

3GPP TSG RAN WG1 Meeting #88-Bis
Spokane, USA, 3/7 April 2017
Document for: Information
Source: Veolia



R1-1706202

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

UTILITY 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 THE 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.



KEY power consumption points:

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



15 years battery life achieved

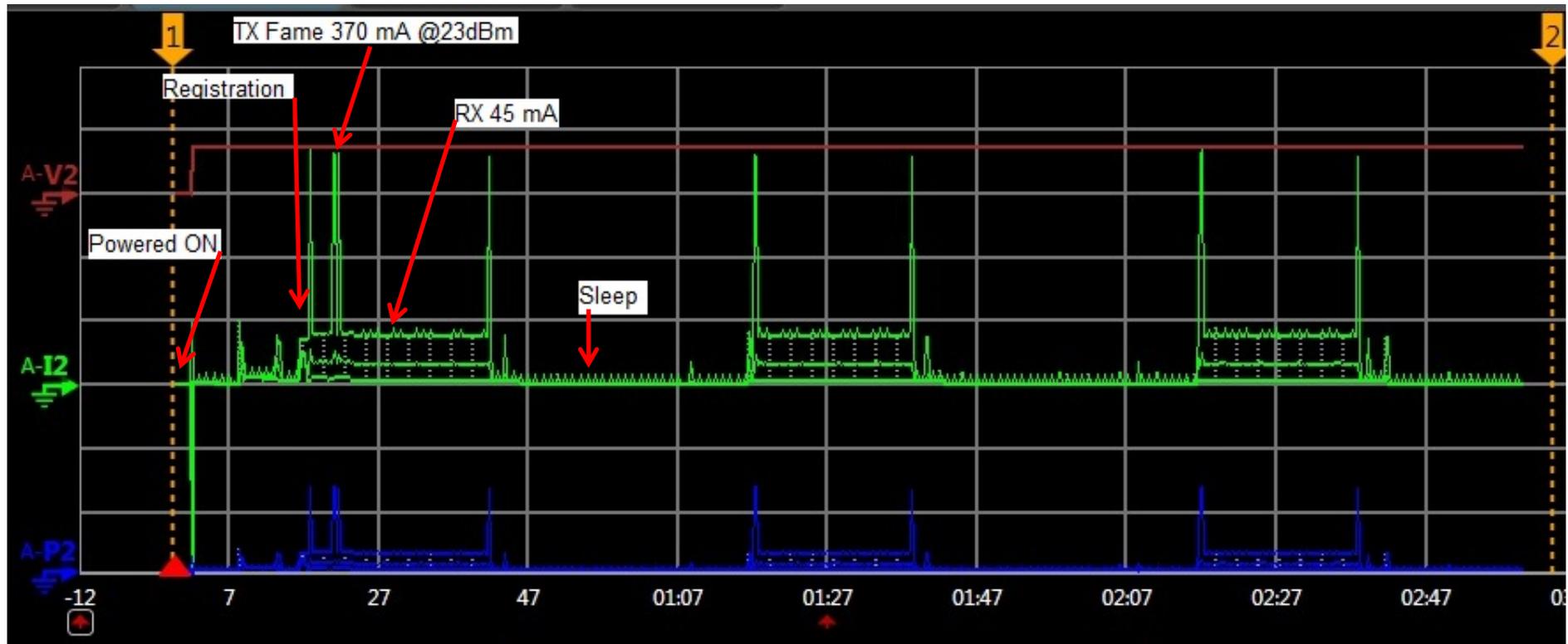
Saft LS17500 :

- Nominal capacity 3.6 Ah
- Max peak current 250 mA



Investigated solution: NB-IoT

Tests conducted in the NB-IoT open lab in UK (27/28 of March 2017).



KEY power consumption points:

- ⦿ ~30s transmission
- ⦿ 370 mA peak current
- ⦿ 23 dBm power output



It is highly **doubtful** to reach even 10 years battery life for water metering use case. 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:

- ① Even lower cost than eMTC
- ① Extended coverage: 164 dB maximum coupling loss
- ① Long battery life: 10 years with 5 Watt Hour battery (depending on traffic and coverage needs)
- ① 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.

Work on power consumption features needs to be prioritized and accelerated





THANK YOU