

5G SUMMIT 2017

Silicon Valley 5G Summit
Mountain View, CA | October 19th, 2017

Thomas Byunghak Cho

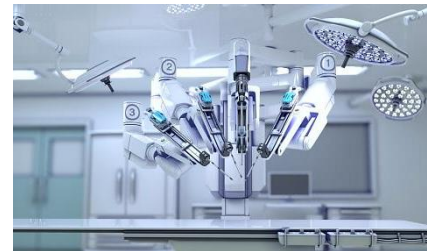
Senior Vice President, RF Development
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SAMSUNG

Entering the Connected Era

Inspire creativity to all connected dots

Enhanced Mobile Broadband
Ultra Reliable and Low Latency
Massive M2M Connectivity



Samsung Modem

Strong LTE leadership is the key to 5G success

2009

CMC220



**World 1st
Commercial LTE**

2014

Exynos Modem300/303



LTE Advanced
(300Mbps)
Carrier Aggregation

2017

Exynos 9



LTE Advanced Pro
(1Gbps)
LTE cat 16, 4x4 MIMO CA

2018

Prototype



5G Trial
Sub-6GHz/mmWave

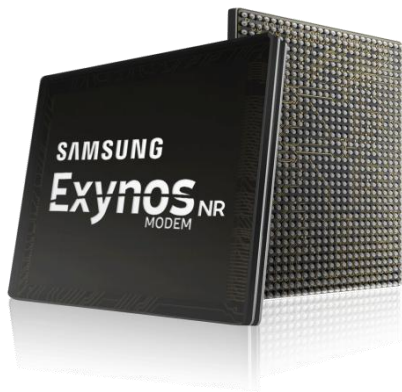
2019

Exynos 5G



5G New Radio
(5Gbps+)
Ultra high data rate, Low latency

Samsung 5G NR Solution I



High data rate and low latency

Global bands for sub-6GHz and mmWave

All legacy RATs (2/3/4G)

Compatibility with 3GPP Rel.15 NR standard

URLLC : Ultra Reliable and Low Latency

eMBB : Multi Giga bps data rate

Hybrid beamforming : fast beam search/tracking

Samsung 5G NR Solution II

Supporting Global Band and Flexible CA

Interband CA
(LTE / Sub-6GHz/28GHz/39GHz)
Large Number of CCs

Early Launching of Standard Compliant Silicon

Low Latency in Sub-6GHz
eMBB 5Gbps+
Hybrid BF Coverage
100+ Meters

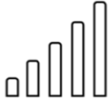
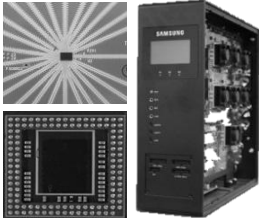
Supporting All RATs in Single Modem Chip

2/3/4/5G
Better Power Efficiency
Saving BOM Cost

Samsung 5G NR Progress

3GPP Compliant

Chips, module, platform for trial test

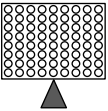


Feature Validation

- Advanced channel codes
- Low latency
- Self-contained frame
- Scalable OFDM numerology

Interoperability Test Sub-6GHz

LTE to NR refarm band, 3.5GHz, 4.5GHz



Interoperability Test mmWave

28GHz, 39GHz

Samsung 5G NR – the Next Phase

PHY

Aggregated BW 1GHz+
Sub-6GHz with 1024QAM
mmWave with 256QAM

Smarter Hybrid BF
with Finer Resolution

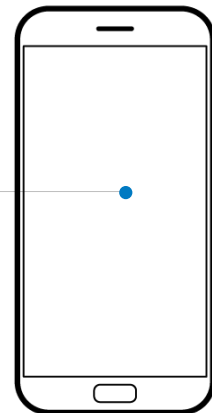
Network

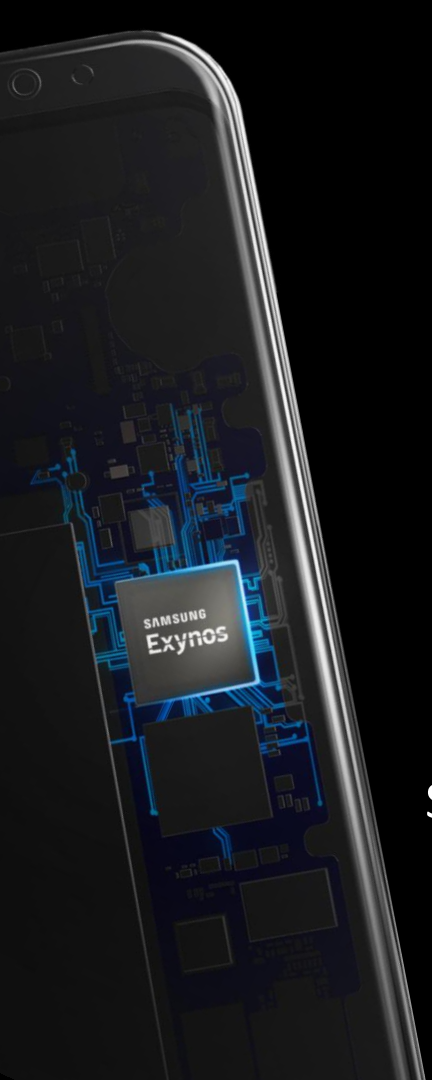
Full Support of SA* Services
Compatible with Option 1/2/3x/etc.
Backhaul Networks

Service

Dynamic Mixture of
eMBB/URLLC/mMTC Services

Balanced Design between
Performance, Power, Cost





Key Takeaways

Strong LTE technology leadership contributes to 5G service stability

Prompt decision on 3GPP specification is always important

Simplification of specification & test cases will expedite 5G deployment

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