

## Spectrum for 5G: EU-level Developments

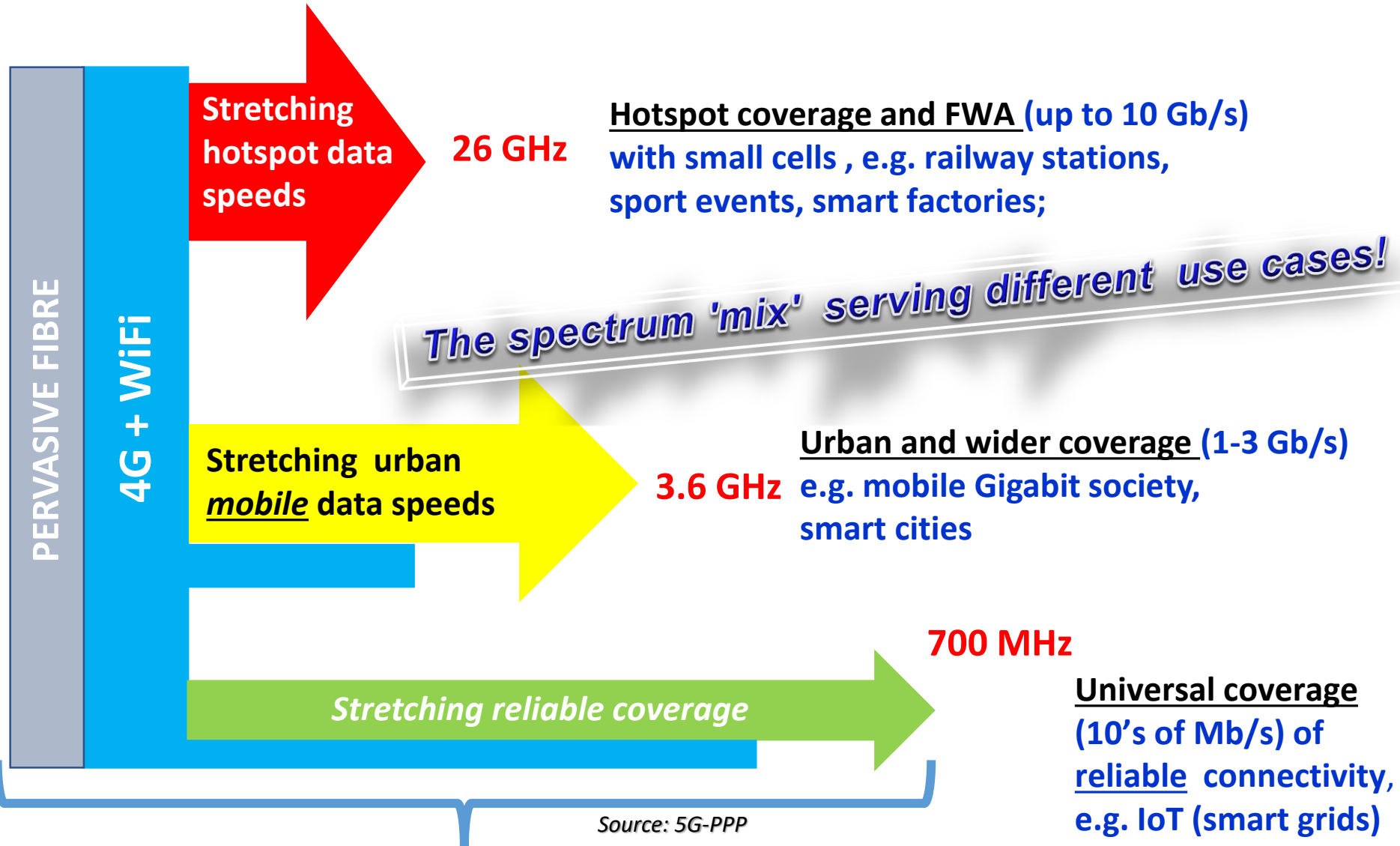
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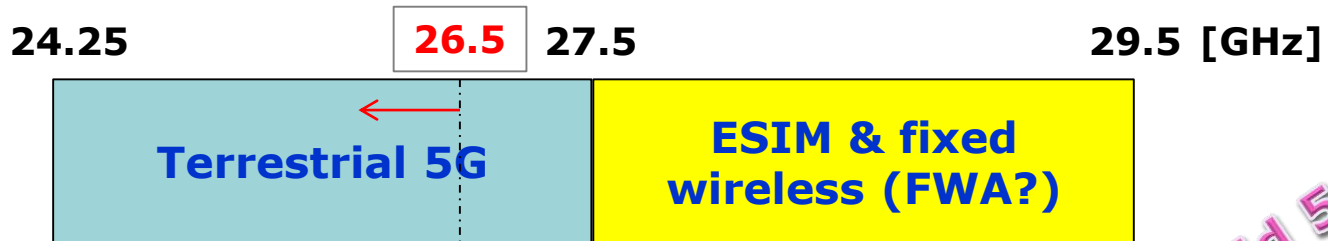
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*\* Disclaimer: the views expressed are those of the author and cannot be regarded as stating an official position of the European Commission.*

# 5G Pioneer Bands



# Approach to 26-28 GHz



Hybrid 5G ?

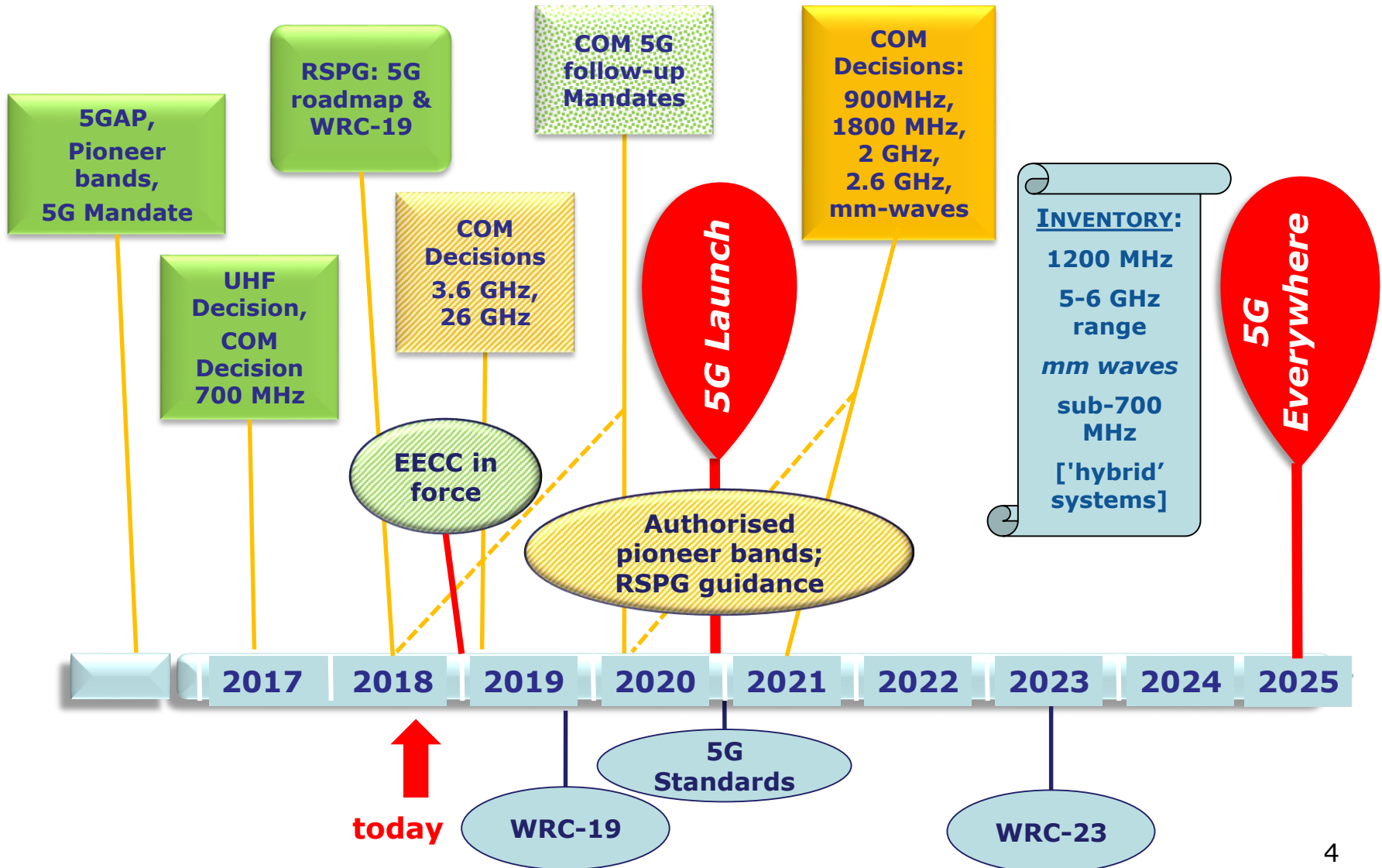
## 24.25-27.5 GHz for terrestrial 5G

- ✓ Co-existence with developing satellite use (earth stations)
- ✓ Tuning range for 5G equipment within 26-28 GHz

## 27.5-29.5 GHz: priority for satellite systems

- ✓ Long-term use for satellite (ESIM)
- ✓ Co-existence with potential FWA may be studied
- ✓ Explore hybrid *SAT-terrestrial* 5G scenarios

# 5G Spectrum Roadmap



# EECC Provisions on Spectrum\*

**Harmonised principles** (predictability/certainty!) **and criteria** for authorisation regimes and sharing conditions (Articles 45 and 46);

A **reference framework** on conditions and fees for rights of use (Articles 42 and 47) and design of the assignment process (Article 55);

A **peer review** to achieve internal market **consistency** on spectrum authorisation based on best practice (Article 35);

Promotion of spectrum **trading and leasing** (Article 51);

**Common** assignment **deadline** for **5G Pioneer Bands** (Article 54);

**Coordinated timing** of WBB spectrum assignments (Article 53);

**Sufficiently long duration of usage rights** for harmonised WBB spectrum: **20 years** of regulatory predictability (Article 49);

Facilitation of **small cell deployment** and **RLAN access**: removal of administrative obstacles and undue restrictions (Article 56 and 57).

→ *follow-up: Commission implementing act*

## Primary 3.6 GHz band: **URGENT**

- ✓ Defragmentation for large block sizes ( $\geq 80$  MHz)
- ✓ Conformity with 5G-ready technical conditions (Q1/2019)
- ✓ Authorisation by end-2020 considering 'vertical' use

## 26 GHz band: **The European opportunity**

- ✓ Timely harmonisation in advance of WRC-19 (COM study)
- ✓ WRC-19 outcome and protection limits for passive EESS
- ✓ Authorisation of at least 1 GHz by 2020 (possibly 26.5-27.5 GHz)
- ✓ Auctions vs. "first-come-first-serve"

## 700 MHz band: **Deliver to schedule**

- ✓ Milestones on cross-border coordination and national plans
- ✓ Resolution of cross-border issues with non-EU countries
- ✓ Minimise justified delays beyond mid-2020

## COCOM

- ✓ Report on the exchange of Best Practices concerning national broadband strategies and 5G "path-to-deployment" (09/18)

## RSPG and BEREC

- ✓ 3<sup>rd</sup> RSPG Opinion on 5G spectrum implementation challenges (Q1/19)
- ✓ RSPG Opinion on WRC-19; Supplemental opinion on EU coordination (Q2/19)
- ✓ BEREC work streams on 5G coverage obligations, monitoring QoS, authorisations, infrastructure sharing, impact on regulation (2018-19)

## Commission's 5G observatory (09/18 - ongoing)

- ✓ Monitor 5G market developments, including spectrum authorisations
- ✓ Website ( <http://5gobservatory.eu/> ), quarterly reports

## Trials and EU-funding

- ✓ 5G-PPP trials roadmap 3.0 ( <https://5g-ppp.eu/5g-trials-roadmap/> )
- ✓ H2020 phase-3 projects; 5G platforms, CAM corridors, verticals integration

**Thank you !**