TC_TH
Description Redesign

RFID_UNI
2810b
V 0.1

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Revision history

Version	Date	Description	Author
0.1	10.07.2018	Document created	rter

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Content

1 Contents of the redesign

1.1 Reason

The first version of the RFID_UNI Module (2810a) was developed for use in an AP CC300 active multi-touch panel. Due the cost-effective design, this product is also interesting for use in other KEBA products, such as handheld terminals or passiv panels (i.e. OP515).

In order to expand the application possibilities without redesigning the existing KEBA products, it is necessary to provide more communication interfaces on the RFID_UNI Module.

1.2 Versions

The following placement variants of the module are taken into account, although not all variants are currently active. It is important that these are exclusively placement variants to handle different internal communication interfaces, such as RS485/UART/USB, etc. The HF part, which is installed under a shield cover, and the antenna is identical in all variants.

V1 RFID_UNI_USB_UART_5MM

V2 RFID_UNI_USB_UART

V3 RFID_UNI_RS485

V4 RFID_UNI_UART

V5 RFID_UNI_USB_DIRECT (currently not implemented and not relevant for the certification)

1.3 Requirements

The RF part may not be significantly changed in the course of the redesign, since it is already a certified product (according to FCC and IC). The supply voltage generated on the PCB has also a significant influence on the HF properties – this must not be changed either.

Changes, with the exception of the additional control line, may therefore only be made outside the shield cover.

Next, the aim is to conduct a Class II permissive change and continue to use the same FCC-ID and IC-ID.

2 General Information

2.1 Company name and device

In the course of the redesign (internal job number 2810a → 2810b), as few as necessary changes were made. The following registration data is used.

2.1.1 Industry Canady (IC)

It is a new firmware necessary because the additional internal communication interfaces (i.e. RS485) must be controlled in a different way (FVIN).

Company Number:	20800
Company Name:	KEBA
ISED Certification Number:	20800-RFIDUNI
HVIN:	RFID_UNI
PMN:	RFID UNI Module
HMN:	---
FVIN:	**NEW (old firmware version: 102118_00)**
Equipment Description:	RFID Module
Type of Radio Equipment:	RFID Device Limited Modular Approval
IC-ID:	20800-RFIDUNI

2.1.2 Federal Communications Commission (FCC)

FCC-ID: U870008

2.2 Changes in Circuit Design

2.2.1 General Changes to existing design

The following changes have been made to internal job number 2810a → 2810b in the schematic in all versions.

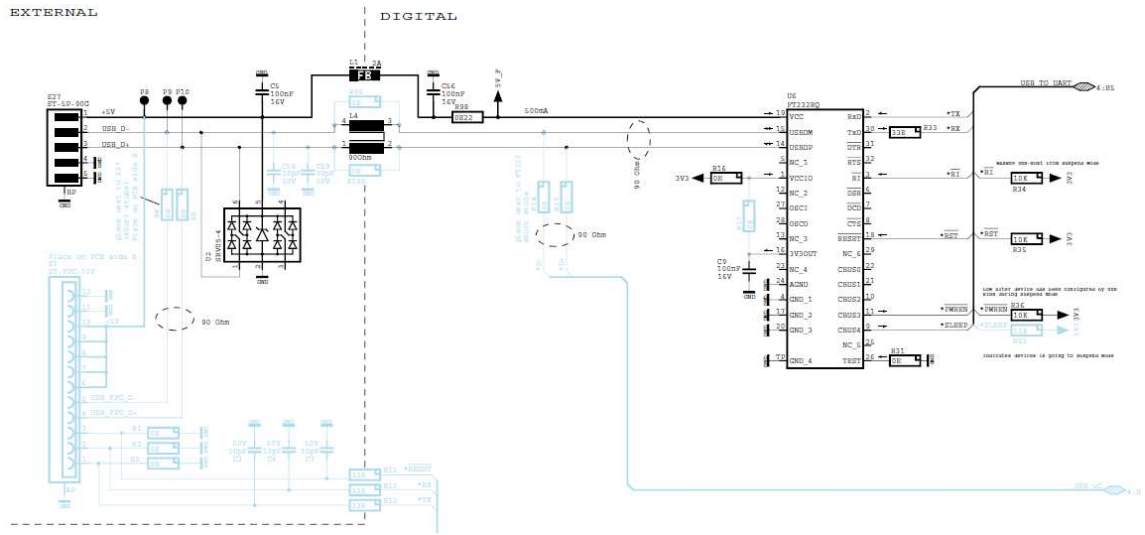
- Connector S1 (12-P) removed; only one more connection option (S27 / 5-P)
- IC-U25 ISL83072 (RS485 transceiver) added
- Control line (EN) between U4 (LPC11E6x) and RFID-Chip U5 (TRF7970A) was pin swapped at U4 from pin #30 to pin #25. The reason for this pin swap is that the previously existing EN output of the LPC11E6x is required for RS485 driver switching.

All key components like µController or RFID chip have remained the same.

2.2.2 Differences in the versions

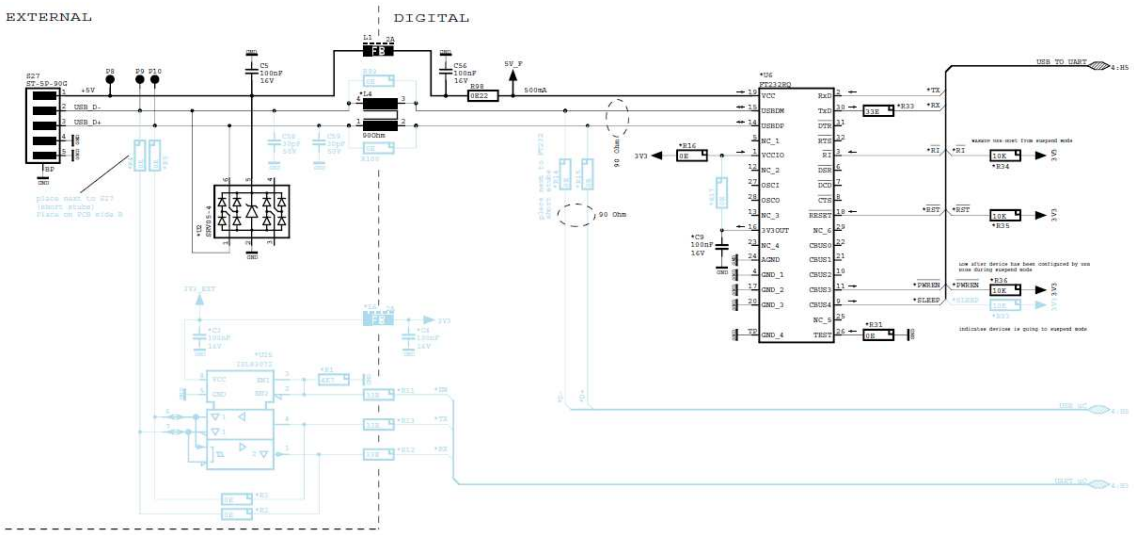
Annotation: *'blue'* components are not equipped in this version.

2.2.2.1 Old version 2810a (is replaced)



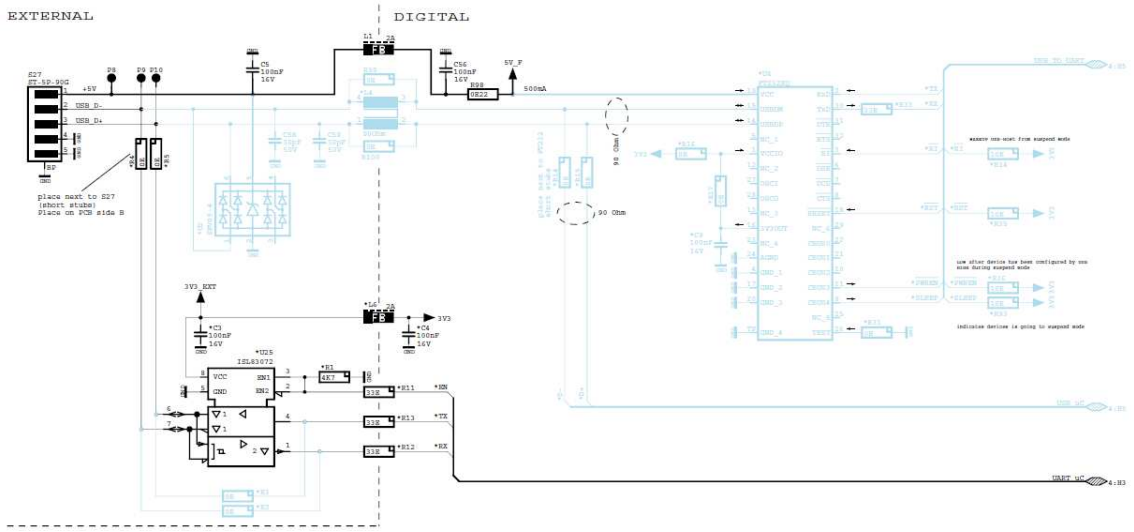
Two connectors for internal communication, no RS485 transceiver available.

2.2.2.2 V1_USB_UART_5MM or V2_USB_UART



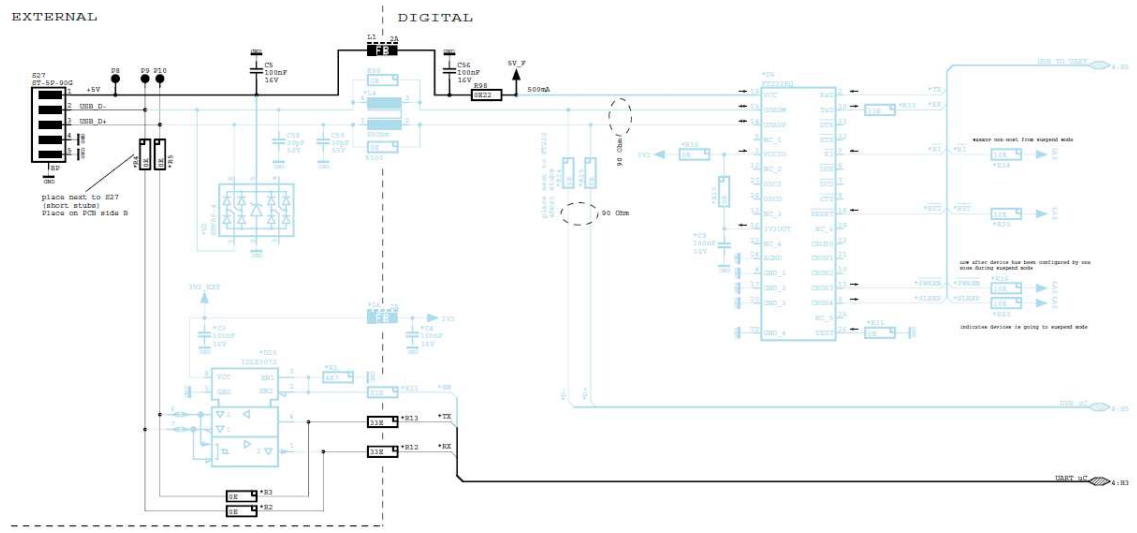
Internal communication via USB (existing design; internal job number 2810a → 2810b)
V1: 5mm spacer soldered
V2: ident to V1, but 8mm spacer soldered

2.2.2.3 V3_RS485



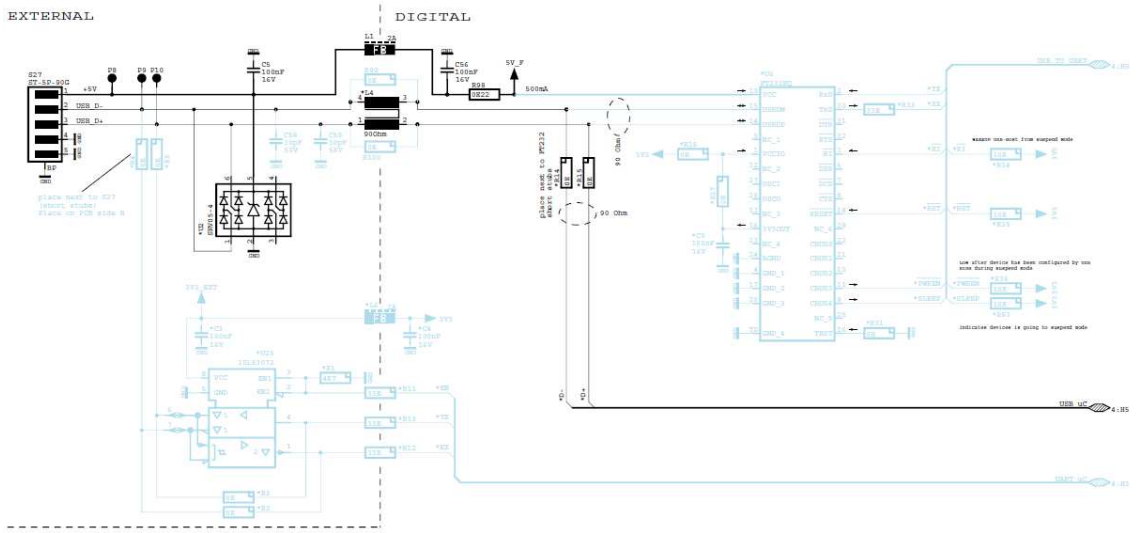
Internal communication via RS485 (NEW; internal job number 2810b)

2.2.2.4 V4_UART



Internal communication via UART (directly from LPC11E6x; NEW; internal job number 2810b)

2.2.2.5 V5_USB_DIRECT (not implemented → not relevant for certification)

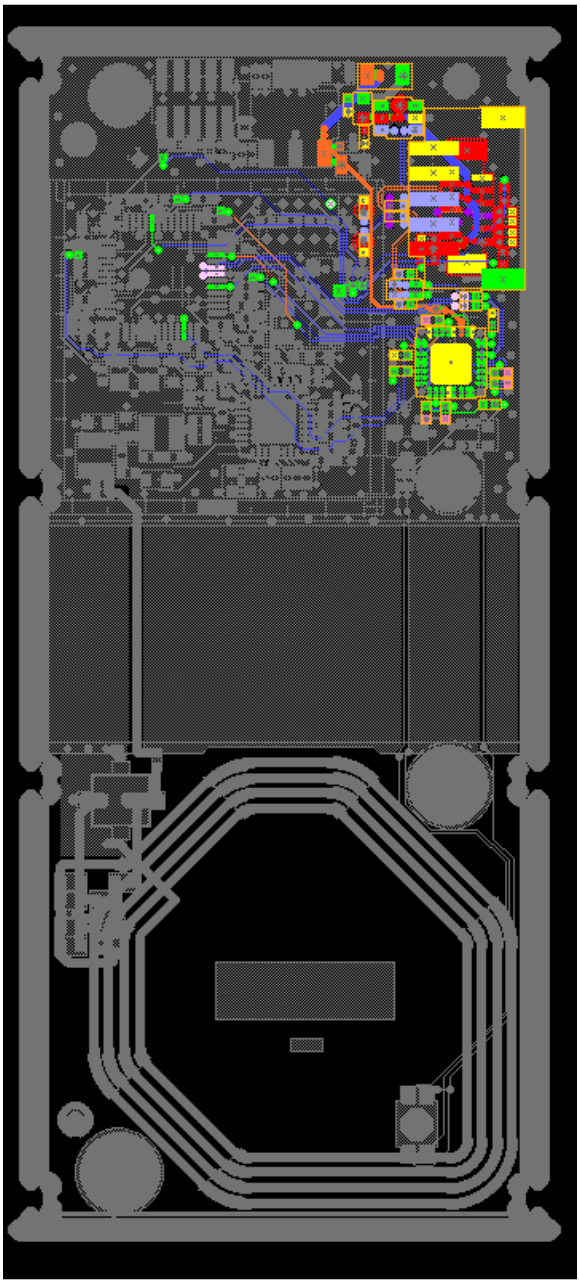


Internal communication via USB directly from LPC11Exx → for this version an exchange of the µController would be necessary and is not implemented at the moment.

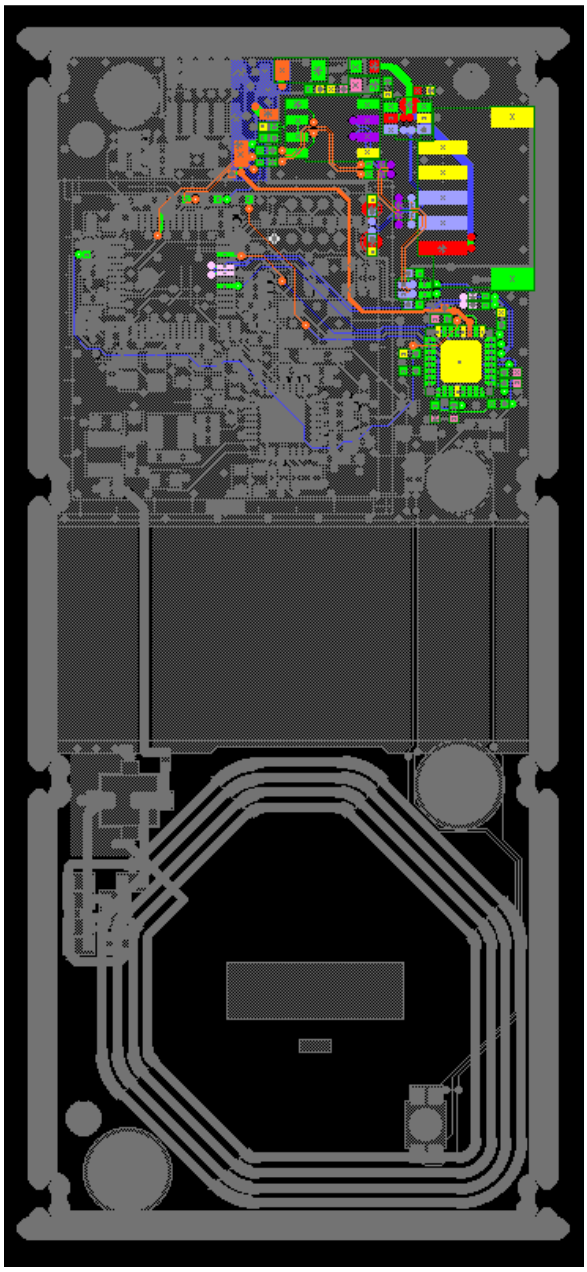
2.3 Changes in Layout Design

The following changes were made due to the adaption of the communication interfaces on the existing design.

2.3.1 Internal job number 2810a



2.3.2 Internal job number 2810b (NEW VERSION)



2.3.3 Layer Stack

The layer stack is ident in both designs.

3 Assessment

Due to the very limited changes in the design and the fact that the HF part has not been changed, it can be assumed that the redesign has no negative effects on the behavior of the PCB.