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Utilities concerns regarding power consumption for smart metering with NB-IoT

VEOLIA USE CASES FOR IoT

Veolia designs, deploys and operates solutions for **water**, **waste** and **energy** management, participating in the sustainable development of cities and industries.



WATER

Management of the global water cycle,



WASTE

Liquid and solid non-hazardous and hazardous waste management



ENERGY

Energy efficiency, efficient management

WATER METERING IS OUR MOST DIFFICULT USE CASE

Requirements:

- 15 years UE battery life
- 100 bytes payload twice a day
- Non-latency sensitive
- Deep Indoor coverage
- 164 dB MCL



Current solution : LoRa MAC

All requirements are met but operating its own network is not a sustainable solution for Veolia.



KEY power consumption points:

- < 3s transmission
- 30 mA peak current
- 14 dBm power output



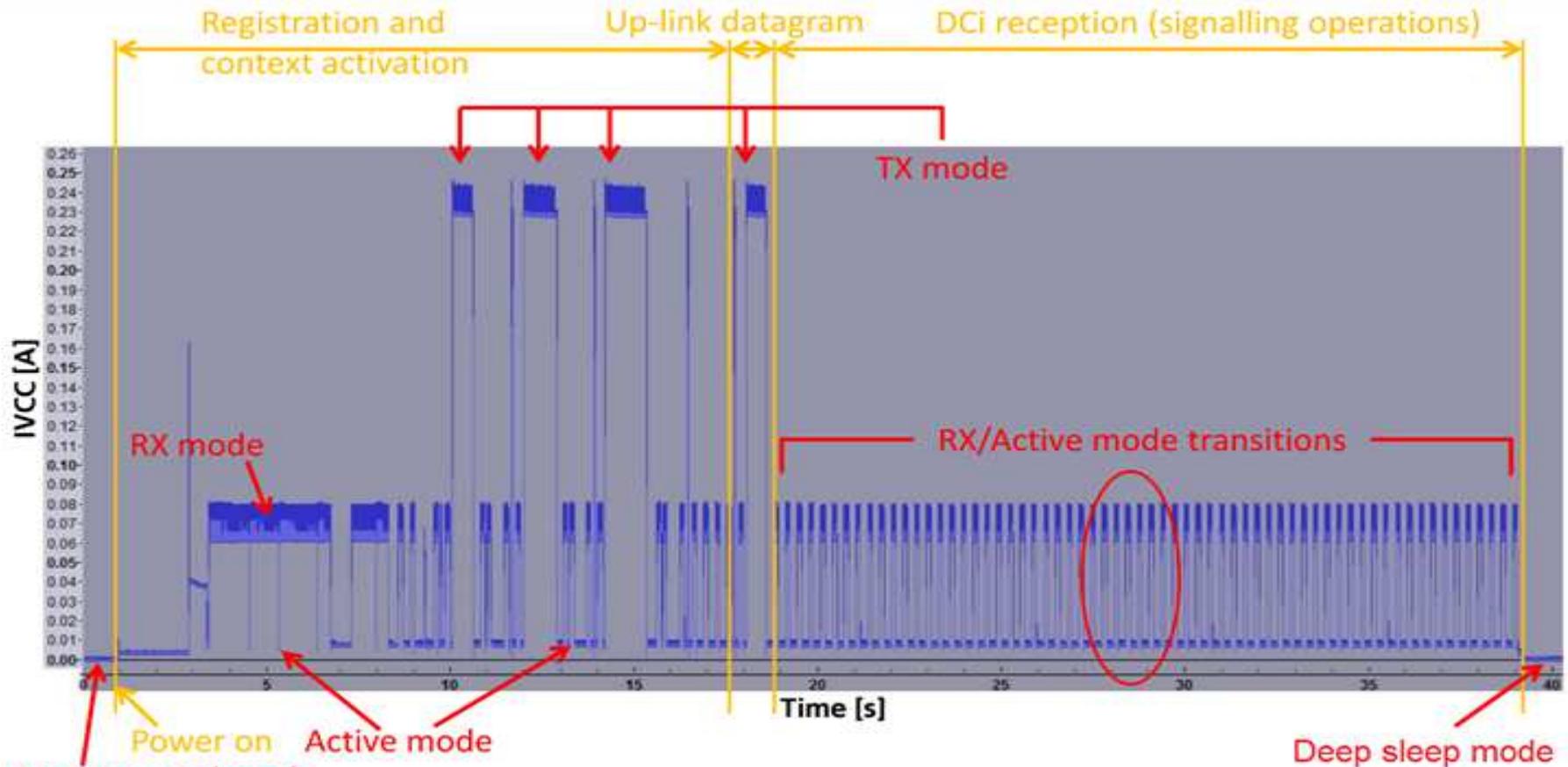
15 years battery life achieved

Saft LS17500 :

- Nominal capacity 3.6 Ah
- Max peak current 250 mA



Future solution : NB-IoT



KEY power consumption points:

- ⦿ ~40s transmission
- ⦿ 250 mA peak current
- ⦿ 23 dBm power output



We **strongly doubt** to reach even 10 years battery life with our use case requirements. As confirmed already by some 3GPP members documents:

- ⦿ RP-170172 - Samsung
- ⦿ R1-1701044 - Ericsson
- ⦿ RP-170469 - Mediatek



Release 14 perspectives for Smart Water Metering

Original objectives of Release 14 for NB-IoT are:

- ④ Even lower cost than eMTC
- ④ Extended coverage: 164 dB maximum coupling loss
- ④ Long battery life: 10 years with 5 Watt Hour battery (depending on traffic and coverage needs)
- ④ Support for massive number of devices: at least 50.000 per cell

Major efforts were made by 3GPP during Release 13 and Release 14 to reduce power consumption. However the above objectives are not met.

Smart water metering which is the use case that could secure the success of NB-IoT can not be addressed with the current performances of the protocol.





THANK YOU