Korea Views on 5G Spectrum

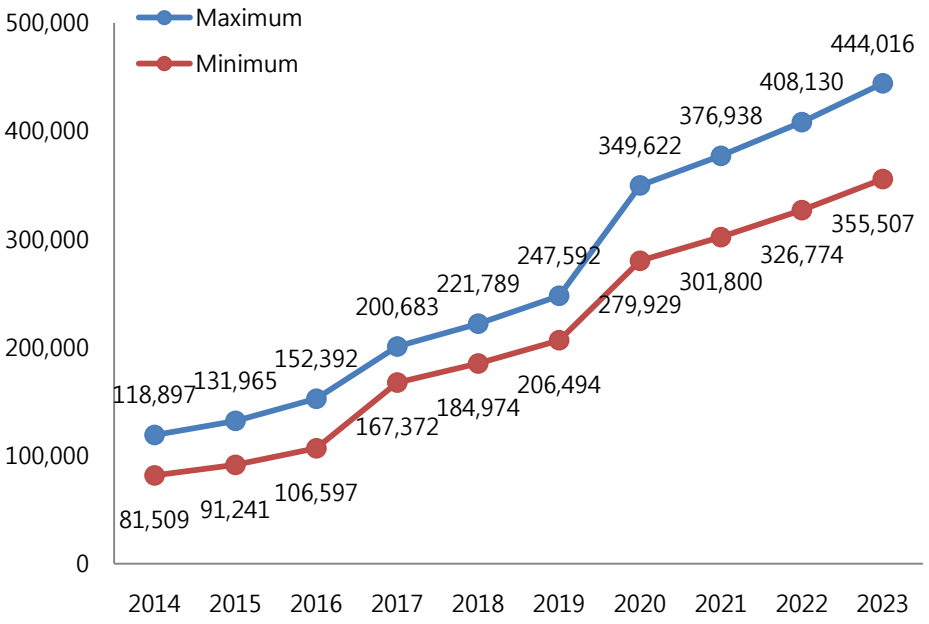
28 June, 2016

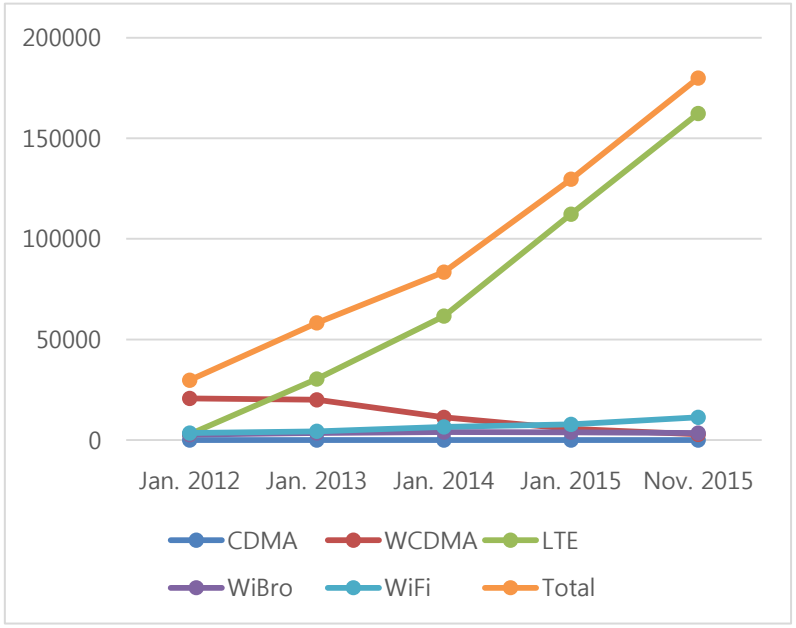
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Why more IMT spectrum in Korea?

- **Mobile traffic** was **estimated 152,392 TB(max)** in 2016
- **Actual traffic** was shown **189,657 TB** in Jan. 2016
  - LTE launch caused more data traffic!

Estimated and actual traffics (TB)





IMT in higher frequency band

- **Congested use of incumbent services below 6 GHz**
  - **difficult to find** contiguous wide bandwidth for IMT
- **Heavy traffic in dense urban area** (e.g., hot-spot and small cell)
  - need of spectrum efficient coverage **for performance**
  - demands on **maximized efficiency** of data delivery
- **Opportunities in bands above 6 GHz, esp. above 24 GHz**
  - **contiguous wide bandwidth** for performance
  - Severe **path loss** but **tolerable within small cells**
  - **easy to coexist** with other co-primary services due to small coverage and advanced technologies
  - weak diffraction but **good for beam-forming**

Spectrum considerations for 5G

- **WRC-15 adopted WRC-19 AI 1.13 for IMT above 24 GHz**
- **5G Eco environments for higher bands**
  - **prepare early 5G market** and facilitate commercial 5G
  - **achieve global/regional harmonization** in 24.25-86 GHz at WRC-19 taking into account technical solution
- **Korea will introduce 5G trial at PyeongChang Winter Olympic Games in Feb. 2018**
  - **28 GHz band will be a practical solution** considering foreseen market taking into account the US' 5G plan
  - At present, **more than 20 base stations using 28 GHz band are testing** in Seoul, PyeongChang and other cities
  - **The band 26.5--29.5 GHz** will be granted **for 5G trials**

Provisional Preferred bands

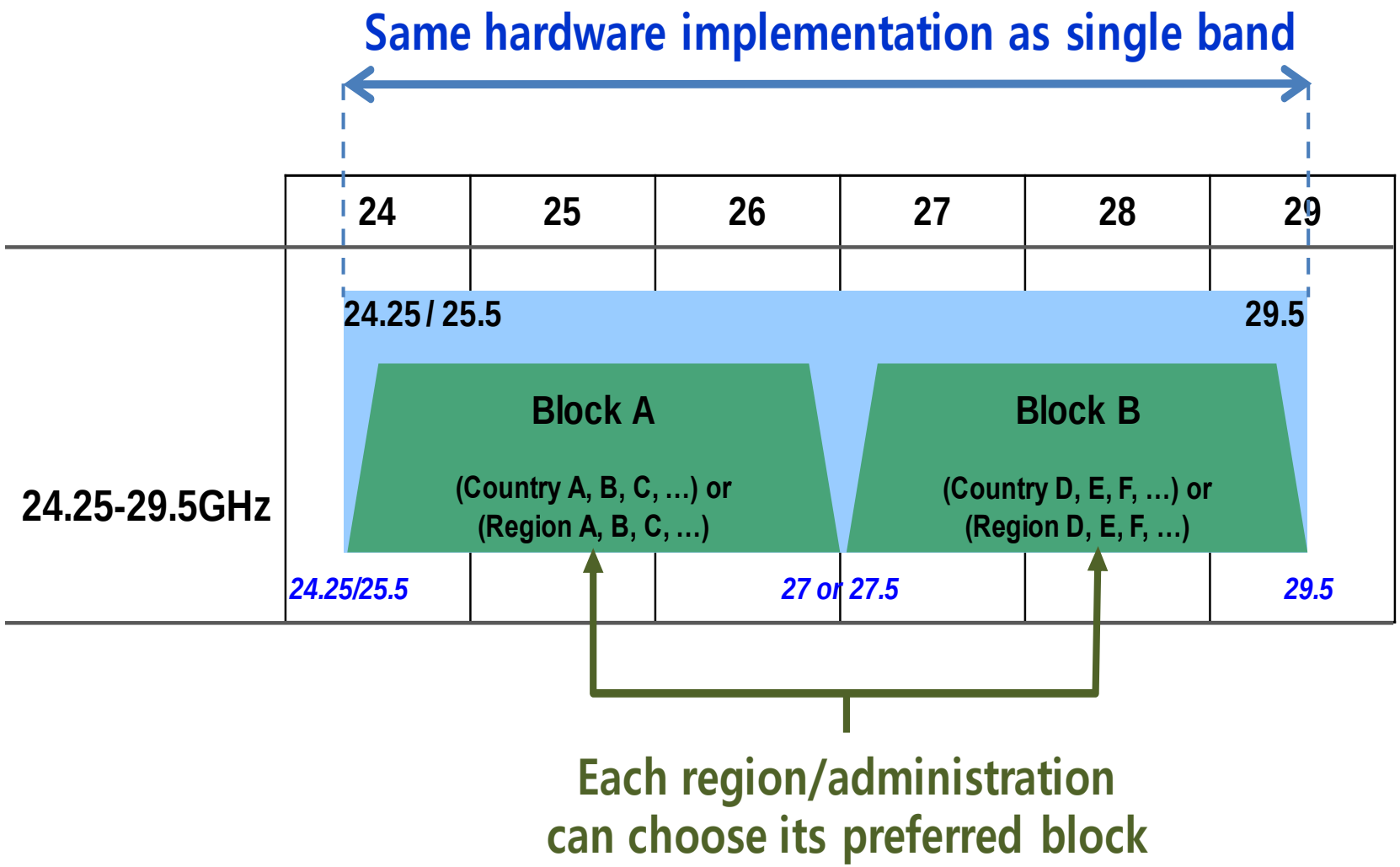
- **Preferred among 11 candidate bands in WRC-19 AI 1.13**
- **24.25-27.5 GHz**
  - 25.25-27.5 GHz is allocated to MS globally, but 24.25-25.25 GHz is only available in R3
  - Res. 238 does not recognize additional MS allocation at WRC-19 in the band 24.25-25.25 GHz in other regions
  - Res. 238 highlights the need of protection of EESS and SRS in 25.5-27 GHz
- **31.8-33.4 GHz**
  - need of additional allocation to MS at WRC-19
- **37-40.5 GHz**
  - global allocation to MS

* MS (Mobile Service) * EESS (Earth Exploration Satellite Service) * SRS (Space Research Service)

Harmonization of 5G spectrum

- **Spectrum harmonization is essential for IMT:**
  - **Global roaming** for mobile communication
  - **low cost device** by global economy scale
  - **No need of unnecessary interference issue** with neighboring countries
  - **Value creation** of global spectrum
- Global harmonization can be achieved if possible **technical implementation of multi band plans on a single device**
  - **Harmonization by implementation aspects** (Doc. WRC-15/102A24R1)
  - **similar to 3GPP band plan** implementation
  - To give **flexibility for administration** to select band plan

Harmonization by implementation



Collaboration among APT countries

- For APG towards WRC-19
  - Which frequency bands are suitable to implement IMT?

    ➔ **up to around 40 GHz** would be **practical** for IMT
  - How to develop common views on frequency bands?

    ➔ **global/regional harmonized frequency bands** for IMT taking into account **practicality**
- For AWG to assist APG
  - Conduct **sharing/compatibility studies**
- Outside WRC frameworks
  - **Which frequency bands** for **the first 5G market?**
  - **What technical matters** should be addressed?

Thank you!

Questions? Answers!