Precision agriculture in vineyards using a low-power wide-area wireless sensor network

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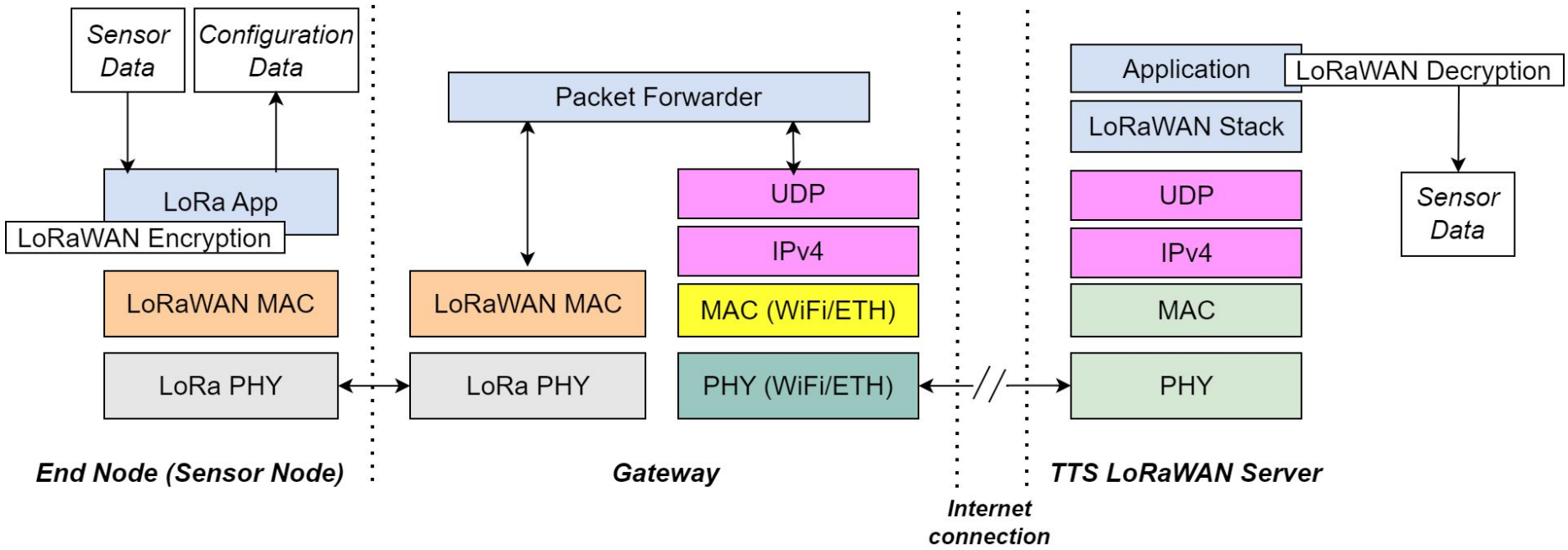
Thesis chapters progress

Additional Info

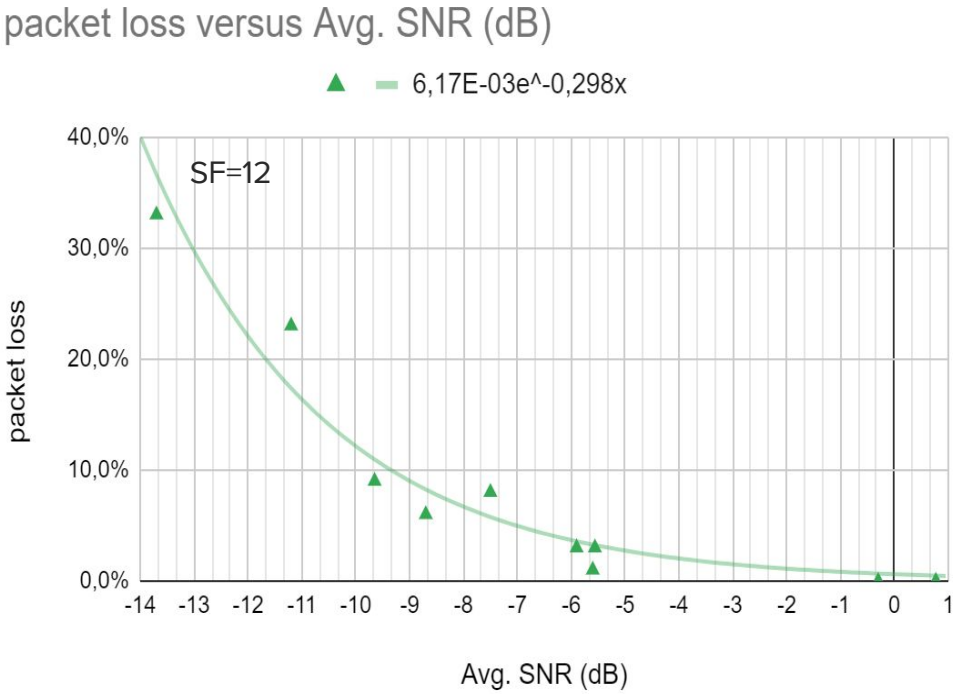
- ***Network Architecture:*** checking the Dragino manual, and available information, the device implements a custom UDP packet forwarder, from Semtech. The network layers for the platform would look like:



Additional Info

- Comparing the obtained results with literature:

Number of LoRa Symbols transmitted: 16



Simulation Results:

Number of LoRa Symbols transmitted: 10

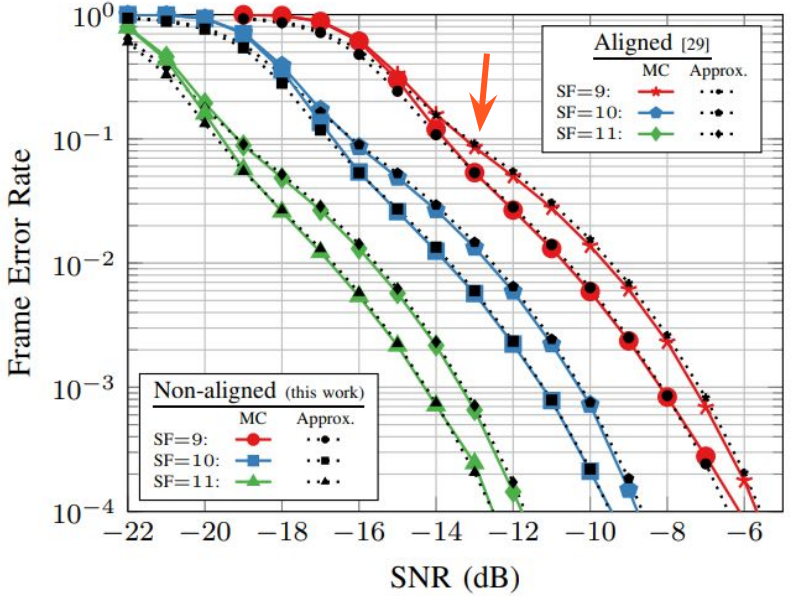
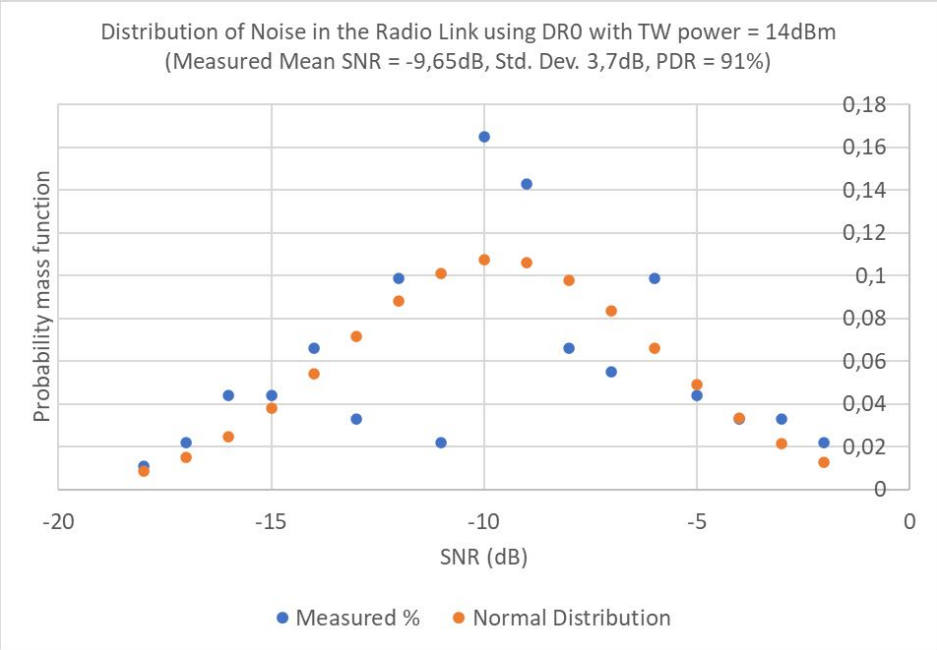
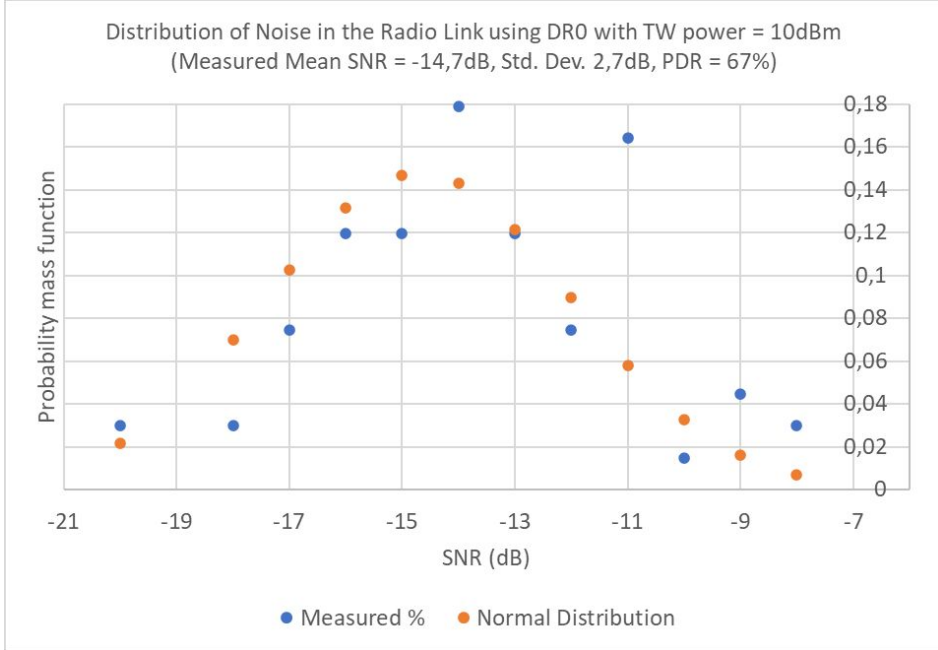


Fig. 9. Frame error rate of the LoRa modulation for a frame length $F = 10$ under AWGN and same-SF interference for SF $\in \{9, 10, 11\}$ and $P_I = -3$ dB. The approximations of [29] and (63) are shown with black dotted lines.

Additional Info

- SNR probability mass function: demonstration that the noise in the channel behaves like AWGN.





Outlook

- Next steps:
  - Finish remaining chapters of the thesis.
  - Sign Frontespizio.
  - Finish SHT30 sensor driver, include data in the LoRaWAN frame.
  - Test the LoRaWAN software transmitting from the NUCLEO boards to the gateway and to the Network server (maybe deploy it in a local machine).