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# A Ki compliant cordless kitchen appliance on a legacy induction hob

## Part 2

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Philips
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innovation you

# From WPC 1805 (Munchen)

- A legacy Inductive hob might power/activate a Ki compliant cordless kitchen appliance
- Because of the absence of communication means in the legacy Inductive hob this power flow cannot be controlled and might lead to unexpected behaviour and/or unsafe conditions for the end user
- Induction Hob manufacturers dislike undefined / unsafe situations



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# Examples of legacy inductions hob’s

Kitchen hob

Portable induction cook top



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# Equipment used for this study

- Philips Cordless multi cooker (demonstrator)
- F_repeater coil = 28 KHz (tuned)

- IKEA Portable induction cooktop Tillreda)
- F_inverter = 28 KHz



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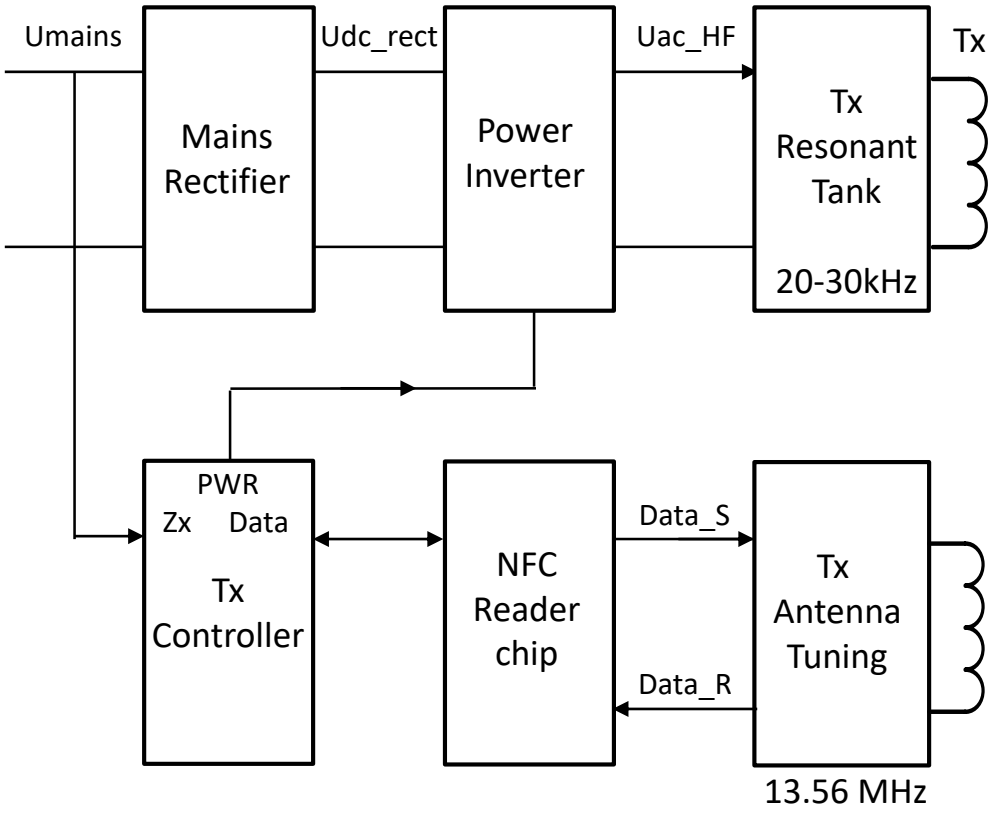
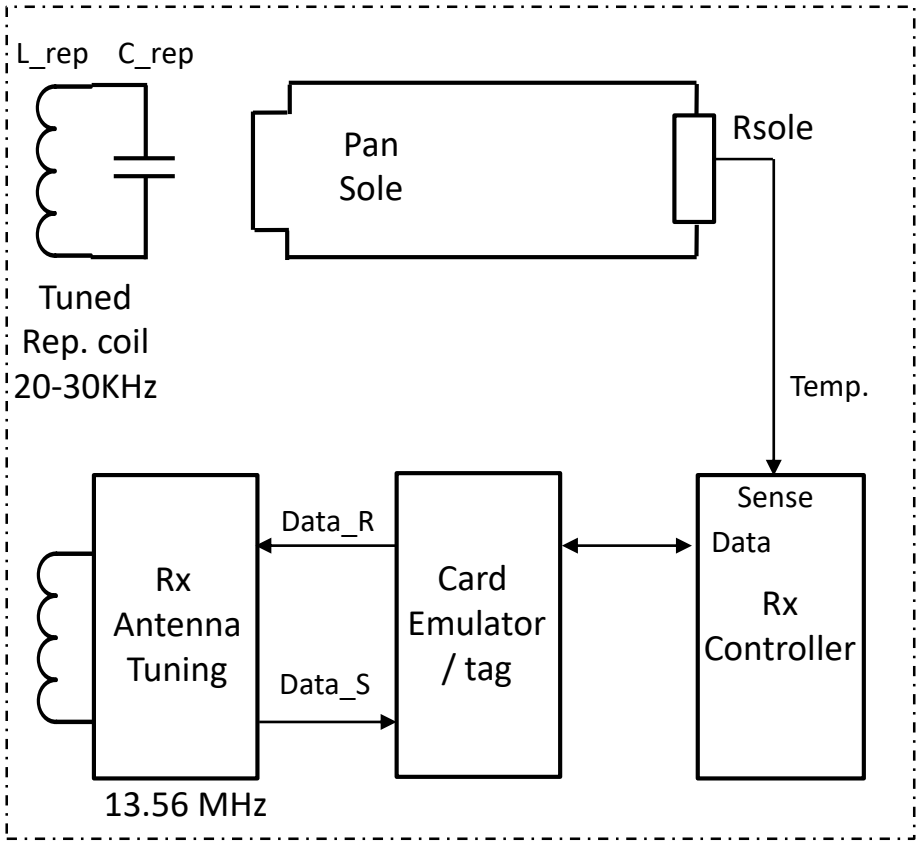
# Ki power transmitter & Ki power receiver




Smart pan with Repeater coil



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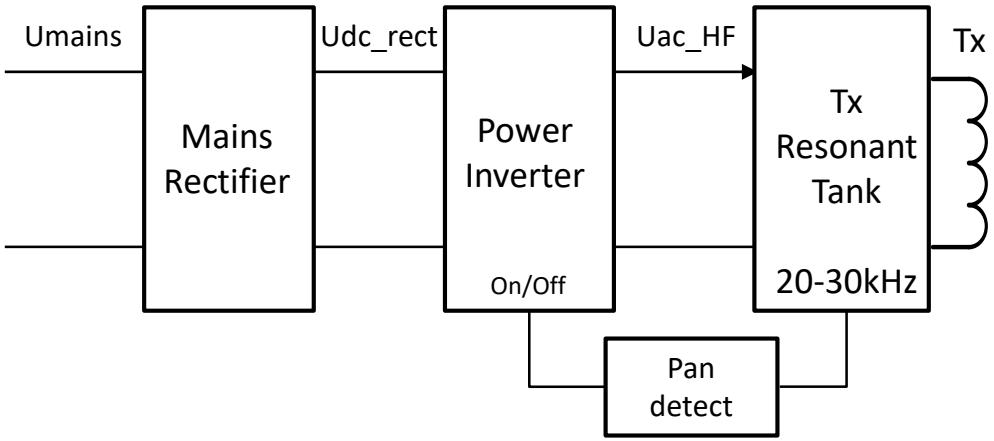
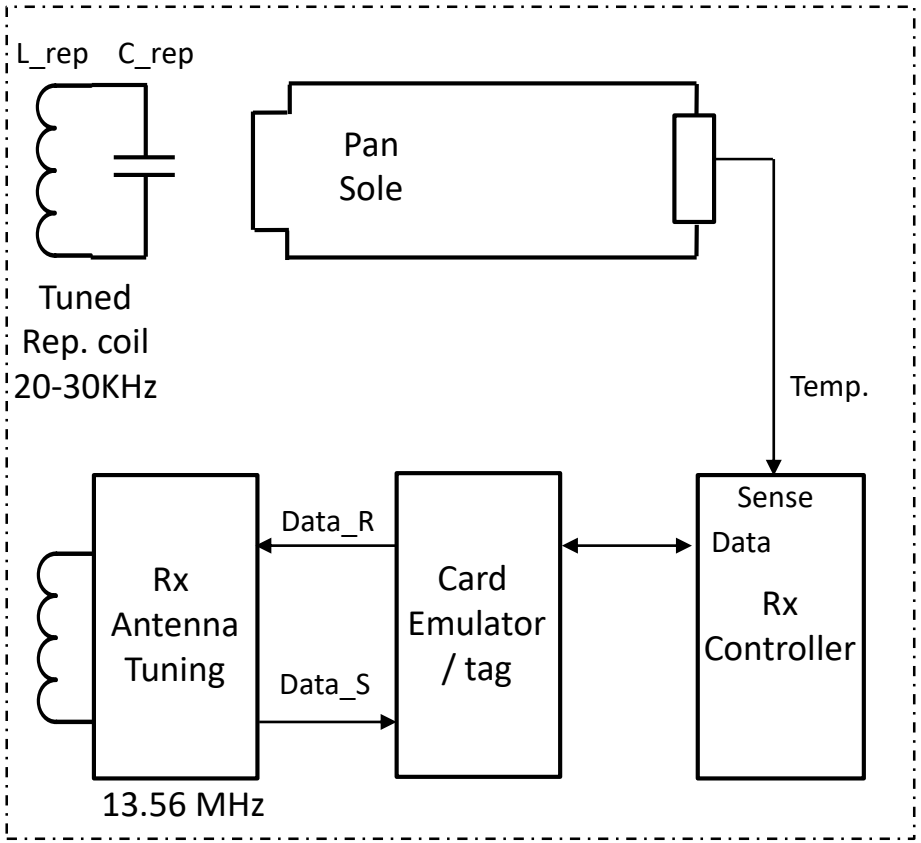
# Legacy power transmitter & Ki power receiver




Although the Pan sole is relative far away from the Tx coil, it is detected by the legacy Tx due to the tuned repeater coil!!




Smart pan with Repeater coil



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# Test set up

Ki multi cooker on top
of
legacy induction hob

Measure temperature
in empty pot



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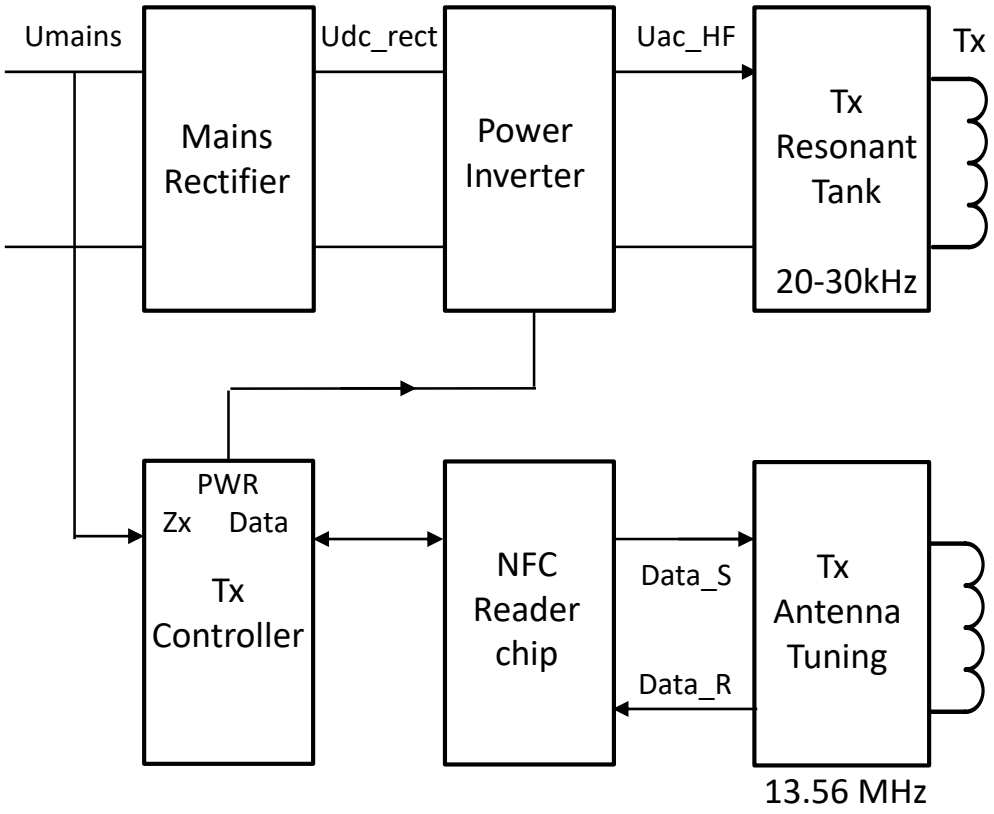
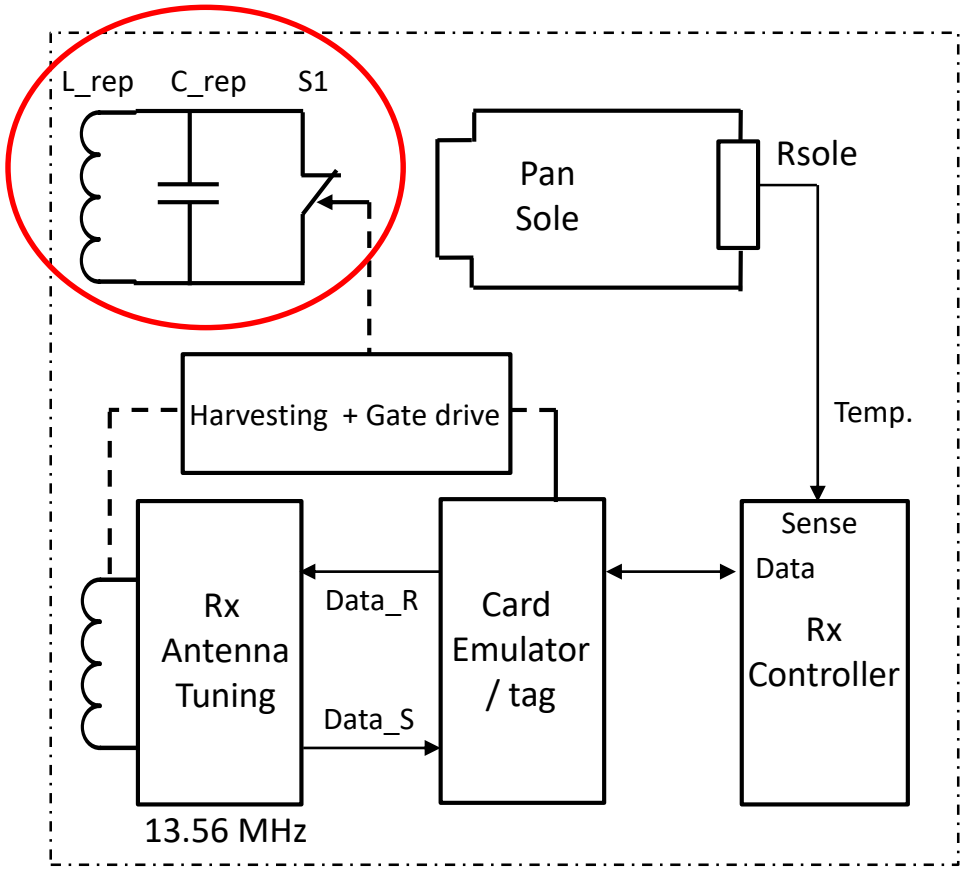
# Ki power receiver with a short switch S1




Ki Power Tx




Ki Power Rx (smart pan)



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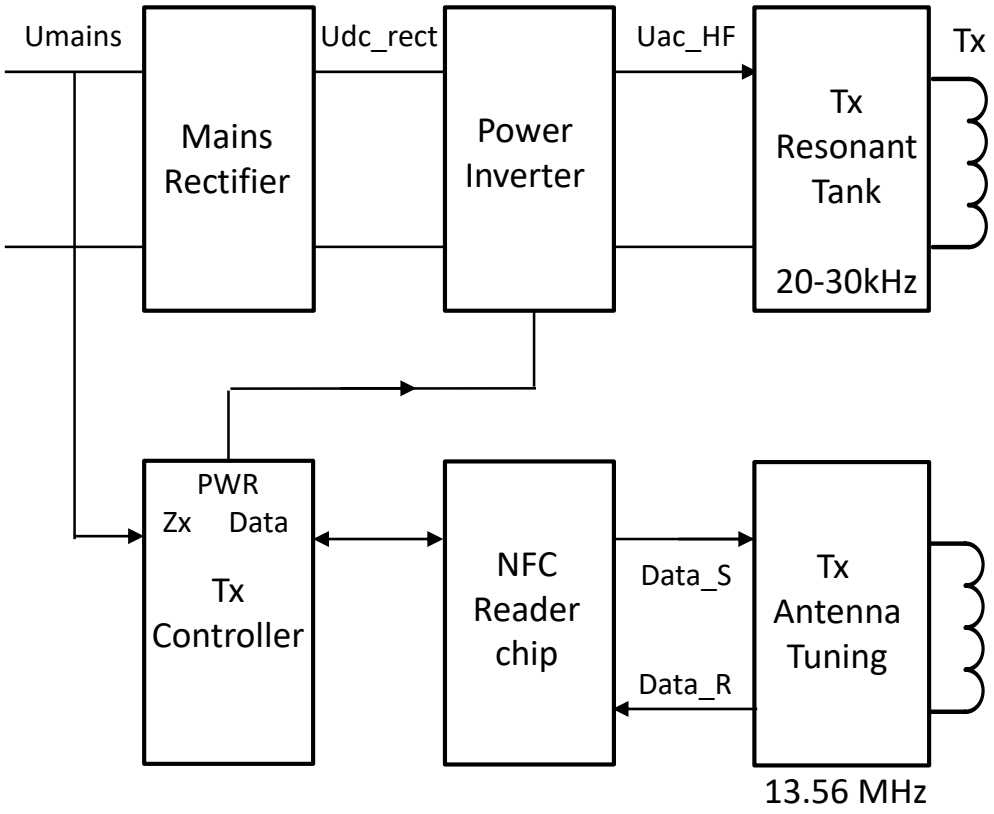
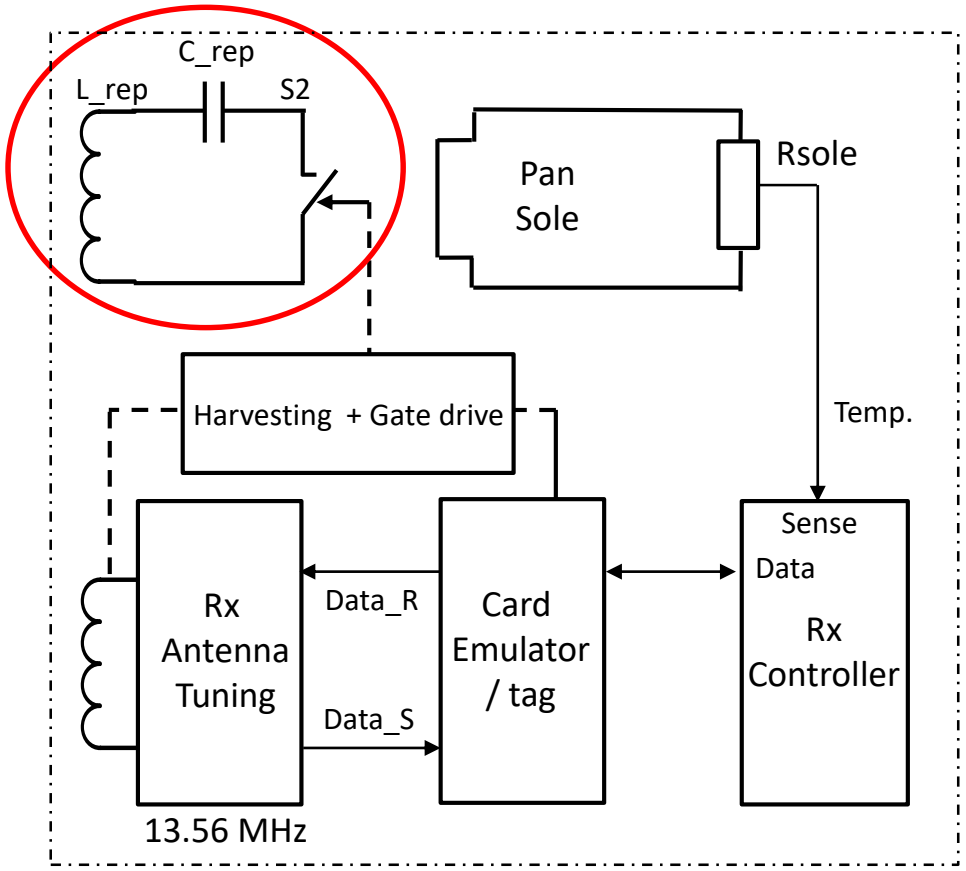
# Ki power receiver with a series switch S2




Ki Power Tx




Ki Power Rx (smart pan)



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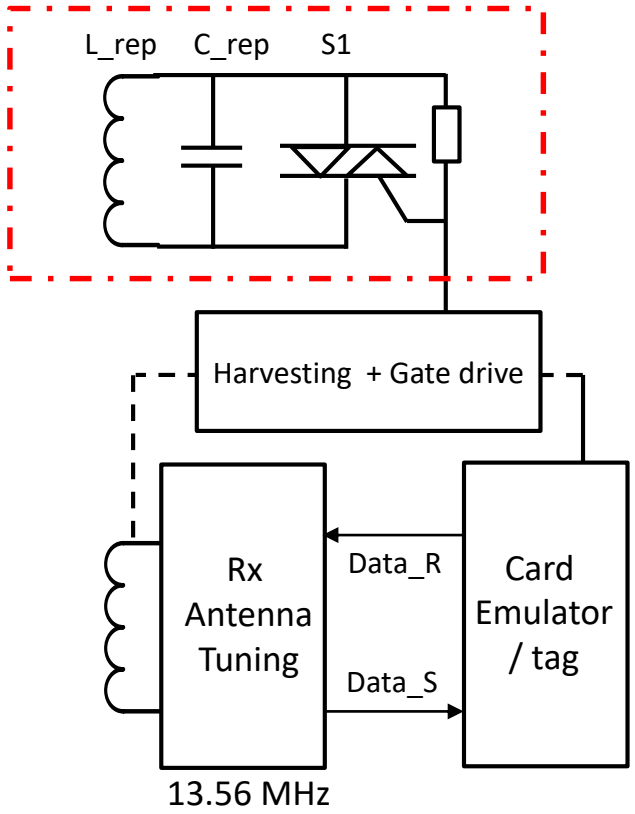
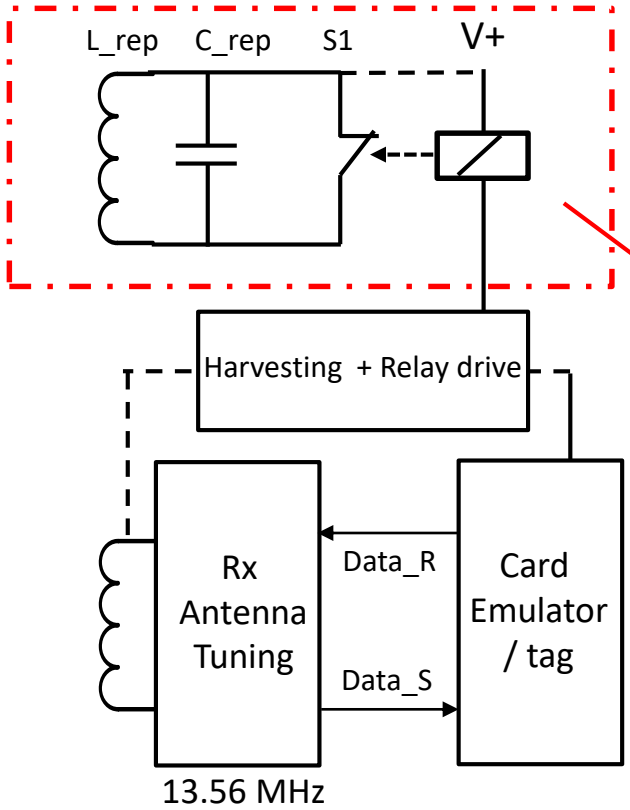
# Implementation examples “short” switch

## Solid state




## Relay




- No conduction losses during normal operation
- Although shorted, the RMS current through Lrep is limited

Bi-stable relay!



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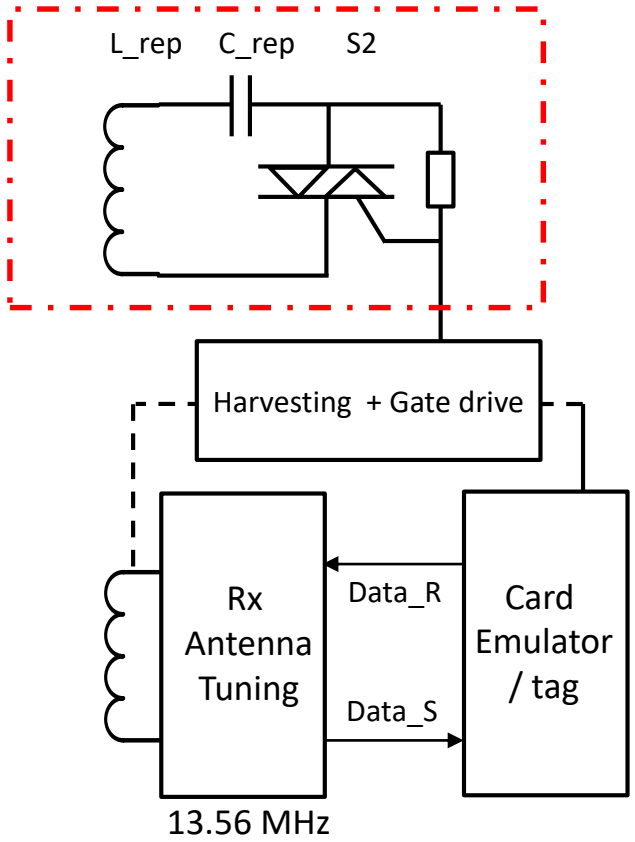
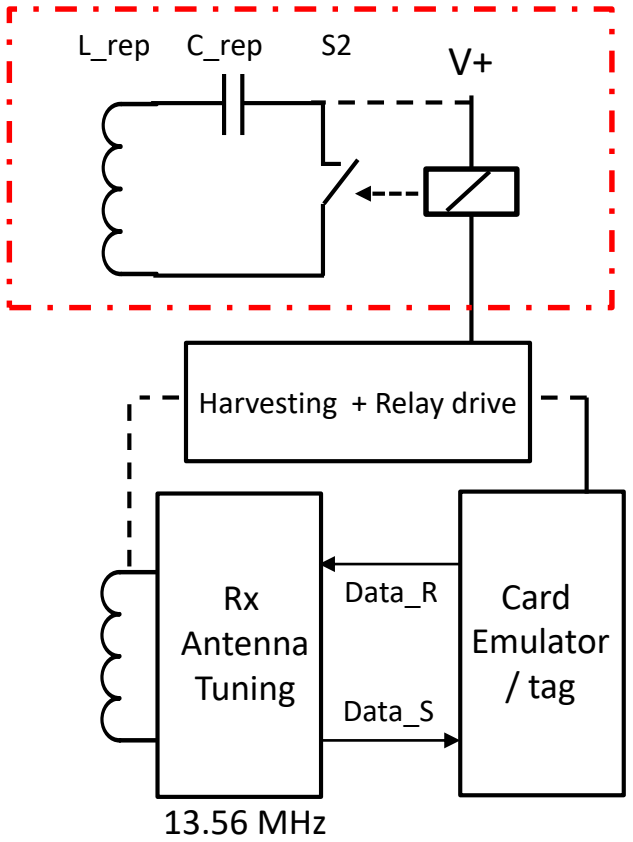
# Implementation examples “series” switch

## Solid state




## Relay




- Conduction losses during normal operation !!!

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# Discussion:

A. Is this a safety requirement?
   - Then it becomes a mandatory requirement
   - A compliance test is required

B. Is this a unwanted situation?
   - Advisory note in the specification

# Conclusion:

- The unexpected behaviour can be solved at the receiver side
- After communication is established the switch is released / connected
- Additional cost & complexity is involved

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