
<td>1.8V</td>
<td></td>
</tr>
<tr>
<td>P15</td>
<td>C106/CTS</td>
<td>O</td>
<td>Output for Clear to send signal (CTS) to DTE</td>
<td>1.8V</td>
<td></td>
</tr>
<tr>
<td>N14</td>
<td>C109/DCD</td>
<td>O</td>
<td>Output for Data Carrier Detect (DCD) to DTE</td>
<td>1.8V</td>
<td></td>
</tr>
<tr>
<td>P14</td>
<td>C107/DSR</td>
<td>O</td>
<td>Output for Data Set Ready (DSR) to DTE</td>
<td>1.8V</td>
<td></td>
</tr>
<tr>
<td>R14</td>
<td>C125/RING</td>
<td>O</td>
<td>Output for Ring Indication (RI) to DTE</td>
<td>1.8V</td>
<td></td>
</tr>
<tr>
<td>K4</td>
<td>DEBUG_UART_TXD</td>
<td>O</td>
<td>Trace UART TX</td>
<td>1.8V</td>
<td>UART_DEBUG</td>
</tr>
<tr>
<td>M6</td>
<td>DEBUG_UART_RXD</td>
<td>I</td>
<td>Trace UART RX</td>
<td>1.8V</td>
<td></td>
</tr>
</tbody>
</table>

*Table 2: UART PORT*
3 FOTA PROCEDURE

Application is in charge to download the delta files from the dedicated server and to store them in the application memory. Then the application can start the firmware update procedure.

For successful FOTA execution, the module must be connected to the UART port. Before delta uploading, make sure HW flow control is set on both the terminal and the module.

Set the flow control by AT+IFC=2,2 command.

Send AT#OTAUPW=<deltaSize> where <deltaSize> is the real size in bytes of delta file.

If the delta file check procedure is correct, OK response will be given. After the first OK, send the delta file and wait for the second OK response which confirms that the delta file upload was successfull. Now the module is ready for the firmware upgrade that will start after manual reboot.

AT+CFUN=1,1 can be used for the purpose.

After the manual reboot the upgrade process starts silently without any information about the upgrade process in progress. At the end of the update process the module is in power off state, wait at least 2 minutes to ensure the correct and complete upgrade process.

The module has now upgraded to the new firmware version and manual turn on is required.

Double check the new firmware version with the AT#SWPKG command.
Figure 1: FOTA AT Commands steps

**Note:** FOTA is possible only over UART port.

The correct delta size will allow the delta upload, otherwise it will respond with an ERROR message.

If the first delta upload was unsuccessfull, following uploads will fail and you will need to reboot to restart the FOTA procedure.
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4.3 Safety Recommendations

Make sure the use of this product is allowed in your country and in the environment required. The use of this product may be dangerous and has to be avoided in areas where:
• it can interfere with other electronic devices, particularly in environments such as hospitals, airports, aircrafts, etc.
• there is a risk of explosion such as gasoline stations, oil refineries, etc. It is the responsibility of the user to enforce the country regulation and the specific environment regulation.

Do not disassemble the product; any mark of tampering will compromise the warranty validity. We recommend following the instructions of the hardware user guides for correct wiring of the product. The product has to be supplied with a stabilized voltage source and the wiring has to be conformed to the security and fire prevention regulations. The product has to be handled with care, avoiding any contact with the pins because electrostatic discharges may damage the product itself. Same cautions have to be taken for the SIM, checking carefully the instruction for its use. Do not insert or remove the SIM when the product is in power saving mode.

The system integrator is responsible for the functioning of the final product. Therefore, the external components of the module, as well as any project or installation issue, have to be handled with care. Any interference may cause the risk of disturbing the GSM network or external devices or having an impact on the security system. Should there be any doubt, please refer to the technical documentation and the regulations in force. Every module has to be equipped with a proper antenna with specific characteristics. The antenna has to be installed carefully in order to avoid any interference with other electronic devices and has to guarantee a minimum distance from the body (20 cm). In case this requirement cannot be satisfied, the system integrator has to assess the final product against the SAR regulation.

The equipment is intended to be installed in a restricted area location.

The equipment must be supplied by an external specific limited power source in compliance with the standard EN 62368-1:2014.

The European Community provides some Directives for the electronic equipment introduced on the market. All of the relevant information is available on the European Community website:

https://ec.europa.eu/growth/sectors/electrical-engineering_en
## 5 DOCUMENT HISTORY

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<th>Revision</th>
<th>Date</th>
<th>Changes</th>
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<td>2021-11-19</td>
<td>Updated to new template</td>
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<td>Minor changes on the language and legal notices updated</td>
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<tr>
<td>0</td>
<td>2021-10-14</td>
<td>First issue</td>
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