

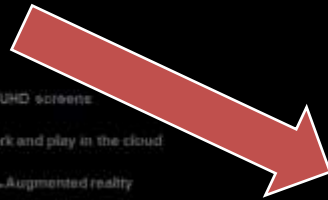
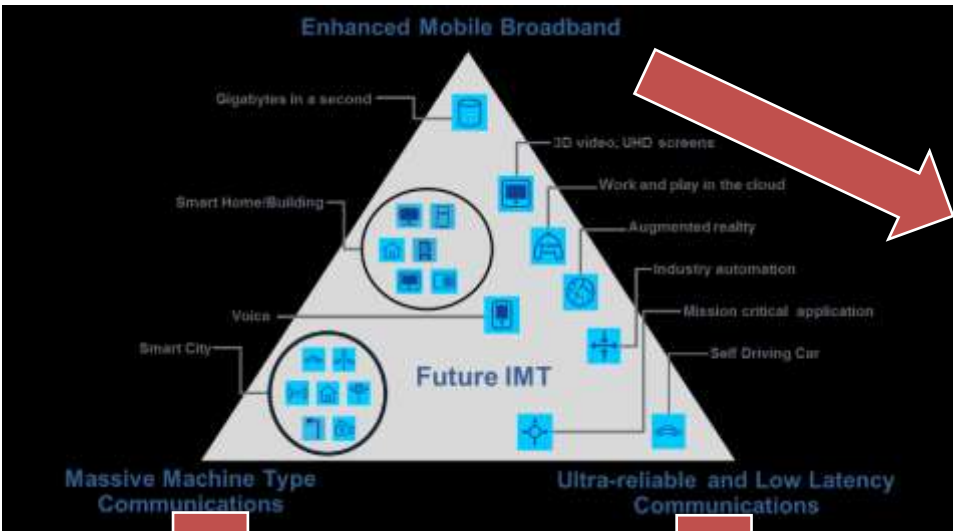
# **Progress of 5G Spectrum in China**

**IMT-2020(5G) Promotion Group**

**Nov 2018**

# 5G will support the frequency bands below and above 6GHz

- LF bands(below 6GHz) : needed for all 5G scenarios.
- HF bands(above 6GHz) : for indoor hotspot and dense urban scenarios mainly .



eMBB			
Indoor hotspot	Dense urban	Rural coverage	High speed
LF and/or HF	LF and/or HF	LF	LF



M-MTC	URLLC
Urban coverage	Urban coverage
LF	LF

# Nov. 2017 : Frequency Plan of 3300-3600MHz and 4800-5000MHz for 5G System

The frequency bands 3300-3600MHz and 4800-5000MHz are planned for 5G systems;  
3300-3400MHz is limited to indoor use only.

- The 5G system shall not cause harmful interference to radio astronomy and other radio services with valid license in the above mentioned frequency bands and in adjacent bands.
- **From 15 November 2017, the frequency of the following new applications is no longer accepted and approved:**
  - **Terrestrial fixed service** in frequency bands **3400-4200MHz and 4800-5000MHz;**
  - **Space stations (Fixed satellite service)** in frequency band **3400-3700MHz;**
  - **Measurement and control by of space stations(TT&C)** in frequency band **3400-3600MHz.**

# Reduction and Exemption of 5G Frequency Occupation Fee

The frequency occupation fee for 5G deployment on above 3000MHz bands can be reduced.

- No charge for 5G spectrum in the first three years after assignment.
- 25%, 50% and 75% frequency occupation fee will be charged from the 4th year to the 6th year.
- Reduce the frequency fee for the frequency band above 3000MHz for 5G.
  - 3000-4000Mhz bands: reduce from 8 million to 5 million Yuan/Mhz/Year.
  - 4000-6000Mhz bands: reduce from 8 million to 3 million Yuan/Mhz/Year.
  - Above 6000Mhz: reduce from 8 million to 0.5 million Yuan/Mhz/Year.

# Regulatory policies to prepare 5G deployment in C-band

## May 2018 : Notice of the State Radio Office on Conducting Statistics and Verification on Radio Stations in the 3400-4200MHz and 4500-5000MHz Bands

- Relevant units using satellite earth stations, microwave stations, radio observatories and other radio stations in the frequency bands are requested to send the information of their radio stations.
- A list of radio stations will be established that requiring interference protection.

## June 2018 : Consultation on the Regulations of Coordination and Management of Interference between the 5G Stations and Other Radio Stations in 3000-5000MHz Frequency Bands

- The interference coordination procedures and standards between 5G stations and satellite earth stations(FSS), fixed service stations(FS) and radio astronomical observatories(RAS).
- The technical specifications of low noise amplifiers or frequency converters of newly installed and used satellite earth stations in the frequency bands of 3700-4200 MHz and 4500-4800 MHz.

# 2017 & 2018 : C-band Coexistence Field Test between 5G System and FSS Receiver

To evaluate compatibility between 5G@ 3.4-3.6GHz and FSS@ 3.6-4.2GHz.



LoS : between 5G BS  
and FFS receiver

2-3m between UE  
and FFS receiver

## Co-channel interference test

- 5G and FSS receiver in the 3500-3600MHz

## Adj-channel interference test

- 5G in 3400-3600MHz;
- FSS receiver in 3600-4200MHz

## Blocking interference test

- 5G in 3400-3600MHz;
- FSS receiver in 3400-4200MHz

Consider the Interference from Multiple(4) 5G Base Stations

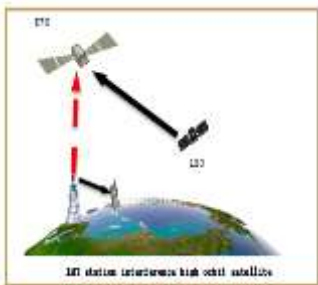
**The test also takes into account additional protection mechanism for FSS receiver (e.g. additional filters )**

# Seek global & regional harmonized 5G HF bands according to the study towards WRC-19 AI.1.13

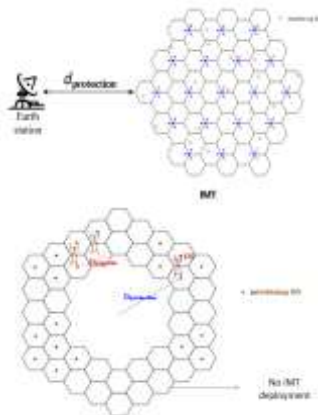
Carry out compatibility studies on frequency bands 24.75 - 27.5GHz and 37-42.5GHz in IMT-2020(5G)

Promotion Group, to study possible new identifications for 5G spectrum.

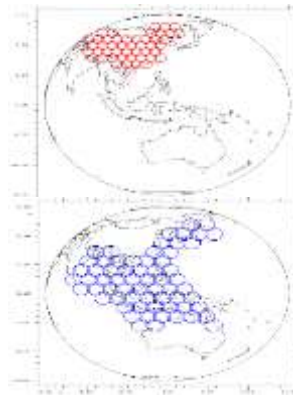
- IMT vs. Inter-Satellite Service (ISS), Earth Exploration-Satellite Service(EESS) and Fix Satellite Service(FSS) @26GHz band
- IMT vs. FSS @40GHz band
- IMT vs. EESS(Passive) @24Ghz & 37GHz bands



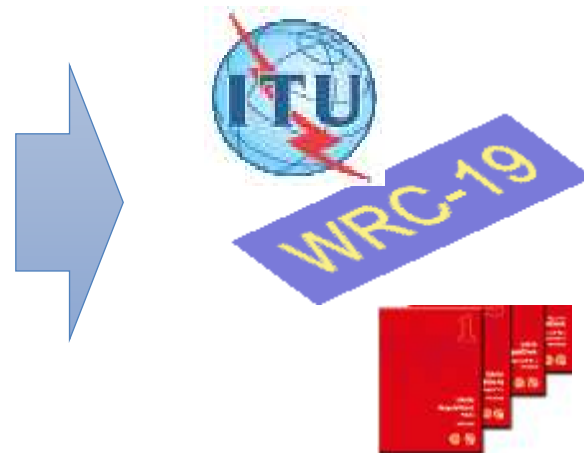
IMT vs. ISS



IMT vs. EESS/FSS DL  
@ 26&40GHz



IMT vs. FSS UL  
@ 26GHz



# Summary

- 5G will support the frequency bands below and above 6GHz.
- Nov. 2017 : Frequency plan of 3300-3600MHz and 4800-5000MHz for 5G system in China.
- Make regulatory policies and conduct coexistence field test to prepare for the 5G deployment in C-band.
- Seek global & regional harmonized 5G HF bands according to the study towards WRC-19 AI.1.13

