

Maastricht, Netherlands, March 18-21, 2024



SK Telecom's View on 6G

RP-240057

Mar. 18-21, 2024

SK Telecom

Agenda: 15

Source: SK Telecom

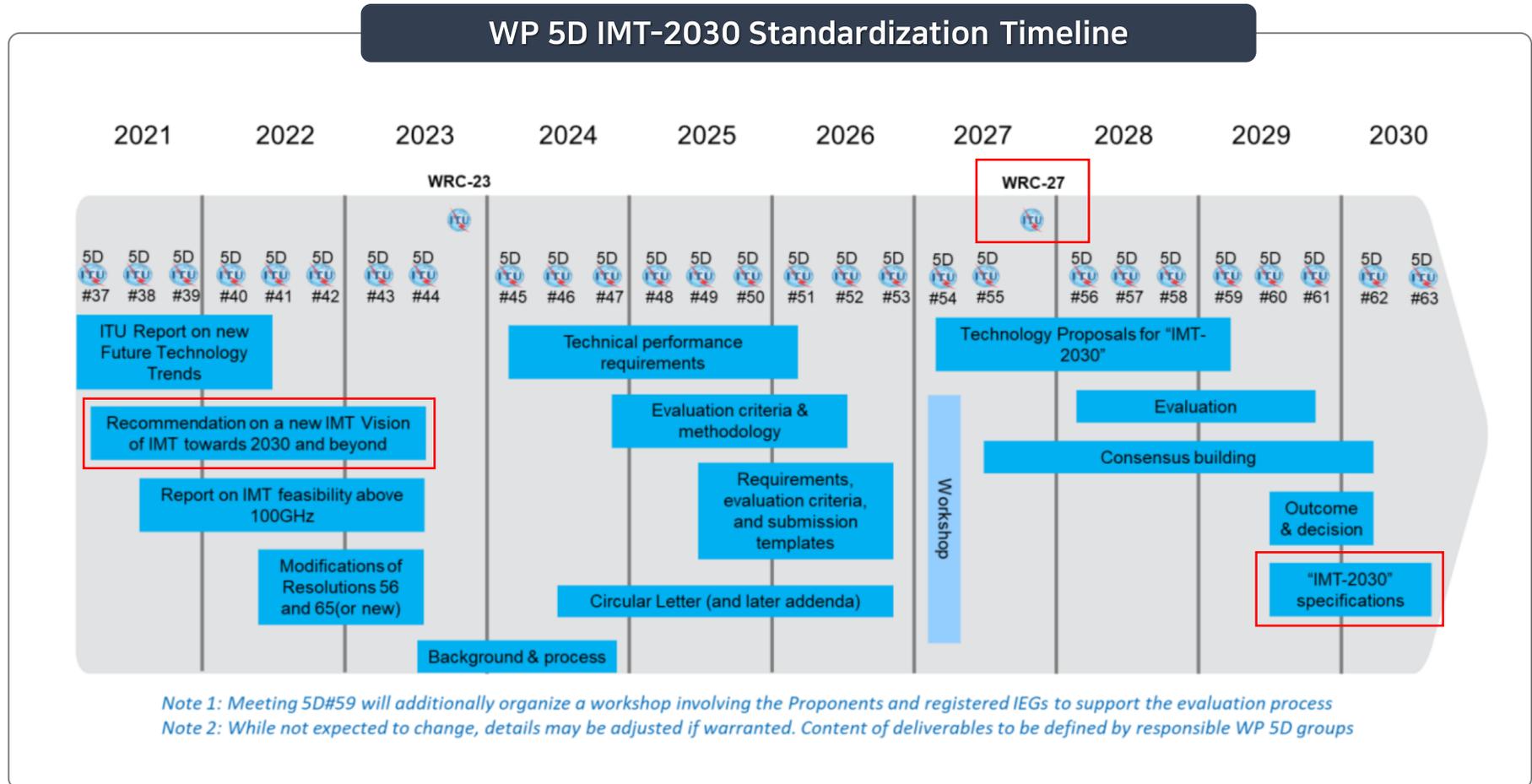
Document for: Discussion and decision

I. Conclusion on timeline aspects

Discussion on IMT-2030 standardization started at WP 5D under ITU-R

6G framework recommendation developed in June 2023

6G spectrum will be decided in Dec. 2027, and 6G standard approval is expected in June 2030



I. Conclusion on timeline aspects

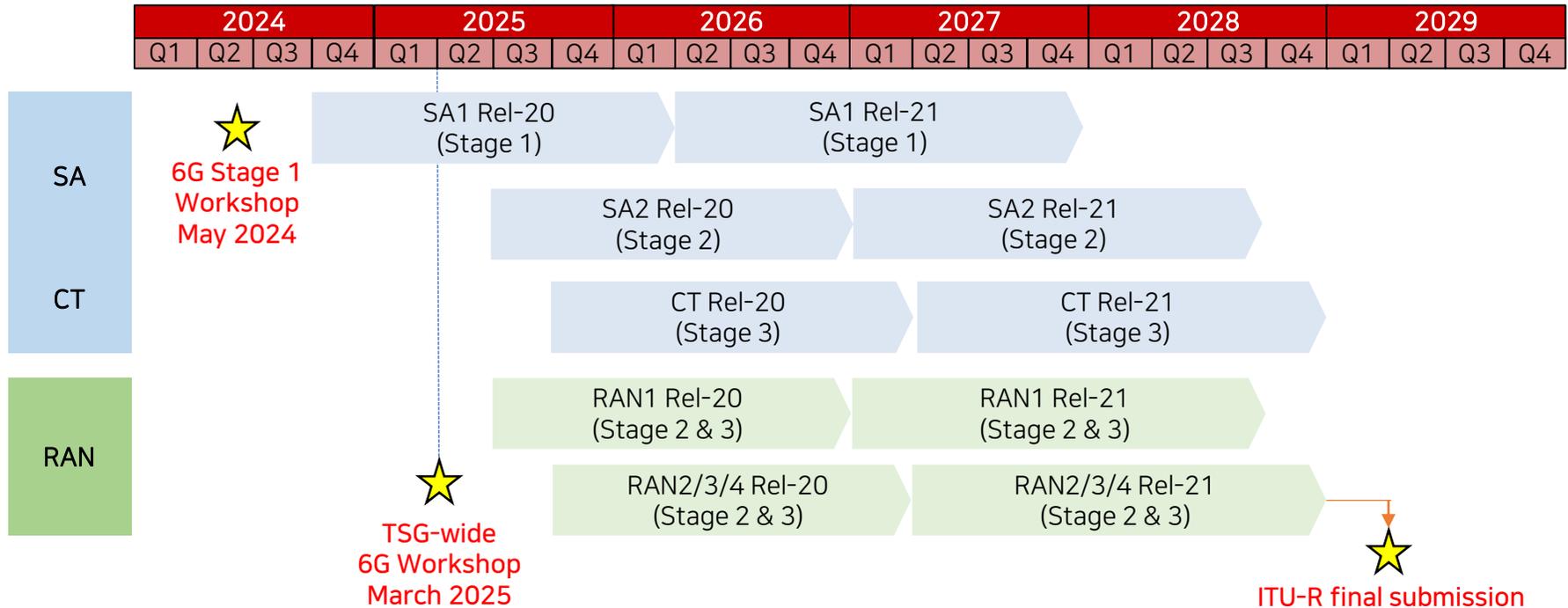
6G timeline was discussed in TSG#102 (Dec. 2023)

6G Stage 1 workshop in May 2024, TSG-wide 6G workshop in Mar. 2025

- No vertical fragmentation : harmonized 6G ecosystem
- No horizontal fragmentation : no separate drops (early/main/late)

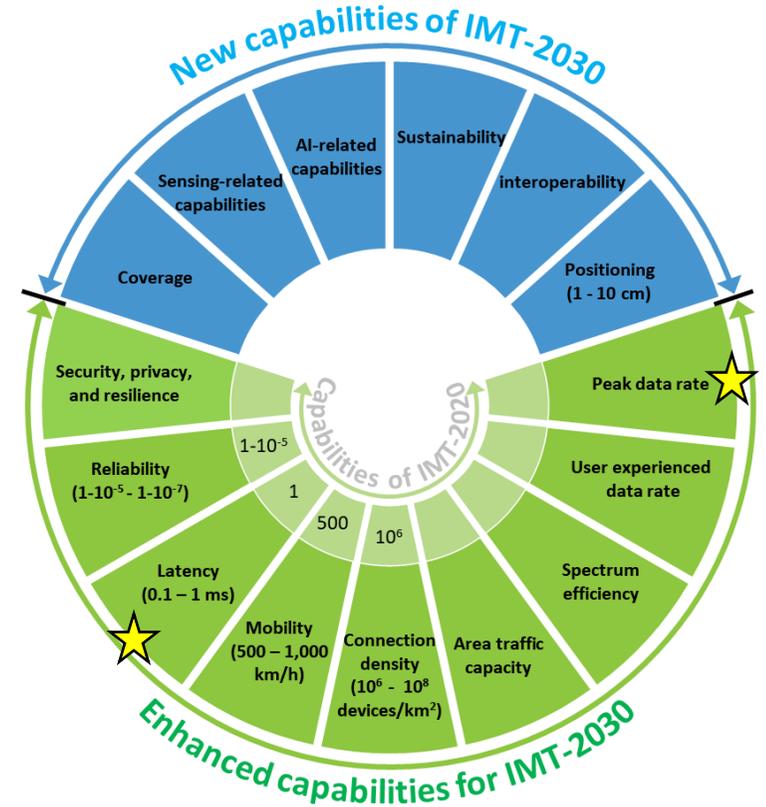
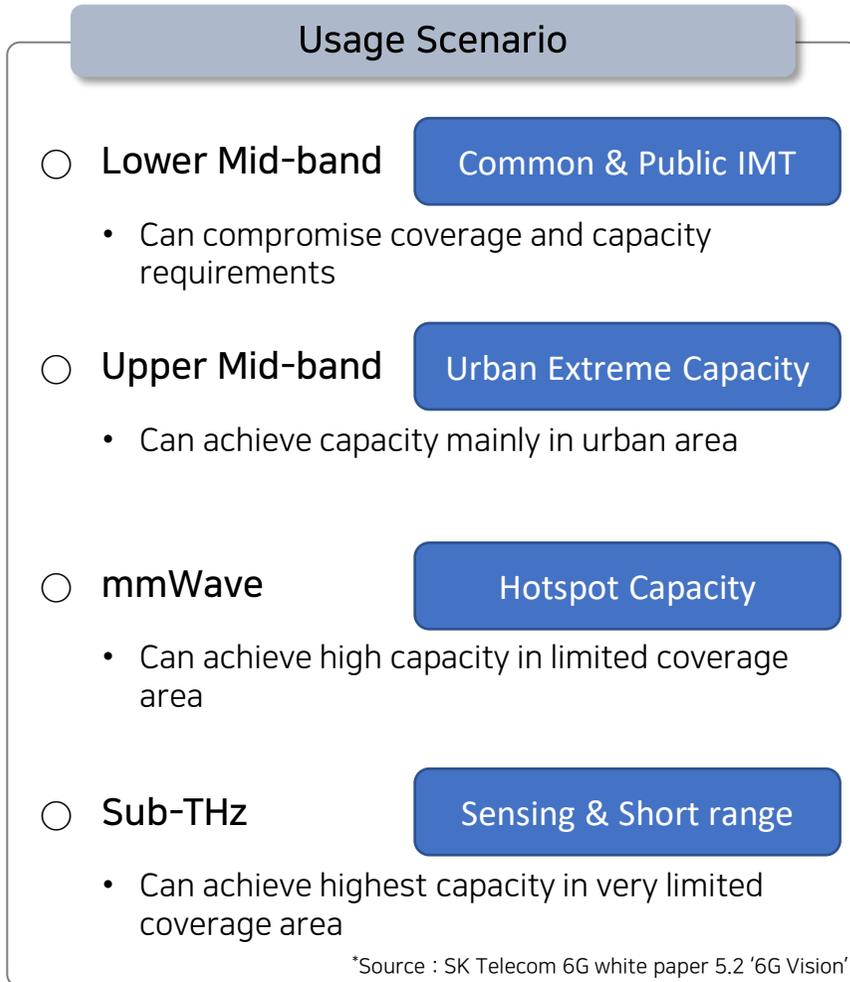


From RP-233985, "Release 21 is expected to be delivered with a single drop (i.e., a single code freeze)"



II. Fundamental motivation of 6G & Use cases from overall system perspective

KPI should not be over-committed e.g., 1Tbps ≠ 6G
Undetermined KPI will be discussed at IMT-2030 TPR



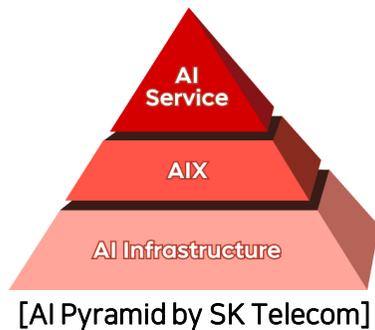
PDR: Peak Data Rate
 UDR: User-experienced Data Rate
 TPR: Technical Performance Requirements

II. Fundamental motivation of 6G & Use cases from overall system perspective

AI services & further monetization should be considered for 6G evolution UAM and ISAC are promising 6G services

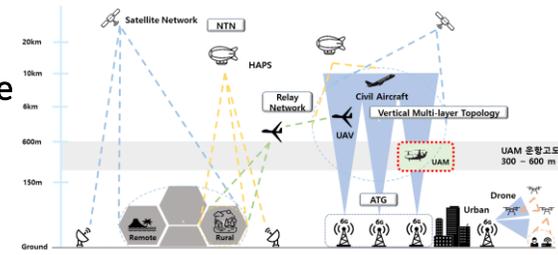
Infra for AI and Monetization

- AI becomes mega trend as shown in recent CES
- 6G should be fundamentally designed to support emerging AI services
- 6G should offer monetization opportunities for MNOs through groundbreaking AI services
- For example,
 - On-device AI : privacy, real-time processing
 - Cloud AI : performance (e.g., accuracy, reliability)



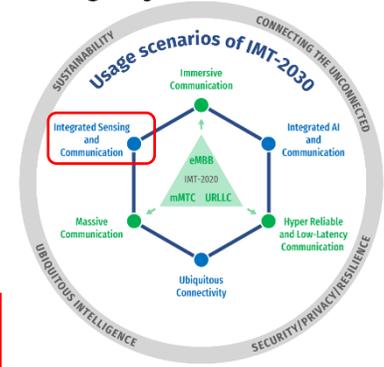
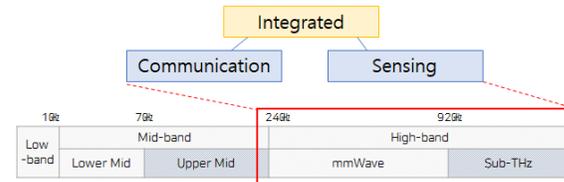
UAM

- Extending service area (air, maritime) for new services
 - with LEO satellites and/or TN with antenna uptilting
- Accelerating freedom from the space and time



ISAC

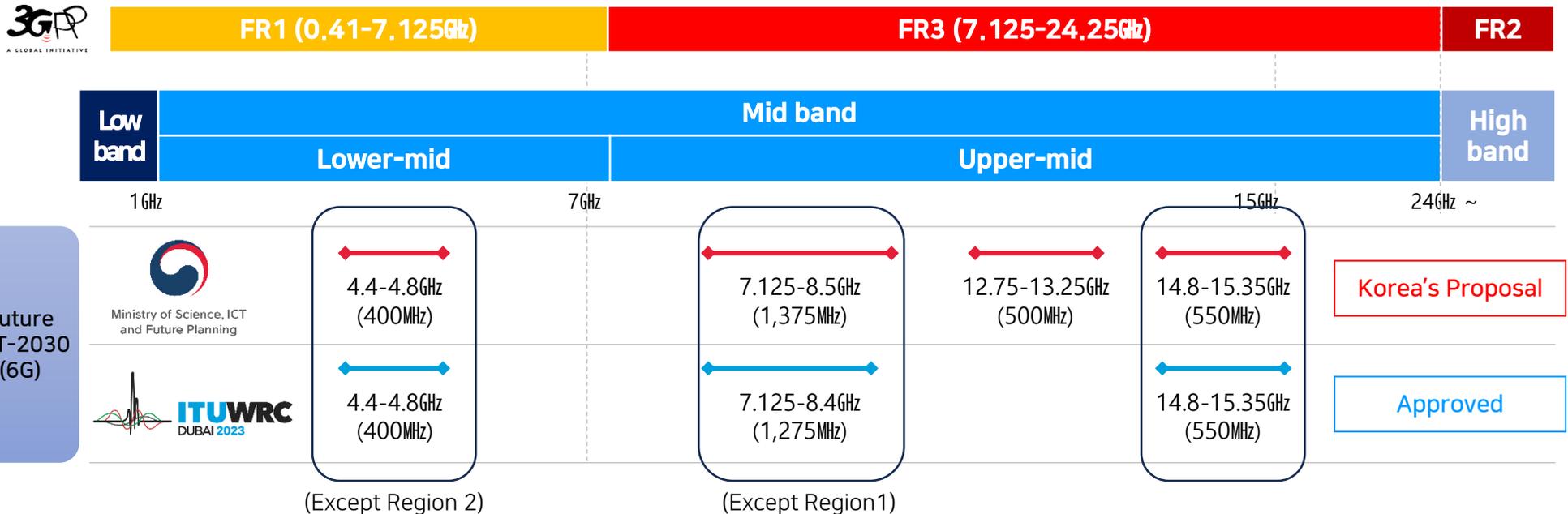
- Expanding network capabilities by sensing objects
 - Network-as-a-sensor
 - High-precision positioning with high frequency



III. Spectrum & migration aspects

WRC-23 identified 6G candidate spectrum, final decisions expected in WRC-27

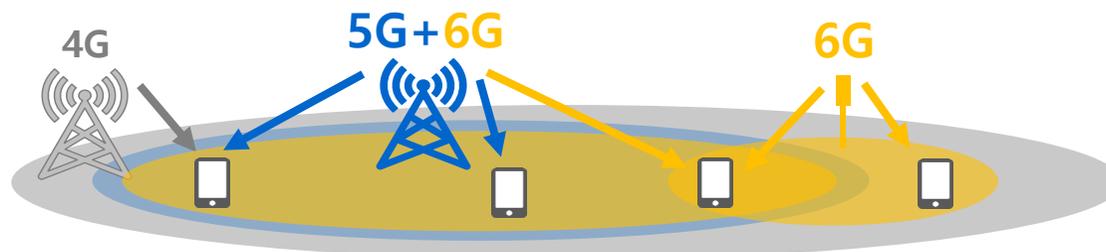
- 6G candidate spectrum shifting to lower frequencies
 - Upper mid-band (7-24GHz) → Lower/Upper mid-band (4.4-15GHz)
 - Sub-THz band discussion postponed until WRC-31
- Still, higher than existing spectrum due to challenges in finding new IMT spectrum
 - Even less coverage expected than 5G without refarming or spectrum sharing
 - “Generation Change” will continue as previously done?



III. Spectrum & migration aspects

6G migration plan needs to consider future service/traffic demands

- 6G service/traffic demands and migration options
 - Innovative devices & services are proposed for 6G, but service/traffic demand forecasts are unclear for now
 - 6G migration plan needs to consider service/traffic demands for sustainable network operations
 - ✓ Service/traffic demand is *not* expected to increase significantly : **Generation Mix** (6G builds upon, and extends existing generation and is deployed for specific use cases, e.g., hotspot) can be considered
 - ✓ Service/traffic demand is expected to increase *significantly* : **Generation Change** (6G will eventually replace existing generation and become widely adopted, e.g., nationwide coverage) can be considered
- Migration option examples
 - 6G MRSS, 6G SA Option 2/4, 5G-6G NSA, Dual-Stack, etc.
 - Need to consider coverage and capacity requirements according to service/traffic demands



[Deployment Scenario by Generation Mix (Exemplary)]

Conclusion

- Proposal 1** **Following RAN #102, Rel-21 can be submitted to ITU-R for initial 6G spec. until Dec. 2028 (incl. 3-month margin)**
- Proposal 2** **No vertical fragmentation : harmonized 6G ecosystem**
- Proposal 3** **No horizontal fragmentation : no separate drops (early/main/late)**