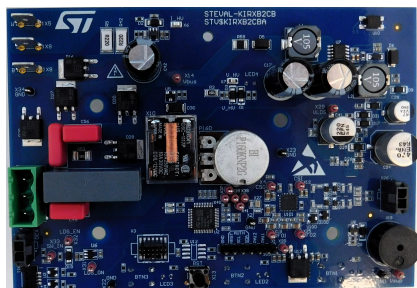


Ki cordless kitchen receiver (blender) evaluation board with compact form factor



The picture shown is for illustration purpose only.
Actual product may vary depending on buyer's selection and availability.

Features

- Designed for Ki cordless kitchen receiver (blender)
- Dynamic power transfer with Ki control type 0
- NFC based communication between transmitter and receiver
 - Enables auxiliary power and bidirectional data path
 - Essential for interoperability and safety
- Comprehensive safety mechanisms
- Market-proven BOM, adopted in Ki certified products currently available on the market

Description

The **STEVAL-KIRXB2CB** is a Ki cordless kitchen receiver, specifically designed for blender appliances to be powered and controlled via a Ki wireless power transmitter (**STEVAL-KITXCB**).

Ki cordless kitchen is a relatively new standard for wireless power initiated by the Wireless Power Consortium (WPC). This standard targets to replace traditional kitchen appliances using power cords (for example, mixer, toaster, rice cooker, coffeemakers) and to combine eventually with induction cooktop with efficiency > 90% of equivalent corded devices required up to 2.2 kW.

Thanks to the **ST25R3918** multipurpose NFC transceiver, the system ensures seamless communication and power negotiation with the base station (PTx) to optimize power transfer in static mode and ensure safety compliance.

The **STEVAL-KIRXB2CB** also integrates energy harvesting to power up the user interface, minimize standby energy consumption, and support low-power functions independently of the main power transfer.

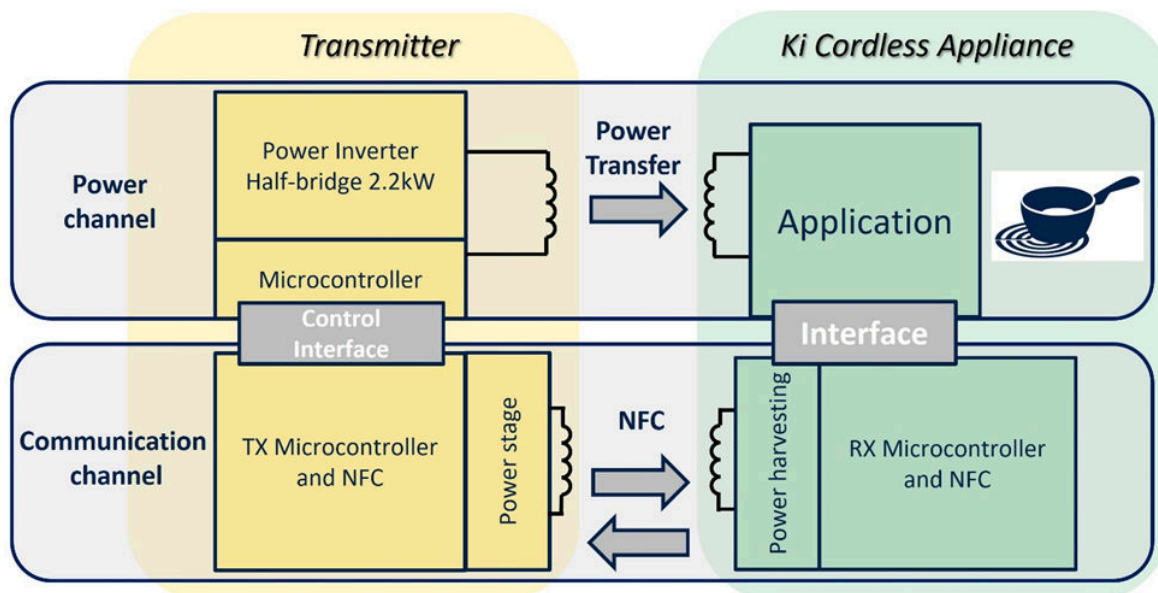
Secure device authentication and pairing with the PTx is achieved using the STSAFE secure element, providing reliable verification.

The compact form factor evaluation board is designed to address space constraints typical in modern kitchen appliances, enabling appliance manufacturers to innovate with form factors and aesthetics, supporting sleek, modern kitchen designs aligned with consumer preferences.

Product summary	
Ki cordless kitchen receiver (blender) evaluation board with compact form factor	STEVAL-KIRXB2CB
Ki cordless kitchen transmitter evaluation kit	STEVAL-KITXCB
Multi-purpose NFC transceiver	ST25R3918-AQET
Mainstream Arm Cortex-M0+ MCU with 128 Kbytes of Flash memory, 36 Kbytes RAM, 64 MHz CPU, 4x USART, timers, ADC, DAC, comm. I/F, 1.7-3.6V	STM32G071CBT6
VIPerPlus family: Low voltage energy saving fixed frequency high voltage converter	VIPER013HS
600 V, 5 A Ultrafast Diode	STTH506B-TR
Applications	Induction cooking

1 Ki cordless kitchen architecture block diagram

Figure 1. Ki cordless kitchen architecture



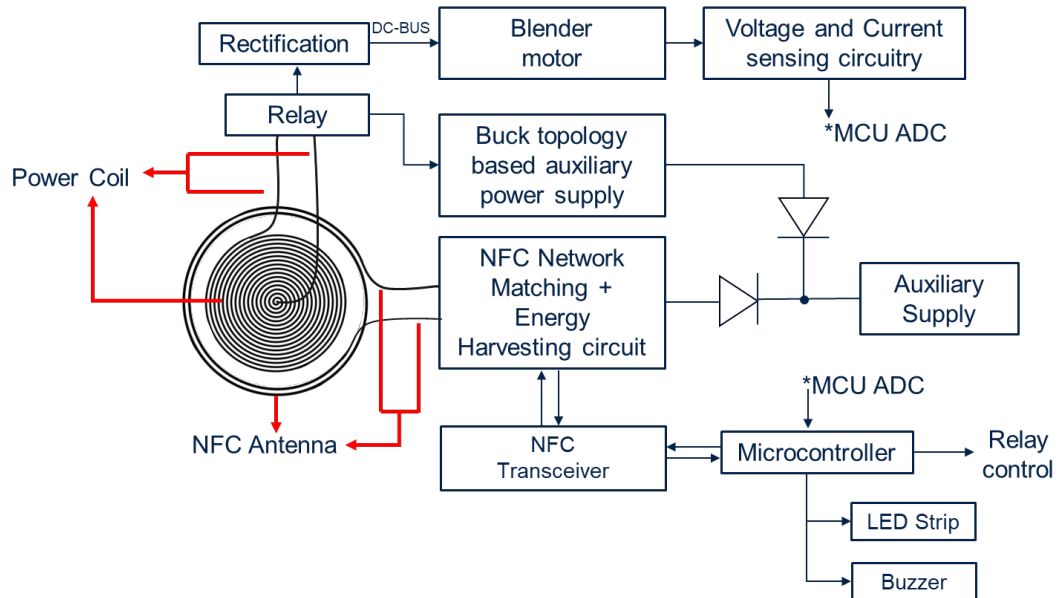
The architectural block diagram has been highlighted in Figure 1.

The blender receives power wirelessly through inductive coupling, eliminating the need for direct electrical contacts, enhancing safety (no cords, liquids spilled) and convenience in kitchen environments.

The communication between transmitter and Ki appliances is based on NFC.

2 STEVAL-KIRXB2CB block diagram

Figure 2. STEVAL- KIRXB2CB ki cordless kitchen receiver (blender) block diagram



In addition to efficient power reception, the **STEVAL-KIRXB2CB** evaluation board features an integrated NFC section—including front-end circuitry and matching network—along with an NFC energy harvester, a high-voltage auxiliary power supply, and a load disconnect switch to support essential protection functions.

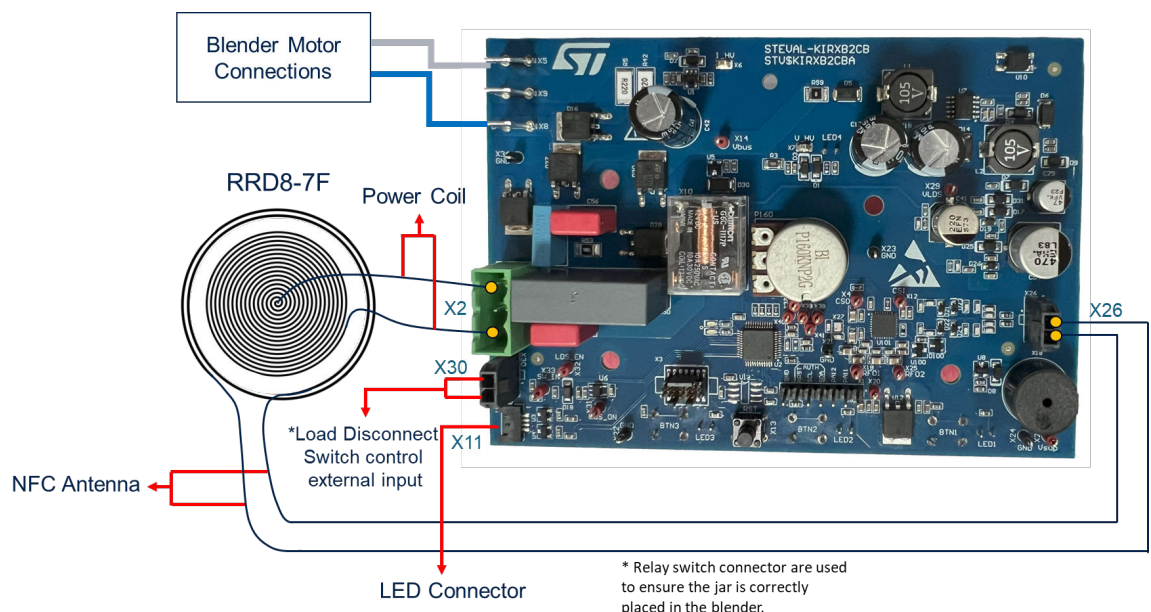
The **STEVAL-KIRXB2CB** features a rectification stage, to provide DC bus to the motor, along with RMS voltage sensing to control motor speed.

During connected mode, the user interface of the receiver is supplied by NFC energy harvesting (limited to 200 mW) and during power mode the NFC energy harvesting stops and auxiliary power supply is supplied by the buck topology-based circuitry.

To evaluate the performance, the connections of the evaluation board with the blender have been highlighted in **Figure 3**.

The power coil used is RRD8 (You can refer to the Ki standard).

Figure 3. STEVAL- KIRXB2CB connection diagram



3 Schematic diagrams

Notice: These schematics are for illustration purpose only. Actual product may vary depending on buyer's selection and availability.

Figure 4. STEVAL-KIRXB2CB - Circuit schematic (1 of 3)

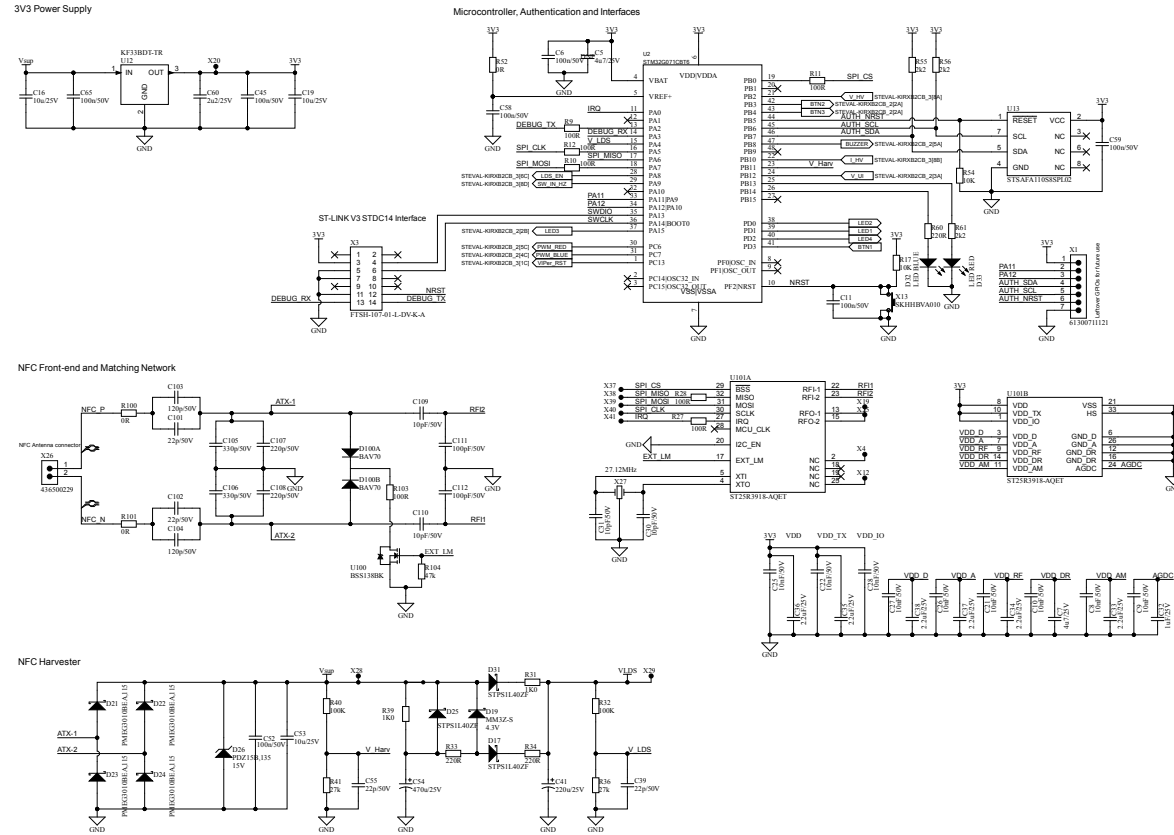
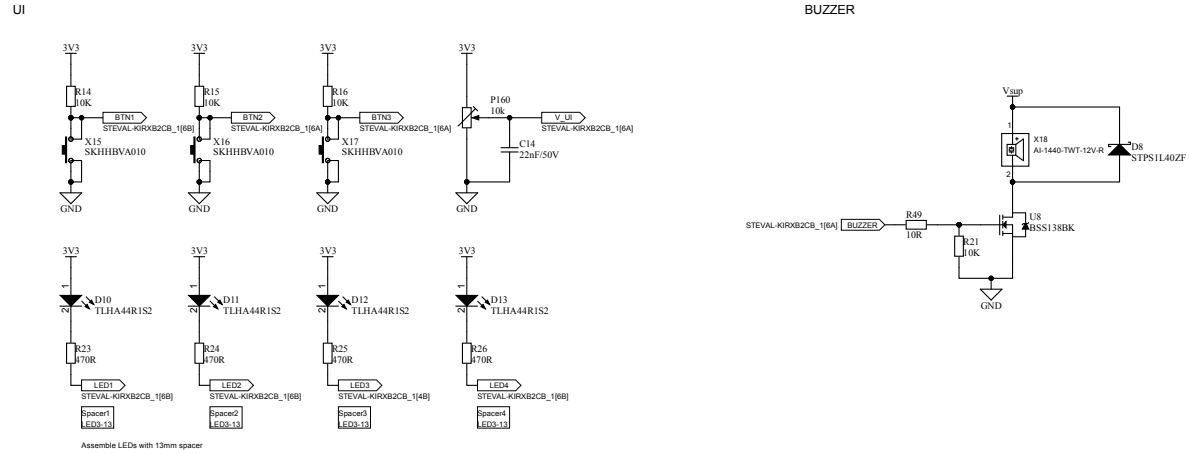


Figure 5. STEVAL-KIRXB2CB - Circuit schematic (2 of 3)



LED Strip PWM

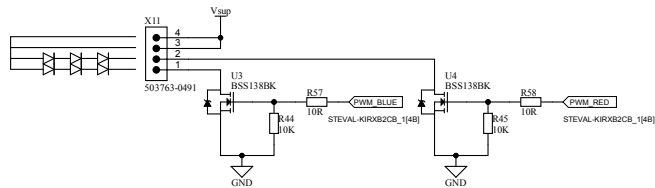
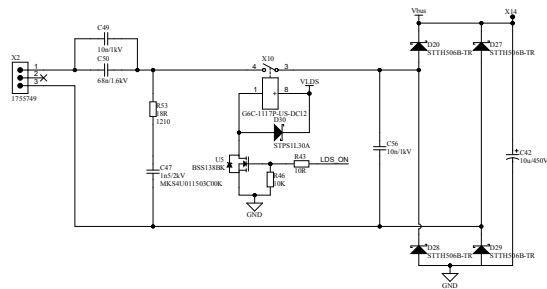
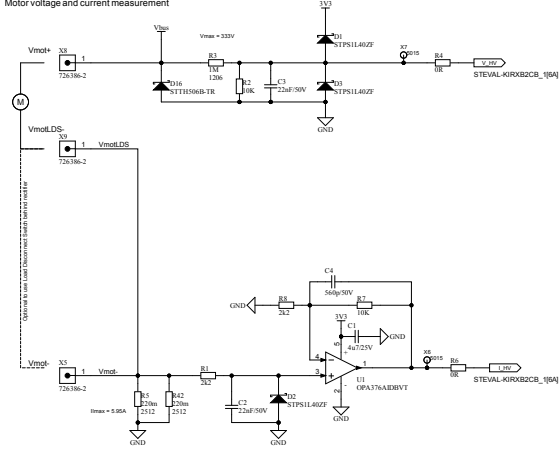


Figure 6. STEVAL-KIRXB2CB - Circuit schematic (3 of 3)

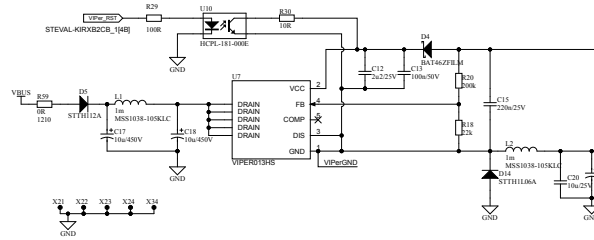
Load Disconnect Switch



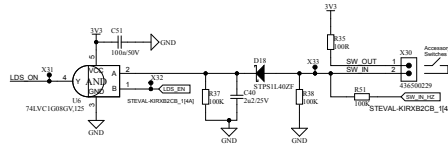
Motor voltage and current measurement



ViPer 12V Power Supply



Load Disconnect Switch Controller





4 Custom evaluation boards information

Notice: *These evaluation boards are custom designed and built, in small quantities, according to specific requests from customers and are destined for evaluation and testing of ST products in a research and development setting. Please contact ST to provide your specific requests and get your custom built board(s).*

Revision history

Table 1. Document revision history

Date	Revision	Changes
22-Dec-2025	1	Initial release.

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