

10 Things About LoRaWAN™ & NB-IoT

Complementary Solutions Based on Your Needs

1 Ecosystem

LoRaWAN

LoRa Alliance™ members

NB-IoT

3GPP, GSMA

2 Spectrum

LoRaWAN

Unlicensed (ISM sub-1 GHz)

LoRa® is optimized for ultra low power, long range IoT sensors as the spectrum is free

NB-IoT

Licensed (LTE spectrum)

NB-IoT uses expensive licensed cellular spectrum, optimized for spectrum efficiency

3 Deployment Status

LoRaWAN

Worldwide deployments with over 50 million sensors today; 83 announced public network operators in 49 countries today; many more private enterprise networks

NB-IoT

Approximately 25 countries announced; 40 countries expected by March 2019 (LTE-M or NB-IoT)

4 Deployment Options

LoRaWAN

Flexible

Public, private or hybrid networks with indoor or outdoor installations

NB-IoT

Fixed

Public networks on 4G / LTE cellular towers

5 Protocol

LoRaWAN

Asynchronous

LoRaWAN sensors send data when needed extending battery life (Class-A mode)

NB-IoT

Synchronous

NB-IoT maintains connection to the cellular network even if no data is to be sent. Establishing a connection takes significant time and consumes battery life

6 Transmit Current

LoRaWAN

18 mA at 10 dBm and 84 mA at 20 dBm

Modulation differences allow LoRaWAN to be supported by very low cost batteries including coin cell

NB-IoT

~220 mA at 23 dBm and 100 mA at 13 dBm

7 Receive Current

LoRaWAN

~5 mA

LoRaWAN provides lower sensor BOM costs and longer battery life for remote sensors (3-5x lower power overall)

NB-IoT

~40 mA

Communication mode between device and cell network consumes over 110 mA on average for several 10s of seconds. Protocol overhead has significant impact to battery life for devices that will need 3, 5 or 10+ years of operation

8 Data Rates

LoRaWAN

~293 bps – 50 kbps

NB-IoT

~20 kbps uplink (normal coverage)

9 Link Budget (MCL)

LoRaWAN

155 dB – 170 dB best case

LoRaWAN MCL varies depends on regional regulatory limits (eg: FCC, ETSI)

NB-IoT

164 dB best case

NB-IoT 164 dB requires significant repetitions for remote sensors at a low bit rate to be able to support remote sensors

10 Mobility

LoRaWAN

Yes

NB-IoT

Limited to idle mode cell reselection

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