



# *CommAgility* *5G NR Program*

*- August 2019 Overview -*

# CA 5G NR Program Objectives

## Objectives

- to continue CommAgility's leadership in RAN PHY, Stack
- to develop the algorithms required for 5G NR  
开发5G NR算法
- to demonstrate the real-time algorithm operation on one or more evaluation platforms  
演示实时算法
- to develop tests cases to verify new radio operation  
开发新射频操作的测试用例
- to create a 5G new radio product offering based on the work  
开发5G 新射频产品
  - SmallCellPHY-5G, MobilePHY-5G
- to establish the product requirements of a 5G NR hardware platform  
建立5G NR硬件平台的产品要求
- to demonstrate a 5G new radio non-standalone solution using a CommAgility LTE eNodeB as the anchor  
演示基于CA LTE eNodeB 锚点的5G新射频非独立平台方案
- to engage with customers and become a key 5G supply chain partner  
帮助客户成为5G解决方案供应 商

# CommAgility Expertise for 5G

- CommAgility has over 10 years experience of implementation and verification of 3GPP specifications 10年，从3G到5G的设计经验
  - 5G builds on the earlier LTE releases and we can leverage this experience
- CommAgility was a key enabler for LTE silicon solutions and aims to be so in 5G
  - E.g. **Spreadtrum TD-LTE** product portfolio
  - Our experience allows us to **assist with architecture dimensioning**
  - We can act as a **3GPP consultancy** for your SoC design team
- **SmallCellPHY-RefChain and MobilePHY-RefChain**
  - Our 5G work is aimed initially to deliver a **3GPP Rel 15 RefChain**
  - The RefChain includes the algorithm development and validation associated with specification implementation
  - It supports the development of a real-time physical layer for baseband SoCs
  - In creating the RefChain we will develop over 2,000 test vectors for physical layer and radio validation
- **Embedded hardware design for industrial and ruggedized deployments**
  - Experience of key silicon technologies such as Xilinx FPGA and multi-processor communication SoCs

# Program Activities

- Development of key PHY technology
  - Begin with C code RefC chain to provide generic IP 基于C代码的PHY
  - Progress to an FPGA-based implementation as real-time IP 基于FPGA的PHY
- Follow-up with Protocol Stack developments
  - PS releases 11 through 14 to add key customer features (MCPTT, etc)
  - PS releases 15 through 16 to bring in 5G PS features
- Strategic Partnerships
  - Establish needed partnerships for adding program value to customers
- Customer Engagement
  - Strong knowledge-based roadmap
  - Flexible architecture and platform

# Phase 1 Program Feature Set

- NSA, Sub-6 GHz, FR1 first
- TDD + FDD
- 4x4
- BWs: 10, 20, 30, 50, 100 MHz
- Carrier Aggregation
- 100 MHz aggregated BW (as resources permit)
- ~600-700 active users, ~2000 RRC connected users
- NXP based platform

# Product Variants Enabled

可以开发的产品如下：

- Pico / Enterprise Basestations (parent product)
- Co-located CU-DU-RU
- eMBB
- Standalone gNB
- FR2
- Remote RU
- Central CU-DU
- URLCC
- Private Networks
- High-performance PHY for SatCom
- Vehicle mounted UE (for US market: > 2022)
- Testing tools