



European 5G Observatory

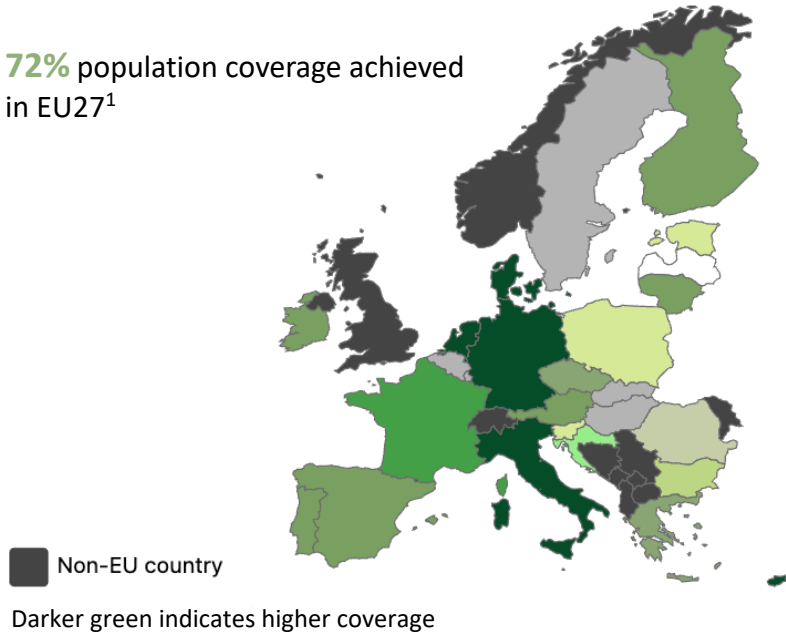
5G Observatory Dashboard

December 2022

CNECT/2021/OP/0008 European 5G Observatory, Phase III

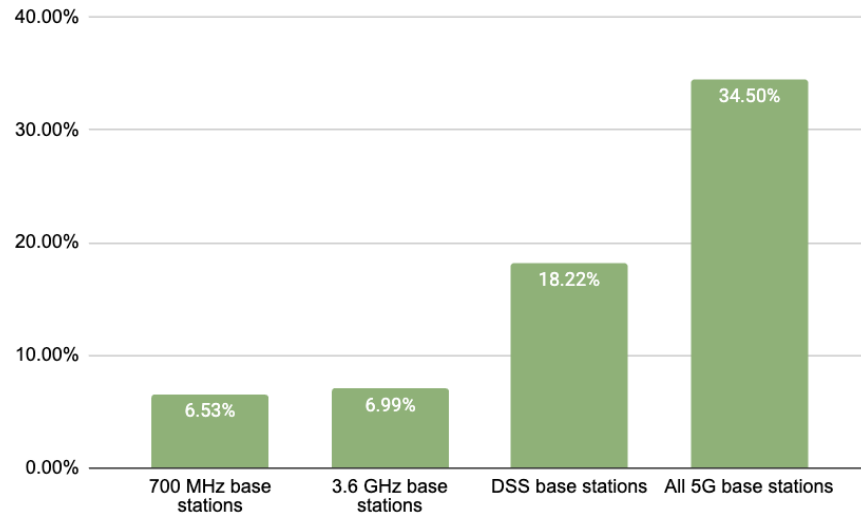
5G deployment & coverage

72% population coverage achieved in EU27¹



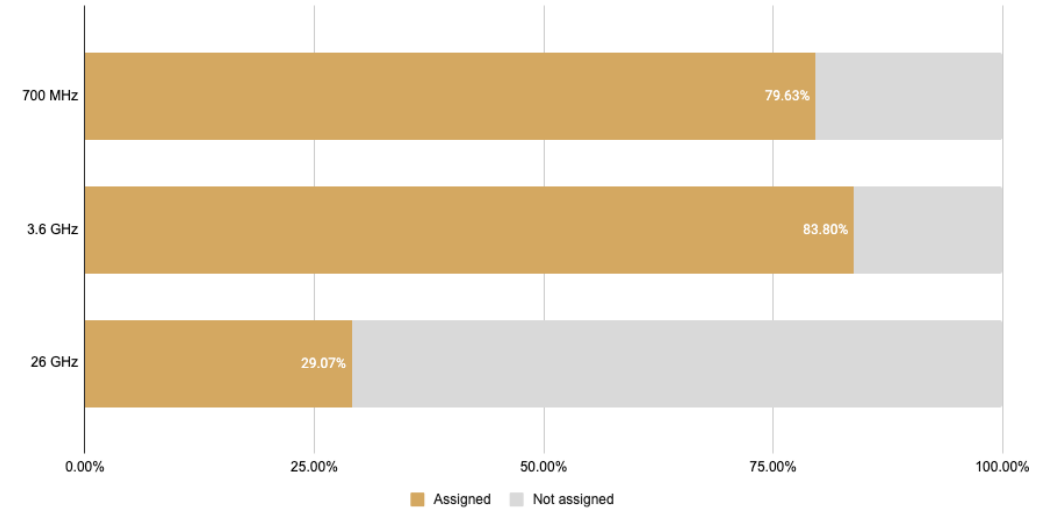
256,074 5G base stations total in EU27

5G base stations as a percentage of existing 4G base stations²

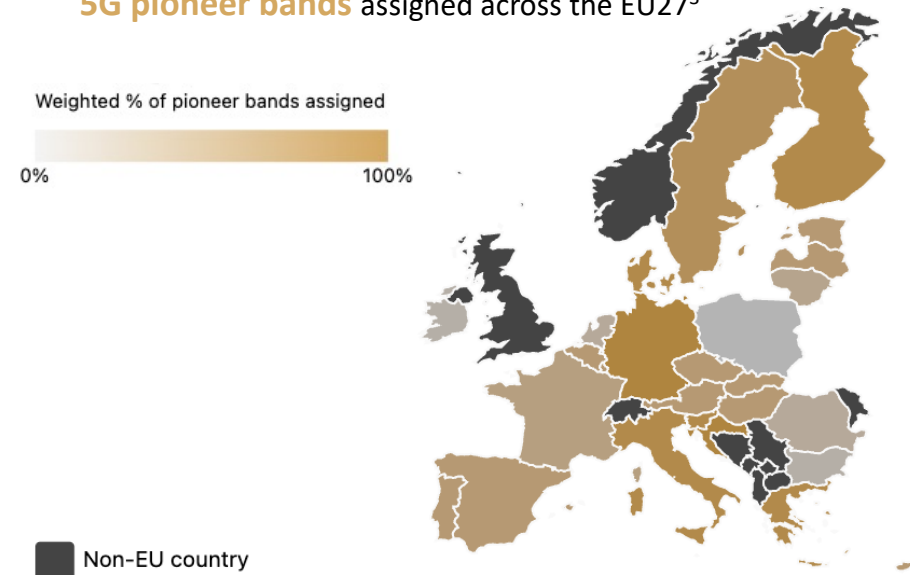


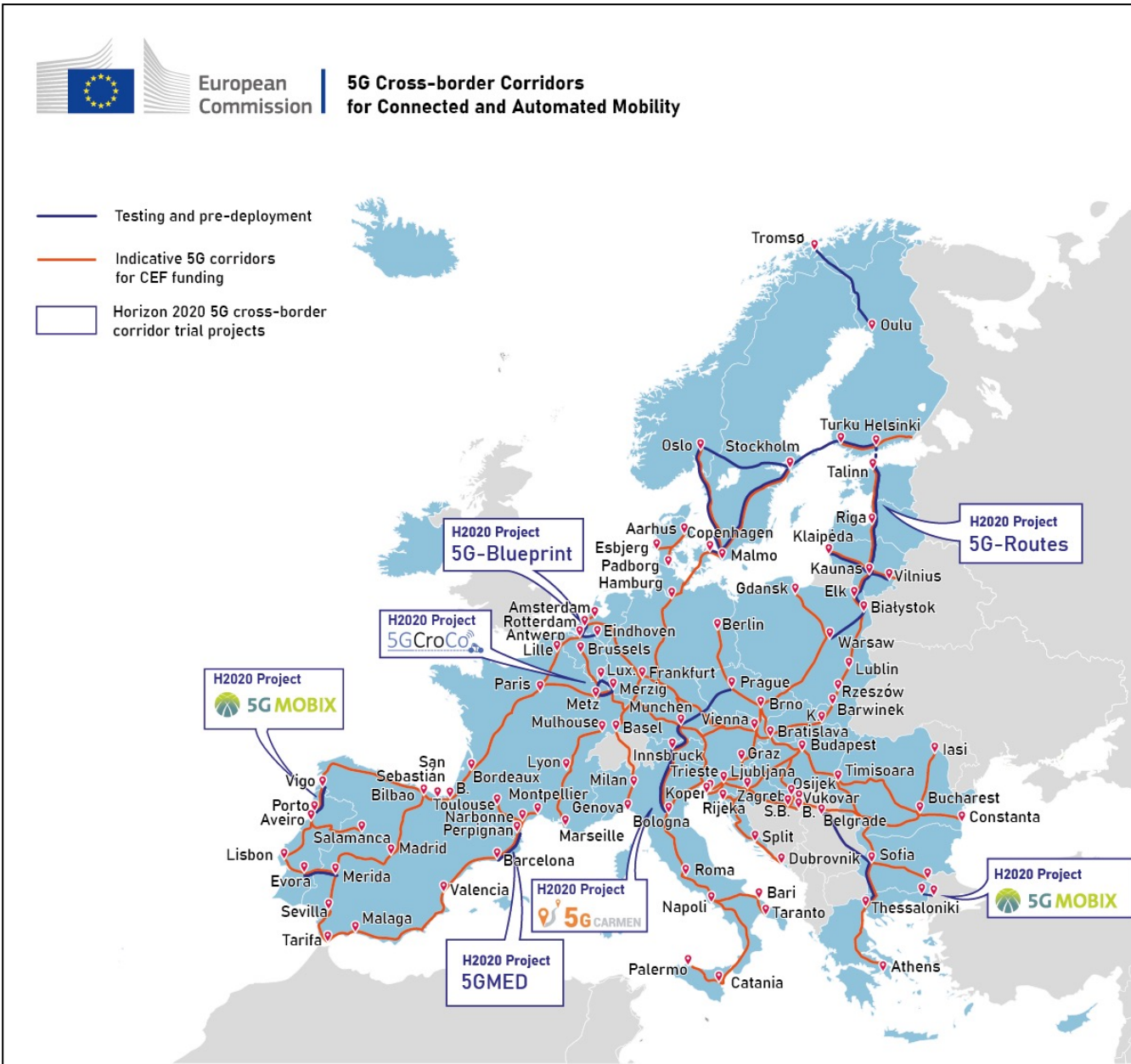
5G spectrum assignments

64% of pioneer bands assigned on average in EU27 (Each pioneer band is weighed 1/3rd)³



5G pioneer bands assigned across the EU27³










12 5G cross border corridors

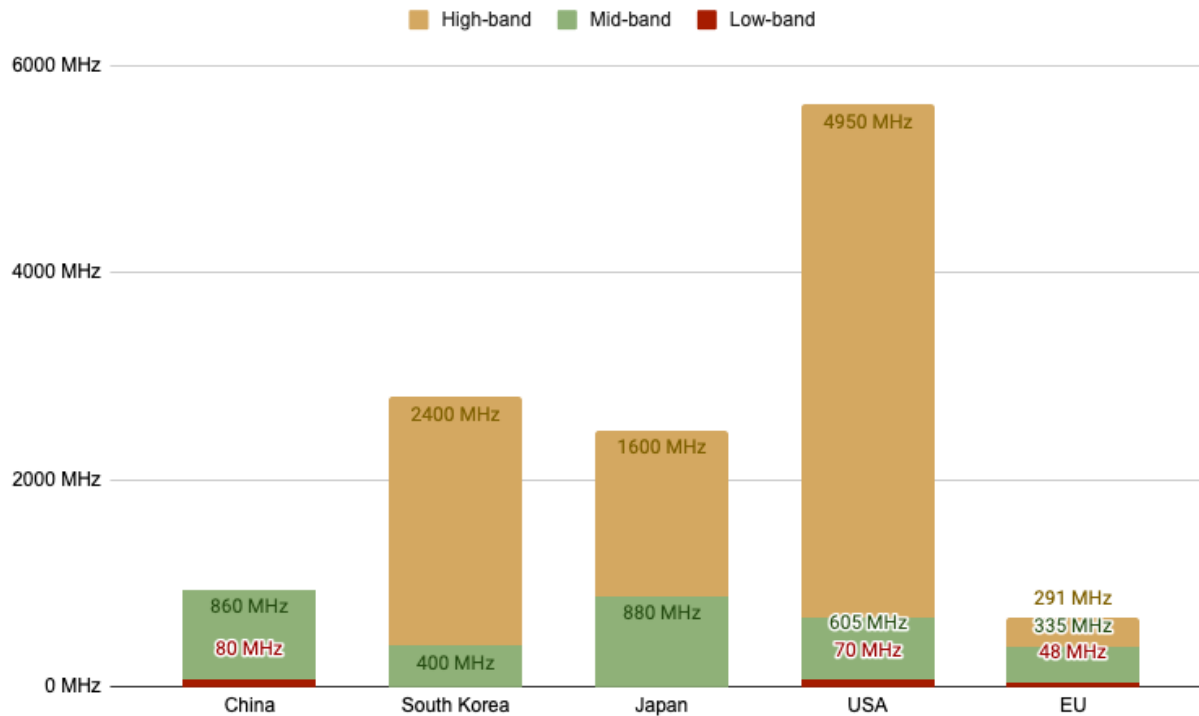
Comparison of 5G rollout in international markets⁴

5G rollout

	China	South Korea	Japan	USA	EU
					
5G Mode	NSA/SA	NSA/SA	NSA/SA	NSA	NSA/SA
Approximate number of 5G base stations	1,850,000	215,000	50,000	100,000	256,074
Total country population	1,402,000,000	51,780,000	125,800,000	329,500,000	447,706,000
5G base stations per 100,000 inhabitants	132	415	40	30	57
Indicative 5G subscribers	357 million (source: Ericsson 2022)	25 million (source: Ministry of Science and ICT)	14.19 million (source: Japan times)	79 million (including Canada; source: Ericsson 2022)	31 million (including all of western Europe; source: Ericsson 2022)

5G spectrum

Assigned 5G spectrum in international markets (EU data represents average spectrum assigned)⁵



Assigned 5G spectrum bands in international markets⁵

Country	Low-band (<1 GHz)	Mid-band (1 - 6 GHz)	High-band (>6 GHz)
China	700 MHz 900 MHz	2.6 GHz 3.6 GHz 4.9 GHz	-
South Korea	-	3.6 GHz	28 GHz
Japan	-	3.6 GHz 3.7 GHz 4 GHz 4.5 GHz	28 GHz
USA	600 MHz	2.5 GHz 3.45 - 3.55GHz 3.5 - 3.7 GHz 3.7 - 3.98 GHz	24 GHz 28 GHz 39 GHz 47 GHz
EU	700 MHz	3.6 GHz	26 GHz

EU Scoreboard

5G coverage map

1 - Overall coverage is a general indicator that does not presume any particular quality of service. All 5G coverage is included, including that using DSS. Location covered by at least one operator.

5G base stations as a percentage of existing 4G base stations

2 - For some EU countries, only the total number of 5G base stations is known. This means the true total number of base stations in the EU in 700 MHz, 3.6 GHz or DSS bands may be higher. Excludes Italy, Estonia and Sweden as there was no base station data available. Additionally, some countries use bands that are not included in this chart and do not operate using a DSS configuration.

Source: Data on population coverage, base stations and spectrum assignments is from the DESI index. This data is supplemented with data independently collected by the Observatory

5G spectrum assignments

3 – To achieve a 100% target, Member States must assign 60 MHz in the 700 MHz band; 400 MHz in the 3.6 GHz band as well as 1000 MHz in the 26 GHz band.

Source: Spectrum assignment data is based on the results of a European Commission survey of all 27 EU countries.

International 5G rollout

4 - There may be discrepancies between the reported figures, as the method for calculating the number of base stations is not standardized between regions

Source: Data on subscriber numbers and base stations was collected from various sources including regulator announcements.

International 5G spectrum

5 - USA data shows all spectrum made available to mobile operators by the FCC. Not all of this spectrum will have been sold to operators so the final amount of spectrum assigned to operators may be slightly lower. For the EU, the data on spectrum assigned has been averaged across all EU27. Some individual countries may have more spectrum assigned for 5G, while some may have less or none.

Source: Data on international spectrum assignments is sourced from the Policy Tracker database, the DESI index as well as FCC data.