

### **5G Research Status in China**

IMT-2020 (5G) Promotion Group Oct. 8<sup>th</sup>, 2015

## IMT-2020 (5G) Promotion Group Structure



• The Group has 56 members including the main operators, vendors, universities, and research institutes in China.



• Official website: www.IMT-2020.cn



# IMT-2020 (5G) Promotion Group Activities

### 5G Summit

### 5G Whitepaper



IMT-2020 PG will be more positive and open to co-work with the global industry



# 5G Technical Scenarios and Challenges

### Mainly for Mobile Internet

Seamless Wide-Area Coverage



• User experienced data rate: 100 Mbps

High-Capacity Hot-Spot



- User experienced data rate: 1 Gbps
- Peak data rate: Tens of Gbps
- Traffic volume density: Tens of Tbps/km<sup>2</sup>

### Mainly for IoT (new scenarios)



• Reliability: nearly 100%

Low-Power Massive-Connections



Connection density: 10<sup>6</sup> / km<sup>2</sup>
Ultra-low power consumption/Ultra-low cost

### 5G Key Wireless Technologies





## 5G AI Technical Framework



### 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

## 5G Wireless Technology Roadmap



### 5G Potential Candidate Bands Research

Low-frequency bands below 6GHz are always necessary for IMT

2015

• Exploit the bands identified for IMT in the Radio Regulations, including 450-470MHz, 698-806MHz, and 3400-3600MHz

High-frequency bands within 6-100 GHz can be introduced in 2019 and beyond

2019

• Several potential candidate bands within 6~100GHz are selected.

- With different channel properties and coexistence situations.
- Studies on channel measurement, modeling and coexistence are ongoing work.

• To promote establishing a new agenda item in WRC-19.

450 2G/3G 3.3 3.4 4.4 4.8 3GHz 6GHz 40-50 81-86 24-30 71-76 100GHz • • • 4.5 3.4 3.6 4.99 MHz refarming

Get new bands below 6GHz in WRC-15 AI 1.1

## Consideration on 5G Development Plan



#### China strives to commercialize 5G in 2020

Ma Kai, Vice Premier of China's State Council, announced that China strives to start the commercialization of 5G network in year 2020

#### **Considerations on 5G time plan**



## Summary

- Mobile internet and IoT are the main drivers of 5G
- 5G typical scenarios include seamless wide-Area coverage, high-capacity hotspot, low-latency high-reliability, and low-power massive-connections
- Based on unified AI technical framework, the optimized technical solutions can be derived for specific scenarios by flexibly configuring technical modules and parameters
- China plan to have 5G technology trial and pilot projects on mobile-based Internet of Vehicles.

To work together on standardization and Spectrum !



# THANK YOU!

www.imt-2020.cn