5G Standard Research Status in China

IMT-2020 (5G) Promotion Group

Oct. 20th, 2015
IMT-2020 (5G) Promotion Group Structure

Expert Committee

Secretariat

IMT-2020 (5G) Promotion Group is the major platform to promote 5G research in China

- Requirement WG
- Spectrum WG
- Wireless Tech. WG
- Network Tech. WG
- ITU WG
- 3GPP WG
- IEEE WG
- IPR WG

• The Group has 50+ members including the main operators, vendors, universities, and research institutes in China.

• Official website: www.IMT-2020.cn
Usage scenarios extend from MBB to Internet of Things.

Different usage scenarios have quite different capability requirements.
5G overview in 3GPP

• Target: Highly flexible and capable 5G system to meet diverse requirements for 3 usage scenarios envisaged for 2020 and beyond.

• New RAT for 5G that is not constrained by backward compatibility to LTE needs to be studied to fulfill all the requirements.
  – needs to enable new service using the same air interface framework to fulfill all IMT-2020 requirements. Flexible design to support 3 usage scenarios.
  – supports scalable numerology and flexible frame structure.
  – considers new waveform, coding scheme, and multiple access.

• The 5G new RAT will tightly integrate with LTE-A evolution.
5G AI Technical Framework

Frame Structure & Channelization
- Flexible TTI, reference signals, physical channels, ....

Protocol
- Grant-free
- Adaptive HARQ
- Energy-saving mechanism

Requirement sets
- Scenarios & KPIs
- Available bands
- Equipment capability
- Cost requirement
- .......

Flexible configuration
- e.g., Soft-Defined RAN

Optimized AI solutions
- Adapt to specific scenarios, even including the future possible new scenarios
Considerations for new RAT

- 5G new RAT shall apply at both low and high frequency band. However low frequency market is more urgent and has higher priority.
  - Vertical market is very important for mobile industry and is mainly deployed in sub 6GHz.
  - New sub 6GHz IMT spectrum will be identified in WRC15.
  - Air interface design for high frequency is based on high frequency channel model which is not ready.
  - High frequency spectrum for IMT will be identified in WRC19.
Organize 5G RAN SIs and WIs and Time Plan

2016.3

Rel-14

5G SI(s): Scenario and Requirements...

SI: HF (>6GHz) channel model

5G phase 1 WI(s)

Fundamental features of new RAT. Sub 6GHz, support both eMBB and IoT

ITU process

Proposal

Spec

2017.6

Rel-15

(Initial 5G)

Other features / Enhancements

High frequency (>6GHz) specific feature design

Start from sub 6GHz

2018.9

Rel-16

(Comprehensive 5G)

5G phase 2 WI(s)

Other features and enhancements. Meet all IMT-2020 requirements

2019.12
5G Network Technology Architecture

Access Plane
- Diversity of network topology
- User and service aware
- Multi-RAT co-existence
- Enhanced cooperation

Control Plane
- Logically centralized unified control
- Global resource MGMT (inc. Radio)
- On-demand orchestration
- Friendly open platform

Forward Plane
- Distributed GW
- Simplified functions
- Improved programmability
- Edge computing and storage
International cooperation on standard research

Methods of cooperation

• Mutually support on global 5G summit
• Regular communication mechanism
• Joint research projects
• Joint trials, etc.
Thank You

www.imt-2020.cn