Enhanced NB-IoT Technology for Wide Frequency Bands and Different Operators

An NB-IoT technology supporting wide range of frequency bands with advanced radio frequency transceiver and Release 14 compatible baseband

Keywords:
- NB-IoT, wide range, radio frequency, advanced dynamic circuit, error rate, energy-efficient, chip-area, R14 baseband
- Power consumption, sensitivity, baseband algorithms, HKAI award

Problems addressed

NB-IoT device is needed to cover a wide range of frequency bands with a reduced chip area, lower power consumption and enhanced performance.

ASTRI's device covers all the NB-IoT frequency ranges widely used in the world. It adopts an advanced polar transmitter architecture with on-chip power amplifier and advanced baseband algorithms for low power consumption and small chip area. It supports multiple frequency bands from various operators with single chip and enhanced sensitivity.

Innovations

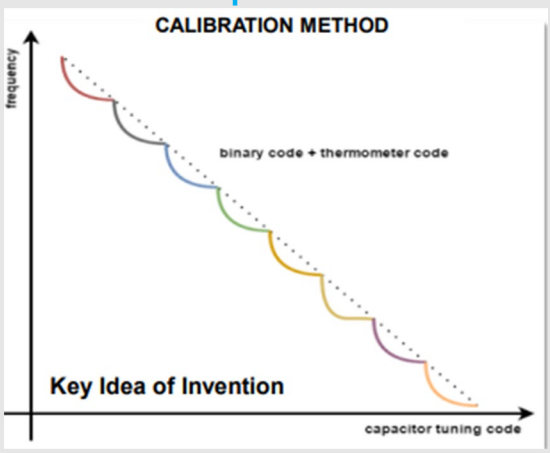
The NB-IoT device supporting a wide range of frequency bands using highly integrated radio frequency transceiver and a R14 compatible baseband. The innovation also includes the followings:

- **Wide frequency range** cover all NB-IoT bands defined in 3GPP Release 14 specification
- **High-performance polar transmitter** offers small chip area
- **Advanced baseband algorithms** are fully compatible with 3GPP Release 14 specification
- **Enhanced sensitivity** with 1.5dB better than standard requirement

Key impact

- Cover wide frequency ranges
- High sensitivity with advanced baseband algorithm
- Small chip area and low cost
- Awarded the Hong Kong Awards for Industries in 2018
- Adopted by multiple chip vendors and world-leading IP vendor

Innovation snapshot



Project completed

- November 2020

Applications

- Chip

Patent(s)

- US Patent No. 10,677,664 and
  CN Patent No. ZL201980000874.8

ASTRI Patent Search

Commercialisation opportunities

- IP licensing
- Technology co-development

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