Press release

5G

Allocation of 3.4 – 3.8 GHz band frequencies: Arcep transmits its proposed allocation procedure and candidate obligations to the Government

Paris, 21 November 2019

Today, Arcep is publishing its Decision on the procedure and conditions for awarding licences to use frequencies in the 3.4 – 3.8 GHz band in Metropolitan France, and submitting it to the Government. The 3.4 – 3.8 GHz band is the core band for 5G whose deployment promises to make French businesses more competitive and drive innovation, in addition to satisfying users' expectation of having access to increasingly powerful mobile services.

On 15 July 2019, Arcep had published a draft version of this decision for public consultation, which ran until 4 September. Following this consultation – which elicited invaluable contributions that are also being published today – Arcep has confirmed the main tenets of its initial proposal, while also making several adjustments.

The specifications, which confirm the planned terms of the procedure submitted for consultation, include a first allocation phase that enables a maximum of four candidates to obtain a block of spectrum in exchange for a set of optional commitments. The public consultation queried stakeholders on the size of that block. In light of the responses, Arcep proposed making it a block of 60 MHz – to be able to meet all of the directions that the Government set out in the letter of 2 May 2019 from Jacqueline Gourault, France's Minister for Territorial Cohesion and Relations with Local Authorities, and Agnès Pannier-Runacher, Secretary of State to the Minister for Economy and Finance. The Government preferred to set the size of the block at 50 MHz to achieve its objectives. Arcep has taken note of this, and is submitting a procedure to the Government accordingly.

It is now up to the Government to set the financial conditions for the call for applications, particularly the reserve price(s), then to launch the frequency allocation procedure. The Authority will be extremely vigilant regarding this reserve price, which must be submitted to Arcep for an opinion. Here, a distinction must be made between the reserve price and the band's estimated value.

Arcep is ready to conduct the frequency allocation procedure, so that the first commercially available 5G services can be launched in 2020.

Obligations that apply to all operators

The specifications that Arcep has submitted contain a set of obligations that apply to all of the allocation procedure's winning applicants:

- **5G deployment in the 3.4 – 3.8 GHz band.** The specifications stipulate that each operator must launch 5G services in at least two cities before the end of 2020, then imposes a demanding trajectory to support the deployment of 3.4 – 3.8 GHz band equipment during the following years:

  - 3,000 sites in 2022,
  - 8,000 sites in 2024,
  - 10,500 sites in 2025.

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Eventually, all of the cell sites must be providing a 5G service using frequencies in the 3.4 – 3.8 GHz band or other bands.

Arcep is also planning to introduce a concomitance mechanism to ensure that non-urban areas will also benefit from these rollouts. As a result, 25% of 3.4-3.8 GHz band sites in the last two stages must be located in sparsely populated areas, targeting economic activity, notably manufacturing, excluding major metropolitan areas.

- **Increasingly ubiquitous 5G punctuated by steadily increasing speeds.** To set the pace for this rollout, Arcep also plans on keeping pace with growing bandwidth needs. By 2022, at least 75% of cell sites must be capable of providing speeds of at least 240 Mbit/s at each site. This obligation will be gradually applied to all cell cites, up to 2030.

- **Roadway coverage.** Obligations that apply specifically to transport corridors have two main milestones: coverage of the country's motorways (16,642 km) by 2025 then, by 2027, coverage of the main roadways (54,913 km). These obligations stipulate connection speeds of a minimum 100 Mbit/s at each cell site.

- **Slicing.** The new level of performance provided by 5G opens the way for innovative uses in a number of vertical industries, such as manufacturing (high-precision production, logistical tracking of a very large number of objects, proliferation of sensors), health (real time remote operations), automotive (ultra-reliable low latency communications for vehicles) and media (360° virtual reality in 3D). These verticals are expecting customised networks and products, that meet their specific needs. To make this happen, Arcep is asking operators to activate the most innovative 5G functions – i.e. slicing, or the ability to deliver tiered services – by 2023 at the latest.

- **IPv6-compatibility.** Furthermore, to accelerate the transition to the IPv6 routing protocol, Arcep has planned for an obligation to make mobile networks IPv6-compatible.

Optional commitments

The specifications contain a set of optional commitments. A maximum four candidates that have each made all of the following commitments will be able to obtain blocks of 50 MHz of spectrum:

- **5G to foster competitiveness in other sectors of the French economy:** To lay the groundwork for enterprises' future connectivity, Arcep has established an unprecedented mechanism that would have operators commit to granting reasonable requests from economic actors (business, local authorities, administrations…) by providing them with customised solutions in terms of coverage and performance or, if the operator prefers, by assigning its frequencies locally.

- **Indoor coverage:** Arcep has also provided for commitments that seek to improve indoor coverage for business and commercial purposes, and to facilitate coverage by multiple operators.

- **Fixed access products:** Commitments also concern the supply of dedicated fixed access products on mobile networks.

- **Greater transparency:** The commitments include increasing operators' transparency, both on their rollout forecasts and service outages.

- **Bolster innovation and competition:** Lastly, commitments are proposed to improve MVNO hosting on operators' 5G networks, in particular to stimulate innovation from all the sector's players.

Licence duration and rendez-vous clause

The frequencies will be allocated for a period of 15 years. This duration will be extended by five years if the licence-holder agrees to the conditions attached to this extension.

In addition, two interim reviews are scheduled for 2023 and before 2028 to verify operators' implementation of their obligations, along with market requirements, notably in the areas of mobile network coverage and quality of service. Obligations could be revised based on the findings of these reviews, after having reached an agreement with the licence-holder.

Associated documents

- Decision on the procedure and conditions for awarding licences to use frequencies in the 3.4 – 3.8 GHz band,
- Responses to the public consultation published in July 2019 on the draft procedure for awarding licences to use frequencies in the 3.4 – 3.8 GHz band in Metropolitan France.

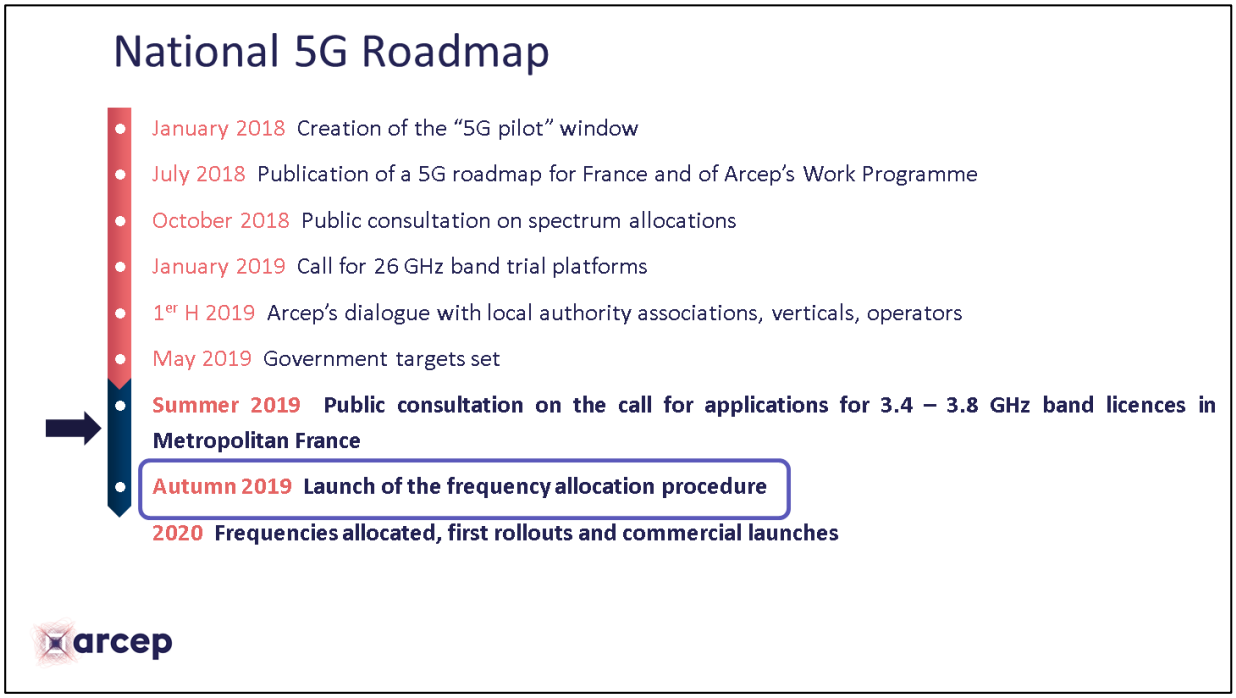
PRESS KIT

Procedure and conditions for the allocation of "core" 5G (3.4 – 3.8 GHz band) frequencies

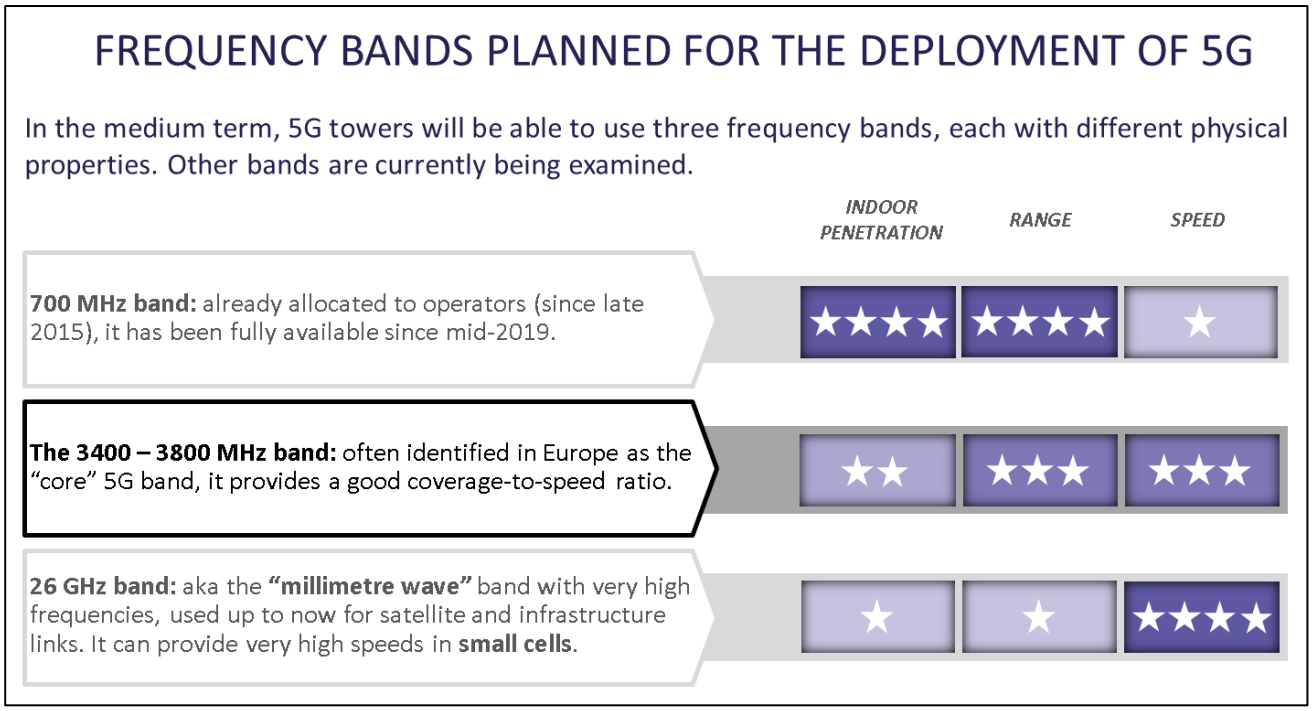
On 21 November 2019, Arcep published its Decision on the procedure and conditions for awarding licences to use frequencies in the 3.4 – 3.8 GHz band, in Metropolitan France, and transmitted it to the Government. **This Press Kit is an update of the one published on 15 July 2019.**

1. The 3.4 – 3.8 GHz band: the "core" 5G band in Europe

In 2016 the European Commission launched an action plan that was designed to set a common timetable across Europe for the coordinated commercial launch of 5G in 2020. In 2017, the European Union's Estonian President proposed a 5G roadmap, which was co-signed by each Member State's minister for electronic communications. The roadmap's targets include 5G coverage of at least one major city in each Member State in 2020, and of all the main urban areas and transport corridors by 2025. In France, the Government, in concert with Arcep, presented the national roadmap for 5G on 16 July 2018. Arcep unveiled its 5G battle plan at the same time. Below is a list of the most recent stages in that work programme:



Several bands were identified in a coordinated fashion in Europe for future 5G rollouts. The Arcep specifications being submitted today to the Government concerns 3.4 – 3.8 GHz band frequency allocations – identified in Europe as the "core" 5G band. Thanks to a combination of its physical properties and the amount of spectrum available, this band provides a good trade-off between coverage and speed. Use of this core band will be completed by other bands of varying properties, each of which will help unleash the full potential of 5G. These include the 700 MHz band, which was already allocated to operators in France in 2015, and the 26 GHz band which will be allocated at a later date.



Work is still underway in Europe on setting all of the technical conditions for the 26 GHz band. Without waiting for that to be complete, in January 2019 Arcep and the Government issued a call for the creation of 5G trial platforms. Their aim was to galvanise stakeholders around the possibilities opened up by this

frequency band, and to identify new uses it will enable. Eleven trial platforms have already been chosen, and were unveiled in October 2019.

The European Electronic Communications Code, which was adopted in late 2018, stipulates a coordinated timetable so that the core frequency bands are allocated in every Member State by the end of 2020. Other European countries have thus performed these allocations, in varying quantities. France is preparing to allocate a significant amount of spectrum: 310 MHz in the 3.4 – 3.8 GHz band.

2. Allocation procedure objectives

In the letter it sent to Arcep on 2 May 2019, the Government detailed the objectives for the regulator to pursue when drafting its specifications for 3.4 – 3.8 GHz band allocations:

- **regional development**: in addition to offloading mobile networks in the most densely populated parts of the country, the development of 5G services must benefit every region;
- **competition**: the procedure must allow at least four operators to be capable of providing 5G services under good conditions, while also having the ability to distinguish themselves from the competition;
- **innovation and services for "vertical" sectors**: no frequency will be reserved for vertical sectors, per se, but one objective is to provide them with services that take their particular needs into consideration, regardless of their location;
- **revenue**: the procedure will include a financial criterion, with a reserve price set by the Government.

3. Planned allocation procedure

The allocation procedure has been established for **310 MHz of frequencies,** covering Metropolitan France.. This will help determine the winners, the amount of spectrum awarded to each and their precise position on the band. **All of the winners will be subject to obligations (see Part 4).**

This will be a mixed allocation mechanism that is not based solely on financial bids. The procedure will include a first part whereby up to four operators will be able to obtain additional blocks of spectrum in exchange for additional commitments, before the auctions carried out in the second part allow them to obtain additional frequencies.

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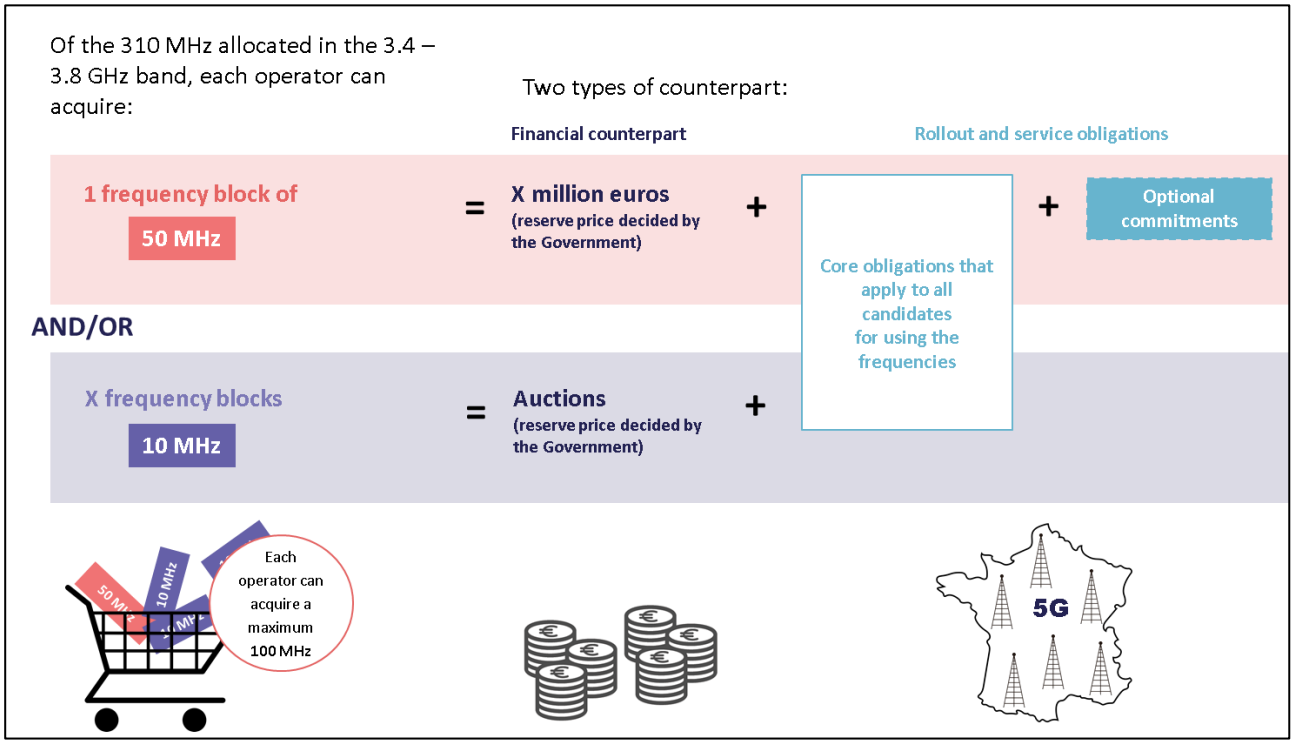

3.1 First part: Optional commitments in exchange for blocks of frequency

Arcep is giving applicants the option of making a series of commitments when submitting their application. If they do make these commitments, they will be written into the obligations attached the frequency licences that are awarded to the winning candidates, and come to supplement the minimum obligations that will apply to all of the winners. The commitments and obligations are described in Part 4.

If four or fewer candidates agree to make these commitments when filing their application, each will be able to obtain **a block of 50 MHz of spectrum at a set price.** If their number is equal to or over five, the applicants will bid for the four blocks in a separate auction.

3.2 Second part: Auction enabling each operator to acquire additional frequencies

The auction is then held to allocate the frequencies that are still available after the first round of commitment-based spectrum awards. The qualified applicants, regardless of whether or not they obtain a block in the previous phase, will thus have the possibility of acquiring additional frequencies, **divided by 10 MHz block. The initial price set for the first block of 10 MHz is determined by the reserve price set by the Government,** after which Arcep will conduct this multi-round auction as follows.

During each round, Arcep indicates the price of one 10 MHz block. Each applicant then indicates the number of blocks they want at that price. As long as the number of blocks requested by the operators is greater than the number of available blocks, Arcep will hold a new round and increase the unit price of each 10 MHz block, by previously established increments. The auction ends when operators' demand matches the number of blocks available. All of the 10 MHz blocks will then be allocated at the final price bid. In a situation where the number of available blocks exceeds operators' demand, a mechanism is in place for deciding between the last applicants to have withdrawn from the bidding.

Once the amount of spectrum allocated to each winner is known, there are multiple combinations for positioning them on the band. A new (single-round, second highest bid) auction will be held to determine

each of the winners' positions. They will thus have an opportunity to express their preferences on position on the band, and their position with respect to the other winners.

LESSONS LEARNED FROM OTHER ALLOCATIONS

Arcep has already held auctions for allocating new frequencies, notably in the 800 MHz and 2.6 GHz bands (sealed bid auction in 2011) and in the 700 MHz band (multi-round auction in 2015). The mechanism being proposed today takes a combined approach: the procedure will begin with a commitment stage that allows applicants to obtain a first quantity of spectrum, before the multi-round auction is held, which provides applicants with a clear view of the amount of spectrum they can obtain, at each round.

Arcep's teams invited their fellow European telecoms regulators to provide feedback on France's planned allocation procedure for 3.5 GHz band frequencies, in an unprecedented peer review process that was held on 5 September 2019.

3.3 Capping the amount of spectrum available per applicant

Arcep plans to set a cap on the total amount of spectrum any one applicant can obtain (during both phases of the procedure):

- A minimum **of 40 MHz;**
- A maximum **of 100 MHz.**

4. Obligations and commitments

4.1 Obligations that apply to all operators

The specifications being submitted by Arcep include a set obligations that apply to all of the successful candidates:

- **5G deployment in the 3.4 – 3.8 GHz band**

  The specifications stipulate that each operator must launch 5G services in at least two cities before the end of 2020, then imposes a demanding trajectory to support the deployment of 3.4 – 3.8 GHz band equipment during the following years:

  - 3,000 sites in 2022,
  - 8,000 sites in 2024,
  - 10,500 sites in 2025.

  Eventually, all of the cell sites must be providing a 5G service using frequencies in the 3.4 – 3.8 GHz band or other bands.

  Arcep is also planning to introduce a concomitance mechanism to ensure that non-urban areas will also benefit from these rollouts. As a result, 25% of 3.4-3.8 GHz band sites in the last two stages must be located in sparsely populated areas, targeting economic activity, notably manufacturing, excluding major metropolitan areas.[1]

[1] This area includes all of the municipalities that are part of priority rollout areas defined by Arcep Decision No. 2015-0825 and existing "Territories of Industry" municipalities, located outside urban areas with a population of more than 50,000 people.

- **Increasingly ubiquitous 5G punctuated by steadily increasing speeds**

  To set the pace for this rollout, Arcep also plans on keeping pace with growing bandwidth needs. By 2022, at least 75% of cell sites must be capable of providing speeds of at least 240 Mbit/s at each site. This obligation will be gradually applied to all cell cites, up to 2030.

- **Roadway coverage**

  Obligations that apply specifically to transport corridors have two main milestones: coverage of the country's motorways (16,642 km) by 2025 then, by 2027, coverage of the main roadways (54,913 km). These obligations stipulate connection speeds of a minimum 100 Mbit/s at each cell site.

- **Slicing**

  The new level of performance provided by 5G opens the way for innovative uses in a number of vertical industries, such as manufacturing (high-precision production, logistical tracking of a very large number of objects, proliferation of sensors), health (real time remote operations), automotive (ultra-reliable low latency communications for vehicles) and media (360° virtual reality in 3D). These verticals are expecting customised networks and products, that meet their specific needs. To make this happen, Arcep is asking operators to activate the most innovative 5G functions – i.e. slicing, or the ability to deliver tiered services – by 2023 at the latest.

- **IPv6-compatibility**

  Furthermore, to accelerate the transition to the IPv6 routing protocol, Arcep has planned for an obligation to make mobile networks IPv6-compatible.

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Arcep at a glance

The Regulatory Authority for Electronic Communications, Postal Affairs and Print Media Distribution (Arcep), a neutral and expert arbitrator with the status of independent administrative authority (IAA), is the architect and guardian of internet, fixed and mobile telecoms and postal networks in France

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